STORMWATER MANAGEMENT OPERATIONS AND MAINTENANCE MANUAL

Located at

BLOCK 97, LOT 15
58 FIRST AVENUE

In

BOROUGH OF ATLANTIC HIGHLANDS
MONMOUTH COUNTY, NJ

Has been prepared for

MR. KEVIN BIRCH

58 FIRST AVENUE
ATLANTIC HIGHLANDS, NJ 07716

on

August 11, 2023
Revised August 23, 2024

Christopher M. Bednarski, PE
NJPE 24GE05256400

Insite Job #: 23-2121-01

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TABLE OF CONTENTS

I. INTRODUCTION 2
II. PROJECT DESCRIPTION 3
III. RESPONSIBILITY FOR OPERATION AND MAINTENANCE 4
IV. GENERAL MAINTENANCE INFORMATION 5
V. DESIGNATED INSPECTORS LIST 7
VI. INSPECTION AND INSPECTION CHECKLIST 7
VII. FUNCTIONAL MAINTENANCE 8
VIII. MAINTENANCE SCHEDULE 14
X. MAINTENANCE TOOLS AND EQUIPMENT 15
XI. MAINTENANCE COSTS 16
XII. REFERENCES 16

APPENDICES

I. MANUFACTURER'S RECOMMENDED MAINTENANCE PRECEDURE FOR SUBSURFACE INFILTRATION/DETENTION SYSTEM
II. SAMPLE MAINTENANCE WORK ORDER, LOG, AND CHECKLIST
III. SAMPLE INSPECTION CHECKLIST
IV. SAMPLE INSPECTION LOG
V. OPINION OF PROBABLE COSTS
VI. GRADING AND DRAINAGE PLAN AND CONSTRUCTION DETAILS

I. INTRODUCTION

The proposed project is located at 58 First Avenue in the Borough of Atlantic Highlands and is bounded by First Avenue to the West-North-West and Second Avenue to the East-South-East. The project is bounded by existing buildings to the North-East and South-West. The property is currently fully developed with an existing building, walkways, and associated parking. The proposed project consists of the construction of a paved parking lot, concrete sidewalk, and a stone area below the existing retaining wall.

This manual addresses the maintenance issues for the specific components of the pervious paving system. This manual also addresses the functional maintenance category, as represented by the preventative maintenance component and the corrective maintenance component, as well as the aesthetic category of the stormwater management systems.

The primary emphasis of this maintenance program is on Preventative rather than Corrective Maintenance. Aesthetic maintenance will also play a key role on this maintenance program. When performed regularly, Aesthetic maintenance will help reduce the required amount of both Preventative and Corrective maintenance. It will maintain the visual appeal of a Stormwater Management Facility and allow it to reflect positively on the maintenance staff, owner, and community.

Both the Borough and NJDEP require the following procedures be followed as per NJAC 7:8-5.8:

a. Copies of the maintenance plan must be provided to the owner and operator of the stormwater management measure. Copies must also be submitted to all reviewing agencies as part of each agency's approval process and in some instances recorded with the County Clerk.

b. The title and date of the maintenance plan and the name, address, and telephone number of the person with stormwater management maintenance responsibility as specified in the plan must be recorded on the deed of the property on which the measure is located.

Any change in this information due, for example, to a change in property ownership, must also be recorded on the deed.

c. The person with maintenance responsibility must evaluate the maintenance plan for effectiveness at least annually and revise as necessary.

d. A detailed, written log of all preventative and corrective maintenance performed at the stormwater management measure must be kept, including a record of all inspections and copies of maintenance-related work orders.

e. The person with maintenance responsibility must retain and, upon request, make available the maintenance plan and associated logs and other records for review by a public entity with administrative, health, environmental, or safety authority over the site.

II. PROJECT DESCRIPTION

The project is not considered a major development by the Stormwater Control section of the Borough of Atlantic Highlands Ordinance (Section 311-4.Q.1) or the NJDEP Stormwater Management requirements (NJAC 7:8) and therefore water quality, water quantity and groundwater recharge measures are not required for the proposed improvements pursuant thereto.

The proposed project includes stormwater management facilities to attenuate the increase in runoff generated by the proposed impervious surfaces. More specifically, pervious paving system is proposed on the property.

In addition to runoff attenuation, total suspended solid (TSS) removal is achieved via the use of infiltration during the Water Quality Design Storm event. Since the entire Water Quality Design Storm event will be stored within the basin, the TSS removal rate of 80% will be achieved.

Furthermore, since there are no appreciable changes proposed to the land use, land cover, or topography of the site, no changes will occur to the hydrology of the site. Therefore, no additional stormwater management facilities are required. The impervious coverage, site runoff, and grading design closely matches the existing conditions and will have no negative impact on the project.

III. RESPONSIBILITY FOR OPERATION AND MAINTENANCE

This manual is prepared by InSite Engineering, LLC to provide a mechanism by which remedial repairs and routine maintenance items can be performed to avoid long term degradation of the stormwater management facilities.

The parties responsible for the shared maintenance repair, and guarantee of the stormwater management facilities onsite will be as follows:

KEVIN BIRCH
58 FIRST AVENUE
ATLANTIC HIGHLANDS, NJ 07716

Contact Person:
KEVIN BIRCH
Kingschoice1@icloud.com
(732) 766-0803

The drainage plan and any future revisions shall be recorded upon the deed of record for the property. The responsible parties, as indicated above, are to contract directly with outside contractors for the maintenance and repair of the stormwater management facilities.

This includes maintenance of onsite landscape areas and required snow removal operations. Periodic maintenance of the stormwater management facilities is to be contracted with and performed by a qualified contractor.

Should ownership of the property change, permanent arrangements shall be made requiring that the operation and maintenance of all facilities shall pass to any successive owner.

IV. GENERAL MAINTENANCE INFORMATION

This document has been prepared to provide direction in the maintenance of the Stormwater Management Facilities located at 58 First Avenue, Atlantic Highlands within Block 97, Lot 15, situated in the Borough of Atlantic Highlands, Monmouth County, New Jersey. A well-organized maintenance manual will protect the Stormwater Management Facility against deterioration while prolonging the life of the facility as well. The manual establishes a basic maintenance program based primarily on systematic inspections of the facility by a representative of the property owner.

A regular inspection means the visual inspection of the facilities at scheduled periods to check for any signs of deterioration in the materials or functioning of the constructed systems. The designated inspector shall perform informal inspections, also identified herein as maintenance inspections. Informal inspection means the visual inspection of the onsite facilities by the inspector to detect any deterioration of the facilities.

During each inspection, a checklist of items shall be used. The completed checklist shall be signed by the inspector and appropriately filed by the owner.

This manual is intended as a guide outlining the proper procedure for conducting routine maintenance for the Stormwater Management Facilities. A copy of this manual shall be provided to the appointed individual or company who will perform the onsite inspections. Should the individual/company responsible for the inspections change, a copy of this manual shall be given to the new inspector to maintain consistency of the inspection reports. A continuous record of the operations and maintenance of the facilities must be maintained. The designated inspectors list lists the official and various contractors responsible for inspections. This section shall be updated periodically pending any changes to the list.

This section of the manual has been prepared to provide the Inspector with a simple and systematic method for inspecting, operating and maintaining the stormwater management system. For the most part, the maintenance for the facilities involves observation rather than evaluation. The following sections provide a step-by-step procedure to assist the inspector in performing all duties in a rational and orderly manner. The inspector must become familiar with the background information in this manual.

Finally, prior to conducting an inspection or performing routine maintenance, the inspector must review the Maintenance Tools and Equipment List, and the Inspection and Inspection Checklist located within this manual. Each time an inspection reveals the need for maintenance, the inspector shall notify the owner, who may hire a contractor to perform the work (under the direction of a New Jersey Licensed Professional Engineer as needed). Each time maintenance is performed on the stormwater management facilities, the inspector must record the incident and place a copy of the maintenance checklist on file. Inspections shall be performed a minimum of once every year and after each major storm event of 1 inch of rain or more. Routine maintenance shall be performed after each inspection and each major storm event as required.

This manual addresses the need to properly plan for the maintenance of the Stormwater Management Facilities by addressing the maintenance issues for varying components of the proposed underground detention/infiltration pipes, stormwater structures and basins as they relate to preventative maintenance, corrective maintenance, and aesthetic maintenance. This manual also addresses the costs associated with the maintenance requirements for the facilities.

Presented below are descriptions of maintenance procedures that are applicable to the proposed Stormwater Management Facilities. The primary emphasis of this maintenance program is on Preventative rather than Corrective Maintenance. The goal of this maintenance program is to provide a sufficient amount of Preventative Maintenance to minimize (or entirely eliminate) any Corrective Maintenance procedures.

Aesthetic maintenance will also play a key role on this maintenance program. As described below, Aesthetic maintenance procedures can be easily incorporated into a Preventative Maintenance schedule. When performed regularly, Aesthetic maintenance will help reduce the required amount

of both Preventative and Corrective maintenance. It will maintain the visual appeal of a Stormwater Management Facility and allow it to reflect positively on the maintenance staff, owner, and community.

V. DESIGNATED INSPECTORS LIST

This section must be updated periodically to reflect the name(s) and telephone number(s) of the Inspectors and Contractors who are appointed to perform the inspections and maintenance of the Stormwater Management Facilities:

Inspectors Name/Company	Address	Telephone Number
1.		
2.		
3.		
Designated Contractor		
1.		
2.		
3.		

Professional Engineer	Address	Telephone Number
1.		
2.		
3.		
Officers		
1.		
2.		

VI. INSPECTION AND INSPECTION CHECKLIST

The proposed Stormwater Management Facilities shall be inspected on a regular basis during informal maintenance procedures and after major rainfall events of 1” or more. Additional

regularly scheduled inspections shall also occur by qualified personnel. The inspections shall include, but are not limited to, the following:

Informal Inspection:

a. Inspect inlet structures for debris and trash along pavement areas.
b. Inspect pavement for signs of settling (depressions) and ponding.
c. Inspect inlet and manhole for damage to curb pieces, grates, and covers.
d. Inspect outlet control structures for debris, trash, external damage to structure, and graffiti.
e. Inspect system bottoms for standing water within 72 hours after storm event.

Regularly Scheduled Inspections

a. All informal inspection items
b. Inspect inlet and manhole interiors for sediment, debris, garbage, and structural damage.
c. Inspect pipes for clogging by sediments, garbage, and debris
d. Inspect outlet control structures interior for sediment, debris, garbage and structural damage.

The inspection checklist and log should be copied and completed for required items every time an inspection is performed. In general, informal inspections should be performed every 2-4 weeks between March and November. After each inspection, maintenance operations shall be directed as necessary.

VII. FUNCTIONAL MAINTENANCE

A. Introduction

Functional Maintenance is the maintenance required to keep a Stormwater Management Facility functional or operational at all times. Functional Maintenance includes both preventative (routine) maintenance and corrective (emergency) maintenance.

1. Preventative Maintenance

   Preventative Maintenance includes functional maintenance procedures that are required to maintain a Stormwater Management Facility's intended operation and safe condition by preventing the occurrence of problems and malfunctions. Preventative maintenance will be performed in accordance with the direction presented in this manual. Typical routine procedures include silt and debris removal, and upkeep of moving parts. Since it is performed on a regular basis, preventative maintenance is simpler to schedule and budget for and, ultimately, is easier and less expensive to perform than corrective maintenance.

2. Corrective Maintenance

   Corrective maintenance includes the functional maintenance procedures that 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, corrective maintenance must be performed on an as-needed or emergency basis. By its nature, corrective maintenance is much more difficult to schedule and budget for and, ultimately, is generally more difficult and expensive to perform than preventative maintenance.

3. Aesthetic Maintenance

   Aesthetic maintenance is the maintenance required to enhance or maintain the visual appeal of a facility. The stormwater facilities have been designed to be an integral component of the development. As such, these facilities should not have an impact on the aesthetic quality of the development as a whole.

4. Procedures

   a. Copies of the maintenance plan must be provided to the owner and operator of the stormwater management measure. Copies must also be submitted to all reviewing agencies as part of each agency's approval process and in some instances recorded with the County Clerk.

b. The title and date of the maintenance plan and the name, address, and telephone number of the person with stormwater management maintenance responsibility as specified in the plan must be recorded on the deed of the property on which the measure is located. Any change in this information due, for example, to a change in property ownership, must also be recorded on the deed.

c. The person with maintenance responsibility must evaluate the maintenance plan for effectiveness at least annually and revise as necessary.

d. A detailed, written log of all preventative and corrective maintenance performed at the stormwater management measure must be kept, including a record of all inspections and copies of maintenance-related work orders.

e. The person with maintenance responsibility must retain and, upon request, make available the maintenance plan and associated logs and other records for review by a public entity with administrative, health, environmental, or safety authority over the site.

B. Pervious Asphalt Pavement

General maintenance that occurs through the year:

1. You should inspect your site annually, or after a particularly heavy rain event when the drainage voids can become clogged with debris.

2. Apply high-pressure washing to the pervious asphalt surface course after sweeping away particulates thoroughly and site still has pooling water.

3. Application of abrasive materials for snow treatment should be prohibited in order to prevent clogging.

Permeable Surface Inspections

To perform the inspections, we will follow the Inspection sheet

1. Sediment accumulation: Has sediment & litter accumulated on the surface of the permeable surface?

2. Vegetation weed/mosses filling voids: Is there vegetation growing in or on the permeable surface? You may need to pressure wash area/VAC truck to remove the buildup in the permeable material.

3. Trash and debris: Is there trash and debris in the permeable area?

4. Landscaping: Has sediment runoff, leaf and debris from adjacent landscaping washed onto the permeable area.

5. Visual contaminants and pollution: Does the site have a sheen across the surface, discoloration, and/or oil stains.

6. Ponding/Surface clogged: Is excessive water flowing off the site and not infiltrating into the impervious area.

7. Overflow clog: Does the overflow work properly during a rain event or is there water pooling on the permeable area?

8. Erosion: Is the area-exhibiting signs of erosion.

9. Deterioration /roughening: Does the site have deterioration or show the site has become roughened to reducing the infiltration?

10. Subsurface clog: Has maintenance already been performed for surface clogging? Does the site have surface ponding after the maintenance performed?

Maintaining the landscaping adjacent to the permeable area will decrease the chance for surface area becoming clogged. This will reduce the cost of long-term maintenance of the permeable area.

Clogging is evidenced by ponding on the surface.

1. The primary purpose of cleaning and maintaining your pervious paving system and structures is to make sure that the drainage voids, or openings, in the surface are clean, clear from all debris, and maintain efficiency.

2. Debris can clog up the drainage voids of your gravel system and in turn reduce the ability for water to flow through the system.

3. These surfaces need to be kept clean and free of debris, so it is necessary to sweep, vacuum, and wash these systems, to keep the voids clear and to allow them to function, as they should for treatment of stormwater.

Permeable Surface Maintenance

To perform the inspections, we will follow the Inspection sheet

1. Sediment accumulation: Clean litter from site and sweep and vacuum permeable surface.

2. Vegetation weed/mosses filling voids: Remove vegetation and clean permeable surface.

3. Trash and debris: Clean surface and remove trash from the permeable surface.

4. Landscaping: Maintain landscaping adjacent to the permeable area to reduce surface clogging.

5. Visual contaminants and pollution: Use absorbent products that will not compact or fill the permeable surface pore space.

6. Ponding/Surface clogged: When ponding occurs, follow the maintenance of sweeping and vacuuming the surface when dry.

7. Overflow clog: Remove material clogging the overflow and flush to check that the overflow is working properly.

8. Erosion: Contact a professional/engineer if the site has erosion to repair the permeable area.

9. Deterioration /roughening: Contact an engineer to assess sites degradation and repair.

10. Subsurface clog: To correct subsurface clogging the site will need to be deep pressure wash. The site may require reverse flushing method to remove subsurface clogging. Contact a professional to perform the maintenance.

VIII. MAINTENANCE SCHEDULE

All maintenance shall be completed according to the following schedule. The inspection reports shall be summarized and signed by the inspector. These reports shall include a summary of the performance, condition of the entire stormwater system and recommendations for the repairs and/or replacement of facilities. If any deficiencies are observed in the stormwater management facility, the inspector shall notify the owner that corrective action should be implemented as soon as possible. The inspection reports shall be kept on file by the owners and shall be available for review by governing agencies as required.

Maintenance items required shall be completed as soon as possible after the item is identified for repair. Items under preventative maintenance shall be performed during routine maintenance of the site to ensure that the onsite systems are free of sediments, debris and garbage so that they continue to function in the appropriate manner.

The stormwater management systems shall have informal (preventative maintenance) inspections performed during regularly scheduled landscaping maintenance periods and after significant storm events of 1 inch of rain or more per 1 hour. These inspections shall occur year-round. A regular inspection for the stormwater facilities shall be performed once every year and shall be performed

between the months of March and May or between September and November. The enclosed forms shall be used to assist in the inspection procedure. All maintenance repairs must be completed as outlined in this manual and records of it shall be kept as part of the annual inspection and maintenance report.

IX. MAINTENANCE TOOLS AND EQUIPMENT

The following is a list of required inspection equipment for routine maintenance procedures and inspections.

1. A clipboard, a pencil and the inspection checklist – the inspection checklist is included in the Appendix.
2. A standard 6-foot collapsible ruler.
3. A camera – photographs or observed portions of the facilities will provide a measure of performance when comparing past and present maintenance practices or conditions.
4. A flashlight – a flashlight can be used to observe the inside of the inlets onsite.

The following is a list of tools and machinery that are typically required to maintain a Stormwater Management Facility.

1. Transportation Equipment
   a. Trucks for transportation of materials
   b. Trucks for transportation of equipment
   c. Vehicles for transportation of personnel

2. Debris, Trash and Sediment Removal Equipment
   a. Vacuum truck
   b. Water Jetting units
3. Miscellaneous Equipment
   a. Shovels
   b. Rakes
   c. Picks
   d. Wheel Barrows

e. Painting Equipment
f. Gloves
g. Standard Mechanics Tools
h. Tools for maintenance of equipment
i. Safety equipment
j. Tools for concrete work (mixers, forms, etc.)

4. Materials
   a. Paint
   b. Paint removers
   c. Spare parts for equipment
   d. Concrete

X. MAINTENANCE COSTS

In order to properly implement a stormwater management facilities maintenance plan, the costs associated with the maintenance procedures must be budgeted into the overall design of the system. Please refer to the Probable Costs Data Sheet included within this manual for general costs associated with the necessary equipment needed to maintain the system properly.

XI. REFERENCES

New Jersey Department of Environmental Protection. April 2004/September 2014. *New Jersey Stormwater Best Management Practices Manual, as amended.*

Stormwater Management Facilities Maintenance Manual. New Jersey Department of Environmental Protection. Trenton, New Jersey.

APPENDIX I
SAMPLE MAINTENANCE WORK ORDER,
LOG, AND CHECKLIST

Maintenance Work Order, Log, and Checklist
for
Stormwater Facilities
Located at
58 First Avenue; Block 97, Lot 15

Date:					

Preventative Maintenance
(place check in box of completed items for each date)

Work Item	Items Required	Items Done	Comments and Special Instructions
Trash and Debris Removal			
Bottom of Subsurface Basin			
Perimeter Areas			
Access Areas and Roads			
Outlet Structure and Trash Racks			
Inlets			
Discharge Pipe			
Other			
Sediment Removal			
Inlets			
Outlet Structure			
Discharge Pipe			
Trash Rack			
Bottom of Subsurface Basin			(Performed by Vacuum Truck)
Mechanical Components			
Locks			
Access Hatches			
Other Preventative Maintenance			

Corrective Maintenance

(place check in box of completed items for each date)

Removal of Debris & Sediment					
Structural Repairs					
Dewatering					
Erosion Repair					
Snow & Ice Removal					

Additional Maintenance Remarks and Notes:

APPENDIX II
SAMPLE INSPECTION CHECKLIST

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Inspection Checklist
for
Stormwater Facilities
Located at
58 First Avenue; Block 97, Lot 15

Facility Item	O.K.	Routine	Urgent	Comments
Bottom of Subsurface Basin				
Standing Water				
Settlement				
Trash and Debris				
Sediment				
Aesthetics				
Other				
Inlet Structure				
Condition of Structure				
Erosion				
Trash and Debris				
Sediment				
Aesthetics				
Other				
Outlet Structure				
Condition of Structure				
Erosion				
Trash and Debris				
Sediment				
Mechanical Components				
Aesthetics				
Other				
Other				
Miscellaneous				
Effectiveness of Existing Maintenance Program				

OK-The item checked is in good condition, and the maintenance program is adequate.

Routine-The item checked requires attention, but does not present an immediate threat to the facility function or other facility components.

Urgent-The item checked requires immediate attention to keep the facility operational or to prevent damage to other facility components.

Comments-Provide explanation and details if columns 2 or 3 are checked

Additional Maintenance Remarks and Notes:

APPENDIX III
SAMPLE INSPECTION LOG

InSite Engineering, LLC
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Inspection Log
for
Stormwater Facilities
Located at
58 First Avenue; Block 97, Lot 15

(place check in box of completed items for each date)

Date:						
Bottom of Subsurface Basin						
Standing Water						
Settlement						
Trash and Debris						
Sediment						
Aesthetics						
Other						
Inlet Structure						
Condition of Structure						
Erosion						
Trash and Debris						
Sediment						
Aesthetics						
Other						
Outlet Structure						
Condition of Structure						
Erosion						
Trash and Debris						
Sediment						
Mechanical Components						
Aesthetics						
Other						
Miscellaneous						
Effectiveness of Existing Maintenance Program						

Additional Maintenance Remarks and Notes:

APPENDIX V
OPINION OF PROBABLE COSTS

InSite Engineering, LLC
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ENGINEERS OPINION OF PROBABLE COSTS
FOR MAINTENCE OF STORMWATER MANAGMENT FACILITIES
PREPARED FOR
58 FIRST AVENUE
BLOCK 97; LOT 15

ESTIMATED ANNUAL COST OF STORMWATER SYSTEMS MAINTENACE

FREQUENCY	DESCRIPTION	CREW	COST PER HOUR PER CREW	EQUIPMENT	COST PER HOUR	EST. HOURS	COST	COST PER YEAR
Monthly	Litter pickup and grounds repair at / around inlets to systems, remove sediment/debris from	1 Maint. Person	$20.00	Hand tools	$20.00	1.0	$20.00	$240.00
Quarterly	Clean basin bottom and inlet, repair any damage	2 Laborers	$40.00	Pick-up truck and hand tools	$40.00	1.0	$80.00	$320.00
TOTAL PER YEAR:								**$560.00**

Notes:
1. This engineer's estimate has been prepared based upon review of plans entitled “Preliminary & Final Major Site Plan for 58 First Avenue ” as prepared this office.

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APPENDIX VI
GRADING AND DRAINAGE PLAN
AND CONSTRUCTION DETAILS

InSite Engineering, LLC
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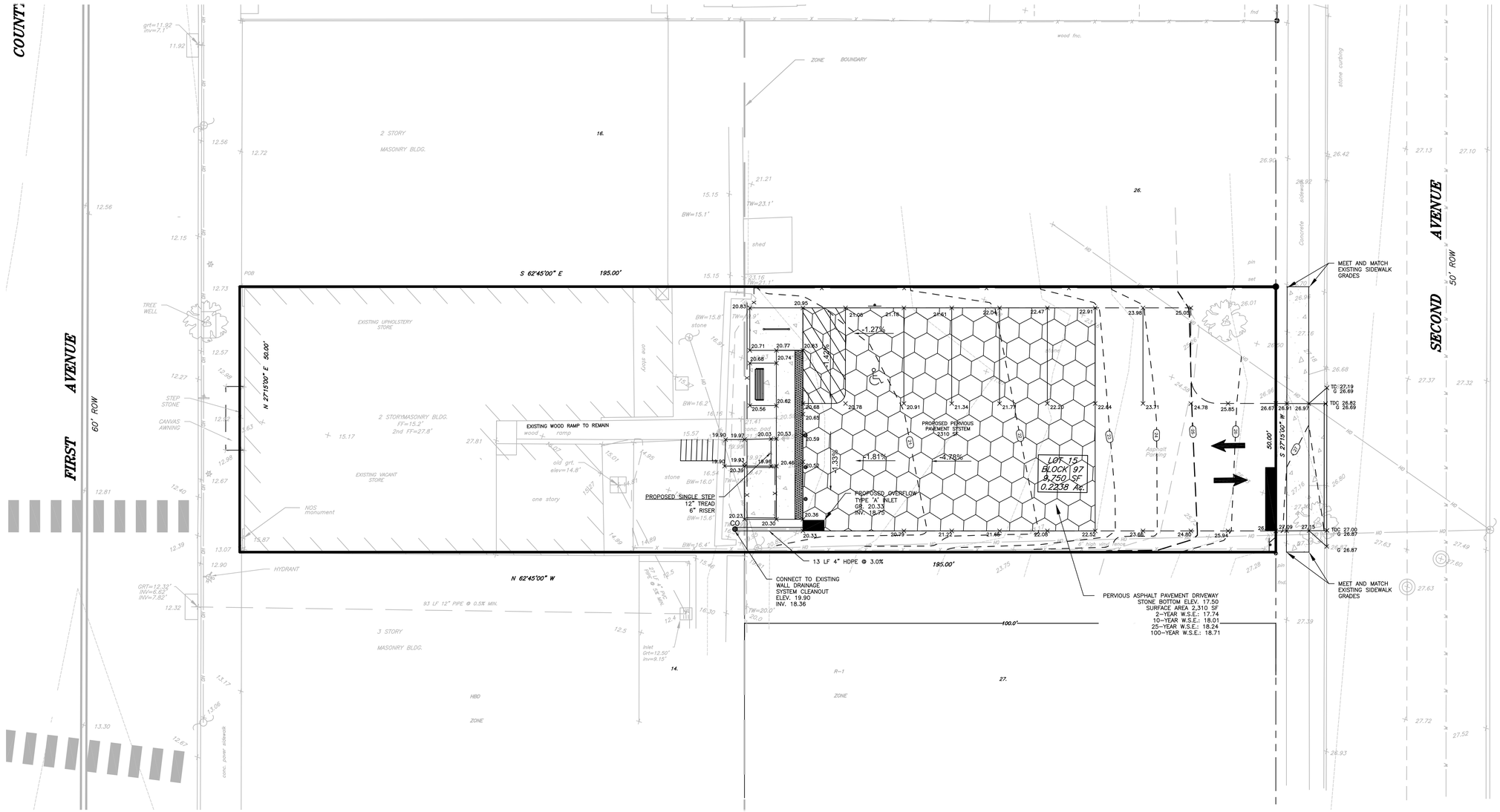
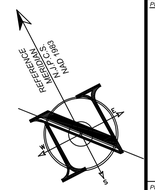
Licensed in NJ, PA, DE, NY, CT, NC, DC, & CO





10 0 10 20

SCALE : 1" = 10'

LEGEND

EXISTING		PROPOSED
	BOUNDARY LINE	
58	CONTOUR LINE	58
+ 46.80	SPOT ELEVATION	+46.80
	BUILDING	
	WALL	
G G	GAS	GAS
W W	WATER	WTR
	INLET	
	STORM	D
	SANITARY MAIN	S
SAN.	SANITARY LATERAL	SAN.
OH	OVERHEAD WIRE	O/H
E E	ELECTRIC	E
T T	TELEPHONE	TEL
	UTILITY POLE	
	HYDRANT	
	SIGN POST	
x x	FENCE	x x
	LIGHT FIXTURE	
TP-1	TEST PIT LOCATION	TP-1
	GRADE FLOW ARROW	
	SWALE CENTER LINE	

SEE SHEET C101 FOR PLAN NOTES

PROJECT INFORMATION

PROJECT NAME:

58 FIRST AVENUE

PROJECT LOCATION:

BLOCK 97, LOT 15
58 FIRST AVENUE
BOROUGH OF ATLANTIC HIGHLANDS,
MONMOUTH COUNTY, NJ

OWNER:

HUGH A. MCGUIRE, JR.
58 FIRST AVENUE
BOROUGH OF ATLANTIC HIGHLANDS,
MONMOUTH COUNTY, NJ

APPLICANT:

BIRCHWOOD, INC.
58 FIRST AVENUE
BOROUGH OF ATLANTIC HIGHLANDS,
MONMOUTH COUNTY, NJ

APPLICANT'S PROFESSIONALS

ATTORNEY:
MARK R. AIKINS, LLC
3350 ROUTE 138, BLDG 1, SUITE 113
TOWNSHIP OF WALL, NJ 07719

ARCHITECT:
GRASSO DESIGN GROUP
231 HIGHWAY 71
MANASQUAN, NJ 08736

SURVEYOR:
R AND T LAND SURVEYING
P.O. BOX 124
ATLANTIC HIGHLANDS, NJ 07716

INSITE ENGINEERING, LLC SINCE 2003

CALL BEFORE YOU DIG!
NJ ONE CALL.....800-272-1000
(at least 3 days prior to excavation)

ELECTRIC	RED
GAS / OIL	YELLOW
COMMUNICATION / TV	ORANGE
WATER	BLUE
SEWER	GREEN
TEMP. SURVEY MARKINGS	MAGENTA
PROPOSED EXCAVATION	WHITE

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COLORADO, & DISTRICT OF COLUMBIA

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CHRISTOPHER M. BEDNARSKI, P.E.
PROFESSIONAL ENGINEER
NJPE LIC. NO. 24GE05256400

REVISIONS

Rev.#	Date	Comment
2	08/23/24	REVISED PER REVIEW LETTER #2
1	07/19/24	REVISED PER ENG REVIEW LETTER
0	08/11/23	INITIAL RELEASE

SCALE: 1"=10'	DESIGNED BY: CMB
DATE: 08/11/23	DRAWN BY: SGD
JOB #: 23-2121-01	CHECKED BY: CMB
CAD ID: 23-2121-01r2	

NOT FOR CONSTRUCTION

APPROVED BY:

FOR CONSTRUCTION

PLAN INFORMATION

DRAWING TITLE:

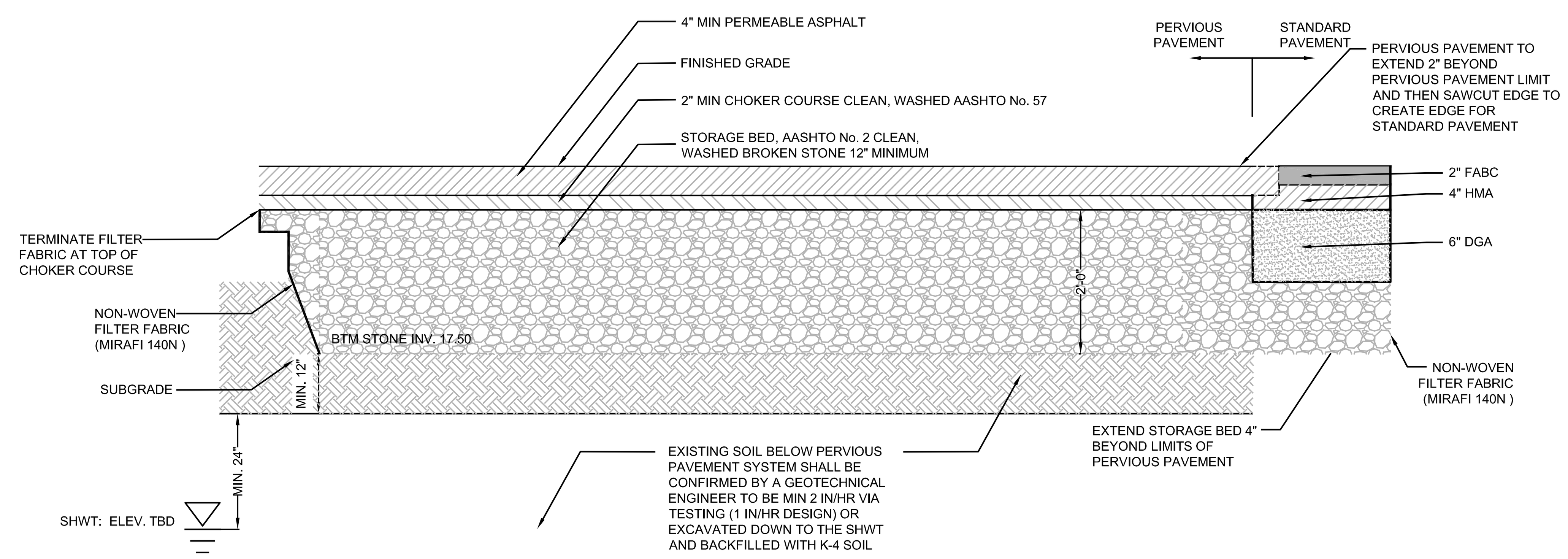
PRELIMINARY & FINAL MAJOR SITE PLAN

SHEET TITLE:

GRADING, DRAINAGE, AND UTILITY PLAN

SHEET NO:

C400



PERMEABLE PAVEMENT SPECIFICATIONS:

1. THE POROSITY OF THE PERMEABLE ASPHALT SURFACE COURSE MUST BE 15%-25%
2. THE BINDER USED IN THE SURFACE COURSE MUST BE PERFORMANCE GRADED FOR THE TYPE OF USE; THEREFORE, THE ASPHALT PLANT MUST ALSO BE ADVISED OF THE TYPE OF SURFACE COURSE SPECIFIED IN ORDER TO USE THE CORRECT BINDER FOR THE INSTALLATION. FOR PARKING LOTS, POLYMER MODIFIED BINDER PG 64E-22 MUST BE SPECIFIED AS IT HAS BEEN SHOWN TO MINIMIZE SCUFFING CAUSED BY AUTOMOBILES WITH POWER STEERING.
3. THE POROSITY OF ANY PERMEABLE ASPHALT BASE COURSE MUST BE LESS THAN OR EQUAL TO 25%
4. MINIMUM AIR TEMPERATURE FOR PAVING: 50 DEGREES
5. INSTALLATION OF PERMEABLE ASPHALT REQUIRES DIFFERENT TEMPERATURE GUIDELINES, AS FOLLOWS, THAN THAT THOSE OF IMPERVIOUS ASPHALT:
   - 5.1. ASPHALT BASE COURSE: 200-245 DEGREES
   - 5.2. FINISH ROLLING BASE COURSE: 140-150 DEGREES
   - 5.3. ASPHALT SURFACE COURSE: 200-220 DEGREES
   - 5.4. FINISH ROLLING SURFACE COURSE: 110-140 DEGREES
6. VEHICULAR USE IS PROHIBITED FOR AT LEAST 48 HOURS ONCE THE PAVEMENT INSTALLATION IS COMPLETE.
7. THE MINIMUM CHOKER COURSE THICKNESS IS 2 INCHES
8. STORAGE BED AGGREGATE MUST BE CLEAN, WASHED AND OPEN-GRADED AASHTO No. 2 BROKEN STONE.

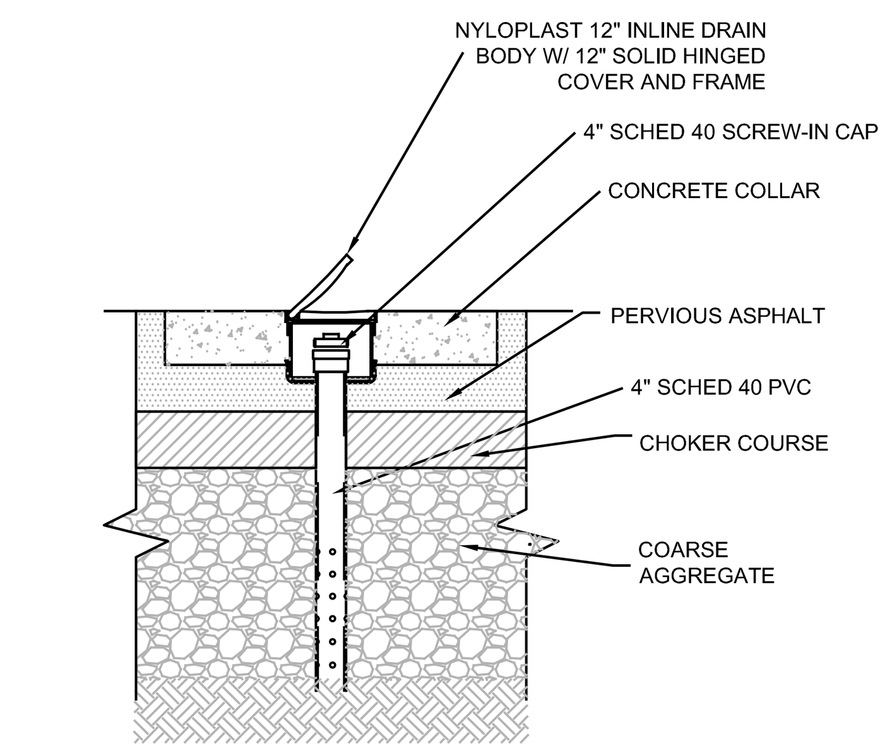
CHOKER COURSE SPECIFICATIONS:

1. THE CHOKER COURSE MUST CONSIST OF CLEAN, WASHED BROKEN STONE WHOSE THICKNESS IS APPROPRIATE FOR THE SURFACE COURSE DESIRED AND DESIGN LOAD CONDITIONS.
2. THE CHOKER COURSE MUST CONSIST OF CLEAN, WASHED AASHTO No. 57 BROKEN STONE.

STORAGE BED SPECIFICATIONS:

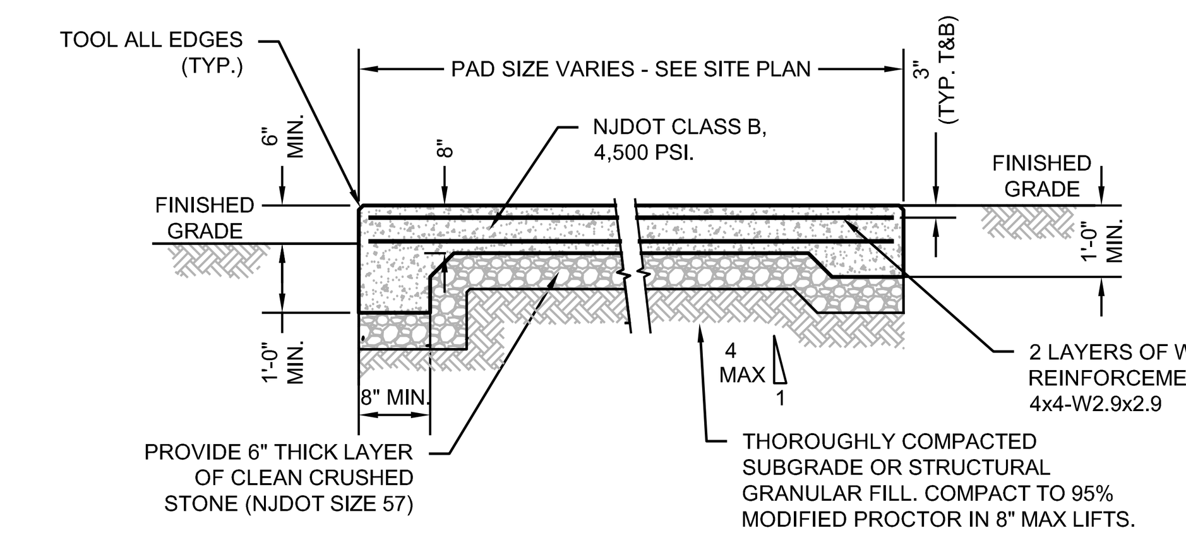
1. STORAGE BED AGGREGATE MUST BE PLACES IN LIFTS AND COMPACTED USING PLATE COMPACTORS. THE MAXIMUM RECOMMENDED LOOSE LIFT THICKNESS IS 6 INCHES.
2. NO STANDING WATER MAY REMAIN IN THE STORAGE BED 72 HOURS AFTER A RAIN EVENT IN ORDER TO ALLOW FOR SUFFICIENT STORAGE FOR THE NEXT RAIN EVENT. STORAGE TIMES IN EXCESS OF 72 HOURS MAY RENDER THE SYSTEM INEFFECTIVE AND MAY RESULT IN ANAEROBIC CONDITIONS, ODOR, AND BOTH WATER QUALITY AND MOSQUITO BREEDING ISSUES.

PERVIUS PAVEMENT SYSTEM
NTS



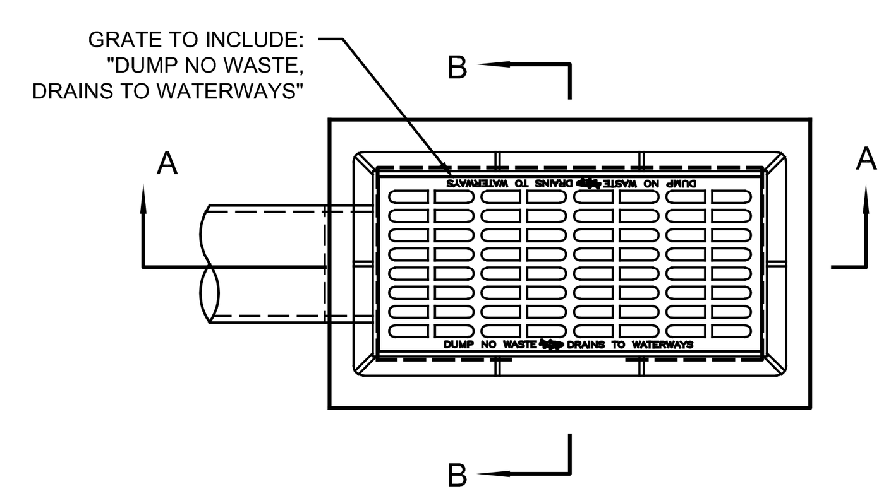
NOTES:
1. ALL SCHEDULE 40 FITTINGS TO BE SOLVENT CEMENTED.

PERVIOUS PAVEMENT CLEAN-OUT / INSPECTION PORT DETAIL
NTS



NOTES:
1. PROVIDE CONTROL JOINTS AT 6' MAX SPACING 1" DEEP AND EXPANSION JOINTS AT EDGE OF WALLS.
2. CONCRETE TO BE NJDOT CLASS B, 4,500 PSI.

SOILD WASTE ENCLOSURE CONCRETE PAD
NTS

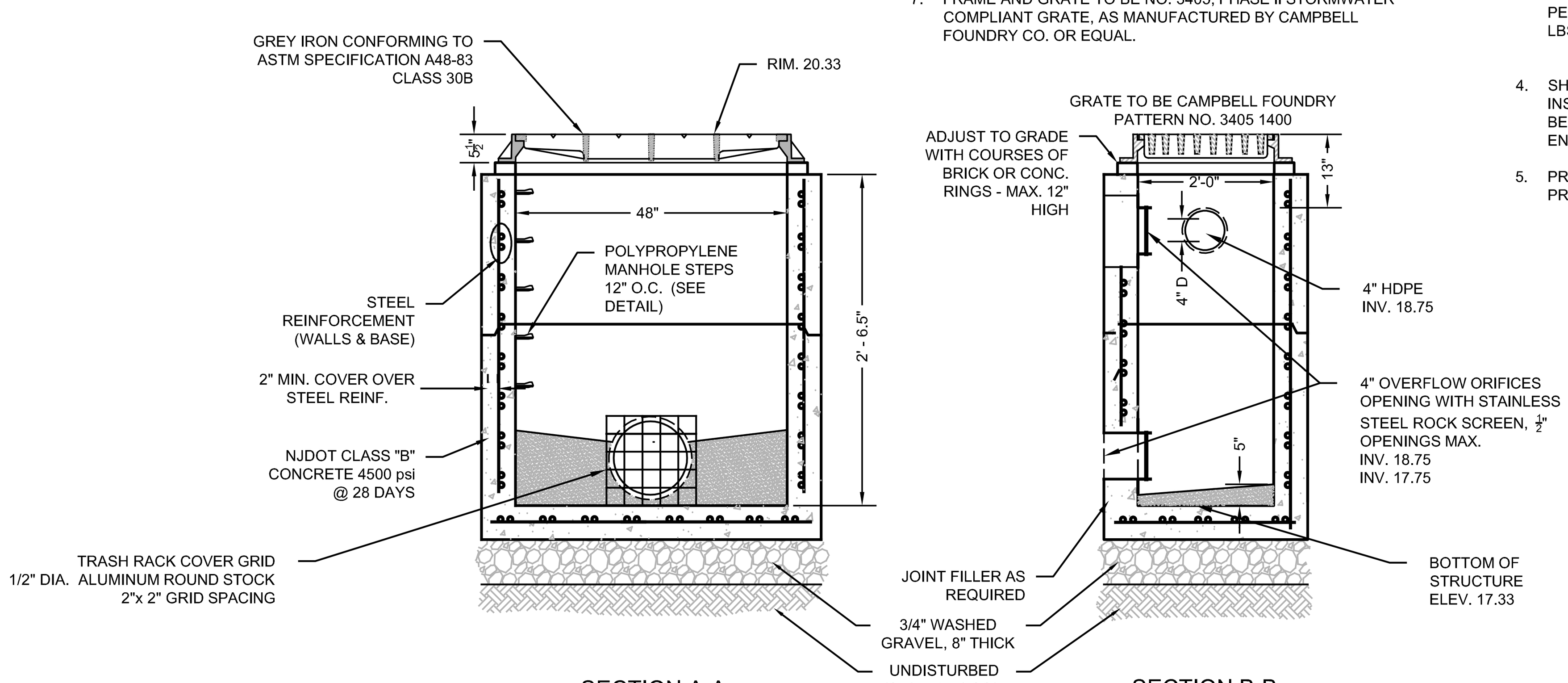


GENERAL NOTES:

1. INVERT TO BE CLASS "C" CONCRETE.
2. PROVIDE $\frac{3}{4}$ INCH DIAMETER POLY-PROPYLENE LADDER RUNGS 12" O.C.
3. WHEN ADDITIONAL DEPTH IS SCHEDULED, WALLS BELOW THE DEPTH AT 8'-0" MEASURED FROM THE INLET GUTTER TO INVERT, SHALL BE 12" THICK. THE FOUNDATION DIMENSION SHALL BE INCREASED 12" IN WIDTH AND TO 12" IN DEPTH.
4. NJDOT CLASS "B" CONCRETE, 4500 PSI @ 28 DAYS.
5. REINFORCED STEEL: GRADE 60 REBAR.
6. STRUCTURE SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM C-913 AND BE RATED FOR HS-20 LOADING.
7. FRAME AND GRATE TO BE NO. 3405, PHASE II STORMWATER COMPLIANT GRATE, AS MANUFACTURED BY CAMPBELL FOUNDRY CO. OR EQUAL.

TRASH RACK NOTES:

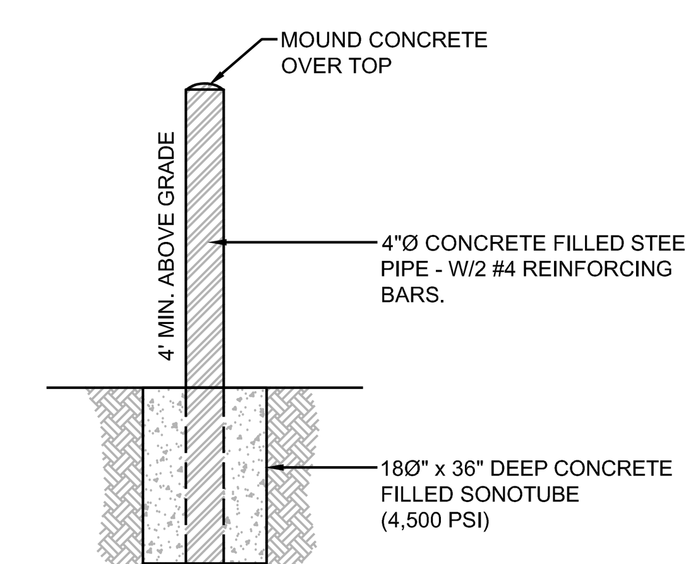
1. ALL PRECAST STRUCTURES TO UTILIZE MIN 4,500 P.S.I. CONCRETE.
2. SHOP DRAWINGS TO BE PROVIDED FOR APPROVAL OF ENGINEER
3. TRASH RACKS SHALL BE CONSTRUCTED OF RIGID, DURABLE AND CORROSION RESISTANT MATERIAL. TRASH RACKS TO BE HOT DIPPED GALVANIZED NO. 3 STEEL REBARS WITH 1/2" STEEL ANGLE FRAME WITH 3/8" LEAD ANCHOR BOLTS. TRASH RACKS SHALL HAVE PARALLEL BARS, WITH A 1" MINIMUM SPACING BETWEEN BARS AND MAXIMUM 6" SPACING BETWEEN BARS AND DESIGNED TO WITHSTAND A PERPENDICULAR LIVE LOADING OF 300 LBS./FT. SQ.
4. SHOP DRAWINGS INCLUDING INSTALLATION OF TRASH GRATES TO BE PROVIDED FOR APPROVAL OF ENGINEER.
5. PROVIDE 3/4" DIAMETER POLY-PROPYLENE LADDER RUNGS 12" O.C.



SECTION A-A
"THROUGH INVERT DETAIL"

SECTION B-B
"TERMINAL INVERT DETAIL"

OVERFLOW INLET: TYPE "A" DETAIL
NTS



4" BOLLARD DETAIL
NTS

SEE SHEET C101 FOR PLAN NOTES

PROJECT INFORMATION

PROJECT NAME:

58 FIRST AVENUE

PROJECT LOCATION:
BLOCK 97, LOT 15
58 FIRST AVENUE
BOROUGH OF ATLANTIC HIGHLANDS,
MONMOUTH COUNTY, NJ

OWNER:
HUGH A. MCGUIRE, JR.
58 FIRST AVENUE
BOROUGH OF ATLANTIC HIGHLANDS,
MONMOUTH COUNTY, NJ

APPLICANT:
BIRCHWOOD, INC.
58 FIRST AVENUE
BOROUGH OF ATLANTIC HIGHLANDS,
MONMOUTH COUNTY, NJ

APPLICANT'S PROFESSIONALS

ATTORNEY:
MARK R. AIKINS, LLC
3350 ROUTE 138, BLDG 1, SUITE 113
TOWNSHIP OF WALL, NJ 07719

ARCHITECT:
GRASSO DESIGN GROUP
231 HIGHWAY 71
MANASQUAN, NJ 08736

SURVEYOR:
R AND T LAND SURVEYING
P.O. BOX 124
ATLANTIC HIGHLANDS, NJ 07716

CALL BEFORE YOU DIG!
NJ ONE CALL.....800-272-1000
(at least 3 days prior to excavation)

ELECTRIC	RED
GAS / OIL	YELLOW
COMMUNICATION / TV	ORANGE
WATER	BLUE
SEWER	GREEN
TEMP. SURVEY MARKINGS	MAGENTA
PROPOSED EXCAVATION	WHITE

InSite Engineering, LLC
CERTIFICATE OF AUTHORIZATION: 24GA28083200
1955 ROUTE 34, SUITE 1A, WALL, NJ 07719
732-531-7100 (Ph) 732-531-7344 (Fax)
InSite@InSiteEng.net www.InSiteEng.net

LICENSED IN: NEW JERSEY, NEW YORK, PENNSYLVANIA DELAWARE, CONNECTICUT, NORTH CAROLINA COLORADO, & DISTRICT OF COLUMBIA

CHRISTOPHER M. BEDNARSKI, P.E.
PROFESSIONAL ENGINEER
NJPE LIC. NO. 24GE05256400

REVISIONS

Rev.#	Date	Comment
2	08/23/24	REVISED PER REVIEW LETTER #2
1	07/19/24	REVISED PER ENG REVIEW LETTER
0	08/11/23	INITIAL RELEASE

SCALE: AS SHOWN	DESIGNED BY: CMB
DATE: 08/11/23	DRAWN BY: SGD
JOB #: 23-2121-01	CHECKED BY: CMB
CAD ID: 23-2121-01r2	

☒ NOT FOR CONSTRUCTION
APPROVED BY:
☐ FOR CONSTRUCTION

PLAN INFORMATION

DRAWING TITLE:
PRELIMINARY & FINAL MAJOR SITE PLAN

SHEET TITLE:
CONSTRUCTION DETAILS

SHEET NO:
C801