

# Operation and Maintenance Manual

for:

## Rockefeller Group Logistics at Eastampton

**Block(s): 800**

**Lot(s): 9.03**

**Township of Eastampton**

**Burlington County, New Jersey**

### Prepared By:

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### Under the Immediate Supervision of:



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menlo  
engineering  
associates

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## Purpose

The intent of this manual is to provide a strategic plan for the party(s) responsible for the operation and maintenance of the stormwater management facility(s) located on the site in question. The plan must be complied with to insure the proper function and prolonged life span of the facility(s).

For regular maintenance, the plan describes a list of procedures to be completed and carried out under a specific schedule and contingency procedures during unusual or infrequent conditions that may arise. In addition to maintenance, a detailed inspection log of tasks/conditions/findings of the stormwater management facilities will be recorded in this manual upon every inspection performed.

THIS MANUAL IS BASED ON THE REQUIREMENTS SET FORTH BY THE *NEW JERSEY STORMWATER BEST MANAGEMENT PRACTICES MANUAL, APRIL 2004*.

## Description

This manual is intended to describe the maintenance of four (4) stormwater management facilities for a development called Rockefeller Group Logistics at Eastampton, located on Lot 9.03 in Block 800, situated in the Township of Eastampton, Burlington County, New Jersey. The purpose of all four of these facilities is to provide some degree of the following conditions:

- Provide a temporary means of storage for stormwater.
- Facilitate water quality (to help eliminate contaminants and particulate matter from stormwater runoff).
- Recharge the groundwater supply.

A stormwater management facility is also commonly referred to as a Best Management Practice (or BMP). The four (4) BMP's for this project are as follows:

- Stormwater Collection System— a collection of pipes and drainage structures including manholes and inlets that collect stormwater runoff.
- Lawn and Landscaped Area— any area containing stable vegetation, lawn area or landscaping.
- Infiltration Trench – One (1) stormwater management infiltration trench constructed on-site with the purpose of infiltrating the roof runoff to comply with the groundwater recharge regulations. The infiltration trench, located beneath the parking lot south of the building, overflows into the proposed storm sewer system.
- Wet Pond –The Stormwater Management Wet pond is constructed on-site with the purpose of attenuating stormwater runoff and to provided water quality. The wet pond is located west of the building and it has a 90% of TSS removal rate.

## RESPONSIBILITY

All BMP operation tasks, maintenance and inspection log entries, as defined within this manual, will be performed by the maintenance staff employed or retained by owner of Lot(s) 9.03 of Block 800, situated in the Township of Eastampton, Burlington County, New Jersey or a third party designated by said owner and/or operator. The latest dated party listed below will be considered the party responsible.

DATE:	<u>12/22/20</u>	DATE:	<u></u>
COMPANY:	<u>ROCKEFELLER GROUP</u>	COMPANY:	<u></u>
CONTACT:	<u>ZACHARY CSIK</u>	CONTACT:	<u></u>
PHONE:	<u>973-448-3584</u>	PHONE:	<u></u>
ADDRESS:	<u>1271 AVENUE OF AMERICAS</u>	ADDRESS:	<u></u>
	<u>NEW YORK, NY 10020</u>		<u></u>

Additional Information (if applicable):

DATE:	<u></u>	DATE:	<u></u>
COMPANY:	<u></u>	COMPANY:	<u></u>
CONTACT:	<u></u>	CONTACT:	<u></u>
PHONE:	<u></u>	PHONE:	<u></u>
ADDRESS:	<u></u>	ADDRESS:	<u></u>
	<u></u>		<u></u>

- Any amendment or alteration to this manual (i.e.: change in ownership, the inclusion of third party maintenance agreements, a modification or addition to maintenance procedures) must be entered in this manual or attached as a rider to this manual, and complete copies submitted to all parties involved and, must be in compliance with the most current guidelines set forth by the New Jersey Department of Environmental Protection Stormwater Management Rules.
- This manual as outlined, or any amendment or alteration to this manual is to be recorded in the deed of record for the property. The deed shall state that any future sale of the property carries with it the responsibility of the new owner to comply with the conditions of this Operation and Maintenance Manual.
- In addition, this manual as outlined, or any amendment or alteration to this manual, must be made available upon request to the local mosquito control or extermination committee and any public entity with administrative, health, environmental, or safety authority over the site.
- The person or party responsible (as named above) for maintenance must maintain a detail log of all preventive and corrective maintenance for the structural stormwater management measures as described in this manual, including inspections and copies of all maintenance related work orders.
- The person or party responsible (as named above) for maintenance shall evaluate the effectiveness of the Operation and Maintenance Plan at least once per year and adjust the plan and the deed as needed.

## **STORMWATER MANAGEMENT MAINTENANCE**

On site Stormwater Management Maintenance will be performed by:

***Rockefeller Group Development Corporation***

***1271 Avenue of Americas***

***New York, NY 10020***

***Phone (973) 448-3584***

***Attention: Building Maintenance.***

### **MAINTENANCE RESPONSIBILITIES:**

1. The above referenced party shall maintain a detailed log of all preventative and corrective maintenance for the stormwater management measures shown on the plans, including a record of all inspections and copies of all maintenance related work orders.
2. The person responsible for maintenance identified above shall evaluate the effectiveness of the maintenance plan at least once a year and adjust the plan as needed.
3. The person responsible for maintenance identified above shall retain and make available upon request by any public entity with administrative, health, environmental or safety authority over the site, the maintenance plan and the documentation required above.
4. Following is a list of specific areas requiring maintenance. For detailed information and schedules refer to the specific subsection for each item.
  - a. ***USE SPECIFICS FOR PROJECT***
  - b. Stormwater Collection System Maintenance
  - c. Vegetative Filters and Swale Maintenance
  - d. Infiltration Trench Maintenance
  - e. Wet Pond Maintenance

## **STORMWATER COLLECTION SYSTEM MAINTENANCE:**

Schedule I - four times annually and after every storm exceeding 1 inch of rainfall

Schedule III - annually

### ***DESCRIPTION***

Stormwater collection system maintenance involves routine periodic inspection of the storm collection system, the removal of accumulated sediment and debris, and the correction of any structural problems.

#### ***1) Inspection : General***

- a) The Contractor shall inspect all areas to verify that all work is being performed properly and as scheduled, locate potential problems, and correct unacceptable conditions. A brief verbal report is to be submitted to the Owner. Problems requiring immediate attention shall be reported to the Owner.

#### ***2) Inspection : Schedule I***

- a) Inlets, conduit, outfalls and other conveyance elements: Inspect for and clear debris from the gratings, inlets and pipes. This is to prevent clogging of the inlets and subsequent backup of stormwater runoff. Any problems or defects shall be reported to the Owner.

#### ***3) Inspection : Schedule III (annually)***

- a) Visual inspection of all components of the onsite stormwater collection system. Inspect for and remove silt and sediment, litter and other debris from all inlets, gratings and drainage pipes. All inlets and manhole are to be vacuumed. (Frequency of vacuuming may be adjusted if maintenance records indicate that sediment and debris accumulation is insignificant.) In the event that the accumulated material exceeds 10% of the pipe diameter, it must be flushed / vacuumed out of the system.

#### ***4) Prevention of Water Pollution***

- a) The contractor's activities shall be performed by methods that will prevent entrance or accidental spillage of solid matter, contaminants, debris or other pollutants and wastes into the downstream conveyance system. Such pollutants and wastes include, but are not restricted to, refuse, garbage, cement, collected silt and sediment, etc. Disposal of debris and trash should be done only at suitable disposal / recycling sites and must comply with all applicable local, state, and federal waste regulations.

## **LAWN AND LANDSCAPED AREA MAINTENANCE:**

### ***DESCRIPTION***

Maintenance involves routine periodic inspection of the vegetation, fertilization, and the correction of erosion problems.

### ***Schedule III – annually or as noted***

Shrubs & Trees:	Between March 1 and April 15
Mowing:	As specified per BMP
Fertilize:	Fall - Between September 1 and October 15
Liming:	Between September 1 and October 15
Soil Testing:	Between September 1 and October 15
Pest & Disease Control:	As required
Overseeding:	Between September 1 and October 15 (As required)
Aeration:	Between September 1 and October 15 (As required)

#### **1) Maintenance: General**

- a) The Contractor shall inspect all areas to verify that all work is being performed properly and as scheduled, locate potential problems, and correct unacceptable conditions. A brief verbal report is to be submitted to the Owner. Problems requiring immediate attention shall be reported to the Owner.

#### **2) Shrubs & Trees:**

- a) These plants shall be maintained in a natural setting. No shearing is allowed, shrubs and trees will be hand-pruned to remove dead or diseased branches. Dead plant material shall be replaced in kind unless cultural requirements necessitate change. When planting within compacted slopes, excavate larger holes and backfill with a suitable planting medium.

#### **3) Mowing:**

- a) All clippings are to be raked, bagged and disposed off-site to prevent clogging of the outlet structure.

#### **4) Fertilize:**

- a) Fall: Fertilizer analyses and rates are to be based on soil test results. Standard fertilizer blends rather than custom blends are assumed.

#### **5) Liming:**

- a) One application in the fall as required by a soil test. Minimum requirements - Lime with pulverized dolomite limestone at a rate of 100 lbs./1,000 s.f.

#### **6) Soil Testing:**

- a) The Contractor shall take soil samples from grassed areas for the following analysis: ph, available Mg, P, K, C, recommended nitrogen application. Copies of the analyses for each area

are to be furnished to the Owner. Samples shall be taken before liming and fertilization as noted on the schedule.

**7) Turf disease and pest control:**

- a) As required. Submit to the Owner the following information before spraying:
  - i) -Targeted pests or diseases.
  - ii) -Materials and methods used.

**8) Overseeding:**

- a) Overseeding is scheduled, as required per field inspection; or a minimum of once every four (4) years. A variseeder or equal equipment should be used to overseed designated lawn areas. Seed type and rate per the following schedule.

- b) Seed type and rates for grass basin bottoms:

Lofts Reclaim Conservation Mix-Damp Formula

(At a rate of 5 lbs./1,000 s.f.)

- 45% Tall Fescue
- 10% Perennial Ryegrass
- 25% Poa Trivalis
- 10% Salty Alkaligrass
- 5% Redtop
- 5% Reed Canary Grass

- c) Seed type and rates for lawn areas, grass basin side slopes and berm:

SCS Seed Mix 16

- (3.5 lbs./1,000 s.f) Tall Fescue
- (0.4 lbs./1,000 s.f) Kentucky Bluegrass (blend)
- (0.4 lbs./1,000 s.f) Perennial Ryegrass (blend)

- d) Seed type and rates for low maintenance areas:

Lofts Reclaim Native Grass Mixture

(At a rate of 60lbs/acre)

- 30% Little Bluestem
- 20% Indiangrass
- 20% Azure Blue Fescue
- 15% Side Oats Grama
- 10% Big Bluestem
- 5% Switchgrass

**9) Aeration:**

- a) A coring with 3" minimum hollow tines should be used to aerate lawn areas, followed by a steel drag mat to disperse cores. Coring should be timed for adequate soil moisture to insure proper penetration and plug removal. Coring should be done in conjunction with fertilization and/or liming and overseeding in the fall, once a year.



## **INFILTRATION TRENCH:**

### ***DESCRIPTION***

Effective infiltration trench performance requires regular and effective maintenance. Maintenance involves routine periodic inspection of the individual pipes, the removal of accumulated sediment and debris, and the correction of any structural or erosion problems.

Schedule I - four times annually and after every storm exceeding 1 inch of rainfall

Schedule III - annually

#### **1) *Maintenance: General***

- a) The Contractor shall inspect all areas to verify that all work is being performed properly and as scheduled, locate potential problems, and correct unacceptable conditions. A brief verbal report is to be submitted to the Owner. Problems requiring immediate attention shall be reported to the Owner.

#### **2) *Maintenance: Schedule I***

- a) Inspect for and clear excessive debris from the system. Any problems or defects shall be reported to the Owner.
- b) The infiltration trenches should completely drain within 72 hours.

If significant increases or decreases in the normal drain time are observed, or if the 72 hour maximum drain time is exceeded, the system and both groundwater and tailwater levels must be evaluated. Appropriate measures should be taken to comply with the maximum drain time requirements and maintain the proper functioning of the infiltration trench.

#### **3) *Prevention of Water Pollution***

- a) The contractor's activities shall be performed by methods that will prevent entrance or accidental spillage of solid matter, contaminants, debris or other pollutants and wastes into the downstream conveyance system. Such pollutants and wastes include, but are not restricted to, refuse, garbage, cement, collected silt and sediment, etc. Disposal of debris and trash should be done only at suitable disposal / recycling sites and must comply with all applicable local, state, and federal waste regulations.

## **WET POND MAINTENANCE:**

### ***DESCRIPTION***

Effective wet pond performance requires regular and effective maintenance. Maintenance involves routine periodic inspection of the basin and vegetation, the removal of accumulated sediment and debris, and the correction of any structural or erosion problems.

Schedule I - four times annually and after every storm exceeding 1 inch of rainfall

Schedule IA - once a month during the growing season

Schedule II - bi-annually, during the growing season and the non-growing season

Schedule III - annually

#### **4) Maintenance: General**

- a) The Contractor shall inspect all areas to verify that all work is being performed properly and as scheduled, locate potential problems, and correct unacceptable conditions. A brief verbal report is to be submitted to the Owner. Problems requiring immediate attention shall be reported to the Owner.

#### **5) Maintenance: Schedule I**

- a) Basin Outlet Works: Inspect for and clear debris from the trashrack and exit ports of the basin outlet structures. This is to prevent clogging of the outlets and subsequent backup of detained water.
- b) Inspect receiving waters for damage, obstructions and unsightly debris. All obstructions shall be removed immediately and any damage repaired.
- c) Inspect for and clear excessive debris from the pipe inlets and aprons.
- d) Inspect for any erosion of banks or other hazards. Any erosion shall be immediately repaired and stabilized accordingly. Maintain seeded areas until they are established.
- e) Any problems or defects shall be reported to the Owner.

#### **6) Maintenance: Schedule IA (monthly during growing season)**

- a) Vegetated Areas : Mowing and/or trimming of vegetation must be performed on a regular schedule based on specific site conditions. Grass should be mowed at least once a month during the growing season.

#### **7) Maintenance: Schedule II (bi-annually)**

- a) Once established, inspections of vegetation health, density, and diversity should be performed during both the growing and non-growing season at least twice annually.
- b) The vegetative cover should be maintained at 85 percent. If vegetation has greater than 50 percent damage, the area should be reestablished in accordance with the original specifications (see seeding specification) and the inspection requirements presented above. All use of fertilizers, mechanical treatments, pesticides and other means to assure optimum vegetation health must not compromise the intended purpose of the vegetative filter. All vegetation deficiencies should be addressed without the use of fertilizers and pesticides whenever possible.

#### **8) Maintenance: Schedule III (annually)**

- a) Vegetated areas must be inspected annually for erosion and scour. Vegetated areas must be inspected for unwanted growth, which must be removed with minimum disruption to the planting soil bed and remaining vegetation.
- b) When establishing or restoring vegetation, biweekly inspections of vegetation health must be performed during the first growing season or until the vegetation is established.
- c) Sediment levels are to be determined in the wet pond at least once a year. The sediment shall be removed when the pool volume is reduced by 25% over the initial design. The average cleanout cycle is 10 years but will vary with field conditions.

**9) Basin Performance Criteria**

- a) *The wet pond should drain to normal water surface as follows:*

*2ft deep at outlet structure -*

*4ft deep at outlet structure -*

*If significant increases or decreases in the normal drain time are observed, or if the 72 hour maximum drain time is exceeded, the basin's outlet structure, and both groundwater and tailwater levels must be evaluated and appropriate measures taken to comply with the maximum drain time requirements and maintain the proper functioning of the basin.*

**10) Prevention of Water Pollution**

- a) The contractor's activities shall be performed by methods that will prevent entrance or accidental spillage of solid matter, contaminants, debris or other pollutants and wastes into the downstream conveyance system. Such pollutants and wastes include, but are not restricted to, refuse, garbage, cement, collected silt and sediment, etc. Disposal of debris and trash should be done only at suitable disposal / recycling sites and must comply with all applicable local, state, and federal waste regulations.

# TRASH GUARD "PLUS" SPECIFICATION

INLET PROTECTIO

## Trash Guard "Plus"® Specification

- 1.0** This work shall consist of furnishing, installing, and maintaining the Trash Guard "Plus"® inlet filter.
- 2.0** Trash Guard "Plus"® is manufactured using 100% recycled HDPE material by Trash Guard "Plus"® Incorporated. Trash Guard Inc.P.O. Box 10 Roseboro, NC. 28382 .
- 3.0** Trash Guard "Plus"® is distributed exclusively by ACF Environmental, 2831 Cardwell Road, Richmond, VA. 23234. 800-448-3636.

### **4.0** Materials

Trash Guard "Plus"® is a catch basin filter device manufactured from 100% recycled HDPE.

### **5.0** Installation

Trash Guard shall be installed over the outlet pipe within the catch basin according the various installation applications provided in the Trash Guard "Plus"® Installation Guide.

Trash Guard "Plus"® shall be installed in such a manner that that the unit is securely fastened to the sidewall of the catch basin and completely covers the outlet pipe.

Trash Guard "Plus"® comes in 3 Standard Sizes:

23" unit for pipe diameters  $\leq 15"$  (TGRD-23x24)

28" unit for pipe diameters  $\leq 18"$  (TGRD 28x30)

34" unit for pipe diameters  $\leq 24"$  (TGRD-34x36)

### **6.0** Maintenance

Trash Guard "Plus"® shall be inspected on a on a quarterly basis to determine when maintenance is necessary. If sediment and debris build up is covering over half of the unit, removal of debris is recommended. Some installations may require more inspections and maintenance according to loads.





# CHECHLIST/INSPECTION LOG ENTRY

**Inspection Checklist / Maintenance Actions  
Vegetative Filter Strip**

**Checklist** (circle one): Quarterly / Annual / Monthly / Special Event Inspection

**Checklist No.** \_\_\_\_\_ **Inspection Date:** \_\_\_\_\_

**Date of most recent rain event:** \_\_\_\_\_

**Rain Condition** (circle one):  
Drizzle / Shower / Downpour / Other \_\_\_\_\_

**Ground Condition** (circle one):  
Dry / Moist / Ponding / Submerged / Snow accumulation



Component No. Component Name	For Inspector		For Maintenance Crew
	Inspection Item and Inspection Item No.	Result	Preventative / Corrective Maintenance Actions
Filter Strip Area	1	Standing water is present after the design drain time  The observed drain time is approximately _____ hours.	Y___ N___  Remove excessive sediment/debris  Check whether the outlet is clogged (if applicable)  Re-grade the slope to allow the swale to drain within the design drain time. Revegetate if necessary  If standing water is present longer than 5 days, report to mosquito commission.  Work Order # _____
	2	Excessive sediment, silt, or trash accumulation in filter strip	Y___ N___  Remove sediment, silt, and trash
	3	Erosion or channelization is present	Y___ N___  Check whether the incoming flow is concentrated before entering the filter strip. If concentrated, re-grade the edge of the filter strip to ensure sheet flow  Install a stone cutoff trench to distribute the flow evenly  Work Order # _____
	4	Animal burrows/rodents are present	Y___ N___  Pest control  Work Order # _____
	5	Sediment and debris on the edge between the contributing drainage area and the vegetative filter strip	Y___ N___  Clear and remove sediment and debris

Note:

Component No. Component Name	For Inspector		For Maintenance Crew
	Inspection Item and Inspection Item No.	Result	Preventative / Corrective Maintenance Actions
Vegetation	1	Large spot(s) showing bare soil	Y__ N__ Vegetative cover must be maintained at 85%. Revegetate the entire area if 50% or more vegetation has been lost. Check Landscaping plan for guidance (if available) Work Order # _____
	2	Grass clippings are not collected and removed	Y__ N__ Remove the grass clippings
Outlet (if applicable)	1	Trash or debris accumulation more than 20%	Y__ N__ Clean and remove Determine source of trash and address to reduce future maintenance costs or BMP failure
	2	Trash rack is damaged or rusted greater than 50%	Y__ N__ Repair or replace trash rack Work Order # _____
		Trash rack is bent, loose, or missing parts	Y__ N__ Repair or replace trash rack Work Order # _____
	3	Outlet components (e.g., orifice plates or weir plate) skewed, misaligned, or missing	Y__ N__ Repair or replace component Work Order # _____
	4	Discharge pipe apron is eroded or scoured	Y__ N__ Restabilize the discharge riprap apron Work Order # _____
5	Standing water is present in the outlet structure longer than 72 hours	Y__ N__ Clean out the standing water Work Order # _____	

Note:

**Follow Up Items (Component No. / Inspection Item No.):**

\_\_\_\_\_

**Associated Work Orders: # \_\_\_\_\_, # \_\_\_\_\_, # \_\_\_\_\_, # \_\_\_\_\_, # \_\_\_\_\_**

\_\_\_\_\_  
**Inspector Name**

\_\_\_\_\_  
**Signature**

\_\_\_\_\_  
**Date**

**Report issues to the local authority and mosquito commission as required by local ordinances and regulatory authorities.**

**File this checklist in the Maintenance Log after performing maintenance.**

**Inspection Checklist / Maintenance Actions  
Wet Pond**

**Checklist** (circle one): Quarterly / Annual / Monthly / Special Event Inspection

**Checklist No.** \_\_\_\_\_ **Inspection Date:** \_\_\_\_\_

**Date of most recent rain event:** \_\_\_\_\_

**Rain Condition** (circle one):  
Drizzle / Shower / Downpour / Other \_\_\_\_\_

**Ground Condition** (circle one):  
Dry / Moist / Ponding / Submerged / Snow accumulation

Component No. Component Name	For Inspector		For Maintenance Crew
	Inspection Item and Inspection Item No.	Result	Preventative / Corrective Maintenance Actions
Pond Area	1	The water level in the pond is below the design water surface elevation	Y__ N__  Check for: *Changes in inflow *patterns (less runoff, *lower groundwater table) *Damages to the outlet structure *Damages to the liner (if applicable)  Repair any structural damages  Work Order # _____
	2	Islands or shallow marsh emerging out of the pond	Y__ N__  Check whether there is excessive sediment in the pond  Check whether the incoming flow has excessive sediment  Find the source of excessive sediment and method to reduce the source  Remove excessive sediment  Work Order # _____
	3	The observed detention time is longer than the design detention time.  The observed detention time is approximately _____ hours.	Y__ N__  Check whether the outlets are clogged, see section E- Outlet of this checklist
Note:			

Component No. Component Name	For Inspector		Result	For Maintenance Crew
	Inspection Item and Inspection Item No.			Preventative / Corrective Maintenance Actions
Pond Area	4	Debris or trash floating on the water	Y___ N___	Remove debris and trash  If trash and debris are excessive, find the source and the method to reduce the source.
	5	Excessive dead vegetation in the pond	Y___ N___	Clear and remove vegetation
	6	Mosquito breeding	Y___ N___	Aerate or circulate the pond  Remove dead vegetation  Consult local mosquito commission for guidance  Work Order # _____
	7	Presence of domestic waterfowl and wildlife	Y___ N___	Minimize mowing at the perimeter of the pond with a no-mow fringe to keep waterfowl from accessing the pond  Contact NJDEP - Division of Fish and Wildlife for guidance and permits to capture and release
Note:				

Component No. Component Name	For Inspector		For Maintenance Crew
	Inspection Item and Inspection Item No.	Result	Preventative / Corrective Maintenance Actions
Pond Area	8	Erosion on pond side	<p>Y__</p> <p>N__</p> <p>Check whether the surrounding area has uncontrolled drainage into the pond</p> <p>Install an energy dissipater to slow down the incoming flow (e.g. deep-rooted riparian vegetation or bioengineering method)</p> <p>Check if the liner is damaged (if a liner is installed)</p> <p>Work Order # _____</p>
	9	Liner of the basin is visible and is damaged (if applicable)	<p>Y__</p> <p>N__</p> <p>Repair the liner</p> <p>Work Order # _____</p>
	10	The aerator/fountain is not working	<p>Y__</p> <p>N__</p> <p>Refer to the manufacturer's Operation and Maintenance Manual.</p> <p>Work Order # _____</p>

Note:

Component No. Component Name	For Inspector		Result	For Maintenance Crew
	Inspection Item and Inspection Item No.			Preventative / Corrective Maintenance Actions
Vegetation	1	Invasive plants are present	Y___ N___	Remove the invasive plants and restore the vegetation in accordance with the landscaping plan  Work Order # _____
	2	Algae blooming	Y___ N___	Remove algae  Aerate the pond  Find the nutrient source and the solution to reduce the nutrient loading  Work Order # _____
Pond Embankment and Side Slopes	1	Signs of erosion, soil slide or bulges, seeps and wet spots, loss of vegetation, or erosion on the basin slope	Y___ N___	Check for excessive overland runoff flow through the embankment.  Check for any sink hole development  Direct the overland runoff to the forebay or pretreatment area  Restabilize the bank  Work Order # _____
Note:				



Component No. Component Name	For Inspector		For Maintenance Crew
	Inspection Item and Inspection Item No.	Result	Preventative / Corrective Maintenance Actions
Outlet	1	Trash or debris accumulation more than 20%	Y___ N___ Clean and remove Determine source of trash and address to reduce future maintenance costs or basin failure
	2	Trash rack is damaged or rusted greater than 50% Trash rack is bent, loose, or missing parts	Y___ N___ Repair or replace trash rack Work Order # _____
	3	Outlet components (e.g., orifice plates or weir plate) skewed, misaligned, or missing	Y___ N___ Repair or replace component Work Order # _____
	4	Discharge pipe apron is eroded or scoured	Y___ N___ Restabilize the discharge riprap apron Work Order # _____
	5	Standing water is present in the outlet structure longer than 72 hours	Y___ N___ Pump out the standing water Work Order # _____
Emergency Spillway	1	Trees or excessive vegetation present	Y___ N___ Remove trees and roots, and restore berms if necessary Work Order # _____
	2	Damaged structure	Y___ N___ Repair Work Order # _____
Note:			

Component No. Component Name	For Inspector		For Maintenance Crew
	Inspection Item and Inspection Item No.	Result	Preventative / Corrective Maintenance Actions
Miscellaneous	1	Fence: broken or eroded parts	Y__ N__ Repair or replace Work Order # _____
	2	Gate: missing gate or lock	Y__ N__ Repair or replace Work Order # _____
	3	Sign/plate: tiled, missing, or faded	Y__ N__ Repair or replace Work Order # _____
	4	Excessive or overgrown vegetation blocking access to the basin	Y__ N__ Clear, trim, or prune the vegetation to allow access for inspection and maintenance Work Order # _____
Note:			

Follow Up Items (Component No. / Inspection Item No.):

\_\_\_\_\_

Associated Work Orders: # \_\_\_\_\_, # \_\_\_\_\_, # \_\_\_\_\_, # \_\_\_\_\_, # \_\_\_\_\_

\_\_\_\_\_  
Inspector Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

Report issues to the local authority and mosquito commission as required by local ordinances and regulatory authorities.

File this checklist in the Maintenance Log after performing maintenance.

## **Inspection Checklist / Maintenance Actions Infiltration Trench**

**Checklist (circle one):** Quarterly / Annual / Monthly / Special Event Inspection

**Checklist No.** \_\_\_\_\_

**Inspection Date:** \_\_\_\_\_

**Date of most recent rain event:** \_\_\_\_\_

**Rain Condition (circle one):**

Drizzle / Shower / Downpour / Other \_\_\_\_\_

**Ground Condition (circle one):**

Dry / Moist / Ponding / Submerged / Snow accumulation

	For Inspector		For Maintenance Crew
Component No. Component Name	Inspection Item and Inspection Item No.	Result	Preventative / Corrective Maintenance Actions
Infiltration Trench	1	<p>Standing water is present after the design drain time</p> <p>The observed drain time is approximately _____ hours.</p>	<p>Y__</p> <p>N__</p> <p>Recheck to determine if there is standing water after 72 hours</p> <p>If standing water is present longer than 5 days, report to mosquito commission.</p> <p>Remove any sediment buildup</p> <p>Work Order # _____</p>
	2	Excessive sediment, silt, or trash accumulation on basin bed	<p>Y__</p> <p>N__</p> <p>Clean pretreatment system</p> <p>Remove silt, sediment, and trash</p> <p>Work Order # _____</p>
Note:			

	For Inspector		For Maintenance Crew	
Component No. Component Name	Inspection Item and Inspection Item No.	Result	Preventative / Corrective Maintenance Actions	
E Outlet	1	Trash or debris accumulation more than 20%	Y__ N__  Clean and remove Determine source of trash and address to reduce future maintenance costs or basin failure	
	2	Trash rack is damaged or rusted greater than 50%	Y__	Repair or replace trash rack
		Trash rack is bent, loose, or missing parts	N__	Work Order # _____
	3	Outlet components (e.g., orifice plates or weir plate) skewed, misaligned, or missing	Y__ N__	Repair or replace component Work Order # _____
5	Standing water is present in the outlet structure longer than 72 hours	Y__ N__	Pump out the standing water Work Order # _____	

Note:

**Follow Up Items (Component No. / Inspection Item No.):**

\_\_\_\_\_

**Associated Work Orders: # \_\_\_\_\_, # \_\_\_\_\_, # \_\_\_\_\_, # \_\_\_\_\_, # \_\_\_\_\_**

\_\_\_\_\_  
**Inspector Name**

\_\_\_\_\_  
**Signature**

\_\_\_\_\_  
**Date**

**Report issues to the local authority and mosquito commission as required by local ordinances and regulatory authorities, if standing water is present longer than 5 days.**

**File this checklist in the Maintenance Log after performing maintenance.**

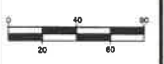
## **APPENDIX A: GRADING & UTILITY PLAN AND DETAILS**





HORIZONTAL DATUM: NAD83 (NA83)

GRAPHIC SCALE



SCALE: 1"=40'



menlo engineering associates  
Civil Engineering, Consulting, Land Use Analysis, Professional Planning

211 Chestnut Avenue  
Hoboken, NJ 07030

Phone: 201-961-8000 Fax: 201-961-8001  
Website: www.menloeng.com

Professional Engineer License No. 1243279100

NO.	DESCRIPTION	DATE
1	TOWNSHIP COMMENTS	01/17/21
2	REPLY RESPONSE	01/27/21
3	ADDITIONAL COMMENTS	02/02/21
4	TOWNSHIP REVISIONS	02/22/21

THIS DRAWING IS FOR PERMIT PURPOSES ONLY. NOT FOR CONSTRUCTION. THIS BOX HAS BEEN CHECKED AND DATED.

DATE BY DATE



THE STATE OF NEW JERSEY REQUIRES NOTIFICATION BY LICENSATION BOARD OF ANY PERSON PREPARING TO OBTAIN THE EARTH'S SURFACE ANYWHERE IN THE STATE.



ROCKEFELLER GROUP LOGISTICS at EASTAMPTON

TOWNSHIP OF EASTAMPTON  
BURLINGTON COUNTY  
NEW JERSEY

BLOCK 800, LOT 9.03  
TAX MAP SHEET 5  
27.8 ACRES

GRADING & UTILITY PLAN

DRAWN BY: HCS  
CHECKED BY: HCS  
APPROVED BY: ST

THIS WORK INCURRED LEASED BY INDICATE SURFACING.

SCOTT H. TURNER  
PROFESSIONAL ENGINEER  
NJPE# 1243279100

PROJECT NO: 2020.014  
DATE OF ISSUE: JANUARY 13, 2021  
REVISION: APRIL 22, 2021

**WETPOND CONSTRUCTION NOTES**

PURSUANT TO NJAC 7:9-5.2(3), STORMWATER MANAGEMENT MEASURES SHALL BE DESIGNED, CONSTRUCTED AND INSTALLED TO BE STRONG, DURABLE AND CORROSION RESISTANT MEASURES THAT ARE CONSISTENT WITH THE RELEVANT PORTIONS OF THE RESIDENTIAL SITE IMPROVEMENT STANDARDS AT NJAC 5:21-7.3, 7.4 AND 7.5 SHALL BE DEEMED TO MEET THIS REQUIREMENT.

STORM EVENT	MAXIMUM WATER SURFACE ELEVATION	CUMULATIVE VOLUME	ALLOWABLE OUTFLOW	INFLOW AREA
100-YEAR	53.54	17,187 AF	28.77 CFS	26,430 AC
25 YEAR	51.86	12,193 AF	17.03 CFS	26,430 AC
10-YEAR	50.73	8,547 AF	12.40 CFS	26,430 AC
2-YEARS	49.29	5,943 AF	5.64 CFS	26,430 AC
WATER QUALITY	47.62	1,820 AF	0.76 CFS	26,430 AC

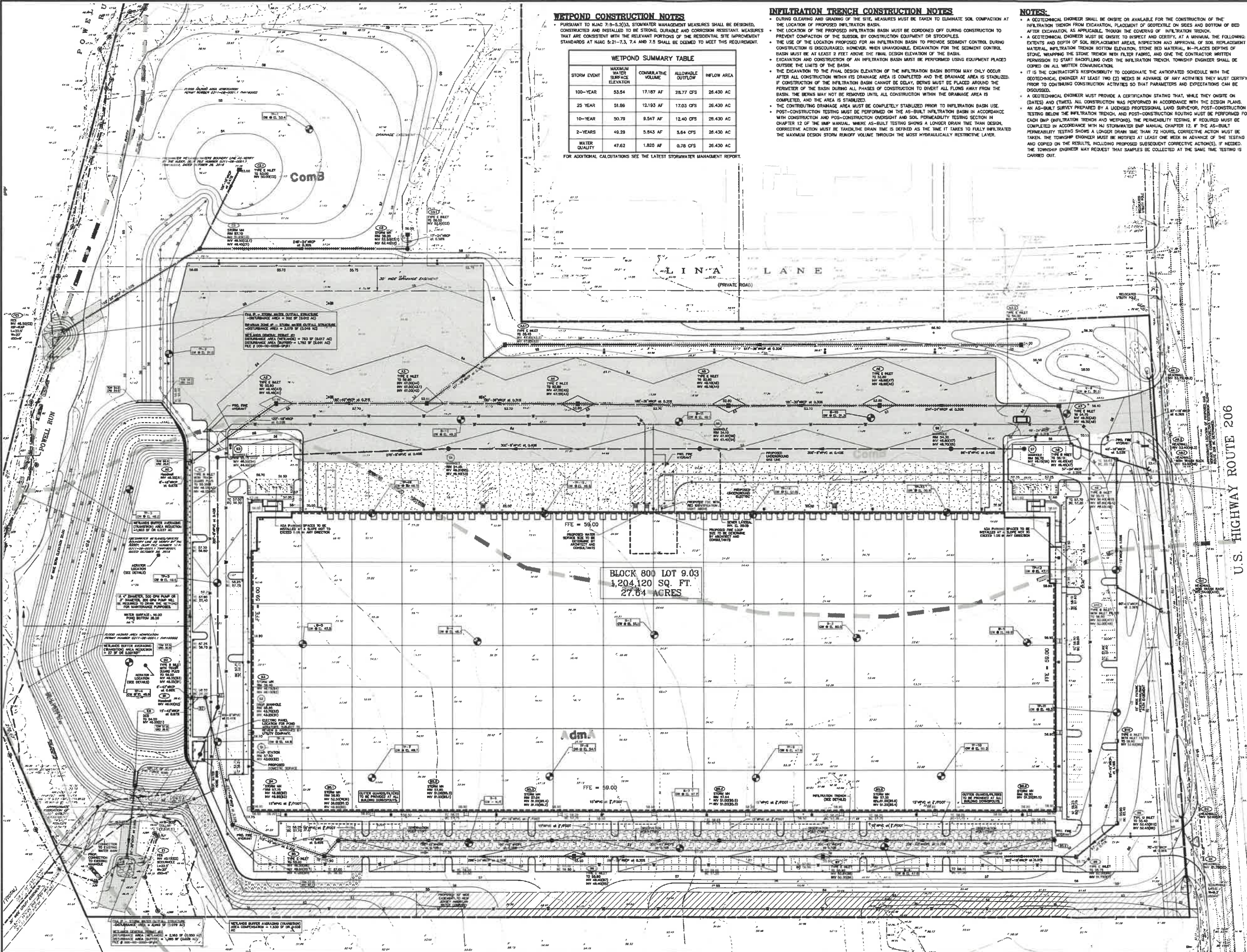
FOR ADDITIONAL CALCULATIONS SEE THE LATEST STORMWATER MANAGEMENT REPORT.

**INFILTRATION TRENCH CONSTRUCTION NOTES**

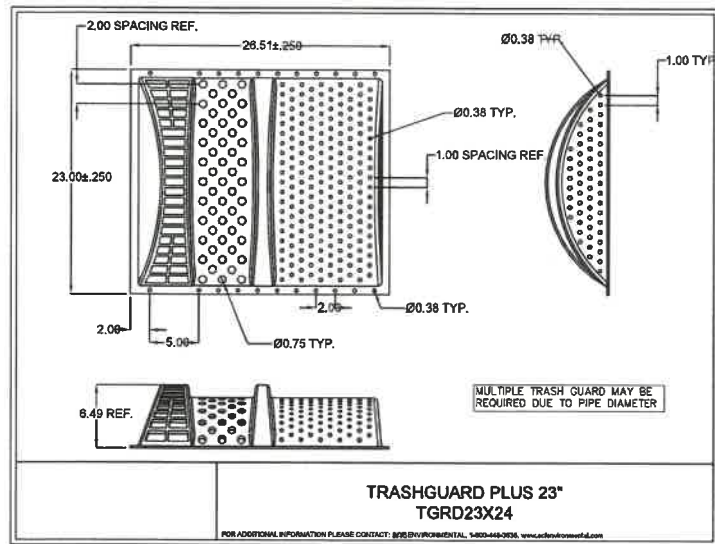
- DURING CLEARING AND GRADING OF THE SITE, MEASURES MUST BE TAKEN TO ELIMINATE SOIL COMPACTION AT THE LOCATION OF PROPOSED INFILTRATION BASIN.
- THE LOCATION OF THE PROPOSED INFILTRATION BASIN MUST BE CORRODED OFF DURING CONSTRUCTION TO PREVENT COMPACTION OF THE SUBSOIL BY CONSTRUCTION EQUIPMENT OR STOCKPILES.
- THE USE OF THE LOCATION PROPOSED FOR AN INFILTRATION BASIN TO PROVIDE SEDIMENT CONTROL DURING CONSTRUCTION IS DISCOURAGED; HOWEVER, WHEN UNAVOIDABLE, EXCAVATION FOR THE SEDIMENT CONTROL BASIN MUST BE AT LEAST 2 FEET ABOVE THE FINAL DESIGN ELEVATION OF THE BASIN.
- EXCAVATION AND CONSTRUCTION OF AN INFILTRATION BASIN MUST BE PERFORMED USING EQUIPMENT PLACED OUTSIDE THE LIMITS OF THE BASIN.
- THE EXCAVATION TO THE FINAL DESIGN ELEVATION OF THE INFILTRATION BASIN BOTTOM MAY ONLY OCCUR AFTER ALL CONSTRUCTION WITHIN ITS DRAINAGE AREA IS COMPLETED AND THE DRAINAGE AREA IS STABILIZED. IF CONSTRUCTION OF THE INFILTRATION BASIN CANNOT BE DELAYED, BERMS MUST BE PLACED AROUND THE PERIMETER OF THE BASIN DURING ALL PHASES OF CONSTRUCTION TO DIVERT ALL FLOWS AWAY FROM THE BASIN. THE BERMS MAY NOT BE REMOVED UNTIL ALL CONSTRUCTION WITHIN THE DRAINAGE AREA IS COMPLETED, AND THE AREA IS STABILIZED.
- THE CONTRIBUTING DRAINAGE AREA MUST BE COMPLETELY STABILIZED PRIOR TO INFILTRATION BASIN USE. POST-CONSTRUCTION TESTING MUST BE PERFORMED ON THE AS-BUILT INFILTRATION BASIN IN ACCORDANCE WITH CONSTRUCTION AND POST-CONSTRUCTION OVERSIGHT AND SOIL PERMEABILITY TESTING SECTION IN CHAPTER 12 OF THE BMP MANUAL, WHERE AS-BUILT TESTING SHOWS A LONGER DRAIN TIME THAN DESIGN, CORRECTIVE ACTION MUST BE TAKEN. THE DRAIN TIME IS DEFINED AS THE TIME IT TAKES TO FULLY INFILTRATE THE MAXIMUM DESIGN STORM RUNOFF VOLUME THROUGH THE MOST HYDRAULICALLY RESTRICTIVE LAYER.

**NOTES:**

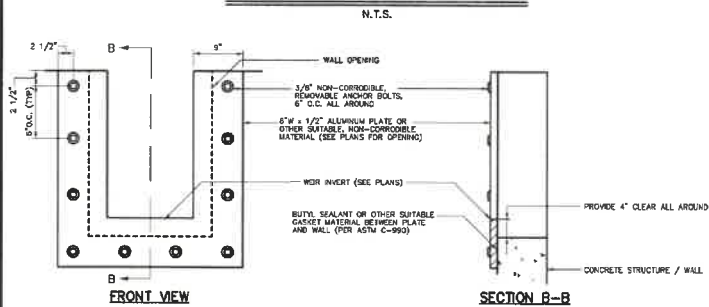
- AN INFILTRATION TRENCH FROM EXCAVATION, PLACEMENT OF GEOTEXTILE ON SIDES AND BOTTOM OF BED AFTER EXCAVATION AS APPLICABLE THROUGH THE COVERING OF INFILTRATION TRENCH.
- A GEOTECHNICAL ENGINEER MUST BE ON SITE TO INSPECT AND CERTIFY AT A MINIMUM, THE FOLLOWING: EXTENTS AND DEPTH OF SOIL REPLACEMENT AREAS, INSPECTION AND APPROVAL OF SOIL REPLACEMENT MATERIAL, INFILTRATION TRENCH BOTTOM ELEVATION, STONE BED MATERIAL, IN-PLACES DEPTHS OF STONE, WEAPING THE STONE TRENCH WITH FILTER FABRIC, AND ONE THE CONTRACTOR WRITTEN PERMISSION TO START BACKFILLING OVER THE INFILTRATION TRENCH. TOWNSHIP ENGINEER SHALL BE COPIED ON ALL WRITTEN COMMUNICATION.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE THE ANTICIPATED SCHEDULE WITH THE GEOTECHNICAL ENGINEER AT LEAST TWO (2) WEEKS IN ADVANCE OF ANY ACTIVITIES THEY MUST CERTIFY PRIOR TO CONTINUING CONSTRUCTION ACTIVITIES SO THAT PARAMETERS AND EXPECTATIONS CAN BE DISCUSSED.
- A GEOTECHNICAL ENGINEER MUST PROVIDE A CERTIFICATION STATING THAT, WHILE THEY ONSITE ON (DATE) AND (TIME), ALL CONSTRUCTION WAS PERFORMED IN ACCORDANCE WITH THE DESIGN PLANS, AN AS-BUILT SURVEY PREPARED BY A LICENSED PROFESSIONAL LAND SURVEYOR, POST-CONSTRUCTION TESTING BELOW THE INFILTRATION TRENCH, AND POST-CONSTRUCTION ROUTING MUST BE PERFORMED FOR EACH BMP (INFILTRATION TRENCH AND WETPOND). THE PERMEABILITY TESTING, IF REQUIRED MUST BE COMPLETED IN ACCORDANCE WITH NJ STORMWATER BMP MANUAL CHAPTER 12. IF THE AS-BUILT PERMEABILITY TESTING SHOWS A LONGER DRAIN TIME THAN 72 HOURS, CORRECTIVE ACTION MUST BE TAKEN. THE TOWNSHIP ENGINEER MUST BE NOTIFIED AT LEAST ONE WEEK IN ADVANCE OF THE TESTING AND COPIED ON THE RESULTS, INCLUDING PROPOSED SUBSEQUENT CORRECTIVE ACTION(S), IF NEEDED. THE TOWNSHIP ENGINEER MAY REQUEST THAT SAMPLES BE COLLECTED AT THE SAME TIME TESTING IS CARRIED OUT.



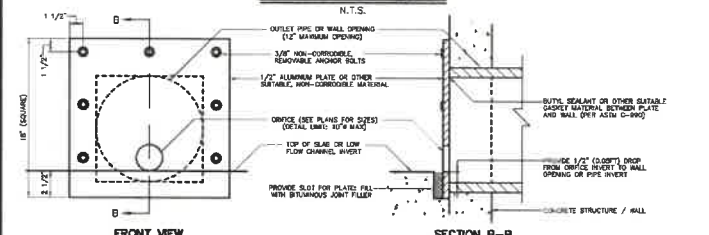




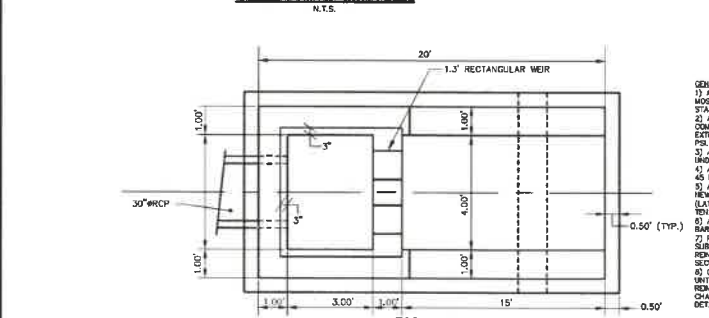
**TRASH GUARD PLUS DETAIL**



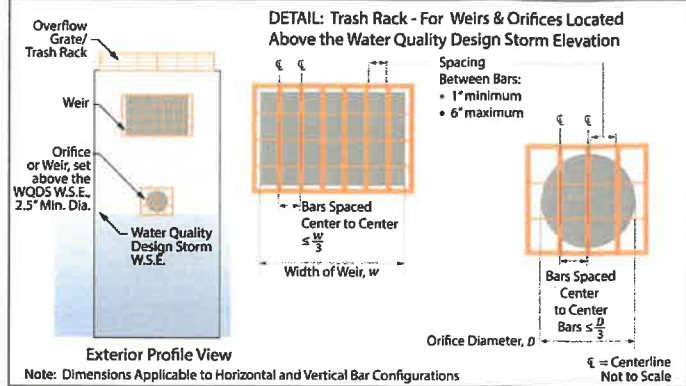
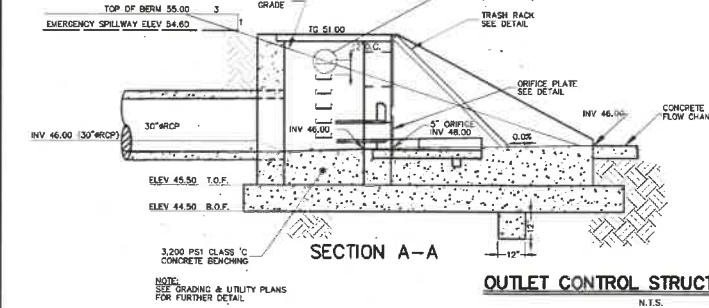
**WEIR PLATE DETAIL**



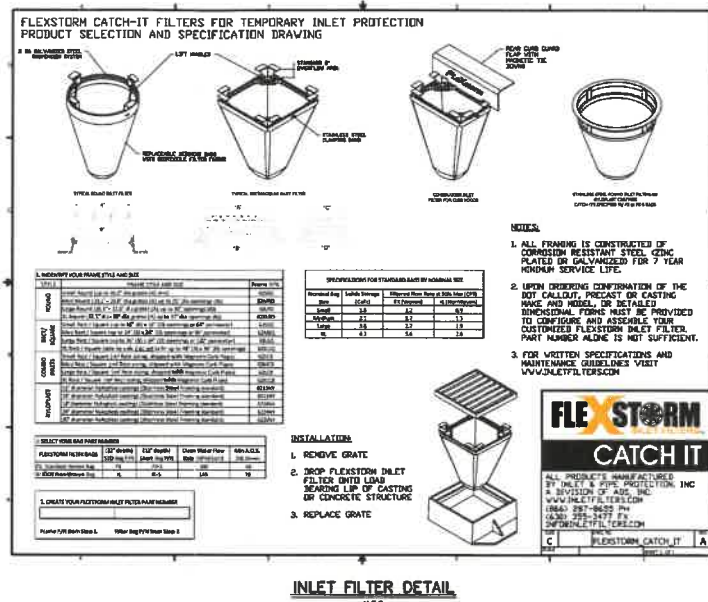
**ORIFICE PLATE DETAIL**



**OUTLET CONTROL STRUCTURE DETAIL**



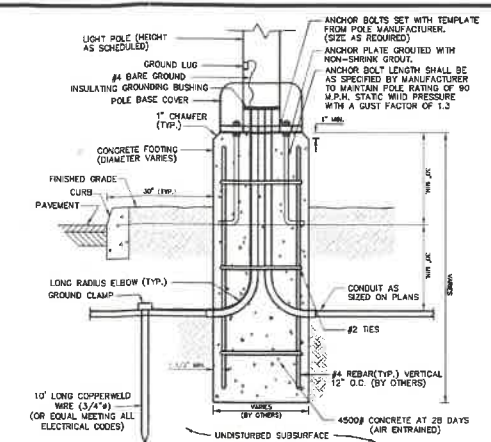
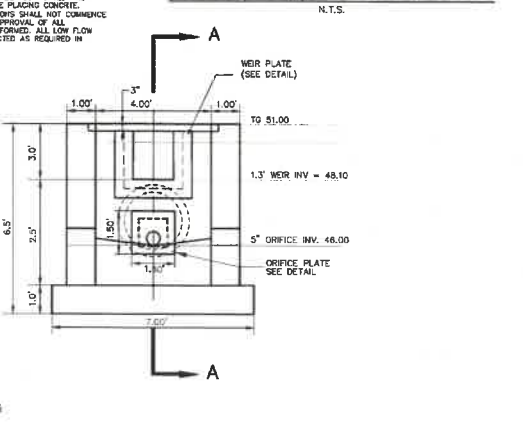
**TRASH FOR ORIFICE AND WEIR DETAIL**



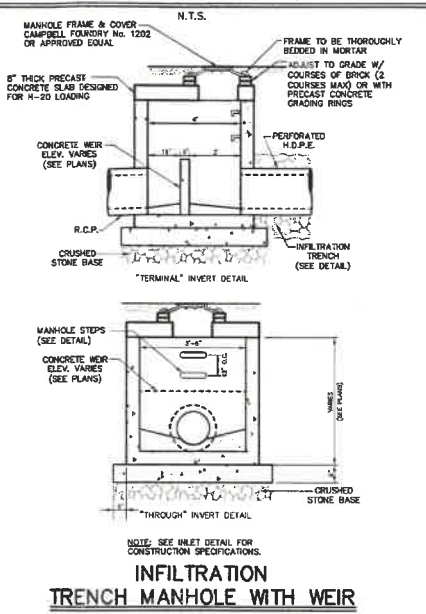
**TRASH RACK FOR HEADWALL**



**TRASH RACK FOR HEADWALL**



**RAISED SITE LIGHT POLE FOUNDATION DETAIL (IN GRASSED AREAS)**



**INFILTRATION TRENCH MANHOLE WITH WEIR**

**Aqua Master**  
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800-693-3144  
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**MASTERS SERIES VALHALLA**

STRAIGHTENED FLOW PATTERN (SFP)

Model	1	2	3	4	5	6	7	8	9	10
Flow Rate (GPM)	1.5	3.0	4.5	6.0	7.5	9.0	10.5	12.0	13.5	15.0
Flow Rate (LPM)	56.8	113.6	170.4	227.2	284.0	340.8	397.6	454.4	511.2	568.0
Flow Rate (m³/hr)	0.0034	0.0068	0.0102	0.0136	0.0170	0.0204	0.0238	0.0272	0.0306	0.0340

**MASTERS SERIES DESIGN TYPES**

- 1-5 HP Masters Series Vertical Design (Min. Operating Depth - 3ft.)
- 1-5 HP Masters Series Horizontal Design (Min. Operating Depth - 15in.)
- 7.5-10 HP Masters Series Vertical Design (Min. Operating Depth - 6ft.)

**CONTROL PANEL COMPONENTS**

- Outdoor rated, lockable enclosure constructed of galvanized steel powder coated gray
- Standard enclosure size 16" x 16" x 6" for 1-5HP and 24" x 20" x 6" for 7.5-10HP (3PH)
- 30" x 24" x 6" for 7.5-10HP (3PH)
- Overcurrent protection
- Ground fault protection
- Motor controller and overload
- Capacitors (single phase only)
- Digital meters with battery backup
- LED lighting circuit included in all control panels
- Custom Control Panels for multiple units and options available

**AERATOR AQUA MASTER SERIES VALHALLA**

- CONSTRUCTION DETAIL NOTES**
- ALL TRAFFIC SIGNS AND MARKINGS SHALL CONFORM TO THE CURRENT POLICE DEPARTMENT OR MUNICIPAL COUNTY OR STATE REQUIREMENTS.
  - ALL CONSTRUCTION DETAILS SHALL BE SUBMITTED TO THE MUNICIPAL COUNTY OR STATE ENGINEER FOR REVIEW AND APPROVAL. STRUCTURAL DETAILS ARE PROVIDED FOR INFORMATION PURPOSES FOR ALL WALLS AND STRUCTURAL ELEMENTS PRIOR TO CONSTRUCTION.
  - SHOP DRAWINGS SHALL BE PROVIDED FOR ALL PRECAST STRUCTURES PRIOR TO THE ORDERING OF MATERIALS.
  - DETAILS ASSUME APPROPRIATE LOAD BEARING CAPACITY AND COMPACTION OF SOILS. ACTUAL FIELD CONDITIONS SHALL BE CONFIRMED BY ON-SITE GEOTECHNICAL ENGINEER.
  - CONSTRUCTION DETAILS SHALL CONFORM TO DETAILS WITHIN THE CURRENT EDITION OF THE REGIONAL SITE IMPROVEMENT STANDARDS (S.I.S.).
  - ALL CONSTRUCTION DETAILS ARE NOT TO SCALE (N.T.S.) UNLESS OTHERWISE NOTED.

**menlo engineering associates**

1315 W. 10th St., Suite 100, Burlington, NJ 08016  
732-346-3335 732-448-4135  
www.menloeng.com

**REVISIONS**

NO.	DESCRIPTION	DATE
1	ADJUST SUBMISSION	01/28/21
2	TOWNSHIP REVISIONS	04/22/21

**MASTERS SERIES INSTALLATION**

THE STATE OF NEW JERSEY REQUIRES NOTIFICATION BY EXCAVATOR, CONTRACTOR, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE.

800 CALL SERVICE

**menlo engineering associates**

**ROCKEFELLER GROUP LOGISTICS AT EASTAMPTON**

EASTAMPTON TOWNSHIP  
BURLINGTON COUNTY  
NEW JERSEY

**CONSTRUCTION DETAILS (3)**

DESIGN BY: SCOTT H. TURNER  
CHECKED BY: [Signature]  
APPROVED BY: [Signature]

THIS WORK PREPARED UNDER THE SUPERVISION OF:

SCOTT H. TURNER  
PROFESSIONAL ENGINEER  
NJPE# 43811

PROJECT NUMBER: 2020.04 DE-3  
DATE OF ISSUE: JANUARY 12, 2021  
REVISION: 2 APRIL 22, 2021

17



