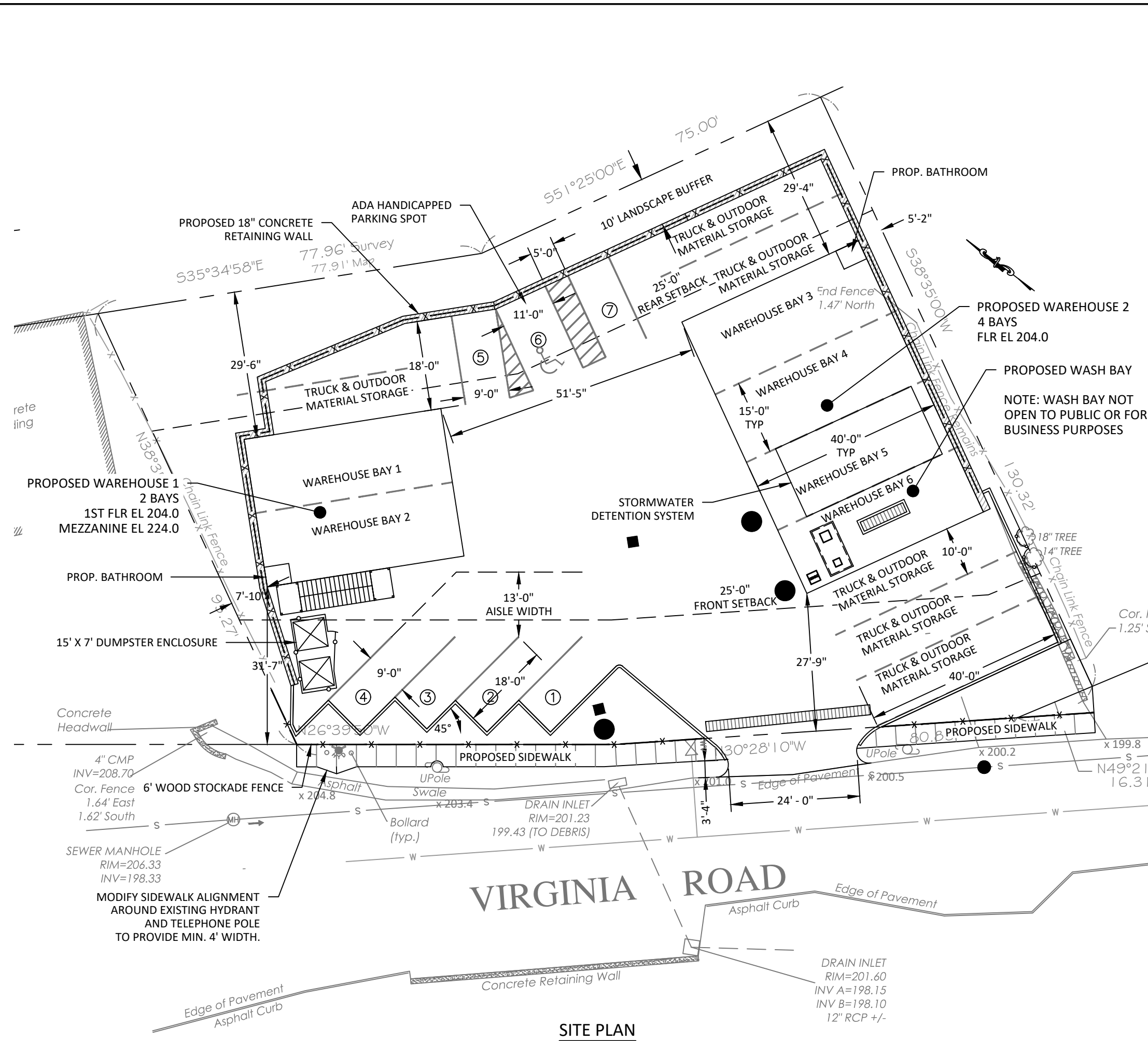
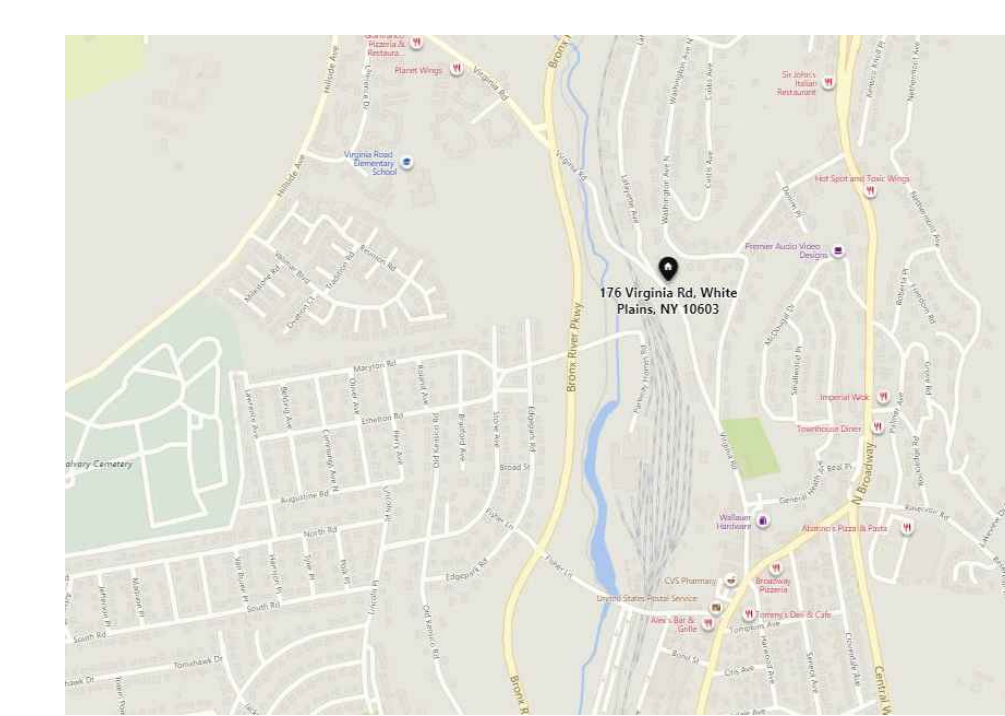


DEMOLITION PLAN
1" = 20' - 0"



SITE PLAN
1" = 20' - 0"



LOCATION MAP
N.T.S.

#	DBH	TYPE
1	12"	MAPLE
2	20"	OAK
3	14"	OAK
4	14"	OAK
5	20"	OAK
6	16"	OAK

176 VIRGINIA ROAD SECTION 122.16 BLOCK 1 LOT 3		
ZONE IND-A		
REQUIREMENTS	ALLOWABLE	PROPOSED
LOT AREA (SQ. FT.)	5000.0	16708.6
STREET FRONTAGE	50.0	161.0
LOT DEPTH	100.0	112.8
FRONT SETBACK	10.0	30.8
SETBACK FROM STREET	25.0	39.0
SIDE SETBACK	0.0	4.3
REAR SETBACK	10.0	26.0
BUILDING COVERAGE	40%	22%
BUILDING STORIES	2.0	2.0
BUILDING HEIGHT	35.0	30.0
FAR	0.6	0.29
PARKING	6.0	8.00

WAREHOUSE 1 1ST FLR	1200 Sq Ft
MEZZANINE	1200 Sq Ft
WAREHOUSE 2 1ST FLR	2400 Sq Ft
TOTAL AREA	4800 Sq Ft

EITHER 1 SPACE/1200 SF OR 1 PER BAY
4800/1200 = 4 PARKING SPACES
6 BAYS = 6 PARKING SPACES
6 > 4 THEREFORE 6 PARKING SPACES ARE REQUIRED

- SITE PLAN NOTES:**
- TRUCK WASHING IS LIMITED TO THE TRUCKS STORED ON THE SITE AND A MAXIMUM USE OF 200 GALLONS/DAY.
 - VEHICLE REPAIR SHALL BE PROHIBITED ON SITE.
 - ANY OUTDOOR STORAGE OF VEHICLES AND MATERIAL NOT DEPICTED ON THE APPROVED SITE PLAN SHALL BE PROHIBITED.

MISCELLANEOUS DATA:

SURVEYOR: TC MERRITTS LAND SURVEYORS
394 BEDFORD ROAD
PLEASANTVILLE NY 10570
914-769-8003

ENGINEER: FUSION ENGINEERING
600 NORTH BROADWAY
SUITE 215
WHITE PLAINS NY 10603
914-358-5009

MUNICIPALITY: TOWN OF NORTH CASTLE

WATERSHED: BRONX RIVER BASIN

SECTION: 122.16

BLOCK: 1

LOT: 3

OWNER: MANUEL YANEZ
MISTIS PROPERTIES INC.
132 FULTON STREET
WHITE PLAINS, NY 10608
914-774-3625

FIRE DISTRICT: NORTH WHITE PLAINS FD

ZONE: IND-A

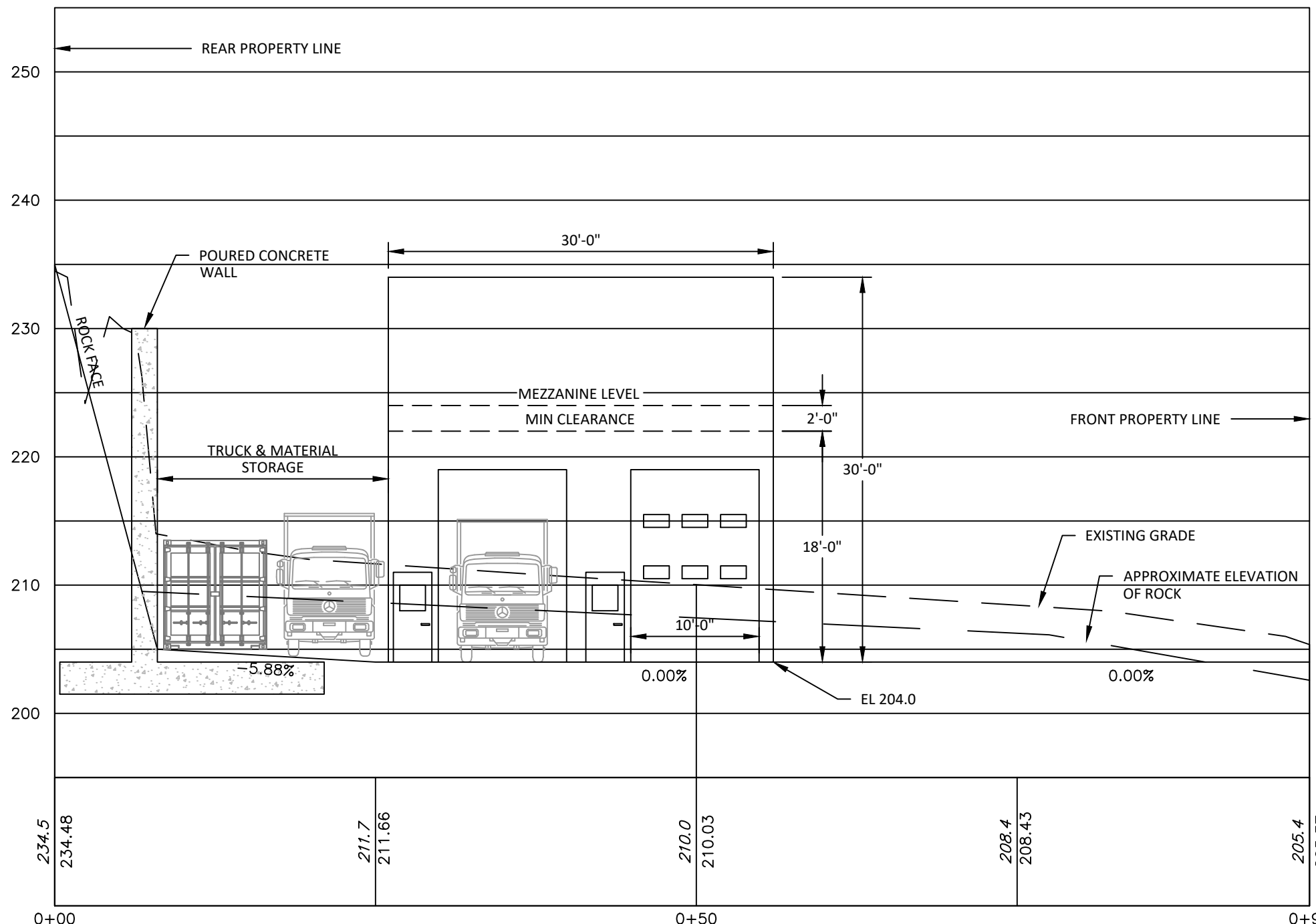
SCHOOL: VALHALLA

LOT SIZE: 0.383 ACRES

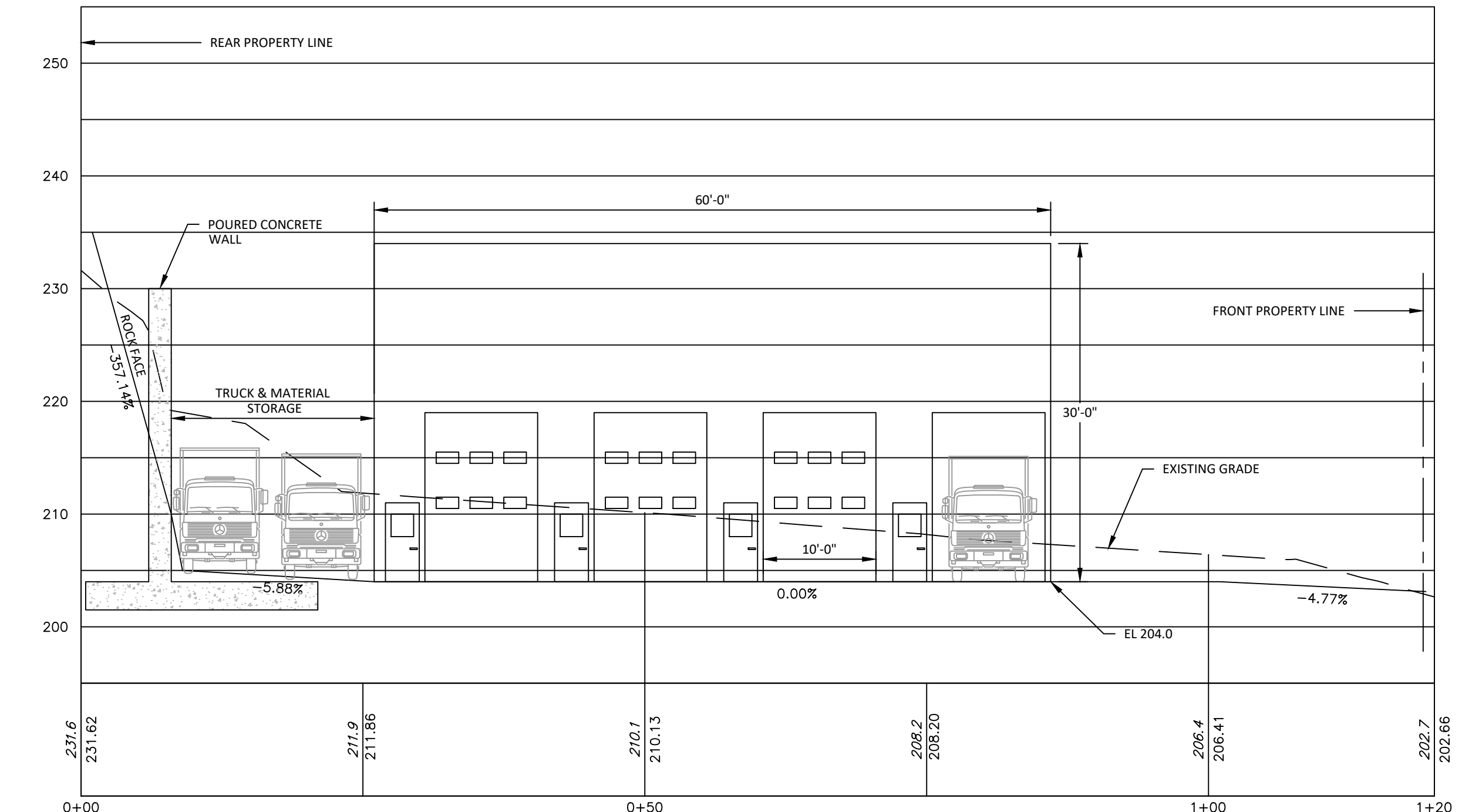
- GENERAL NOTES**
- THIS PLAN WAS PREPARED TO COMPLY WITH THE APPLICATION REQUIREMENT FOR BUILDING PERMIT IN THE TOWN OF NORTH CASTLE.
 - EXISTING TOPOGRAPHIC AND SURVEY INFORMATION SHOWN HEREON PROVIDED BY A SURVEYOR PREPARED BY TC MERRITTS LAND SURVEYORS ON AUGUST 30, 2018. PROPOSED GRADING SHALL DRAIN AWAY FROM THE PROPOSED STRUCTURE AT A MINIMUM SLOPE REQUIRED TO PROVIDE POSITIVE DRAINAGE AWAY FROM THE FOUNDATION.
 - UNDERGROUND UTILITIES, FACILITIES AND STRUCTURES MAY NOT BE ALL SHOWN HEREON. THE LOCATIONS OF PORTIONS OF THE UNDERGROUND UTILITIES INDICATED HEREON WHERE OBTAIN FROM THE MAP REFERRED TO ABOVE AND FIELD MARK-OUTS BY THE UTILITY COMPANY PERSONNEL. THERE MAY BE OTHER UNDERGROUND UTILITIES TO WHICH THE LOCATIONS ARE CURRENTLY UNKNOWN. ANY PARTY UTILIZING THE INFORMATION AND DATA DEPICTED ON THIS PLAN SHALL CONTACT "DIG SAFELY, NEW YORK" AT PHONE NUMBER 1-800-962-7962 OR 811 A MINIMUM OF 48 HOURS PRIOR TO ANY CONSTRUCTION ACTIVITIES TO VERIFY THE LOCATION OF ANY AND ALL UNDERGROUND UTILITIES.
 - CONTRACTOR IS SOLELY RESPONSIBLE FOR THE MEANS AND METHODS AND SEQUENCES OF CONSTRUCTION AND FOR THE SAFETY OF WORKERS AND OTHERS ON THE CONSTRUCTION SITE. THE CONTRACTOR SHALL LOCATE AND VERIFY THE SIZE, LOCATION, DEPTH AND INVERTS OF ANY AND ALL EXISTING UTILITIES PRIOR TO COMMENCING OPERATIONS.
 - PVC DRAIN PIPES SHALL BE SCHEDULE 40, SLOPES HAVING A MINIMUM SLOPE OF 1%.
 - NO SOIL STOCKPILES, CONSTRUCTION MATERIALS, AND NO EQUIPMENT SHALL BE STORED IN THE AREA OF THE PROPOSED (AND EXISTING) STORMWATER INFILTRATION PRACTICES.
 - THE CONTRACTOR SHALL PROVIDE A TRAINED INDIVIDUAL (CARRYING CARD/CERTIFICATION BY THE NYSDEC) TO BE PRESENT ON SITE AT ALL TIMES DURING SOIL DISTURBING ACTIVITIES.
 - DURING CONSTRUCTION, SEDIMENT AND EROSION CONTROLS SHALL BE IN ACCORDANCE WITH THE CURRENT DPW STANDARDS FOR SEDIMENT AND EROSION CONTROL. DPW RESERVES THE RIGHT TO ORDER ADDITIONAL SEDIMENT CONTROL PRACTICES INSTALLED DURING CONSTRUCTION.
 - OWNER'S/OWNER'S REPRESENTATIVE SHALL CONTACT TOWN BUILDING DEPARTMENT TO INSPECT SEDIMENT AND EROSION CONTROL PRACTICES PRIOR TO START OF CONSTRUCTION. ANY DESIGN CHANGES TO THE STORMWATER SYSTEM DURING CONSTRUCTION DUE TO SHALLOW GROUNDWATER, ROCK, ETC. MUST BE RESUBMITTED TO THE TOWN ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION START.
 - STORMWATER SYSTEM MUST BE INSPECTED AND CERTIFIED BY A PROFESSIONAL ENGINEER.
 - UNDERGROUND UTILITIES (ELECTRIC, GAS, & COMMUNICATION) TO BE FIELD LOCATED BY CONTRACTOR.
 - ROOF LEADER CONNECTIONS SHOWN HEREON ARE APPROXIMATE AND SHALL BE COORDINATED WITH GUTTER/DOWNSPOUT INSTALLATION. DRAINAGE SHALL BE INSTALLED TO PROVIDE A CONNECTION TO ALL REQUIRED ROOF LEADER DOWNSPOUTS.
 - NO SOIL STOCKPILING ALLOWED ON SITE. ALL EXCAVATED SOIL TO BE IMMEDIATELY TRUCKED OFF SITE.

EROSION CONTROL NOTES:

- TREE PROTECTION MEASURES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF WORK.
- SUGGESTED LOCATIONS OF EROSION AND SEDIMENT CONTROL MEASURES ARE SHOWN HEREON. PLACEMENT OF BEST MANAGEMENT PRACTICES TO MANAGE SOIL EROSION AND POLLUTION PREVENTION ON SITE MAY BE MODIFIED IN THE FIELD AFTER CONSULTATION WITH THE APPROPRIATE REGULATORY AGENCY HAVING JURISDICTION PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. PRACTICES MUST BE PROPERLY INSTALLED PRIOR TO START OF CONSTRUCTION AND SHALL BE INSPECTED AND MAINTAINED AS NEEDED TO INSURE THE CONTROLS ARE FUNCTIONING AS DESIGNED. CONTRACTOR SHALL TAKE CARE TO VISUALLY INSPECT CONTROLS, ESPECIALLY PRIOR TO PRECIPITATION EVENTS AND MAKE ANY CORRECTIONS OR PROVIDE ADDITIONAL MEASURES AS NECESSARY TO TRY TO PREVENT SEDIMENT OR POLLUTANTS FROM LEAVING THE SITE.
- CONSTRUCTION ACCESS TO EXPOSED/GRADED SOILS SHALL BE DEFINED BY THE PLACEMENT OF AN ANTI-TRACKING MANAGEMENT PRACTICE PRIOR TO THE START OF CONSTRUCTION. TRACK OUT ONTO PUBLIC STREETS SHALL BE SWEEP DAILY AND BEFORE PRECIPITATION EVENTS.
- DISTURBED SOILS SHALL BE TEMPORARILY STABILIZED WITHIN 14 DAYS.
- ALL EROSION CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH NYSDEC 'NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL.
- THE ENGINEER MAY AT HIS DISCRETION REQUIRE ADDITIONAL EROSION CONTROL MEASURES THROUGHOUT CONSTRUCTION TO MITIGATE UNFORESEEN EROSION AND SILTATION.
- PROVISIONS SHALL BE MADE TO PREVENT SURFACE WATER FROM DAMAGING THE CUT FACE OF EXCAVATIONS OR THE SLOPING SURFACES FILLS.
- TREES, ROOT SYSTEMS AND OTHER VEGETATION REMOVED FOR CONSTRUCTION PURPOSES SHALL BE CHIPPED OR REMOVED FROM SITE. NO ON-SITE BURIAL OR BURNING SHALL BE PERMITTED.
- DURING GRADING OPERATIONS, APPROPRIATE MEASURES FOR DUST CONTROL SHALL BE EXERCISED.
- ALL FILLS SHALL BE COMPACTED TO PROVIDE STABILITY OF MATERIAL AND TO PREVENT UNDESIRABLE SETTLEMENT.
- AFTER FINAL GRADES ARE ESTABLISHED, DISTURBED AREAS SHALL BE COVERED WITH FOUR INCHES OF TOPSOIL AND SEEDED; LANDSCAPE AREAS SHALL BE MULCHED.
- FOR DEWATERING ACTIVITIES: A DEWATERING PUMP SHALL BE LOCATED IN A PERFORATED TUB SURROUNDED BY FILTER FABRIC AND STONE (OR APPROVED ALTERNATIVE). CLEAN DISCHARGE SHOULD BE DIRECTED TO ONSITE DRAINAGE APPURTENANCES TO MINIMIZE EROSION OF SOILS. DISCHARGE WITH SUSPENDED SEDIMENT SHALL BE CONNECTED TO A SEDIMENT BAG ON UNDISTURBED GROUND IN A LOCATION WHERE THE DISCHARGE WILL NOT CAUSE EROSION OR FLOW OVER EXPOSED SOILS.



PROPOSED 2 BAY WAREHOUSE
1" = 10' - 0"



PROPOSED 4 BAY WAREHOUSE
1" = 10' - 0"



100 EXECUTIVE BLVD. SUITE 204
OSSING, NY 10562
PHONE: (914) 944-3377
FAX: (866) 567-6240

JORGE B. HERNANDEZ R.A. A.I.A.
LICENSE NUMBER: 030424-1
CERTIFICATE NUMBER: 0973256

PAUL A. BERTE, P.E.
100 EXECUTIVE BLVD. SUITE 204
OSSING, NY 10562

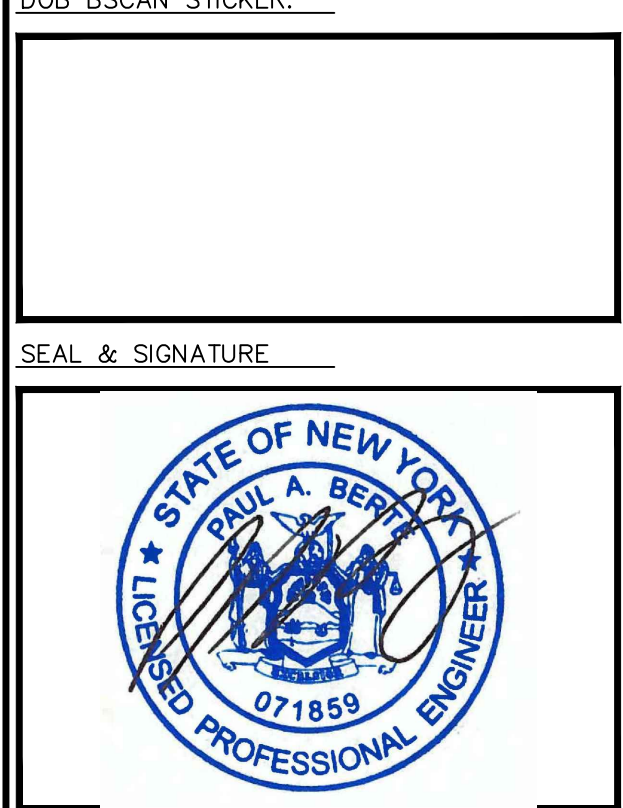
REVISIONS	DATE	BY

DRAWING TITLE:
SITE PLANS, MAP, & NOTES

PROJECT:
MISTIS PROPERTIES INC.

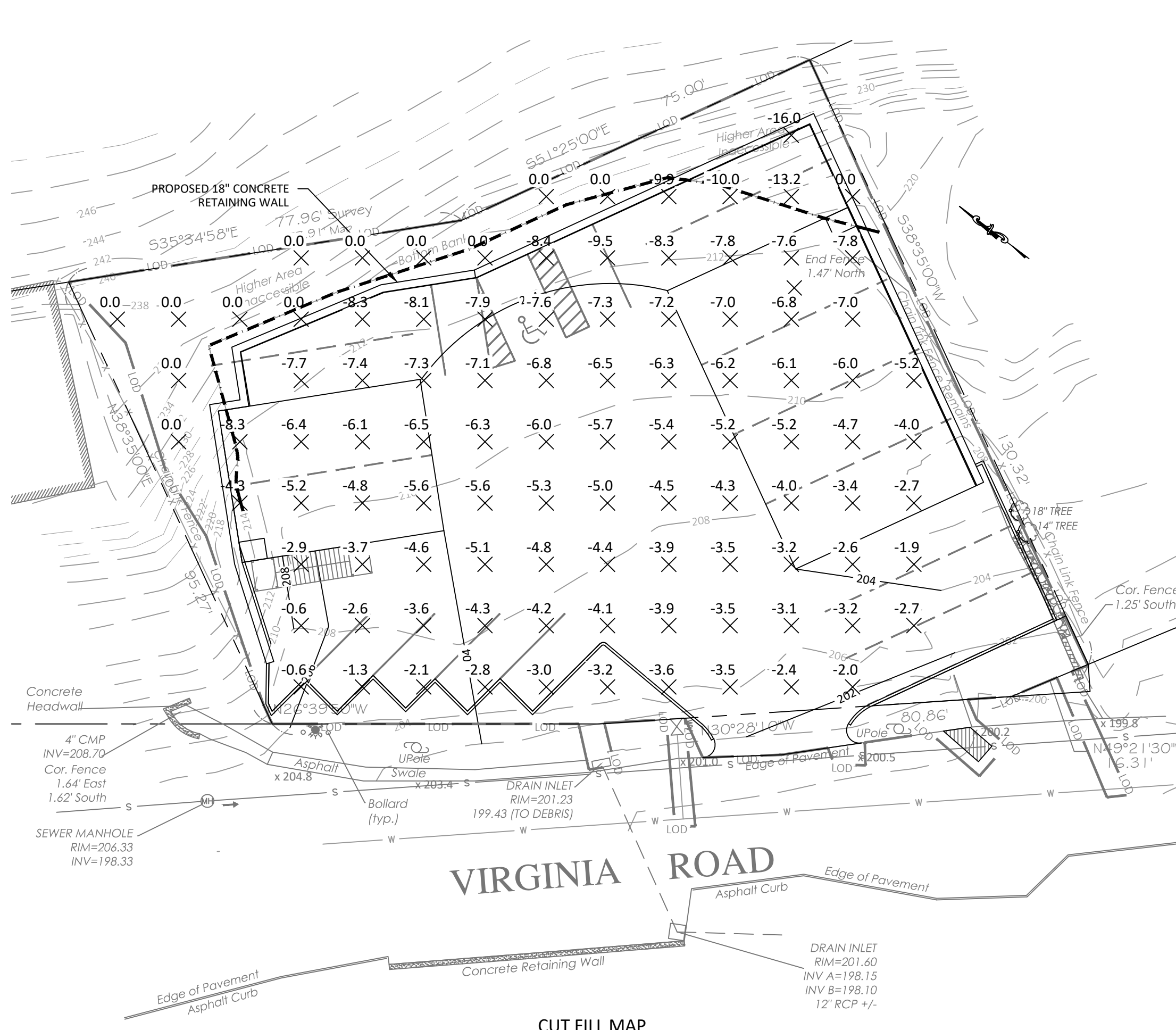
PROJECT ADDRESS:
176 VIRGINIA ROAD
WHITE PLAINS
NEW YORK, 10603

DOB EXAMINER SIGNATURE:
DOB BSCAN STICKER:

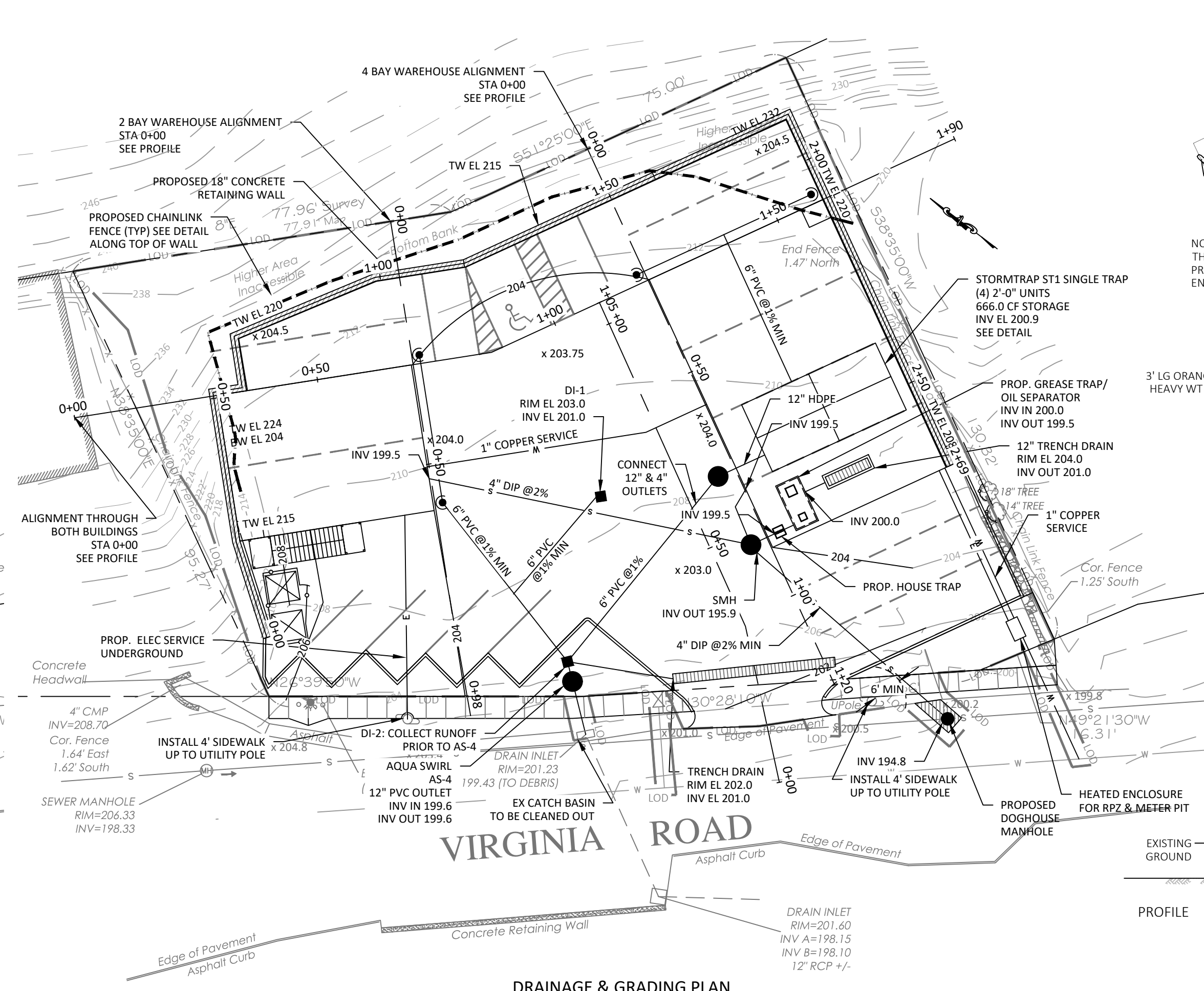


DATE: 03/08/2021
PROJECT NO.: 21029
DRAWING BY: ARQ
CHECKED BY: JBH

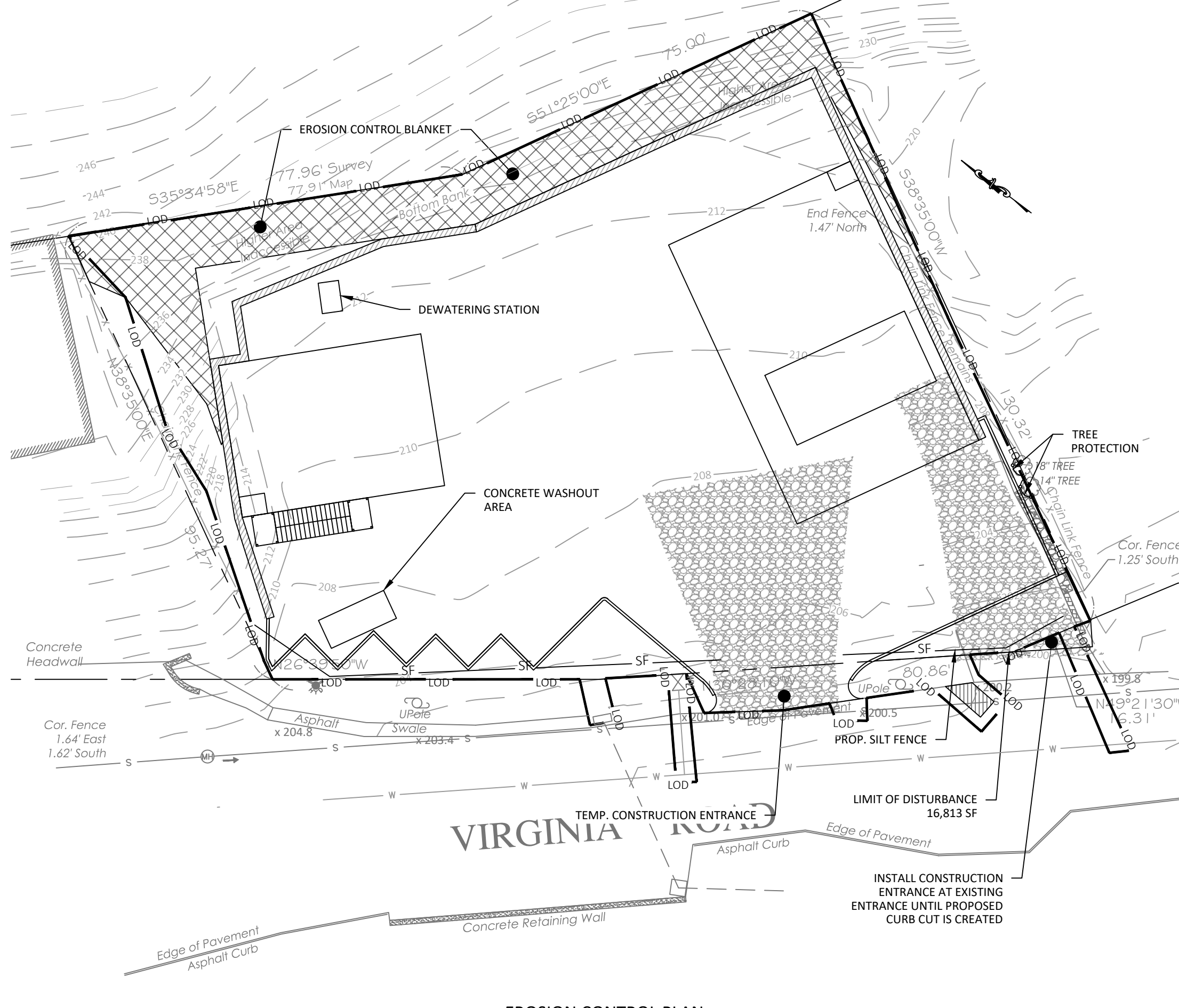
DWG. NO.: S-1
CAD FILE NO.: 1 OF 11



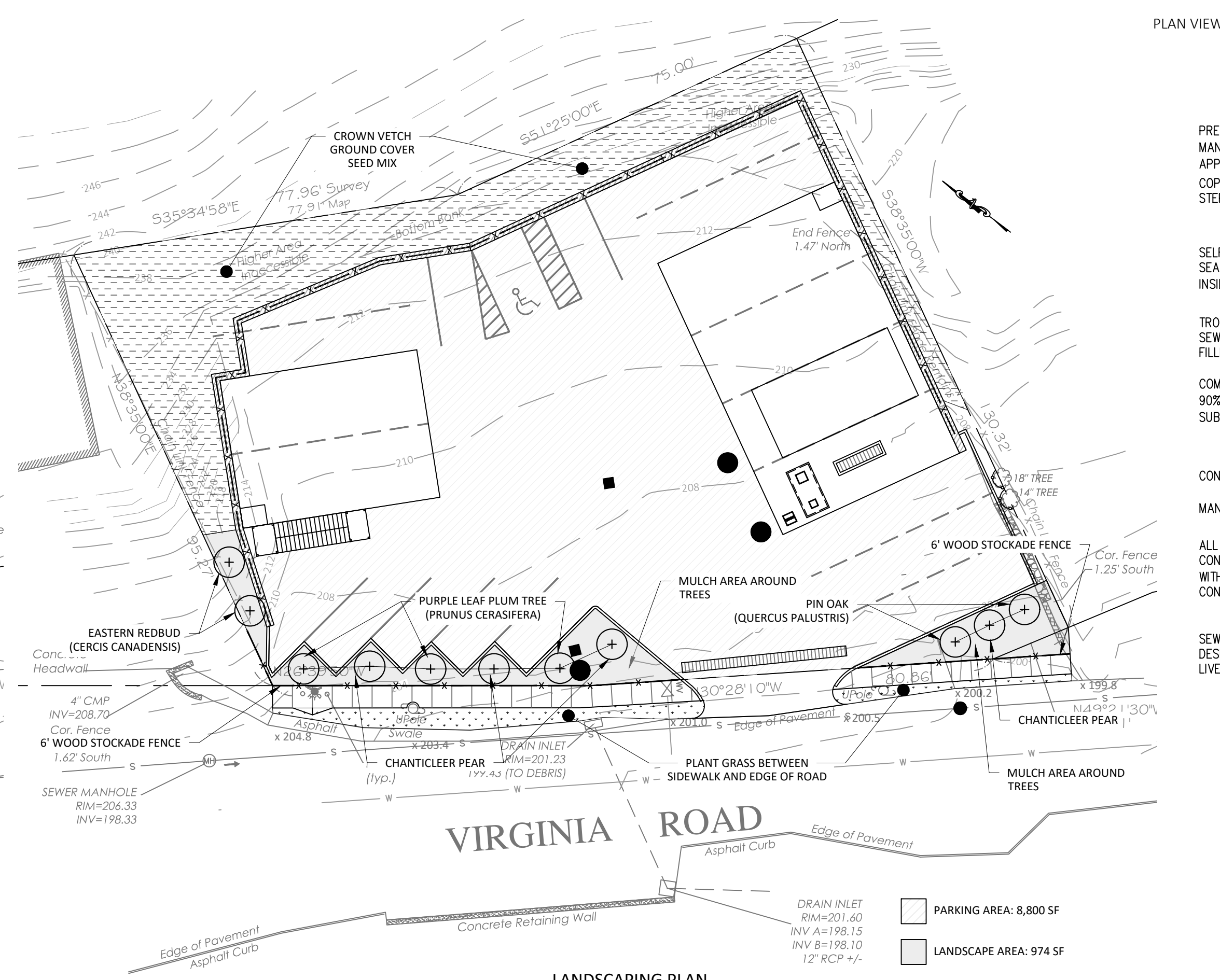
CUT FILL MAP
1" = 20' - 0"



DRAINAGE & GRADING PLAN
1" = 20' - 0"



EROSION CONTROL PLAN
1" = 20' - 0"



LANDSCAPING PLAN
1" = 20' - 0"

100 EXECUTIVE BLVD, SUITE 204
OSSINING, NY 10562
PHONE: (914) 944-3377
FAX: (866) 567-6240

JORGE B. HERNANDEZ R.A. A.I.A.
LICENSE NUMBER: 030424-1
CERTIFICATE NUMBER: 0973256

PAUL A. BERTE, P.E.
100 EXECUTIVE BLVD, SUITE 204
OSSINING, NY 10562

REVISIONS	DATE	BY

DRAWING TITLE:
DRAINAGE, GRADING & EROSION CONTROL

PROJECT:
MISTIS PROPERTIES INC.

PROJECT ADDRESS:
**176 VIRGINIA ROAD
WHITE PLAINS
NEW YORK, 10603**

DOB EXAMINER SIGNATURE:

DOB BSCAN STICKER:

TREE/VEGETATION PROTECTION BARRIER
N.T.S.

CONSTRUCTION SPECIFICATIONS:

- STONE SIZE - USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
- LENGTH - NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
- THICKNESS - NOT LESS THAN SIX (6) INCHES.
- WIDTH - TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
- FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
- SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
- MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
- WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A PUBLIC STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
- PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

STABILIZED CONSTRUCTION ENTRANCE
N.T.S.

CONCRETE BASE
MANHOLE WALL

ALL PIPE TO MANHOLE CONNECTIONS TO BE PROVIDED WITH "A-LOK" FLEXIBLE CONNECTORS

SEWER MANHOLE SHALL BE DESIGNED FOR AASHTO H20-44 LIVE LOAD

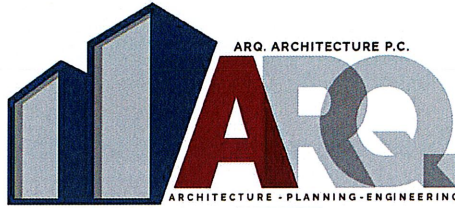
SEWER MANHOLE DETAIL
N.T.S.

CONTRACTOR TO FURNISH OUTLET ANGLES TO MANUF.

PRECAST INLET & OUTLET HOLE, SIZE & ANGLE AS REQ'D.

FORMED TROUGH POURED IN FIELD BY CONTRACTOR. PROVIDE FILLETED TRANSITION

DATE: 03/08/2021	DWG. NO.:
PROJECT NO.:	S-2
DRAWING BY:	CAD FILE NO.:
ARQ	
CHECKED BY:	
JBH	2 OF 11



Date: March 8, 2021

To: Christopher Carthy, Chair
Planning Board
Town of North Castle
17 Bedford Road
Armonk, NY 10504-1898

(914) 273-3542

**RE: Site Plan, Steep Slope and Tree Removal Approvals
Mistis Properties 100 Inc. [19-004] - 176 Virginia Road (122.16-1-3)**

Dear Mr. Christopher Carthy,

Please note the following comments below in response to your resolution list regarding site plan, steep slope, and tree removal approvals for Mistis Properties 100 Inc.:

Prior to the Signing of the Site Plan:

1. Note added on sheet 1 of 7
2. Note added on sheet 1 of 7
3. Note added on sheet 1 of 7
4. Landscape Plan on sheet 2 of 7 to include specific tree species and ground cover.
5. Alignment along top of the wall profile included on sheet 7 of 7
6. Detailed cost estimate provided.
7. Sheet 2 of 7 Drainage and grading plan revised to include doghouse manhole.
8. To be submitted
9. Note added to the site plan sheet 1 of 7
10. Note added to drainage and grading plan on sheet 2 of 7
11. Outlet structure detail on sheet 4 of 7 has been modified.
12. Noted
13. Structure added upstream of AS-4 on drainage and grading plan on sheet 2 of 7
14. Comments have been addressed in the revised SWPPP dated 3/8/21
15. Maintenance procedure included in the revised SWPPP
16. Noted
17. A Landscape Plan is included with this application. Based on the site plan, and site requirements for vehicular movements, no additional landscape areas can be provided
18. The grading plan as shown minimizes disturbance of the steep slopes.

Should you have any comments or questions please feel free to contact me at your earliest convenience.

Best Regards,

Paul Berté, PE

CC: File#21-029B



TOWN OF NORTH CASTLE
WESTCHESTER COUNTY
17 Bedford Road
Armonk, New York 10504-1898

PLANNING DEPARTMENT
Adam R. Kaufman, AICP
Director of Planning

Telephone: (914) 273-3542
Fax: (914) 273-3554
www.northcastleny.com

Application for Site Development Plan Approval

Application Name

176 Virginia



TOWN OF NORTH CASTLE
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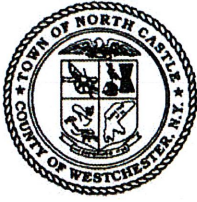
Important General Information

- Prior to submitting an application, the "Notice to Applicants" should be reviewed.
- To appear before the Planning Board, all required application materials shall be submitted not later than **12:00 P.M., Monday, fourteen (14) days** prior to the date of the Planning Board meeting at which the application is scheduled to be heard or as otherwise noted by the Planning Board Secretary. Continuing Business can be submitted 12 days prior to the Next Planning Board meeting by the close of business. Except where noted.

If all required application materials, including the pertinent application fee and escrow monies are not submitted by that deadline, the application shall be automatically removed from the agenda.

At the discretion of the Planning Board Chairman, the application may be rescheduled, if appropriate, for the next available Planning Board meeting or the application may be removed from future agendas altogether. Without prior authorization from the Planning Board, application submissions shall not be accepted at Planning Board meetings.

- At the time of submission, all required application materials shall be submitted. **Piecemeal** submissions **shall not** be accepted. Substitution of previously submitted materials shall not be permitted.
- All submissions shall be dated, with revision dates identified on new submissions.
- All submissions shall be accompanied by a cover letter describing the project and/or any changes as compared to previous submissions.
- For distribution purposes and mailing to the Planning Board Members and others (as required), multiple copies of application materials shall be collated into separate sets, each containing one copy of every submitted document. All application materials shall be submitted in a form that fits into a **12" x 17" envelope**. Plans shall be **folded** and **rubber banded** as necessary.
- To be considered complete for Planning Board hearing purposes, an application package shall contain the information identified in Parts IV and V of this application form.
- For purposes of completing this application form, all responses provided shall be printed, except as otherwise specified.



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**AT THE TIME OF SUBMISSION TO THE PLANNING DEPARTMENT
PLEASE MAKE SURE THE FOLLOWING IS PROVIDED**

- ✓ SUBMISSION OF A SINGLE PDF FILE (PLANS, APPLICATION FORM, OTHER PAPERWORK) ON A DISK, THUMBDRIVE OR EMAIL

- ✓ COVER LETTER DESCRIBING THE PROJECT OR CHANGES TO THE PROJECT

- ✓ ALL PLANS ARE SIGNED AND SEALED BY A LICENSED NYS PROFESSIONAL

- ✓ ALL PLANS SHALL BE COLLATED AND FOLDED INTO 8 INDIVIDUAL SETS



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NOTICE TO APPLICANTS

In the Town of North Castle, the Planning Board is responsible for the review and approval of all applications concerning site plans, subdivisions and lot line changes; some applications concerning special use permits, wetlands permits and tree removal permits; and the environmental review of those applications over which it has jurisdiction. The Planning Board may also have an advisory role in connection with some applications before the Town Board, such as those involving other categories of special use permits and zoning amendments.

The Planning Board is composed of five volunteer members – all residents of North Castle – who are appointed by the Town Board for five-year terms. As part of the review of some applications, the Planning Board is assisted on an as-needed basis by other lay boards of the Town, such as the Conservation Board (CB), the Zoning Board of Appeals (ZBA), the Open Space Committee and the Architectural Review Board (ARB). As part of the review of most applications, the Planning Board is also assisted by the Director of Planning, the Town Engineer, the Town Attorney and other special consultants when required.

FEES:

If you submit an application for Planning Board review, you will be required to reimburse the Town for the cost of professional review services, including legal and engineering services, incurred in connection with the review of your application. The charges for professional planning review services have been \$120/hour. If other types of professional consultant review services are required, those charges will be in accord with fees usually charged for such services and pursuant to a contractual agreement between the Town and such professional.

At the time of submission of an application, the Planning Board will require the establishment of an escrow account from which withdrawals shall be made to reimburse the Town for the cost of consultant fees and professional staff services.

ESCROW ACCOUNT:

Escrow Accounts are established for each application. Monies will be deducted from the account for professional review services rendered. Monthly escrow disbursement summaries will be mailed for your reference regarding your project. When the balance in such escrow account is reduced to one-third (1/3) of its initial amount, a letter will be mailed to the applicant and the applicant shall deposit additional funds into such account to restore its balance to the amount of the initial deposit. Additional information on these requirements is provided in the North Castle Town Code (see Sections 355-79B and 275-36.C).



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PROCEDURE:

Prior to submitting an application to the Planning Board for review and approval, prospective applicants should schedule an appointment with the Planning Board Secretary at (914) 273-3542 for a consultation with the Town Planner and the Town Engineer. When the appointment is made, a verbal description of the proposal should be provided to the Planning Board Secretary. The Town of North Castle is providing the services of the Director of Planning and the Town Engineer for *initial* consultation at no cost to the applicant so that it is possible to conduct the application review as efficiently as possible for the benefit of the applicant as well as the Planning Board.

After meeting with the Town Planner and Town Engineer, prospective applicants should prepare one complete set of application documents and plans. This set will be reviewed for completeness by the Town Planner. If determined to be incomplete, the Planning Department will submit a checklist indicating which items have not been adequately addressed. If determined to be complete, the checklist will be initialed and the Applicant should submit the remainder of the required application packages.

Once the checklist has been initialed and all application packages have been submitted, the Planning Board Secretary will schedule the application for the first available opening on the Planning Board's meeting agenda. However, if the required application material packages, including the pertinent application fee are not received at the Planning Board office by 12:00 PM, Monday, 14 days prior to the date of the Planning Board meeting at which you are scheduled to appear (or otherwise scheduled by the Planning Board Secretary), your application will be automatically removed from the agenda. At the discretion of the Planning Board Chairman, your application may be rescheduled, if appropriate, for the next available Planning Board meeting or the application may be removed from future agendas altogether. Additional requirements pertinent to each type of application are provided on the individual application forms, which you should carefully review prior to submitting your application.

When an application is deemed complete and submitted for review, it will be forwarded to the Planning Board Members and its professional advisors in advance of the meeting to allow adequate time for review, preparation of written reports and site inspections as necessary. Your application may also be forwarded to other boards and staff of the Town as well as to agencies outside of the Town, if required. Compliance with State Environmental Quality Review (SEQR) procedures is also required as part of the processing of all applications.

At your first appearance before the Planning Board, the Applicant will describe the project and the Planning Board will discuss any preliminary issues. The Planning Board discussion may be continued at future meetings, or if the Planning Board review has progressed sufficiently, the Application may be scheduled for a public hearing (if one is required) The public hearing may occur at a single Planning Board meeting, or it may be adjourned and continued at another Planning Board meeting. Because the nature and complexity of each application varies



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Adam R. Kaufman, AICP
Director of Planning**

**Telephone: (914) 273-3542
Fax: (914) 273-3554
www.northcastleny.com**

considerably, it is not possible to predict in advance the length of time needed to secure Planning Board approval. There are certain steps that you can take, however, to expedite the review process. These include, but are not limited to, the following:

- Be thoroughly familiar with the requirements pertinent to your application. Carefully review relevant provisions of the North Castle Town Code and the application form for your particular type of application. Be sure to check on what other types of approvals may be required in addition to that of the Planning Board. Approvals by other Town boards or departments as well as agencies outside of the Town may be required before you will be allowed to proceed with your project.
- Make sure that your application materials are accurately prepared and contain all required information. The information that we initially request is required, so make sure that your submission is complete. If supplementary information is requested as the review process continues, make sure that it is submitted in a timely fashion so the Planning Board can continue to move your application along.
- Follow up to make sure that your application materials are being submitted on time, or deliver them to the Planning office yourself.
- Attend the Planning Board meeting at which your application will be discussed and be on time for the meeting. If you cannot appear personally, make sure that your representative will be there and is thoroughly familiar with your application.

If the Application is approved by the Planning Board, a resolution of approval will be adopted by the Planning Board. It is the Applicant's responsibility to address any and all conditions of approval. Permits from the Building Department cannot be issued until all conditions have been addressed and the plans have been signed by the Planning Board Chair and the Town Engineer.

**ON LINE AGENDAS & PLANNING DEPARTMENT MEMORANDA CAN BE
REVIEWED AT**

WWW.NORTHCASTLENY.COM



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www.northcastleny.com

INFORMATION REGARDING PUBLIC HEARINGS

1. The North Castle Assessor's Office shall prepare a list of neighbors to be notified for the neighbor notifications and public hearings - **A minimum of one week's notice is required**. The fee is \$50.00 which includes the list of neighbors and two sets of labels for mailing. The Assessor's Office may be reached Monday – Friday from 8:30 a.m.– 4:30 p.m. at 273-3324. You may also e-mail your request to assessor@northcastleny.com

When requesting your list please reference the list of application types below so that you can tell the Assessor's office how many feet on all sides of the property to create the list for.

Subdivisions - All lots zoned R-10, R-5 and R-2F shall notice all neighbors within 200 feet from all sides of their property. All other zoning districts shall notice neighbors within 500 feet from all sides of their property. Public hearing notice must be published in the newspaper.

Special Use Permit for Structures over 800 sq ft. & Accessory Apartment - All Zoning Districts shall notice all neighbors within 250 feet from all sides of their property. Public hearing notice must be published in the newspaper.

Site Plan, Non Residential - All Zoning Districts shall notice all neighbors within 250 feet from all sides of their property. Public hearing notice must be published in the newspaper.

Site Plan, Residential/ Neighbor Notification – All zoning districts R-3/4A or smaller shall notice all neighbors within 250' from all sides of their property. All zoning districts zoned R-1A or larger shall notice all neighbors within 500' from all sides of the property. No public hearing required, no publication in the newspaper required.

Wetlands Permit - All Zoning Districts shall notice all abutting property owners. Public hearing notice must be published in the newspaper.

2. The Director of Planning will prepare a Public Notice. The applicant and or professional will review, sign, date and return to the Planning Department Secretary. If there are any changes necessary, please edit and return for corrections. The corrections will be made and emailed back to the applicant who will forward it to the Journal Newspaper, when applicable.

If notification to the newspaper is not required, please continue to #3.



**TOWN OF NORTH CASTLE
WESTCHESTER COUNTY
17 Bedford Road
Armonk, New York 10504-1898**

**PLANNING DEPARTMENT
Adam R. Kaufman, AICP
Director of Planning**

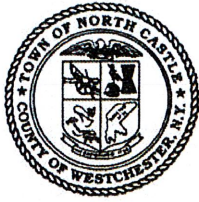
**Telephone: (914) 273-3542
Fax: (914) 273-3554
www.northcastleny.com**

You may email your public notice to legals@lohud.com. Please request an affidavit of publication which must be submitted to the Planning Board secretary prior to the public hearing. The Journal News requires three days prior notice before 12 noon, not counting weekends and holidays, for ad placement. Make sure the notice placement of the ad in the Greater Westchester Area. This notice cannot be published any sooner than 20 days prior to the meeting and must be published no less than 10 days prior to the meeting.

If you have any questions regarding your publication you may call 888-516-9220:
Email Address: legals@lohud.com

It is suggested that you purchase the newspaper for your records the day the notice is published.

3. Send out the Public Hearing Notice/ Neighbor Notification by First Class Mail. Notice shall be mailed by the applicant in official envelopes provided by the North Castle Planning Department; the list of noticed neighbors will be prepared by the Assessor's Office. This must be sent out no less than 10 days prior to the meeting and no more than 20 days prior to the meeting date. A Certificate of Mailing (PS Form 3817 or 3877) shall be filled out and post marked by the Post Office on the day of mailing. Neighbor Notifications – no publication in the newspaper required.
4. The Friday before the meeting or no later than 12:00 p.m. the day of the meeting the following **must** be submitted.
 - List of Neighbors prepared by the Assessor's Office
 - Certificate of Mailing – PS form 3817 or 3877 post marked by the US Post Office
 - Affidavit of publication from the Newspaper (only if published in the newspaper)



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APPLICATIONS REQUIRING PLANNING BOARD APPROVAL
SCHEDULE OF APPLICATION FEES

<u>Type of Application</u>	<u>Application Fee</u>
Site Development Plan	\$200.00
Each proposed Parking Space	\$10
Special Use Permit (each)	\$200 (each)
Preliminary Subdivision Plat	\$300 1 st Lot \$200 (each additional lot)
Final Subdivision Plat	\$250 1 st Lot \$100 (each additional lot)
Tree Removal Permit	\$75
Wetlands Permit	\$50 (each)
Short Environmental Assessment Form	\$50
Long Environmental Assessment Form	\$100
Recreation Fee	\$10,000 Each Additional Lot
Discussion Fee	\$200.00
Prior to submission of a sketch or preliminary subdivision Plat, an applicant or an applicant's representative wishes to discuss a subdivision proposal to the Planning Board, a discussion fee of \$200.00 shall be submitted for each informal appearance before the board.	

Any amendment to previously approved applications requires new application forms and Fees



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PLANNING BOARD SCHEDULE OF ESCROW ACCOUNT DEPOSITS

<u>Type of Application Deposit*</u>	<u>Amount of Initial Escrow Account</u>
Concept Study	\$500.00
Site Plan Waiver for Change of Use	\$500.00
Site Development Plan for:	
Multifamily Developments	\$3,000.00 plus \$100.00 per proposed dwelling unit
Commercial Developments	\$3,000.00 plus \$50.00 for each required parking space
1 or 2 Family Projects	\$2,000.00
Special Use Permit	\$2,000.00 plus \$50.00 for each required parking space
Subdivision:	
Lot Line Change resulting in no new lots	\$1,500.00
All Others	\$3,000.00 plus \$200.00 per proposed new lot in excess of two (2)
Preparation or Review of Environmental Impact Statement	\$15,000.00

* If a proposed action involves multiple approvals, a single escrow account will be established. The total amount of the initial deposit shall be the sum of the individual amounts indicated. When the balance in such escrow account is reduced to one-third (1/3) of its initial amount, the applicant shall deposit additional funds into such account to restore its balance to the amount of the initial deposit.

Applicant Signature

Date:

4/20/2021

I. IDENTIFICATION OF PROPERTY OWNER, APPLICANT AND PROFESSIONAL REPRESENTATIVES

Name of Property Owner: <u>Manuel Yanez (Mistis Properties INC)</u>
Mailing Address: <u>132 Fulton Street White Plains NY 10608</u>
Telephone: <u>914-774-3625</u> Fax: _____ e-mail <u>manolinagp@hotmail.com</u>
Name of Applicant (if different): _____
Address of Applicant: _____
Telephone: _____ Fax: _____ e-mail _____
Interest of Applicant, if other than Property Owner: _____
Is the Applicant (if different from the property owner) a Contract Vendee? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
If yes, please submit affidavit stating such. If no, application cannot be reviewed by Planning Board
Name of Professional Preparing Site Plan: <u>ARQ PC Paul Berte, PE</u>
Address: <u>100 Executive Blvd Suite 104 Ossining, NY 10562</u>
Telephone: <u>914-944-3377</u> Fax: _____ e-mail <u>paul@arqpc.com</u>
Name of Other Professional: _____
Address: _____
Telephone: _____ Fax: _____ e-mail _____
Name of Attorney (if any): _____
Address: _____
Telephone: _____ Fax: _____ e-mail _____

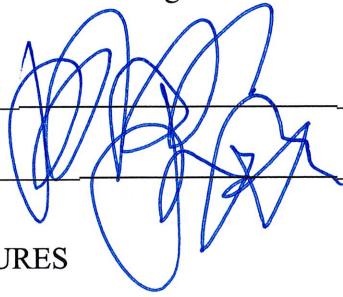
Applicant Acknowledgement

By making this application, the undersigned Applicant agrees to permit Town officials and their designated representatives to conduct on-site inspections in connection with the review of this application.

The Applicant also agrees to pay all expenses for the cost of professional review services required for this application.

It is further acknowledged by the Applicant that all bills for the professional review services shall be mailed to the Applicant, unless the Town is notified in writing by the Applicant at the time of initial submission of the application that such mailings should be sent to a designated representative instead.

Signature of Applicant: _____ Date: 4/10/2021
Signature of Property Owner: _____ Date: 4/10/2021



MUST HAVE BOTH SIGNATURES

II. IDENTIFICATION OF SUBJECT PROPERTY

Street Address: 176 Virginia Road

Location (in relation to nearest intersecting street):
0 feet (north, south, east or west) of Lafayette Avenue

Abutting Street(s): Virginia Road

Tax Map Designation (NEW): Section 122.16 Block 1 Lot 3

Tax Map Designation (OLD): Section 6 Block 6 Lot 45,46,47,48,49,50

Zoning District: IND-A Total Land Area 16,708.59 SF

Land Area in North Castle Only (if different) _____

Fire District(s) North White Plains School District(s) Valhalla

Is any portion of subject property abutting or located within five hundred (500) feet of the following:

The boundary of any city, town or village?
No _____ Yes (adjacent) _____ Yes (within 500 feet) X
If yes, please identify name(s): Greenburgh

The boundary of any existing or proposed County or State park or any other recreation area?
No _____ Yes (adjacent) _____ Yes (within 500 feet) X (Bronx River Parkway Reservation)

The right-of-way of any existing or proposed County or State parkway, thruway, expressway, road or highway?
No _____ Yes (adjacent) _____ Yes (within 500 feet) X

The existing or proposed right-of-way of any stream or drainage channel owned by the County or for which the County has established channel lines?
No X Yes (adjacent) _____ Yes (within 500 feet) _____

The existing or proposed boundary of any county or State owned land on which a public building or institution is situated?
No _____ Yes (adjacent) _____ Yes (within 500 feet) X

The boundary of a farm operation located in an agricultural district?
No X Yes (adjacent) _____ Yes (within 500 feet) _____

Does the Property Owner or Applicant have an interest in any abutting property?
No X Yes _____

If yes, please identify the tax map designation of that property:

III. DESCRIPTION OF PROPOSED DEVELOPMENT

Proposed Use: Parking bays for truck parking

Gross Floor Area: Existing 746 S.F. Proposed 3600 S.F.

Proposed Floor Area Breakdown:

Retail _____ S.F.; Office _____ S.F.;

Industrial 3600 S.F.; Institutional _____ S.F.;

Other Nonresidential _____ S.F.; Residential _____ S.F.;

Number of Dwelling Units: _____

Number of Parking Spaces: Existing _____ Required _____ Proposed 9

Number of Loading Spaces: Existing _____ Required _____ Proposed _____

Earthwork Balance: Cut 2686 C.Y. Fill 121 C.Y.

Will Development on the subject property involve any of the following:

Areas of special flood hazard? No x Yes _____

(If yes, application for a Development Permit pursuant to Chapter 177 of the North Castle Town Code may also be required)

Trees with a diameter at breast height (DBH) of 8" or greater?

No _____ Yes x

(If yes, application for a Tree Removal Permit pursuant to Chapter 308 of the North Castle Town Code may also be required.)

Town-regulated wetlands? No x Yes _____

(If yes, application for a Town Wetlands Permit pursuant to Chapter 340 of the North Castle Town Code may also be required.)

State-regulated wetlands? No x Yes _____

(If yes, application for a State Wetlands Permit may also be required.)

IV. SUBMISSION REQUIREMENTS

The site development plan application package shall include all materials submitted in support of the application, including but not limited to the application form, plans, reports, letters and SEQR Environmental Assessment Form. **Submission of the following shall be required:**

- One (1) set of the site development plan application package (for distribution to the Town Planner for preliminary review purposes).
- Once a completed preliminary site plan checklist has been received from the Planning Department, eight (8) additional sets of the site development plan application package (for distribution to Planning Board, Town Engineer, Town Attorney, Town Planner, Planning Board Secretary, police, fire department and ambulance corps).
- One (1) additional reduced sized set (11" x 17") of the site development plan application package if any portion of the subject property abuts or is located within five hundred (500) feet of the features identified in Section II of this application form (for distribution to Westchester County Planning Board).
- A check for the required application fee and a check for the required Escrow Account, both made payable to "Town of North Castle" in the amount specified on the "Schedule of Application Fees."

(continued next page)

V. INFORMATION TO BE INCLUDED ON SITE DEVELOPMENT PLAN

The following checklist is provided to enable the Applicant to determine if he/she has provided enough information on the site development plan for the Planning Board to review his/her proposal. Applicants are advised to review ARTICLE VIII, Site Development Plan of the North Castle Town Code for a complete enumeration of pertinent requirements and standards prior to making application for site development plan approval.

The application for site development plan approval will not be accepted for Planning Board review unless all items identified below are supplied and **so indicated with a check mark in the blank line provided**. If a particular item is not relevant to the subject property or the development proposal, **the letters "NA" should be entered instead**. In addition, the project will not be scheduled on a Planning Board agenda until the Applicant receives an initialed "site plan checklist" from the Planning Department.

The information to be included on a site development plan shall include:

Legal Data:

- Name of the application or other identifying title.
- Name and address of the Property Owner and the Applicant, (if different).
- Name, address and telephone number of the architect, engineer or other legally qualified professional who prepared the plan.
- Names and locations of all owners of record of properties abutting and directly across any and all adjoining streets from the subject property, including the tax map designation of the subject property and abutting and adjoining properties, as shown on the latest tax records.
- Existing zoning, fire, school, special district and municipal boundaries.
- Size of the property to be developed, as well as property boundaries showing dimensions and bearings as determined by a current survey; dimensions of yards along all property lines; name and width of existing streets; and lines of existing lots, reservations, easements and areas dedicated to public use.
- Reference to the location and conditions of any covenants, easements or deed restrictions that cover all or any part of the property, as well as identification of the document where such covenants, easements or deed restrictions are legally established.
- Schedule of minimum zoning requirements, as well as the plan's proposed compliance with those requirements, including lot area, frontage, lot width, lot depth, lot coverage, yards, off-street parking, off-street loading and other pertinent requirements.
- Locator map, at a convenient scale, showing the Applicant's entire property in relation to surrounding properties, streets, etc., within five hundred (500) feet of the site.
- North arrow, written and graphic scales, and the date of the original plan and all revisions, with notation identifying the revisions.
- A signature block for Planning Board endorsement of approval.

Existing Conditions Data:

- Location of existing use and design of buildings, identifying first floor elevation, and other structures.
- Location of existing parking and truck loading areas, with access and egress drives thereto.
- Location of existing facilities for water supply, sanitary sewage disposal, storm water drainage, and gas and electric service, with pipe sizes, grades, rim and inverts, direction of flow, etc. indicated.

- Location of all other existing site improvements, including pavement, walks, curbing, retaining walls and fences.

- Location, size and design of existing signs.

- Location, type, direction, power and time of use of existing outdoor lighting.

- Location of existing outdoor storage, if any.

- Existing topographical contours with a vertical interval of two (2) feet or less.
- Location of existing floodplains, wetlands, slopes of 15% or greater, wooded areas, landscaped areas, single trees with a DBH of 8" or greater, rock outcrops, stone walls and any other significant existing natural or cultural features.

Proposed Development Data:

- Proposed location of lots, streets, and public areas, and property to be affected by proposed easements, deed restrictions and covenants.

- Proposed location, use and architectural design of all buildings, including proposed floor elevations and the proposed division of buildings into units of separate occupancy.

- Proposed means of vehicular and pedestrian access to and egress from the site onto adjacent streets.

- Proposed sight distance at all points of vehicular access.

- Proposed number of employees for which buildings are designed

- Proposed streets, with profiles indicating grading and cross-sections showing the width of the roadway; the location and width of sidewalks; and the location and size of utility lines.

- Proposed location and design of any pedestrian circulation on the site and off-street parking and loading areas, including handicapped parking and ramps, and including details of construction, surface materials, pavement markings and directional signage.

- Proposed location and design of facilities for water supply, sanitary sewage disposal, storm water drainage, and gas and electric service, with pipe sizes, grades, rim and inverts, direction of flow, etc. indicated.

Proposed location of all structures and other uses of land, such as walks, retaining walls, fences, designated open space and/or recreation areas and including details of design and construction.

Location, size and design of all proposed signs.

Location, type, direction, power and time of use of proposed outdoor lighting.

Location and design of proposed outdoor garbage enclosure.

Location of proposed outdoor storage, if any.

Location of proposed landscaping and buffer screening areas, including the type (scientific and common names), size and amount of plantings.

Type of power to be used for any manufacturing

Type of wastes or by-products to be produced and disposal method

In multi-family districts, floor plans, elevations and cross sections

The proposed location, size, design and use of all temporary structures and storage areas to be used during the course of construction.

Proposed grade elevations, clearly indicating how such grades will meet existing grades of adjacent properties or the street.

Proposed soil erosion and sedimentation control measures.

For all proposed site development plans containing land within an area of special flood hazard, the data required to ensure compliance with Chapter 177 of the North Castle Town Code.

For all proposed site development plans involving clearing or removal of trees with a DBH of 8" or greater, the data required to ensure compliance with Chapter 308 of the North Castle Town Code.

For all proposed site development plans involving disturbance to Town-regulated wetlands, the data required to ensure compliance with Chapter 340 of the North Castle Town Code.

Short Environmental Assessment Form

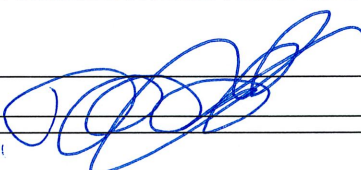
Part 1 - Project Information

Instructions for Completing

Part 1 - Project Information. The applicant or project sponsor is responsible for the completion of Part 1. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification. Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information.

Complete all items in Part 1. You may also provide any additional information which you believe will be needed by or useful to the lead agency; attach additional pages as necessary to supplement any item.

Part 1 - Project and Sponsor Information			
Name of Action or Project: 176 Virginia Road			
Project Location (describe, and attach a location map): 176 Virginia Road white Plains, NY			
Brief Description of Proposed Action: Demolish existing building and construct prefab metal building with parking bays for trucks			
Name of Applicant or Sponsor: Mistis Properties Inc.		Telephone: 9147743625	
		E-Mail: manolinagp@hotmail.com	
Address: 132 Fulton Street			
City/PO: White Plains		State: NY	Zip Code: 10608
1. Does the proposed action only involve the legislative adoption of a plan, local law, ordinance, administrative rule, or regulation? If Yes, attach a narrative description of the intent of the proposed action and the environmental resources that may be affected in the municipality and proceed to Part 2. If no, continue to question 2.			NO <input checked="" type="checkbox"/>
			YES <input type="checkbox"/>
2. Does the proposed action require a permit, approval or funding from any other governmental Agency? If Yes, list agency(s) name and permit or approval:			NO <input checked="" type="checkbox"/>
			YES <input type="checkbox"/>
3.a. Total acreage of the site of the proposed action?		.383 acres	
b. Total acreage to be physically disturbed?		.383 acres	
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor?		.383 acres	
4. Check all land uses that occur on, adjoining and near the proposed action.			
<input type="checkbox"/> Urban <input type="checkbox"/> Rural (non-agriculture) <input checked="" type="checkbox"/> Industrial <input type="checkbox"/> Commercial <input type="checkbox"/> Residential (suburban)			
<input type="checkbox"/> Forest <input type="checkbox"/> Agriculture <input type="checkbox"/> Aquatic <input type="checkbox"/> Other (specify): _____			
<input type="checkbox"/> Parkland			

<p>18. Does the proposed action include construction or other activities that result in the impoundment of water or other liquids (e.g. retention pond, waste lagoon, dam)?</p> <p>If Yes, explain purpose and size: _____</p> <p>_____</p> <p>_____</p>	<p>NO</p> <p><input type="checkbox"/></p>	<p>YES</p> <p><input type="checkbox"/></p>
<p>19. Has the site of the proposed action or an adjoining property been the location of an active or closed solid waste management facility?</p> <p>If Yes, describe: _____</p> <p>_____</p> <p>_____</p>	<p>NO</p> <p><input type="checkbox"/></p>	<p>YES</p> <p><input type="checkbox"/></p>
<p>20. Has the site of the proposed action or an adjoining property been the subject of remediation (ongoing or completed) for hazardous waste?</p> <p>If Yes, describe: _____</p> <p>_____</p> <p>_____</p>	<p>NO</p> <p><input type="checkbox"/></p>	<p>YES</p> <p><input type="checkbox"/></p>
<p>I AFFIRM THAT THE INFORMATION PROVIDED ABOVE IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE</p> <p>Applicant/sponsor name: _____ Date: <u>4/10/2021</u></p> <p>Signature:  _____</p>		



**Engineers Report
for
176 Virginia Road**

White Plains, NY
Westchester County, New York

Calculations and Report By: Stephen Berté

Reviewed/Submitted By: Paul Berté, PE

Date: 3/8/2021

Last Revised: _____



NYS

071859

Table of Contents

A. Introduction.....	3
B. Site Description.....	3
C. Project Description	4
D. Stormwater Management Methodology	4
E. Construction Phasing Plan and Stormwater Management Facilities Maintenance Program	5
F. Narrative Report.....	6
G. Material Handling and Waste Management	7
H. Final Stabilization.....	9
I. Conclusion:	9

APPENDIX A Stormwater Routings Pre-Development Calculations

APPENDIX B Post Development Calculations

APPENDIX C USDA Soils Report

APPENDIX D FEMA Flood Plain Map

A. Introduction

This report has been prepared in accordance with Chapter 267 of the town of North Castle for the improvements on site on the subject property 176 Virginia Road.

This site is 0.383 acres as shown on a survey prepared by T.C. Merritts Surveyors, map of survey dated August 30, 2018 entitled "TOPOGRAPHY OF PROPERTY PREPARED FOR MISTIS PROPERTIES 100 INC".

This existing impervious surfaces on this lot is approximately 13,586 sf. 11,510 sf of the lot is covered in a heavily compacted subbase type material over asphalt pavement so it has been modeled as an impervious surface. The proposed impervious surfaces is estimated to be 13,340 sf.

An underground stormwater detention system is designed to reduce the post development peak rates of runoff to the pre-development rates for the 2, 10, 25, 100 24-hour storm events. Proposed grading has been designed to minimize the impact to adjacent properties and the Erosion and Sediment controls have been designed to manage stormwater and pollutants from the active site in accordance with the New York Standards and Specifications for Erosion and Sediment Control. Detailed flow control calculations (routings) are also included herewith.

B. Site Description

Existing Improvement

Existing improvements include a single-family home.

Existing Tress

Six (6) trees are to be removed from the property.

Soils

The site consists primarily of CuD Chatfield-Hollis-Rock described by the USDA NRCS as outcrop complex, 15 to 35 percent slopes. A soil report is included in Appendix B.

Flood Plain

The FEMA floodplain map (attached herewith in section 2) does not show potential floodplains in the immediate vicinity of the site.

Site Drainage Characteristics

Most of the site currently drains via sheet flow from north to south. Runoff drains into a concrete swale and catch basin in the street. Other than collecting and treating the runoff from the proposed impervious areas, no changes to the site drainage patterns are proposed with this application.

C. Project Description

Proposed Improvements

Proposed improvements include the installation of two (2) prefabricated warehouse buildings and parking areas.

D. Stormwater Management Methodology

Stormwater Runoff Rate

The on-site stormwater management design was analyzed using HydroCAD stormwater modeling software V10.00, which models Type III 24 hour stormwater flows using those methods contained in "Urban Hydrology for Small Watersheds Technical Release No. 55," prepared by the United States Department of Agriculture Soil Conservation Service. The stormwater management plan has been implemented to provide quality of runoff and flow control by means of the storage provided within the 4 Stormtrap ST1 Units. The system provides 666 cf of storage. The design was based on detention values for the 100, 25, 10, and 2-year storm events, to mitigate the post-development runoff flow to a rate that is less than the pre-development condition.

Grading and Drainage Design

This proposal includes a drainage design in accordance with chapter 9 of the 2015 Stormwater Management Design manual for redevelopment activity. It is anticipated that the subsurface stormwater treatment system will be installed in bedrock. Because infiltration will not be possible, the system has been designed as a detention system. The water quality volume has been achieved with a hydrodynamic separator which provides a total of 2.473 cf. Calculations can be seen on page 5. The runoff from warehouse 2 will be sent to the Stormtrap ST1 units and then be directed to the hydrodynamic separator to be treated and finally out to the catch basin in the street. All other runoff will be captured and directed to the hydrodynamic separator for treatment before going to the catch basin in Virginia Road. Runoff is captured and treated to mitigate the peak flows to the predevelopment rates.

OS-1: This structure functions to control the flow from the proposed underground detention system. Run off from the rain events will be detained in the Stormtrap ST1 single trap units and metered out to catch basin via a 6" orifice located at the base of the proposed underground detention system. During larger rain events the system will overflow to the 12" overflow orifice. The system is designed to reduce the peak rate of discharge from the existing condition.

Throughout the construction process, strict adherence to the **Site Plan** which specifies all erosion and sediment controls will be maintained to minimize sediment and pollutants from discharging off site.

The following table (Table 1) is a summary of the results of the hydrograph routings for the Pre-Development and Post Development stormwater flows for the entire property:

Table 1: Summary of Stormwater Runoff Rates

Storm Event	Rainfall Depth	Pre Development Rate (cfs)	Post Development Rate (cfs)
2 year	3.4"	1.03	.93
10 year	5.1"	1.61	1.46
25 year	6.4"	2.06	1.87
100 year	9.0"	2.93	2.66

E. Construction Phasing Plan and Stormwater Management Facilities Maintenance Program

Maintenance of Temporary and Permanent Structures and Practices

Temporary and permanent erosion controls measures will be maintained and inspected in accordance with the Site Plans and Details. All proposed soil erosion and sediment control practices are designed in accordance with the following publications:

- New York State Standards and Specifications for Erosion and Sediment Control, August 2005, latest edition.
- New York State Guidelines for Urban Erosion and Sediment Control, latest edition,
- New York State General Permit for Stormwater Discharges,
- "Reducing the Impacts of Stormwater Runoff from New Development", as published by the New York State Department of Environmental Conservation (NYSDEC).

The proposed soil erosion and sediment control devices include: protective earthmoving procedures and grading practices, soil stabilization, inlet protection, stabilized construction entrance and silt fencing. The approach of the plan is to control off-site sedimentation and re-establish vegetation as soon as practicable.

Additionally, contractor shall adhere to the recommended material stockpile location and construction entrance shown on the plans attached herewith. The plan will be implemented prior to commencement of earthmoving activities.

Construction Phasing Plan:

1. Erosion and sediment control (esc) measures and pollution prevention (pp) implementation,
 - a. Install silt fences along easterly project limits
 - b. Utilize existing driveway for construction access. If required, install stone (per detail) if access is required on and off exposed areas.
 - c. Install tree protection
 - d. Install temporary sanitary facilities (portable toilets) in a location that is at least 20 from any drainage facility or flow path. Recommend staking the facility to prevent accidental tipping by construction activity or wind.
 - e. Install waste container – maintain rigorous site cleaning schedule to prevent debris from blowing off site. Construction waste shall be stored in a dumpster and carried off-site on a regular basis
 - f. Allocate concrete washout areas in advance of pour.
2. Phase 1 clearing, demo & excavation.
 - a. Clear all trees marked to be removed on the demolition plan. Clear & grub north half of the property, north of the existing 1 story residence. The existing residence is to remain until phase 2.
 - b. Excavate to proposed grade. It is anticipated that rock will be present on portions of the site. A minimum productivity rate of 55yards per day with a 2000ftlb hammer is proposed to remove any rock encountered.
 - c. Due to the limited site area, all excavated soils & rock are to be immediately trucked off site.
 - d. Disturbed areas where construction will cease for more than 14 days will be stabilized with erosion controls, such hydro-seeding, hydro-mulch, or hay
 - e. Form and pour proposed retaining wall along rear property line up to the next phase section. If stable rock is encountered along the limits of the proposed cut, the retaining wall will not be necessary.
3. Construct retaining wall on west side of lot as shown in phase 1 phasing plan.

4. Cut in curb at proposed location and install temporary construction entrance.
5. Phase 2 clearing, demo & excavation
 - a. Disconnect and cap all utilities to existing 1 story residence. Restore pavement as specified.
 - b. Demolish all existing improvements remaining on the demolition plan.
 - c. Clear & grub south end of property.
 - d. Excavate to proposed grade. It is anticipated that rock will be present on portions of the site. A minimum productivity rate of 55cubicyards per day with a 2000ftlb hammer is proposed to remove any rock encountered.
 - e. Due to the limited site area, all excavated soils & rock are to be immediately trucked off site.
 - f. Disturbed areas where construction will cease for more than 14 days will be stabilized with erosion controls, such hydro-seeding, hydro-mulch, or hay.
6. Form and pour proposed retaining wall along rear property line up to the next phase section. If stable rock is encountered along the limits of the proposed cut, the retaining wall will not be necessary.
7. Install subsurface storage system, site drainage and hydrodynamic separator to capture roof leader runoff. Protect inlets with sediment control inlet protection.
8. Vertical construction (install foundation and construct prefab metal warehouse structures)
9. Install underground utilities. Restore pavement as specified.
10. Install proposed curb and asphalt parking lot
11. Paint all striping for proposed lot.
12. Plant all proposed landscaping.
13. Final stabilization of disturbed areas
 - a. Remove all esc and pp measures upon approval of design engineer and/or esc inspector.
 - b. Awarded contractor shall be responsible for the proper implementation of the esc and pp practices. The following maintenance program is proposed in order to maintain the proper function of all drainage and erosion and sediment control facilities:
 - i. Inspect sediment control devices and construction access point routinely and if necessary remove accumulated sedimentation and debris; at no point should the filter bed be allowed to continue operations beyond 50% of its capacity being compromised by debris.
 - ii. All disturbed area will be stabilized and the sediment build-up in the filter removed. After the construction is completed, any areas disturbed shall be stabilized immediately after the required work is completed.
 - iii. Restore and re-seed any eroded areas as soon as possible
 - iv. The stormwater management facilities maintenance program will be managed by the home owner and shall include yearly inspection of the on-site catch basins and underground storage facilities and the removal of sediment, as necessary.

F. Narrative Report

The primary goal of the soil erosion and sediment control measures is to reduce soil erosion from areas stripped of vegetation during and after construction, and to prevent discharge of silt offsite. Erosion control barriers shall be placed around exposed areas during construction. The barriers shall consist of silt fence. Alternate practice may be implemented by the contractor after approval from the Design Engineer and the City Engineer.

Any areas stripped of vegetation during construction will be left bare for the shortest time possible. Any topsoil removed during construction will be temporarily stockpiled for future use in grading and landscaping. Stockpile locations have been provided on the Erosion and Sediment Control Plan and shall be contained within a silt fence/hay bale barrier.

Temporary vegetation will be established to protect exposed soil areas during construction. If growing conditions are not suitable for the temporary vegetation, mulch will be used. Materials that may be used for mulching include; straw, hay, salt hay, wood fiber, synthetic soil stabilizers, mulch netting, and sod. A permanent vegetative cover will be established upon completion of construction of those areas that have been brought to finish grade and to remain undisturbed.

A temporary stabilized construction entrance comprised of a stone anti-track pad shall be installed as necessary to minimize dirt tracking onto Virginia Road. The purpose of a stabilized entrance is to remove as much soil from the construction vehicle tires prior to exiting the site and traveling on the existing roadways. During construction, inlet protection (as applicable) will be installed at each storm sewer inlet to minimize the conveyance of silt and sediment through the storm sewer system.

For dewatering activities during excavation of the footings, a dewatering pump shall be in a perforated tub surrounded by filter fabric and stone (or approved alternative). Clean discharge should be directed to onsite drainage appurtenances to minimize erosion of soils. Discharge with suspended sediment shall be connected to a sediment bag on undisturbed ground in a location where the discharge will not cause erosion or flow over exposed soils.

Portable toilets shall be provided and located at least 20 feet from a drainage facility and shall be staked down to minimize overtopping from wind.

If the contractor encounters ground water during the excavation of the filtering system, he shall notify the design engineer immediately. The contractor shall store all excavated material at the designated location show on the Grading and Erosion Control Plan with the appropriate erosion control measures corresponding to the stockpile detail.

G. Material Handling and Waste Management

Contractor shall be responsible for all waste materials being collected and disposed of into one (1) metal trash dumpster. Dumpster shall have a secure watertight lid, be placed away from stormwater conveyances and drains, and meet all local and state solid-waste management regulations. Only trash and construction debris from the site will be deposited in the dumpster.

Contractor shall not store erodible or hazardous materials on any roadway. Oil and machinery fuels shall be kept to a necessary minimum and stored in structurally sound and sealed shipping containers or stored in the contractor's vehicles. Hazardous-material storage should be segregated from other non-waste materials. All hazardous materials will be disposed of in accordance with federal, state, and municipal regulations.

Contractor shall be responsible for maintaining the cleanliness of the streets (driveways/parking and adjacent areas) and storm drain inlet protection (as applicable) Best Management Practices (BMPs) throughout the construction project.

Contractor shall provide adequate designated concrete washout areas throughout the construction project and will be responsible for proper disposal of the concrete, mortar or grout collected there.

One (1) temporary sanitary facility (portable toilet) shall be provided at the site in the combined staging area. The toilet shall be away from a concentrated flow path and traffic flow and shall have collection pans underneath as secondary containment. The unit shall be staked down to prevent wind overtopping the unit.

Wood pallets, cardboard boxes, and other recyclable construction scraps will be disposed of in a designated dumpster for recycling. Construction equipment and maintenance materials shall be stored at the combined staging area.

All spills shall be cleaned up immediately upon discovery. Spent absorbent materials and rags will be hauled

off-site immediately after the spill is cleaned up for disposal. Spill large enough to discharge to surface water will be reported to the National Response Center at 1-800-424-8802. Material safety data sheets, a material inventory, and emergency contact information will be maintained on site.

H. Inspection and Maintenance

1. Stormtrap ST1 Singletrap:

Units shall be inspected once a year, sediment shall be removed. Owner shall be responsible for maintenance.

- Locate manholes connected to the system
- Remove grates or covers
- Vacuum pump the sediment. Do not flush sediment out inlet pipes.
- Replace grates and covers
- Record depth and date and schedule next inspection

2. Catch Basins/Inlets:

- Shall be inspected once a year, trash and debris shall be removed.
- Owner shall be responsible for maintenance.

3. Grease trap/oil separator

- Water generated from the truck wash will be captured by the floor trench drain and directed to the grease trap/oil separator, the baffle will separate the oil from water, then the water will continue towards the outlet pipe that is followed by the house trap and sewer line.
- Oil will rise and build up in the inlet chamber until it gets removed.
- Take a long stick that will reach the bottom of the chamber. Any resistance pushing to the bottom signifies sludge build up. Service the oil/water separator when build up is about 6 inches deep in the inlet chamber.
- Maintenance of oil/water separator must include through pump-out and cleaning a minimum of once a year. Cleaning shall be done before the oil accumulation inside the separator is within 2 inches from the top of the water level
- More frequent cleaning of oil/water separator may be required if deemed necessary by building department inspector.
- Owner shall be responsible for the proper removal and disposal. Owner may be required to maintain on-site records of dates and means of disposal which are subject to review by building department. Any removal of the waste material not performed by the owner's personnel must be performed by a licensed waste water disposal firm.

4. Aqua-Swirl: AS-4:

- During the first year post-construction, the unit should again be inspected every three months and cleaned as needed.
- It is also recommended that the system be inspected and cleaned once annually regardless of whether it has reached its sediment or floatable pollutant storage capacity.
- For the second and subsequent years post-construction, the Aqua-Swirl can be inspected and cleaned once annually if the system did not reach full sediment or floatable pollutant capacity in the first year post-construction.
- If the Aqua-Swirl® reached full sediment or floatable pollutant capacity in less than 12 months in the first year post-construction, the system should be inspected once every six months and cleaned as needed.

- AquaShield further recommends that external bypass (diversion) and convergence structures should be inspected and cleaned when feasible during inspection and maintenance events.
- Essential elements of a swirl chamber inspection include observing floating materials and measuring the accumulated sediment at the base of the swirl chamber. These two activities can be performed at the ground surface and there is no need to enter the device. A typical maintenance event includes the vacuuming and disposal of floatable pollutants and sediment from the swirl chamber. Proper health and safety protocols should be followed during all inspection and maintenance events. AquaShield™ recommends that all materials removed during the maintenance process be handled and disposed in accordance with all applicable federal, state and local guidelines. Depending on the influent pollutant characteristics of the system drainage area, it may be appropriate to perform Toxicity Characteristics Leaching Procedure (TCLP) analyses on representative samples of the removed material to ensure that the handling and disposition of materials complies with applicable environmental regulations.
- Owner shall be responsible for maintenance.

I. Final Stabilization

Permanent seeding shall be applied immediately after the final design grades are achieved as applicable throughout the site but no later than fourteen (14) days after construction activities have ceased. After stabilization, accumulated sediment shall be removed from site for disposal along with construction debris, trash and temporary BMPs e.g. silt fences, straw bales, material storage areas, sanitary toilets, etc.

Seedbed preparation/grass application

A minimum depth of 2 to 6 inches shall be applied on areas where disturbance results in subsoil being the final grade surface. The seedbed shall be free of large clods, rocks, woody debris and other intrusive materials; fertilizer shall be applied accordingly.

J. Conclusion:

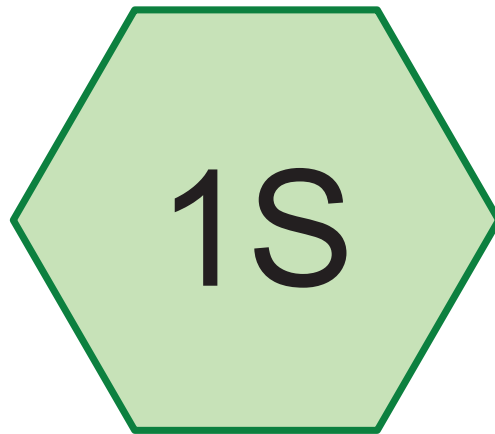
The implementation of this stormwater management plan will mitigate the post development stormwater flows to the predevelopment rates and not adversely affect the adjacent properties or the existing drainage system in Virginia Road.

Respectfully Submitted,

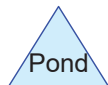
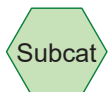
ARQ PC

APPENDIX A

Stormwater Routings Pre Development Calculations



Existing Conditions



Summary for Subcatchment 1S: Existing Conditions

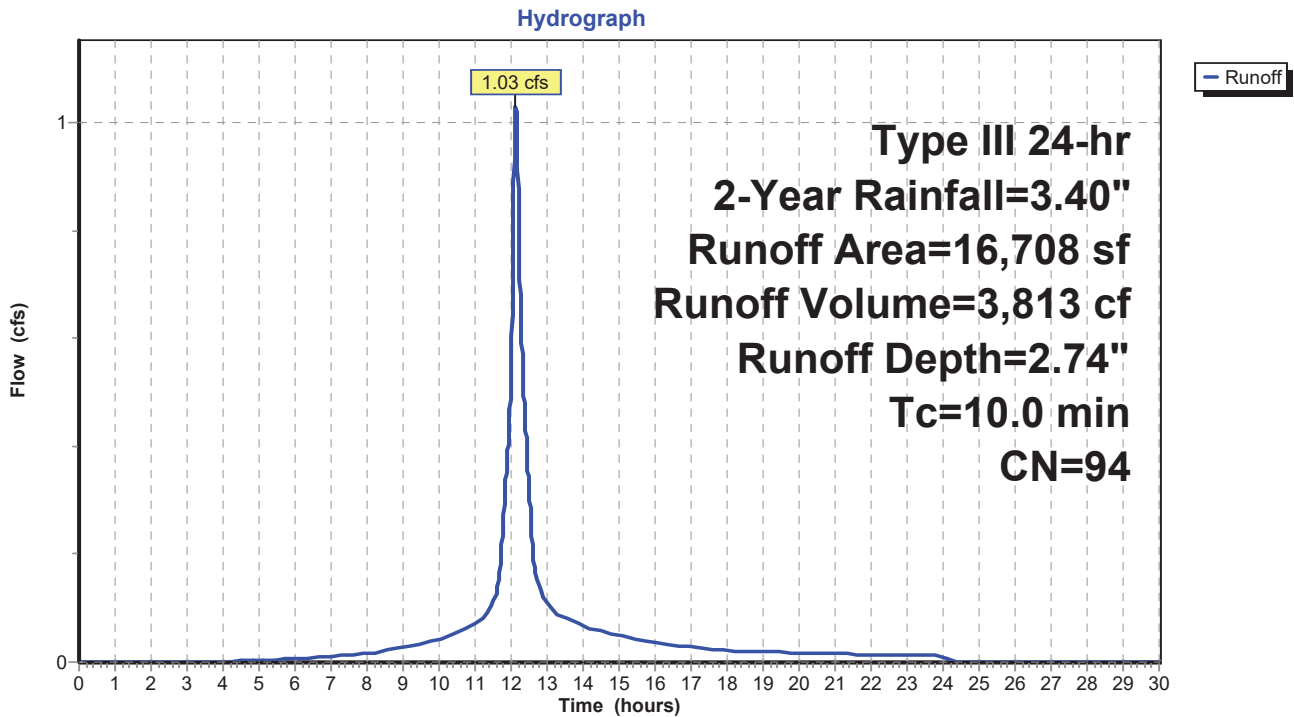
Runoff = 1.03 cfs @ 12.14 hrs, Volume= 3,813 cf, Depth= 2.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-Year Rainfall=3.40"

Area (sf)	CN	Description
* 13,586	98	Impervious (Building, Driveway & Lot)
3,122	76	Woods/grass comb., Fair, HSG C
0	98	Unconnected pavement, HSG C
16,708	94	Weighted Average
3,122		18.69% Pervious Area
13,586		81.31% Impervious Area

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

Subcatchment 1S: Existing Conditions



Summary for Subcatchment 1S: Existing Conditions

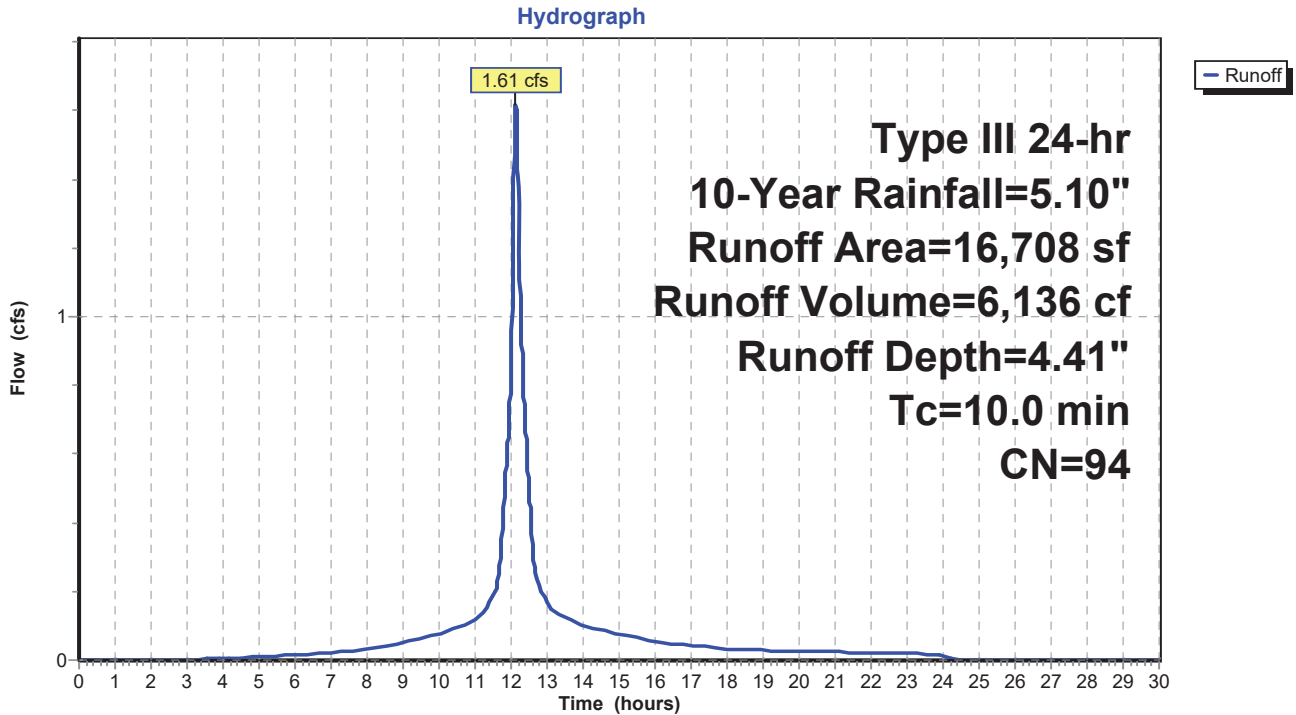
Runoff = 1.61 cfs @ 12.13 hrs, Volume= 6,136 cf, Depth= 4.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.10"

	Area (sf)	CN	Description
*	13,586	98	Impervious (Building, Driveway & Lot)
	3,122	76	Woods/grass comb., Fair, HSG C
	0	98	Unconnected pavement, HSG C
	16,708	94	Weighted Average
	3,122		18.69% Pervious Area
	13,586		81.31% Impervious Area

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

Subcatchment 1S: Existing Conditions



Summary for Subcatchment 1S: Existing Conditions

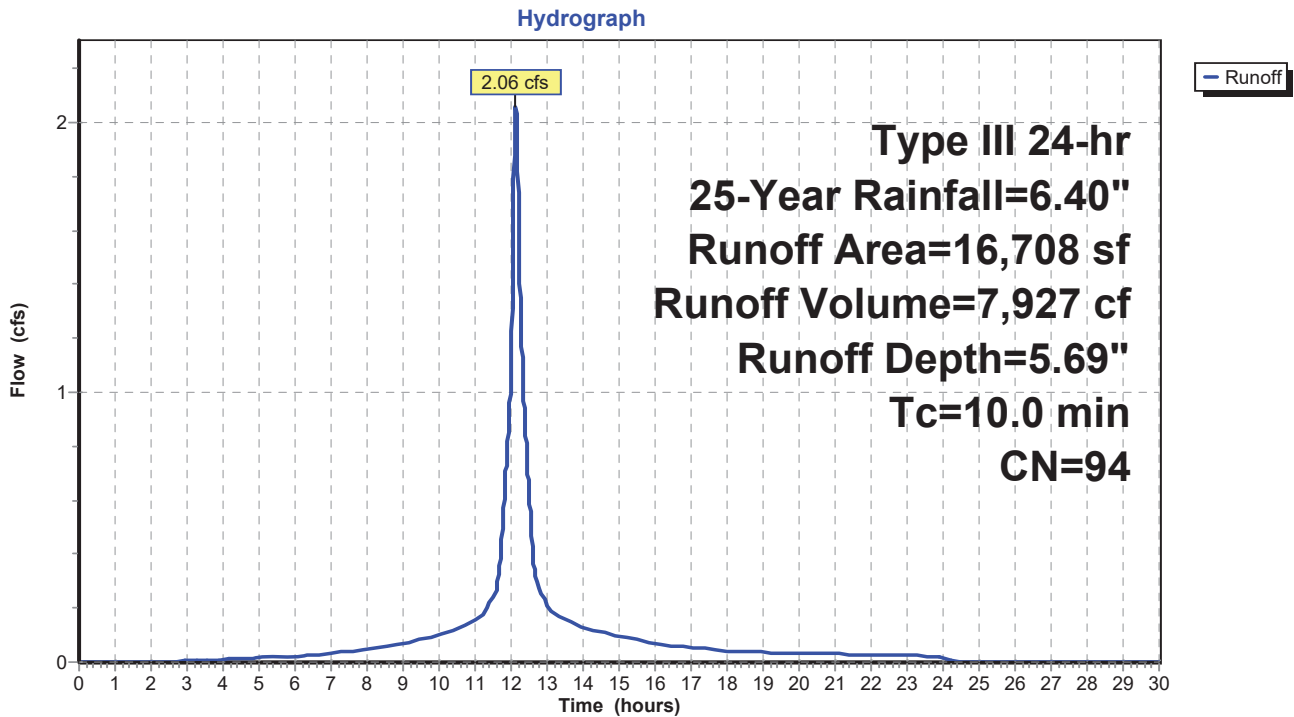
Runoff = 2.06 cfs @ 12.13 hrs, Volume= 7,927 cf, Depth= 5.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-Year Rainfall=6.40"

Area (sf)	CN	Description
* 13,586	98	Impervious (Building, Driveway & Lot)
3,122	76	Woods/grass comb., Fair, HSG C
0	98	Unconnected pavement, HSG C
16,708	94	Weighted Average
3,122		18.69% Pervious Area
13,586		81.31% Impervious Area

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

Subcatchment 1S: Existing Conditions



Summary for Subcatchment 1S: Existing Conditions

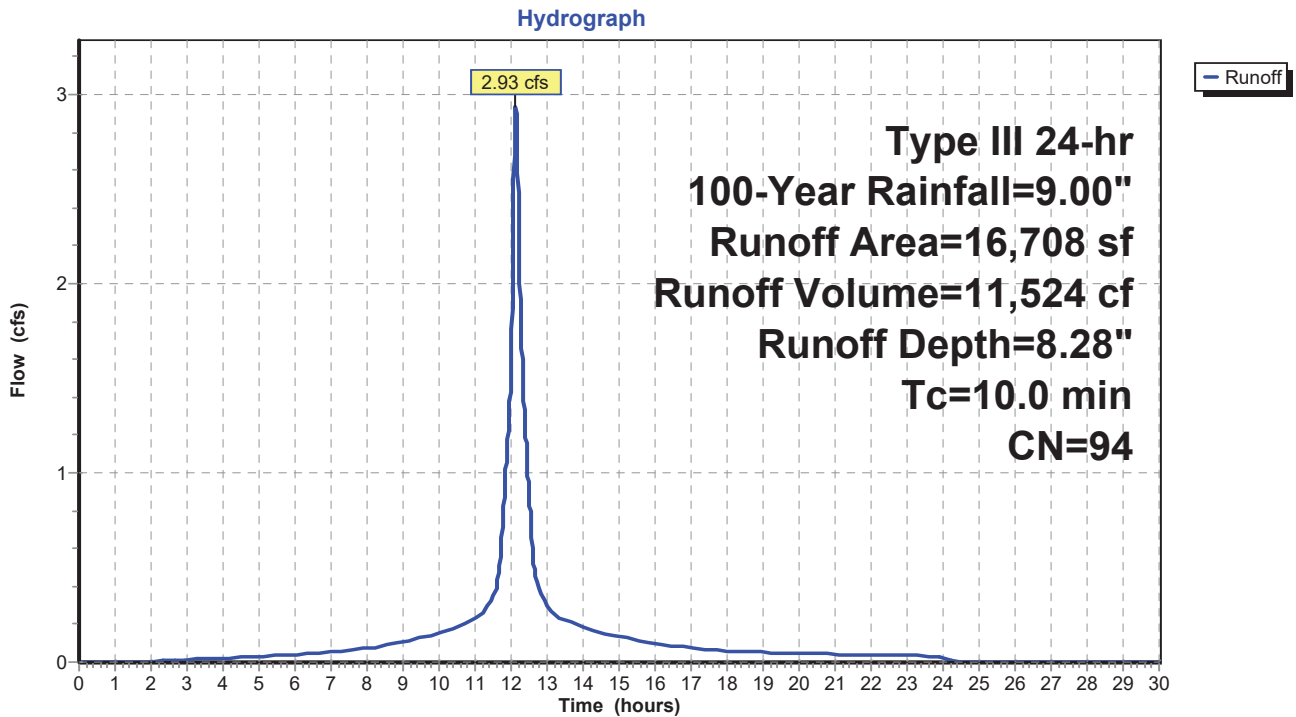
Runoff = 2.93 cfs @ 12.13 hrs, Volume= 11,524 cf, Depth= 8.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=9.00"

Area (sf)	CN	Description
* 13,586	98	Impervious (Building, Driveway & Lot)
3,122	76	Woods/grass comb., Fair, HSG C
0	98	Unconnected pavement, HSG C
16,708	94	Weighted Average
3,122		18.69% Pervious Area
13,586		81.31% Impervious Area

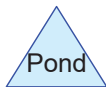
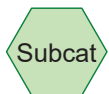
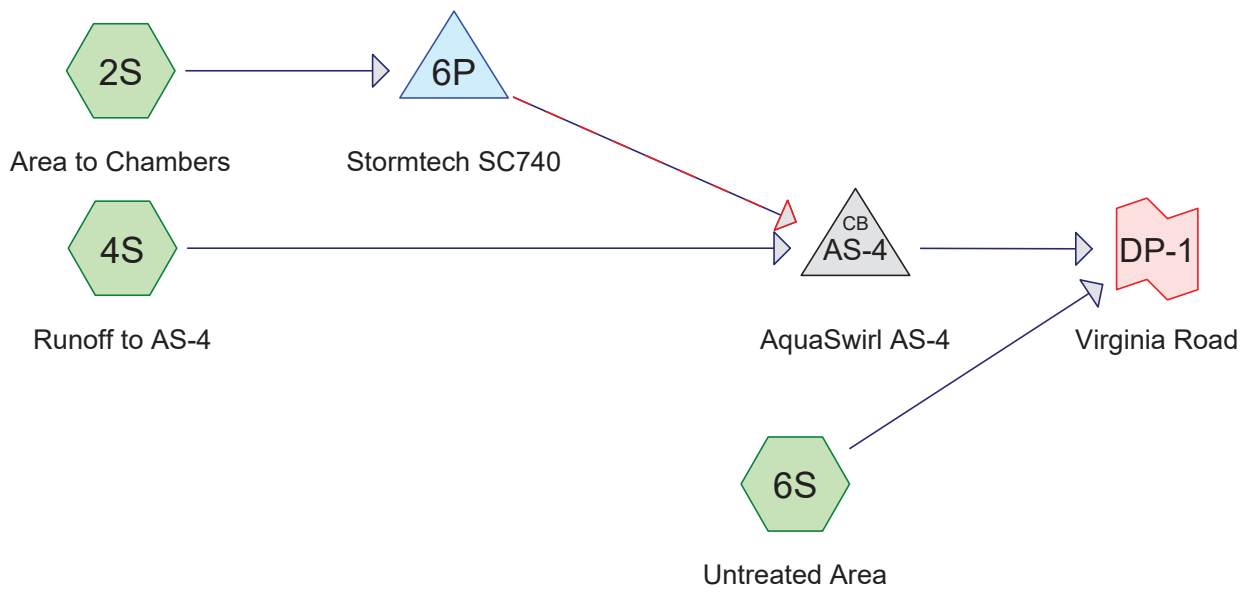
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry, Minimum

Subcatchment 1S: Existing Conditions



APPENDIX B

Stormwater Routings Post Development Calculations



Routing Diagram for 176 Virginia Road 19.7.30
 Prepared by {enter your company name here}, Printed 10/14/2019
 HydroCAD® 10.00-25 s/n 05751 © 2019 HydroCAD Software Solutions LLC

Summary for Subcatchment 2S: Area to Chambers

Runoff = 0.16 cfs @ 12.13 hrs, Volume= 633 cf, Depth= 3.17"

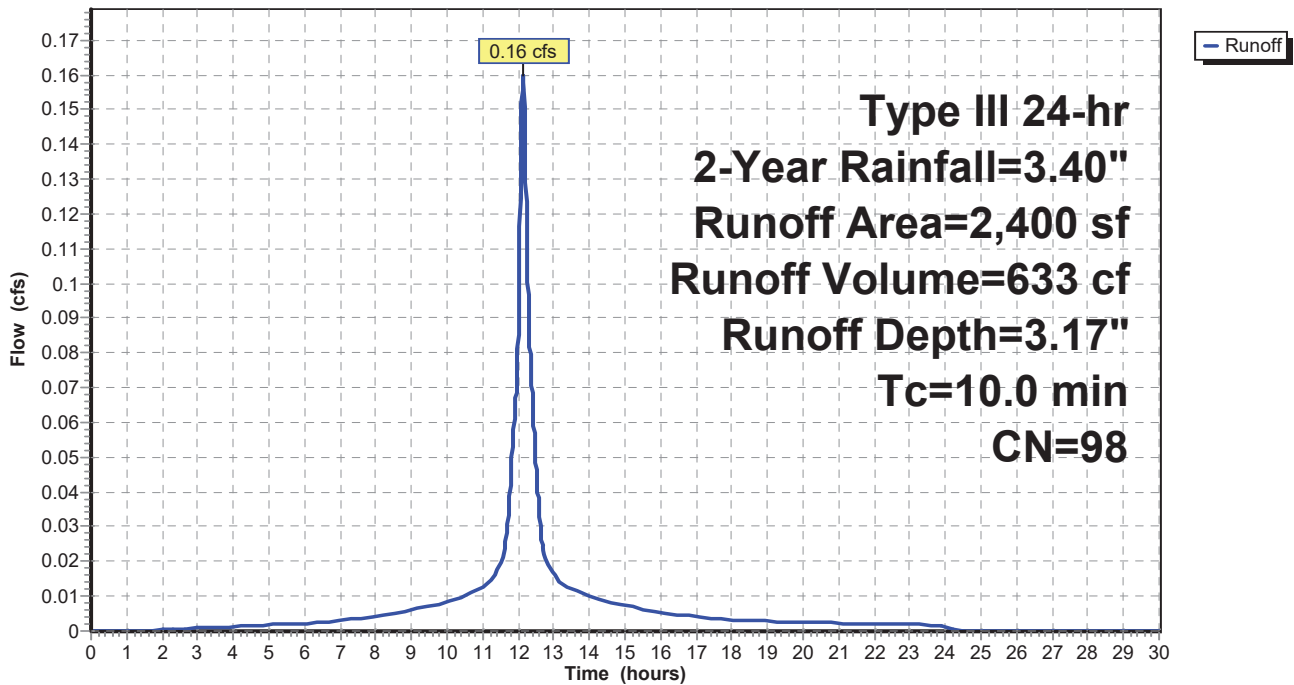
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-Year Rainfall=3.40"

Area (sf)	CN	Description
* 2,400	98	Impervious
2,400		100.00% Impervious Area

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

Subcatchment 2S: Area to Chambers

Hydrograph



Summary for Subcatchment 4S: Runoff to AS-4

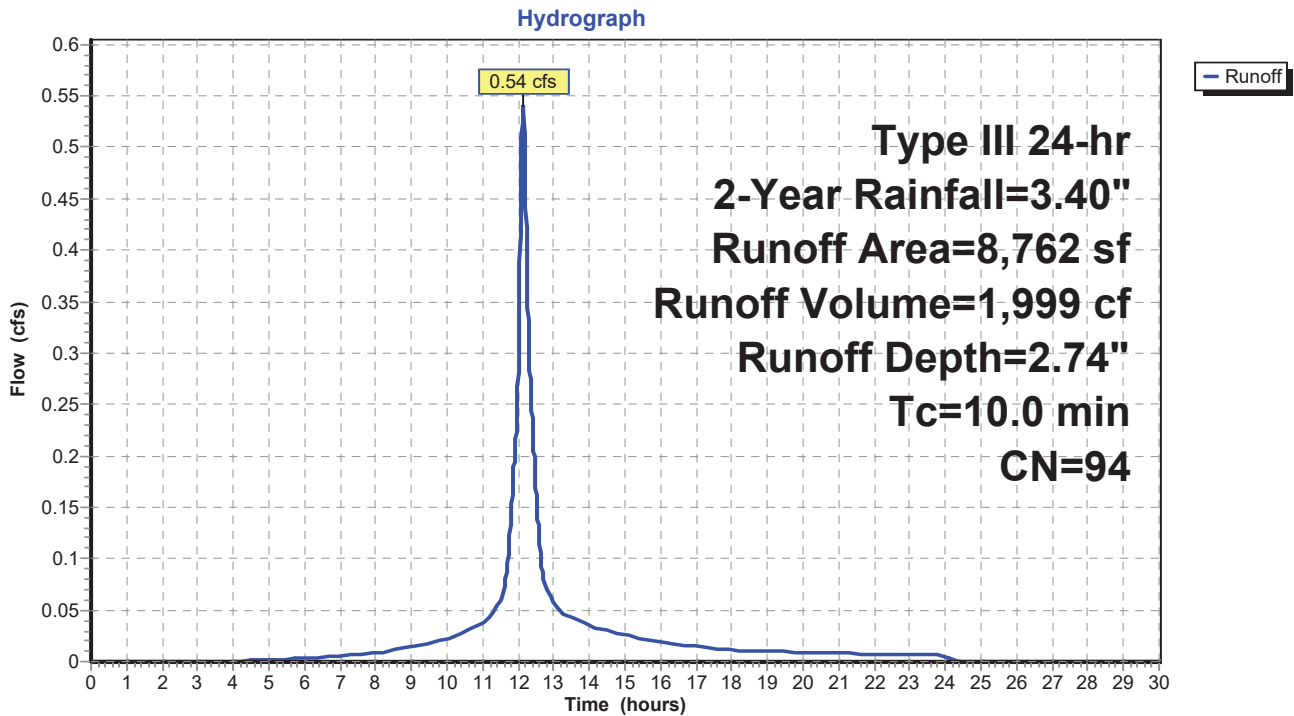
Runoff = 0.54 cfs @ 12.14 hrs, Volume= 1,999 cf, Depth= 2.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.40"

	Area (sf)	CN	Description
*	7,332	98	Impervious
*	1,430	76	Pervious
	8,762	94	Weighted Average
	1,430		16.32% Pervious Area
	7,332		83.68% Impervious Area

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

Subcatchment 4S: Runoff to AS-4



Summary for Subcatchment 6S: Untreated Area

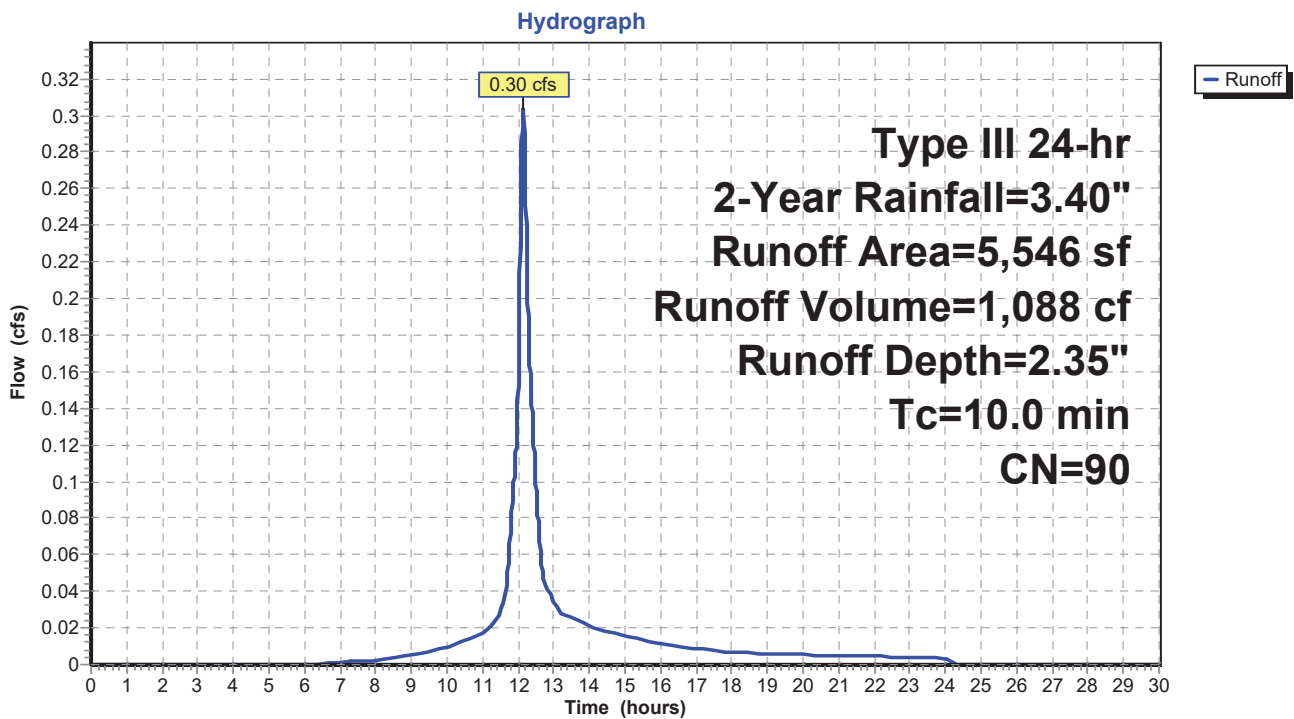
Runoff = 0.30 cfs @ 12.14 hrs, Volume= 1,088 cf, Depth= 2.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-Year Rainfall=3.40"

	Area (sf)	CN	Description
*	3,608	98	Impervious
*	1,938	76	
	5,546	90	Weighted Average
	1,938		34.94% Pervious Area
	3,608		65.06% Impervious Area

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

Subcatchment 6S: Untreated Area



Summary for Pond 6P: Stormtech SC740

Inflow Area = 2,400 sf, 100.00% Impervious, Inflow Depth = 3.17" for 2-Year event
 Inflow = 0.16 cfs @ 12.13 hrs, Volume= 633 cf
 Outflow = 0.12 cfs @ 12.22 hrs, Volume= 633 cf, Atten= 22%, Lag= 5.2 min
 Primary = 0.12 cfs @ 12.22 hrs, Volume= 633 cf
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
 Peak Elev= 201.16' @ 12.22 hrs Surf.Area= 461 sf Storage= 85 cf

Plug-Flow detention time= 30.7 min calculated for 632 cf (100% of inflow)
 Center-of-Mass det. time= 30.1 min (789.0 - 758.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	200.40'	0 cf	15.29'W x 30.13'L x 3.67'H Field A 1,689 cf Overall - 1,071 cf Embedded = 618 cf x 0.0% Voids
#2A	200.90'	666 cf	StormTrap ST1 SingleTrap 2-0 x 4 Inside #1 Inside= 82.7"W x 24.0"H => 11.84 sf x 14.06'L = 166.5 cf Outside= 82.7"W x 32.0"H => 18.39 sf x 14.06'L = 258.6 cf 4 Chambers in 2 Rows 13.79' x 28.13' Core + 0.00' x 0.50' Border = 13.79' x 29.13' System
		666 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	200.90'	4.0" Vert. Orifice/Grate C= 0.600
#2	Secondary	201.80'	12.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.12 cfs @ 12.22 hrs HW=201.16' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.12 cfs @ 1.72 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=200.40' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Pond 6P: Stormtech SC740 - Chamber Wizard Field A

Chamber Model = StormTrap ST1 SingleTrap 2-0 (StormTrap ST1 SingleTrap® Type VI)

Inside= 82.7"W x 24.0"H => 11.84 sf x 14.06'L = 166.5 cf

Outside= 82.7"W x 32.0"H => 18.39 sf x 14.06'L = 258.6 cf

82.7" Wide + 6.0" Spacing = 88.7" C-C Row Spacing

2 Chambers/Row x 14.06' Long = 28.13' Row Length +6.0" Border x 2 +6.0" End Stone x 2 = 30.13' Base Length

2 Rows x 82.7" Wide + 6.0" Spacing x 1 + 6.0" Side Stone x 2 = 15.29' Base Width

6.0" Base + 32.0" Chamber Height + 6.0" Cover = 3.67' Field Height

4 Chambers x 166.5 cf = 666.0 cf Chamber Storage

4 Chambers x 258.6 cf + 36.8 cf Border = 1,071.2 cf Displacement

1,689.1 cf Field - 1,071.2 cf Chambers = 617.9 cf Stone x 0.0% Voids = 0.0 cf Stone Storage

Chamber Storage = 666.0 cf = 0.015 af

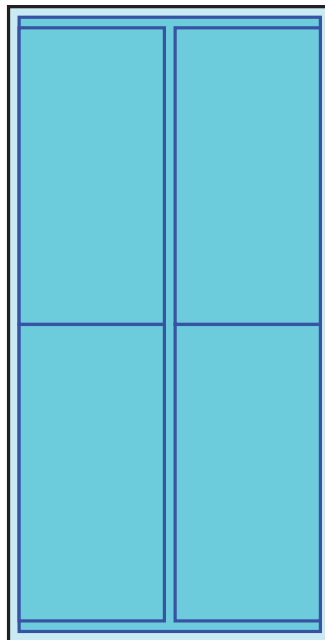
Overall Storage Efficiency = 39.4%

Overall System Size = 30.13' x 15.29' x 3.67'

4 Chambers (plus border)

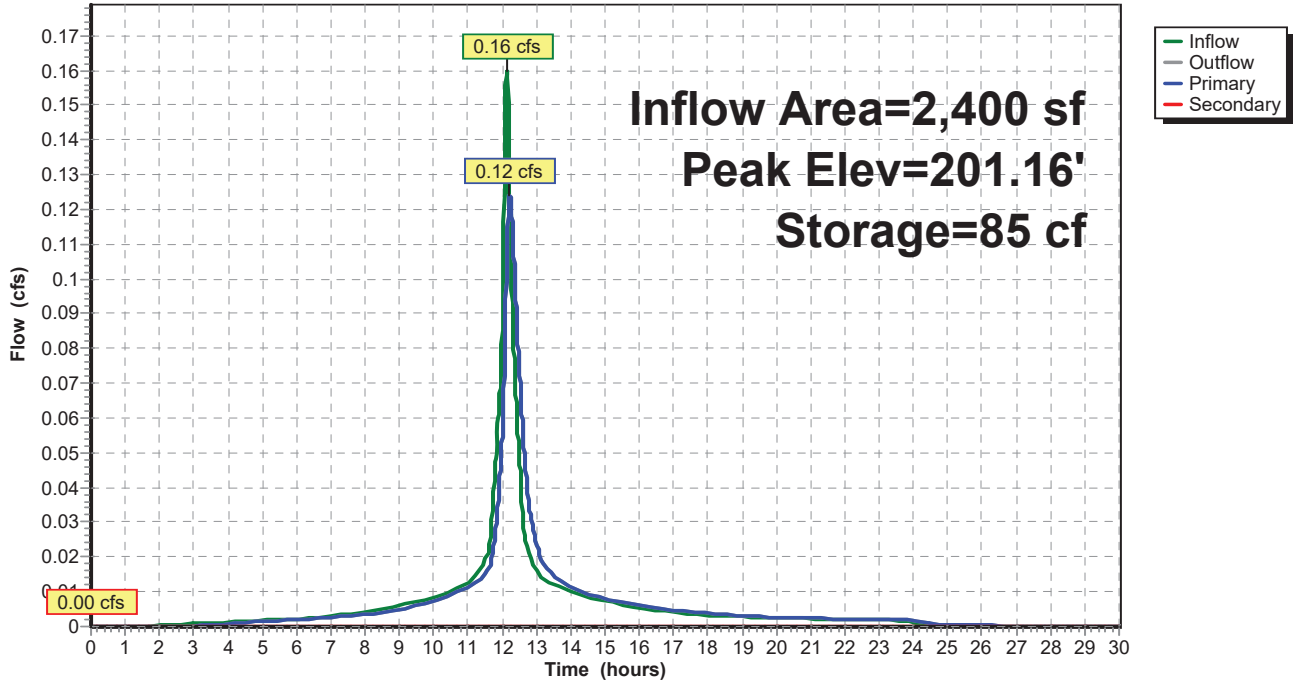
62.6 cy Field

22.9 cy Stone



Pond 6P: Stormtech SC740

Hydrograph



Summary for Pond AS-4: AquaSwirl AS-4

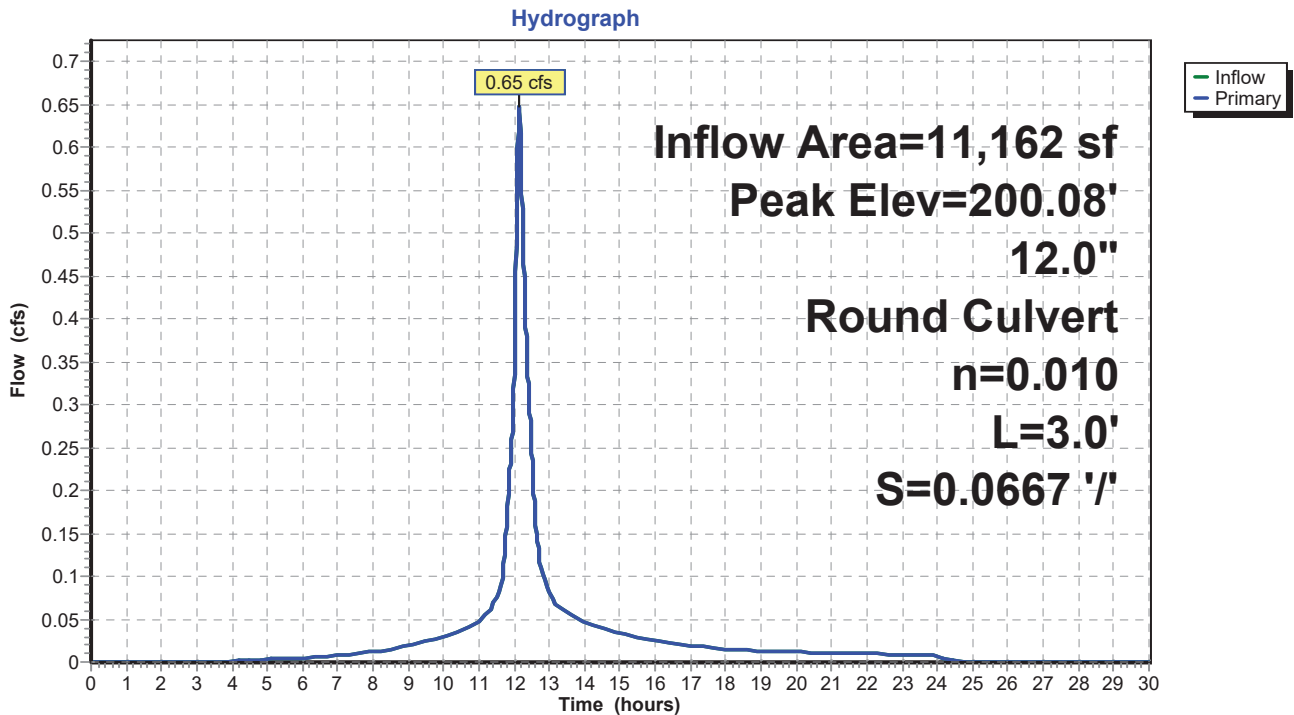
Inflow Area = 11,162 sf, 87.19% Impervious, Inflow Depth > 2.83" for 2-Year event
 Inflow = 0.65 cfs @ 12.14 hrs, Volume= 2,632 cf
 Outflow = 0.65 cfs @ 12.14 hrs, Volume= 2,632 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.65 cfs @ 12.14 hrs, Volume= 2,632 cf

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
 Peak Elev= 200.08' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	199.60'	12.0" Round Culvert L= 3.0' Ke= 1.000 Inlet / Outlet Invert= 199.60' / 199.40' S= 0.0667 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.65 cfs @ 12.14 hrs HW=200.07' (Free Discharge)
 ←1=Culvert (Inlet Controls 0.65 cfs @ 1.76 fps)

Pond AS-4: AquaSwirl AS-4

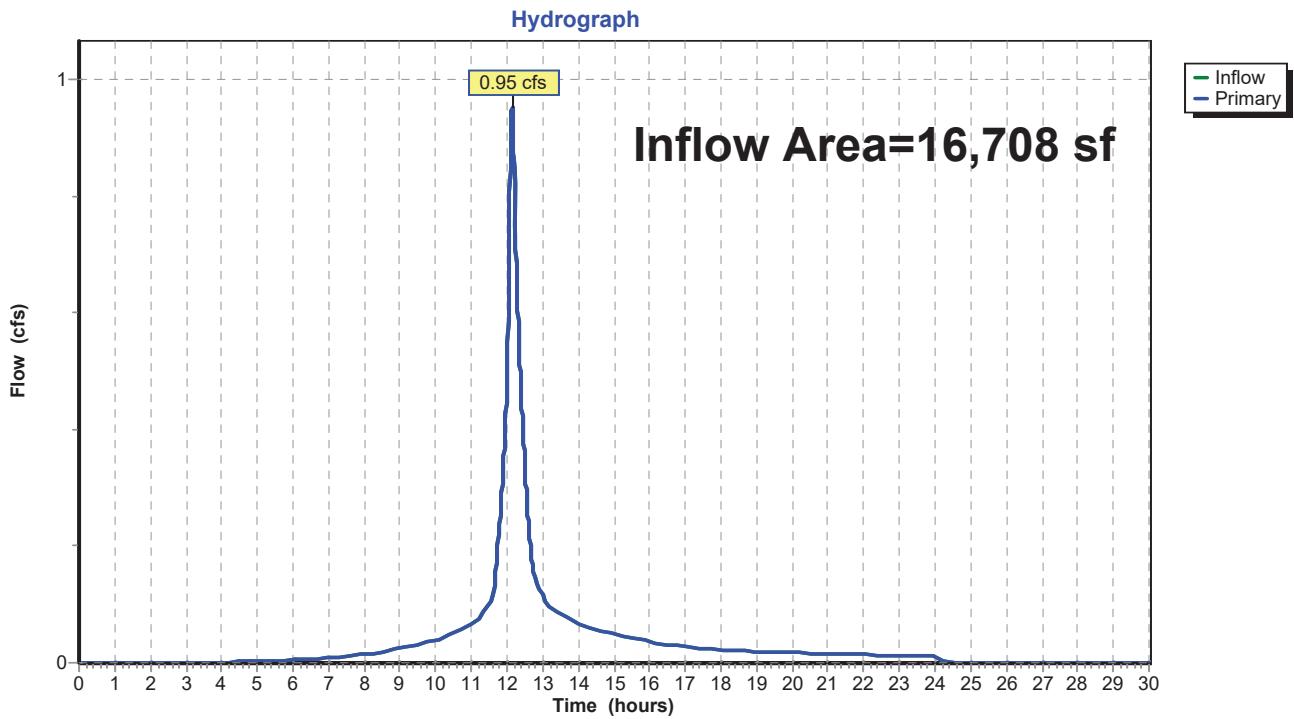


Summary for Link DP-1: Virginia Road

Inflow Area = 16,708 sf, 79.84% Impervious, Inflow Depth = 2.67" for 2-Year event
Inflow = 0.95 cfs @ 12.14 hrs, Volume= 3,720 cf
Primary = 0.95 cfs @ 12.14 hrs, Volume= 3,720 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Link DP-1: Virginia Road



Summary for Subcatchment 2S: Area to Chambers

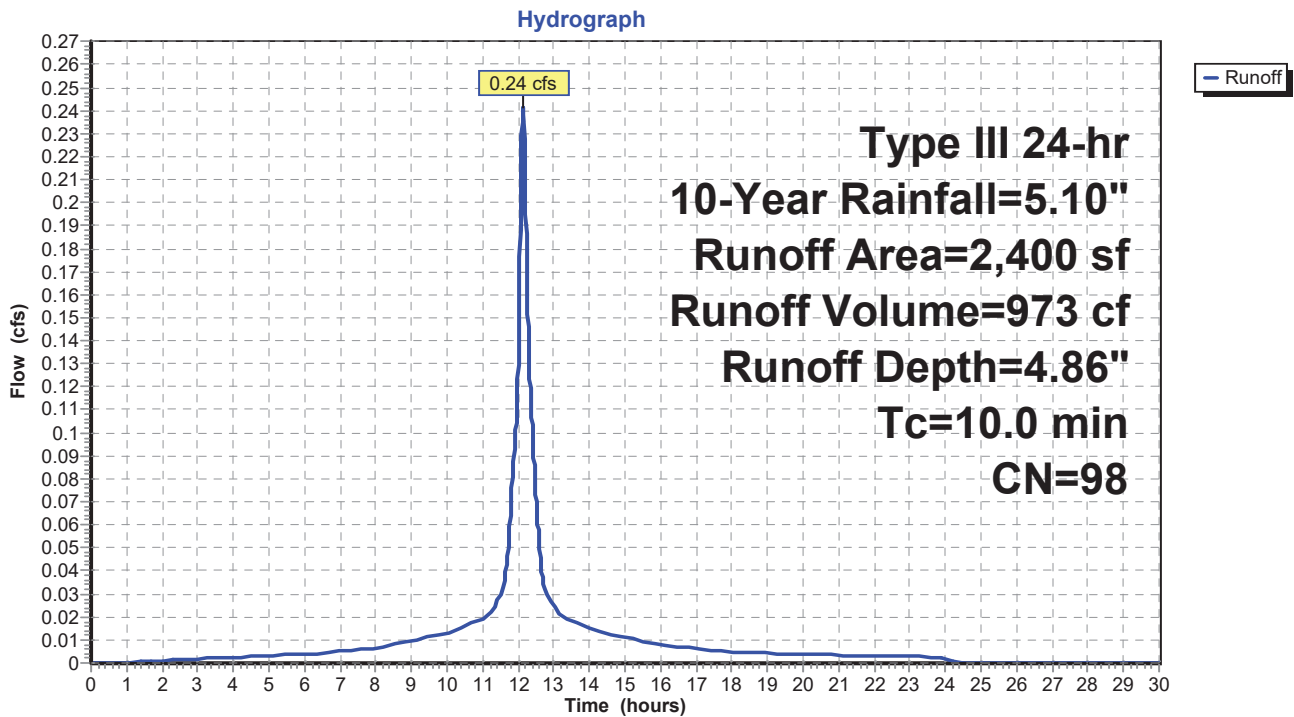
Runoff = 0.24 cfs @ 12.13 hrs, Volume= 973 cf, Depth= 4.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-Year Rainfall=5.10"

Area (sf)	CN	Description
* 2,400	98	Impervious
2,400		100.00% Impervious Area

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

Subcatchment 2S: Area to Chambers



Summary for Subcatchment 4S: Runoff to AS-4

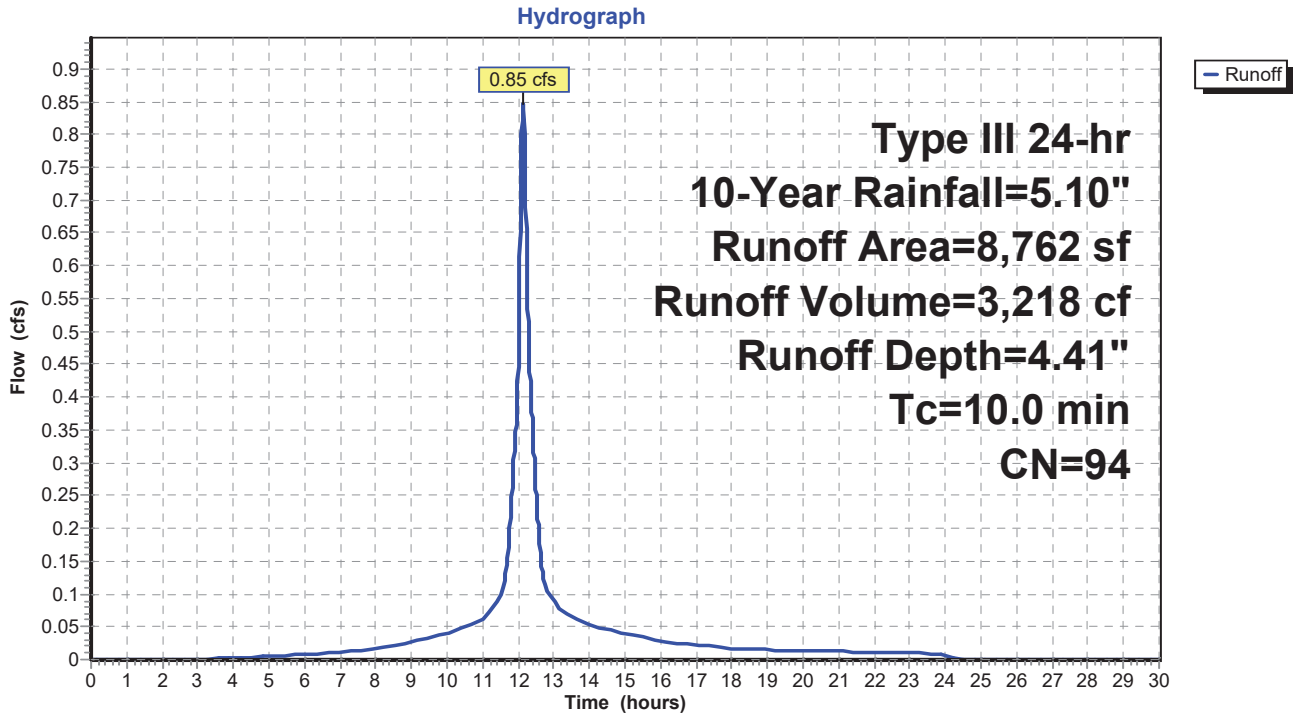
Runoff = 0.85 cfs @ 12.13 hrs, Volume= 3,218 cf, Depth= 4.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-Year Rainfall=5.10"

	Area (sf)	CN	Description
*	7,332	98	Impervious
*	1,430	76	Pervious
	8,762	94	Weighted Average
	1,430		16.32% Pervious Area
	7,332		83.68% Impervious Area

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

Subcatchment 4S: Runoff to AS-4



Summary for Subcatchment 6S: Untreated Area

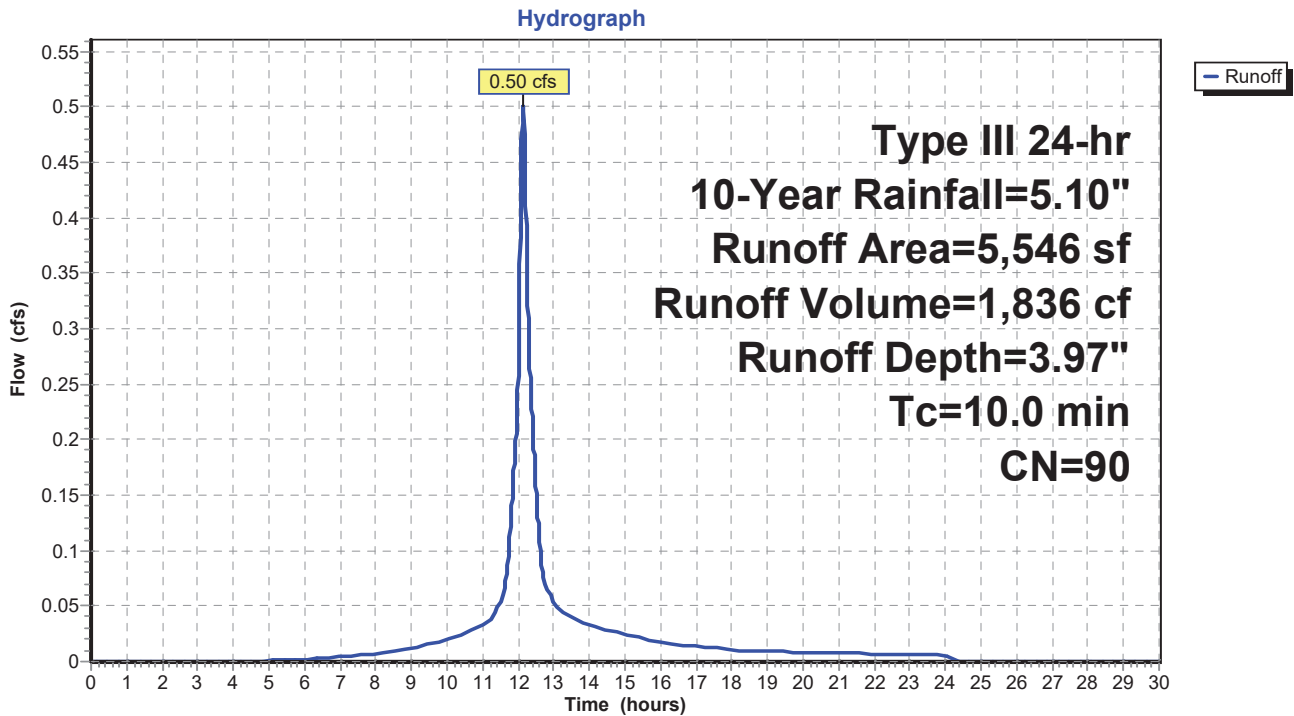
Runoff = 0.50 cfs @ 12.14 hrs, Volume= 1,836 cf, Depth= 3.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-Year Rainfall=5.10"

	Area (sf)	CN	Description
*	3,608	98	Impervious
*	1,938	76	
	5,546	90	Weighted Average
	1,938		34.94% Pervious Area
	3,608		65.06% Impervious Area

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

Subcatchment 6S: Untreated Area



Summary for Pond 6P: Stormtech SC740

Inflow Area = 2,400 sf, 100.00% Impervious, Inflow Depth = 4.86" for 10-Year event
 Inflow = 0.24 cfs @ 12.13 hrs, Volume= 973 cf
 Outflow = 0.18 cfs @ 12.23 hrs, Volume= 972 cf, Atten= 25%, Lag= 5.6 min
 Primary = 0.18 cfs @ 12.23 hrs, Volume= 972 cf
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
 Peak Elev= 201.25' @ 12.23 hrs Surf.Area= 461 sf Storage= 118 cf

Plug-Flow detention time= 26.2 min calculated for 972 cf (100% of inflow)
 Center-of-Mass det. time= 25.8 min (777.2 - 751.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	200.40'	0 cf	15.29'W x 30.13'L x 3.67'H Field A 1,689 cf Overall - 1,071 cf Embedded = 618 cf x 0.0% Voids
#2A	200.90'	666 cf	StormTrap ST1 SingleTrap 2-0 x 4 Inside #1 Inside= 82.7"W x 24.0"H => 11.84 sf x 14.06'L = 166.5 cf Outside= 82.7"W x 32.0"H => 18.39 sf x 14.06'L = 258.6 cf 4 Chambers in 2 Rows 13.79' x 28.13' Core + 0.00' x 0.50' Border = 13.79' x 29.13' System
		666 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	200.90'	4.0" Vert. Orifice/Grate C= 0.600
#2	Secondary	201.80'	12.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.18 cfs @ 12.23 hrs HW=201.25' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.18 cfs @ 2.08 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=200.40' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Pond 6P: Stormtech SC740 - Chamber Wizard Field A

Chamber Model = StormTrap ST1 SingleTrap 2-0 (StormTrap ST1 SingleTrap® Type VI)

Inside= 82.7"W x 24.0"H => 11.84 sf x 14.06'L = 166.5 cf

Outside= 82.7"W x 32.0"H => 18.39 sf x 14.06'L = 258.6 cf

82.7" Wide + 6.0" Spacing = 88.7" C-C Row Spacing

2 Chambers/Row x 14.06' Long = 28.13' Row Length +6.0" Border x 2 +6.0" End Stone x 2 = 30.13' Base Length

2 Rows x 82.7" Wide + 6.0" Spacing x 1 + 6.0" Side Stone x 2 = 15.29' Base Width

6.0" Base + 32.0" Chamber Height + 6.0" Cover = 3.67' Field Height

4 Chambers x 166.5 cf = 666.0 cf Chamber Storage

4 Chambers x 258.6 cf + 36.8 cf Border = 1,071.2 cf Displacement

1,689.1 cf Field - 1,071.2 cf Chambers = 617.9 cf Stone x 0.0% Voids = 0.0 cf Stone Storage

Chamber Storage = 666.0 cf = 0.015 af

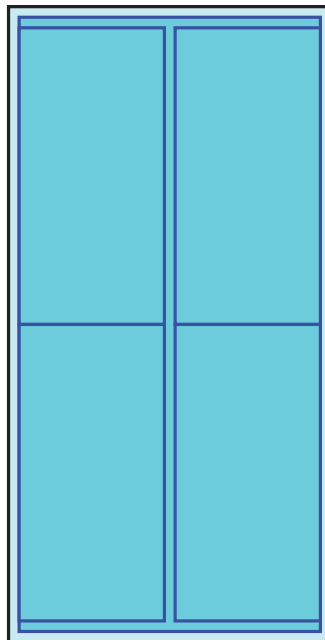
Overall Storage Efficiency = 39.4%

Overall System Size = 30.13' x 15.29' x 3.67'

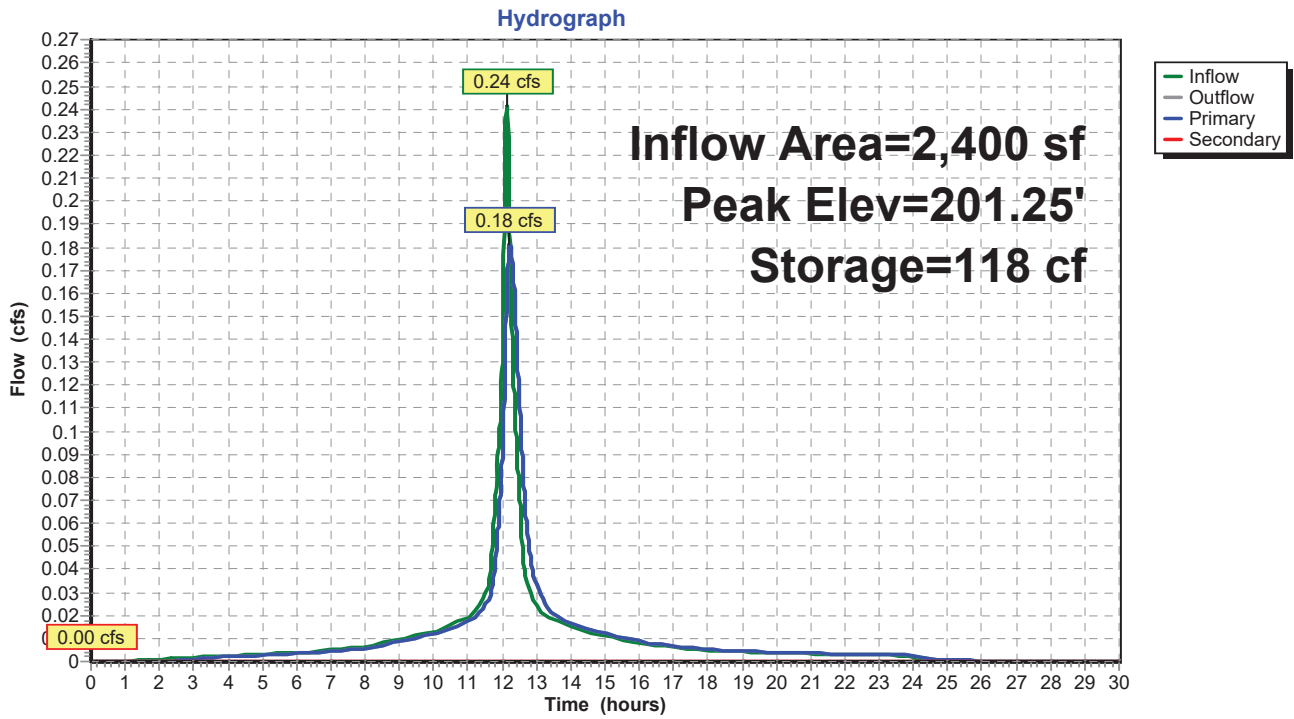
4 Chambers (plus border)

62.6 cy Field

22.9 cy Stone



Pond 6P: Stormtech SC740



Summary for Pond AS-4: AquaSwirl AS-4

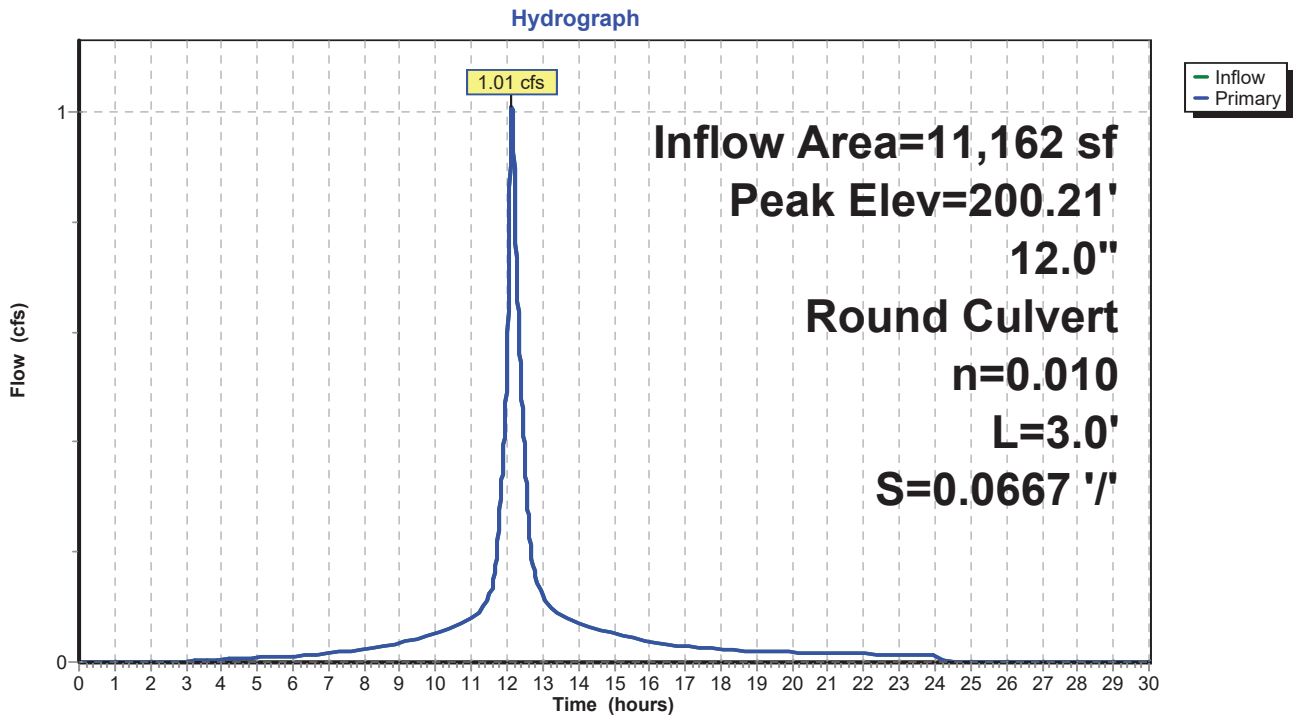
Inflow Area = 11,162 sf, 87.19% Impervious, Inflow Depth = 4.50" for 10-Year event
 Inflow = 1.01 cfs @ 12.14 hrs, Volume= 4,189 cf
 Outflow = 1.01 cfs @ 12.14 hrs, Volume= 4,189 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.01 cfs @ 12.14 hrs, Volume= 4,189 cf

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
 Peak Elev= 200.21' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	199.60'	12.0" Round Culvert L= 3.0' Ke= 1.000 Inlet / Outlet Invert= 199.60' / 199.40' S= 0.0667 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.01 cfs @ 12.14 hrs HW=200.21' (Free Discharge)
 ←1=Culvert (Inlet Controls 1.01 cfs @ 2.00 fps)

Pond AS-4: AquaSwirl AS-4

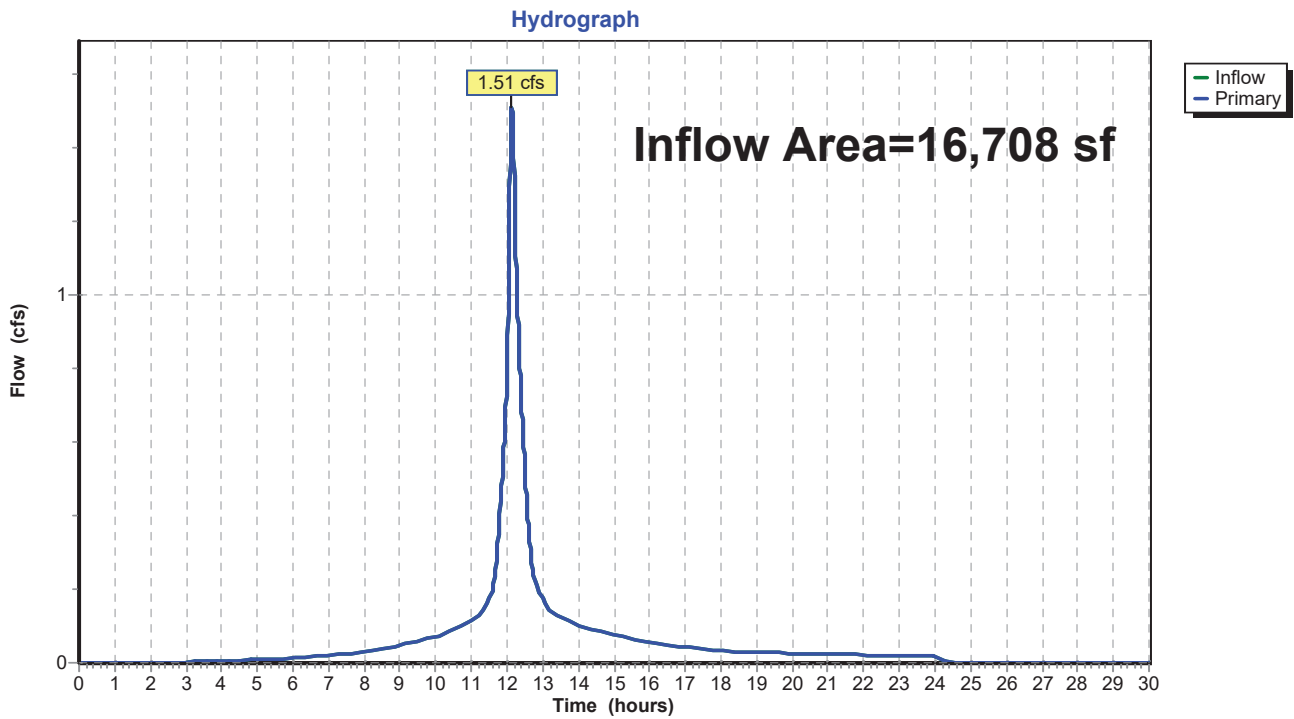


Summary for Link DP-1: Virginia Road

Inflow Area = 16,708 sf, 79.84% Impervious, Inflow Depth = 4.33" for 10-Year event
Inflow = 1.51 cfs @ 12.14 hrs, Volume= 6,026 cf
Primary = 1.51 cfs @ 12.14 hrs, Volume= 6,026 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Link DP-1: Virginia Road



Summary for Subcatchment 2S: Area to Chambers

Runoff = 0.30 cfs @ 12.13 hrs, Volume= 1,232 cf, Depth= 6.16"

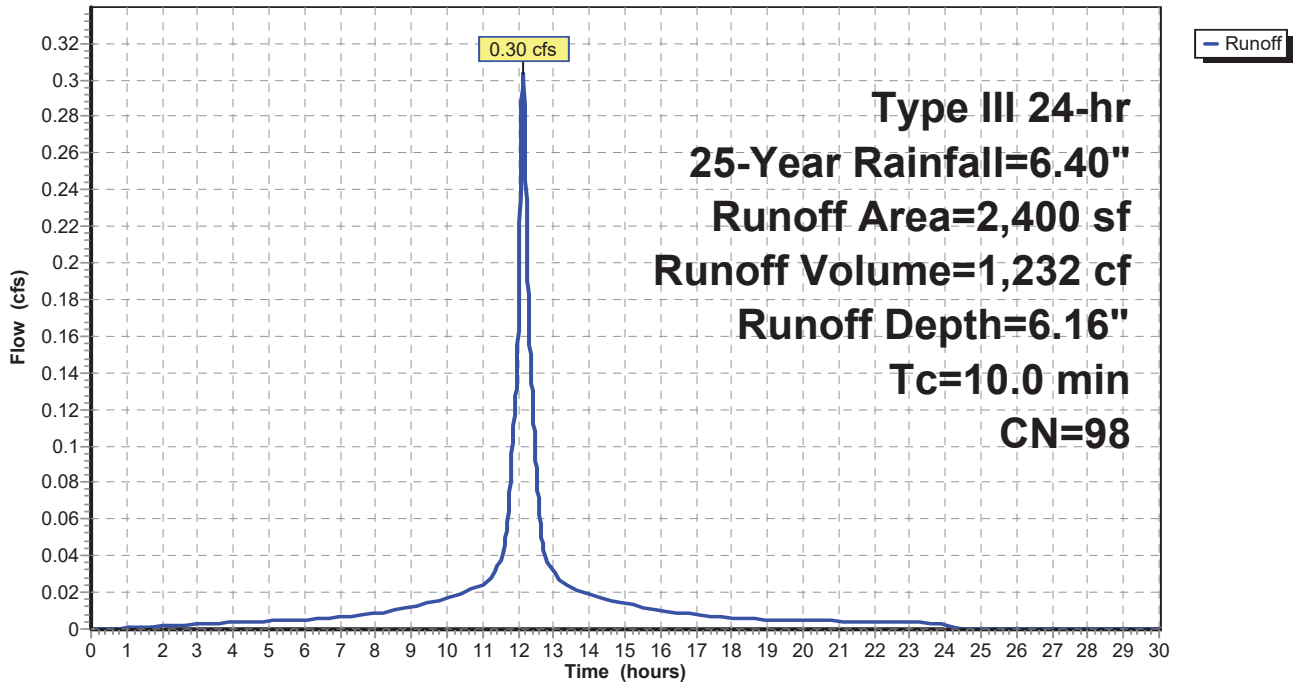
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-Year Rainfall=6.40"

Area (sf)	CN	Description
* 2,400	98	Impervious
2,400		100.00% Impervious Area

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

Subcatchment 2S: Area to Chambers

Hydrograph



Summary for Subcatchment 4S: Runoff to AS-4

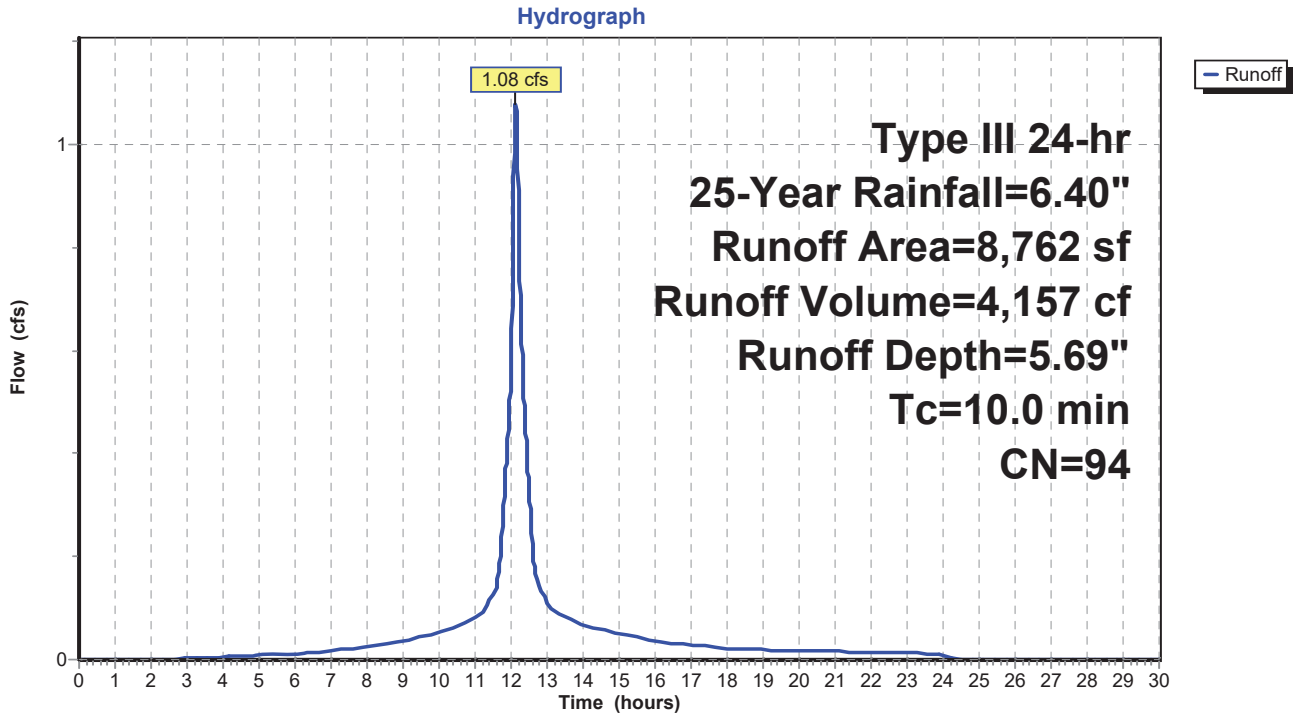
Runoff = 1.08 cfs @ 12.13 hrs, Volume= 4,157 cf, Depth= 5.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-Year Rainfall=6.40"

	Area (sf)	CN	Description
*	7,332	98	Impervious
*	1,430	76	Pervious
	8,762	94	Weighted Average
	1,430		16.32% Pervious Area
	7,332		83.68% Impervious Area

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

Subcatchment 4S: Runoff to AS-4



Summary for Subcatchment 6S: Untreated Area

Runoff = 0.65 cfs @ 12.14 hrs, Volume= 2,420 cf, Depth= 5.24"

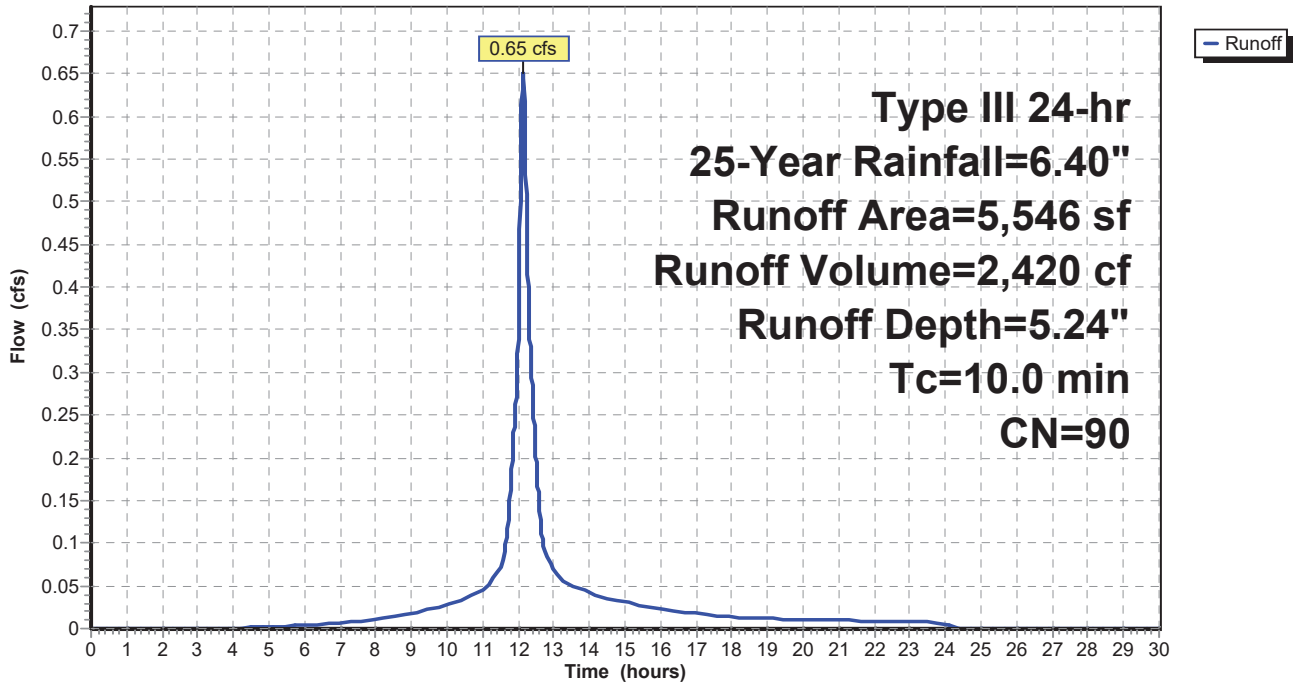
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-Year Rainfall=6.40"

	Area (sf)	CN	Description
*	3,608	98	Impervious
*	1,938	76	
	5,546	90	Weighted Average
	1,938		34.94% Pervious Area
	3,608		65.06% Impervious Area

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

Subcatchment 6S: Untreated Area

Hydrograph



Summary for Pond 6P: Stormtech SC740

Inflow Area = 2,400 sf, 100.00% Impervious, Inflow Depth = 6.16" for 25-Year event
 Inflow = 0.30 cfs @ 12.13 hrs, Volume= 1,232 cf
 Outflow = 0.22 cfs @ 12.24 hrs, Volume= 1,232 cf, Atten= 28%, Lag= 6.1 min
 Primary = 0.22 cfs @ 12.24 hrs, Volume= 1,232 cf
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
 Peak Elev= 201.34' @ 12.24 hrs Surf.Area= 461 sf Storage= 146 cf

Plug-Flow detention time= 24.1 min calculated for 1,231 cf (100% of inflow)
 Center-of-Mass det. time= 23.8 min (771.7 - 747.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	200.40'	0 cf	15.29'W x 30.13'L x 3.67'H Field A 1,689 cf Overall - 1,071 cf Embedded = 618 cf x 0.0% Voids
#2A	200.90'	666 cf	StormTrap ST1 SingleTrap 2-0 x 4 Inside #1 Inside= 82.7"W x 24.0"H => 11.84 sf x 14.06'L = 166.5 cf Outside= 82.7"W x 32.0"H => 18.39 sf x 14.06'L = 258.6 cf 4 Chambers in 2 Rows 13.79' x 28.13' Core + 0.00' x 0.50' Border = 13.79' x 29.13' System
		666 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	200.90'	4.0" Vert. Orifice/Grate C= 0.600
#2	Secondary	201.80'	12.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.22 cfs @ 12.24 hrs HW=201.34' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.22 cfs @ 2.51 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=200.40' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Pond 6P: Stormtech SC740 - Chamber Wizard Field A

Chamber Model = StormTrap ST1 SingleTrap 2-0 (StormTrap ST1 SingleTrap® Type VI)

Inside= 82.7"W x 24.0"H => 11.84 sf x 14.06'L = 166.5 cf

Outside= 82.7"W x 32.0"H => 18.39 sf x 14.06'L = 258.6 cf

82.7" Wide + 6.0" Spacing = 88.7" C-C Row Spacing

2 Chambers/Row x 14.06' Long = 28.13' Row Length +6.0" Border x 2 +6.0" End Stone x 2 = 30.13' Base Length

2 Rows x 82.7" Wide + 6.0" Spacing x 1 + 6.0" Side Stone x 2 = 15.29' Base Width

6.0" Base + 32.0" Chamber Height + 6.0" Cover = 3.67' Field Height

4 Chambers x 166.5 cf = 666.0 cf Chamber Storage

4 Chambers x 258.6 cf + 36.8 cf Border = 1,071.2 cf Displacement

1,689.1 cf Field - 1,071.2 cf Chambers = 617.9 cf Stone x 0.0% Voids = 0.0 cf Stone Storage

Chamber Storage = 666.0 cf = 0.015 af

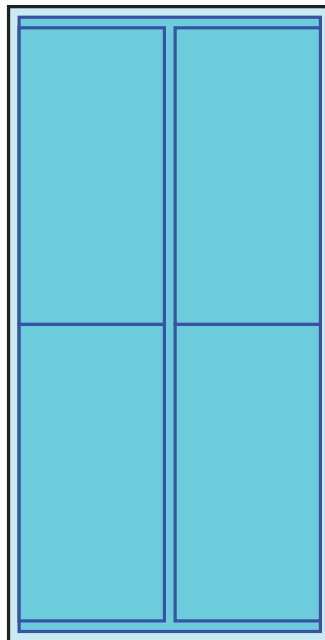
Overall Storage Efficiency = 39.4%

Overall System Size = 30.13' x 15.29' x 3.67'

4 Chambers (plus border)

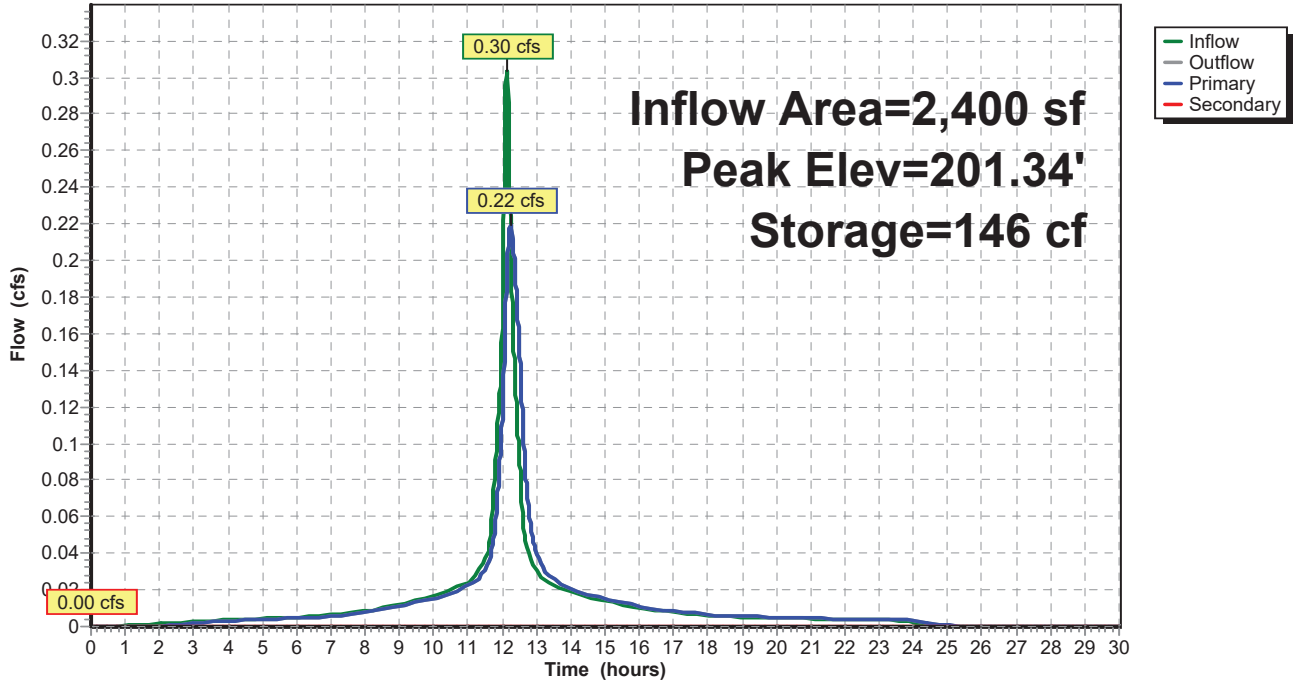
62.6 cy Field

22.9 cy Stone



Pond 6P: Stormtech SC740

Hydrograph



Summary for Pond AS-4: AquaSwirl AS-4

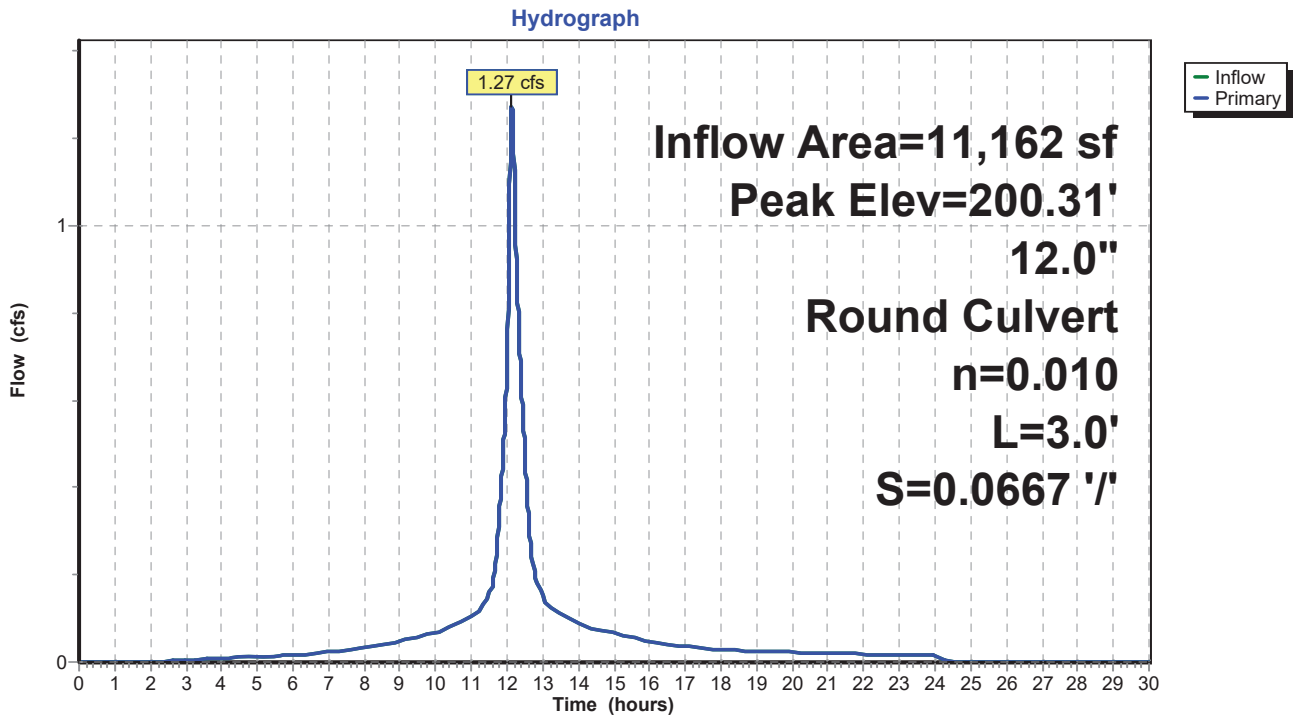
Inflow Area = 11,162 sf, 87.19% Impervious, Inflow Depth = 5.79" for 25-Year event
 Inflow = 1.27 cfs @ 12.14 hrs, Volume= 5,388 cf
 Outflow = 1.27 cfs @ 12.14 hrs, Volume= 5,388 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.27 cfs @ 12.14 hrs, Volume= 5,388 cf

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
 Peak Elev= 200.31' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	199.60'	12.0" Round Culvert L= 3.0' Ke= 1.000 Inlet / Outlet Invert= 199.60' / 199.40' S= 0.0667 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.27 cfs @ 12.14 hrs HW=200.31' (Free Discharge)
 ←1=Culvert (Inlet Controls 1.27 cfs @ 2.15 fps)

Pond AS-4: AquaSwirl AS-4

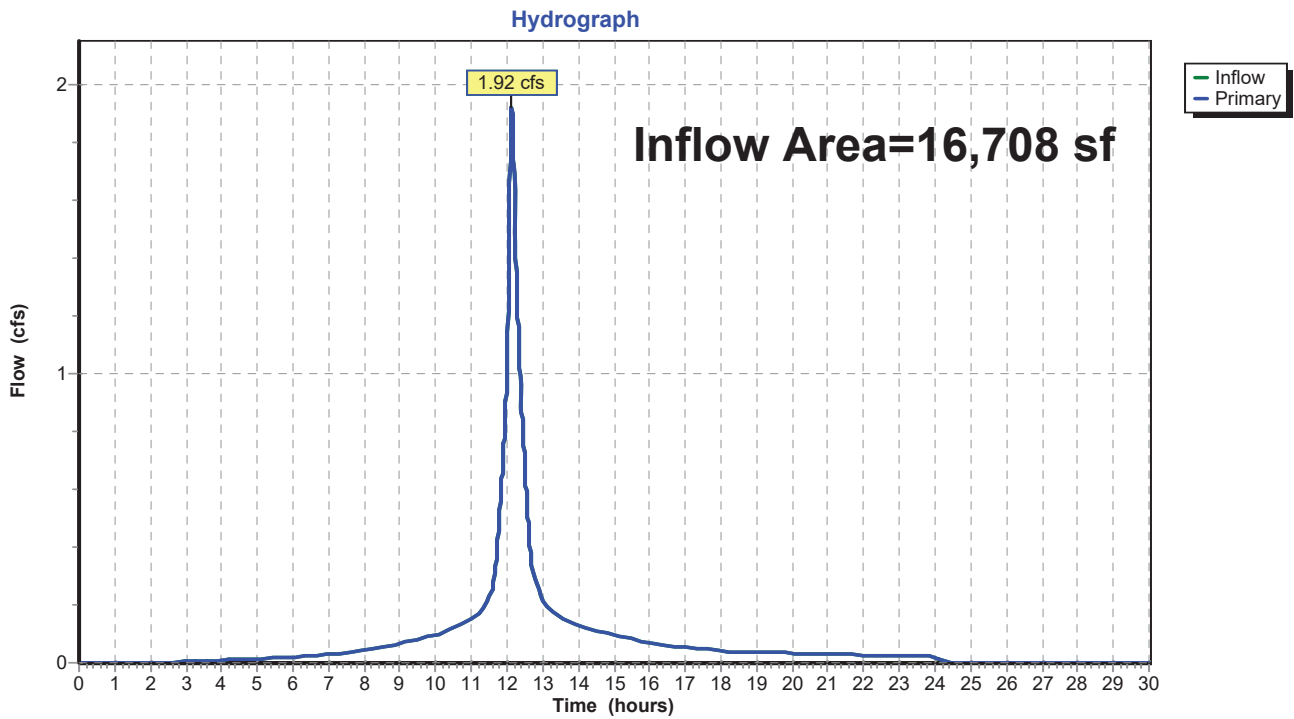


Summary for Link DP-1: Virginia Road

Inflow Area = 16,708 sf, 79.84% Impervious, Inflow Depth = 5.61" for 25-Year event
Inflow = 1.92 cfs @ 12.14 hrs, Volume= 7,808 cf
Primary = 1.92 cfs @ 12.14 hrs, Volume= 7,808 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Link DP-1: Virginia Road



Summary for Subcatchment 2S: Area to Chambers

Runoff = 0.43 cfs @ 12.13 hrs, Volume= 1,752 cf, Depth= 8.76"

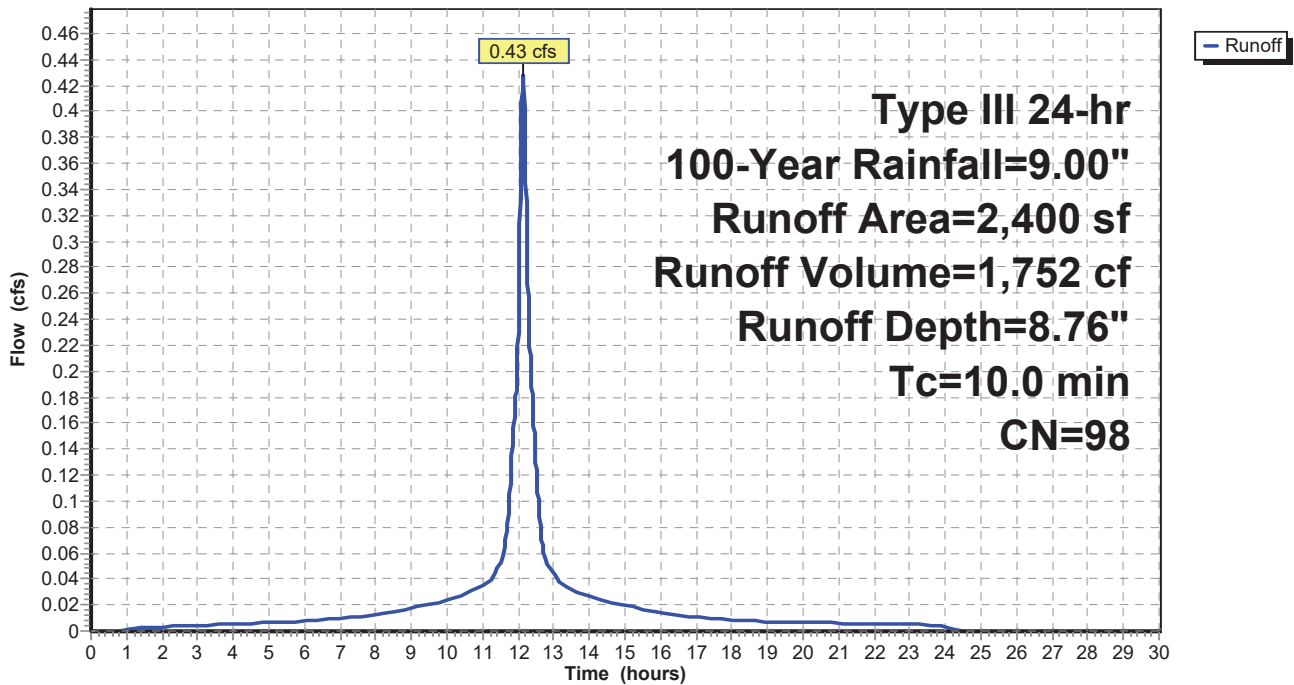
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100-Year Rainfall=9.00"

Area (sf)	CN	Description
* 2,400	98	Impervious
2,400		100.00% Impervious Area

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

Subcatchment 2S: Area to Chambers

Hydrograph



Summary for Subcatchment 4S: Runoff to AS-4

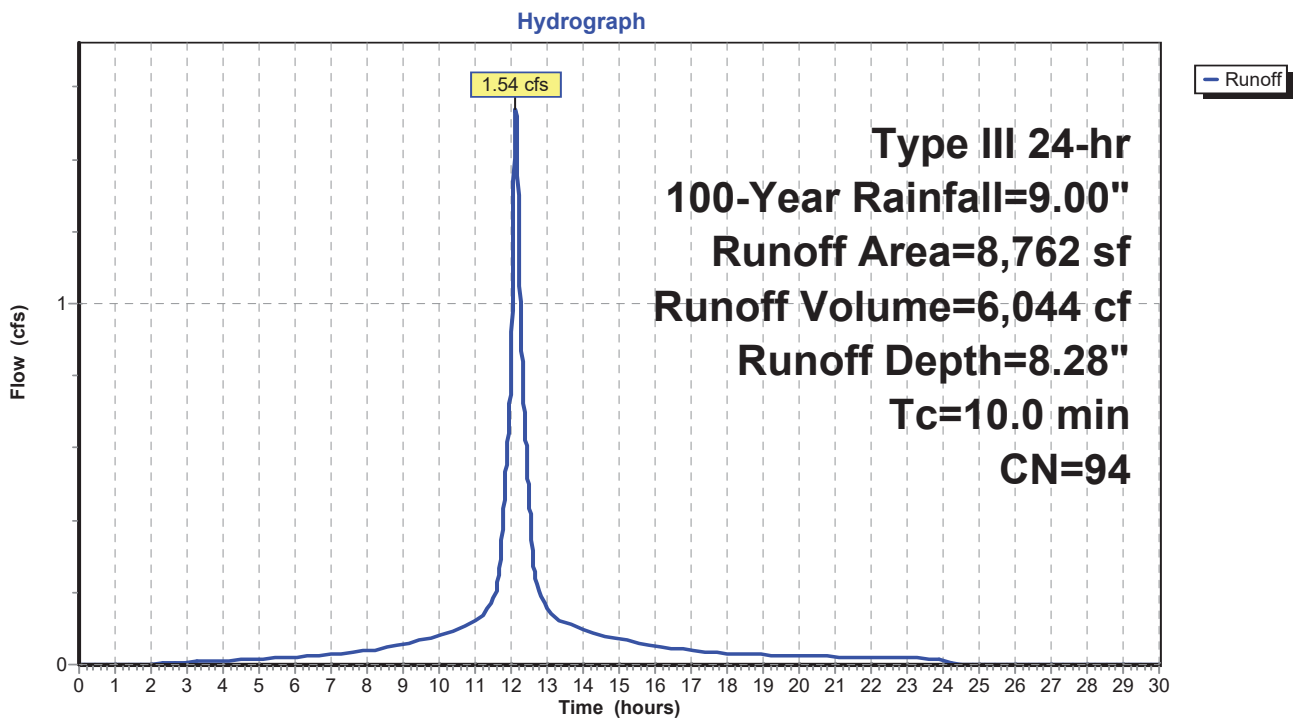
Runoff = 1.54 cfs @ 12.13 hrs, Volume= 6,044 cf, Depth= 8.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100-Year Rainfall=9.00"

	Area (sf)	CN	Description
*	7,332	98	Impervious
*	1,430	76	Pervious
	8,762	94	Weighted Average
	1,430		16.32% Pervious Area
	7,332		83.68% Impervious Area

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

Subcatchment 4S: Runoff to AS-4



Summary for Subcatchment 6S: Untreated Area

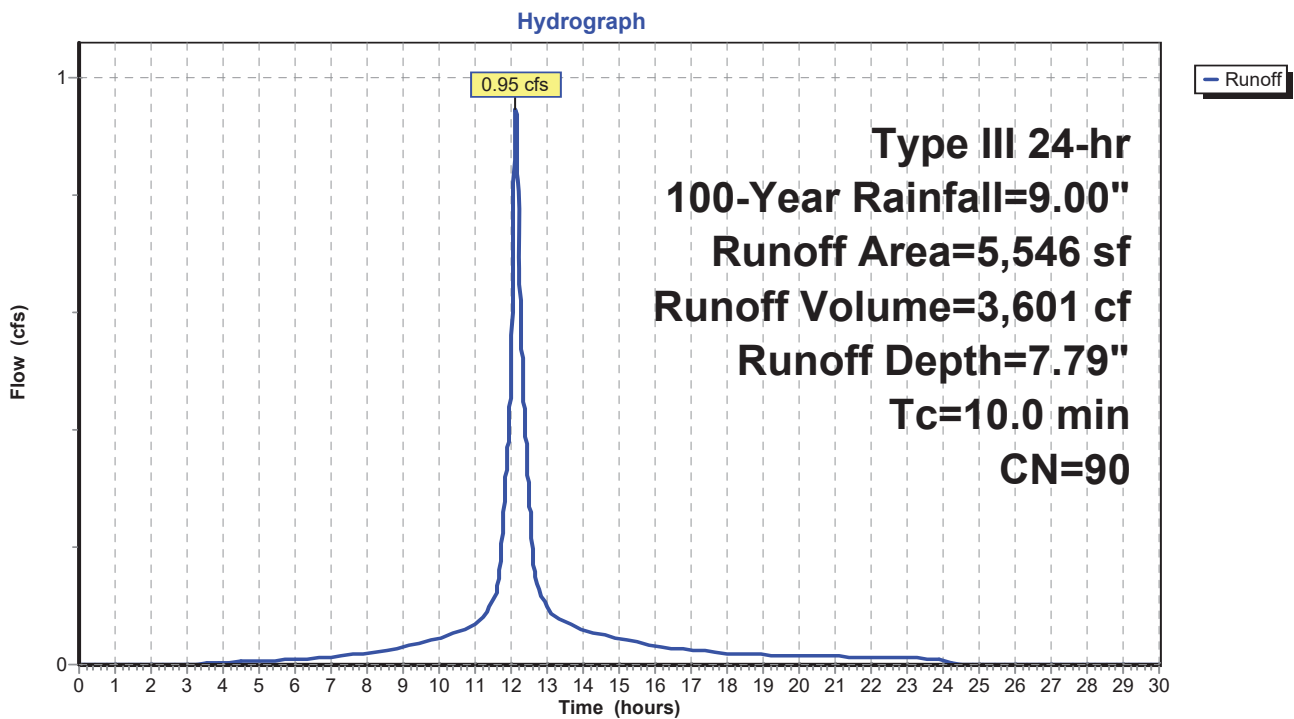
Runoff = 0.95 cfs @ 12.13 hrs, Volume= 3,601 cf, Depth= 7.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=9.00"

	Area (sf)	CN	Description
*	3,608	98	Impervious
*	1,938	76	
	5,546	90	Weighted Average
	1,938		34.94% Pervious Area
	3,608		65.06% Impervious Area

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

Subcatchment 6S: Untreated Area



Summary for Pond 6P: Stormtech SC740

Inflow Area = 2,400 sf, 100.00% Impervious, Inflow Depth = 8.76" for 100-Year event
 Inflow = 0.43 cfs @ 12.13 hrs, Volume= 1,752 cf
 Outflow = 0.29 cfs @ 12.25 hrs, Volume= 1,751 cf, Atten= 33%, Lag= 7.2 min
 Primary = 0.29 cfs @ 12.25 hrs, Volume= 1,751 cf
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
 Peak Elev= 201.53' @ 12.25 hrs Surf.Area= 461 sf Storage= 211 cf

Plug-Flow detention time= 21.6 min calculated for 1,751 cf (100% of inflow)
 Center-of-Mass det. time= 21.3 min (764.8 - 743.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	200.40'	0 cf	15.29'W x 30.13'L x 3.67'H Field A 1,689 cf Overall - 1,071 cf Embedded = 618 cf x 0.0% Voids
#2A	200.90'	666 cf	StormTrap ST1 SingleTrap 2-0 x 4 Inside #1 Inside= 82.7"W x 24.0"H => 11.84 sf x 14.06'L = 166.5 cf Outside= 82.7"W x 32.0"H => 18.39 sf x 14.06'L = 258.6 cf 4 Chambers in 2 Rows 13.79' x 28.13' Core + 0.00' x 0.50' Border = 13.79' x 29.13' System
		666 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	200.90'	4.0" Vert. Orifice/Grate C= 0.600
#2	Secondary	201.80'	12.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.29 cfs @ 12.25 hrs HW=201.53' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.29 cfs @ 3.29 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=200.40' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Pond 6P: Stormtech SC740 - Chamber Wizard Field A

Chamber Model = StormTrap ST1 SingleTrap 2-0 (StormTrap ST1 SingleTrap® Type VI)

Inside= 82.7"W x 24.0"H => 11.84 sf x 14.06'L = 166.5 cf

Outside= 82.7"W x 32.0"H => 18.39 sf x 14.06'L = 258.6 cf

82.7" Wide + 6.0" Spacing = 88.7" C-C Row Spacing

2 Chambers/Row x 14.06' Long = 28.13' Row Length +6.0" Border x 2 +6.0" End Stone x 2 = 30.13' Base Length

2 Rows x 82.7" Wide + 6.0" Spacing x 1 + 6.0" Side Stone x 2 = 15.29' Base Width

6.0" Base + 32.0" Chamber Height + 6.0" Cover = 3.67' Field Height

4 Chambers x 166.5 cf = 666.0 cf Chamber Storage

4 Chambers x 258.6 cf + 36.8 cf Border = 1,071.2 cf Displacement

1,689.1 cf Field - 1,071.2 cf Chambers = 617.9 cf Stone x 0.0% Voids = 0.0 cf Stone Storage

Chamber Storage = 666.0 cf = 0.015 af

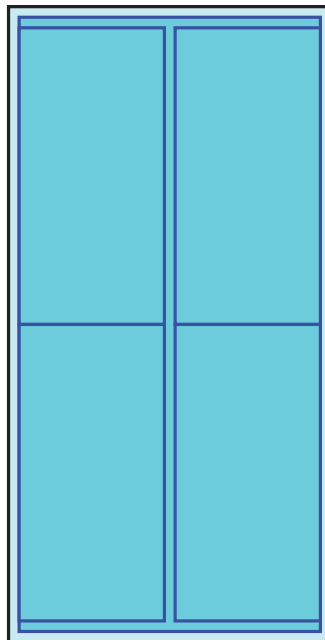
Overall Storage Efficiency = 39.4%

Overall System Size = 30.13' x 15.29' x 3.67'

4 Chambers (plus border)

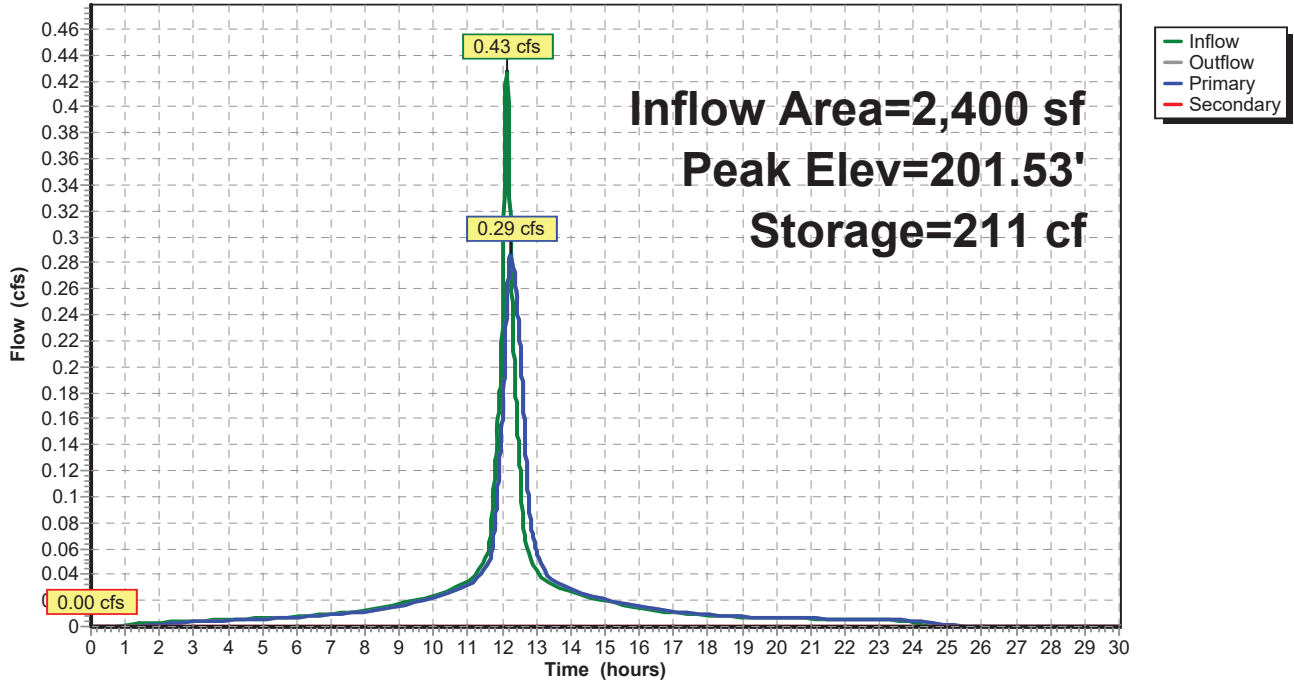
62.6 cy Field

22.9 cy Stone



Pond 6P: Stormtech SC740

Hydrograph



Summary for Pond AS-4: AquaSwirl AS-4

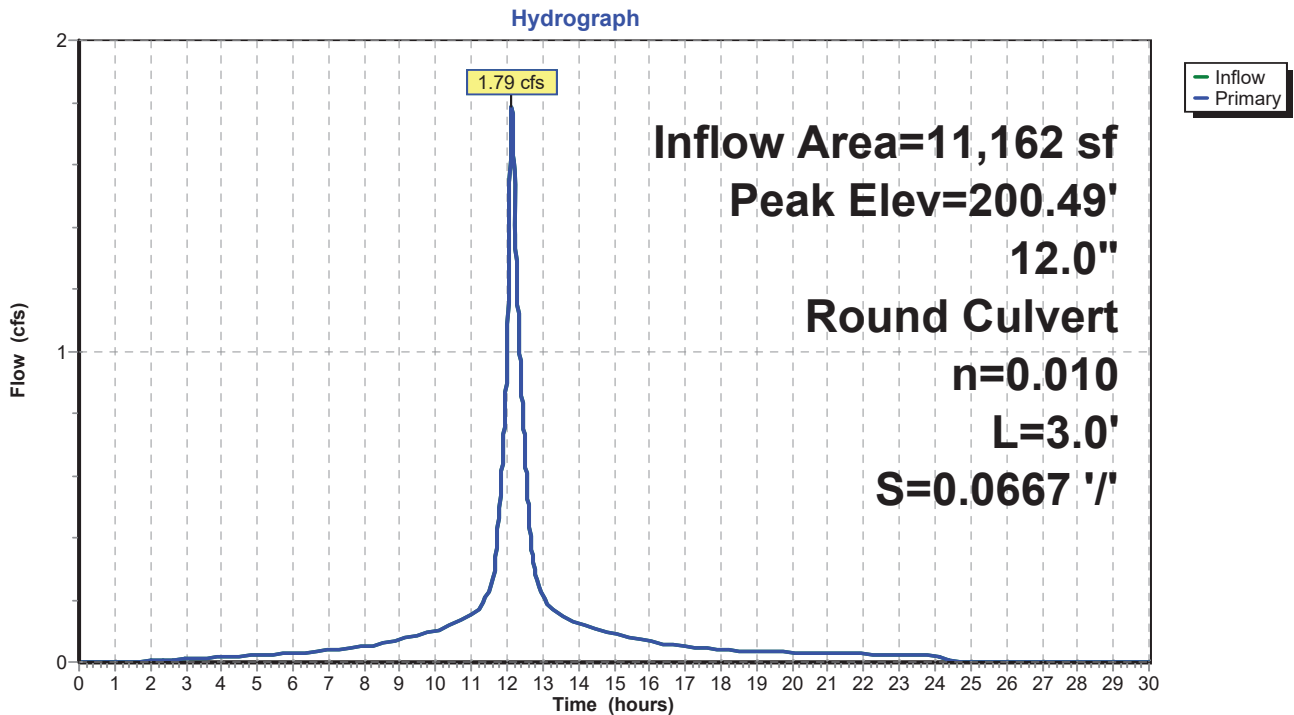
Inflow Area = 11,162 sf, 87.19% Impervious, Inflow Depth = 8.38" for 100-Year event
 Inflow = 1.79 cfs @ 12.14 hrs, Volume= 7,795 cf
 Outflow = 1.79 cfs @ 12.14 hrs, Volume= 7,795 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.79 cfs @ 12.14 hrs, Volume= 7,795 cf

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
 Peak Elev= 200.49' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	199.60'	12.0" Round Culvert L= 3.0' Ke= 1.000 Inlet / Outlet Invert= 199.60' / 199.40' S= 0.0667 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.79 cfs @ 12.14 hrs HW=200.49' (Free Discharge)
 ←1=Culvert (Inlet Controls 1.79 cfs @ 2.41 fps)

Pond AS-4: AquaSwirl AS-4

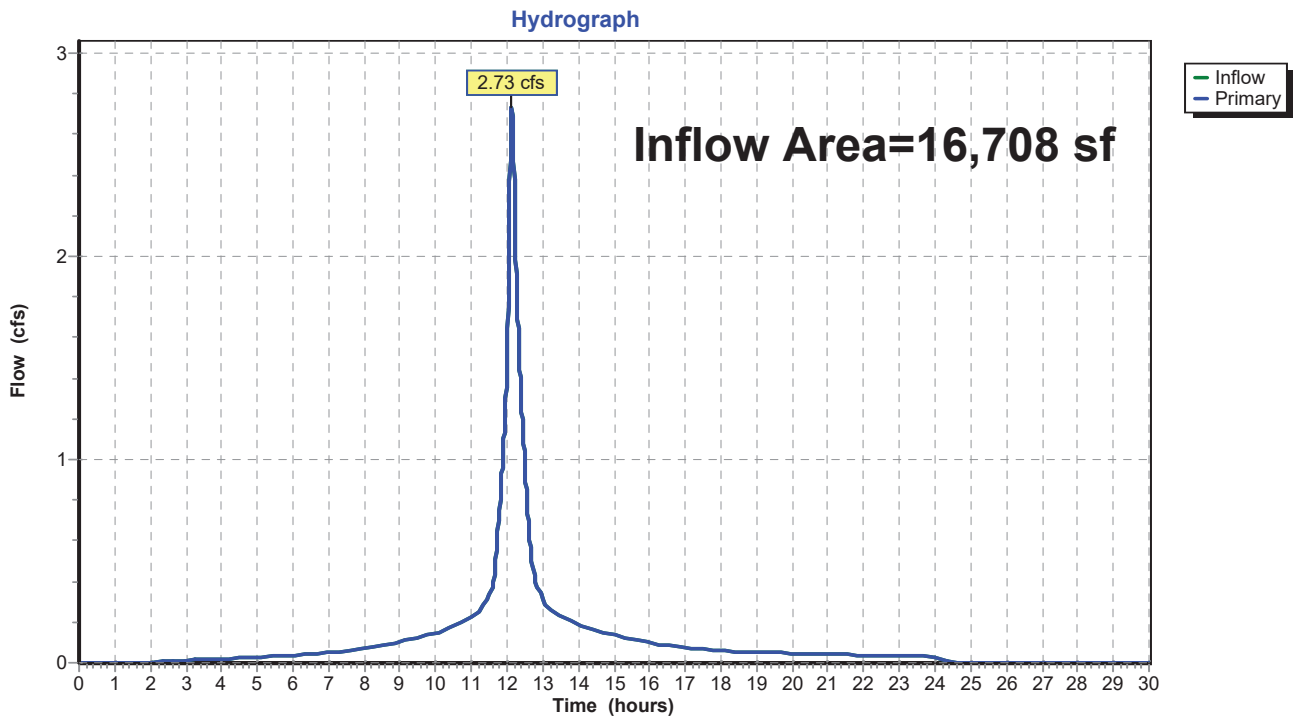


Summary for Link DP-1: Virginia Road

Inflow Area = 16,708 sf, 79.84% Impervious, Inflow Depth = 8.18" for 100-Year event
Inflow = 2.73 cfs @ 12.14 hrs, Volume= 11,396 cf
Primary = 2.73 cfs @ 12.14 hrs, Volume= 11,396 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Link DP-1: Virginia Road



APPENDIX C

USDA Soils Report

Custom Soil Resource Report for Westchester County, New York



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

Preface	2
How Soil Surveys Are Made	5
Soil Map	8
Soil Map.....	9
Legend.....	10
Map Unit Legend.....	11
Map Unit Descriptions.....	11
Westchester County, New York.....	13
CuD—Chatfield-Hollis-Rock outcrop complex, 15 to 35 percent slopes.....	13
Uf—Urban land.....	15
References	17

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

Custom Soil Resource Report

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Map Scale: 1:358 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84



MAP LEGEND

- Area of Interest (AOI)**
 - Area of Interest (AOI)
- Soils**
 - Soil Map Unit Polygons
 - Soil Map Unit Lines
 - Soil Map Unit Points
- Special Point Features**
 - Blowout
 - Borrow Pit
 - Clay Spot
 - Closed Depression
 - Gravel Pit
 - Gravelly Spot
 - Landfill
 - Lava Flow
 - Marsh or swamp
 - Mine or Quarry
 - Miscellaneous Water
 - Perennial Water
 - Rock Outcrop
 - Saline Spot
 - Sandy Spot
 - Severely Eroded Spot
 - Sinkhole
 - Slide or Slip
 - Sodic Spot
- Water Features**
 - Streams and Canals
- Transportation**
 - Rails
 - Interstate Highways
 - US Routes
 - Major Roads
 - Local Roads
- Background**
 - Aerial Photography
- Other Features**
 - Spoil Area
 - Stony Spot
 - Very Stony Spot
 - Wet Spot
 - Other
 - Special Line Features

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Westchester County, New York
 Survey Area Data: Version 14, Sep 3, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 21, 2014—Aug 27, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CuD	Chatfield-Hollis-Rock outcrop complex, 15 to 35 percent slopes	0.2	77.0%
Uf	Urban land	0.0	23.0%
Totals for Area of Interest		0.2	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

Custom Soil Resource Report

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Westchester County, New York

CuD—Chatfield-Hollis-Rock outcrop complex, 15 to 35 percent slopes

Map Unit Setting

National map unit symbol: 2w69h
Elevation: 0 to 1,540 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Chatfield, extremely stony, and similar soils: 35 percent
Hollis, extremely stony, and similar soils: 30 percent
Rock outcrop: 20 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Chatfield, Extremely Stony

Setting

Landform: Ridges, hills
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope, nose slope
Down-slope shape: Convex
Across-slope shape: Convex, linear
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

O_i - 0 to 1 inches: slightly decomposed plant material
A - 1 to 2 inches: fine sandy loam
B_w - 2 to 30 inches: gravelly fine sandy loam
2R - 30 to 40 inches: bedrock

Properties and qualities

Slope: 15 to 35 percent
Percent of area covered with surface fragments: 9.0 percent
Depth to restrictive feature: 20 to 41 inches to lithic bedrock
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (K_{sat}): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water storage in profile: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B
Hydric soil rating: No

Description of Hollis, Extremely Stony

Setting

Landform: Hills, ridges

Landform position (two-dimensional): Backslope, shoulder, summit

Landform position (three-dimensional): Side slope, nose slope, crest

Down-slope shape: Convex

Across-slope shape: Linear, convex

Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

O_i - 0 to 2 inches: slightly decomposed plant material

A - 2 to 7 inches: gravelly fine sandy loam

B_w - 7 to 16 inches: gravelly fine sandy loam

2R - 16 to 26 inches: bedrock

Properties and qualities

Slope: 15 to 35 percent

Percent of area covered with surface fragments: 9.0 percent

Depth to restrictive feature: 8 to 23 inches to lithic bedrock

Natural drainage class: Somewhat excessively drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (K_{sat}): Very low (0.00 to 0.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Salinity, maximum in profile: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water storage in profile: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: D

Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Hills, ridges

Parent material: Igneous and metamorphic rock

Typical profile

R - 0 to 79 inches: bedrock

Properties and qualities

Slope: 15 to 35 percent

Depth to restrictive feature: 0 inches to lithic bedrock

Runoff class: Very high

Capacity of the most limiting layer to transmit water (K_{sat}): Very low (0.00 to 0.00 in/hr)

Available water storage in profile: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8

Custom Soil Resource Report

Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Charlton, extremely stony

Percent of map unit: 7 percent
Landform: Hills, ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Hydric soil rating: No

Leicester, extremely stony

Percent of map unit: 4 percent
Landform: Drainageways, hills, ground moraines, depressions
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear, concave
Across-slope shape: Concave
Hydric soil rating: Yes

Paxton, extremely stony

Percent of map unit: 2 percent
Landform: Hills, ground moraines, drumlins
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex, linear
Hydric soil rating: No

Sutton, extremely stony

Percent of map unit: 2 percent
Landform: Ground moraines, hills
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Uf—Urban land

Map Unit Setting

National map unit symbol: bd7j
Elevation: 50 to 2,400 feet
Mean annual precipitation: 46 to 50 inches
Mean annual air temperature: 46 to 52 degrees F

Custom Soil Resource Report

Frost-free period: 115 to 215 days

Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Minor Components

Udorthents

Percent of map unit: 5 percent

Hydric soil rating: No

Riverhead

Percent of map unit: 2 percent

Hydric soil rating: No

Udorthents, wet substratum

Percent of map unit: 2 percent

Hydric soil rating: No

Unadilla

Percent of map unit: 2 percent

Hydric soil rating: No

Chatfield

Percent of map unit: 2 percent

Hydric soil rating: No

Sutton

Percent of map unit: 2 percent

Hydric soil rating: No

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APPENDIX D

FEMA Flood Plain Map

APPENDIX E
Water Quality Calculations

Project Mistis Properties
 176 Virginia Road
 Revised 11-Jun-19

WATER QUALITY COMPUTATIONS, WQv

A = Total Site Area (Limit of Disturbance) = 0.386 ac = 16,813 s.f.
 Ai = Impervious Area at Post Development Condition = 0.048 ac = 2,076 s.f. Total area reconstructed within project limits

I = percent Impervious Area = $\frac{Ai}{A} \times 100 = \frac{0.048 \text{ ac}}{0.386 \text{ ac}} \times 100 = 12\%$

Rv = Volumetric Runoff Coeff. = $0.05 + \frac{0.009 \times 12.35}{12.35} = 0.161$

P = Precipitation Depth = 1.5 in.

WQv = Water Quality Volume = $\frac{P \times Rv \times A}{12} = \frac{1.5 \text{ in.} \times 0.161 \times 0.386 \text{ ac}}{12} = 0.008 \text{ ac.ft} = 0,339 \text{ cf}$
WQv = 0.008 ac.ft = 0,339 cf
25% WQv (required per re-development) = 0.002 ac.ft = **0,085 cf**

A = Total Site Area (Limit of Disturbance) = 0.386 ac = 16,813 s.f.
 Ai = Impervious Area at Post Development Condition = 0.259 ac = 11,264 s.f. Expanded Impervious Cover

I = percent Impervious Area = $\frac{Ai}{A} \times 100 = \frac{0.259 \text{ ac}}{0.386 \text{ ac}} \times 100 = 67\%$

Rv = Volumetric Runoff Coeff. = $0.05 + \frac{0.009 \times 67.00}{12.35} = 0.653$

P = Precipitation Depth = 1.5 in.

WQv = Water Quality Volume = $\frac{P \times Rv \times A}{12} = \frac{1.5 \text{ in.} \times 0.653 \times 0.386 \text{ ac}}{12} = 0.032 \text{ ac.ft} = 1,372 \text{ cf}$
WQv = 0.032 ac.ft = 1,372 cf

Total WQv 90% Rainfall Event = 0.033 ac.ft = 1,457 cf

AquaSwirl AS-4

Note: See HydroCAD for storm routings = 0.052 ac.ft 2,251 cf

Total WQv (Provided) = **0.057 ac.ft** = **2,473 cf**