



# TOWN OF NORTH CASTLE

WESTCHESTER COUNTY  
17 Bedford Road  
Armonk, New York 10504-1898

RESIDENTIAL PROJECT  
REVIEW COMMITTEE  
Adam R. Kaufman AICP, Chair

Telephone: (914) 273-8625  
Fax: (914) 273-3554  
www.northcastleny.com

## RPRC RETURN LETTER

Application Number: 2023-0863

Street Location: 99 BYRAM RIDGE RD

Zoning District: R-1A      Property Acreage: 1.34      Tax ID: 101.01-1-13

RPRC DECISION: OPEN

Date: 12/05/2023

---

The above referenced application was reviewed by the Residential Project Review Committee (RPRC) on December 5, 2023.

The Committee determined that given the submitted plans, additional information is required to be reviewed prior to a decision of the RPRC.

The following issues should be addressed at this time:

- The proposed house materials and colors should be provided to the RPRC for review.
- The proposed house location shall be moved toward the Northwest.
- All proposed retaining walls shall be revised so as not to exceed six feet in height.
- The Applicant should prepare a landscaping and revegetation plan for review.
- The Applicant's previous submissions indicated a lot size of 1.19 acres. The GLC and GFA worksheets now indicate a lot area of 1.34 acres. The Applicant should submit a survey so that the changed lot area can be confirmed. This is important since the proposed amount of GLC is close to the maximum amount permitted.
- The applicant shall provide an updated As-Built Survey illustrating existing topography, Town regulated trees and the extents of the existing septic system and driveway.
- If available, the applicant shall provide a copy of the Westchester County Department of Health (WCHD) Construction Compliance Approval for the septic system, as constructed. If not available, the applicant will be required to provide documentation from the WCHD approving the previously designed septic system for the current application.

- The plan shall include dimensions for all portions of the driveway, including the courtyard and initial approach. In addition, the back out area for the garage appears to be limited, making access into and out of the garage from the driveway difficult. The applicant shall increase the back up space and improve maneuverability from the driveway entering the garage area. Vehicle turning movements should be provided. Additional consideration should be given to any barriers or extended parapet walls above the retaining wall that may be required, as this will reduce the ability for vehicles to back out of the garage.
- The plan shall include a driveway profile for the full extent of the drive demonstrating compliance with Section 355-59, Driveways, of the Town Code. The profile shall include dimensions, grades and vertical curve data, as needed, to demonstrate compliance with specific provisions related to maximum allowable grades for the platform area and drive. The profile should illustrate the location of the edge of the existing roadway and property line. It is noted that the plan proposes to maintain the upper portion of the drive and connection to the road. However, the existing drive was demolished or is otherwise in need of reconstruction as a result of the prior application.
- All walls greater than four (4) feet in height shall be designed by a NYS Licensed Professional Engineer. Provide construction details and specifications on the plan.
- The plan shall note that the construction of all walls greater than four (4) feet in height shall be certified by the Design Professional prior to issuance of a Certificate of Occupancy/Completion.
- The plan shall illustrate the location for the pool equipment, as well as provisions for seasonal drawdown.
- The plan shall include a pool fence and gate detail. The plan shall delineate the limits of each fence type and locate all gates. The plan shall note that the pool fence and gate shall comply with all applicable NYS Building Code requirements.
- The plan shall illustrate the location of the existing or proposed well and the associated service.
- The plan shall demonstrate that all required separation distances to the existing septic system and drilled well from the house, pool and stormwater mitigation systems have been maintained in compliance with WCHD Regulations.
- The applicant shall perform deep and percolation soil testing in the vicinity of the proposed mitigation system to be witnessed by the Town Engineer. The test locations and results shall be shown on the plan. Contact the Town Engineer to schedule the testing.
- Provide stormwater mitigation and design calculations for the runoff generated by the net increase in impervious surface for the 100-year, 24-hour design storm event. Provide details of the stormwater mitigation system.
- Rain garden sizing calculations shall be provided and follow the NYS Stormwater Management Design Manual (NYS SMDM) guidelines accounting for ponding, soil media and gravel subdrain layer volumes. Provide details and planting requirements for the rain garden. The calculations shall clearly illustrate the tributary drainage area and that said area does not exceed 1,000 s.f., as per the NYS SMDM.
- As Per New York State Department of Environmental Conservation (NYSDEC) guidelines, infiltration chambers shall be installed in virgin soils and cannot be installed on slopes with grades steeper than 15% or in fill sections greater than the top quarter of the drywell system. Both systems appear to be located within areas of steep slopes. The plan shall be revised accordingly.
- The plan shall include emergency overflow provisions for the infiltration systems and rain gardens to a stabilized outfall. In addition, the proposed grass diversion swale should be extended to the rear yard as needed to eliminate the potential impact to adjoining property or to the function of the proposed stormwater mitigation systems. Provide details.

- Provide rims, inverts, size and material for all drainage facilities. Provide details.
- The plan shall illustrate the connection between the pool equipment and drawdown mitigation practice.
- The plan shall illustrate the roof drain and drainage pipe connections on the site plan. Include the size, slope and material. Provide outlet protection details.
- The plan shall illustrate the footing drain location on the site plan. Include the size, slope and material. Provide outlet protection details.
- The plan shall illustrate and quantify the limits of disturbance. The plan shall note that disturbance limits shall be staked in the field prior to construction.
- The plan shall show the location of the septic primary and expansion areas to be cordoned off during construction.
- The Erosion and Sediment Control Plan should include a suggested construction sequence, as well as identify areas of steep slopes to be stabilized with erosion control blankets or other appropriate means. Provide details. The plan shall also include a temporary sediment trap appropriately sized to collect sediment laden runoff during construction prior to discharging from the site.
- As previously requested, the plan shall indicate a maximum curb cut width of 18 feet, as required by the Town Highway Department. Any required restoration within the Town right-of-way shall be illustrated and detailed on the plan.
- The plans shall include a note indicating the source of the survey and topographic data, including the referenced datum, utilized for the development of the plan.

Please submit revised plans addressing the above issues to the RPRC. If revised plans will not be submitted, please contact my office so that the RPRC can reconvene and conclude the review process.

If you would like to further discuss this matter, please do not hesitate to contact my office at 914-273-3000x43.

Adam R. Kaufman, AICP  
Director of Planning

January 2, 2024

Residential Project Review Committee (RPRC)  
Town of North Castle  
17 Bedford Road  
Armonk, NY 10504-1898

**Re: 99 Byram Ridge Road**  
**SBL: 101.01-1-13**  
**Application No. 2023-0863**

Dear Members of the Residential Project Review Committee:

As requested by the RPRC, we have submitting revised drawings for the redevelopment of the property located at 99 Byram Ridge Road.

<u>Dwg No.</u>	<u>Dwg. Name</u>	<u>Date</u>
C-101	Site Layout Plan	01/02/2024
C-102	Grading and Utilities Plan	01/02/2024
C-103	Erosion and Sediment Control Plan	01/02/2024
C-104	Landscape Plan	01/02/2024
C-111	Construction Details	01/02/2024
C-112	Construction Details / Driveway Profile	01/02/2024
C-113	Construction Details	01/02/2024

Also submitted is the following:

Dwg. 1 of 2, "Septic Plan", prepared by Paul A. Berte, P.E., dated 04/24/2022.

Dwg. 2 of 2, "Details", prepared by Paul A. Berte, P.E., dated 04/24/2022.

Stormwater Management Report, dated 01/02/2024, prepared by ALP Engineering & Landscape Architecture, PLLC.

Each of the comments from the RPRC Return Letter dated December 5, 2023 is repeated below in italics followed by the response to the comment.

- *The proposed house materials and colors should be provided to the RPRC for review.*

Response: Please refer to plans and supporting documentation provided by the project architect, Teo Siguenza.

- *The proposed house location shall be moved toward the Northwest.*

Response: The proposed house has been moved 8.5 feet to the northwest, as requested. In the plan previously submitted, the house was 60.8 feet from the northern property line and 66 feet from the eastern property line. In the current plan, it is 52.3 feet from the northern property line and 69.9 feet from the eastern property line.

- *All proposed retaining walls shall be revised so as not to exceed six feet in height.*

Response: The revised plan provides top and bottom of wall elevations and shows that the maximum wall height is 6 feet or less.

- *The Applicant should prepare a landscaping and revegetation plan for review.*

Response: A landscape plan is submitted, as requested.

- *The Applicant's previous submissions indicated a lot size of 1.19 acres. The GLC and GFA worksheets now indicate a lot area of 1.34 acres. The Applicant should submit a survey so that the changed lot area can be confirmed. This is important since the proposed amount of GLC is close to the maximum amount permitted.*

Response: The subject property is 58,278.6 square feet (1.337 acres) in size. The area of the lot has not changed; the prior submission incorrectly noted the size of the property.

- *The applicant shall provide an updated As-Built Survey illustrating existing topography, Town regulated trees and the extents of the existing septic system and driveway.*

Response: Please see the survey prepared for the project, which is submitted by Teo Siguenza Architect.

- *If available, the applicant shall provide a copy of the Westchester County Department of Health (WCHD) Construction Compliance Approval for the septic system, as constructed. If not available, the applicant will be required to provide documentation from the WCHD approving the previously designed septic system for the current application.*

Response: Enclosed please find the WCDOH approved septic system plan for a proposed five (5) bedroom house.

*• The plan shall include dimensions for all portions of the driveway, including the courtyard and initial approach. In addition, the back out area for the garage appears to be limited, making access into and out of the garage from the driveway difficult. The applicant shall increase the back up space and improve maneuverability from the driveway entering the garage area. Vehicle turning movements should be provided. Additional consideration should be given to any barriers or extended parapet walls above the retaining wall that may be required, as this will reduce the ability for vehicles to back out of the garage.*

Response: The driveway has been adjusted with the modification of the location of the house. Under the revised plan, the backup space from the garage to the edge of pavement is 35', which is more than sufficient for vehicle maneuvering. In addition, the layout plan shows the motion of a full-size passenger vehicle in maneuvering the turn to the northeast of the house, and for the turn to the southeast of the house. The revised plan shows that a full-size passenger vehicle will be able to turn directly into garage spaces 1 and 2, but will need to do a 3-point turn to enter the garage space 3.

*• The plan shall include a driveway profile for the full extent of the drive demonstrating compliance with Section 355-59, Driveways, of the Town Code. The profile shall include dimensions, grades and vertical curve data, as needed, to demonstrate compliance with specific provisions related to maximum allowable grades for the platform area and drive. The profile should illustrate the location of the edge of the existing roadway and property line. It is noted that the plan proposes to maintain the upper portion of the drive and connection to the road. However, the existing drive was demolished or is otherwise in need of reconstruction as a result of the prior application.*

Response: Please refer to the driveway profile on drawing C-112. As can be seen in the profile, the maximum centerline of driveway slope is proposed to be 10.02%, with the driveway slope being 1.86% along the front of the house, and 4.55% and 6.73% in driving down to the garage apron.

*• All walls greater than four (4) feet in height shall be designed by a NYS Licensed Professional Engineer. Provide construction details and specifications on the plan.*

Response: So noted.

- *The plan shall note that the construction of all walls greater than four (4) feet in height shall be certified by the Design Professional prior to issuance of a Certificate of Occupancy/Completion.*

Response: So noted. The note has been added to drawing C-101.

- *The plan shall illustrate the location for the pool equipment, as well as provisions for seasonal drawdown.*

Response: The location of the pool equipment pad is shown on the drawings C-101 and C-102. Six (6) inches of pool drawdown from the pool (18' x 36' x 6") equals 324 cubic feet of water. Pool drawdown is proposed to be discharged into the proposed Rain Garden #2 which has more than sufficient capacity to handle the flow.

- *The plan shall include a pool fence and gate detail. The plan shall delineate the limits of each fence type and locate all gates. The plan shall note that the pool fence and gate shall comply with all applicable NYS Building Code requirements.*

Response: The amended plans (see drawing C-101 and C-102) show the location of the proposed pool fence and gates. The pool fence is to extend from the house to the northern property line. The pool fence will also be constructed from a retaining wall to the southern property line. A chain link fence will be constructed along the property line in the side and rear yard as shown. A detail of the proposed pool fence and gate and notes regarding the installation of the fence are on drawing C-113.

- *The plan shall illustrate the location of the existing or proposed well and the associated service.*

Response: The proposed well is shown on drawing C-102, as well as the separation distance from stormwater management practices. The location of the existing well to be abandoned is also shown on drawing C-102.

- *The plan shall demonstrate that all required separation distances to the existing septic system and drilled well from the house, pool and stormwater mitigation systems have been maintained in compliance with WCHD Regulations.*

Response: The plans have been designed in conformance with the Westchester County Department of Health (WCDOH) separation requirements. The following separation distances are provided:

Feature	Required Separation Distance (in feet)	Provide Separation Distance (in feet)
Rain Garden to Proposed SSTA	20 feet	25 feet
Rain Garden to Proposed Well	50 feet (from roof runoff)	55 feet
Proposed SSTA to Pool	35 feet	35.5 feet
House to SSTA	20 feet	60 feet

• *The applicant shall perform deep and percolation soil testing in the vicinity of the proposed mitigation system to be witnessed by the Town Engineer. The test locations and results shall be shown on the plan. Contact the Town Engineer to schedule the testing.*

Response: Testing will be scheduled as required.

• *Provide stormwater mitigation and design calculations for the runoff generated by the net increase in impervious surface for the 100-year, 24-hour design storm event. Provide details of the stormwater mitigation system.*

Response: The attached Stormwater Management Plan Report provides the supporting calculations which show that the peak rate of runoff following the redevelopment of the property will be less than the existing peak rate of runoff for the 1-year through 100-year storm events. Details of the stormwater mitigation system, consisting of subsurface water-tight pipes for stormwater detention purposes and rain gardens) are provided on drawing C-112.

• *Rain garden sizing calculations shall be provided and follow the NYS Stormwater Management Design Manual (NYS SMDM) guidelines accounting for ponding, soil media and gravel subdrain layer volumes. Provide details and planting requirements for the rain garden. The calculations shall clearly illustrate the tributary drainage area and that said area does not exceed 1,000 s.f., as per the NYS SMDM.*

Response: Rain garden calculation sizing for each of the three proposed rain gardens is provided in the Stormwater Management Report. As is noted in the 2015 New York State *Stormwater Management Design Manual*, “a single rain garden system *should* be designed to receive sheet flow runoff or shallow concentrated flow from an impervious area or from a roof drain downspout with a total contributing drainage area equal to or less than 1,000 square feet.” The use of the word “should” and not “shall” in the *Stormwater Management*



*Design Manual* means that there is discretion on the part of the designers and reviewers with regard to this threshold. In that the exceedance is minimal, the use of a rain garden versus a bioretention practice is appropriate.

- *As Per New York State Department of Environmental Conservation (NYSDEC) guidelines, infiltration chambers shall be installed in virgin soils and cannot be installed on slopes with grades steeper than 15% or in fill sections greater than the top quarter of the drywell system. Both systems appear to be located within areas of steep slopes. The plan shall be revised accordingly.*

Response: The revised plans do not include infiltration chambers for stormwater management purposes.

- *The plan shall include emergency overflow provisions for the infiltration systems and rain gardens to a stabilized outfall. In addition, the proposed grass diversion swale should be extended to the rear yard as needed to eliminate the potential impact to adjoining property or to the function of the proposed stormwater mitigation systems. Provide details.*

Response: Each of the three rain gardens as well as the subsurface detention practice discharge to a level spreader. The rain gardens all have a vertical pipe outlet control structure to serve as the overflow.

- *Provide rims, inverts, size and material for all drainage facilities. Provide details.*

Response: Rim and invert elevations, and size and material for all drainage facilities is provided on drawing C-102. Details are provided on drawings C-112 and C-113.

- *The plan shall illustrate the connection between the pool equipment and drawdown mitigation practice.*

Response: The connection between the pool equipment and drawdown mitigation is shown on drawing C-102.

- *The plan shall illustrate the roof drain and drainage pipe connections on the site plan. Include the size, slope and material. Provide outlet protection details.*

Response: Roof drain leader locations are shown on the revised plans (see drawing C-102). The storm drainage pipe connections of the roof drains to the storm drainage system are also shown on this plan. The table on drawing C-102 shows the size and slope of the pipes from

the roof drain leaders. See drawing C-111 for the outlet protection (rip rap apron – energy dissipator) detail. The notes on drawing C-102 provide the type of material for the storm drainage pipe and water service from the well into the house.

- *The plan shall illustrate the footing drain location on the site plan. Include the size, slope and material. Provide outlet protection details.*

Response: The proposed footing drain pipes are depicted on the submitted plans (see drawing C-102). Footing drains are to consist of 4” diameter PVC pipes.

- *The plan shall illustrate and quantify the limits of disturbance. The plan shall note that disturbance limits shall be staked in the field prior to construction.*

Response: The area of disturbance is shown on drawing C-103 and is calculated to be 44,885 square feet (1.030 acres). The notes on drawings C-101, C-102 and C-103 state that the disturbance limits shall be staked in the field prior to construction.

- *The plan shall show the location of the septic primary and expansion areas to be cordoned off during construction.*

Response: Drawing C-103 shows the primary and 100% expansion areas will be cordoned off with construction fence and with silt fence during construction.

- *The Erosion and Sediment Control Plan should include a suggested construction sequence, as well as identify areas of steep slopes to be stabilized with erosion control blankets or other appropriate means. Provide details. The plan shall also include a temporary sediment trap appropriately sized to collect sediment laden runoff during construction prior to discharging from the site.*

Response: The Construction Sequence Narrative may be referenced on drawing C-103. The location of an erosion control mat is shown on that drawing with the detail provided on drawing C-112.

- *As previously requested, the plan shall indicate a maximum curb cut width of 18 feet, as required by the Town Highway Department. Any required restoration within the Town right-of-way shall be illustrated and detailed on the plan.*

Response: The existing curb cut to Byram Ridge Road is not proposed to be modified. The width of the curb cut measures approximately 15.5 feet.

Residential Project Review Committee (RPRC)

January 2, 2024

Page 8

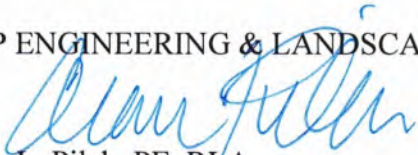
• *The plans shall include a note indicating the source of the survey and topographic data, including the referenced datum, utilized for the development of the plan.*

Response: Project surveyor is Edward T. Gannon, PLS of Blooming Grove, New York. The project datum appears to be a point on Byram Ridge Road which was assigned by the surveyor to be elevation 100.0 feet.

We trust that the enclosed revised drawings and SWPPP report satisfactorily address the RPRC comments. If you have any questions regarding this submission, please feel free to contact me on my direct line at (475) 215-5343 or my cell phone at (203) 710-0587.

Sincerely,

ALP ENGINEERING & LANDSCAPE ARCHITECTURE, PLLC



Alan L. Pilch, PE, RLA  
Principal

cc: Teo Siguenza (via email)  
Jackie and Brian Berkin (via email)



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](http://www.northcastleny.com)

### GROSS LAND COVERAGE CALCULATIONS WORKSHEET

Application Name or Identifying Title: Residence at Byram Ridge Rd Date: 11-21-2023

Tax Map Designation or Proposed Lot No.: 101.01-1-13

#### Gross Lot Coverage

1. Total lot Area (Net Lot Area for Lots Created After 12/13/06): 57,935 SF
2. Maximum permitted gross land coverage (per Section 355-26.C(1)(b)): 10,644 SF
3. BONUS maximum gross land cover (per Section 355-26.C(1)(b)):  
Distance principal home is beyond minimum front yard setback  
15 x 10 = 150 150
4. TOTAL Maximum Permitted gross land coverage - Sum of lines 2 and 3 10,794 SF
5. Amount of lot area covered by principal building:  
existing + 3,732 proposed - 3,732 SF
6. Amount of lot area covered by accessory buildings:  
existing + 0 proposed - 0
7. Amount of lot area covered by decks:  
existing + 881 proposed - 881 SF  
(Elevated deck porch under)
8. Amount of lot area covered by porches:  
existing + 88 proposed - 88 SF
9. Amount of lot area covered by driveway, parking areas and walkways:  
existing + 4,746 proposed - 4,746 SF
10. Amount of lot area covered by terraces:  
existing + 220 proposed - 220 SF
11. Amount of lot area covered by tennis court, pool and mechanical equip:  
existing + 648 proposed - 648 SF
12. Amount of lot area covered by all other structures:  
0 existing + 256 proposed - 256 SF  
(structural walls)
13. Proposed gross land coverage: Total of Lines 5 - 12 - 10,571 SF

If Line 13 is less than or equal to Line 4, your proposal complies with the Town's maximum gross land coverage regulations and the project may proceed to the Residential Project Review Committee for review. If Line 13 is greater than Line 4 your proposal does not comply with the Town's regulations.

Signature and Seal of Professional Preparing Worksheet



11-21-2023  
Date



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

PLANNING DEPARTMENT  
Adam R. Kaufman, AICP  
Director of Planning

January 29, 2019  
Telephone: (914) 273-3542  
Fax: (914) 273-3554  
[www.northcastleny.com](http://www.northcastleny.com)

## FLOOR AREA CALCULATIONS WORKSHEET

Application Name or Identifying Title: Residence at Byram Ridge Rd Date: 11-21-2023

Tax Map Designation or Proposed Lot No.: 101.01-1-13

### Floor Area

- |     |                                                                                                                                                               |                   |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| 1.  | Total Lot Area (Net Lot Area for Lots Created After 12/13/06):                                                                                                | <u>57,935 SF</u>  |
| 2.  | Maximum permitted floor area (per Section 355-26.B(4)):                                                                                                       | <u>8,589.5 SF</u> |
| 3.  | Amount of floor area contained within first floor:<br>- _____ existing + <u>2,915</u> proposed = _____                                                        | <u>2,915 SF</u>   |
| 4.  | Amount of floor area contained within second floor:<br>- _____ existing + <u>2,888</u> proposed = _____                                                       | <u>2,888 SF</u>   |
| 5.  | Amount of floor area contained within garage:<br>- _____ existing + <u>817</u> proposed = _____                                                               | <u>817 SF</u>     |
| 6.  | Amount of floor area contained within porches capable of being enclosed:<br>- _____ existing + <u>969</u> proposed = _____<br>(basement porch(elevated deck)) | <u>969 SF</u>     |
| 7.  | Amount of floor area contained within basement (if applicable - see definition):<br>- _____ existing + <u>0</u> proposed = _____                              | <u>0</u>          |
| 8.  | Amount of floor area contained within attic (if applicable - see definition):<br>- _____ existing + <u>98</u> proposed = _____                                | <u>98 SF</u>      |
| 9.  | Amount of floor area contained within all accessory buildings:<br>- _____ existing + <u>0</u> proposed = _____                                                | <u>0</u>          |
| 10. | Proposed floor area: Total of Lines 3 - 9 = _____                                                                                                             | <u>7,687 SF</u>   |

If Line 10 is less than or equal to Line 2, your proposal **complies** with the Town's maximum floor area regulations and the project may proceed to the Residential Project Review Committee for review. If Line 10 is greater than Line 2 your proposal does not comply with the Town's regulations.

Signature and Seal of Professional Preparing Worksheet



11-21-1023  
Date

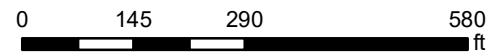
# 99 BYRAM RIDGE RD. ID: 101.01-1-13 (North Castle )



November 20, 2023

Tax parcel data was provided by local municipality. This map is generated as a public service to Westchester County residents for general information and planning purposes only, and should not be relied upon as a sole informational source. The County of Westchester hereby disclaims any liability from the use of this GIS mapping system by any person or entity. Tax parcel boundaries represent approximate property line location and should NOT be interpreted as or used in lieu of a survey or property boundary description. Property descriptions must be obtained from surveys or deeds. For more information please contact local municipality assessor's office.

1:3,000



**Westchester County GIS**

**GIS**  
<http://giswww.westchestergov.com>  
Michaelian Office Building  
148 Martine Avenue Rm 214  
White Plains, New York 10601





GENERAL NOTES:  
 1. DO NOT SCALE DRAWINGS FOR CONSTRUCTION PURPOSES  
 2. ALL DIMENSIONS TO BE CHECKED  
 3. CONTRACTOR IS OBLIGED TO REPORT ALL ERRORS AND OMISSIONS TO THE ARCHITECT

DATE:	REVISION

PROJECT  
**RESIDENCE AT BYRAM RIDGE ROAD**  
 SINGLE FAMILY RESIDENCE

99 BYRAM RIDGE ROAD  
 ARMONK, NY

DRAWING TITLE  
**PROPOSED STREET SIDE PERSPECTIVE AND MATERIALS & COLORS**

SEAL



DATE  
**1-2-24**

SCALE  
 AS NOTED

DRAWING NO.

**R201.00**

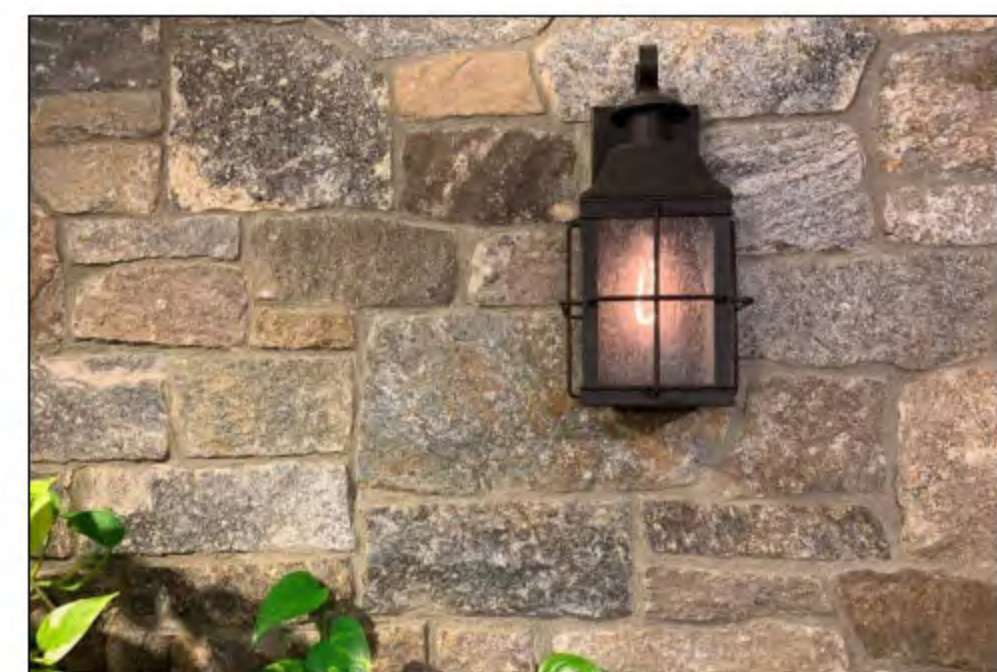
PAGE NO.



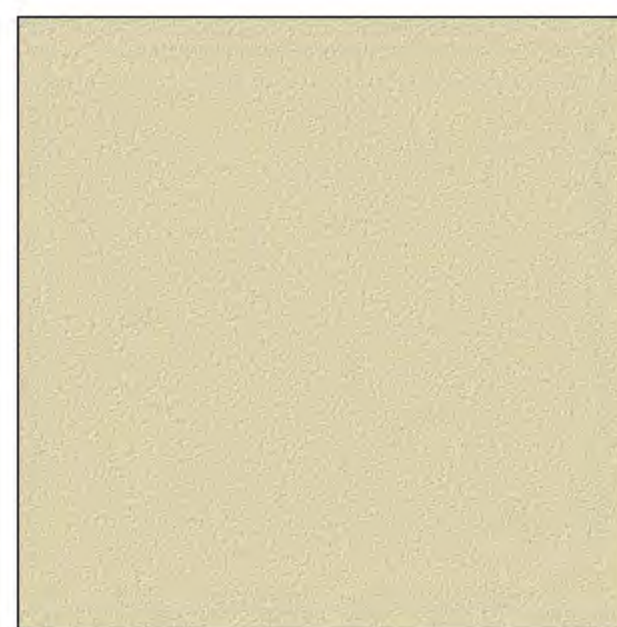
GAF Architectural grade fiberglass Weathered\_wood (Dark Gray)



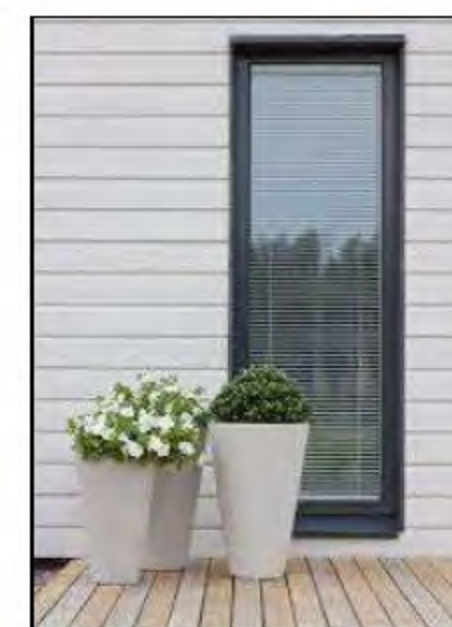
Metal Roofing, Charcoal gray



Connecticut field stone (Thin square and rectangle) (Weathered Granite warm gray, brown and rust)



Stucco (3 coat system) off-white (Warm gray)



Window and Exterior doors (Aluminum, charcoal gray clad)

Material Schedule for Proposed Residence		
MATERIAL	TYPE	COLOR
Siding	Stucco	Off White (warm gray)
Exterior Doors & Windows	Aluminum Clad- Wood	Charcoal gray
Roofing	GAF Architectural grade fiberglass roof and metal	Weathered_wood (Dark Gray)
Stone	Fieldstone Veneer	Connecticut Fieldstone
Bracket	Painted cedar	Light gray
Gutters & Leaders	Metal	Charcoal gray
Exterior Railing	Powder coated metal	Charcoal gray



**TABLE OF LAND USE / BULK REGULATIONS**

Berkin Residence  
99 Byram Ridge Road  
Armonk, New York

**NOTES:**

- All walls greater than four (4) feet in height shall be certified by the Design Professional prior to issuance of a Certificate of Occupancy/Completion.
- Disturbance limits shall be staked in the field prior to construction.
- Septic system design was done by Paul A. Berte, P.E., Ossining, NY 10562.

SHEET 101.1, BLOCK 1, LOT 13  
ZONING DISTRICT R-1A (1 ACRE, One Family Residential District)

MINIMUM LOT SIZE	REQUIRED / PERMITTED	PROPOSED
Lot Area (in square feet)	43,560 SF	58,278.6 SF
Frontage (feet)	125	138
Width (feet)	125	195
Depth (feet)	150	291

**MINIMUM YARDS**

Front Yard (feet)	50'	69.9'
Side Yard (feet)	40'	49' / 62.3'
Rear Yard (feet)	50'	146

**MAXIMUM HEIGHT**

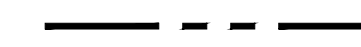
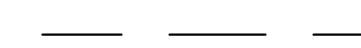

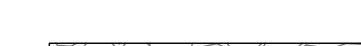
Feet	30	< 30 ft
------	----	---------

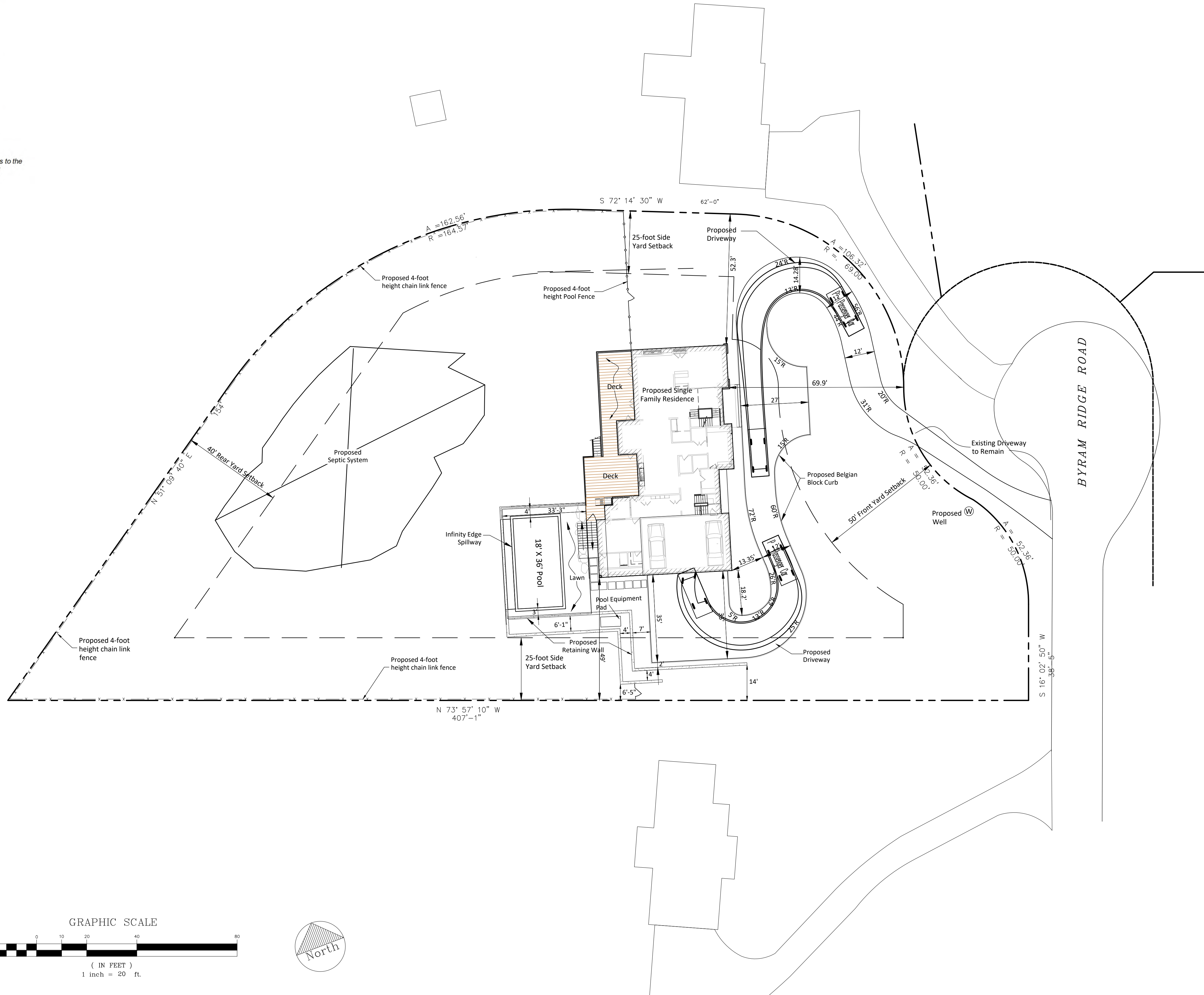
**BUILDING COVERAGE (percent of lot area)**

Maximum Building Coverage (percent)	15%	7.59%
-------------------------------------	-----	-------

*Note:* No variances are required and there are no existing nonconformities to the requirements of the R-1A district zone as per Section 355-21, Schedule of Residence District Regulations

**LEGEND**

-  PROPERTY LINE
-  SETBACK LINE
-  EDGE OF PAVEMENT
-  PROPOSED STRUCTURAL WALL



**CONSULTANTS:**

Architect:  
TEO SIGUENZA ARCHITECTS  
460 OLD POST ROAD  
BEDFORD, NEW YORK 10506  
Tel. 914.234.6289 Fax 914.234.0619

Surveyor:  
Edward T. Gannon, PLS  
Cherry Hill Road,  
Blooming Grove, NY 10914

**ISSUED:**

Revised as per comments of RPRC	01/02/2024

**OWNERSHIP AND USE OF DOCUMENTS**

UNAUTHORIZED ALTERATIONS AND ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209(2) OF THE NEW YORK STATE EDUCATION LAW.

No part of these drawings shall be copied, disclosed to others or used in connection with any work or project other than for which they have been prepared without the express written consent of the licensed professional who prepared the document.



**PROJECT NAME:**  
**BERKIN PROPERTY**  
99 Byram Ridge Road  
Armonk, New York 10504  
SBL: 101.01-1-13

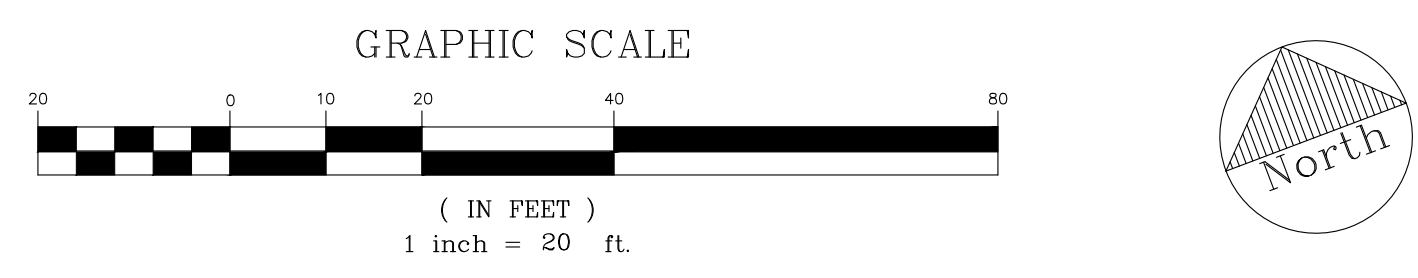
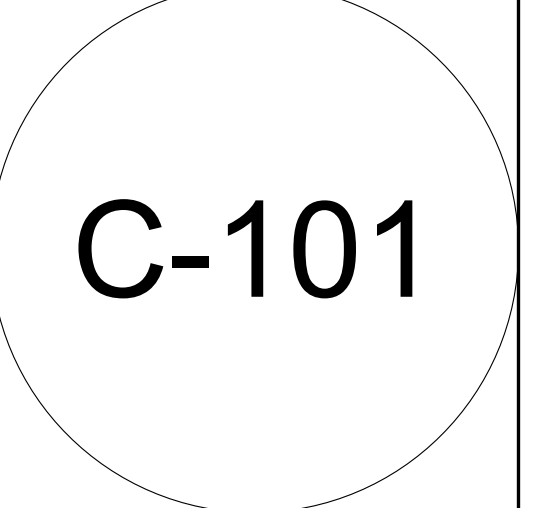
**ENGINEER & LANDSCAPE ARCHITECT:**  
**ALP ENGINEERING & LANDSCAPE ARCHITECTURE, PLLC**  
P.O. Box 843, Ridgefield, CT 06877  
Direct Tel: (475) 215-5343 Cell (203) 710-0587

Drawing Title:  
**Site Layout Plan**

Date: December 8, 2023

Dwn. by: alp

ID: 99 Byram Ridge Rd\_12-06-2023.6


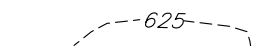



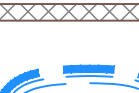



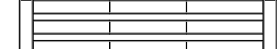


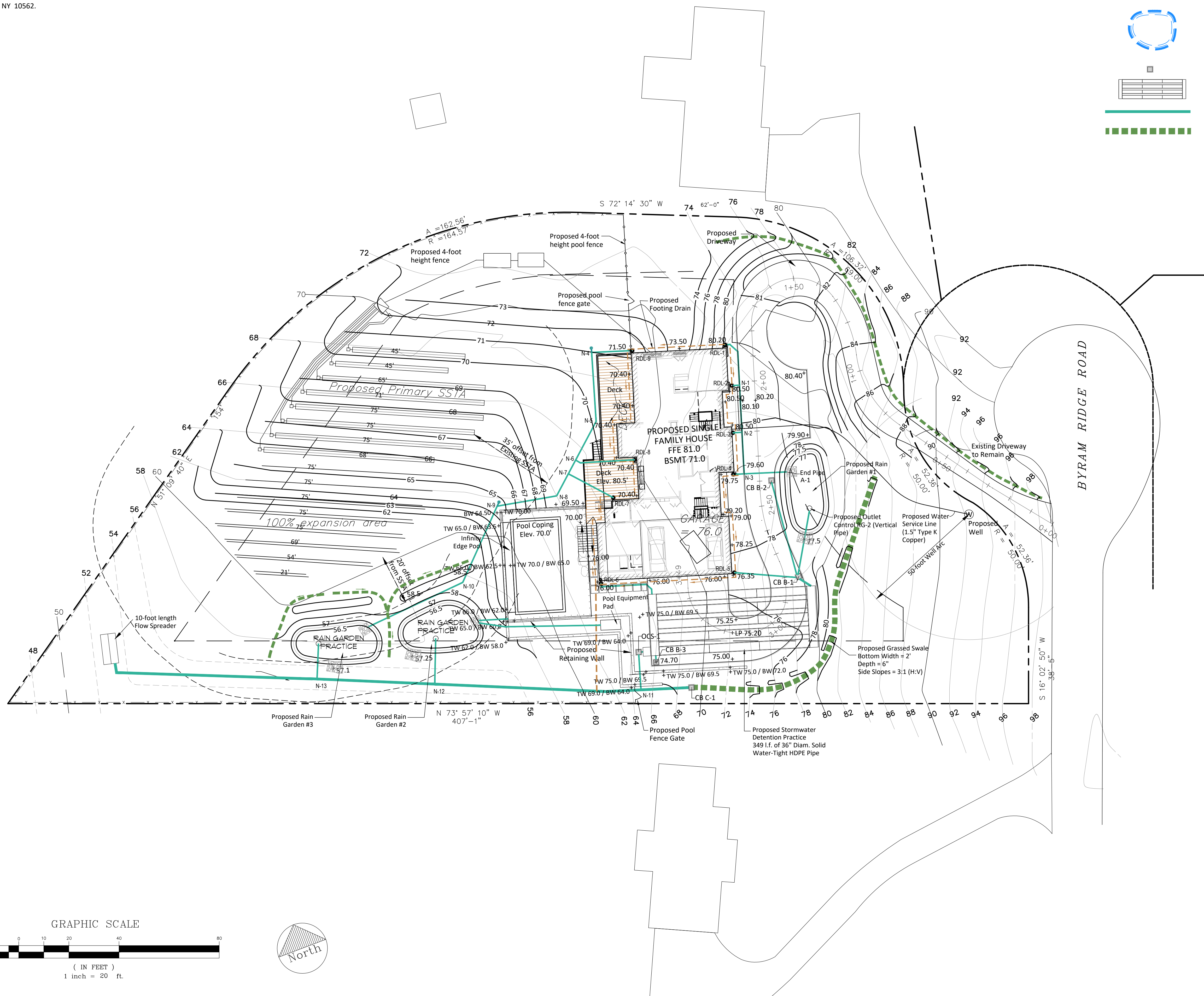
Civil Engineer  
Alan L. Plich  
ALP Engineering & Landscape Architecture, PLLC  
P.O. Box 843, Ridgefield, CT 06877  
P.E. #90167  
C. of A. #001633  
Tel: (475) 215-5343

**NOTES:**

- All walls greater than four (4) feet in height shall be certified by the Design Professional prior to issuance of a Certificate of Occupancy/Completion.
- Disturbance limits shall be staked in the field prior to construction.
- All storm drainage pipes (8" or larger) shall be smooth interior corrugated polyethylene drainage pipe (CPDP) and shall be N-12 pipe as manufactured by Advanced Drainage Systems (ADS), or approved equal. 4" and 6" drainage pipes shall be Schedule 35 PVC.
- Septic system design was done by Paul A. Berte, P.E., Ossining, NY 10562.

**LEGEND**

-  PROPERTY LINE
-  EXISTING CONTOUR
-  PROPOSED CONTOUR
-  PROPOSED GARDEN WALL
-  PROPOSED STRUCTURAL WALL
-  PROPOSED RAIN GARDEN/BIORETENTION
-  PROPOSED CATCH BASIN
-  PROPOSED STORMWATER DETENTION
-  PROPOSED STORM DRAINAGE PIPE
-  PROPOSED GRASSED SWALE



**CONSULTANTS:**

Architect:  
TEO SIGUENZA ARCHITECTS  
460 OLD POST ROAD  
BEDFORD, NEW YORK 10506  
Tel. 914.234.6289 Fax 914.234.0619

Surveyor:  
Edward T. Gannon, PLS  
Cherry Hill Road,  
Blooming Grove, NY 10914

**ISSUED:**

Revised as per comments of RPRC 01/02/2024

**OWNERSHIP AND USE OF DOCUMENTS**

UNAUTHORIZED ALTERATIONS AND ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209(2) OF THE NEW YORK STATE EDUCATION LAW.

No part of these drawings shall be copied, disclosed to others or used in connection with any work or project other than for which they have been prepared without the express written consent of the licensed professional who prepared the document.

**SEAL:**



PROJECT NAME:  
**BERKIN PROPERTY**  
99 Byram Ridge Road  
Armonk, New York 10504  
SBL: 101.01-1-13

ENGINEER & LANDSCAPE ARCHITECT:  
**ALP ENGINEERING & LANDSCAPE ARCHITECTURE, PLLC**  
P.O. Box 843 Ridgefield, CT 06877  
Direct Tel. (475) 215-5343 Cell (203) 710-0587

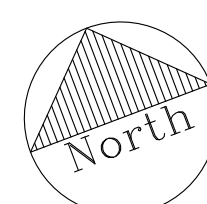
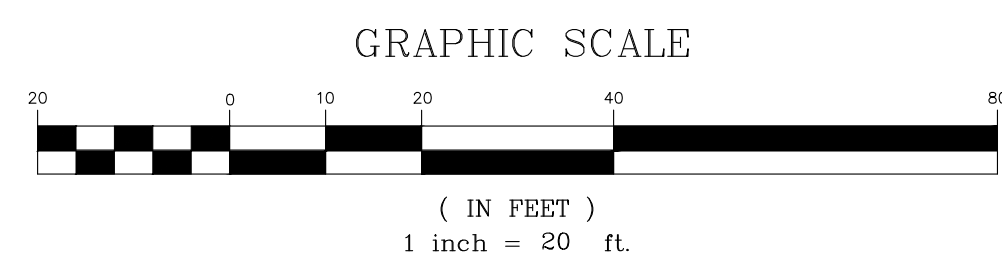
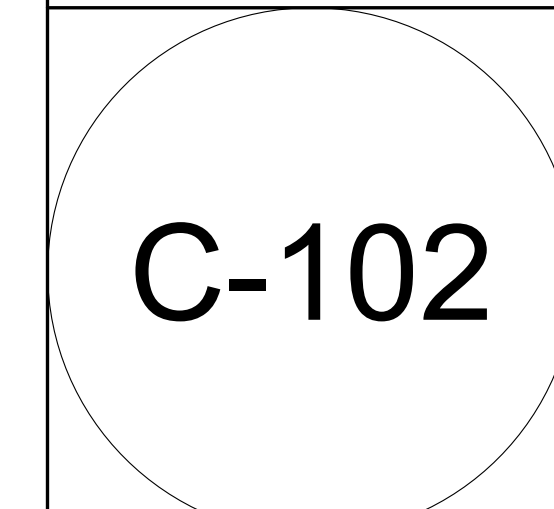
**Drawing Title:**

**Grading and Utilities Plan**

Date: November 20, 2023

Dwn. by: alp

ID: 99 Byram Ridge Rd\_12-06-2023.6



**CONSTRUCTION SEQUENCE NARRATIVE FOR SITE CONSTRUCTION**

All erosion and sedimentation control measures and procedures shall comply with the latest edition (2016) of the New York State Department of Environmental Conservation publication Standards and Specifications for Erosion and Sediment Control. Erosion control measures shall be installed prior to the start of construction and maintained in effective condition throughout the construction period.

Land disturbance shall be kept to a minimum. Restabilization and final stabilization of disturbed ground surfaces shall be scheduled as soon as practicable following disturbance.

Notify all appropriate authorities (i.e., Town of North Castle Building and Engineering Department - Telephone: (914-273-3000 ext. 44) at least 48 hours prior to the commencement of site work.

Identify Disturbance Limits - Identify in the field with flagging or markers the limits of the areas to be disturbed within the property in accordance with the drawing C-101.

The disturbance limits shall be staked in the field prior to construction.

Call Dig Safe New York - Contractor is required to verify all existing underground and overhead utilities prior to any construction activity by calling Dig Safe New York and conducting one's own due diligence.

Definition: Final Stabilization - means that all soil disturbance activities have ceased and a uniform, perennial vegetative cover with a density of eighty (80) percent over the entire pervious surface has been established; or other equivalent stabilization measures, such as permanent landscape mulches, rock rip-rap or washed/crushed stone have been applied on all disturbed areas that are not covered by permanent structures, concrete or pavement.

**CONSTRUCTION SEQUENCE**

1. Site Preparation - The existing driveway from Byram Ridge Road will be used as the construction access for site construction activities (see drawing C-103).

**Install Erosion and Sediment Control Measures:**

Install silt fence as per the instructions of the manufacturer and as shown on the construction details. Silt fence shall be installed in the locations as shown on the drawings. Where one length of silt fence ends and another begins, provide a minimum 10 foot overlap. Additional silt fence may be placed in the field at the discretion of representatives of the approving authorities. Silt fence shall be maintained in operable condition and shall not be removed until disturbed areas are thoroughly stabilized.

Install the stabilized construction entrance in the location shown on the plan and maintain the entrance throughout the duration of the work.

Install construction fencing measures as delineated on the drawings to ensure that impacts to existing site improvements, trees and vegetation to remain are avoided.

Fence in an area for trash and waste to prevent it from being blown and washed to neighboring properties or to the public street.

2. Demolition of House - Prior to demolition, ensure that all of the utility services to the house have been disconnected or plugged. Demolish the house and remove the footings and foundation in accordance with the architect's plans. Place clean topsoil and seed and mulch, or place sod to stabilize the disturbed ground surface at the excavation site.

3. Construct the Driveway Access to the New House - Grade the driveway to the new house location. Clear the area for the future septic system and place the run-of-bank fill to the required elevations.

4. House Construction and Driveway Grading - Construct the house in accordance with the architect's plans. Grade the new driveway in accordance with the engineer's plans. Stockpile soil and soil/rock removed during excavation and protect the stockpile in the location(s) shown on the drawings and in accordance with the detail. Grade the perimeter of the house and establish the grades in the driveway in accordance with Drawing C-103.

5. Install Storm Drainage Facilities - Install the proposed drainage system from the lowest (i.e., the proposed subsurface storm drainage pipes) to the highest elevations (the roof drain leaders of the house and catch basins in the new driveway). Connect the house roof drain leaders and driveway catch basin to the storm drainage system. Install the catch basins in accordance with the plans. At each catch basin, install the inlet protection to prevent sediment from disturbed areas being conveyed into the storm drainage system.

6. Install Septic System and Well - The new residence will be served with a new on-site subsurface sewage treatment system and potable water well. The septic system will install the septic tank, distribution box and absorption trenches to the elevations and details depicted on the plans and the profile. Apply 6" of topsoil and seed the disturbed area. Install the well in accordance with the plans.

7. Prepare the Disturbed Area for Final Stabilization and Planting - Clean up all residual site debris and litter and prepare all disturbed areas for topsoiling and seeding and/or planting. All disturbed areas are to be seeded with the permanent grass seed mix noted in the architect's plans.

Restore the permeability of all areas that were disturbed by construction activity by following the Soil Restoration steps in accordance with the New York State Stormwater Management Design Manual, as follows:

- Apply 3 inches of compost over subsoil.
- Till compost into subsoil to a depth of at least 12 inches using a cat-mounted ripper, tractor-mounted disc, or tiller, mixing, and circulating air and compost into subsoils.
- Rock-pick until uplifted stone/rock materials of four inches and larger size are cleaned off the site.
- Apply topsoil to a depth of 6 inches.
- Vegetate as required by approved plan.
- Provide straw mulch cover over seeded areas.

8. Remove the erosion control measures only after full vegetative stabilization occurs on the site.

**NOTES:**

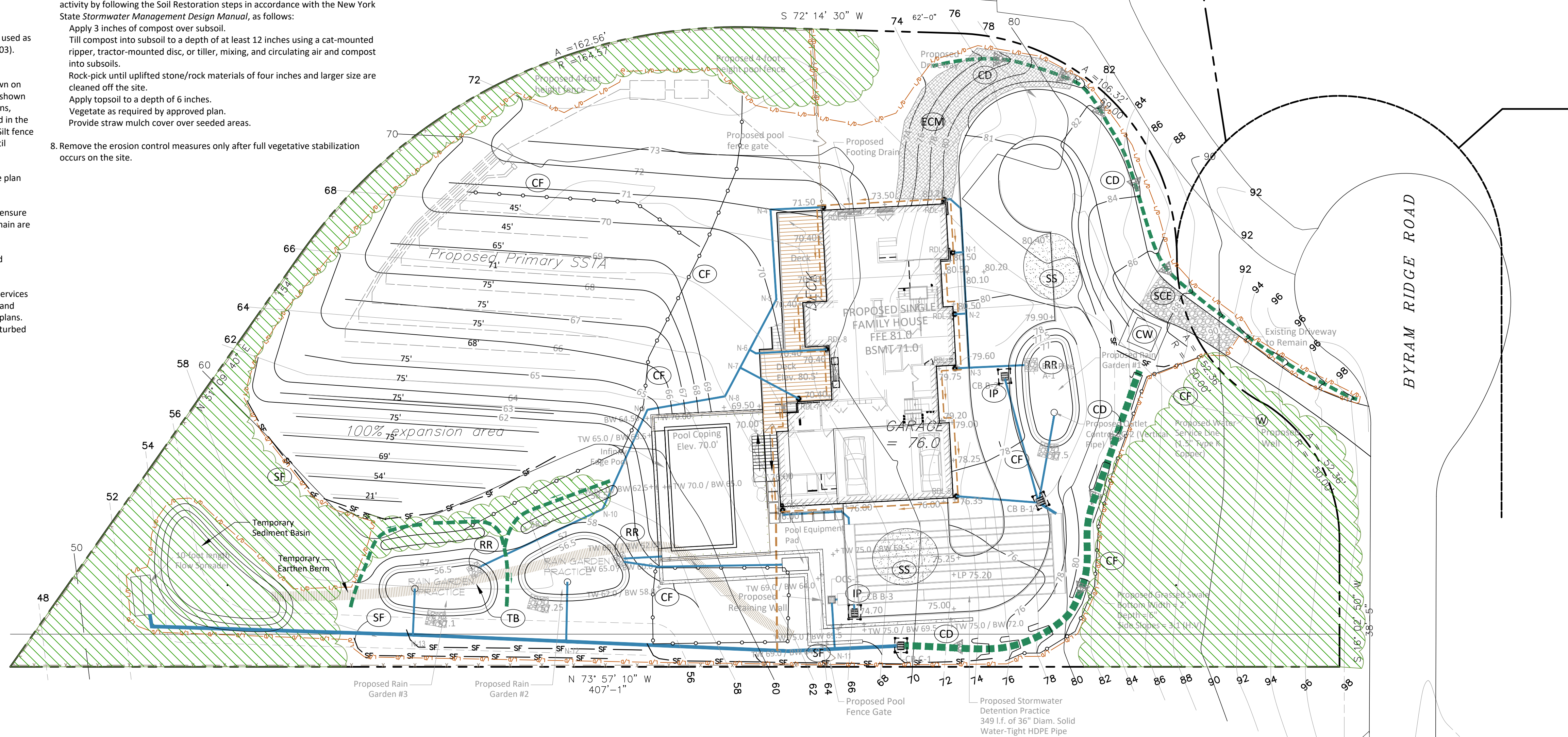
- All walls greater than four (4) feet in height shall be certified by the Design Professional prior to issuance of a Certificate of Occupancy/Completion.
- Disturbance limits shall be staked in the field prior to construction.
- Area of disturbance is calculated to be 44,885 square feet (1.030 acres).

**EROSION CONTROL PLAN LEGEND**

	SCE	STABILIZED CONSTRUCTION ENTRANCE
	SF	SILT FENCE
	SS	SOIL STOCKPILE
	IP	INLET PROTECTION
	CW	CONCRETE WASHOUT AREA
	CF	CONSTRUCTION FENCE/TREE PROTECTION
	LD	DISTURBANCE LIMIT
	ECM	GEOTEXTILE MAT FOR EROSION CONTROL

**LEGEND**

	PROPERTY LINE
	EXISTING CONTOUR
	PROPOSED CONTOUR
	PROPOSED WALL
	PROPOSED RAIN GARDEN/BIORETENTION
	PROPOSED CATCH BASIN
	PROPOSED STORMWATER DETENTION
	PROPOSED STORM DRAINAGE PIPE
	PROPOSED GRASSED SWALE



**CONSULTANTS:**  
 Architect:  
 TEO SIGUENZA ARCHITECTS  
 460 OLD POST ROAD  
 BEDFORD, NEW YORK 10506  
 Tel. 914.234.6289 Fax 914.234.0619  
 Surveyor:  
 Edward T. Gannon, PLS  
 Cherry Hill Road,  
 Blooming Grove, NY 10914

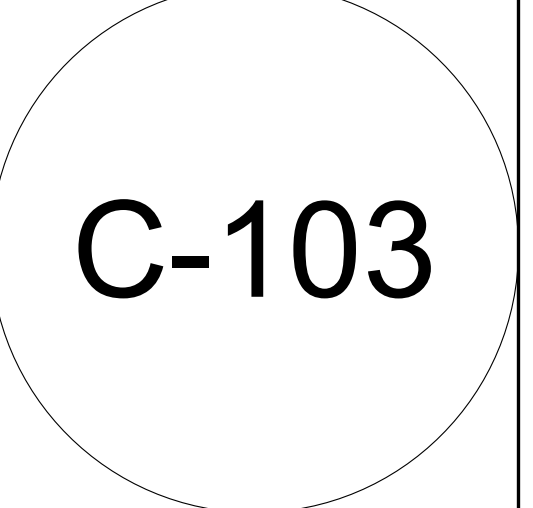
**ISSUED:**  
 Revised as per comments of RPRC 01/02/2024

**OWNERSHIP AND USE OF DOCUMENTS**  
 UNAUTHORIZED ALTERATIONS AND ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209(2) OF THE NEW YORK STATE EDUCATION LAW.  
 No part of these drawings shall be copied, disclosed to others or used in connection with any work or project other than for which they have been prepared without the express written consent of the licensed professional who prepared the document.



**PROJECT NAME:**  
**BERKIN PROPERTY**  
 99 Byram Ridge Road  
 Armonk, New York 10504  
 SBL: 101.01-1-13  
**ENGINEER & LANDSCAPE ARCHITECT:**  
**ALP ENGINEERING & LANDSCAPE ARCHITECTURE, PLLC**  
 P.O. Box 843 Ridgefield, CT 06877  
 Direct Tel. (475) 215-5343 Cell (203) 710-0587

Drawing Title:  
**Erosion and Sediment Control Plan**  
 Date: November 20, 2023  
 Dwn. by: alp  
 ID: 99 Byram Ridge Rd\_12-06-2023.6



Civil engineer  
 Alan L. Pilla  
 ALP Engineering & Landscape Architecture, PLLC  
 P.O. Box 843, Ridgefield, CT 06877  
 P.E. #90167  
 C. of A. #001633  
 Tel: (475) 215-5343

PLANT LIST - TREES AND SHRUBS					
CODE	QTY.	BOTANICAL NAME	COMMON NAME	SIZE AT PLANTING	SPACING
AA	7	Aronia arbutifolia	Red Chokeberry	#3 container	3' on center
AC	5	Amelanchier canadensis	Shadblow	#10 clump	as shown
AF	4	Abies fraseri	Fraser Fir	8'-10' height	12' on center
AG	1	Acer griseum	Paperbark Maple	2" caliper	not applicable
AR	9	Acer rubrum	Red Maple	2-1/2" caliper	as shown
AS	3	Acer saccharum	Sugar Maple	2-1/2" caliper	as shown
CC	1	Cercis canadensis	Eastern Redbud	2-1/2" caliper	not applicable
CS	6	Cornus sericea	Red Osier Dogwood	#3 container	7' on center
HM	14	Hydrangea macrophylla	Bigleaf Hydrangea	#3 container	3.5' on center
HV	3	Hamamelis virginiana	Witch Hazel	#6 container	8' on center
IG	6	Ilex glabra	Inkberry	#3 container	4.5' on center
JC	15	Juniperus chinensis 'Sargentii'	Sargent Juniper	#3 container	3' on center
JCM	16	Juniperus chinensis 'Mountbatten'	Mountbatten Juniper	#3 container	5' on center
KL	5	Kalmia latifolia	Mountain Laurel	#3 container	4.5' on center
LB	4	Lindera benzoin	Spicebush	#3 container	7' on center
PJ	4	Pieris japonica	Japanese Andromeda	#3 container	4.5' on center
PJM	2	Rhododendron PJM	PJM Rhododendron	#3 container	not applicable
QR	4	Quercus rubra	Red Oak	2-1/2" caliper	as shown
RC	6	Rhododendron catawbiense	Catawba Rhododendron	#3 container	6' on center
VD	8	Viburnum dentatum	Arrowwood Viburnum	#3 container	8' on center

**Rain Garden Plant List**

**Perennials**

- New York aster (*Aster novae-belgii*)
- Columbine (*Aquilegia canadensis*)
- Bergamot (*Monarda fistulosa*)
- Astilbe (*Astilbe* spp.)
- Joe Pye weed (*Eupatorium fistulosum*)
- Spiked gay feather (*Liatris spicata*)
- Sensitive fern (*Onoclea sensibilis*)
- Cinnamon fern (*Osmunda cinnamomea*)
- Royal fern (*Osmunda regalis*)

**Grasses**

- Tussock sedge (*Carex stricta*) W
- Fringed sedge (*Carex crinita*) W

**Shrubs**

- Red chokeberry (*Aronia arbutifolia*)
- Summersweet clethra (*Clethra alnifolia*)
- Red osier dogwood (*Cornus sericea*)
- Silky Dogwood (*Cornus amomum*)
- Gray Dogwood (*Cornus racemosa*)
- Ilex glabra (*Ilex glabra*)
- Winterberry (*Ilex verticillata*)
- Spicebush (*Lindera benzoin*)
- Highbush blueberry (*Vaccinium corymbosum*)

W = plant only in lowest (i.e. wettest) part of rain garden



**LEGEND**

- PROPERTY LINE
- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED GARDEN WALL
- PROPOSED STRUCTURAL WALL
- PROPOSED DECIDUOUS TREE PLANTING
- PROPOSED EVERGREEN TREE PLANTING
- PROPOSED UNDERSTORY TREE PLANTING
- PROPOSED SHRUB PLANTING
- PROPOSED RAIN GARDEN PLANTINGS

**CONSULTANTS:**  
 Architect:  
 TEO SIGUENZA ARCHITECTS  
 460 OLD POST ROAD  
 BEDFORD, NEW YORK 10506  
 Tel. 914.234.6289 Fax 914.234.0619  
 Surveyor:  
 Edward T. Gannon, PLS  
 Cherry Hill Road,  
 Blooming Grove, NY 10914

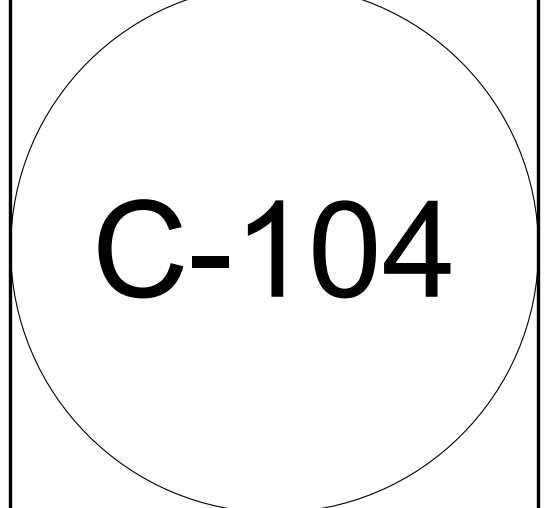
**ISSUED:**  
 Revised as per comments of RPRC 01/02/2024

**OWNERSHIP AND USE OF DOCUMENTS**  
 UNAUTHORIZED ALTERATIONS AND ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209(2) OF THE NEW YORK STATE EDUCATION LAW.  
 No part of these drawings shall be copied, disclosed to others or used in connection with any work or project other than for which they have been prepared without the express written consent of the licensed professional who prepared the document.

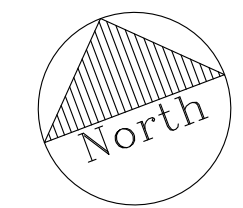
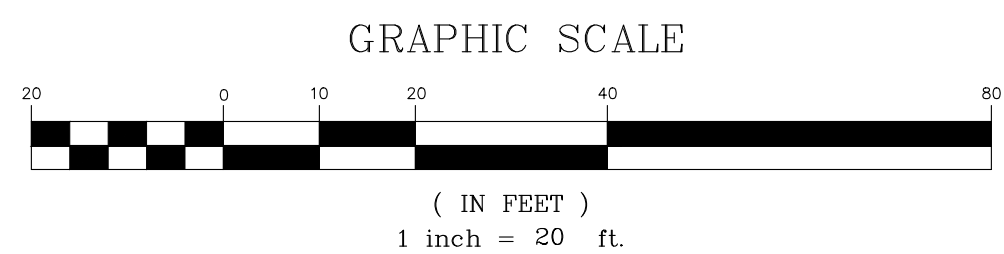


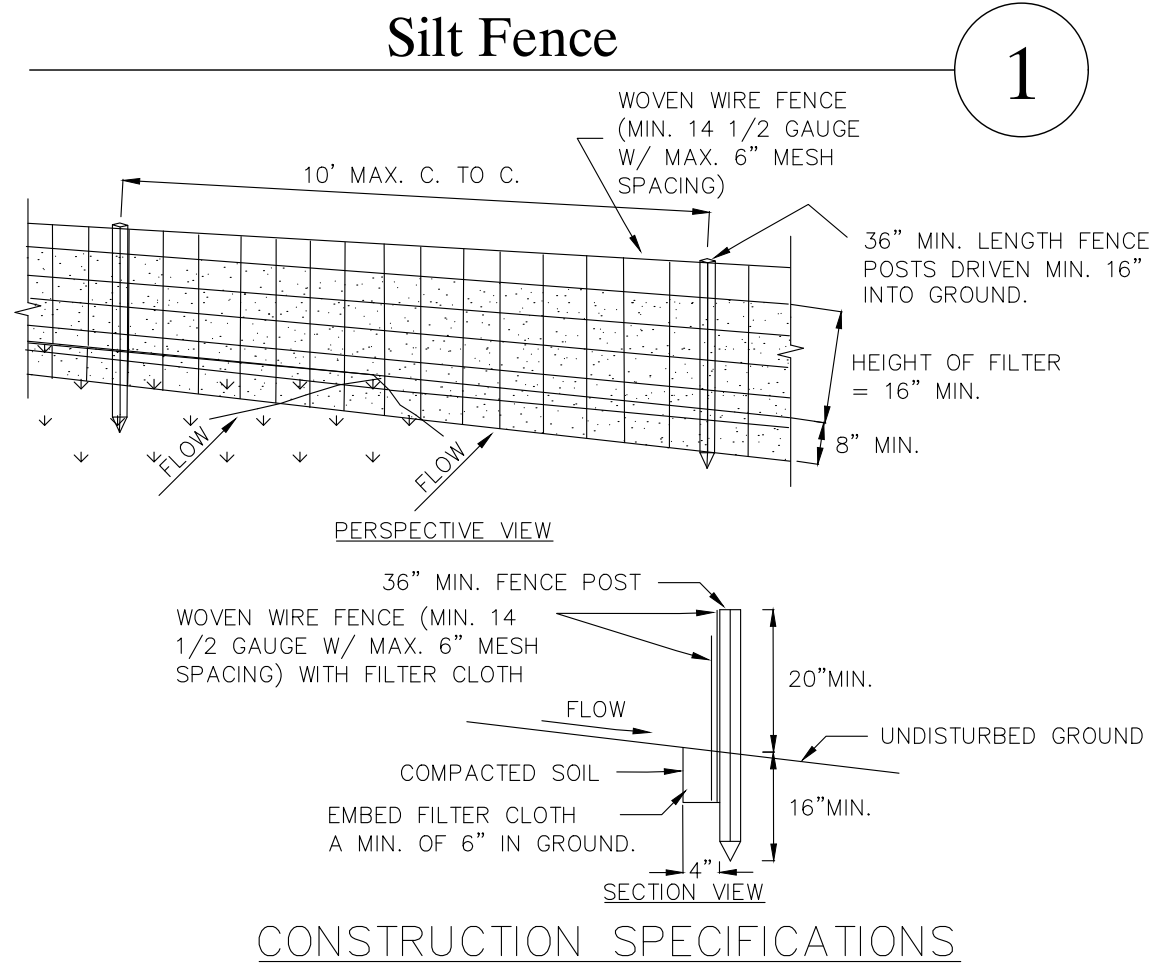
**PROJECT NAME:**  
**BERKIN PROPERTY**  
 99 Byram Ridge Road  
 Armonk, New York 10504  
 SBL: 101.01-1-13  
**ENGINEER & LANDSCAPE ARCHITECT:**  
**ALP ENGINEERING & LANDSCAPE ARCHITECTURE, PLLC**  
 P.O. Box 843 Ridgefield, CT 06877  
 Direct Tel. (475) 215-5343 Cell (203) 710-0587

**Drawing Title:**  
**Landscape Plan**  
 Date: November 20, 2023  
 Dwn. by: alp  
 ID: 99 Byram Ridge Rd\_12-06-2023.6



Civil engineer  
 Alan L. Plich  
 ALP Engineering & Landscape Architecture, PLLC  
 P.O. Box 843, Ridgefield, CT 06877  
 P.E. #90167  
 C. of A. #001633  
 Tel: (475) 215-5343

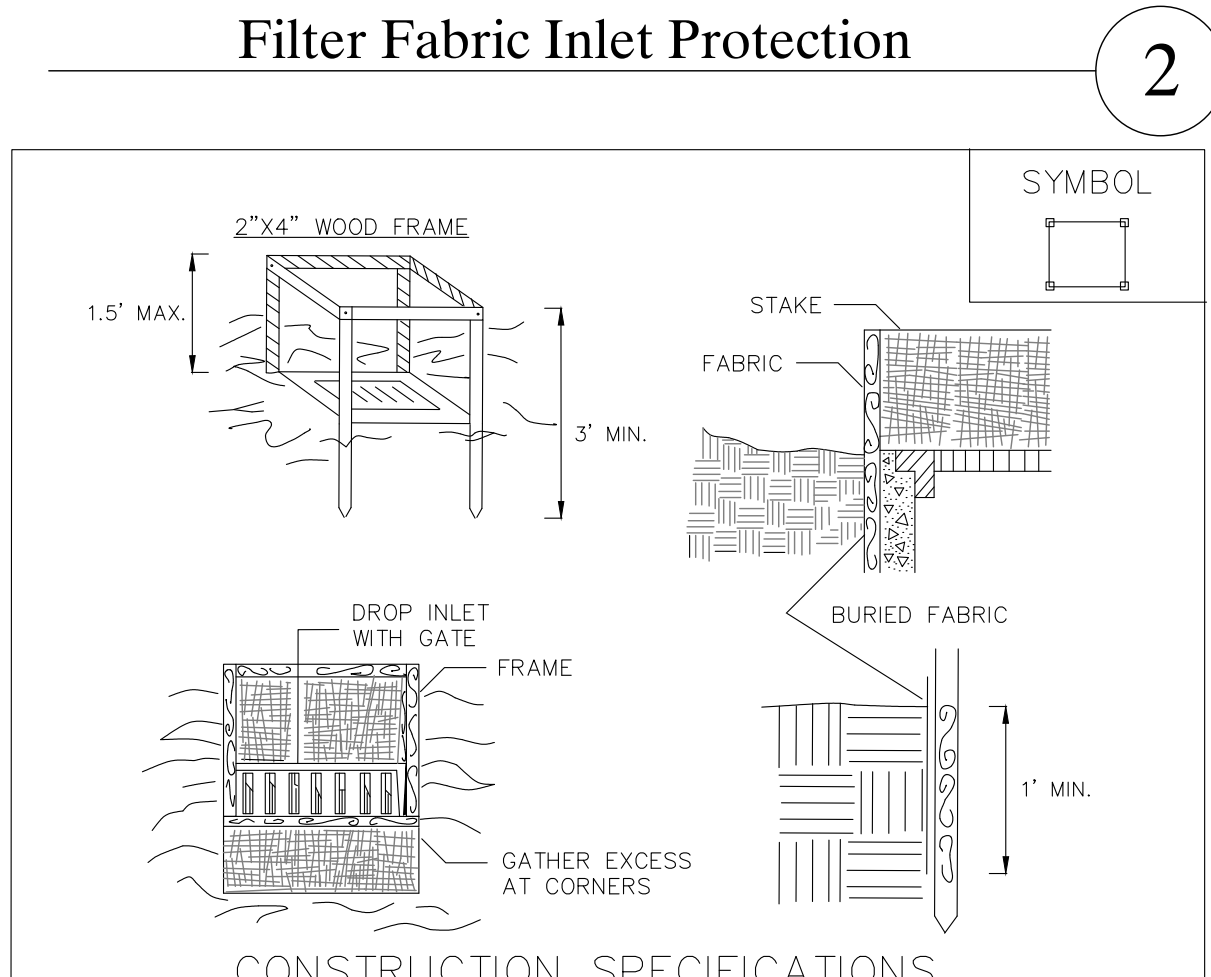




- WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
- FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 12 1/2 GAUGE, 6" MAXIMUM MESH OPENING.
- WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
- PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.
- MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

U.S. DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE  
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

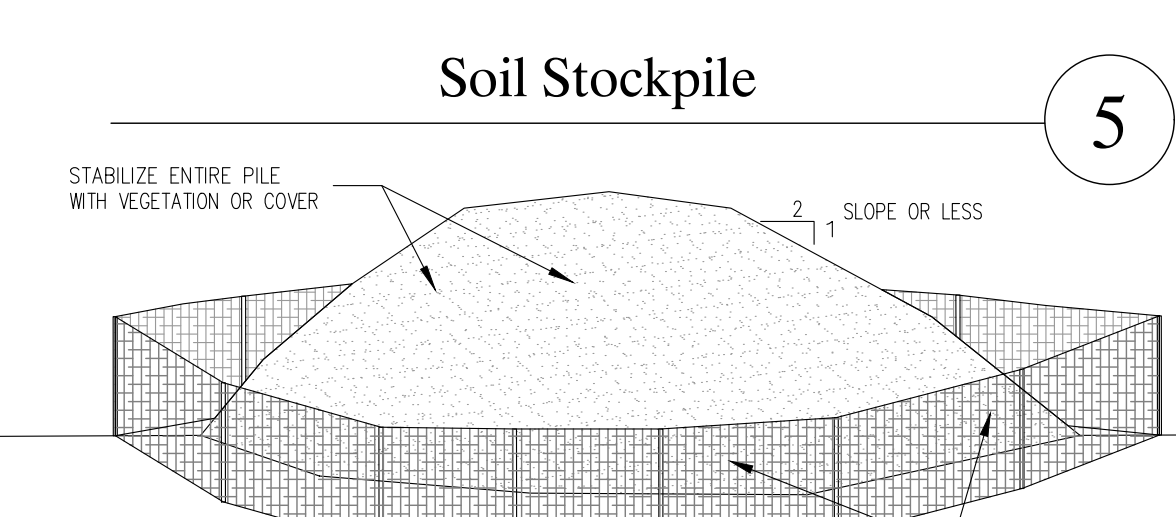
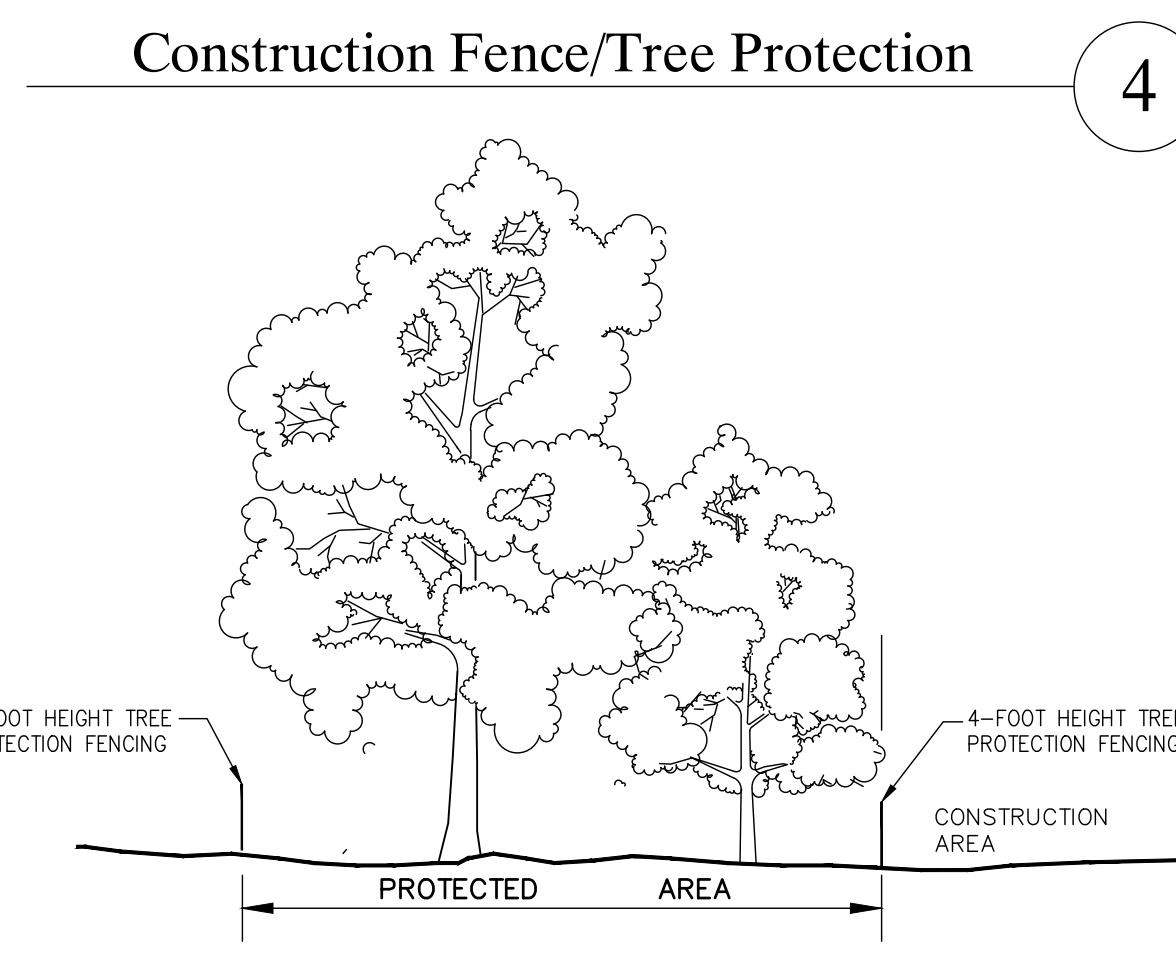
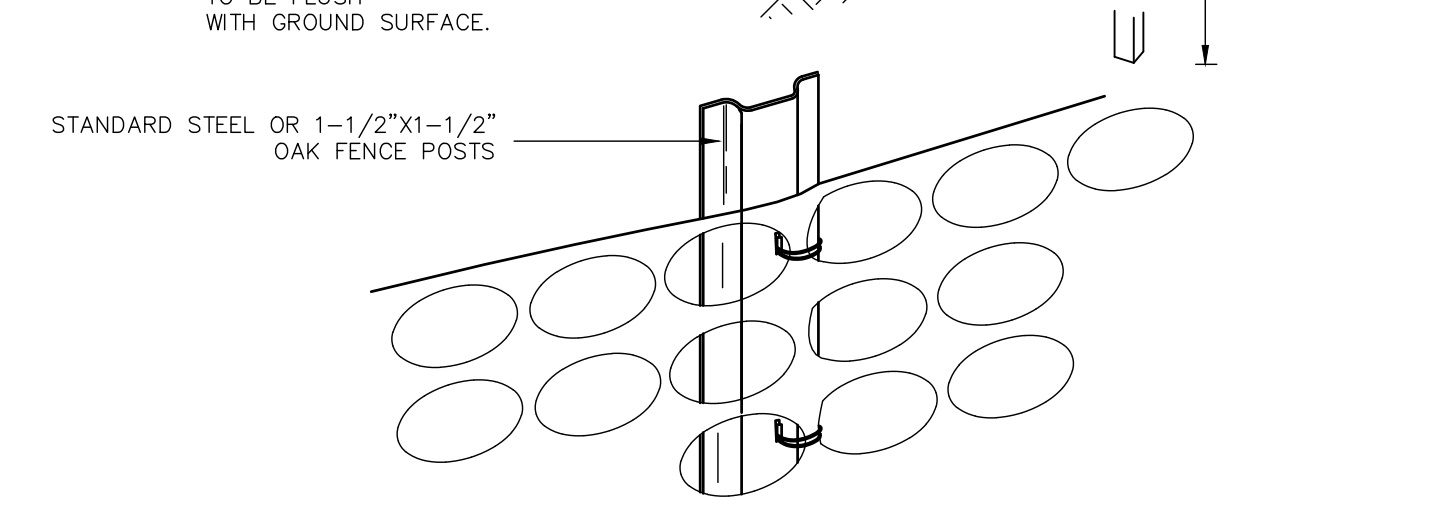
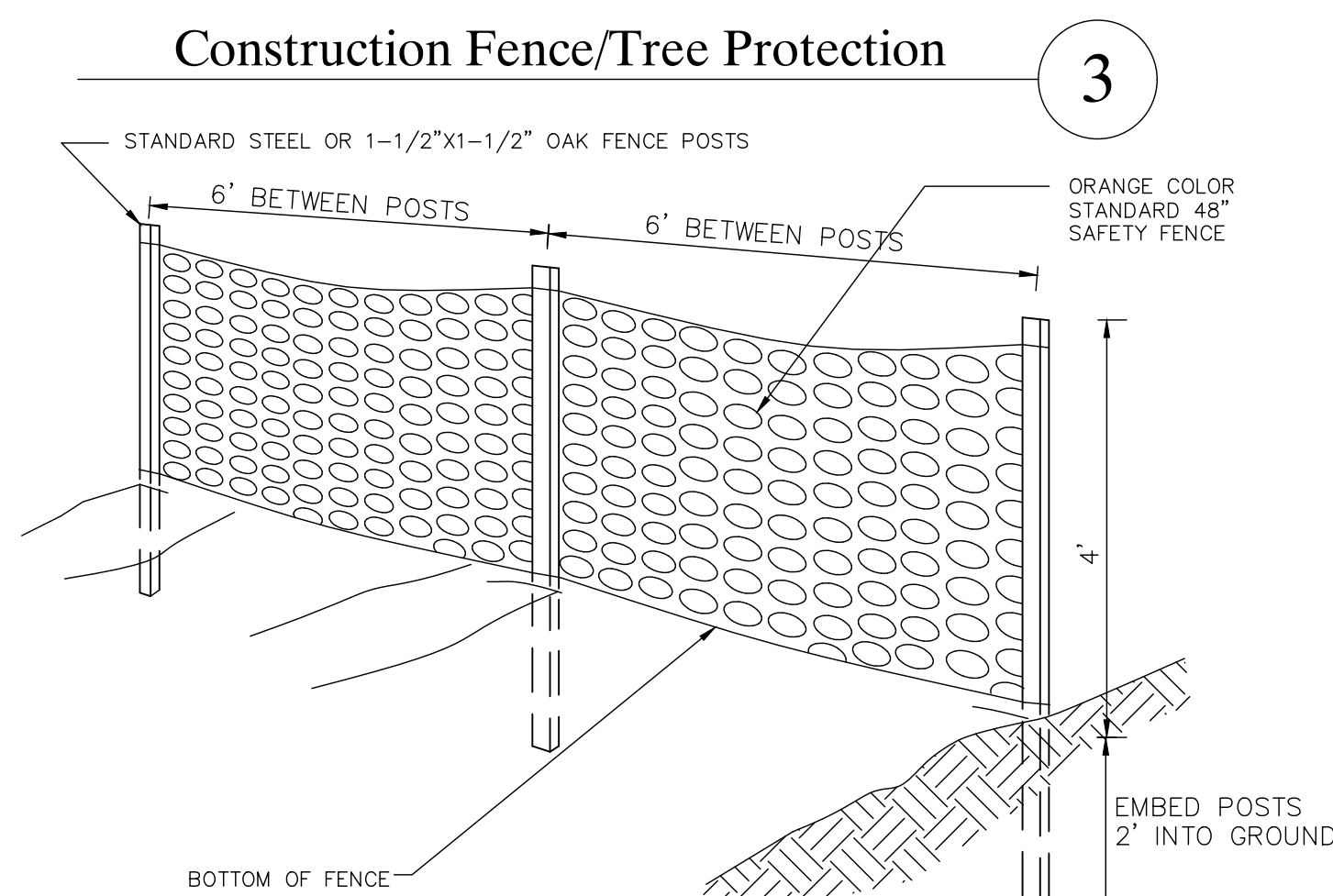
**SILT FENCE**



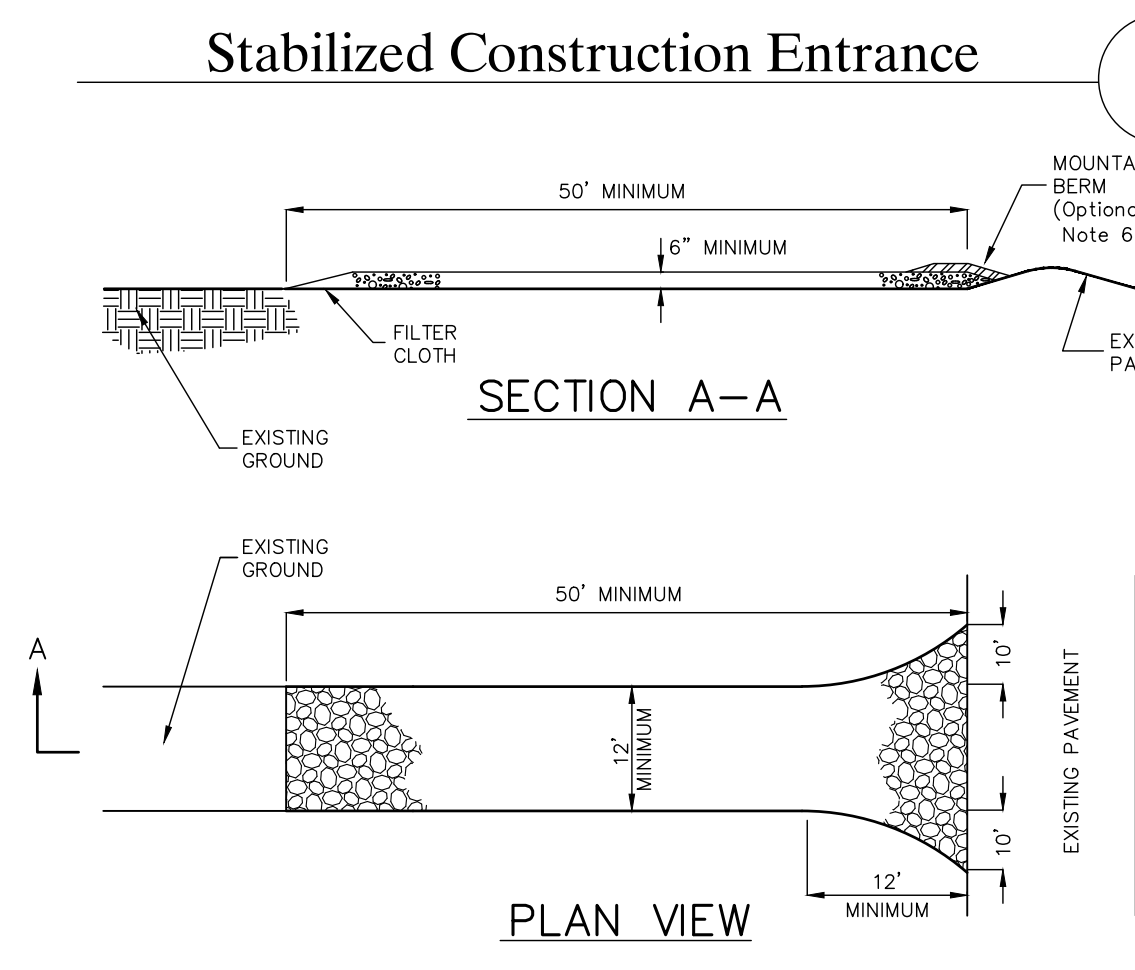
- FILTER FABRIC SHALL HAVE AN EOS OF 40-85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
- CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
- STAKE MATERIALS WILL BE STANDARD 2" x 4" WOOD OR EQUIVALENT. METAL WITH A MINIMUM LENGTH OF 3 FEET.
- SPACE STAKES EVENLY AROUND INLET 3 FEET APART AND DRIVE A MINIMUM 18 INCHES DEEP. SPANS GREATER THAN 3 FEET MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
- FABRIC SHALL BE EMBEDDED 1 FOOT MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
- A 2" x 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.  
MAXIMUM DRAINAGE AREA 1 ACRE

U.S. DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE  
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

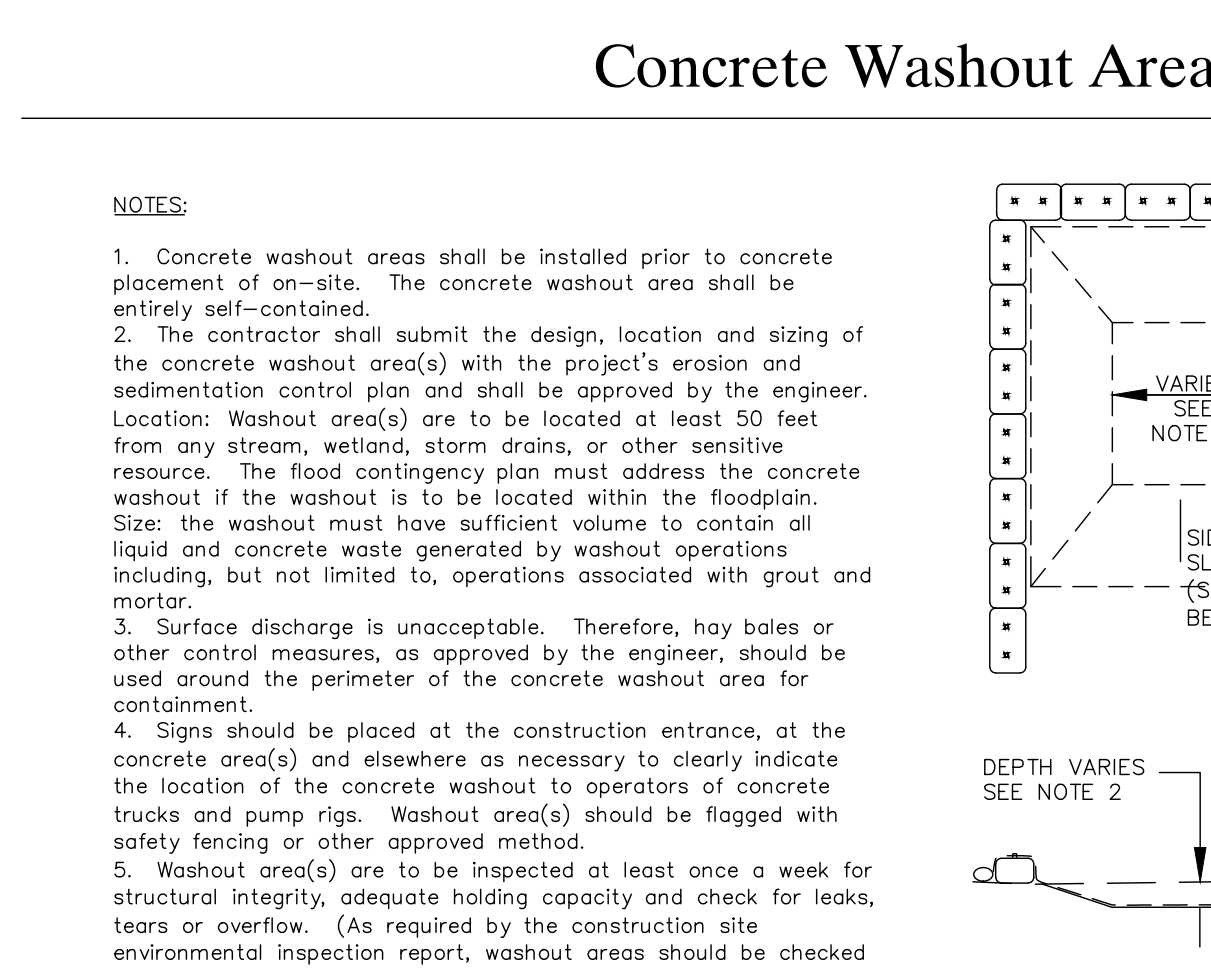
**FILTER FABRIC  
DROP INLET  
PROTECTION**



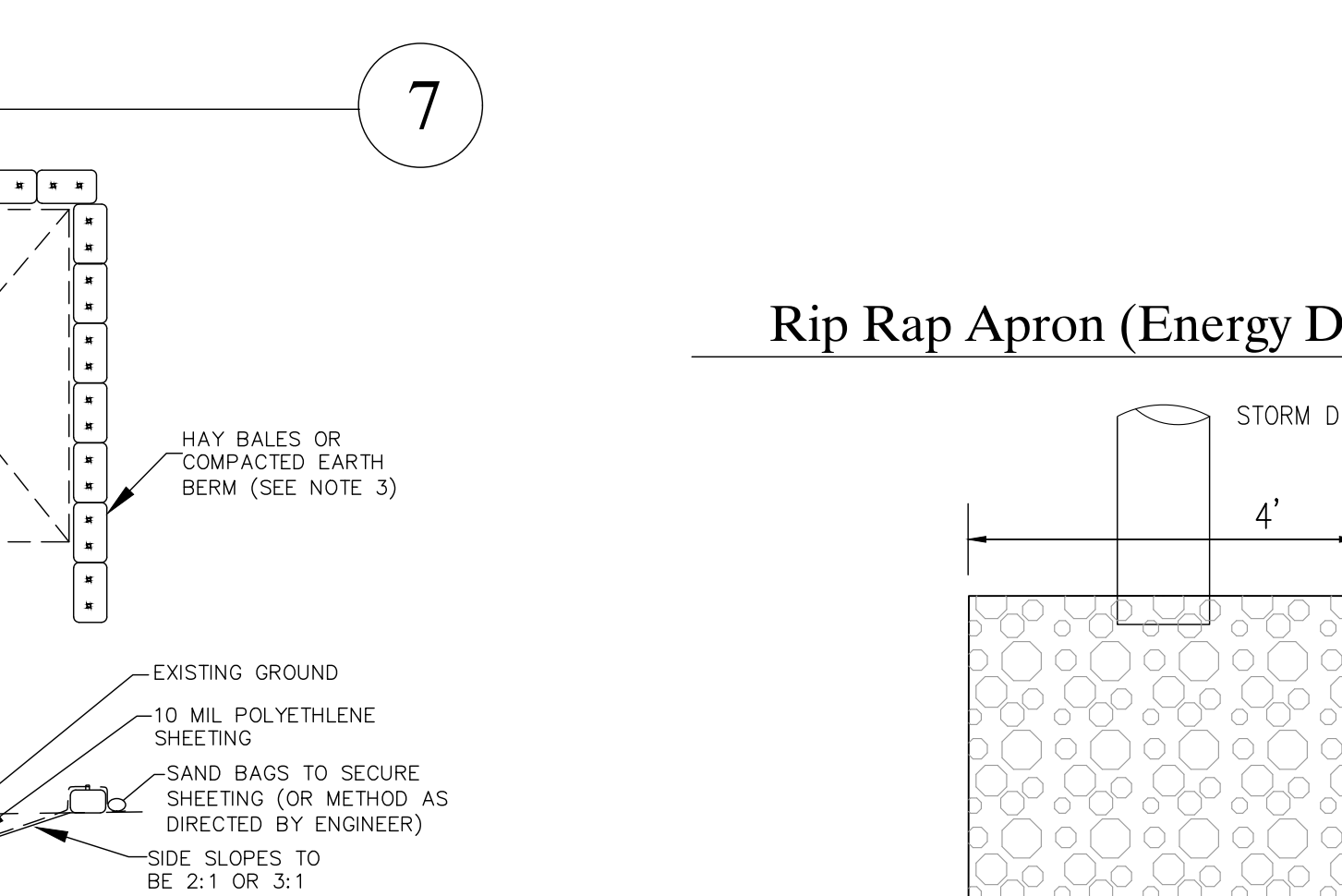
- INSTALLATION NOTES**
- AREA CHOSEN FOR SOIL STOCKPILING OPERATIONS SHALL BE DRY AND STABLE.
  - MAXIMUM SLOPE OF STOCKPILE SHALL BE 2:1 HORIZONTAL TO VERTICAL.
  - UPON COMPLETION OF SOIL STOCKPILING, EACH PILE SHALL BE SURROUNDED WITH SILT FENCING, THEN STABILIZED WITH VEGETATION OR COVERED IF STOCKPILE IS TO REMAIN OVER 14 DAYS.
  - SEE DETAIL FOR INSTALLATION OF SILT FENCE.



- NOTES:**
- STONE SIZE - USE 1/2" - 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
  - LENGTH - AS REQUIRED, BUT NOT LESS THAN 50 FEET.
  - THICKNESS - NOT LESS THAN SIX (6) INCHES.
  - WIDTH - 12 FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. 24 FOOT MINIMUM IF SINGLE ENTRANCE TO SITE.
  - FILTER CLOTH - TO 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 OF FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURE USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DRIPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
  - WASHING - WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
  - PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.



- NOTES:**
- Concrete washout areas shall be installed prior to concrete placement of on-site. The concrete washout area shall be entirely self-contained.
  - The contractor shall submit the design, location and sizing of the concrete washout area(s) with the project's erosion and sedimentation control plan and shall be approved by the engineer. Location: Washout area(s) are to be located at least 50 feet from any stream, wetland, storm drains, or other sensitive resource. The flood contingency plan must address the concrete washout if the washout is to be located within the floodplain. Size: the washout must have sufficient volume to contain all liquid and concrete waste generated by washout operations including, but not limited to, operations associated with grout and mortar.
  - Surface discharge is unacceptable. Therefore, hay bales or other control measures, as approved by the engineer, should be used around the perimeter of the concrete washout area for containment.
  - Signs should be placed at the construction entrance, at the concrete area(s) and elsewhere as necessary to clearly indicate the location of the concrete washout to operators of concrete trucks and pump rigs. Washout area(s) should be flagged with safety fencing or other approved method.
  - Washout area(s) are to be inspected at least once a week for structural integrity, adequate holding capacity and check for leaks, tears or overflow. (As required by the construction site environmental inspection report, washout areas should be checked after heavy rains.)
  - Hardened concrete waste should be removed and disposed of when the waste has accumulated to half the concrete washout's height. The waste can be stored at an upland location, as approved by the engineer. All concrete waste shall be disposed of in a manner consistent with all applicable laws, regulations and guidelines.
  - Payment for this item is to be included under the general cost of the work for the project, including site restoration.



**CONSULTANTS:**

Architect:  
TEO SIGUENZA ARCHITECTS  
480 OLD POST ROAD  
BEDFORD, NEW YORK 10506  
Tel: 914.234.6289 Fax 914.234.0619

Surveyor:  
Edward T. Gannon, PLS  
Cherry Hill Road,  
Blooming Grove, NY 10914

**ISSUED:**

Resubmission to RPRC 01/02/2024

**OWNERSHIP AND USE OF DOCUMENTS**

UNAUTHORIZED ALTERATIONS AND ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209(2) OF THE NEW YORK STATE EDUCATION LAW.

No part of these drawings shall be copied, disclosed to others or used in connection with any work or project other than for which they have been prepared without the express written consent of the licensed professional who prepared the document.



**PROJECT NAME:**  
**BERKIN PROPERTY**  
99 Byram Ridge Road  
Armonk, New York 10504  
SBL: 101.01-1-13

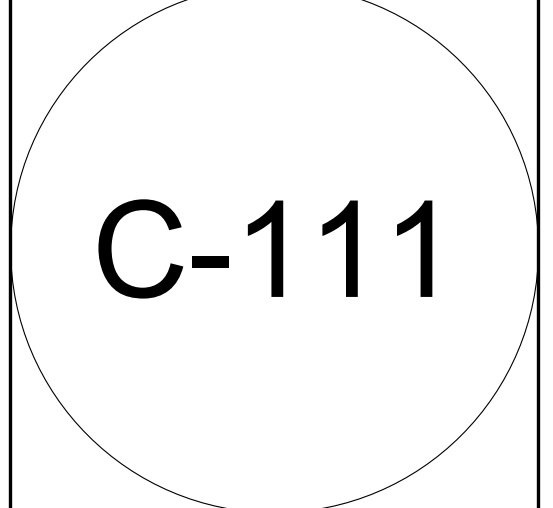
**ENGINEER & LANDSCAPE ARCHITECT:**  
**ALP ENGINEERING & LANDSCAPE ARCHITECTURE, PLLC**  
P.O. Box 843, Ridgefield, CT 06877  
Direct Tel: (475) 215-5343 Cell (203) 710-0587

Drawing Title:  
**Construction Details**

Date: November 20, 2023

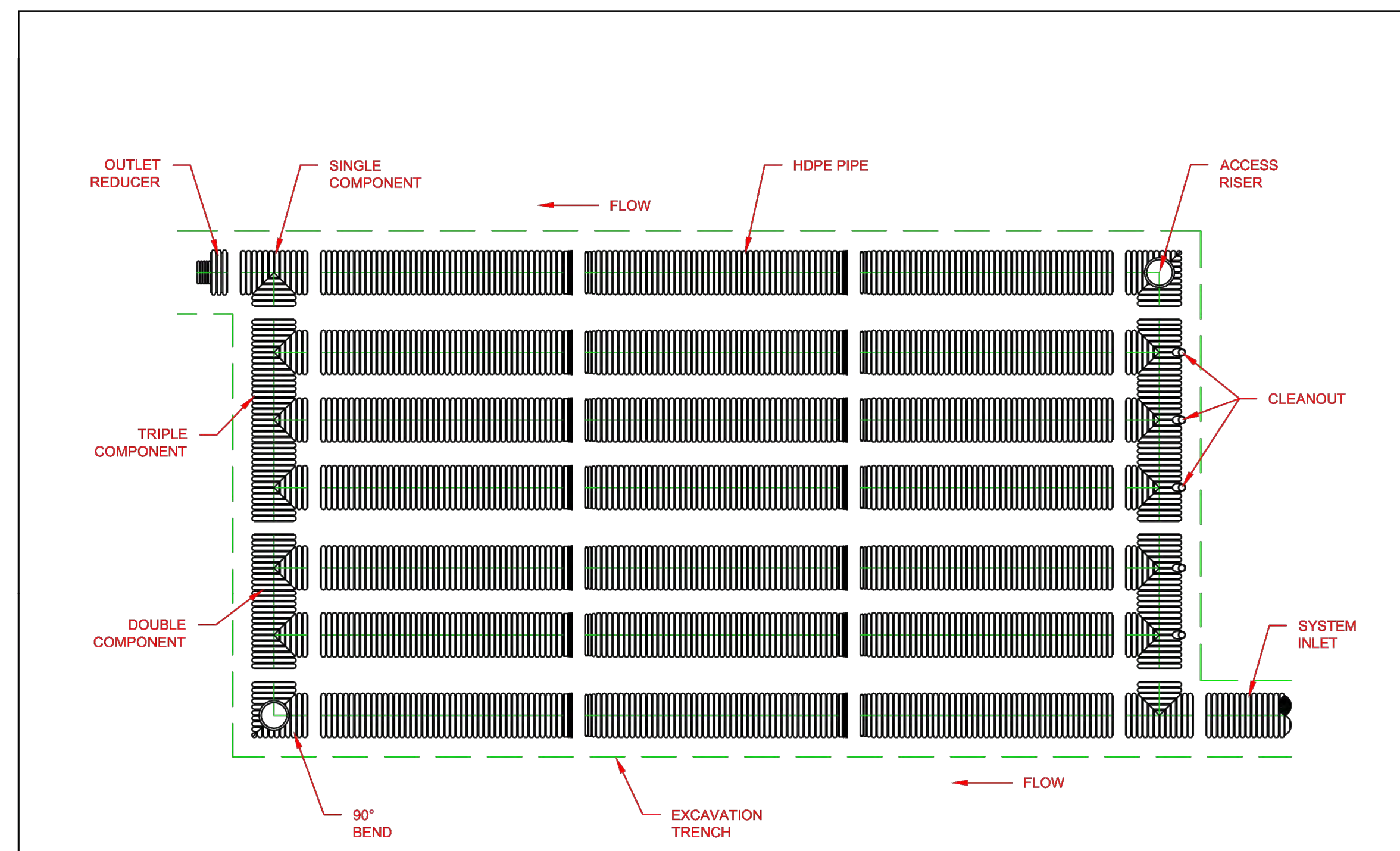
Dwn. by: alp

ID: 99 Byram Ridge Rd\_12-06-2023.6



### Stormwater Detention Facility

1



**NOTES:**  
 1. FOR INSTALLATION RECOMMENDATIONS, SEE STD-702 "TYPICAL RET/DET CROSS-SECTION DETAIL" AND STD-703 "TYPICAL RET/DET/CLEANOUT DETAIL".

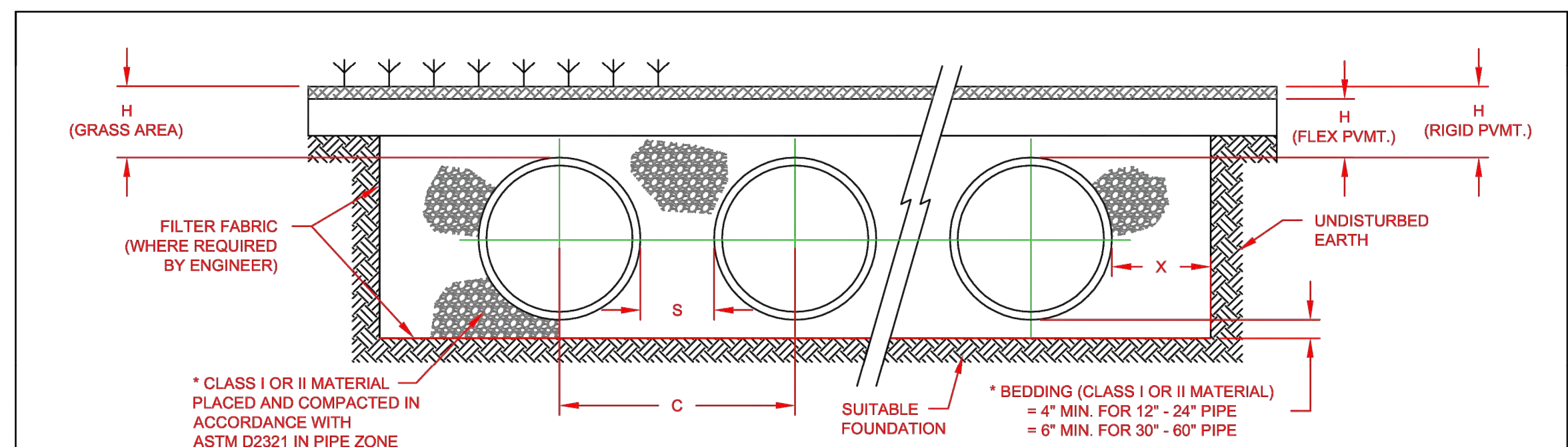
REV.	DESCRIPTION	BY	MM/DD/YY	CHKD	DATE

DIA. DET/RET SYSTEM  
 TYPICAL SUBSURFACE DET./RET. SYSTEM LAYOUT DETAIL  
 DRAWING NUMBER: STD-701

ADVANCED DRAINAGE SYSTEMS, INC. (ADS) HAS PREPARED THIS DETAIL BASED ON INFORMATION PROVIDED TO ADS. THIS DRAWING IS INTENDED TO DEPICT THE COMPONENTS AS REQUESTED. ADS HAS NOT PERFORMED ANY ENGINEERING OR DESIGN SERVICES FOR THIS PROJECT. NOR HAS ADS INDEPENDENTLY VERIFIED THE INFORMATION SUPPLIED. THE INSTALLATION DETAILS PROVIDED HEREIN ARE GENERAL RECOMMENDATIONS AND ARE NOT SPECIFIC FOR THIS PROJECT. THE DESIGN ENGINEER SHALL REVIEW THESE DETAILS PRIOR TO CONSTRUCTION. IT IS THE DESIGN ENGINEERS RESPONSIBILITY TO ENSURE THE DETAILS PROVIDED HEREIN MEET OR EXCEEDS THE APPLICABLE NATIONAL, STATE, OR LOCAL REQUIREMENTS AND TO ENSURE THAT THE DETAILS PROVIDED HEREIN ARE ACCEPTABLE FOR THIS PROJECT.

### Stormwater Detention Facility

2



**NOTES:**  
 1. ALL REFERENCES TO CLASS I OR II MATERIAL ARE PER ASTM D2321 "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST EDITION.  
 2. ALL RETENTION AND DETENTION SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, LATEST EDITION AND THE MANUFACTURER'S PUBLISHED INSTALLATION GUIDELINES.  
 3. MEASURES SHOULD BE TAKEN TO PREVENT THE MIGRATION OF NATIVE FINES INTO THE BACKFILL MATERIAL, WHEN REQUIRED. SEE ASTM D2321.  
 4. FILTER FABRIC: A GEOTEXTILE FABRIC MAY BE USED AS SPECIFIED BY THE ENGINEER TO PREVENT THE MIGRATION OF FINES FROM THE NATIVE SOIL INTO THE SELECT BACKFILL MATERIAL.  
 5. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER, AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.  
 6. BEDDING: SUITABLE MATERIAL SHALL BE CLASS I OR II. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER, UNLESS OTHERWISE NOTED BY THE ENGINEER. MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 4"-24" (100mm-600mm); 6" (150mm) FOR 30"-60" (750mm-900mm).  
 7. INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I OR II IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.  
 8. MINIMUM COVER: MINIMUM COVER OVER ALL RETENTION/DETENTION SYSTEMS IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" FROM TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER IS 12" UP TO 36" DIAMETER PIPE AND 24" OF COVER FOR 42" - 60" DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT.

NOMINAL DIAMETER	NOMINAL O.D.	TYPICAL SPACING "S"	TYPICAL SPACING "C"	TYPICAL SIDE WALL "X"	H (NON-TRAFFIC)	H (TRAFFIC)
12" (300 MM)	14.5" (368 MM)	11" (279 MM)	25.4" (645 MM)	8" (203 MM)	12" (292 MM)	12" (292 MM)
15" (375 MM)	18" (457 MM)	12" (292 MM)	28.9" (734 MM)	8" (203 MM)	12" (292 MM)	12" (292 MM)
18" (450 MM)	21" (533 MM)	17" (434 MM)	33.9" (862 MM)	9" (229 MM)	12" (292 MM)	12" (292 MM)
24" (600 MM)	28" (711 MM)	13" (330 MM)	40.7" (1034 MM)	10" (254 MM)	12" (292 MM)	12" (292 MM)
30" (750 MM)	36" (914 MM)	18" (457 MM)	53.1" (1347 MM)	18" (457 MM)	12" (292 MM)	12" (292 MM)
36" (900 MM)	42" (1067 MM)	22" (559 MM)	63" (1600 MM)	18" (457 MM)	12" (292 MM)	12" (292 MM)
42" (1050 MM)	48" (1219 MM)	24" (610 MM)	71.9" (1826 MM)	18" (457 MM)	12" (292 MM)	24" (610 MM)
48" (1200 MM)	54" (1372 MM)	25" (635 MM)	78.5" (1994 MM)	18" (457 MM)	12" (292 MM)	24" (610 MM)
60" (1500 MM)	67" (1702 MM)	24" (610 MM)	90" (2286 MM)	18" (457 MM)	12" (292 MM)	24" (610 MM)

\* CLASS I BACKFILL REQUIRED AROUND 60" DIAMETER FITTINGS.

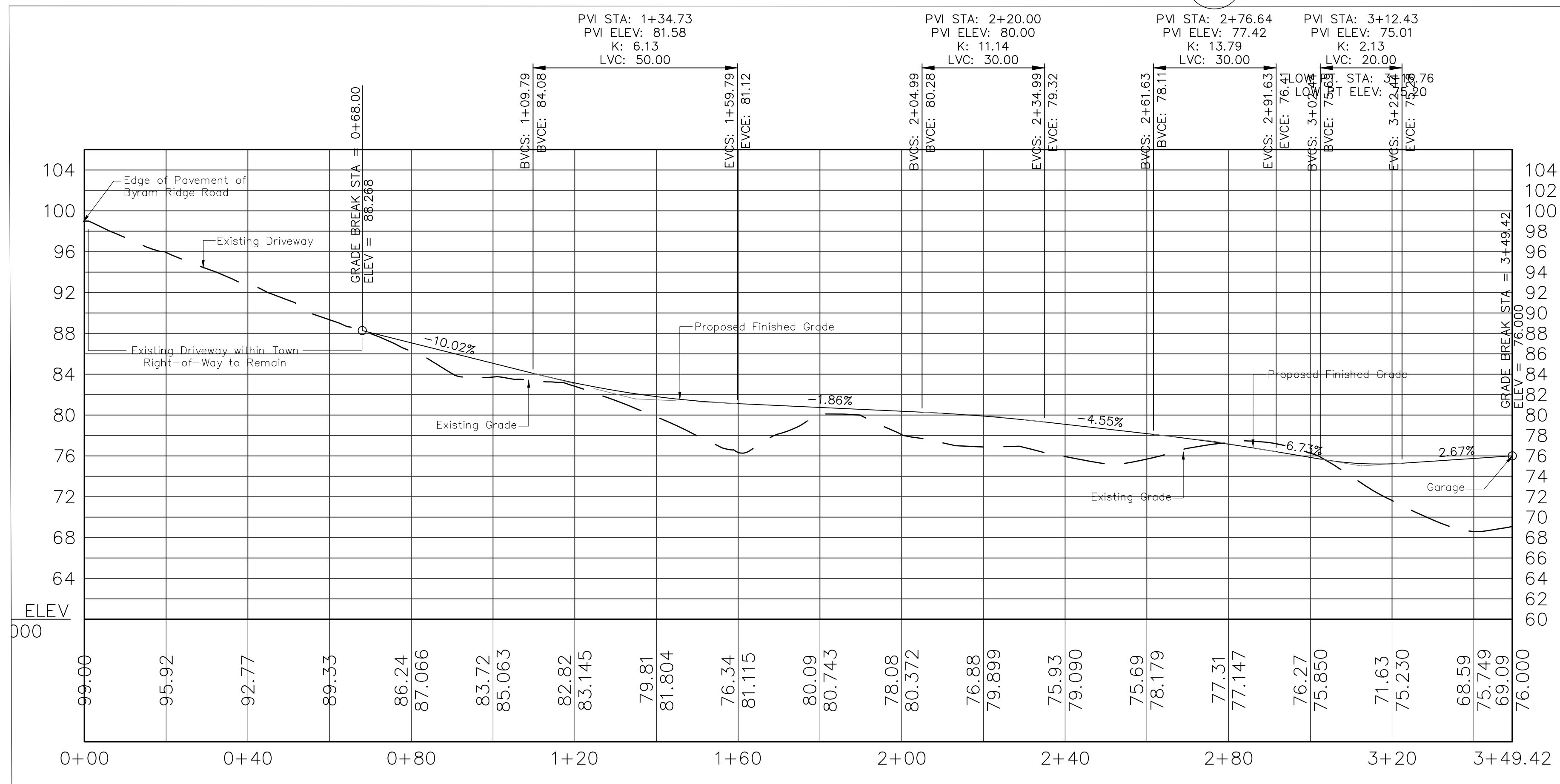
REV.	DESCRIPTION	TJR	01/05/09	CKS
3	REVISED 1" SPACING	TJR	01/05/09	CKS

TYPICAL RET/DET CROSS SECTION DETAIL  
 DRAWING NUMBER: STD-702

ADVANCED DRAINAGE SYSTEMS, INC. (ADS) HAS PREPARED THIS DETAIL BASED ON INFORMATION PROVIDED TO ADS. THIS DRAWING IS INTENDED TO DEPICT THE COMPONENTS AS REQUESTED. ADS HAS NOT PERFORMED ANY ENGINEERING OR DESIGN SERVICES FOR THIS PROJECT. NOR HAS ADS INDEPENDENTLY VERIFIED THE INFORMATION SUPPLIED. THE INSTALLATION DETAILS PROVIDED HEREIN ARE GENERAL RECOMMENDATIONS AND ARE NOT SPECIFIC FOR THIS PROJECT. THE DESIGN ENGINEER SHALL REVIEW THESE DETAILS PRIOR TO CONSTRUCTION. IT IS THE DESIGN ENGINEERS RESPONSIBILITY TO ENSURE THE DETAILS PROVIDED HEREIN MEET OR EXCEEDS THE APPLICABLE NATIONAL, STATE, OR LOCAL REQUIREMENTS AND TO ENSURE THAT THE DETAILS PROVIDED HEREIN ARE ACCEPTABLE FOR THIS PROJECT.

### Driveway Profile

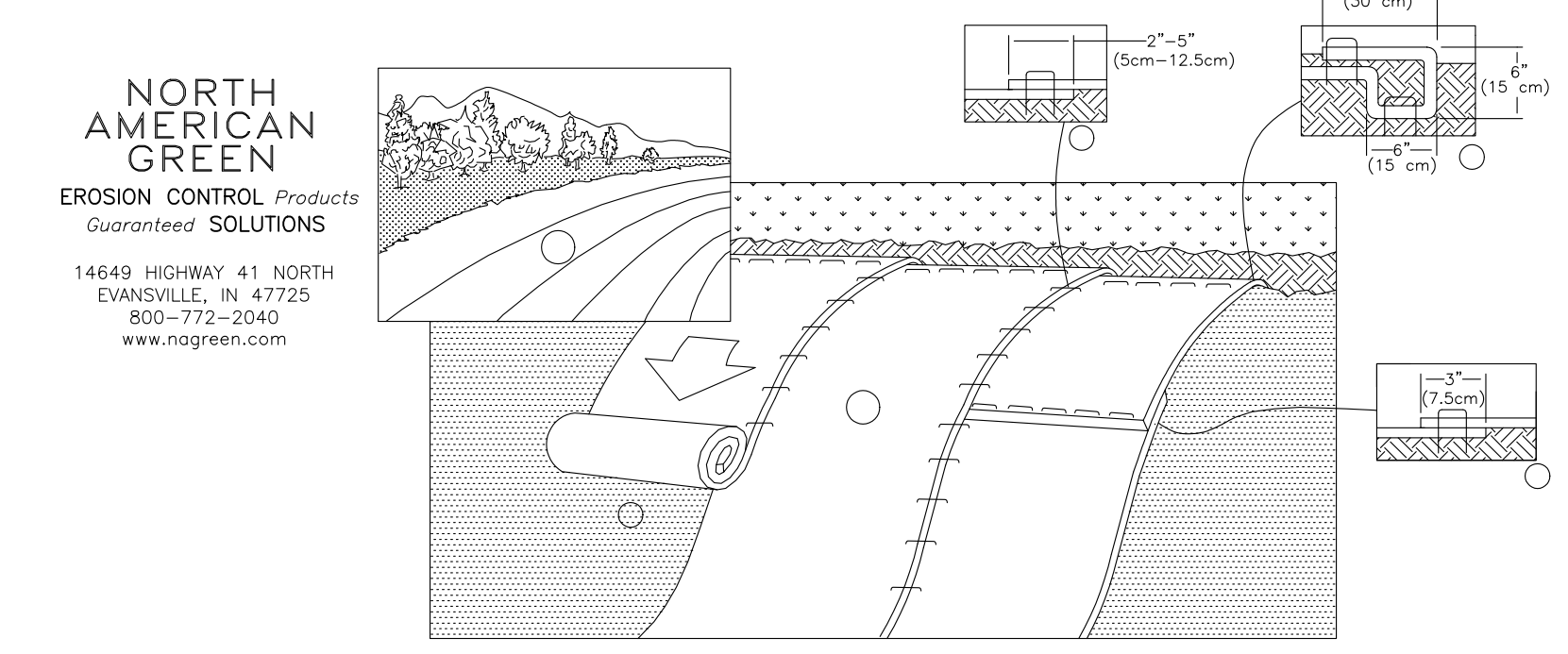
3



### Erosion Control Mat on Slopes

4

#### Construction Detail for Erosion Control Mat on Slopes



- PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP'S), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.  
 NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
- BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECP'S IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF RECP'S EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP'S WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30 CM) PORTION OF RECP'S BACK OVER SEED AND COMPACTED SOIL. SECURE RECP'S OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30 CM) APART ACROSS THE WIDTH OF THE RECP'S.
- ROLL THE RECP'S (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. RECP'S WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP'S MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
- THE EDGES OF PARALLEL RECP'S MUST BE STAPLED WITH APPROXIMATELY 2" - 5" (5 CM - 12.5 CM) OVERLAP DEPENDING ON RECP'S TYPE.
- CONSECUTIVE RECP'S SPICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5 CM) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30 CM) APART ACROSS ENTIRE RECP'S WIDTH.  
 NOTE:  
 \*IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY SECURE THE RECP'S.

- EROSION CONTROL MAT NOTES**
- Erosion control matting shall be installed in accordance with the manufacturer's specifications and requirements.
  - Matting to be utilized shall be manufactured by North American Green, Product C125BN, or Curlex I by American Excelsior company, or approved equal.
  - Detail shown above would be for installation of C125BN matting. If product by another manufacturer is used, then installation detail shall be as specified by that manufacturer.

**CONSULTANTS:**  
 Architect:  
 TEO SQUENZA ARCHITECTS  
 480 OLD POST ROAD  
 BEDFORD, NEW YORK 10506  
 Tel: 914.234.6289 Fax 914.234.0619  
 Surveyor:  
 Edward T. Gannon, PLS  
 Cherry Hill Road,  
 Blooming Grove, NY 10914

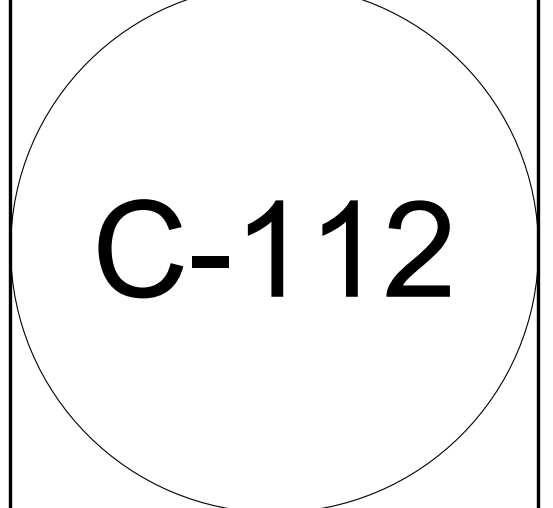
**ISSUED:**  
 Revised as per comments of RPRC 01/02/2024

**OWNERSHIP AND USE OF DOCUMENTS**  
 UNAUTHORIZED ALTERATIONS AND ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209(2) OF THE NEW YORK STATE EDUCATION LAW.  
 No part of these drawings shall be copied, disclosed to others or used in connection with any work or project other than for which they have been prepared without the express written consent of the licensed professional who prepared the document.



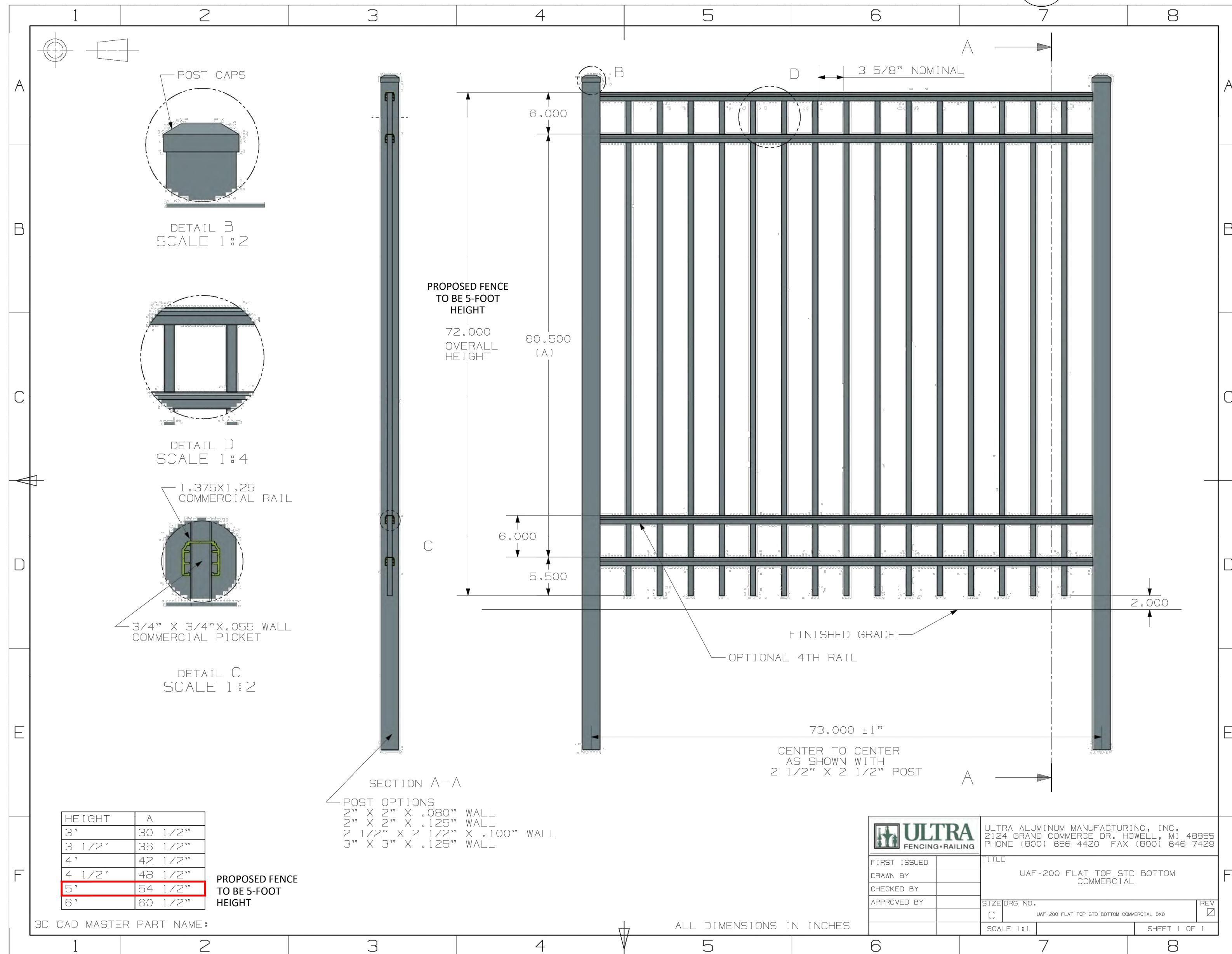
**PROJECT NAME:**  
**BERKIN PROPERTY**  
 99 Byram Ridge Road  
 Armonk, New York 10504  
 SBL: 101.01-1-13  
**ENGINEER & LANDSCAPE ARCHITECT:**  
**ALP ENGINEERING & LANDSCAPE ARCHITECTURE, PLLC**  
 P.O. Box 843, Ridgefield, CT 06877  
 Direct Tel: (475) 215-5343 Cell: (203) 710-0587

**Drawing Title:**  
**Construction Details / Driveway Profile**  
 Date: November 20, 2023  
 Dwn. by: alp  
 ID: 99 Byram Ridge Rd\_12-06-2023.6



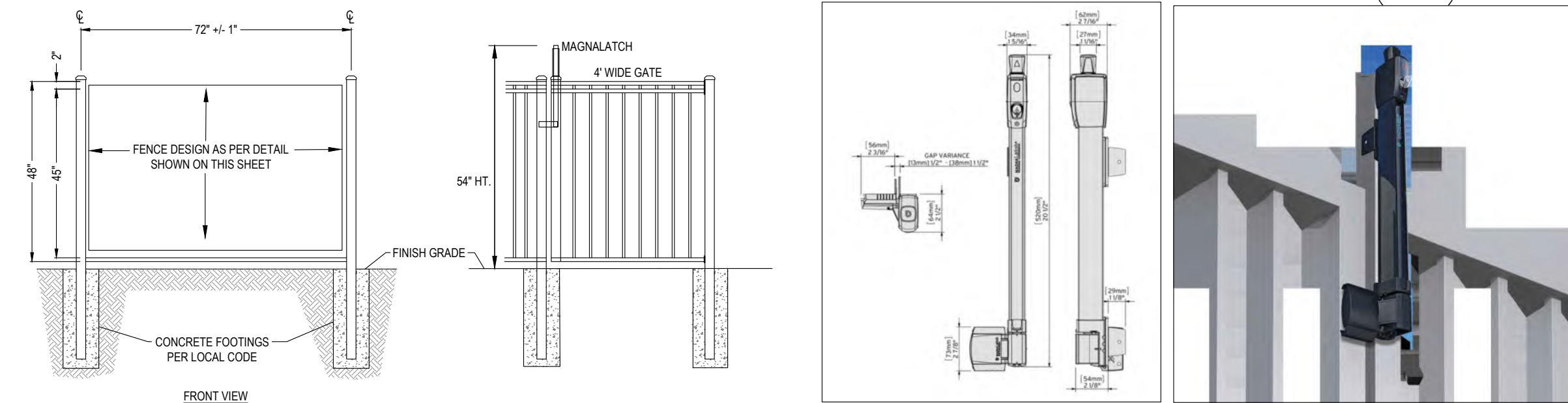
Proposed Black Aluminum Pool Fence and Gate

1



Pool Fence and Gate

2



- NOTES:
- INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
  - DO NOT SCALE DRAWING.
  - THIS DRAWING IS INTENDED FOR USE BY ARCHITECTS, ENGINEERS, CONTRACTORS, CONSULTANTS AND DESIGN PROFESSIONALS FOR PLANNING PURPOSES ONLY. THIS DRAWING MAY NOT BE USED FOR CONSTRUCTION.
  - ALL INFORMATION CONTAINED HEREIN WAS CURRENT AT THE TIME OF DEVELOPMENT BUT MUST BE REVIEWED AND APPROVED BY THE PRODUCT MANUFACTURER TO BE CONSIDERED ACCURATE.
  - CONTRACTORS NOTE: FOR PRODUCT AND COMPANY INFORMATION VISIT [www.CADetails.com/info](http://www.CADetails.com/info) AND ENTER REFERENCE NUMBER 4655-116.

ADDITIONAL PLAN NOTES REGARDING POOL FENCE AND BARRIER:

R326.4.2.8 Dwelling wall as barrier. A wall or walls of a dwelling may serve as part of the barrier, provided that the wall or walls meet the applicable barrier requirements of Sections R326.4.2.1 through R326.4.2.6, and one of the following conditions shall be met:

- Doors with direct access to the pool through that wall shall be equipped with an alarm that produces an audible warning when the door and/or its screen, if present, are opened. The alarm shall be listed in accordance with UL 2017. The audible alarm shall activate within 7 seconds and sound continuously for a minimum of 30 seconds after the door and/or its screen, if present, are opened and are capable of being heard throughout the house during normal household activities. The alarm shall automatically reset under all conditions. The alarm system shall be equipped with a manual means, such as touch pad or switch, to temporarily deactivate the alarm for a single opening. Deactivation shall last for not more than 15 seconds; and
- Operable windows in the wall or walls used as a barrier shall have a latching device located no less than 48 inches above the floor. Openings in operable windows shall not allow a 4-inch diameter (102 mm) sphere to pass through the opening when the window is in its largest opened position; and
- Where the dwelling is wholly contained within the pool barrier or enclosure, alarms shall be provided at every door with direct access to the pool; or
- Other approved means of protection, such as self-closing with self-latching devices, so long as the degree of protection afforded is not less than the protection afforded by Item 1 described above.

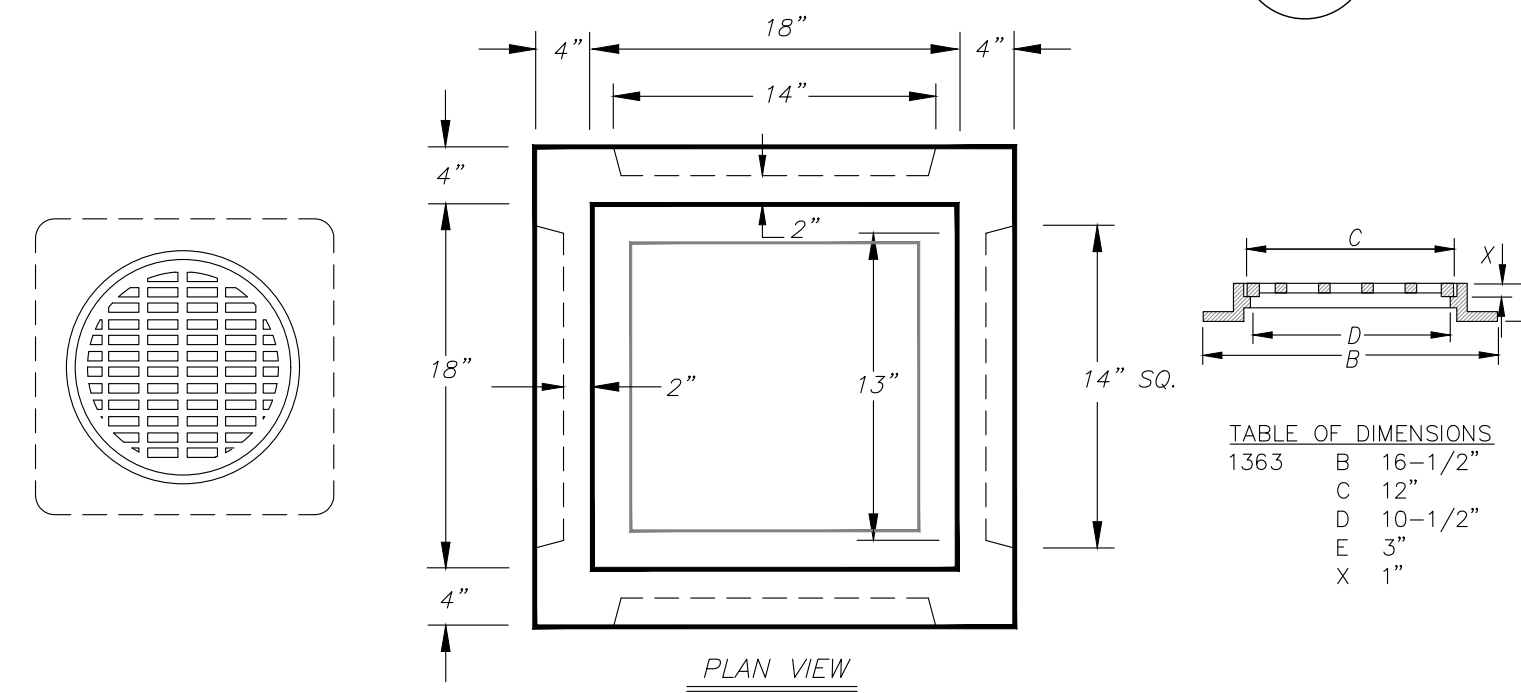
[NY] R326.4.2.8.1 Alarm deactivation switch location. Where an alarm is provided, the deactivation switch shall be located 54 inches (1372 mm) or more above the threshold of the door. In dwellings required to be Accessible units, Type A units, or Type B units, the deactivation switch shall be located 48 inches (1219 mm) above the threshold of the door.

NOTES ON POOL GATES AND DESIGN:

- SELF-CLOSING AND OPENING CONFIGURATION. ALL GATES SHALL BE SELF-CLOSING. IN ADDITION, IF THE GATE IS A PEDESTRIAN ACCESS GATE, THE GATE SHALL OPEN OUTWARD, AWAY FROM THE POOL.
- LATCHING. ALL GATES SHALL BE SELF-LATCHING, WITH THE LATCH HANDLE LOCATED WITHIN THE ENCLOSURE (I.E., ON THE POOL SIDE OF THE ENCLOSURE) AND AT LEAST 40 INCHES ABOVE GRADE. IN ADDITION, IF THE LATCH HANDLE IS LOCATED LESS THAN 54 INCHES FROM GRADE, THE LATCH HANDLE SHALL BE LOCATED AT LEAST 3 INCHES BELOW THE TOP OF THE GATE, AND NEITHER THE GATE NOR THE BARRIER SHALL HAVE ANY OPENING GREATER THAN 0.5 INCH WITHIN 18 INCHES OF THE LATCH HANDLE.
- LOCKING. ALL GATES SHALL BE SECURELY LOCKED WITH A KEY, COMBINATION OR OTHER CHILD-PROOF LOCK SUFFICIENT TO PREVENT ACCESS TO THE SWIMMING POOL THROUGH SUCH GATE WHEN THE SWIMMING POOL IS NOT IN USE OR SUPERVISED.

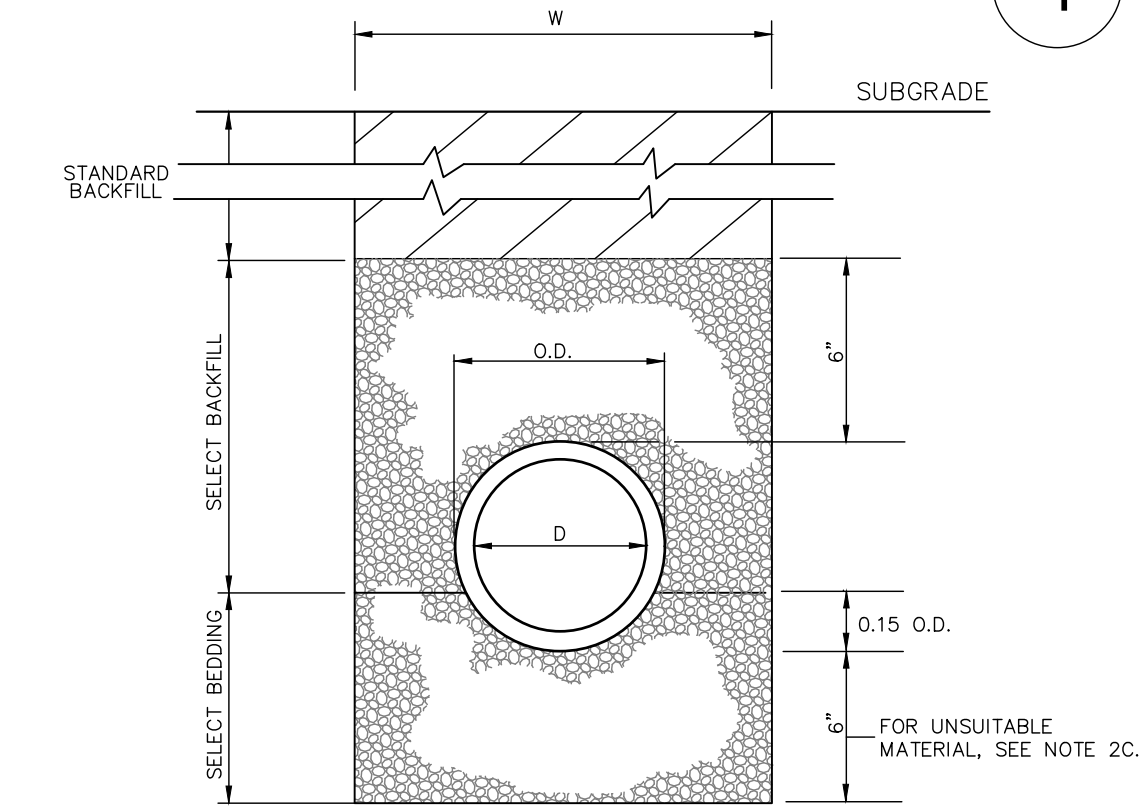
Catch Basin

3



Pipe Trench

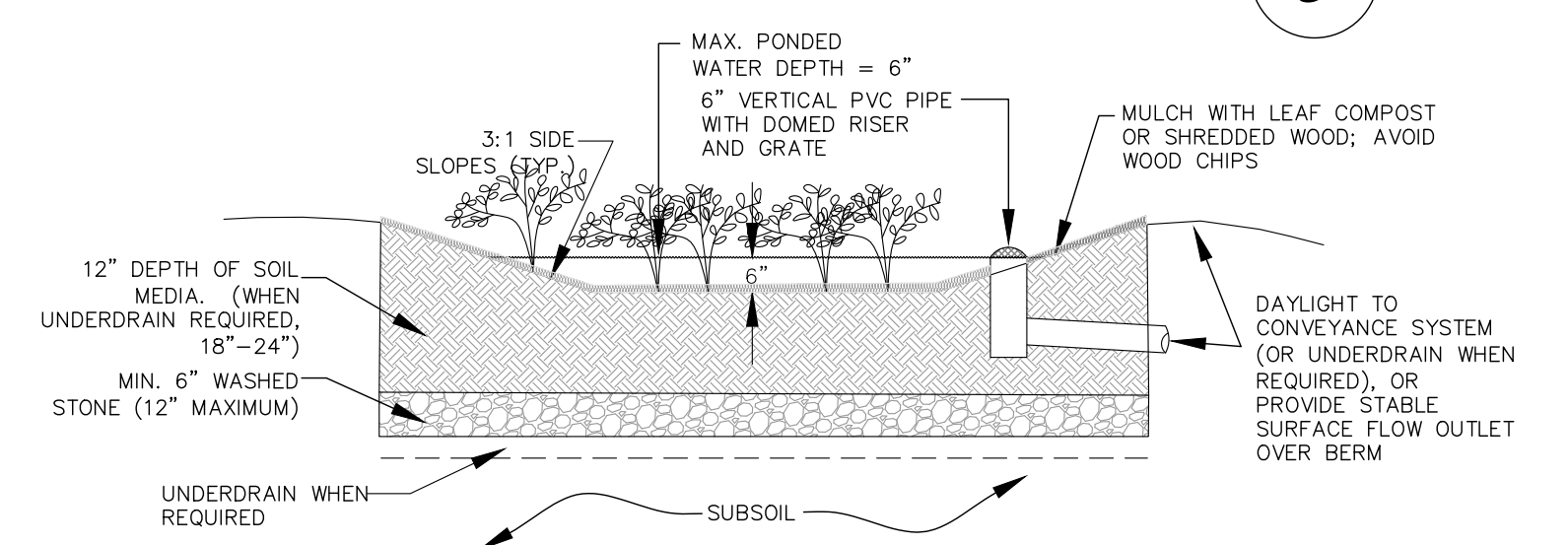
4



- NOTES:
- FOR TYPE II TRENCH, MATERIAL FOR SELECT BEDDING AND SELECT BACKFILL SHALL BE:
    - EITHER SAND OR CRUSHED STONE IF NO WATER IS ENCOUNTERED IN TRENCH.
    - CRUSHED STONE IF WATER IS ENCOUNTERED IN TRENCH.
  - TYPE II TRENCH SHALL BE USED IN ALL OF THE FOLLOWING CASES:
    - FOR ALL PVC PIPE AND CONDUIT INSTALLATION.
    - WHEN ROCK OR HARDSHIP IS ENCOUNTERED IN BOTTOM OF TRENCH.
    - WHEN UNSUITABLE MATERIAL IS ENCOUNTERED IN BOTTOM OF TRENCH. IN SUCH CASE DEPTH OF UNDERCUTTING SHALL BE AS DIRECTED BY THE ENGINEER WITH 6" MINIMUM.
  - FOR ALL TRENCH EXCAVATION IN FILL AREAS, ALL EMBANKMENTS SHALL BE CONSTRUCTED TO A MINIMUM OF 2 FEET ABOVE THE OUTSIDE TOP (AT THE BELL) OF THE PIPE PRIOR TO BEGINNING ANY TRENCH EXCAVATION.
  - SELECT BEDDING - SHALL CONSIST OF A BED OF PROPERLY COMPACTED GRANULAR BEDDING MATERIAL (SAND OR CRUSHED STONE AS SPECIFIED) HAVING A COMPACTED THICKNESS OF AT LEAST SIX (6) INCHES BELOW THE BOTTOM OF THE PIPE OR CONDUIT AND EXTENDING AROUND THE PIPE OR CONDUIT FOR AT LEAST 50% OF ITS DIAMETER OR RISE. THE LAYER OF BEDDING MATERIAL SHALL BE SHAPED TO FIT THE PIPE OR CONDUIT FOR AT LEAST 15% OF THE OUTSIDE DIAMETER OR RISE OF THE PIPE OR CONDUIT AND SHALL HAVE RECESSES SHAPED TO RECEIVE THE BELL OF BELL AND SPIGOT PIPE. SAND BEDDING SHALL BE CLEAN, WELL-GRADED SAND CONSISTING OF HARD, DURABLE PARTICLES FREE FROM LUMPS OF CLAY, LOAM AND ALL OTHER DELETERIOUS SUBSTANCES. CRUSHED STONE BEDDING SHALL BE WELL-GRADED CRUSHED STONE CONFORMING TO ASTM DESIGNATION C-33, SIZE NO. 67.
  - STANDARD BACKFILL - SHALL CONSIST OF ON-SITE MATERIAL (EARTH) APPROVED BY THE OWNER'S FIELD REPRESENTATIVE AND/OR SOILS ENGINEER. SHOULD THERE BE A DEFICIENCY OF PROPER ON-SITE MATERIAL FOR BACKFILLING, THE CONTRACTOR SHALL FURNISH, PLACE AND COMPACT ADDITIONAL PROPER BACKFILL MATERIAL.
  - SELECT BACKFILL - SHALL CONSIST OF GRANULAR MATERIAL (SAND OR CRUSHED STONE AS SPECIFIED) AS APPROVED BY THE OWNER'S FIELD REPRESENTATIVE AND/OR SOILS ENGINEER. SAND SHALL CONSIST OF CLEAN, WELL-GRADED, HARD, DURABLE PARTICLES, FREE OF LUMPS OF CLAY, LOAM AND ALL OTHER DELETERIOUS SUBSTANCES. CRUSHED STONE SHALL CONSIST OF WELL-GRADED CRUSHED STONE CONFORMING TO ASTM DESIGNATION C-33, SIZE NO. 67.
  - BACKFILL FOR PIPE AND CONDUIT SHALL BE PLACED EVENLY AND CAREFULLY AROUND AND OVER THE PIPE OR CONDUIT IN SIX (6) INCH MAXIMUM LAYERS. EACH LAYER SHALL BE THOROUGHLY AND CAREFULLY COMPACTED UNTIL TWELVE (12) INCHES OF COVER EXISTS OVER THE PIPE OR CONDUIT. THE REMAINDER OF THE BACKFILL SHALL THEN BE PLACED AND COMPACTED IN MAXIMUM TWELVE (12) INCH LAYERS. EACH LAYER SHALL BE COMPACTED BY APPROVED MECHANICAL TAMPING MACHINES.

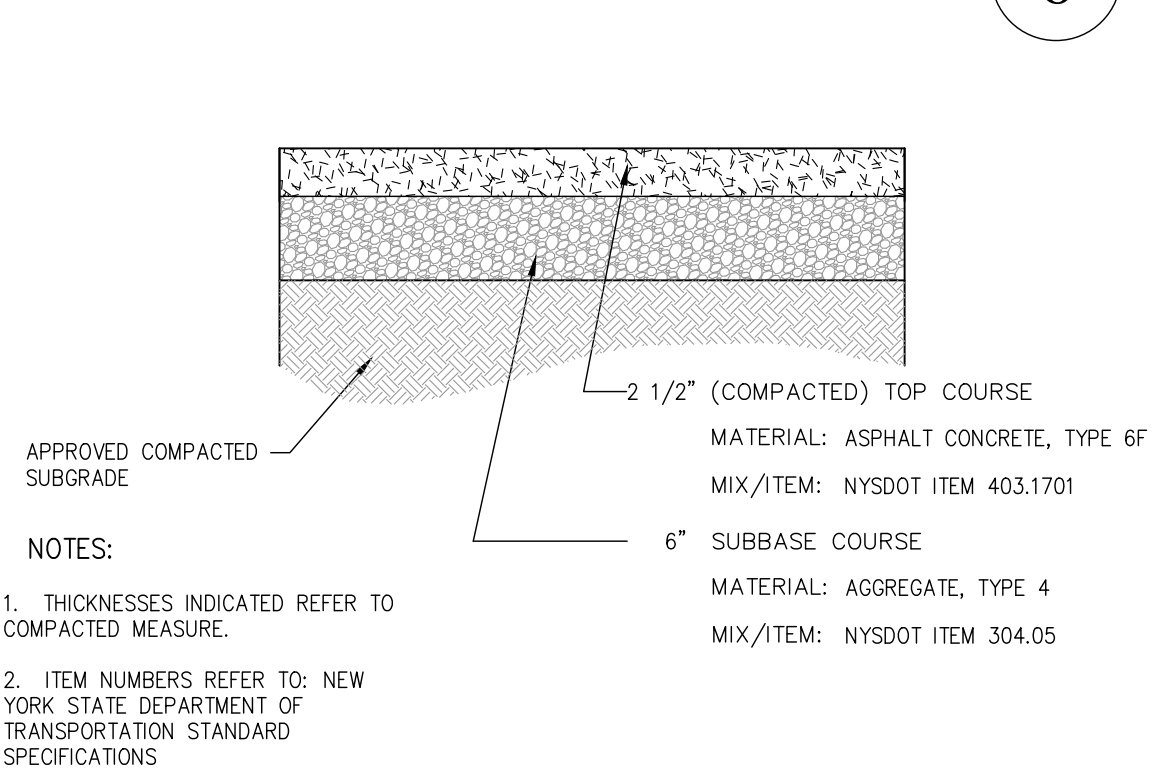
Rain Garden

5



Driveway Pavement

6



NOTES:

- \*CONCRETE : 4,000 PSI @ 28 DAYS
- \*REINFORCING : AS PER ASTM A-185
- 6" x 6" W4/W4 W.W.M.
- \*WEIGHTS :
- CATCH BASIN - 645 LBS.
- CONCRETE FLAT TOP ALSO AVAILABLE
- 180 LBS. (3" THICK)
- RISER WEIGHTS : 363 LBS/FT.

Precast Concrete Sales Co.

123 Route 303 Valley Cottage, N.Y. 10989

Tel. (845) 268-4949 - Fax (845) 268-4376

CONT.	DATE	DRAWN BY	DRAWING NO.
JOB	1/16	CLASSIC DESIGN	218-18

18"x18"x18" KNOCKOUT CATCH BASIN

CONSULTANTS:

Architect:  
TEO SIQUENZA ARCHITECTS  
460 OLD POST ROAD  
BEDFORD, NEW YORK 10506  
Tel: 914.234.6289 Fax: 914.234.0619

Surveyor:  
Edward T. Gannon, PLS  
Cherry Hill Road,  
Blooming Grove, NY 10914

ISSUED:

Revised as per comments of RPRC 01/02/2024

OWNERSHIP AND USE OF DOCUMENTS

UNAUTHORIZED ALTERATIONS AND ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209(2) OF THE NEW YORK STATE EDUCATION LAW.

No part of these drawings shall be copied, disclosed to others or used in connection with any work or project other than for which they have been prepared without the express written consent of the licensed professional who prepared the document.



PROJECT NAME:  
**BERKIN PROPERTY**  
99 Byram Ridge Road  
Armonk, New York 10504

SBL: 101.01-1-13

ENGINEER & LANDSCAPE ARCHITECT:  
**ALP ENGINEERING & LANDSCAPE ARCHITECTURE, PLLC**

P.O. Box 843 Ridgefield, CT 06877  
Direct Tel: (475) 215-5343 Cell (203) 710-0587

Drawing Title:  
**Construction Details**

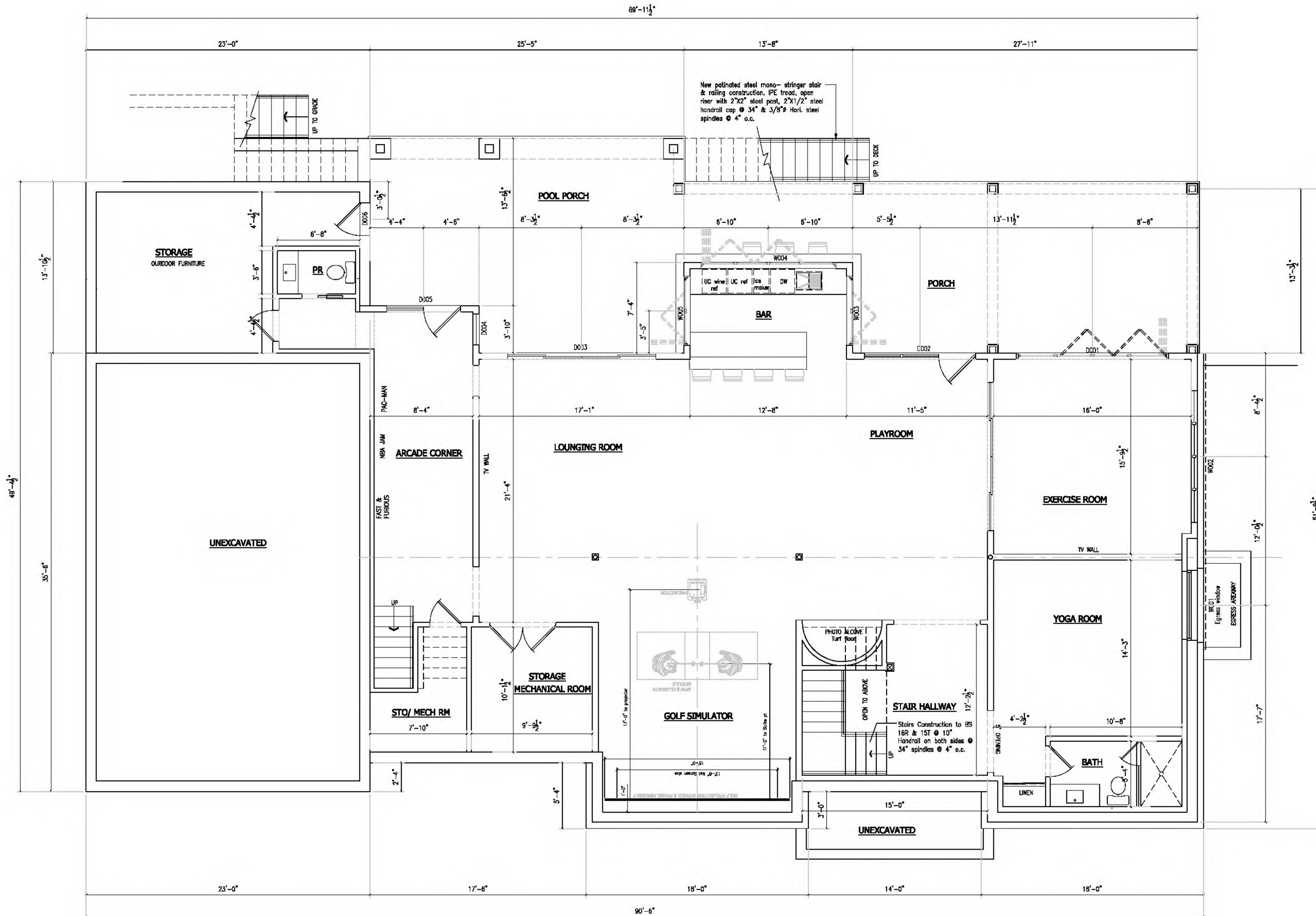
Date: November 20, 2023

Drawn by: alp

ID: 99 Byram Ridge Rd\_12-06-2023.6

C-113

GENERAL NOTES:  
 1. DO NOT SCALE DRAWINGS FOR CONSTRUCTION PURPOSES  
 2. ALL DIMENSIONS TO BE CHECKED  
 3. CONTRACTOR IS OBLIGED TO REPORT ALL ERRORS AND OMISSIONS TO THE ARCHITECT



DATE	REVISION

PROJECT  
**RESIDENCE AT**  
**BYRAM RIDGE ROAD**  
 SINGLE FAMILY RESIDENCE

99 BYRAM RIDGE ROAD  
 ARMONK, NY

DRAWING TITLE  
**PROPOSED FIRST FLOOR PLAN**



DATE  
**1-2-24**

SCALE  
 1/4" = 1'-0"

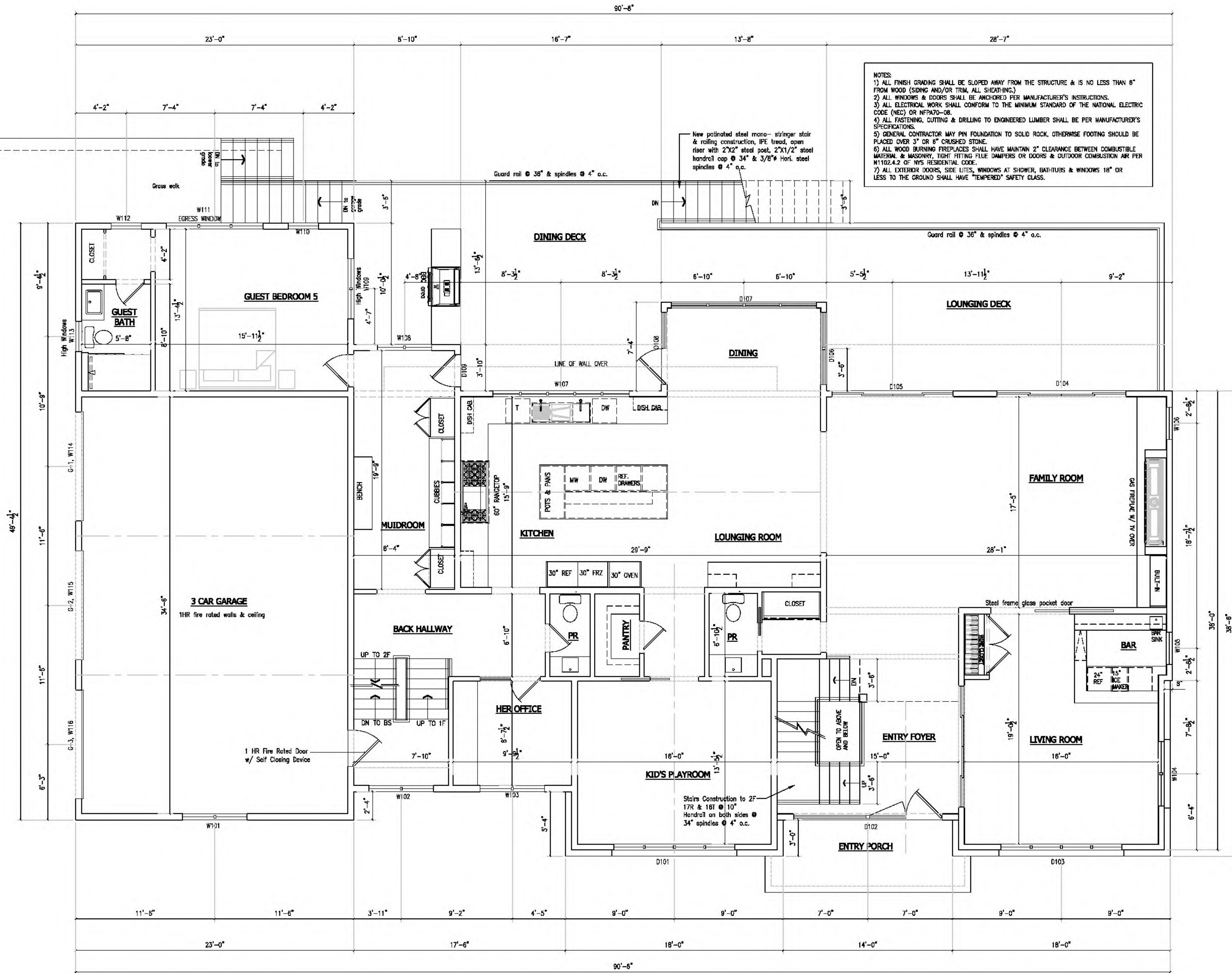
DRAWING NO.  
**A100.00**

PAGE NO.



GENERAL NOTES:  
 1. DO NOT SCALE DRAWINGS FOR CONSTRUCTION PURPOSES  
 2. ALL DIMENSIONS TO BE CHECKED  
 3. CONTRACTOR IS OBLIGED TO REPORT ALL ERRORS AND OMISSIONS TO THE ARCHITECT

NOTES:  
 1) ALL FINISH GRADING SHALL BE SLOPED AWAY FROM THE STRUCTURE & IS NO LESS THAN 6" FROM WOOD (SIDING AND/OR TRIM, ALL SHEATHING.)  
 2) ALL WINDOWS & DOORS SHALL BE ANCHORED PER MANUFACTURER'S INSTRUCTIONS.  
 3) ALL ELECTRICAL WORK SHALL CONFORM TO THE MINIMUM STANDARD OF THE NATIONAL ELECTRIC CODE (NEC) OR NFPA70-08.  
 4) ALL FASTENING, CUTTING & DRILLING TO ENGINEERED LUMBER SHALL BE PER MANUFACTURER'S SPECIFICATIONS.  
 5) GENERAL CONTRACTOR MAY PIN FOUNDATION TO SOLID ROCK, OTHERWISE FOOTING SHOULD BE PLACED OVER 3" OR 6" CRUSHED STONE.  
 6) ALL WOOD BURNING FIREPLACES SHALL HAVE MAINTAIN 2" CLEARANCE BETWEEN COMBUSTIBLE MATERIAL & MASONRY, TIGHT FITTING FLUE DAMPERS OR DOORS & OUTDOOR COMBUSTION AIR PER N1102.4.2 OF NYS RESIDENTIAL CODE.  
 7) ALL EXTERIOR DOORS, SIDE LITES, WINDOWS AT SHOWER, BATH-TUBS & WINDOWS 18" OR LESS TO THE GROUND SHALL HAVE "TEMPERED" SAFETY GLASS.



DATE	REVISION

PROJECT  
**RESIDENCE AT BYRAM RIDGE ROAD**  
 SINGLE FAMILY RESIDENCE  
 99 BYRAM RIDGE ROAD  
 ARMONK, NY

DRAWING TITLE  
**PROPOSED FIRST FLOOR PLAN**



DATE  
**1-2-24**

SCALE  
 1/4" = 1'-0"

DRAWING NO.  
**A101.00**

PAGE NO.

GENERAL NOTES:  
 1. DO NOT SCALE DRAWINGS FOR CONSTRUCTION PURPOSES  
 2. ALL DIMENSIONS TO BE CHECKED  
 3. CONTRACTOR IS OBLIGED TO REPORT ALL ERRORS AND OMISSIONS TO THE ARCHITECT

DATE:	REVISION:

PROJECT  
 RESIDENCE AT  
 BYRAM RIDGE ROAD  
 SINGLE FAMILY RESIDENCE

99 BYRAM RIDGE ROAD  
 ARMONK, NY

DRAWING TITLE  
**PROPOSED SECOND FLOOR PLAN**

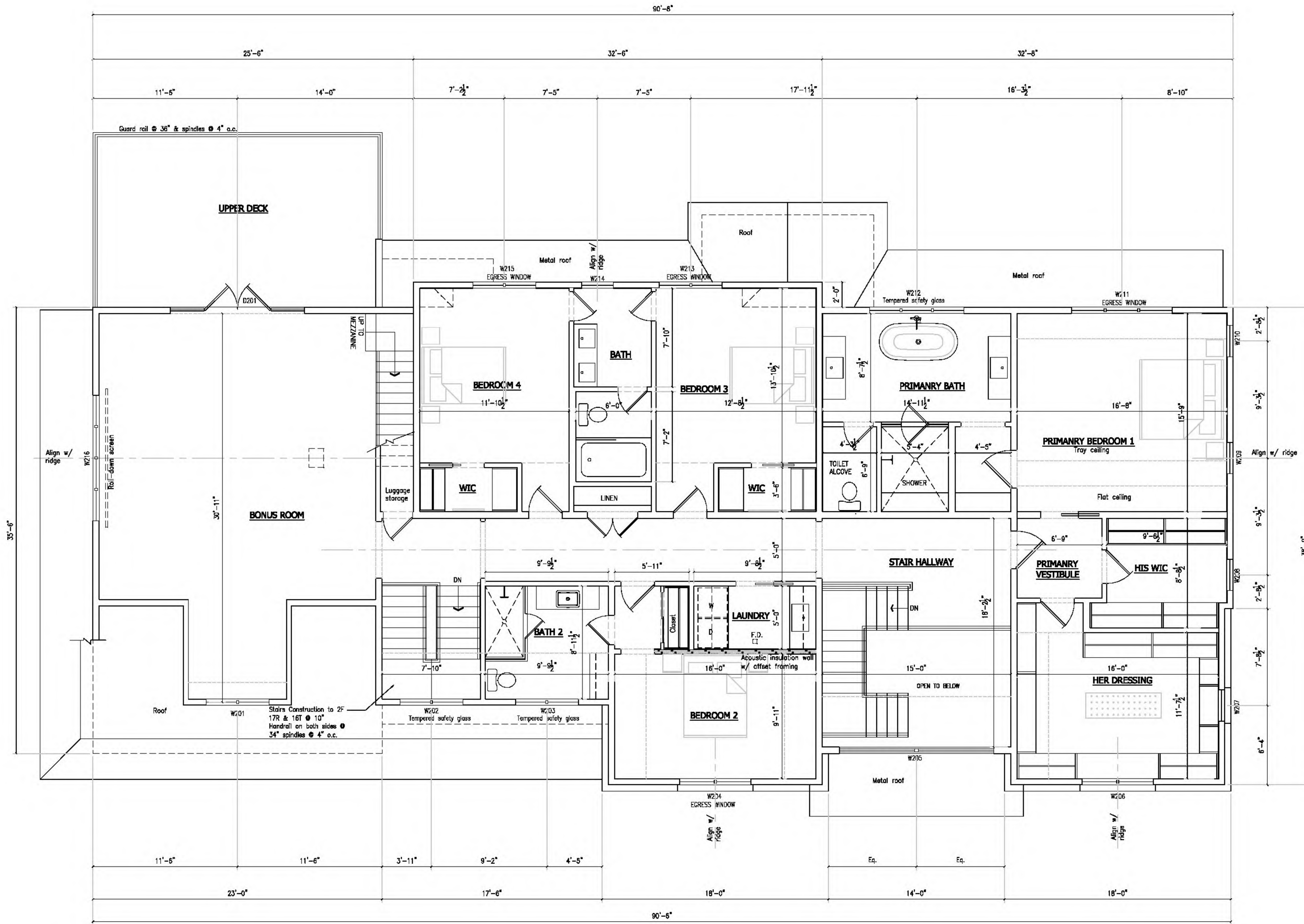


DATE  
**1-2-24**

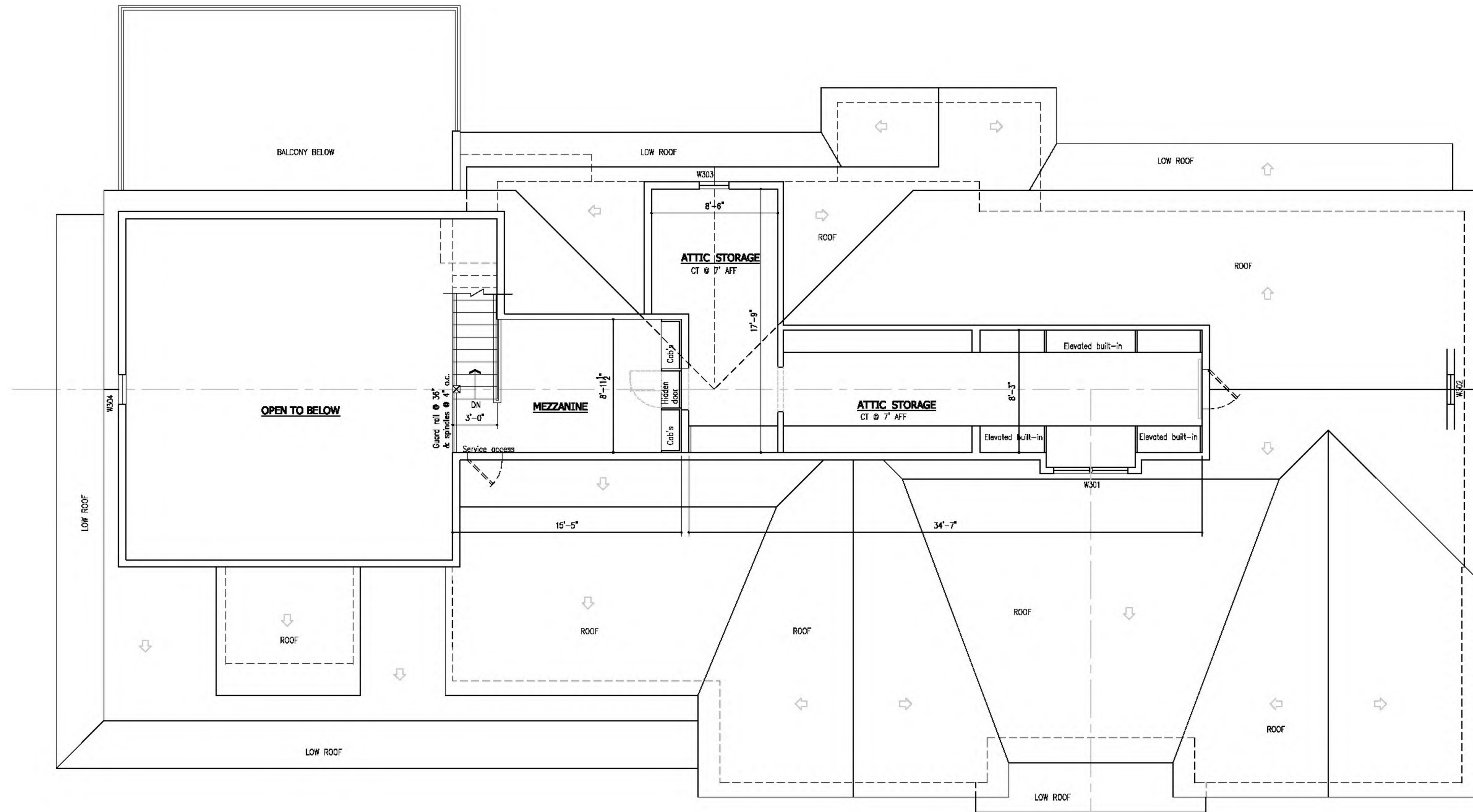
SCALE  
 1/4" = 1'-0"

DRAWING NO.  
**A102.00**

PAGE NO.



GENERAL NOTES:  
 1. DO NOT SCALE DRAWINGS FOR CONSTRUCTION PURPOSES  
 2. ALL DIMENSIONS TO BE CHECKED  
 3. CONTRACTOR IS OBLIGED TO REPORT ALL ERRORS AND OMISSIONS TO THE ARCHITECT



DATE	REVISION

PROJECT  
**RESIDENCE AT  
 BYRAM RIDGE ROAD**  
 SINGLE FAMILY RESIDENCE

99 BYRAM RIDGE ROAD  
 ARMONK, NY

DRAWING TITLE  
 PROPOSED MEZZANINE /  
 ATTIC PLAN



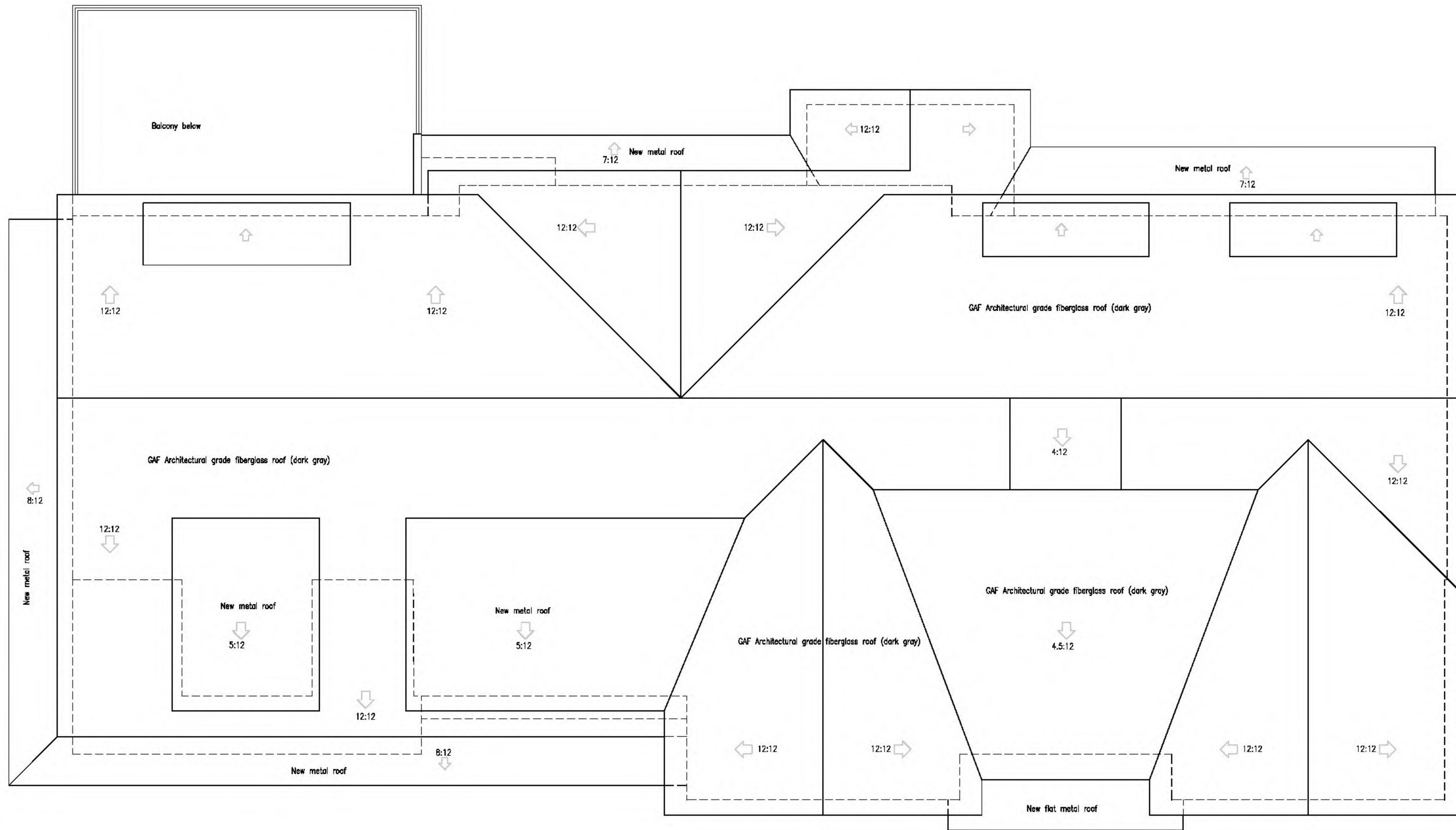
DATE  
**1-2-24**

SCALE  
 1/4" = 1'-0"

DRAWING NO.  
**A103.00**

PAGE NO.

GENERAL NOTES:  
 1. DO NOT SCALE DRAWINGS FOR CONSTRUCTION PURPOSES  
 2. ALL DIMENSIONS TO BE CHECKED  
 3. CONTRACTOR IS OBLIGED TO REPORT ALL ERRORS AND OMISSIONS TO THE ARCHITECT



DATE	REVISION

PROJECT  
**RESIDENCE AT  
 BYRAM RIDGE ROAD**  
 SINGLE FAMILY RESIDENCE

99 BYRAM RIDGE ROAD  
 ARMONK, NY

DRAWING TITLE  
**PROPOSED ROOF PLAN**



DATE  
**1-2-24**

SCALE  
 1/4" = 1'-0"

DRAWING NO.  
**A104.00**

PAGE NO.

GENERAL NOTES:  
 1. DO NOT SCALE DRAWINGS FOR CONSTRUCTION PURPOSES  
 2. ALL DIMENSIONS TO BE CHECKED  
 3. CONTRACTOR IS OBLIGED TO REPORT ALL ERRORS AND OMISSIONS TO THE ARCHITECT



DATE	REVISION

PROJECT  
 RESIDENCE AT  
 BYRAM RIDGE ROAD  
 SINGLE FAMILY RESIDENCE

99 BYRAM RIDGE ROAD  
 ARMONK, NY

DRAWING TITLE  
**PROPOSED EXTERIOR ELEVATIONS**



DATE  
**1-2-24**

SCALE  
 1/4" = 1'-0"

DRAWING NO.

**A200.00**

PAGE NO.

GENERAL NOTES:  
 1. DO NOT SCALE DRAWINGS FOR CONSTRUCTION PURPOSES  
 2. ALL DIMENSIONS TO BE CHECKED  
 3. CONTRACTOR IS OBLIGED TO REPORT ALL ERRORS AND OMISSIONS TO THE ARCHITECT



DATE	REVISION

PROJECT  
**RESIDENCE AT  
 BYRAM RIDGE ROAD  
 SINGLE FAMILY RESIDENCE**

99 BYRAM RIDGE ROAD  
 ARMONK, NY

DRAWING TITLE  
**PROPOSED EXTERIOR ELEVATIONS**



DATE  
**1-2-24**

SCALE  
 1/4" = 1'-0"

DRAWING NO.  
**A201.00**

PAGE NO.

GENERAL NOTES:  
 1. DO NOT SCALE DRAWINGS FOR CONSTRUCTION PURPOSES  
 2. ALL DIMENSIONS TO BE CHECKED  
 3. CONTRACTOR IS OBLIGED TO REPORT ALL ERRORS AND OMISSIONS TO THE ARCHITECT



DATE	REVISION

PROJECT  
**RESIDENCE AT  
 BYRAM RIDGE ROAD**  
 SINGLE FAMILY RESIDENCE

99 BYRAM RIDGE ROAD  
 ARMONK, NY

DRAWING TITLE  
**PROPOSED EXTERIOR ELEVATIONS**



DATE  
**1-2-24**

SCALE  
 1/4" = 1'-0"

DRAWING NO.  
**A202.00**

PAGE NO.

GENERAL NOTES:  
 1. DO NOT SCALE DRAWINGS FOR CONSTRUCTION PURPOSES  
 2. ALL DIMENSIONS TO BE CHECKED  
 3. CONTRACTOR IS OBLIGED TO REPORT ALL ERRORS AND OMISSIONS TO THE ARCHITECT



DATE	REVISION

PROJECT  
 RESIDENCE AT  
 BYRAM RIDGE ROAD  
 SINGLE FAMILY RESIDENCE

99 BYRAM RIDGE ROAD  
 ARMONK, NY

DRAWING TITLE  
**PROPOSED EXTERIOR ELEVATIONS**



DATE  
**1-2-24**

SCALE  
 1/4" = 1'-0"

DRAWING NO.  
**A203.00**

PAGE NO.



GENERAL NOTES:  
 1. DO NOT SCALE DRAWINGS FOR CONSTRUCTION PURPOSES  
 2. ALL DIMENSIONS TO BE CHECKED  
 3. CONTRACTOR IS OBLIGED TO REPORT ALL ERRORS AND OMISSIONS TO THE ARCHITECT

DATE	REVISION

PROJECT  
 RESIDENCE AT  
 BYRAM RIDGE ROAD  
 SINGLE FAMILY RESIDENCE  
 99 BYRAM RIDGE ROAD  
 ARMONK, NY

DRAWING TITLE  
**PROPOSED SECTIONS**

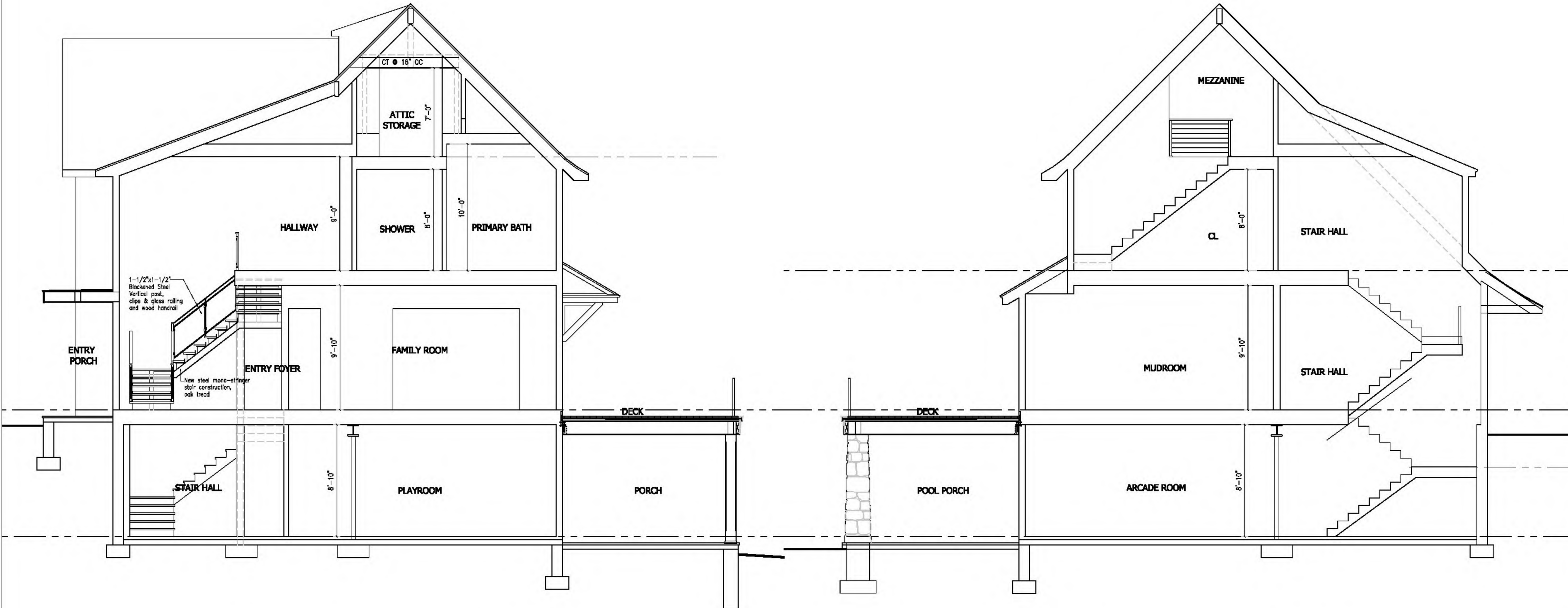


DATE  
**1-2-24**

SCALE  
 1/4" = 1'-0"

DRAWING NO.  
**A300.00**

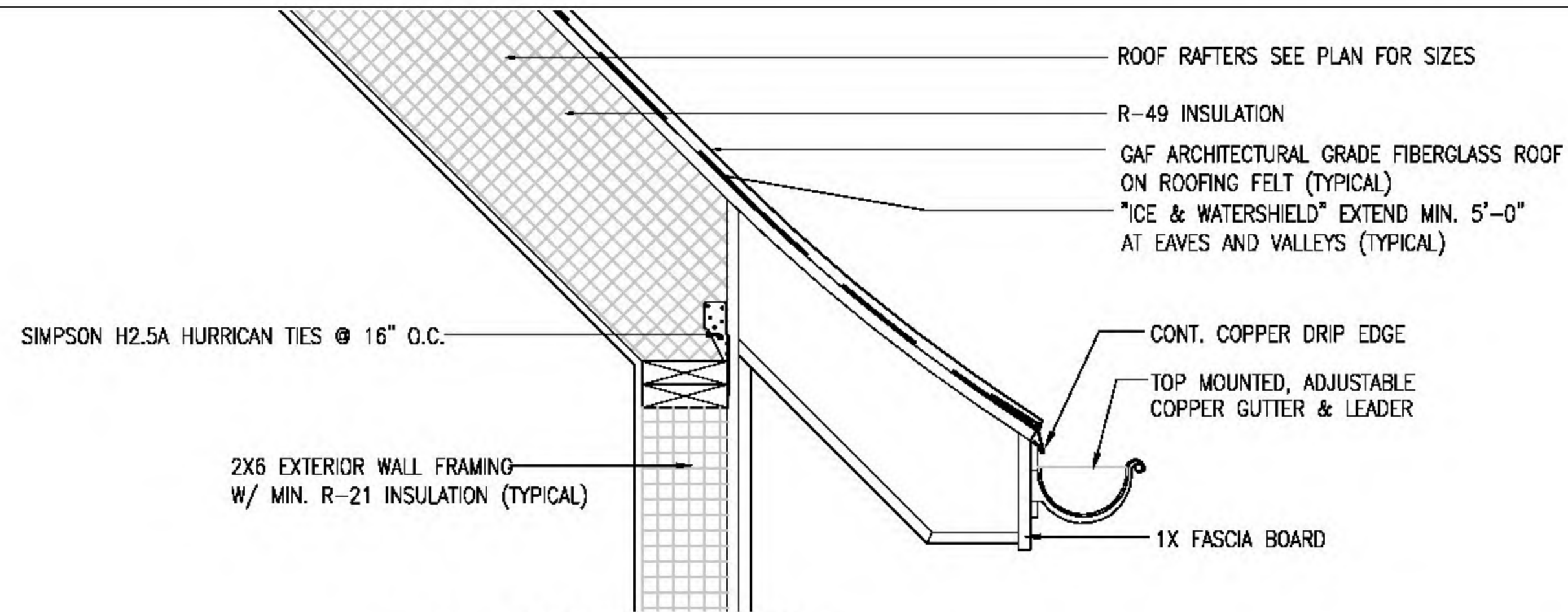
PAGE NO.



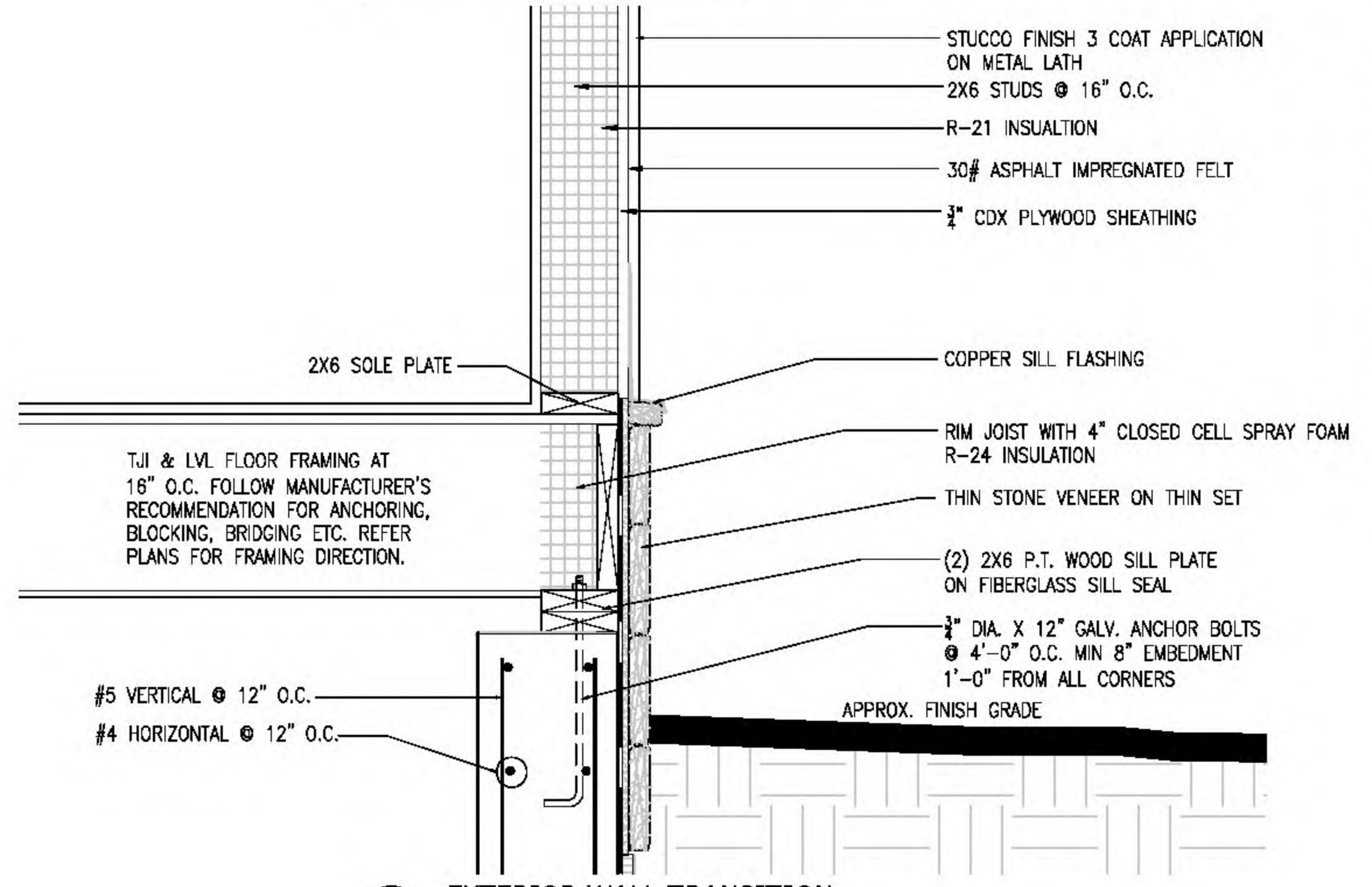
1 PROPOSED SECTION THRU ENTRY PORCH TO FAMILY ROOM  
 SCALE: 1/4"=1'-0"

2 PROPOSED SECTION THRU DECK TO MUDROOM STAIR  
 SCALE: 1/4"=1'-0"

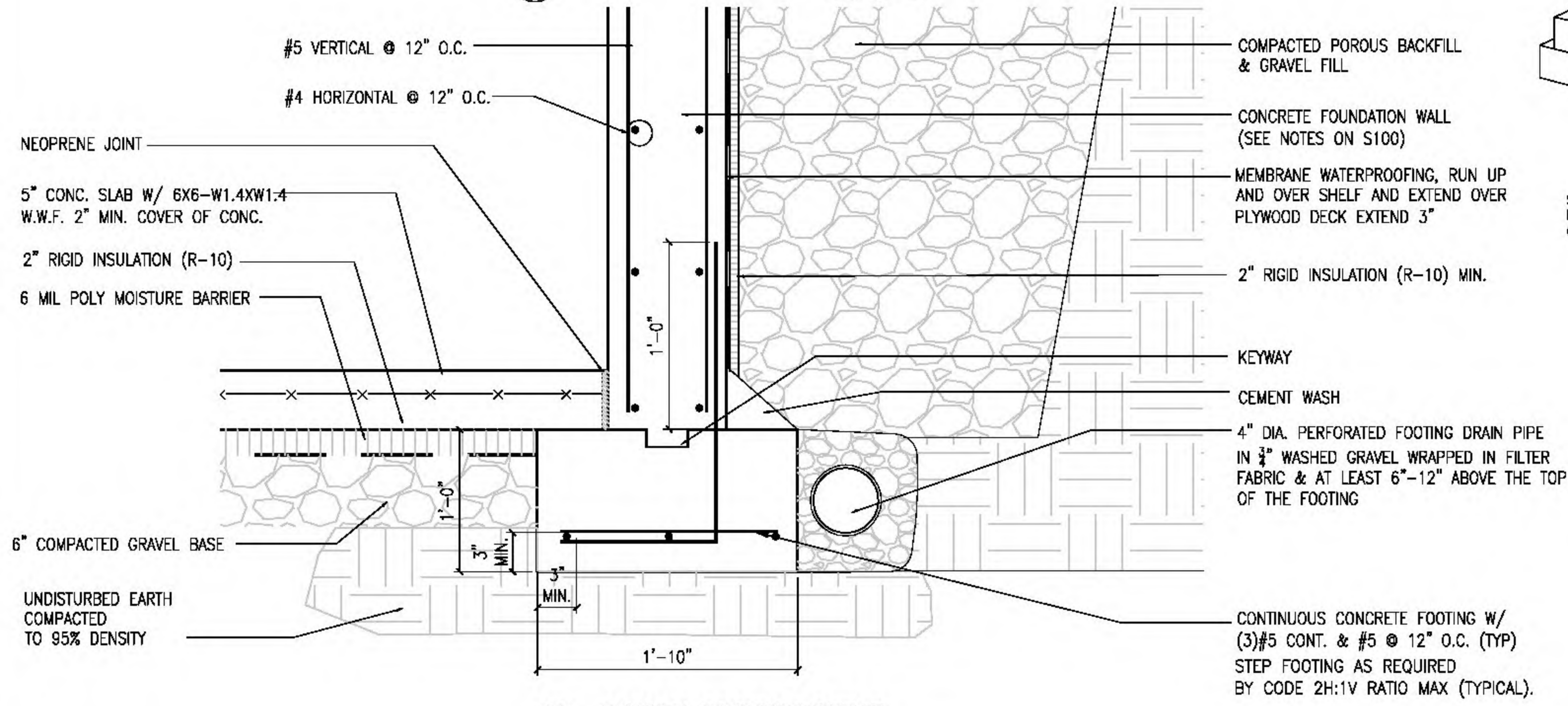
GENERAL NOTES:  
 1. DO NOT SCALE DRAWINGS FOR CONSTRUCTION PURPOSES  
 2. ALL DIMENSIONS TO BE CHECKED  
 3. CONTRACTOR IS OBLIGED TO REPORT ALL ERRORS AND OMISSIONS TO THE ARCHITECT



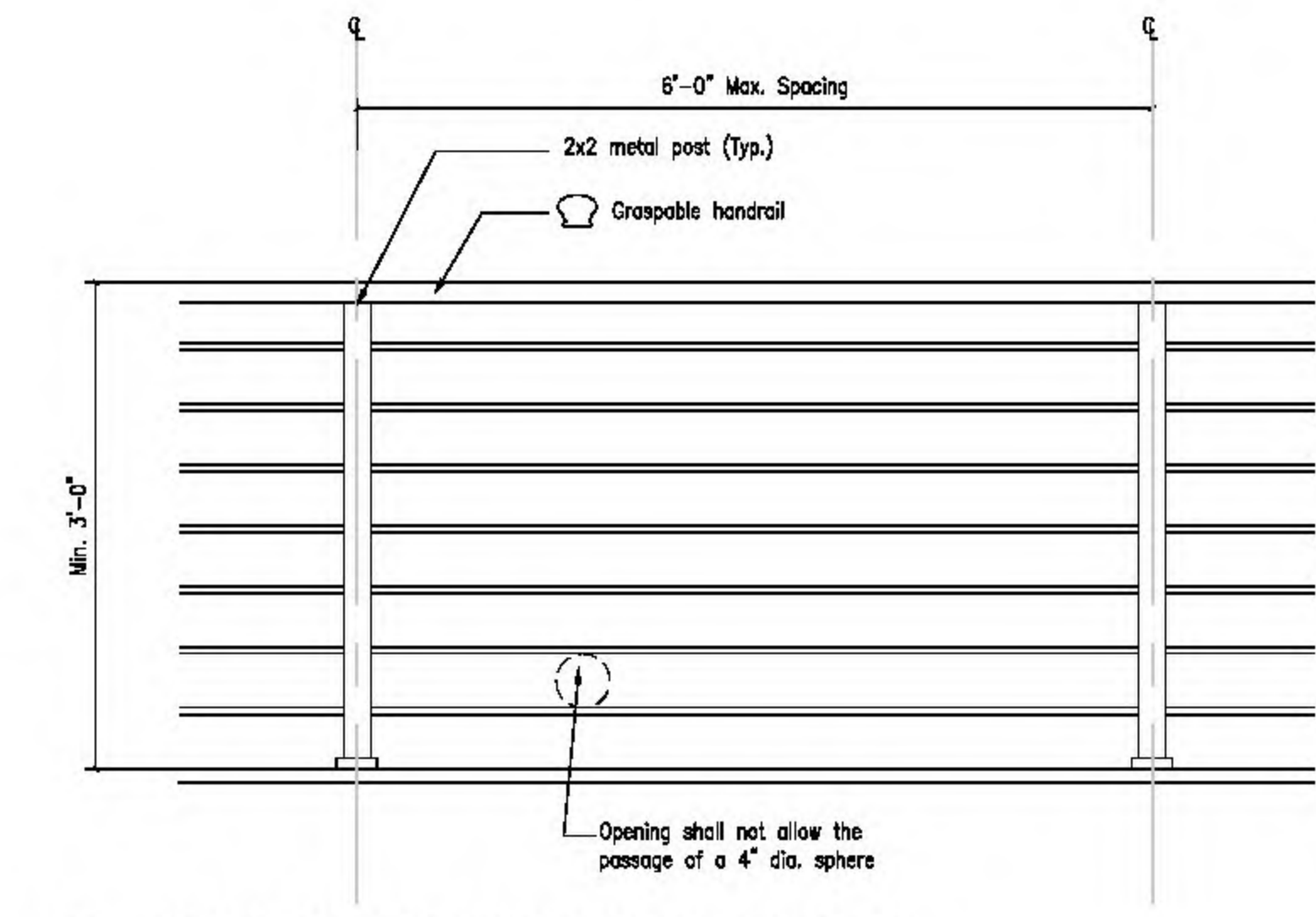
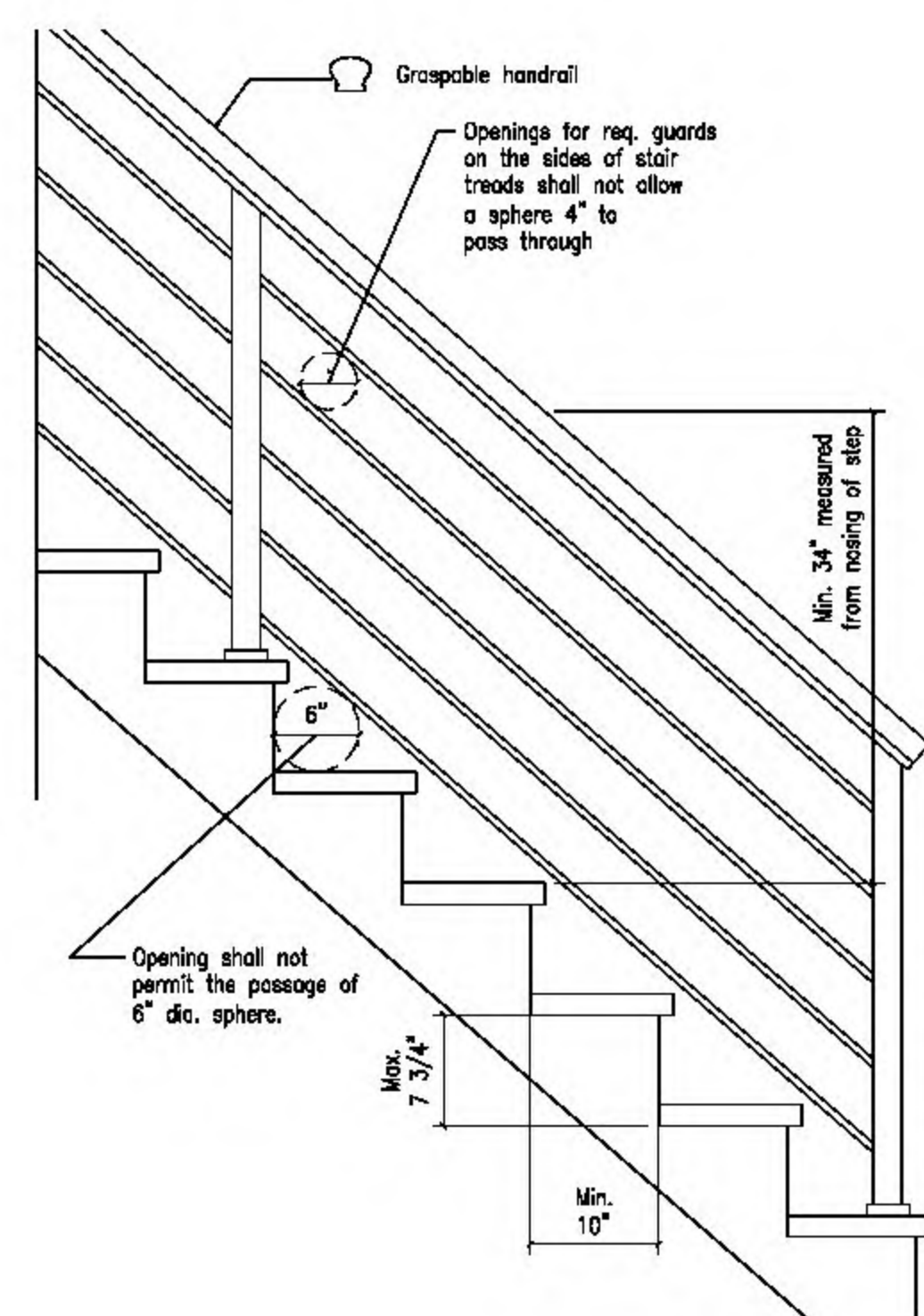
**3** TYPICAL EAVE DETAIL  
 Scale: 1 1/2" = 1'-0"



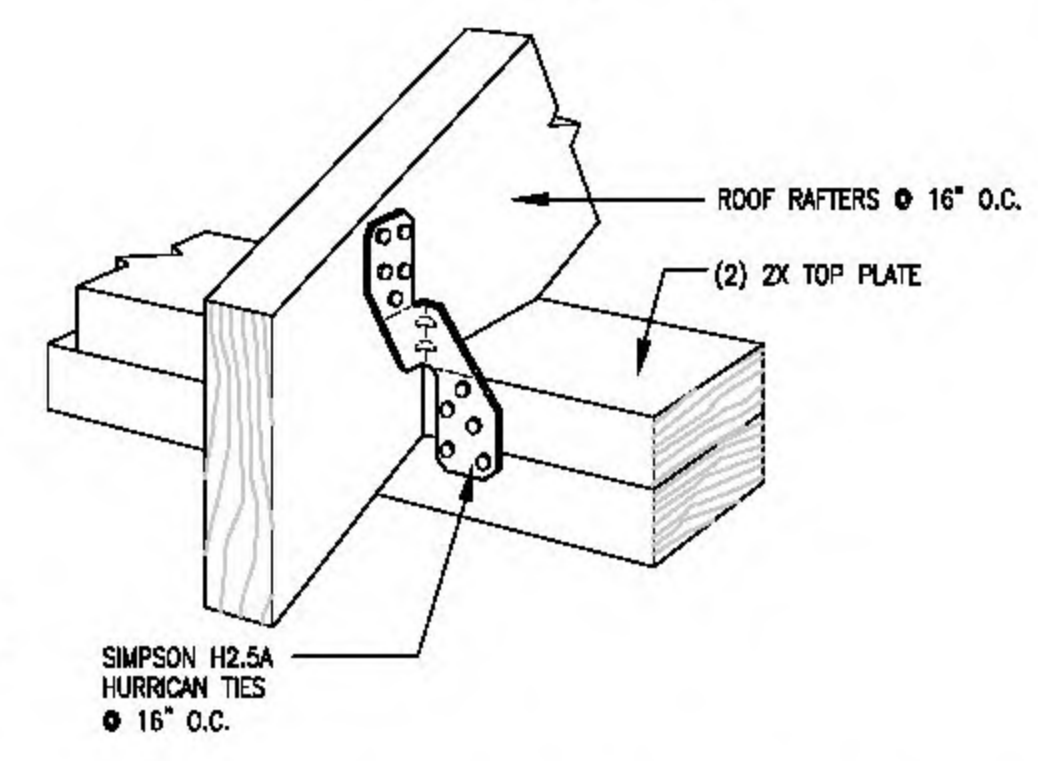
**2** EXTERIOR WALL TRANSITION  
 Scale: 1 1/2" = 1'-0"



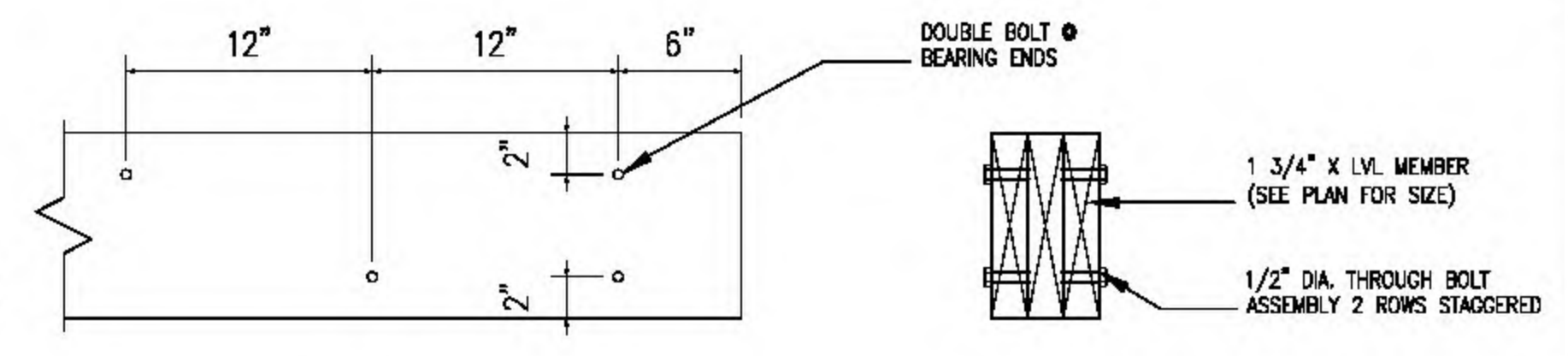
**3** TYPICAL FOOTING DETAIL  
 Scale: 1 1/2" = 1'-0"



**4** STAIR RAILING & GUARD RAIL DETAILS



HURRICANE TIE CONNECTION



ELEVATION

LVL - Laminated veneer lumber by Trust joist or equal  
 NOTE: BOLTING AS REQUIRED. REFER MANUFACTURE SPECIFICATION FOR SPECIFIC CONNECTIONS.

SECTION

See plan for size & location of all LVL members

LVL HEADER DETAIL

DATE:	REVISION

PROJECT  
 RESIDENCE AT  
 BYRAM RIDGE ROAD  
 SINGLE FAMILY RESIDENCE  
 99 BYRAM RIDGE ROAD  
 ARMONK, NY

DRAWING TITLE  
**TYPICAL DETAILS**



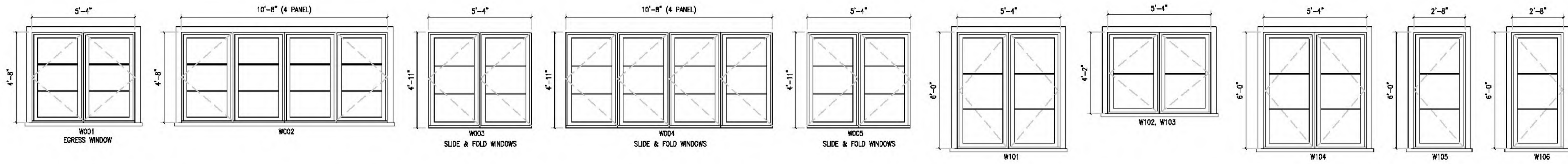
DATE  
**1-2-24**

SCALE  
 1/4" = 1'-0"

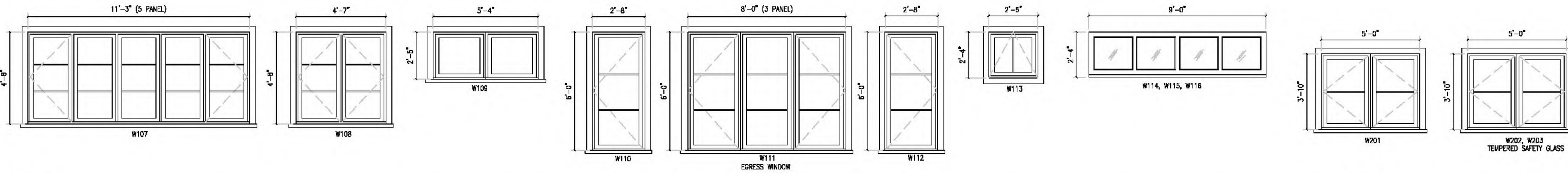
DRAWING NO.  
**A350.00**

PAGE NO.

GENERAL NOTES:  
 1. DO NOT SCALE DRAWINGS FOR CONSTRUCTION PURPOSES  
 2. ALL DIMENSIONS TO BE CHECKED  
 3. CONTRACTOR IS OBLIGED TO REPORT ALL ERRORS AND OMISSIONS TO THE ARCHITECT

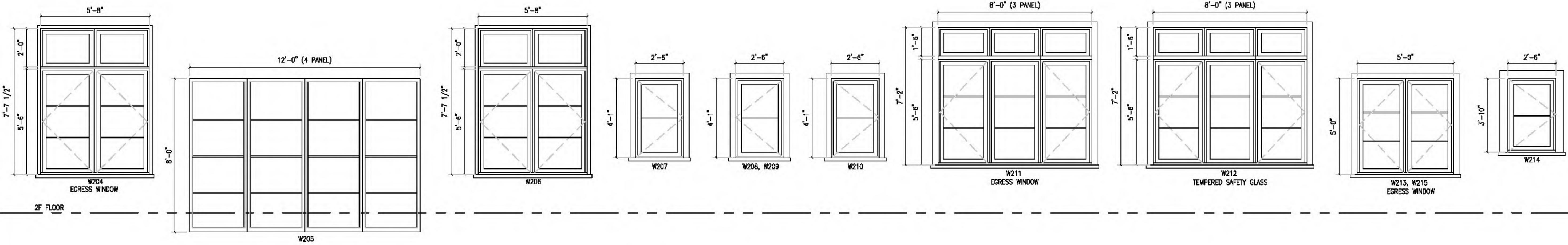


BS AND 1F FLOOR

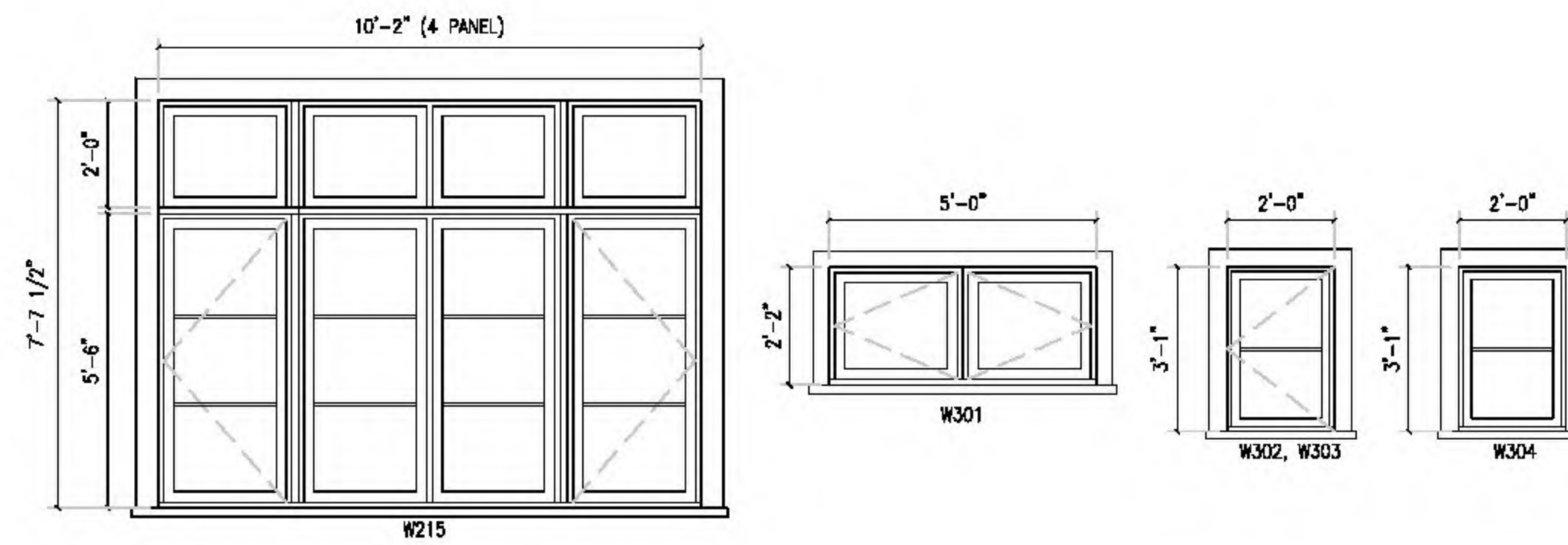


1F FLOOR

2F FLOOR



2F FLOOR



2F & ATTIC FLOOR

**GENERAL NOTES:**

- FABRICATOR TO PROVIDE SHOP DRAWING FOR THE ARCHITECT & BUILDER TO REVIEW.
- REFER TO ABOVE ELEVATIONS FOR THE LITE PATTERN
- ALL EXTERIOR DOORS, SIDE LITES, WINDOWS AT SHOWER, BATHTUBS & WINDOWS 18" OR LESS TO THE GROUND SHALL HAVE "TEMPERED" SAFETY GLASS.
- THE TOP OF THE SILL OF AN OPERABLE WINDOW OPENING IS LOCATED LESS THAN 24 INCHES ABOVE THE FINISHED FLOOR AND GREATER THAN 72 INCHES ABOVE THE FINISHED GRADE OR OTHER SURFACE BELOW ON THE EXTERIOR OF THE BUILDING, THE OPERABLE SHALL BE PROVIDED WITH WINDOW OPENING CONTROL DEVICES OR FALL PREVENTION DEVICES THAT COMPLY WITH ASTM F2090 PER CODE 2020 NYSRC SECTION R312.2

DATE:	REVISION

PROJECT  
 RESIDENCE AT  
 BYRAM RIDGE ROAD  
 SINGLE FAMILY RESIDENCE  
 99 BYRAM RIDGE ROAD  
 ARMONK, NY

DRAWING TITLE  
**PROPOSED EXTERIOR  
 WINDOWS SCHEDULE**



DATE  
**1-2-24**

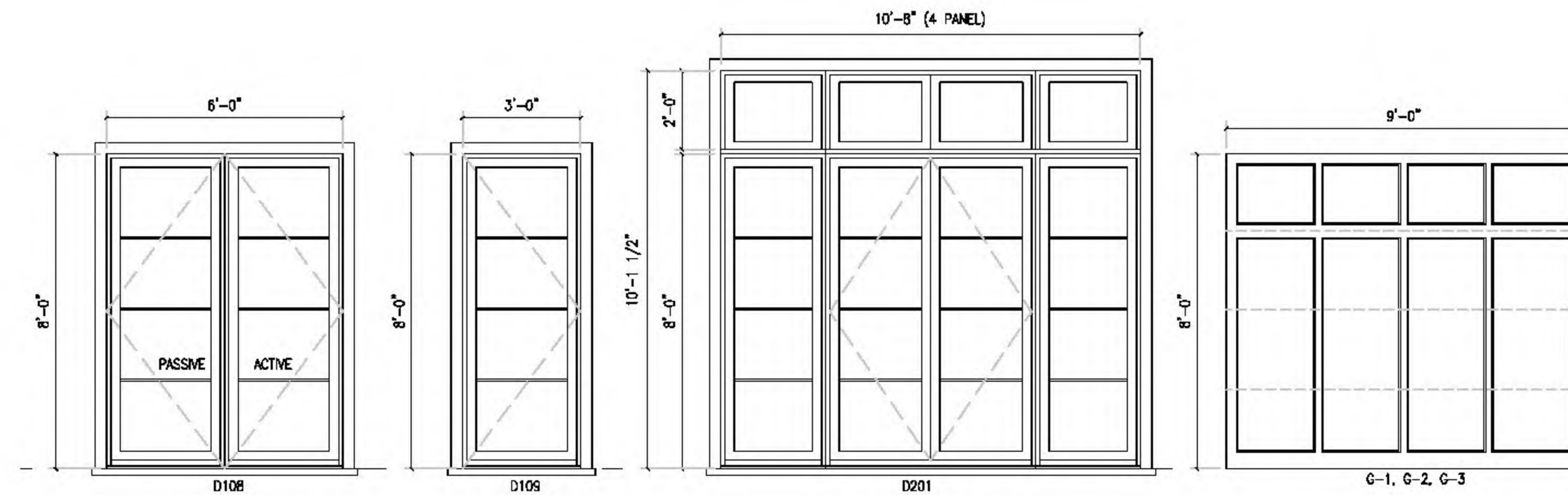
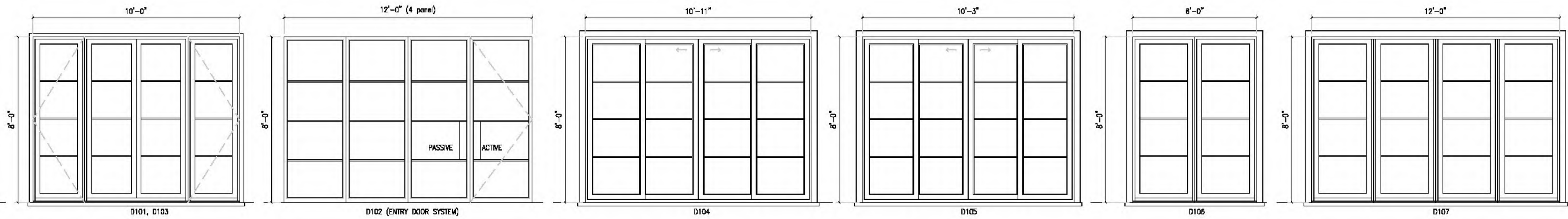
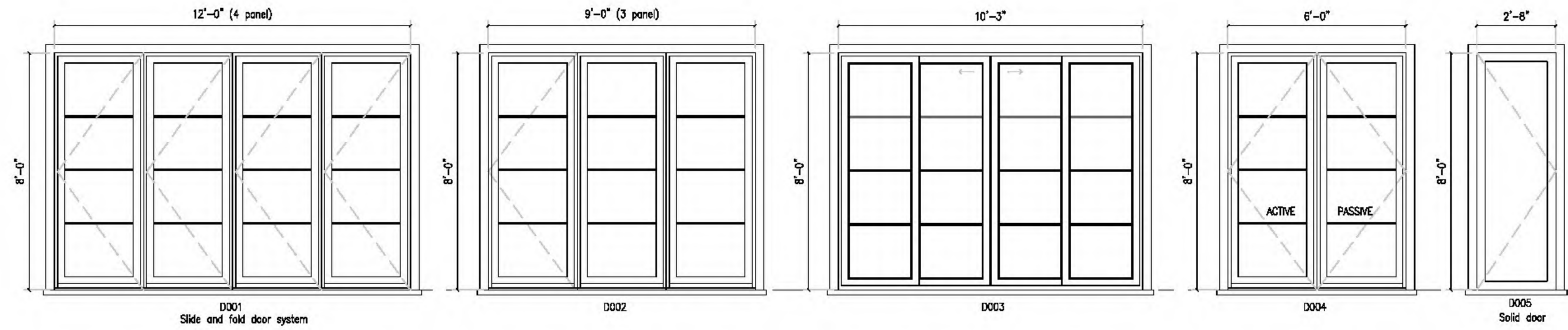
SCALE  
 AS NOTED

DRAWING NO.

**A800.00**

PAGE NO.

GENERAL NOTES:  
 1. DO NOT SCALE DRAWINGS FOR CONSTRUCTION PURPOSES  
 2. ALL DIMENSIONS TO BE CHECKED  
 3. CONTRACTOR IS OBLIGED TO REPORT ALL ERRORS AND OMISSIONS TO THE ARCHITECT



**1 PROPOSED DOORS SCHEDULE**

- GENERAL NOTES:
- FABRICATOR TO PROVIDE SHOP DRAWING FOR THE ARCHITECT & BUILDER TO REVIEW.
  - REFER TO ABOVE ELEVATIONS FOR THE LITE PATTERN
  - ALL EXTERIOR DOORS, SIDE LITES, WINDOWS AT SHOWER, BATHTUBS & WINDOWS 18" OR LESS TO THE GROUND SHALL HAVE "TEMPERED" SAFETY GLASS.

DATE:	REVISION

PROJECT  
 RESIDENCE AT  
 BYRAM RIDGE ROAD  
 SINGLE FAMILY RESIDENCE  
 99 BYRAM RIDGE ROAD  
 ARMONK, NY

DRAWING TITLE  
**PROPOSED EXTERIOR  
 DOORS SCHEDULE**



DATE  
**1-2-24**

SCALE  
 AS NOTED

DRAWING NO.  
**A801.00**

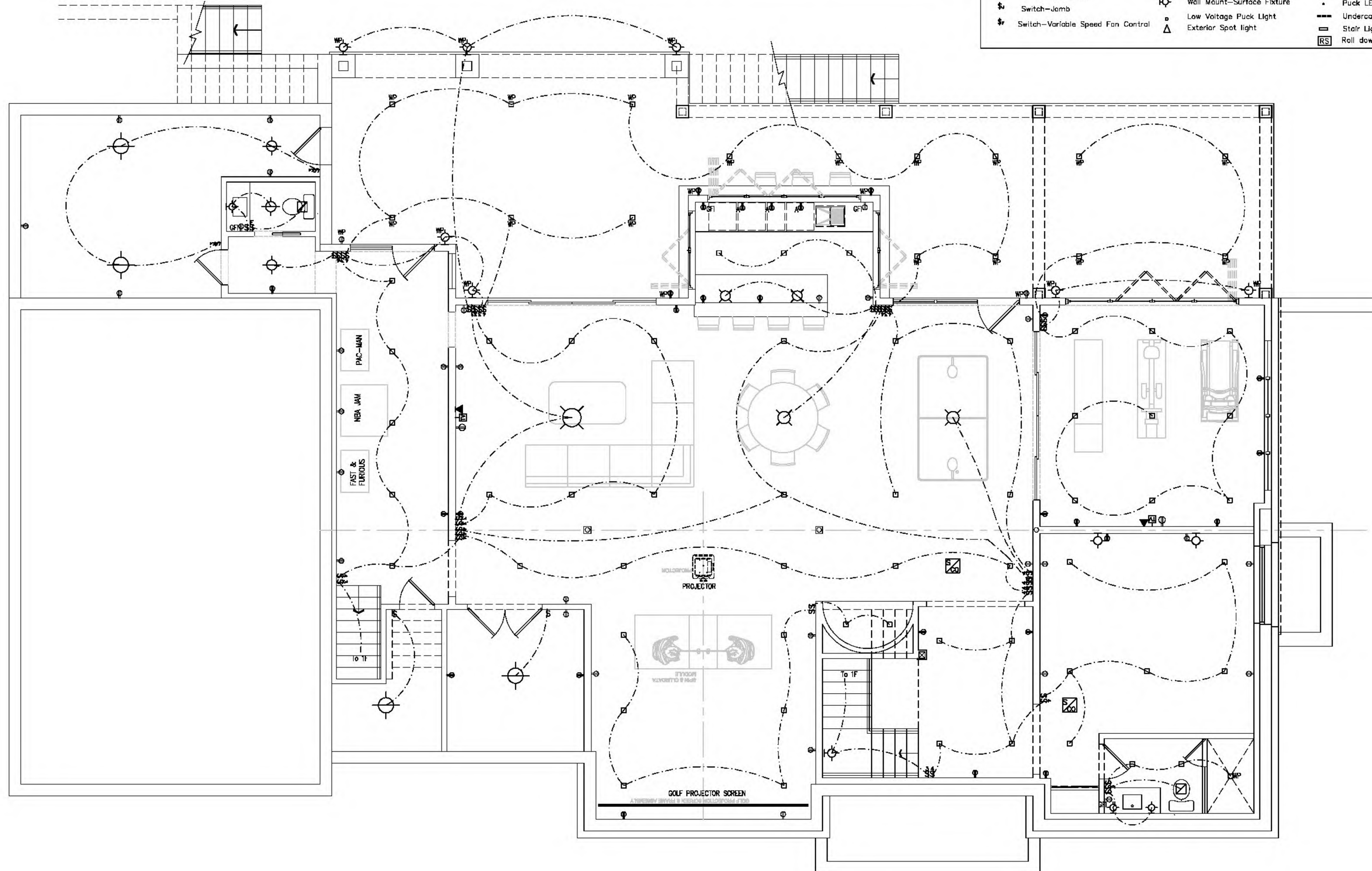
PAGE NO.

**NOTES:**

1. Unless dimensioned, all electrical layouts are schematic. Exact location to be determined by field coordination with Architect.
2. Electrical contractor shall obtain all inspections and approvals required by local, state and national codes and shall be responsible that all electrical work called for on drawings and specifications and other requirements of codes are met.
3. New service shall be installed in conformance with local code.
4. All decorative light fixtures supplied by Owner, installed by contractor, unless specified otherwise. All recessed lighting supplied and installed by contractor.
5. Electrical contractor to do all necessary power & control wiring and connections for all mechanical equipment. Controls supplied by others.
6. Thermostats to be supplied by HVAC contractor and wired by electrical contractor.
7. All telephone and TV outlets shall be installed by electrical contractor.
8. Electrical contractor shall supply and install all devices (switches, outlets, phone jacks, etc.).
9. Wiring shall be "Romex" cable. Unless otherwise noted.
10. Distribution shall be circuit breaker type.
11. Dedicated circuits shall be provided for high draw equipment and appliances.
12. All electrical receptacles shall be duplex type, 15 amp min. U.O.N. Quantity per Code, Unless additional called out on drawings.
13. Smoke detecting alarm devices shall be single-station type, either photo-electric or ionization, and shall be hard wired to a power circuit with no intervening switch by alarm company.
14. All outlets shall be installed horizontally in the base moulding.
15. Supply and install 1/2" conduit from telecommunications ports to accessible attic or basement areas.
16. All electrical work shall conform to the minimum standards of the National Electric code (NEC) or NFPA 70-08.
17. Install smoke alarms & carbon monoxide alarms per Section R314 of NYS Residential Code.

**ELECTRICAL LEGEND**

<ul style="list-style-type: none"> <li>220 Receptacle</li> <li>Duplex Outlet</li> <li>Duplex Split</li> <li>Floor Receptacle</li> <li>GFI Receptacle</li> <li>Appliance receptacle</li> <li>Quad Recept.</li> <li>Single Recept.</li> <li>Waterproof Recept.</li> <li>Switch-Single Pole</li> <li>Switch-3 way</li> <li>Switch-4 way</li> <li>Switch-Dimmer</li> <li>Switch-GFI</li> <li>Switch-Timer</li> <li>Switch-Waterproof</li> <li>Switch-Lamb</li> <li>Switch-Variable Speed Fan Control</li> </ul>	<ul style="list-style-type: none"> <li>Door Bell/Intercom</li> <li>Phone Jack</li> <li>Dataport</li> <li>Phone Jack-Floor</li> <li>TV Jack</li> <li>Junction Box-Round</li> <li>Low Voltage Control Keypad</li> <li>Junction Box-Square</li> <li>Thermostat</li> <li>Picture light</li> <li>Ceiling Fixture-Surface P - porcelain socket</li> <li>Ceiling Fixture- Pendant</li> <li>Recessed Downlight</li> <li>Recessed Downlight (Directional)</li> <li>Wall Mount-Surface Fixture</li> <li>Low Voltage Puck Light</li> <li>Exterior Spot light</li> </ul>	<ul style="list-style-type: none"> <li>Flourescent Strip</li> <li>110v Plug Mold Strip</li> <li>Electrical Panel Box</li> <li>Incandescent Strip Light</li> <li>Exterior flood light (Number of lamps as shown)</li> <li>Ceiling mounted fan</li> <li>Chandelier, pendant mount</li> <li>Exhaust fan vented to exterior</li> <li>Recessed wall light</li> <li>Enclosed closet light</li> <li>Smoke Detector &amp; Carbon Monoxide Detector</li> <li>Heat Detector</li> <li>Carbon Monoxide Detector</li> <li>Puck LED Light</li> <li>Undercabinet LED Light</li> <li>Stair Light</li> <li>Roll down screens &amp; shades</li> </ul>
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------



**GENERAL NOTES:**  
 1. DO NOT SCALE DRAWINGS FOR CONSTRUCTION PURPOSES  
 2. ALL DIMENSIONS TO BE CHECKED  
 3. CONTRACTOR IS OBLIGED TO REPORT ALL ERRORS AND OMISSIONS TO THE ARCHITECT

DATE:	REVISION

**PROJECT**  
 RESIDENCE AT  
 BYRAM RIDGE ROAD  
 SINGLE FAMILY RESIDENCE

99 BYRAM RIDGE ROAD  
 ARMONK, NY

**DRAWING TITLE**  
 PROPOSED BASEMENT  
 ELECTRICAL PLAN



**DATE**  
 1-2-24

**SCALE**  
 1/4" = 1'-0"

**DRAWING NO.**  
**E100.00**

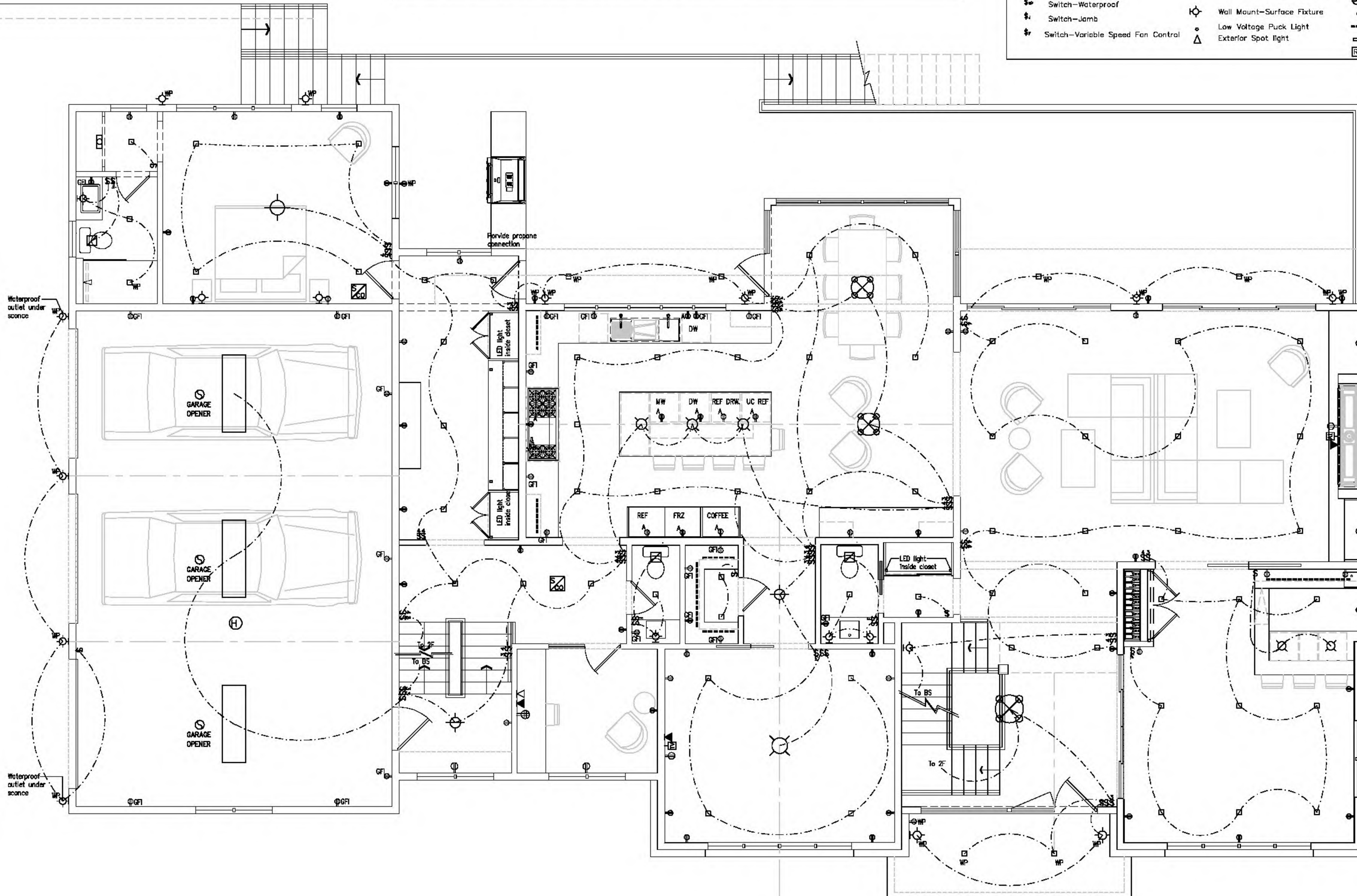
**PAGE NO.**

**NOTES:**

1. Unless dimensioned, all electrical layouts are schematic. Exact location to be determined by field coordination with Architect.
2. Electrical contractor shall obtain all inspections and approvals required by local, state and national codes and shall be responsible that all electrical work called for on drawings and specifications and other requirements of codes are met.
3. New service shall be installed in conformance with local code.
4. All decorative light fixtures supplied by Owner, installed by contractor, unless specified otherwise. All recessed lighting supplied and installed by contractor.
5. Electrical contractor to do all necessary power & control wiring and connections for all mechanical equipment. Controls supplied by others.
6. Thermostats to be supplied by HVAC contractor and wired by electrical contractor.
7. All telephone and TV outlets shall be installed by electrical contractor.
8. Electrical contractor shall supply and install all devices (switches, outlets, phone jacks, etc.).
9. Wiring shall be "Romex" cable, unless otherwise noted.
10. Distribution shall be circuit breaker type.
11. Dedicated circuits shall be provided for high draw equipment and appliances.
12. All electrical receptacles shall be duplex type, 15 amp min. U.O.N. Quantity per Code, unless additional called out on drawings.
13. Smoke detecting alarm devices shall be single-station type, either photo-electric or ionization, and shall be hard wired to a power circuit with no intervening switch by alarm company.
14. All outlets shall be installed horizontally in the base moulding.
15. Supply and install 1/2" conduit from telecommunications ports to accessible attic or basement areas.
16. All electrical work shall conform to the minimum standards of the National Electric Code (NEC) or NFPA 70-08.
17. Install smoke alarms & carbon monoxide alarms per Section R314 of NYS Residential Code.

**ELECTRICAL LEGEND**

	220 Receptacle		Door Bell/Intercom		Flourescent Strip
	Duplex Outlet		Phone Jack		110v Plug Mold Strip
	Duplex Split		Dataport		Electrical Panel Box
	Floor Receptacle		Phone Jack-Floor		Incandescent Strip Light
	GFI Receptacle		TV Jack		Exterior flood light (Number of lamps as shown)
	Appliance receptacle		Junction Box-Round		Ceiling mounted fan
	Quad Recept.		Low Voltage Control Keypad		Chandelier, pendant mount
	Single Recept.		Junction Box-Square		Exhaust fan vented to exterior
	Waterproof Recept.		Thermostat		Recessed wall light
	Switch-Single Pole		Picture light		Enclosed closet light
	Switch-3 way		Ceiling Fixture-Surface P - porcelain socket		Smoke Detector & Carbon Monoxide Detector
	Switch-4 way		Ceiling Fixture- Pendant		Heat Detector
	Switch-Dimmer		Recessed Downlight		Carbon Monoxide Detector
	Switch-GFI		Recessed Downlight (Directional)		Puck LED Light
	Switch-Timer		Wall Mount-Surface Fixture		Undercabinet LED Light
	Switch-Waterproof		Exterior Spot light		Stair Light
	Switch-Jamb				Roll down screens & shades
	Switch-Variable Speed Fan Control				



**GENERAL NOTES:**  
1. DO NOT SCALE DRAWINGS FOR CONSTRUCTION PURPOSES  
2. ALL DIMENSIONS TO BE CHECKED  
3. CONTRACTOR IS OBLIGED TO REPORT ALL ERRORS AND OMISSIONS TO THE ARCHITECT

DATE	REVISION

**PROJECT**  
RESIDENCE AT  
BYRAM RIDGE ROAD  
SINGLE FAMILY RESIDENCE

99 BYRAM RIDGE ROAD  
ARMONK, NY

**DRAWING TITLE**  
PROPOSED FIRST FLOOR  
ELECTRICAL PLAN



**DATE**  
1-2-24

**SCALE**  
1/4" = 1'-0"

**DRAWING NO.**

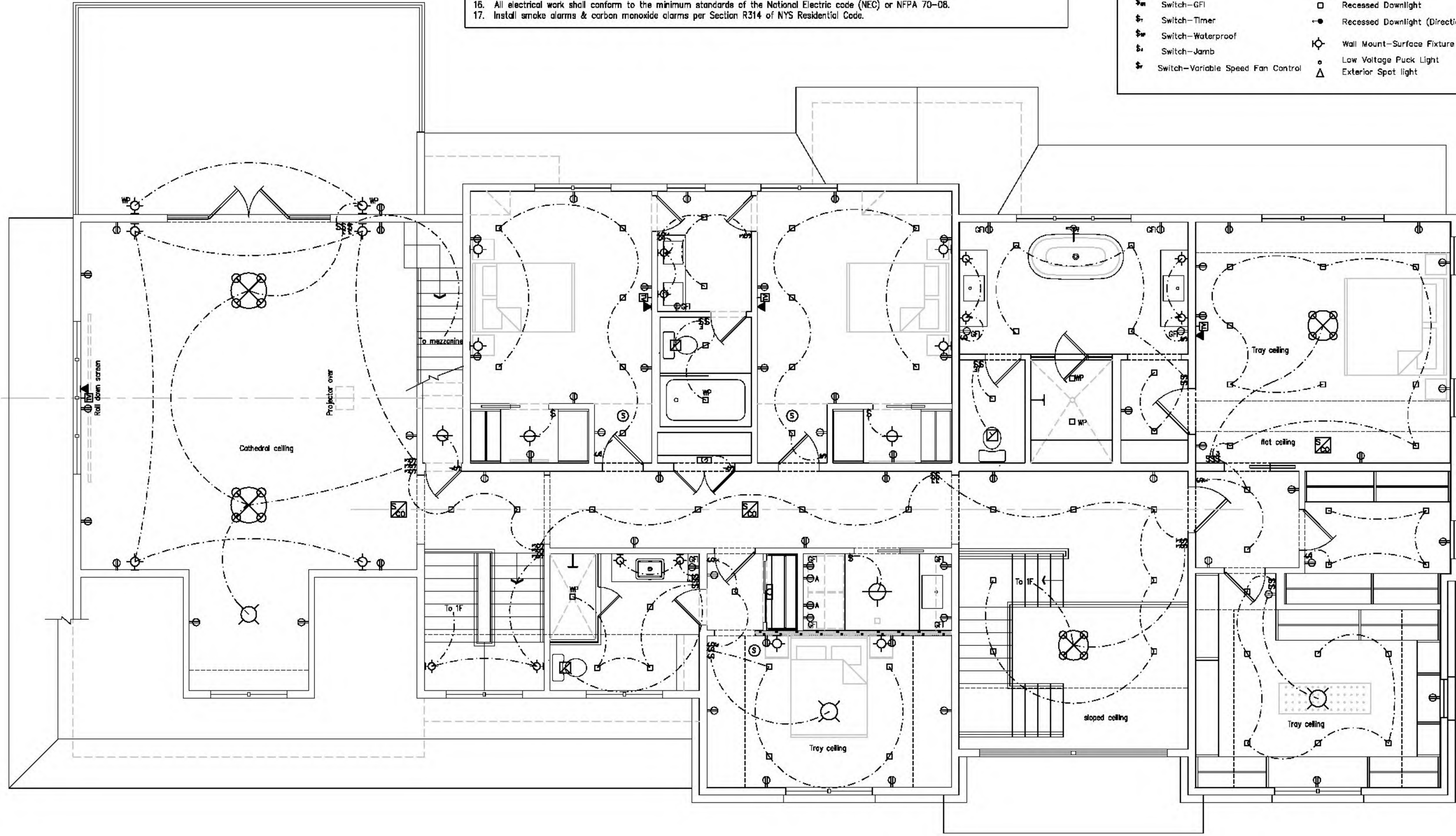
**E101.00**

**PAGE NO.**

- NOTES:**
1. Unless dimensioned, all electrical layouts are schematic. Exact location to be determined by field coordination with Architect.
  2. Electrical contractor shall obtain all inspections and approvals required by local, state and national codes and shall be responsible that all electrical work called for on drawings and specifications and other requirements of codes are met.
  3. New service shall be installed in conformance with local code.
  4. All decorative light fixtures supplied by Owner, installed by contractor, unless specified otherwise.
  5. Electrical contractor to do all necessary power & control wiring and connections for all mechanical equipment. Controls supplied by others.
  6. Thermostats to be supplied by HVAC contractor and wired by electrical contractor.
  7. All telephone and TV outlets shall be installed by electrical contractor.
  8. Electrical contractor shall supply and install all devices (switches, outlets, phone jacks, etc.).
  9. Wiring shall be "Romex" cable. Unless otherwise noted.
  10. Distribution shall be circuit breaker type.
  11. Dedicated circuits shall be provided for high draw equipment and appliances.
  12. All electrical receptacles shall be duplex type, 15 amp min. U.O.N. Quantity per Code, Unless additional called out on drawings.
  13. Smoke detecting alarm devices shall be single-station type, either photo-electric or ionization, and shall be hard wired to a power circuit with no intervening switch by alarm company.
  14. All outlets shall be installed horizontally in the base moulding.
  15. Supply and install 1/2" conduit from telecommunications parts to accessible attic or basement areas.
  16. All electrical work shall conform to the minimum standards of the National Electric code (NEC) or NFPA 70-08.
  17. Install smoke alarms & carbon monoxide alarms per Section R314 of NYS Residential Code.

**ELECTRICAL LEGEND**

⊕ 220 Receptacle	⊕ Door Bell/intercom	⎓ Fluorescent Strip
⊕ Duplex Outlet	⊕ Phone Jack	⎓ 110v Plug Mold Strip
⊕ Duplex Split	⊕ Dataport	⎓ Electrical Panel Box
⊕ Floor Receptacle	⊕ Phone Jack-Floor	⎓ Incandescent Strip Light
⊕ GFI Receptacle	⊕ TV Jack	⎓ Exterior flood light (Number of lamps as shown)
⊕ Appliance receptacle	⊕ Junction Box-Round	⎓ Ceiling mounted fan
⊕ Quad Recept.	⊕ Low Voltage Control Keypad	⎓ Chandelier, pendant mount
⊕ Single Recept.	⊕ Junction Box-Square	⎓ Exhaust fan vented to exterior
⊕ Waterproof Recept.	⊕ Thermostat	⎓ Recessed wall light
⊕ Switch-Single Pole	⊕ Picture light	⎓ Enclosed closet light
⊕ Switch-3 way	⊕ Ceiling Fixture-Surface P - porcelain socket	⎓ Smoke Detector & Carbon Monoxide Detector
⊕ Switch-4 way	⊕ Ceiling Fixture- Pendant	⎓ Heat Detector
⊕ Switch-Dimmer	⊕ Recessed Downlight	⎓ Smoke Detector
⊕ Switch-3 way	⊕ Recessed Downlight (Directional)	⎓ Puck LED Light
⊕ Switch-Timer	⊕ Wall Mount-Surface Fixture	⎓ Undercabinet LED Light
⊕ Switch-Waterproof	⊕ Low Voltage Puck Light	⎓ Stair Light
⊕ Switch-Jamb	⊕ Exterior Spot light	⎓ Roll down screens & shades
⊕ Switch-Variable Speed Fan Control		



**GENERAL NOTES:**

1. DO NOT SCALE DRAWINGS FOR CONSTRUCTION PURPOSES
2. ALL DIMENSIONS TO BE CHECKED
3. CONTRACTOR IS OBLIGED TO REPORT ALL ERRORS AND OMISSIONS TO THE ARCHITECT

DATE:	REVISION

**PROJECT**  
 RESIDENCE AT  
 BYRAM RIDGE ROAD  
 SINGLE FAMILY RESIDENCE

99 BYRAM RIDGE ROAD  
 ARMONK, NY

**DRAWING TITLE**  
 PROPOSED SECOND FLOOR  
 ELECTRICAL PLAN



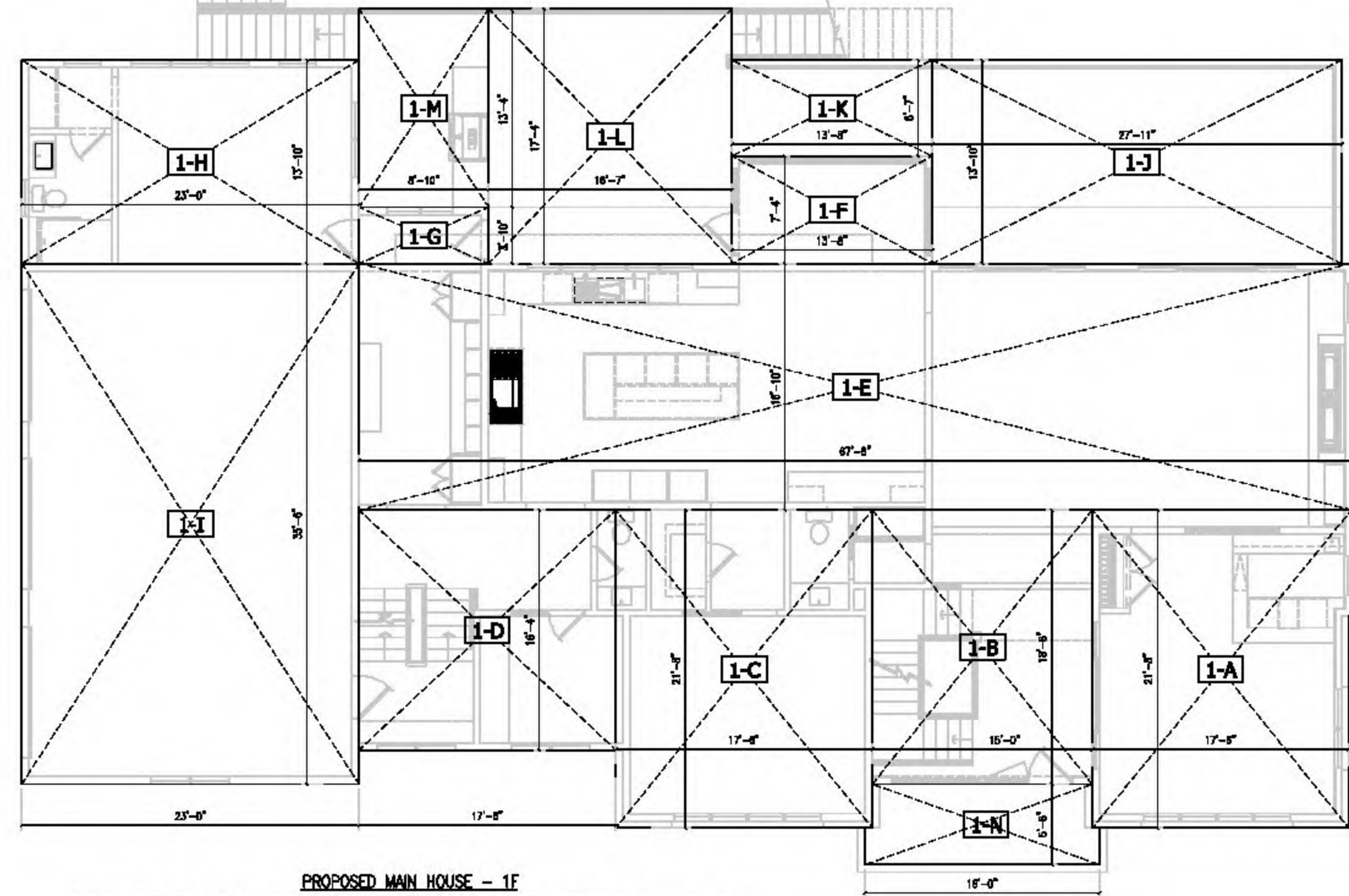
**DATE**  
 1-2-24

**SCALE**  
 1/4" = 1'-0"

**DRAWING NO.**  
 E102.00

**PAGE NO.**

GENERAL NOTES:  
 1. DO NOT SCALE DRAWINGS FOR CONSTRUCTION PURPOSES  
 2. ALL DIMENSIONS TO BE CHECKED  
 3. CONTRACTOR IS OBLIGED TO REPORT ALL ERRORS AND OMISSIONS TO THE ARCHITECT



**PROPOSED MAIN HOUSE - 1F**

1-A	17'-6" X 21'-8"	379.0 SF
1-B	15'-0" X 18'-8"	280.0 SF
1-C	17'-6" X 21'-8"	379.0 SF
1-D	17'-6" X 16'-4"	286.0 SF
1-E	67'-8" X 16'-10"	1139.0 SF
1-F	13'-8" X 7'-4"	100.0 SF
1-G	8'-10" X 5'-10"	34.0 SF
1-H	23'-0" X 13'-10"	318.0 SF
TOTAL OF FIRST FLOOR		2,915.0 SF

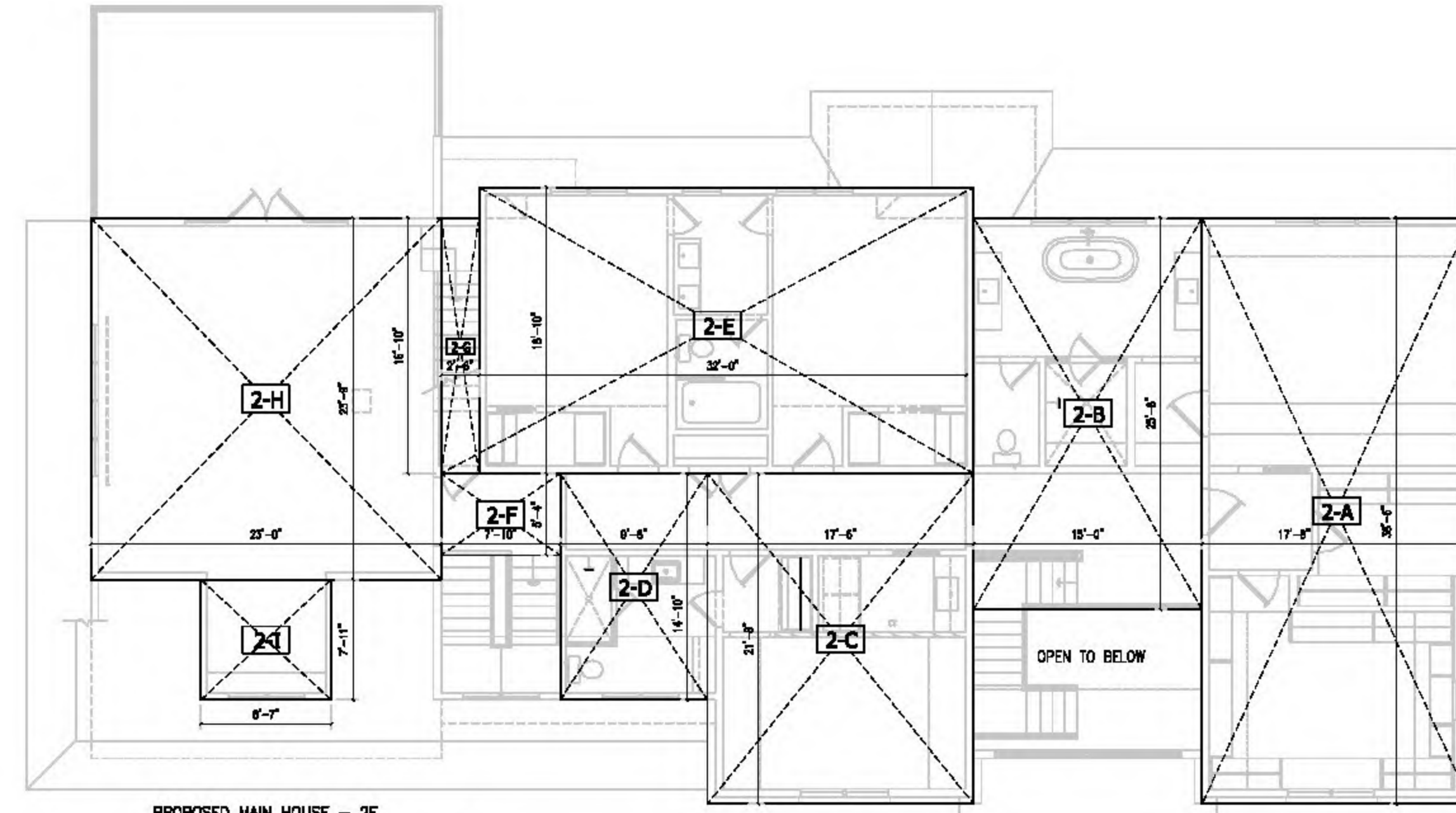
1-I	23'-0" X 30'-6"	817.0 SF
TOTAL OF GARAGE		817.0 SF

1-J	27'-11" X 13'-10"	386.0 SF
1-K	13'-8" X 6'-7"	90.0 SF
1-L	16'-7" X 17'-4"	287.0 SF
1-M	8'-10" X 13'-4"	118.0 SF
1-N	16'-0" X 5'-6"	88.0 SF
TOTAL OF PORCH (MAIN HOUSE)		969.0 SF

ELEVATED DECK (BASEMENT PORCH)  
 FRONT PORCH

PROPOSED FIRST FLOOR PLAN

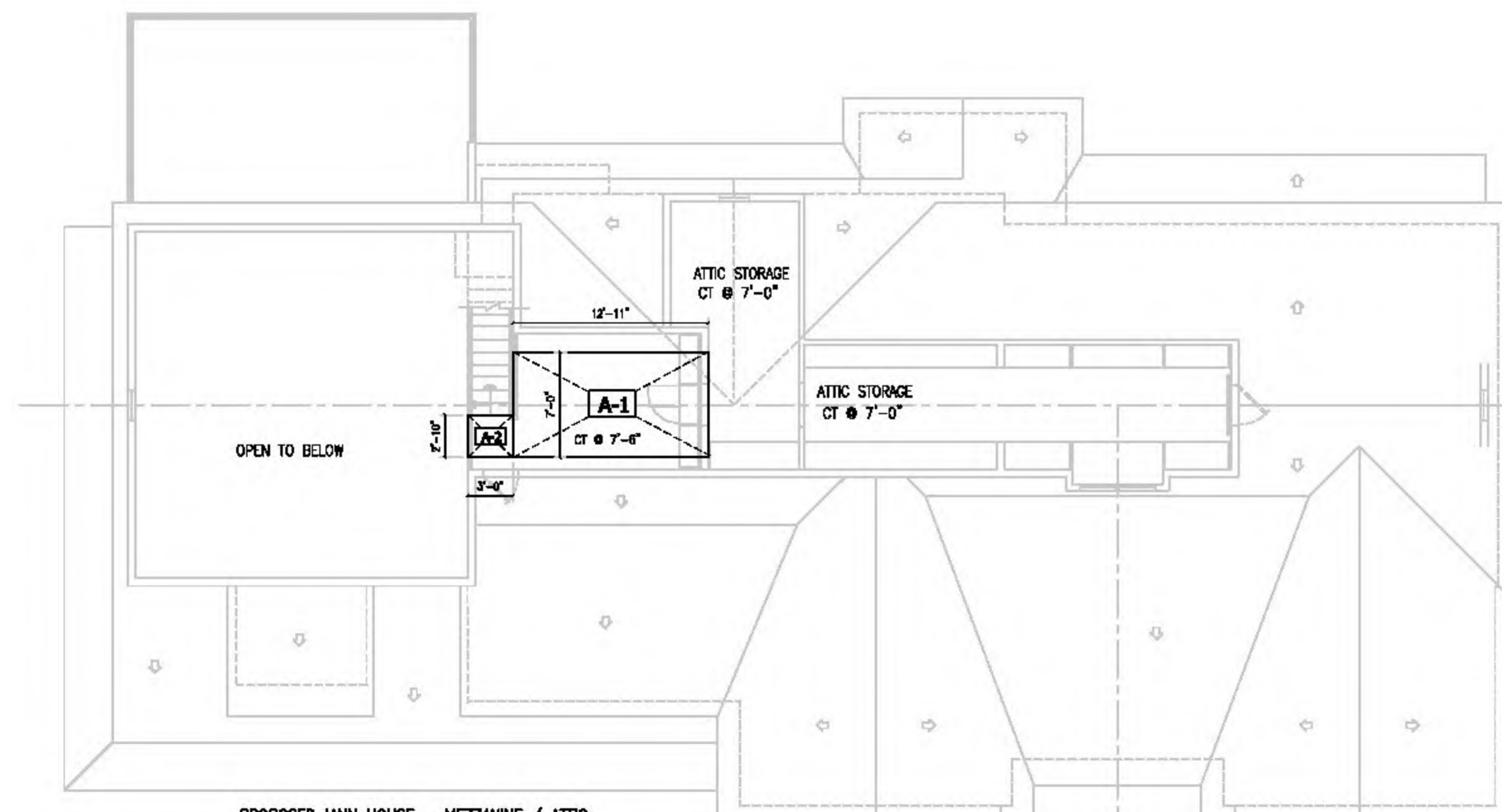


**PROPOSED MAIN HOUSE - 2F**

2-A	17'-8" X 38'-6"	680.0 SF
2-B	15'-0" X 25'-8"	385.0 SF
2-C	17'-6" X 21'-8"	379.0 SF
2-D	9'-8" X 14'-10"	143.0 SF
2-E	32'-0" X 18'-10"	583.0 SF
2-F	7'-10" X 5'-4"	42.0 SF
2-G	2'-6" X 16'-10"	42.0 SF
2-H	23'-0" X 23'-8"	548.0 SF
2-I	8'-7" X 7'-11"	68.0 SF
TOTAL OF SECOND FLOOR		2,898.0 SF

PROPOSED SECOND FLOOR PLAN

PROPOSED BASEMENT IS NOT A STORY (SEE AVERAGE GRADE CALCULATION PLAN)



**PROPOSED MAIN HOUSE - MEZZANINE / ATTIC**

A-1	12'-11" X 7'-0"	90.0 SF
A-2	3'-0" X 2'-10"	8.0 SF
TOTAL OF MEZZANINE/ATTIC		98.0 SF

PROPOSED MEZZANINE/ATTIC FLOOR PLAN

DATE	REVISION

PROJECT  
 RESIDENCE AT  
 BYRAM RIDGE ROAD  
 SINGLE FAMILY RESIDENCE

99 BYRAM RIDGE ROAD  
 ARMONK, NY

DRAWING TITLE  
**FLOOR PLANS**  
**FLOOR AREA CALCULATION**



DATE  
**1-2-24**

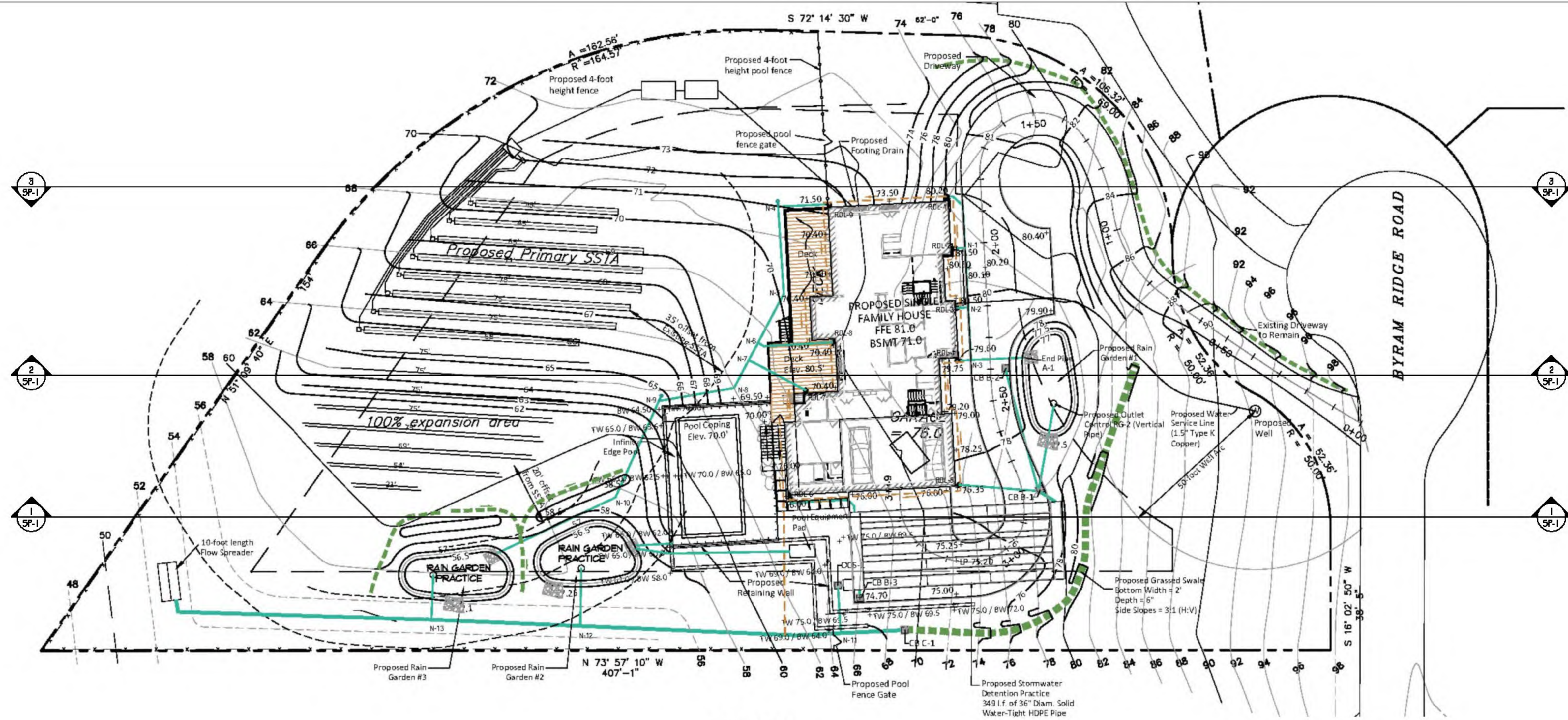
SCALE  
 1/4" = 1'-0"

DRAWING NO.  
**A101.10**

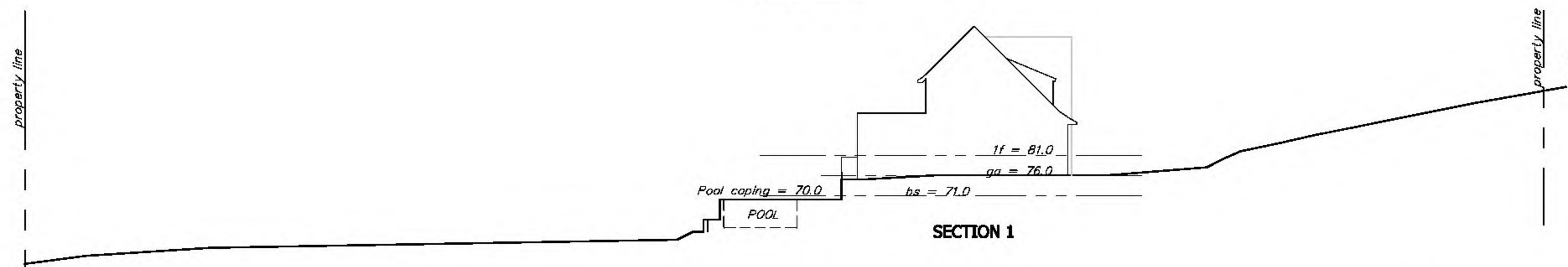
PAGE NO.



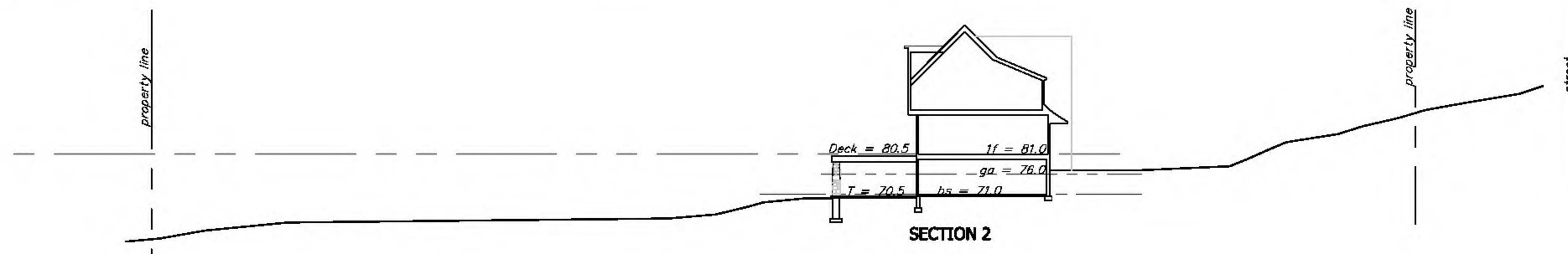
GENERAL NOTES:  
 1. DO NOT SCALE DRAWINGS FOR CONSTRUCTION PURPOSES  
 2. ALL DIMENSIONS TO BE CHECKED  
 3. CONTRACTOR IS OBLIGED TO REPORT ALL ERRORS AND OMISSIONS TO THE ARCHITECT



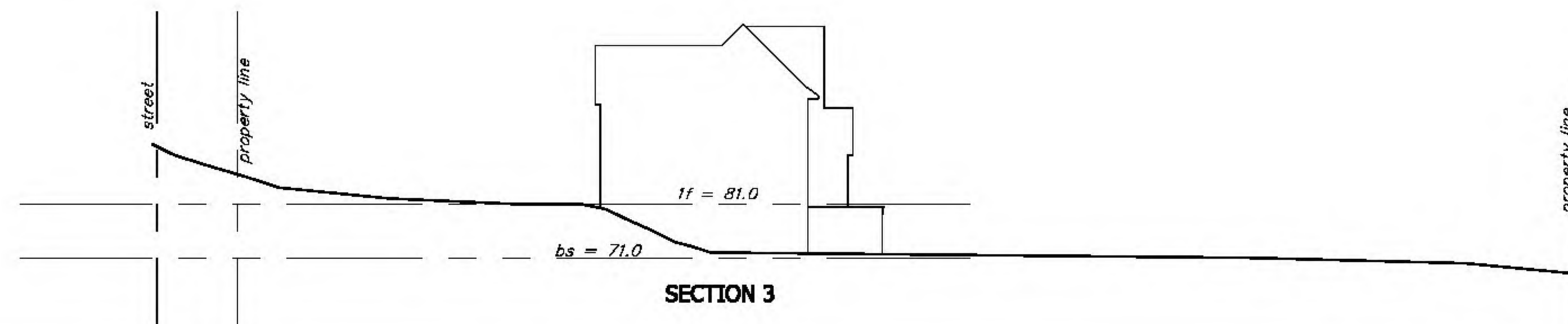
**SITE PLAN**



**SECTION 1**



**SECTION 2**



**SECTION 3**

DATE	REVISION

PROJECT  
**RESIDENCE AT  
 BYRAM RIDGE ROAD  
 SINGLE FAMILY RESIDENCE**

99 BYRAM RIDGE ROAD  
 ARMONK, NY

DRAWING TITLE  
**SITE SECTIONS**

SEAL



DATE  
**1-2-24**

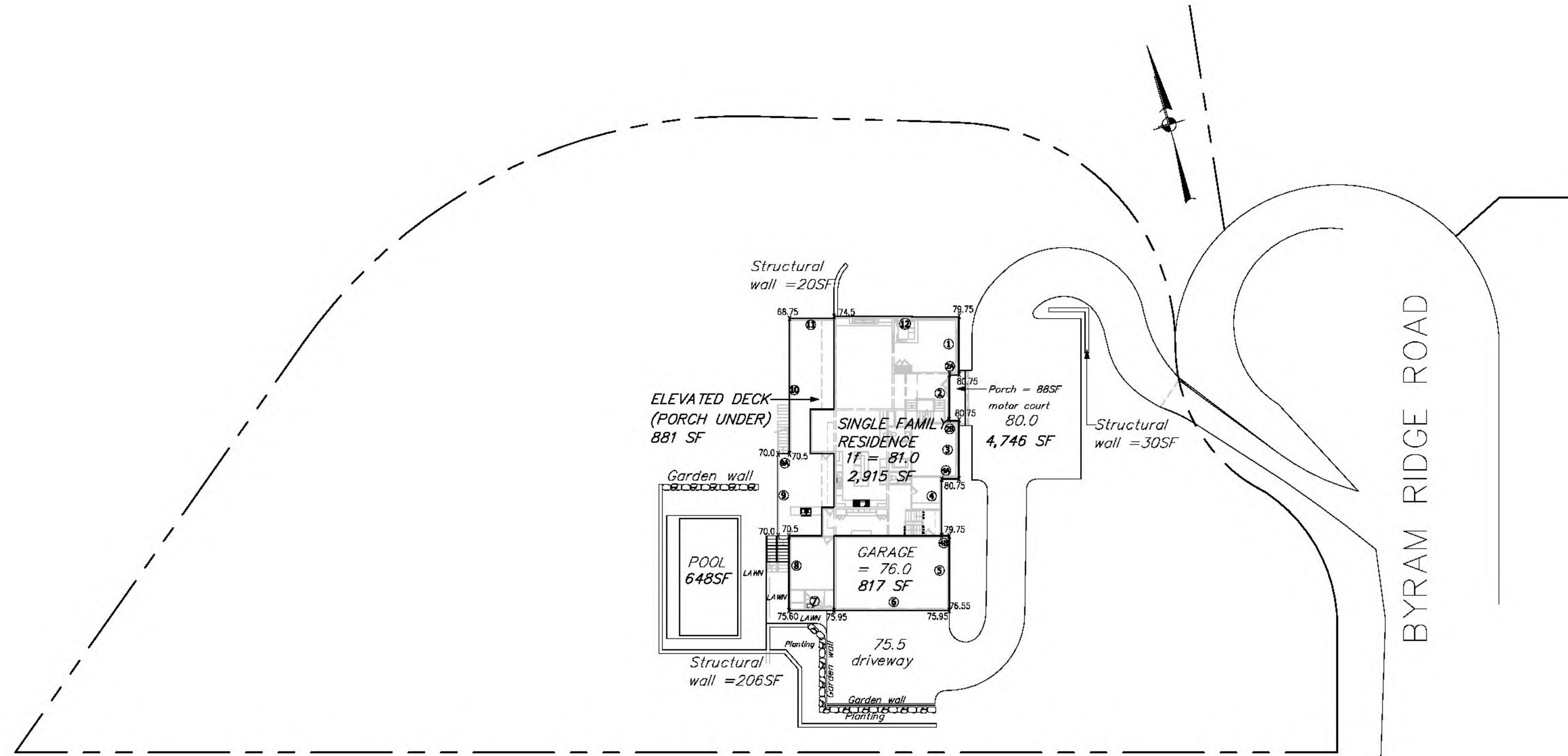
SCALE  
**1" = 20'-0"**

DRAWING NO.

**SP-1.00**

PAGE NO.

GENERAL NOTES:  
 1. DO NOT SCALE DRAWINGS FOR CONSTRUCTION PURPOSES  
 2. ALL DIMENSIONS TO BE CHECKED  
 3. CONTRACTOR IS OBLIGED TO REPORT ALL ERRORS AND OMISSIONS TO THE ARCHITECT



**MAXIMUM PERMITTED GROSS LAND COVERAGE (SECTION 355-26 (1))**

LOT AREA = 1.33 ACRES / 57,935 SF  
 AREA IN ACCESS OF 1.0 ACRES = 0.33 ACRES  
 PERMITTED GROSS LAND COVERAGE = 10,644 SF  
 BONUS MAX. GROSS LAND COVERAGE  
 R-1A MIN. FRONT YARD 50 FT  
 DISTANCE BEYOND FRONT SETBACK = 65'-50' = 15'  
 PERMITTED LAND COVERAGE = 15'x10' = 150 SF

**TOTAL MAX. PERMITTED GROSS LAND COVERAGE = 10,794 SF**

**PROPOSED LAND COVERAGE**

PRINCIPAL BUILDING	3,732.0 SF
DECKS (PORCH UNDER)	881.0 SF
PORCHES	88.0 SF
DRIVEWAY, PARKING & WALKWAYS	4,746.0 SF
TERRACES	220.0 SF
POOL	648.0 SF
STRUCTURAL WALLS	256.0 SF
<b>TOTAL LAND COVERAGE</b>	<b>10,571.0 SF &lt; 10,794 SF</b>

**Average Grade Computations**

Segment	Length	F.F. Elevation	Ave. Grade	A Elevation	Factor
1	18'	81.0	80.75	0.25'	4.5'
2A	3'	81.0	80.75	0.25'	0.75'
2	14'	81.0	80.75	0.25'	3.5'
2B	3'	81.0	80.75	0.25'	0.75'
3	18'	81.0	80.75	0.25'	4.5'
4A	6'	81.0	80.75	0.25'	1.5'
4	18'	81.0	80.25	0.75'	13.5'
4B	2'	81.0	79.75	1.25'	2.5'
5	23'	76.0	78.15	2.15'	49.45'
6	36'	76.0	75.95	0.05'	1.8'
7	14'	81.0	75.77	5.23'	73.22'
8	23'	81.0	73.05	7.95'	182.85'
9	25'	81.0	70.0	11.0'	275.0'
9A	4'	81.0	70.75	10.25'	41.0'
10	42'	81.0	69.63	11.37'	477.54'
11	14'	81.0	71.63	9.37'	131.18'
12	38'	81.0	77.13	3.87'	147.06'
<b>Total</b>	<b>301'</b>				<b>1410.60'</b>

A) 1410.60' / 301' = 4.68' < 6'-0"  
 B) Segments < 6'-0" from ave. grade to floor elevation = 183 1F  
 183 1F = 64.11% of total 301 1F Perimeter

DATE	REVISION

**PROJECT**  
 RESIDENCE AT  
 BYRAM RIDGE ROAD  
 SINGLE FAMILY RESIDENCE

99 BYRAM RIDGE ROAD  
 ARMONK, NY

**DRAWING TITLE**  
 SITE PLAN - AVERAGE GRADE  
 CALCULATION AND GROSS LAND  
 COVERAGE CALCULATION



**DATE**  
 1-2-24

**SCALE**  
 1" = 20'-0"

**DRAWING NO.**

**SP-2.00**

**PAGE NO.**

**STORMWATER POLLUTION PREVENTION PLAN REPORT  
FOR BERKIN PROPERTY, 99 BYRAM RIDGE ROAD  
ARMONK, NEW YORK**

Date: January 2, 2024

PREPARED BY: ALAN L. PILCH, PE, RLA  
ALP ENGINEERING & LANDSCAPE ARCHITECTURE, PLLC

---

**INTRODUCTION**

This report describes the existing and future drainage conditions on the subject property located at 99 Byram Ridge Road for the construction of a new house and modifications to the existing driveway to access the garage of the new house. The report quantifies how the stormwater management plan for the project will meet the requirements of the Town of North Castle.

The property is 58,278.6 square feet (1.338 acres) in size and is located on the west side of Byram Ridge Road. A single family house is present on the lot, as well as a flagstone walks to the front door and a deck in the rear of the house. An existing paved driveway provides access to the house from the street.

All of the runoff from the property is eventually conveyed to Wampus River, which lies about 200 feet to the west of the property. Runoff from the majority of the property, with the exception of the far western portion of the lot, is conveyed generally west and south toward the property at 97 Byram Ridge Road, and into an unnamed watercourse which begins on the lot to the south and which flows into Wampus River. Runoff from the far western portion of the rear yard is conveyed to the southwest down a wooded slope toward Wampus River. The property lies in the Byram River basin watershed, and therefore lies outside of the New York City water supply watershed.

*All SWPPPs shall provide the following background information and erosion and sediment controls:*

*a) Background information about the scope of the project, including location, type and size of project.*

The project is to consist of: (1) the demolition of the existing single family house and the construction of a new 3,851 square foot (footprint) house to be located in the central portion of the lot, (2) modifications to the driveway for access into the garage which will be on the south side of the house, and (3) construction of a pool and deck in the rear of the house. In addition, three rain gardens and a subsurface detention facility (constructed of 36-inch diameter HDPE pipes) are proposed to be installed to provide peak rate attenuation of the runoff flows from the new impervious surfaces.

*b) Site map/construction drawing(s) for the project, at a scale no smaller than one inch equals 100 feet, including a general location map. At a minimum, the site map shall show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing*

*vegetation; on-site and adjacent off-site surface water(s), wetlands and drainage patterns that could be affected by the construction activity; existing and final slopes; locations of different soil types with boundaries; locations of off-site material, waste, borrow or equipment storage areas; and location(s) of the stormwater discharge(s).*

The site construction drawings (see sheet C-101 Layout Plan, C-102 Grading and Utilities Plan and C-103, Erosion and Sediment Control Plan) are at a scale of 1"=20'. The general location map may be found on drawing C-101. The total site area is depicted on sheets C-101 and C-102. The area of disturbance may be referenced on sheet C-102. Areas beyond the limit of disturbance are not being proposed to be disturbed (i.e., graded or removal of trees). The approximate location of existing vegetation may be found on sheet C-101. There are no wetlands on the subject property or within the 100-foot restrictive distances from a wetland.

Grading on the property may be referenced on sheet C-102. It is not proposed to store any material from the property off-site. Equipment storage areas during construction may be found on sheet C-103.

*c) Description of the soil(s) present at the site, including an identification of the hydrologic soil group (HSG).*

The USDA Soil Conservation Service has mapped two soils on the property: (i) Charlton fine sandy loam, 3 to 8 percent slopes in the eastern and central portion of the property, including the location of the proposed house and driveway modification, and (ii) Riverhead loam, 15 to 25 percent slopes in the far western portion of the property. The soils boundaries may be found on drawing C-102. Charlton fine sandy loam soils consist of fine sandy loam and gravelly fine sandy loam. The depth of the restrictive layer is noted as being more than 80 inches below grade. This soil is in hydrologic soils group B. Riverhead loam soils consist of sandy loam and loamy sand. It, too, has a depth of the restrictive layer being noted as being more than 80 inches below grade. This soil is in hydrologic soils group A.

Deep hole and percolation testing of the proposed rain garden areas will be performed if required. In that the subsurface detention facility is to consist of water-tight 36-inch diameter storm drainage pipes, there will be no infiltration from this system. In any event, infiltration is not desirable given that retaining walls are to be constructed on the west (downgradient) side of the practice.

*d) Construction phasing plan describing the intended sequence of construction activities, including clearing and grubbing, excavation and grading, utility and infrastructure installation and any other activity at the site that results in soil disturbance. Consistent with the New York Standards and Specifications for Erosion and Sediment Control (Erosion Control Manual), not more than five acres shall be disturbed at any one time unless a greater amount is determined necessary pursuant to an approved SWPPP.*

The construction sequence of operations may be found on drawing C-103. The total land disturbance for the construction of the garage addition, driveway modification and stormwater

management practice is calculated to be 44,885 square feet (1.030 acres).

*e) Description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a pollutant source in stormwater runoff.*

The pollution prevention measures to be employed to control litter, construction chemicals and construction debris may be referenced on the Erosion and Sediment Control Plan. The measures include: silt fence, temporary soil stockpile, inlet protection, concrete wash-out area, locating a dumpster in the driveway to the south of the house, and locating a construction material storage area in the driveway. Construction debris will be placed in an on-site dumpster.

*f) Description of construction and waste materials expected to be stored on site, with updates as appropriate, and a description of controls to reduce pollutants from these materials, including storage practices to minimize exposure of the materials to stormwater, and spill prevention and response.*

A description of construction and waste materials expected to be stored on-site may be referenced on the Erosion Control Plan.

Construction materials expected to be stored temporarily on site include, but are not limited to, soil stockpiles, aggregate, and seed to establish permanent cover for the disturbed ground, and concrete forms, wood, bluestone and building materials for the house, pool and pool patio construction. These items are not sources of pollution in the short- or long-term.

*g) Temporary and permanent structural and vegetative measures to be used for soil stabilization, runoff control and sediment control for each stage of the project, from initial land clearing and grubbing to project closeout.*

Temporary measures to be employed during construction include: (1) silt fences at the limit of disturbance; (2) tree protection measures, (3) inlet protection, (4) soil stockpiling of excavated material to be surrounded by silt fence, and (5) a concrete washout area.

*h) A site map/construction drawing(s) specifying the location(s), size(s) and length(s) of each erosion and sediment control practice.*

Drawing C-103 shows the location, size and length of each erosion and sediment control practice.

*i) Dimensions, material specifications and installation details for all erosion and sediment control practices, including the siting and sizing of any temporary sediment basins.*

The dimensions, material specifications and installation details for the proposed erosion and sediment control practices are on sheet C-111. A temporary sediment basin is proposed to be

sited in the southwestern corner of the property.

*j) Temporary practices that will be converted to permanent control measures.*

There are no temporary practices that will be converted to permanent control measures.

*k) Implementation schedule for staging temporary erosion and sediment control practices, including the timing of initial placement and the duration that each practice should remain in place.*

The detailed construction phasing plan described the implementation schedule for the temporary erosion and sediment control practices. The implementation schedule may be referenced on the Erosion and Sediment Control Plan.

*l) Maintenance schedule to ensure continuous and effective operation of the erosion and sediment control practice.*

The maintenance schedule for the erosion and sediment control practices may be referenced on the Erosion Control Plan. The maintenance schedule is detailed below as well.

Silt Fence - According to the 2016 NYS Standards and Specifications for Erosion and Sediment Control, maintenance of the silt fence shall be performed as needed and material removed when bulges develop in the silt fence. The silt fence shall be inspected after each significant precipitation event. If filter fabric shows signs of decomposing or is damaged, it shall be repaired immediately. Typically, this entails installing a new line of silt fence adjacent to the damaged line.

Tree Protection: Check on at least a weekly basis that the construction fence and/or tree protection has not been damaged by construction activities.

Soil Stockpiling: Perimeter sediment controls around each stockpile is to consist of silt fence installed in accordance with the standards delineated above. The silt fence shall be maintained as noted above. Stockpiles and fill area shall be inspected at least weekly for signs of erosion or problems with plant establishment.

*m) Name(s) of the receiving water(s).*

All of the runoff from the property is eventually conveyed to the Wampus River. Where the watercourse crosses into Connecticut, it is named the Byram River. The Byram River eventually discharges into Long Island Sound. The property lies *outside* of the New York City Water Supply Watershed.

*n) Delineation of SWPPP implementation responsibilities for each part of the site.*

The property owners, the Berkins, are the party responsible for the implementation of the SWPPP.

*o) Description of structural practices designed to divert flows from exposed soils, store flows or otherwise limit runoff and the discharge of pollutants from exposed areas of the site to the degree attainable*

It is not proposed to install any structural practices to divert flows from exposed soils. A temporary berm will be installed in the rear yard near the southern property line to divert runoff flows into the temporary sediment basin.

*p) Any existing data that describes the stormwater runoff at the site; and*

The description and quantification of the stormwater runoff from the site is found in this report. There are no known other sources that describe the runoff from this site.

*q) Post-construction stormwater quantity and quality controls, at the discretion of the SMO and/or the Town Engineer, may be required.*

Stormwater Management Plan: In the existing condition, there are 3,588 square feet of impervious surfaces on the property. With the modifications to the property, there will be an additional 8,115 square feet of new impervious surfaces, bringing the total amount of impervious surfaces up to 11,703 square feet.

Due to the limited space for locating stormwater management practices primarily resulting from slopes on the property and with the proposed septic system in the rear yard of the property, it is proposed to collect and direct runoff from the majority of the house and driveway and convey this flow into an array of subsurface storm drainage pipes to be located under the driveway to the south of the house for stormwater detention purposes.

In addition, runoff from a 913 square foot portion of the new house roof (FDA-2C) will be conveyed to a rain garden in the front yard. Runoff from the proposed pool and pool patio will be conveyed to a rain garden in the southern portion of the property to the southwest of the pool. Lastly, runoff from the northwestern portion of the house roof will be conveyed to a second rain garden in the rear yard. The drainage areas to the rain gardens in the rear yard range from 1,356 s.f. for the pool and pool patio to 1,428 s.f. for the portion of the house roof. As is noted in the 2015 New York State Stormwater Management Design Manual, “a single rain garden system *should* be designed to receive sheet flow runoff or shallow concentrated flow from an impervious area or from a roof drain downspout with a total contributing drainage area equal to or less than 1,000 square feet.” The use of the word “should” and not “shall” means that there is discretion on the part of the designers and reviewers with regard to this threshold. In that the exceedance is minimal, the use of a rain garden versus a bioretention practice is appropriate.

Conveyance of Flows to Stormwater Management Practices: The storm drainage system has

been designed to convey the runoff from the 25 year storm event, which based on the intensity duration frequency curve is a rainfall intensity of 7.66 inches per hour over a 5 minute duration. As per the HydroCAD modeling, the 25 year storm event will result in a peak rate of runoff of 1.44 cubic feet per second to be conveyed to the underground storm drainage pipes. Based on the Manning Equation, the proposed 8" diameter storm drainage pipe from catch basin CB B-2 to CB B-1, which will be installed at a slope of 3.64%, would have a capacity of 2.5 cubic feet per second at a velocity of 7.15 feet per second. The other storm drainage pipes in the network conveying flow to the underground storm drainage pipes would be installed at greater slopes. The conclusion is that the proposed 8" storm drainage pipes into the underground storm drainage pipes as designed will have the capacity to convey the flow during the 25-year storm event.

The peak rate of runoff from the project to the design point has been calculated (see **Appendix A**). The analysis of peak rates of runoff was performed in accordance with the methodology of the United States Department of Agriculture Soil Conservation Service (now Natural Resources Conservation Service) publication *Urban Hydrology for Small Watersheds, Technical Release 55* (TR-55), 1986. To calculate the peak rate of runoff conveyed to the design point from the property, the following information was obtained or determined:

Hydrographs were developed for the 1, 2, 10, 25 and 100-year storm recurrence intervals. Runoff depths for the 24-hour design storms used in the calculations were as follows: 2.80" for the 1-year storm, 3.42" for the 2-year storm, 5.12" for the 10-year storm, 6.46" for the 25-year storm, and 9.18" for the 100-year storm. The rainfall depths (extreme precipitation estimates) were determined from the website <http://precip.eas.cornell.edu/> referenced in the 2015 *Stormwater Management Design Manual*. A 24-hour rainfall duration was used in calculating the hydrographs. A Type III storm distribution was used in the analysis. Hydrographs and pond routings were created using the computer program HydroCAD (ver. 10.20-4a), by HydroCAD Software Solutions, LLC.

The analysis shows that for all modeled storm events the peak rate of runoff conveyed to the design point is less than or equal to the existing peak rate of runoff. The design line lies along the southern property line and southern portion of the western property line which is where all flows from the property discharge to.

**Table 1**, Peak Rates of Runoff summarizes the peak rates of flow conveyed by the site in the existing and future conditions to the Design Line for the modeled storms.



**Table 1. Peak Rates of Runoff to Design Line**

(all flows in cubic feet per second)

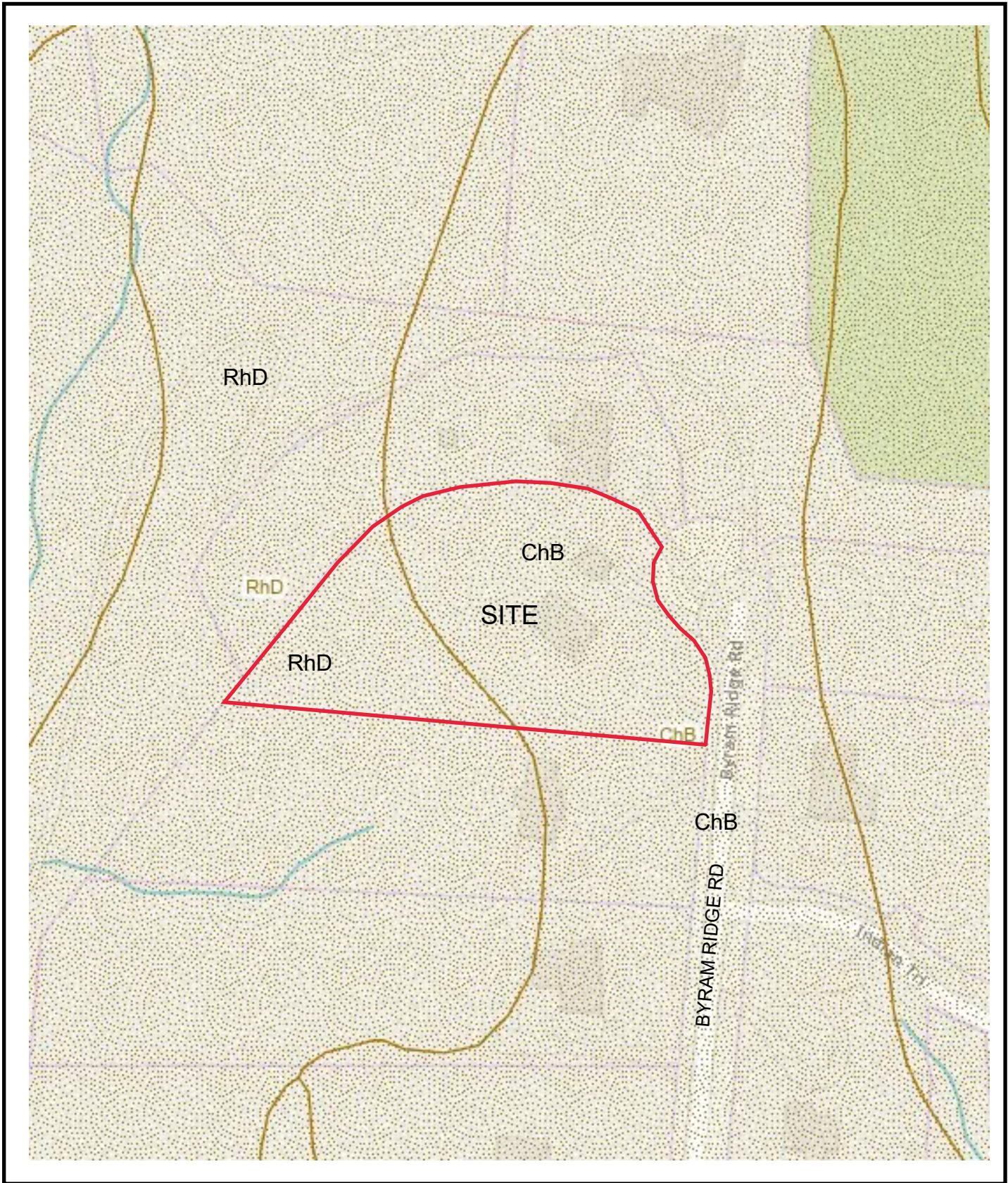
<i>Drainage Area/ Storm Interval</i>	<i>1 year</i>	<i>2 year</i>	<i>10 year</i>	<i>25 year</i>	<i>100 year</i>
<i>Existing Condition</i>					
<i>Flows to Design Line</i>	0.04	0.17	1.20	2.38	5.29
<i>Future Condition</i>					
<i>Flows to Design Line</i>	0.03	0.09	0.62	1.63	4.00

As can be seen in **Table 1**, the peak rate of runoff following the construction of the new house and other site improvements will be less than or equal to the existing peak rate of runoff for all of the modeled storm events.

## ***FIGURES***



Figure 1  
**SITE LOCATION MAP**  
Scale: Not to Scale



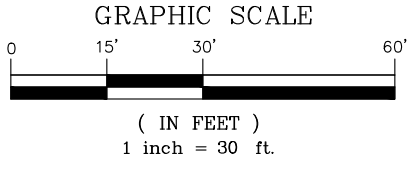
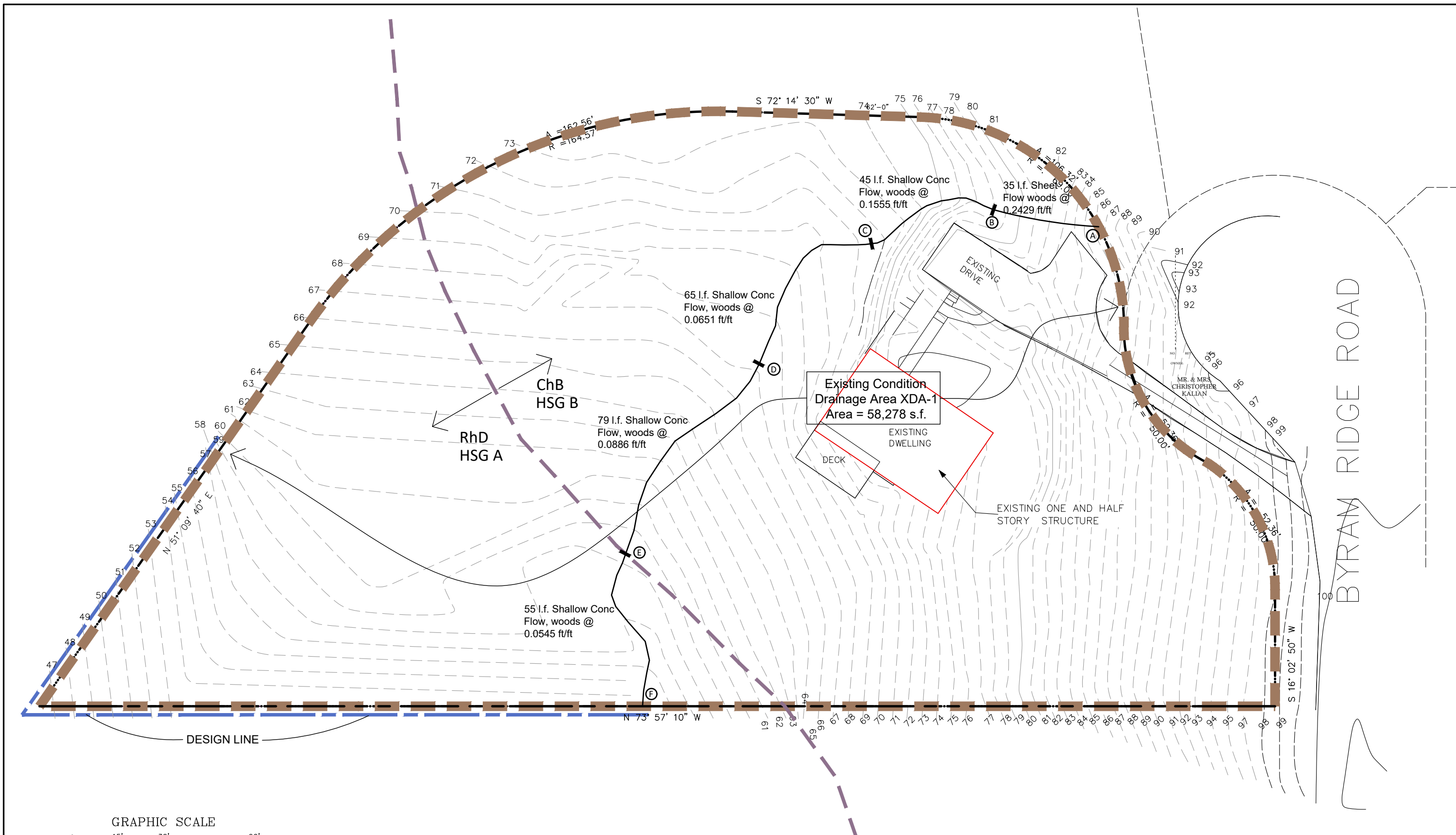
**LEGEND:**

ChB—Charlton fine sandy loam, 3 to 8 percent slopes  
RhD—Riverhead loam, 15 to 25 percent slopes

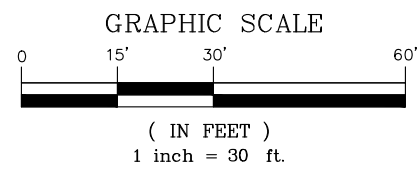
Figure 2

**SOILS MAP**

Scale: Not to Scale



<p>Date: December 29, 2023 Dwn. by: alp ID: Ex Cond Analysis_10-2023</p>	<p>DRAWING TITLE: <b>Existing Condition Drainage Area Map</b></p>	<p>PROJECT NAME: <b>Berkin Residence</b> 99 Byram Ridge Road Armonk, New York 10504</p>	<p>ENGINEER: <b>ALP ENGINEERING AND LANDSCAPE ARCHITECTURE, PLLC</b> P.O. Box 843 Ridgefield, Connecticut 06877 Tel. (475) 215-5343 Cell (203) 710-0587</p>	<p><b>Fig 3</b></p>
--------------------------------------------------------------------------------------	---------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------



<p>Date: December 29, 2023 Dwn. by: alp ID: Ex Cond Analysis_10-2023</p>	<p>DRAWING TITLE: <b>Future Condition Drainage Area Map</b></p>	<p>PROJECT NAME: <b>Berkin Residence</b> 99 Byram Ridge Road Armonk, New York 10504</p>	<p>ENGINEER: <b>ALP ENGINEERING AND LANDSCAPE ARCHITECTURE, PLLC</b> P.O. Box 843 Ridgefield, Connecticut 06877 Tel. (475) 215-5343 Cell (203) 710-0587</p>	<p><b>Fig 4</b></p>
--------------------------------------------------------------------------------------	-------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------

## ***SUPPORTING DOCUMENTATION***

**Table 1**  
**99 Byram Ridge Road**  
**Water Quality Volume (WQv) Calculation for Drainage Areas to Rain Gardens**

WQv Calculation for Drainage Area FDA-2C

To Rain Garden #1

Rainfall Depth = 1.5 inches  
Drainage Area = 913 s.f.  
Impervious Area = 913 s.f.  
% Impervious = 100.0 %  
Rv = 0.95

WQv = 0.002 ac-feet  
WQv = 108.4 cu feet

WQv Calculation for Drainage Area FDA-2B

To Rain Garden #2

Rainfall Depth = 1.5 inches  
Drainage Area = 1,356 s.f.  
Impervious Area = 1,356 s.f.  
% Impervious = 100.0 %  
Rv = 0.95

WQv = 0.004 ac-feet  
WQv = 161.0 cu feet

WQv Calculation for Drainage Area FDA-2A

To Rain Garden #3

Rainfall Depth = 1.5 inches  
Drainage Area = 1,413 s.f.  
Impervious Area = 1,413 s.f.  
% Impervious = 100.0 %  
Rv = 0.95

WQv = 0.004 ac-feet  
WQv = 167.8 cu feet



**Table 2**  
**99 Byram Ridge Rd**  
**Rain Garden #1 Design Calculations**

**RAIN GARDEN #1 DESIGN (FDA-2C)**

<b>Elevation</b> <i>feet</i>	<b>Area</b> <i>s.f.</i>	<b>Incremental Volume</b> <i>c.f.</i>	<b>Volume Sum</b> <i>cu. ft.</i>	<b>Volume Sum</b> <i>acre-feet</i>
77.00	325	0	0	0
77.25	401	91	91	0.0021
77.50	484	111	201	0.0046
77.75	572	132	333	0.0077

Parameters for Rain Garden Design as per 2015 NYS Stormwater Management Design Manual

Equations as per 2015 NYS SMDM:

$$WQv \leq VSM + VDL + (DP \times ARG)$$

$$VSM = ARG \times DSM \times nSM$$

$$VDL \text{ (optional)} = ARG \times DDL \times nDL$$

where:

VSM = volume of the soil media [cubic feet]

VDL = volume of the gravel drainage layer [cubic feet]

ARG = rain garden surface area [square feet]

DSM = depth of the soil media, typically\* 1.0 to 1.5 [feet]

DDL = depth of the drainage layer, minimum 0.5 [feet]

DP = depth of ponding above surface, maximum 0.5 feet [feet]

nSM = porosity of the soil media ( $\geq 20\%$ )

nDL = porosity of the drainage layer ( $\geq 40\%$ )

WQv = Water Quality Volume [cubic feet], as defined in Chapter 4

		<u>Remarks</u>
Surface Area of Rain Garden, ARG =	401 sq feet	<i>as per design</i>
Depth of the Soil Media, DSM =	1.5 foot	<i>as per design</i>
Porosity of the Soil Media, nSM =	20 %	<i>typical</i>
Depth of the Gravel Drainage Layer =	0.5 foot	<i>as per design</i>
Porosity of the Drainage Layer, nDL =	40 %	<i>typical</i>
Depth of Ponding above Surface =	0.50 feet	<i>as per design</i>
Volume of Soil Media, VSM =	120 cubic feet	<i>calculated</i>
Volume of Gravel Drainage Layer, VDL =	80 cubic feet	<i>calculated</i>
WQv Calculated =	108.4 cubic feet	<i>calculated</i>
WQv $\leq$ VSM + VDL + (DP x ARG) =	401 cubic feet	<i>calculated</i>

Since the WQv is less than the equation above, the design is acceptable.

**Table 3**  
**99 Byram Ridge Rd**  
**Rain Garden #2 Design Calculations**

**RAIN GARDEN #2 DESIGN (FDA-2B)**

<b>Elevation</b> <i>feet</i>	<b>Area</b> <i>s.f.</i>	<b>Incremental Volume</b> <i>c.f.</i>	<b>Volume Sum</b> <i>cu. ft.</i>	<b>Volume Sum</b> <i>acre-feet</i>
56.50	386	0	0	0
56.75	464	106	106	0.0024
57.00	550	127	233	0.0053
57.25	641	149	382	0.0088

Parameters for Rain Garden Design as per 2015 NYS Stormwater Management Design Manual

Equations as per 2015 NYS SMDM:

$$WQv \leq VSM + VDL + (DP \times ARG)$$

$$VSM = ARG \times DSM \times nSM$$

$$VDL \text{ (optional)} = ARG \times DDL \times nDL$$

where:

VSM = volume of the soil media [cubic feet]

VDL = volume of the gravel drainage layer [cubic feet]

ARG = rain garden surface area [square feet]

DSM = depth of the soil media, typically\* 1.0 to 1.5 [feet]

DDL = depth of the drainage layer, minimum 0.5 [feet]

DP = depth of ponding above surface, maximum 0.5 feet [feet]

nSM = porosity of the soil media ( $\geq 20\%$ )

nDL = porosity of the drainage layer ( $\geq 40\%$ )

WQv = Water Quality Volume [cubic feet], as defined in Chapter 4

		<u>Remarks</u>
Surface Area of Rain Garden, ARG =	464 sq feet	<i>as per design</i>
Depth of the Soil Media, DSM =	1.5 foot	<i>as per design</i>
Porosity of the Soil Media, nSM =	20 %	<i>typical</i>
Depth of the Gravel Drainage Layer =	0.5 foot	<i>as per design</i>
Porosity of the Drainage Layer, nDL =	40 %	<i>typical</i>
Depth of Ponding above Surface =	0.50 feet	<i>as per design</i>
Volume of Soil Media, VSM =	139 cubic feet	<i>calculated</i>
Volume of Gravel Drainage Layer, VDL =	93 cubic feet	<i>calculated</i>
WQv Calculated =	108.4 cubic feet	<i>calculated</i>
WQv $\leq$ VSM + VDL + (DP x ARG) =	464 cubic feet	<i>calculated</i>

Since the WQv is less than the equation above, the design is acceptable.

**Table 4**  
**99 Byram Ridge Rd**  
**Rain Garden #3 Design Calculations**

**RAIN GARDEN #2 DESIGN (FDA-2B)**

<b>Elevation</b> <i>feet</i>	<b>Area</b> <i>s.f.</i>	<b>Incremental Volume</b> <i>c.f.</i>	<b>Volume Sum</b> <i>cu. ft.</i>	<b>Volume Sum</b> <i>acre-feet</i>
56.50	359	0	0	0
56.75	440	100	100	0.0023
57.00	528	121	221	0.0051
57.25	622	144	365	0.0084

Parameters for Rain Garden Design as per 2015 NYS Stormwater Management Design Manual

Equations as per 2015 NYS SMDM:

$$WQv \leq VSM + VDL + (DP \times ARG)$$

$$VSM = ARG \times DSM \times nSM$$

$$VDL \text{ (optional)} = ARG \times DDL \times nDL$$

where:

VSM = volume of the soil media [cubic feet]

VDL = volume of the gravel drainage layer [cubic feet]

ARG = rain garden surface area [square feet]

DSM = depth of the soil media, typically\* 1.0 to 1.5 [feet]

DDL = depth of the drainage layer, minimum 0.5 [feet]

DP = depth of ponding above surface, maximum 0.5 feet [feet]

nSM = porosity of the soil media ( $\geq 20\%$ )

nDL = porosity of the drainage layer ( $\geq 40\%$ )

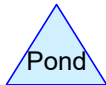
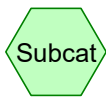
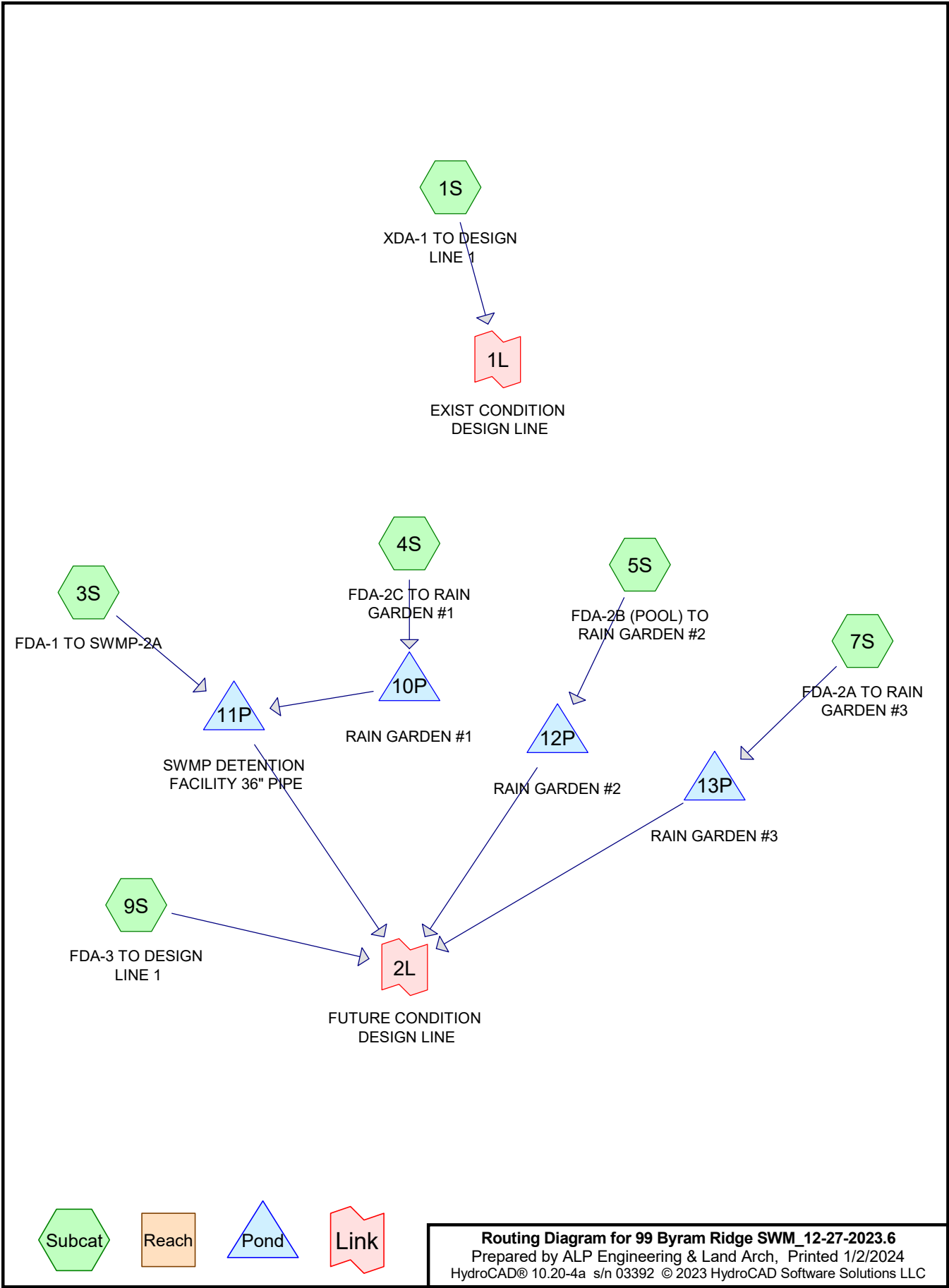
WQv = Water Quality Volume [cubic feet], as defined in Chapter 4

		<u>Remarks</u>
Surface Area of Rain Garden, ARG =	440 sq feet	<i>as per design</i>
Depth of the Soil Media, DSM =	1.5 foot	<i>as per design</i>
Porosity of the Soil Media, nSM =	20 %	<i>typical</i>
Depth of the Gravel Drainage Layer =	0.5 foot	<i>as per design</i>
Porosity of the Drainage Layer, nDL =	40 %	<i>typical</i>
Depth of Ponding above Surface =	0.50 feet	<i>as per design</i>
Volume of Soil Media, VSM =	132 cubic feet	<i>calculated</i>
Volume of Gravel Drainage Layer, VDL =	88 cubic feet	<i>calculated</i>
WQv Calculated =	108.4 cubic feet	<i>calculated</i>
WQv <= VSM + VDL + (DP x ARG) =	440 cubic feet	<i>calculated</i>

Since the WQv is less than the equation above, the design is acceptable.

*Appendix A*

***Stormwater Management Report  
Hydrographs and Routings***



**Routing Diagram for 99 Byram Ridge SWM\_12-27-2023.6**  
 Prepared by ALP Engineering & Land Arch, Printed 1/2/2024  
 HydroCAD® 10.20-4a s/n 03392 © 2023 HydroCAD Software Solutions LLC

# 99 Byram Ridge SWM\_12-27-2023.6

Prepared by ALP Engineering & Land Arch

HydroCAD® 10.20-4a s/n 03392 © 2023 HydroCAD Software Solutions LLC

Printed 1/2/2024

Page 2

## Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-year	Type III 24-hr		Default	24.00	1	2.80	2
2	2-year	Type III 24-hr		Default	24.00	1	3.42	2
3	10-year	Type III 24-hr		Default	24.00	1	5.12	2
4	25-year	Type III 24-hr		Default	24.00	1	6.46	2
5	100-year	Type III 24-hr		Default	24.00	1	9.18	2

# 99 Byram Ridge SWM\_12-27-2023.6

Prepared by ALP Engineering & Land Arch

HydroCAD® 10.20-4a s/n 03392 © 2023 HydroCAD Software Solutions LLC

Printed 1/2/2024

Page 3

## Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.228	39	>75% Grass cover, Good, HSG A (1S, 9S)
1.044	61	>75% Grass cover, Good, HSG B (1S, 3S, 9S)
0.025	98	Impervious patio surface, HSG B (9S)
0.238	98	Paved parking, HSG B (1S, 3S)
0.021	98	Roofs, HSG A (4S)
0.064	98	Roofs, HSG B (5S, 7S)
0.384	36	Woods, Fair, HSG A (1S)
0.205	30	Woods, Good, HSG A (9S)
0.468	55	Woods, Good, HSG B (1S, 9S)
<b>2.676</b>	<b>57</b>	<b>TOTAL AREA</b>

# 99 Byram Ridge SWM\_12-27-2023.6

Prepared by ALP Engineering & Land Arch

HydroCAD® 10.20-4a s/n 03392 © 2023 HydroCAD Software Solutions LLC

Printed 1/2/2024

Page 4

## Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.228	1.044	0.000	0.000	0.000	1.271	>75% Grass cover, Good	1S, 3S, 9S
0.000	0.025	0.000	0.000	0.000	0.025	Impervious patio surface	9S
0.000	0.238	0.000	0.000	0.000	0.238	Paved parking	1S, 3S
0.021	0.064	0.000	0.000	0.000	0.085	Roofs	4S, 5S, 7S
0.384	0.000	0.000	0.000	0.000	0.384	Woods, Fair	1S
0.205	0.468	0.000	0.000	0.000	0.673	Woods, Good	1S, 9S
<b>0.838</b>	<b>1.838</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>2.676</b>	<b>TOTAL AREA</b>	



**99 Byram Ridge SWM\_12-27-2023.6**

Type III 24-hr 1-year Rainfall=2.80"

Prepared by ALP Engineering &amp; Land Arch

Printed 1/2/2024

HydroCAD® 10.20-4a s/n 03392 © 2023 HydroCAD Software Solutions LLC

Page 5

Time span=0.00-48.00 hrs, dt=0.02 hrs, 2401 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1S: XDA-1 TO DESIGN LINE 1** Runoff Area=58,278 sf 6.61% Impervious Runoff Depth=0.13"  
 Flow Length=279' Tc=6.2 min CN=54 Runoff=0.04 cfs 0.014 af

**Subcatchment 3S: FDA-1 TO SWMP-2A** Runoff Area=11,689 sf 55.83% Impervious Runoff Depth=1.22"  
 Tc=6.0 min CN=82 Runoff=0.38 cfs 0.027 af

**Subcatchment 4S: FDA-2C TO RAIN** Runoff Area=913 sf 100.00% Impervious Runoff Depth=2.57"  
 Tc=6.0 min CN=98 Runoff=0.06 cfs 0.004 af

**Subcatchment 5S: FDA-2B (POOL) TO** Runoff Area=1,356 sf 100.00% Impervious Runoff Depth=2.57"  
 Tc=6.0 min CN=98 Runoff=0.08 cfs 0.007 af

**Subcatchment 7S: FDA-2A TO RAIN** Runoff Area=1,413 sf 100.00% Impervious Runoff Depth=2.57"  
 Tc=6.0 min CN=98 Runoff=0.09 cfs 0.007 af

**Subcatchment 9S: FDA-3 TO DESIGN LINE 1** Runoff Area=42,907 sf 2.52% Impervious Runoff Depth=0.07"  
 Flow Length=257' Tc=8.1 min CN=51 Runoff=0.01 cfs 0.006 af

**Pond 10P: RAIN GARDEN #1** Peak Elev=77.06' Storage=21 cf Inflow=0.06 cfs 0.004 af  
 Discarded=0.02 cfs 0.004 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.004 af

**Pond 11P: SWMP DETENTION FACILITY 36"** Peak Elev=71.73' Storage=605 cf Inflow=0.38 cfs 0.027 af  
 Outflow=0.02 cfs 0.027 af

**Pond 12P: RAIN GARDEN #2** Peak Elev=56.61' Storage=43 cf Inflow=0.08 cfs 0.007 af  
 Discarded=0.03 cfs 0.007 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.007 af

**Pond 13P: RAIN GARDEN #3** Peak Elev=56.64' Storage=52 cf Inflow=0.09 cfs 0.007 af  
 Discarded=0.03 cfs 0.007 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.007 af

**Link 1L: EXIST CONDITION DESIGN LINE** Inflow=0.04 cfs 0.014 af  
 Primary=0.04 cfs 0.014 af

**Link 2L: FUTURE CONDITION DESIGN LINE** Inflow=0.03 cfs 0.033 af  
 Primary=0.03 cfs 0.033 af

**Total Runoff Area = 2.676 ac Runoff Volume = 0.065 af Average Runoff Depth = 0.29"**  
**87.01% Pervious = 2.328 ac 12.99% Impervious = 0.348 ac**

**99 Byram Ridge SWM\_12-27-2023.6**

Type III 24-hr 1-year Rainfall=2.80"

Prepared by ALP Engineering & Land Arch

Printed 1/2/2024

HydroCAD® 10.20-4a s/n 03392 © 2023 HydroCAD Software Solutions LLC

Page 6

**Summary for Subcatchment 1S: XDA-1 TO DESIGN LINE 1**

Runoff = 0.04 cfs @ 12.45 hrs, Volume= 0.014 af, Depth= 0.13"

Routed to Link 1L : EXIST CONDITION DESIGN LINE

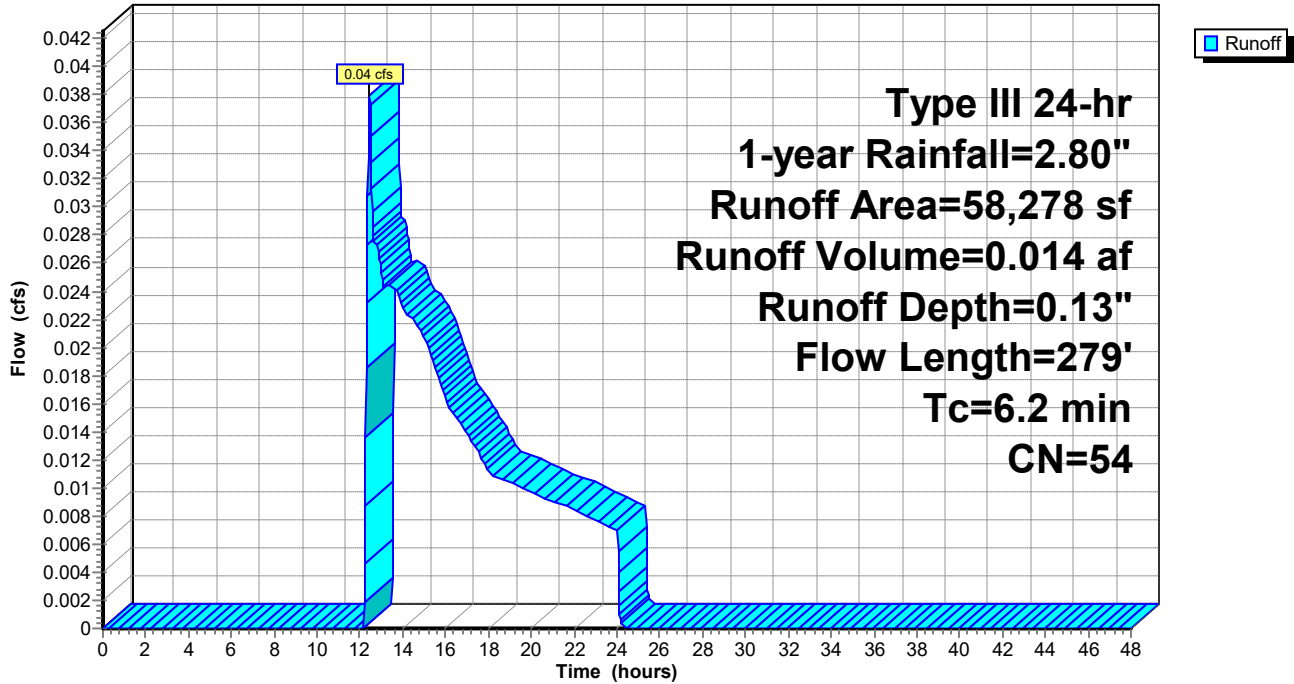
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
3,850	98	Paved parking, HSG B
16,730	36	Woods, Fair, HSG A
1,967	39	>75% Grass cover, Good, HSG A
17,965	55	Woods, Good, HSG B
17,766	61	>75% Grass cover, Good, HSG B
58,278	54	Weighted Average
54,428		93.39% Pervious Area
3,850		6.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	35	0.2429	0.18		<b>Sheet Flow, A-B</b>
					Woods: Light underbrush n= 0.400 P2= 3.41"
0.4	45	0.1555	1.97		<b>Shallow Concentrated Flow, B-C</b>
					Woodland Kv= 5.0 fps
0.8	65	0.0651	1.28		<b>Shallow Concentrated Flow, C-D</b>
					Woodland Kv= 5.0 fps
0.9	79	0.0886	1.49		<b>Shallow Concentrated Flow, D-E</b>
					Woodland Kv= 5.0 fps
0.8	55	0.0545	1.17		<b>Shallow Concentrated Flow, E-F</b>
					Woodland Kv= 5.0 fps
6.2	279	Total			

Subcatchment 1S: XDA-1 TO DESIGN LINE 1

Hydrograph



**Summary for Subcatchment 3S: FDA-1 TO SWMP-2A**

Runoff = 0.38 cfs @ 12.09 hrs, Volume= 0.027 af, Depth= 1.22"  
 Routed to Pond 11P : SWMP DETENTION FACILITY 36" PIPE

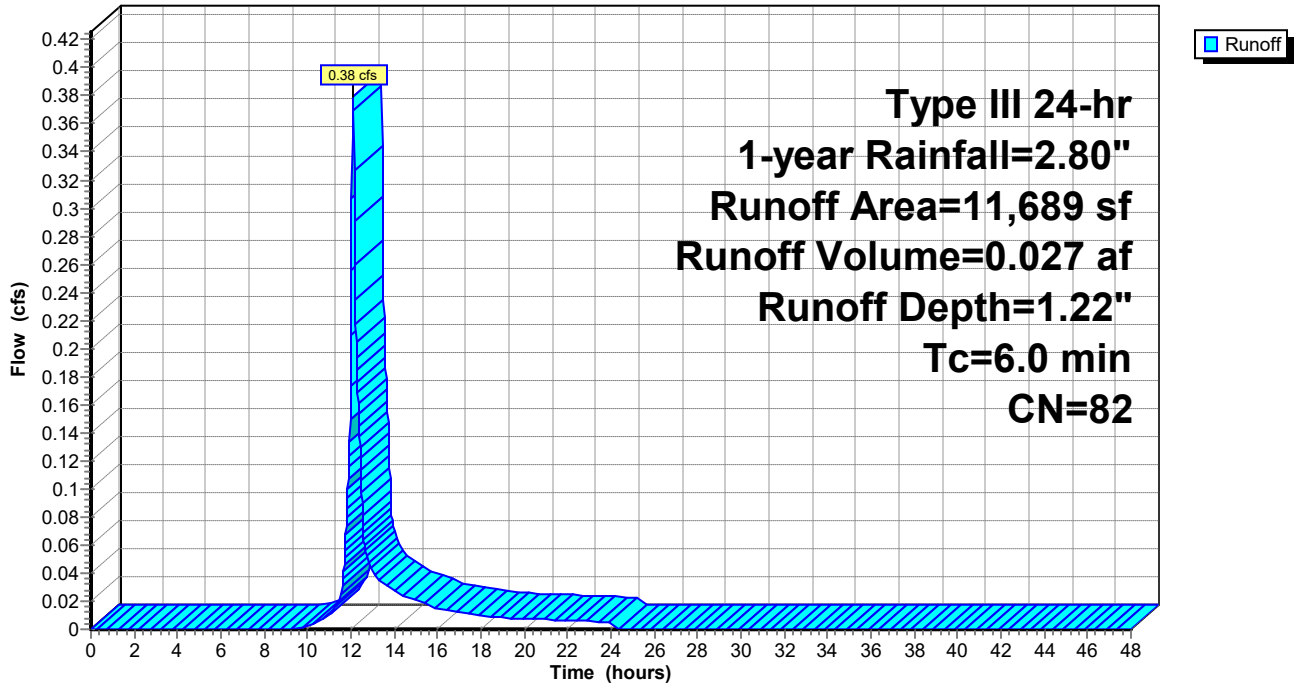
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
6,526	98	Paved parking, HSG B
5,163	61	>75% Grass cover, Good, HSG B
11,689	82	Weighted Average
5,163		44.17% Pervious Area
6,526		55.83% Impervious Area

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

**Subcatchment 3S: FDA-1 TO SWMP-2A**

Hydrograph



**Summary for Subcatchment 4S: FDA-2C TO RAIN GARDEN #1**

Runoff = 0.06 cfs @ 12.08 hrs, Volume= 0.004 af, Depth= 2.57"  
 Routed to Pond 10P : RAIN GARDEN #1

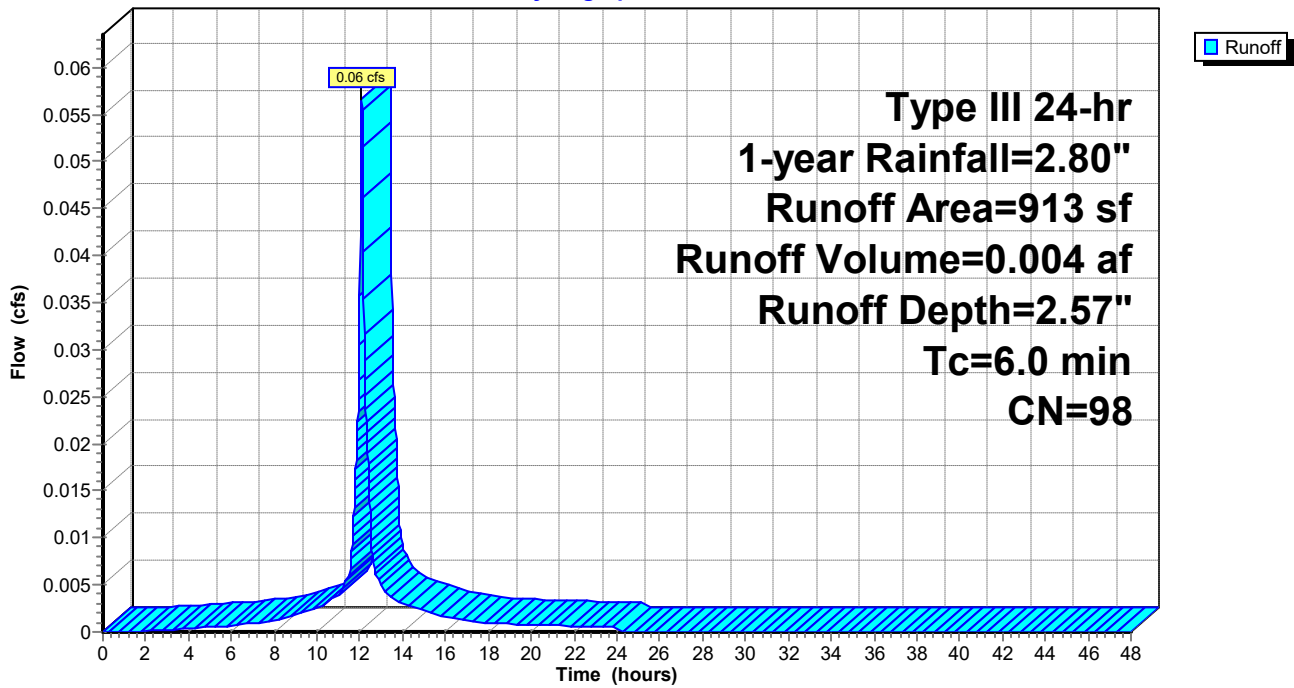
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
913	98	Roofs, HSG A
913		100.00% Impervious Area

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

**Subcatchment 4S: FDA-2C TO RAIN GARDEN #1**

Hydrograph



**Summary for Subcatchment 5S: FDA-2B (POOL) TO RAIN GARDEN #2**

Runoff = 0.08 cfs @ 12.08 hrs, Volume= 0.007 af, Depth= 2.57"  
 Routed to Pond 12P : RAIN GARDEN #2

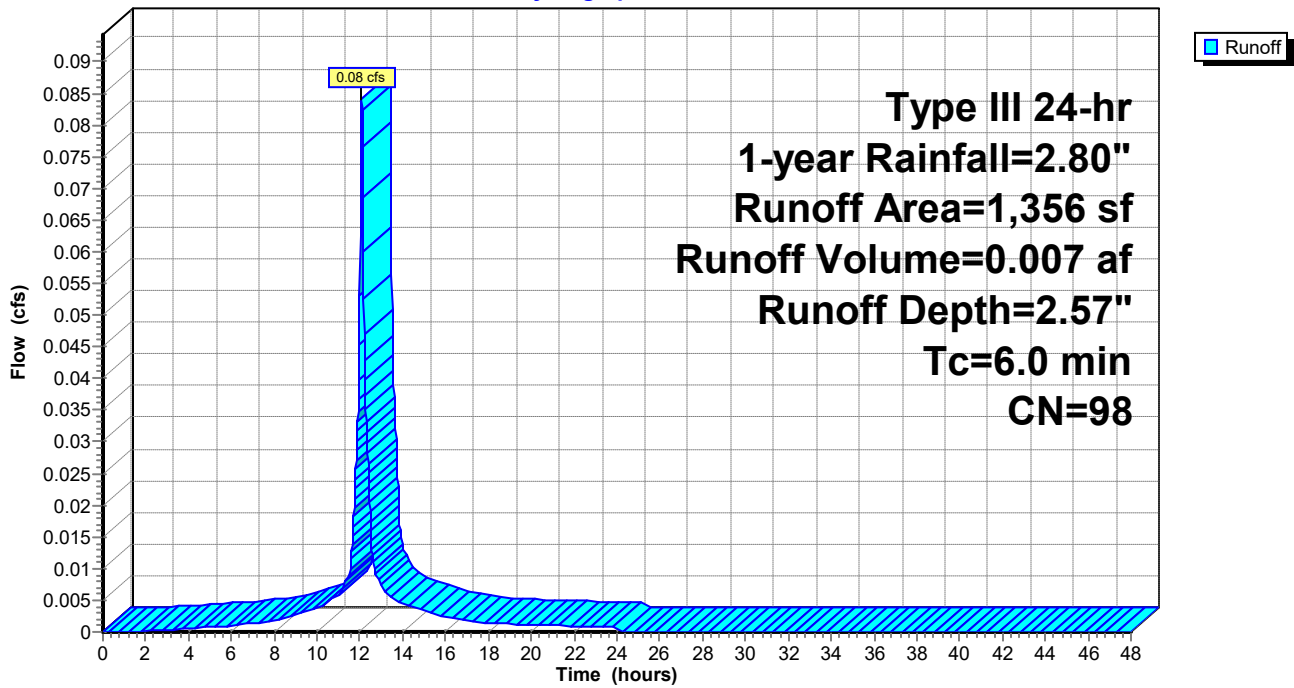
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
1,356	98	Roofs, HSG B
1,356		100.00% Impervious Area

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

**Subcatchment 5S: FDA-2B (POOL) TO RAIN GARDEN #2**

Hydrograph



**Summary for Subcatchment 7S: FDA-2A TO RAIN GARDEN #3**

Runoff = 0.09 cfs @ 12.08 hrs, Volume= 0.007 af, Depth= 2.57"  
 Routed to Pond 13P : RAIN GARDEN #3

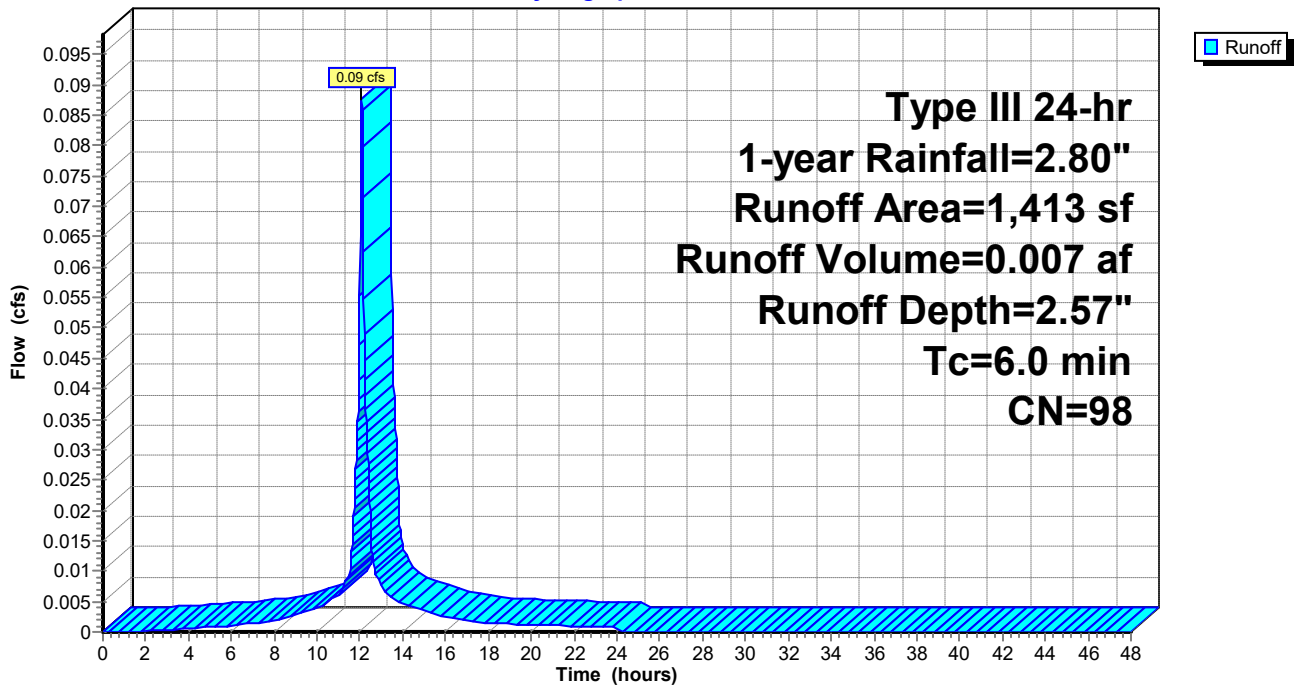
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Type III 24-hr 1-year Rainfall=2.80"

Area (sf)	CN	Description
1,413	98	Roofs, HSG B
1,413		100.00% Impervious Area

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

**Subcatchment 7S: FDA-2A TO RAIN GARDEN #3**

Hydrograph



**Summary for Subcatchment 9S: FDA-3 TO DESIGN LINE 1**

Runoff = 0.01 cfs @ 14.66 hrs, Volume= 0.006 af, Depth= 0.07"

Routed to Link 2L : FUTURE CONDITION DESIGN LINE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Type III 24-hr 1-year Rainfall=2.80"

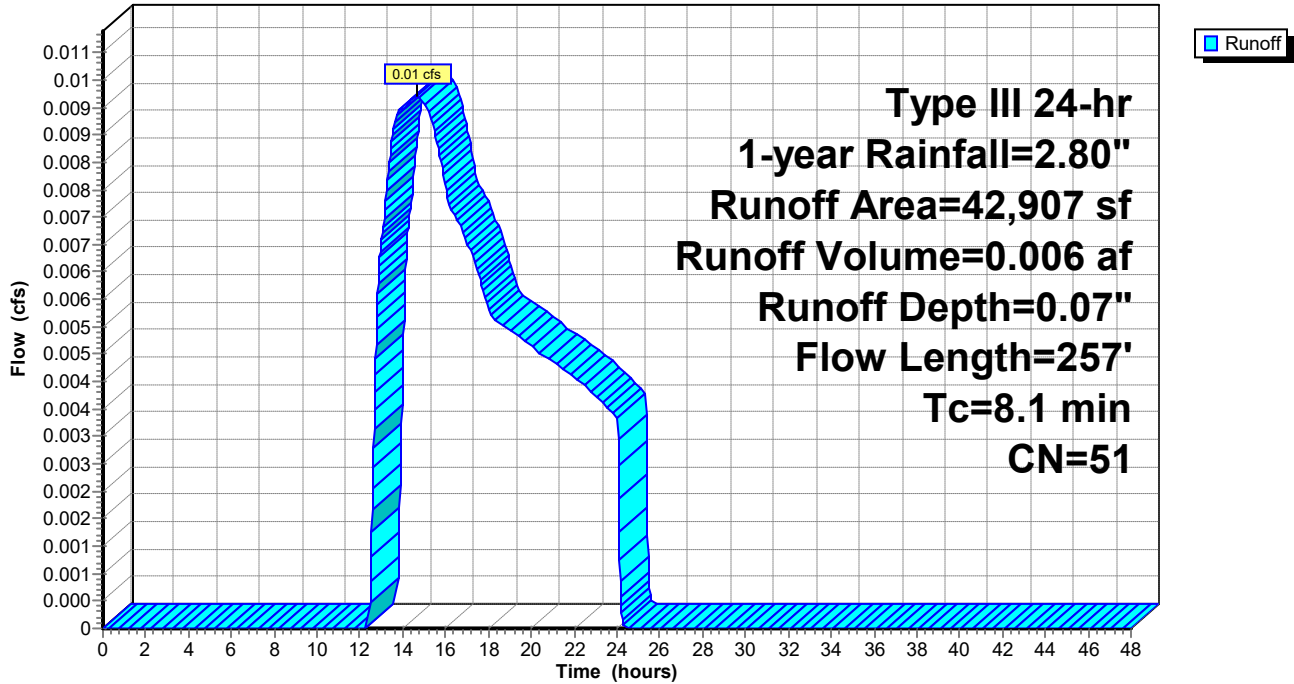
Area (sf)	CN	Description
* 1,083	98	Impervious patio surface, HSG B
7,943	39	>75% Grass cover, Good, HSG A
8,933	30	Woods, Good, HSG A
22,533	61	>75% Grass cover, Good, HSG B
2,415	55	Woods, Good, HSG B
42,907	51	Weighted Average
41,824		97.48% Pervious Area
1,083		2.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	38	0.0395	0.09		<b>Sheet Flow, A-B</b> Woods: Light underbrush n= 0.400 P2= 3.41"
0.3	75	0.0573	3.59		<b>Shallow Concentrated Flow, B-C</b> Grassed Waterway Kv= 15.0 fps
0.2	61	0.1508	5.82		<b>Shallow Concentrated Flow, C-D</b> Grassed Waterway Kv= 15.0 fps
0.3	83	0.0843	4.36		<b>Shallow Concentrated Flow, D-E</b> Grassed Waterway Kv= 15.0 fps
8.1	257	Total			



Subcatchment 9S: FDA-3 TO DESIGN LINE 1

Hydrograph



**99 Byram Ridge SWM\_12-27-2023.6**

Type III 24-hr 1-year Rainfall=2.80"

Prepared by ALP Engineering & Land Arch

Printed 1/2/2024

HydroCAD® 10.20-4a s/n 03392 © 2023 HydroCAD Software Solutions LLC

Page 14

**Summary for Pond 10P: RAIN GARDEN #1**

Inflow Area = 0.021 ac, 100.00% Impervious, Inflow Depth = 2.57" for 1-year event  
 Inflow = 0.06 cfs @ 12.08 hrs, Volume= 0.004 af  
 Outflow = 0.02 cfs @ 12.28 hrs, Volume= 0.004 af, Atten= 58%, Lag= 11.6 min  
 Discarded = 0.02 cfs @ 12.28 hrs, Volume= 0.004 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Pond 11P : SWMP DETENTION FACILITY 36" PIPE

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Peak Elev= 77.06' @ 12.28 hrs Surf.Area= 344 sf Storage= 21 cf

Plug-Flow detention time= 4.6 min calculated for 0.004 af (100% of inflow)  
 Center-of-Mass det. time= 4.6 min ( 763.9 - 759.3 )

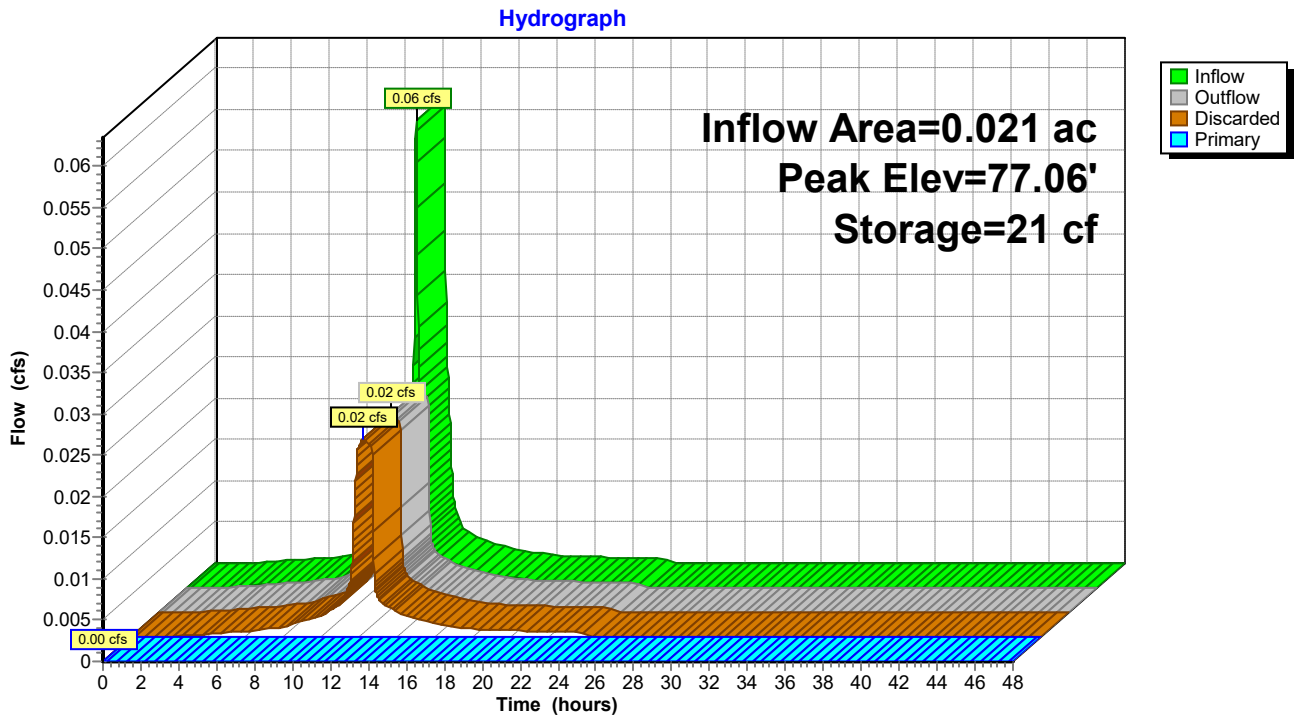
Volume	Invert	Avail.Storage	Storage Description
#1	77.00'	331 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
77.00	325	0	0
77.25	400	91	91
77.50	485	111	201
77.75	550	129	331

Device	Routing	Invert	Outlet Devices
#1	Discarded	77.00'	<b>3.000 in/hr Exfiltration over Horizontal area</b>
#2	Primary	77.50'	<b>4.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

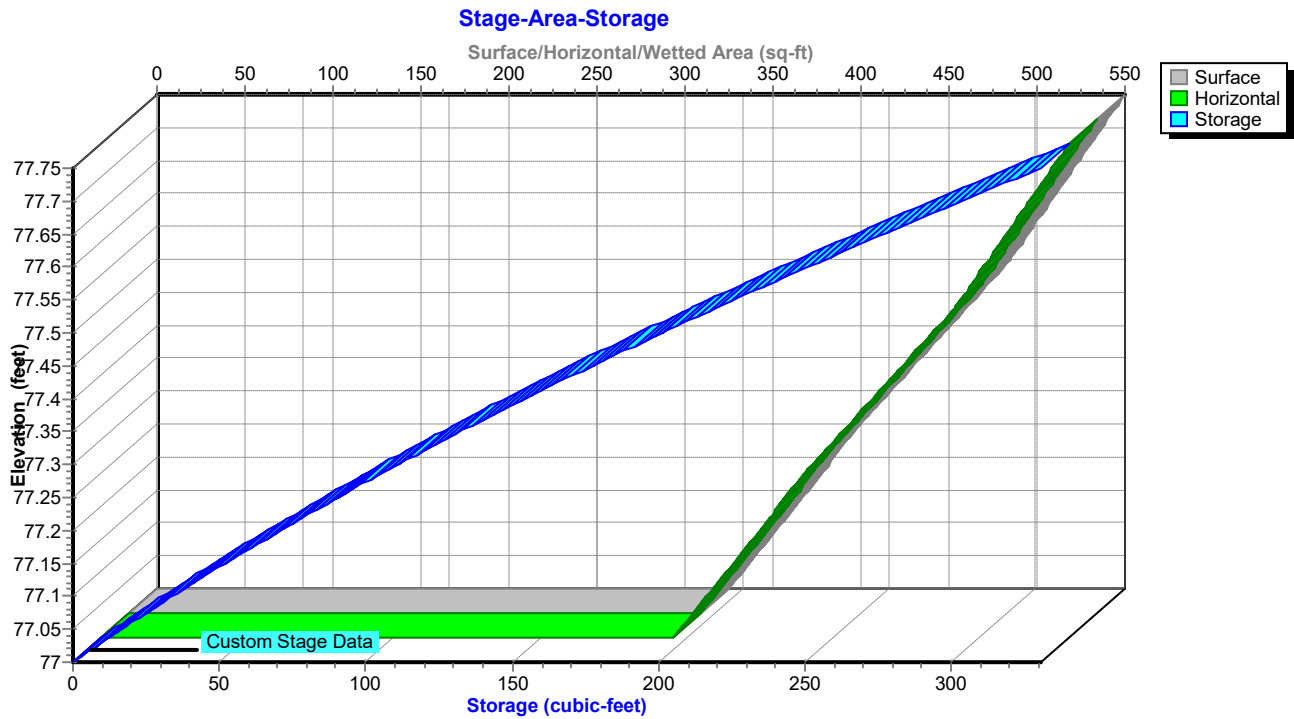
**Discarded OutFlow** Max=0.02 cfs @ 12.28 hrs HW=77.06' (Free Discharge)  
 ↑1=Exfiltration (Exfiltration Controls 0.02 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=77.00' (Free Discharge)  
 ↑2=Orifice/Grate ( Controls 0.00 cfs)

### Pond 10P: RAIN GARDEN #1



### Pond 10P: RAIN GARDEN #1



**Summary for Pond 11P: SWMP DETENTION FACILITY 36" PIPE**

Inflow Area = 0.289 ac, 59.03% Impervious, Inflow Depth = 1.13" for 1-year event  
 Inflow = 0.38 cfs @ 12.09 hrs, Volume= 0.027 af  
 Outflow = 0.02 cfs @ 14.46 hrs, Volume= 0.027 af, Atten= 94%, Lag= 142.2 min  
 Primary = 0.02 cfs @ 14.46 hrs, Volume= 0.027 af  
 Routed to Link 2L : FUTURE CONDITION DESIGN LINE

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Peak Elev= 71.73' @ 14.46 hrs Surf.Area= 954 sf Storage= 605 cf

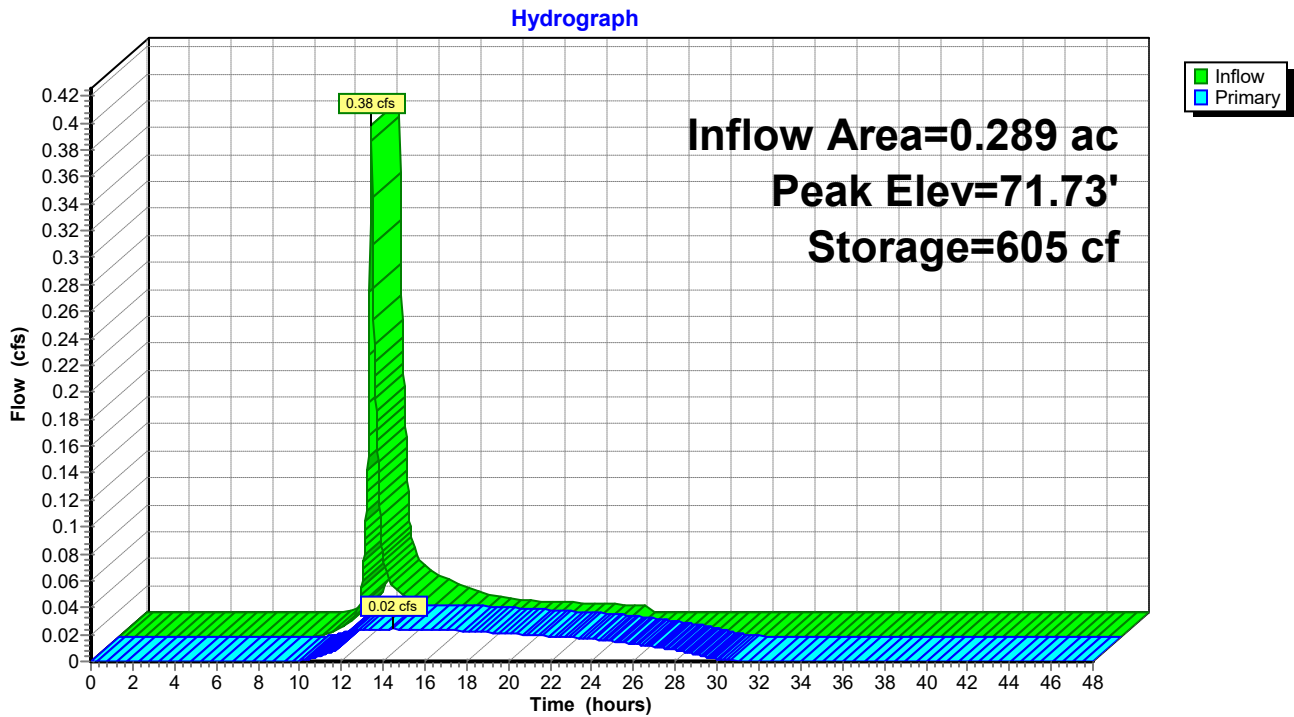
Plug-Flow detention time= 307.0 min calculated for 0.027 af (100% of inflow)  
 Center-of-Mass det. time= 307.2 min ( 1,150.1 - 842.9 )

Volume	Invert	Avail.Storage	Storage Description
#1	70.85'	2,467 cf	<b>36.0" Round Pipe Storage 36" Diam.</b> L= 349.0'

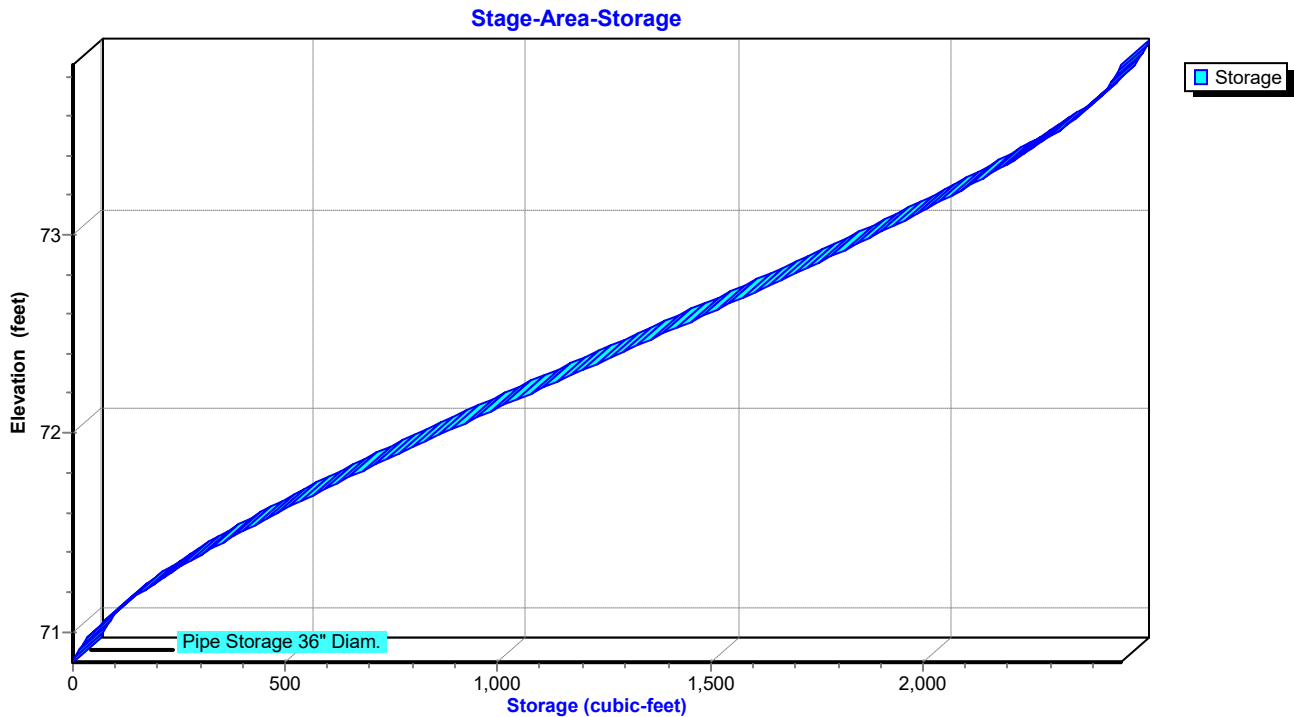
Device	Routing	Invert	Outlet Devices
#1	Primary	70.85'	<b>1.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#2	Primary	72.35'	<b>4.0" Vert. Orifice/Grate X 2.00</b> C= 0.600 Limited to weir flow at low heads
#3	Primary	73.35'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.02 cfs @ 14.46 hrs HW=71.73' (Free Discharge)  
 1=Orifice/Grate (Orifice Controls 0.02 cfs @ 4.41 fps)  
 2=Orifice/Grate ( Controls 0.00 cfs)  
 3=Orifice/Grate ( Controls 0.00 cfs)

### Pond 11P: SWMP DETENTION FACILITY 36" PIPE



### Pond 11P: SWMP DETENTION FACILITY 36" PIPE



**Summary for Pond 12P: RAIN GARDEN #2**

Inflow Area = 0.031 ac, 100.00% Impervious, Inflow Depth = 2.57" for 1-year event  
 Inflow = 0.08 cfs @ 12.08 hrs, Volume= 0.007 af  
 Outflow = 0.03 cfs @ 12.35 hrs, Volume= 0.007 af, Atten= 65%, Lag= 15.9 min  
 Discarded = 0.03 cfs @ 12.35 hrs, Volume= 0.007 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routed to Link 2L : FUTURE CONDITION DESIGN LINE

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Peak Elev= 56.61' @ 12.35 hrs Surf.Area= 419 sf Storage= 43 cf

Plug-Flow detention time= 7.7 min calculated for 0.007 af (100% of inflow)  
 Center-of-Mass det. time= 7.7 min ( 767.0 - 759.3 )

Volume	Invert	Avail.Storage	Storage Description
#1	56.50'	531 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
56.50	386	0	0
56.75	464	106	106
57.00	550	127	233
57.50	641	298	531

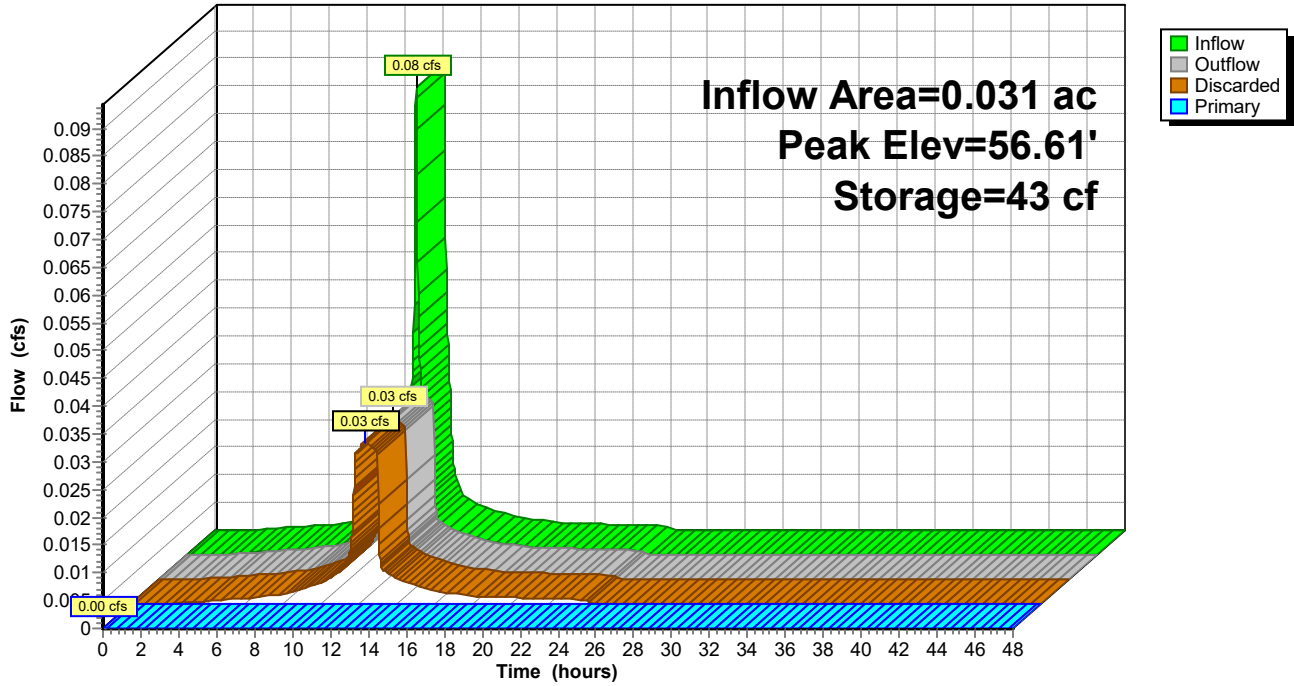
Device	Routing	Invert	Outlet Devices
#1	Primary	57.00'	<b>4.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#2	Primary	57.35'	<b>6.0' long (Profile 6) Broad-Crested Rectangular Weir</b> Head (feet) 0.49 0.98 1.48 Coef. (English) 3.12 3.41 3.59
#3	Discarded	56.50'	<b>3.000 in/hr Exfiltration over Horizontal area</b>

**Discarded OutFlow** Max=0.03 cfs @ 12.35 hrs HW=56.61' (Free Discharge)  
 ↑ **3=Exfiltration** (Exfiltration Controls 0.03 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=56.50' (Free Discharge)  
 ↑ **1=Orifice/Grate** ( Controls 0.00 cfs)  
 ↓ **2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

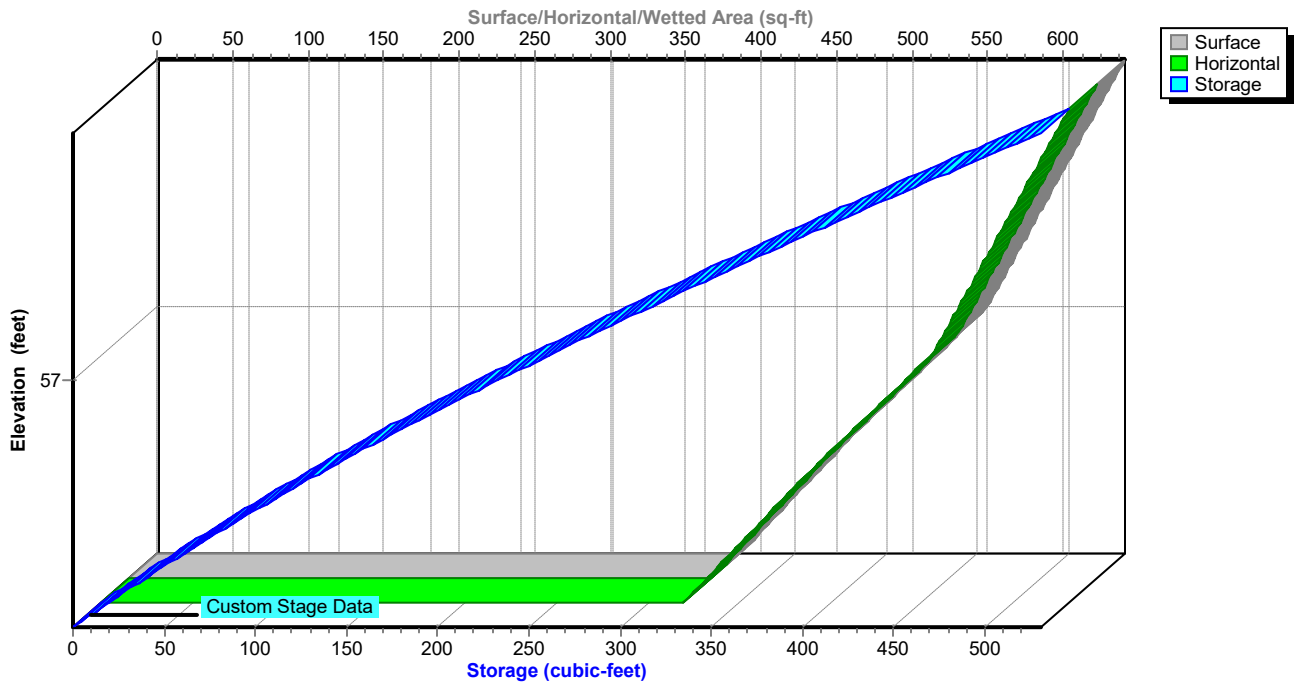
### Pond 12P: RAIN GARDEN #2

Hydrograph



### Pond 12P: RAIN GARDEN #2

Stage-Area-Storage



**Summary for Pond 13P: RAIN GARDEN #3**

Inflow Area = 0.032 ac, 100.00% Impervious, Inflow Depth = 2.57" for 1-year event  
 Inflow = 0.09 cfs @ 12.08 hrs, Volume= 0.007 af  
 Outflow = 0.03 cfs @ 12.38 hrs, Volume= 0.007 af, Atten= 68%, Lag= 17.6 min  
 Discarded = 0.03 cfs @ 12.38 hrs, Volume= 0.007 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 2L : FUTURE CONDITION DESIGN LINE

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Peak Elev= 56.64' @ 12.38 hrs Surf.Area= 404 sf Storage= 52 cf

Plug-Flow detention time= 11.3 min calculated for 0.007 af (100% of inflow)  
 Center-of-Mass det. time= 11.3 min ( 770.6 - 759.3 )

Volume	Invert	Avail.Storage	Storage Description
#1	56.50'	1,084 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
56.50	360	0	0
56.75	440	100	100
57.00	528	121	221
58.50	622	863	1,084

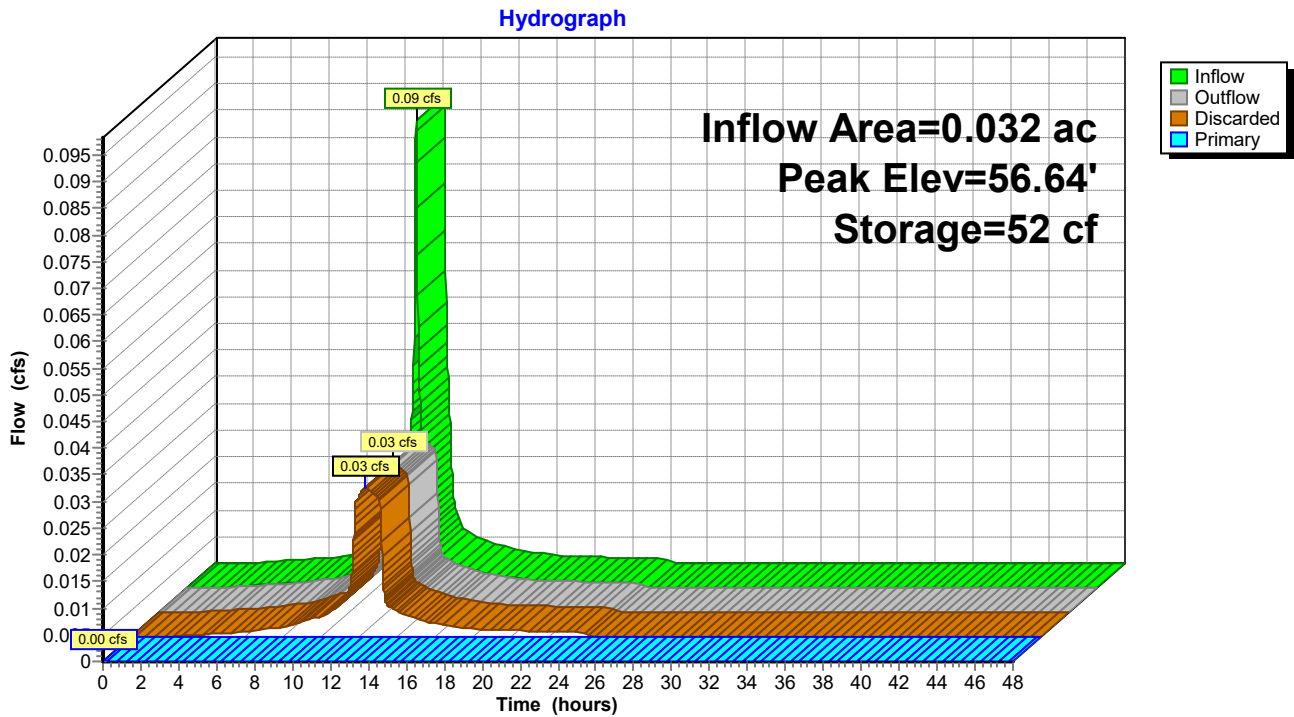
Device	Routing	Invert	Outlet Devices
#1	Primary	57.00'	<b>4.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#2	Primary	57.35'	<b>6.0' long (Profile 6) Broad-Crested Rectangular Weir</b> Head (feet) 0.49 0.98 1.48 Coef. (English) 3.12 3.41 3.59
#3	Discarded	56.50'	<b>3.000 in/hr Exfiltration over Horizontal area</b>

**Discarded OutFlow** Max=0.03 cfs @ 12.38 hrs HW=56.64' (Free Discharge)  
 ↑**3=Exfiltration** (Exfiltration Controls 0.03 cfs)

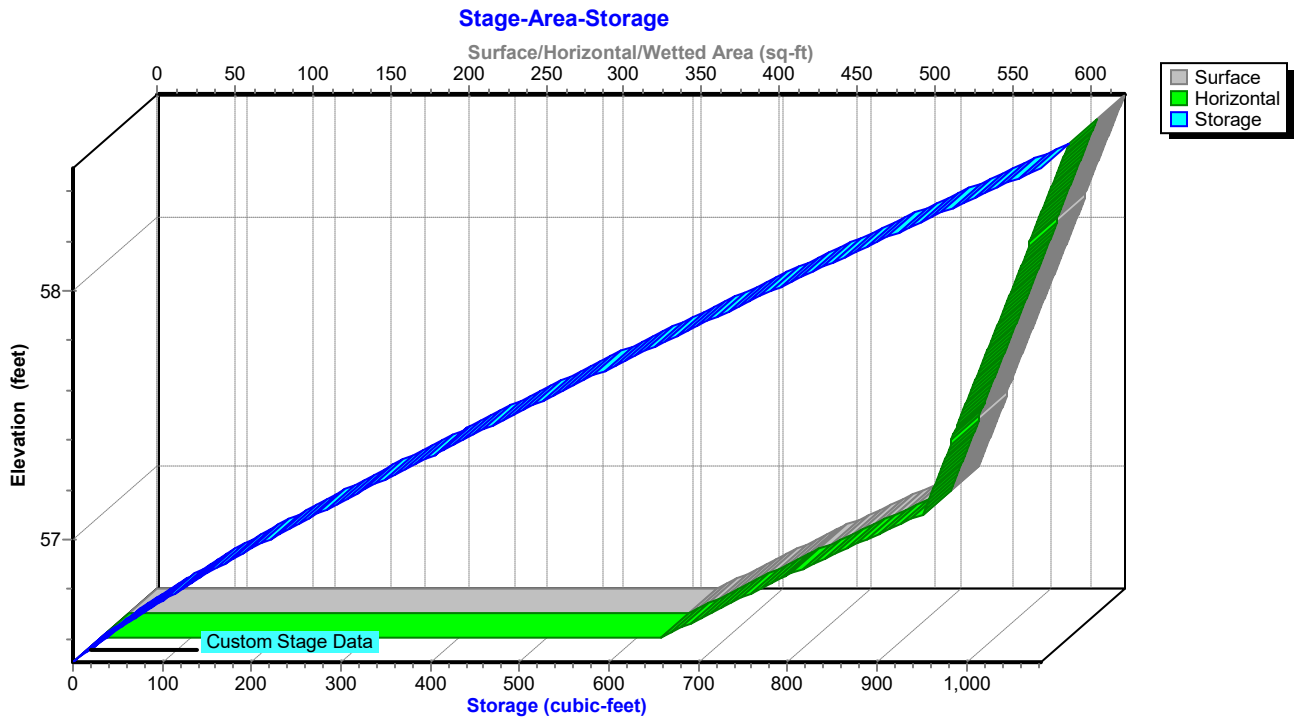
**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=56.50' (Free Discharge)  
 ↑**1=Orifice/Grate** ( Controls 0.00 cfs)  
 ↓**2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)



### Pond 13P: RAIN GARDEN #3



### Pond 13P: RAIN GARDEN #3



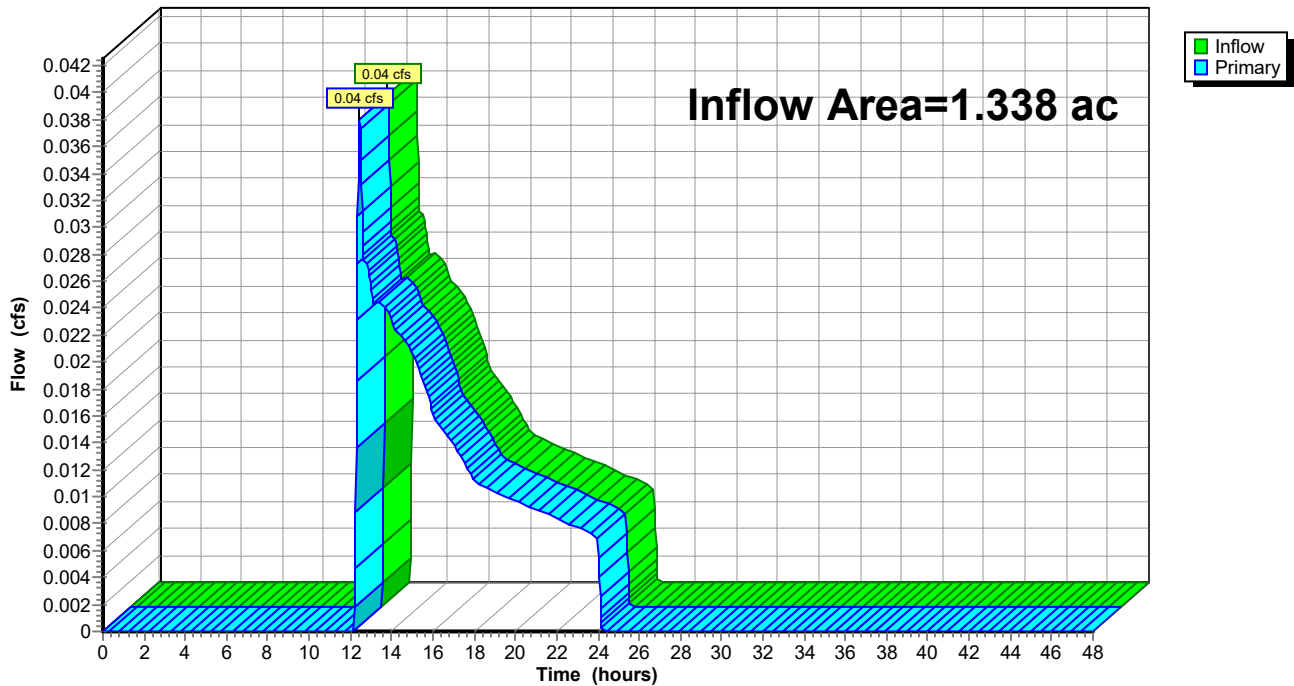
### Summary for Link 1L: EXIST CONDITION DESIGN LINE

Inflow Area = 1.338 ac, 6.61% Impervious, Inflow Depth = 0.13" for 1-year event  
Inflow = 0.04 cfs @ 12.45 hrs, Volume= 0.014 af  
Primary = 0.04 cfs @ 12.45 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs

### Link 1L: EXIST CONDITION DESIGN LINE

Hydrograph



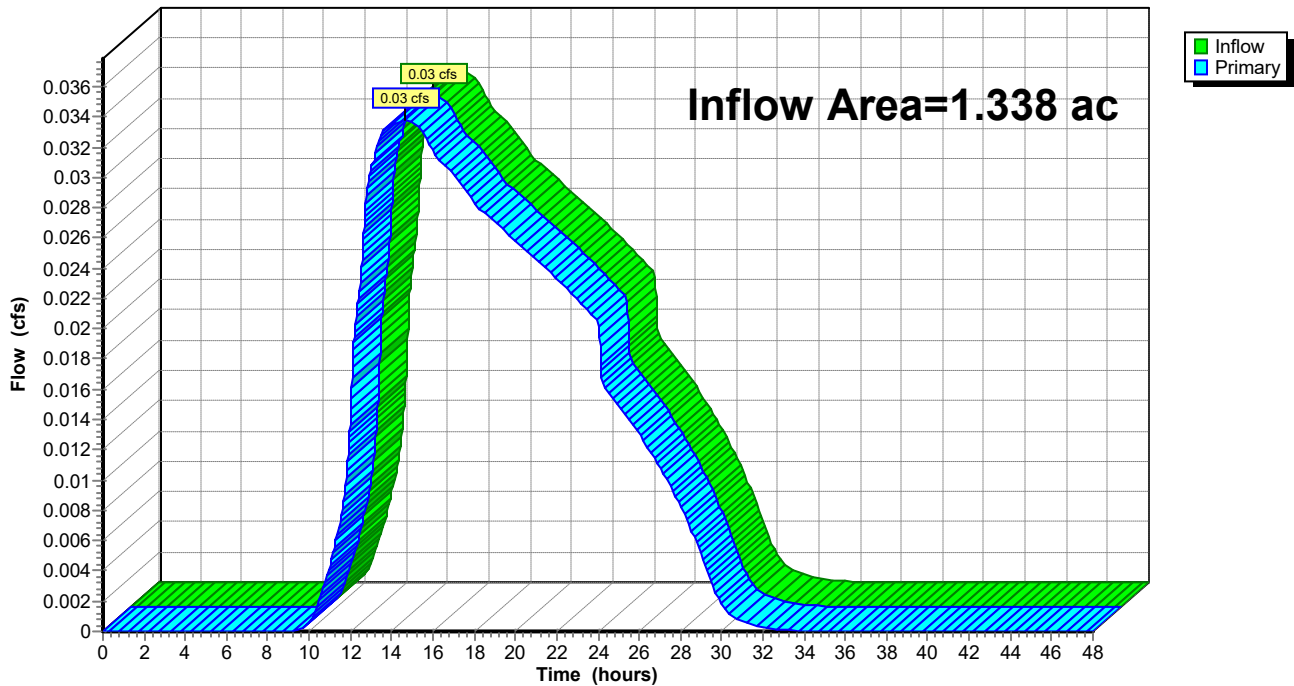
### Summary for Link 2L: FUTURE CONDITION DESIGN LINE

Inflow Area = 1.338 ac, 19.37% Impervious, Inflow Depth = 0.30" for 1-year event  
Inflow = 0.03 cfs @ 14.63 hrs, Volume= 0.033 af  
Primary = 0.03 cfs @ 14.63 hrs, Volume= 0.033 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs

### Link 2L: FUTURE CONDITION DESIGN LINE

Hydrograph



**99 Byram Ridge SWM\_12-27-2023.6**

Type III 24-hr 2-year Rainfall=3.42"

Prepared by ALP Engineering &amp; Land Arch

Printed 1/2/2024

HydroCAD® 10.20-4a s/n 03392 © 2023 HydroCAD Software Solutions LLC

Page 24

Time span=0.00-48.00 hrs, dt=0.02 hrs, 2401 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1S: XDA-1 TO DESIGN LINE 1** Runoff Area=58,278 sf 6.61% Impervious Runoff Depth=0.29"  
 Flow Length=279' Tc=6.2 min CN=54 Runoff=0.17 cfs 0.032 af

**Subcatchment 3S: FDA-1 TO SWMP-2A** Runoff Area=11,689 sf 55.83% Impervious Runoff Depth=1.72"  
 Tc=6.0 min CN=82 Runoff=0.54 cfs 0.038 af

**Subcatchment 4S: FDA-2C TO RAIN** Runoff Area=913 sf 100.00% Impervious Runoff Depth=3.19"  
 Tc=6.0 min CN=98 Runoff=0.07 cfs 0.006 af

**Subcatchment 5S: FDA-2B (POOL) TO** Runoff Area=1,356 sf 100.00% Impervious Runoff Depth=3.19"  
 Tc=6.0 min CN=98 Runoff=0.10 cfs 0.008 af

**Subcatchment 7S: FDA-2A TO RAIN** Runoff Area=1,413 sf 100.00% Impervious Runoff Depth=3.19"  
 Tc=6.0 min CN=98 Runoff=0.11 cfs 0.009 af

**Subcatchment 9S: FDA-3 TO DESIGN LINE 1** Runoff Area=42,907 sf 2.52% Impervious Runoff Depth=0.20"  
 Flow Length=257' Tc=8.1 min CN=51 Runoff=0.06 cfs 0.017 af

**Pond 10P: RAIN GARDEN #1** Peak Elev=77.10' Storage=34 cf Inflow=0.07 cfs 0.006 af  
 Discarded=0.02 cfs 0.006 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.006 af

**Pond 11P: SWMP DETENTION FACILITY 36"** Peak Elev=72.05' Storage=920 cf Inflow=0.54 cfs 0.038 af  
 Outflow=0.03 cfs 0.038 af

**Pond 12P: RAIN GARDEN #2** Peak Elev=56.66' Storage=64 cf Inflow=0.10 cfs 0.008 af  
 Discarded=0.03 cfs 0.008 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.008 af

**Pond 13P: RAIN GARDEN #3** Peak Elev=56.69' Storage=75 cf Inflow=0.11 cfs 0.009 af  
 Discarded=0.03 cfs 0.009 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.009 af

**Link 1L: EXIST CONDITION DESIGN LINE** Inflow=0.17 cfs 0.032 af  
 Primary=0.17 cfs 0.032 af

**Link 2L: FUTURE CONDITION DESIGN LINE** Inflow=0.09 cfs 0.055 af  
 Primary=0.09 cfs 0.055 af

**Total Runoff Area = 2.676 ac Runoff Volume = 0.110 af Average Runoff Depth = 0.49"**  
**87.01% Pervious = 2.328 ac 12.99% Impervious = 0.348 ac**

**99 Byram Ridge SWM\_12-27-2023.6**

Type III 24-hr 2-year Rainfall=3.42"

Prepared by ALP Engineering & Land Arch

Printed 1/2/2024

HydroCAD® 10.20-4a s/n 03392 © 2023 HydroCAD Software Solutions LLC

Page 25

**Summary for Subcatchment 1S: XDA-1 TO DESIGN LINE 1**

Runoff = 0.17 cfs @ 12.32 hrs, Volume= 0.032 af, Depth= 0.29"

Routed to Link 1L : EXIST CONDITION DESIGN LINE

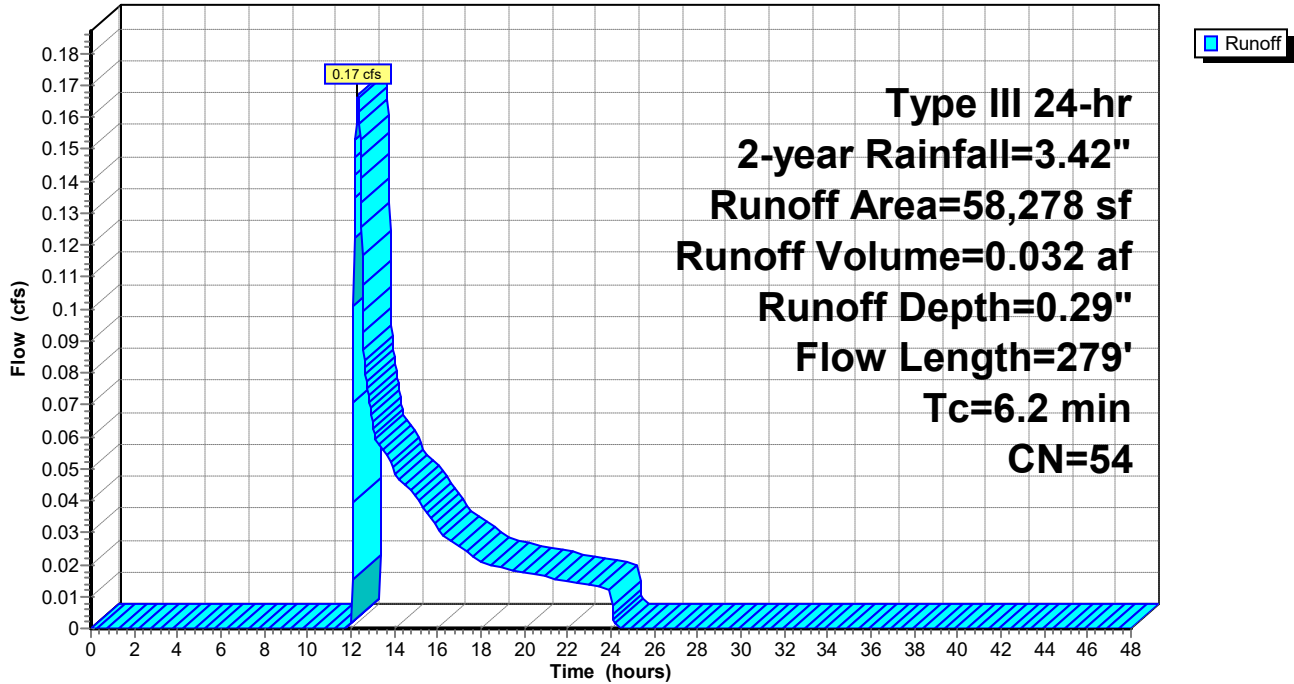
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
Type III 24-hr 2-year Rainfall=3.42"

Area (sf)	CN	Description
3,850	98	Paved parking, HSG B
16,730	36	Woods, Fair, HSG A
1,967	39	>75% Grass cover, Good, HSG A
17,965	55	Woods, Good, HSG B
17,766	61	>75% Grass cover, Good, HSG B
58,278	54	Weighted Average
54,428		93.39% Pervious Area
3,850		6.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	35	0.2429	0.18		<b>Sheet Flow, A-B</b>
					Woods: Light underbrush n= 0.400 P2= 3.41"
0.4	45	0.1555	1.97		<b>Shallow Concentrated Flow, B-C</b>
					Woodland Kv= 5.0 fps
0.8	65	0.0651	1.28		<b>Shallow Concentrated Flow, C-D</b>
					Woodland Kv= 5.0 fps
0.9	79	0.0886	1.49		<b>Shallow Concentrated Flow, D-E</b>
					Woodland Kv= 5.0 fps
0.8	55	0.0545	1.17		<b>Shallow Concentrated Flow, E-F</b>
					Woodland Kv= 5.0 fps
6.2	279	Total			

Subcatchment 1S: XDA-1 TO DESIGN LINE 1

Hydrograph



**99 Byram Ridge SWM\_12-27-2023.6**

Type III 24-hr 2-year Rainfall=3.42"

Prepared by ALP Engineering & Land Arch

Printed 1/2/2024

HydroCAD® 10.20-4a s/n 03392 © 2023 HydroCAD Software Solutions LLC

Page 27

**Summary for Subcatchment 3S: FDA-1 TO SWMP-2A**

Runoff = 0.54 cfs @ 12.09 hrs, Volume= 0.038 af, Depth= 1.72"  
 Routed to Pond 11P : SWMP DETENTION FACILITY 36" PIPE

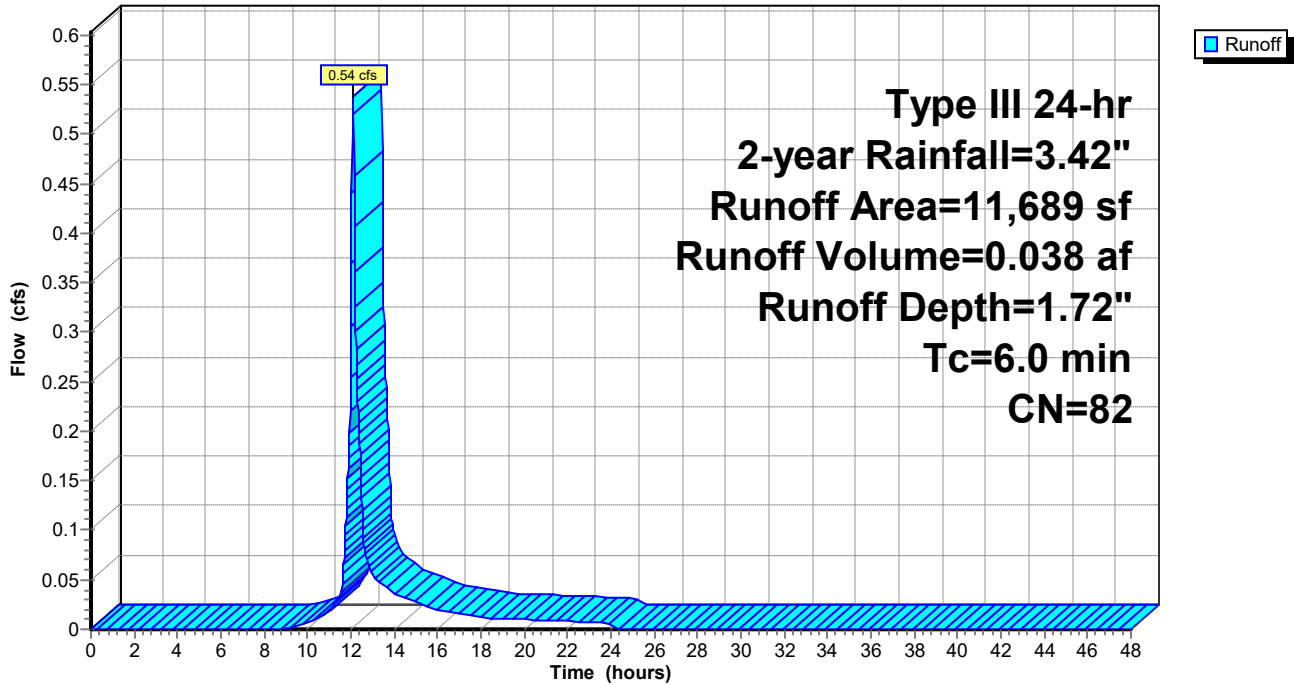
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Type III 24-hr 2-year Rainfall=3.42"

Area (sf)	CN	Description
6,526	98	Paved parking, HSG B
5,163	61	>75% Grass cover, Good, HSG B
11,689	82	Weighted Average
5,163		44.17% Pervious Area
6,526		55.83% Impervious Area

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

**Subcatchment 3S: FDA-1 TO SWMP-2A**

Hydrograph



**99 Byram Ridge SWM\_12-27-2023.6**

Type III 24-hr 2-year Rainfall=3.42"

Prepared by ALP Engineering & Land Arch

Printed 1/2/2024

HydroCAD® 10.20-4a s/n 03392 © 2023 HydroCAD Software Solutions LLC

Page 28

**Summary for Subcatchment 4S: FDA-2C TO RAIN GARDEN #1**

Runoff = 0.07 cfs @ 12.08 hrs, Volume= 0.006 af, Depth= 3.19"  
 Routed to Pond 10P : RAIN GARDEN #1

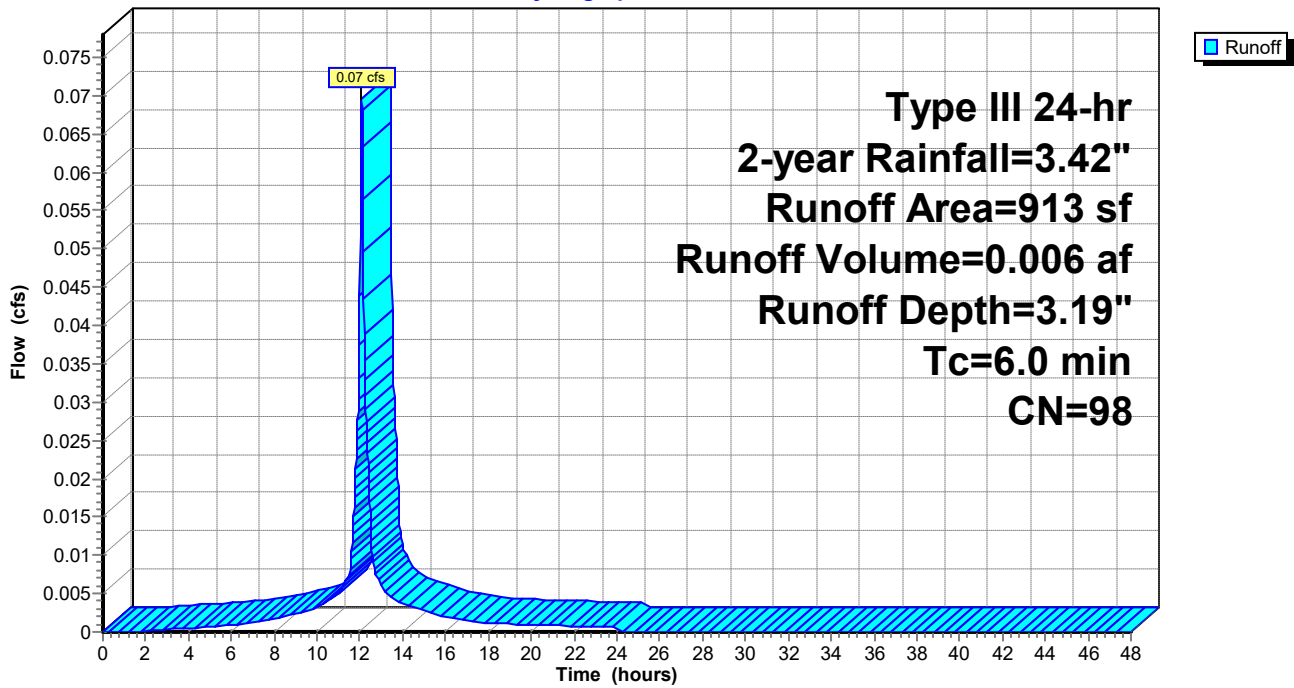
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Type III 24-hr 2-year Rainfall=3.42"

Area (sf)	CN	Description
913	98	Roofs, HSG A
913		100.00% Impervious Area

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

**Subcatchment 4S: FDA-2C TO RAIN GARDEN #1**

Hydrograph





**Summary for Subcatchment 5S: FDA-2B (POOL) TO RAIN GARDEN #2**

Runoff = 0.10 cfs @ 12.08 hrs, Volume= 0.008 af, Depth= 3.19"  
 Routed to Pond 12P : RAIN GARDEN #2

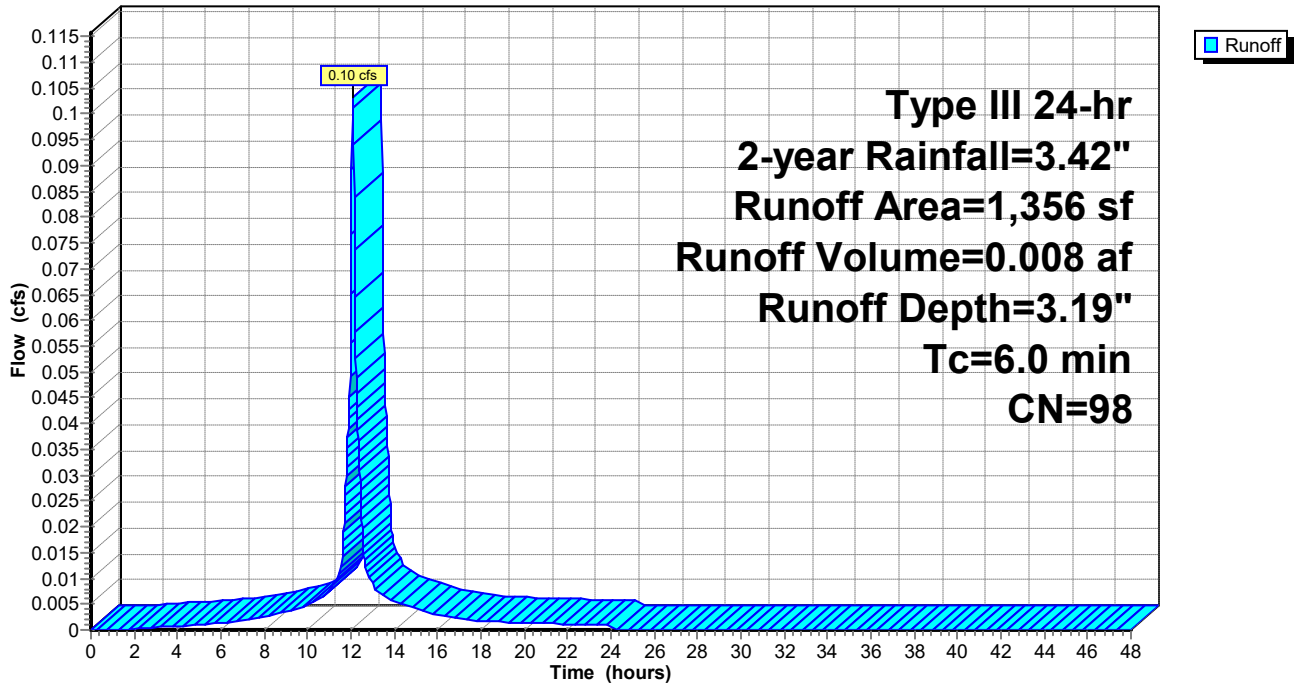
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Type III 24-hr 2-year Rainfall=3.42"

Area (sf)	CN	Description
1,356	98	Roofs, HSG B
1,356		100.00% Impervious Area

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

**Subcatchment 5S: FDA-2B (POOL) TO RAIN GARDEN #2**

Hydrograph



# 99 Byram Ridge SWM\_12-27-2023.6

Prepared by ALP Engineering & Land Arch

HydroCAD® 10.20-4a s/n 03392 © 2023 HydroCAD Software Solutions LLC

Type III 24-hr 2-year Rainfall=3.42"

Printed 1/2/2024

Page 30

## Summary for Subcatchment 7S: FDA-2A TO RAIN GARDEN #3

Runoff = 0.11 cfs @ 12.08 hrs, Volume= 0.009 af, Depth= 3.19"  
Routed to Pond 13P : RAIN GARDEN #3

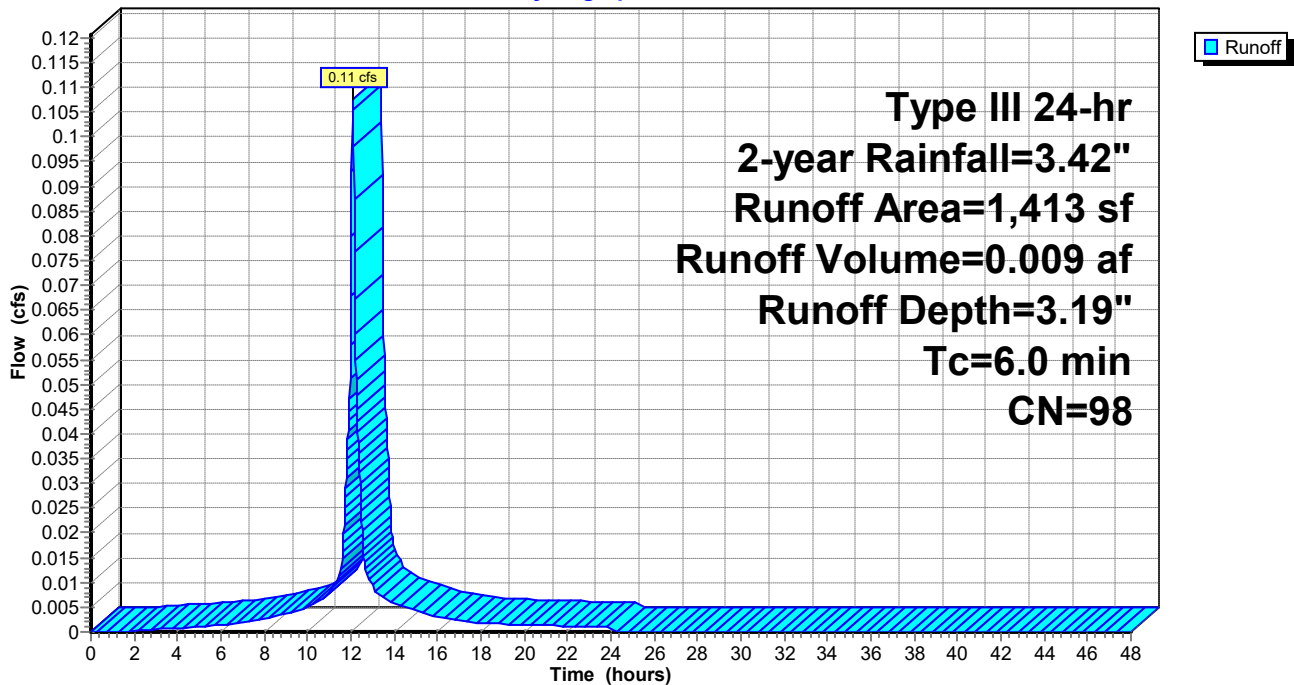
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
Type III 24-hr 2-year Rainfall=3.42"

Area (sf)	CN	Description
1,413	98	Roofs, HSG B
1,413		100.00% Impervious Area

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

## Subcatchment 7S: FDA-2A TO RAIN GARDEN #3

Hydrograph



**Summary for Subcatchment 9S: FDA-3 TO DESIGN LINE 1**

Runoff = 0.06 cfs @ 12.42 hrs, Volume= 0.017 af, Depth= 0.20"

Routed to Link 2L : FUTURE CONDITION DESIGN LINE

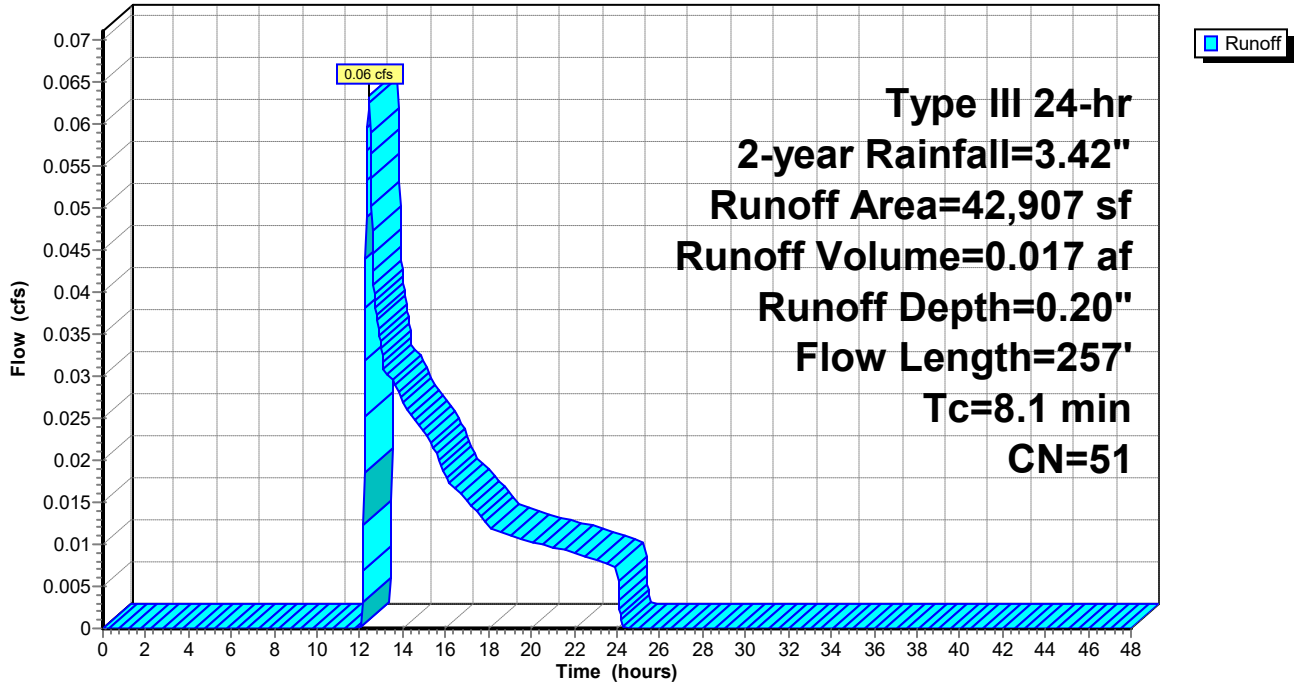
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Type III 24-hr 2-year Rainfall=3.42"

Area (sf)	CN	Description
* 1,083	98	Impervious patio surface, HSG B
7,943	39	>75% Grass cover, Good, HSG A
8,933	30	Woods, Good, HSG A
22,533	61	>75% Grass cover, Good, HSG B
2,415	55	Woods, Good, HSG B
42,907	51	Weighted Average
41,824		97.48% Pervious Area
1,083		2.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	38	0.0395	0.09		<b>Sheet Flow, A-B</b> Woods: Light underbrush n= 0.400 P2= 3.41"
0.3	75	0.0573	3.59		<b>Shallow Concentrated Flow, B-C</b> Grassed Waterway Kv= 15.0 fps
0.2	61	0.1508	5.82		<b>Shallow Concentrated Flow, C-D</b> Grassed Waterway Kv= 15.0 fps
0.3	83	0.0843	4.36		<b>Shallow Concentrated Flow, D-E</b> Grassed Waterway Kv= 15.0 fps
8.1	257	Total			

Subcatchment 9S: FDA-3 TO DESIGN LINE 1

Hydrograph



**Summary for Pond 10P: RAIN GARDEN #1**

Inflow Area = 0.021 ac, 100.00% Impervious, Inflow Depth = 3.19" for 2-year event  
 Inflow = 0.07 cfs @ 12.08 hrs, Volume= 0.006 af  
 Outflow = 0.02 cfs @ 12.34 hrs, Volume= 0.006 af, Atten= 65%, Lag= 15.4 min  
 Discarded = 0.02 cfs @ 12.34 hrs, Volume= 0.006 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Pond 11P : SWMP DETENTION FACILITY 36" PIPE

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Peak Elev= 77.10' @ 12.34 hrs Surf.Area= 355 sf Storage= 34 cf

Plug-Flow detention time= 6.8 min calculated for 0.006 af (100% of inflow)  
 Center-of-Mass det. time= 6.7 min ( 761.8 - 755.0 )

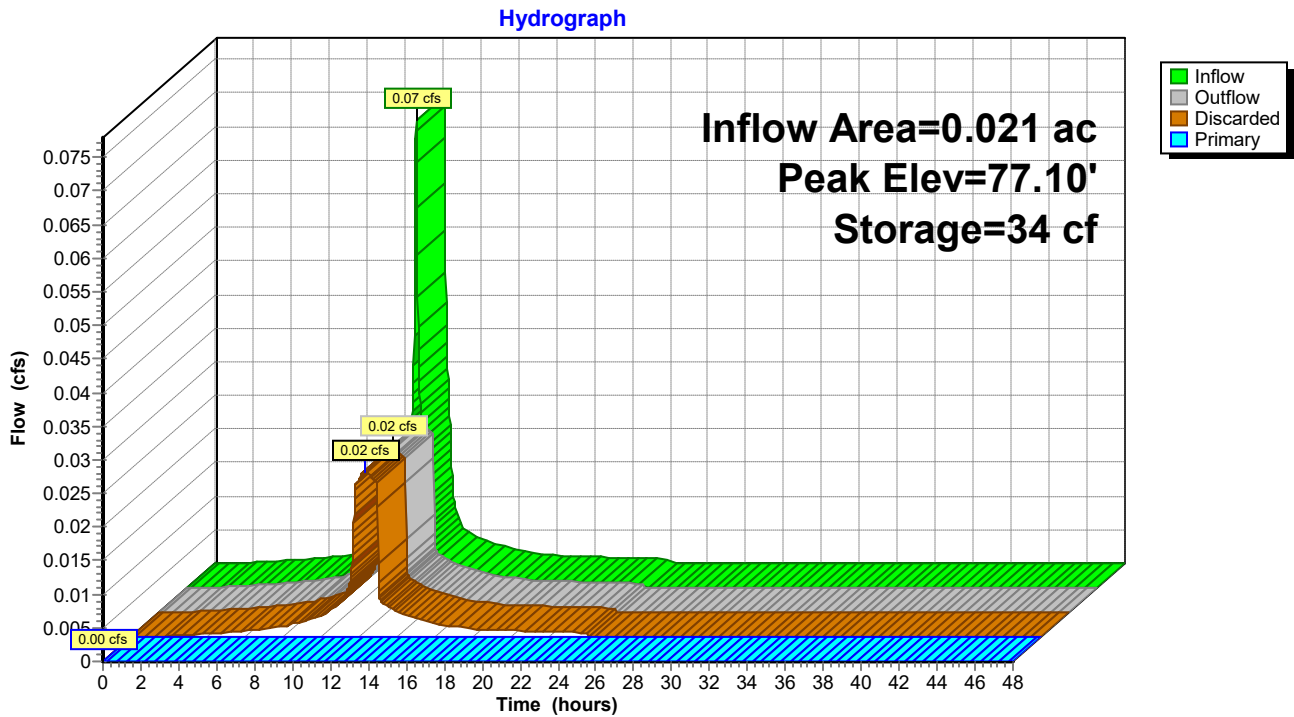
Volume	Invert	Avail.Storage	Storage Description
#1	77.00'	331 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
77.00	325	0	0
77.25	400	91	91
77.50	485	111	201
77.75	550	129	331

Device	Routing	Invert	Outlet Devices
#1	Discarded	77.00'	<b>3.000 in/hr Exfiltration over Horizontal area</b>
#2	Primary	77.50'	<b>4.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

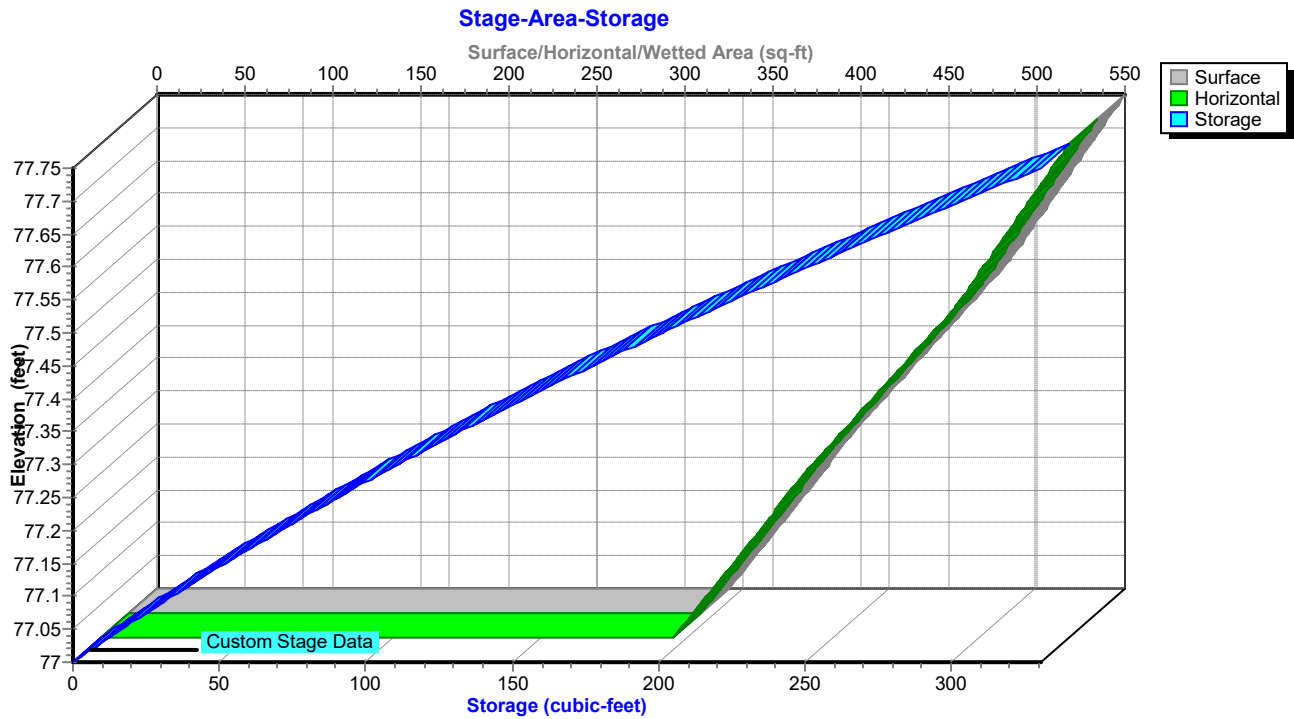
**Discarded OutFlow** Max=0.02 cfs @ 12.34 hrs HW=77.10' (Free Discharge)  
 ↑1=Exfiltration (Exfiltration Controls 0.02 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=77.00' (Free Discharge)  
 ↑2=Orifice/Grate ( Controls 0.00 cfs)

### Pond 10P: RAIN GARDEN #1



### Pond 10P: RAIN GARDEN #1



**Summary for Pond 11P: SWMP DETENTION FACILITY 36" PIPE**

Inflow Area = 0.289 ac, 59.03% Impervious, Inflow Depth = 1.59" for 2-year event  
 Inflow = 0.54 cfs @ 12.09 hrs, Volume= 0.038 af  
 Outflow = 0.03 cfs @ 14.94 hrs, Volume= 0.038 af, Atten= 95%, Lag= 171.1 min  
 Primary = 0.03 cfs @ 14.94 hrs, Volume= 0.038 af  
 Routed to Link 2L : FUTURE CONDITION DESIGN LINE

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Peak Elev= 72.05' @ 14.94 hrs Surf.Area= 1,026 sf Storage= 920 cf

Plug-Flow detention time= 394.2 min calculated for 0.038 af (100% of inflow)  
 Center-of-Mass det. time= 394.1 min ( 1,227.2 - 833.1 )

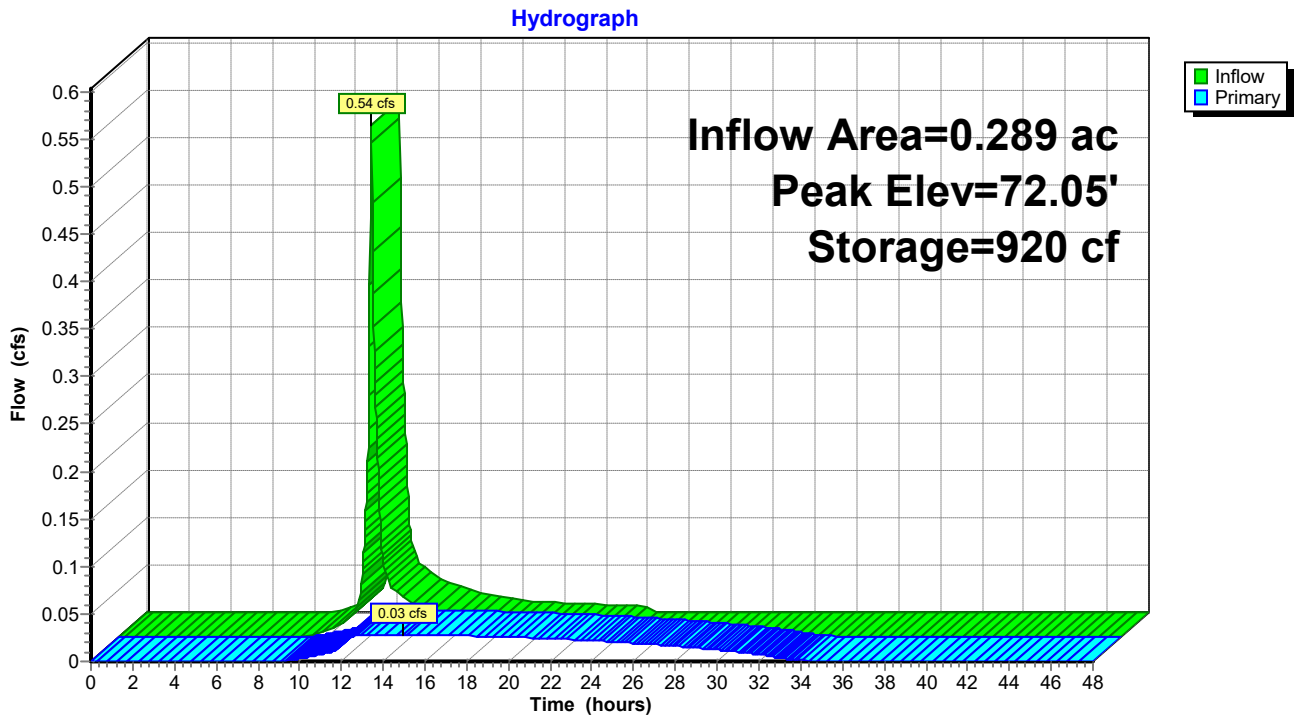
Volume	Invert	Avail.Storage	Storage Description
#1	70.85'	2,467 cf	<b>36.0" Round Pipe Storage 36" Diam.</b> L= 349.0'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.85'	<b>1.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#2	Primary	72.35'	<b>4.0" Vert. Orifice/Grate X 2.00</b> C= 0.600 Limited to weir flow at low heads
#3	Primary	73.35'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

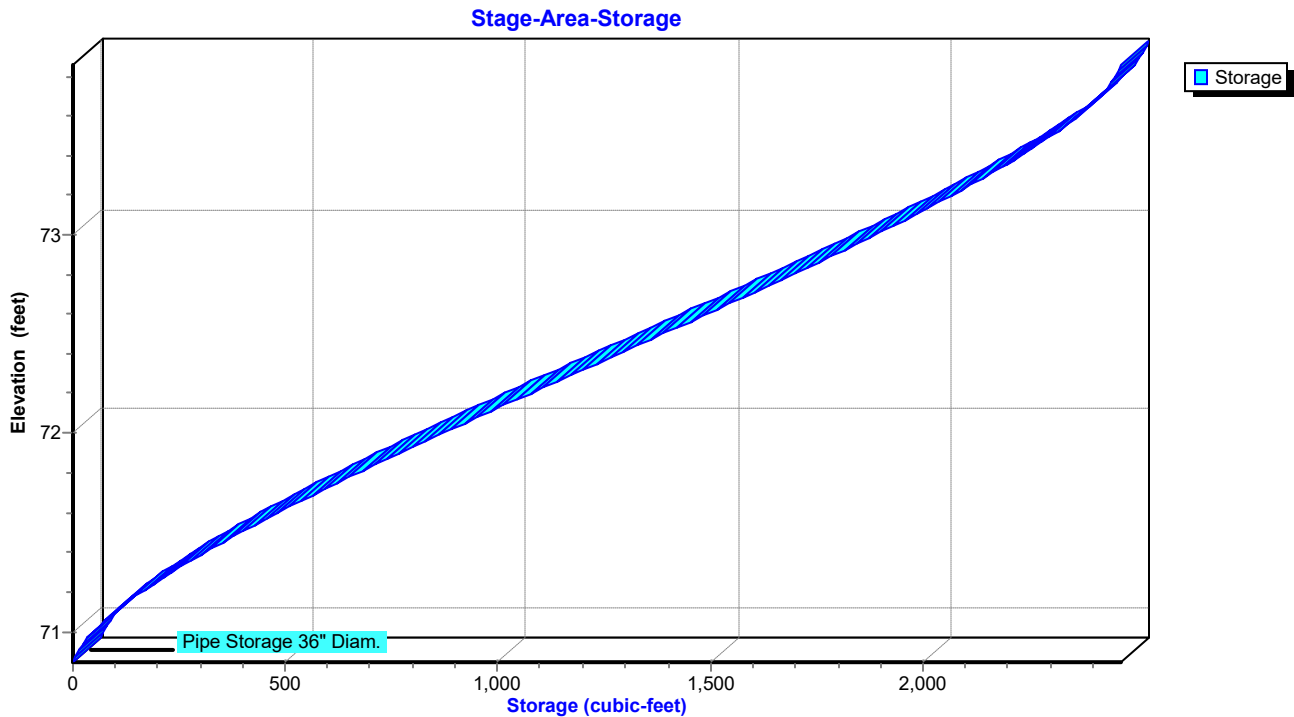
**Primary OutFlow** Max=0.03 cfs @ 14.94 hrs HW=72.05' (Free Discharge)

- 1=Orifice/Grate (Orifice Controls 0.03 cfs @ 5.18 fps)
- 2=Orifice/Grate ( Controls 0.00 cfs)
- 3=Orifice/Grate ( Controls 0.00 cfs)

### Pond 11P: SWMP DETENTION FACILITY 36" PIPE



### Pond 11P: SWMP DETENTION FACILITY 36" PIPE





**Summary for Pond 12P: RAIN GARDEN #2**

Inflow Area = 0.031 ac, 100.00% Impervious, Inflow Depth = 3.19" for 2-year event  
 Inflow = 0.10 cfs @ 12.08 hrs, Volume= 0.008 af  
 Outflow = 0.03 cfs @ 12.41 hrs, Volume= 0.008 af, Atten= 71%, Lag= 19.4 min  
 Discarded = 0.03 cfs @ 12.41 hrs, Volume= 0.008 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 2L : FUTURE CONDITION DESIGN LINE

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Peak Elev= 56.66' @ 12.41 hrs Surf.Area= 435 sf Storage= 64 cf

Plug-Flow detention time= 11.0 min calculated for 0.008 af (100% of inflow)  
 Center-of-Mass det. time= 11.0 min ( 766.0 - 755.0 )

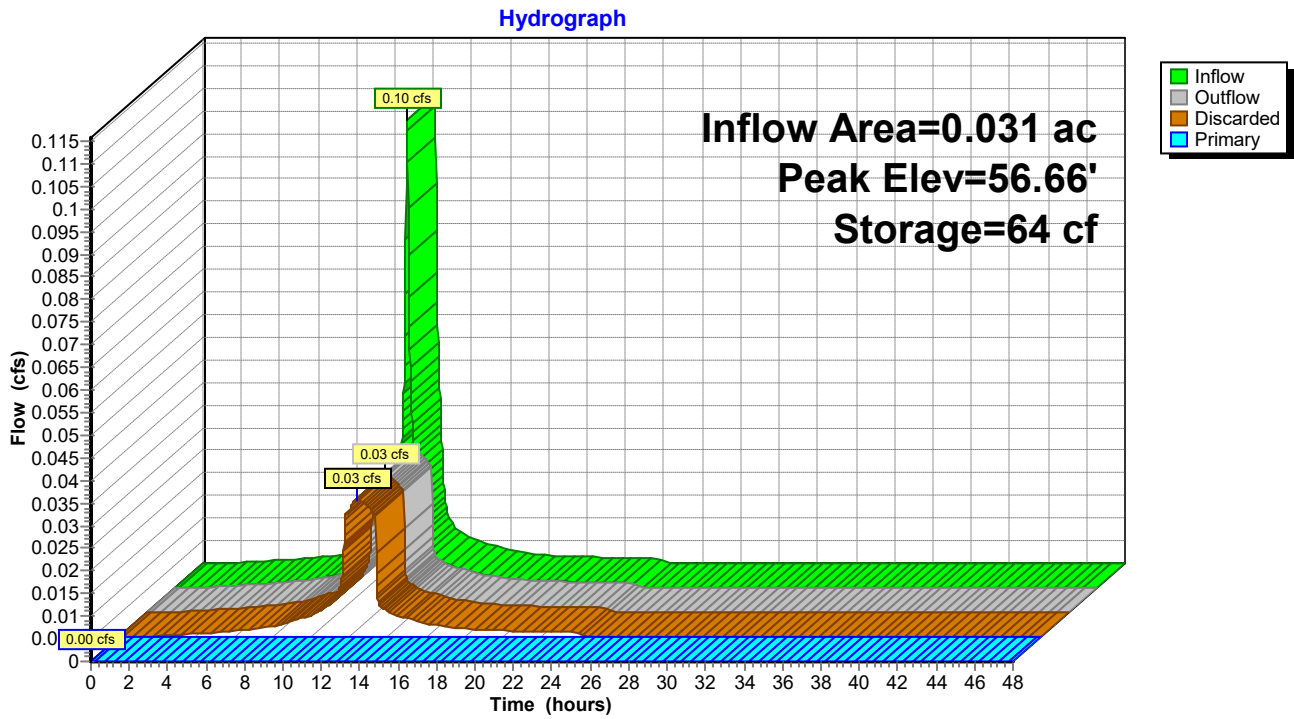
Volume	Invert	Avail.Storage	Storage Description
#1	56.50'	531 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
56.50	386	0	0
56.75	464	106	106
57.00	550	127	233
57.50	641	298	531

Device	Routing	Invert	Outlet Devices
#1	Primary	57.00'	<b>4.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#2	Primary	57.35'	<b>6.0' long (Profile 6) Broad-Crested Rectangular Weir</b> Head (feet) 0.49 0.98 1.48 Coef. (English) 3.12 3.41 3.59
#3	Discarded	56.50'	<b>3.000 in/hr Exfiltration over Horizontal area</b>

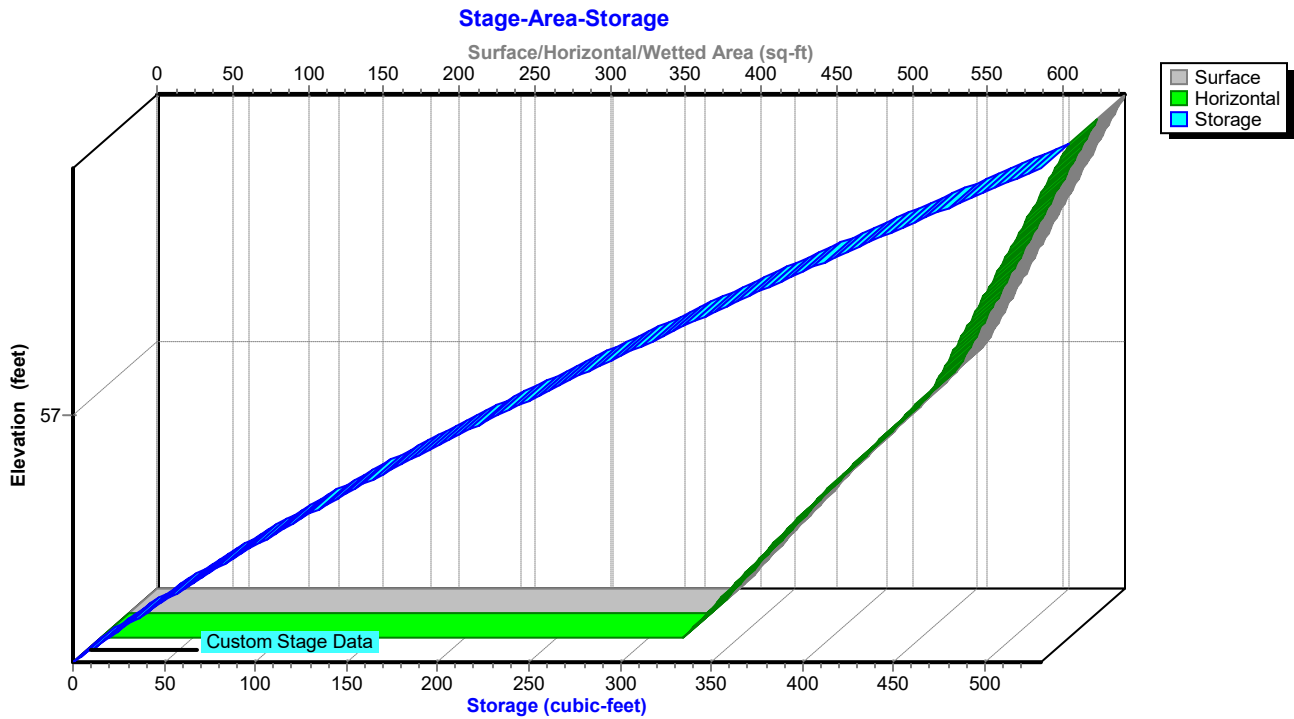
**Discarded OutFlow** Max=0.03 cfs @ 12.41 hrs HW=56.66' (Free Discharge)  
 ↑ **3=Exfiltration** (Exfiltration Controls 0.03 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=56.50' (Free Discharge)  
 ↑ **1=Orifice/Grate** ( Controls 0.00 cfs)  
 ↓ **2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

### Pond 12P: RAIN GARDEN #2



### Pond 12P: RAIN GARDEN #2



**Summary for Pond 13P: RAIN GARDEN #3**

Inflow Area = 0.032 ac, 100.00% Impervious, Inflow Depth = 3.19" for 2-year event  
 Inflow = 0.11 cfs @ 12.08 hrs, Volume= 0.009 af  
 Outflow = 0.03 cfs @ 12.43 hrs, Volume= 0.009 af, Atten= 73%, Lag= 20.7 min  
 Discarded = 0.03 cfs @ 12.43 hrs, Volume= 0.009 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routed to Link 2L : FUTURE CONDITION DESIGN LINE

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Peak Elev= 56.69' @ 12.43 hrs Surf.Area= 422 sf Storage= 75 cf

Plug-Flow detention time= 15.1 min calculated for 0.009 af (100% of inflow)  
 Center-of-Mass det. time= 15.1 min ( 770.1 - 755.0 )

Volume	Invert	Avail.Storage	Storage Description
#1	56.50'	1,084 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
56.50	360	0	0
56.75	440	100	100
57.00	528	121	221
58.50	622	863	1,084

Device	Routing	Invert	Outlet Devices
#1	Primary	57.00'	<b>4.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#2	Primary	57.35'	<b>6.0' long (Profile 6) Broad-Crested Rectangular Weir</b> Head (feet) 0.49 0.98 1.48 Coef. (English) 3.12 3.41 3.59
#3	Discarded	56.50'	<b>3.000 in/hr Exfiltration over Horizontal area</b>

**Discarded OutFlow** Max=0.03 cfs @ 12.43 hrs HW=56.69' (Free Discharge)

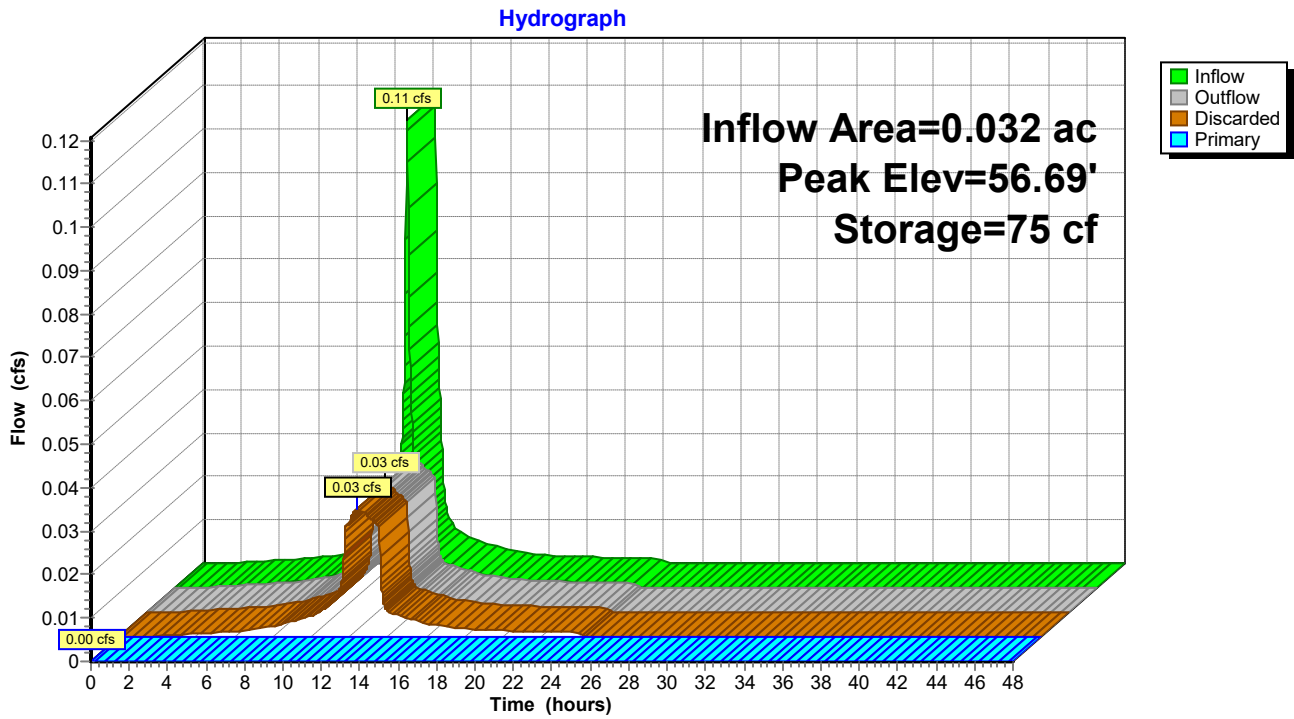
↑ **3=Exfiltration** (Exfiltration Controls 0.03 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=56.50' (Free Discharge)

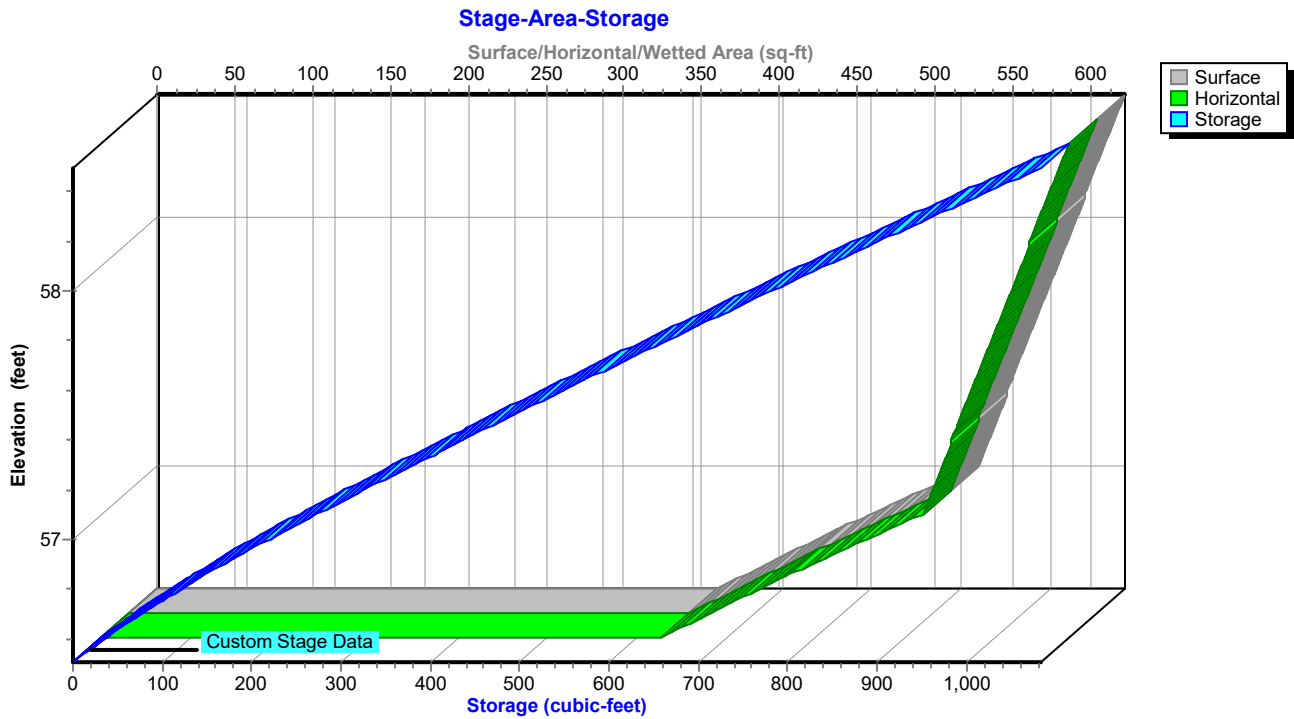
↑ **1=Orifice/Grate** ( Controls 0.00 cfs)

↑ **2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

### Pond 13P: RAIN GARDEN #3



### Pond 13P: RAIN GARDEN #3



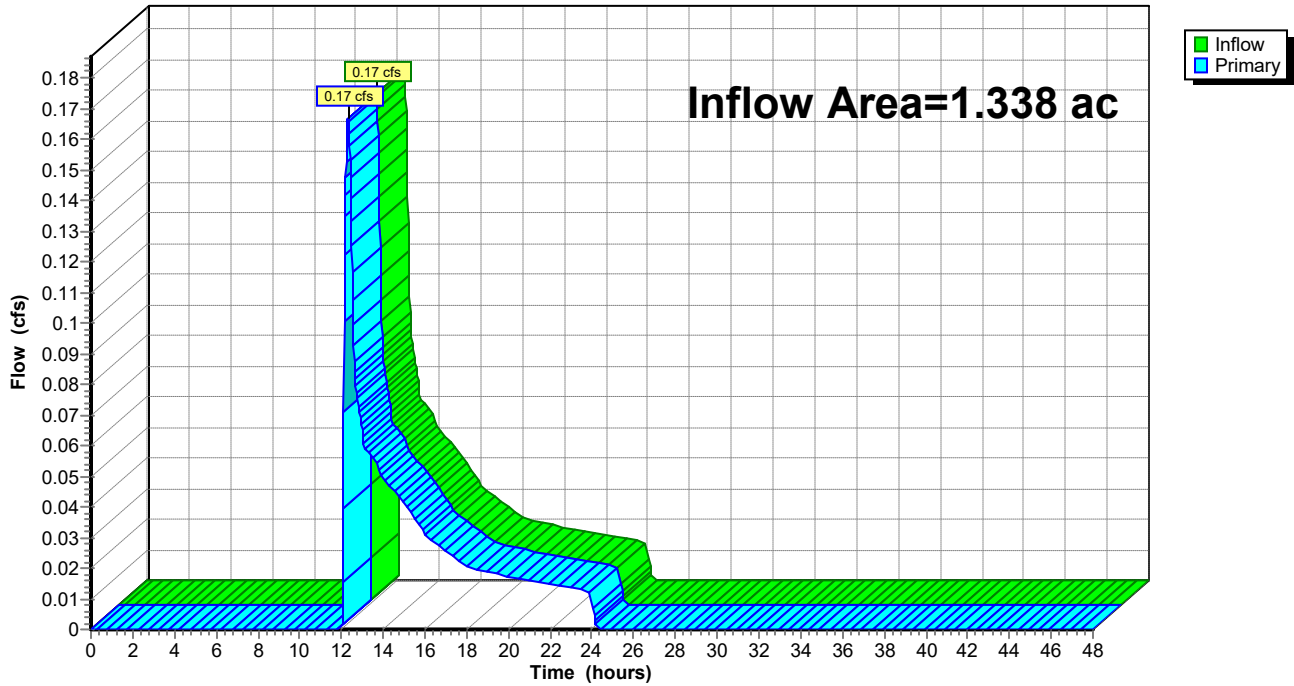
### Summary for Link 1L: EXIST CONDITION DESIGN LINE

Inflow Area = 1.338 ac, 6.61% Impervious, Inflow Depth = 0.29" for 2-year event  
Inflow = 0.17 cfs @ 12.32 hrs, Volume= 0.032 af  
Primary = 0.17 cfs @ 12.32 hrs, Volume= 0.032 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs

### Link 1L: EXIST CONDITION DESIGN LINE

Hydrograph



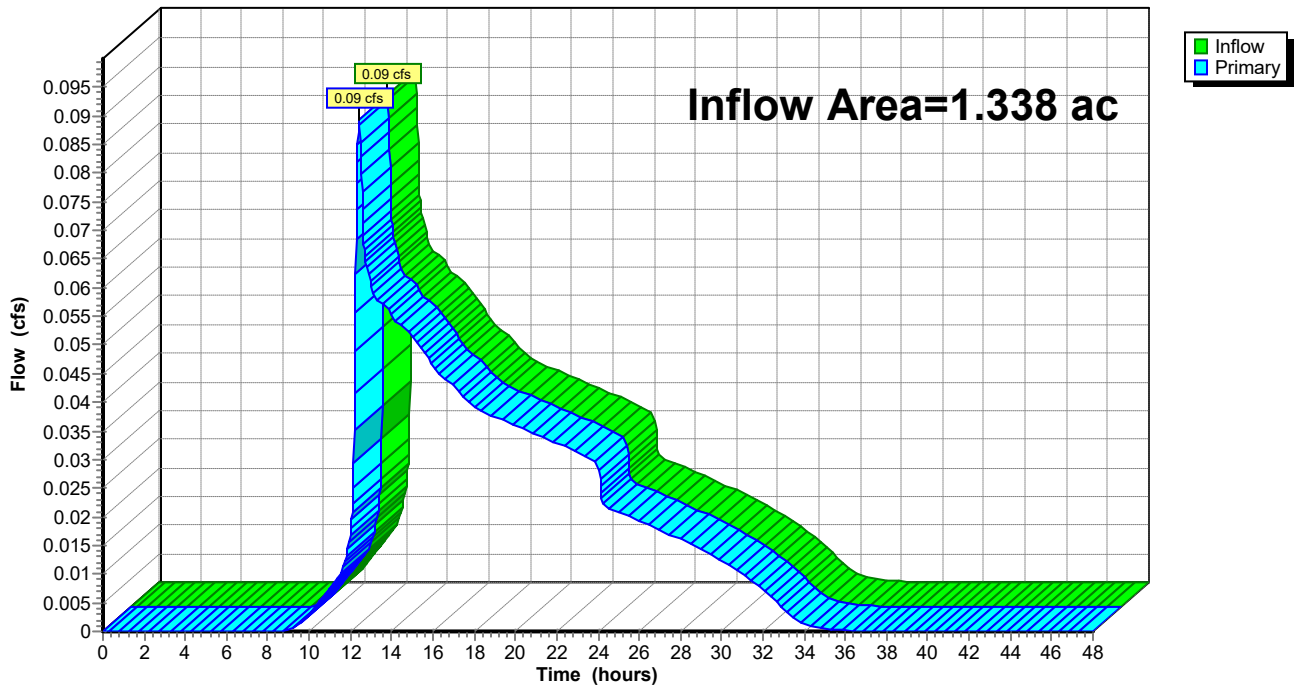
### Summary for Link 2L: FUTURE CONDITION DESIGN LINE

Inflow Area = 1.338 ac, 19.37% Impervious, Inflow Depth = 0.49" for 2-year event  
Inflow = 0.09 cfs @ 12.43 hrs, Volume= 0.055 af  
Primary = 0.09 cfs @ 12.43 hrs, Volume= 0.055 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs

### Link 2L: FUTURE CONDITION DESIGN LINE

Hydrograph



**99 Byram Ridge SWM\_12-27-2023.6**

Type III 24-hr 10-year Rainfall=5.12"

Prepared by ALP Engineering & Land Arch

Printed 1/2/2024

HydroCAD® 10.20-4a s/n 03392 © 2023 HydroCAD Software Solutions LLC

Page 43

Time span=0.00-48.00 hrs, dt=0.02 hrs, 2401 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1S: XDA-1 TO DESIGN LINE 1** Runoff Area=58,278 sf 6.61% Impervious Runoff Depth=0.98"  
Flow Length=279' Tc=6.2 min CN=54 Runoff=1.20 cfs 0.109 af

**Subcatchment 3S: FDA-1 TO SWMP-2A** Runoff Area=11,689 sf 55.83% Impervious Runoff Depth=3.19"  
Tc=6.0 min CN=82 Runoff=1.00 cfs 0.071 af

**Subcatchment 4S: FDA-2C TO RAIN** Runoff Area=913 sf 100.00% Impervious Runoff Depth=4.88"  
Tc=6.0 min CN=98 Runoff=0.10 cfs 0.009 af

**Subcatchment 5S: FDA-2B (POOL) TO** Runoff Area=1,356 sf 100.00% Impervious Runoff Depth=4.88"  
Tc=6.0 min CN=98 Runoff=0.16 cfs 0.013 af

**Subcatchment 7S: FDA-2A TO RAIN** Runoff Area=1,413 sf 100.00% Impervious Runoff Depth=4.88"  
Tc=6.0 min CN=98 Runoff=0.16 cfs 0.013 af

**Subcatchment 9S: FDA-3 TO DESIGN LINE 1** Runoff Area=42,907 sf 2.52% Impervious Runoff Depth=0.80"  
Flow Length=257' Tc=8.1 min CN=51 Runoff=0.59 cfs 0.066 af

**Pond 10P: RAIN GARDEN #1** Peak Elev=77.21' Storage=74 cf Inflow=0.10 cfs 0.009 af  
Discarded=0.03 cfs 0.009 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.009 af

**Pond 11P: SWMP DETENTION FACILITY 36"** Peak Elev=72.56' Storage=1,452 cf Inflow=1.00 cfs 0.071 af  
Outflow=0.21 cfs 0.071 af

**Pond 12P: RAIN GARDEN #2** Peak Elev=56.80' Storage=129 cf Inflow=0.16 cfs 0.013 af  
Discarded=0.03 cfs 0.013 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.013 af

**Pond 13P: RAIN GARDEN #3** Peak Elev=56.85' Storage=144 cf Inflow=0.16 cfs 0.013 af  
Discarded=0.03 cfs 0.013 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.013 af

**Link 1L: EXIST CONDITION DESIGN LINE** Inflow=1.20 cfs 0.109 af  
Primary=1.20 cfs 0.109 af

**Link 2L: FUTURE CONDITION DESIGN LINE** Inflow=0.62 cfs 0.137 af  
Primary=0.62 cfs 0.137 af

**Total Runoff Area = 2.676 ac Runoff Volume = 0.280 af Average Runoff Depth = 1.26"**  
**87.01% Pervious = 2.328 ac 12.99% Impervious = 0.348 ac**

**99 Byram Ridge SWM\_12-27-2023.6**

Type III 24-hr 10-year Rainfall=5.12"

Prepared by ALP Engineering & Land Arch

Printed 1/2/2024

HydroCAD® 10.20-4a s/n 03392 © 2023 HydroCAD Software Solutions LLC

Page 44

**Summary for Subcatchment 1S: XDA-1 TO DESIGN LINE 1**

Runoff = 1.20 cfs @ 12.11 hrs, Volume= 0.109 af, Depth= 0.98"  
 Routed to Link 1L : EXIST CONDITION DESIGN LINE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Type III 24-hr 10-year Rainfall=5.12"

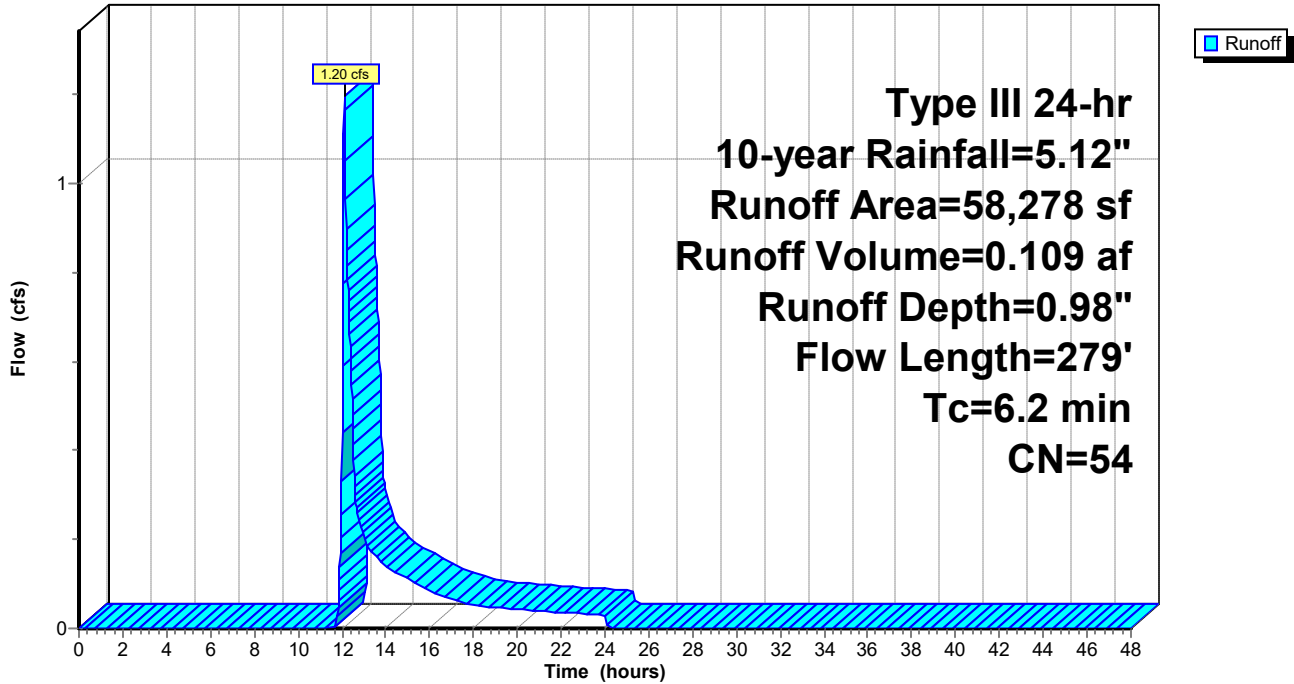
Area (sf)	CN	Description
3,850	98	Paved parking, HSG B
16,730	36	Woods, Fair, HSG A
1,967	39	>75% Grass cover, Good, HSG A
17,965	55	Woods, Good, HSG B
17,766	61	>75% Grass cover, Good, HSG B
58,278	54	Weighted Average
54,428		93.39% Pervious Area
3,850		6.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	35	0.2429	0.18		<b>Sheet Flow, A-B</b>
					Woods: Light underbrush n= 0.400 P2= 3.41"
0.4	45	0.1555	1.97		<b>Shallow Concentrated Flow, B-C</b>
					Woodland Kv= 5.0 fps
0.8	65	0.0651	1.28		<b>Shallow Concentrated Flow, C-D</b>
					Woodland Kv= 5.0 fps
0.9	79	0.0886	1.49		<b>Shallow Concentrated Flow, D-E</b>
					Woodland Kv= 5.0 fps
0.8	55	0.0545	1.17		<b>Shallow Concentrated Flow, E-F</b>
					Woodland Kv= 5.0 fps
6.2	279	Total			



Subcatchment 1S: XDA-1 TO DESIGN LINE 1

Hydrograph



**99 Byram Ridge SWM\_12-27-2023.6**

Prepared by ALP Engineering & Land Arch

HydroCAD® 10.20-4a s/n 03392 © 2023 HydroCAD Software Solutions LLC

Type III 24-hr 10-year Rainfall=5.12"

Printed 1/2/2024

Page 46

**Summary for Subcatchment 3S: FDA-1 TO SWMP-2A**

Runoff = 1.00 cfs @ 12.09 hrs, Volume= 0.071 af, Depth= 3.19"

Routed to Pond 11P : SWMP DETENTION FACILITY 36" PIPE

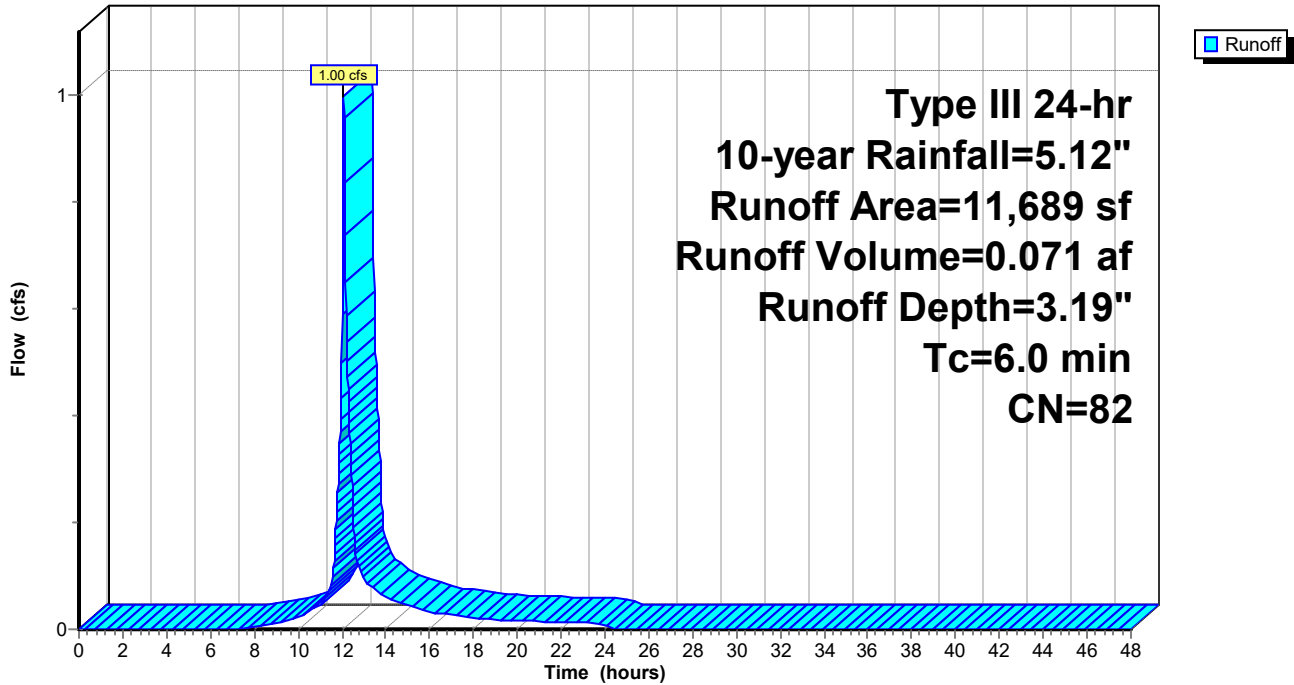
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
Type III 24-hr 10-year Rainfall=5.12"

Area (sf)	CN	Description
6,526	98	Paved parking, HSG B
5,163	61	>75% Grass cover, Good, HSG B
11,689	82	Weighted Average
5,163		44.17% Pervious Area
6,526		55.83% Impervious Area

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

**Subcatchment 3S: FDA-1 TO SWMP-2A**

Hydrograph



**99 Byram Ridge SWM\_12-27-2023.6**

Prepared by ALP Engineering & Land Arch

HydroCAD® 10.20-4a s/n 03392 © 2023 HydroCAD Software Solutions LLC

Type III 24-hr 10-year Rainfall=5.12"

Printed 1/2/2024

Page 47

**Summary for Subcatchment 4S: FDA-2C TO RAIN GARDEN #1**

Runoff = 0.10 cfs @ 12.08 hrs, Volume= 0.009 af, Depth= 4.88"  
Routed to Pond 10P : RAIN GARDEN #1

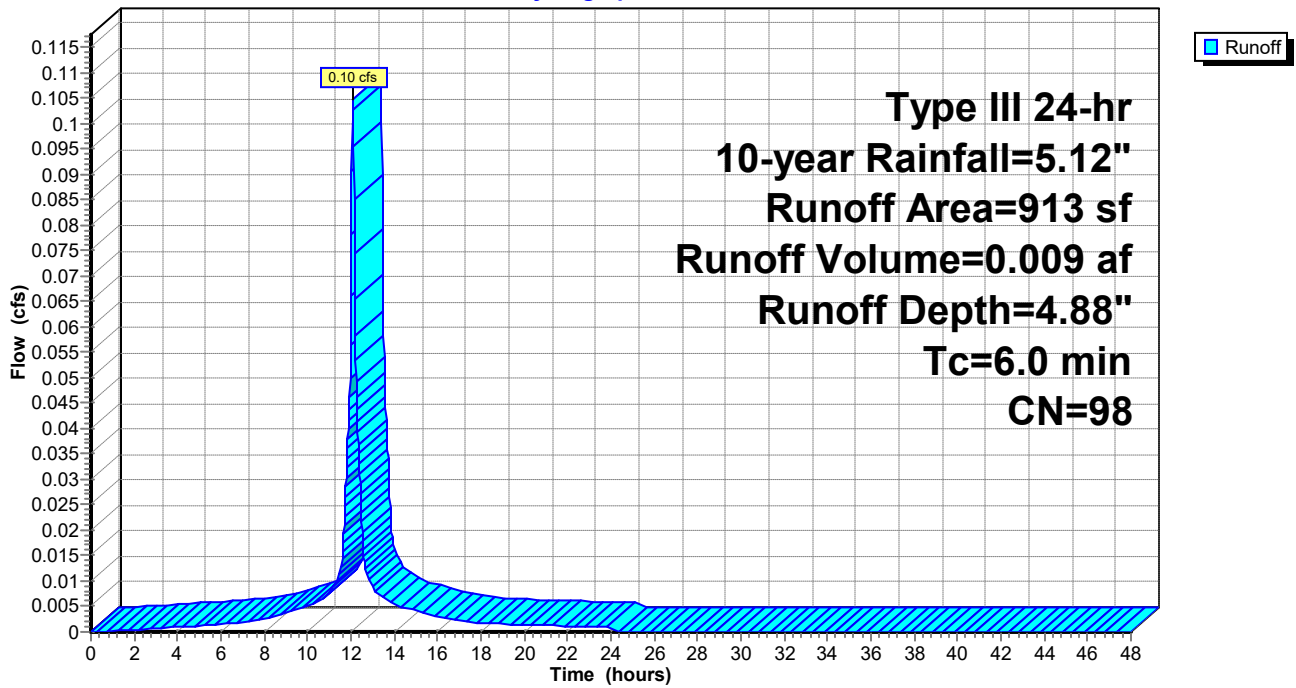
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
Type III 24-hr 10-year Rainfall=5.12"

Area (sf)	CN	Description
913	98	Roofs, HSG A
913		100.00% Impervious Area

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

**Subcatchment 4S: FDA-2C TO RAIN GARDEN #1**

Hydrograph



**Summary for Subcatchment 5S: FDA-2B (POOL) TO RAIN GARDEN #2**

Runoff = 0.16 cfs @ 12.08 hrs, Volume= 0.013 af, Depth= 4.88"  
 Routed to Pond 12P : RAIN GARDEN #2

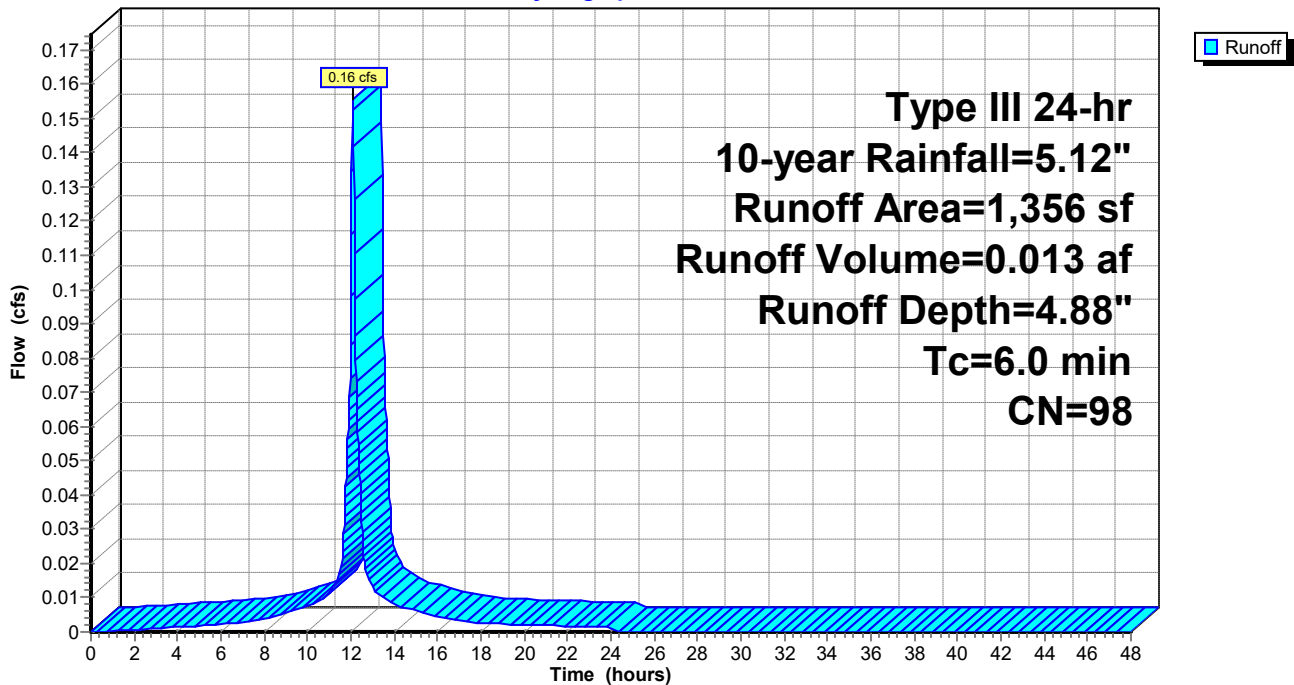
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Type III 24-hr 10-year Rainfall=5.12"

Area (sf)	CN	Description
1,356	98	Roofs, HSG B
1,356		100.00% Impervious Area

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

**Subcatchment 5S: FDA-2B (POOL) TO RAIN GARDEN #2**

Hydrograph



**99 Byram Ridge SWM\_12-27-2023.6**

Prepared by ALP Engineering & Land Arch

HydroCAD® 10.20-4a s/n 03392 © 2023 HydroCAD Software Solutions LLC

Type III 24-hr 10-year Rainfall=5.12"

Printed 1/2/2024

Page 49

**Summary for Subcatchment 7S: FDA-2A TO RAIN GARDEN #3**

Runoff = 0.16 cfs @ 12.08 hrs, Volume= 0.013 af, Depth= 4.88"  
Routed to Pond 13P : RAIN GARDEN #3

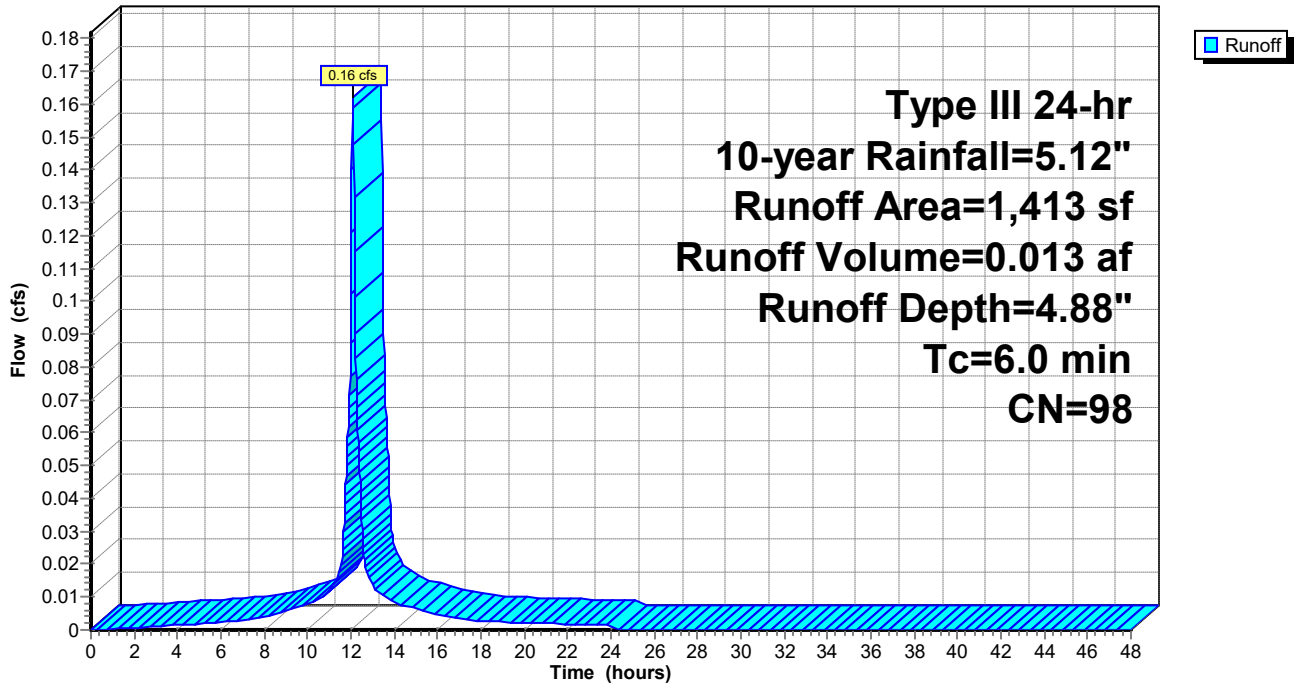
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
Type III 24-hr 10-year Rainfall=5.12"

Area (sf)	CN	Description
1,413	98	Roofs, HSG B
1,413		100.00% Impervious Area

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

**Subcatchment 7S: FDA-2A TO RAIN GARDEN #3**

Hydrograph



**99 Byram Ridge SWM\_12-27-2023.6**

Type III 24-hr 10-year Rainfall=5.12"

Prepared by ALP Engineering & Land Arch

Printed 1/2/2024

HydroCAD® 10.20-4a s/n 03392 © 2023 HydroCAD Software Solutions LLC

Page 50

**Summary for Subcatchment 9S: FDA-3 TO DESIGN LINE 1**

Runoff = 0.59 cfs @ 12.15 hrs, Volume= 0.066 af, Depth= 0.80"  
 Routed to Link 2L : FUTURE CONDITION DESIGN LINE

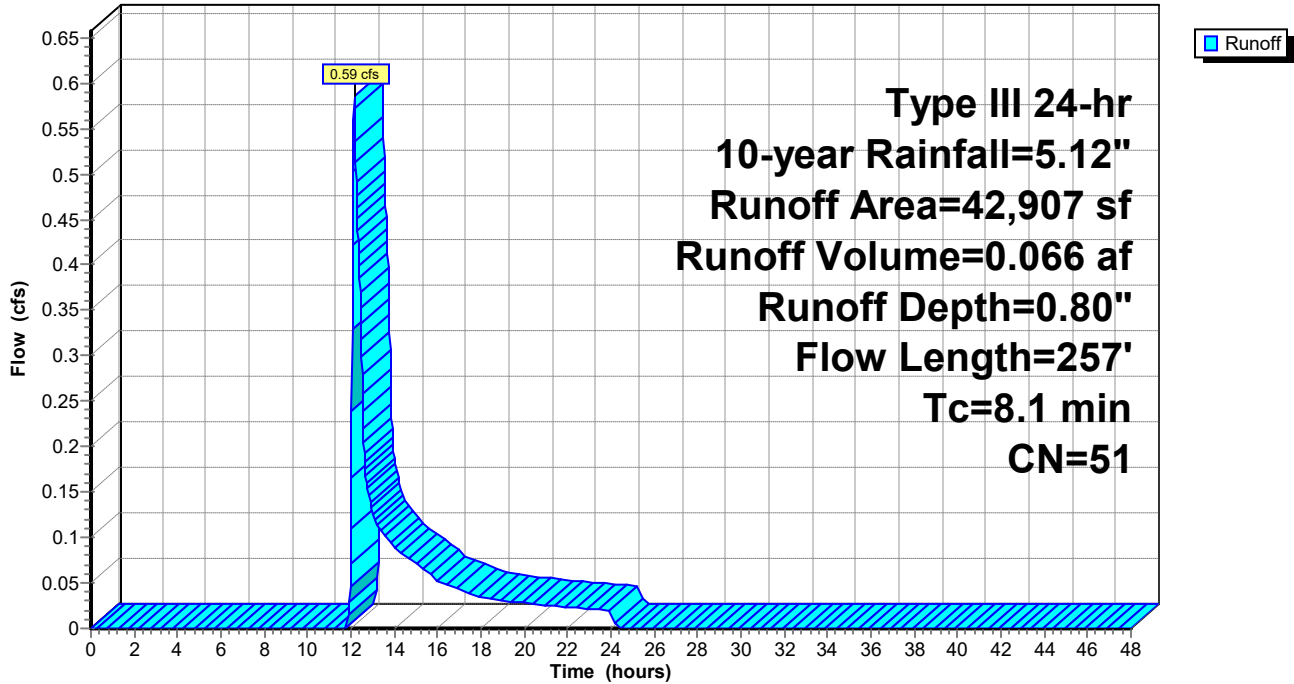
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Type III 24-hr 10-year Rainfall=5.12"

Area (sf)	CN	Description
* 1,083	98	Impervious patio surface, HSG B
7,943	39	>75% Grass cover, Good, HSG A
8,933	30	Woods, Good, HSG A
22,533	61	>75% Grass cover, Good, HSG B
2,415	55	Woods, Good, HSG B
42,907	51	Weighted Average
41,824		97.48% Pervious Area
1,083		2.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	38	0.0395	0.09		<b>Sheet Flow, A-B</b> Woods: Light underbrush n= 0.400 P2= 3.41"
0.3	75	0.0573	3.59		<b>Shallow Concentrated Flow, B-C</b> Grassed Waterway Kv= 15.0 fps
0.2	61	0.1508	5.82		<b>Shallow Concentrated Flow, C-D</b> Grassed Waterway Kv= 15.0 fps
0.3	83	0.0843	4.36		<b>Shallow Concentrated Flow, D-E</b> Grassed Waterway Kv= 15.0 fps
8.1	257	Total			

Subcatchment 9S: FDA-3 TO DESIGN LINE 1

Hydrograph



**Summary for Pond 10P: RAIN GARDEN #1**

Inflow Area = 0.021 ac, 100.00% Impervious, Inflow Depth = 4.88" for 10-year event  
 Inflow = 0.10 cfs @ 12.08 hrs, Volume= 0.009 af  
 Outflow = 0.03 cfs @ 12.44 hrs, Volume= 0.009 af, Atten= 74%, Lag= 21.7 min  
 Discarded = 0.03 cfs @ 12.44 hrs, Volume= 0.009 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Pond 11P : SWMP DETENTION FACILITY 36" PIPE

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Peak Elev= 77.21' @ 12.44 hrs Surf.Area= 387 sf Storage= 74 cf

Plug-Flow detention time= 14.1 min calculated for 0.009 af (100% of inflow)  
 Center-of-Mass det. time= 14.1 min ( 761.8 - 747.6 )

Volume	Invert	Avail.Storage	Storage Description
#1	77.00'	331 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
77.00	325	0	0
77.25	400	91	91
77.50	485	111	201
77.75	550	129	331

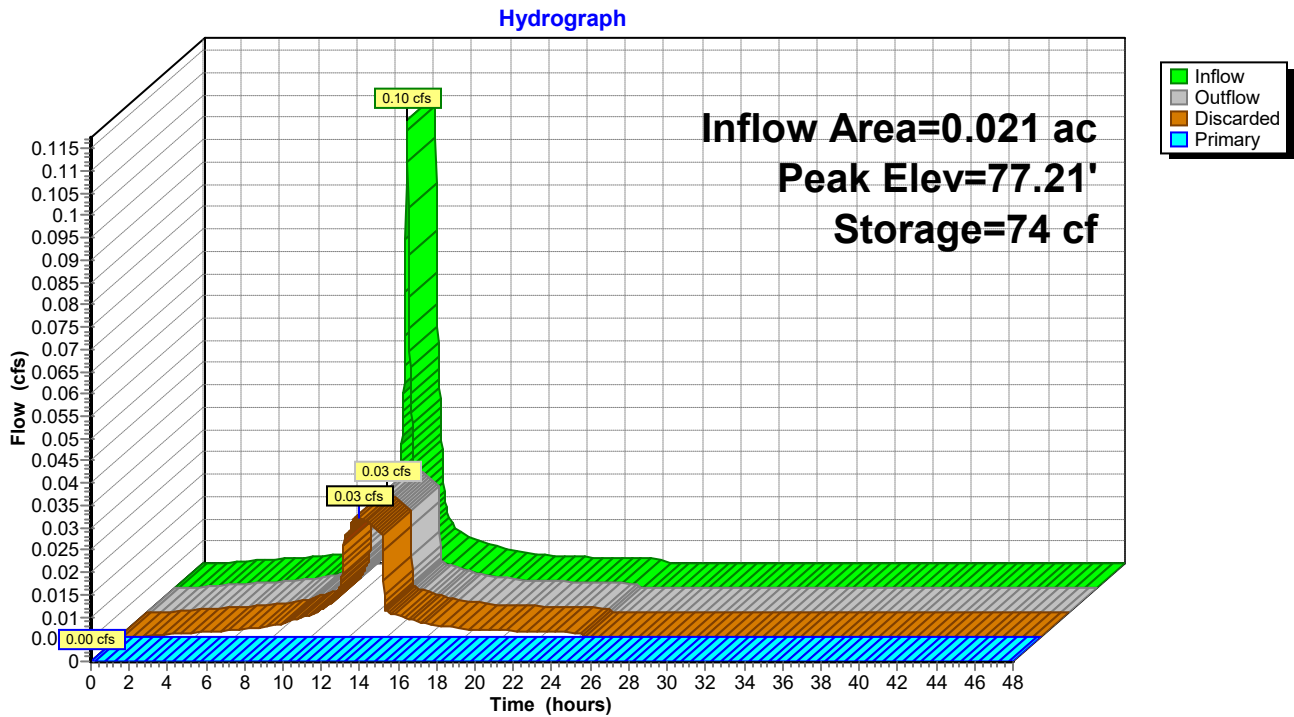
Device	Routing	Invert	Outlet Devices
#1	Discarded	77.00'	<b>3.000 in/hr Exfiltration over Horizontal area</b>
#2	Primary	77.50'	<b>4.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Discarded OutFlow** Max=0.03 cfs @ 12.44 hrs HW=77.21' (Free Discharge)  
 ↑1=**Exfiltration** (Exfiltration Controls 0.03 cfs)

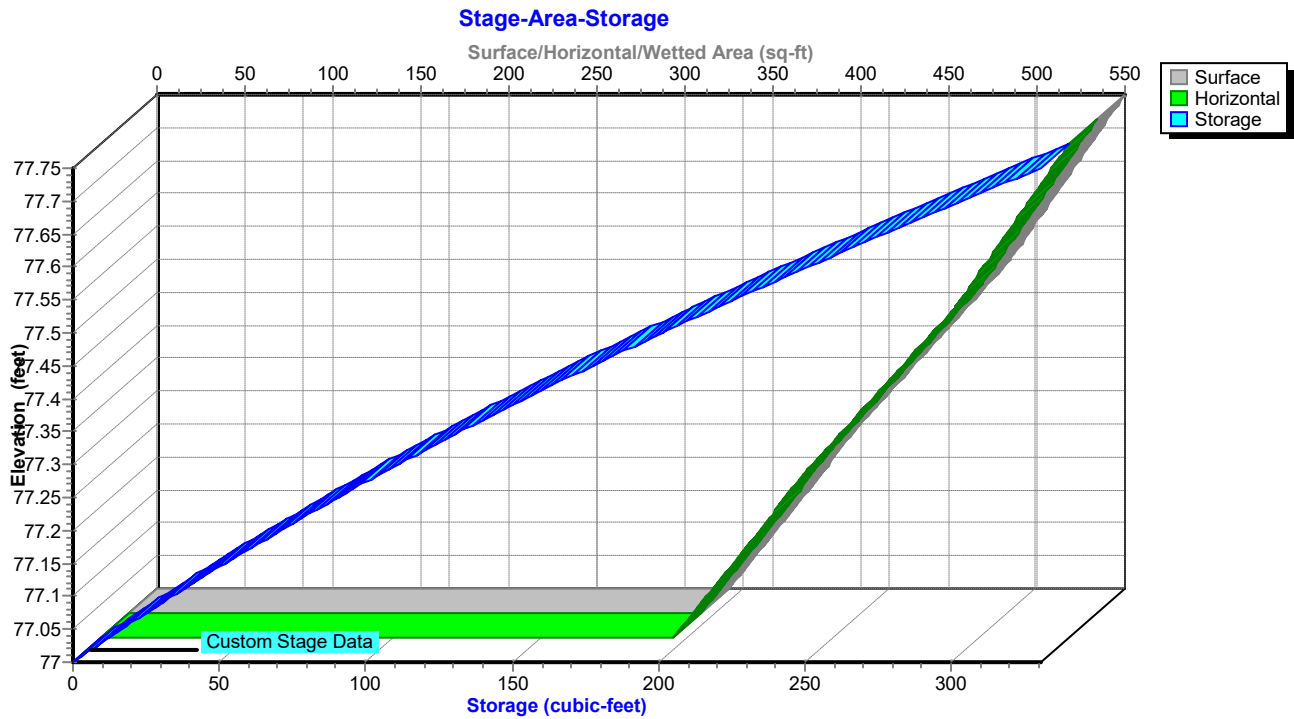
**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=77.00' (Free Discharge)  
 ↑2=**Orifice/Grate** ( Controls 0.00 cfs)



### Pond 10P: RAIN GARDEN #1



### Pond 10P: RAIN GARDEN #1



**Summary for Pond 11P: SWMP DETENTION FACILITY 36" PIPE**

Inflow Area = 0.289 ac, 59.03% Impervious, Inflow Depth = 2.96" for 10-year event  
 Inflow = 1.00 cfs @ 12.09 hrs, Volume= 0.071 af  
 Outflow = 0.21 cfs @ 12.52 hrs, Volume= 0.071 af, Atten= 79%, Lag= 25.7 min  
 Primary = 0.21 cfs @ 12.52 hrs, Volume= 0.071 af  
 Routed to Link 2L : FUTURE CONDITION DESIGN LINE

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Peak Elev= 72.56' @ 12.52 hrs Surf.Area= 1,037 sf Storage= 1,452 cf

Plug-Flow detention time= 376.0 min calculated for 0.071 af (100% of inflow)  
 Center-of-Mass det. time= 376.3 min ( 1,191.6 - 815.3 )

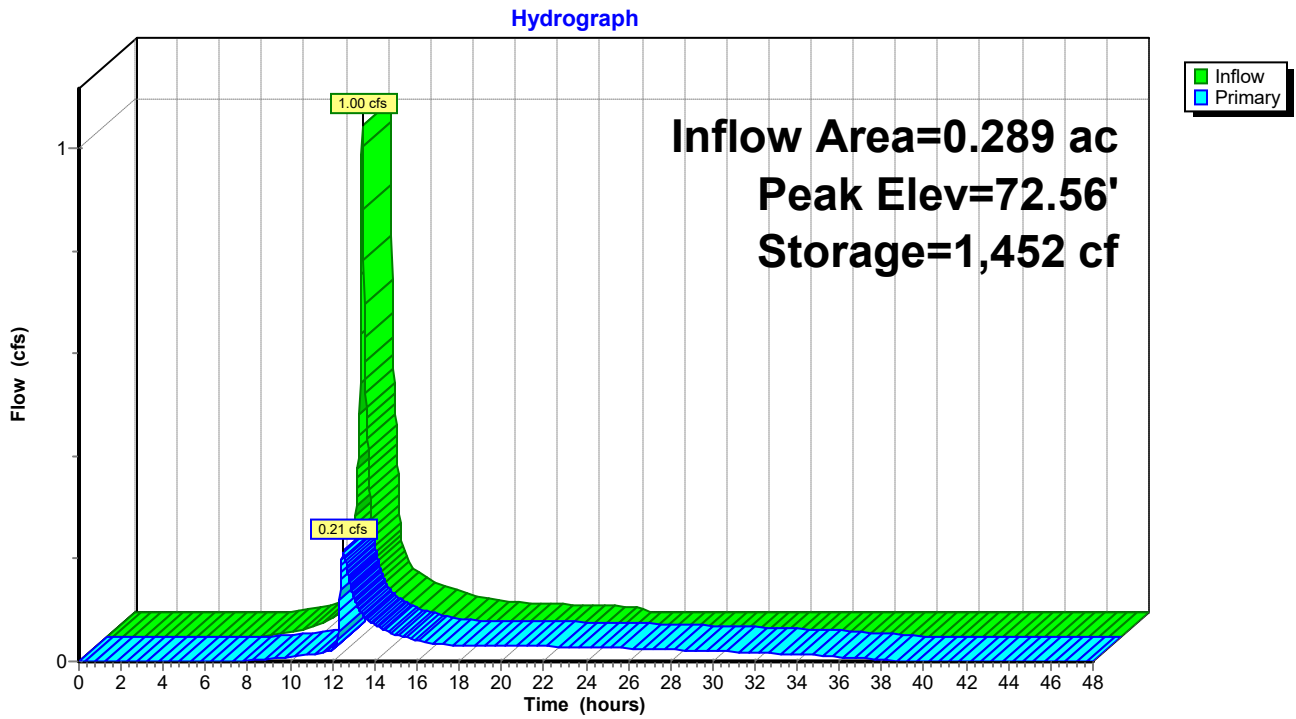
Volume	Invert	Avail.Storage	Storage Description
#1	70.85'	2,467 cf	<b>36.0" Round Pipe Storage 36" Diam.</b> L= 349.0'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.85'	<b>1.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#2	Primary	72.35'	<b>4.0" Vert. Orifice/Grate X 2.00</b> C= 0.600 Limited to weir flow at low heads
#3	Primary	73.35'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

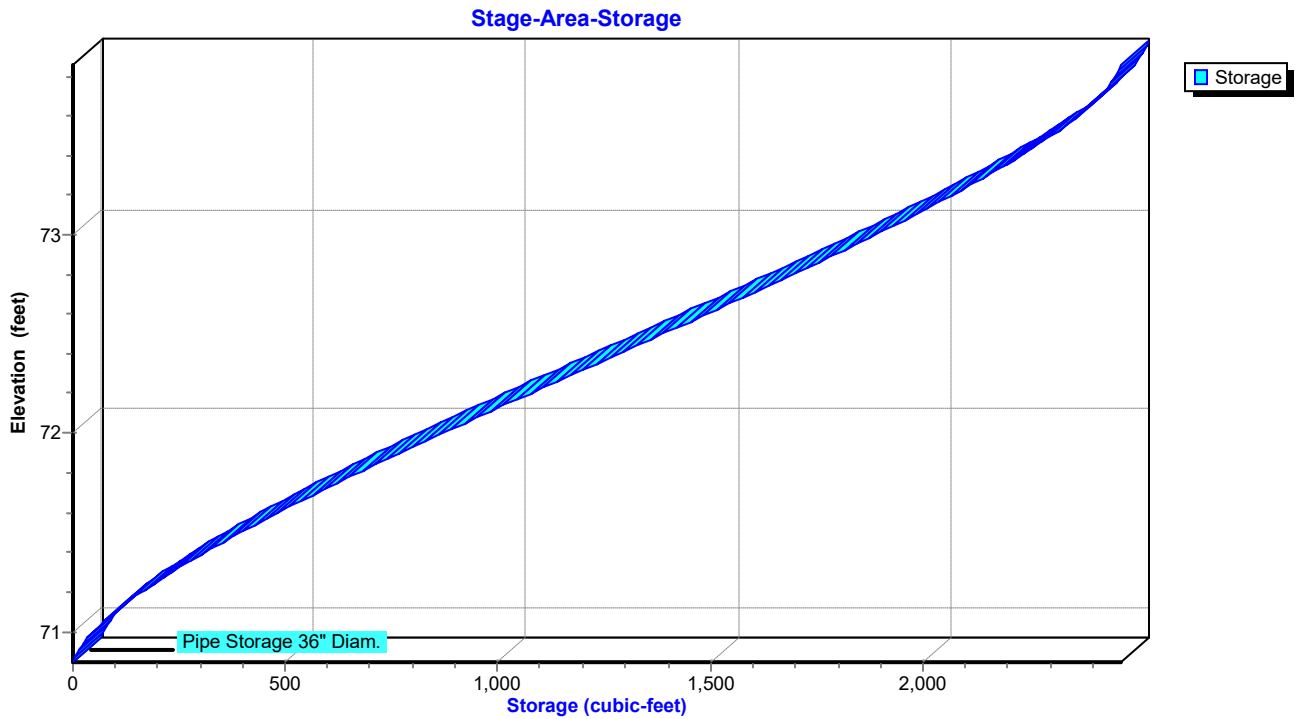
**Primary OutFlow** Max=0.21 cfs @ 12.52 hrs HW=72.56' (Free Discharge)

- 1=Orifice/Grate (Orifice Controls 0.03 cfs @ 6.22 fps)
- 2=Orifice/Grate (Orifice Controls 0.18 cfs @ 1.56 fps)
- 3=Orifice/Grate ( Controls 0.00 cfs)

### Pond 11P: SWMP DETENTION FACILITY 36" PIPE



### Pond 11P: SWMP DETENTION FACILITY 36" PIPE



**Summary for Pond 12P: RAIN GARDEN #2**

Inflow Area = 0.031 ac, 100.00% Impervious, Inflow Depth = 4.88" for 10-year event  
 Inflow = 0.16 cfs @ 12.08 hrs, Volume= 0.013 af  
 Outflow = 0.03 cfs @ 12.49 hrs, Volume= 0.013 af, Atten= 79%, Lag= 24.5 min  
 Discarded = 0.03 cfs @ 12.49 hrs, Volume= 0.013 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routed to Link 2L : FUTURE CONDITION DESIGN LINE

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Peak Elev= 56.80' @ 12.49 hrs Surf.Area= 481 sf Storage= 129 cf

Plug-Flow detention time= 21.5 min calculated for 0.013 af (100% of inflow)  
 Center-of-Mass det. time= 21.5 min ( 769.1 - 747.6 )

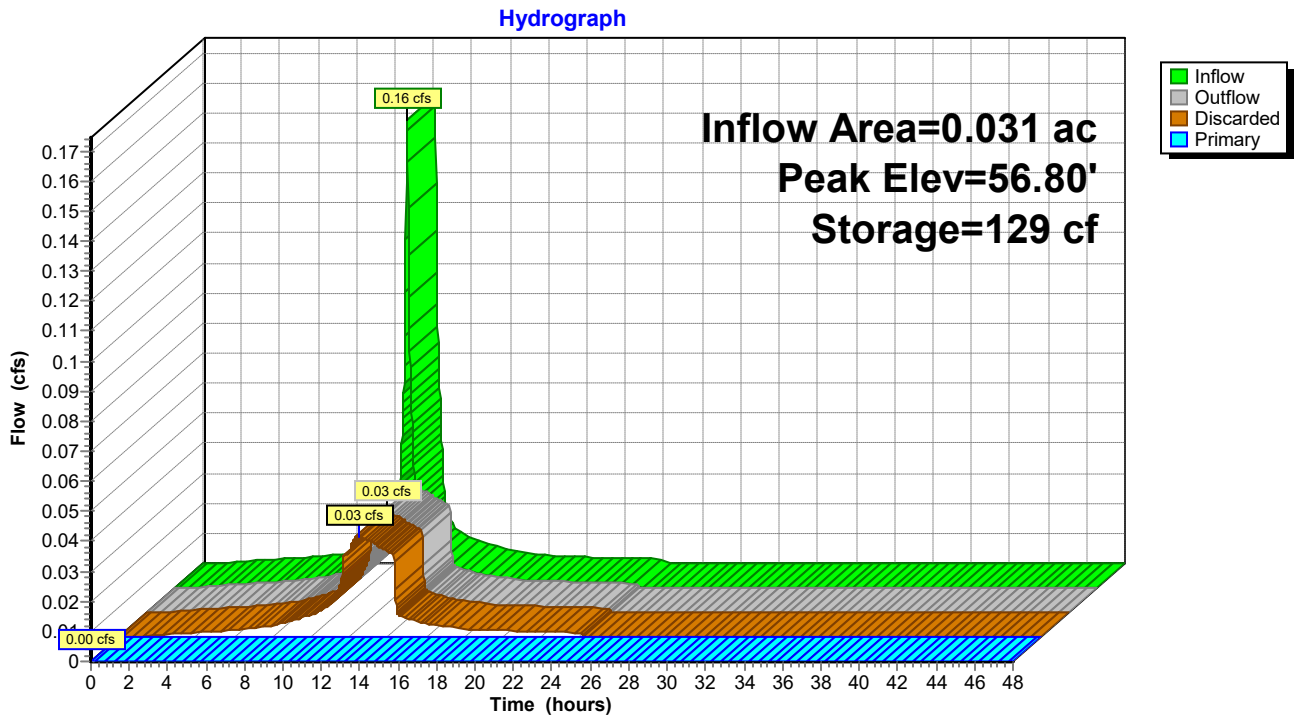
Volume	Invert	Avail.Storage	Storage Description
#1	56.50'	531 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
56.50	386	0	0
56.75	464	106	106
57.00	550	127	233
57.50	641	298	531

Device	Routing	Invert	Outlet Devices
#1	Primary	57.00'	<b>4.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#2	Primary	57.35'	<b>6.0' long (Profile 6) Broad-Crested Rectangular Weir</b> Head (feet) 0.49 0.98 1.48 Coef. (English) 3.12 3.41 3.59
#3	Discarded	56.50'	<b>3.000 in/hr Exfiltration over Horizontal area</b>

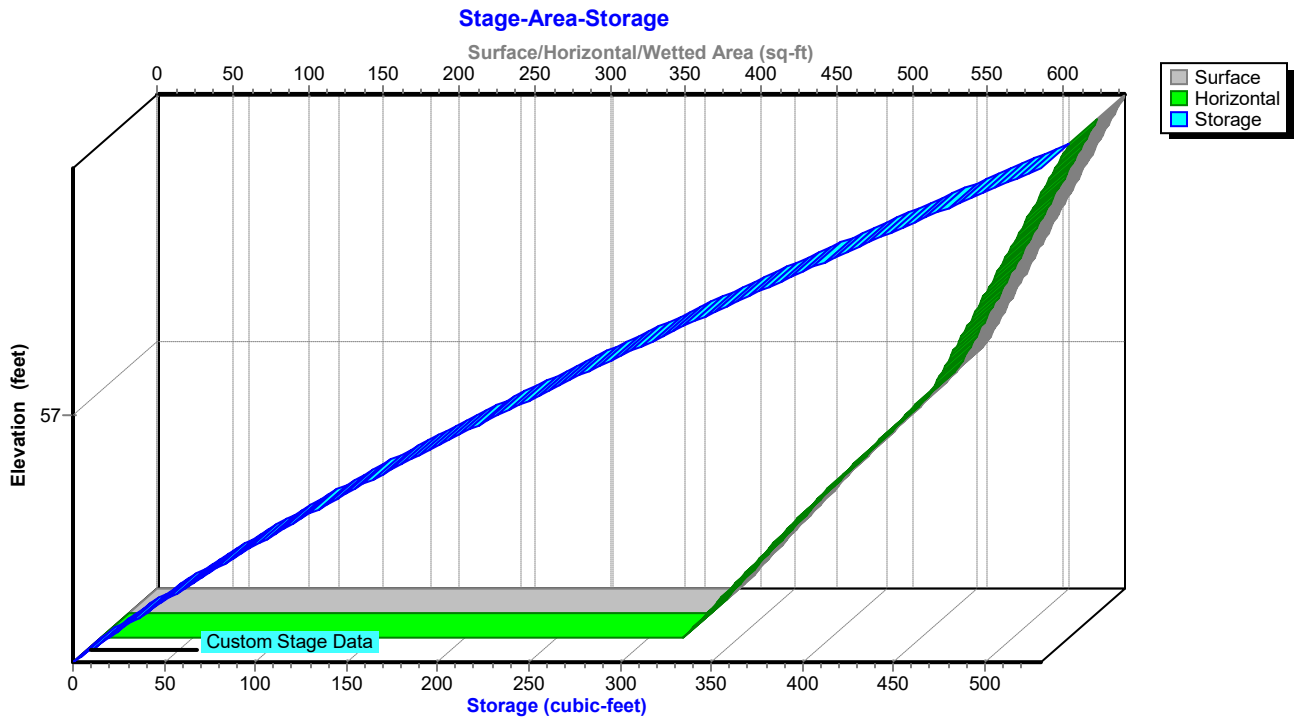
**Discarded OutFlow** Max=0.03 cfs @ 12.49 hrs HW=56.80' (Free Discharge)  
 ↑ **3=Exfiltration** (Exfiltration Controls 0.03 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=56.50' (Free Discharge)  
 ↑ **1=Orifice/Grate** ( Controls 0.00 cfs)  
 ↓ **2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

### Pond 12P: RAIN GARDEN #2



### Pond 12P: RAIN GARDEN #2



**Summary for Pond 13P: RAIN GARDEN #3**

Inflow Area = 0.032 ac, 100.00% Impervious, Inflow Depth = 4.88" for 10-year event  
 Inflow = 0.16 cfs @ 12.08 hrs, Volume= 0.013 af  
 Outflow = 0.03 cfs @ 12.50 hrs, Volume= 0.013 af, Atten= 80%, Lag= 25.2 min  
 Discarded = 0.03 cfs @ 12.50 hrs, Volume= 0.013 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routed to Link 2L : FUTURE CONDITION DESIGN LINE

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Peak Elev= 56.85' @ 12.50 hrs Surf.Area= 474 sf Storage= 144 cf

Plug-Flow detention time= 26.7 min calculated for 0.013 af (100% of inflow)  
 Center-of-Mass det. time= 26.7 min ( 774.3 - 747.6 )

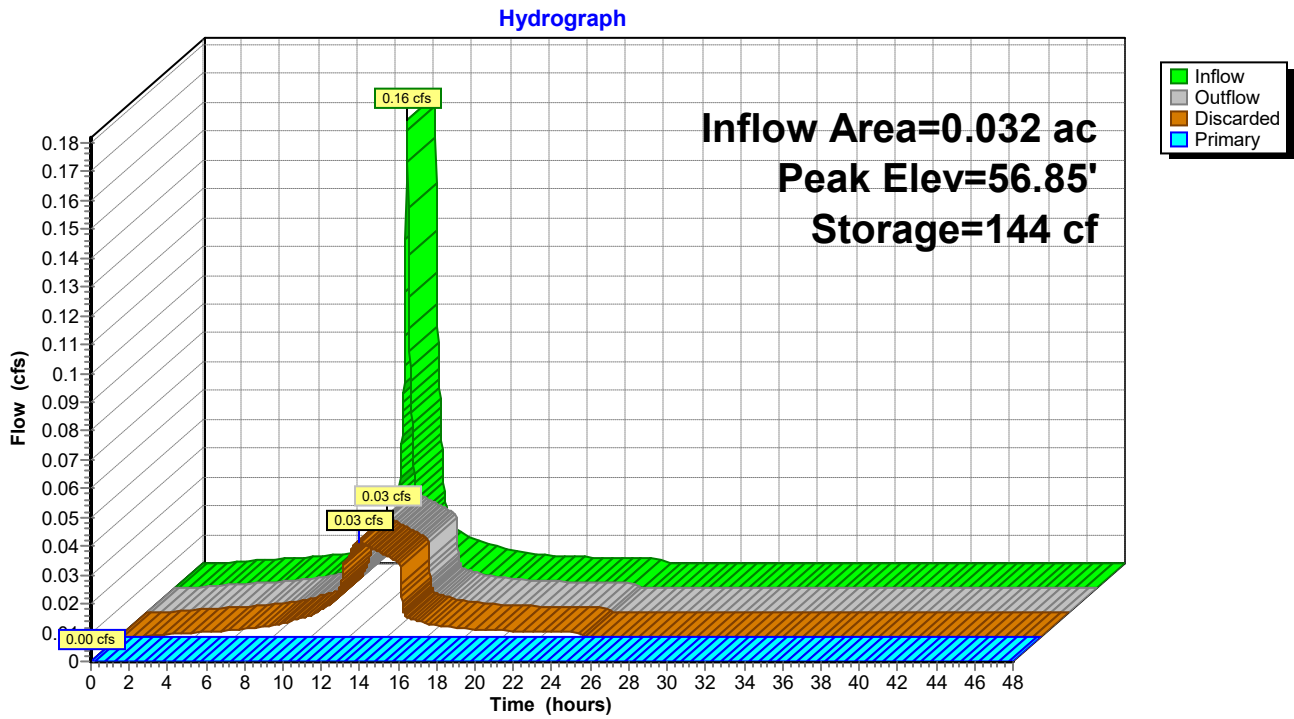
Volume	Invert	Avail.Storage	Storage Description
#1	56.50'	1,084 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
56.50	360	0	0
56.75	440	100	100
57.00	528	121	221
58.50	622	863	1,084

Device	Routing	Invert	Outlet Devices
#1	Primary	57.00'	<b>4.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#2	Primary	57.35'	<b>6.0' long (Profile 6) Broad-Crested Rectangular Weir</b> Head (feet) 0.49 0.98 1.48 Coef. (English) 3.12 3.41 3.59
#3	Discarded	56.50'	<b>3.000 in/hr Exfiltration over Horizontal area</b>

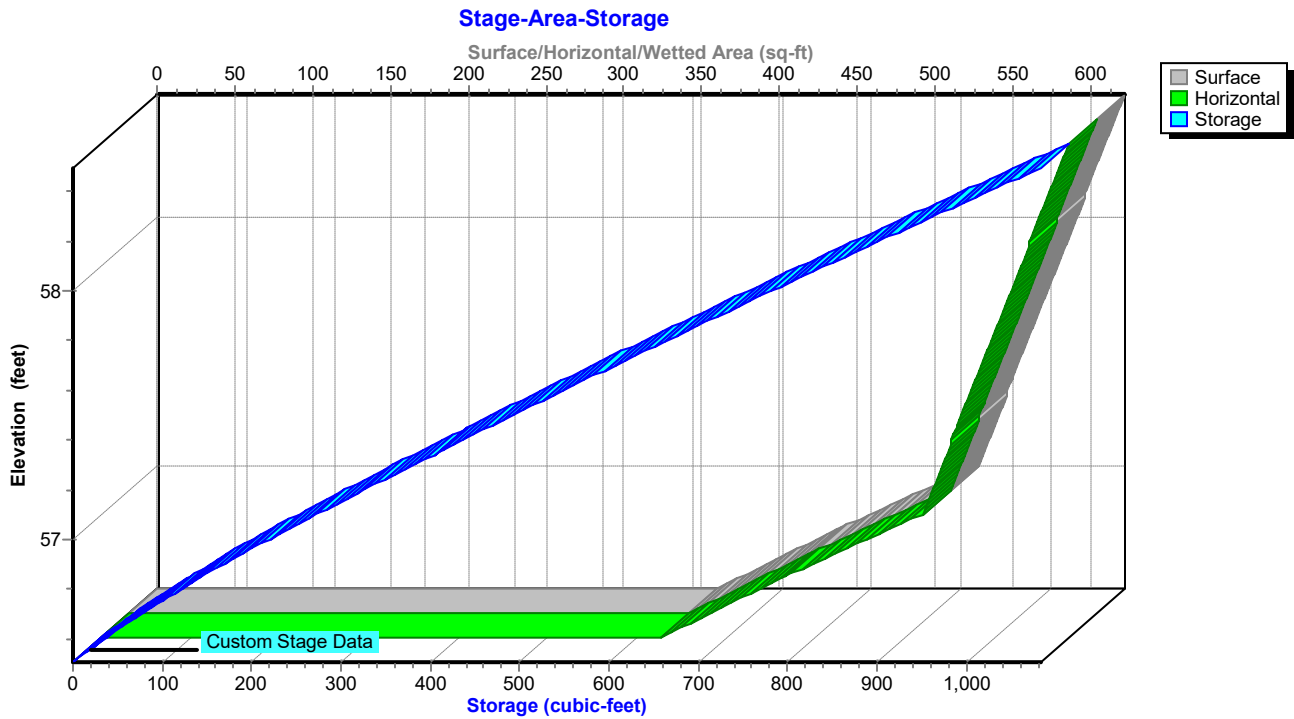
**Discarded OutFlow** Max=0.03 cfs @ 12.50 hrs HW=56.85' (Free Discharge)  
 ↑ **3=Exfiltration** (Exfiltration Controls 0.03 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=56.50' (Free Discharge)  
 ↑ **1=Orifice/Grate** ( Controls 0.00 cfs)  
 ↓ **2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

### Pond 13P: RAIN GARDEN #3



### Pond 13P: RAIN GARDEN #3



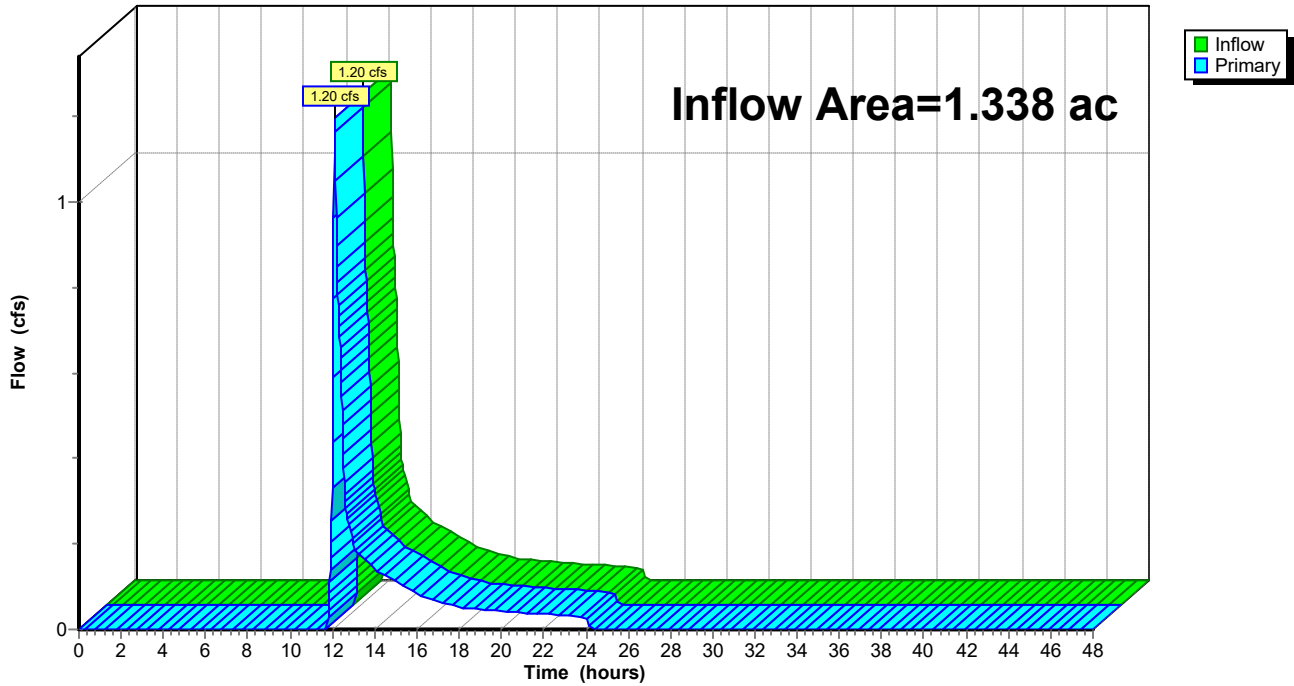
### Summary for Link 1L: EXIST CONDITION DESIGN LINE

Inflow Area = 1.338 ac, 6.61% Impervious, Inflow Depth = 0.98" for 10-year event  
Inflow = 1.20 cfs @ 12.11 hrs, Volume= 0.109 af  
Primary = 1.20 cfs @ 12.11 hrs, Volume= 0.109 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs

### Link 1L: EXIST CONDITION DESIGN LINE

Hydrograph





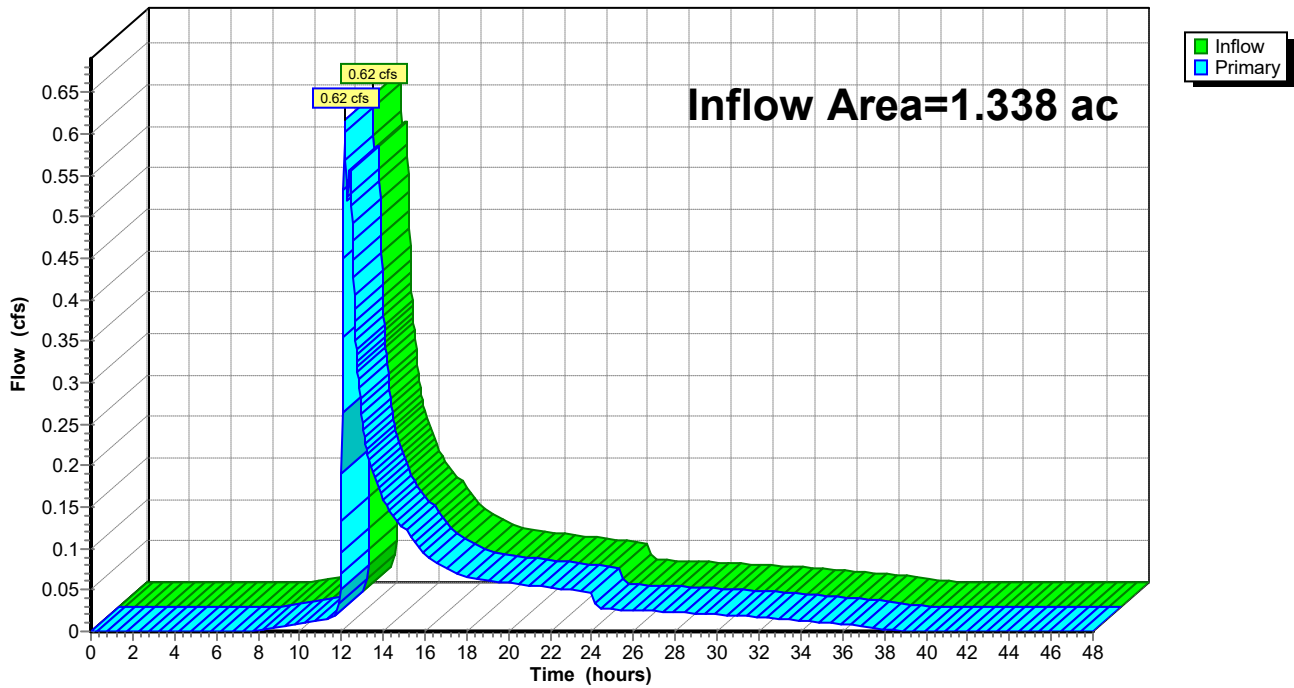
### Summary for Link 2L: FUTURE CONDITION DESIGN LINE

Inflow Area = 1.338 ac, 19.37% Impervious, Inflow Depth = 1.23" for 10-year event  
Inflow = 0.62 cfs @ 12.15 hrs, Volume= 0.137 af  
Primary = 0.62 cfs @ 12.15 hrs, Volume= 0.137 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs

### Link 2L: FUTURE CONDITION DESIGN LINE

Hydrograph



**99 Byram Ridge SWM\_12-27-2023.6**

Type III 24-hr 25-year Rainfall=6.46"

Prepared by ALP Engineering & Land Arch

Printed 1/2/2024

HydroCAD® 10.20-4a s/n 03392 © 2023 HydroCAD Software Solutions LLC

Page 62

Time span=0.00-48.00 hrs, dt=0.02 hrs, 2401 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1S: XDA-1 TO DESIGN LINE 1** Runoff Area=58,278 sf 6.61% Impervious Runoff Depth=1.70"  
Flow Length=279' Tc=6.2 min CN=54 Runoff=2.38 cfs 0.190 af

**Subcatchment 3S: FDA-1 TO SWMP-2A** Runoff Area=11,689 sf 55.83% Impervious Runoff Depth=4.41"  
Tc=6.0 min CN=82 Runoff=1.37 cfs 0.099 af

**Subcatchment 4S: FDA-2C TO RAIN** Runoff Area=913 sf 100.00% Impervious Runoff Depth=6.22"  
Tc=6.0 min CN=98 Runoff=0.13 cfs 0.011 af

**Subcatchment 5S: FDA-2B (POOL) TO** Runoff Area=1,356 sf 100.00% Impervious Runoff Depth=6.22"  
Tc=6.0 min CN=98 Runoff=0.20 cfs 0.016 af

**Subcatchment 7S: FDA-2A TO RAIN** Runoff Area=1,413 sf 100.00% Impervious Runoff Depth=6.22"  
Tc=6.0 min CN=98 Runoff=0.21 cfs 0.017 af

**Subcatchment 9S: FDA-3 TO DESIGN LINE 1** Runoff Area=42,907 sf 2.52% Impervious Runoff Depth=1.46"  
Flow Length=257' Tc=8.1 min CN=51 Runoff=1.32 cfs 0.120 af

**Pond 10P: RAIN GARDEN #1** Peak Elev=77.30' Storage=109 cf Inflow=0.13 cfs 0.011 af  
Discarded=0.03 cfs 0.011 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.011 af

**Pond 11P: SWMP DETENTION FACILITY 36"** Peak Elev=72.81' Storage=1,711 cf Inflow=1.37 cfs 0.099 af  
Outflow=0.49 cfs 0.099 af

**Pond 12P: RAIN GARDEN #2** Peak Elev=56.91' Storage=184 cf Inflow=0.20 cfs 0.016 af  
Discarded=0.04 cfs 0.016 af Primary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.016 af

**Pond 13P: RAIN GARDEN #3** Peak Elev=56.96' Storage=202 cf Inflow=0.21 cfs 0.017 af  
Discarded=0.04 cfs 0.017 af Primary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.017 af

**Link 1L: EXIST CONDITION DESIGN LINE** Inflow=2.38 cfs 0.190 af  
Primary=2.38 cfs 0.190 af

**Link 2L: FUTURE CONDITION DESIGN LINE** Inflow=1.63 cfs 0.218 af  
Primary=1.63 cfs 0.218 af

**Total Runoff Area = 2.676 ac Runoff Volume = 0.452 af Average Runoff Depth = 2.03"**  
**87.01% Pervious = 2.328 ac 12.99% Impervious = 0.348 ac**

**99 Byram Ridge SWM\_12-27-2023.6**

Type III 24-hr 25-year Rainfall=6.46"

Prepared by ALP Engineering & Land Arch

Printed 1/2/2024

HydroCAD® 10.20-4a s/n 03392 © 2023 HydroCAD Software Solutions LLC

Page 63

**Summary for Subcatchment 1S: XDA-1 TO DESIGN LINE 1**

Runoff = 2.38 cfs @ 12.10 hrs, Volume= 0.190 af, Depth= 1.70"

Routed to Link 1L : EXIST CONDITION DESIGN LINE

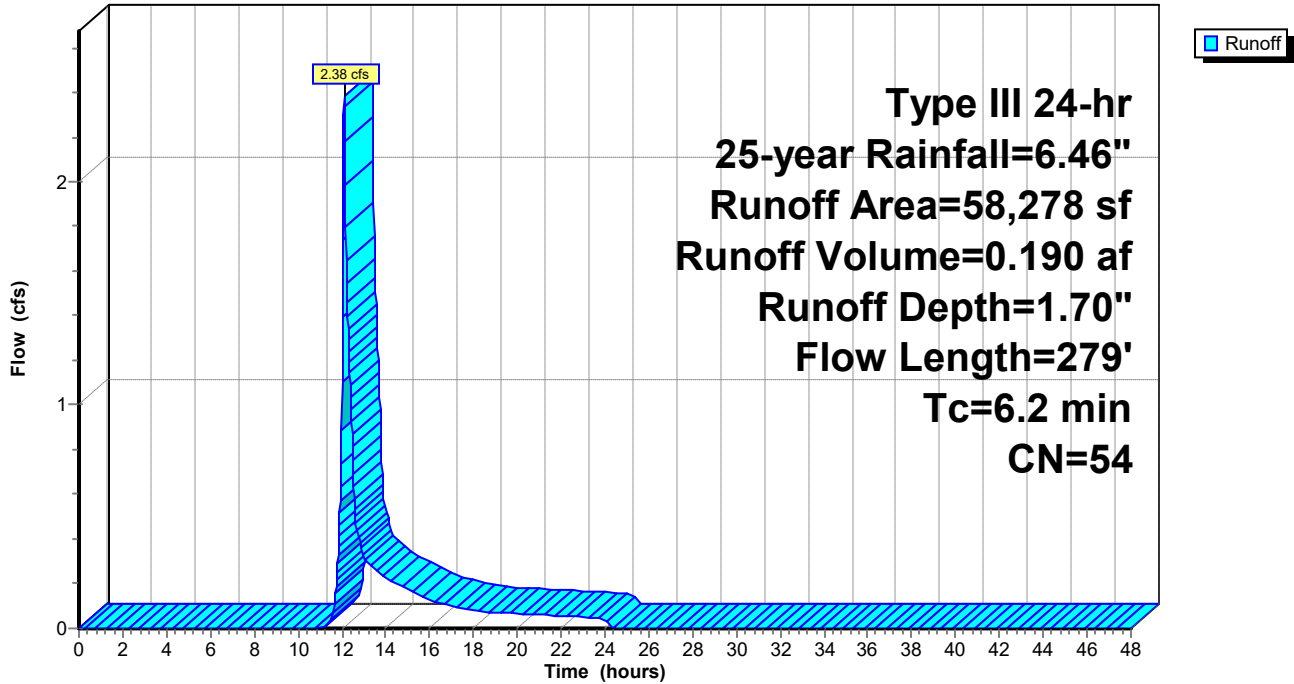
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
Type III 24-hr 25-year Rainfall=6.46"

Area (sf)	CN	Description
3,850	98	Paved parking, HSG B
16,730	36	Woods, Fair, HSG A
1,967	39	>75% Grass cover, Good, HSG A
17,965	55	Woods, Good, HSG B
17,766	61	>75% Grass cover, Good, HSG B
58,278	54	Weighted Average
54,428		93.39% Pervious Area
3,850		6.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	35	0.2429	0.18		<b>Sheet Flow, A-B</b> Woods: Light underbrush n= 0.400 P2= 3.41"
0.4	45	0.1555	1.97		<b>Shallow Concentrated Flow, B-C</b> Woodland Kv= 5.0 fps
0.8	65	0.0651	1.28		<b>Shallow Concentrated Flow, C-D</b> Woodland Kv= 5.0 fps
0.9	79	0.0886	1.49		<b>Shallow Concentrated Flow, D-E</b> Woodland Kv= 5.0 fps
0.8	55	0.0545	1.17		<b>Shallow Concentrated Flow, E-F</b> Woodland Kv= 5.0 fps
6.2	279	Total			

Subcatchment 1S: XDA-1 TO DESIGN LINE 1

Hydrograph



**Summary for Subcatchment 3S: FDA-1 TO SWMP-2A**

Runoff = 1.37 cfs @ 12.09 hrs, Volume= 0.099 af, Depth= 4.41"  
 Routed to Pond 11P : SWMP DETENTION FACILITY 36" PIPE

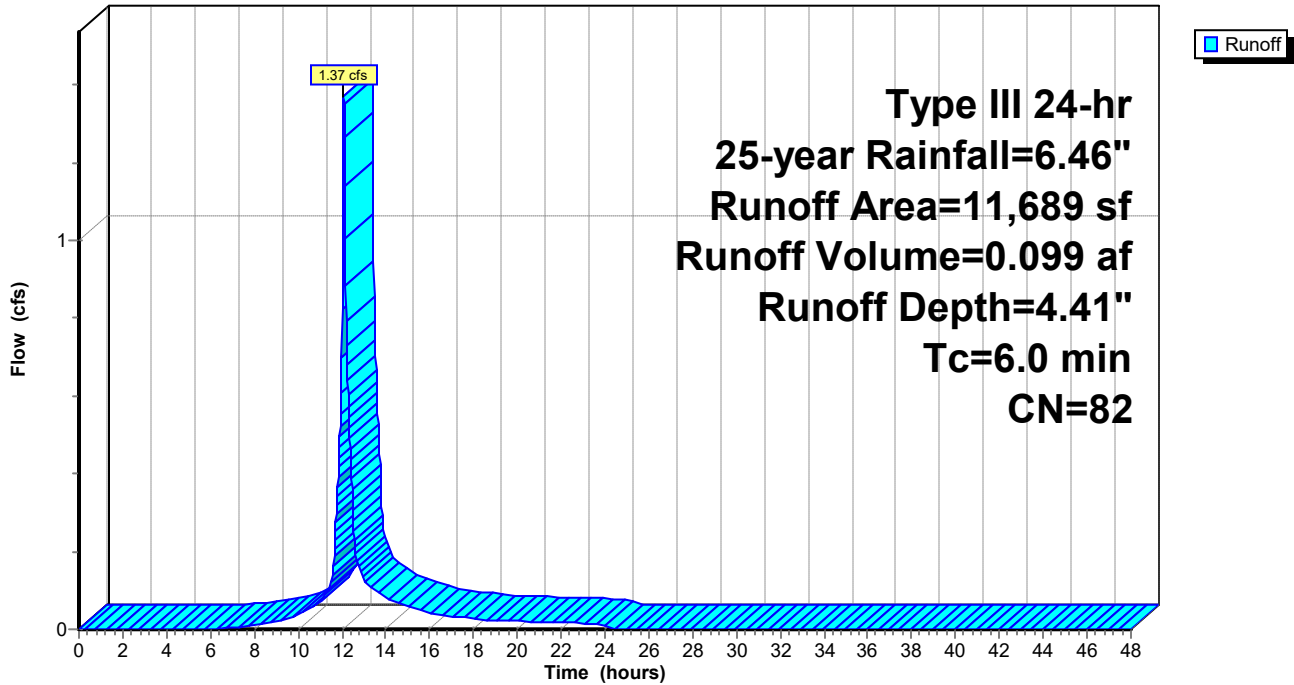
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Type III 24-hr 25-year Rainfall=6.46"

Area (sf)	CN	Description
6,526	98	Paved parking, HSG B
5,163	61	>75% Grass cover, Good, HSG B
11,689	82	Weighted Average
5,163		44.17% Pervious Area
6,526		55.83% Impervious Area

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

**Subcatchment 3S: FDA-1 TO SWMP-2A**

Hydrograph



**99 Byram Ridge SWM\_12-27-2023.6**

Prepared by ALP Engineering & Land Arch

HydroCAD® 10.20-4a s/n 03392 © 2023 HydroCAD Software Solutions LLC

Type III 24-hr 25-year Rainfall=6.46"

Printed 1/2/2024

Page 66

**Summary for Subcatchment 4S: FDA-2C TO RAIN GARDEN #1**

Runoff = 0.13 cfs @ 12.08 hrs, Volume= 0.011 af, Depth= 6.22"  
Routed to Pond 10P : RAIN GARDEN #1

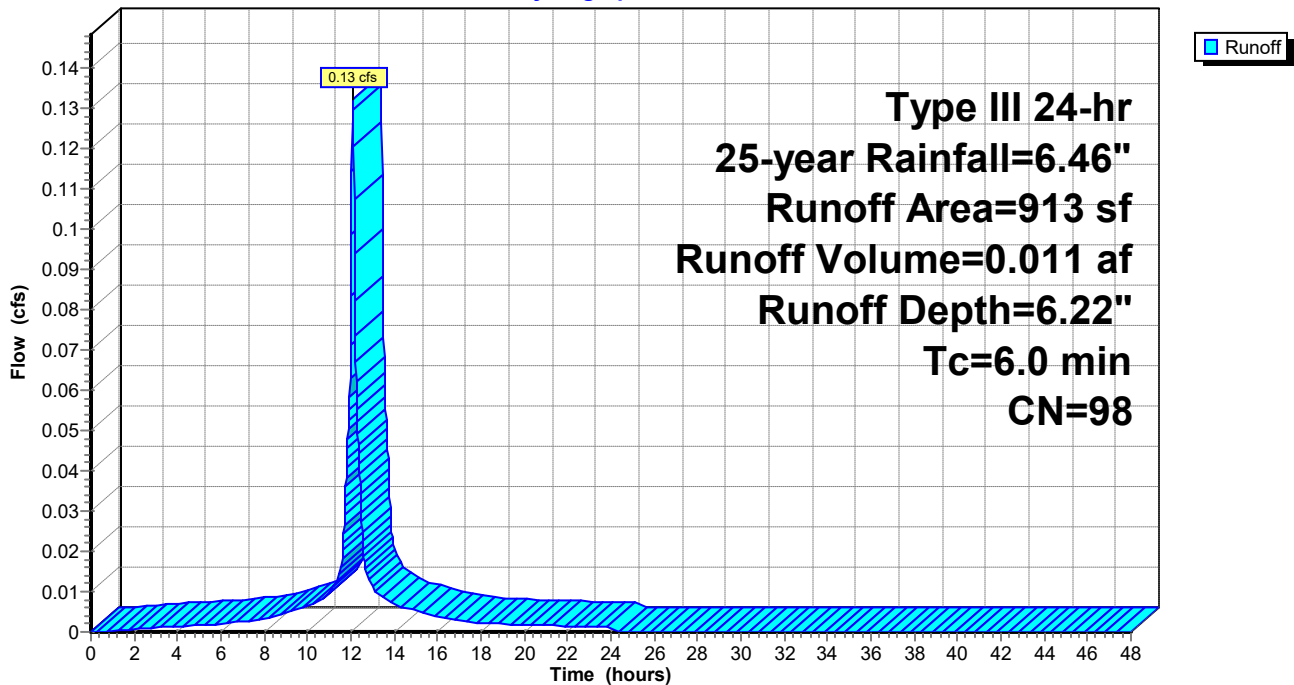
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
Type III 24-hr 25-year Rainfall=6.46"

Area (sf)	CN	Description
913	98	Roofs, HSG A
913		100.00% Impervious Area

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

**Subcatchment 4S: FDA-2C TO RAIN GARDEN #1**

Hydrograph



**Summary for Subcatchment 5S: FDA-2B (POOL) TO RAIN GARDEN #2**

Runoff = 0.20 cfs @ 12.08 hrs, Volume= 0.016 af, Depth= 6.22"  
 Routed to Pond 12P : RAIN GARDEN #2

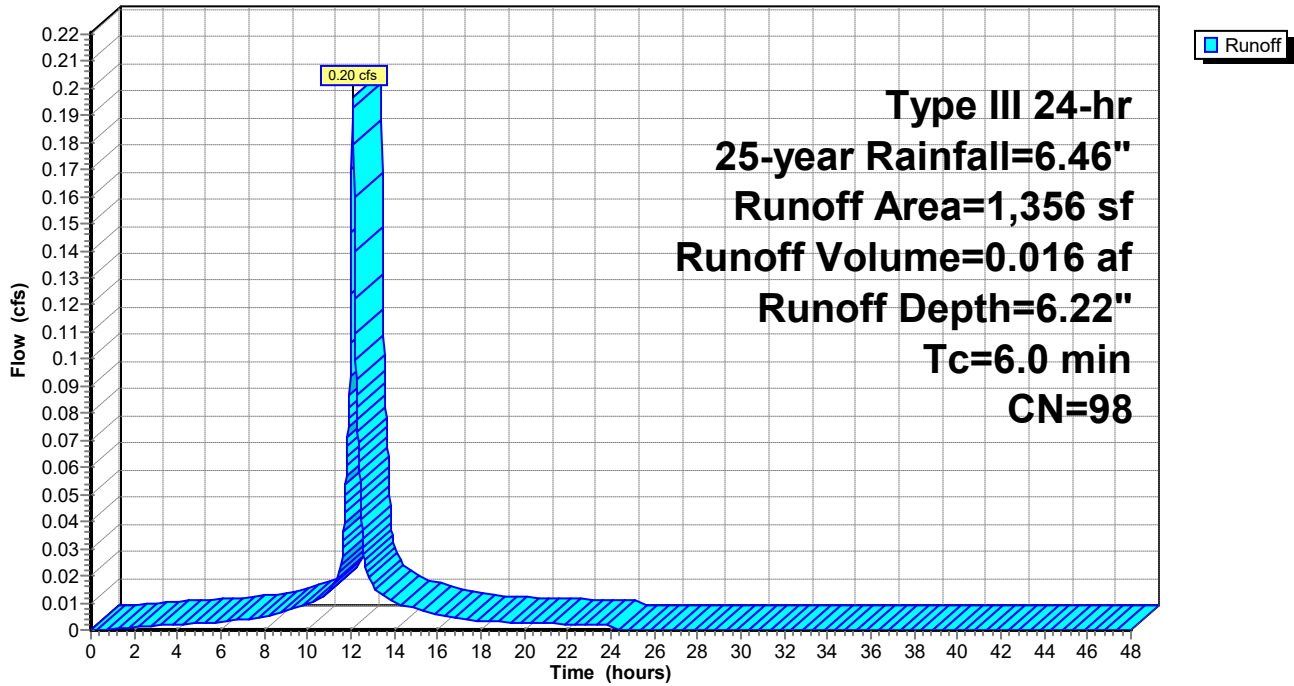
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Type III 24-hr 25-year Rainfall=6.46"

Area (sf)	CN	Description
1,356	98	Roofs, HSG B
1,356		100.00% Impervious Area

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

**Subcatchment 5S: FDA-2B (POOL) TO RAIN GARDEN #2**

Hydrograph



**99 Byram Ridge SWM\_12-27-2023.6**

Prepared by ALP Engineering & Land Arch

HydroCAD® 10.20-4a s/n 03392 © 2023 HydroCAD Software Solutions LLC

Type III 24-hr 25-year Rainfall=6.46"

Printed 1/2/2024

Page 68

**Summary for Subcatchment 7S: FDA-2A TO RAIN GARDEN #3**

Runoff = 0.21 cfs @ 12.08 hrs, Volume= 0.017 af, Depth= 6.22"

Routed to Pond 13P : RAIN GARDEN #3

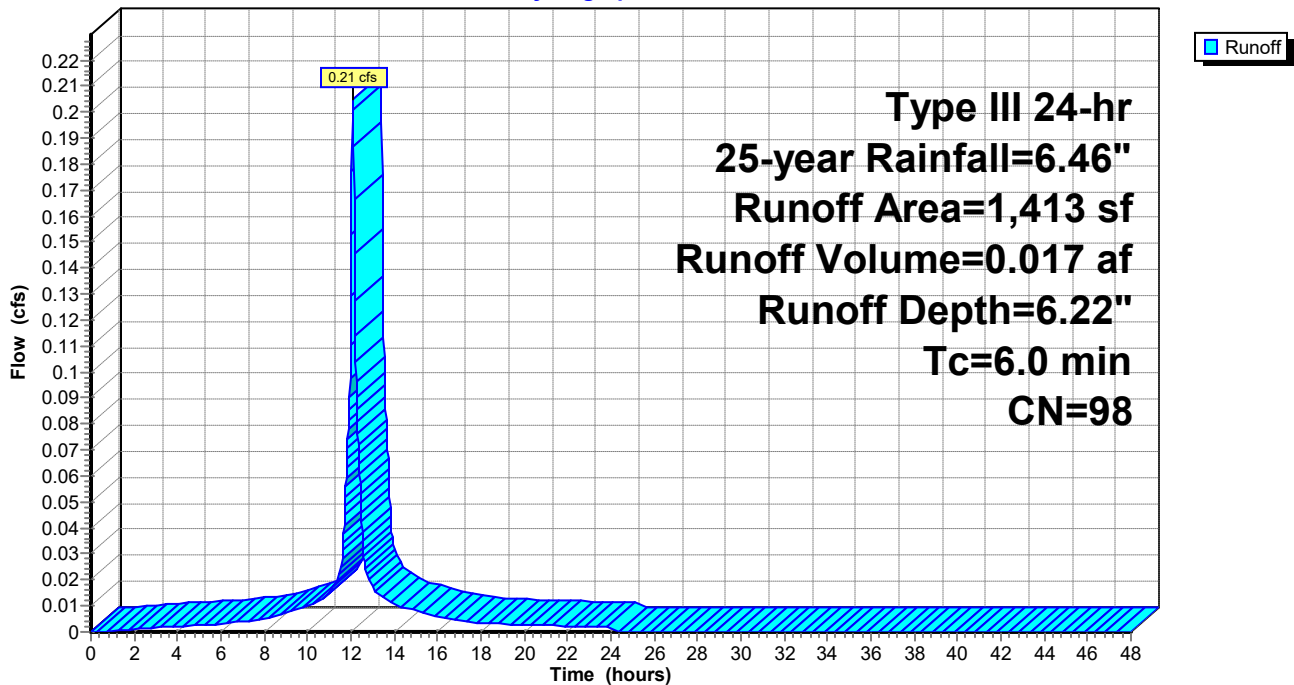
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
Type III 24-hr 25-year Rainfall=6.46"

Area (sf)	CN	Description
1,413	98	Roofs, HSG B
1,413		100.00% Impervious Area

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

**Subcatchment 7S: FDA-2A TO RAIN GARDEN #3**

Hydrograph





**99 Byram Ridge SWM\_12-27-2023.6**

Type III 24-hr 25-year Rainfall=6.46"

Prepared by ALP Engineering & Land Arch

Printed 1/2/2024

HydroCAD® 10.20-4a s/n 03392 © 2023 HydroCAD Software Solutions LLC

Page 69

**Summary for Subcatchment 9S: FDA-3 TO DESIGN LINE 1**

Runoff = 1.32 cfs @ 12.13 hrs, Volume= 0.120 af, Depth= 1.46"

Routed to Link 2L : FUTURE CONDITION DESIGN LINE

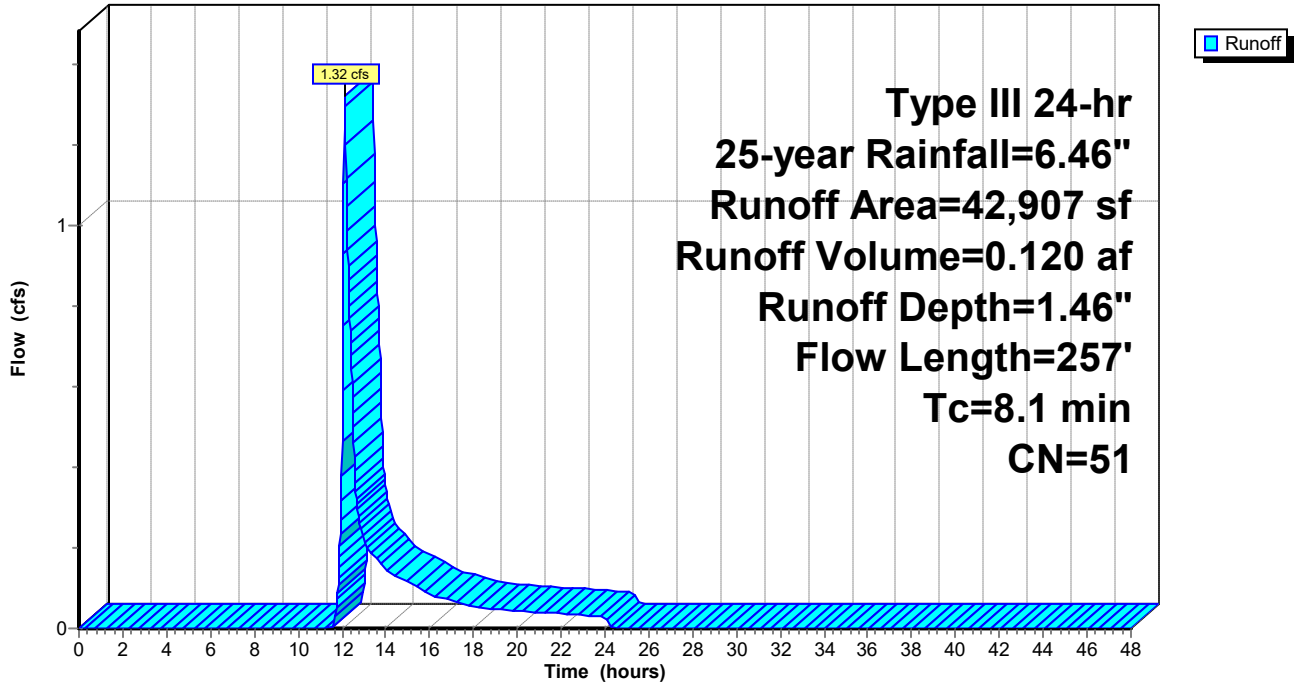
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Type III 24-hr 25-year Rainfall=6.46"

Area (sf)	CN	Description
* 1,083	98	Impervious patio surface, HSG B
7,943	39	>75% Grass cover, Good, HSG A
8,933	30	Woods, Good, HSG A
22,533	61	>75% Grass cover, Good, HSG B
2,415	55	Woods, Good, HSG B
42,907	51	Weighted Average
41,824		97.48% Pervious Area
1,083		2.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	38	0.0395	0.09		<b>Sheet Flow, A-B</b>
					Woods: Light underbrush n= 0.400 P2= 3.41"
0.3	75	0.0573	3.59		<b>Shallow Concentrated Flow, B-C</b>
					Grassed Waterway Kv= 15.0 fps
0.2	61	0.1508	5.82		<b>Shallow Concentrated Flow, C-D</b>
					Grassed Waterway Kv= 15.0 fps
0.3	83	0.0843	4.36		<b>Shallow Concentrated Flow, D-E</b>
					Grassed Waterway Kv= 15.0 fps
8.1	257	Total			

Subcatchment 9S: FDA-3 TO DESIGN LINE 1

Hydrograph



**Summary for Pond 10P: RAIN GARDEN #1**

Inflow Area = 0.021 ac, 100.00% Impervious, Inflow Depth = 6.22" for 25-year event  
 Inflow = 0.13 cfs @ 12.08 hrs, Volume= 0.011 af  
 Outflow = 0.03 cfs @ 12.49 hrs, Volume= 0.011 af, Atten= 78%, Lag= 24.2 min  
 Discarded = 0.03 cfs @ 12.49 hrs, Volume= 0.011 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Pond 11P : SWMP DETENTION FACILITY 36" PIPE

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Peak Elev= 77.30' @ 12.49 hrs Surf.Area= 415 sf Storage= 109 cf

Plug-Flow detention time= 20.6 min calculated for 0.011 af (100% of inflow)  
 Center-of-Mass det. time= 20.6 min ( 764.7 - 744.1 )

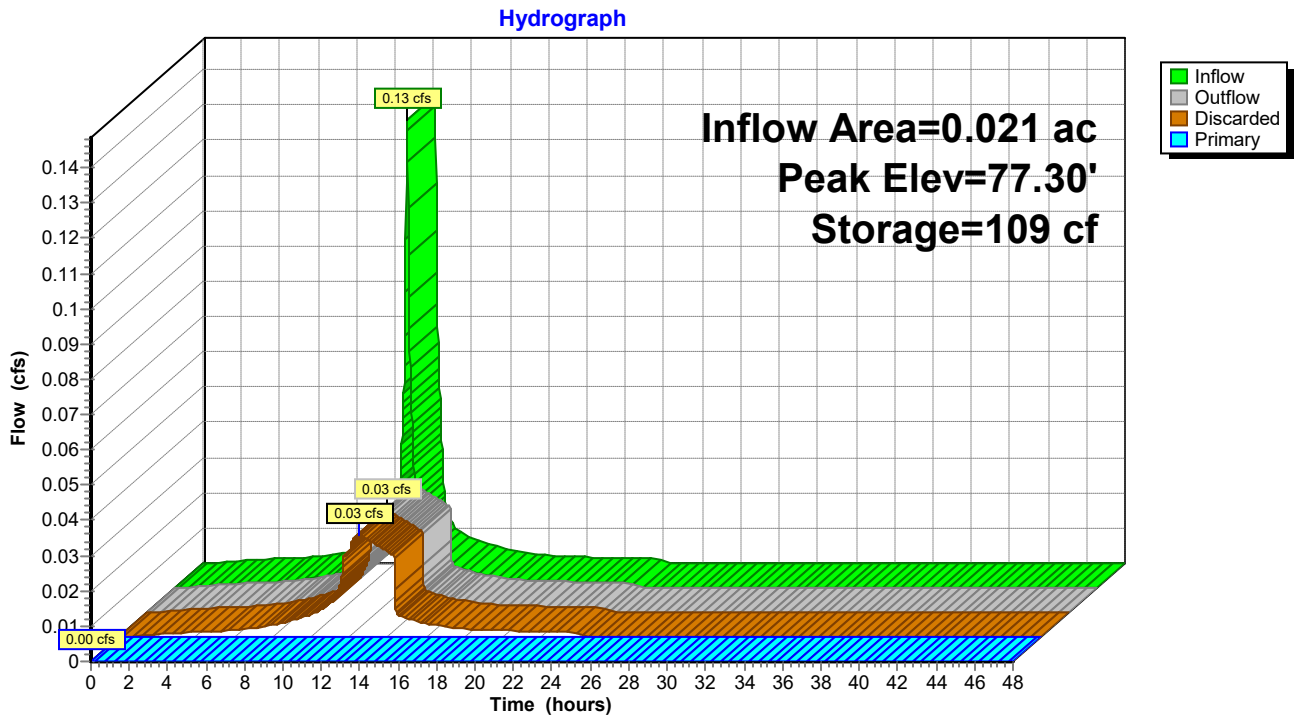
Volume	Invert	Avail.Storage	Storage Description
#1	77.00'	331 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
77.00	325	0	0
77.25	400	91	91
77.50	485	111	201
77.75	550	129	331

Device	Routing	Invert	Outlet Devices
#1	Discarded	77.00'	<b>3.000 in/hr Exfiltration over Horizontal area</b>
#2	Primary	77.50'	<b>4.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

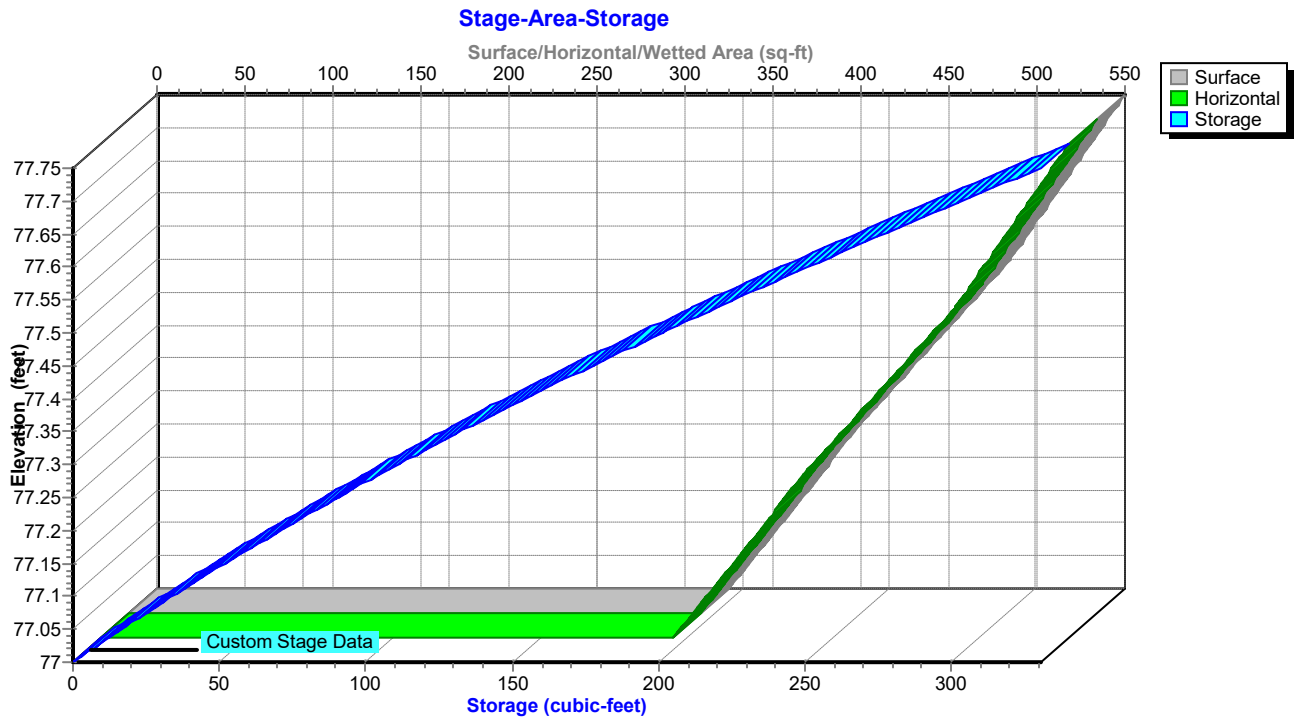
**Discarded OutFlow** Max=0.03 cfs @ 12.49 hrs HW=77.30' (Free Discharge)  
 ↑1=Exfiltration (Exfiltration Controls 0.03 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=77.00' (Free Discharge)  
 ↑2=Orifice/Grate ( Controls 0.00 cfs)

### Pond 10P: RAIN GARDEN #1



### Pond 10P: RAIN GARDEN #1



**Summary for Pond 11P: SWMP DETENTION FACILITY 36" PIPE**

Inflow Area = 0.289 ac, 59.03% Impervious, Inflow Depth = 4.09" for 25-year event  
 Inflow = 1.37 cfs @ 12.09 hrs, Volume= 0.099 af  
 Outflow = 0.49 cfs @ 12.36 hrs, Volume= 0.099 af, Atten= 64%, Lag= 16.2 min  
 Primary = 0.49 cfs @ 12.36 hrs, Volume= 0.099 af  
 Routed to Link 2L : FUTURE CONDITION DESIGN LINE

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Peak Elev= 72.81' @ 12.36 hrs Surf.Area= 996 sf Storage= 1,711 cf

Plug-Flow detention time= 302.5 min calculated for 0.099 af (100% of inflow)  
 Center-of-Mass det. time= 302.8 min ( 1,108.9 - 806.1 )

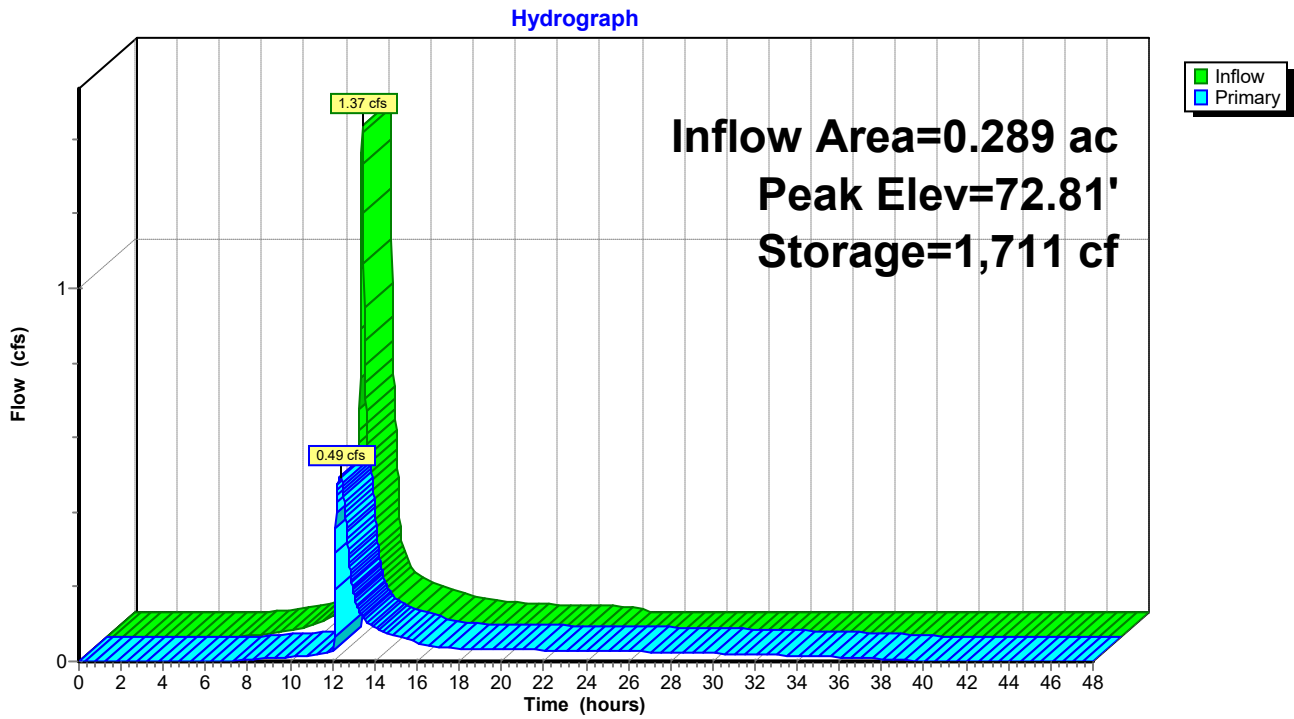
Volume	Invert	Avail.Storage	Storage Description
#1	70.85'	2,467 cf	<b>36.0" Round Pipe Storage 36" Diam.</b> L= 349.0'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.85'	<b>1.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#2	Primary	72.35'	<b>4.0" Vert. Orifice/Grate X 2.00</b> C= 0.600 Limited to weir flow at low heads
#3	Primary	73.35'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

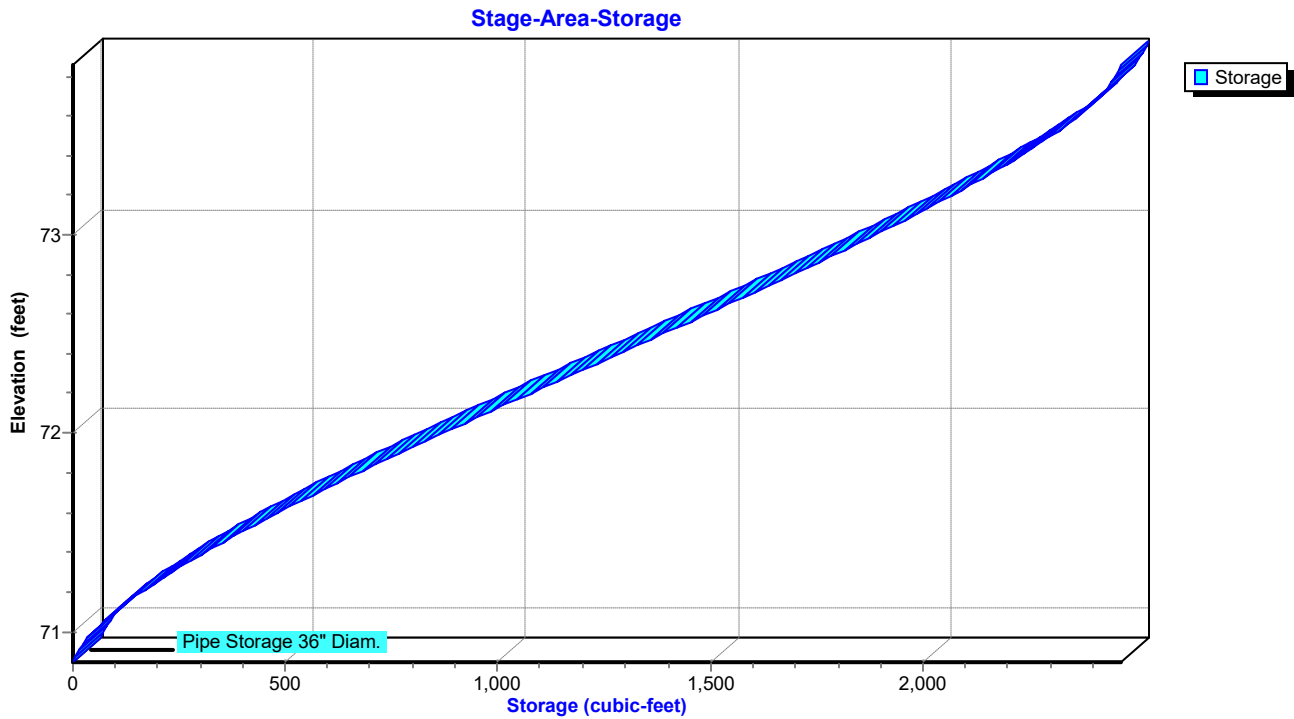
**Primary OutFlow** Max=0.49 cfs @ 12.36 hrs HW=72.81' (Free Discharge)

- 1=Orifice/Grate (Orifice Controls 0.04 cfs @ 6.68 fps)
- 2=Orifice/Grate (Orifice Controls 0.46 cfs @ 2.62 fps)
- 3=Orifice/Grate ( Controls 0.00 cfs)

### Pond 11P: SWMP DETENTION FACILITY 36" PIPE



### Pond 11P: SWMP DETENTION FACILITY 36" PIPE



**Summary for Pond 12P: RAIN GARDEN #2**

Inflow Area = 0.031 ac, 100.00% Impervious, Inflow Depth = 6.22" for 25-year event  
 Inflow = 0.20 cfs @ 12.08 hrs, Volume= 0.016 af  
 Outflow = 0.04 cfs @ 12.53 hrs, Volume= 0.016 af, Atten= 82%, Lag= 26.6 min  
 Discarded = 0.04 cfs @ 12.53 hrs, Volume= 0.016 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Link 2L : FUTURE CONDITION DESIGN LINE

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Peak Elev= 56.91' @ 12.53 hrs Surf.Area= 518 sf Storage= 184 cf

Plug-Flow detention time= 30.3 min calculated for 0.016 af (100% of inflow)  
 Center-of-Mass det. time= 30.3 min ( 774.4 - 744.1 )

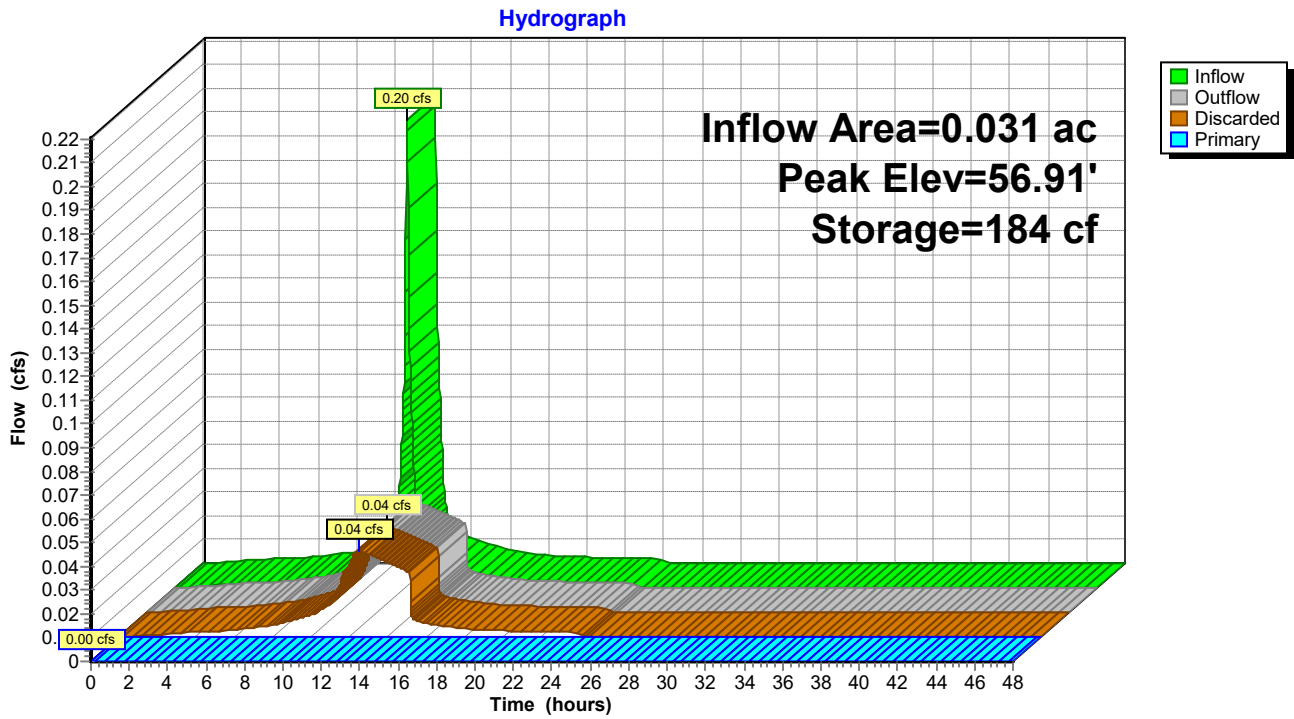
Volume	Invert	Avail.Storage	Storage Description
#1	56.50'	531 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
56.50	386	0	0
56.75	464	106	106
57.00	550	127	233
57.50	641	298	531

Device	Routing	Invert	Outlet Devices
#1	Primary	57.00'	<b>4.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#2	Primary	57.35'	<b>6.0' long (Profile 6) Broad-Crested Rectangular Weir</b> Head (feet) 0.49 0.98 1.48 Coef. (English) 3.12 3.41 3.59
#3	Discarded	56.50'	<b>3.000 in/hr Exfiltration over Horizontal area</b>

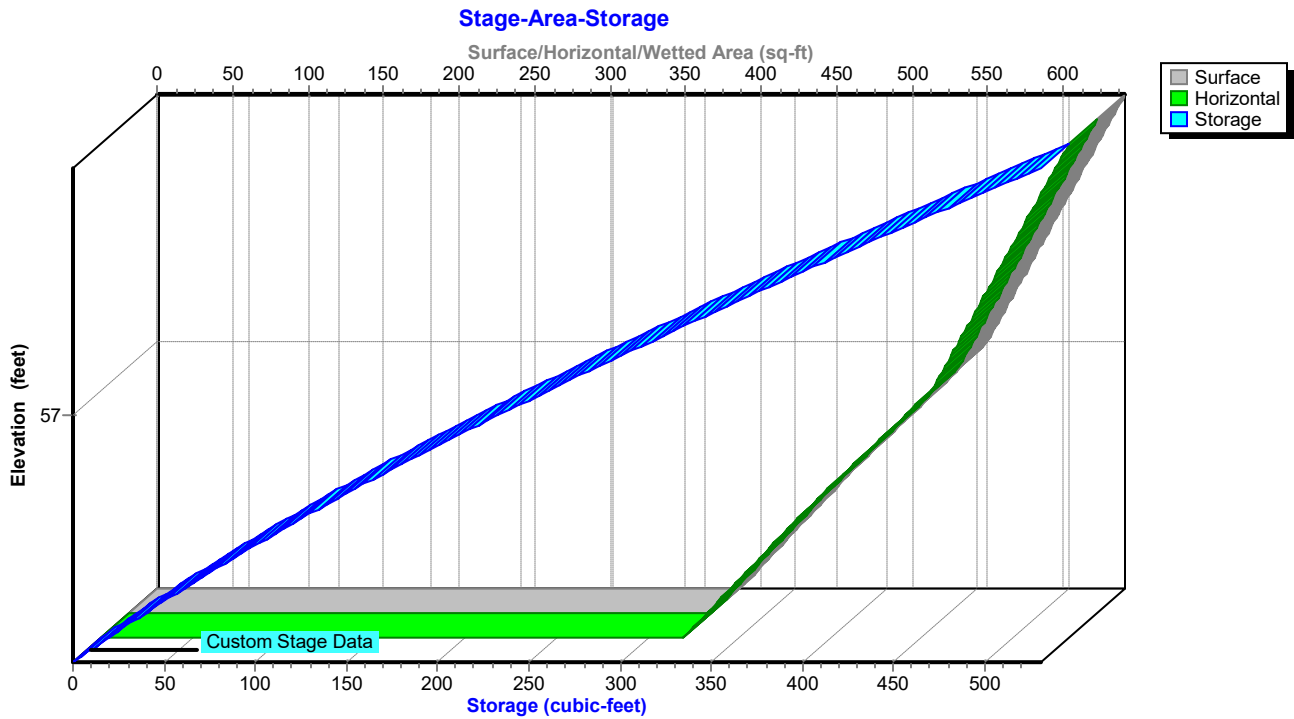
**Discarded OutFlow** Max=0.04 cfs @ 12.53 hrs HW=56.91' (Free Discharge)  
 ↑ **3=Exfiltration** (Exfiltration Controls 0.04 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=56.50' (Free Discharge)  
 ↑ **1=Orifice/Grate** ( Controls 0.00 cfs)  
 ↓ **2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

### Pond 12P: RAIN GARDEN #2



### Pond 12P: RAIN GARDEN #2





**Summary for Pond 13P: RAIN GARDEN #3**

Inflow Area = 0.032 ac, 100.00% Impervious, Inflow Depth = 6.22" for 25-year event  
 Inflow = 0.21 cfs @ 12.08 hrs, Volume= 0.017 af  
 Outflow = 0.04 cfs @ 12.54 hrs, Volume= 0.017 af, Atten= 83%, Lag= 27.2 min  
 Discarded = 0.04 cfs @ 12.54 hrs, Volume= 0.017 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routed to Link 2L : FUTURE CONDITION DESIGN LINE

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Peak Elev= 56.96' @ 12.54 hrs Surf.Area= 515 sf Storage= 202 cf

Plug-Flow detention time= 36.1 min calculated for 0.017 af (100% of inflow)  
 Center-of-Mass det. time= 36.1 min ( 780.2 - 744.1 )

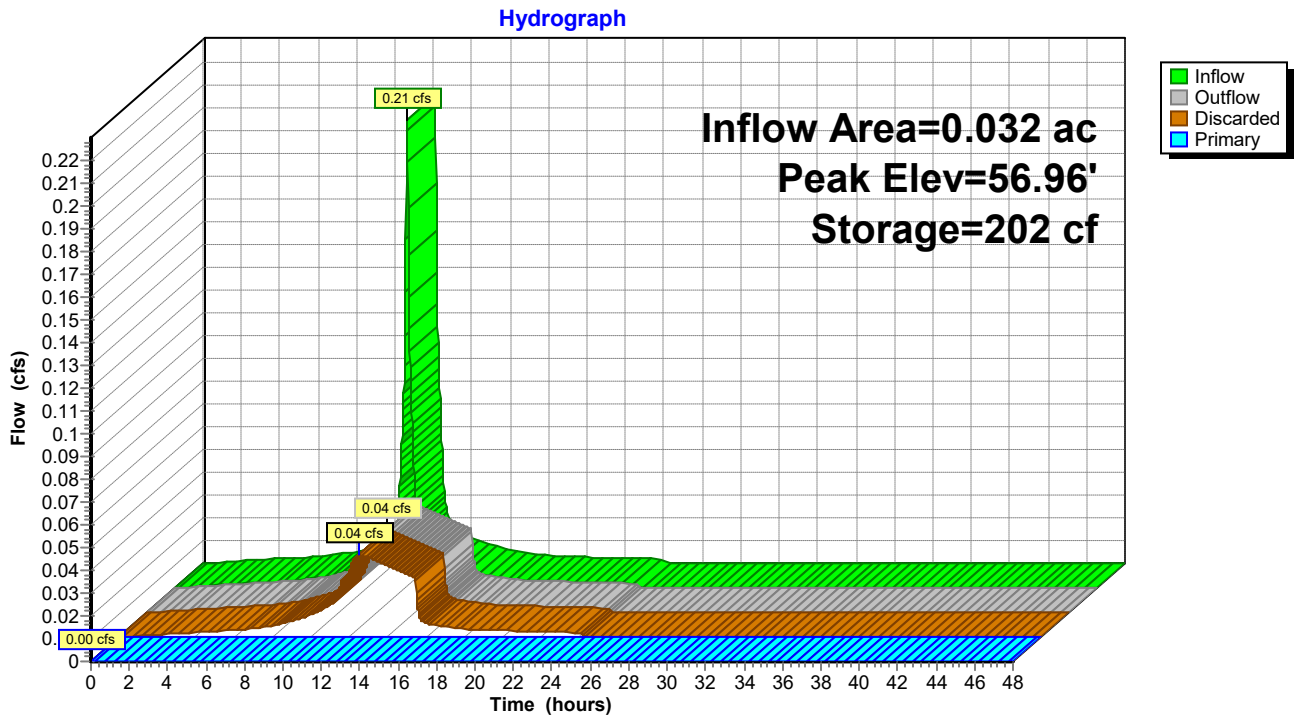
Volume	Invert	Avail.Storage	Storage Description
#1	56.50'	1,084 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
56.50	360	0	0
56.75	440	100	100
57.00	528	121	221
58.50	622	863	1,084

Device	Routing	Invert	Outlet Devices
#1	Primary	57.00'	<b>4.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#2	Primary	57.35'	<b>6.0' long (Profile 6) Broad-Crested Rectangular Weir</b> Head (feet) 0.49 0.98 1.48 Coef. (English) 3.12 3.41 3.59
#3	Discarded	56.50'	<b>3.000 in/hr Exfiltration over Horizontal area</b>

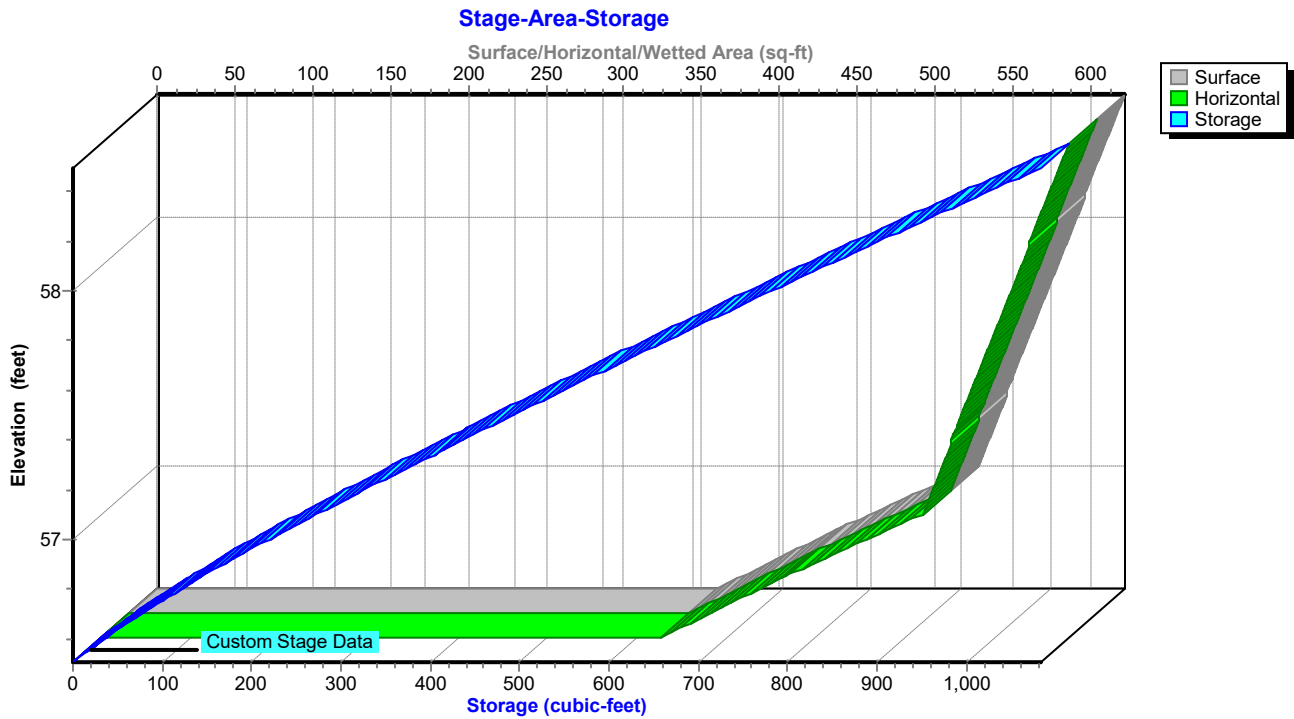
**Discarded OutFlow** Max=0.04 cfs @ 12.54 hrs HW=56.96' (Free Discharge)  
 ↑ **3=Exfiltration** (Exfiltration Controls 0.04 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=56.50' (Free Discharge)  
 ↑ **1=Orifice/Grate** ( Controls 0.00 cfs)  
 ↓ **2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

### Pond 13P: RAIN GARDEN #3



### Pond 13P: RAIN GARDEN #3



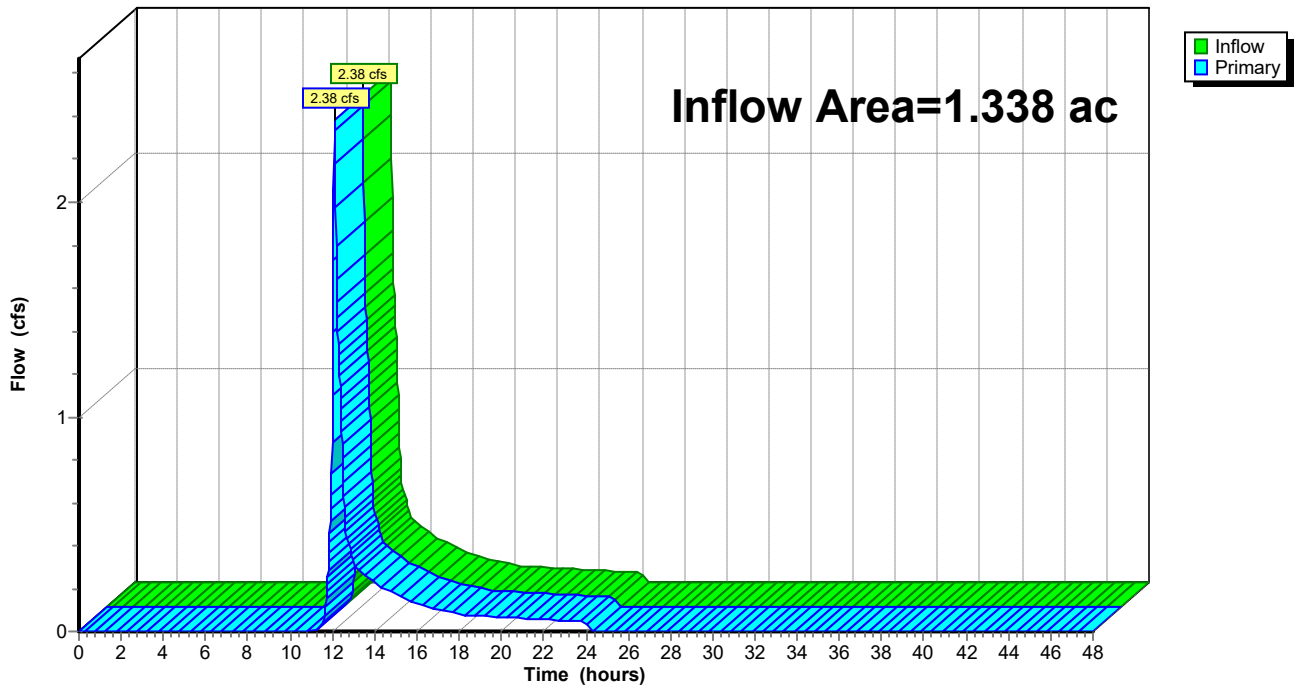
### Summary for Link 1L: EXIST CONDITION DESIGN LINE

Inflow Area = 1.338 ac, 6.61% Impervious, Inflow Depth = 1.70" for 25-year event  
Inflow = 2.38 cfs @ 12.10 hrs, Volume= 0.190 af  
Primary = 2.38 cfs @ 12.10 hrs, Volume= 0.190 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs

### Link 1L: EXIST CONDITION DESIGN LINE

Hydrograph



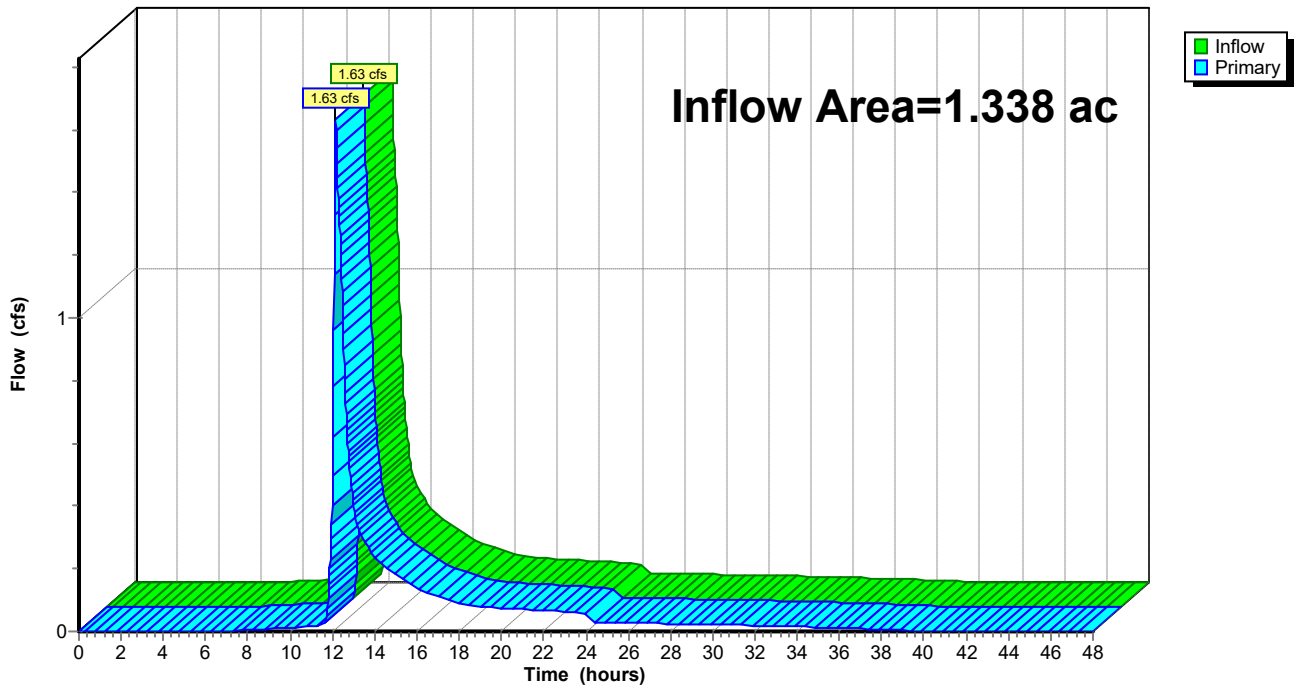
### Summary for Link 2L: FUTURE CONDITION DESIGN LINE

Inflow Area = 1.338 ac, 19.37% Impervious, Inflow Depth = 1.96" for 25-year event  
Inflow = 1.63 cfs @ 12.16 hrs, Volume= 0.218 af  
Primary = 1.63 cfs @ 12.16 hrs, Volume= 0.218 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs

### Link 2L: FUTURE CONDITION DESIGN LINE

Hydrograph



**99 Byram Ridge SWM\_12-27-2023.6**

Type III 24-hr 100-year Rainfall=9.18"

Prepared by ALP Engineering & Land Arch

Printed 1/2/2024

HydroCAD® 10.20-4a s/n 03392 © 2023 HydroCAD Software Solutions LLC

Page 81

Time span=0.00-48.00 hrs, dt=0.02 hrs, 2401 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 1S: XDA-1 TO DESIGN LINE 1** Runoff Area=58,278 sf 6.61% Impervious Runoff Depth=3.49"  
Flow Length=279' Tc=6.2 min CN=54 Runoff=5.29 cfs 0.390 af

**Subcatchment 3S: FDA-1 TO SWMP-2A** Runoff Area=11,689 sf 55.83% Impervious Runoff Depth=6.99"  
Tc=6.0 min CN=82 Runoff=2.13 cfs 0.156 af

**Subcatchment 4S: FDA-2C TO RAIN** Runoff Area=913 sf 100.00% Impervious Runoff Depth=8.94"  
Tc=6.0 min CN=98 Runoff=0.19 cfs 0.016 af

**Subcatchment 5S: FDA-2B (POOL) TO** Runoff Area=1,356 sf 100.00% Impervious Runoff Depth=8.94"  
Tc=6.0 min CN=98 Runoff=0.28 cfs 0.023 af

**Subcatchment 7S: FDA-2A TO RAIN** Runoff Area=1,413 sf 100.00% Impervious Runoff Depth=8.94"  
Tc=6.0 min CN=98 Runoff=0.29 cfs 0.024 af

**Subcatchment 9S: FDA-3 TO DESIGN LINE 1** Runoff Area=42,907 sf 2.52% Impervious Runoff Depth=3.12"  
Flow Length=257' Tc=8.1 min CN=51 Runoff=3.20 cfs 0.256 af

**Pond 10P: RAIN GARDEN #1** Peak Elev=77.46' Storage=183 cf Inflow=0.19 cfs 0.016 af  
Discarded=0.03 cfs 0.016 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.016 af

**Pond 11P: SWMP DETENTION FACILITY 36"** Peak Elev=73.59' Storage=2,363 cf Inflow=2.13 cfs 0.156 af  
Outflow=1.07 cfs 0.156 af

**Pond 12P: RAIN GARDEN #2** Peak Elev=57.06' Storage=265 cf Inflow=0.28 cfs 0.023 af  
Discarded=0.04 cfs 0.022 af Primary=0.05 cfs 0.001 af Outflow=0.09 cfs 0.023 af

**Pond 13P: RAIN GARDEN #3** Peak Elev=57.08' Storage=262 cf Inflow=0.29 cfs 0.024 af  
Discarded=0.04 cfs 0.022 af Primary=0.07 cfs 0.002 af Outflow=0.11 cfs 0.024 af

**Link 1L: EXIST CONDITION DESIGN LINE** Inflow=5.29 cfs 0.390 af  
Primary=5.29 cfs 0.390 af

**Link 2L: FUTURE CONDITION DESIGN LINE** Inflow=4.00 cfs 0.416 af  
Primary=4.00 cfs 0.416 af

**Total Runoff Area = 2.676 ac Runoff Volume = 0.865 af Average Runoff Depth = 3.88"**  
**87.01% Pervious = 2.328 ac 12.99% Impervious = 0.348 ac**

**Summary for Subcatchment 1S: XDA-1 TO DESIGN LINE 1**

Runoff = 5.29 cfs @ 12.10 hrs, Volume= 0.390 af, Depth= 3.49"  
 Routed to Link 1L : EXIST CONDITION DESIGN LINE

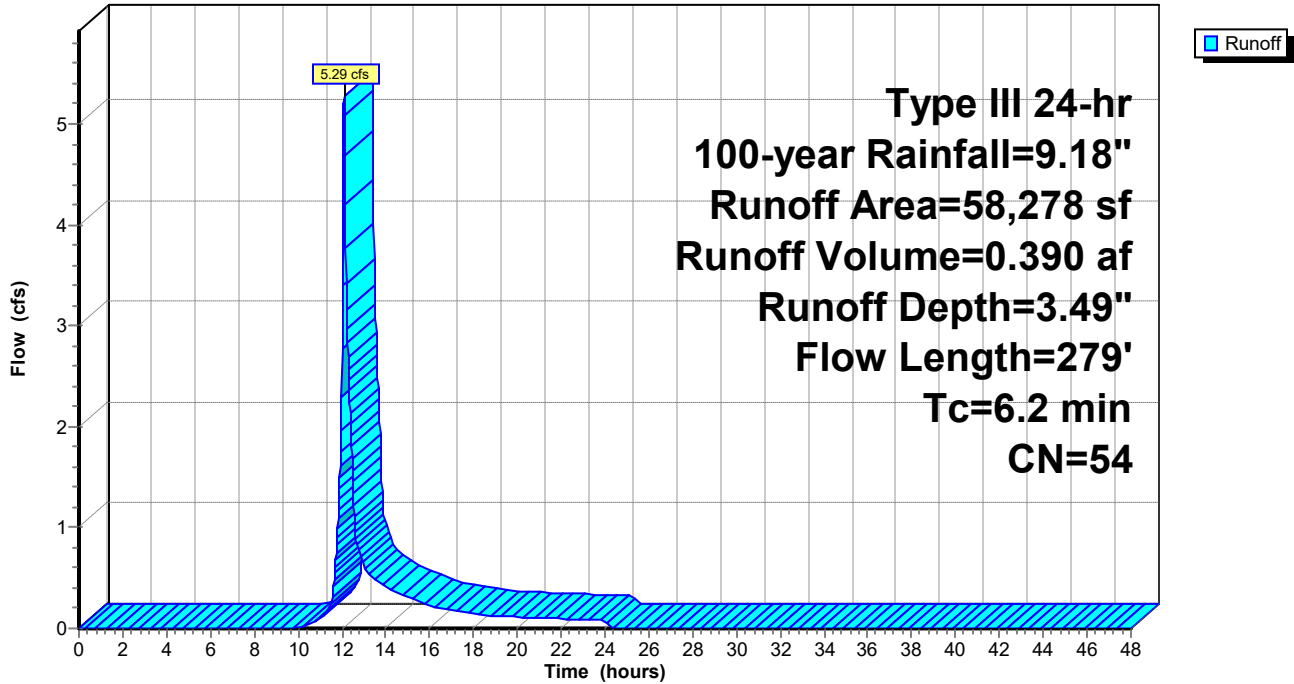
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Type III 24-hr 100-year Rainfall=9.18"

Area (sf)	CN	Description
3,850	98	Paved parking, HSG B
16,730	36	Woods, Fair, HSG A
1,967	39	>75% Grass cover, Good, HSG A
17,965	55	Woods, Good, HSG B
17,766	61	>75% Grass cover, Good, HSG B
58,278	54	Weighted Average
54,428		93.39% Pervious Area
3,850		6.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	35	0.2429	0.18		<b>Sheet Flow, A-B</b>
					Woods: Light underbrush n= 0.400 P2= 3.41"
0.4	45	0.1555	1.97		<b>Shallow Concentrated Flow, B-C</b>
					Woodland Kv= 5.0 fps
0.8	65	0.0651	1.28		<b>Shallow Concentrated Flow, C-D</b>
					Woodland Kv= 5.0 fps
0.9	79	0.0886	1.49		<b>Shallow Concentrated Flow, D-E</b>
					Woodland Kv= 5.0 fps
0.8	55	0.0545	1.17		<b>Shallow Concentrated Flow, E-F</b>
					Woodland Kv= 5.0 fps
6.2	279	Total			

Subcatchment 1S: XDA-1 TO DESIGN LINE 1

Hydrograph



**Summary for Subcatchment 3S: FDA-1 TO SWMP-2A**

Runoff = 2.13 cfs @ 12.09 hrs, Volume= 0.156 af, Depth= 6.99"

Routed to Pond 11P : SWMP DETENTION FACILITY 36" PIPE

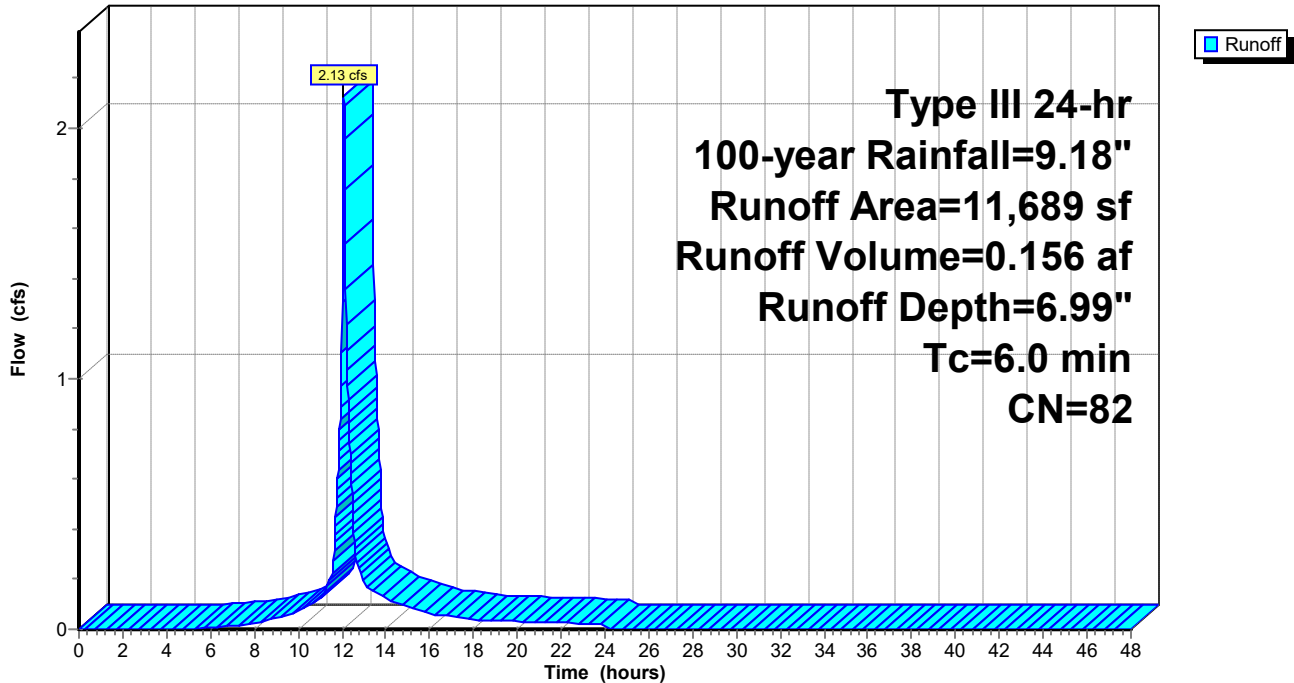
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Type III 24-hr 100-year Rainfall=9.18"

Area (sf)	CN	Description
6,526	98	Paved parking, HSG B
5,163	61	>75% Grass cover, Good, HSG B
11,689	82	Weighted Average
5,163		44.17% Pervious Area
6,526		55.83% Impervious Area

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

**Subcatchment 3S: FDA-1 TO SWMP-2A**

Hydrograph





**Summary for Subcatchment 4S: FDA-2C TO RAIN GARDEN #1**

Runoff = 0.19 cfs @ 12.08 hrs, Volume= 0.016 af, Depth= 8.94"  
 Routed to Pond 10P : RAIN GARDEN #1

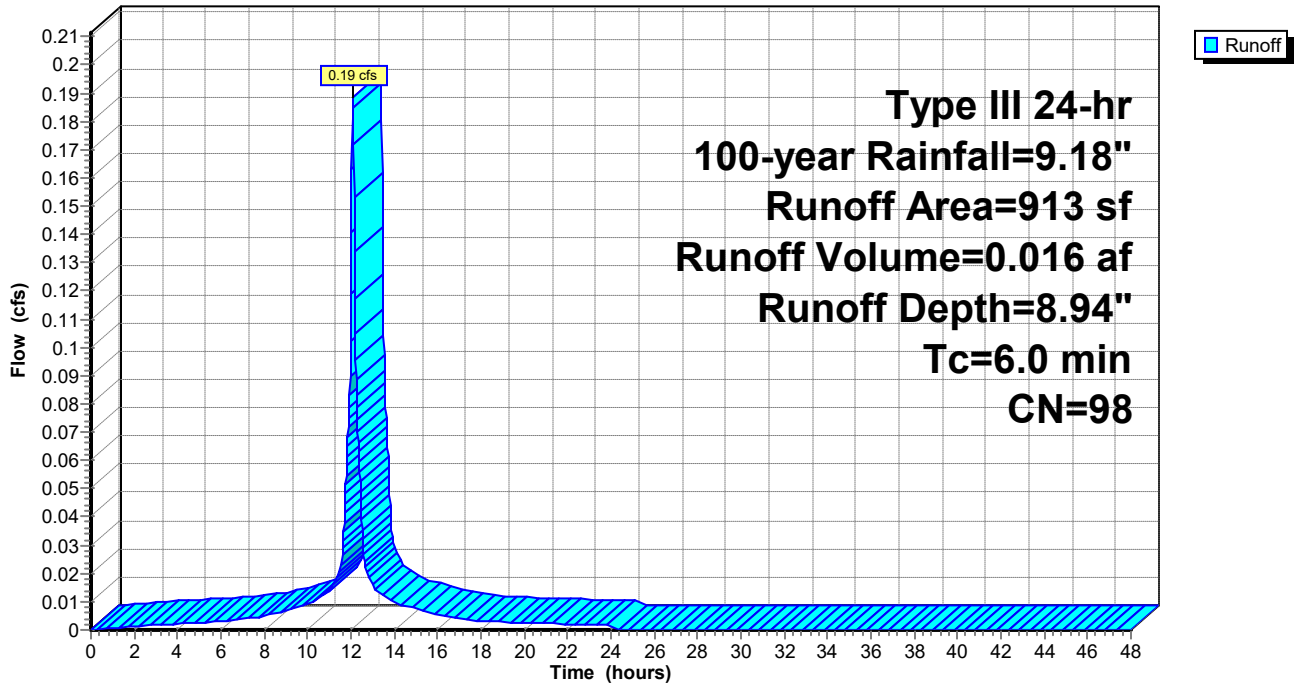
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Type III 24-hr 100-year Rainfall=9.18"

Area (sf)	CN	Description
913	98	Roofs, HSG A
913		100.00% Impervious Area

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

**Subcatchment 4S: FDA-2C TO RAIN GARDEN #1**

Hydrograph



**Summary for Subcatchment 5S: FDA-2B (POOL) TO RAIN GARDEN #2**

Runoff = 0.28 cfs @ 12.08 hrs, Volume= 0.023 af, Depth= 8.94"  
 Routed to Pond 12P : RAIN GARDEN #2

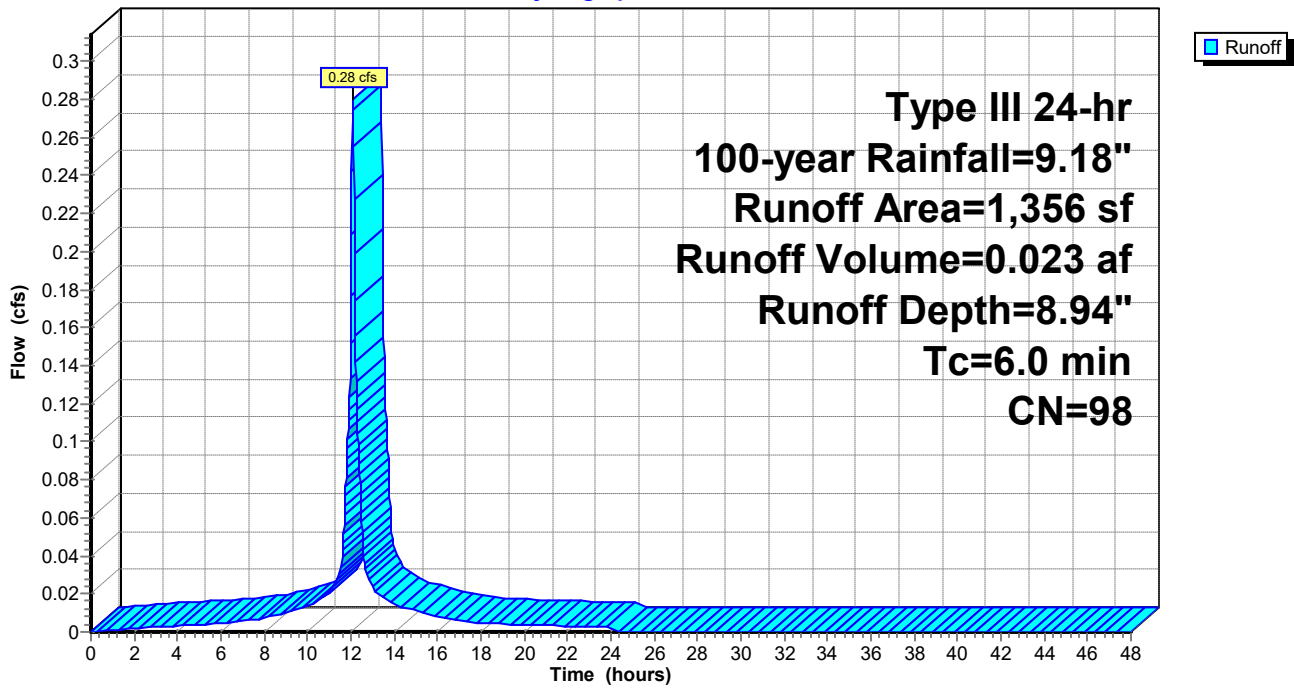
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Type III 24-hr 100-year Rainfall=9.18"

Area (sf)	CN	Description
1,356	98	Roofs, HSG B
1,356		100.00% Impervious Area

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

**Subcatchment 5S: FDA-2B (POOL) TO RAIN GARDEN #2**

Hydrograph



**Summary for Subcatchment 7S: FDA-2A TO RAIN GARDEN #3**

Runoff = 0.29 cfs @ 12.08 hrs, Volume= 0.024 af, Depth= 8.94"  
 Routed to Pond 13P : RAIN GARDEN #3

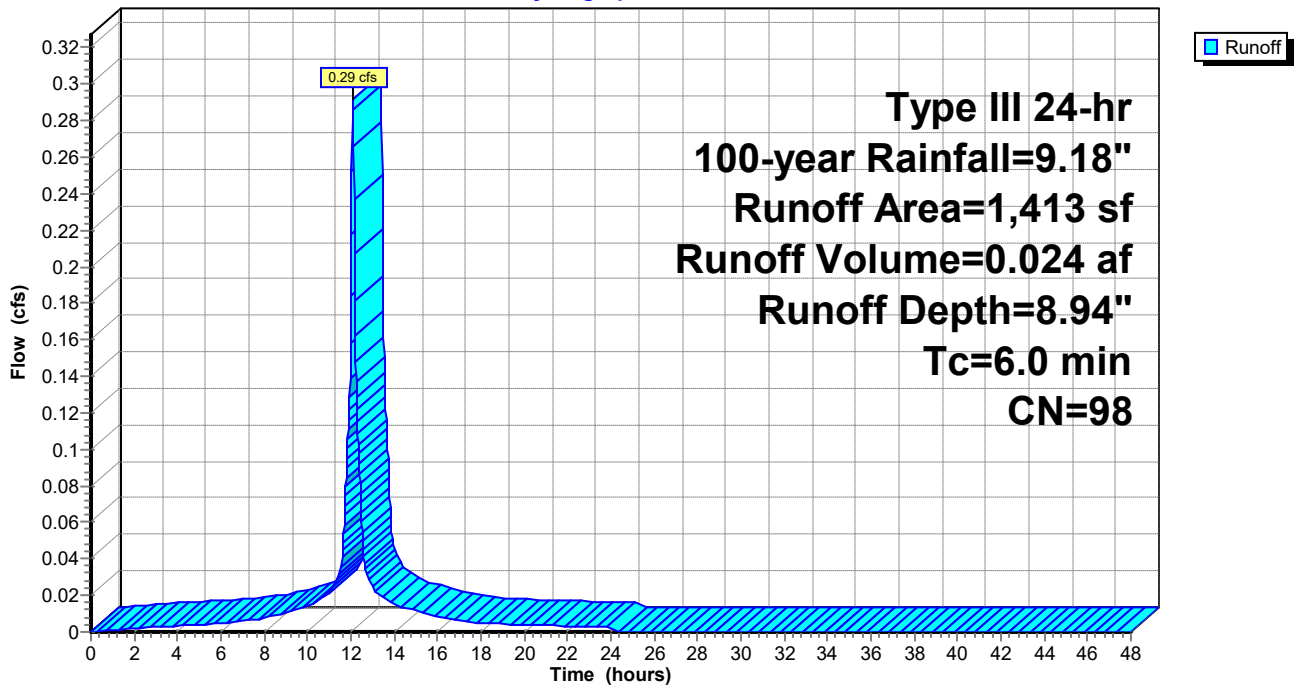
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Type III 24-hr 100-year Rainfall=9.18"

Area (sf)	CN	Description
1,413	98	Roofs, HSG B
1,413		100.00% Impervious Area

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

**Subcatchment 7S: FDA-2A TO RAIN GARDEN #3**

Hydrograph



**Summary for Subcatchment 9S: FDA-3 TO DESIGN LINE 1**

Runoff = 3.20 cfs @ 12.12 hrs, Volume= 0.256 af, Depth= 3.12"

Routed to Link 2L : FUTURE CONDITION DESIGN LINE

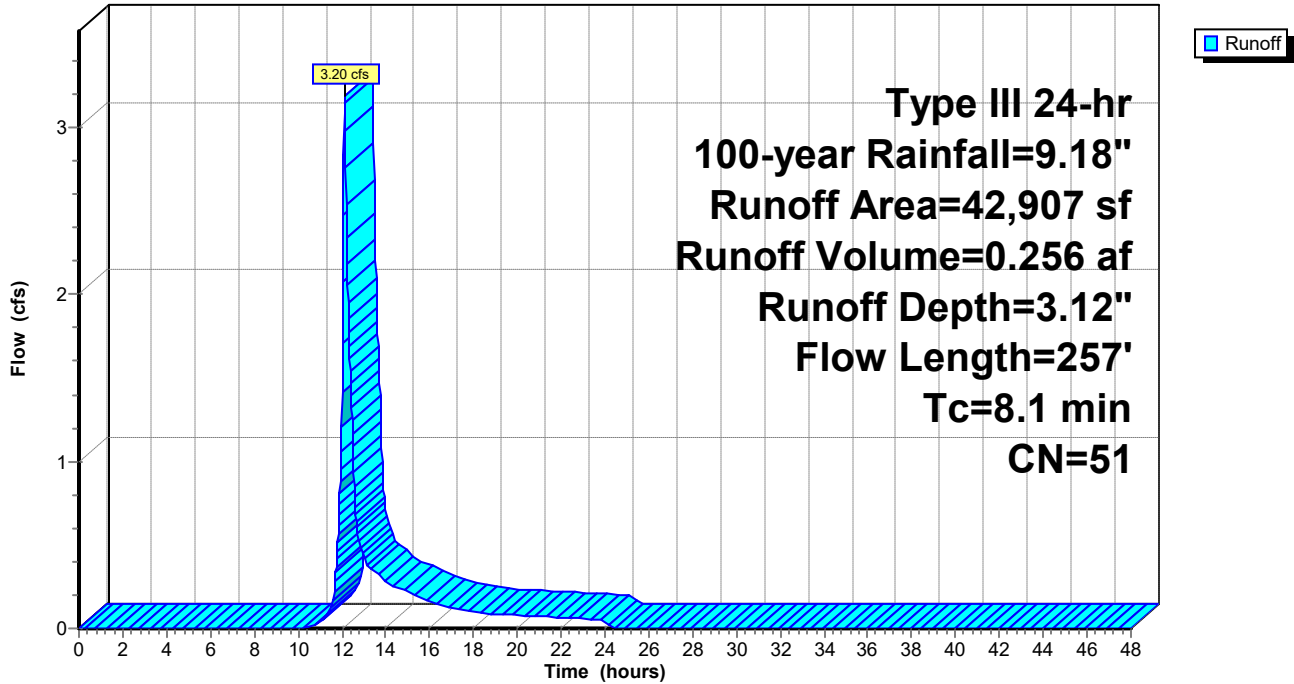
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Type III 24-hr 100-year Rainfall=9.18"

Area (sf)	CN	Description
* 1,083	98	Impervious patio surface, HSG B
7,943	39	>75% Grass cover, Good, HSG A
8,933	30	Woods, Good, HSG A
22,533	61	>75% Grass cover, Good, HSG B
2,415	55	Woods, Good, HSG B
42,907	51	Weighted Average
41,824		97.48% Pervious Area
1,083		2.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	38	0.0395	0.09		<b>Sheet Flow, A-B</b> Woods: Light underbrush n= 0.400 P2= 3.41"
0.3	75	0.0573	3.59		<b>Shallow Concentrated Flow, B-C</b> Grassed Waterway Kv= 15.0 fps
0.2	61	0.1508	5.82		<b>Shallow Concentrated Flow, C-D</b> Grassed Waterway Kv= 15.0 fps
0.3	83	0.0843	4.36		<b>Shallow Concentrated Flow, D-E</b> Grassed Waterway Kv= 15.0 fps
8.1	257	Total			

Subcatchment 9S: FDA-3 TO DESIGN LINE 1

Hydrograph



**Summary for Pond 10P: RAIN GARDEN #1**

Inflow Area = 0.021 ac, 100.00% Impervious, Inflow Depth = 8.94" for 100-year event  
 Inflow = 0.19 cfs @ 12.08 hrs, Volume= 0.016 af  
 Outflow = 0.03 cfs @ 12.54 hrs, Volume= 0.016 af, Atten= 83%, Lag= 27.2 min  
 Discarded = 0.03 cfs @ 12.54 hrs, Volume= 0.016 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Pond 11P : SWMP DETENTION FACILITY 36" PIPE

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Peak Elev= 77.46' @ 12.54 hrs Surf.Area= 472 sf Storage= 183 cf

Plug-Flow detention time= 34.0 min calculated for 0.016 af (100% of inflow)  
 Center-of-Mass det. time= 34.0 min ( 773.6 - 739.6 )

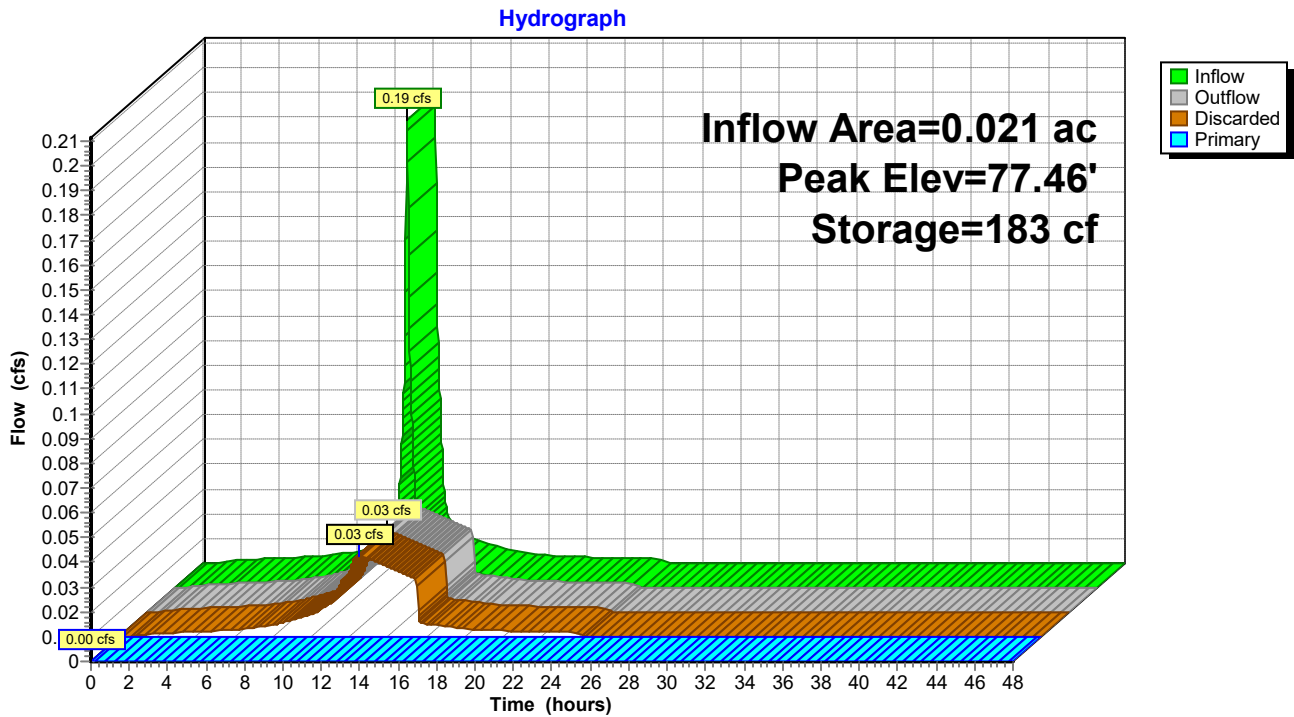
Volume	Invert	Avail.Storage	Storage Description
#1	77.00'	331 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
77.00	325	0	0
77.25	400	91	91
77.50	485	111	201
77.75	550	129	331

Device	Routing	Invert	Outlet Devices
#1	Discarded	77.00'	<b>3.000 in/hr Exfiltration over Horizontal area</b>
#2	Primary	77.50'	<b>4.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

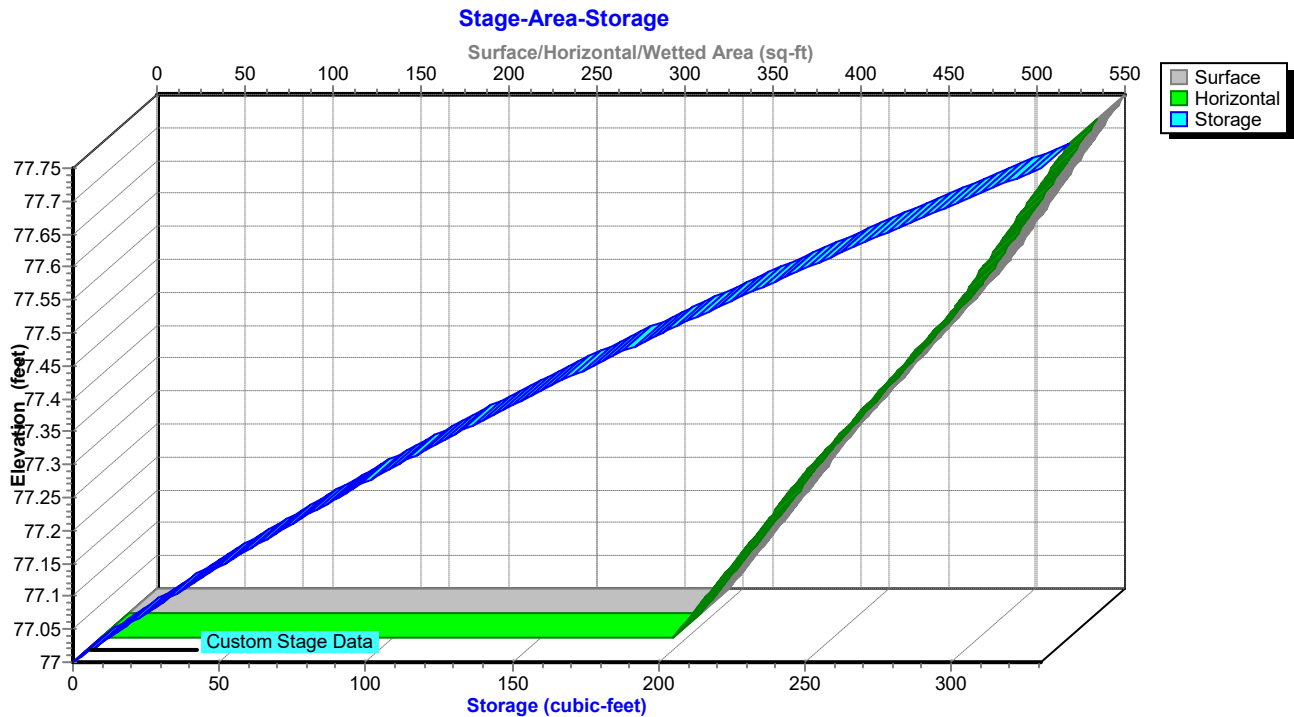
**Discarded OutFlow** Max=0.03 cfs @ 12.54 hrs HW=77.46' (Free Discharge)  
 ↑1=**Exfiltration** (Exfiltration Controls 0.03 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=77.00' (Free Discharge)  
 ↑2=**Orifice/Grate** ( Controls 0.00 cfs)

### Pond 10P: RAIN GARDEN #1



### Pond 10P: RAIN GARDEN #1



**Summary for Pond 11P: SWMP DETENTION FACILITY 36" PIPE**

Inflow Area = 0.289 ac, 59.03% Impervious, Inflow Depth = 6.48" for 100-year event  
 Inflow = 2.13 cfs @ 12.09 hrs, Volume= 0.156 af  
 Outflow = 1.07 cfs @ 12.23 hrs, Volume= 0.156 af, Atten= 50%, Lag= 8.7 min  
 Primary = 1.07 cfs @ 12.23 hrs, Volume= 0.156 af  
 Routed to Link 2L : FUTURE CONDITION DESIGN LINE

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Peak Elev= 73.59' @ 12.23 hrs Surf.Area= 589 sf Storage= 2,363 cf

Plug-Flow detention time= 224.8 min calculated for 0.156 af (100% of inflow)  
 Center-of-Mass det. time= 224.8 min ( 1,018.0 - 793.2 )

Volume	Invert	Avail.Storage	Storage Description
#1	70.85'	2,467 cf	<b>36.0" Round Pipe Storage 36" Diam.</b> L= 349.0'

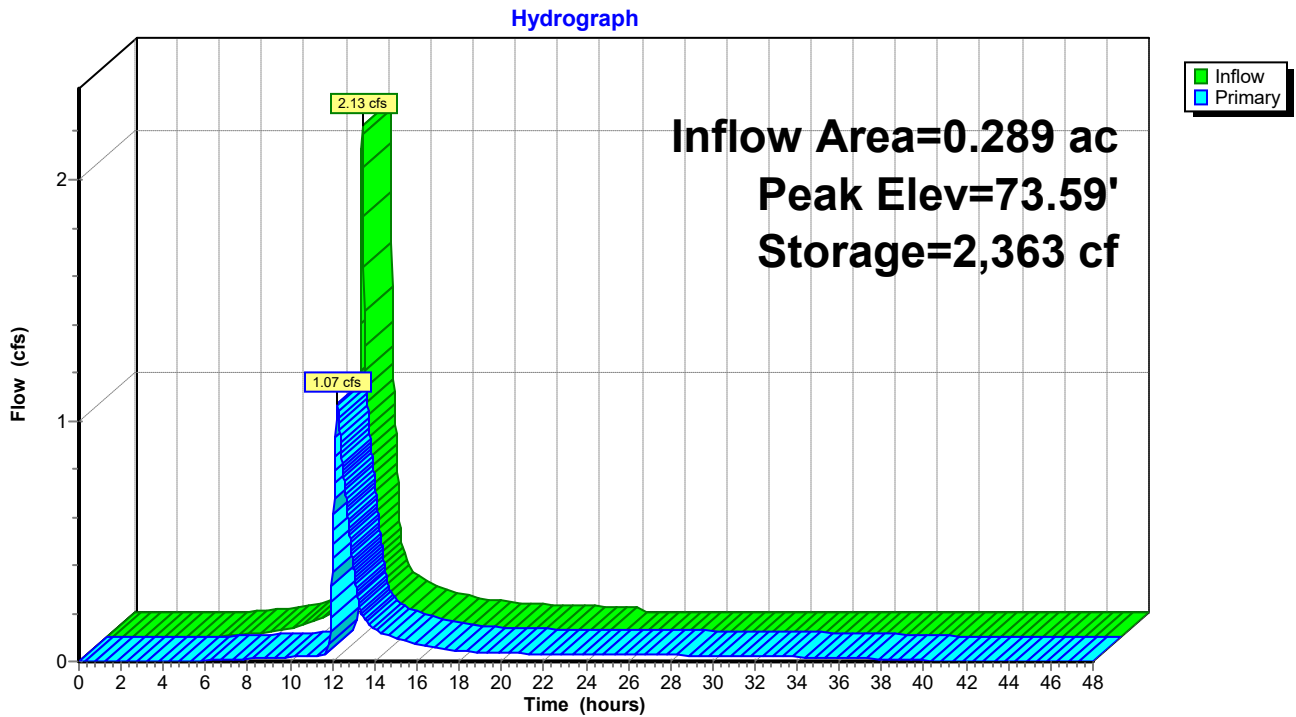
Device	Routing	Invert	Outlet Devices
#1	Primary	70.85'	<b>1.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#2	Primary	72.35'	<b>4.0" Vert. Orifice/Grate X 2.00</b> C= 0.600 Limited to weir flow at low heads
#3	Primary	73.35'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=1.07 cfs @ 12.23 hrs HW=73.59' (Free Discharge)

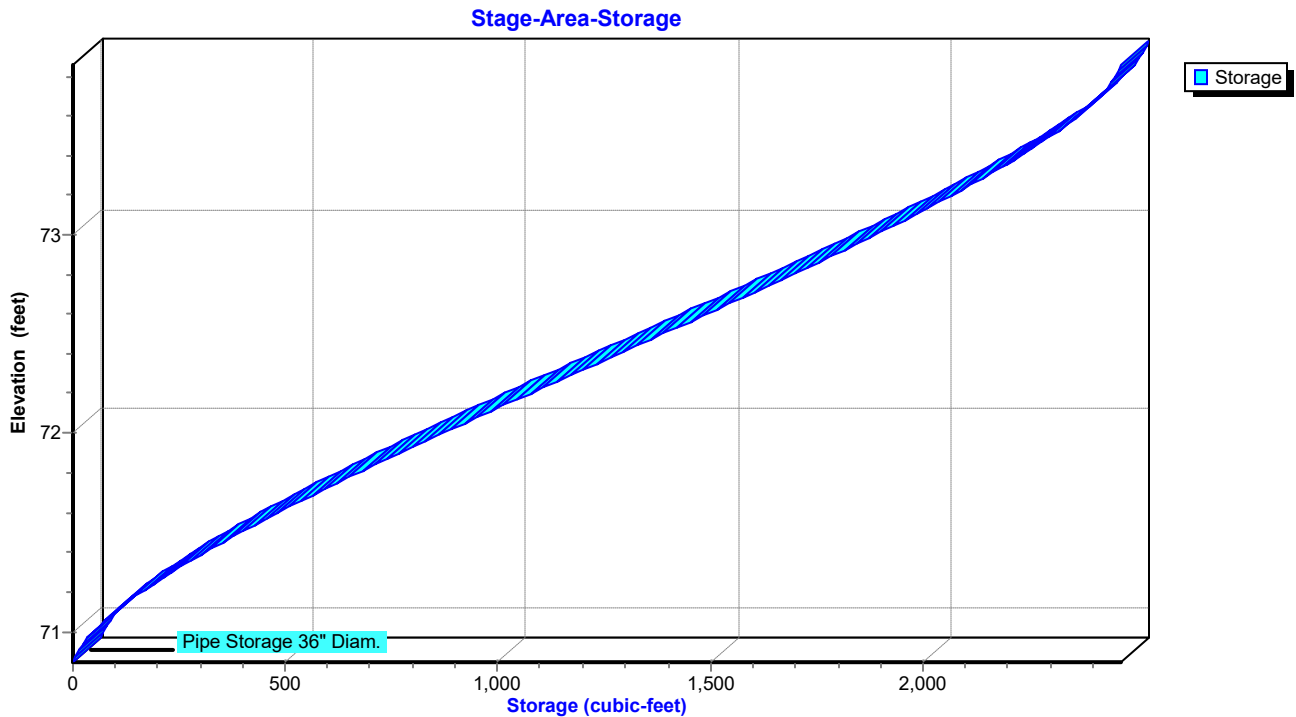
- 1=Orifice/Grate (Orifice Controls 0.04 cfs @ 7.91 fps)
- 2=Orifice/Grate (Orifice Controls 0.87 cfs @ 4.99 fps)
- 3=Orifice/Grate (Orifice Controls 0.15 cfs @ 1.67 fps)



### Pond 11P: SWMP DETENTION FACILITY 36" PIPE



### Pond 11P: SWMP DETENTION FACILITY 36" PIPE



**Summary for Pond 12P: RAIN GARDEN #2**

Inflow Area = 0.031 ac, 100.00% Impervious, Inflow Depth = 8.94" for 100-year event  
 Inflow = 0.28 cfs @ 12.08 hrs, Volume= 0.023 af  
 Outflow = 0.09 cfs @ 12.39 hrs, Volume= 0.023 af, Atten= 69%, Lag= 18.3 min  
 Discarded = 0.04 cfs @ 12.39 hrs, Volume= 0.022 af  
 Primary = 0.05 cfs @ 12.39 hrs, Volume= 0.001 af  
 Routed to Link 2L : FUTURE CONDITION DESIGN LINE

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Peak Elev= 57.06' @ 12.39 hrs Surf.Area= 560 sf Storage= 265 cf

Plug-Flow detention time= 38.3 min calculated for 0.023 af (100% of inflow)  
 Center-of-Mass det. time= 38.3 min ( 777.9 - 739.6 )

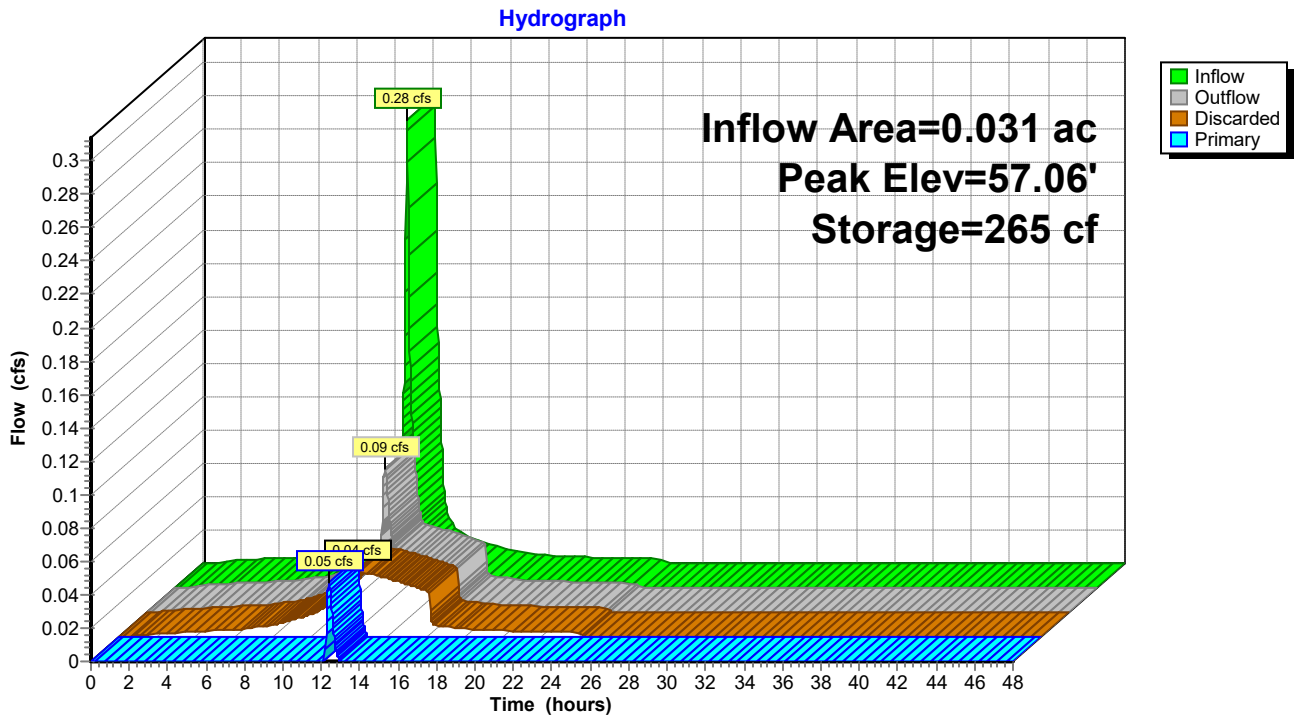
Volume	Invert	Avail.Storage	Storage Description
#1	56.50'	531 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
56.50	386	0	0
56.75	464	106	106
57.00	550	127	233
57.50	641	298	531

Device	Routing	Invert	Outlet Devices
#1	Primary	57.00'	<b>4.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#2	Primary	57.35'	<b>6.0' long (Profile 6) Broad-Crested Rectangular Weir</b> Head (feet) 0.49 0.98 1.48 Coef. (English) 3.12 3.41 3.59
#3	Discarded	56.50'	<b>3.000 in/hr Exfiltration over Horizontal area</b>

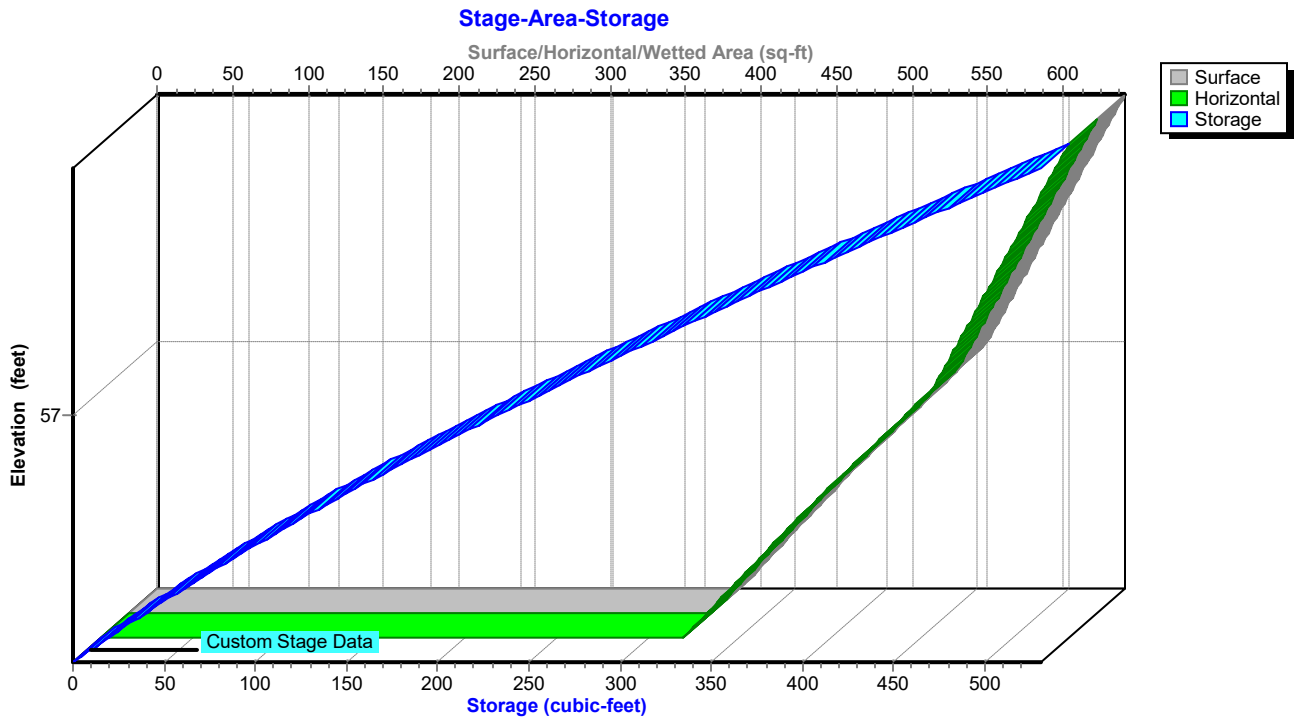
**Discarded OutFlow** Max=0.04 cfs @ 12.39 hrs HW=57.06' (Free Discharge)  
 ↑**3=Exfiltration** (Exfiltration Controls 0.04 cfs)

**Primary OutFlow** Max=0.05 cfs @ 12.39 hrs HW=57.06' (Free Discharge)  
 ↑**1=Orifice/Grate** (Weir Controls 0.05 cfs @ 0.78 fps)  
 ↓**2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

### Pond 12P: RAIN GARDEN #2



### Pond 12P: RAIN GARDEN #2



**Summary for Pond 13P: RAIN GARDEN #3**

Inflow Area = 0.032 ac, 100.00% Impervious, Inflow Depth = 8.94" for 100-year event  
 Inflow = 0.29 cfs @ 12.08 hrs, Volume= 0.024 af  
 Outflow = 0.11 cfs @ 12.31 hrs, Volume= 0.024 af, Atten= 62%, Lag= 13.6 min  
 Discarded = 0.04 cfs @ 12.31 hrs, Volume= 0.022 af  
 Primary = 0.07 cfs @ 12.31 hrs, Volume= 0.002 af

Routed to Link 2L : FUTURE CONDITION DESIGN LINE

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs  
 Peak Elev= 57.08' @ 12.31 hrs Surf.Area= 533 sf Storage= 262 cf

Plug-Flow detention time= 38.1 min calculated for 0.024 af (100% of inflow)  
 Center-of-Mass det. time= 38.1 min ( 777.7 - 739.6 )

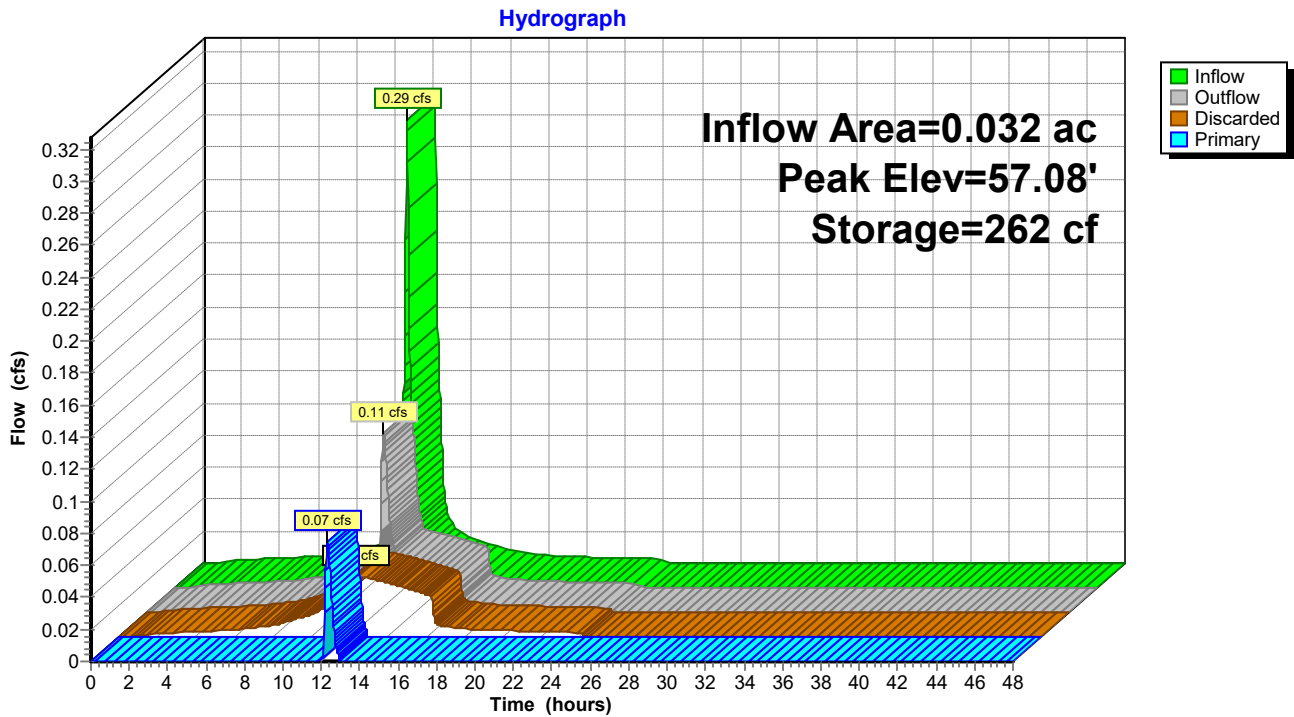
Volume	Invert	Avail.Storage	Storage Description
#1	56.50'	1,084 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
56.50	360	0	0
56.75	440	100	100
57.00	528	121	221
58.50	622	863	1,084

Device	Routing	Invert	Outlet Devices
#1	Primary	57.00'	<b>4.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#2	Primary	57.35'	<b>6.0' long (Profile 6) Broad-Crested Rectangular Weir</b> Head (feet) 0.49 0.98 1.48 Coef. (English) 3.12 3.41 3.59
#3	Discarded	56.50'	<b>3.000 in/hr Exfiltration over Horizontal area</b>

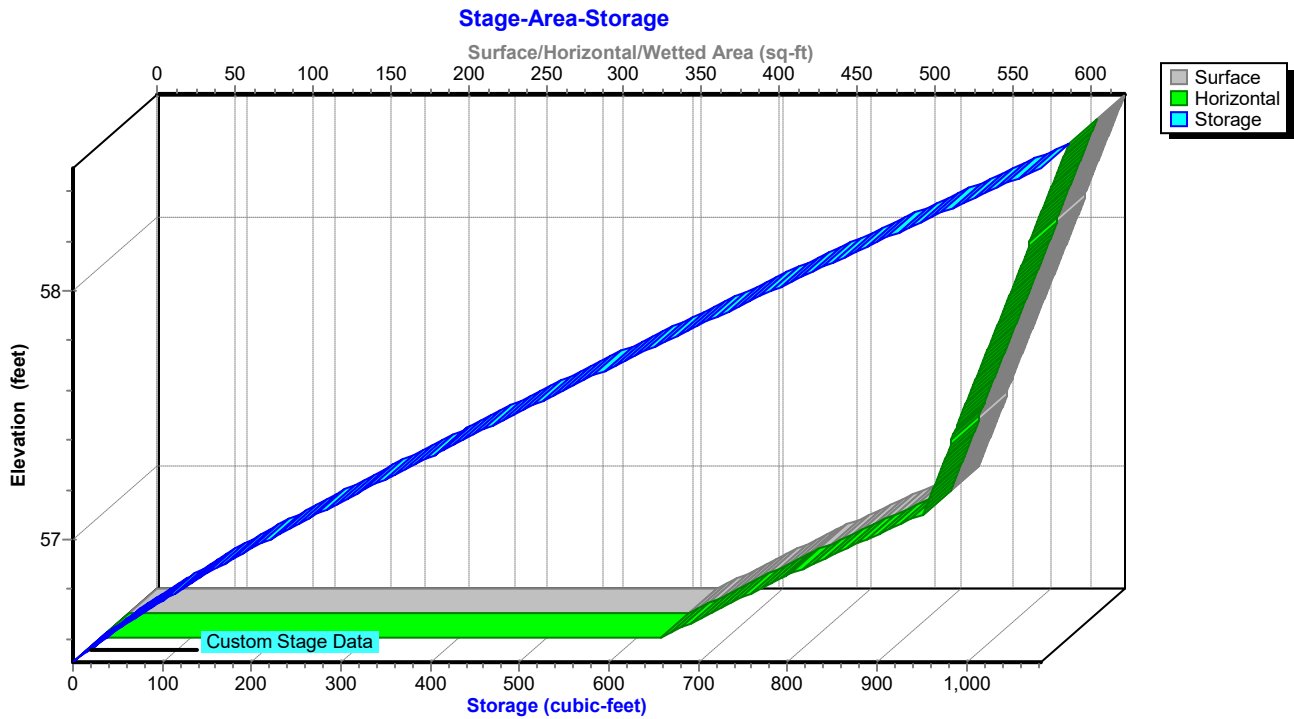
**Discarded OutFlow** Max=0.04 cfs @ 12.31 hrs HW=57.08' (Free Discharge)  
 ↑ **3=Exfiltration** (Exfiltration Controls 0.04 cfs)

**Primary OutFlow** Max=0.07 cfs @ 12.31 hrs HW=57.08' (Free Discharge)  
 ↑ **1=Orifice/Grate** (Weir Controls 0.07 cfs @ 0.91 fps)  
 ↓ **2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

### Pond 13P: RAIN GARDEN #3



### Pond 13P: RAIN GARDEN #3



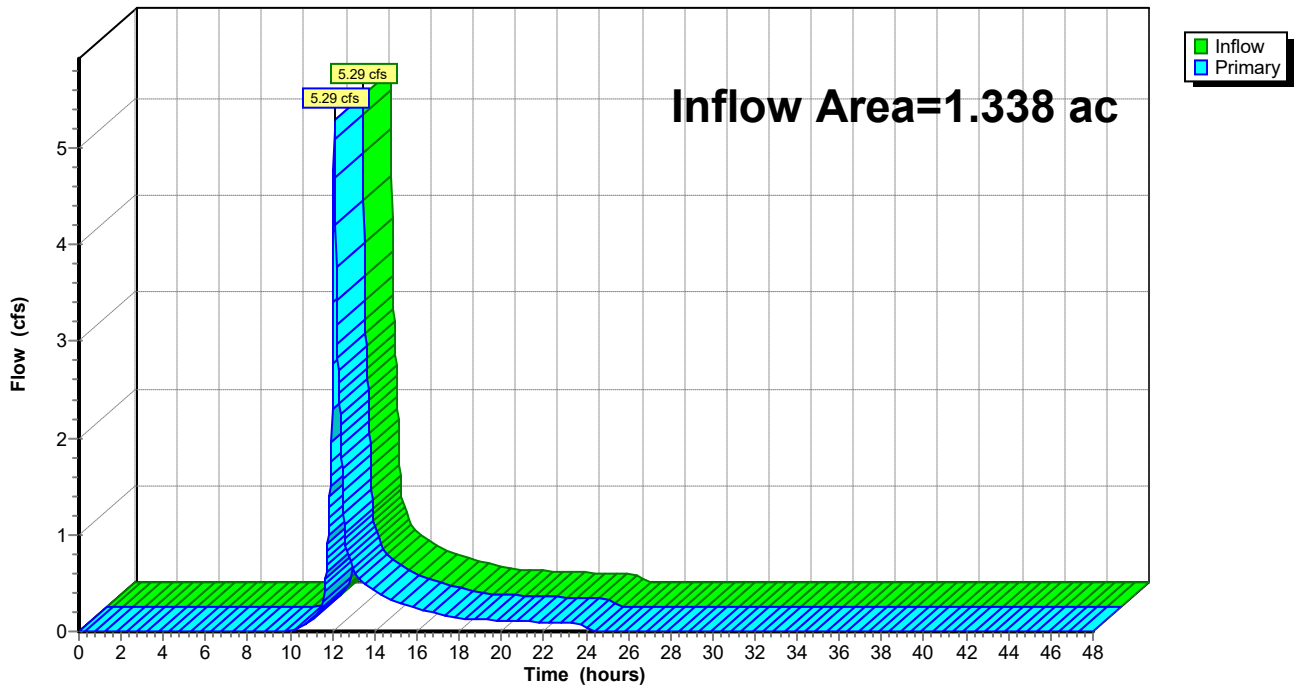
### Summary for Link 1L: EXIST CONDITION DESIGN LINE

Inflow Area = 1.338 ac, 6.61% Impervious, Inflow Depth = 3.49" for 100-year event  
Inflow = 5.29 cfs @ 12.10 hrs, Volume= 0.390 af  
Primary = 5.29 cfs @ 12.10 hrs, Volume= 0.390 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs

### Link 1L: EXIST CONDITION DESIGN LINE

Hydrograph



### Summary for Link 2L: FUTURE CONDITION DESIGN LINE

Inflow Area = 1.338 ac, 19.37% Impervious, Inflow Depth = 3.73" for 100-year event  
Inflow = 4.00 cfs @ 12.13 hrs, Volume= 0.416 af  
Primary = 4.00 cfs @ 12.13 hrs, Volume= 0.416 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs

### Link 2L: FUTURE CONDITION DESIGN LINE

Hydrograph

