

September 13, 2021

North Castle Planning Board
17 Bedford Road
Armonk, NY 10504

Attn: Christopher Carthy, Chairman

RE: Subdivision & Site Plan Approval
Bedford EMP Ownership, LLC - Robert Morse
50 East Middle Patent Road
North Castle (T)

Dear Chairman and Members of the Board:

On behalf of the applicant identified above, please find enclosed the following.

In connection with the Application for Preliminary Subdivision Approval:

- EX-1 – Existing Conditions Plan, last revised 9-13-21.
- PP-1 – Preliminary Subdivision Plat, last revised 9-13-21.
- Stormwater Pollution Prevention Plan, dated 9-13-2021
- Exhibit 1 – 11x17 Lot Dimension Figure, dated 9-13-21.
- Exhibit 2 – 11x 17 Contiguous Buildable Area Figure

In connection with the Application for Lot 1 Site Plan Approval:

- Lot 1 Site Plan Set (4 sheets), dated 9-13-21.
- Exhibit 1A – 11x17 Gross Land Coverage Calculation Figure – Lot 1
- Application for Site Development Plan Approval.
- Gross Land Coverage Calculation Worksheet, dated 9-13-21
- Lot 1 Floor Area Calculation Figures and Elevations (7 Sheets), dated 9-13-21
- Lot 1 Floor Area Calculation Worksheet, dated 9-13-21

In connection with the Application for Lot 2 Site Plan Approval:

- Lot 2 Site Plan Set (4 sheets), dated 9-13-21.
- Exhibit 2A – 11x17 Gross Land Coverage Calculation Figure – Lot 1
- Application for Site Development Plan Approval.
- Gross Land Coverage Calculation Worksheet, dated 9-13-21
- Floodplain Development Permit Application.
- Lot 2 Floor Area Calculation Figures and Elevations (13 Sheets), dated 9-13-21
- Lot 2 Floor Area Calculation Worksheet, dated 9-13-21

As you are aware the applicant is seeking approvals for a proposed 2- lot subdivision and individual site plans for each proposed lot. Please note the applicant has reduced the scope of the project from the original 3-lot design to the proposed 2-lot subdivision for which the enclosed documents are provided.

Our office has revised our plans pursuant to the July 6, 2021, Staff Report prepared by the Town Planner and the July 9, 2021, memorandum prepared by Kellard Sessions, Consulting Town Engineer. We offer the following responses for the Board's consideration:

General Comments:

July 6, 2021, Staff Report prepared by the Town Planner:

1. The preliminary Plat has been revised to include the following:
 - Total acreage of the Subdivision has been added to the additional site / project information
 - Names of the Owners of Record of adjoining and directly across the street properties have been added to the plan.
 - Areas reserved for Road Widening have not been counted in the revised gross or net lot area calculations.
2. Planning Board items to be considered because of the E. Middle Patent Road Scenic Roadway Designation:
 - (1) In order to reduce intrusions within the scenic roadscape to the maximum extent practicable, the applicant has reduced the scope of the project to eliminate the proposed third lot. Additionally, the 2 proposed lots will be accessed through existing driveways/curb cuts from East Middle Patent Road
 - (2) The proposed Subdivision has been designed to conform with all conventional zoning standards. The Applicant is not seeking to apply conservation zoning requirements to the project.
 - (3) Comment noted.
 - (4) Comment noted.
3. A site plan and application for site plan approval for proposed lot #1 are enclosed, the size of the proposed detached garage has been shown on the Lot 1 Gross Land Coverage Exhibit. Architectural plans and application for special permit will be provided under separate cover.
4. Lot 3 has been eliminated from this application; therefore, this comment is no longer applicable.
5. This application no longer proposes any new driveways, access to the proposed lots will be via existing curb cuts on East Middle Patent Road, where sufficient sight distance exists.
6. Exhibit I has been included herewith to depict how average lot width and lot depth have been calculated.
7. A tree survey has been completed for the areas of proposed development, and all trees to be removed are indicated on the project plans.
8. A Site Plan and application for site plan approval for proposed lot #2 is enclosed. A special use permit will be required for the proposed garage and pool house. A Special permit application and associated fees will be provided under separate cover.
9. Comment noted, the applicant will seek approval from the Zoning Board of Appeals prior to obtaining building permits.
10. Proposed elevations prepared by the project architect are enclosed, and have been revised to depict building heights as requested.

11. Gross Land Coverage Calculation worksheets have been prepared with supporting exhibits II and III for each lot. These documents have been included as part of this submission.
12. Gross Floor Area calculations work sheets have been completed by the project architect and are included with this submittal.
13. Exhibit 2 has been prepared to demonstrate the contiguous buildable area of each of the proposed lots.
14. Comment noted, proper easements will be developed and submitted to the Town for review prior to filing of the subdivision plat, a proposed easement has been shown on the plans.
15. Building envelopes have been revised to begin at the edge of the "area reserved for road widening".
16. Comment noted, recreation fees will be paid as required prior to filing of the subdivision plat.
17. Comment Noted, all architectural plans will be signed and sealed.
18. As previously discussed, the project drawings have been separated into three (3) distinct plan sets corresponding to the individual applications. Separate applications and corresponding documents for each approval requested are identified on the list of enclosures provided on page 1.

July 9, 2021, memorandum prepared by Kellard Sessions, Consulting Town Engineer:

1. The front yard building setbacks have been revised to be measured from the existing road widening easement. In lieu of a determination from the building inspector, we have revised the lot line at the rear of proposed lot 2 (coterminous with the rear lot line of lot 1) as a front yard setback showing 75'.
2. Comment noted, application will be made to the Zoning Board of Appeals for the required variance.
3. Gross Land Coverage Calculations have been revised based on the new scope of this project.
4. Net Lot Area Calculations have been revised based on the new scope of this project.
5. Exhibit IV – Buildable area, has been prepared to demonstrate the contiguous buildable area of each of the proposed lots in accordance with Town Code.
6. A flood development permit application has been included as part of this submission.
7. The wetland line shown on the plan has been flagged sequentially by Soil Scientist Mary Jaehnig and survey located. The wetland boundary as shown has been verified by Kellard Sessions, and a memo prepared by their office was provided to the planning department on August 16, 2021.
8. Comment noted, proper easements will be developed and submitted to the Town for review prior to filing of the subdivision plat, a proposed easement has been shown on the plans.
9. Application will be made to the Westchester County Health Department (WCHD) prior to obtaining Final Planning Board Subdivision Approval. Construction approvals for the proposed Septic systems and wells will be obtained prior to building permit issuance.

10. Based on this revised application, there are no longer any curb cuts proposed. Access will be via existing driveway curb cuts.
11. A tree survey has been completed for the areas of proposed development, and all trees to be removed are indicated on the project plans. Landscape and Tree Preservation Plans will be provided by the project Landscape Architect with future submittals.
12. Existing stone walls will not be removed as a result of this development.
13. The Preliminary Subdivision Plan has been retitled to "Preliminary Subdivision Plat".
14. The plan utilizes existing curb cuts. Topography in the areas of the driveways is relatively flat and the driveway will remain generally on existing grade, as such profiles have not been provided.
15. No outdoor lighting is proposed for the existing tennis and sport courts.
16. Proposed site grading for lot 1 is shown on the project site plans, and the limits of proposed disturbance are quantified on the Erosion and Sediment Control Plans.
17. A Stormwater Pollution Prevention Plan (SWPPP) for the project is enclosed. Please note in accordance with NYSDEC standards, the SWPPP was prepared for the larger common of development for both proposed lots. It is acknowledged that coverage under GP-0-20-001 will be required. A completed Notice of Intent From and MS4 SWPPP acceptance form will be provided with future submittals.
18. Field Testing was completed in the area of the proposed stormwater management practices and yielded suitable results for infiltration. Soil testing was witnessed by a representative of Kellard Sessions.

We respectfully request that this matter be placed on your next available agenda for consideration, Should you have any questions or need any additional information, please feel free to contact our office.

Sincerely

Matthew J. Gironda, P.E.
Partner

MJG/rh
Enclosures

cc: C. Itinarelli (enclosures) e-mail
G. Ticehurst (enclosures) e-mail
File

LEGEND:

- - - - - EXISTING 2' CONTOUR
- - - - - EXISTING 10' CONTOUR
- ⊖⊖⊖⊖⊖ EXISTING STONE WALL
- ⊙ EXISTING TREE
- ⊗ MA14TW EXISTING TREE TO BE REMOVED
- — — — — EXISTING FENCE
- — — — — WETLAND BOUNDARY
- — — — — 100' WETLAND SETBACK
- - - - - EXISTING EASEMENT
- - - - - FEMA FLOOD PLAIN BOUNDARY

TREE LEGEND

OK14TW ATTRIBUTE (TW = TWN)
CALIPER (14 = 14")
SPECIES (OK = OAK)
TREE LOCATION

KEY

SPECIES

AP APPLE
AS ASH
BR BIRCH
CA CATALPA
CD CEDAR
CH CHERRY
DD DOGWOOD
EL ELM
HC HICKORY
HM HEMLOCK
MA MAPLE
MU MULBERRY

ATTRIBUTES

QU QUADRUPLE
TR TRIPLE
TW TWY

*DOUBLE TREES ARE THOSE WHERE THE TRUNK SPLITS AT 4.5 FEET OR HIGHER; TWN TREES ARE THOSE WHERE THE TRUNK SPLITS BELOW 4.5 FEET.



LOCATION MAP
SCALE: 1" = 100'



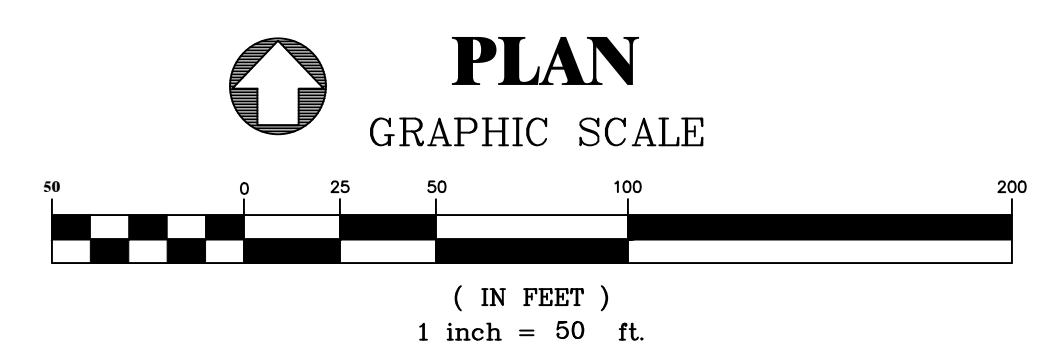
- SITE DATA**
- TOTAL AREA OF PARCEL: 29.218 Ac ±
 - OWNER: BEDFORD EMP OWNERSHIP, LLC.
ROBERT R. MORSE
P.O. BOX 1234
WILSON, NY 83014-1234
 - ZONING DISTRICT: R-4A RESIDENTIAL
 - TAX I.D.#: SHEET 103.01, BLOCK 1, LOT 18
 - SURVEY & TOPOGRAPHY BY: BADEY & WATSON, SURVEYING & ENGINEERING, P.C.
3063 ROUTE 9
COLD SPRING, NY 10516
 - WETLAND BOUNDARIES FLAGGED BY: MARY JAEHNIG

APPROVED BY TOWN OF NORTH CASTLE PLANNING BOARD RESOLUTION, DATED: DATE

CHRISTOPHER CARTHAY, CHAIRMAN
TOWN OF NORTH CASTLE PLANNING BOARD

PLANS REVIEWED FOR CONFORMANCE TO PLANNING BOARD RESOLUTION: DATE

JOSEPH M. CERMELE, P.E.
KELLARD SESSIONS CONSULTING
CONSULTING TOWN ENGINEERS



REVISIONS	DATE	DESCRIPTION	BY/CHK	DATE	DESCRIPTION	RH/MG	BY/CHK
	9-13-2021	TOWN COMMENTS					

EXISTING CONDITIONS PLAN
MORSE SUBDIVISION
50 EAST MIDDLE PATENT ROAD
TOWN OF NORTH CASTLE, WESTCHESTER COUNTY

BIBBO ASSOCIATES, LLP
293 ROUTE 100 SUITE 203
SOMERS, NEW YORK 10589
TEL. 914 277 5805

DATE: 6-28-2021
SCALE: 1" = 50'
FILE: 1-E
DSGN/CHK: MG
DRN. BY: AW
SHT NO: 1 OF 2
DWG NO. **EX-1**

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LEGEND:

- EXISTING 2' CONTOUR
- EXISTING 10' CONTOUR
- EXISTING STONE WALL
- PROP. RESIDENCE W/ DRIVEWAY
- PROP. SDA
- PROP. WELL
- DEEP TEST
- EXISTING EASEMENT
- FEMA FLOOD PLAIN BOUNDARY
- WETLAND BOUNDARY
- 100' WETLAND SETBACK
- PROPOSED LOT LINE
- PROPOSED EASEMENT LINE
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- EXISTING FENCE
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR

SLOPE LEGEND:

- SLOPES 25% AND GREATER

ADDITIONAL SITE / PROJECT INFORMATION

- TOTAL AREA OF PARCEL: 29.218 Ac ±
- TOTAL AREA IN WETLANDS: 4.1 Ac ± (INC-LOCAL ONLY)
- WETLAND DISTURBANCE:
 - A. ESTIMATED DISTURBANCE TO WETLANDS = 0.0 Ac
 - B. ESTIMATED DISTURBANCE WITHIN WETLAND BUFFER = 0.0 Ac
- AREA IN STEEP SLOPES:
 - A. TOTAL SLOPES > 25% = 0.48 Ac ±
- SLOPE DISTURBANCE:
 - A. ESTIMATED DISTURBANCE TO LAND WITH SLOPES > 25% = 0.0 Ac
- ESTIMATED TOTAL SITE DISTURBANCE = 2.5 Ac ±

GROSS LAND COVER CALCULATIONS

	LOT 1	LOT 2
GROSS LOT AREA	5.31 AC.	23.76 AC.
LOT AREA IN EXCESS OF 2.0 AC.	3.31 AC.	21.76 AC.
7.5% OF AREA IN EXCESS OF 2 AC.	10,825 FT²	71,104 FT²
MINIMUM PERMITTED	13,270 FT²	13,270 FT²
BONUS MAXIMUM GROSS LAND COVER	23 FT²	0 FT²
MAXIMUM PERMITTED GROSS LAND COVER	24,119 FT²	84,375 FT²
PROVIDED GROSS LAND COVER	22,539 FT²	21,329 FT²

NET LOT AREA CALCULATIONS

	REQUIRED DEDUCTION	LOT 1	LOT 2
GROSS LOT AREA		5.31 AC.	23.76 AC.
WETLAND DEDUCTION	75%	1,148 FT²	131,925 FT²
AREA IN WETLANDS		1,530 FT²	175,900 FT²
AREA IN STEEP SLOPES			21,195 FT²
STEEP SLOPES DEDUCTION	50%		10,598 FT²
NET LOT AREA		230,312 FT²	892,661 FT²

BULK ZONING SUMMARY - ZONE R-4A

LOT AREA	GROSS	REQUIRED		PROVIDED	
		4.0 AC. MIN.	LOT #1	LOT #2	LOT #2
	NET	**SEE NET LOT AREA TABLE			
FRONTAGE		250'	378.6'	542.3'	
LOT DEPTH		150'	680.5'	1439.5'	
LOT WIDTH		250'	336.3'	686.0'	
FRONT YARD		75'	77.3'	48.1'	
SIDE YARD		50'	96.5'	51.1'	
REAR YARD		50'	506.3'	1,167.2'	
MAXIMUM BUILDING COVERAGE		6%	1.6%	0.7%	
MAXIMUM BUILDING HEIGHT		30'	<30'	<30'	
GROSS LAND COVERAGE		***SEE GROSS LAND COVERAGE TABLE			
CONTIGUOUS BUILDABLE AREA		40,000 FT²	215,035 FT²	179,524 FT²	

*Existing / Variance Required



TREE LEGEND

OK14TW --- ATTRIBUTE (TW = THIN)
CALIPER (14" - 14")
SPECIES (OK = OAK)
TREE LOCATION

KEY

SPECIES

- AP APPLE
- AS ASH
- BI BIRCH
- CA CATALPA
- CD CEDAR
- CH CHERRY
- CO COCOONWOOD
- EL ELM
- HC HICKORY
- HM HEMLOCK
- MA MAPLE
- MU MULBERRY
- OK OAK
- PAA PEAR
- PE PINE
- PG POPLAR
- SB SILVER BELL
- SO SWEET GUM
- SR SERVICE
- SS SOUR GUM
- SY SYCAMORE
- TU TULIP
- UK UNKNOWN
- WN WALNUT

ATTRIBUTES

- CU CLUMP
- DB DOUBLE
- QU QUADRUPLE
- TR TRIPLE
- TW THIN

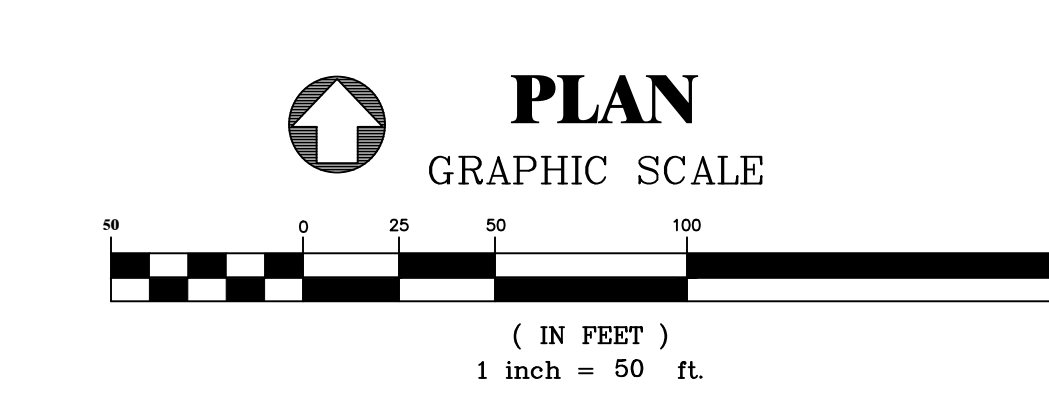
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PLANS REVIEWED FOR CONFORMANCE TO PLANNING BOARD RESOLUTION: _____ DATE _____

JOSEPH M. CERMELE, P.E.
KELLARD SESSIONS CONSULTING
CONSULTING TOWN ENGINEERS



REVISIONS

DATE	DESCRIPTION	BY/CHK	DATE	DESCRIPTION	RH/MG	BY/CHK
9-13-2021	TOWN COMMENTS					

PRELIMINARY SUBDIVISION PLAT

MORSE SUBDIVISION

50 EAST MIDDLE PATENT ROAD
TOWN OF NORTH CASTLE, WESTCHESTER COUNTY

BIBBO ASSOCIATES, LLP
295 ROUTE 100 SUITE 203
SOMERS, NEW YORK 10589
TEL. 914 277 5805

DATE: 6-28-21
SCALE: 1" = 50'
FILE: 1-E
DSGN/CHK: MG
DRN BY: AW
SHT NO: 2 OF 2
DWG NO: **PP-1**

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Stormwater Pollution Prevention Plan

***Morse – Two (2) Lot Subdivision
50 East Middle Patent Road
North Castle, NY***

Prepared By:



Rev.
Date: September 13, 2021

Matthew J. Gironda, P.E.
N.Y.S. License #: 096030



Project Information:

Project Title: Morse Subdivision
Project Address: 50 East Middle Patent Road, North Castle, NY 10506
Tax Map Number: Sheet 103.01, Block 1, Lot 18
Project Area: 29.218 +/- Acres

Applicant/Owner Information:

Owner/ Applicant Name: Bedford EMP Ownership, LLC. / Robert Morse
Owner/Applicant Address: P.O. Box 1234 Wilson, WY 83014-1234

Certifying Engineer Information:

Engineer: Mathew J. Gironda, P.E.
Engineering Firm: Bibbo Associates, LLP
Engineering Firm Address: 293 Rt. 100, Suite 203
Somers, N.Y. 10589
Engineering Firm Phone: 914-277-5805
Engineering Firm Fax: 914-277-8210
Engineering Firm Email: mgironda@bibboassociates.com

Short-Term Responsible Party for SWPPP Implementation:

Short-term responsible parties for SWPPP Implementation will be the Owner.

Long-Term Responsible Party for SWPPP Implementation:

Long-term responsible parties for SWPPP Implementation will be the Owner.



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Appendix A: HydroCAD Curve Number Analysis & 25-yr Storm Runoff analysis

Appendix B: Hydrologic Soil Map

Figure 1: Pre-Development Drainage Figure

Figure 2: Post-Development Drainage Figure



1.0 Project Description:

The owner of the subject property located at 50 East Middle Patent Road in the Town of North Castle is proposing a two-lot subdivision and other site improvements associated with the construction of a proposed residence, pool and pool house and additions/ alterations to the existing main house. Runoff from the proposed impervious surfaces will be conveyed via a drainage network to two subsurface infiltration systems.

The subject property is located outside of the New York City of East of Hudson Watershed and the proposed improvements will result in approximately 2.5 acres of total land disturbance. As such the project is not required to obtain coverage under the NYSDEC SPDES General permit for Stormwater Discharges from Construction Activity (GP-0-20-001). In accordance with NYSDEC requirements a SWPPP with proposed temporary erosion and sediment control measures is required for coverage. As disturbance does not exceed 5 acres post construction stormwater management practices are not required.

1.1 Existing Site Conditions:

The subject property is located on the east side of East Middle Patent Road south of Ledges Road. The site consists of a total of 29.218 acres ± and is currently developed, containing an existing residence and garage. Access to the property is provided through two (2) existing driveways from East Middle Patent Road, and the dwelling is served by an existing subsurface sewage disposal system and well. Land cover onsite consists of mostly lawn and wooded areas as well as the existing impervious surface associated with the existing structures and driveway. Slopes onsite range from moderate to steep. Surface runoff from the property generally flows to the east to an existing onsite wetland.

Soils identified within the area of disturbance consist of Paxton - PnB, PoC, PoD, Ridgebury - RgB, and Wodbridge WdA and WdB. All soils belong to hydrologic group C. A soils map can be found in Appendix “B” of this report.

1.2 Proposed Site Conditions:



The owner of the subject property is proposing additions to the existing residence, a patio, relocation of an existing detached garage, the construction of a new detached garage, pool and pool house on proposed lot 2. A proposed residence, detached garage, and pool are proposed for lot 1. A new driveway is proposed to lot 1 which will utilize an on-site curb cut from the existing driveway. A portion of the existing driveway will be removed and realigned, no additional curb cuts to East Middle Patent Road are proposed.

1.3 Town Requirements:

As required by the North Castle Town Code a peak flow analysis has been performed to demonstrate that the post-development peak discharge from the 25-year storm is the same or less than predevelopment rates, In order to analyze the impact of the proposed construction, a stormwater model of the area of disturbance was developed for both pre-development and post-development conditions. The design line was selected to be the existing wetland boundary. This was chosen as the design line for the purpose of including all proposed development within analyzed sub catchment areas.

HydroCAD v. 10.0, a computer-modeling program based upon TR-20, was used to generate peak flows from the subcatchments. In the program, the user inputs various characteristics for each subcatchment including a curve number and time of concentration. These two parameters relate runoff to the specific land characteristics of the subcatchment. Based upon the inputted data, peak flows are generated for the 25-year storm events for the pre-development and post-development subcatchments. HydroCAD output reports are included in Appendix "A" of this report. The HydroCAD reports demonstrate that the stormwater runoff generated by the proposed development will not result in an increase to 25-year storm peak flows in the post development condition. In order to satisfy the town requirements, two subsurface infiltration systems have been proposed to provide peak flow attenuation for runoff from the development.

The infiltration systems have been sized to provide adequate storage for runoff generated by its contributing area during the 90 % WQv storm event. As a result of the storage provided and the analysis completed as a part of this report indicates there will be no increase in peak



flows at the design line during the 25-year storm event, thus satisfying the requirements of the Town Code for stormwater peak flow attenuation.

HydroCAD modeling for the pre and post development conditions is included in Appendix A of this report, and drainage basin maps illustrating the subcatchment areas are attached as Figures 1 & 2.

Based on this analysis, it is not anticipated that the project site will adversely impact any downstream properties.

2.0 Erosion & Sediment Control:

The plans provide for specific erosion and sediment controls to be employed during construction. It is the intent to provide effective erosion control by minimizing land disturbance at one given time, containing sediment from disturbed areas, treating runoff where possible, and stabilizing disturbed areas as soon as possible. The directives specified on the plans and in this report serve as a minimum for erosion and sediment control. For the purposes of this project the proposed control measures are considered to be the minimum requirements. Additional measures or mitigation may be directed at any time by the Town of North Castle or the Project Engineer to address the specific needs at the time.

In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven days.

All proposed erosion and sediment control practices illustrated on the Erosion Control Plan have been designed in accordance with the New York State Standards & Specifications for Erosion & Sediment Control November 2016.

2.1 Temporary Erosion & Sediment Control Practices:

Listed below are the Temporary Erosion & Sediment Control Practices specified on the Erosion Control Plan. All practices shall be installed and maintained in conformance with the New York Standards & Specifications for Erosion & Sediment Control:

- Silt Fence
- Topsoil Stockpile



Silt fence for the site will consist of a geotextile fabric installed at the toe of all disturbed slopes, and parallel to the contours. The silt fence is intended to reduce runoff velocity, and intercept sediment-laden runoff. Construction details specifying the proposed installation and type of permissible silt fence can be found on the plan.

Soil stockpiles are to be stabilized with vegetation and surrounded with silt fencing. This will ensure the topsoil that is stripped from the site during construction will be protected for use during final grading and that no sediment from the stockpiles will be deposited downstream.

2.2 Permanent Erosion & Sediment Control Practices:

The intent of the permanent erosion and sediment control practices is to permanently stabilize the ground surface via vegetative and structural practices, while controlling and reducing runoff velocities. The following permanent erosion & sediment, control practices are proposed for the site:

- Land Grading
- Vegetation

Land grading is the reshaping of the existing land surface in accordance with the grading plan. Proper land grading is an essential component of the erosion control plan, as well as the stormwater pollution prevention plan. Proper grading will ensure the intended drainage areas are directed to the stormwater management practices.

Vegetation will be provided on all disturbed soils. Permanent vegetative cover will reduce runoff velocities, filter stormwater runoff, and minimize soil erosion. Optimum times for planting are the early spring and fall; however, plantings can be started in the summer provided adequate mulch and moisture is supplied.

3.0 Maintenance & Inspection Requirements:

In accordance with the requirements of GP-0-20-001 inspections by a qualified inspector are not required for the subject project as total land disturbance will not exceed one -acre



The Town of North Castle Stormwater Management Officer may require such inspections as necessary to determine compliance with this Chapter 267 of the Town Code and may either approve that portion of the work completed or notify the applicant wherein the work fails to comply with the requirements of this Chapter 267 of the Town Code and the stormwater pollution prevention plan (SWPPP) as approved. To obtain inspections, the applicant shall notify the Town of North Castle Building Department at least 48 hours before any of the following, as required by the Stormwater Management Officer:

1. Start of construction.
2. Installation of sediment and erosion control measures.
3. Completion of site clearing.
4. Completion of rough grading.
5. Completion of final grading.
6. Close of the construction season.
7. Completion of final landscaping.
8. Successful establishment of landscaping in public areas.

3.1 Short Term Maintenance and Inspection Requirements:

The Owner and or his representative will monitor the construction and erosion control measures as necessary.

Inspections performed during construction should verify all practices are functioning properly, correctly maintained, and accumulated sediment is removed from all control structures. The inspector must also examine the site for any evidence of soil erosion, turbid discharge at all outfalls, and the potential for soil and mud to be transported on the public roadway at the site entrance. In addition to these general guidelines, the project plans will provide more specific erosion control guidelines, as well as a construction sequence to guide the contractor through the construction process. Discussed below are specific maintenance and inspection requirements for the temporary practices to be employed at the site.

During construction, the silt fence should be inspected to ensure correct installation. In addition, any accumulated sediment resulting in “bulges” in the silt fence should be removed and mixed with onsite soil. Any damaged or torn silt fence should be replaced.



The entrance to the site should be checked to ensure no sediment is being deposited onto the public roadway. Should sediment be observed, it should be removed from the street.

Once construction is completed and the site has been stabilized, limited maintenance requirements are anticipated.

3.2 Long Term Maintenance and Inspection Requirements:

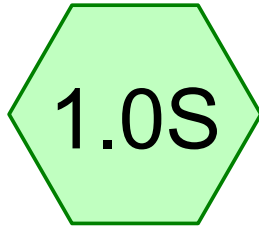
Long-term maintenance is expected to be minimal once final stabilization is achieved. Maintenance inspections should be performed annually and after significant rainstorm events.

4.0 Conclusion:

The Stormwater Pollution Prevention Plan prepared for the subject project has been prudently designed to manage stormwater runoff. Proper implementation of erosion and sediment control measures outlined in this SWPPP will ensure conformance with all requirements specified in the NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity and Town of North Castle.



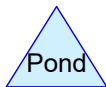
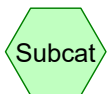
Appendix A:
HydroCAD Peak Flow Analysis



Predevelopment



Design Line



Morse-50 Middle Patent Road-Pre

Prepared by Bibbo Associates, llp.

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Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
208,786	74	>75% Grass cover, Good, HSG C (1.0S)
7,615	96	Gravel surface, HSG C (1.0S)
15,281	98	Impervious (1.0S)
455,166	70	Woods, Good, HSG C (1.0S)
686,848	72	TOTAL AREA

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Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
671,567	HSG C	1.0S
0	HSG D	
15,281	Other	1.0S
686,848		TOTAL AREA

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Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Subcatchment Numbers
0	0	208,786	0	0	208,786	>75% Grass cover, Good	1.0S
0	0	7,615	0	0	7,615	Gravel surface	1.0S
0	0	0	0	15,281	15,281	Impervious	1.0S
0	0	455,166	0	0	455,166	Woods, Good	1.0S
0	0	671,567	0	15,281	686,848	TOTAL AREA	

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Time span=0.00-360.00 hrs, dt=0.01 hrs, 36001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.0S: Predevelopment

Runoff Area=686,848 sf 2.22% Impervious Runoff Depth=3.33"
Flow Length=580' Tc=23.6 min CN=72 Runoff=34.21 cfs 190,700 cf

Link 2L: Design Line

Inflow=34.21 cfs 190,700 cf
Primary=34.21 cfs 190,700 cf

Total Runoff Area = 686,848 sf Runoff Volume = 190,700 cf Average Runoff Depth = 3.33"
97.78% Pervious = 671,567 sf 2.22% Impervious = 15,281 sf

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Summary for Subcatchment 1.0S: Predevelopment

Runoff = 34.21 cfs @ 12.35 hrs, Volume= 190,700 cf, Depth= 3.33"

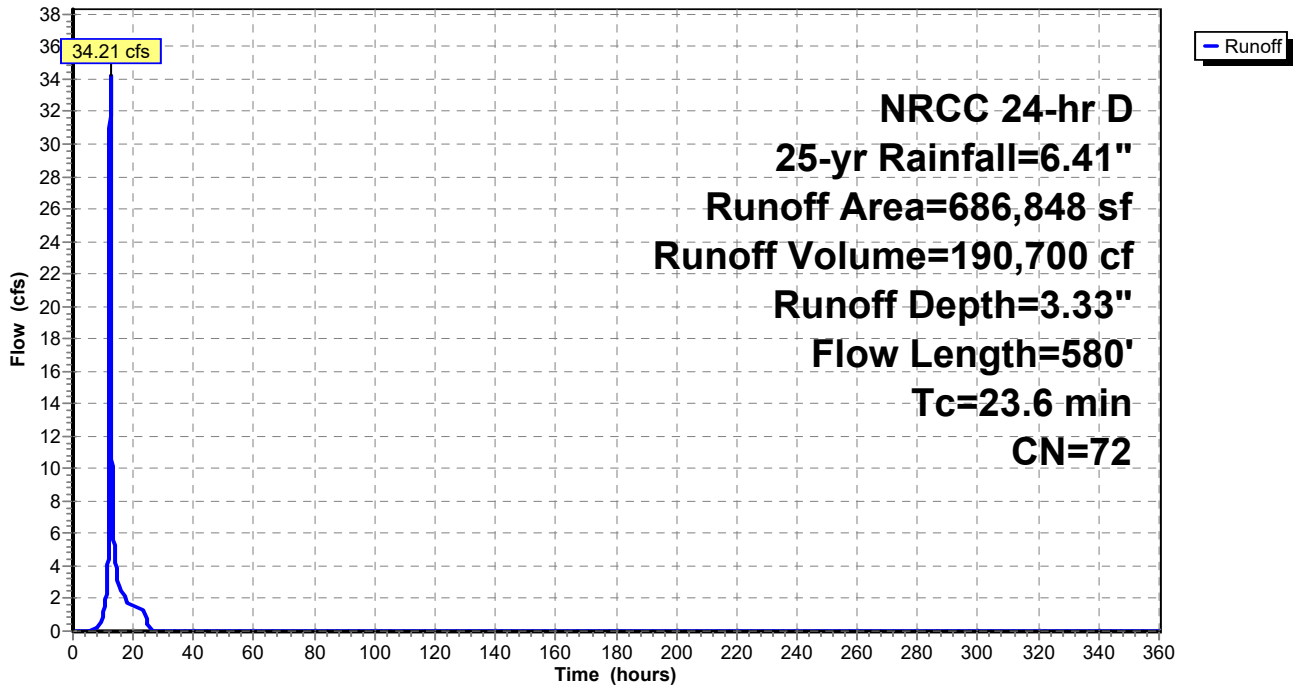
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-360.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 25-yr Rainfall=6.41"

Area (sf)	CN	Description
* 15,281	98	Impervious
208,786	74	>75% Grass cover, Good, HSG C
455,166	70	Woods, Good, HSG C
7,615	96	Gravel surface, HSG C
686,848	72	Weighted Average
671,567		97.78% Pervious Area
15,281		2.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.0	100	0.0250	0.09		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.42"
4.6	480	0.1200	1.73		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
23.6	580	Total			

Subcatchment 1.0S: Predevelopment

Hydrograph



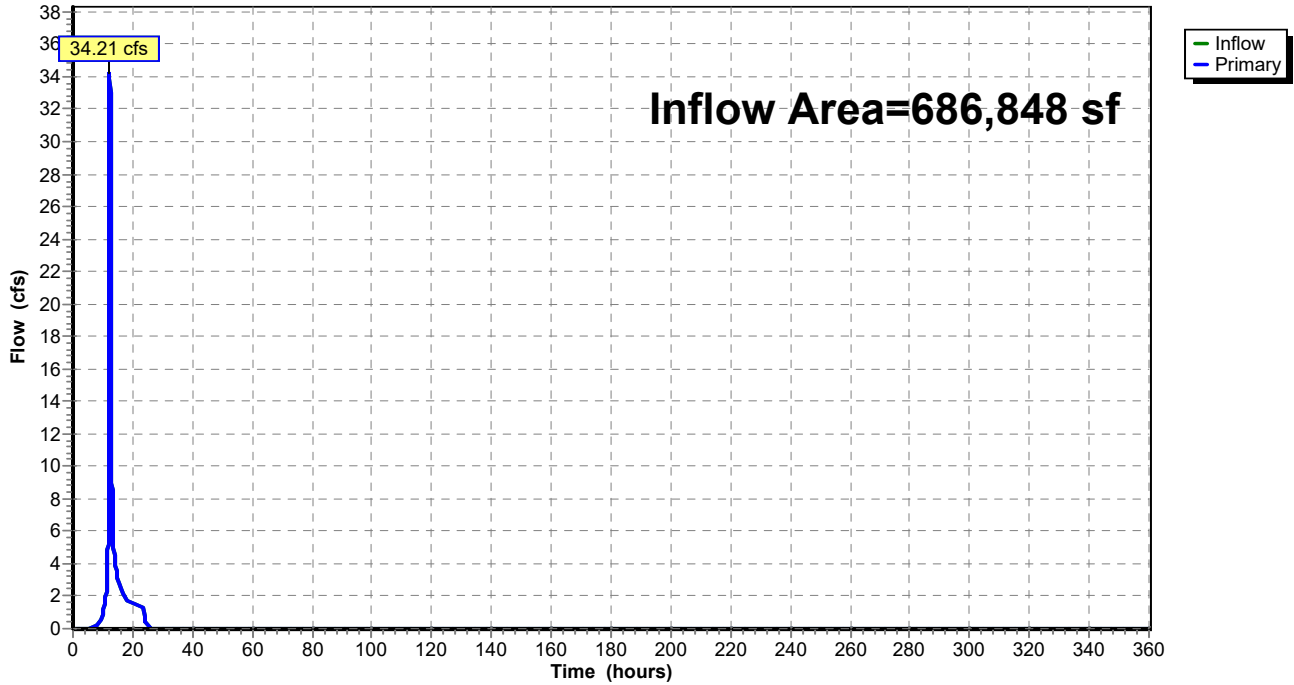
Summary for Link 2L: Design Line

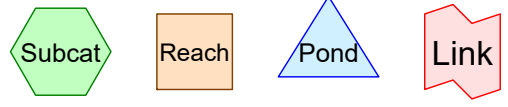
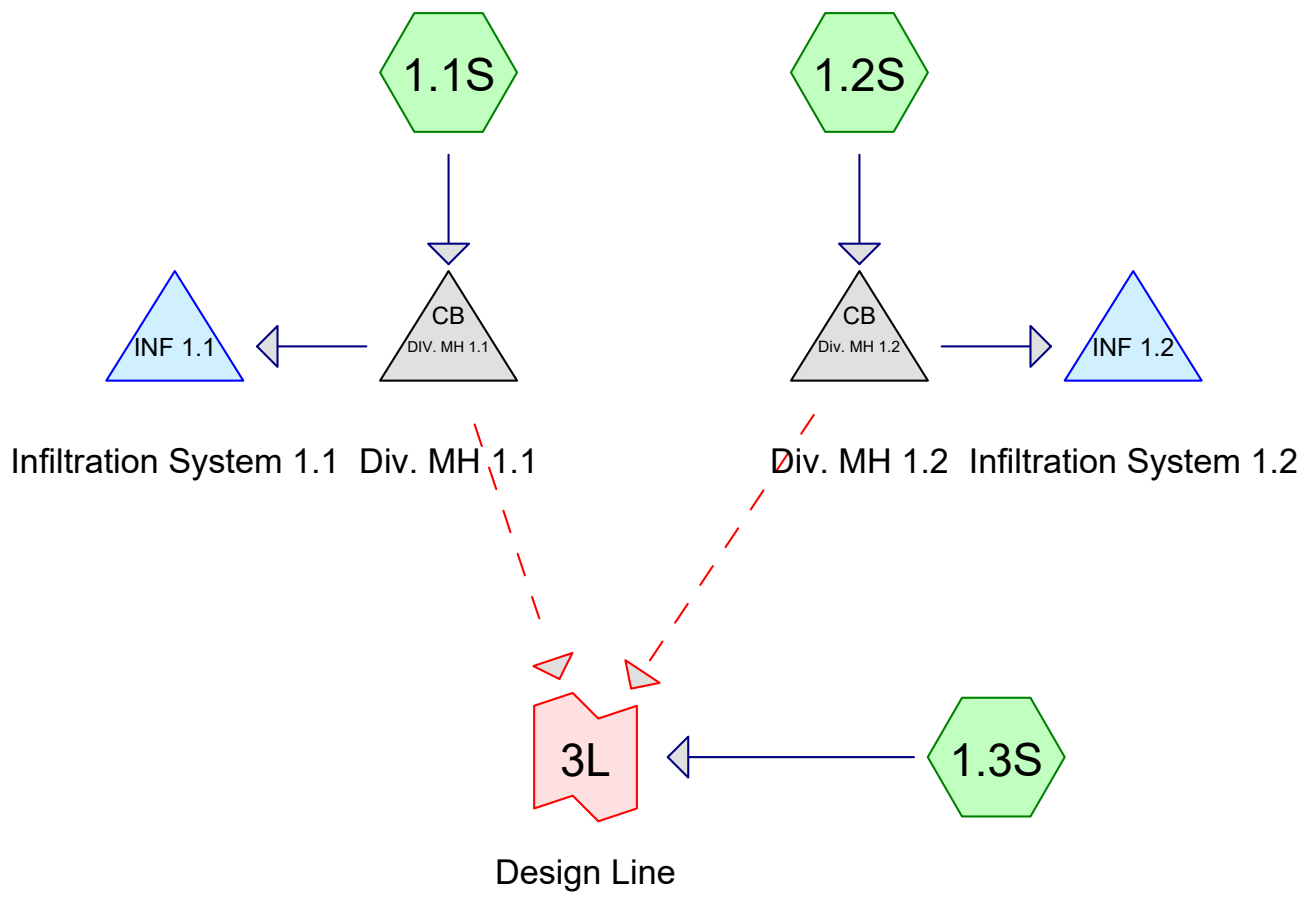
Inflow Area = 686,848 sf, 2.22% Impervious, Inflow Depth = 3.33" for 25-yr event
Inflow = 34.21 cfs @ 12.35 hrs, Volume= 190,700 cf
Primary = 34.21 cfs @ 12.35 hrs, Volume= 190,700 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-360.00 hrs, dt= 0.01 hrs

Link 2L: Design Line

Hydrograph





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Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
732	98	(1.3S)
236,110	74	>75% Grass cover, Good, HSG C (1.2S, 1.3S)
20,665	98	Buildings, Driveway, Pools, Patios (1.2S)
10,607	98	Impervious (1.3S)
13,760	98	Paved parking, HSG C (1.1S)
404,974	70	Woods, Good, HSG C (1.3S)
686,848	73	TOTAL AREA

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Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
654,844	HSG C	1.1S, 1.2S, 1.3S
0	HSG D	
32,004	Other	1.2S, 1.3S
686,848		TOTAL AREA

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Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Subcatchment Numbers
0	0	0	0	732	732		1.3S
0	0	236,110	0	0	236,110	>75% Grass cover, Good	1.2S, 1.3S
0	0	0	0	20,665	20,665	Buildings, Driveway, Pools, Patios	1.2S
0	0	0	0	10,607	10,607	Impervious	1.3S
0	0	13,760	0	0	13,760	Paved parking	1.1S
0	0	404,974	0	0	404,974	Woods, Good	1.3S
0	0	654,844	0	32,004	686,848	TOTAL AREA	

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Time span=0.00-360.00 hrs, dt=0.01 hrs, 36001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.1S: Runoff Area=13,760 sf 100.00% Impervious Runoff Depth=6.17"
Tc=6.0 min CN=98 Runoff=1.84 cfs 7,077 cf

Subcatchment 1.2S: Runoff Area=42,269 sf 48.89% Impervious Runoff Depth=4.80"
Tc=6.0 min CN=86 Runoff=4.97 cfs 16,908 cf

Subcatchment 1.3S: Runoff Area=630,819 sf 1.80% Impervious Runoff Depth=3.33"
Flow Length=580' Tc=23.6 min CN=72 Runoff=31.42 cfs 175,144 cf

Pond DIV. MH 1.1: Div. MH 1.1 Peak Elev=513.95' Inflow=1.84 cfs 7,077 cf
Primary=1.11 cfs 6,476 cf Secondary=0.77 cfs 600 cf Outflow=1.84 cfs 7,077 cf

Pond Div. MH 1.2: Div. MH 1.2 Peak Elev=512.56' Inflow=4.97 cfs 16,908 cf
Primary=0.63 cfs 11,794 cf Secondary=4.34 cfs 5,114 cf Outflow=4.97 cfs 16,908 cf

Pond INF 1.1: Infiltration System 1.1 Peak Elev=513.63' Storage=1,739 cf Inflow=1.11 cfs 6,476 cf
Outflow=0.13 cfs 6,476 cf

Pond INF 1.2: Infiltration System 1.2 Peak Elev=511.07' Storage=2,370 cf Inflow=0.63 cfs 11,794 cf
Outflow=0.22 cfs 11,794 cf

Link 3L: Design Line Inflow=32.30 cfs 180,858 cf
Primary=32.30 cfs 180,858 cf

Total Runoff Area = 686,848 sf Runoff Volume = 199,129 cf Average Runoff Depth = 3.48"
93.34% Pervious = 641,084 sf 6.66% Impervious = 45,764 sf

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Summary for Subcatchment 1.1S:

Runoff = 1.84 cfs @ 12.13 hrs, Volume= 7,077 cf, Depth= 6.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-360.00 hrs, dt= 0.01 hrs

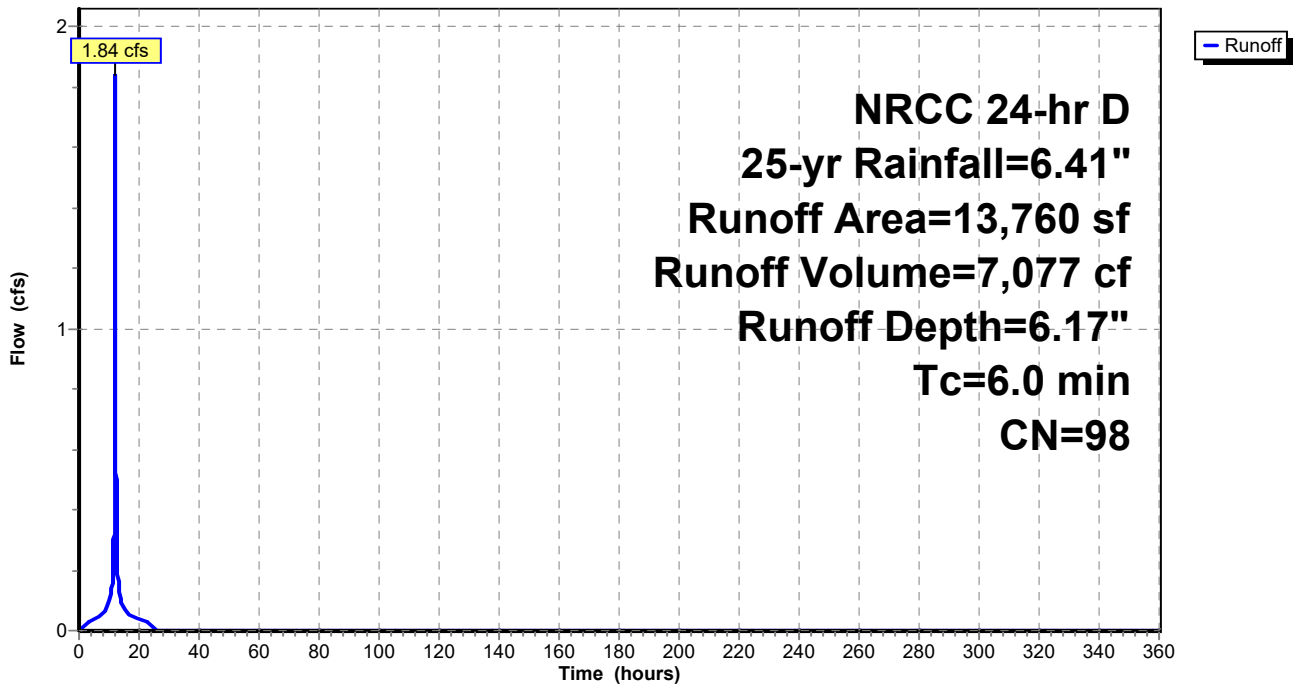
NRCC 24-hr D 25-yr Rainfall=6.41"

Area (sf)	CN	Description
13,760	98	Paved parking, HSG C
13,760		100.00% Impervious Area

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

Subcatchment 1.1S:

Hydrograph



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NRCC 24-hr D 25-yr Rainfall=6.41"

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Summary for Subcatchment 1.2S:

Runoff = 4.97 cfs @ 12.13 hrs, Volume= 16,908 cf, Depth= 4.80"

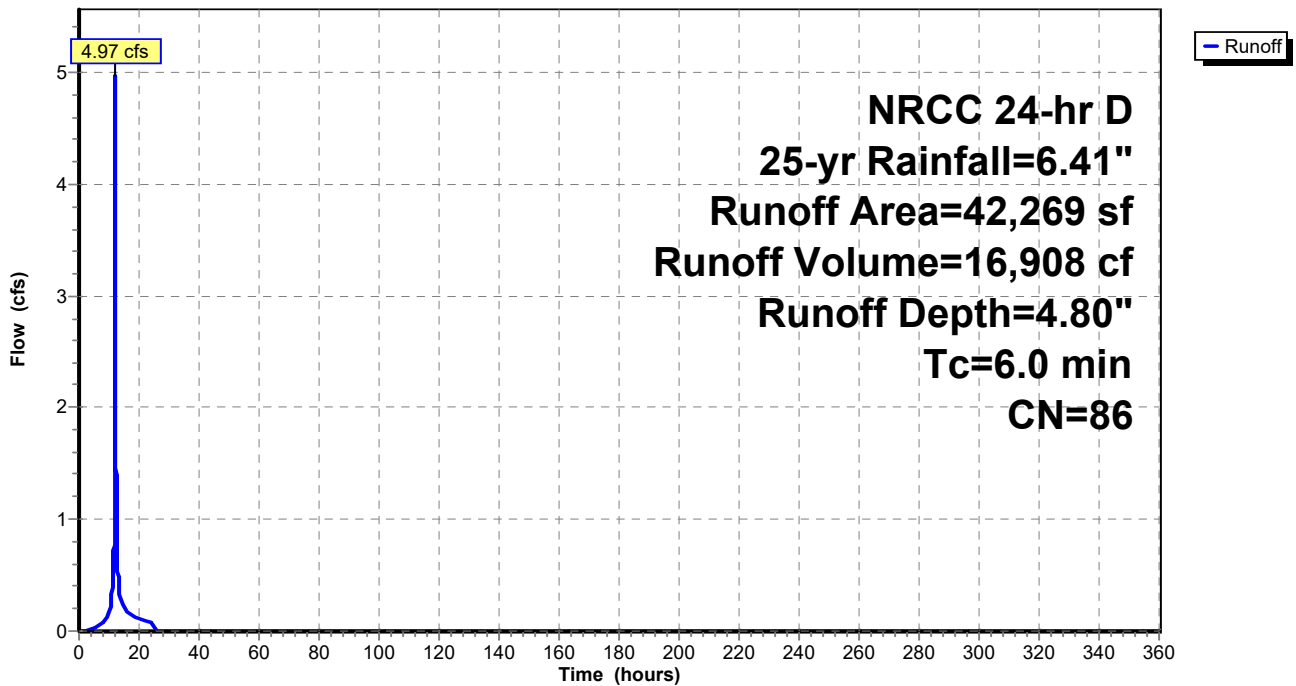
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-360.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 25-yr Rainfall=6.41"

Area (sf)	CN	Description
20,665	98	Buildings, Driveway, Pools, Patios
21,604	74	>75% Grass cover, Good, HSG C
42,269	86	Weighted Average
21,604		51.11% Pervious Area
20,665		48.89% Impervious Area

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

Subcatchment 1.2S:

Hydrograph



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NRCC 24-hr D 25-yr Rainfall=6.41"

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Summary for Subcatchment 1.3S:

Runoff = 31.42 cfs @ 12.35 hrs, Volume= 175,144 cf, Depth= 3.33"

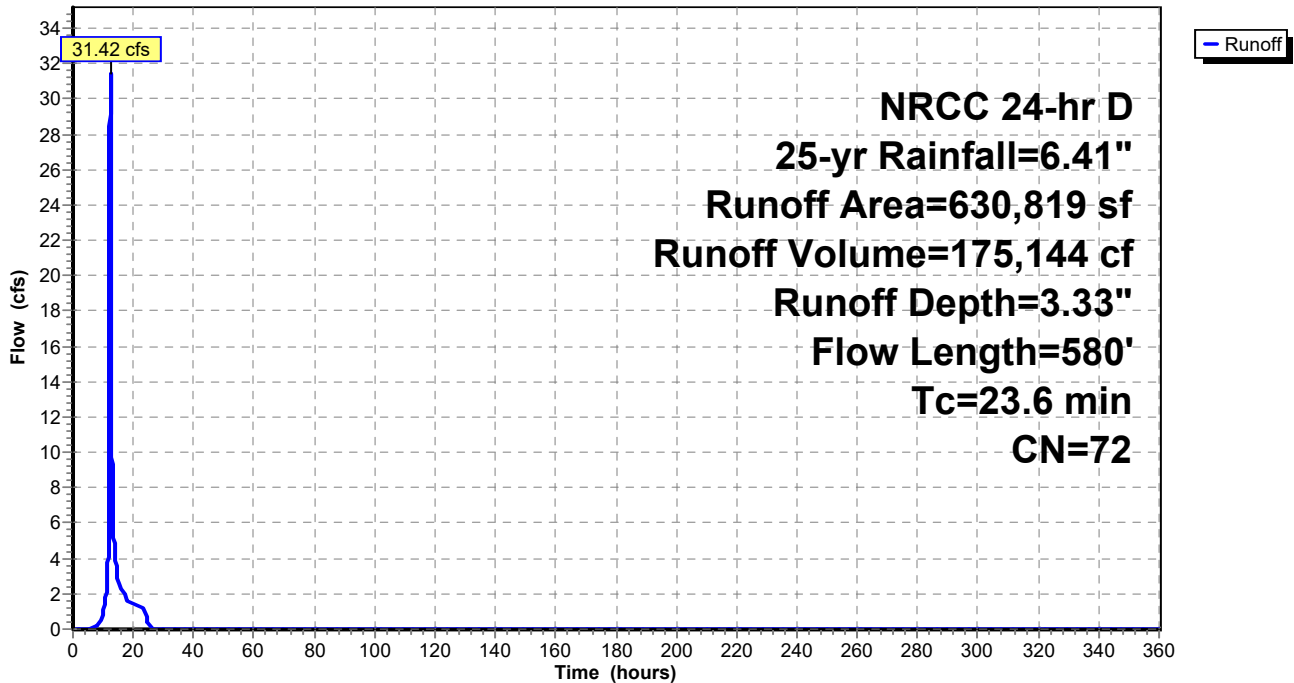
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-360.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 25-yr Rainfall=6.41"

Area (sf)	CN	Description
* 10,607	98	Impervious
214,506	74	>75% Grass cover, Good, HSG C
404,974	70	Woods, Good, HSG C
* 732	98	
630,819	72	Weighted Average
619,480		98.20% Pervious Area
11,339		1.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.0	100	0.0250	0.09		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.42"
4.6	480	0.1200	1.73		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
23.6	580	Total			

Subcatchment 1.3S:

Hydrograph



Summary for Pond DIV. MH 1.1: Div. MH 1.1

Inflow Area = 13,760 sf, 100.00% Impervious, Inflow Depth = 6.17" for 25-yr event
 Inflow = 1.84 cfs @ 12.13 hrs, Volume= 7,077 cf
 Outflow = 1.84 cfs @ 12.13 hrs, Volume= 7,077 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.11 cfs @ 12.07 hrs, Volume= 6,476 cf
 Secondary = 0.77 cfs @ 12.13 hrs, Volume= 600 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-360.00 hrs, dt= 0.01 hrs
 Peak Elev= 513.95' @ 12.13 hrs

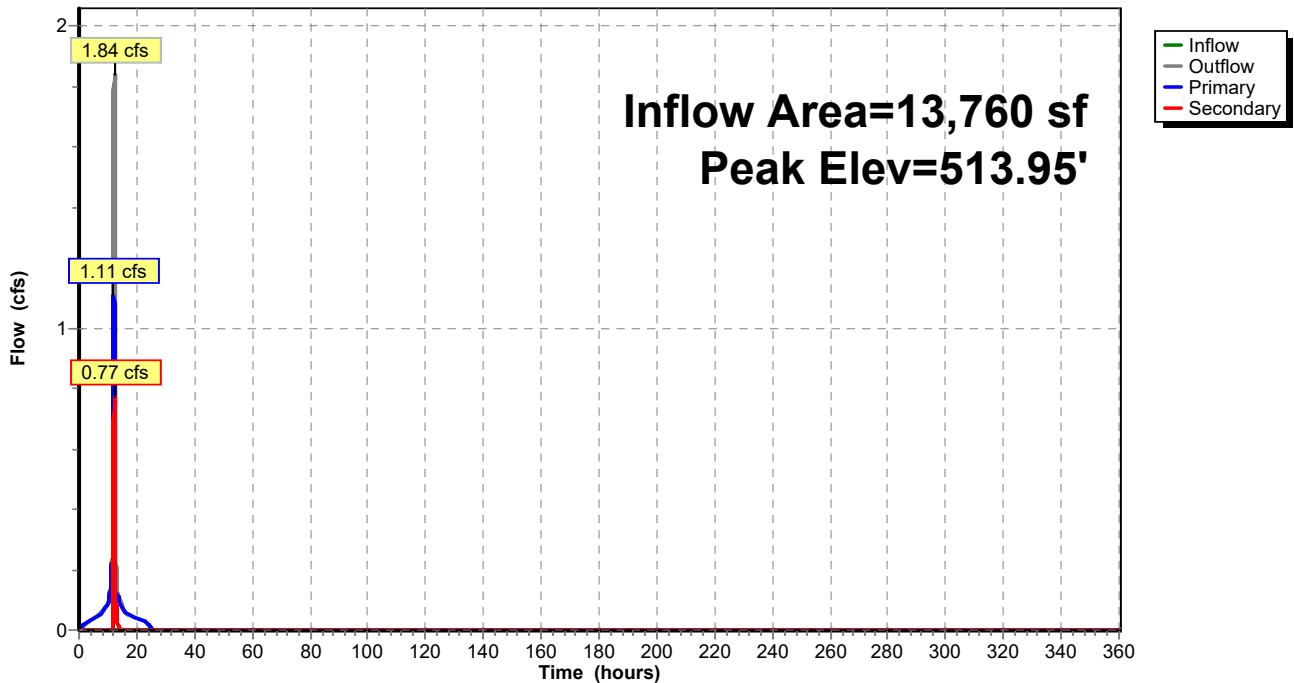
Device	Routing	Invert	Outlet Devices
#1	Primary	511.50'	6.0" Round Culvert L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 511.50' / 511.50' S= 0.0000 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Secondary	513.50'	12.0" Round Culvert L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 513.50' / 513.00' S= 0.0125 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.09 cfs @ 12.07 hrs HW=513.79' TW=512.45' (Dynamic Tailwater)
 ↑1=Culvert (Inlet Controls 1.09 cfs @ 5.56 fps)

Secondary OutFlow Max=0.77 cfs @ 12.13 hrs HW=513.95' TW=0.00' (Dynamic Tailwater)
 ↑2=Culvert (Inlet Controls 0.77 cfs @ 2.27 fps)

Pond DIV. MH 1.1: Div. MH 1.1

Hydrograph



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Stage-Area-Storage for Pond DIV. MH 1.1: Div. MH 1.1

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
511.50	0	512.82	0	514.14	0
511.52	0	512.84	0	514.16	0
511.54	0	512.86	0	514.18	0
511.56	0	512.88	0	514.20	0
511.58	0	512.90	0	514.22	0
511.60	0	512.92	0	514.24	0
511.62	0	512.94	0	514.26	0
511.64	0	512.96	0	514.28	0
511.66	0	512.98	0	514.30	0
511.68	0	513.00	0	514.32	0
511.70	0	513.02	0	514.34	0
511.72	0	513.04	0	514.36	0
511.74	0	513.06	0	514.38	0
511.76	0	513.08	0	514.40	0
511.78	0	513.10	0	514.42	0
511.80	0	513.12	0	514.44	0
511.82	0	513.14	0	514.46	0
511.84	0	513.16	0	514.48	0
511.86	0	513.18	0	514.50	0
511.88	0	513.20	0		
511.90	0	513.22	0		
511.92	0	513.24	0		
511.94	0	513.26	0		
511.96	0	513.28	0		
511.98	0	513.30	0		
512.00	0	513.32	0		
512.02	0	513.34	0		
512.04	0	513.36	0		
512.06	0	513.38	0		
512.08	0	513.40	0		
512.10	0	513.42	0		
512.12	0	513.44	0		
512.14	0	513.46	0		
512.16	0	513.48	0		
512.18	0	513.50	0		
512.20	0	513.52	0		
512.22	0	513.54	0		
512.24	0	513.56	0		
512.26	0	513.58	0		
512.28	0	513.60	0		
512.30	0	513.62	0		
512.32	0	513.64	0		
512.34	0	513.66	0		
512.36	0	513.68	0		
512.38	0	513.70	0		
512.40	0	513.72	0		
512.42	0	513.74	0		
512.44	0	513.76	0		
512.46	0	513.78	0		
512.48	0	513.80	0		
512.50	0	513.82	0		
512.52	0	513.84	0		
512.54	0	513.86	0		
512.56	0	513.88	0		
512.58	0	513.90	0		
512.60	0	513.92	0		
512.62	0	513.94	0		
512.64	0	513.96	0		
512.66	0	513.98	0		
512.68	0	514.00	0		
512.70	0	514.02	0		
512.72	0	514.04	0		
512.74	0	514.06	0		
512.76	0	514.08	0		
512.78	0	514.10	0		
512.80	0	514.12	0		

Summary for Pond Div. MH 1.2: Div. MH 1.2

Inflow Area = 42,269 sf, 48.89% Impervious, Inflow Depth = 4.80" for 25-yr event
 Inflow = 4.97 cfs @ 12.13 hrs, Volume= 16,908 cf
 Outflow = 4.97 cfs @ 12.13 hrs, Volume= 16,908 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.63 cfs @ 12.12 hrs, Volume= 11,794 cf
 Secondary = 4.34 cfs @ 12.13 hrs, Volume= 5,114 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-360.00 hrs, dt= 0.01 hrs
 Peak Elev= 512.56' @ 12.13 hrs

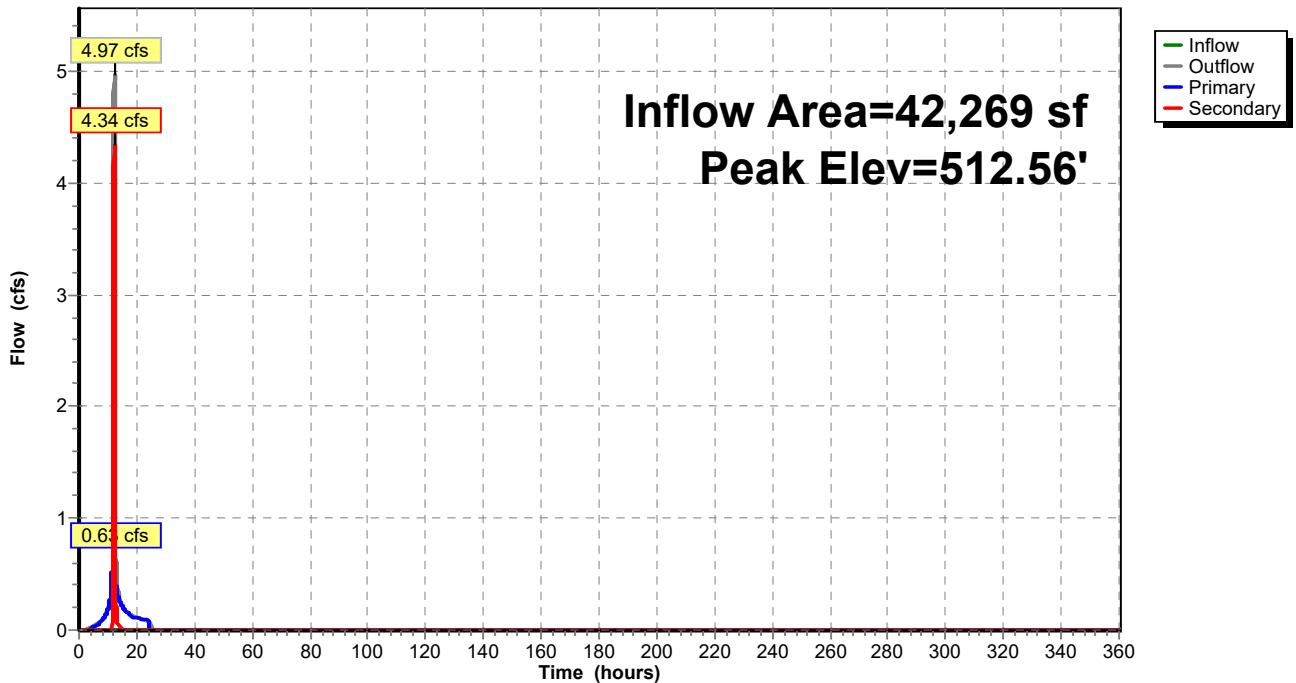
Device	Routing	Invert	Outlet Devices
#1	Primary	509.50'	4.0" Round Culvert L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 509.50' / 509.50' S= 0.0000 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#2	Secondary	511.35'	15.0" Round Culvert L= 46.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 511.35' / 510.90' S= 0.0098 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.63 cfs @ 12.12 hrs HW=512.55' TW=510.24' (Dynamic Tailwater)
 ↑1=Culvert (Outlet Controls 0.63 cfs @ 7.21 fps)

Secondary OutFlow Max=4.34 cfs @ 12.13 hrs HW=512.56' TW=0.00' (Dynamic Tailwater)
 ↑2=Culvert (Barrel Controls 4.34 cfs @ 4.55 fps)

Pond Div. MH 1.2: Div. MH 1.2

Hydrograph



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Stage-Area-Storage for Pond Div. MH 1.2: Div. MH 1.2

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
509.50	0	510.82	0	512.14	0
509.52	0	510.84	0	512.16	0
509.54	0	510.86	0	512.18	0
509.56	0	510.88	0	512.20	0
509.58	0	510.90	0	512.22	0
509.60	0	510.92	0	512.24	0
509.62	0	510.94	0	512.26	0
509.64	0	510.96	0	512.28	0
509.66	0	510.98	0	512.30	0
509.68	0	511.00	0	512.32	0
509.70	0	511.02	0	512.34	0
509.72	0	511.04	0	512.36	0
509.74	0	511.06	0	512.38	0
509.76	0	511.08	0	512.40	0
509.78	0	511.10	0	512.42	0
509.80	0	511.12	0	512.44	0
509.82	0	511.14	0	512.46	0
509.84	0	511.16	0	512.48	0
509.86	0	511.18	0	512.50	0
509.88	0	511.20	0	512.52	0
509.90	0	511.22	0	512.54	0
509.92	0	511.24	0	512.56	0
509.94	0	511.26	0	512.58	0
509.96	0	511.28	0	512.60	0
509.98	0	511.30	0		
510.00	0	511.32	0		
510.02	0	511.34	0		
510.04	0	511.36	0		
510.06	0	511.38	0		
510.08	0	511.40	0		
510.10	0	511.42	0		
510.12	0	511.44	0		
510.14	0	511.46	0		
510.16	0	511.48	0		
510.18	0	511.50	0		
510.20	0	511.52	0		
510.22	0	511.54	0		
510.24	0	511.56	0		
510.26	0	511.58	0		
510.28	0	511.60	0		
510.30	0	511.62	0		
510.32	0	511.64	0		
510.34	0	511.66	0		
510.36	0	511.68	0		
510.38	0	511.70	0		
510.40	0	511.72	0		
510.42	0	511.74	0		
510.44	0	511.76	0		
510.46	0	511.78	0		
510.48	0	511.80	0		
510.50	0	511.82	0		
510.52	0	511.84	0		
510.54	0	511.86	0		
510.56	0	511.88	0		
510.58	0	511.90	0		
510.60	0	511.92	0		
510.62	0	511.94	0		
510.64	0	511.96	0		
510.66	0	511.98	0		
510.68	0	512.00	0		
510.70	0	512.02	0		
510.72	0	512.04	0		
510.74	0	512.06	0		
510.76	0	512.08	0		
510.78	0	512.10	0		
510.80	0	512.12	0		

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Summary for Pond INF 1.1: Infiltration System 1.1

Inflow Area = 13,760 sf, 100.00% Impervious, Inflow Depth = 5.65" for 25-yr event
 Inflow = 1.11 cfs @ 12.07 hrs, Volume= 6,476 cf
 Outflow = 0.13 cfs @ 10.92 hrs, Volume= 6,476 cf, Atten= 88%, Lag= 0.0 min
 Discarded = 0.13 cfs @ 10.92 hrs, Volume= 6,476 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-360.00 hrs, dt= 0.01 hrs
 Peak Elev= 513.63' @ 12.73 hrs Surf.Area= 948 sf Storage= 1,739 cf

Plug-Flow detention time= 84.4 min calculated for 6,476 cf (100% of inflow)
 Center-of-Mass det. time= 84.4 min (830.4 - 746.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	511.00'	824 cf	20.83'W x 45.50'L x 3.54'H Field A 3,357 cf Overall - 1,296 cf Embedded = 2,061 cf x 40.0% Voids
#2A	511.50'	1,296 cf	Cultec R-330XLHD x 24 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 4 rows
		2,121 cf	Total Available Storage

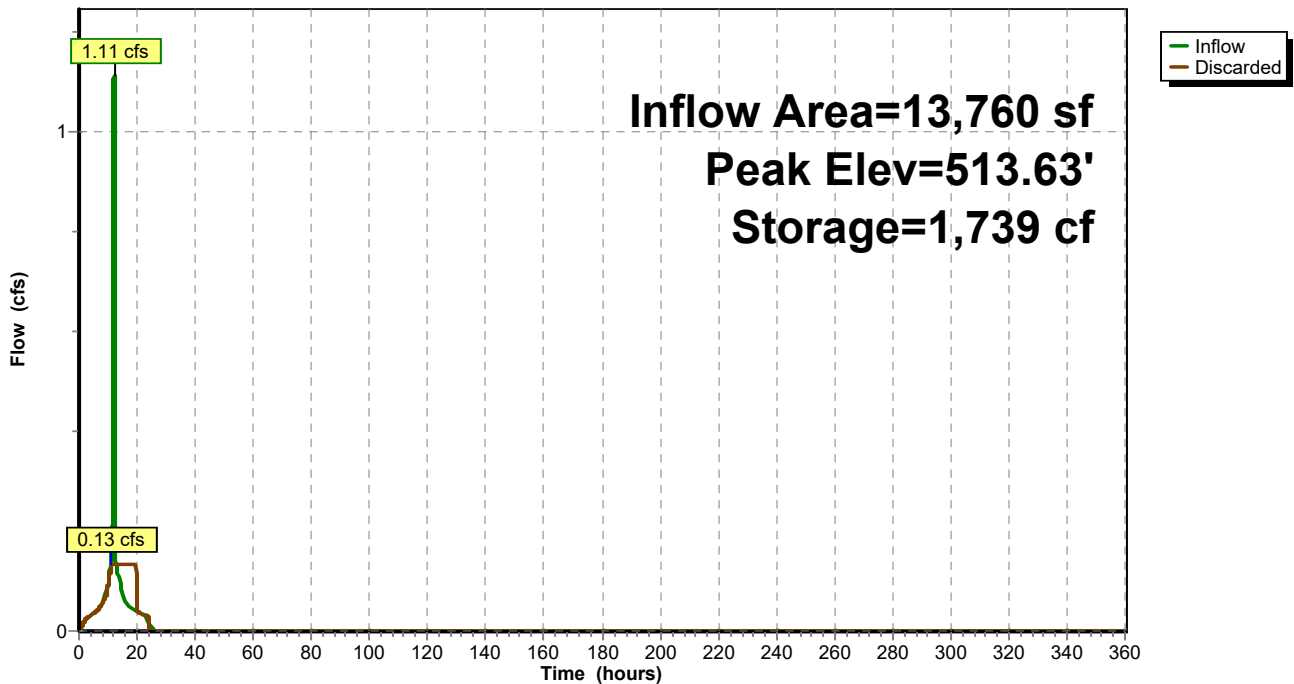
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	511.00'	6.000 in/hr Exfiltration over Horizontal area Phase-In= 0.10'

Discarded OutFlow Max=0.13 cfs @ 10.92 hrs HW=511.11' (Free Discharge)
 ↳ **1=Exfiltration** (Exfiltration Controls 0.13 cfs)

Pond INF 1.1: Infiltration System 1.1

Hydrograph



Morse-50 Middle Patent Road

Prepared by Bibbo Associates, llp.

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NRCC 24-hr D 25-yr Rainfall=6.41"

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Stage-Area-Storage for Pond INF 1.1: Infiltration System 1.1

Elevation (feet)	Horizontal (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Horizontal (sq-ft)	Storage (cubic-feet)
511.00	948	0	514.30	948	2,029
511.05	948	19	514.35	948	2,048
511.10	948	38	514.40	948	2,067
511.15	948	57	514.45	948	2,086
511.20	948	76	514.50	948	2,105
511.25	948	95			
511.30	948	114			
511.35	948	133			
511.40	948	152			
511.45	948	171			
511.50	948	190			
511.55	948	229			
511.60	948	269			
511.65	948	308			
511.70	948	348			
511.75	948	387			
511.80	948	426			
511.85	948	466			
511.90	948	505			
511.95	948	544			
512.00	948	583			
512.05	948	622			
512.10	948	661			
512.15	948	699			
512.20	948	738			
512.25	948	776			
512.30	948	814			
512.35	948	852			
512.40	948	890			
512.45	948	928			
512.50	948	966			
512.55	948	1,003			
512.60	948	1,041			
512.65	948	1,078			
512.70	948	1,116			
512.75	948	1,153			
512.80	948	1,190			
512.85	948	1,226			
512.90	948	1,262			
512.95	948	1,298			
513.00	948	1,333			
513.05	948	1,368			
513.10	948	1,403			
513.15	948	1,437			
513.20	948	1,471			
513.25	948	1,504			
513.30	948	1,537			
513.35	948	1,570			
513.40	948	1,601			
513.45	948	1,633			
513.50	948	1,663			
513.55	948	1,693			
513.60	948	1,723			
513.65	948	1,751			
513.70	948	1,778			
513.75	948	1,804			
513.80	948	1,829			
513.85	948	1,853			
513.90	948	1,875			
513.95	948	1,896			
514.00	948	1,915			
514.05	948	1,934			
514.10	948	1,953			
514.15	948	1,972			
514.20	948	1,991			
514.25	948	2,010			

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NRCC 24-hr D 25-yr Rainfall=6.41"

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Summary for Pond INF 1.2: Infiltration System 1.2

Inflow Area = 42,269 sf, 48.89% Impervious, Inflow Depth = 3.35" for 25-yr event
 Inflow = 0.63 cfs @ 12.12 hrs, Volume= 11,794 cf
 Outflow = 0.22 cfs @ 10.61 hrs, Volume= 11,794 cf, Atten= 65%, Lag= 0.0 min
 Discarded = 0.22 cfs @ 10.61 hrs, Volume= 11,794 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-360.00 hrs, dt= 0.01 hrs
 Peak Elev= 511.07' @ 14.79 hrs Surf.Area= 1,601 sf Storage= 2,370 cf

Plug-Flow detention time= 86.7 min calculated for 11,794 cf (100% of inflow)
 Center-of-Mass det. time= 86.7 min (928.6 - 841.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	509.00'	1,365 cf	30.50'W x 52.50'L x 3.54'H Field A 5,671 cf Overall - 2,258 cf Embedded = 3,413 cf x 40.0% Voids
#2A	509.50'	2,258 cf	Cultec R-330XLHD x 42 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 6 rows
		3,623 cf	Total Available Storage

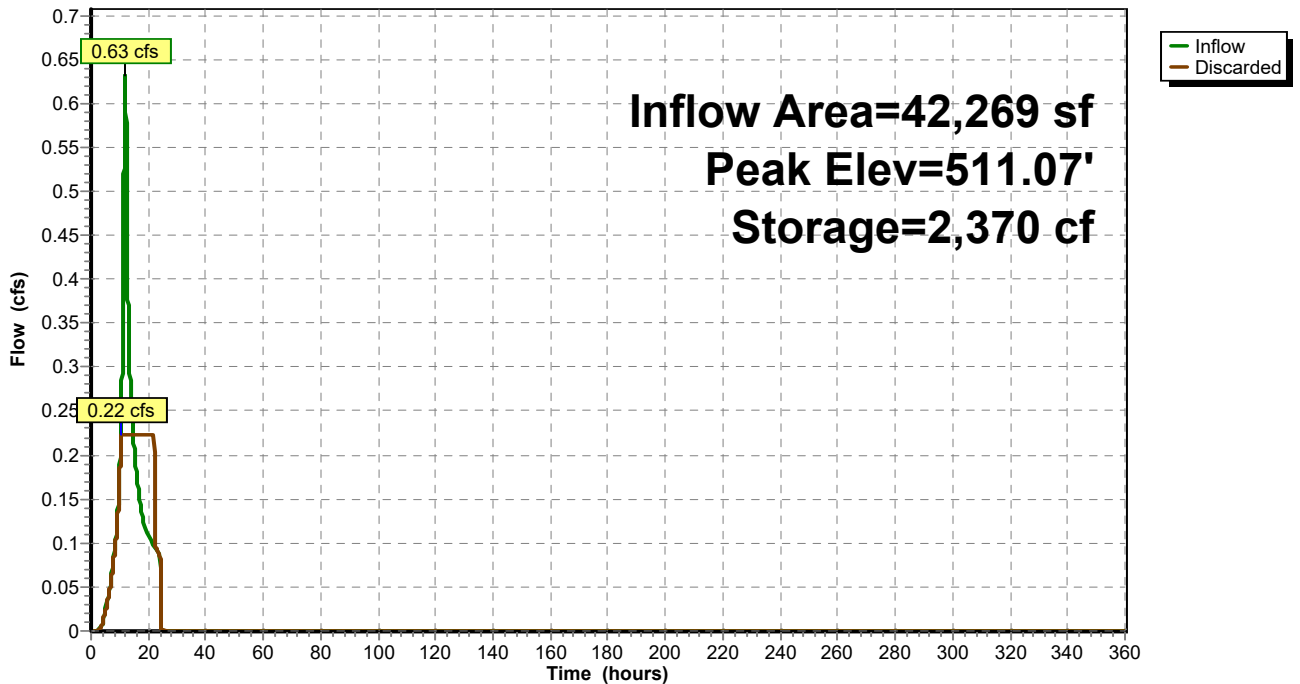
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	509.00'	6.000 in/hr Exfiltration over Horizontal area Phase-In= 0.10'

Discarded OutFlow Max=0.22 cfs @ 10.61 hrs HW=509.11' (Free Discharge)
 ↳ **1=Exfiltration** (Exfiltration Controls 0.22 cfs)

Pond INF 1.2: Infiltration System 1.2

Hydrograph



Stage-Area-Storage for Pond INF 1.2: Infiltration System 1.2

Elevation (feet)	Horizontal (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Horizontal (sq-ft)	Storage (cubic-feet)
509.00	1,601	0	512.30	1,601	3,468
509.05	1,601	32	512.35	1,601	3,500
509.10	1,601	64	512.40	1,601	3,532
509.15	1,601	96	512.45	1,601	3,564
509.20	1,601	128	512.50	1,601	3,596
509.25	1,601	160			
509.30	1,601	192			
509.35	1,601	224			
509.40	1,601	256			
509.45	1,601	288			
509.50	1,601	320			
509.55	1,601	388			
509.60	1,601	456			
509.65	1,601	524			
509.70	1,601	592			
509.75	1,601	659			
509.80	1,601	727			
509.85	1,601	794			
509.90	1,601	861			
509.95	1,601	928			
510.00	1,601	996			
510.05	1,601	1,062			
510.10	1,601	1,129			
510.15	1,601	1,195			
510.20	1,601	1,261			
510.25	1,601	1,326			
510.30	1,601	1,392			
510.35	1,601	1,457			
510.40	1,601	1,522			
510.45	1,601	1,587			
510.50	1,601	1,652			
510.55	1,601	1,716			
510.60	1,601	1,781			
510.65	1,601	1,845			
510.70	1,601	1,909			
510.75	1,601	1,973			
510.80	1,601	2,036			
510.85	1,601	2,099			
510.90	1,601	2,160			
510.95	1,601	2,221			
511.00	1,601	2,282			
511.05	1,601	2,342			
511.10	1,601	2,401			
511.15	1,601	2,460			
511.20	1,601	2,518			
511.25	1,601	2,575			
511.30	1,601	2,631			
511.35	1,601	2,687			
511.40	1,601	2,741			
511.45	1,601	2,795			
511.50	1,601	2,847			
511.55	1,601	2,898			
511.60	1,601	2,948			
511.65	1,601	2,997			
511.70	1,601	3,043			
511.75	1,601	3,088			
511.80	1,601	3,130			
511.85	1,601	3,170			
511.90	1,601	3,207			
511.95	1,601	3,243			
512.00	1,601	3,276			
512.05	1,601	3,308			
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512.15	1,601	3,372			
512.20	1,601	3,404			
512.25	1,601	3,436			

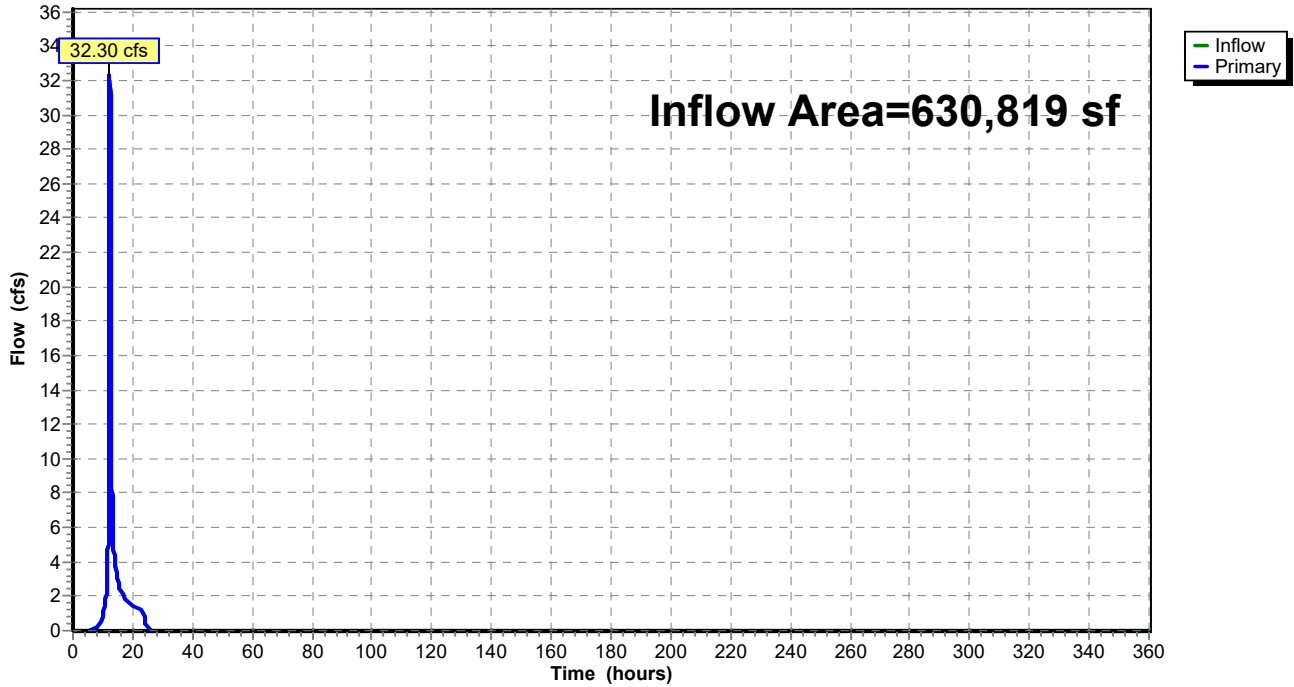
Summary for Link 3L: Design Line

Inflow Area = 630,819 sf, 1.80% Impervious, Inflow Depth = 3.44" for 25-yr event
Inflow = 32.30 cfs @ 12.34 hrs, Volume= 180,858 cf
Primary = 32.30 cfs @ 12.34 hrs, Volume= 180,858 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-360.00 hrs, dt= 0.01 hrs

Link 3L: Design Line

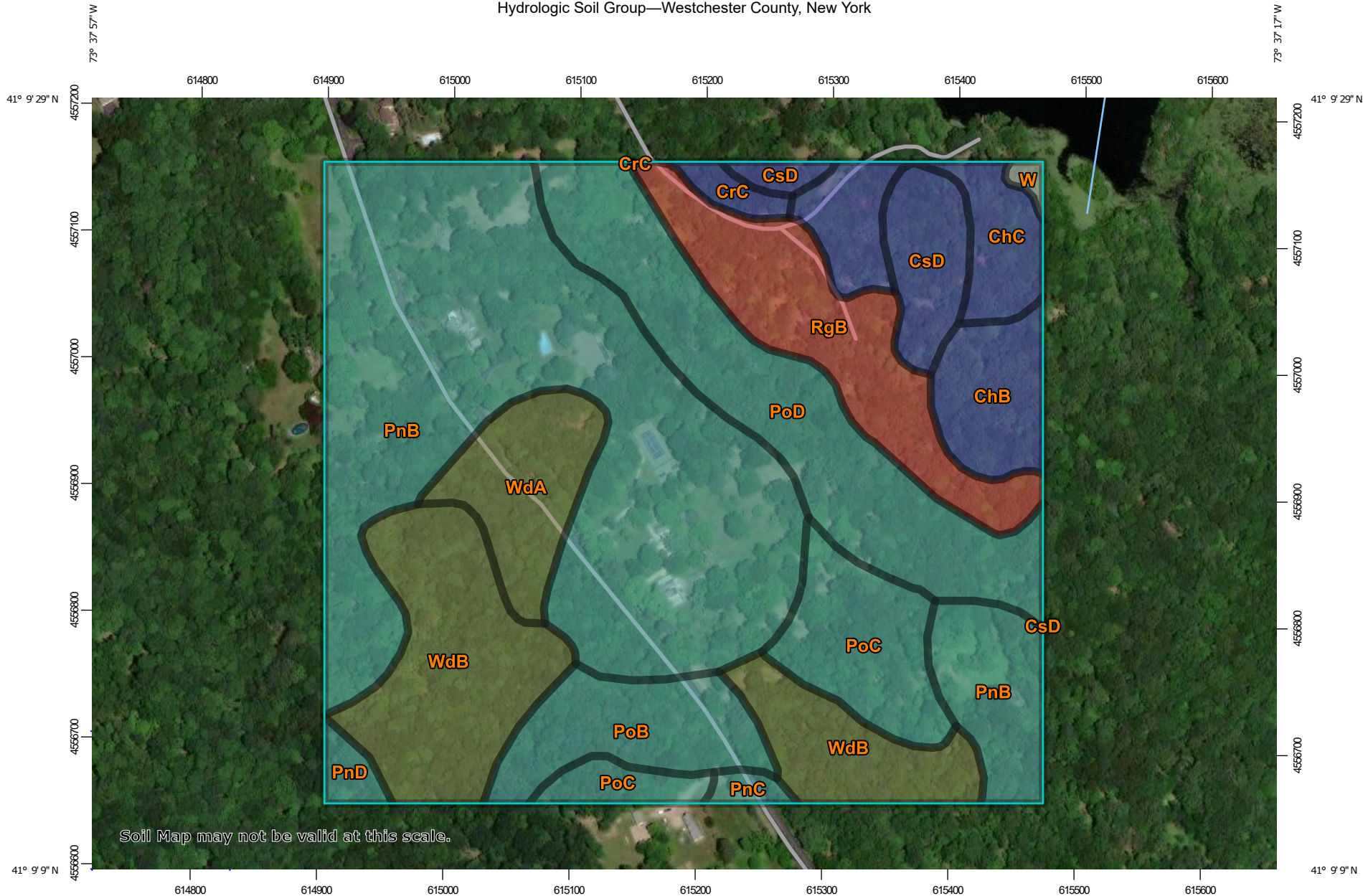
Hydrograph



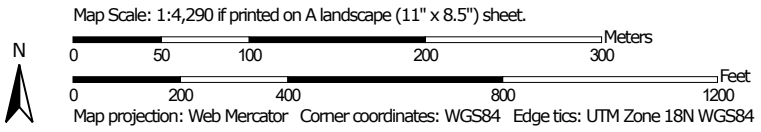


Appendix B:
Soil Map

Hydrologic Soil Group—Westchester County, New York



Soil Map may not be valid at this scale.



MAP LEGEND

Area of Interest (AOI)









 Area of Interest (AOI)

Soils

Soil Rating Polygons





-  A
-  A/D
-  B
-  B/D
-  C
-  C/D
-  D
-  Not rated or not available

Soil Rating Lines

-  A
-  A/D
-  B
-  B/D
-  C
-  C/D
-  D
-  Not rated or not available

Soil Rating Points






-  A
-  A/D
-  B
-  B/D

-  C
-  C/D
-  D
-  Not rated or not available

Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

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 16, Jun 11, 2020

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

Date(s) aerial images were photographed: Dec 31, 2009—Oct 16, 2017

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.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
ChB	Charlton fine sandy loam, 3 to 8 percent slopes	B	2.5	3.5%
ChC	Charlton fine sandy loam, 8 to 15 percent slopes	B	3.2	4.5%
CrC	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	B	0.6	0.8%
CsD	Chatfield-Charlton complex, 15 to 35 percent slopes, very rocky	B	2.5	3.6%
PnB	Paxton fine sandy loam, 3 to 8 percent slopes	C	26.0	36.3%
PnC	Paxton fine sandy loam, 8 to 15 percent slopes	C	0.4	0.5%
PnD	Paxton fine sandy loam, 15 to 25 percent slopes	C	0.5	0.8%
PoB	Paxton fine sandy loam, 0 to 8 percent slopes, very stony	C	3.6	5.0%
PoC	Paxton fine sandy loam, 8 to 15 percent slopes, very stony	C	4.5	6.2%
PoD	Paxton fine sandy loam, 15 to 25 percent slopes, very stony	C	8.8	12.3%
RgB	Ridgebury complex, 0 to 8 percent slopes, very stony	D	5.9	8.2%
W	Water		0.2	0.3%
WdA	Woodbridge loam, 0 to 3 percent slopes	C/D	3.4	4.8%
WdB	Woodbridge loam, 3 to 8 percent slopes	C/D	9.5	13.3%
Totals for Area of Interest			71.5	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



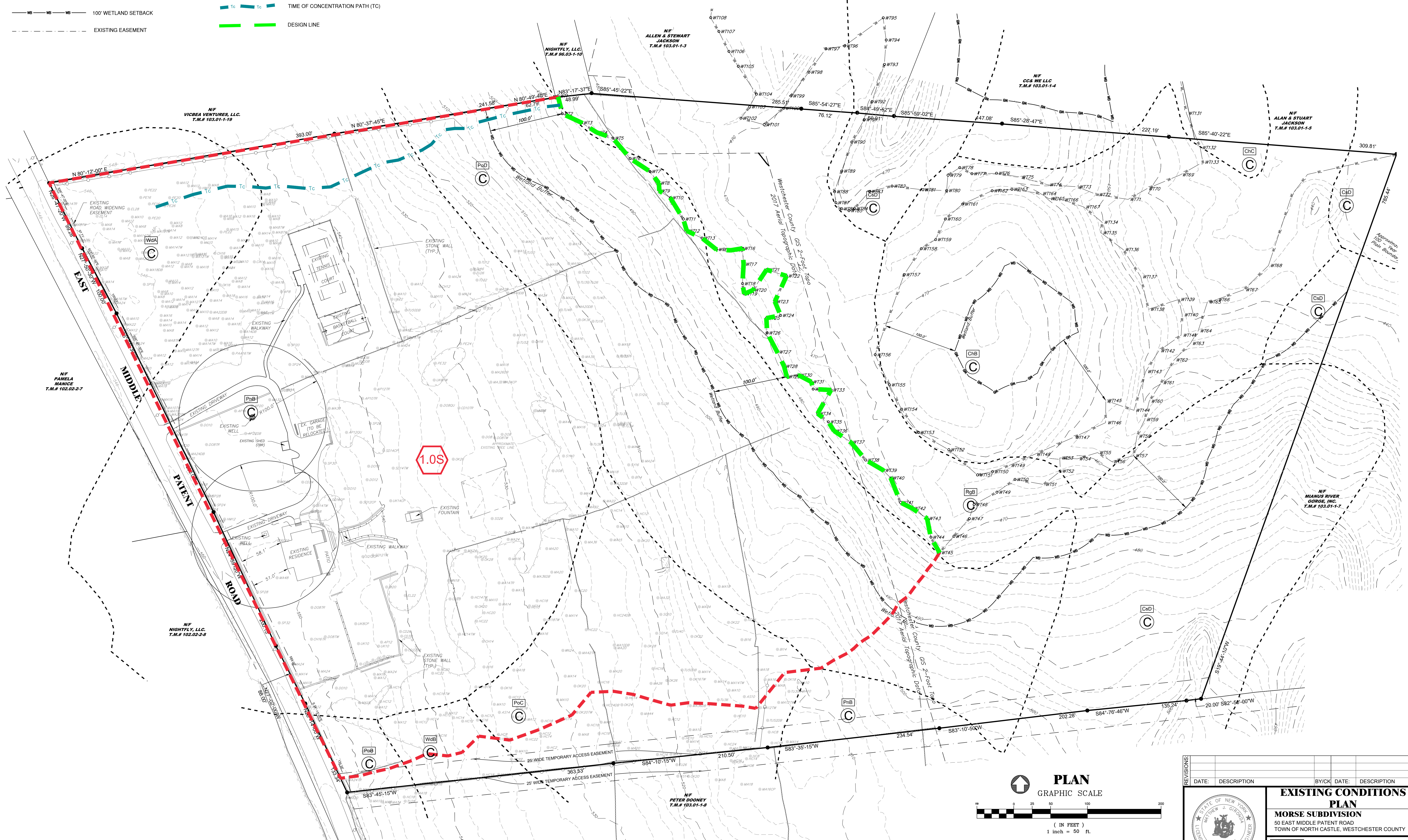
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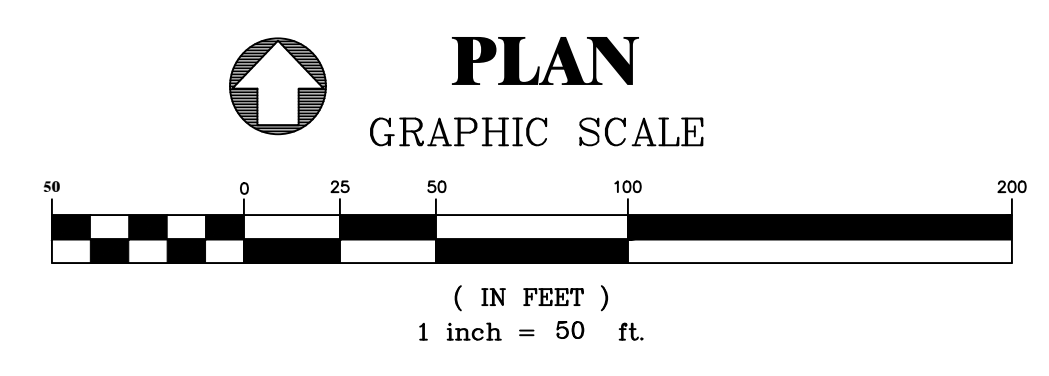
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- - - - - EXISTING 10' CONTOUR
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- ⊙ MA14TW EXISTING TREE
- ⊙ MA14TW EXISTING TREE TO BE REMOVED
- ⊙ EXISTING FENCE
- ⊙ EXISTING WETLAND BOUNDARY
- ⊙ EXISTING 100' WETLAND SETBACK
- - - - - EXISTING EASEMENT

DRAINAGE BASIN LEGEND:

- ChC SOIL TYPE
- (B) SOIL CLASSIFICATION
- - - - - SOIL BOUNDARY
- - - - - BASIN BOUNDARY
- Tc Tc TIME OF CONCENTRATION PATH (TC)
- DESIGN LINE



1.0S



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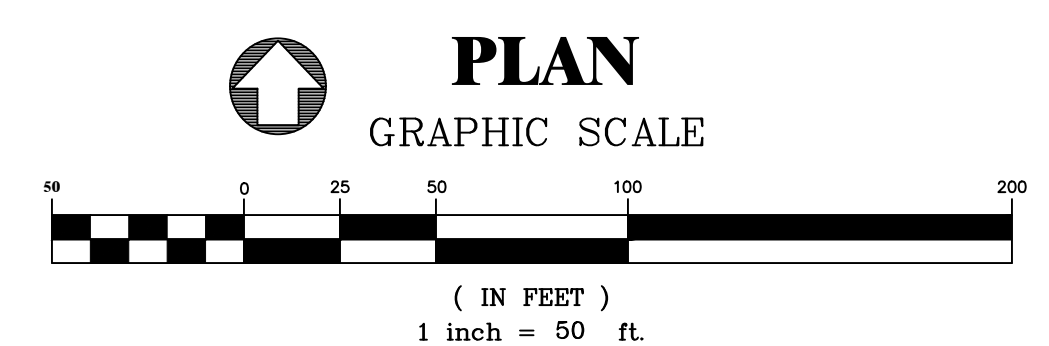
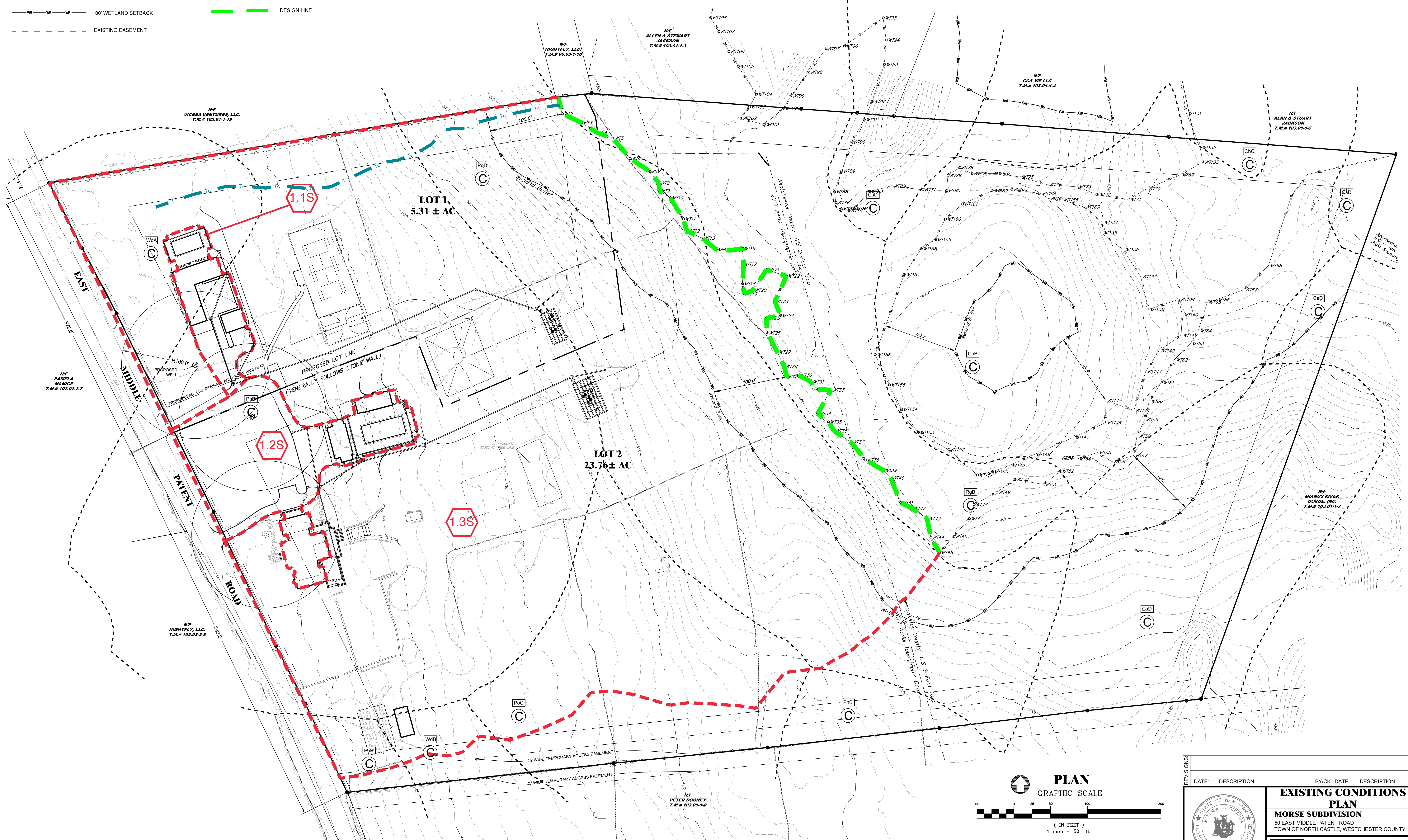
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DSSN / CHK: MG		DRN. BY: MG
SHT NO. FIGURE 1		DWG NO. PRE-1

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- LEGEND:**
- - - - - EXISTING 2' CONTOUR
 - - - - - EXISTING 10' CONTOUR
 - ○ ○ ○ ○ EXISTING STONE WALL
 - EXISTING TREE
 - ✕ EXISTING TREE TO BE REMOVED
 - ○ ○ ○ ○ EXISTING FENCE
 - — — — — WETLAND BOUNDARY
 - — — — — 100' WETLAND SETBACK
 - - - - - EXISTING EASEMENT

- DRAINAGE BASIN LEGEND:**
- ChC SOIL TYPE
 - (B) SOIL CLASSIFICATION
 - - - - - SOIL BOUNDARY
 - - - - - BASIN BOUNDARY
 - — — — — TIME OF CONCENTRATION PATH (TC)
 - — — — — DESIGN LINE



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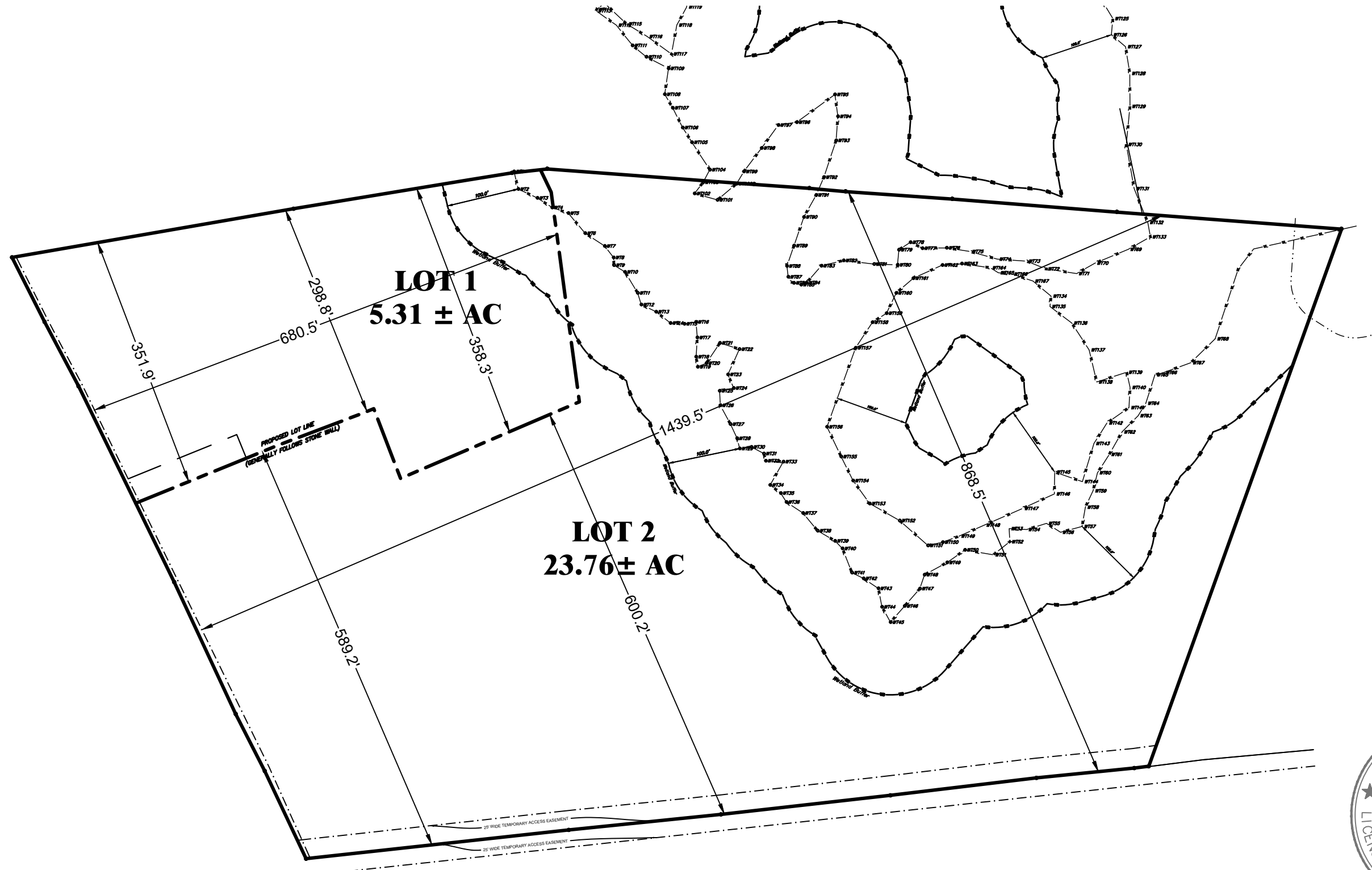
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MORSE SUBDIVISION

50 EAST MIDDLE PATENT ROAD
TOWN OF NORTH CASTLE, WESTCHESTER COUNTY

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SCALE: 1" = 50'
FILE: 1-E
DSSN / CHK: MG
DRN. BY: DRN. BY:
SHT NO: FIGURE 2
DWG NO. **POST-1**

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MATTHEW J. GIRONDA P.E.



PLAN
GRAPHIC SCALE



(IN FEET)
1 inch = 150 ft.

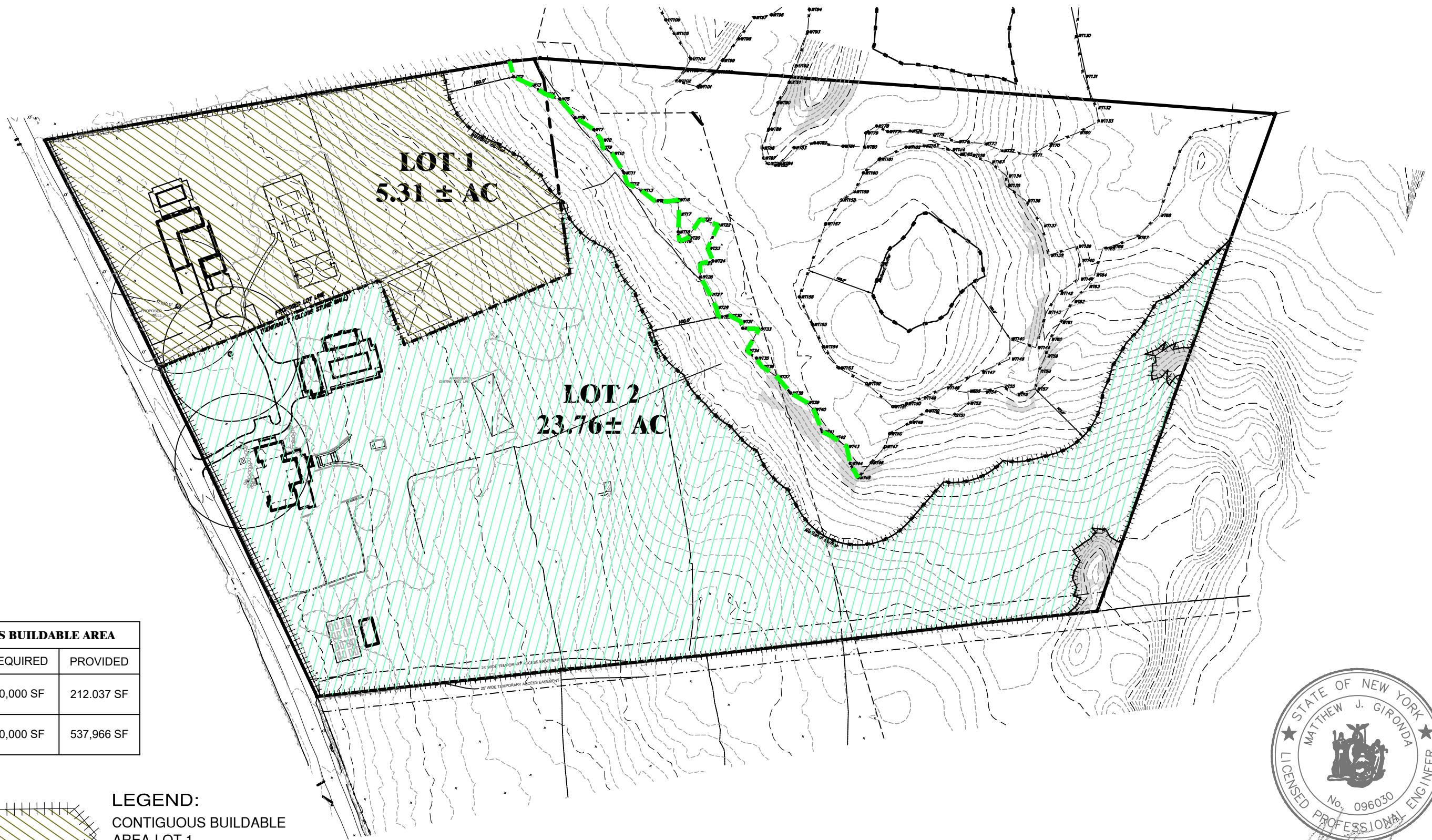
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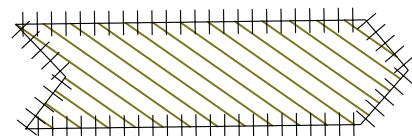
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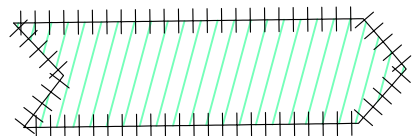
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2	40,000 SF	537,966 SF



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CONTIGUOUS BUILDABLE
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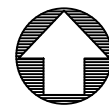
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AREA-LOT 2

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PLAN
GRAPHIC SCALE



(IN FEET)
1 inch = 150 ft.

REVISIONS	DATE	DESCRIPTION	BY/CK	DATE	DESCRIPTION	BY/CK

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		DWG NO. EXB-2
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