

STORMWATER MAINTENANCE MANUAL

FOR THE

**PROPOSED MULTI-FAMILY RESIDENTIAL DEVELOPMENT
78 LOCUST AVENUE**

BLOCK 129 – LOT 70

TOWNSHIP OF BLOOMFIELD
ESSEX COUNTY, NEW JERSEY

OCTOBER 13, 2023

NEA PROJECT No.: BLFDPRV22.010



34 Park Avenue – P.O. Box 426
Lyndhurst, New Jersey 07071
Telephone: (201) 939-8805
Fax: (201) 939-0846

CERTIFICATE OF AUTHORIZATION (N.J.S.A. 45:8-56) 24GA27927000



John J. Dunlea, P.E.
New Jersey Professional Engineer
License No. 56308

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Introduction

The New Jersey Administrative Code NJAC 7:8-5.8 entitled "Maintenance Requirements" sets forth rules and refers to the New Jersey Stormwater Best Practices Manual (the BMP manual) by the New Jersey Department of Environmental Protection (NJDEP). Chapter 8 of the BMP manual entitled "Maintenance and Retrofit of Stormwater Management Measures" specifically addresses the requirements for maintenance of a major development. Major development is defined in the aforementioned administrative code as any development that ultimately disturbing one or more acres of land or increasing the amount of regulated impervious surface by one quarter of an acre or more or increasing the amount of regulated motor vehicle surface. As per NJAC 7:8, this project classifies as a Major Development because the project disturbance area exceeds one acre, the creation of more than one-quarter acre of regulated impervious surface, and the creation of more than one-quarter acre of regulated motor vehicle surface. This report is prepared to address the maintenance component of the herein described development to ensure the effective, efficient, and enduring service of a particular stormwater measure. This plan contains preventative and corrective maintenance tasks and procedures.

This manual has been prepared in accordance with the NJDEP Stormwater Best Management Practice Manual dated April 2004, last revised July 2023. The plan presented in this manual shall be evaluated for effectiveness at least once annually and revised as necessary. A maintenance report shall be submitted to the Municipal Clerk annually, by February 1 of the following year. The municipality has the right of access for inspection and maintenance.

This document and any future revisions shall be recorded on the property deed.

Party Responsible for Maintenance

The proposed improvements will be constructed by the Borough of Carlstadt. The party responsible for the preventative and corrective maintenance of the proposed stormwater measures described herein is:

Name: **Golemis Realty, LLC**
Attn.: **Ioannis Golemis**
Phone: **212-421-2000**
Email: **igolemis@vernon.net**
Address: **500 Passaic Avenue**
East Newark, New Jersey 07029

Project Contacts:

Township of Bloomfield Engineer
Paul Lasek, PE

Township of Bloomfield Planning and Zoning Board Engineer
Marucci Engineering Associates, LLC
Anthony Marucci, PE

Design Engineer
Neglia Group
34 Park Avenue, Lyndhurst, NJ 07071



Safety and Response to Emergencies

For action to an emergency condition contact:

Golemis Realty, LLC
Ioannis Golemis
212-421-2000
igolemis@vernon.net
500 Passaic Avenue
East Newark, New Jersey 07029

Corrective Response To Emergency Conditions

A major emergency that may occur at this installation is the blockage of stormwater pipes, inlets or outlets by debris. Should this situation occur, the materials must be removed immediately. The inspection and preventative maintenance schedule should be periodically re-evaluated to assess any necessary changes to avoid re-occurrence of the blockage.

Safety Of Inspection And Maintenance Personnel

Maintenance and inspection of the stormwater facilities is not expected to pose unusual danger to personnel. However, maintenance personnel are expected to dress in appropriate protective clothing and use the appropriate equipment and safety gear in accordance with OSHA regulations and procedures.

Project Description

The 78 Locust Avenue project proposes to construct a new multi-family residential building with a pervious pavement parking lot exfiltration system and landscaping improvements located at 78 Locust Avenue in the Township of Bloomfield.

As per FEMA Flood Insurance Rate Map No. 34013C0112G, effective date April 03, 2020, the subject property is located within a flood hazard area with a flood hazard elevation of 121.9.

This project proposes to disturb the entire 0.96 AC of the existing lot as well as 0.05 AC of the surrounding right of way and adjacent parking easement in order to construct the proposed multi-family residential building and associated site improvements. The total project disturbance area is 1.01 AC. The site under existing conditions is vacant and consists of primarily lawn and gravel areas. Under proposed conditions, the site will consist of a multi-family building, parking lot, internal concrete walkways, concrete retaining walls, lighting and landscaping improvements. The proposed regulated impervious coverage increase for the site is 0.638 AC. The proposed regulated motor vehicle surface coverage increase is 0.26 AC.

As per NJAC 7:8, this project classifies as a Major Development because the project disturbance area exceeds one acre, the creation of more than one-quarter acre of regulated impervious surface, and the creation of more than one-quarter acre of regulated motor vehicle surface. A pervious paving system has been design in accordance with NJ State Stormwater Management Standards.

Stormwater Maintenance Objective

The stormwater system proposed for this development is intended to attenuate and convey the stormwater that impacts the site. This maintenance plan is prepared to ensure the system in place is operating efficiently and reliably. The responsible party shall ensure the long-term/perpetual operation, maintenance, repair, and safety of the stormwater management facilities. In the event that the stormwater management facility becomes a danger to public safety or public health, or if it is in need of maintenance, the responsible party noted under safety and response to emergencies section above shall take immediate action, to remove the danger. Maintenance procedures are required to maintain the intended operation and safe condition of the stormwater management facility by reducing the occurrence of problems and malfunctions. To be effective, maintenance shall be performed on a regular basis and include such routine procedures as training of staff, periodic inspections, silt and debris removal and disposal, upkeep of moving parts, control of mosquitoes and other insects, and review of maintenance and inspection work to identify where the maintenance program could be more effective.

Repair procedures are required to correct a problem or malfunction at a stormwater management facility and to restore the facility's intended operation and safe condition. Based upon the severity of the problem, repairs shall be performed on an as-needed or emergency basis and include such procedures as structural repairs, mosquito control, removal of debris, sediment and trash which threaten discharge capacity, erosion repair, snow and ice removal, fence repair, and restoration of vegetation.

In the event that the stormwater management facility becomes a danger to public safety or public health, or if it is in need of maintenance, the responsible party shall immediately initiate maintenance and repair of the facility in a manner that is approved by the municipal engineer or associated designee.

Log Maintenance, Deed Filing & Yearly Plan Filing Requirements

The responsible party shall maintain a detailed log of all preventive and corrective maintenance for the structural stormwater management measures incorporated into the design of the development, including a record of all inspections and copies of all maintenance-related work orders as required by the Township of Bloomfield Ordinance Section §494-10.B(7)(a).

The responsible party shall ensure that the maintenance plan described herein and any future revisions thereto required by the Township of Bloomfield Ordinance Section §494-10.B(5) be recorded upon the deed of record for the property or properties.

The responsible party shall evaluate the effectiveness of the maintenance plan at least once per year and adjust the plan and the deed as needed required by the Township of Bloomfield Ordinance section §494-10.B(7)(b).

The responsible party 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 by the Township of Bloomfield Ordinance section §494-10.B(7)(c).



Should the ownership of the stormwater facilities change, the responsible party noted herein shall update the maintenance plan to include all the updated owner information. The responsible party shall then hand deliver or forward the plan via registered mail to the Township of Bloomfield within 90 days of the change of ownership/responsible party.

Maintenance of Conveyance Systems

The proposed conveyance system has adequate access for inspection and/or maintenance. The use of the proposed conveyance system is consistent with the community's surroundings for this area.

All conveyance systems including inlets, manholes, concrete chambers and pipes are expected to receive and/or accumulate debris and sediment. These systems must be inspected for clogging and excessive debris and sediment accumulation at four (4) times annually as well as after every storm exceeding 2 inches of rainfall. Sediment removal should take place when all runoff has drained from the conveyance network and the systems are reasonably dry. Disposal of debris, trash, sediment, and other waste material should be done at suitable disposal/recycling sites and in compliance with all applicable local, state, and federal waste regulations.

All structural components must be inspected for cracking, subsidence, breaching, wearing, and deterioration at least annually and after any significant rainstorm event. The condition of the surrounding and above lying materials shall be inspected for evidence of potential failures or deterioration.

Two people will be needed to perform routine maintenance of the conveyance systems. The routine equipment expected to be utilized for the maintenance tasks include a jet vacuum vehicle, shovels, lighting equipment and a wheel barrel or truck for the debris hauling. Water, mosquito control chemicals, and concrete repair materials may also be required depending on the structure condition. No manufacturer's instructions or user manuals are available for these components.

Maintenance of Pervious Paving Systems

The proposed pervious paving system provides adequate ability for inspection and/or maintenance. The use of the proposed system allows for an optimized development and a minimization of disturbance. Maintenance shall be in accordance with the NJ Stormwater Best Management Practices Manual Chapter 9.6, last revised July 2023 as outlined below:

The pervious paving system consists of the pavement section, distribution pipes, inspection ports, outlet control structures, stone bed and appurtenances. The surface course must be inspected after every storm exceeding 1 inch of rainfall. If mud or sediment is tracked onto the surface course, it must be removed as soon as possible. Removal should take place when all runoff has drained from the surface course. The surface course must be inspected, at least once annually, for cracking, subsidence, spalling, erosion, deterioration and unwanted vegetation. Remedial measures must be taken as soon as possible. Herbicides must not be applied. The surface course of a pervious paving system must be vacuum swept, not power swept, at least four times per year. Vacuum sweeping must be followed by either air blowing, or high-pressure power washing

performed in accordance with the specifications recommended for the particular type of system. All dislodged material must be promptly removed.

The first annual maintenance must be performed in the spring. Maintenance must additionally be performed in the autumn, after the fallen leaves are collected and removed. Each spring, after the last snow or ice event, the infiltration rate of the surface course must be tested in accordance with the methods of either ASTM C1701 or C1781, as corresponds to the post-construction test performed for the system. At least 3 locations must be tested. One of the locations must be in an area where sediment is most likely to be deposited, such as, but not limited to, a parking lot entrance. The other test locations must be evenly spaced across the system surface. The locations and results obtained must be recorded in the maintenance plan for future reference and compared to the as-built testing results as a metric for determining if a system requires corrective action. The chart provided below shows the approximate infiltration rate based upon the time it takes to infiltrate either 8 or 40 pounds of water specified in the above-cited tests. This chart should be included in the maintenance plan for future reference. The infiltration rate, *II*, is based upon the following calculation:

$$II = (KK * MM) / (DD^2 * tt), \text{ where}$$

K = 126,870 in-lbs

M = water mass, lbs

DD = ring diameter = 12 inches

tt = time, in seconds

Test Methods Per ASTM C1701 or C1781		
Time to Infiltrate the Specified Amount of Water (seconds)	Approximate Surface Infiltration Rate (inches per hour)	
	<i>M</i> = 8 lbs	<i>M</i> = 40 lbs
30	235	1175
60	118	587
100	70.5	352
200	35.2	176
350	20.1	100.7
360	19.6	97.9
380	18.5	92.7
900	7.8	39.2
1760	4.0	20.0
1910	3.7	18.5
3600	2.0	9.8
5400	1.3	6.5
5470	1.3	6.4
6000	1.2	5.9

Over the lifetime of the surface course, no more than 10% of its surface area may be patched with impervious material such as bituminous asphalt or concrete. All patching must be recorded in the maintenance manual for future reference to prevent exceedance of this maximum.

Two people will be needed to perform routine maintenance of the pervious paving system. The routine equipment to be utilized for the maintenance tasks include a jet vacuum vehicle, shovels, lighting equipment and a wheel barrel or truck for the debris hauling. No manufacturer's instructions or user manuals are available for maintenance of these components. Maintenance would only take place in the adjacent components of the system, i.e. the structures, catch basins, pipes, inspection ports, outlet control structure and other units outside the pervious paving system. Water, mosquito control chemicals, and concrete repair materials may also be required depending on the structure condition.

Cost Estimate for Inspection and Maintenance Tasks

The estimated annual cost for inspection and maintenance tasks is anticipated to be approximately \$5,000.00 for this project.

MAINTENANCE INSPECTION FOR CONVEYANCE SYSTEM
Golemis Realty, LLC
NOTE: INSPECTIONS TO BE EVALUATED DURING A PERIOD OF DRY AND WARM WEATHER AND LOW TIDE CONDITIONS AT THE PROJECT SITE

Yes	No	Maintenance Evaluation	Action(s) Required if Answer "Yes"
<input type="checkbox"/>	<input type="checkbox"/>	Is there a buildup of sediment (in excess of 2 inches), trash, debris or any other stormwater pollution within the header pipes or outlet control structure?	Remove sediment, trash, debris, etc. Dispose debris in accordance with local, state and federal requirements.
<input type="checkbox"/>	<input type="checkbox"/>	Is there any structural failure?	Consult engineer to determine safety and/or stability of the system.
<input type="checkbox"/>	<input type="checkbox"/>	Are there visible signs of cracking, subsidence, erosion or deterioration of any of the underground infiltration system?	Consult engineer to determine safety and/or stability of the system.
<input type="checkbox"/>	<input type="checkbox"/>	Are there any signs of unusual color, odor or turbidity within the discharged water?	Evaluate header pipes and structures for possible sediment, trash and debris. Cleanse system if any of the aforementioned obstructions are encountered. Dispose obstructions in accordance with local, state and federal requirements.
<input type="checkbox"/>	<input type="checkbox"/>	Are there root intrusions or any other plant growth occurring with the system(s)?	Remove vegetation and dispose in accordance with local, state and federal regulations.
<input type="checkbox"/>	<input type="checkbox"/>	Are mosquito or other insect habitats consistently present in the area as a result of the structure(s)?	Use appropriate mosquito insecticides or agents to control or eliminate insect breeding.

MAINTENANCE INSPECTION FOR PERVIOUS PAVING SYSTEM
Golemis Realty, LLC
NOTE: INSPECTIONS TO BE EVALUATED DURING A PERIOD OF DRY AND WARM WEATHER AND LOW TIDE CONDITIONS AT THE PROJECT SITE

Yes	No	Maintenance Evaluation	Action(s) Required if Answer "Yes"
<input type="checkbox"/>	<input type="checkbox"/>	Is there a buildup of sediment (in excess of 2 inches), trash, debris or any other stormwater pollution within the header pipes or outlet control structure?	Remove sediment, trash, debris, etc. Dispose debris in accordance with local, state and federal requirements.
<input type="checkbox"/>	<input type="checkbox"/>	Is there any structural failure?	Consult engineer to determine safety and/or stability of the system.
<input type="checkbox"/>	<input type="checkbox"/>	Are there visible signs of cracking, subsidence, erosion or deterioration of any of the underground infiltration system?	Consult engineer to determine safety and/or stability of the system.
<input type="checkbox"/>	<input type="checkbox"/>	Are there any signs of unusual color, odor or turbidity within the discharged water?	Evaluate header pipes and structures for possible sediment, trash and debris. Cleanse system if any of the aforementioned obstructions are encountered. Dispose obstructions in accordance with local, state and federal requirements.
<input type="checkbox"/>	<input type="checkbox"/>	Are there root intrusions or any other plant growth occurring with the system(s)?	Remove vegetation and dispose in accordance with local, state and federal regulations.
<input type="checkbox"/>	<input type="checkbox"/>	Are mosquito or other insect habitats consistently present in the area as a result of the structure(s)?	Use appropriate mosquito insecticides or agents to control or eliminate insect breeding.

Maintenance Log

**MAINTENANCE LOG
FOR CONVEYANCE SYSTEM**

**INSTRUCTIONS:
THIS LOG SHALL BE UPDATED TO INCLUDE ALL
MAINTENANCE PERFORMED AT A SPECIFIC
STORMWATER MEASURE**

Golemis Realty, LLC

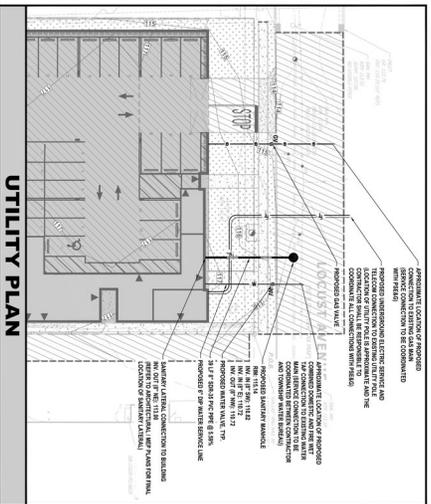
DATE	PERSON CONDUCTING MAINTENANCE	AREA OF MAINTENANCE	PROBLEM(S) FOUND	ACTION(S) TAKEN

MAINTENANCE LOG FOR PERVIOUS PAVING SYSTEM		INSTRUCTIONS: THIS LOG SHALL BE UPDATED TO INCLUDE ALL MAINTENANCE PERFORMED AT A SPECIFIC STORMWATER MEASURE		
Golemis Realty, LLC				
DATE	PERSON CONDUCTING MAINTENANCE	AREA OF MAINTENANCE	PROBLEM(S) FOUND	ACTION(S) TAKEN

Appendix



GRAPHIC SCALE
1" = 10'-0"



UTILITY PLAN

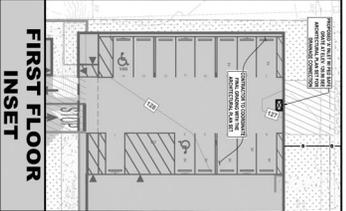
GENERAL NOTES

- EXISTING CONDITIONS ARE AT THE MAIN UNITED NATIONS AND BLOOMFIELD STREETS TO THE WEST AND SOUTH OF THE PROPERTY. ALL UTILITIES SHALL BE LOCATED IN ACCORDANCE WITH THE 2008 NJ DEPARTMENT OF TRANSPORTATION AND PLANNING (NJDOT) STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.
- CONNECTIONS TO EXISTING UTILITIES SHALL BE MADE IN ACCORDANCE WITH THE 2008 NJDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. ALL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE 2008 NJDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.
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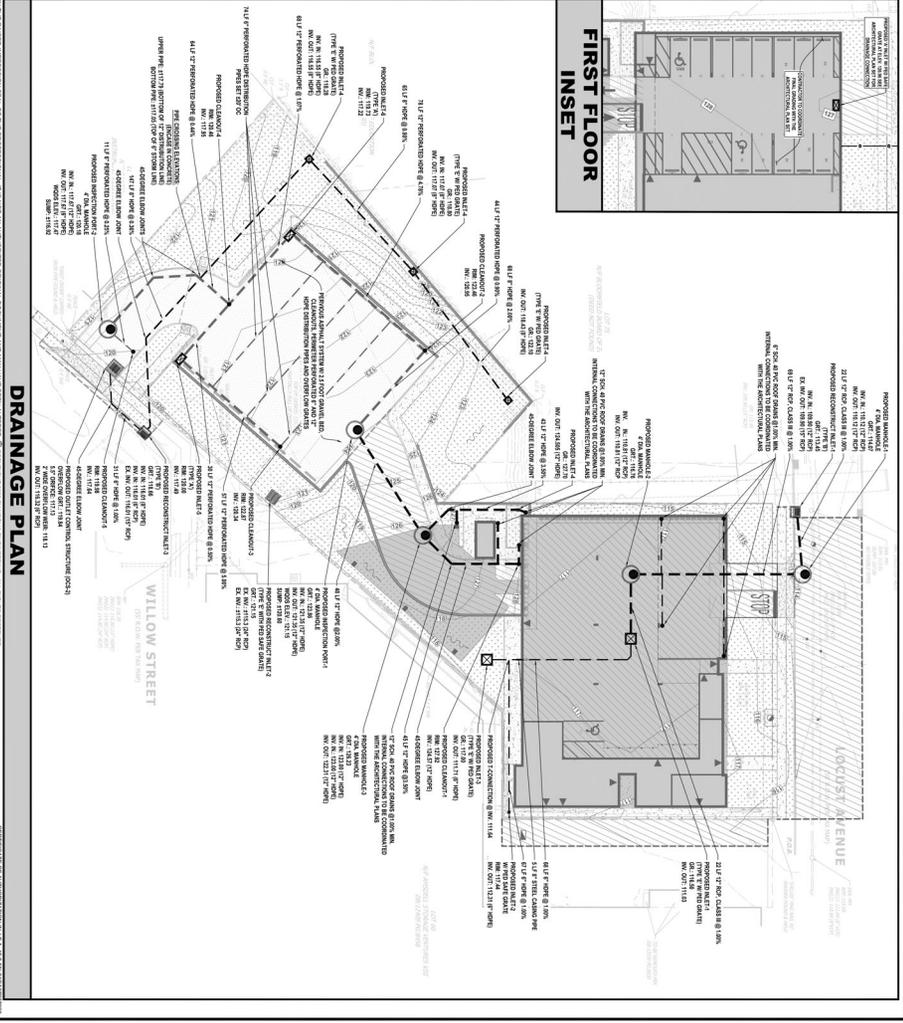
DRAINAGE AND UTILITY NOTES

- ALL DRAINAGE CONNECTIONS SHALL BE CONNECTED TO THE APPROPRIATE STORM OR SANITARY SYSTEM. THE LOCATION OF EACH DRAINAGE CONNECTION IS SHOWN ON THIS PLAN AND INDICATED BY A DASHED LINE WITH AN 'X' AT THE CONNECTION POINT.
- CONNECTIONS TO EXISTING UTILITIES SHALL BE MADE IN ACCORDANCE WITH THE 2008 NJDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. ALL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE 2008 NJDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.
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PERMEABLE ASPHALT	
1. PERMEABLE ASPHALT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE 2008 NJDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.	
APPLICANT OWNER	
NAME: [Redacted]	ADDRESS: [Redacted]
PHONE: [Redacted]	EMAIL: [Redacted]



FIRST FLOOR INSET



DRAINAGE PLAN

<p>DAVID J. NEGLIA, P.E., P.P. PROFESSIONAL ENGINEER STATE OF NEW JERSEY</p>	<p>JOHN J. NEGLIA, P.E. PROFESSIONAL ENGINEER STATE OF NEW JERSEY</p>	<p>NEGLIA ENGINEERING ASSOCIATES 1000 ROUTE 100, SUITE 200 SPRING HOUSE, NJ 07081 TEL: 908.426.1234 WWW.NEGLIAENGINEERING.COM</p>	<p>DRAINAGE AND UTILITY PLAN PROPOSED MULTI-FAMILY RESIDENTIAL DEVELOPMENT 78 LOCUST AVENUE (BLOCK 129 - LOT 70) TOWNSHIP OF BLOOMFIELD ESSEX COUNTY NEW JERSEY</p> <p>DATE: 08/20/2024 SCALE: 5/00 DRAWN BY: B. PERRAZZO</p>
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INLET PROTECTION STANDARDS

DEFINITION
 A temporary barrier and structural facility installed at a storm drain inlet.
PURPOSE
 The purpose of these standards is to provide a minimum standard performance of the barrier and inlet protection system.

CONDITIONS WHERE PRACTICE APPLIES

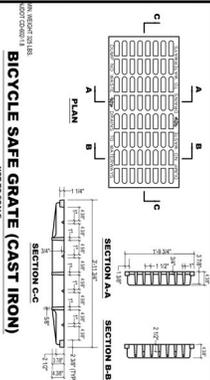
1. CONCRETE, POLYMER AND METAL
2. 4:1 SLOPE OR FLATTER
3. 1/4" MINIMUM CLEARANCE
4. 1/4" MINIMUM CLEARANCE
5. 1/4" MINIMUM CLEARANCE

WATER QUALITY ENHANCEMENT

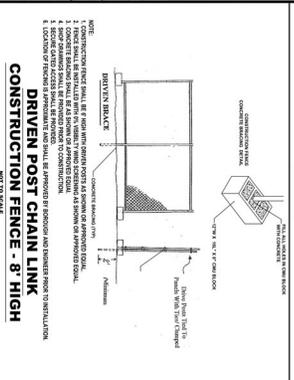
The barrier must be designed to filter out debris and sediment from stormwater runoff. The stormwater system is a public utility and the barrier must be designed to protect the system from debris and sediment.

DESIGN CRITERIA

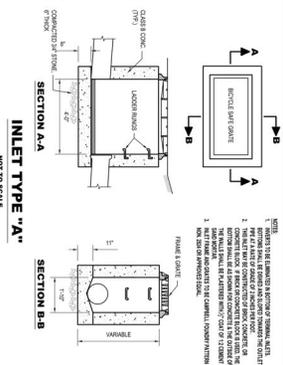
1. THE BARRIER SHALL BE DESIGNED TO WITHSTAND THE FORCE OF DEBRIS AND SEDIMENT.
2. THE BARRIER SHALL BE DESIGNED TO WITHSTAND THE FORCE OF DEBRIS AND SEDIMENT.
3. THE BARRIER SHALL BE DESIGNED TO WITHSTAND THE FORCE OF DEBRIS AND SEDIMENT.
4. THE BARRIER SHALL BE DESIGNED TO WITHSTAND THE FORCE OF DEBRIS AND SEDIMENT.
5. THE BARRIER SHALL BE DESIGNED TO WITHSTAND THE FORCE OF DEBRIS AND SEDIMENT.



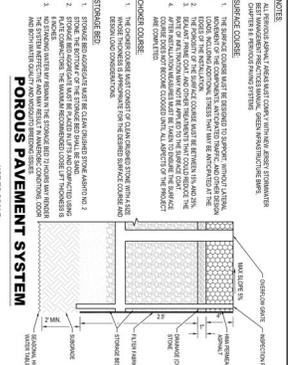
BICYCLE SAFE GRATE (CAST IRON)
 NOT TO SCALE



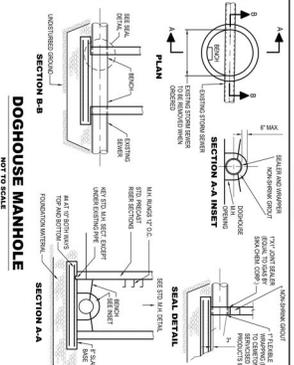
DRIVEN POST CHAIN LINK CONSTRUCTION FENCE - 8' HIGH
 NOT TO SCALE



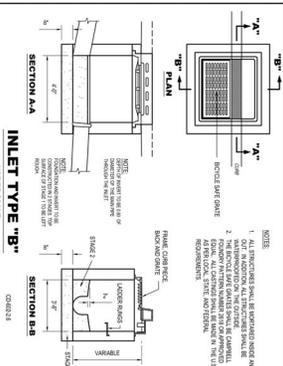
INLET TYPE "A"
 NOT TO SCALE



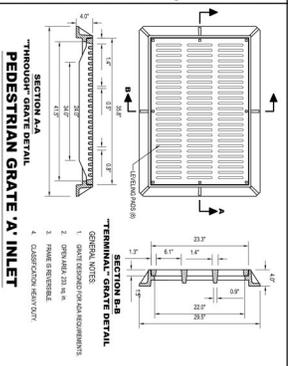
POROUS PAVEMENT SYSTEM
 NOT TO SCALE



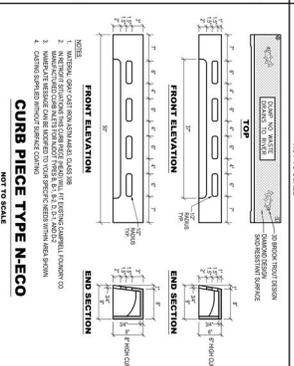
DOGHOUSE MANHOLE
 NOT TO SCALE



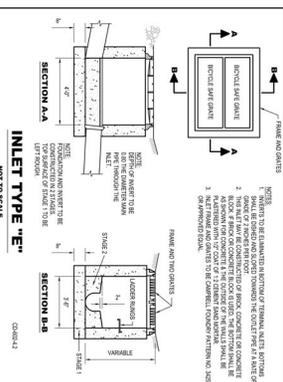
INLET TYPE "B"
 NOT TO SCALE



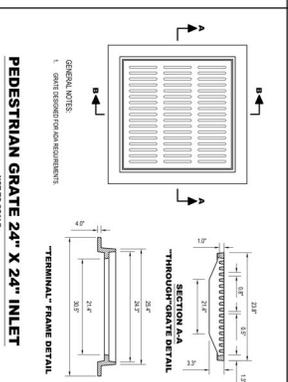
THROUGH GRATE "A" INLET
 NOT TO SCALE



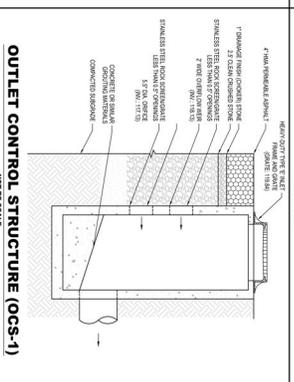
CURB PIECE TYPE NECO
 NOT TO SCALE



INLET TYPE "E"
 NOT TO SCALE



PEDESTRIAN GRATE 24" X 24" INLET
 NOT TO SCALE



OUTLET CONTROL STRUCTURE (OCS-1)
 NOT TO SCALE


NEGLIA ENGINEERING ASSOCIATES, P.C.
 PROFESSIONAL ENGINEERS
 78 LOCUST AVENUE, SUITE 200
 BLOOMFIELD, NEW JERSEY 07003
 TEL: 973-751-1100 FAX: 973-751-1101
 WWW.NEGLIAENGINEERING.COM

CONSTRUCTION DETAILS I
 PROPOSED MULTI-FAMILY RESIDENTIAL DEVELOPMENT
 78 LOCUST AVENUE, BLOCK 129 - LOT 70
 TOWNSHIP OF BLOOMFIELD
 NEW JERSEY
 DATE: 08/20/2010
 DRAWN BY: BELP/VAZ/010
 SCALE: 10:00

