This SWPPP was prepared in accordance with SPDES Permit No. GP-0-20-001 and must be kept on the job site and available for use of contractors and sub-contractors. Certifications by applicant/developer and by the contractors/subcontractors are included. A copy of the Notice of Intent (NOI), which must be filed at least 5 days prior to the commencement of any work along with the MS4 SWPPP acceptance form, is included herein. Notice of Termination (NOT) must be filed when all stormwater management facilities are in place and the site has been stabilized with specified vegetation. Sample inspection forms are included. Operation and maintenance plan is attached and included both temporary and permanent facilities maintenance. This SWPPP, together with all required plans, completed inspection forms and log of activities including any mitigation of items noted on inspection forms must be kept on the job site and available for inspection by all regulatory authorities.

FULL STORMWATER POLLUTION PREVENTION PLAN (SWPPP) REPORT

Prepared For:

SUMMERVILLE INDUSTRIAL PARK

Village of Chester, Orange County, New York

Prepared By:

ATZL, NASHER & ZIGLER
Engineers – Surveyors – Planners
232 North Main Street
New City, New York 10956
Tel. (845) 634-4694 • Fax (845) 634-5543

This plan has been prepared to comply with the provisions of the SPDES general permit no. GP-0-20-001, issued by the New York State Department of Environmental Conservation for storm water discharges from construction site activities.

I certify under penalty of law that this document and all attachments were prepared and revised under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment of knowing violations.

Revision 1: September 11, 2023
Date: July 26, 2023
Job No. 3390

Ryan A. Nasher, P.E. License No.: 89066
New York State Professional Engineer

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SUMMERVILLE INDUSTRIAL PARK

VILLAGE OF CHESTER
ORANGE COUNTY
NEW YORK

SECTION 1:

OPERATION INSPECTION AND MAINTENANCE PLAN REPORT

BY

ATZL, NASHER & ZIGLER
ENGINEERS-SURVEYORS-PLANNERS
232 NORTH MAIN STREET
NEW CITY, NY 10956
TEL: (845) 634-4694
FAX: (845) 634-5543
E-MAIL: rnasher@anzny.com

1.0 INTRODUCTION

1.1 Notice of Intent:

Section 402 of the Clean Water Act requires permits for stormwater discharge from construction activities, which disturb one or more acres of land to obtain a permit. To implement this law, the New York State Department of Environmental Conservation (NYSDEC) issued the General Permit GP-0-20-001 for Stormwater Discharges from Construction Activities. The Notice of Intent (NOI) is the means to obtain coverage under this permit.

1.2 SWPPP Goals and Objective:

The goal of the Stormwater Pollution Prevention Plan (SWPPP) is to control runoff of pollutants from the project site during and after construction activities by complying with the NY State Pollutant Discharge Elimination System (SPDES) Stormwater Permit for construction activities and local rules and regulations. The SWPPP will implement the following practices:

- Reduction or elimination of erosion and sediment loading to waterbodies during construction;
- Control of the impact of stormwater runoff on the water quality of the receiving waters;
- Control of the increased volume and peak rate of runoff during and after construction; and
- Maintenance of stormwater controls during and after completion of construction.

The SWPPP will incorporate the proper selection, sizing and siting of the Stromwater Management Practices (SMPs) to protect water resources from stormwater impacts. The design of the proposed SMPs were determined using current engineering methodologies to provide appropriate sizing criteria to avoid overburdening stormwater conveyance structures. Erosion and Sediment Control (ESC), Water Quantity Control, and Water Quality Controls are inter-related components of the SWPPP.

The SWPPP is intended to be a "living" document. The document should be revised and updated by a qualified professional whenever site conditions dictate. Any proposed revisions shall undergo review by the owner or his designated representative prior to incorporation in the SWPPP and implementation at the site. Any proposed modifications shall be in accordance with the New York State Department of Environmental Conservation's technical standards.

2.0 SITE DESCRIPTION

2.1 Project Name & Location:

Summerville Industrial Park
Village of Chester
Orange County, New York
Village of Chester Tax Map: Section 116, Block 1, Lot 1.2 & 2

2.2 Owner/Operator Name & Address:

Trodale Developers Inc.
Attention: Berel Karniol
1 Executive Blvd Suite 101,
Suffern, NY 10901
Email: berel@trodale.com

2.3 General Contractor*:

_____
(Company Name)

_____
(Street Address)

_____
(City, State, Zip Code)

_____
(Phone Number)

*Note – General Contractor shall be identified prior to commencement of work.

2.4 Description:

The project is located southerly of Summerville Way and northly of Elizabeth Drive in the Village of Chester, Orange County, New York. The site has an area of about 19.457 acres. The existing site consists of a dirt road, gravel, and grass cover. The proposed development includes the construction of a two-story building, parking lots, access road, loading docks, and landscaping areas.

Soil Name	Soil Map Symbol	Hydrological Soil Group
Bath-Nassau channery silt loams, 3 to 8 percent slopes	BnB	C
Bath-Nassau channery silt loams, 8 to 15 percent slopes	BnC	C
Madalin silt loam	Ma	C/D
Mardin gravelly silt loam, 3 to 8 percent slopes	MdB	D
Mardin gravelly silt loam, 8 to 15 percent slopes	MdC	D
Otisville gravelly sandy loam, 8 to 15 percent slopes	OtC	A
Riverhead sandy loam, 3 to 8 percent slopes	RhB	A
Riverhead sandy loam, 8 to 15 percent slopes	RhC	A

* Source: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx
** HSG "A, C, &D" were used in the drainage calculation.

Soil disturbing activities will include clearing and grubbing; grading (cuts & fills); excavation for the installation of drainage pipes, and the preparation for final planting and seeding.

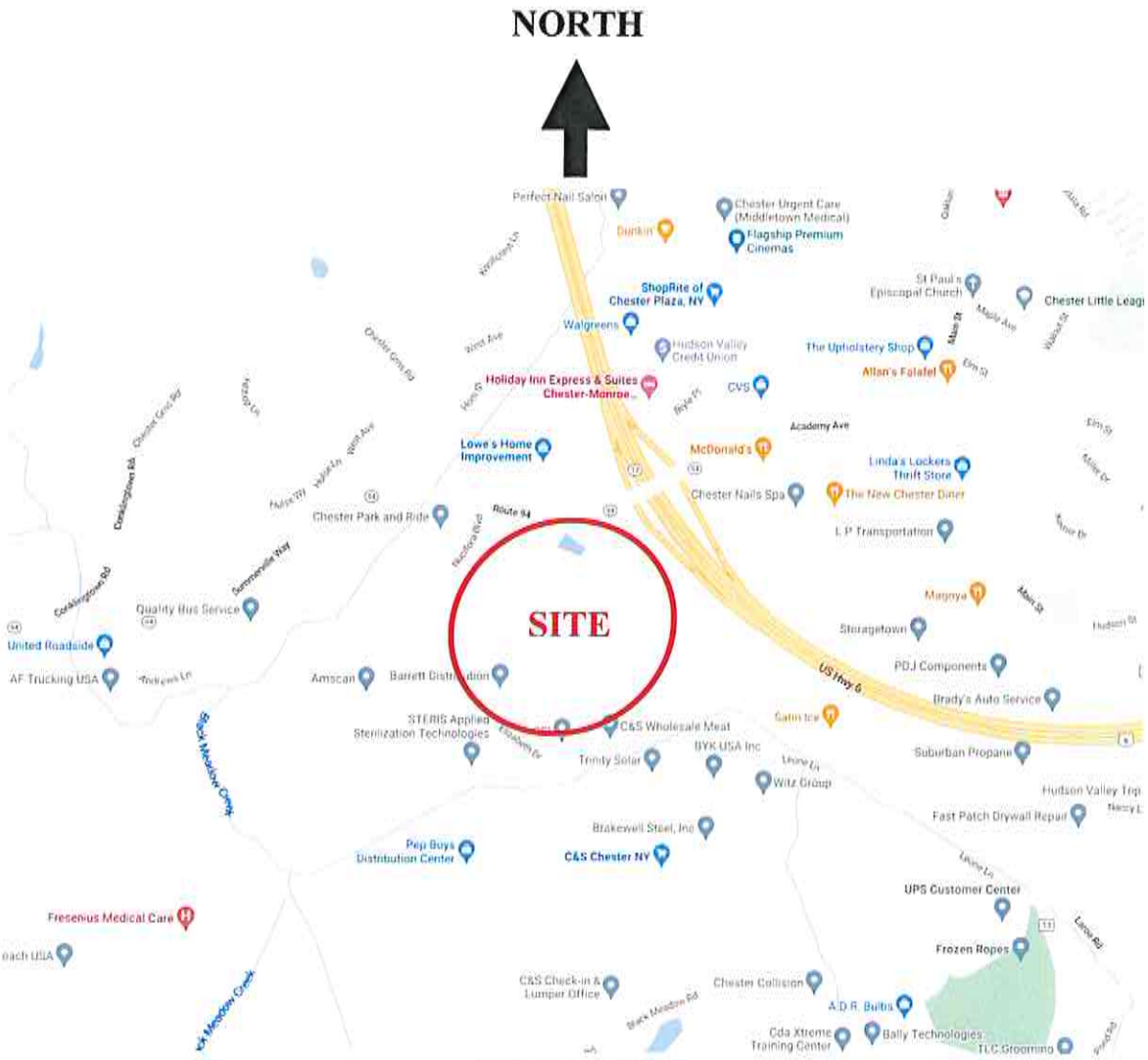
2.5 Impervious Cover:

Impervious cover within the planned disturbance will be increased from 0.0 acres in the existing condition to 15.386 acres in the proposed condition.

2.6 Site Area:

The site is approximately 39.97 acres and about 19.457 acres will be disturbed by the proposed improvement.

2.7 Location Map:



STREET MAP
Source: maps.google.com

2.8 Sequence of Major Activities:

Phasing and schedule of construction is as follows (several phases will overlap):

Phase 1: Clearing and grubbing of designated areas

Phase 2: Land grading according to the approved site development plan

Phase 3: Building construction

Phase 4: Paving and utilities construction

Phase 5: Final Grading, landscaping

The general order of activities will be as follows:

1. Schedule a pre-construction meeting.
2. Locate natural resources and the limit of disturbance per approved plans.
3. Install perimeter erosion and sediment control practices (silt fences).
4. Install construction entrances and temporary staging.
5. Limit grading for installation of E&SC practices.
6. Dispose clearing and grading materials as construction progresses.
7. Stockpile top soil and stabilize.
8. Perform rough grading/cut & fill and stabilize inactive areas.
9. Install utilities and drainage structures.
10. Proceed with partial road construction where applicable.
11. Construct foundation and building structure as per plan.
12. Apply soil restoration practices as described in the plan.
13. Perform final stabilization, i.e. top soil and landscaping.
14. Remove sediment accumulations and complete permanent post construction SMPs per the approved plan.
15. Remove E&SC practices and apply for a Notice of Termination (N.O.T.).

3.0 CONTROLS

3.1 Erosion and Sediment Controls Stabilization Practices:

3.1.1 Temporary Stabilization:

Topsoil, stockpiles, and soils that are exposed and left bare for a period of 14 days which are not being graded, not under active construction for 14 days or more, or not scheduled for permanent seeding within 14 days will be stabilized with temporary seed and mulch. All grass seed mixtures and application rates shall comply with Sediment and Erosion Control Plan.

Areas of the site, which are to be paved; will be temporarily stabilized by applying stone sub-base until bituminous pavement can be applied.

3.1.2 Permanent Stabilization:

Disturbed portions of the site where construction activities permanently cease shall be stabilized with permanent seed no later than 14 days after the last construction activity.

3.2 Structural Practices:

Proposed measures will include silt fences, super silt fence, stockpile, inlet protection, and stabilized construction entrance.

3.3 Stormwater Management Water Quality:

Stormwater runoff generated by the parking lot, two-story building, loading docks and access road will be directed towards the proposed underground infiltration system (Cultec R-902HD) and up-flo filter through a combination of sheet flow, catch basin, pipes, and a pretreatment system.

The stormwater management system has been designed to comply with the most recent NYSDEC design manual requirements. The underground infiltration system (Cultec R-902HD) and the up-flo filter are designed to treat the first flush water quality volume of the required impervious area, according to NYSDEC redevelopment rules.

The property owner shall be responsible for the long-term operation, maintenance and inspection of the proposed stormwater management facilities and provide maintenance records to the Village of Chester.

3.3.1 Name of Receiving Waters:

The site drains towards Black Meadow Creek. The site is not located in a designated TMDL watershed area.

3.4 Peak Flow Attenuation:

In order to provide the zero net increase of peak runoff, a solid pipe storage system has been proposed.

3.5 Runoff Conveyance Systems:

The stormwater pipes are design to convey the 10-year peak flow discharge.

3.6 Other Controls:

3.6.1 Waste Materials:

All waste materials will be collected and stored in securely lidded metal dumpsters rented from _____, a solid waste management company located in Orange County (name of carting company to be identified 30 days prior to commencement of work). The dumpsters will meet Village of Chester, Orange County, and New York State solid waste management regulations. All trash and construction debris from the site will be deposited in the dumpsters. The dumpsters will be emptied as necessary, and the trash will be hauled off site to _____(destination to be identified 30 days prior to commencement of work). No construction waste materials will be buried on site. All personnel will be instructed regarding the correct procedure for waste disposal. Notices stating these practices will be posted in the office trailer and _____, the Job Supervisor, individual who is responsible for managing the day to day site operations, will be responsible for seeing that these procedures are followed (Job Supervisor shall be identified 30 days prior to commencement of work).

3.6.2 Hazardous waste:

All hazardous waste materials will be disposed of in the manner specified by local or state regulation or by the manufacturer. Site personnel will be instructed in these practices and _____, Job Supervisor, individual who is responsible for managing the day to day site operations, will be responsible for seeing that these procedures are followed (Job Supervisor shall be identified 30 days prior to commencement of work).

3.6.3 Sanitary Waste:

A licensed sanitary waste management contractor (sanitary waste management contractor to be identified 30 days prior to commencement of work) will collect all sanitary waste from the portable units.

3.6.4 Offsite Vehicle Tracking:

A stabilized construction entrance and gravel pad will be provided to wash or spray-clean trucks over before leaving the site in order to prevent track-out of dirt, mud, debris and dust. In addition, trucks will be covered with a tarp and at least 6 inches of freeboard clearance will be maintained to keep excessive dust from escaping the truck during hauling operations.

3.7 Timing of Control Measures:

As indicated in the Sequence of Major Activities, the stabilized construction entrance and other sediment and erosion control activities will be constructed prior to earthwork activities on any part of the site. Any soil areas that are exposed and left bare for a period of 14 days which are not being graded, not under active construction for 14 days or more, or not scheduled for permanent seeding within 14 days will be treated with temporary seed and mulch. Once construction activity ceases permanently in an area, that area will be stabilized with permanent seed and mulch. After the entire site is stabilized, accumulated sediments will be removed from the sediment and erosion control structures and the controls will be removed.

3.8 Certification of Compliance With Federal, State And Local Regulations:

The stormwater pollution prevention plan reflects New York State Department of Environmental Conservation requirements for storm water management and erosion and sediment control, as established in Article 17, Titles 7, 8 and Article 70 of the Environmental Conservation Law. To ensure compliance, this plan was prepared in accordance with guidelines issued with the SPDES General Permit for Storm Water Discharges from Construction Activities that are Classified as "Associated with Construction Activity", published by the NYSDEC.

4.0 MAINTENANCE & INSPECTION PROCEDURES

4.1 Sediment & Erosion Control Inspection And Maintenance Practices:

The following are inspection and maintenance practices that will be used in coordination with the SWPPP Construction Log Book prepared for this project, the template which is included in Appendix A, to maintain sediment and erosion controls:

- The Operator shall have a qualified professional conduct an assessment of the site prior to the commencement of construction and certify in this inspection report that the appropriate erosion and sediment controls described in the SWPPP, an required by the SPDES General Permit for Stormwater Discharges, have been adequately installed or implemented to ensure overall preparedness of the site for commencement of construction. Qualified professional means a person knowledgeable in the principles and practice of erosion and sediment controls, such as a licensed professional engineer, Certified Professional in Erosion and Sediment Control (CPESC), soil scientist, or someone working under the direction and supervision of a licensed professional engineer, Certified Professional in Erosion and Sediment Control (CPESC), or soil scientist (person must have experience in the principles and practices of erosion and sediment control). The template for the initial inspection and assessment is included in Appendix A.
- All control measures will be inspected by a qualified professional at least once each week (7 days) and immediately following any storm event of 0.5 inches or greater.
- All measures will be maintained in good working order. If a repair is necessary, it will be initiated within 24 hours of discovery.
- Provide sprinkle water on the dirt road during hot summer or when appropriate to prevent particles to be air born.
- Built up sediment to be removed from the silt fence when it has reached 1/3 the height of the fence. Sediment traps will be cleaned when built up sediments reaches 25 percent of design capacity.
- Silt fence will be inspected for depth of sediment, tears, to see if the fabric is securely attached to the fence posts, and to see that the fence posts are firmly in the ground.
- Temporary and permanent seeding and planting will be inspected for bare spots, washouts, and healthy growth.
- A maintenance inspection report will be filled out after each inspection and will become part of the SWPPP.
- _____, Job Supervisor – Trained Individual per GP-0-20-001, will select individuals who will be responsible for coordinating efforts with the qualified professional for regular inspections, maintenance and repair activities, and filling out the inspection and maintenance report forms. Inspection reports will summarize:

1. Name of Inspector
2. Qualifications of Inspector
3. Date of Inspection
4. Weather Conditions
5. Areas inspected, including measurements
6. Areas that have undergone temporary and permanent stabilization
7. Indicate all disturbed areas that have not undergone active site work during the previous 14-day period
8. Observed condition of all erosion and sediment control practices
9. Inspect all sediment control practices and record approximate degree of sediment accumulation as a percentage of the sediment storage volume
10. Actions Taken to Correct Problems
11. Incorporate changes necessary to the SWPPP

The template for regular inspections is included in Appendix A.

- Personnel selected for inspection and maintenance responsibilities will receive training from the Job Supervisor and/or the qualified professional. They will be trained in all the inspection and maintenance practices necessary for keeping the erosion and sediment controls used on site in good working order.
- The Operator shall ensure that a record of all inspection reports is maintained in the SWPPP Construction Log Book. The site logbook shall be maintained on site and be made available to the permitting authorities upon request. Prior to the commencement of construction, the Operator shall certify in the site log book that the SWPPP was prepared in accordance with the State's standards and meets all Federal, State and local erosion and sediment control requirements. The Operator shall retain copies of SWPPPs and any reports submitted in conjunction with this permit, and records of all data used to complete the NOI to be covered by this permit, for a period of at least three years from the date that the site is finally stabilized. The Operator shall post at the site, in a publicly accessible location, a summary of the site inspection activities on a monthly basis. The template for SWPPP Construction Log Book is included in Appendix A.
- Prior to filing of the Notice of Termination (NOT) or the end of permit term, the Operator shall have the qualified professional perform a final site inspection. The qualified professional shall certify that the site has undergone final stabilization using either vegetative or structural stabilization methods and that all temporary erosion and sediment controls (such as silt fencing) not needed for long-term erosion control have been removed. Final stabilization means that all soil-disturbing activities at the site have been completed and a uniform, perennial vegetative cover with a density of 80% has been established, or equivalent stabilization measures (such as the use of mulches or geotextiles) have been employed on all unpaved areas and areas not covered by permanent structure. The template for final inspections is included in Appendix A.

- Clean out all **temporary** structures and pipes upon completion of the project.
- When the site has been finally stabilized, the operator must submit a Notice of Termination form to terminate coverage under the SPDES General Permit GP 0-20-001. The permittee must identify all of the permanent stormwater management structures that have been constructed. In addition, an manual describing the operation and maintenance practices that will be necessary for the structures to function as designed after the site is stabilized must be finalized and in-place. The permittee must also certify that the permanent structure have been constructed as described in the SWPPP.

The inspection procedures that will be used for the construction of the proposed Stormwater management facilities are included in the CONSTRUCTION INSPECTION CHECKLIST FORM prepared for this project, the template of which is included in Appendix B, to be used to ensure proper construction.

4.2 Summary of SWPPP Required Document Filings:

The following table provides a summary of the required forms and inspections that need to be completed as part of the SWPPP requirements and which checklist or report document forms need to be used for each:

Name of Document	Form to be Used	When to complete
Pre-Construction Meeting Documents Form	Appendix A – SWPPP Construction Site Log Book	Prior to beginning of construction
Owner/Operator Certification	Appendix A, SWPPP Report	Prior to beginning of construction
Prime Contractor Certification	SWPPP Report	Prior to beginning of construction
Sub-Contractor Certification	SWPPP Report	Prior to beginning of construction
Pre-Construction Site Assessment Form	Appendix A	Prior to beginning of construction
Construction Duration Inspection Forms	Appendix A	Every seven days
Three-Month Status Reports	Appendix A	Every three months
SMPs Construction Inspection Checklist Form	Appendix B	During the construction of the proposed stormwater facilities
Final Stabilization and Retention of Records	Appendix B	At completion of project
Spill Control & Prevention Log	Appendix C	Before and after completion of Project
Stormwater Facilities Maintenance Plan and Inspection Checklists	Appendix D	After completion of Project

5.0 NON-STORM WATER DISCHARGES

5.1 Non-Stormwater Discharges:

It is expected that the following non-storm water discharges will occur from the site during the construction period:

- Water from water line flushing.
- Pavement wash waters (where no spills or leaks of toxic or hazardous materials have occurred).
- Uncontaminated groundwater (from natural springs)

6.0 INVENTORY FOR POLLUTION PREVENTION PLAN

6.1 Material substances:

The materials or substances listed below are expected to be present on the site during construction:

- Concrete
- Detergents
- Paints (enamels and latex)
- Metal Studs
- Roofing Materials
- Tar and Paving Materials
- Fertilizers
- Petroleum Based Products
- Cleaning Solvents
- Wood
- Masonry Block

7.0 SPILL CONTROL & PREVENTION

7.1 Material Management Practices:

The following are the material management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances to storm water runoff:

7.1.1 Good Housekeeping:

The following good housekeeping practices will be followed on site during the construction project:

- An effort will be made to store only enough products required to do the job.
- All materials stored on site will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure.
- Product will be kept in their original containers with the original manufacturer's label.
- Substances will not be mixed with one another unless recommended by the manufacturer.
- Whenever possible, all of a product will be used up before disposing of the container.
- Manufacturer's recommendations for proper use and disposal will be followed.
- The Job Supervisor will inspect daily to ensure proper use and disposal of materials on site.

7.1.2 Hazardous Products:

The following practices will be used to reduce the risks associated with hazardous materials:

- Products will be kept in original containers unless they are not reseal able.
- Original labels and material safety data will be retained; they contain important product information.
- If surplus product must be disposed of, manufacturer's or local and State recommended methods for proper disposal will be followed.

7.2 Product Specific Practices:

The following product specific practices will be followed on site:

7.2.1 Petroleum Products:

All onsite vehicles will be monitored for leaks and receive regular preventative maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers, which are clearly labeled. Any asphalt substances used on site will be applied according to the manufacturer's recommendations.

7.2.2 Fertilizers:

Fertilizers will be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer will be worked into the soil to limit exposure to stormwater. Storage will be in a covered shed. The content of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.

7.2.3 Paints:

All containers will be tightly sealed and stored when not required for use. Excess paint will not be discharged to the storm drainage system, but will be properly disposed of according to manufacturer's instructions or State and local regulations.

7.2.4 Concrete Trucks:

Concrete trucks will not be allowed to wash out or discharge surplus concrete or drum wash water on the site.

7.3 Spill Control Practices:

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanups:

- Manufacturer's recommended methods for spill cleanup will be clearly posted and site personnel will be made aware of the procedures and the location of the information and cleanup supplies.
- Materials and equipment necessary for spill cleanup will be kept in the material storage areas on site. Equipment and materials will include, but not be limited to, brooms, dustpans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for this purpose.
- All spills will be cleaned up immediately after discovery.
- The spill area will be kept well ventilated, and personnel will wear appropriate protective clothing to prevent injury from contact with hazardous substances.
- Spills of toxic or hazardous material will be reported to the appropriate State or local government agency, regardless of the size of the spill. The Spill Control & Prevention Log form provided in Appendix C should be used for this purpose.
- The spill prevention plan will be adjusted to include measures to prevent a repetitive type of spill from re-occurring and how to clean up the spill if it does re-occur. A description of the spill, what caused it, and the cleanup measures will also be included.
- The Job Supervisor responsible for daily site operations, will be designated as the spill prevention and cleanup coordinator. He will designate at least

three other site personnel who will receive spill prevention and cleanup training. These individuals will each become responsible for a particular phase of prevention and cleanup. The names of the responsible spill personnel will be posted in the material storage area and in the office trailer on site.

8.0 SUPPORTING PLANS & REPORTS

1. Site Plan Drawings prepared by Atzl, Nasher & Zigler
2. Soil & Erosion Control Plans prepared by Atzl, Nasher & Zigler
3. Stormwater Management Design Report by Atzl, Nasher & Zigler

9.0 POLLUTION PREVENTION PLAN CERTIFICATION

9.1 OWNER/OPERATOR CERTIFICATION

"I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I also certify under penalty of law that this document and all corresponding attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person(s) who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgement that I will receive as a result of submitting this NOI. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction and agree to comply with all the terms and conditions of the general permit for which this NOI is being submitted."

Signed: _____ Date: _____
(Owner/Operator)

_____
(Printed Name & Title)

_____

_____

_____
(Company Name, Address & Telephone Number)

10.0 CERTIFICATION BY CONTRACTORS

Made pursuant to the State Pollution Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity (Permit No. GP 0-20-001) for:

Summerville Industrial Park, Village of Chester, Orange County, New York

10.1 Prime Contractor Certification:

"I certify under penalty of law that I understand and agree to comply with the terms and conditions of the stormwater pollution prevention plan for the construction site identified in this plan as a condition of authorization to discharge stormwater. I also understand that the operator must comply with the terms and conditions of the New York State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards."

Prime Contractor:

(Signature)	(Company)
(Name)	(Street Address)
(Title)	(City, State, Zip Code)
(Date)	(Phone Number)

10.2 Sub-Contractor Certification:

"I certify under penalty of law that I understand and agree to comply with the terms and conditions of the stormwater pollution prevention plan for the construction site identified in this plan as a condition of authorization to discharge stormwater. I also understand that the operator must comply with the terms and conditions of the New York State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards."

Sub-Contractor:

(Signature)	(Company)
(Name)	(Street Address)
(Title)	(City, State, Zip Code)
(Date)	(Phone Number)

CONTRACTOR and SUBCONTRACTOR CERTIFICATION STATEMENT

for the New York State Department of Environmental Conservation (DEC) State Pollutant Discharge Elimination System Permit for Stormwater Discharges from Construction Activity (GP-0-20-001)

As per *Part III.A.6* on page 13 of *GP-0-20-001* (effective January 29, 2020):

'Prior to the *commencement of construction activity*, the *owner or operator* must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractor(s) and subcontractor(s) that will be responsible for constructing the post-construction stormwater management practices included in the SWPPP. The *owner or operator* shall have each of the contractors and sub-contractors identify at least one person from their company that will be responsible for implementation of the SWPPP. This person shall be known as the *trained contractor*. The *owner or operator* shall ensure that at least one *trained contractor* is on site on a daily basis when soil disturbance activities are being performed.'

The *owner or operator* shall have each contractor and subcontractor involved in soil disturbance sign a copy of the following certification statement before they commence any *construction activity*:

_____	**NYR** _____	_____
Name of Construction Site	*DEC Permit ID*	*Municipality (MS4)*

"I hereby certify that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that the owner or operator must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Responsible Corporate Officer/Partner Signature	Date
Name of above Signatory	Name of Company
Title of above Signatory	Mailing Address
Telephone of Company	City, State, and Zip

Identify the specific elements of the SWPPP the contractor or subcontractor is responsible for:

'*TRAINED CONTRACTOR*' FOR THE CERTIFIED CONTRACTOR OR SUBCONTRACTOR

_____	_____	_____
Name of Trained Employee	*Title of Trained Employee*	*NYSDEC SWT #*

A copy of this signed contractor certification statement must be maintained at the SWPPP on site

Appendix - A

SUMMERVILLE INDUSTRIAL PARK

VILLAGE OF CHESTER
ORANGE COUNTY
NEW YORK

APPENDIX-A

CONSTRUCTION SITE LOGBOOK

BY

ATZL, NASHER & ZIGLER
ENGINEERS-SURVEYORS-PLANNERS
232 NORTH MAIN STREET
NEW CITY, NY 10956
TEL: (845) 634-4694
FAX: (845) 634-5543
E-MAIL: rnasher@anzny.com

NY STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM
FOR CONSTRUCTION ACTIVITIES

SWPPP CONSTRUCTION SITE LOG BOOK

For

Summerville Industrial Park

Village of Chester
Orange County, New York

ATZL, NASHER & ZIGLER
232 North Main Street, New City, NY 10956
Tel: (845) 634-4694, Fax: (845) 634-5543, Email: rnasher@anzny.com

Table of Contents

Properly completing forms such as those contained in this document meet the inspection requirement of NYSDEC SPDES GP for Construction Activities. Completed forms shall be kept on site at all times and made available to authorities upon request.

I. PRE-CONSTRUCTION MEETING DOCUMENTS

Project Name SUMMERVILLE INDUSTRIAL PARK
Permit No. _____ **Date of Authorization** _____
Name of Operator _____
Prime Contractor _____

a. Preamble to Site Assessment and Inspections -the following information to be read by all person's involved in the construction of stormwater related activities:

The Operator agrees to have a qualified professional[1] conduct an assessment of the site prior to the commencement of construction[2] and certify in this inspection report that the appropriate erosion and sediment controls described in the SWPPP have been adequately installed or implemented to ensure overall preparedness of the site for the commencement of construction.

Prior to the commencement of construction, the Operator shall certify in this site logbook that the SWPPP has been prepared in accordance with the State's standards and meets all Federal, State and local erosion and sediment control requirements.

When construction starts, site inspections shall be conducted by the qualified professional at least every 7 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater (Construction Duration Inspections). The Operator shall maintain a record of all inspection reports in this site log book. The site log book shall be maintained on site and be made available to the permitting authorities upon request. The Operator shall post at the site, in a publicly accessible location, a summary of the site inspection activities on a monthly basis (Monthly Summary Report).

The operator shall also prepare a written summary of compliance with this general permit at a minimum frequency of every three months (Operator's Compliance Response Form), while coverage exists. The summary should address the status of achieving each component of the SWPPP.

Prior to filing the Notice of Termination or the end of permit term, the Operator shall have a qualified professional perform a final site inspection. The qualified professional shall certify that the site has undergone final stabilization[3] using either vegetative or structural stabilization methods and that all temporary erosion and sediment controls (such as silt fencing) not needed for long-term erosion control have been removed. In addition, the Operator must identify and certify that all permanent structures described in the SWPPP have been constructed and provide the owner(s) with an operation and maintenance plan that ensures the structure(s) continuously functions as designed.

1 "Qualified Professional means a person knowledgeable in the principles and practice of erosion and sediment controls, such as a Certified Professional in Erosion and Sediment Control (CPESC), soil scientist, licensed engineer or someone working under the direction and supervision of a licensed engineer (person must have experience in the principles and practices of erosion and sediment control).

2 "Commencement of construction" means the initial removal of vegetation and disturbance of soils associated with clearing, grading or excavating activities or other construction activities.

3 "Final stabilization" means that all soil-disturbing activities at the site have been completed and a uniform, perennial vegetative cover with a density of eighty (80) percent has been established or equivalent stabilization measures (such as the use of mulches or geotextiles) have been employed on all unpaved areas and areas not covered by permanent structures.

b. Operators Certification

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. Further, I hereby certify that the SWPPP meets all Federal, State, and local erosion and sediment control requirements. I am aware that false statements made herein are punishable as a class A misdemeanor pursuant to Section 210.45 of the Penal Law. "

Name (Please Print):_____

Title _____ **Date:**_____

Address: _____

Phone: _____ **Email:**_____

Signature:_____

c. Qualified Professional's Credentials & Certification

"I hereby certify that I meet the criteria set forth in the General Permit to conduct site inspections for this project and that the appropriate erosion and sediment controls described in the SWPPP and as described in the following Pre-construction Site Assessment Checklist have been adequately installed or implemented, ensuring the overall preparedness of this site for the commencement of construction."

Name (Please Print):_____

Title _____ **Date:**_____

Address: _____

Phone: _____ **Email:**_____

Signature:_____

d. Pre-construction Site Assessment Checklist (NOTE: Provide comments below as necessary)

1. Notice of Intent, SWPPP, and Contractors Certification:

Yes No NA

[ ] [ ] [ ] Has a Notice of Intent been filed with the NYS Department of Conservation?
[ ] [ ] [ ] Is the SWPPP on-site? Where?_____
[ ] [ ] [ ] Is the Plan current? What is the latest revision date?_____
[ ] [ ] [ ] Is a copy of the NOI (with brief description) onsite? Where?_____
[ ] [ ] [ ] Have all contractors involved with stormwater related activities signed a contractor's certification?

Pre-construction Site Assessment Checklist (continued)

2. Resource Protection

Yes No NA

[ ] [ ] [ ] Are construction limits clearly flagged or fenced?

[ ] [ ] [ ] Important trees and associated rooting zones, on-site septic system absorption fields, existing vegetated areas suitable for filter strips, especially in perimeter areas, have been flagged for protection.

[ ] [ ] [ ] Creek crossings installed prior to land-disturbing activity, including clearing and blasting.

3. Surface Water Protection

Yes No NA

[ ] [ ] [ ] Clean stormwater runoff has been diverted from areas to be disturbed.

[ ] [ ] [ ] Bodies of water located either on site or in the vicinity of the site have been identified and protected.

[ ] [ ] [ ] Appropriate practices to protect on-site or downstream surface water are installed.

[ ] [ ] [ ] Are clearing and grading operations divided into areas <5 acres?

4. Stabilized Construction Entrance

Yes No NA

[ ] [ ] [ ] A temporary construction entrance to capture mud and debris from construction vehicles before they enter the public highway has been installed.

[ ] [ ] [ ] Other access areas (entrances, construction routes, equipment parking areas) are stabilized immediately as work takes place with gravel or other cover.

[ ] [ ] [ ] Sediment tracked onto public streets is removed or cleaned on a regular basis.

5. Perimeter Sediment Controls

Yes No NA

[ ] [ ] [ ] Silt fence material and installation comply with the standard drawing and specifications.

[ ] [ ] [ ] Silt fences are installed at appropriate spacing intervals

[ ] [ ] [ ] Sediment/detention basin was installed as first land disturbing activity.

[ ] [ ] [ ] Sediment traps and barriers are installed.

6. Pollution Prevention for Waste and Hazardous Materials

Yes No NA

[ ] [ ] [ ] The Operator or designated representative has been assigned to implement the spill prevention avoidance and response plan.

[ ] [ ] [ ] The plan is contained in the SWPPP on page _____

[ ] [ ] [ ] Appropriate materials to control spills are onsite. Where? _____

II. CONSTRUCTION DURATION INSPECTIONS

a. Directions:
Inspection Forms will be filled out during the entire construction phase of the project.
Required Elements:

(1) On a site map, indicate the extent of all disturbed site areas and drainage pathways. Indicate site areas that are expected to undergo initial disturbance or significant site work within the next
14-day period;

(2) Indicate on a site map all areas of the site that have undergone temporary or permanent stabilization;

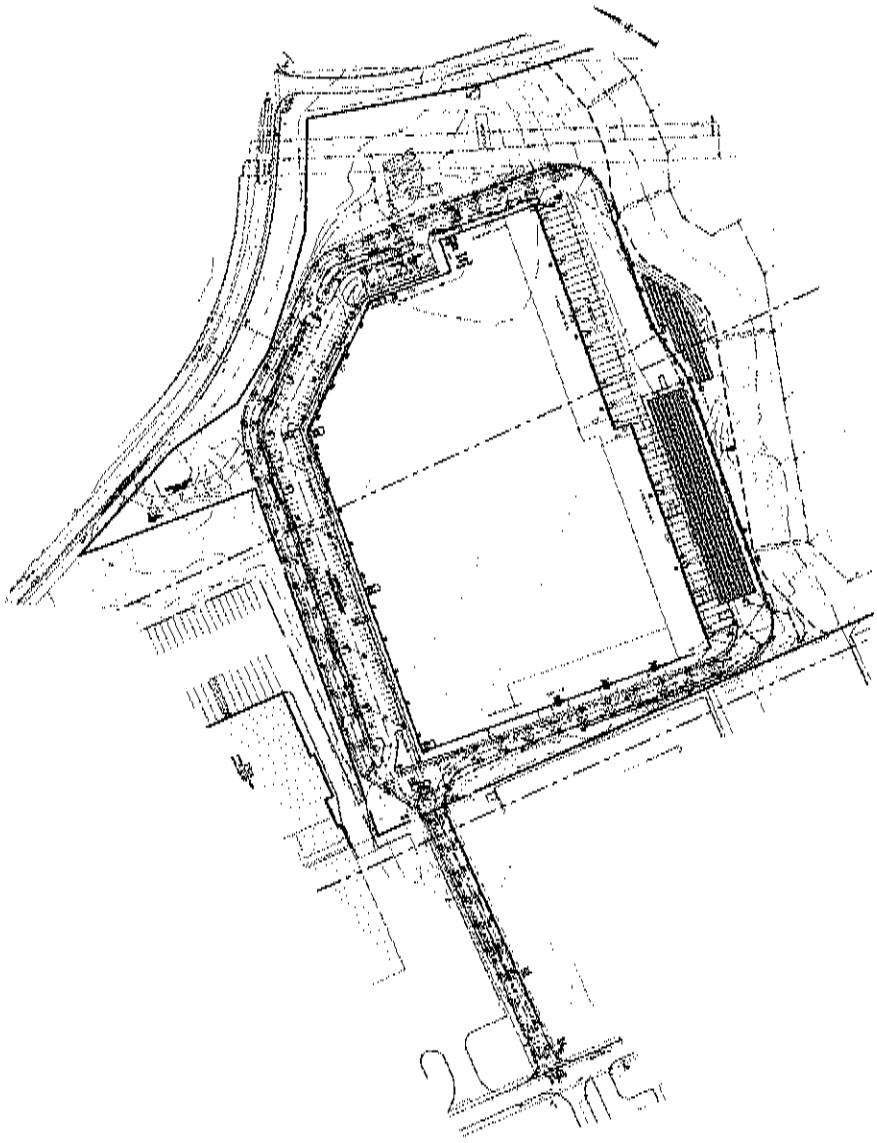
(3) Indicate all disturbed site areas that have not undergone active site work during the previous 14-day period;

(4) Inspect all sediment control practices and record the approximate degree of sediment accumulation as a percentage of sediment storage volume (for example, 10 percent, 20 percent, 50 percent);

(5) Inspect all erosion and sediment control practices and record all maintenance requirements such as verifying the integrity of barrier or diversion systems (earthen berms or silt fencing) and containment systems (sediment basins and sediment traps). Identify any evidence of rill or gully erosion occurring on slopes and any loss of stabilizing vegetation or seeding/mulching. Document any excessive deposition of sediment or ponding water along barrier or diversion systems. Record the depth of sediment within containment structures, any erosion near outlet and overflow structures, and verify the ability of rock filters around perforated riser pipes to pass water; and

(6) Immediately report to the Operator any deficiencies that are identifies with the implementation of the SWPPP.

CONSTRUCTION DURATION INSPECTIONS



SITE PLAN/SKETCH

Inspector (Print Name)	**Date of Inspection**
Qualified Professional (Print Name)	**Qualified Professional Signature**

The above signed acknowledges that, to the best of his/her knowledge, all information provided on the forms is accurate and complete.

CONSTRUCTION DURATION INSPECTIONS

Maintaining Water Quality

Yes No NA

[ ] [ ] [ ] Is there an increase in turbidity causing a substantial visible contrast to natural conditions?
[ ] [ ] [ ] Is there residue from oil and floating substances, visible oil film, or globules or grease?
[ ] [ ] [ ] All disturbance is within the limits of the approved plans.
[ ] [ ] [ ] Have receiving lake/bay, stream, and/or wetland been impacted by silt from project?

Housekeeping

1. General Site Conditions

Yes No NA

[ ] [ ] [ ] Is construction site litter and debris appropriately managed?
[ ] [ ] [ ] Are facilities and equipment necessary for implementation of erosion and sediment control in working order and/or properly maintained?
[ ] [ ] [ ] Is construction impacting the adjacent property?
[ ] [ ] [ ] Is dust adequately controlled?

2. Temporary Stream Crossing

Yes No NA

[ ] [ ] [ ] Maximum diameter pipes necessary to span creek without dredging are installed.
[ ] [ ] [ ] Installed non-woven geotextile fabric beneath approaches.
[ ] [ ] [ ] Is fill composed of aggregate (no earth or soil)?
[ ] [ ] [ ] Rock on approaches is clean enough to remove mud from vehicles & prevent sediment from entering stream during high flow.

Runoff Control Practices

1. Excavation Dewatering

Yes No NA

[ ] [ ] [ ] Upstream and downstream berms (sandbags, inflatable dams, etc.) are installed per plan.
[ ] [ ] [ ] Clean water from upstream pool is being pumped to the downstream pool.
[ ] [ ] [ ] Sediment laden water from work area is being discharged to a silt-trapping device.
[ ] [ ] [ ] Constructed upstream berm with one-foot minimum freeboard.

2. Level Spreader

Yes No NA

[ ] [ ] [ ] Installed per plan.
[ ] [ ] [ ] Constructed on undisturbed soil, not on fill, receiving only clear, non-sediment laden flow.
[ ] [ ] [ ] Flow sheets out of level spreader without erosion on downstream edge.

3. Interceptor Dikes and Swales

Yes No NA

[ ] [ ] [ ] Installed per plan with minimum side slopes 2H:1V or flatter.
[ ] [ ] [ ] Stabilized by geotextile fabric, seed, or mulch with no erosion occurring.
[ ] [ ] [ ] Sediment-laden runoff directed to sediment trapping structure

4. Stone Check Dam

Yes No NA

[ ] [ ] [ ] Is channel stable? (flow is not eroding soil underneath or around the structure).
[ ] [ ] [ ] Check is in good condition (rocks in place and no permanent pools behind the structure).
[ ] [ ] [ ] Has accumulated sediment been removed?.

5. Rock Outlet Protection

Yes No NA

[ ] [ ] [ ] Installed per plan.
[ ] [ ] [ ] Installed concurrently with pipe installation.

Soil Stabilization

1. Topsoil and Spoil Stockpiles

Yes No NA

[ ] [ ] [ ] Stockpiles are stabilized with vegetation and/or mulch.
[ ] [ ] [ ] Sediment control is installed at the toe of the slope.

2. Revegetation

Yes No NA

[ ] [ ] [ ] Temporary seedings and mulch have been applied to idle areas.
[ ] [ ] [ ] 4 inches minimum of topsoil has been applied under permanent seedings

Sediment Control

1. Stabilized Construction Entrance

Yes No NA

[ ] [ ] [ ] Stone is clean enough to effectively remove mud from vehicles.
[ ] [ ] [ ] Installed per standards and specifications?
[ ] [ ] [ ] Does all traffic use the stabilized entrance to enter and leave site?
[ ] [ ] [ ] Is adequate drainage provided to prevent ponding at entrance?

2. Silt Fence

Yes No NA

[ ] [ ] [ ] Installed on Contour, 10 feet from toe of slope (not across conveyance channels).
[ ] [ ] [ ] Joints constructed by wrapping the two ends together for continuous support.
[ ] [ ] [ ] Fabric buried 6 inches minimum.
[ ] [ ] [ ] Posts are stable, fabric is tight and without rips or frayed areas.
[ ] [ ] [ ] Sediment accumulation is ___% of design capacity.

3. Storm Drain Inlet Protection (Use for Stone & Block; Filter Fabric; Curb; or, Excavated practices)

Yes No NA

[ ] [ ] [ ] Installed concrete blocks lengthwise so open ends face outward, not upward.
[ ] [ ] [ ] Placed wire screen between No. 3 crushed stone and concrete blocks.
[ ] [ ] [ ] Drainage area is 1acre or less.
[ ] [ ] [ ] Excavated area is 900 cubic feet.

[ ] [ ] [ ] Excavated side slopes should be 2:1.
[ ] [ ] [ ] 2" x 4" frame is constructed and structurally sound.
[ ] [ ] [ ] Posts 3-foot maximum spacing between posts.
[ ] [ ] [ ] Fabric is embedded 1 to 1.5 feet below ground and secured to frame/posts with staples at max 8-inch spacing.
[ ] [ ] [ ] Posts are stable, fabric is tight and without rips or frayed areas.
[ ] [ ] [ ] Sediment accumulation ___% of design capacity.

4. Temporary Sediment Trap

Yes No NA

[ ] [ ] [ ] Outlet structure is constructed per the approved plan or drawing.
[ ] [ ] [ ] Geotextile fabric has been placed beneath rock fill.
[ ] [ ] [ ] Sediment accumulation is ___% of design capacity.

5. Temporary Sediment Basin

Yes No NA

[ ] [ ] [ ] Basin and outlet structure constructed per the approved plan.
[ ] [ ] [ ] Basin side slopes are stabilized with seed/mulch.
[ ] [ ] [ ] Drainage structure flushed and basin surface restored upon removal of sediment basin facility.
[ ] [ ] [ ] Sediment accumulation is ___% of design capacity.

Note: Not all erosion and sediment control practices are included in this listing. Add additional pages to this list as required by site specific design.
Construction inspection checklists for post-development stormwater management practices can be found in Appendix F of the New York Stormwater Management Design Manual.

CONSTRUCTION DURATION INSPECTIONS

b. Modifications to the SWPPP (To be completed as described below)

The Operator shall amend the SWPPP whenever:

1. There is a significant change in design, construction, operation, or maintenance which may have a significant effect on the potential for the discharge of pollutants to the waters of the United States and which has not otherwise been addressed in the SWPPP; or
2. The SWPPP proves to be ineffective in:
   a. Eliminating or significantly minimizing pollutants from sources identified in the SWPPP and as required by this permit; or
   b. Achieving the general objectives of controlling pollutants in stormwater discharges from permitted construction activity; and
3. Additionally, the SWPPP shall be amended to identify any new contractor or subcontractor that will implement any measure of the SWPPP.

Modification & Reason:

III. Monthly Summary of Site Inspection Activities

Name of Permitted Facility:	Today's Date:	Reporting Month:
Location:	Permit Identification #:	
Name and Telephone Number of Site Inspector:		

Date of Inspection	Regular / Rainfall based Inspection	Name of Inspector	Items of Concern

Owner/Operator Certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that false statements made herein are punishable as a class A misdemeanor pursuant to Section 210.45 of the Penal Law."

Signature of Permittee or Duly Authorized Representative

Name of Permittee or Duly Authorized Representative date

Duly authorized representatives must have written authorization, submitted to DEC, to sign any permit document

Appendix - B

SUMMERVILLE INDUSTRIAL PARK

VILLAGE OF CHESTER
ORANGE COUNTY
NEW YORK

APPENDIX-B

CONSTRUCTION INSPECTION CHECKLISTS

BY

ATZL, NASHER & ZIGLER
ENGINEERS-SURVEYORS-PLANNERS
232 NORTH MAIN STREET
NEW CITY, NY 10956
TEL: (845) 634-4694
FAX: (845) 634-5543
E-MAIL: rnasher@anzny.com

STORMWATER MANAGEMENT
CONSTRUCTION INSPECTION CHECKLIST FORM

Project: **SUMMERVILLE INDUSTRIAL PARK**

Location: Village of Chester, Orange County, NY

Site Status: _____

Date of Inspection: _____

Time of Inspection: _____

Weather Conditions (including recent rainfall): _____

Inspector's Name: _____

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
1. Pre-Construction/Materials and Equipment		
Pre-construction meeting		
Pipe and appurtenances on-site prior to construction and dimensions checked		
1. Material (including protective coating, if specified)		
2. Diameter		
3. Dimensions of metal riser or pre-cast concrete outlet structure		
4. Required dimensions between water control structures (orifices, weirs, etc.) are in accordance with approved plans		
5. Barrel stub for prefabricated pipe structures at proper angle for design barrel slope		
6. Number and dimensions of prefabricated anti-seep collars		
7. Watertight connectors and gaskets		
8. Outlet drain valve		
Project benchmark near pond site		
Equipment for temporary de-watering		
2. Subgrade Preparation		
Area beneath embankment stripped of all Vegetation, topsoil, and organic matter		
3. Pipe Spillway Installation		
Method of installation detailed on plans		
A. Bed preparation		
Installation trench excavated with specified side slopes		

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
Stable, uniform, dry subgrade of relatively impervious material (If subgrade is wet, contractor shall have defined steps before proceeding with installation)		
Invert at proper elevation and grade		
B. Pipe placement		
Metal / plastic pipe		
1. Watertight connectors and gaskets properly installed		
2. Anti-seep collars properly spaced and having watertight connections to pipe		
3. Backfill placed and tamped by hand under "haunches" of pipe		
4. Remaining backfill placed in max. 8 inch lifts using small power tamping equipment until 2 feet cover over pipe is reached		
3. Pipe Spillway Installation		
Concrete pipe		
1. Pipe set on blocks or concrete slab for pouring of low cradle		
2. Pipe installed with rubber gasket joints with no spalling in gasket interface area		
3. Excavation for lower half of anti-seep collar(s) with reinforcing steel set		
4. Entire area where anti-seep collar(s) will come in contact with pipe coated with mastic or other approved waterproof sealant		
5. Low cradle and bottom half of anti-seep collar installed as monolithic pour and of an approved mix		
6. Upper half of anti-seep collar(s) formed with reinforcing steel set		
7. Concrete for collar of an approved mix and vibrated into place (protected from freezing while curing, if necessary)		
8. Forms stripped and collar inspected for honeycomb prior to backfilling. Parge if necessary.		
C. Backfilling		
Fill placed in maximum 8 inch lifts		
Backfill taken minimum 2 feet above top of anti-seep collar elevation before traversing with heavy equipment		
4. Riser / Outlet Structure Installation		
Riser located within embankment		
A. Metal riser		
Riser base excavated or formed on stable subgrade to design dimensions		

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
Set on blocks to design elevations and plumbed		
Reinforcing bars placed at right angles and projecting into sides of riser		
Concrete poured so as to fill inside of riser to invert of barrel		
B. Pre-cast concrete structure		
Dry and stable subgrade		
Riser base set to design elevation		
If more than one section, no spalling in gasket interface area; gasket or approved caulking material placed securely		
Watertight and structurally sound collar or Gasket joint where structure connects to pipe spillway		
C. Poured concrete structure		
Footing excavated or formed on stable Subgrade, to design dimensions with reinforcing steel set		
Structure formed to design dimensions, with reinforcing steel set as per plan		
Concrete of an approved mix and vibrated into place (protected from freezing while curing, if necessary)		
Forms stripped & inspected for "honeycomb" prior to backfilling; parge if necessary		
5. Embankment Construction		
Fill material		
Compaction		
Embankment		
1. Fill placed in specified lifts and compacted with appropriate equipment		
2. Constructed to design cross-section, side slopes and top width		
3. Constructed to design elevation plus allowance for settlement		
6. Impounded Area Construction		
Excavated / graded to design contours and side slopes		
Inlet pipes have adequate outfall protection		
Forebay(s)		
Pond benches		
7. Earth Emergency Spillway Construction		
Spillway located in cut or structurally stabilized with riprap, gabions, concrete, etc.		
Excavated to proper cross-section, side slopes and bottom width		
Entrance channel, crest, and exit channel Constructed to design grades and elevations		

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
8. Outlet Protection		
A. End section		
Securely in place and properly backfilled		
B. Endwall		
Footing excavated or formed on stable Subgrade, to design dimensions and reinforcing steel set, if specified		
Endwall formed to design dimensions with Reinforcing steel set as per plan		
Concrete of an approved mix and vibrated into place (protected from freezing, if necessary)		
Forms stripped and structure inspected for "honeycomb" prior to backfilling; parge if necessary		
C. Riprap apron / channel		
Apron / channel excavated to design cross-Section with proper transition to existing ground		
Filter fabric in place		
Stone sized as per plan and uniformly place at the thickness specified		
9. Vegetative Stabilization		
Approved seed mixture or sod		
Proper surface preparation and required soil Amendments		
Excelsior mat or other stabilization, as per plan		
10. Miscellaneous		
Drain for ponds having a permanent pool		
Trash rack / anti-vortex device secured to outlet structure		
Trash protection for low flow pipes, orifices, etc.		
Fencing (when required)		
Access road		
Set aside for clean-out maintenance		
11. Stormwater Wetlands		
Adequate water balance		
Variety of depth zones present		
Approved pondscaping plan in place reinforcement budget for additional plantings		
Plants and materials ordered 6 months prior to construction		
Construction planned to allow for adequate planting and establishment of plant community (April-June planting window)		
Wetland buffer area preserved to maximum extent possible		

Comments:

Actions to be Taken:

Appendix - C

SUMMERVILLE INDUSTRIAL PARK

VILLAGE OF CHESTER
ORANGE COUNTY
NEW YORK

APPENDIX-C

SPILL CONTROL AND PREVENTION LOG

BY

ATZL, NASHER & ZIGLER
ENGINEERS-SURVEYORS-PLANNERS
232 NORTH MAIN STREET
NEW CITY, NY 10956
TEL: (845) 634-4694
FAX: (845) 634-5543
E-MAIL: rnasher@anzny.com

SPILL CONTROL & PREVENTION LOG

SUMMERVILLE INDUSTRIAL PARK

Village of Chester
Orange County, New York

Date of Spill	Material Spilled	Spill Location	Cause	Cleanup	Agency Reported (Toxic/Hazardous)	Reoccurance Prevention Measure

Appendix - D

SUMMERVILLE INDUSTRIAL PARK

VILLAGE OF CHESTER
ORANGE COUNTY
NEW YORK

APPENDIX-D

MAINTENANCE AGREEMENT

BY

ATZL, NASHER & ZIGLER
ENGINEERS-SURVEYORS-PLANNERS
232 NORTH MAIN STREET
NEW CITY, NY 10956
TEL: (845) 634-4694
FAX: (845) 634-5543
E-MAIL: rnasher@anzny.com

STORMWATER CONTROL FACILITY MAINTENANCE AGREEMENT
RE: SUMMERVILLE INDUSTRIAL PARK
(Tax Map: Section 116, Block 1, Lot 1.2 & 2)

Whereas, the Village of Chester ("Village") and Trodale Developers LLC ("Facility Owner") want to enter into an agreement to provide for the long term maintenance and continuation of stormwater control measures approved by the Village for the above named project, and

Whereas, the Town and the Facility Owner desire that the stormwater control measures be built in accordance with the approved project plans and thereafter be maintained, cleaned, repaired, replaced and continued in perpetuity in order to ensure optimum performance of the components. Therefore, the Village and the Facility Owner agree as follows:

1. This agreement binds the Facility Owner, its successors and assigns, to the maintenance provisions depicted in the approved project plans which are attached as Schedule A-1 of this agreement.

2. The Facility Owner shall maintain, clean, repair, replace and continue the Stormwater control measures as listed in Schedule A-2 as necessary to ensure optimum performance of the measures to design specifications. The stormwater control measures shall include, but shall not be limited to, the following: drop inlets, pipes, culverts, underground infiltration system, solid pipe storage system, and up-flo filter system, but only to the extent that the same are shown on Schedule A-2.

3. The Facility Owner shall be responsible for all expenses related to the maintenance of the stormwater control measures and shall establish a means for the collection and distribution of expenses among parties for any commonly owned facilities.

4. The Facility Owner shall provide for the annual inspection of the stormwater control measures, in perpetuity, to determine the condition and integrity of the measures. A Professional Engineer licensed by the State of New York shall perform such inspection. The inspecting engineer shall prepare and submit to the Village within 30 days of the inspection, a written report of the findings including recommendations for those actions necessary for the continuation of the Stormwater control measures.

5. The Facility Owner shall not authorize, undertake or permit alteration, abandonment, modification or discontinuation of the Stormwater control measures except in accordance with written approval of the Village.

6. The Facility Owner shall undertake all necessary repairs and replacement of the stormwater control measures at the direction of the Village or in accordance with the recommendations of the inspecting engineer.

7. The Facility Owner shall provide to the Village, prior to Mayor's endorsement, a security for the maintenance and continuation of the stormwater control measures.

8. This agreement shall be recorded in the Office of the County Clerk, County of Orange. In the

event that the facility is a commercial or residential condominium, this agreement shall be included in any offering plan or prospectus.

9. If ever the Village determines that the Facility Owner has failed to construct or maintain the stormwater control measures in accordance with the project plan or has failed to undertake corrective action specified by the Village or by the inspecting engineer, the Village is authorized to undertake such steps as reasonably necessary for the preservation, continuation or maintenance of the stormwater control measures and to affix the expenses thereof as a tax lien against the property. By virtue of this agreement, the facility owner hereby grants on behalf of itself, its successors and/or assigns an irrevocable right of entry to the Village, its employees, contractors, vendees and/or officers to perform the corrective measures referred to in this paragraph and agrees to hold them harmless, defend and indemnify them for any damages, except gross negligence.

10. This agreement is effective as of the date of execution of the Stormwater Control Facility Maintenance Agreement.

Village of Chester

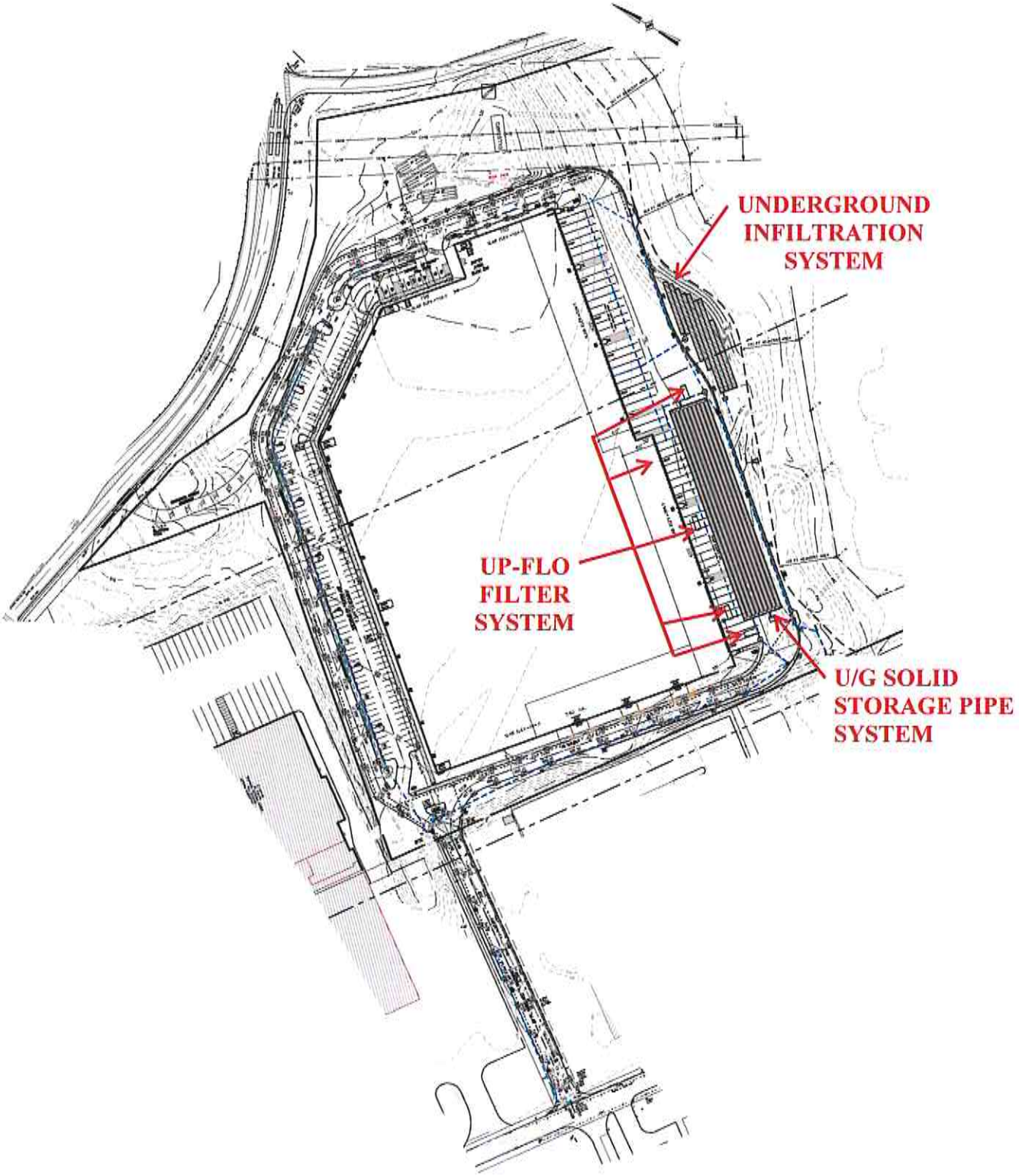
By: _____
John Queenan, Village Engineer

Summerville Industrial Park

By: _____
Berel Karniol

SCHEDULE "A-1"

STORMWATER MANAGEMENT FACILITIES
LAYOUT & LOCATION



SCHEDULE "A-2"

STORMWATER MANAGEMENT SYSTEM
INSPECTION AND MAINTENANCE SCHEDULE

Stormwater Management Structures:

- Stormwater Piping
- Catch Basins
- Manholes
- Pretreatment System (Hydro-International First Defense)
- Underground Infiltration System (Cultec R-902HD)
- Up-flo Filter System
- Underground Solid Pipe Storage System

Inspections Schedule:

- Stormwater Pipes, Catch Basins, and Manholes:
  - Biannual, after major storms: Check for debris at inlets, outlets, and cleanouts.
- Pretreatment System (Hydro-International First Defense):
  - Biannual after major storm: check for trash, excessive sediment and oil sheen.
- Underground Infiltration System (Cultec R-902HD):
  - Monthly, after major storm: Check that pipes are clear of debris.
  - Annual, after major storm: Check that sediment storage does not exceed 15% capacity.
  - Monthly, after major storm: Check that pipe dewaters.
  - Biannual, after major storm: Check for oil accumulation.
- Up-flo Filter System:
  - Biannual after major storm: check for trash, excessive sediment and oil sheen.
- Underground Solid Pipe Storage System:
  - Monthly, after major storm: Check that pipes are clear of debris.
  - Annual, after major storm: Check that sediment storage does not exceed 15% capacity.
  - Monthly, after major storm: Check that pipe dewaters.
  - Biannual, after major storm: Check for oil accumulation.

Maintenance Schedule:

- Stormwater Piping: Must be cleaned as found necessary by inspection.
- Catch Basins and Manholes: Must be cleaned as found necessary by inspection.
- Pretreatment device (Hydro-International First Defense):
  - Clean out trash, sediment, and oil when necessary.

- Underground Infiltration System (Cultec R-902HD):
    - Clear inlets, outlets, and control structure of debris.
    - Clean out oil, trash, and sediment.
- Up-flo Filter System:
    - Clean out trash, sediment, and oil when necessary.
    - Annual replacement of media bags and drain down filter.
- Underground Solid Pipe Storage System:
    - Clear inlets, outlets, and control structure of debris.
    - Clean out oil, trash, and sediment.

State of New York, County of Orange ss.:

On _____, before me, the undersigned, personally appeared John Queenan personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his capacity, and that by his signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

_____
Notary Public

State of New York, County of _____ ss.:

On _____, before me, the undersigned, personally appeared Berel Karniol personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his capacity, and that by his signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

_____
Notary Public

Stormwater Piping
Inspection and Maintenance Checklist

Project:

Location:

Site Status: _____

Date: _____ **Time:** _____

Inspector Signature: _____ **Inspector Name (print):** _____

Inspection/Maintenance Items	Satisfactory or Unsatisfactory	Comments/Corrective Action
1. Inspection (Quarter-annually, After Major Storms)		
1. Accumulated sediment exceeds 10% of the diameter of the pipe.		
2. Vegetation the reduces free movement of water through pipes.		
3. Pipe damage: Any dent that increases flow area by more than 10% or puncture that impacts performance		
4. Trash accumulated to reduce free movement of water through pipes.		

Inspector shall use one sheet for each individual pipe run.

(Provide sketch to show location of unsatisfactory items)

ACTIONS TO BE TAKEN:

_____

_____

_____

_____

_____

COMMENTS:

_____

_____

_____

_____

_____

Catch Basin & Manholes
Inspection and Maintenance Checklist

Project:

Location:

Site Status: _____

Date: _____ **Time:** _____

Inspector Signature: _____ **Inspector Name (print):** _____

Inspection/Maintenance Items	Satisfactory or Unsatisfactory	Comments/Corrective Action
1. Inspection (Quarter-annually, After Major Storms)		
1. Accumulated debris or sediment depth exceed sump or impedes flow from inlet or outlet pipes		
2. Inlet or outlet pipe damaged		
3. Contaminants & pollutants visible		
4. Cover/grate functioning properly		
5. Structure: no cracks larger than 1/2"		
6. Ladder		
7. Mosquito breeding habitat		
2. Sediment		
1. Depth of sediment (inches)*		
2. Depth of oil (inches)**		
3. Sediment and oil have been removed		

*If measured depth of sediment is greater than 3 inches, the system shall be cleaned as per the manufacturer recommendations.
**Any presence of oil shall be removed immediately.

Inspector shall use one sheet for each catch basin/manhole.
(Provide sketch to show location of unsatisfactory items.)

ACTIONS TO BE TAKEN:

COMMENTS:

Pre-Treatment (Hydro International First Defense) System Inspection and Maintenance Checklist

Project:

Location:

Site Status: _____

Date: _____ **Time:** _____

Inspector Signature: _____ **Inspector Name (print):** _____

Inspection/Maintenance Items	Satisfactory or Unsatisfactory	Comments/Corrective Action
1. Inlet/Outlet Structures (Quarter-annually, After Major Storms)		
1. Clear of debris and functional?		
2. Trash rack clear of debris and functional?		
3. Sediment accumulation?		
4. Condition of concrete/masonry?		
5. Outfall channels function, not eroding?		
6. If confined space entry is required; OSHA regulations should be followed.		
7. Other? (describe)		
2. Basin Bottom (Quarter-annually, After Major Storms)		
1. Excessive sedimentation?		
2. Any standing water?		
3. Structural Condition (Monthly or as needed)		
1. Structural repairs to inlet and outlets as needed?		
2. Any differential settlement?		

3. Other? (describe)		
4. Sediment		
1. Depth of sediment (inches)*		
2. Depth of oil (inches)**		
3. Sediment and oil have been removed		

*If measured depth of sediment is greater than 3 inches, the system shall be cleaned as per the manufacturer recommendations.
**Any presence of oil shall be removed immediately.

If any of the above inspection items are UNSATISFACTORY, list corrective actions and the corresponding completion dates below:

ACTIONS TO BE TAKEN:

COMMENTS:

Underground Infiltration System
Inspection and Maintenance Checklist

Project:

Location:

Site Status: _____

Date: _____ **Time:** _____

Inspector Signature: _____ **Inspector Name (print):** _____

Inspection/Maintenance Items	Satisfactory or Unsatisfactory	Comments/Corrective Action
1. Inlet/Outlet Structures (Quarter-annually, After Major Storms)		
1. Clear of debris and functional?		
2. Trash rack clear of debris and functional?		
3. Sediment accumulation?		
4. Condition of concrete/masonry?		
5. Outfall channels function, not eroding?		
6. If confined space entry is required; OSHA regulations should be followed.		
7. Other? (describe)		
3. Basin Bottom (Quarter-annually, After Major Storms)		
1. Excessive sedimentation?		
2. Any standing water?		
4. Structural Condition (Monthly or as needed)		
1. Structural repairs to inlet and outlets as needed?		
2. Any differential settlement?		

3. Other? (describe)		
5. Sediment		
1. Depth of sediment (inches)*		
2. Depth of oil (inches)**		
3. Sediment and oil have been removed		

*If measured depth of sediment is greater than 3 inches, the system shall be cleaned as per the manufacturer recommendations.
**Any presence of oil shall be removed immediately.

If any of the above inspection items are UNSATISFACTORY, list corrective actions and the corresponding completion dates below:

ACTIONS TO BE TAKEN:

COMMENTS:

Up-flo Filter System
Inspection and Maintenance Checklist

Project: _____

Location: _____

Site Status: _____

Date: _____ **Time:** _____

Inspector Signature: _____ **Inspector Name (print):** _____

Inspection/Maintenance Items	Satisfactory or Unsatisfactory	Comments/Corrective Action
1. Debris Removal (Monthly)		
1. Adjacent area free of debris?		
2. Inlets and Outlets free of debris?		
3. Facility (internally) free of debris?		
2. Vegetation		
1. Surrounding areas fully stabilized? (no evidence of eroding material into Up-Flo Filter) **(Annually)**		
2. Grass mowed? **(Monthly)**		
3. Water retention where required (Annually)		
1. Water holding chamber(s) at normal pool?		
2. Evidence of erosion?		
4. Sediment Deposition (Annually)		
1. Filtration Chamber free of sediments?		
2. Sedimentation sump not more than 50% full?		

5. Structural Components (Annually)		
1. Any evidence of structural deterioration?		
2. Grates in good condition?		
3. Spalling or cracking of structural parts?		
4. Outlet/Overflow Spillway		
6. Others		
1. Any evidence of filter(s) clogging? **(Monthly)**		
2. Noticeable odors? **(Annually)**		
3. Evidence of flow bypassing facility? **(Annually)**		

ACTIONS TO BE TAKEN:

COMMENTS:

Underground Solid Pipe Storage System
Inspection and Maintenance Checklist

Project: _____

Location: _____

Site Status: _____

Date: _____ **Time:** _____

Inspector Signature: _____ **Inspector Name (print):** _____

Inspection/Maintenance Items	Satisfactory or Unsatisfactory	Comments/Corrective Action
1. Debris Cleanout (Monthly)		
1. Pipes clear of debris		
2. Inflow clear of debris		
2. Dewatering (Monthly)		
1. Pipe dewaters between storms		
3. Sediment Cleanout (Biannual)		
1. No sediment accumulation		
2. No oil accumulation		
3. Sediment and oil accumulation does not yet require cleanout		
4. Inlets/Outlets (Annual)		
1. Good condition		

*If measured depth of sediment is greater than 3 inches, the system shall be cleaned as per the manufacturer recommendations.
**Any presence of oil shall be removed immediately.

Inspector shall use one sheet for each underground storage system.
(Provide sketch to show location of unsatisfactory items.)

ACTIONS TO BE TAKEN:

_____

_____

COMMENTS:

Appendix - E

SUMMERVILLE INDUSTRIAL PARK

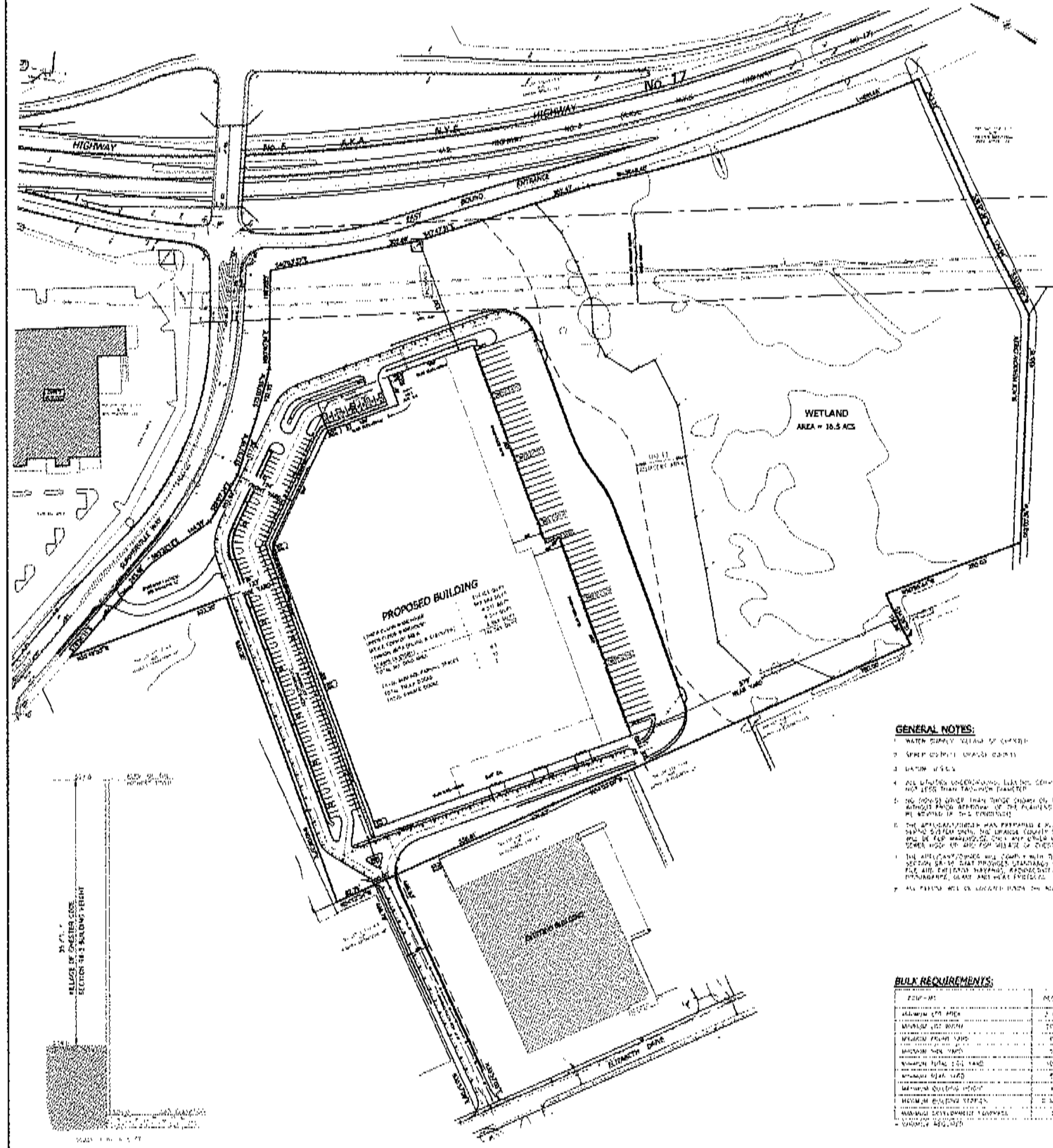
VILLAGE OF CHESTER
ORANGE COUNTY
NEW YORK

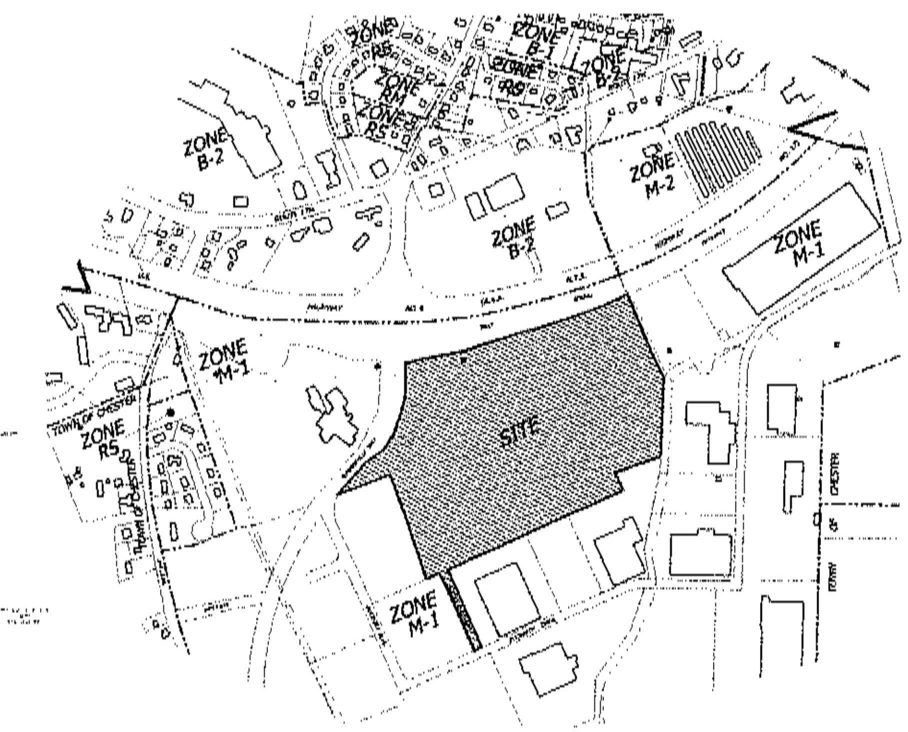
APPENDIX-E

CONSTRUCTION PLANS IN (11"X17") FORMAT

BY

ATZL, NASHER & ZIGLER
ENGINEERS-SURVEYORS-PLANNERS
232 NORTH MAIN STREET
NEW CITY, NY 10956
TEL: (845) 634-4694
FAX: (845) 634-5543
E-MAIL: rnasher@anzny.com





VICINITY MAP

DRAWING No.

SHEET NUMBER	DRAWING TITLE	ORIGINAL DATE	REVISION DATE
1	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]
8	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	[illegible]
11	[illegible]	[illegible]	[illegible]
12	[illegible]	[illegible]	[illegible]
13	[illegible]	[illegible]	[illegible]
14	[illegible]	[illegible]	[illegible]
15	[illegible]	[illegible]	[illegible]
16	[illegible]	[illegible]	[illegible]
17	[illegible]	[illegible]	[illegible]
18	[illegible]	[illegible]	[illegible]
19	[illegible]	[illegible]	[illegible]
20	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]

PLANNING BOARD APPROVAL

GENERAL NOTES:

BULK REQUIREMENTS:

PARKING CALCULATIONS TABLE:

TABLE OF ELEVATION

LEGEND

OWNER:

REFERENCE:

TAX DESIGNATION:

AREA:

SITE ADDRESS:

ATZL, NASHER & ZIGLER P.C.

SUMMERVILLE INDUSTRIAL PARK

VILLAGE OF CHESTER
ORANGE COUNTY, NEW YORK

SITE PLAN

3390

1

TEST HOLE #1

INFILTRATION TEST AT A DEPTH OF 60-INCHES (5'-0") EL. 478.5.

SOIL LOG	SOIL TYPE
0" TO 12"	TOPSOIL
12" TO 72"	SILTY-SAND

NO GROUNDWATER. NO BEDROCK FOUND AT 72-INCHES (6'-0") DEEP (EL. 477.5).

TRIAL NUMBER	TIME TO DROP 2.4 INCH
1	30 SEC.
2	30 SEC.
3	30 SEC.
4	30 SEC.

AVERAGE= 0.08 MIN/IN OR 2.880 MIN/FT

TEST HOLE #2

INFILTRATION TEST AT A DEPTH OF 54-INCHES (4'-6") EL. 503.5.

SOIL LOG	SOIL TYPE
0" TO 12"	TOPSOIL & SLATE
12" TO 66"	SILTY-CLAY

GROUNDWATER WAS FOUND AT 2.5 FEET (30-INCH) DEEP EL. 503.5

TEST HOLE #4

INFILTRATION TEST AT A DEPTH OF 24-INCHES (2'-0") EL. 504.5

SOIL LOG	SOIL TYPE
0" TO 12"	TOPSOIL & SLATE
12" TO 60"	SILTY-CLAY

GROUNDWATER WAS FOUND AT 2.0 FEET (24-INCH) DEEP EL. 504.5

TEST HOLE #5

INFILTRATION TEST AT A DEPTH OF 114-INCHES (9'-6") EL. 495.5.

SOIL LOG	SOIL TYPE
0" TO 12"	TOPSOIL & SLATE
12" TO 126"	SILTY-CLAY

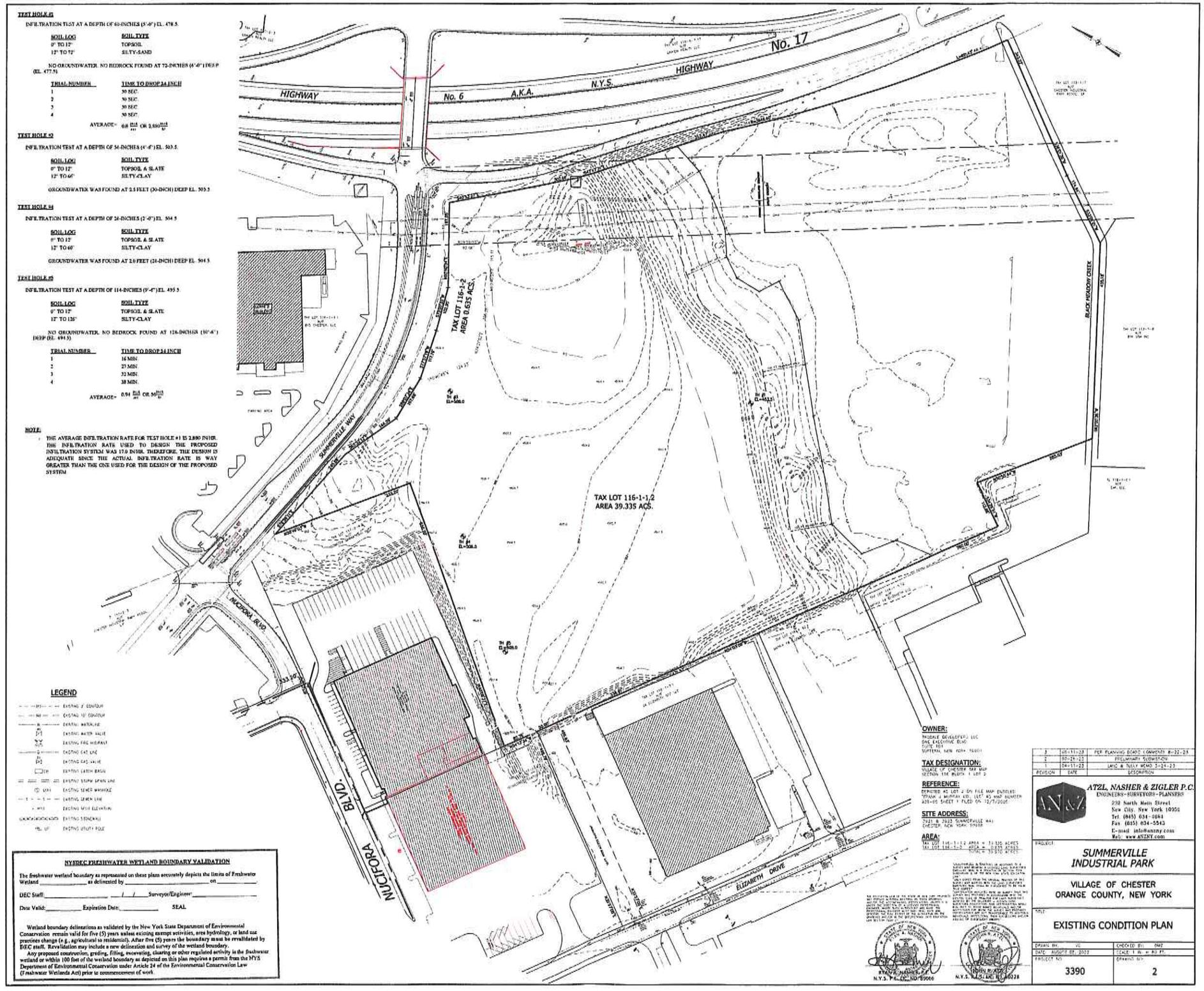
NO GROUNDWATER. NO BEDROCK FOUND AT 126-INCHES (10'-6") DEEP (EL. 494.5).

TRIAL NUMBER	TIME TO DROP 2.4 INCH
1	16 MIN.
2	27 MIN.
3	32 MIN.
4	38 MIN.

AVERAGE= 0.94 MIN/IN OR 56 MIN/FT

NOTE:

1. THE AVERAGE INFILTRATION RATE FOR TEST HOLE #1 IS 2.880 IN/HR. THE INFILTRATION RATE USED TO DESIGN THE PROPOSED INFILTRATION SYSTEM WAS 17.0 IN/HR. THEREFORE, THE DESIGN IS ADEQUATE SINCE THE ACTUAL INFILTRATION RATE IS WAY GREATER THAN THE ONE USED FOR THE DESIGN OF THE PROPOSED SYSTEM



LEGEND

EXISTING 2' CONTOUR
EXISTING 10' CONTOUR
EXISTING WATERLINE
EXISTING WATER VALVE
EXISTING FIRE HYDRANT
EXISTING CAT LINE
EXISTING GAS VALVE
EXISTING CATCH BASIN
EXISTING STORM DRAIN LINE
EXISTING SEWER MANHOLE
EXISTING SEWER LINE
EXISTING SPOT ELEVATION
EXISTING STONEWALL
EXISTING UTILITY POLE

NYSDEC FRESHWATER WETLAND BOUNDARY VALIDATION

The freshwater wetland boundary as represented on these plans accurately depicts the limits of Freshwater Wetland _____ as delineated by _____ on _____.

DEC Staff:_____ ___/___/___ Surveyor/Engineer:_____

Date Valid:_____ Expiration Date:_____ SEAL

Wetland boundary delineations as validated by the New York State Department of Environmental Conservation remain valid for five (5) years unless existing exempt activities, area hydrology, or land use practices change (e.g., agricultural to residential). After five (5) years the boundary must be revalidated by DEC staff. Revalidation may include a new delineation and survey of the wetland boundary.

Any proposed construction, grading, filling, excavating, clearing or other regulated activity in the freshwater wetland or within 100 feet of the wetland boundary as depicted on this plan requires a permit from the NYS Department of Environmental Conservation under Article 24 of the Environmental Conservation Law (Freshwater Wetlands Act) prior to commencement of work.

OWNER:
TRIDENT DEVELOPERS LLC
ONE EXECUTIVE BLVD
SUITE 101
SUFFERN, NEW YORK 10901

TAX DESIGNATION:
VILLAGE OF CHESTER TAX MAP
SECTION 116 BLOCK 1 LOT 2

REFERENCE:
DEPICTED AS LOT 2 ON FILE MAP ENTITLED: "EVAN J. MURRAY LTD., LOT #2 MAP NUMBER 428-05 SHEET 1 FILED ON 12/7/2005"

SITE ADDRESS:
7921 & 7923 SUMMERVILLE WAY
CHESTER, NEW YORK 10918

AREA:
TAX LOT 116-1-1,2 AREA = 39.335 ACRES
TAX LOT 116-1-2 AREA = 0.635 ACRES
TOTAL = 39.970 ACRES

REVISION	DATE	DESCRIPTION
3	10-11-23	PER PLANNING BOARD COMMENTS 9-27-23
2	07-26-23	PRELIMINARY SUBMISSION
1	04-11-23	LAND & TULLY MEMO 3-24-23

AT2L, NASHER & ZIGLER P.C.
ENGINEERS - SURVEYORS - PLANNERS
232 North Main Street
New City, New York 10956
Tel (845) 634-1061
Fax (845) 634-5543
E-mail info@anzny.com
Web: www.ANZNY.com

PROJECT:
SUMMERVILLE INDUSTRIAL PARK

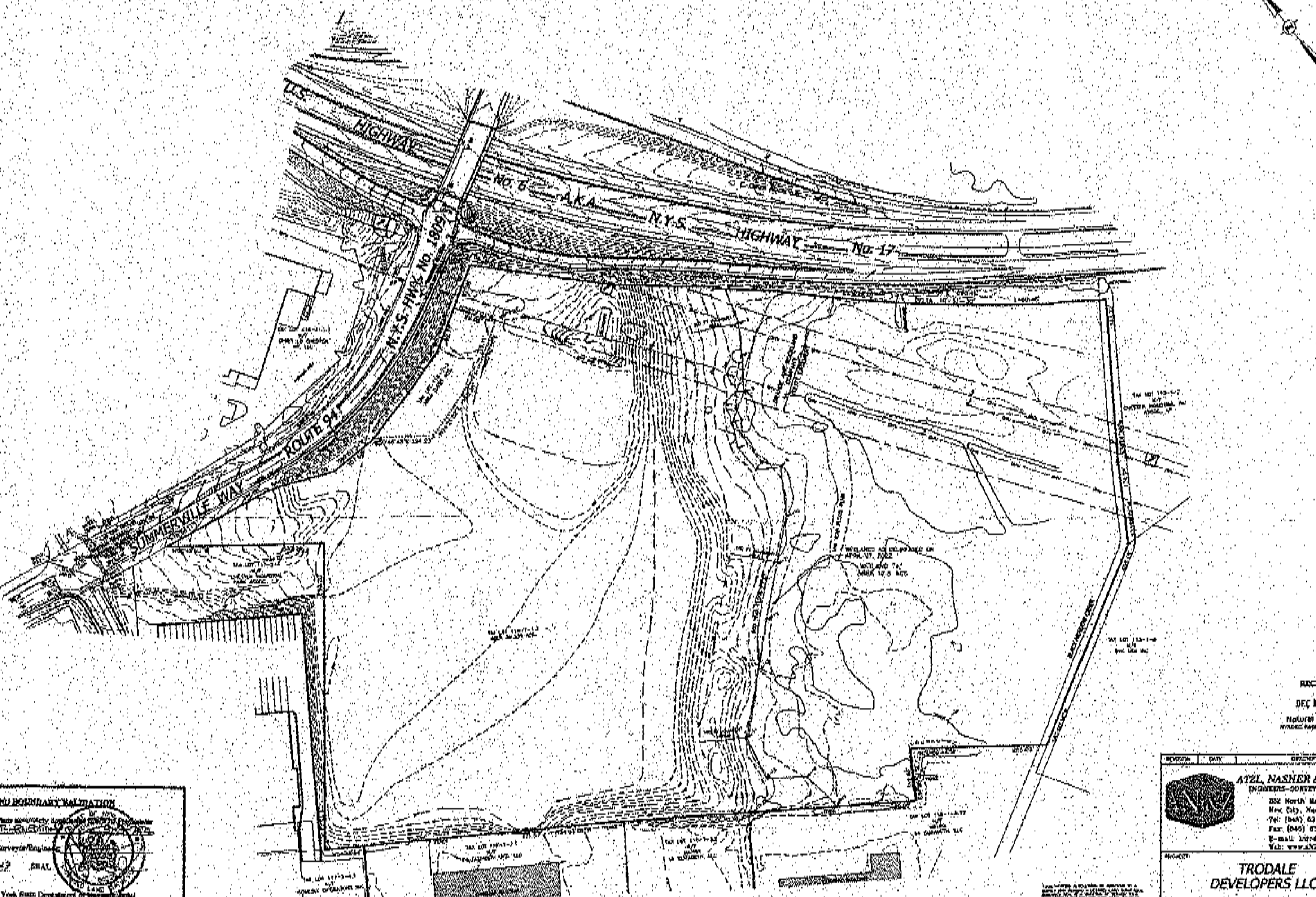
VILLAGE OF CHESTER
ORANGE COUNTY, NEW YORK

TITLE:
EXISTING CONDITION PLAN

DRAWN BY: VC	CHECKED BY: DMZ
DATE: AUGUST 09, 2023	SCALE: 1 IN. = 80 FT.
PROJECT NO. 3390	DRAWING NO. 2

KYLE A. NASHER, P.E.
N.Y.S. P.E. LIC. NO. 090066

JOHN R. ATZL
N.Y.S. P.E. LIC. NO. 060228



NYSDEC FRESHWATER WETLAND BOUNDARY VALIDATION

The freshwater wetland boundary as depicted on these plans accurately depicts the limits of Freshwater Wetland WD-8, as delineated by [illegible]

DEC Staff: [illegible] 12 [illegible] 22 Surveyor/Engineer: [illegible]

Date Valid: [illegible] Expiration Date: [illegible] SEAL

Wetland boundary delineations as validated by the New York State Department of Environmental Conservation remain valid for five (5) years unless existing exempt activities, area hydrology, or land use practices change (e.g., agricultural to residential). After five (5) years the boundary must be revalidated by DEC staff. Revalidation may include a new delineation and survey of the wetland boundary.

Any proposed construction, grading, filling, excavating, clearing or other regulated activity in the freshwater wetland or within 100 feet of the wetland boundary as depicted on this plan requires a permit from the NYS Department of Environmental Conservation under Article 24 of the Environmental Conservation Law (Freshwater Wetlands Act) prior to commencement of work.

TAX DESIGNATION:
VILLAGE OF CHESTER TAX MAP
SECTION 118 BLOCK 1 LOT 2

REFERENCE:
[illegible] 12/2/2005

SITE ADDRESS:
[illegible] SUMMERVILLE WAY
CHESTER, NEW YORK [illegible]

AREA:
TAX LOT 118-1-1.2 AREA = [illegible] ACRES
TAX LOT 118-1-2 AREA = [illegible]
TOTAL = [illegible]

OWNER:
TRODALE DEVELOPERS LLC
[illegible]

REVISION	DATE	DESCRIPTION

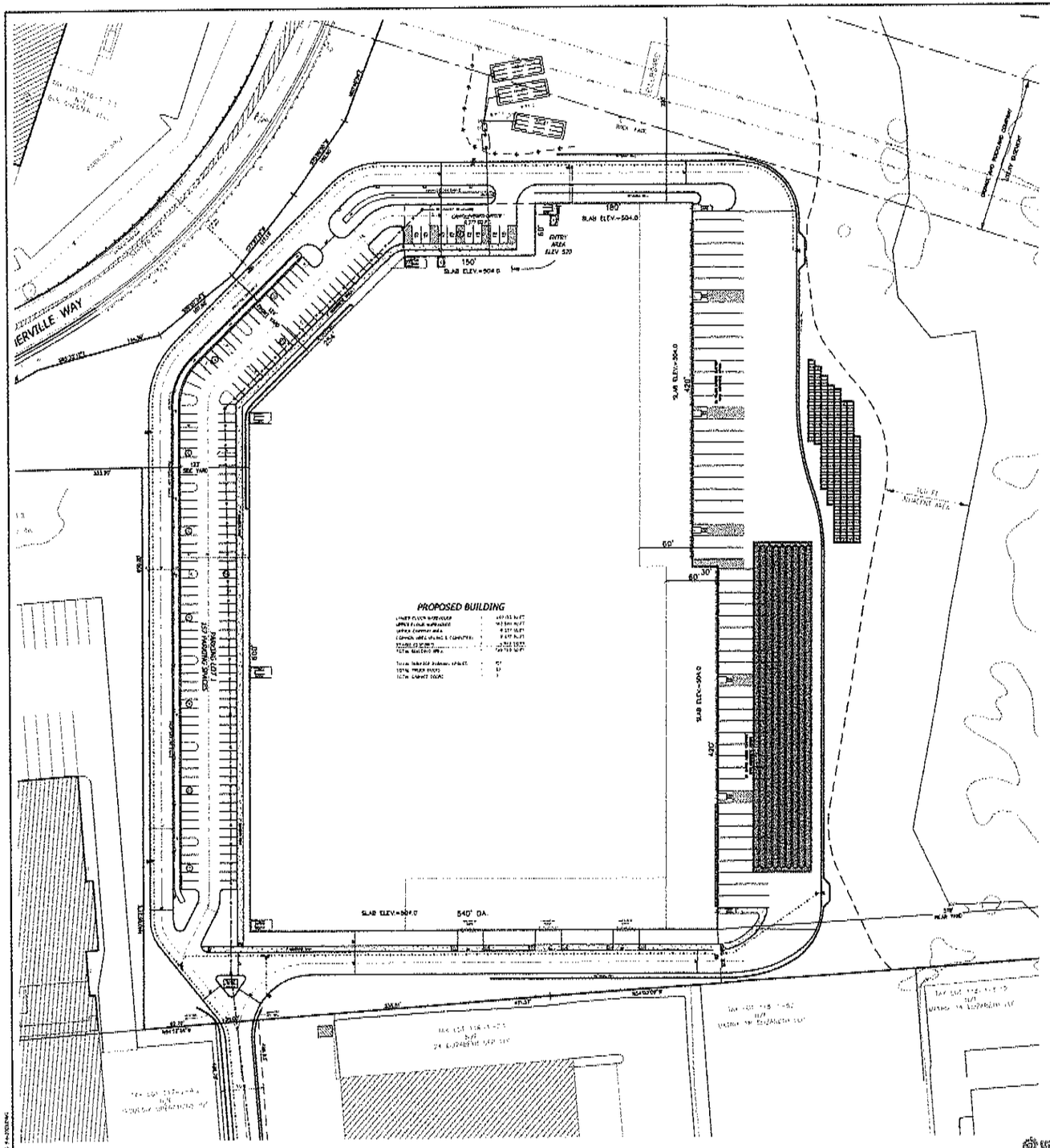
ATZL, NASHER & ZIGLER P.C.
ENGINEERS–SURVEYORS–PLANNERS
232 North Main Street
New City, New York 10956
Tel: (845) 634-4694
Fax: (845) 634-5543
E-mail: info@anzny.com
Web: www.ANZNY.com

PROJECT:
TRODALE DEVELOPERS LLC

VILLAGE OF CHESTER
ORANGE COUNTY, NEW YORK

TITLE:
NYSDEC
WETLAND BOUNDARY

DRAWN BY: VC	CHECKED BY: [illegible]
DATE: DECEMBER [illegible], 2022	SCALE: 1 IN = 100 FT
PROJECT NO. 3390	DRAWING NO. 3



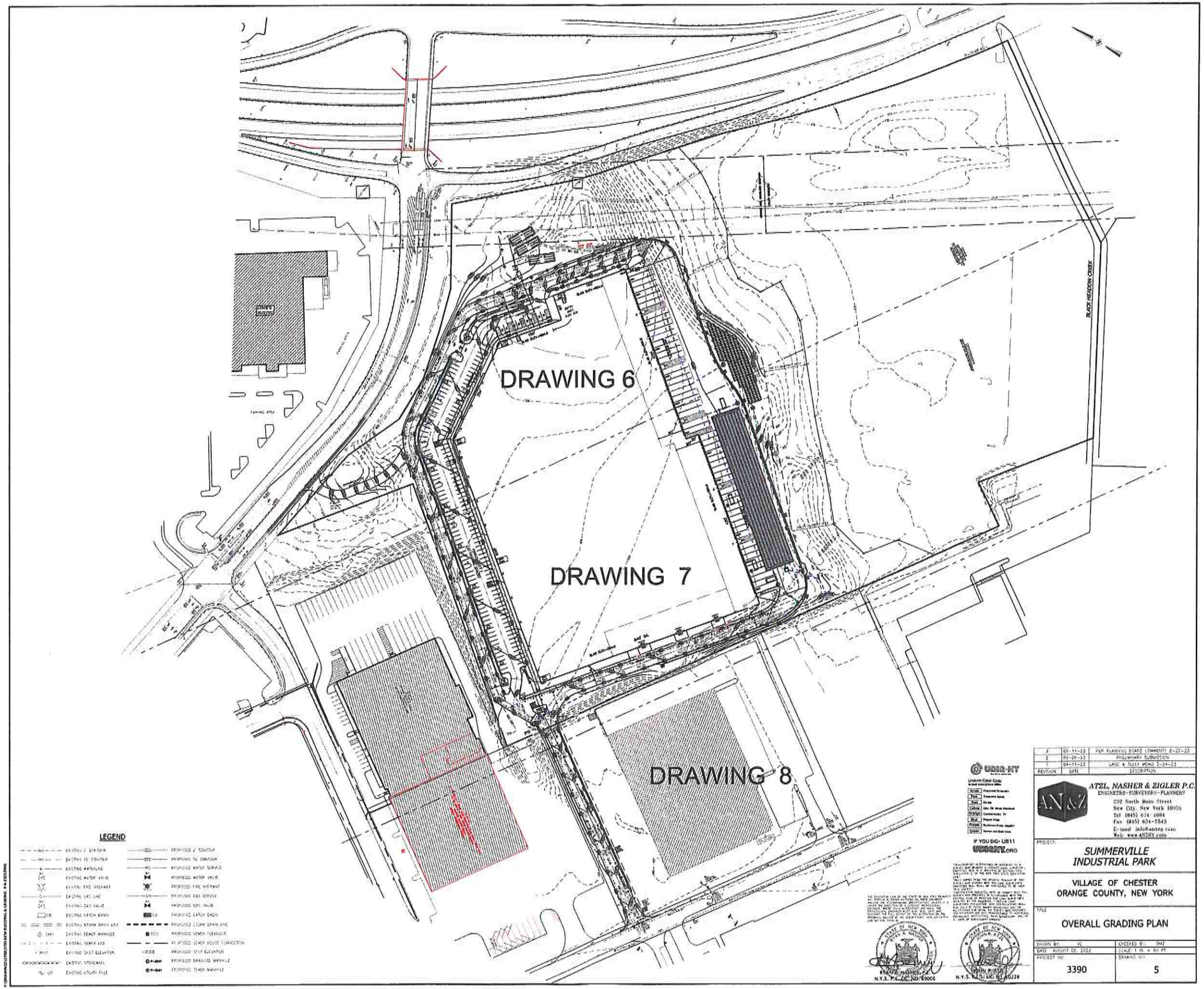
ATZL, NASHER & ZIGLER P.C.
ENGINEERS · SURVEYORS · PLANNERS
202 South Main Street
New City, New York 10956
Tel: (845) 624-4644
Fax: (845) 624-5542
E-mail: info@atzlny.com
Web: www.ATZLNY.com

SUMMERVILLE INDUSTRIAL PARK

VILLAGE OF CHESTER
ORANGE COUNTY, NEW YORK

ZONING BOARD MAP

PROJECT NO.	SHEET NO.
3390	4



REVISION	DATE	DESCRIPTION
3	05-11-23	PER PLANNING BOARD COMMENTS 4-27-23
2	03-29-23	PRELIMINARY SUBMISSION
1	04-11-22	LAND & TULLY MEMO 3-24-22

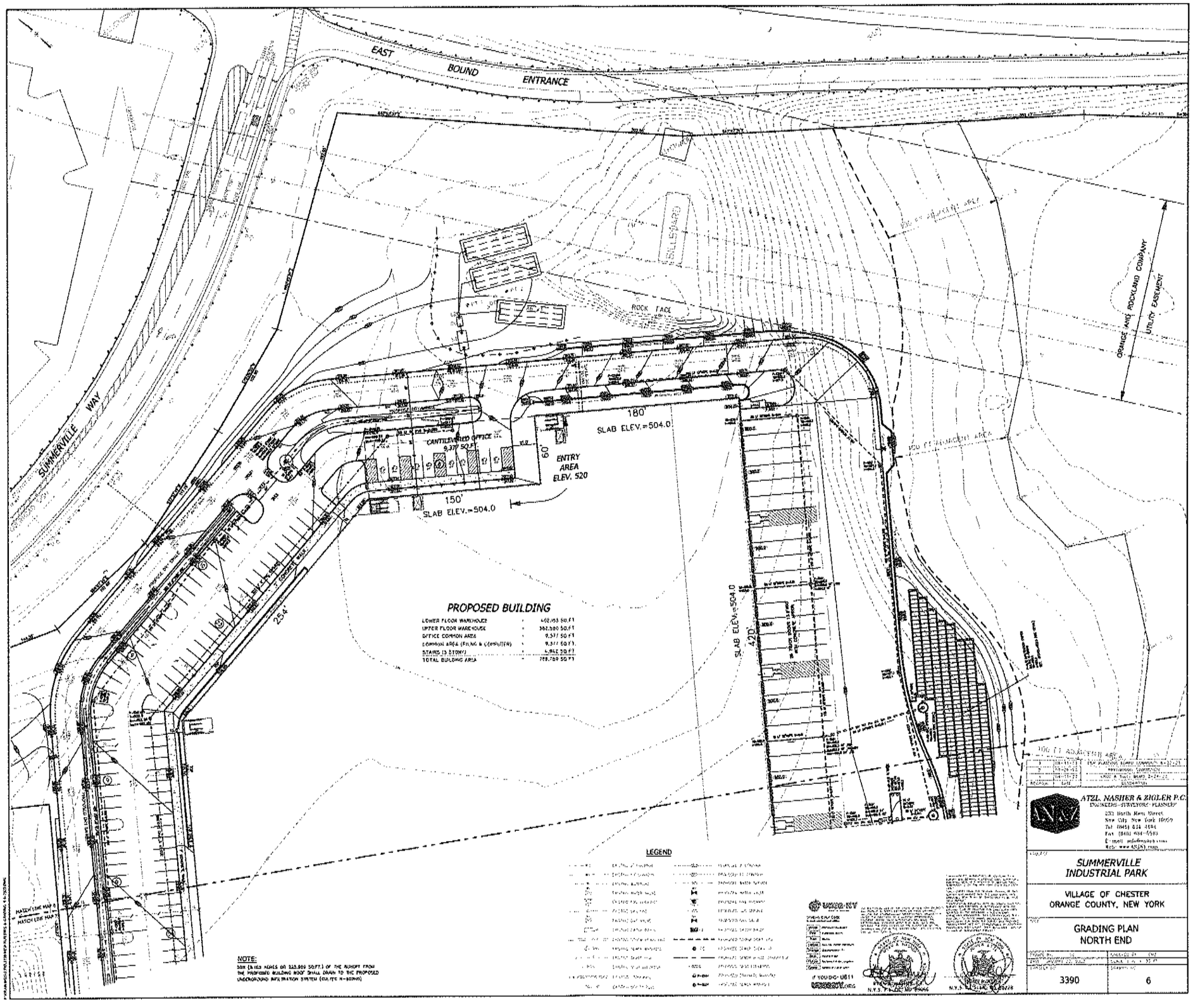
ATZL, NASHER & ZIGLER P.C.
ENGINEERS · SURVEYORS · PLANNERS
232 North Main Street
New City, New York 10956
Tel (845) 634-1684
Fax (845) 634-5543
E-mail info@anzny.com
Web www.ANZNY.com

PROJECT:
SUMMERVILLE INDUSTRIAL PARK

VILLAGE OF CHESTER
ORANGE COUNTY, NEW YORK

TITLE
OVERALL GRADING PLAN

DRAWN BY: VG	CHECKED BY: DMZ
DATE: AUGUST 05, 2022	SCALE: 1 IN = 80 FT
PROJECT NO: 3390	DRAWING NO: 5


EAST BOUND ENTRANCE
SUMMERVILLE WAY
ROCK FACE
ORANGE AND ROCKLAND COMPANY UTILITY EASEMENT
CANTILEVERED OFFICE 9,377 SQ.FT.
ENTRY AREA ELEV. 520
180'
SLAB ELEV.=504.0
150'
SLAB ELEV.=504.0
60'
420'
SLAB ELEV.=504.0
254'
PROPOSED BUILDING
LOWER FLOOR WAREHOUSE = 402,153 SQ.FT
UPPER FLOOR WAREHOUSE = 382,580 SQ.FT
OFFICE COMMON AREA = 9,377 SQ.FT
COMMON AREA (FILING & C/OMPUTER) = 9,377 SQ.FT
STAIRS (3 STORY) = 4,962 SQ.FT
TOTAL BUILDING AREA = 788,789 SQ.FT
NOTE:
SOIL (8.183 ACRES OR 335,989 SQ.FT.) OF THE ROOFTOP FROM THE PROPOSED BUILDING ROOF SHALL DRAIN TO THE PROPOSED UNDERGROUND INFILTRATION SYSTEM (CULTEC I-62MW)
LEGEND
IF YOU DIG - U811
DIGSAFELY.ORG
ATZL, NASHER & ZIGLER P.C.
ENGINEERS - SURVEYORS - PLANNERS
SUMMERVILLE INDUSTRIAL PARK
VILLAGE OF CHESTER
ORANGE COUNTY, NEW YORK
GRADING PLAN
NORTH END
3390
6

LEGEND

EXISTING 2' CONTOUR
EXISTING 10' CONTOUR
EXISTING WATERLINE
EXISTING WATER VALVE
EXISTING FIRE HYDRANT
EXISTING GAS LINE
EXISTING GAS VALVE
EXISTING CATCH BASIN
EXISTING STORM DRAIN LINE
EXISTING SEWER MANHOLE
EXISTING SEWER LINE
EXISTING SPOT ELEVATION
EXISTING RETAINING WALL
EXISTING UTILITY POLE
PROPOSED 2' CONTOUR
PROPOSED 10' CONTOUR
PROPOSED WATER SERVICE
PROPOSED WATER VALVE
PROPOSED FIRE HYDRANT
PROPOSED GAS SERVICE
PROPOSED GAS VALVE
PROPOSED CATCH BASIN
PROPOSED STORM DRAIN LINE
PROPOSED SEWER CLEANOUT
PROPOSED SEWER HOUSE CONNECTION
PROPOSED SPOT ELEVATION
PROPOSED DRAINAGE MANHOLE
PROPOSED SEWER MANHOLE

HATCH LINE MAP 6
HATCH LINE MAP 7

157 PARKING SPACES
PARKING LOT 1
600'

PROPOSED BUILDING

LOWER FLOOR WAREHOUSE	=	402,653 SQ.FT.
UPPER FLOOR WAREHOUSE	=	362,560 SQ.FT.
OFFICE COMMON AREA	=	9,377 SQ.FT.
COMMON AREA (FILING & COMPUTER)	=	9,377 SQ.FT.
STAIRS (3 STORY)	=	4,942 SQ.FT.
TOTAL BUILDING AREA	=	788,769 SQ.FT.

60'
60' 30'
SLAB ELEV.=504.0
420'
100 FT. ADJACENT
100 FT. ADJACENT AREA

SLAB ELEV.=504.0
540' OA.

EXISTING BUILDING
TAX LOT 117-2-7.2
L/F
ISOMEDIX OPERATIONS INC.

TAX LOT 118-1-7.1
L/F
24 ELIZABETH GFF LLC
EXISTING BUILDING

TAX LOT 118-1-52
L/F
MATRIX 18 ELIZABETH LLC

HATCH LINE MAP 7
HATCH LINE MAP 8

NOTE:
852 (0.183 ACRES OR 225,909 SQ.FT.) OF THE RUNOFF FROM THE PROPOSED BUILDING ROOF SHALL DRAIN TO THE PROPOSED UNDERGROUND INFILTRATION SYSTEM (QUALTEC R-902HD).

UDIG-NY
Utility Color Code
WHITE — Proposed Route
YELLOW — Temporary Survey
RED — Electric
GREEN — Sewer
BLUE — Potable Water
ORANGE — Communication / CATV
PURPLE — Reclaimed Water, Irrigation and Slurry Lines
PINK — Temporary Survey Markings
BROWN — Proposed Excavation

IF YOU DIG: 811
UDIGNY.ORG

RYAN G. NASHER, P.E.
N.Y.S. P.E. LIC. NO. 89005

JOHN R. ZIGLER, III
N.Y.S. L.S. LIC. NO. 50228

REVISION	DATE	DESCRIPTION
3	06-11-23	PER PLANNING BOARD COMMENTS 6-22-23
2	02-28-23	PRELIMINARY SUBMISSION
1	04-11-23	LAND & TULLY MEMO 5-24-23

ANZ
ANZL, NASHER & ZIGLER P.C.
ENGINEERS - SURVEYORS - PLANNERS
232 North Main Street
New City, New York 10956
Tel (845) 634-4884
Fax (845) 634-5543
E-mail info@anzny.com
Web www.ANZNY.com

PROJECT
SUMMERVILLE INDUSTRIAL PARK

VILLAGE OF CHESTER
ORANGE COUNTY, NEW YORK

TITLE
GRADING PLAN
MIDDLE

DRAWN BY: VC	CHECKED BY: DMZ
DATE: JANUARY 23, 2023	SCALE: 1" IN. = 30 FT.
PROJECT NO. 3390	DRAWING NO. 7

PROPOSED BUILDING

LOWER FLOOR WAREHOUSE	=	402,183 SQ.FT.
UPPER FLOOR WAREHOUSE	=	362,860 SQ.FT.
OFFICE COMMON AREA	=	9,317 SQ.FT.
COMMON AREA (FILING & COMPUTER)	=	9,317 SQ.FT.
STAIRS (3 STORY)	=	4,962 SQ.FT.
TOTAL BUILDING AREA	=	788,769 SQ.FT.

SLAB ELEV.=504.0

540' OA.

TAX LOT 118-1-52
MATRIX 18 ELIZABETH LLC

TAX LOT 118-1-71
U/F
24 ELIZABETH OFP LLC

TAX LOT 117-2-1.2
U/F
IP OPERATIONS INC

MATCH LINE MAP 7
MATCH LINE MAP 8

EXISTING BUILDING

50 FT. WIDE ACCESS EASEMENT

ELIZABETH DRIVE

NOTE:
55% (5.185 ACRES OR 225,989 SQ.FT.) OF THE RUNOFF FROM THE PROPOSED BUILDING ROOF SHALL DRAIN TO THE PROPOSED UNDERGROUND INFILTRATION SYSTEM (CULTEC R-902HD).

LEGEND

EXISTING 2' CONTOUR	PROPOSED 2' CONTOUR
EXISTING 10' CONTOUR	PROPOSED 10' CONTOUR
EXISTING WATERLINE	PROPOSED WATER SERVICE
EXISTING WATER VALVE	PROPOSED WATER VALVE
EXISTING FIRE HYDRANT	PROPOSED FIRE HYDRANT
EXISTING GAS LINE	PROPOSED GAS SERVICE
EXISTING GAS VALVE	PROPOSED GAS VALVE
EXISTING CATCH BASIN	PROPOSED CATCH BASIN
EXISTING STORM DRAIN LINE	PROPOSED STORM DRAIN LINE
EXISTING SEWER MANHOLE	PROPOSED SEWER CLEANOUT
EXISTING SEWER LINE	PROPOSED SEWER HOUSE CONNECTION
EXISTING SPOT ELEVATION	PROPOSED SPOT ELEVATION
EXISTING STREAMS	PROPOSED DRAINAGE MANHOLE
EXISTING SOUTH POINT	PROPOSED SEWER MANHOLE

IF YOU DIG- UB11
UDIGNY.ORG

REVISION	DATE	DESCRIPTION
3	09-11-23	PER PLANNING BOARD COMMENTS 8-22-23
2	07-26-23	PRELIMINARY SUBMISSION
1	04-11-23	LAND & TURF MEMO 3-24-23

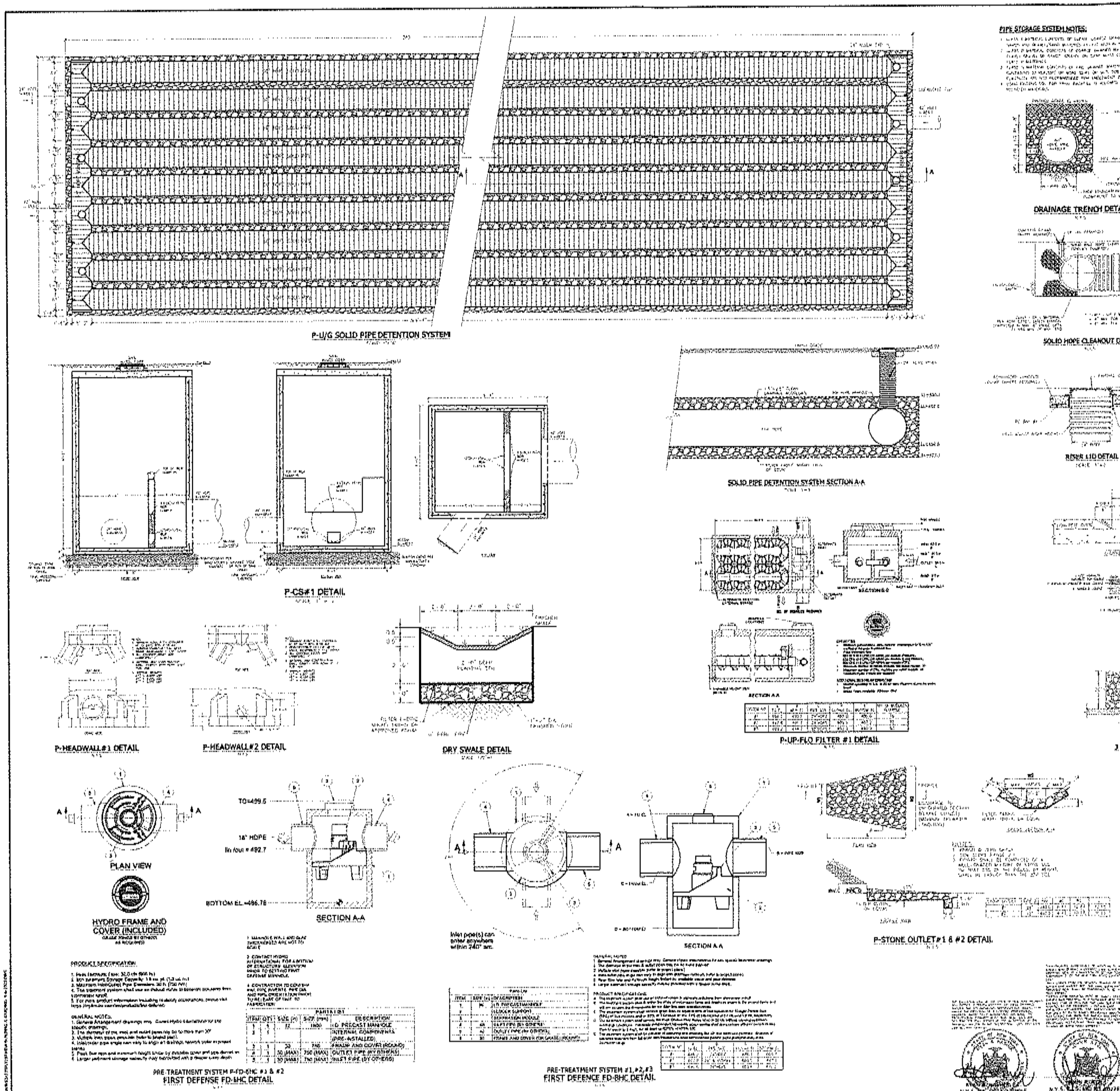
ATZL, NASHER & ZIGLER P.C.
ENGINEERS-SURVEYORS-PLANNERS
232 North Main Street
New City, New York 10956
Tel (845) 634-4984
Fax (845) 634-5540
E-mail info@anzny.com
Web www.ANZNY.com

PROJECT:
SUMMERVILLE INDUSTRIAL PARK

VILLAGE OF CHESTER
ORANGE COUNTY, NEW YORK

TITLE:
GRADING PLAN SOUTH END

DRAWN BY: VG	CHECKED BY: DWZ
DATE: JANUARY 23, 2023	SCALE: 1 IN. = 30 FT.
PROJECT NO: 3390	DRAWING NO: 8



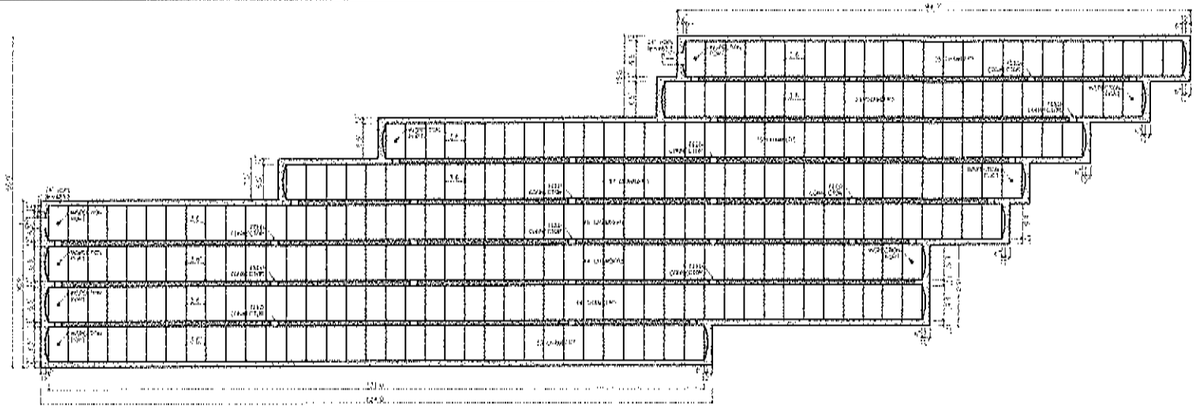
ATZL, NASHER & ZIGLER P.C.
ENGINEERS - SURVEYORS - PLANNERS

SUMMERVILLE INDUSTRIAL PARK

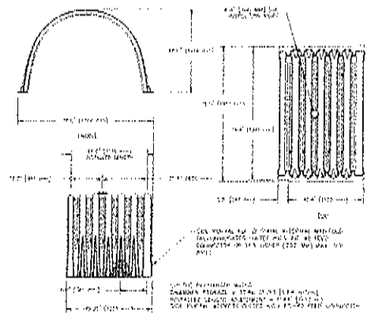
VILLAGE OF CHESTER
ORANGE COUNTY, NEW YORK

DRAINAGE DETAILS

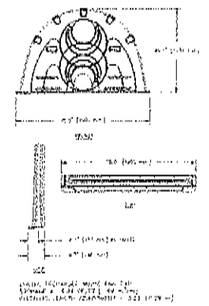
3390	9



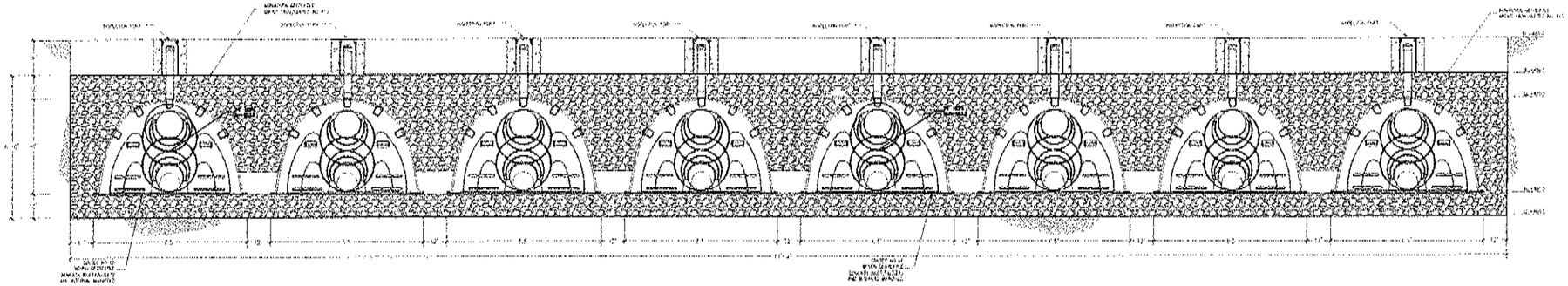
U/G INFILTRATION SYSTEM (CULTEC CHAMBER R-902 HD) DETAIL



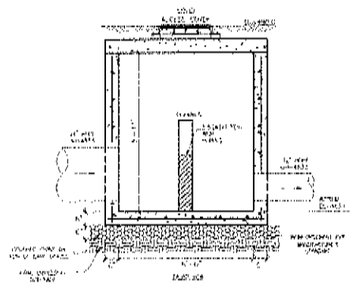
CULTEC RECHARGER 902HD HEAVY DUTY

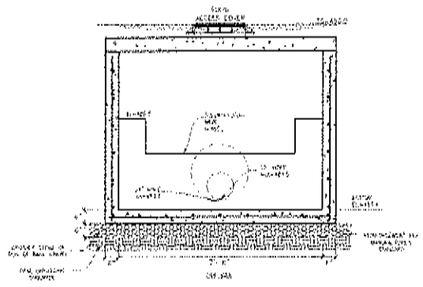


CULTEC RECHARGER 902HD HEAVY END CAP



U/G INFILTRATION SYSTEM (CULTEC CHAMBER R-902 HD) SECTION DETAIL





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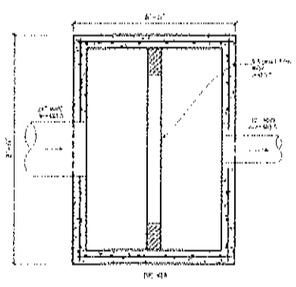
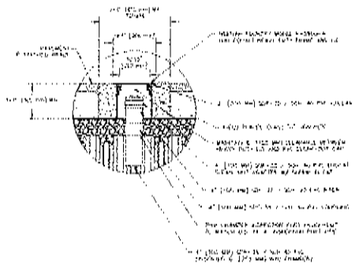
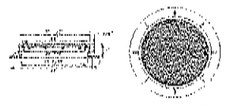
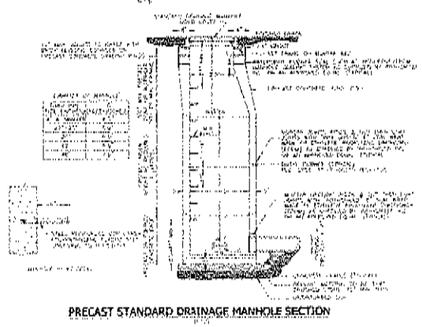




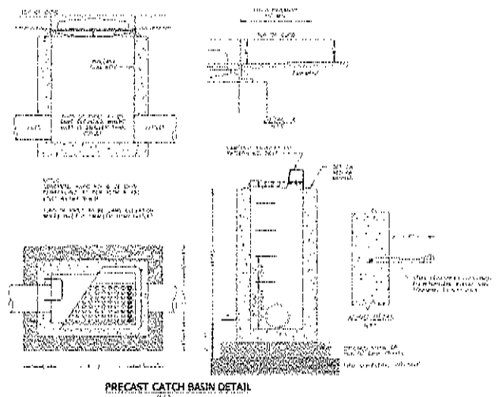
INSPECTION PORT DETAIL



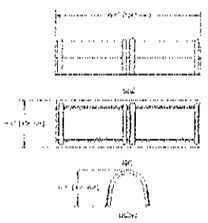
STANDARD DRAINAGE MANHOLE COVER



PRECAST STANDARD DRAINAGE MANHOLE SECTION



PRECAST CATCH BASIN DETAIL



CULTEC HVLV FC-48 FEED CONNECTOR

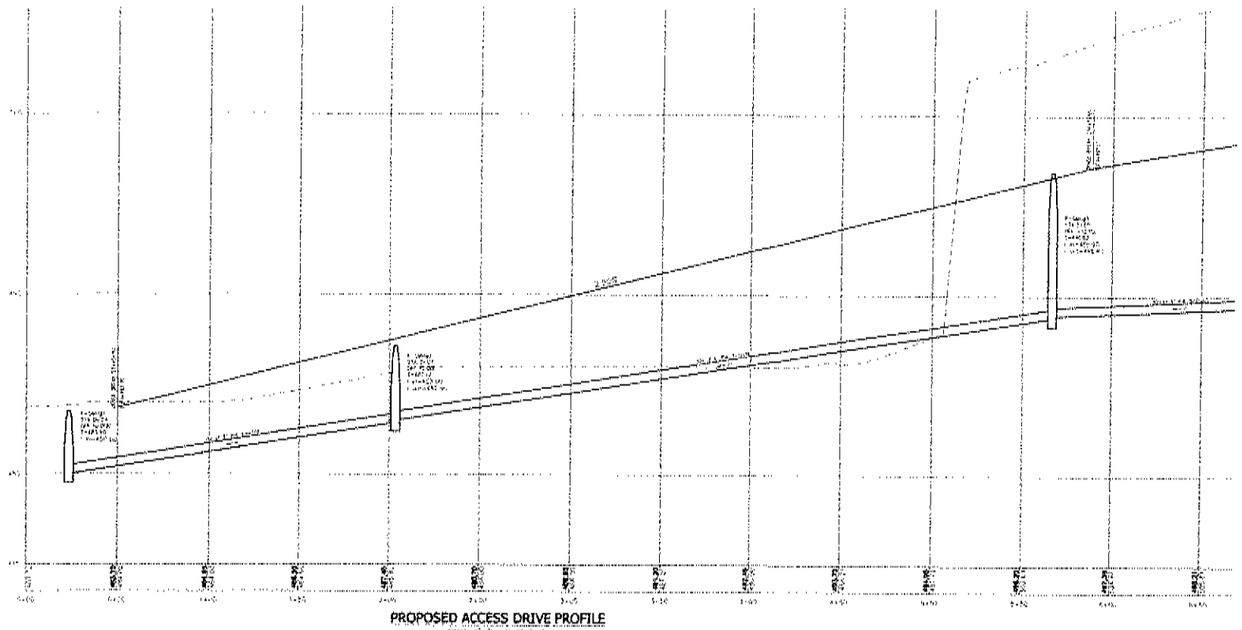
ATZL, NASHER & ZIGLER P.C.
ENGINEERS · SURVEYORS · PLANNERS
62 North Main Street
New City, New York 10956
Tel (845) 634-0894
Fax (845) 634-0643
E-mail info@atzlny.com
Web www.atzlny.com

PROJECT
SUMMERVILLE INDUSTRIAL PARK

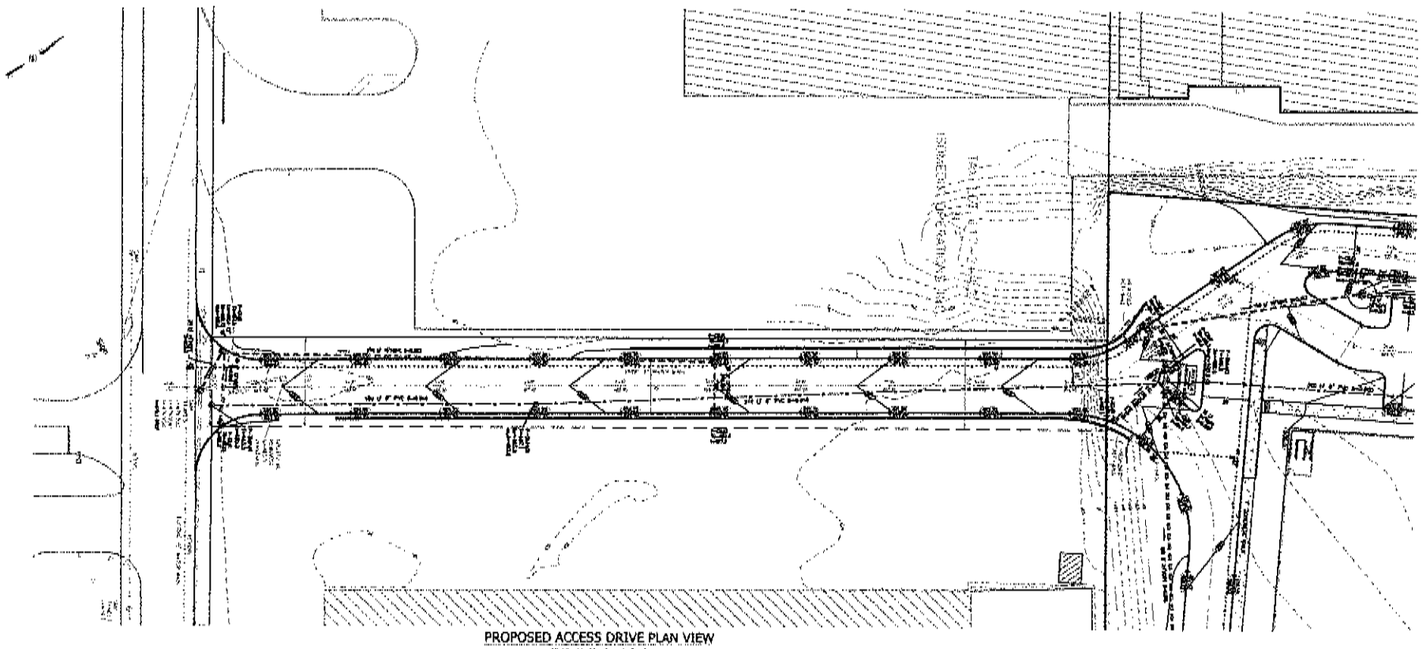
VILLAGE OF CHESTER
ORANGE COUNTY, NEW YORK

TITLE
DRAINAGE DETAILS

DRAWN BY:	CHECKED BY:
DATE: JANUARY 27, 2021	SCALE: AS SHOWN
PROJECT NO. 3390	REVISION NO. 10



PROPOSED ACCESS DRIVE PROFILE



PROPOSED ACCESS DRIVE PLAN VIEW

REVISION	DATE	DESCRIPTION
1	09-15-22	PER PLANNING BOARD COMMENTS 9-07-22
2	09-21-22	PER PLANNING BOARD COMMENTS
3	04-14-23	PER A.N.Z. LETTER 3-23-23

ATZL, NASHER & ZIGLER P.C.
ENGINEERS · SURVEYORS · PLANNERS
302 North Main Street
New City, New York 10956
Tel (845) 634-4664
Fax (845) 634-2540
E-mail: info@anzpc.com
Web: www.anzpc.com

SUMMERVILLE INDUSTRIAL PARK

VILLAGE OF CHESTER
ORANGE COUNTY, NEW YORK

ACCESS DRIVE PLAN & PROFILE

DRAWN BY	CHECKED BY
DATE: MARCH 22, 2022	SCALE: 1" = 50'
PROJECT NO. 3390	DRAWING NO. 11

LEGEND

SUMMERVILLE WAY

EMERGENCY ACCESS PAVEMENT

PROP. SECURITY GATE

254'

DRIVEWAY ENTRANCE DETAIL TYPE 2

PRECAST CONCRETE / STONE DRIVEWAY DROP CURB TRANSITION DETAIL

NYSDOT SIDEWALK REPLACEMENT SECTION

PAVEMENT RECONSTRUCTION OPTION A

CURB RAMP CONFIGURATION DETAIL

DRIVEWAY PAVEMENT SECTION

PAVEMENT RECONSTRUCTION OPTION B

LATCH & LOCK DETAIL

L-BRACKET DETAIL

SECURITY GATE DETAIL

LOCKING BAR DETAIL

ACCESS SIGN DETAIL

4"

8"

ATZL, NASHER & ZIGLER P.C.
ENGINEERS - SURVEYORS - PLANNERS
202 North Main Street
New City, New York 10956
Tel (845) 634-0456
Fax (845) 634-0643
E-mail info@atzlny.com
Web www.ANZNY.com

SUMMERVILLE INDUSTRIAL PARK

VILLAGE OF CHESTER
ORANGE COUNTY, NEW YORK

EMERGENCY ACCESS PLAN

Drawing No.	12	Checked By	DMC
Date	JANUARY 13, 2022	Scale	1" = 50'
Project No.	3390	Drawing No.	12

GENERAL NOTES:

1. THESE SHEETS ARE IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT (ADA), AND THE REQUIREMENTS OF THE 2017 PROWAG PUBLIC RIGHT-OF-WAY ACCESSIBILITY GUIDELINES FOR PEDESTRIAN FACILITIES IN THE PUBLIC RIGHT-OF-WAY (PROWAG).
2. THE DIMENSIONS SHOWN IN THE DETAILS AS MINIMUM AND MAXIMUMS ARE THE LIMITS FOR DESIGN AND SHOULD NOT BE EXCEEDED WITHOUT VARIANCE. ALL TOLERANCE VALUES SET THROUGH RULEMAKING FOR THE DESIGN, LAYOUT, AND ACCEPTANCE OF PEDESTRIAN FACILITIES IN THE PUBLIC RIGHT-OF-WAY SHALL BE AS FOLLOWS:
   A. THE CONSTRUCTING PARTY SHALL BE RESPONSIBLE FOR FIELD VERIFYING ALL DIMENSIONS AND CONDITIONS IN CONFORMANCE WITH THE FINAL VERSION OF PEDESTRIAN FACILITIES WHERE NEW REQUIREMENTS MAY SUPERCEDE PRIOR INCREASES TO MEET NEW REQUIREMENTS SHALL BE MADE TO THE UNDER NEW SIZE OR SURFACE CONDITIONS.
3. VARIATIONS THAT CANNOT BE CONSTRUCTED TO MEET THE SPECIFIED TOLERANCES, DUE TO SPECIFIC CONDITIONS, SHALL BE CONSTRUCTED TO MEET THE STANDARDS TO THE GREATEST EXTENT PRACTICABLE. FEATURES THAT CANNOT MEET THE VARIED FROM MORE ACCESSIBLE SHALL BE LOCATED IN ACCORDANCE WITH PROWAG SECOND PRIORITY CHAPTER 3.
4. NO CHECK TRUE LAYOUT AND NO SEVERE WORK ACCEPTANCE OF MEASUREMENTS SHALL BE MADE IN ACCORDANCE WITH THE TABLES OR MEASUREMENT METHODS RECOMMENDATIONS FOR SHEETS 11 TO 16.
5. ALL NEW OR REPAIRED SIDEWALKS, CURB RAMPS, TURNING SPACES, AND ROADWAYS SHALL BE FLUSH AND FREE FROM ABRUPT VERTICAL CHANGES GREATER THAN 1/2" (EXCEPT DETECTABLE WARNING SURFACES). BETWEEN 1/4" AND 1/2" SHALL BE BEVELED WITH A SLOPE NOT STEEPER THAN 1:2. THE BEVEL SHALL BE APPLIED ACROSS THE LEVEL CHANGE. SEE "STANDARD SIDEWALK DISCONTINUITIES" DETAIL ON SHEET 11 OF 12.
6. ALIGNMENT AND CONNECTION TO ROADWAYS OR ALTERNATE TRAVERSABLE OF CURB RAMPS, GUTTERS, TRANSITIONS, AND CONNECTIONS BETWEEN THE SIDEWALK LEVEL AND THE ROADWAY LEVEL THAT HAVE A MAXIMUM GRADE (RUNNING SLOPE) OF 5% CONSECUTIVE WITH A MAXIMUM GRADE (RUNNING SLOPE) GREATER THAN 5% ARE CONSIDERED CURB RAMPS.
7. CURB RAMPS AND BLENDED TRANSITIONS ARE REQUIRED FOR INSTALLATION OF DETECTABLE WARNINGS. SEE ADDITIONAL DETECTABLE WARNING NOTES ON THIS SHEET. ALSO THE DETAILS ON SHEET 2 OF 12 FOR DIMENSIONS AND APPLICATION.
8. CURVED RAMPS WITHIN THE PEDESTRIAN ACCESS ROUTE SHALL BE PERPENDICULAR TO THE DIRECTIONS OF TRAVEL AND SHALL NOT BE POSITIVE. VERTICAL ALIGNMENT SHALL BE GENERALLY PLANAR.
9. MATERIAL DEPTHS SHOWN ON THESE SHEETS ARE TYPICAL MINIMUM VALUES AND MAY BE DIFFERENT IN THE CONTRACT DOCUMENTS.
10. CONTRACT GRADE (RUNNING SLOPE) SHALL NOT EXCEED 4.1% FOR DESIGN AND LAYOUT OR 5% FOR FIELD ACCEPTANCE, EXCEPT WHERE MATCHING INTO EXISTING SIDEWALKS OR WHERE THE ADJACENT ROADWAY GRADE SHALL NOT EXCEED THE MAXIMUM GRADE.
11. THE PHYSICAL WIDTH OF PEDESTRIAN ACCESS ROUTES SHALL BE 4'-0" MINIMUM FOR DESIGN AND LAYOUT, AND 3'-0" MINIMUM FOR FIELD ACCEPTANCE. THE FOLLOWING EXCEPTIONS ARE ALLOWED:
    A. WHERE PEDESTRIAN STREET FURNISHING ARE UNAVOIDABLE OBSTRUCTIONS WITHOUT CURB OR STOP CONTROL, OR WHERE THERE IS NO TRAFFIC SIGN MARKED A PEDESTRIAN ROUTE THE CROSS SLOPE OF A PEDESTRIAN ACCESS ROUTE CONTAINING WITHIN A STREET CROSSING SHALL BE 4.8% MAXIMUM FOR DESIGN AND LAYOUT, AND 5% MAXIMUM FOR FIELD ACCEPTANCE.
    B. WHERE MEDIUM PEDESTRIAN STREET CROSSINGS ARE UNAVOIDABLE, THE RUNNING SLOPE OF A PEDESTRIAN ACCESS ROUTE CONTAINED WITHIN A MEDIAN A STREET CROSSING SHALL BE PERMITTED TO EQUAL THE ADJACENT PEDESTRIAN MAXIMUM GRADE.
12. THE MINIMUM CLEAR WIDTH FOR PEDESTRIAN ACCESS ROUTES IS 4'-0", EXCLUSIVE OF THE CURB OR PARAPETS. ADDITIONAL CLEAR WIDTH IS REQUIRED AT CERTAIN LOCATIONS AS FOLLOWS (SEE DETAILS ON SHEET 2 OF 12):
    A. WHERE THE PEDESTRIAN ACCESS ROUTE CONTAINS A 180° TURN, AN CLEAR WIDTH OF 5'-0" MINIMUM IS REQUIRED ACROSS THE TURN AND THE ADJACENT 5'-0" BY 5'-0" CLEAR SPACE.
    B. WHERE THE PEDESTRIAN ACCESS ROUTE MAKES A 90° TURN, AN CLEAR WIDTH OF 4'-0" MINIMUM IS REQUIRED ACROSS THE TURN AND THE ADJACENT 4'-0" BY 4'-0" CLEAR SPACE.
    C. WHERE THE PEDESTRIAN ACCESS ROUTE MAKES A TURN OTHER THAN 90° OR 180°, THE CLEAR WIDTH MUST BE WIDENED SUCH THAT A 4'-0" WIDE CLEAR WIDTH IS MAINTAINED AS SHOWN IN DETAIL.
13. THE MAXIMUM CROSS SLOPE OF THE CURB RAMP SHALL BE 2% FOR BOTH DESIGN AND LAYOUT AND FIELD ACCEPTANCE. THE CROSS SLOPE OF THE CURB RAMP SHALL BE MEASURED AT THE CENTER OF THE CURB RAMP, PERPENDICULAR TO THE DIRECTION OF THE CURB RAMP RUNNING SLOPE.
14. WHERE PEDESTRIAN STREET CROSSINGS OCCUR, CURB RAMPS SHALL BE PROVIDED AT PEDESTRIAN ACCESS ROUTES. THE CURB RAMP SHALL BE WHOLLY CONTAINED WITHIN THE MARKINGS, EXCLUDING FLARES, OF THE CROSSING THAT IT SERVES.
15. CURB RAMPS SHALL BE LOCATED SO THAT VEHICLES CANNOT BLOCK THE RAMP DURING NORMAL PARKING CONDITIONS.
16. THE MAXIMUM GRADE (RUNNING SLOPE) FOR DESIGN AND LAYOUT OF A CURB RAMP SHALL BE 7.0%. THE GRADE FOR WHICH ACCEPTANCE SHALL BE A MAXIMUM OF 8.3%.
17. WHERE THE TERMINATION OF A CURB RAMP INTERSECTS WITH A GRADE BREAKING WITHIN THE RAMP, THE GRADE SHALL BE 10.0% FOR DESIGN AND LAYOUT, AND 12.5% MAXIMUM FOR FIELD ACCEPTANCE.
18. THE CROSS SLOPE OF THE CURB RAMP SHALL BE AS FLAT AS POSSIBLE AND SHALL PROVIDE POSITIVE DRAINAGE. THE CROSS SLOPE OF A CURB RAMP SHALL BE CONSTANT WITHIN A CURB RAMP AND SHALL BE PERPENDICULAR TO THE DIRECTION OF THE CURB RAMP RUNNING SLOPE. THE FOLLOWING EXCEPTIONS ARE ALLOWED:
    A. WHERE PEDESTRIAN STREET CROSSINGS OCCUR, CURB RAMPS SHALL BE PROVIDED AT PEDESTRIAN ACCESS ROUTES. THE CURB RAMP SHALL BE WHOLLY CONTAINED WITHIN THE MARKINGS, EXCLUDING FLARES, OF THE CROSSING THAT IT SERVES.
    B. WHERE PEDESTRIAN STREET CROSSINGS OCCUR, CURB RAMPS SHALL BE PROVIDED AT PEDESTRIAN ACCESS ROUTES. THE CURB RAMP SHALL BE WHOLLY CONTAINED WITHIN THE MARKINGS, EXCLUDING FLARES, OF THE CROSSING THAT IT SERVES.
19. THE BUFFER ZONE IS A PHYSICAL DISTANCE SEPARATING THE PEDESTRIAN ACCESS ROUTE FROM THE VEHICLE TRAVELED WAY. THE BUFFER ZONE MAY BE PLANTED OR PAVED. WHERE THE BUFFER ZONE WIDTH, EXCLUDING OF CURB IS LESS THAN 3'-0" THE SURFACE SHOULD BE PAVED OR CONSTRUCTED WITH UNPACKABLE MATERIALS.
20. THE MINIMUM RECOMMENDED CROSS SLOPE OF A FLAT BUFFER ZONE OR SIDEWALK IS 1.5%. A SLOPED BUFFER ZONE SHALL BE CONSTRUCTED WITH APPROPRIATE MATERIALS.
21. WHEN CROSSING DRIVEWAYS, USE WIDTH SHALL BE IN CONFORMANCE WITH STANDARDS FOUND HEREIN.
22. FOR PEDESTRIAN SIGNALS AND PEDESTRIAN PUSH BUTTONS REFER TO SHEET 12 TO 12 AND STANDARD SHEET CRD-10 FOR DETAILS.
23. WHERE EXISTING MONUMENTS ARE SUBJECT TO PAVING, GRADING, OR SIMILAR ACTIVITY, THE MONUMENT SHOULD BE SUNKEN AT LEAST 2'-0" FROM THE PROPOSED CURB LINE TO ALLOW FOR ADEQUATE COMPACTION OF ASPHALT. IF THE SUNKEN IS LESS THAN 1'-0" FROM THE PROPOSED CURB LINE TO ALLOW FOR ADEQUATE COMPACTION OF ASPHALT, IF THE SUNKEN IS LESS THAN 2'-0" FROM THE PROPOSED CURB LINE, THE MONUMENT SHALL BE REMOVED UPON SAWED A, C OR D AS LOCATED. SEE DETAILS ON SHEET 3 OF 12.

CURB RAMP NOTES:

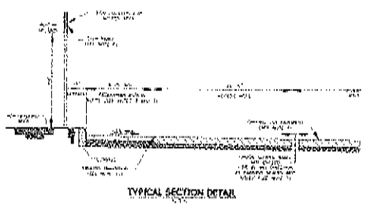
24. THE MAXIMUM CLEAR WIDTH OF A CURB RAMP BE 4'-0". THE TRANSITIONS, DEPRESSED FLUSH WIDTH IS 4'-0".
25. THE MAXIMUM GRADE (RUNNING SLOPE) FOR DESIGN AND LAYOUT OF A CURB RAMP WHICH IS 7.0%. THE GRADE FOR WHICH ACCEPTANCE SHALL BE A MAXIMUM OF 8.3%.
26. WHERE THE TERMINATION OF A CURB RAMP INTERSECTS WITH A GRADE BREAKING WITHIN THE RAMP, THE GRADE SHALL BE 10.0% FOR DESIGN AND LAYOUT, AND 12.5% MAXIMUM FOR FIELD ACCEPTANCE.
27. THE CROSS SLOPE OF THE CURB RAMP SHALL BE AS FLAT AS POSSIBLE AND SHALL PROVIDE POSITIVE DRAINAGE. THE CROSS SLOPE OF A CURB RAMP SHALL BE CONSTANT WITHIN A CURB RAMP AND SHALL BE PERPENDICULAR TO THE DIRECTION OF THE CURB RAMP RUNNING SLOPE. THE FOLLOWING EXCEPTIONS ARE ALLOWED:
    A. WHERE PEDESTRIAN STREET CROSSINGS OCCUR, CURB RAMPS SHALL BE PROVIDED AT PEDESTRIAN ACCESS ROUTES. THE CURB RAMP SHALL BE WHOLLY CONTAINED WITHIN THE MARKINGS, EXCLUDING FLARES, OF THE CROSSING THAT IT SERVES.
    B. WHERE PEDESTRIAN STREET CROSSINGS OCCUR, CURB RAMPS SHALL BE PROVIDED AT PEDESTRIAN ACCESS ROUTES. THE CURB RAMP SHALL BE WHOLLY CONTAINED WITHIN THE MARKINGS, EXCLUDING FLARES, OF THE CROSSING THAT IT SERVES.
28. THE DETECTABLE WARNING FIELD SHALL BE THE YELLOW SPECIFIED IN THE CONTRACT DOCUMENTS TO MEET THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS. DETECTABLE WARNING SURFACES SHALL CONTRAST VISUALLY, WITH ADJACENT WALKING, EITHER LIGHT-ON-DARK OR DARK-ON-LIGHT.

TURNING SPACE AND CLEAR SPACE NOTE:

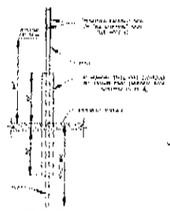
29. WHERE A CHANGE IN DIRECTION IS REQUIRED TO NEGOTIATE A TURN, A TURNING SPACE SHALL BE PROVIDED AT THE BASE OR THE TOP OF CURB RAMP. AS APPLICABLE TURNING SPACES SHALL BE PERMITTED TO OVERLAP CLEAR SPACES.
30. WHERE THERE ARE NO VERTICAL CONSTRAINTS AT THE BACK OF SIDEWALK, (E.G., BUILDING, FENCE, BUILDING, ETC.) THE TURNING SPACE DIMENSIONS SHALL BE 4'-0" x 4'-0" MINIMUM WHERE THE TURNING SPACE IS CONSTRAINED AT THE BACK OF SIDEWALK, THE TURNING SPACE SHALL BE 4'-0" x 5'-0" MINIMUM THE 5'-0" DIMENSION SHALL BE IN THE DIRECTION OF THE RAMP RUN.
31. TURNING SPACES SHALL NOT BE DESIGNED WITH A SLOPE GREATER THAN 1.5% IN ANY DIRECTION. ALLOW FOR POSITIVE DRAINAGE THE MAXIMUM FLOW FOR MORE ACCURACY IS 2.0%.
32. WHERE THE RESTRICTIVE SPACE EXISTS ON A CURB RAMP, A CLEAR SPACE OF 4'-0" x 4'-0" MINIMUM SHALL BE PROVIDED WITHIN THE WIDTH OF THE INTERSECTING CROSSWALK AND OUTSIDE THE PARALLEL VEHICLE TRAVEL LANE. THE CLEAR SPACE MAY OVERLAP TURNING SPACES, DETECTABLE WARNING SURFACES, AND CURB RAMP.

DETECTABLE WARNING NOTES:

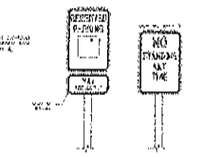
33. DETECTABLE WARNING SURFACES (DWS) SHALL BE PROVIDED AT THE FOLLOWING LOCATIONS ON PEDESTRIAN ACCESS ROUTES:
    A. CURB RAMPS AND BLENDED TRANSITIONS AT PEDESTRIAN STREET CROSSINGS.
    B. MEDIANS OR REFUGE ISLANDS CUTTING THROUGH THE LENGTH OF THE PEDESTRIAN ACCESS ROUTE ACROSS THE REFUGE ISLANDS IS GREATER THAN OR EQUAL TO 6'.
    C. PEDESTRIAN AT-GRADE RAIL CROSSINGS, NOT LOCATED WITHIN A STREET OR ROADWAY.
34. DETECTABLE WARNING SURFACES SHALL BE PROVIDED WHERE THE PEDESTRIAN ACCESS ROUTE CROSSES DRIVEWAYS WITH SIGNAL, YIELD OR STOP CONTROL. DETECTABLE WARNING SURFACES SHALL NOT BE PROVIDED AT CROSSINGS OF UNCONTROLLED DRIVEWAYS.
35. WITH THE EXCEPTION OF THE TRUNCATED WARNING SURFACE TRANSITIONS (SEE DETAILS ON SHEETS 7 OF 12), DETECTABLE WARNINGS SURFACE ARE NOT EXPECTED TO CHANGE ON CHECK SHEETS.
36. DETECTABLE WARNING FIELDS SHALL EXTEND 24" MINIMUM IN THE DIRECTION OF PEDESTRIAN TRAVEL ACROSS THE FULL WIDTH OF RAMP AWAY THE FLUSH SURFACE, EXCLUDING ANY FLARED SIDES.
37. DOME DETECTABLE WARNING PRODUCTS REQUIRE A CONCRETE SUBBASE FOR PROPER INSTALLATION. IF REQUIRED, THE READER SHALL NOT EXCEED 2" WHERE THE BACK OF THE CURB FACE IS SLOPED TO PROVIDE A POSITIVE TRANSITION SHALL BE MEASURED FROM THE FACE EDGE OF THE CURB FACE. ADDENDA CANNOT BE ADJUSTED AS FLAT IN THE 24" MINIMUM DIMENSION REQUIRED IN NOTE 35.
38. WHERE SIGN IS NOT USED ON THE BACK OF PAVEMENT SHALL BE SUBSTITUTED FOR BACK OF CURB FOR PURPOSES OF DETECTABLE WARNINGS.
39. THE SURFACE OF DETECTABLE WARNING SHALL BE FLUSH WITH THE ADJACENT SURFACE AND SHALL NOT BE DEPRESSED, OR RAISED. THE DETECTABLE WARNING SURFACE SHALL BE LOCATED SO THAT THE SURFACE SHALL BREAK ON THE RAMP RUN WHERE SHOWN ARE APPROVED VARIANCES, THEY WAS DIFFER IN DIAMETER AND LOCATED TO CENTER SPACING WITHIN THE RANGES SPECIFIED ON SHEET 9 OF 12. THE ALIGNMENT THAT IS REINFORCEMENT OR REMAIN THE CLEAR CRADE WHICH IS NOT DEVIATED BY SLOPES OF LESS THAN 5%.
40. THE DETECTABLE WARNING FIELD SHALL BE THE YELLOW SPECIFIED IN THE CONTRACT DOCUMENTS TO MEET THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS. DETECTABLE WARNING SURFACES SHALL CONTRAST VISUALLY, WITH ADJACENT WALKING, EITHER LIGHT-ON-DARK OR DARK-ON-LIGHT.



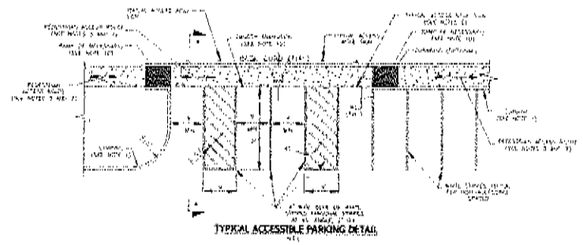
TYPICAL SECTION DETAIL



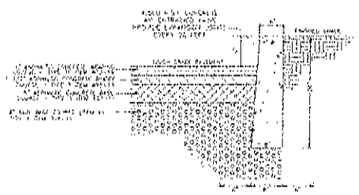
POST BASE DETAIL



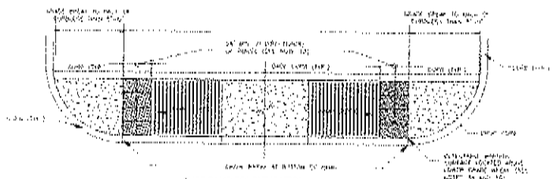
TYPICAL PARKING SPACE & PARKING ASILE SIGN DETAIL



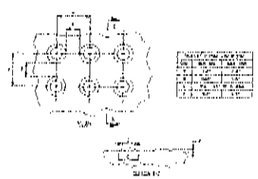
TYPICAL ACCESSIBLE PARKING DETAIL



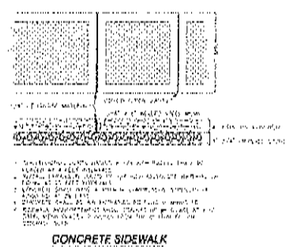
ASPHALTIC CONCRETE PAVEMENT & CONCRETE CURB



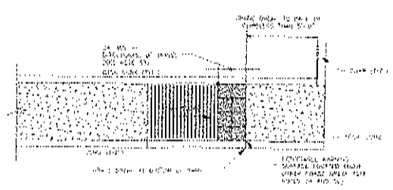
CURB RAMP CONFIGURATION



DETECTABLE WARNING SURFACE (DWS) TRUNCATED DOME DETAIL



CONCRETE SIDEWALK



RAMP BACK BACK CURB DETAIL

4	09/27/21	PER PLANNING BOARD COMMENTS
3	01/21/21	PER PLANNING COMMENTS
2	04/15/20	PER PLANNING COMMENTS
1	12/18/19	UPDATE & REVISE PER SITE PLAN
REVISION	DATE	DESCRIPTION

ATZL, NASHER & ZIGLER P.C.
ENGINEERS · SURVEYORS · PLANNERS
838 North Main Street
New City, New York 10956
Tel (845) 634-4994
Fax (845) 634-5543
E-mail info@atzlny.com
Web www.ANZP.com

PROJECT:

SUMMERVILLE INDUSTRIAL PARK

VILLAGE OF CHESTER
ORANGE COUNTY, NEW YORK

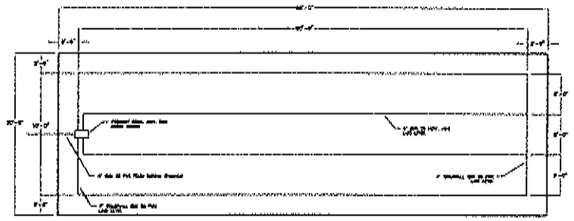
TITLE:

IMPROVEMENT DETAILS

DRAWN BY: TC	CHECKED BY: TMZ
DATE: MARCH 23, 2020	SCALE: N.T.S.
PROJECT NO. 3390	DRAWING NO. 13

N.Y.S. LIC. NO. 090905 — N.Y.S. LIC. NO. 090936

FORMAT: 22"x34" (ARCH D) & 11"x17" (ARCH B) SCALING AS SHOWN



20' X 60' ABSORPTION BED DETAIL

20' X 60' ABSORPTION BED SECTION DETAIL

GENERAL NOTES

1. [illegible] SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION FOR INDIVIDUAL SEWAGE TREATMENT AND DISPOSAL SYSTEMS, LATEST EDITION.

2. THE CONSTRUCTION SHALL TAKE PLACE AFTER SECTION OF THE ABSORPTION TRENCH AREA HAS BEEN COMPLETED. PLACING THE AGGREGATE, WHICH SHALL NOT BE INSTALLED IN WET TRENCHES.

3. ALL FIELD PIPING SHALL BE SCH 40 PVC.

4. NO VEHICLE SHALL BE OPERATED OVER ABSORPTION AREA(S) SHALL BE PROTECTED ON THE COMPLETED SANITARY SYSTEM UNTIL AFTER THE FINAL INSPECTION OF THE SYSTEM. THESE AREAS SHALL NOT BE DISTURBED UNLESS AUTHORIZED BY THE ENGINEER. ANY DAMAGE TO THE SYSTEM SHALL BE REPAIRED AND RE-INSPECTED BEFORE BACKFILLING.

5. THE TOP OF ALL DISTRIBUTION PIPES SHALL BE LEVELED.

6. MAINTAIN A 50 MINIMUM PIPE SLOPE BETWEEN THE SEPTIC TANK AND BUILDING.

7. ABSORPTION BED TRENCHES SHALL BE INSTALLED ON THE PARALLEL TO CONTOUR ELEVATIONS.

8. BASE AND FINISHED GRADES SHALL NOT PROCEED AS TO PROVIDED THE SEPTIC SYSTEM.

9. ABSORPTION TRENCH EXCAVATIONS SHALL NOT BE CONSTRUCTED ACROSS THE SEPTIC SYSTEM, BUILDING OR WATER SUPPLY LINES.

10. SEPTIC SYSTEMS SYSTEMS SHALL NOT BE INSTALLED IN AREAS WITH SLOPES OVER 10% SLOPE.

11. THE OWNER, CONTRACTOR OR SUPERVISOR FOR THE CONSTRUCTION OF A SEPTIC SYSTEM SHALL OBTAIN A COPY OF THE PLAN AND THE CONSTRUCTION SPECIFICATIONS FOR THAT SYSTEM BEFORE BEGINNING THE ACTUAL EXCAVATION AND CONSTRUCTION WORK. THE CONTRACTOR SHALL PERFORM THE CONSTRUCTION OF THE SYSTEM IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS. ANY DEVIATION FROM THE APPROVED PLANS AND SPECIFICATIONS MUST BE APPROVED BY THE ENGINEER BEFORE THE WORK IS PERFORMED. FAILURE TO DO SO MAY RESULT IN THE REJECTION OF THE SYSTEM.

12. A DULY NOTIFIED REPRESENTATIVE OF THE ENGINEER SHALL INSPECT THE SEPTIC SYSTEM AT THE FOLLOWING STAGES OF CONSTRUCTION: AFTER THE TRENCHES HAVE BEEN EXCAVATED TO THE LINE AND GRADE SHOWN ON THE APPROVED PLANS, BUT BEFORE ANY PIPING HAS BEEN INSTALLED; AFTER THE PIPING AND STONE HAVE BEEN INSTALLED BUT BEFORE ANY BACKFILL HAS BEEN PLACED OVER THE PIPING OR STONE; AND AFTER THE SYSTEM IS COMPLETED.

13. UPON COMPLETION OF THE SYSTEM, BUT PRIOR TO THE PLACING OF THE TOPSOIL, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER A CERTIFICATION THAT THE SYSTEM HAS BEEN CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS. THE CERTIFICATION SHALL BE SIGNED BY A PROFESSIONAL ENGINEER OR LICENSED LAND SURVEYOR.

14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF ANY DEFECTIVE SYSTEM COMPONENTS AND FOR THE RE-INSPECTION OF THE SYSTEM BY THE ENGINEER AFTER THE REPAIRS HAVE BEEN MADE.

15. THE CONTRACTOR SHALL NOT BACKFILL ANY PART OF THE SYSTEM UNTIL IT HAS BEEN INSPECTED AND APPROVED BY THE ENGINEER.

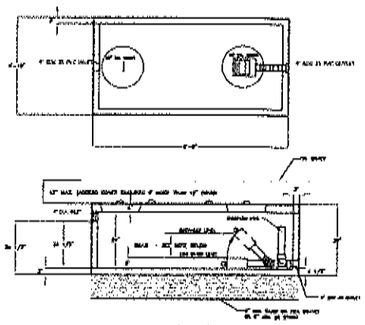
16. THE CONTRACTOR SHALL PROVIDE THE OWNER WITH AS-BUILT PLANS OF THE SYSTEM AS CONSTRUCTED. THESE PLANS SHALL BE SUBMITTED WITHIN 30 DAYS OF THE COMPLETION OF THE SYSTEM.

17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND APPROVALS REQUIRED FOR THE CONSTRUCTION OF THE SYSTEM, INCLUDING BUT NOT LIMITED TO BUILDING PERMITS, ROAD OPENING PERMITS, AND ENVIRONMENTAL PERMITS.

18. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT ALL WORK IS PERFORMED IN A SAFE MANNER AND IN ACCORDANCE WITH ALL APPLICABLE LAWS AND REGULATIONS.

19. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING THE SYSTEM FROM DAMAGE DURING CONSTRUCTION. THIS INCLUDES, BUT IS NOT LIMITED TO, PROTECTING THE SYSTEM FROM HEAVY EQUIPMENT, VEHICLES, AND FOOT TRAFFIC.

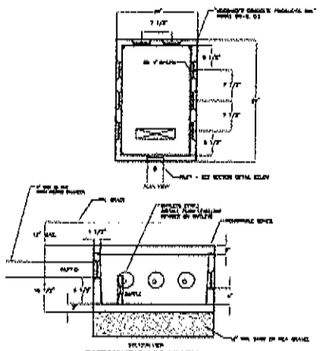
20. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT ALL WORK IS PERFORMED IN A WORKMANLIKE MANNER AND IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.



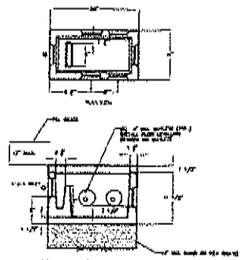
DOSING CHAMBER DETAIL

DISTRIBUTION BOX NOTES:

1. ALL PIPE OPENINGS SHALL BE GROUTED WITH AN EXPANSIVE POLYURETHANE PIPE SEALER TO ENSURE NO WATERTIGHT SEALING OF PENETRATIONS.
2. ALL UNUSED OUTLETS SHALL REMAIN PLUGGED.
3. PRECAST DISTRIBUTION BOX MODEL DESIGNED TO OUTLETS BY "ROSEMARK'S CONCRETE PRODUCTS, INC.", ESE.
4. ALL OUTLETS SHALL BE SET AT 3rd GRADE ELEVATION.
5. ALL DISTRIBUTION BOX WORK SHALL BE INSTALLED BY THE CONTRACTOR IN SUCH A MANNER AS TO ENSURE NON-PENETRATION OF THE SYSTEM. ANY PENETRATIONS WHICH DO NOT FOLLOW THE SPECIFICATIONS SHALL BE REPAIRED AT THE TIME OF DISCOVERY.



DISTRIBUTION BOX DETAIL



DISTRIBUTION BOX DETAIL (ABSORPTION BED)

DISTRIBUTION BOX NOTES:

1. ALL PIPE OPENINGS SHALL BE GROUTED WITH AN EXPANSIVE POLYURETHANE PIPE SEALER TO ENSURE NO WATERTIGHT SEALING OF PENETRATIONS.
2. ALL UNUSED OUTLETS SHALL REMAIN PLUGGED.
3. PRECAST DISTRIBUTION BOX MODEL DESIGNED TO OUTLETS BY "ROSEMARK'S CONCRETE PRODUCTS, INC.", ESE.
4. ALL OUTLETS SHALL BE SET AT 3rd GRADE ELEVATION.
5. ALL DISTRIBUTION BOX WORK SHALL BE INSTALLED BY THE CONTRACTOR IN SUCH A MANNER AS TO ENSURE NON-PENETRATION OF THE SYSTEM. ANY PENETRATIONS WHICH DO NOT FOLLOW THE SPECIFICATIONS SHALL BE REPAIRED AT THE TIME OF DISCOVERY.

BORE HOLE/PERCOLATION TESTS					
TEST NO.	BORE / PERC	DEPTH (Ft.)	TOTAL TIME	STABILIZED RATE	
P-1		42	8:30		
6/21/2023			9:30		
			10:30		8.00
P-2		24	8:45		
6/21/2023			9:45		
			10:45		8.00
BORE HOLE	SOIL TEST NO. 1	BORE TEST NO. 1	7.00		8.00
SOIL TEST 6/21/2023	0" TOPSOIL & CRUSHED STONE 8"-20" SILTY SANDY 20"-72" SILTY CLAYEY NO SIGNS/EVIDENCE OF MOTTLING	0" TOPSOIL & BRASSOIL 0"-22" SILTY SANDY 22"-72" SILTY CLAYEY NO SIGNS/EVIDENCE OF MOTTLING			

NOTE:
SOILS TESTS CONDUCTED BY JOSEPH GOTTLIEB PE PC ON THE DATE ABOVE.

PERCOLATION RATES TAKEN WITH A STAFF GAUGE

GENERAL NOTES: WATER SUPPLY

SEWAGE DISPOSAL SYSTEM DESIGN BASED ON THE PLANS AS SHOWN WITH THE FOLLOWING:

1. ESTIMATED AVERAGE DAILY FLOW = 3,000 GPD
2. FACILITY WILL UTILIZE WATER SAVING DEVICES RESULTING IN A REDUCTION OF 30% IN SEWAGE FLOWS INCORPORATED IN THE ABSORPTION SYSTEM DESIGN FLOW = 2,100 GPD
3. SOILS WITH APPLICATION RATE FOR ABSORPTION BEDS = 0.74 GPD/SQ. FT. (WITHIN ACCEPTED RANGE) AND APPLICATION RATE OF 150 GPD/SQ. FT. FOR THE APPLICATION RATE OF SAND FILTER MOUND
4. 2,100 GPD / 0.675 GPD/SQ. FT. = 3,940.73 SQ. FT.
5. 40% DESIGN REDUCTION PER 1 = 1,200 SQ. FT. ABSORPTION AREA FOR A TOTAL OF 2,520 SQ. FT.
6. ABSORPTION BEDS WILL BE ARRAY BY 4 SINGLE SERIES BEDDING

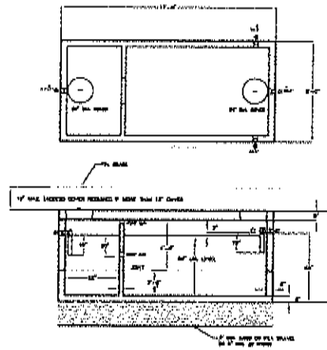
ORIGINAL CONSTRUCTION OF THE 3 BED OF THE ABSORPTION BED PIPE VOLUME. EACH BED HAS A VOLUME OF THE SAND FILTER OF APPROXIMATELY

2ND L.F. X 4.083 GALLON PER L.F. = 163 GALLONS PIPE VOLUME

167 GALLONS X 0.33 = 110.76 GALLONS FOR SAND, 40 GALLON GALLS FOR 3 BEDS

120 GALLONS X 0.66 = 132.66 GALLS, PER BED, OR 400.33 GALLONS FOR 3 BEDS

THE SEPTIC AND INSTALLATION PURPOSES THE NEEDED VOLUME FOR THE THREE BEDS WAS SET AT 500 GALLONS BY THE SUPPLIER.



4,000-GALLON SEPTIC TANK DETAIL

SPECIFICATIONS

1. [illegible] 4,000 GAL
2. [illegible]
3. [illegible]
4. [illegible]
5. [illegible]
6. [illegible]
7. [illegible]

UNAUTHORIZED ALTERATION OR ADDITION TO THIS PLAN IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW. PLANS SHALL NOT BE CONSIDERED TRUE AND VALID COPIES UNLESS THEY CONTAIN THE ORIGINAL SEAL AND SIGNATURE OF THE ENGINEER ATTACHED TO EACH PLAN SHEET.

JOSEPH W. GOTTLIEB P.E.
N.Y.S.P.E. LIC. No. 47162

#	DATE	DESCRIPTION
1	6/21/2023	PER PLANNING BOARD COMMENTS DATED 6/21/23
2	8/11/2023	PER PLANNING BOARD COMMENTS DATED 8/11/23
3	9/19/2023	PER PLANNING BOARD COMMENTS DATED 9/19/23
4	10/17/2023	PER PLANNING BOARD COMMENTS DATED 10/17/23
5	12/21/2023	PER PLANNING BOARD COMMENTS DATED 12/21/23

Joseph Gottlieb, P.E., P.C.
Consulting Engineer
P.O. Box 78
Warwick, New York 10990-0078
Phone: 845.986.0668
FAX: 845.986.9520
E-mail: gottlieb@frontiernet.net

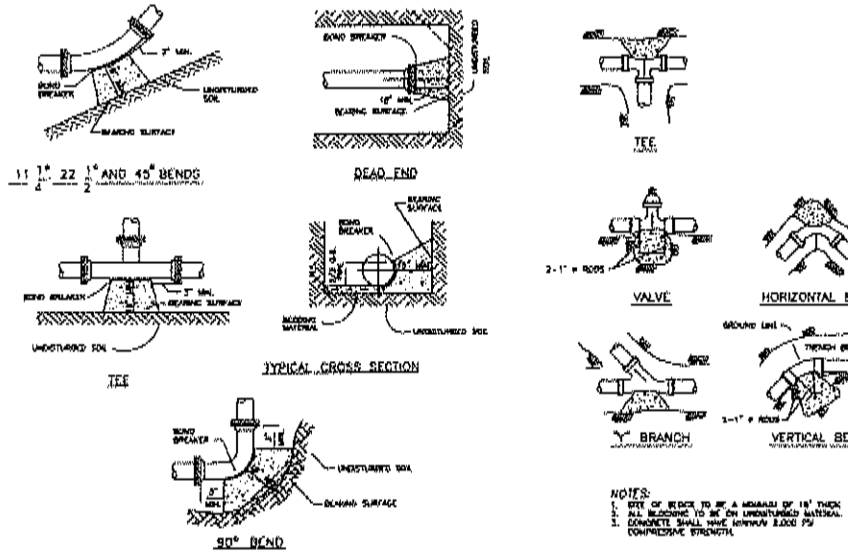
ATZL, NASHER & ZIGLER P.C.
ENGINEERS · SURVEYORS · PLANNERS
302 North Main Street
New City, New York 10956
Tel (845) 634-2894
Fax (845) 634-0945
E-mail: atzl@atzlny.com
Web: www.ANZNY.com

PROJECT:
SUMMERVILLE INDUSTRIAL PARK

VILLAGE OF CHESTER
ORANGE COUNTY, NEW YORK

TITLE:
CONSTRUCTION DETAILS
SEWAGE DISPOSAL SYSTEM

DRAWN BY:	JC	CHECKED BY:	DATE
DATE:	10/17/23	SCALE:	AS NOTED
PROJECT NO.:	3390	DRAWING NO.:	14

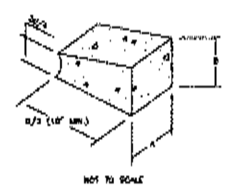


NOTES:
1. SIZE OF BLOCK TO BE A MINIMUM OF 18" THICK.
2. ALL BLOCKING TO BE ON UNDISTURBED MATERIAL.
3. CONCRETE SHALL HAVE MINIMUM 2,000 PSI COMPRESSIVE STRENGTH.

MINIMUM DIMENSIONS FOR THRUST BLOCKS

[illegible]	[illegible]		[illegible]		[illegible]		[illegible]		[illegible]	
[illegible]	A	B	A	B	A	B	A	B	A	B
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

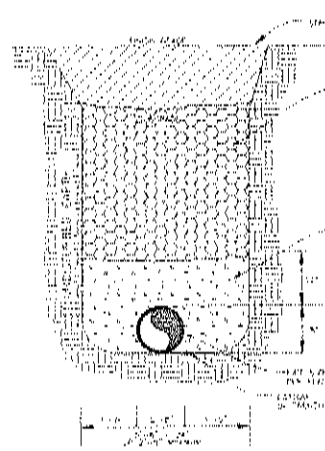
[illegible]



[illegible]

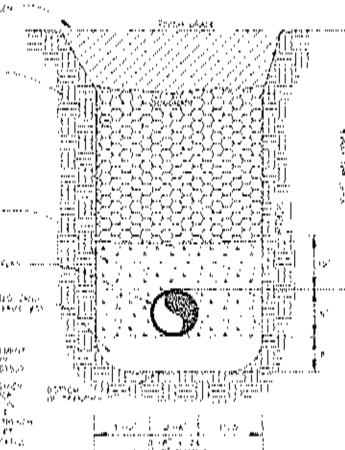
TYPICAL THRUST BLOCKING DETAIL

N.T.S.



EARTH EXCAVATION
WATER LINE TRENCH DETAIL

[illegible]

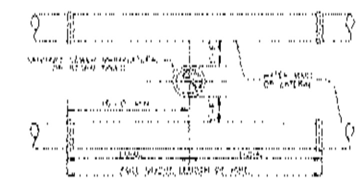


ROCK EXCAVATION
WATER LINE TRENCH DETAIL

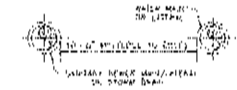
[illegible]

DUCTILE IRON WATER MAIN:

[illegible]



VERTICAL SEPARATION

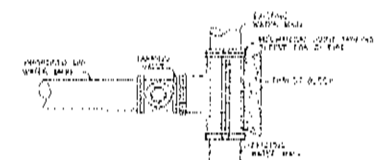


HORIZONTAL SEPARATION

[illegible]

WATER / SEWER SEPARATION REQUIREMENTS

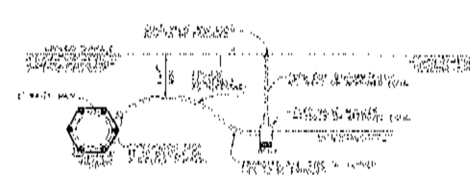
N.T.S.



[illegible]

WET TAP

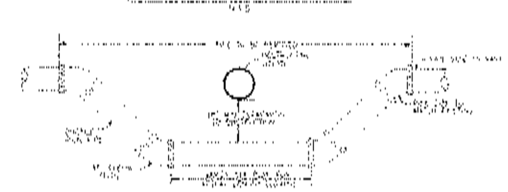
N.T.S.



[illegible]

WATER SERVICE CONNECTION

N.T.S.

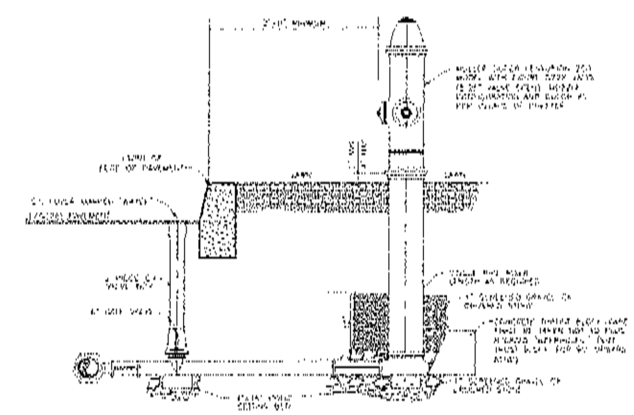


WATERMAIN OFFSET

N.T.S.

DISTRIBUTION SYSTEM SPECIFICATIONS:

[illegible]



HYDRANT AND HYDRANT VALVE DETAIL

N.T.S.

REVISION	DATE	DESCRIPTION
3	[illegible]	[illegible]
2	[illegible]	[illegible]
1	[illegible]	[illegible]

ATZL, NASHER & ZIGLER P.C.
ENGINEERS–SURVEYORS–PLANNERS
232 North Main Street
New City, New York 10956
Tel. (845) 634-4694
Fax. (845) 634-5543
E-mail: info@anzny.com
Web: www.ANZNY.com

PROJECT:

SUMMERVILLE
INDUSTRIAL PARK

VILLAGE OF CHESTER
ORANGE COUNTY, NEW YORK

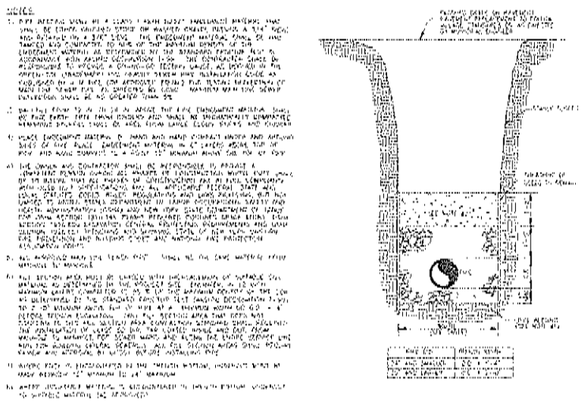
TITLE:

WATER MAIN DETAILS

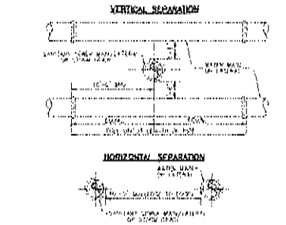
[illegible]	[illegible]
PROJECT NO. 3390	DRAWING NO. 15

SANITARY SEWER SPECIFICATIONS FOR BUILDING & SEWER MAIN LINE

1. APPURTENANCE SHALL BE AS SHOWN ON DRAWINGS
   A. MATERIALS
      1) PIPE
         a) CAST IRON ASTM A74
         b) DUCTILE IRON ASTM A377
         c) POLYVINYL CHLORIDE ASTM D3034
      2) FITTINGS
         a) CAST IRON ASTM A74
         b) DUCTILE IRON ASTM A377
         c) POLYVINYL CHLORIDE ASTM D3034
      3) JOINTS
         a) CAST IRON
            1) LEAD AND OAKUM
            2) MECHANICAL JOINT ASTM A377
            3) COMPRESSION GASKET ASTM C564
         b) DUCTILE IRON
            1) MECHANICAL JOINT ASTM A377
            2) COMPRESSION GASKET ASTM C564
         c) POLYVINYL CHLORIDE
            1) SOLVENT WELD ASTM D2564
            2) COMPRESSION GASKET ASTM D3212
   B. INSTALLATION
      1) PIPE
         a) CAST IRON
            1) LEAD AND OAKUM
            2) MECHANICAL JOINT
            3) COMPRESSION GASKET
         b) DUCTILE IRON
            1) MECHANICAL JOINT
            2) COMPRESSION GASKET
         c) POLYVINYL CHLORIDE
            1) SOLVENT WELD ASTM D2564
            2) COMPRESSION GASKET ASTM D3212
      2) FITTINGS
         a) CAST IRON
            1) LEAD AND OAKUM
            2) MECHANICAL JOINT
            3) COMPRESSION GASKET
         b) DUCTILE IRON
            1) MECHANICAL JOINT
            2) COMPRESSION GASKET
         c) POLYVINYL CHLORIDE
            1) SOLVENT WELD ASTM D2564
            2) COMPRESSION GASKET ASTM D3212
   C. INSPECTION AND TESTING
      1) AIR TEST
         a) PIPE
            1) VITRIFIED CLAY
            2) CAST IRON
            3) DUCTILE IRON
            4) POLYVINYL CHLORIDE
         b) TEST
            1) LOW PRESSURE AIR
            2) TEST TIME
            3) ACCEPTANCE
      2) MANDREL TEST
         a) PIPE
            1) VITRIFIED CLAY
            2) POLYVINYL CHLORIDE
         b) TEST
            1) MANDREL
            2) TEST TIME
            3) ACCEPTANCE
      3) VISUAL INSPECTION
         a) PIPE
            1) VITRIFIED CLAY
            2) CAST IRON
            3) DUCTILE IRON
            4) POLYVINYL CHLORIDE
         b) INSPECTION
            1) TELEVISION
            2) MANUAL
         c) ACCEPTANCE
   D. MANHOLES
      1) PRECAST CONCRETE
         a) CONCRETE
            1) CEMENT ASTM C150
            2) AGGREGATES ASTM C33
            3) WATER
            4) ADMIXTURES
         b) REINFORCEMENT ASTM A185
         c) MANUFACTURE ASTM C478
         d) CURING
      2) CAST IRON
         a) CASTING ASTM A48 CLASS 30
         b) MANUFACTURE
      3) MORTAR
         a) CEMENT ASTM C150
         b) AGGREGATES ASTM C144
         c) WATER
      4) BRICK
         a) CLAY OR SHALE ASTM C32 GRADE MS
         b) CONCRETE ASTM C55 GRADE II
      5) CONCRETE BLOCK
         a) CONCRETE ASTM C139
         b) AGGREGATES ASTM C139
      6) STEPS
         a) COPOLYMER POLYPROPYLENE ASTM D4101
         b) REINFORCED WITH ASTM A615 GRADE 60 DEFORMED STEEL REINFORCING BAR
   E. VALVES
      1) GATE
         a) CAST IRON ASTM A126 CLASS B
         b) BRONZE ASTM B62
      2) BUTTERFLY
         a) CAST IRON ASTM A126 CLASS B
         b) DUCTILE IRON ASTM A536
   F. TRANSITION MATERIALS FROM SITE AND SIZE TO THOSE OF PUBLIC SEWER SHALL BE AS SHOWN ON DRAWINGS AND APPROVED BY THE VILLAGE ENGINEER.
   G. CONNECTIONS TO EXISTING SEWERS SHALL BE MADE AT MANHOLES WHERE POSSIBLE. WHERE CONNECTIONS ARE MADE TO EXISTING MANHOLES, THE CONTRACTOR SHALL BREAK OUT EXISTING MANHOLE AS REQUIRED AND SHALL CONSTRUCT NEW INVERTS AS SHOWN ON DRAWINGS. ALL CONNECTIONS TO EXISTING MANHOLES SHALL BE MADE WATERTIGHT.
   H. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE LATEST STANDARD SPECIFICATIONS OF THE VILLAGE OF CHESTER, THE TOWN OF CHESTER, THE ORANGE COUNTY SANITARY CODE AND THE NEW YORK STATE DEPARTMENT OF HEALTH, AND SHALL BE SUBJECT TO THE APPROVAL OF THE VILLAGE ENGINEER.
   I. ALL SEWER MAINS SHALL BE TESTED FOR LEAKAGE BY EXFILTRATION OR INFILTRATION AS DETERMINED BY THE VILLAGE ENGINEER. THE MAXIMUM ALLOWABLE LEAKAGE SHALL BE 100 GALLONS PER INCH OF PIPE DIAMETER PER MILE PER DAY. ALL LATERALS SHALL BE TESTED FOR WATERTIGHTNESS BY AIR TEST OR OTHER METHOD APPROVED BY THE VILLAGE ENGINEER.
   J. ALL SEWER MAINS SHALL BE TELEVISED AFTER BACKFILLING AND COMPACTION IS COMPLETED. THE TELEVISING SHALL BE DONE IN THE PRESENCE OF THE VILLAGE ENGINEER OR HIS REPRESENTATIVE. THE CONTRACTOR SHALL PROVIDE ALL EQUIPMENT AND MATERIALS NECESSARY FOR THE TELEVISING.
   K. ALL SEWER MAINS SHALL BE CLEANED AFTER BACKFILLING AND COMPACTION IS COMPLETED. THE CLEANING SHALL BE DONE IN THE PRESENCE OF THE VILLAGE ENGINEER OR HIS REPRESENTATIVE.
   L. ALL SEWER MAINS SHALL BE TESTED FOR DEFLECTION AFTER BACKFILLING AND COMPACTION IS COMPLETED. THE TESTING SHALL BE DONE IN THE PRESENCE OF THE VILLAGE ENGINEER OR HIS REPRESENTATIVE. THE CONTRACTOR SHALL PROVIDE ALL EQUIPMENT AND MATERIALS NECESSARY FOR THE TESTING.
   M. ALL SEWER MAINS SHALL BE TESTED FOR DEFLECTION AFTER BACKFILLING AND COMPACTION IS COMPLETED. THE TESTING SHALL BE DONE IN THE PRESENCE OF THE VILLAGE ENGINEER OR HIS REPRESENTATIVE. THE CONTRACTOR SHALL PROVIDE ALL EQUIPMENT AND MATERIALS NECESSARY FOR THE TESTING.
   N. ALL SEWER MAINS SHALL BE TESTED FOR DEFLECTION AFTER BACKFILLING AND COMPACTION IS COMPLETED. THE TESTING SHALL BE DONE IN THE PRESENCE OF THE VILLAGE ENGINEER OR HIS REPRESENTATIVE. THE CONTRACTOR SHALL PROVIDE ALL EQUIPMENT AND MATERIALS NECESSARY FOR THE TESTING.
   O. ALL SEWER MAINS SHALL BE TESTED FOR DEFLECTION AFTER BACKFILLING AND COMPACTION IS COMPLETED. THE TESTING SHALL BE DONE IN THE PRESENCE OF THE VILLAGE ENGINEER OR HIS REPRESENTATIVE. THE CONTRACTOR SHALL PROVIDE ALL EQUIPMENT AND MATERIALS NECESSARY FOR THE TESTING.
   P. ALL SEWER MAINS SHALL BE TESTED FOR DEFLECTION AFTER BACKFILLING AND COMPACTION IS COMPLETED. THE TESTING SHALL BE DONE IN THE PRESENCE OF THE VILLAGE ENGINEER OR HIS REPRESENTATIVE. THE CONTRACTOR SHALL PROVIDE ALL EQUIPMENT AND MATERIALS NECESSARY FOR THE TESTING.
   Q. ALL SEWER MAINS SHALL BE TESTED FOR DEFLECTION AFTER BACKFILLING AND COMPACTION IS COMPLETED. THE TESTING SHALL BE DONE IN THE PRESENCE OF THE VILLAGE ENGINEER OR HIS REPRESENTATIVE. THE CONTRACTOR SHALL PROVIDE ALL EQUIPMENT AND MATERIALS NECESSARY FOR THE TESTING.
   R. ALL SEWER MAINS SHALL BE TESTED FOR DEFLECTION AFTER BACKFILLING AND COMPACTION IS COMPLETED. THE TESTING SHALL BE DONE IN THE PRESENCE OF THE VILLAGE ENGINEER OR HIS REPRESENTATIVE. THE CONTRACTOR SHALL PROVIDE ALL EQUIPMENT AND MATERIALS NECESSARY FOR THE TESTING.
   S. ALL SEWER MAINS SHALL BE TESTED FOR DEFLECTION AFTER BACKFILLING AND COMPACTION IS COMPLETED. THE TESTING SHALL BE DONE IN THE PRESENCE OF THE VILLAGE ENGINEER OR HIS REPRESENTATIVE. THE CONTRACTOR SHALL PROVIDE ALL EQUIPMENT AND MATERIALS NECESSARY FOR THE TESTING.
   T. ALL SEWER MAINS SHALL BE TESTED FOR DEFLECTION AFTER BACKFILLING AND COMPACTION IS COMPLETED. THE TESTING SHALL BE DONE IN THE PRESENCE OF THE VILLAGE ENGINEER OR HIS REPRESENTATIVE. THE CONTRACTOR SHALL PROVIDE ALL EQUIPMENT AND MATERIALS NECESSARY FOR THE TESTING.
   U. ALL SEWER MAINS SHALL BE TESTED FOR DEFLECTION AFTER BACKFILLING AND COMPACTION IS COMPLETED. THE TESTING SHALL BE DONE IN THE PRESENCE OF THE VILLAGE ENGINEER OR HIS REPRESENTATIVE. THE CONTRACTOR SHALL PROVIDE ALL EQUIPMENT AND MATERIALS NECESSARY FOR THE TESTING.
   V. ALL SEWER MAINS SHALL BE TESTED FOR DEFLECTION AFTER BACKFILLING AND COMPACTION IS COMPLETED. THE TESTING SHALL BE DONE IN THE PRESENCE OF THE VILLAGE ENGINEER OR HIS REPRESENTATIVE. THE CONTRACTOR SHALL PROVIDE ALL EQUIPMENT AND MATERIALS NECESSARY FOR THE TESTING.
   W. ALL SEWER MAINS SHALL BE TESTED FOR DEFLECTION AFTER BACKFILLING AND COMPACTION IS COMPLETED. THE TESTING SHALL BE DONE IN THE PRESENCE OF THE VILLAGE ENGINEER OR HIS REPRESENTATIVE. THE CONTRACTOR SHALL PROVIDE ALL EQUIPMENT AND MATERIALS NECESSARY FOR THE TESTING.
   X. ALL SEWER MAINS SHALL BE TESTED FOR DEFLECTION AFTER BACKFILLING AND COMPACTION IS COMPLETED. THE TESTING SHALL BE DONE IN THE PRESENCE OF THE VILLAGE ENGINEER OR HIS REPRESENTATIVE. THE CONTRACTOR SHALL PROVIDE ALL EQUIPMENT AND MATERIALS NECESSARY FOR THE TESTING.
   Y. ALL SEWER MAINS SHALL BE TESTED FOR DEFLECTION AFTER BACKFILLING AND COMPACTION IS COMPLETED. THE TESTING SHALL BE DONE IN THE PRESENCE OF THE VILLAGE ENGINEER OR HIS REPRESENTATIVE. THE CONTRACTOR SHALL PROVIDE ALL EQUIPMENT AND MATERIALS NECESSARY FOR THE TESTING.
   Z. ALL SEWER MAINS SHALL BE TESTED FOR DEFLECTION AFTER BACKFILLING AND COMPACTION IS COMPLETED. THE TESTING SHALL BE DONE IN THE PRESENCE OF THE VILLAGE ENGINEER OR HIS REPRESENTATIVE. THE CONTRACTOR SHALL PROVIDE ALL EQUIPMENT AND MATERIALS NECESSARY FOR THE TESTING.



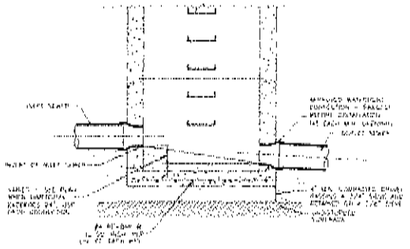
SANITARY SEWER TRENCH DETAIL



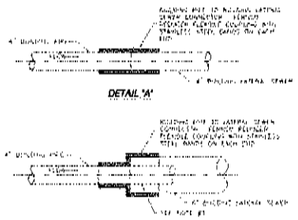
VERTICAL SEPARATION

HORIZONTAL SEPARATION

WATER/SEWER SEPARATION REQUIREMENTS



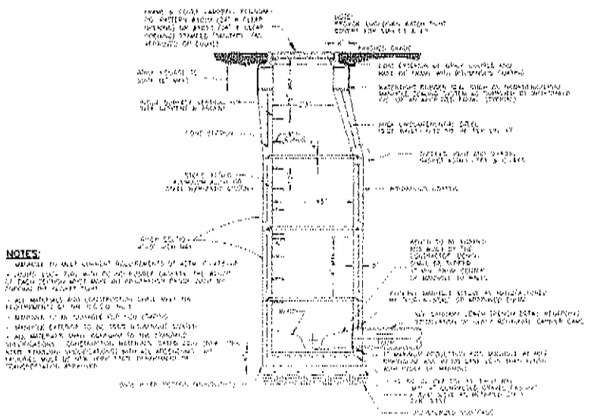
SEWER MANHOLE INVERT DETAIL



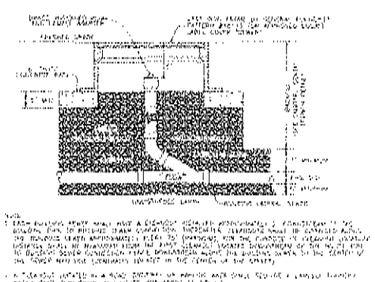
DETAIL 'A'

DETAIL 'B'

BUILDING PIPE TO BUILDING LATERAL SEWER CONNECTION



PRECAST REINFORCED CONCRETE MANHOLE DETAIL



BUILDING LATERAL SEWER CLEANOUT DETAIL

NO.	DATE	DESCRIPTION
1	10/17/23	PER PLANNING BOARD COMMENTS, 9-21-23
2	11/17/23	PER PLANNING BOARD COMMENTS, 10/26/23
3	12/21/23	PER PLANNING BOARD COMMENTS, 11/28/23
4	04/17/24	PER PLANNING BOARD COMMENTS, 3/26/24
5	06/17/24	PER PLANNING BOARD COMMENTS, 5/28/24

ATZL, NASHER & ZIGLER P.C.
ENGINEERS - SURVEYORS - PLANNERS
232 North Main Street
New City, New York 10956
Tel (845) 634-4694
Fax (845) 634-9343
E-mail info@anzpc.com
Web www.ANZPC.com

PROJECT
SUMMERVILLE INDUSTRIAL PARK

VILLAGE OF CHESTER
ORANGE COUNTY, NEW YORK

TITLE
SANITATION SEWER DETAILS

DRAWN BY	JZ	CHECKED BY	DGZ
DATE	NOVEMBER 17, 2023	SCALE	N.T.S.
PROJECT NO.	3390	DRAWING NO.	16

N.Y.S. P.E. LIC. NO. 85002

N.Y.S. L.S. LIC. NO. 49429

S:\PROJECTS\3390\DRAWINGS\3390 SANITATION SEWER DETAILS.DWG

NOTE:

LIGHT POLE

FS4-11-20WT

ALED3T150RG USA

REQUIRED 17 SINGLE HEAD UNITS AND 11 BACK TO BACK HEAD UNITS

ROCK FACE

SUMMERVILLE WAY

CANTILEVERED OFFICE 9,377 SQ.FT.

ENTRY AREA ELEV. 520

180'

SLAB ELEV.=504.0

150'

SLAB ELEV.=504.0

420'

SLAB ELEV.=504.0

100 FT ADJACENT AREA

ORANGE AND ROCKLAND COMPANY UTILITY EASEMENT

MATCH LINE MAP 17

MATCH LINE MAP 18

PROPOSED BUILDING

LOWER FLOOR WAREHOUSE	=	402,155 SQ.FT.
UPPER FLOOR WAREHOUSE	=	362,500 SQ.FT.
OFFICE COMMON AREA	=	9,377 SQ.FT.
COMMON AREA (FILING & COMPUTER)	=	9,377 SQ.FT.
STAIRS (3 STORY)	=	6,960 SQ.FT.
TOTAL BUILDING AREA	=	788,769 SQ.FT.

LEGEND

ATZL, NASHER & ZIGLER P.C.
ENGINEERS - SURVEYORS - PLANNERS
232 North Main Street
New City, New York 10956
Tel: (845) 634-4500
Fax: (845) 634-5540
E-mail: anz@anzny.com
Web: www.ANZNY.com

SUMMERVILLE INDUSTRIAL PARK

VILLAGE OF CHESTER
ORANGE COUNTY, NEW YORK

LIGHTING PLAN
NORTH END

JOB NO.	SHEET NO.
3390	17

LEGEND

Luminaire Schedule									
Symbol	Qty	Label	Arrangement	Total Lamp Lumens	LLF	Description	Build Number	Luminaire Height Above Grade
A	17	AEED11160W	SINGLE	N.A.	1.000	Pole Mount	511-00-02	20 FT
B, B1, B2	11	AEED11160W	DOUBLE	N.A.	1.000	Pole Mount	511-00-03	20 FT
D	11	WALLBOX	SINGLE	N.A.	1.000	Wall Mount	511-00-20	20 FT
E, E1	3	WPEDR11150	SINGLE	N.A.	1.000	Wall Mount	511-00-03	10 FT

HATCH LINE MAP 19
HATCH LINE MAP 18

157 PARKING SPACES

PROPOSED BUILDING

LOWER FLOOR WAREHOUSE	=	492,150 SQ FT.
UPPER FLOOR WAREHOUSE	=	362,580 SQ FT.
OFFICE COMMON AREA	=	9,377 SQ FT
COMMON AREA (FILING 5 COMPLITEM)	=	9,377 SQ FT.
STAIRS (3 STORY)	=	4,942 SQ FT.
TOTAL BUILDING AREA	=	788,769 SQ FT.

60'
60'
30'
100 FT. AVGARENT
SLAB ELEV.=504.0
420'
100 FT. AVGARENT AREA
SLAB ELEV.=504.0
540' OA.
EXISTING BUILDING
EXISTING BUILDING
TAX LOT 119-1-52
MATRIZ 78 ELIZABETH LLC
TAX LOT 119-1-71
74 ELIZABETH ST LLC
TAX LOT 119-2-42.2
HATCH LINE MAP 18
HATCH LINE MAP 19

3	08.11.23	PER PLANNING BOARD COMMENTS 8-7-23
2	07.14.23	PER PLANNING BOARD COMMENTS
1	06.16.23	PER TOWN REVIEW COMMENTS
REVISION	DATE	DESCRIPTION

ATZL, NASHER & ZIGLER P.C.
PROFESSIONAL ENGINEERS · PLANNERS
258 North Main Street
New City, New York 10956
(o) (845) 634-1064
Fax (845) 634-0349
E-mail: info@atzlny.com
Web: www.ATZLNY.com

PROJECT
SUMMERVILLE INDUSTRIAL PARK

VILLAGE OF CHESTER
ORANGE COUNTY, NEW YORK

TITLE
LIGHTING PLAN
MIDDLE

DRAWN BY: SC	SHEET SIZE: 24" x 36"
CHECKED BY: JMZ	SCALE: 1" = 50'-0"
PROJECT NO.	DRAWING NO.
3390	18

CALL BEFORE YOU DIG - UTILITY NOTIFICATION CENTER
DIGSAFELY.COM

PROPOSED BUILDING

LOWER FLOOR WAREHOUSE	=	402,163 SQ FT
UPPER FLOOR WAREHOUSE	=	362,560 SQ FT
OFFICE COMMON AREA	=	9,377 SQ FT
COMMON AREA (FILING & COMPUTER)	=	9,377 SQ FT
STAIRS (3 X 310SF)	=	1,962 SQ FT
TOTAL BUILDING AREA	=	785,769 SQ FT

SLAB ELEV.=504.0

540' OA.

TAX LOT 118-1-52
LANDS OF
ELIZABETH CITE LLC

TAX LOT 117.-2-4.2
N/F
V. OPERATIONS INC

MATCH LINE MAP 19
MATCH LINE MAP 19

EXISTING BUILDING

50 FT. WIDE ACCESS EASEMENT

ELIZABETH DRIVE

WPLED4T150/PC

Technical Specifications

Electrical
Driver
One Driver, Constant Current, Class 2, Filtered, 100-277V 50-60 Hz, Power Factor 90%

THD
< 7% at 120V, 13.2% at 277V

Powered
120V Button Photocell or Shorted Powered in Luminaire with 120V

Compliance
DLC Listed
This product is on the Design Lights Consortium® (DLC) Qualified Products List and is eligible for rebates from DLC Member Utilities

UL Listed
Suitable for wet location

IP Rating
Ingress protection rating of IP66 for dust and water

NEMA LM-79 & LM-80 Testing
Full LED luminaire and LED components have been tested by an independent laboratory in accordance with IESNA LM-79 and LM-80

Performance
Lifetime
140,000 Hour LED Human Impact on DLC List #3 Profile and TM-21 calculations

Average Luminance
3,000K/4000 K 70CRI White Initial

Construction
IK5 Classification
The Type IV distribution was chosen as a Perfect Fit and is especially suited for mounting on the sides of buildings and walls, and for illuminating the perimeter of paving areas. It produces a semi-linear distribution from asymmetric for some reinforcement of exterior angles from 4H to 12H

Maximum Ambient Temperature
Suitable for use in up to 40°C (104°F)

Cold Weather Starting
The minimum starting temperature is -40°C (-40°F)

Thermal Management
Automatic thermal management with external fin

Housing
Die cast aluminum housing, one piece one housing pin

Mounting
Heavy duty 1/2" thread mounting arm with 1/2" slip fitter & stainless steel screws

Reflector
Wet Rite® silicone manufactured reflectors

Gaskets
High temperature silicone gaskets

Finish
Exterior finish for high durability and long lasting color

Green Technology
Will help LEED® For Te/Ms credit compliance

LED Characteristics
LEDs
Multi color, high output long life LEDs

Color Consistency
7 Step MacAdam Ellipse binning to minimize color/lumen difference over time

Color Stability
LED color temperature is warm white (3,000K) or cool white (4,000K) as specified. Color stability is within 300K for more than 50% of rated life when used at 25°C (77°F)

Warranty
5 Year Limited Warranty

SLIM26Y

Technical Specifications

Construction
UL Listed
Suitable for wet locations. Suitable for mounting within 1 ft (mm) of the ground

IP Rating
Ingress protection rating of IP65 for dust and water

ASH Compliant
ELIMITE 100% Compliant

IESNA LM-79 & LM-80 Testing
All LED luminaires and LED components have been tested by an independent laboratory in accordance with IESNA LM-79 and LM-80

Dark Sky Compliance
Dark Sky Approved in 3000K. Conforms in places to Lighting Zone 1 for 3000K fully shielded, unpainted housing with no light above 90 degrees (with the exception of ornamental light fixtures having unlamped lamp tops)

DLC Listed
This product is listed by Design Lights Consortium® (DLC) as an efficient premium product that qualifies for the highest tier of rebates from DLC Member Utilities. Designed to meet DLC 6.1 requirements
DLC Premium Core: Pollard.net

Electrical
Driver
Constant Current, Class 2, 120-277V, 50/60Hz, 120-347V, 50/60Hz, 0.95+, 277V, 0.95+, 347V, 0.95+

Dimming Driver
Driver includes dimming wires or may be 0-10V dimming systems. Requires separate 0-10V DC dimming circuit. Dims down to 10%

THD
10.9% at 120V, 11.93% at 277V

Power Factor
At 347V is 120V, 99.9% at 277V

LED Characteristics
LEDs
CITIZEN, high efficacy, surface mount LEDs

Color Consistency
3-step MacAdam Ellipse binning to achieve consistent color uniformity

Color Stability
LED color temperature is warm white (3,000K) or cool white (4,000K) as specified. Color stability is within 300K for more than 50% of rated life when used at 25°C (77°F)

Color Uniformity
RAB's range of Correlated Color Temperature falls within the guidelines for the American National Standard for Specifications for the Chromaticity of Solid-State Lighting (ANSI) Products. ANSI C78.377-2017

Performance
Lifespan
140,000 hour LED (L70 calculated per TM-21 and TM-28 guidelines)

Voltage & Consistency
Equivalent to 1"x1" steel tubing

Construction
Cast Aluminum Housing
Die cast aluminum housing

Finish
Powder coat aluminum housing

Mounting
Heavy duty mounting bracket with hidden mounting screws included

Reflector
Wet Rite® silicone manufactured reflectors

Gaskets
High temperature silicone gaskets

Warranty
5 Year Limited Warranty

Recommended Mounting Height
10 to 20 ft.

Technical Specifications (continued)

Color Uniformity
RAB's range of Correlated Color Temperature falls within the guidelines for the American National Standard for Specifications for the Chromaticity of Solid-State Lighting (ANSI) Products. ANSI C78.377-2017

Other
Warranty
RAB warrants that our LED products will be free from defects in materials and workmanship for a period of five (5) years from the date of delivery to the end user, including coverage of light output, color stability, and performance and shall not, during warranty, support or permit and constitute failure of RAB's or its components.

Patents
The design of SLIM26Y is protected by patents pending in US Canada, China, Taiwan and Mexico.

Buy American Act Compliance
RAB values USA manufacturing! Upon request, RAB may be able to manufacture this product in its Lancaster, PA Buy American Act (BAA) Plant to meet customer domestic content requirements of the products to be made BAA compliant.

Dimensions

Features
High performance LED light engine
Maintains 70% of initial lumens at 100,000 hours
Wide temperature operation, passive cooling
Superior heat sinking with die cast aluminum housing and optimized fins
Efficacy: 100+ lm/W
10% up to 277 Volts
5 Year Non-Corrosion Warranty

Dimensions

Features
Full cutoff, fully shielded LED wall pack
Can be used as a downlight or uplight
Corrosion resistant, suitable for any installation
100,000 hour LED life
6 step, tool-less optical system

Ordering Matrix

Family	Wattage	Color Temp	Finish	Driver	Options
SLIM	26	Y			

13 = 13W Wall = 4000K Cool Board = Bronze Bare = Std 277v 0-10v Dimming
18 = 18W LL = Khaki Module W = White 120 = 120/277v 0-10V Wireless
26 = 26W Y = 3000K Warm 480 = 480v
*LL = Lambda/Lift Controller

LEGEND

Luminaire Schedule

Symbol	Qty	Label	Arrangement	Total Lamp Lumens	LLF	Description	Build Rating	Additional Weight / Above Grade
A1	1	ALED3T150RG	SINGLE	N.A.	1.000	Pole Mount	B1-U0-G2	30 FT
AE	11	ALED3T150RG	DOUBLE	N.A.	1.000	Pole Mount	B1-U0-G2	30 FT
B	1	SLIM26Y	SINGLE	N.A.	1.000	Wall Mount	B1-U0-G0	20 FT
C	1	WPLED4T150	SINGLE	N.A.	1.000	Wall Mount	B1-U0-G2	40 FT

1	10/11/23	PER PLANNING BOARD COMMENTS 9-27-23
2	10/24/23	PLANNING COMMENTS
3	12/5/23	PLANNING COMMENTS
4	2/6/24	PLANNING BOARD COMMENTS
REVISION	DATE	DESCRIPTION

ATZL, NASHER & ZIGLER P.C.
ENGINEERS SURVEYORS PLANNERS
300 North Main Street
New City, New York 10956
Tel: (845) 624-4696
Fax: (845) 624-0243
E-mail: info@anzpc.com
Ref: www.ANZPC.com

PROJECT
SUMMERVILLE INDUSTRIAL PARK

VILLAGE OF CHESTER
ORANGE COUNTY, NEW YORK

TITLE
LIGHTING PLAN SOUTH END

DRAWN BY	CHECKED BY
DATE: JANUARY 17, 2023	SCALE: 1" = 30'
PROJECT NO.	DRAWING NO.
3390	19

PROPOSED BUILDING

LOWER FLOOR WAREHOUSE	=	402,153 SQ.FT
UPPER FLOOR WAREHOUSE	=	362,560 SQ.FT
OFFICE COMMON AREA	=	9,377 SQ.FT.
COMMON AREA (FILING & COMPUTER)	=	9,571 SQ.FT.
STAIRS (3 @ 6'ø)	=	4,948 SQ.FT.
TOTAL BUILDING AREA	=	788,769 SQ.FT

SPECIFICATIONS FOR CURB INLET PROTECTION

SPECIFICATIONS FOR STORM INLET PROTECTION

CURB INLET PROTECTION DETAIL #2

STORM INLET PROTECTION DETAIL #2

SPECIFICATIONS FOR CONSTRUCTION ENTRANCE

CONSTRUCTION ENTRANCE DETAIL #1

CONCRETE WASHOUT DETAIL #5

CONSTRUCTION NOTES FOR PRE-FABRICATED SILT FENCE

SILT FENCE DETAIL #3

CONSTRUCTION NOTES FOR PRE-FABRICATED SILT FENCE

SUPER SILT FENCE DETAIL #4

STOCKPILE DETAIL #6

LEGEND

ATZL, NASHER & ZIGLER P.C.
ENGINEERS · SURVEYORS · PLANNERS
232 North Main Street
New City, New York 10920
Tel (845) 634-0600
Fax (845) 634-5543
E-mail: info@atzlny.com
Web: www.ANZSP.com

SUMMERVILLE INDUSTRIAL PARK

VILLAGE OF CHESTER
ORANGE COUNTY, NEW YORK

EROSION & SEDIMENT CONTROL PLAN

PROJECT NO.	DRAWING NO.
3390	20

Section 2: Drainage

SUMMERVILLE INDUSTRIAL PARK

VILLAGE OF CHESTER
ORANGE COUNTY
NEW YORK

SECTION 2:

STORMWATER SYSTEM DESIGN REPORT COMPLYING WITH NYS STORMWATER MANAGEMENT DESIGN MANUAL

BY

ATZL, NASHER & ZIGLER
ENGINEERS-SURVEYORS-PLANNERS
232 NORTH MAIN STREET
NEW CITY, NY 10956
TEL: (845) 634-4694
FAX: (845) 634-5543
E-MAIL: rnasher@anzny.com

ATZL, NASHER & ZIGLER
ENGINEERS-SURVEYORS-PLANNERS
232 North Main Street, New City, NY 10956
Tel: (845) 634-4694 Fax: (845) 634-5543
Email: rnasher@anzny.com

Revision 1: September 11, 2023

July 26, 2023

Village of Chester Planning Board
47 Main Street
Chester, NY 10918

Att.: John Queenan, P.E.
Village Engineer

Ref.: Summerville Industrial Park (Job #3390)
Village of Chester, Orange County, New York

Sub: Hydraulic and hydrological study

1.0 REVISION OVERVIEW:

The previous SWPPP report dated July 26, 2023, proposed an underground infiltration system, a solid pipe detention system, and an up-flo filter system to provide zero net increase of peak runoff and water quality mitigation. However, in order to address the comments from the planning board dated August 22, 2023, the site plan and the SWPPP report have been revised accordingly.

1.1 INTRODUCTION:

The following drainage study has been prepared for the above mentioned project in order to provide a zero net increase of peak runoff and water quality mitigation for the proposed development in the Village of Chester, Orange County, New York. The project disturbed area is about 19.457 acres. Since it is greater than 1-acre, a general construction permit coverage is required according to the NYSDEC 2015 version of design manual.

1.2 SITE LOCATION:

The project site is located southerly of Summerville way, and northly of Elizabeth Drive in the Village of Chester, Orange County, New York.

2.0 HYDROLOGICAL SOIL GROUP:

The soil symbol, name and Hydrological Soil Group is shown below:

Table 1: Hydrological Soil Group

Soil Name	Soil Map Symbol	Hydrological Soil Group
Bath-Nassau channery silt loams, 3 to 8 percent slopes	BnB	C
Bath-Nassau channery silt loams, 8 to 15 percent slopes	BnC	C
Madalin silt loam	Ma	C/D
Mardin gravelly silt loam, 3 to 8 percent slopes	MdB	D
Mardin gravelly silt loam, 8 to 15 percent slopes	MdC	D
Otisville gravelly sandy loam, 8 to 15 percent slopes	OtC	A
Riverhead sandy loam, 3 to 8 percent slopes	RhB	A
Riverhead sandy loam, 8 to 15 percent slopes	RhC	A

* Source: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

** HSG "A, C, &D" were used in the drainage calculation.

3.1 EXISTING CONDITION:

The existing drainage consists of one (1) watershed (WS#1), with a total area of about 19.457 acres. The existing condition consists of grass, dirt, and gravel. The runoff flows from the north towards the south side of the property. The drainage area delineation is shown on the Existing Condition Drainage Map (E-1).

3.2 DEVELOPED CONDITION:

The proposed development is a warehouse. The developed drainage area consists of four watersheds (WS#1A, WS#1B, WS#1C and WS#1D), with a total area of about 19.457 acres and consists of a two-story building, access road, parking lot cover, loading docks, and landscaping areas. The drainage area is delineated on Drainage Map Developed Condition (D-1).

4.0 DRAINAGE STUDY:

We have prepared the enclosed hydraulic/hydrological analysis to compare the existing and developed conditions. Due to the proposed development, the impervious areas such as roof tops and the parking areas will be increased at P.O.I.#1. Therefore, the peak runoff of all storm frequencies will be increased relatively. A drainage mitigation plan is prepared to provide water quality and peak flow attenuation, which is described under the mitigation measures section.

5.0 IMPACT AND MITIGATION MEASURES:

The hydrology and hydraulics study for this project has been undertaken to examine the pre and post construction drainage conditions.

To attenuate the post-developed peak flow to pre-developed peak flow, and addressing water quality mitigation requirements, three underground ground systems have been proposed. The proposed systems will be installed on the south and south-east side of the proposed building.

- Underground Infiltration Systems (Cultec R-902HD or approved equal).
- Up-flo Filter
- Solid Pipe Storage System (60" HDPE or approved equal).

HydroCad has been used to calculate peak flows for different storm events at the outlet "Point of Interest", for Existing and Developed Condition and to simulate stormwater being routed through the proposed stormwater management structures in order to determine the final peak runoff of the site. The peak flow in the proposed development site will be decreased by 1.9% to 29.5% at P.O.I.#1 after routing through the proposed SMPs.

If you have further questions or concerns, feel free to contact me. Thank you.

Very truly yours,

Ryan A. Nasher, P.E.

P:\STORMWATER MANAGEMENT\3390\CURRENT SWPPP REPORT\SECTION 2 - DRAINAGE\3390 DRAINAGE NARRATIVE.docx

Summary Table

SUMMERVILLE INDUSTRIAL PARK

VILLAGE OF CHESTER
ORANGE COUNTY
NEW YORK

SUMMARY TABLE

BY

ATZL, NASHER & ZIGLER
ENGINEERS-SURVEYORS-PLANNERS
232 NORTH MAIN STREET
NEW CITY, NY 10956
TEL: (845) 634-4694
FAX: (845) 634-5543
E-MAIL: rnasher@anzny.com

ATZL, NASHER & ZIGLER
ENGINEERS-SURVEYORS-PLANNERS
232 North Main Street
New City, NY 10956
Tel: (845) 634-4694
Fax: (845) 634-5543

JOB: SUMMERVILLE INDUSTRIAL PARK (3390)
CALCULATED BY: WS DATE: 07/26/23
CHECKED BY: RN DATE: 07/26/23
REVISED: 09/11/23

SUMMARY FLOW @ P.O.I.
EXISTING AND DEVELOPED CONDITIONS
1, 10, & 100 YEAR STORMS PEAK RUNOFF

STORM FREQUENCY (YEAR)	EXISTING CONDITION PEAK FLOW (CFS) (PER Hydrocad)	DEVELOPED CONDITION PEAK FLOW WITH ROUTING (CFS) (PER Hydrocad)	% CHANGE	REMARK
1	6.95	6.37	-8.3%	*
10	37.98	26.78	-29.5%	*
100	108.28	106.21	-1.9%	*

* Note: Peak flow mitigation will be provided by an underground solid pipe system and the required water quality treatment volume will be provided by the underground infiltration system (Cultec R-902HD or approved equal) and an up-flo filter system.

Location Maps

SUMMERVILLE INDUSTRIAL PARK

VILLAGE OF CHESTER
ORANGE COUNTY
NEW YORK

LOCATION MAPS

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232 NORTH MAIN STREET
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TEL: (845) 634-4694
FAX: (845) 634-5543
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ATZL, NASHER & ZIGLER
ENGINEERS-SURVEYORS-PLANNERS
232 North Main Street
New City, NY 10956
Tel: (845) 634-4694
Fax: (845) 634-5543

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NORTH

STREET MAP
Source: maps.google.com

ATZL, NASHER & ZIGLER
ENGINEERS-SURVEYORS-PLANNERS
232 North Main Street
New City, NY 10956
Tel: (845) 634-4694
Fax: (845) 634-5543

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NORTH

SOIL MAP
Source: http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

Drainage Calculations

SUMMERVILLE INDUSTRIAL PARK

VILLAGE OF CHESTER
ORANGE COUNTY
NEW YORK

DRAINAGE CALCULATION

BY

ATZL, NASHER & ZIGLER
ENGINEERS-SURVEYORS-PLANNERS
232 NORTH MAIN STREET
NEW CITY, NY 10956
TEL: (845) 634-4694
FAX: (845) 634-5543
E-MAIL: rnasher@anzny.com

EXISTING CONDITION:

The existing site consists of one watershed. Watershed WS#1 has an area of 19.457 acres. The existing drainage area consists of a dirt road, gravel, and grass cover. The drainage area is delineated on the Existing Drainage Map Condition (E-1).

WS#1

The soil within WS#1 belongs to Hydrological Soil Group A, C, and D.

A = 19.457 acs

HSG "A"	HSG "C"	HSG "D"
A_{grass} = 5.535 acs	A_{grass} = 9.969 acs	A_{grass} = 2.754 acs
$A_{Dirt\ Road}$ = 0.076 acs	$A_{Dirt\ Road}$ = 1.065 acs	$A_{Dirt\ Road}$ = 0.058 acs

Due to the dirt road and the gravel area, minimum time of concentration has been used:

Tc = 6 min

WS#1→E-P.O.I.

DEVELOPED CONDITION:

The proposed development includes four watersheds (WS#1A, WS#1B, WS#1C, and WS#1D). The proposed development consists in the construction of a two-story building, parking lots, driveway, and landscaping areas. The drainage area is delineated on Drainage Map Developed Condition (D-1).

WS#1A

The soil within WS#1A belongs to Hydrological Soil Group A, C, and D.

A = 5.188 acs

HSG "A, C, & D"
$A_{Rooftop}$= 5.188 acs

Due to the small drainage area, minimum time of concentration has been used:

Tc = 6 min

WS#1A→U/G INFILTRATION SYSTEM→P-P.O.I.

WS#1B

The soil within WS#1B belongs to Hydrological Soil Group A and D.

A = 4.316 acs

HSG "A, C, & D"
$A_{Rooftop}$= 4.316 acs

Due to the small drainage area, minimum time of concentration has been used:

Tc = 6 min

WS#1B→UP-FLO FILTER→U/G SOLID PIPE SYSTEM→P-P.O.I.

WS#1C

The soil within WS#1C belongs to Hydrological Soil Groups A & C.

A = 6.304 acs

HSG "A"	HSG "C"
A_{grass}= 0.408 acs	A_{grass}= 0.449 acs
$A_{Impervious}$ = 5.447 acs	

Due to the steep slopes and the proposed impervious cover, minimum time of concentration has been used:

Tc = 6 min

WS#1C→UP-FLO FILTER→U/G SOLID PIPE SYSTEM→P-P.O.I.

WS#1D

The soil within WS#1D belongs to Hydrological Soil Groups A, C, & D.

A = 3.649 acs

HSG "A"	HSG "C"	HSG "D"
A_{grass}= 1.176 acs	A_{grass}= 1.370 acs	A_{grass}= 0.668 acs
$A_{Impervious}$ = 3.557 acs		

Due to the steep slopes and the proposed impervious cover, minimum time of concentration has been used:

Tc = 6 min

WS#1D→P-P.O.I.

SMP Design

SUMMERVILLE INDUSTRIAL PARK

VILLAGE OF CHESTER
ORANGE COUNTY
NEW YORK

STORMWATER MANAGEMENT PRACTICE DESIGN CALCULATIONS

BY

ATZL, NASHER & ZIGLER
ENGINEERS-SURVEYORS-PLANNERS
232 NORTH MAIN STREET
NEW CITY, NY 10956
TEL: (845) 634-4694
FAX: (845) 634-5543
E-MAIL: rnasher@anzny.com

STORMWATER MANAGEMENT PRACTICE SIZING CALCULATIONS

The proposed systems will be installed/constructed on the southern side of the proposed building. The underground infiltration system and the up-flo filter systems will provide water quality treatment, the underground solid pipe system will provide peak flow mitigation for the required 1-yr, 10-yr, and 100-yr storm events at the P.O.I.

WQv Requirements:

1. **Base Data:**

- Drainage study area = 19.457 acres
- Existing Impervious area in disturbance (I_{Ext})= 0.0 acres
- Proposed impervious area in disturbance = 15.386 acres
- New Impervious (I_{New})= 15.386 acres – 0.0 acres = 15.386 acres

$$A_{Treat} = I_{New} + 0.25 * I_{Ext}$$

$$\rightarrow A_{Treat} = 15.386\ acres + (0.25 * 0.0\ acres) = 15.386\ acres$$

- 90% Rainfall Depth = 1.4 inches (Orange County)
- Hydrological Soil Group (HSG): A, B, & D

$S_A = 0.55$

$S_C = 0.30$

$S_D = 0.20$

$\boldsymbol{S_{avg} = 0.36}$

- HSG Specific Reduction Factor, S = 0.36

2. **Water Quality Volume required before Runoff Reduction:**

The impervious cover,

$$I = \frac{15.386\ acres}{19.457\ acres} \times 100\% = 79.1\%$$

The runoff coefficient,

$R_v = 0.05 + 0.009 \times I$

$\rightarrow R_v = 0.05 + 0.009 \times 79.1$

$\rightarrow R_v = 0.76$

Use the 90% rule 1.4" of rainfall in Orange County,

$WQ_v = 1.4" \times R_v \times A_{Disturbed}$

$\rightarrow WQ_v = 1.4inch\left(\frac{1ft}{12inch}\right) 0.76\ x\ 19.457\ acs$

$\rightarrow WQ_v = 1.729\ acs.ft. = 75{,}316.5\ cu.ft.$

The required water quality volume, (WQv) = 75,316.5 cu.ft or 1.729 acs.ft.

$(WQv)_{Required}$ = 1.729 acs.ft. or 75,316.5 cu.ft

3. **Minimum Runoff Reduction Volume (RRv) Calculations:**

$$RRv = \frac{90\%\ Rainfall\ Amount}{12} * 0.95 * S * AI_{New}$$

$S = 0.36$

$$RRv = 1.4inch\left(\frac{1ft}{12inch}\right) * 0.95 * 0.36 * 15.386\ acres$$

$RRv = 0.613\ acs.ft. = 26{,}741.5\ ft^3$

$(RRv)_{Minimum}$ = 0.613 acs.ft. or 26,741.5 cu.ft

4. **Area Reduction Practice:**

- No area reduction practice is proposed.

5. **Area Reduction Practice:**

N/A

6. **Recalculate WQv for Site Area Remaining After Area Reduction:**

The impervious cover,

$$I = \frac{15.386\ acres}{19.457\ acres} \times 100\% = 79.1\%$$

The runoff coefficient,

$R_v = 0.05 + 0.009 \times I$

$\rightarrow R_v = 0.05 + 0.009 \times 79.1$

$\rightarrow R_v = 0.76$

Use the 90% rule 1.4" of rainfall in Orange County,

$WQ_v = 1.4" \times R_v \times A_{Disturbed}$

$\rightarrow WQ_v = 1.4inch\left(\frac{1ft}{12inch}\right) 0.76\ x\ 19.457\ acs$

$\rightarrow WQ_v = 1.729\ acs.ft. = 75{,}316.5\ cu.ft.$

The required water quality volume, (WQv) = 75,316.5 cu.ft or 1.729 acs.ft.

$(WQv)_{Required}$ = 1.729 acs.ft. or 75,316.5 cu.ft

7. **Runoff Reduction Volume (RRv) Calculation Per Area Reduction:**

- The Runoff Reduction Volume (RRv) Credit:

$(RRv)_{Area\ Reduction}$ = (#2 Original WQv - #6 Area Reduced WQv)

$\Rightarrow (RRv)_{Area\ Reduction}$ = (1.729 acs.ft. – 1.729 acs.ft.)

$\Rightarrow (RRv)_{Area\ Reduction}$ = 0.00 acs.ft.

$(RRv)_{Per\ Area\ Reduction}$ = 0.0 acs.ft. or 0.0 cu.ft

8. **Incorporate Impervious Are Disconnection:**

- No rooftop disconnection practices are proposed.

9. **Recalculate WQv with Rv Modified for Impervious Disconnection:**

The impervious cover,

$$I = \frac{15.386\ acres}{19.457\ acres} \times 100\% = 79.1\%$$

The runoff coefficient,

$R_v = 0.05 + 0.009 \times I$

$\rightarrow R_v = 0.05 + 0.009 \times 79.1$

$\rightarrow R_v = 0.76$

Use the 90% rule 1.4" of rainfall in Orange County,

$$WQ_v = 1.4" \times R_v \times A_{Disturbed}$$

$$\rightarrow WQ_v = 1.4inch\left(\frac{1ft}{12inch}\right)0.76\ x\ 19.457\ acs$$

$$\rightarrow WQ_v = 1.729\ acs.ft. = 75{,}316.5\ cu.ft.$$

The required water quality volume, (WQv) = 75,316.5 cu.ft or 1.729 acs.ft.

$(WQv)_{Required}$ = 1.729 acs.ft. or 75,316.5 cu.ft

10. <u>Runoff Reduction Volume (RRv) Per Impervious Area Reduction:</u>

- The Runoff Reduction Volume (RRv) Credit:

  $(RRv)_{AI\ Reduction}$ = (#6 Area Reduced WQv - #9 Area Reduced WQv)

  $\Rightarrow (RRv)_{AI\ Reduction}$ = (1.729 acs.ft – 1.729 acs.ft)

  $\Rightarrow (RRv)_{AI\ Reduction}$ = 0.00 acs.ft

$(WQv)_{Per\ Impervious\ Reduction}$ = 0.0 acs.ft. or 0.0 cu.ft

11. <u>Source Control WQv Treatment Practice:</u>

The WQv will be mitigated by the proposed underground infiltration system (Cultec R-902HD). The system will be located on the south side of the proposed building. The volume provided by the proposed system is 18,224 cu.ft @ EL: 485.10 per HydroCAD.

- WQv Provided = 26,753.0 cu.ft or 0.614 acs.ft.

$(WQv)_{Provided}$ = 0.614 acs.ft. or 26,753.0 cu.ft

12. <u>The Total Provided Runoff Reduction Volume (RRv) Calculation:</u>

- The Grand Total RRv:

  $(RRv)_{Grand\ Total}$ = (#7 $(RRv)_{Area\ Reduction}$ + #10 $(RRv)_{AI\ Reduction}$ + #11 $(RRv)_{SMP\ Provided}$)

  $\Rightarrow (RRv)_{Grand\ Total}$ = (0.0 acs.ft. + 0.0 acs.ft. + 0.614 acs.ft.

  $\Rightarrow (RRv)_{Grand\ Total}$ = 0.614 acs.ft.

$(RRv)_{Grand\ Total}$ = 0.614 acs.ft. or 26,753 cu.ft

13. Check if Total Provided RRv is Adequate Compared to the Original WQv:

- The $(RRv)_{Grand\ Total} = 0.614$ acs.ft $< (WQv)_{Original} = 1.729$ acs.ft.

↓

(Provide Additional WQv By Standard Practice)

14. Check if Total Provided RRv is Adequate Compared to the Minimum RRv:

- The $(RRv)_{Grand\ Total} = 0.614$ acs.ft $>= (RRv)_{Minimum} = 0.613$ acs.ft.

↓

(Minimum RRv Requirement is Satisfied)

15. Total Drainage area treated with runoff reduction or source control practices:

- Treated area = #4 DA + #8 DA + #11 DA = 0.0 + 0.00 + 5.188 = 5.188 acres
- Impervious Area = #4 IA + #8 IA + #11 IA = 0.0 + 0.00 + 5.188 = 5.188 acres

16. Are all required areas treated by runoff reduction or source control practices:

Not all the watersheds are treated by the source control. The remaining impervious area will be treated by standard practice.

17. Provide Treatment For the Remaining Untreated Watershed DA with Standard Practice:

- The Remaining Untreated Watershed Drainage Area (D-WS#1C),

$(DA)_{Remaining\ Untreated} = (\#1\ DA_{Total} - \#15\ DA_{Treated})$

$\Rightarrow (DA)_{Remaining\ Untreated} = (19.457\ Acres - 5.188\ Acres)$

$\Rightarrow \mathbf{(DA)_{Remaining\ Untreated} = 14.269\ Acres}$

- The Remaining Untreated Impervious Area :

$(AI)_{Remaining\ Untreated} = (\#1\ AI_{Treat} - \#15\ AI_{Treated})$

$\Rightarrow (AI)_{Remaining\ Untreated} = (15.386\ Acres - 5.188\ Acres)$

$\Rightarrow \mathbf{(AI)_{Remaining\ Untreated} = 10.198\ Acres}$

- Effective Watershed Drainage Area :

  $DA_{Effective} = 14.269$ Acres

- Remain Untreated Impervious Area

  $AI_{Contributing} = 10.198$ Acres

  Find impervious cover percentage:

$$I = \frac{10.198}{14.269} * 100\% = 71.5\%$$

Find runoff coefficient:

$$R_V = 0.05 + 0.009 * I$$

$$\rightarrow R_V = 0.05 + 0.009 * 71.5\%$$

$$\rightarrow R_V = 0.69$$

Find required WQv using 90% rainfall rule:

$$WQ_v = 1.4" \times R_v \times A_{Disturbed}$$

$$\rightarrow WQ_v = 1.4inch\left(\frac{1ft}{12inch}\right) 0.69\ x\ 14.269\ acs$$

$$\rightarrow WQ_v = 1.14\ acs.ft. = 50{,}035.0\ cu.ft.$$

$(WQv)_{Standard\ Practice}$ = 1.14 acs.ft. or 50,035 cu.ft

18. <u>Compute Peak Water Quality Discharge:</u>

Compute modified CN for 1.4" rainfall:

$P = 1.4"$ (Orange County)

$$Q_a = \frac{WQ_v}{Area}$$

$$Q_a = \frac{1.14\ ft^3}{14.269\ acres} * \frac{1\ acre-ft}{43{,}560\ ft^3} * \frac{12\ inch}{1\ ft}$$

$$Q_a = 0.96\ inch$$

$$CN = \left[\frac{1000}{10 + 5p + 10Q_a - 10 * (Q_a^2 + 1.25 * Q_a * p)^{0.5}}\right]$$

$$CN = \left[\frac{1000}{10 + (5 * 1.4") + (10 * 0.96") - 10 * (0.96"^2 + 1.25 * 0.96" * 1.4")^{0.5}}\right]$$

$$CN = 95.5$$

- Use $CN = 95$.

- Compute $\frac{I_a}{p}$

$$I_a = 0.2 * S$$

$$S = \frac{1000}{CN} - 10$$

$$S = \frac{1000}{95} - 10$$

$$S = 0.52$$

$$I_a = 0.2 * 0.52$$

$$I_a = 0.105$$

$$\frac{I_a}{p} = \frac{0.105}{1.4}$$

$$\frac{I_a}{p} = 0.075$$

- Now, use the value of $\frac{I_a}{p}$ and t_c = 0.1 hour to find out q_u.

$$q_u = 662 \ \frac{csm}{in}$$ (Per Type III Rainfall Distribution)

- Now, calculate the peak water quality flow (Q_{wp}):

$$Q_{wp} = q_u * A * Q_a$$

$$Q_{wp} = \left(662 \frac{csm}{in}\right)\left(\frac{14.269\ acres}{640\ \frac{acres}{mi^2}}\right)(0.96\ inch)$$

$$Q_{wp} = 14.15\ cfs$$

So, the peak water quality discharge, $Q_{wp} = 14.15\ cfs$.

Hydro International Up Flo Filter Systems have been proposed to provide 100% of the WQv required. The Up Flo filter systems will house 254 modules at 0.056 cfs per module which will provide a Peak Treatment flow of 14.224 cfs.

The total water quality volume provided by the Up Flo Filter is 1.146 acs.ft
> Required Water Quality Volume = 1.14 cfs

(O.K.) √

ATZL, NASHER & ZIGLER
ENGINEERS-SURVEYORS-PLANNERS
232 North Main Street
New City, NY 10956
Tel: (845) 634-4694
Fax: (845) 634-5543

JOB: SUMMERVILLE INDUSTRIAL PARK (3390)
CALCULATED BY: WS DATE: 07/26/23
CHECKED BY: RN DATE: 07/26/23
REVISED: 09/11/23

WATER QUANTITY CALCULATION

The proposed underground solid pipe storage system provides water quantity required for 1-yr, 10-yr, 100-yr storm events at the points of interest. The routing calculation through the proposed system shows that the zero net increase of peak run off from the site could be achieved as described in the following:

P.O.I:

1-yr storm:

Q1 (developed) = 6.37 cfs < Q1 (existing) = 6.95 cfs
U/G Solid Pipe System 1-yr Storage = 25,537 c.f. @ El. 485.95'

10-yr storm:

Q10 (developed) = 26.78 cfs < Q10 (existing) = 37.98 cfs
U/G Solid Pipe System 10-yr Storage = 44,456 c.f. @ El. 487.08'

100-yr storm:

Q100 (developed) = 106.21 cfs < Q100 (existing) = 108.28 cfs
U/G Solid Pipe System 100-yr Storage = 65,469 c.f. @ El. 488.71'

(Please see HydroCad calculations for details)

HydroCAD Model

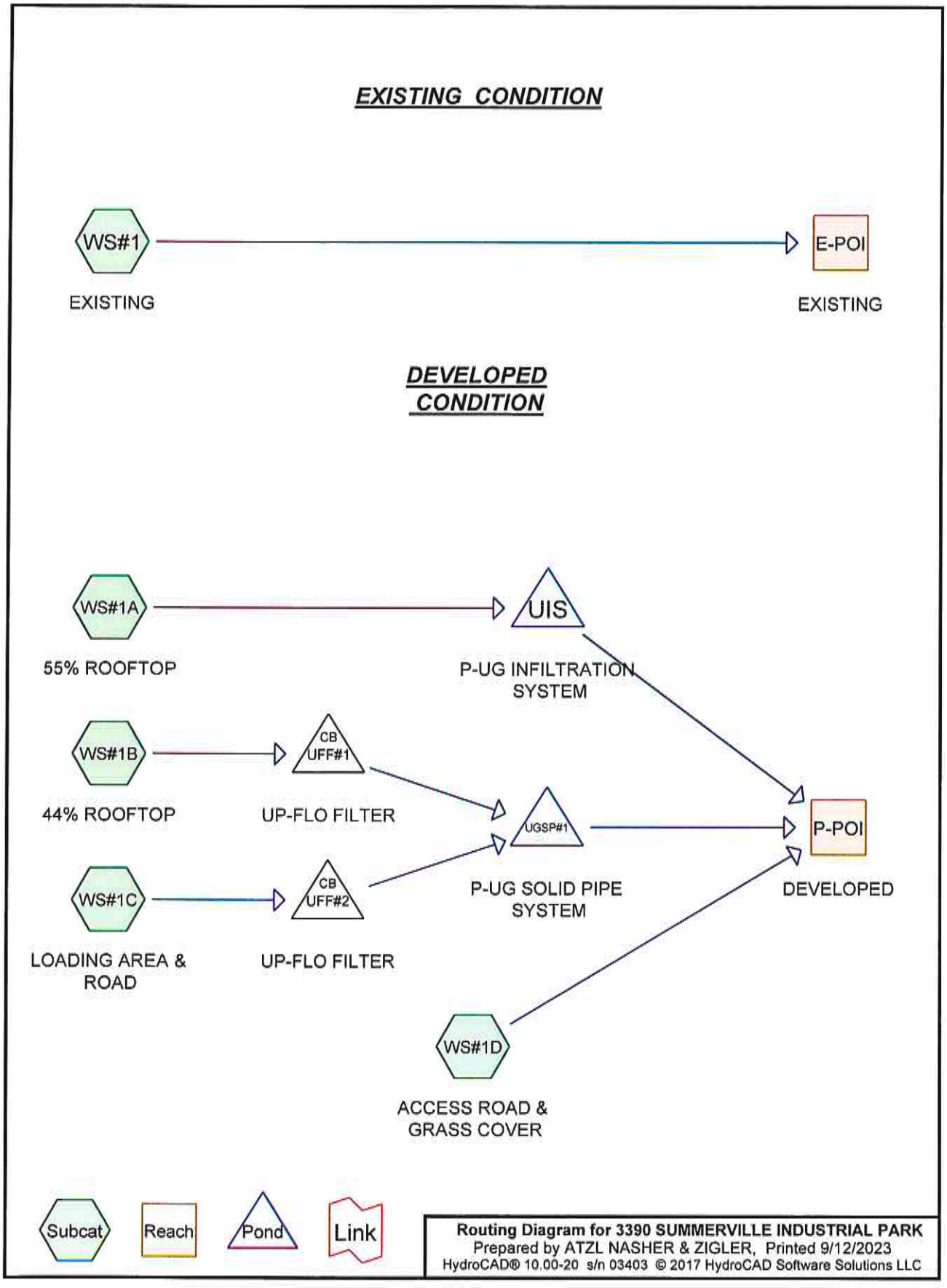
SUMMERVILLE INDUSTRIAL PARK

VILLAGE OF CHESTER
ORANGE COUNTY
NEW YORK

HYDROCAD MODEL FOR EXISTING AND PROPOSED CONDITIONS 1, 10, AND 100 YEAR STORMS

BY

ATZL, NASHER & ZIGLER
ENGINEERS-SURVEYORS-PLANNERS
232 NORTH MAIN STREET
NEW CITY, NY 10956
TEL: (845) 634-4694
FAX: (845) 634-5543
E-MAIL: rnasher@anzny.com


EXISTING CONDITION
WS#1
EXISTING
E-POI
EXISTING
DEVELOPED CONDITION
WS#1A
55% ROOFTOP
UIS
P-UG INFILTRATION SYSTEM
WS#1B
44% ROOFTOP
CB UFF#1
UP-FLO FILTER
UGSP#1
P-UG SOLID PIPE SYSTEM
P-POI
DEVELOPED
WS#1C
LOADING AREA & ROAD
CB UFF#2
UP-FLO FILTER
WS#1D
ACCESS ROAD & GRASS COVER
Subcat
Reach
Pond
Link
Routing Diagram for 3390 SUMMERVILLE INDUSTRIAL PARK
Prepared by ATZL NASHER & ZIGLER, Printed 9/12/2023
HydroCAD® 10.00-20 s/n 03403 © 2017 HydroCAD Software Solutions LLC

Time span=0.00-36.00 hrs, dt=0.05 hrs, 721 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment WS#1: EXISTING Runoff Area=19.457 ac 0.00% Impervious Runoff Depth=0.44"
Tc=6.0 min CN=66 Runoff=6.95 cfs 0.712 af

Subcatchment WS#1A: 55% ROOFTOP Runoff Area=5.188 ac 100.00% Impervious Runoff Depth=2.54"
Tc=6.0 min CN=98 Runoff=13.57 cfs 1.098 af

Subcatchment WS#1B: 44% ROOFTOP Runoff Area=4.316 ac 100.00% Impervious Runoff Depth=2.54"
Tc=6.0 min CN=98 Runoff=11.29 cfs 0.913 af

Subcatchment WS#1C: LOADING AREA & ROAD Runoff Area=6.304 ac 86.41% Impervious Runoff Depth=1.94"
Tc=6.0 min CN=92 Runoff=13.84 cfs 1.022 af

Subcatchment WS#1D: ACCESS ROAD & GRASS Runoff Area=3.649 ac 11.92% Impervious Runoff Depth=0.47"
Tc=6.0 min CN=67 Runoff=1.49 cfs 0.144 af

Reach E-POI: EXISTING Inflow=6.95 cfs 0.712 af
Outflow=6.95 cfs 0.712 af

Reach P-POI: DEVELOPED Inflow=6.37 cfs 2.079 af
Outflow=6.37 cfs 2.079 af

Pond UFF#1: UP-FLO FILTER Peak Elev=499.00' Inflow=11.29 cfs 0.913 af
Outflow=11.29 cfs 0.913 af

Pond UFF#2: UP-FLO FILTER Peak Elev=499.89' Inflow=13.84 cfs 1.022 af
Outflow=13.84 cfs 1.022 af

Pond UGSP#1: P-UG SOLID PIPE SYSTEM Peak Elev=485.95' Storage=25,537 cf Inflow=25.12 cfs 1.935 af
Outflow=5.57 cfs 1.935 af

Pond UIS: P-UG INFILTRATIONSYSTEM Peak Elev=482.08' Storage=7,342 cf Inflow=13.57 cfs 1.098 af
Discarded=4.98 cfs 1.098 af Primary=0.00 cfs 0.000 af Outflow=4.98 cfs 1.098 af

Total Runoff Area = 38.914 ac Runoff Volume = 3.889 af Average Runoff Depth = 1.20"
60.46% Pervious = 23.528 ac 39.54% Impervious = 15.386 ac

Summary for Subcatchment WS#1: EXISTING

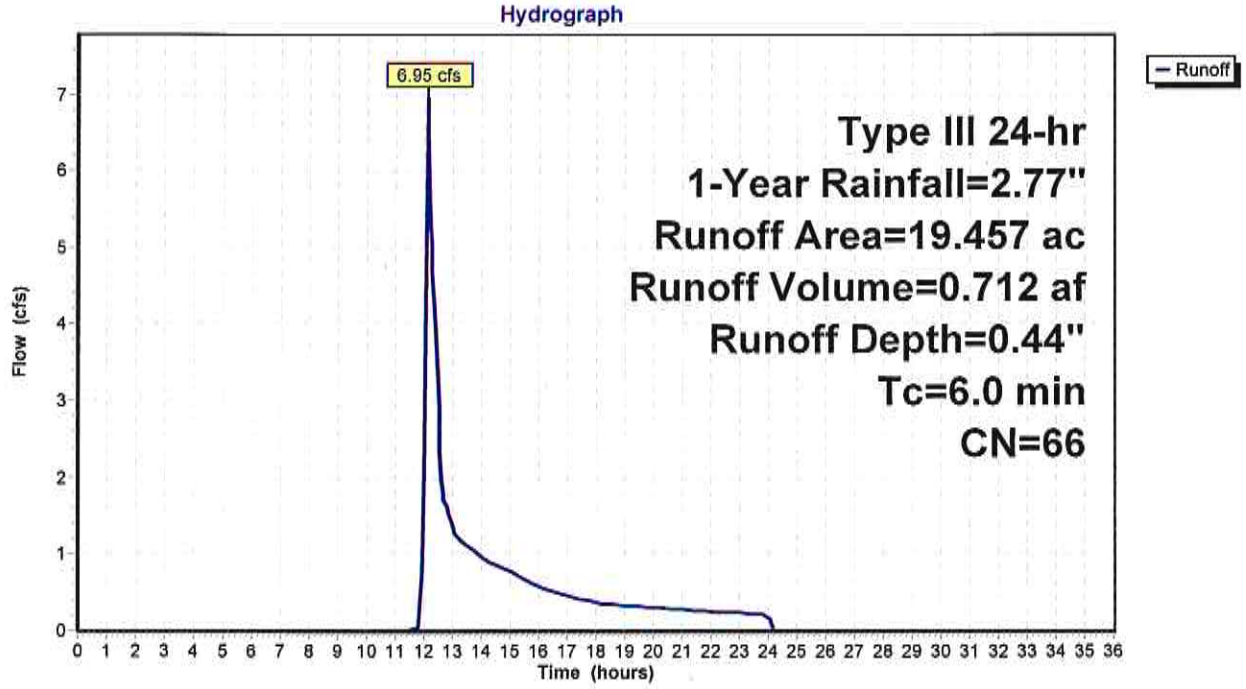
Runoff = 6.95 cfs @ 12.12 hrs, Volume= 0.712 af, Depth= 0.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.77"

	Area (ac)	CN	Description
	5.535	39	>75% Grass cover, Good, HSG A
	9.969	74	>75% Grass cover, Good, HSG C
	2.754	80	>75% Grass cover, Good, HSG D
*	0.076	72	Dirt, HSG A
	1.065	87	Dirt roads, HSG C
	0.058	89	Dirt roads, HSG D
	19.457	66	Weighted Average
	19.457		100.00% Pervious Area

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

Subcatchment WS#1: EXISTING



Summary for Subcatchment WS#1A: 55% ROOFTOP

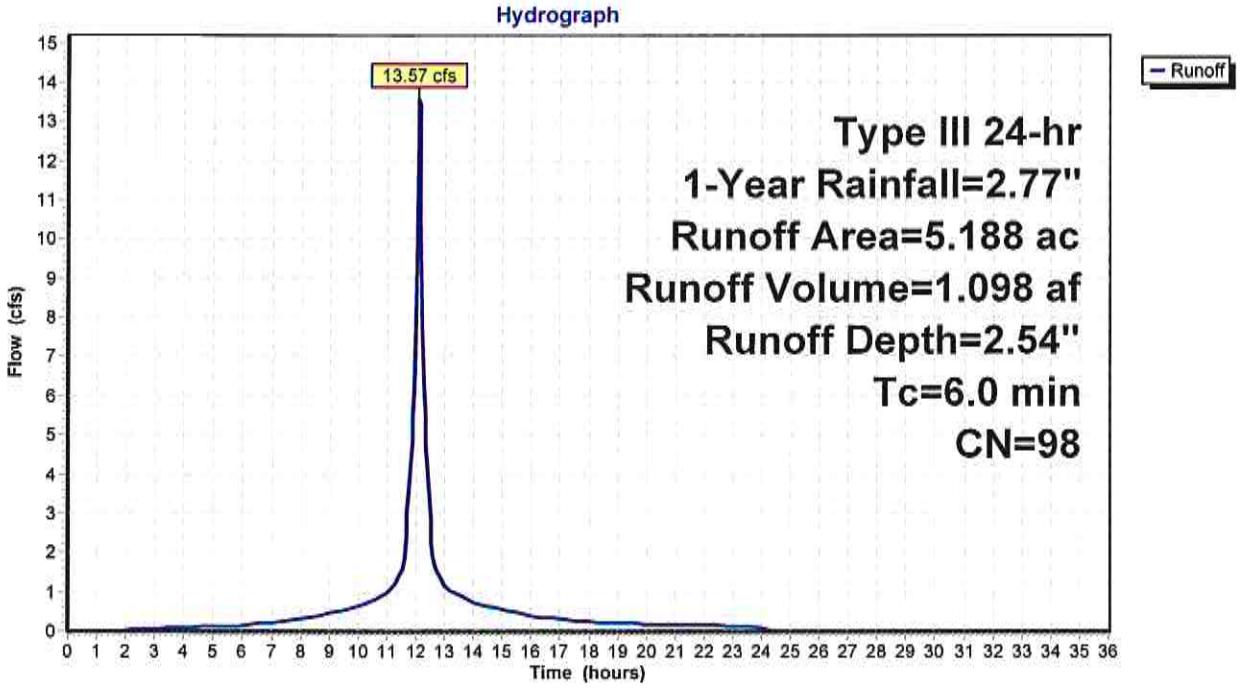
Runoff = 13.57 cfs @ 12.09 hrs, Volume= 1.098 af, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.77"

	Area (ac)	CN	Description
*	5.188	98	Rooftop, HSG A, C, D
	5.188		100.00% Impervious Area

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

Subcatchment WS#1A: 55% ROOFTOP



Summary for Subcatchment WS#1B: 44% ROOFTOP

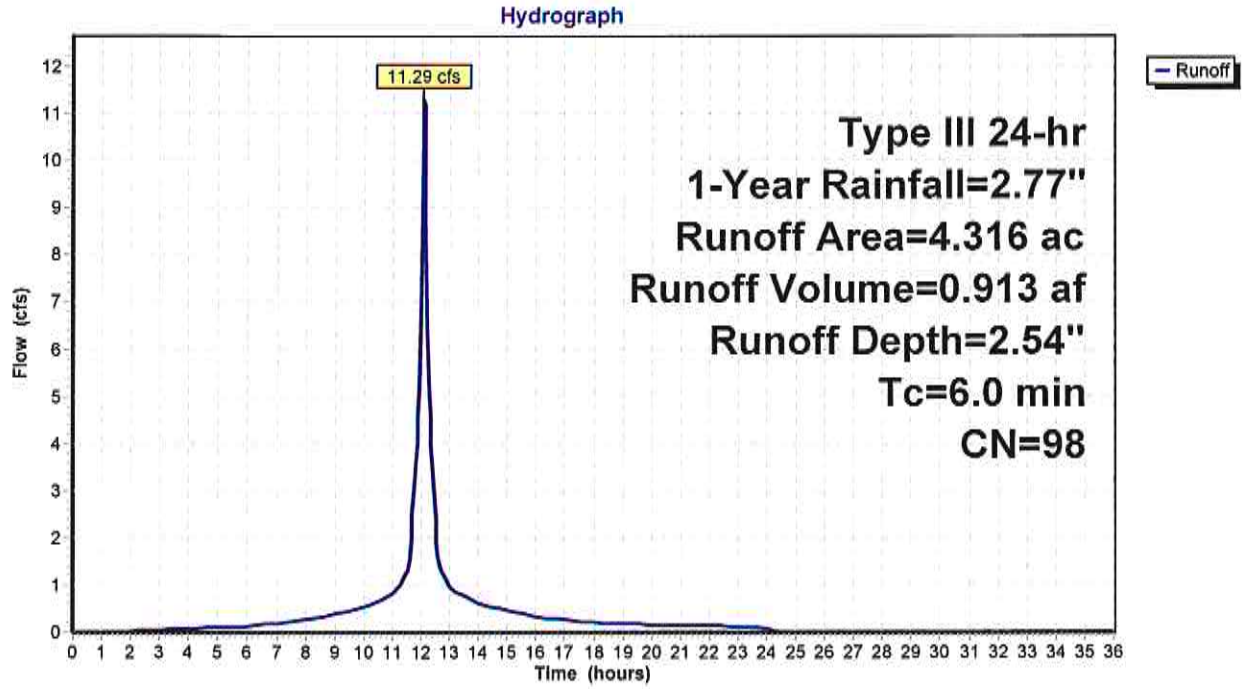
Runoff = 11.29 cfs @ 12.09 hrs, Volume= 0.913 af, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.77"

	Area (ac)	CN	Description
*	4.316	98	Rooftop, HSG A, C, D
	4.316		100.00% Impervious Area

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

Subcatchment WS#1B: 44% ROOFTOP



Summary for Subcatchment WS#1C: LOADING AREA & ROAD

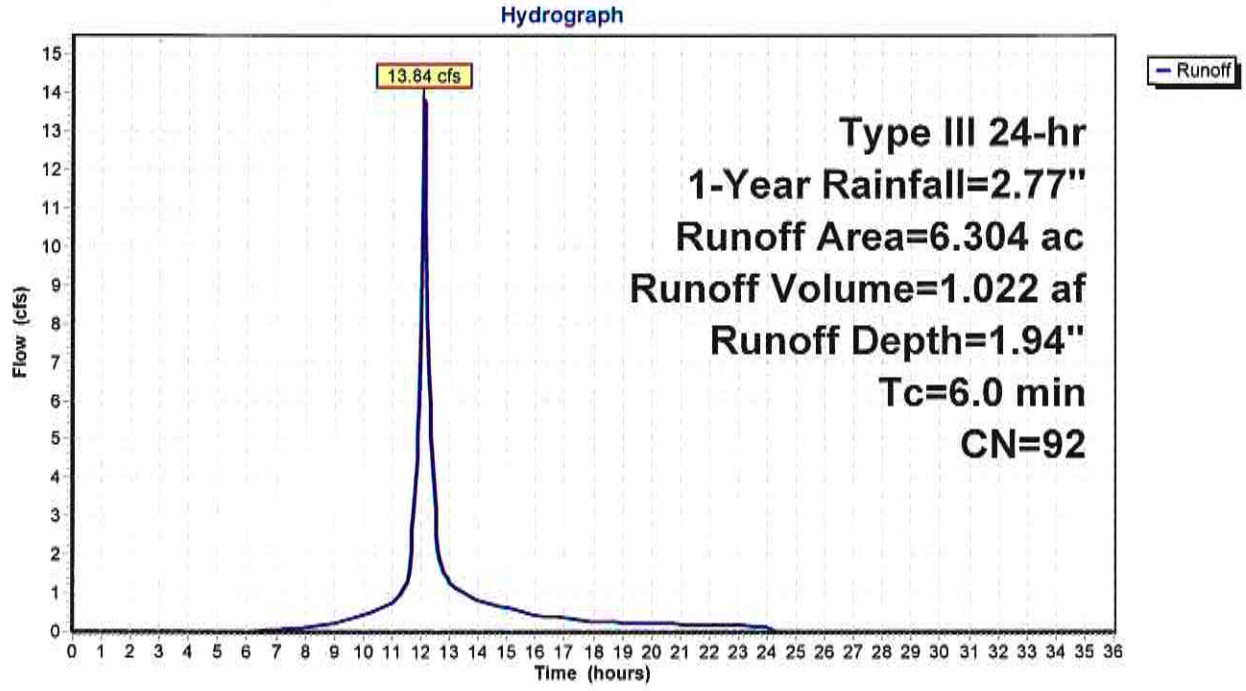
Runoff = 13.84 cfs @ 12.09 hrs, Volume= 1.022 af, Depth= 1.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.77"

	Area (ac)	CN	Description
*	5.447	98	Impervious Cover, HSG A, C, D
	0.408	39	>75% Grass cover, Good, HSG A
	0.449	74	>75% Grass cover, Good, HSG C
	6.304	92	Weighted Average
	0.857		13.59% Pervious Area
	5.447		86.41% Impervious Area

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

Subcatchment WS#1C: LOADING AREA & ROAD



Summary for Subcatchment WS#1D: ACCESS ROAD & GRASS COVER

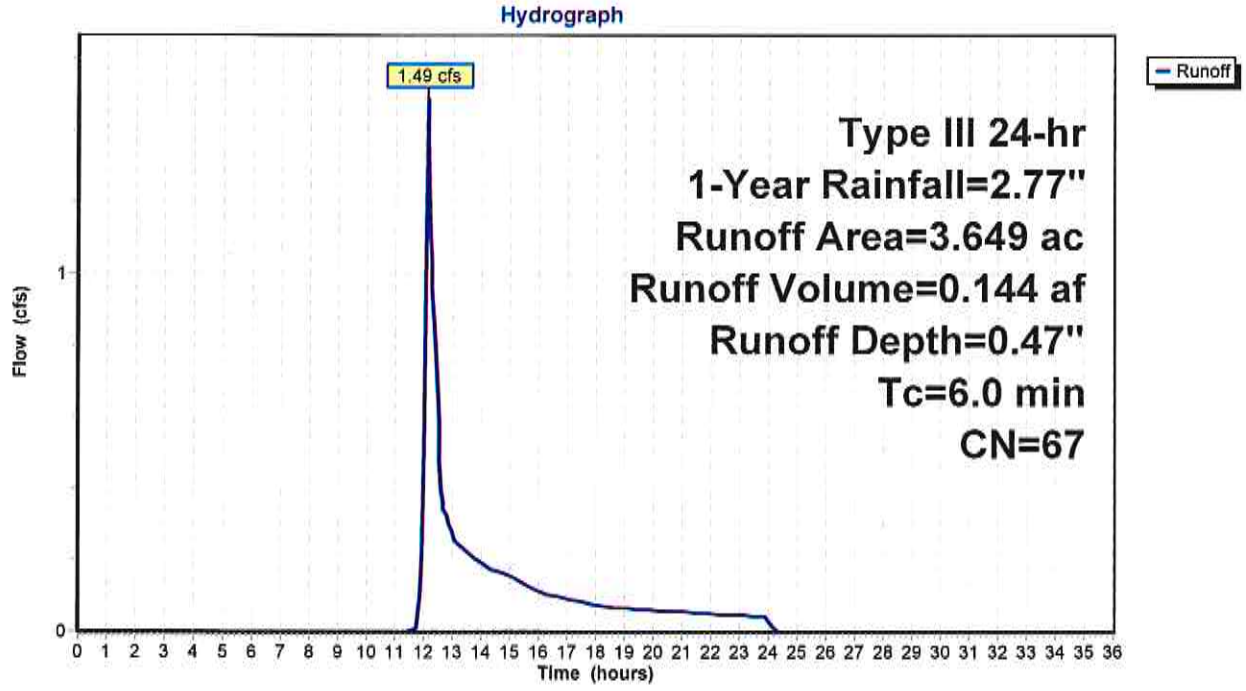
Runoff = 1.49 cfs @ 12.12 hrs, Volume= 0.144 af, Depth= 0.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.77"

	Area (ac)	CN	Description
*	0.435	98	Impervious Cover, HSG. A, C & D
	1.176	39	>75% Grass cover, Good, HSG A
	1.370	74	>75% Grass cover, Good, HSG C
	0.668	80	>75% Grass cover, Good, HSG D
	3.649	67	Weighted Average
	3.214		88.08% Pervious Area
	0.435		11.92% Impervious Area

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

Subcatchment WS#1D: ACCESS ROAD & GRASS COVER

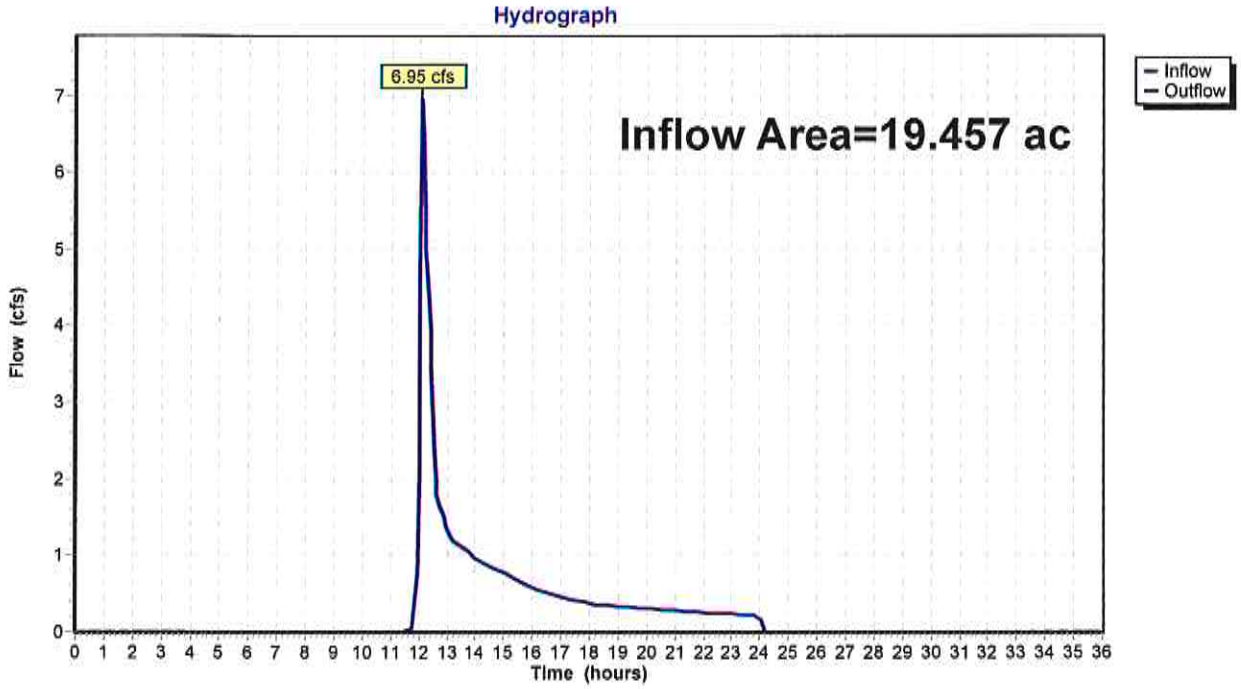


Summary for Reach E-POI: EXISTING

Inflow Area = 19.457 ac, 0.00% Impervious, Inflow Depth = 0.44" for 1-Year event
Inflow = 6.95 cfs @ 12.12 hrs, Volume= 0.712 af
Outflow = 6.95 cfs @ 12.12 hrs, Volume= 0.712 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Reach E-POI: EXISTING

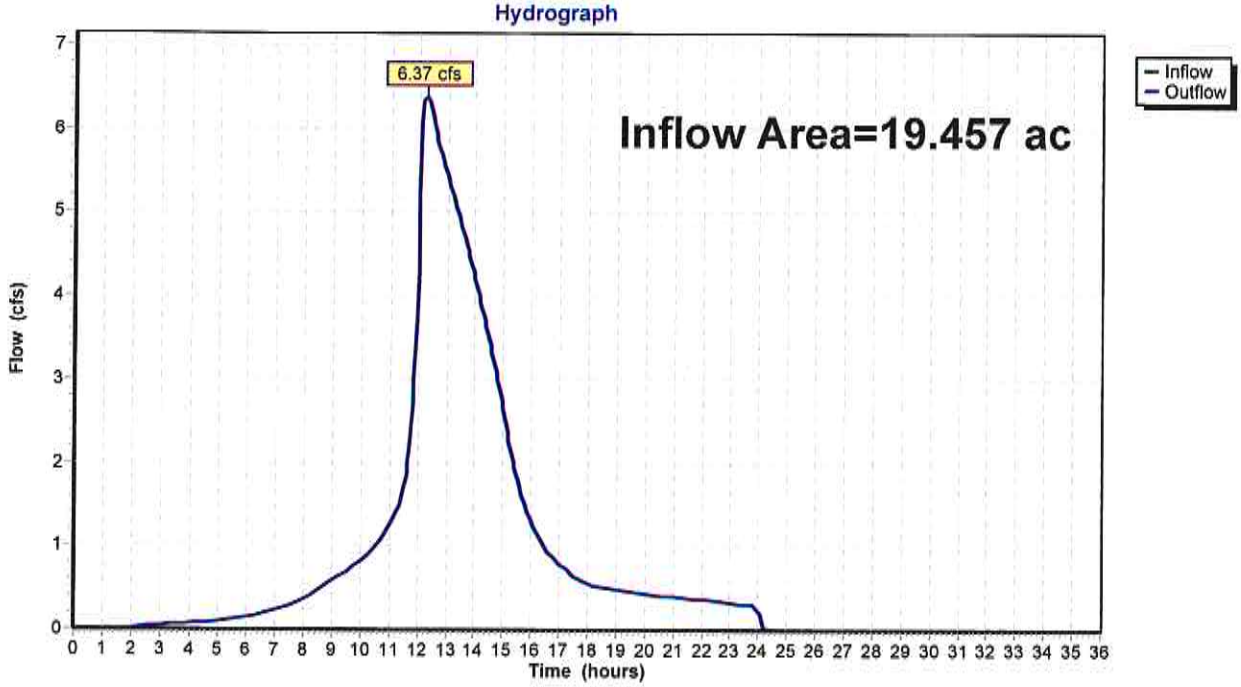


Summary for Reach P-POI: DEVELOPED

Inflow Area = 19.457 ac, 79.08% Impervious, Inflow Depth = 1.28" for 1-Year event
Inflow = 6.37 cfs @ 12.32 hrs, Volume= 2.079 af
Outflow = 6.37 cfs @ 12.32 hrs, Volume= 2.079 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Reach P-POI: DEVELOPED



Summary for Pond UFF#1: UP-FLO FILTER

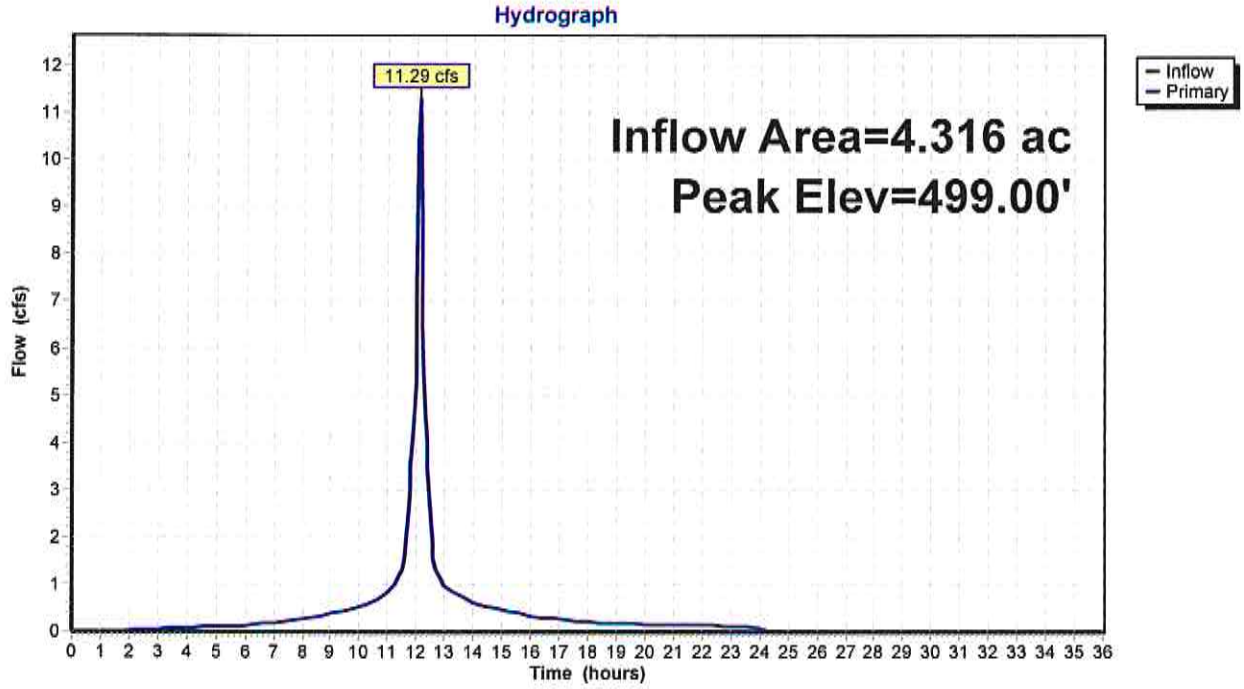
Inflow Area = 4.316 ac,100.00% Impervious, Inflow Depth = 2.54" for 1-Year event
Inflow = 11.29 cfs @ 12.09 hrs, Volume= 0.913 af
Outflow = 11.29 cfs @ 12.09 hrs, Volume= 0.913 af, Atten= 0%, Lag= 0.0 min
Primary = 11.29 cfs @ 12.09 hrs, Volume= 0.913 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 499.00' @ 12.09 hrs
Flood Elev= 500.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	496.50'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=10.99 cfs @ 12.09 hrs HW=498.92' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 10.99 cfs @ 6.22 fps)

Pond UFF#1: UP-FLO FILTER



Stage-Discharge for Pond UFF#1: UP-FLO FILTER

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
496.50	0.00	497.56	4.68	498.62	9.96	499.68	13.26
496.52	0.00	497.58	4.82	498.64	10.03	499.70	13.32
496.54	0.01	497.60	4.96	498.66	10.10	499.72	13.37
496.56	0.02	497.62	5.10	498.68	10.18	499.74	13.43
496.58	0.04	497.64	5.24	498.70	10.25	499.76	13.48
496.60	0.05	497.66	5.38	498.72	10.32	499.78	13.53
496.62	0.08	497.68	5.52	498.74	10.39	499.80	13.59
496.64	0.11	497.70	5.65	498.76	10.46	499.82	13.64
496.66	0.14	497.72	5.79	498.78	10.52	499.84	13.69
496.68	0.17	497.74	5.92	498.80	10.59	499.86	13.75
496.70	0.21	497.76	6.06	498.82	10.66	499.88	13.80
496.72	0.26	497.78	6.19	498.84	10.73	499.90	13.85
496.74	0.30	497.80	6.32	498.86	10.80	499.92	13.90
496.76	0.36	497.82	6.44	498.88	10.86	499.94	13.96
496.78	0.41	497.84	6.57	498.90	10.93	499.96	14.01
496.80	0.47	497.86	6.69	498.92	11.00	499.98	14.06
496.82	0.53	497.88	6.80	498.94	11.06	500.00	**14.11**
496.84	0.60	497.90	6.92	498.96	11.13		
496.86	0.67	497.92	7.02	498.98	11.19		
496.88	0.74	497.94	7.12	499.00	11.26		
496.90	0.81	497.96	7.22	499.02	11.32		
496.92	0.89	497.98	7.30	499.04	11.38		
496.94	0.98	498.00	7.37	499.06	11.45		
496.96	1.06	498.02	7.47	499.08	11.51		
496.98	1.15	498.04	7.56	499.10	11.57		
497.00	1.24	498.06	7.66	499.12	11.64		
497.02	1.34	498.08	7.75	499.14	11.70		
497.04	1.43	498.10	7.84	499.16	11.76		
497.06	1.53	498.12	7.94	499.18	11.82		
497.08	1.64	498.14	8.03	499.20	11.88		
497.10	1.74	498.16	8.12	499.22	11.94		
497.12	1.85	498.18	8.21	499.24	12.00		
497.14	1.96	498.20	8.29	499.26	12.06		
497.16	2.07	498.22	8.38	499.28	12.12		
497.18	2.19	498.24	8.47	499.30	12.18		
497.20	2.30	498.26	8.55	499.32	12.24		
497.22	2.42	498.28	8.64	499.34	12.30		
497.24	2.54	498.30	8.72	499.36	12.36		
497.26	2.67	498.32	8.80	499.38	12.42		
497.28	2.79	498.34	8.88	499.40	12.48		
497.30	2.92	498.36	8.96	499.42	12.53		
497.32	3.05	498.38	9.04	499.44	12.59		
497.34	3.18	498.40	9.12	499.46	12.65		
497.36	3.31	498.42	9.20	499.48	12.71		
497.38	3.44	498.44	9.28	499.50	12.76		
497.40	3.58	498.46	9.36	499.52	12.82		
497.42	3.71	498.48	9.44	499.54	12.88		
497.44	3.85	498.50	9.51	499.56	12.93		
497.46	3.98	498.52	9.59	499.58	12.99		
497.48	4.12	498.54	9.66	499.60	13.04		
497.50	4.26	498.56	9.74	499.62	13.10		
497.52	4.40	498.58	9.81	499.64	13.15		
497.54	4.54	498.60	9.89	499.66	13.21		

Stage-Area-Storage for Pond UFF#1: UP-FLO FILTER

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
496.50	**0**	497.56	0	498.62	0	499.68	0
496.52	0	497.58	0	498.64	0	499.70	0
496.54	0	497.60	0	498.66	0	499.72	0
496.56	0	497.62	0	498.68	0	499.74	0
496.58	0	497.64	0	498.70	0	499.76	0
496.60	0	497.66	0	498.72	0	499.78	0
496.62	0	497.68	0	498.74	0	499.80	0
496.64	0	497.70	0	498.76	0	499.82	0
496.66	0	497.72	0	498.78	0	499.84	0
496.68	0	497.74	0	498.80	0	499.86	0
496.70	0	497.76	0	498.82	0	499.88	0
496.72	0	497.78	0	498.84	0	499.90	0
496.74	0	497.80	0	498.86	0	499.92	0
496.76	0	497.82	0	498.88	0	499.94	0
496.78	0	497.84	0	498.90	0	499.96	0
496.80	0	497.86	0	498.92	0	499.98	0
496.82	0	497.88	0	498.94	0	500.00	0
496.84	0	497.90	0	498.96	0		
496.86	0	497.92	0	498.98	0		
496.88	0	497.94	0	499.00	0		
496.90	0	497.96	0	499.02	0		
496.92	0	497.98	0	499.04	0		
496.94	0	498.00	0	499.06	0		
496.96	0	498.02	0	499.08	0		
496.98	0	498.04	0	499.10	0		
497.00	0	498.06	0	499.12	0		
497.02	0	498.08	0	499.14	0		
497.04	0	498.10	0	499.16	0		
497.06	0	498.12	0	499.18	0		
497.08	0	498.14	0	499.20	0		
497.10	0	498.16	0	499.22	0		
497.12	0	498.18	0	499.24	0		
497.14	0	498.20	0	499.26	0		
497.16	0	498.22	0	499.28	0		
497.18	0	498.24	0	499.30	0		
497.20	0	498.26	0	499.32	0		
497.22	0	498.28	0	499.34	0		
497.24	0	498.30	0	499.36	0		
497.26	0	498.32	0	499.38	0		
497.28	0	498.34	0	499.40	0		
497.30	0	498.36	0	499.42	0		
497.32	0	498.38	0	499.44	0		
497.34	0	498.40	0	499.46	0		
497.36	0	498.42	0	499.48	0		
497.38	0	498.44	0	499.50	0		
497.40	0	498.46	0	499.52	0		
497.42	0	498.48	0	499.54	0		
497.44	0	498.50	0	499.56	0		
497.46	0	498.52	0	499.58	0		
497.48	0	498.54	0	499.60	0		
497.50	0	498.56	0	499.62	0		
497.52	0	498.58	0	499.64	0		
497.54	0	498.60	0	499.66	0		

Summary for Pond UFF#2: UP-FLO FILTER

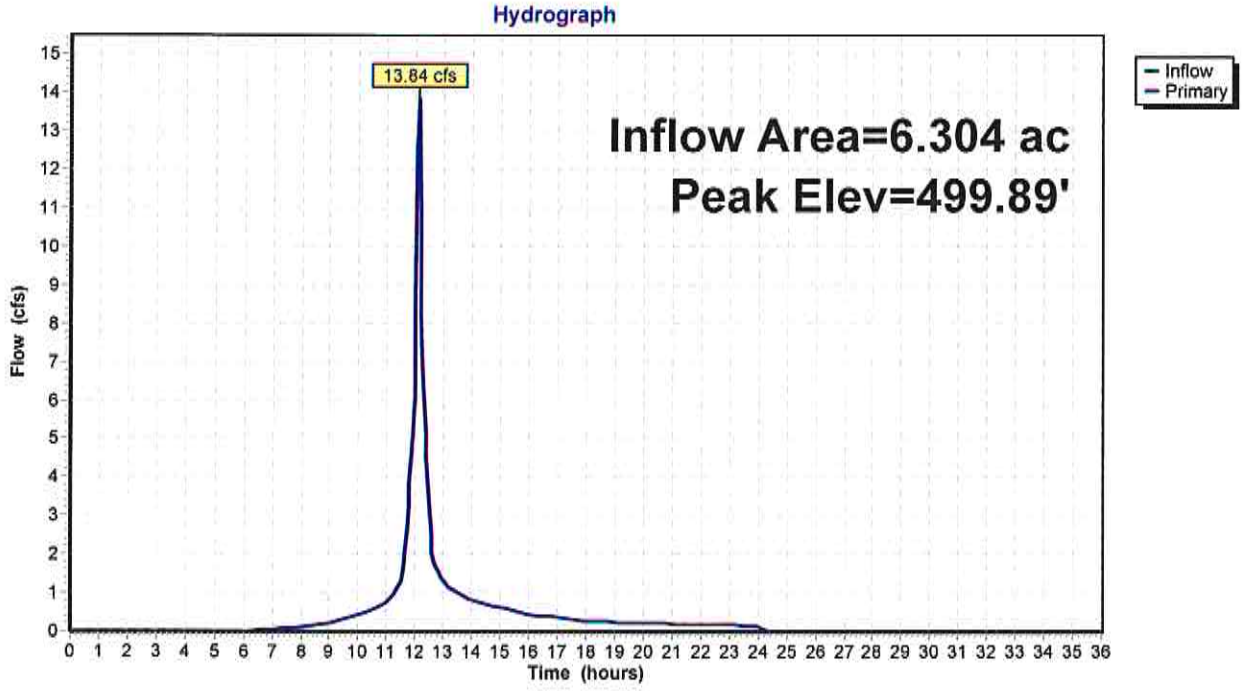
Inflow Area = 6.304 ac, 86.41% Impervious, Inflow Depth = 1.94" for 1-Year event
Inflow = 13.84 cfs @ 12.09 hrs, Volume= 1.022 af
Outflow = 13.84 cfs @ 12.09 hrs, Volume= 1.022 af, Atten= 0%, Lag= 0.0 min
Primary = 13.84 cfs @ 12.09 hrs, Volume= 1.022 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 499.89' @ 12.09 hrs
Flood Elev= 500.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	496.50'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=13.53 cfs @ 12.09 hrs HW=499.78' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 13.53 cfs @ 7.66 fps)

Pond UFF#2: UP-FLO FILTER



Stage-Discharge for Pond UFF#2: UP-FLO FILTER

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
496.50	0.00	497.56	4.68	498.62	9.96	499.68	13.26
496.52	0.00	497.58	4.82	498.64	10.03	499.70	13.32
496.54	0.01	497.60	4.96	498.66	10.10	499.72	13.37
496.56	0.02	497.62	5.10	498.68	10.18	499.74	13.43
496.58	0.04	497.64	5.24	498.70	10.25	499.76	13.48
496.60	0.05	497.66	5.38	498.72	10.32	499.78	13.53
496.62	0.08	497.68	5.52	498.74	10.39	499.80	13.59
496.64	0.11	497.70	5.65	498.76	10.46	499.82	13.64
496.66	0.14	497.72	5.79	498.78	10.52	499.84	13.69
496.68	0.17	497.74	5.92	498.80	10.59	499.86	13.75
496.70	0.21	497.76	6.06	498.82	10.66	499.88	13.80
496.72	0.26	497.78	6.19	498.84	10.73	499.90	13.85
496.74	0.30	497.80	6.32	498.86	10.80	499.92	13.90
496.76	0.36	497.82	6.44	498.88	10.86	499.94	13.96
496.78	0.41	497.84	6.57	498.90	10.93	499.96	14.01
496.80	0.47	497.86	6.69	498.92	11.00	499.98	14.06
496.82	0.53	497.88	6.80	498.94	11.06	500.00	**14.11**
496.84	0.60	497.90	6.92	498.96	11.13		
496.86	0.67	497.92	7.02	498.98	11.19		
496.88	0.74	497.94	7.12	499.00	11.26		
496.90	0.81	497.96	7.22	499.02	11.32		
496.92	0.89	497.98	7.30	499.04	11.38		
496.94	0.98	498.00	7.37	499.06	11.45		
496.96	1.06	498.02	7.47	499.08	11.51		
496.98	1.15	498.04	7.56	499.10	11.57		
497.00	1.24	498.06	7.66	499.12	11.64		
497.02	1.34	498.08	7.75	499.14	11.70		
497.04	1.43	498.10	7.84	499.16	11.76		
497.06	1.53	498.12	7.94	499.18	11.82		
497.08	1.64	498.14	8.03	499.20	11.88		
497.10	1.74	498.16	8.12	499.22	11.94		
497.12	1.85	498.18	8.21	499.24	12.00		
497.14	1.96	498.20	8.29	499.26	12.06		
497.16	2.07	498.22	8.38	499.28	12.12		
497.18	2.19	498.24	8.47	499.30	12.18		
497.20	2.30	498.26	8.55	499.32	12.24		
497.22	2.42	498.28	8.64	499.34	12.30		
497.24	2.54	498.30	8.72	499.36	12.36		
497.26	2.67	498.32	8.80	499.38	12.42		
497.28	2.79	498.34	8.88	499.40	12.48		
497.30	2.92	498.36	8.96	499.42	12.53		
497.32	3.05	498.38	9.04	499.44	12.59		
497.34	3.18	498.40	9.12	499.46	12.65		
497.36	3.31	498.42	9.20	499.48	12.71		
497.38	3.44	498.44	9.28	499.50	12.76		
497.40	3.58	498.46	9.36	499.52	12.82		
497.42	3.71	498.48	9.44	499.54	12.88		
497.44	3.85	498.50	9.51	499.56	12.93		
497.46	3.98	498.52	9.59	499.58	12.99		
497.48	4.12	498.54	9.66	499.60	13.04		
497.50	4.26	498.56	9.74	499.62	13.10		
497.52	4.40	498.58	9.81	499.64	13.15		
497.54	4.54	498.60	9.89	499.66	13.21		

Stage-Area-Storage for Pond UFF#2: UP-FLO FILTER

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
496.50	0	497.56	0	498.62	0	499.68	0
496.52	0	497.58	0	498.64	0	499.70	0
496.54	0	497.60	0	498.66	0	499.72	0
496.56	0	497.62	0	498.68	0	499.74	0
496.58	0	497.64	0	498.70	0	499.76	0
496.60	0	497.66	0	498.72	0	499.78	0
496.62	0	497.68	0	498.74	0	499.80	0
496.64	0	497.70	0	498.76	0	499.82	0
496.66	0	497.72	0	498.78	0	499.84	0
496.68	0	497.74	0	498.80	0	499.86	0
496.70	0	497.76	0	498.82	0	499.88	0
496.72	0	497.78	0	498.84	0	499.90	0
496.74	0	497.80	0	498.86	0	499.92	0
496.76	0	497.82	0	498.88	0	499.94	0
496.78	0	497.84	0	498.90	0	499.96	0
496.80	0	497.86	0	498.92	0	499.98	0
496.82	0	497.88	0	498.94	0	500.00	0
496.84	0	497.90	0	498.96	0		
496.86	0	497.92	0	498.98	0		
496.88	0	497.94	0	499.00	0		
496.90	0	497.96	0	499.02	0		
496.92	0	497.98	0	499.04	0		
496.94	0	498.00	0	499.06	0		
496.96	0	498.02	0	499.08	0		
496.98	0	498.04	0	499.10	0		
497.00	0	498.06	0	499.12	0		
497.02	0	498.08	0	499.14	0		
497.04	0	498.10	0	499.16	0		
497.06	0	498.12	0	499.18	0		
497.08	0	498.14	0	499.20	0		
497.10	0	498.16	0	499.22	0		
497.12	0	498.18	0	499.24	0		
497.14	0	498.20	0	499.26	0		
497.16	0	498.22	0	499.28	0		
497.18	0	498.24	0	499.30	0		
497.20	0	498.26	0	499.32	0		
497.22	0	498.28	0	499.34	0		
497.24	0	498.30	0	499.36	0		
497.26	0	498.32	0	499.38	0		
497.28	0	498.34	0	499.40	0		
497.30	0	498.36	0	499.42	0		
497.32	0	498.38	0	499.44	0		
497.34	0	498.40	0	499.46	0		
497.36	0	498.42	0	499.48	0		
497.38	0	498.44	0	499.50	0		
497.40	0	498.46	0	499.52	0		
497.42	0	498.48	0	499.54	0		
497.44	0	498.50	0	499.56	0		
497.46	0	498.52	0	499.58	0		
497.48	0	498.54	0	499.60	0		
497.50	0	498.56	0	499.62	0		
497.52	0	498.58	0	499.64	0		
497.54	0	498.60	0	499.66	0		

Summary for Pond UGSP#1: P-UG SOLID PIPE SYSTEM

Inflow Area = 10.620 ac, 91.93% Impervious, Inflow Depth = 2.19" for 1-Year event
Inflow = 25.12 cfs @ 12.09 hrs, Volume= 1.935 af
Outflow = 5.57 cfs @ 12.50 hrs, Volume= 1.935 af, Atten= 78%, Lag= 24.6 min
Primary = 5.57 cfs @ 12.50 hrs, Volume= 1.935 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 485.95' @ 12.50 hrs Surf.Area= 19,097 sf Storage= 25,537 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 36.9 min (819.4 - 782.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	483.60'	0 cf	**50.25'W x 380.00'L x 5.58'H Field A** 106,633 cf Overall - 78,356 cf Embedded = 28,277 cf x 0.0% Voids
#2A	483.60'	66,006 cf	**ADS N-12 60"** x 171 Inside #1 Inside= 59.5"W x 59.5"H => 19.30 sf x 20.00'L = 386.0 cf Outside= 67.0"W x 67.0"H => 22.92 sf x 20.00'L = 458.4 cf 9 Rows of 19 Chambers
		66,006 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	483.60'	**12.0" W x 10.0" H Vert. Orifice/Grate** C= 0.600
#2	Primary	486.00'	**4.5' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=5.57 cfs @ 12.50 hrs HW=485.95' (Free Discharge)
└─**1=Orifice/Grate** (Orifice Controls 5.57 cfs @ 6.68 fps)
└─**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond UGSP#1: P-UG SOLID PIPE SYSTEM - Chamber Wizard Field A

Chamber Model = ADS N-12 60" (ADS N-12® Pipe)
Inside= 59.5"W x 59.5"H => 19.30 sf x 20.00'L = 386.0 cf
Outside= 67.0"W x 67.0"H => 22.92 sf x 20.00'L = 458.4 cf

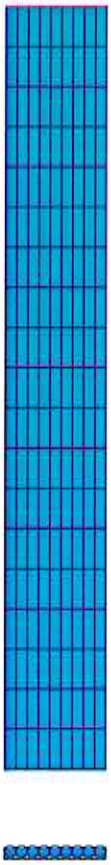
19 Chambers/Row x 20.00' Long = 380.00' Row Length
9 Rows x 67.0" Wide = 50.25' Base Width
67.0" Chamber Height = 5.58' Field Height

171 Chambers x 386.0 cf = 66,005.9 cf Chamber Storage
171 Chambers x 458.4 cf = 78,389.3 cf Displacement

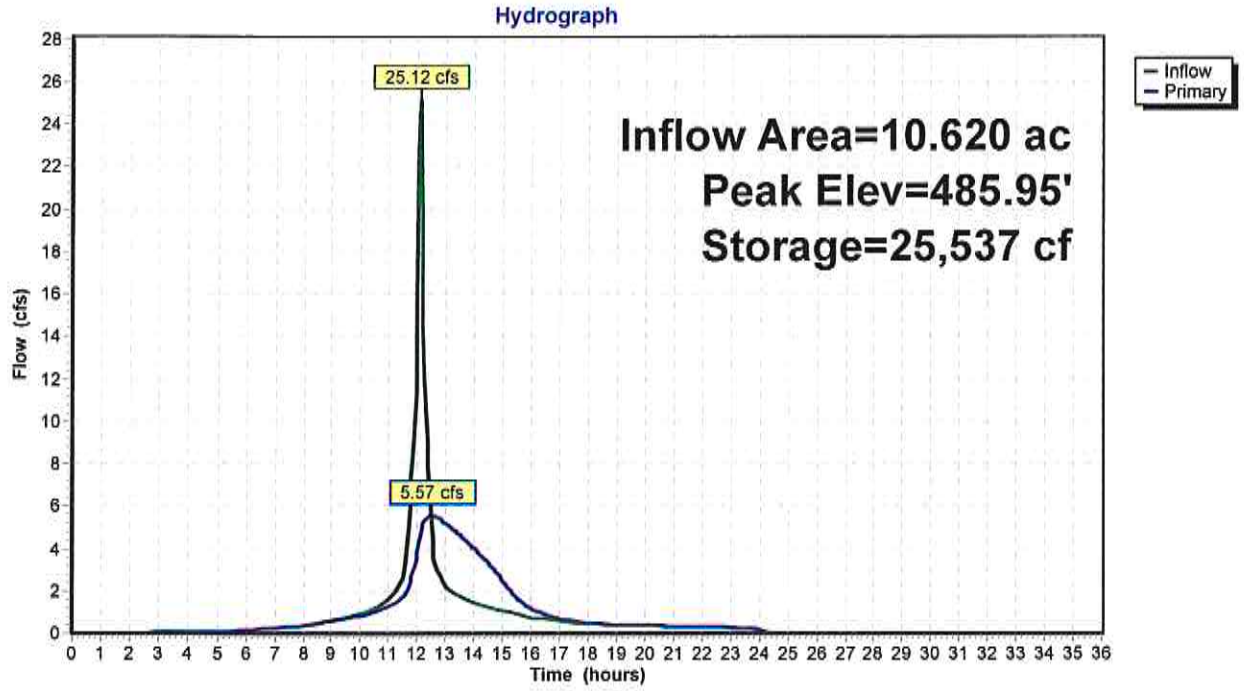
106,632.8 cf Field - 78,389.3 cf Chambers = 28,243.6 cf Stone x 0.0% Voids = 0.0 cf Stone Storage

Chamber Storage = 66,005.9 cf = 1.515 af
Overall Storage Efficiency = 61.9%
Overall System Size = 380.00' x 50.25' x 5.58'

171 Chambers
3,949.4 cy Field
1,046.1 cy Stone



Pond UGSP#1: P-UG SOLID PIPE SYSTEM



Stage-Discharge for Pond UGSP#1: P-UG SOLID PIPE SYSTEM

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
483.60	0.00	485.72	5.22	487.84	41.57
483.64	0.03	485.76	5.29	487.88	42.64
483.68	0.07	485.80	5.35	487.92	43.73
483.72	0.13	485.84	5.41	487.96	44.82
483.76	0.21	485.88	5.47	488.00	45.93
483.80	0.29	485.92	5.52	488.04	47.03
483.84	0.38	485.96	5.58	488.08	48.15
483.88	0.48	486.00	5.64	488.12	49.27
483.92	0.58	486.04	5.81	488.16	50.39
483.96	0.69	486.08	6.09	488.20	51.53
484.00	0.81	486.12	6.42	488.24	52.66
484.04	0.94	486.16	6.80	488.28	53.81
484.08	1.07	486.20	7.22	488.32	54.96
484.12	1.20	486.24	7.69	488.36	56.11
484.16	1.35	486.28	8.18	488.40	57.27
484.20	1.49	486.32	8.71	488.44	58.44
484.24	1.64	486.36	9.26	488.48	59.61
484.28	1.80	486.40	9.84	488.52	60.78
484.32	1.96	486.44	10.45	488.56	61.96
484.36	2.13	486.48	11.08	488.60	63.15
484.40	2.30	486.52	11.73	488.64	64.34
484.44	2.47	486.56	12.40	488.68	65.53
484.48	2.62	486.60	13.10	488.72	66.73
484.52	2.75	486.64	13.81	488.76	67.93
484.56	2.87	486.68	14.54	488.80	69.14
484.60	2.99	486.72	15.29	488.84	70.35
484.64	3.10	486.76	16.06	488.88	71.56
484.68	3.21	486.80	16.84	488.92	72.78
484.72	3.31	486.84	17.64	488.96	74.00
484.76	3.41	486.88	18.46	489.00	75.22
484.80	3.51	486.92	19.29	489.04	76.45
484.84	3.60	486.96	20.13	489.08	77.68
484.88	3.69	487.00	20.99	489.12	78.91
484.92	3.78	487.04	21.86	489.16	**80.15**
484.96	3.86	487.08	22.74		
485.00	3.95	487.12	23.64		
485.04	4.03	487.16	24.55		
485.08	4.11	487.20	25.47		
485.12	4.19	487.24	26.40		
485.16	4.27	487.28	27.34		
485.20	4.34	487.32	28.29		
485.24	4.42	487.36	29.26		
485.28	4.49	487.40	30.23		
485.32	4.56	487.44	31.22		
485.36	4.63	487.48	32.21		
485.40	4.70	487.52	33.22		
485.44	4.77	487.56	34.23		
485.48	4.84	487.60	35.25		
485.52	4.90	487.64	36.29		
485.56	4.97	487.68	37.33		
485.60	5.03	487.72	38.37		
485.64	5.10	487.76	39.43		
485.68	5.16	487.80	40.49		

Stage-Area-Storage for Pond UGSP#1: P-UG SOLID PIPE SYSTEM

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
483.60	0	485.72	21,753	487.84	56,074
483.64	0	485.76	22,407	487.88	56,621
483.68	0	485.80	23,064	487.92	57,159
483.72	0	485.84	23,724	487.96	57,689
483.76	0	485.88	24,386	488.00	58,209
483.80	0	485.92	25,051	488.04	58,720
483.84	0	485.96	25,718	488.08	59,222
483.88	0	486.00	26,386	488.12	59,713
483.92	33	486.04	27,057	488.16	60,194
483.96	99	486.08	27,729	488.20	60,664
484.00	258	486.12	28,402	488.24	61,122
484.04	453	486.16	29,077	488.28	61,567
484.08	683	486.20	29,753	488.32	62,000
484.12	942	486.24	30,429	488.36	62,419
484.16	1,225	486.28	31,106	488.40	62,824
484.20	1,531	486.32	31,784	488.44	63,214
484.24	1,857	486.36	32,462	488.48	63,588
484.28	2,203	486.40	33,140	488.52	63,944
484.32	2,567	486.44	33,818	488.56	64,282
484.36	2,947	486.48	34,496	488.60	64,601
484.40	3,343	486.52	35,173	488.64	64,898
484.44	3,754	486.56	35,850	488.68	65,171
484.48	4,179	486.60	36,527	488.72	65,418
484.52	4,617	486.64	37,202	488.76	65,635
484.56	5,068	486.68	37,876	488.80	65,817
484.60	5,531	486.72	38,549	488.84	65,947
484.64	6,005	486.76	39,220	488.88	**66,024**
484.68	6,490	486.80	39,890	488.92	**66,006**
484.72	6,985	486.84	40,558	488.96	66,006
484.76	7,491	486.88	41,224	489.00	66,006
484.80	8,006	486.92	41,888	489.04	66,006
484.84	8,530	486.96	42,549	489.08	66,006
484.88	9,063	487.00	43,208	489.12	66,006
484.92	9,605	487.04	43,864	489.16	66,006
484.96	10,155	487.08	44,517		
485.00	10,712	487.12	45,167		
485.04	11,277	487.16	45,813		
485.08	11,849	487.20	46,456		
485.12	12,427	487.24	47,095		
485.16	13,013	487.28	47,730		
485.20	13,604	487.32	48,361		
485.24	14,202	487.36	48,988		
485.28	14,805	487.40	49,610		
485.32	15,414	487.44	50,227		
485.36	16,028	487.48	50,839		
485.40	16,647	487.52	51,445		
485.44	17,271	487.56	52,046		
485.48	17,899	487.60	52,642		
485.52	18,532	487.64	53,231		
485.56	19,169	487.68	53,813		
485.60	19,809	487.72	54,389		
485.64	20,454	487.76	54,958		
485.68	21,102	487.80	55,520		

Summary for Pond UIS: P-UG INFILTRATION SYSTEM

Inflow Area = 5.188 ac,100.00% Impervious, Inflow Depth = 2.54" for 1-Year event
Inflow = 13.57 cfs @ 12.09 hrs, Volume= 1.098 af
Outflow = 4.98 cfs @ 12.34 hrs, Volume= 1.098 af, Atten= 63%, Lag= 15.0 min
Discarded = 4.98 cfs @ 12.34 hrs, Volume= 1.098 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 482.08' @ 12.34 hrs Surf.Area= 8,304 sf Storage= 7,342 cf

Plug-Flow detention time= 7.5 min calculated for 1.096 af (100% of inflow)
Center-of-Mass det. time= 7.4 min (767.0 - 759.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	480.50'	12,410 cf	**38.50'W x 215.70'L x 6.00'H Field A** 49,827 cf Overall - 18,801 cf Embedded = 31,026 cf x 40.0% Voids
#2A	481.50'	18,801 cf	**Cultec R-902HD** x 290 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 5 Rows of 58 Chambers Cap Storage= +2.8 cf x 2 x 5 rows = 27.6 cf
		31,211 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	480.50'	**17.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 477.50' Phase-In= 0.01'
#2	Primary	485.20'	**5.5' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=4.98 cfs @ 12.34 hrs HW=482.07' (Free Discharge)
↑**1=Exfiltration** (Controls 4.98 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=480.50' (Free Discharge)
↑**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond UIS: P-UG INFILTRATION SYSTEM - Chamber Wizard Field A

Chamber Model = Cultec R-902HD (Cultec Recharger® 902HD)
Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf
Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap
Cap Storage= +2.8 cf x 2 x 5 rows = 27.6 cf

78.0" Wide + 12.0" Spacing = 90.0" C-C Row Spacing

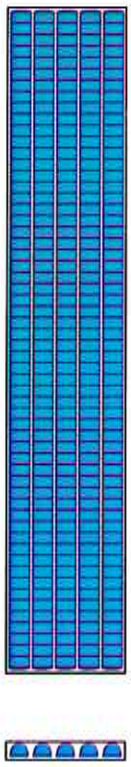
58 Chambers/Row x 3.67' Long +0.52' Cap Length x 2 = 213.70' Row Length +12.0" End Stone x 2 = 215.70' Base Length
5 Rows x 78.0" Wide + 12.0" Spacing x 4 + 12.0" Side Stone x 2 = 38.50' Base Width
12.0" Base + 48.0" Chamber Height + 12.0" Cover = 6.00' Field Height

290 Chambers x 64.7 cf + 2.8 cf Cap Volume x 2 x 5 Rows = 18,800.8 cf Chamber Storage

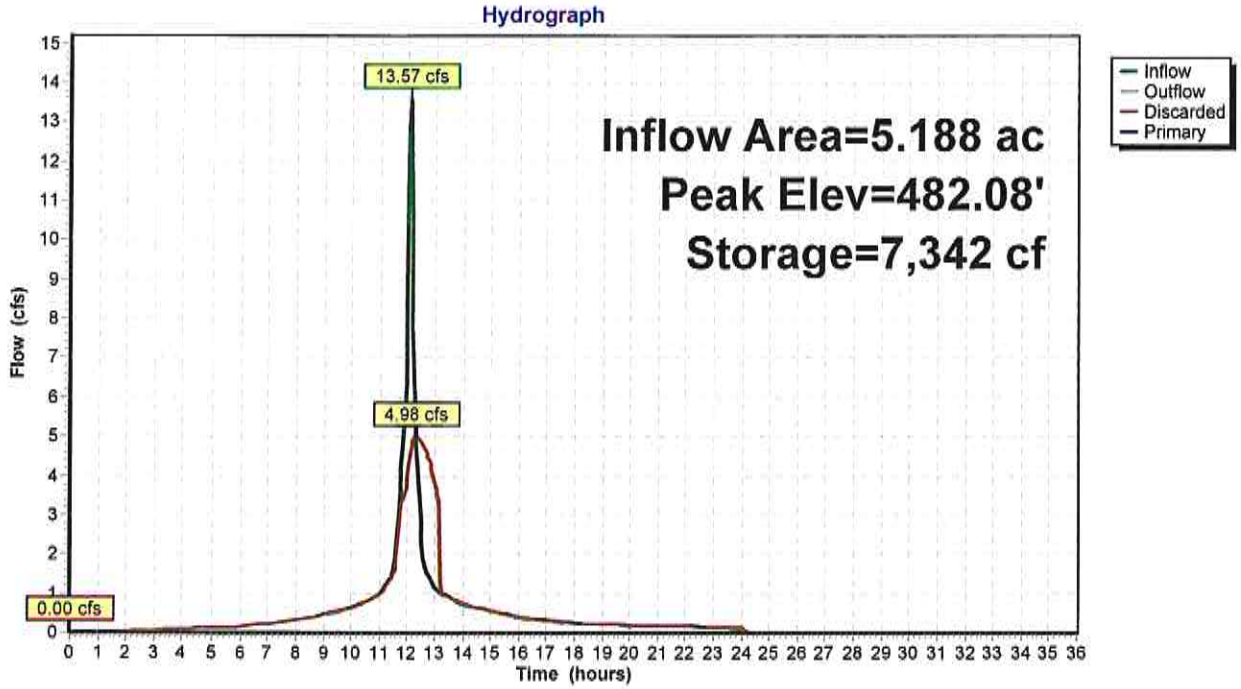
49,826.7 cf Field - 18,800.8 cf Chambers = 31,025.9 cf Stone x 40.0% Voids = 12,410.4 cf Stone Storage

Chamber Storage + Stone Storage = 31,211.1 cf = 0.717 af
Overall Storage Efficiency = 62.6%
Overall System Size = 215.70' x 38.50' x 6.00'

290 Chambers
1,845.4 cy Field
1,149.1 cy Stone



Pond UIS: P-UG INFILTRATION SYSTEM



Stage-Discharge for Pond UIS: P-UG INFILTRATION SYSTEM

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
480.50	0.00	0.00	0.00
480.60	3.38	3.38	0.00
480.70	3.49	3.49	0.00
480.80	3.59	3.59	0.00
480.90	3.70	3.70	0.00
481.00	3.81	3.81	0.00
481.10	3.92	3.92	0.00
481.20	4.03	4.03	0.00
481.30	4.14	4.14	0.00
481.40	4.25	4.25	0.00
481.50	4.36	4.36	0.00
481.60	4.47	4.47	0.00
481.70	4.58	4.58	0.00
481.80	4.68	4.68	0.00
481.90	4.79	4.79	0.00
482.00	4.90	4.90	0.00
482.10	5.01	5.01	0.00
482.20	5.12	5.12	0.00
482.30	5.23	5.23	0.00
482.40	5.34	5.34	0.00
482.50	5.45	5.45	0.00
482.60	5.56	5.56	0.00
482.70	5.66	5.66	0.00
482.80	5.77	5.77	0.00
482.90	5.88	5.88	0.00
483.00	5.99	5.99	0.00
483.10	6.10	6.10	0.00
483.20	6.21	6.21	0.00
483.30	6.32	6.32	0.00
483.40	6.43	6.43	0.00
483.50	6.54	6.54	0.00
483.60	6.64	6.64	0.00
483.70	6.75	6.75	0.00
483.80	6.86	6.86	0.00
483.90	6.97	6.97	0.00
484.00	7.08	7.08	0.00
484.10	7.19	7.19	0.00
484.20	7.30	7.30	0.00
484.30	7.41	7.41	0.00
484.40	7.52	7.52	0.00
484.50	7.63	7.63	0.00
484.60	7.73	7.73	0.00
484.70	7.84	7.84	0.00
484.80	7.95	7.95	0.00
484.90	8.06	8.06	0.00
485.00	8.17	8.17	0.00
485.10	8.28	8.28	0.00
485.20	8.39	8.39	0.00
485.30	9.06	8.50	0.57
485.40	10.20	8.61	1.60
485.50	11.64	8.71	2.92
485.60	13.31	8.82	4.48
485.70	15.18	8.93	6.24
485.80	17.22	9.04	8.18
485.90	19.42	9.15	10.27
486.00	21.75	9.26	12.49
486.10	24.22	9.37	14.85
486.20	26.81	9.48	17.33
486.30	29.51	9.59	19.92
486.40	32.31	9.69	22.61
486.50	**35.20**	**9.80**	**25.40**

Stage-Area-Storage for Pond UIS: P-UG INFILTRATION SYSTEM

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
480.50	**8,304**	0
480.60	8,304	332
480.70	8,304	664
480.80	8,304	997
480.90	8,304	1,329
481.00	8,304	1,661
481.10	8,304	1,993
481.20	8,304	2,325
481.30	8,304	2,657
481.40	8,304	2,990
481.50	8,304	3,322
481.60	8,304	4,022
481.70	8,304	4,725
481.80	8,304	5,425
481.90	8,304	6,122
482.00	8,304	6,816
482.10	8,304	7,509
482.20	8,304	8,201
482.30	8,304	8,890
482.40	8,304	9,574
482.50	8,304	10,255
482.60	8,304	10,936
482.70	8,304	11,614
482.80	8,304	12,287
482.90	8,304	12,957
483.00	8,304	13,625
483.10	8,304	14,289
483.20	8,304	14,950
483.30	8,304	15,608
483.40	8,304	16,263
483.50	8,304	16,915
483.60	8,304	17,561
483.70	8,304	18,204
483.80	8,304	18,842
483.90	8,304	19,473
484.00	8,304	20,099
484.10	8,304	20,717
484.20	8,304	21,327
484.30	8,304	21,931
484.40	8,304	22,522
484.50	8,304	23,104
484.60	8,304	23,675
484.70	8,304	24,232
484.80	8,304	24,775
484.90	8,304	25,303
485.00	8,304	25,813
485.10	8,304	26,300
485.20	8,304	26,753
485.30	8,304	27,166
485.40	8,304	27,540
485.50	8,304	27,889
485.60	8,304	28,222
485.70	8,304	28,554
485.80	8,304	28,886
485.90	8,304	29,218
486.00	8,304	29,550
486.10	8,304	29,882
486.20	8,304	30,215
486.30	8,304	30,547
486.40	8,304	30,879
486.50	8,304	**31,211**

Time span=0.00-36.00 hrs, dt=0.05 hrs, 721 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment WS#1: EXISTING Runoff Area=19.457 ac 0.00% Impervious Runoff Depth=1.76"
Tc=6.0 min CN=66 Runoff=37.98 cfs 2.857 af

Subcatchment WS#1A: 55% ROOFTOP Runoff Area=5.188 ac 100.00% Impervious Runoff Depth=4.81"
Tc=6.0 min CN=98 Runoff=25.03 cfs 2.081 af

Subcatchment WS#1B: 44% ROOFTOP Runoff Area=4.316 ac 100.00% Impervious Runoff Depth=4.81"
Tc=6.0 min CN=98 Runoff=20.82 cfs 1.731 af

Subcatchment WS#1C: LOADING AREA & ROAD Runoff Area=6.304 ac 86.41% Impervious Runoff Depth=4.14"
Tc=6.0 min CN=92 Runoff=28.35 cfs 2.174 af

Subcatchment WS#1D: ACCESS ROAD & GRASS Runoff Area=3.649 ac 11.92% Impervious Runoff Depth=1.84"
Tc=6.0 min CN=67 Runoff=7.48 cfs 0.559 af

Reach E-POI: EXISTING Inflow=37.98 cfs 2.857 af
Outflow=37.98 cfs 2.857 af

Reach P-POI: DEVELOPED Inflow=26.78 cfs 4.464 af
Outflow=26.78 cfs 4.464 af

Pond UFF#1: UP-FLO FILTER Peak Elev=503.22' Inflow=20.82 cfs 1.731 af
Outflow=20.82 cfs 1.731 af

Pond UFF#2: UP-FLO FILTER Peak Elev=508.31' Inflow=28.35 cfs 2.174 af
Outflow=28.35 cfs 2.174 af

Pond UGSP#1: P-UG SOLID PIPE SYSTEM Peak Elev=487.08' Storage=44,456 cf Inflow=49.17 cfs 3.905 af
Outflow=22.66 cfs 3.905 af

Pond UIS: P-UG INFILTRATIONSYSTEM Peak Elev=483.93' Storage=19,692 cf Inflow=25.03 cfs 2.081 af
Discarded=7.01 cfs 2.081 af Primary=0.00 cfs 0.000 af Outflow=7.01 cfs 2.081 af

Total Runoff Area = 38.914 ac Runoff Volume = 9.401 af Average Runoff Depth = 2.90"
60.46% Pervious = 23.528 ac 39.54% Impervious = 15.386 ac

Summary for Subcatchment WS#1: EXISTING

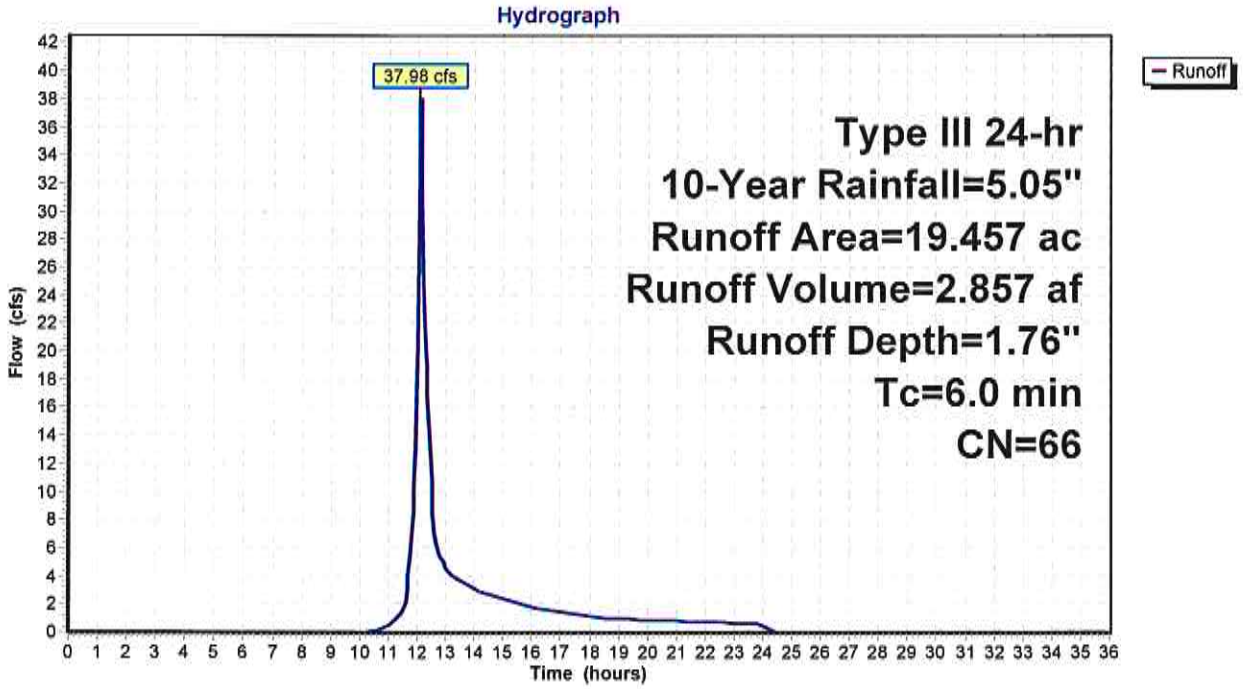
Runoff = 37.98 cfs @ 12.10 hrs, Volume= 2.857 af, Depth= 1.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.05"

	Area (ac)	CN	Description
	5.535	39	>75% Grass cover, Good, HSG A
	9.969	74	>75% Grass cover, Good, HSG C
	2.754	80	>75% Grass cover, Good, HSG D
*	0.076	72	Dirt, HSG A
	1.065	87	Dirt roads, HSG C
	0.058	89	Dirt roads, HSG D
	19.457	66	Weighted Average
	19.457		100.00% Pervious Area

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

Subcatchment WS#1: EXISTING



Summary for Subcatchment WS#1A: 55% ROOFTOP

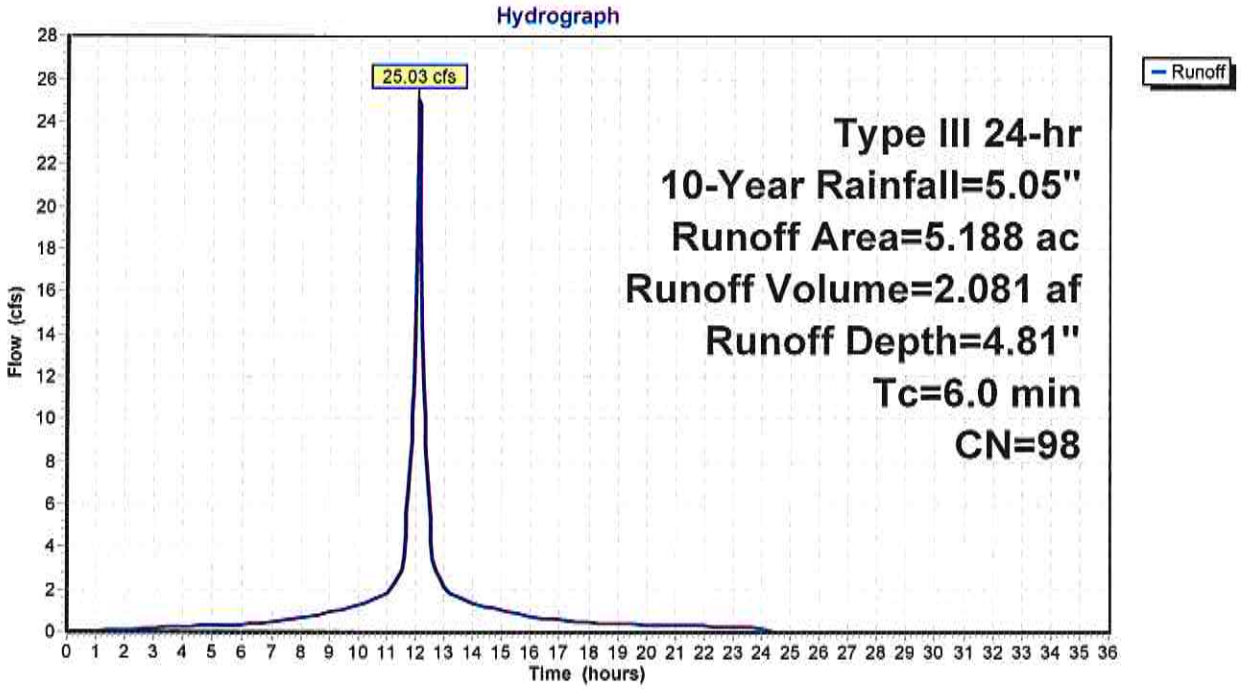
Runoff = 25.03 cfs @ 12.09 hrs, Volume= 2.081 af, Depth= 4.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.05"

	Area (ac)	CN	Description
*	5.188	98	Rooftop, HSG A, C, D
	5.188		100.00% Impervious Area

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

Subcatchment WS#1A: 55% ROOFTOP



Summary for Subcatchment WS#1B: 44% ROOFTOP

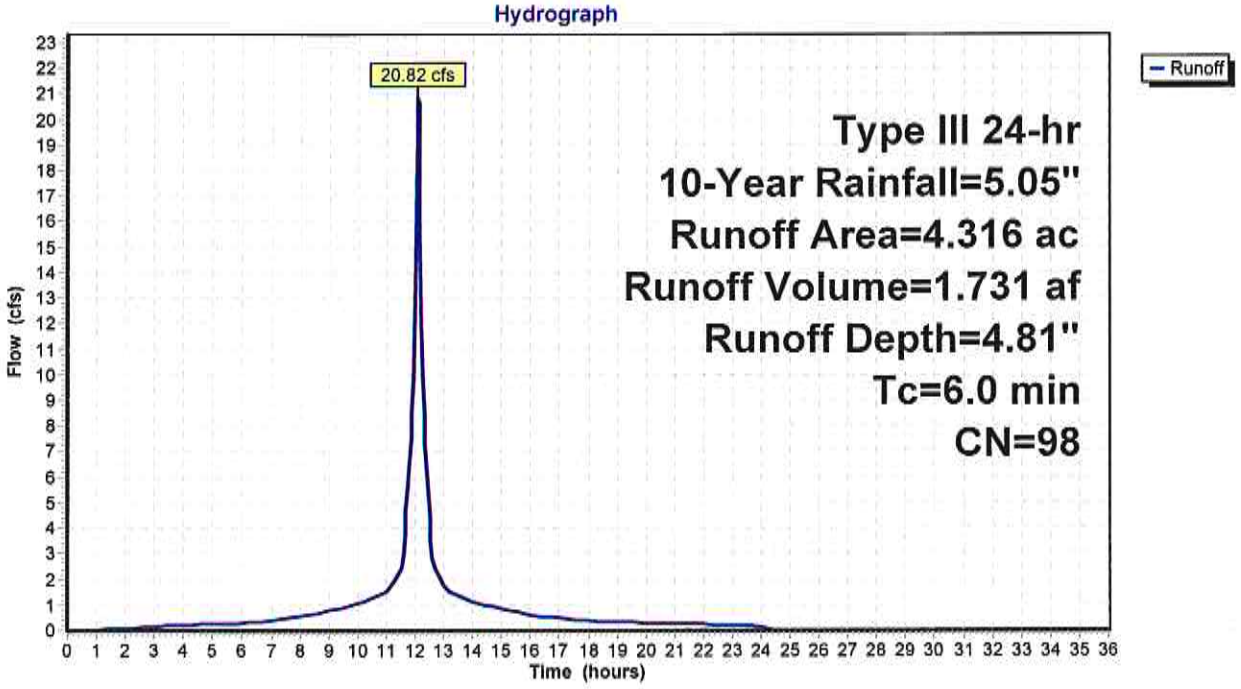
Runoff = 20.82 cfs @ 12.09 hrs, Volume= 1.731 af, Depth= 4.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.05"

	Area (ac)	CN	Description
*	4.316	98	Rooftop, HSG A, C, D
	4.316		100.00% Impervious Area

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

Subcatchment WS#1B: 44% ROOFTOP



Summary for Subcatchment WS#1C: LOADING AREA & ROAD

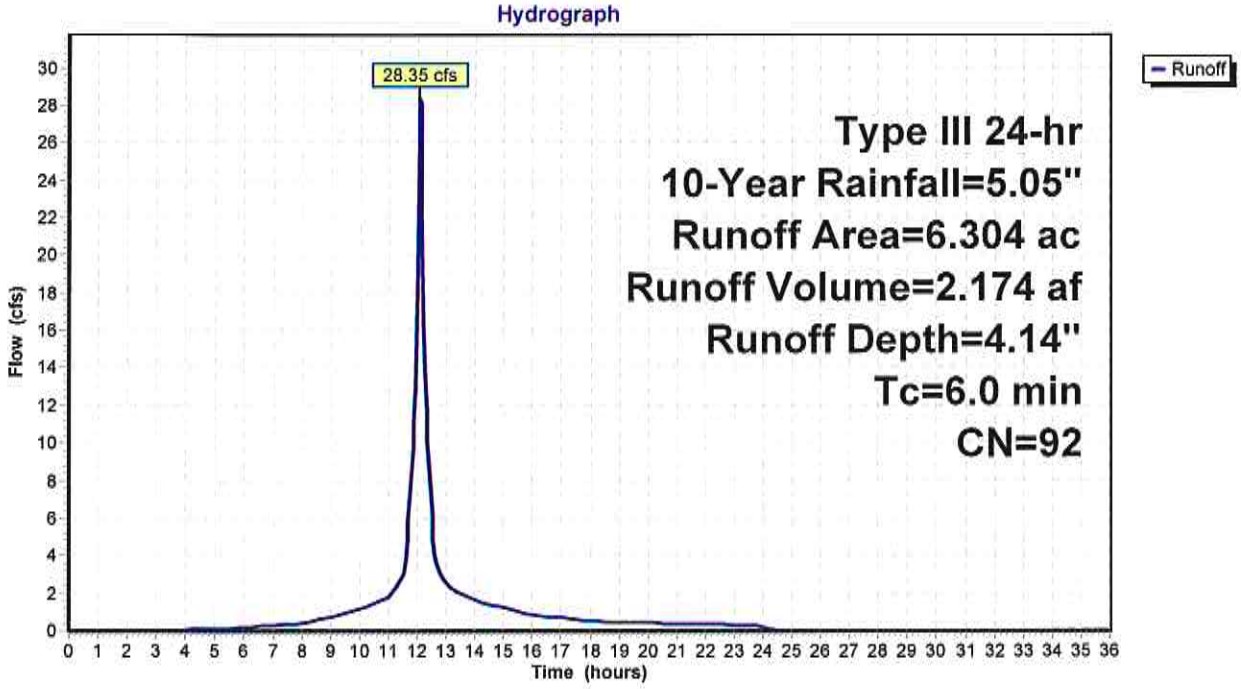
Runoff = 28.35 cfs @ 12.09 hrs, Volume= 2.174 af, Depth= 4.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.05"

	Area (ac)	CN	Description
*	5.447	98	Impervious Cover, HSG A, C, D
	0.408	39	>75% Grass cover, Good, HSG A
	0.449	74	>75% Grass cover, Good, HSG C
	6.304	92	Weighted Average
	0.857		13.59% Pervious Area
	5.447		86.41% Impervious Area

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

Subcatchment WS#1C: LOADING AREA & ROAD



Summary for Subcatchment WS#1D: ACCESS ROAD & GRASS COVER

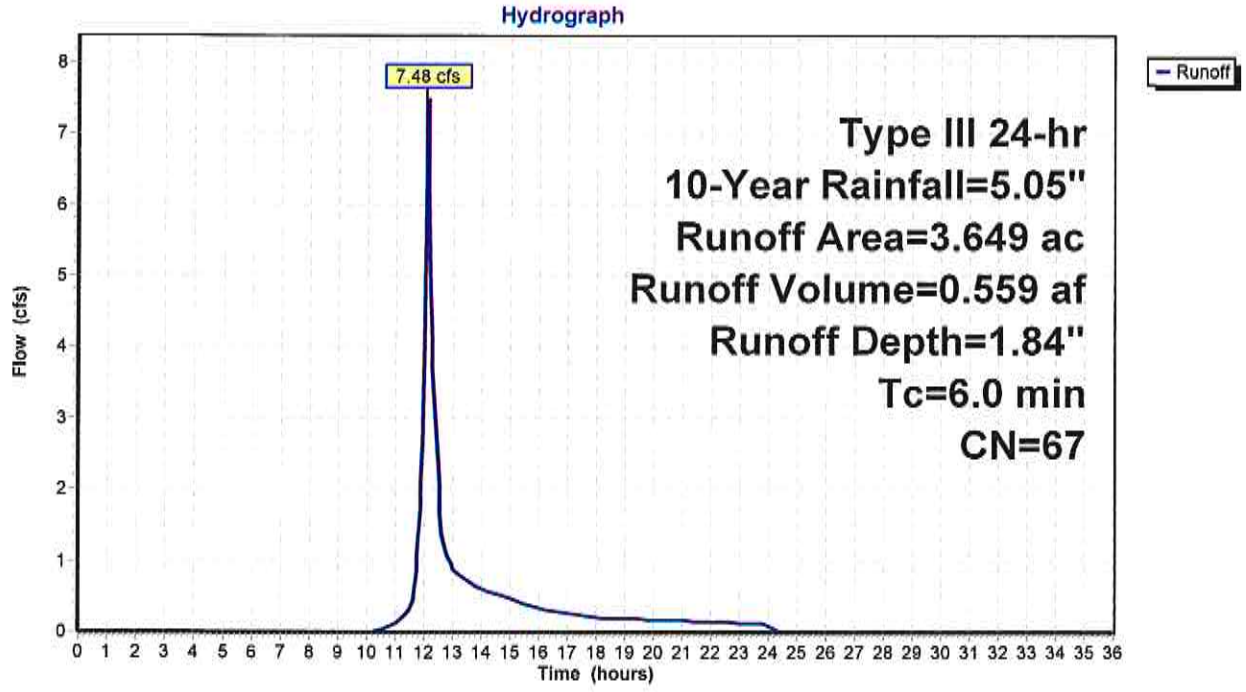
Runoff = 7.48 cfs @ 12.10 hrs, Volume= 0.559 af, Depth= 1.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.05"

	Area (ac)	CN	Description
*	0.435	98	Impervious Cover, HSG. A, C & D
	1.176	39	>75% Grass cover, Good, HSG A
	1.370	74	>75% Grass cover, Good, HSG C
	0.668	80	>75% Grass cover, Good, HSG D
	3.649	67	Weighted Average
	3.214		88.08% Pervious Area
	0.435		11.92% Impervious Area

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

Subcatchment WS#1D: ACCESS ROAD & GRASS COVER

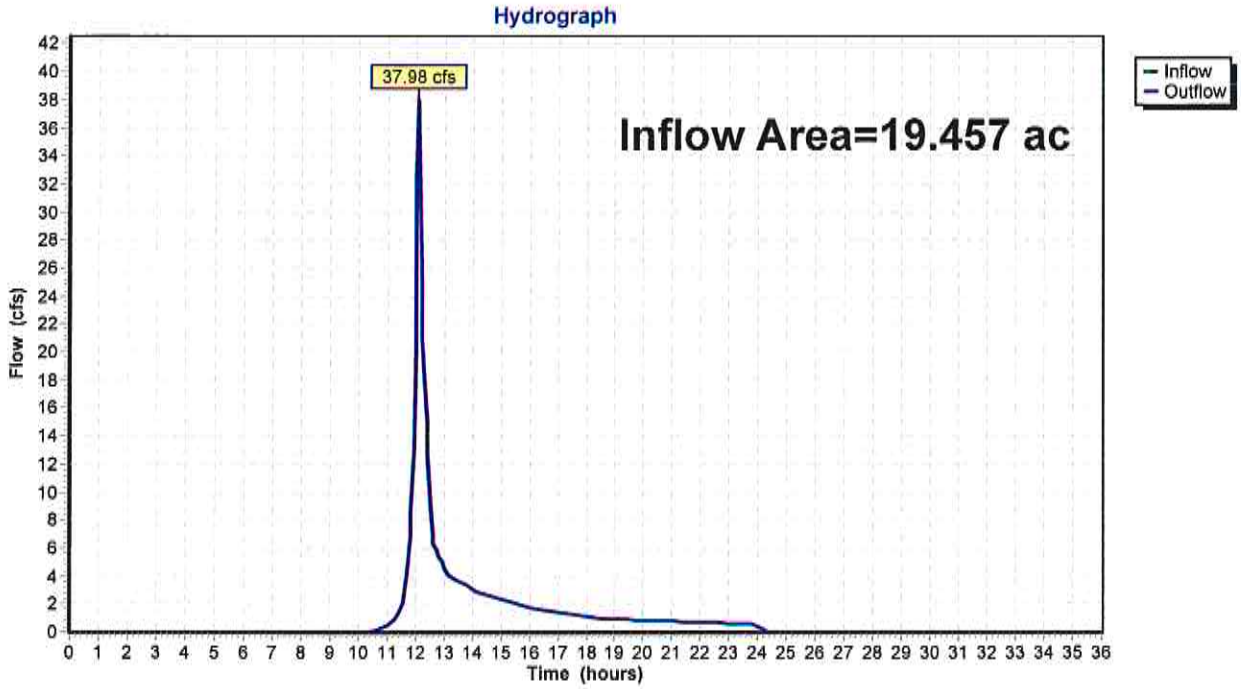


Summary for Reach E-POI: EXISTING

Inflow Area = 19.457 ac, 0.00% Impervious, Inflow Depth = 1.76" for 10-Year event
Inflow = 37.98 cfs @ 12.10 hrs, Volume= 2.857 af
Outflow = 37.98 cfs @ 12.10 hrs, Volume= 2.857 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Reach E-POI: EXISTING

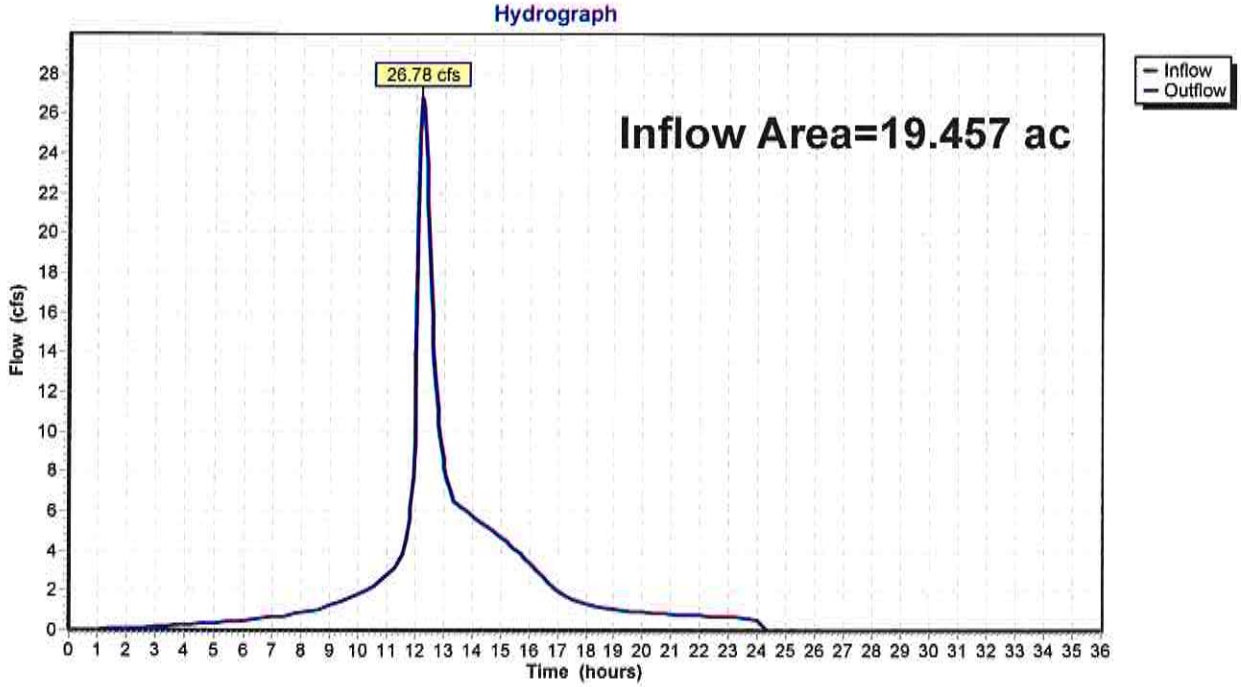


Summary for Reach P-POI: DEVELOPED

Inflow Area = 19.457 ac, 79.08% Impervious, Inflow Depth = 2.75" for 10-Year event
Inflow = 26.78 cfs @ 12.23 hrs, Volume= 4.464 af
Outflow = 26.78 cfs @ 12.23 hrs, Volume= 4.464 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Reach P-POI: DEVELOPED



Summary for Pond UFF#1: UP-FLO FILTER

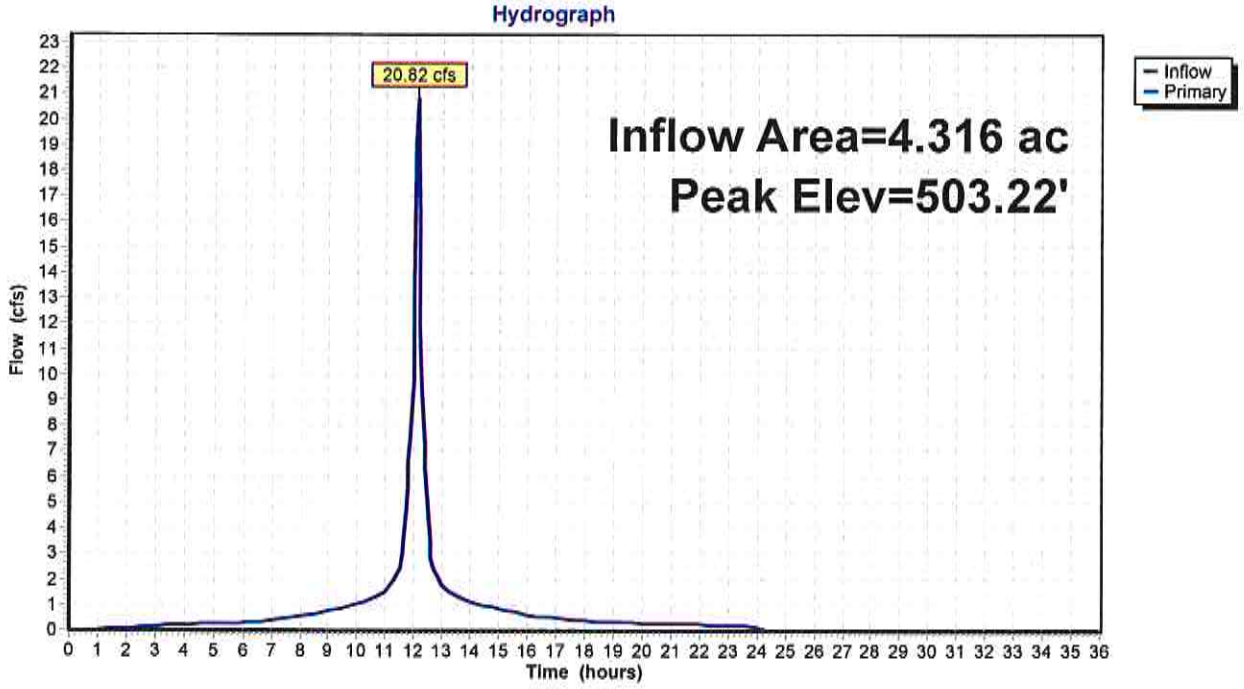
Inflow Area = 4.316 ac,100.00% Impervious, Inflow Depth = 4.81" for 10-Year event
Inflow = 20.82 cfs @ 12.09 hrs, Volume= 1.731 af
Outflow = 20.82 cfs @ 12.09 hrs, Volume= 1.731 af, Atten= 0%, Lag= 0.0 min
Primary = 20.82 cfs @ 12.09 hrs, Volume= 1.731 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 503.22' @ 12.09 hrs
Flood Elev= 500.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	496.50'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=20.27 cfs @ 12.09 hrs HW=502.92' (Free Discharge)
1=Orifice/Grate (Orifice Controls 20.27 cfs @ 11.47 fps)

Pond UFF#1: UP-FLO FILTER



Stage-Discharge for Pond UFF#1: UP-FLO FILTER

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
496.50	0.00	498.62	9.96	500.74	15.90	502.86	20.15
496.54	0.01	498.66	10.10	500.78	15.99	502.90	20.23
496.58	0.04	498.70	10.25	500.82	16.08	502.94	20.30
496.62	0.08	498.74	10.39	500.86	16.17	502.98	20.37
496.66	0.14	498.78	10.52	500.90	16.26	503.02	20.44
496.70	0.21	498.82	10.66	500.94	16.34	503.06	20.51
496.74	0.30	498.86	10.80	500.98	16.43	503.10	20.58
496.78	0.41	498.90	10.93	501.02	16.52	503.14	**20.65**
496.82	0.53	498.94	11.06	501.06	16.61		
496.86	0.67	498.98	11.19	501.10	16.70		
496.90	0.81	499.02	11.32	501.14	16.78		
496.94	0.98	499.06	11.45	501.18	16.87		
496.98	1.15	499.10	11.57	501.22	16.95		
497.02	1.34	499.14	11.70	501.26	17.04		
497.06	1.53	499.18	11.82	501.30	17.12		
497.10	1.74	499.22	11.94	501.34	17.21		
497.14	1.96	499.26	12.06	501.38	17.29		
497.18	2.19	499.30	12.18	501.42	17.38		
497.22	2.42	499.34	12.30	501.46	17.46		
497.26	2.67	499.38	12.42	501.50	17.54		
497.30	2.92	499.42	12.53	501.54	17.62		
497.34	3.18	499.46	12.65	501.58	17.71		
497.38	3.44	499.50	12.76	501.62	17.79		
497.42	3.71	499.54	12.88	501.66	17.87		
497.46	3.98	499.58	12.99	501.70	17.95		
497.50	4.26	499.62	13.10	501.74	18.03		
497.54	4.54	499.66	13.21	501.78	18.11		
497.58	4.82	499.70	13.32	501.82	18.19		
497.62	5.10	499.74	13.43	501.86	18.27		
497.66	5.38	499.78	13.53	501.90	18.35		
497.70	5.65	499.82	13.64	501.94	18.43		
497.74	5.92	499.86	13.75	501.98	18.51		
497.78	6.19	499.90	13.85	502.02	18.58		
497.82	6.44	499.94	13.96	502.06	18.66		
497.86	6.69	499.98	14.06	502.10	18.74		
497.90	6.92	500.02	14.16	502.14	18.82		
497.94	7.12	500.06	14.26	502.18	18.89		
497.98	7.30	500.10	14.36	502.22	18.97		
498.02	7.47	500.14	14.46	502.26	19.05		
498.06	7.66	500.18	14.56	502.30	19.12		
498.10	7.84	500.22	14.66	502.34	19.20		
498.14	8.03	500.26	14.76	502.38	19.27		
498.18	8.21	500.30	14.86	502.42	19.35		
498.22	8.38	500.34	14.96	502.46	19.42		
498.26	8.55	500.38	15.05	502.50	19.50		
498.30	8.72	500.42	15.15	502.54	19.57		
498.34	8.88	500.46	15.24	502.58	19.64		
498.38	9.04	500.50	15.34	502.62	19.72		
498.42	9.20	500.54	15.43	502.66	19.79		
498.46	9.36	500.58	15.53	502.70	19.86		
498.50	9.51	500.62	15.62	502.74	19.94		
498.54	9.66	500.66	15.71	502.78	20.01		
498.58	9.81	500.70	15.80	502.82	20.08		

Stage-Area-Storage for Pond UFF#1: UP-FLO FILTER

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
496.50	**0**	498.62	0	500.74	0	502.86	0
496.54	0	498.66	0	500.78	0	502.90	0
496.58	0	498.70	0	500.82	0	502.94	0
496.62	0	498.74	0	500.86	0	502.98	0
496.66	0	498.78	0	500.90	0	503.02	0
496.70	0	498.82	0	500.94	0	503.06	0
496.74	0	498.86	0	500.98	0	503.10	0
496.78	0	498.90	0	501.02	0	503.14	0
496.82	0	498.94	0	501.06	0		
496.86	0	498.98	0	501.10	0		
496.90	0	499.02	0	501.14	0		
496.94	0	499.06	0	501.18	0		
496.98	0	499.10	0	501.22	0		
497.02	0	499.14	0	501.26	0		
497.06	0	499.18	0	501.30	0		
497.10	0	499.22	0	501.34	0		
497.14	0	499.26	0	501.38	0		
497.18	0	499.30	0	501.42	0		
497.22	0	499.34	0	501.46	0		
497.26	0	499.38	0	501.50	0		
497.30	0	499.42	0	501.54	0		
497.34	0	499.46	0	501.58	0		
497.38	0	499.50	0	501.62	0		
497.42	0	499.54	0	501.66	0		
497.46	0	499.58	0	501.70	0		
497.50	0	499.62	0	501.74	0		
497.54	0	499.66	0	501.78	0		
497.58	0	499.70	0	501.82	0		
497.62	0	499.74	0	501.86	0		
497.66	0	499.78	0	501.90	0		
497.70	0	499.82	0	501.94	0		
497.74	0	499.86	0	501.98	0		
497.78	0	499.90	0	502.02	0		
497.82	0	499.94	0	502.06	0		
497.86	0	499.98	0	502.10	0		
497.90	0	500.02	0	502.14	0		
497.94	0	500.06	0	502.18	0		
497.98	0	500.10	0	502.22	0		
498.02	0	500.14	0	502.26	0		
498.06	0	500.18	0	502.30	0		
498.10	0	500.22	0	502.34	0		
498.14	0	500.26	0	502.38	0		
498.18	0	500.30	0	502.42	0		
498.22	0	500.34	0	502.46	0		
498.26	0	500.38	0	502.50	0		
498.30	0	500.42	0	502.54	0		
498.34	0	500.46	0	502.58	0		
498.38	0	500.50	0	502.62	0		
498.42	0	500.54	0	502.66	0		
498.46	0	500.58	0	502.70	0		
498.50	0	500.62	0	502.74	0		
498.54	0	500.66	0	502.78	0		
498.58	0	500.70	0	502.82	0		

Summary for Pond UFF#2: UP-FLO FILTER

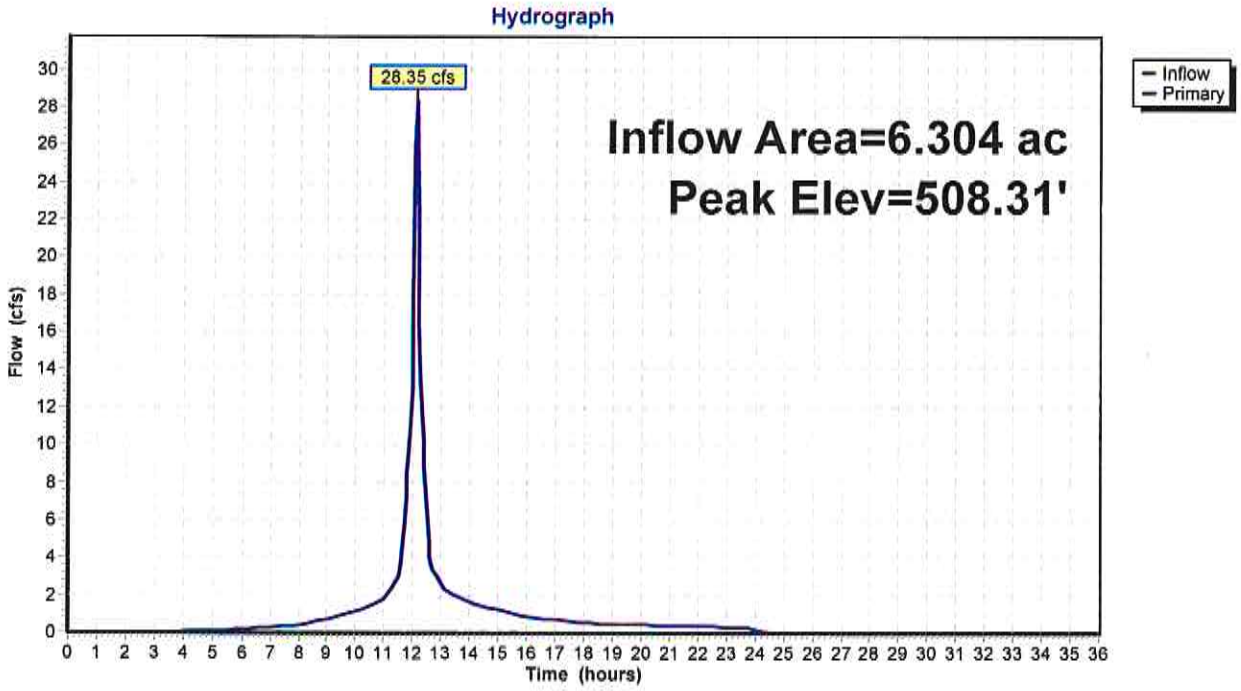
Inflow Area = 6.304 ac, 86.41% Impervious, Inflow Depth = 4.14" for 10-Year event
Inflow = 28.35 cfs @ 12.09 hrs, Volume= 2.174 af
Outflow = 28.35 cfs @ 12.09 hrs, Volume= 2.174 af, Atten= 0%, Lag= 0.0 min
Primary = 28.35 cfs @ 12.09 hrs, Volume= 2.174 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 508.31' @ 12.09 hrs
Flood Elev= 500.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	496.50'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=27.64 cfs @ 12.09 hrs HW=507.80' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 27.64 cfs @ 15.64 fps)

Pond UFF#2: UP-FLO FILTER



Stage-Discharge for Pond UFF#2: UP-FLO FILTER

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
496.50	0.00	499.68	13.26	502.86	20.15	506.04	25.23
496.56	0.02	499.74	13.43	502.92	20.26	506.10	25.31
496.62	0.08	499.80	13.59	502.98	20.37	506.16	25.40
496.68	0.17	499.86	13.75	503.04	20.47	506.22	25.48
496.74	0.30	499.92	13.90	503.10	20.58	506.28	25.57
496.80	0.47	499.98	14.06	503.16	20.69	506.34	25.65
496.86	0.67	500.04	14.21	503.22	20.79	506.40	25.74
496.92	0.89	500.10	14.36	503.28	20.89	506.46	25.82
496.98	1.15	500.16	14.51	503.34	21.00	506.52	25.91
497.04	1.43	500.22	14.66	503.40	21.10	506.58	25.99
497.10	1.74	500.28	14.81	503.46	21.20	506.64	26.07
497.16	2.07	500.34	14.96	503.52	21.31	506.70	26.16
497.22	2.42	500.40	15.10	503.58	21.41	506.76	26.24
497.28	2.79	500.46	15.24	503.64	21.51	506.82	26.32
497.34	3.18	500.52	15.39	503.70	21.61	506.88	26.40
497.40	3.58	500.58	15.53	503.76	21.71	506.94	26.49
497.46	3.98	500.64	15.67	503.82	21.81	507.00	26.57
497.52	4.40	500.70	15.80	503.88	21.91	507.06	26.65
497.58	4.82	500.76	15.94	503.94	22.01	507.12	26.73
497.64	5.24	500.82	16.08	504.00	22.11	507.18	26.81
497.70	5.65	500.88	16.21	504.06	22.20	507.24	26.89
497.76	6.06	500.94	16.34	504.12	22.30	507.30	26.97
497.82	6.44	501.00	16.48	504.18	22.40	507.36	27.05
497.88	6.80	501.06	16.61	504.24	22.50	507.42	27.13
497.94	7.12	501.12	16.74	504.30	22.59	507.48	27.21
498.00	7.37	501.18	16.87	504.36	22.69	507.54	27.29
498.06	7.66	501.24	17.00	504.42	22.78	507.60	27.37
498.12	7.94	501.30	17.12	504.48	22.88	507.66	27.45
498.18	8.21	501.36	17.25	504.54	22.97	507.72	27.53
498.24	8.47	501.42	17.38	504.60	23.07	507.78	27.61
498.30	8.72	501.48	17.50	504.66	23.16	507.84	27.69
498.36	8.96	501.54	17.62	504.72	23.26	507.90	27.77
498.42	9.20	501.60	17.75	504.78	23.35	507.96	27.85
498.48	9.44	501.66	17.87	504.84	23.44	508.02	27.92
498.54	9.66	501.72	17.99	504.90	23.53	508.08	28.00
498.60	9.89	501.78	18.11	504.96	23.63	508.14	**28.08**
498.66	10.10	501.84	18.23	505.02	23.72		
498.72	10.32	501.90	18.35	505.08	23.81		
498.78	10.52	501.96	18.47	505.14	23.90		
498.84	10.73	502.02	18.58	505.20	23.99		
498.90	10.93	502.08	18.70	505.26	24.08		
498.96	11.13	502.14	18.82	505.32	24.17		
499.02	11.32	502.20	18.93	505.38	24.26		
499.08	11.51	502.26	19.05	505.44	24.35		
499.14	11.70	502.32	19.16	505.50	24.44		
499.20	11.88	502.38	19.27	505.56	24.53		
499.26	12.06	502.44	19.38	505.62	24.62		
499.32	12.24	502.50	19.50	505.68	24.70		
499.38	12.42	502.56	19.61	505.74	24.79		
499.44	12.59	502.62	19.72	505.80	24.88		
499.50	12.76	502.68	19.83	505.86	24.97		
499.56	12.93	502.74	19.94	505.92	25.05		
499.62	13.10	502.80	20.05	505.98	25.14		

Stage-Area-Storage for Pond UFF#2: UP-FLO FILTER

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
496.50	**0**	499.68	0	502.86	0	506.04	0
496.56	0	499.74	0	502.92	0	506.10	0
496.62	0	499.80	0	502.98	0	506.16	0
496.68	0	499.86	0	503.04	0	506.22	0
496.74	0	499.92	0	503.10	0	506.28	0
496.80	0	499.98	0	503.16	0	506.34	0
496.86	0	500.04	0	503.22	0	506.40	0
496.92	0	500.10	0	503.28	0	506.46	0
496.98	0	500.16	0	503.34	0	506.52	0
497.04	0	500.22	0	503.40	0	506.58	0
497.10	0	500.28	0	503.46	0	506.64	0
497.16	0	500.34	0	503.52	0	506.70	0
497.22	0	500.40	0	503.58	0	506.76	0
497.28	0	500.46	0	503.64	0	506.82	0
497.34	0	500.52	0	503.70	0	506.88	0
497.40	0	500.58	0	503.76	0	506.94	0
497.46	0	500.64	0	503.82	0	507.00	0
497.52	0	500.70	0	503.88	0	507.06	0
497.58	0	500.76	0	503.94	0	507.12	0
497.64	0	500.82	0	504.00	0	507.18	0
497.70	0	500.88	0	504.06	0	507.24	0
497.76	0	500.94	0	504.12	0	507.30	0
497.82	0	501.00	0	504.18	0	507.36	0
497.88	0	501.06	0	504.24	0	507.42	0
497.94	0	501.12	0	504.30	0	507.48	0
498.00	0	501.18	0	504.36	0	507.54	0
498.06	0	501.24	0	504.42	0	507.60	0
498.12	0	501.30	0	504.48	0	507.66	0
498.18	0	501.36	0	504.54	0	507.72	0
498.24	0	501.42	0	504.60	0	507.78	0
498.30	0	501.48	0	504.66	0	507.84	0
498.36	0	501.54	0	504.72	0	507.90	0
498.42	0	501.60	0	504.78	0	507.96	0
498.48	0	501.66	0	504.84	0	508.02	0
498.54	0	501.72	0	504.90	0	508.08	0
498.60	0	501.78	0	504.96	0	508.14	0
498.66	0	501.84	0	505.02	0		
498.72	0	501.90	0	505.08	0		
498.78	0	501.96	0	505.14	0		
498.84	0	502.02	0	505.20	0		
498.90	0	502.08	0	505.26	0		
498.96	0	502.14	0	505.32	0		
499.02	0	502.20	0	505.38	0		
499.08	0	502.26	0	505.44	0		
499.14	0	502.32	0	505.50	0		
499.20	0	502.38	0	505.56	0		
499.26	0	502.44	0	505.62	0		
499.32	0	502.50	0	505.68	0		
499.38	0	502.56	0	505.74	0		
499.44	0	502.62	0	505.80	0		
499.50	0	502.68	0	505.86	0		
499.56	0	502.74	0	505.92	0		
499.62	0	502.80	0	505.98	0		

Summary for Pond UGSP#1: P-UG SOLID PIPE SYSTEM

Inflow Area = 10.620 ac, 91.93% Impervious, Inflow Depth = 4.41" for 10-Year event
Inflow = 49.17 cfs @ 12.09 hrs, Volume= 3.905 af
Outflow = 22.66 cfs @ 12.27 hrs, Volume= 3.905 af, Atten= 54%, Lag= 10.7 min
Primary = 22.66 cfs @ 12.27 hrs, Volume= 3.905 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 487.08' @ 12.27 hrs Surf.Area= 19,097 sf Storage= 44,456 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 38.5 min (805.6 - 767.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	483.60'	0 cf	**50.25'W x 380.00'L x 5.58'H Field A** 106,633 cf Overall - 78,356 cf Embedded = 28,277 cf x 0.0% Voids
#2A	483.60'	66,006 cf	**ADS N-12 60"** x 171 Inside #1 Inside= 59.5"W x 59.5"H => 19.30 sf x 20.00'L = 386.0 cf Outside= 67.0"W x 67.0"H => 22.92 sf x 20.00'L = 458.4 cf 9 Rows of 19 Chambers
		66,006 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	483.60'	**12.0" W x 10.0" H Vert. Orifice/Grate** C= 0.600
#2	Primary	486.00'	**4.5' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=22.54 cfs @ 12.27 hrs HW=487.07' (Free Discharge)
└─**1=Orifice/Grate** (Orifice Controls 7.01 cfs @ 8.41 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 15.53 cfs @ 3.38 fps)

Pond UGSP#1: P-UG SOLID PIPE SYSTEM - Chamber Wizard Field A

Chamber Model = ADS N-12 60" (ADS N-12® Pipe)
Inside= 59.5"W x 59.5"H => 19.30 sf x 20.00'L = 386.0 cf
Outside= 67.0"W x 67.0"H => 22.92 sf x 20.00'L = 458.4 cf

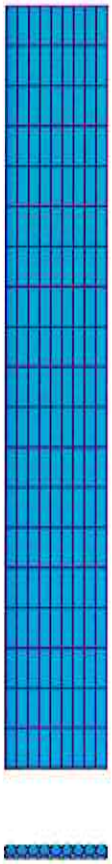
19 Chambers/Row x 20.00' Long = 380.00' Row Length
9 Rows x 67.0" Wide = 50.25' Base Width
67.0" Chamber Height = 5.58' Field Height

171 Chambers x 386.0 cf = 66,005.9 cf Chamber Storage
171 Chambers x 458.4 cf = 78,389.3 cf Displacement

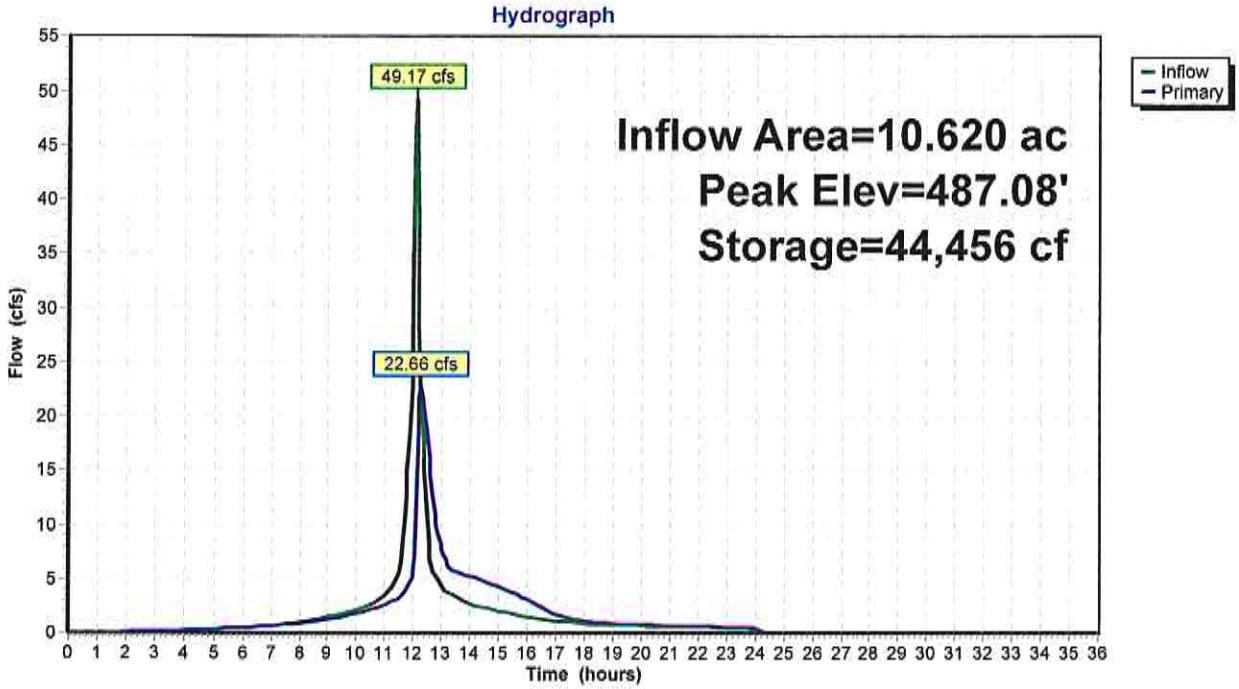
106,632.8 cf Field - 78,389.3 cf Chambers = 28,243.6 cf Stone x 0.0% Voids = 0.0 cf Stone Storage

Chamber Storage = 66,005.9 cf = 1.515 af
Overall Storage Efficiency = 61.9%
Overall System Size = 380.00' x 50.25' x 5.58'

171 Chambers
3,949.4 cy Field
1,046.1 cy Stone



Pond UGSP#1: P-UG SOLID PIPE SYSTEM



Stage-Discharge for Pond UGSP#1: P-UG SOLID PIPE SYSTEM

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
483.60	0.00	485.72	5.22	487.84	41.57
483.64	0.03	485.76	5.29	487.88	42.64
483.68	0.07	485.80	5.35	487.92	43.73
483.72	0.13	485.84	5.41	487.96	44.82
483.76	0.21	485.88	5.47	488.00	45.93
483.80	0.29	485.92	5.52	488.04	47.03
483.84	0.38	485.96	5.58	488.08	48.15
483.88	0.48	486.00	5.64	488.12	49.27
483.92	0.58	486.04	5.81	488.16	50.39
483.96	0.69	486.08	6.09	488.20	51.53
484.00	0.81	486.12	6.42	488.24	52.66
484.04	0.94	486.16	6.80	488.28	53.81
484.08	1.07	486.20	7.22	488.32	54.96
484.12	1.20	486.24	7.69	488.36	56.11
484.16	1.35	486.28	8.18	488.40	57.27
484.20	1.49	486.32	8.71	488.44	58.44
484.24	1.64	486.36	9.26	488.48	59.61
484.28	1.80	486.40	9.84	488.52	60.78
484.32	1.96	486.44	10.45	488.56	61.96
484.36	2.13	486.48	11.08	488.60	63.15
484.40	2.30	486.52	11.73	488.64	64.34
484.44	2.47	486.56	12.40	488.68	65.53
484.48	2.62	486.60	13.10	488.72	66.73
484.52	2.75	486.64	13.81	488.76	67.93
484.56	2.87	486.68	14.54	488.80	69.14
484.60	2.99	486.72	15.29	488.84	70.35
484.64	3.10	486.76	16.06	488.88	71.56
484.68	3.21	486.80	16.84	488.92	72.78
484.72	3.31	486.84	17.64	488.96	74.00
484.76	3.41	486.88	18.46	489.00	75.22
484.80	3.51	486.92	19.29	489.04	76.45
484.84	3.60	486.96	20.13	489.08	77.68
484.88	3.69	487.00	20.99	489.12	78.91
484.92	3.78	487.04	21.86	489.16	**80.15**
484.96	3.86	487.08	22.74		
485.00	3.95	487.12	23.64		
485.04	4.03	487.16	24.55		
485.08	4.11	487.20	25.47		
485.12	4.19	487.24	26.40		
485.16	4.27	487.28	27.34		
485.20	4.34	487.32	28.29		
485.24	4.42	487.36	29.26		
485.28	4.49	487.40	30.23		
485.32	4.56	487.44	31.22		
485.36	4.63	487.48	32.21		
485.40	4.70	487.52	33.22		
485.44	4.77	487.56	34.23		
485.48	4.84	487.60	35.25		
485.52	4.90	487.64	36.29		
485.56	4.97	487.68	37.33		
485.60	5.03	487.72	38.37		
485.64	5.10	487.76	39.43		
485.68	5.16	487.80	40.49		

Stage-Area-Storage for Pond UGSP#1: P-UG SOLID PIPE SYSTEM

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
483.60	0	485.72	21,753	487.84	56,074
483.64	0	485.76	22,407	487.88	56,621
483.68	0	485.80	23,064	487.92	57,159
483.72	0	485.84	23,724	487.96	57,689
483.76	0	485.88	24,386	488.00	58,209
483.80	0	485.92	25,051	488.04	58,720
483.84	0	485.96	25,718	488.08	59,222
483.88	0	486.00	26,386	488.12	59,713
483.92	33	486.04	27,057	488.16	60,194
483.96	99	486.08	27,729	488.20	60,664
484.00	258	486.12	28,402	488.24	61,122
484.04	453	486.16	29,077	488.28	61,567
484.08	683	486.20	29,753	488.32	62,000
484.12	942	486.24	30,429	488.36	62,419
484.16	1,225	486.28	31,106	488.40	62,824
484.20	1,531	486.32	31,784	488.44	63,214
484.24	1,857	486.36	32,462	488.48	63,588
484.28	2,203	486.40	33,140	488.52	63,944
484.32	2,567	486.44	33,818	488.56	64,282
484.36	2,947	486.48	34,496	488.60	64,601
484.40	3,343	486.52	35,173	488.64	64,898
484.44	3,754	486.56	35,850	488.68	65,171
484.48	4,179	486.60	36,527	488.72	65,418
484.52	4,617	486.64	37,202	488.76	65,635
484.56	5,068	486.68	37,876	488.80	65,817
484.60	5,531	486.72	38,549	488.84	65,947
484.64	6,005	486.76	39,220	488.88	**66,024**
484.68	6,490	486.80	39,890	488.92	**66,006**
484.72	6,985	486.84	40,558	488.96	66,006
484.76	7,491	486.88	41,224	489.00	66,006
484.80	8,006	486.92	41,888	489.04	66,006
484.84	8,530	486.96	42,549	489.08	66,006
484.88	9,063	487.00	43,208	489.12	66,006
484.92	9,605	487.04	43,864	489.16	66,006
484.96	10,155	487.08	44,517		
485.00	10,712	487.12	45,167		
485.04	11,277	487.16	45,813		
485.08	11,849	487.20	46,456		
485.12	12,427	487.24	47,095		
485.16	13,013	487.28	47,730		
485.20	13,604	487.32	48,361		
485.24	14,202	487.36	48,988		
485.28	14,805	487.40	49,610		
485.32	15,414	487.44	50,227		
485.36	16,028	487.48	50,839		
485.40	16,647	487.52	51,445		
485.44	17,271	487.56	52,046		
485.48	17,899	487.60	52,642		
485.52	18,532	487.64	53,231		
485.56	19,169	487.68	53,813		
485.60	19,809	487.72	54,389		
485.64	20,454	487.76	54,958		
485.68	21,102	487.80	55,520		

Summary for Pond UIS: P-UG INFILTRATION SYSTEM

Inflow Area = 5.188 ac,100.00% Impervious, Inflow Depth = 4.81" for 10-Year event
Inflow = 25.03 cfs @ 12.09 hrs, Volume= 2.081 af
Outflow = 7.01 cfs @ 12.43 hrs, Volume= 2.081 af, Atten= 72%, Lag= 20.4 min
Discarded = 7.01 cfs @ 12.43 hrs, Volume= 2.081 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 483.93' @ 12.43 hrs Surf.Area= 8,304 sf Storage= 19,692 cf

Plug-Flow detention time= 16.6 min calculated for 2.078 af (100% of inflow)
Center-of-Mass det. time= 16.6 min (764.5 - 747.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	480.50'	12,410 cf	**38.50'W x 215.70'L x 6.00'H Field A** 49,827 cf Overall - 18,801 cf Embedded = 31,026 cf x 40.0% Voids
#2A	481.50'	18,801 cf	**Cultec R-902HD** x 290 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 5 Rows of 58 Chambers Cap Storage= +2.8 cf x 2 x 5 rows = 27.6 cf
		31,211 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	480.50'	**17.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 477.50' Phase-In= 0.01'
#2	Primary	485.20'	**5.5' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=7.01 cfs @ 12.43 hrs HW=483.93' (Free Discharge)
↑**1=Exfiltration** (Controls 7.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=480.50' (Free Discharge)
↑**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond UIS: P-UG INFILTRATION SYSTEM - Chamber Wizard Field A

Chamber Model = Cultec R-902HD (Cultec Recharger® 902HD)
Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf
Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap
Cap Storage= +2.8 cf x 2 x 5 rows = 27.6 cf

78.0" Wide + 12.0" Spacing = 90.0" C-C Row Spacing

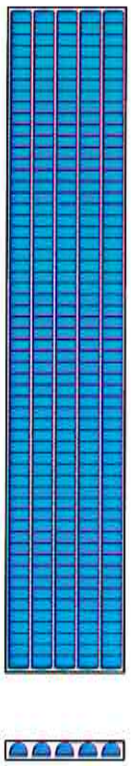
58 Chambers/Row x 3.67' Long +0.52' Cap Length x 2 = 213.70' Row Length +12.0" End Stone x 2 = 215.70' Base Length
5 Rows x 78.0" Wide + 12.0" Spacing x 4 + 12.0" Side Stone x 2 = 38.50' Base Width
12.0" Base + 48.0" Chamber Height + 12.0" Cover = 6.00' Field Height

290 Chambers x 64.7 cf + 2.8 cf Cap Volume x 2 x 5 Rows = 18,800.8 cf Chamber Storage

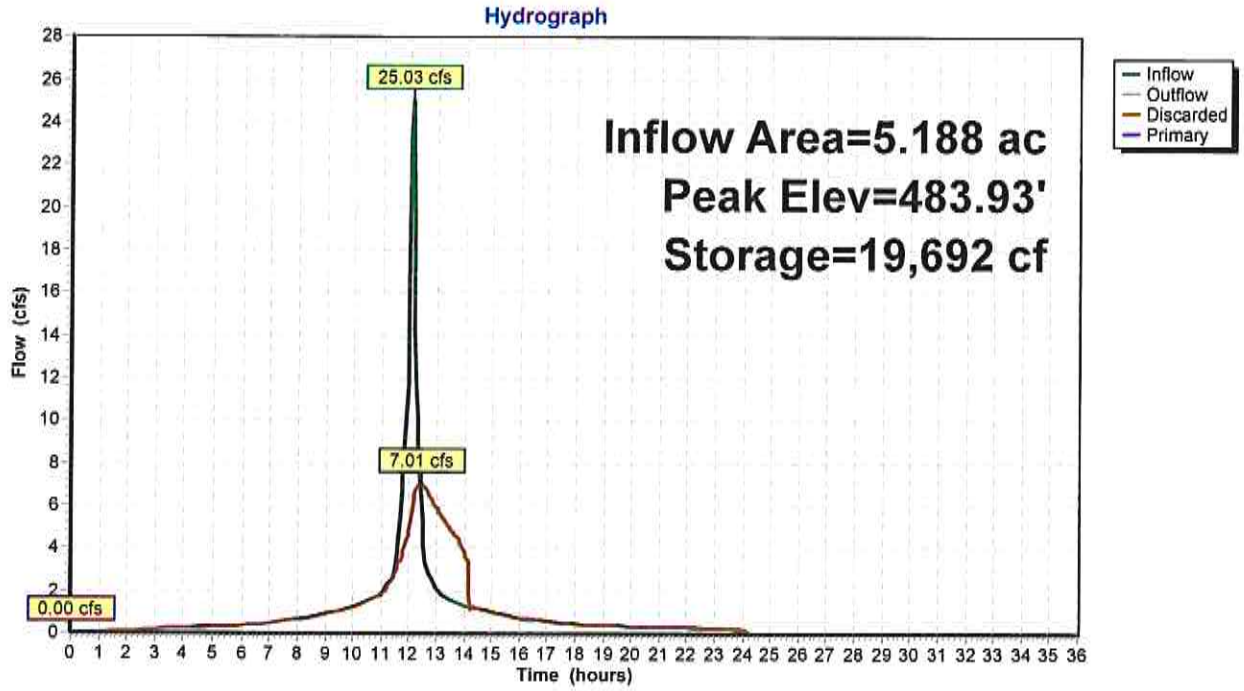
49,826.7 cf Field - 18,800.8 cf Chambers = 31,025.9 cf Stone x 40.0% Voids = 12,410.4 cf Stone Storage

Chamber Storage + Stone Storage = 31,211.1 cf = 0.717 af
Overall Storage Efficiency = 62.6%
Overall System Size = 215.70' x 38.50' x 6.00'

290 Chambers
1,845.4 cy Field
1,149.1 cy Stone



Pond UIS: P-UG INFILTRATION SYSTEM



Stage-Discharge for Pond UIS: P-UG INFILTRATION SYSTEM

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
480.50	0.00	0.00	0.00
480.60	3.38	3.38	0.00
480.70	3.49	3.49	0.00
480.80	3.59	3.59	0.00
480.90	3.70	3.70	0.00
481.00	3.81	3.81	0.00
481.10	3.92	3.92	0.00
481.20	4.03	4.03	0.00
481.30	4.14	4.14	0.00
481.40	4.25	4.25	0.00
481.50	4.36	4.36	0.00
481.60	4.47	4.47	0.00
481.70	4.58	4.58	0.00
481.80	4.68	4.68	0.00
481.90	4.79	4.79	0.00
482.00	4.90	4.90	0.00
482.10	5.01	5.01	0.00
482.20	5.12	5.12	0.00
482.30	5.23	5.23	0.00
482.40	5.34	5.34	0.00
482.50	5.45	5.45	0.00
482.60	5.56	5.56	0.00
482.70	5.66	5.66	0.00
482.80	5.77	5.77	0.00
482.90	5.88	5.88	0.00
483.00	5.99	5.99	0.00
483.10	6.10	6.10	0.00
483.20	6.21	6.21	0.00
483.30	6.32	6.32	0.00
483.40	6.43	6.43	0.00
483.50	6.54	6.54	0.00
483.60	6.64	6.64	0.00
483.70	6.75	6.75	0.00
483.80	6.86	6.86	0.00
483.90	6.97	6.97	0.00
484.00	7.08	7.08	0.00
484.10	7.19	7.19	0.00
484.20	7.30	7.30	0.00
484.30	7.41	7.41	0.00
484.40	7.52	7.52	0.00
484.50	7.63	7.63	0.00
484.60	7.73	7.73	0.00
484.70	7.84	7.84	0.00
484.80	7.95	7.95	0.00
484.90	8.06	8.06	0.00
485.00	8.17	8.17	0.00
485.10	8.28	8.28	0.00
485.20	8.39	8.39	0.00
485.30	9.06	8.50	0.57
485.40	10.20	8.61	1.60
485.50	11.64	8.71	2.92
485.60	13.31	8.82	4.48
485.70	15.18	8.93	6.24
485.80	17.22	9.04	8.18
485.90	19.42	9.15	10.27
486.00	21.75	9.26	12.49
486.10	24.22	9.37	14.85
486.20	26.81	9.48	17.33
486.30	29.51	9.59	19.92
486.40	32.31	9.69	22.61
486.50	**35.20**	**9.80**	**25.40**

Stage-Area-Storage for Pond UIS: P-UG INFILTRATION SYSTEM

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
480.50	**8,304**	0
480.60	8,304	332
480.70	8,304	664
480.80	8,304	997
480.90	8,304	1,329
481.00	8,304	1,661
481.10	8,304	1,993
481.20	8,304	2,325
481.30	8,304	2,657
481.40	8,304	2,990
481.50	8,304	3,322
481.60	8,304	4,022
481.70	8,304	4,725
481.80	8,304	5,425
481.90	8,304	6,122
482.00	8,304	6,816
482.10	8,304	7,509
482.20	8,304	8,201
482.30	8,304	8,890
482.40	8,304	9,574
482.50	8,304	10,255
482.60	8,304	10,936
482.70	8,304	11,614
482.80	8,304	12,287
482.90	8,304	12,957
483.00	8,304	13,625
483.10	8,304	14,289
483.20	8,304	14,950
483.30	8,304	15,608
483.40	8,304	16,263
483.50	8,304	16,915
483.60	8,304	17,561
483.70	8,304	18,204
483.80	8,304	18,842
483.90	8,304	19,473
484.00	8,304	20,099
484.10	8,304	20,717
484.20	8,304	21,327
484.30	8,304	21,931
484.40	8,304	22,522
484.50	8,304	23,104
484.60	8,304	23,675
484.70	8,304	24,232
484.80	8,304	24,775
484.90	8,304	25,303
485.00	8,304	25,813
485.10	8,304	26,300
485.20	8,304	26,753
485.30	8,304	27,166
485.40	8,304	27,540
485.50	8,304	27,889
485.60	8,304	28,222
485.70	8,304	28,554
485.80	8,304	28,886
485.90	8,304	29,218
486.00	8,304	29,550
486.10	8,304	29,882
486.20	8,304	30,215
486.30	8,304	30,547
486.40	8,304	30,879
486.50	8,304	**31,211**

Time span=0.00-36.00 hrs, dt=0.05 hrs, 721 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment WS#1: EXISTING Runoff Area=19.457 ac 0.00% Impervious Runoff Depth=4.84"
Tc=6.0 min CN=66 Runoff=108.28 cfs 7.849 af

Subcatchment WS#1A: 55% ROOFTOP Runoff Area=5.188 ac 100.00% Impervious Runoff Depth=8.76"
Tc=6.0 min CN=98 Runoff=44.78 cfs 3.787 af

Subcatchment WS#1B: 44% ROOFTOP Runoff Area=4.316 ac 100.00% Impervious Runoff Depth=8.76"
Tc=6.0 min CN=98 Runoff=37.26 cfs 3.151 af

Subcatchment WS#1C: LOADING AREA & ROAD Runoff Area=6.304 ac 86.41% Impervious Runoff Depth=8.03"
Tc=6.0 min CN=92 Runoff=52.98 cfs 4.221 af

Subcatchment WS#1D: ACCESS ROAD & GRASS Runoff Area=3.649 ac 11.92% Impervious Runoff Depth=4.96"
Tc=6.0 min CN=67 Runoff=20.82 cfs 1.510 af

Reach E-POI: EXISTING Inflow=108.28 cfs 7.849 af
Outflow=108.28 cfs 7.849 af

Reach P-POI: DEVELOPED Inflow=106.21 cfs 9.274 af
Outflow=106.21 cfs 9.274 af

Pond UFF#1: UP-FLO FILTER Peak Elev=516.35' Inflow=37.26 cfs 3.151 af
Outflow=37.26 cfs 3.151 af

Pond UFF#2: UP-FLO FILTER Peak Elev=535.88' Inflow=52.98 cfs 4.221 af
Outflow=52.98 cfs 4.221 af

Pond UGSP#1: P-UG SOLID PIPE SYSTEM Peak Elev=488.71' Storage=65,362 cf Inflow=90.24 cfs 7.371 af
Outflow=66.42 cfs 7.371 af

Pond UIS: P-UG INFILTRATIONSYSTEM Peak Elev=486.49' Storage=31,186 cf Inflow=44.78 cfs 3.787 af
Discarded=9.80 cfs 3.394 af Primary=24.32 cfs 0.393 af Outflow=34.12 cfs 3.787 af

Total Runoff Area = 38.914 ac Runoff Volume = 20.517 af Average Runoff Depth = 6.33"
60.46% Pervious = 23.528 ac 39.54% Impervious = 15.386 ac

Summary for Subcatchment WS#1: EXISTING

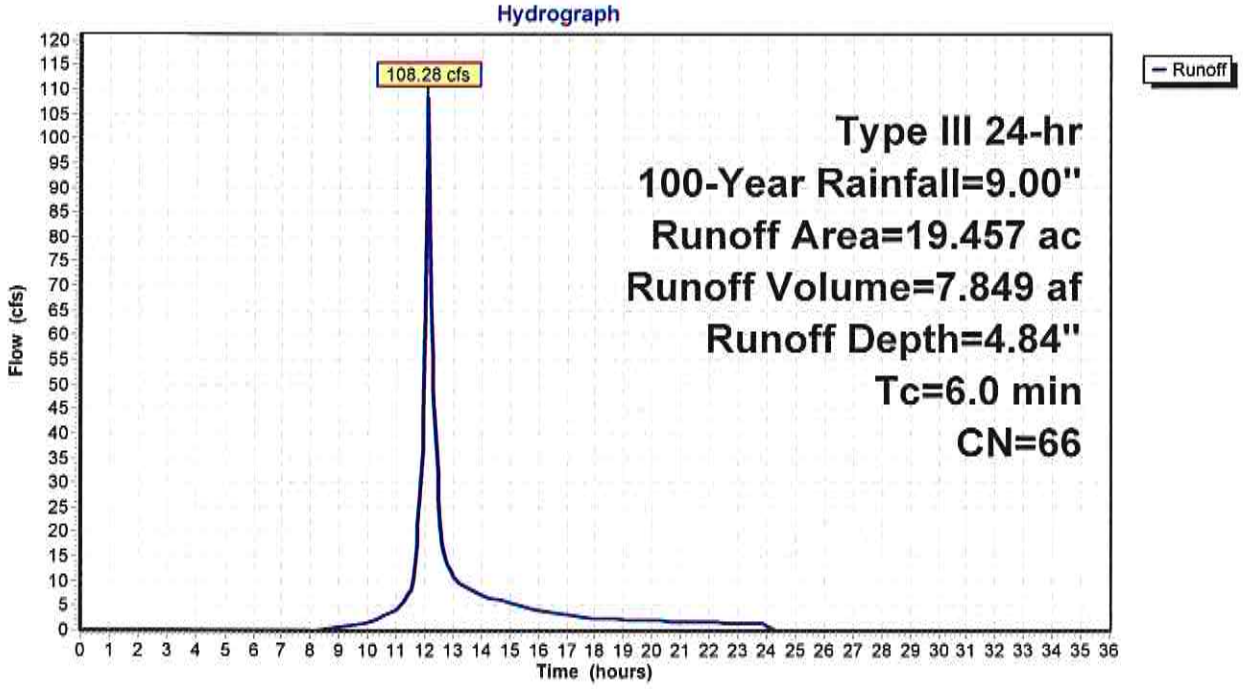
Runoff = 108.28 cfs @ 12.09 hrs, Volume= 7.849 af, Depth= 4.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=9.00"

	Area (ac)	CN	Description
	5.535	39	>75% Grass cover, Good, HSG A
	9.969	74	>75% Grass cover, Good, HSG C
	2.754	80	>75% Grass cover, Good, HSG D
*	0.076	72	Dirt, HSG A
	1.065	87	Dirt roads, HSG C
	0.058	89	Dirt roads, HSG D
	19.457	66	Weighted Average
	19.457		100.00% Pervious Area

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

Subcatchment WS#1: EXISTING



Summary for Subcatchment WS#1A: 55% ROOFTOP

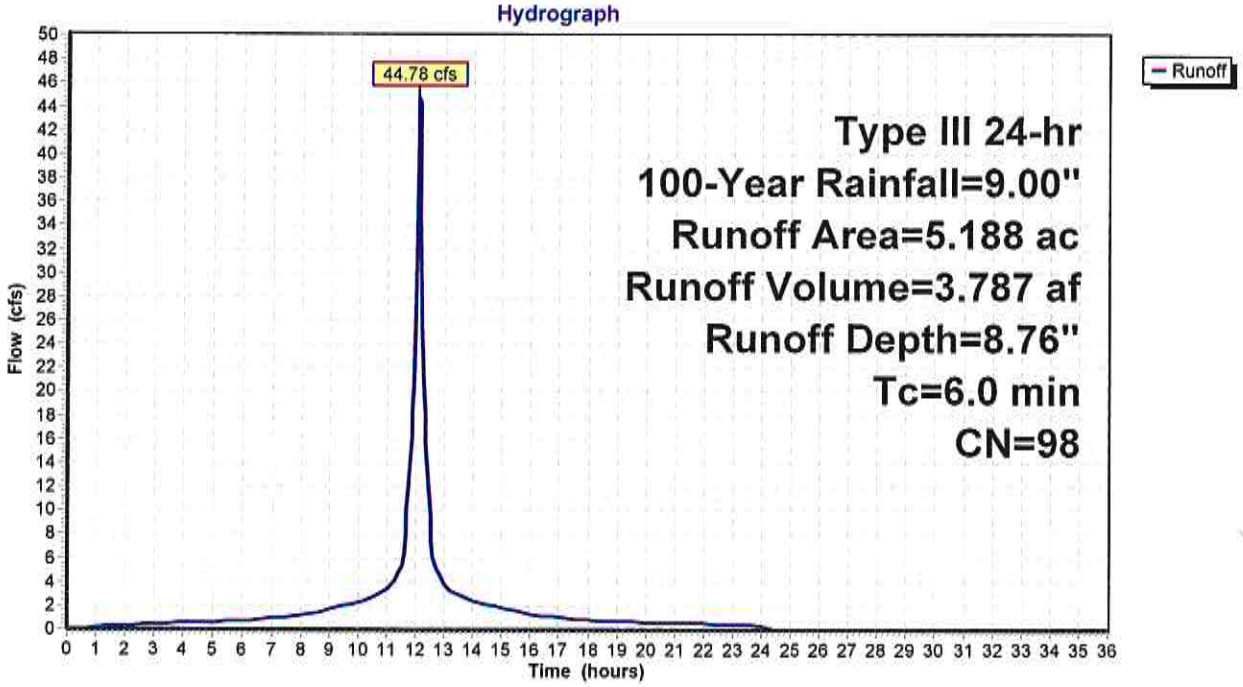
Runoff = 44.78 cfs @ 12.09 hrs, Volume= 3.787 af, Depth= 8.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=9.00"

	Area (ac)	CN	Description
*	5.188	98	Rooftop, HSG A, C, D
	5.188		100.00% Impervious Area

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

Subcatchment WS#1A: 55% ROOFTOP



Summary for Subcatchment WS#1B: 44% ROOFTOP

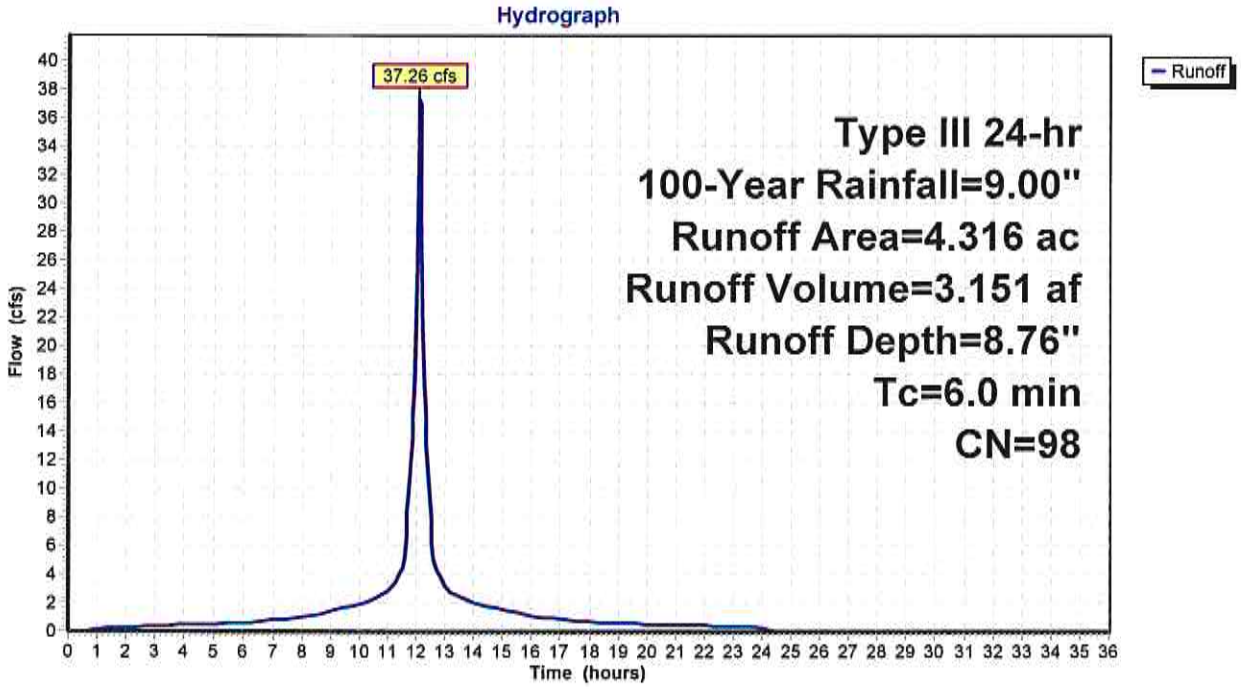
Runoff = 37.26 cfs @ 12.09 hrs, Volume= 3.151 af, Depth= 8.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=9.00"

	Area (ac)	CN	Description
*	4.316	98	Rooftop, HSG A, C, D
	4.316		100.00% Impervious Area

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

Subcatchment WS#1B: 44% ROOFTOP



Summary for Subcatchment WS#1C: LOADING AREA & ROAD

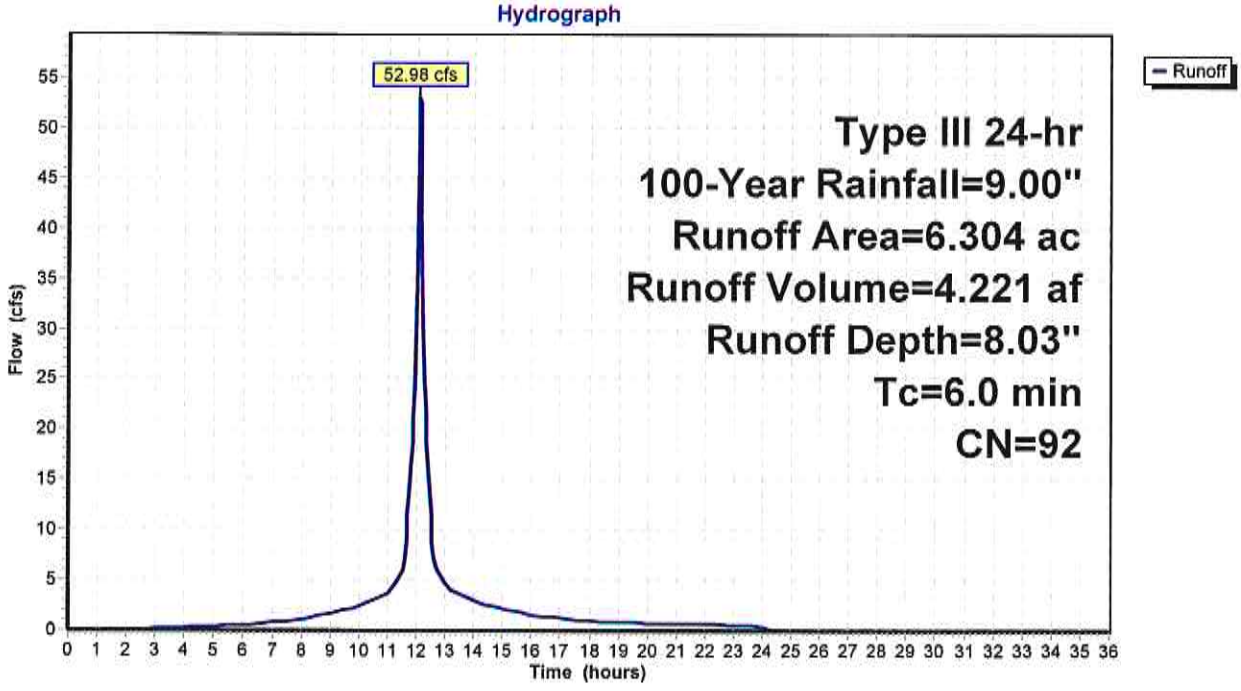
Runoff = 52.98 cfs @ 12.09 hrs, Volume= 4.221 af, Depth= 8.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=9.00"

	Area (ac)	CN	Description
*	5.447	98	Impervious Cover, HSG A, C, D
	0.408	39	>75% Grass cover, Good, HSG A
	0.449	74	>75% Grass cover, Good, HSG C
	6.304	92	Weighted Average
	0.857		13.59% Pervious Area
	5.447		86.41% Impervious Area

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

Subcatchment WS#1C: LOADING AREA & ROAD



Summary for Subcatchment WS#1D: ACCESS ROAD & GRASS COVER

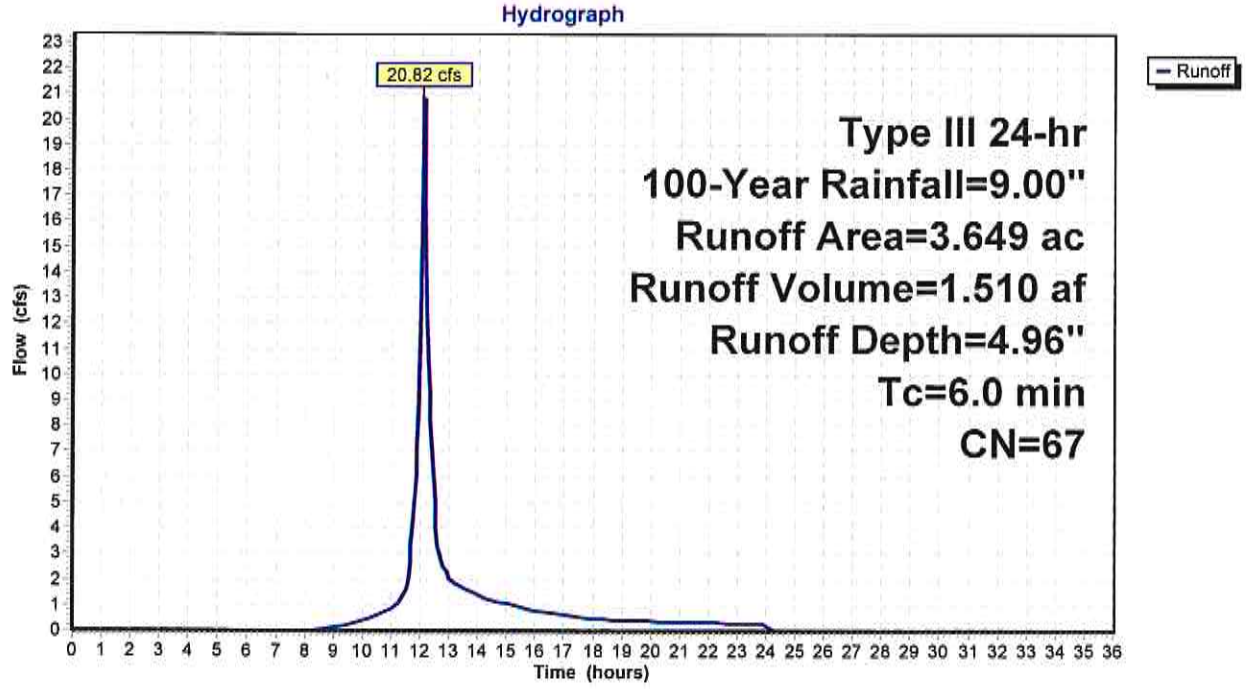
Runoff = 20.82 cfs @ 12.09 hrs, Volume= 1.510 af, Depth= 4.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=9.00"

	Area (ac)	CN	Description
*	0.435	98	Impervious Cover, HSG. A, C & D
	1.176	39	>75% Grass cover, Good, HSG A
	1.370	74	>75% Grass cover, Good, HSG C
	0.668	80	>75% Grass cover, Good, HSG D
	3.649	67	Weighted Average
	3.214		88.08% Pervious Area
	0.435		11.92% Impervious Area

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

Subcatchment WS#1D: ACCESS ROAD & GRASS COVER

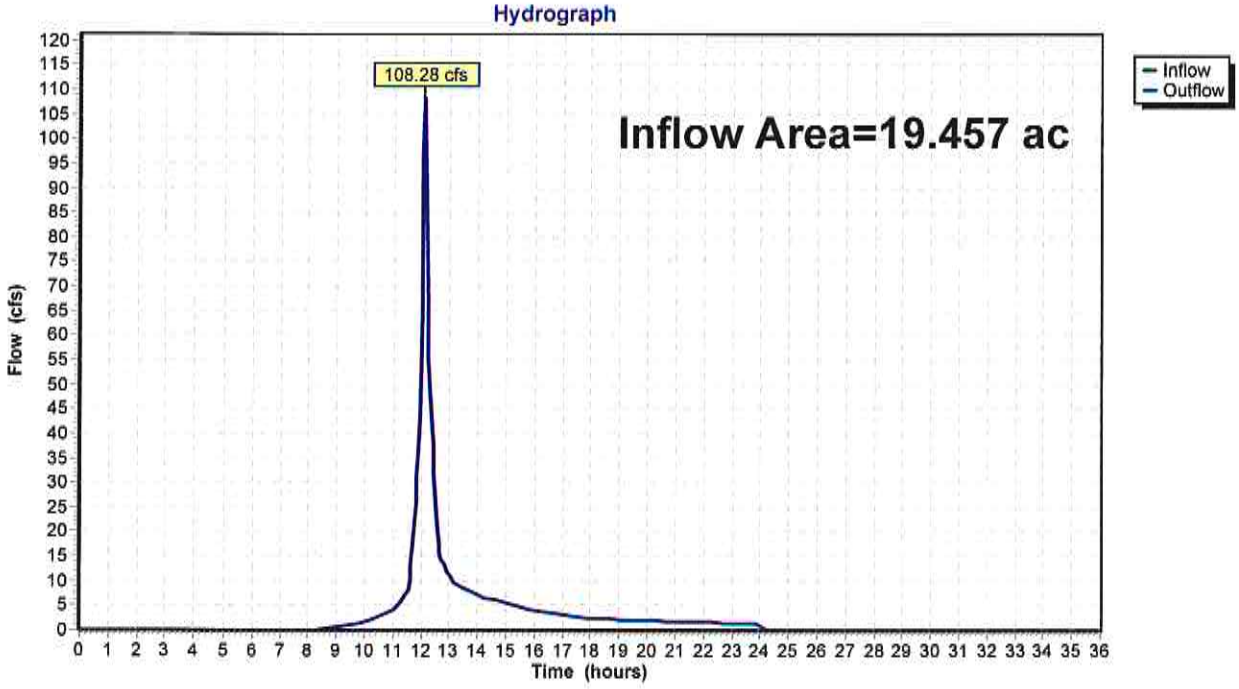


Summary for Reach E-POI: EXISTING

Inflow Area = 19.457 ac, 0.00% Impervious, Inflow Depth = 4.84" for 100-Year event
Inflow = 108.28 cfs @ 12.09 hrs, Volume= 7.849 af
Outflow = 108.28 cfs @ 12.09 hrs, Volume= 7.849 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Reach E-POI: EXISTING

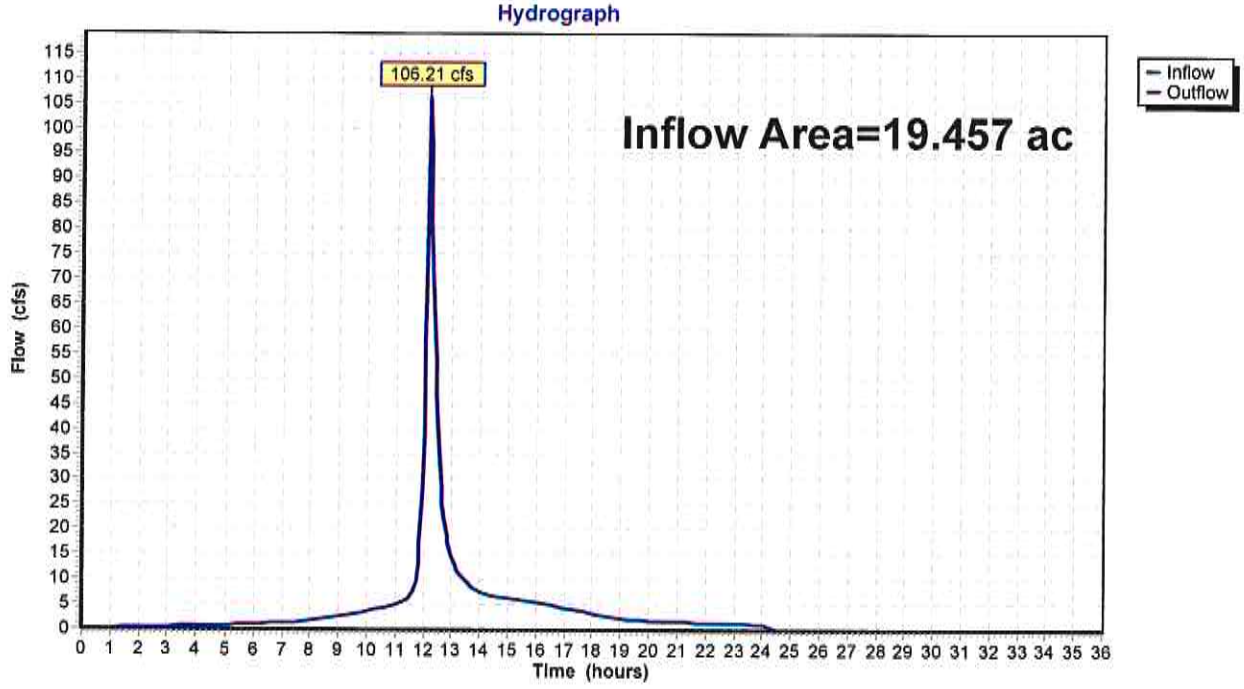


Summary for Reach P-POI: DEVELOPED

Inflow Area = 19.457 ac, 79.08% Impervious, Inflow Depth = 5.72" for 100-Year event
Inflow = 106.21 cfs @ 12.16 hrs, Volume= 9.274 af
Outflow = 106.21 cfs @ 12.16 hrs, Volume= 9.274 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Reach P-POI: DEVELOPED



Summary for Pond UFF#1: UP-FLO FILTER

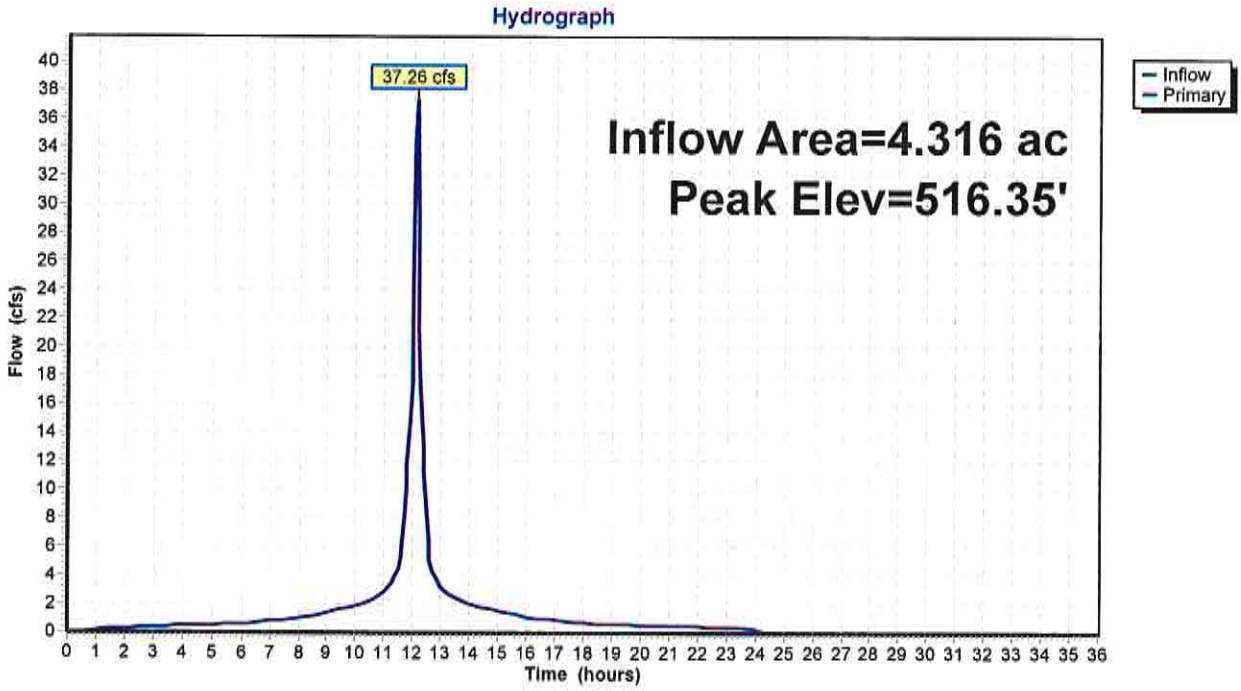
Inflow Area = 4.316 ac,100.00% Impervious, Inflow Depth = 8.76" for 100-Year event
Inflow = 37.26 cfs @ 12.09 hrs, Volume= 3.151 af
Outflow = 37.26 cfs @ 12.09 hrs, Volume= 3.151 af, Atten= 0%, Lag= 0.0 min
Primary = 37.26 cfs @ 12.09 hrs, Volume= 3.151 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 516.35' @ 12.09 hrs
Flood Elev= 500.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	496.50'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=36.26 cfs @ 12.09 hrs HW=515.41' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 36.26 cfs @ 20.52 fps)

Pond UFF#1: UP-FLO FILTER



Stage-Discharge for Pond UFF#1: UP-FLO FILTER

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
496.50	0.00	507.10	26.70
496.70	0.21	507.30	26.97
496.90	0.81	507.50	27.24
497.10	1.74	507.70	27.51
497.30	2.92	507.90	27.77
497.50	4.26	508.10	28.03
497.70	5.65	508.30	28.28
497.90	6.92	508.50	28.54
498.10	7.84	508.70	28.79
498.30	8.72	508.90	29.04
498.50	9.51	509.10	29.29
498.70	10.25	509.30	29.54
498.90	10.93	509.50	29.78
499.10	11.57	509.70	30.02
499.30	12.18	509.90	30.26
499.50	12.76	510.10	30.50
499.70	13.32	510.30	30.74
499.90	13.85	510.50	30.97
500.10	14.36	510.70	31.21
500.30	14.86	510.90	31.44
500.50	15.34	511.10	31.67
500.70	15.80	511.30	31.89
500.90	16.26	511.50	32.12
501.10	16.70	511.70	32.34
501.30	17.12	511.90	32.57
501.50	17.54	512.10	32.79
501.70	17.95	512.30	33.01
501.90	18.35	512.50	33.23
502.10	18.74	512.70	33.44
502.30	19.12	512.90	33.66
502.50	19.50	513.10	33.88
502.70	19.86	513.30	34.09
502.90	20.23	513.50	34.30
503.10	20.58	513.70	34.51
503.30	20.93	513.90	34.72
503.50	21.27	514.10	34.93
503.70	21.61	514.30	35.13
503.90	21.94	514.50	35.34
504.10	22.27	514.70	35.54
504.30	22.59	514.90	35.75
504.50	22.91	515.10	35.95
504.70	23.22	515.30	36.15
504.90	23.53	515.50	36.35
505.10	23.84	515.70	36.55
505.30	24.14	515.90	36.75
505.50	24.44	516.10	**36.94**
505.70	24.73		
505.90	25.03		
506.10	25.31		
506.30	25.60		
506.50	25.88		
506.70	26.16		
506.90	26.43		

Stage-Area-Storage for Pond UFF#1: UP-FLO FILTER

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
496.50	**0**	507.10	0
496.70	0	507.30	0
496.90	0	507.50	0
497.10	0	507.70	0
497.30	0	507.90	0
497.50	0	508.10	0
497.70	0	508.30	0
497.90	0	508.50	0
498.10	0	508.70	0
498.30	0	508.90	0
498.50	0	509.10	0
498.70	0	509.30	0
498.90	0	509.50	0
499.10	0	509.70	0
499.30	0	509.90	0
499.50	0	510.10	0
499.70	0	510.30	0
499.90	0	510.50	0
500.10	0	510.70	0
500.30	0	510.90	0
500.50	0	511.10	0
500.70	0	511.30	0
500.90	0	511.50	0
501.10	0	511.70	0
501.30	0	511.90	0
501.50	0	512.10	0
501.70	0	512.30	0
501.90	0	512.50	0
502.10	0	512.70	0
502.30	0	512.90	0
502.50	0	513.10	0
502.70	0	513.30	0
502.90	0	513.50	0
503.10	0	513.70	0
503.30	0	513.90	0
503.50	0	514.10	0
503.70	0	514.30	0
503.90	0	514.50	0
504.10	0	514.70	0
504.30	0	514.90	0
504.50	0	515.10	0
504.70	0	515.30	0
504.90	0	515.50	0
505.10	0	515.70	0
505.30	0	515.90	0
505.50	0	516.10	0
505.70	0		
505.90	0		
506.10	0		
506.30	0		
506.50	0		
506.70	0		
506.90	0		

Summary for Pond UFF#2: UP-FLO FILTER

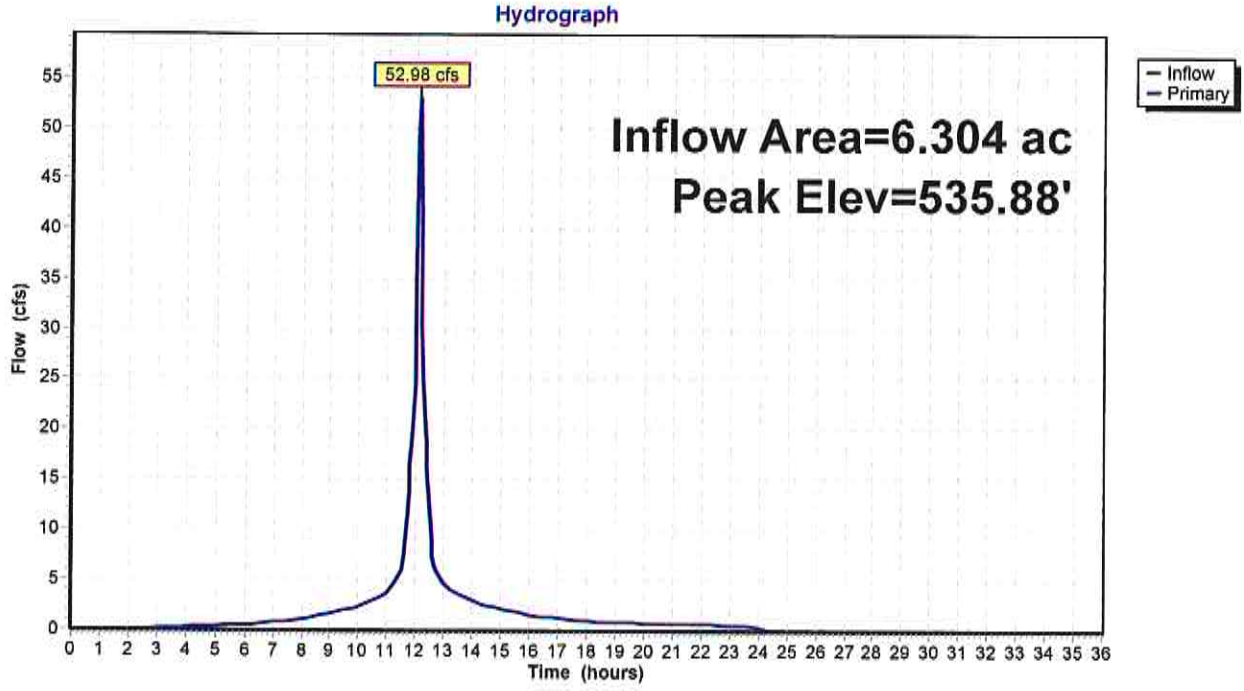
Inflow Area = 6.304 ac, 86.41% Impervious, Inflow Depth = 8.03" for 100-Year event
Inflow = 52.98 cfs @ 12.09 hrs, Volume= 4.221 af
Outflow = 52.98 cfs @ 12.09 hrs, Volume= 4.221 af, Atten= 0%, Lag= 0.0 min
Primary = 52.98 cfs @ 12.09 hrs, Volume= 4.221 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 535.88' @ 12.09 hrs
Flood Elev= 500.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	496.50'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=51.60 cfs @ 12.09 hrs HW=534.02' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 51.60 cfs @ 29.20 fps)

Pond UFF#2: UP-FLO FILTER



Stage-Discharge for Pond UFF#2: UP-FLO FILTER

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
496.50	0.00	517.70	38.48
496.90	0.81	518.10	38.85
497.30	2.92	518.50	39.22
497.70	5.65	518.90	39.59
498.10	7.84	519.30	39.95
498.50	9.51	519.70	40.32
498.90	10.93	520.10	40.67
499.30	12.18	520.50	41.03
499.70	13.32	520.90	41.38
500.10	14.36	521.30	41.73
500.50	15.34	521.70	42.07
500.90	16.26	522.10	42.42
501.30	17.12	522.50	42.76
501.70	17.95	522.90	43.09
502.10	18.74	523.30	43.43
502.50	19.50	523.70	43.76
502.90	20.23	524.10	44.09
503.30	20.93	524.50	44.42
503.70	21.61	524.90	44.74
504.10	22.27	525.30	45.06
504.50	22.91	525.70	45.38
504.90	23.53	526.10	45.70
505.30	24.14	526.50	46.02
505.70	24.73	526.90	46.33
506.10	25.31	527.30	46.64
506.50	25.88	527.70	46.95
506.90	26.43	528.10	47.26
507.30	26.97	528.50	47.57
507.70	27.51	528.90	47.87
508.10	28.03	529.30	48.17
508.50	28.54	529.70	48.47
508.90	29.04	530.10	48.77
509.30	29.54	530.50	49.06
509.70	30.02	530.90	49.36
510.10	30.50	531.30	49.65
510.50	30.97	531.70	49.94
510.90	31.44	532.10	50.23
511.30	31.89	532.50	50.52
511.70	32.34	532.90	50.80
512.10	32.79	533.30	51.09
512.50	33.23	533.70	51.37
512.90	33.66	534.10	51.65
513.30	34.09	534.50	51.93
513.70	34.51	534.90	52.21
514.10	34.93	535.30	**52.49**
514.50	35.34		
514.90	35.75		
515.30	36.15		
515.70	36.55		
516.10	36.94		
516.50	37.33		
516.90	37.72		
517.30	38.10		

Stage-Area-Storage for Pond UFF#2: UP-FLO FILTER

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
496.50	**0**	517.70	0
496.90	0	518.10	0
497.30	0	518.50	0
497.70	0	518.90	0
498.10	0	519.30	0
498.50	0	519.70	0
498.90	0	520.10	0
499.30	0	520.50	0
499.70	0	520.90	0
500.10	0	521.30	0
500.50	0	521.70	0
500.90	0	522.10	0
501.30	0	522.50	0
501.70	0	522.90	0
502.10	0	523.30	0
502.50	0	523.70	0
502.90	0	524.10	0
503.30	0	524.50	0
503.70	0	524.90	0
504.10	0	525.30	0
504.50	0	525.70	0
504.90	0	526.10	0
505.30	0	526.50	0
505.70	0	526.90	0
506.10	0	527.30	0
506.50	0	527.70	0
506.90	0	528.10	0
507.30	0	528.50	0
507.70	0	528.90	0
508.10	0	529.30	0
508.50	0	529.70	0
508.90	0	530.10	0
509.30	0	530.50	0
509.70	0	530.90	0
510.10	0	531.30	0
510.50	0	531.70	0
510.90	0	532.10	0
511.30	0	532.50	0
511.70	0	532.90	0
512.10	0	533.30	0
512.50	0	533.70	0
512.90	0	534.10	0
513.30	0	534.50	0
513.70	0	534.90	0
514.10	0	535.30	0
514.50	0		
514.90	0		
515.30	0		
515.70	0		
516.10	0		
516.50	0		
516.90	0		
517.30	0		

Summary for Pond UGSP#1: P-UG SOLID PIPE SYSTEM

Inflow Area = 10.620 ac, 91.93% Impervious, Inflow Depth = 8.33" for 100-Year event
Inflow = 90.24 cfs @ 12.09 hrs, Volume= 7.371 af
Outflow = 66.42 cfs @ 12.17 hrs, Volume= 7.371 af, Atten= 26%, Lag= 4.8 min
Primary = 66.42 cfs @ 12.17 hrs, Volume= 7.371 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 488.71' @ 12.17 hrs Surf.Area= 19,097 sf Storage= 65,362 cf

Plug-Flow detention time= 36.6 min calculated for 7.361 af (100% of inflow)
Center-of-Mass det. time= 36.5 min (791.4 - 754.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	483.60'	0 cf	**50.25'W x 380.00'L x 5.58'H Field A** 106,633 cf Overall - 78,356 cf Embedded = 28,277 cf x 0.0% Voids
#2A	483.60'	66,006 cf	**ADS N-12 60"** x 171 Inside #1 Inside= 59.5"W x 59.5"H => 19.30 sf x 20.00'L = 386.0 cf Outside= 67.0"W x 67.0"H => 22.92 sf x 20.00'L = 458.4 cf 9 Rows of 19 Chambers
		66,006 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	483.60'	**12.0" W x 10.0" H Vert. Orifice/Grate** C= 0.600
#2	Primary	486.00'	**4.5' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=64.85 cfs @ 12.17 hrs HW=488.66' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 8.64 cfs @ 10.37 fps)
└—**2=Sharp-Crested Rectangular Weir** (Weir Controls 56.20 cfs @ 5.33 fps)

Pond UGSP#1: P-UG SOLID PIPE SYSTEM - Chamber Wizard Field A

Chamber Model = ADS N-12 60" (ADS N-12® Pipe)
Inside= 59.5"W x 59.5"H => 19.30 sf x 20.00'L = 386.0 cf
Outside= 67.0"W x 67.0"H => 22.92 sf x 20.00'L = 458.4 cf

19 Chambers/Row x 20.00' Long = 380.00' Row Length
9 Rows x 67.0" Wide = 50.25' Base Width
67.0" Chamber Height = 5.58' Field Height

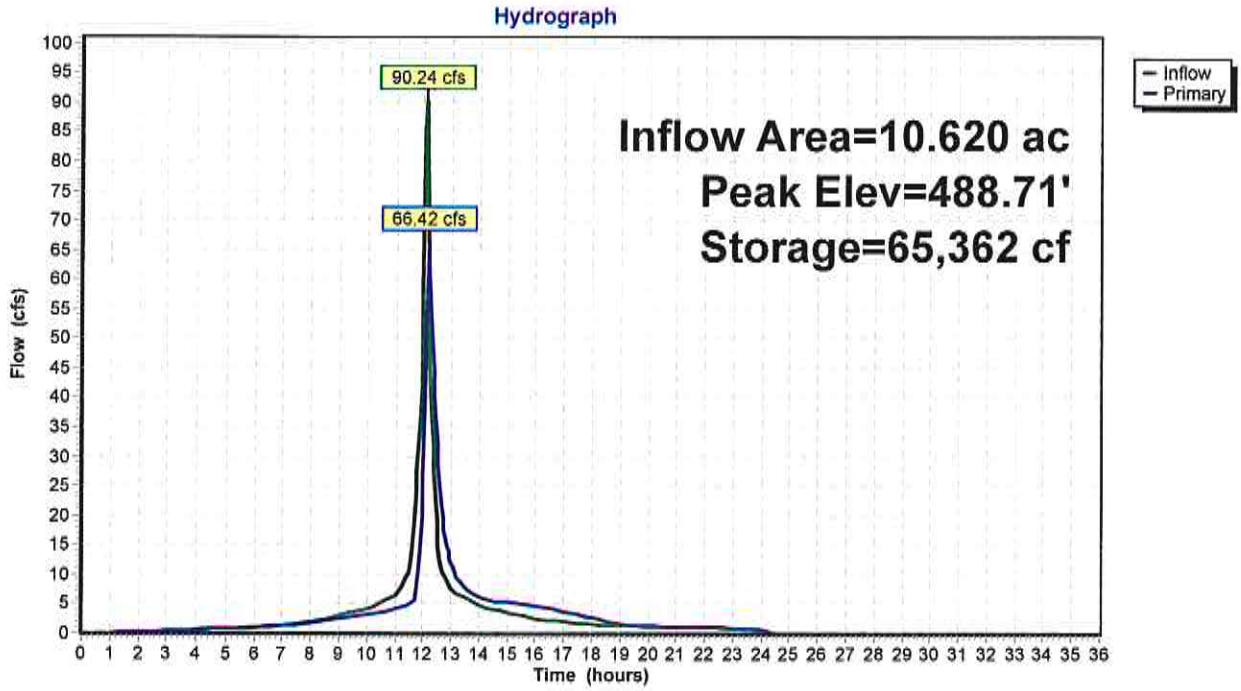
171 Chambers x 386.0 cf = 66,005.9 cf Chamber Storage
171 Chambers x 458.4 cf = 78,389.3 cf Displacement

106,632.8 cf Field - 78,389.3 cf Chambers = 28,243.6 cf Stone x 0.0% Voids = 0.0 cf Stone Storage

Chamber Storage = 66,005.9 cf = 1.515 af
Overall Storage Efficiency = 61.9%
Overall System Size = 380.00' x 50.25' x 5.58'

171 Chambers
3,949.4 cy Field
1,046.1 cy Stone

Pond UGSP#1: P-UG SOLID PIPE SYSTEM



Stage-Discharge for Pond UGSP#1: P-UG SOLID PIPE SYSTEM

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
483.60	0.00	485.72	5.22	487.84	41.57
483.64	0.03	485.76	5.29	487.88	42.64
483.68	0.07	485.80	5.35	487.92	43.73
483.72	0.13	485.84	5.41	487.96	44.82
483.76	0.21	485.88	5.47	488.00	45.93
483.80	0.29	485.92	5.52	488.04	47.03
483.84	0.38	485.96	5.58	488.08	48.15
483.88	0.48	486.00	5.64	488.12	49.27
483.92	0.58	486.04	5.81	488.16	50.39
483.96	0.69	486.08	6.09	488.20	51.53
484.00	0.81	486.12	6.42	488.24	52.66
484.04	0.94	486.16	6.80	488.28	53.81
484.08	1.07	486.20	7.22	488.32	54.96
484.12	1.20	486.24	7.69	488.36	56.11
484.16	1.35	486.28	8.18	488.40	57.27
484.20	1.49	486.32	8.71	488.44	58.44
484.24	1.64	486.36	9.26	488.48	59.61
484.28	1.80	486.40	9.84	488.52	60.78
484.32	1.96	486.44	10.45	488.56	61.96
484.36	2.13	486.48	11.08	488.60	63.15
484.40	2.30	486.52	11.73	488.64	64.34
484.44	2.47	486.56	12.40	488.68	65.53
484.48	2.62	486.60	13.10	488.72	66.73
484.52	2.75	486.64	13.81	488.76	67.93
484.56	2.87	486.68	14.54	488.80	69.14
484.60	2.99	486.72	15.29	488.84	70.35
484.64	3.10	486.76	16.06	488.88	71.56
484.68	3.21	486.80	16.84	488.92	72.78
484.72	3.31	486.84	17.64	488.96	74.00
484.76	3.41	486.88	18.46	489.00	75.22
484.80	3.51	486.92	19.29	489.04	76.45
484.84	3.60	486.96	20.13	489.08	77.68
484.88	3.69	487.00	20.99	489.12	78.91
484.92	3.78	487.04	21.86	489.16	**80.15**
484.96	3.86	487.08	22.74		
485.00	3.95	487.12	23.64		
485.04	4.03	487.16	24.55		
485.08	4.11	487.20	25.47		
485.12	4.19	487.24	26.40		
485.16	4.27	487.28	27.34		
485.20	4.34	487.32	28.29		
485.24	4.42	487.36	29.26		
485.28	4.49	487.40	30.23		
485.32	4.56	487.44	31.22		
485.36	4.63	487.48	32.21		
485.40	4.70	487.52	33.22		
485.44	4.77	487.56	34.23		
485.48	4.84	487.60	35.25		
485.52	4.90	487.64	36.29		
485.56	4.97	487.68	37.33		
485.60	5.03	487.72	38.37		
485.64	5.10	487.76	39.43		
485.68	5.16	487.80	40.49		

Stage-Area-Storage for Pond UGSP#1: P-UG SOLID PIPE SYSTEM

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
483.60	0	485.72	21,753	487.84	56,074
483.64	0	485.76	22,407	487.88	56,621
483.68	0	485.80	23,064	487.92	57,159
483.72	0	485.84	23,724	487.96	57,689
483.76	0	485.88	24,386	488.00	58,209
483.80	0	485.92	25,051	488.04	58,720
483.84	0	485.96	25,718	488.08	59,222
483.88	0	486.00	26,386	488.12	59,713
483.92	33	486.04	27,057	488.16	60,194
483.96	99	486.08	27,729	488.20	60,664
484.00	258	486.12	28,402	488.24	61,122
484.04	453	486.16	29,077	488.28	61,567
484.08	683	486.20	29,753	488.32	62,000
484.12	942	486.24	30,429	488.36	62,419
484.16	1,225	486.28	31,106	488.40	62,824
484.20	1,531	486.32	31,784	488.44	63,214
484.24	1,857	486.36	32,462	488.48	63,588
484.28	2,203	486.40	33,140	488.52	63,944
484.32	2,567	486.44	33,818	488.56	64,282
484.36	2,947	486.48	34,496	488.60	64,601
484.40	3,343	486.52	35,173	488.64	64,898
484.44	3,754	486.56	35,850	488.68	65,171
484.48	4,179	486.60	36,527	488.72	65,418
484.52	4,617	486.64	37,202	488.76	65,635
484.56	5,068	486.68	37,876	488.80	65,817
484.60	5,531	486.72	38,549	488.84	65,947
484.64	6,005	486.76	39,220	488.88	**66,024**
484.68	6,490	486.80	39,890	488.92	**66,006**
484.72	6,985	486.84	40,558	488.96	66,006
484.76	7,491	486.88	41,224	489.00	66,006
484.80	8,006	486.92	41,888	489.04	66,006
484.84	8,530	486.96	42,549	489.08	66,006
484.88	9,063	487.00	43,208	489.12	66,006
484.92	9,605	487.04	43,864	489.16	66,006
484.96	10,155	487.08	44,517		
485.00	10,712	487.12	45,167		
485.04	11,277	487.16	45,813		
485.08	11,849	487.20	46,456		
485.12	12,427	487.24	47,095		
485.16	13,013	487.28	47,730		
485.20	13,604	487.32	48,361		
485.24	14,202	487.36	48,988		
485.28	14,805	487.40	49,610		
485.32	15,414	487.44	50,227		
485.36	16,028	487.48	50,839		
485.40	16,647	487.52	51,445		
485.44	17,271	487.56	52,046		
485.48	17,899	487.60	52,642		
485.52	18,532	487.64	53,231		
485.56	19,169	487.68	53,813		
485.60	19,809	487.72	54,389		
485.64	20,454	487.76	54,958		
485.68	21,102	487.80	55,520		

Summary for Pond UIS: P-UG INFILTRATION SYSTEM

Inflow Area = 5.188 ac,100.00% Impervious, Inflow Depth = 8.76" for 100-Year event
Inflow = 44.78 cfs @ 12.09 hrs, Volume= 3.787 af
Outflow = 34.12 cfs @ 12.17 hrs, Volume= 3.787 af, Atten= 24%, Lag= 5.1 min
Discarded = 9.80 cfs @ 12.17 hrs, Volume= 3.394 af
Primary = 24.32 cfs @ 12.17 hrs, Volume= 0.393 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 486.49' @ 12.17 hrs Surf.Area= 8,304 sf Storage= 31,186 cf

Plug-Flow detention time= 19.0 min calculated for 3.782 af (100% of inflow)
Center-of-Mass det. time= 19.0 min (758.8 - 739.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	480.50'	12,410 cf	**38.50'W x 215.70'L x 6.00'H Field A** 49,827 cf Overall - 18,801 cf Embedded = 31,026 cf x 40.0% Voids
#2A	481.50'	18,801 cf	**Cultec R-902HD** x 290 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 5 Rows of 58 Chambers Cap Storage= +2.8 cf x 2 x 5 rows = 27.6 cf
		31,211 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	480.50'	**17.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 477.50' Phase-In= 0.01'
#2	Primary	485.20'	**5.5' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=9.65 cfs @ 12.17 hrs HW=486.36' (Free Discharge)
↑**1=Exfiltration** (Controls 9.65 cfs)

Primary OutFlow Max=21.59 cfs @ 12.17 hrs HW=486.36' (Free Discharge)
↑**2=Sharp-Crested Rectangular Weir** (Weir Controls 21.59 cfs @ 3.53 fps)

Pond UIS: P-UG INFILTRATION SYSTEM - Chamber Wizard Field A

Chamber Model = Cultec R-902HD (Cultec Recharger® 902HD)
Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf
Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap
Cap Storage= +2.8 cf x 2 x 5 rows = 27.6 cf

78.0" Wide + 12.0" Spacing = 90.0" C-C Row Spacing

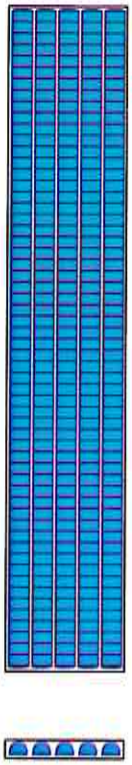
58 Chambers/Row x 3.67' Long +0.52' Cap Length x 2 = 213.70' Row Length +12.0" End Stone x 2 = 215.70' Base Length
5 Rows x 78.0" Wide + 12.0" Spacing x 4 + 12.0" Side Stone x 2 = 38.50' Base Width
12.0" Base + 48.0" Chamber Height + 12.0" Cover = 6.00' Field Height

290 Chambers x 64.7 cf + 2.8 cf Cap Volume x 2 x 5 Rows = 18,800.8 cf Chamber Storage

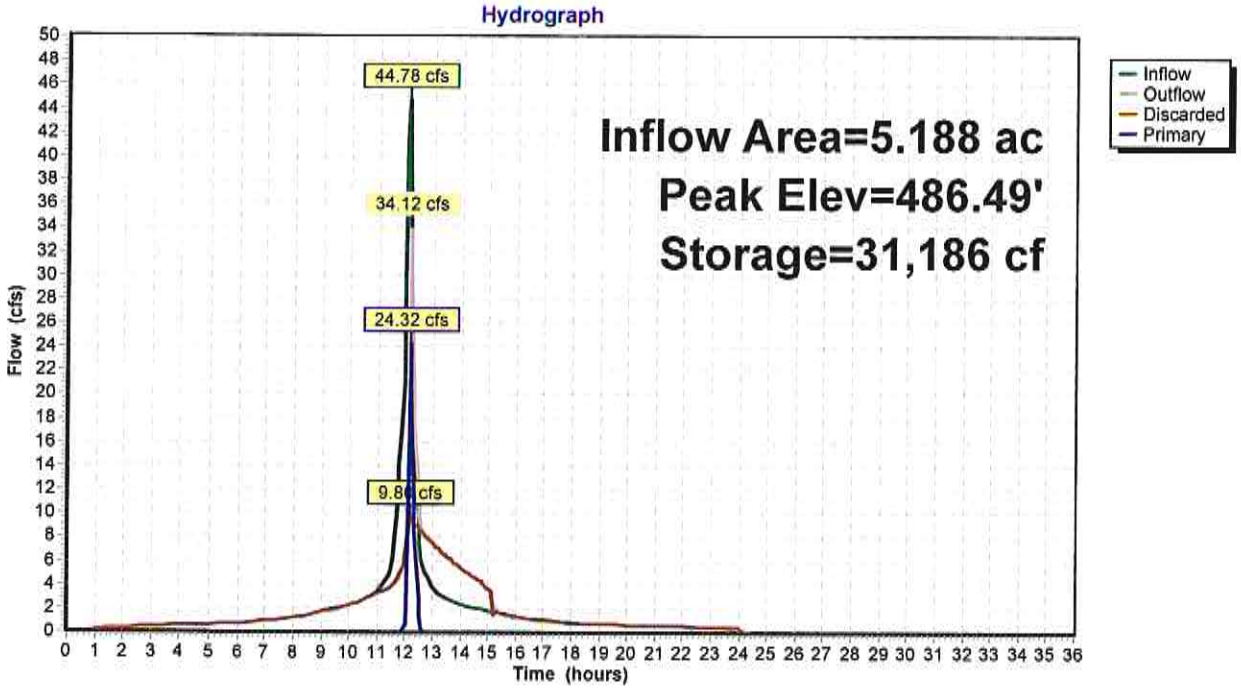
49,826.7 cf Field - 18,800.8 cf Chambers = 31,025.9 cf Stone x 40.0% Voids = 12,410.4 cf Stone Storage

Chamber Storage + Stone Storage = 31,211.1 cf = 0.717 af
Overall Storage Efficiency = 62.6%
Overall System Size = 215.70' x 38.50' x 6.00'

290 Chambers
1,845.4 cy Field
1,149.1 cy Stone



Pond UIS: P-UG INFILTRATION SYSTEM



Stage-Discharge for Pond UIS: P-UG INFILTRATION SYSTEM

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
480.50	0.00	0.00	0.00
480.60	3.38	3.38	0.00
480.70	3.49	3.49	0.00
480.80	3.59	3.59	0.00
480.90	3.70	3.70	0.00
481.00	3.81	3.81	0.00
481.10	3.92	3.92	0.00
481.20	4.03	4.03	0.00
481.30	4.14	4.14	0.00
481.40	4.25	4.25	0.00
481.50	4.36	4.36	0.00
481.60	4.47	4.47	0.00
481.70	4.58	4.58	0.00
481.80	4.68	4.68	0.00
481.90	4.79	4.79	0.00
482.00	4.90	4.90	0.00
482.10	5.01	5.01	0.00
482.20	5.12	5.12	0.00
482.30	5.23	5.23	0.00
482.40	5.34	5.34	0.00
482.50	5.45	5.45	0.00
482.60	5.56	5.56	0.00
482.70	5.66	5.66	0.00
482.80	5.77	5.77	0.00
482.90	5.88	5.88	0.00
483.00	5.99	5.99	0.00
483.10	6.10	6.10	0.00
483.20	6.21	6.21	0.00
483.30	6.32	6.32	0.00
483.40	6.43	6.43	0.00
483.50	6.54	6.54	0.00
483.60	6.64	6.64	0.00
483.70	6.75	6.75	0.00
483.80	6.86	6.86	0.00
483.90	6.97	6.97	0.00
484.00	7.08	7.08	0.00
484.10	7.19	7.19	0.00
484.20	7.30	7.30	0.00
484.30	7.41	7.41	0.00
484.40	7.52	7.52	0.00
484.50	7.63	7.63	0.00
484.60	7.73	7.73	0.00
484.70	7.84	7.84	0.00
484.80	7.95	7.95	0.00
484.90	8.06	8.06	0.00
485.00	8.17	8.17	0.00
485.10	8.28	8.28	0.00
485.20	8.39	8.39	0.00
485.30	9.06	8.50	0.57
485.40	10.20	8.61	1.60
485.50	11.64	8.71	2.92
485.60	13.31	8.82	4.48
485.70	15.18	8.93	6.24
485.80	17.22	9.04	8.18
485.90	19.42	9.15	10.27
486.00	21.75	9.26	12.49
486.10	24.22	9.37	14.85
486.20	26.81	9.48	17.33
486.30	29.51	9.59	19.92
486.40	32.31	9.69	22.61
486.50	**35.20**	**9.80**	**25.40**

Stage-Area-Storage for Pond UIS: P-UG INFILTRATION SYSTEM

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
480.50	**8,304**	0
480.60	8,304	332
480.70	8,304	664
480.80	8,304	997
480.90	8,304	1,329
481.00	8,304	1,661
481.10	8,304	1,993
481.20	8,304	2,325
481.30	8,304	2,657
481.40	8,304	2,990
481.50	8,304	3,322
481.60	8,304	4,022
481.70	8,304	4,725
481.80	8,304	5,425
481.90	8,304	6,122
482.00	8,304	6,816
482.10	8,304	7,509
482.20	8,304	8,201
482.30	8,304	8,890
482.40	8,304	9,574
482.50	8,304	10,255
482.60	8,304	10,936
482.70	8,304	11,614
482.80	8,304	12,287
482.90	8,304	12,957
483.00	8,304	13,625
483.10	8,304	14,289
483.20	8,304	14,950
483.30	8,304	15,608
483.40	8,304	16,263
483.50	8,304	16,915
483.60	8,304	17,561
483.70	8,304	18,204
483.80	8,304	18,842
483.90	8,304	19,473
484.00	8,304	20,099
484.10	8,304	20,717
484.20	8,304	21,327
484.30	8,304	21,931
484.40	8,304	22,522
484.50	8,304	23,104
484.60	8,304	23,675
484.70	8,304	24,232
484.80	8,304	24,775
484.90	8,304	25,303
485.00	8,304	25,813
485.10	8,304	26,300
485.20	8,304	26,753
485.30	8,304	27,166
485.40	8,304	27,540
485.50	8,304	27,889
485.60	8,304	28,222
485.70	8,304	28,554
485.80	8,304	28,886
485.90	8,304	29,218
486.00	8,304	29,550
486.10	8,304	29,882
486.20	8,304	30,215
486.30	8,304	30,547
486.40	8,304	30,879
486.50	8,304	**31,211**

Section 3: NOI & MS4

SUMMERVILLE INDUSTRIAL PARK

VILLAGE OF CHESTER
ORANGE COUNTY
NEW YORK

SECTION 3:

SPDES ACKNOWLEDGEMENT LETTER, FILLED OUT NOTICE OF INTENT (N.O.I.), AND MS4 SWPPP ACCEPTANCE FORM

BY

ATZL, NASHER & ZIGLER
ENGINEERS-SURVEYORS-PLANNERS
232 NORTH MAIN STREET
NEW CITY, NY 10956
TEL: (845) 634-4694
FAX: (845) 634-5543
E-MAIL: rnasher@anzny.com

0644089821

NOTICE OF INTENT

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

NYR _____ (for DEC use only)

Stormwater Discharges Associated with Construction Activity Under State Pollutant Discharge Elimination System (SPDES) General Permit # GP-0-20-001

All sections must be completed unless otherwise noted. Failure to complete all items may result in this form being returned to you, thereby delaying your coverage under this General Permit. Applicants must read and understand the conditions of the permit and prepare a Stormwater Pollution Prevention Plan prior to submitting this NOI. Applicants are responsible for identifying and obtaining other DEC permits that may be required.

-IMPORTANT-

RETURN THIS FORM TO THE ADDRESS ABOVE

OWNER/OPERATOR **MUST SIGN FORM**

Owner/Operator Information

Owner/Operator (Company Name/Private Owner Name/Municipality Name)
TRODALE DEVELOPERS LLC

Owner/Operator Contact Person Last Name (NOT CONSULTANT)
KARNIOL

Owner/Operator Contact Person First Name
BEREL

Owner/Operator Mailing Address
1 EXECUTIVE BLVD SUITE 101

City
SUFFERN

State
NY

Zip
10901 - ____

Phone (Owner/Operator)
845 - 367 - 9420

Fax (Owner/Operator)
___ - ___ - ____

Email (Owner/Operator)
BEREL@TRODALE.COM

FED TAX ID
__ - _____ (not required for individuals)

Project Site Information

Project/Site Name
SUMMERVILLE INDUSTRIAL PARK

Street Address (NOT P.O. BOX)
SUMMERVILLE WAY

Side of Street
○ North ● South ○ East ○ West

City/Town/Village (THAT ISSUES BUILDING PERMIT)
CHESTER

State: NY
Zip: 10918 -
County: ORANGE
DEC Region: 3

Name of Nearest Cross Street
NUCIFORA BLVD

Distance to Nearest Cross Street (Feet)
510

Project In Relation to Cross Street
○ North ○ South ● East ○ West

Tax Map Numbers
Section-Block-Parcel
116-1-1.2

Tax Map Numbers
116-1-2

1. Provide the Geographic Coordinates for the project site. To do this, go to the NYSDEC Stormwater Interactive Map on the DEC website at:

https://gisservices.dec.ny.gov/gis/stormwater/

Zoom into your Project Location such that you can accurately click on the centroid of your site. Once you have located the centroid of your project site, go to the bottom right hand corner of the map for the X, Y coordinates. Enter the coordinates into the boxes below. For problems with the interactive map use the help function.

X Coordinates (Easting)
-7 4286
Ex. -73.749

Y Coordinates (Northing)
41353
Ex. 42.652

2. What is the nature of this construction project?

● **New Construction**

○ **Redevelopment with increase in impervious area**

○ **Redevelopment with no increase in impervious area**

3. Select the predominant land use for both pre and post development conditions.
SELECT ONLY ONE CHOICE FOR EACH

Pre-Development Existing Land Use

- ○ FOREST
- ○ PASTURE/OPEN LAND
- ○ CULTIVATED LAND
- ○ SINGLE FAMILY HOME
- ○ SINGLE FAMILY SUBDIVISION
- ○ TOWN HOME RESIDENTIAL
- ○ MULTIFAMILY RESIDENTIAL
- ○ INSTITUTIONAL/SCHOOL
- ● INDUSTRIAL
- ○ COMMERCIAL
- ○ ROAD/HIGHWAY
- ○ RECREATIONAL/SPORTS FIELD
- ○ BIKE PATH/TRAIL
- ○ LINEAR UTILITY
- ○ PARKING LOT
- ○ OTHER

Post-Development Future Land Use

- ○ SINGLE FAMILY HOME — Number of Lots
- ○ SINGLE FAMILY SUBDIVISION
- ○ TOWN HOME RESIDENTIAL
- ○ MULTIFAMILY RESIDENTIAL
- ○ INSTITUTIONAL/SCHOOL
- ● INDUSTRIAL
- ○ COMMERCIAL
- ○ MUNICIPAL
- ○ ROAD/HIGHWAY
- ○ RECREATIONAL/SPORTS FIELD
- ○ BIKE PATH/TRAIL
- ○ LINEAR UTILITY (water, sewer, gas, etc.)
- ○ PARKING LOT
- ○ CLEARING/GRADING ONLY
- ○ DEMOLITION, NO REDEVELOPMENT
- ○ WELL DRILLING ACTIVITY *(Oil, Gas, etc.)
- ○ OTHER

***Note**: for gas well drilling, non-high volume hydraulic fractured wells only

4. In accordance with the larger common plan of development or sale, enter the total project site area; the total area to be disturbed; existing impervious area to be disturbed (for redevelopment activities); and the future impervious area constructed within the disturbed area. (Round to the nearest tenth of an acre.)

Total Site Area	Total Area To Be Disturbed	Existing Impervious Area To Be Disturbed	Future Impervious Area Within Disturbed Area
40.0	19.5	0.0	15.4

5. Do you plan to disturb more than 5 acres of soil at any one time? ● Yes ○ No

6. Indicate the percentage of each Hydrologic Soil Group(HSG) at the site.

A	B	C	D
29 %	%	55 %	16 %

7. Is this a phased project? ● Yes ○ No

8. Enter the planned start and end dates of the disturbance activities.

Start Date	End Date
10/09/2023	10/17/2025

9. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.

Name

BLACK MEADOW CREEK

9a. Type of waterbody identified in Question 9?

- ○ Wetland / State Jurisdiction On Site (Answer 9b)
- ○ Wetland / State Jurisdiction Off Site
- ○ Wetland / Federal Jurisdiction On Site (Answer 9b)
- ○ Wetland / Federal Jurisdiction Off Site
- ○ Stream / Creek On Site
- ● Stream / Creek Off Site
- ○ River On Site
- ○ River Off Site
- ○ Lake On Site
- ○ Lake Off Site
- ○ Other Type On Site
- ○ Other Type Off Site

9b. How was the wetland identified?

- ○ Regulatory Map
- ○ Delineated by Consultant
- ○ Delineated by Army Corps of Engineers
- ● Other (identify)

NONE

10. Has the surface waterbody(ies) in question 9 been identified as a 303(d) segment in Appendix E of GP-0-20-001? ○ Yes ● No

11. Is this project located in one of the Watersheds identified in Appendix C of GP-0-20-001? ○ Yes ● No

12. Is the project located in one of the watershed areas associated with AA and AA-S classified waters? ○ Yes ● No
If no, skip question 13.

13. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey? ○ Yes ● No
If Yes, what is the acreage to be disturbed?

14. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area? ○ Yes ● No

15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)? ● Yes ○ No ○ Unknown

16. What is the name of the municipality/entity that owns the separate storm sewer system?

VILLAGE OF CHESTER

17. Does any runoff from the site enter a sewer classified as a Combined Sewer? ○ Yes ● No ○ Unknown

18. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law? ○ Yes ● No

19. Is this property owned by a state authority, state agency, federal government or local government? ○ Yes ● No

20. Is this a remediation project being done under a Department approved work plan? (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.) ○ Yes ● No

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)? ● Yes ○ No

22. Does this construction activity require the development of a SWPPP that includes the post-construction stormwater management practice component (i.e. Runoff Reduction, Water Quality and Quantity Control practices/techniques)? ● Yes ○ No
If No, skip questions 23 and 27-39.

23. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual? ● Yes ○ No

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:

- ● **Professional Engineer (P.E.)**
- ○ **Soil and Water Conservation District (SWCD)**
- ○ **Registered Landscape Architect (R.L.A)**
- ○ **Certified Professional in Erosion and Sediment Control (CPESC)**
- ○ **Owner/Operator**
- ○ **Other**

SWPPP Preparer

ATZL, NASHER & ZIGLER

Contact Name (Last, Space, First)

NASHER RYAN

Mailing Address

232 NORTH MAIN STREET

City

NEW CITY

State NY Zip 10956 -

Phone 845 - 634 - 4694

Fax 845 - 634 - 5543

Email

RNASHER@ANZNY.COM

SWPPP Preparer Certification

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-20-001. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

First Name RYAN **MI** A

Last Name NASHER

Signature

Date / /

25. Has a construction sequence schedule for the planned management practices been prepared? ● Yes ○ No

26. Select **all** of the erosion and sediment control practices that will be employed on the project site:

Temporary Structural

- ○ Check Dams
- ○ Construction Road Stabilization
- ○ Dust Control
- ○ Earth Dike
- ○ Level Spreader
- ○ Perimeter Dike/Swale
- ○ Pipe Slope Drain
- ○ Portable Sediment Tank
- ○ Rock Dam
- ○ Sediment Basin
- ○ Sediment Traps
- ● Silt Fence
- ● Stabilized Construction Entrance
- ● Storm Drain Inlet Protection
- ○ Straw/Hay Bale Dike
- ○ Temporary Access Waterway Crossing
- ○ Temporary Stormdrain Diversion
- ○ Temporary Swale
- ○ Turbidity Curtain
- ○ Water bars

Biotechnical

- ○ Brush Matting
- ○ Wattling

Vegetative Measures

- ○ Brush Matting
- ○ Dune Stabilization
- ○ Grassed Waterway
- ● Mulching
- ○ Protecting Vegetation
- ○ Recreation Area Improvement
- ● Seeding
- ○ Sodding
- ○ Straw/Hay Bale Dike
- ○ Streambank Protection
- ○ Temporary Swale
- ● Topsoiling
- ○ Vegetating Waterways

Permanent Structural

- ○ Debris Basin
- ○ Diversion
- ○ Grade Stabilization Structure
- ● Land Grading
- ○ Lined Waterway (Rock)
- ○ Paved Channel (Concrete)
- ○ Paved Flume
- ● Retaining Wall
- ○ Riprap Slope Protection
- ○ Rock Outlet Protection
- ○ Streambank Protection

Other

CONCRETE WASHOUT, STOCKPILE

Post-construction Stormwater Management Practice (SMP) Requirements

Important: Completion of Questions 27-39 is not required if response to Question 22 is No.

27. Identify all site planning practices that were used to prepare the final site plan/layout for the project.

- ○ **Preservation of Undisturbed Areas**
- ○ **Preservation of Buffers**
- ○ **Reduction of Clearing and Grading**
- ● **Locating Development in Less Sensitive Areas**
- ○ **Roadway Reduction**
- ○ **Sidewalk Reduction**
- ○ **Driveway Reduction**
- ○ **Cul-de-sac Reduction**
- ○ **Building Footprint Reduction**
- ○ **Parking Reduction**

27a. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6("Soil Restoration") of the Design Manual (2010 version).

- ● All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).
- ○ Compacted areas were considered as impervious cover when calculating the **WQv Required**, and the compacted areas were assigned a post-construction Hydrologic Soil Group (HSG) designation that is one level less permeable than existing conditions for the hydrology analysis.

28. Provide the total Water Quality Volume (WQv) required for this project (based on final site plan/layout).

Total WQv Required

1.7 **acre-feet**

29. Identify the RR techniques (Area Reduction), RR techniques(Volume Reduction) and Standard SMPs with RRv Capacity in Table 1 (See Page 9) that were used to reduce the Total WQv Required(#28).

Also, provide in Table 1 the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

Note: Redevelopment projects shall use Tables 1 and 2 to identify the SMPs used to treat and/or reduce the WQv required. If runoff reduction techniques will not be used to reduce the required WQv, skip to question 33a after identifying the SMPs.

Table 1 - Runoff Reduction (RR) Techniques and Standard Stormwater Management Practices (SMPs)

RR Techniques (Area Reduction)	Total Contributing Area (acres)		Total Contributing Impervious Area (acres)
○ Conservation of Natural Areas (RR-1)		and/or	
○ Sheetflow to Riparian Buffers/Filters Strips (RR-2)		and/or	
○ Tree Planting/Tree Pit (RR-3)		and/or	
○ Disconnection of Rooftop Runoff (RR-4)		and/or	

RR Techniques (Volume Reduction)	
○ Vegetated Swale (RR-5)	
○ Rain Garden (RR-6)	
○ Stormwater Planter (RR-7)	
○ Rain Barrel/Cistern (RR-8)	
○ Porous Pavement (RR-9)	
○ Green Roof (RR-10)	

Standard SMPs with RRv Capacity	
○ Infiltration Trench (I-1)	
○ Infiltration Basin (I-2)	
○ Dry Well (I-3)	
● Underground Infiltration System (I-4)	5.188
○ Bioretention (F-5)	
○ Dry Swale (O-1)	

Standard SMPs	
○ Micropool Extended Detention (P-1)	
○ Wet Pond (P-2)	
○ Wet Extended Detention (P-3)	
○ Multiple Pond System (P-4)	
○ Pocket Pond (P-5)	
○ Surface Sand Filter (F-1)	
○ Underground Sand Filter (F-2)	
○ Perimeter Sand Filter (F-3)	
○ Organic Filter (F-4)	
○ Shallow Wetland (W-1)	
○ Extended Detention Wetland (W-2)	
○ Pond/Wetland System (W-3)	
○ Pocket Wetland (W-4)	
○ Wet Swale (O-2)	

Table 2 - Alternative SMPs
(DO NOT INCLUDE PRACTICES BEING USED FOR PRETREATMENT ONLY)

Alternative SMP	Total Contributing Impervious Area (acres)
○ Hydrodynamic	
○ Wet Vault	
● Media Filter	9.763
○ Other _____	

Provide the name and manufacturer of the Alternative SMPs (i.e. proprietary practice(s)) being used for WQv treatment.

Name: UP-FLO FILTER

Manufacturer: HYDRO INTERNATIONAL

Note: Redevelopment projects which do not use RR techniques, shall use questions 28, 29, 33 and 33a to provide SMPs used, total WQv required and total WQv provided for the project.

30. Indicate the Total RRv provided by the RR techniques (Area/Volume Reduction) and Standard SMPs with RRv capacity identified in question 29.

Total RRv provided

0.614 **acre-feet**

31. Is the Total RRv provided (#30) greater than or equal to the total WQv required (#28).

○ Yes ● No

If Yes, go to question 36.
If No, go to question 32.

32. Provide the Minimum RRv required based on HSG.
[Minimum RRv Required = (P)(0.95)(Ai)/12, Ai=(S)(Aic)]

Minimum RRv Required

0.613 **acre-feet**

32a. Is the Total RRv provided (#30) greater than or equal to the Minimum RRv Required (#32)?

● Yes ○ No

If Yes, go to question 33.
Note: Use the space provided in question #39 to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). A detailed evaluation of the specific site limitations and justification for not reducing 100% of the WQv required (#28) must also be included in the SWPPP.
If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

33. Identify the Standard SMPs in Table 1 and, if applicable, the Alternative SMPs in Table 2 that were used to treat the remaining total WQv(=Total WQv Required in 28 - Total RRv Provided in 30).

Also, provide in Table 1 and 2 the total impervious area that contributes runoff to each practice selected.

Note: Use Tables 1 and 2 to identify the SMPs used on Redevelopment projects.

33a. Indicate the Total WQv provided (i.e. WQv treated) by the SMPs identified in question #33 and Standard SMPs with RRv Capacity identified in question 29.

WQv Provided

1.146 **acre-feet**

Note: For the standard SMPs with RRv capacity, the WQv provided by each practice = the WQv calculated using the contributing drainage area to the practice - RRv provided by the practice. (See Table 3.5 in Design Manual)

34. Provide the sum of the Total RRv provided (#30) and the WQv provided (#33a). 1.76

35. Is the sum of the RRv provided (#30) and the WQv provided (#33a) greater than or equal to the total WQv required (#28)? ● **Yes** ○ **No**

If Yes, go to question 36.
If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

36. Provide the total Channel Protection Storage Volume (CPv) required and provided or select waiver (36a), if applicable.

CPv Required

0.0 **acre-feet**

CPv Provided

0.0 **acre-feet**

36a. The need to provide channel protection has been waived because:

○ Site discharges directly to tidal waters or a fifth order or larger stream.

● Reduction of the total CPv is achieved on site through runoff reduction techniques or infiltration systems.

37. Provide the Overbank Flood (Qp) and Extreme Flood (Qf) control criteria or select waiver (37a), if applicable.

Total Overbank Flood Control Criteria (Qp)

Pre-Development

37.98 **CFS**

Post-development

26.78 **CFS**

Total Extreme Flood Control Criteria (Qf)

Pre-Development

108.28 **CFS**

Post-development

106.21 **CFS**

37a. The need to meet the Qp and Qf criteria has been waived because:

- ○ Site discharges directly to tidal waters or a fifth order or larger stream.
- ○ Downstream analysis reveals that the Qp and Qf controls are not required

38. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed? ● Yes ○ No

If Yes, Identify the entity responsible for the long term Operation and Maintenance

THE PROPERTY OWNER

39. Use this space to summarize the specific site limitations and justification for not reducing 100% of WQv required(#28). (See question 32a) This space can also be used for other pertinent project information.

40. Identify other DEC permits, existing and new, that are required for this project/facility.

- ○ Air Pollution Control
- ○ Coastal Erosion
- ○ Hazardous Waste
- ○ Long Island Wells
- ○ Mined Land Reclamation
- ○ Solid Waste
- ○ Navigable Waters Protection / Article 15
- ○ Water Quality Certificate
- ○ Dam Safety
- ○ Water Supply
- ○ Freshwater Wetlands/Article 24
- ○ Tidal Wetlands
- ○ Wild, Scenic and Recreational Rivers
- ○ Stream Bed or Bank Protection / Article 15
- ○ Endangered or Threatened Species(Incidental Take Permit)
- ○ Individual SPDES
- ○ SPDES Multi-Sector GP [N][Y][R][ ][ ][ ][ ][ ][ ]
- ○ Other [ ]
- ● None

41. Does this project require a US Army Corps of Engineers Wetland Permit? ○ Yes ● No
If Yes, Indicate Size of Impact. [ ][ ][ ][ ][ ][ ].[ ]

42. Is this project subject to the requirements of a regulated, traditional land use control MS4? ● Yes ○ No
(If No, skip question 43)

43. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI? ● Yes ○ No

44. If this NOI is being submitted for the purpose of continuing or transferring coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned. [N][Y][R][ ][ ][ ][ ][ ][ ]

Owner/Operator Certification

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) business days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Print First Name: BEREL

MI:

Print Last Name: KARNIOL

Owner/Operator Signature:

Date: / /

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

NYS Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

MS4 Stormwater Pollution Prevention Plan (SWPPP) Acceptance Form

for

Construction Activities Seeking Authorization Under SPDES General Permit

*(NOTE: Attach Completed Form to Notice Of Intent and Submit to Address Above)

I. Project Owner/Operator Information	
1. Owner/Operator Name:	TRODALE DEVELOPERS LLC
2. Contact Person:	BAREL KARNIOL
3. Street Address:	1 EXECUTIVE BLVD SUITE 101
4. City/State/Zip:	SUFFERN / NY / 10901
II. Project Site Information	
5. Project/Site Name:	SUMMERVILLE INDUSTRIAL PARK
6. Street Address:	SUMMERVILLE WAY
7. City/State/Zip:	CHESTER, NEW YORK 10918
III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information	
8. SWPPP Reviewed by:	LANC & TULLY
9. Title/Position:	VILLAGE ENGINEER
10. Date Final SWPPP Reviewed and Accepted:	
IV. Regulated MS4 Information	
11. Name of MS4:	VILLAGE OF CHESTER
12. MS4 SPDES Permit Identification Number: NYR20A	126
13. Contact Person:	JOHN QUEENAN, P.E.
14. Street Address:	P.O.BOX 687
15. City/State/Zip:	GOSHEN/NY/10924
16. Telephone Number:	(845)294-3700

MS4 SWPPP Acceptance Form - continued

V. Certification Statement - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in question 5 has been reviewed and meets the substantive requirements in the SPDES General Permit For Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s). Note: The MS4, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name: JOHN QUEENAN, P.E.

Title/Position: VILLAGE ENGINEER

Signature:

Date:

VI. Additional Information

(NYS DEC - MS4 SWPPP Acceptance Form - January 2015)

Appendix - F

SUMMERVILLE INDUSTRIAL PARK

VILLAGE OF CHESTER
ORANGE COUNTY
NEW YORK

APPENDIX-F

INFILTRATION TEST CERTIFICATION

BY

ATZL, NASHER & ZIGLER
ENGINEERS-SURVEYORS-PLANNERS
232 NORTH MAIN STREET
NEW CITY, NY 10956
TEL: (845) 634-4694
FAX: (845) 634-5543
E-MAIL: rnasher@anzny.com

ATZL, NASHER & ZIGLER
ENGINEERS-SURVEYORS-PLANNERS
232 North Main Street, New City, NY 10956
Tel: (845) 634-4694 Fax: (845) 634-5543
Email: rnasher@anzny.com

July 26, 2023

Village of Chester Planning Board
47 Main Street
Chester, NY 10918

Att.: John Queenan, P.E.
Village Engineer

Re: Infiltration Test Certification
Summerville Industrial Park
(Job #3390)
Orange County, NY

Dear Mr. Queenan, P.E.,

A soil infiltration test and deep test hole were performed on June 15, 2023. A falling head test was performed with a 30-inch long, 6-inch diameter pipe. The bottom of the pipe was 2 feet below the elevation of the proposed infiltration practice which is shown in the infiltration test location map. The location map is attached to this report for your reference (Page-16). During the test, the water drop is measured in the 30-inch pipe after one (1) hour to determine the infiltration rate.

The results are as follows.

Test Hole #1

Infiltration test at a depth of 60-inches (5'-0") EL. 478.5.

Soil Log	Soil Type
0" to 12"	Topsoil
12" to 72"	Silty-sand

No groundwater, No Bedrock found at 72-inches (6'-0") deep (EL. 477.5).

Trial Number	Time to drop 24-inch
1	30 sec.
2	30 sec.
3	30 sec.
4	30 sec.

Average= $0.8\ \frac{inch}{sec}$ or $2{,}880\frac{inch}{hr}$

Test Hole #3

Infiltration test at a depth of 54-inches (4'-6") EL. 503.5.

Soil Log	Soil Type
0" to 12"	Topsoil & Slate
12" to 66"	Silty-clay

Groundwater was found at 2.5 feet (30-inch) deep EL. 505.5.

Test Hole #4

Infiltration test at a depth of 24-inches (2'-0") EL. 504.5.

Soil Log	Soil Type
0" to 12"	Topsoil & Slate
12" to 60"	Silty-clay

Groundwater was found at 2.0 feet (24-inch) deep EL. 504.5.

Test Hole #5

Infiltration test at a depth of 114-inches (9'-6") EL. 495.5.

Soil Log	Soil Type
0" to 12"	Topsoil & Slate
12" to 126"	Silty-clay

No groundwater, No Bedrock found at 126-inches (10'-6") deep (EL. 494.5).

Trial Number	Time to drop 24-inch
1	16 min.
2	27 min.
3	32 min.
4	38 min.

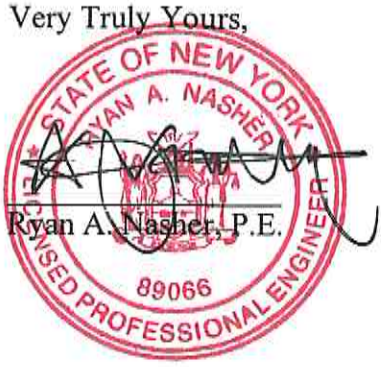
Average= $0.94\ \frac{inch}{sec}$ or $56\frac{inch}{hr}$

Note:

- The average infiltration rate for test hole #1 is 2,880 in/hr. The infiltration rate used to design the proposed infiltration system was 17.0 in/hr. Therefore, the design is adequate since the actual infiltration rate is way greater than the one used for the design of the proposed system.

If you have further questions or concerns, feel free to contact our office. Thank you.

Very Truly Yours,



Ryan A. Nasher, P.E.

Figure 1: View of deep test hole (Test Hole#1) at 72-inches deep and the 30-inch pvc pipe used to determine the infiltration rate.

Figure 2: View of the soil profile (Test Hole#1).

Figure 3: View of deep test hole (Test Hole#3) at 66-inches deep and the 30-inch pvc pipe used to determine the infiltration rate.

Figure 4: View of test hole no. 3, groundwater found at 2.5 feet (30-inch) deep EL. 505.5.

Figure 5: View of deep test hole (Test Hole#4) at 60-inches deep and the 30-inch pvc pipe used to determine the infiltration rate.

Figure 6: View of test hole no. 4, groundwater found at 2.0 feet (24-inch) deep EL. 504.5.

Figure 7: View of deep test hole (Test Hole#5) at 126-inches deep and the 30-inch pvc pipe used to determine the infiltration rate.

Figure 8: View of the soil profile (Test Hole#5).

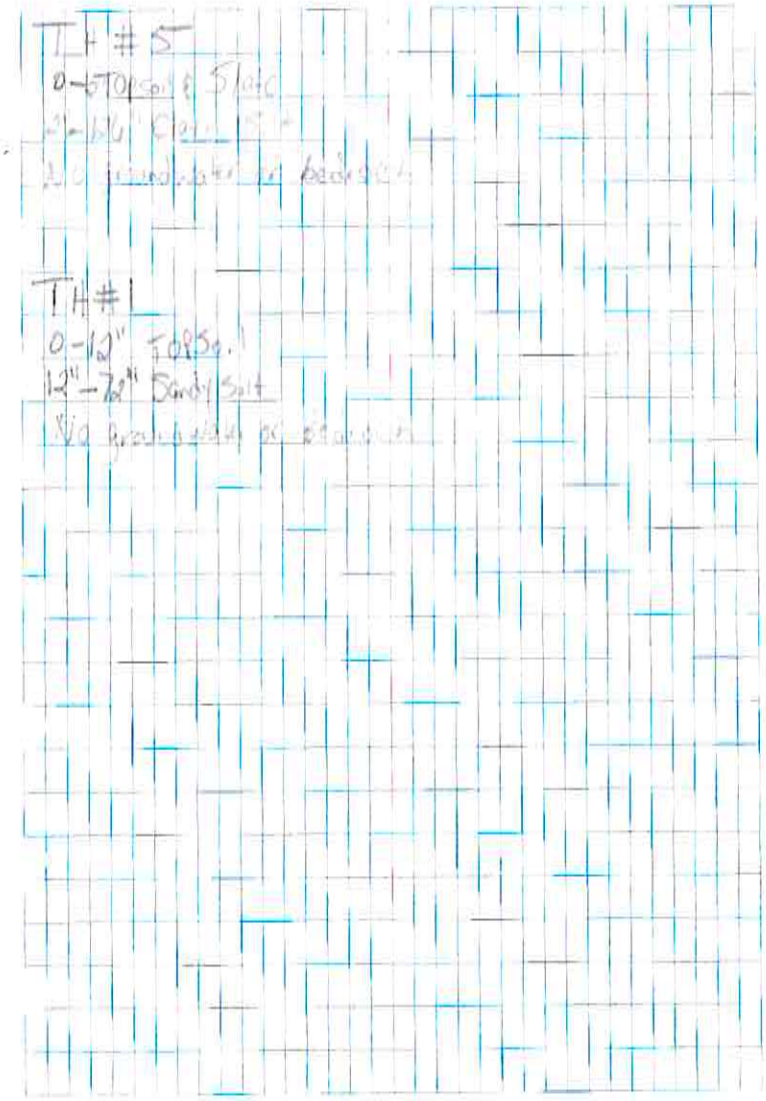


Figure 9: Field notes.

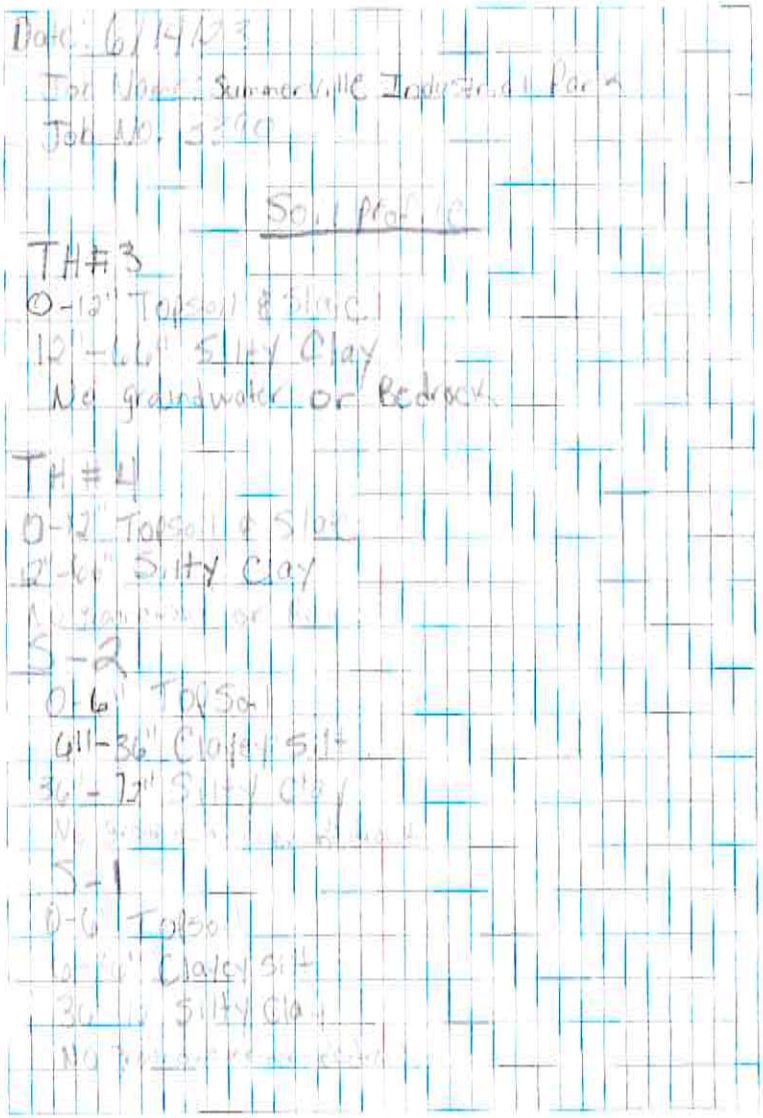


Figure 10: Field notes.

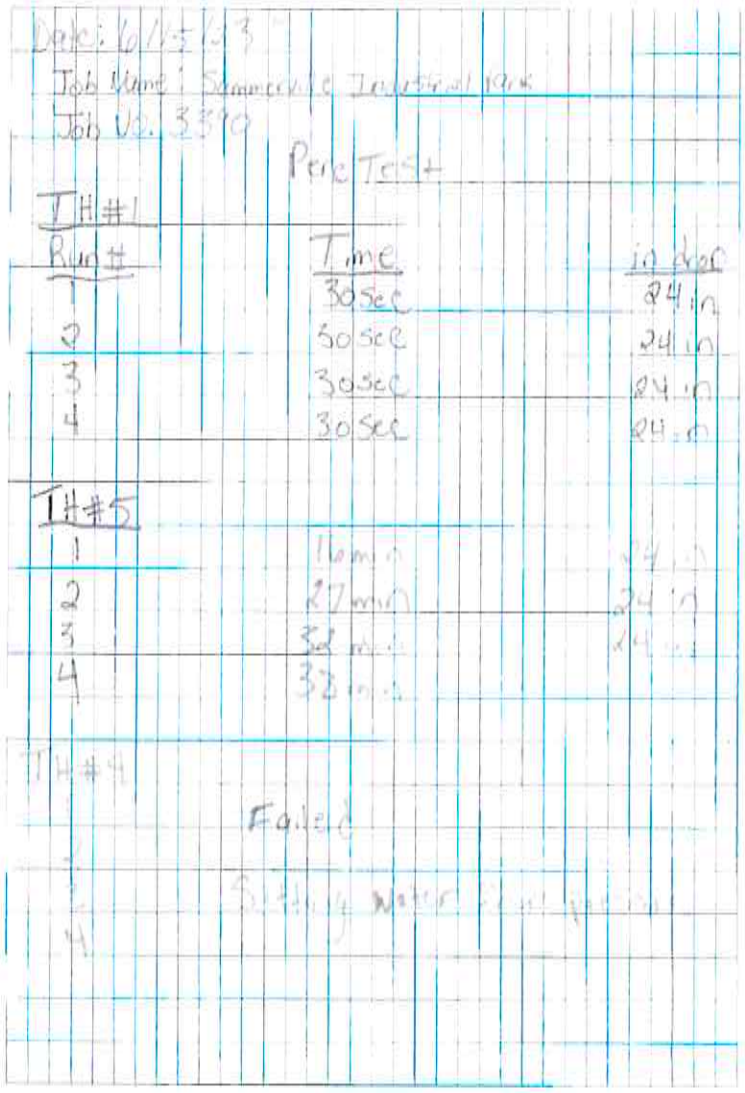


Figure 11: Field notes.

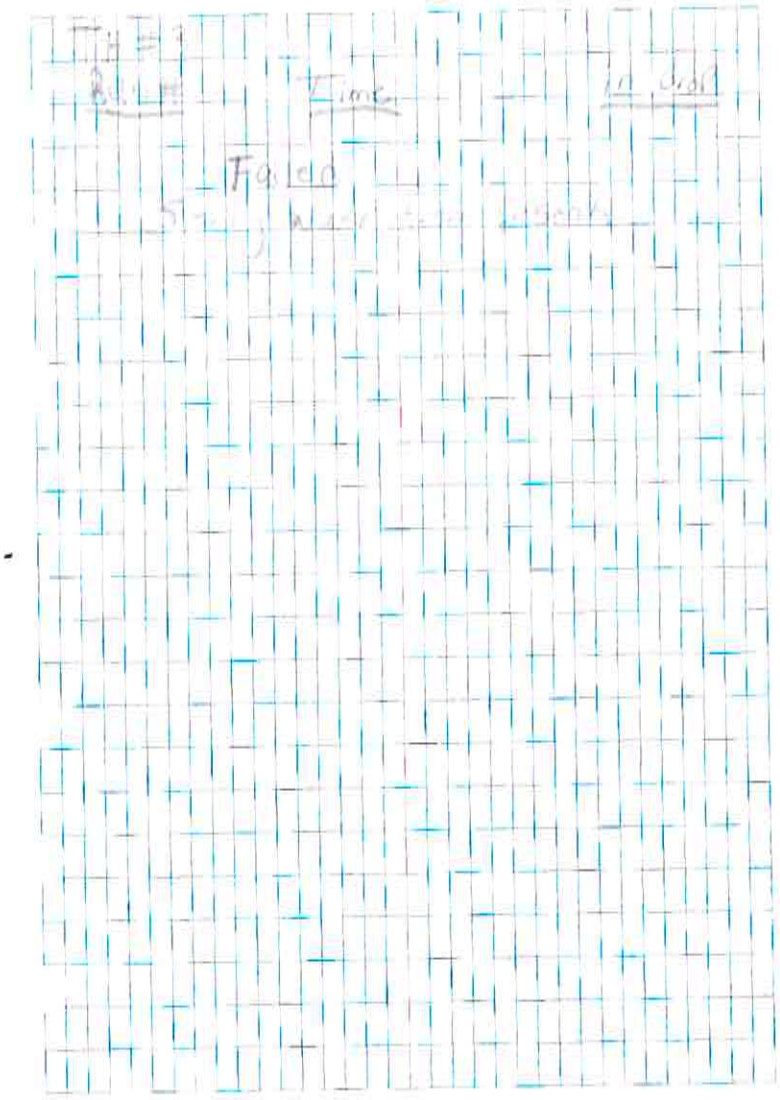
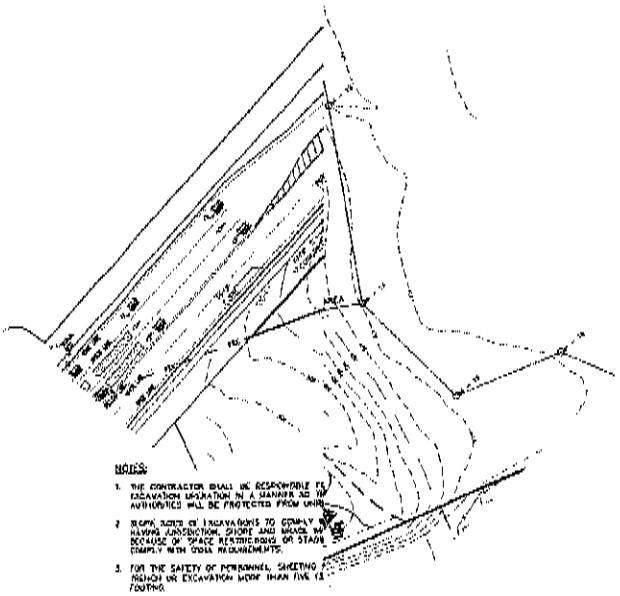


Figure 11: Field notes.

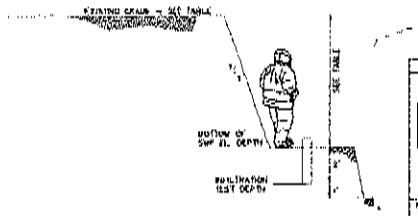
LEGEND

PROPOSED 2' CONTOUR
PROPOSED 10' CONTOUR
PROPOSED WATER SERVICE
PROPOSED WATER VALVE
PROPOSED FIRE HYDRANT
PROPOSED GAS SERVICE
PROPOSED GAS VALVE
PROPOSED CATCH BASIN
PROPOSED STORM DRAIN LINE
PROPOSED SEWER CLEANOUT
PROPOSED SEWER HOUSE CONNECTION
PROPOSED SPOT ELEVATION
TEST HOLE LOCATION



NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FO EXCAVATION OPERATION IN A MANNER SO W AUTHORITIES WILL BE PROTECTED FROM LIABI
2. WORK SPACE OF EXCAVATIONS TO COMPLY W HAVING JURISDICTION. WHERE AND WHERE NO BECAUSE OF SPACE RESTRICTIONS OR STATE COMPLY WITH OSHA REQUIREMENTS.
3. FOR THE SAFETY OF PERSONNEL, SHEETING PRIOR OR EXCAVATION WORK THAN FIVE (5 FOOTING.



TYPICAL INFILTRATION TEST DE

INFILTRATION AND DEEP TEST

TEST HOLE ID	EXISTING GRADE EL.	BOTTOM OF SMP EL./DEPTH	
TH #1	EL.=481.5	EL.=478.5 (3'-0")	EL.=4
TH #3	EL.=508.0	EL.=505.0 (3'-0")	EL.
TH #4	EL.=506.5	EL.=504.5 (2'-0")	EL.=5
TH #5	EL.=505.0	EL.=497.0 (7'-0")	EL.=5

SEPTIC PERCOLATION TEST

TEST HOLE ID	EXISTING GRADE EL.	BOTTOM OF SMP EL./DEPTH
TH SP-1	EL.=516.5	EL.=514.0 (2'-6")
TH SP-2	EL.=513.5	EL.=511.0 (2'-6")

REVISION	DATE	DESCRIPTION

ATZL, NASHER & ZIGLER P.C.
ENGINEERS - SURVEYORS - PLANNERS
232 North Main Street
New City, New York 10956
Tel: (845) 634-4994
Fax: (845) 634-5645
E-mail: info@anzny.com
Web: www.ANZNY.com

PROJECT:

SUMMERVILLE INDUSTRIAL PARK

VILLAGE OF CHESTER
ORANGE COUNTY, NEW YORK

TITLE:

TEST HOLE LOCATION MAP

DRAWN BY:	CHECKED BY: AMZ
DATE: JUNE 13, 2023	SCALE: 1" = 50'
PROJECT NO. 3390	DRAWING NO. 1

Drainage Maps

SUMMERVILLE INDUSTRIAL PARK

VILLAGE OF CHESTER
ORANGE COUNTY
NEW YORK

DRAINAGE MAPS

BY

ATZL, NASHER & ZIGLER
ENGINEERS-SURVEYORS-PLANNERS
232 NORTH MAIN STREET
NEW CITY, NY 10956
TEL: (845) 634-4694
FAX: (845) 634-5543
E-MAIL: rnasher@anzny.com