

APPENDIX B-3A

RFP # 2025-12

BEACON ISLAND PHASE 3
Packaged Wastewater Treatment Plant
and
Fire Pump House and Marine Inlet

REFERENCE DOCUMENTS (1 of 5)

Reference Documents

Beacon Island Phase 3 Program

- NYSDEC Article 11 and 15 Permits. Dated 11/10/22 - Page 1
- State Pollutant Discharge Elimination System (SPDES) Permit. Dated 10/1/23 - Page 21
- Stormwater Pollution Protection Plan (SWPPP). Dated 6/20/22 - Page 59
- Soil Management Plan. Dated 10/23/22 - Page 564
- Landfill Closure Certification Report. Dated 10/21/24 - Page 634
- Geotechnical Engineering Report. Dated 2/2/2023 - Page 659
- Army Corps of Engineers Permit. Date 4/10/23 - Page 779
- Community Air Monitoring Plan (CAMP). Dated 10/23/22 – Page 806

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Permits

625 Broadway, 4th Floor, Albany, New York 12233-1750

P: (518) 402-9167 | F: (518) 402-9168 | deppermitting@dec.ny.gov

www.dec.ny.gov

November 10, 2022

VIA EMAIL

Richard Hendrick
Albany Port District Commission
106 Smith Boulevard
Albany, NY 12202
rhendrick@portofalbany.us

RE: **NYSDEC Article 11 and Article 15 Permits**
Port of Albany Expansion Project
Marmen-Welcon Tower Manufacturing Plant
Beacon Island Parcel, Bethlehem NY, Albany County
DEC # 4-0122-00322

Dear Mr. Hendrick:

Enclosed is the Excavation and Fill in Navigable Waters Permit (ECL Article 15; 6 NYCRR Part 608) and Incidental Take Permit (ECL Article 11 and 6 NYCRR Part 182) for the Port of Albany Expansion Project. These permits are effective November 10, 2022 and will expire November 9, 2032. These permits are valid only for the Authorized Activities expressly authorized therein. Work beyond the scope of this permit and the approved documents is a violation of the law and may be subject to appropriate enforcement action.

A Compliance Checklist is enclosed for tracking the necessary notifications and plan/document submissions required by the permit conditions. Additionally enclosed is the required Implementation Agreement which was prepared pursuant to 6 NYCRR Part 182 for the take of habitat that is essential to the state and federally endangered Shortnose and Atlantic Sturgeon.

Be advised, the Uniform Procedures Regulations (6 NYCRR Part 621), provide that an applicant may request a hearing if a permit contains conditions which are unacceptable to them. Any such request must be made in writing within 30 calendar days of the date of this transmittal and must be addressed to the Chief Permit Administrator at the letterhead address. A copy should also be sent to the Chief Administrative Law Judge at the New York State Department of Environmental Conservation, 625 Broadway, 1st Floor, Albany, NY 12233-1550.

Please feel free to contact me at karen.gaidasz@dec.ny.gov if you have any questions about your obligations under these permits.

Sincerely,

A handwritten signature in black ink that reads "Karen M. Gaidasz". The signature is fluid and cursive, with the first name "Karen" being more prominent.

Karen M. Gaidasz, Chief
Offshore Wind & Hydroelectric Section
Energy Project Management Bureau

Enclosures: NYSDEC Article 11 and 15 Permits
Compliance Checklist
Part 182 Implementation Agreement

ecc: McFarland-Johnson, Inc. – Steve Boisvert
USACE – Andrew Dangler (NAN-2021-00948-UDA)
DOS – David Newman (F-2021-0757)
OGS – Tom Laliberte
DEC Review Team



PERMIT
Under the Environmental Conservation Law (ECL)

Permittee and Facility Information

Permit Issued To:

ALBANY PORT DISTRICT COMMISSION
PORT OF ALBANY
106 SMITH BLVD
ALBANY, NY 12202
(518) 463-8763

Facility:

BEACON ISLAND
Beacon Island
Bethlehem, NY

Facility Location: in BETHLEHEM in ALBANY COUNTY **Village:** Town of Bethlehem

Facility Principal Reference Point: NYTM-E: 601.36 NYTM-N: 4717.582

Latitude: 42°36'14.4" Longitude: 73°45'51.7"

Project Location: 81.6-acre Beacon Island site located at Hudson River Mile 142

Authorized Activity:

Excavation and fill below mean high water (MHW) including construction of a 500-foot-long by 93-foot-wide wharf and associated dredging; and a new 3-span bridge over the Normans Kill.

Approximately 75,100 cubic yards (CY) of sediment will be dredged from the Hudson River to a depth of 32 feet below the plane of mean low water (MLW), with approximately two (2) feet of allowable over-dredge, to 34 feet MLW. The area of dredging in the Hudson River will be approximately 2.72 acres (114,127 SF).

The dredging and wharf construction will result in the permanent loss of 0.76 acre of essential sturgeon habitat through habitat conversion and 0.21 acre of submerged aquatic vegetation. Additionally, there will be a temporary disturbance of 1.96 acres of essential sturgeon habitat from the dredging of previously unimpacted river bottom. This habitat impact will be offset through completion of the Net Conservation Benefit Project (NCBP) which will satisfy the requirements of ECL § 11-0535 and 6 NYCRR Part 182. The NCBP will create 1.0 acres of benthic habitat at Schodack Island State Park by converting habitat that is currently upland into habitat that can be used by sturgeon.

Permit Authorizations

Excavation & Fill in Navigable Waters - Under Article 15, Title 5

Permit ID 4-0122-00322/00002

New Permit

Effective Date: 11/10/2022

Expiration Date: 11/9/2032

Endangered/Threatened Species (Incidental Take) - Under Article 11

Permit ID 4-0122-00322/00005

New Permit

Effective Date: 11/10/2022

Expiration Date: 11/9/2032



NYSDEC Approval

By acceptance of this permit, the permittee agrees that the permit is contingent upon strict compliance with the ECL, all applicable regulations, and all conditions included as part of this permit.

Permit Administrator: KAREN M GAIDASZ, Deputy Chief Permit Administrator
Address: NYSDEC Headquarters
625 Broadway
Albany, NY 12233

Authorized Signature: _____

Date 11 / 10 / 2022

Permit Components

NATURAL RESOURCE PERMIT CONDITIONS

GENERAL CONDITIONS, APPLY TO ALL AUTHORIZED PERMITS

NOTIFICATION OF OTHER PERMITTEE OBLIGATIONS

**NATURAL RESOURCE PERMIT CONDITIONS - Apply to the Following
Permits: EXCAVATION & FILL IN NAVIGABLE WATERS;
ENDANGERED/THREATENED SPECIES (INCIDENTAL TAKE)**

GENERAL REQUIREMENTS

1. Conformance With Plans All activities authorized by this permit must be in strict conformance with the approved plans submitted by the applicant or applicant's agent as part of the permit application. Such approved plans were prepared by McFarland-Johnson, Inc., as further described in Condition #2, Approved Plans.

2. Approved Plans "Port of Albany Expansion Project - Joint Permit Application" package, submitted by the Albany Port District Commission, prepared by McFarland-Johnson, Inc., originally received on August 06, 2021, with subsequent revisions as listed below:

- Joint Permit Application Package (last revised May 12, 2022)
- Joint Permit Application Forms
- Appendix 1: Permit Sketches (Project Drawings) (last revised May 2022)
- Appendix 2: Interagency Pre-Application Meetings Documentation
- Appendix 3: Agency Correspondence
- Appendix 4: Rare Plant Species Investigation (June 11, 2019)
- Appendix 5: Supplemental Rare Plant Species Investigation (May 19, 2021)
- Appendix 6: Wetland Delineation Report (May 2019)



- Appendix 7: Supplemental Wetland Delineation Report (May 2021)
- Appendix 8: Submerged Aquatic Vegetation Survey (July 2020)
- Appendix 9: Freshwater Mussels Survey (July 2, 2020)
- Appendix 10: Soil Management Plan (last revised October 20, 2022)
- Appendix 11: Environmental Subsurface Investigation and Soil Sampling Report (October 22, 2020)
- Appendix 12 - Sediment Sampling and Analysis Report (September 24, 2020)
- Appendix 13 - Vegetation Management Plan for Vegetated Buffer at the Marmen-Welcon Offshore Wind Tower Manufacturing Plant (May 12, 2022)
- Appendix 14 - Port of Albany Marmen-Welcon Manufacturing Facility: 309 River Road Fire Flow (February 23, 2022)

“6 CRR-NY Part 182 Incidental Take Permit Application” package, submitted by the Albany Port District Commission, prepared by McFarland-Johnson, Inc., originally received on November 11, 2021, with subsequent revisions as listed below:

- 6 CRR-NY Part 182 Incidental Take Permit Application Package, last revised December 12, 2021
- Appendix 1: Permit Sketches (Project Drawings) (last revised December 12, 2021)
- Appendix 2: Submerged Aquatic Vegetation Survey (July 2020)
- Appendix 3: Freshwater Mussels Survey (July 2, 2020)
- Appendix 4: Sediment Sampling and Analysis Report (September 24, 2020)

3. Approved Plans Discrepancies If there is a discrepancy in the Approved Plans, the most recent document or plan takes precedence. If there is a discrepancy between the Approved Plans and any permit condition, the permit conditions take precedence.

4. Revised, Modified, or New Plans The Permittee must notify NYSDEC of material alterations to any Authorized Activity at least two weeks prior to starting that Activity. NYSDEC reserves the right to modify permit conditions upon review of revised, modified, or new plans.

5. Excavation and Fill Activities Excavation and fill below MHW includes construction of a 500-foot-long by 93-foot-wide wharf and associated dredging; and a new 3-span bridge over the Normans Kill. Final dredge volumes and areas were included in correspondence from McFarland-Johnson on October 31, 2022. Approximately 75,100 cubic yards (CY) of sediment will be dredged from the Hudson River to a depth of 32 feet below the plane of mean low water (MLW), with approximately two (2) feet of allowable over-dredge, to 34 feet MLW, within an approximately 2.72 acres (114,127 SF) area in the Hudson River.

6. Normans Kill Bridge Work Plan The installation of the new 3-span bridge across the Normans Kill will involve work below the MHW elevation, including the installation of temporary construction access and removal of remnant structures and material from the old railroad bridge. The removal of remnant structures and the installation of new structures shall be with vibratory or rotary methods only, no pile driving is authorized. Nets, tarps, and/or pans during construction of the bridge deck shall be implemented to prevent debris falling into the water. Remnant material from the previous railroad bridge shall be removed to at least 2 feet below the bed of the Normans Kill. The Permittee shall submit a detailed work plan for the Normans Kill bridge work to NYSDEC by February 1, 2023, for review and approval. The Normans Kill Bridge Work Plan must include finalized design plans and methods; procedures for removal of remnant materials and piers; construction access means and methods; and a dewatering plan.



7. Stormwater SPDES The Permittee must fully comply with the State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity (GP-0-20-001).

8. Groundwater Monitoring Wells The Permittee shall prepare a Groundwater Monitoring Well Plan which specifies the installation of multiple groundwater wells along the banks of the Hudson River to monitor for potential contaminant migration resulting from construction activities over the coal ash landfill. The Plan shall outline the number of wells, location of wells and contaminants of concern. The wells shall be installed prior to soil surcharging activities so that baseline conditions can be established. Once soil surcharging commences, groundwater monitoring shall be conducted monthly until construction activities are completed. Monitoring shall continue post-construction every six (6) months until NYSDEC determines it can be discontinued based on review of sampling results. The Groundwater Monitoring Well Plan shall be submitted to NYSDEC by November 30, 2022, for review and approval.

9. State Not Liable for Damage The State of New York shall in no case be liable for any damage or injury to the structure or work herein authorized which may be caused by or result from future operations undertaken by the State for the conservation or improvement of navigation, or for other purposes, and no claim or right to compensation shall accrue from any such damage.

10. State May Require Site Restoration If upon the expiration or revocation of this permit, the project hereby authorized has not been completed, the applicant shall, without expense to the State, and to such extent and in such time and manner as the Department of Environmental Conservation may lawfully require, remove all or any portion of the uncompleted structure or fill and restore the site to its former condition. No claim shall be made against the State of New York on account of any such removal or alteration.

11. State May Order Removal or Alteration of Work If future operations by the State of New York require an alteration in the position of the structure or work herein authorized, or if, in the opinion of the Department of Environmental Conservation it shall cause unreasonable obstruction to the free navigation of said waters or flood flows or endanger the health, safety or welfare of the people of the State, or cause loss or destruction of the natural resources of the State, the owner may be ordered by the Department to remove or alter the structural work, obstructions, or hazards caused thereby without expense to the State, and if, upon the expiration or revocation of this permit, the structure, fill, excavation, or other modification of the watercourse hereby authorized shall not be completed, the owners, shall, without expense to the State, and to such extent and in such time and manner as the Department of Environmental Conservation may require, remove all or any portion of the uncompleted structure or fill and restore to its former condition the navigable and flood capacity of the watercourse. No claim shall be made against the State of New York on account of any such removal or alteration.

NOTIFICATIONS AND POSTINGS

12. Notifications and Submissions All notifications and submissions required by this permit must be provided by email at: DEPEnergy@dec.ny.gov.

13. Notification of Commencement of Authorized Activities At least forty-eight (48) hours prior to commencement of any Authorized Activities, the Permittee must notify the NYSDEC.



14. Notification of Exceedance of Water Quality Standard In the event of exceedance of a water quality standard, NYSDEC must be notified immediately, with the Permittee taking all necessary steps to return to compliance, including but not limited to, the cessation of any non-compliant discharges.

15. Notification of Completion of Authorized Activities Within ten (10) days of the completion of the Authorized Activities, the Permittee must notify the NYSDEC.

16. Provide Project Status Reports Every Two Weeks During construction phases involving work authorized by this permit, the Permittee shall provide project status reports via email to DEPEnergy@dec.ny.gov. The Project Status Reports shall include a description of the work undertaken during the preceding two-week period; representative photographs; and summary of any non-compliance.

WATER QUALITY

17. Precautions Against Contamination of Waters All necessary precautions shall be taken to preclude contamination of any wetland or waterway by suspended solids, sediments, fuels, solvents, lubricants, epoxy coatings, paints, concrete, leachate or any other environmentally deleterious materials associated with the project.

18. Water Quality Standards Authorized Activities shall comply with Section 301, 302, 303, 306, and 307 of the Federal Water Pollution Control Act, as amended and as implemented by the limitations, standards, and criteria of state statutory and regulatory requirements set forth in 6 NYCRR Section 608.9(a). Authorized Activities, as conditioned, shall also comply with applicable New York State water quality standards, including but not limited to effluent limitations, best usages, and thermal discharge criteria, as applicable, as set forth in 6 NYCRR Parts 701, 702, 703, and 704.

19. No Leachate or Drilling Fluid Discharge There shall be no leachate or discharge of drilling fluid into the water column.

20. Isolate In-Water Work Areas All dredging must take place within the confines of a weighted full-depth Type II or III turbidity curtain. The turbidity curtain(s) must be in place prior to commencement of dredging activities and remain in place for at least 24 hours after dredging is completed. The Permittee must prevent both the discharge of sediment and a discharge that could cause a substantial visible contrast in ambient river water conditions outside the turbidity curtain(s). If a plume is observed outside the confines of the turbidity curtain, the turbidity curtain containment area must be examined for breaches. Any identified breaches in the curtain must be immediately repaired. Consultation with NYSDEC staff must commence immediately to determine whether additional best management practices for dredging should be implemented.

21. Visual Monitoring Outside Turbidity Curtain Containment Area(s) Visual monitoring for turbidity outside turbidity curtain containment area(s) must be conducted hourly during all in-water work. If a plume is observed to have migrated outside the turbidity curtain containment area, water column samples shall be collected to represent the entire depth of the water column within the plume and must be analyzed for TSS and PCBs. TSS must not exceed 100 ppm over ambient and PCBs must not exceed 0.2 ug/l per Aroclor in any plume identified emanating from the confines of the turbidity curtain.



22. Water Quality Monitoring Outside Turbidity Curtain Containment Area(s) Daily water column monitoring for PCBs shall be conducted just outside the confines of the turbidity curtain during dredging of areas with Class C concentrations of PCBs. Samples shall be collected downstream of the dredge area (based on the direction of flow) and represent the entire depth of the water column. If the results of the daily monitoring conclude that the concentration of PCBs exceeds the water quality standard (0.2 ug/l per Aroclor), then BMPs shall be implemented, such as slowing the rate of dredging. If the concentration (of PCBs) is consistently below the water quality standard, then water monitoring for PCBs outside the turbidity curtain containment area may be reduced to once per week. Any reduction in monitoring frequency must be approved in advance by NYSDEC staff.

CONSTRUCTION REQUIREMENTS

23. No Interference With Navigation There shall be no unreasonable interference with navigation by the work herein authorized.

24. Seasonal Time of Year Restriction for Sturgeon To minimize the risk for impacts to Atlantic and shortnose sturgeon, in-water work is only authorized from September 1 through December 31, or until river ice-in, whichever end date is earlier for any year in which this permit is in effect. In-water work is only authorized between the hours of 6 a.m. to 6 p.m.

25. Entangled, Injured, or Dead Protected Species If an entangled, injured, or dead protected species is encountered during the Authorized Activities, all work must immediately cease (allowing for retrieval of equipment, if necessary), and the Permittee must notify NYSDEC immediately. Protected species include species protected under the Marine Mammal Protection Act, and federal and state listed threatened and endangered species. Authorized Activities must not recommence until NYSDEC provides authorization to do so. A report including the following information must be prepared and provided to NYSDEC within 24 hours:

- a. species identification (if known) or description of the animal;
- b. time, date, and location (latitude/longitude) of the discovery;
- c. condition of the animal (discoveries of injured or dead animals);
- d. observed behaviors of the animal, if alive;
- e. name(s) and contact information of the person(s) involved with the discovery;
- f. weather conditions at the site for the previous forty-eight (48) hours;
- g. if available, photographs or video footage of the animal; and
- h. general circumstances under which the animal was discovered (discoveries of injured or dead animals).

26. Certified Laboratory All laboratory analyses required by this permit must be conducted by a laboratory certified by the New York State Department of Health (NYSDOH) Environmental Lab Approval Program (ELAP).

27. Send Analytical Results to NYSDEC All analytical results required by this permit must be sent to NYSDEC by email within forty-eight (48) hours of receipt of data results. Exceedances must be highlighted.



28. Provide Sediment Data in Electronic Digital Format All existing and future sediment data must be provided in an electronic digital format (EDD) file. Existing sediment data shall be provided in an EDD file to NYSDEC by December 15, 2022. Sediment data collected during the term of this permit shall be provided in an EDD file to NYSDEC within sixty (60) days of collecting the data.

29. Report Spills All spills must be reported through the NYSDEC Spills Hotline (1 800 457-7362) in accordance with the regulations.

30. Flocculant Use Requires NYSDEC Approval A flocculant may be added to enhance settling. If a flocculant is proposed to be used, the form "Water Treatment Chemical Usage Notification Requirements for SPDES Permittees" (WTC Form) must be submitted and approved by NYSDEC prior to its use. Additional information on submission and review of WTC Forms can be found at: <http://www.dec.ny.gov/permits/93245>.

31. Beneficial Use Determination Any material that is proposed for upland beneficial use within New York State must receive a NYSDEC Beneficial Use Determination (BUD).

DREDGING

32. Dredging Operations The following conditions apply to all dredging operations:

- a. A closed environmental (clamshell) bucket with sealing gaskets or an overlapping sealed design at the jaws with seals or flaps positioned at locations of vent openings must be used to minimize sediment re-suspension during dredging.
- b. Seals or flaps designed or installed at the jaws and locations of vent openings must tightly cover these openings while the bucket is lifted through the water column and into the barge.
- c. The closed environmental (clamshell) bucket dredge must be equipped with sensors to ensure complete closure of the bucket before lifting through the water.
- d. Dredged material must be placed in the barge in a controlled manner.
- e. Excessive loss of material from the bucket must be investigated and repaired.
- f. Bucket retrieval rates must be controlled to minimize turbidity.
- g. Dredged material must be transferred directly from the barge to the disposal/processing site.
- h. No barge overflow is authorized during dredging operations or transportation of dredge material to the disposal/processing site.
- i. Bucket decanting and loss of dredged material into the Hudson River during barge loading must be controlled to minimize turbidity.
- j. Wet dumping or sidecasting of the dredged material into the Hudson River or any associated waterbody is prohibited.
- k. Washing of the gunwales must be avoided except to the extent necessary to ensure the safety of workers.
- l. The use of a dragline for dredging is strictly prohibited.
- m. All side slopes of the dredge channel shall have a maximum of 1:3 slope.
- n. All dredging shall be conducted to leave a uniform bottom elevation free of mounds or holes.

33. Transporting Barges to be Inspected All sediment transporting barges must be inspected daily and certified by the Permittee as properly sealed. Only barges in good operating condition and appropriately designed to contain sediments are authorized. Loss of material during transport is prohibited.



34. Submit a Plan to NYSDEC for Barge Decanting Any proposed decanting of barges must be approved by NYSDEC prior to implementation. If decanting of barges is necessary, a detailed plan must be submitted to NYSDEC for review and approval at least thirty (30) days prior to commencing barge decanting.

35. Final Dewatering Plan Must be Approved by NYSDEC The final dewatering plan must be submitted to NYSDEC by December 15, 2022, for review and approval.

36. Monitor Overlying Water Prior to Discharge The Permittee shall monitor the overlying barge water for PCBs, TSS, and turbidity prior to discharge. If the overlying water meets the PCB, TSS, and turbidity limits in Table 1 in Condition 37, it can then be discharged back to the water column. If PCB, TSS, and turbidity limits are not met, then the permittee shall employ additional measures to achieve the limits prior to discharge.

37. Dewatering and Return Water Monitoring Requirements Transfer operations between barges must not cause discharges of sediment or turbid water causing a substantial visible contrast to receiving waters. Return water monitoring must commence upon discharge. Discharge limits and monitoring for return flow are in Table 1 below. The return water discharge must be configured so that water with the lowest possible turbidity is returned to the Hudson River.

Table 1: Return Water Discharge Limits, Monitoring and Reporting Requirements.

Parameter	Daily Maximum	Units	Sample Frequency	Sample Type	Method
Turbidity Visual Observation	No substantial visible contrast from receiving water		1 per hour while discharging	visual	
Turbidity (meter)	250	NTU	Report every 4 hours while discharging	in-situ	
Turbidity (laboratory)	250	NTU	Daily while discharging	grab	USEPA 180.1
Total Suspended Solids	100	mg/l	Daily while discharging	grab	Standard Methods 2540D
PCBs	0.2 per Aroclor	ug/l	Daily while discharging	grab	USEPA 608

38. Conduct Laboratory Analysis Within 24 to 48 Hours Laboratory analysis of the return flow from dewatering must be conducted within 24 to 48 hours of the initial discharge.

39. Operational Controls for Return Water Discharge Operational controls must be implemented if TSS, turbidity, PCB limits are not met in the return water. Additional engineering controls can include, but are not limited to, the following: controlling the flow rate, increasing the detention time, and/or use of chemical additives to accelerate solids settling.



40. Corrective Actions for Return Water Discharge Limit Exceedances If two consecutive monitoring results of the return water exceed the 100 mg/l suspended solids limit, the 250 NTU turbidity limit, the 0.2 ug/l per Aroclor PCB limit, or a visual plume is observed, the Permittee must take immediate corrective actions to restore the discharge to acceptable levels and report the exceedance and the corrective actions to the NYSDEC. If corrective actions do not bring the effluent into compliance within 48 hours, then the Permittee must cease discharge and present a plan to the NYSDEC for approval prior to resuming the discharge. During implementation of corrective actions, NYSDEC may specify additional monitoring until compliance with permit levels is demonstrated. Samples must be collected until there is no longer a discharge of effluent from the site or until NYSDEC approves resumption of routine monitoring. If implementation of the corrective action does not return discharge water quality to an acceptable level, discharge must cease until a solution acceptable to NYSDEC.

41. Post-Dredging Final Report Within thirty (30) days of completion of the dredging operation, the Permittee must submit a report to NYSDEC summarizing the results of dredging, water quality monitoring, and dredged material management operations. The report must include:

- a. Location and extent of dredging;
- b. Total amount of material dredged;
- c. Ultimate placement location of dredged material;
- d. Description of problems or difficulties encountered during dredging;
- e. Water quality monitoring results and corrective actions (when needed) taken; and
- f. Return flow discharge monitoring results and corrective actions (when needed) taken.

42. Maintenance Dredging The Permittee must submit a Maintenance Dredging Plan to NYSDEC for review and approval at least ninety (90) days prior to maintenance dredging being conducted.

MITIGATION

43. Implementation Agreement Funding Obligations The Permittee is responsible for complying with the Funding Obligations contained in Section 4.0 of the "Port of Albany Expansion Project Implementation Agreement Pursuant to 6 NYCRR 182" signed by NYSDEC, New York State Office of Parks, Recreation and Historic Preservation and APDC on June 6, 2022. The Implementation Agreement was developed to mitigate for the temporary and permanent loss of sturgeon habitat. The habitat impact will be offset through completion of the Net Conservation Benefit Project (NCBP) which will satisfy the requirements of ECL § 11-0535 and 6 NYCRR Part 182. The NCBP will create 1.0 acres of benthic habitat at Schodack Island State Park by converting habitat that is currently upland into habitat that can be used by sturgeon.

44. Hudson River Vegetated Buffer A vegetated buffer within three (3) deed restricted areas along the Hudson River, totaling 2.87 acres, as shown on the Proposed Deed Restricted Area Boundary Map prepared by Colliers Engineering & Design, dated May 2, 2022, shall be protected in perpetuity by Restrictive Covenants. The Restrictive Covenants shall be filed with the Albany County Clerk's Office within 60 days of receipt of permits from the U.S. Army Corps of Engineers (USACE), or by June 1, 2023, whichever is sooner.



GENERAL CONDITIONS - Apply to ALL Authorized Permits:

1. Facility Inspection by The Department The permitted site or facility, including relevant records, is subject to inspection at reasonable hours and intervals by an authorized representative of the Department of Environmental Conservation (the Department) to determine whether the permittee is complying with this permit and the ECL. Such representative may order the work suspended pursuant to ECL 71- 0301 and SAPA 401(3).

The permittee shall provide a person to accompany the Department's representative during an inspection to the permit area when requested by the Department.

A copy of this permit, including all referenced maps, drawings and special conditions, must be available for inspection by the Department at all times at the project site or facility. Failure to produce a copy of the permit upon request by a Department representative is a violation of this permit.

2. Relationship of this Permit to Other Department Orders and Determinations Unless expressly provided for by the Department, issuance of this permit does not modify, supersede or rescind any order or determination previously issued by the Department or any of the terms, conditions or requirements contained in such order or determination.

3. Applications For Permit Renewals, Modifications or Transfers The permittee must submit a separate written application to the Department for permit renewal, modification or transfer of this permit. Such application must include any forms or supplemental information the Department requires. Any renewal, modification or transfer granted by the Department must be in writing. Submission of applications for permit renewal, modification or transfer are to be submitted to:

Deputy Chief Permit Administrator
NYSDEC Headquarters
625 Broadway
Albany, NY12233

4. Submission of Renewal Application The permittee must submit a renewal application at least 30 days before permit expiration for the following permit authorizations: Excavation & Fill in Navigable Waters, Endangered/Threatened Species (Incidental Take).

5. Permit Modifications, Suspensions and Revocations by the Department The Department reserves the right to exercise all available authority to modify, suspend or revoke this permit. The grounds for modification, suspension or revocation include:

- a. materially false or inaccurate statements in the permit application or supporting papers;
- b. failure by the permittee to comply with any terms or conditions of the permit;
- c. exceeding the scope of the project as described in the permit application;



- d. newly discovered material information or a material change in environmental conditions, relevant technology or applicable law or regulations since the issuance of the existing permit;
- e. noncompliance with previously issued permit conditions, orders of the commissioner, any provisions of the Environmental Conservation Law or regulations of the Department related to the permitted activity.

6. Permit Transfer Permits are transferrable unless specifically prohibited by statute, regulation or another permit condition. Applications for permit transfer should be submitted prior to actual transfer of ownership.

NOTIFICATION OF OTHER PERMITTEE OBLIGATIONS

Item A: Permittee Accepts Legal Responsibility and Agrees to Indemnification

The permittee, excepting state or federal agencies, expressly agrees to indemnify and hold harmless the Department of Environmental Conservation of the State of New York, its representatives, employees, and agents ("DEC") for all claims, suits, actions, and damages, to the extent attributable to the permittee's acts or omissions in connection with the permittee's undertaking of activities in connection with, or operation and maintenance of, the facility or facilities authorized by the permit whether in compliance or not in compliance with the terms and conditions of the permit. This indemnification does not extend to any claims, suits, actions, or damages to the extent attributable to DEC's own negligent or intentional acts or omissions, or to any claims, suits, or actions naming the DEC and arising under Article 78 of the New York Civil Practice Laws and Rules or any citizen suit or civil rights provision under federal or state laws.

Item B: Permittee's Contractors to Comply with Permit

The permittee is responsible for informing its independent contractors, employees, agents and assigns of their responsibility to comply with this permit, including all special conditions while acting as the permittee's agent with respect to the permitted activities, and such persons shall be subject to the same sanctions for violations of the Environmental Conservation Law as those prescribed for the permittee.

Item C: Permittee Responsible for Obtaining Other Required Permits

The permittee is responsible for obtaining any other permits, approvals, lands, easements and rights-of-way that may be required to carry out the activities that are authorized by this permit.

Item D: No Right to Trespass or Interfere with Riparian Rights

This permit does not convey to the permittee any right to trespass upon the lands or interfere with the riparian rights of others in order to perform the permitted work nor does it authorize the impairment of any rights, title, or interest in real or personal property held or vested in a person not a party to the permit.

COMPLIANCE CHECKLIST

Port of Albany Expansion Project - Marmen-Welcon Tower Manufacturing Plant

Town of Bethlehem, Albany County
DEC# 4-0122-00322

Notification Requirements

Required Submission (Natural Resource Condition #)	NYSDEC Notification Timeframe	Date Completed
Submit Revised, Modified or New Plans (#4)	At least 2 weeks prior to commencing activity.	If needed.
Notification of Commencement of Authorized Activities (#13)	At least 48 hours prior.	
Notification of Exceedance of Water Quality Standard (#14)	Immediately.	If needed.
Notification of Completion of Authorized Activities (#15)	Within 10 days.	
Project Status Reports (#16)	Every 2 weeks during construction activities.	Recurring Reports.
Observation of plume outside of turbidity curtain (#20)	Immediate repair and consultation.	If needed.
Entangled, Injured, or Dead Protected Species (#25)	Immediate notification and send report within 24 hours.	If needed.
Send Analytical Results (#26)	Within 48 hours of receipt of data results.	As necessary.
WTC Form (#30)	Prior to use of Water Treatment Chemical	If needed.
Corrective Actions for Return Water Discharge Limit Exceedances (#40)	Immediate notification and consultation with NYSDEC.	If needed.

Plan/Document Submission Requirements

Required Submission (Natural Resource Condition #)	NYSDEC Submission Timeframe	Date Completed
Normans Kill Bridge Work Plan (#6)	Submit Plan for review and approval by February 1, 2023.	
Groundwater Monitoring Well Plan (#8)	Submit Plan for review and approval by November 30, 2022.	
Sediment Data in EDD Format (#27)	Existing data by December 15, 2022. Future data within 60 days of collection.	
Barge Decanting Plan (#34)	At least 30 days prior to commencing barge decanting.	
Final Dewatering Plan (#35)	Submit Plan for review and approval by December 15, 2022.	
Post-Dredging Final Report (#41)	Submit Plan within 30 days of completion of dredging operations.	
Maintenance Dredging Plan (#42)	Submit Plan for review and approval at least 90 days prior to maintenance dredging.	
Implementation Agreement Funding Obligations (#43)	Submit payments to OPRHP per Section 4.0 of the signed Implementation Agreement.	
File Deed Restrictions with Albany County Clerk's Office (#44)	Within 60 days of receipt of USACE Permits or by June 1, 2023, whichever is sooner.	

Port of Albany Expansion Project Implementation Agreement Pursuant to 6 NYCRR 182

By: Albany Port District Commission

Re: Port of Albany Expansion Project, Town of Bethlehem, Albany County, New York
Part 182/Incidental Take Permit Application (January 2022)
DEC #4-0122-00322

1.0 Introduction

This Implementation Agreement ("Agreement") has been prepared in accordance with the New York State Environmental Conservation Law ("ECL") § 11-0535 and the accompanying regulations found at Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York ("NYCRR") Part 182. It sets forth the roles and responsibilities of each party that will be involved in the creation of one acre of new benthic¹ area at Schodack Island State Park ("Net Conservation Benefit Project") which is associated with an Incidental Take Permit to be issued by the New York State Department of Environmental Conservation ("NYSDEC") to the Albany Port District Commission ("Commission") for the Port of Albany Expansion Project ("Expansion Project") in the Town of Bethlehem, Albany County, New York.

The Expansion Project will modify an undeveloped industrially zoned property into an active marine terminal with specialized infrastructure capable of supporting a new manufacturing operation that would produce tower components for offshore wind developments. The Expansion Project will facilitate the marine-based import and export of materials and manufactured components to be used in the development of offshore wind projects. Site improvements include the construction of associated site utilities, roads and infrastructure; installation of a new bridge over Normans Kill; and a new wharf which requires dredging and associated shoreline improvements.

The proposed in-water work activities (e.g., wharf and dredging) would occur along the western bank of the Hudson River in an area of approximately 740 feet in length by 167 feet in width. The general layout of the proposed wharf places the riverside face of structure coincident with the face of the existing timber revetment. The proposed wharf consists of a deep foundation-supported concrete-framed open-type wharf structure that provides overall dimensions of approximately 500 feet in length by 93 feet in width. The total area of the wharf is approximately 45,500 SF. The area of the wharf provided over water (outboard of the sheet pile cutoff wall), where shade will occur, is approximately 27,500 SF. Shade would vary and subject to time of the day and season of the year. The existing width of the Hudson River at this location is over 700 feet.

The Expansion Project will result in a take of habitat that is essential to the state and federally endangered Shortnose and Atlantic Sturgeon. This habitat impact will be offset through completion of the Net Conservation Benefit Project. The Net Conservation Benefit Project is one element of the larger Schodack Island Restoration Project ("Restoration Project") proposed by the New York State Office of Parks, Recreation and Historic Recreation ("OPRHP"). NYSDEC staff have determined that the Net Conservation Benefit Project will satisfy the requirements of ECL § 11-0535 and 6 NYCRR Part 182.

¹ Benthic area will be inundated at mean high water.

2.0 Responsibilities of the Parties

The Commission shall be responsible for contributing funds to the Net Conservation Benefit Project as part of the larger Restoration Project. OPRHP shall use the funding received from the Commission for the Net Conservation Benefit Project. OPRHP shall be responsible for implementing the Net Conservation Benefit Project.

The Net Conservation Benefit Project will be implemented on lands owned and/or controlled by OPRHP at the Schodack Island State Park. The Net Conservation Benefit Project will be designed and permitted after a feasibility study is conducted. The feasibility study is being conducted by NYSDEC and will be completed by December 31, 2022.

2.1 Albany Port District Commission

- The Commission shall provide funding to OPRHP for the Net Conservation Benefit Project in accordance with the payment schedule and payment method set forth in Section 4 below.

2.2 OPRHP

- OPRHP shall administer the Net Conservation Benefit Project design that will create at least 1.0 area of benthic area at Schodack Island State Park, as identified in the Incidental Take Permit;
- OPRHP shall prepare and apply for the permits and approvals necessary to implement the Net Conservation Benefit Project;
- OPRHP shall administer the construction of the Net Conservation Benefit Project when sufficient funding is acquired and received;
- OPRHP shall consult NYSDEC staff to ensure the Net Conservation Benefit Project results in a net conservation benefit as required by the Commission's Incidental Take Permit; and
- OPRHP shall provide NYSDEC staff annual reports on progress of the design and construction of the Net Conservation Benefit Project, including three years post-construction monitoring, and other information as requested by NYSDEC staff to determine if the requirements of this Agreement and the Incidental Take Permit are met.

2.3 NYSDEC

- NYSDEC shall participate with OPRHP on the design review of the Net Conservation Benefit Project;
- NYSDEC shall assist OPRHP in obtaining all necessary NYSDEC and other permits/approvals for the Net Conservation Benefit Project;
- NYSDEC shall assist OPRHP with the oversight of the Net Conservation Benefit Project; and
- NYSDEC shall assist OPRHP with the three (3)-year post construction monitoring of the Net Conservation Benefit Project in accordance with 6 NYCRR Part 182.

3.0 Net Conservation Benefit Project Scope

The Expansion Project includes a wharf that is within the general vicinity of known Shortnose Sturgeon spawning habitat² and within essential foraging, rearing and migration habitat for both Shortnose and Atlantic Sturgeon. Both Sturgeon species are bottom feeders and have been documented to forage on benthic organisms found in the Hudson River. Habitat alteration is a key threat to Sturgeon populations.³ The impacts on site will detrimentally impact these essential habitats for the species. Therefore, a restoration project must be completed that provides more benefit than the harm caused by the incidental take of Sturgeon to create a net conservation benefit to the species.

The Expansion Project will result in the permanent loss of 0.76 acres of essential Sturgeon habitat through permanent habitat conversion associated with the construction of the wharf. This area consists of the areas currently less than 10-feet in depth that will be converted to riprap or permanently shaded by wharf construction.

In addition to the permanent habitat loss, the Expansion Project will also result in an initial temporary disturbance of 1.96 acres of essential Sturgeon habitat through the dredging of previously unimpacted river bottom. Maintenance dredging at the site will likely be required once every 10 years to maintain the area, resulting in an annualized Sturgeon impact of approximately 0.20 acres. Temporary impacts will be confined to September 1 through October 31, to minimize both habitat impacts and the potential for direct impacts on feeding sturgeon. Habitat studies in other portions of the Hudson River indicate that the benthic fauna that Sturgeon feed on will recolonize the site within one year of dredging.⁴

The adverse habitat impacts to Sturgeon described above will be offset and improved by the Net Conservation Benefit Project. The area where Schodack Island State Park is located was historically several small islands separated by side channels. The side channels were filled in with spoils from dredging the Hudson River for commercial navigation. The Net Conservation Benefit Project will create 1.0 acres of benthic habitat at Schodack Island State Park by converting habitat that is currently upland into habitat that can be used by Sturgeon. The goal of this project is to return the area to habitat that is more similar to what existed before the dredge and fill operations, and ultimately create a self-sustaining habitat that is beneficial to Sturgeon. The benthic habitat creation will provide new foraging habitat for Shortnose Sturgeon and new refuge area for several fish species, including Atlantic Sturgeon. The Net Conservation Benefit Project shall be incorporated into the larger Schodack Island Restoration Project that will be developed by OPRHP and NYSDEC. The Net Conservation Benefit Project shall include:

- New benthic area created by the excavation of previously deposited dredge spoils to a depth that is inundated at Mean High Water;
- Benthic area will be inundated with Hudson River water to deliver river sediment and benthic organisms appropriate to enhance the food supply of Shortnose Sturgeon;
- Increased refuge area for fish species that increases diversity of habitat and survival of predation and hanging water flows;

² Pendleton 2018 Acoustic Telemetry and Benthic Habitat Mapping Inform the Spatial Ecology of Shortnose Sturgeon in the Hudson River, New York.

³ Title: Biological Assessment of shortnose sturgeon *Acipenser periosteum*, Published Date: 2010.

⁴ Newell 1998 The Impact of Dredging works in coastal Waters: A Review of the sensitivity to disturbance and subsequent recovery of biological resources on the seabed.

- Stabilized restoration area to assure long-term benefit of benthic areas; and
- Monitoring for at least three years to document stability, water flows, and establishment of benthic organisms. Monitoring methodology will be consistent with other dredged areas to increase the understanding of Hudson River restoration.

4.0 The Commission's Funding Obligations and Method of Payment

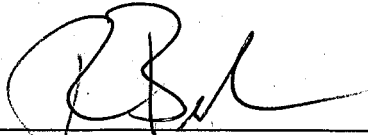
The Commission shall provide OPRHP with a total of \$700,000 for the Net Conservation Benefit Project in accordance with the payment schedule set forth in section 4.2. OPRHP shall dedicate these funds to be used for the Net Conservation Benefit Project. The total amount of \$700,000 is estimated to be sufficient to fund the creation of 1.0 acres of benthic area identified as requiring restoration.

ORPHP shall submit invoices to the Commission requesting payment. All invoices shall be prepared in a standard invoice format and accompanied by a New York State Standard Voucher and Documentation Requirements. All invoices will be processed in accordance with established procedures of OPRHP and the New York State Office of the State Comptroller (OSC). The Commission shall transfer the funds to OPRHP through electronic payment. Such electronic payment shall be made in accordance with ordinary OPRHP and OSC procedures and practices.

4.1 Funding Source: The Albany Port District Commission shall provide the funding to OPRHP. Upon OPRHP's receipt of the final payment, in accordance with the funding schedule in 4.2, the obligation of the Albany Port District Commission for the Net Conservation Benefit Project will be complete.

4.2 Funding Schedule: To meet the obligations under the Incidental Take Permit, the Commission shall pay OPRHP a total of \$700,000 in accordance with the following schedule:

Payment Amount	Received by OPRHP on or before	Allocation of Funds
\$150,000	August 31, 2022	Design and Permitting of The Net Conservation Benefit Project
\$137,500	January 1, 2023	Construction and Monitoring
\$137,500	January 1, 2024	Construction and Monitoring
\$137,500	January 1, 2025	Construction and Monitoring
\$137,500	January 1, 2026	Construction and Monitoring



Thomas Berkman
Deputy Commissioner and General Counsel
New York State Department of Environmental
Conservation
625 Broadway
Albany, New York 12233

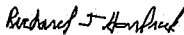
6/6/22
Date

Mindy Scott

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Scott
Date: 2022.05.20
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Melinda Scott
Deputy Commissioner for Finance and
Administration
New York State Office of Parks, Recreation,
and Historic Preservation
625 Broadway
Albany, New York 12233

05/20/2022
Date



Digitally signed by
Richard J. Hendrick
Date: 2022.05.17
14:35:56 -04'00'

Richard J. Hendrick
Chief Executive Officer
Albany Port District Commission
106 Smith Blvd
Albany, New York 12202

05/17/2022
Date



Department of
Environmental
Conservation

State Pollutant Discharge Elimination System (SPDES) DISCHARGE PERMIT

SIC Code:	3999	NAICS Code:	331221, 332114, 332312	SPDES Number:	NY0312924
Discharge Class (CL):	01	DEC Number:	4-0199-00059		
Toxic Class (TX):	N	Effective Date (EDP):	10/1/2023		
Major-Sub Drainage Basin:	1301	Expiration Date (ExDP):	9/30/2028		
Water Index Number:	H	Item No.:	5	Modification Dates (EDPM):	-
Compact Area:	-				

This SPDES permit is issued in compliance with Title 8 of Article 17 of the Environmental Conservation Law of New York State and in compliance with the Clean Water Act, as amended, (33 U.S.C. '1251 et. seq.)

PERMITTEE NAME AND ADDRESS					
Name:	Albany Port District Commission	Attention:	Richard Hendrick		
Street:	106 Smith Blvd				
City:	Albany	State:	NY	Zip Code:	12202
Email:	Rhendrick@portofalbany.us	Phone:	518-463-8763		

is authorized to discharge from the facility described below:

FACILITY NAME, ADDRESS, AND PRIMARY OUTFALL																					
Name:		Marmen – Welcon Manufacturing Plant																			
Address / Location:		309 River Road										County:		Albany							
City:		Albany						State:		NY		Zip Code:		12077							
Facility Location:			Latitude:		42 °		36 ’		22 ” N		& Longitude:		73 °		45 ’		57 ” W				
Primary Outfall No.:			001		Latitude:		42 °		36 ’		24 ” N		& Longitude:		73 °		45 ’		48 ” W		
Wastewater Description:		Sanitary		Receiving Water:		Hudson River				NAICS:		-		Class:		C		Standard:		C	

and the additional outfalls listed in this permit, in accordance with: effluent limitations; monitoring and reporting requirements; other provisions and conditions set forth in this permit; and 6 NYCRR Part 750-1 and 750-2.

This permit and the authorization to discharge shall expire on midnight of the expiration date shown above and the permittee shall not discharge after the expiration date unless this permit has been renewed or extended pursuant to law. To be authorized to discharge beyond the expiration date, the permittee shall apply for permit renewal not less than 180 days prior to the expiration date shown above.

DISTRIBUTION:

CO BWP - Permit Coordinator
BWP – Permit Writer
CO BWC - SCIS
RWE
RPA
EPA Region II

Permit Administrator:	Karen M. Gaidasz		
Address:	625 Broadway Albany, NY 12233-1750		
Signature:		Date:	08 / 31 / 2023

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SUMMARY OF ADDITIONAL OUTFALLS

Outfall	Wastewater Description	NAICS Code	Outfall Latitude				Outfall Longitude			
01A	Plain (no detergent) Wash Water and Compressor Condensate		42	°	36	'	18	"	N	73 ° 46 ' 3 " W
Receiving Water:		Hudson River via Outfall 001					Class:	C		

DEFINITIONS

TERM	DEFINITION
7-Day Geo Mean	The highest allowable geometric mean of daily discharges over a calendar week.
7-Day Average	The average of all daily discharges for each 7-days in the monitoring period. The sample measurement is the highest of the 7-day averages calculated for the monitoring period.
12-Month Rolling Average (12 MRA)	The current monthly value of a parameter, plus the sum of the monthly values over the previous 11 months for that parameter, divided by the number of months for which samples were collected in the 12-month period.
30-Day Geometric Mean	The highest allowable geometric mean of daily discharges over a calendar month, calculated as the antilog of: the sum of the log of each of the daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.
Action Level	Action level means a monitoring requirement characterized by a numerical value that, when exceeded, triggers additional permittee actions and department review to determine if numerical effluent limitations should be imposed.
Compliance Level / Minimum Level	A compliance level is an effluent limitation. A compliance level is given when the water quality evaluation specifies a Water Quality Based Effluent Limit (WQBEL) below the Minimum Level. The compliance level shall be set at the Minimum Level (ML) for the most sensitive analytical method as given in 40 CFR Part 136, or otherwise accepted by the Department.
Daily Discharge	The discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for the purposes of sampling. For pollutants expressed in units of mass, the 'daily discharge' is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the 'daily discharge' is calculated as the average measurement of the pollutant over the day.
Daily Maximum	The highest allowable Daily Discharge.
Daily Minimum	The lowest allowable Daily Discharge.
Effective Date of Permit (EDP or EDPM)	The date this permit is in effect.
Effluent Limitations	Effluent limitation means any restriction on quantities, quality, rates and concentrations of chemical, physical, biological, and other constituents of effluents that are discharged into waters of the state.
Expiration Date of Permit (ExDP)	The date this permit is no longer in effect.
Instantaneous Maximum	The maximum level that may not be exceeded at any instant in time.
Instantaneous Minimum	The minimum level that must be maintained at all instants in time.
Monthly Average	The highest allowable average of daily discharges over a calendar month, calculated as the sum of each of the daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.
Outfall	The terminus of a sewer system, or the point of emergence of any waterborne sewage, industrial waste or other wastes or the effluent therefrom, into the waters of the State.
Range	The minimum and maximum instantaneous measurements for the reporting period must remain between the two values shown.
Receiving Water	The classified waters of the state to which the listed outfall discharges.
Sample Frequency / Sample Type / Units	See NYSDEC's "DMR Manual for Completing the Discharge Monitoring Report for the SPDES" for information on sample frequency, type and units.

PERMIT LIMITS, LEVELS AND MONITORING

OUTFALL	DESCRIPTION	RECEIVING WATER	EFFECTIVE	EXPIRING
001	Sanitary	Hudson River	10/1/2023	9/30/2028

PARAMETER	EFFLUENT LIMITATION					MONITORING REQUIREMENTS				FN
	Type	Limit	Units	Limit	Units	Sample Frequency	Sample Type	Location		
								Inf.	Eff.	
Flow	Daily Maximum	13,300	GPD	-	-	Continuous	Recorder		X	
pH	Daily Minimum	6.0	SU	-	-	1/day	Grab		X	
	Daily Maximum	9.0	SU	-	-					
Temperature	Daily Maximum	Monitor	°F	-	-	1/day	Grab		X	
BOD ₅	Monthly Average	30	mg/L	-	-	1/month	6-hr. Comp.	X	X	
	Minimum Monthly Average	85	%	-	-	1/month	6-hr. Comp.		X	1
Total Suspended Solids (TSS)	Monthly Average	30	mg/L	-	-	1/month	Select	X	X	
	Minimum Monthly Average	85	%	-	-	1/month	6-hr. Comp.		X	1
Settleable Solids	Daily Maximum	0.3	mL/L	-	-	1/day	Grab		X	
Dissolved Oxygen	Daily Minimum	Monitor	mg/L	-	-	1/day	Grab		X	
Ammonia (as N) June 1 st – October 31 st	Monthly Average	4.2	mg/L	-	-	1/month	6-hr. Comp.		X	
Ammonia (as N) November 1 st – May 31 st	Monthly Average	6.4	mg/L	-	-	1/month	6-hr. Comp.		X	
Oil & Grease	Daily Maximum	15	mg/L	-	-	1/month	Grab		X	

EFFLUENT DISINFECTION		Limit	Units	Limit	Units	Sample Frequency	Sample Type	Inf.	Eff.	FN
Required Seasonal from May 1st - October 31st										
Coliform, Fecal	30-Day Geometric Mean	200	No./100 mL	-	-	1/month	Grab		X	
Coliform, Fecal	7-Day Geometric Mean	400	No./100 mL	-	-	1/month	Grab		X	
Chlorine, Total Residual	Daily Maximum	0.03	mg/L	-	-	1/month	Grab		X	2

For Footnotes, See Page 6

OUTFALL	DESCRIPTION	RECEIVING WATER	EFFECTIVE	EXPIRING
01A	Wash Water and Compressor Condensate	Hudson River via Outfall 001	10/1/2023	9/30/2028

PARAMETER	EFFLUENT LIMITATION					MONITORING REQUIREMENTS		FN
	Type	Limit	Units	Limit	Units	Sample Frequency	Sample Type	
Flow	Daily Maximum	2,100	GPD			1/month	Estimate	
pH	Daily Minimum	6.0	SU	-	-	1/month	Grab	
	Daily Maximum	9.0	SU	-	-			
Total Suspended Solids (TSS)	Daily Maximum	50	mg/L	-	-	1/month	Grab	
Oil & Grease	Daily Maximum	15	mg/L	-	-	1/month	Grab	
Foam (visible)	Daily Maximum	None	visible	-	-	1/month	Grab	3

FOOTNOTES:

1. Effluent shall not exceed 15% and 15% of influent concentration values for BOD₅ and TSS respectively.
2. Sampling and reporting for total residual chlorine is only necessary if chlorine is used for disinfection, elsewhere in the treatment process, or the facility otherwise has reasonable potential to discharge chlorine. Otherwise, the permittee shall report NODI-9 on the DMR.
3. **Visible Foam Analytical Method Procedure**
 - a. Fill one (1) 500 mL narrow mouth bottle (glass or plastic) with effluent water to be tested.
 - b. Upon return to the lab, fill a 1000 mL Wheaton narrow mouth glass sample bottle to the 200 mL mark with effluent from the 500mL bottle.
 - c. Place the bottle with 200 mL of sample in a constant-temperature bath for a minimum of 1 hour and a maximum of 2 hours at $25 \pm 1^{\circ}\text{C}$ ($77 \pm 1.8^{\circ}\text{F}$).
 - d. Measure the temperature of the sample and adjust to $25 \pm 1^{\circ}\text{C}$ ($77 \pm 1.8^{\circ}\text{F}$) if necessary.
 - e. Remove the sample from the constant-temperature bath.
 - f. Vigorously shake the sample bottle using a minimum of an 8-inch stroke and 40 shakes in less than 10 seconds.
 - g. After completing 40 shakes, start a timer and allow the bottle to stand undisturbed.
 - h. If any foam remains after 60 seconds, the sample will be noted as containing visible foam. If no foam remains after 60 seconds the sample will be noted as not containing visible foam.

STORMWATER POLLUTION PREVENTION REQUIREMENTS

Stormwater discharges at this facility are required to obtain coverage under the current Multi-Sector General Permit (MSGP) Sector AA (GP-0-23-001).

BEST MANAGEMENT PRACTICES (BMPs) FOR INDUSTRIAL FACILITIES

Note that for some facilities, especially those with few employees or limited industrial activities, some of the below BMPs may not be applicable. It is acceptable in these cases to indicate "Not Applicable" for the portion(s) of the BMP Plan that do not apply to your facility, along with an explanation.

1. **General** - The permittee shall develop, maintain, and implement a Best Management Practices (BMP) plan to prevent releases of significant amounts of pollutants to the waters of the State through plant site runoff; spillage and leaks; sludge or waste disposal; and stormwater discharges including, but not limited to, drainage from raw material storage. The BMP plan shall be documented in narrative form and shall include the 13 minimum BMPs and any necessary plot plans, drawings, or maps. Other documents already prepared for the facility such as a Safety Manual or a Spill Prevention, Control and Countermeasure (SPCC) plan may be used as part of the plan and may be incorporated by reference. A copy of the current BMP plan shall be submitted to the New York State Department of Environmental Conservation (Department) as required in item (2.) below and a copy must be maintained at the facility and shall be available to authorized Department representatives upon request.
2. **Compliance Deadlines** – The initial BMP plan shall be submitted in accordance with the Schedule of Submittals to the Regional Water Engineer. The BMP plan shall be implemented within 6 months of submission, unless a different time frame is approved by the Department. The BMP plan **shall be reviewed annually** and shall be modified whenever (a) changes at the facility materially increase the potential for releases of pollutants; (b) actual releases indicate the plan is inadequate, or (c) a letter from the Department identifies inadequacies in the plan. The permittee shall certify in writing, as an attachment to the December Discharge Monitoring Report (DMR), that the annual review has been completed. Subsequent modifications to or renewal of this permit does not reset or revise these deadlines unless a new deadline is set explicitly by such permit modification or renewal.
3. **Facility Review** - The permittee shall review all facility components or systems (including but not limited to material storage areas; in-plant transfer, process, and material handling areas; loading and unloading operations; storm water, erosion, and sediment control measures; process emergency control systems; and sludge and waste disposal areas) where materials or pollutants are used, manufactured, stored or handled to evaluate the potential for the release of pollutants to the waters of the State. In performing such an evaluation, the permittee shall consider such factors as the probability of equipment failure or improper operation, cross-contamination of storm water by process materials, settlement of facility air emissions, the effects of natural phenomena such as freezing temperatures and precipitation, fires, and the facility's history of spills and leaks. The relative toxicity of the pollutant shall be considered in determining the significance of potential releases. The review shall address all substances present at the facility that are identified in the SPDES application Form NY-2C (available at https://www.dec.ny.gov/docs/permits_ej_operations_pdf/form2c.pdf) or that are required to be monitored for by the SPDES permit. **13 Minimum BMPs:** Whenever the potential for a release of pollutants to State waters is determined to be present, the permittee shall identify BMPs that have been established to prevent or minimize such potential releases. Where BMPs are inadequate or absent, appropriate BMPs shall be established. In selecting appropriate BMPs, the permittee shall consider good industry practices and, where appropriate, structural measures such as secondary containment and erosion/sediment control devices and practices. USEPA guidance for development of stormwater elements of the BMP is available in *Developing Your Stormwater Pollution Prevention Plan A Guide for Industrial Operators*, February 2009, EPA 833-B-09-002. As a minimum, the plan shall include the following BMPs:

- | | | |
|-------------------------------------|---|---------------------------------|
| 1. BMP Pollution Prevention Team | 6. Security | 10. Spill Prevention & Response |
| 2. Reporting of BMP Incidents | 7. Preventive Maintenance | 11. Erosion & Sediment Control |
| 3. Risk Identification & Assessment | 8. Good Housekeeping | 12. Management of Runoff |
| 4. Employee Training | 9. Materials/Waste Handling, Storage, & Compatibility | 13. Street Sweeping |
| 5. Inspections and Records | | |

BMPs FOR INDUSTRIAL FACILITIES (continued)

4. **Stormwater Pollution Prevention Plans (SWPPPs) Required for Discharges of Stormwater from Construction Activity to Surface Waters** - A SWPPP shall be developed prior to commencing any construction activity that will result in soil disturbance of one or more acres of uncontaminated area¹. (Note: the disturbance threshold is 5000 SF in the New York City East of Hudson Watershed). The SWPPP shall conform to the current version of the SPDES General Permit for Stormwater Discharges from Construction Activity (CGP), including the *New York Standards and Specifications for Erosion and Sediment Control* and *New York State Stormwater Management Design Manual*. The permittee shall submit a copy of the SWPPP and any amendments thereto to the local governing body and any other authorized agency having jurisdiction or regulatory control over the construction activity **at least 30 days prior to soil disturbance**. The SWPPP shall be maintained on-site and submitted to the Department only upon request. When a SWPPP is required, a properly completed *Notice of Intent* (NOI) form shall be submitted (available at www.dec.ny.gov/chemical/43133.html) prior to soil disturbance. Note that submission of the NOI is required for informational purposes; the permittee is not eligible for and will not obtain coverage under any SPDES general permit for stormwater discharges. SWPPPs must be developed for subsequent site disturbances in accordance with the above requirements. The permittee is responsible for ensuring that the provisions of each SWPPP are properly implemented.

5. **Required Sampling For "Hot Spot" Identification** - Development of the BMP plan shall include sampling of waste stream segments for the purpose of pollutant "hot spot" identification. The economic achievability of effluent limits will not be considered until plant site "hot spot" sources have been identified, contained, removed or minimized through the imposition of site specific BMPs or application of internal facility treatment technology. For the purposes of this permit condition a "hot spot" is a segment of an industrial facility (including but not limited to soil, equipment, material storage areas, sewer lines etc.) which contributes elevated levels of problem pollutants to the wastewater and/or stormwater collection system of that facility. For the purposes of this definition, problem pollutants are substances for which treatment to meet a water quality or technology requirement may, considering the results of waste stream segment sampling, be deemed unreasonable. For the purposes of this definition, an elevated level is a concentration or mass loading of the pollutant in question which is sufficiently higher than the concentration of that same pollutant at the compliance monitoring location so as to allow for an economically justifiable removal and/or isolation of the segment and/or BAT treatment of wastewaters emanating from the segment.

6. **Facilities with Petroleum and/or Chemical Bulk Storage (PBS and CBS) Areas** - Compliance must be maintained with all applicable regulations including those involving releases, registration, handling and storage (6 NYCRR 595-599 and 612-614). Stormwater discharges from handling and storage areas should be eliminated where practical.
 - A. **Spill Cleanup** - All spilled or leaked substances must be removed from secondary containment systems as soon as practical and for CBS storage areas within 24 hours, unless written authorization is received from the Department. The containment system must be thoroughly cleaned to remove any residual contamination which could cause contamination of stormwater and the resulting discharge of pollutants to waters of the State. Following spill cleanup, the affected area must be completely flushed with clean water three times and the water removed after each flushing for proper disposal in an on-site or off-site wastewater treatment plant designed to treat such water and permitted to discharge such wastewater. Alternately, the permittee may test the first batch of stormwater following the spill cleanup to determine discharge acceptability. If the water contains no pollutants at concentrations above the applicable effluent limits or Action Levels it may be discharged. Otherwise, it must be disposed of as noted above. See *Discharge Monitoring* below for the list of parameters to be sampled for.

 - B. **Discharge Operation** - Stormwater must be removed before it compromises the required containment system capacity. Each discharge may only proceed with the prior approval of the permittee staff person responsible for ensuring SPDES permit compliance. Bulk storage secondary containment drainage systems must be locked in a closed position except when the operator is in the process of draining accumulated stormwater. Transfer area secondary containment drainage systems must be locked in a closed position during all transfers to or from these systems and must not be reopened unless the transfer area is clean of contaminants. Stormwater discharges from secondary containment systems should be avoided during periods of precipitation. A logbook shall be maintained on site noting the date, time and personnel supervising each discharge.

¹ Uncontaminated area means soils which are free of contamination by any toxic or non-conventional pollutants identified in the tables of SPDES Application Form NY-2C. Disturbance of any size contaminated area(s) and the resulting discharge of contaminated stormwater is not authorized by this permit unless the discharge is under State or Federal oversight as part of a remedial program or after review by the Regional Water Engineer; nor is such discharge authorized by any SPDES general permit for stormwater discharges.

BMPs FOR INDUSTRIAL FACILITIES (continued)

C. Discharge Screening - Prior to each discharge from a secondary containment system the stormwater must be screened for contamination.* All stormwater must be inspected for visible evidence of contamination. Additional screening methods shall be developed by the permittee as part of the overall BMP Plan, e.g. the use of volatile gas meters to detect the presence of gross levels of gasoline or volatile organic compounds. If the screening indicates contamination, the permittee must collect and analyze a representative sample** of the stormwater. If the water contains no pollutants at concentrations above the applicable effluent limits or Action Levels it may be discharged. Otherwise, it must either be disposed of in an onsite or off-site wastewater treatment plant designed to treat and permitted to discharge such wastewater or the Regional Water Engineer can be contacted to determine if it may be discharged without treatment.

D. Discharge Monitoring - Unless the discharge from any bulk storage containment system outlet is identified in the SPDES permit as an outfall with explicit effluent and monitoring requirements, the permittee shall monitor the outlet as follows:

(i) *Bulk Storage Secondary Containment Systems:*

(a) The volume of each discharge from each outlet must be monitored. Discharge volume may be calculated by measuring the depth of water within the containment area times the wetted area converted to gallons or by other suitable methods. A representative sample shall be collected of the first discharge* following any cleaned-up spill or leak. The sample must be analyzed for pH, the substance(s) stored within the containment area and any other pollutants the permittee knows or has reason to believe are present.**

(b) Every fourth discharge* from each outlet must be sampled for pH, the substance(s) stored within the containment area and any other pollutants the permittee knows or has reason to believe are present.**

(ii) *Transfer Area Secondary Containment Systems:*

The first discharge* following any spill or leak must be sampled for flow, pH, the substance(s) transferred in that area and any other pollutants the permittee knows or has reason to believe are present.**

E. Discharge Reporting - Any results of monitoring required above, excluding screening data, must be submitted to the Department by appending them to the corresponding DMR. Failure to perform the required discharge monitoring and reporting shall constitute a violation of the terms of the SPDES permit.

F. Prohibited Discharges - **In all cases, any discharge which contains a visible sheen, foam, or odor, or may cause or contribute to a violation of water quality is prohibited.** The following discharges are prohibited unless specifically authorized elsewhere in this SPDES permit: spills or leaks, tank bottoms, maintenance wastewaters, wash waters where detergents or other chemicals have been used, tank hydrotest and ballast waters, contained firefighting runoff, fire training water contaminated by contact with pollutants or containing foam or fire-retardant additives, and unnecessary discharges of water or wastewater into secondary containment systems.

* Discharge includes stormwater discharges and snow and ice removal. If applicable, a representative sample of snow and/or ice should be collected and allowed to melt prior to assessment.

** If the stored substance is gasoline or aviation fuel then sample for oil & grease, benzene, ethylbenzene, naphthalene, toluene and total xylenes. If the stored substance is kerosene, diesel fuel, fuel oil, or lubricating oil then sample for oil & grease and polynuclear aromatic hydrocarbons (PAHs). The analytical methods selected for monitoring the stored substances are to be the most sensitive in detecting and quantifying the target analytes as approved under 40 CFR Part 136 and in compliance with NYSDOH ELAP certified methods or as directed by the Department. If the substance(s) are listed in the tables of SPDES Application Form NY-2C then sampling is required. Contact the facility inspector for further guidance. In all cases flow and pH monitoring is required.

MERCURY MINIMIZATION PROGRAM (MMP) - Type IV

On June 17, 2023, the permittee submitted a Conditional Exclusion Certification, certifying that the facility does not have any of the mercury sources listed in Part III.A.3. of DOW 1.3.10.

1. General - The permittee must develop, implement, and maintain a mercury minimization program (MMP), containing the elements set forth below.
2. MMP Elements - The MMP must be a written document and must include any necessary drawings or maps of the facility and/or collection system. Other related documents already prepared for the facility may be used as part of the MMP and may be incorporated by reference. At a minimum, the MMP must include the following elements² as described in detail below:
 - a. Conditional Exclusion Certification - A certification (Appendix D of *DOW 1.3.10*), signed in accordance with 750-1.8 Signature of SPDES forms, must be submitted once every five (5) years to the Regional Water Engineer and to the Bureau of Water Permits certifying that Outfalls for the facility are neither a mercury source nor receives flows from a mercury source. Criteria to determine if a facility has a mercury source are as follows:
 - The facility is or receives discharge from 1) individually permitted combined sewer overflow (CSOs)³ communities and/or 2) Type II sanitary sewer overflow (SSO)⁴ facilities;
 - One or more effluent samples which exceed 12 ng/L, including samples taken as a result of the SPDES application process;
 - Internal or tributary waste stream samples exceed the GLCA effluent limitation **AND** the final effluent samples are less than the GLCA due primarily to dilution by uncontaminated or less contaminated waste streams. Both components of this criterion may include samples taken as a result of the SPDES application process;
 - A permit application or other information indicates that mercury is handled on site and could be discharged through outfalls;
 - Outfalls which contain legacy mercury contamination;
 - The facility's collection system receives discharges from a dental and/or categorical industrial user (CIU)⁵ that may discharge mercury;
 - The facility accepts hauled wastes; or,
 - The facility is defined as a categorical industry that may discharge mercury. This may also include dentists, universities, hospitals, or laboratories which have their own SPDES permit.
 - b. Control Strategy - The control strategy must contain the following minimum elements:
 - i. Equipment and Materials – Equipment and materials (e.g., thermometers, thermostats) used by the permittee, which may contain mercury, must be evaluated by the permittee. As equipment and materials containing mercury are updated/replaced, the permittee must use mercury-free alternatives, if possible.
 - ii. Bulk Chemical Evaluation – For chemicals, used at a rate which exceeds 1,000 gallons/year or 10,000 pounds/year, the permittee must obtain a manufacturer's certificate of analysis, a chemical analysis performed by a certified laboratory, and/or a notarized affidavit which describes the substances' mercury concentration and the detection limit achieved. If possible, the permittee must only use bulk chemicals utilized in the wastewater treatment process which contain <10 ppb mercury.

²Neither monitoring nor outreach is required for facilities meeting the criteria for MMP Type IV, but monitoring and/or outreach can be included in the permittee's control strategy.

³CSO permits are included under the 05 and 07 permit classifications.

⁴These are overflow retention facilities (ORFs) and are included under the 05 and 07 permit classifications.

⁵CIUs include those listed under Federal Regulation in 40 CFR Part 400.

MERCURY MINIMIZATION PROGRAM (MMP) – Type IV (Continued)

- c. **Status Report** - An **annual** status report must be developed and maintained on site, in accordance with the [Schedule of Additional Submittals](#), summarizing:
- Review of criteria to determine if the facility has a potential mercury source;
 - If the permittee no longer meets the criteria for MMP Type IV, the permittee must notify the Department for a permittee-initiated permit modification;
 - All actions undertaken, pursuant to the control strategy, during the previous year; and
 - Actions planned, pursuant to the control strategy, for the upcoming year.

The permittee must maintain a file with all MMP documentation. The file must be available for review by Department representatives and copies must be provided upon request in accordance with 6 NYCRR 750-2.1(i) and 750-2.5(c)(4).

3. **MMP Modification** - The MMP must be modified whenever:
- Changes at the facility, or within the collection system, increase the potential for mercury discharges;
 - A letter from the Department identifies inadequacies in the MMP.

The Department may use information in the annual status reports, in accordance with 2.c of this MMP, to determine if the permit limitations and MMP Type is appropriate for the facility.

DEFINITIONS:

Potential mercury source – a source identified by the permittee that may reasonably be expected to have total mercury contained in the discharge. Some potential mercury sources include switches, fluorescent lightbulbs, cleaners, degreasers, thermometers, batteries, hauled wastes, universities, hospitals, laboratories, landfills, Brownfield sites, or raw material storage.

DISCHARGE NOTIFICATION REQUIREMENTS

- (a) The permittee shall install and maintain identification signs at all outfalls to surface waters listed in this permit, unless the permittee has obtained a waiver in accordance with the Discharge Notification Act (DNA). Such signs shall be installed before initiation of any new discharge location.
- (b) Subsequent modifications to or renewal of this permit does not reset or revise the deadline set forth in (a) above, unless a new deadline is set explicitly by such permit modification or renewal.
- (c) The Discharge Notification Requirements described herein do not apply to outfalls from which the discharge is composed exclusively of storm water, or discharges to ground water.
- (d) The sign(s) shall be conspicuous, legible and in as close proximity to the point of discharge as is reasonably possible while ensuring the maximum visibility from the surface water and shore. The signs shall be installed in such a manner to pose minimal hazard to navigation, bathing or other water related activities. If the public has access to the water from the land in the vicinity of the outfall, an identical sign shall be posted to be visible from the direction approaching the surface water.

The signs shall have **minimum** dimensions of eighteen inches by twenty-four inches (18" x 24") and shall have white letters on a green background and contain the following information:

N.Y.S. PERMITTED DISCHARGE POINT

SPDES PERMIT No.: NY_____

OUTFALL No. : _____

For information about this permitted discharge contact:

Permittee Name: _____

Permittee Contact: _____

Permittee Phone: () - ### - #####

OR:

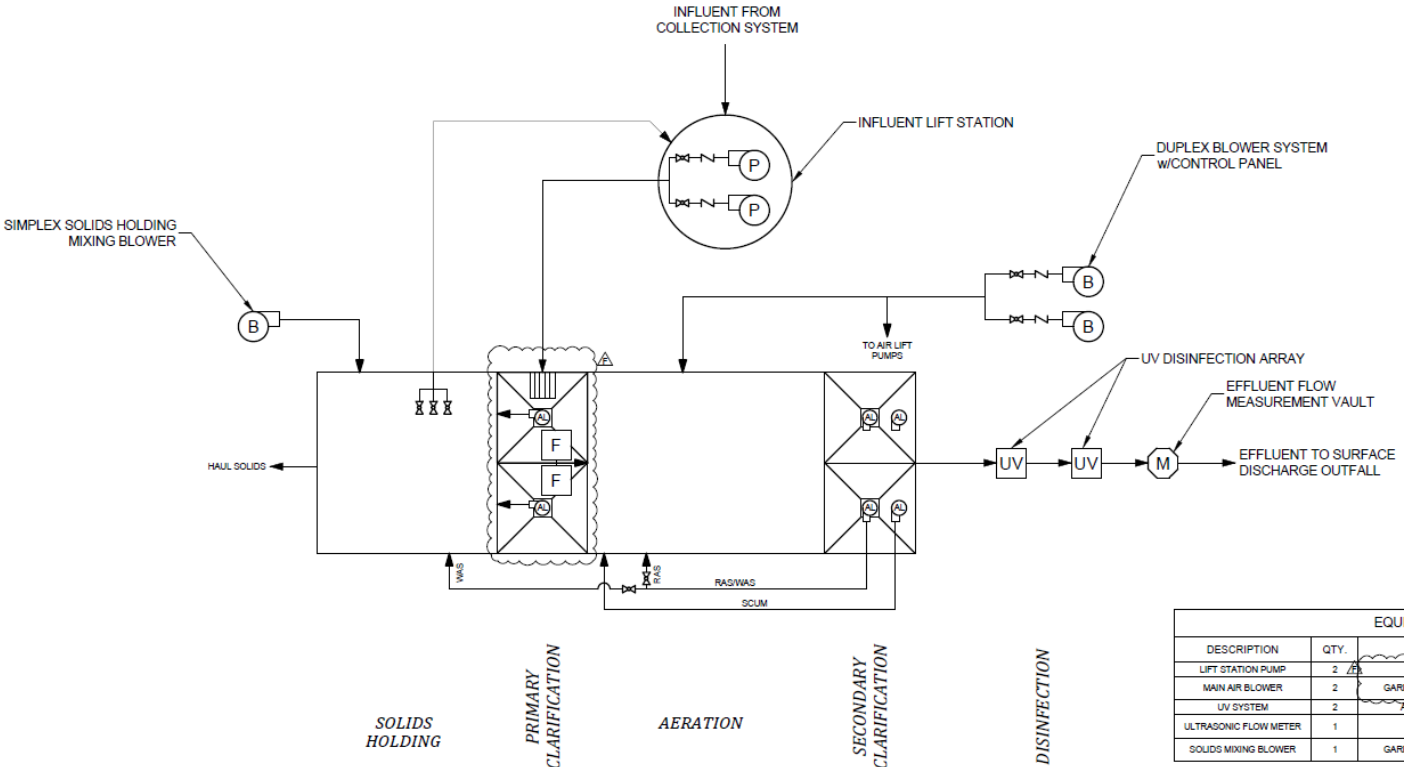
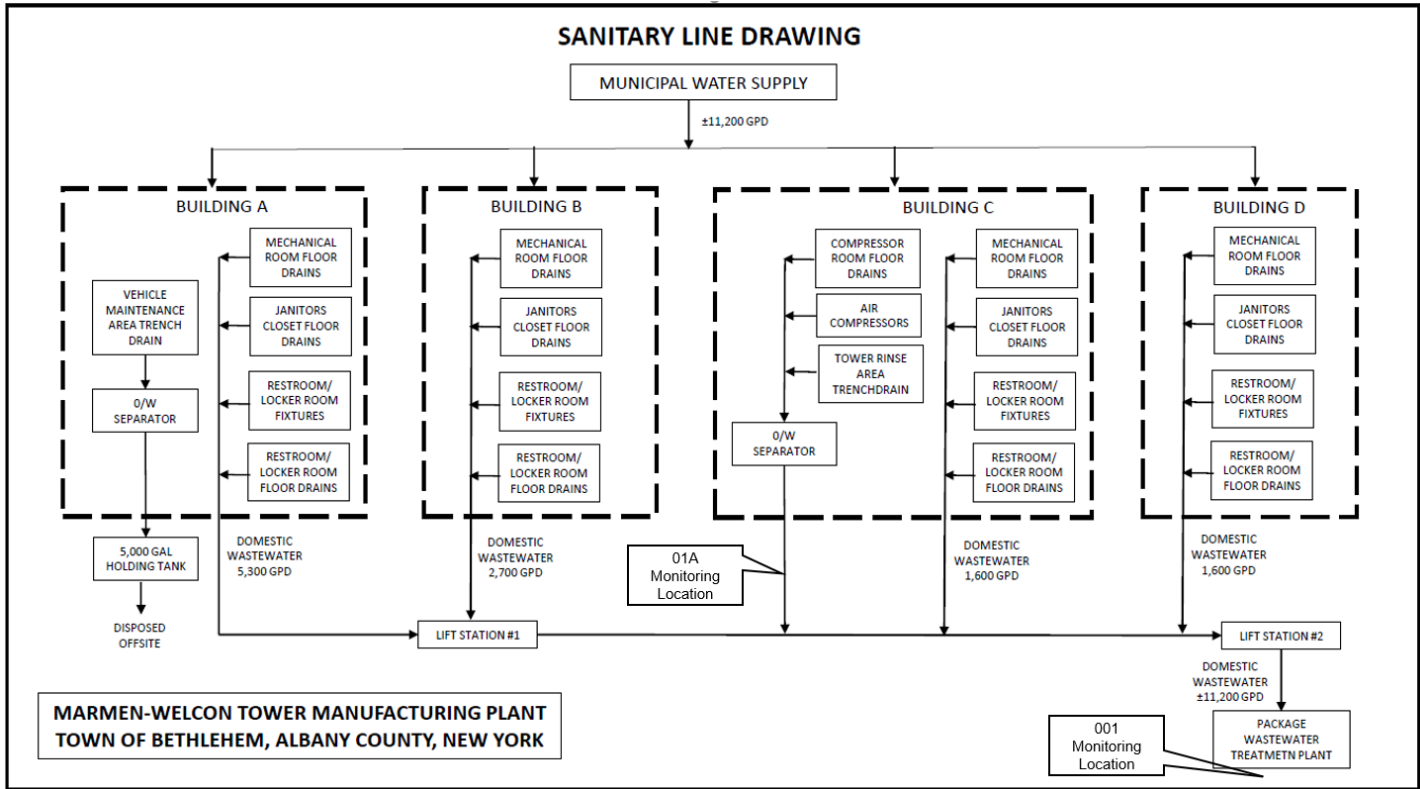
NYSDEC Division of Water Regional Office Address:

NYSDEC Division of Water Regional Phone: () - ### - #####

- (e) Upon request, the permittee shall make available electronic or hard copies of the sampling data to the public. In accordance with the RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS page of your permit, each DMR shall be maintained (either electronically or as a hard copy) on record for a period of five years.
- (f) The permittee shall periodically inspect the outfall identification sign(s) in order to ensure they are maintained, are still visible, and contain information that is current and factually correct. Signs that are damaged or incorrect shall be replaced within 3 months of inspection.

MONITORING LOCATIONS

The permittee shall take samples and measurements, to comply with the monitoring requirements specified in this permit, at the location(s) specified below:



GENERAL REQUIREMENTS

- A. The regulations in 6 NYCRR Part 750 are hereby incorporated by reference and the conditions are enforceable requirements under this permit. The permittee shall comply with all requirements set forth in this permit and with all the applicable requirements of 6 NYCRR Part 750 incorporated into this permit by reference, including but not limited to the regulations in paragraphs B through H as follows:
- B. General Conditions
- | | |
|--|---|
| 1. Duty to comply | 6 NYCRR 750-2.1(e) & 2.4 |
| 2. Duty to reapply | 6 NYCRR 750-1.16(a) |
| 3. Need to halt or reduce activity not a defense | 6 NYCRR 750-2.1(g) |
| 4. Duty to mitigate | 6 NYCRR 750-2.7(f) |
| 5. Permit actions | 6 NYCRR 750-1.1(c), 1.18, 1.20 & 2.1(h) |
| 6. Property rights | 6 NYCRR 750-2.2(b) |
| 7. Duty to provide information | 6 NYCRR 750-2.1(i) |
| 8. Inspection and entry | 6 NYCRR 750-2.1(a) & 2.3 |
- C. Operation and Maintenance
- | | |
|-----------------------------------|--------------------------------------|
| 1. Proper Operation & Maintenance | 6 NYCRR 750-2.8 |
| 2. Bypass | 6 NYCRR 750-1.2(a)(17), 2.8(b) & 2.7 |
| 3. Upset | 6 NYCRR 750-1.2(a)(94) & 2.8(c) |
- D. Monitoring and Records
- | | |
|---------------------------|--|
| 1. Monitoring and records | 6 NYCRR 750-2.5(a)(2), 2.5(a)(6), 2.5(c)(1), 2.5(c)(2), & 2.5(d) |
| 2. Signatory requirements | 6 NYCRR 750-1.8 & 2.5(b) |
- E. Reporting Requirements
- | | |
|---|-----------------------------------|
| 1. Reporting requirements for non-POTWs | 6 NYCRR 750-2.5, 2.6, 2.7, & 1.17 |
| 2. Anticipated noncompliance | 6 NYCRR 750-2.7(a) |
| 3. Transfers | 6 NYCRR 750-1.17 |
| 4. Monitoring reports | 6 NYCRR 750-2.5(e) |
| 5. Compliance schedules | 6 NYCRR 750-1.14(d) |
| 6. 24-hour reporting | 6 NYCRR 750-2.7(c) & (d) |
| 7. Other noncompliance | 6 NYCRR 750-2.7(e) |
| 8. Other information | 6 NYCRR 750-2.1(f) |
- F. Sludge Management
- The permittee shall comply with all applicable requirements of 6 NYCRR Part 360.
- G. SPDES Permit Program Fee
- The permittee shall pay to the Department an annual SPDES permit program fee within 30 days of the date of the first invoice, unless otherwise directed by the Department, and shall comply with all applicable requirements of ECL 72-0602 and 6 NYCRR Parts 480, 481 and 485. Note that if there is inconsistency between the fees specified in ECL 72-0602 and 6 NYCRR Part 485, the ECL 72-0602 fees govern.
- H. Water Treatment Chemicals (WTCs)
- New or increased use and discharge of a WTC requires prior Department review and authorization. At a minimum, the permittee must notify the Department in writing of its intent to change WTC use by submitting a completed *WTC Notification Form* for each proposed WTC. The Department will review that submittal and determine if a SPDES permit modification is necessary or whether WTC review and authorization may proceed outside of the formal permit administrative process. The majority of WTC authorizations do not require SPDES permit modification. In any event, use and discharge of a WTC shall not proceed without prior authorization from the Department. Examples of WTCs include biocides, coagulants, conditioners, corrosion inhibitors, defoamers, deposit control agents, flocculants, scale inhibitors, sequestrants, and settling aids.
1. WTC use shall not exceed the rate explicitly authorized by this permit or otherwise authorized by the Department.
 2. The permittee shall maintain a logbook of all WTC use, noting for each WTC the date, time, exact location, and amount of each dosage, and, the name of the individual applying or measuring the chemical. The logbook must also document that adequate process controls are in place to ensure excessive levels of WTCs are not used.
 3. The permittee shall submit a completed WTC Annual Report Form each year that they use and discharge WTCs. This form shall be submitted in electronic format and attached to either the December DMR or the annual monitoring report required below. The *WTC Notification Form* and *WTC Annual Report Form* are available from the Department's website at: <http://www.dec.ny.gov/permits/93245.html>

RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS

- A. The monitoring information required by this permit shall be retained for a period of at least five years from the date of the sampling for subsequent inspection by the Department or its designated agent.
- B. Discharge Monitoring Reports (DMRs): Completed DMR forms shall be submitted for each 1 month reporting period in accordance with the DMR Manual available on Department's website.

DMRs must be submitted electronically using the electronic reporting tool (NetDMR) specified by NYSDEC. Instructions on the use of NetDMR can be found at <https://www.dec.ny.gov/chemical/103774.html>. **Hardcopy paper DMRs will only be received at the address listed below, directed to the Bureau of Water Compliance, if a waiver from the electronic submittal requirements has been granted by DEC to the facility.**

The first monitoring period begins on the effective date of this permit, and, unless otherwise required, the reports are due no later than the 28th day of the month following the end of each monitoring period.

- C. Additional information required to be submitted by this permit shall be summarized and reported to the Regional Water Engineer and Bureau of Water Permits at the following addresses:

Department of Environmental Conservation
Division of Water, Bureau of Water Permits
625 Broadway, Albany, New York 12233-3505

Phone: (518) 402-8111

Department of Environmental Conservation
Regional Water Engineer, Region 4
1130 North Westcott Road, Schenectady, New York, 12306-2014 Phone: (518) 357-2045

- D. Schedule of Additional Submittals:

The permittee shall submit the following information to the Regional Water Engineer and to the Bureau of Water Permits, unless otherwise instructed:

Outfall(s)	SCHEDULE OF ADDITIONAL SUBMITTALS - Required Action	Due Date
001, 01A	<u>COMPLETION OF CONSTRUCTION</u> The permittee shall provide a Certificate of Completion ⁶ (COC) to DEC that the treatment system has been completed in accordance with the approved Design Documents.	With 30 days of Completion of Construction
001, 01A	<u>COMMENCEMENT OF OPERATION</u> Upon submission of the COC, the permittee shall comply with the final effluent limitations described in this permit.	Upon Submission of COC

⁶ 6 NYCRR 750-2.10 (c)

Outfall(s)	SCHEDULE OF ADDITIONAL SUBMITTALS - Required Action	Due Date
001, 01A	<u>SHORT TERM MONITORING PROGRAM</u> For Outfalls 001 and 01A, the permittee shall complete a short term monitoring program. The permittee must collect quarterly samples for a period of 1 year for pollutants as identified in the NY-2C SPDES application, Tables A – D. Samples must be representative of normal discharge conditions and treatment operations at the facility. The permittee must use approved EPA analytical methods with the lowest possible detection limit as promulgated under 40 CFR Part 136 for the determination of the concentrations of parameters listed. Method 1631 shall be used for Mercury analysis. Method 1633 shall be used for analysis of PFAS. Quarterly sampling must begin during the first quarter of 2025, unless otherwise approved by DEC. DEC must be notified at least 30 days before sampling is to commence.	Submit sample results no later than January 28, 2026
-	<u>BMP PLAN</u> The permittee shall submit and annually review the completed BMP plan. The BMP plan shall be modified whenever: (a) changes at the facility materially increase the potential for releases of pollutants, (b) actual releases indicate the plan is inadequate, or (c) a letter from the Department identifies inadequacies in the plan. The permittee shall certify in writing, as an attachment to the December Discharge Monitoring Report (DMR), that the annual review has been completed. All BMP plan revisions must be submitted to the Regional Water Engineer within 30 days.	EDP + 6 Months, Annually thereafter on January 28th
001, 01A	<u>WATER TREATMENT CHEMICAL (WTC) ANNUAL REPORT FORM</u> The permittee shall submit a completed WTC Annual Report Form each year that Water Treatment Chemicals are used. The form shall be attached to the December DMR.	Annually on January 28th if WTCs are used
001	<u>MERCURY MINIMIZATION PLAN - SAMPLING</u> Complete Mercury Sampling as required in Short Term Monitoring Program above.	Submit sample results no later than January 28, 2026
001	<u>MERCURY MINIMIZATION PLAN – ANNUAL STATUS REPORT</u> The permittee must complete and maintain onsite an annual mercury minimization status report in accordance with the requirements of this permit.	Annually on January 28th
001	<u>MERCURY - CONDITIONAL EXCLUSION CERTIFICATION</u> Permittee must submit a mercury conditional exclusion certification every five years to maintain MMP Type IV status.	EDP + 5 years, every 5 years thereafter

Unless noted otherwise, the above actions are one-time requirements.

- E. Monitoring and analysis shall be conducted using sufficiently sensitive test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit.
- F. More frequent monitoring of the discharge(s), monitoring point(s), or waters of the State than required by the permit, where analysis is performed by a certified laboratory or where such analysis is not required to be performed by a certified laboratory, shall be included in the calculations and recording of the data on the corresponding DMRs.
- G. Calculations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in this permit.

- H. Unless otherwise specified, all information recorded on the DMRs shall be based upon measurements and sampling carried out during the most recently completed reporting period.
- I. Any laboratory test or sample analysis required by this permit for which the State Commissioner of Health issues certificates of approval pursuant to section 502 of the Public Health Law shall be conducted by a laboratory which has been issued a certificate of approval. Inquiries regarding laboratory certification should be directed to the New York State Department of Health, Environmental Laboratory Accreditation Program.

SPDES Permit Fact Sheet

Albany Port District

Commission

Marmen-Welcon Manufacturing

Plant

NY0312924



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Summary of Permit Changes

A new State Pollutant Discharge Elimination System (SPDES) permit has been drafted for the Marmen-Welcon Manufacturing Plant.

This factsheet summarizes the information used to determine the effluent limitations (limits) and other conditions contained in the permit. General background information including the regulatory basis for the effluent limitations and other conditions are in the [Appendix](#) linked throughout this factsheet.

Administrative History

6/1/2022 The Albany Port District Commission submitted a NY-2C permit application for a new facility. Revised NY-2C permit applications were submitted 8/3/22 and 5/17/23.

The Notice of Complete Application, published in the [Environmental Notice Bulletin](#) and newspapers, contains information on the public notice process.

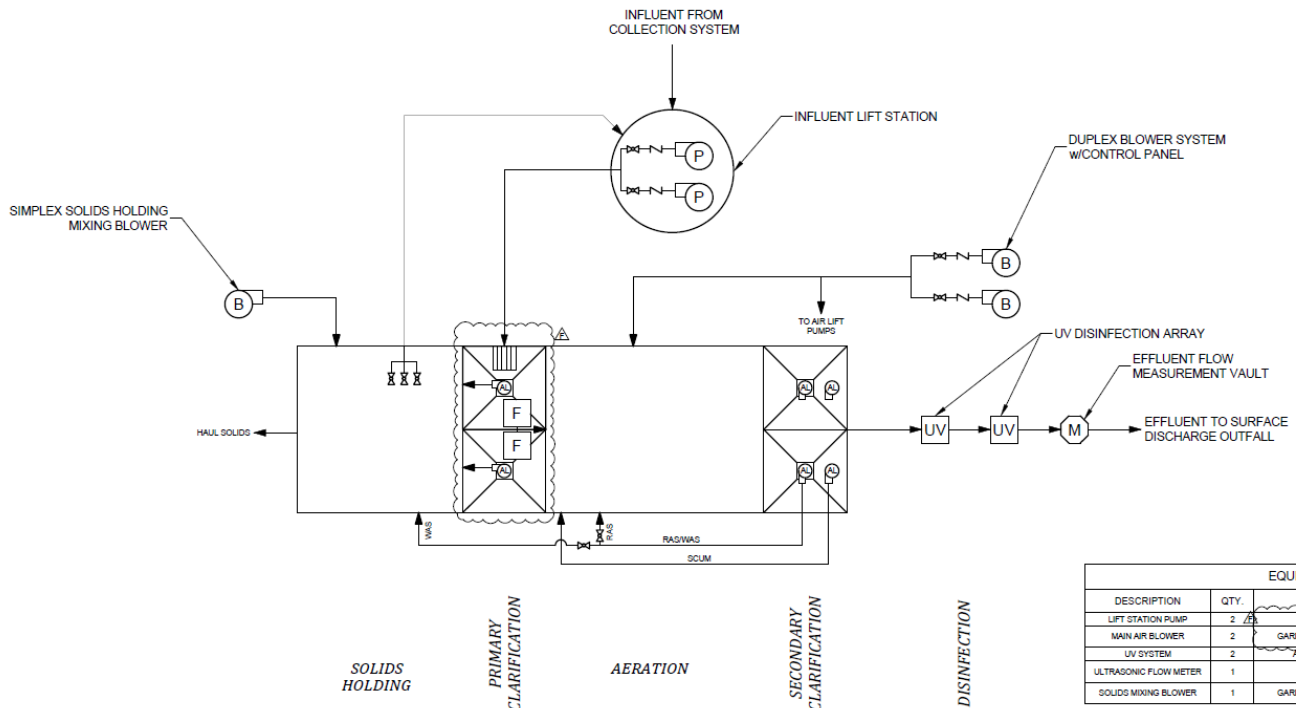
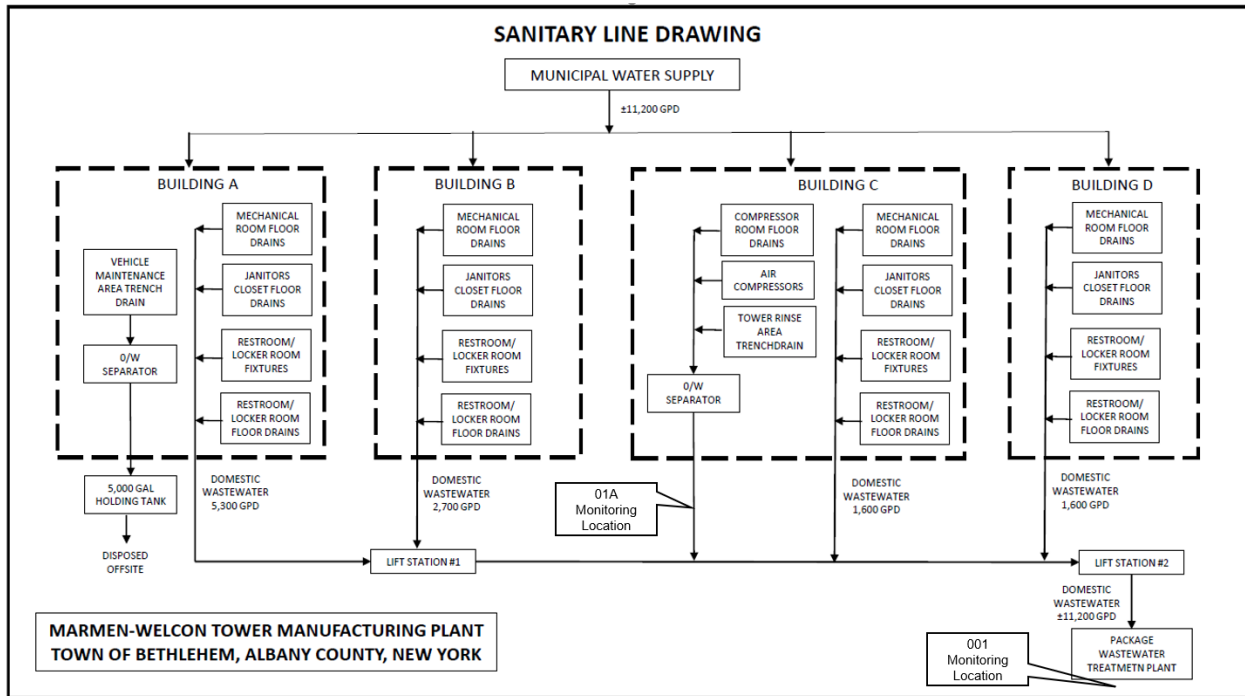
Facility Information

This is an industrial facility (SIC codes 3499, 3449, 3999) that fabricates and manufactures offshore wind tower sections and transition piece sections. The tower sections will be coated in Ecogel (primary ingredient propylene glycol) and rinsed for final phases of manufacturing. The treatment system will be constructed in 2023. Tower washdown and compressor condensate will be treated through an oil and water separator. The vehicle maintenance area will go to an oil and water separator followed by a holding tank for off-site disposal. Restrooms and locker room floor drains will go to the package wastewater treatment plant for treatment. The package plant will provide aerobic digestion and includes the following treatment units:

- Preliminary Treatment: Screening
- Primary Treatment: Primary Clarification
- Secondary Treatment: Activated Sludge
- Disinfection: UV

Sludge will be wet hold and haul.

Site Overview



Existing Effluent Quality

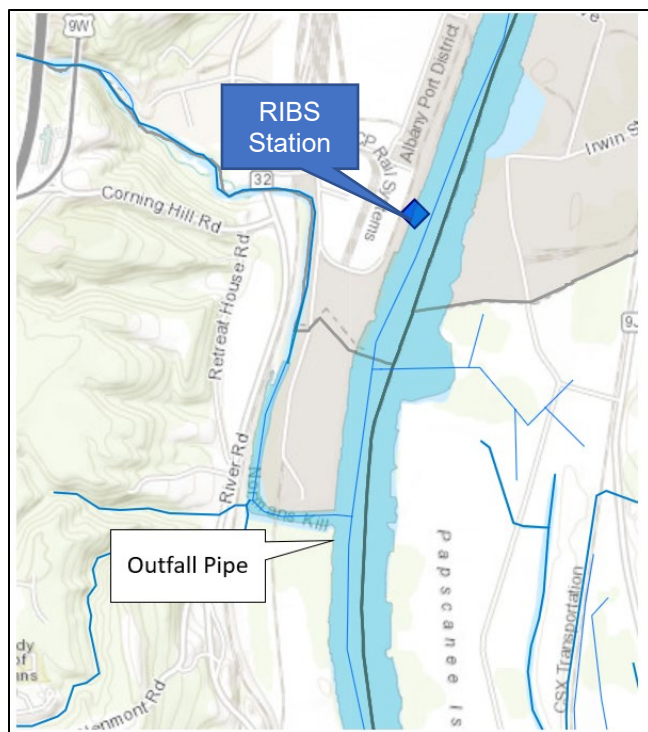
The [Pollutant Summary Table](#) presents the existing effluent quality and effluent limitations. The existing effluent quality was determined from the application submitted by the permittee. [Appendix Link](#)

Receiving Water Information

The facility proposes to discharge via the following outfalls:

Outfall No.	SIC Code	Wastewater Type	Receiving Water
001		Treated Sanitary Sewage	Hudson River, Class C
01A (internal)		Plain (no detergent) wash water, air compressor condensate	Hudson River via 001, Class C
DR-1		Stormwater	Authorized under MSGP permit
DR-2		Stormwater	Authorized under MSGP permit
DR-3		Stormwater	Authorized under MSGP permit
DR-4		Stormwater	Authorized under MSGP permit
DR-5		Stormwater	Authorized under MSGP permit
DR-6		Stormwater	Authorized under MSGP permit
DR-7		Stormwater	Authorized under MSGP permit

Reach Description: The outfall for the facility discharges to the Hudson River (PWL ID 1301-0002) at the confluence of the Normans Kill (H-221-4). The outfall pipe will be above Mean High Water (MHW).



See the [Outfall and Receiving Water Summary Table](#) and [Appendix](#) for additional information.

Impaired Waterbody Information

The Hudson River segment (PWL No. 1301-0002) was first listed on the 1998 [New York State Section 303\(d\) List](#) of Impaired/TMDL Waters as impaired due to PCBs from contaminated sediment. The segment continues to be listed as of the 2018 NYS Section 303(d) List. A TMDL has not been developed to address the impairment, and therefore, there are no applicable wasteload allocations (WLAs) for this facility.

Critical Receiving Water Data & Mixing Zone

Outfall 001 discharges to Hudson, which is a classified tidal waterbody. New York State Department of Environmental Conservation (NYSDEC or Department) Guidance (TOGS 1.3.1) states that a dilution ratio of 10:1 is appropriate for a fully submerged outfall discharging directly into a tidal waterbody. The discharge terminus point for this outfall is at the shoreline (bank discharge) and therefore the effluent mixing with the tidal waterbody will take place along the shoreline rather than the open waters of the Hudson River. The mixing intensity will be reduced due to low momentum of the discharge resulting in less dilution than the specified guidance value; therefore, a dilution ration of 5:1 for acute, chronic, and Human, Aesthetic, Wildlife (HEW) protections is appropriate and has been included in this permit.

Outfall No.	Acute Dilution Ratio A(A)	Chronic Dilution Ratio A(C)	Human, Aesthetic, Wildlife Dilution Ratio (HEW)	Basis
001	5:1	5:1	5:1	TOGS 1.3.1 (for ponded or tidal waterbodies)

Critical receiving water data are listed in the [Pollutant Summary Table](#) at the end of this fact sheet. [Appendix Link](#)

Permit Requirements

The technology based effluent limitations ([TBELs](#)), water quality-based effluent limitations ([WQBELs](#)), [Existing Effluent Quality](#) and a discussion of the selected effluent limitation for each pollutant present in the discharge are provided in the [Pollutant Summary Table](#).

Whole Effluent Toxicity (WET) Testing

None of the seven criteria that are indicative of potential toxicity are applicable to this facility; therefore, WET testing is not included in the permit. [Appendix Link](#)

Anti-backsliding

This is a new permit; therefore, anti-backsliding does not apply.

[Appendix Link](#)

Antidegradation

The permit contains effluent limitations which ensure that the best usages of the receiving waters will be maintained. The Notice of Complete Application published in the Environmental Notice Bulletin contains information on the State Environmental Quality Review (SEQR)¹ determination. [Appendix Link](#)

Discharge Notification Act Requirements

In accordance with the Discharge Notification Act (ECL 17-0815-a), the permittee is required to post a sign at each point of wastewater discharge to surface waters, unless a waiver is obtained. This requirement is new.

Additionally, the permit contains a requirement to make the Discharge Monitoring Report (DMR) sampling data available to the public upon request. This requirement is new.

Best Management Practices (BMPs) for Industrial Facilities

In accordance with 6 NYCRR 750-1.14(f) and 40 CFR 122.44(k), the permittee is required to develop and implement a BMP plan that prevents, or minimizes the potential for, the release of toxic or hazardous pollutants to state waters. The BMP plan requires annual review by the permittee.

Stormwater Pollution Prevention Requirements

The facility discharges stormwater associated with industrial activity and requires SPDES permit coverage under 40 CFR 122.26(a)(6).

Stormwater discharges at this facility are required to obtain coverage under the current Multi-Sector General Permit (MSGP) Sector [AA] (GP-0-23-001).

¹ As prescribed by 6 NYCRR Part 617

Schedule(s) of Additional Submittals

A schedule of additional submittals has been included for the following ([Appendix Link](#)):

- Complete Construction – Provide a Certificate of Completion
- Commence Operation
- Short Term Monitoring for New Discharges
 - Since this is a new facility, parameters listed under Tables A-D of the NY-2C SPDES application are required to be sampled to identify any other parameters associated with the industrial activities at the facility. In accordance with TOGS 1.3.13, emerging contaminants will be sampled as well.
- Water Treatment Chemical (WTC) Annual Report Form
- Best Management Practices Plan
- Mercury Minimization Plan – Sampling
- Mercury Minimization Plan – Annual Status Report
- Mercury – Conditional Exclusion Certification

OUTFALL AND RECEIVING WATER SUMMARY TABLE

Outfall	Latitude	Longitude	Receiving Water Name	Water Class	Water Index No. / Priority Waterbody Listing (PWL) No.	Major / Sub Basin	Hardness (mg/l)	1Q10 (MGD)	7Q10 (MGD)	30Q10 (MGD)	Critical Effluent Flow (GPD)	Dilution Ratio		
												A(A)	A(C)	HEW
001	42° 36' 24" N	73° 45' 48" W	Hudson River	C	H-5 PWL: 1301-0002	13 / 01	80 ⁵	Tidal Waterbody			13,300	5:1	5:1	5:1
01A	42° 36' 18" N	73° 46' 3" W	Hudson River via Outfall 001	C	H-5 PWL: 1301-0002	13 / 01	80 ²	Tidal Waterbody			2,100	5:1	5:1	5:1

POLLUTANT SUMMARY TABLE

Outfall 001

Outfall #	001	Description of Wastewater: Treated Sanitary Sewer and Plain (no detergent) Wash Water, Air Compressor Condensate from Outfall 01A.													
		Type of Treatment: Screening, Primary Clarification, Activated Sludge, UV Disinfection													
Effluent Parameter	Units	Averaging Period	Existing Discharge Data			TBELs		Water Quality Data & WQBELs						ML	Basis for Permit Requirement
			Permit Limit	Existing Effluent Quality ³	# of Data Points Detects / Non-Detects	Limit	Basis	Ambient Bkgd. Conc.	Projected Instream Conc.	WQ Std. or GV	WQ Type	Calc. WQBEL	Basis for WQBEL		
General Notes: This is a new facility; therefore, existing discharge data is not available. Proposed data was obtained from the application provided by the permittee. All applicable water quality standards were reviewed for development of the WQBELs. The standard and WQBEL shown below represent the most stringent.															
Flow Rate	GPD	Monthly Avg	-	-	-	13,300	Design Flow	Narrative: No alterations that will impair the waters for their best usages.				703.2	-	TBEL	
	The flow limit is set at the design flow of the wastewater treatment facility.														
pH	SU	Minimum	-	-	-	6.0	TOGS 1.2.1	7.90 ⁴	-	6.5 – 8.5	Range	-	703.3	-	TBEL
		Maximum	-	-	-	9.0									
	Consistent with TOGS 1.2.1, TBELs reflect the available treatment technology listed in Attachment C. Given the available dilution an effluent limitation equal to the TBEL is reasonably protective of the WQS.														

² Ambient hardness data obtained from RIBS Station 13-LHUD-125.8.

³ Existing Effluent Quality: Permittee's estimate based on NY-2C application submitted for a new facility.

⁴ Ambient pH obtained from HRECOS Port of Albany Water Quality 2016 data, 80th percentile.

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Date: August 31, 2023 v.1.13
 Permit Writer: Bonnie Starr
 Water Quality Reviewer: Edward Schneider

Outfall #	001	Description of Wastewater: Treated Sanitary Sewer and Plain (no detergent) Wash Water, Air Compressor Condensate from Outfall 01A.													
		Type of Treatment: Screening, Primary Clarification, Activated Sludge, UV Disinfection													
Effluent Parameter	Units	Averaging Period	Existing Discharge Data			TBELs		Water Quality Data & WQBELs						ML	Basis for Permit Requirement
			Permit Limit	Existing Effluent Quality ³	# of Data Points Detects / Non-Detects	Limit	Basis	Ambient Bkgd. Conc.	Projected Instream Conc.	WQ Std. or GV	WQ Type	Calc. WQBEL	Basis for WQBEL		
Temperature	°F	Daily Max	-	-	-	Monitor	750-1.13 Monitor	-	Narrative (Non-Trout): The water temperature at the surface of a stream shall not be raised to more than 90F at any point and... shall not be raised or lowered to more than 5F over the temperature that existed before the addition				704.2	-	TBEL
	Consistent with 6 NYCRR 750-1.13(a), monitoring is required and may be used to inform future permitting decisions.														
Dissolved Oxygen (DO)	mg/L	Daily Min	-	-	-	2.0	TOGS 1.3.3	-	-	(Non-Trout) 4.0 mg/L	Narrative	-	703.3	-	Monitor
	As the facility is discharging to the tidal portion on the Hudson River (downstream of Troy Dam) DO sag curve models cannot be performed. As the flow of the facility is orders of magnitude smaller than flow of the Hudson River the need for WQBELs for DO and BOD ₅ are unnecessary and the TBELs are protective of water quality.														
5-day Biochemical Oxygen Demand (BOD ₅)	mg/L	Monthly Avg	-	-	-	30	TOGS 1.3.3	-	See Dissolved Oxygen			-	703.3	-	TBEL
	7 Day Avg	-	-	-	-	-	-								
	Monthly Avg	-	-	-	-	-	-								
	7 Day Avg	-	-	-	-	-	-								
	% Rem	Minimum	-	-	-	85	TOGS 1.3.3					-			
Consistent with TOGS 1.3.3 for POTWs, TBELs reflect secondary treatment standards. See justification for Dissolved Oxygen. Sampling will be conducted monthly, therefore, 7-day average limit is not necessary.															
Total Suspended Solids (TSS)	mg/L	Monthly Avg	-	-	-	30	TOGS 1.3.3	-	Narrative: None from sewage, industrial wastes or other wastes that will cause deposition or impair the waters for their best usages.			703.2	-	TBEL	
		7 Day Avg	-	-	-	-	-								
	lbs/d	Monthly Avg	-	-	-	-	-								
		7 Day Avg	-	-	-	-	-								
		% Rem	Minimum	-	-	-	85								TOGS 1.3.3
Consistent with TOGS 1.3.3 for POTWs, TBELs reflect secondary treatment standards. Given that adequate dilution is available, an effluent limitation equal to the TBEL, and consistent with TOGS 1.3.3, is reasonably protective of water quality standards. Sampling will be conducted monthly, therefore, 7-day average limit is not necessary.															

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 Water Quality Reviewer: Edward Schneider

Outfall #	001	Description of Wastewater: Treated Sanitary Sewer and Plain (no detergent) Wash Water, Air Compressor Condensate from Outfall 01A.													
		Type of Treatment: Screening, Primary Clarification, Activated Sludge, UV Disinfection													
Effluent Parameter	Units	Averaging Period	Existing Discharge Data			TBELs		Water Quality Data & WQBELs						ML	Basis for Permit Requirement
			Permit Limit	Existing Effluent Quality ³	# of Data Points Detects / Non-Detects	Limit	Basis	Ambient Bkgd. Conc.	Projected Instream Conc.	WQ Std. or GV	WQ Type	Calc. WQBEL	Basis for WQBEL		
Settleable Solids	mL/L	Daily Max	-	-	-	0.3	TOGS 1.3.3	-	Narrative: None from sewage, industrial wastes or other wastes that will cause deposition or impair the waters for their best usages				703.2	-	TBEL
Consistent with TOGS 1.3.3, the effluent limitation is equal to the TBEL of 0.3 mL/L for POTWs providing secondary treatment without filtration. Given that adequate dilution is available the TBEL is reasonably protective of WQS.															
Nitrogen, Ammonia (as N) June 1 st – Oct. 31 st	mg/L	Monthly Avg	-	-	-	-	-	0.081	-	.91	A(C)	4.2	703.5	-	WQBEL
The WQS for Ammonia was determined from TOGS 1.1.1 from a summer pH of 7.9 and a temperature of 25. The temperature of the receiving waterbody was an assumed value and consistent with TOGS 1.3.1E. The pH of the receiving waterbody was calculated from HRECOS Port of Albany Water Quality 2016 data, 80th percentile. In accordance with TOGS 1.3.1E, the HEW dilution ratio was applied to calculate the applicable WQBEL for the facility.															
Nitrogen, Ammonia (as N) Nov. 1 st – May 31 st	mg/L	Monthly Avg	-	-	-	-	-	0.081	-	1.34	A(C)	6.4	703.5	-	WQBEL
The WQS for Ammonia was determined from TOGS 1.1.1 from a summer pH of 7.9 and a temperature of 10. The temperature of the receiving waterbody was an assumed value and consistent with TOGS 1.3.1E. The pH of the receiving waterbody was calculated from HRECOS Port of Albany Water Quality 2016 data, 80th percentile. In accordance with TOGS 1.3.1E, the HEW dilution ratio was applied to calculate the applicable WQBEL for the facility.															
Total Mercury	ng/L	Daily Max	-	-	-	-	ILCA	-	-	0.7	H(FC)	-	-	-	DOW 1.3.10
	ng/L	12 MRA	-	-	-	-	EEQ	-	-	0.7	H(FC)	-	-	-	
	There are no known sources of mercury at the facility. Confirmatory sampling will be conducted after operation commences. See Mercury section of this factsheet for more details.														

Outfall #	001	Description of Wastewater: Treated Sanitary Sewer and Plain (no detergent) Wash Water, Air Compressor Condensate from Outfall 01A.													
		Type of Treatment: Screening, Primary Clarification, Activated Sludge, UV Disinfection													
Effluent Parameter	Units	Averaging Period	Existing Discharge Data			TBELs		Water Quality Data & WQBELs						ML	Basis for Permit Requirement
			Permit Limit	Existing Effluent Quality ³	# of Data Points Detects / Non-Detects	Limit	Basis	Ambient Bkgd. Conc.	Projected Instream Conc.	WQ Std. or GV	WQ Type	Calc. WQBEL	Basis for WQBEL		
Coliform, Fecal	#/100 ml	30d Geo Mean	-	-	-	200	TOGS 1.3.3	-	Narrative: The monthly geometric mean, from a minimum of five examinations, shall not exceed 200.				703.4	-	TBEL
		7d Geo Mean	-	-	-	400	TOGS 1.3.3	-							
	Consistent with TOGS 1.3.3, effluent disinfection is required seasonally from May 1st - October 31st, due to the class of the receiving waterbody. Fecal coliform limits equal to the TBEL are specified.														
Total Residual Chlorine (TRC)	mg/L	Daily Max	-	-	-	2.0	TOGS 1.3.3	-	-	0.005	A(C)	0.025	703.5	0.03	ML
	Seasonal effluent disinfection is being added to the permit. Only if you are using chlorine for disinfection. Due to the low dilution, the calculated WQBEL is less than the TBEL and less than the minimum level of detection. Therefore, an effluent limitation equal to the minimum level of detection of 0.030 mg/L is appropriate.														
Additional Pollutants Detected															
Oil & Grease	mg/L	Daily Max	-	-	-	15	TOGS 1.2.1	-	No residue attributable to sewage, industrial wastes or other wastes, nor visible oil film nor globules of grease.				703.2		TBEL
	Consistent with TOGS 1.2.1, TBELs reflect the available treatment technology listed in Attachment C.														
1,2 Propylene Glycol (CAS 57-55-6)	mg/L	Daily Max	-	-	-	-	-	-	-	-	-	-	-	-	No Limitation
	There is no applicable water quality standard or guidance value for propylene glycol. Propylene glycol has an oxygen demanding component. The current limits for BOD ₅ and dissolved oxygen will account and be protective of the dissolved oxygen in the receiving waterbody.														
[2-(2-Methoxymethyl ethoxy) methylethoxy] propanol (CAS 25498-49-1)	mg/L	Daily Max	-	-	-	-	-	-	-	-	-	-	-	-	No Limitation
	There is no applicable water quality standard or guidance value for [2-(2-Methoxymethylethoxy) methylethoxy] propanol. No monitoring is required at this time.														
Hydroxyethyl Cellulose (CAS 9004-62-0)	mg/L	Daily Max	-	-	-	-	-	-	-	-	-	-	-	-	No Limitation
	There is no applicable water quality standard or guidance value for hydroxyethyl cellulose. No monitoring is required at this time.														

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 Water Quality Reviewer: Edward Schneider

USEPA Water Quality Criteria for Industrial															
Outfall #	001	Description of Wastewater: Treated Sanitary Sewer and Plain (no detergent) Wash Water, Air Compressor Condensate from Outfall 01A.													
		Type of Treatment: Screening, Primary Clarification, Activated Sludge, UV Disinfection													
Effluent Parameter	Units	Averaging Period	Existing Discharge Data			TBELs		Water Quality Data & WQBELs						ML	Basis for Permit Requirement
			Permit Limit	Existing Effluent Quality ³	# of Data Points Detects / Non-Detects	Limit	Basis	Ambient Bkgd. Conc.	Projected Instream Conc.	WQ Std. or GV	WQ Type	Calc. WQBEL	Basis for WQBEL		
Diethanolamine (CAS 111-42-2)	mg/L	Daily Max	-	-	-	-	-	-	-	-	-	-	-	-	No Limitation
There is no applicable water quality standard or guidance value for diethanolamine.															

Outfall 01A

Outfall #	01A	Description of Wastewater: Plain (no detergent) Wash Water, Air Compressor Condensate													
		Type of Treatment: Oil & Water Separator													
Effluent Parameter	Units	Averaging Period	Existing Discharge Data			TBELs		Water Quality Data & WQBELs						ML	Basis for Permit Requirement
			Permit Limit	Existing Effluent Quality ⁵	# of Data Points Detects / Non-Detects	Limit	Basis	Ambient Bkgd. Conc.	Projected Instream Conc.	WQ Std. or GV	WQ Type	Calc. WQBEL	Basis for WQBEL		
General Notes: This is a new facility. Therefore, existing discharge data is not available. Proposed obtained from the application provided by the permittee. All applicable water quality standards were reviewed for development of the WQBELs. The standard and WQBEL shown below represent the most stringent.															
Flow Rate	GPD	Monthly Avg	-	-	-	2,100	Design Flow	Narrative: No alterations that will impair the waters for their best usages.				703.2	-	TBEL	
	The flow limit is set at the design flow of the wastewater treatment facility.														
pH	SU	Minimum	-	-	-	6.0	TOGS 1.2.1	-	-	6.5 – 8.5	Range	-	703.3	-	TBEL
		Maximum	-	-	-	9.0		-	-	6.5 – 8.5	Range	-	703.3	-	TBEL
	Consistent with TOGS 1.2.1, TBELs reflect the available treatment technology listed in Attachment C. Given the available dilution an effluent limitation equal to the TBEL is reasonably protective of the WQS.														
Temperature	°F	Daily Max	-	-	-	-	-	-	-			-	-	No Limitation	
	Outfall 01A is an internal outfall. Temperature will be monitored at Outfall 001.														
Total Suspended Solids	mg/L	Monthly Avg	-	-	-	50	BPJ	-	Narrative: None from sewage, industrial wastes or other wastes that will cause deposition or impair the waters for their best usages.			703.2	-	TBEL	
		7 Day Avg	-	-	-	-	-								

⁵ Existing Effluent Quality: Permittee's estimate based on NY-2C application submitted for a new facility.

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 Water Quality Reviewer: Edward Schneider

Outfall #	01A	Description of Wastewater: Plain (no detergent) Wash Water, Air Compressor Condensate														
		Type of Treatment: Oil & Water Separator														
Effluent Parameter	Units	Averaging Period	Existing Discharge Data			TBELs		Water Quality Data & WQBELs						ML	Basis for Permit Requirement	
			Permit Limit	Existing Effluent Quality ⁵	# of Data Points Detects / Non-Detects	Limit	Basis	Ambient Bkgd. Conc.	Projected Instream Conc.	WQ Std. or GV	WQ Type	Calc. WQBEL	Basis for WQBEL			
Additional Pollutants Detected																
Oil & Grease	mg/L	Daily Max	-	-	-	15	TOGS 1.2.1	-	No residue attributable to sewage, industrial wastes or other wastes, nor visible oil film nor globules of grease.					703.2		TBEL
	Consistent with TOGS 1.2.1, TBELs reflect the available treatment technology listed in Attachment C.															
1,2 Propylene Glycol (CAS 57-55-6)																
	Not listed in TOGS 1.1.1 or 703.5. Propylene Glycol has an oxygen demanding component. On Outfall 001 the BOD ₅ will help ensure the DO standard in protected in the Hudson.															
[2-(2-Methoxymethyl ethoxy) methylethoxy] propanol (CAS 25498-49-1)																
	Not list in TOGS 1.1.1 or 703.5. No monitoring required at this time.															
Hydroxyethyl Cellulose (CAS 9004-62-0)																
	Not list in TOGS 1.1.1 or 703.5. No monitoring required at this time.															
Diethanolamine (CAS 111-42-2)																
	Not list in TOGS 1.1.1 or 703.5. No monitoring required at this time.															

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 Water Quality Reviewer: Edward Schneider

Outfall #	01A	Description of Wastewater: Plain (no detergent) Wash Water, Air Compressor Condensate													
		Type of Treatment: Oil & Water Separator													
Effluent Parameter	Units	Averaging Period	Existing Discharge Data			TBELs		Water Quality Data & WQBELs						ML	Basis for Permit Requirement
			Permit Limit	Existing Effluent Quality ⁵	# of Data Points Detects / Non-Detects	Limit	Basis	Ambient Bkgd. Conc.	Projected Instream Conc.	WQ Std. or GV	WQ Type	Calc. WQBEL	Basis for WQBEL		
Foam (visible)	mg/L	Daily Max	-	-	-	No visible foam	BPJ	-	-			-		TBEL	
	Facility shall use plain, non-detergent water for rinsing. No visible foam shall be present.														

Appendix: Regulatory and Technical Basis of Permit Authorizations

The Appendix is meant to supplement the factsheet for multiple types of SPDES permits. Portions of this Appendix may not be applicable to this specific permit.

Regulatory References

The provisions of the permit are based largely upon 40 CFR 122 subpart C and 6 NYCRR Part 750 and include monitoring, recording, reporting, and compliance requirements, as well as general conditions applicable to all SPDES permits. Below are the most common citations for the requirements included in SPDES permits:

- Clean Water Act (CWA) 33 section USC 1251 to 1387
- Environmental Conservation Law (ECL) Articles 17 and 70
- Federal Regulations
 - 40 CFR, Chapter I, subchapters D, N, and O
- State environmental regulations
 - 6 NYCRR Part 621
 - 6 NYCRR Part 750
 - 6 NYCRR Parts 700 - 704 – Best use and other requirements applicable to water classes
 - 6 NYCRR Parts 800 – 941 - Classification of individual surface waters
- NYSDEC water program policy, referred to as Technical and Operational Guidance Series (TOGS)
- USEPA Office of Water Technical Support Document for Water Quality-based Toxics Control, March 1991, Appendix E

The following is a quick guide to the references used within the factsheet:

SPDES Permit Requirements	Regulatory Reference
Anti-backsliding	6 NYCRR 750-1.10(c)
Best Management Practices (BMPS) for CSOs	6 NYCRR 750-2.8(a)(2)
Environmental Benefits Permit Strategy (EBPS)	6 NYCRR 750-1.18, NYS ECL 17-0817(4), TOGS 1.2.2 (revised January 25,2012)
Exceptions for Type I SSO Outfalls (bypass)	6 NYCRR 750-2.8(b)(2), 40 CFR 122.41
Mercury Multiple Discharge Variance	Division of Water Program Policy 1.3.10 (DOW 1.3.10)
Mixing Zone and Critical Water Information	TOGS 1.3.1 & Amendments
PCB Minimization Program	40 CFR Part 132 Appendix F Procedure 8, 6 NYCRR 750-1.13(a) and 750-1.14(f), and TOGS 1.2.1
Pollutant Minimization Program (PMP)	6 NYCRR 750-1.13(a), 750-1.14(f), TOGS 1.2.1
Schedules of Compliance	6 NYCRR 750-1.14
Sewage Pollution Right to Know (SPRTK)	NYS ECL 17-0826-a, 6 NYCRR 750-2.7
State Administrative Procedure Act (SAPA)	State Administrative Procedure Act Section 401(2), 6 NYCRR 621.11(l)
State Environmental Quality Review (SEQR)	6 NYCRR Part 617
USEPA Effluent Limitation Guidelines (ELGs)	40 CFR Parts 405-471
USEPA National CSO Policy	33 USC Section 1342(q)
Whole Effluent Toxicity (WET) Testing	TOGS 1.3.2
General Provisions of a SPDES Permit Department Request for Additional Information	NYCRR 750-2.1(i)

Outfall and Receiving Water Information

Impaired Waters

The [NYS 303\(d\) List of Impaired/TMDL Waters](#) identifies waters where specific best usages are not fully supported. The Department must consider the development of a Total Maximum Daily Load (TMDL) or other strategy to reduce the input of the specific pollutant(s) that restrict waterbody uses, in order to restore and protect such uses. SPDES permits must include effluent limitations necessary to implement a WLA of an EPA-approved TMDL (6 NYCRR 750-1.11(a)(5)(ii)), if applicable. In accordance with 6 NYCRR 750-1.13(a), permittees discharging to waters which are on the list but do not yet have a TMDL developed may be required to perform additional monitoring for the parameters causing the impairment. Accurate monitoring data is needed to

determine the existing capabilities of the wastewater treatment plants and to assure that wasteload allocations (WLAs) are allocated equitably.

Existing Effluent Quality

The existing effluent quality is determined from a statistical evaluation of effluent data in accordance with TOGS 1.2.1 and the USEPA Office of Water, Technical Support Document for Water Quality-based Toxics Control, March 1991, Appendix E (TSD). The existing effluent quality is equal to the 95th (monthly average) and 99th (daily maximum) percentiles of the lognormal distribution of existing effluent data. When there are greater than three non-detects, a delta-lognormal distribution is assumed, and delta-lognormal calculations are used to determine the monthly average and daily maximum pollutant concentrations. Statistical calculations are not performed for parameters where there are less than ten data points. If additional data is needed, a monitoring requirement may be specified either through routine monitoring or a short-term high intensity monitoring program. The [Pollutant Summary Table](#) identifies the number of sample data points available.

Permit Requirements

Basis for Effluent Limitations

Sections 101, 301, 304, 308, 401, 402, and 405 of the CWA and Titles 5, 7, and 8 of ECL Article 17, as well as their implementing federal and state regulations, and related guidance, provide the basis for the effluent limitations and other conditions in the permit.

When conducting a full technical review of an existing permit, the previous effluent limitations form the basis for the next permit. Existing effluent quality is evaluated against the existing effluent limitations to determine if these should be continued, revised, or deleted. Generally, existing limitations are continued unless there are changed conditions at the facility, the facility demonstrates an ability to meet more stringent limitations, and/or in response to updated regulatory requirements. Pollutant monitoring data is also reviewed to determine the presence of additional contaminants that should be included in the permit based on a reasonable potential analysis to cause or contribute to a water quality standards violation.

Anti-backsliding

Anti-backsliding requirements are specified in the CWA sections 402(o) and 303(d)(4), ECL 17-0809, and regulations at 40 CFR 122.44(l) and 6 NYCRR 750-1.10(c) and (d). Generally, the relaxation of effluent limitations in permits is prohibited unless one of the specified exceptions applies, which will be cited on a case-by-case basis in this factsheet. Consistent with current case law⁶ and USEPA interpretation⁷ anti-backsliding requirements do not apply should a revision to the final effluent limitation take effect before the scheduled date of compliance for that final effluent limitation.

Antidegradation Policy

The Department implements the antidegradation portion of the CWA based upon two documents: (1) Organization and Delegation Memorandum #85-40, "Water Quality Antidegradation Policy" (September 9, 1985); and, (2) TOGS 1.3.9, "Implementation of the NYSDEC Antidegradation Policy – Great Lakes Basin (Supplement to Antidegradation Policy dated September 9, 1985)." The permit for the facility contains effluent limitations which ensure that the existing best usage of the receiving waters will be maintained. To further support the antidegradation policy, SPDES applications have been reviewed in accordance with the State Environmental Quality Review Act (SEQR) as prescribed by 6 NYCRR Part 617.

Effluent Limitations

In developing a permit, the Department determines the technology-based effluent limitations (TBELs) and then evaluates the water quality expected to result from technology controls to determine if any exceedances of water quality criteria in the receiving water might result. If there is a reasonable potential for exceedances of water quality criteria to occur, water quality-based effluent limitations (WQBELs) are developed. A WQBEL is designed

⁶ American Iron and Steel Institute v. Environmental Protection Agency, 115 F.3d 979, 993 n.6 (D.C. Cir. 1997)

⁷ U.S. EPA, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California; 65 Fed. Reg. 31682, 31704 (May 18, 2000); Proposed Water Quality Guidance for the Great Lakes System, 58 Fed. Reg. 20802, 20837 & 20981 (April 16, 1993)

to ensure that the water quality standards of receiving waters are met. In general, the CWA requires that the effluent limitations for a particular pollutant are the more stringent of either the TBEL or WQBEL.

Technology-based Effluent Limitations (TBELs) for Industrial Facilities

A TBEL requires a minimum level of treatment for industrial point sources based on currently available treatment technologies and/or Best Management Practices (BMPs). CWA sections 301(b) and 402, ECL sections 17-0509, 17-0809 and 17-0811, and 6 NYCRR 750-1.11 require technology-based controls on effluents. TBELs are set based upon an evaluation of New Source Performance Standards (NSPS), Best Available Technology Economically Achievable (BAT), Best Conventional Pollutant Control Technology (BCT), Best Practicable Technology Currently Available (BPT), and/or Best Professional Judgment (BPJ).

USEPA Effluent Limitation Guidelines (ELGs) Applicable to Facility

In many cases, BPT, BCT, BAT and NSPS limitations are based on effluent guidelines developed by USEPA for specific industries, as promulgated under 40 CFR Parts 405-471. Applicable guidelines, pollutants regulated by these guidelines, and the effluent limitation derivation for facilities subject to these guidelines is in the [USEPA Effluent Limitation Guideline Calculations Table](#).

Best Professional Judgement (BPJ)

For substances that are not explicitly limited by regulations, the permit writer is authorized to use BPJ in developing TBELs. Consistent with CWA 402(a)(1) and ECL Section 17-0811, the Department is authorized to issue a permit containing "any further limitations necessary to ensure compliance with water quality standards adopted pursuant to state law". BPJ limitations may be set on a case-by-case basis using any reasonable method that takes into consideration the criteria set forth in 40 CFR 125.3. Applicable state regulations include 6 NYCRR 750-1.11. The BPJ limitation considers the existing technology present at the facility, the statistically calculated existing effluent quality for that parameter, and any unique or site-specific factors relating to the facility. Technology limitations generally achievable for various treatment technologies are included in TOGS 1.2.1, Attachment C. These limitations may be used for the listed parameters when the technology employed at the facility is listed.

Water Quality-Based Effluent Limitations (WQBELs)

In addition to the TBELs, permits must include additional or more stringent effluent limitations and conditions, including those necessary to protect water quality. CWA Section 101 and 301(b)(1)(C), 40 CFR 122.44(d)(1), and 6 NYCRR 750-1.11 require that permits include limitations for all pollutants or parameters which are or may be discharged at a level which may cause or contribute to an exceedance of any State water quality standard adopted pursuant to ECL 17-0301. Water quality standards can be found under 6 NYCRR Parts 700-704. The limitations must be stringent enough to ensure that water quality standards are met and must be consistent with any applicable WLA which may be in effect through a TMDL for the receiving water. These and other requirements are summarized in TOGS 1.1.1, 1.3.1, 1.3.2, 1.3.5 and 1.3.6. The Department considers a mixing zone analysis, critical flows, and reasonable potential analysis when developing a WQBEL.

Mixing Zone Analyses

In accordance with TOGS 1.3.1., the Department may perform additional analysis of the mixing condition between the effluent and the receiving waterbody. Mixing zone analyses using plume dispersion modeling are conducted in accordance with the following: "EPA Technical Support Document for Water Quality-Based Toxics Control" (March 1991); EPA Region VIII's "Mixing Zones and Dilution Policy" (December 1994); NYSDEC TOGS 1.3.1, "Total Maximum Daily Loads and Water Quality-Based Effluent Limitations" (July 1996); "CORMIX v11.0" (2019).

Critical Flows

In accordance with TOGS 1.2.1 and 1.3.1, WQBELs are developed using dilution ratios that relate the critical low flow condition of the receiving waterbody to the critical effluent flow. The critical

low flow condition used in the dilution ratio will be different depending on whether the limitations are for aquatic or human health protection. For chronic aquatic protection, the critical low flow condition of the waterbody is typically represented by the 7Q10 flow and is calculated as the lowest average flow over a 7-day consecutive period within 10 years. For acute aquatic protection, the critical low flow condition is typically represented by the 1Q10 and is calculated as the lowest 1-day flow within 10 years. Nevertheless, NYSDEC considers using 50% of the 7Q10 to be equivalent to the 1Q10 flow. For the protection of human health, the critical low flow condition is typically represented by the 30Q10 flow and is calculated as the lowest average flow over a 30-day consecutive period within 10 years. Nevertheless, NYSDEC considers using 1.2 x 7Q10 to be equivalent to the 30Q10. The 7Q10 or 30Q10 flow is used with the critical effluent flow to calculate the dilution ratio. The critical effluent flow can be the maximum daily flow reported on the permit application, the maximum of the monthly average flows from discharge monitoring reports for the past three years, or the facility design flow. When more than one applicable standard exists for aquatic or human health protection for a specific pollutant, a reasonable potential analysis is conducted for each applicable standard and corresponding critical flow to ensure effluent limitations are sufficiently stringent to ensure all applicable water quality standards are met as required by 40 CFR 122.44(d)(1)(i). For brevity, the pollutant summary table reports the results of the most conservative scenario.

Reasonable Potential Analysis (RPA)

The Reasonable Potential Analysis (RPA) is a statistical estimation process, outlined in the 1991 USEPA Technical Support Document for Water Quality-based Toxics Control (TSD), Appendix E. This process uses existing effluent quality data and statistical variation methodology to project the maximum amounts of pollutants that could be discharged by the facility. This projected instream concentration (PIC) is calculated using the appropriate ratio and compared to the water quality standard (WQS). When the RPA process determines the WQS may be exceeded, a WQBEL is required. The procedure for developing WQBELs includes the following steps:

- 1) Identify the pollutants present in the discharge(s) based upon existing data, sampling data collected by the permittee as part of the permit application or a short-term high intensity monitoring program, or data gathered by the Department;
- 2) Identify water quality criteria applicable to these pollutants;
- 3) Determine if WQBELs are necessary (i.e. reasonable potential analysis (RPA)). The RPA will utilize the procedure outlined in Chapter 3.3.2 of EPA's Technical Support Document (TSD). As outlined in the TSD, for parameters with limited effluent data the RPA may include multipliers to account for effluent variability; and
- 4) Calculate WQBELs (if necessary). Factors considered in calculating WQBELs include available dilution of effluent in the receiving water, receiving water chemistry, and other pollutant sources.

The Department uses modeling tools to estimate the expected concentrations of the pollutant in the receiving water and develop WQBELs. These tools were developed in part using the methodology referenced above. If the estimated concentration of the pollutant in the receiving water is expected to exceed the ambient water quality standard or guidance value (i.e., numeric interpretation of a narrative water quality standard), then there is a reasonable potential that the discharge may cause or contribute to an exceedance of any State water quality standard adopted pursuant to ECL 17-0301. If a TMDL is in place, the facility's WLA for that pollutant is applied as the WQBEL.

For carbonaceous and nitrogenous oxygen demanding pollutants, the Department uses a model which incorporates the Streeter-Phelps equation. The equation relates the decomposition of inorganic and organic materials along with oxygen reaeration rates to compute the downstream dissolved oxygen concentration for comparison to water quality standards.

A Watershed Maximum Daily Load (WMDL) may be developed by the Department to account for the cumulative effect of multiple discharges of conservative toxic pollutants to ensure water quality standards are met in downstream segments. The WMDL uses a simple dilution model, assuming full mix in the receiving stream, to calculate the maximum allowable pollutant load that can be discharged and still meet water quality standards during critical low flow in downstream segments such as those with sensitive receptors (e.g., public water supply) or higher water classification. WQBELs are established to ensure that the cumulative mass load from point source discharges does not exceed the maximum allowable load to ensure permit limits are protective of water quality.

Minimum Level of Detection

Pursuant to 40 CFR 122.44(i)(1)(iv) and 6 NYCRR 750-2.5(d), SPDES permits must contain monitoring requirements using sufficiently sensitive test procedures approved under 40 CFR Part 136. A method is "sufficiently sensitive" when the method's minimum level (ML) is at or below the level of the effluent limitation established in the permit for the measured pollutant parameter; or the lowest ML of the analytical methods approved under 40 CFR Part 136. The ML represents the lowest level that can be measured within specified limitations of precision and accuracy during routine laboratory operations on most effluent matrices. When establishing effluent limitations for a specific parameter (based on technology or water quality requirements), it is possible that the calculated limitation will fall below the ML established by the approved analytical method(s). In these instances, the calculated limitation is included in the permit with a compliance level set equal to the ML of the most sensitive method.

Monitoring Requirements

CWA Section 308, 40 CFR 122.44(i), 6 NYCRR 750-1.13, and 750-2.5 require that monitoring be included in permits to determine compliance with effluent limitations. Additional effluent monitoring may also be required to gather data to determine if effluent limitations may be required. The permittee is responsible for conducting the monitoring and reporting results on DMRs. The permit contains the monitoring requirements for the facility. Monitoring frequency is based on the minimum sampling necessary to adequately monitor the facility's performance and characterize the nature of the discharge of the monitored flow or pollutant. Variable effluent flows and pollutant levels may be required to be monitored at more frequent intervals than relatively constant effluent flow and pollutant levels (6 NYCRR 750-1.13). For industrial facilities, sampling frequency is based on guidance provided in TOGS 1.2.1. For municipal facilities, sampling frequency is based on guidance provided in TOGS 1.3.3.

Other Conditions

Schedules of Compliance

Schedules of compliance are included in accordance with 40 CFR Part 132 Attachment F, Procedure 9, 40 CFR 122.47 and 6 NYCRR 750-1.14. Schedules of compliance are intended to, in the shortest reasonable time, achieve compliance with applicable effluent standards and limitations, water quality standards, and other applicable requirements. Where the time for compliance is more than nine months, the schedule of compliance must include interim requirements and dates for their achievement. If the time necessary to complete the interim milestones is more than nine months, and not readily divisible into stages for completion, progress reports must be required.

Schedule(s) of Additional Submittals

Schedules of Additional Submittals are used to summarize the deliverables required by the permit not identified in a separate Schedule of Compliance.

Best Management Practices (BMP) for Industrial Facilities

BMP plans are authorized for inclusion in SPDES permits pursuant to CWA 304(e) and 402 (a)(1) and 6 NYCRR 750-1.14(f). The regulations pertaining to BMPs are promulgated under 40 CFR Part 125, Subpart K. These regulations specifically address surface water discharges.

STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

For

MARMEN-WELCON TOWER MANUFACTURING PLANT

PREPARED FOR:



ALBANY PORT DISTRICT COMMISSION
106 SMITH BOULEVARD
ALBANY, NY 12202
(518) 463-8763
www.portofalbany.us

PREPARED BY:



60 RAILROAD PLACE, SUITE 402
SARATOGA SPRINGS, NY 12866



FINAL SITE PLAN SUBMISSION

JUNE 20, 2022

(Field Change Amendment – August 4, 2025)

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1. INTRODUCTION

A stormwater management assessment has been conducted for the proposed project in order to protect the waters of the State of New York from the adverse impacts of stormwater runoff. This report presents an analysis of the project in accordance with the *New York State Department of Environmental Conservation SPDES General Permit for Stormwater Discharges from Construction Activity Permit No. GP-0-20-001*. A separate Drainage Design Report (included as Appendix C of this report) has been developed to address the *New York State Stormwater Management Design Manual* ("The Manual"). As required, the Stormwater Pollution Prevention Plan is designed, where appropriate, to incorporate green infrastructure techniques that preserve natural resources and utilize the existing hydrology of the site, provide runoff reduction practices, water quality treatment practices, apply volume and peak control practices for channel protection, overbank flood control, and extreme flood control as appropriate.

In accordance with Appendix B, Table 2 of the SPDES General Permit for Construction Activity, GP-0-20-001 (included as Appendix E of this report), industrial facilities that involve a soil disturbance of one or more acres require the preparation of a full SWPPP that includes post-construction stormwater management practices. In total, approximately 72.7 acres of soil disturbance is expected during the construction of this project **and 0.7 acres of disturbance for NG utility access drives**. Therefore, this project includes the development of erosion and sediment controls, green infrastructure site planning techniques, runoff reduction volume practices and post-construction stormwater management practices.

The general contractor and subcontractors performing any activity that involves soil disturbance will be required to comply with the terms and conditions of the SWPPP for the project identified as a condition of authorization to discharge stormwater. The Contractor shall provide signed certifications (Form CONR 5) for itself and all applicable subcontractors at the preconstruction meeting. These signed certifications shall be included as part of the SWPPP. The SPDES General Permit and SWPPP must be kept on file at the Project Field Office. As required by the conditions described in the SPDES general permit, the SWPPP shall be kept current, and updates will be made to reflect changes in the design, construction and operation, or maintenance of the project.

The complete set of construction drawings and specifications are provided as separate documents; however, they should be considered an integral component of the SWPPP and are referenced throughout this document. Prior to the start of construction activities, a Notice of Intent (NOI) must be filed and accepted by the NYSDEC. A Draft NOI has been included in this document as Appendix J. The applicant must retain all documentation for 5 years after NYSDEC accepts the Notice of Termination (NOT).

1.1 Scope of the Project

The proposed development is an offshore wind (OSW) manufacturing operation that will produce wind turbine tower components. The site development includes 603,500 +/- square feet of OSW manufacturing spread over four (4) buildings with ancillary impervious areas including parking for automobiles and trucks, roadway, bridge, and a maritime wharf. The remainder of the site will be used for tower storage and be made up of dense graded aggregate (compacted gravel). There will also be small pervious areas of grass and unaltered brush and trees.

1.2 Location of Project

The Project is situated on 81.62 acres of land on Beacon Island ("Expansion Site"), located at the confluence of the Normans Kill and Hudson River. The project also includes development within 4.4 acres

of the adjoining parcel owned by National Grid, the extension and improvement of Normanskill Street (Normanskill Street Improvements) and widening of Rt. 144 (Offsite Improvements). The project owner, Albany Port District Commission (APDC), is proposing to develop the vacant parcels of land (tax parcels 98.00-2-10.23 and 98.01-2-1.0) to expand the existing Port of Albany in the Town of Bethlehem, Albany County, New York. Refer to the Location Map in Appendix A.

The project is not located within a TMDL and does not discharge into a 303(d) listed waterbody.

Table 1 - Location Table

Approximate Coordinate Position @ Center of Project	
Latitude	42° 36' 10.8" N
Longitude	73° 45' 57.0" W

1.3 Project Type and Size

The project is a new development construction project that has a disturbance area of approximately 72.7 +/- acres. The new impervious area is approximately 65.9 acres.

1.4 Project Description

The proposed project will include development of an OSW tower manufacturing (Marmen-Welcon) facility consisting of five (5) separate buildings totaling up to 625,539+/- square feet of floor space. The following is a breakdown of the function and size of each building:

- Building A Plate Preparation & Welding (299,250 SF)
- Building B Welding Finishing (111,023 SF)
- Building C Blast Metallization Plant (131,968 SF)
- Building D Internal Assembly Finishing (61,550 SF)
- Building E Material Receiving (21,748 SF)

Tower production will occur within four (4) buildings (Buildings A-D) at the main facility on the Port Expansion property located in the Town of Bethlehem. The 5th building (Building E) will be located at 700 Smith Boulevard within the existing Port District in the City of Albany. A proposed gated bridge over the Normans Kill will provide a truck transportation route in and out of the main facility, by connecting Beacon Island and the 14.7-acre offsite parcel at 700 Smith Boulevard. In conjunction with the proposed bridge, Normanskill Street is to be extended from its existing end point to the bridge. The existing pavement will be improved to accommodate the proposed trucking route. River Road (Rt. 144) will be widened to accommodate the employee entrance. Employee parking will be situated on the adjoining land owned by National Grid with access from River Road. A proposed 500 LF wharf and associated dredging along the Hudson River will be used to load and ship completed tower sections. A separate stormwater analysis and SWPPP has been prepared for the 14.7-acre Building E site at 700 Smith Boulevard and the portion of Normanskill Street, located in the City of Albany, as the sites are separated by approximately 1-mile and are under separate MS4 jurisdictions.

The purpose of this report is to assess the stormwater quality, quantity, and erosion and sediment control for the development of the site. This report has been developed in accordance with the New York State Department of Environmental Conservation (NYSDEC) State Pollution Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity, GP-0-20-001 (Permit) and the NYSDEC Stormwater Management Design Manual (The Manual). The project site is located within the

Town of Bethlehem, Albany County, New York, which is an MS4 community, requiring this report and project to receive approval from the Town.

The soil disturbance area addressed in this report is contained within the Town of Bethlehem. This report does not include coverage for work within the Mean High Water (MHW) elevation of the Hudson River or the Normans Kill. Work within the MHW line will be covered under a separate permit.

The total disturbance area is **73.4 +/-** acres and includes the Expansion Site, Normanskill Street Improvements, **NG access drives** and Offsite Improvement. The existing impervious area is approximately 5.16 +/- acres, 7.09% of the total disturbance area. The proposed site development will consist of **66.3 +/-** acres of impervious cover, 90.6% of the total disturbance area.

Due to the amount of soil disturbance proposed for this project, a 5-acre disturbance waiver is being requested. The 5-acre waiver request along with all required documentation is included as Appendix L of this report.

1.5 Cultural Resources

A Supplemental Environmental Impact Statement (SEIS) has been developed as part of the SEQR process for the Port of Albany Expansion Project. A SHPO review was conducted, and the current status reflects "No Adverse Effect". The SHPO review letter for the GEIS review process, dated September 13, 2019. A follow up SEIS SHPO review letter, dated December 9, 2021, resulted in a follow up noise study and coordination with the Stockbridge-Munsee Tribal Historic Preservation (SMTHP). Multiple coordination meetings were conducted resulting in some modifications to the site design and additional information provided. As a result, the SMTHP provided a follow up letter dated March 3, 2022, confirming the project has "No Adverse Effect". In response to the SMTHP letter, SPHO has issued a letter of "No Adverse Effect" dated March 25, 2022, contingent upon a deed restriction to be filed by the Owner to protect the Tree and Vegetation buffer area during the construction phase as well as permanently after construction is completed. All referenced letters have been included in Appendix F of this report.

1.6 On-site Wetlands

As part of the Draft Generic Environmental Impact Statement (DGEIS) and SEIS, impact to aquatic resources, including wetlands, were evaluated. The New York State Freshwater Wetland and Tidal Wetlands mapping of the project site indicates there are no NYSDEC jurisdictional wetlands within or adjacent to the project area. Review of USFWS National Wetlands Inventory (NWI) mapping of the project site indicates that the majority of the project area is mapped as palustrine emergent wetlands (PEM) and palustrine forested wetlands (PFO). It should be noted that NWI mapping does not have any regulatory consequence, but rather indicates areas that may meet federal wetland criteria as identified by the USFWS using aerial photography.

A wetland delineation was conducted in April 2019 by McFarland Johnson (MJ) for the FGEIS. The results of the delineation indicated that there are 8 freshwater wetlands located within the project limits. These wetlands are hereafter referred to as Wetlands 1, 3, 4, 5, 6, 7, 8, and 9. Wetlands within the original study area totaled approximately 2.33 acres. A Supplemental Wetland Delineation was performed by MJ in April 2021 within the 18.22 acres on the National Grid Parcel. One contiguous wetland, comprising of approximately 7.13 acres, was delineated within the 18.22-acre area. The delineated wetland represents an extension of the 2019 wetland delineation and previously identified as Wetland 1. Wetland 1 drains in a northerly direction into 40-inch corrugated metal pipe (CMP) which discharges directly to the Normans Kill.

The Project will result in direct impacts to 0.81 acres of Wetland 1 located in Beacon Island (original Project Area) and 0.01 acres of direct impact to Wetland 1 on National Grid property for the construction of a retaining wall. In addition, there is a 0.04-acre impact to Wetland 9 for the bridge over the Normans Kill and a 0.02-acre impact to Wetland 7 for roadway improvements. There will also be approximately 0.33 acres of temporary impacts to wetlands during construction. Total permanent wetland impacts are estimated to be approximately 0.86 acre.

Compensatory wetland mitigation will be satisfied through a federally approved In-Lieu Fee Mitigation Program or off-site mitigation bank (The Wetland Trust). Mitigation in accordance with USACE rules and regulations will ensure no net loss of wetlands and will be included as part of the Joint application Permit submitted to the USACE and NYSDEC.

2. PROJECT MAPS AND PLANS

2.1 Location Map

See Appendix A

2.2 Soil Maps

See Appendix E of the Drainage Design Report (included as Appendix C of this report)

2.3 Erosion and Sediment Control Plans

See Appendix B of this report

2.4 Existing and Proposed Subcatchment Maps

See Appendix A and B of the Drainage Design Report (included as Appendix C of this report)

3. PROJECT SOILS

3.1 NRCS Soil Map

See Appendix E of the Drainage Design Report (included as Appendix C of this report)

3.2 Soil Types

The following soil type(s) and hydrologic group(s) are present within the project area of disturbance:

Table 2 – Soil Types

Symbol	Soil Name	Hydrologic Soil Group
HuE	Hudson silt loam, 25 to 45 percent slopes	C/D
NrD	Nassau very channery silt loam, hilly, very rocky	D
Ug	Udorthents, loamy	A
Ur	Urban land	
Wo	Wayland soils complex, non-calcareous substratum, 0 to 3 percent slopes, frequently flooded	B/D

3.3 Discussion of Soil Characteristics and Soil Erosion Hazard Potential

According to the Natural Resources Conservation Service (NRCS) web soil survey, there are five (5) mapped soil units identified within the project boundary. See Appendix E of the Drainage Design Report (included as Appendix C of this report). The majority of the soil at the expansion site falls within the hydrologic soil group B/D. The first letter corresponds to drained soil's properties under drained conditions and the second to saturated conditions. Group B soils have moderate infiltration and runoff rates while group D have a low infiltration rate and a high runoff rate. The soils with dual group identifiers have been modeled with the more conservative of the two, in this case a D soils group. Most of the soil adjacent to Normanskill Street is within soil group A. Group A soils have a high infiltration rate.

Geotechnical studies have been undertaken to evaluate the subsurface conditions of the site. These investigations have been summarized in the following reports:

- *Preliminary Geotechnical Evaluation and Interpretive Report*, CME Associates, Inc., April 5, 2017
- *Supplemental Geotechnical Report*, Dente Group, July 20, 2017

Copies of these reports were included in the TOWN OF BETHLEHEM PLANNING BOARD, DRAFT GENERIC ENVIRONMENTAL IMPACT STATEMENT For ALBANY PORT DISTRICT COMMISSION PORT OF ALBANY EXPANSION PROJECT, Appendix E.

- *Draft Geotechnical Engineering Report*, Terracon, October 15, 2021

A copy of this reports is included in the TOWN OF BETHLEHEM PLANNING BOARD, SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT For ALBANY PORT DISTRICT COMMISSION PORT OF ALBANY EXPANSION PROJECT.

Based on these previous investigations, the subsurface conditions of the Expansion site are generally characterized by historic fills of various depths overlying, in sequence with depth; river sediments, alluvial sands, glaciolacustrine silt/ clay, glacial till, and shale bedrock. The fill was noted at specific boring locations ranging from 6 to 23 feet below existing grade. The fill material is characterized as a random landfill deposit containing natural and solid waste deposits such as, but not limited to, foundry sand waste, sand, silt, coal ash, gravel, and organic matter. A predominant component of the fill was reported as coal ash.

Shale bedrock was found beneath the glacial till soils at select boring locations. The depth to rock ranged from approximately 61 feet below grade near the northwest portion of the site, to greater than 148 feet at the southeast portion of the site. The rock depths appear shallowest on the north and west sides of the site and increase to the east towards the Hudson River and in a south direction across the site. Based on the New York State Museum and Science Service's Geologic Map of New York: State Hudson-Mohawk Sheet, and the geotechnical rock core samples, the bedrock appears to be consistent with the Normanskill Shale Formation.

According to the geotechnical reports, shallow groundwater was observed at depths ranging from approximately 1.5 to 13.7 feet below existing grade. However, due to the subsurface conditions, the shallower observations could be representative of perched groundwater zones due to discontinuous impermeable layers. Shallow groundwater fluctuations should be expected to occur at this site depending on several factors such as rainfall, seasonal changes, prevailing climate, ambient weather conditions, and the tidal influences of the Hudson River.

Historically, the project site was composed of small islands and river channels subject to natural shifts due

to flows associated with the Hudson River and the former Island Creek, a side channel of the Hudson River. Island Creek historically flowed along the western side of the site through the current power line corridor and discharged to the Hudson River at the southern end of the site. Based on available mapping, sometime between 1936 and 1961, Island Creek channel was diverted at the north end of the site directly to the Hudson River, whereupon it was referred to solely as Normans Kill, the main tributary to this former channel. The site was subject to historic filling operations to create usable lands and a portion of the site was operated as a coal ash (fly ash) disposal site by Niagara Mohawk from approximately 1952 to 1970. As such, there are large areas of fly ash deposits on the site that must be considered during the design and construction of the site infrastructure and stormwater management facilities. Excavated fly ash material will need to be appropriately handled and properly disposed of.

Due to the presence of fly ash on the Expansion Site, in addition to a NYSDEC SPDES, a Site Management Plan (SMP) has been prepared in accordance with 6 NYCRR Part 375 and DER Technical Guidance for Site Investigation and Remediation and submitted to the NYSDEC, Division of Environmental Remediation and the NYSDOH. The SMP includes: a Health and Safety Plan (HASP), to inform and protect the contractor and their work force; a Community Air Monitoring Plan (CAMP), to monitor and protect the surrounding communities; and an Excavation Work Plan (EWP), to direct the activities of the contractor during construction. The EWP includes a detailed description of the work to be performed, the anticipated environmental conditions, and engineering controls to mitigate the movement of fly ash. The SMP pertains only to the Expansion Site portion of the project (see Appendix H of this report).

3.4 Soil Infiltration Test

Supplemental to the above noted geotechnical reports, additional subsurface investigation and infiltration testing was completed by Terracon on May 12, 13, and 18, 2022. Test pit locations were selected based on the potential for stormwater infiltration practices to be utilized. Test locations were along the shore of the Hudson River and Normans Kill as well as within the boundary of Infiltration Basin #1 and #2. The testing locations are shown on a map included in Appendix F of the Drainage Report (included as Appendix C to this report).

The subsurface investigation and infiltration testing concluded that locations IT-1, IT-1A, IT-7, IT-7A, IT-8, IT-10, IT-12, IT-12A, and IT-15 can provide an infiltration rate of 0.5 in/hr or greater. The remaining locations had test results below 0.5 in/hr which is not sufficient for infiltration chambers or infiltration basins. In addition to infiltration rate, a soil classification was also provided at the test depth. The soil classifications found were fill (coal ash with crushed stone and slag), sandy silt (ML), silt (ML), silt and clay (CL-ML), silt (ML), silt with sand (ML), silty sand (ML), silty clay (CL-ML), fill (sandy silt), and fill (coal ash). The entire subsurface investigation report including soil profiles is located in Appendix F of the Drainage Report (included as Appendix C to this report).

4. CONSTRUCTION PHASING

4.1 Sequence of Construction Activities

The Contractor's work schedule and methods shall be consistent with the SWPPP or amended SWPPP. Once approved, the progress schedule shall become a part of the SWPPP. It should be noted that there is a NYSDEC approved SMP for this site, which is included as Appendix H of this report. Any disturbance of the site must comply with the SMP.

The following list is a suggested sequence of major construction activities for the project to meet the NYSDEC Phase II erosion control requirements:

1. Conduct a pre-construction meeting with the MS4, Engineer, and Contractor to review the SWPPP.
2. Notify the NYSDEC within 14 days, and no less than 3 days, prior to commencing work activities that may affect areas of the subject site that are impacted with ash, as required by Section 3.2 of the SMP.
3. Clearly identify project work limits, identifying all areas where construction disturbance shall be permitted.
4. Install erosion control measures prior to commencing earthwork operations. Construct temporary earthen berms, diversion swales, sediment control dams and associated erosion control measures necessary to divert runoff from entering planned areas of disturbance and to protect the adjacent waterway.
5. All installed erosion and sediment control measures are to be inspected and certified as correctly installed by the owner's qualified inspector and Town of Bethlehem staff.
6. Establish temporary/permanent storm water management ponds/erosion control basins.
 - a. Consult the SMP for the appropriate measures to handle or dispose of any encountered contaminated soils.
7. Remove vegetation and dispose of off-site.
8. Strip and stockpile topsoil from proposed pavement, structural fill and cut areas (stockpile materials in locations as directed by owner's representative).
 - a. Consult the SMP for appropriate measures to handle or dispose of any encountered contaminated soils.
9. Establish mass earthwork subgrade elevations.
 - a. Consult the SMP the appropriate measures to handle or dispose of any encountered contaminated soils.
10. All temporary erosion and sediment control measures as well as stockpiles are to be mulched and seeded for temporary vegetative cover immediately following grading.
11. Import the aggregate fill material to serve as a surcharge for the proposed building and concrete pad areas.
12. After surcharging compaction is completed, place fabric and geogrid on the subgrade and spread the aggregate material in layers with additional geogrid as specified.
13. Construct utility lines (water/electric/gas/communications/sanitary sewers/storm sewers), construct building and install infrastructure improvements.
14. Box out roadway and pavement areas and install concrete curbing.
15. Construct asphalt pavement section, up to binder course.
16. Fine grade and spread topsoil, install landscaping plantings and hardscapes, site amenities and permanent seeding.
17. Town of Bethlehem (MS4) shall conduct a site inspection to determine (1) that the site has achieved 80% stabilization and (2) the installed stormwater facilities are operational.
18. Remove temporary erosion and sediment control features upon establishment of permanent ground cover and inspection/approval from a Town official or representative.
19. Notify owner's representative of completion of final site stabilization.
20. File Notice of Termination.

5. EROSION AND SEDIMENT CONTROL MEASURES

5.1 Erosion Control Plan

An erosion control plan has been developed in accordance with the “New York Standards and Specifications for Erosion and Sediment Control”. The erosion control plan employs permanent and temporary erosion and sediment control methods including silt fence, erosion control matting, construction entrances, and other appropriate measures. It should be noted that there is a NYSDEC approved SMP for the Expansion Site, which is included as Appendix H of this report. Any disturbance of this area must comply with the SMP. As stated in Section 3.2 of the SMP, NYSDEC must be notified within 14 days, and no less than 3 days, prior to commencing work activities that may affect areas of the subject site that are impacted with ash.

5.1.1 Temporary Surface Stabilization

All work and prior NYSDEC notification shall be in accordance with the SMP. Areas within the project limits that may be disturbed more than once during the construction activities will be stabilized using temporary seed and mulch item or as directed by the Engineer. Areas remaining unpaved and undisturbed for more than seven (7) days during construction operations shall be stabilized temporarily. Other areas that might need to be stabilized temporarily will be at the discretion of the Engineer.

5.1.2 Drainage Pipe Inlet / Outlet Stabilization

As part of the permanent erosion control measure, the inlet and outlet of the culvert pipes will be provided with either stone riprap apron or an apron consisting of erosion control product with vegetation to provide the required erosion control which blends in with the surrounding natural features and topography. The location and type of stabilization to be provided is shown on project plans.

5.1.3 De-watering

Any groundwater that is suspected of being contaminated shall be handled in accordance with Section 4.2 of the SMP. If required, de-watering of miscellaneous areas within the site will be performed utilizing a pump and filter bag system. The filter bags should be made of non-woven geotextile material capable of trapping particles larger than 150 microns. Filter bags should be replaced when they are half full or a no longer functioning per the manufacturer’s requirements. Filter bags should be located in a well vegetated/grassy area and discharge into stable erosions resistant areas. Where this is not possible a geotextile flow path should be established. Bags shall not be placed on slopes greater than 5%. The pump discharge hose shall be inserted into the bags in the manner specified by the manufacturer and securely clamped. Pumping rate shall not be greater than 750 GPM or ½ the maximum specified by the manufacturer, whichever is less. Pump intakes shall be floated and screened.

5.1.4 Construction Entrance

As required, at least one (1) stabilized construction entrance will be constructed to access the Contractors Staging/Storage Area. This entrance/area shall conform to the details. Refer to the Erosion and Sediment Control (E&SC) Plans (included as Appendix B of this report) for location of construction entrance(s).

5.1.5 Concrete Truck Washout / Concrete Batch Plant Protection

As required, a temporary excavated or above ground lined pit where concrete truck mixers and equipment can be washed after their loads have been discharged, to prevent highly alkaline runoff from entering storm drainage systems or leaching into soil shall be constructed. See E&SC Plans (included Appendix B of this report) for location of concrete washout. If a concrete batch plant is installed at the site, temporary

containment to prevent discharge of runoff from entering storm drainage systems or leaching into soil shall be constructed.

5.1.6 Permanent Stabilization

Stabilization of the graded surfaces will be accomplished by using various seed mixtures for establishing permanent vegetation.

5.1.7 Dust Control

Dust shall be controlled and monitored in accordance with Section 4.3 of the SMP. The contractor will be required to minimize dust generation during the construction activities. Provisions such as applying water on haul roads, wetting equipment, and excavation faces, spraying water on buckets during excavation and dumping, hauling materials in properly tarped or watertight containers, restricting vehicle speeds to 10 mph, covering excavated areas and material after excavation activity ceases, and reducing the excavation size and/or number of excavations have proven effective in dust control.

5.1.8 Silt Fence

Silt fence will be placed per the E&SC Plans (Appendix B of this report), down slope of all disturbed areas, soil stockpiles, and spoil areas. Along the bank of the Normans Kill, two layers of silt fence are to be installed due to the proximity to the Mean Higher High Water (MHHW) level. The purpose of the silt fence is to remove sediment from sheet flow in these areas. Silt fence shall remain in place and functional until the contributing area has been permanently stabilized. Sediment socks or mulch dikes may be used in lieu of silt fence, where approved by the Engineer of Record. Erosion Control shall be in accordance with the SMP.

5.1.9 Temporary Sediment Basins

Temporary sediment basins have been designed to store sediment runoff from the Expansion Site. Basin #1 will be converted into a permanent stormwater quality pond. All basins have been designed in accordance with Section 5 of the NYS Standards and Specifications for Erosion and Sediment Control (Blue Book). Calculations for the basins are included as Appendix I to this report. Locations and a detail of the basins are included in the E&SC Plans (Appendix B of this report).

5.1.10 Weekly Inspections

A qualified inspector shall conduct site inspections at least once every seven (7) calendar days. After a 5-acre waiver is granted; site inspections shall occur at least twice every seven (7) calendar days while there are more than 5 acres of soil disturbance. The qualified inspector shall inspect all erosion and sediment control practices and pollution prevention measures to ensure integrity and effectiveness; all post-construction stormwater management practices under construction to ensure that they are constructed in conformance with the SWPPP; all areas of disturbance that have not achieved final stabilization, all points of discharge to natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the construction site; and all points of discharge from the construction site. The qualified construction inspector shall also prepare an inspection report after every inspection. Complete inspection and maintenance requirements can be found in Part IV of the SPDES General Permit GP-0-20-001 (included as Appendix E of this report). Inspection reports shall be submitted to the Town's Stormwater Program Manager.

5.1.11 Final Inspection

Prior to the project being finally accepted, it shall be inspected for any evidence of erosion or slope failure.

If any such condition becomes apparent upon final inspection, temporary soil erosion and sediment controls shall be installed immediately as directed by the Engineer. The situation shall be corrected per a schedule agreed to by the MS4 (Town of Bethlehem).

5.1.12 Wharf E&SC

Erosion and sediment control measures associated with the construction of the wharf and dredging of the Hudson River are to be designed and approved prior to disturbance below the Mean High High Water (MHHW) elevation. These E&SC measures are being designed in conjunction with the NYSDEC, USACE and other State agencies through a separate permitting process. All additional permits required for the wharf and dredging will also be in place prior to disturbance below the MHHW. Draft conceptual E&SC Plans associated with the wharf construction and dredging are included in Appendix G of this report.

5.2 Permanent Erosion and Sediment Control Measures

Table 3 – List of Permanent Erosion & Sediment Control Measures

Permanent Feature	Converted Temporary Practice?	Location: ESC Plan	Receiving Waterbody Protected (where applicable)
Riprap outlet protection	Yes	See Plans	Hudson River, Normans Kill
Soil Stabilization	Yes	See Plans	Hudson River, Normans Kill
Check Dam	Yes	See Plans	N/A
Diversion Dike	Yes	See Plans	N/A

5.3 Installation Sequence

See the intended sequence of construction activities noted in Section 4 above.

5.4 Maintenance Schedule

The Contractor is required to inspect all E&SC devices in their active work area daily and after each rain event; and repair any deficiencies in accordance with the SPDES permit.

5.5 SWPPP Implementation Responsibilities

Implementation of all E&SC devices will be by the Contractor as indicated in the contract documents.

6. POLLUTION PREVENTION MEASURES

6.1 Material Management Practices

All waste materials, including construction debris and trash that occur onsite shall be handled and disposed of in a lawful manner that is in accordance with state and local regulations. No waste material shall be buried on site.

- An effort will be made to store only enough products required for the project.
- All materials stored within the site will be stored in a neat orderly manner in their appropriate containers and if possible, an enclosed area.
- Products shall be kept in their original containers with the original manufacturer's labels. Manufacturer's recommendations for proper use and disposal shall be followed.
- Hazardous materials shall be disposed of in a lawful manner and in accordance with State and

Local regulations.

- Sanitary waste will be collected from portable units as required and shall be disposed of in a lawful manner.

The following materials are expected to be on-site during construction:

- Concrete
- Asphalt
- Paints (Enamel and Latex)
- Petroleum based products
- Fertilizers
- Metal building components
- Detergents
- Cleaning Solvents
- Roofing Materials
- Tar

These materials and other materials used during construction with the potential to impact stormwater will be stored, managed, used, and disposed of in a lawful manner that minimizes the potential for releases to the environment and especially into stormwater.

Emergency contacts for the project will be posted at the project office and are included at the end of this section.

6.2 Spill Control Practices

The contractor will be responsible for preparing a project area specific spill control plan in accordance with Local and NYSDEC regulations. At a minimum, this plan shall:

1. Stop the source of the spill.
2. Contain the spill.
3. Reduce stormwater contact if there is a spill.
4. Dispose of contaminated material in lawful manner and in accordance with manufacturer's procedures and NYSDEC regulations.
5. Identify responsible trained personnel.
6. Ensure spill area is well ventilated.

For any work within National Grid property, the National Grid Environmental Guidance EG 501 regarding reporting of a release of oil, chemical or hazardous material must be followed. National Grid EG 501 has been included as Appendix M of this document.

6.3 General Material Handling Practices

The following general practices will be used throughout the project to reduce the potential for spills:

1. Potential pollutants will be stored and used in a manner consistent with the manufacturer's instructions in a secure location. To the extent practicable, material storage areas should not be located near storm drain inlets and should be equipped with covers, roofs, or secondary containment as needed to prevent stormwater from contacting stored materials. Potential pollutants should not be stored within 100 feet of a water course or wetland. Chemicals that are not compatible shall be stored in segregated areas so that spilled materials cannot combine and react.

2. Materials disposal will be in accordance with manufacturer's instructions and applicable local state and federal regulations.
3. Materials no longer required for construction will be removed from the site as soon as practicable.
4. Adequate garbage, construction waste, and sanitary waste handling and disposal facilities will be provided/utilized to the extent necessary to keep the site clear of obstruction and Best Management Practices (BMPs) clear and functional.

6.4 Product Specific Practices

The following product specific practices will be followed within the project area.

6.4.1 *Petroleum Products*

All project related vehicles shall be monitored for leaks and receive regular preventative maintenance to reduce the potential of leakage. Petroleum products shall be stored in tightly sealed containers, which are clearly labeled. Any asphalt substances used during construction shall be applied according to manufacturer's recommendations.

6.4.2 *Fertilizers*

Fertilizers used shall be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer shall be worked into the soil to limit exposure to stormwater. Fertilizers shall be stored in covered or other contained areas.

6.4.3 *Paints*

All containers shall be tightly sealed and stored when not required for use. Excess paint shall not be discharged into the storm sewer system but shall be disposed of according to manufacturer's instructions or State regulations.

6.4.4 *Concrete Trucks*

Concrete Trucks shall be allowed to wash out within project areas that the contractor provides an area which collects and contains any concrete / slurry material washed from trucks for recovery and disposal at a later time. No concrete or slurry shall be discharged from the property at any time of construction. The concrete washout area shall conform to the detail found on sheet ESC-06 (Appendix B of this report).

6.5 Spill Response

The primary objective in responding to a spill is to quickly contain the material(s) and prevent or minimize their migration into stormwater runoff or conveyance systems. If the release has impacted on-site stormwater, it is critical to contain the released material on-site and prevent their release into receiving waters.

If a spill of pollutants threatens stormwater on-site, the spill response procedures outline below must be implemented in a timely manner to prevent release of the pollutant:

1. The site superintendent will be notified immediately when a spill or the threat of a spill is observed. The superintendent will assess the situation and determine the appropriate response.
2. If spills represent an imminent threat of escaping E&SC facilities and entering the receiving waters, facility personnel will respond immediately to contain the release and notify the superintendent after the situation has been stabilized.
3. Spill kits containing materials and equipment for spill response and clean-up will be maintained onsite. Each spill kit may contain:
 - Oil absorbent pads (one bale)

- Oil absorbent booms (40 feet)
 - 55-gallon drums (2)
 - 9-mil plastic bags (10)
 - Personal protective equipment including gloves and goggles
4. If an oil sheen is observed on surface water, absorbent pads and/or booms will be applied to contain and remove the oil. The source of the oil sheen will also be identified and removed or repaired as necessary to prevent further releases.
 5. The site superintendent, or their designee, will be responsible for completing a spill reporting form to the appropriate state or local agency.
 6. Spill response equipment will be inspected and maintained as necessary to replace any materials used in spill response activities.

6.6 Notification

In the event of a spill, make the appropriate notification(s) consistent with the following procedures:

1. Any spill of oil which a) violates water quality standards, b) produces a sheen on a surface water, c) causes a sludge or emulsion must be reported immediately by telephone to the National Response Center Hotline at (800) 424-8802.
2. Any oil, hazardous substance, or hazardous waste release which exceeds the reportable quantity must be reported immediately by telephone to the National Response Center Hotline at (800) 424-8802.
3. Any spill of oil or hazardous substance to waters of the state must be reported immediately by telephone to the NYSDEC.
4. Any release of hazardous substance that may be a threat to human health or the environment must be reported to the NYSDEC immediately upon discovery.

7. EXISTING SITE CONDITIONS

The existing site is Beacon Island, located in the Town of Bethlehem, Albany County, New York. The site is currently vacant and consists primarily of brush and trees with a small gravel area as well as abandoned railroad tracks.

7.1 Existing Watershed Information

The project area is in close proximity and includes shorelines to both the Hudson River and Normans Kill, which are the receiving waterbodies for runoff from the current site.

The existing drainage condition is split up into seven (7) drainage areas. Drainage area DR-A drains to analysis point #1A, drainage areas DR-B and DR-F drain to analysis point #1, drainage areas DR-D and DR-E drain to analysis point #2. Drainage area DR-G drains to analysis point #3. Drainage area DR-C drains to a self-contained depression for storage. See Appendix A of the Drainage Design Report (included as Appendix C of this report) for the Pre-Development Site Drainage Areas Map.

Runoff from DR-A travels via sheet and shallow concentrated flow directly to a wetland located in the northwest corner of the site (Wetland 1). During large storm events the wetland overflows into an existing 40" pipe with direct outlet to the Normans Kill. Analysis of the existing capacity of the outlet pipe is provided in section IV of the Drainage Design Report (included as Appendix C of this report). Runoff from areas DR-B, DR-D, DR-E, and DR-F travel via sheet and concentrated flow to low areas with eventual outfall

directly to the Normans Kill and Hudson River. An approximately 30-acre internal portion of the site (DR-C) was determined to be self-contained within the site capable of storing and infiltrating the 100-year storm event. Runoff from area DR-G sheet flows to the west side of River Road and travels to a low spot adjacent to the roadway where it is stored and eventually infiltrated.

The existing site falls within the Normans Kill watershed of the Middle Hudson Sub-Basin for the Lower Hudson River Basin (HUC10: 0202000602, Water Index No H-221-4) which is listed as a Class C water. Neither the Normans Kill nor the Hudson River are listed in the Manual's Appendix C as a watershed where enhanced phosphorus removal standards are required. Additionally, neither are listed in the Manual's Appendix E as a watershed impaired by pollutants related to construction activity.

7.2 Table of Receiving Waterbodies

Table 4: Receiving Waterbodies

<i>Stormwater Structure</i>	<i>Receiving Waterbody</i>	<i>NYSDEC Regulated</i>
None	Hudson River	Yes – Class C
40" Outlet Pipe	Normans Kill	Yes – Class C

8. STORMWATER MANAGEMENT ASSESSMENT

8.1 Methodology

To analyze the hydrologic impacts of the proposed development, a storm water management model was developed in accordance with the Manual. HydroCAD™, by HydroCAD Software Solutions LLC was used to model both the existing and proposed conditions: soil data from the NRCS Web Soil Survey was entered into the software; land coverage areas were estimated using aerial photography and site visits; watershed areas were developed using the surveyed topography; time of concentrations were estimated using USDA, Urban Hydrology for Small Watersheds, TR-55 (TR-55) methodology; and finally runoff and routing calculations were performed using the SCS Unit Hydrograph method.

Green Infrastructure practices were designed in accordance with the Manual using the NYSDEC Runoff Reduction Worksheets available through the NYSDEC's Construction Stormwater Toolbox, available on their website.

The following general steps are followed when conducting a stormwater design:

1. **Site Planning:** The existing natural resource areas and drainage patterns including wetlands, waterways, floodplains, and soils are identified. Conservation of natural resources are maximized given the proposed site.
2. **Pre and Post-Development Conditions Analysis:** The pre and post-development stormwater runoff conditions for the 1, 10, and 100-year storm events are determined using HydroCAD (detailed HydroCAD reports for this project can be found in Appendix A and B or the Drainage Design Report, provided in Appendix C of this report).
3. **Water Quality:** The Water Quality Volume and Runoff Reduction Volume are calculated using Chapter 4 of the Manual and Green Infrastructure Worksheets (see Appendix C of the Drainage Design Report, provided in Appendix C of this report).
4. **Water Quantity:** Peak runoff and stormwater retention/detention are evaluated using the Manual.

8.1.1 *Water Quality Volume (WQv) / Runoff Reduction Volume (RRv)*

Section 4.2 of the Manual states that Water Quality Volume (WQv) is intended to improve the water quality by capturing and treating runoff from small, frequent storm events that contain higher pollutant levels created through the increase of impervious surfaces. Impervious surfaces accumulate pollutants that quickly wash off and rapidly enter downstream waters as well as prevent natural groundwater recharge.

The WQv required for the proposed site is based upon the 90% rainfall event number, percent of impervious cover, and the total site area. Calculations were done using the Green Infrastructure worksheets and can be found in Appendix C of the Drainage Report (included as Appendix C of this report). The total WQv required is 273,874 cubic feet.

Runoff Reduction Volume (RRv) is the reduction of the total WQv by application of green infrastructure techniques and stormwater management practices to replicate pre-development hydrology more closely. The intent of RRv is to recognize the water quality benefits of certain site design practices to address flow as a pollutant of concern. Calculations were done using the Green Infrastructure worksheets and can be found in Appendix C of the Drainage Report (included as Appendix C of this report). The minimum RRv was determined to be 57,313 cubic feet.

Due to the level of contamination present in the existing soils across the Expansion Site, stormwater infiltration practices were located only in areas along the Hudson River and Normans Kill where contamination is not expected to be present. However, the Normanskill Street project area does not contain contaminated soils, so all treatment practices selected in this area utilize infiltration and therefore include RRv.

The total Water Quality Volume and Runoff Reduction Volume requirements are met for this project.

8.1.2 *Channel Protection Volume (CPv)*

Stream Channel Protection Volume Requirements (CPv) are designed to protect stream channels from erosion. The Manual was used to determine the water quantity requirements of CPv; specifically, providing 24-hour extended detention for the 1-year storm event or discharging directly to tidal waters.

According to Section 4.4 of the Manual, the Stream Channel Protection Volume (CPV) requirement does not apply when the site discharges to a tidal waterbody.

The CPv requirement does not apply in certain conditions, including the following:

- Reduction of the entire CPv volume is achieved at a site through green infrastructure or infiltration systems.
- The site discharges directly tidal waters or fifth order (fifth downstream) or larger streams.

The Hudson River and Normans Kill are classified as tidal waters at the project site. Therefore, 24-hour extended detention of the 1-year storm event is not required for drainage areas that outlet directly to the Hudson River or Normans Kill.

Drainage areas DR-8 and DR-9 convey large storm events to Wetland #1, and therefore require water quantity controls. A pre-and post-development analysis of the inflow to Wetland #1 was performed and analyzed as Analysis Point #1A. Hydrologic analysis for the 1-year storm event from existing to proposed is provided in Appendix A and B of the Drainage Report (included as Appendix C of this report) and summarized in Table 8.

8.1.3 Overbank Flood Control (Q_p)

The primary purpose of the overbank flood control sizing criterion is to prevent an increase in the frequency and magnitude of out-of-bank flooding generated by urban development. The Manual was used to determine the water quantity requirements of Q_p ; specifically, providing sufficient retention volume to discharge all runoff from the proposed 10-year storm event at a rate equal to or less than the existing peak 10-year runoff rate or discharging directly to tidal waters.

According to Section 4.5 of the Manual, the Overbank Flood Control Criteria (Q_p) requirement does not apply when the site discharges to a tidal waterbody.

The overbank flood control requirement (Q_p) does not apply in certain conditions, including:

- The site discharges directly tidal waters or fifth order (fifth downstream) or larger streams.

The Hudson River and Normans Kill are classified as tidal waters at the project site. Therefore, 24-hour extended detention of the 10-year storm event is not required for drainage areas that outlet directly to the Hudson River or Normans Kill.

Drainage areas DR-8 and DR-9 convey large storm events to Wetland #1, and therefore require water quantity controls. A pre-and post-development analysis of the inflow to Wetland #1 was performed and analyzed as Analysis Point #1A. Hydrologic analysis for the 10-year storm event from existing to proposed is provided in Appendix A and B of the Drainage Report (included as Appendix C of this report) and summarized in Table 8.

8.1.4 Extreme Flood Control (Q_f)

The intent of the extreme flood criteria is to prevent the increased risk of flood damage from large storm events, maintain the boundaries of the predevelopment 100-year floodplain, and protect the physical integrity of stormwater management practices. The Manual was used to determine the water quantity requirements of Q_f ; specifically, providing sufficient retention volume to discharge all runoff from the proposed 100-year storm event at a rate equal to or less than the existing peak 100-year runoff rate or discharging directly to tidal waters.

According to Section 4.6 of the Manual, the Extreme Flood Control Criteria (Q_f) requirement does not apply when the site discharges to a tidal waterbody.

The 100-year storm control requirement can be waived if:

- The site discharges directly tidal waters or fifth order (fifth downstream) or larger streams.

The Hudson River and Normans Kill are classified as tidal waters at the project site. Therefore, 24-hour extended detention of the 100-year storm event is not required for drainage areas that outlet directly to the Hudson River or Normans Kill.

Drainage areas DR-8 and DR-9 convey large storm events to Wetland #1, and therefore require water quantity controls. A pre-and post-development analysis of the inflow to Wetland #1 was performed and analyzed as Analysis Point #1A. Hydrologic analysis for the 100-year storm event from existing to proposed is provided in Appendix A and B of the Drainage Report (included as Appendix C of this report) and summarized in Table 8.

8.2 Evaluation of Green Infrastructure

According to Section 4.3 of the Manual, meeting the RRv (through green infrastructure) may not be feasible due to limitations that prevent the use of an infiltration technique and/or infiltration of the total WQv. The Beacon Island portion of the project site does not allow for the infiltration of any stormwater runoff due to the presence of fly ash across the site. However, green infrastructure practices were evaluated for potential use.

8.2.1 *Conservation of Natural Areas*

The existing vegetation located along the bank of the Hudson River is conserved in a deed restricted area in the proposed plan. Credit has been applied.

8.2.2 *Sheetflow to Riparian Buffers and Filter Strips*

Riparian Buffers and Filter Strips were not utilized, due to the lack of space on the Port Authority owned land.

8.2.3 *Vegetated Swales*

The developed site contains vegetated swales where there is sufficient room. Due to the SMP not recommending infiltration within the Expansion Site, no credit has been applied.

8.2.4 *Tree Planting / Tree Pits*

New landscaping will complement the existing environment and provide aesthetics for the buildings and parking areas. No credit has been applied for proposed tree plantings.

8.2.5 *Disconnection of Rooftop Runoff*

Rooftop disconnection was not considered for this project, as the buildings will have large, sloped roofs in a single direction and would have to discharge to the compacted gravel areas that would potentially cause erosion and instability of the dense graded aggregate due to over saturation; as well as encourage infiltration into the fly ash sub-surface layer which is not recommended by the SMP.

8.2.6 *Stream Daylighting*

Stream daylighting is not available for the proposed project.

8.2.7 *Bioretention*

The developed site does not have sufficient area to accommodate Bioretention. The proposed stormwater treatment ponds designed for this site are located either partially or fully on the adjacent National Grid property. As required by National Grid, the treatment on their property must hold at least the 10-year storm. There is not adequate space to use bioretention systems instead of stormwater ponds in these locations given the quantity of water required to retain. This practice promotes infiltration into the fly ash sub-surface layer which is not recommended by the SMP.

8.2.8 *Green Roofs*

Green roofs were not considered to be feasible as pre-engineered metal buildings are proposed for this project.

8.2.9 *Stormwater Planter*

Stormwater Planters were not considered due to the poor soils, excessive rooftop runoff volume, and would promote infiltration into the fly ash sub-surface layer which is not recommended by the SMP.

8.2.10 Rain Barrels and Cisterns

The developed site does not have sufficient area for Rain Barrels or Cisterns to accommodate the storage of the roof runoff volume.

8.2.11 Porous Pavement

Porous pavement was not considered due to the large loads associated with the Tower sections being moved and stored on site that would cause the porous pavement surface to crumble. This practice also promotes infiltration, which is not recommended by the SMP.

8.2.12 Infiltration System

Two infiltration basins were designed to treat runoff from a portion of the Normanskill Street Improvements. Two dry swales were designed to treat runoff from the Offsite and a portion of the Normanskill Street Improvements. Three infiltration chamber systems were designed to provide runoff reduction along the Hudson River and Normans Kill.

9. POST CONSTRUCTION STORMWATER CONTROL PRACTICES

9.1 Table of Post Construction Practices

See Table 5 below.

9.2 Post Construction Practices Plan

Locations of Post Construction Practices are found in the Erosion & Sediment Control Plans and Details (included as Appendix B of this report).

To best mitigate the water quality requirements of the proposed site, two (2) stormwater quality ponds, six (6) manufactured stormwater filtering systems, three (3) infiltration chamber systems, two (2) infiltration basins, and two (2) dry swales were designed. All practices were designed in accordance with the Manual. Each practice was sized to provide WQv; however, they do not all provide storm event flow mitigation (see sections 8.1.2 through 8.1.4 above).

Drainage Areas DR-1 through DR-7 will provide WQv using manufactured water quality systems. Drainage Areas DR-8 and DR-9 will drain to stormwater ponds providing WQv. The total of all practices providing water quality volume is **217,428** cubic feet (cf). A full description of the designed stormwater treatment practices is provided in Section III.B of the Drainage Design Report (included as Appendix C of this report). The WQv is summarized in Table 5 below:

Table 5 – Water Quality Volume Practice Summary

Drainage Area	Stormwater Practice	WQv (cf)
DR-1	Filter Type 2	18,005
	Infiltration Chamber	2,802
DR-2	Filter Type 1	21,971
DR-3	Filter Type 1	43,939
DR-4	Filter Type 3	14,989
	Infiltration Chamber	2,052
DR-5	Infiltration Chamber	2,047
DR-6	Filter Type 1	48,060
DR-7	Filter Type 2	34,826
DR-8	Stormwater Pond #1	14,209
DR-9	Stormwater Pond #2	13,622
DR-14	Infiltration Basin #2	141
DR-15	Dry Swale #1	129
DR-17	Dry Swale #2	636
Total WQv		217,428

Due to the presence of fly ash across the Expansion Site, infiltration practices were located in areas not expected to be contaminated. However, the Normanskill Street and Offsite Improvement portions of this project are in an area of uncontaminated soil with high infiltration rates. Therefore, all treatment practices selected infiltrate into the ground and provide RRv. The total RRv provided is 63,333 CF. The RRv is summarized in Table 6 below:

Table 6 – Runoff Reduction Practice Summary

Drainage Area	Stormwater Practice	RRv (cf)
DR-1	Infiltration Chamber	21,248
DR-4	Infiltration Chamber	18,464
DR-5	Infiltration Chamber	18,426
DR-11	Conservation of Natural Areas	868
DR-13	Infiltration Basin #1	1,995
DR-14	Infiltration Basin #2	2,245
DR-15	Dry Swale #1	87
Total RRv		63,333

Drainage Areas DR-10, DR-11, DR-12, and DR-16 are to remain as naturally vegetated and therefore do not require water quality treatment.

However, Drainage Area DR-11 will be deed restricted to ensure the perpetual protection of the proposed area. Therefore, this area qualifies under the “Conservation of Natural Areas” volume reduction practice shown in the chart above.

9.3 Hydraulic Analysis of Pre- and Post-Development Conditions

The site was analyzed in both the pre- and post-construction stormwater conditions. Water quantity controls were required for drainage areas contributing to analysis point #1A as it is a Wetland. Using Chapter 4 of the Manual for new development, the project meets the total water quality volume required. Table 7 below summarizes the impervious cover of the pre- and post-development conditions.

Table 7 – Impervious Cover

	Pre-Development	Post-Development
Impervious Area	5.16 ac	65.9 ac
% Impervious Cover	7.1%	90.6%

The existing site has no water quality treatment measures. A portion of all stormwater not stored within the site is directly discharged into the Hudson River and Normans Kill. Per Chapter 4 of the Manual, new development projects are required to provide water quality treatment. As shown below, the project can meet the total water quality volume required. The peak discharge for all storm events draining to Analysis Point #1A is decreased in the post-development condition. The post-development peak discharge rates for the 1-year, 10-year and 100-year storm events exceed the pre-development peak discharge rates for the remaining analysis points; however, as described in Section 8.1 above, this requirement is waived when discharging directly to tidal waters. A summary of the peak discharge and stormwater management plan is shown in Table 8 below.

Table 8 – Peak Discharge and Stormwater Management Plan Summary

Storm Event	Pre-Development	Post-Development
Analysis Point #1A (Wetland #1)		
1-yr Discharge	27.32 cfs	4.68 cfs
10-yr Discharge	73.24 cfs	12.50 cfs
100-yr Discharge	163.60 cfs	30.43 cfs
Analysis Point #1		
1-yr Discharge	3.25 cfs	58.54 cfs
10-yr Discharge	14.96 cfs	124.96 cfs
100-yr Discharge	43.20 cfs	205.59 cfs
Analysis Point #2		
1-yr Discharge	7.17 cfs	82.79 cfs
10-yr Discharge	20.65 cfs	166.00 cfs
100-yr Discharge	48.06 cfs	290.19 cfs
Analysis Point #3		
1-yr Discharge	0.60 cfs	1.20 cfs
10-yr Discharge	1.84 cfs	2.62 cfs
100-yr Discharge	4.39 cfs	5.25 cfs
Total Area of Soil Disturbance	73.4 acres	
WQv Target	275,516 cf	
WQv Provided	280,761 cf (max)	
RRv Target	57,313 cf	
RRv Provided	63,333 cf	

Analysis Point #1A analyzes the peak discharge at Wetland #1. In larger storm events, stormwater quality ponds #1 and #2 will provide a “first flush” treatment for up to a 10-year storm event with stabilized emergency spillways to direct flow to the surrounding area for storms greater than the 10-year event. Due to the topography of the surrounding undisturbed area, water will flow toward Wetland #1. In the post-development condition, Analysis Point #1A has a peak discharge less than the pre-development condition during all storm events, therefore the required water quantity controls are met.

In the post-development condition, Analysis Point #1 has a total drainage area of 0.12 square miles (75.28 acres). This point drains to the Normans Kill with a drainage area of 162 square miles (103,680 acres). The project area makes up approximately 0.07% of the total drainage area of the Normans Kill. With an overall project time of concentration of around 10 minutes, the proposed project will have a negligible impact on the total Normans Kill hydrology as the site-produced runoff will be conveyed prior to the Normans Kill peak and will not impact the overall flood conditions of the Normans Kill.

In the post-development condition, Analysis Point #2 has a total drainage area of 0.04 square miles (23.6 acres). This point drains to the Hudson River with a drainage area of 8,090 square miles (5,177,600 acres). The project area makes up approximately 0.0005% of the total drainage area of the Hudson. With an overall project time of concentration of around 10 minutes, the proposed project will have a negligible impact on the total Hudson River hydrology, as the site-produced runoff will be conveyed prior to the Hudson River peak and will not impact the overall flood conditions of the Hudson River.

At Analysis Point #3, the post-development discharge rates are higher than the pre-development condition. However, analysis point #3 drains to the surrounding area which stores runoff to be gradually infiltrated. Runoff from this analysis point does not flow to a stream or wetland.

9.4 Deviation from NYS Stormwater Management Design Manual

The proposed stormwater management design deviates from The Manual by utilizing manufactured stormwater filtering systems for new development.

The need for alternative stormwater management practices is rooted in the extremely limited space available as well as the current site conditions. The proposed Offshore Wind Manufacturing Facility requires 85 acres of usable manufacturing and storage space along the Hudson River. It also requires close proximity to an existing port. Such requirements narrow the available project locations to a select few plots of unoccupied land in the entire state and this site was selected through a solicitation process by the state for off-shore wind development. This site was chosen given it is located adjacent to the existing Port of Albany and is directly on the Hudson River. However, the usable portion of the site adjacent to the Hudson River, is only 66-acres. Therefore, the entirety of the site is needed for the OSW manufacturing process, with an ancillary receiving site located at 700 Smith Boulevard.

The Expansion Site also extends onto the adjacent National Grid property from which APDC is leasing approximately 4.4 acres. However, National Grid has prohibited the installation of permanent stormwater infiltration practices within their property.

In addition to space limitations, the existing soils conditions prevent infiltration from being utilized as a stormwater management practice over most of the site. The existing soils are classified as Hydrologic Group D and B/D which provide little to no infiltration and are underlain by fly ash. Infiltration practices were utilized in the areas where greater than 0.5 in/hr infiltration rates were achieved.

To adequately satisfy the WQv requirements of the Manual, manufactured systems are needed. The Contech Jellyfish units designed meet both the performance and sizing requirements of Chapter 4 of the Manual. The units are also certified by Washington State Department of Ecology (TAPE) and the Maryland Department of the Environment, adequate sources accepted by the NYSDEC. Specifications and details for the proposed units are provided in Appendix D of the Design Report (included as Appendix C of this report).

9.5 Maintenance Schedule of Post-Construction Stormwater Control Practices

See Appendix D of this report for the maintenance inspection checklists and requirement for the facilities to be maintained as summarized below in Table 9.

Table 9 – Maintenance Schedule of Post-Construction Stormwater Management Facilities

Maintained By	Name of Entity
Name, Address, Phone of Responsible Party	Albany Port District Commission 106 Smith Boulevard Albany, NY 12202 (518) 463-8763
Facilities to be Maintained	Jellyfish Filter (9 units at 6 locations) Infiltration Chamber (3 systems) Stormwater Quality Ponds (2) Infiltration Basins (2) Dry Swales (2) Stormwater Collection & Conveyance Systems
Description of Maintenance Activity for each Facility and Frequency	See Appendix D for maintenance guidelines, as recommended by the manufacturer and NYSDEC.
Description of Applicable Easements	N/A
Access and Safety Issues	Maintenance forces have access to all drainage facilities within the site.
Local and Non-Local Permits	Joint Permit Application
Legal Agreements	N/A

9.6 Drainage Structure Catchment Areas

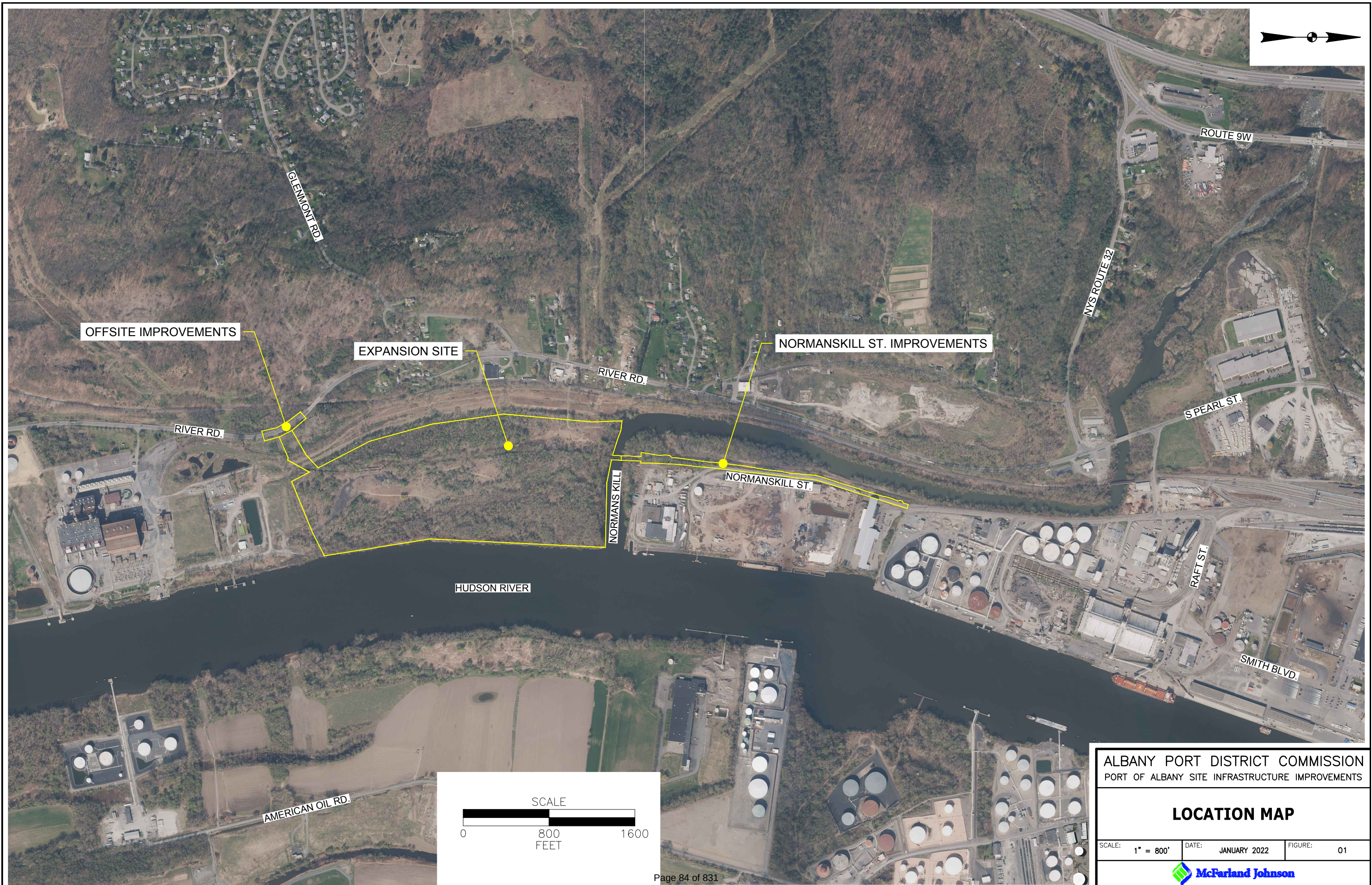
See Appendix C of the Drainage Design Report (included as Appendix C of this report).

9.7 Hydraulic Analysis of Stormwater Sewer System

All elements of the closed drainage system have been designed to be non-erosive during a 2-year storm event and capable of conveying a 10-year storm event. The profiles were created in AutoCAD Civil 3D which incorporates the rational method and Manning's Equation to iteratively calculate the hydraulic capacity, grade lines, and inlet spreads. Printouts of the closed drainage system analysis are in Appendix C of the Drainage Design Report (included as Appendix C of this report).

APPENDIX A

LOCATION MAP

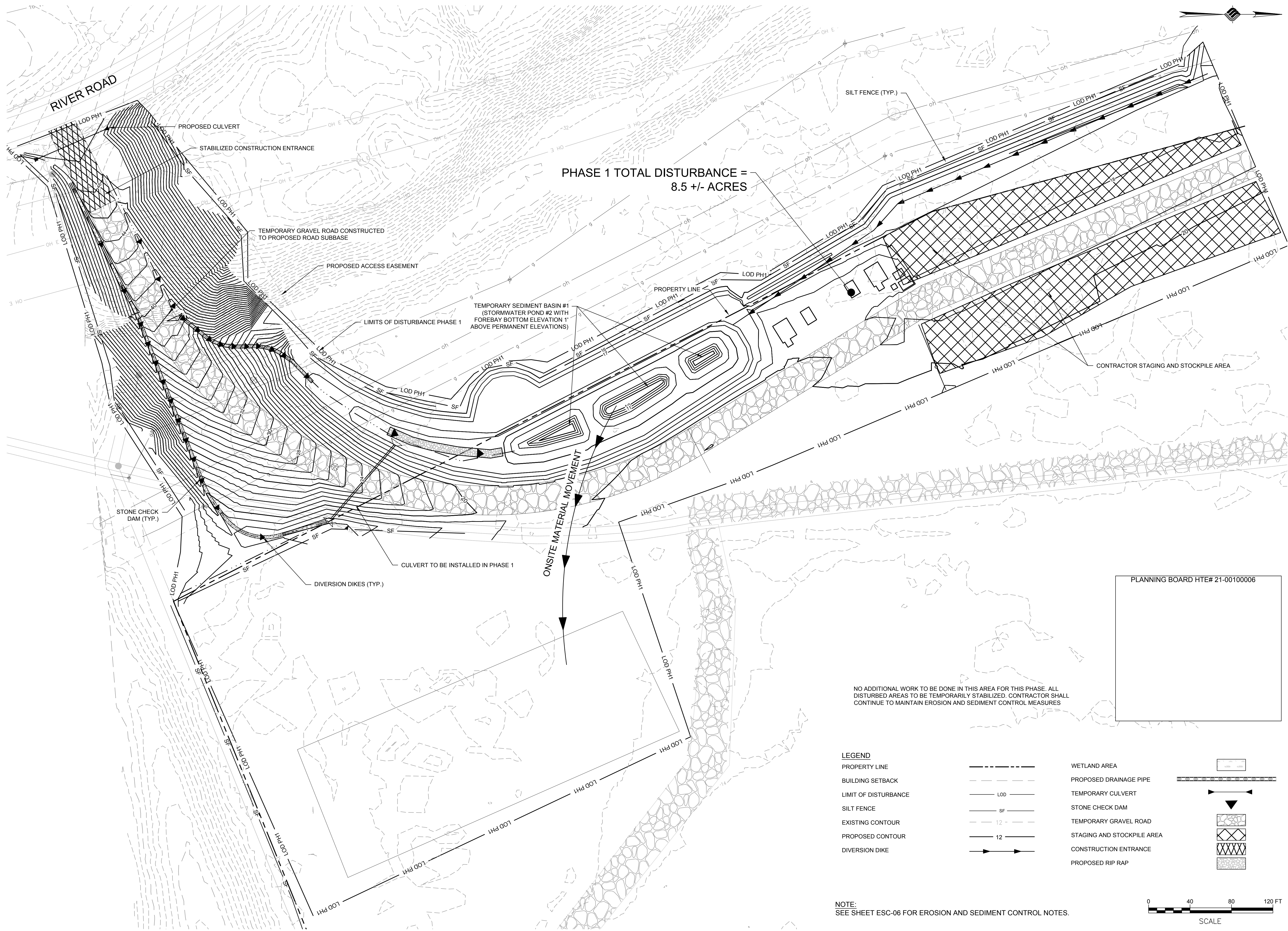


ALBANY PORT DISTRICT COMMISSION		
PORT OF ALBANY SITE INFRASTRUCTURE IMPROVEMENTS		
LOCATION MAP		
SCALE:	1" = 800'	DATE: JANUARY 2022
		FIGURE: 01
		

APPENDIX B

EROSION & SEDIMENT CONTROL PLANS, DETAILS & NOTES

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PHASE 1 TOTAL DISTURBANCE =
8.5 +/- ACRES

NO ADDITIONAL WORK TO BE DONE IN THIS AREA FOR THIS PHASE. ALL
DISTURBED AREAS TO BE TEMPORARILY STABILIZED. CONTRACTOR SHALL
CONTINUE TO MAINTAIN EROSION AND SEDIMENT CONTROL MEASURES

LEGEND

PROPERTY LINE	---
BUILDING SETBACK	---
LIMIT OF DISTURBANCE	---
SILT FENCE	SF
EXISTING CONTOUR	12
PROPOSED CONTOUR	12
DIVERSION DIKE	→

WETLAND AREA

PROPOSED DRAINAGE PIPE

TEMPORARY CULVERT

STONE CHECK DAM

TEMPORARY GRAVEL ROAD

STAGING AND STOCKPILE AREA

CONSTRUCTION ENTRANCE

PROPOSED RIP RAP

0 40 80 120 FT

SCALE

NOTE:
SEE SHEET ESC-06 FOR EROSION AND SEDIMENT CONTROL NOTES.

McFarland Johnson
60 RAILROAD PLACE
SUITE 402
SARATOGA SPRINGS, NEW YORK 12866
P:518-580-9380 F:518-580-9383
SaratogaROM@mjinc.com

PROJECT MILESTONE
FINAL DESIGN PLANS

NO.	DATE	DESCRIPTION
1	05/20/22	TOWN COMMENTS

CLIENT:
ALBANY PORT DISTRICT COMMISSION

ALBANY, NEW YORK

PROJECT:
PORT OF ALBANY EXPANSION SITE

DRAWN	JES
DESIGNED	NSO
CHECKED	AJF
SCALE	AS SHOWN
DATE	05/10/2022
PROJECT	18641.00

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DRAWING TITLE
EROSION & SEDIMENT CONTROL PLAN-PH.1

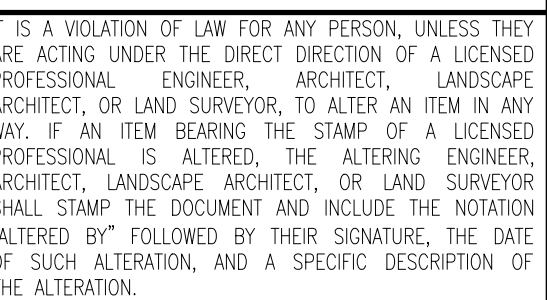
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57 OF 68

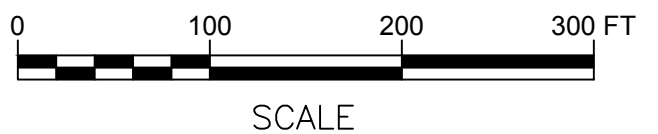
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ROJECT	18641.00



8 OF 68





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P:518-580-9380 F:518-580-9383
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ALBANY, NEW YORK

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SCALE	AS SHOWN
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PROJECT	18641.00



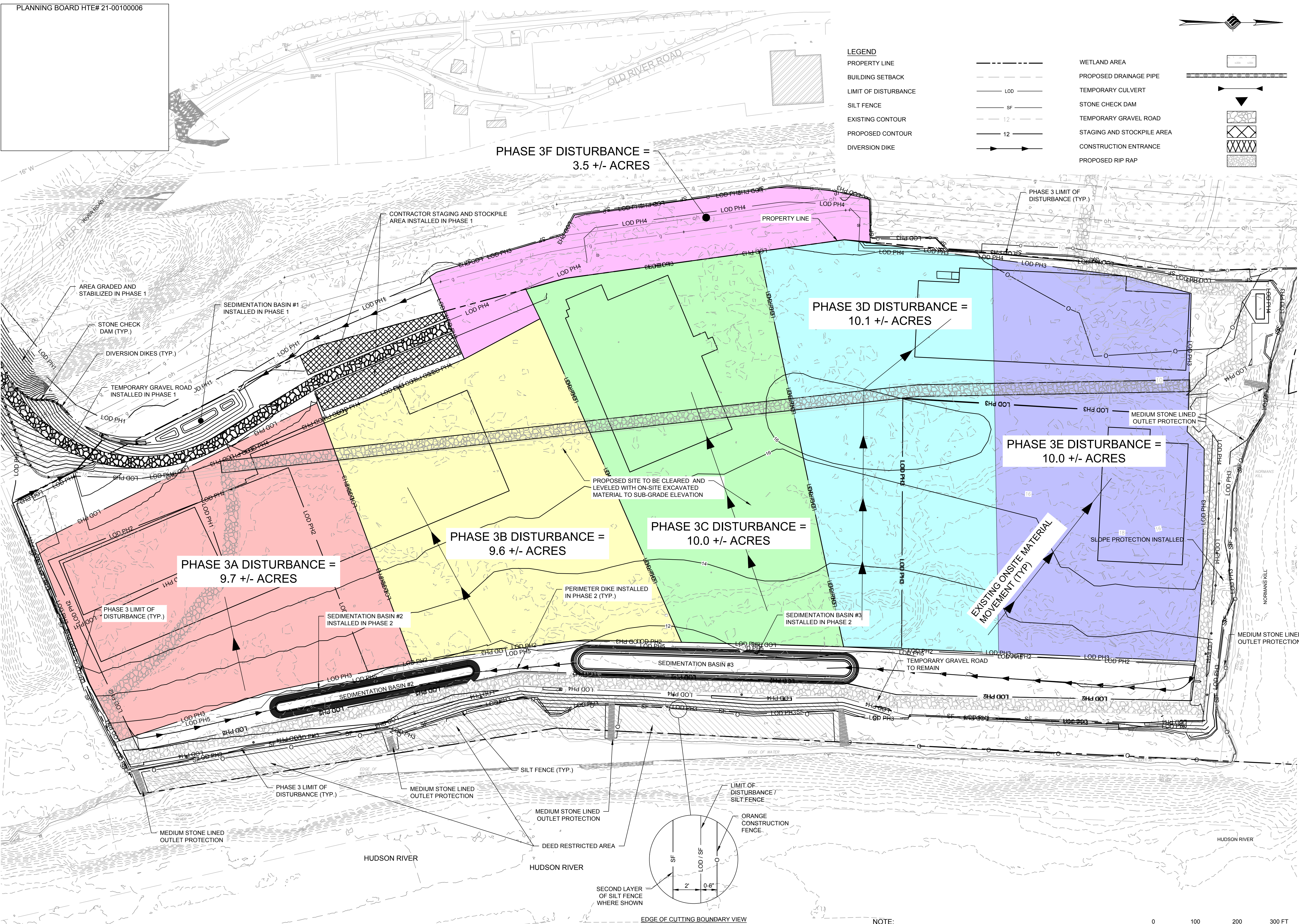
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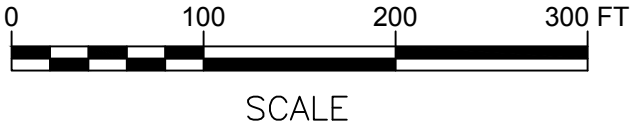
EROSION & SEDIMENT CONTROL PLAN-PH.3

DRAWING NUMBER

ESC-03



NOTE:
SEE SHEET ESC-05 FOR EROSION AND SEDIMENT CONTROL NOTES.





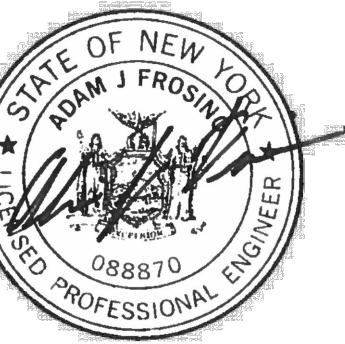
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60 RAILROAD PLACE
SUITE 402
SARATOGA SPRINGS, NEW YORK 12866
P:518-580-9380 F:518-580-9383
SaratogaROM@mjinc.com

PROJECT MILESTONE
FINAL DESIGN PLANS

NO.	DATE	DESCRIPTION
1	05/20/22	TOWN COMMENTS

CLIENT: **ALBANY PORT DISTRICT COMMISSION**
ALBANY, NEW YORK
PROJECT: **PORT OF ALBANY EXPANSION SITE**

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DESIGNED	NSO
CHECKED	AJF
SCALE	AS SHOWN
DATE	05/10/2022
PROJECT	18641.00



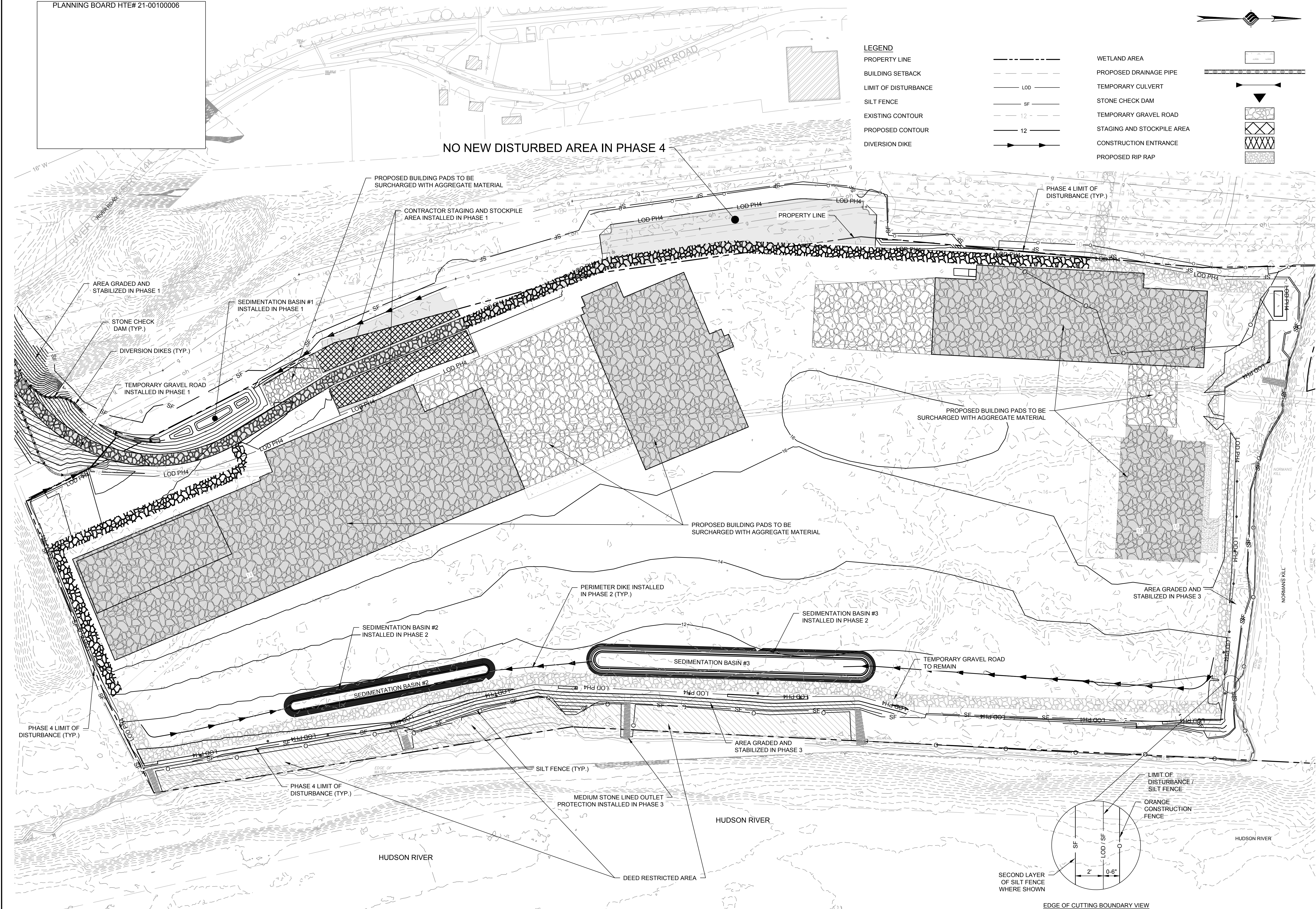
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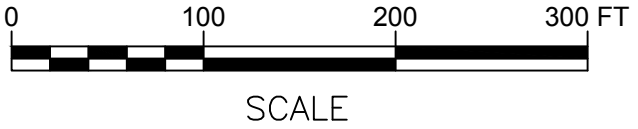
EROSION & SEDIMENT CONTROL PLAN-PH.4

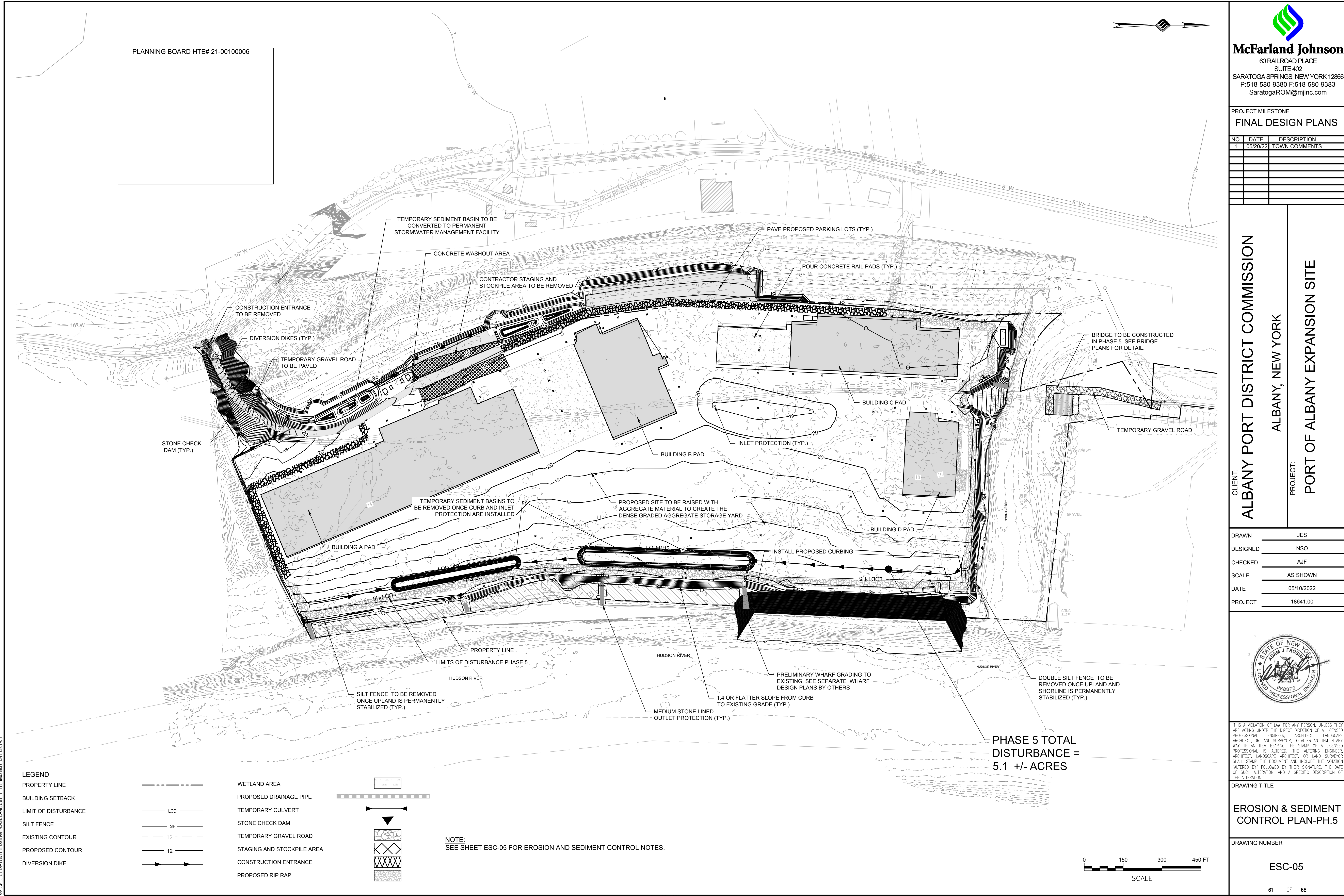
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ESC-04

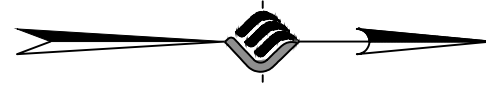


NOTE:
SEE SHEET ESC-05 FOR EROSION AND SEDIMENT CONTROL NOTES.





PLANNING BOARD HTE# 21-00100006





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60 RAILROAD PLACE
SUITE 402
SARATOGA SPRINGS, NEW YORK 12866
P:518-580-9380 F:518-580-9383
SaratogaROM@mjinc.com

PROJECT MILESTONE
FINAL DESIGN PLANS

NO.	DATE	DESCRIPTION
1	05/20/22	TOWN COMMENTS

CLIENT:
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ALBANY, NEW YORK

PROJECT:
PORT OF ALBANY EXPANSION SITE

DRAWN	JES
DESIGNED	NSO
CHECKED	AJF
SCALE	AS SHOWN
DATE	05/10/2022
PROJECT	18641.00



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EROSION & SEDIMENT CONTROL PLAN-PH.5

DRAWING NUMBER
ESC-05
61 OF 68

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LEGEND

PROPERTY LINE
BUILDING SETBACK
LIMIT OF DISTURBANCE
SILT FENCE
EXISTING CONTOUR
PROPOSED CONTOUR
DIVERSION DIKE

WETLAND AREA
PROPOSED DRAINAGE PIPE
TEMPORARY CULVERT
STONE CHECK DAM
TEMPORARY GRAVEL ROAD
STAGING AND STOCKPILE AREA
CONSTRUCTION ENTRANCE
PROPOSED RIP RAP

LOD
SF
12
12

0 150 300 450 FT
SCALE

NOTE:
SEE SHEET ESC-05 FOR EROSION AND SEDIMENT CONTROL NOTES.

PHASE 5 TOTAL
DISTURBANCE =
5.1 +/- ACRES

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EROSION AND SEDIMENT CONTROL PLAN NOTES:

1. THE EROSION AND SEDIMENT CONTROL PLAN IS INTENDED TO REPRESENT A CONCEPTUAL APPROACH TO EROSION AND SEDIMENT CONTROL. IT IS FURTHER INTENDED THAT THE OWNER AND CONTRACTOR SHALL IMPLEMENT PRACTICES, AS REQUIRED, TO CONTROL EROSION AND SEDIMENT IN ACCORDANCE WITH THE NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL AND SWPPP.
2. INSTALL SILT FENCE, AND ALL OTHER EROSION CONTROL MEASURES AS INDICATED ON THE PLAN PRIOR TO THE START OF ANY EXCAVATION WORK. EROSION CONTROL MEASURES WILL BE IMPLEMENTED IN ACCORDANCE WITH THE NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION AND THE GOVERNING MUNICIPALITY REQUIREMENTS.
3. REMOVE AND STOCKPILE TOPSOIL IN ACCORDANCE WITH THE EROSION AND SEDIMENT CONTROL PLAN. REPLACE TOPSOIL TO A MINIMUM 4" DEPTH. ALL DISTURBED AREAS ARE TO BE HYDROSEEDDED IN ACCORDANCE WITH THE EROSION AND SEDIMENT CONTROL PLANS.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE AND REMOVAL OF TEMPORARY SEDIMENTATION CONTROLS, INCLUDING INLET PROTECTION AND SILT FENCE. EROSION CONTROL MEASURES SHALL NOT BE REMOVED BEFORE AREAS HAVE BEEN PROPERLY STABILIZED.
5. CONTRACTOR SHALL MAINTAIN A STOCK PILE OF EROSION AND SEDIMENT CONTROL MEASURES ON SITE AS INDICATED ON THE PLAN.
6. NO PETROLEUM PRODUCTS ARE TO BE STORED ON SITE WITHOUT PRIOR APPROVAL OF THE LOCAL STORMWATER INSPECTOR. ANY PETROLEUM ON SITE WILL COMPLY WITH ALL LOCAL, STATE, AND FEDERAL GOVERNMENT REGULATIONS.
7. WRAP YARD INLET GRATES IN FILTER FABRIC PROGRESSIVELY AS STORM SEWER AND YARD INLETS ARE INSTALLED.
8. ALL EROSION CONTROL MEASURES ARE TO BE REPLACED WHENEVER THEY BECOME CLOGGED OR INOPERABLE AND SHALL BE REPLACED AT A MINIMUM OF EVERY 3 MONTHS.
9. JUTE MESH WILL BE USED ON SLOPES STEEPER THAN 3:1 AND WHEREVER NECESSARY TO CONTROL EROSION AND SILTATION OF EXISTING DRAINAGE SYSTEMS AS ORDERED BY THE ENGINEER.
10. ALL DISTURBED AREAS SHALL BE FINISH GRADED TO PROMOTE VEGETATION ON ALL EXPOSED AREAS AS SOON AS PRACTICABLE. STABILIZATION PRACTICES (TEMPORARY/PERMANENT SEEDING, MULCHING, GEOTEXTILES, ETC.) MUST BE IMPLEMENTED WITHIN SEVEN (7) DAYS WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, AND NOT EXPECTED TO RESUME WITHIN FOURTEEN (14) DAYS.
11. ALL RIP-RAP OUTLET PROTECTION TO BE CONSTRUCTED PER NYSDEC STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL.
12. CONTRACTOR SHALL TAKE THE NECESSARY MEASURES, INCLUDING WATER SPRINKLING, TO PROVIDE DUST CONTROL DURING CONSTRUCTION.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL TEMPORARY AND PERMANENT EROSION CONTROL FEATURES THROUGHOUT THE DURATION OF CONSTRUCTION.

A. ALL SEDIMENT TRAPPING DEVICES AND INLET PROTECTION DEVICES SHALL BE CLEANED OF ACCUMULATED SILT WHEN STORAGE CAPACITY HAS BEEN REDUCED BY 50% OF THEIR DESIGN CAPACITY.

B. ALL SEDIMENT SHALL BE REMOVED FROM BEHIND SILT FENCE AND STRAW BALES WHEN IT ACCUMULATES TO A MAXIMUM HEIGHT OF 6".

C. AFTER VEGETATION HAS BEEN SUBSTANTIALLY ESTABLISHED, EXCAVATE SWALES OF ACCUMULATED SILT. RE-ESTABLISHED VEGETATION ON DISTURBED AREAS.

D. SEDIMENT COLLECTED BY EROSION CONTROL MEASURES SHALL BE DISPOSED OF BY SPREADING ON-SITE OR HAULED AWAY IF DETERMINED TO BE UNSUITABLE FOR FILL.
12. ALL DISTURBED AREAS SHALL BE STABILIZED, SEEDED AND MULCHED WITHIN 7 DAYS OF CEASED CONSTRUCTION ACTIVITY.
13. TOTAL PROJECT DISTURBANCE AREA PER THE NYSDEC SPDES STANDARDS IS 79 ACRES.
14. ALL AREAS TO REMAIN AS PVIOUSLY VEGETATED AREAS SHALL BE RESTORED IN ACCORDANCE WITH THE NYS STORMWATER MANAGEMENT DESIGN MANUAL TABLE 5.3 SOIL RESTORATION REQUIREMENTS.

PERMANENT SEEDING NON-SLOPED AREAS:

1. IF SOILS ARE COMPACTED, SCARIFY UPPER TWO INCHES BY BACKBLADING WITH DOZER, RAKING, OR DISKING.
2. PLACE TOPSOIL TO A MINIMUM DEPTH OF 4 INCHES.
3. SEED PER SCHEDULE SPECIFIED ON LANDSCAPE PLANS.
4. FERTILIZE WITH 600 POUNDS PER ACRE OF 10-10-10. LIME TO ACHIEVE A PH OF NOT LESS THAN 5.5 OR GREATER THAN 7.6. IF HYDROSEEDER IS NOT USED, SEED AND FERTILIZER SHOULD BE LIGHTLY RAKED INTO SOIL.
5. MULCH WITH CLEAN (WEED FREE) STRAW IF SPECIFIED ON PLANS.

PERMANENT SEEDING SLOPED AREAS:

1. IF SOILS ARE COMPACTED, SCARIFY UPPER TWO INCHES BY BACKBLADING WITH DOZER, RAKING, OR DISKING.
2. PLACE TOPSOIL TO A MINIMUM DEPTH OF 4 INCHES.
3. FERTILIZE WITH 600 POUNDS PER ACRE OF 10-10-10. LIME TO ACHIEVE A PH OF NOT LESS THAN 5.5 OR GREATER THAN 7.6. IF HYDROSEEDER IS NOT USED, SEED AND FERTILIZER SHOULD BE LIGHTLY RAKED INTO SOIL.
4. IMMEDIATELY SEED PER SEED SCHEDULE SPECIFIED ON LANDSCAPE PLAN.
5. PROVIDE JUTE MESH IF SPECIFIED ON PLANS OR MULCH WITH CLEAN (WEED FREE) STRAW.

EROSION AND SEDIMENT CONTROL SEQUENCE:

THE TOWN OF BETHLEHEM SHOULD BE NOTIFIED PRIOR TO CONSTRUCTION ACTIVITIES STARTING AND CEASING DISTURBANCE OF OVER 5 ACRES AT ONE TIME.

PHASE I:

- INSTALL CONSTRUCTION ENTRANCE ROADS
- ESTABLISH THE PROJECT CONSTRUCTION STAGING/OFFICE AREA
- USE ANY ACCESS ROAD CUT MATERIAL AS FILL FOR THE CONSTRUCTION STAGING AREA
- TEMPORARILY STABILIZE ALL DISTURBED AREAS
- INSTALL SILT FENCE DOWNSTREAM OF ALL DISTURBED AREAS
- CONSTRUCT SEDIMENTATION BASIN #1 FOREBAYS TO 1' HIGHER THEN PROPOSED GRADING FOR THE PERMANENT STORM WATER MANAGEMENT POND #2 FOREBAYS.
- MATERIAL FROM THE POND EXCAVATION TO BE PLACED AND COMPACTED AS PART OF THE BUILDING A EMBANKMENT.
- BASED ON THE POTENTIAL FOR PROPOSED ROCK CUT WHEN EXCAVATING THE ROADWAY SECTION PHASE II MAY PROGRESS PRIOR TO THE COMPLETION OF PHASE I. THE PHASE I AREA SHALL BE STABILIZED TO THE MINIMIZE DISTURBANCE AREA PRIOR TO PROGRESSION TO PHASE II

PHASE II:

- INSTALL PERIMETER CONTROLS
- INSTALL ADDITIONAL CONSTRUCTION ACCESS ROAD
- CONSTRUCT SEDIMENTATION BASINS AND DIVERSION DIKES TO BASINS
- THE PROPOSED TEMPORARY STORM WATER TREATMENT FACILITIES SHALL BE INSTALLED BEFORE PROGRESSING INTO PHASE III

PHASE III:

- SITE TO BE GRUBBED AND GRADED TO THE TOP OF SUB-GRADE ELEVATION IN SUB-PHASES
- BALANCE CUT AND FILLS IN THE SITE.
- COMPACT/IMPROVE EXISTING GROUND CONDITIONS ACCORDING TO GEOTECHNICAL REPORT
- IMPORT MATERIAL TO RAISE THE SITE TO PROPOSED SUB-GRADE ELEVATIONS
- LIMITS OF DISTURBANCE DISTURBANCE TO BE MINIMIZED IN EACH SUB-PHASE BY STABILIZING AREAS WITHIN 2 DAYS AFTER FINAL GRADE IS ACHIEVED
- THE SUB-PHASE AREAS WILL BE DISTURBED AND STABILIZE IN A ROLLING OPERATION AS THE EARTHWORK PROGRESSES FROM THE SOUTH END OF THE SITE TO THE NORTH END. TO AVOID STOCKPILING AVAILABLE CUT MATERIAL FROM ONE SUB-PHASE AREA MAY BE DEPOSITED AND STABILIZED WITHIN ANOTHER SUB-PHASE AREA; HOWEVER THE OVERALL TOTAL DISTURBED AREA SHALL NOT EXCEED 11 ACRES.
- PHASE IV AGGREGATE PLACEMENT WORK WILL OCCUR SIMULTANEOUSLY AND PROVIDE STABILIZATION ONCE SUB-GRADE ELEVATIONS HAVE BEEN ACHIEVED.

PHASE IV:

- HAUL IN PROPOSED AGGREGATE MATERIAL TO SURCHARGE THE BUILDING FOOTPRINTS AND CONCRETE AREAS
- MAINTAIN EXISTING PHASE III EROSIONAL AND SEDIMENT CONTROL MEASURES
- MONITOR SETTLEMENT OF THE SUB-GRADE MATERIAL IN ACCORDANCE WITH THE GEOTECHNICAL REPORT.

PHASE V:

- INSTALL STORM SEWER SYSTEM WITH INLET PROTECTION FOR DRAINAGE STRUCTURES AND STONE LINING OUTLET PROTECTION
- INSTALL SITE UTILITIES
- SPREAD AGGREGATE MATERIAL TO STORAGE AREAS
- INSTALL INFILTRATION CHAMBERS
- POUR ALL PROPOSED CONCRETE RAIL PADS AND SIDEWALKS
- INSTALL PROPOSED CONCRETE CURBING
- PAVE PARKING LOT AREAS
- REMOVE CONSTRUCTION STAGING AREA
- CONVERT TEMPORARY SEDIMENT BASIN TO PERMANENT STORM WATER MANAGEMENT FACILITIES BY EXCAVATING THE PERMANENT POOL AND FOREBAYS DOWN TO FINAL GRADE AND CONVERTING THE OUTLET STRUCTURE.
- REMOVE TEMPORARY SEDIMENT BASINS, WHICH ARE NOT TO BE CONVERTED TO PERMANENT PRACTICES
- FINAL STABILIZATION FOR EMBANKMENT SLOPES ALONG THE NORMANS KILL AND HUDSON RIVER

TEMPORARY SEEDING:

1. IF SOILS ARE COMPACTED, SCARIFY UPPER TWO INCHES BY BACKBLADING WITH DOZER, RAKING, OR DISKING. FERTILIZE WITH 300 POUNDS PER ACRE OF 10-10-10.
2. NOTE: NO FERTILIZER SHOULD BE USED AFTER OCTOBER 1ST IF THERE IS DANGER OF LEACHING INTO WATER RESOURCE.
3. IMMEDIATELY SEED PER SEED SCHEDULE SPECIFIED ON LANDSCAPE PLAN.
4. APPLY STRAW MULCH AS NECESSARY TO HOLD IN MOISTURE, PROTECT SOIL FROM EROSION, HOLD SEED IN PLACE, AND KEEP SOIL TEMPERATURES MORE CONSTANT; 2 TONS PER ACRE.

SOIL RESTORATION NOTES:

SOIL RESTORATION PROCEDURE:

DURING PERIODS OF RELATIVELY LOW TO MODERATE SUBSOIL MOISTURE, THE DISTURBED SUBSOILS ARE RETURNED TO ROUGH GRADE AND THE FOLLOWING SOIL RESTORATION STEPS APPLIED:

1. APPLY 3 INCHES OF COMPOST OVER SUBSOIL
2. TILL COMPOST INTO SUBSOIL TO A DEPTH OF AT LEAST 12 INCHES USING A CAT-MOUNTED RIPPER, TRACTOR-MOUNTED DISC, OR TILLER, MIXING, AND CIRCULATING AIR AND COMPOST INTO SUBSOILS
3. ROCK-PICK UNTIL UPLIFTED STONE/ROCK MATERIALS OF FOUR INCHES AND LARGER SIZE ARE CLEANED OFF THE SITE
4. APPLY TOPSOIL TO A DEPTH OF 6 INCHES
5. VEGETATE AS REQUIRED BY APPROVED PLAN.

AT THE END OF THE PROJECT AN INSPECTOR SHOULD BE ABLE TO PUSH A 3/8" METAL BAR 12 INCHES INTO THE SOIL JUST WITH BODY WEIGHT. TILLING (STEP 2 ABOVE) SHOULD NOT BE PERFORMED WITHIN THE DRIP LINE OF ANY EXISTING TREES OR OVER UTILITY INSTALLATIONS THAT ARE WITHIN 24 INCHES OF THE SURFACE.

COMPOST SPECIFICATIONS:

COMPOST SHALL BE AGED, FROM PLANT DERIVED MATERIALS, FREE OF VIABLE WEED SEEDS, HAVE NO VISIBLE FREE WATER OR DUST PRODUCED WHEN HANDLING, PASS THROUGH A HALF INCH SCREEN AND HAVE A PH SUITABLE TO GROW DESIRED PLANTS.

WINTER STABILIZATION:

1. PREPARE A SNOW MANAGEMENT PLAN WITH ADEQUATE STORAGE FOR SNOW AND CONTROL OF MELT WATER, REQUIRING CLEARED SNOW TO BE STORED IN A MANNER NOT AFFECTING ONGOING CONSTRUCTION ACTIVITIES.
2. TO ENSURE ADEQUATE STABILIZATION OF DISTURBED SOIL IN ADVANCE OF A MELT EVENT, AREAS OF DISTURBED SOIL SHOULD BE STABILIZED AT THE END OF EACH WORK DAY UNLESS:

A. WORK WILL RESUME WITHIN 24 HOURS IN THE SAME AREA AND NO PRECIPITATION IS FORECAST OR;

B. THE WORK IS IN DISTURBED AREAS THAT COLLECT AND RETAIN RUNOFF, SUCH AS OPEN UTILITY TRENCHES, FOUNDATION EXCAVATIONS, OR WATER MANAGEMENT AREAS.
3. IF THE SITE WILL NOT HAVE EARTH DISTURBING ACTIVITIES ONGOING DURING THE "WINTER SEASON", ALL BARE EXPOSED SOIL MUST BE STABILIZED BY ESTABLISHED VEGETATION, STRAW OR OTHER ACCEPTABLE MULCH, MATTING, ROCK OR OTHER APPROVED MATERIAL, SUCH AS ROLLED EROSION CONTROL PRODUCTS. SEEDING OF AREAS WITH MULCH COVER IS PREFERRED BUT SEEDING ALONE IS NOT ACCEPTABLE FOR PROPER STABILIZATION.

SOIL DISTURBANCE PHASING	
PHASE	DISTURBANCE AREA
1	8.5 ACRES
2	11.3 ACRES
3	11 ACRES MAX.
3A	9.7 ACRES
3B	9.6 ACRES
3C	10.0 ACRES
3D	10.1 ACRES
3E	10.0 ACRES
3F	3.5 ACRES
4	NO NEW AREAS (MAY OCCUR SIMULTANEOUSLY WITH PHASE 3)
5	5.1 ACRES

NOTE: A 5-ACRE WAIVER REQUEST MUST BE APPROVED BY THE TOWN OF BETHLEHEM (MS4) PRIOR TO DISTURBING MORE THAN 5 ACRES.

PLANNING BOARD HTE# 21-00100006



McFarland Johnson

60 RAILROAD PLACE
SUITE 402
SARATOGA SPRINGS, NEW YORK 12866
P:518-580-9380 F:518-580-9383
SaratogaROM@mjinc.com

PROJECT MILESTONE

FINAL DESIGN PLANS

NO.	DATE	DESCRIPTION
1	05/20/22	TOWN COMMENTS

CLIENT:
ALBANY PORT DISTRICT COMMISSION

ALBANY, NEW YORK

PROJECT:
PORT OF ALBANY EXPANSION SITE

DRAWN	JES
DESIGNED	NSO
CHECKED	AJF
SCALE	AS SHOWN
DATE	05/10/2022
PROJECT	18641.00



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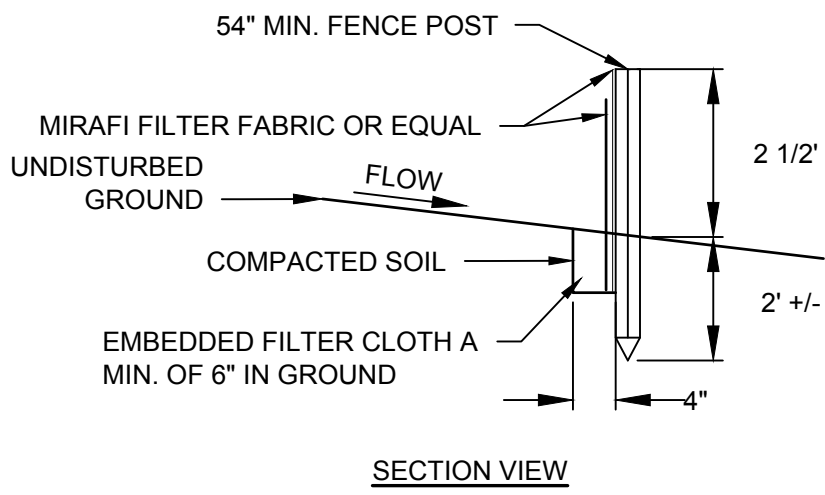
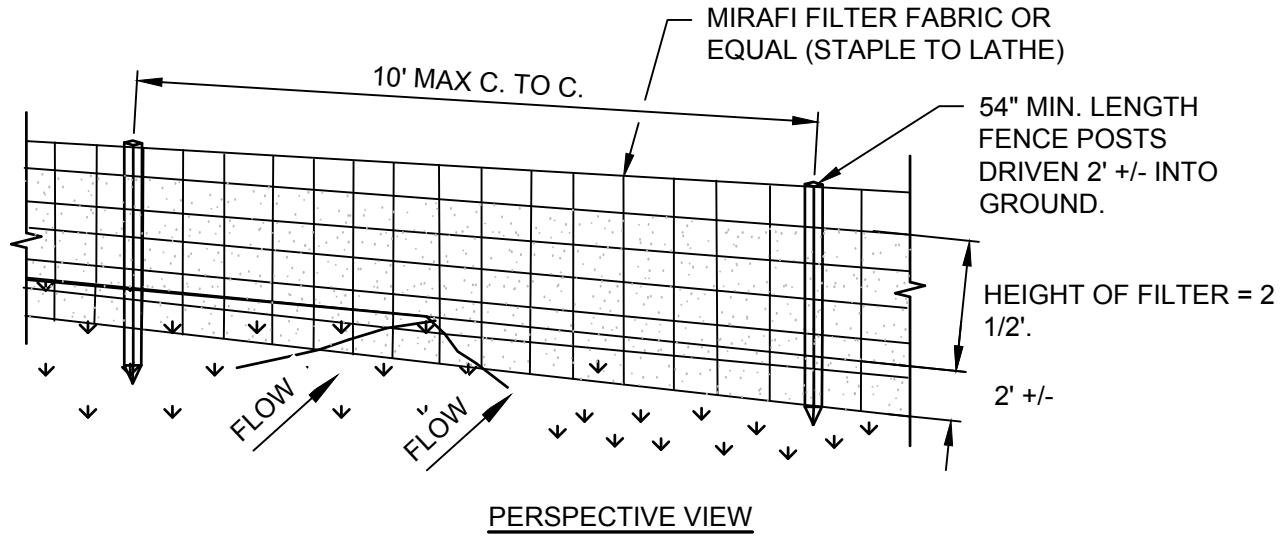
DRAWING TITLE

EROSION & SEDIMENT CONTROL NOTES

DRAWING NUMBER

ESC-06

N:\BIDD\10 ALBANY PORT EXPANSION\DRAWINGS\DRWG SHEET FILES\DWG\10 ESC DETAIL.DWG

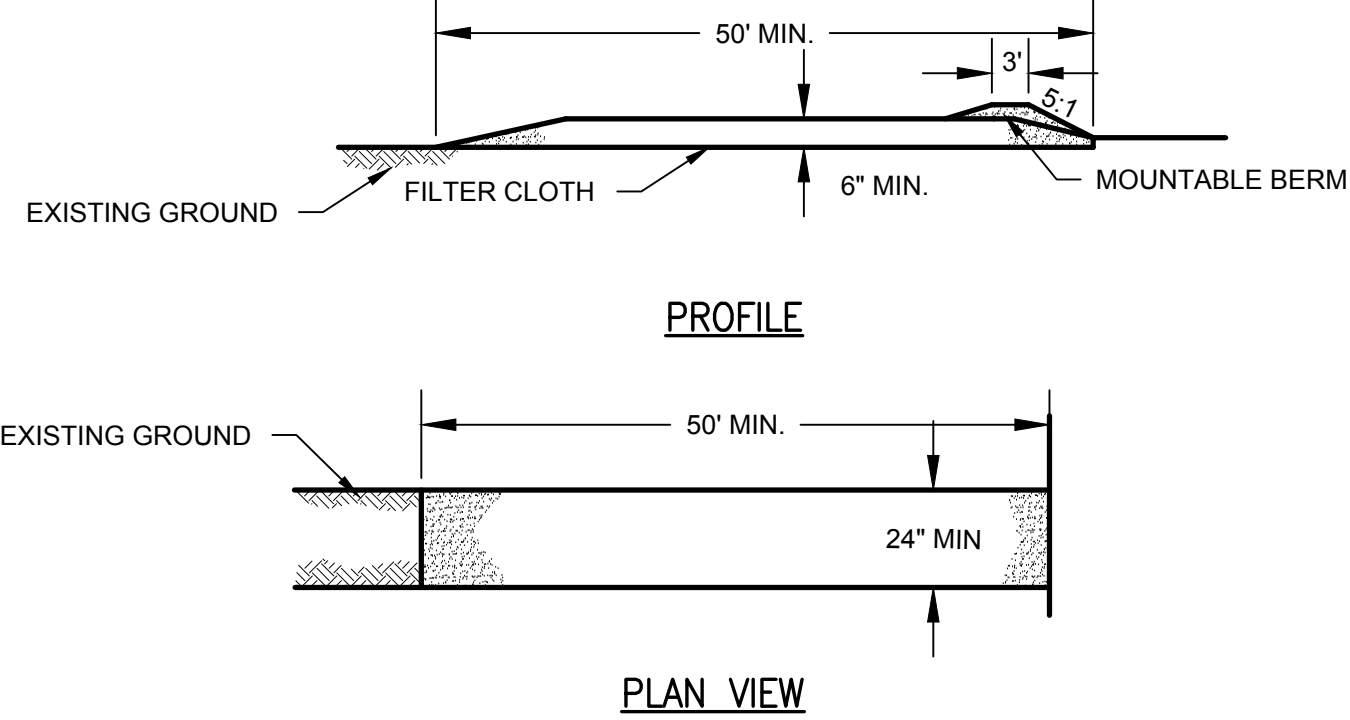


NOTES:

1. MIRAFI FILTER FABRIC TO BE SECURED TO FENCE POSTS WITH STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED.
3. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

SILT FENCE

N.T.S.

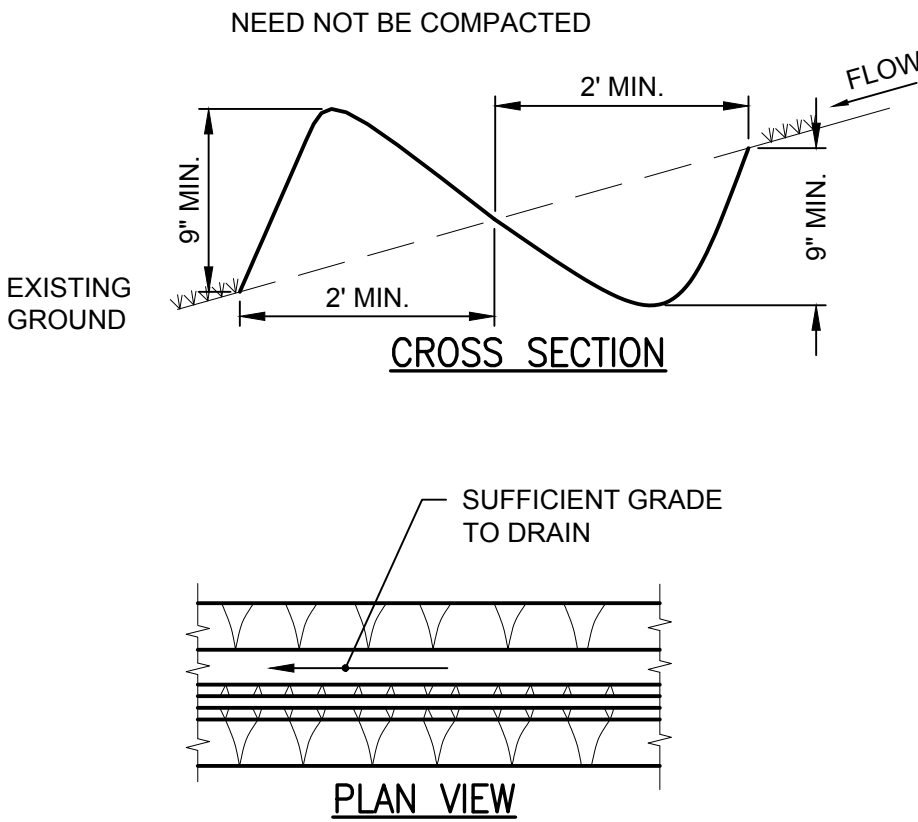


NOTES:

1. STONE SIZE - USE #3 CRUSHED STONE OR GRAVEL (PER NYSDOT SECTION 209).
2. LENGTH - NOT LESS THAN 50 FEET.
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH - TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACTED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

STABILIZED CONSTRUCTION ENTRANCE

N.T.S.

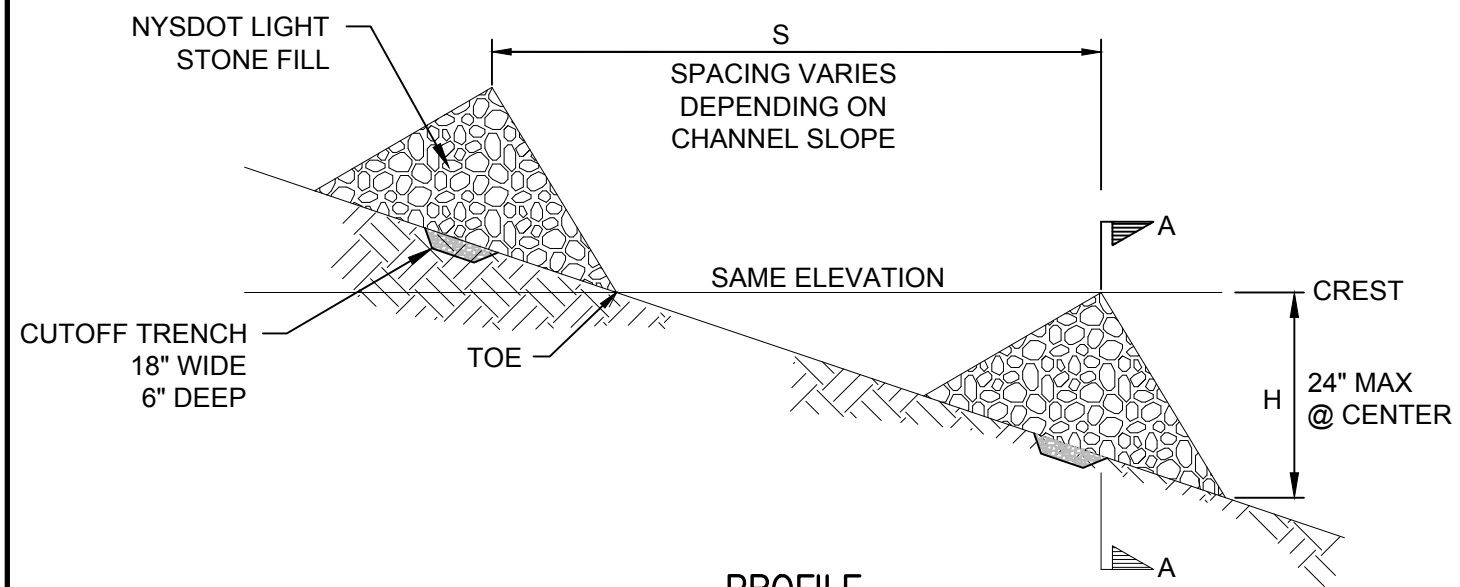


NOTES:

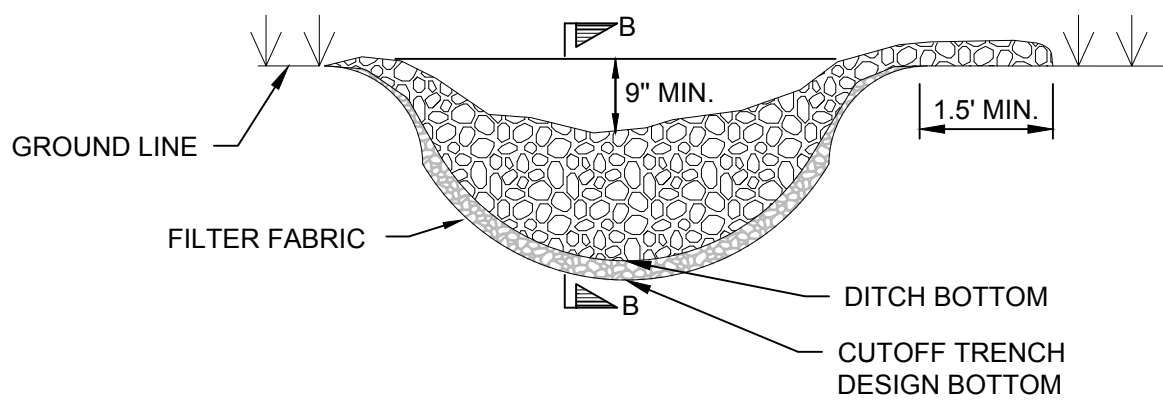
1. ALL PERIMETER DIKE/SWALE SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET.
2. DIVERTED RUNOFF FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
3. DIVERTED RUNOFF FROM AN UNDISTURBED AREA SHALL OUTLET INTO AN UNDISTURBED STABILIZED AREA AT NON-EROSION VELOCITY.
4. THE SWALE SHALL BE EXCAVATED OR SHAPED TO LINE GRADE, AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED IN THE STANDARD.
5. STABILIZATION OF THE AREA DISTURBED BY THE DIKE AND SWALE SHALL BE DONE IN ACCORDANCE WITH THE STANDARD AND SPECIFICATIONS FOR TEMPORARY SEEDING AND MULCHING, AND SHALL BE DONE WITHIN 10 DAYS.
6. PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT.

PERIMETER DIKE

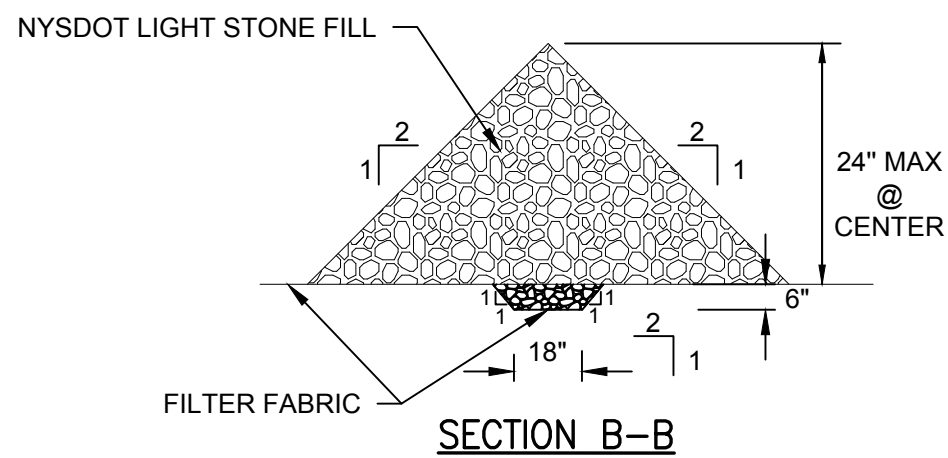
N.T.S.



$$S = \frac{H (FT)}{SLOPE (FT/FT)}$$



SECTION A-A



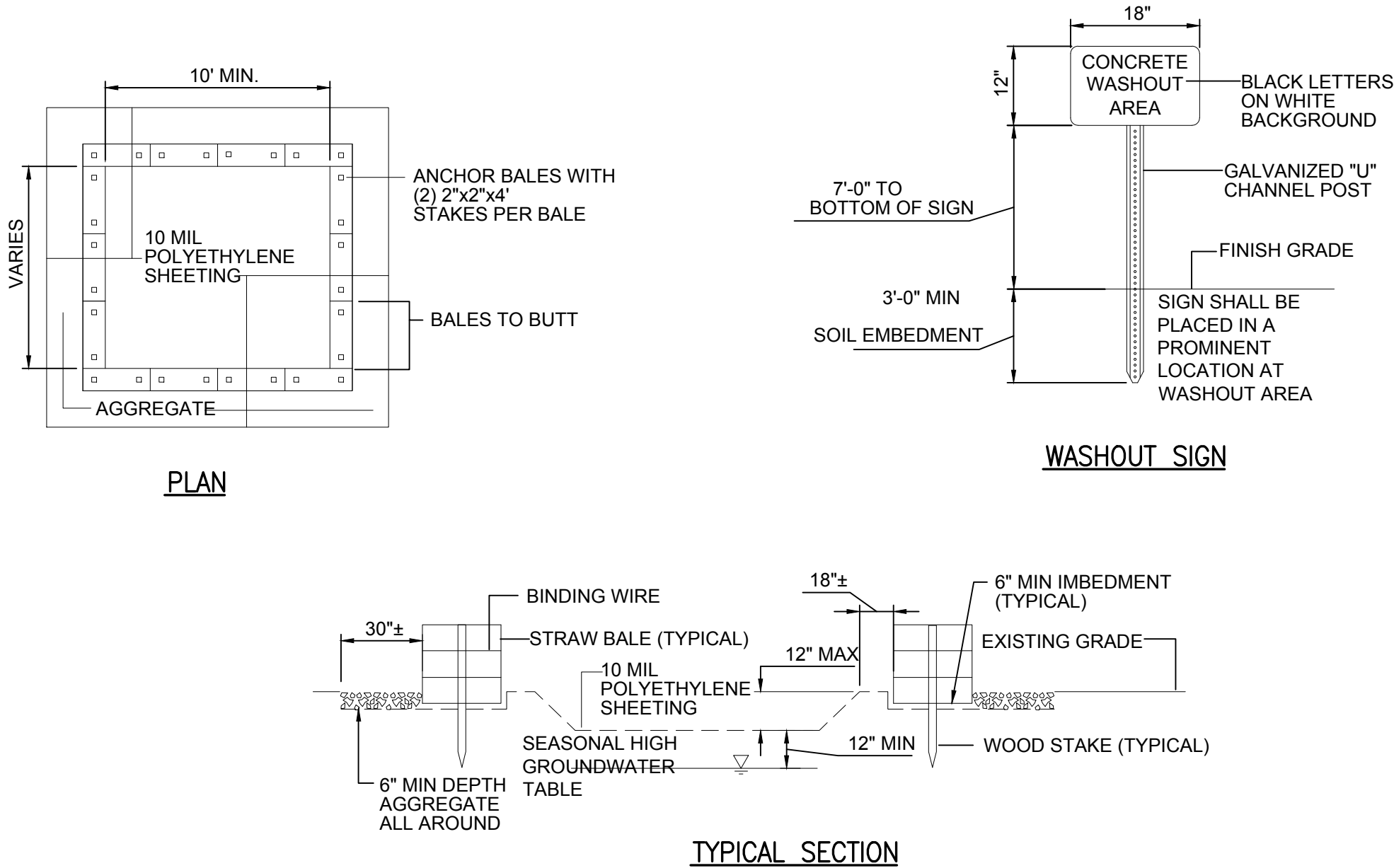
SECTION B-B

CONSTRUCTION SPECIFICATIONS

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION TO THE LINES GRADES AND LOCATIONS SHOWN ON THE PLAN.
2. SET SPACING OF CHECK DAMS TO ASSUME THAT THE ELEVATIONS OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION OF THE TOE OF THE UPSTREAM DAM.
3. EXTEND THE STONE A MINIMUM OF 1.5' BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
4. PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
5. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONES.

LIGHT STONE CHECK DAM

N.T.S.

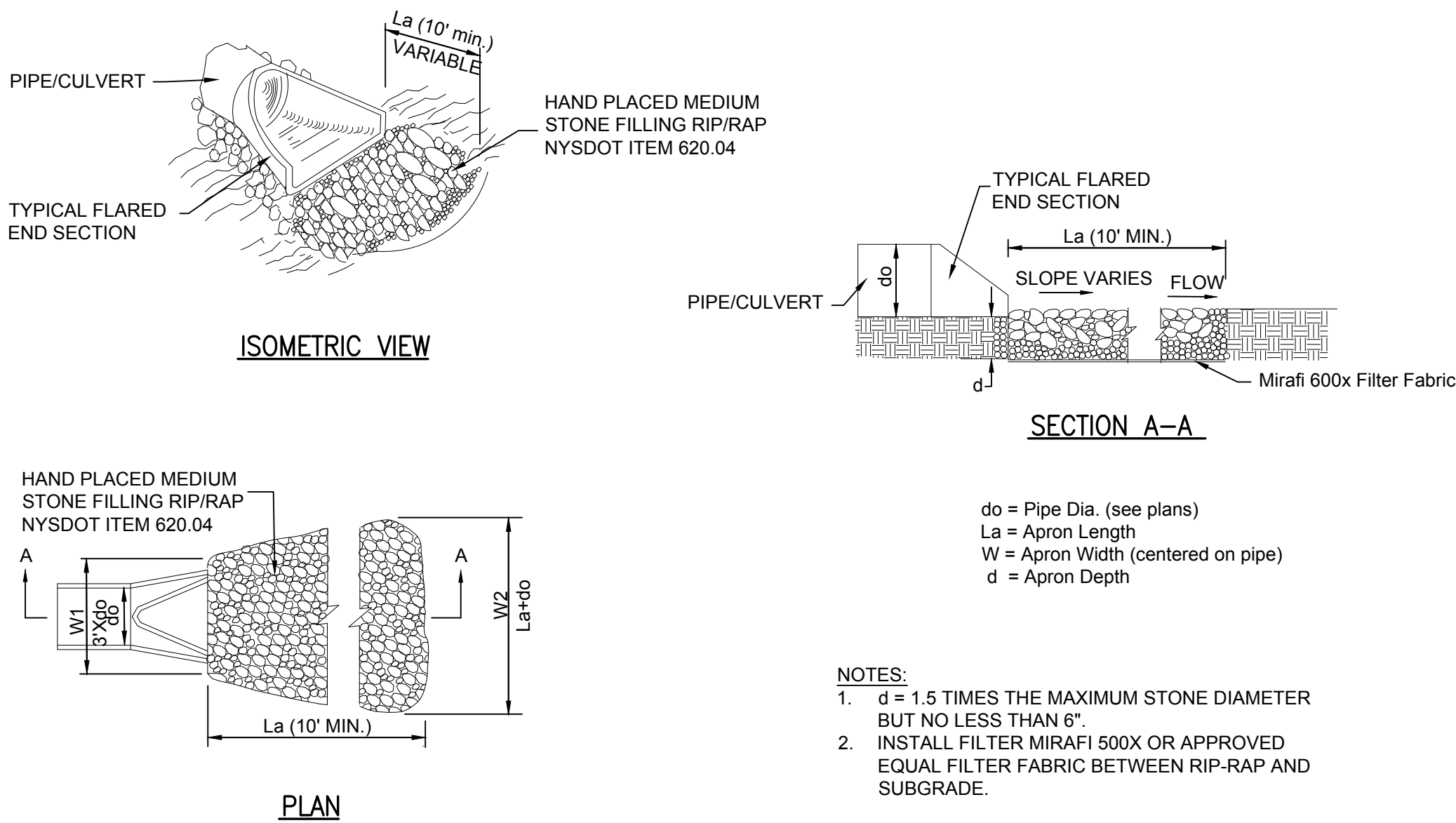


NOTES:

1. CONTAINMENT MUST BE STRUCTURALLY SOUND AND LEAK FREE AND CONTAIN ALL LIQUID WASTES.
2. CONTAINMENT DEVICES MUST BE OF SUFFICIENT QUANTITY OR VOLUME TO COMPLETELY CONTAIN THE LIQUID WASTES GENERATED.
3. WASHOUT MUST BE CLEANED OR NEW FACILITIES CONSTRUCTED AND READY TO USE ONCE WASHOUT IS 75% FULL.
4. WASHOUT AREA(S) SHALL BE INSTALLED IN A LOCATION EASILY ACCESSIBLE BY CONCRETE TRUCKS.
5. ONE OR MORE AREAS MAY BE INSTALLED ON THE CONSTRUCTION SITE AND MAY BE RELOCATED AS CONSTRUCTION PROGRESSES.
6. AT LEAST WEEKLY REMOVE ACCUMULATION OF SAND AND AGGREGATE AND DISPOSE OF PROPERLY.

CONCRETE WASHOUT

N.T.S.

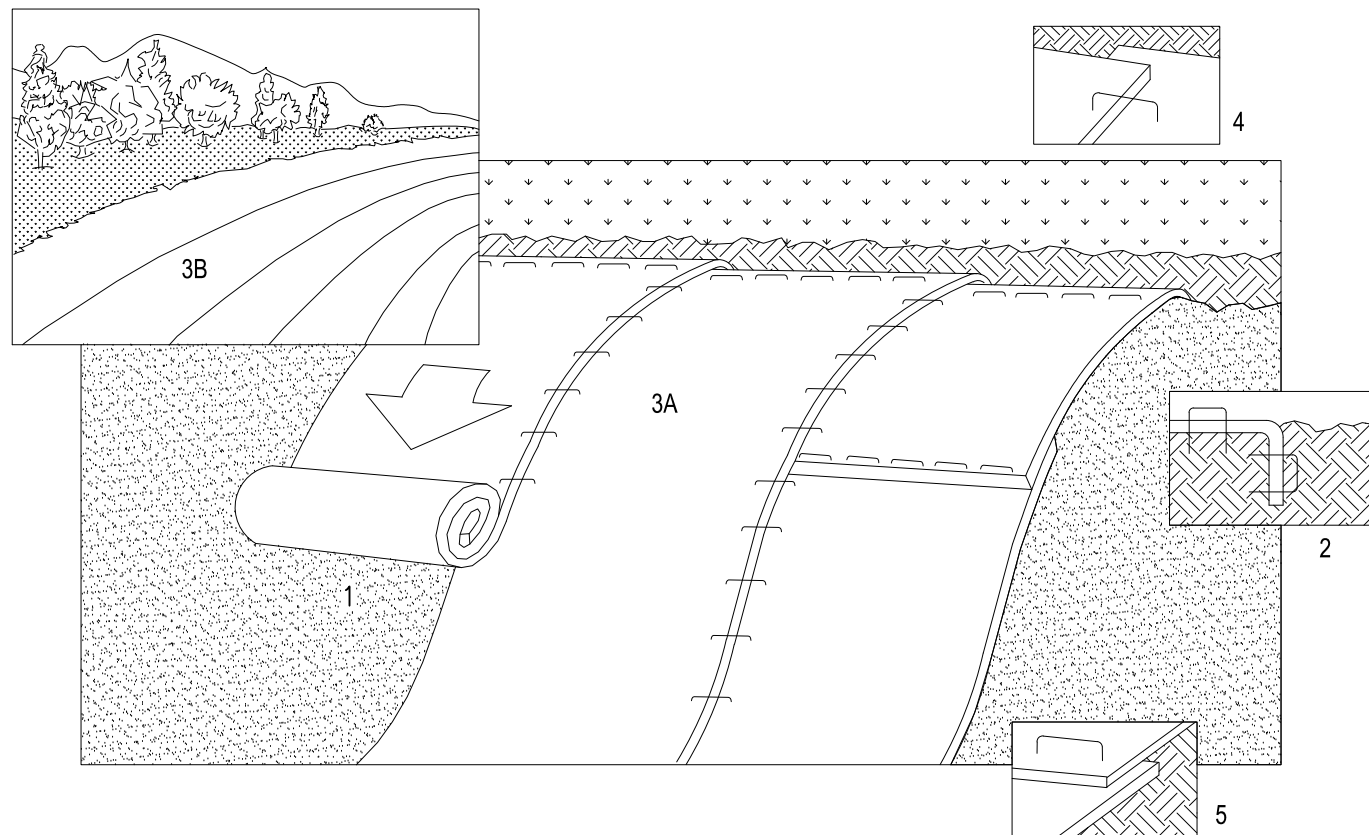


NOTES:

1. d = 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NO LESS THAN 6".
2. INSTALL FILTER MIRAFI 500X OR APPROVED EQUAL FILTER FABRIC BETWEEN RIP-RAP AND SUBGRADE.

OUTLET PROTECTION - RIP RAP

N.T.S.



NOTES:

REFER TO GENERAL STAPLE PATTERN GUIDE FOR CORRECT STAPLE PATTERN RECOMMENDATIONS FOR SLOPE INSTALLATIONS.

1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
3. ROLL THE BLANKETS (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2" OVERLAP.
5. WHEN BLANKETS MUST BE SPICED DOWN THE SLOPE, PLACE BLANKETS END OVER END (SHINGLE STYLE) WITH APPROXIMATELY 4" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART.
6. MANUFACTURER'S INSTALLATION INSTRUCTIONS SHALL SUPERCEDE THIS DETAIL.

EROSION CONTROL MAT INSTALLATION

N.T.S.

PLANNING BOARD HTE# 21-00100006

McFarland Johnson
60 RAILROAD PLACE
SUITE 402
SARATOGA SPRINGS, NEW YORK 12866
P:518-580-9380 F:518-580-9383
SaratogaROM@mjinc.com

PROJECT MILESTONE

FINAL DESIGN PLANS

NO.	DATE	DESCRIPTION
1	05/20/22	TOWN COMMENTS

CLIENT:
ALBANY PORT DISTRICT COMMISSION

ALBANY, NEW YORK

PROJECT:
PORT OF ALBANY EXPANSION SITE

DRAWN	JES
DESIGNED	NSO
CHECKED	AJF
SCALE	AS SHOWN
DATE	05/10/2022
PROJECT	18641.00



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DRAWING TITLE

EROSION & SEDIMENT CONTROL DETAILS

DRAWING NUMBER

ESC-07

63 OF 68



McFarland Johnson
60 RAILROAD PLACE
SUITE 402
SARATOGA SPRINGS, NEW YORK 12866
P:518-580-9380 F:518-580-9383
SaratogaROM@mjinc.com

PROJECT MILESTONE
FINAL DESIGN PLANS

NO.	DATE	DESCRIPTION
1	05/20/22	TOWN COMMENTS
2	06/06/22	TOWN COMMENTS

CLIENT:
ALBANY PORT DISTRICT COMMISSION

ALBANY, NEW YORK

PROJECT:
NORMANSKILL ST. REHAB

DRAWN	JES
DESIGNED	NSO
CHECKED	AJF
SCALE	1"=40'
DATE	05-10-2022
PROJECT	18641.00



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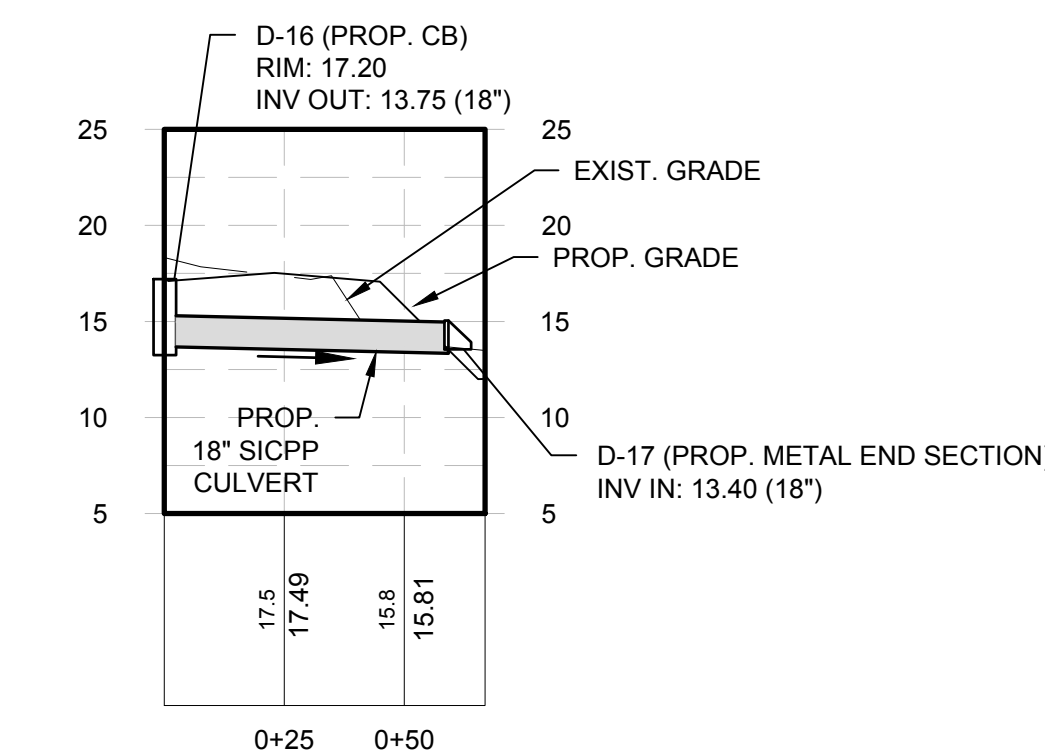
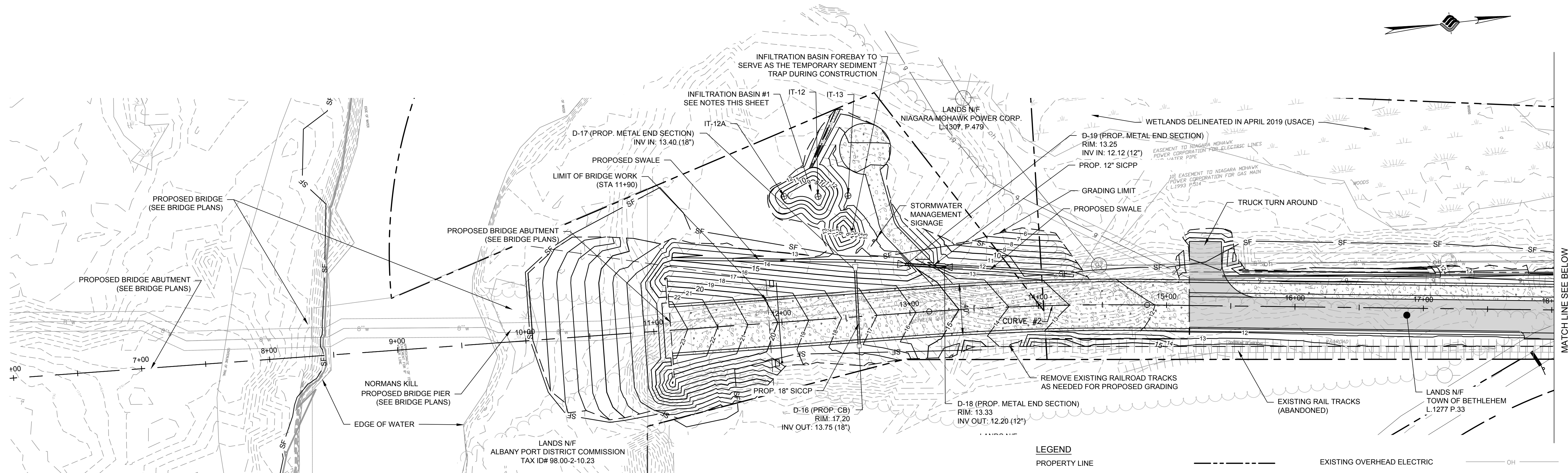
DRAWING TITLE

**GRADING, DRAINAGE,
EROSION AND
SEDIMENT CONTROL**

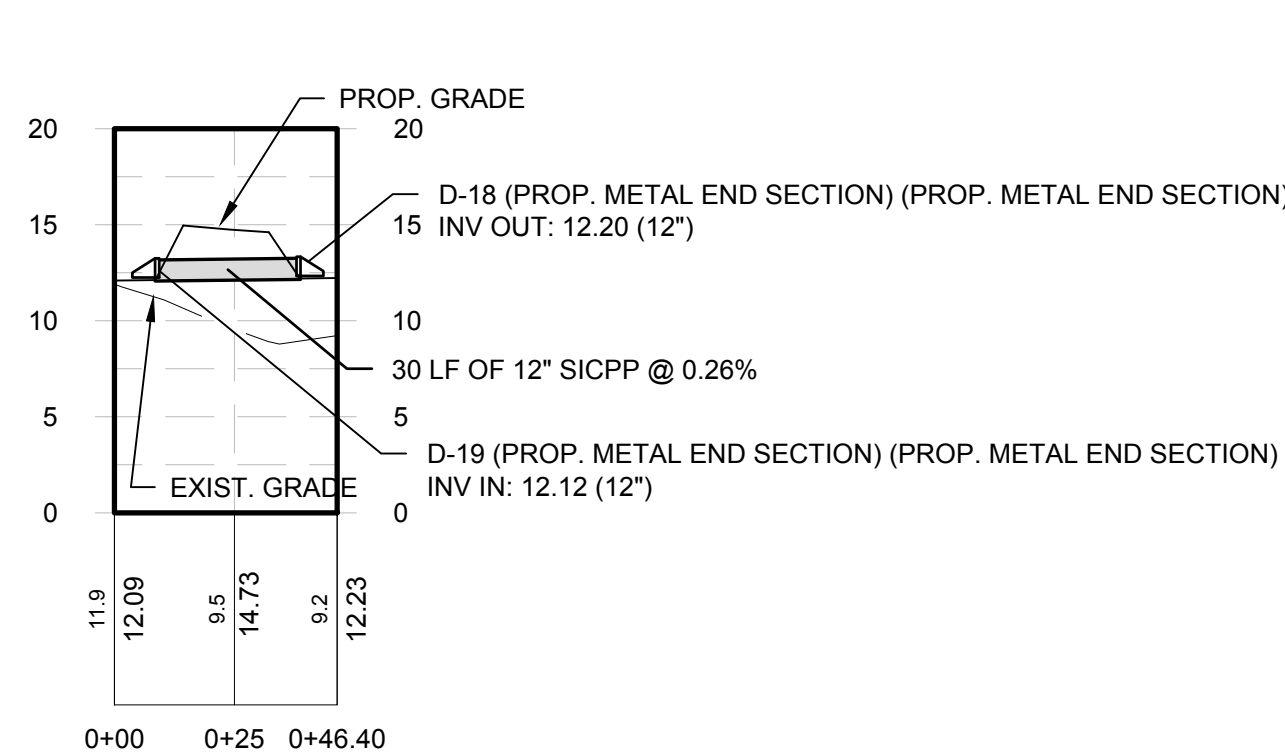
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GR-01

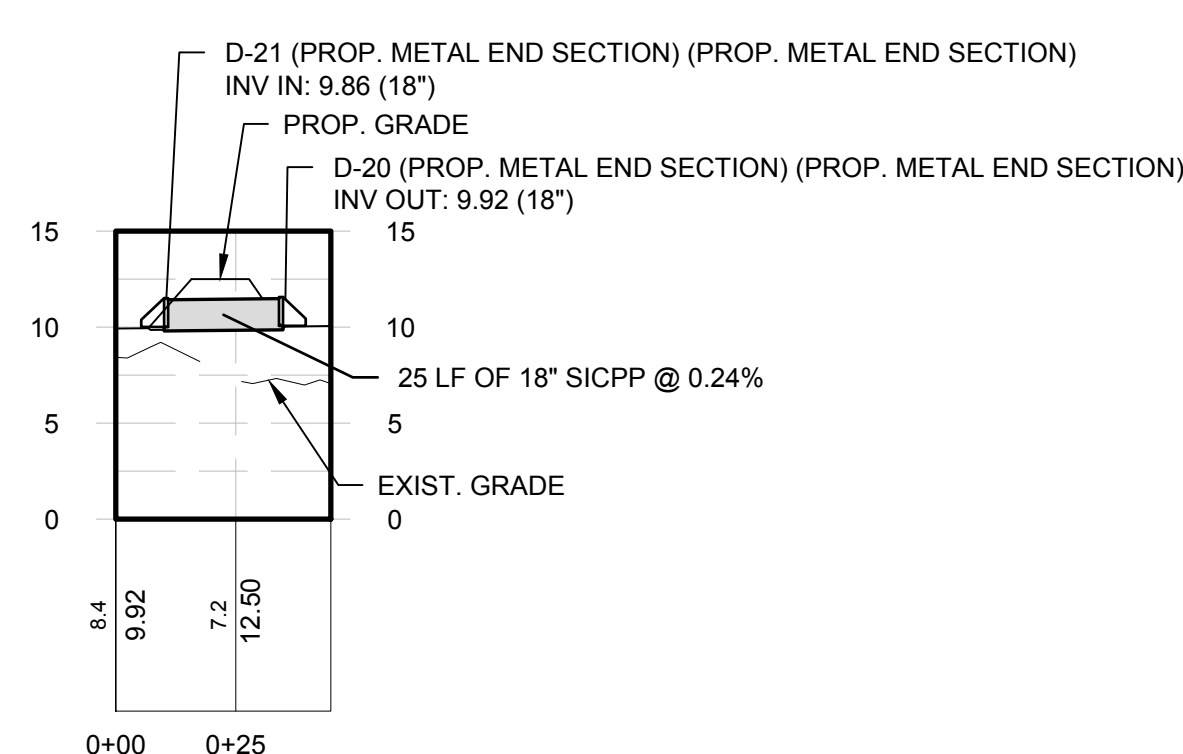
10 OF 16



D-16 TO D-17
Horizontal Scale: 1" = 40'
Vertical Scale: 1" = 10'



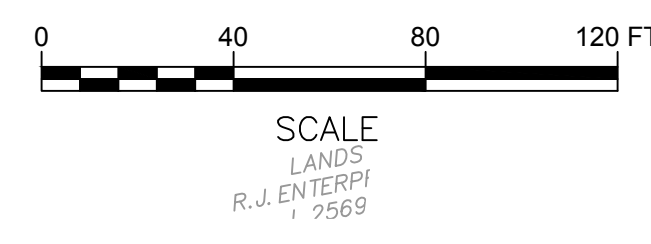
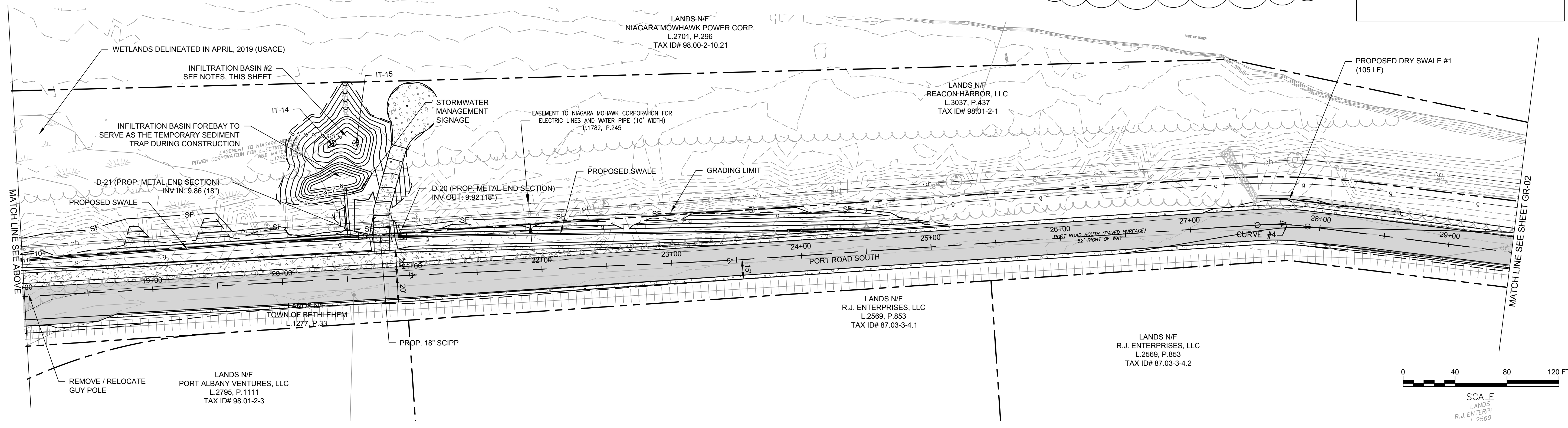
D-18 TO D-20
Horizontal Scale: 1" = 40'
Vertical Scale: 1" = 10'



D-20 TO D-21
Horizontal Scale: 1" = 40'
Vertical Scale: 1" = 10'

LEGEND	
PROPERTY LINE	---
PROPOSED BOX BEAM GUIDE RAIL	---
DITCH CENTERLINE	---
WETLAND AREA	---
SECURITY FENCE	SF
SILT FENCE	---
CATCH BASIN	---
EXISTING OVERHEAD ELECTRIC	OH
EXISTING GAS LINE	G
EXISTING WATERLINE	W
PROPOSED PAVEMENT	---
PROPOSED CONCRETE	---
RIP-RAP WATER EMBANKMENT STABILIZATION	---

- NOTES:
1. UPSTREAM CONSTRUCTION SHALL BE COMPLETED AND STABILIZED BEFORE CONNECTION TO A DOWNSTREAM INFILTRATION FACILITY. A DENSE AND VIGOROUS VEGETATIVE COVER SHALL BE ESTABLISHED OVER THE CONTRIBUTING PERVIOUS DRAINAGE AREAS BEFORE RUNOFF CAN BE ACCEPTED INTO THE FACILITY.
 2. PROPOSED INFILTRATION BASINS SHALL BE OWNED, OPERATED AND MAINTAINED BY THE PORT OF ALBANY AND BE ACCESSIBLE BY THE TOWN FOR INSPECTION. SEE TABLE ON SHEET GR-04 FOR INFILTRATION TEST INFORMATION.



[illegible]

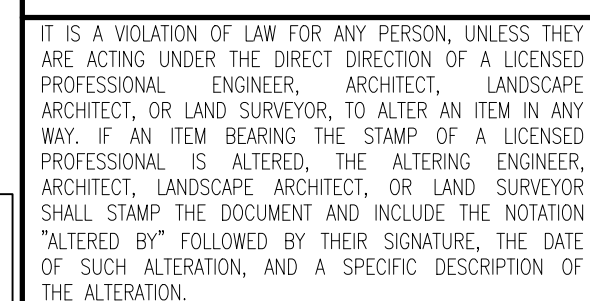
ALBANY, NEW YORK

NORMANSKILL ST. REHAB

CLIENT:

PROJECT:

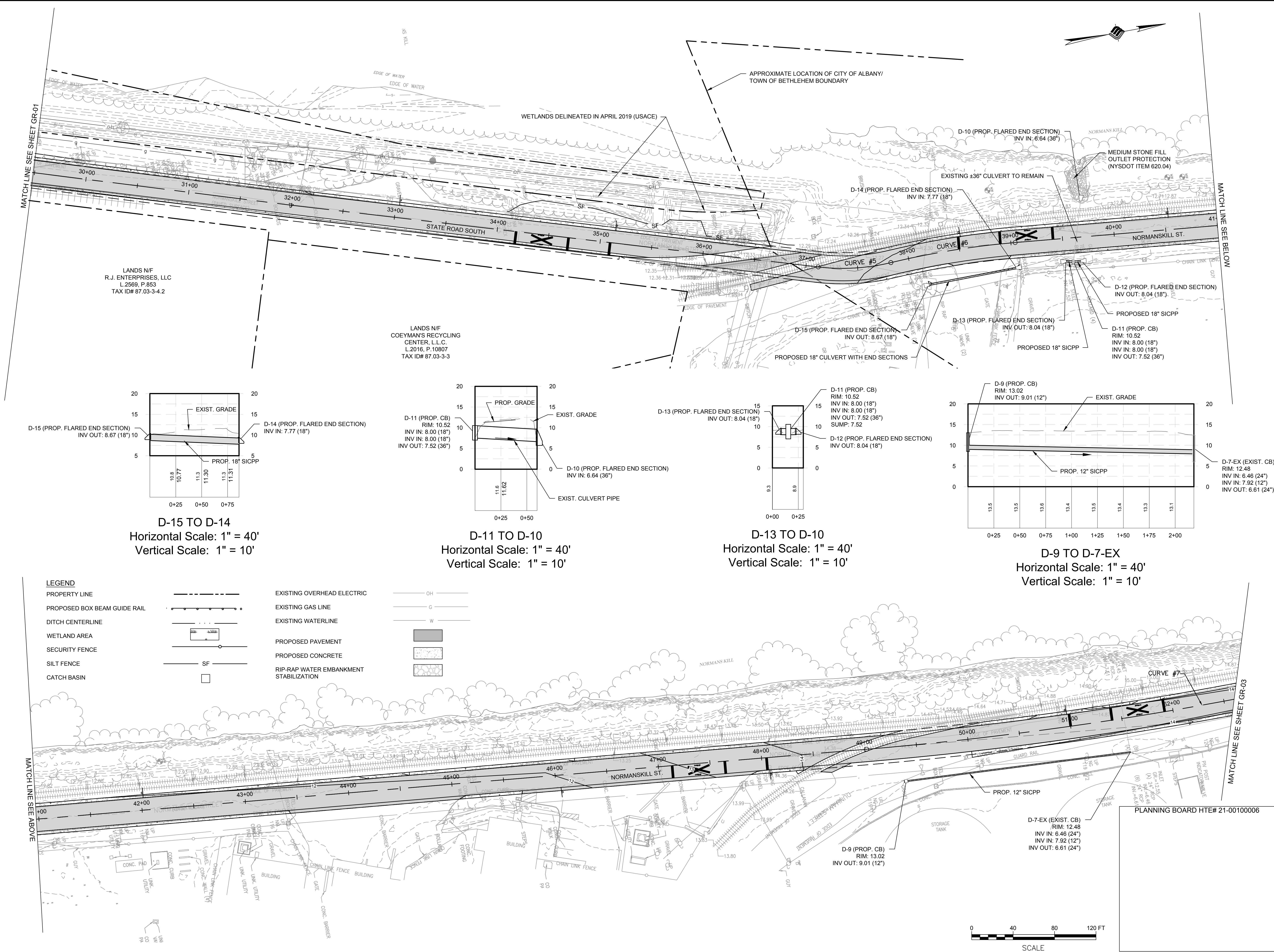
DRAWN	JES
DESIGNED	NSO
CHECKED	AJF
SCALE	1"=40'
DATE	05-10-2022
PROJECT	18641.00



GRADING, DRAINAGE EROSION AND SEDIMENT CONTROL

GR-02

11 OF 16





McFarland Johnson
60 RAILROAD PLACE
SUITE 402
SARATOGA SPRINGS, NEW YORK 12866
P:518-580-9380 F:518-580-9383
SaratogaROM@mjinc.com

PROJECT MILESTONE
FINAL DESIGN PLANS

NO.	DATE	DESCRIPTION
1	05/20/22	TOWN COMMENTS

CLIENT:
ALBANY PORT DISTRICT COMMISSION

ALBANY, NEW YORK

PROJECT:
NORMANSKILL ST. REHAB

DRAWN	JES
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CHECKED	AJF
SCALE	1"=40'
DATE	05-10-2022
PROJECT	18641.00



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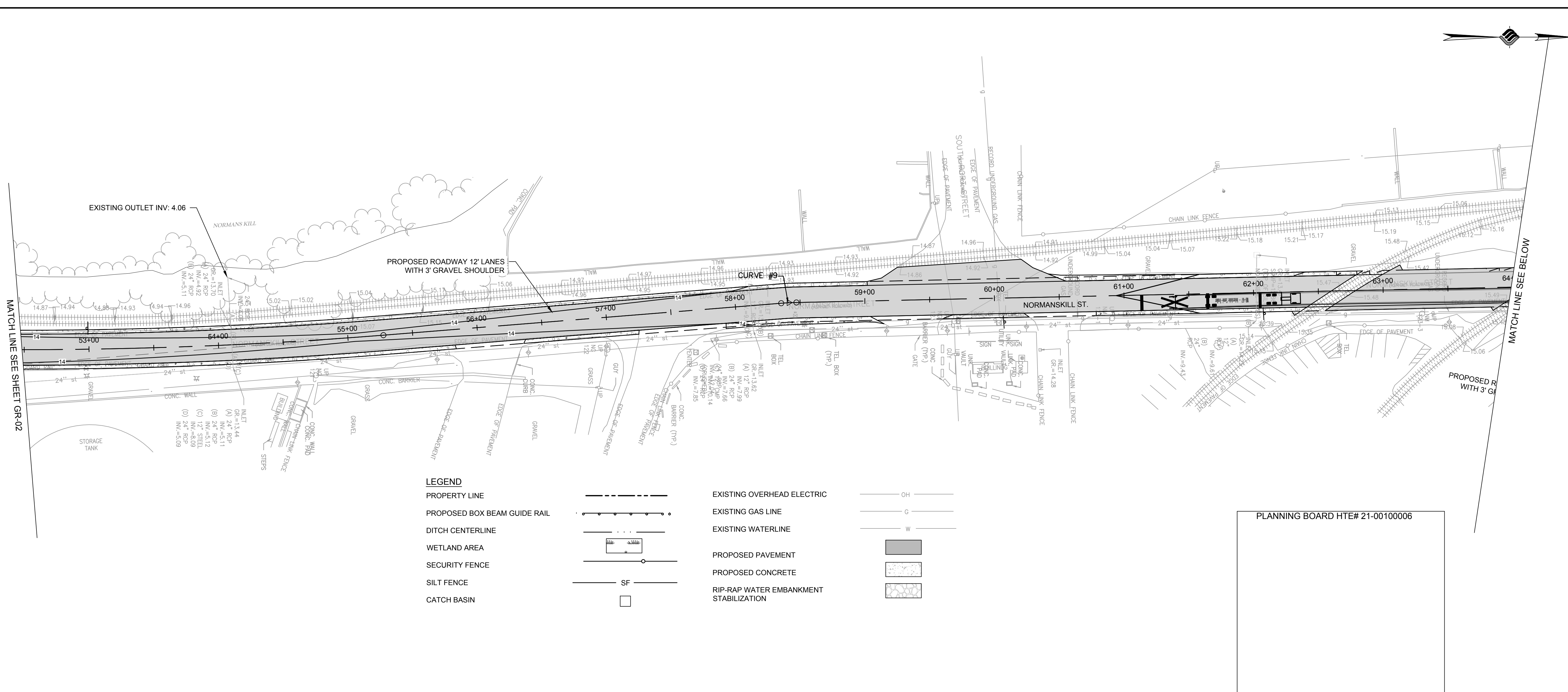
DRAWING TITLE

**GRADING, DRAINAGE,
EROSION AND
SEDIMENT CONTROL**

DRAWING NUMBER

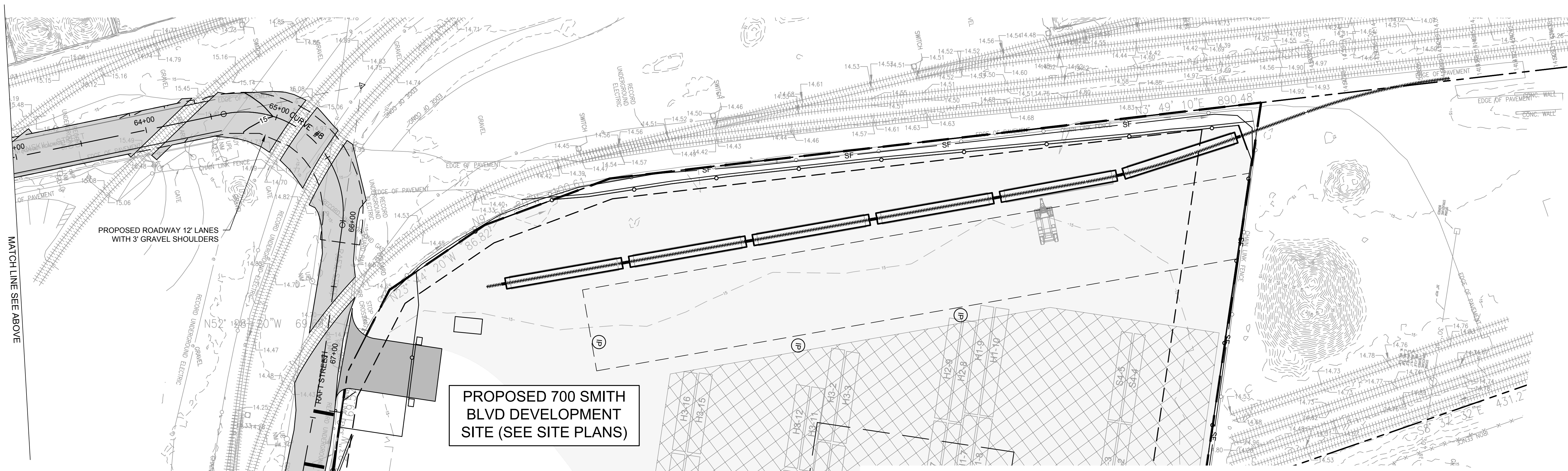
GR-03

12 OF 16



LEGEND	
PROPERTY LINE	---
PROPOSED BOX BEAM GUIDE RAIL	—●—●—●—●—
DITCH CENTERLINE	—+—+—+—+—
WETLAND AREA	[Hatched Pattern]
SECURITY FENCE	—X—X—X—X—
SILT FENCE	—SF—SF—SF—SF—
CATCH BASIN	[Square Symbol]
EXISTING OVERHEAD ELECTRIC	—OH—
EXISTING GAS LINE	—G—
EXISTING WATERLINE	—W—
PROPOSED PAVEMENT	[Solid Grey]
PROPOSED CONCRETE	[Stippled Pattern]
RIP-RAP WATER EMBANKMENT STABILIZATION	[Cross-hatched Pattern]

PLANNING BOARD HTE# 21-00100006



APPENDIX C

DRAINAGE DESIGN REPORT

- August 4, 20205 Amendment
- Original Drainage Design Report

July 25, 2025

Mr. Eric Johnson, PE
Town Engineer
Town of Bethlehem
Department of Economic Development & Planning
445 Delaware Avenue, 2nd Floor
Delmar, NY 12054

Re: SWPPP Amendment – National Grid Proposal Gravel Access Drive
Albany Port District Commission
Marmen-Welcon Tower Manufacturing Plant
Tax ID 98.01-2-1.0 / 98.00-2-10.23

Dear Eric:

I am writing on behalf of the Albany Port District Commission and National Grid to request an amendment to the current NYSDEC SPDES Permit # NYR11K128 to accommodate a National Grid access drive to the adjacent transmission lines.

Proposed Additional Work:

This proposed work was discussed during a coordination meeting on Thursday, June 26, 2025. To summarize that meeting, the gravel access road is needed for installation of National Grid transmission poles/switches on National Grid's property installed by National Grid crews/subcontractors. There is an existing gravel drive directly off Route 144; however, it does not meet the standards necessary for installation and maintenance of the new equipment. The existing access drive also raises safety concerns due to the limited sight distance on Route 144. Given that this National Grid infrastructure (i.e., transmission poles and switches) will be installed by National Grid and serve the Port's site/substation and that the Port has an existing SWPPP, it was suggested that the Port pursue a modification/amendment to this open permit with the Town as the MS4 to cover the National Grid construction activity.

This proposed access work is shown on the attach "National Grid Access Driveway" drawings GR-01 and SP-01 prepared by McFarland Johnson dated July 2025. A new 16' wide gravel driveway will provide access to a 100' x 75' gravel area surrounding the utility poles in the upper area. This work will result in around 0.54 acres of disturbance. Access to the lower new poles will be provided by a 15' wide access drive 330' long that extend from the previously approved gravel drive around the electrical substation. This work will result in around 0.19 acres of disturbance with 0.11 acres of new permanent impervious area.

Stormwater Impacts:

The proposed work will alter the stormwater flow path and add additional gravel area where there was existing woods/brush. As shown on the attached post development site drainage map, the upper access drive, the access road area is currently included within drainage area DR-10 and after construction the

stormwater flow in the upper isolated area will be directed to the roadside swale and into Pond #2 as an expansion to drainage area DR-09. We have updated the stormwater HydroCAD model by removing 0.54 acres of woods/shrubs from DR-10 and added 0.27 acres of gravel and 0.27 acres of grass lawn area to the DR-09 catchment area. This is a conservative approach as there is an existing driveway and some gravel areas there today of which we are not taking any impervious area credit.

The lower access drive with in the lower area and will have the access drive runoff staying in drainage area DR-10. We have updated the stormwater HydroCAD model by removing 0.11 acres of woods/shrubs from DR-10 and added 0.11 acres of gravel to this catchment area.

The tables below summarize the updated results when applying this changes noted above to the model:

Storm Event	Pre-Development	Post-Development	NG Access Addition
Analysis Point #1A (Wetland #1)			
1-yr Discharge	27.32 cfs	4.77 cfs	4.68 cfs
10-yr Discharge	73.24 cfs	12.46 cfs	12.50 cfs
100-yr Discharge	163.60 cfs	30.97 cfs	30.43 cfs
Analysis Point #1			
1-yr Discharge	3.25 cfs	58.54 cfs	58.54 cfs
10-yr Discharge	14.96 cfs	127.40 cfs	124.96 cfs
100-yr Discharge	43.20 cfs	216.11 cfs	205.59 cfs

SW Pond #2 Elevations		
	Post-Development	NG Access Addition
1-yr Storm	15.45'	15.53'
10-yr Storm	16.47'	16.55'
100-yr Storm	17.07'	17.18'

Based on the model analysis the proposed Stormwater Retention Basin #2 will continue to operate as originally designed with the increase in catchment area only raising the basin's water level by approximately 1-1.5" during the 1, 10 and 100-year storm events. The modification does not have an impact on the overall site outlets to the Hudson River and adjacent wetlands as there is a negligible change in the peak flow rates for each storm event at Analysis Points 1 and 1A.

From a water quality standpoint the proposed onsite stormwater treatment practices provide more WQv than what was previously required and the increase in impervious form these two minor areas will increase the required WQv; however it will not exceed the maximum WQv that can be provided by all the site's stormwater treatment practices. See the updated WQv table below, note that the increase in WQv from the previous report is based on assuming that Pond #1 and Pond #2's full capacity of WQv is utilized. It was previously cut off to only the required WQv from the contributing watershed area.

Total Area of Soil Disturbance	72.7 acres	73.4 acres
WQv Target	273,874 cf	275,516 cf
WQv Provided	274,728 cf	280,761 cf (max)
RRv Target	57,313 cf	57,643 cf
RRv Provided	63,333 cf	63,333 cf

Conclusion:

With the implementation of the proposed temporary erosion and sediment control measures shown in the attached National Grid Access Driveway drawing, the proposed additional improvements within National Grid property to provide access to their infrastructure will not have an impact on the temporary and permanent drainage system at the Port of Albany Expansion site. The development site will continue to detain and treat the stormwater in accordance with the original Stormwater Pollution Prevention Plan.

This letter and the attached documents will be added to the SWPPP binder as record of addition of the National Grid gravel driveway adjacent to the proposed Port of Albany expansion site. Please let us know if any additional documentation is required by the Town as the NYSDEC MS4.

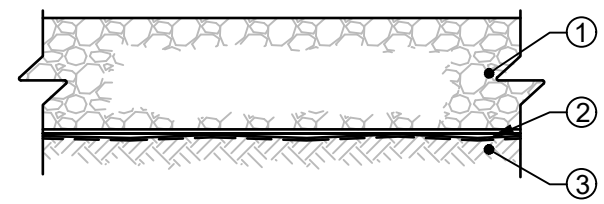
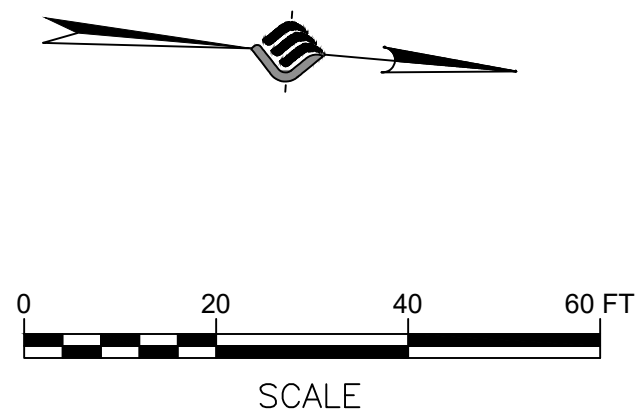
Sincerely yours,
McFARLAND-JOHNSON, INC.

A handwritten signature in blue ink, appearing to read 'Adam J. Frosino'.

Adam J. Frosino, PE, PTOE
Project Manager

CC: Joesph Cleveland, Matt Hoffman – Town of Bethlehem
Meredithe Mathias – National Grid
Roddy Yagan – APDC
Ed Larkin, Chris LaPointe – LaBella Associates

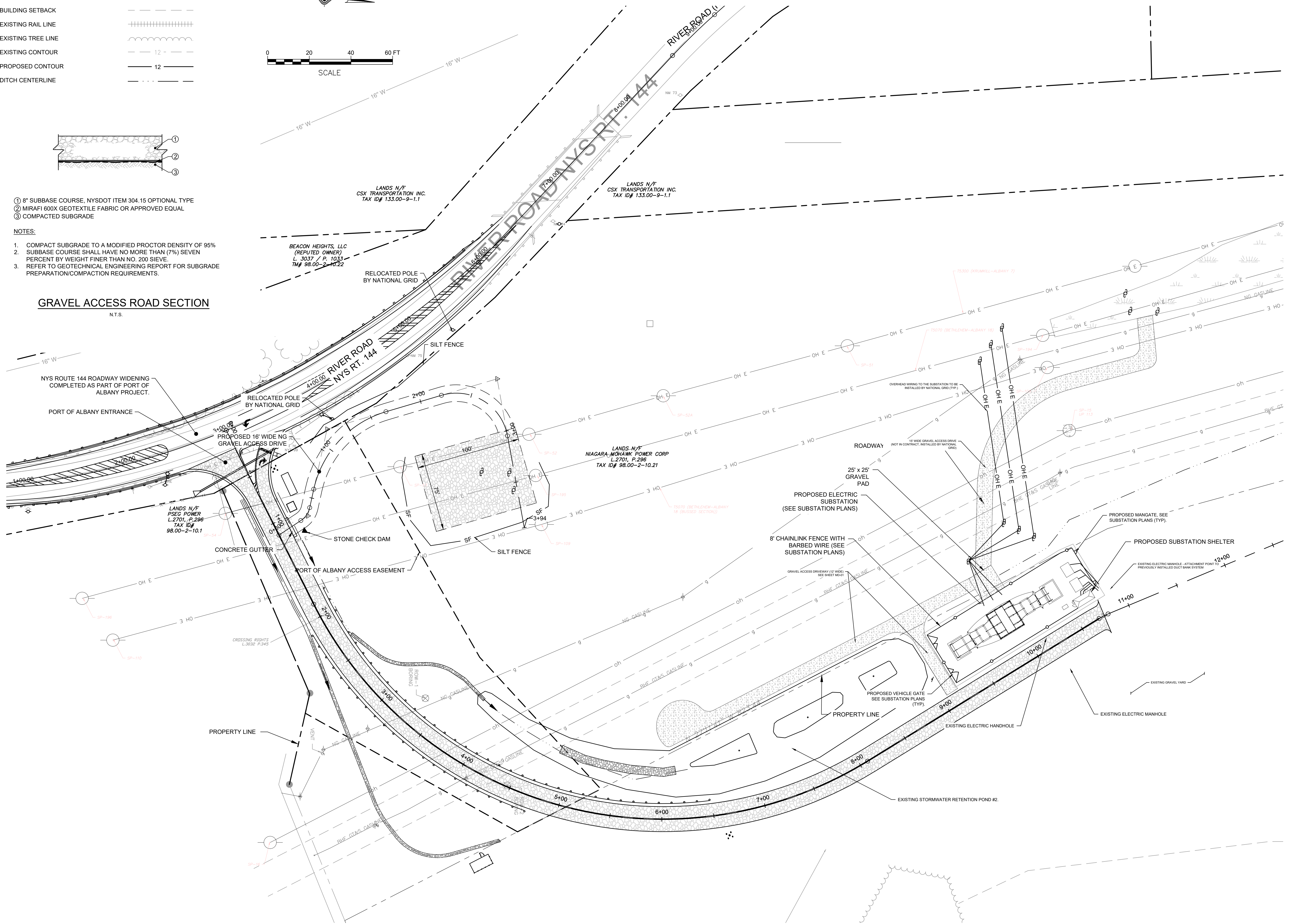
PROPERTY LINE	-----
BUILDING SETBACK	- - - - -
EXISTING RAIL LINE	+ + + + +
EXISTING TREE LINE	~~~~~
EXISTING CONTOUR	----- 12' - -----
PROPOSED CONTOUR	----- 12' -----
DITCH CENTERLINE	- . . . -



- ① 8" SUBBASE COURSE, NYSDOT ITEM 304.15 OPTIONAL TYPE
② MIRAFI 600X GEOTEXTILE FABRIC OR APPROVED EQUAL
③ COMPACTED SUBGRADE

1. COMPACT SUBGRADE TO A MODIFIED PROCTOR DENSITY OF 95%
2. SUBBASE COURSE SHALL HAVE NO MORE THAN (7%) SEVEN PERCENT BY WEIGHT FINER THAN NO. 200 SIEVE.
3. REFER TO GEOTECHNICAL ENGINEERING REPORT FOR SUBGRADE PREPARATION/COMPACTION REQUIREMENTS.

N.T.S



60 RAILROAD PLACE
SUITE 402
SARATOGA SPRINGS, NEW YORK 12866
P:518-580-9380 F:518-580-9383
SaratogaROM@mjinc.com

PROJECT MILESTONE

NG ACCESS

[illegible]

ALBANY, NEW YORK

SUBJECT: NATIONAL GRID ACCESS DRIVE

RAWN	JES
ESIGNED	JES
CHECKED	AJF
SCALE	1"=20'
DATE	JULY 2025
PROJECT	18641.00



IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY
RE ACTING UNDER THE DIRECT DIRECTION OF A LICENSED
PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE
ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY
WAY, IF AN ITEM BEARING THE STAMP OF A LICENSED
PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER,
ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR
MUST STAMP THE DOCUMENT AND INCLUDE THE NOTATION
"ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE
OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF
THE ALTERATION.

RAWING TITLE

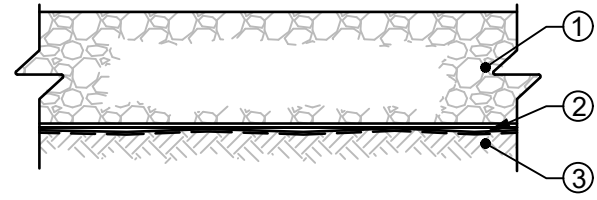
NATIONAL GRID
ACCESS DRIVEWAY

RAWING NUMBER

SP-01

LEGEND

- PROPERTY LINE
BUILDING SETBACK
EXISTING RAIL LINE
EXISTING TREE LINE
EXISTING CONTOUR
PROPOSED CONTOUR
DITCH CENTERLINE



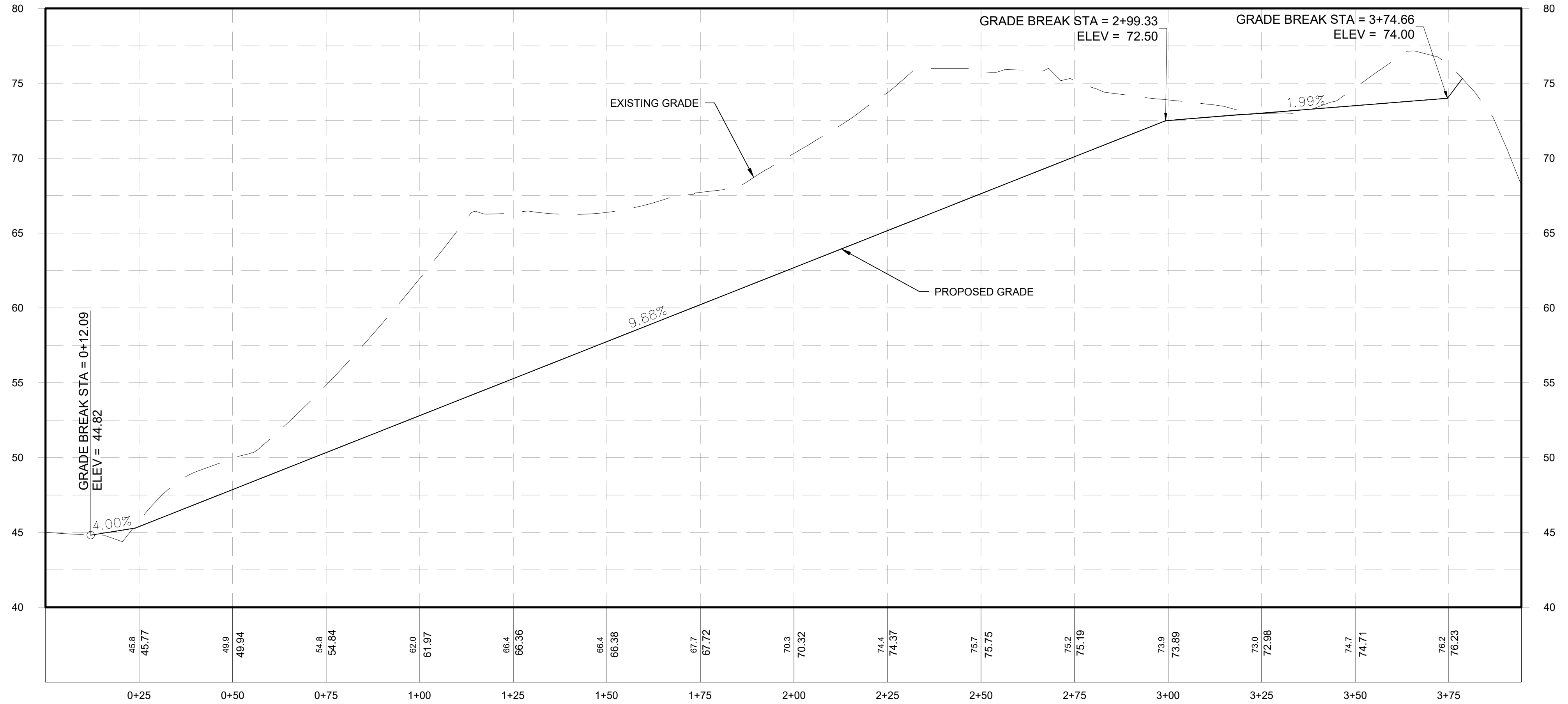
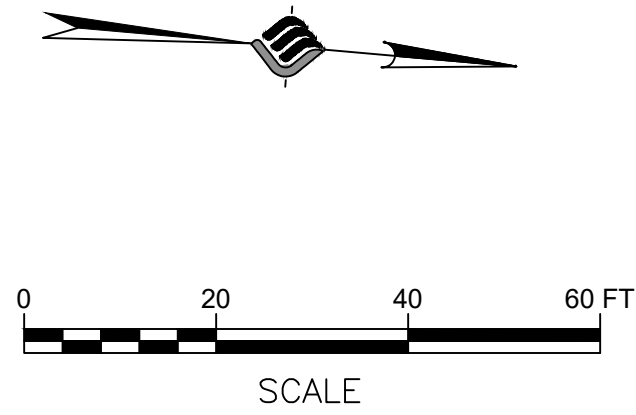
1. 8" SUBBASE COURSE, NYSDOT ITEM 304.15 OPTIONAL TYPE
2. MIRAFIX 600X GEOTEXTILE FABRIC OR APPROVED EQUAL
3. COMPACTED SUBGRADE

NOTES:

1. COMPACT SUBGRADE TO A MODIFIED PROCTOR DENSITY OF 95%
2. SUBBASE COURSE SHALL HAVE NO MORE THAN (7%) SEVEN PERCENT BY WEIGHT FINER THAN NO. 200 SIEVE
3. REFER TO GEOTECHNICAL ENGINEERING REPORT FOR SUBGRADE PREPARATION/COMPACTION REQUIREMENTS.

GRAVEL ACCESS ROAD SECTION

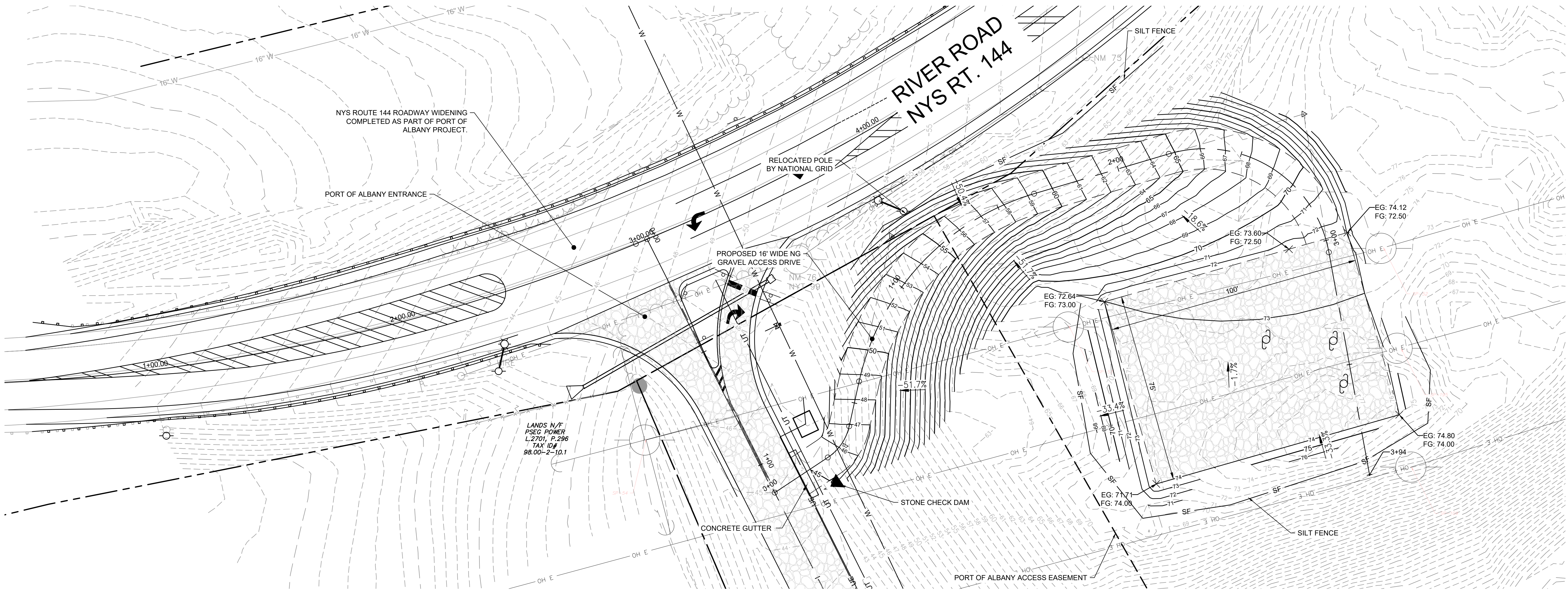
N.T.S.



ACCESS ROAD PROFILE

Horizontal Scale: 1" = 20'

Vertical Scale: 1" = 5'



McFarland Johnson

60 RAILROAD PLACE
SUITE 402
SARATOGA SPRINGS, NEW YORK 12866
P:518-580-9380 F:518-580-9383
SaratogaROM@mjinc.com

PROJECT MILESTONE

NG ACCESS

NO.	DATE	DESCRIPTION

CLIENT:
ALBANY PORT DISTRICT COMMISSION

ALBANY, NEW YORK

PROJECT:
NATIONAL GRID ACCESS DRIVE

DRAWN	JES
DESIGNED	JES
CHECKED	AJF
SCALE	1"=20'
DATE	JULY 2025
PROJECT	18641.00



IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECT DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

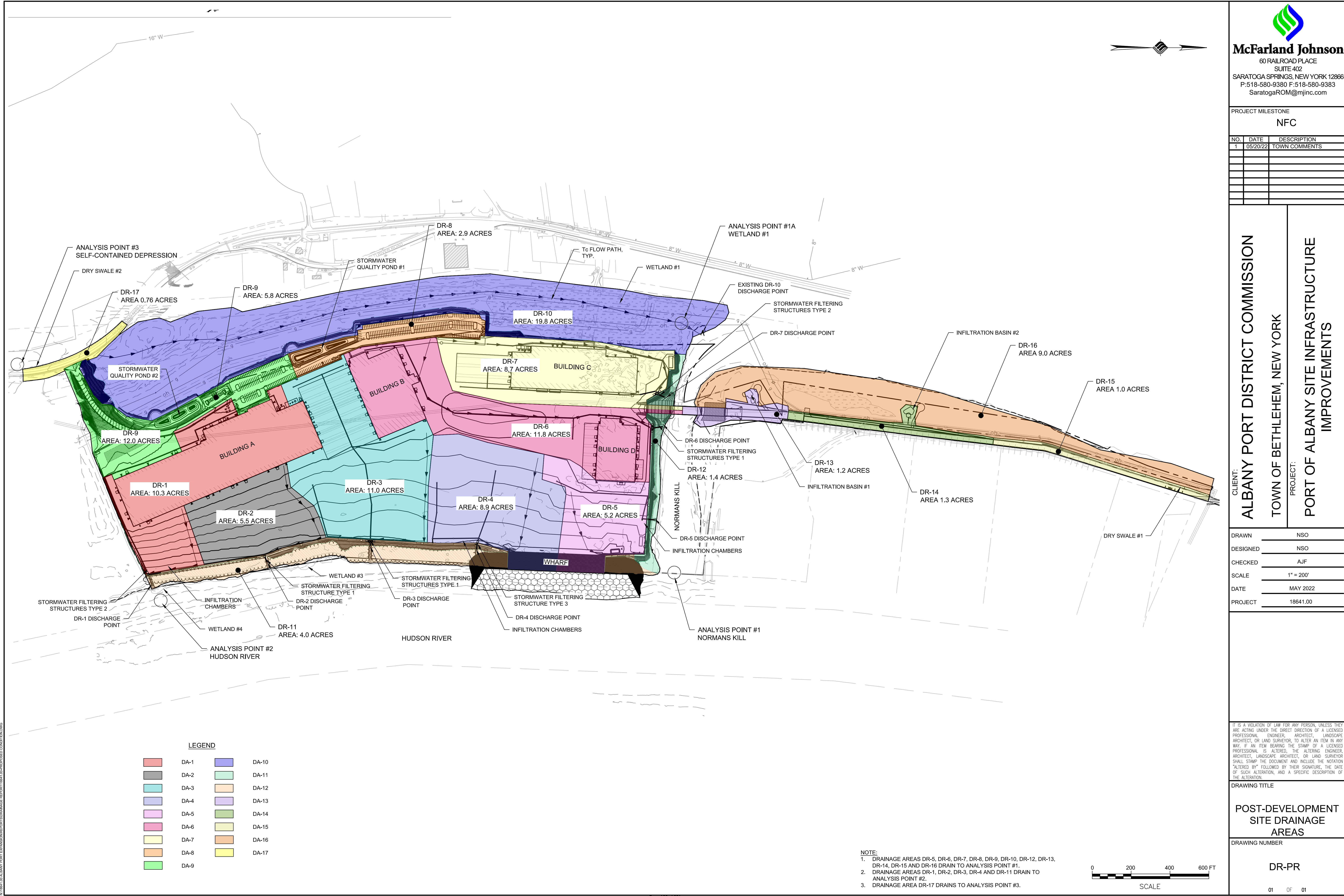
DRAWING TITLE

NATIONAL GRID
ACCESS DRIVEWAY

DRAWING NUMBER

GR-01

1 OF 1



PROJECT MILESTONE		
NFC		
NO.	DATE	DESCRIPTION
1	05/20/22	TOWN COMMENTS

CLIENT: ALBANY PORT DISTRICT COMMISSION
TOWN OF BETHLEHEM, NEW YORK
PROJECT: PORT OF ALBANY SITE INFRASTRUCTURE IMPROVEMENTS

DRAWN	NSO
DESIGNED	NSO
CHECKED	AJF
SCALE	1" = 200'
DATE	MAY 2022
PROJECT	18641.00

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECT DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

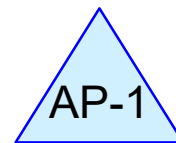
DRAWING TITLE

POST-DEVELOPMENT
SITE DRAINAGE
AREAS

DRAWING NUMBER

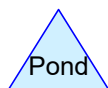
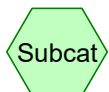
DR-PR

01 OF 01



Wetland #1 / Analysis
Point 1A

Analysis Point #1



Routing Diagram for 18641.00-Proposed Condition_Chambers_CULVERTS_NG Access
Prepared by McFarland Johnson, Printed 7/25/2025
HydroCAD® 10.20-6a s/n 02401 © 2024 HydroCAD Software Solutions LLC

Summary for Reach 1W: Wetland #1 / Analysis Point 1A

Inflow Area = 28.500 ac, 13.16% Impervious, Inflow Depth > 0.84" for 1-Year event
 Inflow = 4.68 cfs @ 13.30 hrs, Volume= 1.998 af
 Outflow = 1.58 cfs @ 21.48 hrs, Volume= 1.863 af, Atten= 66%, Lag= 491.2 min
 Routed to Reach 3R : Outlet Pipe

Routing by Stor-Ind+Trans method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 Max. Velocity= 0.05 fps, Min. Travel Time= 307.6 min
 Avg. Velocity= 0.03 fps, Avg. Travel Time= 564.8 min

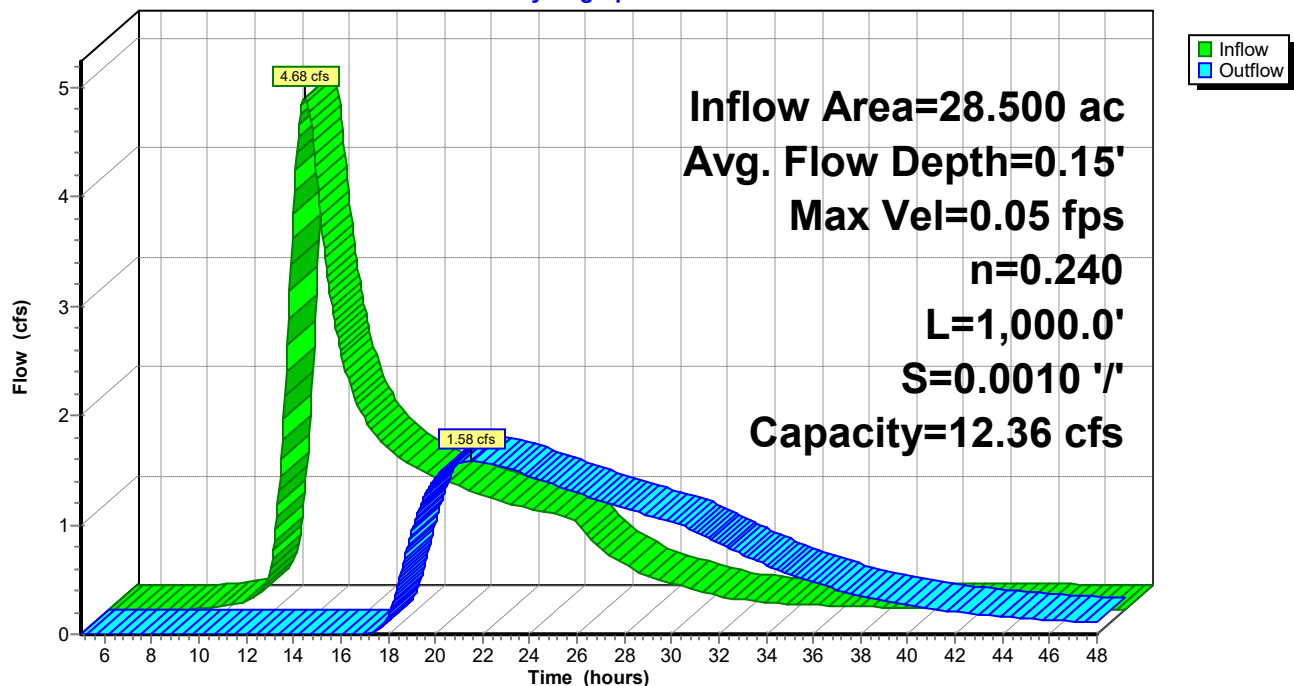
Peak Storage= 29,246 cf @ 16.36 hrs
 Average Depth at Peak Storage= 0.15' , Surface Width= 200.88'
 Bank-Full Depth= 0.50' Flow Area= 100.8 sf, Capacity= 12.36 cfs

200.00' x 0.50' deep channel, n= 0.240
 Side Slope Z-value= 3.0 '/' Top Width= 203.00'
 Length= 1,000.0' Slope= 0.0010 '/'
 Inlet Invert= 6.00', Outlet Invert= 5.00'



Reach 1W: Wetland #1 / Analysis Point 1A

Hydrograph



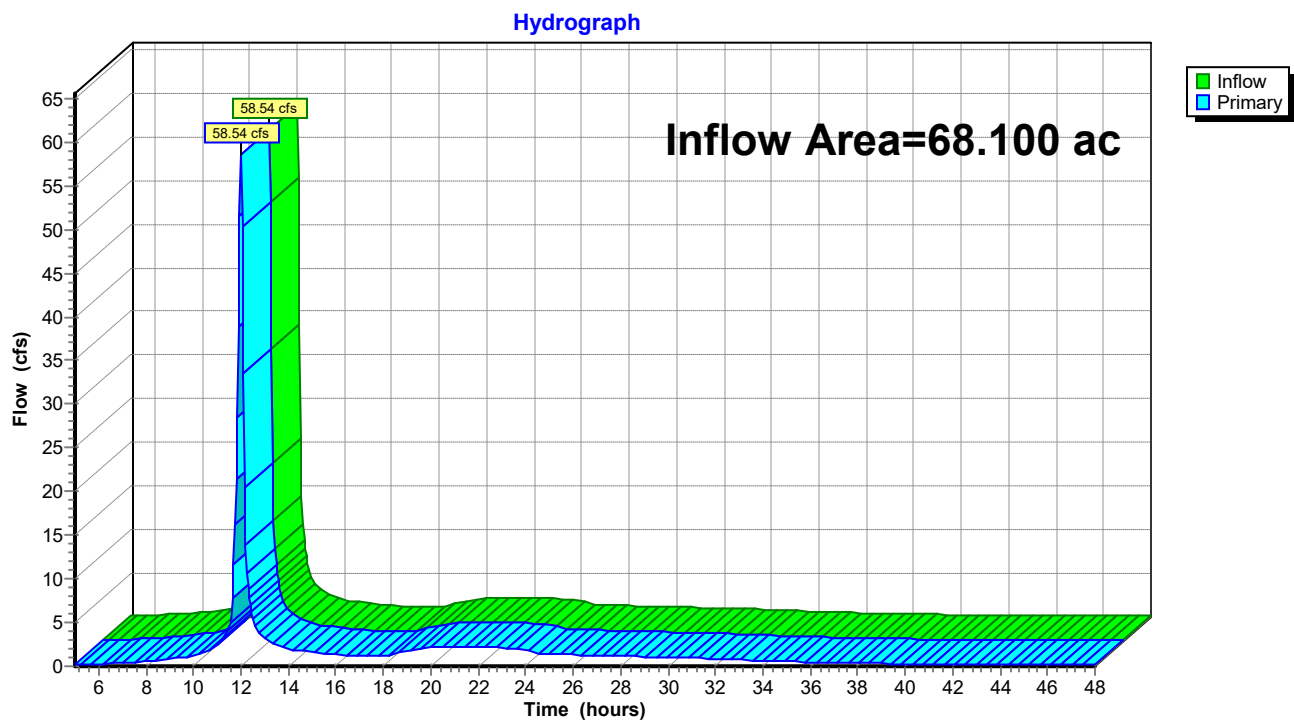
Summary for Pond AP-1: Analysis Point #1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 68.100 ac, 20.36% Impervious, Inflow Depth > 0.92" for 1-Year event
 Inflow = 58.54 cfs @ 12.00 hrs, Volume= 5.232 af
 Primary = 58.54 cfs @ 12.00 hrs, Volume= 5.232 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Pond AP-1: Analysis Point #1



Summary for Reach 1W: Wetland #1 / Analysis Point 1A

[55] Hint: Peak inflow is 101% of Manning's capacity

Inflow Area = 28.500 ac, 13.16% Impervious, Inflow Depth > 1.94" for 10-Year event
Inflow = 12.50 cfs @ 13.21 hrs, Volume= 4.614 af
Outflow = 5.20 cfs @ 17.94 hrs, Volume= 4.397 af, Atten= 58%, Lag= 283.8 min
Routed to Reach 3R : Outlet Pipe

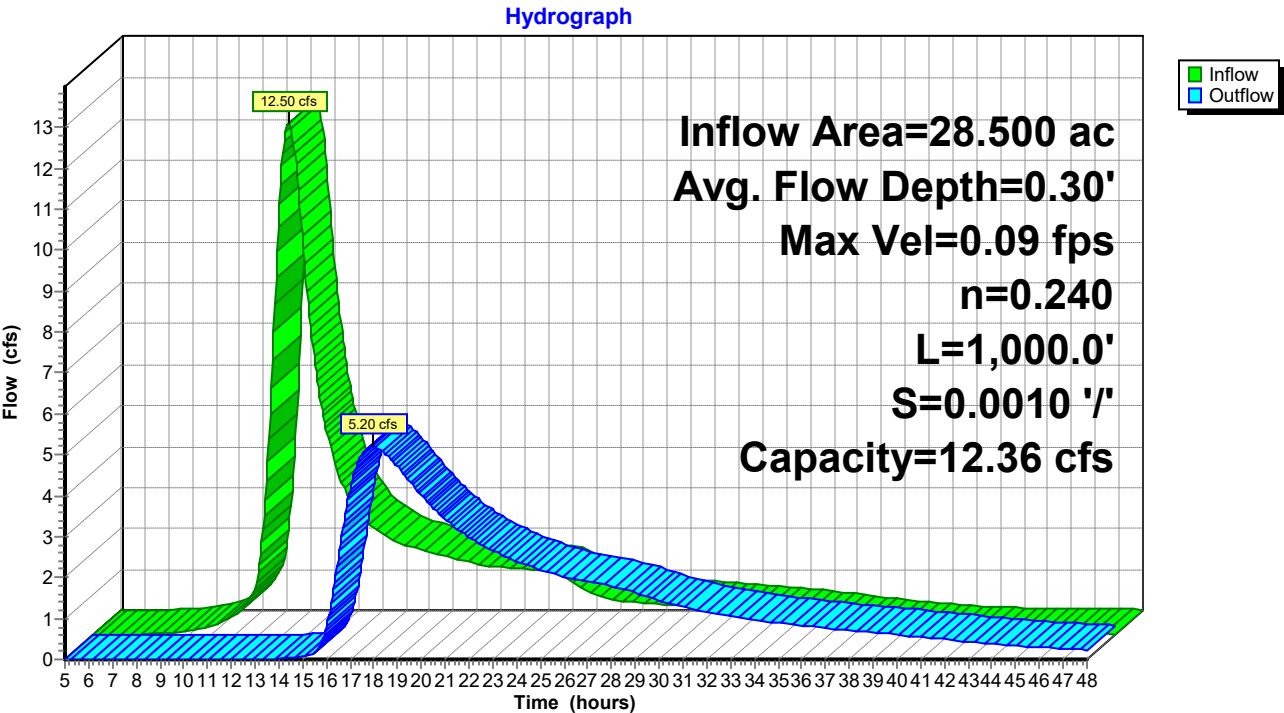
Routing by Stor-Ind+Trans method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.09 fps, Min. Travel Time= 191.6 min
Avg. Velocity= 0.04 fps, Avg. Travel Time= 403.6 min

Peak Storage= 59,798 cf @ 14.75 hrs
Average Depth at Peak Storage= 0.30', Surface Width= 201.79'
Bank-Full Depth= 0.50' Flow Area= 100.8 sf, Capacity= 12.36 cfs

200.00' x 0.50' deep channel, n= 0.240
Side Slope Z-value= 3.0 '/' Top Width= 203.00'
Length= 1,000.0' Slope= 0.0010 '/'
Inlet Invert= 6.00', Outlet Invert= 5.00'



Reach 1W: Wetland #1 / Analysis Point 1A



Summary for Pond AP-1: Analysis Point #1

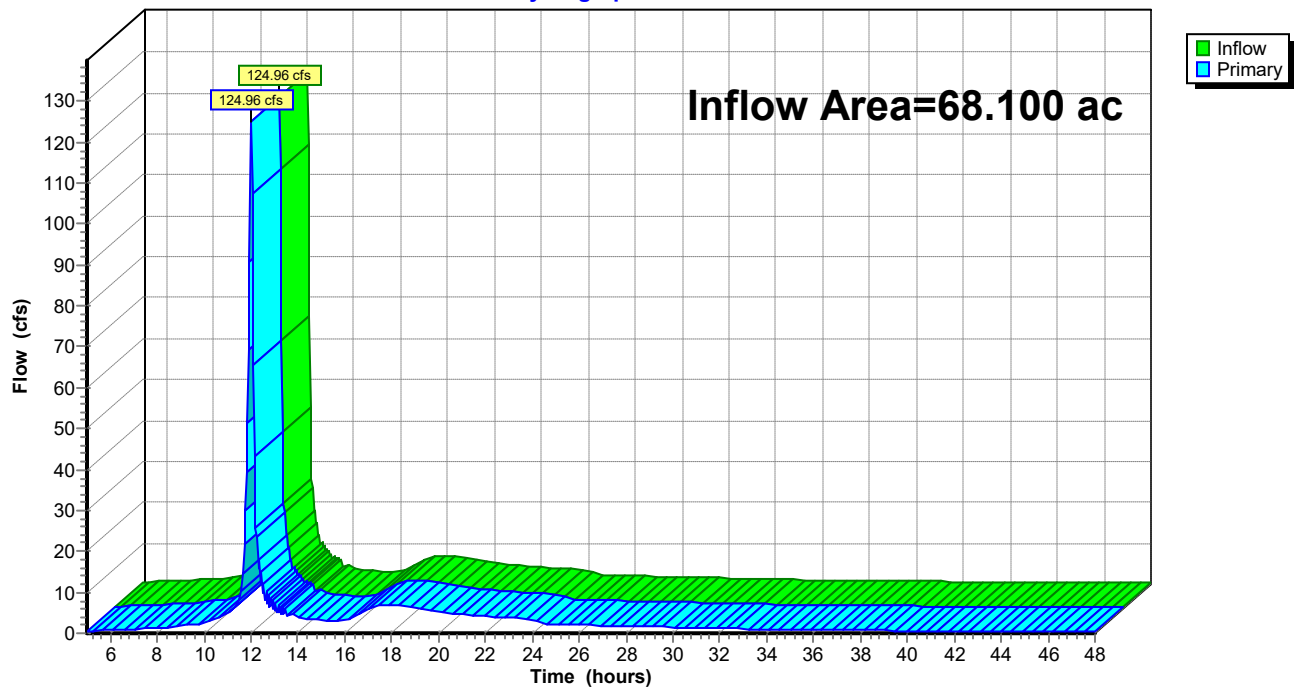
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 68.100 ac, 20.36% Impervious, Inflow Depth > 1.94" for 10-Year event
 Inflow = 124.96 cfs @ 12.01 hrs, Volume= 11.009 af
 Primary = 124.96 cfs @ 12.01 hrs, Volume= 11.009 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Pond AP-1: Analysis Point #1

Hydrograph



Summary for Reach 1W: Wetland #1 / Analysis Point 1A

[91] Warning: Storage range exceeded by 0.14'

[55] Hint: Peak inflow is 246% of Manning's capacity

Inflow Area = 28.500 ac, 13.16% Impervious, Inflow Depth > 4.12" for 100-Year event
Inflow = 30.43 cfs @ 13.13 hrs, Volume= 9.785 af
Outflow = 18.19 cfs @ 15.98 hrs, Volume= 9.518 af, Atten= 40%, Lag= 170.8 min
Routed to Reach 3R : Outlet Pipe

Routing by Stor-Ind+Trans method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.14 fps, Min. Travel Time= 118.7 min

Avg. Velocity= 0.05 fps, Avg. Travel Time= 313.6 min

Peak Storage= 129,558 cf @ 14.00 hrs

Average Depth at Peak Storage= 0.64', Surface Width= 203.85'

Bank-Full Depth= 0.50' Flow Area= 100.8 sf, Capacity= 12.36 cfs

200.00' x 0.50' deep channel, n= 0.240

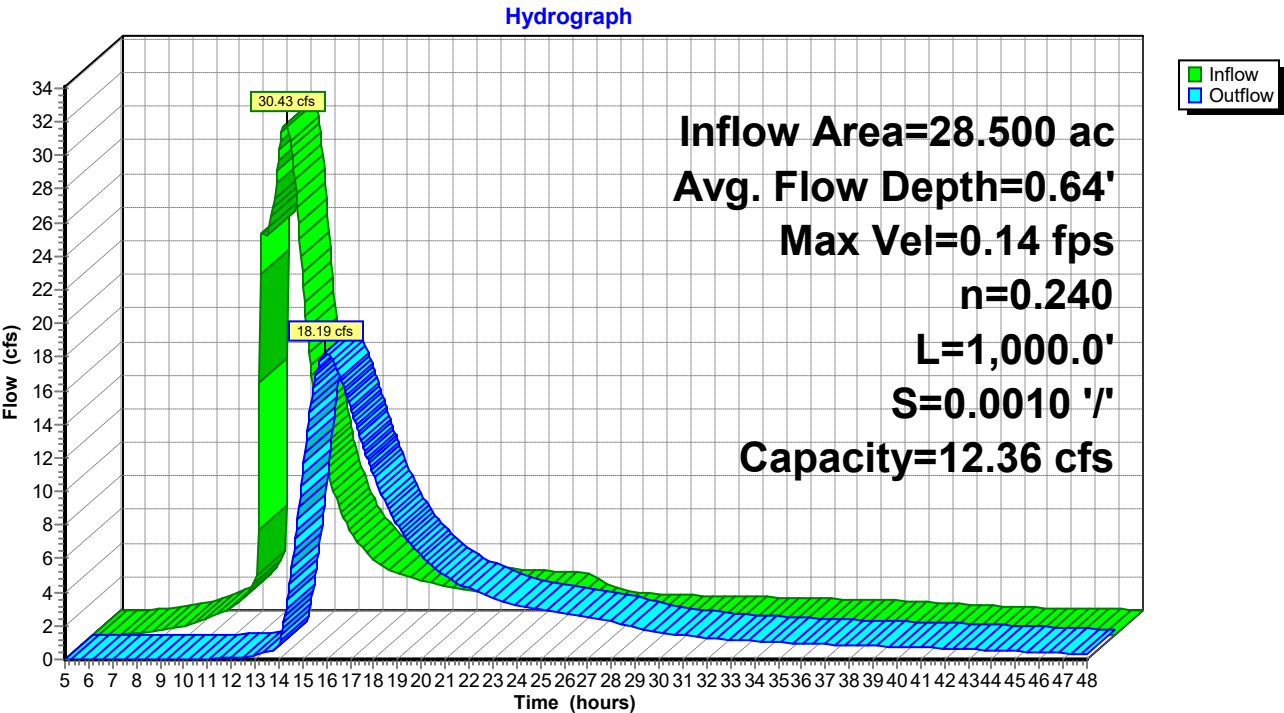
Side Slope Z-value= 3.0 '/' Top Width= 203.00'

Length= 1,000.0' Slope= 0.0010 '/'

Inlet Invert= 6.00', Outlet Invert= 5.00'



Reach 1W: Wetland #1 / Analysis Point 1A



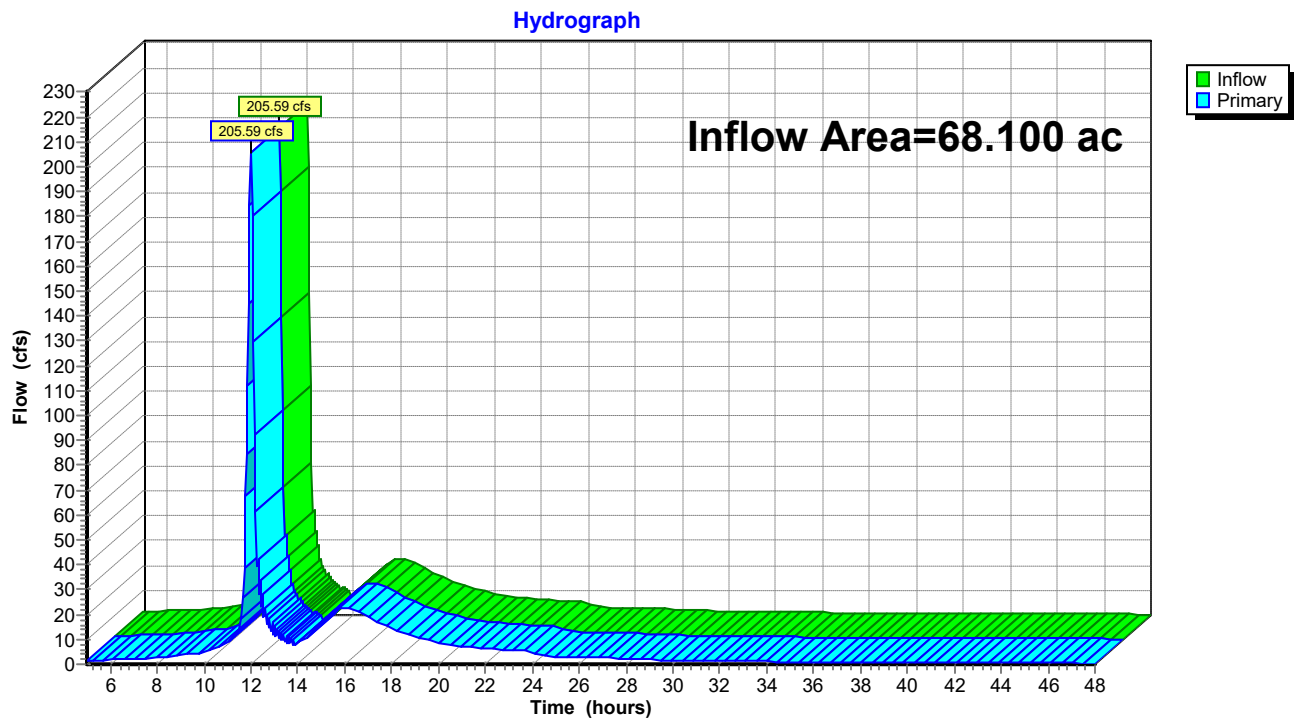
Summary for Pond AP-1: Analysis Point #1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 68.100 ac, 20.36% Impervious, Inflow Depth > 3.95" for 100-Year event
Inflow = 205.59 cfs @ 12.00 hrs, Volume= 22.424 af
Primary = 205.59 cfs @ 12.00 hrs, Volume= 22.424 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Pond AP-1: Analysis Point #1



Summary for Reach 1W: Wetland #1 / Analysis Point 1A

Inflow Area = 28.500 ac, 13.16% Impervious, Inflow Depth > 0.24" for WQv event
 Inflow = 1.05 cfs @ 13.51 hrs, Volume= 0.576 af
 Outflow = 0.36 cfs @ 29.22 hrs, Volume= 0.465 af, Atten= 65%, Lag= 942.6 min
 Routed to Reach 3R : Outlet Pipe

Routing by Stor-Ind+Trans method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 Max. Velocity= 0.03 fps, Min. Travel Time= 554.0 min
 Avg. Velocity= 0.02 fps, Avg. Travel Time= 872.3 min

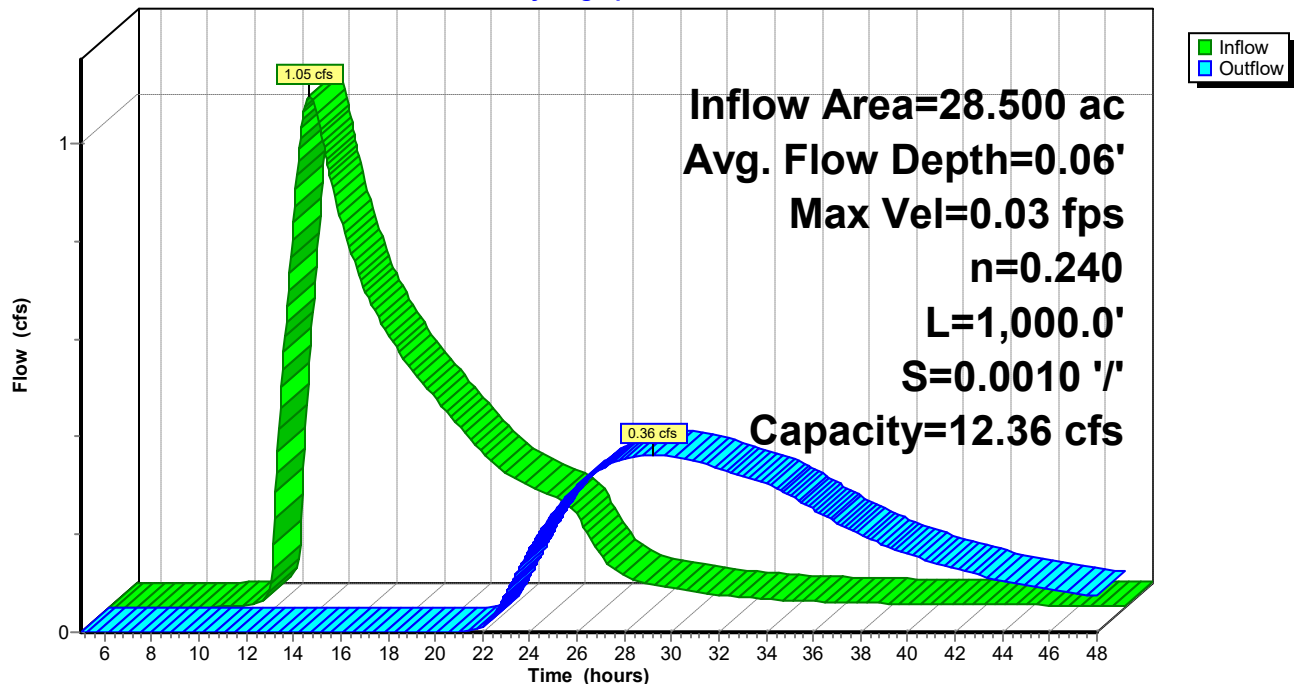
Peak Storage= 12,066 cf @ 19.98 hrs
 Average Depth at Peak Storage= 0.06', Surface Width= 200.36'
 Bank-Full Depth= 0.50' Flow Area= 100.8 sf, Capacity= 12.36 cfs

200.00' x 0.50' deep channel, n= 0.240
 Side Slope Z-value= 3.0 '/' Top Width= 203.00'
 Length= 1,000.0' Slope= 0.0010 '/'
 Inlet Invert= 6.00', Outlet Invert= 5.00'



Reach 1W: Wetland #1 / Analysis Point 1A

Hydrograph



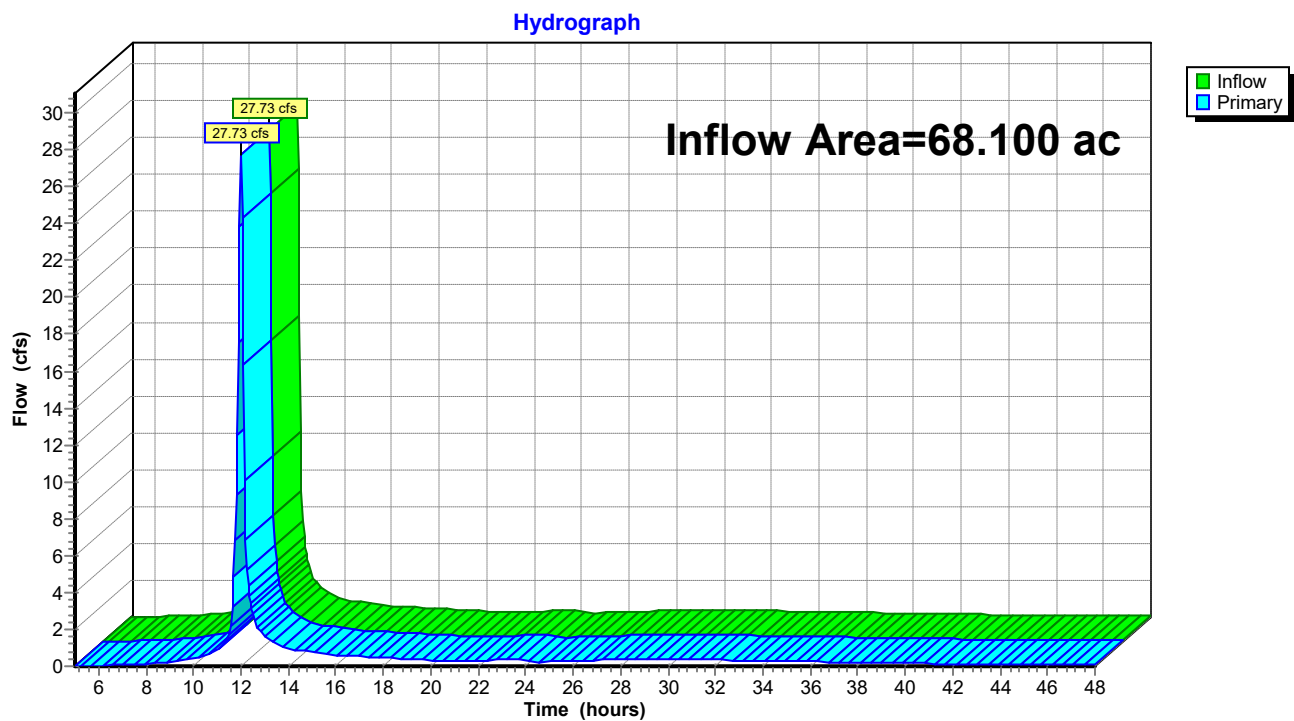
Summary for Pond AP-1: Analysis Point #1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 68.100 ac, 20.36% Impervious, Inflow Depth > 0.35" for WQv event
 Inflow = 27.73 cfs @ 12.00 hrs, Volume= 1.975 af
 Primary = 27.73 cfs @ 12.00 hrs, Volume= 1.975 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Pond AP-1: Analysis Point #1



DRAINAGE DESIGN REPORT
FOR
MARMEN-WELCON TOWER MANUFACTURING PLANT

TOWN OF BETHLEHEM
ALBANY COUNTY
NEW YORK

FINAL SUBMISSION
JUNE 20, 2022

CREATED FOR:



ALBANY PORT DISTRICT COMMISSION
106 Smith Boulevard
Albany, NY 12202
518-463-8763
www.portofalbany.us

CREATED BY:



McFarland Johnson

60 Railroad Place, Suite 402
Saratoga Springs, NY 12866
518-580-9380
www.mjinc.com

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 - A. Project Description*
 - B. Soil Classification*
- II. Hydrology**
 - A. Existing Conditions*
 - B. Proposed Conditions*
- III. Stormwater Management & SPDES Requirements**
 - A. Methodology*
 - B. Water Quality Volume (WQv) / Runoff Reduction Volume (RRv)*
 - C. Channel Protection Volume (CPv)*
 - D. Overbank Flood (Qp)*
 - E. Extreme Storm (Qf)*
- IV. Summary of Findings**
 - A. Summary of Results*
 - B. Conclusion*

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Appendix B – Proposed Conditions Drainage Map and HydroCAD Report

Appendix C – Water Quality and Runoff Reduction Volume Calculations

Appendix D – Stormwater Practice Specifications

Appendix E – NRCS Soils Report

Appendix F – Infiltration Test Results

I. General Information

A. Project Description

This Stormwater Management Report has been developed for a Supplemental Environmental Impact Statement (SEIS) regarding a proposed development at the Port of Albany. The proposed development is an offshore wind (OSW) manufacturing facility that will produce wind turbine tower components. The Project is situated on 81.62 acres of land at the Beacon Island site, located at the confluence of the Normans Kill and Hudson River. The project also includes development within 4.4 acres of the adjoining parcel owned by National Grid, the extension and improvement of Normanskill Street, and widening of Rt. 144. The project owner, Albany Port District Commission (APDC), is proposing to develop the vacant parcels of land (tax parcels 98.00-2-10.23 and 98.01-2-1.0) to expand the existing Port of Albany in the Town of Bethlehem, Albany County, New York.

The proposed project will include development of an OSW tower manufacturing (Marmen-Welcon) facility consisting of five (5) separate buildings totaling up to 625,539+/- square feet of floor space. The following is a breakdown of the function and size of each building:

- Building A Plate Preparation & Welding (299,250 SF)
- Building B Welding Finishing (111,023 SF)
- Building C Blast Metallization Plant (131,968 SF)
- Building D Internal Assembly Finishing (61,550 SF)
- Building E Material Receiving (21,748 SF)

Tower production will occur within four (4) buildings (Buildings A-D) at the main facility on the Port Expansion property located in the Town of Bethlehem. The 5th building (Building E) will be located at 700 Smith Boulevard within the existing Port District in the City of Albany. A proposed gated bridge over the Normans Kill will provide a truck transportation route in and out of the main facility, by connecting Beacon Island and the 14.7-acre offsite parcel at 700 Smith Boulevard. In conjunction with the proposed bridge, Normanskill Street is to be extended from its existing end point to the bridge. The existing pavement will be improved to accommodate the proposed trucking route. River Road (Rt. 144) will be widened to accommodate the employee entrance. Employee parking will be situated on the adjoining land owned by National Grid with access from River Road. A proposed 500 LF wharf and associated dredging along the Hudson River will be used to load and ship completed tower sections. A separate stormwater analysis and SWPPP has been prepared for the 14.7-acre Building E site at 700 Smith Boulevard and the portion of Normanskill Street located in the City of Albany, as the sites are separated by approximately 1-mile and are under separate MS4 jurisdictions.

Historically, the Port Expansion site was composed of small islands and river channels subject to natural shifts due to flows associated with the Hudson River and the former Island Creek, a side channel of the Hudson River. Island Creek historically flowed along the western side of the site

through the current power line corridor and discharged to the Hudson River at the southern end of the site. Based on available mapping, sometime between 1936 and 1961, Island Creek channel was diverted at the north end of the site directly to the Hudson River, whereupon it was referred to solely as Normans Kill, the main tributary to this former channel. The site was subject to historic filling operations to create usable lands and a portion of the site was operated as a coal ash (fly ash) disposal site by Niagara Mohawk from approximately 1952 to 1970. As such, there are large areas of fly ash deposits on the site that must be considered during the design and construction of the site infrastructure and stormwater management facilities. Excavated fly ash material will need to be appropriately handled and properly disposed of as discussed in Section B below. A soil management plan has been developed and will require a cap over the site.

The purpose of this report is to assess the stormwater quality, quantity, and erosion and sediment control for the development of the site. This report has been developed in accordance with the New York State Department of Environmental Conservation (NYSDEC) State Pollution Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity, GP-0-20-001 (Permit) and the NYSDEC Stormwater Management Design Manual (The Manual). The project site is located within the Town of Bethlehem, Albany County, New York, which is an MS4 community, requiring this report and project to receive approval from the Town. A separate stormwater analysis and SWPPP has been prepared for the 14.7-acre Building E site at 700 Smith Boulevard and the portion of Normanskill Street located in the City of Albany, as the sites are separated by approximately 1-mile and are under separate MS4 jurisdictions.

The overall project limits analyzed in this Drainage Report are broken up into three (3) areas, hereafter referred to as (1) "Expansion Site", (2) "Normanskill Street Improvements", (3) "Offsite Improvements". See Existing Conditions Map (Appendix A) for the location of each of these areas. The Expansion Site is the portion of the project area that is located on Beacon Island. The Normanskill Street Improvement portion begins on the north end of the proposed bridge over the Normans Kill and extends north to the border of the Town of Bethlehem and City of Albany. The Offsite Improvements portion refers to the widening of Rt. 144 adjacent to the employee entrance.

B. Soil Classification

According to the Natural Resources Conservation Service (NRCS) web soil survey, there are five (5) mapped soil units identified within the project boundary (see Appendix E). The majority of the soil at the expansion site falls within the hydrologic soil group B/D. The first letter corresponds to drained soil's properties under drained conditions and the second to saturated conditions. Group B soils have moderate infiltration and runoff rates while group D have a low infiltration rate and a high runoff rate. The soils with dual group identifiers have been modeled with the more conservative of the two, in this case a D soils group. Most of the soil adjacent to Normanskill Street Improvements is within soil group A. Group A soils have a high infiltration rate.

The complete list of soils found on the project site is identified in the table below (see Appendix E for NRCS Soils Report).

Table I – Soils Summary

Symbol	Soil Name	Hydrologic Soil Group
HuE	Hudson silt loam, 25 to 45 Percent slopes	C/D
NrD	Nassau very channery silt loam, hilly, very rocky	D
Ug	Udorthents, loamy	A
Ur	Urban land	-
Wo	Wayland soils complex, non- calcareous substratum, 0 to 3 percent slopes, frequently flooded	B/D

Geotechnical studies have been undertaken to evaluate the subsurface conditions of the site. These investigations have been summarized in the following reports:

- *Preliminary Geotechnical Evaluation and Interpretive Report*, CME Associates, Inc., April 5, 2017
- *Supplemental Geotechnical Report*, Dente Group, July 20, 2017

Copies of these reports were included in the TOWN OF BETHLEHEM PLANNING BOARD, DRAFT GENERIC ENVIRONMENTAL IMPACT STATEMENT For ALBANY PORT DISTRICT COMMISSION PORT OF ALBANY EXPANSION PROJECT, Appendix E.

- *Draft Geotechnical Engineering Report*, Terracon, October 15, 2021

A copy of this reports is included in the TOWN OF BETHLEHEM PLANNING BOARD, SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT For ALBANY PORT DISTRICT COMMISSION PORT OF ALBANY EXPANSION PROJECT.

Based on these previous investigations, the subsurface conditions of the Expansion Site portion of the project site are generally characterized by historic fills of various depths overlying, in sequence with depth; river sediments, alluvial sands, glaciolacustrine silt/ clay, glacial till, and shale bedrock. The fill was noted at specific boring locations ranging from 6 to 23 feet below existing grade. The fill material is characterized as a random landfill deposit containing natural and solid waste deposits such as, but not limited to, foundry sand waste, sand, silt, coal ash, gravel, and organic matter. A predominant component of the fill was reported as coal ash.

Shale bedrock was found beneath the glacial till soils at select boring locations. The depth to rock ranged from approximately 61 feet below grade near the northwest portion of the site, to greater than 148 feet at the southeast portion of the site. The rock depths appear shallowest on the north and west sides of the site and increase to the east towards the Hudson River and in a south

direction across the site. Based on the New York State Museum and Science Service's Geologic Map of New York: State Hudson-Mohawk Sheet, and the geotechnical rock core samples, the bedrock appears to be consistent with the Normans kill Shale Formation.

According to the geotechnical reports, shallow groundwater was observed at depths ranging from approximately 1.5 to 13.7 feet below existing grade. However, due to the subsurface conditions, the shallower observations could be representative of perched groundwater zones due to discontinuous impermeable layers. Shallow groundwater fluctuations should be expected to occur at this site depending on several factors such as rainfall, seasonal changes, prevailing climate, ambient weather conditions, and the tidal influences of the Hudson River.

A soil management plan (SMP) has been prepared in accordance with the NYSDEC regulations. The SMP is included in SWPPP. The SMP pertains only to the Expansion Site portion of the project.

II. Hydrology

A. Existing Conditions

The existing drainage area totals 108.4 +/- acres, separated by the Normans Kill. The drainage area is bordered by the Hudson River to the east. At the south boundary there is a Public Service Energy Group (PSEG) power plant, and to the west a parcel owned by National Grid that conveys overhead electric transmission lines as well as an underground gas main. The Port Expansion site consists primarily of brush and trees with a small gravel area as well as abandoned railroad tracks. The Normanskill Street Improvement site consists of an existing road as well as brush and trees to the west. The Offsite Improvements consist of the existing roadway as well as brush and trees to the east and west.

The existing drainage condition is split up into seven (7) drainage areas. Drainage area DR-A drains to analysis point #1A, drainage areas DR-B and DR-F drain to analysis point #1, drainage areas DR-D and DR-E drain to analysis point #2. Drainage area DR-G drains to analysis point #3. Drainage area DR-C drains to a self-contained depression for storage. See Appendix A for the Existing Conditions Drainage Map.

Runoff from DR-A travels via sheet and shallow concentrated flow directly to a wetland located in the northwest corner of the site (Wetland 1). During large storm events the wetland overflows into an existing 40" pipe with direct outlet to the Normans Kill. Analysis of the existing capacity of the outlet pipe is provided in section IV below. Runoff from areas DR-B, DR-D, DR-E, and DR-F travel via sheet and concentrated flow to low areas with eventual outfall directly to the Normans Kill and Hudson River. An approximately 30-acre internal portion of the site (DR-C) was determined to be self-contained within the site capable of storing and infiltrating the 100-year storm event. Runoff from area DR-G sheet flows to the west side of River Road and travels to a low spot adjacent to the roadway where it is stored and eventually infiltrated.

A wetland delineation was conducted in April 2019 by McFarland Johnson for the FGEIS. The results of the delineation indicated that there are 8 freshwater wetlands located within the project limits. These wetlands are hereafter referred to as Wetlands 1, 3, 4, 5, 6, 7, 8, and 9. Wetlands within the original study area totaled approximately 2.33 acres.

A Supplemental Wetland Delineation was performed by MJ in April 2021 of the 18.22 acres on the National Grid Parcel. One contiguous wetland, comprising of approximately 7.13 acres, was delineated within the 18.22-acre area. The delineated wetland represents an extension of the 2019 wetland delineation and previously identified as Wetland 1. Wetland 1 drains in a northerly direction into a 40-inch corrugated metal pipe (CMP) which discharges directly to the Normans Kill.

The existing site falls within the Normans Kill watershed of the Middle Hudson Sub-Basin for the Lower Hudson River Basin (HUC10: 0202000602, Water Index No H-221-4) which is listed as a Class C water. Neither the Normans Kill nor the Hudson River are listed in the Manual's Appendix C as a watershed where enhanced phosphorus removal standards are required. Additionally, neither are listed in the Manual's Appendix E as a watershed impaired by pollutants related to construction activity.

B. Proposed Conditions

The proposed Port Expansion Site development includes 603,791 +/- square feet of OSW manufacturing facility space spread out over four (4) separate buildings. Ancillary impervious areas include parking for automobiles and trucks, a roadway, bridge, and a maritime wharf. The remainder of the site will be used for tower storage and be made up of dense graded aggregate. There will also be small pervious areas of grass and unaltered brush and trees.

The Normanskill Street Improvements are along a 0.52 mile stretch of roadway within the Town of Bethlehem. A new portion of Normanskill Street is to be constructed from the proposed vehicle bridge north to the existing roadway. This extension is approximately 925 feet long and will be dense graded aggregate. The existing portion of Normanskill Street will be widened on the west side of the roadway. The remaining portion of the existing roadway will be re-paved and not disturbed, as subbase will remain. A top course mill and fill of 1.11 acres is proposed. The improvements also include the required corresponding stormwater conveyance and treatment.

The Offsite Improvements consist of widening an approximately 600 LF stretch of Rt. 144 adjacent to the expansion site employee entrance. The roadway is to be widened by 7 +/- ft on the east side. The new impervious area is 0.14 acres. Corresponding grading is also part of the offsite improvements.

The total post-development drainage area will be 108.6 acres. The post-development drainage area is larger than the pre-development area by 0.2 acres due to the proposed bridge over the Normans Kill. The total disturbance for construction of the site will be approximately 72.7 +/-

acres.

The proposed drainage condition is split up into seventeen (17) drainage areas. Drainage Areas DR-8, DR-9, and DR-10 drain to analysis point #1A. Drainage Areas DR-5, DR-6, DR-7, DR-12, DR-13, DR-14, DR-15, and DR-16 drain directly to analysis point #1. Drainage areas DR-1, DR-2, DR-3, DR-4, and DR-11 drain to analysis point #2. Drainage area DR-17 drains to analysis point #3. Each analysis point remains the same in the pre- and post-development condition for comparison. See Appendix B for the Proposed Conditions Drainage Map.

On the Expansion Site, runoff from the proposed impervious areas will travel via sheet and shallow concentrated flow to one of seven (7) closed drainage networks. Drainage networks 1-7 will be conveyed through a NYSDEC approved stormwater filtering system and/or an off-line infiltration chamber system which will provide water quality volume treatment and runoff reduction prior to being discharged into the Normans Kill or Hudson River.

Runoff from DR-8 and DR-9 will be conveyed via vegetated swales to Micropool Extended Detention Ponds (Type P-1 per the Manual). The ponds will provide water quality volume treatment. The portion of the water held above the wet pool will be slowly discharged to the surrounding area over a 24-hour period. The ponds will also hold larger storm events up to the 10-year storm. During the 10-year storm and larger, emergency spillways outlet to the surrounding vegetated area, eventually flowing to Wetland #1.

Drainage Areas DR-10, DR-11, and DR-12 maintain their existing drainage patterns.

Drainage areas DR-13 and DR-14 correspond to sections of new Normanskill Street roadway. In each area, stormwater is collected via roadside swales and directed into a sedimentation basin which overflows into Infiltration Basin #1. The basins are designed to infiltrate the WQv as well as smaller storm events. During large storm events water will overflow to the Normans Kill.

Drainage area DR-15 corresponds to a section of Normanskill Street that is being expanded to the west. Stormwater is collected via a roadside swale with a dry swale at the end. In large storm events, water will flow through the dry swale to an overflow trench to be discharged to the surrounding vegetated area, eventually flowing into the Normans Kill. Drainage Area DR-16 will not be disturbed in the development of this project and will continue to drain into the Normans Kill.

Drainage area DR-17 will collect runoff on Rt. 144 via a roadside swale with a dry swale at the end. In large storm events, water will flow through the dry swale to an overflow trench to be discharged to the surrounding area. The surround area is self-contained and eventually infiltrates stormwater runoff.

The overall drainage plan incorporates multiple separate systems with outlets to the Normans Kill and/or Hudson River to avoid a more concentrated larger outlet for the site. See Appendix B

for proposed conditions plans and watershed mapping.

III. Stormwater Management & SPDES Requirements

The Proposed Development Project will have land disturbance of more than 1-acre, a full SPDES permit will be required, and a Stormwater Pollution Prevention Plan (SWPPP) will be developed in accordance with the Permit regulations and MS4 requirements as part of the Town of Bethlehem site plan approval process. A 5-acre waiver will also be requested in order to disturb more than 5 acres at one time.

Due to the presence of fly ash on the Expansion Site, in addition to a NYSDEC SPDES, a Site Management Plan (SMP) has been prepared in accordance with 6 NYCRR Part 375 and DER Technical Guidance for Site Investigation and Remediation and submitted to the NYSDEC, Division of Environmental Remediation and the NYSDOH. The SMP includes: a Health and Safety Plan (HASP), to inform and protect the contractor and their work force; a Community Air Monitoring Plan (CAMP), to monitor and protect the surrounding communities; and an Excavation Work Plan (EWP), to direct the activities of the contractor during construction. The EWP includes a detailed description of the work to be performed, the anticipated environmental conditions, and engineering controls to mitigate the movement of fly ash. The SMP has been included in the SEIS and SWPPP.

The SWPPP will be prepared in coordination with the Manual and meet the following criteria as the principal objectives contained in an approved SWPPP:

- Reduction or elimination of erosion and sediment loading to waterbodies during construction activities. Controls will be designed in accordance with the NYSDEC's New York State Standards and Specifications for Erosion and Sediment Control.
- Mitigate the impact of stormwater runoff on the water quality of the receiving waters.
- Maintenance of stormwater controls during and after completion of construction.

These objectives will be accomplished by incorporating design criteria outlined within the Technical Guidelines provided by The Manual and summarized below.

A. Methodology

To analyze the hydrologic impacts of the proposed development, a storm water management model was developed in accordance with the Manual. HydroCAD™, by HydroCAD Software Solutions LLC was used to model both the existing and proposed conditions: soil data from the NRCS Web Soil Survey was entered into the software; land coverage areas were estimated using aerial photography and site visits; watershed areas were developed using the surveyed topography; time of concentrations were estimated using USDA, Urban Hydrology for Small Watersheds, TR-55 (TR-55) methodology; and finally runoff and routing calculations were performed using the SCS Unit Hydrograph method.

The following rainfall depths were utilized in the analysis of the 1, 10, and 100-year storm events:

Table II – Hydrologic Analysis Data

Storm Event	Rainfall Depth (in.)
1-year	2.20
10-year	3.63
100-year	6.11

Rainfall depths were determined using the Northeast Regional Climate Center (NRCC) data for Albany County. The rainfall intensity utilized is the Type II-24 hour storm. This data is pre-programmed in the HydroCAD software.

Green Infrastructure practices were designed in accordance with the Manual using the NYSDEC Runoff Reduction Worksheets available through the NYSDEC's Construction Stormwater Toolbox, available on their website.

The following general steps are followed when conducting a stormwater design:

1. **Site Planning:** The existing natural resource areas and drainage patterns including wetlands, waterways, floodplains, and soils are identified. Conservation of natural resources are maximized given the proposed site.
2. **Pre and Post-Development Conditions Analysis:** The pre and post-development stormwater runoff conditions for the 1, 10, and 100-year storm events are determined using HydroCAD (detailed HydroCAD reports for this project can be found in Appendices A and B).
3. **Water Quality:** The Water Quality Volume and Runoff Reduction Volume are calculated using Chapter 4 of the Manual and Green Infrastructure Worksheets (provided in Appendix C).
4. **Water Quantity:** Peak runoff and stormwater retention/detention are evaluated using the Manual.

B. Water Quality Volume (WQv) / Runoff Reduction Volume (RRv)

Section 4.2 of the Manual states that Water Quality Volume (WQv) is intended to improve the water quality by capturing and treating runoff from small, frequent storm events that contain higher pollutant levels created through the increase of impervious surfaces. Impervious surfaces accumulate pollutants that quickly wash off and rapidly enter downstream waters as well as prevent natural groundwater recharge.

The WQv required for the proposed site is based upon the 90% rainfall event number, percent of impervious cover, and the total site area. Calculations were done using the Green Infrastructure worksheets and can be found in Appendix C. The total WQv required is 273,874 cubic feet.

Runoff Reduction Volume (RRv) is the reduction of the total WQv by application of green infrastructure techniques and stormwater management practices to replicate pre-development

hydrology more closely. The intent of RRV is to recognize the water quality benefits of certain site design practices to address flow as a pollutant of concern.

According to Section 4.3 of the Manual, RRV may be calculated based on three methods:

1. Reduction of the practice contributing area in WQv
2. Reduction of runoff volume by storage capacity of the practice
3. Reduction using standard SMPs with runoff reduction capacity

The minimum RRV required by the proposed site is based on the total area of new impervious cover and the Hydrologic Soil Group (HSG) Specific Reduction Factor (S). The specific reduction factor is based on the HSGs present at the existing site. Calculations were done using the NYSDEC Green Infrastructure worksheets and can be found in Appendix C. The minimum RRV was determined to be 57,313 cubic feet.

Due to the level of contamination present in the existing soils across the Expansion Site, stormwater infiltration practices were located only in areas along the Hudson River and Normans Kill where contamination is not expected to be present. However, the Normanskill Street extension project area does not contain contaminated soils, so all treatment practices selected utilize infiltration and therefore include RRV. Infiltration testing has been performed at all proposed infiltration practices. Test results are included as Appendix F.

The following stormwater treatment practices were designed to meet the WQv and RRV requirements of the Manual:

Stormwater Ponds

Two stormwater quality ponds (Pond #1 and Pond #2) have been designed as Micropool Extended Detention Ponds (P-1) in accordance with the Manual. Ponds #1 and #2 treat stormwater runoff from drainage areas DR-8 and DR-9 respectively. Runoff from these areas sheet flow to a vegetated swale and outlet into the forebay of the pond. As required by the manual, the permanent pool volume is a minimum 20% of the WQv. Any stormwater held above the permanent pool elevation will be slowly discharged from the pond over a period of 24 hours. In larger storm events, the ponds will provide a “first flush” treatment for up to a 10-year storm event with stabilized emergency spillways to direct flow from larger event greater than a 10-year event to the surrounding area. Due to the topography of the surrounding undisturbed area, water will flow toward Wetland #1. A pre- and post-development analysis of the inflow to Wetland #1 (Analysis Point #1A) has been included in Section IV below. The post-development runoff going to Wetland #1 does not exceed the pre-development condition. Detailed design of the stormwater ponds can be found on page GR-14 of the Expansion Site plan set.

Manufactured Stormwater Filtering Units

Six stormwater filtering systems have been designed to treat runoff from drainage areas DR-1, DR-2, DR-3, DR-4, DR-6, and DR-7. Runoff from these areas sheet flow to its respective closed drainage system and is treated through a filtering manhole unit(s) before the outfall. Details of

the proposed systems are located on sheet GR-15 of the Expansion Site plan set. All systems meet the minimum criteria as defined in Chapter 4 of the Manual and are certified by Washington State Department of Ecology (TAPE) the Maryland Department of the Environment. The systems provide 89% TSS removal and 40% TP removal, which exceed the performance requirements defined in section 3.3.2 of the Manual. Usage of the manufactured stormwater systems is documented in section 9 of the SWPPP. The design and sizing calculations for the manufactured stormwater filtering units is provided in the GI Worksheets (Appendix C).

Infiltration Chamber Systems

Three infiltration chamber systems have been designed to provide runoff reduction volume. For drainage areas DR-1 and DR-4 the infiltration chambers work in conjunction with Stormwater Filtering Units in order to treat the entire water quality volume. For drainage area DR-5 the infiltration chamber system provides sufficient volume to provide runoff reduction as well as treat the entire water quality volume. After flowing through the stormwater filtering units, runoff flows into the infiltration chambers and is stored until infiltrated into the ground. During large storm events, a diversion manhole allows runoff to bypass the infiltration chambers and flow to the Hudson River or Normans Kill. The design and sizing calculations for the chambers is provided in the GI Worksheets under the Infiltration Basin tab (Appendix C). Specifications for the chamber systems utilized are provided in Appendix D.

Infiltration Basins

Two infiltration basins (Basin #1 and Basin #2) have been designed in accordance with the manual. Basin #1 and #2 treat stormwater runoff from drainage areas DR-13 and DR-14 respectively. Runoff from these areas sheet flow to an open roadside swale which outlets into the forebay of the pond. Both ponds have been designed to infiltrate the WQv as required by each catchment area. Because both ponds outlet directly to the Normans Kill, detention of large storm events is not required (see section III.C through III.E below). The basins do not have additional capacity for the Channel Protection Volume (CPv), Overbank Flood Control (Qp), or Extreme Flood Control (Qf). In large storm events, the basin will provide a “first flush” treatment with stabilized emergency spillways to direct flow to the Normans Kill. All stormwater within the basin will be infiltrated within 48 hours of a rain event. Design of the infiltration basins is provided in the GI Worksheets (Appendix C).

Dry Swale

Two dry swales have been designed to treat the new impervious area within DR-15 and DR-17 respectively. Runoff from each area will sheet flow to a roadside swale with the end segment constructed as a dry swale. In large storm events, water not infiltrated into the swale will overflow to a stabilized outlet which drains to the surrounding area. Dry swale #2 has been designed without infiltration, and therefore will only take credit for WQv. Design of the dry swales is provided in the GI Worksheets (Appendix C).

Conservation of Natural Areas

Drainage Area DR-11 will be deed restricted to ensure the perpetual protection of the proposed area to remain vegetated along the Hudson River. Therefore, this area qualifies under the "Conservation of Natural Areas" volume reduction practice.

The RRv provided in the designed practices are summarized in Table III below:

Table III – Practices Providing Runoff Reduction

Drainage Area	Stormwater Practice	RRv (cf)
DR-1	Infiltration Chamber	21,248
DR-4	Infiltration Chamber	18,464
DR-5	Infiltration Chamber	18,426
DR-11	Conservation of Natural Areas	868
DR-13	Infiltration Basin #1	1,995
DR-14	Infiltration Basin #2	2,245
DR-15	Dry Swale #1	87
Total RRv		63,333

The WQv provided for each drainage area is summarized in Table IV below:

Table IV – Practices Providing Water Quality Volume

Drainage Area	Stormwater Practice	WQv (cf)
DR-1	Filter Type 2	18,005
	Infiltration Chamber	2,802
DR-2	Filter Type 1	21,971
DR-3	Filter Type 1	43,939
DR-4	Filter Type 3	14,989
	Infiltration Chamber	2,052
DR-5	Infiltration Chamber	2,047
DR-6	Filter Type 1	48,060
DR-7	Filter Type 2	34,826
DR-8	Stormwater Pond #1	8,437
DR-9	Stormwater Pond #2	13,361
DR-14	Infiltration Basin #2	141
DR-15	Dry Swale #1	129
DR-17	Dry Swale #2	636
Total WQv		211,395

C. Channel Protection Volume (CPv)

Stream Channel Protection Volume Requirements (CPv) are designed to protect stream channels from erosion. The Manual was used to determine the water quantity requirements of CPv; specifically, providing 24-hour extended detention for the 1-year storm event or discharging directly to tidal waters.

According to Section 4.4 of the Manual, the Stream Channel Protection Volume (CPV) requirement does not apply when the site discharges to a tidal waterbody.

The CPv requirement does not apply in certain conditions, including the following:

- Reduction of the entire CPv volume is achieved at a site through green infrastructure or infiltration systems.
- The site discharges directly tidal waters or fifth order (fifth downstream) or larger streams.

The Hudson River and Normans Kill are classified as tidal waters at the project site. Therefore, 24-hour extended detention of the 1-year storm event is not required for all drainage areas that outlet directly to the Hudson River or Normans Kill.

Drainage areas DR-8 and DR-9 convey large storm events to Wetland #1, and therefore require water quantity controls. A pre-and post-development analysis of the inflow to Wetland #1 was performed and analyzed as Analysis Point #1A. The existing 40" outlet pipe from the existing wetland 1 was also analyzed to confirm that adequate capacity was present for the proposed drainage conditions prior to being discharged to the Normans Kill. See Section IV.

The change in hydrology for the 1-year storm event from existing to proposed is shown in the HydroCAD Report printouts provided in Appendix A and B and summarized in Table VI.

D. Overbank Flood Control (Qp)

The primary purpose of the overbank flood control sizing criterion is to prevent an increase in the frequency and magnitude of out-of-bank flooding generated by urban development. The Manual was used to determine the water quantity requirements of Qp; specifically, providing sufficient retention volume to discharge all runoff from the proposed 10-year storm event at a rate equal to or less than the existing peak 10-year runoff rate or discharging directly to tidal waters.

According to Section 4.5 of the Manual, the Overbank Flood Control Criteria (Qp) requirement does not apply when the site discharges to a tidal waterbody.

The overbank flood control requirement (Qp) does not apply in certain conditions, including:

- The site discharges directly tidal waters or fifth order (fifth downstream) or larger streams. Refer to Section 4.3 of the Manual for instructions.

The Hudson River and Normans Kill are classified as tidal waters at the project site. Therefore, retention the 10-year storm event is not required for all drainage areas that outlet directly to the Hudson River or Normans Kill.

Drainage areas DR-8 and DR-9 convey large storm events to Wetland #1, and therefore require water quantity controls. A pre-and post-development analysis of the inflow to Wetland #1 was performed and analyzed as Analysis Point #1A. The existing 40" outlet pipe from the existing wetland 1 was also analyzed to confirm that adequate capacity was present for the proposed drainage conditions prior to being discharged to the Normans Kill. See Section IV.

The change in hydrology for the 10-year storm event from existing to proposed is shown in the HydroCAD Report printouts provided in Appendix A and B and summarized in Table VI.

E. Extreme Flood Control (Qf)

The intent of the extreme flood criteria is to prevent the increased risk of flood damage from large storm events, maintain the boundaries of the predevelopment 100-year floodplain, and protect the physical integrity of stormwater management practices. The Manual was used to determine the water quantity requirements of Qf; specifically, providing sufficient retention volume to discharge all runoff from the proposed 100-year storm event at a rate equal to or less than the existing peak 100-year runoff rate or discharging directly to tidal waters.

According to Section 4.6 of the Manual, the Extreme Flood Control Criteria (Qf) requirement does not apply when the site discharges to a tidal waterbody.

The 100-year storm control requirement can be waived if:

- The site discharges directly tidal waters or fifth order (fifth downstream) or larger streams. Refer to Section 4.3 of the Manual for instructions.

The Hudson River and Normans Kill are classified as tidal waters at the project site. Therefore, retention the 100-year storm event is not required for all drainage areas that outlet directly to the Hudson River or Normans Kill.

Drainage areas DR-8 and DR-9 convey large storm events to Wetland #1, and therefore require water quantity controls. A pre-and post-development analysis of the inflow to Wetland #1 was performed and analyzed as Analysis Point #1A. The existing 40" outlet pipe from the existing wetland 1 was also analyzed to confirm that adequate capacity was present for the proposed drainage conditions prior to being discharged to the Normans Kill. See Section IV.

The change in hydrology for the 100-year storm event from existing to proposed is shown in the HydroCAD Report printouts provided in Appendix A and B and summarized in Table VI.

IV. Summary of Findings

A. Summary of Results

Table V lists the required and provided RRv and WQv for the project. As shown, the project meets both the total water quality volume and runoff reduction volume required by the Manual.

Table V – Stormwater Management Practice Summary

Drainage Area	Stormwater Practice	RRv (cf)	WQv (cf)	Total (RRv + WQv)
DR-1	Filter Type 2	-	18,005	42,055
	Infiltration Chamber	21,248	2,802	
DR-2	Filter Type 1	-	21,971	21,971
DR-3	Filter Type 1	-	43,939	43,939
DR-4	Filter Type 3	-	14,989	35,505
	Infiltration Chamber	18,464	2,052	
DR-5	Infiltration Chamber	18,426	2,047	20,473
DR-6	Filter Type 1	-	48,060	48,060
DR-7	Filter Type 2	-	34,826	34,826
DR-8	Stormwater Pond #1	-	8,437	8,437
DR-9	Stormwater Pond #2	-	13,361	13,361
DR-11	Conservation of Natural Areas	868	-	868
DR-13	Infiltration Basin #1	1,995	-	1,995
DR-14	Infiltration Basin #2	2,245	141	2,386
DR-15	Dry Swale #1	87	129	216
DR-17	Dry Swale #2	-	636	636
Totals	-	63,333	211,395	274,728
Required	-	57,313	-	273,874

Table VI below depicts the peak discharge in the existing and proposed conditions for the 1-year, 10-year and 100-year design storms. The peak discharge for all storm events draining to Analysis Point #1A is decreased in the post-development condition. The peak discharge for all storm events for the remaining analysis points exceed the existing value; however, as described in Sections III, C through E above, this requirement does not apply to analysis points 1 (Hudson River) and 2 (Normans Kill).

Table VI – Peak Discharge Storm Analysis

Analysis Point	Storm Event	Existing (cfs)	Proposed (cfs)
1A	1-year	27.32	4.77
	10-year	73.24	12.46
	100-year	163.60	30.97
1	1-year	3.25	58.54
	10-year	14.96	124.96
	100-year	43.20	205.59
2	1-year	7.17	82.79
	10-year	20.65	166.00
	100-year	48.06	290.19
3	1-year	0.60	1.20
	10-year	1.84	2.62
	100-year	4.39	5.25

Analysis Point #1A analyzes the peak discharge at Wetland #1. In large storm events, stormwater quality ponds #1 and #2 will overflow to an emergency spillway that outlets to the area surrounding Wetland #1. In the post-development condition, Analysis Point #1A has a peak discharge less than the pre-development condition during all storm events, therefore the required water quantity controls are met.

In the post-development condition, Analysis Point #1 has a total drainage area of 0.12 square miles (75.28 acres). This point drains to the Normans Kill with a drainage area of 162 square miles (103,680 acres). The project area makes up approximately 0.07% of the total drainage area of the Normans Kill. With an overall project time of concentration of around 10 minutes, the proposed project will have a negligible impact on the total Normans Kill hydrology as the site-produced runoff will be conveyed prior to the Normans Kill peak and will not impact the overall flood conditions of the Normans Kill.

In the post-development condition, Analysis Point #2 has a total drainage area of 0.04 square miles (23.6 acres). This point drains to the Hudson River with a drainage area of 8,090 square miles (5,177,600 acres). The project area makes up approximately 0.0005% of the total drainage area of the Hudson. With an overall project time of concentration of around 10 minutes, the proposed project will have a negligible impact on the total Hudson River hydrology, as the site-produced runoff will be conveyed prior to the Hudson River peak and will not impact the overall flood conditions of the Hudson River.

In the post-development condition, Analysis Point #3 discharge rates are higher than the pre-development condition. However, analysis point #3 drains to the surrounding area which stores runoff to be gradually infiltrated. Runoff from this analysis point does not flow to a stream or wetland.

The existing 40" outlet pipe from Wetland #1 was also analyzed for capacity. The analysis is summarized in table VII below.

Table VII – Outlet Pipe Capacity Comparison

Storm Event	Existing (cfs)	Proposed (cfs)	Capacity (cfs)
1-year	3.19	1.61	70.83
10-year	14.53	5.17	70.83
100-year	41.52	18.15	70.83

B. Deviation from NYS Stormwater Management Design Manual

The proposed stormwater management design deviates from The Manual by utilizing manufactured stormwater filtering systems for new development.

The need for alternative stormwater management practices is rooted in the extremely limited space available as well as the current site conditions. The proposed Offshore Wind Manufacturing Facility requires 85 acres of usable manufacturing and storage space along the Hudson River. It also requires close proximity to an existing port. Such requirements narrow the available project locations to a select few plots of unoccupied land in the entire state and this site was selected through a solicitation process by the state for off-shore wind development. This site was chosen given it is located adjacent to the existing Port of Albany and is directly on the Hudson River. However, the usable portion of the site adjacent to the Hudson River, is only 66-acres. Therefore, the entirety of the site is needed for the OSW manufacturing process, with an ancillary receiving site located at 700 Smith Boulevard.

The Expansion Site extends also onto the adjacent National Grid property from which APDC is leasing approximately 4.4 acres. However, National Grid has prohibited the installation of permanent stormwater practices within their property.

In addition to space limitations, the existing soils conditions prevent infiltration from being utilized as a stormwater management practice over most of the site. The existing soils are classified as Hydrologic Group D and B/D which provide little to no infiltration and are underlaid by fly ash. Infiltration practices were utilized in the areas where greater than 0.5 in/hr infiltration rates were achieved.

To adequately satisfy the WQv requirements of the Manual, manufactured systems are needed. The Contech Jellyfish units designed meet both the performance and sizing requirements of Chapter 4 of the Manual. The units are also certified by Washington State Department of Ecology (TAPE) and the Maryland Department of the Environment, adequate sources accepted by the NYSDEC. Specifications for the proposed units are provided in Appendix D.

C. Conclusion

Based upon the analysis provided in this report, the proposed development can meet the sizing and performance requirements as defined in Chapter 4 of the Manual. During construction, Erosion and Sediment Control activities will be designed and enforced in accordance with the NYSDEC New York State Standards and Specifications for Erosion and Sediment Control. Stormwater management practices can provide the required RRV and WQv for the proposed conditions. The elements of the Manual and the SPDES Permit that relate to stormwater quantity controls, specifically CPv (1-year), Qp (10-year), and Qf (100-year), are not applicable for portions of the site that discharge directly to a tidal water. For the remaining areas, the peak discharge for the 1-year, 10-year, and 100-year storm events are reduced in the post-development condition. A downstream analysis was completed for the existing Wetland #1 (Analysis Point #1A) and its outlet pipe to confirm adequate capacity prior to discharging into the tidal waters of the Normans Kill. All elements of the closed drainage system have been designed to be non-erosive during a 2-year storm event and capable of conveying a 10-year storm event. Analysis of all closed drainage pipe networks is included in Appendix C. After construction, a maintenance and operation report program and agreement will be made between the site operator and MS4 (Town of Bethlehem) to ensure all stormwater management practices are maintained over the life of the site's operations.

Appendix A

Existing Conditions Drainage Map and HydroCAD Report



PROJECT MILESTONE
NFC

CLIENT: ALBANY PORT DISTRICT COMMISSION

PROJECT: PORT OF ALBANY SITE INFRASTRUCTURE IMPROVEMENTS

ALBANY, NEW YORK

IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECT DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY, IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

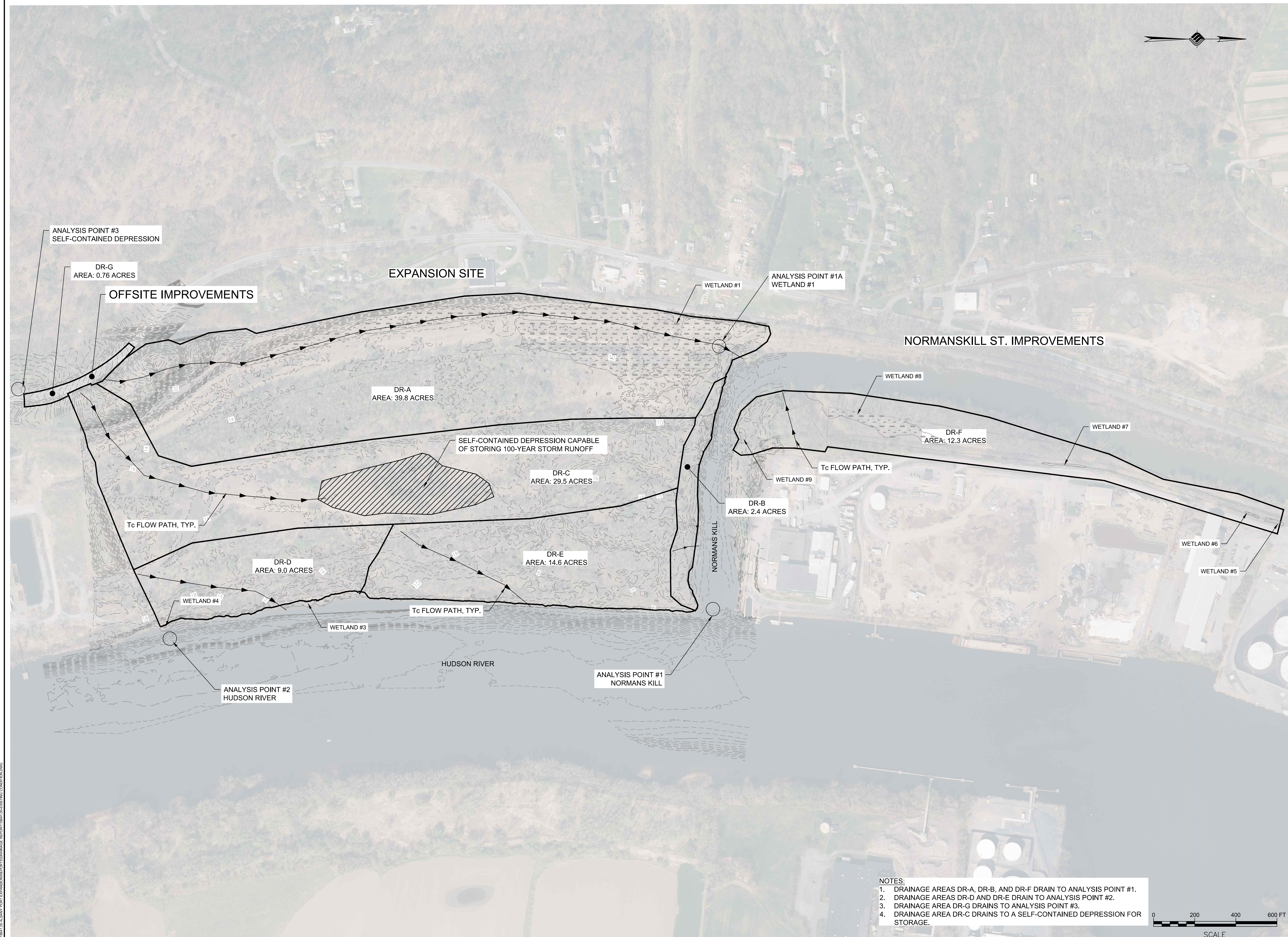
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PRE-DEVELOPMENT SITE DRAINAGE AREAS

RAWING NUMBER

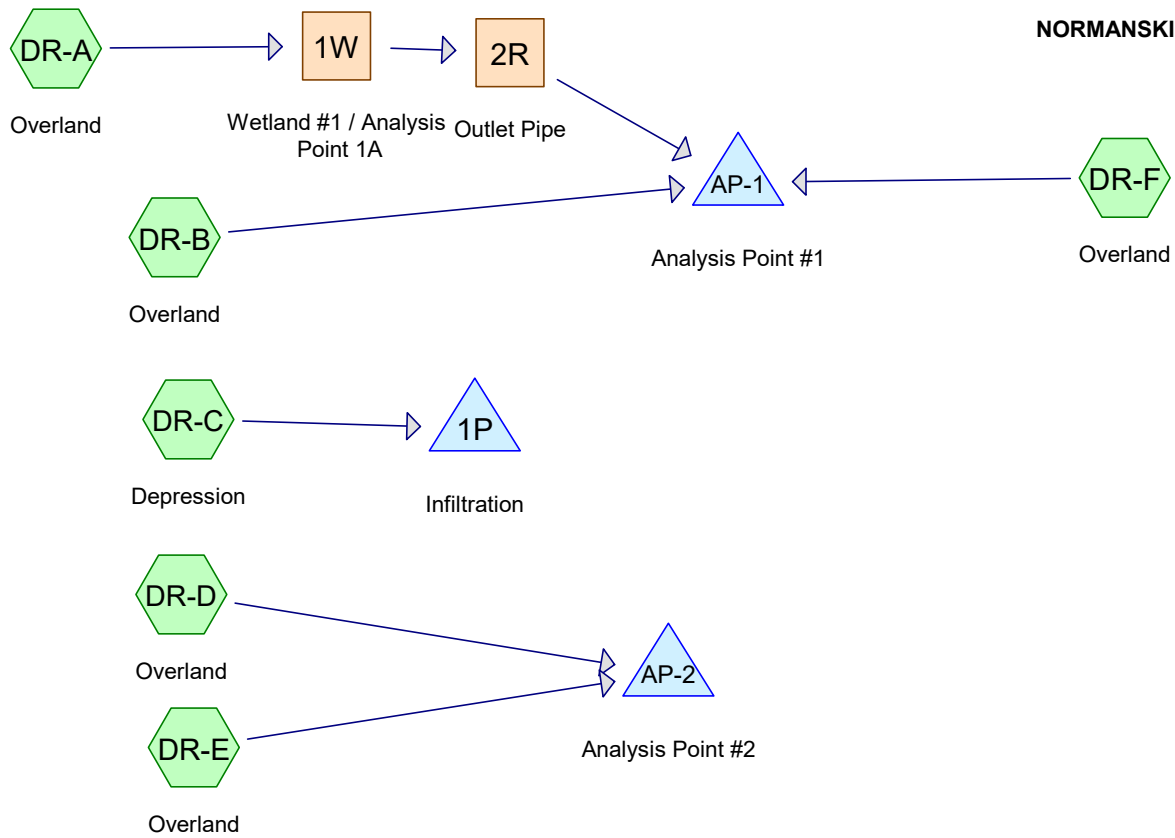
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OF 01



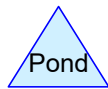
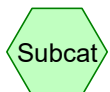
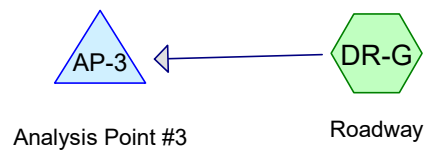
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EXPANSION SITE



NORMANSKILL ST.

OFFSITE IMPROVEMENTS



Routing Diagram for 18641.00-Existing Condition
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18641.00-Existing Condition

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.300	39	>75% Grass cover, Good, HSG A (DR-G)
3.970	77	Brush, Fair, HSG D (DR-C)
1.100	98	Existing Railroad (DR-A)
2.500	96	Gravel surface, HSG D (DR-C)
1.100	98	Pavement (DR-F)
0.460	98	Roadway (DR-G)
87.730	79	Woods, Fair, HSG D (DR-A, DR-B, DR-C, DR-D, DR-E)
11.200	43	Woods/grass comb., Fair, HSG A (DR-F)
108.360	76	TOTAL AREA

18641.00-Existing Condition

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Type II 24-hr 1-Year Rainfall=2.20"

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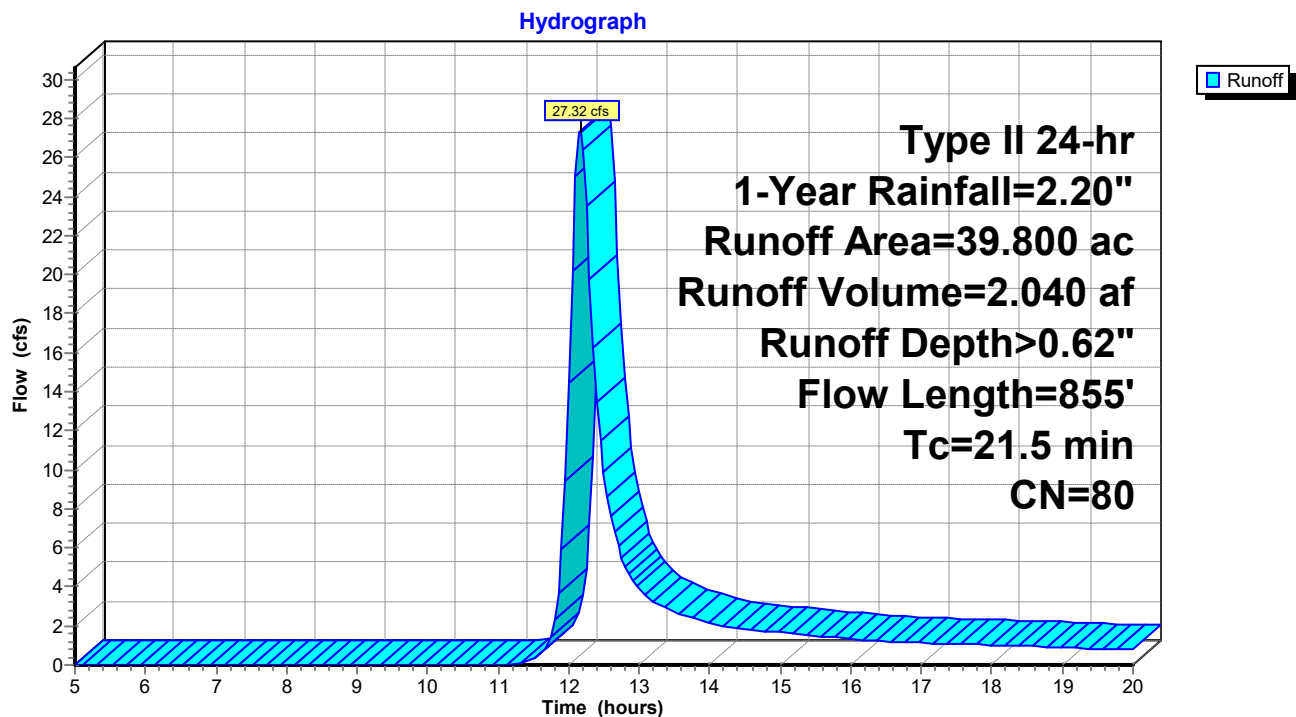
Summary for Subcatchment DR-A: Overland

Runoff = 27.32 cfs @ 12.16 hrs, Volume= 2.040 af, Depth> 0.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.20"

Area (ac)	CN	Description
38.700	79	Woods, Fair, HSG D
* 1.100	98	Existing Railroad
39.800	80	Weighted Average
38.700		97.24% Pervious Area
1.100		2.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	150	0.1500	0.17		Sheet Flow, Sheet Flow Woods: Light underbrush n= 0.400 P2= 2.67"
4.8	575	0.1600	2.00		Shallow Concentrated Flow, Shallow Concentrated Woodland Kv= 5.0 fps
2.2	130	0.0400	1.00		Shallow Concentrated Flow, Shallow Concentrated Woodland Kv= 5.0 fps
21.5	855	Total			

Subcatchment DR-A: Overland

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Type II 24-hr 1-Year Rainfall=2.20"

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Summary for Subcatchment DR-B: Overland

Runoff = 2.64 cfs @ 11.98 hrs, Volume= 0.115 af, Depth> 0.58"

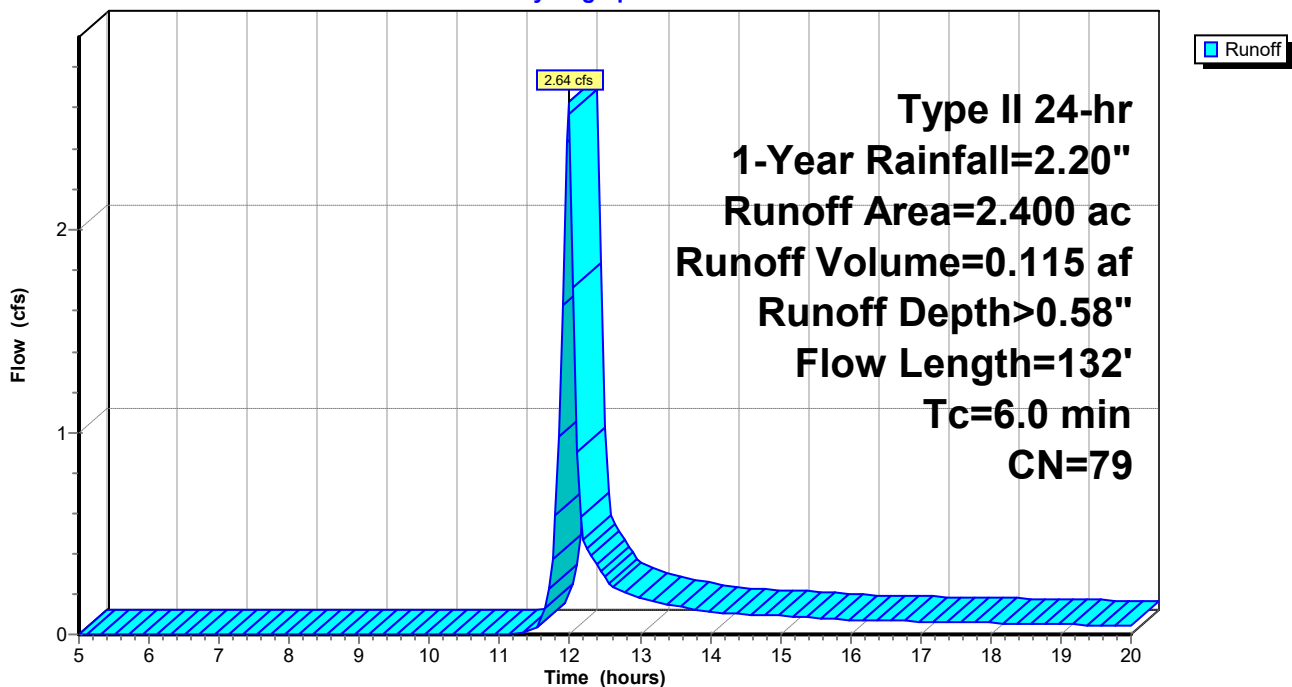
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.20"

Area (ac)	CN	Description
2.400	79	Woods, Fair, HSG D
2.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	132		0.37		Direct Entry, Sheet Flow

Subcatchment DR-B: Overland

Hydrograph



18641.00-Existing Condition

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Type II 24-hr 1-Year Rainfall=2.20"

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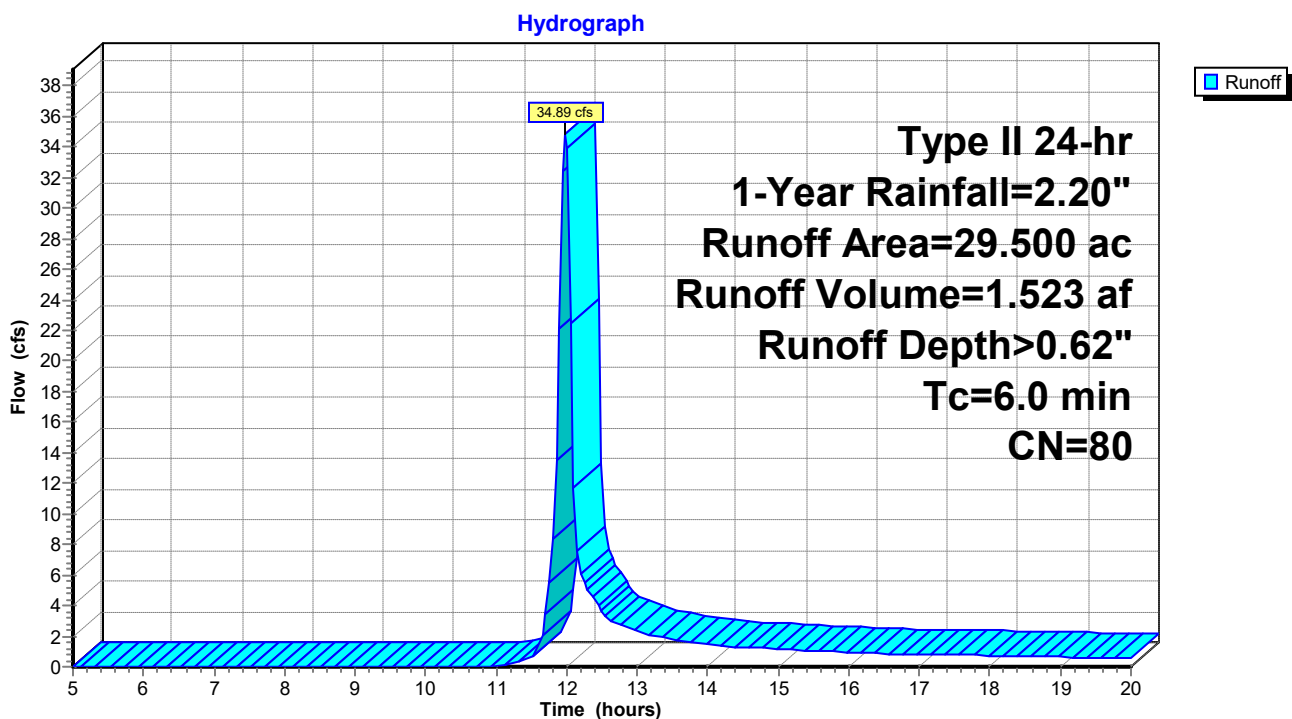
Summary for Subcatchment DR-C: Depression

Runoff = 34.89 cfs @ 11.98 hrs, Volume= 1.523 af, Depth> 0.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.20"

Area (ac)	CN	Description
3.970	77	Brush, Fair, HSG D
2.500	96	Gravel surface, HSG D
23.030	79	Woods, Fair, HSG D
29.500	80	Weighted Average
29.500		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Min

Subcatchment DR-C: Depression

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Type II 24-hr 1-Year Rainfall=2.20"

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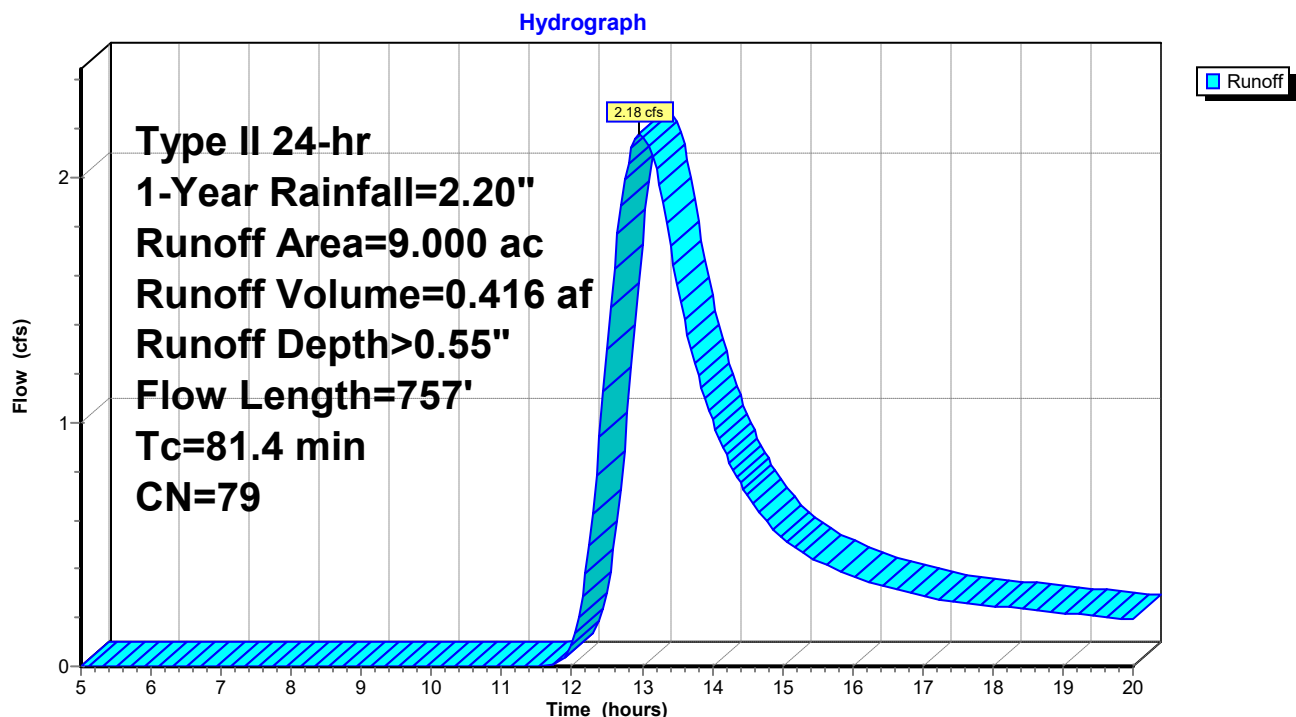
Summary for Subcatchment DR-D: Overland

Runoff = 2.18 cfs @ 12.96 hrs, Volume= 0.416 af, Depth> 0.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.20"

Area (ac)	CN	Description
9.000	79	Woods, Fair, HSG D
9.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
56.6	150	0.0050	0.04		Sheet Flow, Sheet Flow
					Woods: Light underbrush n= 0.400 P2= 2.67"
23.9	507	0.0050	0.35		Shallow Concentrated Flow, Shallow Concentrated
					Woodland Kv= 5.0 fps
0.9	100	0.1300	1.80		Shallow Concentrated Flow, Shallow Concentrated
					Woodland Kv= 5.0 fps
81.4	757	Total			

Subcatchment DR-D: Overland

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Type II 24-hr 1-Year Rainfall=2.20"

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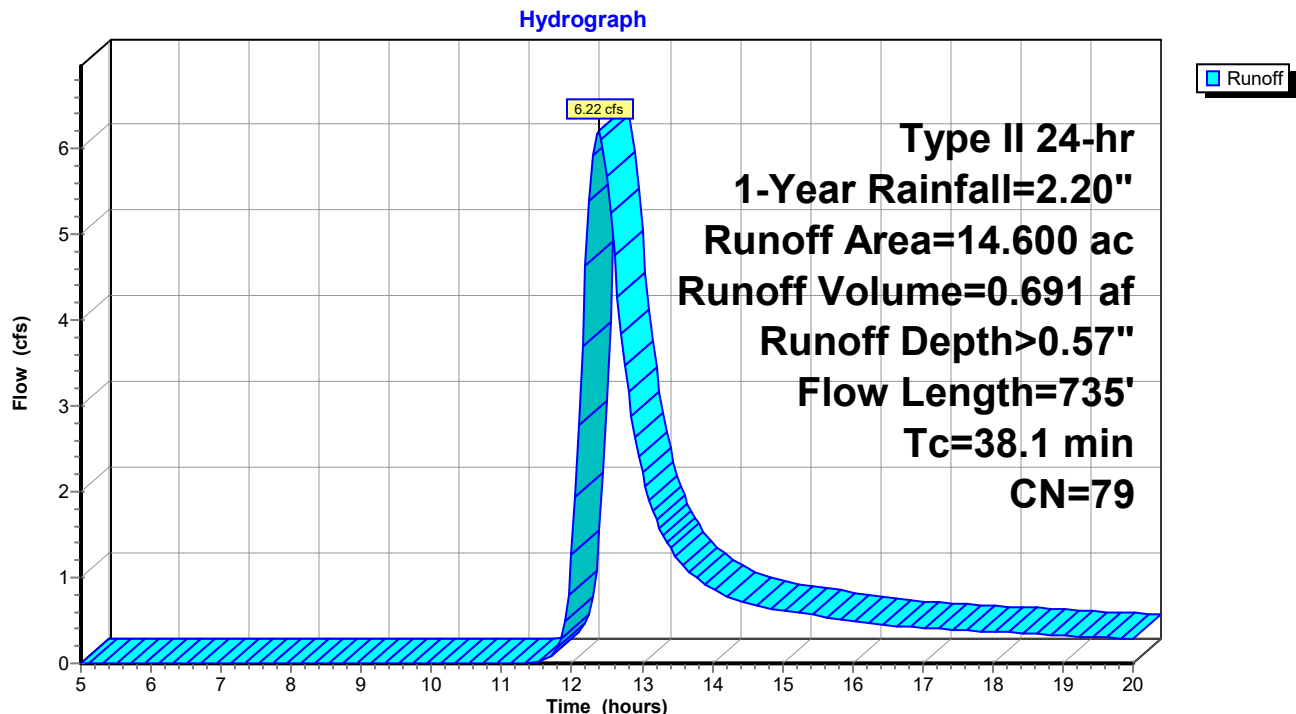
Summary for Subcatchment DR-E: Overland

Runoff = 6.22 cfs @ 12.38 hrs, Volume= 0.691 af, Depth> 0.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.20"

Area (ac)	CN	Description
14.600	79	Woods, Fair, HSG D
14.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.6	150	0.0300	0.09		Sheet Flow, Sheet Flow Woods: Light underbrush n= 0.400 P2= 2.67"
9.8	510	0.0300	0.87		Shallow Concentrated Flow, Shallow Concentrated Woodland Kv= 5.0 fps
0.7	75	0.1200	1.73		Shallow Concentrated Flow, Shallow Concentrated Woodland Kv= 5.0 fps
38.1	735	Total			

Subcatchment DR-E: Overland

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Type II 24-hr 1-Year Rainfall=2.20"

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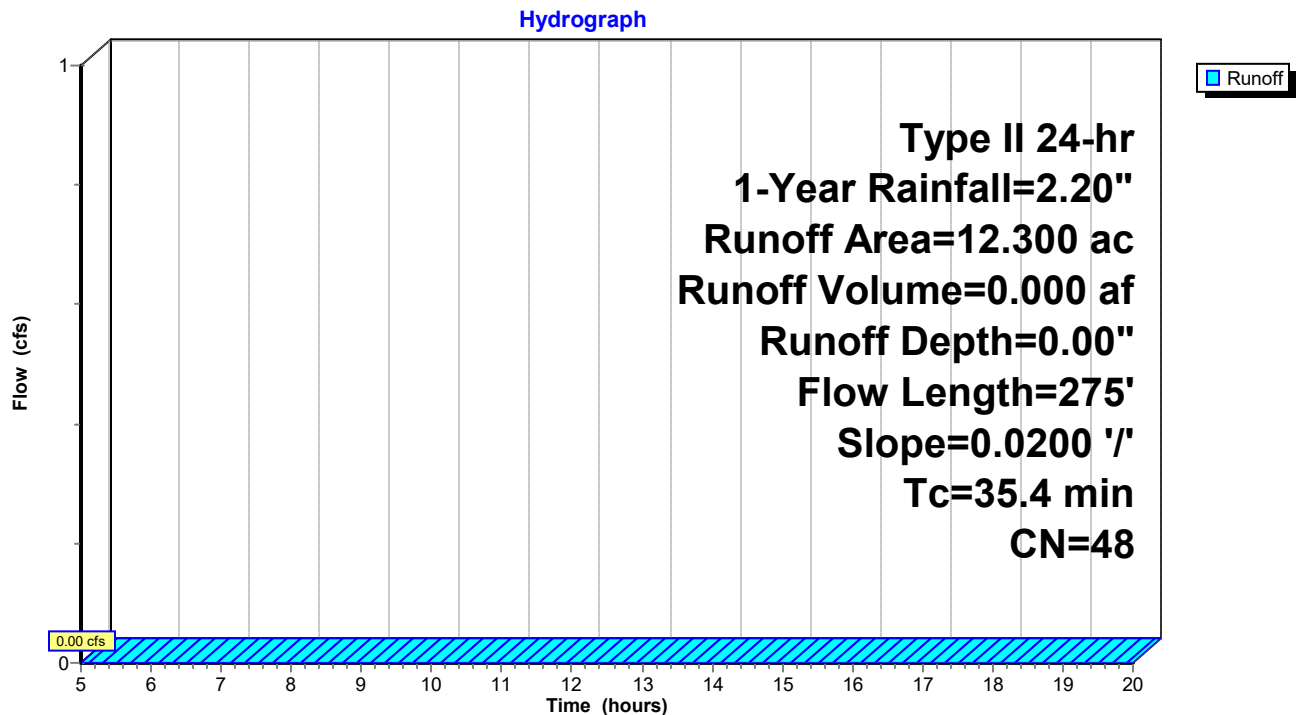
Summary for Subcatchment DR-F: Overland

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.20"

Area (ac)	CN	Description
* 1.100	98	Pavement
11.200	43	Woods/grass comb., Fair, HSG A
12.300	48	Weighted Average
11.200		91.06% Pervious Area
1.100		8.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
32.5	150	0.0200	0.08		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 2.67"
2.9	125	0.0200	0.71		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
35.4	275	Total			

Subcatchment DR-F: Overland

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Type II 24-hr 1-Year Rainfall=2.20"

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Summary for Subcatchment DR-G: Roadway

Runoff = 0.60 cfs @ 11.99 hrs, Volume= 0.027 af, Depth> 0.43"

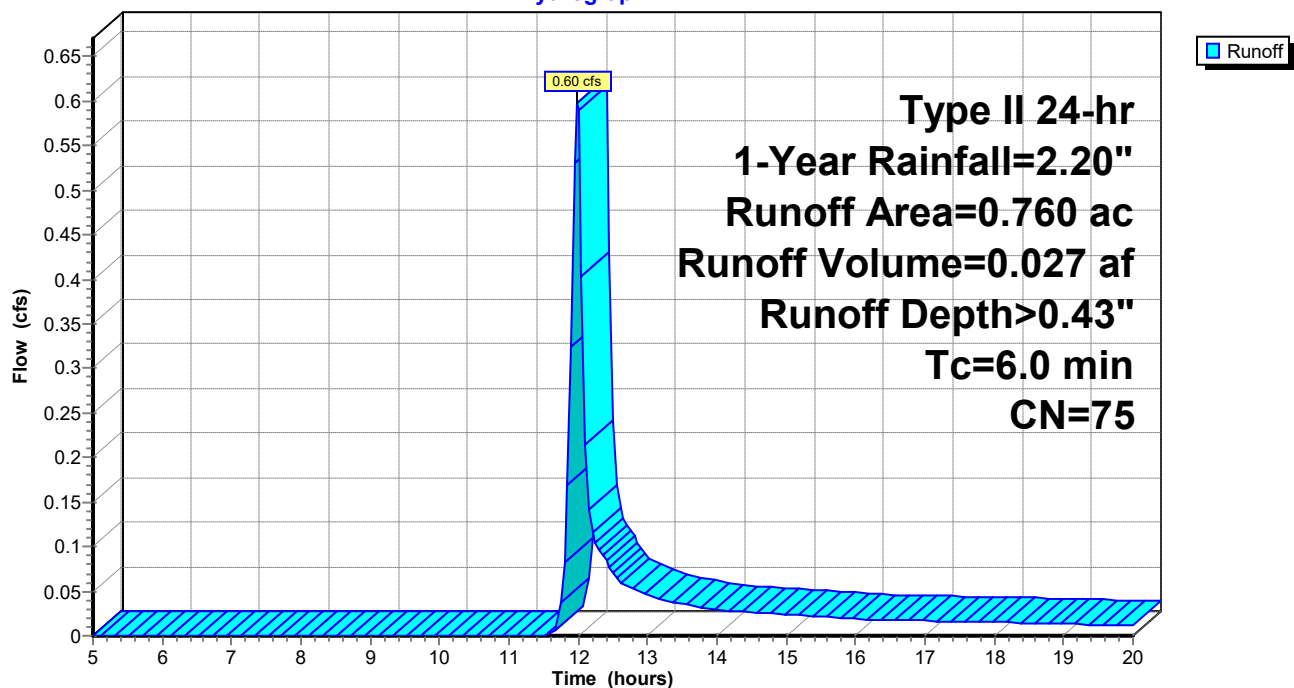
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.20"

Area (ac)	CN	Description
* 0.460	98	Roadway
0.300	39	>75% Grass cover, Good, HSG A
0.760	75	Weighted Average
0.300		39.47% Pervious Area
0.460		60.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Minimum

Subcatchment DR-G: Roadway

Hydrograph



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Type II 24-hr 1-Year Rainfall=2.20"

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Summary for Reach 1W: Wetland #1 / Analysis Point 1A

Inflow Area = 39.800 ac, 2.76% Impervious, Inflow Depth > 0.62" for 1-Year event
Inflow = 27.32 cfs @ 12.16 hrs, Volume= 2.040 af
Outflow = 3.19 cfs @ 17.12 hrs, Volume= 0.898 af, Atten= 88%, Lag= 297.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.07 fps, Min. Travel Time= 232.8 min

Avg. Velocity= 0.05 fps, Avg. Travel Time= 304.0 min

Peak Storage= 44,519 cf @ 13.24 hrs

Average Depth at Peak Storage= 0.22', Surface Width= 201.33'

Bank-Full Depth= 0.50' Flow Area= 100.8 sf, Capacity= 12.36 cfs

200.00' x 0.50' deep channel, n= 0.240 Sheet flow over Dense Grass

Side Slope Z-value= 3.0 '/' Top Width= 203.00'

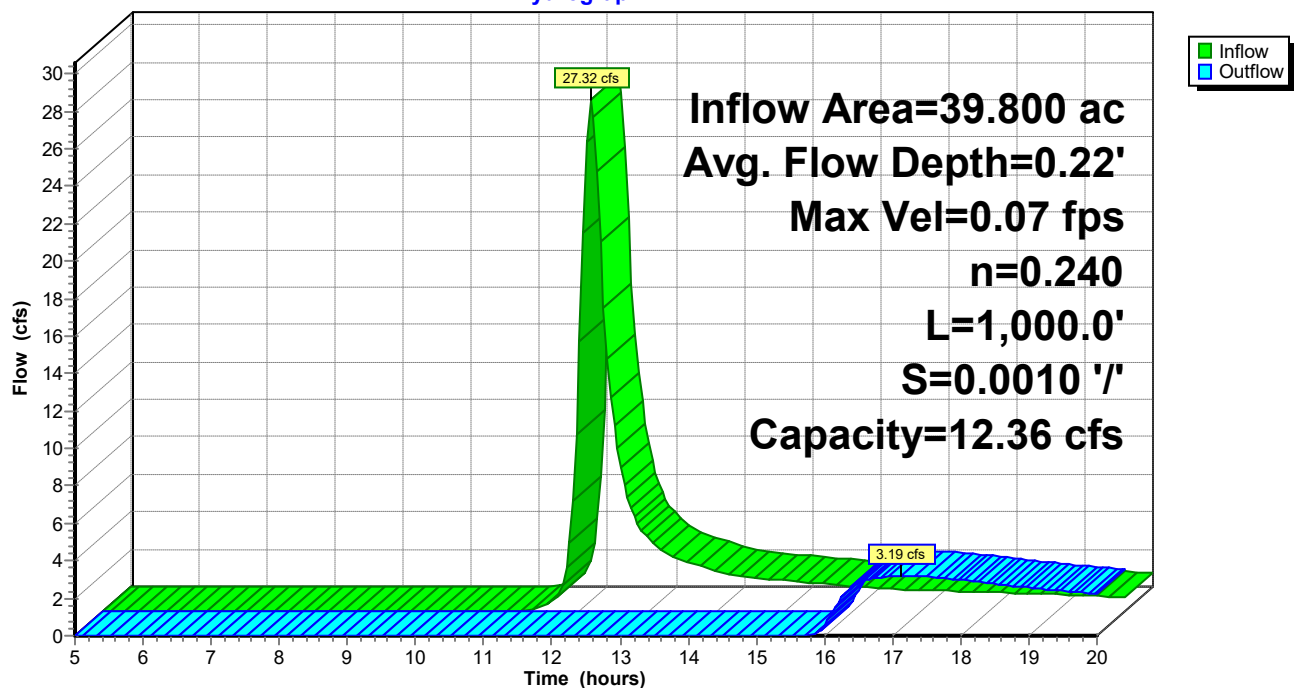
Length= 1,000.0' Slope= 0.0010 '/'

Inlet Invert= 6.00', Outlet Invert= 5.00'



Reach 1W: Wetland #1 / Analysis Point 1A

Hydrograph



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Type II 24-hr 1-Year Rainfall=2.20"

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Summary for Reach 2R: Outlet Pipe

Inflow Area = 39.800 ac, 2.76% Impervious, Inflow Depth > 0.27" for 1-Year event
Inflow = 3.19 cfs @ 17.12 hrs, Volume= 0.898 af
Outflow = 3.19 cfs @ 17.13 hrs, Volume= 0.896 af, Atten= 0%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 4.10 fps, Min. Travel Time= 0.3 min

Avg. Velocity= 3.35 fps, Avg. Travel Time= 0.3 min

Peak Storage= 54 cf @ 17.12 hrs

Average Depth at Peak Storage= 0.48', Surface Width= 2.34'

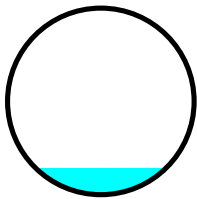
Bank-Full Depth= 3.33' Flow Area= 8.7 sf, Capacity= 70.83 cfs

40.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

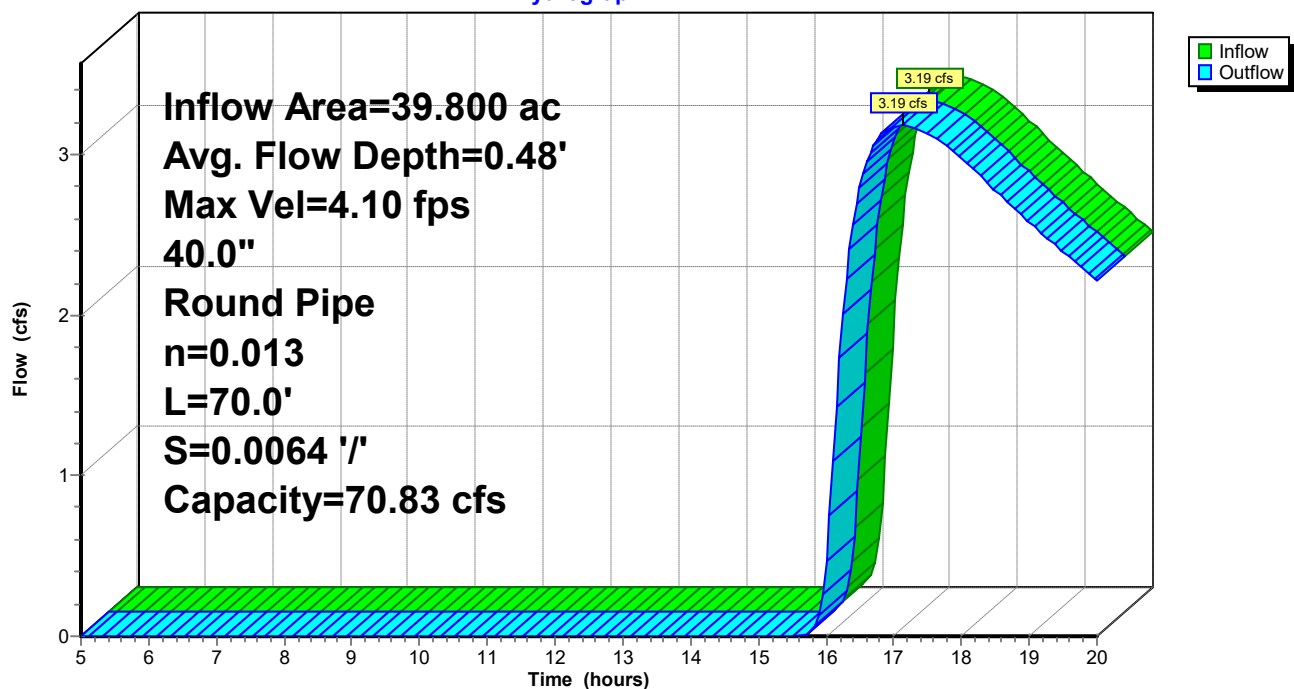
Length= 70.0' Slope= 0.0064 '/'

Inlet Invert= 4.25', Outlet Invert= 3.80'



Reach 2R: Outlet Pipe

Hydrograph



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Type II 24-hr 1-Year Rainfall=2.20"

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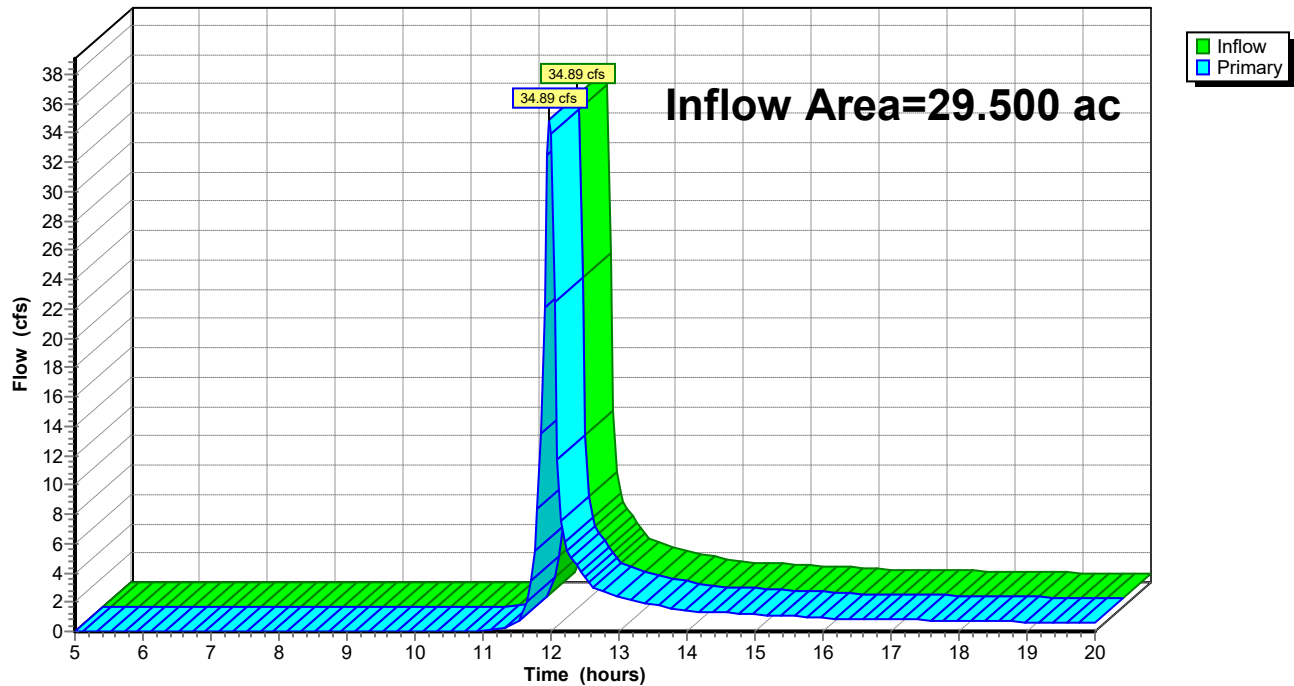
Summary for Pond 1P: Infiltration

Inflow Area = 29.500 ac, 0.00% Impervious, Inflow Depth > 0.62" for 1-Year event
Inflow = 34.89 cfs @ 11.98 hrs, Volume= 1.523 af
Primary = 34.89 cfs @ 11.98 hrs, Volume= 1.523 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond 1P: Infiltration

Hydrograph



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Type II 24-hr 1-Year Rainfall=2.20"

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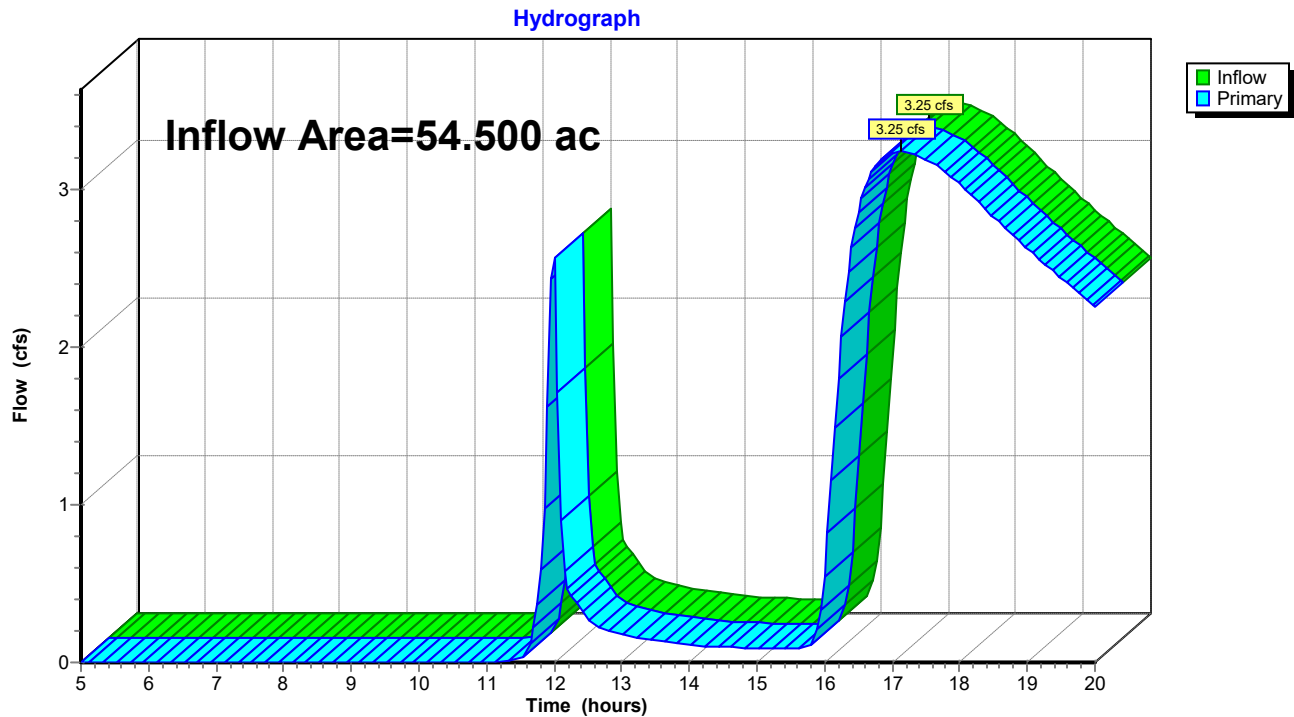
Page 13

Summary for Pond AP-1: Analysis Point #1

Inflow Area = 54.500 ac, 4.04% Impervious, Inflow Depth > 0.22" for 1-Year event
Inflow = 3.25 cfs @ 17.12 hrs, Volume= 1.012 af
Primary = 3.25 cfs @ 17.12 hrs, Volume= 1.012 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond AP-1: Analysis Point #1



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Type II 24-hr 1-Year Rainfall=2.20"

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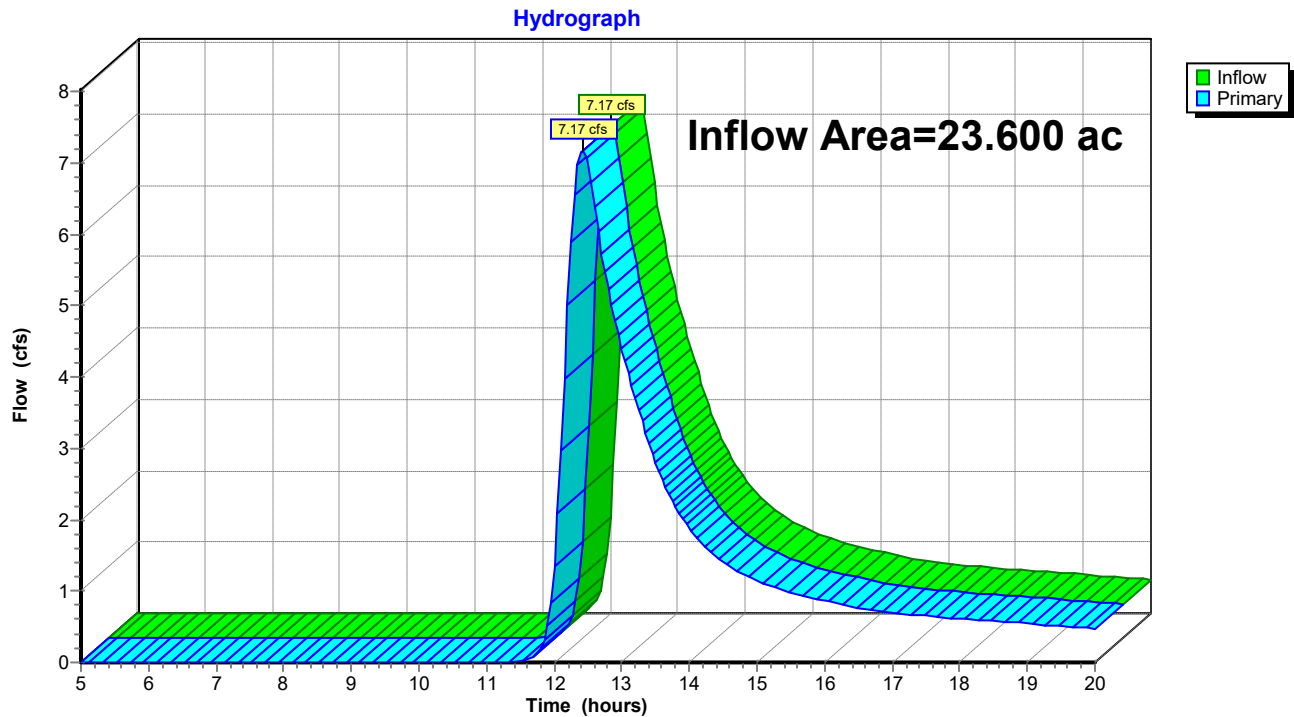
Page 14

Summary for Pond AP-2: Analysis Point #2

Inflow Area = 23.600 ac, 0.00% Impervious, Inflow Depth > 0.56" for 1-Year event
Inflow = 7.17 cfs @ 12.42 hrs, Volume= 1.107 af
Primary = 7.17 cfs @ 12.42 hrs, Volume= 1.107 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond AP-2: Analysis Point #2



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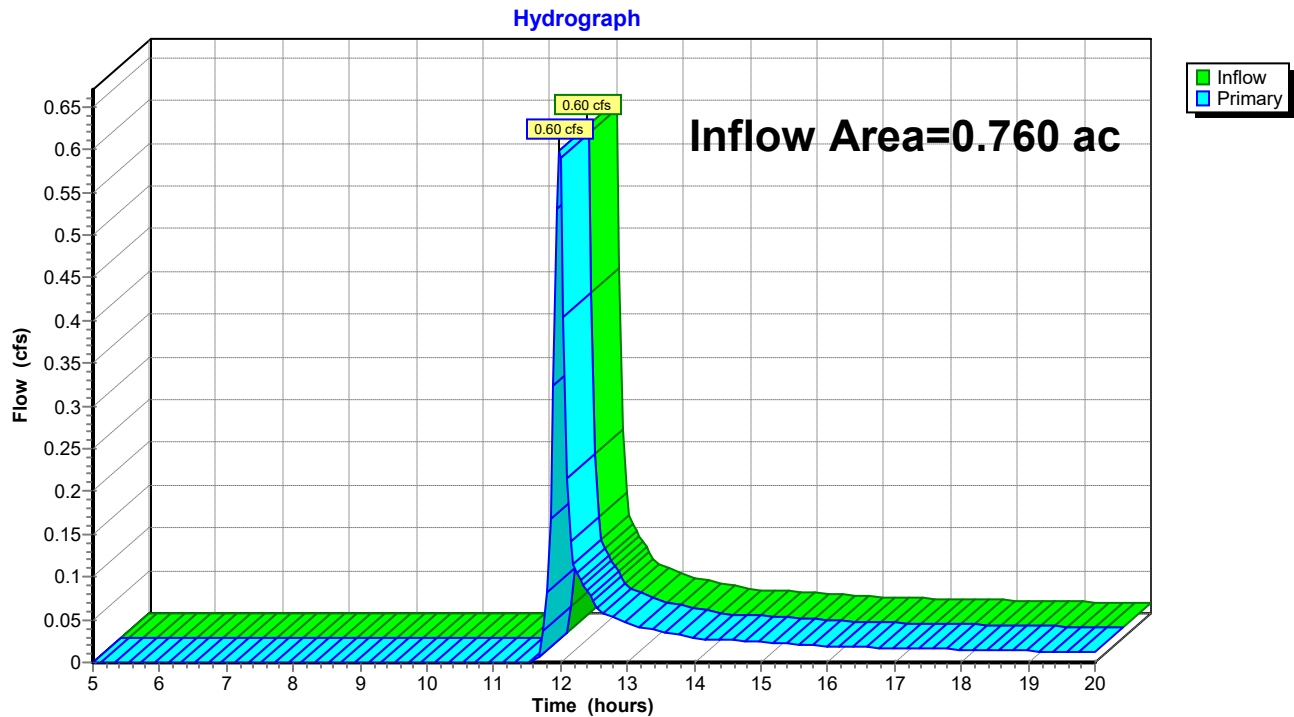
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Summary for Pond AP-3: Analysis Point #3

Inflow Area = 0.760 ac, 60.53% Impervious, Inflow Depth > 0.43" for 1-Year event
Inflow = 0.60 cfs @ 11.99 hrs, Volume= 0.027 af
Primary = 0.60 cfs @ 11.99 hrs, Volume= 0.027 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond AP-3: Analysis Point #3



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Type II 24-hr 10-Year Rainfall=3.63"

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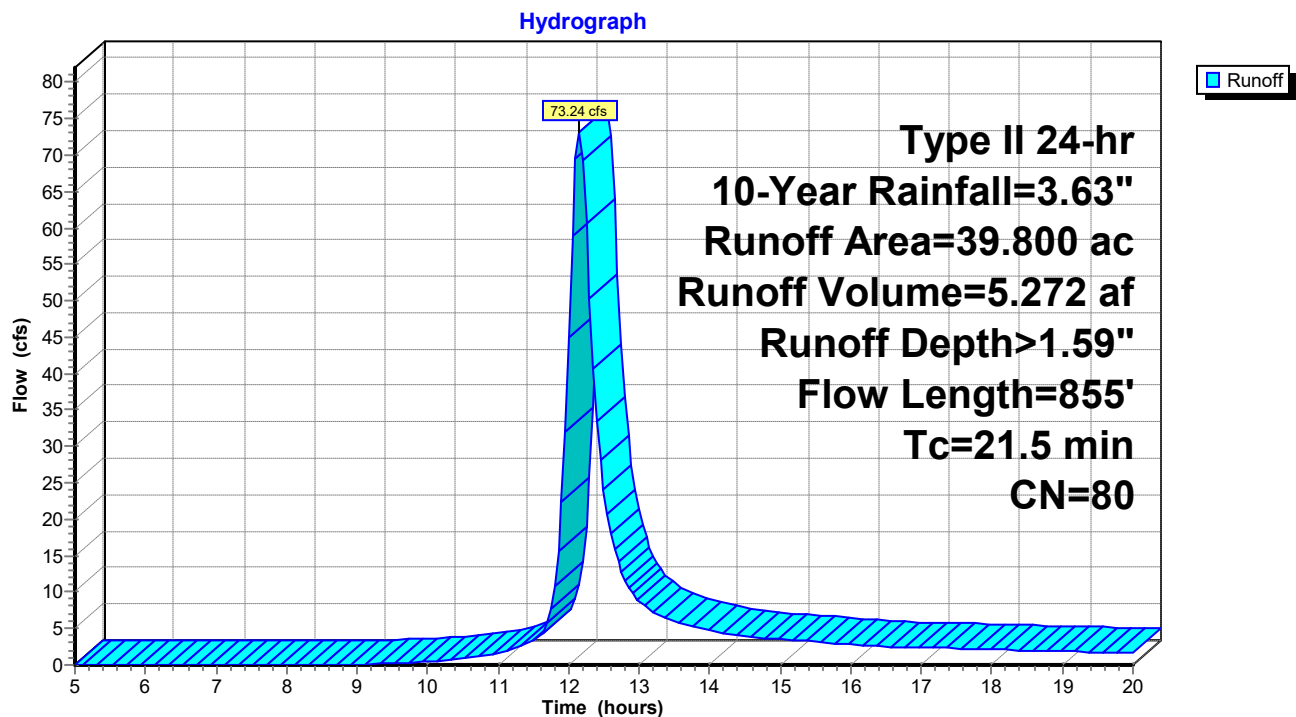
Summary for Subcatchment DR-A: Overland

Runoff = 73.24 cfs @ 12.15 hrs, Volume= 5.272 af, Depth> 1.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=3.63"

Area (ac)	CN	Description
38.700	79	Woods, Fair, HSG D
* 1.100	98	Existing Railroad
39.800	80	Weighted Average
38.700		97.24% Pervious Area
1.100		2.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	150	0.1500	0.17		Sheet Flow, Sheet Flow Woods: Light underbrush n= 0.400 P2= 2.67"
4.8	575	0.1600	2.00		Shallow Concentrated Flow, Shallow Concentrated Woodland Kv= 5.0 fps
2.2	130	0.0400	1.00		Shallow Concentrated Flow, Shallow Concentrated Woodland Kv= 5.0 fps
21.5	855	Total			

Subcatchment DR-A: Overland

18641.00-Existing Condition

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Type II 24-hr 10-Year Rainfall=3.63"

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Summary for Subcatchment DR-B: Overland

Runoff = 6.90 cfs @ 11.97 hrs, Volume= 0.306 af, Depth> 1.53"

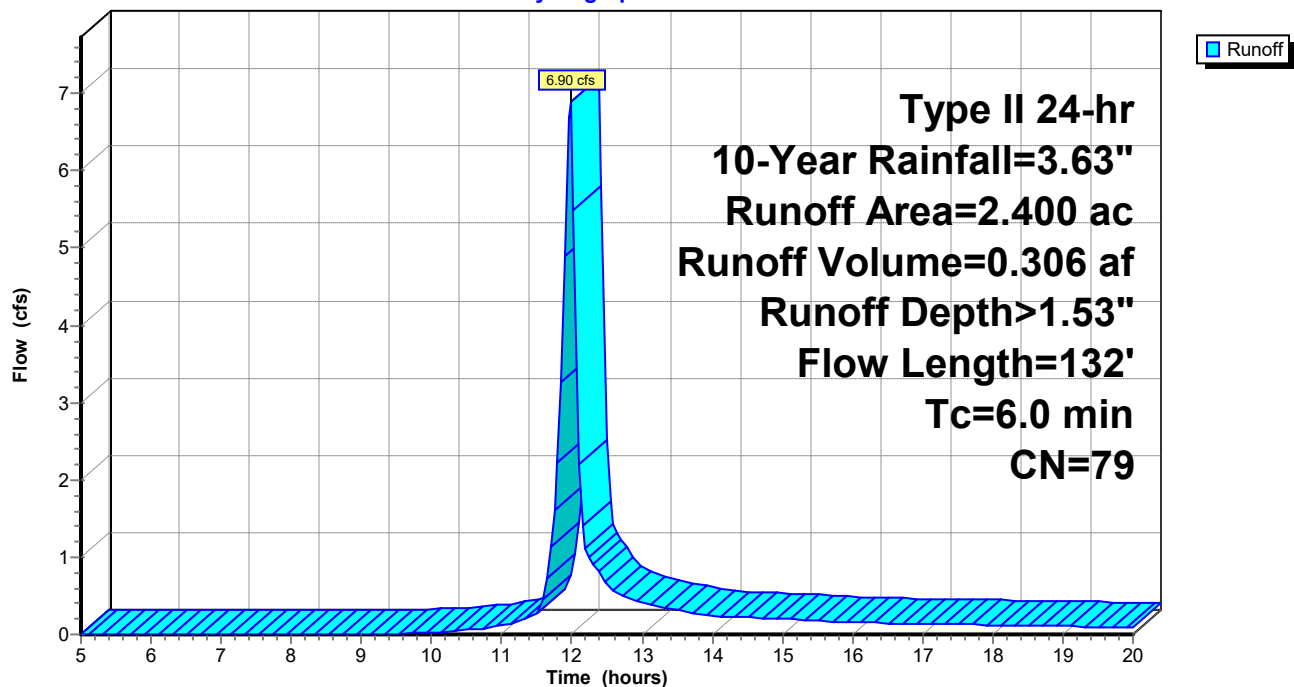
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=3.63"

Area (ac)	CN	Description
2.400	79	Woods, Fair, HSG D
2.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	132		0.37		Direct Entry, Sheet Flow

Subcatchment DR-B: Overland

Hydrograph



18641.00-Existing Condition

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Type II 24-hr 10-Year Rainfall=3.63"

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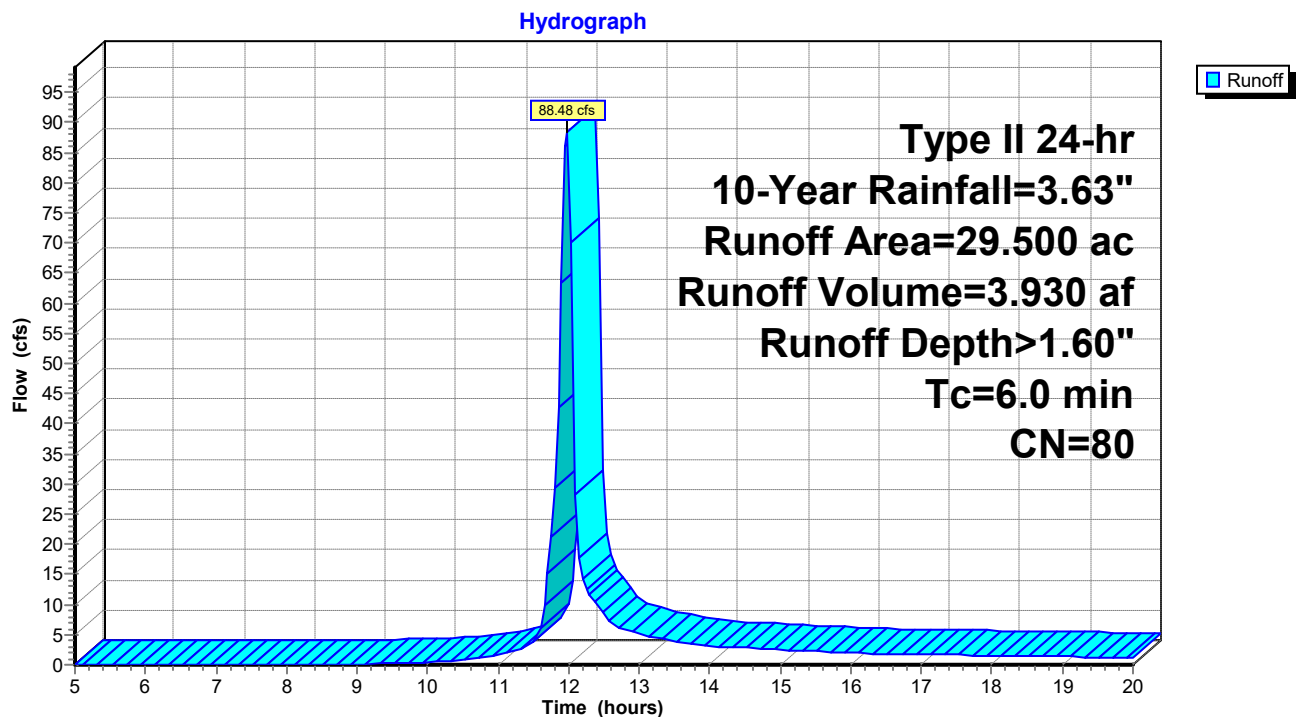
Summary for Subcatchment DR-C: Depression

Runoff = 88.48 cfs @ 11.97 hrs, Volume= 3.930 af, Depth> 1.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=3.63"

Area (ac)	CN	Description
3.970	77	Brush, Fair, HSG D
2.500	96	Gravel surface, HSG D
23.030	79	Woods, Fair, HSG D
29.500	80	Weighted Average
29.500		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Min

Subcatchment DR-C: Depression

18641.00-Existing Condition

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Type II 24-hr 10-Year Rainfall=3.63"

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Summary for Subcatchment DR-D: Overland

Runoff = 6.25 cfs @ 12.93 hrs, Volume= 1.110 af, Depth> 1.48"

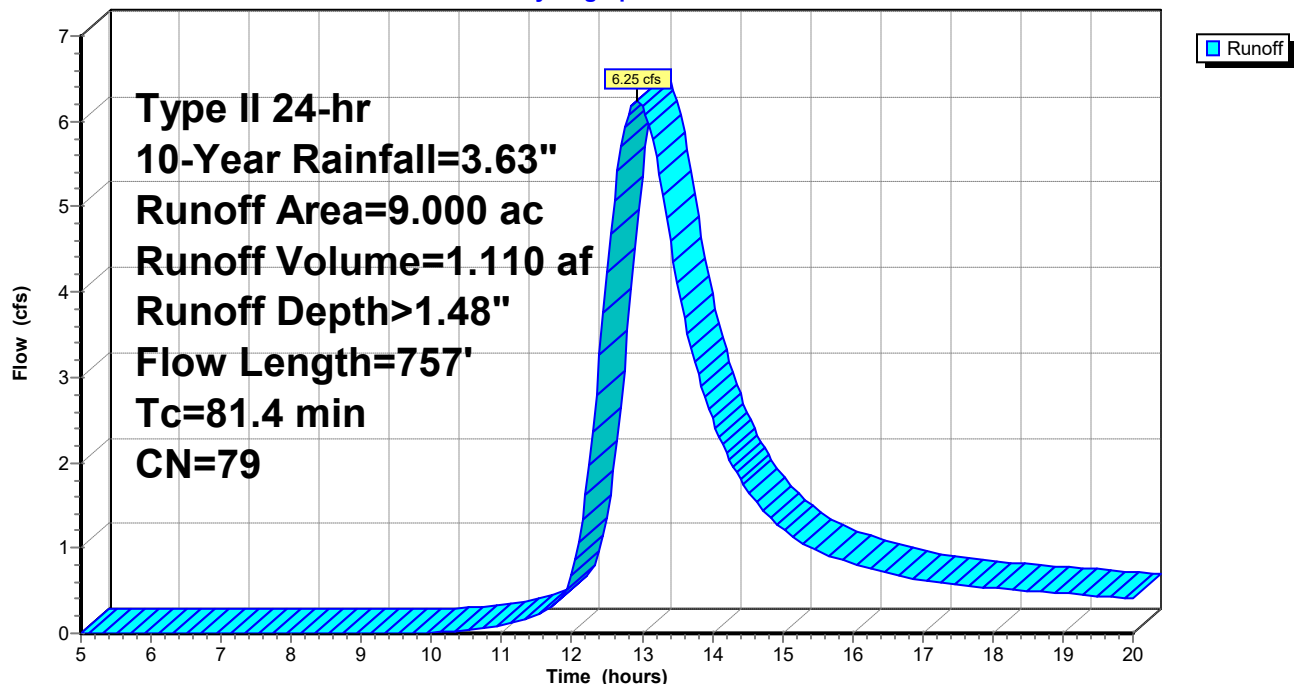
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=3.63"

Area (ac)	CN	Description
9.000	79	Woods, Fair, HSG D
9.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
56.6	150	0.0050	0.04		Sheet Flow, Sheet Flow
					Woods: Light underbrush n= 0.400 P2= 2.67"
23.9	507	0.0050	0.35		Shallow Concentrated Flow, Shallow Concentrated
					Woodland Kv= 5.0 fps
0.9	100	0.1300	1.80		Shallow Concentrated Flow, Shallow Concentrated
					Woodland Kv= 5.0 fps
81.4	757	Total			

Subcatchment DR-D: Overland

Hydrograph



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Type II 24-hr 10-Year Rainfall=3.63"

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Summary for Subcatchment DR-E: Overland

Runoff = 17.64 cfs @ 12.35 hrs, Volume= 1.837 af, Depth> 1.51"

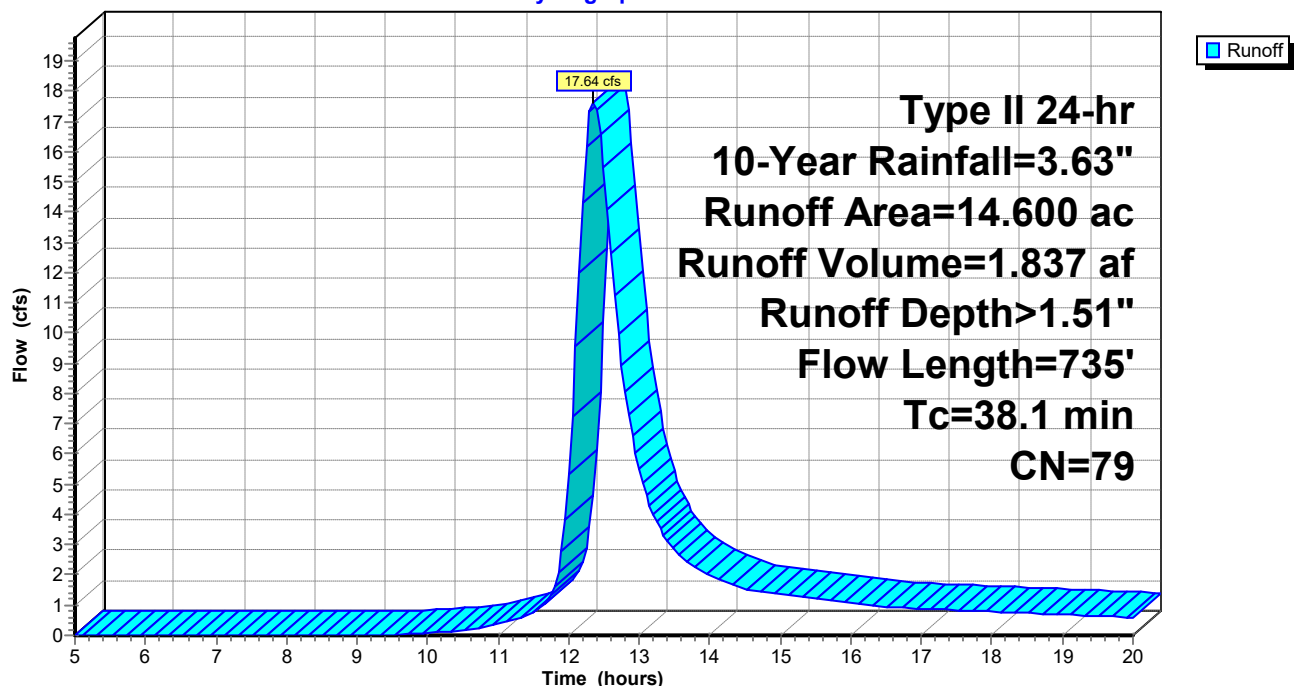
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=3.63"

Area (ac)	CN	Description
14.600	79	Woods, Fair, HSG D
14.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.6	150	0.0300	0.09		Sheet Flow, Sheet Flow Woods: Light underbrush n= 0.400 P2= 2.67"
9.8	510	0.0300	0.87		Shallow Concentrated Flow, Shallow Concentrated Woodland Kv= 5.0 fps
0.7	75	0.1200	1.73		Shallow Concentrated Flow, Shallow Concentrated Woodland Kv= 5.0 fps
38.1	735	Total			

Subcatchment DR-E: Overland

Hydrograph



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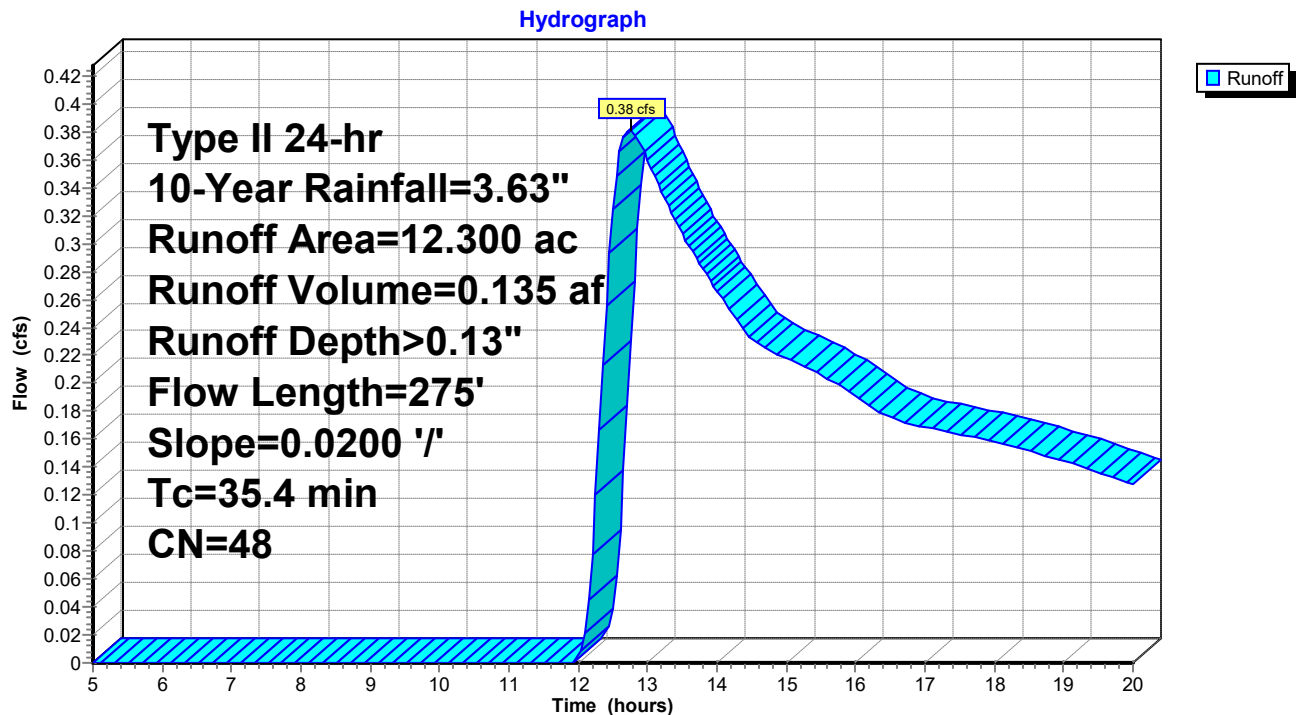
Summary for Subcatchment DR-F: Overland

Runoff = 0.38 cfs @ 12.75 hrs, Volume= 0.135 af, Depth> 0.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=3.63"

Area (ac)	CN	Description
* 1.100	98	Pavement
11.200	43	Woods/grass comb., Fair, HSG A
12.300	48	Weighted Average
11.200		91.06% Pervious Area
1.100		8.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
32.5	150	0.0200	0.08		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 2.67"
2.9	125	0.0200	0.71		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
35.4	275	Total			

Subcatchment DR-F: Overland

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Type II 24-hr 10-Year Rainfall=3.63"

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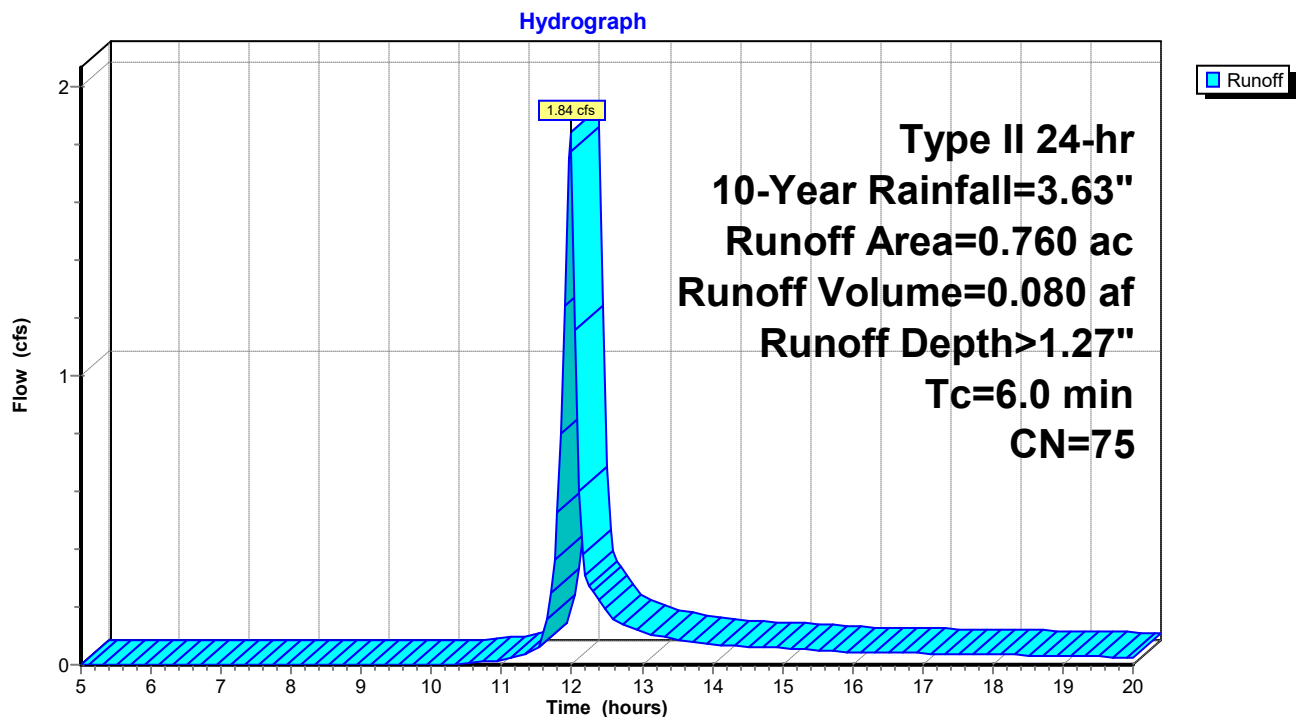
Summary for Subcatchment DR-G: Roadway

Runoff = 1.84 cfs @ 11.98 hrs, Volume= 0.080 af, Depth> 1.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=3.63"

Area (ac)	CN	Description
* 0.460	98	Roadway
0.300	39	>75% Grass cover, Good, HSG A
0.760	75	Weighted Average
0.300		39.47% Pervious Area
0.460		60.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Minimum

Subcatchment DR-G: Roadway

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Type II 24-hr 10-Year Rainfall=3.63"

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Summary for Reach 1W: Wetland #1 / Analysis Point 1A

Inflow Area = 39.800 ac, 2.76% Impervious, Inflow Depth > 1.59" for 10-Year event
Inflow = 73.24 cfs @ 12.15 hrs, Volume= 5.272 af
Outflow = 14.53 cfs @ 14.82 hrs, Volume= 3.841 af, Atten= 80%, Lag= 160.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.13 fps, Min. Travel Time= 127.8 min

Avg. Velocity= 0.07 fps, Avg. Travel Time= 239.5 min

Peak Storage= 111,494 cf @ 12.69 hrs

Average Depth at Peak Storage= 0.55', Surface Width= 203.32'

Bank-Full Depth= 0.50' Flow Area= 100.8 sf, Capacity= 12.36 cfs

200.00' x 0.50' deep channel, n= 0.240 Sheet flow over Dense Grass

Side Slope Z-value= 3.0 '/' Top Width= 203.00'

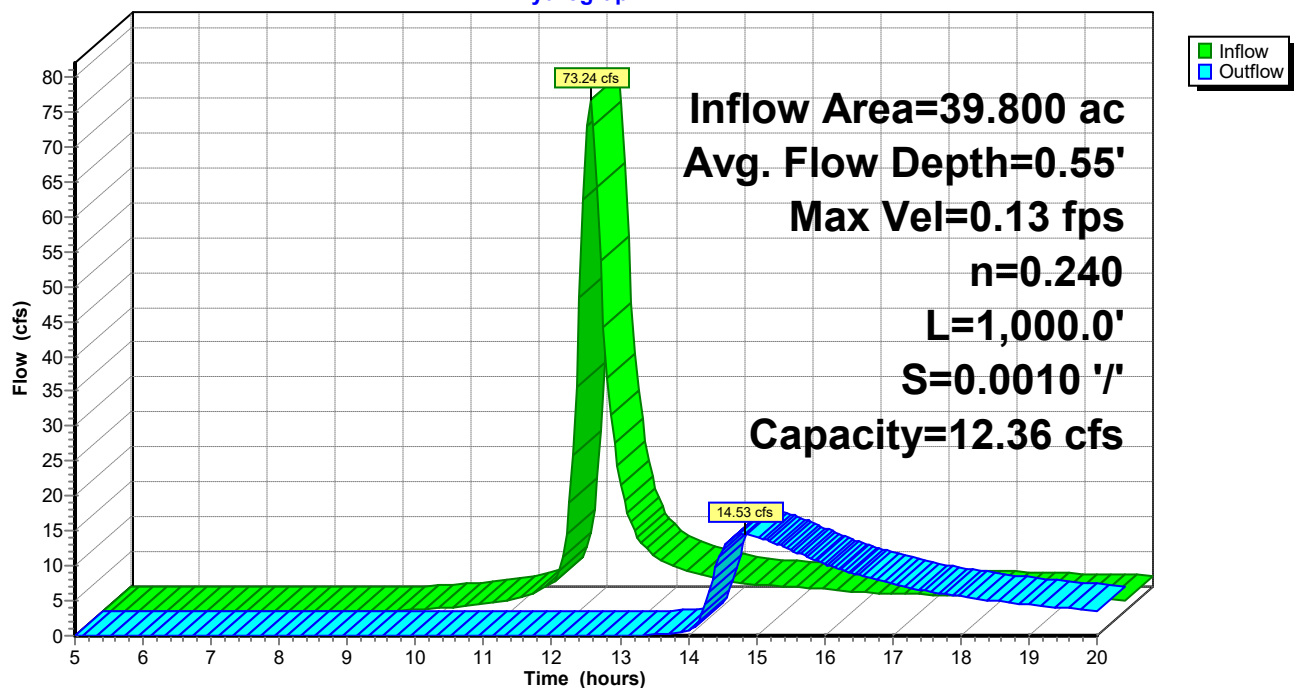
Length= 1,000.0' Slope= 0.0010 '/'

Inlet Invert= 6.00', Outlet Invert= 5.00'



Reach 1W: Wetland #1 / Analysis Point 1A

Hydrograph



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Type II 24-hr 10-Year Rainfall=3.63"

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Summary for Reach 2R: Outlet Pipe

Inflow Area = 39.800 ac, 2.76% Impervious, Inflow Depth > 1.16" for 10-Year event
Inflow = 14.53 cfs @ 14.82 hrs, Volume= 3.841 af
Outflow = 14.53 cfs @ 14.83 hrs, Volume= 3.838 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 6.38 fps, Min. Travel Time= 0.2 min

Avg. Velocity= 3.89 fps, Avg. Travel Time= 0.3 min

Peak Storage= 159 cf @ 14.82 hrs

Average Depth at Peak Storage= 1.02', Surface Width= 3.08'

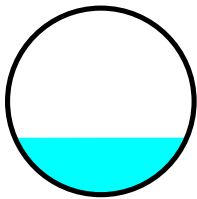
Bank-Full Depth= 3.33' Flow Area= 8.7 sf, Capacity= 70.83 cfs

40.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

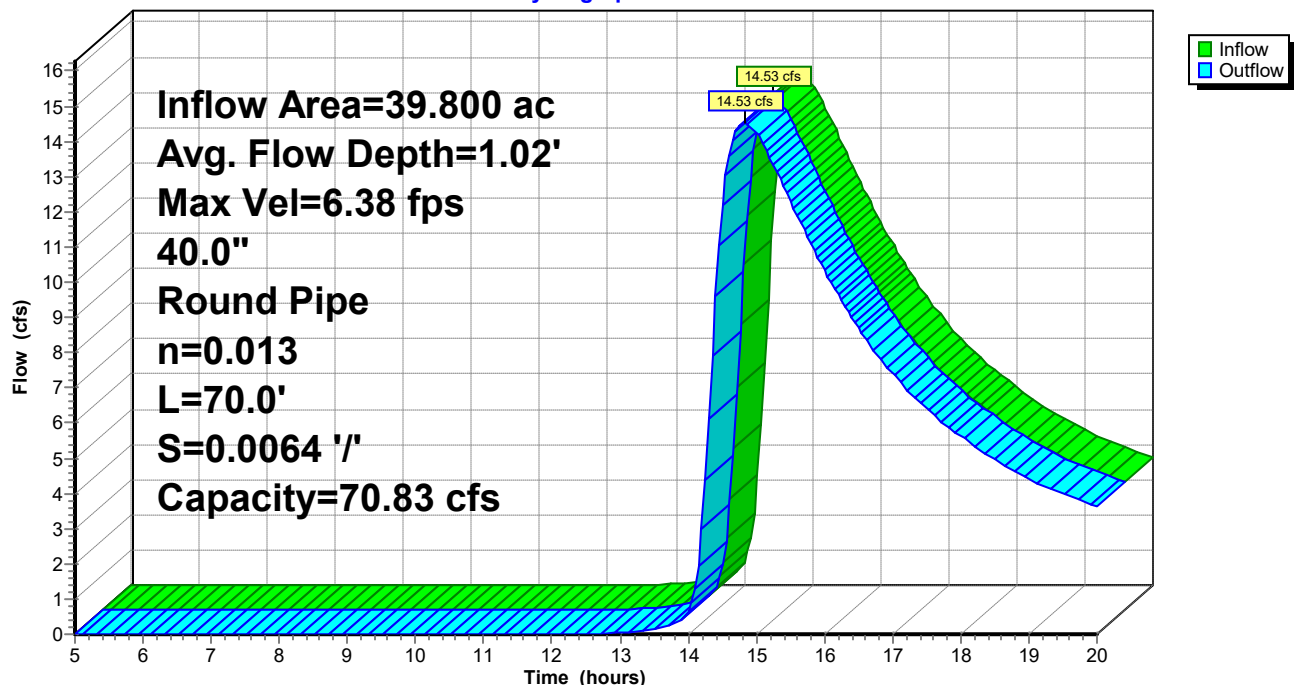
Length= 70.0' Slope= 0.0064 '/'

Inlet Invert= 4.25', Outlet Invert= 3.80'



Reach 2R: Outlet Pipe

Hydrograph



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Type II 24-hr 10-Year Rainfall=3.63"

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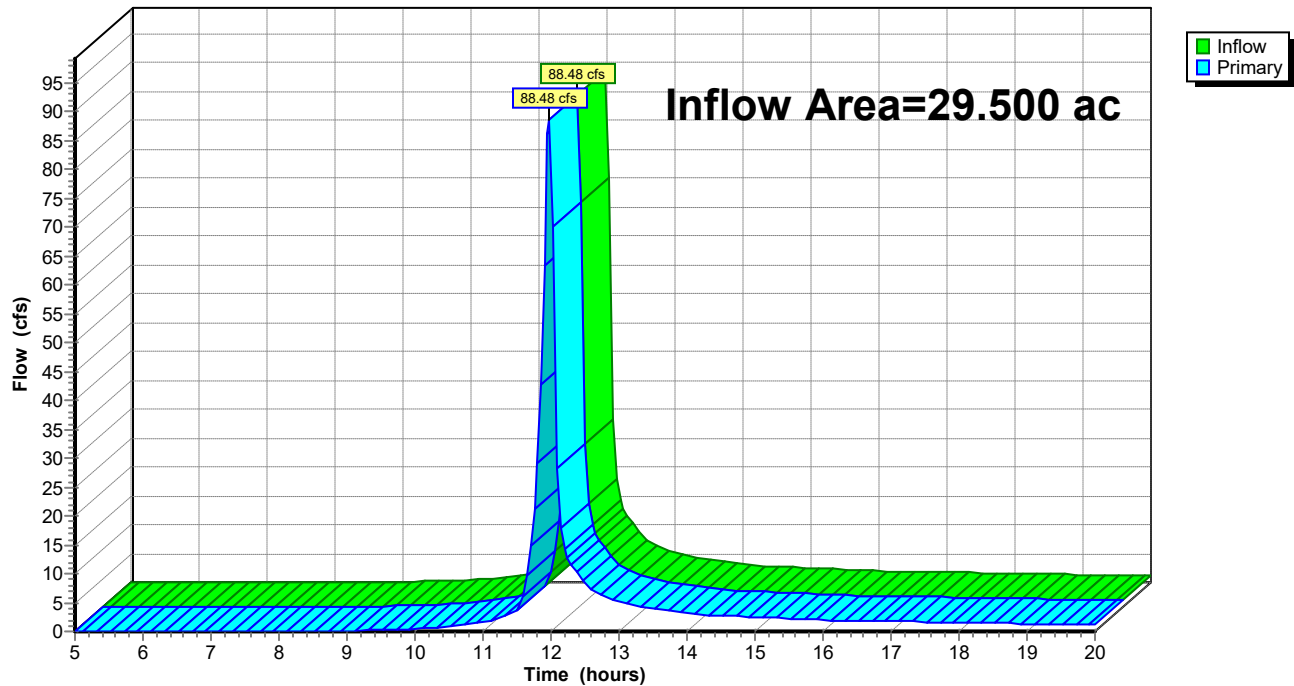
Summary for Pond 1P: Infiltration

Inflow Area = 29.500 ac, 0.00% Impervious, Inflow Depth > 1.60" for 10-Year event
Inflow = 88.48 cfs @ 11.97 hrs, Volume= 3.930 af
Primary = 88.48 cfs @ 11.97 hrs, Volume= 3.930 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond 1P: Infiltration

Hydrograph



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Type II 24-hr 10-Year Rainfall=3.63"

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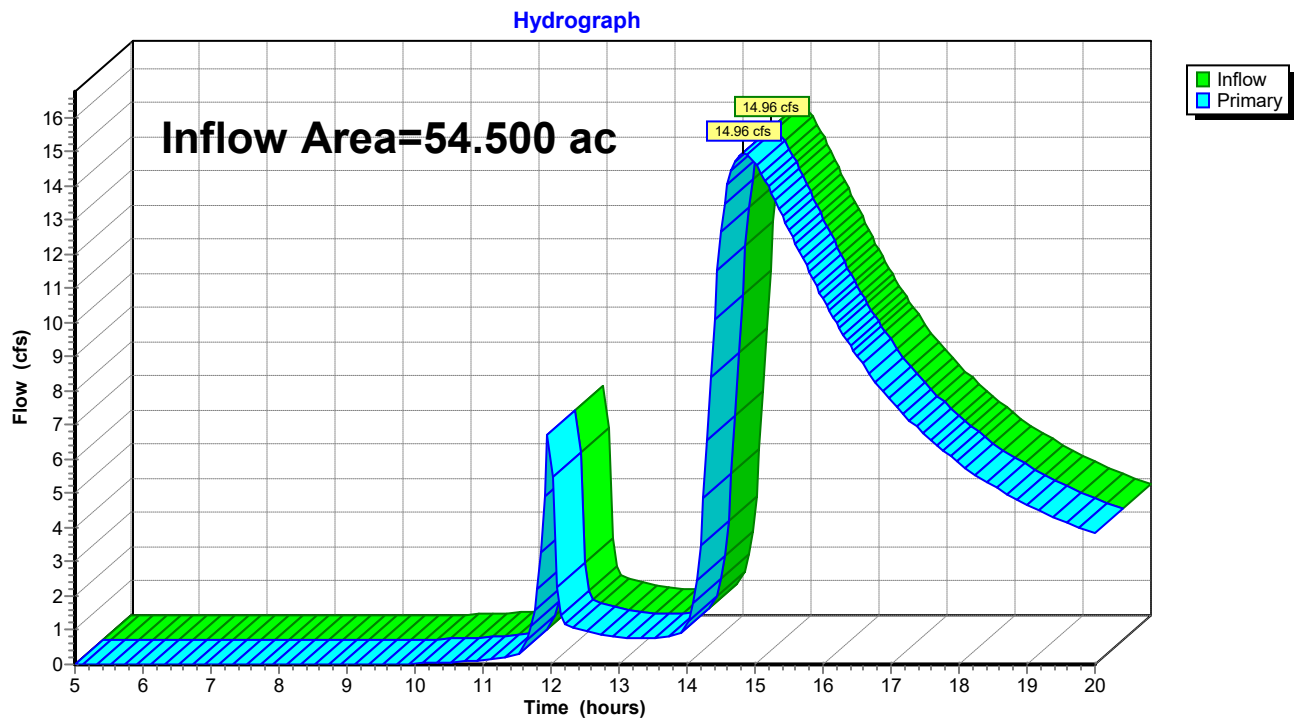
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Summary for Pond AP-1: Analysis Point #1

Inflow Area = 54.500 ac, 4.04% Impervious, Inflow Depth > 0.94" for 10-Year event
Inflow = 14.96 cfs @ 14.82 hrs, Volume= 4.279 af
Primary = 14.96 cfs @ 14.82 hrs, Volume= 4.279 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond AP-1: Analysis Point #1



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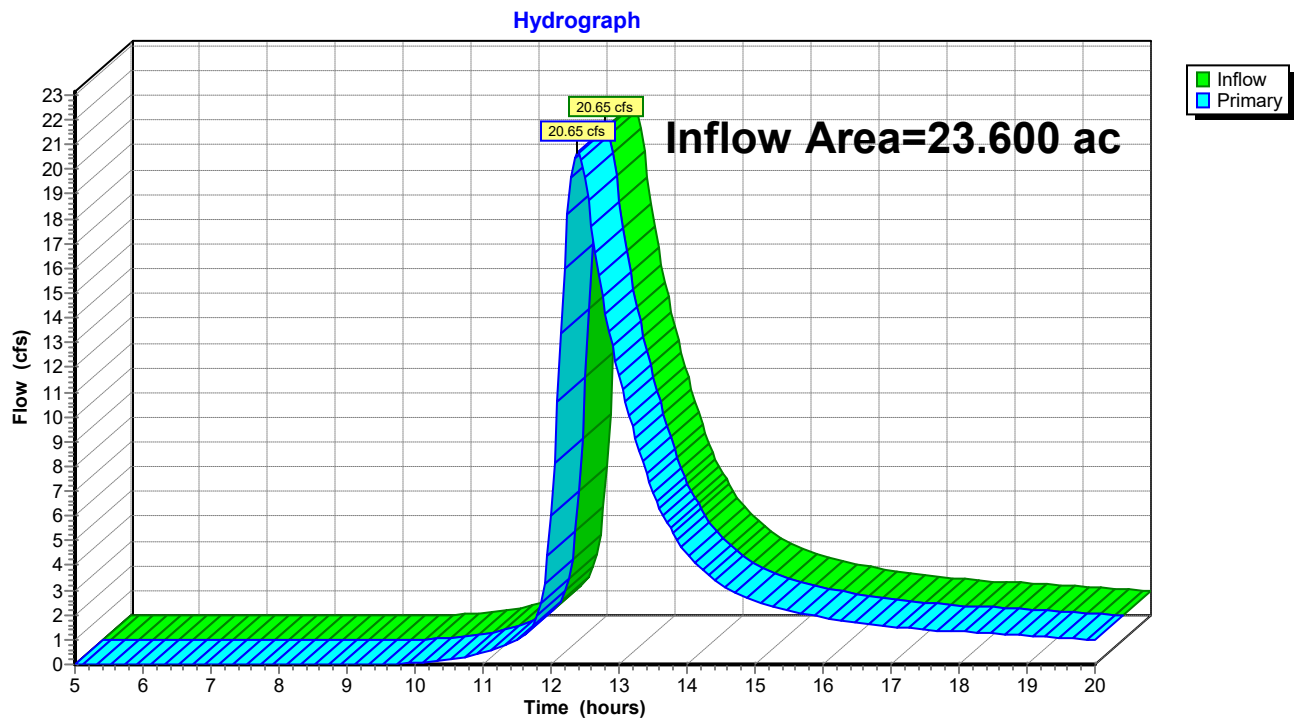
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Summary for Pond AP-2: Analysis Point #2

Inflow Area = 23.600 ac, 0.00% Impervious, Inflow Depth > 1.50" for 10-Year event
Inflow = 20.65 cfs @ 12.40 hrs, Volume= 2.947 af
Primary = 20.65 cfs @ 12.40 hrs, Volume= 2.947 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond AP-2: Analysis Point #2



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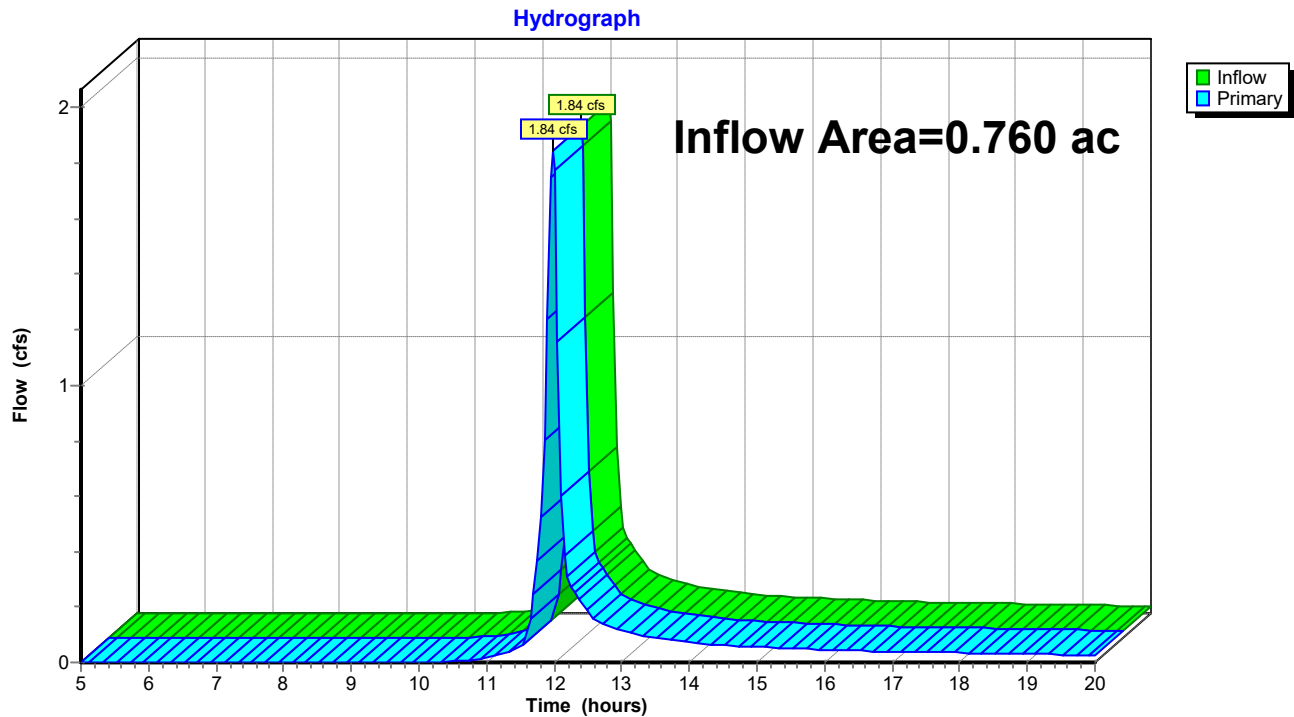
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Summary for Pond AP-3: Analysis Point #3

Inflow Area = 0.760 ac, 60.53% Impervious, Inflow Depth > 1.27" for 10-Year event
Inflow = 1.84 cfs @ 11.98 hrs, Volume= 0.080 af
Primary = 1.84 cfs @ 11.98 hrs, Volume= 0.080 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond AP-3: Analysis Point #3



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Type II 24-hr 100-Year Rainfall=6.11"

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Summary for Subcatchment DR-A: Overland

Runoff = 163.60 cfs @ 12.14 hrs, Volume= 11.919 af, Depth> 3.59"

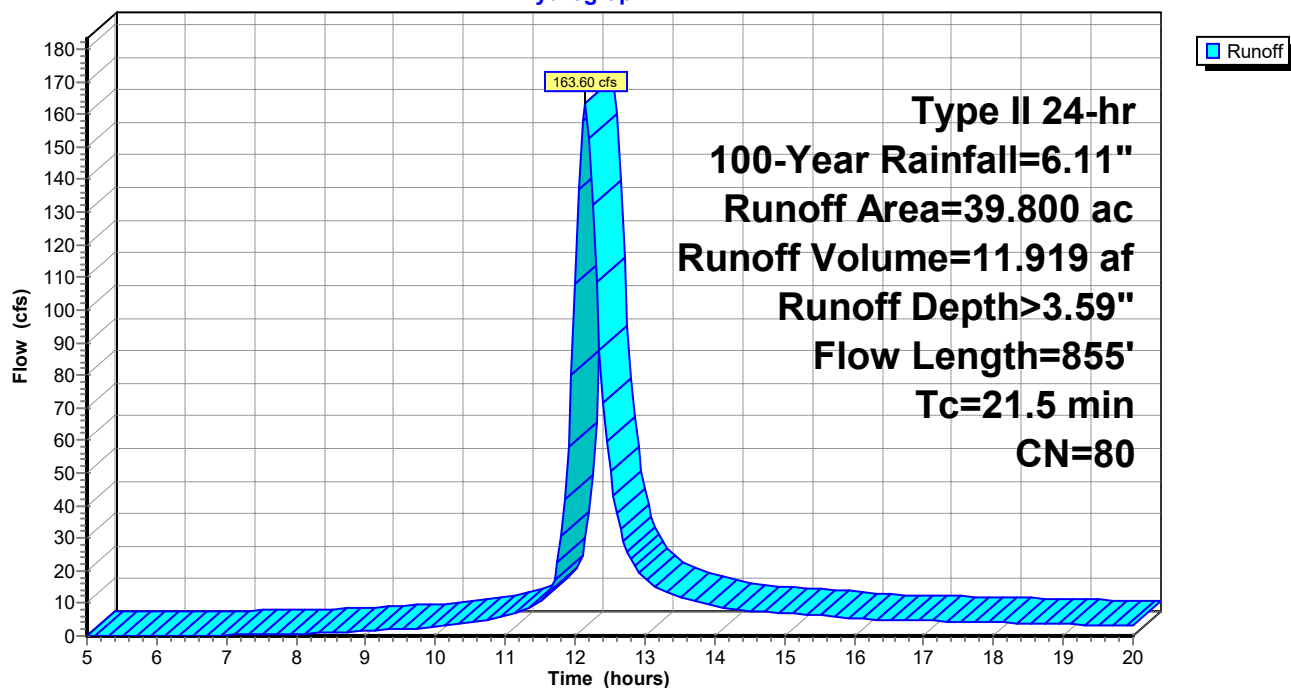
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=6.11"

Area (ac)	CN	Description
38.700	79	Woods, Fair, HSG D
* 1.100	98	Existing Railroad
39.800	80	Weighted Average
38.700		97.24% Pervious Area
1.100		2.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	150	0.1500	0.17		Sheet Flow, Sheet Flow Woods: Light underbrush n= 0.400 P2= 2.67"
4.8	575	0.1600	2.00		Shallow Concentrated Flow, Shallow Concentrated Woodland Kv= 5.0 fps
2.2	130	0.0400	1.00		Shallow Concentrated Flow, Shallow Concentrated Woodland Kv= 5.0 fps
21.5	855	Total			

Subcatchment DR-A: Overland

Hydrograph



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Type II 24-hr 100-Year Rainfall=6.11"

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Summary for Subcatchment DR-B: Overland

Runoff = 15.35 cfs @ 11.97 hrs, Volume= 0.702 af, Depth> 3.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=6.11"

Area (ac)	CN	Description
2.400	79	Woods, Fair, HSG D
2.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	132		0.37		Direct Entry, Sheet Flow

Subcatchment DR-B: Overland

Hydrograph

