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AUGUST 16, 2016 MEETING

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TOWN OF LEWISBORO
Westchester County, New York

Planning Board
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AGENDA

Tuesday, August 16, 2016 **Cross River Plaza, Cross River**

Note: Meeting will start at 7:30 p.m. and end at or before 11:30 P.M.

I. PUBLIC HEARING

Cal #11-15PB, Cal#04-16 SW, Cal#09-16 WP
Elegant Banquets, 1410 Route 35, South Salem, NY 10590, Sheet 39, Block 10549, Lot 17 (South Salem Owners, LLC, owner of record) – Application for Site Plan Review, Wetland Activity Permit and Stormwater Permit in connection with an addition to the existing building and modification to the existing site.

II. PROJECT REVIEW

Cal #6-01PB
T Mobile at Leon Levy Preserve, Sheet 40, Block 10263, Lot 62A (American Tower, owner of record) - Proposed antenna upgrade

III. WETLAND VIOLATIONS

Cal# 5-14WV, Cal# 6-16WP
Caban Residence, 31 South Shore Road, South Salem, NY 10590, Sheet 33D, Block CAMP, Lot 13, (Ryan and Patricia Caban, owners of record)

Cal #1-15WV
Woodstead Residence, 18 Birch Spring Road, South Salem, NY 10590, Sheet 42A, Block 10545, Lot 22 (Steven and Kim Woodstead, owners of record)

Cal#2-16WV

IV. EXTENSION OF TIME REQUEST

Cal# 8-02PB
Popoli Subdivision, 1437 Route 35, South Salem, NY 10590 Sheet 0040, Block 10552, Lot 003 (Pasquale Popoli & Angelo Sicuranza, owners of record) - Request for extension of time to meet requirements of the Approving Resolution dated September 28, 2010.

V. SKETCH PLAN REVIEW

Cal #10-15 PB
Wilder Balter Partners, NY State Route 22, Goldens Bridge, NY 10526, Sheet 5, Block 10776, Lots 19, 20 & 21 (Property Group Partners, LLC, owner of record) – Application for a 46 unit MF development on a ±35.4 acre parcel.

VI. MINUTES OF March 15, 2016; MINUTES OF April 19, 2016; MINUTES OF May 4, 2016; MINUTES OF May 17, 2016; MINUTES OF June 21, 2016 and MINUTES OF July 19, 2016.

KELLARD SESSIONS
CONSULTING, P.C.

John Kellard, P.E.
David Sessions, RLA, AICP

MEMORANDUM

TO: Chairman Jerome Kerner, AIA and
Members of Lewisboro Planning Board

CC: Ciorsdan Conran
Judson Siebert, Esq.

FROM: Jan K. Johannessen, AICP
Joseph M. Cermele, P.E., CFM
David J. Sessions, RLA, AICP
Town Consulting Professionals

DATE: August 10, 2016

RE: Le Chateau Banquet Hall Addition (Elegant Banquets)
1410 NYS Route 35
Sheet 39, Block 10549, Lot 17

Project Description

The subject property consists of ±24.2 acres of land and is located on NYS Route 35 within the R-4A Zoning District. The site contains a former restaurant and banquet hall use known as "Le Chateau" which is now out of business. The applicant is proposing a banquet hall addition, along with additional parking, landscape improvements, lighting, stormwater management facilities, etc. It is our understanding that the former restaurant/banquet hall is being considered an existing legal nonconforming use.

SEQRA

The proposed action is an Unlisted Action under the State Environmental Quality Review Act (SEQRA) and a coordinated review is not required. Prior to making a decision on this pending application, the Planning Board must issue a Determination of Significance.

Required Approvals/Referrals

1. Site Development Plan Approval, a Wetland Permit and a Town Stormwater Permit is required from the Planning Board; a public hearing is required to be held on the Wetland Permit.

2. The applicant is proposing the expansion of an existing nonconforming use and a variance from the Zoning Board of Appeals has been obtained.

3. The application has been referred to and approved by the Architecture and Community Appearance Review Council (ACARC).

4. The proposed addition and use expansion must be approved by the Westchester County Department of Health (WCDH).

5. The proposed action exceeds land disturbance thresholds and the applicant will require coverage under the New York State Department of Environmental Conservation (NYSDEC) SPDES General Permit for Stormwater Discharges from Construction Activity (GP-0-15-002).

6. The application has been referred to the Westchester County Planning Board in accordance with Section 239-m of the General Municipal Law.

7. A Highway Work Permit is required for physical improvements proposed within the right-of-way of New York State Route 35.

EAF Review - Complete

Plan Comments

1. This office previously requested that the applicant provide correspondence from the WCDH identifying their extent of jurisdiction and approvals required. The applicant has provided correspondence from the WCDH, dated June 24, 2016, in regards to a joint Change of Use Application made by the applicant to the WCDH and NYCDEP. As indicated by the WCDH, there are a number of comments to be addressed related to the design and use/occupancy of the banquet hall, frequency of events, adequacy of existing system components and system operations. It is our understanding that the applicant is working with the WCDH and shall continue to update the Planning Board as the WCDH review progresses.

2. The applicant shall address, in writing, the comments received from the Westchester County Planning Board.

3. As previously requested, proposed sight distance profiles (both directions) onto NYS Route 35 have been provided on the Intersection Plan, prepared by Maser Consulting, P.A. The sight profiles indicate that improvements within the right-of-way of NYS Route 35 will be necessary in both directions to provide adequate sight lines, including clearing/pruning of vegetation, removal of a portion of the existing entry wall and relocation of an existing sign. The applicant has provided a draft Reciprocal Driveway/Sight Easement and Maintenance Agreement to provide access to the adjacent property in exchange for rights to clear required vegetation for adequate sight lines. This should be reviewed by the Town Attorney.

4. As previously noted, the landscaping plan is not compliant with Sections 220-55E(3) and (5) of the Zoning Code, which specify the percentage of the parking areas to include landscape islands (10%) and the minimum number of proposed shade trees (1 shade tree per every 10 required spaces). Unless relief is granted by the Planning Board or Zoning Board of Appeals, the plan should be revised as necessary to accommodate this requirement.

5. The applicant has provided a conceptual wetland mitigation plan which includes the planting of native shrubs and herbaceous plants within a 6,300 s.f. area proximate to Wetland A. While this office finds the proposed concept to be acceptable, a more detailed planting plan shall be provided and included within the plan set.

6. The Utility & Grading Plans shall illustrate the locations of residences and improved areas on the adjacent properties; specifically, those adjacent to the west side of the entry drive.

7. Water bar locations are shown on the plan. A water bar detail shall be provided.

8. The limits of disturbance line shall be illustrated on the Utility & Grading Plan and adjusted, as necessary, to encompass all disturbances depicted on the plans.

This office held a technical review meeting with the applicant on July 22, 2016 to address Comments #22-41 presented in our memorandum dated July 13, 2016. The applicant shall continue to revise the plans and Stormwater Pollution Prevention Plan, as necessary, to satisfy these comments. We would recommend a subsequent technical meeting for further review.

In order to expedite the review of subsequent submissions, the applicant should provide annotated responses to each of the comments outlined herein.

Plans Reviewed, prepared by Wesley Stout Associates and dated (last revised) July 29, 2016:

- Overall Planting Plan (LP-1.1)
- Planting Plan Enlargement (LP-1.2)
- Planting Details Legend, Notes (LP-1.3)
- Site Details (LP-1.4)
- Landscape Lighting Plan (LP-2.0)
- Landscape Lighting Photometric Plan (LP-2.1)

Plans Reviewed, prepared by Cronin Engineering and dated (last revised) July 29, 2016:

- Cover Sheet (CS-0.1)
- Existing Conditions (EX-1.1)
- Layout, Zoning, Coverage, Demo and Parking Plan (L-2.1)
- Paving Plan (L-2.2)
- Limit of Disturbance and Tree Plan (SP-3.0)
- Utility and Grading Plan (SP-3.1)
- Road, Traffic & Pedestrian Plan (SP-3.2)
- Stormwater/Drainage Plan (SP-3.3)
- Road Profiles (RP-4.1)
- Drainage Profiles (DP-4.2 and DP-4.3)
- Erosion and Sediment Control Plan (ESC-5.1)
- Erosion and Sediment Control Details (ESC-5.2)
- Construction Details (UD-6.1, UD-6.2, UD-6-.3, UD-6.4)

Plan Reviewed, prepared by Maser Consulting, P.A. and dated (last revised) July 27, 2016:

- Access Modification Plan and Sight Distance Profiles (Sheet 1 of 1)

Documents Reviewed:

- Letter, prepared by KG & D Architects, dated July 27, 2016
- Change of Use Application, prepared by Cronin Engineering, dated July 26, 2016
- Wetland Delineation and Preliminary Vegetation and Wildlife Report, prepared by Evans Associates, dated July 27, 2016

JKJ/JMC/DJS/dc

T:\Lewisboro\Correspondence\LW2101JJ-LWPB-LeChateau-Review-Memo-8-10-16.docx

KG&D Project No.
2015-1073

DESIGN TEAM

SITE DEVELOPMENT PLAN SUBMISSION

JUNE 30, 2016

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KG+D Architects
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New Canaan, CT
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CIVIL ENGINEER
Cronin Engineering
39 Arlo Lane
Cortland Manor, NY
phone: 914.736.3664

TRAFFIC ENGINEER
Maser Consulting
Westchester Office
11 Bradhurst Avenue
Hawthorne, New York
phone: 914.347.7500

ADDITION & RENOVATION

OWNER:

ELEGANT BANQUETS AT LE CHATEAU

1410 NY-35

Town of Lewisboro, NY

LIST OF DRAWINGS

A0.1 TITLE SHEET

ARCHITECTURAL

A1.1 ARCHITECTURAL SITE PLAN
A2.1 LOWER FLOOR PLAN
A2.2 MAIN FLOOR PLAN
A2.3 ROOF PLAN
A3.1 FRONT AND REAR ELEVATIONS
A3.2 RIGHT AND LEFT ELEVATIONS
A3.3 BUILDING SECTIONS

LANDSCAPE ARCHITECTURAL

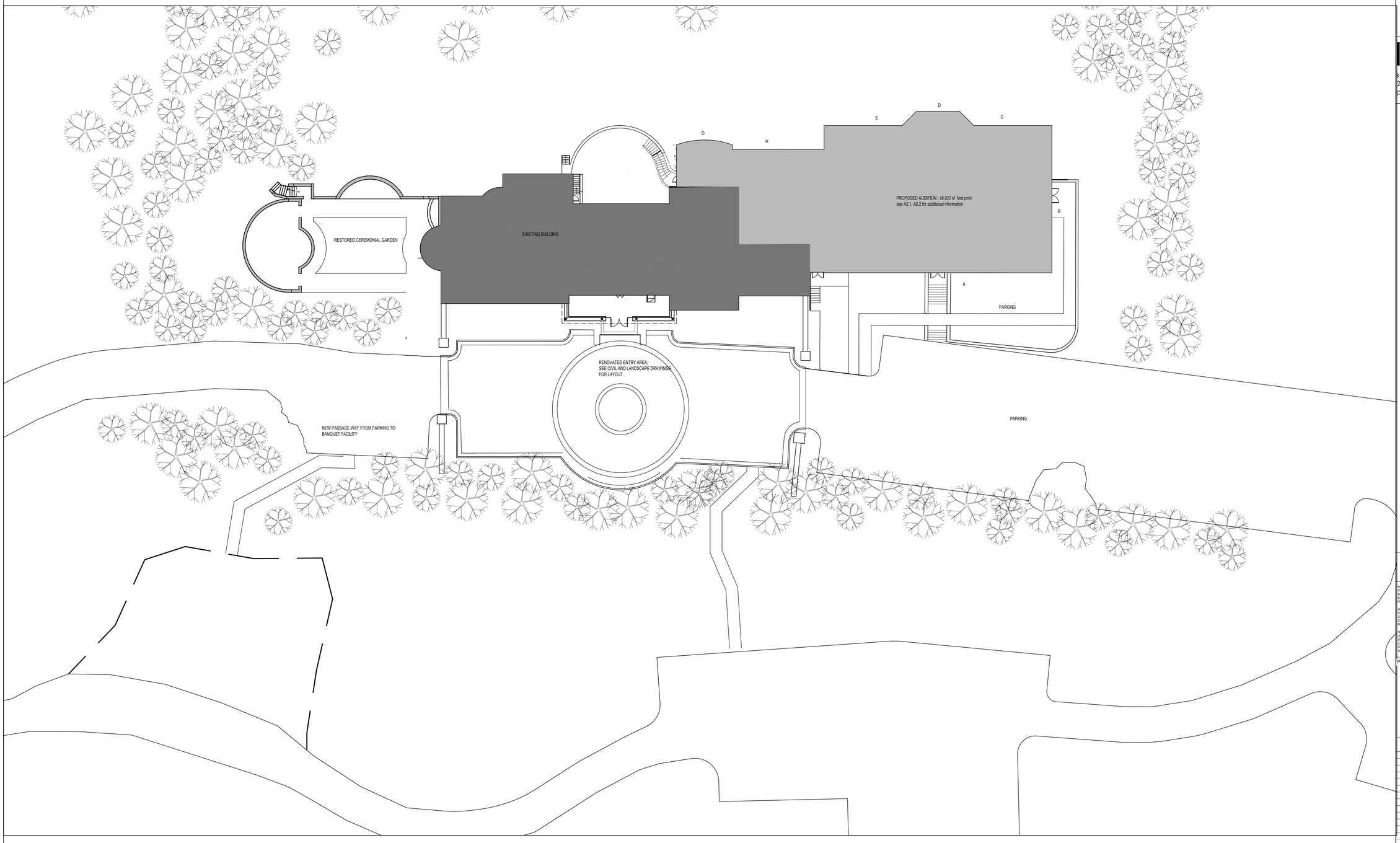
LP-1.1 OVERALL PLANTING PLAN
LP-1.2 ENLARGED PLANTING PLAN
LP-1.3 PLANTING DETAILS, LEGEND, NOTES
LP-2.0 LANDSCAPE LIGHTING PLAN
SL-1D LIGHTING PHOTOMETRIC PLAN

CIVIL ENGINEERING

CS-1.0 COVERSHEET
EX-1.1 EXISTING CONDITIONS PLAN
L-2.1 LAYOUT, ZONING, COVERAGE, AND DEMOLITION PLAN
SP-3.0 LIMIT OF DISTURBANCE AND TREE PLAN
SP-3.1 UTILITY AND GRADING PLAN
SP-3.2 ROAD TRAFFIC & PEDESTRIAN PLAN
SP-3.3 STORMWATER/DRAINAGE PLAN
RP-4.1 ROAD PROFILES
ESC-5.1 EROSION AND SEDIMENT CONTROL PLAN
ESC-5.2 EROSION AND SEDIMENT CONTROL DETAILS
UD-6.1 CONSTRUCTION DETAILS
UD-6.2 CONSTRUCTION DETAILS
UD-6.3 CONSTRUCTION DETAILS
UD-6.4 CONSTRUCTION DETAILS

TRAFFIC ENGINEERS

R-SGHT ACCESS MODIFICATION PLAN AND SIGHT DISTANCE PROFILES



1 ARCHITECTURAL SITE PLAN
1/16"=1'-0"

wall	Average grade x length	total	
a	716.125 x 95.82	68621.5	
b	709.875 x 77.5	5501.5.3	
c	703.5 x 32.83	23088.8	
d	706 x 30	21180	
e	711.25 x 32.83	23350.3	
f	713.5x39.5	28183.25	
g	709.25 x 22.92	16256	
		2356690/331.3	711.41 Average grade

ELEGANT BANQUETS AT LE CHATEAU

ADDITION AND RENOVATION

ELEGANT BANQUETS
257 FEDERAL ROAD
BROOKFIELD, CT 06804

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PHASE

No.	Date	Issue
1	01-07-16	SKETCH PLAN SUBMISSION
2	02-25-16	SITE DEVELOPMENT PLAN SUBMISSION
3	04-28-16	SITE DEVELOPMENT PLAN RESUBMISSION
4	06-30-16	SITE DEVELOPMENT PLAN RESUBMISSION

Sheet Title

ARCHITECTURAL SITE PLAN

Job No. 2015-1073

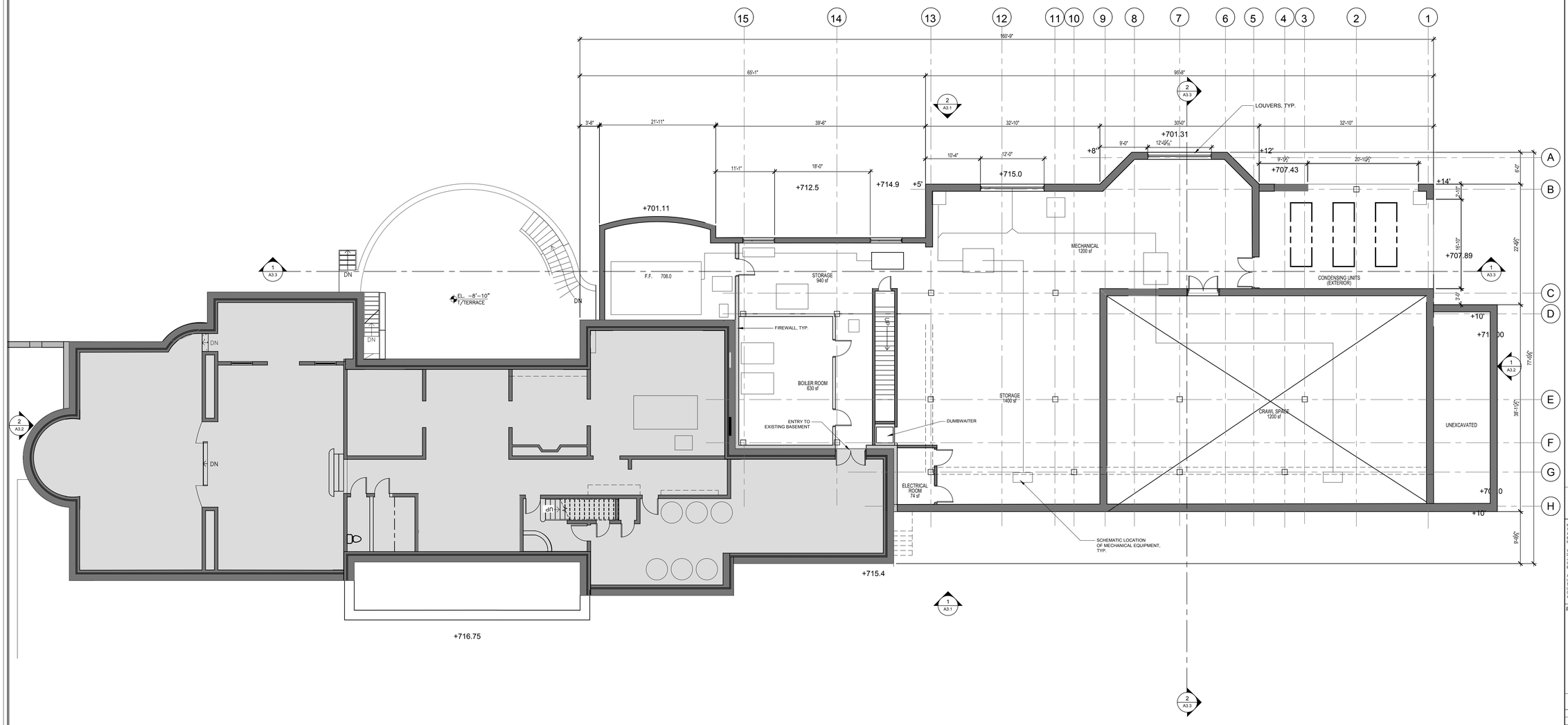
Date 01/07/2016

Scale 1/16"=1'-0"

Drawn / Checked AMW/RAD

Sheet Number

A1.1



ELEGANT BANQUETS AT LE CHATEAU

ADDITION AND RENOVATION

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Sheet Title

Lower Floor Plan

Job No. 2015-1073

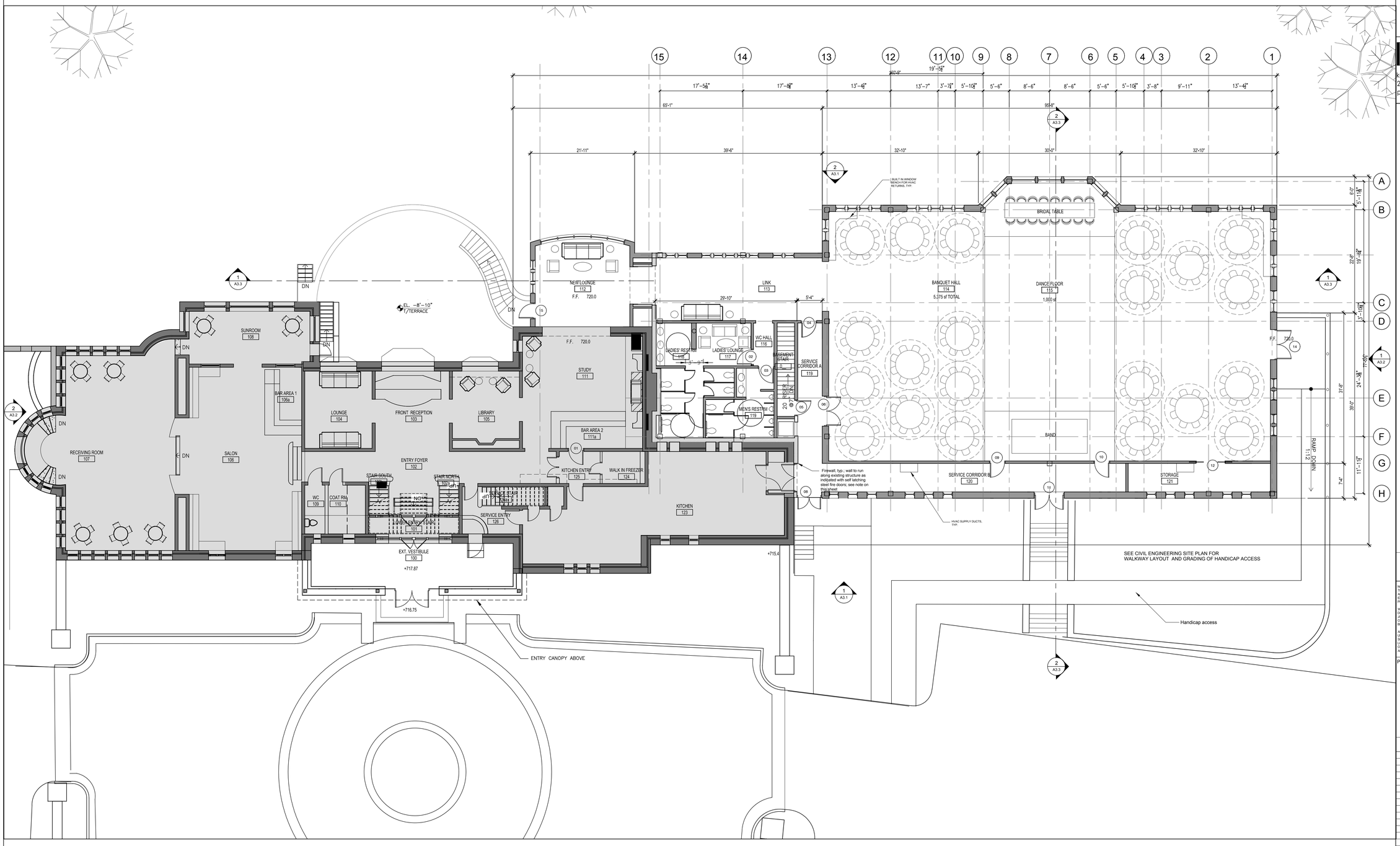
Date 01/07/2016

Scale 1/8"=1'-0"

Drawn / Checked AMW/RAD

Sheet Number

A2.1



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No.	Date	Issue

NOTE:

THE PROPOSED ADDITION WILL BE FULLY SPRINKLERED WITH FIRE WALL SEPARATING THE ADDITION AND EXISTING STRUCTURE.

Sheet Title

MAIN FLOOR PLAN

Job No. 2015-1073

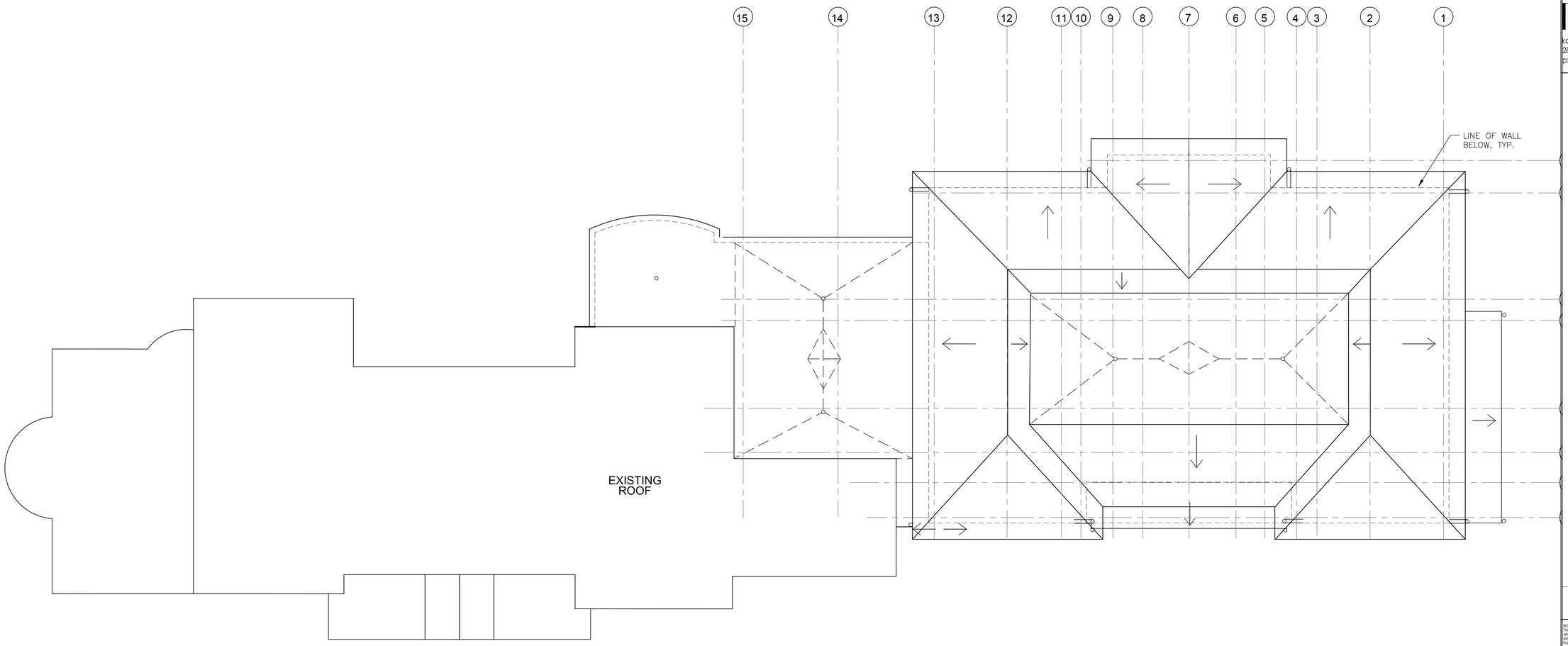
Date 01/07/2016

Scale 1/8"=1'-0"

Drawn / Checked AMW/RAD

Sheet Number

A2.2



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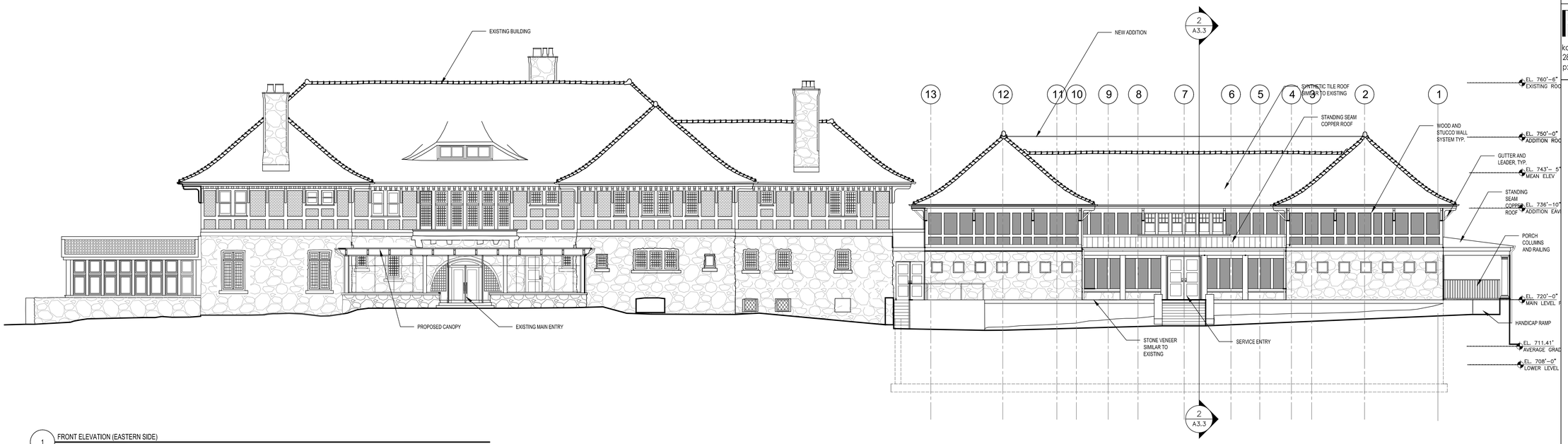
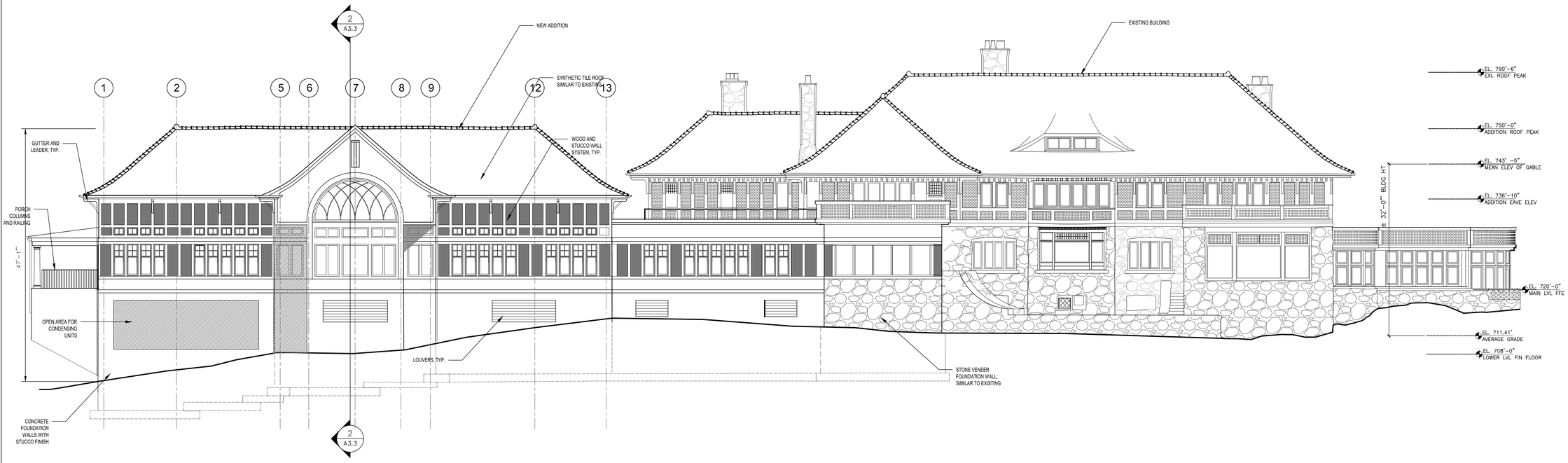
Sheet Title

ROOF PLAN

Job No. 2015-1073	Sheet Number A2.3
Date 01/07/2016	
Scale 1/8"=1'-0"	
Drawn / Checked AMW/RAD	



1 FRONT ELEVATION (EASTERN SIDE)
1/8"=1'-0"



2 REAR ELEVATION (WESTERN SIDE)
1/8"=1'-0"

ELEGANT BANQUETS AT LE CHATEAU

ADDITION AND RENOVATION

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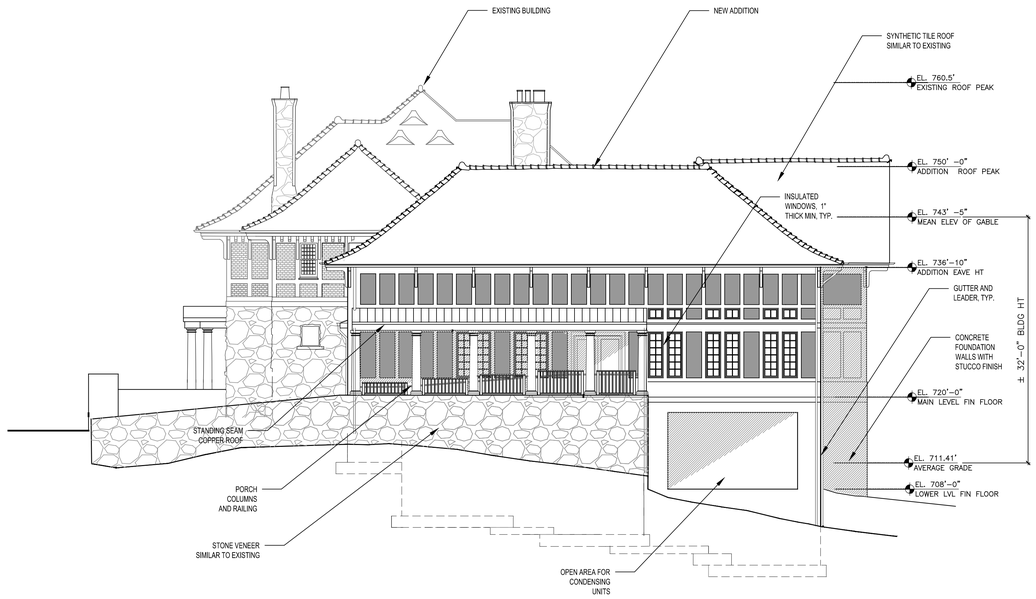
4	06-30-16	SITE DEVELOPMENT PLAN RESUBMISSION

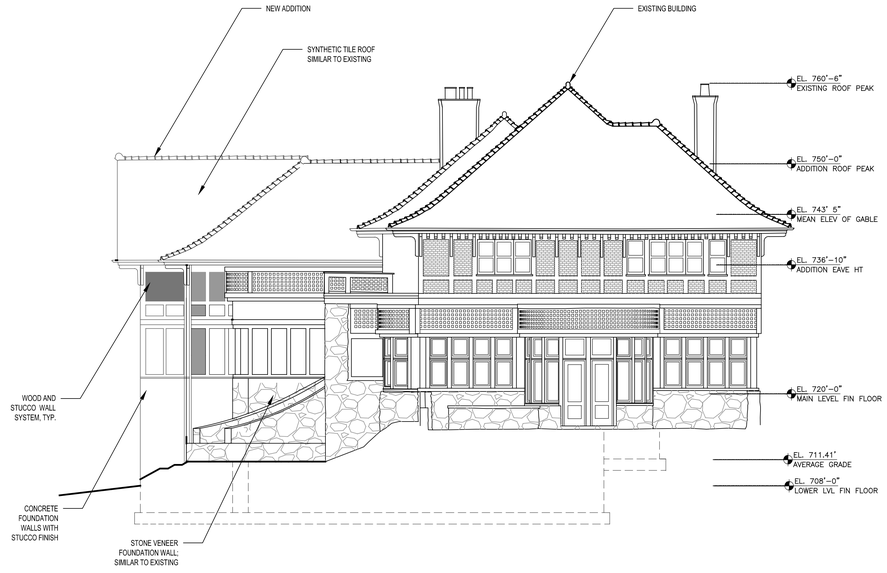
Sheet Title

Building Elevations

Job No. 2015-1073	Sheet Number A3.1
Date 01/07/2016	
Scale 1/8"=1'-0"	
Drawn / Checked AMW/RAD	



1 NORTHERN ELEVATION
1/8"-1'-0"



2 SOUTHERN ELEVATION
1/8"-1'-0"

ELEGANT BANQUETS AT LE CHATEAU

ADDITION AND RENOVATION

ELEGANT BANQUETS
257 FEDERAL ROAD
BROOKFIELD, CT 06804

KG&D architects
kaeyer, garment & davidson architects, pc
285 main street mount kisco, new york 10549
p:914.666.5900 f:914.666.0051 kgdarchitects.com

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Professional Seal

PHASE

No.	Date	Issue
1	01-07-16	SKETCH PLAN SUBMISSION
2	02-25-16	SITE DEVELOPMENT SUBMISSION
3	04-28-16	SITE DEVELOPMENT RESUBMISSION
4	06-30-16	SITE DEVELOPMENT RESUBMISSION

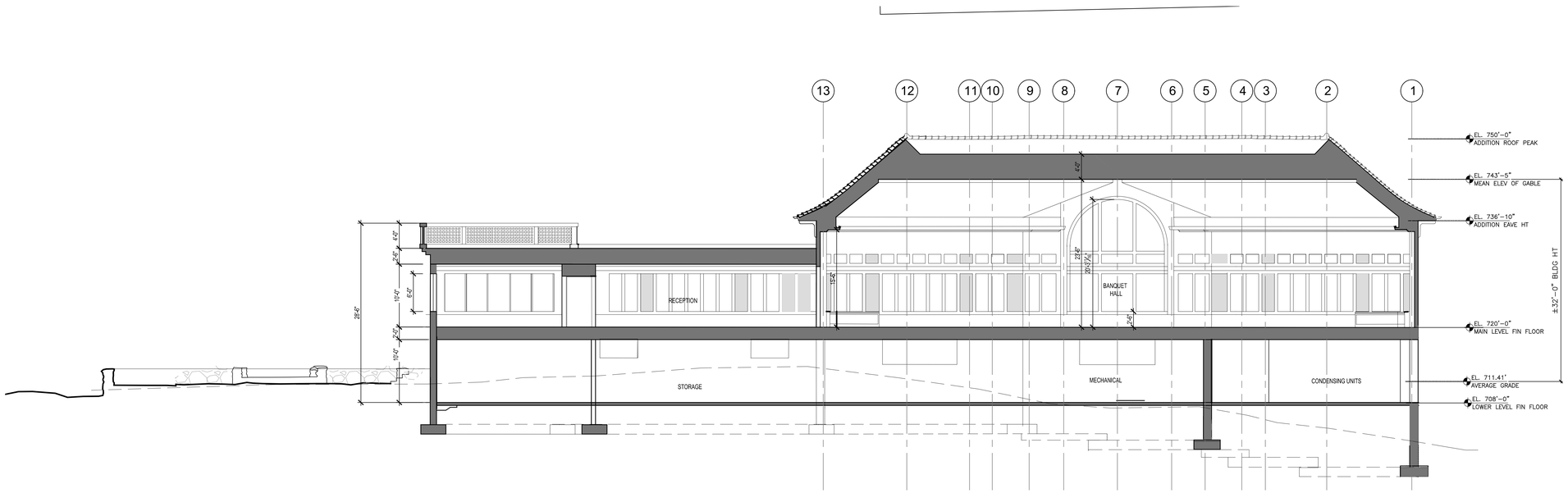
Sheet Title

Building Elevations

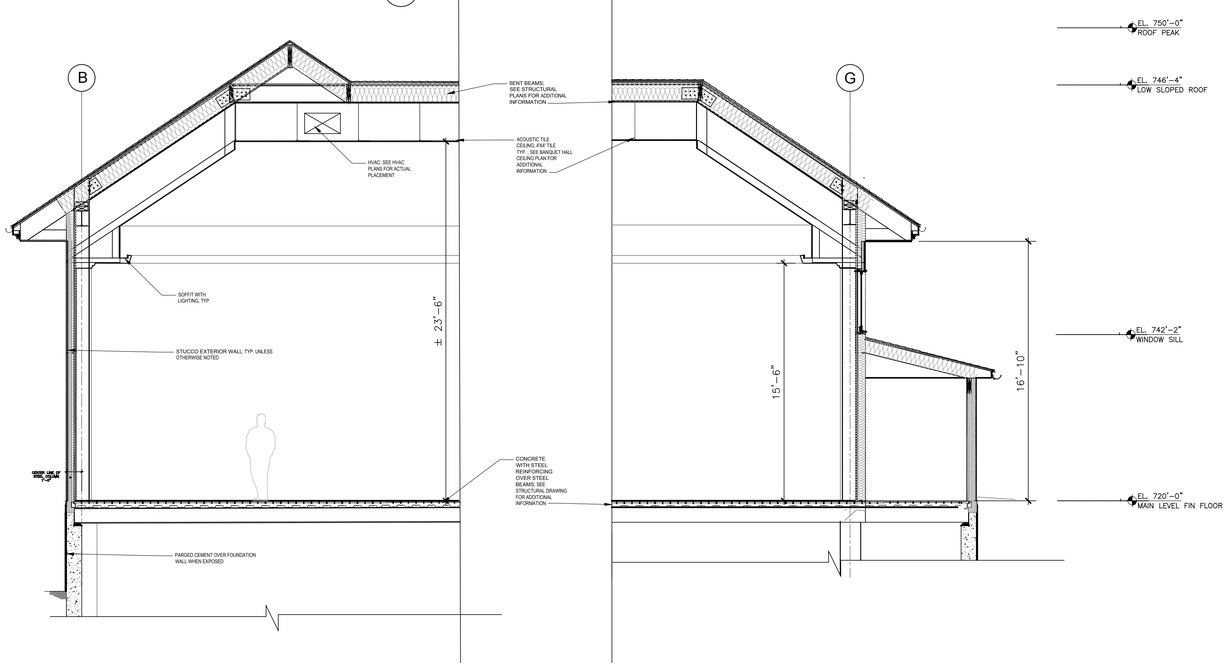
Job No. 2015-1073
Date 01/07/2016
Scale 1/8"=1'-0"
Drawn / Checked AMW/RAD

Sheet Number

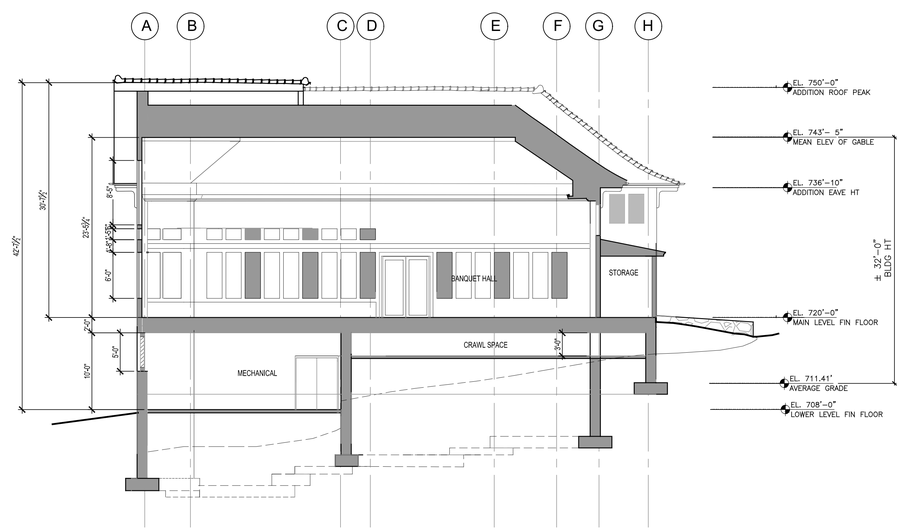
A3.2



1 LONGITUDINAL SECTION LOOKING WEST
1/8"=1'-0"



3 CROSS SECTION
1/4"=1'-0"



2 LATITUDINAL SECTION LOOKING NORTH
1/8"=1'-0"

ELEGANT BANQUETS AT LE CHATEAU

ADDITION AND RENOVATION

ELEGANT BANQUETS
257 FEDERAL ROAD
BROOKFIELD, CT 06804

KG&D architects
kaeyer, garment & davidson architects, pc
285 main street mount kisco, new york 10549
p:914.666.5900 f:914.666.0051 kgdarchitects.com

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Professional Seal

PHASE

No.	Date	Issue
1	01-07-16	SKETCH PLAN SUBMISSION
2	02-26-16	SCHEMATIC DESIGN SUBMISSION
3	04-28-16	SITE DEVELOPMENT PLAN RESUBMISSION
4	06-30-16	SITE DEVELOPMENT PLAN RESUBMISSION

No.	Date	Issue

Sheet Title

Building Sections

Job No. 2015-1073
Date 01/07/2016
Scale 1/8"=1'-0"
Drawn / Checked AMW/RAD

Sheet Number
A3.3

LE CHATEAU

GENERAL NOTES

1. TOWN OF LEWISBORO TAX MAP DESIGNATION: SECTION: 55.01, BLOCK: 02, LOT 06.
2. TOTAL AREA OF LOT: 24.226 ACRES.
3. SURVE: AND TOPOGRAPHIC DATA SHOWN HEREON WITHIN AND ADJACENT TO THE SITE PROPER IS TAKEN FROM A PLAN PREPARED B: RKW LAND SURVE ORS, ENTITLED :"SURVE: OR PROPERT: PREPARED FOR "ELEGANT BANQUETS", DATED 2016.
4. TOPOGRAPHIC AND TAX MAP INFORMATION SHOWN OUTSIDE OF THE SITE PROPER WAS TAKEN FROM THE WESTCHESTER COUNT: GIS S: STEM.
5. SOILS BOUNDARIES AND DESCRIPTIONS SHOWN HEREON ARE BASED ON THE USDA NATURAL RESOURCES CONSERVATION SERVICE, WEB SOIL SURVE: ALL LOCATIONS ARE APPROXIMATE.
6. WETLAND FLAGS SHOWN HEREON WERE FLAGGED IN MARCH OF 2006 B: PAUL JAEHNIG, SOIL SCIENTIST AND WERE VERIFIED AND/OR RE-FLAGGED B: EVANS ASSOCIATES ENVIRONMENTAL CONSULTING, NOVEMBER 2015.
7. PARCEL IS LOCATED IN THE TOWN OF LEWISBORO R-4A :SINGLE FAMIL: RESIDENTIAL ONING DISTRICT.
8. PRIOR TO COMMENCING AN: WORK THE CONTRACTOR IS TO CONTACT DIG SAFEL: NEW ORK :FORMERL: UFPO CODE 753: AT 1-800-962-7962.
9. THE LOCATION OF UNDERGROUND UTILITIES SHOWN HEREON ARE APPROXIMATE, THEREFORE ACCURAC: COMPLETENESS AND/OR EXISTANCE OF SUBSURFACE INFORMATION CAN NOT BE CERTIFIED B: THE ENGINEER.
10. THE CONTRACTOR OR HIS AUTHORI ED REPRESENTATIVE SHALL BE RESPONSIBLE FOR ALL APPLICATIONS, PERMITS AND/OR FEES REQUIRED B: THE TOWN OF LEWISBORO, WESTCHESTER COUNT NEW ORK STATE AND/OR THE FEDERAL GOVERNMENT UNLESS OTHER ARRANGEMENTS ARE MADE WITH THE OWNER.
11. IT IS THE OWNER'S RESPONSIBILIT: TO ENSURE THAT AN: PROPOSED IMPROVEMENTS ARE PLACED ON MATERIAL WITH A SUITABLE BEARING CAPACIT: SOIL BEARING CAPACIT: REQUIREMENTS FOR THE BUILDING WAS ESTABLISHED B: OTHERS, SEE STRUCTURAL PLANS B: OTHERS.
12. AN: DAMAGE TO ADJACENT PROPERTIES SHALL BE REPLACED IN KIND B: THE OWNER.
13. UNAUTHORI ED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209 .2: OF THE NEW ORK STATE EDUCATION LAW.
14. IF BLASTING IS REQUIRED, THE CONTRACTOR IS TO OBTAIN ALL NECESSAR: PERMITS FROM THE APPROPRIATE TOWN OF LEWISBORO OFFICIALS.
15. CONTRACTOR IS TO PROVIDED SHEETING AS REQUIRED B: THE N: S DEPARTMENT OF TRANSPORTATION, OSHA, AND N: S DEPARTMENT OF LABOR, AND INDUSTRIAL CODE RULE 753 WHERE APPLICABLE 5' DEEP.
16. ALL CONSTRUCTION RELATED ACTIVITIES MUST BE WITHIN THE EROSION CONTROL BARRIER. EROSION CONTROL BARRIERS SHOULD REMAIN IN PLACE UNTIL THE PROJECT IS COMPLETE.
17. GRADING SHALL NOT EXCEED 1 VERTICAL ON 2 HORI ONTAL EXCEPT IN ROCK AS DETERMINED B: THE ENGINEER.
18. IF UNFORSEEN UNDERGROUND CONDITIONS ARE ENCOUNTERED :I.E. ROCK, GROUNDWATER, ETC.: THE CONTRACTOR SHALL CONTACT THE DESIGN ENGINEER PRIOR TO CONTINUING WORK.
19. THE SEWAGE TREATMENT S: STEM WAS FIELD LOCATED B: THIS OFFICE AND SURVE: LOCATED B: THE PROJECT SURVE: OR.

ENGINEER'S NOTES TO OWNER AND/OR CONTRACTOR

1. A PRE-CONSTRUCTION SITE INSPECTION WITH CRONIN ENGINEERING, P.E., P.C. IS REQUIRED W/ THE OWNER AND CONTRACTOR PRESENT TO CONFIRM THE CONSTRUCTION PROCEDURE.
2. THERE SHALL BE NO MODIFICATION TO AN: ASPECT OF THIS PLAN WITHOUT FIRST CONTACTING CRONIN ENGINEERING, P.E., P.C. FOR APPROVAL.
3. PRIOR TO AN: EXCAVATION, THE OWNER AND/OR CONTRACTOR SHALL CALL THE UNDERGROUND LINE LOCATION SERVICE CODE 753: AT :800:-962-7962.
4. EROSION SEDIMENT CONTROL AND PEDESTRIAN/TRAFFIC SAFET: MEASURES AS SHOWN IN THIS PLAN SET OR AS DISCUSSED AT THE RPE-CONSTRUCTION MEETING SHALL BE IN PLACE PRIOR TO THE COMMENCEMENT OF AN: SITE WORK. IF UNFORESEEN FIELD CONDITIONS ARE ENCOUNTERED WHICH PROHIBIT THE INSTALLATION OF CERTAIN EROSION SEDIMENT CONTROL AND PEDESTRIAN/TRAFFIC SAFET: MEASURES AS SHOWN, IT SHALL BE THE OWNER AND/OR CONTRACTOR'S RESPONSIBILIT: TO CONTACT CRONIN ENGINEERING, P.E., P.C. IMMEDIATEL: TO DISCUSS ALTERNATIVE METHODS. IT SHALL BE THE OWNER AND/OR CONTRACTOR'S RESPONSIBILIT: TO ENSURE THE INTEGRIT: OF ALL EROSION SEDIMENT CONTROL AND PEDESTRIAN/TRAFFIC SAFET: MEASURES AT ALL TIMES THROUGHOUT THE DURATION OF THE PROJECT.
5. CRONIN ENGINEERING, P.E., P.C. MAKES NO REPRESENTATIONS OR CERTIFICATIONS AS TO THE INTEGRIT: LOCATION OR EXISTENCE OF SUBSURFACE STRUCTURES OR SOIL CONDITIONS WITH RESPECT TO STABILIT: AND SUITABILIT: FOR THE INTENDED PURPOSE. IT IS THE RESPONSIBILIT: OF THE OWNER AND/OR CONTRACTOR TO VERIF: ALL SUBSURFACE CONDITIONS AND INSURE THAT ALL IMPROVEMENTS ARE PLACED ON MATERIAL WITH A SUITABLE BEARING CAPACIT:
6. CRONIN ENGINEERING, P.E., P.C. MAKES NO REPRESENTATION OR CERTIFICATIONS AS TO THE QUANTIT: OF MATERIAL NEEDED OR TO BE REMOVED FOR THE SUCCESSFUL CONSTRUCTION OF THE PROJECT. IT IS THE RESPONSIBILIT: OF THE OWNER AND/OR CONTRACTOR TO VERIF: THE QUANTIT: OF MATERIAL NEEDED OR TO BE REMOVED TO SUCCESSFULL: CONSTRUCT THE PROJECT.
7. IN THE EVENT THAT FIELD CONDITIONS ARE DIFFERENT THAN WHAT IS PRESENTED IN THIS PLAN SET, IT IS THE RESPONSIBILIT: OF THE OWNER AND/OR CONTRACTOR TO NOTIF: CRONIN ENGINEERING, P.E., P.C. PRIOR TO CONTINUING WITH AN: FURTHER SITE WORK.
8. IF UNFORESEEN SUBSURFACE CONDITIONS ARE ENCOUNTERED :I.E. ROCK, GROUNDWATER, ETC.: THE OWNER AND/OR CONTRACTOR SHALL STOP WORK AND NOTIF: CRONIN ENGINEERING, P.E., P.C. ALL NECESSAR: MODIFICATIONS OR CHANGES SHALL BE DISCUSSED WITH AND APPROVED B: CRONIN ENGINEERING, P.E., P.C. PRIOR TO CONTINUING WITH AN: FURTHER SITE WORK. FURTHERMORE, THE OWNER AND/OR CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSAR: PERMITS IF BLASTING IS REQUIRED.
9. IT IS THE OWNER AND/OR CONTRACTOR'S SOLE RESPONSIBILIT: TO FOLLOW OSHA, N: S AND AN: OTHER APPLICABLE CODES OR REQUIREMENTS THROUGHOUT THE DURATION OF THE PROJECT. THIS INCLUDES BUT IS NOT LIMITED TO PROVIDING ADEQUATE BRACING AND GUARANTEEING THE STABILIT: OF EXCAVATIONS AND OTHER VICINIT: STRUCTURES.
10. CRONIN ENGINEERING, P.E. P.C. MAKES NO REPRESENTATION AS TO THE QUALIT: :I.E. CONTAMINATION: IF AN: OF THE SOILS ON THIS SITE. THE OWNER AND/OR CONTRACTOR ARE RESPONSIBLE TO CONDUCT AN: AND ALL TESTING AS MA: BE REQUIRED TO ENSURE THE SITE HAS NO CONTAMINATED SOILS.

EROSION & SEDIMENT CONTROL NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH ALL SEDIMENT AND EROSION CONTROL PRACTICES. THE SEDIMENT AND EROSION CONTROL PRACTICES ARE TO BE INSTALLED PRIOR TO AN: MAJOR SOIL DISTURBANCES, AND MAINTAINED UNTIL PERMANENT PROTECTION IS ESTABLISHED.
2. TIMEL: MAINTENANCE OF SEDIMENT CONTROL STRUCTURES IS THE RESPONSIBILIT: OF THE CONTRACTOR. ALL STRUCTURES SHALL BE MAINTAINED IN GOOD WORKING ORDER AT ALL TIMES. THE SEDIMENT LEVEL IN ALL SEDIMENT TRAPS SHALL BE CLOSEL: MONITORED AND SEDIMENT REMOVED PROMPTL: WHEN MAXIMUM LEVELS ARE REACHED OR AS ORDERED B: THE ENGINEER. ALL SEDIMENT CONTROL STRUCTURES SHALL BE INSPECTED WEEKL: PRIOR TO EXPECTED RAIN EVENTS, AND AFTER EACH HEAV: RAIN TO INSURE PROPER OPERATION AS DESIGNED. AN INSPECTION SCHEDULE SHALL BE SET FORTH PRIOR TO THE START OF CONSTRUCTION.
3. THE LOCATIONS AND THE INSTALLATION TIMES OF THE SEDIMENT CAPTURING STANDARDS SHALL BE AS ORDERED B: THE ENGINEER, AND IN ACCORDANCE WITH ACCEPTED STANDARDS.
4. ALL TOPSOIL NOT TO BE USED FOR FINAL GRADING SHALL BE REMOVED FROM THE SITE IMMEDIATEL: AND PLACED IN A STABILI ED STOCKPILE OR FILL AREA. ALL TOPSOIL REQUIRED FOR FINAL GRADING AND STORED ON SITE SHALL BE LIMED.FERTILI ED, TEMPORARIL: SEEDED AND MULCHED WITHIN 14 DA: S.
5. AN: DISTURBED AREAS THAT WILL BE LEFT EXPOSED MORE THAN 21 DA: S AND NOT SUBJECT TO CONSTRUCTION TRAFFIC, SHALL IMMEDIATEL: RECEIVE TEMPORAR: SEEDING. MULCH SHALL BE USED IF THE SEASON PREVENTS THE ESTABLISHMENT OF A TEMPORAR: COVER. DISTURBED AREAS SHALL BE LIMED AND FERTILI ED PRIOR TO TEMPORAR: SEEDING.
6. ALL DISTURBED AREAS WITHIN 500 FEET OF AN INHABITED DWELLING SHALL BE WETTED AS NECESSAR: TO PROVIDE DUST CONTROL.
7. THE CONTRACTOR SHALL KEEP THE ROADWA: S WITHIN THE PROJECT CLEAR OF SOIL AND DEBRIS AND IS RESPONSIBLE FOR AN: STREET CLEANING NECESSAR: DURING THE COURSE OF THE PROJECT.
8. SEDIMENT AND EROSION CONTROL STRUCTURES SHALL BE REMOVED AND THE AREA STABILI ED WHEN THE DRAINAGE AREA HAS BEEN PROPERL: STABILI ED B: PERMANENT MEASURES.
9. SOIL SEEDING AND FERTILI ER AMENDMENTS SHALL BE PERFORMED IN ACCORDANCE WITH THE CURRENT EDITION OF "NEW ORK GUIDELINES FOR URBAN EROSION AND SEDIMENT CONTROL".
10. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE CURRENT EDITION OF "NEW ORK GUIDELINES FOR URBAN EROSION AND SEDIMENT CONTROL".

TRAFFIC CONTROL NOTES

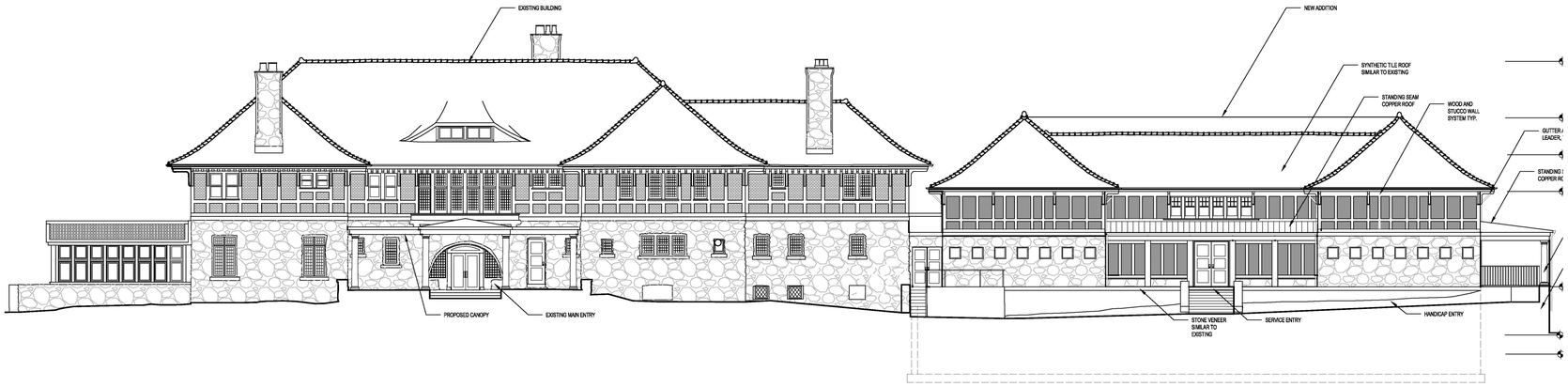
1. TRAFFIC CONES AND FLAGMEN SHALL BE PROVIDED B: THE CONTRACTOR TO MAINTAIN TRAFFIC FLOW AT ALL TIMES DURING CONSTRUCTION.
2. IF TRENCHES ARE LEFT OPEN IN AREAS WHERE CONSTRUCTION IS NOT TAKING PLACE, OR LEFT OPEN OVERNIGHT, STEEL PLATES SHALL BE PROVIDED IN ACCORDANCE WITH APPLICABLE CODES AND REGULATIONS AND/OR AS DIRECTED B: CRONIN ENGINEERING P.E. P.C..
3. WORK SHALL BE PERFORMED BETWEEN THE HOURS OF 8:00 AM - 4:00 PM, MONDA: - FRIDA: ONL: NO WORK SHALL TAKE PLACE ON WEEKENDS AND HOLIDA: S UNLESS AUTHORI ED B: PLANNING BOARD APPROVAL NOR SHALL AN: WORK TAKE PLACE AT NIGHT TIME OR EARL: MORNING.
4. THE OWNER WILL DESIGNATE AN AREA ON SITE FOR THE STORAGE AND STOCKPILING OF THE CONTRACTOR'S EQUIPMENT AND MATERIAL. THE STAGING AREA SHALL BE ON AN AREA WITH EXISTNG ASPHALT OR GRAVEL PARKING. NO DISTURBANCE TO AN: VEGETATION IS PERMITTED WHEN PROVIDING THE STAGING AREA.

DEMOLITION NOTES

1. NO WORK SHALL BE PERFORMED UNTIL A PERMIT IS ISSUED B: THE TOWN OF LEWISBORO, IF REQUIRED.
2. ALL DEMOLITION MATERIAL SHALL BE REMOVED FROM THE SITE IN A LAWFUL MANNER.
3. ROAD MATERIAL MA: BE REC: CLED/CRUSHED ON SITE AND USED FOR A SUBBASE AS DIRECTED B: ENGINEER.
4. EROSION AND SEDIMENT CONTROLS SHALL BE INSTALLED IN PLACE AS DIRECTED B: ENGINEER PRIOR TO DEMOLITION WORK.
5. AREAS WHERE ASPHALT/CONCRETE REMOVAL OCCUR SHALL BE STABILI ED WITH A LA ER OF 1" CRUSHED STONE.
6. CHAPTER 160 NOISE ORDINANCE OF THE TOWN OF LEWISBORO CODE SHALL BE ADHERED TO AT ALL TIMES DURING CONSTRUCTION.

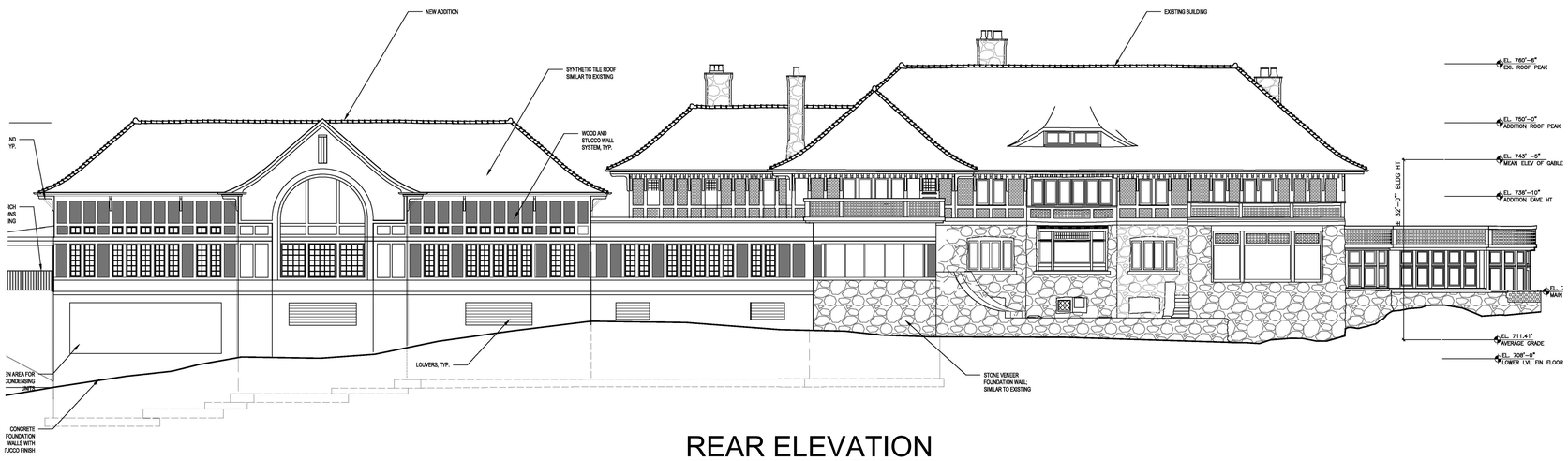
NYCDEP AND WCDH NOTES

1. REFERENCE IS MADE TO A WETLAND AND WATERCOURSE MAP ENTITILED "EXISTING CONDITIONS / N: CDEP WATERCOURSE CONFIRMATION" SIGNED B: THE N: CDEP AND DATED MA: 09, 2016 SHOWING THE LOCATION OF THE N: CDEP JURISDICTIONAL WATERCOURSE.
2. REPRESENTATIVES OF THE N: CDEP INDICATE THAT THE: ARE IN AGREEMENT WITH OUR PROPOSED LIMIT OF DISTURBANCE AND SINCE THERE IS LESS THAN 2.0 ACRES OF DISTURBANCE PROPOSED FOR THIS PROJECT, THE: HAVE NO JURISDICTION WITH RESPECT TO THE STORMWATER POLLUTION PREVENTION REVIEW OF THIS PROJECT. SEE LETTER FROM N: CDEP DATED JUL: 15, 2016.
3. THE WCDH HAS PROVIDED WRITTEN COMMENTS THAT ARE CURRENTL: BEING ADDRESSED. IT IS ANTICIPATED THAT THE EXISTING SEWAGE TREATMENT S: STEM AND ITS APPURTENANCES ARE ADEQUATE FOR PROPOSED PROJECT. APPROVALS ARE PENDING.



1 FRONT ELEVATION (EASTERN SIDE)
1/8"=1'-0"

FRONT ELEVATION
SCALE NTS



2 REAR ELEVATION (WESTERN SIDE)
1/8"=1'-0"

REAR ELEVATION
SCALE NTS

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Call Before You Dig
Wait The Required Time
Confirm Utility Response
Respect the Marks
Dig With Care

TOWN OF LEWISBORO
WESTCHESTER COUNTY, NEW YORK

RE-PAVING NOTES

1. AREAS TO BE RE-PAVED SHALL BE DONE SO THAT THERE IS THE MINIMUM THICKNESS AS SPECIFIED ON THE DETAIL SHEETS AS WELL AS PROVIDING POSITIVE PITCH AND DRAINAGE TO EXISTING DRAINAGE WA: S OR TO NEW STORM CATCHMENTS AND CONVE: ANCE S: STEMS.
2. PROPER PITCH, CROSS-SLOPE, CROWNS AND GUTTERS AS NECESSAR: ARE TO BE PROVIDED AT THE DIRECTION OF THE DESIGN ENGINEER.

FIRE DEPARTMENT NOTES

1. A KNOX BOX SHALL BE PROVIDED FOR THE EXISTING BUILDING AND NEW ADDITION.
2. THE PROPERT: OWNER SHALL PERMIT THE FIRE DEPARTMENT TO PERFORM DRILLS AT THE PROPERT: BUT AT THE CONVENIENCE OF THE PROPERT: OWNER.
3. NO PARKING SHALL BE PERMITTED ALONG THE ENTRANCE ROAD TO THE BUILDING. NO PARKING SIGNS ARE PROVIDED ALONG THE ROAD.
4. A 10,000 GALLON UNDERGROUND WATER STORAGE TANK IS PROVIDED FOR THE FIRE DEPARTMENT, LOCATED IN FRONT OF THE NEW BUILDING.

REFERENCE NOTE

1. REFERENCE IS MADE TO THE LATEST REVISED PLANS / DOCUMENTS PREPARED B: OTHERS AS FOLLOWS:
   - -FOR ARCHITECTURAL FEATURES, SEE PLANS PREPARED B: KG: D ARCHITECTS.
   - -FOR LANDSCAPE ARCHITECTURAL FEATURES, SEE PLANS PREPARED B: WESLE: STOUT ASSOCIATES, LLC.
   - -FOR ENTRANCE/ROUTE 35 IMPROVEMENTS, SEE PLANS PREPARED B: MASER CONSULTING, P.A.
   - -FOR WETLAND REPORT AND MITIGATION PLAN, SEE DOCUMENTS PREPARED B: EVANS ASSOCIATES ENVIRONMENTAL CONSULTING, INC.

"LE CHATEAU" LIST OF DRAWINGS

SHEET	SHEET X OF	TITLE	ISSUE DATE	LAST REVISED
CS-1.0	SHEET 1 OF 17	COVER SHEET	THURSDA: , JUNE 30, 2016	JUL: 29, 2016
EX-1.1	SHEET 2 OF 17	EXISTING CONDITIONS PLAN	MONDA: , FEBRUAR: 15, 2016	JUL: 29, 2016
L-2.1	SHEET 3 OF 17	LA OUT ONING, COVERAGE AND DEMOLITION PLAN	MONDA: , FEBRUAR: 15, 2016	JUL: 29, 2016
L-2.2	SHEET 4 OF 17	PAVING PLAN	FRIDA: , JUL: 29, 2016	------
SP-3.0	SHEET 5 OF 17	LIMIT OF DISTURBANCE AND TREE PLAN	THURSDA: , JUNE 30, 2016	JUL: 29, 2016
SP-3.1	SHEET 6 OF 17	UTILIT: AND GRADING PLAN	MONDA: , FEBRUAR: 15, 2016	JUL: 29, 2016
SP-3.2	SHEET 7 OF15	ROAD TRAFFIC PEDESTRIAN PLAN	THURSDA: , JUNE 30, 2016	JUL: 29, 2016
SP-3.3	SHEET 8 OF 17	STORMWATER / DRAINAGE PLAN	THURSDA: , JUNE 30, 2016	JUL: 29, 2016
RP-4.1	SHEET 9 OF 17	ROAD PROFILES	MONDA: , FEBRUAR: 15, 2016	JUL: 29, 2016
DP-4.2	SHEET 10 OF 17	DRAINAGE PROFILES	FRIDA: , JUL: 29, 2016	------
DP-4.3	SHEET 11 OF 17	DRAINAGE PROFILES	FRIDA: , JUL: 29, 2016	------
ESC-5.1	SHEET 12 OF 17	EROSION AND SEDIMENT CONTROL PLAN	THURSDA: , JUNE 30, 2016	JUL: 29, 2016
ESC-5.2	SHEET 13 OF 17	EROSION AND SEDIMENT CONTROL DETAILS	THURSDA: , JUNE 30, 2016	JUL: 29, 2016
UD-6.1	SHEET 14 OF 17	CONSTRUCTION DETAILS	THURSDA: , JUNE 30, 2016	JUL: 29, 2016
UD-6.2	SHEET 15 OF 17	CONSTRUCTION DETAILS	THURSDA: , JUNE 30, 2016	JUL: 29, 2016
UD-6.3	SHEET 16 OF 17	CONSTRUCTION DETAILS	THURSDA: , JUNE 30, 2016	JUL: 29, 2016
UD-6.4	SHEET 17 OF 17	CONSTRUCTION DETAILS	THURSDA: , JUNE 30, 2016	JUL: 29, 2016

OWNER'S CERTIFICATION

THE UNDERSIGNED OWNER S: OF THE PROPERT: SHOWN HEREON, IS FAMILIAR WITH THIS DRAWING AND ITS CONTENTS, AND HEREB: APPROVES THE SAME FOR FILING.

SIMON CURTIS — DATE
ELEGANT BANQUETS, LLC

TOWN ENGINEER'S CERTIFICATION

REVIEWED FOR COMPLIANCE WITH THE PLANNING BOARD

RESOLUTION DATED .....

JOSEPH M. CERMELE, P.E. — DATE
KELLARD SESSIONS CONSULTING, P.C.
TOWN CONSULTING ENGINEER

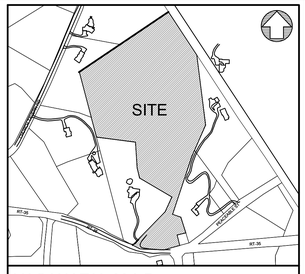
PLANNING BOARD APPROVAL

APPROVED B: RESOLUTION OF THE LEWISBORO TOWN

PLANNING BOARD DATED .....

JEROME KERNER, CHAIRMAN — DATE

CIORSDAN CONRAN, SECRETARY
DATE



VICINITY MAP — SCALE 1" = 500'

LANDSCAPE ARCHITECT
WESLE STOUT ASSOCIATES, LLC
C/O JAN GOLDFLUSS
96 MAIN STREET
NEW CANAAN, CT 06840

SURVEYOR
RKW LAND SURVE ING
C/O FRANK WALSH
PO BOX 788, 22 EAST AVENUE
NEW CANAAN, CT 06840

ENVIRONMENTAL CONSULTANT
EVANS ASSOCIATES
C/O BETH EVANS
205 AMIT ROAD
BETHAN , CT 06524

ATTORNEY
MICHAEL FULLER SIRIGNANO, ESQ.
OLD POST ROAD PROFESSIONAL BUILDING
892 ROUTE 35, PO BOX 784
CROSS RIVER, N 10518

ARCHITECT
KG D ARCHITECTS ENGINEERS, PC
C/O RUSSELL DAVIDSON
285 MAIN STREET
MT KISCO, N 10549

OWNER/APPLICANT
ELEGANT BANQUETS, LLC
C/O SIMON CURTIS
506 CANDLEWOOD LAKE ROAD
BROOKFIELD, CT 06804

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REVISIONS

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3	KELLARD SESSIONS MEMO, PLANNING BOARD COMMENTS	JUL: 29, 2016
2	KELLARD SESSIONS MEMO, PLANNING BOARD COMMENTS	JUNE 30, 2016
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MUNICIPAL TAX IDENTIFICATION:

SECTION	55.01
BLOCK	2
LOT	6
SUBLOT	-----
DRAWN B	KCS
CHECKED	KCS/TC3
PROJECT	CURTIS-LE CHATEAU
DATE	FEBRUAR: 25, 2016
JOB	150504

STATE OF NEW YORK — TIMOTHY L. CRONIN — 062980 — LICENSED PROFESSIONAL ENGINEER

TIMOTH: L. CRONIN III, P.E.
LICENSE: 062980

CRONIN ENGINEERING
PROFESSIONAL ENGINEERING & CONSULTING
(914) 736-3664

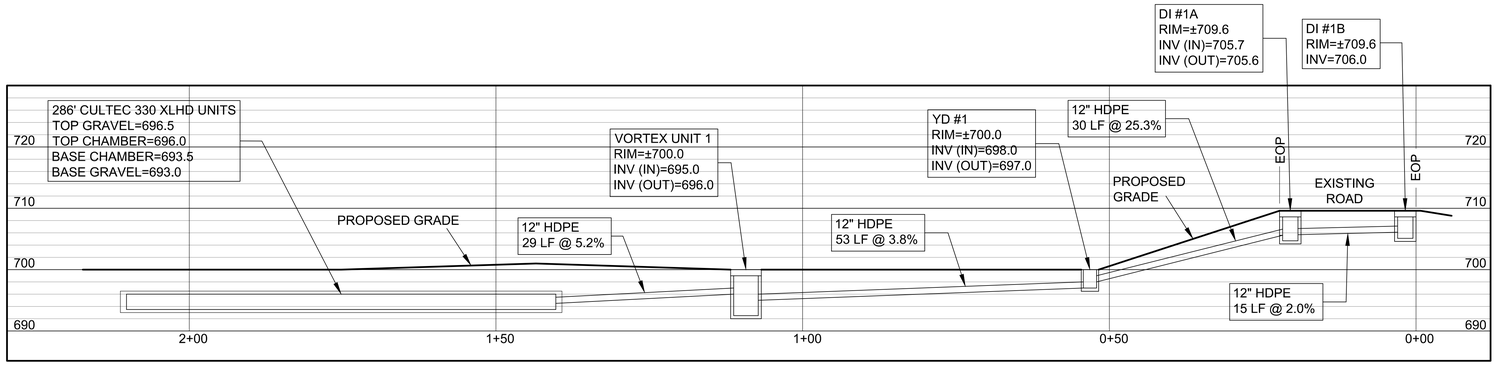
39 Arlo Lane
Cortlandt Manor, New York 10567

COVER SHEET

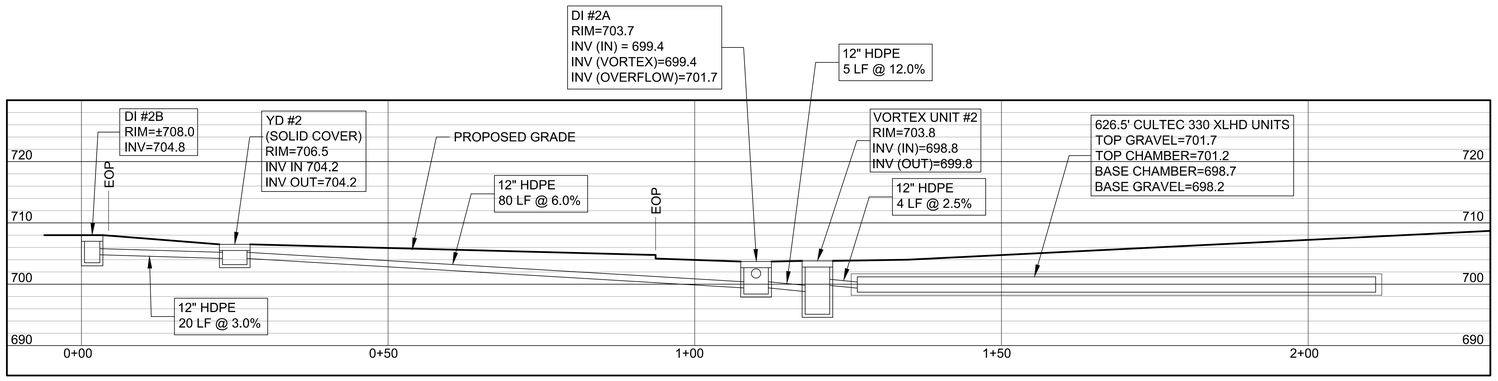
SITE DEVELOPMENT PLAN FOR LE CHATEAU

LOCATION:
1410 ROUTE 35
TOWN OF LEWISBORO, NEW YORK

SHEET 1 OF 17 — CS-1.0



PROFILE THRU DRAINAGE RUN 1 SCALE 1" = 10' VERTICAL AND HORIZONTAL



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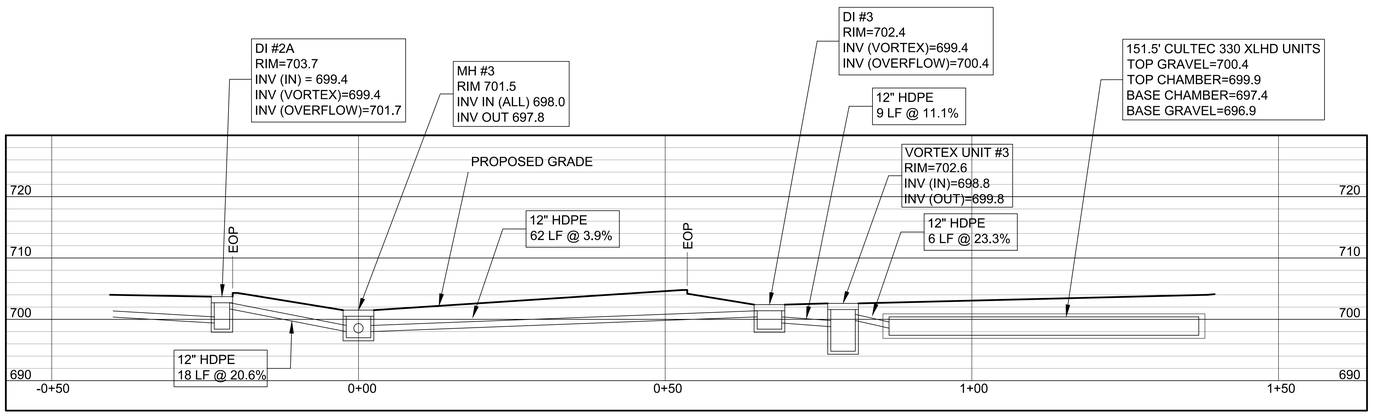

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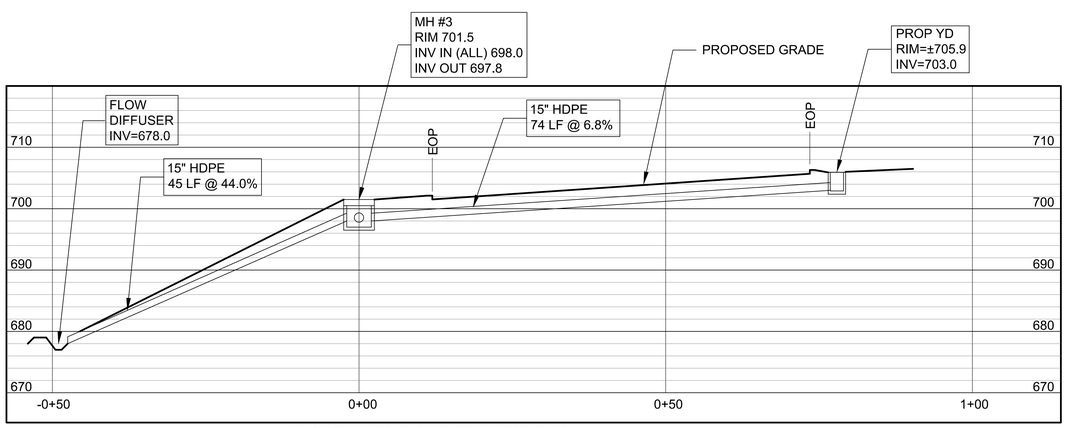
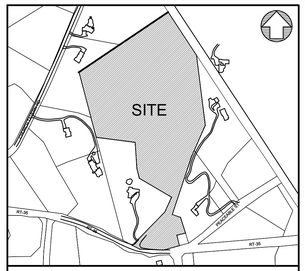


PROFILE THRU DRAINAGE RUN 3B SCALE 1" = 10' VERTICAL AND HORIZONTAL



VICINITY MAP SCALE 1" = 500'

SCALE AS SHOWN

LANDSCAPE ARCHITECT
WESLE STOUT ASSOCIATES, LLC C/O JAN GOLDFLUSS 96 MAIN STREET NEW CANAAN, CT 06840
SURVEYOR
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JOB	150504

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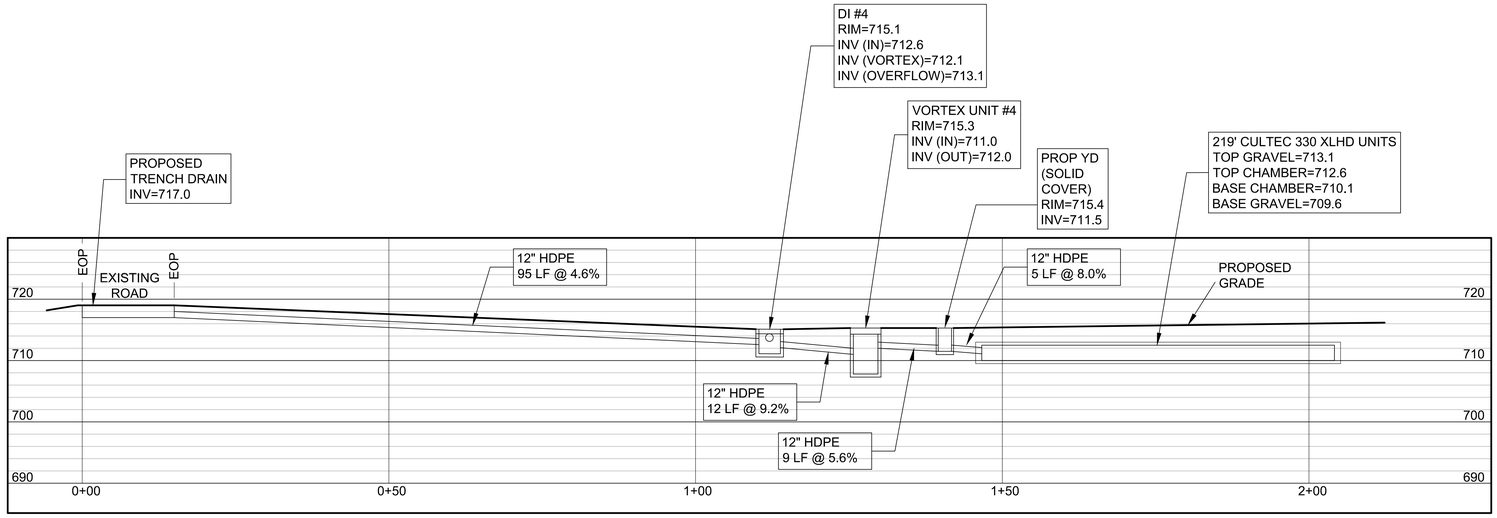
DRAINAGE PROFILES

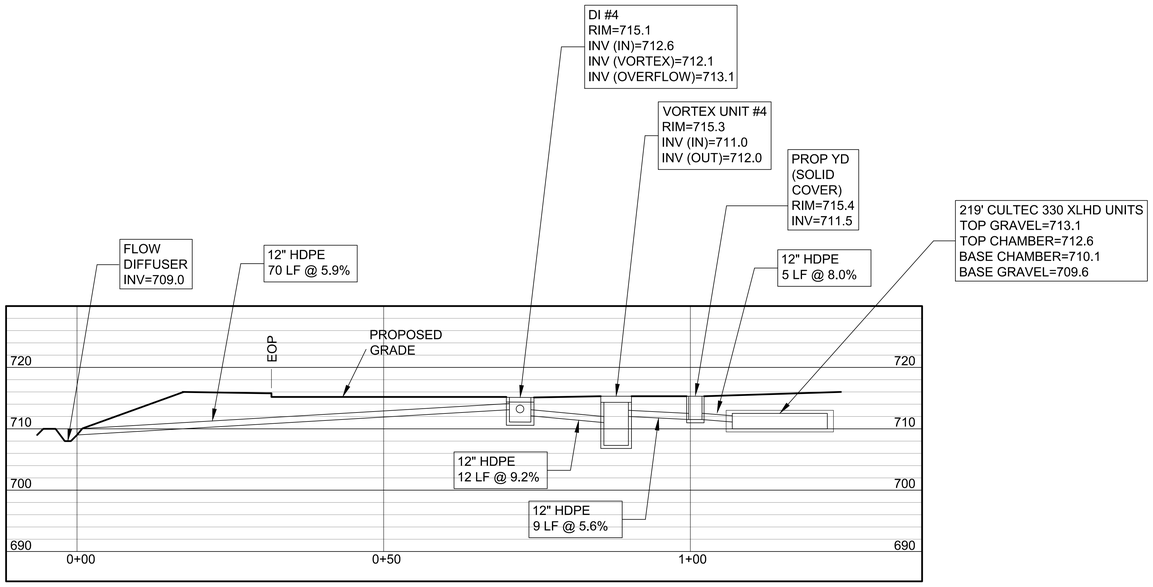
SITE DEVELOPMENT PLAN FOR LE CHATEAU

LOCATION:
1410 ROUTE 35
TOWN OF LEWISBORO, NEW YORK

SHEET 10 OF 17 DP-4.2



PROFILE THRU DRAINAGE RUN 4A SCALE: 1" = 10' VERTICAL AND HORIZONTAL



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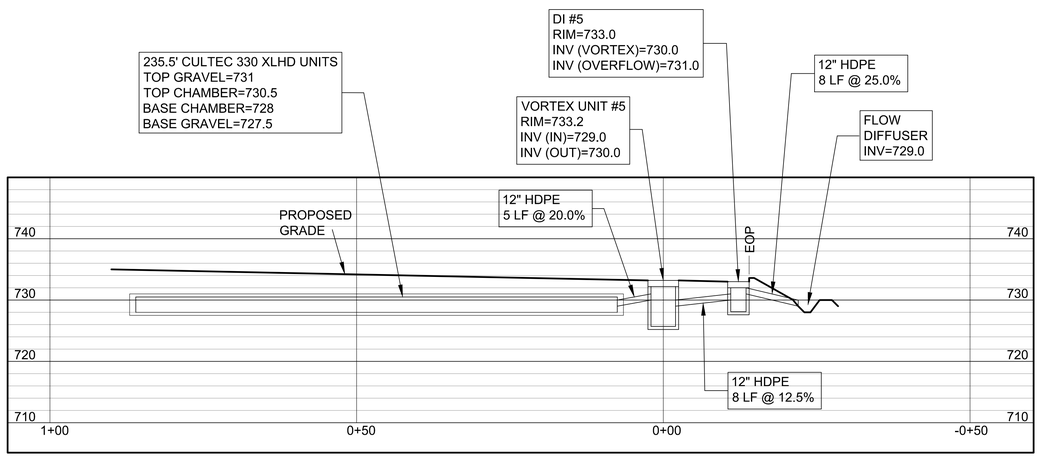

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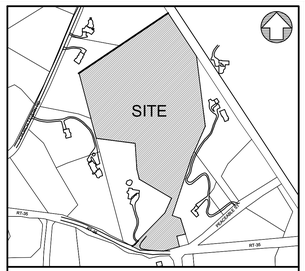

VICINITY MAP SCALE: 1" = 500'

SCALE: AS SHOWN

LANDSCAPE ARCHITECT
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SHEET 11 OF 17 | DP-4.3

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www.digsafelynewyork.org
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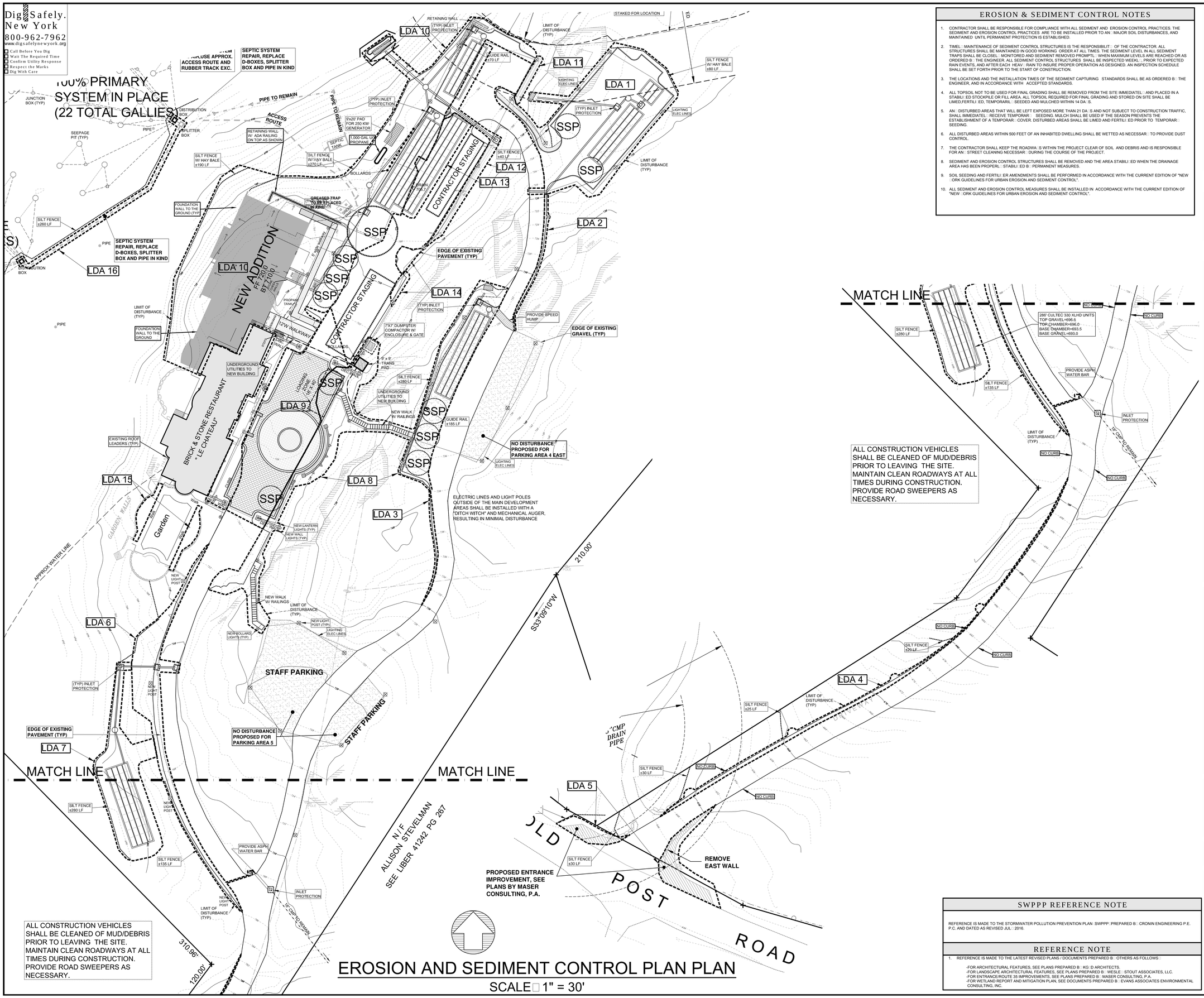
Wait The Required Time
Confirm Utility Response
Respect the Marks
Dig With Care



EROSION AND SEDIMENT CONTROL PLAN PLAN

SCALE 1" = 30'

EROSION & SEDIMENT CONTROL NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH ALL SEDIMENT AND EROSION CONTROL PRACTICES. THE SEDIMENT AND EROSION CONTROL PRACTICES ARE TO BE INSTALLED PRIOR TO AN MAJOR SOIL DISTURBANCES, AND MAINTAINED UNTIL PERMANENT PROTECTION IS ESTABLISHED.
2. TIMEL MAINTENANCE OF SEDIMENT CONTROL STRUCTURES IS THE RESPONSIBILIT OF THE CONTRACTOR. ALL STRUCTURES SHALL BE MAINTAINED IN GOOD WORKING ORDER AT ALL TIMES. THE SEDIMENT LEVEL IN ALL SEDIMENT TRAPS SHALL BE CLOSEL MONITORED AND SEDIMENT REMOVED PROMPTL WHEN MAXIMUM LEVELS ARE REACHED OR AS ORDERED B THE ENGINEER. ALL SEDIMENT CONTROL STRUCTURES SHALL BE INSPECTED WEEKL PRIOR TO EXPECTED RAIN EVENTS, AND AFTER EACH HEAV RAIN TO INSURE PROPER OPERATION AS DESIGNED. AN INSPECTION SCHEDULE SHALL BE SET FORTH PRIOR TO THE START OF CONSTRUCTION.
3. THE LOCATIONS AND THE INSTALLATION TIMES OF THE SEDIMENT CAPTURING STANDARDS SHALL BE AS ORDERED B THE ENGINEER, AND IN ACCORDANCE WITH ACCEPTED STANDARDS.
4. ALL TOPSOIL NOT TO BE USED FOR FINAL GRADING SHALL BE REMOVED FROM THE SITE IMMEDIATEL AND PLACED IN A STABILI ED STOCKPILE OR FILL AREA. ALL TOPSOIL REQUIRED FOR FINAL GRADING AND STORED ON SITE SHALL BE LIMED,FERTILI ED, TEMPORARIL SEEDED AND MULCHED WITHIN 14 DA S.
5. AN DISTURBED AREAS THAT WILL BE LEFT EXPOSED MORE THAN 21 DA S AND NOT SUBJECT TO CONSTRUCTION TRAFFIC, SHALL IMMEDIATEL RECEIVE TEMPORAR SEEDING. MULCH SHALL BE USED IF THE SEASON PREVENTS THE ESTABLISHMENT OF A TEMPORAR COVER. DISTURBED AREAS SHALL BE LIMED AND FERTILI ED PRIOR TO TEMPORAR SEEDING.
6. ALL DISTURBED AREAS WITHIN 500 FEET OF AN INHABITED DWELLING SHALL BE WETTED AS NECESSAR TO PROVIDE DUST CONTROL.
7. THE CONTRACTOR SHALL KEEP THE ROADWA S WITHIN THE PROJECT CLEAR OF SOIL AND DEBRIS AND IS RESPONSIBLE FOR AN STREET CLEANING NECESSAR DURING THE COURSE OF THE PROJECT.
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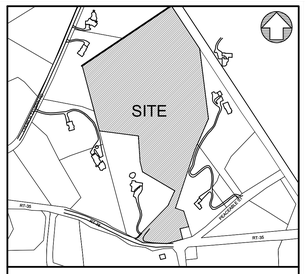
SWPPP REFERENCE NOTE

REFERENCE IS MADE TO THE STORMWATER POLLUTION PREVENTION PLAN SWPPP PREPARED B CRONIN ENGINEERING P.E. P.C. AND DATED AS REVISED JUL 2016.

REFERENCE NOTE

1. REFERENCE IS MADE TO THE LATEST REVISED PLANS / DOCUMENTS PREPARED B OTHERS AS FOLLOWS :
   - FOR ARCHITECTURAL FEATURES, SEE PLANS PREPARED B KG D ARCHITECTS.
   - FOR LANDSCAPE ARCHITECTURAL FEATURES, SEE PLANS PREPARED B WESLE STOUT ASSOCIATES, LLC.
   - FOR ENTRANCE/ROUTE 35 IMPROVEMENTS, SEE PLANS PREPARED B MASER CONSULTING, P.A.
   - FOR WETLAND REPORT AND MITIGATION PLAN, SEE DOCUMENTS PREPARED B EVANS ASSOCIATES ENVIRONMENTAL CONSULTING, INC.



VICINITY MAP SCALE 1" = 500'

SCALE 1" = 30 FT.

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EROSION AND SEDIMENT CONTROL PLAN

SITE DEVELOPMENT PLAN FOR LE CHATEAU

LOCATION:
1410 ROUTE 35
TOWN OF LEWISBORO, NEW YORK

SWPPP SHT 1 OF 2
SHEET 12 OF 17

ESC-5.1

EROSION AND SEDIMENT CONTROL NOTES

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5. AN DISTURBED AREAS THAT WILL BE LEFT EXPOSED MORE THAN 14 DA. S AND NOT SUBJECT TO CONSTRUCTION TRAFFIC, SHALL IMMEDIATEL RECEIVE TEMPORAR SEEDING. MULCH SHALL BE USED IF THE SEASON PREVENTS THE ESTABLISHMENT OF A TEMPORAR COVER. DISTURBED AREAS SHALL BE LIMED AND FERTILI ED PRIOR TO TEMPORAR SEEDING.
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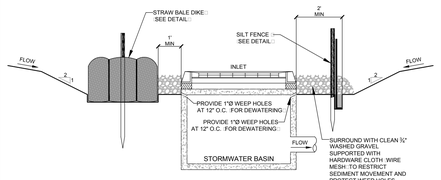
CONSTRUCTION SCHEDULE

1. FILE PERTINENT DOCUMENTS WITH THE TOWN BUILDING DEPARTMENT, N SDOT, N SDEC AN OTHER INVOLVED AGENC OBTAIN ON-SITE WASTEWATER TREATMENT S STEM OWTS APPROVAL FOR THE EXISTING S STEM FROM THE WCDH.
2. OBTAIN REQUIRED PERMIT S I.E. BUILDING PERMIT, N SDOT DRIVEWA OPENING PERMIT IF NECESSAR EXCAVATION PERMIT AN OTHER PERMITS NECESSAR FOR THE DEMOLITION OF EXISTING STRUCTURES AND CONSTRUCTION OF THE ADDITION AND APPURTENANCES RETAIN THE SERVICES OF A QUALIFIED INSPECTOR. PRIOR TO AN WORK ON SITE, CONTACT THE UNDERGROUND LINE LOCATION SERVICE.
3. LOCATE THE PROPOSED ADDITION WITH SURVE OR STAKES AND OFFSET STAKES. LOCATION SHALL BE STAKED OUT, WITH OFFSETS, B A LICENSED LAND SURVE OR. INSTALL ORANGE CONSTRUCTION FENCING WHERE SHOWN. TO BE SURVE LOCATED.
4. THE LIMITS OF DISTURBANCE SHALL BE SURVE LOCATED AND STAKED IN THE FIELD.
5. TREES TO BE PRESERVED, IF AN TO BE FIELD DETERMINED B THE APPLICANT AND DESIGN ENGINEER, ARE TO BE CLEARL MARKED PROTECTED FROM CONSTRUCTION PER THE DETAILS ON THE APPROVED PLAN.
6. PERFORM THE WETLAND MITIGATION PROGRAM AND REMOVE THE INVASIVE SPECIES AS MA BE REQUIRED PA ING ATTENTION TO AN SEASONAL REQUIREMENTS OF THE WETLAND MITIGATION PLAN. INSTALL ALL REQUIRED EROSION CONTROL MEASURES PER THE APPROVED PLAN.
7. INSTALL, DEFINE AND/OR CORDON OFF THE CONTRACTOR STAGING AREAS.
8. CORDON OFF THE INFILTRATION AREAS DURING CONSTRUCTION TO PROHIBIT MATERIAL STOCKPILING AND EXCESSIVE CONSTRUCTION TRAFFIC.
9. CLEAR AND GRUB AREAS PROPOSED FOR CONSTRUCTION, INCLUDING THE ADDITION SITE, DRIVEWA S AND PARKING AREAS. STUMPS TO BE REMOVED FROM THE SITE AND DISPOSED OF IN A LAWFUL MANNER.
10. BEGIN SITE EXCAVATIONS AND FILLING OPERATIONS.
11. CONSTRUCT FOOTING FORMS CONSTRUCT FOUNDATION WALLS. PROCEED WITH CONSTRUCTION OF ADDITION IN ACCORDANCE WITH ALL BUILDING DEPARTMENT REQUIREMENTS.
12. CONDUCT SEWAGE S STEM REPAIRS IN ACCORDANCE WITH THE WCDH APPROVAL.
13. INSTALL ROOF LEADER LINES AND FOOTING DRAIN LINES PER THE APPROVED PLANS.
14. INSTALL UNDERGROUND UTILITIES AND TANKS.
15. INSTALL SITE LIGHTING.
16. INSTALL THE STORMWATER DRAINAGE S STEMS PER THE APPROVED PLANS.
17. INSTALL THE ON SITE WASTEWATER TREATMENT REPLACEMENT TANKS.
18. INSTALL THE IMPROVEMENTS AT THE MAIN ENTRANCE INTERSECTION WITH ROUTE 35.
19. INITIATE AND COMPLETE FINAL GRADING OF THE SITE. PROVIDE THE NECESSAR SEEDING AND MULCH TO ALL FINAL GRADED AREAS.
20. CONTINUAL INSPECTION AND MAINTENANCE OF THE EROSION CONTROL MEASURES IS REQUIRED THROUGHOUT CONSTRUCTION AND SHALL CONTINUE UNTIL THE SITE HAS A STABILI ED GROUND COVER.
21. PAVE THE DRIVEWA S, AND PARKING AREAS.
22. INSTALL THE NECESSAR PLANTINGS AND IMPLEMENT GENERAL CLEAN UP OF THE LOT.
23. OBTAIN A CERTIFICATE OF OCCUPANC FROM THE BUILDING DEPARTMENT.

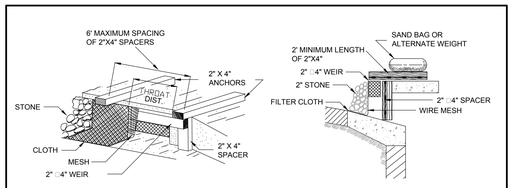


INSTALLATION NOTES:

1. GRADE APPROACH TO INLET UNIFORML AROUND THE BASIN.
2. PROVIDE WEEP HOLES AND PROTECT WITH GRAVEL AS SHOWN
3. UPON STABILI ATION OF CONTRIBUTING DRAINAGE AREA MAX 1 ACRE, SEAL WEEP HOLES, FILL EXCAVATION WITH STABLE SOIL TO FINAL GRADE, COMPACT IN 6" LIFTS AND STABILI E WITH PERMANENT SEEDING OR PAVEMENT WHERE APPLICABLE.
4. REFER TO STRAW BALE DIKE AND SILT FENCE INSTALLATION DETAILS IN THIS PLAN SET FOR INSTALLATION GUIDELINES.

EITHER A STRAW BALE DIKE OR SILT FENCE MA BE USED FOR INLET PROTECTION AS SPECIFIED B QUALIFIED INSPECTOR.

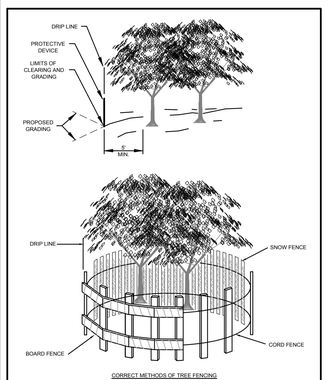
EXCAVATED DROP INLET PROTECTION N.T.S.



INSTALLATION NOTES:

1. FILTER FABRIC SHALL HAVE AN EOS OF 40-85.
2. WOODEN FRAME SHALL BE CONSTRUCTED OF 2" 4" CONSTRUCTION GRADE LUMBER.
3. WIRE MESH ACROSS THROAT SHALL BE A CONTINUOUS PIECE 30 INCH MINIMUM WIDTH WITH A LENGTH 4 FEET LONGER THAN THE THROAT. SHALL BE SHAPED AND SECURELI NAILED TO A 2" 4" WEIR.
4. THE WEIR SHALL BE SECURELI NAILED TO 2" 4" SPACERS 9 INCHES LONG SPACED NO MORE THAN 6 FEET APART.
5. THE ASSEMBL SHALL BE PLACED AGAINST THE INLET AND SECURED B 2" 4" ANCHORS 2 FEET LONG EXTENDING ACROSS THE TOP OF THE INLET AND HELD IN PLACE B SANDBAGS OR ALTERNATE WEIGHTS.

CURB INLET PROTECTION N.T.S.



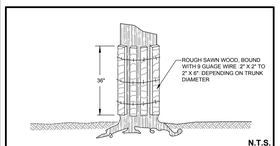
CORRECT METHODS OF TREE FENCING

TREE AND ROOT PROTECTION

1. CONSTRUCTION EQUIPMENT, TRUCKS OR OTHER VEHICLES SHOULD NOT BE PARKED OR OPERATED UNDER THE CANOP OF TREES TO BE SAVED.
2. PETROLEUM PRODUCTS AND CHEMICALS SHOULD NOT BE STORED, SPILLED, OR DUMPED UNDER PROTECTED TREE CANOPIES.
3. EXCAVATION OR STOCKPILING BENEATH PROTECTED TREES IS NOT ACCEPTABLE.
4. IN NO CASE SHALL BOARDS OR FENCES BE NAILED TO PROTECTED TREES.

N.T.S.

TREE PROTECTION FENCING INSTALLATION

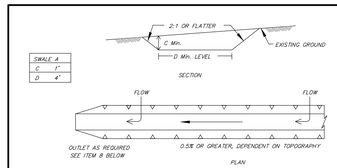


N.T.S.

TREE TRUNK ARMOR INSTALLATION

1. TREES TO BE PROTECTED SHALL BE DETERMINED IN THE FIELD B THE PROJECT APPLICANT, DESIGN ENGINEER AND LANDSCAPE ARCHITECT.

Dig Safely. New York
800-962-7962
www.digsafelynewyork.org
Call Before You Dig
Wait The Required Time
Confirm Utility Response
Respect the Marks
Dig With Care



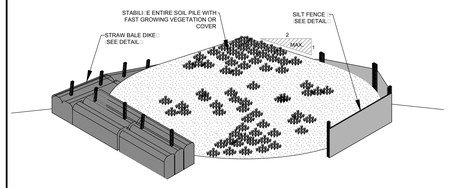
INSTALLATION NOTES

1. ALL TEMPORARY SWALES SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET.
2. DIVERTED RUNOFF FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
3. DIVERTED RUNOFF FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED STABILIZED AREA AT NON-EROSIVE VELOCITY.
4. ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE SWALE.
5. THE SWALE SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW.
6. FILLS SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.
7. ALL EARTH REMOVED AND NOT NEEDED FOR CONSTRUCTION SHALL BE PLACED SO AS NOT TO INTERFERE WITH THE FUNCTIONING OF THE SWALE.
8. INSPECTION AND MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT.
9. STABILIZATION SHALL BE AS PER THE CHART BELOW.

FLOW CHANNEL STABILIZATION

TYPE OF TREATMENT	CHANNEL GRADE	A (5 AC. OR LESS)
1	0.5 – 3.0%	SEED AND STRAW MULCH
2	3.1 – 5.0%	SEED AND STRAW MULCH
3	5.1 – 8.0%	SEED AND JUTE MESH LINED – RIPRAP 2"
4	8.1 – 20%	LINED – RIPRAP 4–8"

TEMPORAR SWALE N.T.S.



INSTALLATION NOTES:

1. AREA CHOSEN FOR STOCK PILING OPERATIONS TO BE DR AND STABLE.
2. MAXIMUM SLOPE OF PILE TO BE 1 VERTICAL ON 2 HORI ONTAL.
3. REFER TO STRAW BALE DIKE AND SILT FENCE INSTALLATION DETAILS IN THIS PLAN SET FOR INSTALLATION GUIDELINES.

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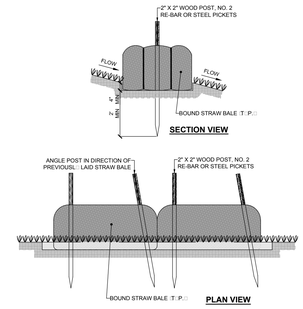
SOIL STOCKPILING CONSTRUCTION N.T.S.



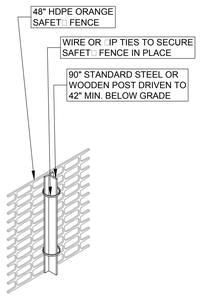
INSTALLATION NOTES:

1. BALES SHALL BE PLACED IN A ROW WITH ENDS TIGHTL ABUTTING THE ADJACENT BALES.
2. EACH BALE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF 4".
3. BALES SHALL BE SECURELI ANCHORED IN PLACE B STAKES OR RE-BAR DRIVEN THROUGH THE BALES. THE FIRST STAKE IN EACH BALE SHALL BE ANGLED TOWARD PREVIOUSL LAID BALE TO FORCE BALES TOGETHER.
4. BALES SHALL BE REMOVED WHEN THE HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

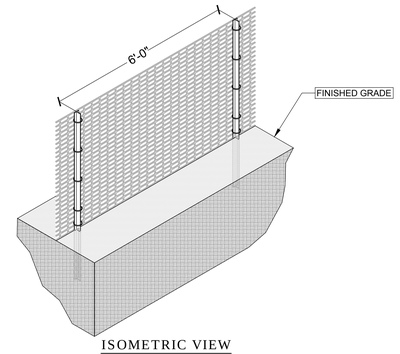
STRAW BALE DIKE INSTALLATION N.T.S.

INSTALLATION NOTES

1. SPACE SUPPORT FENCE POSTS AT 6'-0" INTERVALS.
2. DRIVE SUPPORT POSTS 42" INTO GROUND.
3. FIRMLY FASTEN FENCE MATERIAL IN PLACE BY WIRING OR ZIP TYING TO FENCE POST WHILE MAINTAINING TENSION ACROSS FULL HEIGHT OF FENCE. WIRING OR ZIP TYING SHALL BE DONE IN A MANNER THAT WILL PREVENT SAGGING OF FENCE MATERIAL.
4. PROVIDE PERIODIC INSPECTION AND MAINTENANCE OF FENCE INCLUDING REPAIRS AS NECESSARY AND REQUIRED.
5. PLASTIC FENCE MATERIAL SHALL BE MORNING BARRIER FENCE, COLOR-INTERNATIONAL ORANGE, AS MANUFACTURED BY ADPI ENTERPRISES, INC. OR APPROVED EQUAL.

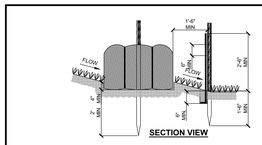


BLOW UP VIEW



ISOMETRIC VIEW

CONSTRUCTION SAFETY FENCE INSTALLATION NTS



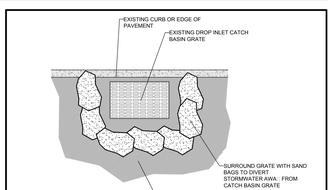
SECTION VIEW

INSTALLATION NOTES:

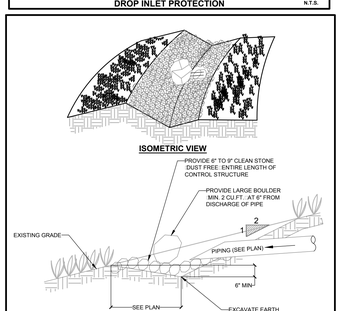
1. THE INSTALLATION OF EACH OF THE COMPONENTS SHALL BE IN ACCORDANCE WITH THE DETAILS SHOWN ON THIS PAGE.
2. THE HA BALES ARE TO BE LOCATED 18" UP SLOPE OF THE SILT FENCE

N.T.S.

STRAW BALE / SILT FENCE INSTALLATION



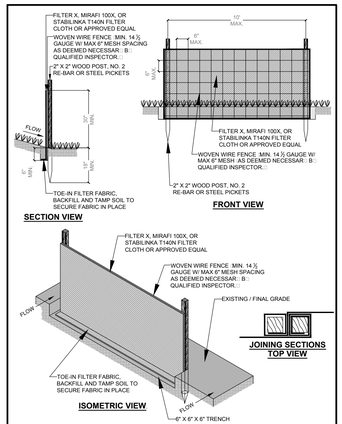
DROP INLET PROTECTION N.T.S.



INSTALLATION NOTES

- SPREADER SHALL BE PROVIDED WITH A FLAT GRADE ALONG A CONTOUR LINE.
- SPREADER ENDS SHALL BE BERMED TO PREVENT OUTFLOW

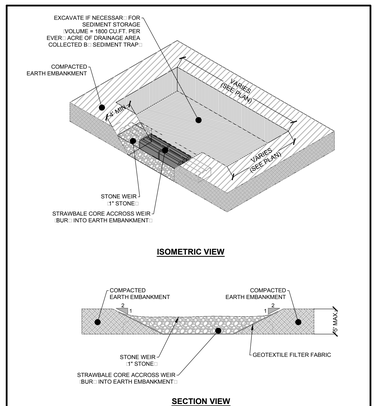
ESC-11 **LEVEL SPREADER** N.T.S.



INSTALLATION NOTES:

1. EXCAVATE A 4 INCH X 4 INCH TRENCH ALONG THE LOWER SIDE OF A SLOPE AS SPECIFIED ON SITE PLAN.
2. UNROLL A SECTION AT A TIME AND POSITION THE POSTS AGAINST THE BACK DOWNHILL WALL OF THE TRENCH NET SIDE AWA FROM DIRECTION OF STORM WATER FLOW.
3. DRIVE THE POST INTO THE GROUND UNTIL THE NETTING IS APPROXIMATEL 2 INCHES FROM THE TRENCH BOTTOM.
4. LA THE TOE-IN FLAP OF FABRIC FLAT IN THE BOTTOM OF THE TRENCH AND BACKFILL THE TRENCH AND TAMP THE SOIL OVER THE FLAP TO SECURELI HOLD THE FABRIC IN PLACE. STEEPER SLOPES REQUIRE AN INTERCEPT TRENCH.
5. JOIN SECTIONS AS SHOWN ABOVE.
6. PREFABRICATED UNITS SHALL BE OF T PE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.

SILT FENCE INSTALLATION N.T.S.

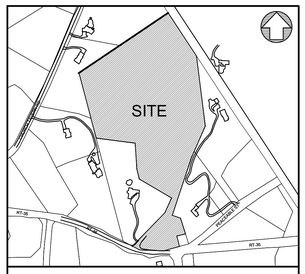


INSTALLATION NOTES:

1. AREA UNDER EMBANKMENT SHALL BE CLEARED, GRUBBED, AND STRIPPED OF AN VEGETATION AND ROOT MAT THE POOL AREA SHALL BE CLEARED AS WELL.
2. THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS OR OTHER WOOD VEGETATION AS WELL AS OVER SI ED STONES, ROCKS, ORGANIC MATERIAL AND OTHER QUESTIONABLE MATERIAL THE EMBANKMENT SHALL BE COMPACTED B TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
3. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.
4. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.
5. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION IS MINIMI ED.
6. THE STRUCTURE SHALL BE REMOVED AND THE AREA STABILI ED WHEN THE DRAINAGE AREA HAS BEEN PROPERL STABILI ED.
7. ALL CUT AND FILL SLOPES SHALL BE 1 2 OR FLATTER.

N.T.S.

TEMPORARY SEDIMENT TRAP CONSTRUCTION



VICINITY MAP SCALE 1" = 500'

SCALE AS SHOWN

LANDSCAPE ARCHITECT
WESLE STOUT ASSOCIATES, LLC
C/O JAN GOLDFLUSS
96 MAIN STREET
NEW CANAAN, CT 06840

SURVEYOR
RKW LAND SURVE ING
C/O FRANK WALSH
PO BOX 788, 22 EAST AVENUE
NEW CANAAN, CT 06840

ENVIRONMENTAL CONSULTANT
EVANS ASSOCIATES
C/O BETH EVANS
205 AMIT ROAD
BETHAN , CT 06524

ATTORNEY
MICHAEL FULLER SIRIGNANO, ESQ.
OLD POST ROAD PROFESSIONAL BUILDING
892 ROUTE 35, PO BOX 784
CROSS RIVER, N 10518

ARCHITECT
KG D ARCHITECTS ENGINEERS, PC
C/O RUSSELL DAVIDSON
285 MAIN STREET
MT KISCO, N 10549

OWNER/APPLICANT
ELEGANT BANQUETS, LLC
C/O SIMON CURTIS
506 CANDLEWOOD LAKE ROAD
BROOKFIELD, CT 06804

UNDER NEW ORK STATE EDUCATIONAL LAW ARTICLE 145, SECTION 7209 .2., IT IS UNLAWFUL FOR AN PERSON TO ALTER AN ITEM ON THIS DRAWING, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER. IF AN ITEM IS ALTERED, THE ALTERING ENGINEER SHALL AFFIX TO THE ITEM HIS SEAL AND THE NOTATION "ALTERED B " FOLLOWED B HIS SIGNATURE AND THE DATE OF SUCH ALTERATION AND A SPECIFIC DESCRIPTION OF THE ALTERATION.
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REVISIONS

3	KELLARD SESSIONS MEMO, PLANNING BOARD COMMENTS	JUL 29, 2016
2	KELLARD SESSIONS MEMO, PLANNING BOARD COMMENTS	JUNE 30, 2016
1	KELLARD SESSIONS MEMO, PLANNING BOARD COMMENTS	APRIL 27, 2016
	REASON	DATE

MUNICIPAL TAX IDENTIFICATION

SECTION	55.01
BLOCK	2
LOT	6
SUBLOT	-----
DRAWN B	KCS
CHECKED	KCS/TC3
PROJECT	CURTIS-LE CHATEAU
DATE	FEBRUAR 25, 2016
JOB	150504

STATE OF NEW YORK · TIMOTHY C. GRONIN · 062980 · LICENSED PROFESSIONAL ENGINEER

TIMOTH L. CRONIN III, P.E.
LICENSE 062980

CRONIN ENGINEERING
PROFESSIONAL ENGINEERING & CONSULTING
(914) 736-3664

39 Arlo Lane
Cortlandt Manor, New York 10567

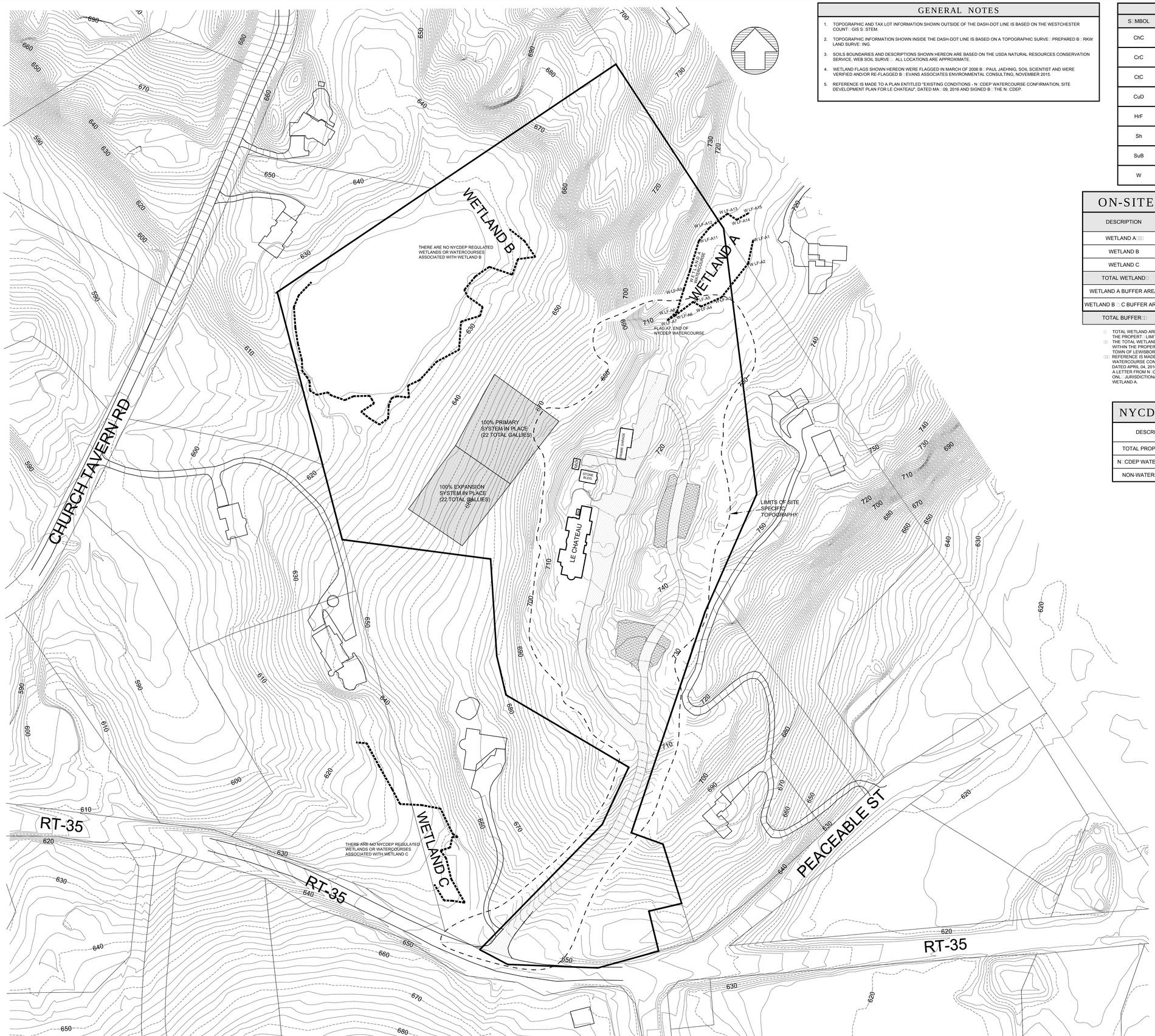
EROSION AND SEDIMENT CONTROL DETAILS

SITE DEVELOPMENT PLAN FOR LE CHATEAU

LOCATION:
1410 ROUTE 35
TOWN OF LEWISBORO, NEW YORK

SWPPP SHT 2 OF 2
SHEET 13 OF 17

ESC-5.2



EXISTING CONDITIONS PLAN

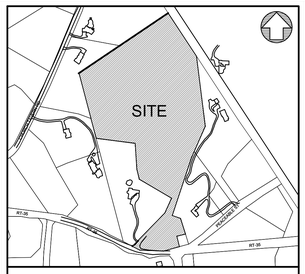
SCALE 1" = 80'

GENERAL NOTES

1. TOPOGRAPHIC AND TAX LOT INFORMATION SHOWN OUTSIDE OF THE DASH-DOT LINE IS BASED ON THE WESTCHESTER COUNT GIS S STEM.
2. TOPOGRAPHIC INFORMATION SHOWN INSIDE THE DASH-DOT LINE IS BASED ON A TOPOGRAPHIC SURVE PREPARED B RKW LAND SURVE ING.
3. SOILS BOUNDARIES AND DESCRIPTIONS SHOWN HEREON ARE BASED ON THE USDA NATURAL RESOURCES CONSERVATION SERVICE, WEB SOIL SURVE ALL LOCATIONS ARE APPROXIMATE.
4. WETLAND FLAGS SHOWN HEREON WERE FLAGGED IN MARCH OF 2006 B PAUL JAEHNIG, SOIL SCIENTIST AND WERE VERIFIED AND/OR RE-FLAGGED B EVANS ASSOCIATES ENVIRONMENTAL CONSULTING, NOVEMBER 2015.
5. REFERENCE IS MADE TO A PLAN ENTITLED "EXISTING CONDITIONS - N CDEP WATERCOURSE CONFIRMATION, SITE DEVELOPMENT PLAN FOR LE CHATEAU", DATED MA 09, 2016 AND SIGNED B THE N CDEP.

SOIL DATA CHART

S MBOL	DESCRIPTION	PERCENT
ChC	CHARLTON LOAM, 8 TO 15 SLOPES	27.0 OF SITE
CrC	CHARLTON / CHATFIELD COMPLEX, ROLLING, VER ROCK, 2 TO 15 SLOPES	2.7 OF SITE
CtC	CHATFIELD-HOLLIS-ROCK OUTCROP COMPLEX, ROLLING, 3 TO 15 SLOPES	40.7 OF SITE
CuD	CHATFIELD-HOLLIS-ROCK OUTCROP COMPLEX, HILL , 15 TO 35 SLOPES	14.3 OF SITE
HrF	HOLLIS-ROCK OUTCROP COMPLEX, VER STEEP, 35 TO 60 SLOPES	0.3 OF SITE
Sh	SUN LOAM, 0 TO 3 SLOPE	2.0 OF SITE
SuB	SUTTON LOAM, 3 TO 8 SLOPES	3.0 OF SITE
W	WATER	10.0 OF SITE



VICINITY MAP SCALE 1" = 500'

ON-SITE WETLAND AREAS

DESCRIPTION	AREA S.F.	AREA ACRES
WETLAND A	15,319	0.35
WETLAND B	124,003	2.85
WETLAND C	10,052	0.23
TOTAL WETLAND	149,374	3.43
WETLAND A BUFFER AREA	98,906	2.27
WETLAND B C BUFFER AREA	210,255	4.83
TOTAL BUFFER	309,161	7.10

TOTAL WETLAND AREA IS THAT PORTION OF THE WETLAND LOCATED WITHIN THE PROPERT LIMITS.
THE TOTAL WETLAND BUFFER IS THAT PORTION OF THE BUFFER LOCATED WITHIN THE PROPERT LIMITS. THE WETLAND BUFFER IS 150 FEET PER THE TOWN OF LEWISBORO CODE, SECTION 217.
REFERENCE IS MADE TO A PLAN ENTITLED "EXISTING CONDITIONS - WATERCOURSE CONFIRMATION - SITE PLAN FOR LE CHATEAU, SHEET WC-1.1, DATED APRIL 04, 2016 AND PREPARED B CRONIN ENGINEERING, P.E., P.C. AND A LETTER FROM N CDEP DATED APRIL 12, 2016 BOTH CONFIRMING THAT THE ONL JURISDICTIONAL WETLAND OR WATERCOURSE ON THE PROPERT IS WETLAND A.

NYCDEP WATERSHED

DESCRIPTION	AREA ACRES
TOTAL PROPERT AREA	24.226 ACRES
N CDEP WATERSHED AREA	23.793 ACRES
NON-WATERSHED AREA	0.433 ACRES

80 0 40 80

SCALE 1" = 80 FT.

LANDSCAPE ARCHITECT

WESLE STOUT ASSOCIATES, LLC
C/O JAN GOLDFLUSS
96 MAIN STREET
NEW CANAAN, CT 06840

SURVEYOR

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C/O FRANK WALSH
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MUNICIPAL TAX IDENTIFICATION

SECTION	55.01
BLOCK	2
LOT	6
SUBLOT	-----
DRAWN B	KCS
CHECKED	KCS/TC3
PROJECT	CURTIS-LE CHATEAU
DATE	APRIL 04, 2016
JOB	150504

STATE OF NEW YORK · TIMOTHY L. CRONIN · 062980 · LICENSED PROFESSIONAL ENGINEER

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39 Arlo Lane
Cortlandt Manor, New York 10567

EXISTING CONDITIONS PLAN

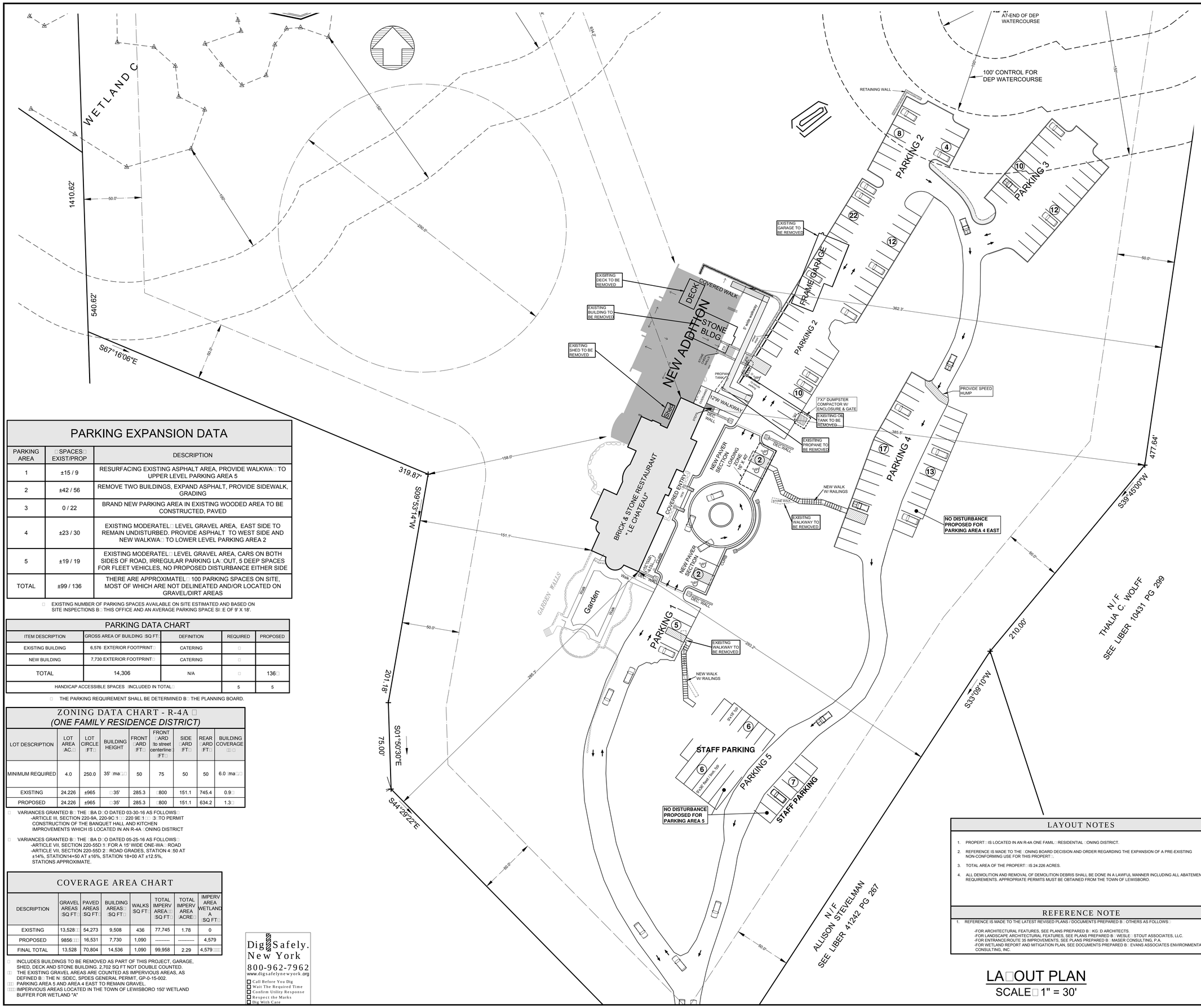
SITE DEVELOPMENT PLAN FOR LE CHATEAU

LOCATION:
1410 ROUTE 35
TOWN OF LEWISBORO, NEW YORK

Dig Safely. New York
800-962-7962
www.digsafelynewyork.org
Call Before You Dig
Wait The Required Time
Confirm Utility Response
Respect the Marks
Dig With Care

SHEET 2 OF 17

EX-1.1



PARKING EXPANSION DATA

PARKING AREA	SPACES EXIST/PROP	DESCRIPTION
1	±15 / 9	RESURFACING EXISTING ASPHALT AREA, PROVIDE WALKWA TO UPPER LEVEL PARKING AREA 5
2	±42 / 56	REMOVE TWO BUILDINGS, EXPAND ASPHALT, PROVIDE SIDEWALK, GRADING
3	0 / 22	BRAND NEW PARKING AREA IN EXISTING WOODED AREA TO BE CONSTRUCTED, PAVED
4	±23 / 30	EXISTING MODERATEL LEVEL GRAVEL AREA, EAST SIDE TO REMAIN UNDISTURBED. PROVIDE ASPHALT TO WEST SIDE AND NEW WALKWA TO LOWER LEVEL PARKING AREA 2
5	±19 / 19	EXISTING MODERATEL LEVEL GRAVEL AREA, CARS ON BOTH SIDES OF ROAD, IRREGULAR PARKING LA OUT, 5 DEEP SPACES FOR FLEET VEHICLES, NO PROPOSED DISTURBANCE EITHER SIDE
TOTAL	±99 / 136	THERE ARE APPROXIMATEL 100 PARKING SPACES ON SITE, MOST OF WHICH ARE NOT DELINEATED AND/OR LOCATED ON GRAVEL/DIRT AREAS

EXISTING NUMBER OF PARKING SPACES AVAILABLE ON SITE ESTIMATED AND BASED ON SITE INSPECTIONS B THIS OFFICE AND AN AVERAGE PARKING SPACE SI E OF 9' X 18'.

PARKING DATA CHART

ITEM DESCRIPTION	GROSS AREA OF BUILDING SQ FT	DEFINITION	REQUIRED	PROPOSED
EXISTING BUILDING	6,576 EXTERIOR FOOTPRINT	CATERING		
NEW BUILDING	7,730 EXTERIOR FOOTPRINT	CATERING		
TOTAL	14,306	N/A		136
HANDICAP ACCESSIBLE SPACES INCLUDED IN TOTAL			5	5

THE PARKING REQUIREMENT SHALL BE DETERMINED B THE PLANNING BOARD.

ZONING DATA CHART - R-4A
(ONE FAMILY RESIDENCE DISTRICT)

LOT DESCRIPTION	LOT AREA AC.	LOT CIRCLE FT	BUILDING HEIGHT	FRONT ARD FT	FRONT ARD to street centerline FT	SIDE ARD FT	REAR ARD FT	BUILDING COVERAGE
MINIMUM REQUIRED	4.0	250.0	35' ma	50	75	50	50	6.0 ma
EXISTING	24.226	±965	35'	285.3	800	151.1	745.4	0.9
PROPOSED	24.226	±965	35'	285.3	800	151.1	634.2	1.3

VARIANCES GRANTED B THE BA D O DATED 03-30-16 AS FOLLOWS
-ARTICLE III, SECTION 220-9A, 220-9C 1 220 9E 1 3 TO PERMIT CONSTRUCTION OF THE BANQUET HALL AND KITCHEN IMPROVEMENTS WHICH IS LOCATED IN AN R-4A ONING DISTRICT

VARIANCES GRANTED B THE BA D O DATED 05-25-16 AS FOLLOWS
-ARTICLE VII, SECTION 220-55D 1 FOR A 15' WIDE ONE-WA ROAD
-ARTICLE VII, SECTION 220-55D 2 ROAD GRADES, STATION 4 50 AT ±14%, STATION14+50 AT ±16%, STATION 18+00 AT ±12.5%, STATIONS APPROXIMATE.

COVERAGE AREA CHART

DESCRIPTION	GRAVEL AREAS SQ FT	PAVED AREAS SQ FT	BUILDING AREAS SQ FT	WALKS SQ FT	TOTAL IMPERV AREA SQ FT	TOTAL IMPERV AREA ACRE	IMPERV AREA WETLAND A SQ FT
EXISTING	13,528	54,273	9,508	436	77,745	1.78	0
PROPOSED	9856	16,531	7,730	1,090	---------	----------	4,579
FINAL TOTAL	13,528	70,804	14,536	1,090	99,958	2.29	4,579

INCLUDES BUILDINGS TO BE REMOVED AS PART OF THIS PROJECT, GARAGE, SHED, DECK AND STONE BUILDING. 2,702 SQ FT NOT DOUBLE COUNTED.
THE EXISTING GRAVEL AREAS ARE COUNTED AS IMPERVIOUS AREAS, AS DEFINED B THE N SDEC, SPDES GENERAL PERMIT, GP-0-15-002.
PARKING AREA 5 AND AREA 4 EAST TO REMAIN GRAVEL.
IMPERVIOUS AREAS LOCATED IN THE TOWN OF LEWISBORO 150' WETLAND BUFFER FOR WETLAND "A"

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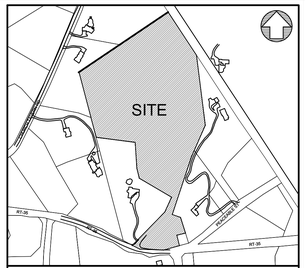
LAYOUT NOTES

1. PROPERT IS LOCATED IN AN R-4A ONE FAMIL RESIDENTIAL ONING DISTRICT.
2. REFERENCE IS MADE TO THE ONING BOARD DECISION AND ORDER REGARDING THE EXPANSION OF A PRE-EXISTING NON-CONFORMING USE FOR THIS PROPERT.
3. TOTAL AREA OF THE PROPERT IS 24.226 ACRES.
4. ALL DEMOLITION AND REMOVAL OF DEMOLITION DEBRIS SHALL BE DONE IN A LAWFUL MANNER INCLUDING ALL ABATEMENT REQUIREMENTS. APPROPRIATE PERMITS MUST BE OBTAINED FROM THE TOWN OF LEWISBORO.

REFERENCE NOTE

1. REFERENCE IS MADE TO THE LATEST REVISED PLANS / DOCUMENTS PREPARED B OTHERS AS FOLLOWS
   - -FOR ARCHITECTURAL FEATURES, SEE PLANS PREPARED B KG D ARCHITECTS.
   - -FOR LANDSCAPE ARCHITECTURAL FEATURES, SEE PLANS PREPARED B WESLE STOUT ASSOCIATES, LLC.
   - -FOR ENTRANCE/ROUTE 35 IMPROVEMENTS, SEE PLANS PREPARED B MASER CONSULTING, P.A.
   - -FOR WETLAND REPORT AND MITIGATION PLAN, SEE DOCUMENTS PREPARED B EVANS ASSOCIATES ENVIRONMENTAL CONSULTING, INC.

LA OUT PLAN
SCALE 1" = 30'



VICINITY MAP SCALE 1" = 500'

30 0 15 30
SCALE 1" = 30 FT.

LANDSCAPE ARCHITECT
WESLE STOUT ASSOCIATES, LLC C/O JAN GOLDFLUSS 96 MAIN STREET NEW CANAAN, CT 06840
SURVEYOR
RKW LAND SURVE ING C/O FRANK WALSH PO BOX 788, 22 EAST AVENUE NEW CANAAN, CT 06840
ENVIRONMENTAL CONSULTANT
EVANS ASSOCIATES C/O BETH EVANS 205 AMIT ROAD BETHAN , CT 06524
ATTORNEY
MICHAEL FULLER SIRIGNANO, ESQ. OLD POST ROAD PROFESSIONAL BUILDING 892 ROUTE 35, PO BOX 784 CROSS RIVER, N 10518
ARCHITECT
KG D ARCHITECTS ENGINEERS, PC C/O RUSSELL DAVIDSON 285 MAIN STREET MT KISCO, N 10549
OWNER/APPLICANT
ELEGANT BANQUETS, LLC C/O SIMON CURTIS 506 CANDLEWOOD LAKE ROAD BROOKFIELD, CT 06804

UNDER NEW ORK STATE EDUCATIONAL LAW ARTICLE 145, SECTION 7209 2, IT IS UNLAWFUL FOR AN PERSON TO ALTER AN ITEM ON THIS DRAWING, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER. IF AN ITEM IS ALTERED, THE ALTERING ENGINEER SHALL AFFIX TO THE ITEM HIS SEAL AND THE NOTATION "ALTERED B " FOLLOWED B HIS SIGNATURE AND THE DATE OF SUCH ALTERATION AND A SPECIFIC DESCRIPTION OF THE ALTERATION.
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REVISIONS

	REASON	DATE
3	KELLARD SESSIONS MEMO, PLANNING BOARD COMMENTS	JUL 29, 2016
2	KELLARD SESSIONS MEMO, PLANNING BOARD COMMENTS	JUNE 30, 2016
1	KELLARD SESSIONS MEMO, PLANNING BOARD COMMENTS	APRIL 27, 2016

MUNICIPAL TAX IDENTIFICATION	
SECTION	55.01
BLOCK	2
LOT	6
SUBLOT	-----
DRAWN B	KCS
CHECKED	KCS/TC3
PROJECT	CURTIS-LE CHATEAU
DATE	FEBRUAR 25, 2016
JOB	150504

STATE OF NEW YORK · TIMOTHY L. CRONIN · 062980 · LICENSED PROFESSIONAL ENGINEER

TIMOTH L. CRONIN III, P.E.
LICENSE 062980

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39 Arlo Lane
Cortlandt Manor, New York 10567

LAYOUT, ZONING, COVERAGE, DEMO AND PARKING PLAN

SITE DEVELOPMENT PLAN FOR LE CHATEAU

LOCATION:
1410 ROUTE 35
TOWN OF LEWISBORO, NEW YORK

SHEET 3 OF 17 **L-2.1**

PAVING NOTES

1. AREAS TO BE RE-PAVED SHALL BE DONE SO THAT THERE IS THE MINIMUM THICKNESS AS SPECIFIED ON THE DETAIL SHEETS AS WELL AS PROVIDING POSITIVE PITCH AND DRAINAGE TO EXISTING DRAINAGE WA S OR TO NEW STORM CATCHMENTS AND CONVE ANCE S STEMS.
2. PROPER PITCH, CROSS-SLOPE, CROWNS AND GUTTERS AS NECESSAR ARE TO BE FIELD DETERMINED AND PROVIDED AT THE DIRECTION OF THE DESIGN ENGINEER.
3. ALL WIDENING STRIPS SHALL BE PAVED TO THE ELEVATION OF THE EXISTING EDGE OF PAVEMENT. TOP COAT TO BE THEN PLACED ON THE ENTIRE ROAD WIDTH AS ONE COURSE.
4. TOP COAT OF ASPHALT SHALL BE PERFORMED ONL AFTER ALL AREAS OF PAVEMENT IMPROVEMENT ARE COMPLETE AND FLUSH WITH THE EXISTING ADJOINING PAVEMENTS.
5. TACK COAT MUST BE PROVIDED PRIOR TO TOP COURSE INSTALLATION.

REFERENCE NOTE

1. REFERENCE IS MADE TO THE LATEST REVISED PLANS / DOCUMENTS PREPARED B OTHERS AS FOLLOWS

-FOR ARCHITECTURAL FEATURES, SEE PLANS PREPARED B KG D ARCHITECTS.
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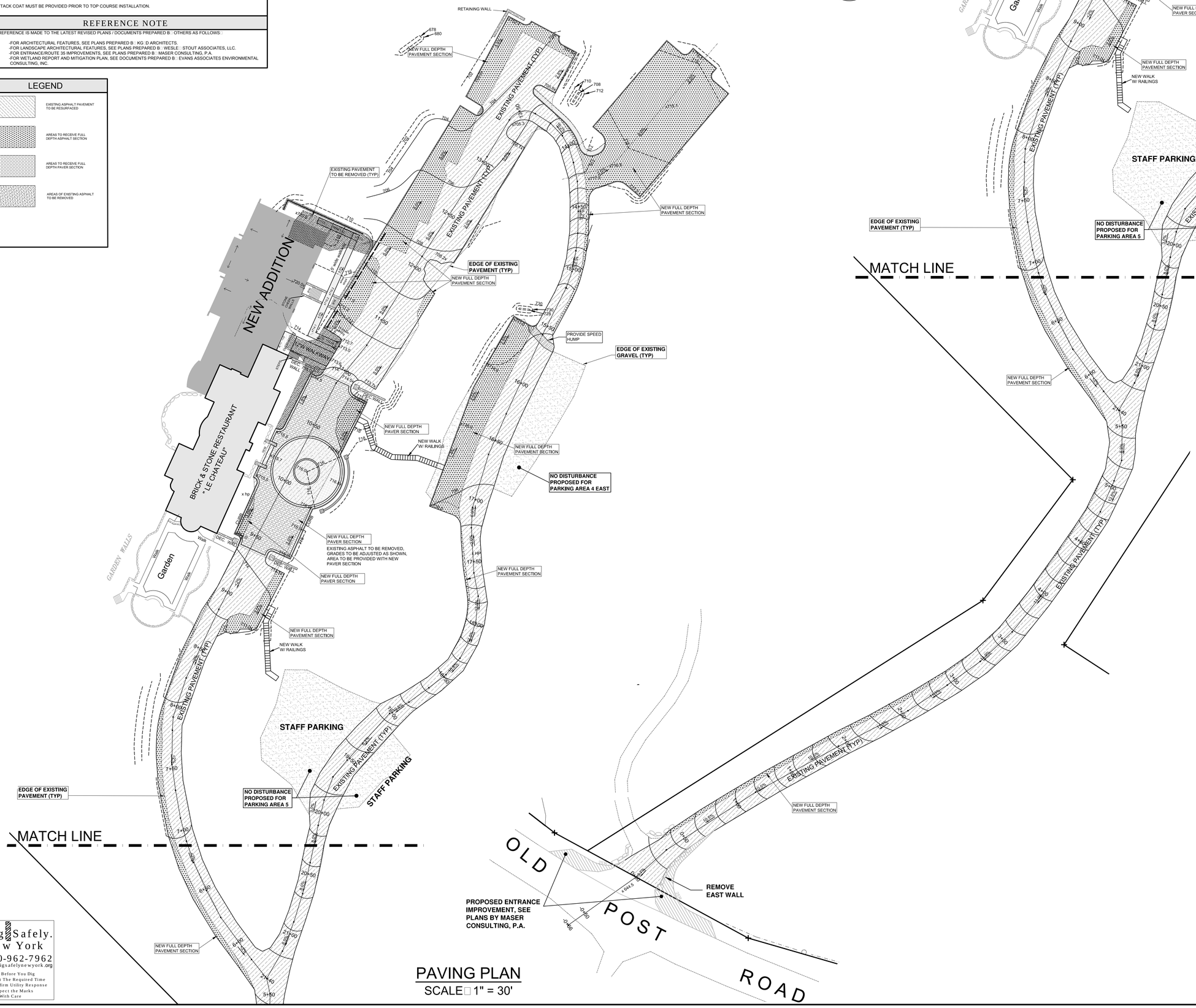
LEGEND

- EXISTING ASPHALT PAVEMENT TO BE RESURFACED
- AREAS TO RECEIVE FULL DEPTH ASPHALT SECTION
- AREAS TO RECEIVE FULL DEPTH PAVER SECTION
- AREAS OF EXISTING ASPHALT TO BE REMOVED



PAVING PLAN

SCALE 1" = 30'

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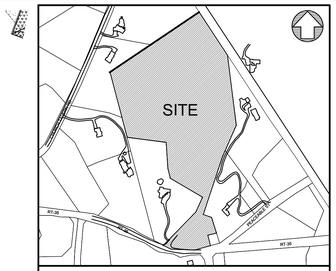

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30 0 15 30
SCALE 1" = 30 FT.

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MUNICIPAL TAX IDENTIFICATION

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SUBLOT	-----
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JOB	150504

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PAVING PLAN

SITE DEVELOPMENT PLAN FOR LE CHATEAU

LOCATION:
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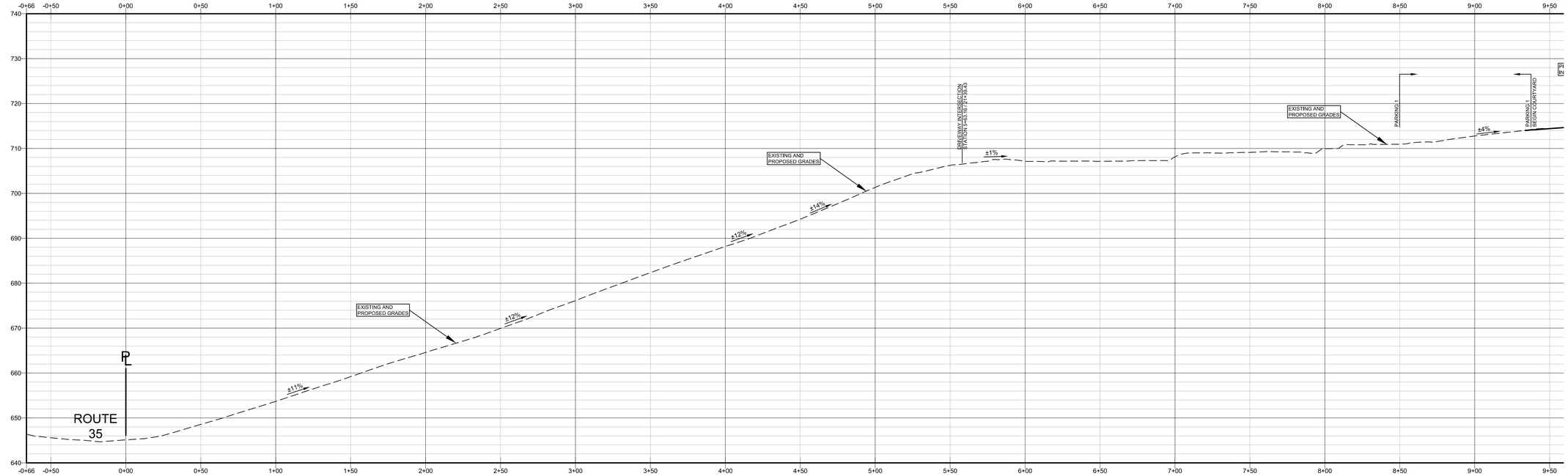
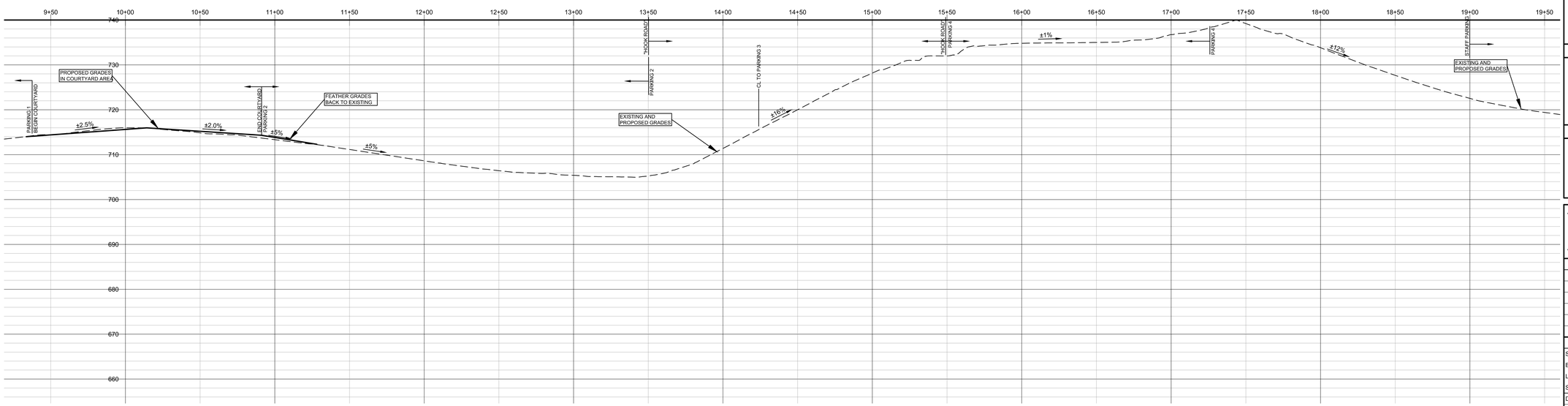
SHEET 4 OF 17 | L-2.2



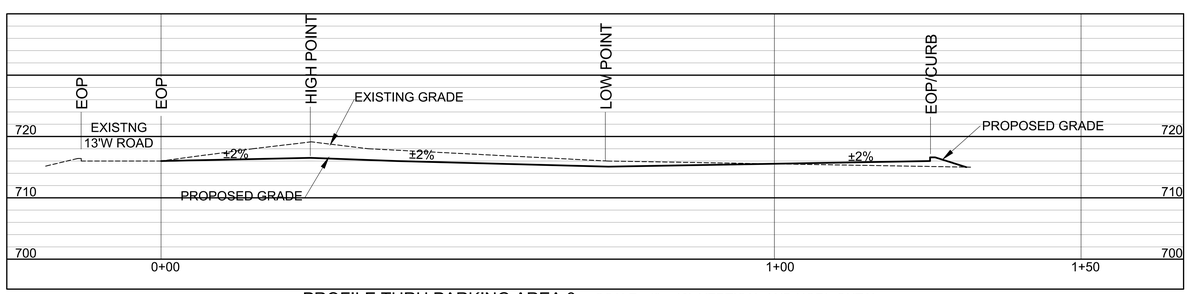
PROFILE THROUGH EXISTING DRIVEWA□ □ROUTE 35 TO COURT□ARD□ SCALE□1"=30' HORI□., 1"=10' VERT.



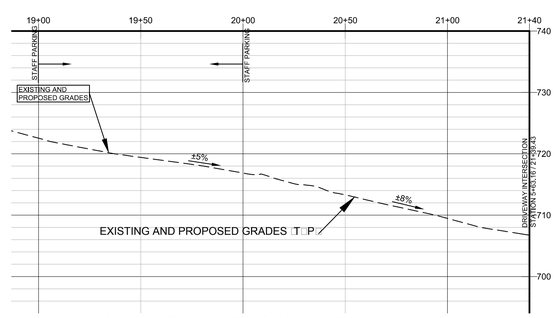
PROFILE THROUGH EXISTING DRIVEWA□ □COURT□ARD TO SDTATION 19□50□ SCALE□1"=30' HORI□., 1"=10' VERT.

ROAD PROFILES

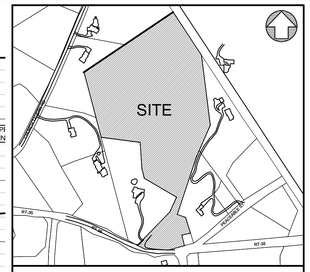
SCALE□ AS SHOWN



PROFILE THRU PARKING AREA 3 SCALE□ 1" = 10' □VERTICAL AND HORI□ONTAL□



PROFILE THROUGH EXISTING DRIVEWA□ □STATION 19□50 TO "□" INTERSECTION□ SCALE□1"=30' HORI□., 1"=10' VERT.



VICINITY MAP SCALE□1" = 500'

SCALE□AS SHOWN

LANDSCAPE ARCHITECT
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REVISIONS

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□	REASON	DATE

MUNICIPAL TAX IDENTIFICATION□	
SECTION□	55.01
BLOCK□	2
LOT□	6
SUBLOT□	-----
DRAWN B□□	KCS
CHECKED□	KCS/TC3
PROJECT□	CURTIS-LE CHATEAU
DATE□	FEBRUAR□ 25, 2016
JOB □□	150504

STATE OF NEW YORK · TIMOTHY L. CRONIN · 062980 · LICENSED PROFESSIONAL ENGINEER

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ROAD PROFILES

SITE DEVELOPMENT PLAN FOR LE CHATEAU

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SHEET 9 OF 17 **RP-4.1**

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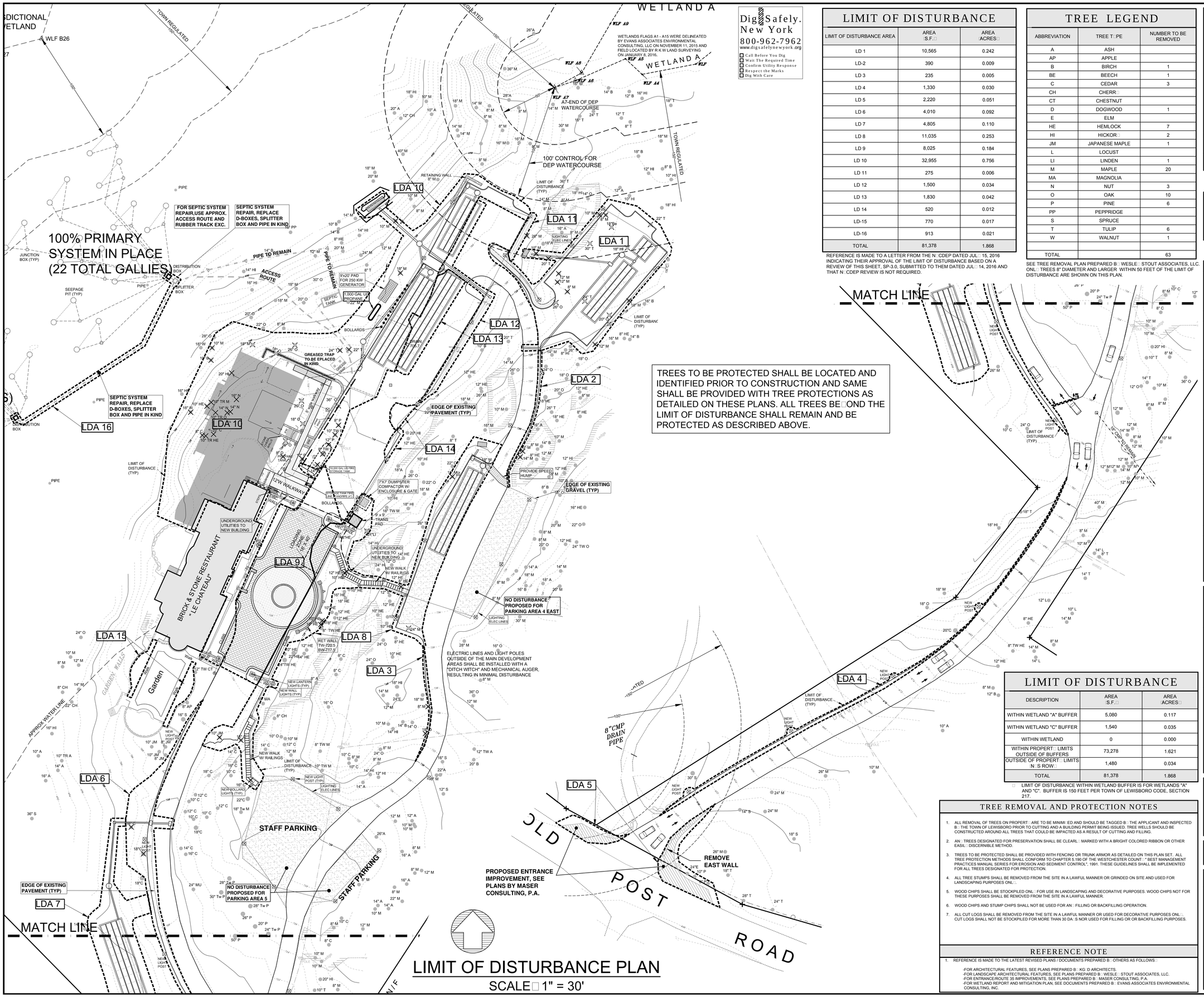

TREES TO BE PROTECTED SHALL BE LOCATED AND IDENTIFIED PRIOR TO CONSTRUCTION AND SAME SHALL BE PROVIDED WITH TREE PROTECTIONS AS DETAILED ON THESE PLANS. ALL TREES BE□OND THE LIMIT OF DISTURBANCE SHALL REMAIN AND BE PROTECTED AS DESCRIBED ABOVE.

LIMIT OF DISTURBANCE PLAN

SCALE□1" = 30'

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LIMIT OF DISTURBANCE

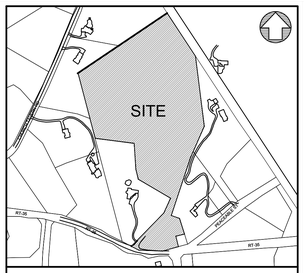
LIMIT OF DISTURBANCE AREA	AREA /S.F.□	AREA /ACRES□
LD 1	10,565	0.242
LD-2	390	0.009
LD 3	235	0.005
LD 4	1,330	0.030
LD 5	2,220	0.051
LD 6	4,010	0.092
LD 7	4,805	0.110
LD 8	11,035	0.253
LD 9	8,025	0.184
LD 10	32,955	0.756
LD 11	275	0.006
LD 12	1,500	0.034
LD 13	1,830	0.042
LD 14	520	0.012
LD-15	770	0.017
LD-16	913	0.021
TOTAL	81,378	1.868

REFERENCE IS MADE TO A LETTER FROM THE N□CDEP DATED JUL□ 15, 2016 INDICATING THEIR APPROVAL OF THE LIMIT OF DISTURBANCE BASED ON A REVIEW OF THIS SHEET, SP-3.0, SUBMITTED TO THEM DATED JUL□ 14, 2016 AND THAT N□ CDEP REVIEW IS NOT REQUIRED.

TREE LEGEND

ABBREVIATION	TREE T□PE	NUMBER TO BE REMOVED
A	ASH	
AP	APPLE	
B	BIRCH	1
BE	BEECH	1
C	CEDAR	3
CH	CHERR□	
CT	CHESTNUT	
D	DOGWOOD	1
E	ELM	
HE	HEMLOCK	7
HI	HICKOR□	2
JM	JAPANESE MAPLE	1
L	LOCUST	
LI	LINDEN	1
M	MAPLE	20
MA	MAGNOLIA	
N	NUT	3
O	OAK	10
P	PINE	6
PP	PEPPRIDGE	
S	SPRUCE	
T	TULIP	6
W	WALNUT	1
TOTAL		63

SEE TREE REMOVAL PLAN PREPARED B□ WESLE□ STOUT ASSOCIATES, LLC. ONL□ TREES 8" DIAMETER AND LARGER WITHIN 50 FEET OF THE LIMIT OF DISTURBANCE ARE SHOWN ON THIS PLAN.



VICINITY MAP SCALE□1" = 500'

SCALE□1" = 30 FT.

LIMIT OF DISTURBANCE

DESCRIPTION	AREA /S.F.□	AREA /ACRES□
WITHIN WETLAND "A" BUFFER	5,080	0.117
WITHIN WETLAND "C" BUFFER	1,540	0.035
WITHIN WETLAND	0	0.000
WITHIN PROPERT□ LIMITS OUTSIDE OF BUFFERS	73,278	1.621
OUTSIDE OF PROPERT□ LIMITS /N□ S ROW□	1,480	0.034
TOTAL	81,378	1.868

□ LIMIT OF DISTURBANCE WITHIN WETLAND BUFFER IS FOR WETLANDS "A" AND "C". BUFFER IS 150 FEET PER TOWN OF LEWISBORO CODE, SECTION 217.

TREE REMOVAL AND PROTECTION NOTES

1. ALL REMOVAL OF TREES ON PROPERT□ ARE TO BE MINIM□ED AND SHOULD BE TAGGED B□ THE APPLICANT AND INSPECTED B□ THE TOWN OF LEWISBORO PRIOR TO CUTTING AND A BUILDING PERMIT BEING ISSUED. TREE WELLS SHOULD BE CONSTRUCTED AROUND ALL TREES THAT COULD BE IMPACTED AS A RESULT OF CUTTING AND FILLING.
2. AN□ TREES DESIGNATED FOR PRESERVATION SHALL BE CLEARL□ MARKED WITH A BRIGHT COLORED RIBBON OR OTHER EASIL□ DISCERNIBLE METHOD.
3. TREES TO BE PROTECTED SHALL BE PROVIDED WITH FENCING OR TRUNK ARMOR AS DETAILED ON THIS PLAN SET. ALL TREE PROTECTION METHODS SHALL CONFORM TO CHAPTER 5.190 OF THE WESTCHESTER COUNT□ " BEST MANAGEMENT PRACTICES MANUAL SERIES FOR EROSION AND SEDIMENT CONTROL", 1991. THESE GUIDELINES SHALL BE IMPLEMENTED FOR ALL TREES DESIGNATED FOR PROTECTION.
4. ALL TREE STUMPS SHALL BE REMOVED FROM THE SITE IN A LAWFUL MANNER OR GRINDED ON SITE AND USED FOR LANDSCAPING PURPOSES ONL□.
5. WOOD CHIPS SHALL BE STOCKPILED ONL□ FOR USE IN LANDSCAPING AND DECORATIVE PURPOSES. WOOD CHIPS NOT FOR THESE PURPOSES SHALL BE REMOVED FROM THE SITE IN A LAWFUL MANNER.
6. WOOD CHIPS AND STUMP CHIPS SHALL NOT BE USED FOR AN□ FILLING OR BACKFILLING OPERATION.
7. ALL CUT LOGS SHALL BE REMOVED FROM THE SITE IN A LAWFUL MANNER OR USED FOR DECORATIVE PURPOSES ONL□. CUT LOGS SHALL NOT BE STOCKPILED FOR MORE THAN 30 DA□S NOR USED FOR FILLING OR OR BACKFILLING PURPOSES.

REFERENCE NOTE

1. REFERENCE IS MADE TO THE LATEST REVISED PLANS / DOCUMENTS PREPARED B□ OTHERS AS FOLLOWS□
   - -FOR ARCHITECTURAL FEATURES, SEE PLANS PREPARED B□ KG□D ARCHITECTS.
   - -FOR LANDSCAPE ARCHITECTURAL FEATURES, SEE PLANS PREPARED B□ WESLE□ STOUT ASSOCIATES, LLC.
   - -FOR ENTRANCE/ROUTE 35 IMPROVEMENTS, SEE PLANS PREPARED B□ MASER CONSULTING, P.A.
   - -FOR WETLAND REPORT AND MITIGATION PLAN, SEE DOCUMENTS PREPARED B□ EVANS ASSOCIATES ENVIRONMENTAL CONSULTING, INC.

LANDSCAPE ARCHITECT
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SURVEYOR
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ENVIRONMENTAL CONSULTANT
EVANS ASSOCIATES
C/O BETH EVANS
205 AMIT□ ROAD
BETHAN□, CT 06524

ATTORNEY
MICHAEL FULLER SIRIGNANO, ESQ.
OLD POST ROAD PROFESSIONAL BUILDING
892 ROUTE 35, PO BOX 784
CROSS RIVER, N□ 10518

ARCHITECT
KG□D ARCHITECTS □ ENGINEERS, PC
C/O RUSSELL DAVIDSON
285 MAIN STREET
MT KISCO, N□ 10549

OWNER/APPLICANT
ELEGANT BANQUETS, LLC
C/O SIMON CURTIS
506 CANDLEWOOD LAKE ROAD
BROOKFIELD, CT 06804

♦ UNDER NEW □ORK STATE EDUCATIONAL LAW ARTICLE 145, SECTION 7209 □2□ IT IS UNLAWFUL FOR AN□ PERSON TO ALTER AN□ ITEM ON THIS DRAWING, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER. IF AN□ ITEM IS ALTERED, THE ALTERING ENGINEER SHALL AFFIX TO THE ITEM HIS SEAL AND THE NOTATION "ALTERED B□" FOLLOWED B□ HIS SIGNATURE AND THE DATE OF SUCH ALTERATION AND A SPECIFIC DESCRIPTION OF THE ALTERATION.
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REVISIONS

	REASON	DATE
3	KELLARD SESSIONS MEMO, PLANNING BOARD COMMENTS	JUL□ 29, 2016
2	KELLARD SESSIONS MEMO, PLANNING BOARD COMMENTS	JUNE 30, 2016
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MUNICIPAL TAX IDENTIFICATION□
SECTION□ 55.01
BLOCK□ 2
LOT□ 6
SUBLOT□ -----
DRAWN B□ KCS
CHECKED□ KCS/TC3
PROJECT□ CURTIS-LE CHATEAU
DATE□ FEBRUAR□ 25, 2016
JOB □ 150504

STATE OF NEW YORK · TIMOTHY L. CRONIN · 062980 · LICENSED PROFESSIONAL ENGINEER

TIMOTH□ L. CRONIN III, P.E.
LICENSE□062980

CRONIN ENGINEERING
PROFESSIONAL ENGINEERING & CONSULTING
(914) 736-3664
39 Arlo Lane
Cortlandt Manor, New York 10567

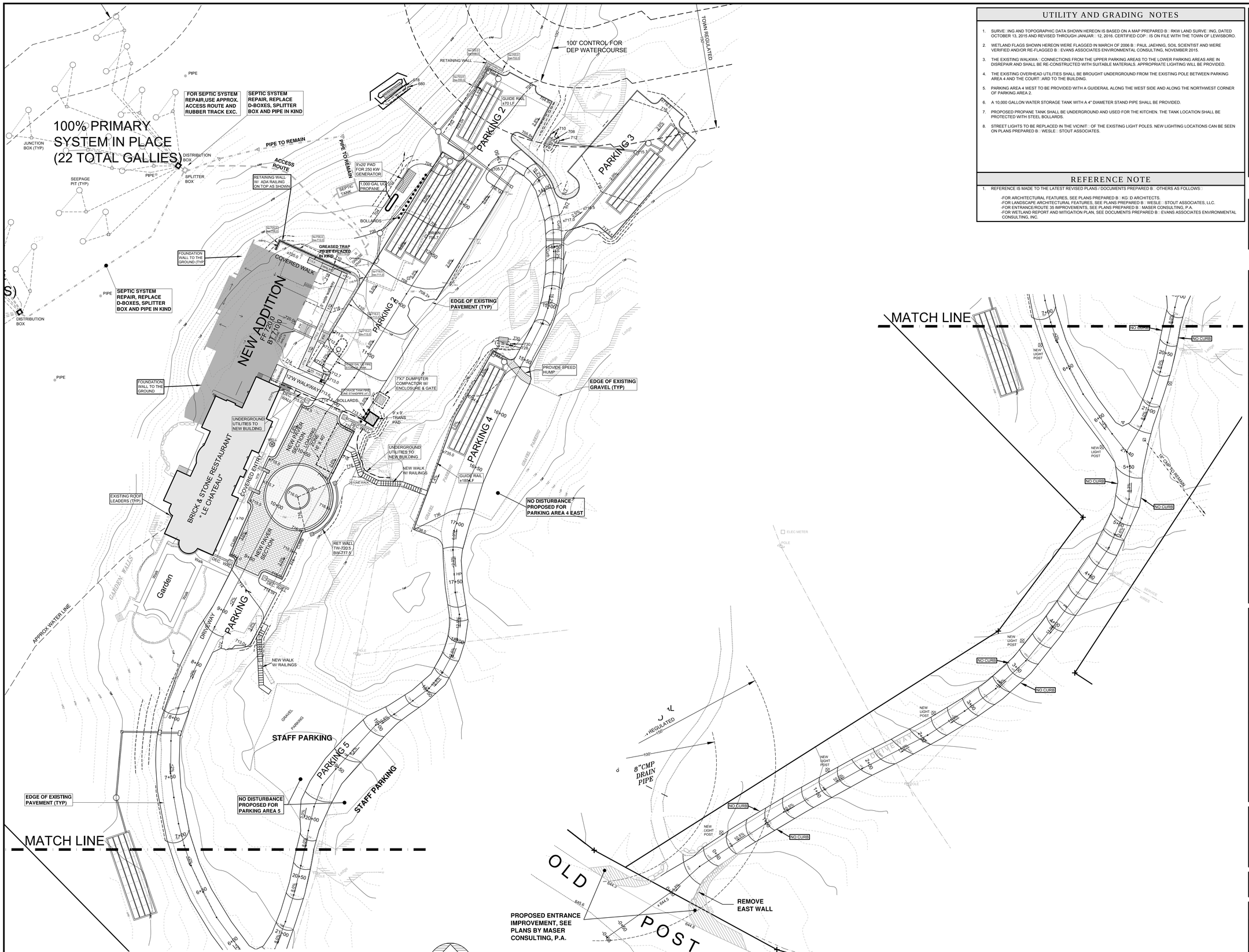
LIMIT OF DISTURBANCE AND TREE PLAN

SITE DEVELOPMENT PLAN FOR LE CHATEAU

LOCATION:
1410 ROUTE 35
TOWN OF LEWISBORO, NEW YORK

SHEET 5 OF 17

SP-3.0

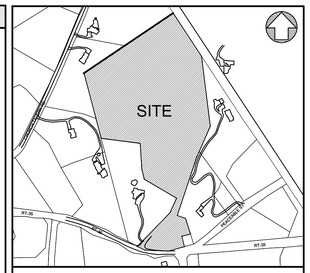


UTILITY AND GRADING NOTES

1. SURVEYING AND TOPOGRAPHIC DATA SHOWN HEREON IS BASED ON A MAP PREPARED BY RKW LAND SURVEYING, DATED OCTOBER 13, 2015 AND REVISED THROUGH JANUARY 12, 2016. CERTIFIED COPY IS ON FILE WITH THE TOWN OF LEWISBORO.
2. WETLAND FLAGS SHOWN HEREON WERE FLAGGED IN MARCH OF 2006 BY PAUL JAEHNIG, SOIL SCIENTIST AND WERE VERIFIED AND/OR RE-FLAGGED BY EVANS ASSOCIATES ENVIRONMENTAL CONSULTING, NOVEMBER 2015.
3. THE EXISTING WALKWAY CONNECTIONS FROM THE UPPER PARKING AREAS TO THE LOWER PARKING AREAS ARE IN DISREPAIR AND SHALL BE RE-CONSTRUCTED WITH SUITABLE MATERIALS. APPROPRIATE LIGHTING WILL BE PROVIDED.
4. THE EXISTING OVERHEAD UTILITIES SHALL BE BROUGHT UNDERGROUND FROM THE EXISTING POLE BETWEEN PARKING AREA 4 AND THE COURTYARD TO THE BUILDING.
5. PARKING AREA 4 WEST TO BE PROVIDED WITH A GUIDERAIL ALONG THE WEST SIDE AND ALONG THE NORTHWEST CORNER OF PARKING AREA 2.
6. A 10,000 GALLON WATER STORAGE TANK WITH A 4" DIAMETER STAND PIPE SHALL BE PROVIDED.
7. PROPOSED PROPANE TANK SHALL BE UNDERGROUND AND USED FOR THE KITCHEN. THE TANK LOCATION SHALL BE PROTECTED WITH STEEL BOLLARDS.
8. STREET LIGHTS TO BE REPLACED IN THE VICINITY OF THE EXISTING LIGHT POLES. NEW LIGHTING LOCATIONS CAN BE SEEN ON PLANS PREPARED BY WESLEY STOUT ASSOCIATES.

REFERENCE NOTE

1. REFERENCE IS MADE TO THE LATEST REVISED PLANS / DOCUMENTS PREPARED BY OTHERS AS FOLLOWS:
   - -FOR ARCHITECTURAL FEATURES, SEE PLANS PREPARED BY: KG D ARCHITECTS.
   - -FOR LANDSCAPE ARCHITECTURAL FEATURES, SEE PLANS PREPARED BY: WESLEY STOUT ASSOCIATES, LLC.
   - -FOR ENTRANCE/ROUTE 35 IMPROVEMENTS, SEE PLANS PREPARED BY: MASER CONSULTING, P.A.
   - -FOR WETLAND REPORT AND MITIGATION PLAN, SEE DOCUMENTS PREPARED BY: EVANS ASSOCIATES ENVIRONMENTAL CONSULTING, INC.



VICINITY MAP SCALE 1" = 500'

SCALE 1" = 30 FT.

LANDSCAPE ARCHITECT
WESLEY STOUT ASSOCIATES, LLC C/O JAN GOLDFLUSS 96 MAIN STREET NEW CANAAN, CT 06840
SURVEYOR
RKW LAND SURVEYING C/O FRANK WALSH PO BOX 788, 22 EAST AVENUE NEW CANAAN, CT 06840
ENVIRONMENTAL CONSULTANT
EVANS ASSOCIATES C/O BETH EVANS 205 AMITY ROAD BETHANY, CT 06524
ATTORNEY
MICHAEL FULLER SIRIGNANO, ESQ. OLD POST ROAD PROFESSIONAL BUILDING 892 ROUTE 35, PO BOX 784 CROSS RIVER, NY 10518
ARCHITECT
KG D ARCHITECTS ENGINEERS, PC C/O RUSSELL DAVIDSON 285 MAIN STREET MT KISCO, NY 10549
OWNER/APPLICANT
ELEGANT BANQUETS, LLC C/O SIMON CURTIS 506 CANDLEWOOD LAKE ROAD BROOKFIELD, CT 06804

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LOT	6
SUBLOT	-----
DRAWN BY	KCS
CHECKED	KCS/TC3
PROJECT	CURTIS-LE CHATEAU
DATE	FEBRUARY 25, 2016
JOB	150504

STATE OF NEW YORK · TIMOTHY L. CRONIN · 62980 · LICENSED PROFESSIONAL ENGINEER

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LICENSE 062980

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UTILITY AND GRADING PLAN

SITE DEVELOPMENT PLAN FOR LE CHATEAU

LOCATION:
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SHEET 6 OF 17 — SP-3.1

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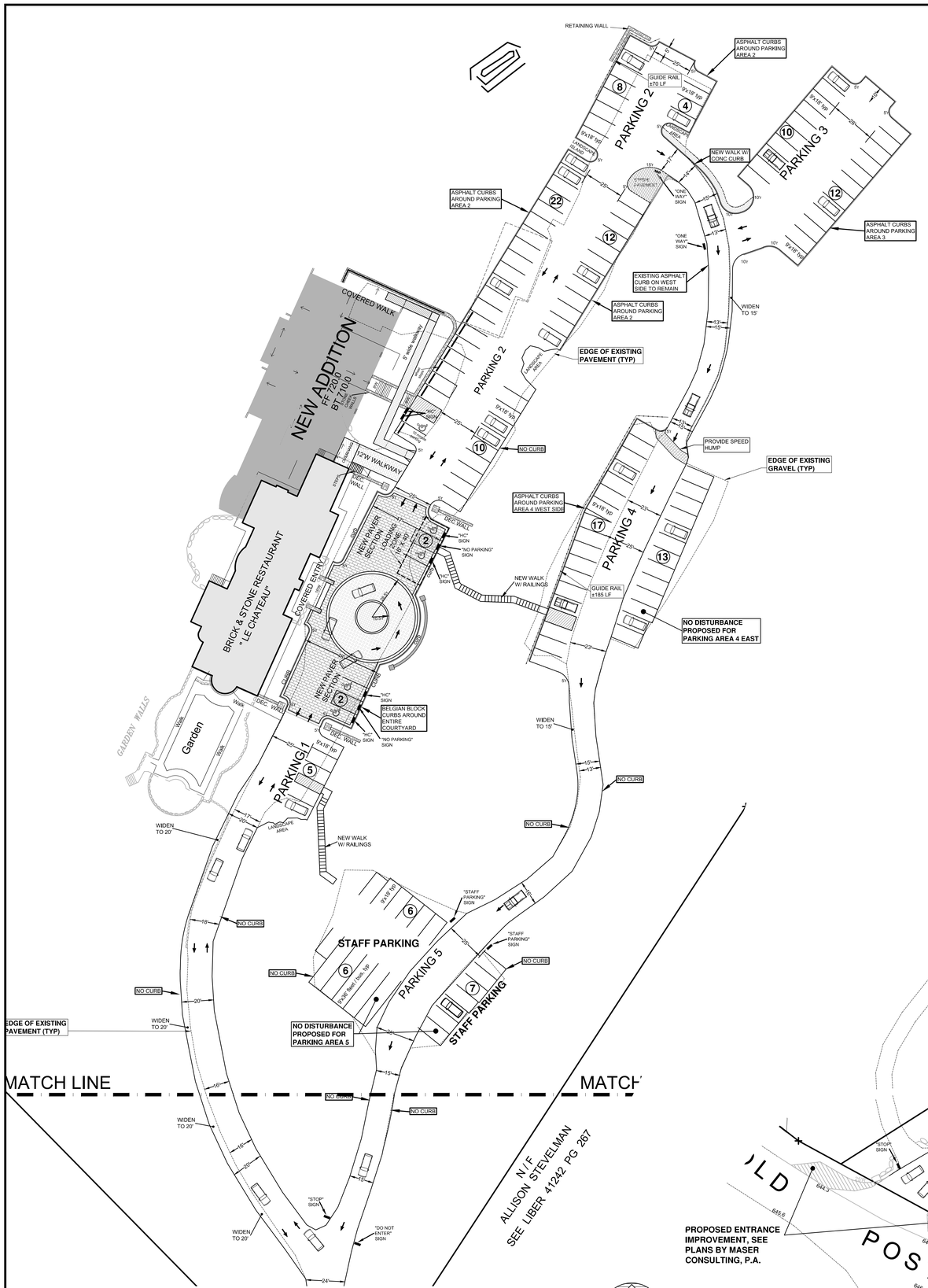
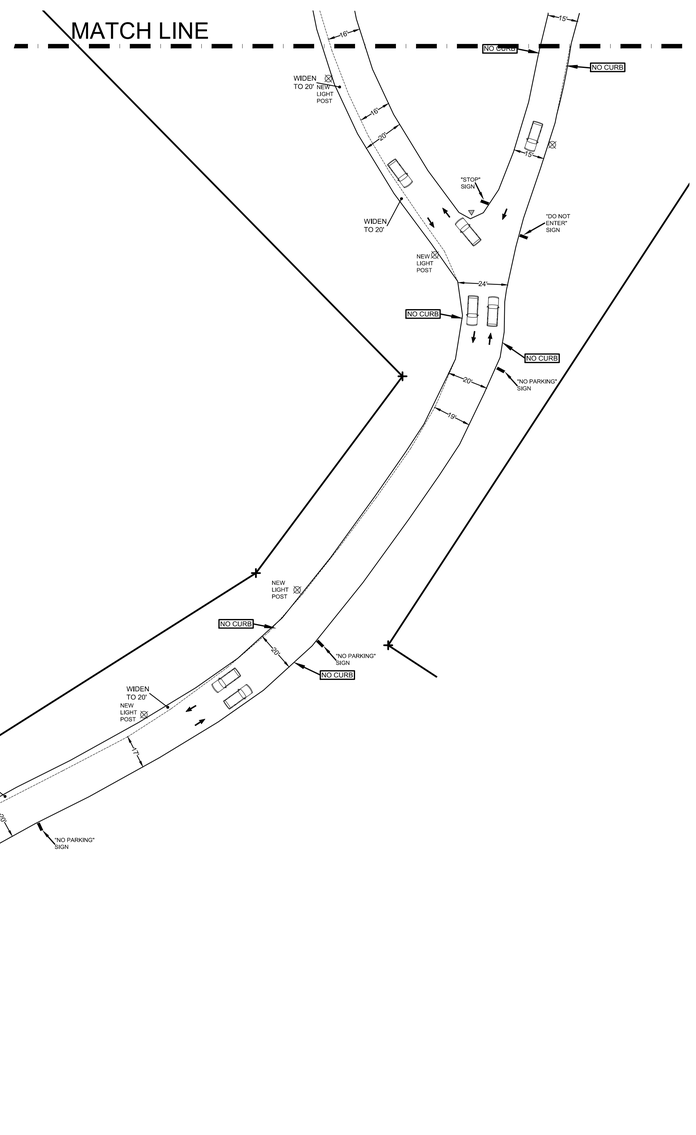
UTILITY AND GRADING PLAN

SCALE 1" = 30'





ROAD AND TRAFFIC NOTES

1. ALL TWO-WA□ ROADS SHALL BE WIDENED TO 20' AND THE ONE-WA□ ROAD SHALL BE WIDENED TO 15'.
2. ALL LIGHT POSTS SHALL BE REPLACED, SEE PLAN PREPARED B□ LANDSCAPE ARCHITECT.
3. THE PEDESTRIAN ACCESS WALKWA□S FROM THE UPPER PARKING AREAS TO THE LOWER PARKING AREAS SHALL BE REMOVED AND REPLACED WITH NEW WALKWA□S AND STAIRS AND PROVIDED WITH SUITABLE LIGHTING. SEE PLANS PREPARED B□ THE LANDSCAPE ARCHITECT.
4. THERE SHALL BE NO DISTURBANCES TO PARKING AREA 5 AND SAME SHALL BE USED FOR STAFF PARKING ONL□.
5. THERE SHALL BE NO DISTURBANCES TO PARKING AREA 4 EAST.
6. ALL PARKING AREAS SHALL NO EXCEED 5□ SLOPE AND ADA PARKING SPACES SHALL NOT EXC EED 2□ SLOPE.
7. ALL PARKING AREAS SHALL BE PROVIDED WITH SUITABLE LIGHTING. SEE PLANS PREPARED B□ THE LANDSCAPE ARCHITECT.
8. FOR ENTRANCE IMPROVEMENTS AT ROUTE 6, REFERENCE IS MADE TO PLANS PREPARED B□ MASER CONSULTING, P.A.

REFERENCE NOTE

1. REFERENCE IS MADE TO THE LATEST REVISED PLANS / DOCUMENTS PREPARED B□ OTHERS AS FOLLOWS□
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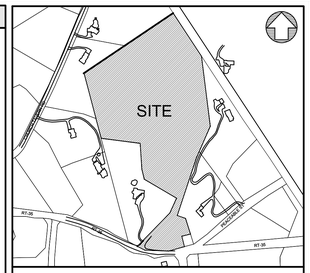

VICINITY MAP SCALE□1" = 500'

30 0 15 30

SCALE□1" = 30 FT.

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ROAD,TRAFFIC & PEDESTRIAN PLAN

SITE DEVELOPMENT PLAN FOR LE CHATEAU

LOCATION:
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SHEET 7 OF 17 | SP-3.2

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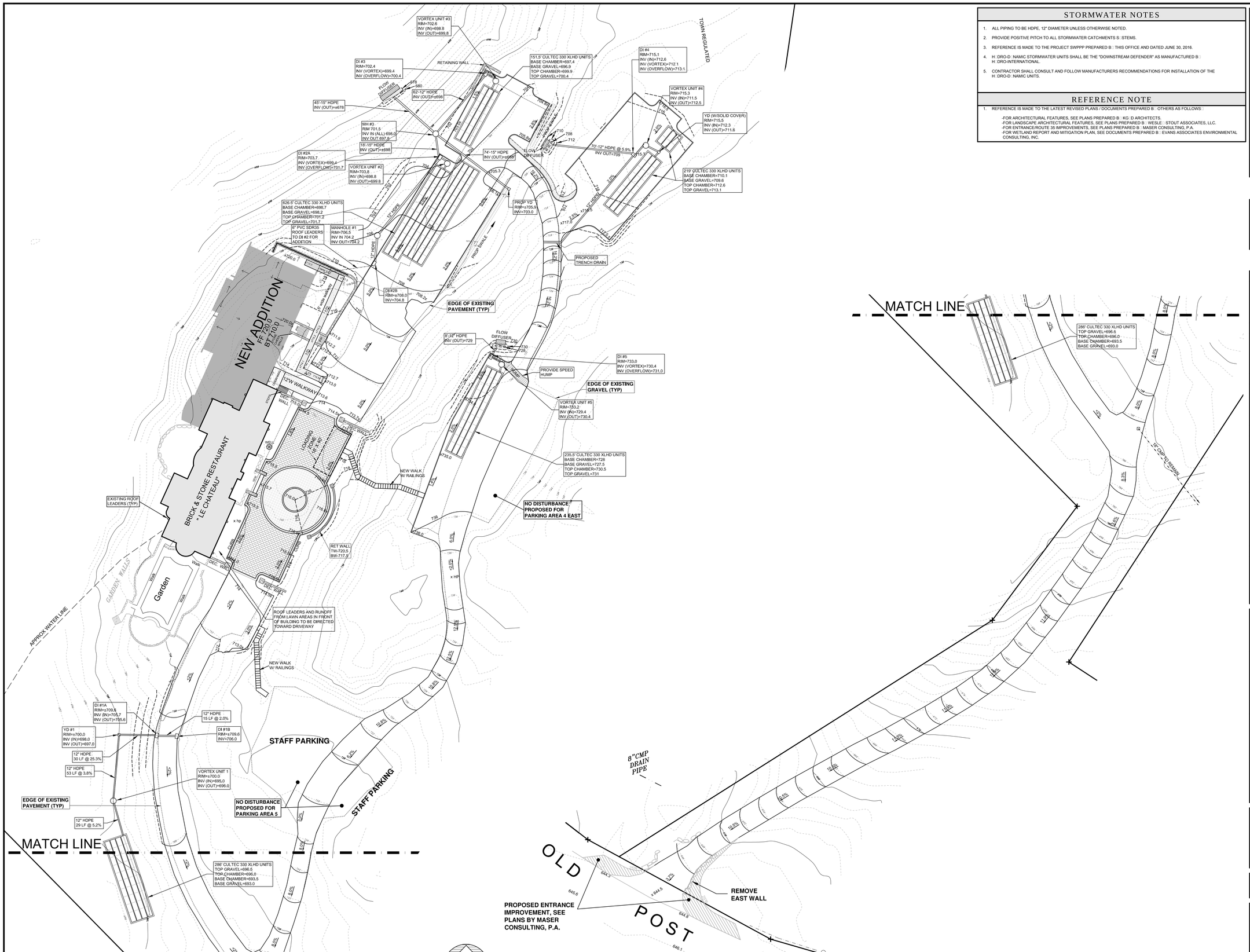
ROAD AND TRAFFIC PLAN

SCALE□1" = 30'



STORMWATER NOTES

1. ALL PIPING TO BE HDPE, 12" DIAMETER UNLESS OTHERWISE NOTED.
2. PROVIDE POSITIVE PITCH TO ALL STORMWATER CATCHMENTS S STEMS.
3. REFERENCE IS MADE TO THE PROJECT SWPPP PREPARED B THIS OFFICE AND DATED JUNE 30, 2016.
4. H DRO-D NAMIC STORMWATER UNITS SHALL BE THE "DOWNSTREAM DEFENDER" AS MANUFACTURED B H DRO-INTERNATIONAL.
5. CONTRACTOR SHALL CONSULT AND FOLLOW MANUFACTURERS RECOMMENDATIONS FOR INSTALLATION OF THE H DRO-D NAMIC UNITS.

REFERENCE NOTE

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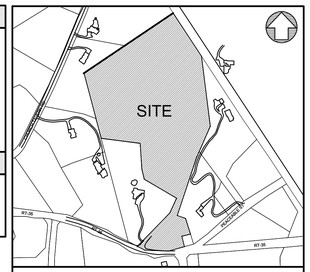

VICINITY MAP SCALE 1" = 500'

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STORMWATER/DRAINAGE PLAN

SITE DEVELOPMENT PLAN
FOR
LE CHATEAU

LOCATION:
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TOWN OF LEWISBORO, NEW YORK

SHEET 8 OF 17 **SP-3.3**

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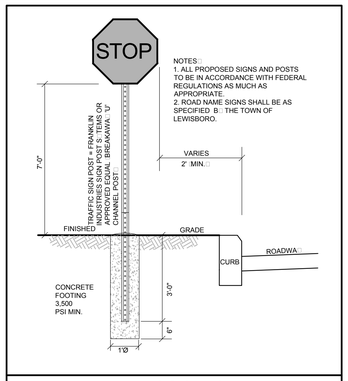
STORMWATER / DRAINAGE PLAN

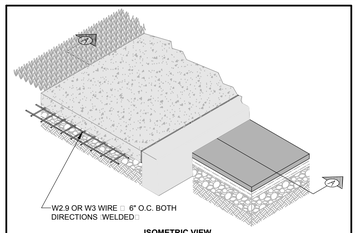
SCALE 1" = 30'

NOTE:
ALL SIGNS TO BE IN ACCORDANCE WITH THE SPECIFICATIONS OF THE TOWN OF LEWISBORO AND THE FEDERAL M.U.T.C.D

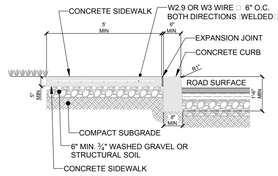
TRAFFIC, PARKING AND PEDESTRIAN SIGNS N.T.S.



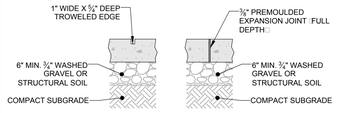
TRAFFIC SIGN POLE N.T.S.



ISOMETRIC VIEW



SECTION A-A

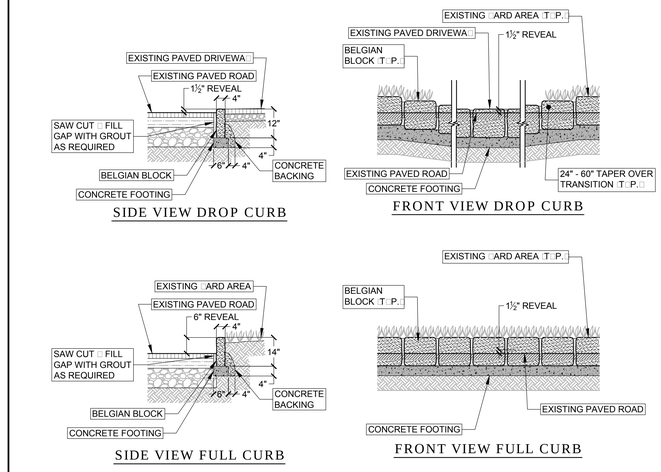


SCORE JOINT EXPANSION JOINT

CONSTRUCTION NOTES:

1. CONTRACTOR SHALL COMPLY WITH REQUIREMENTS OF SECTION 501 N.Y.SDOT STANDARD SPECIFICATIONS CODE FOR TRANSPORTING, AND PLACING OF PORTLAND CEMENT CONCRETE.
2. CONCRETE TO BE PLACED IN ONE COURSE TO THE FULL DEPTH.
3. PROVIDE CONCRETE CLASS "A" AS PER N.Y.SDOT SECTION 501-2.
4. CURING OF CONCRETE SHALL CONFORM SECTION 502 N.Y.S CODE.
5. SIDEWALK TO BE PLACED ON 6" THICK BASE OF COMPACTED ½"GRAVEL OR STRUCTURAL SOIL AS SPECIFIED.
6. SIDEWALK SLAB SHALL HAVE A MINIMUM THICKNESS OF 5". AND 7" MIN. AT DRIVEWAY SECTIONS.
7. WIRE FABRIC TO BE W2.9 OR W3 WIRE AT 6" CENTERS TRANSVERSELY AND LONGITUDINALLY, AND SHALL BE EMBEDDED TO MID-DEPTH IN THE SLAB.
8. LONGITUDINAL JOINTS TO BE PLACED TO FULL DEPTH OF SLAB BETWEEN SIDEWALK AND CURB.
9. TRANSVERSE EXPANSION JOINTS SHALL BE PLACED TO THE FULL DEPTH OF SLAB AND BE SPACED 20 FEET APART. THE EDGES OF TRANSVERSE JOINTS TO BE FINISHED WITH AN EDGING TOOL HAVING A 1/4 INCH RADIUS.
10. ALL JOINTS SHALL BE PREMOLDED BITUMINOUS TYPE, ½" OR ¾".
11. CONCRETE SURFACE TO BE SCORED AND TOOLED AT INTERVALSOF 5 FEET.
12. THE CONCRETE SHALL BE FINISHED TO PRODUCE A SMOOTHSURFACE, THEN LIGHTLY BROOMED TO A UNIFORM TEXTURE, AND SHOULD BE SLIP RESISTANT.
13. CONTRACTOR TO PREVENT AGAINST ANY LOW SPOTS WHERE WATER CAN COLLECT AND ANY POSSIBLE REDIRECTION OF STORMWATER.
14. CONTRACTOR TO USE RESILIENT JOINT FILLER ACCORDING TO SECTION 705-07 N.Y.S CODE AND INSTALL AT ALL JOINTS BETWEEN SIDEWALK, RAMPS, AND CURBS.
15. CONCRETE SIDEWALK TO RECEIVE 2 TWO COATS OF ANTI-SPALLING COMPOUND.

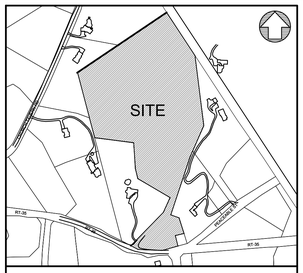
CONCRETE SIDEWALK INSTALLATION N.T.S.



NOTES

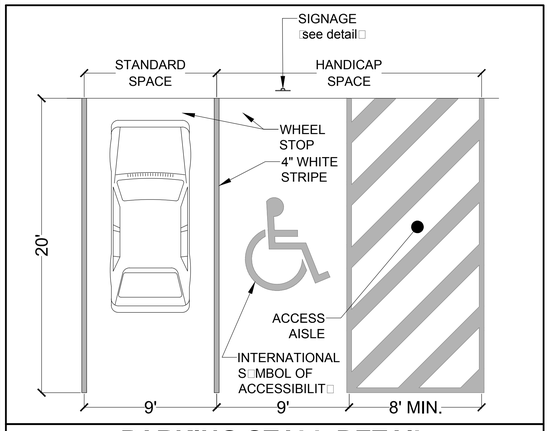
1. ALL CONCRETE FOR FOOTINGS & BACKING TO TEST 3000 P.S.I. AT 28 DAYS.
2. PROVIDE ⅝" JOINTS BETWEEN BLOCKS AND FILL WITH CONRETE MORTAR.
3. EXTREME CARE SHOULD BE TAKEN DURING EXCAVATION SO THAT THE EXISTING PAVED AREAS ARE NOT UNDERMINED. EXCAVATED AREAS BETWEEN PAVEMENT AND BLOCK SHALL BE PROMPTLY FILLED WITH GROUT.
4. BELGIAN BLOCKS SHALL BE 14" x 18" x 4" OR SHALL MATCH EXISTING.
5. A 6" REVEAL SHALL BE MAINTAINED ON ALL CURBING EXCEPT FOR AT AREAS OF DRIVEWAY INTERSECTIONS WHICH SHALL BE PROVIDED WITH A 1½" REVEAL AS SHOWN. MATCH EXISTING CURBING WHERE APPLICABLE.
6. IF UNSUITABLE MATERIAL IS ENCOUNTERED DURING CURB INSTALLATION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REMOVE AND REPLACE WITH WELL COMPACTED SELECT MATERIAL AT THE DIRECTION OF THE DESIGN ENGINEER.
7. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE WORK ZONE IN A SAFE MANNER IN ACCORDANCE WITH CFR-29-LABOR, PART 1926-OSHA.

BELGIAN BLOCK CURB INSTALLATION NTS



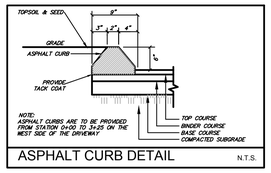
VICINITY MAP SCALE 1" = 500'

SCALE AS SHOWN

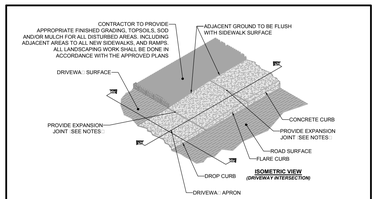


PARKING STALL DETAIL N.T.S.

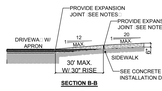
Dig Safely. New York
800-962-7962
www.digsafelynewyork.org
Call Before You Dig
Wait The Required Time
Confirm Utility Response
Respect the Marks
Dig With Care



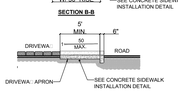
ASPHALT CURB DETAIL N.T.S.



ISOMETRIC VIEW (DRIVEWAY INTERSECTION)



SECTION B-B

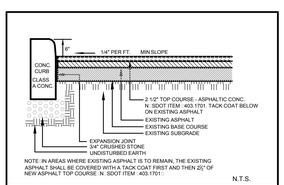


SECTION D-D

CONSTRUCTION NOTES:

1. ALL RAMP AND SIDEWALK CONSTRUCTION TO BE DONE IN ACCORDANCE WITH CT BUILDING CODES, LOCAL CODES AND AMERICAN DISABILITY ASSOCIATION REGULATIONS.
2. MAX SLOPE ON RAMPS NOT TO EXCEED 1 VERTICAL ON 12 HORIZONTAL AND 1 VERTICAL ON 50 HORIZONTAL CROSS SLOPE.
3. CONTRACTOR TO PROVIDE A STABLE, FIRM, SLIP FREE SURFACE FREE OF PONDING AREAS AND AREAS OF ICE CONCERN.
4. IF A LANDING HAS TO BE INCORPORATED INTO THE RAMPS, THE MAXIMUM VERTICAL RISE BETWEEN LANDING AND RESTING SPACE SHALL NOT EXCEED 30".
5. ALL EXPANSION JOINTS SHALL CONSIST OF FELT MATERIAL.

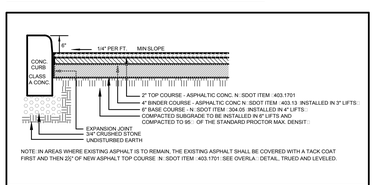
SIDEWALK RAMP & CURB @ DRIVEWAY INTERSECTION N.T.S.



NOTE: IN AREAS WHERE EXISTING ASPHALT IS TO REMAIN, THE EXISTING ASPHALT SHALL BE COVERED WITH A TACK COAT FIRST AND THEN 2½" OF NEW ASPHALT TOP COURSE. N.SDOT ITEM : 403.1701

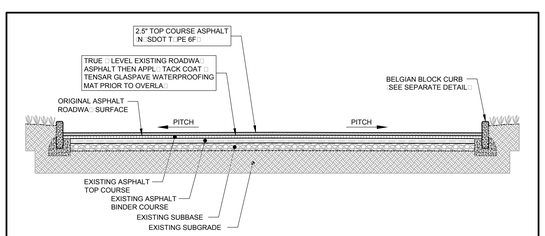
N.T.S.

PAVEMENT AND CURB DETAIL (ASPHALT OVERLAY ONLY)



NOTE: IN AREAS WHERE EXISTING ASPHALT IS TO REMAIN, THE EXISTING ASPHALT SHALL BE COVERED WITH A TACK COAT FIRST AND THEN 2½" OF NEW ASPHALT TOP COURSE. N.SDOT ITEM : 403.1701 SEE OVERLAY DETAIL, TRUED AND LEVELED.

PAVEMENT AND CURB DETAIL (FULL DEPTH OF PAVEMENT) N.T.S.

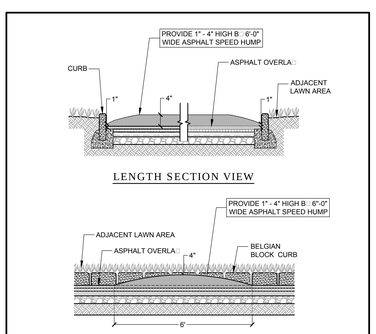


SECTION THRU ROADWAY

NOTES

1. THE ROADWAY SHALL PITCH UNIFORMLY TO THE CURB & EXISTING DRAINAGE STRUCTURES.
2. BELGIAN BLOCK DROP CURBING WITH 6" REVEAL SHALL BE INSTALLED BEFORE ROADWAY IS OVERLAYED.
3. ALL CRACKS IN THE APSHALT ROADWAY SHALL BE CLEANED & FILLED WITH JOINT SEALANT THEN THE ROADWAY SHALL BE CLEANED OF ALL DIRT, SILT, ETC. AND THE GLASPAVE WATERPROOFING PAVING MAT SHALL THEN BE APPLIED OVER TACK COAT PER THE MANUFACTURER SPECIFICATION OF 0.15 GAL/SY.
4. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE WORK ZONE IN A SAFE MANNER IN ACCORDANCE WITH CFR-29-LABOR, PART 1926-OSHA.

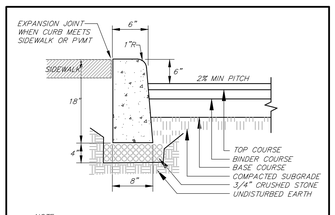
ASPHALT ROADWAY OVERLAY NTS



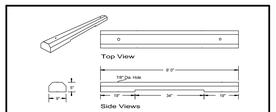
NOTES

1. SPEED HUMP TO BE MADE OF TOP COURSE ASPHALT AND TO BE PLACED ONTO TOP OF ORIGINAL TOP COURSE ASPHALT.

SPEED HUMP NTS



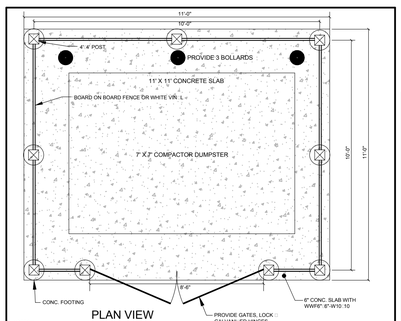
CONCRETE CURB DETAIL N.T.S.



SPECIFICATIONS	PRECAST PARKING BUMPERS MODELS SBB / SBB-HD
Concrete Min. Strength: 4,000 psi at 28 days Reinforcement: #4 Rebar, Fiber Air Entrainment: 5% Weight = 250 lbs	Woodard's Concrete Products, Inc. 629 Lybolt Road, Bullville, NY 10915 (845) 361-3471 / Fax 361-1050 Page 4F 2/1/05

www.woodardsconcrete.com

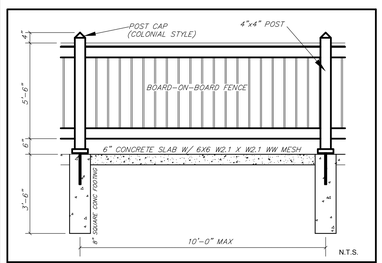
WHEEL STOP DETAIL N.T.S.



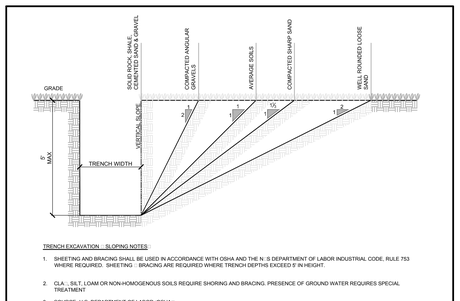
PLAN VIEW

NOTES:
1. PROPOSEDBOARD ON BOARD FENCE TO ENCLOSE DUMPSTER AREA, PROVIDE GATES AND LOCK
2. MATERIALS, SPECIFICATIONS, AND CONSTRUCTION FOR FENCE AND GATES SHALL BE IN ACCORDANCE WITH THE N.Y.S BUILDING CODE SECTION 607, AND THE N.Y.S STANDARD SHEETS.

DUMPSTER ENCLOSURE DETAIL N.T.S.



BOARD ON BOARD FENCE (DUMPSTER ENCLOSURE)



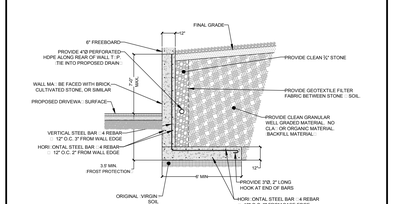
TRENCH EXCAVATION (SLOPING NOTES)

1. SHEETING AND BRACING SHALL BE USED IN ACCORDANCE WITH OSHA AND THE N.Y.S DEPARTMENT OF LABOR INDUSTRIAL CODE, RULE 753 WHERE REQUIRED. SHEETING / BRACING ARE REQUIRED WHERE TRENCH DEPTHS EXCEED 5' IN HEIGHT.
2. CLASSIFICATION: SILT, LOAM OR NON-HOMOGENOUS SOILS REQUIRE SHORING AND BRACING. PRESENCE OF GROUND WATER REQUIRES SPECIAL TREATMENT
3. SOURCE- U.S. DEPARTMENT OF LABOR OSHA

TRENCH EXCAVATION & SLOPING N.T.S.

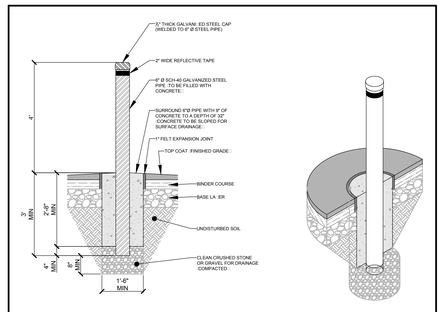
NOTES

1. CONTRACTOR TO CONSTRUCT AND STABILIZE WALL AT BASE. WALL SHALL BEAR ON SOIL WITH 3 TON CAPACITY MINIMUM. CONTRACTOR SHALL BE RESPONSIBLE FOR TESTING SOIL. CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY THE EXISTING CONDITION OF SOIL UNDER PROPOSED WALL FOUNDATION CONDITION. MINIMUM CONDITION SHALL CONSISTS OF COMPACTED SAND WITHOUT ORGANICS, O.L OR ANY OTHER UNSUITABLE MATERIAL. IF THIS CONDITION IS NOT ACHIEVED, ON SITE CONTRACTOR MUST CONTACT DESIGN ENGINEER PRIOR TO STARTING WORK.
2. CONTRACTOR TO FOLLOW ALL OSHA REQUIREMENTS REGARDING SAFETY DURING CONSTRUCTION OF THE RETAINING WALL.
3. WALL FOOTING SHALL BE CONSTRUCTED ON UNDISTURBED EARTH, NOT ON FILL MATERIAL.
4. CONCRETE USED IN WALL AND FOOTING CONSTRUCTION SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2,500 PSI AT 28 DAYS.
5. STEEL USED FOR WALL AND FOOTING REINFORCEMENT SHALL HAVE A MINIMUM STRENGTH OF 36KSI
6. PROVIDE A MINIMUM COVER OF 30" ABOVE THE BOTTOM OF THE WALL FOOTING OVER THE ENTIRE FOOTING LENGTH FOR FROST PROTECTION MEASURED FROM THE OUTSIDE OF WALL.
7. DISCHARGE LOCATION OF WALL DRAIN PIPING SHALL BE APPROVED BY DESIGN ENGINEER AND WILL BE BASED ON THE FINDINGS OF THE STORMWATER SEWER SYSTEM CLEANOUT REQUIREMENTS.



ACTUAL WALL HEIGHT RANGES FROM 3' TO 7' HIGH
(TALLER WALLS REQUIRE ADDITIONAL DESIGN
N.T.S.

REINFORCED CONCRETE RETAINING WALL TYPE II - LANDSCAPED ABOVE DRIVEWAY BELOW



BOLLARD SECTION ISOMETRIC VIEW

BOLLARD INSTALLATION N.T.S.

LANDSCAPE ARCHITECT
WESLEY STOUT ASSOCIATES, LLC
C/O JAN GOLDFLUSS
96 MAIN STREET
NEW CANAAN, CT 06840

SURVEYOR
RKW LAND SURVEYING
C/O FRANK WALSH
PO BOX 788, 22 EAST AVENUE
NEW CANAAN, CT 06840

ENVIRONMENTAL CONSULTANT
EVANS ASSOCIATES
C/O BETH EVANS
205 AMITY ROAD
BETHANY, CT 06524

ATTORNEY
MICHAEL FULLER SIRIGNANO, ESQ.
OLD POST ROAD PROFESSIONAL BUILDING
892 ROUTE 35, PO BOX 784
CROSS RIVER, NY 10518

ARCHITECT
KGD ARCHITECTS ENGINEERS, PC
C/O RUSSELL DAVIDSON
285 MAIN STREET
MT KISCO, NY 10549

OWNER/APPLICANT
ELEGANT BANQUETS, LLC
C/O SIMON CURTIS
506 CANDLEWOOD LAKE ROAD
BROOKFIELD, CT 06804

UNDER NEW YORK STATE EDUCATIONAL LAW ARTICLE 145, SECTION 7209 2, IT IS UNLAWFUL FOR ANY PERSON TO ALTER ANY ITEM ON THIS DRAWING, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER. IF ANY ITEM IS ALTERED, THE ALTERING ENGINEER SHALL AFFIX TO THE ITEM HIS SEAL AND THE NOTATION "ALTERED BY," FOLLOWED BY HIS SIGNATURE AND THE DATE OF SUCH ALTERATION AND A SPECIFIC DESCRIPTION OF THE ALTERATION.
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REVISIONS

3	KELLARD SESSIONS MEMO, PLANNING BOARD COMMENTS	JULY 29, 2016
2	KELLARD SESSIONS MEMO, PLANNING BOARD COMMENTS	JUNE 30, 2016
1	KELLARD SESSIONS MEMO, PLANNING BOARD COMMENTS	APRIL 27, 2016
-	REASON	DATE

MUNICIPAL TAX IDENTIFICATION

SECTION	55.01
BLOCK	2
LOT	6
SUBLOT	-----
DRAWN BY	KCS
CHECKED	KCS/TC3
PROJECT	CURTIS-LE CHATEAU
DATE	FEBRUARY 25, 2016
JOB	150504

STATE OF NEW YORK · TIMOTHY L. CRONIN · 62980 · LICENSED PROFESSIONAL ENGINEER

TIMOTHY L. CRONIN III, P.E.
LICENSE 062980

CRONIN ENGINEERING
PROFESSIONAL ENGINEERING & CONSULTING
(914) 736-3664
39 Arlo Lane
Cortlandt Manor, New York 10567

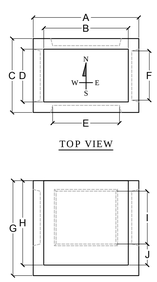
CONSTRUCTION DETAILS

SITE DEVELOPMENT PLAN FOR LE CHATEAU

LOCATION:
1410 ROUTE 35
TOWN OF LEWISBORO, NEW YORK

SHEET 14 OF 17 UD-6.1

CATCH BASIN DIMENSIONS



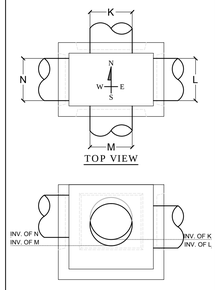
DIMENSION NOTES

1. CATCH BASIN TOTAL HEIGHT MAY NEED TO BE ACHIEVED WITH RISERS AS NECESSARY. CONTRACTOR SHALL VERIFY WITH MANUFACTURER.
2. SPECIAL ORDER CATCH BASINS MAY BE REQUIRED TO ACHIEVE ABOVE DIMENSIONS.

CATCH BASIN DIMENSION SCHEDULE	
LABEL	DESCRIPTION
A	EXTERIOR LENGTH (NORTH/SOUTH SIDE)
B	INTERIOR LENGTH (NORTH/SOUTH SIDE)
C	EXTERIOR WIDTH (EAST/WEST SIDE)
D	INTERIOR WIDTH (EAST/WEST SIDE)
E	KNOCKOUT SI E (NORTH/SOUTH SIDE)
F	KNOCKOUT SI E (EAST/WEST SIDE)
G	EXTERIOR HEIGHT
H	INTERIOR HEIGHT
I	KNOCKOUT HEIGHT
J	MIN. SUMP BELOW KNOCKOUT

CATCH BASIN DIMENSION SCHEDULE						
LABEL	CATCH BASIN NUMBER					
	CB1A	CB1B	2A / 2B	CB3	CB4	CB5
A	5'-0"	5'-0"	5'-0"	5'-0"	5'-0"	5'-0"
B	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"
C	4'-6"	4'-6"	4'-6"	4'-6"	4'-6"	4'-6"
D	3'-6"	3'-6"	3'-6"	3'-6"	3'-6"	3'-6"
E	3'-4"	3'-4"	3'-4"	3'-4"	3'-4"	3'-4"
F	3'-4"	3'-4"	3'-4"	3'-4"	3'-4"	3'-4"
G	4'-6"	4'-6"	4'-6"	4'-6"	4'-6"	4'-6"
H	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"
I	3'-0"	3'-0"	3'-0"	3'-0"	3'-0"	3'-0"
J	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"

CATCH BASIN PIPING SCHEME



PIPING NOTES

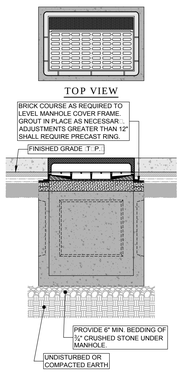
1. ALL PIPING SHALL BE CUT FLUSH WITH INSIDE WALLS OF CATCH BASINS.
2. PROVIDE PITCH AS SPECIFIED ON PLANS.
3. ALL PIPING SHALL BE GROUTED IN PLACE AND KNOCKOUTS SHALL BE SEALED.

CATCH BASIN PIPE SIZE SCHEDULE	
LABEL	DESCRIPTION
K	NORTH SIDE PIPE DIAMETER
L	EAST SIDE PIPE DIAMETER
M	SOUTH SIDE PIPE DIAMETER
N	WEST SIDE PIPE DIAMETER

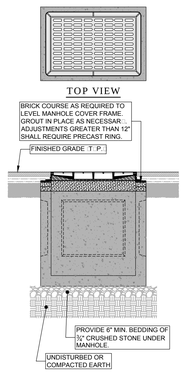
CATCH BASIN PIPE SIZE SCHEDULE							
LABEL		CATCH BASIN NUMBER					
		CB1A	CB1B	2A / 2B	CB3	CB4	CB5
K	SIZE	12"Ø	12"Ø	12"Ø	12"Ø	12"Ø	12"Ø
	MAT.	HDPE	HDPE	HDPE	HDPE	HDPE	HDPE
L	SIZE	12"Ø		12"Ø	12"Ø	12"Ø	12"Ø
	MAT.	HDPE		HDPE	HDPE	HDPE	HDPE
M	SIZE					12"Ø	
	MAT.					HDPE	
N	SIZE						
	MAT.						

CATCH BASIN PIPE INVERT SCHEDULE							
LABEL		CATCH BASIN NUMBER					
		CB1A	CB1B	CB2A	CB3	CB4	CB5
K	INV.	705.7	706.0	699.4	699.4	712.6	730.4
L	INV.	705.6	0.0	701.7	700.4	712.1	731.0
M	INV.	0.0	0.0	0.0	0.0	713.1	0.0
N	INV.	0.0	0.0	0.0	0.0	0.0	0.0

OPTION 1 (CURB INLET)



OPTION 2 (DROP INLET)



CATCH BASIN GRATE SCHEDULE							
	CATCH BASIN NUMBER						
	CB1A	CB1B	CB2A	CB2B	CB3	CB4	CB5
GRATE TYPE	2	2	1	1	1	1	2
PATTERN #	0000	0000	0000	0000	0000	0000	0000
RIM ELEVATION	709.6	709.6	703.7	708.0	702.4	715.1	733.0

CATCH BASIN INSTALLATION NOTES

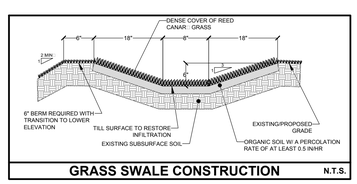
1. ALL CONCRETE TO TEST 4000 P.S.I. AT 28 DAYS IN CONFORMANCE WITH ASTM C-478 TO WITHSTAND H-20 AASHTO LOADING.
2. ALL BACKFILL AROUND CATCH BASINS MUST BE COMPACTED TO 95% PROCTOR DENSITY TO AVOID SETTLEMENT OF MATERIAL AROUND STRUCTURE.
3. PRECAST CONCRETE CATCH BASINS SHALL BE AS MANUFACTURED BY MID-HUDSON CONCRETE PRODUCTS, INC. OR APPROVED EQUAL.
4. FRAMES & GRATES SHALL BE AS MANUFACTURED BY CAMPBELL FOUNDRY COMPANY OR APPROVED EQUAL.
5. IF UNSUITABLE MATERIAL IS ENCOUNTERED DURING CATCH BASIN INSTALLATION, CONTRACTOR SHALL STOP WORK AND CONTACT DESIGN ENGINEER.
6. BASINS SHALL BE PROTECTED FROM SILTATION AND DEBRIS DURING CONSTRUCTION AND SHALL BE INSPECTED ANC CLEANED AS NECESSARY. REFER TO INLET PROTECTION DETAIL.

CATCH BASIN INSTALLATION NTS

DRAIN PIPE INSTALLATION NOTES

1. SHEETING AND BRACING SHALL BE USED IN ACCORDANCE WITH OSHA AND THE NYS DEPARTMENT OF LABOR INDUSTRIAL CODE, RULE 753 WHERE REQUIRED. SHEETING & BRACING ARE REQUIRED WHERE TRENCH DEPTHS EXCEED 5' IN HEIGHT. SHEETING & BRACING ARE ALSO REQUIRED WHEN CLAY, SILT LOAM OR NON SOILS ARE ENCOUNTERED.
2. THE CONTRACTOR SHALL CALL IN A "CODE 753" PRIOR TO EXCAVATION.
3. ALL DRAINAGE PIPING TO BE AS SPECIFIED ON SITE DEVELOPMENT PLANS.
4. DRAINAGE PIPING SHALL HAVE A MINIMUM OF 1'-0" COVER OVER PIPE. IF THIS IS NOT POSSIBLE THE OWNER/APPLICANT SHALL CONTACT THE DESIGN ENGINEER PRIOR TO CONSTRUCTION.
5. DRAINAGE PIPE RUNS SHALL HAVE A MINIMUM SLOPE OF 0.5%.
6. NO ROCK SHALL PROJECT WITHIN THE SURFACE OF THE TRENCH AND ALL ROCK SHALL BE A MINIMUM OF 12" FROM THE PIPE HORIZONTALLY. IF BEDROCK IS ENCOUNTERED DURING INSTALLATION, IT SHALL BE EXCAVATED TO A MINIMUM DEPTH OF 6" BELOW BOTTOM OF PIPE AND REPLACED WITH 6" OF SAND.
7. DEBRIS, FROZEN MATERIAL, LARGE CLODS OR STONES, ORGANIC MATTER OR OTHER UNSUITABLE MATERIALS SHALL NOT BE USED AS BACKFILL.
8. BACKFILL SHALL BE PLACED SO AS NOT TO DISTURB THE PIPE ALIGNMENT.
9. SELECT AND BACKFILL MATERIAL SHALL BE PLACED IN 12" LIFTS (PRIOR TO COMPACTION) AND COMPACTED WITH A MECHANICAL TAMPER.

DRAINAGE PIPE INSTALLATION NTS



GRASS SWALE CONSTRUCTION N.T.S.

Dig Safely. New York
800-962-7962
www.digsafelynewyork.org
Call Before You Dig
Wait The Required Time
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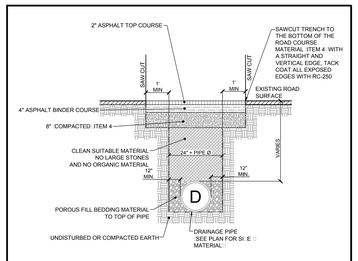
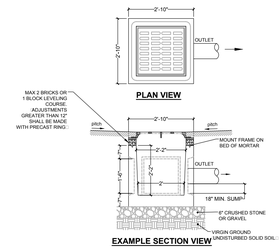
Respect the Marks
Dig With Care



DRAINAGE PIPE INSTALLATION W/ PAVEMENT RESTORATION N.T.S.

SEWER SERVICE INSTALLATION NOTES

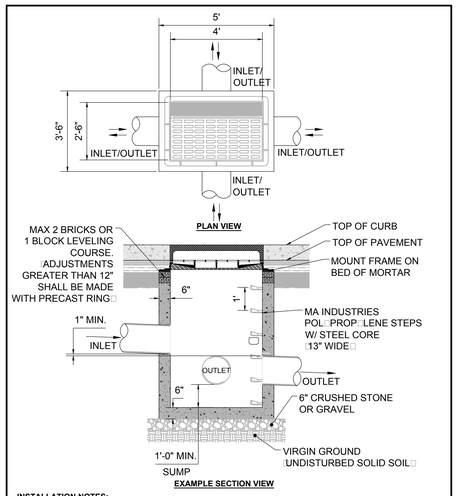
1. THE CONTRACTOR SHALL CALL 800-922-4455 PRIOR TO EXCAVATION.
2. ALL DRAINAGE PIPING TO BE AS SPECIFIED ON SITE DEVELOPMENT PLANS.
3. DRAINAGE PIPING SHALL HAVE A MINIMUM OF 1'-0" COVER OVER PIPE. IF THIS IS NOT POSSIBLE THE OWNER/APPLICANT SHALL CONTACT THE DESIGN ENGINEER PRIOR TO CONSTRUCTION.
4. DRAINAGE PIPE RUNS SHALL HAVE A MINIMUM SLOPE OF 0.5%.
5. NO ROCK SHALL PROJECT WITHIN THE SURFACE OF THE TRENCH AND ALL ROCK SHALL BE A MINIMUM OF 12" FROM THE PIPE HORIZONTALLY. IF BEDROCK IS ENCOUNTERED DURING INSTALLATION, IT SHALL BE EXCAVATED TO A MINIMUM DEPTH OF 6" BELOW BOTTOM OF PIPE AND REPLACED WITH 6" OF SAND.
6. DEBRIS, FROZEN MATERIAL, LARGE CLODS OR STONES, ORGANIC MATTER OR OTHER UNSUITABLE MATERIALS SHALL NOT BE USED AS BACKFILL.
7. BACKFILL SHALL BE PLACED SO AS NOT TO DISTURB THE PIPE ALIGNMENT.
8. SELECT AND BACKFILL MATERIAL SHALL BE PLACED IN 12" LIFTS (PRIOR TO COMPACTION) AND COMPACTED WITH A MECHANICAL TAMPER.
9. CLA-, SILT LOAM OR NON SOILS REQUIRE SHORING AND BRACING. SHEETING AND BRACING SHALL BE USED IN ACCORDANCE WITH OSHA REQUIREMENTS. SHEETING & BRACING ARE REQUIRED WHERE TRENCH DEPTHS EXCEED 5' IN HEIGHT.



INSTALLATION NOTES:

1. PIPES SHALL BE CUT FLUSH WITH INSIDE WALL OF BASIN.
2. BASINS MUST BE DESIGNED FOR H-20 LOADING AND SHALL BE AS MANUFACTURED BY: WOODARD'S CONCRETE PRODUCTS, INC. AND BE OF MODEL CB-2X2 OR APPROVED EQUAL.
3. CATCH BASIN SPECIFICATION SHALL HAVE CAMPBELL FOUNDRY: FRAME AND GRATE PATTERN: 2815 (DROP INLET) OR: 2802 (SOLID COVER) OR APPROVED EQUAL.
4. ALL BACKFILL AROUND STRUCTURES (I.E. MANHOLES, CATCH BASINS, ETC) MUST BE COMPACTED TO 95% PROCTOR DENSITY TO AVOID SETTLEMENT OF MATERIAL AROUND THE STRUCTURE.
5. SI: E, MATERIAL, PITCH AND INVERT ELEVATIONS OF ALL PIPING TO BE AS SPECIFIED ON SITE DEVELOPMENT PLANS.
6. GRATE INVERTS SHALL BE SET AS SHOWN ON THE SITE DEVELOPMENT PLANS.
7. BASINS TO BE CHECKED PERIODICALLY DURING CONSTRUCTION BY A QUALIFIED INSPECTOR AND CLEANED OUT AS NECESSARY DURING CONSTRUCTION.

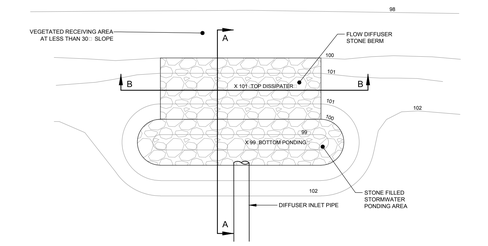
YARD DRAIN INSTALLATION N.T.S.

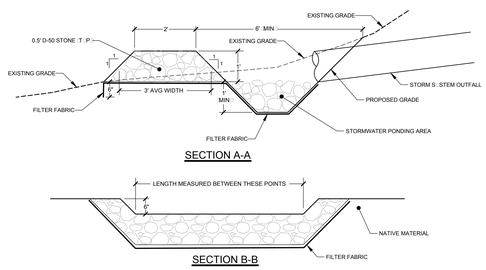


INSTALLATION NOTES:

1. PIPES SHALL BE CUT FLUSH WITH INSIDE WALL OF BASIN.
2. BASINS MUST BE DESIGNED FOR H-20 LOADING AND SHALL BE AS MANUFACTURED BY: MID-HUDSON CONCRETE PRODUCTS, INC. AND BE OF MODEL CB-30X48 OR APPROVED EQUAL.
3. ALL BASINS TO HAVE INLET PROTECTION AS NECESSARY.
4. IF CATCH BASIN DEPTH EXCEEDS 7', WALL THICKNESS TO BE 8".
5. CATCH BASIN SPECIFICATION SHALL HAVE CAMPBELL FOUNDRY: FRAME AND GRATE PATTERN: 2617 OR APPROVED EQUAL. (CURB INLET).
6. AN: FRAME AND GRATE ON THE SIDEWALK SHALL BE FLUSH WITH THE WALKWAY AND A.D.A. COMPLIANT.
7. ALL NEW CATCH BASINS AND INLETS SHALL BE PROTECTED FROM SILTATION.
8. ALL BACKFILL AROUND STRUCTURES (I.E. MANHOLES, CATCH BASINS, ETC) MUST BE COMPACTED TO 95% PROCTOR DENSITY TO AVOID SETTLEMENT OF MATERIAL AROUND THE STRUCTURE.
9. SI: E, MATERIAL, PITCH AND INVERT ELEVATIONS OF ALL PIPING TO BE AS SPECIFIED ON SITE DEVELOPMENT PLANS.
10. GRATE INVERTS SHALL BE SET AS SHOWN ON THE SITE DEVELOPMENT PLANS.
11. EACH OUTLET TO BE EQUIPPED WITH A STANDARD CAST IRON TRAP (CAMPBELL FOUNDRY MODEL 2564 ANCHORED WITH STAINLESS STEEL ANCHOR HOOKS SECURELY TO CATCH BASIN WALL).
12. BASINS TO BE CHECKED PERIODICALLY DURING CONSTRUCTION BY A QUALIFIED INSPECTOR AND CLEANED OUT AS NECESSARY DURING CONSTRUCTION.

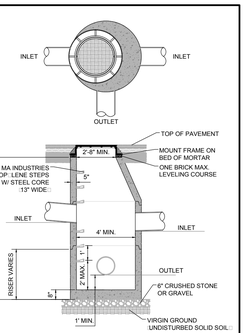
CATCH BASIN (CURB INLET) N.T.S.





NOTES:
1. ELEVATIONS SHOWN IN PLAN VIEW FOR SCHEMATIC PURPOSES ONLY. TO ILLUSTRATE TYPICAL FLOW DIFFUSER CONSTRUCTION. ACTUAL CONSTRUCTION GRADES TO BE BASED ON SITE ELEVATIONS/CONDITIONS.
2. FILTER FABRIC TO BE PROVIDED UNDER ALL STONE WITH A 6" DEEP TOE IN PROVIDED AT THE LEADING EDGE OF THE FLOW DIFFUSER BERM

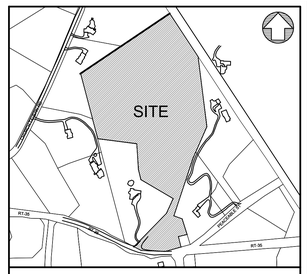
FLOW DIFFUSER N.T.S.



INSTALLATION NOTES:

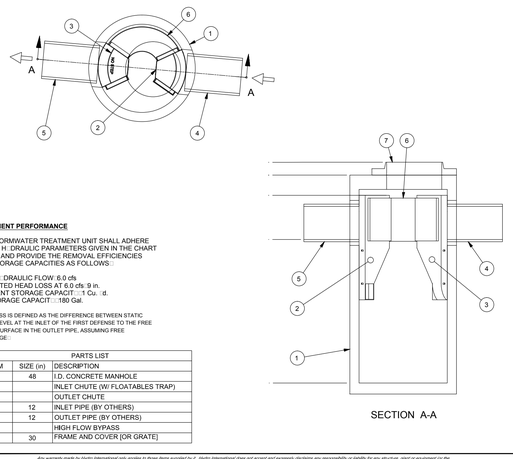
1. PIPES SHALL BE CUT FLUSH WITH INSIDE WALL OF BASIN.
2. MANHOLE MUST BE DESIGNED FOR H-20 LOADING.
3. IF MANHOLE DEPTH EXCEEDS 12', WALL THICKNESS TO BE 8".
4. CATCH BASIN SPECIFICATION SHALL HAVE CAMPBELL FOUNDRY: FRAME AND COVER PATTERN: 10128 OR APPROVED EQUAL. (ROUND FLANGE).
5. ALL BACKFILL AROUND STRUCTURES MUST BE COMPACTED TO 95% PROCTOR DENSITY TO AVOID SETTLEMENT OF MATERIAL AROUND THE STRUCTURE.
6. SI: E, MATERIAL, PITCH AND INVERT ELEVATIONS OF ALL PIPING TO BE AS SPECIFIED ON PLANS.
7. RIM ELEVATION SHALL BE SET AS SHOWN ON PLANS.

STORMWATER DRAINAGE MANHOLE N.T.S.



VICINITY MAP SCALE: 1" = 500'

SCALE: AS SHOWN



EQUIPMENT PERFORMANCE

THE STORMWATER TREATMENT UNIT SHALL ADHERE TO THE HYDRAULIC PARAMETERS GIVEN IN THE CHART BELOW AND PROVIDE THE REMOVAL EFFICIENCIES AND STORAGE CAPACITIES AS FOLLOWS:

PEAK HYDRAULIC FLOW: 6.0 cfs
ESTIMATED HEAD LOSS AT 6.0 cfs: 9 in.
SEDIMENT STORAGE CAPACITY: 1 Cu. yd.
OIL STORAGE CAPACITY: 180 Gal.

(HEADLOSS IS DEFINED AS THE DIFFERENCE BETWEEN STATIC WATER LEVEL AT THE INLET OF THE FIRST DEFENSE TO THE FREE WATER SURFACE IN THE OUTLET PIPE, ASSUMING FREE DISCHARGE)

PARTS LIST		
ITEM	SIZE (in)	DESCRIPTION
1	48	I.D. CONCRETE MANHOLE
2		INLET CHUTE (W/ FLOATABLES TRAP)
3		OUTLET CHUTE
4	12	INLET PIPE (BY OTHERS)
5	12	OUTLET PIPE (BY OTHERS)
6		HIGH FLOW BYPASS
7	30	FRAME AND COVER [OR GRATE]

	RC	02/02/09	PROPOSAL
Re: B.	Date	Description	
Date 02/02/09		Re: NTS	
Drawn By: RC		Checked Eng.	
Checked Prod.		A.: no. ed B.	

Title
4-FT DIAMETER FIRST DEFENSE
1219 mm
STANDARD UNIT
GENERAL ARRANGEMENT

Hydro International stormwater
94 HUTCHINS DRIVE
PORTLAND, ME 04102
TEL: 207.756.6200
FAX: 207.756.6212
EMAIL: STORMWATERINQUIRY@HIL-TECH.COM

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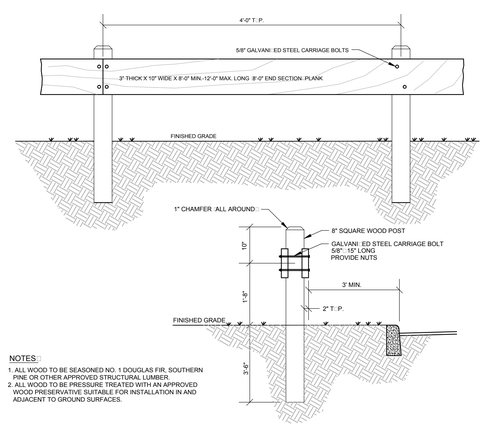
CAD Ref.: FD4GA2
Project No.
Drawings No. FD4GA2 Rev.



NOTES:
1. ALL WOOD TO BE SEASONED NO. 1 DOUGLAS FIR, SOUTHERN PINE OR OTHER APPROVED STRUCTURAL LUMBER.
2. ALL WOOD TO BE PRESSURE TREATED WITH AN APPROVED WOOD PRESERVATIVE SUITABLE FOR INSTALLATION IN AND ADJACENT TO GROUND SURFACES.

GUIDE RAIL N.T.S.

LANDSCAPE ARCHITECT
WESLEY STOUT ASSOCIATES, LLC
C/O JAN GOLDFLUSS
96 MAIN STREET
NEW CANAAN, CT 06840

SURVEYOR
RKW LAND SURVEYING
C/O FRANK WALSH
PO BOX 788, 22 EAST AVENUE
NEW CANAAN, CT 06840

ENVIRONMENTAL CONSULTANT
EVANS ASSOCIATES
C/O BETH EVANS
205 AMITY ROAD
BETHANY, CT 06524

ATTORNEY
MICHAEL FULLER SIRIGNANO, ESQ.
OLD POST ROAD PROFESSIONAL BUILDING
892 ROUTE 35, PO BOX 784
CROSS RIVER, NY 10518

ARCHITECT
KGD ARCHITECTS ENGINEERS, PC
C/O RUSSELL DAVIDSON
285 MAIN STREET
MT KISCO, NY 10549

OWNER/APPLICANT
ELEGANT BANQUETS, LLC
C/O SIMON CURTIS
506 CANDLEWOOD LAKE ROAD
BROOKFIELD, CT 06804

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REVISIONS

3	KELLARD SESSIONS MEMO, PLANNING BOARD COMMENTS	JULY 29, 2016
2	KELLARD SESSIONS MEMO, PLANNING BOARD COMMENTS	JUNE 30, 2016
1	KELLARD SESSIONS MEMO, PLANNING BOARD COMMENTS	APRIL 27, 2016
	REASON	DATE

MUNICIPAL TAX IDENTIFICATION:	
SECTION	55.01
BLOCK	2
LOT	6
SUBLOT	-----
DRAWN BY	KCS
CHECKED	KCS/TC3
PROJECT	CURTIS-LE CHATEAU
DATE	FEBRUARY 25, 2016
JOB	150504

STATE OF NEW YORK · TIMOTHY L. CRONIN · 62980 · LICENSED PROFESSIONAL ENGINEER

TIMOTHY L. CRONIN III, P.E.
LICENSE 062980

CRONIN ENGINEERING
PROFESSIONAL ENGINEERING & CONSULTING
(914) 736-3664
39 Arlo Lane
Cortlandt Manor, New York 10567

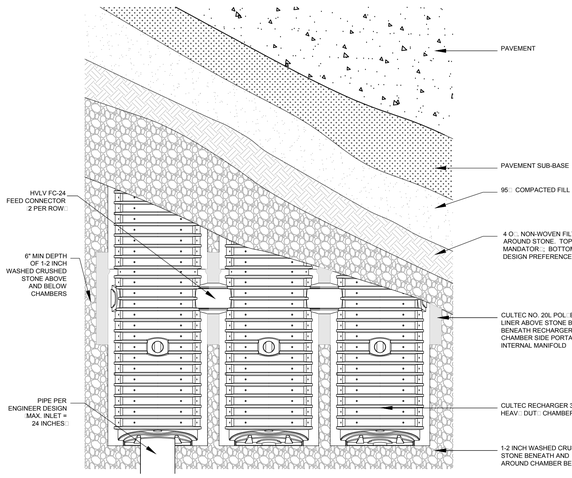
CONSTRUCTION DETAILS

SITE DEVELOPMENT PLAN FOR LE CHATEAU

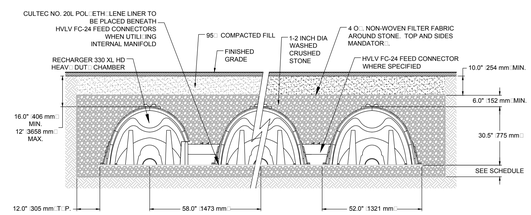
LOCATION:
1410 ROUTE 35
TOWN OF LEWISBORO, NEW YORK

SHEET 15 OF 17

UD-6.2



PLAN VIEW



GENERAL NOTES
RECHARGER 330XL HD B□□CULTEC, INC. OF BROOKFIELD, CT.
STORAGE PROVIDED = 11.32 CF/FT PER DESIGN UNIT.
REFER TO CULTEC, INC'S CURRENT RECOMMENDED INSTALLATION GUIDELINES.
USE RECHARGER 330XL HD HEAV□DUT□FOR TRAFFIC AND/OR H-25 APPLICATIONS.

ALL RECHARGER 330XL HD HEAV□DUT□UNITS ARE MARKED WITH A COLOR STRIPE FORMED INTO THE PART ALONG THE LENGTH OF THE CHAMBER.
ALL RECHARGER 330XL HD CHAMBERS MUST BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.

SECTION VIEW

CULTEC RECHARGER® 330XLHD PRODUCT SPECIFICATIONS

GENERAL
CULTEC RECHARGER® 330XLHD CHAMBERS ARE DESIGNED FOR UNDERGROUND STORMWATER MANAGEMENT. THE CHAMBERS MA□BE USED FOR RETENTION, RECHARGING, DETENTION OR CONTROLLING THE FLOW OF ON-SITE STORMWATER RUNOFF.

CHAMBER PARAMETERS

1. THE CHAMBERS WILL BE MANUFACTURED B□CULTEC, INC. OF BROOKFIELD, CT. □203-775-4416 OR 1-800-428-5832□
2. THE CHAMBER WILL BE VACUUM THERMOFORMED OF BLACK HIGH MOLECULAR WEIGHT HIGH DENSIT□POL□ETH□LENE□HMWHDPE□.
3. THE CHAMBER WILL BE ARCHED IN SHAPE.
4. THE CHAMBER WILL BE OPEN-BOTTOMED.
5. THE CHAMBER WILL BE JOINED USING AN INTERLOCKING OVERLAPPING RIB METHOD. CONNECTIONS MUST BE FULL□SHOULDERED OVERLAPPING RIBS, HAVING NO SEPARATE COUPLINGS OR SEPARATE END WALLS
6. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC RECHARGER® 330XLHD SHALL BE 30.5 INCHES □775 MM□TALL, 52 INCHES □1321 MM□WIDE AND 8.5 FEET □2.59 M□LONG. THE INSTALLED LENGTH OF A JOINED RECHARGER® 330XLHD SHALL BE 7 FEET (2.13 M).
7. MAXIMUM INLET OPENING ON THE CHAMBER ENDWALL IS 24 INCHES □600 MM□.
8. THE CHAMBER WILL HAVE TWO SIDE PORTALS TO ACCEPT CULTEC HVLV™ FC-24 FEED CONNECTORS TO CREATE AN INTERNAL MANIFOLD. THE NOMINAL DIMENSIONS OF EACH SIDE PORTAL WILL BE 10.5 INCHES □267 MM□HIGH B□12 INCHES □305 MM□WIDE. MAXIMUM ALLOWABLE PIPE SI□E IN THE SIDE PORTAL IS 10 INCHES □250 MM□.
9. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC HVLV™ FC-24 FEED CONNECTOR SHALL BE 12 INCHES □305 MM□TALL, 16 INCHES □406 MM□WIDE AND 24.2 INCHES □614 MM□LONG.
10. THE NOMINAL STORAGE VOLUME OF THE RECHARGER® 330XLHD CHAMBER WILL BE 7.459 FT3 / FT (0.693 M3 / M) - WITHOUT STONE. THE NOMINAL STORAGE VOLUME OF A JOINED RECHARGER® 330XLHD SHALL BE 52.213 FT3 / UNIT □1.478 M3 / UNIT□- WITHOUT STONE.
11. THE NOMINAL STORAGE VOLUME OF THE HVLV™ FC-24 FEED CONNECTOR WILL BE 0.913 FT3 / FT (0.085 M3 / M□- WITHOUT STONE.
12. THE RECHARGER® 330XLHD CHAMBER WILL HAVE FIFTY-SIX DISCHARGE HOLES BORED INTO THE SIDEWALLS OF THE UNIT'S CORE TO PROMOTE LATERAL CONVE□ANCE OF WATER.
13. THE RECHARGER® 330XLHD CHAMBER SHALL HAVE 16 CORRUGATIONS.
14. THE ENDWALL OF THE CHAMBER, WHEN PRESENT, WILL BE AN INTEGRAL PART OF THE CONTINUOUS□FORMED UNIT. SEPARATE END PLATES CANNOT BE USED WITH THIS UNIT.
15. THE RECHARGER® 330XLRHD STAND ALONE UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO FULL□FORMED INTEGRAL ENDWALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS.
16. THE RECHARGER® 330XLSHD STARTER UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULL□FORMED INTEGRAL ENDWALL AND ONE PARTIAL□FORMED INTEGRAL ENDWALL WITH A LOWER TRANSFER OPENING OF 14 INCHES □356 MM□HIGH X 34.5 INCHES □876 MM□WIDE.
17. THE RECHARGER® 330XLIHD INTERMEDIATE UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULL□OPEN ENDWALL AND ONE PARTIAL□FORMED INTEGRAL ENDWALL WITH A LOWER TRANSFER OPENING OF 14 INCHES □356 MM□HIGH X 34.5 INCHES □876 MM□WIDE.
18. THE RECHARGER® 330XLEHD END UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY FORMED INTEGRAL ENDWALL AND ONE FULL□OPEN END WALL AND HAVING NO SEPARATE END PLATES OR END WALLS.
19. THE HVLV™ FC-24 FEED CONNECTOR MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO OPEN END WALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS. THE UNIT WILL FIT INTO THE SIDE PORTALS OF THE RECHARGER® 330XLHD AND ACT AS CROSS FEED CONNECTIONS.
20. CHAMBERS MUST HAVE HORI□ONTAL STIFFENING FLEX REDUCTION STEPS BETWEEN THE RIBS.
21. THE CHAMBER WILL BE DESIGNED TO WITHSTAND AASHTO H-25 LOAD RATING WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.
22. HEAV□DUT□UNITS ARE DESIGNATED B□A COLORED STRIPE FORMED INTO THE PART ALONG THE LENGTH OF THE CHAMBER.
23. THE CHAMBER WILL HAVE A RAISED INTEGRAL CAP AT THE TOP OF THE ARCH IN THE CENTER OF EACH UNIT TO BE USED AS AN OPTIONAL INSPECTION PORT OR CLEAN-OUT.
24. THE UNITS MA□BE TRIMMED TO CUSTOM LENGTHS B□CUTTING BACK TO AN□CORRUGATION
25. THE CHAMBER SHALL BE MANUFACTURED IN AN ISO 9001:2000 CERTIFIED FACILIT□.

REFER TO CULTEC SCHEDULE FOR NUMBER OF UNITS, UNIT ORIENTATION AND STONE BASE DEPTH

CULTEC HVLV™ FC-24 FEED CONNECTOR PRODUCT SPECIFICATIONS

GENERAL
CULTEC HVLV™ FC-24 FEED CONNECTORS ARE DESIGNED TO CREATE AN INTERNAL MANIFOLD FOR CULTEC RECHARGER MODEL 180HD, 280HD AND 330XLHD STORMWATER CHAMBERS.

CHAMBER PARAMETERS

1. THE CHAMBERS WILL BE MANUFACTURED B□CULTEC, INC. OF BROOKFIELD, CT. □203-775-4416 OR 1-800-428-5832□
2. THE CHAMBER WILL BE VACUUM THERMOFORMED OF BLACK HIGH MOLECULAR WEIGHT HIGH DENSIT□POL□ETH□LENE□HMWHDPE□.
3. THE CHAMBER WILL BE ARCHED IN SHAPE.
4. THE CHAMBER WILL BE OPEN-BOTTOMED.
5. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC HVLV™ FC-24 FEED CONNECTOR SHALL BE 12 INCHES □305 MM□TALL, 16 INCHES □406 MM□WIDE AND 24.2 INCHES □614 MM□LONG.
6. THE NOMINAL STORAGE VOLUME OF THE HVLV™ FC-24 FEED CONNECTOR WILL BE 0.913 FT3 / FT □0.085 M3 / M□- WITHOUT STONE.
7. THE HVLV™ FC-24 FEED CONNECTOR CHAMBER SHALL HAVE 2 CORRUGATIONS.
8. THE HVLV™ FC-24 FEED CONNECTOR MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO OPEN END WALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS. THE UNIT WILL FIT INTO THE SIDE PORTALS OF THE CULTEC RECHARGER STORMWATER CHAMBER AND ACT AS CROSS FEED CONNECTIONS CREATING AN INTERNAL MANIFOLD.
9. THE CHAMBER WILL BE DESIGNED TO WITHSTAND AASHTO H-25 LOAD RATING WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.
10. THE CHAMBER SHALL BE MANUFACTURED IN AN ISO 9001:2000 CERTIFIED FACILIT□.

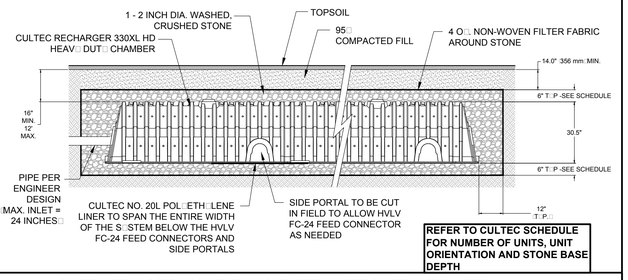
CULTEC NO. 20L™ POLYETHYLENE LINER

GENERAL
CULTEC NO.™ 20L POLYETHYLENE LINER IS DESIGNED AS AN IMPERVIOUS UNDERLAYMENT TO PREVENT SCOURING CAUSED B□WATER MOVEMENT WITHIN THE CULTEC CHAMBERS AND FEED CONNECTORS UTLI□ING THE CULTEC MANIFOLD FEATURE.

LINER PARAMETERS

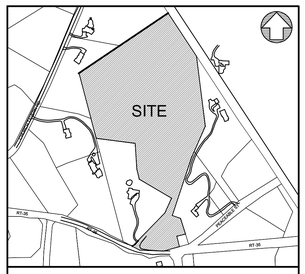
1. THE LINER WILL BE PROVIDED B□CULTEC, INC. OF BROOKFIELD, CT. □203-775-4416 OR 1-800-428-5832□
2. THE LINER WILL BE BLACK IN APPEARANCE.
3. THE LINER WILL HAVE A NOMINAL THICKNESS OF 20 MIL □0.51 MM□.
4. THE LINER WILL HAVE A WEIGHT OF 93 LBS/MSF □453 G/M2□.
5. THE LINER WILL HAVE A TENSILE STRENGTH□BREAK 1" □2.54 CM□OF 75 LBS □334 N□PER ASTM D6693 TESTING METHOD.
6. THE LINER WILL HAVE AN ELONGATION AT BREAK OF 800□PER ASTM D6693 TESTING METHOD.
7. THE LINER WILL HAVE A TEAR RESISTANCE OF 11 LBF □49 N□PER ASTM D1004 TESTING METHOD.
8. THE LINER WILL HAVE A H□DROSTATIC RESISTANCE OF 100 PSI □689 KPA□PER ASTM D751 TESTING METHOD
9. THE LINER WILL HAVE A PUNCTURE RESISTANCE OF 30 LBF □133 N□PER ASTM D4833 TESTING METHOD.
10. THE LINER WILL HAVE A VOLATILE LOSS OF □1□PER ASTM D1203 TESTING METHOD.
11. THE LINER WILL HAVE A DIMENSIONAL STABILIT□OF □2□PER ASTM D1204 TESTING METHOD.
12. THE LINER WILL HAVE A MAXIMUM USE TEMPERATURE OF 180□F □82□C□.
13. THE LINER WILL HAVE A MINIMUM USE TEMPERATURE OF -70□F □-57□C□.
14. THE LINER WILL HAVE A PERM RATING OF 0.041 U.S. PERMS □0.027 METRIC PERMS□PER ASTM E96 METHOD A.
15. THE LINER WILL CONSIST OF A BLENDED LINEAR POL□ETH□LENE.
16. THE LINER WILL NOT CONTAIN PLASTIC□ERS.

CULTEC® RECHARGER 330 XLHD HEAVY DUTY STORMWATER SYSTEM INSTALLATION **PARKING LOT INSTALLATION** **N.T.S.**



REFER TO CULTEC SCHEDULE FOR NUMBER OF UNITS, UNIT ORIENTATION AND STONE BASE DEPTH

CULTEC® RECHARGER 330 XLHD HEAVY DUTY STORMWATER SYSTEM INSTALLATION **N.T.S.**



VICINITY MAP SCALE□1" = 500'

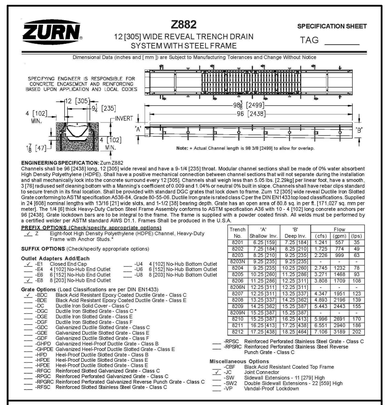
SCALE□AS SHOWN

CULTEC SCHEDULE

DRAINAGE AREA	LF REQUIRED	UNITS REQUIRED	ORIENTATION	STONE DEPTH BOTH BASE AND ABOVE	TOP OF BASE GRAVEL ELEV	TOP OF CHAMBER ELEV.
1 - SOUTH OF PARKING AREA 1	286'	40	4 ROWS OF 10 UNITS	6" THICK	693.5	696.0
2 - PARKING AREA 2 SOUTH	626.5'	88	4 ROW OF 13 UNITS 3 ROW OF 12 UNITS	6" THICK	698.7	701.2
3 - PARKING AREA 2 NORTH	151.5'	21	3 ROWS OF 7 UNITS	6" THICK	697.4	699.90
4 - PARKING AREA 3	219	30	3 ROWS OF 10 UNITS	6" THICK	710.1	712.6
5 - PARKING AREA 4 WEST	235.5	33	3 ROWS OF 11UNITS	6" THICK	728.0	730.5
TOTAL	1518	212				

INFILTRATION BASIN NOTE

ALL INFILTRATION BEDS ARE TO BE INSTALLED LEVEL.



ENGINEERING SPECIFICATION: Zurn Z882
Channels shall be 96 [2438] long, 12 [305] wide reveal and have a 9-1/4 [235] throat. Modular channel sections shall be made of 0% water absorbent High Density Polyethylene (HDPE). Shall have a positive mechanical connection between channel sections that will not separate during the installation and shall mechanically lock into the concrete surround every 12 [305]. Channels shall weigh less than 5.05 lbs. [2.29kg] per linear foot, have a smooth, 31[790] reduced self cleaning bottom with a Manning's coefficient of 0.009 and 1.04% or neutral 0% built in slope. Channels shall have rebar clips standard to secure trench in its final location. Shall be provided with standard DOC grates that lock down to frame. Zurn 12 [305] wide reveal Ductile Iron Slotted Grate conforming to ASTM specification A536-84, Grade 80-55-06. Ductile Iron grate is rated class C per the DIN EN 1433 loa load classifications. Supplied in 24 [600] nominal lengths with 13/16 [21] wide slots, and 1-1/2 [38] bearing depth. Grate has an open area of 50.8 sq. in per ft. [171.027 sq. mm per meter]. The 1/4 [6] thick Heavy-Duty Carbon Steel Frame Assembly conforms to ASTM specification A36 with 10 - 4 [102] long concrete anchors per 24 [600] of channel. Frame and anchors are supplied with a black acid etch finish or a powder coated finish. All welds must be performed by a certified welder per ASTM standard AWS D1.1. Frames Shall be produced in the U.S.A.

PREFIX OPTIONS (Check/specify appropriate options)
___Z Eight-foot High Density Polyethylene (HDPE) Channel, Heavy-Duty Frame with Anchor Studs.*

SUFFIX OPTIONS (Check/specify appropriate options)

Outlet Adapters Add/Each
___/1 4" Closed End Cap
___-E4 4 [102] No-Hub End Outlet
___-E6 6 [152] No-Hub End Outlet
___-E8 8 [203] No-Hub End Outlet
___-U4 4 [102] No-Hub Bottom Outlet
___-U6 6 [152] No-Hub Bottom Outlet
___-U8 8 [203] No-Hub Bottom Outlet

Grate Options (Load Classifications are per DIN EN1433)
___/_BDC Black Acid Resistant Epoxy Coated Ductile Grate - Class C
___/_BDE Black Acid Resistant Epoxy Coated Ductile Grate - Class E
___-SDC Ductile Iron Solid Cover - Class C
___-DGC Ductile Iron Slotted Grate - Class C *
___-DGE Ductile Iron Slotted Grate - Class E
___-DGF Ductile Iron Slotted Grate - Class F
___-GDC Galvanized Ductile Slotted Grate - Class C
___-GDE Galvanized Ductile Slotted Grate - Class E
___-GDF Galvanized Ductile Slotted Grate - Class F
___-GHPD Galvanized Heel-Proof Ductile Grate - Class B
___-GHPDE Galvanized Heel-Proof Ductile Slotted Grate - Class E
___-HPDB Heel-Proof Ductile Slotted Grate - Class B
___-HPDE Heel-Proof Ductile Slotted Grate - Class E
___-HPDE Heel-Proof Ductile Slotted Grate - Class E
___-RPGC Reinforced Slotted Galvanized Grate - Class C
___-RPGC Reinforced Perforated Galvanized Grate - Class C
___-RPSC Reinforced Perforated Stainless Steel Grate - Punch Grate - Class C
___-RPSC Reinforced Slotted Stainless Steel Grate - Class C
___-RPSC Reinforced Perforated Stainless Steel Grate - Class C
___-RPSRC Reinforced Perforated Stainless Steel Reverse Punch Grate - Class C

Miscellaneous Options
___/_CBF Black Acid Resistant Coated Top Frame
___/_JC Joint Connector
___-SW Sidewall Extensions - 11 [279] High
___-SWD Double Sidewall Extensions - 23 [559] High
___/VP Vandal Proof Lockdown

Trench No.	'A' Shallow Inv.	'B' Deep Inv.	Flow 1.0(c)	Flow 1.0(m)	Flow 1.0(s)
B201	9.25 [235]	9.25 [184]	1.294	647	35
B202	7.25 [184]	9.25 [210]	1.622	774	48
B203	8.25 [210]	9.25 [235]	2.228	969	63
B203R	9.25 [235]	9.25 [235]	-	-	-
B204	9.25 [235]	10.25 [260]	2.745	1232	76
B205	10.25 [260]	11.25 [286]	3.271	1468	93
B206	11.25 [286]	12.25 [311]	3.808	1709	108
B206N	12.25 [311]	12.25 [311]	-	-	-
B207	12.25 [311]	13.25 [337]	4.347	1951	123
B208	13.25 [337]	14.25 [362]	4.882	2192	139
B209	14.25 [362]	15.25 [387]	5.443	2443	155
B209R	15.25 [387]	15.25 [387]	-	-	-
B210	15.25 [387]	16.25 [413]	5.988	2687	170
B211	16.25 [413]	17.25 [438]	6.551	2940	186
B212	17.25 [438]	18.25 [464]	7.106	3189	202

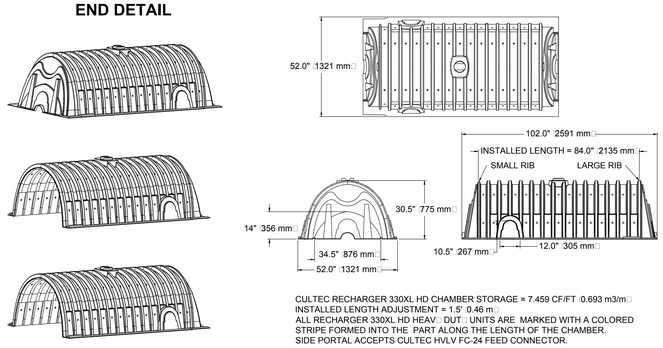
TRENCH DRAIN DETAIL **N.T.S.**

LARGE RIB END DETAIL

MODEL 330 XL SHD STARTER UNITS ARE USED TO BEGIN A LINE.

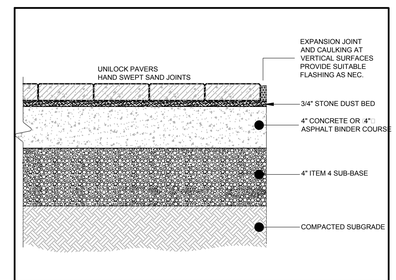
MODEL 330 XL IHD INTERMEDIATE UNITS ARE USED AS MIDDLE SECTIONS TO EXTEND THE LENGTH OF A LINE.

MODEL 330 XL EHD END UNITS ARE USED TO END THE LENGTH OF A LINE.



CULTEC RECHARGER 330XL HD CHAMBER STORAGE = 7.459 CF/FT □0.693 m3/m□
INSTALLED LENGTH ADJUSTMENT = 1.5' □0.46 m□
ALL RECHARGER 330XL HD HEAV□DUT□UNITS ARE MARKED WITH A COLORED STRIPE FORMED INTO THE PART ALONG THE LENGTH OF THE CHAMBER.
SIDE PORTAL ACCEPTS CULTEC HVLV FC-24 FEED CONNECTOR.

CULTEC® RECHARGER 330 XLHD HEAVY DUTY UNIT DIMENSIONS **N.T.S.**



COURTYARD PAVER DETAIL **N.T.S.**

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LANDSCAPE ARCHITECT
WESLE□ STOUT ASSOCIATES, LLC
C/O JAN GOLDFLUSS
96 MAIN STREET
NEW CANAAN, CT 06840

SURVEYOR
RKW LAND SURVE□ING
C/O FRANK WALSH
PO BOX 788, 22 EAST AVENUE
NEW CANAAN, CT 06840

ENVIRONMENTAL CONSULTANT
EVANS ASSOCIATES
C/O BETH EVANS
205 AMIT□ ROAD
BETHAN□, CT 06524

ATTORNEY
MICHAEL FULLER SIRIGNANO, ESQ.
OLD POST ROAD PROFESSIONAL BUILDING
892 ROUTE 35, PO BOX 784
CROSS RIVER, N□ 10518

ARCHITECT
KG□D ARCHITECTS □ ENGINEERS, PC
C/O RUSSELL DAVIDSON
285 MAIN STREET
MT KISCO, N□ 10549

OWNER/APPLICANT
ELEGANT BANQUETS, LLC
C/O SIMON CURTIS
506 CANDLEWOOD LAKE ROAD
BROOKFIELD, CT 06804

• UNDER NEW□ORK STATE EDUCATIONAL LAW ARTICLE 145, SECTION 7209□2□IT IS UNLAWFUL FOR AN□PERSON TO ALTER AN□ITEM ON THIS DRAWING, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER. IF AN□ITEM IS ALTERED, THE ALTERING ENGINEER SHALL AFFIX TO THE ITEM HIS SEAL AND THE NOTATION "ALTERED B□" FOLLOWED B□HIS SIGNATURE AND THE DATE OF SUCH ALTERATION AND A SPECIFIC DESCRIPTION OF THE ALTERATION.
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REVISIONS

3	KELLARD SESSIONS MEMO, PLANNING BOARD COMMENTS	JUL□29, 2016
2	KELLARD SESSIONS MEMO, PLANNING BOARD COMMENTS	JUNE 30, 2016
1	KELLARD SESSIONS MEMO, PLANNING BOARD COMMENTS	APRIL 27, 2016
□	REASON	DATE

MUNICIPAL TAX IDENTIFICATION□

SECTION□	55.01
BLOCK□	2
LOT□	6
SUBLOT□	-----
DRAWN B□□	KCS
CHECKED□	KCS/TC3
PROJECT□	CURTIS-LE CHATEAU
DATE□	FEBRUAR□25, 2016
JOB □□	150504

STATE OF NEW YORK · TIMOTHY L. CRONIN · 062980 · LICENSED PROFESSIONAL ENGINEER

TIMOTH□L. CRONIN III, P.E.
LICENSE□062980

CRONIN ENGINEERING
PROFESSIONAL ENGINEERING & CONSULTING
(914) 736-3664
39 Arlo Lane
Cortlandt Manor, New York 10567

CONSTRUCTION DETAILS

SITE DEVELOPMENT PLAN FOR LE CHATEAU

LOCATION:
1410 ROUTE 35
TOWN OF LEWISBORO, NEW YORK

SHEET 16 OF 17 **UD-6.3**

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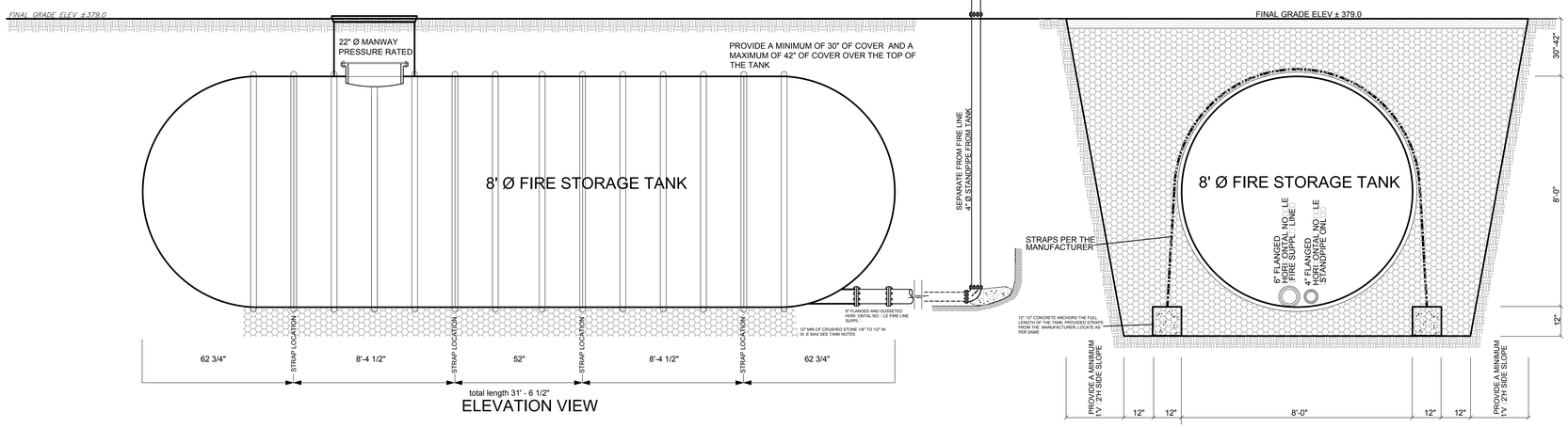


ELEVATION VIEW

PLAN VIEW

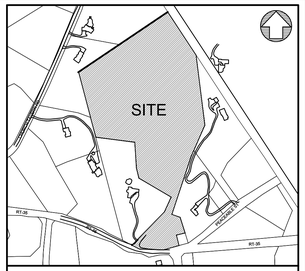
CROSS SECTION VIEW

TANK NOTES

1. TANK INTERIOR PROVIDED WITH FDA RESIN
2. TANK USAGE: WATER STORAGE FOR FIRE FIGHTING PURPOSES ONLY.
3. FLANGED NOZZLES CONFORM TO ANSI 816.5, 150 LBS BOLTING PATTERN.
4. TANK CAPACITY 10,000 GALLONS
5. TANK TO BE AS MFD BY XERXES CORP., SINGLE WALL, 10,000 GAL OR APPROVED EQUAL.
6. INSTALLATION AND BACKFILL SHALL BE AS PRESCRIBED BY THE MANUFACTURER.
7. CONCRETE ANCHORS AND STRAPS TO BE AS SUPPLIED BY THE MANUFACTURER.
8. CONCRETE ANCHORS AND STRAPS TO BE LOCATED AS SHOWN AND AS PER THE MANUFACTURER.

10,000 GALLON FIRE STORAGE TANK

N.T.S.



VICINITY MAP SCALE 1" = 500'

SCALE AS SHOWN

LANDSCAPE ARCHITECT
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SURVEYOR
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OWNER/APPLICANT
ELEGANT BANQUETS, LLC C/O SIMON CURTIS 506 CANDLEWOOD LAKE ROAD BROOKFIELD, CT 06804

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MUNICIPAL TAX IDENTIFICATION:	
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LOT	6
SUBLOT	-----
DRAWN B	KCS
CHECKED	KCS/TC3
PROJECT	CURTIS-LE CHATEAU
DATE	FEBRUAR 25, 2016
JOB	150504

STATE OF NEW YORK · TIMOTHY L. CRONIN III · 062980 · LICENSED PROFESSIONAL ENGINEER

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CONSTRUCTION DETAILS & DRAINAGE PROFILES

SITE DEVELOPMENT PLAN FOR LE CHATEAU

LOCATION:
1410 ROUTE 35
TOWN OF LEWISBORO, NEW YORK

SHEET 17 OF 17

UD-6.4

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Professional Engineering & Consulting

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Cortlandt Manor, NY 10567
T: (914) 736-3664 F: (914) 736-3693

July 26, 2016

Mr. Frederick Beck, Jr., PE
Senior Engineer
Bureau of Environmental Quality
Westchester County Department of Health
25 Moore Ave
Mount Kisco, NY 10549

Re: Change of Use Application
Le Chateau / Elegant Banquets
NYS Route 35
Town of Lewisboro, NY
Section 55.2, Block 2, Lot 6

Dear Mr. Beck:

Please find attached the three copies of the response to the initial 'Change of Use Application', dated May 31, 2016, submitted on behalf of the above referenced facility.

Included with this submission are both the completed 'Change of Use Application' and the 'Subsurface Sewage Treatment System Inspection Form'. In addition copies of the water consumption rates for two similar facilities operated by the current applicant, Elegant Banquets, LLC., are also enclosed

As you recall, the proposed use is similar to the previous use and in many respects will be less of a burden on the existing SSTS which treats sewage flows from the facility. The prior establishment, Le Chateau, was a full service restaurant serving both lunch and dinner on a daily basis as well as larger catered events, such as weddings, on the weekends. Our proposed use will be limited to weddings and similar events to be held generally on weekends.

It is proposed to limit water consumption to 4,300 gallons per day, the SPDES approved flow rate, and it is also proposed to limit the number of patrons, including staff, to 286 persons per day. Imposing the larger of either of these values as a daily limit is what is needed to be presented to the Town of Lewisboro prior to their approval of the project.

If, after review, you have any questions or if additional information is necessary do not hesitate contacting me at the above number. Thank you for your assistance in this matter.

Respectfully submitted,

STATE OF NEW YORK
TIMOTHY L. CRONIN III
62980
LICENSED PROFESSIONAL ENGINEER

Timothy L. Cronin, III
Professional Engineer

cc: Simon Curtis, Elegant Banquets

CRONIN
ENGINEERING P.E., P.C.
Professional Engineering & Consulting

39 Arlo Lane
Cortlandt Manor, NY 10567
T: (914) 736-3664 F: (914) 736-3693

July 26, 2016

Mr. Frederick Beck, Jr., PE
Senior Engineer
Bureau of Environmental Quality
Westchester County Department of Health
25 Moore Ave
Mount Kisco, NY 10549

Re: Change of Use Application
Le Chateau / Elegant Banquets
NYS Route 35
Town of Lewisboro, NY
Section 55.2, Block 2, Lot 6

Dear Mr. Beck:

In response to your letter dated June 24, 2016 regarding the above referenced facility the following responses are offered. The response numbers corresponds with the June 24, 2016 letter:

1. The completed 'Change of Use Application' is attached.

2. The completed 'Subsurface Sewage Treatment Inspection Form' is attached. Based on the inspections performed of both the tank and distribution system the following recommendations are proposed:
   a. The septic tank inlet baffle will need to be replaced. Other than replacing the inlet baffle the septic tank was in very good condition. Manhole risers and cast iron frame and grates will also be installed as a way to allow access to the septic tank.
   b. The grease tank will be replaced. The current grease tank shows signs of wear and at this point I believe it will be a better option to replace this tank with a new grease tank with a minimum capacity of 3,000 gallons. The capacity of the existing grease tank is only approximately 1,750 gallons. Regardless, if we did propose to utilize this grease tank an additional tank would be required. As with the septic tank, the new grease tank will also be provided with manhole risers and cast iron frame and grates to allow access to facilitate cleaning the grease tank.
   c. The splitter box will be replaced and both distribution boxes, each with minimum of 11 discharge ports, will also be replaced. All three will be provided with a hinged lid to allow frequent observation of the flow distribution.

3. There is only one banquet hall. The height of the ceiling in the banquet hall is two stories and therefore appears on the upper level floor plan as well.

4. On occasion, there may be 2 events booked for a Saturday (afternoon and evening), however, being fully conscious of the septic capacity (and the need to have a fully operable system for our guests), this will only occur if the Saturday evening event is anticipated to be less than 150 guests – permitting us the option / ability to book a Saturday afternoon event (these are typically smaller – around 100 guests). We would therefore request the Department's consideration of placing any restrictions upon the number of attendees per day, as opposed to the number of events per day.

5. Potentially, they could – but that is not our intent – and if we tried, we believe that it would destroy our base wedding business. When the bride books her wedding venue, she is looking for exclusivity – she wants to have the whole building – she is the center of the world for a day – and certainly does not want to share the building with others. From our considerable experience in the industry, we know what the bride demands. And any attempt to run multiple events in this building at the same time simply will not work for the customer.

6. As noted above we propose to replace the existing grease tank with a new grease tank sized in accordance with the NYS DEC manual entitled "Design Standards for Wastewater Treatment Works – 1988 – Intermediate Sized Sewerage Facilities". The second equation will be utilized since there will be a maximum number of meals served per day. The proposed grease tank size will be as follows:

   (M) * (GL) * (ST) * (2.5) * (LF) = size of grease tank in gallons

   Where M = Meals per day
   GL = Gallons per meal, normal 4.5
   ST = Storage capacity, 2.5 for onsite disposal
   LF = Loading factor, 1.0 for dishwashing only

   Therefore:

   (240) * (4.5) * (2.5) * (1) = 2,700 gallons grease tank

   The minimum size grease tank will be required to be 2,700 gallons. It is proposed to provide a 3,000 grease tank.

7. a. Three of these buildings are served by private wells and a log of the daily readings taken over a 2 month period last fall from the Fox Hill Inn and The Candlewood Inn are attached. Typically we don't take daily readings, however, in anticipation of the Le Chateau project, these readings were collected. As you can see, the average water consumption ranges from 11.27 to 14.69 gallons per customer at the facility. Please keep in mind that water consumption by staff, which in minimal, is included in the customer rate. The 3rd facility (The Waterview) is a much larger facility – capable of handling

multiple functions at the same time – and thus is not of the same ilk as the properties that we are considering. The 4th facility (The Riverview) is a similar building, size wise to The Waterview – and is connected to 'City' water – and the meter is read by the city on a quarterly basis – we do not have daily logs for either of these facilities.

b. A typical event lasts for 5 hours – the first hour is the 'Cocktail Hour' and this will be held in the living and sun rooms of the existing structure. Guests will then transition to the ballroom for dinner and dancing. There may be some guest flow back to the living/sun room after dinner, for those guests who do not dance – or care for the music. Essentially the event will encompass – and guests will have access to - the entire space during the whole event.

c. This comment is so noted and we would agree to reporting as required.

d. This is meant as our observation / opinion. We do not believe think that off-site parking is something that is either available, or is something that will ever be utilized – certainly, in all our years, we have never even thought of utilizing an off-site parking location.

If, after review, you have any questions or if additional information is necessary do not hesitate contacting me at the above number. Thank you for your assistance in this matter.

Respectfully submitted,

Timothy L. Cronin, III
Professional Engineer

STATE OF NEW YORK
TIMOTHY L. CRONIN III
62980
LICENSED PROFESSIONAL ENGINEER

cc: Simon Curtis, Elegant Banquets

Westchester County
Change of Use Application Form

Property Information

1. Property Name: LE CHATEAU / ELEGANT BANQUETS
   Property Location (provide full address): 1410 RT 35 State: NY Zip: 10590
   Tax Map # (Sec/Blk./Lot): 55.01 - 2 - 6 Municipality: LEWISBORO

2. Property Owner Name: SOUTH SALEM OWNERS LLC
   Mailing Address: 62 WEST 45 ST, NEW YORK State: NY Zip: 10036
   Telephone: Home: Work: 646 4389498 Cell: 917 494 6424

3. Property Use: [] Mixed Use [] Industrial [] commercial [✓] Other - describe: BANQUET FACILITY / RESTAURANT

4. Is the property located on NYC Watershed: [✓] Yes [] No

5. Facility Name (if different):
   Facility Owner/Lessee: ELEGANT BANQUETS LLC
   Facility Address (if different): State: Zip:

Existing Onsite Wastewater Treatment System (OWTS) /Water Supply Information

6. Is there an OWTS approved by WCDH: [✓] Yes [] No WCDH File #: SEE ATTACHED Attach copy of WCDH approval

7. Does property have a NYSDEC SPDES permit? [✓] Yes [] No If Yes: permit # 84328 Attach a copy of SPDES permit

8. Domestic water supply source: [] Public [✓] Private Well If Public Name N/A

9. Is property located in a County Sewer District: [] Yes [✓] No If Yes, Name

10. Date septic tank last pumped: UNKNOWN

11. Was there any evidence of exposure or discharged septage onto ground surface reported on the Septic System Data Form (SSDF): [] Yes [✓] No [] NA (septic tank pumped prior to January 24, 2008)

Proposed Change of Use

12. Describe proposal THE FORMER WELL KNOWN FRENCH RESTAURANT "LE CHATEAU" - WHICH WAS OPEN TO THE PUBLIC FOR LUNCH + DINNER ON A DAILY BASIS, AND, IN ADDITION HOSTED WEDDING RECEPTIONS & OTHER SOCIAL EVENTS DURING THE WEEKENDS - WILL BE RECONFIGURED + EXPANDED TO AN ELEGANT UPSCALE WEDDING RECEPTION FACILITY - OPERATING, TYPICALLY ON FRIDAY, SATURDAY + SUNDAYS. NO RESTAURANT INTENDED.

13. Are there water meter records for the property: [] Yes [✓] No Attach copy of water records for one year

14. Is there a Food Service Establishment on premises [✓] Yes [] No If yes: Name: Le Chateau.

15. Is it expected that the proposed change in use will result in an increase in flows to the existing OWTS: [] Yes [✓] No

16. Provide a copy of plans of building showing existing and proposed space.

II. PROPERTY OWNER (SIGNATURE REQUIRED)

NAME DAVID ROTH, S. Salem Owners, LLC
SIGNATURE
DATE 7/26/16

FACILITY OWNER/LESSEE (SIGNATURE REQUIRED)

NAME SIMON CURTIS - ELEGANT BANQUETS LLC
SIGNATURE
DATE 7/23/16.

Westchester gov.com

Westchester County
Subsurface Sewage Treatment System
Inspection Form

I. GENERAL INFORMATION
Property Information

1. Property Mailing Address (No. & Street): 1410 Route 35, South Salem NY
   Town/ Village: Lewisboro State: NY Zip: 10590
2. Owner: South Salem Owners LLC
3. Owner Mailing Address (No. & Street) (if different):
   Town/ Village: 62 W 45th St State: NY NY Zip: 10036
4. Telephone: Home: 917-494-6424 Work: 646-438 9498 Property: N/A
5. Tax Map # (Sec/Blk./Lot) 55.01 - 2 - 6 Municipality: Lewisboro (Town)
6. Property Use: [] Single Family [] Multi-Family [] Industrial [] Commercial [✓] Other - describe: banquet facility

System Information

7. Is there a site plan or septic system plan available [✓] yes [] no WCDH File #(if available):
   Domestic water supply source: [] Public [✓] Well
8. Type of Subsurface Sewage Treatment System (Septic System):

   [] Septic Tank with Absorption Trenches [✓] Septic Tank with Seepage Pits [] Septic Tank with Galleys [] Cesspool
   [] Other: Describe:
9. Location of septic system [] Front Yard [✓] Rear Yard [] Side Yard
10. Septic Tanks: Number: 1 Size of each: 5000 (gallons) Tank Material: concrete
11. Date septic tank last pumped unknown Name of Septage Collector:
12. Absorption Field: N/A
    Approximate number of absorption trenches:
    Approximate total length of absorption trench:
13. Seepage pits: Number: 44 Size of each: Height 6'6" X Diameter 6'6"
14. Other Components: Number: 2 Describe: distribution boxes - concrete
15. Sewage Pump [] yes [✓] no; Dosing siphon [] yes [✓] no

II. OWNER INTERVIEW

16. Year of septic system construction: 1975 expanded 1985 Year house/facility was built: ±1900
17. Year of any modifications to septic system 1985 Describe: addition of 30 additional seepage pits 6'6" h x 6'-6" ϕ
18. Number of:
    a. Bedrooms_____ Bathrooms_____ Hot Tubs_____
    b. Toilets_____ Type: [] Old Standard [] New Standard [] Water Saving
    c. Sinks_____ Faucet Type: [] Old Standard [] Water Saving
    d. Showers/Tubs_____ Faucet Type: [] Old Standard [] Water Saving
    e. Dishwashers_____ Garbage Disposal_____ Washing Machines_____
    f Water Softener/Treatment Equipment [✓] yes [] no
    Backwash Discharges into Septic System [✓] yes [] no or discharges into other location [] yes [✓] no
    Describe:

19. Has the septic system had any apparent problems?
a. Odors [] yes [✓] no b. Slow draining plumbing [] yes [✓] no c. Sewage backing up into building [] yes [✓] no
d. Discharge of sewage onto the surface of the ground [] yes [✓] no
Describe: _____

20. Are there any roof leaders, foundation and other drainage directed toward or connected to septic system? [] yes [✓] no

III. SITE INSPECTION

21. Date of Inspection: Aug/Sep 2015, May/Jun/Jul 2016

22. Evidence of exposed or discharged sewage onto the surface of the ground: [] yes [✓] no
If yes, describe: _____

23. Draw and label building and septic system components: (draw on space below)
provided on previously submitted plan

24. Evidence of potential septic system problems:
a. Odors [] yes [✓] no
b. Saturated surface soils [] yes [✓] no
c. Lush vegetation [] yes [✓] no
d. Changes in vegetation [] yes [✓] no
e. Presence of trees within 10 feet or root penetration [] yes [✓] no
f. Broken pipe [] yes [✓] no
g. Rock outcroppings [] yes [✓] no
h. Other [] yes [✓] no Describe: _____

25. Evidence of storm water ponding on septic system: [] yes [✓] no
If yes, describe: _____

26. Evaluation of Septic Tanks [] NA

Total number of Septic Tanks(s) 1

	Septic Tank #1 ✓	Septic Tank #2 N/A
Inlet Baffle	[] in place and intact [✓] not visible	[] in place and intact [] not visible
Outlet Baffle	[✓] in place and intact [] not visible	[] in place and intact [] not visible
Inlet or outlet blockages tank pumped 7/16	[]yes [] no	[]yes [] no
Scum Layer Thickness	_____	_____
Sludge Layer Thickness	_____	_____
Total depth of scum and sludge layers exceeds 1/3 total depth of septic tank	[] yes [] no	[] yes [] no

27. Evaluation of sewage pump or dosing siphon chamber [✓] NA or [] location unknown

Total number of sewage [] pump or [] dosing siphon chambers: N/A
Is pump or dosing siphon equipped with an alarm? [] yes [] no
Chamber equipment operates satisfactorily: [] yes [] no

28. Evaluation of Junction Boxes/ Distribution Boxes [] NA or [] location unknown

Total number of Junction Boxes: 22 in 2 groups of 11 each
Total number of Distribution Boxes: 2 = 11 port D-box, splitter box to alternate

Are liquid levels: + below absorption trench pipe
+ near or at invert of absorption trench pipe
+ near or at top of absorption trench pipe
+ above absorption trench pipe

minimal use past 12 months - system dry

Junction Box Locations	Distribution Box Locations

29. Evaluation of Seepage Pits/Galleys/Other Components (e.g. cesspool, alternative system, etc.) [] NA or [] location unknown

Total number of Seepage Pits: 44
Total number of Galleys: _____
Total number of Other Components: _____ Describe: _____

	Seepage Pit #1	Seepage Pit #2	Seepage Pit #3
Location of Seepage Pit (see plan)			
Depth of Seepage Pit			
Depth of Liquid Level			

	Galley #1	Galley #2	Galley #3
Location of Galley N/A			
Depth of Galley			
Depth of Liquid Level			

	Component #1	Component #2	Component #3
Location of Other Component			
Depth of Other Component			
Depth of Liquid Level			

IV. INSPECTION CONCLUSION (check all that apply)

[x] Septic System appears to be operating satisfactorily
[] Evidence of exposed or discharged sewage onto the surface of the ground indicating septic system failure (describe under General Comments)
[x] Septic tank requires evacuation by Septage Collector done 7/17
[] Septic system failure appears imminent (describe under General Comments)
[] Septic system in need of repairs (describe under General Comments)
[] Septic system in need of expansion (describe under General Comments)

General Comments:

1750 gallon grease tank to be replaced with 3000 gallon grease tank, D-boxes & splitter box to be replaced, all tanks & d boxes to be provided with readily accessible covers

V. INSPECTOR INFORMATION

Septic System Contractor or PE/RA name (please print): Timothy L. Croft
Septic System Contractor or PE/RA signature: [signature]
WCDH Septic System Contractor License No. or NYS PE/RA No.: 0629fc 7-21-6

STATE OF NEW YORK
TIMOTHY L. CROFT
62980
LICENSED PROFESSIONAL ENGINEER

Fox Hill Inn

Water Usage

Date	Time	Day	Meter Reading	Prior Daily use	Guest Count	Use per Customer	Use per Event Day
September 2015							
1	9am	Tuesday	2872510				
2	9am	Wednesday	2872980	470			
3	9am	Thursday	2873240	260			
4	9am	Friday	2873520	280	184	11.41	2100
5	9am	Saturday	2875620	2100	328	12.65	4150
6	9am	Sunday	2879770	4150	130	13.85	1800
7	9am	Monday	2881570	1800			
8	9am	Tuesday	2882020	450			
9	9am	Wednesday	2882320	300			
10	9am	Thursday	2882730	410			
11	9am	Friday	2883040	310	190	12.42	2360
12	9am	Saturday	2885400	2360	222	14.32	3180
13	9am	Sunday	2888580	3180			
14	9am	Monday	2888840	260			
15	9am	Tuesday	2889200	360			
16	9am	Wednesday	2889460	260			
17	9am	Thursday	2889760	300			
18	9am	Friday	2890010	250			
19	9am	Saturday	2890270	260	266	12.44	3310
20	9am	Sunday	2893580	3310	143	14.69	2100
21	9am	Monday	2895680	2100			
22	9am	Tuesday	2895980	300			
23	9am	Wednesday	2896430	450			
24	9am	Thursday	2896740	310			
25	9am	Friday	2896990	250	164	12.80	2100
26	9am	Saturday	2899090	2100	292	14.55	4250
27	9am	Sunday	2903340	4250	142	13.94	1980
28	9am	Monday	2905320	1980			
29	9am	Tuesday	2905700	380			
30	9am	Wednesday	2906180	480			
		Total Month	33670		2061	13.26	27330
		Av/Day	1,122.33				
Oct-15							
1	9am	Thursday	2906490	310			
2	9am	Friday	2906770	280	138	14.20	1960

3	9am	Saturday	2908730	1960	229	14.32	3280
4	9am	Sunday	2912010	3280	189	13.02	2460
5	9am	Monday	2914470	2460			
6	9am	Tuesday	2914930	460	100	13.60	1360
7	9am	Wednesday	2916290	1360	74	13.24	980
8	9am	Thursday	2917270	980	80	12.38	990
9	9am	Friday	2918260	990	217	14.06	3050
10	9am	Saturday	2921310	3050	232	13.62	3160
11	9am	Sunday	2924470	3160	135	13.93	1880
12	9am	Monday	2926350	1880			
13	9am	Tuesday	2926750	400			
14	9am	Wednesday	2927100	350			
15	9am	Thursday	2927460	360	101	12.67	1280
16	9am	Friday	2928740	1280	115	13.13	1510
17	9am	Saturday	2930250	1510	232	13.41	3110
18	9am	Sunday	2933360	3110	132	12.65	1670
19	9am	Monday	2935030	1670			
20	9am	Tuesday	2935520	490			
21	9am	Wednesday	2935900	380			
22	9am	Thursday	2936400	500	100	13.80	1380
23	9am	Friday	2937780	1380	116	13.88	1610
24	9am	Saturday	2939390	1610	245	13.55	3320
25	9am	Sunday	2942710	3320	93	13.98	1300
26	9am	Monday	2944010	1300			
27	9am	Tuesday	2944470	460			
28	9am	Wednesday	2945070	600	81	12.96	1050
29	9am	Thursday	2946120	1050			
30	9am	Friday	2946570	450	155	13.10	2030
31	9am	Saturday	2948600	2030			
		Total Month	42110		2764	13.52	37380
		Av/Day	1,403.67				

Candlewood Inn

Water Usage

Date	Time	Day	Meter Reading	Prior Daily use	Guest Count	Use per Customer	Use per Event Day
September 2015							
1	9am	Tuesday	8593810				
2	9am	Wednesday	8594290	480			
3	9am	Thursday	8594820	530			
4	9am	Friday	8595260	440			
5	9am	Saturday	8595760	500			
6	9am	Sunday	8597160	1400	100	14.00	1400
7	9am	Monday	8599460	2300	167	13.77	2300
8	9am	Tuesday	8600060	600			
9	9am	Wednesday	8600540	480			
10	9am	Thursday	8601050	510			
11	9am	Friday	8601500	450			
12	9am	Saturday	8602850	1350	100	13.50	1350
13	9am	Sunday	8606700	3850	303	12.71	3850
14	9am	Monday	8608650	1950	173	11.27	1950
15	9am	Tuesday	8609420	770			
16	9am	Wednesday	8609860	440			
17	9am	Thursday	8610210	350			
18	9am	Friday	8610840	630			
19	9am	Saturday	8612640	1800	130	13.85	1800
20	9am	Sunday	8616362	3722	298	12.49	3722
21	9am	Monday	8616980	618			
22	9am	Tuesday	8617310	330			
23	9am	Wednesday	8617670	360			
24	9am	Thursday	8618570	900			
25	9am	Friday	8620670	2100	147	14.29	2100
26	9am	Saturday	8623410	2740	230	11.91	2740
27	9am	Sunday	8627580	4170	315	13.24	4170
28	9am	Monday	8630160	2580	182	14.18	2580
29	9am	Tuesday	8630570	410			
30	9am	Wednesday	8631270	700			
		Total Month	37460		2145	13.04	27962
		Av/Day	1,248.67				
Oct-15							
1	9am	Thursday	8631580	310			
2	9am	Friday	8632800	1220			

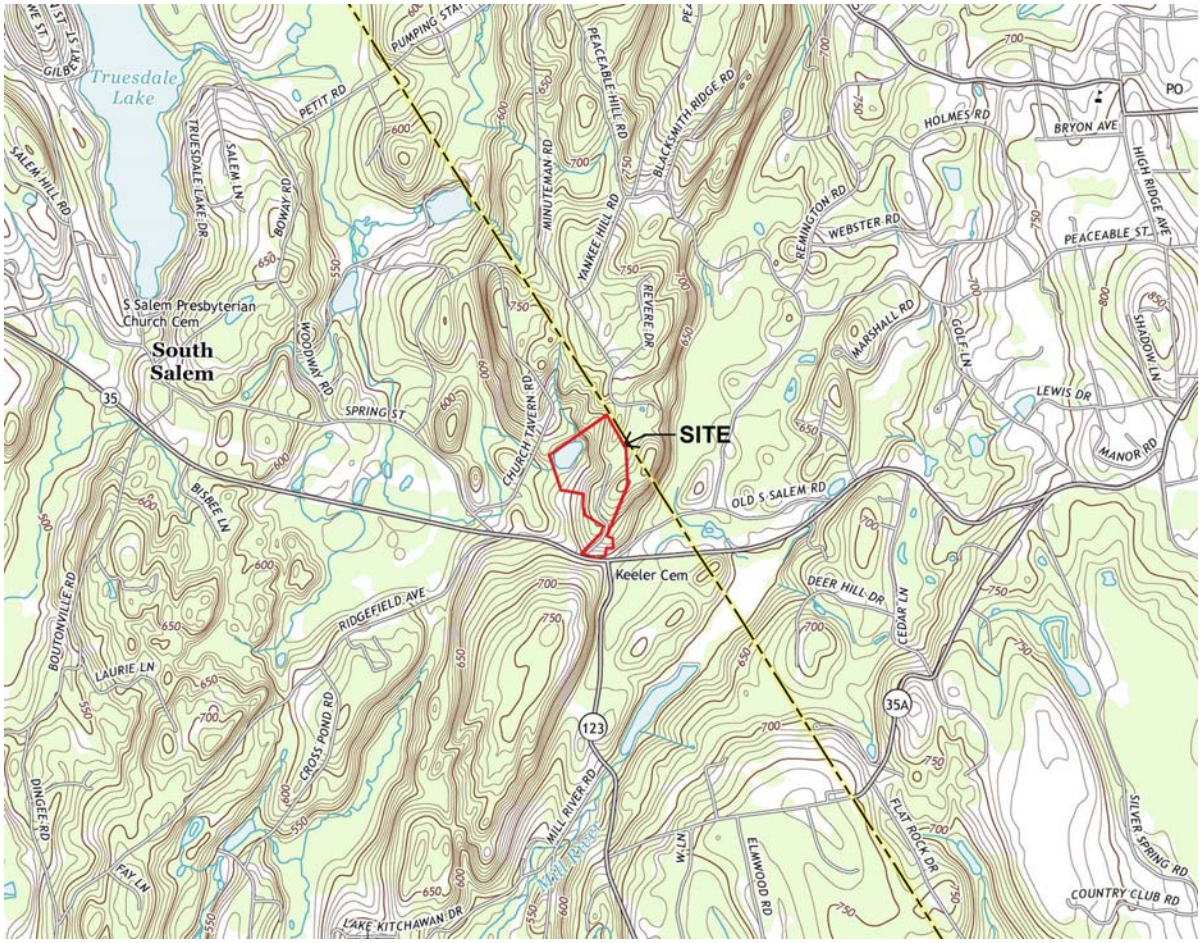
3	9am	Saturday	8635000	2200	160	13.75	2200
4	9am	Sunday	8639050	4050	281	14.41	4050
5	9am	Monday	8641270	2220	155	14.32	2220
6	9am	Tuesday	8641950	680			
7	9am	Wednesday	8642400	450			
8	9am	Thursday	8643000	600			
9	9am	Friday	8643389	389			
10	9am	Saturday	8645067	1678	128	13.11	1678
11	9am	Sunday	8648647	3580	278	12.88	3580
12	9am	Monday	8651627	2980	205	14.54	2980
13	9am	Tuesday	8652277	650			
14	9am	Wednesday	8652727	450			
15	9am	Thursday	8653167	440			
16	9am	Friday	8653557	390			
17	9am	Saturday	8655407	1850	140	13.21	1850
18	9am	Sunday	8659287	3880	313	12.40	3880
19	9am	Monday	8661797	2510	179	14.02	2510
20	9am	Tuesday	8662567	770			
21	9am	Wednesday	8663177	610			
22	9am	Thursday	8664627	1450	100	14.50	1450
23	9am	Friday	8665407	780			
24	9am	Saturday	8667387	1980	138	14.35	1980
25	9am	Sunday	8670367	2980	254	11.73	2980
26	9am	Monday	8672807	2440	180	13.56	2440
27	9am	Tuesday	8673487	680			
28	9am	Wednesday	8673957	470			
29	9am	Thursday	8674487	530			
30	9am	Friday	8674887	400			
31	9am	Saturday	8677037	2150	150	14.33	2150
		Total Month	45457		2661	13.51	35948
		Av/Day	1,515.23				

LE CHATEAU

STORMWATER POLLUTION PREVENTION PLAN

TOWN O□ LEWISBORO□WESTCHESTER COUNT□□NEW □ORK

□UNE □□□□
RE□ISED AUGUST □□□□



□re□ared □y:	**Cronin Engineering□□E□□□C□**
O□ner□O□erator:	**Elegant Ban□uets□LLC**
A□□ro□ing Authority:	**To□n o□Le□is□oro □lanning Board□N□SDEC**

TABLE O□ CONTENTS

□□□ **INTRODUCTION** □ □ □

INTRODUCTION

Project Description

Reference is made to the Plans prepared by this office entitled, "Site Development Plan for Le Chateau", dated February 25, 2016, last revised July 29, 2016. Said plans and this report together complete this Stormwater Pollution Prevention Plan (SWPPP).

1.1.1 Proposed Project

The proposed construction on the Le Chateau property consists of the redevelopment of an existing restaurant / catering facility with a building addition and the expansion / improvement of the existing parking facilities on the site. The site is located on the north side of State Route 35 in the Town of Lewisboro, approximately 400 feet east of its intersection with State Route 123. See **Figure 1**.

The Le Chateau redevelopment will involve construction of a +/- 8,000 square foot addition onto an existing restaurant / catering facility with improvements to and some expansion of the existing on site parking areas to accommodate the increase in size of the restaurant. There will be a total site disturbance of approximately 1.8 acres for the proposed building and parking area construction.

The site tax map designation is: section 55.01 block 2 lot 6. The site zoning designation is R-4A, One Family Residence on 4 acre minimum sized lots.

The property owner is Elegant Banquets, LLC c/o Simon Curtis, 506 Candlewood Lake Road, Brookfield, CT 06804.

1.1.2 Physical Features

The project site encompasses a total of approximately 24.2 acres in size. The site is already developed as a restaurant / catering facility with an internal driveway for circulation, parking areas, a +/- 6,600 square foot restaurant building, a +/- 900 square foot caretakers cottage and a +/- 1,600 square foot garage. The site also contains garden areas, lawn and landscape areas, wooded areas and a +/-2.2 acre pond. The pond, as well as another portion of the site, are locally regulated wetlands. The pond is also regulated by the Army Corps of Engineers. The majority of the site is located within the East of Hudson New York City drinking water watershed and New York City Department of Environmental Protection (NYCDEP) regulated watercourses are also located on and in the vicinity of the site.

Topographically, the southeast boundary of the site generally follows the ridgeline of the New York City watershed. The property climbs from its southeast corner at an elevation of approximately 650 feet to an elevation of approximately 760 feet, the high point of the property, at the center of its eastern boundary. From this point to the north, the site dips along its eastern property line to an elevation of approximately 710 feet and climbs and dips back to the northeast property corner at an elevation of approximately 690 feet. The property tends to drop from the east to the west with the northern portion of the property draining toward the onsite pond that sits at an elevation of approximately 625. The low point on the property is on its northwestern boundary, just west of the pond discharge at an elevation of approximately 616 feet. All of the on site and nearby wetlands and regulated watercourses have been flagged by project consultants and survey located. The NYCDEP regulated watercourses have been confirmed by that agency.

1.1.3 Approving Authority

This application is for a site Development Plan in the Town of Lewisboro. As such, the Town of Lewisboro Planning Board has taken the lead agency status for the environmental review.

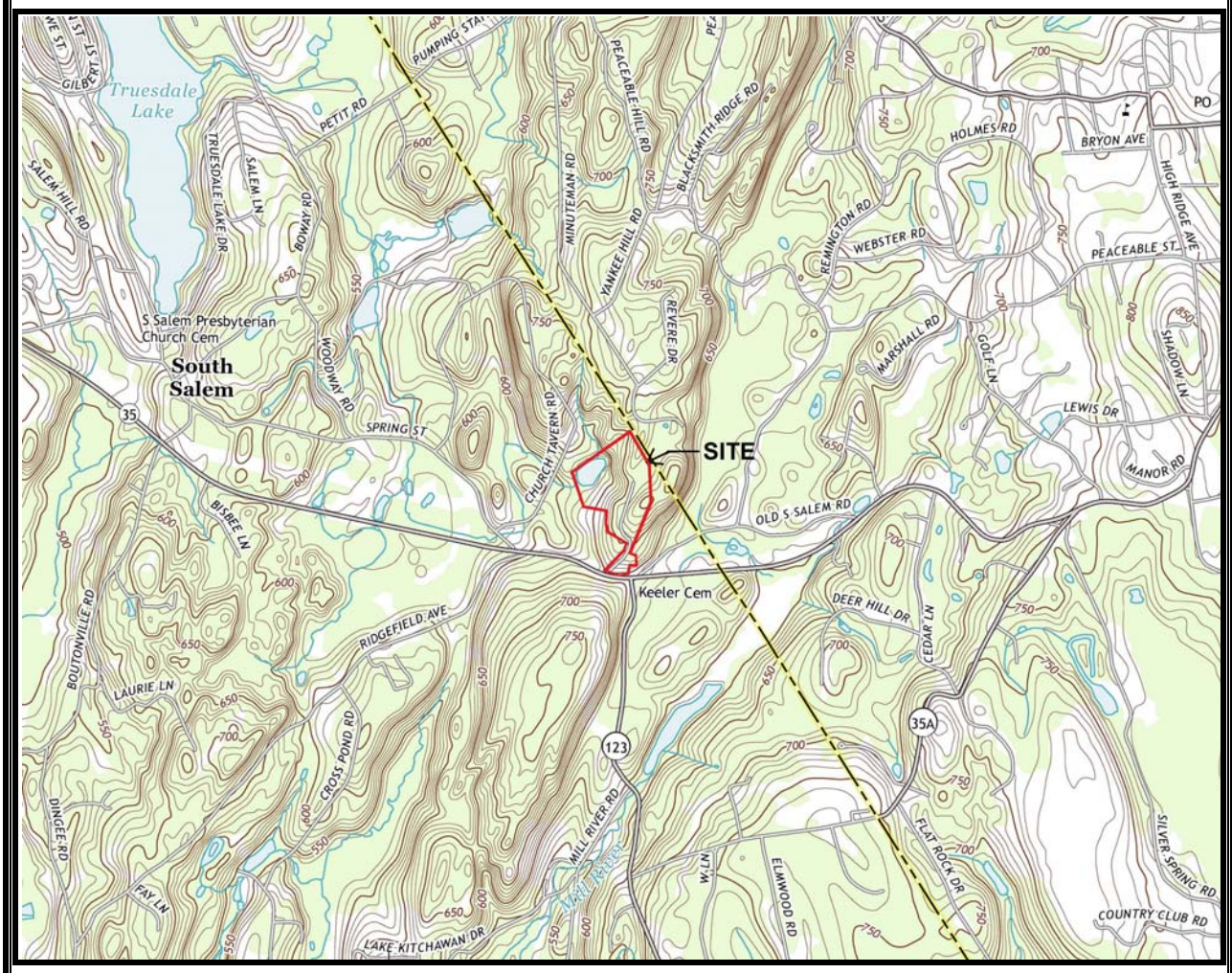


Figure 1, Project location

Source: Peach Lake USGS Quadrangle.

Approvals re□uired from the Town of Lewisboro are as follows:

Town of Lewisboro Plannin□ Board
- Site Development Plan Approval, Wetland Permit, Stormwater Permit

Town of Lewisboro Zonin□ Board of Appeals
- Expansion of a Preexistin□ Nonconformin□ Use
- Use of Nonconformin□ Driveways and Landscapin□ Variances

Additional approvals are also re□uired by various a□encies for this subdivision. The approvin□ a□encies, re□uired permits and the permit status are listed below

Westchester County Department of Health
- Chan□e of use approval for existin□ Sewa□e Disposal facilities

NYS Dept. of Environmental Conservation
- Stormwater SPDES Permit, GP-0-15-002

The New York City Department of Environmental Protection □DEP□has confirmed that the project does not meet their thresholds for SWPPP review as there is less than two acres of disturbance proposed and no disturbance is proposed within 100 feet of a re□ulated watercourse.

□□ Stor□ □ater Manage□ ent O□□ecti□e

The Le Chateau project will result in approximately 1.8 acres of disturbance for a commercial redevelopment and is therefore subject to the re□uirements of the New York State Department of Environmental Conservation □NYSDEC□SPDES General Permit for stormwater dischar□es from construction activity, Permit GP-0-15-002.

The stormwater mana□ement objective for Le Chateau is to develop a Stormwater Pollution Prevention Plan □SWPPP□in accordance with the New York State Pollutant Dischar□e Elimination System □SPDES□ General Permit, GP-0-15-002 for stormwater dischar□es associated with construction activities. The SWPPP is a plan for controllin□ runoff and pollutants from a site both durin□ and after construction activities by utili□in□ and implementin□ the followin□ practices:

- reduction or elimination of erosion and sediment loadin□ to waterbodies durin□ construction
- control of the impact of stormwater runoff on the water □uality of the receivin□ waters
- control of the increased volume and peak rate of runoff durin□ and after construction
- maintenance of stormwater controls durin□ and after completion of construction

This SWPPP will utili□e properly selected, si□ed and located stormwater mana□ement practices to protect water resources from stormwater impacts due to erosion and sedimentation or increases in peak flowrates caused by construction. This result will be reali□ed with the implementation of the erosion and sediment control plan and the water □uantity and □uality control plans in this report.

□□ N□SDEC S□DES General □er□ it G□□□□□□□□ A□□lica□ility and Re□uire□ ents

Disturbance □1 acre	yes □1.8 acres□
Disturbance □5 acres	no □1.8 acres□
Construction other than sin□le family residential	yes □commercial redevelopment□
Project located in TMDL watershed or 303□d□listed water	yes □Truesdale Lake□□
Enhanced Phosphorous removal re□uired	yes □east of Hudson NYC watershed□

Truesdale Lake is listed as a TMDL watershed for Phosphorous loading. Implementing stormwater treatment to enhanced Phosphorous removal standards will reduce the Phosphorous loading to this waterbody.

SWPPP components required pursuant to NYSDEC:

Erosion & sediment control plan	required and provided
Water quality control plan	required and provided
Water quantity control plan	required and provided

This report includes an Erosion and Sediment Control program a Water quality Control plan and a Water quantity Control plan.

SOILS

On Site Soils

On site soils were determined utilizing the USDA Web Soil Survey. The soils found on site consist of Charlton loam (ChC), Charlton-Chatfield complex (CrC), Chatfield-Hollis-Rock outcrop complex (CtC, CuD), Hollis-Rock outcrop complex (HrF), Sun loam (Sh), Sutton Loam (SuB) and Water. For the soil boundaries, see **Appendix C**.

Soils descriptions

The following soil descriptions are as presented in the aforementioned soil survey.

ChC (Charlton loam): consists of very deep, well-drained soils typically located on hilltops and hillsides. Slopes range from 2% to 8%.

Charlton soils within this category have the following properties:

Water table	usually greater than 6 feet
Permeability	moderate or moderately rapid
Surface runoff	medium.
Erosion hazard	slight to severe, depending on slope
Depth to bedrock	greater than 5 feet

CrC (Charlton-Chatfield complex): consists of very deep and moderately deep, well-drained soils typically located on hilltops and hillsides. Slopes range from 2% to 15%.

Charlton-Chatfield soils within this category have the following properties:

Water table	usually greater than 6 feet
Permeability	moderate or moderately rapid
Surface runoff	medium
Erosion hazard	moderate
Depth to bedrock	greater than 5 feet, 20 to 40 inches for the Chatfield soils

CtC (CuD) (Chatfield-Hollis-Rock outcrop complex): consists of moderately deep and shallow, well-drained and somewhat excessively drained soils typically located on hilltops and hillsides. Slopes range from 3% to 15% for CtC, 15% to 35% for CuD.

Chatfield-Hollis-Rock outcrop soils within this category have the following properties:

Water table	usually greater than 6 feet
Permeability	moderate or moderately rapid
Surface runoff	medium for CtC, rapid for CuD
Erosion hazard	moderate for CtC, severe for CuD
Depth to bedrock	20 to 40 inches for Chatfield soils, 10 to 20 inches for Hollis soils

Hr□□Hollis□Roc□ outcro□ co□ □le□: consists of shallow, well-drained and somewhat excessively drained soils and areas of rock outcrop typically located on hillsides. Slopes ran□e from 35□ to 60□.

Hollis-Rock outcrop soils within this cate□ory have the followin□ properties:

Water table	usually □reater than 6 feet
Permeability	moderate or moderately rapid
Surface runoff	very rapid
Erosion ha□ard	very severe
Depth to bedrock	10 to 20 inches

Sh□Sun loa□: consists of very deep, nearly level and poorly to very poorly drained soils typically located in small depressions and alon□ draina□e ways on till plains. Slopes ran□e from 0□ to 3□.

Leicester soils within this cate□ory have the followin□ properties:

Water table	1 foot above to .5 feet below surface from November throu□h April
Permeability	moderate in surface and slow to very slow in subsoils
Surface runoff	very slow
Erosion ha□ard	none or sli□ht
Depth to bedrock	□reater than 5 feet

SuB□Sutton loa□: consists of very deep, □ently slopin□, moderately well drained soils typically located on concave foot slopes and alon□ draina□e ways in the uplands. Slopes ran□e from 3□ to 8□.

Sutton soils within this cate□ory have the followin□ properties:

Water table	at a depth of 1.5 feet to 2.5 feet from November throu□h April
Permeability	moderate or moderately rapid
Surface runoff	medium
Erosion ha□ard	moderate
Depth to bedrock	□reater than 5 feet

For the Le Chateau project, the limits of disturbance encompass approximately 1.8 acres which includes predominantly Charlton Loam □ChC□ and Chatfield-Hollis-Rock outcrop □CtC□, □CuD□ soils with small portions of Charlton-Chatfield complex □CrC□ and Sutton loam □SuB□ soils near the site entrance. The remainin□ soils on site are outside of the limits of disturbance.

□□□ Hydrologic Soils Grou□ □HSG□

ChC Charlton loam	HSG □B
CrC, Charlton-Chatfield complex	HSG □B
CtC, CuD, Chatfield-Hollis-Rock outcrop complex:	HSG □B
HrF, Hollis-Rock outcrop complex:	HSG □D
Sh, Sun loam:	HSG □C/D□
SuB, Sutton loam:	HSG □B

□Sun loam is assi□ned a dual hydrolo□ic □roup □C/D□. The first letter is for drained areas and the second letter is for undrained areas. These values are not considered in the hydrolo□ic analysis of the site as the Sun loam soils do not fall within the watersheds analy□ed in this analysis.

□□□ Soil Testing

Deep and infiltration tests were conducted at the proposed stormwater mana□ement locations and witnessed by the Town□s professional consultants on May 23, 2016 and June 21, 2016. The test

results indicated suitable materials for the installation of the proposed infiltration facilities. The soil test locations and results are provided in **A□□endi□ D□**

□□□ STORMWATER MANAGEMENT □LAN □QUANTIT□

□□□ Descri□tion

Pursuant to the NYSDEC General Permit GP-0-15-002, stormwater □uantity controls are re□uired for Stream Channel Protection Volumes □1 year storm□, Overbank Flood Control □10 year storm□ and Extreme Flood Control □100 year storm□.

There are two draina□e basins within the development which will be provided with stormwater □uantity controls. The stormwater mana□ement plan for □uantity is to provide infiltration for the 1 year storm event and limit the peak rates of stormwater runoff from the site to or below the pre-development peak rates of runoff in the lar□er rainfall events. This analysis shows that upon completion of the site draina□e improvements as recommended in the analysis, the project will achieve its treatment objectives by providin□ the necessary facilities to capture and infiltrate the post developed 1 year storm event and ensurin□ that there will not be an increase in the rate of stormwater dischar□e from this site in the 1, 10 and 100 year desi□n storms at the two draina□e desi□n points. The draina□e improvements will provide for runoff reduction, stream channel protection, overbank flood control and extreme flood control respectively.

The site is located in the Truesdale Lake draina□e basin with eventual dischar□e into the Cross River Reservoir.

Hydrolo□ically, the project site is broken into two pre-development draina□e basins dischar□in□ to two desi□nated desi□n points. The desi□n points are the points of dischar□e for modelin□ the stormwater characteristics for the site.

□□□ Methodology

The procedure employed to analy□e and □uantify the stormwater characteristics of the site is the USDA Soil Conservation Service Technical Release TR-20. The TR-20 method of stormwater modelin□ is an accepted standard by both the US Soil Conservation Service and the US Army Corps of En□ineers.

This study was performed usin□ the computer-modelin□ pro□ram HydroCad version 10.00 that is based on TR-20. The HydroCad Stormwater Modelin□ System is a computer pro□ram formulated by Applied Microcomputer Systems and was utili□ed in determinin□ the stormwater hydro□raphs. This pro□ram re□uires that each of the hydrolo□ically distinct areas, or sub-basins, be analy□ed with the appropriate data input to the pro□ram. These distinct areas are referred to as "subcatchments" in HydroCad. Flow from the subcatchments are then routed to either a stream or draina□e course, which are referred to as "reaches" in HydroCad, for conveyance to ponds or wetlands. In the description of the travel paths of the subcatchments, the use of culverts is allowed. This will result in the direct dischar□e of the subcatchments directly into the ponds or wetlands. The detention ponds, first flush basins, first flush basin control structures and wetlands are all modeled as "ponds" in the HydroCad pro□ram.

The TR-20 procedure re□uires the input of data that is based on the subcatchments and their dischar□e points. Select dischar□e points are considered as desi□n points in this report. These include values for time of concentration, Tc, and runoff curve numbers, CN, which are defined as follows:

The runoff curve number □CN□indicates the runoff potential of a particular soil cover in an unfro□en state. The CN is determined by evaluatin□ the hydrolo□ic soil □roup, land use and

treatment condition (cover). The higher the curve number (such as 98 for pavement), the greater the runoff potential, while a low CN (such as 55 for some wooded areas), indicates a large infiltration capacity or minimal runoff potential. The CN value is not a percentage of the amount of runoff from a specific storm event.

The time of concentration (Tc) is a key element in the calculation of peak rate of runoff and can be defined as the time required for runoff to travel from the most hydrologically distant point of the watershed to the point of discharge. The time of concentration is determined by summing the travel time (Tt) for each consecutive flow segment along the hydrologic path for the drainage basin which requires the identification of the type of flow occurring in each segment.

The procedure requires that site specific factors are initially determined. This information along with the size of the drainage basins and other physical characteristics of the basins are input into the computer program for the generation of stormwater flows.

The soil types comprising the study area are an important component in the hydrologic analysis. Based on the USDA Web Soil Survey, the soils in the studied Le Chateau drainage basins are primarily B type soils.

Once the specific components of the project have been described, hydrographs for each drainage area are generated. Based on the site layout and flow paths, the stormwater flows resulting from each of the design storms considered in both the pre and post-development condition are calculated. The appropriate values are summed to determine the extent to which treatment is required. Based on the computations, improvements are recommended that upon completion, will result in the peak rate of runoff from the Le Chateau site development being equal to or less than that which currently exists in the sub drainage basins.

Stormwater hydrographs and subsequent routings for both the pre and post-development conditions have been generated for all of the basins and sub basins showing the peak flows based on the time of concentration and runoff curve numbers. The storms analyzed in this study are the 1, 10 and 100 year recurrence storms. A complete set of data is presented for these design storms.

Rainfall Data

For this site an SCS Type III rainfall distribution is utilized. The 24 hour rainfall amounts are as follows:

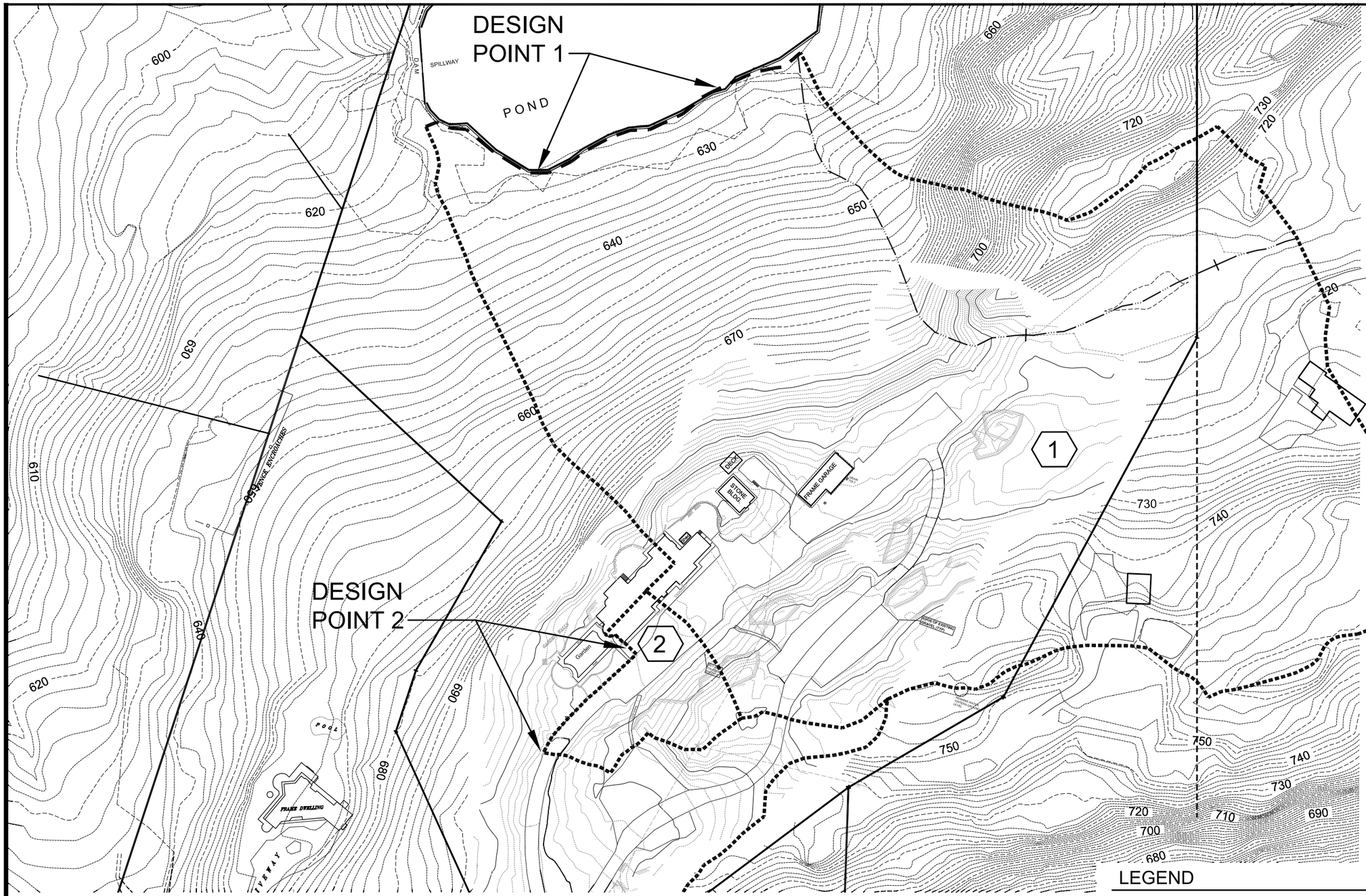
1 year storm	2.85
10 year storm	5.11
100 year storm	9.08

The above values have been taken from the Northeast Regional Climate Center Extreme Precipitation Tables for the Le Chateau site.

Pre-development Hydrologic Analysis

For information, including drainage basin delineation and design point locations, for the pre-development condition see **Figure** .

The total drainage basin delineated for this project is 13.66 acres in size and includes off-site lands in the vicinity of the project site. This analysis focuses on the primary areas of disturbance for the project and provides stormwater treatment above what is required for the work proposed as a redevelopment project. Certain areas of the site are not analyzed as no or minimal disturbance is proposed in these areas.



PRE DEVELOPMENT DRAINAGE

200 0 200 400

SCALE: 1"=120'

DESIGN POINT 1
AREA = 13.12 AC
Q_1 = 1.6 CFS
Q_{10} = 10.3 CFS
Q_{100} = 32.4 CFS

DESIGN POINT 2
AREA = 0.54 AC
Q_1 = 0.4 CFS
Q_{10} = 1.4 CFS
Q_{100} = 3.5 CFS

LEGEND

- EXIST. CONTOUR (SITE SURVEY)
- 670 — EXIST. CONTOUR (WESTCHESTER GIS)
- DRAINAGE BASIN BOUNDARY
- DRAINAGE TRAVEL PATH
- (1) SUBCATCHMENT OR DISTINCTIVE WATERSHED - CORRESPONDS WITH DRAINAGE ANALYSIS

CRONIN ENGINEERING
PROFESSIONAL ENGINEERING & CONSULTING
(914) 736-3664
39 Arlo Lane
Cortlandt Manor, New York 10567

REV 1:	8-4-16
REV 2:	
REV 3:	
REV 4:	
TAX MAP #:	SHT: 55.01, BLK: 2, LOT: 6
DATE:	6-29-16
DES BY:	RAW Le Chateau.dwg

PRE DEVELOPMENT
STORMWATER ANALYSIS
FOR
LE CHATEAU

LOCATION: 1410 ROUTE 35
TOWN OF LEWISBORO

FIGURE 2

JOB #: 150504

3.4.1 Basin 1 to Desi□n Point 1

The contributin□ area for this basin is 13.12 acres in si□e with a mostly wooded cover. With the exception of just under one acre of offsite wooded area in Connecticut containin□ □D□soils, this entire basin is comprised of □B□soils. 25□ of this basin ori□inates offsite from the east and northeast. The onsite areas include the majority of areas to be developed includin□ the north portion of the existin□ restaurant / caterin□ hall buildin□ as well as all existin□ onsite parkin□ areas north of this point and an existin□ caretaker□s cotta□e and □ara□e. Other onsite areas in this basin include the wetland to the north, wooded areas within and to the east, north and west of the developed areas and a meadow area to the west of these developed areas. Desi□n point 1 is the boundary where these areas enter the onsite pond on the northwest portion of the parcel. The flows to desi□n point 1 will drain throu□h the onsite pond and follow small draina□e channels to Truesdale Lake with eventual dischar□e to the Cross River Reservoir.

3.4.2 Basin 2 to Desi□n Point 2

The contributin□ area for this entirely onsite basin is 0.54 acres in si□e and consists of wooded, landscaped and impervious areas. The impervious areas include the southeast portion of the roof of the existin□ restaurant / caterin□ buildin□ and the parkin□ area immediately in front of and to the south of the buildin□. The desi□n point for this basin is at the south end of a wall on the west side of the existin□ driveway where flows from this watershed are concentrated at desi□n point 2. Desi□n point 2 dischar□es via overland flow to eventually reach the same small draina□e channels to Truesdale Lake that the basin 1 dischar□e follows with eventual dischar□e to the Cross River Reservoir.

3.4.3 Peak Flows

Peak flows are based on a Type III, 24-hour rainfall distribution usin□ desi□n rainfalls of 2.85□, 5.11□and 9.08□for the 1, 10 and 100 year recurrence storms, respectively. The calculated peak flows for the site are presented in Table 1 below. The draina□e basin detailed data includin□ the Cn calculations, time of concentration calculations, □round cover data and stormwater hydro□raphs are shown for the 1, 10 and 100 year storm events in **A□□endi□ B**.

Ta□le □ □re□de□elo□□ ent □ea□ Discharges □c□s□

basin	1 year storm	10 year storm	100 year storm
1 to DP1	1.6	10.3	32.4
2 to DP2	0.4	1.4	3.5

It is the above peak dischar□e rates that are the basis to insure the post-development peak dischar□e rates are less than those presented above. All numbers shown have been rounded to the nearest tenth.

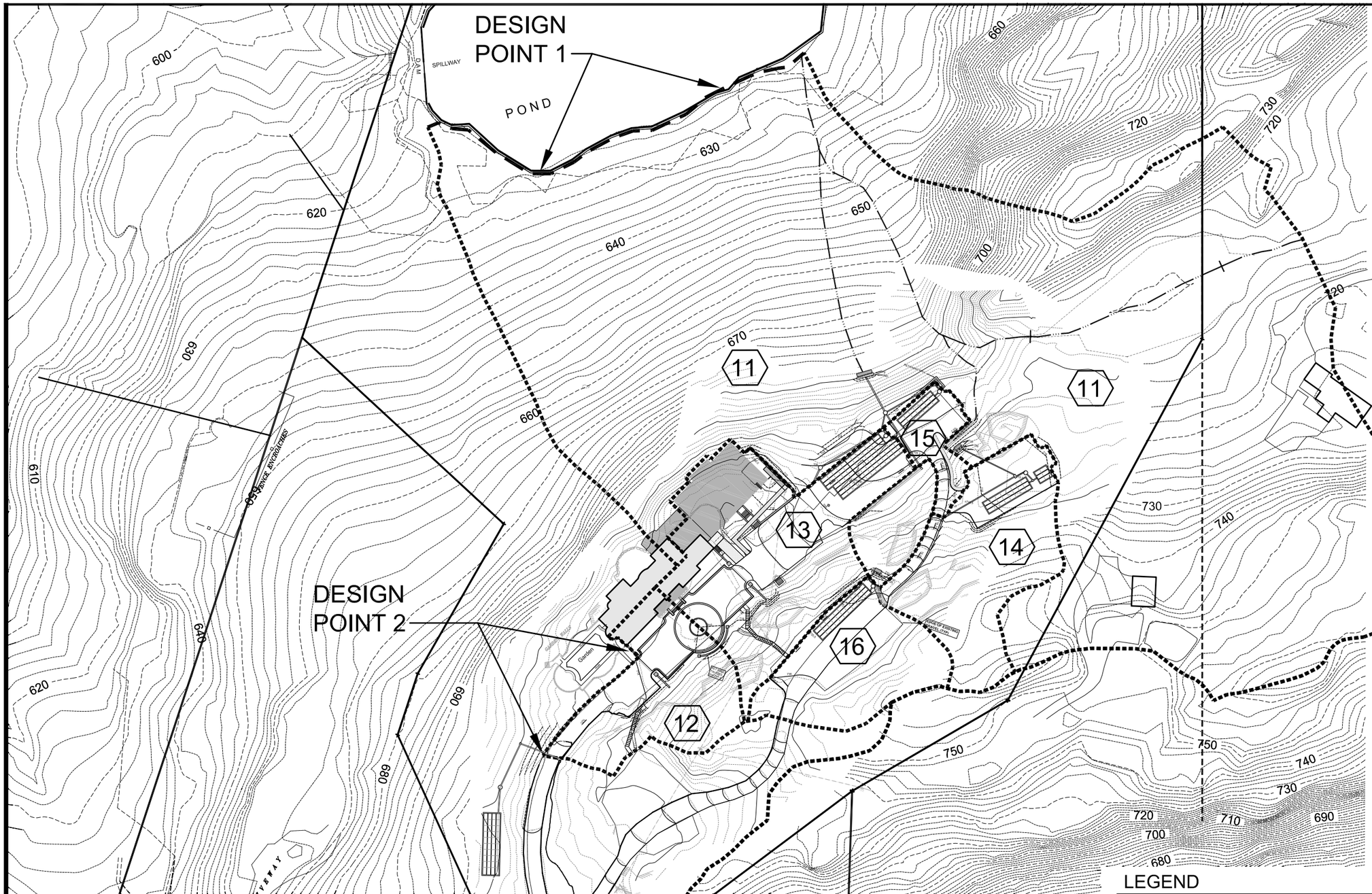
□□□ □ost□de□elo□□ ent Hydrologic Analysis

For information on the post-development draina□e basins see □**igure** □.

In the post development condition, the draina□e basin shapes, draina□e patterns, runoff curve numbers and areas chan□e due to the construction of the buildin□ addition, driveway and parkin□ areas.

3.5.1 Basin 11 to Desi□n Point 1

This draina□e basin consists of the areas that are □enerally not disturbed and will not be receivin□ stormwater treatment that will be drainin□ toward desi□n point 1. It consists of all the offsite areas from pre development basin 1 and the onsite areas downslope of the proposed improvements in



POST DEVELOPMENT DRAINAGE

200 0 200 400

SCALE: 1"=120'

DESIGN POINT 1
AREA = 13.07 AC
Q_i = 0.9 CFS
Q_{10} = 7.3 CFS
Q_{100} = 28.3 CFS

DESIGN POINT 2
AREA = 0.59 AC
Q_i = 0.0 CFS
Q_{10} = 0.0 CFS
Q_{100} = 1.2 CFS

LEGEND

- EXIST. CONTOUR (SITE SURVEY)
- 670 — EXIST. CONTOUR (WESTCHESTER GIS)
- DRAINAGE BASIN BOUNDARY
- DRAINAGE TRAVEL PATH
- 11 — SUBCATCHMENT OR DISTINCTIVE WATERSHED - CORRESPONDS WITH DRAINAGE ANALYSIS

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POST DEVELOPMENT
STORMWATER ANALYSIS
FOR
LE CHATEAU

LOCATION: 1410 ROUTE 35
TOWN OF LEWISBORO

FIGURE 3

JOB #: 150504

the pre development drainage basin 1. The areas excluded from this basin when comparing it to the pre development basin 1 include all the existing and proposed onsite parking areas and the vast majority of the existing and proposed onsite buildings. A very small portion of roof drainage from the existing and proposed building will not receive treatment due to limitations of site topography, however these areas will be more than offset by the existing site areas that will receive stormwater treatment where none is currently being provided. The stormwater from this basin will leave the site through design point 1 which remains the same as in the pre development condition for basin 1.

3.5.1 Basins 13, 14, 15 and 16 to Design Point 1

These drainage basins consist of the existing and proposed on site parking and building areas that will receive stormwater treatment by means of subsurface infiltration. The subsurface infiltration systems for each of these basins are sized to provide storage and treatment of the entire one year rainfall event with pretreatment to the infiltration systems being provided using New York State Verified Proprietary Stormwater Management Practice vortex units. Each of these basins, as shown in Figure 3, consist of different areas of the proposed development and will discharge through their respective control structures to overland flow to design point 1 at the edge of the onsite pond. This is the same design point as described in the pre development condition.

3.5.2 Basin 12 to Design Point 2

This drainage basin approximately follow the boundary of pre development basin 2, however it is slightly larger than in the pre development condition due to some regrading at the building entrance to accommodate a revised parking / access driveway layout. This basin will be 0.59 acres in size and will provide treatment for the southeast portion of the roof of the existing restaurant / catering building and the updated parking area immediately in front of and to the south of the building. Design point 2 will remain the same as in the pre development condition for basin 2.

3.5.3 Post Development Peak Flows

The peak flows presented in table 2 below are based on a Type III, 24 hour rainfall distribution with design rainfalls of 2.85, 5.11 and 9.08 for the 1, 10 and 100 year recurrence storms, respectively. The drainage basin detailed data including the Cn calculations, time of concentration calculations, ground cover data and stormwater hydrographs are shown for the 1, 10 and 100 year storm events in **Appendix B**.

Table 2 Post development Peak Discharges (cfs)

Drainage basin	1 year storm	10 year storm	100 year storm
11, 13, 14, 15 and 16 to DP1	0.9	7.3	28.3
12 to DP2	0.0	0.0	1.2

The above values were rounded to the nearest tenth.

3.5.4 Summary table of pre and post development peak flows

Table 3 below compares the pre development peak flow rates to the post development peak flow rates at design points 1 and 2. As can be seen, for both of the design points, it can be expected that the post development flow rates are equal to or less than the pre development rates and that mitigation is accomplished.

Ta□le □□re and □ost De□elo□□ ent □ea□ Discharge Co□ □arison

Desi□n point	Desi□n storm	Pre development discha□e □cfs□	Post development discha□e □cfs□	Net chan□e □cfs□ □ reduction □□
D□□	□	1.6	0.9	-0.7□43.8□ □
	□□	10.3	7.3	-3.0□29.1□ □
	□□□	32.4	28.3	-4.1□12.7□ □
D□□	□	0.4	0.0	-0.4□100.0□ □
	□□	1.4	0.0	-1.4□100.0□ □
	□□□	3.5	1.2	-2.3□65.7□ □

□The flow values shown in this table have been rounded to the nearest tenth from the values □enerated by the computer model and are appropriate for this type of analysis. See **A□□endi□ B** for the pre-development and post development stormwater summaries, calculations and hydro□raphs.

Based on the above table, the Le Chateau development as proposed with its stormwater mana□ement system will not result in an increase in the peak rate of discha□e at desi□n points 1 or 2 for all of the analy□ed storms in the post-development condition as compared to the pre development condition.

With respect to the NYSDEC General Stormwater SPDES Permit re□uirement, the above described post development peak flow attenuation satisfies the re□uirements for Overbank Flood Control □□p□, and Extreme Flood Control □□f□.

□□□ STORMWATER MANAGEMENT □LAN □QUALIT□

□□□ Introduction

The stormwater water □uality pro□ram presented herein is desi□ned to meet the NYSDEC re□uired si□in□ criteria and pollutant removal □oals. As part of the water □uality pro□ram and si□in□ criteria, a water □uality volume, W□v, shall be provided to capture and treat stormwater runoff from the site. As the site is located in a phosphorous restricted watershed, the W□v will be based upon the one year rainfall event and the proposed infiltration facilities will be si□ed to capture and treat the runoff from this one year rainfall event. The W□v is directly related to the amount of impervious cover on a site. The followin□ e□uation is utili□ed to determine the water □uality volume in acre-feet of stora□e for the Mill Court Crossin□ development:

$$WQ\square\ \square = \frac{\square\square\square R\square\square A\square}{\square\square}$$

WQ□	□	water □uality volume	□acre-feet□
□	□	one year rainfall event	□2.85□□
R□	□	0.05 □0.009 □I□	□I □percent of impervious cover□□
A	□	site area	□acres□

The P value of the one year rainfall event is taken from the Extreme Precipitation Table for the Le Chateau site as provided by the Northeast Re□ional Climate Center.

The minimum value for Rv shall be 0.2

□□ Water Quality Treat□ ent □Drainage Basins

4.2.1 post-development basin 13 □parkin□ lot 2 □south□

W□v	□	water □uality volume □acre-feet□
P	□	2.85
Rv	□	0.608 □ □62□ □
A	□	1.09 acres

W□v □ □2.85□□0.608□□1.09□/ 12 □0.1574 acre-feet
W□v □ 0.1574 acre-feet or 6,856 cubic feet

For post-development basin 13, a set of prefabricated infiltrators is proposed to collect and treat the re□uired stormwater □uality volume as well as provide the re□uired stream channel protection volume and some flow attenuation. The basin will utili□e a Downstream Defender vortex separator as manufactured by Hydro International. The Downstream defender is on the New Jersey DEP□s list of NJCAT verified devices and is therefore suitable for use as a pretreatment device for the infiltration basin for this project. The infiltration system will provide a stora□e volume of 7,016 cubic feet which is in excess of the 6,858 cubic feet re□uired water □uality volume for its draina□e basin. Post development basin 13 will have its eventual dischar□e to desi□n point 1.

4.2.2 post-development basin 14 □parkin□ lot 3□

W□v	□	water □uality volume □acre-feet□
P	□	2.85
Rv	□	0.284 □ □26□ □
A	□	0.77 acres

W□v □ □2.85□□0.284□□0.77□/ 12 □0.0519 acre-feet
W□v □ 0.0519 acre-feet or 2,260 cubic feet

For post-development basin 14, a set of prefabricated infiltrators is proposed to collect and treat the re□uired stormwater □uality volume as well as provide the re□uired stream channel protection volume and some flow attenuation. The basin will utili□e a Downstream Defender vortex separator as manufactured by Hydro International for pretreatment purposes. The infiltration system will provide a stora□e volume of 2,570 cubic feet which is in excess of the 2,260 cubic feet re□uired water □uality volume for its draina□e basin. Post development basin 14 will have its eventual dischar□e to desi□n point 1.

4.2.3 post-development basin 15 □parkin□ lot 2 - north□

W□v	□	water □uality volume □acre-feet□
P	□	2.85
Rv	□	0.797 □ □88□ □
A	□	0.16 acres

W□v □ □2.85□□0.797□□0.16□/ 12 □0.0303 acre-feet
W□v □ 0.0303 acre-feet or 1,320 cubic feet

For post-development basin 15, a set of prefabricated infiltrators is proposed to collect and treat the re□uired stormwater □uality volume as well as provide the re□uired stream channel protection volume and some flow attenuation. The basin will utili□e a Downstream Defender vortex separator

as manufactured by Hydro International for pretreatment purposes. The infiltration system will provide a stora□e volume of 1,763 cubic feet which is in excess of the 1,320 cubic feet re□uired water □uality volume for its draina□e basin. Post development basin 15 will have its eventual dischar□e to desi□n point 1.

4.2.4 post-development basin 16 □parkin□ lot 4□

W□v	□	water □uality volume □acre-feet□
P	□	2.85
Rv	□	0.446 □l □44□ □
A	□	0.54 acres
W□v	□	□2.85□□0.446□□0.54□/ 12 □0.0572 acre-feet
W□v	□	0.0572 acre-feet or 2,492 cubic feet

For post-development basin 16, a set of prefabricated infiltrators is proposed to collect and treat the re□uired stormwater □uality volume as well as provide the re□uired stream channel protection volume and some flow attenuation. The basin will utili□e a Downstream Defender vortex separator as manufactured by Hydro International for pretreatment purposes. The infiltration system will provide a stora□e volume of 2,639 cubic feet which is in excess of the 2,492 cubic feet re□uired water □uality volume for its draina□e basin. Post development basin 16 will have its eventual dischar□e to desi□n point 1.

4.2.5 post-development basin 12 □parkin□ lot 1□

W□v	□	water □uality volume □acre-feet□
P	□	2.85
Rv	□	0.401 □l □39□ □
A	□	0.59 acres
W□v	□	□2.85□□0.401□□0.59□/ 12 □0.0562 acre-feet
W□v	□	0.0562 acre-feet or 2,448 cubic feet

For post-development basin 12, a set of prefabricated infiltrators is proposed to collect and treat the re□uired stormwater □uality volume as well as provide the re□uired stream channel protection volume and some flow attenuation. The basin will utili□e a Downstream Defender vortex separator as manufactured by Hydro International for pretreatment purposes. The infiltration system will provide a stora□e volume of 3,258 cubic feet which is in excess of the 2,448 cubic feet re□uired water □uality volume for its draina□e basin. Post development basin 12 will have its dischar□e at desi□n point 2.

□□ Water Quality □retreat□ ent

The project provides Water □uality treatment usin□ the standard practice of infiltration, however, it does employ alternative practices for pretreatment as allowed in the New York State Verified Proprietary Stormwater Mana□ement Practices section of the NYSDEC website.

The pretreatment practice used is the Downstream Defender as manufactured by Hydro International. This product is a hydrodynamic separator that is certified by the New Jersey Corporation for Advanced Technolo□y for the New Jersey DEP and is therefore accepted by the NYSDEC. The certification can be found in **A□□endi□ E** as well as a standard detail showin□ the maximum treatment flow rate of 1.6 cfs for the 4 foot diameter device. As the Water □uality Volume is based on the 1 year □2.85 inches□rainfall event and the hydrodynamic separator is si□ed based on flowrates instead of volumes, the HydroCad output for the 1 year desi□n storm is

used to verify that the hydrodynamic separator is properly si□ed. The one year flowrates toward the various infiltration systems are □iven in the followin□ table:

Ta□le □ One year □lo□ rates to □ro□osed in□iltration

Infiltration System	One year flowrate□ □cfs□
Parkin□ area 1	0.5
Parkin□ area 2 south	1.6
Parkin□ area 2 north	0.4
Parkin□ area 3	0.3
Parkin□ area 4	0.6

□The flow values shown in this table have been rounded to the nearest tenth from the values □enerated by the computer model and are appropriate for this type of analysis. See **A□□endi□ B** for the pre-development and post development stormwater summaries, calculations and hydro□raphs.

These values are less than or e□ual to the maximum treatment flowrate for the proposed hydrodynamic separators and therefore the separators are properly si□ed for these applications.

□□□ Runo□□Reduction □olu□ e and Green In□rastructure

Runoff Reduction is the reduction of the total Water □uality Volume by application of Green Infrastructure techni□ues and standard Stormwater Mana□ement Practices with Runoff Reduction capacity to replicate pre development hydrolo□y. The use of infiltration practices for the Le Chateau redevelopment project to treat the Water □uality Volume re□uirements makes the project compliant with the NYSDEC Runoff Reduction re□uirements as Infiltration is a standard Stormwater Mana□ement Practice with Runoff Reduction capacity.

As the project satisfies the Runoff Reduction re□uirement throu□h standard practices, the inclusion or calculation of additional stormwater water □uality volume is not re□uired for □reen infrastructure. The project will incorporate □reen measures such as tree plantin□s to be incorporated into the project.

The plannin□ practices of Green Infrastructure includin□ Preservation of Undisturbed Areas, Preservation of Buffers, Reduction of Clearin□ and Grubbin□ and locatin□ Development in Less Sensitive Areas are inherently incorporated into the project as a redevelopment. As the site is already disturbed and mostly developed, it□s re-use will eliminate the need to recreate the existin□ driveway, buildin□ and site features that already exist at the site as well as eliminatin□ the need for all but some minor □radin□ to accommodate the proposed site chan□es.

□□□ Additional Water Quality □eatures

The redevelopment of the Le Chateau site will involve the removal and reconstruction of existin□ impervious areas, the construction of new impervious areas, and the maintenance of existin□ impervious areas. While the NYSDEC re□uires different levels of treatment for all of these conditions with no treatment bein□ re□uired for the existin□ impervious areas to remain, all of these impervious areas within the primary redevelopment area are bein□ provided with stormwater treatment meetin□ new development standards. The NYSDEC considers □ravel areas, some of which are bein□ resurfaced, to be impervious.

In the existin□ condition, 1.15 acres of the primary redevelopment area has impervious □round covera□e that receives no □uality treatment. As proposed, 0.50 acres of this impervious area will

remain undisturbed, 0.65 acres of this impervious area will be disturbed and redeveloped with impervious covera□e and an additional 0.34 acres of new impervious covera□e is proposed. Of these areas, no water □uality treatment is re□uired for the undisturbed areas, 25□ treatment is re□uired for the redeveloped areas and full treatment is re□uired for the new impervious areas.

The e□uivalent impervious acrea□e that re□uires the full water □uality treatment in the primary redevelopment area is as follows:

Undisturbed	0.50 acres x 0□	□0.00 acres
Redeveloped	0.65 acres x 25□	□0.16 acres
New impervious	0.34 acres x 100□	□0.34 acres
Total		□0.50 acres

All of the Undisturbed, Redeveloped and New impervious surfaces in the primary redevelopment area will receive full water □uality treatment by means of infiltration. These areas total 0.50 □0.65 □0.34 or 1.49 acres, providin□ water □uality treatment for 0.99 acres of impervious area above what is re□uired.

While new impervious areas are bein□created to widen the existin□paved entrance to the site and a small portion of roof in the rear of the new addition will not receive water □uality treatment, these untreated areas total only 0.10 acres, far less than the surplus water □uality treatment bein□provided in the primary redevelopment area.

The excess capacity of the stormwater treatment system will provide improved water □uality from the site when compared to the existin□condition with a water □uality stora□e volume of the one year rainfall event bein□provided for all of the existin□and proposed impervious areas in the primary redevelopment area. The proposed infiltration facilities will remove pollutants from stormwater runoff and increase □roundwater rechar□e when compared to the existin□conditions and then act to improve surface water and wetland □uality downslope of the site as well as increase watercourse base flow.

The oversi□in□of the infiltratin□water □uality features provides the additional benefit of allowin□them to provide stormwater attenuation. As these practices are si□ed to capture and completely infiltrate at least the one year storm event, they are also lar□e enou□h to provide attenuation of the lar□er storm events and therefore eliminate the need for additional practices for this attenuation.

Also, as the site is a redevelopment project, the project utili□es land that is already disturbed and therefore reduces the impact to undisturbed land in □eneral.

□□□ EROSION AND SEDIMENT CONTROL □LAN

□□□ Introduction and Narrati□e

This erosion and sedimentation control plan has been prepared for the Le Chateau redevelopment site, with miti□atin□measures specified for the construction of the buildin□addition, parkin□area, and related site work and other site improvements. This control plan includes a description of each erosion, sedimentation, and site control practice planned□a construction schedule identifyin□the se□uence of site development activities□and a maintenance schedule stipulatin□the maintenance re□uirements of the miti□atin□measures durin□, immediately after, and beyond construction.

The control plan has been prepared in accordance with the latest editions of:

- □New York State Standards and Specifications for Erosion and Sediment Control□
- □Westchester County Best Mana□ement Practices Manual for Erosion and Sediment Control□

- NYSDEC Stormwater Management Design Manual
- NYSDEC Instruction Manual for the Stormwater Construction Permit

In general, prior to the commencement of clearing, the developer will have the site clearly marked and staked by the surveyor, including the establishing of any necessary control and datum points. The owner/developer will identify all trees scheduled for protection, located within or adjacent to the construction area install tree protection measures as necessary erect construction fencing to control the site and to protect the construction boundaries install silt fences and straw bale barriers and provide a stabilized construction entrance if necessary and staging areas.

During the construction process, silt fences, straw bale barriers, temporary diversion dikes, temporary swales, rip rap and vegetative channels, and sediment traps and basins will be provided as required or as determined by the engineer, to prevent soil erosion and sedimentation of the surrounding areas. Temporary drop inlet protection measures will be implemented to protect catch basins and yard drains. Mitigating measures will be inspected weekly and after every rainfall event or greater. Needed repairs will be made immediately to maintain measures as designed. Sediment will be removed from sediment traps, basins, or from behind all barriers when the storage capacity is approximately 50 percent filled. Gravel, filter fabric, silt fences and straw bales will be replaced as required.

Stormwater runoff will be managed both during the construction process and following completion of construction to prevent flooding, erosion, and sedimentation of existing watercourses, wetlands, or the storm drainage system. The erosion and sedimentation control measures will be implemented to reduce the velocity of stormwater runoff, increase infiltration, and direct stormwater runoff into permanent or temporary sediment basins, first flush basins, or other control devices. Direct discharge of runoff from disturbed site areas or lawn areas into wetlands, watercourses, or water bodies without water quality enhancement features adequate to prevent sedimentation, siltation, or pollution of downstream areas with fertilizers, herbicides, and pesticides will not be permitted.

Clearing or grubbing of the ground cover within the proposed limits of disturbance will be done on a selective basis with great care. Ground cover will not be removed sooner than necessary to avoid exposing soils to erosion.

Clearing outside of the limits of disturbance, which is delineated on the subdivision plans and which will be flagged on the site is generally prohibited except for special conditions subject to approval of the Town.

Because of the slope conditions on some portions of the site, grading and drainage measures will be critical to successful erosion control. In general, grading of slopes will not exceed 1:2 vertical to horizontal. Slopes with grades of 1:2 vertical to horizontal or greater will require special consideration and the implementation of specific site stabilizing measures as deemed necessary by the engineer. Topsoil will be stripped, stockpiled, and reused on-site. Areas disturbed by vehicular or equipment traffic will be stabilized temporarily with gravel. This gravel will be removed as required upon completion of the work and may be reused on-site as is practical. Site areas disturbed by grading or excavation will be stabilized as soon as practical. Until ground cover and plantings have become established, disturbed areas will be stabilized with straw, mulch, and soil fabric. Snow fences, netting, and silt fences will also be used to control air currents and airborne dust due to wind.

Temporary cuts may be sloped 1:1 maximum in silty sand soils and 1 vertical to 1.5 horizontal maximum in sandy gravelly soils. Excavations for utilities may be cut at a steeper cut, provided that precautions are taken to prevent instability and unsafe working conditions and that all requirements of OSHA are maintained.

All stockpiles of topsoil or excavated materials, as well as materials delivered to the site, will be scheduled to avoid excessive □uantities stored on-site for an extended period of time.

Stockpiles will be located in dry and stable areas away from swales, draina□e channels, watercourses, wetlands, or steep slopes. Stockpiles will be surrounded by silt fences and straw bale barriers, as re□uired. Maximum slope of stockpiled loose material will be 1 vertical to 2 hori□ontal and will be keyed into a stable subbase to prevent slides. Stockpiled loose material will be mulched or covered to prevent erosion by wind or water.

Site areas disturbed by the construction process will be stabili□ed by replantin□ or pavin□ as soon as practical. The construction site will be replanted with material specifically selected to □uickly establish soil stability and prevent erosion and sedimentation. Primary to this effort will be reestablishment of □round cover, includin□ critical area seedin□. Mulchin□ and Geo-Mat nettin□ fabric will be used in conjunction with critical area seedin□ and site plantin□ to establish plant cover, conserve moisture, and reduce erosion and sedimentation.

□□ Te□ □orary Erosion□Sedi□ entation and Site Control □ractices

Reference is made to the subdivision and site development plans for details and locations of the proposed temporary erosion and sediment control devices to be implemented prior to and durin□ construction. This report is an inte□ral part of the site development plans previously referenced.

All devices and structures shall be constructed and maintained in accordance with the desi□n □uidelines as set forth in the latest edition of the □New York Guidelines for Urban Erosion and Sediment Control□. Additional measures may be re□uired as deemed necessary by the desi□n en□ineer and/or Town Environmental Inspector, if field conditions warrant.

5.2.1 Security Fencin□:
Temporary chain link fences with lockable □ates or other similar fencin□ will be installed at locations as re□uired or desired to control access to the site or other areas of the site and to restrict unauthori□ed personnel from enterin□ the construction areas or the conservation areas.

5.2.2 Stabili□ed Construction Entrance:
A temporary □ravel construction entrance will be installed at the access points to wooded areas bein□ developed as re□uired. Durin□ wet weather it may be necessary to wash vehicle tires at this location. The contractor will ensure that runoff water will be directed to an inlet protection structure or erosion control barrier and not into the streets, onto nei□hborin□ properties or to re□ulated wetland areas.

5.2.3 Traffic Control:
The on-site developer will provide necessary traffic control to maintain and promote the safe passa□e of vehicles and delivery trucks to and from the site as well as within the site

5.2.4 Silt Fence - Protection of Off-Site and Wetland Areas:
Temporary silt fences will be constructed as shown on the plans, □enerally alon□ the down hill slope ed□e of all construction.

5.2.5 Silt Fence - Construction:
Temporary silt fences will be constructed around material stockpiles, around the base of lar□e fill areas, and alon□ channel berms adjacent to deep cut areas as necessary to prevent sediment from enterin□ channels. Silt fences will be installed prior to the commencement of construction.

5.2.6 Straw Bale Sediment Barrier:
Temporary straw bale dike barriers will be installed to intercept sediment laden runoff from small draina□e areas of disturbed soil and to prevent erosion from sheet stormwater flow as depicted on

the plans and as deemed necessary by the site en□ineer.

5.2.7 Temporary Diversion:
Temporary diversion dikes will be constructed as is re□uired or deemed necessary by the en□ineer above cut slopes and near the middle of lon□ re-□raded sloped areas to prevent surface runoff from erodin□ these banks. Temporary diversion dikes will be constructed alon□ the top ed□e of cut or fill slopes at the end of each day durin□ fillin□ operations to protect the fill slope. Temporary diversions will outlet to temporary inlet protection devices or to swales channelin□ runoff towards sediment traps.

5.2.8 Temporary Drop Inlet Protection:
Temporary drop inlet protection measures will be installed at the catch basins and yard drains usin□ straw bale details to prevent sediment laden runoff from siltin□ pipes and to reduce the burden on the sediment traps.

5.2.9 Soil Stockpilin□:
Topsoil will be stripped from areas scheduled for construction and stockpiled for reuse on site. Stockpiles will be located in dry and stable areas away from swales and draina□e channels and will be surrounded with silt fences and with straw bales as re□uired. Maximum slope of stockpiled material is 1 vertical to 2 hori□ontal. Stockpiles will be mulched or covered to prevent erosion by wind or water. Stockpiles will be keyed into a stable subbase to prevent slides.

5.2.10 Dust Control:
Construction work will be scheduled to avoid premature or unnecessary disturbance of site areas. Mulch or □ravel will be placed on disturbed areas as re□uired to reduce dust levels. Water sprinklin□ will be used as is necessary durin□ the placement of fill material to reduce dust levels. Snow fences, nettin□, and silt fences will be used as necessary to control air currents and airborne dust due to wind when and where it is deemed necessary.

5.2.11 Limits of Disturbance:
The site development plan and erosion and sediment control plan includes a Limit of Disturbance clearly defined. These Limits of Disturbance define those areas on the site which may be disturbed durin□ construction. The boundaries of the Limits of Disturbance will be staked on the parcel and shall not be extended without the prior approval of the Town.

5.2.12 Property Line Protection:
Due to the permissible areas of disturbance on the lot bein□ restricted by the limits of disturbance, there will be a natural buffer between construction areas and nei□hborin□ properties to obviate concerns with disturbance to trees and other ve□etation on the nei□hborin□ properties. These buffers, as well as the other miti□atin□ measures described above, will prevent disturbance to or adverse impacts on nei□hborin□ properties. If in the event dama□e is caused to a nei□hborin□ property, the dama□es shall be replaced in kind at the expense of the owner/developer.

5.2.13 Ve□etation Preservation and Protection:
Trees to be protected shall be identified, clearly marked and protected as detailed on the site plan. Snow fencin□ will be installed at the canopy drip line prior to initiatin□ clearin□ or □rubbin□ of the site and this fencin□ will be maintained until all heavy e□uipment work has been completed. The fencin□ is intended to prevent stockpiled fill material or buildin□ materials from bein□ placed within the canopy drip line of the protected trees as well as to prohibit heavy e□uipment from compactin□ the soil and dama□in□ the root system. Where construction is re□uired within the canopy drip line or where drip line protection measures will block access or si□nificantly impede construction activities, the fencin□ will be placed so as to restrict unnecessary disturbance to the tree. In cases where the fencin□ is placed closer than 5 feet to the tree trunk, trunk armorin□ will be used to protect the tree from dama□e to the bark. Snow fences will also be used to restrict access to site areas which are not scheduled for construction activity and to prevent the unnecessary removal of existin□ ve□etation.

5.2.15 Temporary Check Dams:
Stone check dams will be constructed as re□uired durin□ construction to reduce erosion and de□radation of the channels prior to stabili□ation.

□□□ □er□ anent Erosion□Sedi□ entation and Site Control □ractices

Reference is made to the project plan set for details and locations of the proposed permanent erosion and sediment control devices to be implemented prior to and durin□ construction. This report is an inte□ral part of the site development plans previously referenced.

All devices and structures shall be constructed and maintained in accordance with the desi□n □uidelines as set forth in the □New York Guidelines for Urban Erosion and Sediment Control□. Additional measures may be re□uired as deemed necessary by the desi□n en□ineer and/or Town En□ineer, if field conditions warrant.

5.3.1 Ve□etated Channels:
Ve□etated draina□e channels will be provided to control the surface flow of draina□e from disturbed areas down-slope of the construction areas and divert the stormwater as re□uired. The channels will be planted with suitable material to provide for the safe transport of the surface water without dama□e from erosion.

5.3.2 Surface Stabili□ation:
Since areas of existin□ ve□etation will be removed or disturbed on the property by the proposed construction, a substantial replantin□ of all disturbed ve□etated areas will be re□uired. The site will be replanted with material specifically selected to □uickly establish soil stability and prevent erosion and sedimentation. Primary to this effort is reestablishment of □roundcover, includin□ critical area seedin□, since this is the most effective method to reduce sources of siltation and dust. Mulchin□ and Geo-Mat nettin□ fabric will be used, as re□uired, in conjunction with critical area seedin□ and with site plantin□ to help establish plant cover, conserve moisture, and reduce erosion and sedimentation.

5.3.3 Level Spreader:
Level spreaders will be provided to create a non-erosive outlet for concentrated runoff and disperse flows uniformly over the slope as sheet flow. The level spreaders will be provided to capture runoff that is conveyed throu□h ve□etated swales.

The ve□etated swales will convey runoff to level spreaders and convert the concentrated flow into sheet flow for dispersal into the wooded areas.

5.3.4 Flow Diffuser:
Flow Diffusers will be provided to create a non-erosive outlet for the enclosed storm drain systems to disperse flows uniformly over the slope as sheet flow. The flow diffusers will be desi□ned in accordance with the February 2016 Draft New York State Standards for Erosion and Sediment Control. See **A□□endi□ □** for a copy of this draft standard and he associated calculations for the two pipe dischar□e points for this project.

5.3.5 Erosion Control Mattin□:
Erosion control mattin□ will be placed on steep slopes as deemed necessary by the site en□ineer or Town Environmental Inspector. The mattin□ will stabili□e the slopes and protect them from erosion and subse□uently causin□ sedimentation down slope.

□□□ □re□Construction Schedule

1. Satisfy all applicable conditions of Site Plan Approval by the Plannin□ Board and identify what other applicable permits for site development are re□uired.
2. File pertinent documents with the Westchester County Department of Health, Con Edison, the Town of Lewisboro, and any other involved a□ency, for necessary reviews and approvals.

3. Obtain the services of a Site Engineer, licensed in the State of New York and as approved by the Town of Lewisboro.
4. Post all necessary Performance Bonds for the proposed site work.
5. Submit all required insurance riders to the appropriate authorities.
6. Stake the property lines, flag the work limits, identify trees to be protected, if any, and establish elevation reference points (bench marks) on site.
7. Meet with representatives from the appropriate Town Departments to establish acceptable time restrictions for the scheduled delivery of materials and equipment to the site. This is intended to mitigate unnecessary conflicts between construction related traffic and rush hour related traffic.
8. Obtain any required Excavation Permits, Tree Permits, Street Opening Permits, etc. from the Town of Lewisboro.
9. Confirm that all required fees to the Town of Lewisboro and any other involved agency have been paid in full.
10. Contact the Underground Line Location Service (Code 53) at 800-962-7962.
11. Secure the site with required fencing and gates, as necessary.
12. Confirm utility mark out with the Site Engineer and Contractor.

With the completion of the Pre-Construction Schedule, the construction can commence as follows:

Construction Schedule

The construction schedule is presented on plan sheet ESC-5.2, "Erosion and Sediment Control Details". The schedule shows a construction phasing plan in accordance with the requirements of the NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-15-002.

Construction Operation and Maintenance

It is important during all phases of construction that all the erosion and sediment control devices remain stable and effective to protect down slope areas and off site areas from sedimentation and erosion. Therefore, all erosion control measures shall be inspected on a regular basis. During construction, the owner/developer will inspect and maintain the erosion control devices in accordance with the construction schedule and the following:

1. All erosion, sediment, and site stability control measures will be checked for protection, stability, and operation prior to and following every runoff-producing rainfall but in no case less than once every week. Any needed repairs will be made immediately to maintain practices as designed. The Site Engineer will also make inspections of protection measures and all corrective measures will be implemented without delay.
2. The street areas adjacent to the site entrance will be broom swept and washed down as necessary at the end of each day on which fill material has been delivered to the site and at other times as is necessary or directed by the Site Engineer. During wet weather, vehicle tires will be checked and washed down, if necessary, at the site / construction entrance before the trucks leave the site to prevent mud and dirt from being tracked onto the streets.
3. Sediment basins will be checked for protection, stability, and operation following every runoff-producing rainfall but in no case less than once every week and will be cleaned out when the level of sediment reaches 50% capacity of the basin. Gravel will be cleaned or replaced when the sediment pool no longer drains properly.
4. Sediment traps, catch basins and drop inlet protection devices will be checked for protection, stability, and operation prior to and following every runoff-producing rainfall but in no case less than once every week and sediment will be removed when storage capacity has been approximately 50% filled. Gravel will be cleaned or replaced when the sediment pool no longer drains properly. Filter fabric will be replaced as necessary.

5. Silt fences and straw bale barriers will be checked for stability and operation following every runoff-producing rainfall but in no case less than once every week and sediment will be removed from behind devices when storage capacity has been approximately 50% filled. Silt fence will be repaired and straw bales will be replaced as necessary and as directed by the Site Engineer to maintain a barrier.
6. Drainage channels will be inspected following every runoff producing rainfall but in no case less than once every month to insure that the side slopes remain stable and to check for points of scour and breaches. Channels will be repaired and lined with riprap as necessary.
7. A minimum of 30 additional straw bales will be stored at the site from prior to initiating any cut or fill operation until final site stabilization has been completed. Stacked straw bales will be protected with a tarp cover. These straw bales are available for use as temporary measures to reduce stormwater runoff velocities and, in emergency situations, to prevent failures in the operation of drainage channels, temporary diversions, and silt fences. The stockpile of straw bales will be replenished following each event.
8. Markers and fencing utilized for traffic control, if any, will be inspected periodically to insure they are placed and functioning properly. All efforts will be taken to keep traffic off of all structural erosion control measures at all times. Where traffic must cross a structural measure, a suitable crossing will be constructed in accordance with the instructions and specifications of the Site Engineer.
9. Any tree protection fences and silt fences defining construction boundaries will be inspected weekly to insure that they are properly placed and will be repaired as necessary.
10. Mulch and gravel used to reduce dust in disturbed areas and parking areas will be inspected weekly and will be cleaned off with water, replenished or replaced as necessary.
11. Construction debris will be stored in designated refuse areas either in fenced enclosures or in dumpsters and will be removed from the site to a proper facility on a regular schedule. Full dumpsters will be removed from the site within 3 days. The site will be policed weekly and more often, if necessary, to collect debris which has not been properly placed in a designated refuse area.
12. All maintenance work on construction equipment will be done in a safe area away from drainage and drainage control structures. Maintenance items such as cans, boxes, and cartridges will be stored in a suitable structure. Following use, all such items will be disposed of in a safe and proper manner and at a suitable facility.
13. All seeded areas will be fertilized, re-seeded as necessary, and mulched to maintain a vigorous, dense vegetative cover. Temporary seeding will be inspected every 30 days and damaged areas will be re-seeded and re-mulched as necessary.
14. The developer and/or owner of the project will have the site inspected each spring and each fall for three years following final stabilization. Plant material will be replaced as required and deficiencies in site stability corrected immediately.
15. A maintenance schedule for the proper watering, fertilizing, pruning, mowing, and weeding of planted materials as well as the use of herbicides and pesticides will be implemented and the ongoing responsibility for this maintenance schedule will be the developer and/or owner.
16. The sump sediment trap in each catch basin will be inspected following every runoff-producing rainfall. Following the completion of construction, catch basins shall be inspected and cleaned semi-annually.
17. Ongoing site maintenance requirements of the completed project will be identified and the responsible parties so advised.

Critical Area Seeding

Once a section of earthwork is completed, all disturbed areas (shoulders, staging areas, and miscellaneous disturbed areas) will require critical seeding to re-establish a vegetative cover. This will consist of the removal of debris, the final grading of these areas, seeding and mulching. This final grade will be left at the prescribed grades in an even and properly compacted condition so as to prevent the formation of depressions where water will stand.

Durin□ this entire process, the perimeter erosion control barrier shall be maintained in □ood workin□ order and checked daily for breach or failure, and repaired or replaced as necessary. This perimeter barrier will prevent any sediment from leavin□ the site proper and onto the perimeter road or off site areas or enterin□ the wetland system.

After final □radin□ of the site has been brou□ht to the proper □rade, and immediately prior to the placement of top soil, this sub-□rade shall be loosened by scarifyin□ to a depth of at least 2□ to permit bondin□ of the topsoil to the sub-□rade.

Within 30 days of the completion of the final □radin□, topsoil shall be placed over the area. The topsoil used shall be free of stones □2□, trash, debris, and have less than 10□ □ravel by volume. The soil shall have □ 6□ by wei□ht fine textured stable or□anic material, muck soil will not be considered topsoil.

The topsoil shall not be placed in a fro□en or muddy condition. Topsoil shall be uniformly distributed over the tar□et areas and evenly spread to a depth of 4□. After the topsoil installation is complete, □round limestone □calcium carbonate□ shall be spread uniformly and thorou□hly over the topsoil at a rate of approximately 100 lbs. per 1000 s□uare feet or to achieve a soil pH of 6.0. Upon completion of the lime, the site soil shall be fertili□ed with 600 lbs. of 5-10-10 or e□uivalent per acre.

Immediately after the soil has been prepared, permanent seedin□ shall be applied. The seed mix shall contain the followin□ ratios:

Kentucky Blue Grass	65□
Perennial Rye Grass	20□
Fine Fescue	15□

This seed mixture shall be applied at a rate of 175-200 lbs. per acre within a day of the completion of the soil placement. Upon placement of the seed mixtures, the entire seeded area shall be mulched. The mulch shall consist of Hay or Straw and shall be applied at a rate of 2 tons per acre or 100-200 bales per acre.

The erosion controls in place for these operations shall remain until a stable ve□etative □rass□ cover is established. The removal of the erosion control barriers shall be at the direction of the Site En□ineer only. The above described critical area seedin□ as well as the establishment of any trees and shrubs shall be in conformance with the standards presented in □New York Standards and Specifications for Erosion and Sediment Control□, 2005 or current and the Westchester County Best Mana□ement Practices Manual on Erosion and Sediment Control, 1991 or current.

This stormwater pollution prevention plan is for the proposed improvements as shown on the site development plans only. Additional site work outside of the scope of this document is not necessarily protected by the proposed erosion and sediment control devices shown herein.

□□□ SU□□ORT DATA

□□□ Su□□ort Data

The followin□ items were used as support data for the preparation of this analysis:

Survey and topo□raphic information shown on the plans is based on a map prepared by RKW Land Surveyors with additional topo□raphy taken from Westchester County GIS.

Soils information is taken from the USDA Web Soil Survey.

Peach Lake USGS □uadran□le dated 2013.

NYSDEC SPDES General Permit for Stormwater Dischar□es from Construction Activity, GP-0-15-002.

NYSDEC Stormwater Mana□ement Desi□n Manual, January 2015.

New York Standards and Specifications for Erosion and Sediment Controls, Au□ust 2005.

Westchester County Best Mana□ement Practices Manual on Stormwater Mana□ement, prepared by the Westchester County Department of Plannin□ dated Sprin□ 1984.

Hydrocad Stormwater Modelin□ System computer pro□ram, version 10.0, was used to mana□e raw data, desi□n structures and calculate all necessary stormwater flows and routin□. Hydrocad is based on the SCS TR-20 method of computin□ stormwater runoff.

Numerous site inspections made by this office to the site proper and areas to which the site is tributary.

□□□ SW□□□ Conditions

It is the responsibility of the Owner/Operator to be familiar with this report and the herein referenced Site Development Plan set. All conditions of the Stormwater General Permit, GP-0-15-002 shall be complied with prior to and durin□ construction and until all disturbed areas are stabili□ed.

Cronin Engineering□□□E□□□C□

Ronald We□ner, Professional En□ineer

APPENDIX A

Le Chateau

Owner/Operator and Contractor Certifications

Le Chateau SW□□□

O□ner □O□erator Certi□ication

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system desi□ned to assure that □ualified personnel properly □athered and evaluated the information submitted. Based on my in□uiry of the person or persons who mana□e the system, or those directly responsible for □atherin□ the information. The information submitted is, to the best of my knowled□e and belief, true, accurate and complete. I am aware that false statements made herein are punishable as a class A misdemeanor pursuant to Section 210.45 of the penal Law.

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Le Chateau SW□□□

Contractor Certi□ication

The SWPPP must clearly identify for each measure specified in the SWPPP, the contractor□s□ and subcontractor□s□that will implement the measure. All contractors and subcontractors identified in the SWPPP must si□n a copy of this certification statement. All certifications must be included in this SWPPP. Additionally, new contractors and subcontractors need to similarly certify.

All contractors and subcontractors identified in the SWPPP shall si□n a copy of the followin□ certification statement before undertakin□ any construction activity at the site identified in the SWPPP.

The certification must include the name and title of the person providin□ the si□nature. The name, address and telephone numbers of the contractin□ firm, the address □or other identifyin□ description□of the site and the date the certification is made.

I certify under penalty of law that I understand and a□ree to comply with the terms and conditions of the SWPPP for the construction site identified in such SWPPP as a condition of authori□ation to dischar□e stormwater. I also understand that the owner/operator must comply with the terms and conditions of the New York State Pollutant Dischar□e Elimination System □SPDES□General Permit for Stormwater Dischar□es from Construction Activities and that it is unlawful for any person to cause or contribute to a violation of water □uality standards.

General Contractor

□□□

Le Chateau SW□□□

Contractor Certi□ication

Su□contractor

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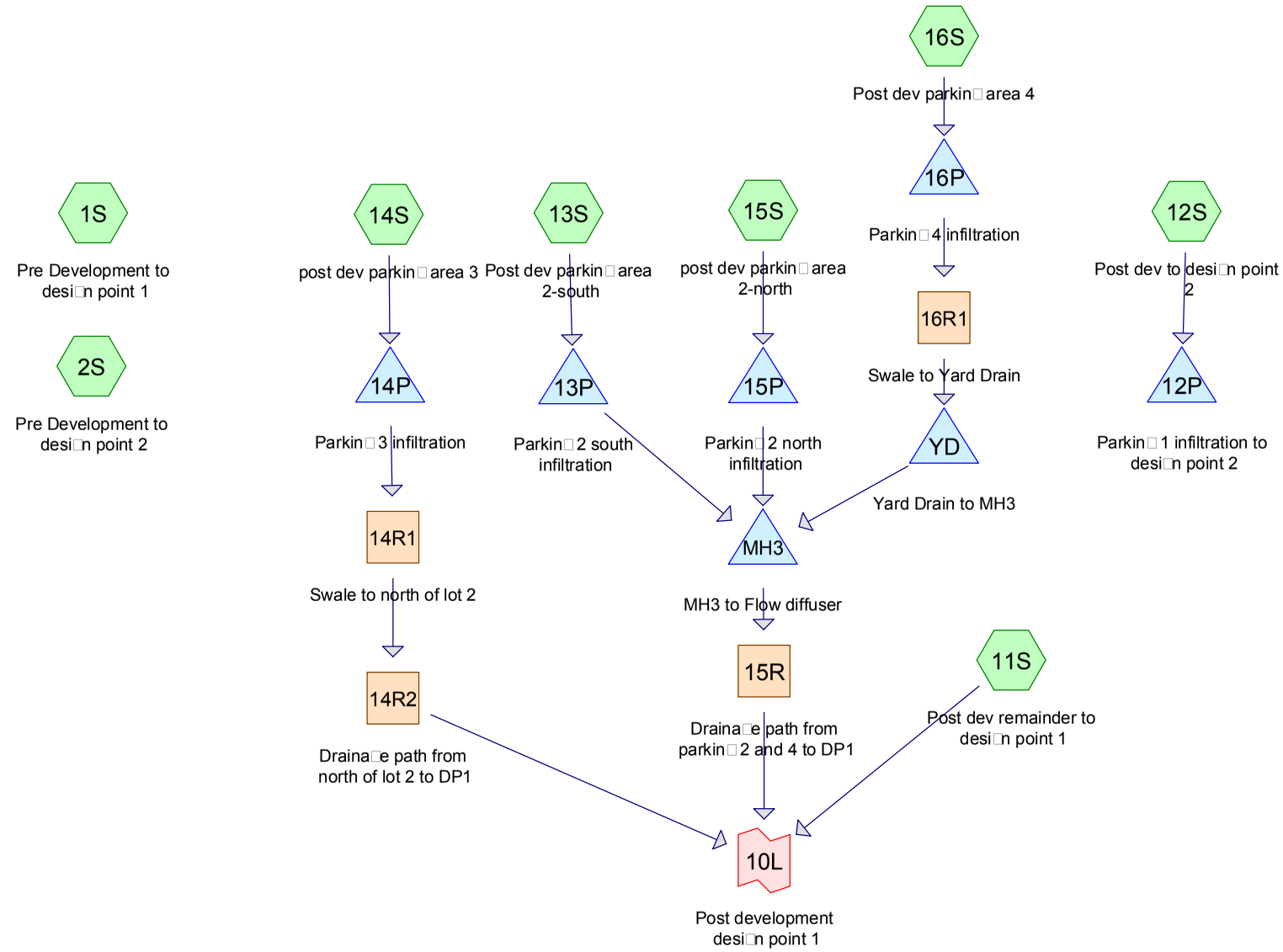
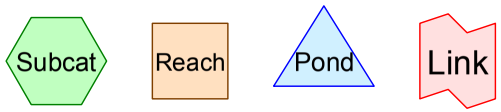
APPENDIX B

Pre and Post Development Stormwater Quantity Calculations





Routing Diagra or Le Chateau August
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Su□ □ ary □or Su□catch□ ent □S: □re De□elo□□ ent to design □oint □

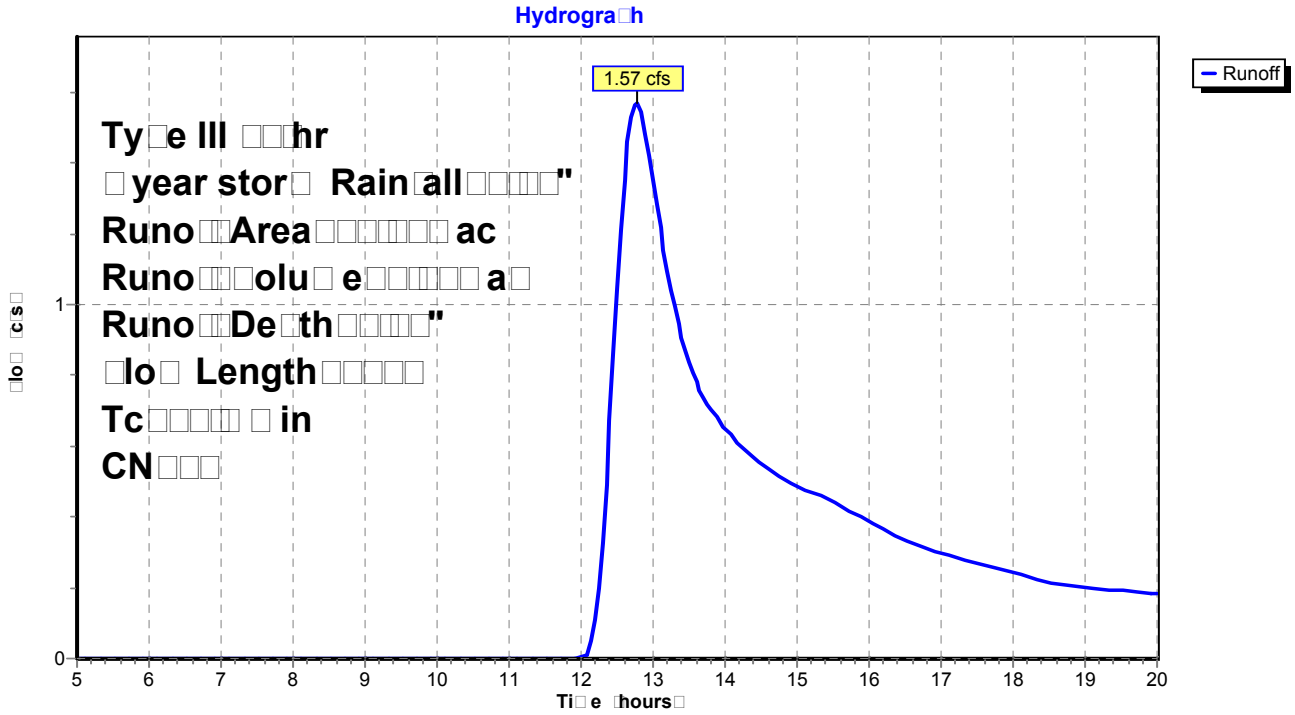
Runoff □ 1.57 cfs □ 12.77 hrs, Volume□ 0.314 af, Depth□ 0.29"

Runoff by SCS TR-20 method, UH□SCS, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs
Type III 24-hr 1 year storm Rainfall□2.85"

	Area □ac□	CN	Description
□	0.210	98	CT impervious, HSG B
□	0.200	61	CT □75□ Grass cover, Good, HSG B
□	1.070	55	CT Woods, Good, HSG B
□	0.940	77	CT Woods, Good, HSG D
□	0.140	98	offsite impervious, HSG B
□	0.340	61	offsite □75□ Grass cover, Good, HSG B
□	0.370	55	offsite Woods, Good, HSG B
□	0.800	98	impervoius, HSG B
	0.160	96	Gravel surface, HSG B
	1.950	61	□75□ Grass cover, Good, HSG B
	6.940	55	Woods, Good, HSG B
	13.120	62	Wei□hted Avera□e
	11.970		91.23□ Pervious Area
	1.150		8.77□ Impervious Area

Tc □min□	Len□th □feet□	Slope □ft/ft□	Velocity □ft/sec□	Capacity □cfs□	Description
30.0	100	0.0100	0.06		**Sheet □lo□ □sheet** Woods: Li□ht underbrush n□ 0.400 P2□ 2.85"
8.0	240	0.0100	0.50		**Shallo□ Concentrated □lo□ □shallo□ conc** Woodland Kv□ 5.0 fps
4.0	490	0.1700	2.06		**Shallo□ Concentrated □lo□ □shallo□ conc** Woodland Kv□ 5.0 fps
42.0	830	Total			

Su□catch□ ent □S: □re De□elo□□ ent to design □oint □



Su□ □ary □or Su□catch□ ent □S: □re De□elo□□ ent to design □oint □

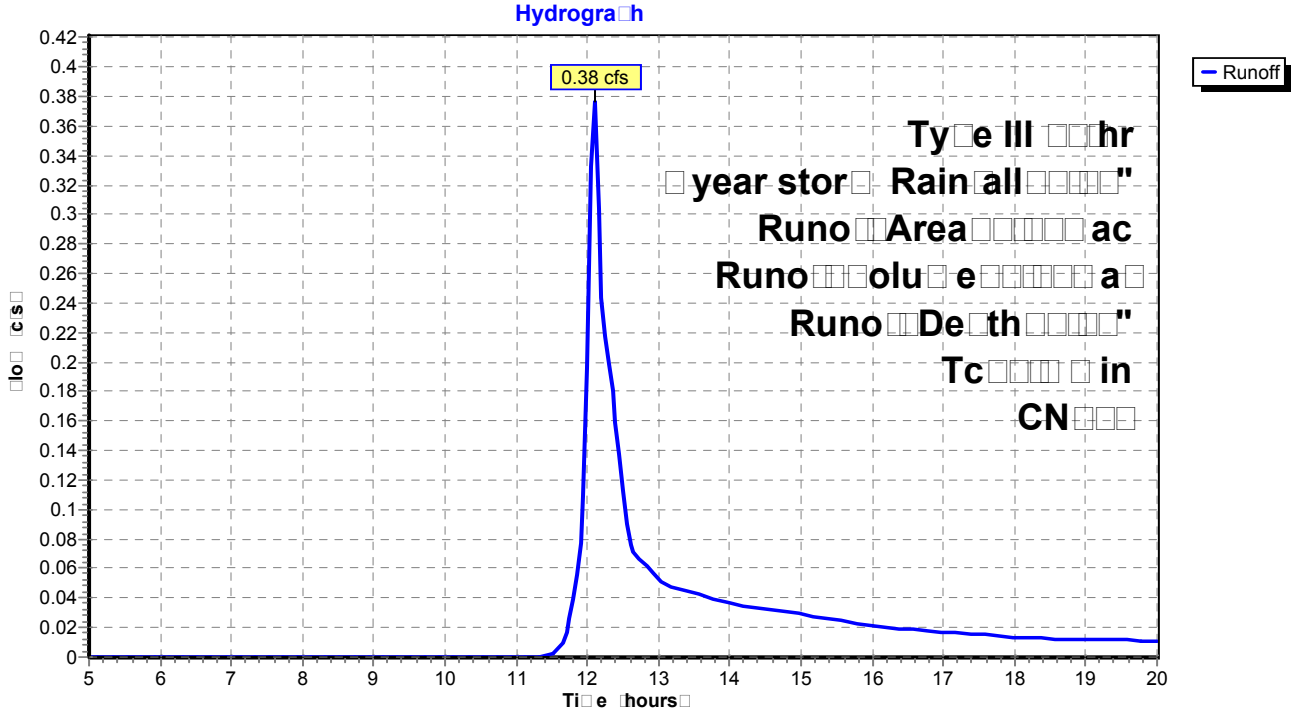
Runoff □ 0.38 cfs □ 12.09 hrs, Volume□ 0.027 af, Depth□ 0.61"

Runoff by SCS TR-20 method, UH□SCS, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs
Type III 24-hr 1 year storm Rainfall□2.85"

Area □ac□	CN	Description
□ 0.190	98	impervious, HSG B
0.040	61	□75□ Grass cover, Good, HSG B
0.310	55	Woods, Good, HSG B
0.540	71	Wei□hted Avera□e
0.350		64.81□ Pervious Area
0.190		35.19□ Impervious Area

Tc □min□	Len□th □feet□	Slope □ft/ft□	Velocity □ft/sec□	Capacity □cfs□	Description
5.0					**Direct Entry□□ □inute □ini□u□**

Su□catch□ ent □S: □re De□elo□□ ent to design □oint □



Su□ □ ary □or Su□catch□ ent □□S: □ost de□re□ ainder to design □oint □

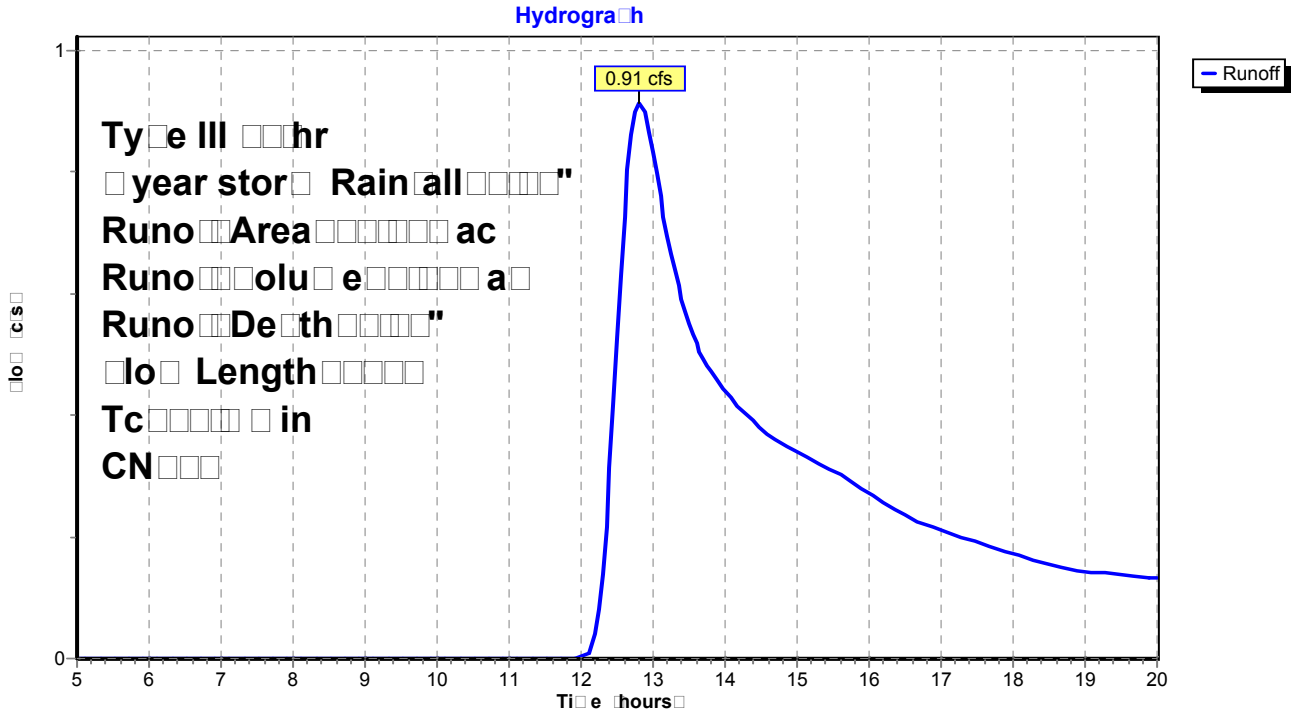
Runoff □ 0.91 cfs □ 12.82 hrs, Volume□ 0.205 af, Depth□ 0.23"

Runoff by SCS TR-20 method, UH□SCS, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs
Type III 24-hr 1 year storm Rainfall□2.85"

	Area □ac□	CN	Description
□	0.210	98	CT impervious, HSG B
□	0.200	61	CT □75□ Grass cover, Good, HSG B
□	1.070	55	CT Woods, Good, HSG B
□	0.940	77	CT Woods, Good, HSG D
□	0.140	98	offsite impervious, HSG B
□	0.340	61	offsite □75□ Grass cover, Good, HSG B
□	0.370	55	offsite Woods, Good, HSG B
□	0.030	98	impervoius, HSG B
	2.060	61	□75□ Grass cover, Good, HSG B
	5.150	55	Woods, Good, HSG B
	10.510	60	Wei□hted Avera□e
	10.130		96.38□ Pervious Area
	0.380		3.62□ Impervious Area

Tc □min□	Len□th □feet□	Slope □ft/ft□	Velocity □ft/sec□	Capacity □cfs□	Description
30.0	100	0.0100	0.06		**Sheet □lo□ □sheet** Woods: Li□ht underbrush n□ 0.400 P2□ 2.85"
8.0	240	0.0100	0.50		**Shallo□ Concentrated □lo□ □shallo□ conc** Woodland Kv□ 5.0 fps
4.0	490	0.1700	2.06		**Shallo□ Concentrated □lo□ □shallo□ conc** Woodland Kv□ 5.0 fps
42.0	830	Total			

Su□catch□ ent □□S: □ost de□ re□ ainder to design □oint □



Su□ □ ary □or Su□catch□ ent □□S: □ost de□ to design □oint □

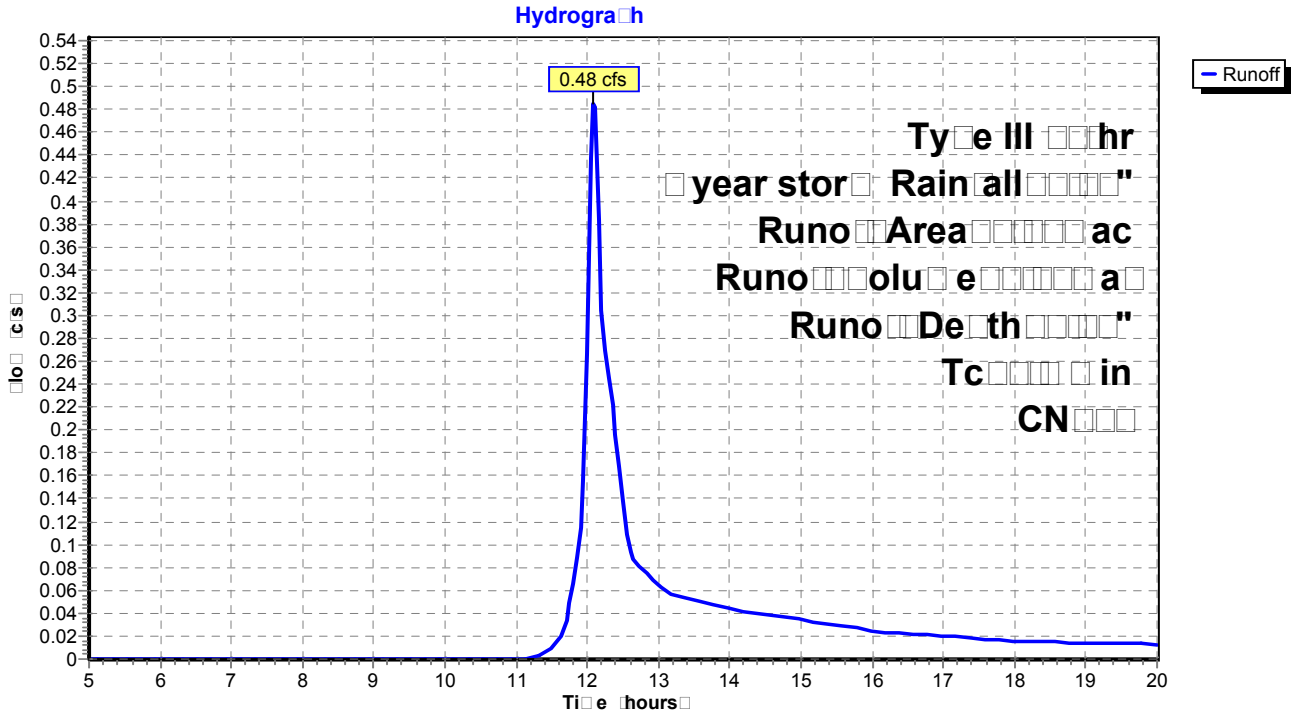
Runoff □ 0.48 cfs □ 12.09 hrs, Volume□ 0.034 af, Depth□ 0.69"

Runoff by SCS TR-20 method, UH□SCS, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs
Type III 24-hr 1 year storm Rainfall□2.85"

Area □ac□	CN	Description
□ 0.230	98	impervious, HSG B
0.080	61	□75□ Grass cover, Good, HSG B
0.280	55	Woods, Good, HSG B
0.590	73	Wei□hted Avera□e
0.360		61.02□ Pervious Area
0.230		38.98□ Impervious Area

Tc □min□	Len□th □feet□	Slope □ft/ft□	Velocity □ft/sec□	Capacity □cfs□	Description
5.0					**Direct Entry□□ □inute □ini□u□**

Su□catch□ ent □□S: □ost de□ to design □oint □



Su□ □ary □or Su□catch□ ent □□S: □ost de□ □ar□ing area □□south

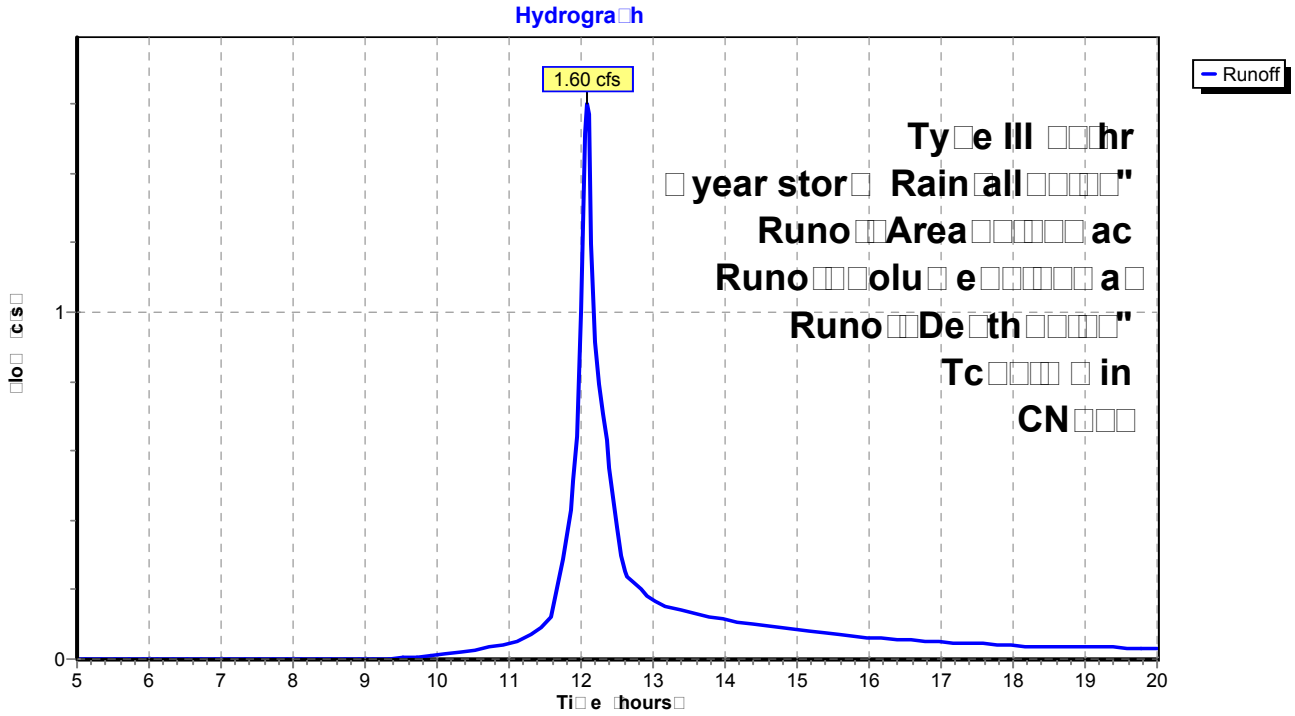
Runoff □ 1.60 cfs □ 12.08 hrs, Volume□ 0.106 af, Depth□ 1.17"

Runoff by SCS TR-20 method, UH□SCS, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs
Type III 24-hr 1 year storm Rainfall□2.85"

	Area □ac□	CN	Description
□	0.680	98	impervious, HSG B
	0.080	61	□75□ Grass cover, Good, HSG B
	0.330	55	Woods, Good, HSG B
	1.090	82	Wei□hted Avera□e
	0.410		37.61□ Pervious Area
	0.680		62.39□ Impervious Area

Tc □min□	Len□th □feet□	Slope □ft/ft□	Velocity □ft/sec□	Capacity □cfs□	Description
5.0					**Direct Entry□□ □inute □ini□u□**

Su□catch□ ent □□S: □ost de□ □ar□ing area □□south



Su□ □ ary □or Su□catch□ ent □□S: □ost de□ □ar□ing area □

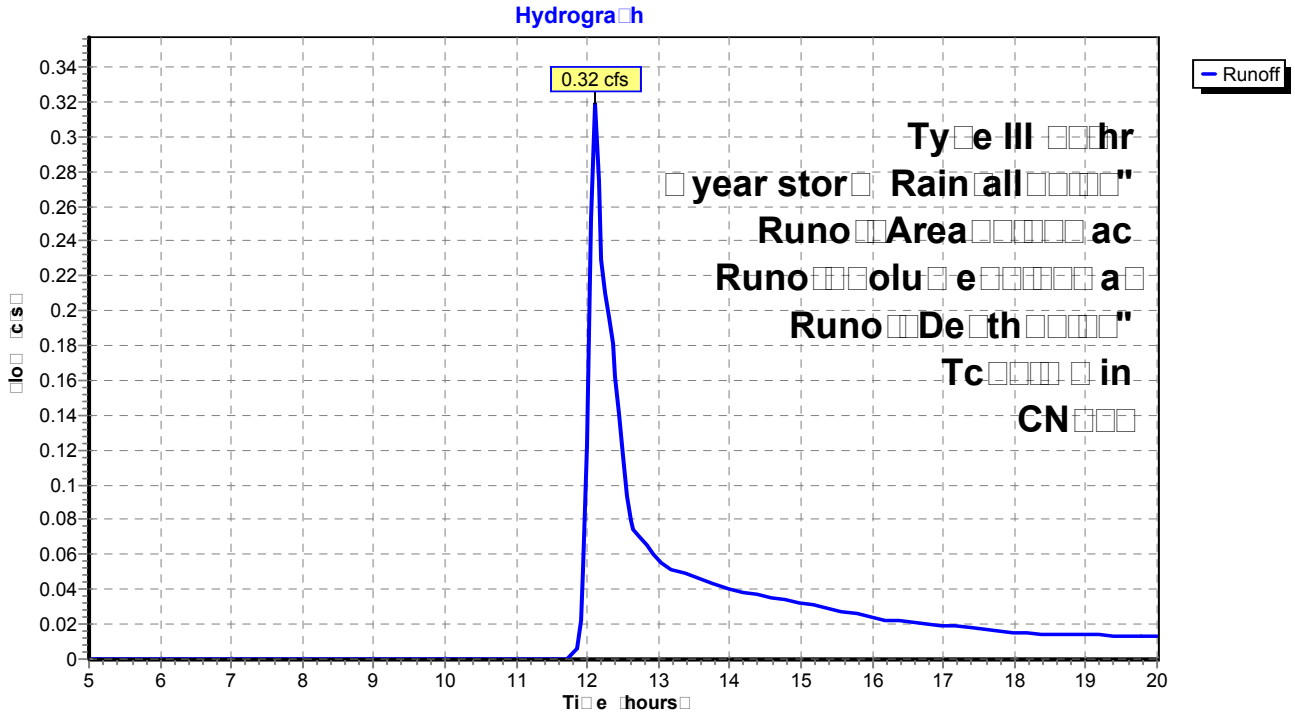
Runoff □ 0.32 cfs □ 12.10 hrs, Volume□ 0.027 af, Depth□ 0.42"

Runoff by SCS TR-20 method, UH□SCS, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs
Type III 24-hr 1 year storm Rainfall□2.85"

Area □ac□	CN	Description
□ 0.200	98	impervious, HSG B
0.020	61	□75□ Grass cover, Good, HSG B
0.550	55	Woods, Good, HSG B
0.770	66	Wei□hted Avera□e
0.570		74.03□ Pervious Area
0.200		25.97□ Impervious Area

Tc □min□	Len□th □feet□	Slope □ft/ft□	Velocity □ft/sec□	Capacity □cfs□	Description
5.0					**Direct Entry□□ □inute □ini□u□**

Su□catch□ ent □□S: □ost de□ □ar□ing area □



Su□ □ary □or Su□catch□ ent □□S: □ost de□ □ar□ing area □□north

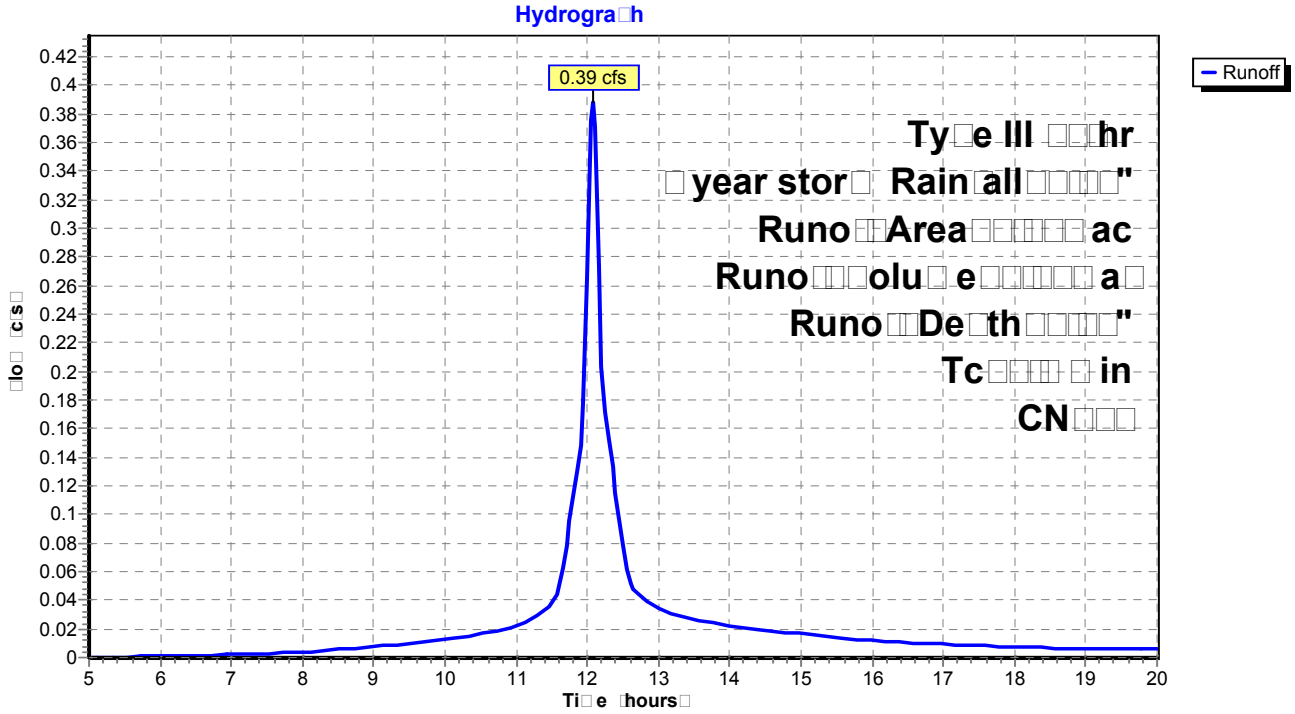
Runoff □ 0.39 cfs □ 12.07 hrs, Volume□ 0.027 af, Depth□ 1.99"

Runoff by SCS TR-20 method, UH□SCS, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs
Type III 24-hr 1 year storm Rainfall□2.85"

Area □ac□	CN	Description
□ 0.140	98	impervious, HSG B
0.020	61	□75□ Grass cover, Good, HSG B
0.160	93	Wei□hted Avera□e
0.020		12.50□ Pervious Area
0.140		87.50□ Impervious Area

Tc □min□	Len□th □feet□	Slope □ft/ft□	Velocity □ft/sec□	Capacity □cfs□	Description
5.0					**Direct Entry□□ □inute □ini□u□**

Su□catch□ ent □□S: □ost de□ □ar□ing area □□north



Su□ □ ary □or Su□catch□ ent □□S: □ost de□ □ar□ing area □

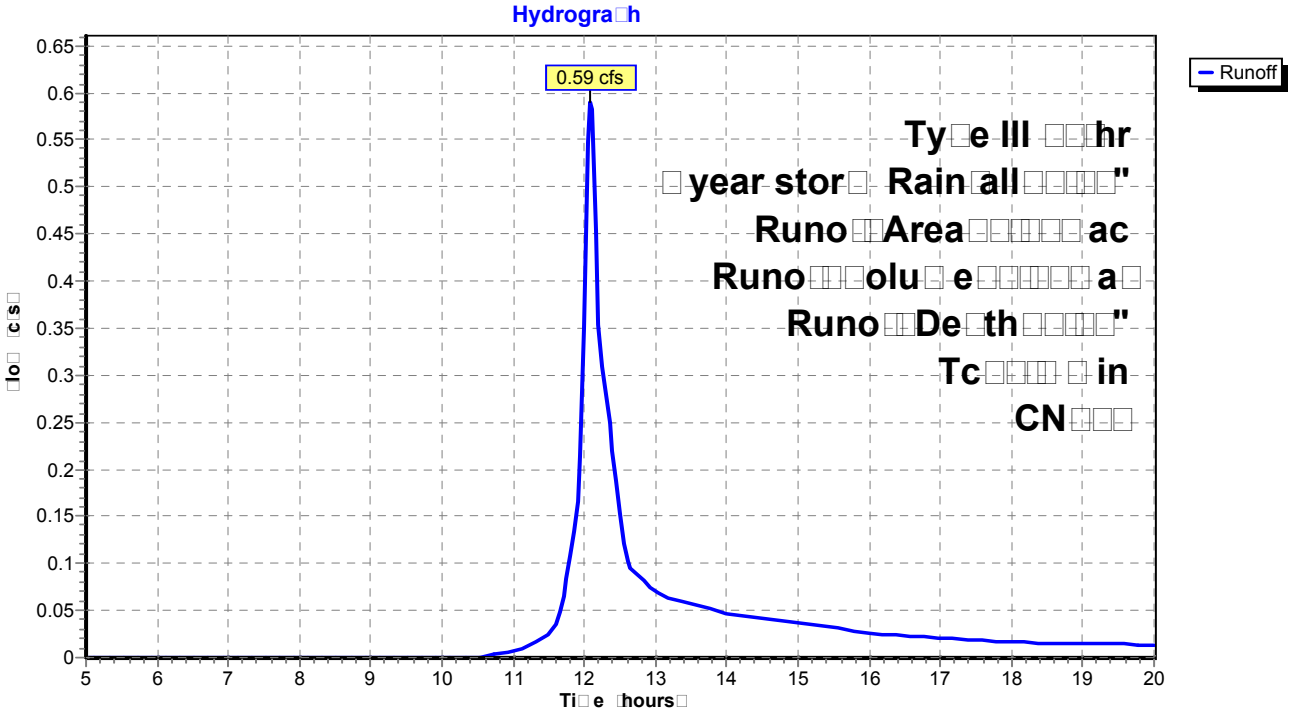
Runoff □ 0.59 cfs □ 12.09 hrs, Volume□ 0.040 af, Depth□ 0.89"

Runoff by SCS TR-20 method, UH□SCS, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs
Type III 24-hr 1 year storm Rainfall□2.85"

Area □ac□	CN	Description
□ 0.170	98	impervious, HSG B
0.070	96	Gravel surface, HSG B
0.010	61	□75□ Grass cover, Good, HSG B
0.290	60	Woods, Fair, HSG B
0.540	77	Wei□hted Avera□e
0.370		68.52□ Pervious Area
0.170		31.48□ Impervious Area

Tc □min□	Len□th □feet□	Slope □ft/ft□	Velocity □ft/sec□	Capacity □cfs□	Description
5.0					**Direct Entry□□ □inute □ini□u□**

Su□catch□ ent □□S: □ost de□ □ar□ing area □



Su□ □ary □or Reach □□R□: S□ale to north o□lot □

Inflow Area □ 0.770 ac, 25.97□ Impervious, Inflow Depth □ 0.00" for 1 year storm event
Inflow □ 0.00 cfs □ 5.00 hrs, Volume□ 0.000 af
Outflow □ 0.00 cfs □ 5.00 hrs, Volume□ 0.000 af, Atten□ 0□ , La□□ 0.0 min

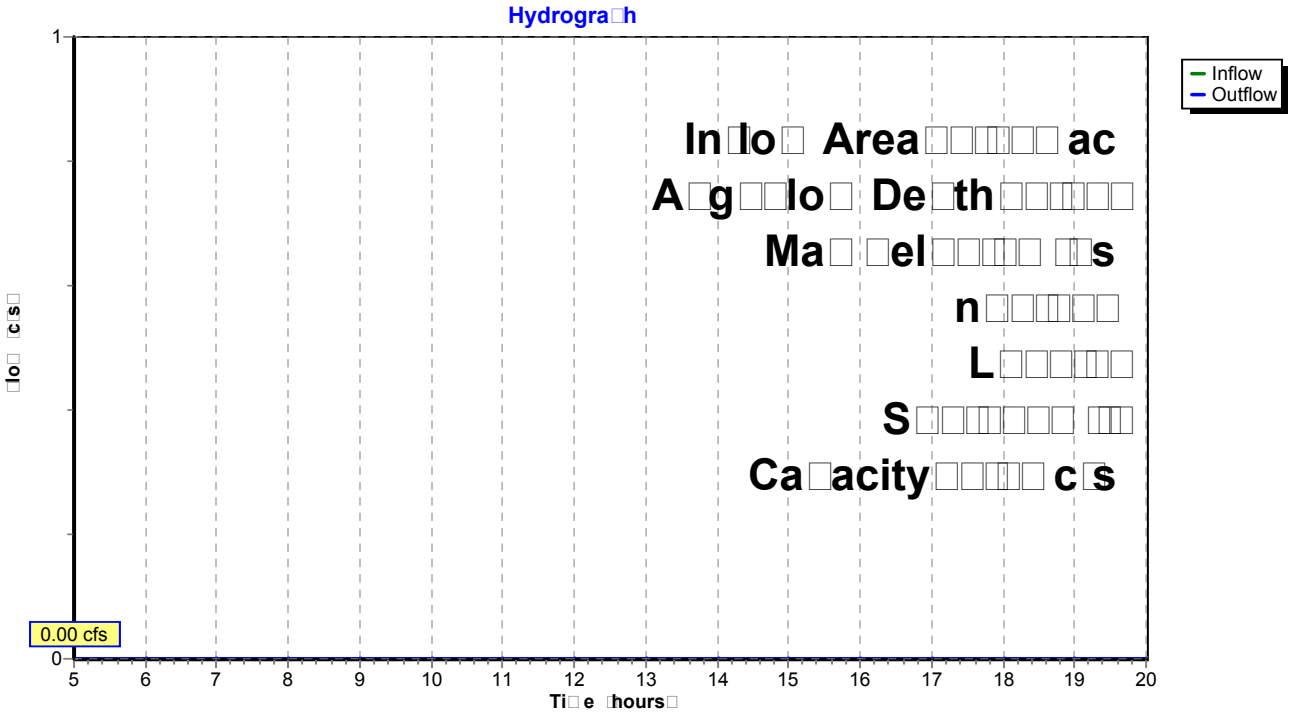
Routin□ by Stor-Ind□Trans method, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs / 2
Max. Velocity□ 0.00 fps, Min. Travel Time□ 0.0 min
Av□. Velocity □ 0.00 fps, Av□. Travel Time□ 0.0 min

Peak Stora□e□ 0 cf □ 5.00 hrs
Avera□e Depth at Peak Stora□e□ 0.00□
Bank-Full Depth□ 0.50□Flow Area□ 1.1 sf, Capacity□ 3.28 cfs

0.67□x 0.50□deep channel, n□ 0.030 Stream, clean & strai□ht
Side Slope Z-value□ 3.0 □/□ Top Width□ 3.67□
Len□th□ 40.0□ Slope□ 0.0200 □/□
Inlet Invert□ 706.10□, Outlet Invert□ 705.30□

□

Reach □□R□: S□ale to north o□lot □



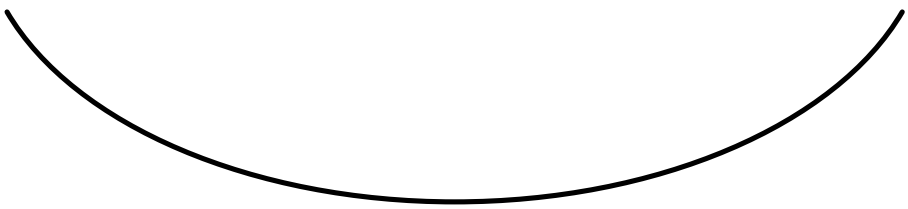
Su□ □ary □or Reach □□R□: Drainage □ath □ro□ north o□lot □to D□□

Inflow Area □ 0.770 ac, 25.97□ Impervious, Inflow Depth □ 0.00" for 1 year storm event
Inflow □ 0.00 cfs □ 5.00 hrs, Volume□ 0.000 af
Outflow □ 0.00 cfs □ 5.00 hrs, Volume□ 0.000 af, Atten□ 0□, La□□ 0.0 min

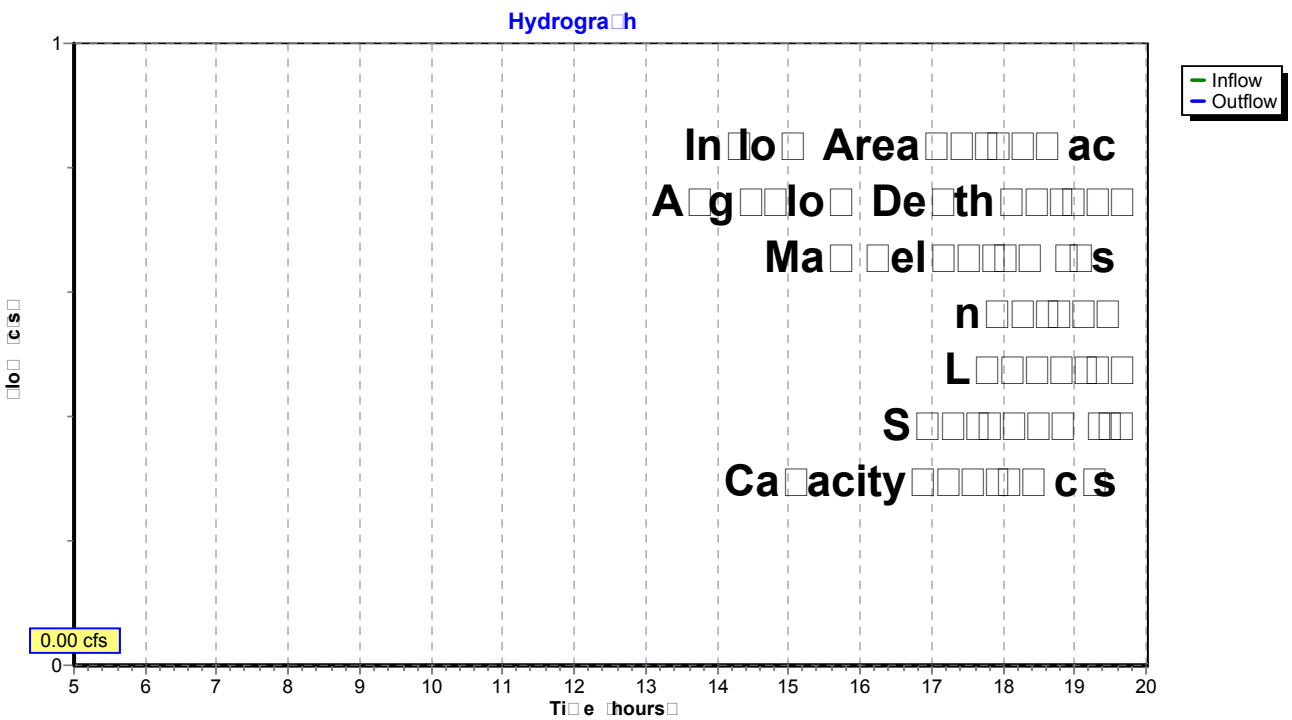
Routin□ by Stor-Ind□Trans method, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs
Max. Velocity□ 0.00 fps, Min. Travel Time□ 0.0 min
Av□. Velocity □ 0.00 fps, Av□. Travel Time□ 0.0 min

Peak Stora□e□ 0 cf □ 5.00 hrs
Avera□e Depth at Peak Stora□e□ 0.00□
Bank-Full Depth□ 1.00□Flow Area□ 3.3 sf, Capacity□ 48.28 cfs

5.00□x 1.00□deep Parabolic Channel, n□ 0.030 Stream, clean & strai□ht
Len□th□ 505.0□ Slope□ 0.1663 □/□
Inlet Invert□ 708.00□, Outlet Invert□ 624.00□



Reach □□R□: Drainage □ath □ro□ north o□lot □to D□□



Su□ □ary □or Reach □□R: Drainage □ath □ro□ □ar□ing □and □to D□□

Inflow Area □ 1.790 ac, 55.31□ Impervious, Inflow Depth □ 0.00" for 1 year storm event
Inflow □ 0.00 cfs □ 5.00 hrs, Volume□ 0.000 af
Outflow □ 0.00 cfs □ 5.00 hrs, Volume□ 0.000 af, Atten□ 0□, La□□ 0.0 min

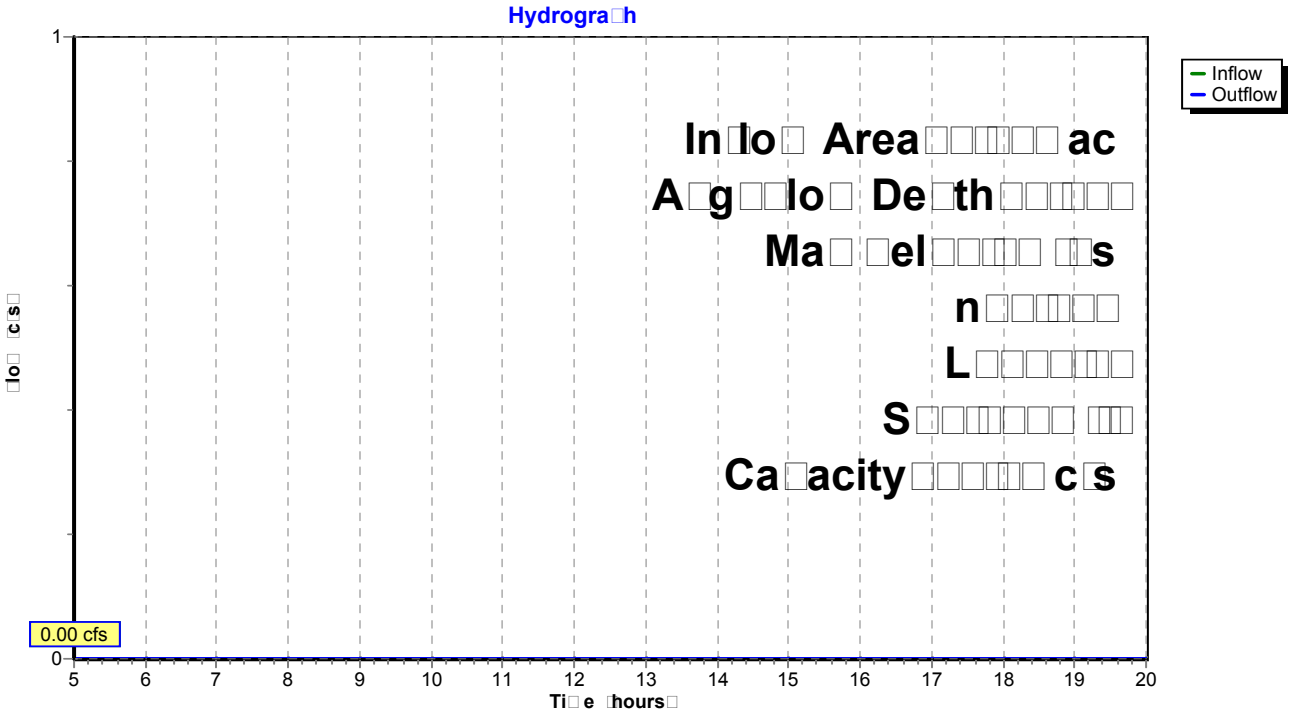
Routin□ by Stor-Ind□Trans method, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs
Max. Velocity□ 0.00 fps, Min. Travel Time□ 0.0 min
Av□. Velocity □ 0.00 fps, Av□. Travel Time□ 0.0 min

Peak Stora□e□ 0 cf □ 5.00 hrs
Avera□e Depth at Peak Stora□e□ 0.00□
Bank-Full Depth□ 1.00□Flow Area□ 14.0 sf, Capacity□ 50.56 cfs

10.00□x 1.00□deep channel, n□ 0.130 Sheet flow over Ran□e
Side Slope Z-value□ 4.0 □/□ Top Width□ 18.00□
Len□th□ 380.0□ Slope□ 0.1421 □/□
Inlet Invert□ 678.00□, Outlet Invert□ 624.00□

□

Reach □□R: Drainage □ath □ro□ □ar□ing □and □to D□□



Su□ □ary □or Reach □□R□: S□ale to □ard Drain

Inflow Area □ 0.540 ac, 31.48□ Impervious, Inflow Depth □ 0.00" for 1 year storm event
Inflow □ 0.00 cfs □ 5.00 hrs, Volume□ 0.000 af
Outflow □ 0.00 cfs □ 5.00 hrs, Volume□ 0.000 af, Atten□ 0□ , La□□ 0.0 min

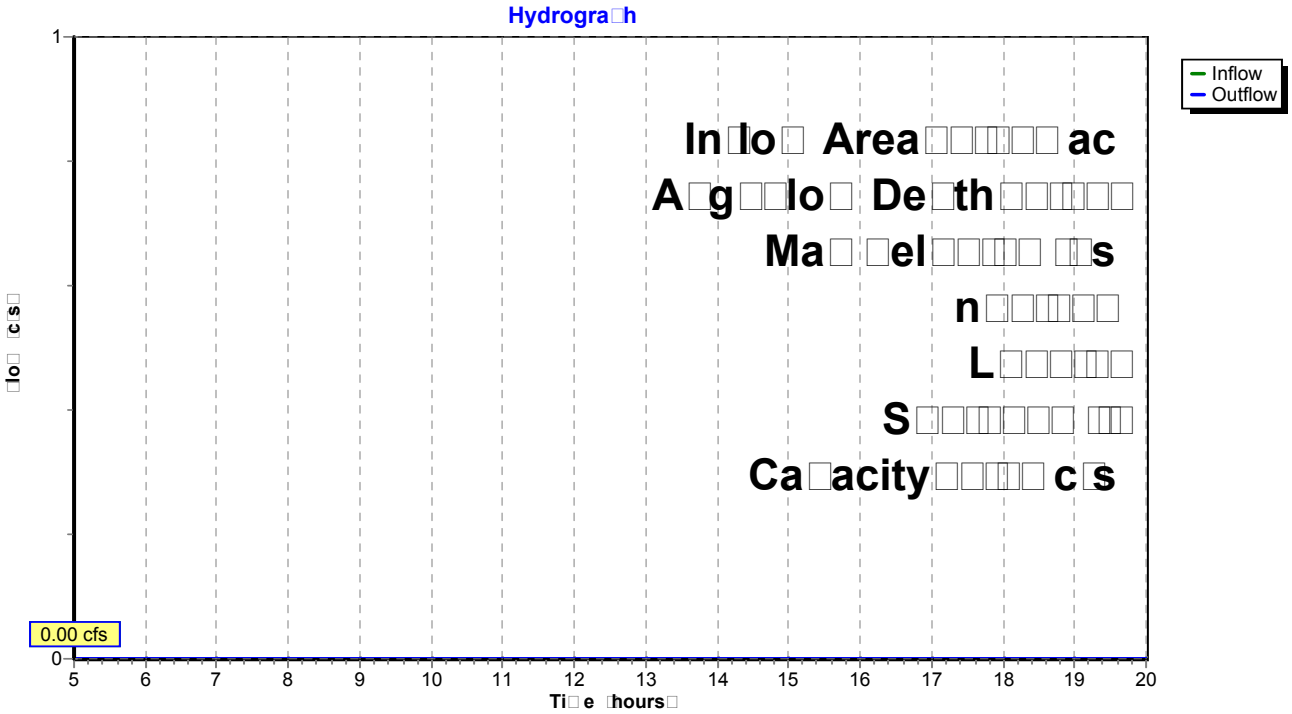
Routin□ by Stor-Ind□Trans method, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs
Max. Velocity□ 0.00 fps, Min. Travel Time□ 0.0 min
Av□. Velocity □ 0.00 fps, Av□. Travel Time□ 0.0 min

Peak Stora□e□ 0 cf □ 5.00 hrs
Avera□e Depth at Peak Stora□e□ 0.00□
Bank-Full Depth□ 0.50□Flow Area□ 1.1 sf, Capacity□ 3.55 cfs

0.67□x 0.50□deep channel, n□ 0.030 Stream, clean & strai□ht
Side Slope Z-value□ 3.0 □/□ Top Width□ 3.67□
Len□th□ 85.0□ Slope□ 0.0235 □/□
Inlet Invert□ 707.90□, Outlet Invert□ 705.90□

□

Reach □□R□: S□ale to □ard Drain



Su□ □ ary □or □ond □□□: □ar□ing □in□iltration to design □oint □

Inflow Area □	0.590 ac,	38.98□ Impervious,	Inflow Depth □	0.69" for 1 year storm event
Inflow □	0.48 cfs □	12.09 hrs,	Volume□	0.034 af
Outflow □	0.35 cfs □	12.10 hrs,	Volume□	0.034 af, Atten□ 27□ , La□□ 0.5 min
Discarded □	0.35 cfs □	12.10 hrs,	Volume□	0.034 af
Primary □	0.00 cfs □	5.00 hrs,	Volume□	0.000 af

Routin□ by Stor-Ind method, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs / 4
Peak Elev□ 693.15□□ 12.17 hrs Surf.Area□ 1,533 sf Stora□e□ 79 cf

Plu□-Flow detention time□ 2.2 min calculated for 0.034 af □100□ of inflow□
Center-of-Mass det. time□ 2.0 min □827.9 - 825.9 □

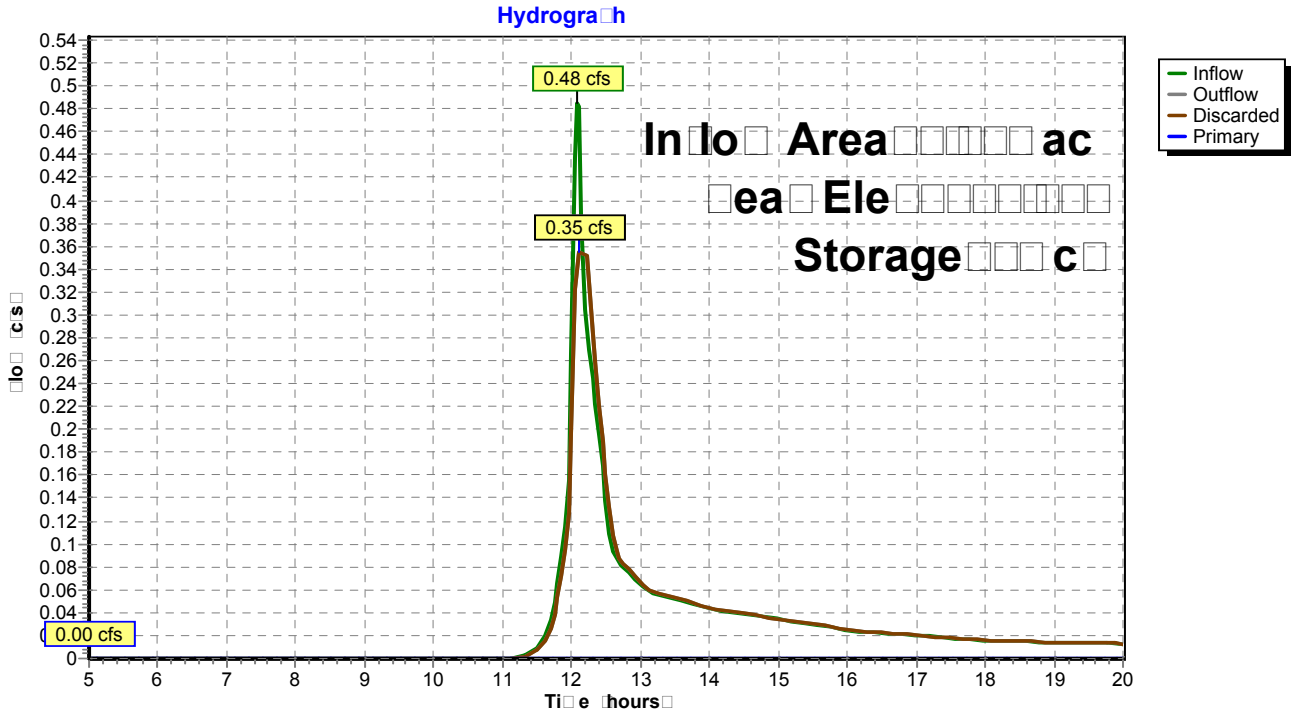
Volume	Invert	Avail.Stora□e	Stora□e Description
□1	693.00□	1,127 cf	□□□□□□**W** □ □□□□□□**L** □ □□□□□**H** □**ris**□ **atoid**
			5,351 cf Overall - 2,131 cf Embedded □ 3,220 cf x 35.0□ Voids
□2	693.50□	2,131 cf	**Cultec R**□□□□□□**L** □ □□□□□□□□**L** Inside □1
			Effective Si□e□ 47.8"W x 30.0"H □□ 7.45 sf x 284.50□L □ 2,119.8 cf
			Overall Si□e□ 52.0"W x 30.5"H x 8.50□L with 1.50□Overlap
			Row Len□th Adjustment□ □1.50□x 7.45 sf x 1 rows
□3	693.00□	36 cf	□□□□□**W** □ □□□□□**L** □ □□□□□**H** □**ris**□ **atoid**
		3,294 cf	Total Available Stora□e

Device	Routin□	Invert	Outlet Devices
□1	Primary	700.00□	□□□□**" W** □ □□□□**" H** □**ert**□**Ori**□**ice**□**Grate** C□ 0.600
□2	Discarded	693.00□	□□□□□□□**in**□**hr E**□□**iltration o**□**er Hori**□**ontal area**

Discarded Out□lo□ Max□0.35 cfs □ 12.10 hrs HW□693.12□ □Free Discha□r□e□
└□□**E**□□**iltration** □Exfiltration Controls 0.35 cfs□

□**ri**□ **ary Out□lo**□ Max□0.00 cfs □ 5.00 hrs HW□693.00□ □Free Discha□r□e□
└□□**Ori**□**ice**□**Grate** □Controls 0.00 cfs□

□ond □□□: □ar□ing □in□iltration to design □oint □



Su□ □ary □or □ond □□□: □ar□ing □south in□iltration

Inflow Area □ 1.090 ac, 62.39□ Impervious, Inflow Depth □ 1.17" for 1 year storm event
Inflow □ 1.60 cfs □ 12.08 hrs, Volume□ 0.106 af
Outflow □ 0.75 cfs □ 12.00 hrs, Volume□ 0.106 af, Atten□ 53□ , La□□ 0.0 min
Discarded □ 0.75 cfs □ 12.00 hrs, Volume□ 0.106 af
Primary □ 0.00 cfs □ 5.00 hrs, Volume□ 0.000 af

Routin□ by Stor-Ind method, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs / 2
Peak Elev□ 698.65□□ 12.27 hrs Surf.Area□ 3,246 sf Stora□e□ 507 cf

Plu□-Flow detention time□ 4.6 min calculated for 0.105 af □99□ of inflow□
Center-of-Mass det. time□ 3.9 min □806.2 - 802.3 □

Volume	Invert	Avail.Stora□e	Stora□e Description
□1	698.20□	2,348 cf	**Custo□ Stage Data □□ris□ atic□**Listed below □Recalc□ 11,377 cf Overall - 4,668 cf Embedded □ 6,709 cf x 35.0□ Voids
□2	698.70□	4,668 cf	**Cultec R□□□□□L □ □□□□□□L** Inside □1 Effective Si□e□ 47.8"W x 30.0"H □□ 7.45 sf x 625.00□L □ 4,656.9 cf Overall Si□e□ 52.0"W x 30.5"H x 8.50□L with 1.50□Overlap Row Len□th Adjustment□ □1.50□x 7.45 sf x 1 rows
□3	699.00□	55 cf	**□□□□W □ □□□□L □ □□□□H □ris□ atoid**
		7,071 cf	Total Available Stora□e

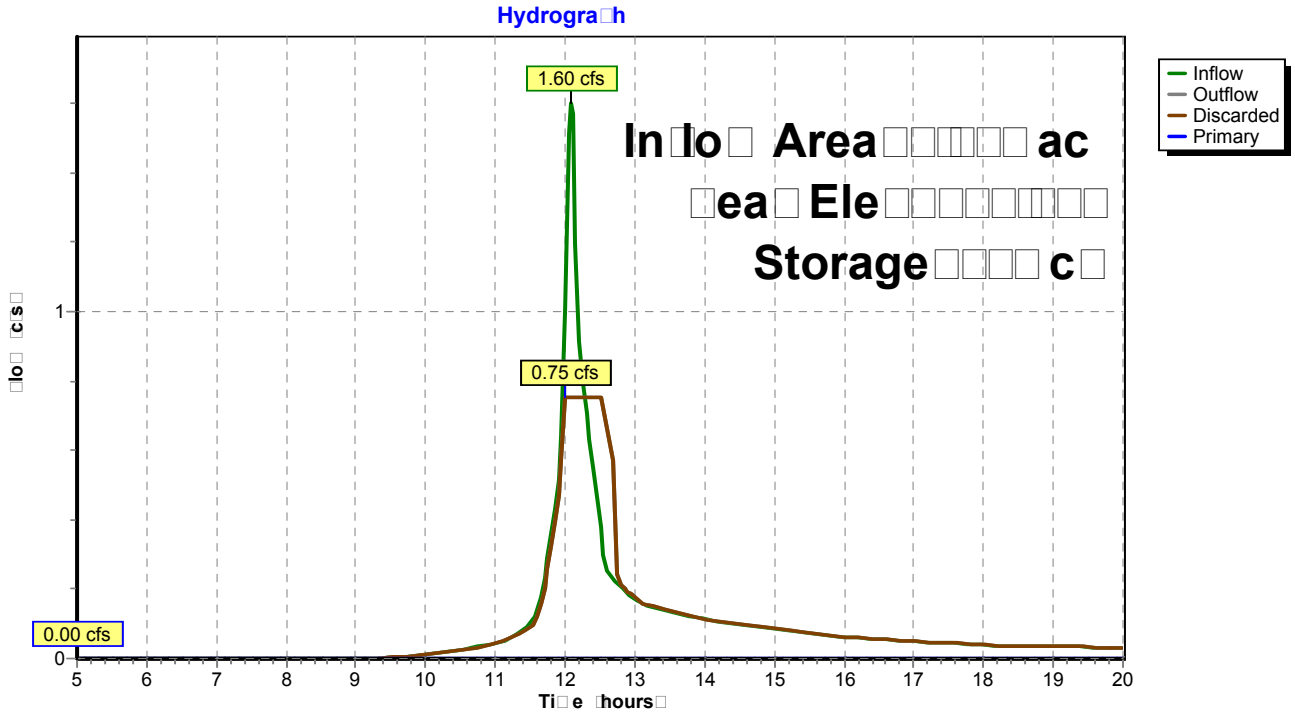
Elevation □feet□	Surf.Area □s□-ft□	Inc.Store □cubic-feet□	Cum.Store □cubic-feet□
698.20	3,246	0	0
701.70	3,246	11,361	11,361
701.71	0	16	11,377

Device	Routin□	Invert	Outlet Devices
□1	Primary	701.70□	□□□□" **Round Cul□ert** L□ 18.0□ RCP, s□uare ed□e headwall, Ke□ 0.500 Inlet / Outlet Invert□ 701.70□/ 698.00□ S□ 0.2056 □/□ Cc□ 0.900 n□ 0.012, Flow Area□ 1.23 sf
□2	Primary	703.70□	□□□□" □ □□□□" **Hori□□Ori□ice□Grate** C□ 0.600 Limited to weir flow at low heads
□3	Discarded	698.20□	□□□□□□□ **in□hr E□□iltration o□er Hori□ontal area**

Discarded Out□lo□ Max□0.75 cfs □ 12.00 hrs HW□698.27□ □Free Discha□e□
└─□□**E□□iltration** □Exfiltration Controls 0.75 cfs□

□ri□ ary Out□lo□ Max□0.00 cfs □ 5.00 hrs HW□698.20□ □Free Discha□e□
├─□□**Cul□ert** □Controls 0.00 cfs□
└─□□**Ori□ice□Grate** □Controls 0.00 cfs□

□ond □□□: □ar□ing □south in□iltration



Su□ □ ary □or □ond □□□: □ar□ing □ in□iltration

Inflow Area □	0.770 ac,	25.97□ Impervious,	Inflow Depth □	0.42" for 1 year storm event
Inflow □	0.32 cfs □	12.10 hrs,	Volume□	0.027 af
Outflow □	0.29 cfs □	12.13 hrs,	Volume□	0.027 af, Atten□ 10□ , La□□ 1.7 min
Discarded □	0.29 cfs □	12.13 hrs,	Volume□	0.027 af
Primary □	0.00 cfs □	5.00 hrs,	Volume□	0.000 af

Routin□ by Stor-Ind method, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs / 2
Peak Elev□ 709.67□□ 12.14 hrs Surf.Area□ 1,232 sf Stora□e□ 29 cf

Plu□-Flow detention time□ 1.6 min calculated for 0.027 af □100□ of inflow□
Center-of-Mass det. time□ 1.2 min □848.7 - 847.5 □

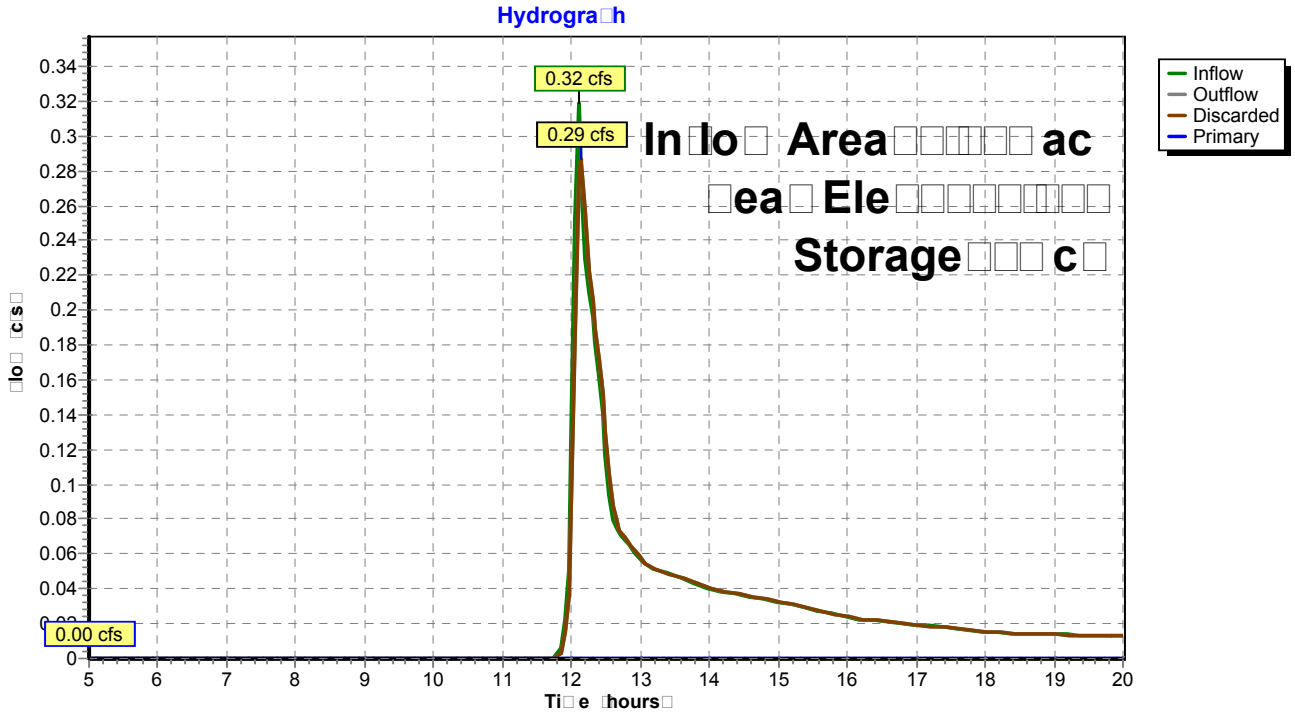
Volume	Invert	Avail.Stora□e	Stora□e Description
□1	709.60□	716 cf	□□□□□**W** □ □□□□□**L** □ □□□□□**H** □**ris**□ **atoid** 3,332 cf Overall - 1,285 cf Embedded □ 2,047 cf x 35.0□ Voids
□2	710.10□	1,285 cf	**Cultec R**□□□□□**L** □ □□□□□□□**L** Inside □1 Effective Si□e□ 47.8"W x 30.0"H □□ 7.45 sf x 171.00□L □ 1,274.1 cf Overall Si□e□ 52.0"W x 30.5"H x 8.50□L with 1.50□Overlap Row Len□th Adjustment□ □1.50□x 7.45 sf x 1 rows
□3	709.60□	222 cf	□□□□□**W** □ □□□□□**L** □ □□□□□**H** □**ris**□ **atoid** 980 cf Overall - 346 cf Embedded □ 634 cf x 35.0□ Voids
□4	710.10□	346 cf	**Cultec R**□□□□□**L** □ □□□□□□□**L** Inside □3 Effective Si□e□ 47.8"W x 30.0"H □□ 7.45 sf x 45.00□L □ 335.3 cf Overall Si□e□ 52.0"W x 30.5"H x 8.50□L with 1.50□Overlap Row Len□th Adjustment□ □1.50□x 7.45 sf x 1 rows
□5	710.00□	60 cf	□□□□□**W** □ □□□□□**L** □ □□□□□**H** □**ris**□ **atoid**
		2,630 cf	Total Available Stora□e

Device	Routin□	Invert	Outlet Devices
□1	Primary	713.10□	□□□□**" Round Cul□ert** L□ 72.0□ RCP, s□uare ed□e headwall, Ke□ 0.500 Inlet / Outlet Invert□ 713.10□/ 712.00□ S□ 0.0153 □/□ Cc□ 0.900 n□ 0.012, Flow Area□ 0.79 sf
□2	Primary	715.10□	□□□□**" □ □□□□" Hori□□Ori□ice□Grate** C□ 0.600 Limited to weir flow at low heads
□3	Discarded	709.60□	□□□□□□□**in□hr E□□iltration o□er Hori□ontal area**

Discarded Out□lo□ Max□0.29 cfs □ 12.13 hrs HW□709.67□ □Free Discha□r□e□
└─□□**E□□iltration** □Exfiltration Controls 0.29 cfs□

□ri□ ary Out□lo□ Max□0.00 cfs □ 5.00 hrs HW□709.60□ □Free Discha□r□e□
├─□□**Cul□ert** □Controls 0.00 cfs□
└─□□**Ori□ice□Grate** □Controls 0.00 cfs□

□ond □□□: □ar□ing □in□iltration



Su□ □ ary □or □ond □□□: □ar□ing □north in□iltration

Inflow Area □ 0.160 ac, 87.50□ Impervious, Inflow Depth □ 1.99" for 1 year storm event
Inflow □ 0.39 cfs □ 12.07 hrs, Volume□ 0.027 af
Outflow □ 0.19 cfs □ 12.00 hrs, Volume□ 0.027 af, Atten□ 50□, La□□ 0.0 min
Discarded □ 0.19 cfs □ 12.00 hrs, Volume□ 0.027 af
Primary □ 0.00 cfs □ 5.00 hrs, Volume□ 0.000 af

Routin□ by Stor-Ind method, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs / 2
Peak Elev□ 697.28□□ 12.22 hrs Surf.Area□ 840 sf Stora□e□ 112 cf

Plu□-Flow detention time□ □not calculated: outflow precedes inflow□
Center-of-Mass det. time□ 3.3 min □768.3 - 765.0 □

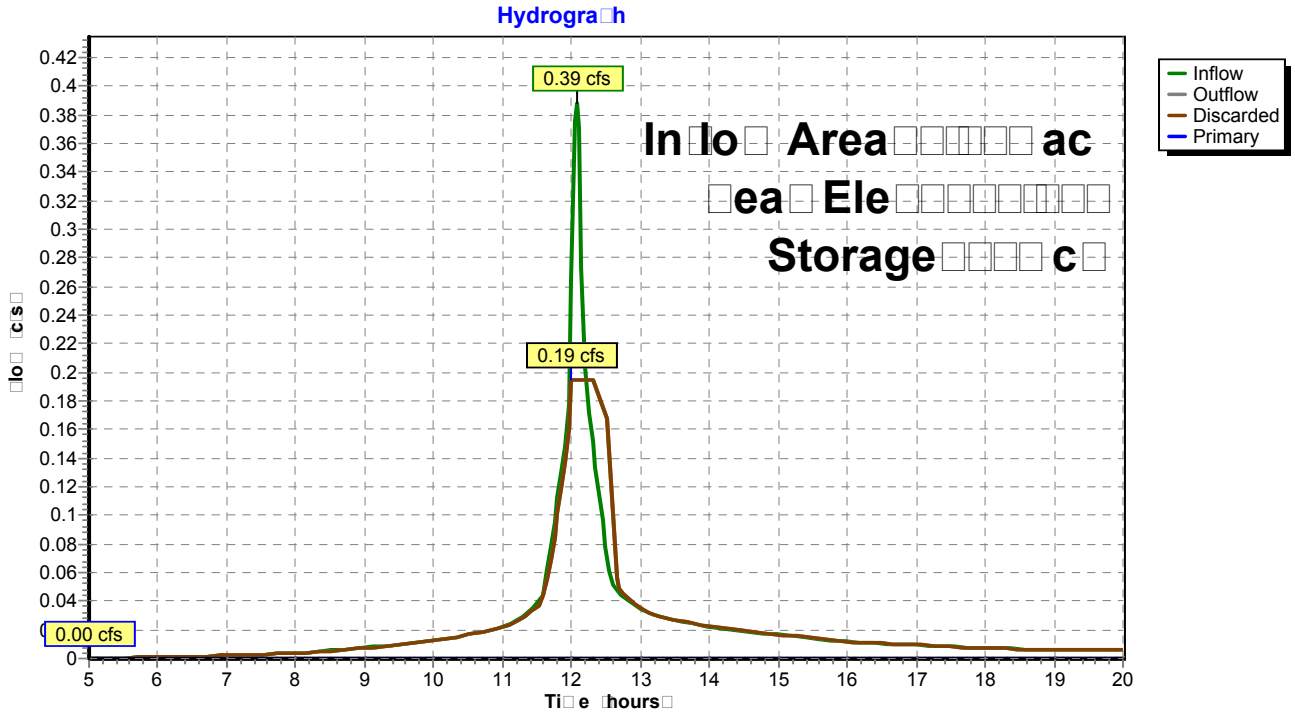
Volume	Invert	Avail.Stora□e	Stora□e Description
□1	696.90□	634 cf	□□□□□**W** □ □□□□□**L** □ □□□□□**H** □**ris**□ **atoid**
			2,940 cf Overall - 1,129 cf Embedded □ 1,811 cf x 35.0□ Voids
□2	697.40□	1,129 cf	**Cultec R**□□□□□**L** □ □□□□□□□**L** Inside □1
			Effective Si□e□ 47.8"W x 30.0"H □□ 7.45 sf x 150.00□L □ 1,117.7 cf
			Overall Si□e□ 52.0"W x 30.5"H x 8.50□L with 1.50□Overlap
			Row Len□th Adjustment□ □1.50□x 7.45 sf x 1 rows
□3	698.40□	50 cf	□□□□□**W** □ □□□□□**L** □ □□□□□**H** □**ris**□ **atoid**
		1,813 cf	Total Available Stora□e

Device	Routin□	Invert	Outlet Devices
□1	Primary	700.40□	□□□□**" Round Cul□ert**
			L□ 62.0□ RCP, s□uare ed□e headwall, Ke□ 0.500
			Inlet / Outlet Invert□ 700.40□/ 698.00□ S□ 0.0387 □/□ Cc□ 0.900
			n□ 0.012, Flow Area□ 0.79 sf
□2	Primary	702.40□	□□□□**" W** □ □□□□**" H** □**ert□Ori□ice□Grate** C□ 0.600
□3	Discarded	696.90□	□□□□□□□**in□hr E□□iltration o□er Hori□ontal area**

Discarded Out□lo□ Max□0.19 cfs □ 12.00 hrs HW□696.99□ □Free Discha□e□
└─□□**E□□iltration** □Exfiltration Controls 0.19 cfs□

□**ri□ ary Out□lo□** Max□0.00 cfs □ 5.00 hrs HW□696.90□ □Free Discha□e□
├─□□**Cul□ert** □Controls 0.00 cfs□
└─□□**Ori□ice□Grate** □Controls 0.00 cfs□

□ond □□□: □ar□ing □north in□iltration



Su□ □ ary □or □ond □□□: □ar□ing □in□iltration

Inflow Area □ 0.540 ac, 31.48□ Impervious, Inflow Depth □ 0.89" for 1 year storm event
Inflow □ 0.59 cfs □ 12.09 hrs, Volume□ 0.040 af
Outflow □ 0.30 cfs □ 12.05 hrs, Volume□ 0.040 af, Atten□ 49□, La□□ 0.0 min
Discarded □ 0.30 cfs □ 12.05 hrs, Volume□ 0.040 af
Primary □ 0.00 cfs □ 5.00 hrs, Volume□ 0.000 af

Routin□ by Stor-Ind method, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs / 2
Peak Elev□ 727.87□□ 12.27 hrs Surf.Area□ 1,288 sf Stora□e□ 169 cf

Plu□-Flow detention time□ 4.4 min calculated for 0.040 af □100□ of inflow□
Center-of-Mass det. time□ 3.4 min □818.8 - 815.4 □

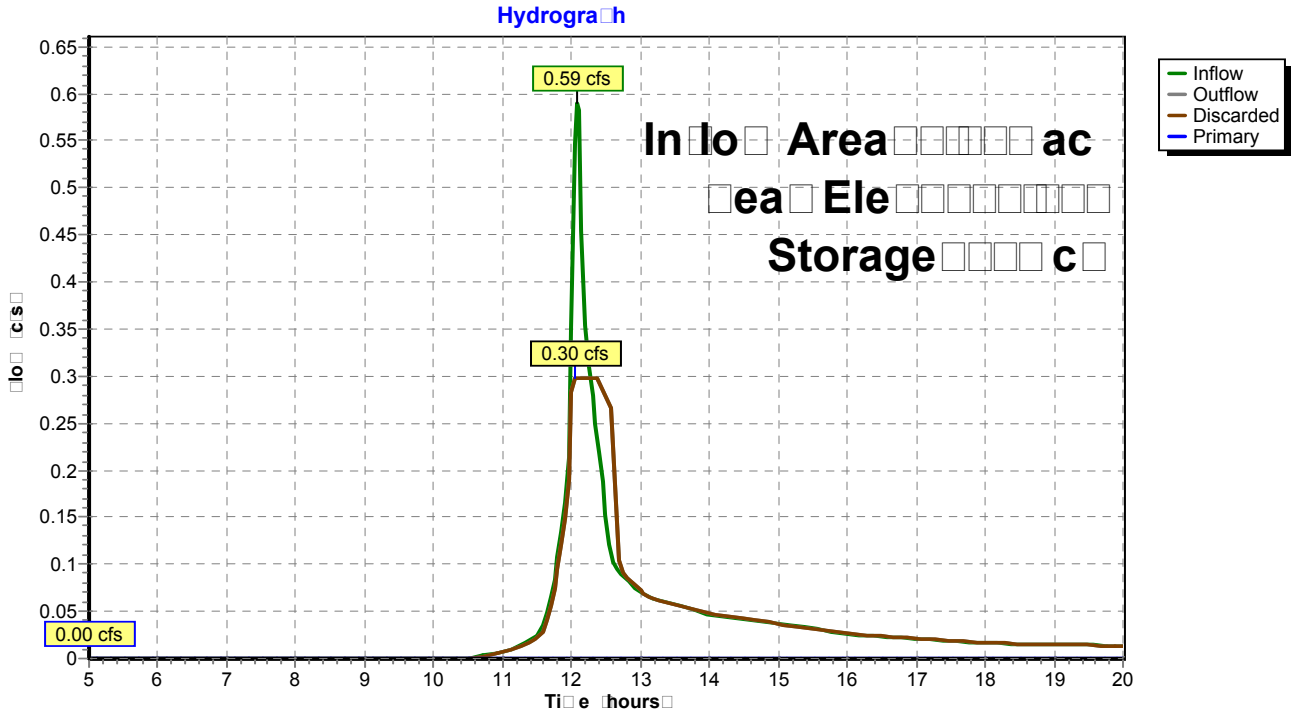
Volume	Invert	Avail.Stora□e	Stora□e Description
□1	727.50□	1,007 cf	□□□□□**W** □ □□□□□**L** □ □□□□□**H** □**ris□ atoid** 4,508 cf Overall - 1,632 cf Embedded □ 2,876 cf x 35.0□ Voids
□2	728.00□	1,632 cf	**Cultec R□□□□□L** □ □□□□□□□**L** Inside □1 Effective Si□e□ 47.8"W x 30.0"H □□ 7.45 sf x 217.50□L □ 1,620.6 cf Overall Si□e□ 52.0"W x 30.5"H x 8.50□L with 1.50□Overlap Row Len□th Adjustment□ □1.50□x 7.45 sf x 1 rows
□3	728.00□	60 cf	□□□□□**W** □ □□□□□**L** □ □□□□□**H** □**ris□ atoid**
		2,698 cf	Total Available Stora□e

Device	Routin□	Invert	Outlet Devices
□1	Primary	731.00□	□□□□**" Round Cul□ert** L□ 8.0□ RCP, s□uare ed□e headwall, Ke□ 0.500 Inlet / Outlet Invert□ 731.00□/ 729.00□ S□ 0.2500 □/□ Cc□ 0.900 n□ 0.012, Flow Area□ 0.79 sf
□2	Primary	733.00□	□□□□**" □ □□□□" Hori□□Ori□ice□Grate** C□ 0.600 Limited to weir flow at low heads
□3	Discarded	727.50□	□□□□□□□**in□hr E□□iltration o□er Hori□ontal area**

Discarded Out□lo□ Max□0.30 cfs □ 12.05 hrs HW□727.62□ □Free Discha□r□e□
└─□□**E□□iltration** □Exfiltration Controls 0.30 cfs□

□ri□ ary Out□lo□ Max□0.00 cfs □ 5.00 hrs HW□727.50□ □Free Discha□r□e□
└─□□**Cul□ert** □Controls 0.00 cfs□
└─□□**Ori□ice□Grate** □Controls 0.00 cfs□

□ond □□□: □ar□ing □in□iltration



Su□ □ ary □or □ond MH□: MH□ to □lo□ di□□user

Inflow Area □ 1.790 ac, 55.31□ Impervious, Inflow Depth □ 0.00" for 1 year storm event
Inflow □ 0.00 cfs □ 5.00 hrs, Volume□ 0.000 af
Outflow □ 0.00 cfs □ 5.00 hrs, Volume□ 0.000 af, Atten□ 0□ , La□□ 0.0 min
Primary □ 0.00 cfs □ 5.00 hrs, Volume□ 0.000 af

Routin□ by Stor-Ind method, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs / 3
Peak Elev□ 697.80□□ 5.00 hrs Surf.Area□ 13 sf Stora□e□ 0 cf

Plu□-Flow detention time□ □not calculated: initial stora□e excedes outflow□
Center-of-Mass det. time□ □not calculated: no inflow□

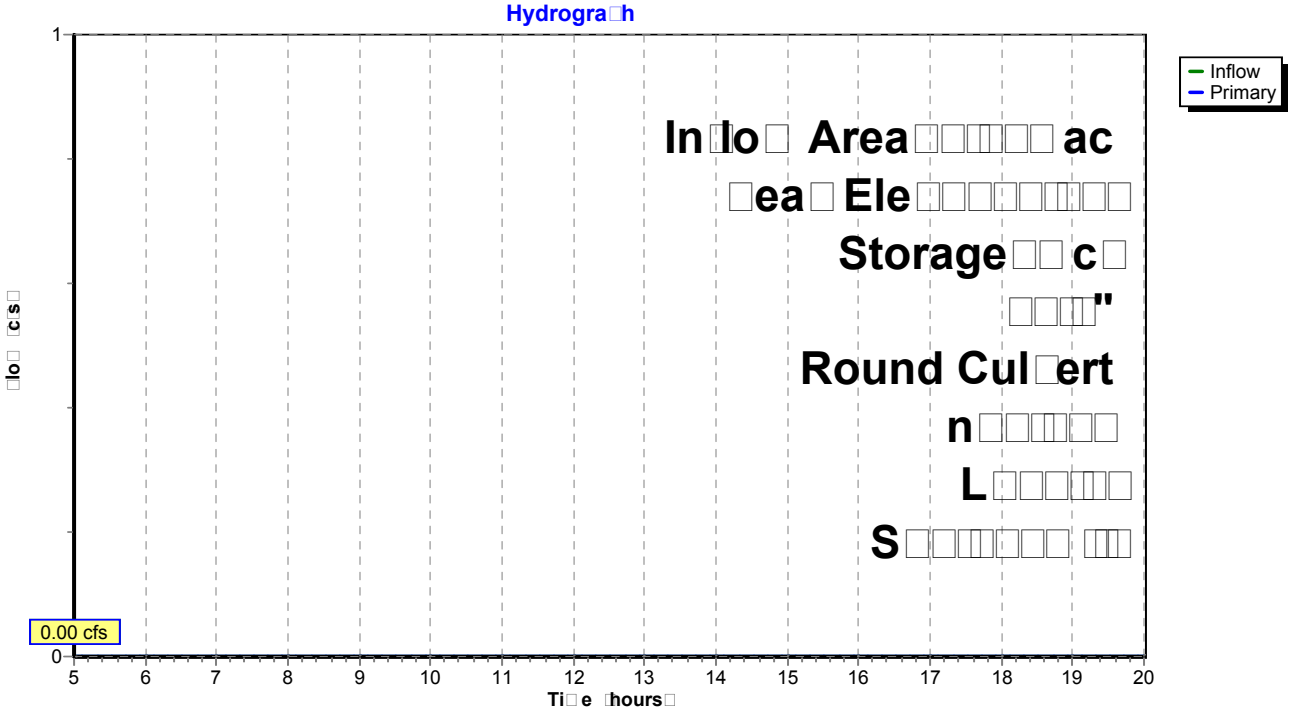
Volume	Invert	Avail.Stora□e	Stora□e Description
□1	697.80□	48 cf	**Custo□ Stage Data □□ris□ atic□**Listed below □Recalc□

Elevation □feet□	Surf.Area □s□-ft□	Inc.Store □cubic-feet□	Cum.Store □cubic-feet□
697.80	13	0	0
701.50	13	48	48

Device	Routin□	Invert	Outlet Devices
□1	Primary	697.80□	□□□□" **Round Cul□ert** L□ 45.0□ RCP, s□uare ed□e headwall, Ke□ 0.500 Inlet / Outlet Invert□ 697.80□/ 678.00□ S□ 0.4400 □/□ Cc□ 0.900 n□ 0.012, Flow Area□ 1.23 sf

□**ri□ ary Out□lo□** Max□0.00 cfs □ 5.00 hrs HW□697.80□ □Free Dischar□e□
└□□**Cul□ert** □Controls 0.00 cfs□

□ond MH□: MH□ to □lo□ di□□user



Su□ □ary □or □ond □D: □ard Drain to MH□

Inflow Area □ 0.540 ac, 31.48□ Impervious, Inflow Depth □ 0.00" for 1 year storm event
Inflow □ 0.00 cfs □ 5.00 hrs, Volume□ 0.000 af
Outflow □ 0.00 cfs □ 5.00 hrs, Volume□ 0.000 af, Atten□ 0□ , La□□ 0.0 min
Primary □ 0.00 cfs □ 5.00 hrs, Volume□ 0.000 af

Routin□ by Stor-Ind method, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs
Peak Elev□ 703.00□□ 5.00 hrs Surf.Area□ 4 sf Stora□e□ 0 cf

Plu□-Flow detention time□ □not calculated: initial stora□e excedes outflow□
Center-of-Mass det. time□ □not calculated: no inflow□

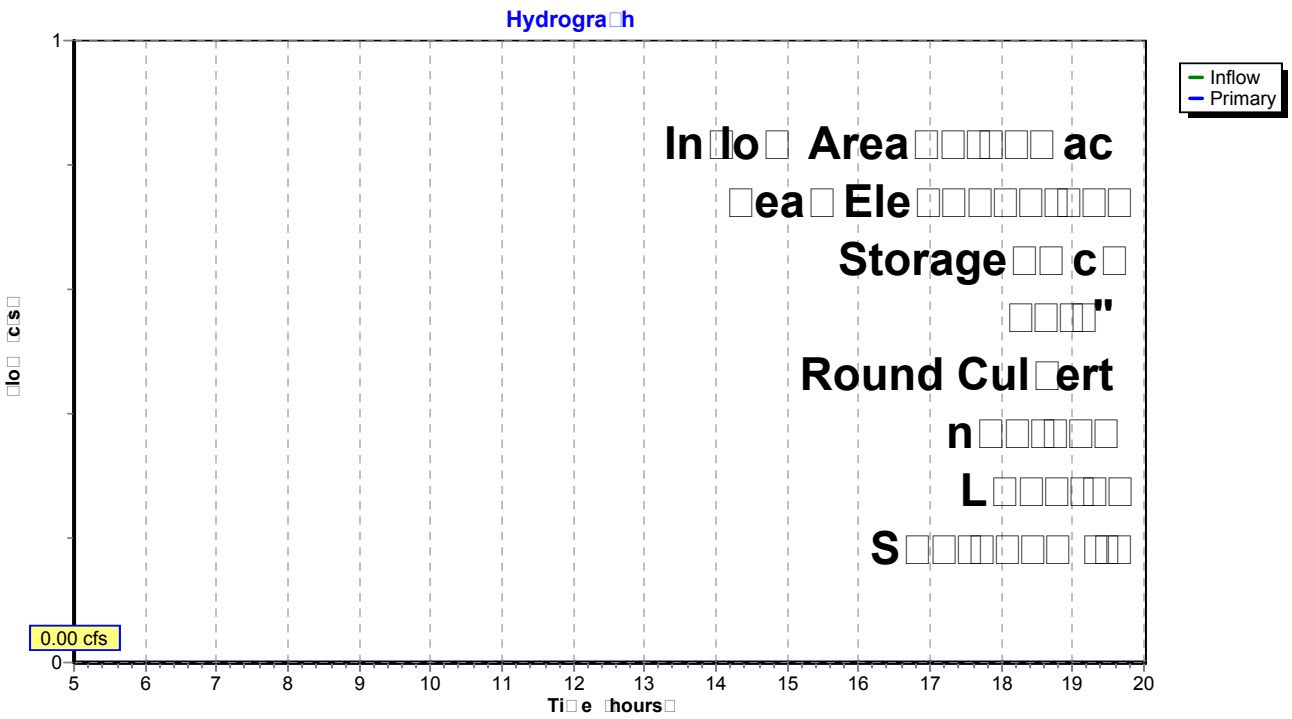
Volume	Invert	Avail.Stora□e	Stora□e Description
□1	703.00□	12 cf	**Custo□ Stage Data □□ris□ atic□**Listed below □Recalc□

Elevation □feet□	Surf.Area □s□-ft□	Inc.Store □cubic-feet□	Cum.Store □cubic-feet□
703.00	4	0	0
706.00	4	12	12

Device	Routin□	Invert	Outlet Devices
□1	Primary	703.00□	□□□□" **Round Cul□ert** L□ 74.0□ RCP, s□uare ed□e headwall, Ke□ 0.500 Inlet / Outlet Invert□ 703.00□/ 698.00□ S□ 0.0676 □/□ Cc□ 0.900 n□ 0.012, Flow Area□ 0.79 sf

□**ri□ ary Out□lo□** Max□0.00 cfs □ 5.00 hrs HW□703.00□ □Free Dischar□e□
└□□**Cul□ert** □Controls 0.00 cfs□

□ond □D: □ard Drain to MH□

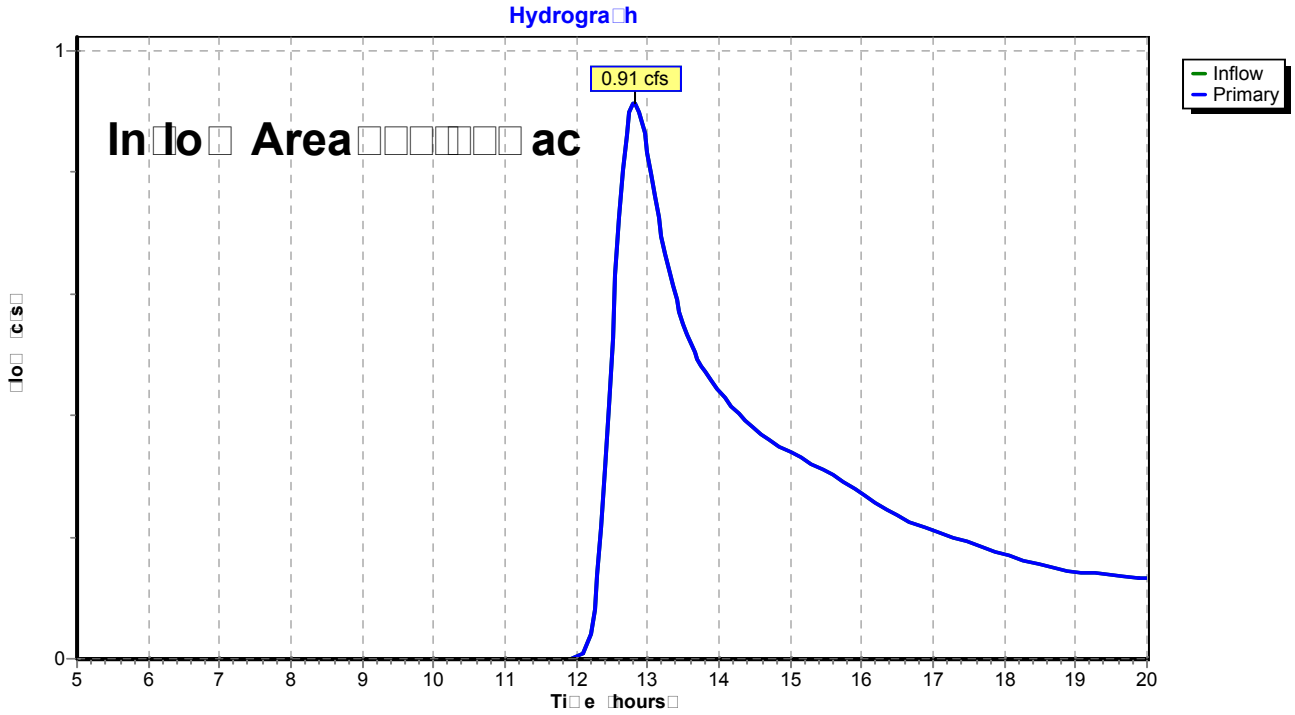


Su□ □ ary □or Lin□ □□L: □ost de□elo□□ ent design □oint □

Inflow Area □ 13.070 ac, 12.01□ Impervious, Inflow Depth □ 0.19" for 1 year storm event
Inflow □ 0.91 cfs □ 12.82 hrs, Volume□ 0.205 af
Primary □ 0.91 cfs □ 12.82 hrs, Volume□ 0.205 af, Atten□ 0□ , La□□ 0.0 min

Primary outflow □ Inflow, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs

Lin□ □□L: □ost de□elo□□ ent design □oint □



Su□ □ary □or Su□catch□ ent □S: □re De□elo□□ ent to design □oint □

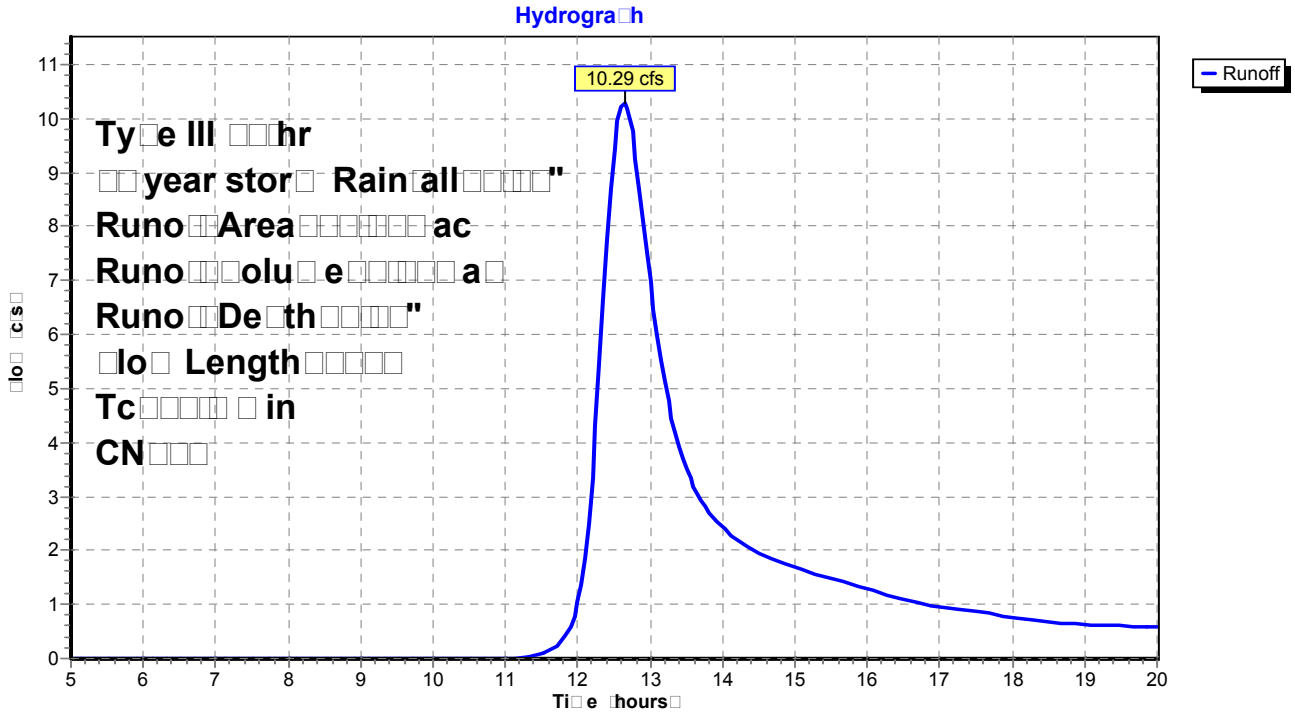
Runoff □ 10.29 cfs □ 12.64 hrs, Volume□ 1.470 af, Depth□ 1.34"

Runoff by SCS TR-20 method, UH□SCS, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs
Type III 24-hr 10 year storm Rainfall□5.11"

	Area □ac□	CN	Description
□	0.210	98	CT impervious, HSG B
□	0.200	61	CT □75□ Grass cover, Good, HSG B
□	1.070	55	CT Woods, Good, HSG B
□	0.940	77	CT Woods, Good, HSG D
□	0.140	98	offsite impervious, HSG B
□	0.340	61	offsite □75□ Grass cover, Good, HSG B
□	0.370	55	offsite Woods, Good, HSG B
□	0.800	98	impervoius, HSG B
	0.160	96	Gravel surface, HSG B
	1.950	61	□75□ Grass cover, Good, HSG B
	6.940	55	Woods, Good, HSG B
	13.120	62	Wei□hted Avera□e
	11.970		91.23□ Pervious Area
	1.150		8.77□ Impervious Area

Tc □min□	Len□th □feet□	Slope □ft/ft□	Velocity □ft/sec□	Capacity □cfs□	Description
30.0	100	0.0100	0.06		**Sheet □lo□ □sheet** Woods: Li□ht underbrush n□ 0.400 P2□ 2.85"
8.0	240	0.0100	0.50		**Shallo□ Concentrated □lo□ □shallo□ conc** Woodland Kv□ 5.0 fps
4.0	490	0.1700	2.06		**Shallo□ Concentrated □lo□ □shallo□ conc** Woodland Kv□ 5.0 fps
42.0	830	Total			

Su□catch□ ent □S: □re De□elo□□ ent to design □oint □



Su□ □ary □or Su□catch□ ent □S: □re De□elo□□ ent to design □oint □

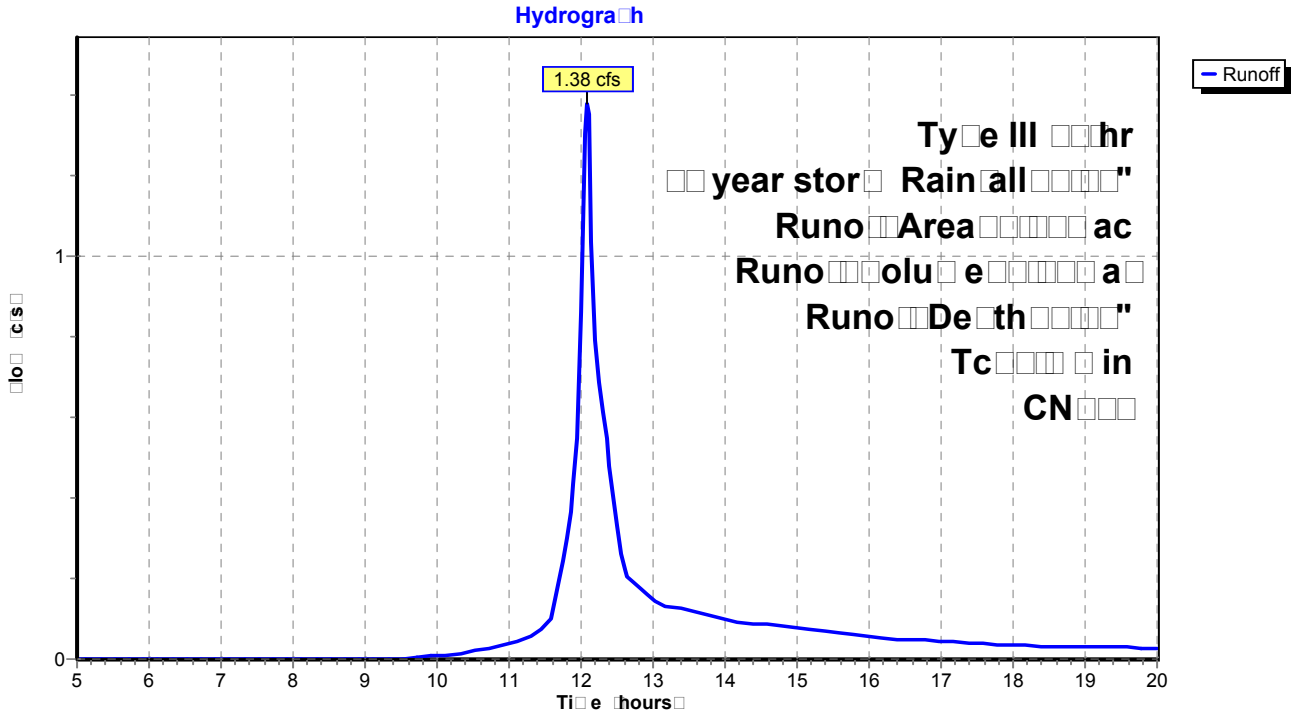
Runoff □ 1.38 cfs □ 12.08 hrs, Volume□ 0.091 af, Depth□ 2.03"

Runoff by SCS TR-20 method, UH□SCS, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs
Type III 24-hr 10 year storm Rainfall□5.11"

	Area □ac□	CN	Description
□	0.190	98	impervious, HSG B
	0.040	61	□75□ Grass cover, Good, HSG B
	0.310	55	Woods, Good, HSG B
	0.540	71	Wei□hted Avera□e
	0.350		64.81□ Pervious Area
	0.190		35.19□ Impervious Area

Tc □min□	Len□th □feet□	Slope □ft/ft□	Velocity □ft/sec□	Capacity □cfs□	Description
5.0					**Direct Entry□□ □inute □ini□u□**

Su□catch□ ent □S: □re De□elo□□ ent to design □oint □



Su□ □ ary □or Su□catch□ ent □□S: □ost de□re□ ainder to design □oint □

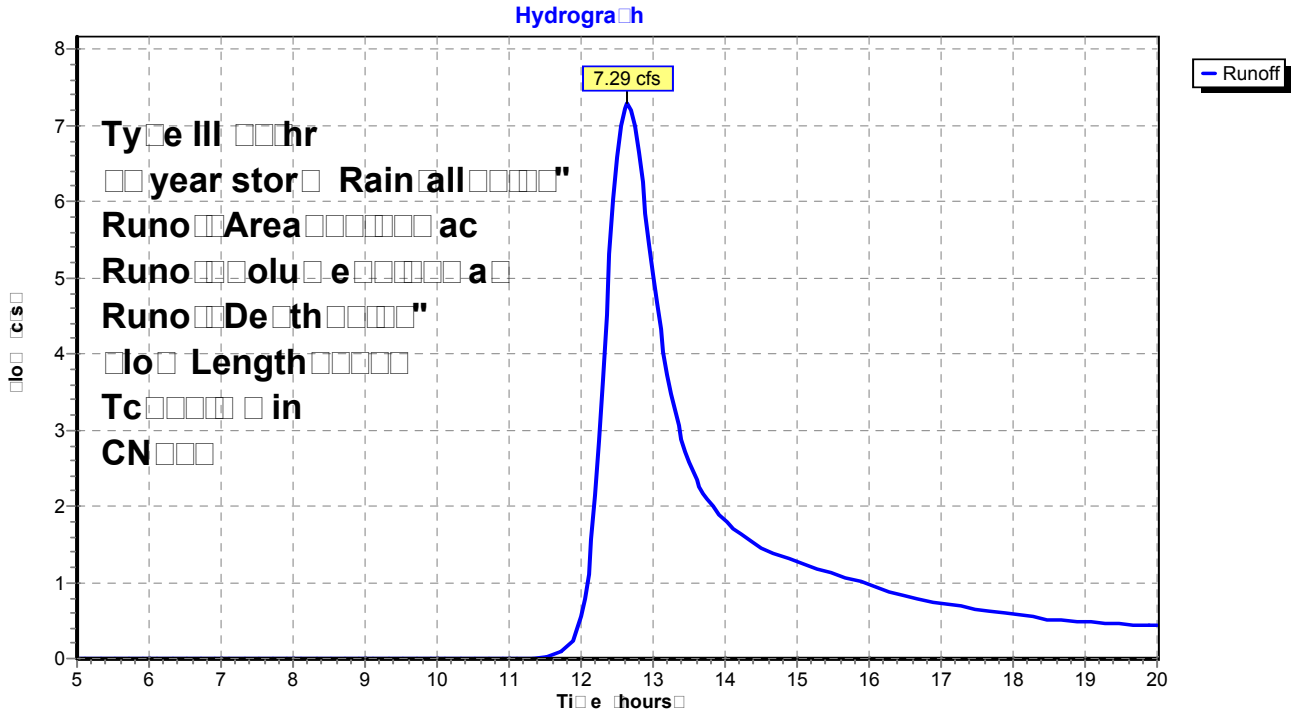
Runoff □ 7.29 cfs □ 12.65 hrs, Volume□ 1.062 af, Depth□ 1.21"

Runoff by SCS TR-20 method, UH□SCS, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs
Type III 24-hr 10 year storm Rainfall□5.11"

	Area □ac□	CN	Description
□	0.210	98	CT impervious, HSG B
□	0.200	61	CT □75□ Grass cover, Good, HSG B
□	1.070	55	CT Woods, Good, HSG B
□	0.940	77	CT Woods, Good, HSG D
□	0.140	98	offsite impervious, HSG B
□	0.340	61	offsite □75□ Grass cover, Good, HSG B
□	0.370	55	offsite Woods, Good, HSG B
□	0.030	98	impervoius, HSG B
	2.060	61	□75□ Grass cover, Good, HSG B
	5.150	55	Woods, Good, HSG B
	10.510	60	Wei□hted Avera□e
	10.130		96.38□ Pervious Area
	0.380		3.62□ Impervious Area

Tc □min□	Len□th □feet□	Slope □ft/ft□	Velocity □ft/sec□	Capacity □cfs□	Description
30.0	100	0.0100	0.06		**Sheet □lo□ □sheet** Woods: Li□ht underbrush n□ 0.400 P2□ 2.85"
8.0	240	0.0100	0.50		**Shallo□ Concentrated □lo□ □shallo□ conc** Woodland Kv□ 5.0 fps
4.0	490	0.1700	2.06		**Shallo□ Concentrated □lo□ □shallo□ conc** Woodland Kv□ 5.0 fps
42.0	830	Total			

Su□catch□ ent □□S: □ost de□ re□ ainder to design □oint □



Su□ □ ary □or Su□catch□ ent □□S: □ost de□ to design □oint □

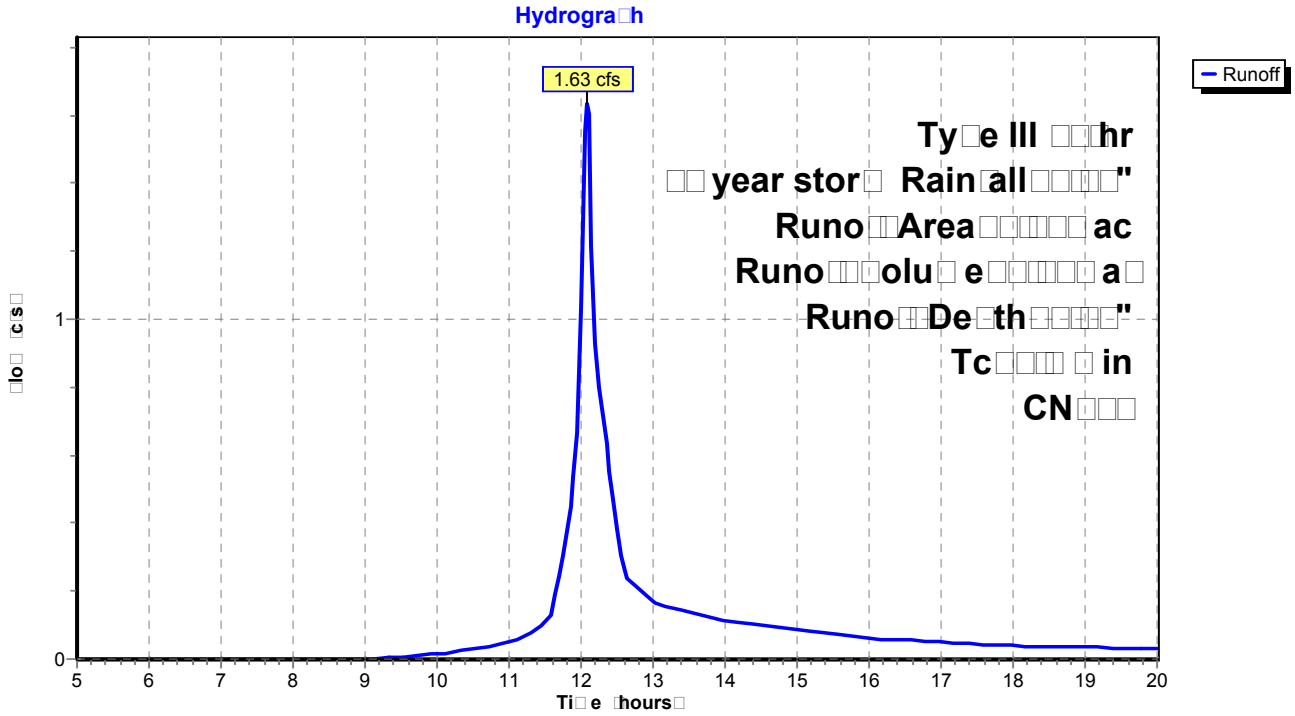
Runoff □ 1.63 cfs □ 12.08 hrs, Volume□ 0.108 af, Depth□ 2.19"

Runoff by SCS TR-20 method, UH□SCS, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs
Type III 24-hr 10 year storm Rainfall□5.11"

Area □ac□	CN	Description
□ 0.230	98	impervious, HSG B
0.080	61	□75□ Grass cover, Good, HSG B
0.280	55	Woods, Good, HSG B
0.590	73	Wei□hted Avera□e
0.360		61.02□ Pervious Area
0.230		38.98□ Impervious Area

Tc □min□	Len□th □feet□	Slope □ft/ft□	Velocity □ft/sec□	Capacity □cfs□	Description
5.0					**Direct Entry□□ □inute □ini□u□**

Su□catch□ ent □□S: □ost de□ to design □oint □



Su□ □ary □or Su□catch□ ent □□S: □ost de□ □ar□ing area □□south

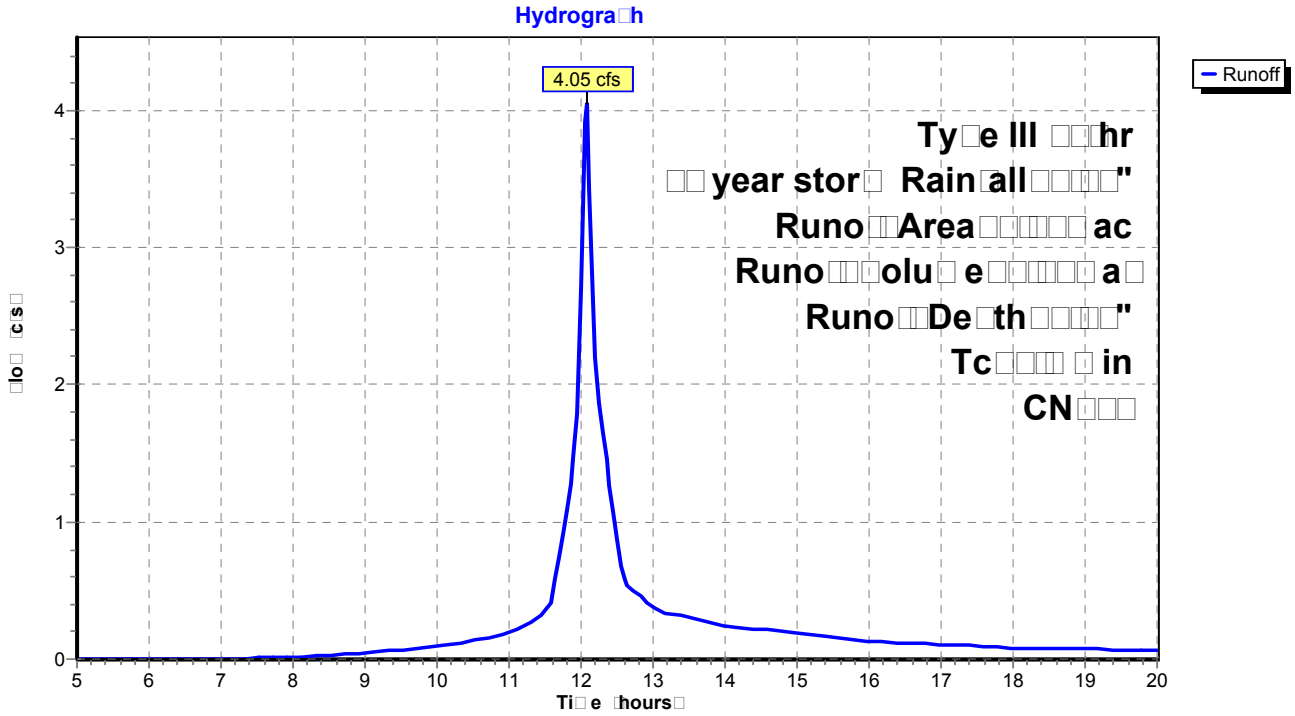
Runoff □ 4.05 cfs □ 12.08 hrs, Volume□ 0.271 af, Depth□ 2.98"

Runoff by SCS TR-20 method, UH□SCS, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs
Type III 24-hr 10 year storm Rainfall□5.11"

Area □ac□	CN	Description
□ 0.680	98	impervious, HSG B
0.080	61	□75□ Grass cover, Good, HSG B
0.330	55	Woods, Good, HSG B
1.090	82	Wei□hted Avera□e
0.410		37.61□ Pervious Area
0.680		62.39□ Impervious Area

Tc □min□	Len□th □feet□	Slope □ft/ft□	Velocity □ft/sec□	Capacity □cfs□	Description
5.0					**Direct Entry□□ □inute □ini□u□**

Su□catch□ ent □□S: □ost de□ □ar□ing area □□south



Su□ □ ary □or Su□catch□ ent □□S: □ost de□ □ar□ing area □

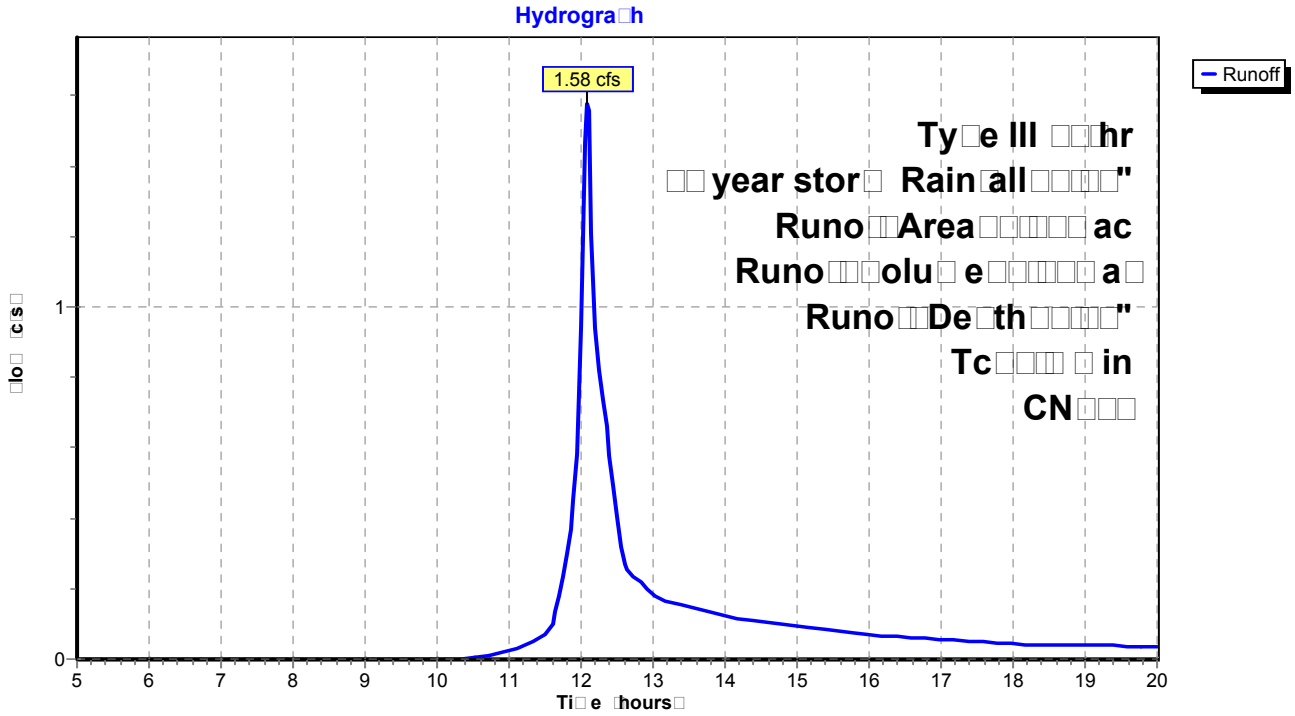
Runoff □ 1.58 cfs □ 12.09 hrs, Volume□ 0.106 af, Depth□ 1.65"

Runoff by SCS TR-20 method, UH□SCS, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs
Type III 24-hr 10 year storm Rainfall□5.11"

Area □ac□	CN	Description
□ 0.200	98	impervious, HSG B
0.020	61	□75□ Grass cover, Good, HSG B
0.550	55	Woods, Good, HSG B
0.770	66	Wei□hted Avera□e
0.570		74.03□ Pervious Area
0.200		25.97□ Impervious Area

Tc □min□	Len□th □feet□	Slope □ft/ft□	Velocity □ft/sec□	Capacity □cfs□	Description
5.0					**Direct Entry□□ □inute □ini□u□**

Su□catch□ ent □□S: □ost de□ □ar□ing area □



Su□ □ary □or Su□catch□ ent □□S: □ost de□ □ar□ing area □□north

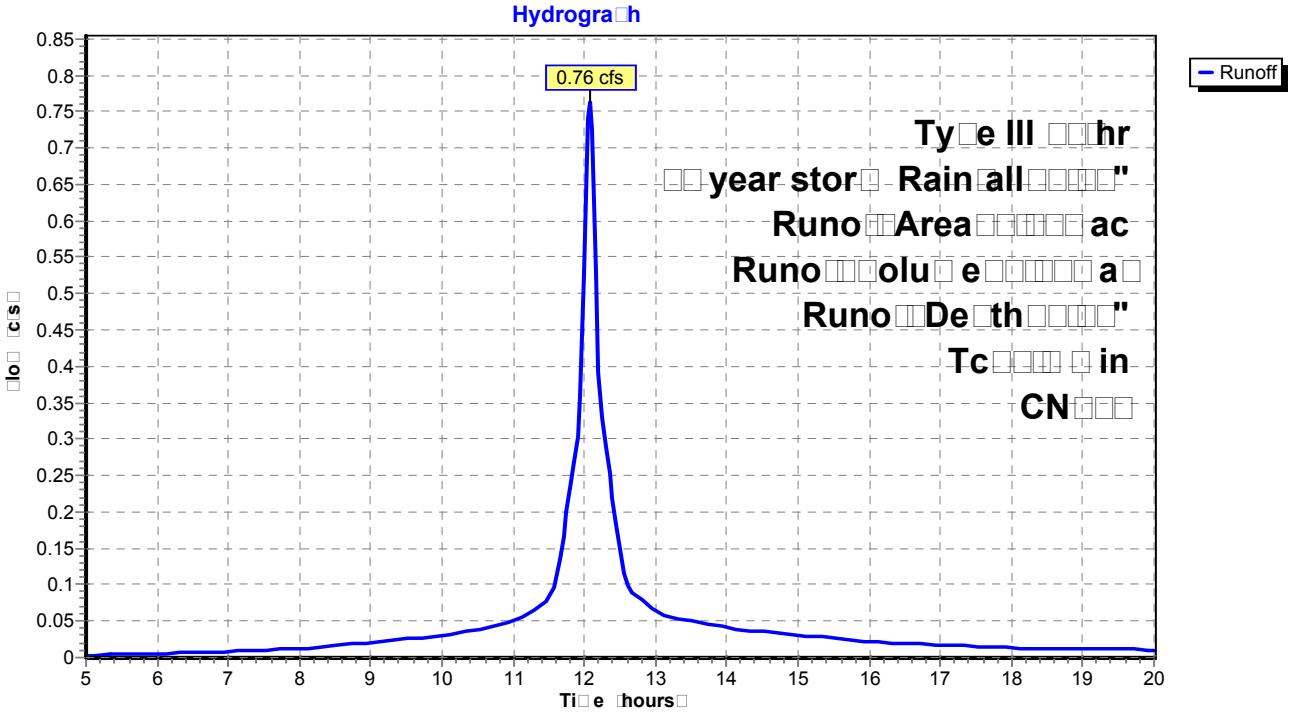
Runoff □ 0.76 cfs □ 12.07 hrs, Volume□ 0.054 af, Depth□ 4.07"

Runoff by SCS TR-20 method, UH□SCS, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs
Type III 24-hr 10 year storm Rainfall□5.11"

Area □ac□	CN	Description
□ 0.140	98	impervious, HSG B
0.020	61	□75□ Grass cover, Good, HSG B
0.160	93	Wei□hted Avera□e
0.020		12.50□ Pervious Area
0.140		87.50□ Impervious Area

Tc □min□	Len□th □feet□	Slope □ft/ft□	Velocity □ft/sec□	Capacity □cfs□	Description
5.0					**Direct Entry□□ □inute □ini□u□**

Su□catch□ ent □□S: □ost de□ □ar□ing area □□north



Su□ □ ary □or Su□catch□ ent □□S: □ost de□ □ar□ing area □

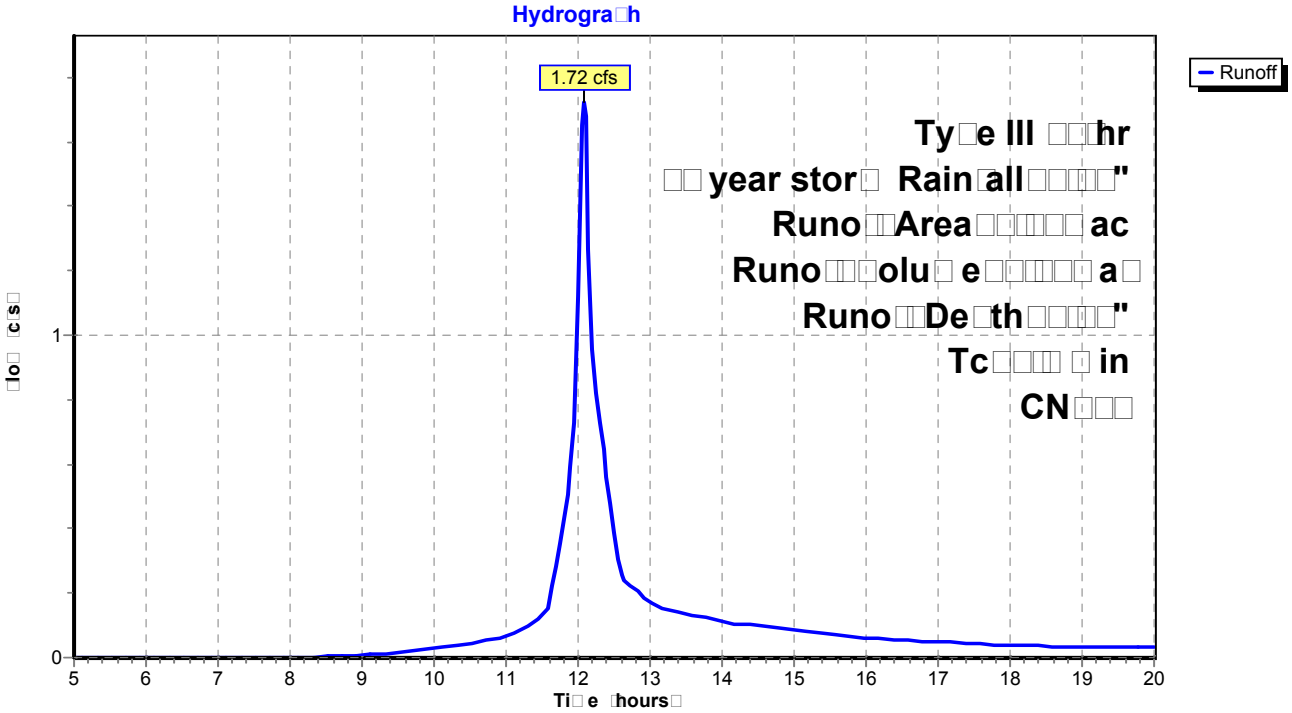
Runoff □ 1.72 cfs □ 12.08 hrs, Volume□ 0.114 af, Depth□ 2.53"

Runoff by SCS TR-20 method, UH□SCS, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs
Type III 24-hr 10 year storm Rainfall□5.11"

	Area □ac□	CN	Description
□	0.170	98	impervious, HSG B
	0.070	96	Gravel surface, HSG B
	0.010	61	□75□ Grass cover, Good, HSG B
	0.290	60	Woods, Fair, HSG B
	0.540	77	Wei□hted Avera□e
	0.370		68.52□ Pervious Area
	0.170		31.48□ Impervious Area

Tc □min□	Len□th □feet□	Slope □ft/ft□	Velocity □ft/sec□	Capacity □cfs□	Description
5.0					**Direct Entry□□ □inute □ini□u□**

Su□catch□ ent □□S: □ost de□ □ar□ing area □



Su□ □ary □or Reach □□R□: S□ale to north o□lot □

Inflow Area □ 0.770 ac, 25.97□ Impervious, Inflow Depth □ 0.00" for 10 year storm event
Inflow □ 0.00 cfs □ 5.00 hrs, Volume□ 0.000 af
Outflow □ 0.00 cfs □ 5.00 hrs, Volume□ 0.000 af, Atten□ 0□ , La□□ 0.0 min

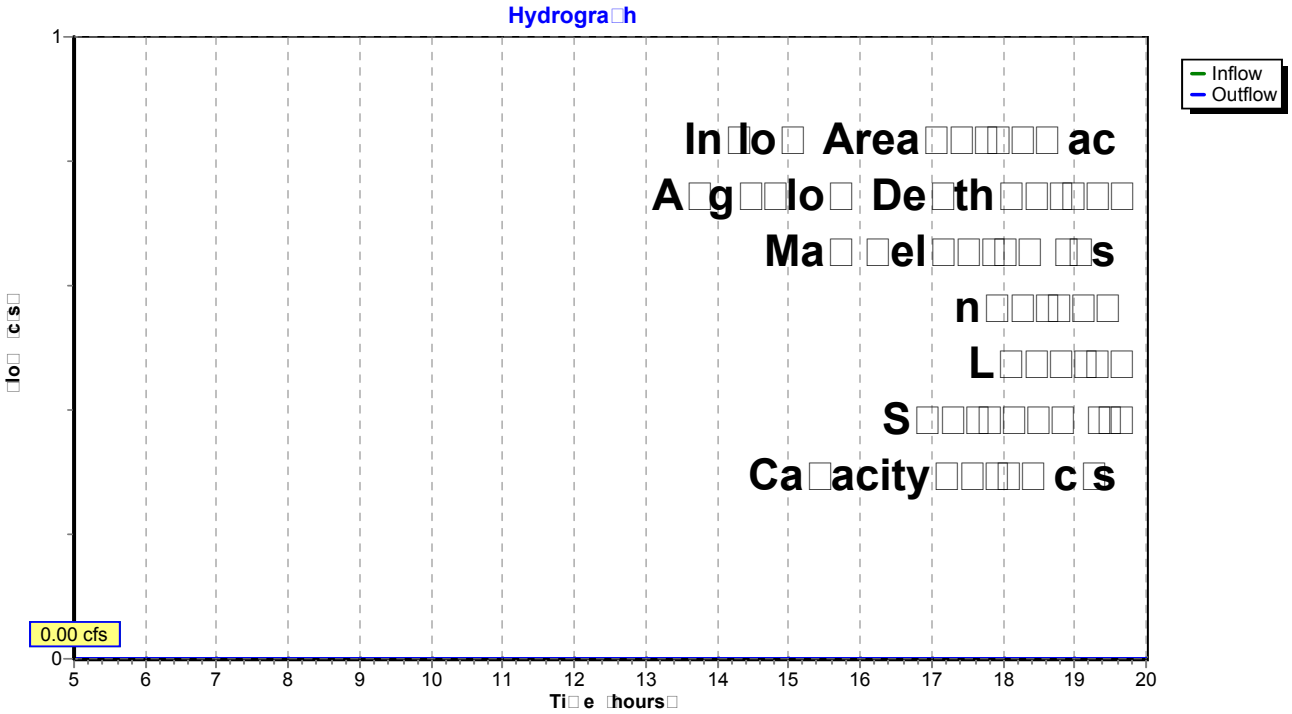
Routin□ by Stor-Ind□Trans method, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs / 2
Max. Velocity□ 0.00 fps, Min. Travel Time□ 0.0 min
Av□. Velocity □ 0.00 fps, Av□. Travel Time□ 0.0 min

Peak Stora□e□ 0 cf □ 5.00 hrs
Avera□e Depth at Peak Stora□e□ 0.00□
Bank-Full Depth□ 0.50□Flow Area□ 1.1 sf, Capacity□ 3.28 cfs

0.67□x 0.50□deep channel, n□ 0.030 Stream, clean & strai□ht
Side Slope Z-value□ 3.0 □/□ Top Width□ 3.67□
Len□th□ 40.0□ Slope□ 0.0200 □/□
Inlet Invert□ 706.10□, Outlet Invert□ 705.30□

□

Reach □□R□: S□ale to north o□lot □



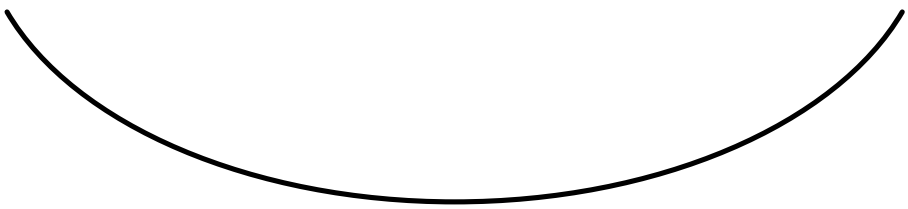
Su□ □ary □or Reach □□R□: Drainage □ath □ro□ north o□lot □to D□□

Inflow Area □ 0.770 ac, 25.97□ Impervious, Inflow Depth □ 0.00" for 10 year storm event
Inflow □ 0.00 cfs □ 5.00 hrs, Volume□ 0.000 af
Outflow □ 0.00 cfs □ 5.00 hrs, Volume□ 0.000 af, Atten□ 0□, La□□ 0.0 min

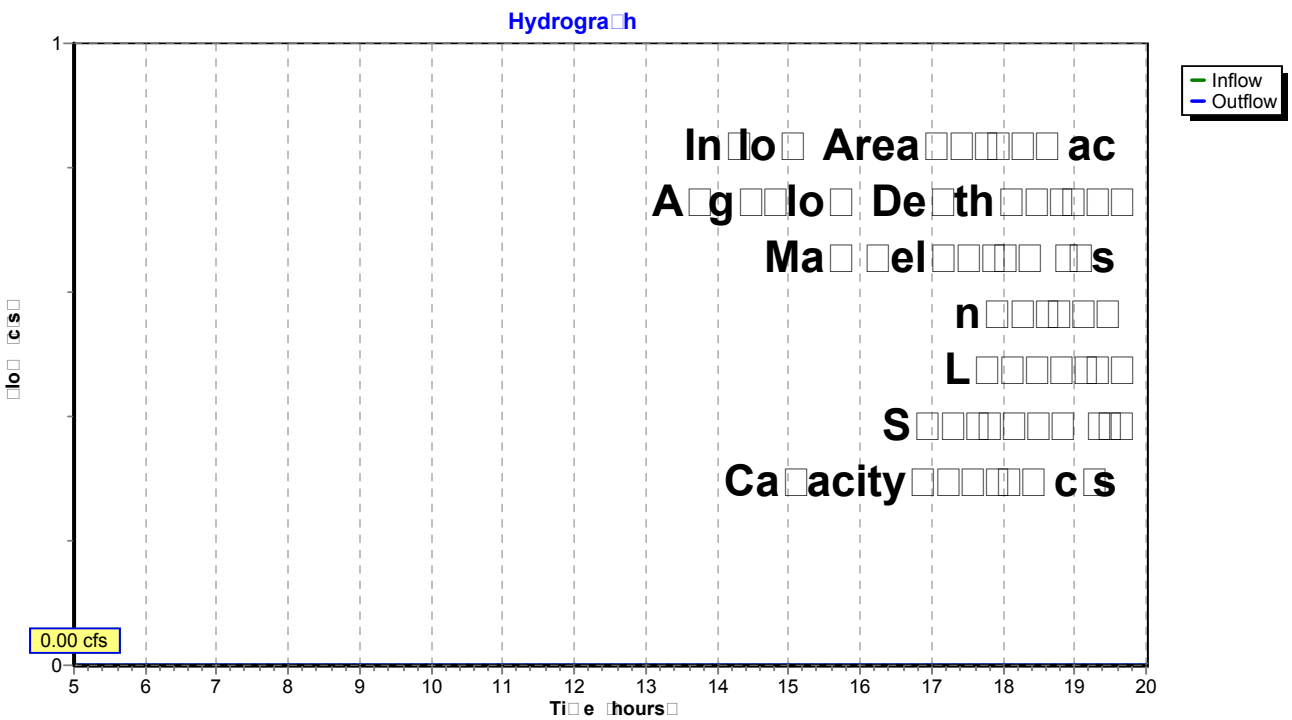
Routin□ by Stor-Ind□Trans method, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs
Max. Velocity□ 0.00 fps, Min. Travel Time□ 0.0 min
Av□. Velocity □ 0.00 fps, Av□. Travel Time□ 0.0 min

Peak Stora□e□ 0 cf □ 5.00 hrs
Avera□e Depth at Peak Stora□e□ 0.00□
Bank-Full Depth□ 1.00□Flow Area□ 3.3 sf, Capacity□ 48.28 cfs

5.00□x 1.00□deep Parabolic Channel, n□ 0.030 Stream, clean & strai□ht
Len□th□ 505.0□ Slope□ 0.1663 □/□
Inlet Invert□ 708.00□, Outlet Invert□ 624.00□



Reach □□R□: Drainage □ath □ro□ north o□lot □to D□□



Su□ □ary □or Reach □□R: Drainage □ath □ro□ □ar□ing □and □to D□□

Inflow Area □ 1.790 ac, 55.31□ Impervious, Inflow Depth □ 0.00" for 10 year storm event
Inflow □ 0.00 cfs □ 5.00 hrs, Volume□ 0.000 af
Outflow □ 0.00 cfs □ 5.00 hrs, Volume□ 0.000 af, Atten□ 0□, La□□ 0.0 min

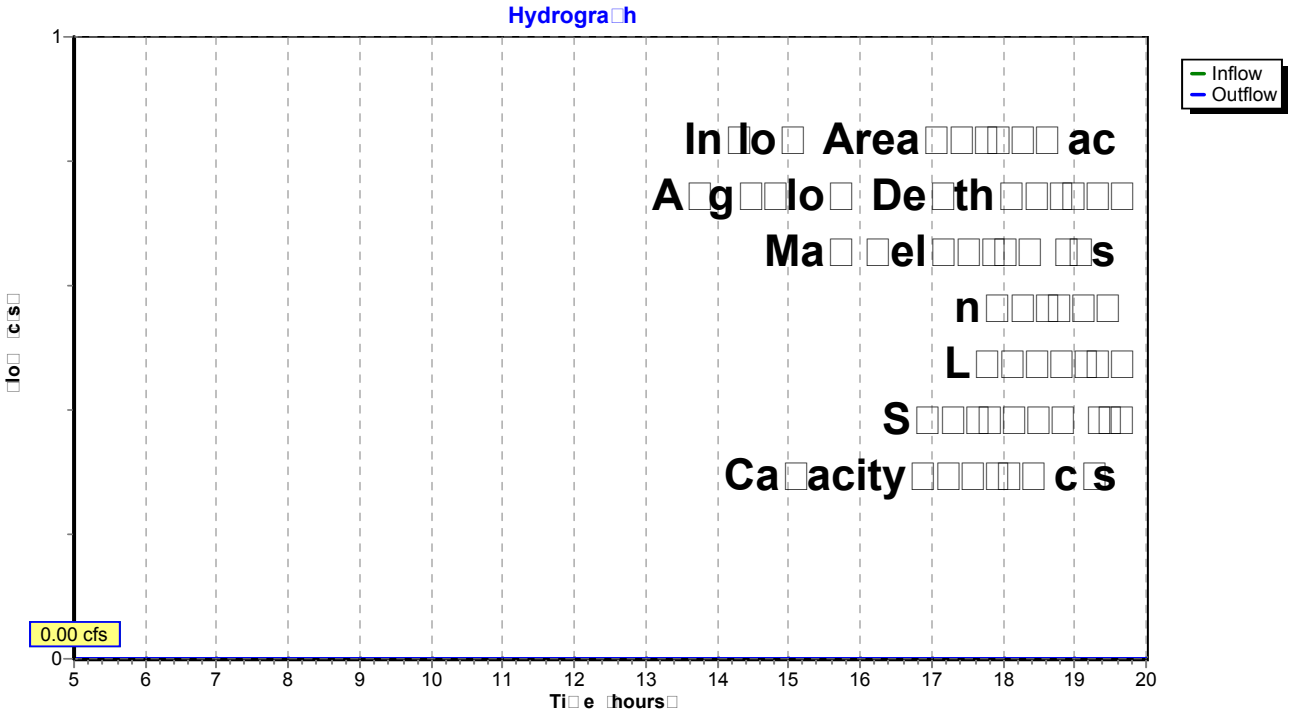
Routin□ by Stor-Ind□Trans method, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs
Max. Velocity□ 0.00 fps, Min. Travel Time□ 0.0 min
Av□. Velocity □ 0.00 fps, Av□. Travel Time□ 0.0 min

Peak Stora□e□ 0 cf □ 5.00 hrs
Avera□e Depth at Peak Stora□e□ 0.00□
Bank-Full Depth□ 1.00□Flow Area□ 14.0 sf, Capacity□ 50.56 cfs

10.00□x 1.00□deep channel, n□ 0.130 Sheet flow over Ran□e
Side Slope Z-value□ 4.0 □/□ Top Width□ 18.00□
Len□th□ 380.0□ Slope□ 0.1421 □/□
Inlet Invert□ 678.00□, Outlet Invert□ 624.00□

□

Reach □□R: Drainage □ath □ro□ □ar□ing □and □to D□□



Su□ □ary □or Reach □□R□: S□ale to □ard Drain

Inflow Area □ 0.540 ac, 31.48□ Impervious, Inflow Depth □ 0.00" for 10 year storm event
Inflow □ 0.00 cfs □ 5.00 hrs, Volume□ 0.000 af
Outflow □ 0.00 cfs □ 5.00 hrs, Volume□ 0.000 af, Atten□ 0□, La□□ 0.0 min

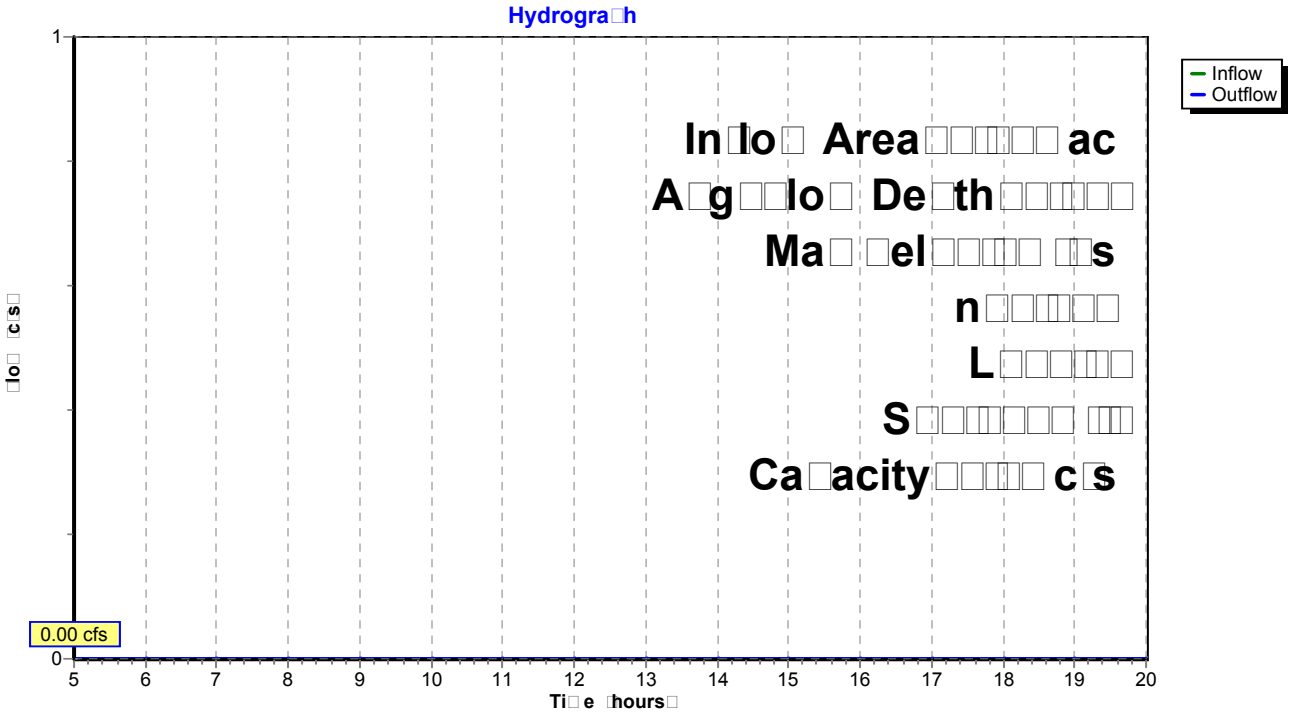
Routin□ by Stor-Ind□Trans method, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs
Max. Velocity□ 0.00 fps, Min. Travel Time□ 0.0 min
Av□. Velocity □ 0.00 fps, Av□. Travel Time□ 0.0 min

Peak Stora□e□ 0 cf □ 5.00 hrs
Avera□e Depth at Peak Stora□e□ 0.00□
Bank-Full Depth□ 0.50□Flow Area□ 1.1 sf, Capacity□ 3.55 cfs

0.67□x 0.50□deep channel, n□ 0.030 Stream, clean & strai□ht
Side Slope Z-value□ 3.0 □/□ Top Width□ 3.67□
Len□th□ 85.0□ Slope□ 0.0235 □/□
Inlet Invert□ 707.90□, Outlet Invert□ 705.90□

□

Reach □□R□: S□ale to □ard Drain



Su□ □ ary □or □ond □□□: □ar□ing □in□iltration to design □oint □

Inflow Area □ 0.590 ac, 38.98□ Impervious, Inflow Depth □ 2.19" for 10 year storm event
Inflow □ 1.63 cfs □ 12.08 hrs, Volume□ 0.108 af
Outflow □ 0.35 cfs □ 11.85 hrs, Volume□ 0.108 af, Atten□ 78□, La□□ 0.0 min
Discarded □ 0.35 cfs □ 11.85 hrs, Volume□ 0.108 af
Primary □ 0.00 cfs □ 5.00 hrs, Volume□ 0.000 af

Routin□ by Stor-Ind method, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs / 4
Peak Elev□ 694.26□□ 12.52 hrs Surf.Area□ 1,533 sf Stora□e□ 1,226 cf

Plu□-Flow detention time□ 22.6 min calculated for 0.107 af □100□ of inflow□
Center-of-Mass det. time□ 22.0 min □821.9 - 799.9 □

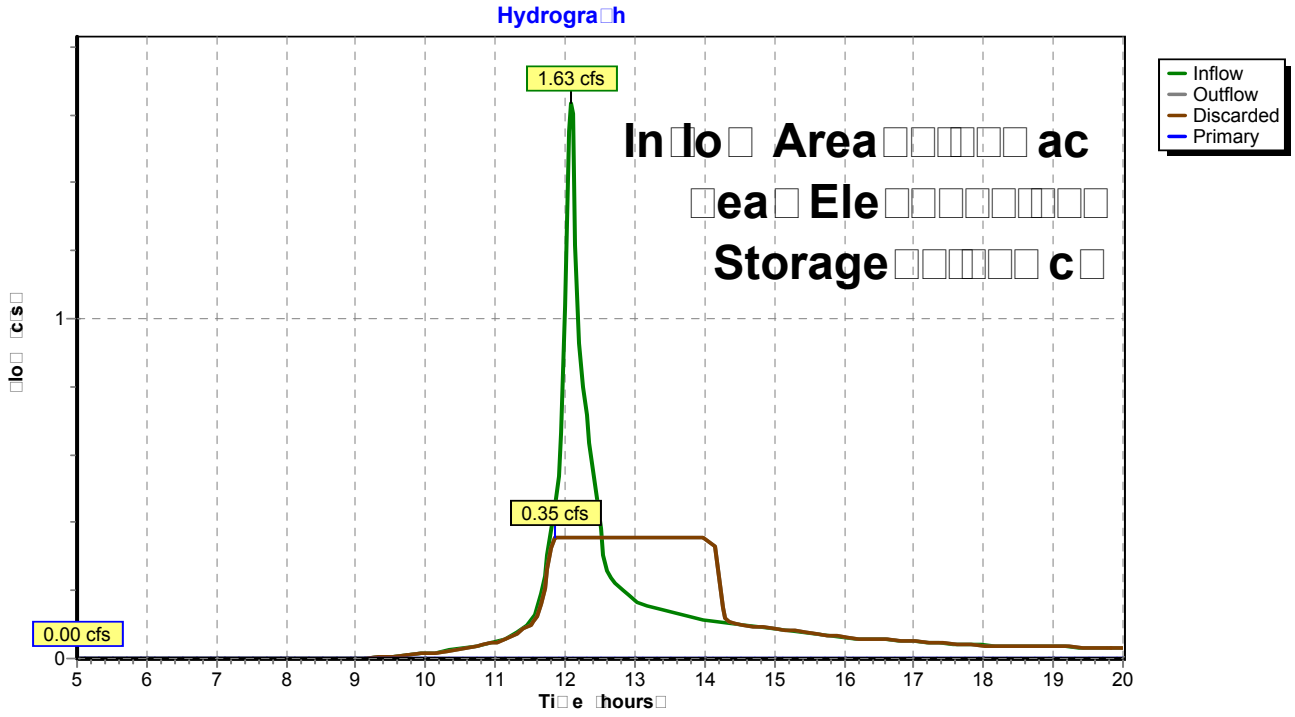
Volume	Invert	Avail.Stora□e	Stora□e Description
□1	693.00□	1,127 cf	□□□□□□**W** □ □□□□□□**L** □ □□□□□**H** □**ris**□ **atoid**
			5,351 cf Overall - 2,131 cf Embedded □ 3,220 cf x 35.0□ Voids
□2	693.50□	2,131 cf	**Cultec R**□□□□□□**L** □ □□□□□□□□**L** Inside □1
			Effective Si□e□ 47.8"W x 30.0"H □□ 7.45 sf x 284.50□L □ 2,119.8 cf
			Overall Si□e□ 52.0"W x 30.5"H x 8.50□L with 1.50□Overlap
			Row Len□th Adjustment□ □1.50□x 7.45 sf x 1 rows
□3	693.00□	36 cf	□□□□□**W** □ □□□□□**L** □ □□□□□**H** □**ris**□ **atoid**
		3,294 cf	Total Available Stora□e

Device	Routin□	Invert	Outlet Devices
□1	Primary	700.00□	□□□□**" W** □ □□□□**" H** □**ert**□**Ori**□**ice**□**Grate** C□ 0.600
□2	Discarded	693.00□	□□□□□□□**in**□**hr E**□□**iltration o**□**er Hori**□**ontal area**

Discarded Out□**lo**□ Max□0.35 cfs □ 11.85 hrs HW□693.10□ □Free Discha□e□
└□□**E**□□**iltration** □Exfiltration Controls 0.35 cfs□

□**ri**□ **ary Out**□**lo**□ Max□0.00 cfs □ 5.00 hrs HW□693.00□ □Free Discha□e□
└□□**Ori**□**ice**□**Grate** □Controls 0.00 cfs□

□ond □□□: □ar□ing □in□iltration to design □oint □



Su□ □ary □or □ond □□□: □ar□ing □south in□iltration

Inflow Area □	1.090 ac,	62.39□ Impervious,	Inflow Depth □	2.98" for 10 year storm event
Inflow □	4.05 cfs □	12.08 hrs,	Volume□	0.271 af
Outflow □	0.75 cfs □	12.10 hrs,	Volume□	0.271 af, Atten□ 81□ , La□□ 1.5 min
Discarded □	0.75 cfs □	12.10 hrs,	Volume□	0.271 af
Primary □	0.00 cfs □	5.00 hrs,	Volume□	0.000 af

Routin□ by Stor-Ind method, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs / 2
Peak Elev□ 699.74□□ 12.53 hrs Surf.Area□ 3,256 sf Stora□e□ 3,361 cf

Plu□-Flow detention time□ □not calculated: outflow precedes inflow□
Center-of-Mass det. time□ 28.5 min □809.5 - 780.9 □

Volume	Invert	Avail.Stora□e	Stora□e Description
□1	698.20□	2,348 cf	**Custo□ Stage Data □□ris□ atic□**Listed below □Recalc□ 11,377 cf Overall - 4,668 cf Embedded □ 6,709 cf x 35.0□ Voids
□2	698.70□	4,668 cf	**Cultec R□□□□□L □ □□□□□□L** Inside □1 Effective Si□e□ 47.8"W x 30.0"H □□ 7.45 sf x 625.00□L □ 4,656.9 cf Overall Si□e□ 52.0"W x 30.5"H x 8.50□L with 1.50□Overlap Row Len□th Adjustment□ □1.50□x 7.45 sf x 1 rows
□3	699.00□	55 cf	**□□□□W □ □□□□L □ □□□□H □ris□ atoid**
		7,071 cf	Total Available Stora□e

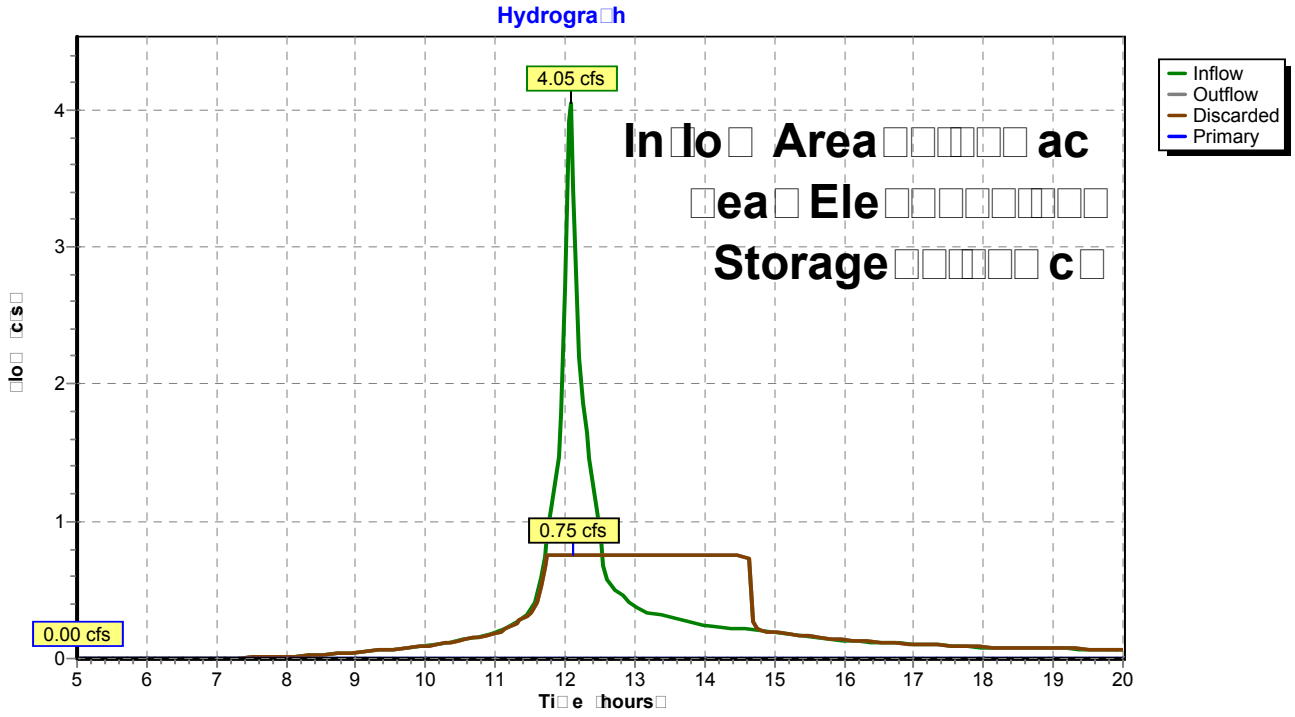
Elevation □feet□	Surf.Area □s□-ft□	Inc.Store □cubic-feet□	Cum.Store □cubic-feet□
698.20	3,246	0	0
701.70	3,246	11,361	11,361
701.71	0	16	11,377

Device	Routin□	Invert	Outlet Devices
□1	Primary	701.70□	□□□□" **Round Cul□ert** L□ 18.0□ RCP, s□uare ed□e headwall, Ke□ 0.500 Inlet / Outlet Invert□ 701.70□/ 698.00□ S□ 0.2056 □/□ Cc□ 0.900 n□ 0.012, Flow Area□ 1.23 sf
□2	Primary	703.70□	□□□□" □ □□□□" **Hori□□Ori□ice□Grate** C□ 0.600 Limited to weir flow at low heads
□3	Discarded	698.20□	□□□□□□ **in□hr E□□iltration o□er Hori□ontal area**

Discarded Out□lo□ Max□0.75 cfs □ 12.10 hrs HW□699.14□ □Free Discha□r□e□
└─□□**E□□iltration** □Exfiltration Controls 0.75 cfs□

□ri□ ary Out□lo□ Max□0.00 cfs □ 5.00 hrs HW□698.20□ □Free Discha□r□e□
├─□□**Cul□ert** □Controls 0.00 cfs□
└─□□**Ori□ice□Grate** □Controls 0.00 cfs□

□ond □□□: □ar□ing □south in□iltration



Su□ □ ary □or □ond □□□: □ar□ing □ in□iltration

Inflow Area □	0.770 ac,	25.97□ Impervious,	Inflow Depth □	1.65" for 10 year storm event
Inflow □	1.58 cfs □	12.09 hrs,	Volume□	0.106 af
Outflow □	0.29 cfs □	12.00 hrs,	Volume□	0.106 af, Atten□ 82□ , La□□ 0.0 min
Discarded □	0.29 cfs □	12.00 hrs,	Volume□	0.106 af
Primary □	0.00 cfs □	5.00 hrs,	Volume□	0.000 af

Routin□ by Stor-Ind method, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs / 2
Peak Elev□ 711.23□□ 12.59 hrs Surf.Area□ 1,242 sf Stora□e□ 1,326 cf

Plu□-Flow detention time□ 33.6 min calculated for 0.106 af □100□ of inflow□
Center-of-Mass det. time□ 33.2 min □846.9 - 813.7 □

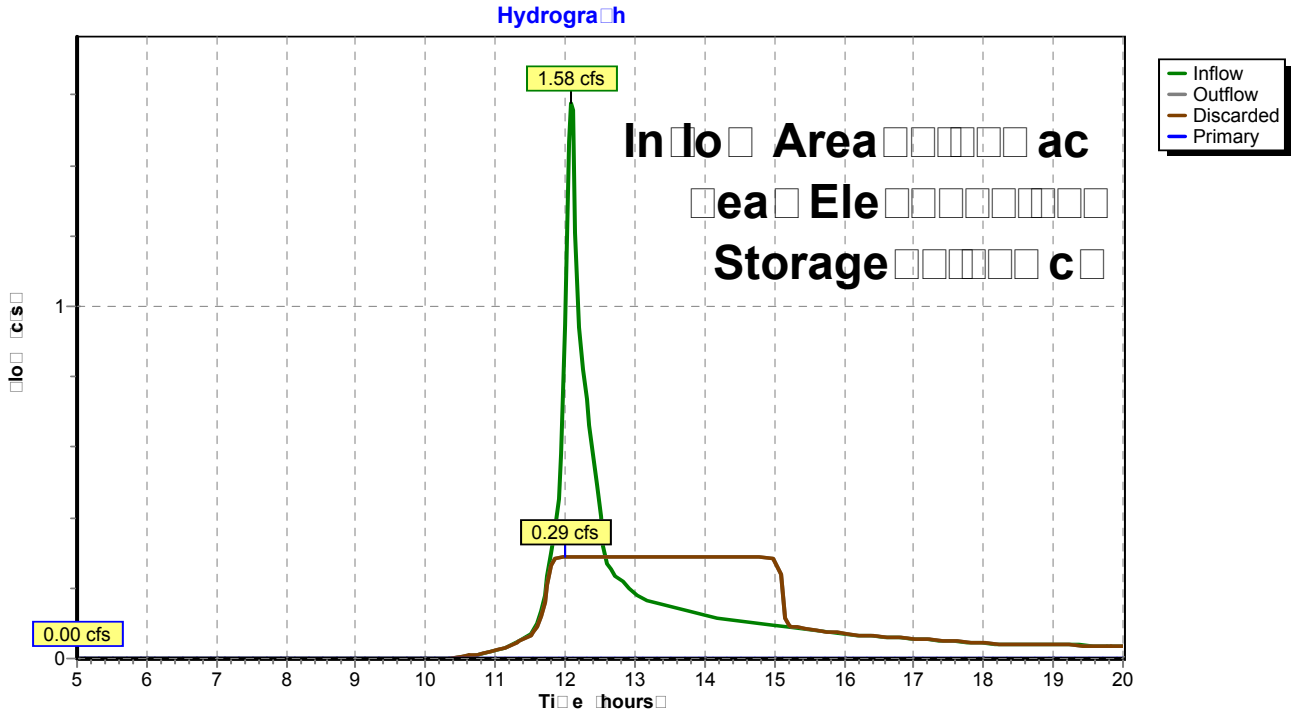
Volume	Invert	Avail.Stora□e	Stora□e Description
□1	709.60□	716 cf	□□□□□**W** □ □□□□□**L** □ □□□□□**H** □**ris**□ **atoid** 3,332 cf Overall - 1,285 cf Embedded □ 2,047 cf x 35.0□ Voids
□2	710.10□	1,285 cf	**Cultec R**□□□□□**L** □ □□□□□□□**L** Inside □1 Effective Si□e□ 47.8"W x 30.0"H □□ 7.45 sf x 171.00□L □ 1,274.1 cf Overall Si□e□ 52.0"W x 30.5"H x 8.50□L with 1.50□Overlap Row Len□th Adjustment□ □1.50□x 7.45 sf x 1 rows
□3	709.60□	222 cf	□□□□□**W** □ □□□□□**L** □ □□□□□**H** □**ris**□ **atoid** 980 cf Overall - 346 cf Embedded □ 634 cf x 35.0□ Voids
□4	710.10□	346 cf	**Cultec R**□□□□□**L** □ □□□□□□**L** Inside □3 Effective Si□e□ 47.8"W x 30.0"H □□ 7.45 sf x 45.00□L □ 335.3 cf Overall Si□e□ 52.0"W x 30.5"H x 8.50□L with 1.50□Overlap Row Len□th Adjustment□ □1.50□x 7.45 sf x 1 rows
□5	710.00□	60 cf	□□□□**W** □ □□□□**L** □ □□□□**H** □**ris**□ **atoid**
		2,630 cf	Total Available Stora□e

Device	Routin□	Invert	Outlet Devices
□1	Primary	713.10□	□□□□**" Round Cul□ert** L□ 72.0□ RCP, s□uare ed□e headwall, Ke□ 0.500 Inlet / Outlet Invert□ 713.10□/ 712.00□ S□ 0.0153 □/□ Cc□ 0.900 n□ 0.012, Flow Area□ 0.79 sf
□2	Primary	715.10□	□□□□**" □ □□□□" Hori□□Ori□ice□Grate** C□ 0.600 Limited to weir flow at low heads
□3	Discarded	709.60□	□□□□□□**in□hr E□□iltration o□er Hori□ontal area**

Discarded Out□lo□ Max□0.29 cfs □ 12.00 hrs HW□710.03□ □Free Discha□r□e□
└─□□**E□□iltration** □Exfiltration Controls 0.29 cfs□

□**ri□ ary Out□lo□** Max□0.00 cfs □ 5.00 hrs HW□709.60□ □Free Discha□r□e□
├─□□**Cul□ert** □Controls 0.00 cfs□
└─□□**Ori□ice□Grate** □Controls 0.00 cfs□

□ond □□□: □ar□ing □in□iltration



Su□ □ ary □or □ond □□□: □ar□ing □north in□iltration

Inflow Area □ 0.160 ac, 87.50□ Impervious, Inflow Depth □ 4.07" for 10 year storm event
Inflow □ 0.76 cfs □ 12.07 hrs, Volume□ 0.054 af
Outflow □ 0.19 cfs □ 11.80 hrs, Volume□ 0.054 af, Atten□ 75□ , La□□ 0.0 min
Discarded □ 0.19 cfs □ 11.80 hrs, Volume□ 0.054 af
Primary □ 0.00 cfs □ 5.00 hrs, Volume□ 0.000 af

Routin□ by Stor-Ind method, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs / 2
Peak Elev□ 697.92□□ 12.43 hrs Surf.Area□ 840 sf Stora□e□ 497 cf

Plu□-Flow detention time□ □not calculated: outflow precedes inflow□
Center-of-Mass det. time□ 13.6 min □763.8 - 750.2 □

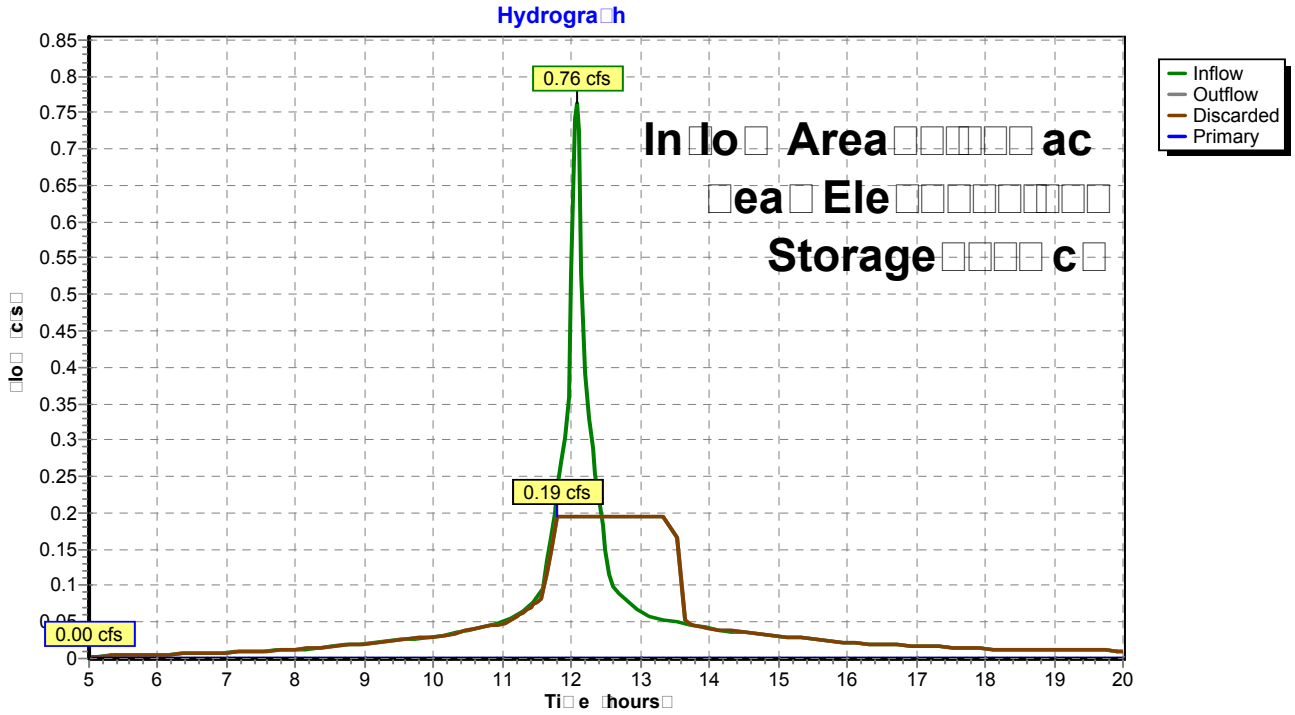
Volume	Invert	Avail.Stora□e	Stora□e Description
□1	696.90□	634 cf	□□□□□**W** □ □□□□□**L** □ □□□□□**H** □**ris**□ **atoid**
			2,940 cf Overall - 1,129 cf Embedded □ 1,811 cf x 35.0□ Voids
□2	697.40□	1,129 cf	**Cultec R**□□□□□**L** □ □□□□□□□**L** Inside □1
			Effective Si□e□ 47.8"W x 30.0"H □□ 7.45 sf x 150.00□L □ 1,117.7 cf
			Overall Si□e□ 52.0"W x 30.5"H x 8.50□L with 1.50□Overlap
			Row Len□th Adjustment□ □1.50□x 7.45 sf x 1 rows
□3	698.40□	50 cf	□□□□□**W** □ □□□□□**L** □ □□□□□**H** □**ris**□ **atoid**
		1,813 cf	Total Available Stora□e

Device	Routin□	Invert	Outlet Devices
□1	Primary	700.40□	□□□□**" Round Cul□ert**
			L□ 62.0□ RCP, s□uare ed□e headwall, Ke□ 0.500
			Inlet / Outlet Invert□ 700.40□/ 698.00□ S□ 0.0387 □/□ Cc□ 0.900
			n□ 0.012, Flow Area□ 0.79 sf
□2	Primary	702.40□	□□□□**" W** □ □□□□**" H** □**ert□Ori□ice□Grate** C□ 0.600
□3	Discarded	696.90□	□□□□□□□**in□hr E□□iltration o□er Hori□ontal area**

Discarded Out□lo□ Max□0.19 cfs □ 11.80 hrs HW□696.98□ □Free Discha□e□
└─□□**E□□iltration** □Exfiltration Controls 0.19 cfs□

□**ri□ ary Out□lo□** Max□0.00 cfs □ 5.00 hrs HW□696.90□ □Free Discha□e□
├─□□**Cul□ert** □Controls 0.00 cfs□
└─□□**Ori□ice□Grate** □Controls 0.00 cfs□

□ond □□□: □ar□ing □north in□iltration



Su□ □ary □or □ond □□□: □ar□ing □in□iltration

Inflow Area □ 0.540 ac, 31.48□ Impervious, Inflow Depth □ 2.53" for 10 year storm event
Inflow □ 1.72 cfs □ 12.08 hrs, Volume□ 0.114 af
Outflow □ 0.30 cfs □ 12.00 hrs, Volume□ 0.114 af, Atten□ 83□, La□□ 0.0 min
Discarded □ 0.30 cfs □ 12.00 hrs, Volume□ 0.114 af
Primary □ 0.00 cfs □ 5.00 hrs, Volume□ 0.000 af

Routin□ by Stor-Ind method, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs / 2
Peak Elev□ 729.27□□ 12.56 hrs Surf.Area□ 1,298 sf Stora□e□ 1,485 cf

Plu□-Flow detention time□ 33.9 min calculated for 0.113 af □100□ of inflow□
Center-of-Mass det. time□ 33.8 min □825.6 - 791.8 □

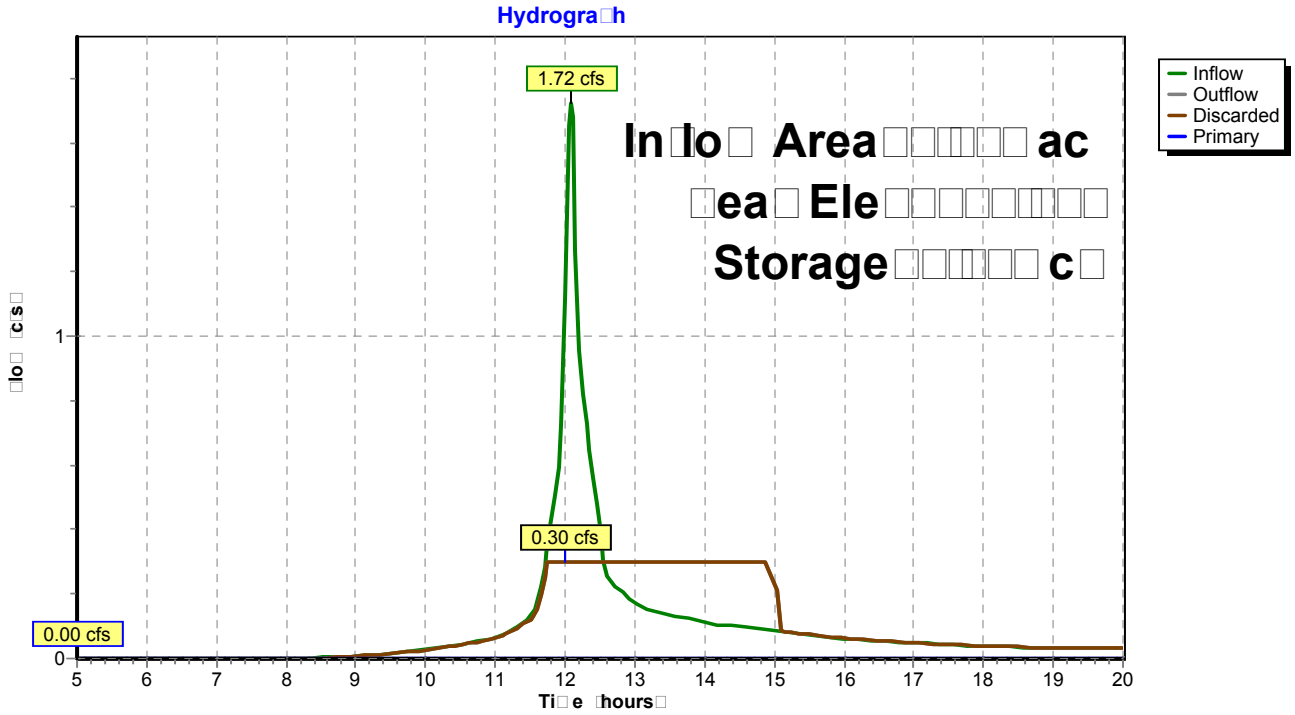
Volume	Invert	Avail.Stora□e	Stora□e Description
□1	727.50□	1,007 cf	□□□□□□**W** □ □□□□□□**L** □ □□□□□**H** □**ris**□**atoid**
			4,508 cf Overall - 1,632 cf Embedded □ 2,876 cf x 35.0□ Voids
□2	728.00□	1,632 cf	**Cultec R**□□□□□**L** □ □□□□□□□**L** Inside □1
			Effective Si□e□ 47.8"W x 30.0"H □□ 7.45 sf x 217.50□L □ 1,620.6 cf
			Overall Si□e□ 52.0"W x 30.5"H x 8.50□L with 1.50□Overlap
			Row Len□th Adjustment□ □1.50□x 7.45 sf x 1 rows
□3	728.00□	60 cf	□□□□□**W** □ □□□□□**L** □ □□□□□**H** □**ris**□**atoid**
		2,698 cf	Total Available Stora□e

Device	Routin□	Invert	Outlet Devices
□1	Primary	731.00□	□□□□**" Round Cul□ert**
			L□ 8.0□ RCP, s□uare ed□e headwall, Ke□ 0.500
			Inlet / Outlet Invert□ 731.00□/ 729.00□ S□ 0.2500 □/□ Cc□ 0.900
			n□ 0.012, Flow Area□ 0.79 sf
□2	Primary	733.00□	□□□□**" □ □□□□" Hori□□Ori□ice□Grate** C□ 0.600
			Limited to weir flow at low heads
□3	Discarded	727.50□	□□□□□□**in□hr E□□iltration o□er Hori□ontal area**

Discarded Out□lo□ Max□0.30 cfs □ 12.00 hrs HW□728.07□ □Free Discha□e□
└─□□**E□□iltration** □Exfiltration Controls 0.30 cfs□

□**ri□ ary Out□lo□** Max□0.00 cfs □ 5.00 hrs HW□727.50□ □Free Discha□e□
└─□□**Cul□ert** □Controls 0.00 cfs□
└─□□**Ori□ice□Grate** □Controls 0.00 cfs□

□ond □□□: □ar□ing □in□iltration



Su□ □ary □or □ond MH□: MH□ to □lo□ di□□user

Inflow Area □ 1.790 ac, 55.31□ Impervious, Inflow Depth □ 0.00" for 10 year storm event
Inflow □ 0.00 cfs □ 5.00 hrs, Volume□ 0.000 af
Outflow □ 0.00 cfs □ 5.00 hrs, Volume□ 0.000 af, Atten□ 0□, La□□ 0.0 min
Primary □ 0.00 cfs □ 5.00 hrs, Volume□ 0.000 af

Routin□ by Stor-Ind method, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs / 3
Peak Elev□ 697.80□□ 5.00 hrs Surf.Area□ 13 sf Stora□e□ 0 cf

Plu□-Flow detention time□ □not calculated: initial stora□e excedes outflow□
Center-of-Mass det. time□ □not calculated: no inflow□

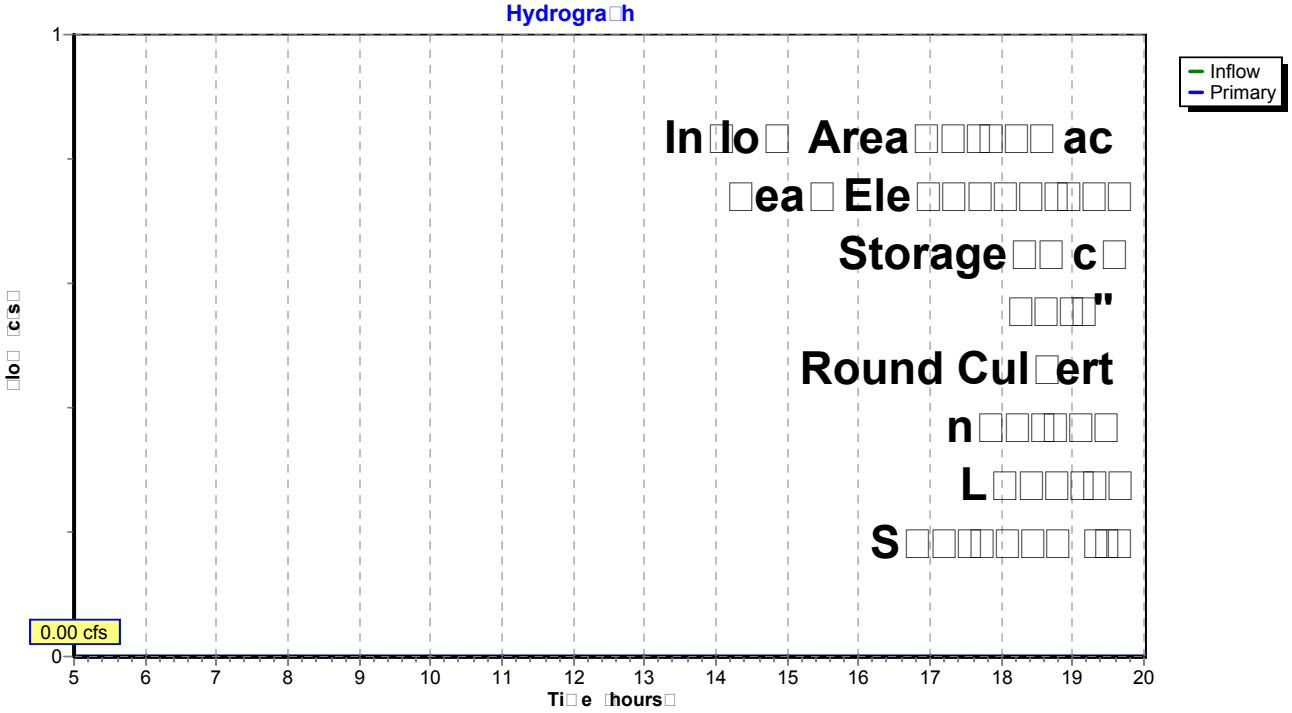
Volume	Invert	Avail.Stora□e	Stora□e Description
□1	697.80□	48 cf	**Custo□ Stage Data □□ris□ atic□**Listed below □Recalc□

Elevation □feet□	Surf.Area □s□-ft□	Inc.Store □cubic-feet□	Cum.Store □cubic-feet□
697.80	13	0	0
701.50	13	48	48

Device	Routin□	Invert	Outlet Devices
□1	Primary	697.80□	□□□□" **Round Cul□ert** L□ 45.0□ RCP, s□uare ed□e headwall, Ke□ 0.500 Inlet / Outlet Invert□ 697.80□/ 678.00□ S□ 0.4400 □/□ Cc□ 0.900 n□ 0.012, Flow Area□ 1.23 sf

□**ri□ ary Out□lo□** Max□0.00 cfs □ 5.00 hrs HW□697.80□ □Free Dischar□e□
└□□**Cul□ert** □Controls 0.00 cfs□

□ond MH□: MH□ to □lo□ di□□user



Su□ □ary □or □ond □D: □ard Drain to MH□

Inflow Area □ 0.540 ac, 31.48□ Impervious, Inflow Depth □ 0.00" for 10 year storm event
Inflow □ 0.00 cfs □ 5.00 hrs, Volume□ 0.000 af
Outflow □ 0.00 cfs □ 5.00 hrs, Volume□ 0.000 af, Atten□ 0□ , La□□ 0.0 min
Primary □ 0.00 cfs □ 5.00 hrs, Volume□ 0.000 af

Routin□ by Stor-Ind method, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs
Peak Elev□ 703.00□□ 5.00 hrs Surf.Area□ 4 sf Stora□e□ 0 cf

Plu□-Flow detention time□ □not calculated: initial stora□e excedes outflow□
Center-of-Mass det. time□ □not calculated: no inflow□

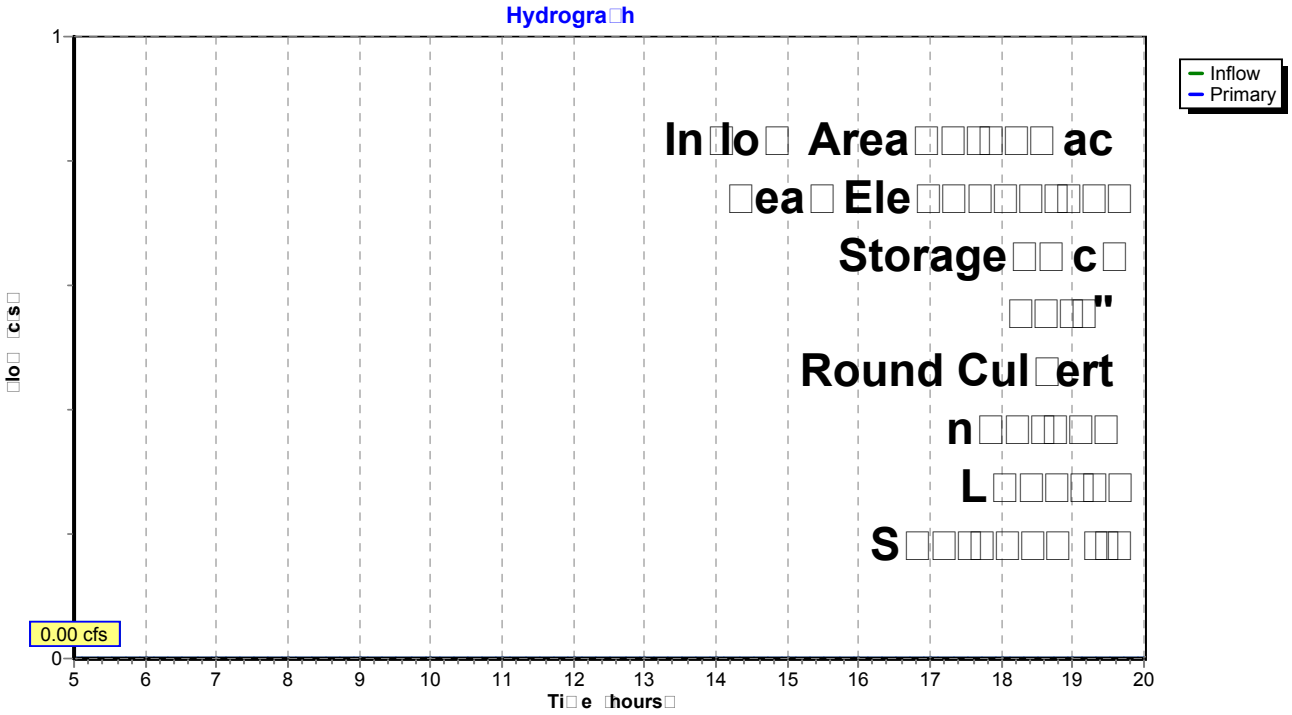
Volume	Invert	Avail.Stora□e	Stora□e Description
□1	703.00□	12 cf	**Custo□ Stage Data □□ris□ atic□**Listed below □Recalc□

Elevation □feet□	Surf.Area □s□-ft□	Inc.Store □cubic-feet□	Cum.Store □cubic-feet□
703.00	4	0	0
706.00	4	12	12

Device	Routin□	Invert	Outlet Devices
□1	Primary	703.00□	□□□□" **Round Cul□ert** L□ 74.0□ RCP, s□uare ed□e headwall, Ke□ 0.500 Inlet / Outlet Invert□ 703.00□/ 698.00□ S□ 0.0676 □/□ Cc□ 0.900 n□ 0.012, Flow Area□ 0.79 sf

□**ri□ ary Out□lo□** Max□0.00 cfs □ 5.00 hrs HW□703.00□ □Free Dischar□e□
└□□**Cul□ert** □Controls 0.00 cfs□

□ond □D: □ard Drain to MH□

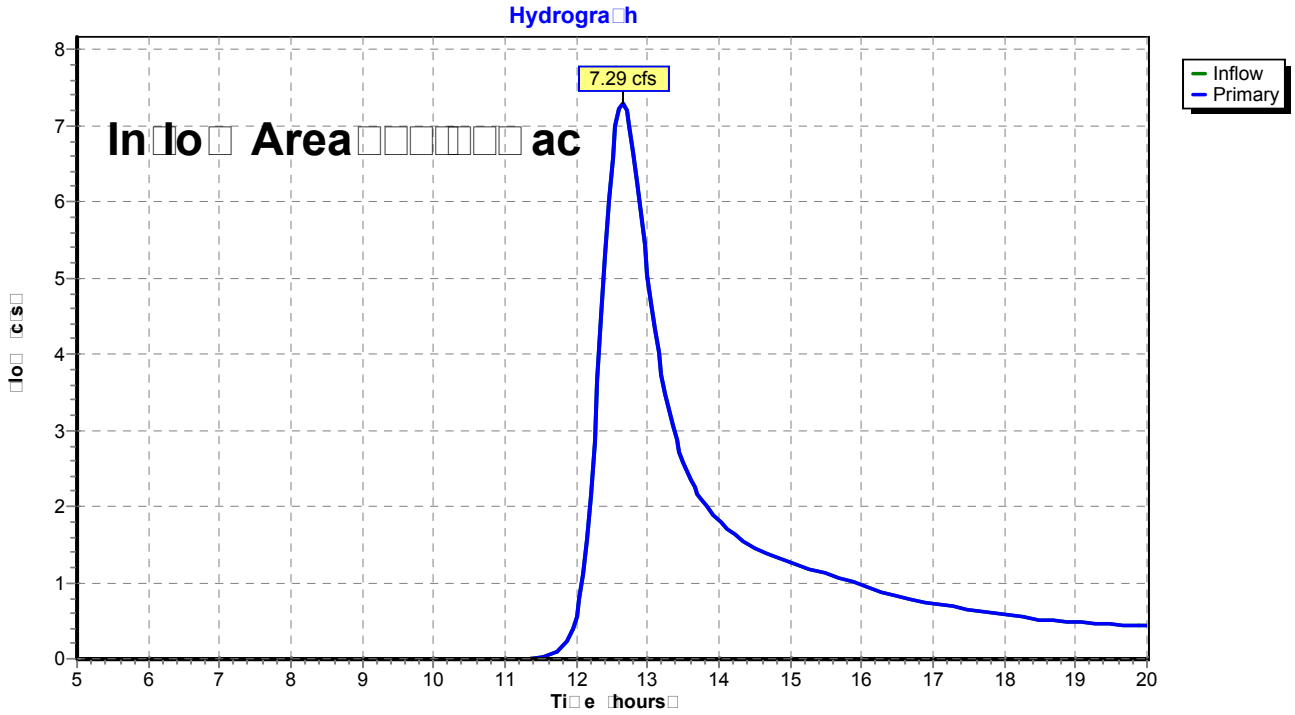


Su□ □ ary □or Lin□ □□L: □ost de□elo□□ ent design □oint □

Inflow Area □ 13.070 ac, 12.01□ Impervious, Inflow Depth □ 0.98" for 10 year storm event
Inflow □ 7.29 cfs □ 12.65 hrs, Volume□ 1.062 af
Primary □ 7.29 cfs □ 12.65 hrs, Volume□ 1.062 af, Atten□ 0□ , La□□ 0.0 min

Primary outflow □ Inflow, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs

Lin□ □□L: □ost de□elo□□ ent design □oint □



Su□ □ ary □or Su□catch□ ent □S: □re De□elo□□ ent to design □oint □

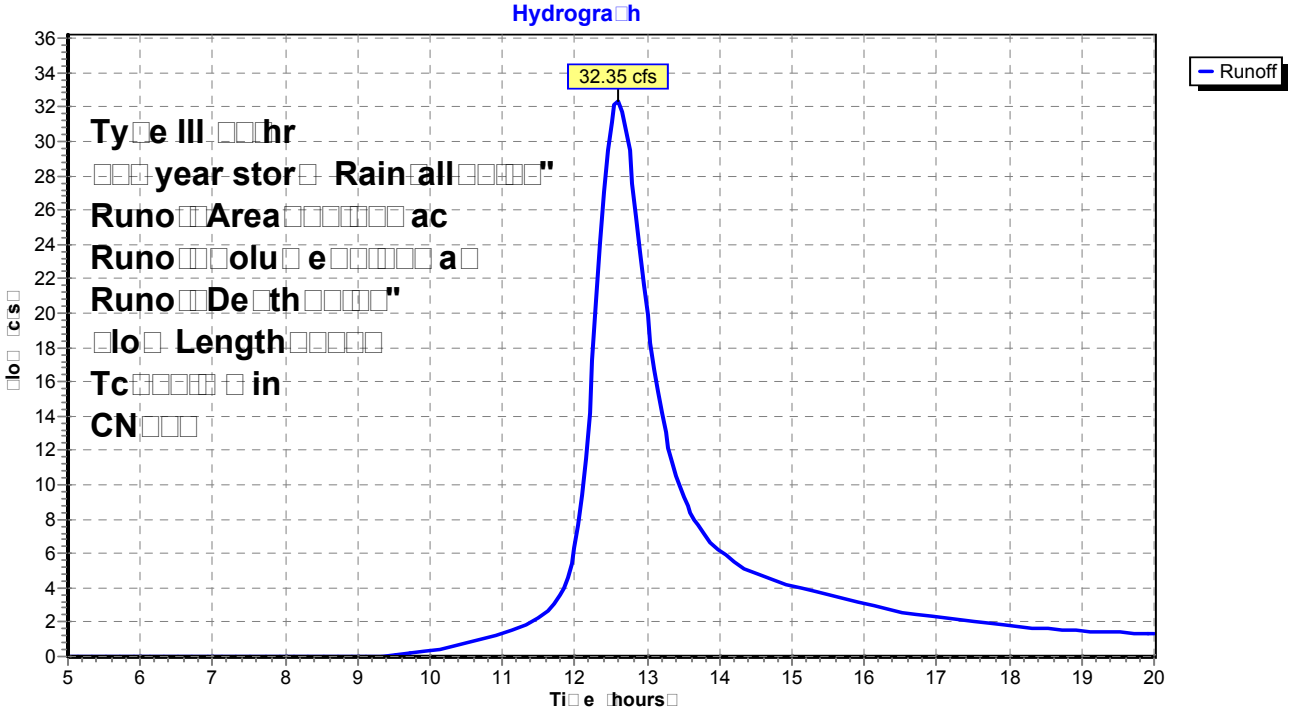
Runoff □ 32.35 cfs □ 12.59 hrs, Volume□ 4.414 af, Depth□ 4.04"

Runoff by SCS TR-20 method, UH□SCS, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs
Type III 24-hr 100 year storm Rainfall□9.08"

	Area □ac□	CN	Description
□	0.210	98	CT impervious, HSG B
□	0.200	61	CT □75□ Grass cover, Good, HSG B
□	1.070	55	CT Woods, Good, HSG B
□	0.940	77	CT Woods, Good, HSG D
□	0.140	98	offsite impervious, HSG B
□	0.340	61	offsite □75□ Grass cover, Good, HSG B
□	0.370	55	offsite Woods, Good, HSG B
□	0.800	98	impervoius, HSG B
	0.160	96	Gravel surface, HSG B
	1.950	61	□75□ Grass cover, Good, HSG B
	6.940	55	Woods, Good, HSG B
	13.120	62	Wei□hted Avera□e
	11.970		91.23□ Pervious Area
	1.150		8.77□ Impervious Area

Tc □min□	Len□th □feet□	Slope □ft/ft□	Velocity □ft/sec□	Capacity □cfs□	Description
30.0	100	0.0100	0.06		**Sheet □lo□ □sheet** Woods: Li□ht underbrush n□ 0.400 P2□ 2.85"
8.0	240	0.0100	0.50		**Shallo□ Concentrated □lo□ □shallo□ conc** Woodland Kv□ 5.0 fps
4.0	490	0.1700	2.06		**Shallo□ Concentrated □lo□ □shallo□ conc** Woodland Kv□ 5.0 fps
42.0	830	Total			

Su□catch□ ent □S: □re De□elo□□ ent to design □oint □



Su□ □ary □or Su□catch□ ent □S: □re De□elo□□ ent to design □oint □

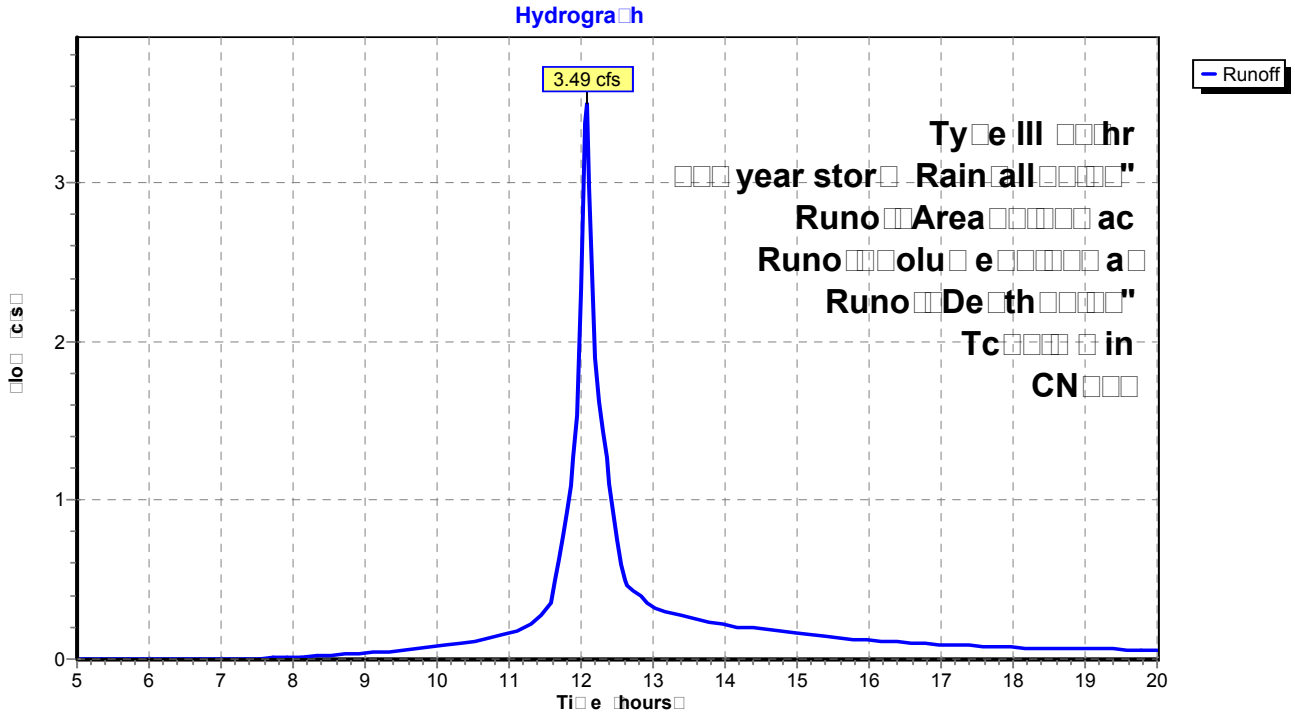
Runoff □ 3.49 cfs □ 12.08 hrs, Volume□ 0.233 af, Depth□ 5.18"

Runoff by SCS TR-20 method, UH□SCS, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs
Type III 24-hr 100 year storm Rainfall□9.08"

Area □ac□	CN	Description
□ 0.190	98	impervious, HSG B
0.040	61	□75□ Grass cover, Good, HSG B
0.310	55	Woods, Good, HSG B
0.540	71	Wei□hted Avera□e
0.350		64.81□ Pervious Area
0.190		35.19□ Impervious Area

Tc □min□	Len□th □feet□	Slope □ft/ft□	Velocity □ft/sec□	Capacity □cfs□	Description
5.0					**Direct Entry□□ □inute □ini□u□**

Su□catch□ ent □S: □re De□elo□□ ent to design □oint □



Su□ □ ary □or Su□catch□ ent □□S: □ost de□re□ainder to design □oint □

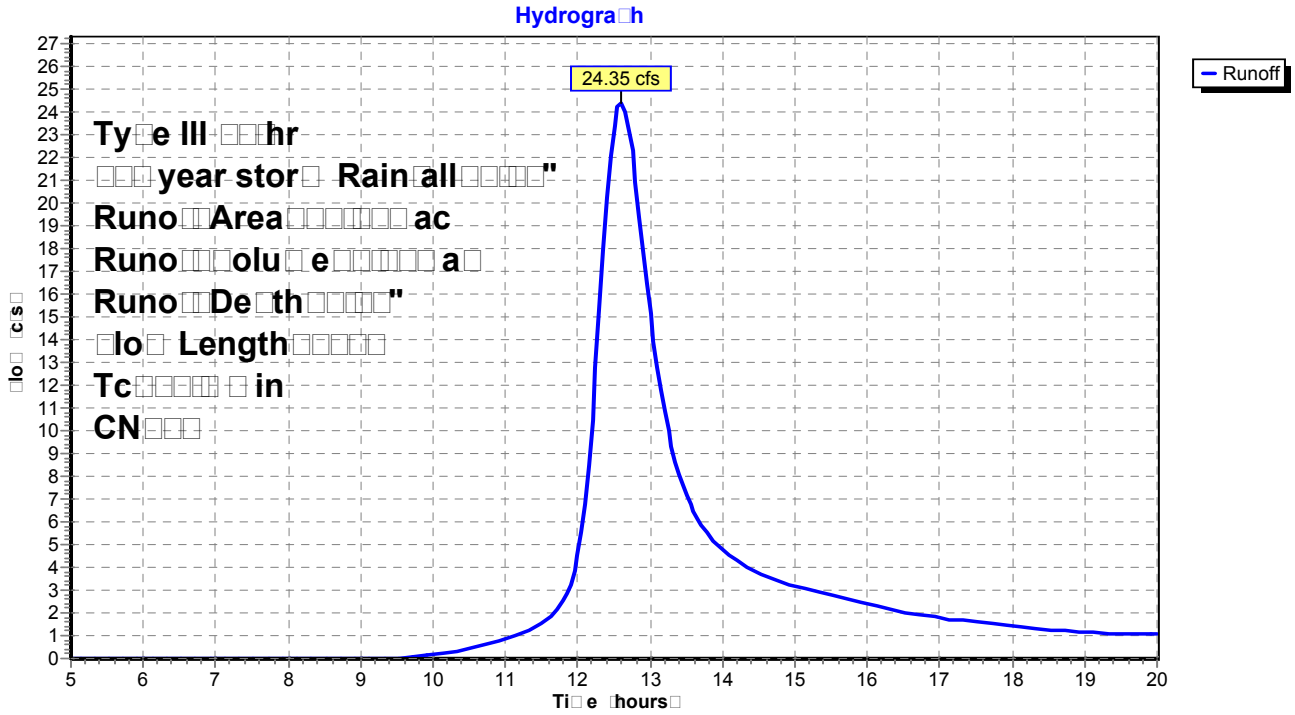
Runoff □ 24.35 cfs □ 12.60 hrs, Volume□ 3.328 af, Depth□ 3.80"

Runoff by SCS TR-20 method, UH□SCS, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs
Type III 24-hr 100 year storm Rainfall□9.08"

	Area □ac□	CN	Description
□	0.210	98	CT impervious, HSG B
□	0.200	61	CT □75□ Grass cover, Good, HSG B
□	1.070	55	CT Woods, Good, HSG B
□	0.940	77	CT Woods, Good, HSG D
□	0.140	98	offsite impervious, HSG B
□	0.340	61	offsite □75□ Grass cover, Good, HSG B
□	0.370	55	offsite Woods, Good, HSG B
□	0.030	98	impervoius, HSG B
	2.060	61	□75□ Grass cover, Good, HSG B
	5.150	55	Woods, Good, HSG B
	10.510	60	Wei□hted Avera□e
	10.130		96.38□ Pervious Area
	0.380		3.62□ Impervious Area

Tc □min□	Len□th □feet□	Slope □ft/ft□	Velocity □ft/sec□	Capacity □cfs□	Description
30.0	100	0.0100	0.06		**Sheet □lo□ □sheet** Woods: Li□ht underbrush n□ 0.400 P2□ 2.85"
8.0	240	0.0100	0.50		**Shallo□ Concentrated □lo□ □shallo□ conc** Woodland Kv□ 5.0 fps
4.0	490	0.1700	2.06		**Shallo□ Concentrated □lo□ □shallo□ conc** Woodland Kv□ 5.0 fps
42.0	830	Total			

Su□catch□ ent □□S: □ost de□re□ ainder to design □oint □



Su□ □ ary □or Su□catch□ ent □□S: □ost de□ to design □oint □

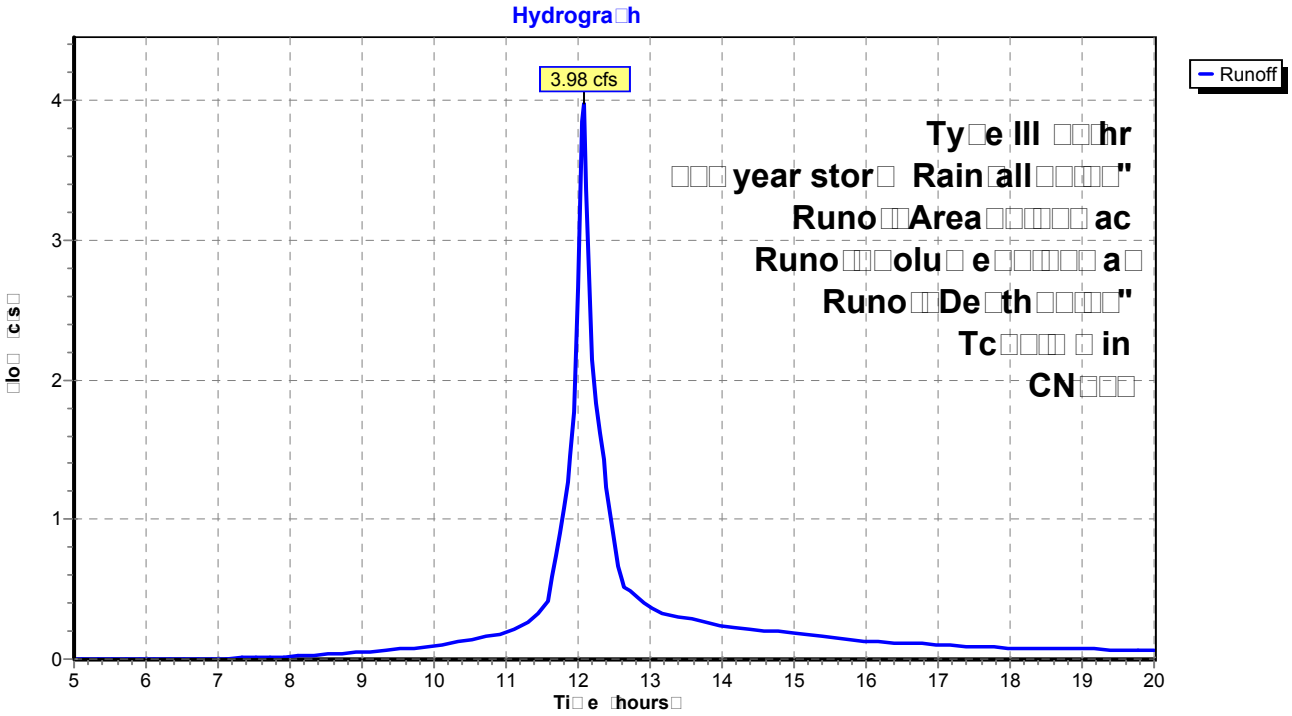
Runoff □ 3.98 cfs □ 12.08 hrs, Volume□ 0.266 af, Depth□ 5.42"

Runoff by SCS TR-20 method, UH□SCS, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs
Type III 24-hr 100 year storm Rainfall□9.08"

Area □ac□	CN	Description
□ 0.230	98	impervious, HSG B
0.080	61	□75□ Grass cover, Good, HSG B
0.280	55	Woods, Good, HSG B
0.590	73	Wei□hted Avera□e
0.360		61.02□ Pervious Area
0.230		38.98□ Impervious Area

Tc □min□	Len□th □feet□	Slope □ft/ft□	Velocity □ft/sec□	Capacity □cfs□	Description
5.0					**Direct Entry□□ □ inute □ ini□ u□**

Su□catch□ ent □□S: □ost de□ to design □oint □



Su□ □ary □or Su□catch□ ent □□S: □ost de□ □ar□ing area □□south

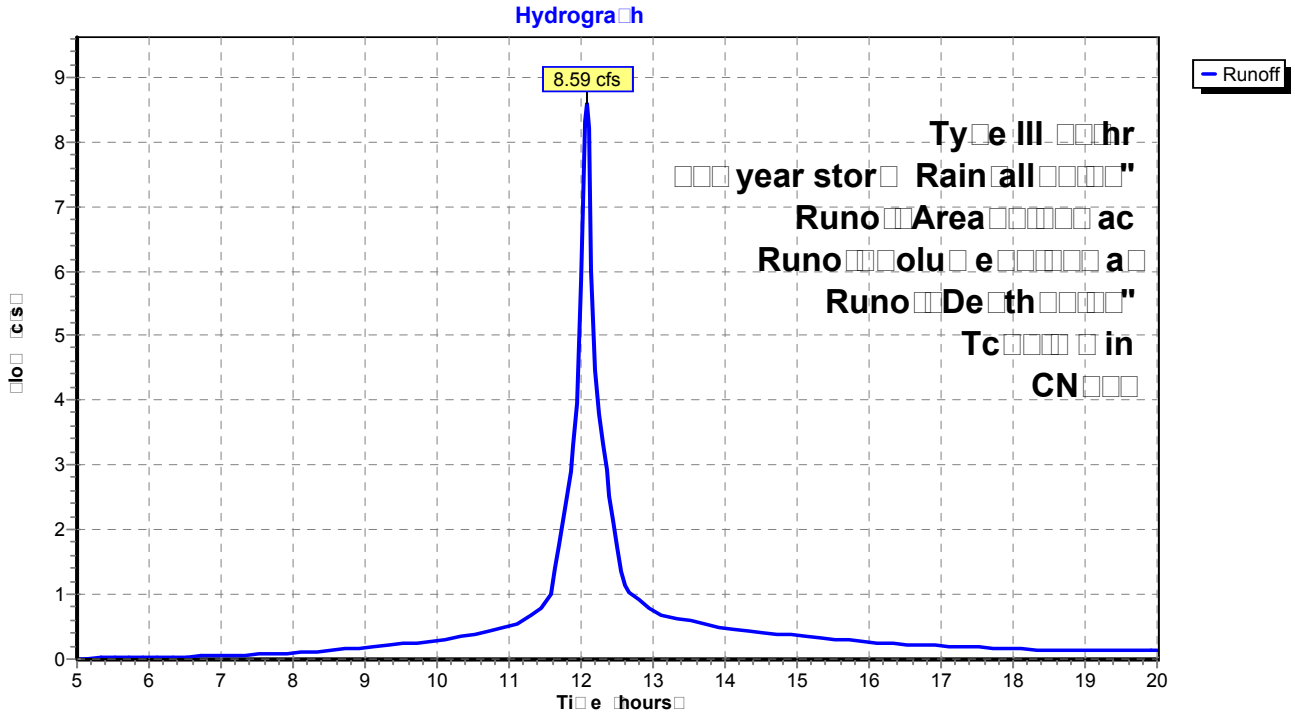
Runoff □ 8.59 cfs □ 12.07 hrs, Volume□ 0.591 af, Depth□ 6.51"

Runoff by SCS TR-20 method, UH□SCS, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs
Type III 24-hr 100 year storm Rainfall□9.08"

	Area □ac□	CN	Description
□	0.680	98	impervious, HSG B
	0.080	61	□75□ Grass cover, Good, HSG B
	0.330	55	Woods, Good, HSG B
	1.090	82	Wei□hted Avera□e
	0.410		37.61□ Pervious Area
	0.680		62.39□ Impervious Area

Tc □min□	Len□th □feet□	Slope □ft/ft□	Velocity □ft/sec□	Capacity □cfs□	Description
5.0					**Direct Entry□□ □inute □ini□u□**

Su□catch□ ent □□S: □ost de□ □ar□ing area □□south



Su□ □ ary □or Su□catch□ ent □□S: □ost de□ □ar□ing area □

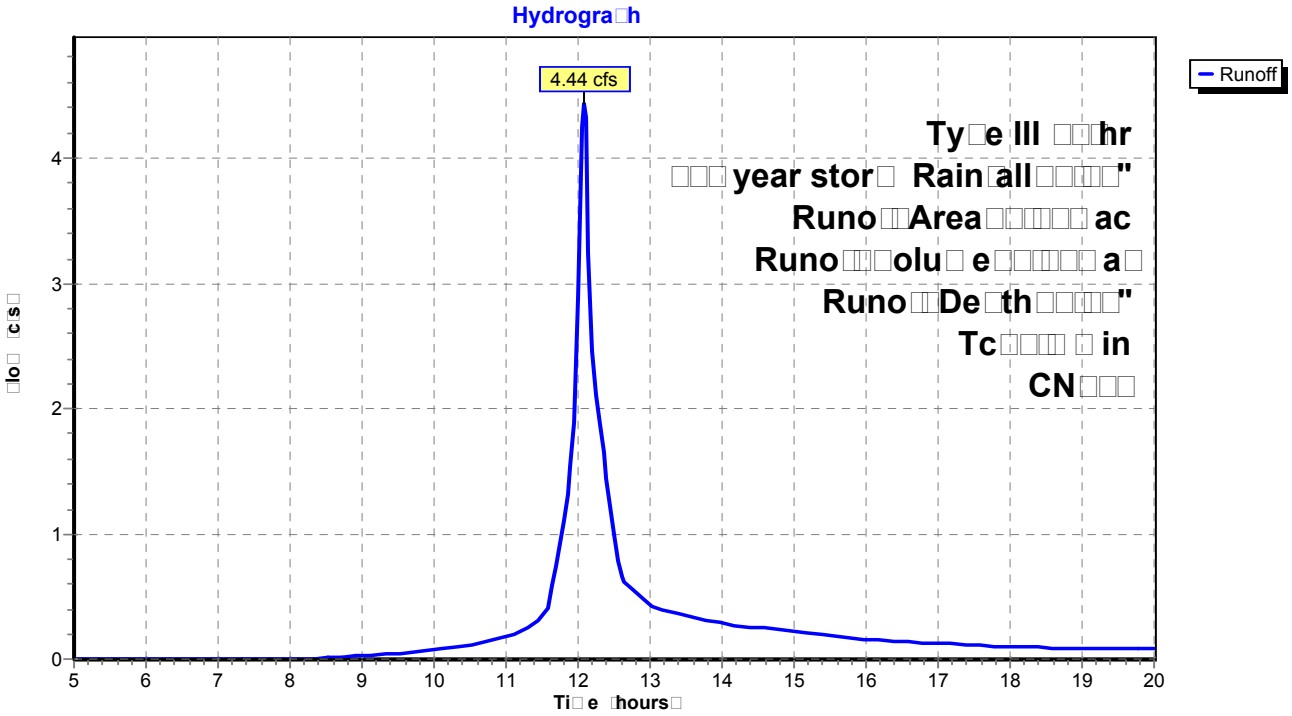
Runoff □ 4.44 cfs □ 12.08 hrs, Volume□ 0.294 af, Depth□ 4.57"

Runoff by SCS TR-20 method, UH□SCS, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs
Type III 24-hr 100 year storm Rainfall□9.08"

	Area □ac□	CN	Description
□	0.200	98	impervious, HSG B
	0.020	61	□75□ Grass cover, Good, HSG B
	0.550	55	Woods, Good, HSG B
	0.770	66	Wei□hted Avera□e
	0.570		74.03□ Pervious Area
	0.200		25.97□ Impervious Area

Tc □min□	Len□th □feet□	Slope □ft/ft□	Velocity □ft/sec□	Capacity □cfs□	Description
5.0					**Direct Entry□□ □inute □ini□u□**

Su□catch□ ent □□S: □ost de□ □ar□ing area □



Su□ □ary □or Su□catch□ ent □□S: □ost de□ □ar□ing area □□north

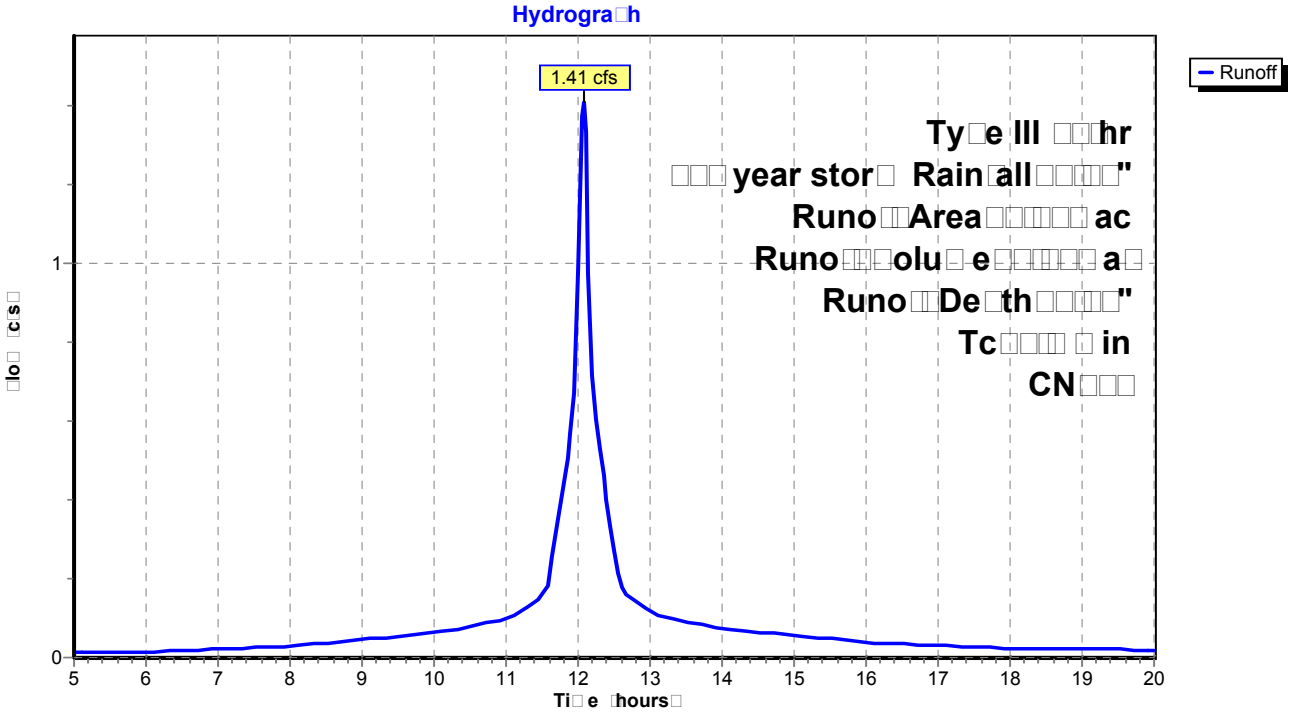
Runoff □ 1.41 cfs □ 12.07 hrs, Volume□ 0.103 af, Depth□ 7.73"

Runoff by SCS TR-20 method, UH□SCS, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs
Type III 24-hr 100 year storm Rainfall□9.08"

	Area □ac□	CN	Description
□	0.140	98	impervious, HSG B
	0.020	61	□75□ Grass cover, Good, HSG B
	0.160	93	Wei□hted Avera□e
	0.020		12.50□ Pervious Area
	0.140		87.50□ Impervious Area

Tc □min□	Len□th □feet□	Slope □ft/ft□	Velocity □ft/sec□	Capacity □cfs□	Description
5.0					**Direct Entry□□ □inute □ini□u□**

Su□catch□ ent □□S: □ost de□ □ar□ing area □□north



Su□ □ ary □or Su□catch□ ent □□S: □ost de□ □ar□ing area □

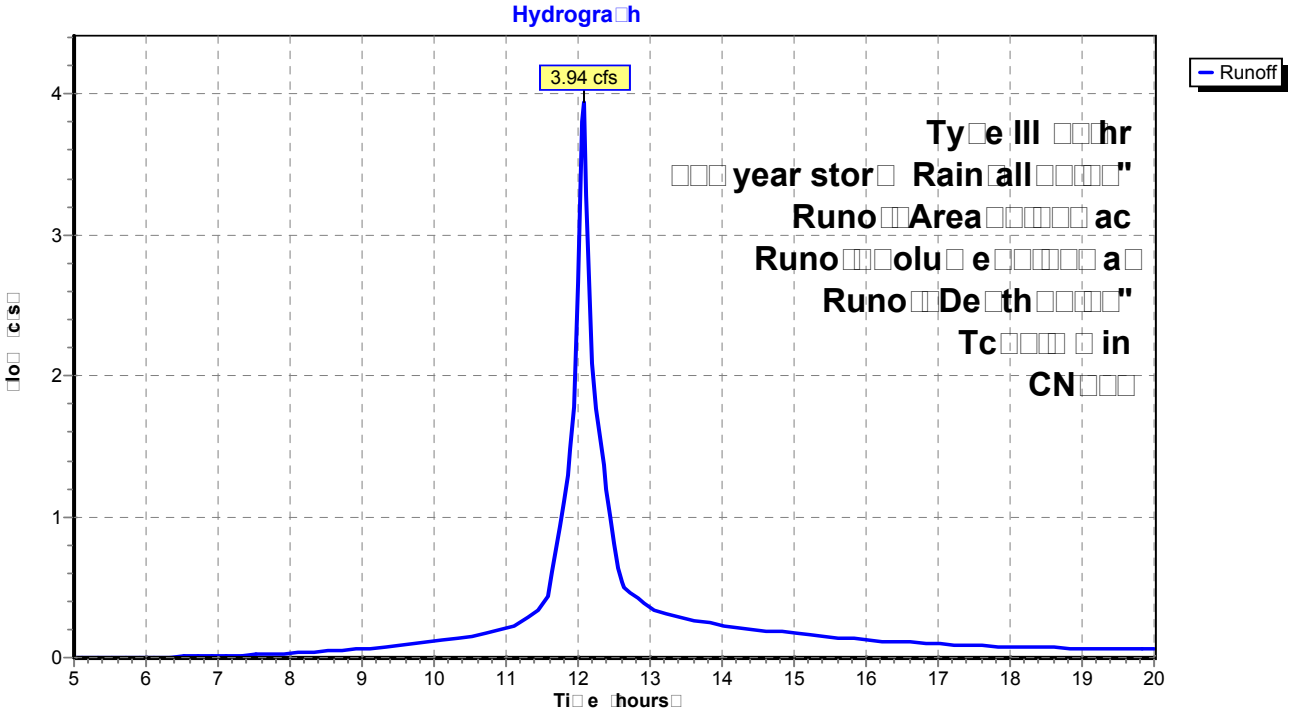
Runoff □ 3.94 cfs □ 12.07 hrs, Volume□ 0.266 af, Depth□ 5.90"

Runoff by SCS TR-20 method, UH□SCS, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs
Type III 24-hr 100 year storm Rainfall□9.08"

Area □ac□	CN	Description
□ 0.170	98	impervious, HSG B
0.070	96	Gravel surface, HSG B
0.010	61	□75□ Grass cover, Good, HSG B
0.290	60	Woods, Fair, HSG B
0.540	77	Wei□hted Avera□e
0.370		68.52□ Pervious Area
0.170		31.48□ Impervious Area

Tc □min□	Len□th □feet□	Slope □ft/ft□	Velocity □ft/sec□	Capacity □cfs□	Description
5.0					**Direct Entry□□ □inute □ini□u□**

Su□catch□ ent □□S: □ost de□ □ar□ing area □



Su□ □ary □or Reach □□R□: S□ale to north o□lot □

Inflow Area □ 0.770 ac, 25.97□ Impervious, Inflow Depth □ 0.98" for 100 year storm event
Inflow □ 2.71 cfs □ 12.12 hrs, Volume□ 0.063 af
Outflow □ 2.50 cfs □ 12.12 hrs, Volume□ 0.063 af, Atten□ 7□ , La□□ 0.2 min

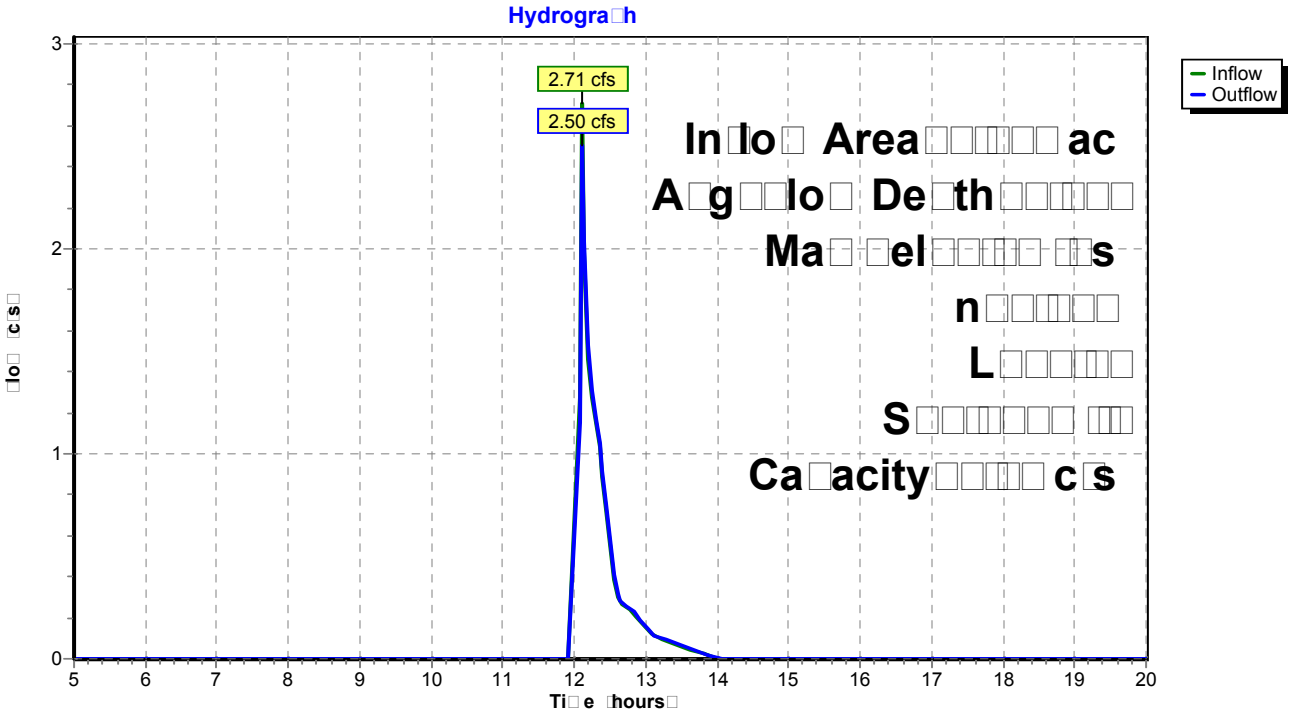
Routin□ by Stor-Ind□Trans method, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs / 2
Max. Velocity□ 2.82 fps, Min. Travel Time□ 0.2 min
Av□. Velocity □ 1.30 fps, Av□. Travel Time□ 0.5 min

Peak Stora□e□ 38 cf □ 12.12 hrs
Avera□e Depth at Peak Stora□e□ 0.48□
Bank-Full Depth□ 0.50□Flow Area□ 1.1 sf, Capacity□ 3.28 cfs

0.67□x 0.50□deep channel, n□ 0.030 Stream, clean & strai□ht
Side Slope Z-value□ 3.0 □/□ Top Width□ 3.67□
Len□th□ 40.0□ Slope□ 0.0200 □/□
Inlet Invert□ 706.10□, Outlet Invert□ 705.30□

□

Reach □□R□: S□ale to north o□lot □



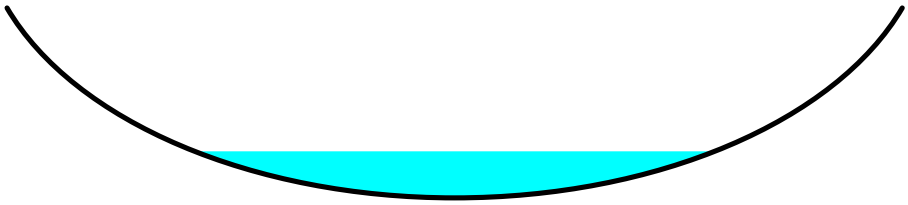
Su□ □ary □or Reach □□R□: Drainage □ath □ro□ north o□lot □to D□□

Inflow Area □ 0.770 ac, 25.97□ Impervious, Inflow Depth □ 0.99" for 100 year storm event
Inflow □ 2.50 cfs □ 12.12 hrs, Volume□ 0.063 af
Outflow □ 2.00 cfs □ 12.19 hrs, Volume□ 0.063 af, Atten□ 20□, La□□ 4.4 min

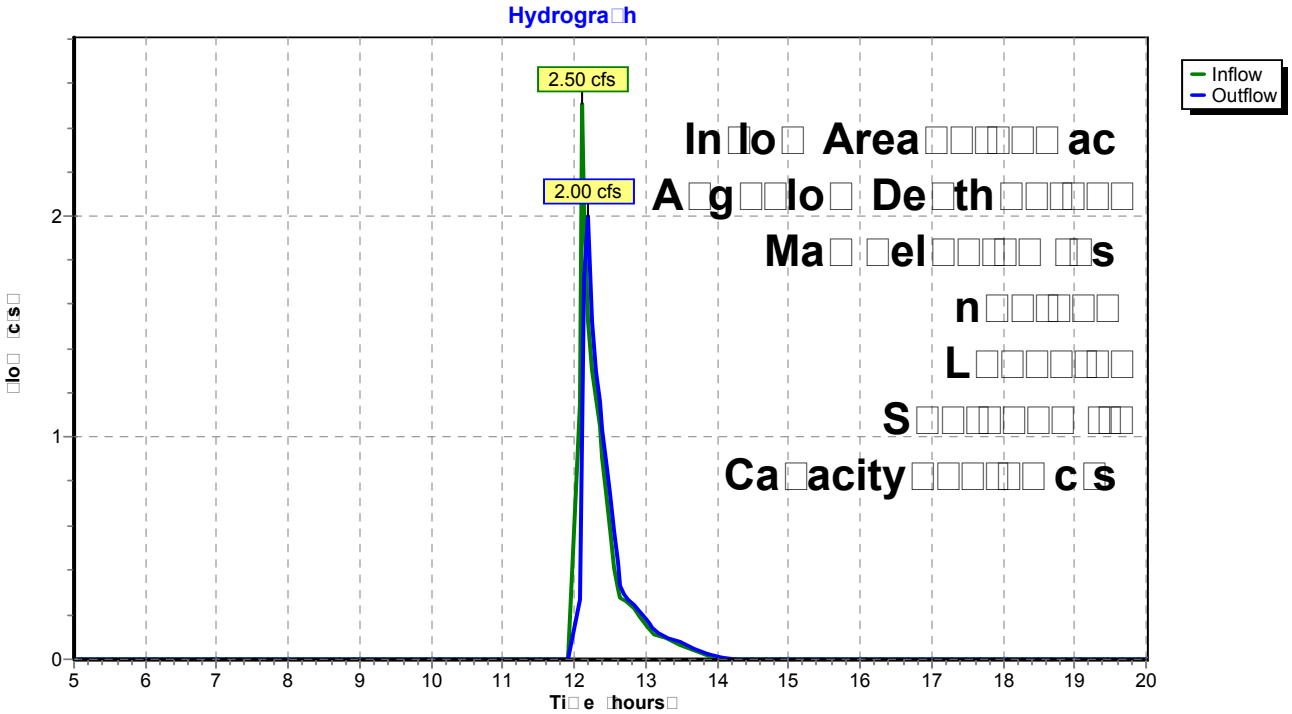
Routin□ by Stor-Ind□Trans method, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs
Max. Velocity□ 5.89 fps, Min. Travel Time□ 1.4 min
Av□. Velocity □ 2.23 fps, Av□. Travel Time□ 3.8 min

Peak Stora□e□ 202 cf □ 12.16 hrs
Avera□e Depth at Peak Stora□e□ 0.24□
Bank-Full Depth□ 1.00□Flow Area□ 3.3 sf, Capacity□ 48.28 cfs

5.00□x 1.00□deep Parabolic Channel, n□ 0.030 Stream, clean & strai□ht
Len□th□ 505.0□ Slope□ 0.1663 □/□
Inlet Invert□ 708.00□, Outlet Invert□ 624.00□



Reach □□R□: Drainage □ath □ro□ north o□lot □to D□□



Su□ □ary □or Reach □□R: Drainage □ath □ro□ □ar□ing □and □to D□□

Inflow Area □ 1.790 ac, 55.31□ Impervious, Inflow Depth □ 1.26" for 100 year storm event
Inflow □ 9.72 cfs □ 12.22 hrs, Volume□ 0.188 af
Outflow □ 6.95 cfs □ 12.34 hrs, Volume□ 0.188 af, Atten□ 29□, La□□ 7.4 min

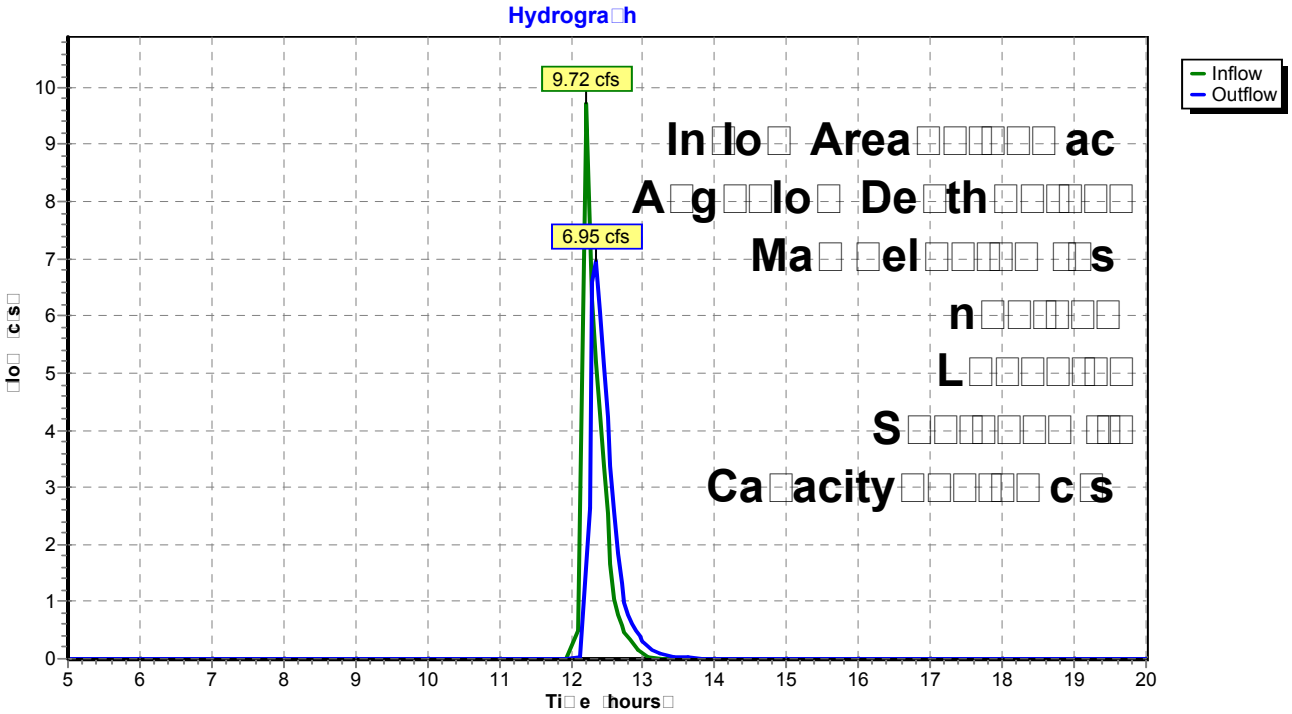
Routin□ by Stor-Ind□Trans method, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs
Max. Velocity□ 1.90 fps, Min. Travel Time□ 3.3 min
Av□. Velocity □ 0.38 fps, Av□. Travel Time□ 16.8 min

Peak Stora□e□ 1,480 cf □ 12.27 hrs
Avera□e Depth at Peak Stora□e□ 0.34□
Bank-Full Depth□ 1.00□Flow Area□ 14.0 sf, Capacity□ 50.56 cfs

10.00□x 1.00□deep channel, n□ 0.130 Sheet flow over Ran□e
Side Slope Z-value□ 4.0 □/□ Top Width□ 18.00□
Len□th□ 380.0□ Slope□ 0.1421 □/□
Inlet Invert□ 678.00□, Outlet Invert□ 624.00□

□

Reach □□R: Drainage □ath □ro□ □ar□ing □and □to D□□



Su□ □ary □or Reach □□R□: S□ale to □ard Drain

Inflow Area □ 0.540 ac, 31.48□ Impervious, Inflow Depth □ 1.11" for 100 year storm event
Inflow □ 2.68 cfs □ 12.16 hrs, Volume□ 0.050 af
Outflow □ 2.29 cfs □ 12.20 hrs, Volume□ 0.050 af, Atten□ 14□, La□□ 2.0 min

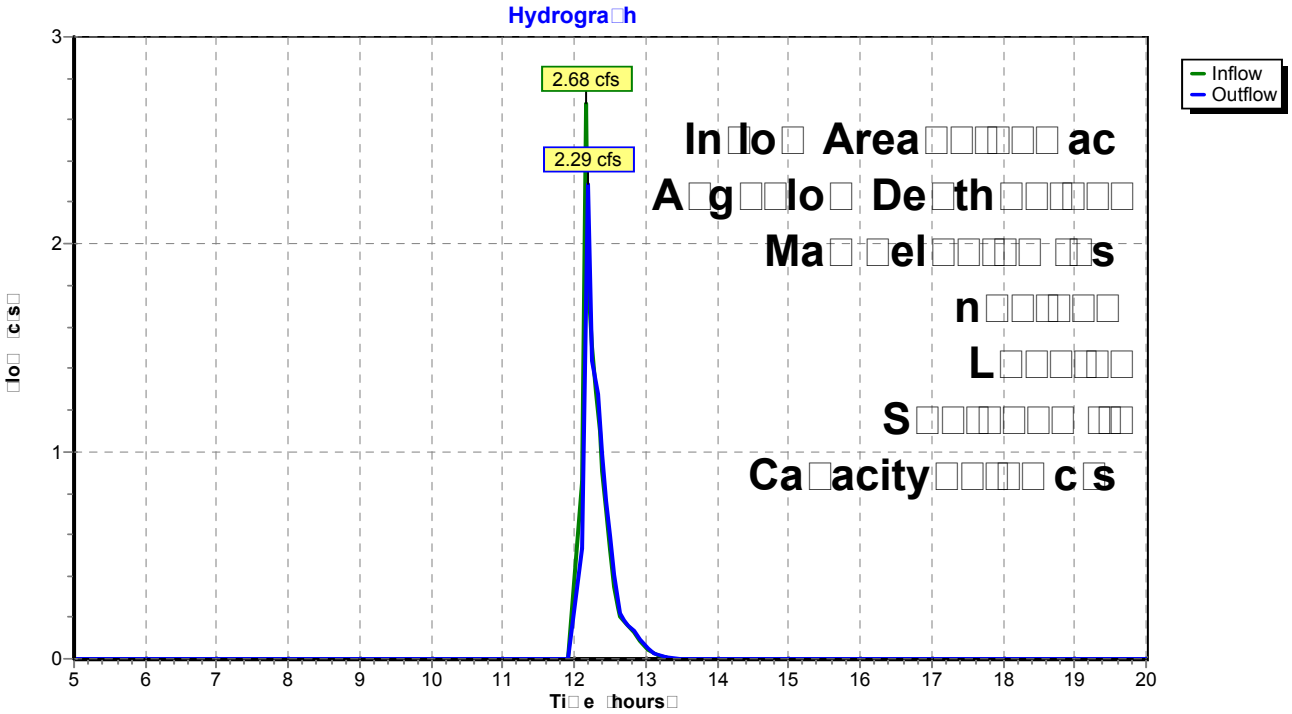
Routin□ by Stor-Ind□Trans method, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs
Max. Velocity□ 2.95 fps, Min. Travel Time□ 0.5 min
Av□. Velocity □ 1.24 fps, Av□. Travel Time□ 1.1 min

Peak Stora□e□ 69 cf □ 12.19 hrs
Avera□e Depth at Peak Stora□e□ 0.42□
Bank-Full Depth□ 0.50□Flow Area□ 1.1 sf, Capacity□ 3.55 cfs

0.67□x 0.50□deep channel, n□ 0.030 Stream, clean & strai□ht
Side Slope Z-value□ 3.0 □/□ Top Width□ 3.67□
Len□th□ 85.0□ Slope□ 0.0235 □/□
Inlet Invert□ 707.90□, Outlet Invert□ 705.90□

□

Reach □□R□: S□ale to □ard Drain



Su□ □ ary □or □ond □□□: □ar□ing □in□iltration to design □oint □

Inflow Area □	0.590 ac,	38.98□ Impervious,	Inflow Depth □	5.42" for 100 year storm event
Inflow □	3.98 cfs □	12.08 hrs,	Volume□	0.266 af
Outflow □	1.54 cfs □	12.22 hrs,	Volume□	0.258 af, Atten□ 61□ , La□□ 8.6 min
Discarded □	0.35 cfs □	11.60 hrs,	Volume□	0.233 af
Primary □	1.19 cfs □	12.22 hrs,	Volume□	0.025 af

Routin□ by Stor-Ind method, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs / 4
Peak Elev□ 700.31□□ 12.20 hrs Surf.Area□ 1,533 sf Stora□e□ 3,287 cf

Plu□-Flow detention time□ 85.1 min calculated for 0.258 af □97□ of inflow□
Center-of-Mass det. time□ 72.7 min □851.9 - 779.1 □

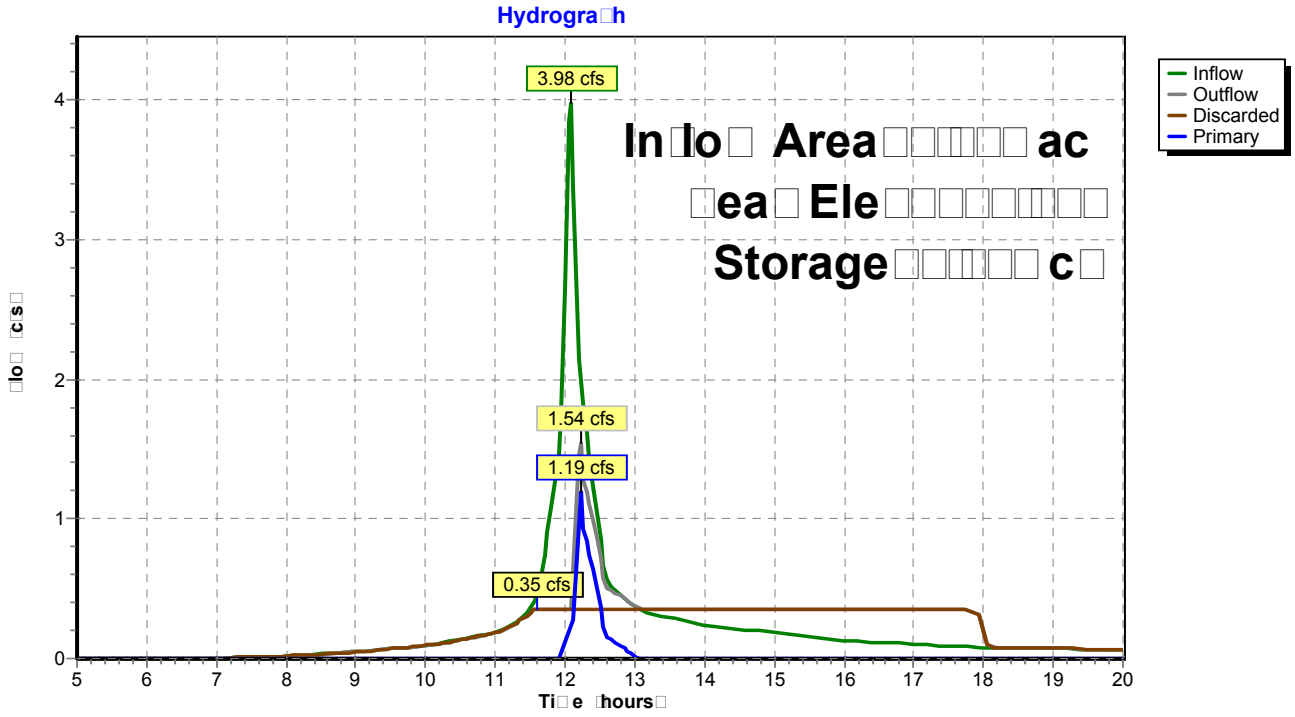
Volume	Invert	Avail.Stora□e	Stora□e Description
□1	693.00□	1,127 cf	□□□□□□**W** □ □□□□□□**L** □ □□□□□**H** □**ris**□ **atoid**
			5,351 cf Overall - 2,131 cf Embedded □ 3,220 cf x 35.0□ Voids
□2	693.50□	2,131 cf	**Cultec R**□□□□□□**L** □ □□□□□□□□**L** Inside □1
			Effective Si□e□ 47.8"W x 30.0"H □□ 7.45 sf x 284.50□L □ 2,119.8 cf
			Overall Si□e□ 52.0"W x 30.5"H x 8.50□L with 1.50□Overlap
			Row Len□th Adjustment□ □1.50□x 7.45 sf x 1 rows
□3	693.00□	36 cf	□□□□□**W** □ □□□□□**L** □ □□□□□**H** □**ris**□ **atoid**
		3,294 cf	Total Available Stora□e

Device	Routin□	Invert	Outlet Devices
□1	Primary	700.00□	□□□□**" W** □ □□□□**" H** □**ert**□**Ori**□**ice**□**Grate** C□ 0.600
□2	Discarded	693.00□	□□□□□□□**in**□**hr E**□□**iltration o**□**er Hori**□**ontal area**

Discarded Out□**lo**□ Max□0.35 cfs □ 11.60 hrs HW□693.11□ □Free Discha□e□
└□□**E**□□**iltration** □Exfiltration Controls 0.35 cfs□

□**ri**□ **ary Out**□**lo**□ Max□1.03 cfs □ 12.22 hrs HW□700.30□ □Free Discha□e□
└□□**Ori**□**ice**□**Grate** □Orifice Controls 1.03 cfs □ 1.75 fps□

□ond □□□: □ar□ing □in□iltration to design □oint □



Su□ □ary □or □ond □□□: □ar□ing □south in□iltration

Inflow Area □	1.090 ac,	62.39□ Impervious,	Inflow Depth □	6.51"	for 100 year storm event
Inflow □	8.59 cfs □	12.07 hrs,	Volume□	0.591 af	
Outflow □	8.49 cfs □	12.22 hrs,	Volume□	0.656 af,	Atten□ 1□ , La□□ 8.7 min
Discarded □	0.75 cfs □	11.90 hrs,	Volume□	0.517 af	
Primary □	7.74 cfs □	12.22 hrs,	Volume□	0.139 af	

Routin□ by Stor-Ind method, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs / 2
Peak Elev□ 703.91□□ 12.22 hrs Surf.Area□ 10 sf Stora□e□ 7,065 cf

Plu□-Flow detention time□ □not calculated: outflow precedes inflow□
Center-of-Mass det. time□ 56.2 min □818.6 - 762.4 □

Volume	Invert	Avail.Stora□e	Stora□e Description
□1	698.20□	2,348 cf	**Custo□ Stage Data □□ris□ atic□**Listed below □Recalc□ 11,377 cf Overall - 4,668 cf Embedded □ 6,709 cf x 35.0□ Voids
□2	698.70□	4,668 cf	**Cultec R□□□□□L □ □□□□□□L** Inside □1 Effective Si□e□ 47.8"W x 30.0"H □□ 7.45 sf x 625.00□L □ 4,656.9 cf Overall Si□e□ 52.0"W x 30.5"H x 8.50□L with 1.50□Overlap Row Len□th Adjustment□ □1.50□x 7.45 sf x 1 rows
□3	699.00□	55 cf	**□□□□W □ □□□□L □ □□□□H □ris□ atoid**
		7,071 cf	Total Available Stora□e

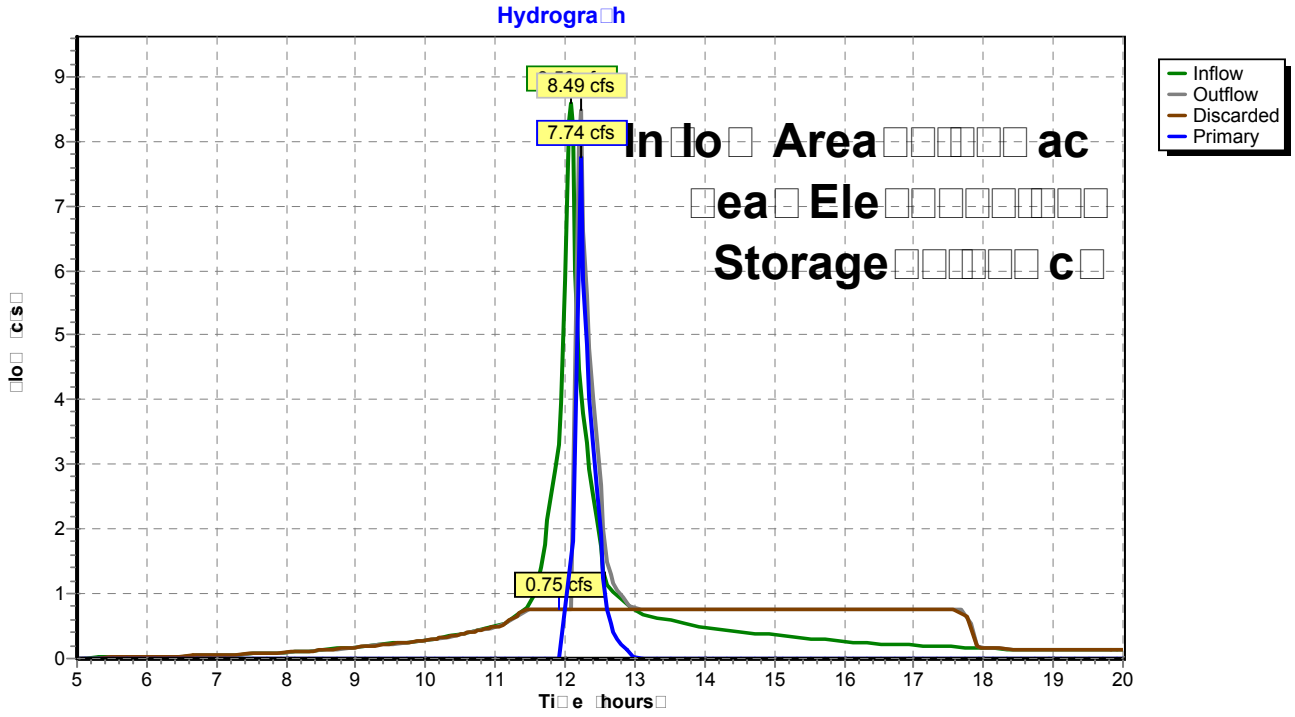
Elevation □feet□	Surf.Area □s□-ft□	Inc.Store □cubic-feet□	Cum.Store □cubic-feet□
698.20	3,246	0	0
701.70	3,246	11,361	11,361
701.71	0	16	11,377

Device	Routin□	Invert	Outlet Devices
□1	Primary	701.70□	□□□□" **Round Cul□ert** L□ 18.0□ RCP, s□uare ed□e headwall, Ke□ 0.500 Inlet / Outlet Invert□ 701.70□/ 698.00□ S□ 0.2056 □/□ Cc□ 0.900 n□ 0.012, Flow Area□ 1.23 sf
□2	Primary	703.70□	□□□□" □ □□□□" **Hori□□Ori□ice□Grate** C□ 0.600 Limited to weir flow at low heads
□3	Discarded	698.20□	□□□□□□ **in□hr E□□iltration o□er Hori□ontal area**

Discarded Out□lo□ Max□0.75 cfs □ 11.90 hrs HW□699.10□ □Free Discha□e□
└─□□**E□□iltration** □Exfiltration Controls 0.75 cfs□

□ri□ ary Out□lo□ Max□6.65 cfs □ 12.22 hrs HW□703.59□ □Free Discha□e□
└─□□**Cul□ert** □Inlet Controls 6.65 cfs □ 5.42 fps□
└─□□**Ori□ice□Grate** □Controls 0.00 cfs□

□ond □□□: □ar□ing □south in□iltration



Su□ □ ary □or □ond □□□: □ar□ing □ in□iltration

Inflow Area □	0.770 ac,	25.97□ Impervious,	Inflow Depth □	4.57" for 100 year storm event
Inflow □	4.44 cfs □	12.08 hrs,	Volume□	0.294 af
Outflow □	2.99 cfs □	12.12 hrs,	Volume□	0.276 af, Atten□ 32□ , La□□ 2.3 min
Discarded □	0.29 cfs □	11.70 hrs,	Volume□	0.213 af
Primary □	2.71 cfs □	12.12 hrs,	Volume□	0.063 af

Routin□ by Stor-Ind method, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs / 2
Peak Elev□ 714.25□□ 12.12 hrs Surf.Area□ 1,242 sf Stora□e□ 2,612 cf

Plu□-Flow detention time□ 93.3 min calculated for 0.275 af □94□ of inflow□
Center-of-Mass det. time□ 72.5 min □863.3 - 790.7 □

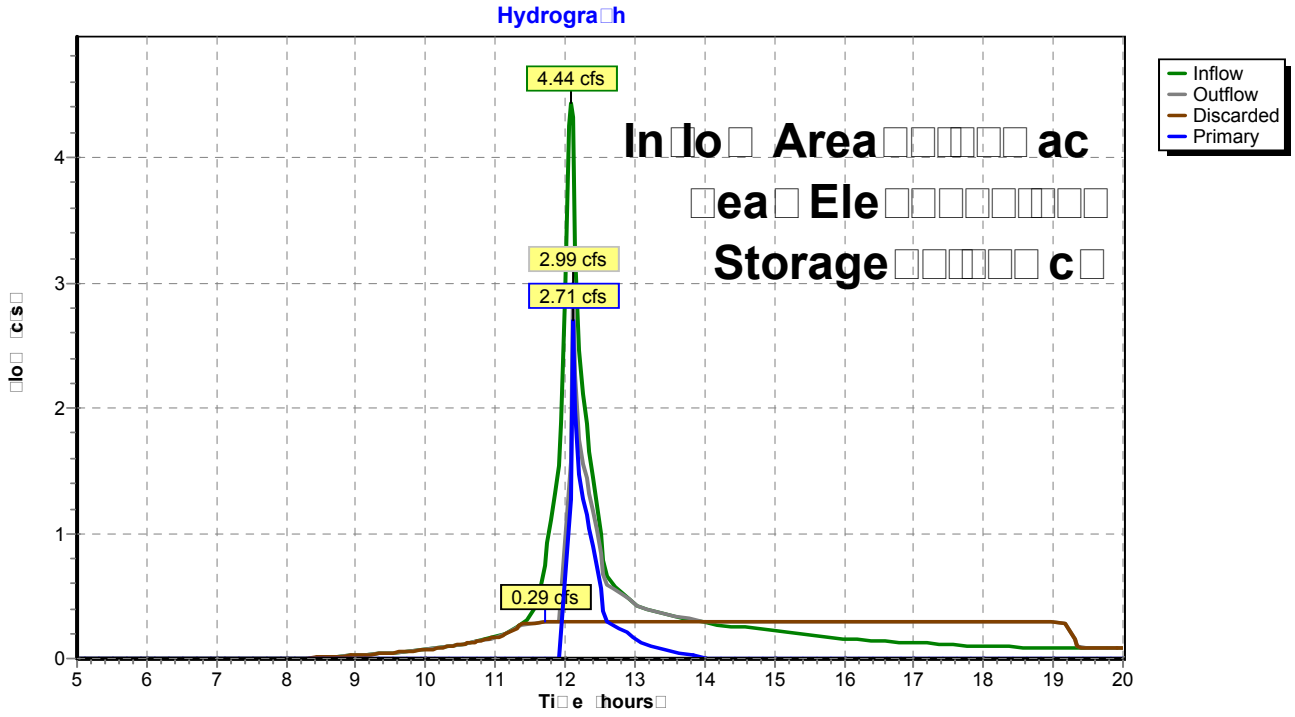
Volume	Invert	Avail.Stora□e	Stora□e Description
□1	709.60□	716 cf	□□□□□**W** □ □□□□□**L** □ □□□□□**H** □**ris**□ **atoid** 3,332 cf Overall - 1,285 cf Embedded □ 2,047 cf x 35.0□ Voids
□2	710.10□	1,285 cf	**Cultec R**□□□□□**L** □ □□□□□□□**L** Inside □1 Effective Si□e□ 47.8"W x 30.0"H □□ 7.45 sf x 171.00□L □ 1,274.1 cf Overall Si□e□ 52.0"W x 30.5"H x 8.50□L with 1.50□Overlap Row Len□th Adjustment□ □1.50□x 7.45 sf x 1 rows
□3	709.60□	222 cf	□□□□□**W** □ □□□□□**L** □ □□□□□**H** □**ris**□ **atoid** 980 cf Overall - 346 cf Embedded □ 634 cf x 35.0□ Voids
□4	710.10□	346 cf	**Cultec R**□□□□□**L** □ □□□□□□□**L** Inside □3 Effective Si□e□ 47.8"W x 30.0"H □□ 7.45 sf x 45.00□L □ 335.3 cf Overall Si□e□ 52.0"W x 30.5"H x 8.50□L with 1.50□Overlap Row Len□th Adjustment□ □1.50□x 7.45 sf x 1 rows
□5	710.00□	60 cf	□□□□□**W** □ □□□□□**L** □ □□□□□**H** □**ris**□ **atoid**
		2,630 cf	Total Available Stora□e

Device	Routin□	Invert	Outlet Devices
□1	Primary	713.10□	□□□□" **Round Cul□ert** L□ 72.0□ RCP, s□uare ed□e headwall, Ke□ 0.500 Inlet / Outlet Invert□ 713.10□/ 712.00□ S□ 0.0153 □/□ Cc□ 0.900 n□ 0.012, Flow Area□ 0.79 sf
□2	Primary	715.10□	□□□□" □ □□□□" **Hori□□Ori□ice□Grate** C□ 0.600 Limited to weir flow at low heads
□3	Discarded	709.60□	□□□□□□□ **in□hr E□□iltration o□er Hori□ontal area**

Discarded Out□lo□ Max□0.29 cfs □ 11.70 hrs HW□710.01□ □Free Dischar□e□
└─□□**E□□iltration** □Exfiltration Controls 0.29 cfs□

□**ri□ ary Out□lo□** Max□2.39 cfs □ 12.12 hrs HW□714.00□ □Free Dischar□e□
├─□□**Cul□ert** □Inlet Controls 2.39 cfs □ 3.22 fps□
└─□□**Ori□ice□Grate** □Controls 0.00 cfs□

□ond □□□: □ar□ing □in□iltration



Su□ □ ary □or □ond □□□: □ar□ing □north in□iltration

Inflow Area □	0.160 ac,	87.50□ Impervious,	Inflow Depth □	7.73" for 100 year storm event
Inflow □	1.41 cfs □	12.07 hrs,	Volume□	0.103 af
Outflow □	0.20 cfs □	12.15 hrs,	Volume□	0.103 af, Atten□ 86□ , La□□ 4.8 min
Discarded □	0.20 cfs □	12.15 hrs,	Volume□	0.103 af
Primary □	0.00 cfs □	5.00 hrs,	Volume□	0.000 af

Routin□ by Stor-Ind method, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs / 2
Peak Elev□ 699.34□□ 12.57 hrs Surf.Area□ 850 sf Stora□e□ 1,391 cf

Plu□-Flow detention time□ 45.3 min calculated for 0.103 af □100□ of inflow□
Center-of-Mass det. time□ 44.9 min □785.7 - 740.8 □

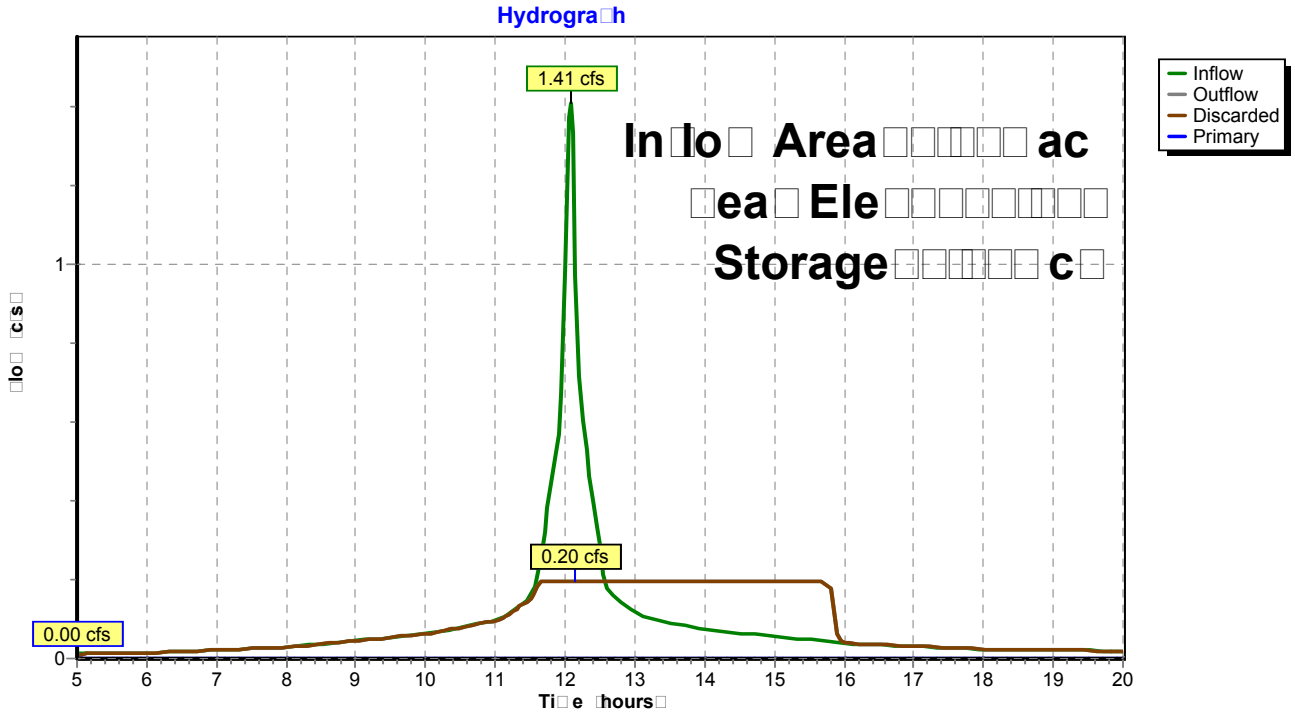
Volume	Invert	Avail.Stora□e	Stora□e Description
□1	696.90□	634 cf	□□□□□**W** □ □□□□□**L** □ □□□□□**H** □**ris**□ **atoid**
			2,940 cf Overall - 1,129 cf Embedded □ 1,811 cf x 35.0□ Voids
□2	697.40□	1,129 cf	**Cultec R**□□□□□**L** □ □□□□□□□**L** Inside □1
			Effective Si□e□ 47.8"W x 30.0"H □□ 7.45 sf x 150.00□L □ 1,117.7 cf
			Overall Si□e□ 52.0"W x 30.5"H x 8.50□L with 1.50□Overlap
			Row Len□th Adjustment□ □1.50□x 7.45 sf x 1 rows
□3	698.40□	50 cf	□□□□□**W** □ □□□□□**L** □ □□□□□**H** □**ris**□ **atoid**
		1,813 cf	Total Available Stora□e

Device	Routin□	Invert	Outlet Devices
□1	Primary	700.40□	□□□□**" Round Cul□ert**
			L□ 62.0□ RCP, s□uare ed□e headwall, Ke□ 0.500
			Inlet / Outlet Invert□ 700.40□/ 698.00□ S□ 0.0387 □/□ Cc□ 0.900
			n□ 0.012, Flow Area□ 0.79 sf
□2	Primary	702.40□	□□□□**" W** □ □□□□**" H** □**ert□Ori□ice□Grate** C□ 0.600
□3	Discarded	696.90□	□□□□□□□**in□hr E□□iltration o□er Hori□ontal area**

Discarded Out□lo□ Max□0.20 cfs □ 12.15 hrs HW□698.64□ □Free Discha□e□
└─□□**E□□iltration** □Exfiltration Controls 0.20 cfs□

□**ri□ ary Out□lo□** Max□0.00 cfs □ 5.00 hrs HW□696.90□ □Free Discha□e□
├─□□**Cul□ert** □Controls 0.00 cfs□
└─□□**Ori□ice□Grate** □Controls 0.00 cfs□

□ond □□□: □ar□ing □ north in□iltration



Su□ □ ary □or □ond □□□: □ar□ing □ in□iltration

Inflow Area □ 0.540 ac, 31.48□ Impervious, Inflow Depth □ 5.90" for 100 year storm event
Inflow □ 3.94 cfs □ 12.07 hrs, Volume□ 0.266 af
Outflow □ 2.98 cfs □ 12.16 hrs, Volume□ 0.263 af, Atten□ 24□ , La□□ 5.4 min
Discarded □ 0.30 cfs □ 11.75 hrs, Volume□ 0.213 af
Primary □ 2.68 cfs □ 12.16 hrs, Volume□ 0.050 af

Routin□ by Stor-Ind method, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs / 2
Peak Elev□ 732.05□□ 12.17 hrs Surf.Area□ 1,298 sf Stora□e□ 2,679 cf

Plu□-Flow detention time□ 66.7 min calculated for 0.262 af □99□ of inflow□
Center-of-Mass det. time□ 62.2 min □834.2 - 772.0 □

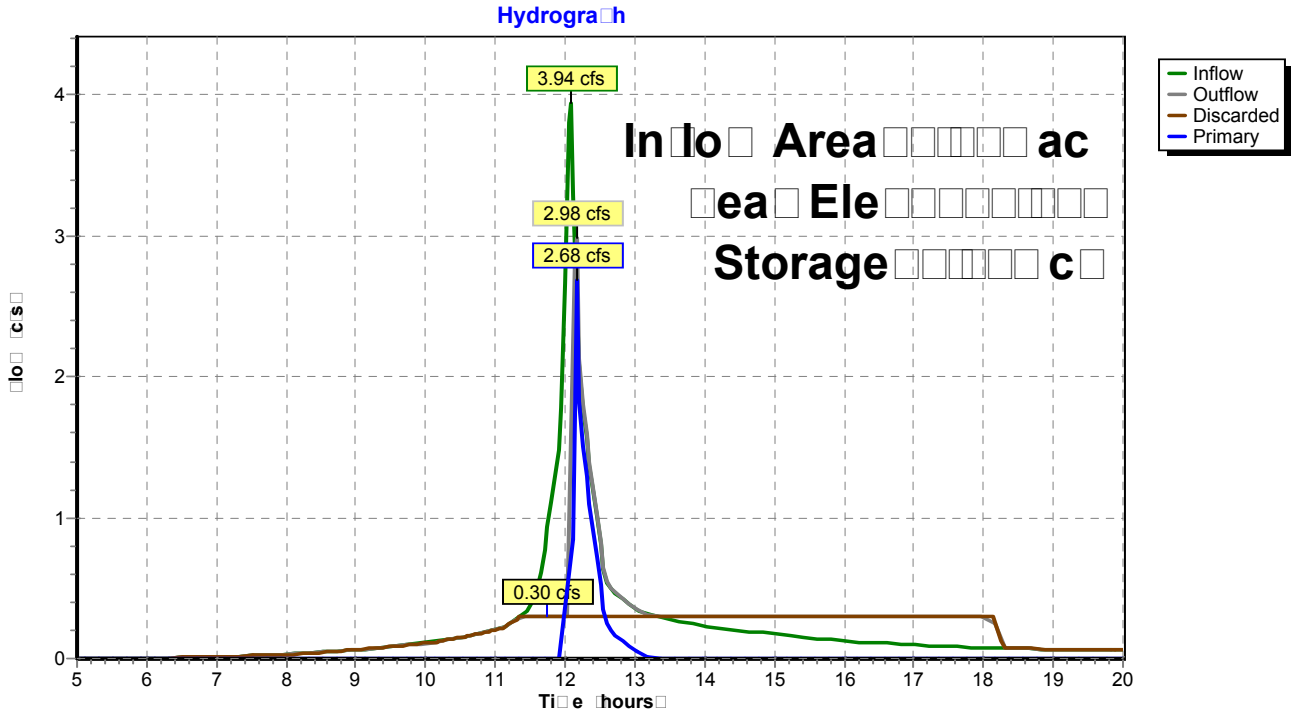
Volume	Invert	Avail.Stora□e	Stora□e Description
□1	727.50□	1,007 cf	□□□□□**W** □ □□□□□**L** □ □□□□□**H** □**ris**□ **atoid** 4,508 cf Overall - 1,632 cf Embedded □ 2,876 cf x 35.0□ Voids
□2	728.00□	1,632 cf	**Cultec R**□□□□□**L** □ □□□□□□□**L** Inside □1 Effective Si□e□ 47.8"W x 30.0"H □□ 7.45 sf x 217.50□L □ 1,620.6 cf Overall Si□e□ 52.0"W x 30.5"H x 8.50□L with 1.50□Overlap Row Len□th Adjustment□ □1.50□x 7.45 sf x 1 rows
□3	728.00□	60 cf	□□□□□**W** □ □□□□□**L** □ □□□□□**H** □**ris**□ **atoid**
		2,698 cf	Total Available Stora□e

Device	Routin□	Invert	Outlet Devices
□1	Primary	731.00□	□□□□**" Round Cul□ert** L□ 8.0□ RCP, s□uare ed□e headwall, Ke□ 0.500 Inlet / Outlet Invert□ 731.00□/ 729.00□ S□ 0.2500 □/□ Cc□ 0.900 n□ 0.012, Flow Area□ 0.79 sf
□2	Primary	733.00□	□□□□**" □ □□□□" Hori□□Ori□ice□Grate** C□ 0.600 Limited to weir flow at low heads
□3	Discarded	727.50□	□□□□□□□**in□hr E□□iltration o□er Hori□ontal area**

Discarded Out□lo□ Max□0.30 cfs □ 11.75 hrs HW□728.07□ □Free Discha□e□
└─□□**E□□iltration** □Exfiltration Controls 0.30 cfs□

□**ri□ ary Out□lo□** Max□2.38 cfs □ 12.16 hrs HW□731.89□ □Free Discha□e□
├─□□**Cul□ert** □Inlet Controls 2.38 cfs □ 3.22 fps□
└─□□**Ori□ice□Grate** □Controls 0.00 cfs□

□ond □□□: □ar□ing □in□iltration



Su□ □ary □or □ond MH□: MH□ to □lo□ di□□user

Inflow Area □ 1.790 ac, 55.31□ Impervious, Inflow Depth □ 1.26" for 100 year storm event
Inflow □ 9.95 cfs □ 12.21 hrs, Volume□ 0.189 af
Outflow □ 9.72 cfs □ 12.22 hrs, Volume□ 0.188 af, Atten□ 2□ , La□□ 0.1 min
Primary □ 9.72 cfs □ 12.22 hrs, Volume□ 0.188 af

Routin□ by Stor-Ind method, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs / 3
Peak Elev□ 700.98□□ 12.21 hrs Surf.Area□ 13 sf Stora□e□ 41 cf

Plu□-Flow detention time□ 0.4 min calculated for 0.188 af □100□ of inflow□
Center-of-Mass det. time□ 0.1 min □741.1 - 741.0 □

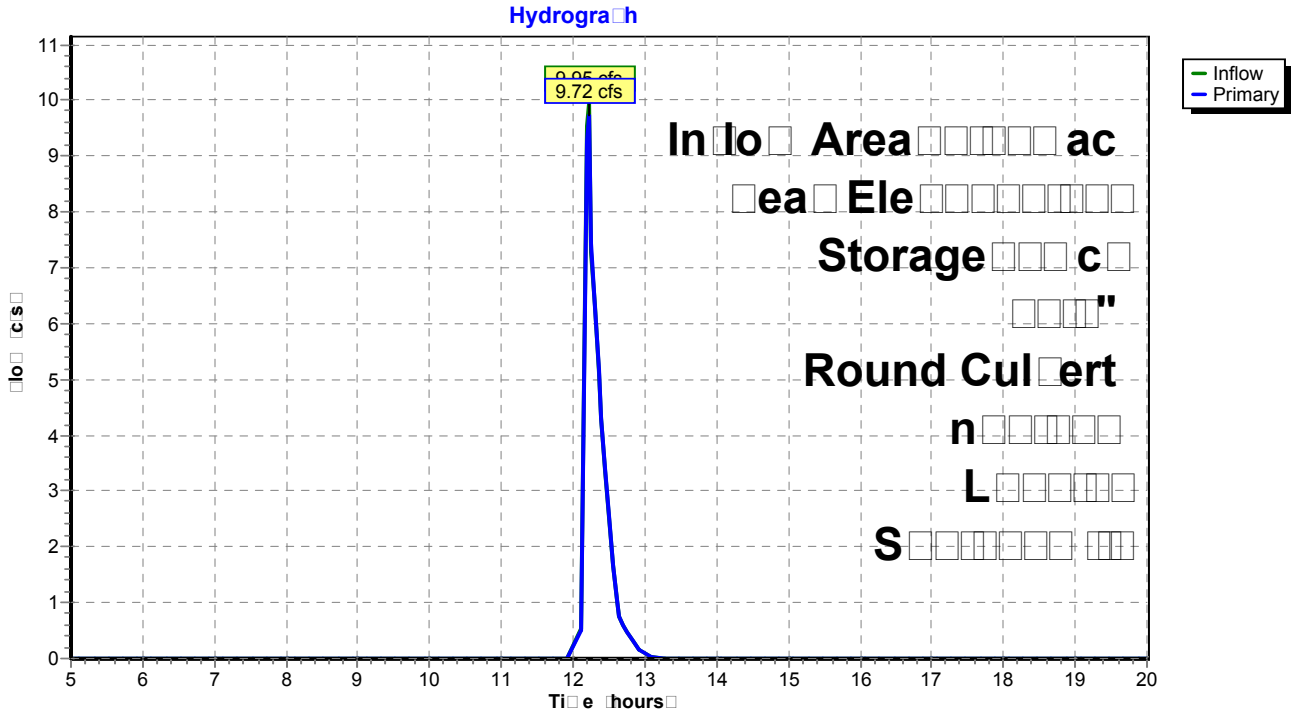
Volume	Invert	Avail.Stora□e	Stora□e Description
□1	697.80□	48 cf	**Custo□ Stage Data □□ris□ atic□**Listed below □Recalc□

Elevation □feet□	Surf.Area □s□-ft□	Inc.Store □cubic-feet□	Cum.Store □cubic-feet□
697.80	13	0	0
701.50	13	48	48

Device	Routin□	Invert	Outlet Devices
□1	Primary	697.80□	□□□□" **Round Cul□ert** L□ 45.0□ RCP, s□uare ed□e headwall, Ke□ 0.500 Inlet / Outlet Invert□ 697.80□/ 678.00□ S□ 0.4400 □/□ Cc□ 0.900 n□ 0.012, Flow Area□ 1.23 sf

□**ri□ ary Out□lo□** Max□8.73 cfs □ 12.22 hrs HW□700.61□ □Free Discha□e□
└□□**Cul□ert** □Inlet Controls 8.73 cfs □ 7.12 fps□

□ond MH□: MH□ to □lo□ di□□user



Su□ □ ary □or □ond □D: □ard Drain to MH□

Inflow Area □ 0.540 ac, 31.48□ Impervious, Inflow Depth □ 1.11" for 100 year storm event
Inflow □ 2.29 cfs □ 12.20 hrs, Volume□ 0.050 af
Outflow □ 2.31 cfs □ 12.20 hrs, Volume□ 0.050 af, Atten□ 0□ , La□□ 0.0 min
Primary □ 2.31 cfs □ 12.20 hrs, Volume□ 0.050 af

Routin□ by Stor-Ind method, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs
Peak Elev□ 703.87□□ 12.20 hrs Surf.Area□ 4 sf Stora□e□ 3 cf

Plu□-Flow detention time□ 0.0 min calculated for 0.050 af □100□ of inflow□
Center-of-Mass det. time□ 0.0 min □741.3 - 741.3 □

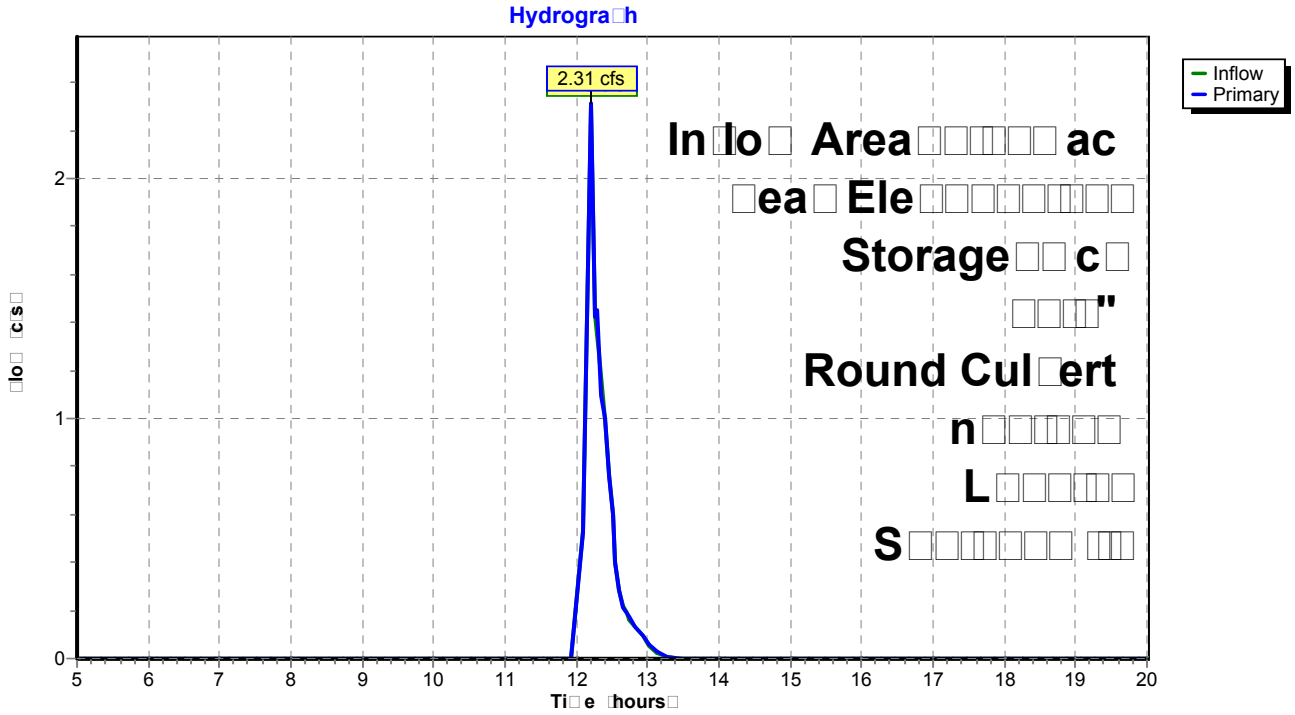
Volume	Invert	Avail.Stora□e	Stora□e Description
□1	703.00□	12 cf	**Custo□ Stage Data □□ris□ atic□**Listed below □Recalc□

Elevation □feet□	Surf.Area □s□-ft□	Inc.Store □cubic-feet□	Cum.Store □cubic-feet□
703.00	4	0	0
706.00	4	12	12

Device	Routin□	Invert	Outlet Devices
□1	Primary	703.00□	□□□□" **Round Cul□ert** L□ 74.0□ RCP, s□uare ed□e headwall, Ke□ 0.500 Inlet / Outlet Invert□ 703.00□/ 698.00□ S□ 0.0676 □/□ Cc□ 0.900 n□ 0.012, Flow Area□ 0.79 sf

□**ri□ ary Out□lo□** Max□2.28 cfs □ 12.20 hrs HW□703.86□ □Free Discha□e□
└□□**Cul□ert** □Inlet Controls 2.28 cfs □ 3.16 fps□

□ond □D: □ard Drain to MH□

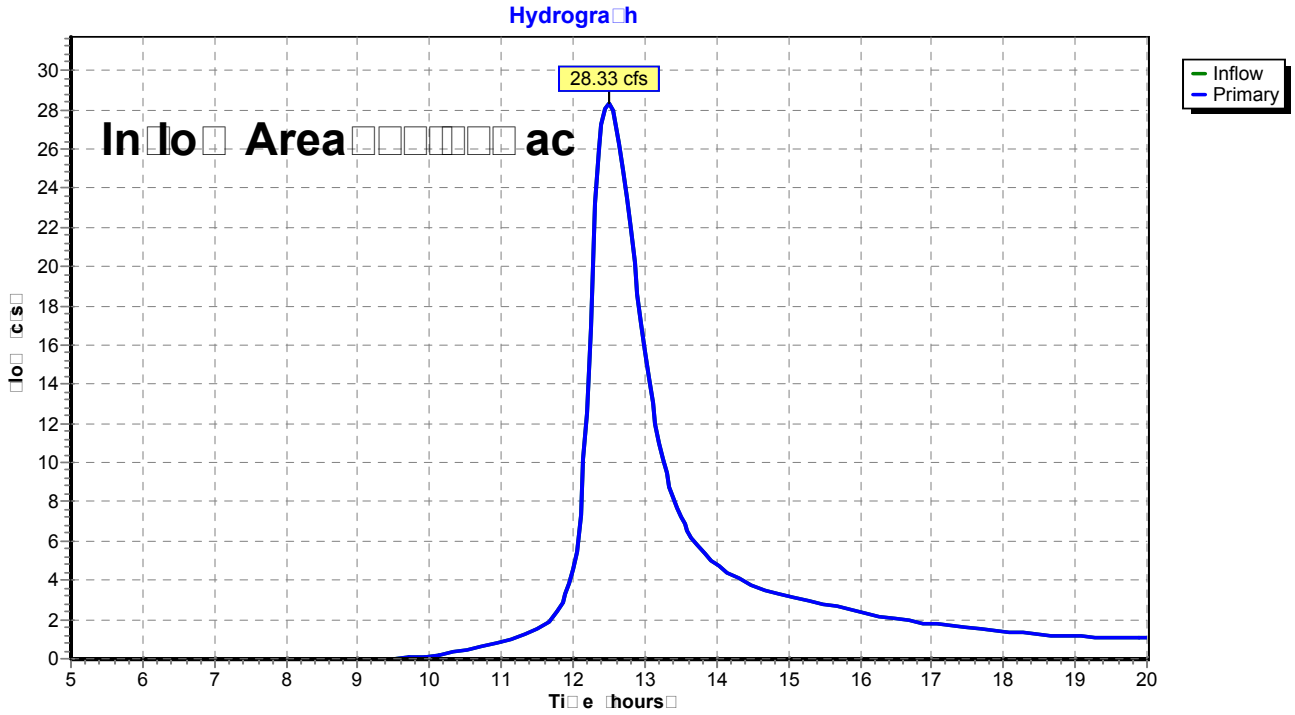


Su□ □ary □or Lin□ □□L: □ost de□elo□□ ent design □oint □

Inflow Area □ 13.070 ac, 12.01□ Impervious, Inflow Depth □ 3.29" for 100 year storm event
Inflow □ 28.33 cfs □ 12.50 hrs, Volume□ 3.580 af
Primary □ 28.33 cfs □ 12.50 hrs, Volume□ 3.580 af, Atten□ 0□ , La□□ 0.0 min

Primary outflow □ Inflow, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs

Lin□ □□L: □ost de□elo□□ ent design □oint □



APPENDIX C

Soil Data

73° 32' 2" W 73° 31' 38" W

41° 16' 14" N 41° 16' 14" N

41° 15' 50" N 41° 15' 50" N

73° 32' 2" W 73° 31' 38" W

Map Scale: 1:3,560 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84

Legend

This report presents general information about the map units in the selected area. It shows map unit symbols and names for each map unit.

Report—Legend

Legend–State of Connecticut	
Map unit symbol and name	**Map unit acres**
3—Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	150,426
17—Timakwa and Natchaug soils, 0 to 2 percent slopes	29,463
18—Catden and Freetown soils, 0 to 2 percent slopes	39,543
50B—Sutton fine sandy loam, 3 to 8 percent slopes	10,818
60B—Canton and Charlton soils, 3 to 8 percent slopes	52,995
60C—Canton and Charlton soils, 8 to 15 percent slopes	23,739
75C—Hollis-Chatfield-Rock outcrop complex, 3 to 15 percent slopes	69,281
75E—Hollis-Chatfield-Rock outcrop complex, 15 to 45 percent slopes	103,291
76F—Rock outcrop-Hollis complex, 45 to 60 percent slopes	6,915
273C—Urban land-Charlton-Chatfield complex, rocky, 3 to 15 percent slopes	9,392

Legend–Westchester County, New York	
Map unit symbol and name	**Map unit acres**
ChC—Charlton loam, 8 to 15 percent slopes	7,562
ClE—Charlton loam, 25 to 35 percent slopes, very stony	302
CrC—Charlton-Chatfield complex, rolling, very rocky	42,635
CsD—Chatfield-Charlton complex, hilly, very rocky	25,384
CtC—Chatfield-Hollis-Rock outcrop complex, rolling	9,186
CuD—Chatfield-Hollis-Rock outcrop complex, hilly	10,901
HrF—Hollis-Rock outcrop complex, very steep	6,160
LcA—Leicester loam, 0 to 3 percent slopes, stony	1,484
LcB—Leicester loam, 3 to 8 percent slopes, stony	3,580
Pa—Palms muck	2,034
Sh—Sun loam	3,323
SuB—Sutton loam, 3 to 8 percent slopes	3,812
W—Water	43,084

Data Source Information

Soil Survey Area: State of Connecticut
Survey Area Data: Version 14, Sep 22, 2015

Soil Survey Area: Westchester County, New York
Survey Area Data: Version 11, Sep 25, 2015

APPENDIX D

Soil Testin

Stormwater soil test results for Le Chateau
Deep soil tests conducted 5-23-16
Infiltration tests conducted 6-21-16

Deep test hole #5
Total test hole depth = 9'
Depth to groundwater = N.A.

Deep test hole #6
Total test hole depth = 9'
Depth to groundwater = N.A.

Deep test hole #7
Total test hole depth = 8'
Depth to groundwater = N.A.

Deep test hole #8
Total test hole depth = 9-1/2'
Depth to groundwater = N.A.

Deep test hole #9
Total test hole depth = 8-1/2'
Depth to groundwater = N.A.

Deep test hole #10
Total test hole depth = 8-1/2'
Depth to groundwater = N.A.

Deep test hole #11
Total test hole depth = 9-1/2'
Depth to groundwater = N.A.

Deep test hole #19
Total test hole depth = 8'
Depth to groundwater = N.A.

Deep test hole #20
Total test hole depth = 9'
Depth to groundwater = N.A.

Infiltration test hole #1
Depth to bottom of test pit = 7'
Depth to top of infiltration casing = 6-1/2'
Depth to bottom of infiltration casing = 9'

Infiltration test - depths taken from top of casing

run		depth	time	rate
1	start	6"	9:58	
	stop	29"	10:58	23" per hour
2	start	6"	11:03	
	stop	27"	12:03	21" per hour
3	start	6"	12:06	
	stop	27"	11:06	21" per hour

Infiltration test hole #2
Depth to bottom of test pit = 7'
Depth to top of infiltration casing = 6-1/2'
Depth to bottom of infiltration casing = 9'

Infiltration test - depths taken from top of casing

run		depth	time	rate
1	start	6"	10:04	
	stop	25"	11:04	19" per hour
2	start	6"	11:06	
	stop	24"	12:06	18" per hour
3	start	6"	12:10	
	stop	24"	1:10	18" per hour

Infiltration test hole #3
Depth to bottom of test pit = 7'
Depth to top of infiltration casing = 6-1/2'
Depth to bottom of infiltration casing = 9'

Infiltration test - depths taken from top of casing

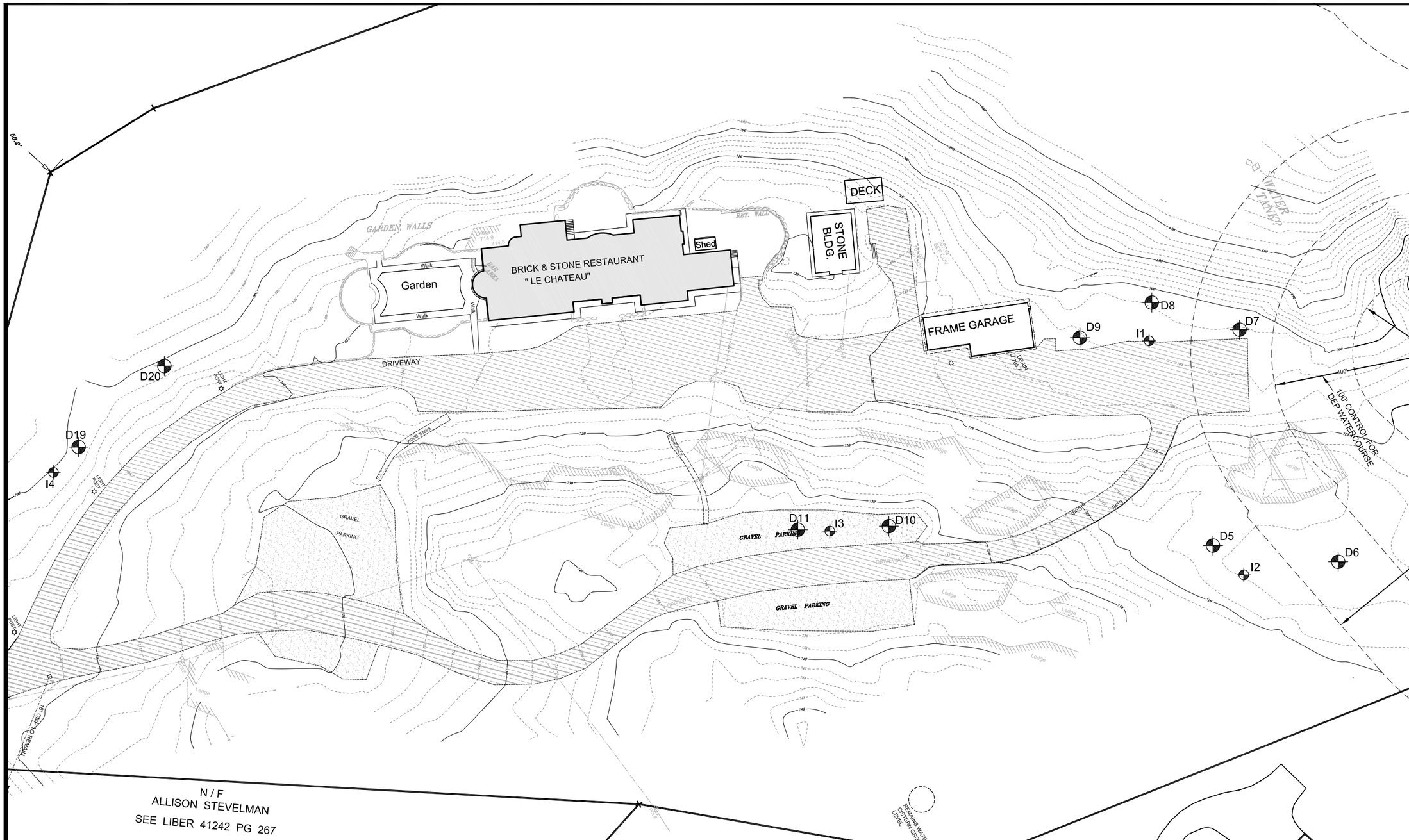
run		depth	time	rate
1	start	6"	10:07	
	stop	30"	10:47	36" per hour
2	start	6"	10:47	
	stop	30"	11:27	36" per hour
3	start	6"	11:29	
	stop	30"	12:09	36" per hour

Infiltration test hole #4
Depth to bottom of test pit = 7'
Depth to top of infiltration casing = 6-1/2'
Depth to bottom of infiltration casing = 9'

Infiltration test - depths taken from top of casing

run		depth	time	rate
1	start	6"	10:20	
	stop	30"	10:35	96" per hour
2	start	6"	10:36	
	stop	30"	10:55	76" per hour
3	start	6"	10:59	
	stop	30"	11:19	72" per hour
4	start	6"	11:20	
	stop	30"	11:40	72" per hour

All soil testing conducted by Cronin Engineering, P.E., P.C.



SOIL TEST LOCATIONS

60 0 60 120

SCALE: 1"=60'

LEGEND

EXIST. CONTOUR (SITE SURVEY)

D8 DEEP TEST LOCATION AND NUMBER

I1 INFILTRATION TEST LOCATION AND NUMBER

CRONIN ENGINEERING
PROFESSIONAL ENGINEERING & CONSULTING
(914) 736-3664
39 Arlo Lane
Cortlandt Manor, New York 10567

REV 1:	
REV 2:	
REV 3:	
REV 4:	
TAX MAP #:	SHT: 55.01, BLK: 2, LOT: 6
DATE:	8-2-16
DES BY:	RAW Le Chateau.dwg

STORMWATER
SOIL TEST LOCATIONS
FOR
LE CHATEAU

LOCATION: 1410 ROUTE 35
TOWN OF LEWISBORO

JOB #: 150504

APPENDIX E

Hydrodynamic Separator Detail and Certification

SPECIFICATION RE□UIREMENTS:

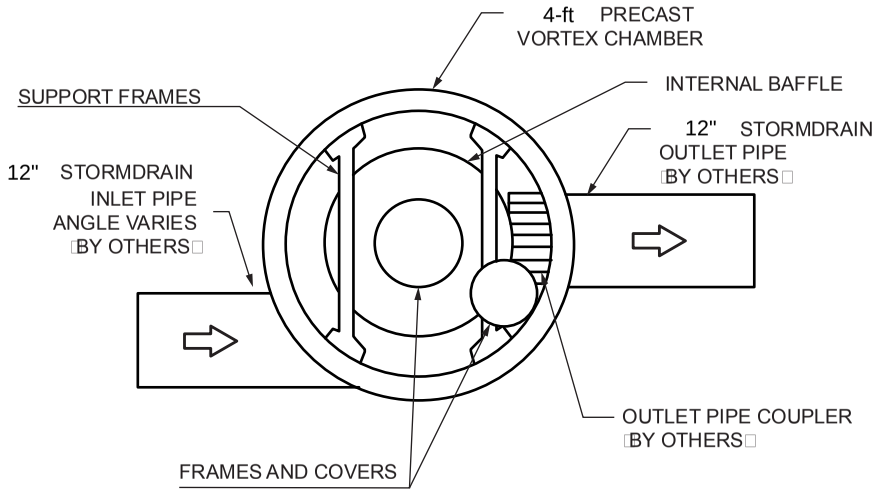
1. The treatment system shall use an induced vortex to separate pollutants from stormwater runoff.
2. The Treatment System shall remove 80 □ or □reater of TSS at the W□F.
3. The Treatment System shall treat all flows up to PTFR without bypass or loss of stored pollutants.
4. The Max. Headloss shall not be exceeded at PTFR with max. inlet pipe diameter.

DETAIL NOTES:

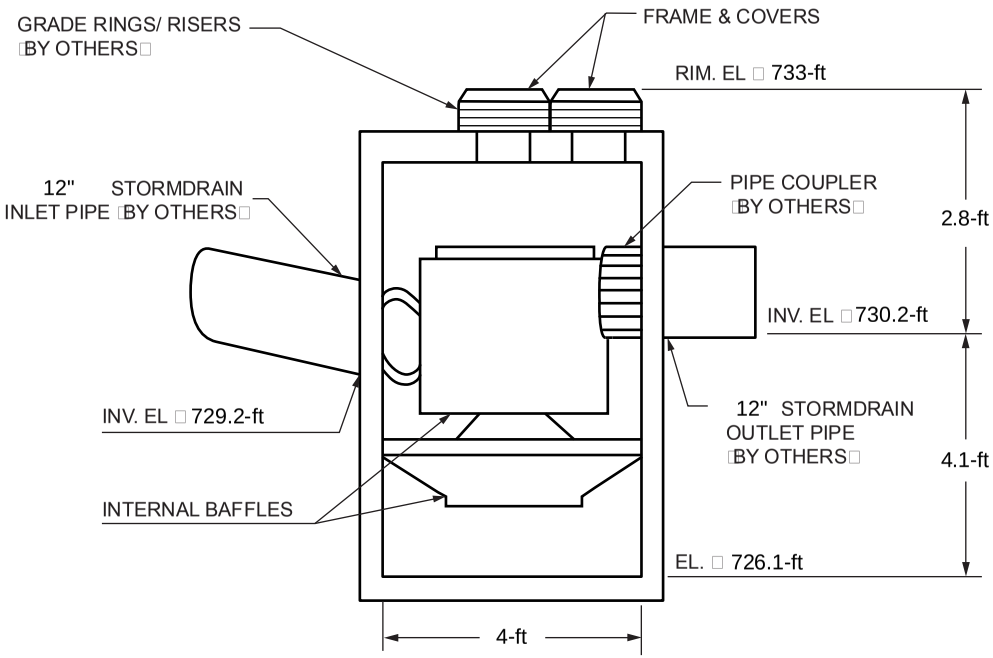
1. An acceptable pipe coupler shall be used to connect the Downstream Defender□s internal outlet stub to the stormdrain.
2. The diameter of the Downstream Defender□s outlet stub is not adjustable. Any reducers re□uired to match different stormdrain diameter must occur outside of the vortex chamber.
3. The inlet pipe diameter must not be lar□er than the outlet pipe diameter.
4. The tan□ential inlet pipe an□le is not site specific. Refer to project plans and fabrication drawin□s.
5. A 4-ft diameter model has one 30-inch cover.

Treatment System Specifications	
Vortex Chamber Diameter □DIA□	4-ft
Max. Outlet Pipe Diameter	12"
Max. Inlet Pipe Diameter	12"
Max. Treatment Flow Rate □MTFR□	1.56cfs
Peak Treatment Flow Rate □PTFR□	3cfs
Max. Headloss	0.68-ft
Sediment Stora□e	0.7yd³
Oil Stora□e	70gal

DO NOT USE □OR CONSTRUCTION OR □ABRICATION



PLAN VIEW
N.T.S.



ELEVATION VIEW
N.T.S.

NOTES

1. This is a standard detail and is not site specific. Actual inlet pipe diameter and an□le may be different.

2. Refer to submittal or fabrication drawin□s for final rim and invert elevations. NOTE: Elevation of inlet invert is one pipe diameter lower than the outlet invert.

3. Contact Hydro International for site specific drawin□s.

REVISION HISTORY			
REV	BY	DATE	DESCRIPTION
			FIRST ISSUE

Date	Scale
06/02/2016	NTS

Drawn	Checked	Approved

4-ft
DOWNSTREAM DEFENDER□
STANDARD ON-LINE DETAIL

Defender 1

PROJECT NAME:
Le Chateau

PROJECT LOCATION:
Lewisboro, NY

Hydro International

Stormwater Solutions
94 Hutchins Drive
Portland, Maine 04102
Tel: □207□756-6200
Fax: □207□756-6212

stormwaterin□uiry□ hydro-int.com

□ 2014
Hydro International

ANY WARRANTY GIVEN BY HYDRO INTERNATIONAL WILL APPLY ONLY TO THOSE ITEMS SUPPLIED BY IT. ACCORDINGLY HYDRO INTERNATIONAL CANNOT ACCEPT ANY RESPONSIBILITY FOR ANY STRUCTURE, PLANT, OR E□UIPMENT, □OR THE PERFORMANCE THEREOF□DESIGNED, BUILT, MANUFACTURED OR SUPPLIED BY ANY THIRD PARTY. HYDRO INTERNATIONAL HAVE A POLICY OF CONTINUOUS DEVELOPMENT AND RESERVE THE RIGHT TO AMEND THE SPECIFICATION. HYDRO INTERNATIONAL CANNOT ACCEPT LIABILITY FOR PERFORMANCE OF ITS E□UIPMENT, □OR ANY PART THEREOF□, IF THE E□UIPMENT IS SUBJECT TO CONDITIONS OUTSIDE ANY DESIGN SPECIFICATION. HYDRO INTERNATIONAL OWNS THE COPYRIGHT OF THIS DRAWING, WHICH IS SUPPLIED IN CONFIDENCE. IT MUST NOT BE USED FOR ANY OTHER PURPOSE OTHER THAN THAT FOR WHICH IT IS SUPPLIED AND MUST NOT BE REPRODUCED, IN WHOLE OR IN PART, WITHOUT PRIOR PERMISSION IN WRITING FROM HYDRO INTERNATIONAL.

CAD Ref: WEB DD SIZING CALC.
Project No.
Drawin□ No. Rev. A1401

State of New Jersey

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Nonpoint Pollution Control
Division of Water Quality
401-02B
Post Office Box 420
Trenton, New Jersey 08625-0420
609-633-7021 Fax: 609-777-0432
http://www.state.nj.us/dep/dwq/bnpc_home.htm

BOB MARTIN
Commissioner

August 18, 2015

Lisa Lemont, CPSWQ
Business Development Manager
Hydro International (Stormwater)
94 Hutchins Drive
Portland, ME 04102

Re: Revised MTD Lab Certification for the Downstream Defender Stormwater Treatment Device By Hydro International

TSS Removal Rate 50%

Dear Ms. Lemont:

This letter supersedes the previous certification letter dated January 21, 2015. Hydro International requested a new verification for the Downstream Defender Stormwater Treatment Device from the New Jersey Corporation for Advanced Technology (NJCAT) based on enhanced Maximum Treatment Flow Rate (MTFR).

The Stormwater Management rules under N.J.A.C. 7:8-5.5(b) and 5.7(c) allow the use of manufactured treatment devices (MTDs) for compliance with the design and performance standards at N.J.A.C. 7:8-5 if the pollutant removal rates have been verified by the New Jersey Corporation for Advanced Technology (NJCAT) and have been certified by the New Jersey Department of Environmental Protection (NJDEP). Hydro International has requested a Laboratory Certification for the Downstream Defender Stormwater Treatment Device.

The projects falls under the "Procedure for Obtaining Verification of a Stormwater Manufactured Treatment Device from New Jersey Corporation for Advance Technology" dated January 25, 2013. The applicable protocol is the "New Jersey Laboratory Testing Protocol to Assess Total Suspended Solids Removal by a Hydrodynamic Sedimentation Manufactured Treatment Device" dated January 25, 2013.

NJCAT verification documents submitted to the NJDEP indicate that the requirements of the aforementioned protocol have been met or exceeded. The NJCAT letter also included a recommended certification TSS removal rate and the required maintenance plan. The NJCAT Verification Report with the Verification Appendix for this device is published online at http://www.njcat.org/verification-process/technology-verification-database.html.

The NJDEP certifies the use of the Downstream Defender Stormwater Treatment Device by Hydro International at a TSS removal rate of 50% when designed, operated and maintained in accordance with the information provided in the Verification Appendix.

Be advised a detailed maintenance plan is mandatory for any project with a Stormwater BMP subject to the Stormwater Management Rules, N.J.A.C. 7:8. The plan must include all of the items identified in the Stormwater Management Rules, N.J.A.C. 7:8-5.8. Such items include, but are not limited to, the list of inspection and maintenance equipment and tools, specific corrective and preventative maintenance tasks, indication of problems in the system, and training of maintenance personnel. Additional information can be found in Chapter 8: Maintenance of the New Jersey Stormwater Best Management Practices Manual.

If you have any questions regarding the above information, please contact Mr. Titus Magnanao of my office at (609) 633-7021.

Sincerely,

James J. Murphy, Chief
Bureau of Nonpoint Pollution Control

C: Chron File
Richard Magee, NJCAT
Madhu Guru, DLUR
Ravi Patraju, NJDEP
Titus Magnanao, BNPC

Operation and Maintenance Manual

Downstream Defender™

Vortex Separator for Stormwater Treatment

Stormwater Solutions

Turning Water Around ...™

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CO□□RIGHT STATEMENT: The contents of this manual, including the drawings and specifications contained herein or annexed hereto, are intended for the use of the recipient to whom the document and all associated information are directed. Hydro International plc owns the copyri□ht of this document (including any drawings or graphics), which is supplied in confidence. It must not be used for any purpose other than that for which it is supplied and must not be reproduced, in whole or in part stored in a retrieval system or transmitted in any form or by any means without prior permission in writin□ from Hydro International plc. Downstream Defender□ is a trademarked hydrodynamic vortex separation device of Hydro International plc. A patent coverin□ the Downstream Defender□ has been □ranted.

DISCLAIMER: Information and data contained in this manual is exclusively for the purpose of assistin□ in the operation and maintenance of Hydro International plc□s Downstream Defender□. No warranty is □iven nor can liability be accepted for use of this information for any other purpose. Hydro International plc have a policy of continuous product development and reserve the right to amend specifications without notice.

Hydro International □Stormwater□, 94 Hutchins Drive, Portland ME 04102
Tel: □207□756-6200 Fax: □207□756-6212 Web: www.hydro-int.com

Downstream Defender® by Hydro International

The Downstream Defender® is an advanced Hydrodynamic Vortex Separator designed to provide high removal efficiencies of settleable solids and their associated pollutants, oil, and floatables over a wide range of flow rates.

The Downstream Defender® has unique, flow-modifying internal components developed from extensive full-scale testing, CFD modeling and over thirty years of hydrodynamic separation experience in wastewater, combined sewer and stormwater applications. These internal components distinguish the Downstream Defender® from simple swirl-type devices and conventional oil/grit separators by minimizing turbulence and headlosses, enhancing separation, and preventing washout of previously stored pollutants.

The high removal efficiencies and inherent low headlosses of the Downstream Defender® allow for a small footprint making it a compact and economical solution for the treatment of non-point source pollution.

See page 12 for more about Hydro International's Stormwater BMP Maintenance Contractor Certification Program.

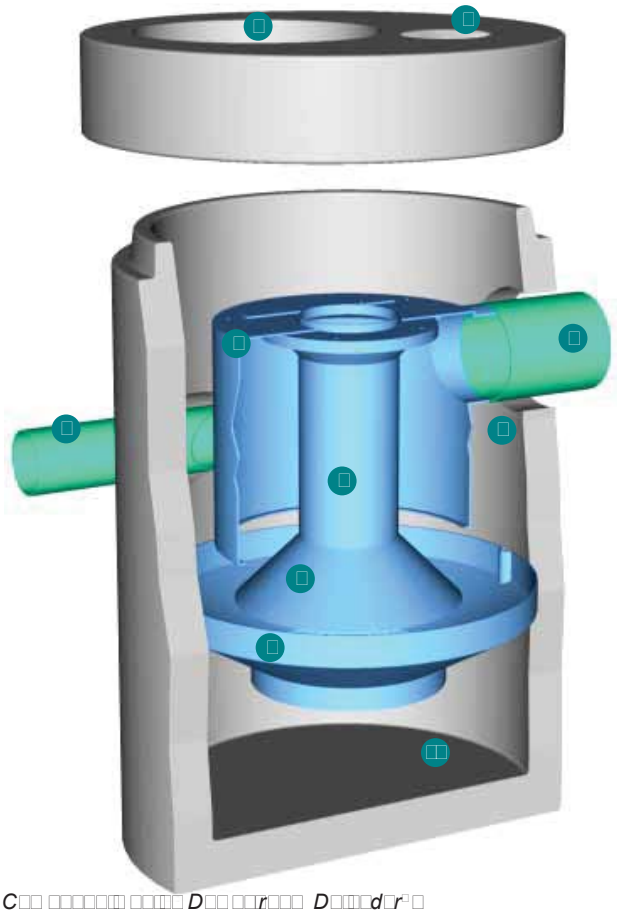

Figure C: Cross section of Downstream Defender®

Benefits of the Downstream Defender®

- Removes sediment, floatables, oil and grease
- No pollutant washouts
- Small footprint
- No loss of treatment capacity between clean-outs
- Low headloss
- Efficient over a wide range of flows
- Easy to install
- Low maintenance

Applications

- New developments and retrofits
- Utility yards
- Streets and roadways
- Parking lots
- Pre-treatment for filters, infiltration and storage
- Industrial and commercial facilities
- Wetlands protection
- Pretreatment to Low Impact Development practices

Downstream Defender® Components

1. Central Access Port (all models)
2. Floatables Access Port (6-ft/1.8m, 8-ft/2.4m, 10-ft/3.0m and 12-ft/3.7m models only)
3. Dip Plate with Integral Floatables Lid
4. Tangential Inlet
5. Center Shaft
6. Center Cone
7. Benching Skirt
8. Outlet Pipe
9. Floatables Storage Zone
10. Isolated Sediment Storage Zone

Operation

Introduction

The Downstream Defender® operates on simple fluid hydraulics. It is self-activating, has no moving parts, no external power requirement and is manufactured from durable non-corrosive components. No manual procedures are required to operate the unit and maintenance is limited to monitoring accumulations of stored pollutants and periodic clean-outs. The Downstream Defender® has been designed to allow for easy and safe access for inspection/monitoring and clean-out procedures. Entry into the unit or removal of the internal components is not necessary for maintenance, thus safety concerns related to confined-space-entry are avoided.

Pollutant Capture and Retention

The internal components of the Downstream Defender® have been designed to protect the oil/floatables and sediment storage volumes so that separator performance is not reduced as pollutants accumulate between clean-outs (Fig. 2). The Downstream Defender® vessel remains wet between storm events. Oil and floatables are stored on the water surface in the outer annulus separate from the sediment storage volume in the sump of the unit providing the option for separate oil disposal, and accessories such as adsorbant pads. Since the oil/floatables and sediment storage volumes are isolated from the active separation region, the potential for re-suspension and washout of stored pollutants between clean-outs is minimized.

Wet Sump

The sump of the Downstream Defender® retains a standing water level between storm events. The water in the sump prevents stored sediment from solidifying in the base of the unit. The clean-out procedure becomes more difficult and labor intensive if the system allows fine sediment to dry-out and consolidate. Dried sediment must be manually removed by maintenance crews. This is a labor intensive operation in a hazardous environment.

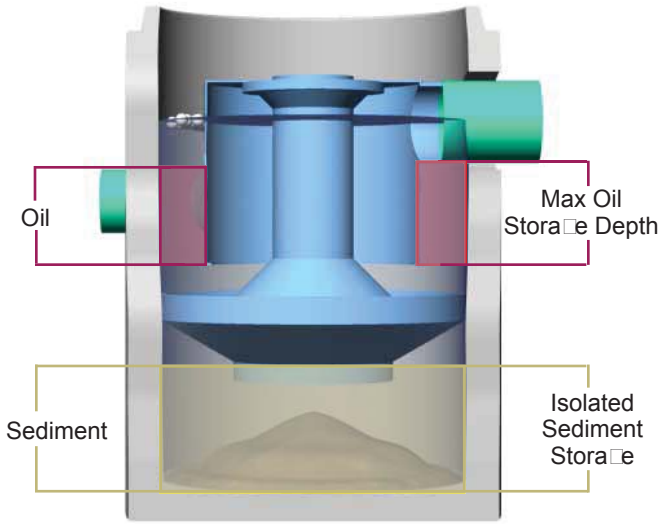

Figure 2. Cross section of a Downstream Defender®

Blockage Protection

The Downstream Defender® has large clear openings and no internal restrictions or weirs, minimizing the risk of blockage and hydraulic losses. In addition to increasing the system headloss, orifices and internal weirs can increase the risk of blockage within the unit.

Maintenance

Overview

The Downstream Defender® protects the environment by removing a wide range of pollutants from stormwater runoff. Periodic removal of these captured pollutants is essential to the continuous, long-term functioning of the Downstream Defender®. The Downstream Defender® will capture and retain sediment and oil until the sediment and oil storage volumes are full to capacity. When sediment and oil storage capacities are reached, the Downstream Defender® will no longer be able to store removed sediment and oil. Maximum pollutant storage capacities are provided in Table 1.

Hydro International recommends that maintenance crews watch the Downstream Defender® maintenance training video at **www.hydro-int.com/us/products/downstream-defender**. Maintenance providers are also encouraged to participate in Hydro International's Maintenance Contractor Certification Program (see page 12).

Figure 3. Video of Downstream Defender® maintenance operations available at **www.hydro-int.com/us/products/downstream-defender**.

The Downstream Defender□ allows for easy and safe inspection, monitorin□ and clean-out procedures. A commercially or municipally owned sump-vac is used to remove captured sediment and floatables. Access ports are located in the top of the manhole. On the 6-ft □1.8m□, 8-ft □2.4m□, 10-ft □3.0m□and 12-ft □3.7m□units, the floatables access port is above the outlet pipe between the concrete manhole wall and the dip plate. The sediment removal access ports for all Downstream Defender□ models are located directly over the hollow center shaft.

Maintenance events may include Inspection, Oil & Floatables Removal, and Sediment Removal. Maintenance events do not re□uire entry into the Downstream Defender□, nor do they re□uire the internal components of the Downstream Defender□ to be removed. In the case of inspection and floatables removal, a vactor truck is not re□uired. However, a vactor truck is re□uired if the maintenance event is to include oil removal and/or sediment removal.

Determinin□ Your Maintenance Schedule

The frequency of cleanout is determined in the field after installation. During the first year of operation, the unit should be inspected every six months to determine the rate of sediment and floatables accumulation. A simple probe such as a Sludge Judge□ can be used to determine the level of accumulated solids stored in the sump. This information can be recorded in the maintenance lo□ □see pa□e 9□to establish a routine maintenance schedule.

The vactor procedure, including both sediment and oil/floatables removal, for a 6-ft □1.8m□Downstream Defender□ typically takes less than 30 minutes and removes a combined water/oil volume of about 500 □allons □1900 liters□.

Inspection Procedures

Inspection is a simple process that does not involve entry into the Downstream Defender□. Maintenance crews should be familiar with the Downstream Defender□ and its components prior to inspection.

S□□□d□□□□

- It is important to inspect your Downstream Defender□ every six months during the first year of operation to determine your site-specific rate of pollutant accumulation
- Typically, inspection may be conducted durin□ any season of the year
- Sediment removal is not re□uired unless sediment depths exceed 75□ of maximum clean-out depths stated in Table 1

R□□□□ □ □□d□d E□□□□ □□□

- Safety E□uipment and Personal Protective E□uipment (traffic cones, work gloves, etc.)
- Crow bar or other tool to remove □rate or lid
- Pole with skimmer or net
- Sediment probe (such as a Sludge Judge□□
- Trash bag for removed floatables
- Downstream Defender□ Maintenance Lo□

Table 1. Downstream Defender□ Pollutant Stora□e Capacities and Max. Cleanout Depths.

Unit Diameter		Total Oil Stora□e		Oil Clean-out Depth		Total Sediment Stora□e		Sediment Clean-out Depth		Max. Li□uid Volume Removed	
□ft□	□m□	□□al□	□L□	□in□	□cm□	□yd³□	□m³□	□in□	□cm□	□□al□	□L□
4	1.2	70	265	□16	□41	0.70	0.53	□18	□45	384	1,454
6	1.8	216	818	□23	□58	2.10	1.61	□24	□61	1,239	4,690
8	2.4	540	2,044	□33	□84	4.65	3.56	□30	□76	2,884	10,917
10	3.0	1,050	3,975	□42	□107	8.70	6.65	□36	□91	5,546	20,994
12	3.7	1,770	6,700	□49	□125	14.70	11.24	□42	□107	9,460	35,810

NOTES

□□Refer to Dowmstream Defender□ Clean-out Detail □Fi□.2□for measurement of depths.

□□Oil accumulation is typically less than sediment, however, removal of oil and sediment durin□ the same service is recommended.

□□Remove floatables first, then remove sediment storage volume.

□□Sediment removal is not re□uired unless sediment depths exceed 75□ of maximum clean-out depths stated in Table 1.

F□□□□

F□□□□

F□□□□

I□□□□□□□□□ □r□□□d□r□□

□□ Set up any necessary safety e□uipment around the access port or □rate of the Downstream Defender□ as stipulated by local ordinances. Safety e□uipment should notify passin□ pedestrian and road traffic that work is being done.

□□ Remove the lids to the manhole □Fi□. 4□. NOTE: The 4-ft □1.2m□Downstream Defender□ will only have one lid.

□□ Without enterin□ the vessel, look down into the chamber to inspect the inside. Make note of any irre□ularities. See Fi□.7 and 8 for typical inspection views.

□□ Without enterin□ the vessel, use the pole with the skimmer net to remove floatables and loose debris from the outer annulus of the chamber.

□□ Using a sediment probe such as a Sludge Judge□, measure the depth of sediment that has collected in the sump of the vessel □Fi□.5□.

□□ On the Maintenance Lo□ □see pa□e 9□, record the date, unit location, estimated volume of floatables and gross debris removed, and the depth of sediment measured. Also note any apparent irre□ularities such as dama□ed components or blocka□es.

□□ Securely replace the □rate or lid.

□□ Take down safety e□uipment.

□□ Notify Hydro International of any irre□ularities noted durin□ inspection.

Floatables and Sediment Cleanout

Floatables cleanout is typically done in conjunction with sediment removal. A commercially or municipally owned sump-vac is used to remove captured sediment and floatables (Fig.6).

Floatables and loose debris can also be netted with a skimmer and pole. The access port located at the top of the manhole provides unobstructed access for a vactor hose and skimmer pole to be lowered to the base of the sump.

S□□□d□□□□□

- Floatables and sump cleanout are typically conducted once a year durin□ any season.
- If sediment depths are □reater than 75□ of maximum clean-out depths stated in Table 1, sediment removal is re□uired.
- Floatables and sump cleanout should occur as soon as possible followin□ a spill in the contributin□ draina□e area.

F□□□□ □□□□ □□□r □□□□□r □□□□□□□□□□ □□d□□ □□□□□r□□□ □□□□□

Fig.8 View of outer annulus of floatables and oil collection zone.

R□□□□ □ □□d□d E□□□□□ □□□

- Safety Equipment (traffic cones, etc)
- Crow bar or other tool to remove □rate or lid
- Pole with skimmer or net (if only floatables are being removed)
- Sediment probe (such as a Sludge Judge□□
- Vactor truck (6-inch/150mm diameter flexible hose recommended□
- Downstream Defender□ Maintenance Lo□

Floatables and Sediment Clean Out Procedures

□□ Set up any necessary safety e□uipment around the access port or □rate of the Downstream Defender□ as stipulated by local ordinances. Safety e□uipment should notify passin□ pedestrian and road traffic that work is being done.

□□ Remove the lids to the manhole NOTE: The 4-ft □1.2m□ Downstream Defender□ will only have one lid.

□□ Without enterin□ the vessel, look down into the chamber to inspect the inside. Make note of any irre□ularities.

4. Using the Floatables Port for access, remove oil and floatables stored on the surface of the water with the vactor hose or the skimmer net □Fi□.9, top□

□□ Using a sediment probe such as a Sludge Judge□, measure the depth of sediment that has collected in the sump of the vessel and record it in the Maintenance Lo□ □P□.9□

□□ Once all floatables have been removed, drop the vactor hose to the base of the sump via the Central Access Port. Vactor out the sediment and gross debris off the sump floor (Fig.6 and 9).

□□ Retract the vactor hose from the vessel.

□□ On the Maintenance Lo□ provided by Hydro International, record the date, unit location, estimated volume of floatables and □ross debris removed, and the depth of sediment measured. Also note any apparent irre□ularities such as dama□ed components or blocka□es.

□□ Securely replace the □rate or lid.

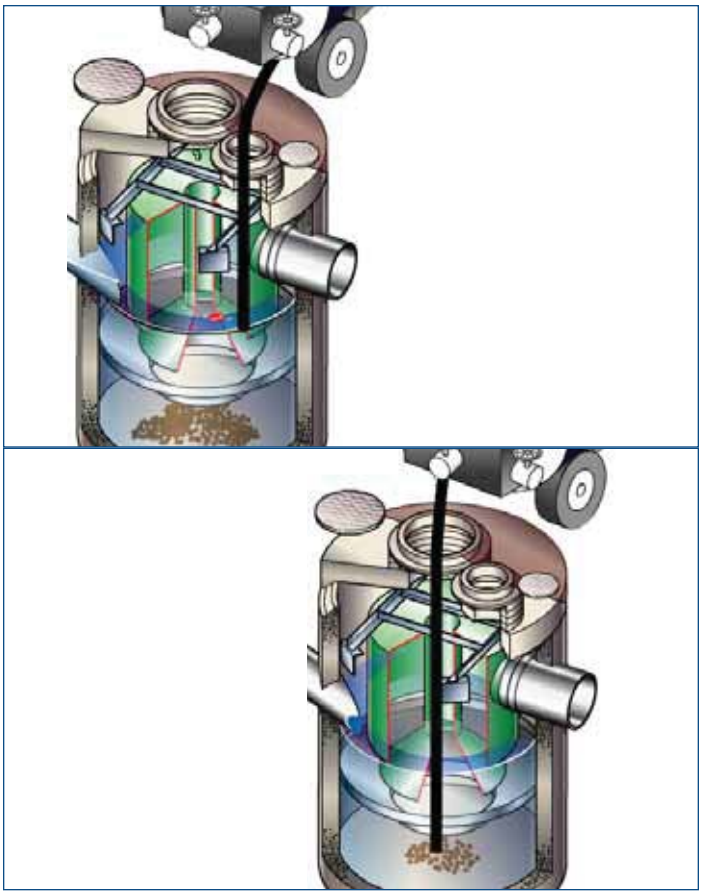

Fig.9 Floatables and sediment are removed with a vactor hose

Maintenance at a Glance

Activity	Fre□uency
Inspection	- Regularly during first year of installation - Every 6 months after the first year of installation
Oil and Floatables Removal	- Once per year, with sediment removal - Followin□ a spill in the draina□e area
Sediment Removal	- Once per year or as needed - Followin□ a spill in the draina□e area
NOTE: For most cleanouts it is not necessary to remove the entire volume of li□uid in the vessel. Only removing the first few inches of oils/floatables and the sediment storage volume is required.	

Downstream Defender Installation Log

HYDRO INTERNATIONAL REFERENCE NUMBER:	
SITE NAME:	
SITE LOCATION:	
OWNER:	CONTRACTOR:
CONTACT NAME:	CONTACT NAME:
COMPANY NAME:	COMPANY NAME:
ADDRESS:	ADDRESS:
TELEPHONE:	TELEPHONE:
FAX:	FAX:

INSTALLATION DATE: / /

MODEL (CIRCLE ONE): T T T T T

Hydro International (Stormwater), 94 Hutchins Drive, Portland ME 04102
Tel: (207) 756-6200 Fax: (207) 756-6212 Web: www.hydro-int.com

Downstream Defender Maintenance Log

Site Name: Owner Change since last inspection Y N

Location:

Owner Name:

Address: Phone Number:

Site Status:

Date: Time: Site conditions:
(Stable, Under Construction, Needing Maintenance, etc.)

Date	Initials	Depth of Floatables and Oils Removed	Sediment Depth Measured Prior to Removal	Site Activity and Comments

Note: Sediment removal is not required unless sediment depths exceed 75 of maximum clean-out depths stated in Table 1.

Notes

Downstream Defender Inspection Log

Site Name: Owner Change since last inspection Y N

Location:

Owner Name:

Address: Phone Number:

Site Status:

Date: Time: Site conditions:
(Stable, Under Construction, Needing Maintenance, etc.)

Inspection Frequency Key: A annual M monthly S after major storms

Inspection Items	Inspection Frequency	Inspected Yes/No	Maintenance Needed Yes/No	Comments/Description
Debris Removal				
Adjacent area free of debris	M			
Inlets and Outlets free of debris	M			
Chamber free of debris	M			
Vegetation				
Surrounding area fully stabilized no evidence of eroding material in Downstream Defender	A			
Grass mowed	M			
Water retention where required				
Water holding chamber is at normal pool	M			
Evidence of erosion	A			
Sediment Deposition				
Sedimentation sump not more than 50 full	A			
Structural Components				
Any evidence of structural deterioration	A			
Rim & cover in good condition	A			
Spalling or cracking of structural parts	A			
Outlet/Overflow Spillway	A			
Other				
Noticeable odors	A			
Evidence of flow bypassing facility?	A			

Inspector Comments: _____

_____

_____

_____

Overall Condition of Downstream Defender : ☐ Acceptable ☐ Unacceptable

***"Acceptable" would mean properly functioning; "unacceptable" would mean damaged or required further maintenance.*

If any of the above Inspection Items are checked Yes for Maintenance Needed, list Maintenance actions and their completion dates below:

Maintenance Action Needed	Due Date

The next routine inspection is schedule for approximately: date _____

Inspected by: signature _____

Inspected by: printed _____

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APPENDIX F

Flow Diffuser Calculations

CRONIN ENGINEERING, PE, PC
(914) 736-3664

Client: Curtis
Job: Le Chateau
Date: 8-3-16

Flow Diffuser Sizing

- Sizing based on criteria provided in Draft February 2016 New York Standards and Specifications for Erosion and Sediment Control. See Standard (attached) for formulas and variables presented in calculations.

- Flow Diffuser design generally based on flowrate from 10 year 24 hour storm (see design criteria 2 in standard). Analysis reveals no flow to either flow diffuser with the 10 year storm so a 50 year 24 hour event is used. See attached HydroCad output.

For Diffuser on west side of parking lot 2:

Flow = 1.8 cfs, Diffuser length = 18'

- Design Criteria 2 - Flow must be less than 0.25 cfs/lf.

$$\frac{1.8\ cfs}{18\ lf} = 0.07\ cfs/lf \quad - OK$$

- Design Criteria 5

$$Q_d = \frac{h^{2/3}\,W}{\left[\left(\frac{L}{D}\right)+2.5+L^2\right]^{.5}} = \frac{\left(1^{(2/3)}\right)(18)}{\left[\left(\frac{3}{.5}\right)+2.5+3^2\right]^{.5}} = \frac{18}{17.5^{.5}} = 4.3\ cfs$$

4.3 cfs > 1.8 cfs ok

CRONIN ENGINEERING, PE, PC
(914) 736-3664

Client: Curtis
Job: Le Chateau
Date: 8-3-16

For Diffuser on east side of parking lot 2:

Flow = 0.9 cfs, Diffuser length = 8'

- Design Criteria 2 - Flow must be less than 0.25 cfs/lf

$$\frac{0.9\ cfs}{8\ lf} = 0.11\ cfs/lf \quad ok$$

- Design Criteria 5

$$Q_d = \frac{h^{2/3} W}{\left[\left(\frac{L}{D}\right) + 2.5 + L^2\right]^{.5}} = \frac{(1^{2/3})(8)}{\left[\left(\frac{3}{.5}\right) + 2.5 + 3^2\right]^{.5}} = \frac{8}{17.5^{.5}} = 1.9\ cfs$$

1.9 cfs > 0.9 cfs ok

For Diffuser on north end of parking lot 4:

Flow = 1.9 cfs, Diffuser length = 8'

- Design Criteria 2 - Flow must be less than 0.25 cfs/lf

$$\frac{1.9\ cfs}{8\ lf} = 0.24\ cfs/lf \quad ok$$

- Design Criteria 5

$$Q_d = \frac{h^{2/3} W}{\left[\left(\frac{L}{D}\right) + 2.5 + L^2\right]^{.5}} = \frac{(1^{2/3})(8)}{\left[\left(\frac{3}{.5}\right) + 2.5 + 3^2\right]^{.5}} = \frac{8}{17.5^{.5}} = 1.9\ cfs$$

1.9 cfs ≥ 1.9 cfs ok

STANDARD AND SPECIFICATIONS FOR FLOW DIFFUSER

Definition & Scope

A permanent non-erosive outlet for concentrated runoff constructed to diffuse flow uniformly through a stone matrix onto a stablilized area in the form of shallow, low velocity, sheet flow.

Conditions Where Practice Applies

Where sediment-free stormwater runoff can be released in low velocity sheet flow down stabilized areas without causing erosion; where the ground slope at the outlet of the diffuser is less than 30% and the runoff will not re-concentrate after release; and where construction of a flow spreader is not practicable.

Design Criteria

1. **Drainage area:** The maximum drainage area to the spreader may not exceed 0.10 acre per foot length of the flow spreader. The drainage area served by the spreader discharging directly cannot be 10-20% more than half the size of the receiving buffer area.

2. **Discharge from diffuser onto receiving area:** The peak stormwater flow rate to a flow diffuser onto a receiving area from a 10-year 24-hour storm must be less than 0.25 cubic feet per second (0.25 cfs) per linear foot of weir crest length.

3. **Receiving area of buffer:** Each flow diffuser shall have a vegetated receiving area with a minimum continuous length of 150 feet and the capacity to pass the flow without erosion. The receiving area shall be stable prior to the construction of the flow diffuser. The receiving area shall have topography regular enough to prevent undue flow concentration before entering a stable watercourse but it shall have a slope that is less than 30%. If the receiving area is not presently stable, then the receiving area shall be stabilized prior to construction of the flow diffuser. The receiving area below the flow diffuser shall be protected from harm during construction. Sodding and/or turf reinforcement mat (TRM) in combination with vegetative measures shall stabilize disturbed areas. The receiving area shall not be used by the flow diffuser until stabilization has been accomplished. A temporary diversion may be necessary in this case.

4. **Cross-section:** The minimum stone diffuser cross-section shall be trapezoidal with a height of 1 foot above natural ground; top width equal to 2 foot and side slope equal to 1 horizontal to 1 vertical. The storage area behind the diffuser shall be excavated to a depth of 1 foot and overall width of storage area equal to 6 feet minimum.

5. **Sizing the diffuser:** The length of the stone diffuser is governed by the size of the stone in the structure, the height of the diffuser, and the flow length through it. The following equation is used to establish the design of the diffuser:

$$Q_d = \frac{h^{2/3} W}{[(\frac{L}{D}) + 2.5 + L^2]^{0.5}}$$

Where:

Q_d = Outflow through the stone diffuser (cfs)
h = Ponding depth behind the diffuser (ft.)
W = Linear length of the diffuser along centerline (ft.)
L = Average horizontal flow length through the diffuser perpendicular to the centerline (ft.)
D = Average stone diameter (d_{50}) in the structure (ft.)

The maximum d_{50} size shall be 9” or 0.75’.

The designer shall calculate the length of diffuser needed depending on the geometry of the cross-section and rock size to be used recognizing that the maximum allowable discharge through the diffuser shall be 0.25 cfs per foot of length.

Once the discharge is calculated for the 10 year storm for the drainage area to the diffuser (Q_{10}) it can be divided by the design discharge of the diffuser to determine the diffuser length as follows:

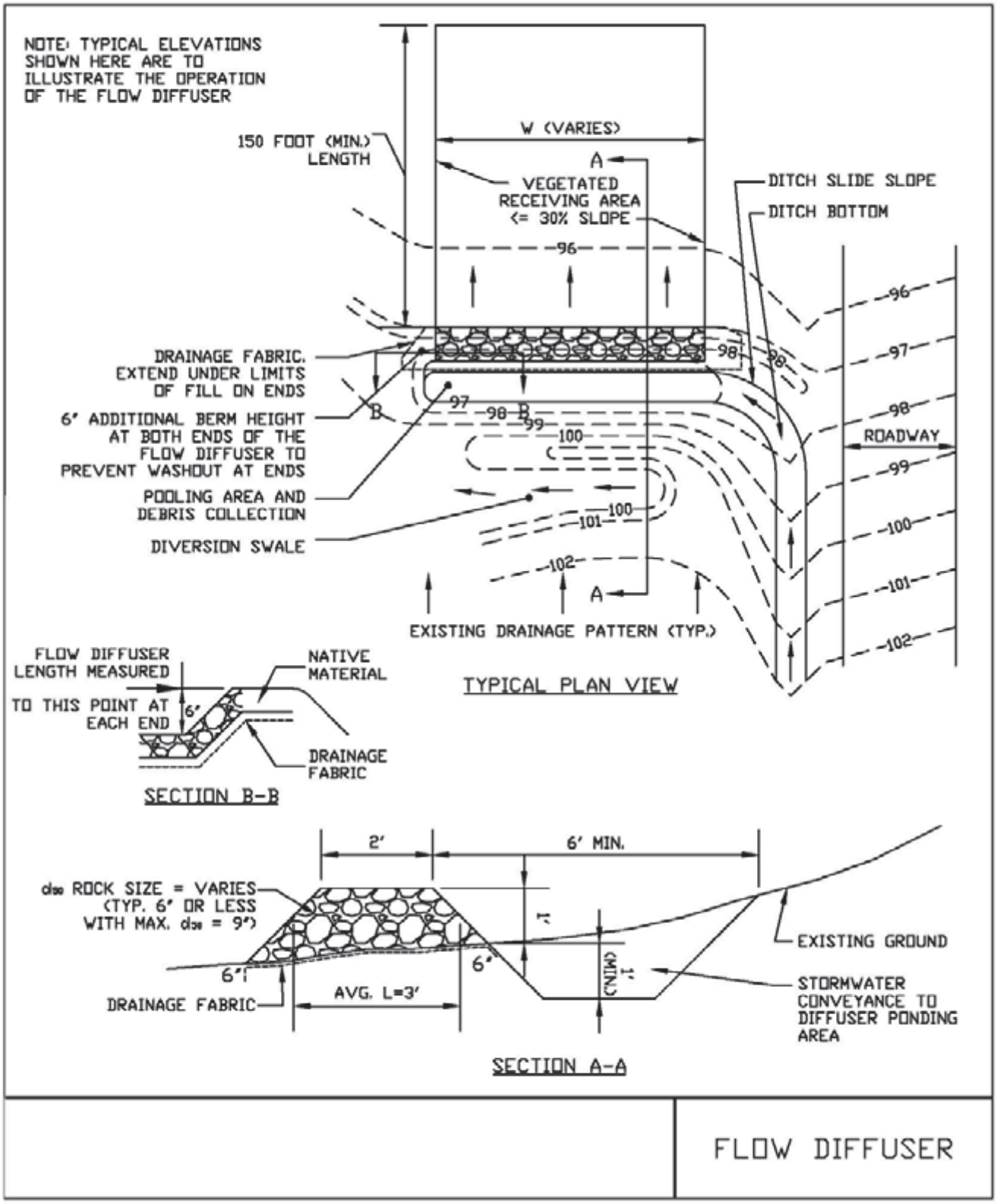
$$W = \frac{Q_{10}}{Q_d}$$

Where:

Q_d = Outflow through the stone diffuser (cfs/ft)
Q_{10} = Discharge rate for the 10 year storm (cfs)
W = Linear length of the diffuser along centerline (ft.)

Design examples are shown in Appendix B.

Figure 3.6
Flow Diffuser Detail



Su□ □ary □or □ond MH□: MH□ to □lo□ di□□user

Inflow Area □ 1.790 ac, 55.31□ Impervious, Inflow Depth □ 0.25" for 50 year storm event
Inflow □ 1.77 cfs □ 12.30 hrs, Volume□ 0.038 af
Outflow □ 1.78 cfs □ 12.30 hrs, Volume□ 0.038 af, Atten□ 0□ , La□□ 0.1 min
Primary □ 1.78 cfs □ 12.30 hrs, Volume□ 0.038 af

Routin□ by Stor-Ind method, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs / 3
Peak Elev□ 698.45□□ 12.30 hrs Surf.Area□ 13 sf Stora□e□ 8 cf

Plu□-Flow detention time□ 0.1 min calculated for 0.038 af □100□ of inflow□
Center-of-Mass det. time□ 0.1 min □745.1 - 745.0 □

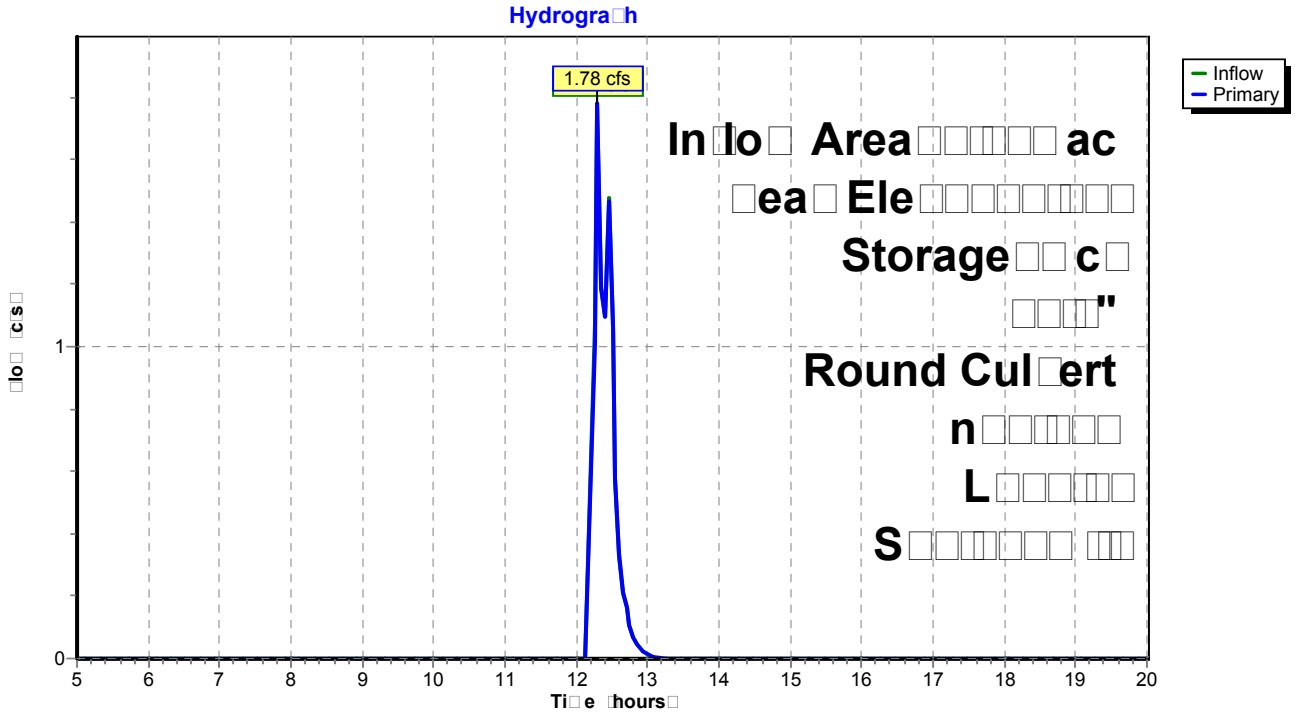
Volume	Invert	Avail.Stora□e	Stora□e Description
□1	697.80□	48 cf	**Custo□ Stage Data □□ris□ atic□**Listed below □Recalc□

Elevation □feet□	Surf.Area □s□-ft□	Inc.Store □cubic-feet□	Cum.Store □cubic-feet□
697.80	13	0	0
701.50	13	48	48

Device	Routin□	Invert	Outlet Devices
□1	Primary	697.80□	□□□□" **Round Cul□ert** L□ 45.0□ RCP, s□uare ed□e headwall, Ke□ 0.500 Inlet / Outlet Invert□ 697.80□/ 678.00□ S□ 0.4400 □/□ Cc□ 0.900 n□ 0.012, Flow Area□ 1.23 sf

□**ri□ ary Out□lo□** Max□1.74 cfs □ 12.30 hrs HW□698.44□ □Free Discha□e□
└□□**Cul□ert** □Inlet Controls 1.74 cfs □ 2.73 fps□

□ond MH□: MH□ to □lo□ di□□user



Su□ □ ary □or □ond □□□: □ar□ing □in□iltration

Inflow Area □	0.770 ac,	25.97□ Impervious,	Inflow Depth □	3.44" for 50 year storm event
Inflow □	3.34 cfs □	12.08 hrs,	Volume□	0.221 af
Outflow □	1.14 cfs □	12.22 hrs,	Volume□	0.209 af, Atten□ 66□ , La□□ 8.4 min
Discarded □	0.29 cfs □	11.80 hrs,	Volume□	0.187 af
Primary □	0.85 cfs □	12.22 hrs,	Volume□	0.023 af

Routin□ by Stor-Ind method, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs / 2
Peak Elev□ 713.55□□ 12.20 hrs Surf.Area□ 1,242 sf Stora□e□ 2,605 cf

Plu□-Flow detention time□ 98.0 min calculated for 0.209 af □95□ of inflow□
Center-of-Mass det. time□ 79.6 min □876.9 - 797.2 □

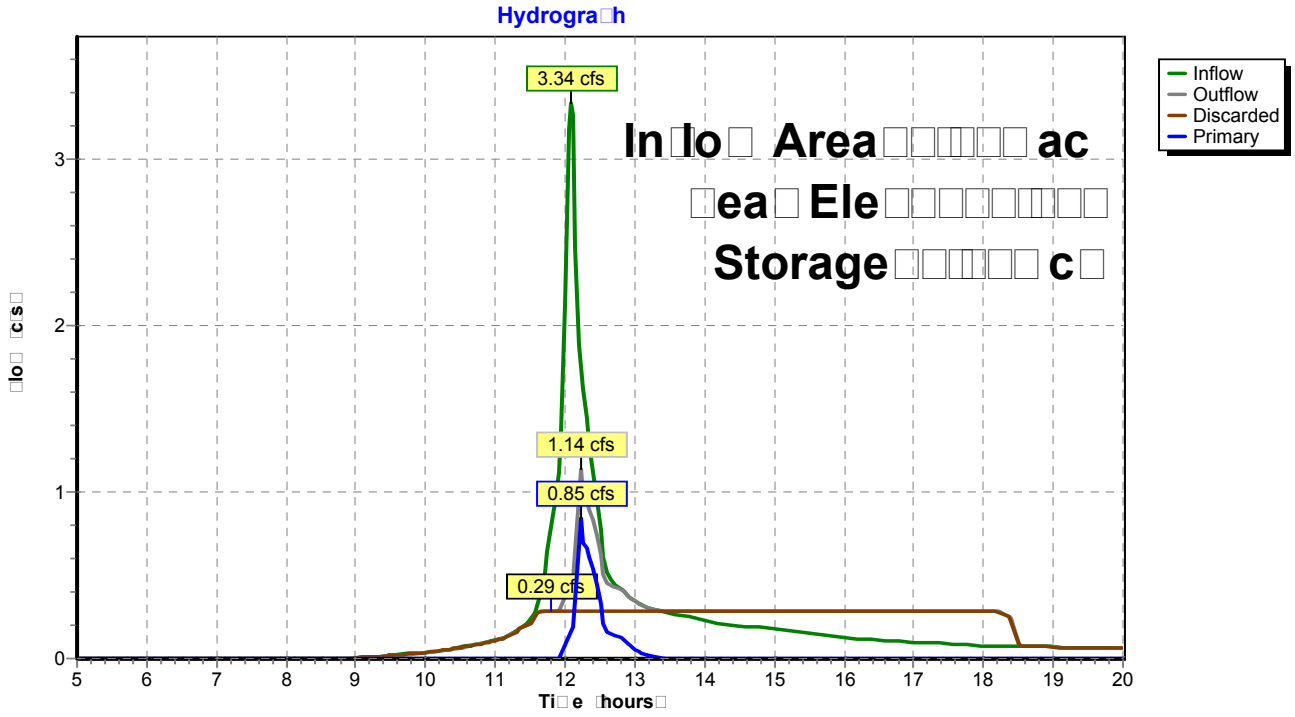
Volume	Invert	Avail.Stora□e	Stora□e Description
□1	709.60□	716 cf	□□□□□**W** □ □□□□□**L** □ □□□□□**H** □**ris**□ **atoid**
			3,332 cf Overall - 1,285 cf Embedded □ 2,047 cf x 35.0□ Voids
□2	710.10□	1,285 cf	**Cultec R**□□□□□**L** □ □□□□□□□**L** Inside □1
			Effective Si□e□ 47.8"W x 30.0"H □□ 7.45 sf x 171.00□L □ 1,274.1 cf
			Overall Si□e□ 52.0"W x 30.5"H x 8.50□L with 1.50□Overlap
			Row Len□th Adjustment□ □1.50□x 7.45 sf x 1 rows
□3	709.60□	222 cf	□□□□□**W** □ □□□□□**L** □ □□□□□**H** □**ris**□ **atoid**
			980 cf Overall - 346 cf Embedded □ 634 cf x 35.0□ Voids
□4	710.10□	346 cf	**Cultec R**□□□□□**L** □ □□□□□□□**L** Inside □3
			Effective Si□e□ 47.8"W x 30.0"H □□ 7.45 sf x 45.00□L □ 335.3 cf
			Overall Si□e□ 52.0"W x 30.5"H x 8.50□L with 1.50□Overlap
			Row Len□th Adjustment□ □1.50□x 7.45 sf x 1 rows
□5	710.00□	60 cf	□□□□**W** □ □□□□**L** □ □□□□**H** □**ris**□ **atoid**
		2,630 cf	Total Available Stora□e

Device	Routin□	Invert	Outlet Devices
□1	Primary	713.10□	□□□□**" Round Cul□ert**
			L□ 72.0□ RCP, s□uare ed□e headwall, Ke□ 0.500
			Inlet / Outlet Invert□ 713.10□/ 712.00□ S□ 0.0153 □/□ Cc□ 0.900
			n□ 0.012, Flow Area□ 0.79 sf
□2	Primary	715.10□	□□□□**" □ □□□□" Hori□□Ori□ice□Grate** C□ 0.600
			Limited to weir flow at low heads
□3	Discarded	709.60□	□□□□□□**in□hr E□□iltration o□er Hori□ontal area**

Discarded Out□lo□ Max□0.29 cfs □ 11.80 hrs HW□710.07□ □Free Discha□e□
└─□□**E□□iltration** □Exfiltration Controls 0.29 cfs□

□**ri□ ary Out□lo□** Max□0.74 cfs □ 12.22 hrs HW□713.54□ □Free Discha□e□
├─□□**Cul□ert** □Inlet Controls 0.74 cfs □ 2.25 fps□
└─□□**Ori□ice□Grate** □Controls 0.00 cfs□

□ond □□□: □ar□ing □in□iltration



Su□ □ ary □or □ond □□□: □ar□ing □in□iltration

Inflow Area □ 0.540 ac, 31.48□ Impervious, Inflow Depth □ 4.63" for 50 year storm event
Inflow □ 3.12 cfs □ 12.07 hrs, Volume□ 0.209 af
Outflow □ 2.24 cfs □ 12.27 hrs, Volume□ 0.219 af, Atten□ 28□, La□□ 11.5 min
Discarded □ 0.30 cfs □ 11.80 hrs, Volume□ 0.187 af
Primary □ 1.94 cfs □ 12.27 hrs, Volume□ 0.031 af

Routin□ by Stor-Ind method, Time Span□ 5.00-20.00 hrs, dt□ 0.05 hrs / 2
Peak Elev□ 731.84□□ 12.27 hrs Surf.Area□ 1,298 sf Stora□e□ 2,677 cf

Plu□-Flow detention time□ □not calculated: outflow precedes inflow□
Center-of-Mass det. time□ 61.1 min □838.9 - 777.8 □

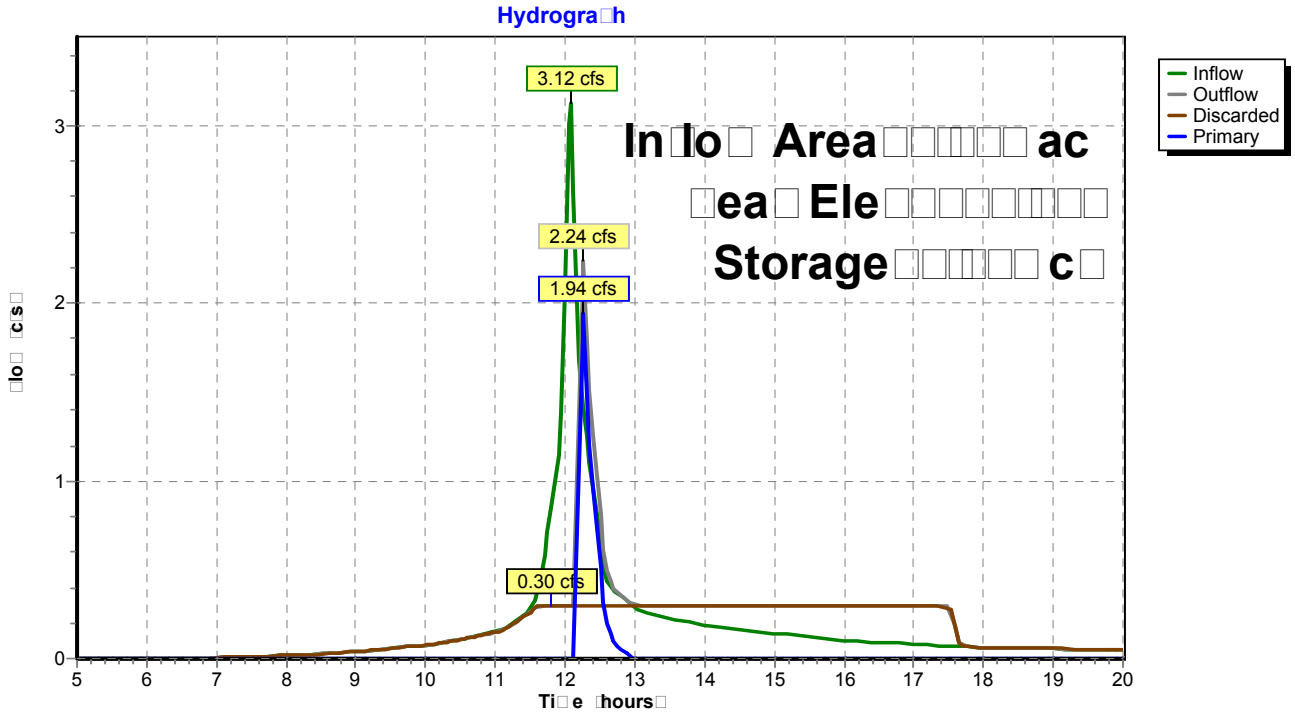
Volume	Invert	Avail.Stora□e	Stora□e Description
□1	727.50□	1,007 cf	□□□□□**W** □ □□□□□**L** □ □□□□□**H** □**ris**□ **atoid**
			4,508 cf Overall - 1,632 cf Embedded □ 2,876 cf x 35.0□ Voids
□2	728.00□	1,632 cf	**Cultec R**□□□□□**L** □ □□□□□□□**L** Inside □1
			Effective Si□e□ 47.8"W x 30.0"H □□ 7.45 sf x 217.50□L □ 1,620.6 cf
			Overall Si□e□ 52.0"W x 30.5"H x 8.50□L with 1.50□Overlap
			Row Len□th Adjustment□ □1.50□x 7.45 sf x 1 rows
□3	728.00□	60 cf	□□□□□**W** □ □□□□□**L** □ □□□□□**H** □**ris**□ **atoid**
		2,698 cf	Total Available Stora□e

Device	Routin□	Invert	Outlet Devices
□1	Primary	731.00□	□□□□**" Round Cul□ert**
			L□ 8.0□ RCP, s□uare ed□e headwall, Ke□ 0.500
			Inlet / Outlet Invert□ 731.00□/ 729.00□ S□ 0.2500 □/□ Cc□ 0.900
			n□ 0.012, Flow Area□ 0.79 sf
□2	Primary	733.00□	□□□□**" □ □□□□" Hori□□Ori□ice□Grate** C□ 0.600
			Limited to weir flow at low heads
□3	Discarded	727.50□	□□□□□□□**in□hr E□□iltration o□er Hori□ontal area**

Discarded Out□lo□ Max□0.30 cfs □ 11.80 hrs HW□728.02□ □Free Discha□e□
└─□□**E□□iltration** □Exfiltration Controls 0.30 cfs□

□**ri□ ary Out□lo□** Max□1.70 cfs □ 12.27 hrs HW□731.71□ □Free Discha□e□
└─□□**Cul□ert** □Inlet Controls 1.70 cfs □ 2.86 fps□
└─□□**Ori□ice□Grate** □Controls 0.00 cfs□

□ond □□□: □ar□ing □in□iltration



WETLAND DELINEATION AND PRELIMINARY VEGETATION AND WILDLIFE REPORT

DATE:	**February 20, 2016 (Revised June 28, 2016, July 27, 2016)**
PROPERTY:	**Elegant Banquets, LLC Property at 1410 Route 35 Town of Lewisboro (Hamlet of South Salem) Westchester County, New York**
REPORT BY:	**Evans Associates Environmental Consulting, Inc.**

INTRODUCTION

Wetlands on the above-captioned property were confirmed or re-delineated in accordance with Chapter 217, Wetlands and Watercourses, of the Code of the Town of Lewisboro, and the technical criteria in the 1987 Army Corps of Engineers (ACOE) Wetland Delineation Manual (TR-Y-87-1) as updated. The initial site visit was conducted on November 13, 2015 by a Professional Wetland Scientist and a Certified Professional Soil Scientist of Evans Associates Environmental Consulting, Inc. (Evans Associates), and a follow-up visit to evaluate the boundary of the off-site wetland ("Wetland C") was made on March 23, 2016.

The approximately 24-acre property is located on the north side of Route 35, just west of the Connecticut border. The property is a former restaurant, and the Tudor-style country manor, built in 1907, remains. A field and a small pond are located in the northwest corner of the property. The remainder of the undeveloped portion of the site is wooded, with a small wetland and drainage watercourse located in the northeast corner of the property. The existing conditions of the wetlands and uplands on the property are discussed below, followed by a discussion of the wetlands regulatory jurisdictions, and a preliminary assessment of the vegetation and wildlife habitat on the site (including photos).

EXISTING CONDITIONS

Wetlands

The first area of wetlands on the property consists of the open water of the small pond that is located in the northwestern portion of the property, along with small areas of seep wetlands that are adjacent to the pond (see Photo 1 at end of report). The pond and associated wetlands in the northwest section of the property had been delineated by Mr. Paul Jaehnig, CPSS, in 2006. This wetland boundary was visually inspected and confirmed as accurate, but new flags were not installed as no activity is proposed near the pond or associated wetlands.

The second wetland area is a small, mainly depressional wetland located in the northeast corner of the property (see Photo 2 at end of report). This wetland begins off site from the north, and may intermittently drain downhill to the southwest through a man-made ditch after very large storm events. However, there is no evidence of a stream channel on the slope between the upper wetland and the wetland associated with the pond. The wetland/upland boundary of the on-site portion of the upper wetland was flagged using sequentially-numbered, orange ribbon flagging depicting the words "Wetland Boundary." Wetland flags were numbered A-1 through A-15.

Vegetation

Vegetation in the wetlands includes red maple *(Acer rubrum)*, American elm *(Ulmus americana)*, green ash *(Fraxinus pennsylvanica)*, yellow birch *(Betula alleghaniensis)*, and pin oak *(Quercus palustris)* trees and saplings, winterberry *(Ilex verticillata)*, spicebush *(Lindera benzoin)*, and high-bush blueberry *(Vaccinium corymbosum)* shrubs, along with skunk cabbage *(Symplocarpus foetidus)*, cinnamon fern *(Osmunda cinnamomea)*, nettle *(Urtica sp.)*, and some tussock sedge *(Carex stricta)*.

Soils

Soil in the wetlands is Sun loam. This soil is poorly drained, very deep to bedrock, and is found in low areas and depressions. Sun loam has an aquic moisture regime and is listed on hydric soils lists. Sun loam is formed in glacial till. The ponded portion of the wetlands contains open water.

Hydrology

The wetlands are sustained by the interception of the groundwater table, along with runoff from up gradient areas, including lawns and driveways from residences to the west and north of the property. Evidence of wetland hydrology includes ponded water, saturated soils, drainage patterns, and the presence of seeps.

An off-site wetland area, designated as "Wetland C" on the project site plans, was evaluated on March 23, 2016. This wetland area had originally been delineated by Paul Jaehnig in 2006, and is fed primarily by runoff from the driveway and upland areas on the subject property. The boundary of Wetland C was confirmed as substantially accurate based on soil samples taken (the area is currently maintained as lawn).

Uplands

The uplands immediately surrounding the restaurant consist of some lawn and landscaped areas. The majority of the uplands on the property contain a large field / meadow and wooded areas (see Photos 3 & 4).

Vegetation

Vegetation in the forested uplands includes tulip-tree *(Liriodendron tulipifera)*, American beech *(Fagus grandifolia)*, red oak *(Quercus rubra)*, white oak *(Quercus alba)*, sugar maple *(Acer saccharum)*, black birch *(Betula lenta)*, and shag-bark hickory *(Carya ovata)* trees and saplings, winged euonymus *(Euonymous alatus)*, and Japanese barberry *(Berberis thunbergii)* shrubs, grape *(Vitis sp.)* vines, along with Christmas fern *(Polystichum acrostichoides)*.

Soils

Soils in the uplands are mainly Charlton-Chatfield complex. Areas of Hollis loam and rock outcrops are also present, with small areas of Sutton loam located near the pond. Charlton, Chatfield, and Hollis loams are well drained to somewhat excessively drained and are found on hilltops and hillsides. Charlton is very deep, Chatfield is moderately deep, and Hollis is shallow to bedrock. These soils are often found complexed with each other and with rock outcrops. Sutton loam is very deep, moderately well drained, and is found in lower parts of the landscape, along shallow drainageways and swales in the uplands. Sutton loam has a depth to water table of 1.5 to 2.5 feet below the surface from November through April of most years.

REGULATORY JURISDICTIONS

Town of Lewisboro Wetland Regulations

The Town of Lewisboro regulates wetlands and watercourses, along with their surrounding 150-foot upland areas, as defined in Chapter 217 of the Town Code. All of the wetlands and watercourses delineated on and off site, along with their 150-foot buffers (which may extend onto the property from off-site wetlands or watercourses), are regulated by the Town.

New York State DEC Article 24 Wetland Regulations

The DEC regulates wetlands in accordance with the New York State Freshwater Wetlands Act (Article 24 of the New York State Environmental Conservation Law). The DEC regulates wetlands that are 12.4 acres in size or greater, primarily based on vegetation, that are shown on, or are connected to wetlands shown on, the DEC Freshwater Wetland maps. In addition to regulating wetlands, the DEC also regulates 100-foot adjacent areas around the wetlands. The on-site wetlands are not DEC Freshwater wetlands, and are therefore not regulated by the DEC under these regulations.

Federal Army Corps of Engineers Wetland Regulations

The United States ACOE is the federal agency that regulates wetlands under the Clean Water Act. The ACOE regulates wetlands based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology as defined in the 1987 ACOE Wetland Delineation Manual (TR-Y-87-1) as modified by the 2012 Regional Supplement for the Northcentral and Northeast Region (TR-12-1). The ACOE regulates watercourses that connect to navigable waters, along with the wetlands that are associated with these watercourses. There is no wetland buffer regulated under federal jurisdiction. The outflow from the ponded wetland flows off site to larger streams that are considered navigable waters. Therefore, the northwestern wetland is regulated by the ACOE. The northeastern wetland would most likely be considered isolated. If so, it would not be regulated by the ACOE.

New York City Watershed Regulations (NYC Department of Environmental Protection)

The majority of the property (including the wetlands) is located within the New York City Watershed as part of the Croton River Basin. Therefore, the property is subject to regulation by the NYC DEP. A site investigation was conducted with NYC DEP on January 4, 2016 to determine if there were any regulated watercourses on the subject property. Based on this inspection, it was determined that the only area that would meet the NYC DEP definition of an intermittent watercourse was the ditch that exited the upper wetland, but NYC DEP agreed that the ditch terminated at the last wetland flag and the watercourse did not continue downslope.

VEGETATION AND WILDLIFE HABITAT

As discussed in the existing conditions above, the subject property consists of the development associated with the restaurant, a field where the septic disposal fields are located, a small pond, a small isolated wetland and man-made drainage channel, and second growth hardwoods. No unique or rare habitats were identified on the site. The property is located within an area of low-density residential development. Most nearby parcels contain a single-family residence with associated driveways and lawns; some have pools and other amenities. The remainder of the properties are generally wooded with habitat similar to that located on the subject property. There are no large wildlife corridors associated with the property, due to the surrounding residential development and roads (including Route 35). The lawn and forested communities on and near the site can provide habitat for a variety of species of animals. However, the ability of the subject property to support less disturbance-tolerant species that require large blocks of undisturbed land is greatly diminished. Therefore, species that would be expected to be found on the site are those species that are tolerant of human disturbance and are capable of using a variety of habitats.

Potential for Protected Species

In addition to an on-site field review of the property for wildlife habitat, the potential for threatened, endangered or protected species to occur on the site was also assessed. The New York Natural Heritage Program (NY NHP) was contacted regarding known records of protected species on and in the vicinity of the site, and the United States Fish and Wildlife

Service (US F&WS) online list of federally-listed species for the site was reviewed. The results of these analyses are discussed below.

State-Listed Species

A request was made by Evans Associates to the NY NHP regarding any known occurrences of endangered, threatened or special concern species of plants or animals or significant habitats on, or in the vicinity of, the site. The response letter from the NY NHP dated December 11, 2015 indicates that they have no known records of rare or State-listed animals or plants, significant natural communities, or other significant habitats, on, or in the immediate vicinity of, the site. A copy of the response letter from the NY NYP is included at the end of this report.

Federally-Listed Species

The US F&WS website provided an unofficial list of federally-listed endangered and threatened species and candidate species for the site. Three species were listed: Indiana bat (Federal and State-listed Endangered species), Long-eared bat (Federal and State-listed Threatened species), and Bog turtle (Federal-listed Threatened and State-listed Endangered species). These three species are discussed below along with their habitat requirements and potential to be impacted by the proposed project.

Bog Turtle

Bog Turtles (*Glyptemys muhlenbergii*) inhabit a variety of wetland types throughout their range, but generally prefer spring-fed wetlands with shallow surface water or saturated soils present year-round, although in summer the wet areas may be restricted to near spring heads. Shallow rivulets are often present. Typically, the wetlands are interspersed with dry and wet pockets. The preferred substrate is soft muck or peat, and dominant vegetation consists of low grasses and sedges (emergent wetland), often with a scrub-shrub wetland component. Nesting habitat consists of tussocky or hummocky vegetation in areas with an open forest canopy. Based on the field investigation, the wetlands on the site do not meet the criteria for potential bog turtle habitat. Therefore, there is little opportunity for this species to be present on the site and any proposed improvements to the site would not pose a threat to this species.

Indiana bat

The major potential impact to the Indiana bat (*Myotis sodalis*) is disturbance of the hibernacula, since this is the most vulnerable period in the life-cycle of this species. Outside the hibernation period, Indiana bats roost during the day in a variety of species of live, dying or dead trees (snags). Roost trees are typically mature, deciduous trees that have exfoliating, peeling or loose bark, or contain cracks or crevices that could be used as shelter by the bats. Overall, roost tree structure and solar exposure tends to be more important than the species of tree.

During the spring and summer months, Indiana bats utilize a wide variety of foraging habitats where flying insects are present. Streams associated with floodplain forests and impounded water bodies (ponds, wetlands, reservoirs, etc.), where abundant supplies of flying insects are present, provide preferred foraging habitat for Indiana bats. Indiana bats also forage in the canopy of upland forests, over clearings with early successional vegetation, along the borders of croplands, along wooded fencerows, and over farm ponds in pastures.

There are no caves or abandoned mines on or near the site that could be utilized as potential Indiana bat hibernating habitat. Although the Indiana bat was not documented during the site-specific species search and Westchester County is not within this species normal geographic range, the on-site forested areas could potentially provide roosting and foraging habitat for the Indiana bat. In order to avoid potential disturbance to roosting bats, the removal of potential roost trees should be conducted between October 1 and March 31, when the bats would not be present at the site.

Northern Long-eared Bat

Although not officially listed as occurring on or near the subject site, the Northern Long-eared Bat (*Myotis septentrionalis*) has a range that includes most of the eastern and north-central United States (which includes New York State). As with the Indiana bat, reproduction and hibernation occurs in and near hibernacula (consisting of caves or mines). Because no caves or mines are present on or near the site, the bats would not hibernate there. However, Northern Long-eared Bats are opportunistic in choosing roosts which include cavities and crevices of live and dead

trees; they also have a variety of feeding habitats, including those found on the site. Therefore, summer feeding, and possibly roosting, habitat for this bat could include areas on or near the site. The main threat to this bat is white-nose syndrome, which is the reason this species was chosen for protection. Significant population declines have not been observed due to loss or degradation of summer habitat. However, recent 4(d) guidance from FWS recommends avoidance and potential disturbance to roosting bats with pups, and recommends that the removal of potential roost trees should be avoided between June 1and July 31, when the bats may be present at the site with young (the pup season).

CONCLUSIONS AND RECOMMENDATIONS FOR MITIGATION

The undeveloped portions of the property contain wildlife habitat including wooded areas and wetlands. No unique or rare habitats were identified on the site, and the habitat on site is typical of much of northern Westchester County. In addition, no Federal or State-protected species were found, or would be expected to be found, on the site, with the exception of bats, which were not observed, but could be present on site during the warmer months of the year. The bats could be present in the larger roost trees within the forested portions of the site. If potential roost trees are to be removed, the removal should occur while the bats are not present (in the winter months, October 1 to March 15) or outside of pup season (June 1 to July 31), which also corresponds to the peak breeding season for birds.

The minor encroachment (±6000 square feet) into the 150' Town-regulated wetland buffer areas proposed are associated with the widening of the driveway near the property entrance, and expansion of the existing parking lots near the northern end of the development. To offset this proposed encroachment, the stormwater management plan for the project is providing water quality treatment for all of the existing, presently untreated, and proposed impervious areas within the primary redevelopment area. This will provide improved water quality from the site when compared to the existing condition, with infiltration of the one-year rainfall event. The proposed infiltration facilities will remove pollutants from stormwater runoff and increase groundwater recharge when compared to the existing conditions, which in turn will act to improve surface water and wetland quality downslope of the site, as well as increase watercourse baseflow.

In addition, as required under §217-7A of the Code, and as depicted on the attached "Proposed Buffer Mitigation Plan", prepared by our office and dated July 27, 2016, an area of approximately 6300 square feet of Town-regulated buffer will be planted with native shrubs and ferns, including species such as mountain laurel, various viburnums, and witch hazel, to provide seasonal interest (flowers and foliage) as well as food and shelter for birds and small mammals. Enhancement of the understory adjacent to the wetland will serve to increase the structural diversity of the forest surrounding this wetland system. A full mitigation planting plan will be prepared after the Planning Board has gotten comments from the public.

REFERENCES

New York Natural Heritage Program. 2015. Online Conservation Guide for Bog Turtle *(Glyptemys muhlenbergii)*. Available from: www.acris.nynhp.org/guide.php?id=7507.

New York Natural Heritage Program. 2015. Online Conservation Guide for Indiana Bat *(Myotis sodalis)*. Available from: acris.nynhp.org/guide.php?id=7405.

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at http://websoilsurvey.nrcs.usda.gov/. Accessed November 12, 2015.

U.S. Fish and Wildlife Service: Information, Planning, and Conservation System (IPAC). Natural Resources of Concern. Available online at http://ecos.fws.gov/IPAC. Accessed November 12, 2015.

U.S. Fish and Wildlife Service. Northern Long-Eared Bat Fact Sheet, updated April 2015. Online at: http://www.fws.gov/midwest/endangered/mammals/nleb/nlebFactSheet.html

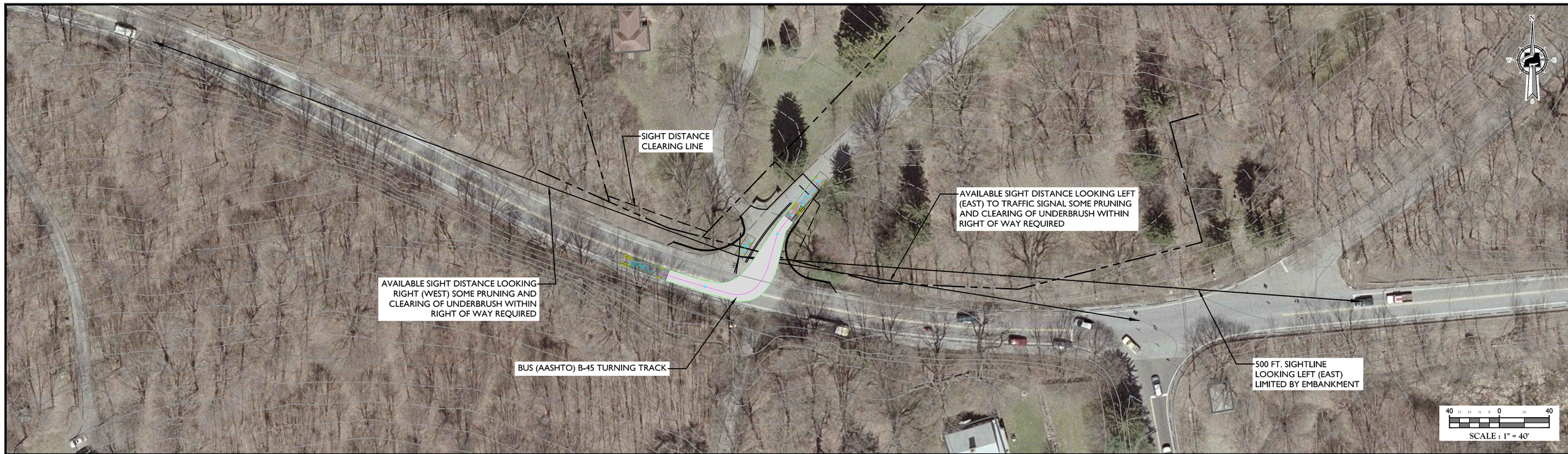
PHOTOS

Photo 1: Ponded Wetland

Photo 2: Depressional Wetland

Photo 3: Upland Field Habitat

Photo 4: Upland Wooded Habitat



NOTES:

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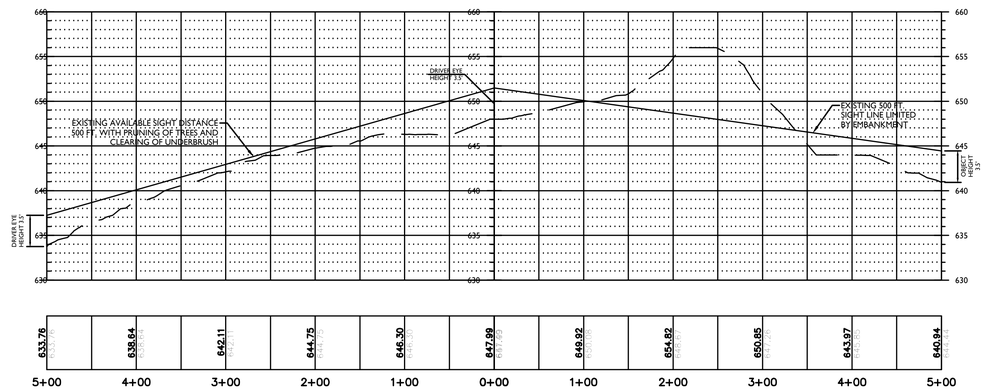
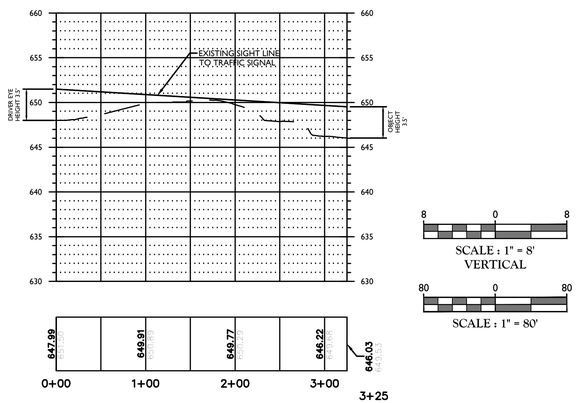


PROFILE OF SIGHT LINE LOOKING RIGHT (WEST)
1" = 80' HORIZ. / 1" = 8' VERT.

PROFILE OF SIGHT LINE LOOKING LEFT (EAST)
1" = 80' HORIZ. / 1" = 8' VERT.



PROFILE OF SIGHT LINE LOOKING LEFT (EAST) TO INTERSECTION
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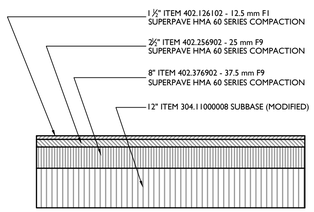
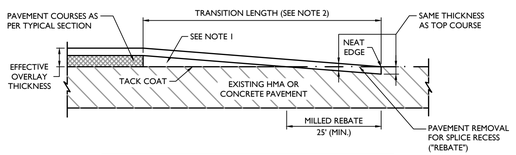


FULL DEPTH
TYPICAL PAVEMENT SECTION DETAIL
NOT TO SCALE

ALL PAVEMENT ITEMS TO BE VERIFIED WITH NYSDOT MATERIALS GROUP PRIOR TO CONSTRUCTION

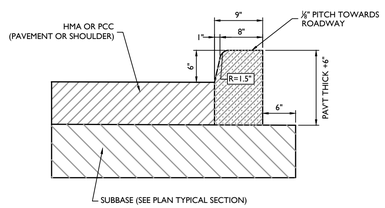


K VALUE TABLE FT/IN								
POSTED SPEED (MPH)	30	35	40	45	50	55	60	65
K	16.67	19.17	21.67	24.17	27.50	30.00	32.50	35.00

NOTE:

1. THE TRANSITION LENGTH SHALL BE NO LESS THAN THE VALUE OBTAINED BY MULTIPLYING THE EFFECTIVE OVERLAY THICKNESS IN INCHES BY THE K VALUE FROM THE TABLE FOR POSTED SPEED LIMIT. THE MINIMUM TRANSITION LENGTH IS 30'.
2. IN THE TRANSITION AREA, PAVEMENT COURSES OTHER THAN THE TOP COURSE SHALL BE FEATHERED OUT USING TOP COURSE OR OTHER APPROPRIATE MATERIAL. PAYMENT SHALL BE MADE UNDER THE APPROPRIATE ITEM.

TYPICAL SECTION - PAVEMENT KEY
NOT TO SCALE



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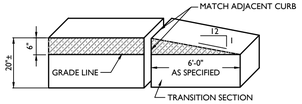
(VERTICAL FACED CURB WITHOUT CURB ANCHOR)
ITEM 609.0401 - CLASS "A" CONCRETE
NOT TO SCALE



CURB TRANSITION
NOT TO SCALE

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FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION
1	6/27/16	R.G.D.	FOR SUBMISSION TO TOWN
2	7/27/16	R.G.D.	REVISED PER TOWN COMMENTS 7/13/16

STATE OF NEW YORK · PHILIP JOHN GREALY · 059858 · LICENSED PROFESSIONAL ENGINEER

PHILIP J. GREALY
NEW YORK LICENSED PROFESSIONAL ENGINEER - LICENSE NUMBER: 059858-1

INTERSECTION PLAN
FOR
LE CHATEAU

NYS ROUTE 35

TOWN OF LEWISBORO
WESTCHESTER COUNTY
NEW YORK

WESTCHESTER OFFICE
11 Bradhurst Avenue
Hawthorne, NY 10532
Phone: 914.347.7500
Fax: 914.347.7266

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	4/14/16	R.G.D.	P.J.G.
PROJECT NUMBER: 16000517A	DRAWING NAME: R-5GHT		

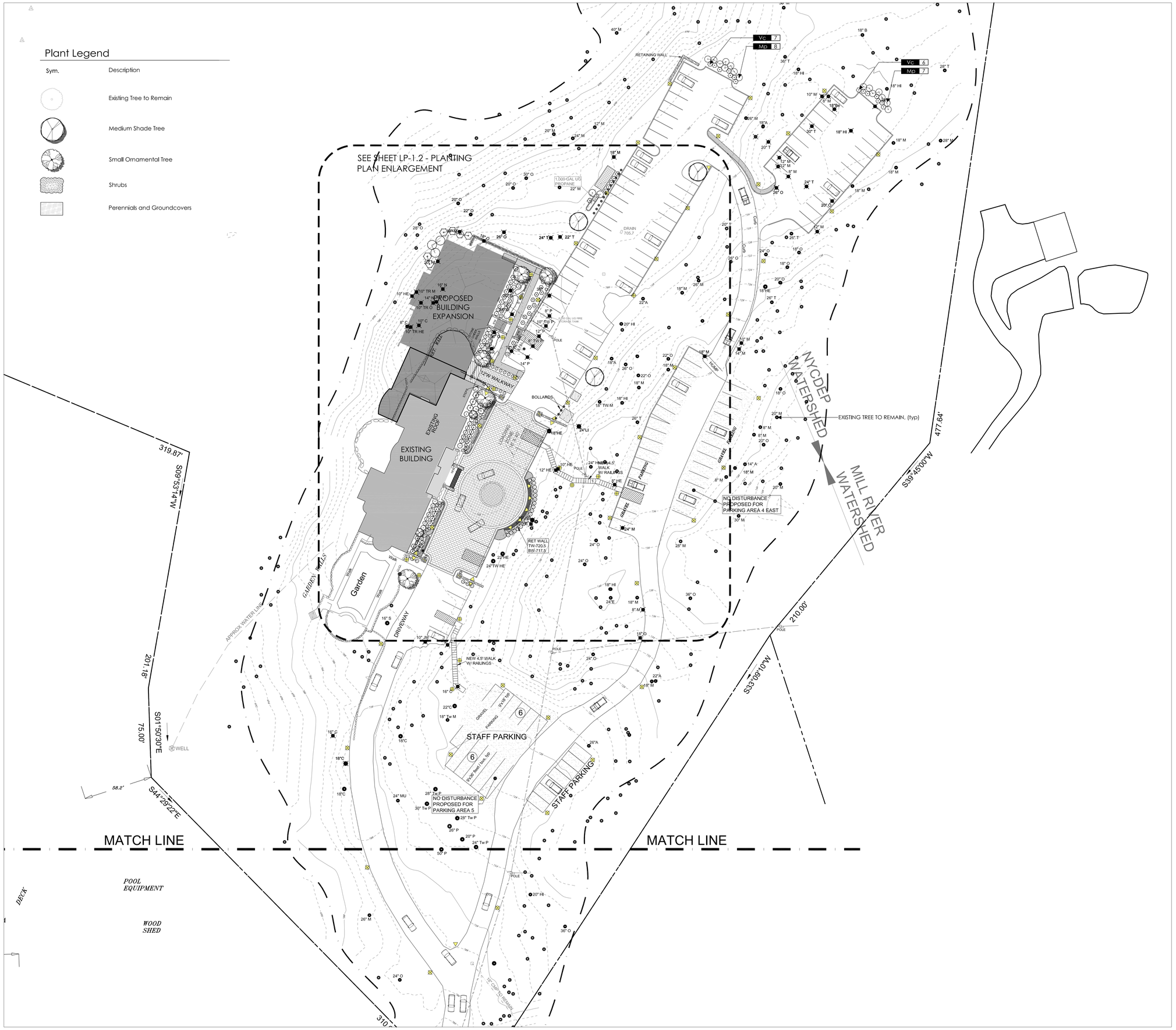
SHEET TITLE:
ACCESS MODIFICATION PLAN AND SIGHT DISTANCE PROFILES

SHEET NUMBER:
1 of 1

16000517A/Transportation/Sight Distance Plan/R-5GHT.dwg/R-5GHT By: RDANDREA

Plant Legend

Sym.	Description
	Existing Tree to Remain
	Medium Shade Tree
	Small Ornamental Tree
	Shrubs
	Perennials and Groundcovers



ELEGANT BANQUETS AT LE CHATEAU

ADDITION AND RENOVATION

ELEGANT BANQUETS
257 FEDERAL ROAD
BROOKFIELD, CT 06804

WESLEY STOUT ASSOCIATES
96 Main Street, New Canaan, CT 06840
203 966-3100 FAX 203 966-3131
www.wesleystout.com

Scale 1" = 30'

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Wesley Stout
002587-1
STATE OF NEW YORK

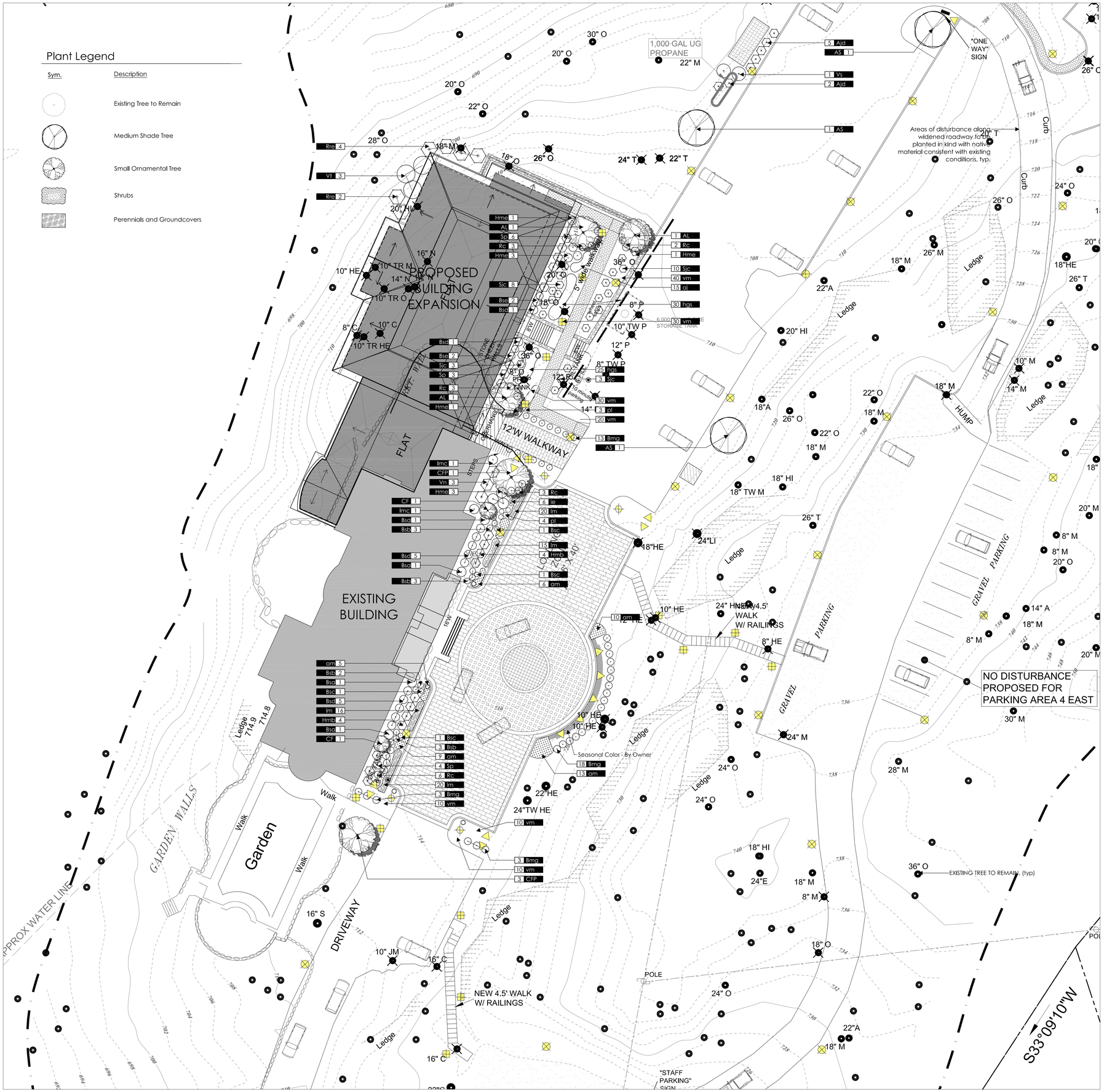
PHASE

No.	Date	Issue
3	07/29/2016	Revised Landscape Drawings
2	06/22/2016	Revised Landscape Drawings
1	04/27/2016	Planning Board Comments

Sheet Title

OVERALL PLANTING PLAN

Job No. 2015-0000	Sheet Number LP-1.1
Date 04/04/16	
Scale 1" = 50'	
Drawn / Checked Author/Checker	



ELEGANT BANQUETS AT LE CHATEAU

ADDITION AND RENOVATION

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257 FEDERAL ROAD
BROOKFIELD, CT 06804

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STATE OF NEW YORK

PHASE

No.	Date	Issue
3	07/29/2016	Revised Landscape Drawings
2	06/22/2016	Revised Landscape Drawings
1	04/27/2016	Planning Board Comments

Sheet Title

PLANTING PLAN ENLARGEMENT

Job No. 2015-0000

Date 04/04/16

Scale 1/16" = 1'-0"

Drawn / Checked Author/Checker

Sheet Number

LP-1.2

Plant List

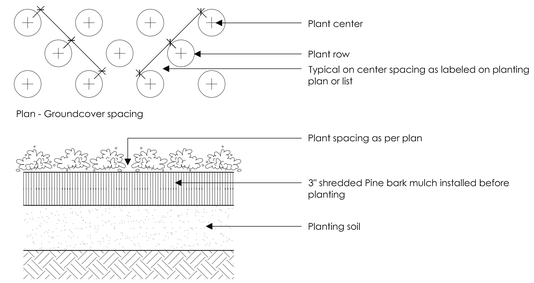
Qty.	Sym.	Botanical Name	Common Name	Size	Type	Notes
TREES						
3	AL	Amalanchier Lamarkii	Shadblow	10-12'ht	B&B	Full, nicely shaped, matching pair
3	AS	Acer saccahrinum 'Green Mountain'	Sugar Maple	14-16'ht	B&B	Full, nicely shaped, specimen
2	CF	Carpinus 'Frans Fontaine'	Hornbeam	10-12'ht	B&B	Full, nicely shaped, matching pair
2	CFP	Cornus Florida 'Cherokee Princess'	White Dogwood	10-12'ht	B&B	Full, nicely shaped
SHRUBS						
4	Bsa	Buxus Sempervirens	Boxwood	4'HtxW	B&B	Full, nicely shaped, matching
11	Bsb	Buxus Sempervirens	Boxwood	36"h	B&B	Full, nicely shaped, matching
4	Bsc	Buxus Sempervirens	Boxwood	21-24"h	B&B	Full, nicely shaped, matching
12	Bsd	Buxus Sempervirens	Boxwood	42"h	B&B	Full, nicely shaped, matching
4	Bse	Buxus Sempervirens	Boxwood	24-30"ht	B&B	Full, nicely shaped, matching
37	Bmg	Buxus Microphylla 'Green Beauty'	Boxwood	24"h	Cont	Full, nicely shaped, matching
8	Hmb	Hydrangea m 'Blushimg Bride'	White Hydrangea	30-36"ht	B&B	Full, nicely shaped
9	Hme	Hydrangea m 'Endless Summer'	Blue Hydrangea	30-36"ht	B&B	Full, nicely shaped
2	Imc	Ilex m. 'China Girl'	Holly	5-6'ht	B&B	Full, nicely shaped, matching
15	Mp	Myrica pensylvanica	Northern Bayberry	42"-48"ht	B&B	Full, nicely shaped, matching
17	Rc	Rhododendron chinnoides	White Rhododendron	30-36"ht	Cont.	Full, nicely shaped
6	Rre	Rhododendron 'Roseum Elegans'	Pink Rhododendron	42"-48"ht	B&B	Full, nicely shaped
24	Sjc	Spirea j. 'Crispa'	Spirea	24-30"ht	Cont.	Full, nicely shaped
13	Sp	Syringa p. 'Miss Kim'	Dwarf Lilac	42-48"ht	B&B	Full, nicely shaped
13	Vc	Viburnum carlesii 'Compactum"	Dwarf KoreanspiceViburnum	24-30"ht	B&B	Full, nicely shaped
3	Vn	Viburnum 'Newport'	Dwarf Viburnum	42-48"ht	B&B	Full, nicely shaped
3	Vt	Viburnum t. 'Mariesii'	Viburnum plicatum	5-6'ht	B&B	Full, nicely shaped
PERENNIALS, GROUNDCOVERS, & VINES						
15	aj	Anemone 'Honorine Jobert'	Windflower	1 Gal.	CONT.	Full, well rooted @ 18" O.C.
43	am	Alchemilla mollis	Lady's Mantle	1 Gal.	CONT.	Full, well rooted @ 15" O.C.
55	hgs	Heuchera	Coral Bells	1 Gal.	CONT.	Full, well rooted @ 15" O.C.
71	lm	Liriope muscari	Lily Turf	1 Gal.	CONT.	Full, well rooted @ 15" O.C.
6	ie	Iris ensata 'Ego"	Blue Iris	2 Gal.	CONT.	Full, well rooted @ 15" O.C.
7	pl	Paeonia l. 'Sarah Bernhardt'	Pink Peony	3 Gal.	CONT.	Full, well rooted @ 24" O.C.
150	vm	Vinca minor	Periwinkle	B.R.	Flat 100 per	Full, well rooted @ 5" O.C.
	sc	Seasonal Color	TBD - By Owner	B.R.	Flat 100 per	Full, well rooted @ 5" O.C.

Soils Chart

Post construction soil condition	Type of preparation
Good soil	Loosen existing soil
* Compacted soil	Loosen existing soil, add composted organic matter to bring organic content to 5% dry weight
Clay content 5-35%	Loosen existing soil, add composted organic matter to bring organic content to 5% dry weight
Poor quality, heavy clay soil	Remove existing soil, add loam topsoil

Planting Notes

1. Be aware of all underground utilities prior to any planting operations. Contact "CALL BEFORE YOU DIG" prior to excavation.
2. All plantings are to be installed by a qualified landscape contractor.
3. The contractor shall be required to carry workmen's compensation insurance and comprehensive general liability insurance. Certificates will be required prior to signing contracts.
4. Notify Owner or Landscape Architect 72 hours minimum in advance of starting planting operations. Receive approval for layout of all bed lines and material locations prior to installation.
5. The landscape architect reserves the right to reject inferior plant materials and substitutions. The landscape architect is willing to make two trips to suppliers to review and approve materials. Previously unapproved materials may be rejected at the site. Minimally, all materials will conform to the "American Standard for Nursery Stock" (ANSI Z60.1 - 1996) of the American Association of Nurserymen.
6. When there is a discrepancy between plant quantities shown on the plant list & the plan, use the quantities from the plant list.
7. Test soil for ph and nutrients, adjust as required and receive approval prior to planting.
8. Pit to be 2 times wider than root ball or widest spread of container or bare roots.
9. Set crown of root ball 2" above finished grade.
10. Do not add fertilizer to planting soil for fall plantings.
11. All plant material shall be guaranteed by the contractor to be in good, healthy and flourishing condition for a period of one year from the date of acceptance. The contractor shall replace, as soon as weather and seasonal conditions permit, all dead plants and all plants not in a vigorous, thriving condition, as determined by the landscape architect during, and at the end of the guarantee period. Warranty replacement will be provided at no cost to the owner and include materials and labor. Contractor is responsible for repair of any damage incurred during replacement of warranty materials. Warranty period to begin at the final approval of plantings by Landscape Architect and client. Contractor is responsible for maintaining the plant material until final approval is given. This will include watering the plants.



1 LP-1.3 Groundcover Planting

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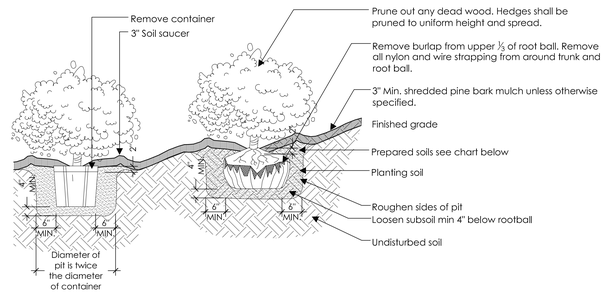
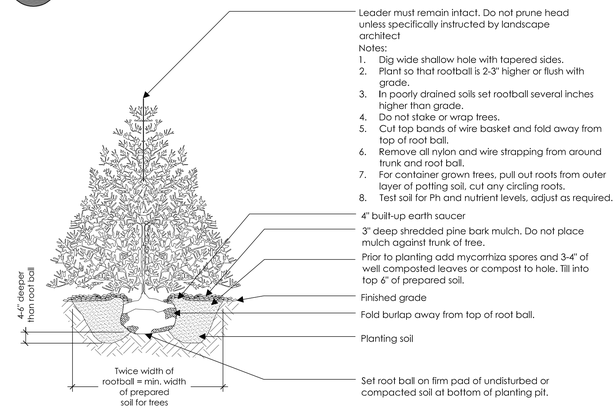


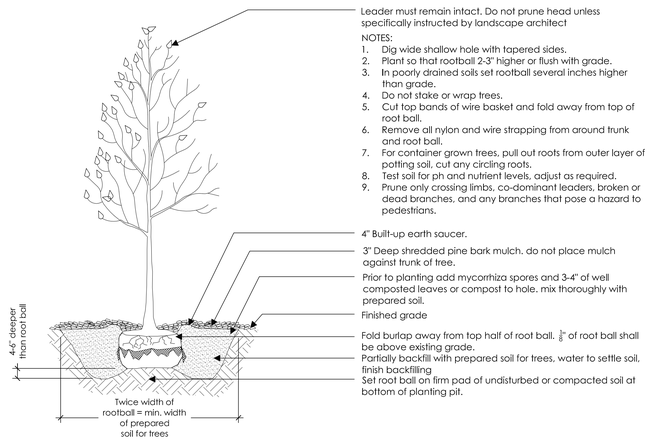
2 LP-1.3 Shrub Planting

SCALE: N.T.S.



3 LP-1.3 Evergreen Tree Planting

SCALE: N.T.S.



4 LP-1.3 Deciduous Tree Planting

SCALE: N.T.S.

ELEGANT BANQUETS AT LE CHATEAU

ADDITION AND RENOVATION

ELEGANT BANQUETS
257 FEDERAL ROAD
BROOKFIELD, CT 06804

WESLEY STOUT ASSOCIATES
96 Main Street, New Canaan, CT 06840
203 966-3100 FAX 203 966-3131
www.wesleystout.com

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Professional Seal

PHASE

No.	Date	Issue
3	07/29/2016	Revised Landscape Drawings
2	06/22/2016	Revised Landscape Drawings
1	04/27/2016	Planning Board Comments

Sheet Title

PLANTING DETAILS LEGEND, NOTES

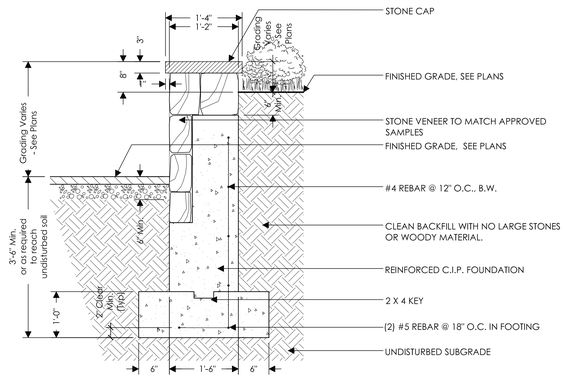
Job No. 2015-0000

Date 04/04/16

Scale 1" = 30'

Drawn / Checked Author/Checker

Sheet Number LP-1.3



1 Stone Wall - Type 1

LP-1.4

Not to Scale

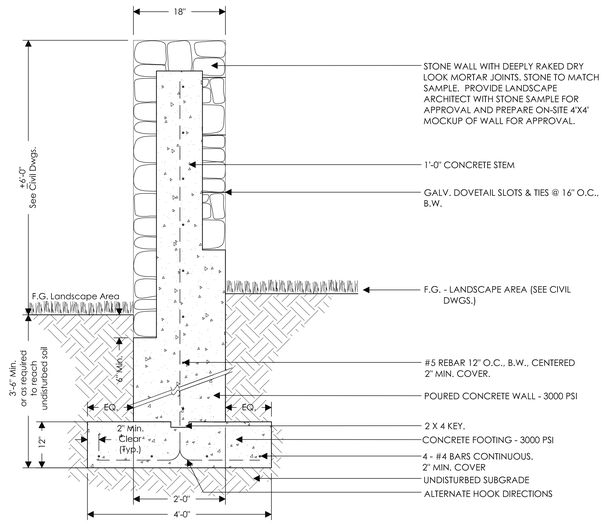
FENCING NOTES:

1. BEFORE FABRICATING FENCE, CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE LANDSCAPE ARCHITECT FOR APPROVAL. DRAWINGS SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING INFORMATION: A LAYOUT PLAN SHOWING ALL POST AND RAIL SPACING, ALL ENCLOSURE AND ANCHORAGE DETAILS, SIZING OF ALL WOOD MEMBERS, AND FENCE AND HARDWARE MATERIALS.
2. BEFORE FABRICATING FENCE, CONTRACTOR SHALL SUBMIT 2' X 2' SAMPLE OF WOOD ENCLOSURE WITH BLACK SATIN STAINED FINISH FOR APPROVAL BY LANDSCAPE ARCHITECT.
3. FENCE WOOD SHALL BE WHITE CEDAR, ROUGH ON ONE SIDE, SMOOTH ON THE OTHER.
4. ALL HARDWARE SHALL BE HOT-DIPPED GALVANIZED AND PAINTED BLACK TO MATCH WOOD.
5. FIELD STAKE CONCRETE PAD AND HAVE ENGINEER APPROVE BEFORE PROCEEDING WITH WORK. POSTS SHALL CONFORM TO ASTM A1083 AND BE HOT-DIPPED GALVANIZED WITH THE ZINC COATING WEIGHING NOT LESS THAN 1.8 OZ./S.F. ALL STEEL POSTS SHALL BE LOCATED ON BACK SIDE OF FENCE AND HIDDEN FROM VIEW.
6. SET ALL POSTS TO A MIN. DEPTH OF THREE FEET (3') UNLESS OTHERWISE SHOWN ON THE DRAWINGS. AFTER SETTING AND PLUMBING POSTS, FILL HOLES WITH (2,500) PSI CONCRETE. CROWN TOP SURFACE OF CONCRETE TO SHED WATER. BRACE ALL TERMINAL POSTS HORIZONTALLY WITH SECTIONS USED FOR TOP RAIL. THE TOP RAIL SHALL EXTEND THROUGH ALL LINE POSTS TO FORM A CONTINUOUS BRACE FROM END-TO-END OF EACH STRETCH OF FENCE. BE SECURELY FASTENED AT THE END OF EACH RUN AND HAVE JOINTS MADE WITH EXPANSION SLEEVE COUPLINGS NOT LESS THAN SIX INCHES (6") LONG.
7. APPROVED FENCE FABRICATOR: RIVERSIDE FENCE, RIDGEFIELD, CT 06877, PH:203-210-7447

4 Trash Enclosure Fencing

LP-1.4

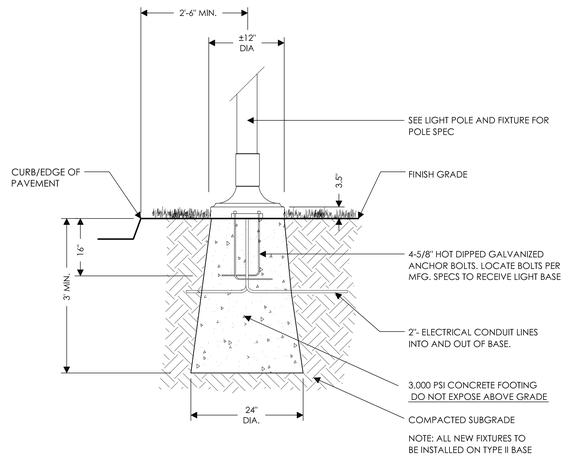
Not to Scale



2 Stone Wall - Type 2

LP-1.4

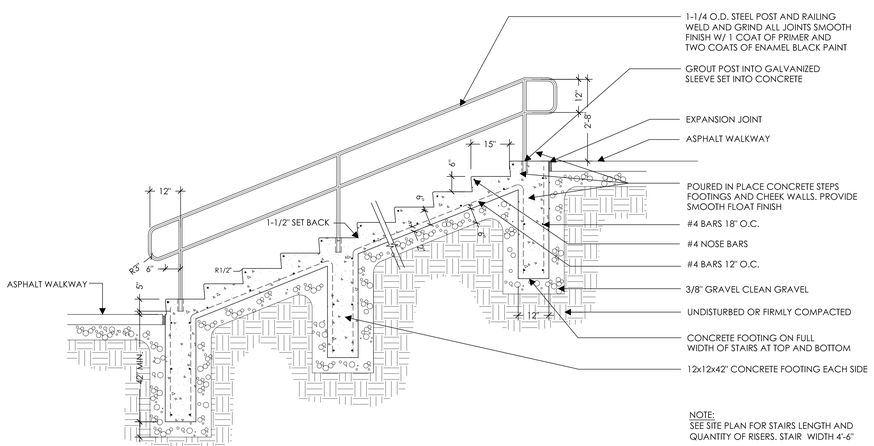
Not to Scale



5 Light Pole Base

LP-1.4

Not to Scale



NOTE:
SEE SITE PLAN FOR STAIRS LENGTH AND QUANTITY OF RISERS. STAIR WIDTH 4'-6"

3 Concrete Stairs with Handrail

LP-1.4

Not to Scale

ELEGANT BANQUETS AT LE CHATEAU

ADDITION AND RENOVATION

ELEGANT BANQUETS
257 FEDERAL ROAD
BROOKFIELD, CT 06804

WESLEY STOUT ASSOCIATES
96 Main Street, New Canaan, CT 06840
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PHASE

No.	Date	Issue
3	07/29/2016	Revised Landscape Drawings
2	06/22/2016	Revised Landscape Drawings
1	04/27/2016	Planning Board Comments

Sheet Title

SITE DETAILS

Job No. 2015-0000

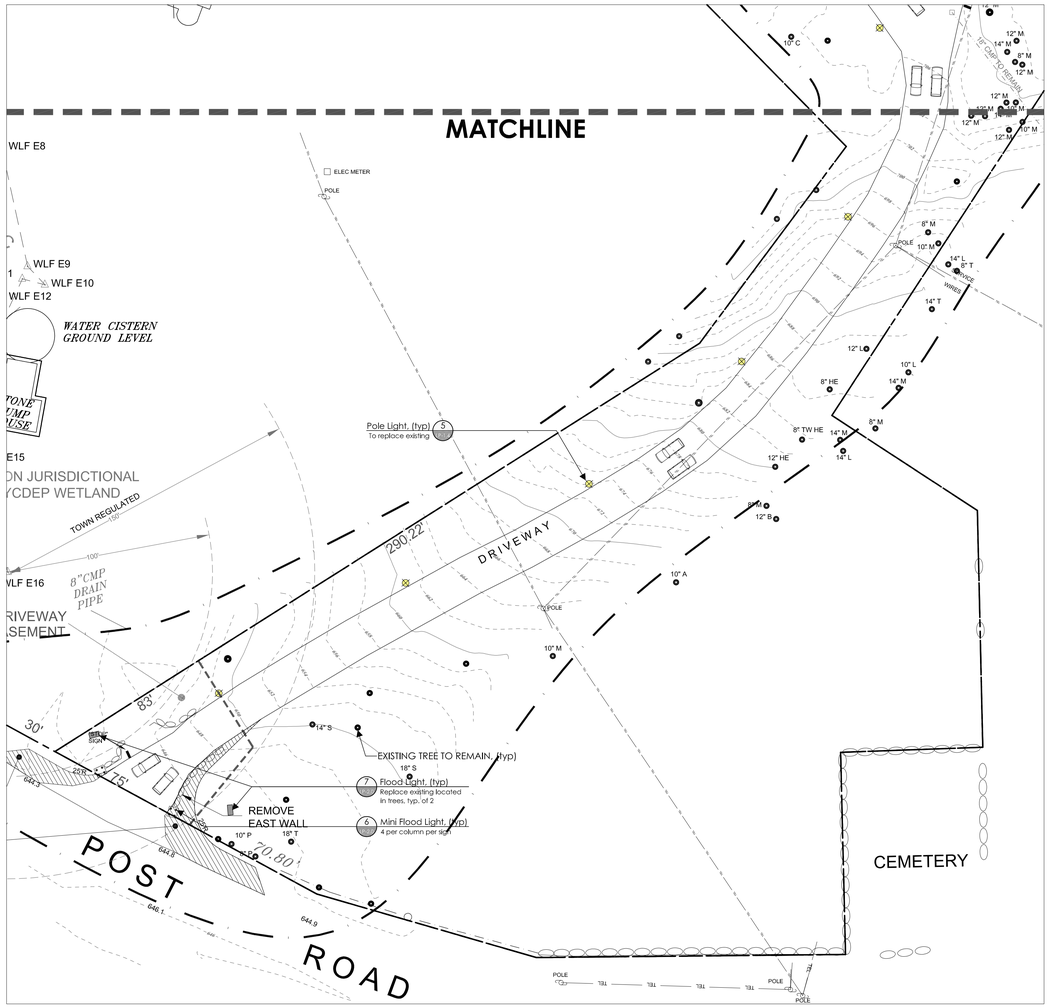
Date 04/04/16

Scale 1" = 30'

Drawn / Checked Author/Checker

Sheet Number

LP-1.4



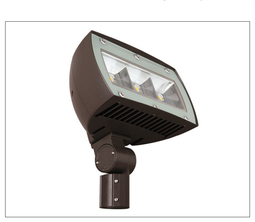
1 LP-2.0 Parking/Roadway Lot Pole Light

4 LP-2.0 Column Historic Lantern

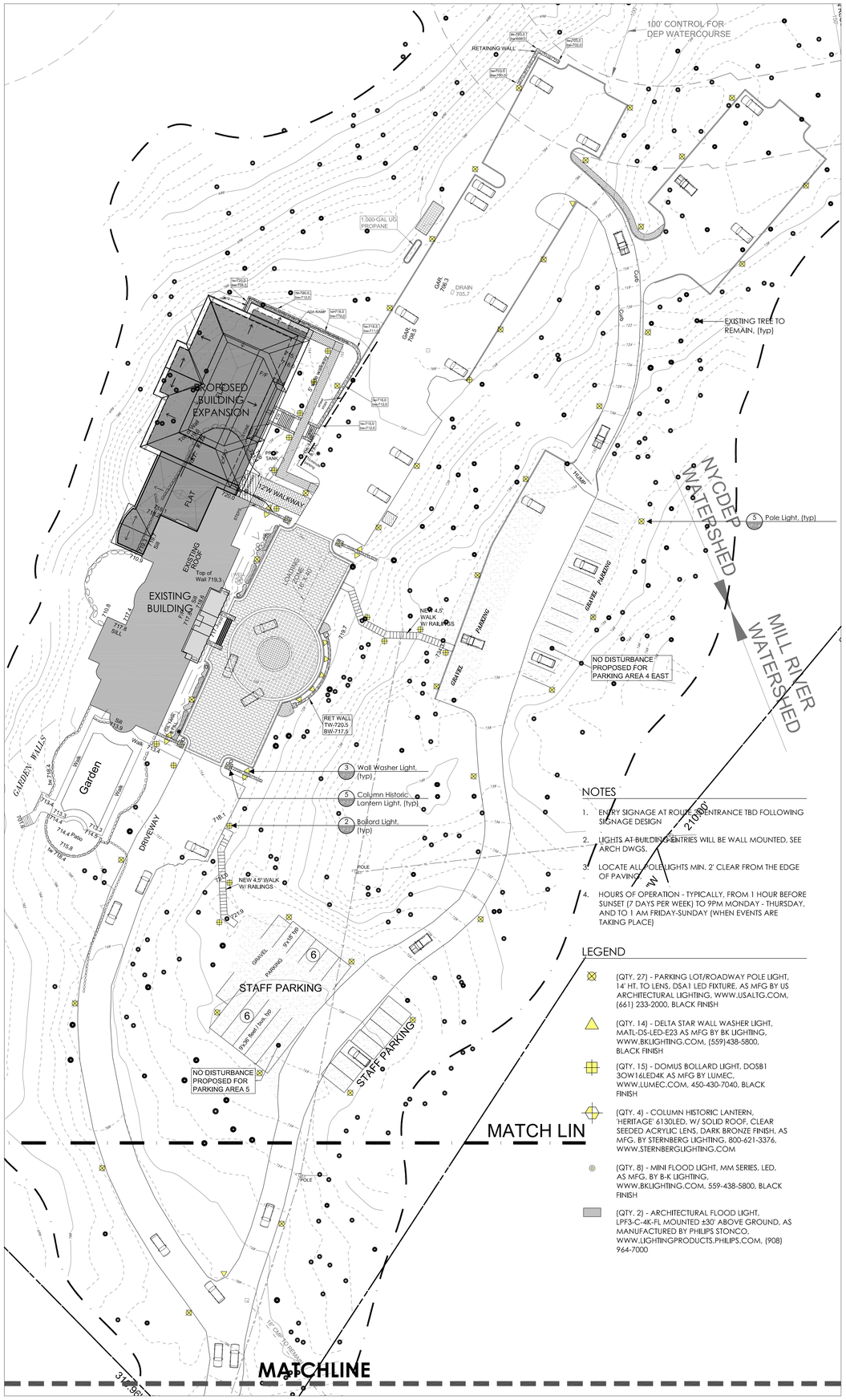
2 LP-2.0 Bollard Light

5 LP-2.0 Architectural Flood Light (at entrance)

3 LP-2.0 Wall Washer Light



6 LP-2.0 Mini Flood Light



NOTES

1. ENTRY SIGNAGE AT ROUTE 7 ENTRANCE TBD FOLLOWING SIGNAGE DESIGN
2. LIGHTS AT BUILDING ENTRIES WILL BE WALL MOUNTED, SEE ARCH DWGS.
3. LOCATE ALL POLE LIGHTS MIN. 2' CLEAR FROM THE EDGE OF PAVING
4. HOURS OF OPERATION - TYPICALLY, FROM 1 HOUR BEFORE SUNSET (7 DAYS PER WEEK) TO 9PM MONDAY - THURSDAY, AND TO 1 AM FRIDAY-SUNDAY (WHEN EVENTS ARE TAKING PLACE)

LEGEND

- (QTY. 27) - PARKING LOT/ROADWAY POLE LIGHT, 14' HT, TO LENS, DSA1 LED FIXTURE, AS MFG BY US ARCHITECTURAL LIGHTING, WWW.USALTG.COM, (661) 233-2000, BLACK FINISH
- (QTY. 14) - DELTA STAR WALL WASHER LIGHT, MATL-DS-LED-E23 AS MFG BY BK LIGHTING, WWW.BKLIGHTING.COM, (559)438-5800, BLACK FINISH
- (QTY. 15) - DOMUS BOLLARD LIGHT, DOSB1 30W16LED4K AS MFG BY LUMEC, WWW.LUMEC.COM, 450-430-7040, BLACK FINISH
- (QTY. 4) - COLUMN HISTORIC LANTERN, 'HERITAGE' 6130LED, W/ SOLID ROOF, CLEAR SEEDED ACRYLIC LENS, DARK BRONZE FINISH, AS MFG. BY STERNBERG LIGHTING, 800-621-3376, WWW.STERNBERGLIGHTING.COM
- (QTY. 8) - MINI FLOOD LIGHT, MM SERIES, LED, AS MFG. BY B-K LIGHTING, WWW.BKLIGHTING.COM, 559-438-5800, BLACK FINISH
- (QTY. 2) - ARCHITECTURAL FLOOD LIGHT, LPF3-C-4K-FL MOUNTED ±30' ABOVE GROUND, AS MANUFACTURED BY PHILIPS STONCO, WWW.LIGHTINGPRODUCTS.PHILIPS.COM, (908) 964-7000

ELEGANT BANQUETS AT LE CHATEAU

ADDITION AND RENOVATION

ELEGANT BANQUETS
257 FEDERAL ROAD
BROOKFIELD, CT 06804

WESLEY STOUT ASSOCIATES
96 Main Street, New Canaan, CT 06840
203 966-3100 FAX 203 966-3131
www.wesleystout.com

0 15 30 60
Scale 1" = 30'

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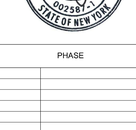

PHASE

No.	Date	Issue
3	07/29/2016	Revised Landscape Drawings
2	06/22/2016	Revised Landscape Drawings
1	04/27/2016	Planning Board Comments

Sheet Title

LANDSCAPE LIGHTING PLAN

Job No. 2015-0000
Date 04/04/16
Scale 1" = 30'
Drawn / Checked Author/Checker

Sheet Number

LP-2.0

SITE ENTRANCE

LEGEND

- (QTY. 27) - PARKING LOT/ROADWAY POLE LIGHT, 14' HT. TO LENS, DSA1 LED FIXTURE, AS MFG BY US ARCHITECTURAL LIGHTING, WWW.USALTG.COM, (661) 233-2000, BLACK FINISH
- (QTY. 14) - DELTA STAR WALL WASHER LIGHT, MATL-DS-LED-E23 AS MFG BY BK LIGHTING, WWW.BKLIGHTING.COM, (559)438-5800, BLACK FINISH
- (QTY. 15) - DOMUS BOLLARD LIGHT, DOSB1 3OW16LED4K AS MFG BY LUMEC, WWW.LUMEC.COM, 450-430-7040, BLACK FINISH
- (QTY. 4) - COLUMN HISTORIC LANTERN, 'HERITAGE' 6130LED, W/ SOLID ROOF, CLEAR SEEDED ACRYLIC LENS, DARK BRONZE FINISH, AS MFG. BY STERNBERG LIGHTING, 800-621-3376, WWW.STERNBERGLIGHTING.COM
- (QTY. 8) - MINI FLOOD LIGHT, MM SERIES, LED, AS MFG. BY B-K LIGHTING, WWW.BKLIGHTING.COM, 559-438-5800, BLACK FINISH
- (QTY. 2) - ARCHITECTURAL FLOOD LIGHT, LPF3-C-4K-FL MOUNTED ±30' ABOVE GROUND, AS MANUFACTURED BY PHILIPS STONCO, WWW.LIGHTINGPRODUCTS.PHILIPS.COM, (908) 964-7000

NOTES:

1. ENTRY SIGNAGE AT ROUTE 35 ENTRANCE TBD FOLLOWING SIGNAGE DESIGN
2. LIGHTS AT BUILDING ENTRIES WILL BE WALL MOUNTED, SEE ARCH DWGS.
3. LOCATE ALL POLE LIGHTS MIN. 2' CLEAR FROM THE EDGE OF PAVING.

JOB NAME: LE CHATEAU
APEX LIGHTING SOLUTIONS
WORKPLANE/CALC PLANE: @ FINISH GRADE
MOUNTING HEIGHT: SEE LUMINAIRE SCHEDULE

Luminaire Schedule

Qty	Label	Arrangement	Lumens/Lamp	LLF	Description
2	CL	SINGLE	N.A.	0.799	STERNBERG 6130CLED-1RND35T5-MDX03-CA-FINISH / MOUNTED 5FT AFG TO BOF
2	FL1	SINGLE	N.A.	0.850	STONCO LPF3-C-4K-FL-T-VOLT-FINISH / MOUNTED 30FT AFG / TILTED @ 45DEGREES
8	FL2	SINGLE	N.A.	0.850	BK MM-LED-e72-SP-BLP-12-A
15	SB1	SINGLE	N.A.	0.850	LUMEC DOSB1-30W16LED4K
28	SLC	SINGLE	N.A.	0.850	US ARCHITECTURAL DSA1-LED-VPA-SYM-48LED-NW-VOLT-1-FINISH-CPG / MOUNTED @ 14FT AFG TO OPTICAL CENTER
14	WW1	SINGLE	N.A.	0.850	BK MATL-DS-LED-E23-OPTICS-OUTPUT-FINISH-LENS-11-CAP

Calculation Summary

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
CalcPts_1	Illuminance	Fc	0.44	12.2	0.0	N.A.	N.A.
CalcPts_2	Illuminance	Fc	0.58	2.3	0.0	N.A.	N.A.
PATHWAY 1	Illuminance	Fc	0.79	2.9	0.1	7.90	29.00
PATHWAY 2	Illuminance	Fc	1.77	4.0	0.5	3.54	8.00
BLDG DRIVE UP	Illuminance	Fc	0.85	4.1	0.1	8.50	41.00
DRIVE ENTRANCE	Illuminance	Fc	1.08	1.9	0.2	5.40	9.50
PARKING LOT 1	Illuminance	Fc	0.83	3.4	0.2	4.15	17.00
PARKING LOT 2	Illuminance	Fc	0.78	4.1	0.2	3.90	20.50
PARKING LOT 3	Illuminance	Fc	1.05	3.6	0.3	3.50	12.00
PARKING LOT 4	Illuminance	Fc	0.86	3.8	0.3	2.87	12.67
PARKING LOT 5	Illuminance	Fc	0.40	1.7	0.0	N.A.	N.A.

ELEGANT BANQUETS AT LE CHATEAU

ADDITION AND RENOVATION

ELEGANT BANQUETS
257 FEDERAL ROAD
BROOKFIELD, CT 06804

WESLEY STOUT ASSOCIATES
96 Main Street, New Canaan, CT 06840
203 966-3100 FAX 203 966-3131
www.wesleystout.com

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Scale 1" = 30'

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Professional Seal

REGISTERED LANDSCAPE ARCHITECT
Wesley Stout
02587
STATE OF NEW YORK

PHASE

No.	Date	Issue
3	07/29/2016	Revised Landscape Drawings
2	06/22/2016	Revised Landscape Drawings
1	04/27/2016	Planning Board Comments

Sheet Title

LANDSCAPE LIGHTING PHOTOMETRIC PLAN

Job No. 2015-0000
Date 02/25/16
Scale 1" = 30'
Drawn / Checked Author/Checker

Sheet Number
LP-2.1

RECEIVED
AUG - 4 2016

Letter of Resolution
"Le Chateau"
Lewisboro, NY
16PR01772

WHEREAS, The New York State Office of Parks, Recreation and Historic Preservation (OPRHP) has determined that the proposed demolition of ancillary buildings at this site will have an adverse impact on this historic resource and has consulted with Elegant Banquets LLC (Owner) and the permitting agency, the New York State Department of Environmental Conservations (DEC), in accordance with Section 14.09, regulations implementing the New York State Parks, Recreation and Historic Preservation Law. The buildings that are proposed to be demolished are known as the "trophy house" and the "garage". The main house is in excellent condition and this structure and the surrounding gardens and ancillary buildings have been determined to be eligible for the National Register of Historic Places; and

WHEREAS, The Owner proposes to construct an addition to the original house to contain a banquet hall so that the expanded facility can serve as a catering facility for large events, primarily weddings. This banquet hall is mandatory for the adaptive re-use of the main structure and gardens and needs to occupy the same space as the location of the "Trophy House"; and

WHEREAS, The Owner needs to expand and modify the parking and the storm drainage systems to meet current codes and to adequately serve the new use and the area required is where the garage is now located; and

WHEREAS, Alternatives to the demolition of both ancillary buildings have been considered and documented and OPRHP concurs with the finding that there are no prudent or feasible alternatives to the project as proposed; and

WHEREAS, The approach now proposed will result in minimal renovation to the main historic structure and the restoration of the principle features of the historic landscape; and

NOW, THEREFORE, The OPRHP, the Owner and the DEC agree that the project shall be implemented in accordance with the following stipulations in order to take into account the impact on this historic property.

STIPULATIONS

The Owner will carry out the following measures to help mitigate the adverse impacts related to the project:

1. Recordation of the buildings to be removed, prior to demolition. This will include a full set of measured architectural drawings and high resolution digital photographs.
2. Appropriate restoration of the main residential building including:
    a. Retention of the historic windows that flank the fireplace on the north wall of the main building,

b. Maintain the principal historic interiors at the ground and second floors in a good state of historic preservation.
c. Replicate the historic trim dimensions and profiles at the proposed interior archway on the west wall of the main building where the connection is made to the new addition as well as attempt through design to recall the historic window openings when detailing this archway.

3. Restoration of historic landscape features and the south garden and western terraces including submission of supporting documentation about the historic landscape design.
4. Submission of pre-final design drawings and materials samples for the proposed addition, for OPRHP's review and comment.

EXECUTION AND IMPLEMENTATION of this Letter of Resolution evidences that the Owner has satisfied Section 14.09 responsibilities as outlined above.

AMENDMENTS
Any party to this LOR may propose to DEC that the LOR be amended, whereupon DEC shall consult with the other parties to this LOR to consider such amendment. Any amendment must be agreed upon in writing by all parties to this agreement.

TERM
This LOR shall be dated for identification purposes as July 29, 2016, but shall take effect on the date it is signed by the last signatory and will remain in effect until the Stipulations have been met.

NEW YORK STATE OFFICE OF PARKS, RECREATION AND HISTORIC PRESERVATION

By: Ruth Pierpont Date: 7/29/16

Title: Dep. Comm for Historic Preservation

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

By: _____ Date: 8/9/16

Title: Agency Historic Preservation Officer

ELEGANT BANQUETS, LLC

By: _____ Date: 8/5/2016

Title: CFO

TOWN OF LEWISBORO

NOTICE OF PUBLIC HEARING

NOTICE IS HEREBY GIVEN that the Planning Board of the Town of Lewisboro, Westchester County, New York will convene a Public Hearing on August 16, 2016 at 7:30 p.m., or soon thereafter, at the Town Offices @ Orchard Square Plaza, Lower Level, Cross River, New York, regarding the following:

Cal #11-15PB, Cal#04-16 SW, Cal#09-16 WP

Applications for Site Plan Review, Wetland Activity Permit and Stormwater Permit Approval for Elegant Banquets at Le Chateau, 1410 Route 35, South Salem, NY, (South Salem Owners, LLC, owner of record) for a catering hall addition to the existing building and modification to the existing site. The property is located on NYS Route 35, near the intersection of NYS Route 123, consists of ± 24.2 acres of land, and is located within the Town's R4-A Zoning District. A copy of materials and proposed site documents may be inspected at the office of the Planning Board Secretary, 20 Orchard Square, Suite L, Cross River, New York during regular Planning Board hours. Persons wishing to object to the application should file a notice of objection with the Planning Board together with a statement of the grounds of objection prior to the closing of the Public Hearing. All interested parties are encouraged to attend the Public Hearing and all will be provided an opportunity to be heard.

PLANNING BOARD
TOWN OF LEWISBORO
By: Jerome Kerner
Chairman

Dated July 28, 2016

The Town of Lewisboro is committed to equal access for all citizens. Anyone needing accommodations to attend or participate in this meeting is encouraged to notify the Secretary to the Planning Board in advance.

STATE OF NEW YORK)
) ss.:
COUNTY OF WESTCHESTER)

Re: Elegant Banquets at Le Chateau

Connie Paganelli, being duly sworn, deposes and says that she is over the age of eighteen years and works at 892 Route 35, Cross River, New York 10518:

On August 1, 2016, I mailed a true copy of the annexed Notice of Public Hearing by mailing the same by certified mail, return receipt requested in a sealed envelope, with postage prepaid thereon, in a post-office or official depository of the U.S. Postal Service within the State of New York, addressed to the last known addresses of the addressees as indicated below:

William & Julie McCormick
38 Church Tavern Road
South Salem, NY 10590

Joseph & Rebecca Ferrer
46 Church Tavern Road
South Salem, NY 10590

Alison Stevelman
3 Peaceable Street
South Salem, NY 10590

Michael & Traci Silva
45 Church Tavern Road
South Salem, NY 10590

Town of Lewisboro
11 Main Street
South Salem, NY 10590

Robert & Elizabeth Chase
54 Danbury Road #317
Ridgefield, CT 06877

Warren & Jane Ostroff
44 Church Tavern Road
South Salem, NY 10590

Sean Mahedy & Debra Perretti
52 Church Tavern Road
South Salem, NY 10590

Thalia Wolff
9 Peaceable Street
South Salem, NY 10590

Monique Jaffre &
Loi-Cea Lenaick
PO Box 444
So. Salem, NY 10590

Valerie & Nicholas Federice
49 Church Tavern Road
South Salem, New York 10590

Dawn Rinaldi
48 Church Tavern Road
South Salem, NY 10590

John S. Kommer
Andrea Singer
15 Peaceable Street
South Salem, NY 10590

Christian & Melissa Degenharpt
53 Church Tavern Road
South Salem, NY 10590

Chengxin Li and Shujing Dai
87 Old South Salem Road
Ridgefield, CT 06877

David & Aihua Shea
221 South Salem Road
Ridgefield, CT 06877

Russell & Amy Scott
225 South Salem Road
Ridgefield, CT 06877

Timothy & Susan Ranney
24 South Salem Road
Ridgefield, CT 06877

Connie Paganelli

Sworn to before me this
1st day of August, 2016

Notary Public

MICHAEL F. SIRIGNANO
Notary Public, State of New York
No. 4709295
Qualified in Westchester County
Commission Expires January 31, 20

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Michael Fuller Sirignano
Attorney and Counselor at Law

Old Post Road Professional Building
892 Route 35 - P.O. Box 784
Cross River, New York 10518

Tel: (914) 763-5500
Fax: (914) 763-9589
e-mail: michael@sirignano.us

August 9, 2016

Jerome Kerner, Chairman
Town of Lewisboro Planning Board
P.O. Box 725
20 North Salem Road, Suite L
Cross River, NY 10518

Re: Elegant Banquets at Le Chateau Site Plan Review,
Wetlands Activity Permit and Stormwater Permit Approval
Cal. # 11-15PB, Cal. #04-16SW, Cal. #09-16WP

Dear Chairman Kerner and
Members of the Planning Board:

On behalf of the Applicants, enclosed please find an Affidavit of Posting and photographs evidencing the fact that a sign was posted on the above property noticing the Planning Board public hearing scheduled for August 16, 2016.

Please incorporate the enclosed as part of the official record of the proceedings. Thank you for your assistance in this matter.

Very truly yours,

Michael Fuller Sirignano

MFS/cp
Enclosure

cc: Simon T. Curtis

AFFIDAVIT OF POSTING

IN THE MATTER OF AN APPLICATION BY ELEGANT BANQUETS, LLC SEEKING SITE PLAN REVIEW, WETLANDS ACTIVITY PERMIT AND STORMWATER PERMIT APPROVALS FOR PROPOSED IMPROVEMENT TO 1410 ROUTE 35 IN THE TOWN OF LEWISBORO, NEW YORK AND DESIGNATED ON THE OFFICIAL TAX MAP AS SHEET 39, BLOCK 10549, LOT 17.

STATE OF NEW YORK)
) ss.
COUNTY OF WESTCHESTER)

MICHAEL FULLER SIRIGNANO, ESQ., being duly sworn, deposes and says: I am over 18 years of age and reside in Westchester County, State of New York.

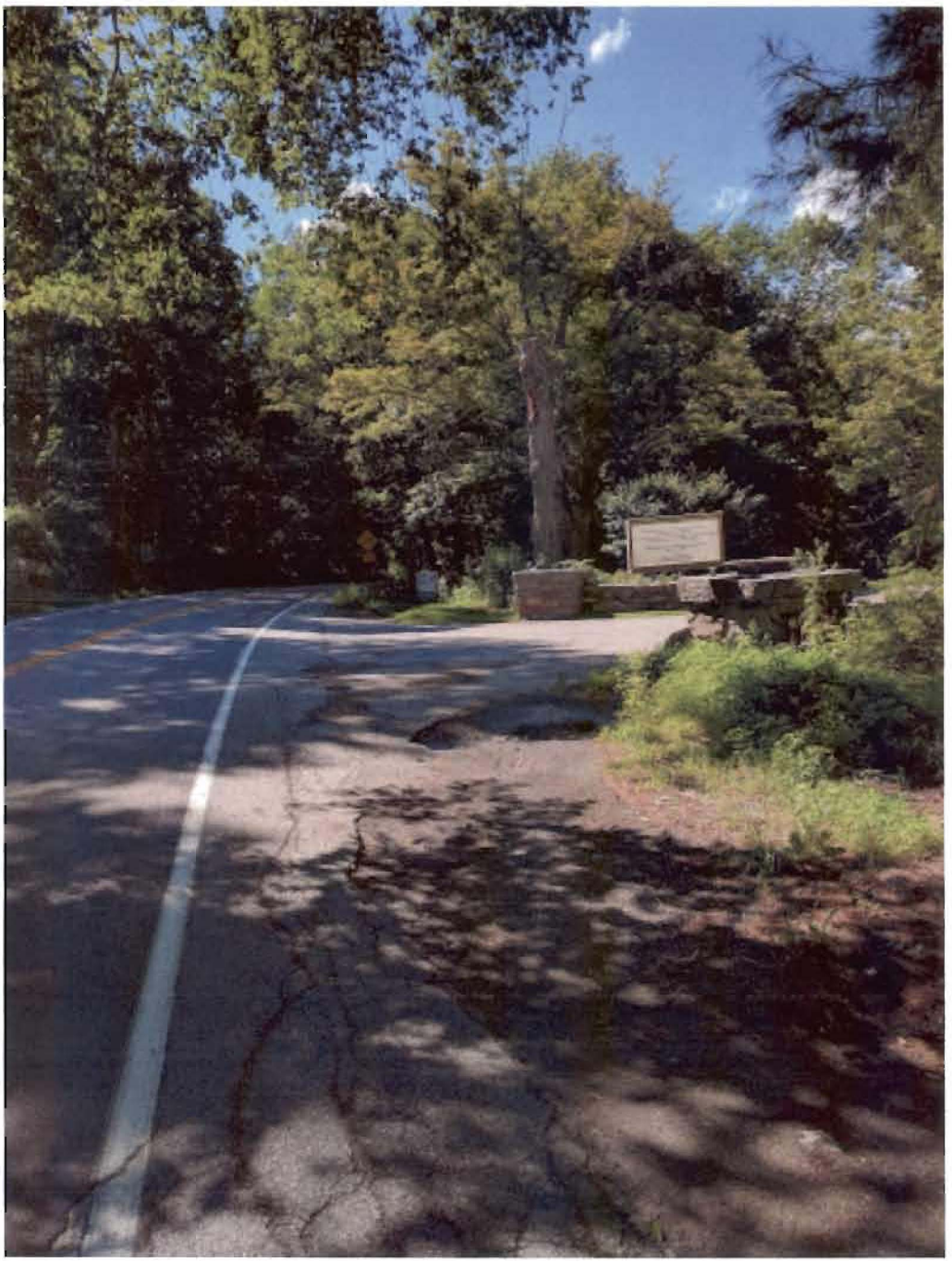
On August 5, 2016, a sign was posted at the entrance to the existing driveway for the former Le Chateau property noticing the August 16, 2016 Planning Board Public Hearing as was provided to me by the Town of Lewisboro Planning Department.

Michael Fuller Sirignano, Esq.

Sworn to before me this
9th day of August, 2016.

Constance Paganelli
Notary Public

CONSTANCE PAGANELLI
Notary Public, State of New York
No. 60-8255040
Qualified in ~~Westchester~~ Dutchess County
Commission Expires January 31, ~~2019~~ 2019



NOTICE
Please contact the Planning Board Secretary at
for additional information

KELLARD SESSIONS
CONSULTING, P.C.

John Kellard, P.E.
David Sessions, RLA, AICP

MEMORANDUM

TO: Chairman Jerome Kerner, AIA and
Members of Lewisboro Planning Board

CC: Ciorsdan Conran
Judson Siebert, Esq.

FROM: Jan K. Johannessen, AICP
Joseph M. Cermele, P.E., CFM
Town Consulting Professionals

DATE: August 10, 2016

RE: Special Use Permit Renewal and Exemption
T-Mobile Northeast LLC
Leon Levy – Route 35
Sheet 40, Block 10263, Lot 62A

Project Description

The subject property consists of a ±4.0 acre landlocked parcel owned by American Tower, Inc. and surrounded by the Leon Levy Preserve; the parcel is located within the R-4A Zoning District and is proximate to the intersection of NYS Route 35 and NYS Route 123. T-Mobile currently operates on the existing lattice tower at elevation 120' AGL. A Special Use Permit was granted to Omnipoint, Inc. (now known as T-Mobile) on February 26, 2002, which was valid for a five (5) year period, except as may be extended by the Planning Board pursuant to an application for renewal. This office is not aware of any extensions or renewals granted before or after the February 26, 2007 expiration date.

The applicant is proposing to replace the six (6) existing panel antennas and related equipment with the installation of six (6) new panel antennas to be mounted on a proposed 10' x 2" pipe. The applicant is also proposing to replace certain equipment located within the existing building and has made application to renew its Special Use Permit.

SEQRA

The proposed action is a Type II Action and is categorically exempt from the State Environmental Quality Review Act (SEQRA).

Comments

1. According to the Planning Board's February 26, 2002 Resolution, any subsequent renewal applications shall be subject to the same procedure, rules and regulations applicable to an original application. Therefore, the Special Use Permit renewal is subject to a public hearing.

2. The applicant should submit any applicable resolutions, permits, approvals or renewals issued following the grant of the February 26, 2002 Special Use Permit (if any).

3. The application has been referred to the AAB and the AAB Chairman has recommended its approval.

4. The applicant has submitted an antenna and tower-mounted equipment calculation and has identified that the proposed upgrade would result in a 2.4% increase in bulk volume. Therefore, absent the renewal component of this application, the antenna and equipment upgrade meets the waiver provisions provided under Section 220-41.1H(1)(a)[2] of the Zoning Code.

5. A note should be added to the site plan stating that the proposed antenna and mounting equipment will be painted to match the color of the tower.

In order to expedite the review of subsequent submissions, the applicant should provide annotated responses to each of the comments outlined herein.

Plans Reviewed, prepared by Infinigy and dated (last revised) May 4, 2016:

- Title Sheet (T-1)
- Site Plan (C-1)
- Compound Plan & Elevation (C-2)
- Antenna Detail & RF Schedule (C-3)
- Equipment Specifications (C-4)
- Grounding & Power Diagrams (E-1)
- Coax/Fiber Plumbing Diagram (E-2)
- General and Electrical Notes (N-1)

Documents Reviewed:

- Letter, prepared by Snyder & Snyder, LLP, dated July 7, 2016
- Letters, prepared by Infinigy, dated October 13, 2016
- Step I & Step II Applications for Renewal
- Short Environmental Assessment Form, dated January 18, 2016
- Structural Analysis Report, prepared by American Tower Corp., dated May 9, 2016
- Antenna Site FCC RF Compliance Assessment and Report, prepared by Pinnacle Telecom Group, dated November 20, 2015

JKJ/JMC/dc

T:\Lewisboro\Correspondence\LW2110JJ-LWPB-T-MobileLeonLevy-Review-Memo-8-10-16.docx

LAW OFFICES OF
SNYDER & SNYDER, LLP
94 WHITE PLAINS ROAD
TARRYTOWN, NEW YORK 10591
(914) 333-0700
FAX (914) 333-0743

WRITER'S E-MAIL ADDRESS
e-mail to cbonomolo@snyderlaw.net

NEW YORK OFFICE
445 PARK AVENUE, 9TH FLOOR
NEW YORK, NEW YORK 10022
(212) 749-1448
FAX (212) 932-2693

LESLIE J. SNYDER
ROBERT D. GAUDIOSO

DAVID L. SNYDER
(1956-2012)

NEW JERSEY OFFICE
ONE GATEWAY CENTER, SUITE 2600
NEWARK, NEW JERSEY 07102
(973) 824-9772
FAX (973) 824-9774

REPLY TO:
Tarrytown Office

July 7, 2016

RECEIVED
JUL - 8
Lewisboro
Planning Board

By Hand Delivery
Hon. Chairman Jerome Kerner
and Members of the Planning Board
Town of Lewisboro
20 North Salem Road
Cross River, NY 10518

Re: T-Mobile Northeast LLC
Request for Exemption and Special Permit Renewal
Route 35
Town of Lewisboro ("Town"), NY

Hon. Chairman Kerner and Members of the Planning Board:

We are the attorneys for T-Mobile Northeast LLC ("T-Mobile") in connection with the enclosed Eligible Facilities Request to modify its existing wireless telecommunications facility ("Existing Facility") on the existing tower ("Existing Tower") at the above referenced property, that does not substantially change the physical dimensions of such Existing Tower pursuant to Section 6409 of the Federal Middle Class Tax Relief and Job Creation Act of 2012 (codified at 47 USCS §1455) ("Tax Relief Act"), a copy of which is attached hereto. The proposed modification consists of the replacement of six (6) existing panel antennas and related equipment with the installation of six (6) panel antennas and related equipment on the Existing Tower and the replacement of certain equipment within T-Mobile's existing equipment area within the existing building at the base of the Existing Tower. T-Mobile also respectfully requests renewal of the special permit for the Existing Facility.

In addition, the Planning Board may grant a zoning exemption for the modification of a wireless telecommunications facility when such facility meets the criteria enumerated in Sections 220-41.1(H)(1)(a)[1]&[2] of the Town Zoning Code. Accordingly, we respectfully submit that a zoning exemption from the need for special permit approval should be granted, since T-Mobile's proposed modification meets the criteria for an exemption.

Moreover, Section 6409 of the Tax Relief Act states that a local government "may not deny, and shall approve, any eligible facilities request for a modification of an existing wireless tower or base station that does not substantially change the physical dimensions of such tower or base station." It is, therefore, respectfully submitted that T-Mobile's proposed modification is an "eligible facilities request" since the modification will not substantially change the physical dimensions of the Existing Tower. The legislative history for Section 6409 clearly establishes the intent of Congress. "Section 6409. This section streamlines the process for siting of wireless facilities by *preempting the ability of State and local authorities to delay collocation of, removal of, and replacement of wireless equipment* (emphasis added)." 158 Cong. Rec. E237-39 (daily ed. February 24, 2012) (statement of Rep. Fred Upton). In addition, the Federal Communications Commission adopted rules ("FCC Rules") implementing Section 6409 of the Tax Relief Act. See Title 47 C.F.R Section 1.40001, a copy of which is enclosed. Under the FCC Rules, an eligible facilities request is deemed approved if not acted upon within sixty (60) days of the filing of the application.

As set forth in the enclosed materials, T-Mobile's proposed modification involves the replacement of transmission equipment and does not substantially change the physical dimensions of the Existing Tower for the following reasons. **First**, the proposed modification will not increase the height of the Existing Tower. **Second**, the proposed antennas will be mounted in the same manner as the existing antennas and will not protrude significantly farther from the edge of the Existing Tower than the existing antennas. **Third**, the number of equipment cabinets will not be increased. **Fourth**, no excavation or deployment outside the existing compound is proposed. **Fifth**, the proposed modification will not defeat any concealment elements of the Existing Tower. **Sixth**, the proposed modification does not violate any prior approvals.

It is therefore respectfully submitted that T-Mobile's proposed modification will not substantially change the physical dimensions of the existing base station or Existing Tower and must be approved pursuant to Section 6409 of the TRA. Accordingly, we respectfully request a renewal of T-Mobile's existing special permit and an exemption from special permit approval for the proposed modification.

In furtherance of the foregoing, I have enclosed the required application fees and the following materials:

1. Application for Special Use Approval with Letter of Authorization;
2. Short EAF;
3. Antenna Site FCC RF Compliance Assessment and Report, prepared by Pinnacle Telecom Group, dated November 20, 2015;
4. Structural Analysis Report, prepared by American Tower, dated May 9, 2016;
5. T-Mobile 700 MHz Project Antenna and RRH Support Evaluation, prepared by Infinigy, dated April 13, 2016;

6. Letter from Infinigy, dated April 13, 2016, stating that the proposed modification "will increase the total installed bulk volume of the antennas and cables on the tower by 5.2 cubic feet or 2.4%." Pursuant to Section 220-41.1(H)(1)(a)[2] of the Town Zoning Code, existing approved antennas may be upgraded, replaced, or added to without requiring special permit approval where "the combined bulk (or physical volume) of all antennas or other equipment shall be reduced, equal to, *or result in an increase of less than 5%*";

7. Tax Affidavit; and

8. Construction Drawings, prepared by Infinigy, last revised May 4, 2016.

We thank you for your consideration, and look forward to discussing this matter with you at your next meeting. If you have any questions or require any additional documentation, please do not hesitate to contact me.

Respectfully submitted,
SNYDER & SNYDER, LLP

By: _____
Cara M. Bonomolo

Enclosures
cc: T-Mobile (by e-mail)

Z:\SSDATA\WPDATA\SS3\RDG\T-Mobile\Lewisboro\NY09050 - PB Letter.wpd

TITLE 47. TELEGRAPHS, TELEPHONES, AND RADIOTELEGRAPHS
CHAPTER 13. PUBLIC SAFETY COMMUNICATIONS AND ELECTROMAGNETIC SPECTRUM AUCTIONS
SPECTRUM AUCTION AUTHORITY

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47 USCS § 1455

§ 1455. Wireless facilities deployment

(a) Facility modifications.

(1) In general. Notwithstanding section 704 of the Telecommunications Act of 1996 (Public Law 104-104) or any other provision of law, a State or local government may not deny, and shall approve, any eligible facilities request for a modification of an existing wireless tower or base station that does not substantially change the physical dimensions of such tower or base station.

(2) Eligible facilities request. For purposes of this subsection, the term "eligible facilities request" means any request for modification of an existing wireless tower or base station that involves--

(A) collocation of new transmission equipment;

(B) removal of transmission equipment; or

(C) replacement of transmission equipment.

(3) Applicability of environmental laws. Nothing in paragraph (1) shall be construed to relieve the Commission from the requirements of the National Historic Preservation Act [16 USCS §§ 470 et seq.] or the National Environmental Policy Act of 1969 [42 USCS §§ 4321 et seq.].

History:

(Feb. 22, 2012, P.L. 112-96, Title VI, Subtitle D, § 6409, 126 Stat. 232.)

Title 47: Telecommunication
PART 1—PRACTICE AND PROCEDURE
Subpart CC—State and Local Review of Applications for Wireless Service Facility Modification
§1.40001 Wireless Facility Modifications.

(a) Purpose. These rules implement section 6409 of the Spectrum Act (codified at 47 U.S.C. 1455), which requires a State or local government to approve any eligible facilities request for a modification of an existing tower or base station that does not substantially change the physical dimensions of such tower or base station.

(b) Definitions. Terms used in this section have the following meanings.

(1) Base station. A structure or equipment at a fixed location that enables Commission-licensed or authorized wireless communications between user equipment and a communications network. The term does not encompass a tower as defined in this subpart or any equipment associated with a tower.

(i) The term includes, but is not limited to, equipment associated with wireless communications services such as private, broadcast, and public safety services, as well as unlicensed wireless services and fixed wireless services such as microwave backhaul.

(ii) The term includes, but is not limited to, radio transceivers, antennas, coaxial or fiber-optic cable, regular and backup power supplies, and comparable equipment, regardless of technological configuration (including Distributed Antenna Systems and small-cell networks).

(iii) The term includes any structure other than a tower that, at the time the relevant application is filed with the State or local government under this section, supports or houses equipment described in paragraphs (b)(1)(i) through (ii) of this section that has been reviewed and approved under the applicable zoning or siting process, or under another State or local regulatory review process, even if the structure was not built for the sole or primary purpose of providing such support.

(iv) The term does not include any structure that, at the time the relevant application is filed with the State or local government under this section, does not support or house equipment described in paragraphs (b)(1)(i)-(ii) of this section.

(2) Collocation. The mounting or installation of transmission equipment on an eligible support structure for the purpose of transmitting and/or receiving radio frequency signals for communications purposes.

(3) Eligible facilities request. Any request for modification of an existing tower or base station that does not substantially change the physical dimensions of such tower or base station, involving:

(i) Collocation of new transmission equipment;

(ii) Removal of transmission equipment; or

(iii) Replacement of transmission equipment.

(4) Eligible support structure. Any tower or base station as defined in this section, provided that it is existing at the time the relevant application is filed with the State or local government under this section.

(5) Existing. A constructed tower or base station is existing for purposes of this section if it has been reviewed and approved under the applicable zoning or siting process, or under another State or local regulatory review process, provided that a tower that has not been reviewed and approved because it was not in a zoned area when it was built, but was lawfully constructed, is existing for purposes of this definition.

(6) Site. For towers other than towers in the public rights-of-way, the current boundaries of the leased or owned property surrounding the tower and any access or utility easements currently related to the site, and, for other eligible support structures, further restricted to that area in proximity to the structure and to other transmission equipment already deployed on the ground.

(7) Substantial change. A modification substantially changes the physical dimensions of an eligible support structure if it meets any of the following criteria:

(i) For towers other than towers in the public rights-of-way, it increases the height of the tower by more than 10% or by the height of one additional antenna array with separation from the nearest existing antenna not to exceed twenty feet, whichever is greater; for other eligible support structures, it increases the height of the structure by more than 10% or more than ten feet, whichever is greater;

(A) Changes in height should be measured from the original support structure in cases where deployments are or will be separated horizontally, such as on buildings' rooftops; in other circumstances, changes in height should be measured from the dimensions of the tower or base station, inclusive of originally approved appurtenances and any modifications that were approved prior to the passage of the Spectrum Act.

(ii) For towers other than towers in the public rights-of-way, it involves adding an appurtenance to the body of the tower that would protrude from the edge of the tower more than twenty feet, or more than the width of the tower structure at the level of the appurtenance, whichever is greater; for other eligible support structures, it involves adding an appurtenance to the body of the structure that would protrude from the edge of the structure by more than six feet;

(iii) For any eligible support structure, it involves installation of more than the standard number of new equipment cabinets for the technology involved, but not to exceed four cabinets; or, for towers in the public rights-of-way and base stations, it involves installation of any new equipment cabinets on the ground if there are no pre-existing ground cabinets associated with the structure, or else involves installation of ground cabinets that are more than 10% larger in height

or overall volume than any other ground cabinets associated with the structure;

(iv) It entails any excavation or deployment outside the current site;

(v) It would defeat the concealment elements of the eligible support structure; or

(vi) It does not comply with conditions associated with the siting approval of the construction or modification of the eligible support structure or base station equipment, provided however that this limitation does not apply to any modification that is non-compliant only in a manner that would not exceed the thresholds identified in §1.40001(b)(7)(i) through (iv).

(8) Transmission equipment. Equipment that facilitates transmission for any Commission-licensed or authorized wireless communication service, including, but not limited to, radio transceivers, antennas, coaxial or fiber-optic cable, and regular and backup power supply. The term includes equipment associated with wireless communications services including, but not limited to, private, broadcast, and public safety services, as well as unlicensed wireless services and fixed wireless services such as microwave backhaul.

(9) Tower. Any structure built for the sole or primary purpose of supporting any Commission-licensed or authorized antennas and their associated facilities, including structures that are constructed for wireless communications services including, but not limited to, private, broadcast, and public safety services, as well as unlicensed wireless services and fixed wireless services such as microwave backhaul, and the associated site.

(c) Review of applications. A State or local government may not deny and shall approve any eligible facilities request for modification of an eligible support structure that does not substantially change the physical dimensions of such structure.

(1) Documentation requirement for review. When an applicant asserts in writing that a request for modification is covered by this section, a State or local government may require the applicant to provide documentation or information only to the extent reasonably related to determining whether the request meets the requirements of this section. A State or local government may not require an applicant to submit any other documentation, including but not limited to documentation intended to illustrate the need for such wireless facilities or to justify the business decision to modify such wireless facilities.

(2) Timeframe for review. Within 60 days of the date on which an applicant submits a request seeking approval under this section, the State or local government shall approve the application unless it determines that the application is not covered by this section.

(3) Tolling of the timeframe for review. The 60-day period begins to run when the application is filed, and may be tolled only by mutual agreement or in cases where the reviewing State or local government determines that the application is incomplete. The timeframe for review is not tolled by a moratorium on the review of applications.

(i) To toll the timeframe for incompleteness, the reviewing State or local government must provide written notice to the applicant within 30 days of receipt of the application, clearly and specifically delineating all missing documents or information. Such delineated information is limited to documents or information meeting the standard under paragraph (c)(1) of this section.

(ii) The timeframe for review begins running again when the applicant makes a supplemental submission in response to the State or local government's notice of incompleteness.

(iii) Following a supplemental submission, the State or local government will have 10 days to notify the applicant that the supplemental submission did not provide the information identified in the original notice delineating missing information. The timeframe is tolled in the case of second or subsequent notices pursuant to the procedures identified in this paragraph (c)(3). Second or subsequent notices of incompleteness may not specify missing documents or information that were not delineated in the original notice of incompleteness.

(4) Failure to act. In the event the reviewing State or local government fails to approve or deny a request seeking approval under this section within the timeframe for review (accounting for any tolling), the request shall be deemed granted. The deemed grant does not become effective until the applicant notifies the applicable reviewing authority in writing after the review period has expired (accounting for any tolling) that the application has been deemed granted.

(5) Remedies. Applicants and reviewing authorities may bring claims related to Section 6409(a) to any court of competent jurisdiction.

[80 FR 1269, Jan. 8, 2015]

Effective Date Note: At 80 FR 1269, Jan. 8, 2015, §1.40001 was added. Paragraphs 1.40001(c)(3)(i), (iii), and (c)(4) contain information collection and recordkeeping requirements and will not become effective until approval has been given by the Office of Management and Budget.

TOWN OF LEWISBORO PLANNING BOARD

PO Box 725, 20 North Salem Road, Cross River, NY 10518 Email: planning@lewisborogov.com Tel: (914) 763-5592

Site Development Plan/Subdivision Plat Application – Check all that apply:

Waiver of Site Development Plan Procedures	☐		
Site Development Plan Approval	Step I ☐	Step II ☐	
Special Use Permit ~~Approval~~ Renewal	Step I ☑	Step II ☑	
Subdivision Plat Approval	Step I ☐	Step II ☐	Step III ☐

Project Information

Project Name: T-Mobile Eligible Facilities Request & Special Permit Renewal

Project Address: Route 35

Gross Parcel Area: _____ Zoning District: R-4A Sheet(s): 0040 Block (s): 10263 Lot(s): 62A

Project Description: Modification of existing wireless telecommunications facility on existing tower and special use permit renewal.

Is the site located within 500 feet of any Town boundary?	YES ☐	NO ☑
Is the site located within the New York City Watershed?	YES ☑	NO ☐
Is the site located on a State or County Highway?	YES ☑	NO ☐

Does the proposed action require any other permits/approvals from other agencies/departments?

Town Board	☐	ZBA	☐	Building Dept.	☑	Town Highway	☐
ACARC	☐	NYSDEC	☐	NYCDEP	☐	WCDH	☐
NYSDOT	☐	Town Wetland	☐	Town Stormwater	☐		

Other _____

Owner's Information

Name: American Tower Corporation Email: _____

Address: 319 Quarry Road, Spring City, PA 19475 Phone: 484-942-6339

Applicant's Information (if different)

Name: T-Mobile Northeast LLC Email: _____

Address: 4 Sylvan Way, Parsipanny, NJ Phone: _____

Authorized Agent's Information

Name: Cara M. Bonomolo Email: cbonomolo@snyderlaw.net

Address: Snyder & Snyder, LLP, 94 White Plains Road, Tarrytown, NY 10591 Phone: 914-333-0700

THE APPLICANT understands that any application is considered complete only when all information and documents required have been submitted and received by the Planning Board. The applicant further understands that the applicant is responsible for the payment of all application and review fees incurred by the Planning Board.

THE UNDERSIGNED WARRANTS the truth of all statements contained herein and in all supporting documents according to the best of his/her knowledge and belief, and authorizes visitation and inspection of the subject property by the Town of Lewisboro and its agents.

APPLICANT'S SIGNATURE By: T-Mobile Northeast LLC Cara M. Bonomolo, Snyder & Snyder, LLP as attorney DATE 6/23, 2016

OWNER'S SIBNATURE See Attached Letter of Authorization attached hereto DATE _____

TOWN OF LEWISBORO PLANNING BOARD

PO Box 725, 20 North Salem Road, Cross River, NY 10518
Email: planning@lewisborogov.com
Tel: (914) 763-5592
Fax: (914) 763-3637

Affidavit of Ownership

State of : _____

County of: _____

_____, being duly sworn, deposes and says that he/she

resides at _____

in the County of _____, State of _____

and that he/she is (check one) ____ the owner, or ____ the _____
Title

of _____
Name of corporation, partnership, or other legal entity

which is the owner, in fee of all that certain log, piece or parcel of land situated, lying and being in the Town of Lewisboro, New York, aforesaid and know and designated on the Tax Map in the Town of Lewisboro as:

Block _____, Lot _____, on Sheet _____.

See Attached Letter of Authorization
Owner's Signature

Sworn to before me this

_____ **day of** _____, 2_____

_____
Notary Public – affix stamp

AMERICAN TOWER®
CORPORATION

LETTER OF AUTHORIZATION

ATC SITE # / NAME: 88166/South Salem NY
SITE ADDRESS: Route 35, Lewisboro, NY
LICENSEE: T-Mobile Northeast, LLC

I, Margaret Robinson, Senior Counsel for American Tower*, owner of the property and of the tower facility located at the address identified above (the "Tower Facility"), do hereby authorize **T-Mobile Northeast, LLC**, its successors and assigns, and/or its agent, (collectively, the "Licensee") to act as American Tower's non-exclusive agent for the sole purpose of filing and consummating any land-use or building permit application(s) as may be required by the applicable permitting authorities for Licensee's telecommunications' installation.

We understand that this application may be denied, modified or approved with conditions. The above authorization is limited to the acceptance by Licensee only of conditions related to Licensee's installation and any such conditions of approval or modifications will be Licensee's sole responsibility.

Signature:

Print Name: Margaret Robinson
Senior Counsel
American Tower*

NOTARY BLOCK

Commonwealth of MASSACHUSETTS
County of Middlesex

This instrument was acknowledged before me by Margaret Robinson, Senior Counsel for American Tower*, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same.

WITNESS my hand and official seal, this 15th day of December, 2015.

NOTARY SEAL

SUSANA P. RIBEIRO
Notary Public
Commonwealth of Massachusetts
My Commission Expires
March 16, 2018

Notary Public

My Commission Expires: March 16, 2018

*American Tower includes all affiliates and subsidiaries of American Tower Corporation.

Short Environmental Assessment Form
Part 1 - Project Information

Instructions for Completing

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

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

Part 1 - Project and Sponsor Information

Name of Action or Project: T-Mobile Northeast LLC Modification of Existing Public Utility Wireless Facility		
Project Location (describe, and attach a location map): Route 35, Lewisboro, NY 10590		
Brief Description of Proposed Action: The proposed action involves the modification of an existing public utility to replace existing antennas and ancillary equipment on the exiting tower and replace two equipment cabinets in its existing equipment area within the existing equipment building.		
Name of Applicant or Sponsor: T-Mobile Northeast LLC	Telephone:	
	E-Mail:	
Address: 4 Sylvan Way		
City/PO: Parsippany	State: NJ	Zip Code: 07054

	NO	YES
1. Does the proposed action only involve the legislative adoption of a plan, local law, ordinance, administrative rule, or regulation? If Yes, attach a narrative description of the intent of the proposed action and the environmental resources that may be affected in the municipality and proceed to Part 2. If no, continue to question 2.	☑	☐
2. Does the proposed action require a permit, approval or funding from any other governmental Agency? If Yes, list agency(s) name and permit or approval: (1) FCC license from FCC; (2) Special permit renewal and extension from Town of Lewisboro Planning Board; (3) Building Permit from Town of Lewisboro	☐	☑

3.a. Total acreage of the site of the proposed action? <0.01 acres
b. Total acreage to be physically disturbed? Zero (0) acres
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? <0.01 acres

4. Check all land uses that occur on, adjoining and near the proposed action.
☐ Urban ☑ Rural (non-agriculture) ☐ Industrial ☐ Commercial ☐ Residential (suburban)
☑ Forest ☐ Agriculture ☐ Aquatic ☑ Other (specify): Wireless Telecommunications Facility
☐ Parkland

	NO	YES	N/A
5. Is the proposed action,			
a. A permitted use under the zoning regulations?	☐	✓	☐
b. Consistent with the adopted comprehensive plan?	☐	✓	☐

	NO	YES
6. Is the proposed action consistent with the predominant character of the existing built or natural landscape?	☐	✓
7. Is the site of the proposed action located in, or does it adjoin, a state listed Critical Environmental Area? If Yes, identify: _____	✓	☐
8. a. Will the proposed action result in a substantial increase in traffic above present levels?	✓	☐
b. Are public transportation service(s) available at or near the site of the proposed action?	✓	☐
c. Are any pedestrian accommodations or bicycle routes available on or near site of the proposed action?	✓	☐
9. Does the proposed action meet or exceed the state energy code requirements? If the proposed action will exceed requirements, describe design features and technologies: _____	☐	✓
10. Will the proposed action connect to an existing public/private water supply? If No, describe method for providing potable water: Since the facility is unmanned, no potable water is required.	✓	☐
11. Will the proposed action connect to existing wastewater utilities? If No, describe method for providing wastewater treatment: Since the facility is unmanned, no wastewater will be generated.	✓	☐
12. a. Does the site contain a structure that is listed on either the State or National Register of Historic Places?	✓	☐
b. Is the proposed action located in an archeological sensitive area?	☐	✓
13. a. Does any portion of the site of the proposed action, or lands adjoining the proposed action, contain wetlands or other waterbodies regulated by a federal, state or local agency?	✓	☐
b. Would the proposed action physically alter, or encroach into, any existing wetland or waterbody? If Yes, identify the wetland or waterbody and extent of alterations in square feet or acres: _____	✓	☐

14. Identify the typical habitat types that occur on, or are likely to be found on the project site. Check all that apply:
☐ Shoreline ☑ Forest ☐ Agricultural/grasslands ☐ Early mid-successional
☐ Wetland ☐ Urban ☐ Suburban

	NO	YES
15. Does the site of the proposed action contain any species of animal, or associated habitats, listed by the State or Federal government as threatened or endangered?	✓	☐
16. Is the project site located in the 100 year flood plain?	✓	☐
17. Will the proposed action create storm water discharge, either from point or non-point sources? If Yes,		
a. Will storm water discharges flow to adjacent properties? ☐ NO ☐ YES	✓	☐
b. Will storm water discharges be directed to established conveyance systems (runoff and storm drains)? If Yes, briefly describe: ☐ NO ☐ YES		

	NO	YES
18. Does the proposed action include construction or other activities that result in the impoundment of water or other liquids (e.g. retention pond, waste lagoon, dam)? If Yes, explain purpose and size:	✓	
19. Has the site of the proposed action or an adjoining property been the location of an active or closed solid waste management facility? If Yes, describe:	✓	
20. Has the site of the proposed action or an adjoining property been the subject of remediation (ongoing or completed) for hazardous waste? If Yes, describe:	✓	

I AFFIRM THAT THE INFORMATION PROVIDED ABOVE IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE

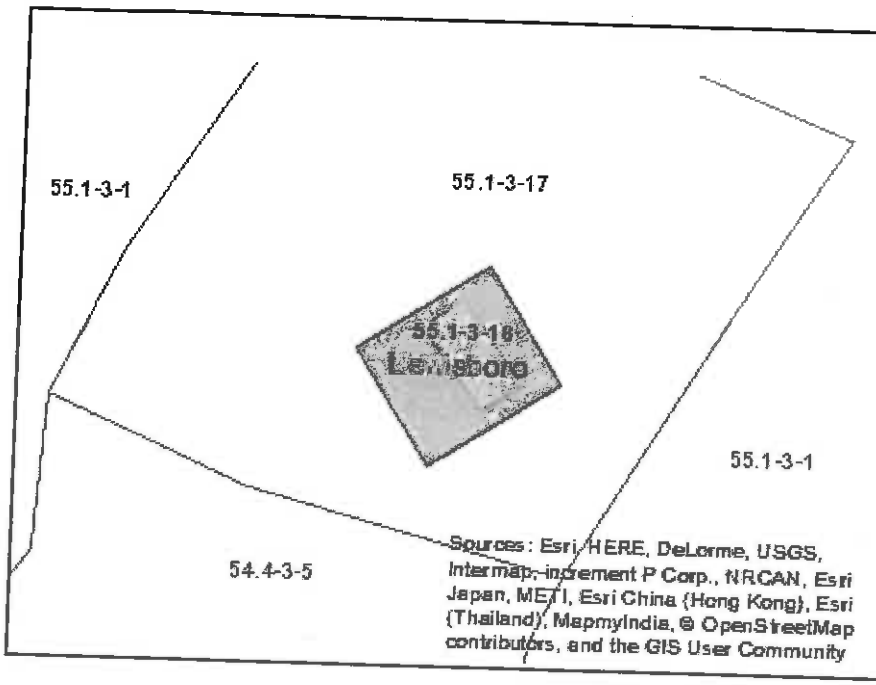
Applicant/sponsor name: Infinigy Engineering LLC as agent for T-Mobile Date: January 18, 2016

Signature:

PRINT FORM

EAF Mapper Summary Report

Monday, January 18, 2016 10:43 PM



Disclaimer: The EAF Mapper is a screening tool intended to assist project sponsors and reviewing agencies in preparing an environmental assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Although the EAF Mapper provides the most up-to-date digital data available to DEC, you may also need to contact local or other data sources in order to obtain data not provided by the Mapper. Digital data is not a substitute for agency determinations.

Part 1 / Question 7 [Critical Environmental Area]	No
Part 1 / Question 12a [National Register of Historic Places]	No
Part 1 / Question 12b [Archeological Sites]	Yes
Part 1 / Question 13a [Wetlands or Other Regulated Waterbodies]	No
Part 1 / Question 15 [Threatened or Endangered Animal]	No
Part 1 / Question 16 [100 Year Flood Plain]	No
Part 1 / Question 20 [Remediation Site]	No

PINNACLE TELECOM GROUP
Professional and Technical Services

ANTENNA SITE FCC RF COMPLIANCE ASSESSMENT AND REPORT

T-MOBILE NORTHEAST LLC

SITE NY09050B
ROUTE 35
LEWISBORO, NY

NOVEMBER 20, 2015

14 RIDGEDALE AVENUE, SUITE 260 • CEDAR KNOLLS, NJ 07927 • 973-451-1630

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Compliance Conclusion 12

Certification 13

Appendix A. Background on the FCC MPE Limit

Introduction and Summary

At the request of T-Mobile Northeast LLC ("T-Mobile"), Pinnacle Telecom Group has performed an independent assessment of radiofrequency (RF) levels and FCC compliance for the modification of a wireless base station antenna operation on a lattice tower on Route 35 in Lewisboro, NY.

T-Mobile refers to the site by the code "NY09050B" and antenna modifications are proposed to add service using the 700 MHz frequency band to the existing services in T-Mobile's other FCC-licensed frequency bands, 1900 MHz and 2100 MHz.

The FCC requires wireless system operators to perform an assessment of potential human exposure to radiofrequency (RF) fields emanating from all the transmitting antennas at a site whenever antenna operations are added or modified, and to ensure compliance with the Maximum Permissible Exposure (MPE) limit in the FCC regulations. In this case, the compliance assessment needs to incorporate the RF effects of existing antenna operations at the site by AT&T, Sprint and Verizon Wireless. Note that while the site drawings indicate there may be other antennas at the site, a search of FCC records indicates there are no other licensed transmitting antenna operations to include in the compliance assessment for the site. FCC regulations require any future antenna collocators to assess and assure continuing compliance based on the RF effects of all proposed and then-existing antennas at the site.

This report describes a mathematical analysis of RF levels resulting around the site in areas of unrestricted public access, that is, at ground level around the site. The compliance analysis employs a standard FCC formula for calculating the effects of the antennas in a very conservative manner, in order to overstate the RF levels and to ensure "safe-side" conclusions regarding compliance with the FCC limit for safe continuous exposure of the general public.

The results of FCC compliance analyses are most easily described when the calculated RF levels are expressed simply as percentages of the FCC MPE limit. In that way, the figure 100 percent serves as the reference for compliance, and

while calculation results above 100 percent indicate the MPE limit is exceeded, results consistently below than 100 percent serve as a demonstration of FCC compliance. An equivalent way to describe the results is to relate them to a "times-below-the-limit" factor. Here, we will apply both types of description.

The result of the RF compliance assessment in this case is as follows:

- At street level around the site, the conservatively calculated maximum RF level from the combination of proposed and existing antenna operations is 1.4597 percent of the FCC general population MPE limit – well below the 100-percent reference for compliance. In other words, even with calculations designed to significantly overstate the RF levels versus those that will actually occur, the worst-case calculated RF level in this case is still more than 68 times below the limit identified as safe for continuous human exposure to the RF emissions from antennas.
- The results of the calculations provide clear demonstration that the RF levels from the combination of proposed and existing antenna operations at the site satisfy the strictest criteria for controlling potential human exposure to RF fields, and the antenna operations comply with the FCC regulations and limits concerning RF safety.

The remainder of this report provides the following:

- relevant technical data on the T-Mobile antenna operation, as proposed to be modified, and on the existing antenna operations at the site;
- a description of the applicable FCC mathematical models for assessing compliance, and application of the relevant technical data to those models;
- analysis of the results of the calculations against the FCC MPE limit, and the compliance conclusion for the site.

In addition, Appendix A provides background on the FCC MPE limit, along with a list of key references.

Antenna and Transmission Data

The table below summarizes the relevant antenna and transmission data for the T-Mobile antenna operation, as proposed to be modified. Note that we are conservatively assuming the maximum amount of RF power per antenna sector in each frequency band.

General Data	
Frequency Bands	700 MHz, 1900 MHz and 2100 MHz
Service Coverage Type	Sectorized
Antenna Type	Directional Panel
Antenna Centerline Heights AGL	125 ft.
Antenna Line Loss	Conservatively ignored (assumed 0 dB)
700 MHz Antenna Data	
Antenna Model (Max. Gain)	RFS APXVF24-C-A20 (16.5 dBi)
RF Channels per Sector	One with 40 watts transmitter power
1900 MHz Antenna Data	
Antenna Model (Max. Gain)	RFS APX16DWV-16DWV (18 dBi)
RF Channels per Sector	One with 40 watts transmitter power, and Four with 20 watts transmitter power (120 watts total)
2100 MHz Antenna Data	
Antenna Model (Max. Gain)	RFS APX16DWV-16DWV (18 dBi)
RF Channels per Sector	Two with 40 watts transmitter power and One with 80 watts transmitter power (160 watts total)

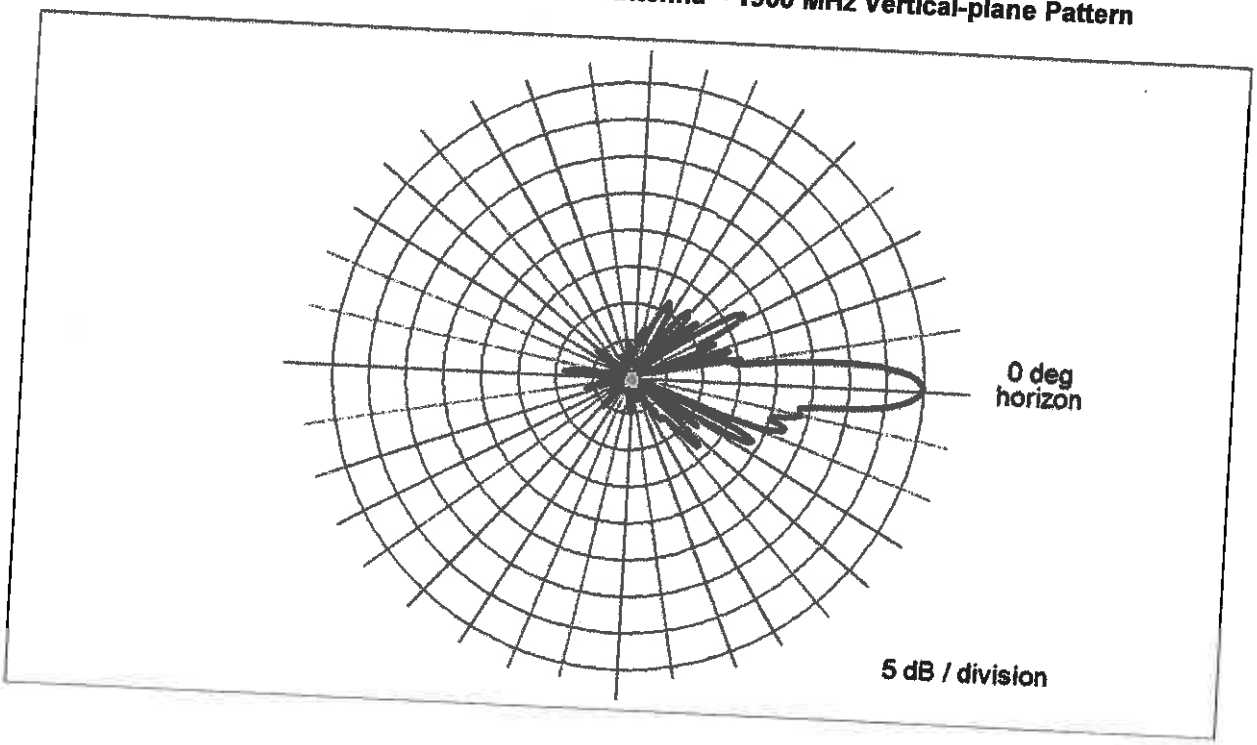
The area below the antennas, at street level, is of interest in terms of potential exposure of the general public, so the antenna's vertical-plane emission characteristic is used in the calculations, as it is a key determinant in the relative level of RF emissions in the "downward" direction.

By way of illustration, Figure 1 that follows shows the vertical-plane radiation pattern of one of the proposed antenna models to be used by T-Mobile. In these antenna radiation pattern diagrams, the antenna is effectively pointed at the three o'clock position (the horizon) and the relative strength of the pattern at different

angles is described using decibel units. Note that the use of a decibel scale to describe the relative pattern at different angles actually serves to significantly understate the actual focusing effects of the antenna. Where the antenna pattern reads 20 dB the relative RF energy emitted at the corresponding downward angle is 1/100th of the maximum that occurs in the main beam (at 0 degrees); at 30 dB, the energy is only 1/1000th of the maximum.

Note that the automatic pattern-scaling feature of our internal software may skew side-by-side visual comparisons of different antenna models, or even different parties' depictions of the same antenna model.

Figure 1. RFS APX16DWV-16DWV Antenna – 1900 MHz Vertical-plane Pattern



As noted at the outset, there are other existing wireless antenna operations to include in the compliance assessment. For each of the wireless carriers, we will conservatively assume operation with maximum channel capacity and at maximum transmitter power in each of their respective FCC-licensed frequency bands.

AT&T is licensed to operate in the 700, 850, and 1900 MHz frequency bands. In the 700 MHz band, AT&T uses as many as two RF channels per antenna sector and a maximum transmitter power of 40 watts. In the 850 MHz band, AT&T uses as many as eight RF channels per antenna sector and a maximum transmitter power of 20 watts. In the 1900 MHz band, AT&T uses as many as four RF channels per antenna sector, with a maximum of 16 watts of transmitter power per channel.

Sprint is licensed to operate in the 860 and 1900 MHz frequency bands. In the 860 MHz band, Sprint uses two 40-watt channels per antenna sector. In the 1900 MHz band, Sprint uses two 20-watt channels and two 40-watt channels per sector.

Verizon Wireless is licensed to operate in the 700, 850, 1900 and 2100 MHz frequency bands. In the 700 MHz band, Verizon uses two RF channels per antenna sector and a maximum transmitter power of 40 watts. In the 850 MHz band, Verizon uses as many as eight RF channels per antenna sector and a maximum transmitter power of 20 watts. In the 1900 MHz band, Verizon uses as many as four RF channels per antenna sector, with a maximum of 16 watts of transmitter power per channel. In the 2100 MHz band, Verizon uses two 40-watt channels per sector.

Compliance Analysis

FCC Office of Engineering and Technology Bulletin 65 ("OET Bulletin 65") provides guidelines for mathematical models to calculate potential RF exposure levels at various points around transmitting antennas.

At street level around an antenna site at street level (in what is called the "far field" of the antennas), the RF levels are directly proportional to the total antenna input power and the relative antenna gain (focusing effect) in the downward direction of interest – and the levels are otherwise inversely proportional to the square of the straight-line distance to the antenna. Conservative calculations also assume the potential RF exposure is enhanced by reflection of the RF

energy from the intervening ground. Our calculations will assume a 100% "perfect" reflection, the absolute worst-case approach.

The formula for street-level MPE compliance calculations from any given wireless antenna operation is as follows:

$$MPE\% = (100 * TxPower * 10^{(Gmax-Vdisc)/10} * 4) / (MPE * 4\pi * R^2)$$

where

MPE%	=	RF level, expressed as a percentage of the FCC general population MPE limit
100	=	factor to convert the raw result to percentage form
TxPower	=	maximum net power into antenna sector, in milliwatts, a function of the number of channels per sector, the transmitter power per channel, and line loss
$10^{(Gmax-Vdisc)/10}$	=	numeric equivalent of the relative antenna gain in the downward direction of interest, referenced to any applied antenna mechanical downtilt
4	=	factor to account for a 100-percent-efficient energy reflection from the ground, and the squared relationship between RF field strength and power density ($2^2 = 4$)
MPE	=	FCC general population MPE limit
R	=	straight-line distance from the RF source to the point of interest, centimeters

The MPE% calculations are performed out to a distance of 500 feet from the facility to points 6.5 feet (approximately two meters, the FCC-recommended worst-case human standing height) off the ground, as illustrated in Figure 2 on the next page.

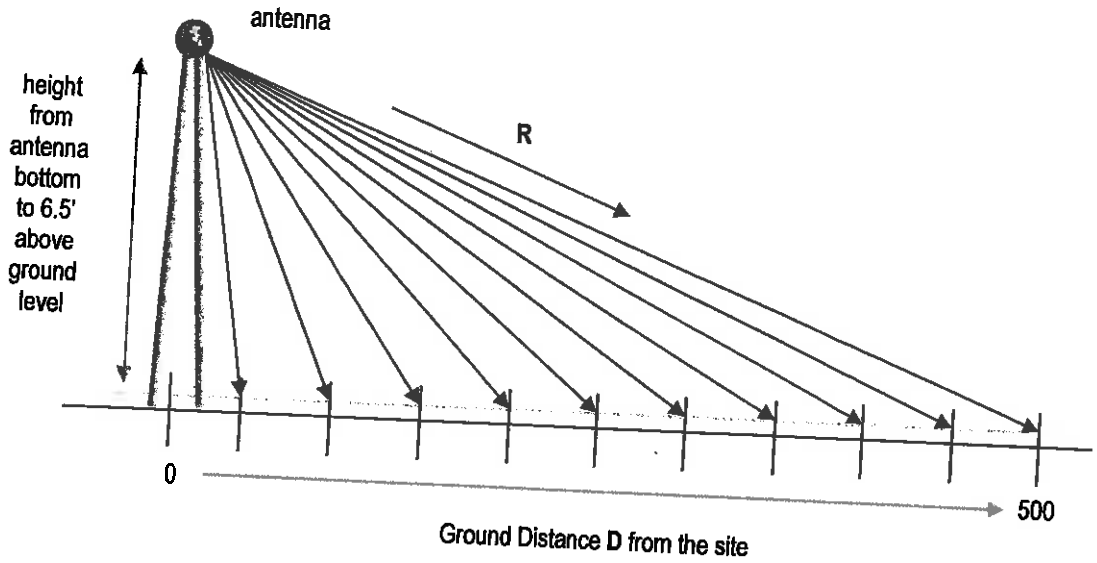


Figure 2. Street-level MPE% Calculation Geometry

It is commonly thought that the farther away one is from an antenna, the lower the RF level – which is generally but not universally correct. The results of MPE% calculations fairly close to the site will reflect the variations in the vertical-plane antenna pattern as well as the variation in straight-line distance to the antenna. Therefore, RF levels may actually increase slightly with increasing distance within the range of zero to 500 feet from the site. As the distance approaches 500 feet and beyond, though, the antenna pattern factor becomes less significant, the RF levels become primarily distance-controlled and, as a result, the RF levels generally decrease with increasing distance. In any case, the RF levels more than 500 feet from a wireless antenna site are well understood to be sufficiently low to be comfortably in compliance.

According to the FCC, when directional antennas (such as panels) are used, compliance assessments are based on the RF effect of a single (facing) antenna sector, as the effects of directional antennas pointed away from the point(s) of interest are considered insignificant. If the different parameters apply in the different sectors, compliance is based on the worst-case parameters.

FCC compliance for a collocated antenna site is assessed in the following manner. At each distance point along the ground, an MPE% calculation is made for each antenna operation (including each frequency band), and the sum of the individual MPE% contributions at each point is compared to 100 percent, the normalized reference for compliance with the MPE limit. We refer to the sum of the individual MPE% contributions as "total MPE%", and any calculated total MPE% result exceeding 100 percent is, by definition, higher than the FCC limit and represents non-compliance and a need to mitigate the potential exposure. If all results are consistently below 100 percent, on the other hand, that set of results serves as a clear and sufficient demonstration of compliance with the MPE limit.

Note that the following conservative methodology and assumptions are incorporated into the MPE% calculations on a general basis:

1. The antennas are assumed to be operating continuously at maximum power, and the power-attenuation effects of the antenna cabling ("antenna line loss") are ignored.
2. The power-attenuation effects of any shadowing or visual obstruction to a line-of-sight path from the antennas to the points of interest at ground level are ignored.
3. The calculations intentionally minimize the distance factor (R) by assuming a 6'6" human and performing the calculations from the bottom (rather than the centerline) of the antenna.
4. The potential RF exposure at ground level is assumed to be 100-percent enhanced via a "perfect" field reflection from the intervening ground.

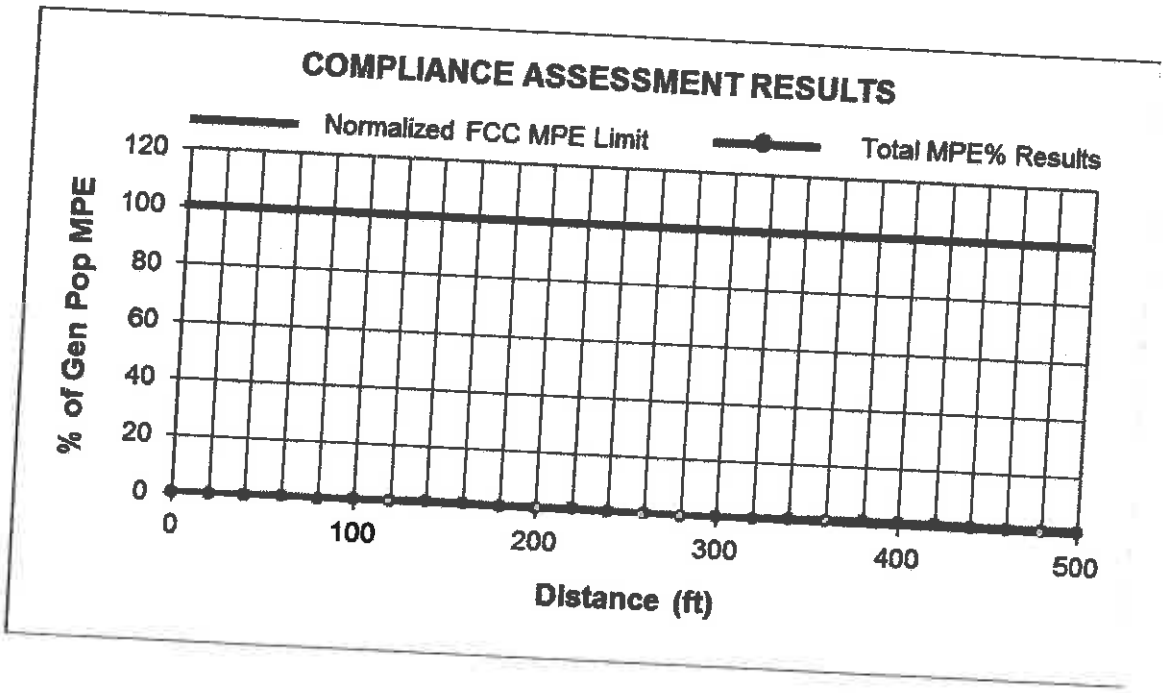
The net result of these assumptions is to intentionally and significantly overstate the calculated RF exposure levels relative to the levels that will actually occur – and the purpose of this conservatism is to allow very "safe-side" conclusions about compliance.

The table that follows provides the results of the MPE% calculations, with the overall worst-case calculated result highlighted in bold in the last column.

Ground Distance (ft)	T-Mobile 700 MHz MPE%	T-Mobile 1900 MHz MPE%	T-Mobile 2100 MHz MPE%	AT&T MPE%	Sprint MPE%	Verizon MPE%	Total MPE%
0	0.0009	0.0045	0.0118	0.0280	0.0264	0.0110	0.0826
20	0.0011	0.0040	0.0059	0.0382	0.0580	0.0868	0.1940
40	0.0054	0.0036	0.0154	0.0593	0.0718	0.1239	0.2794
60	0.0149	0.0018	0.0176	0.0393	0.0643	0.4197	0.5576
80	0.0099	0.0010	0.0131	0.0296	0.0750	0.1870	0.3156
100	0.0010	0.0055	0.0095	0.1982	0.0784	0.3687	0.6613
120	0.0180	0.0152	0.0033	0.3452	0.0261	0.2947	0.7025
140	0.0257	0.0067	0.0252	0.2651	0.1189	0.6825	1.1241
160	0.0310	0.0037	0.0023	0.1844	0.2118	0.5598	0.9930
180	0.0503	0.0056	0.0234	0.1109	0.2448	0.3570	0.7920
200	0.0646	0.0001	0.0166	0.0711	0.2301	0.5186	0.9011
220	0.0544	0.0182	0.0042	0.0768	0.1611	0.6302	0.9449
240	0.0316	0.0291	0.0212	0.1274	0.0852	0.4344	0.7289
260	0.0099	0.0217	0.0205	0.1542	0.0632	0.2793	0.5488
280	0.0034	0.0029	0.0028	0.1858	0.0634	0.1874	0.4457
300	0.0030	0.0002	0.0012	0.2228	0.0595	0.2588	0.5455
320	0.0072	0.0175	0.0388	0.2687	0.0490	0.3574	0.7386
340	0.0110	0.0267	0.0552	0.3224	0.0367	0.5881	1.0401
360	0.0142	0.0300	0.0647	0.3795	0.0328	0.7614	1.2826
380	0.0140	0.0272	0.0587	0.4372	0.0449	0.8777	**1.4597**
400	0.0112	0.0255	0.0506	0.3965	0.0791	0.7960	1.3589
420	0.0102	0.0183	0.0370	0.4462	0.0722	0.8341	1.4180
440	0.0061	0.0128	0.0271	0.4080	0.1159	0.7628	1.3327
460	0.0018	0.0118	0.0249	0.4475	0.1065	0.7193	1.3118
480	0.0017	0.0110	0.0292	0.4122	0.1486	0.6624	1.2651
500	0.0002	0.0102	0.0270	0.4461	0.1374	0.6242	1.2451

As indicated, the overall worst-case result – calculated on a very conservative basis – is only 1.4597 percent of the FCC limit, a result obviously well below the 100-percent reference for compliance.

A graph of the overall calculation results, shown on the next page, provides probably a clearer *visual* illustration of the relative insignificance of the calculated RF levels. The line representing the calculation results shows an obviously clear, consistent margin to the FCC MPE limit.



Compliance Conclusion

According to the FCC, the MPE limit has been constructed in such a manner that continuous human exposure to RF emissions up to and including 100 percent of the applicable MPE limit is acceptable and safe.

As described, the conservatively calculated maximum RF level from the combination of proposed and existing antenna operations is 1.4597 percent of the FCC general population MPE limit. In other words, the worst-case result is

more than 68 times below the limit established as safe for continuous human exposure to the RF emissions from antennas. Moreover, because of the conservatism in the FCC mathematical model and the operational assumptions we applied in the analysis, the RF levels actually caused by the antennas are be even less significant than the calculation results here indicate.

Certification

The undersigned certify as follows:

1. We have read and are familiar with the FCC regulations concerning RF safety and the control of human exposure to RF fields (47 CFR 1.1301 *et seq*).
2. To the best of our knowledge, the statements and information disclosed in this report are true, complete and accurate.
3. The analysis of site RF compliance provided herein is consistent with the applicable FCC regulations, additional guidelines issued by the FCC, and industry practice.
4. The results of the analysis indicate that the subject antenna operations are in full compliance with the FCC regulations concerning RF exposure.

Daniel J. Collins
Chief Technical Officer

11/20/15
Date

Terrence R. Lulay
Professional Engineer

11/20/15
Date

STATE OF NEW YORK
TERRENCE R. LULAY
069265
LICENSED PROFESSIONAL ENGINEER

Appendix A. Background on the FCC MPE Limit

As directed by the Telecommunications Act of 1996, the FCC has established limits for maximum continuous human exposure to RF fields.

The FCC maximum permissible exposure (MPE) limits represent the consensus of federal agencies and independent experts responsible for RF safety matters. Those agencies include the National Council on Radiation Protection and Measurements (NCRP), the Occupational Safety and Health Administration (OSHA), the National Institute for Occupational Safety and Health (NIOSH), the American National Standards Institute (ANSI), the Environmental Protection Agency (EPA), and the Food and Drug Administration (FDA). In formulating its guidelines, the FCC also considered input from the public and technical community – notably the Institute of Electrical and Electronics Engineers (IEEE).

The FCC's RF exposure guidelines are incorporated in Section 1.301 *et seq* of its Rules and Regulations (47 CFR 1.1301-1.1310). Those guidelines specify MPE limits for both occupational and general population exposure.

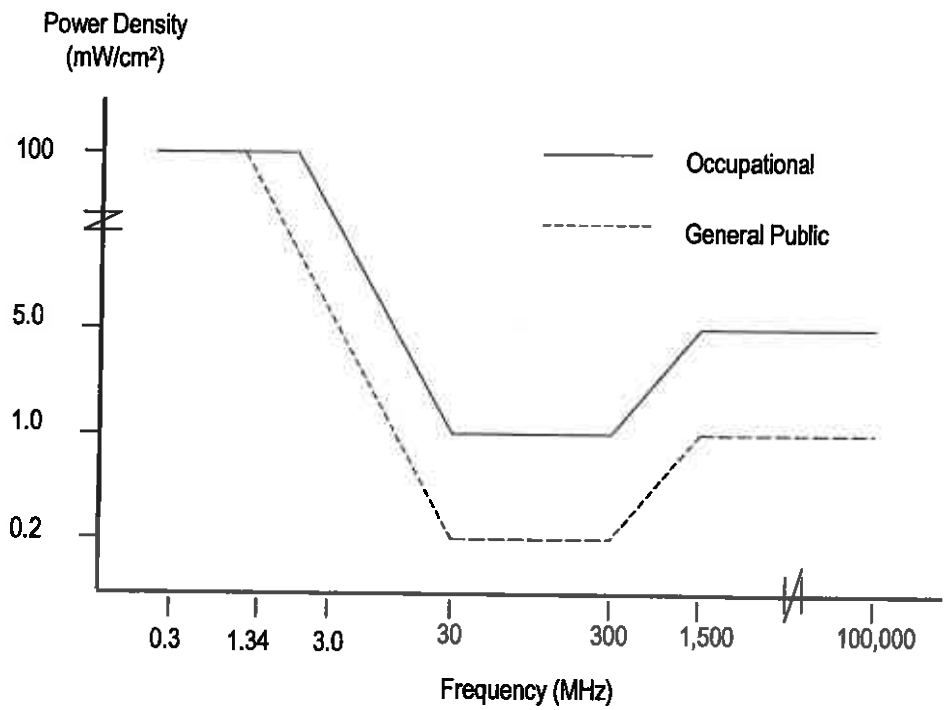
The specified continuous exposure MPE limits are based on known variation of human body susceptibility in different frequency ranges, and a Specific Absorption Rate (SAR) of 4 watts per kilogram, which is universally considered to accurately represent human capacity to dissipate incident RF energy (in the form of heat). The occupational MPE guidelines incorporate a safety factor of 10 or greater with respect to RF levels known to represent a health hazard, and an additional safety factor of five is applied to the MPE limits for general population exposure. Thus, the general population MPE limit has a built-in safety factor of more than 50. The limits were constructed to appropriately protect humans of both sexes and all ages and sizes and under all conditions – and continuous exposure at levels equal to or below the applicable MPE limits is considered to result in no adverse health effects or even health risk.

The reason for *two* tiers of MPE limits is based on an understanding and assumption that members of the general public are unlikely to have had appropriate RF safety training and may not be aware of the exposures they receive; occupational exposure in controlled environments, on the other hand, is assumed to involve individuals who have had such training, are aware of the exposures, and know how to maintain a safe personal work environment.

The FCC's RF exposure limits are expressed in two equivalent forms, using alternative units of field strength (expressed in volts per meter, or V/m), and power density (expressed in milliwatts per square centimeter, or mW/cm^2). The table on the next page lists the FCC limits for both occupational and general population exposures, using the mW/cm^2 reference, for the different radio frequency ranges.

Frequency Range (F) (MHz)	Occupational Exposure (mW/cm²)	General Public Exposure (mW/cm²)
0.3 - 1.34	100	100
1.34 - 3.0	100	$180 / F^2$
3.0 - 30	$900 / F^2$	$180 / F^2$
30 - 300	1.0	0.2
300 - 1,500	F / 300	F / 1500
1,500 - 100,000	5.0	1.0

The diagram below provides a graphical illustration of both the FCC's occupational and general population MPE limits.



Because the FCC's RF exposure limits are frequency-shaped, the exact MPE limits applicable to the instant situation depend on the frequency range used by the systems of interest.

The most appropriate method of determining RF compliance is to calculate the RF power density attributable to a particular system and compare that to the MPE limit applicable to the operating frequency in question. The result is usually expressed as a percentage of the MPE limit.

For potential exposure from multiple systems, the respective percentages of the MPE limits are added, and the total percentage compared to 100 (percent of the limit). If the result is less than 100, the total exposure is in compliance; if it is more than 100, exposure mitigation measures are necessary to achieve compliance.

Note that the FCC "categorically excludes" all "non-building-mounted" wireless antenna operations whose mounting heights are more than 10 meters (32.8 feet) from the routine requirement to demonstrate compliance with the MPE limit, because such operations "are deemed, individually and cumulatively, to have no significant effect on the human environment". The categorical exclusion also applies to *all* point-to-point antenna operations, regardless of the type of structure they're mounted on. Note that the FCC considers any facility qualifying for the categorical exclusion to be automatically in compliance.

In addition, FCC Rules and Regulations Section 1.1307(b)(3) describes a provision known in the industry as "the 5% rule". It describes that when a specific location – like a spot on a rooftop – is subject to an overall exposure level exceeding the applicable MPE limit, operators with antennas whose MPE% contributions at the point of interest are less than 5% are exempted from the obligation otherwise shared by all operators to bring the site into compliance, and those antennas are automatically deemed by the FCC to satisfy the rooftop compliance requirement.

FCC References on RF Compliance

47 CFR, FCC Rules and Regulations, Part 1 (Practice and Procedure), Section 1.1310 (Radiofrequency radiation exposure limits).

FCC Second Memorandum Opinion and Order and Notice of Proposed Rulemaking (FCC 97-303), *In the Matter of Procedures for Reviewing Requests for Relief From State and Local Regulations Pursuant to Section 332(c)(7)(B)(v) of the Communications Act of 1934 (WT Docket 97-192), Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation (ET Docket 93-62), and Petition for Rulemaking of the Cellular Telecommunications Industry Association Concerning Amendment of the Commission's Rules to Preempt State and Local Regulation of Commercial Mobile Radio Service Transmitting Facilities*, released August 25, 1997.

FCC First Memorandum Opinion and Order, ET Docket 93-62, *In the Matter of Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation*, released December 24, 1996.

FCC Report and Order, ET Docket 93-62, *In the Matter of Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation*, released August 1, 1996.

FCC Office of Engineering and Technology (OET) Bulletin 65, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields", Edition 97-01, August 1997.

FCC Office of Engineering and Technology (OET) Bulletin 56, "Questions and Answers About Biological Effects and Potential Hazards of RF Radiation", edition 4, August 1999.

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Structural Analysis Report

Structure	:	125 ft Self Supported Tower
ATC Site Name	:	South Salem NY, NY
ATC Site Number	:	88166
Engineering Number	:	61461423
Proposed Carrier	:	T-Mobile
Carrier Site Name	:	N/A
Carrier Site Number	:	NY09050B
Site Location	:	Route 35 South Salem, NY 10590-1923 41.258472,-73.534722
County	:	Westchester
Date	:	May 9, 2016
Max Usage	:	88%
Result	:	Pass

Reviewed by:
Neil Kuplic, PE
Director of Structural Engineering

STATE OF NEW YORK
NEIL J. KUPLIC
078175
LICENSED PROFESSIONAL ENGINEER

Prepared By:
Amir H. Tabarestani, E.I.
Structural Engineer II

May 9 2016 4:21 PM

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Eng. Number 61461423
May 9, 2016

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Calculations ..... Attached

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 125 ft self supported tower to reflect the change in loading by T-Mobile.

Supporting Documents

Tower Drawings	HTS Mapping Project #HTS101507 CSEI Analysis, ATC Eng. #26240121, dated August 21, 2006
Foundation Drawing	Foundation Mapping by TEP Job #071970, dated October 19, 2007 Rose, Chulkoff And Rose Structural Engineers Job # C67227, dated September 21, 1967
Geotechnical Report	GEOServices Project #21-07254, dated October 29, 2007

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/EIA-222.

Basic Wind Speed:	80 mph (Fastest Mile)
Basic Wind Speed w/ Ice:	69 mph (Fastest Mile)w/ 1/2" radial ice concurrent
Code:	ANSI/TIA/EIA-222-F / 2006 IBC , Sec. 1609.1.1, Exception (4) & Sec. 3108.4 / 2010 New York State Building Code

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

Existing and Reserved Equipment

Elevation[1] (ft) Mount	Elevation[1] (ft) RAD	Qty	Antenna	Mount Type	Lines	Carrier
125.0	144.0	1	12' Omni	Platform w/ Handrail & Sector Frames	(30) 1 5/8" Coax (1) 7/8" Coax	–
	129.0	12	Decibel DB844H90E-XY			Sprint Nextel
	135.3	3	Antel BXA-70090/6CF			Verizon
	129.3	3	Antel BXD-90429082CF			
	121.3	3	Antel BXA-171085-12CF-EDIN-X			
		6	RFS FD9R6004/1C-3L			
120.0	120.0	3	RFS APX16DWV-16DWVS-E-A20	Pipes	(12) 1 5/8" Coax (1) 3/8" Coax	T-Mobile
		6	RFS ATMAA1412D-1A20			
108.0	111.0	3	RFS RFS APXV9TM14-ALU-I20	Platform w/ Handrail & Sector Frames	(3) 1 1/4" Hybriflex (1) 5/8" Hybriflex	Sprint Nextel
		3	Alcatel TD-RRH8x20-25 w/ S.S.			
		3	Alcatel-Lucent 800MHz RRH w/N.F.			
		3	RFS APXVSPP18-C			
		3	Alcatel-Lucent 1900MHz RRH			
		3	RFS ACU-A20-N			
99.0	99.0	3	Alcatel Lucent 9442 RRH2x40-07	Side Arms	(12) 1 5/8" Coax (2) 0.78" 8 AWG 6 (6) 7/8" Coax (1) 3/8" Coax (1) 2" Conduit (1) 0.39" Fiber	AT&T Mobility
		3	Alcatel Lucent 9442 RRH2x40-AWS			
		1	Raycap DC6-48-60-18-8F			
		3	Andrew SBNH-1D6565C			
		3	Diplexer/Coupler			
		3	Clearcomm CCDP-565-1W			
		6	Andrew ETD819G-12UB			
		9	764 Sq. In. Panels			
75.0	75.0	1	GPS	Stand-Off	(1) 1/2" Coax	Sprint Nextel
53.0	53.0	2	GPS	Stand-Off	(1) 1/2" Coax (1) 7/8" Coax	Verizon

Equipment to be Removed

Elevation[1] (ft) Mount	Elevation[1] (ft) RAD	Qty	Antenna	Mount Type	Lines	Carrier
125.0	121.0	3	RFS APXV18-206515L-2	-	-	T-Mobile

Proposed Equipment

Elevation[1] (ft) Mount	Elevation[1] (ft) RAD	Qty	Antenna	Mount Type	Lines	Carrier
120.0	120.0	3	RFS APXVFW24-C-A20	Leg	(6) 1 5/8" Coax	T-Mobile

[1]Mount elevation is defined as height above bottom of steel structure to the bottom of mount, RAD elevation is defined as center of antenna above ground level (AGL).

Install proposed coax stacked on top of existing T-Mobile coax.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Legs	63%	Pass
Diagonals	88%	Pass
Horizontals	38%	Pass
Anchor Bolts	41%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Uplift (Kips)	123.9	49%
Axial (Kips)	156.7	14%

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

Deflection, Twist and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Twist (°)	Sway (Rotation) (°)
120.0	RFS APXVFW24-C-A20	T-Mobile	0.078	0.004	0.074

*Deflection, Twist and Sway was evaluated considering a design wind speed of 50 mph (Fastest Mile) per ANSI/TIA/EIA-222-F.

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Standard Conditions

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessary limited, to:

-- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.

-- Information from drawings in the possession of American Tower Corporation, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to ATC Tower Services, Inc. and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and that their capacity has not significantly changed from the "as new" condition.

Unless explicitly agreed by both the client and American Tower Corporation, all services will be performed in accordance with the current revision of ANSI/TIA -222. The design basic wind speed will be determined based on the minimum basic wind speed as prescribed in ANSI/TIA-222. Although every effort is taken to ensure that the loading considered is adequate to meet the requirements of all applicable regulatory entities, we can provide no assurance to meet any other local and state codes or requirements. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. ATC Tower Services, Inc. is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

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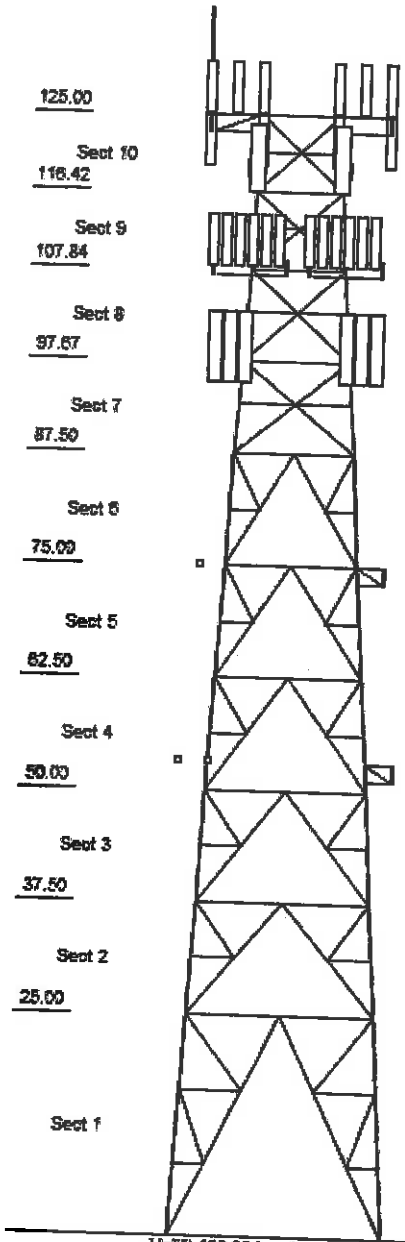
Loads: 80 mph no ice
69 mph w / 1/2" radial ice
50 mph no ice



Uplift 123.90 k	Moment 4,796.39 k	Moment Ice 4,532.37 k-ft	
Vert 156.74 k	Tot Down 83.79 k	Tot Down Ice 98.31 k	
Horiz 22.61 k	Tot Shear 60.48 k	Tot Shear Ice 56.79 k	

Job Information

Tower : 88166
Code: TIA/EIA-222-F
Client : T-MOBILE

Location : South Salem NY, NY
Shape : Square

Base Width : 24.25 ft
Top Width : 9.00 ft

Sections Properties

Section	Leg Members		Diagonal Members	Horizontal Members
1	SAE 33 ksi	8X8X0.625	DAS 33 ksi 3.5X3X0.25	DAE 33 ksi 2.5X2.5X0.25
2 - 3	SAE 33 ksi	6X6X0.75	DAE 33 ksi 2.5X2.5X0.25	DAE 33 ksi 2.5X2.5X0.25
4 - 6	SAE 33 ksi	6X6X0.5625	DAL 33 ksi 2.5X2X0.25	DAE 33 ksi 2.5X2.5X0.25
6	SAE 33 ksi	6X6X0.4375	DAL 33 ksi 2.5X2X0.25	DAE 33 ksi 2.5X2.5X0.25
7	SAE 33 ksi	5X5X0.4375	SAE 33 ksi 3.5X3.5X0.25	SAU 33 ksi 3X2.5X0.25
8	SAE 33 ksi	5X5X0.4375	SAE 33 ksi 3.5X3.5X0.25	DAL 33 ksi 3X2.5X0.25
9	SAE 33 ksi	5X5X0.3125	SAE 33 ksi 3X3X0.25	SAU 33 ksi 3X2.5X0.25
10	SAE 33 ksi	5X5X0.3125	SAE 33 ksi 3X3X0.25	CHN 36 ksi C8 x 11.5

Discrete Appurtenance

Elev (ft)	Type	Qty	Description
125.00	Straight Arm	6	Pipe Mounts
125.00	Panel	3	Antel BXA-70090/6CF
125.00	Panel	3	Antel BXA-171085-12CF-EDIN-X
125.00	Panel	3	Antel BXD-90429082CF
125.00	Panel	6	RFS FD9R6004/1C-3L
125.00	Platform	1	Heavy Platform with Handrails
125.00	Whip	1	12' Omni
125.00	Straight Arm	1	20' Pipe
125.00	Mounting Frame	3	Round Sector Frame
125.00	Panel	12	Decibel DB844H90E-XY
120.00	Panel	3	RFS APXVFW24-C-A20
120.00	Panel	3	RFS APX16DWV-16DWVS-E-A20
120.00	Panel	6	RFS ATMAA1412D-1A20
112.50	Platform	1	Catwalk
108.00	Panel	3	RFS RFS APXV9TM14-ALU-I20
108.00	Panel	3	Alcatel TD-RRH8x20-25 w/ S.S.
108.00	Panel	3	Alcatel-Lucent 800 MHz RRH w/N
108.00	Panel	3	RFS APXVSPP18-C
108.00	Panel	3	Alcatel-Lucent 1900MHz RRH
108.00	Panel	3	RFS ACU-A20-N
108.00	Mounting Frame	3	Heavy Sector Frame
99.00	Panel	3	Alcatel Lucent 9442 RRH2x40-07
99.00	Panel	3	Alcatel Lucent 9442 RRH2x40-AW
99.00	Panel	1	Ravcap DC6-48-60-18-8F
99.00	Panel	3	Andrew SBNH-1D6565C
99.00	Panel	3	Diplexer/Coupler
99.00	Panel	3	Clearcomm CCDP-565-1W
99.00	Panel	6	Andrew ETD819G-12UB
99.00	Straight Arm	12	Flat Side Arm
99.00	Panel	9	764 Sq. In. Panels
75.00	Straight Arm	1	Stand-Off
75.00	Platform	1	Rest Platform
75.00	Panel	1	GPS
53.00	Straight Arm	1	Stand-Off
53.00	Panel	2	GPS
37.50		3	8 ft. Ice Shield
25.00	Platform	1	Rest Platform

Linear Appurtenance

Elev (ft) From	To	Qty	Description
0.000	125.00	2	Waveguide Ladder
0.000	125.00	1	Waveguide Ladder
0.000	125.00	1	Climbing Ladder
0.000	125.00	1	7/8" Coax
0.000	125.00	18	1 5/8" Coax
0.000	125.00	12	1 5/8" Coax
0.000	120.00	1	3/8" Coax
0.000	120.00	6	1 5/8" Coax

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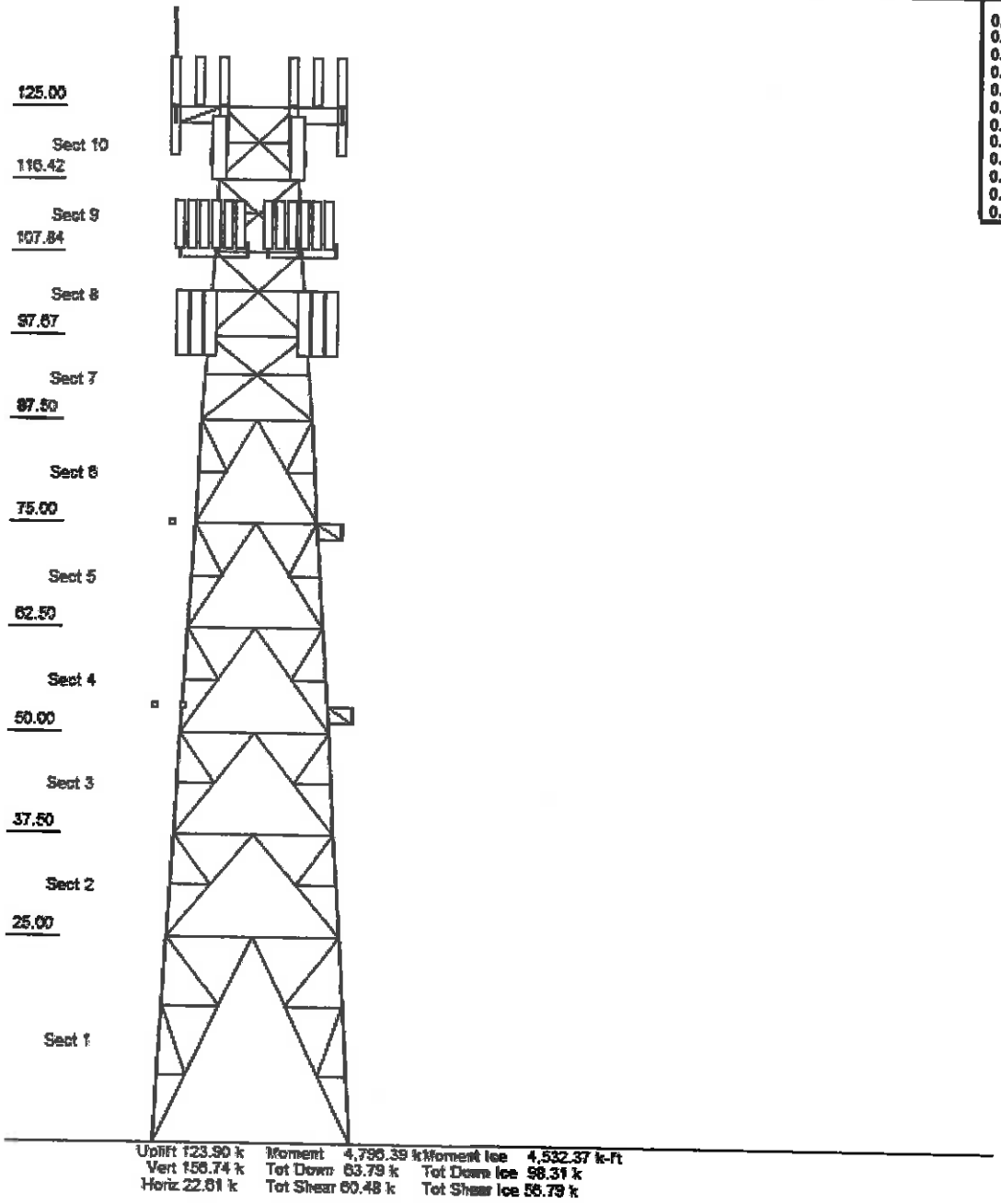
Job Information

Tower : 88166
Code: TIA/EIA-222-F
Client : T-MOBILE

Location : South Salem NY, NY
Shape : Square

Base Width : 24.25 ft
Top Width : 9.00 ft

0.000	120.00	12	1 5/8" Coax
0.000	108.00	1	5/8" Hybriflex
0.000	108.00	3	1 1/4" Hybriflex
0.000	99.000	6	7/8" Coax
0.000	99.000	1	3/8" Coax
0.000	99.000	1	2" Conduit
0.000	99.000	12	1 5/8" Coax
0.000	99.000	2	0.78" 8 AWG 6
0.000	99.000	1	0.39" Fiber
0.000	75.000	1	1/2" Coax
0.000	53.000	1	7/8" Coax
0.000	53.000	1	1/2" Coax



Site Number:	88166	**Code:**	TIA/EIA-222-F	© 2007 - 2016 by ATC IP LLC. All rights reserved.
Site Name:	South Salem NY, NY	**Engineering Number:**	61461423	5/9/2016 3:48:41 PM
Customer:	T-MOBILE			

Analysis Parameters

Location:	Westchester County, NY	**Height:**	125
Code:	TIA/EIA-222-F	**Base Elevation:**	0.00 ft
Shape:	Square	**Base Face Width:**	24.25 ft
Tower Manufacturer:	AT&T TAG	**Top Face Width:**	9.00 ft
Tower Type:	Self Support		

Ice & Wind Parameters

Exposure Category:	B	**Design Windspeed Without Ice:**	80 mph
Design Ice Thickness:	0.50 in	**Design Windspeed With Ice:**	69 mph

Load Cases

Normal No Ice	80 mph Wind Normal To Face with No Ice
Normal Ice	69 mph Wind Normal To Face with Ice
45 deg No Ice	80 mph Wind at 45 degree From Face with No Ice
45 deg Ice	69 mph Wind at 45 degree From Face with Ice
Normal Twist/Sway	50 mph Wind Normal To Face with No Ice
45 deg Twist/Sway	50 mph Wind at 45 degree From Face with No Ice

Site Number: 88166
Site Name: South Salem NY, NY
Customer: T-MOBILE

Code: TIA/EIA-222-F
Engineering Number: 61461423

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Tower Loading

Discrete Appurtenance Properties Normal No Ice

Elevation (ft)	Description	Qty	Weight (lb)	CaAa (sf)	CaAa Factor	Dist. From Face (ft)	X Angle (deg)	Vert Ecc (ft)	Mom (lb-ft)	Qz (psf)	Total Force (lb)	Pu (lb)
125.00	RFS FD9R6004/1C-3L	6	3	0.4	0.50	0.0	0.00	-3.7	108.8	23.77	29	16
125.00	Pipe Mounts	6	30	0.9	1.00	0.0	0.00	-2.8	423.4	23.82	154	180
125.00	20' Pipe	1	100	3.4	1.00	0.0	0.00	10.0	954.8	24.50	95	100
125.00	12' Omni	1	40	3.6	1.00	0.0	0.00	19.0	1956.6	24.96	103	40
125.00	Decibel DB844H90E-XY	12	14	3.7	0.91	0.0	0.00	4.0	4516.3	24.19	1129	168
125.00	Antel BXA-171085-	3	15	4.8	0.88	0.0	0.00	-3.7	1269.0	23.77	343	45
125.00	Antel BXA-70090/6CF	3	18	5.8	0.88	0.0	0.00	10.3	4454.6	24.52	432	54
125.00	Antel BXD-90429082CF	3	18	7.6	0.73	0.0	0.00	4.3	1977.4	24.20	460	53
125.00	Round Sector Frame	3	300	14.4	0.67	0.0	0.00	4.0	3209.3	24.19	802	900
125.00	Heavy Platform with	1	6000	80.0	1.00	0.0	0.00	0.0	0.0	23.97	2198	6000
120.00	RFS ATMAA1412D-	6	13	1.2	0.70	0.0	0.00	0.0	0.0	23.69	133	78
120.00	RFS APX16DWV-	3	41	7.2	0.65	0.0	0.00	0.0	0.0	23.69	382	122
120.00	RFS APXVFW24-C-A20	3	73	11.3	0.87	0.0	0.00	0.0	0.0	23.69	802	219
112.50	Catwalk	1	5000	65.0	1.00	0.0	0.00	0.0	0.0	23.26	1733	5000
108.00	RFS ACU-A20-N	3	1	0.1	0.50	0.0	0.00	3.0	16.7	23.17	6	3
108.00	Alcatel-Lucent	3	60	2.8	0.67	0.0	0.00	3.0	443.5	23.17	148	180
108.00	Alcatel-Lucent 800	3	62	2.9	0.67	0.0	0.00	3.0	466.0	23.17	155	185
108.00	Alcatel TD-RRH8x20-25	3	70	4.7	0.67	0.0	0.00	3.0	755.8	23.17	252	210
108.00	RFS RFS APXV9TM14-	3	55	6.9	0.76	0.0	0.00	3.0	1251.5	23.17	417	165
108.00	RFS APXVSPP18-C	3	57	8.3	0.82	0.0	0.00	3.0	1618.7	23.17	540	171
108.00	Heavy Sector Frame	3	500	29.3	0.67	0.0	0.00	0.0	0.0	22.99	1552	1500
99.00	Clearcomm CCDP-	3	6	0.5	0.50	0.0	0.00	0.0	0.0	22.43	20	17
99.00	Diplexer/Coupler	3	5	0.7	0.50	0.0	0.00	0.0	0.0	22.43	27	15
99.00	Raycap DC6-48-60-18-	1	20	1.3	1.00	0.0	0.00	0.0	0.0	22.43	32	20
99.00	Andrew ETD819G-	6	33	2.2	0.50	0.0	0.00	0.0	0.0	22.43	166	198
99.00	Alcatel Lucent 9442	3	51	2.5	0.67	0.0	0.00	0.0	0.0	22.43	129	153
99.00	Alcatel Lucent 9442	3	49	2.9	0.67	0.0	0.00	0.0	0.0	22.43	151	147
99.00	Flat Side Arm	12	150	6.3	0.67	0.0	0.00	0.0	0.0	22.43	1302	1800
99.00	764 Sq. In. Panels	9	35	8.4	0.67	0.0	0.00	0.0	0.0	22.43	1294	315
99.00	Andrew SBNH-	3	61	11.4	0.84	0.0	0.00	0.0	0.0	22.43	742	182
75.00	GPS	1	10	1.0	1.00	0.0	0.00	0.0	0.0	20.72	24	10
75.00	Stand-Off	1	100	3.5	1.00	0.0	0.00	0.0	0.0	20.72	83	100
75.00	Rest Platform	1	500	15.0	1.00	0.0	0.00	0.0	0.0	20.72	356	500
53.00	GPS	2	10	1.0	1.00	0.0	0.00	0.0	0.0	18.76	43	20
53.00	Stand-Off	1	100	3.5	1.00	0.0	0.00	0.0	0.0	18.76	75	100
37.50	8 ft. Ice Shield	3	150	6.0	1.00	0.0	0.00	0.0	0.0	16.99	351	450
25.00	Rest Platform	1	500	15.0	1.00	0.0	0.00	0.0	0.0	16.38	282	500
	Totals	126	19916	807.0								

Discrete Appurtenance Properties Normal Ice

Elevation (ft)	Description	Qty	Weight (lb)	CaAa (sf)	CaAa Factor	Dist. From Face (ft)	X Angle (deg)	Vert Ecc (ft)	Mom (lb-ft)	Qz (psf)	Total Force (lb)	Pu (lb)
125.00	RFS FD9R6004/1C-3L	6	5	0.5	0.50	0.0	0.00	-3.7	113.4	17.82	31	29
125.00	Pipe Mounts	6	32	1.4	1.00	0.0	0.00	-2.8	466.1	17.86	170	193
125.00	20' Pipe	1	140	5.0	1.00	0.0	0.00	10.0	1053.0	18.38	105	140
125.00	12' Omni	1	30	4.8	1.00	0.0	0.00	19.0	1956.4	18.72	103	30
125.00	Decibel DB844H90E-XY	12	40	4.3	0.91	0.0	0.00	4.0	3895.5	18.14	974	484

Site Number: 88166
Site Name: South Salem NY, NY
Customer: T-MOBILE

Code: TIA/EIA-222-F
Engineering Number: 61461423

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Tower Loading

125.00	Antel BXA-171085-	3	42	5.4	0.88	0.0	0.00	-3.7	1087.4	17.82	294	127
125.00	Antel BXA-70090/6CF	3	54	6.7	0.88	0.0	0.00	10.3	3810.7	18.39	370	162
125.00	Antel BXD-90429082CF	3	61	8.2	0.73	0.0	0.00	4.3	1606.3	18.15	374	182
125.00	Round Sector Frame	3	415	19.2	0.67	0.0	0.00	4.0	3209.1	18.14	802	1245
125.00	Heavy Platform with	1	7500	100.0	1.00	0.0	0.00	0.0	0.0	17.98	2060	7500
120.00	RFS ATMAA1412D-	6	21	1.4	0.70	0.0	0.00	0.0	0.0	17.77	119	124
120.00	RFS APX16DWV-	3	74	7.9	0.65	0.0	0.00	0.0	0.0	17.77	314	222
120.00	RFS APXVFW24-C-A20	3	37	4.0	0.87	0.0	0.00	0.0	0.0	17.77	215	112
112.50	Catwalk	1	6000	75.0	1.00	0.0	0.00	0.0	0.0	17.44	1499	6000
108.00	RFS ACU-A20-N	3	2	0.2	0.50	0.0	0.00	3.0	19.7	17.38	7	7
108.00	Alcatel-Lucent	3	75	4.2	0.67	0.0	0.00	3.0	504.4	17.38	168	226
108.00	Alcatel-Lucent 800	3	88	3.3	0.67	0.0	0.00	3.0	391.5	17.38	130	263
108.00	Alcatel TD-RRH8x20-25	3	97	5.2	0.67	0.0	0.00	3.0	619.6	17.38	207	291
108.00	RFS RFS APXV9TM14-	3	44	8.1	0.76	0.0	0.00	3.0	1099.3	17.38	366	132
108.00	RFS APXVSPP18-C	3	107	9.1	0.82	0.0	0.00	3.0	1334.5	17.38	445	320
108.00	Heavy Sector Frame	3	670	34.9	0.67	0.0	0.00	0.0	0.0	17.24	1386	2010
99.00	Clearcomm CCDP-	3	9	0.7	0.50	0.0	0.00	0.0	0.0	16.82	19	26
99.00	Diplexer/Coupler	3	10	0.9	0.50	0.0	0.00	0.0	0.0	16.82	25	29
99.00	Raycap DC6-48-60-18-	1	35	1.5	1.00	0.0	0.00	0.0	0.0	16.82	28	35
99.00	Andrew ETD819G-	6	44	2.5	0.50	0.0	0.00	0.0	0.0	16.82	142	266
99.00	Alcatel Lucent 9442	3	72	2.8	0.67	0.0	0.00	0.0	0.0	16.82	109	217
99.00	Alcatel Lucent 9442	3	71	3.3	0.67	0.0	0.00	0.0	0.0	16.82	127	213
99.00	Flat Side Arm	12	230	7.0	0.67	0.0	0.00	0.0	0.0	16.82	1085	2760
99.00	764 Sq. In. Panels	9	84	9.3	0.67	0.0	0.00	0.0	0.0	16.82	1075	753
99.00	Andrew SBNH-	3	127	12.4	0.84	0.0	0.00	0.0	0.0	16.82	601	380
75.00	GPS	1	18	1.2	1.00	0.0	0.00	0.0	0.0	15.54	22	18
75.00	Stand-Off	1	175	5.9	1.00	0.0	0.00	0.0	0.0	15.54	105	175
75.00	Rest Platform	1	750	20.0	1.00	0.0	0.00	0.0	0.0	15.54	356	750
53.00	GPS	2	18	1.2	1.00	0.0	0.00	0.0	0.0	14.07	39	36
53.00	Stand-Off	1	175	5.9	1.00	0.0	0.00	0.0	0.0	14.07	95	175
37.50	8 ft. Ice Shield	3	350	7.5	1.00	0.0	0.00	0.0	0.0	12.74	329	1050
25.00	Rest Platform	1	750	20.0	1.00	0.0	0.00	0.0	0.0	12.29	282	750
	Totals	126	27433	926.4								

Discrete Appurtenance Properties

Normal Twist/Sway

Elevation (ft)	Description	Qty	Weight (lb)	CaAa (sf)	CaAa Factor	Dist. From Face (ft)	X Angle (deg)	Vert Ecc (ft)	Mom (lb-ft)	Qz (psf)	Total Force (lb)	Pu (lb)
125.00	RFS FD9R6004/1C-3L	6	3	0.4	0.50	0.0	0.00	-3.7	42.5	9.28	11	16
125.00	Pipe Mounts	6	30	0.9	1.00	0.0	0.00	-2.8	165.4	9.30	60	180
125.00	20' Pipe	1	100	3.4	1.00	0.0	0.00	10.0	373.0	9.57	37	100
125.00	12' Omni	1	40	3.6	1.00	0.0	0.00	19.0	764.3	9.75	40	40
125.00	Decibel DB844H90E-XY	12	14	3.7	0.91	0.0	0.00	4.0	1764.2	9.45	441	168
125.00	Antel BXA-171085-	3	15	4.8	0.88	0.0	0.00	-3.7	495.7	9.28	134	45
125.00	Antel BXA-70090/6CF	3	18	5.8	0.88	0.0	0.00	10.3	1740.1	9.58	169	54
125.00	Antel BXD-90429082CF	3	18	7.6	0.73	0.0	0.00	4.3	772.4	9.45	180	53
125.00	Round Sector Frame	3	300	14.4	0.67	0.0	0.00	4.0	1253.6	9.45	313	900
125.00	Heavy Platform with	1	6000	80.0	1.00	0.0	0.00	0.0	0.0	9.36	858	6000
120.00	RFS ATMAA1412D-	6	13	1.2	0.70	0.0	0.00	0.0	0.0	9.25	52	78
120.00	RFS APX16DWV-	3	41	7.2	0.65	0.0	0.00	0.0	0.0	9.25	149	122
120.00	RFS APXVFW24-C-A20	3	73	11.3	0.87	0.0	0.00	0.0	0.0	9.25	313	219
112.50	Catwalk	1	5000	65.0	1.00	0.0	0.00	0.0	0.0	9.09	677	5000
108.00	RFS ACU-A20-N	3	1	0.1	0.50	0.0	0.00	3.0	6.5	9.05	2	3
108.00	Alcatel-Lucent	3	60	2.8	0.67	0.0	0.00	3.0	173.3	9.05	58	180

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Tower Loading

108.00	Alcatel-Lucent 800	3	62	2.9	0.67	0.0	0.00	3.0	182.0	9.05	61	185
108.00	Alcatel TD-RRH8x20-25	3	70	4.7	0.67	0.0	0.00	3.0	295.2	9.05	98	210
108.00	RFS RFS APXV9TM14-	3	55	6.9	0.76	0.0	0.00	3.0	488.8	9.05	163	165
108.00	RFS APXVSPP18-C	3	57	8.3	0.82	0.0	0.00	3.0	632.3	9.05	211	171
108.00	Heavy Sector Frame	3	500	29.3	0.67	0.0	0.00	0.0	0.0	8.98	606	1500
99.00	Clearcomm CCDP-	3	6	0.5	0.50	0.0	0.00	0.0	0.0	8.76	8	17
99.00	Diplexer/Coupler	3	5	0.7	0.50	0.0	0.00	0.0	0.0	8.76	11	15
99.00	Raycap DC6-48-60-18-	1	20	1.3	1.00	0.0	0.00	0.0	0.0	8.76	13	20
99.00	Andrew ETD819G-	6	33	2.2	0.50	0.0	0.00	0.0	0.0	8.76	65	198
99.00	Alcatel Lucent 9442	3	51	2.5	0.67	0.0	0.00	0.0	0.0	8.76	50	153
99.00	Alcatel Lucent 9442	3	49	2.9	0.67	0.0	0.00	0.0	0.0	8.76	59	147
99.00	Flat Side Arm	12	150	6.3	0.67	0.0	0.00	0.0	0.0	8.76	509	1800
99.00	764 Sq. In. Panels	9	35	8.4	0.67	0.0	0.00	0.0	0.0	8.76	505	315
99.00	Andrew SBNH-	3	61	11.4	0.84	0.0	0.00	0.0	0.0	8.76	290	182
75.00	GPS	1	10	1.0	1.00	0.0	0.00	0.0	0.0	8.09	9	10
75.00	Stand-Off	1	100	3.5	1.00	0.0	0.00	0.0	0.0	8.09	32	100
75.00	Rest Platform	1	500	15.0	1.00	0.0	0.00	0.0	0.0	8.09	139	500
53.00	GPS	2	10	1.0	1.00	0.0	0.00	0.0	0.0	7.33	17	20
53.00	Stand-Off	1	100	3.5	1.00	0.0	0.00	0.0	0.0	7.33	29	100
37.50	8 ft. Ice Shield	3	150	6.0	1.00	0.0	0.00	0.0	0.0	6.64	137	450
25.00	Rest Platform	1	500	15.0	1.00	0.0	0.00	0.0	0.0	6.40	110	500
	Totals	126	19916	807.0								

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Tower Loading

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	Pct In Wind	Spread On Faces	Bundling Arrangement
0.00	125.0	1 5/8" Coax	12	1.98	0.82	100.00	2	Separate
0.00	125.0	1 5/8" Coax	18	1.98	0.82	33.30	2	Separate
0.00	125.0	7/8" Coax	1	1.09	0.33	100.00	Lin App	Separate
0.00	125.0	Climbing Ladder	1	2.00	6.90	100.00	2	Separate
0.00	125.0	Waveguide Ladder	1	2.00	6.00	100.00	1	Separate
0.00	125.0	Waveguide Ladder	2	2.00	6.00	100.00	2	Separate
0.00	120.0	1 5/8" Coax	12	1.98	0.82	100.00	1	Separate
0.00	120.0	1 5/8" Coax	6	1.98	0.82	0.00	1	Separate
0.00	120.0	3/8" Coax	1	0.44	0.08	100.00	1	Separate
0.00	108.0	1 1/4" Hybriflex	3	1.54	1.00	100.00	2	Separate
0.00	108.0	5/8" Hybriflex	1	0.84	0.70	100.00	2	Separate
0.00	99.00	0.39" Fiber	1	0.39	0.07	0.00	Lin App	Separate
0.00	99.00	0.78" 8 AWG 6	2	0.78	0.59	0.00	Lin App	Separate
0.00	99.00	1 5/8" Coax	12	1.98	0.82	50.00	Lin App	Separate
0.00	99.00	2" Conduit	1	2.38	3.65	100.00	Lin App	Separate
0.00	99.00	3/8" Coax	1	0.44	0.08	0.00	Lin App	Separate
0.00	99.00	7/8" Coax	6	1.09	0.33	100.00	Lin App	Separate
0.00	75.00	1/2" Coax	1	0.63	0.15	0.00	2	Separate
0.00	53.00	1/2" Coax	1	0.63	0.15	0.00	Lin App	Separate
0.00	53.00	7/8" Coax	1	1.09	0.33	0.00	Lin App	Separate

Site Number: 88166
Site Name: South Salem NY, NY
Customer: T-MOBILE

Code: TIA/EIA-222-F
Engineering Number: 61461423

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Gh : 1.15

Section Forces

LoadCase **Normal No Ice** — 80 mph Wind Normal To Face with No Ice

Allow Stress Inc: 1.333

Section	Elev. (ft)	qz (psf)	Af (sf)	Ar (sf)	Ice Ar (sf)	e	Cf	Df	Dr	Rr	Ae (sf)	EPAa (sf)	EPAai (sf)	Wt. (lb)	Ice Wt. (lb)	Fst (lb)	Fa (lb)	Force (lb)	Eff Face
10	120.7	23.73	26.37	25.48	0.00	0.64	1.86	1.00	1.00	0.78	46.22	0.78	0.00	2229	0	2341	25	2366	2
9	112.1	23.24	24.35	25.55	0.00	0.56	1.95	1.00	1.00	0.73	43.00	0.78	0.00	1986	0	2234	25	2259	2
8	102.8	22.67	28.97	34.83	0.00	0.54	1.97	1.00	1.00	0.72	54.07	3.23	0.00	3002	0	2773	101	2874	2
7	92.6	22.00	29.74	34.83	0.00	0.49	2.07	1.00	1.00	0.69	53.88	18.55	0.00	2824	0	2808	561	3369	2
6	81.3	21.19	31.74	42.81	0.00	0.42	2.24	1.00	1.00	0.66	59.94	22.80	0.00	3984	0	3255	665	3920	2
5	68.8	20.21	32.39	42.81	0.00	0.38	2.33	1.00	1.00	0.64	59.98	22.80	0.00	4351	0	3235	634	3869	2
4	56.3	19.08	33.19	42.81	0.00	0.35	2.43	1.00	1.00	0.63	60.24	22.80	0.00	4529	0	3201	598	3799	2
3	43.8	17.76	34.02	42.81	0.00	0.32	2.51	1.00	1.00	0.62	60.70	22.80	0.00	5173	0	3102	557	3659	2
2	31.3	16.38	34.66	42.81	0.00	0.30	2.58	1.00	1.00	0.62	61.08	22.80	0.00	5309	0	2956	514	3470	2
1	12.5	16.38	78.71	85.62	0.00	0.29	2.63	1.00	1.00	0.61	131.17	45.60	0.00	10484	0	6473	1028	7500	2
														43872	0			37085	

LoadCase **Normal Ice** — 69 mph Wind Normal To Face with Ice

Allow Stress Inc: 1.333

Section	Elev. (ft)	qz (psf)	Af (sf)	Ar (sf)	Ice Ar (sf)	e	Cf	Df	Dr	Rr	Ae (sf)	EPAa (sf)	EPAai (sf)	Wt. (lb)	Ice Wt. (lb)	Fst (lb)	Fa (lb)	Force (lb)	Eff Face
10	120.7	17.80	26.37	44.09	18.61	0.87	1.89	1.00	1.00	0.96	68.52	0.78	0.71	3663	1434	2648	37	2684	2
9	112.1	17.43	24.35	44.41	18.86	0.77	1.83	1.00	1.00	0.87	63.14	0.78	0.71	3510	1524	2306	36	2342	2
8	102.8	17.00	28.97	60.35	25.52	0.76	1.83	1.00	1.00	0.87	81.19	3.23	2.29	4957	1955	2889	129	3018	2
7	92.6	16.50	29.74	60.63	25.80	0.69	1.83	1.00	1.00	0.81	78.93	18.55	11.86	4977	2153	2737	690	3428	2
6	81.3	15.89	31.74	73.47	30.66	0.59	1.91	1.00	1.00	0.75	86.58	22.80	14.58	6632	2648	3018	817	3835	2
5	68.8	15.15	32.39	73.65	30.84	0.54	1.98	1.00	1.00	0.72	85.28	22.80	14.58	7064	2712	2936	779	3715	2
4	56.3	14.31	33.19	73.87	31.06	0.49	2.07	1.00	1.00	0.69	84.37	22.80	14.58	7326	2796	2861	736	3597	2
3	43.8	13.32	34.02	74.08	31.27	0.45	2.14	1.00	1.00	0.68	84.07	22.80	14.58	8085	2912	2751	685	3435	2
2	31.3	12.29	34.66	74.27	31.46	0.43	2.21	1.00	1.00	0.66	83.90	22.80	14.58	8279	2970	2612	632	3243	2
1	12.5	12.29	78.71	146.21	60.59	0.40	2.29	1.00	1.00	0.65	173.74	45.60	29.17	16387	5902	5605	1263	6869	2
														70879	27006			36167	

LoadCase **45 deg No Ice** — 80 mph Wind at 45 degree From Face with No Ice

Allow Stress Inc: 1.333

Section	Elev. (ft)	qz (psf)	Af (sf)	Ar (sf)	Ice Ar (sf)	e	Cf	Df	Dr	Rr	Ae (sf)	EPAa (sf)	EPAai (sf)	Wt. (lb)	Ice Wt. (lb)	Fst (lb)	Fa (lb)	Force (lb)	Eff Face
10	120.7	23.73	26.37	25.48	0.00	0.64	1.86	1.20	1.20	0.78	55.46	0.78	0.00	2229	0	2809	25	2835	2
9	112.1	23.24	24.35	25.55	0.00	0.56	1.95	1.20	1.20	0.73	51.60	0.78	0.00	1986	0	2680	25	2705	2
8	102.8	22.67	28.97	34.83	0.00	0.54	1.97	1.20	1.20	0.72	64.88	3.23	0.00	3002	0	3328	101	3429	2
7	92.6	22.00	29.74	34.83	0.00	0.49	2.07	1.20	1.20	0.69	64.66	18.55	0.00	2824	0	3369	561	3930	2
6	81.3	21.19	31.74	42.81	0.00	0.42	2.24	1.20	1.20	0.66	71.92	22.80	0.00	3984	0	3906	665	4571	2
5	68.8	20.21	32.39	42.81	0.00	0.38	2.33	1.20	1.20	0.64	71.98	22.80	0.00	4351	0	3883	634	4516	2
4	56.3	19.08	33.19	42.81	0.00	0.35	2.43	1.20	1.20	0.63	72.29	22.80	0.00	4529	0	3841	598	4439	2
3	43.8	17.76	34.02	42.81	0.00	0.32	2.51	1.20	1.20	0.62	72.84	22.80	0.00	5173	0	3722	557	4279	2
2	31.3	16.38	34.66	42.81	0.00	0.30	2.58	1.20	1.20	0.62	73.29	22.80	0.00	5309	0	3547	514	4061	2
1	12.5	16.38	78.71	85.62	0.00	0.29	2.63	1.20	1.20	0.61	157.40	45.60	0.00	10484	0	7767	1028	8795	2
														43872	0			43560	

Site Number: 88166
Site Name: South Salem NY, NY
Customer: T-MOBILE

Gh : 1.15

Code: TIA/EIA-222-F
Engineering Number: 61461423

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Section Forces

LoadCase 45 deg Ice — 69 mph Wind at 45 degree From Face with Ice

Allow Stress Inc: 1.333

Section	Elev. (ft)	qz (psf)	Af (sf)	Ar (sf)	Ice Ar (sf)	e	Cf	Df	Dr	Rr	Ae (sf)	EPAa (sf)	EPAai (sf)	Wt. (lb)	Ice Wt. (lb)	Fst (lb)	Fa (lb)	Force (lb)	Eff Face
10	120.7	17.80	26.37	44.09	18.61	0.87	1.89	1.20	1.20	0.96	82.22	0.78	0.71	3663	1434	3177	37	3214	2
9	112.1	17.43	24.35	44.41	18.86	0.77	1.83	1.20	1.20	0.87	75.77	0.78	0.71	3510	1524	2768	36	2803	2
8	102.8	17.00	28.97	60.35	25.52	0.76	1.83	1.20	1.20	0.87	97.42	3.23	2.29	4957	1955	3467	129	3596	2
7	92.6	16.50	29.74	60.63	25.80	0.69	1.83	1.20	1.20	0.81	94.71	18.55	11.86	4977	2153	3285	690	3975	2
6	81.3	15.89	31.74	73.47	30.66	0.59	1.91	1.20	1.20	0.75	103.90	22.80	14.58	6632	2648	3622	817	4439	2
5	68.8	15.15	32.39	73.65	30.84	0.54	1.98	1.20	1.20	0.72	102.34	22.80	14.58	7064	2712	3523	779	4302	2
4	56.3	14.31	33.19	73.87	31.06	0.49	2.07	1.20	1.20	0.69	101.25	22.80	14.58	7326	2796	3433	736	4169	2
3	43.8	13.32	34.02	74.08	31.27	0.45	2.14	1.20	1.20	0.68	100.88	22.80	14.58	8085	2912	3301	685	3986	2
2	31.3	12.29	34.66	74.27	31.46	0.43	2.21	1.20	1.20	0.66	100.68	22.80	14.58	8279	2970	3134	632	3766	2
1	12.5	12.29	78.71	146.21	60.59	0.40	2.29	1.20	1.20	0.65	208.48	45.60	29.17	16387	5902	6726	1263	7990	2
														70879	27006			42239	

LoadCase Normal — 50 mph Wind Normal To Face with No Ice

Allow Stress Inc: 1.333

Section	Elev. (ft)	qz (psf)	Af (sf)	Ar (sf)	Ice Ar (sf)	e	Cf	Df	Dr	Rr	Ae (sf)	EPAa (sf)	EPAai (sf)	Wt. (lb)	Ice Wt. (lb)	Fst (lb)	Fa (lb)	Force (lb)	Eff Face
10	120.7	9.27	26.37	25.48	0.00	0.64	1.86	1.00	1.00	0.78	46.22	0.78	0.00	2229	0	914	10	924	2
9	112.1	9.08	24.35	25.55	0.00	0.56	1.95	1.00	1.00	0.73	43.00	0.78	0.00	1986	0	873	10	882	2
8	102.8	8.85	28.97	34.83	0.00	0.54	1.97	1.00	1.00	0.72	54.07	3.23	0.00	3002	0	1083	39	1123	2
7	92.6	8.59	29.74	34.83	0.00	0.49	2.07	1.00	1.00	0.69	53.88	18.55	0.00	2824	0	1097	219	1316	2
6	81.3	8.28	31.74	42.81	0.00	0.42	2.24	1.00	1.00	0.66	59.94	22.80	0.00	3984	0	1271	260	1531	2
5	68.8	7.89	32.39	42.81	0.00	0.38	2.33	1.00	1.00	0.64	59.98	22.80	0.00	4351	0	1264	248	1511	2
4	56.3	7.45	33.19	42.81	0.00	0.35	2.43	1.00	1.00	0.63	60.24	22.80	0.00	4529	0	1250	234	1484	2
3	43.8	6.94	34.02	42.81	0.00	0.32	2.51	1.00	1.00	0.62	60.70	22.80	0.00	5173	0	1212	218	1429	2
2	31.3	6.40	34.66	42.81	0.00	0.30	2.58	1.00	1.00	0.62	61.08	22.80	0.00	5309	0	1155	201	1355	2
1	12.5	6.40	78.71	85.62	0.00	0.29	2.63	1.00	1.00	0.61	131.17	45.60	0.00	10484	0	2528	401	2930	2
														43872	0			14486	

LoadCase 45 deg — 50 mph Wind at 45 degree From Face with No Ice

Allow Stress Inc: 1.333

Section	Elev. (ft)	qz (psf)	Af (sf)	Ar (sf)	Ice Ar (sf)	e	Cf	Df	Dr	Rr	Ae (sf)	EPAa (sf)	EPAai (sf)	Wt. (lb)	Ice Wt. (lb)	Fst (lb)	Fa (lb)	Force (lb)	Eff Face
10	120.7	9.27	26.37	25.48	0.00	0.64	1.86	1.20	1.20	0.78	55.46	0.78	0.00	2229	0	1097	10	1107	2
9	112.1	9.08	24.35	25.55	0.00	0.56	1.95	1.20	1.20	0.73	51.60	0.78	0.00	1986	0	1047	10	1057	2
8	102.8	8.85	28.97	34.83	0.00	0.54	1.97	1.20	1.20	0.72	64.88	3.23	0.00	3002	0	1300	39	1339	2
7	92.6	8.59	29.74	34.83	0.00	0.49	2.07	1.20	1.20	0.69	64.66	18.55	0.00	2824	0	1316	219	1535	2
6	81.3	8.28	31.74	42.81	0.00	0.42	2.24	1.20	1.20	0.66	71.92	22.80	0.00	3984	0	1526	260	1785	2
5	68.8	7.89	32.39	42.81	0.00	0.38	2.33	1.20	1.20	0.64	71.98	22.80	0.00	4351	0	1517	248	1764	2
4	56.3	7.45	33.19	42.81	0.00	0.35	2.43	1.20	1.20	0.63	72.29	22.80	0.00	4529	0	1500	234	1734	2
3	43.8	6.94	34.02	42.81	0.00	0.32	2.51	1.20	1.20	0.62	72.84	22.80	0.00	5173	0	1454	218	1671	2
2	31.3	6.40	34.66	42.81	0.00	0.30	2.58	1.20	1.20	0.62	73.29	22.80	0.00	5309	0	1386	201	1586	2
1	12.5	6.40	78.71	85.62	0.00	0.29	2.63	1.20	1.20	0.61	157.40	45.60	0.00	10484	0	3034	401	3435	2
														43872	0			17016	

Site Number: 88166
Site Name: South Salem NY, NY
Customer: T-MOBILE

Code: TIA/EIA-222-F
Engineering Number: 61461423

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Force/Stress Summary

Section: 1 1 — Bot Elev (ft): 0.00 — Height (ft): 25.000

Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fa (ksi)	Member Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG SAE - 8X8X0.625	-128.42	45 deg Ice	25.09	33	33	33	62.9	21.3	204.48	40	4	494.92	1,649.9	62	Member Z
HORIZ DAE - 2.5X2.5X0.25	-7.61	Normal No Ice	10.60	100	100	16	154.6	8.3	19.82	4	2	49.49	66.00	38	Member X
DIAG DAS - 3.5X3X0.25	-19.82	Normal No Ice	27.82	33	67	6	131.9	11.4	35.81	6	2	74.24	99.00	55	Member Y

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG SAE - 8X8X0.625	98.22	45 deg No Ice	33	253.70	40	4	494.92	1,634.49	38	Member
HORIZ DAE - 2.5X2.5X0.25	7.99	Normal No Ice	33	54.28	4	2	49.49	53.62	16	Bolt Shear
DIAG DAS - 3.5X3X0.25	18.85	Normal No Ice	33	74.90	6	2	74.24	86.62	25	Bolt Shear

Max Splice Forces	Force (kip)	Load Case	Capacity (kip)	Use %	Num Bolts	Bolt Type
Top Tension	97.47	45 deg No Ice	0.00	0		
Top Compression	127.66	45 deg Ice	0.00	0		
Bot Tension	125.95	45 deg No Ice	304.10	41	4	2" C1015
Bot Compression	156.65	45 deg Ice	0.00	0		

Section: 2 1 — Bot Elev (ft): 25.00 — Height (ft): 12.500

Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fa (ksi)	Member Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG SAE - 6X6X0.75	-112.32	45 deg Ice	12.55	50	50	50	64.4	21.1	178.18	32	4	395.94	1,583.9	63	Member Z
HORIZ DAE - 2.5X2.5X0.25	-7.13	Normal No Ice	9.820	100	100	20	145.4	9.4	22.42	4	2	49.49	66.00	31	Member X
DIAG DAE - 2.5X2.5X0.25	-12.20	Normal No Ice	16.40	50	100	12	154.7	8.3	19.81	4	2	49.49	66.00	61	Member Y

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG SAE - 6X6X0.75	85.57	45 deg No Ice	33	220.09	32	4	395.94	1,565.40	38	Member
HORIZ DAE - 2.5X2.5X0.25	7.19	Normal No Ice	33	54.28	4	2	49.49	53.62	14	Bolt Shear
DIAG DAE - 2.5X2.5X0.25	11.33	Normal No Ice	33	54.28	4	2	49.49	53.62	22	Bolt Shear

Max Splice Forces	Force (kip)	Load Case	Capacity (kip)	Use %	Num Bolts	Bolt Type
Top Tension	84.94	45 deg No Ice	0.00	0		
Top Compression	111.71	45 deg Ice	0.00	0		
Bot Tension	97.47	45 deg No Ice	0.00	0		
Bot Compression	127.66	45 deg Ice	0.00	0		

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Force/Stress Summary

Section: 3 1 — Bot Elev (ft): 37.50 — Height (ft): 12.500

Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing % X	Bracing % Y	Bracing % Z	KL/R	Fa (ksi)	Member Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG SAE - 6X6X0.75	-94.77	45 deg Ice	12.53	50	50	50	64.3	21.1	178.27	0	0	0.00	0.00	53	Member Z
HORIZ DAE - 2.5X2.5X0.25	-7.05	Normal No Ice	9.190	100	100	20	137.9	10.5	24.93	4	2	49.49	66.00	28	Member X
DIAG DAE - 2.5X2.5X0.25	-13.21	Normal No Ice	15.90	50	100	12	150.8	8.8	20.83	4	2	49.49	66.00	63	Member Y

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG SAE - 6X6X0.75	70.94	45 deg No Ice	33	222.81	0	0	0.00	0.00	31	Member
HORIZ DAE - 2.5X2.5X0.25	7.83	Normal No Ice	33	54.28	4	2	49.49	53.62	15	Bolt Shear
DIAG DAE - 2.5X2.5X0.25	12.38	Normal No Ice	33	54.28	4	2	49.49	53.62	25	Bolt Shear

Max Splice Forces	Force (kip)	Load Case	Capacity (kip)	Use %	Num Bolts	Bolt Type
Top Tension	70.30	45 deg No Ice	0.00	0		
Top Compression	94.05	45 deg Ice	0.00	0		
Bot Tension	84.94	45 deg No Ice	0.00	0		
Bot Compression	111.71	45 deg Ice	0.00	0		

Section: 4 1 — Bot Elev (ft): 50.00 — Height (ft): 12.500

Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing % X	Bracing % Y	Bracing % Z	KL/R	Fa (ksi)	Member Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG SAE - 6X6X0.5625	-80.09	45 deg Ice	12.57	50	50	50	63.9	21.2	136.07	24	4	296.95	890.98	58	Member Z
HORIZ DAE - 2.5X2.5X0.25	-5.85	Normal No Ice	8.260	100	100	20	126.8	12.3	29.32	4	2	49.49	66.00	19	Member X
DIAG DAL - 2.5X2X0.25	-11.04	Normal No Ice	15.54	50	100	12	180.6	6.1	13.00	4	2	49.49	66.00	84	Member Y

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG SAE - 6X6X0.5625	58.71	45 deg No Ice	33	168.73	24	4	296.95	877.06	34	Member
HORIZ DAE - 2.5X2.5X0.25	5.84	Normal No Ice	33	54.28	4	2	49.49	53.62	11	Bolt Shear
DIAG DAL - 2.5X2X0.25	10.34	Normal No Ice	33	47.40	4	2	49.49	53.62	21	Member

Max Splice Forces	Force (kip)	Load Case	Capacity (kip)	Use %	Num Bolts	Bolt Type
Top Tension	58.08	45 deg No Ice	0.00	0		
Top Compression	79.50	45 deg Ice	0.00	0		
Bot Tension	70.30	45 deg No Ice	0.00	0		
Bot Compression	94.05	45 deg Ice	0.00	0		

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Force/Stress Summary

Section: 5 1 — Bot Elev (ft): 62.50 — Height (ft): 12.500

Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing % X	Bracing % Y	Bracing % Z	KL/R	Fa (ksi)	Member Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG SAE - 6X6X0.5625	-63.43	45 deg Ice	12.55	50	50	50	63.8	21.2	136.15	0	0	0.00	0.00	46	Member Z
HORIZ DAE - 2.5X2.5X0.25	-6.04	Normal No Ice	7.480	100	120	25	116.7	14.0	33.26	4	2	49.49	66.00	18	Member X
DIAG DAL - 2.5X2X0.25	-12.17	Normal No Ice	15.00	50	100	12	175.3	6.5	13.80	4	2	49.49	66.00	88	Member Y

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG SAE - 6X6X0.5625	44.21	45 deg No Ice	33	169.75	0	0	0.00	0.00	26	Member
HORIZ DAE - 2.5X2.5X0.25	6.03	Normal No Ice	33	54.28	4	2	49.49	53.62	12	Bolt Shear
DIAG DAL - 2.5X2X0.25	11.51	Normal No Ice	33	47.40	4	2	49.49	53.62	24	Member

Max Splice Forces	Force (kip)	Load Case	Capacity (kip)	Use %	Num Bolts	Bolt Type
Top Tension	43.65	45 deg No Ice	0.00	0		
Top Compression	62.91	45 deg Ice	0.00	0		
Bot Tension	58.08	45 deg No Ice	0.00	0		
Bot Compression	79.50	45 deg Ice	0.00	0		

Section: 6 1 — Bot Elev (ft): 75.00 — Height (ft): 12.500

Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing % X	Bracing % Y	Bracing % Z	KL/R	Fa (ksi)	Member Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG SAE - 6X6X0.4375	-45.77	45 deg Ice	12.53	50	50	50	63.2	21.2	107.49	24	4	296.95	692.98	42	Member Z
HORIZ DAE - 2.5X2.5X0.25	-5.27	Normal No Ice	6.830	100	107	33	106.6	15.5	36.99	4	2	49.49	66.00	14	Member X
DIAG DAL - 2.5X2X0.25	-12.69	Normal No Ice	14.58	50	100	12	171.2	6.8	14.47	4	2	49.49	66.00	87	Member Y

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG SAE - 6X6X0.4375	28.83	45 deg No Ice	33	133.39	24	4	296.95	682.15	21	Member
HORIZ DAE - 2.5X2.5X0.25	6.48	Normal No Ice	33	54.28	4	2	49.49	53.62	13	Bolt Shear
DIAG DAL - 2.5X2X0.25	12.11	Normal No Ice	33	47.40	4	2	49.49	53.62	25	Member

Max Splice Forces	Force (kip)	Load Case	Capacity (kip)	Use %	Num Bolts	Bolt Type
Top Tension	28.28	45 deg No Ice	0.00	0		
Top Compression	45.10	45 deg Ice	0.00	0		
Bot Tension	43.65	45 deg No Ice	0.00	0		
Bot Compression	62.91	45 deg Ice	0.00	0		

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Force/Stress Summary

Section: 7 1 — Bot Elev (ft): 87.50 — Height (ft): 10.170

Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fa (ksi)	Member Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG SAE - 5X5X0.4375	-36.37	45 deg Ice	10.22	50	50	50	62.2	21.4	89.26	24	4	296.95	692.98	40	Member Z
HORIZ SAU - 3X2.5X0.25	-1.67	Normal No Ice	12.18	100	100	67	176.5	6.4	8.37	2	1	24.75	33.00	20	Member Y
DIAG SAE - 3.5X3.5X0.25	-7.21	Normal No Ice	16.45	50	50	50	138.0	10.5	17.67	2	1	24.75	33.00		

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG SAE - 5X5X0.4375	22.28	45 deg No Ice	33	101.13	24	4	296.95	682.15	22	Member
HORIZ SAU - 3X2.5X0.25	2.63	Normal No Ice	33	30.44	2	1	24.75	26.81	10	Bolt Shear
DIAG SAE - 3.5X3.5X0.25	5.89	Normal No Ice	33	40.89	2	1	24.75	26.81	23	Bolt Shear

Max Splice Forces	Force (kip)	Load Case	Capacity (kip)	Use %	Num Bolts	Bolt Type
Top Tension	16.23	45 deg No Ice	0.00	0		
Top Compression	32.57	45 deg Ice	0.00	0		
Bot Tension	28.28	45 deg No Ice	0.00	0		
Bot Compression	45.10	45 deg Ice	0.00	0		

Section: 8 1 — Bot Elev (ft): 97.67 — Height (ft): 10.170

Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fa (ksi)	Member Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG SAE - 5X5X0.4375	-23.37	45 deg Ice	10.21	50	50	50	62.1	21.4	89.30	0	0	0.00	0.00	26	Member Z
HORIZ DAL - 3X2.5X0.25	-0.92	Normal No Ice	10.90	100	100	67	155.1	8.3	21.77	4	2	49.49	66.00	4	Member Z
DIAG SAE - 3.5X3.5X0.25	-6.11	Normal No Ice	15.39	50	50	50	130.9	11.6	19.63	2	1	24.75	33.00		

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG SAE - 5X5X0.4375	12.43	45 deg No Ice	33	110.35	0	0	0.00	0.00	11	Member
HORIZ DAL - 3X2.5X0.25	1.82	Normal No Ice	33	61.15	4	2	49.49	53.62	3	Bolt Shear
DIAG SAE - 3.5X3.5X0.25	4.89	Normal No Ice	33	40.89	2	1	24.75	26.81	19	Bolt Shear

Max Splice Forces	Force (kip)	Load Case	Capacity (kip)	Use %	Num Bolts	Bolt Type
Top Tension	6.80	45 deg No Ice	0.00	0		
Top Compression	19.85	45 deg Ice	0.00	0		
Bot Tension	16.23	45 deg No Ice	0.00	0		
Bot Compression	32.57	45 deg Ice	0.00	0		

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Force/Stress Summary

Section: 9 1 — Bot Elev (ft): 107.8 — Height (ft): 8.580

Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing % X	Bracing % Y	Bracing % Z	KL/R	Fa (ksi)	Member Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG SAE - 5X5X0.3125	-13.16	45 deg Ice	8.61	50	50	50	52.0	22.5	68.04	24	4	296.95	494.99	19	Member Z
HORIZ SAU - 3X2.5X0.25	-0.54	Normal No Ice	9.880	100	100	100	199.7	5.0	6.54	4	2	49.49	66.00	8	Member Z
DIAG SAE - 3X3X0.25	-4.34	Normal No Ice	13.48	50	50	50	132.7	11.3	16.27	2	1	24.75	33.00		

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG SAE - 5X5X0.3125	4.80	45 deg No Ice	33	73.86	24	4	296.95	487.25	6	Member
HORIZ SAU - 3X2.5X0.25	1.24	Normal Ice	33	24.85	4	2	49.49	59.81	5	Member
DIAG SAE - 3X3X0.25	3.28	Normal No Ice	33	34.01	2	1	24.75	26.81	13	Bolt Shear

Max Splice Forces	Force (kip)	Load Case	Capacity (kip)	Use %	Num Bolts	Bolt Type
Top Tension	0.75	45 deg No Ice	0.00	0		
Top Compression	10.92	45 deg Ice	0.00	0		
Bot Tension	6.80	45 deg No Ice	0.00	0		
Bot Compression	19.85	45 deg Ice	0.00	0		

Section: 10 1 — Bot Elev (ft): 116.4 — Height (ft): 8.580

Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing % X	Bracing % Y	Bracing % Z	KL/R	Fa (ksi)	Member Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG SAE - 5X5X0.3125	-4.95	Normal Ice	8.60	50	50	50	51.9	22.5	68.05	0	0	0.00	0.00	7	Member Z
HORIZ CHN - C8 x 11.5	-0.08	45 deg No Ice	9.000	100	100	100	160.3	7.8	26.20	2	2	24.75	30.62	0	Bolt Shear
DIAG SAE - 3X3X0.25	-3.37	Normal No Ice	12.76	50	50	50	127.2	12.3	17.65	2	1	24.75	33.00		

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG SAE - 5X5X0.3125	0.22	Normal No Ice	33	79.99	0	0	0.00	0.00	0	Member
HORIZ CHN - C8 x 11.5	0.27	45 deg Ice	36	87.65	2	2	24.75	24.88	1	Bolt Shear
DIAG SAE - 3X3X0.25	2.71	Normal No Ice	33	34.01	2	1	24.75	26.81	10	Bolt Shear

Max Splice Forces	Force (kip)	Load Case	Capacity (kip)	Use %	Num Bolts	Bolt Type
Top Tension	0.00		0.00	0		
Top Compression	3.85	45 deg Ice	0.00	0		
Bot Tension	0.75	45 deg No Ice	0.00	0		
Bot Compression	10.92	45 deg Ice	0.00	0		

Site Number: 88166
Site Name: South Salem NY, NY
Customer: T-MOBILE

Code: TIA/EIA-222-F
Engineering Number: 61461423

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5/9/2016 3:48:41 PM

Support Forces Summary

(-) = Uplift (+) = Down

Load Case	Node	FX (kip)	FY (kip)	FZ (kip)
45 deg	1c	-1.40	16.17	-3.63
	1b	-4.75	-38.68	-4.74
	1a	-3.61	15.72	-1.41
	1	-6.94	70.58	-6.93
Normal	1c	3.25	51.15	-6.37
	1b	-1.04	-19.25	-4.18
	1a	1.04	-19.25	-4.18
	1	-3.25	51.15	-6.37
45 deg Ice	1c	-4.29	25.10	-7.73
	1b	-12.44	-107.58	-12.41
	1a	-7.70	24.05	-4.32
	1	-15.73	156.74	-15.70
45 deg No Ice	1c	-5.31	16.52	-7.56
	1b	-13.92	-123.90	-13.89
	1a	-7.52	15.36	-5.34
	1	-16.01	155.81	-15.97
Normal Ice	1c	6.88	109.44	-14.34
	1b	-3.47	-60.28	-11.02
	1a	3.47	-60.28	-11.02
	1	-6.88	109.44	-14.34
Normal No Ice	1c	6.59	106.06	-14.56
	1b	-4.38	-74.17	-12.45
	1a	4.38	-74.17	-12.45
	1	-6.59	106.06	-14.56

Max Uplift:	123.90 (kip)	Moment:	4,796.39 (ft-kip)	45 deg No Ice
Max Down:	156.74 (kip)	Total Down:	63.79 (kip)	
Max Shear:	22.61 (kip)	Total Shear:	60.48 (kip)	

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Deflections and Rotations

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)
50 mph Wind at 45 degree From Face with No Ice	25.00	0.0066	0.0013	0.0223
	37.50	0.0118	0.0011	0.0273
	50.00	0.0188	0.0013	0.0343
	75.00	0.0369	0.0016	0.0502
	97.67	0.0587	0.0018	0.0586
	107.84	0.0690	0.0031	0.0766
	116.42	0.0782	0.0044	0.0737
	125.00	0.0872	0.0006	0.1606
50 mph Wind Normal To Face with No Ice	25.00	0.0058	0.0008	0.0196
	37.50	0.0105	0.0006	0.0250
	50.00	0.0169	0.0007	0.0313
	75.00	0.0336	0.0007	0.0459
	97.67	0.0538	0.0005	0.0455
	107.84	0.0636	0.0018	0.0929
	116.42	0.0723	0.0028	0.0207
	125.00	0.0810	0.0005	0.1926
69 mph Wind at 45 degree From Face with Ice	25.00	0.0184	0.0032	0.0569
	37.50	0.0307	0.0028	0.0675
	50.00	0.0476	0.0032	0.0833
	75.00	0.0912	0.0038	0.1217
	97.67	0.1434	0.0041	0.1422
	107.84	0.1686	0.0068	0.1820
	116.42	0.1906	0.0103	0.1771
	125.00	0.2127	0.0008	0.3765
69 mph Wind Normal To Face with Ice	25.00	0.0159	0.0019	0.0512
	37.50	0.0271	0.0016	0.0612
	50.00	0.0422	0.0018	0.0759
	75.00	0.0824	0.0019	0.1106
	97.67	0.1305	0.0010	0.1104
	107.84	0.1543	0.0038	0.2190
	116.42	0.1750	0.0066	0.0551
	125.00	0.1961	0.0013	0.4582
80 mph Wind at 45 degree From Face with No Ice	25.00	0.0168	0.0034	0.0571
	37.50	0.0302	0.0029	0.0698
	50.00	0.0481	0.0034	0.0877
	75.00	0.0945	0.0040	0.1284
	97.67	0.1501	0.0047	0.1503
	107.84	0.1766	0.0079	0.1972
	116.42	0.2000	0.0115	0.1893
	125.00	0.2233	0.0010	0.4117
80 mph Wind Normal To Face with No Ice	25.00	0.0148	0.0020	0.0498
	37.50	0.0269	0.0017	0.0637
	50.00	0.0432	0.0018	0.0800
	75.00	0.0860	0.0019	0.1173
	97.67	0.1376	0.0013	0.1162
	107.84	0.1629	0.0045	0.2391
	116.42	0.1850	0.0074	0.0547
	125.00	0.2074	0.0016	0.4995

Pyramidal Pad & Pier

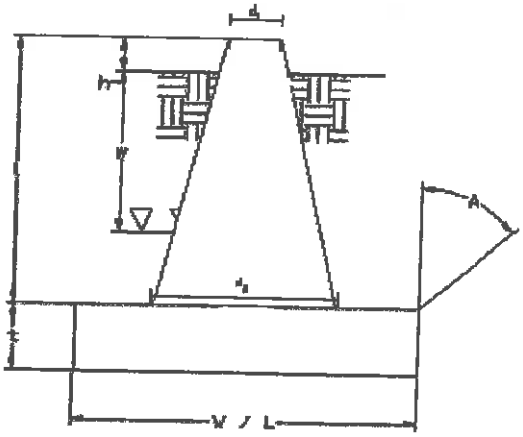
last updated: 01/24/12

Site No:	88166
Engineer:	AT
Date:	05/09/16
Carrier:	T-Mobile

Design Loads (Factored)

Compression/Leg:	157.74	k
Uplift/Leg:	123.90	k

Face Width @ Top of Pier (d_1):	3.00	ft
Face Width @ Bottom of Pier (d_2):	6.50	ft
Total Length of Pier (l):	7.00	ft
Height of Pedestal Above Ground (h):	0.50	ft
Width of Pad (W):	15.00	ft
Length of Pad (L):	15.00	ft
Thickness of Pad (t):	2.00	ft
Water Table Depth (w):	99.00	ft
Unit Weight of Concrete:	150.0	pcf
Unit Weight of Soil (Above Water Table):	115.0	pcf
Unit Weight of Soil (Below Water Table):	60.0	pcf
Friction Angle of Uplift (A):	30	°
Ultimate Compressive Bearing Pressure:	6500	psf



Volume Pier:	165.08	ft^3
Volume Pad:	450.00	ft^3
Volume Soil:	2129.96	ft^3
Volume Pier (Buoyant):	0.00	ft^3
Volume Pad (Buoyant):	0.00	ft^3
Volume Soil (Buoyant):	0.00	ft^3
Weight Pier:	24.76	k
Weight Pad:	67.50	k
Weight Soil:	244.94	k

Uplift Check

ϕs Uplift Resistance (k)	Ratio	Result
252.91	0.49	OK

Axial Check

ϕs Axial Resistance (k)	Ratio	Result
1096.88	0.14	OK

Anchor Bolt Check

Bolt Description: (4) 2" C1015 A36

ϕRnt	Ratio	Result
439.68	0.36	OK

INFINIGY
FROM ZERO TO INFINIGY
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1033 WATERVLIET SHAKER RD, ALBANY, NY 12205

April 13, 2016

Dave Talley
Sr. Project Manager- Network Development
American Tower Corporation

RE: **T-Mobile 700 MHz Project Antenna and RRH Support Evaluation**

T-Mobile Site Number:	NY09050B
T-Mobile Site Name:	LEWISBORO
Site Address:	Rt. 35, Lewisboro, NY 10590
ATC Site #:	88166
Building Code:	2006 IBC / 2010 New York State Building Code
Design Standard:	ANSI/TIA-222-F
Result:	**Contingent Pass**
Notes:	**Replace the existing antenna mount pipes with 10' long 2" Std. mount pipes for the APXVF24-C-A20 Antennas. See the attached profile for spacing requirements between attachments on existing/proposed mounts.**

Dear Mr. Talley

At your request, Infinigy Engineering, PLLC has reviewed the existing and/or proposed tower mounted equipment supports at the above referenced site for adequacy to support the existing and proposed loads for the referenced project. This evaluation is based on the information from the Tower Mapping (dated 03/24/2016) provided by Engineered Tower Solutions, PLLC and Construction Drawings (dated 12/16/15) provided by Infinigy Engineering, PLLC.

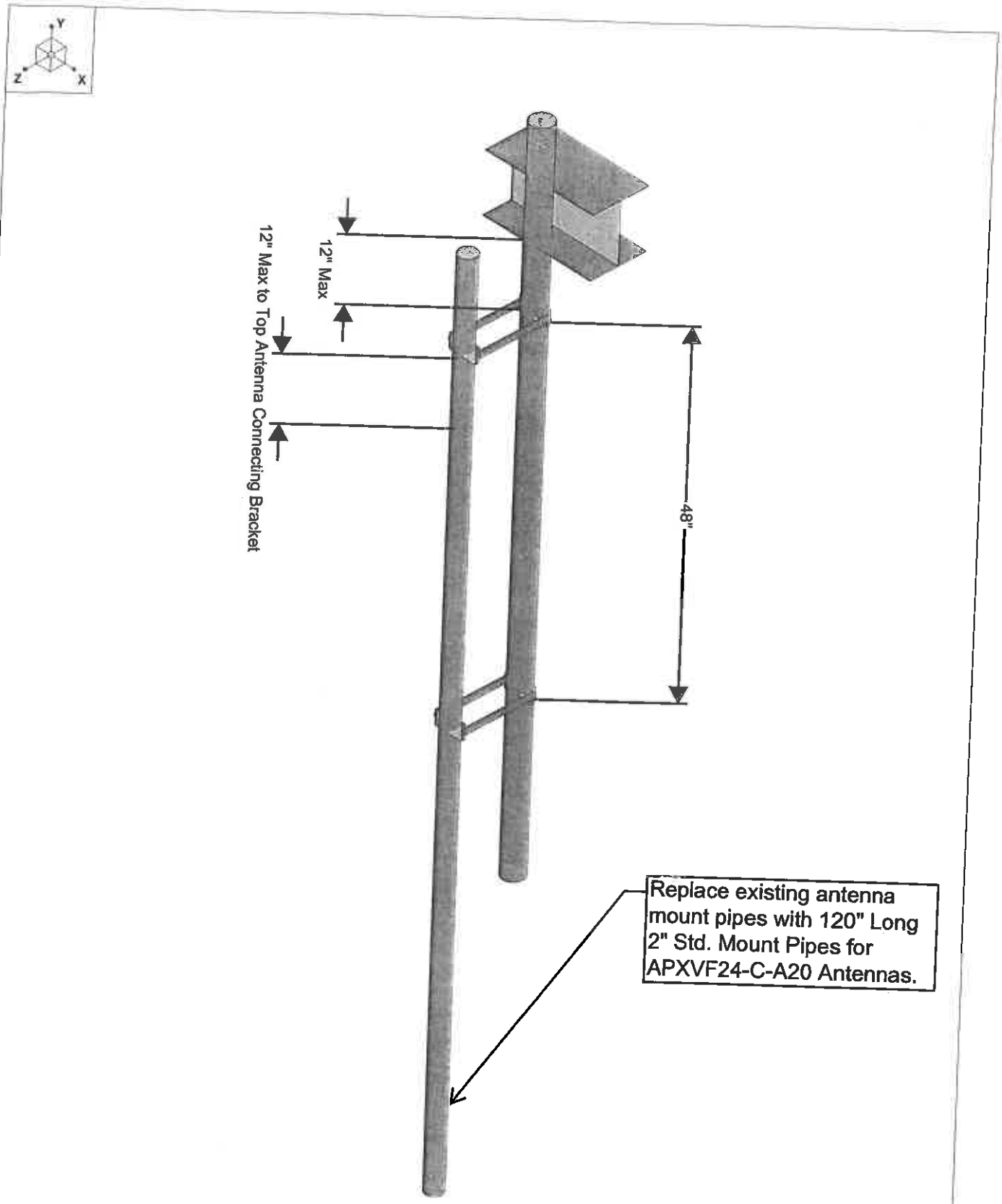
This evaluation assumes that all structural members are in good condition, have not been altered from the manufacturer's original design, and have been installed per the manufacturer's requirements. Prior to installation of any new antennas, the contractor shall inspect the condition of all relevant members and connections and shall tighten all connections. The contractor is responsible for the means and methods of construction and shall notify Infinigy Engineering, PLLC immediately if any field conditions differ from those listed above.

Should there be any questions, please do not hesitate to contact us.

Sincerely,

Joseph R. Johnston, P.E.
Department Manager- Structural
New York P.E. License Number: 091187
ST/NRO

STATE OF NEW YORK
JOSEPH R. JOHNSTON
091187
LICENSED PROFESSIONAL ENGINEER



Infinigy Engineering PLLC	NY090950B	
NRO		Apr 13, 2016 at 2:49 PM
317-000		NY090950B.r3d

Appurtenance Wind Load Calculation Per TIA-222-F

Windspeed	80	mph
Gust Effect Factor, G_h	1	
Centerline AGL	120	ft
Side Face Angle, θ	60	degrees
Mount Member Shape	Round	
Mount Type	T-Arms	
Number of Sectors	3	
Carrier	T-Mobile	

Flat/Round	q_z (psf)	23.69
	Cf^*q_z (psf)	28.431

Input Appurtenance Information

Appurtenance Name	Existing / Proposed?	Quantity	#N	#S1	#S2	Weight (lb)	Height (in)	Width (in)	Depth (in)	Panel/ TTA	Shape Front	Shape Side	$(EPA)_N$ (ft^2)	$(EPA)_T$ (ft^2)	$(EPA)_A$ (ft^2)	$(EPA)_A$ (ft^2)	Fa (Front)	Fa (Side)	Fa (Angle) Normal	Fa (Angle) 90°
RFS ATMAA1412D-1A20	P	6.0	2	2	2	13.0	12.0	10.0	4.0	P	F	F	1.17	0.47	0.64	0.99	27.64	11.06	15.20	23.50
RFS APXVF24-C-A20	P	3.0	1	1	1	50.7	93.0	14.5	6.9	P	F	F	13.11	7.20	8.68	11.63	310.62	170.61	205.61	275.62
RFS APX-16DWV	P	3.0	1	1	1	48.4	55.9	13.0	3.2	P	F	F	7.07	2.15	3.38	5.84	167.39	50.94	80.05	138.28

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N1	N2			Pipe	Beam	Pipe	A53 Gr.B	Typical
2	M2	N6	N7			Plate	Beam	BAR	A36 Gr.36	Typical
3	M4	N10	N11			Plate	Beam	BAR	A36 Gr.36	Typical
4	M5	N15	N16			Plate	Beam	BAR	A36 Gr.36	Typical
5	M7	N19	N20			Plate	Beam	BAR	A36 Gr.36	Typical
6	M8	N7	N16			Threaded Rod	Beam	BAR	A36 Gr.36	Typical
7	M9	N6	N15			Threaded Rod	Beam	BAR	A36 Gr.36	Typical
8	M12	N11	N20			Threaded Rod	Beam	BAR	A36 Gr.36	Typical
9	M13	N10	N19			Threaded Rod	Beam	BAR	A36 Gr.36	Typical
10	M14	N21	N22			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[K]
1	Hot Rolled Steel				
2	A36 Gr.36	3/4 SR	4	40	0
3	A36 Gr.36	PL 2 x 0.5	4	16	0
4	A53 Gr.B	PIPE 2.0	1	120	0
5	A53 Gr.B	PIPE 2.5	1	96	0
6	Total HR Steel		10	272	0

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(...
1	Self Weight	DL		-1		2				
2	Wind Load AZI 000	OL1				2			1	
3	Wind Load AZI 090	OL2				2			1	
4	Service Live	OL3								
5	Service Live Eccen...	OL4								
6	Service Live Eccen...	OL5								
7	BLC 2 Transient A...	None						6		
8	BLC 3 Transient A...	None						6		

Load Combinations

	Description	Solve	P...	SR...	B...	Fac...	B...	Fac...	B...	Fac...	B...	Fac...	B...	Fac...	B...	Fac...	B...	Fac...	B...	Fac...	B...	Fac...
1	1.0D	Yes	Y		DL	1																
2	1.0D + 1.0W AZI 000	Yes	Y		DL	1	O...	1														
3	1.0D + 1.0W AZI 090	Yes	Y		DL	1	O...	1														
4	1.0D+1.0W AZI 180	Yes	Y		DL	1	O...	-1														
5	1.0D+1.0W AZI 270	Yes	Y		DL	1	O...	-1														
6	1.0D + 1.0W (15mph)...	Yes	Y		DL	1	O...	.192	O...	1												
7	1.0D + 1.0 W (15 mp...	Yes	Y		DL	1	O...	.192	O...	1												
8	1.0D + 1.0 W (15 mp...	Yes	Y		DL	1	O...	-.192	O...	1												
9	1.0D + 1.0 W (15 mp...	Yes	Y		DL	1	O...	-.192	O...	1												
10	1.0D + 1.0W (15mph)...	Yes	Y		DL	1	O...	.192	O...	1												
11	1.0D + 1.0 W (15 mp...	Yes	Y		DL	1	O...	.192	O...	1												
12	1.0D + 1.0 W (15 mp...	Yes	Y		DL	1	O...	-.192	O...	1												
13	1.0D + 1.0 W (15 mp...	Yes	Y		DL	1	O...	-.192	O...	1												

Load Combinations (Continued)

	Description	Solve	P...	SR...	B...	Fac...	B...	Fac...	B...	Fac...	B...	Fac...	B...	Fac...	B...	Fac...	B...	Fac...	B...	Fac...	B...	Fac...	B...	Fac...
14	1.0D + 1.0W (15mph)..	Yes	Y		DL	1	O...	.192	O...	1														
15	1.0D + 1.0 W (15 mp...	Yes	Y		DL	1	O...	.192	O...	1														
16	1.0D + 1.0 W (15 mp...	Yes	Y		DL	1	O...	-.192	O...	1														
17	1.0D + 1.0 W (15 mp...	Yes	Y		DL	1	O...	-.192	O...	1														

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N29	max	284.675	3	138.884	2	425.07	2	2.197	4	.189	3	1.445	3
2		min	-284.675	5	138.884	4	-425.07	4	-2.364	2	-.189	5	-1.445	5
3	Totals:	max	284.675	3	138.884	2	425.07	2						
4		min	-284.675	5	138.884	4	-425.07	4						

Envelope AISC 14th(360-10): ASD Steel Code Checks

	Mem...	Shape	Code Check	Loc[in]	LC	Shear Che...	Loc[...	Dir	LC	Pnc/o...	Pnt/...	Mn...	Mn...	...Eqn
1	M1	PIPE 2.5	.991	84	2	.118	72		3	33467..	337...	2.393	2.393	1 H1..
2	M8	3/4 SR	.822	0	2	.191	0		3	8199...	952...	.119	.119	..H1..
3	M9	3/4 SR	.822	0	2	.191	0		5	8199....	952...	.119	.119	..H1..
4	M12	3/4 SR	.700	10	4	.153	0		3	8199...	952...	.119	.119	..H1..
5	M13	3/4 SR	.700	10	4	.153	0		5	8199....	952...	.119	.119	..H1..
6	M14	PIPE 2.0	.684	60	4	.074	60		3	6544...	213...	1.245	1.245	1 H1..
7	M4	PL 2 x 0.5	.349	2	5	.436	2	y	4	20702..	215...	.225	.898	..H1..
8	M7	PL 2 x 0.5	.246	0	3	.544	0	y	4	20702..	215...	.225	.898	..H1..
9	M5	PL 2 x 0.5	.163	2	3	.380	4	y	2	20702..	215...	.225	.898	..H1..
10	M2	PL 2 x 0.5	.130	2	3	.647	2	y	2	20702..	215...	.225	.898	..H1..

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

1033 WATERVLIET SHAKER RD, ALBANY, NY 12205

April 13, 2016

Dave Talley
Sr. Project Manager- Network Development
American Tower Corporation

Subject: T-Mobile Site NY09050B
Lewisboro
Rt. 35
Lewisboro, NY 10590

Dear Mr. Talley:

The T-Mobile L700 Upgrade to this site will keep the same number of T-Mobile antennas installed at 6 total. The antennas are located 5.5 feet below the top of the tower and will not increase the height of the tower. While the same number of antennas remain, the new antennas are longer, wider and deeper than the existing antennas.

The tower climb equipment inventory was completed March 24, 2016. A bulk calculation using this inventory determined the existing volume of all antennas, antenna support booms, tower mounted radio heads and combiners along with associated antenna cables. A comparative analysis for the new antennas will increase the total installed bulk volume of the antennas and cables on the tower by 5.2 cubic feet or 2.4%. This calculation is based upon the volume of all antennas, antenna support booms, tower mounted radio heads and combiners and associated antenna cables.

If you have any questions concerning this assessment or if any of the criterion changes please do not hesitate to contact us.

Sincerely,

Joseph R. Johnston, P.E.
Department Manager- Structural
New York P.E. License Number: 091187
ST/NRO

STATE OF NEW YORK
JOSEPH R. JOHNSTON
APR 13 2016
091187
LICENSED PROFESSIONAL ENGINEER

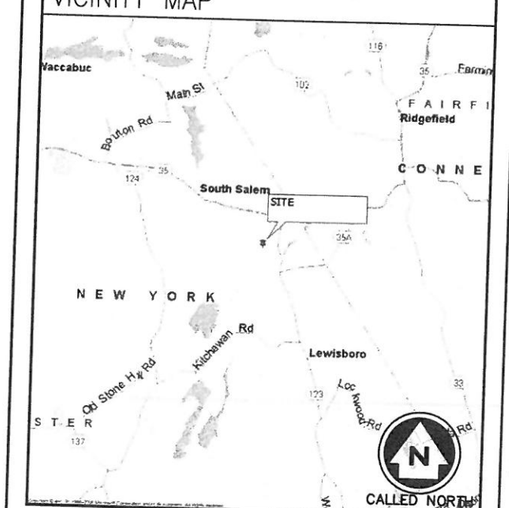
T-MOBILE NORTHEAST LLC

NY09050B
LEWISBORO

RT 35
LEWISBORO, NY 10590

(704E CONFIGURATION)

VICINITY MAP



DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

CALL:
"CALL BEFORE YOU DIG"
WWW.CBYD.COM
CALL 811, OR 1-800-922-4455
CALL THREE WORKING DAYS PRIOR TO DIGGING
SAFETY PREDAUTIONS SHALL BE IMPLEMENTED BY CONTRACTOR(S) AT ALL TRENCHING IN ACCORDANCE WITH CURRENT OSHA STANDARDS.

COLOR CODE FOR UTILITY LOCATIONS

ELECTRIC	– RED	SEWER	– GREEN
GAS/OIL	– YELLOW	SURVEY	– PINK
TEL/CATV	– ORANGE	PROPOSED EXCAVATION	– WHITE
WATER	– BLUE	RECLAIMED WATER	– PURPLE

GENERAL NOTES

1. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES. RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES.
2. THE ARCHITECT/ENGINEER HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONSTRUCT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.
3. THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE T–MOBILE REPRESENTATIVE OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF THE CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK. IN THE EVENT OF DISCREPANCIES, THE CONTRACTOR SHALL PRICE THE MORE COSTLY OR EXPENSIVE WORK, UNLESS DIRECTED IN WRITING OTHERWISE.
4. THE SCOPE OF WORK SHALL INCLUDE FURNISHING OF ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN.
5. THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
6. THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWINGS/CONTRACT DOCUMENTS.
7. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S/VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
8. THE CONTRACTOR SHALL PROVIDE A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS AND ADDENDUM OR CLARIFICATIONS AVAILABLE FOR THE USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT.
9. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER CONTRACT.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY PERMITS AND INSPECTIONS WHICH ARE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY, OR LOCAL GOVERNMENT AUTHORITY.
11. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING, ETC., DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.
12. THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON PROPERTY. PREMISES SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE.
13. THE CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS, AS WELL AS THE LATEST EDITIONS OF ANY PERTINENT STATE SAFETY REGULATIONS.
14. THE CONTRACTOR SHALL NOTIFY THE T–MOBILE REPRESENTATIVE WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED BY THE T–MOBILE REPRESENTATIVE.
15. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC., ON THE JOB.
16. THE CONTRACTOR SHALL RETURN ALL DISTURBED AREAS TO THEIR ORIGINAL CONDITION AT THE COMPLETION OF WORK.

PROJECT SUMMARY

SITE NUMBER:	NY09050B	APPLICANT:	T–MOBILE NORTHEAST LLC 400 STREET RD BENSALEM, PA 19020
SITE NAME:	LEWISBORO		
SITE ADDRESS:	RT 35 LEWISBORO, NY 10590		
PROPERTY OWNER:	AT&T CO.	PROJECT MANAGER:	AMERICAN TOWER CORPORATION 319 QUARRY ROAD SPRING CITY, PA 19475
PARCEL:	SBL: 10263–62A–0040		
CURRENT ZONING:	R–4A	CONTACT:	BRUCE HOFFMASTER 484–942–6339
JURISDICTION:	TOWNSHIP OF LEWISBORO		
ATC SITE NUMBER:	88166	ARCHITECT/ENGINEER:	INFINIGY ENGINEERING 1033 WATERVLIET SHAKER ROAD ALBANY, NY 12205
LAT./LONG.:	N 41.25845503° / W –73.5345364°		
CONSTRUCTION TYPE:	L700 UPGRADE	CONTACT:	ALEX WELLER 518–690–0790

PROJECT DESCRIPTION

- ☐ EXISTING MONOPOLE
- ☒ EXISTING LATTICE TOWER
- ☐ EXISTING TRANSMISSION TOWER
- ☐ EXISTING WATER TANK
- ☐ EXISTING BUILDING
- ☐ EXISTING FLAGPOLE
- ☐ EXISTING FORT WORTH
- ☒ EXISTING CABINET(S)
- ☐ EXISTING RBS 2106
- ☒ PROPOSED RBS 6201
- ☐ EXISTING RBS 6102
- ☐ SITE SUPPORT KIT
- ☐ SITE SUPPORT CABINET
- ☒ GPS
- ☐ OUTDOOR
- ☒ INDOOR
- ☐ EXISTING CONCRETE PAD
- ☐ EXISTING STEEL PLATFORM
- ☒ EXISTING PPC
- ☐ PANELBOARD

T–MOBILE NORTHEAST LLC PROPOSES THE MODIFICATION OF AN UNMANNED WIRELESS BROADBAND FACILITY. ADDITION OF PROPOSED RBS 6201–ODE EQUIPMENT CABINET TO REPLACE EXISTING CABINETS WITHIN THE EXISTING GROUND LEASE AREA. ADDITION OF PROPOSED LTE 700 PANEL AND QUAD POLE ANTENNAS AND TMA'S TO REPLACE EXISTING PANEL ANTENNAS AND COAX. REUSE, GPS ANTENNA AND EXISTING EQUIPMENT CABINETS.

SHEET INDEX

SHEET	DESCRIPTION	REVISION
T–1	TITLE SHEET	4
C–1	SITE PLAN	4
C–2	COMPOUND PLAN & ELEVATION	4
C–3	ANTENNA DETAIL & RF SCHEDULE	4
C–4	EQUIPMENT SPECIFICATIONS	4
E–1	GROUNDING AND POWER DIAGRAMS	4
E–2	COAX/FIBER PLUMBING DIAGRAM	4
N–1	GENERAL AND ELECTRICAL NOTES	4

T-Mobile
T-MOBILE NORTHEAST LLC
400 STREET ROAD
BENSALEM, PA 19020

INFINIGY
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

SUBMITTALS

DATE	DESCRIPTION	REVISION
04/15/15	FOR PERMIT	0
05/4/15	REVISED FOR PERMIT	1
12/16/15	REVISED FOR PERMIT	2
04/15/16	REVISED FOR PERMIT	3
05/04/16	REVISED FOR PERMIT	4

DEPT.	DATE	APP'D	REVISIONS
RTE			
RF. MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO:	317-000
DRAWN BY:	JLM
CHECKED BY:	ASW

STATE OF NEW YORK
JOHN S. STEVENS
071096
LICENSED PROFESSIONAL ENGINEER
PROFESSIONAL SEAL

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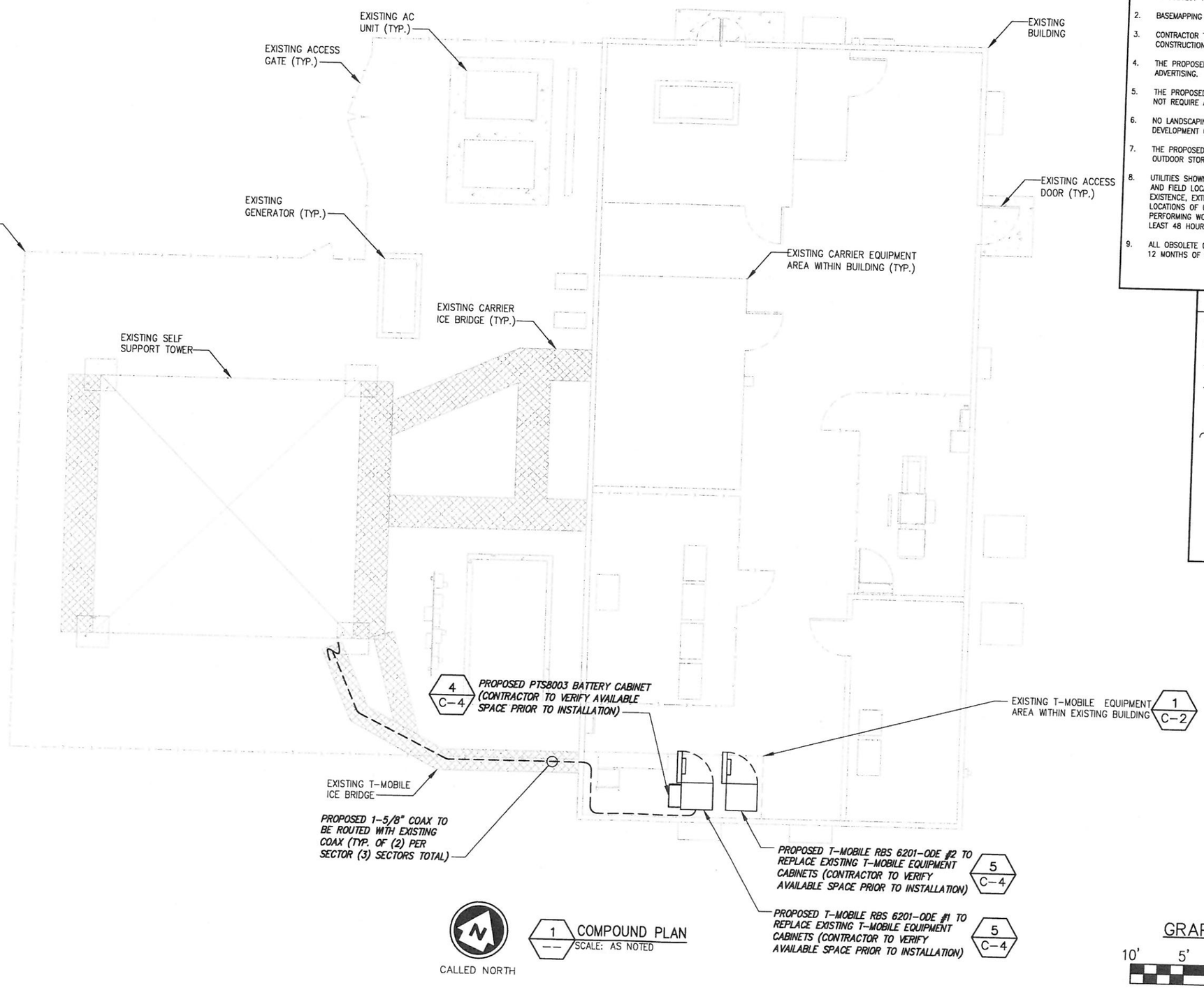
NOTE: IF DRAWINGS ARE 22"x34", USE GRAPHICAL SCALE AND/OR 1/2 TIMES OF THE NOTED SCALE.

SITE NUMBER:
NY09050B
SITE NAME:
LEWISBORO
RT 35
LEWISBORO, NY 10590

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1
SHEET 1 OF 8 SHEETS



1 -- COMPOUND PLAN
SCALE: AS NOTED

GENERAL SITE NOTES:

1. A COMPLETE BOUNDARY SURVEY OF THE HOST PARCEL HAS NOT BEEN PERFORMED BY INFINIGY. BOUNDARY INFORMATION IF SHOWN WAS OBTAINED FROM INFORMATION PROVIDED BY OTHERS. PROPERTY IS SUBJECT TO ALL EASEMENTS AND RESTRICTIONS OF RECORD.
2. BASEMAPPING INFORMATION BASED ON PROVIDED INFORMATION.
3. CONTRACTOR TO FIELD VERIFY DIMENSIONS AS NECESSARY BEFORE CONSTRUCTION.
4. THE PROPOSED DEVELOPMENT DOES NOT INCLUDE SIGNS OF ADVERTISING.
5. THE PROPOSED DEVELOPMENT IS UNMANNED AND THEREFORE DOES NOT REQUIRE A MEANS OF WATER SUPPLY OR SEWAGE DISPOSAL.
6. NO LANDSCAPING WORK IS PROPOSED IN CONJUNCTION WITH THIS DEVELOPMENT OTHER THAN THAT WHICH IS SHOWN.
7. THE PROPOSED DEVELOPMENT DOES NOT INCLUDE OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES.
8. UTILITIES SHOWN ON PLAN ARE TAKEN FROM OWNERS RECORDS AND FIELD LOCATION OF VISIBLE SURFACE FEATURES. THE EXISTENCE, EXTENT AND EXACT HORIZONTAL AND VERTICAL LOCATIONS OF UTILITIES HAS NOT BEEN VERIFIED. ANY CONTRACTOR PERFORMING WORK ON THIS SITE MUST CONTACT MISS UTILITY AT LEAST 48 HOURS PRIOR TO COMMENCING WORK.
9. ALL OBSOLETE OR UNUSED FACILITIES SHALL BE REMOVED WITHIN 12 MONTHS OF CESSATION OF OPERATIONS.

SITE LEGEND

— — —	SITE PROPERTY LINE
———	STREET OR ROAD
— x — x —	CHAIN LINK FENCE
—o—o—	OPAQUE WOODEN FENCE
	TREES/SHRUBS
	TREE LINE
	UTILITY POLE
(E)	EXISTING
(N)	NEW
(P)	PROPOSED
(F)	FUTURE

GRAPHIC SCALE

10' 5' 0 5' 10'

SCALE (11x17): 1" = 10'-0"
SCALE (22x34): 1" = 5'-0"

T-Mobile
T-MOBILE NORTHEAST LLC
400 STREET ROAD
BENSALEM, PA 19020

INFINIGY
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

SUBMITTALS		
DATE	DESCRIPTION	REVISION
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12/16/15	REVISED FOR PERMIT	2
04/15/16	REVISED FOR PERMIT	3
05/04/16	REVISED FOR PERMIT	4

DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO:	317-000
DRAWN BY:	JLM
CHECKED BY:	ASW

STATE OF NEW YORK
JOHN S. STEVENS
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LICENSED PROFESSIONAL ENGINEER

PROFESSIONAL SEAL

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SITE NUMBER:
NY09050B

SITE NAME:
LEWISBORO

RT 35
LEWISBORO, NY 10590

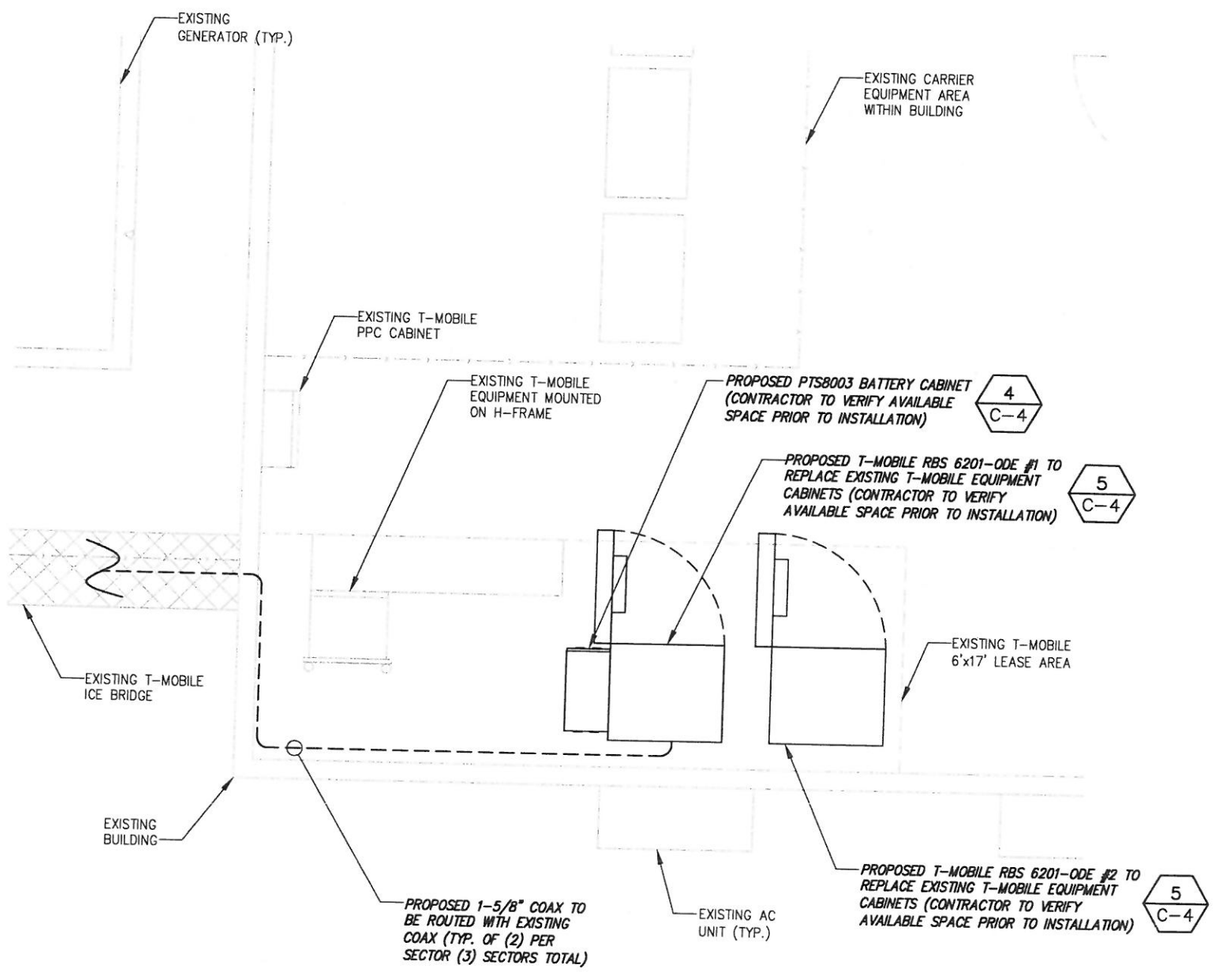
SHEET TITLE

SITE PLAN

SHEET NUMBER

C-1

SHEET 2 OF 8 SHEETS



CALLED NORTH

1 COMPOUND PLAN
-- SCALE: AS NOTED

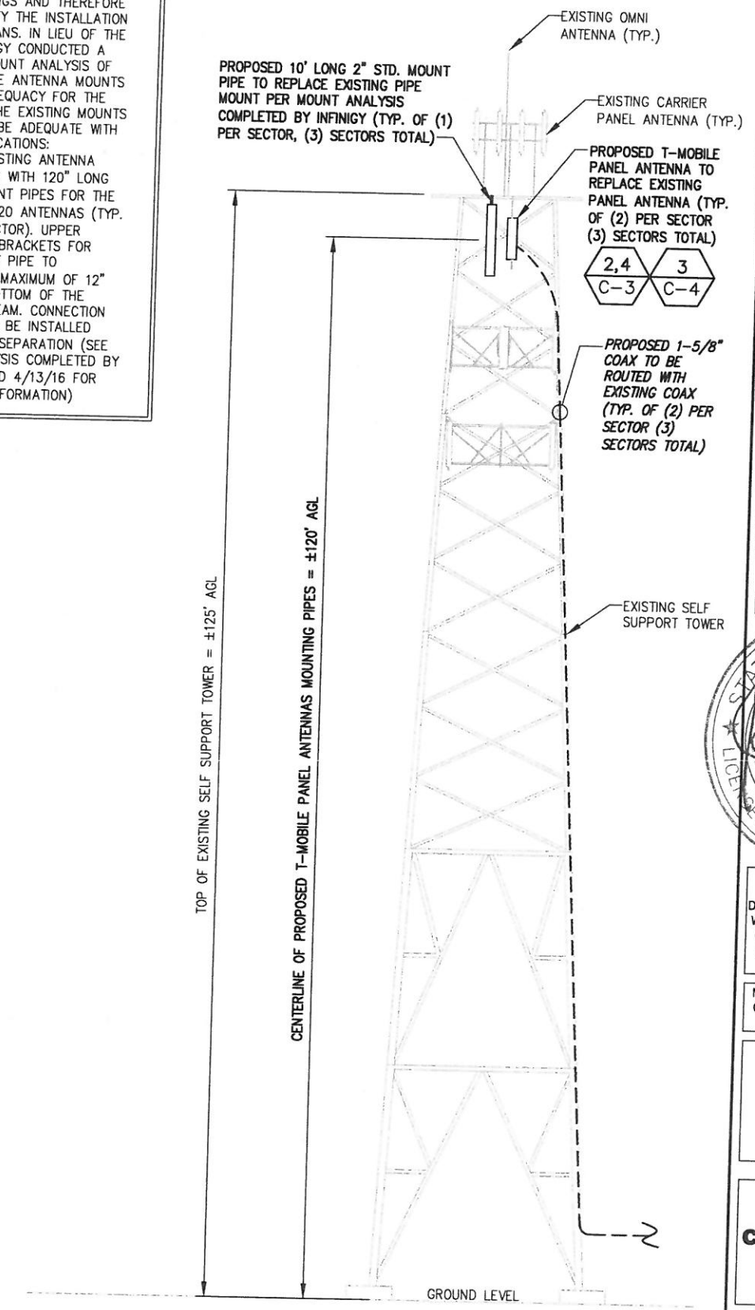
GRAPHIC SCALE

4' 2' 0 2' 4'

SCALE (11x17): 1" = 4'-0"
SCALE (22x34): 1" = 2'-0"

NOTE:
AFTER REVIEW OF THE PROVIDED PREVIOUS PROJECT CONSTRUCTION DRAWINGS, COMPLETED BY TECTONIC, DATED 3/1/02, REVISION 1, IT IS THE OPINION OF INIFNIGY THAT THE SITE WAS BUILT IN GENERAL CONFORMANCE OF THE PLANS. INFINIGY WAS UNABLE TO ACQUIRE PAGES S-1 & S-2 OF THE PREVIOUS PROJECT CONSTRUCTION DRAWINGS AND THEREFORE WAS UNABLE TO VERIFY THE INSTALLATION PER THE ORIGINAL PLANS. IN LIEU OF THE MISSING PAGES, INFINIGY CONDUCTED A MOUNT MAPPING & MOUNT ANALYSIS OF THE EXISTING T-MOBILE ANTENNA MOUNTS TO DETERMINE THE ADEQUACY FOR THE PROPOSED LOADING. THE EXISTING MOUNTS WERE DETERMINED TO BE ADEQUATE WITH THE FOLLOWING MODIFICATIONS:

- REPLACE EXISTING ANTENNA MOUNT PIPES WITH 120" LONG 2" STD. MOUNT PIPES FOR THE APXCF24-CA20 ANTENNAS (TYP. OF EACH SECTOR). UPPER CONNECTION BRACKETS FOR REPLACEMENT PIPE TO INSTALLED A MAXIMUM OF 12" FROM THE BOTTOM OF THE EXISTING I-BEAM. CONNECTION BRACKETS TO BE INSTALLED WITH 48" OF SEPARATION (SEE MOUNT ANALYSIS COMPLETED BY INFINIGY DATED 4/13/16 FOR ADDITIONAL INFORMATION)



2 TOWER ELEVATION
-- NOT TO SCALE

T-Mobile
T-MOBILE NORTHEAST LLC
400 STREET ROAD
BENSALEM, PA 19020

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1033 Watervliet Shaker Rd
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DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO:	317-000
DRAWN BY:	JLM
CHECKED BY:	ASW

STATE OF NEW YORK
JOHN S. STEVENS
071096
LICENSED PROFESSIONAL ENGINEER

PROFESSIONAL SEAL

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SITE NUMBER:
NY09050B

SITE NAME:
LEWISBORO

RT 35
LEWISBORO, NY 10590

SHEET TITLE

COMPOUND PLAN & ELEVATION

SHEET NUMBER

C-2

SHEET 3 OF 8 SHEETS

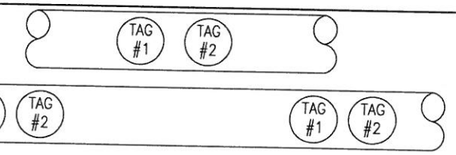
RF SYSTEM SCHEDULE (704E CONFIGURATION)

SECTOR	TECHNOLOGY	ANTENNA PORT	BAND	ANTENNA MODEL #	VENDOR	QTY (REMOVED)	QTY (NEW)	AZIMUTH	M-TILT	E-TILT	ANTENNA CENTERLINE	TMA MODEL #	VENDOR	RRU MODEL #	VENDOR	CABLE LENGTH	CABLE DIAMETER	CABLE TYPE	CABLE MODEL #	VENDOR	CABLE TAGGING	COLOR CODING	JUMPER TYPE	JUMPER TAGGING	COLOR CODING
A	GSM	TBD	B2P	APXV18_206517_C	RFS	1	0	30°	0°	0°	±120'-0"	(1) EXISTING (TO BE REMOVED)	EXISTING	–	–	(2) EXISTING	1⅝"	COAX	EXISTING	N/A	--	–	COAX	--	–
	GSM	TBD	B2P	APXV18_206517_C	RFS	1	0	30°	0°	0°	±120'-0"	(1) EXISTING (TO BE REMOVED)	EXISTING	–	–	(2) EXISTING	1⅝"	COAX	EXISTING	N/A	--	–	COAX	--	–
	GSM	**TBD**	**B2P**	**APX-16DWV**	**RFS**	**0**	**1**	**30°**	**0°**	**0°**	**±120'-0"**	**(1) ATMAA1412D -1A20**	**RFS**	**–**	**–**	(2) EXISTING	1⅝"	COAX	EXISTING	N/A	--	–	COAX	--	–
	LTE AWS	**TBD**	**B4P**									**(1) ATMAA1412D -1A20**	**RFS**	**–**	**–**	(2) EXISTING	1⅝"	COAX	EXISTING	N/A	--	–	COAX	--	–
	LTE 700	**TBD**	**B12P**	**APXVF24-C-A20**	**RFS**	**0**	**1**	**30°**	**0°**	**0°**	**±120'-0"**	–	–	–	–	**(2)±145°**	**1⅝"**	**COAX**	**TBD**	**N/A**	**LTE 700 COAX**	–	**COAX**	**LTE 700 COAX**	–
B	GSM	TBD	B2P	APXV18_206517_C	RFS	1	0	150°	0°	0°	±120'-0"	(1) EXISTING (TO BE REMOVED)	EXISTING	–	–	(2) EXISTING	1⅝"	COAX	EXISTING	N/A	--	–	COAX	--	–
	GSM	TBD	B2P	APXV18_206517_C	RFS	1	0	150°	0°	0°	±120'-0"	(1) EXISTING (TO BE REMOVED)	EXISTING	–	–	(2) EXISTING	1⅝"	COAX	EXISTING	N/A	--	–	COAX	--	–
	GSM	**TBD**	**B2P**	**APX-16DWV**	**RFS**	**0**	**1**	**150°**	**0°**	**0°**	**±120'-0"**	**(1) ATMAA1412D -1A20**	**RFS**	**–**	**–**	(2) EXISTING	1⅝"	COAX	EXISTING	N/A	--	–	COAX	--	–
	LTE AWS	**TBD**	**B4P**									**(1) ATMAA1412D -1A20**	**RFS**	**–**	**–**	(2) EXISTING	1⅝"	COAX	EXISTING	N/A	--	–	COAX	--	–
	LTE 700	**TBD**	**B12P**	**APXVF24-C-A20**	**RFS**	**0**	**1**	**150°**	**0°**	**0°**	**±120'-0"**	–	–	–	–	**(2)±145°**	**1⅝"**	**COAX**	**TBD**	**N/A**	**LTE 700 COAX**	–	**COAX**	**LTE 700 COAX**	–
C	GSM	TBD	B2P	APXV18_206517_C	RFS	1	0	280°	0°	0°	±120'-0"	(1) EXISTING (TO BE REMOVED)	EXISTING	–	–	(2) EXISTING	1⅝"	COAX	EXISTING	N/A	--	–	COAX	--	–
	GSM	TBD	B2P	APXV18_206517_C	RFS	1	0	280°	0°	0°	±120'-0"	(1) EXISTING (TO BE REMOVED)	EXISTING	–	–	(2) EXISTING	1⅝"	COAX	EXISTING	N/A	--	–	COAX	--	–
	GSM	**TBD**	**B2P**	**APX-16DWV**	**RFS**	**0**	**1**	**280°**	**0°**	**0°**	**±120'-0"**	**(1) ATMAA1412D -1A20**	**RFS**	**–**	**–**	(2) EXISTING	1⅝"	COAX	EXISTING	N/A	--	–	COAX	--	–
	LTE AWS	**TBD**	**B4P**									**(1) ATMAA1412D -1A20**	**RFS**	**–**	**–**	(2) EXISTING	1⅝"	COAX	EXISTING	N/A	--	–	COAX	--	–
	LTE 700	**TBD**	**B12P**	**APXVF24-C-A20**	**RFS**	**0**	**1**	**280°**	**0°**	**0°**	**±120'-0"**	–	–	–	–	**(2)±145°**	**1⅝"**	**COAX**	**TBD**	**N/A**	**LTE 700 COAX**	–	**COAX**	**LTE 700 COAX**	–

1 RF SYSTEM SCHEDULE
NOT TO SCALE

KEY

EXISTING	R – RED – GSM	G – GREEN – UMTS 1900
PROPOSED	B – BLUE – UMTS AWS	Y – YELLOW – LTE
FIBER CONNECTION	O – ORANGE – FIBER CABLE	



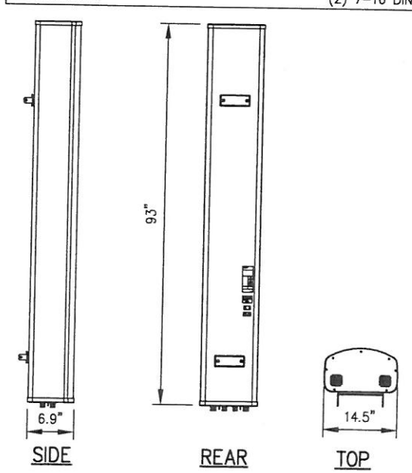
METALLIC TAG NOTES:

1. TWO METALLIC TAGS SHALL BE ATTACHED AT EACH END OF EVERY CABLE LONGER THAN (3) THREE FEET.
2. CABLES LESS THAN (3) THREE FEET WILL HAVE TWO METALLIC TAGS ATTACHED AT THE CENTER OF THE CABLE.
3. TAGS WILL BE FASTENED WITH STAINLESS STEEL ZIP TIES APPROPRIATE FOR CABLE DIAMETER.
4. STANDARDIZED METALLIC TAG KITS WILL BE ASSEMBLED WITH TAGS ALREADY ENGRAVED TO ACCOMMODATE ALL CONFIGURATIONS.

3 METALLIC TAG DETAIL
NOT TO SCALE

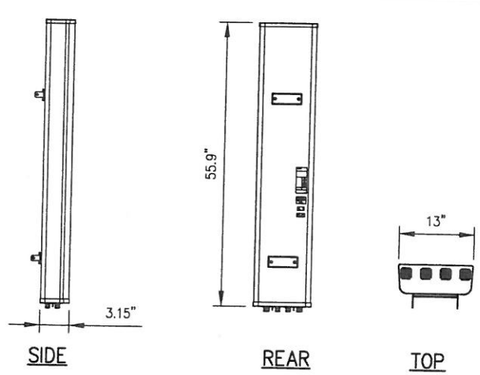
RFS MODEL NO.: APXVF24-C-A20

RADOME MATERIAL:	ASA
RADOME COLOR:	LIGHT GRAY
DIMENSIONS, HxWxD:	93"x14.5"x6.9" (2363 x 368 x 174 mm)
WEIGHT, W/	
PRE-MOUNTED BRACKETS:	50.7 LBS (23 kg)
CONNECTOR:	(2) 7-16 DIN FEMALE

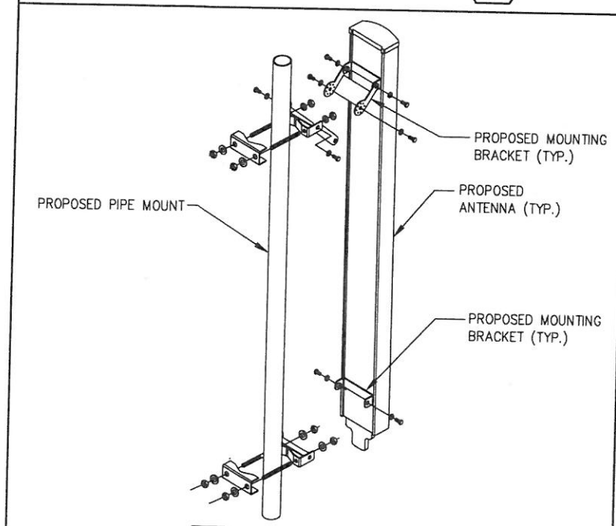


RFS MODEL NO.: APX-16DWV

RADOME MATERIAL:	FIBERGLASS
RADOME COLOR:	LIGHT GRAY
DIMENSIONS, HxWxD:	55.9"x13"x3.15" (1420 x 331 x 80 mm)
WEIGHT, W/	
PRE-MOUNTED BRACKETS:	48.4 LBS (22 kg)
CONNECTOR:	(4) 7-16 DIN FEMALE



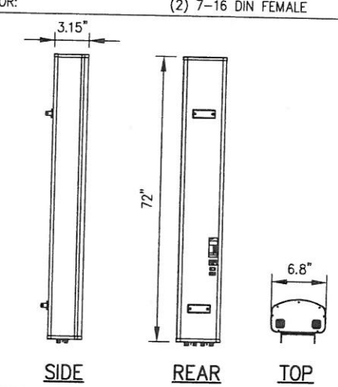
2 PROPOSED ANTENNA DETAILS
NOT TO SCALE



4 MOUNTING DETAIL
NOT TO SCALE

RFS MODEL NO.: APXV18-206517-C

RADOME MATERIAL:	FIBERGLASS
RADOME COLOR:	LIGHT GRAY
DIMENSIONS, HxWxD:	72"x6.8"x3.15" (1850 x 175 x 80 mm)
WEIGHT, W/O	
PRE-MOUNTED BRACKETS:	26.4 LBS (12 kg)
CONNECTOR:	(2) 7-16 DIN FEMALE



5 EXISTING ANTENNA DETAILS (TO BE REMOVED)
NOT TO SCALE

T-Mobile
T-MOBILE NORTHEAST LLC
400 STREET ROAD
BENSALEM, PA 19020

INFINIGY
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Albany, NY 12205
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Fax # (518) 690-0793

SUBMITTALS

DATE	DESCRIPTION	REVISION
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05/04/16	REVISED FOR PERMIT	4

DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO:	317-000
DRAWN BY:	JLM
CHECKED BY:	ASW

STATE OF NEW YORK · JOHN S. STEVENS · 071096 · LICENSED PROFESSIONAL ENGINEER

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SITE NUMBER:
NY09050B

SITE NAME:
LEWISBORO

RT 35
LEWISBORO, NY 10590

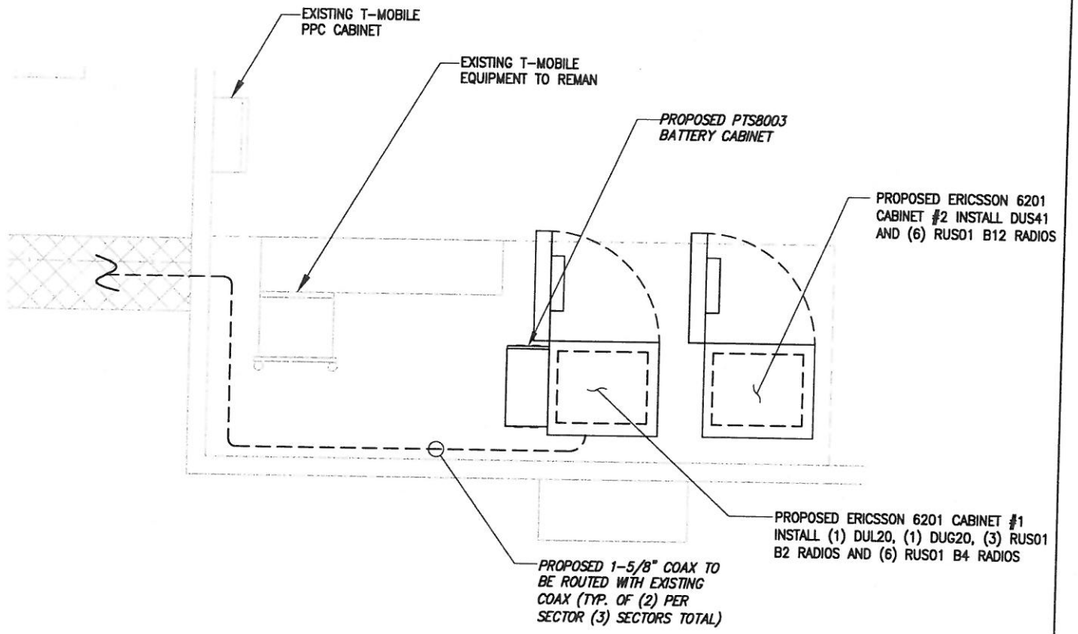
SHEET TITLE

ANTENNA DETAIL & RF SCHEDULE

SHEET NUMBER

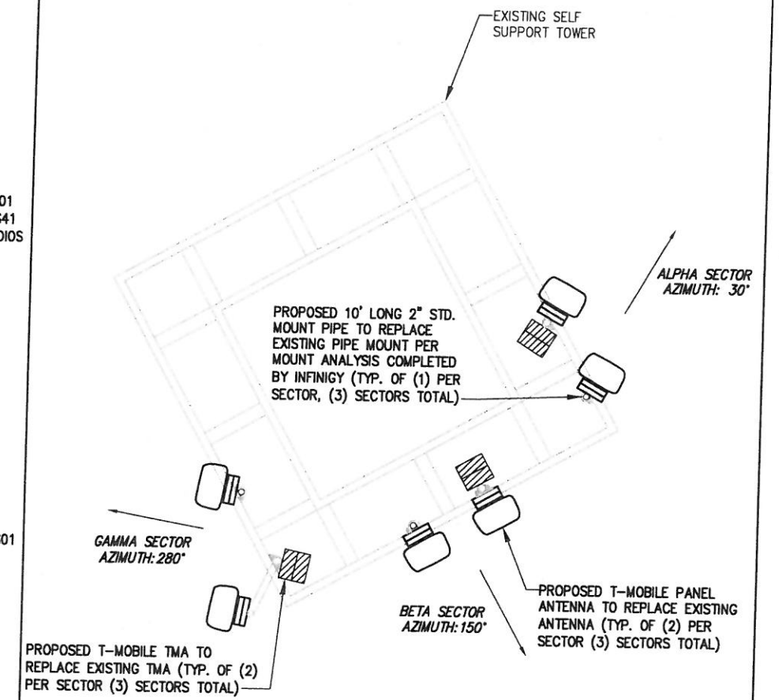
C-3

SHEET 4 OF 8 SHEETS



CALLED NORTH

1 EQUIPMENT PAD LAYOUT PLAN
NOT TO SCALE



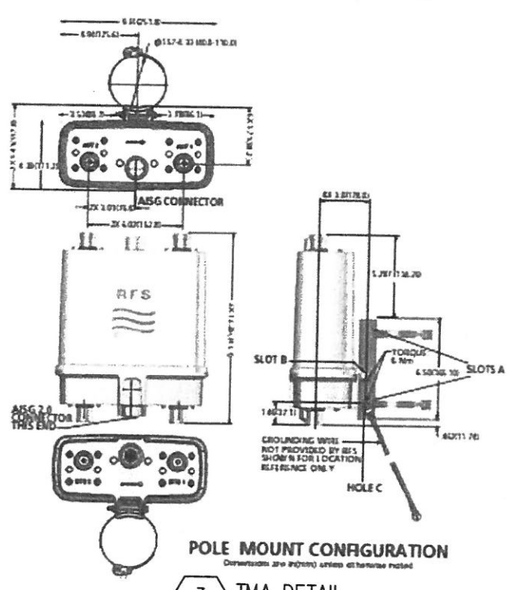
CALLED NORTH

2 ANTENNA ORIENTATION PLAN
NOT TO SCALE

STRUCTURAL NOTES:

1. SPECIFICATIONS / CODES:
   - CONCRETE WORK SHALL BE PERFORMED IN ACCORDANCE WITH LATEST EDITION OF THE ACI CODE.
   - STEEL WORK SHALL BE PERFORMED IN ACCORDANCE WITH AISC STEEL CONSTRUCTION MANUAL, 9TH EDITION.
   - WELDING SHALL BE PERFORMED IN ACCORDANCE WITH AMERICAN WELDING SOCIETY (AWS) D1.1-92 "STRUCTURAL WELDING" CODE-STEEL.
   - REINFORCING STEEL SHALL BE PLACED IN ACCORDANCE WITH THE CONCRETE REINFORCING STEEL INSTITUTE (CRSI), "MANUAL OF STANDARD PRACTICE."
2. MATERIALS:
   - CONCRETE: fc' - 3000psi. (MIN. U.N.O.)
   - REINFORCING STEEL: ASTM A615, GRADE 60.
   - WIRE MESH: ASTM A185.
   - STRUCTURAL STEEL: ASTM A36.
   - ELECTRODES FOR WELDING: E 70xx.
   - GALVANIZING: ASTM A153 (BOLTS) OR ASTM A123 (SHAPES, PLATES).
   - EXPANSION BOLTS: HILTI KWIK BOLT II, STAINLESS STEEL, 3/4"øx43/4" EMBEDMENT OR AN APPROVED EQUAL.

RFS MODEL NO.:	ATMAA1412D-1A20
DIMENSIONS, HxWxD:	12"x10"x4" (305 x 254 x 101 mm)
WEIGHT, W/ PRE-MOUNTED BRACKETS:	13 LBS
CONNECTOR:	7-16 DIN FEMALE

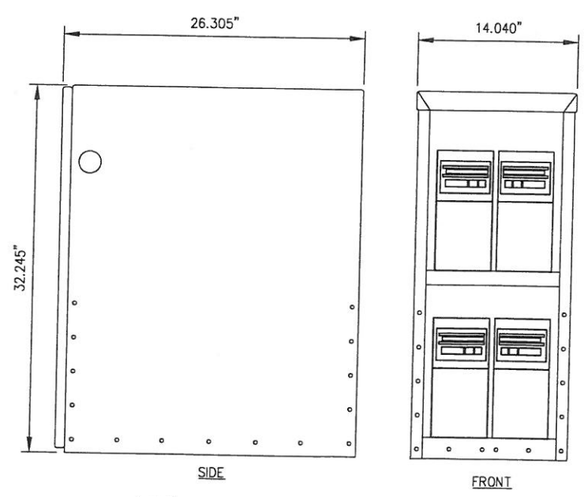


POLE MOUNT CONFIGURATION
Dimensions are inches unless otherwise noted

3 TMA DETAIL
NOT TO SCALE

PTS - PTS8003

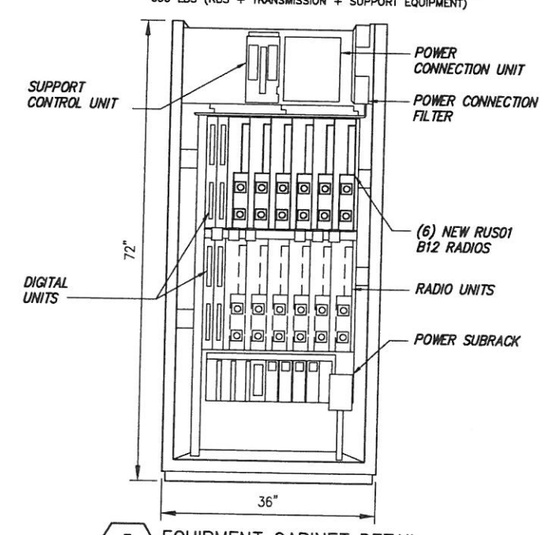
CABINET COLOR:	ALMOND POWDER COAT
DIMENSIONS (HxWxD IN):	32.245x14.040x26.305 IN
UNIT WEIGHT:	60LBS



4 BATTERY CABINET DETAIL
NOT TO SCALE

ERICSSON - RBS 6201-ODE

CABINET COLOR:	LIGHT GRAY
DIMENSIONS (HxWxD IN):	72x36x36 IN
V1 WEIGHT (FULLY EQUIPPED):	715 LBS 340 LBS (ENCLOSURE + SUPPORT) 374 LBS (RBS 6201)
V2 WEIGHT (FULLY EQUIPPED):	1100 LBS 470 LBS (ENCLOSURE + CLIMATE SYSTEM + LOAD CENTER) 630 LBS (RBS + TRANSMISSION + SUPPORT EQUIPMENT)



5 EQUIPMENT CABINET DETAIL
NOT TO SCALE

T-Mobile
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BENSALEM, PA 19020

INFINIGY
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Fax # (518) 690-0793

SUBMITTALS

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05/04/16	REVISED FOR PERMIT	4

DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO:	317-000
DRAWN BY:	JLM
CHECKED BY:	ASW

STATE OF NEW YORK
JOHN S. STEVENS
071096
LICENSED PROFESSIONAL ENGINEER
PROFESSIONAL SEAL

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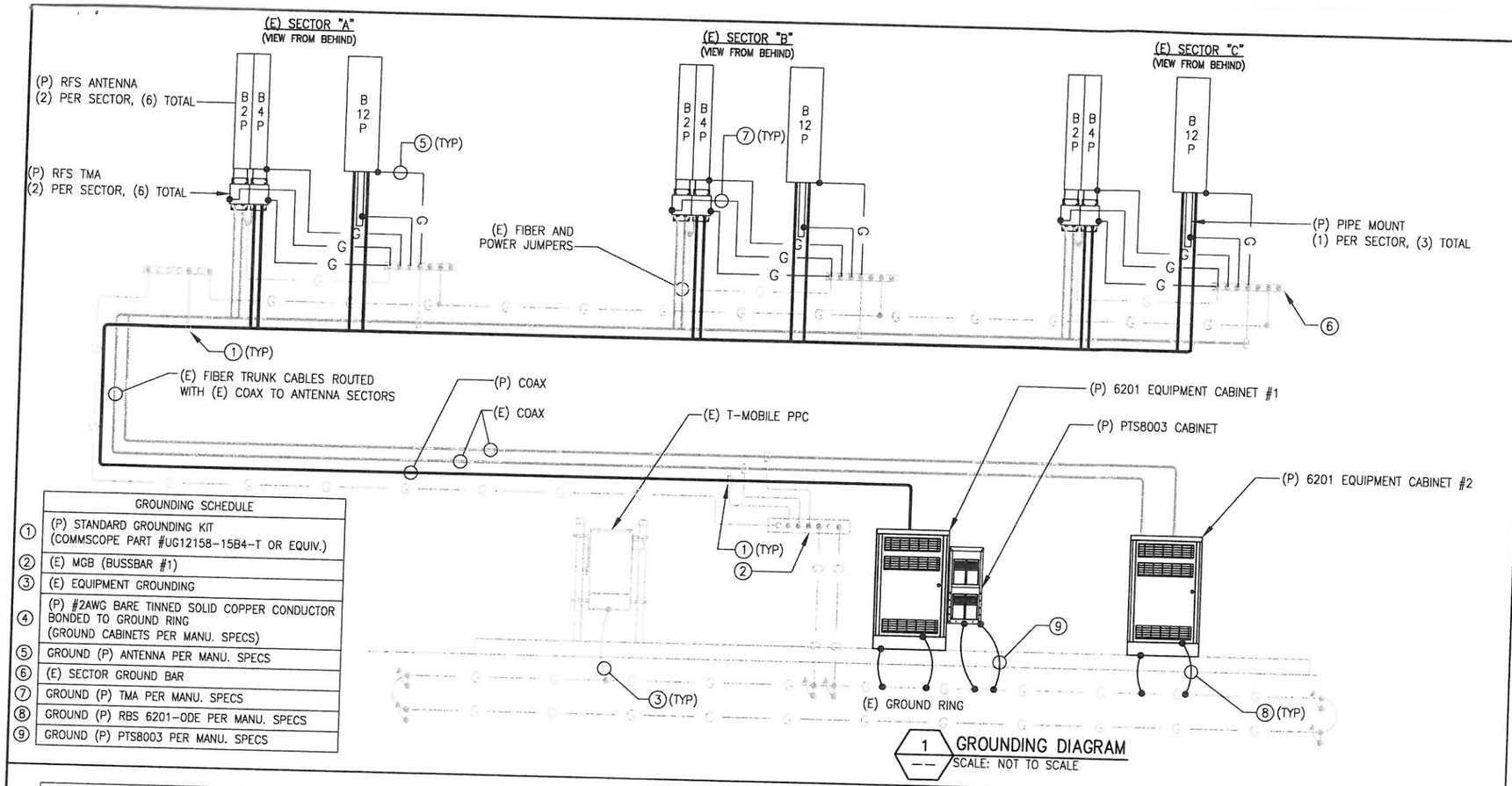
SITE NUMBER:
NY09050B

SITE NAME:
LEWISBORO
RT 35
LEWISBORO, NY 10590

SHEET TITLE
EQUIPMENT SPECIFICATIONS

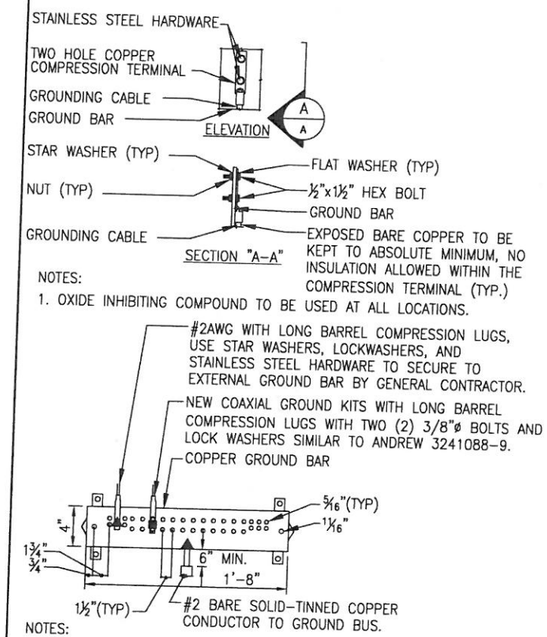
SHEET NUMBER
C-4

SHEET 5 OF 8 SHEETS



GROUNDING SCHEDULE	
1	(P) STANDARD GROUNDING KIT (COMMSCOPE PART #UG12158-15B4-T OR EQUIV.)
2	(E) MGB (BUSSBAR #1)
3	(E) EQUIPMENT GROUNDING
4	(P) #2AWG BARE TINNED SOLID COPPER CONDUCTOR BONDED TO GROUND RING (GROUND CABINETS PER MANU. SPECS)
5	GROUND (P) ANTENNA PER MANU. SPECS
6	(E) SECTOR GROUND BAR
7	GROUND (P) TMA PER MANU. SPECS
8	GROUND (P) RBS 6201-ODE PER MANU. SPECS
9	GROUND (P) PTS8003 PER MANU. SPECS

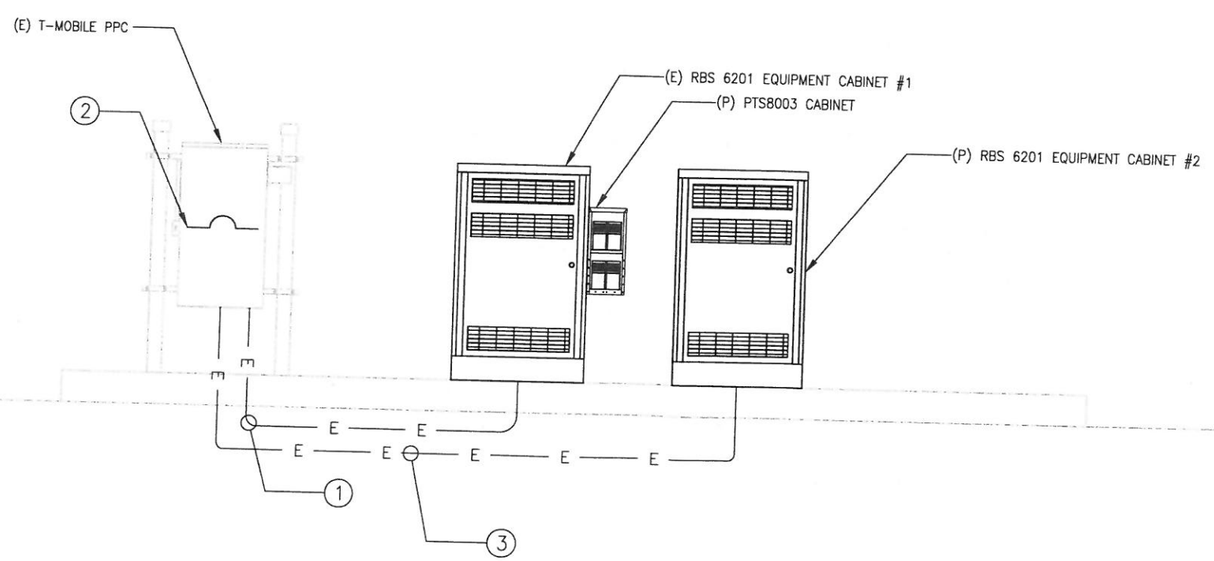
1 GROUNDING DIAGRAM
SCALE: NOT TO SCALE



NOTES:
1. ALL HARDWARE STAINLESS STEEL COAT ALL SURFACES WITH KOPR-SHIELD BEFORE MATING.
2. FOR GROUND BOND TO STEEL ONLY: INSERT A TOOTH WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH KOPR-SHIELD.
3. ALL HOLES ARE COUNTERSUNK 1/16".

2 GROUND BAR CONNECTION DETAILS
SCALE: NOT TO SCALE

CONDUIT SCHEDULE	
1	(P) UPGRADE WIRE FOR 100A BREAKER
2	(P) 60A BREAKER TO REPLACE EXISTING BREAKER
3	(P) POWER CONDUIT PER MANU. SPECS



3 POWER DIAGRAM
SCALE: NOT TO SCALE

CONTRACTOR NOTE:
CONTRACTOR TO VERIFY THAT THE EXISTING CONDUITS AND WIRE SIZES ARE ADEQUATE FOR THE PROPOSE LOADING IN ACCORDANCE WITH NEC AND INCLUDE ELECTRICAL UPGRADES IN THE SCOPE OF WORK AS REQUIRED.

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SITE AC.			

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SITE NUMBER:
NY09050B

SITE NAME:
LEWISBORO

RT 35
LEWISBORO, NY 10590

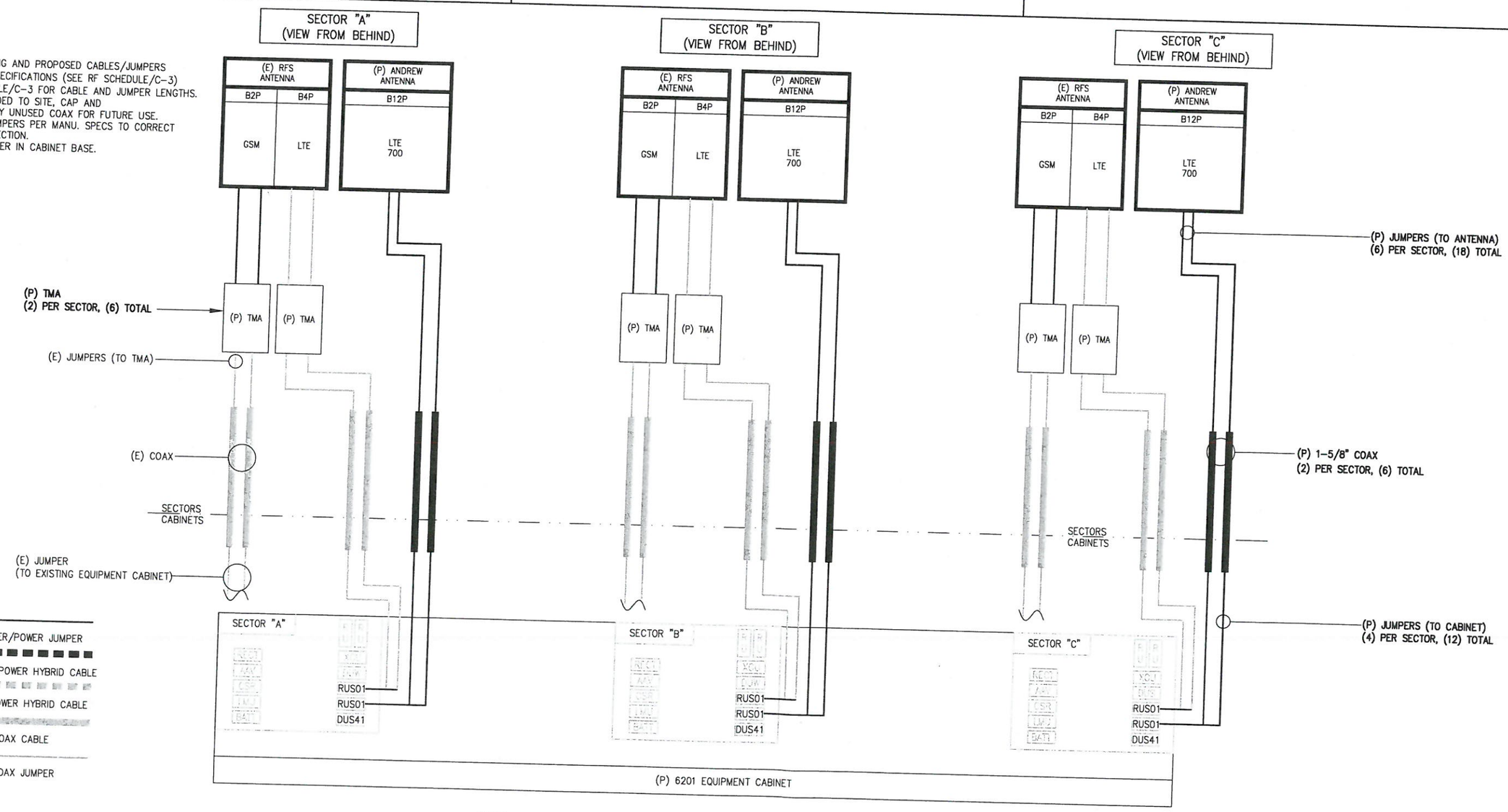
SHEET TITLE
GROUNDING & POWER DIAGRAMS

SHEET NUMBER
E-1

SHEET 6 OF 8 SHEETS

NOTES:

1. TAG ALL EXISTING AND PROPOSED CABLES/JUMPERS PER T-MOBILE SPECIFICATIONS (SEE RF SCHEDULE/C-3)
2. SEE RF SCHEDULE/C-3 FOR CABLE AND JUMPER LENGTHS.
3. IF NEW GPS ADDED TO SITE, CAP AND WEATHERPROOF ANY UNUSED COAX FOR FUTURE USE.
4. TRIM POWER JUMPERS PER MANU. SPECS TO CORRECT LENGTH FOR CONNECTION.
5. COIL EXCESS FIBER IN CABINET BASE.



1 704E CONFIGURATION COAX/FIBER PLUMBING DIAGRAM
NOT TO SCALE

T-Mobile

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400 STREET ROAD
BENSALEM, PA 19020

INFINIGY

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RT 35
LEWISBORO, NY 10590

SHEET TITLE

COAX/FIBER PLUMBING DIAGRAM

SHEET NUMBER

E-2

SHEET 7 OF 8 SHEETS

ELECTRICAL NOTES:

WORK INCLUDED

1. INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, PLANT SERVICES AND ADMINISTRATIVE TASKS REQUIRED TO COMPLETE AND MAKE OPERABLE THE ELECTRICAL WORK SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
   - A. PREPARE AND SUBMIT SHOP DRAWINGS, DIAGRAMS AND ILLUSTRATIONS.
   - B. PROCURE ALL NECESSARY PERMITS AND APPROVALS AND PAY ALL REQUIRED FEES AND CHARGES IN CONNECTION WITH THE WORK OF THIS CONTRACT.
   - C. SUBMIT AS-BUILT DRAWINGS, OPERATING AND MAINTENANCE INSTRUCTIONS AND MANUALS.
   - D. EXECUTE ALL CUTTING, DRILLING, ROUGH AND FINISH PATCHING OF EXISTING OR NEWLY INSTALLED CONSTRUCTION REQUIRED FOR THE WORK OF THIS CONTRACT. FOR SLAB PENETRATIONS THROUGH POST TENSION SLABS, X-RAY EXACT AREA OF PENETRATION PRIOR TO PERFORMING WORK. COORDINATE ALL X-RAY WORK WITH BUILDING ENGINEER.
   - E. PROVIDE HANGERS, SUPPORTS, FOUNDATIONS, STRUCTURAL FRAMING SUPPORTS, AND BASES FOR CONDUIT AND EQUIPMENT PROVIDED OR INSTALLED UNDER THE WORK OF HIS CONTRACT. PROVIDE COUNTER FLASHING, SLEEVES AND SEALS FOR FLOOR AND WALL PENETRATIONS.
   - F. MAINTAIN ALL EXISTING ELECTRICAL SERVICES IN THE BUILDING AREAS NOT AFFECTED BY THE ALTERATION DURING THE PROGRESS OF THE WORK INCLUDING PROVIDING ALL TEMPORARY JUMPERS, CONDUITS, CAPS, PROTECTIVE DEVICES, CONNECTIONS AND EQUIPMENT REQUIRED. PROVIDE TEMPORARY LIGHT AND POWER FOR CONSTRUCTION PURPOSES.
2. IT IS THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS TO CALL FOR AN INSTALLATION THAT IS COMPLETE IN EVERY RESPECT. IT IS NOT THE INTENT TO GIVE EVERY DETAIL ON THE DRAWINGS AND IN THE SPECIFICATIONS. IF AN ITEM OF WORK IS INDICATED IN THE DRAWINGS, IT IS CONSIDERED SUFFICIENT FOR INCLUSION IN THE CONTRACT. FURNISH AND INSTALL ALL MATERIAL AND EQUIPMENT USUALLY FURNISHED OR NEEDED TO MAKE A COMPLETE INSTALLATION WHETHER OR NOT SPECIFICALLY MENTIONED IN THE CONTRACT DOCUMENTS.

GENERAL REQUIREMENTS

1. PROVIDE ALL WORK IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND LOCAL AND STATE ELECTRICAL CODES.
2. THE ELECTRICAL PLANS ARE DIAGRAMMATIC ONLY. REFER TO THE ARCHITECTURAL PLANS FOR THE EXACT DIMENSIONS OF THE BUILDING.
3. LOAD CALCULATIONS ARE BASED ON EXISTING BUILDING INFORMATION/DRAWINGS PROVIDED TO ENGINEERING. CONTRACTOR IS TO VERIFY ALL EXISTING RATINGS AND LOADS PRIOR TO PURCHASING OF SPECIFIED EQUIPMENT FOR COMPLIANCE TO NEC. CONTRACTOR TO NOTIFY ENGINEER OF ANY DISCREPANCIES AND REQUEST FURTHER DIRECTION BY ENGINEER.
4. EXISTING BUILDING EQUIPMENT IS NOTED ON THE DRAWINGS. NEW OR RELOCATED EQUIPMENT IS SHOWN WITH SOLID LINES. FUTURE EQUIPMENT (NOT IN THIS CONTRACT) IS DEPICTED WITH SHADED LINES. REQUEST CLARIFICATION OF DRAWINGS OR OF SPECIFICATIONS PRIOR TO PRICING OR INSTALLATION.
5. GENERAL
   - A. AFTER CAREFULLY STUDYING THE DRAWINGS AND SPECIFICATIONS, AND BEFORE SUBMITTING THE PROPOSAL, MAKE A MANDATORY SITE VISIT TO ASCERTAIN CONDITIONS OF THE SITE, AND THE NATURE AND EXACT QUANTITY OF WORK TO BE PERFORMED. NO EXTRA COMPENSATION WILL BE ALLOWED FOR FAILURE TO NOTIFY THE OWNER, IN WRITING, OF ANY DISCREPANCIES THAT MAY HAVE BEEN NOTED BETWEEN THE EXISTING CONDITIONS AND THE DRAWINGS AND SPECIFICATIONS.
   - B. VERIFY ALL MEASUREMENTS AT THE SITE AND BE RESPONSIBLE FOR CORRECTNESS OF SAME.
6. QUALITY, WORKMANSHIP, MATERIALS AND SAFETY
   - A. PROVIDE NEW MATERIALS AND EQUIPMENT OF A DOMESTIC MANUFACTURER BY THOSE REGULARLY ENGAGED IN THE PRODUCTION AND MANUFACTURE OF SPECIFIED MATERIALS AND EQUIPMENT. WHERE UL, OR OTHER AGENCY, HAS ESTABLISHED STANDARDS FOR MATERIALS, PROVIDE MATERIALS WHICH ARE LISTED AND LABELED ACCORDINGLY. THE COMMERCIALLY STANDARD ITEMS OF EQUIPMENT AND THE SPECIFIC NAMES MENTIONED HEREIN ARE INTENDED FOR THE PROPER FUNCTIONING OF THE WORK.
   - B. WORK SHALL BE PERFORMED BY WORKMEN SKILLED IN THE TRADE REQUIRED FOR THE WORK. INSTALL MATERIALS AND EQUIPMENT TO PRESENT A NEAT APPEARANCE WHEN COMPLETED AND IN ACCORDANCE WITH THE APPROVED RECOMMENDATIONS OF THE MANUFACTURER AND IN ACCORDANCE WITH CONTRACT DOCUMENTS.
   - C. PROVIDE LABOR, MATERIALS, APPARATUS AND APPLIANCES ESSENTIAL TO THE FUNCTIONING OF THE SYSTEMS DESCRIBED OR INDICATED HEREIN, OR WHICH MAY BE REASONABLY IMPLIED AS ESSENTIAL WHENEVER MENTIONED IN THE CONTRACT DOCUMENT OR NOT.
   - D. MAKE WRITTEN REQUESTS FOR SUPPLEMENTARY INSTRUCTIONS TO ARCHITECT/ENGINEER IN CASE OF DOUBT AS TO WORK INTENDED OR IN EVENT OF NEED FOR EXPLANATION THEREOF.
   - E. PERFORMANCE AND MATERIAL REQUIREMENTS SCHEDULED OR SPECIFIED ARE MINIMUM STANDARD ACCEPTABLE. THE RIGHT TO JUDGE THE QUALITY OF EQUIPMENT THAT DEVIATES FROM THE CONTRACT DOCUMENT REMAINS SOLELY WITH ARCHITECT/ENGINEER. CONTRACT DOCUMENT OR NOT.

GUARANTEE

1. GUARANTEE MATERIALS, PARTS AND LABOR FOR WORK FOR ONE YEAR FROM THE DATE OF ISSUANCE OF OCCUPANCY PERMIT. DURING THAT PERIOD, MAKE GOOD FAULTS OR IMPERFECTIONS THAT MAY ARISE DUE TO DEFECTS OR OMISSIONS IN MATERIALS OR WORKMANSHIP WITH NO ADDITIONAL COMPENSATION AND AS DIRECTED BY ARCHITECT.

CLEANING

1. REMOVE ALL CONSTRUCTION DEBRIS RESULTING FROM THE WORK.
2. CLEAN EQUIPMENT AND SYSTEMS FOLLOWING THE COMPLETION OF THE PROJECT TO THE SATISFACTION OF THE ENGINEER.

COORDINATION AND SUPERVISION

1. CAREFULLY LAY OUT ALL WORK IN ADVANCE TO AVOID UNNECESSARY CUTTING, CHANNELING, CHASING OR DRILLING OF FLOORS, WALLS, PARTITIONS, CEILINGS OR OTHER SURFACES. WHERE SUCH WORK IS NECESSARY, HOWEVER, PATCH AND REPAIR THE WORK IN AN APPROVED MANNER BY SKILLED MECHANICS AT NO ADDITIONAL COST TO THE OWNER. RENDER FULL COOPERATION TO OTHER TRADES WHERE WORK WILL BE INSTALLED IN CLOSE PROXIMITY TO WORK OF OTHER TRADES. ASSIST IN WORKING OUT SPACE CONDITIONS. IF WORK IS INSTALLED BEFORE COORDINATION WITH OTHER TRADES, OR CAUSES INTERFERENCE, MAKE CHANGES NECESSARY TO CORRECT CONDITIONS WITHOUT EXTRA CHARGE.

SUBMITTALS

1. AS-BUILT DRAWINGS:
   - A. UPON COMPLETION OF THE WORK, FURNISH TO THE OWNER "AS-BUILT" DRAWINGS.
2. SERVICE MANUALS:
   - A. UPON COMPLETION OF THE WORK, FULLY INSTRUCT T-MOBILE AS TO THE OPERATION AND MAINTENANCE OF ALL MATERIAL, EQUIPMENT AND SYSTEMS.
   - B. PROVIDE 3 COMPLETE BOUND SETS OF INSTRUCTIONS FOR OPERATING AND MAINTAINING ALL SYSTEMS AND EQUIPMENT.

CUTTING AND PATCHING

1. PROVIDE ALL CUTTING, DRILLING, ROUGH AND FINISH PATCHING REQUIRED TO COMPLETE THE WORK.
2. OBTAIN OWNER APPROVAL PRIOR TO CUTTING THROUGH FLOORS OR WALLS FOR PIPING OR CONDUIT.

TESTS, INSPECTION AND APPROVAL

1. BEFORE ENERGIZING ANY ELECTRICAL INSTALLATION, INSPECT EACH UNIT IN DETAIL. TIGHTEN ALL BOLTS AND CONNECTIONS (TORQUE-TIGHTEN WHERE REQUIRED) AND DETERMINE THAT ALL COMPONENTS ARE ALIGNED, AND THE EQUIPMENT IS IN SAFE, OPERATIONAL CONDITION.
2. PROVIDE THE COMPLETE ELECTRICAL SYSTEM FREE OF GROUND FAULTS AND SHORT CIRCUITS SUCH THAT THE SYSTEM WILL OPERATE SATISFACTORILY UNDER FULL LOAD CONDITIONS, WITHOUT EXCESSIVE HEATING AT ANY POINT IN THE SYSTEM.

SPECIAL REQUIREMENTS

1. DO NOT LEAVE ANY WORK INCOMPLETE NOR ANY HAZARDOUS SITUATIONS CREATED WHICH WILL AFFECT THE LIFE OR SAFETY OF THE PUBLIC AND/OR BUILDING OCCUPANTS. DO NOT INTERFERE WITH OR CUTOFF ANY OF THE EXISTING SERVICES WITHOUT THE OWNER'S WRITTEN PERMISSION.
2. WHEN NECESSARY TO TEMPORARILY DISCONNECT ANY EXISTING BUILDING UTILITIES AND SERVICE SYSTEMS, INCLUDING FEEDER OR BRANCH CIRCUITING SUPPLYING EXISTING FACILITIES, CONFER WITH THE OWNER AND ARRANGE THE PERIOD OF INTERRUPTION FOR A TIME MUTUALLY AGREED UPON. SHUTDOWN NOTE: SCHEDULE AND NOTIFY OWNER 48 HOURS PRIOR TO SHUTDOWN. ALL SHUTDOWN WORK TO BE SCHEDULED AT A TIME CONVENIENT TO OWNER.

GROUNDING

1. ROUTE ALL GROUNDING CONDUCTORS AS SHOWN ON CONDUIT/GROUNDING RISER.
2. ROUTE 500 KCMIL CU. THHN CONDUCTOR FROM THE MGB LOCATION TO BUILDING STEEL. VERIFY BUILDING STEEL IS EFFECTIVELY GROUNDED PER NEC TO THE MAIN SERVICE GROUNDING ELECTRODE CONDUCTOR (GEC).
3. MAKE ALL GROUND CONNECTIONS FROM MGB TO ELECTRICAL EQUIPMENT WITH 2 HOLE, CRIMP TYPE, BURNDY COMPRESSION TERMINATIONS, SIZED AS REQUIRED.
4. USE 1 HOLE, CRIMP TYPE, BURNDY COMPRESSIONS TERMINATIONS, SIZED AS REQUIRED, AT EQUIPMENT GROUND CONNECTIONS.
5. HIRE AN INDEPENDENT LAB TO PERFORM THE SPECIFIED OHMS TESTING. PROVIDE 4 SETS OF THE CERTIFIED DOCUMENTS TO THE OWNER FOR VERIFICATION PRIOR TO THE PROJECT COMPLETION.

RACEWAYS

1. ALL WIRING TO BE INSTALLED IN CONDUIT SYSTEMS IN ACCORDANCE WITH THE FOLLOWING:
   - A. EXTERIOR FEEDERS AND CONTROL, WHERE UNDERGROUND, TO BE IN SCH 40 PVC.
   - B. EXTERIOR, ABOVE GROUND POWER CONDUITS TO BE GALVANIZED RIGID STEEL (RGS).
   - C. ALL TELECOMMUNICATION CONDUITS, INTERIOR/EXTERIOR, TO BE EMT.
   - D. INSTALL PULL ROPES IN ALL NEW EMPTY CONDUITS INSTALLED ON THIS PROJECT.
   - E. ALL TELECOM CONDUITS AND PULL BOXES INSTALLED ON THIS PROJECT TO BE LABELED "T-MOBILE". OWNER WILL PROVIDE LABELS FOR CONTRACTOR TO INSTALL.
   - F. INTERIOR FEEDERS TO BE INSTALLED IN E.M.T. WITH STEEL COMPRESSION FITTINGS.
   - G. MINIMUM SIZE CONDUIT TO BE ¾" TRADE SIZE UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
   - H. FINAL CONNECTIONS TO MOTORS AND VIBRATING EQUIPMENT TO BE INSTALLED IN LIQUID-TIGHT FLEXIBLE METAL CONDUIT.
   - I. CONDUIT TO BE RUN CONCEALED IN CEILINGS, FINISHED AREAS OR DRYWALL PARTITIONS, UNLESS OTHERWISE NOTED.
   - J. THE ROUTING OF CONDUITS INDICATED ON THE DRAWINGS IS DIAGRAMMATIC. BEFORE INSTALLING ANY WORK, EXAMINE THE WORKING LAYOUTS AND SHOP DRAWINGS OF THE OTHER TRADES TO DETERMINE THE EXACT LOCATIONS AND CLEARANCES.
   - K. ALL EXTERIOR MOUNTING HARDWARE TO BE GALVANIZED STEEL. COORDINATE WITH BUILDING ENGINEER PRIOR TO ATTACHING TO BUILDING STRUCTURE.

RACEWAYS CONT'D

   - L. PENETRATIONS OF WALLS, FLOORS AND ROOFS, FOR THE PASSAGE OF ELECTRICAL RACEWAYS, TO BE PROPERLY SEALED AFTER INSTALLATION OF RACEWAYS SO AS TO MAINTAIN THE STRUCTURAL OR WATERPROOF INTEGRITY OF THE WALL, FLOOR OR ROOF SYSTEM TO BE PENETRATED. SEAL ALL CONDUIT PENETRATIONS THROUGH FIRE OR SMOKE RATED WALLS, CEILINGS OR SMOKE TIGHT CORRIDOR PARTITIONS TO MAINTAIN PROPER RATING OF WALL OR CEILING.
   - M. PROVIDE ALL CONDUIT ENDS WITH INSULATED METALLIC GROUNDING BUSHINGS.
   - N. CONDUIT TO BE SUPPORTED AT MAXIMUM DISTANCE OF 8'-0", OR AS REQUIRED BY NEC, IN HORIZONTAL AND VERTICAL DIRECTIONS.
   - O. PROVIDE STAINLESS STEEL BLANK COVER PLATES FOR ALL JUNCTION BOXES AND/OR OUTLET BOXES NOT USED IN EXPOSED AREAS. PROVIDE ALL OTHER UNUSED BOXES WITH STANDARD STEEL COVER PLATES.
   - P. WHERE APPLICABLE, PROVIDE ROOFTOP CONDUIT SUPPORT SYSTEM, CONFORMING TO ROOFTOP WARRANTY REQUIREMENTS, PER BUILDING.

WIRES AND CABLES

1. CONTRACTOR TO COORDINATE WITH EQUIPMENT SUPPLIER AND VENDOR FOR EXACT EQUIPMENT OVER-CURRENT PROTECTION VOLTAGE, WIRE SIZE AND PLUG CONFIGURATION, IF APPLICABLE, PRIOR TO BID.
2. ALL EQUIPMENT/DEVICES TO BE PROVIDED WITH INSULATED GROUND CONDUCTOR.
3. ALL WIRE AND CABLE TO BE 600VOLT, COPPER, WITH THWN/THHN INSULATION, EXCEPT AS NOTED.
4. WIRE FOR POWER AND LIGHTING WILL NOT BE LESS THAN NO. 12AWG. ALL WIRE NO. 8 AND LARGER TO BE STRANDED.
5. CONTROL WIRING IS NOT TO BE LESS THAN NO. 14AWG, FLEXIBLE IN SINGLE CONDUCTORS OR MULTI-CONDUCTOR CABLES. CONTROL WIRING WILL CONSIST OF MULTI-CONDUCTOR CABLES WHEREVER POSSIBLE. CABLES TO BE PROVIDED WITH AN OVERALL FLAME-RETARDANT, EXTRUDED JACKET AND RATED FOR PLENUM USE. ALL CONTROL WIRE TO BE 600VOLT RATED.
6. WIRE PREVIOUSLY PULLED INTO CONDUIT IS CONSIDERED USED AND IS NOT TO BE RE-PULLED.
7. HOME RUNS AND BRANCH CIRCUIT WIRING FOR 20A, 120V CIRCUITS:

LENGTH (FT.)	HOME RUN WIRE SIZE
0 TO 50	NO. 12
51 TO 100	NO. 10
101 TO 150	NO. 8

8. VOLTAGE DROP IS NOT TO EXCEED 3%.
9. MAKE ALL CONNECTIONS WITH UL APPROVED, SOLDERLESS, PRESSURE TYPE INSULATED CONNECTORS: SCOTCHLOK OR AND APPROVED EQUAL.

WIRING DEVICES

1. ALL RECEPTACLES INSTALLED IN THIS PROJECT TO BE GROUNDING TYPE, WITH GROUNDING PIN SLOT CONNECTED TO DEVICE GROUND SCREW FOR GROUND WIRE CONNECTION.

DISCONNECT SWITCHES AND FUSES

1. DISCONNECT SWITCHES TO BE VOLTAGE-RATED TO SUIT THE CHARACTERISTICS OF THE SYSTEM FROM WHICH THEY ARE SUPPLIED.
2. PROVIDE HEAVY-DUTY, METAL-ENCLOSED, EXTERNALLY-OPERATED DISCONNECT SWITCHES, FUSED OR UNFUSED, OF SUCH TYPE AND SIZE AS REQUIRED TO PROPERLY PROTECT OR DISCONNECT THE LOAD FOR WHICH THEY ARE INTENDED.
3. PROVIDE NEMA 1 DISCONNECT SWITCHES FOR INTERIOR INSTALLATION, NEMA 3R FOR EXTERIOR INSTALLATION.
4. DISCONNECT SWITCHES TO BE MANUFACTURED BY:
   - A. GENERAL ELECTRIC COMPANY
   - B. SQUARE-D
5. PROVIDE RK-1 TYPE FUSES, UNLESS NOTED OTHERWISE.

INSTALLATION

1. INSTALL DISCONNECT SWITCHES WHERE INDICATED ON DRAWINGS.
2. INSTALL FUSES IN FUSIBLE DISCONNECT SWITCHES. FUSES MUST MATCH IN TYPE AND RATING.
3. FUSES TO BE MOUNTED SO THAT THE LABELS SHOWING THEIR RATINGS CAN BE READ WITHOUT REQUIRING FUSE REMOVAL.
4. FURNISH AND DEPOSIT SPARE FUSES AT THE JOB SITE AS FOLLOWS:
   - A. THREE SPARES FOR EACH TYPE AND SIZE, IN EXCESS OF 60A, USED FOR INITIAL FUSING.
   - B. TEN PERCENT SPARES FOR EACH TYPE AND SIZE, UP TO AND INCLUDING 60A, USED FOR INITIAL FUSING. IN NO CASE WILL LESS THAN THREE FUSES OF ONE PARTICULAR TYPE AND SIZE BE FURNISHED.

GENERAL NOTES:

INTENT

1. THESE SPECIFICATIONS AND CONSTRUCTION DRAWINGS ACCOMPANYING THEM DESCRIBE THE WORK TO BE DONE AND THE MATERIALS TO BE FURNISHED FOR CONSTRUCTION.
2. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO BE FULLY EXPLANATORY AND SUPPLEMENTARY. HOWEVER, SHOULD ANYTHING BE SHOWN, INDICATED, OR SPECIFIED ON ONE AND NOT THE OTHER, IT SHALL BE DONE THE SAME AS IF SHOWN, INDICATED OR SPECIFIED IN BOTH
3. THE INTENTION OF THE DOCUMENTS IS TO INCLUDE ALL LABOR AND MATERIALS REASONABLY NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK AS STIPULATED IN THE CONTRACT.
4. THE PURPOSE OF THE SPECIFICATIONS IS TO INTERPRET THE INTENT OF THE DRAWINGS AND TO DESIGNATE THE METHOD OF THE PROCEDURE, TYPE AND QUALITY OF MATERIALS REQUIRED TO COMPLETE THE WORK.
5. MINOR DEVIATIONS FROM THE DESIGN LAYOUT ARE ANTICIPATED AND SHALL BE CONSIDERED AS PART OF THE WORK. NO CHANGES THAT ALTER THE CHARACTER OF THE WORK WILL BE MADE OR PERMITTED BY THE OWNER WITHOUT ISSUING A CHANGE ORDER.

CONFLICTS

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATIONS OF ALL MEASUREMENTS AT THE SITE BEFORE ORDERING ANY MATERIALS OR DOING ANY WORK. NO EXTRA CHARGE OR COMPENSATION SHALL BE ALLOWED DUE TO DIFFERENCE BETWEEN ACTUAL DIMENSIONS AND DIMENSIONS INDICATED ON THE CONSTRUCTION DRAWINGS. ANY SUCH DISCREPANCY IN DIMENSION WHICH MAY BE FOUND SHALL BE SUBMITTED TO THE OWNER FOR CONSIDERATION BEFORE THE CONTRACTOR PROCEEDS WITH THE WORK IN THE AFFECTED AREAS.
2. THE BIDDER, IF AWARDED THE CONTRACT, WILL NOT BE ALLOWED ANY EXTRA COMPENSATION BY REASON OF ANY MATTER OR THING CONCERNING SUCH BIDDER MIGHT HAVE FULLY INFORMED THEMSELVES PRIOR TO THE BIDDING.
3. NO PLEA OF IGNORANCE OF CONDITIONS THAT EXIST, OR OF DIFFICULTIES OR CONDITIONS THAT MAY BE ENCOUNTERED, OR OF ANY OTHER RELEVANT MATTER CONCERNING THE WORK TO BE PERFORMED IN THE EXECUTION OF THE WORK WILL BE ACCEPTED AS AN EXCUSE FOR ANY FAILURE OR OMISSION ON THE PART OF THE CONTRACTOR TO FULFILL EVERY DETAIL OF ALL THE REQUIREMENTS OF THE CONTRACT DOCUMENTS GOVERNING THE WORK.

CONTRACTS AND WARRANTIES

1. CONTRACTOR IS RESPONSIBLE FOR APPLICATION AND PAYMENT OF CONTRACTOR LICENSES AND BONDS.
2. SEE MASTER CONTRACTION SERVICES AGREEMENT FOR ADDITIONAL DETAILS.

STORAGE

1. ALL MATERIALS MUST BE STORED IN A LEVEL AND DRY FASHION AND IN A MANNER THAT DOES NOT NECESSARILY OBSTRUCT THE FLOW OF OTHER WORK. ANY STORAGE METHOD MUST MEET ALL RECOMMENDATIONS OF THE ASSOCIATED MANUFACTURER.

CLEANUP

1. THE CONTRACTORS SHALL, AT ALL TIMES, KEEP THE SITE FREE FROM ACCUMULATION OF WASTE MATERIALS OR RUBBISH CAUSED BY THEIR EMPLOYEES AT WORK AND AT THE COMPLETION OF THE WORK. THEY SHALL REMOVE ALL RUBBISH FROM AND ABOUT THE BUILDING AREA, INCLUDING ALL THEIR TOOLS, SCAFFOLDING AND SURPLUS MATERIALS AND SHALL LEAVE THEIR WORK CLEAN AND READY TO USE.
2. EXTERIOR
   - A. VISUALLY INSPECT EXTERIOR SURFACES AND REMOVE ALL TRACES OF SOIL, WASTE MATERIALS, SMUDGES AND OTHER FOREIGN MATTER.
   - B. REMOVE ALL TRACES OF SPLASHED MATERIALS FROM ADJACENT SURFACES.
   - C. IF NECESSARY, TO ACHIEVE A UNIFORM DEGREE OF CLEANLINESS, HOSE DOWN THE EXTERIOR OF THE STRUCTURE.
3. INTERIOR
   - A. VISUALLY INSPECT INTERIOR SURFACE AND REMOVE ALL TRACES OF SOIL, WASTE MATERIALS, SMUDGES AND OTHER FOREIGN MATTER FROM WALLS, FLOOR, AND CEILING.
   - B. REMOVE ALL TRACES OF SPLASHED MATERIALS FROM ADJACENT SURFACES.
   - C. REMOVE PAINT DROPPINGS, SPOTS, STAINS, AND DIRT FROM FINISHED SURFACES.

CHANGE ORDER PROCEDURE:

1. REFER TO SECTION 17 OF SIGNED MCSA: SEE PROFESSIONAL SERVICE AGREEMENT FOR MCSA.

RELATED DOCUMENTS AND COORDINATION

1. GENERAL CARPENTRY, ELECTRICAL AND ANTENNA DRAWINGS ARE INTERRELATED. IN PERFORMANCE OF THE WORK, THE CONTRACTOR MUST REFER TO ALL DRAWINGS. ALL COORDINATION TO BE THE RESPONSIBILITY OF THE CONTRACTOR.

SHOP DRAWINGS

1. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AS REQUIRED AND LISTED IN THESE SPECIFICATIONS TO THE OWNER FOR APPROVAL.
2. ALL SHOP DRAWINGS SHALL BE REVIEWED, CHECKED AND CORRECTED BY CONTRACTOR PRIOR TO SUBMITTAL TO THE OWNER.

PRODUCTS AND SUBSTITUTIONS

1. SUBMIT 3 COPIES OF EACH REQUEST FOR SUBSTITUTION. IN EACH REQUEST, IDENTIFY THE PRODUCT OR FABRICATION OR INSTALLATION METHOD TO BE REPLACED BY THE SUBSTITUTION. INCLUDE RELATED SPECIFICATION SECTION AND DRAWING NUMBERS AND COMPLETE DOCUMENTATION SHOWING COMPLIANCE WITH THE REQUIREMENTS FOR SUBSTITUTIONS.
2. SUBMIT ALL NECESSARY PRODUCT DATA AND CUT SHEETS WHICH PROPERLY INDICATE AND DESCRIBE THE ITEMS, PRODUCTS AND MATERIALS BEING INSTALLED. THE CONTRACTOR SHALL, IF DEEMED NECESSARY BY THE OWNER, SUBMIT ACTUAL SAMPLES TO THE OWNER FOR APPROVAL IN LIEU OF CUT SHEETS.

QUALITY ASSURANCE

1. ALL WORK SHALL BE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS. THESE SHALL INCLUDE, BUT NOT BE LIMITED TO THE APPLICABLE CODES SET FORTH BY THE LOCAL GOVERNING BODY. SEE "CODE COMPLIANCE" T-1.

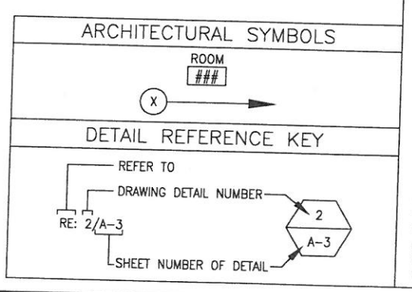
ADMINISTRATION

1. BEFORE THE COMMENCEMENT OF ANY WORK, THE CONTRACTOR WILL ASSIGN A PROJECT MANAGER WHO WILL ACT AS A SINGLE POINT OF CONTACT FOR ALL PERSONNEL INVOLVED IN THIS PROJECT. THIS PROJECT MANAGER WILL DEVELOP A MASTER SCHEDULE FOR THE PROJECT WHICH WILL BE SUBMITTED TO THE OWNER PRIOR TO THE COMMENCEMENT OF ANY WORK.
2. SUBMIT A BAR TYPE PROGRESS CHART, NOT MORE THAN 3 DAYS AFTER THE DATE ESTABLISHED FOR COMMENCEMENT OF THE WORK ON THE SCHEDULE, INDICATING A TIME BAR FOR EACH MAJOR CATEGORY OR UNIT OF WORK TO BE PERFORMED AT THE SITE, PROPERLY SEQUENCED AND COORDINATED WITH OTHER ELEMENTS OF WORK AND SHOWING COMPLETION OF THE WORK SUFFICIENTLY IN ADVANCE OF THE DATE ESTABLISHED FOR SUBSTANTIAL COMPLETION OF THE WORK.
3. PRIOR TO COMMENCING CONSTRUCTION, THE OWNER SHALL SCHEDULE AN ON-SITE MEETING WITH ALL MAJOR PARTIES. THIS WOULD INCLUDE, BUT NOT LIMITED TO, THE OWNER, PROJECT MANAGER, CONTRACTOR, LAND OWNER REPRESENTATIVE, LOCAL TELEPHONE COMPANY, TOWER ERECTION FOREMAN (IF SUBCONTRACTED).
4. CONTRACTOR SHALL BE EQUIPPED WITH SOME MEANS OF CONSTANT COMMUNICATIONS, SUCH AS A MOBILE PHONE OR A BEEPER. THIS EQUIPMENT WILL NOT BE SUPPLIED BY THE OWNER, NOR WILL WIRELESS SERVICE BE ARRANGED.
5. DURING CONSTRUCTION, CONTRACTOR MUST ENSURE THAT EMPLOYEES AND SUBCONTRACTORS WEAR HARD HATS AT ALL TIMES. CONTRACTOR WILL COMPLY WITH ALL WPCS SAFETY REQUIREMENTS IN THEIR AGREEMENT.
6. PROVIDE WRITTEN DAILY UPDATES ON SITE PROGRESS TO THE OWNER.
7. COMPLETE INVENTORY OF CONSTRUCTION MATERIALS AND EQUIPMENT IS REQUIRED PRIOR TO START OF CONSTRUCTION.
8. NOTIFY THE OWNER/PROJECT MANAGER IN WRITING NO LESS THAN 48 HOURS IN ADVANCE OF CONCRETE POURS, TOWER ERECTIONS, AND EQUIPMENT CABINET PLACEMENTS.

INSURANCE AND BONDS

1. CONTRACTOR, AT THEIR OWN EXPENSE, SHALL CARRY AND MAINTAIN, FOR THE DURATION OF THE PROJECT, ALL INSURANCE, AS REQUIRED AND LISTED, AND SHALL NOT COMMENCE WITH THEIR WORK UNTIL THEY HAVE PRESENTED AN ORIGINAL CERTIFICATE OF INSURANCE STATING ALL COVERAGES TO THE OWNER. REFER TO THE MASTER AGREEMENT FOR REQUIRED INSURANCE LIMITS.
2. THE OWNER SHALL BE NAMED AS AN ADDITIONAL INSURED ON ALL POLICIES.
3. CONTRACTOR MUST PROVIDE PROOF OF INSURANCE.

ARCHITECTURAL SYMBOLS



ABBREVIATIONS

ADJ	ADJUSTABLE
AGL	ABOVE GROUND LINE
&	AND
APPROX	APPROXIMATE
@	AT
BTS	BASE TRANSMISSION STATION
CAB	CABINET
CLG	CEILING
CONC	CONCRETE
CONT	CONTINUOUS
DIA OR ø	DIAMETER
DWG	DRAWING
EA	EACH
ELEC	ELECTRICAL
ELEV	ELEVATION
EQ	EQUAL
EQUIP	EQUIPMENT
EGB	EQUIPMENT GROUND BAR
(E)	EXISTING
EXT	EXTERIOR
FF	FINISHED FLOOR
GA	GAUGE
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GRND	GROUND
LG	LONG
MAX	MAXIMUM
MECH	MECHANICAL
MW	MICROWAVE DISH
MFR	MANUFACTURER
MGB	MASTER GROUND BAR
MIN	MINIMUM
MTL	METAL
(N)	NEW
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OC	ON CENTER
OPP	OPPOSITE
(P)	PROPOSED
PCS	PERSONAL COMMUNICATION SYSTEM
PPC	POWER PROTECTION CABINET
SF	SQUARE FOOT
SHT	SHEET
SIM	SIMILAR
SS	STAINLESS STEEL
STL	STEEL
TOC	TOP OF CONCRETE
TOM	TOP OF MASONRY
TYP	TYPICAL
VIF	VERIFY IN FIELD
UON	UNLESS OTHERWISE NOTED
WWF	WELDED WIRE FABRIC
W/	WITH

T-Mobile

T-MOBILE NORTHEAST LLC
400 STREET ROAD
BENSALEM, PA 19020

INFINIGY
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

SUBMITTALS

DATE	DESCRIPTION	REVISION
04/15/15	FOR PERMIT	0
05/4/15	REVISED FOR PERMIT	1
12/16/15	REVISED FOR PERMIT	2
04/15/16	REVISED FOR PERMIT	3
05/04/16	REVISED FOR PERMIT	4

DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO:	317-000
DRAWN BY:	JLM
CHECKED BY:	ASW

STATE OF NEW YORK
JOHN S. STEVENS
071096
LICENSED PROFESSIONAL ENGINEER
PROFESSIONAL SEAL

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NOTE: IF DRAWINGS ARE 22"x34", USE GRAPHICAL SCALE AND/OR 1/2 TIMES OF THE NOTED SCALE.

SITE NUMBER:
NY09050B

SITE NAME:
LEWISBORO

RT 35
LEWISBORO, NY 10590

SHEET TITLE

GENERAL AND ELECTRICAL NOTES

SHEET NUMBER

N-1

SHEET 8 OF 8 SHEETS

Ciorsdan Conran

From: alan.cole <colea@bestweb.net>
Sent: Friday, July 22, 2016 12:15 PM
To: Carl S Grossman
Cc: Ciorsdan Conran; NEIL BERMAN; TED SOHONYAY; Thomas LoBosco
Subject: RE: T-Mobile at Leon Levy - Lewisboro

Ditto.

On Jul 22, 2016 11:35 AM, "Carl Grossman" <carl@carlgrossman.com> wrote:

I'm in accord and don't see any issue with it.

From: TED SOHONYAY [mailto:tedsohonyay@yahoo.com]
Sent: Thursday, July 21, 2016 2:13 PM
To: Ciorsdan Conran <Planning@lewisborogov.com>; 'Alan Cole' <colea@bestweb.net>; Carl Grossman <carl@carlgrossman.com>; 'Neil Berman' <nsberman@msn.com>; 'Thomas LoBosco' <TLoBosco@usthq.com>
Subject: Re: T-Mobile at Leon Levy - Lewisboro

All,

This appears to be a typical equipment upgrade, as the evolving technologies require. There is actually no increase in site elevation.

As has been previously submitted by the AAB, we recommend a "fast tracking" for the application in that the work and equipment involved is typical for site maintenance and/or equipment upgrade which has no visual/aesthetic effect on the environment.

AAB members, please offer further comment, if you like, to all or privately.

Regards,

Ted Sohonyay, Chair

Lewisboro Antenna Advisory Board

From: Ciorsdan Conran <Planning@lewisborogov.com>
To: 'Alan Cole' <colea@bestweb.net>; Carl Grossman <carl@carlgrossman.com>; 'Neil Berman' <nsberman@msn.com>; 'Ted Sohonyay' <tedsohonyay@yahoo.com>; 'Thomas LoBosco' <TLoBosco@usthq.com>
Sent: Friday, July 15, 2016 10:34 AM
Subject: FW: T-Mobile at Leon Levy - Lewisboro

Good morning AAB members-

Attached please find an application for an antenna upgrade at Leon Levy; it will probably go on the Planning Board's August 16th agenda.

Please send me your comments and I hope you all enjoy the weekend,

Ciorsdan

From: Cara Bonomolo [mailto:CBonomolo@snyderlaw.net]
Sent: Monday, July 11, 2016 2:43 PM
To: Ciorsdan Conran
Subject: RE: T-Mobile at Leon Levy - Lewisboro

Pursuant to your request, attached is a pdf copy of the application.

Cara M. Bonomolo

Snyder & Snyder, LLP
94 White Plains Road
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DeLalla & Associates, LLC.
LANDSCAPE ARCHITECTS

July 19, 2016

Mr. Jerome Kerner
Chairman, Planning Board
Cross River Shopping Center @
Orchard Square
Suite L/Lower Level
Cross River, NY 10518

Re: Popoli/Sicuranza Subdivision
NYS Route 35
South Salem, NY 10590
(Sheet 40, Block 10552, Lots 3, 4 & 5)

Dear Mr. Kerner,

I am writing to request an additional 90 day extension of time until December 5, 2016, for the Final Subdivision Plat Approval granted by the Planning Board on December 8, 2009. The applicants have signed a contract to sell the property to a group interested in installing the private road and building homes on the five undeveloped lots. The applicants have indicated that they are still waiting to finalize the agreement with the bank and will need additional time to complete the process. Therefore we are requesting the application be placed on the next agenda of Planning Board to consider this request.

Please do not hesitate to contact me if you have any questions or require any additional information.

Sincerely,

James A. DeLalla, RLA

Cc: Mr. Pat Popoli
Mr. Angelo Sicuranza
Michael Sirignano Esq.

Landscape Architecture ◇ Site Design ◇ Environmental Planning ◇ Land Development Consulting
30 Old Quarry Road, Suite 203 ◇ Ridgefield, CT 06877 ◇ Tel: 203-431-2112 ◇ Fax: 203-431-2442

EXPANDED ENVIRONMENTAL ASSESSMENT

SEQR Full Environmental Assessment Form (EAF) and Supplemental Studies

Application of Wilder Balter Partners, Inc.
for Site Plan, Wetlands Permit and Stormwater Permit

WB Lewisboro Affordable Housing
Route 22
Town of Lewisboro, New York

A
WILDER BALTER PARTNERS, INC.
570 Taxter Road, Elmsford, New York, 10523
Contact: John Bainlardi
(914) 347-3333

r E r
INSITE ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.
3 Garrett Place,Carmel, New York 10512
Contact: Jeff Contelmo, PE
(845) 225-9690

E r r
TIM MILLER ASSOCIATES, INC.
10 North Street, Cold Spring, New York 10516
Contact: Frederick P. Wells, RLA
(845) 265-4400

Revised August 9, 2016

Application of Wilder Balter Partners, Inc.
for Site Plan Approval, Wetlands Permit, Stormwater Permit
to Town of Lewisboro Planning Board

EXPANDED ENVIRONMENTAL ASSESSMENT

SEQR Full Environmental Assessment Form (EAF) and Supplemental Studies

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1.0 INTRODUCTION

2.0 FULL ENVIRONMENTAL ASSESSMENT FORM (EAF)

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1.0 INTRODUCTION

Wilder Balter Partners, Inc. (the *"Project Sponsor" or* "Applicant"), proposes to develop a 46 unit affordable residential community on a 35.4 acre site located on NYS Route 22 in the western portion of the Town of Lewisboro, Westchester County, New York. The development site is *within the Goldens Bridge postal district and* located ~~south of the Hamlet of Goldens Bridge~~ approximately three-quarters of a mile south of Route 138 and *one mile south of* the Goldens Bridge train station. The location of the site is shown on Figures 2-1 and 2-2. The site is currently vacant wooded land and is not served by public water or sewer service.

This Expanded Environmental Assessment Form (EAF) evaluates a focused scope of potential environmental impacts for the Proposed Action, based upon the evaluation process and questions found in the Full Environmental Assessment Form, and "EAF Workbooks" prepared by the NYSDEC.

This Expanded EAF is prepared in accordance with Section 8-0101 of the New York State Environmental Conservation Law and the regulations promulgated by the New York State Department of Environmental Conservation (NYSDEC) thereunder, which appear at 6NYCRR Part 617 (known as the New York State Environmental Quality Review Act, SEQRA, or SEQR).

This document includes the EAF form Parts 1, 2 and supplemental information as Part 3. Part 1 of the EAF Form provides project details and its environmental setting. Part 2 of the EAF Form identifies potential project impacts by category, such as surface water, aesthetic resources and transportation. The EAF Part 2 was initially prepared by the ~~p~~*P*roject ~~s~~*S*ponsor and was then reviewed and modified by the lead agency, the Town of Lewisboro Planning Board. The Part 2 contained in this document was approved by the lead agency on May 17, 2016.

The Part 3 evaluations provided in this Expanded EAF provide background information, technical studies and analyses of the potential impact categories as may result from the development. *The evaluation are based upon materials provided by the Project Sponsor, its professional consultants and submissions from the lead agency's consultants.* Part 3 also identifies ~~the mitigation~~*proposed* measures that are ~~proposed (~~integral to the project design *which will mitigate,*~~) to~~ minimize or avoid the identified impacts as relates to the magnitude and importance of potential impacts. The Part 3 evaluations have been modified based upon the lead agency approved Part 2 and comments received from the lead agency. The Part 3 sections and evaluations are further described below.

<u>Development Purpose, Needs, and Benefits</u>

The proposed development will provide ~~needed~~ AFFH affordable rental apartments in a portion of the Town where multi-family residential is permitted~~. and in close proximity to mass transit and major transportation routes.~~ The proposed affordable rental ~~community~~ *units* will add to the Town's housing inventory and *expand affordable housing opportunities within the community*~~fill a specific housing need~~.

The development will comply with Westchester County's fair and affordable housing programs and policies, including the Westchester County Fair and Affordable Implementation Plan. The proposed development will assist the County in meeting its court mandated obligation to complete 750 affordable AFFH units with financing and building permits in place by December 31, 2016. The proposed AFFH apartments will also count towards the Town of Lewisboro's substantially unmet "fair share obligation" to create 239 units of affordable housing as

established by the County's Affordable Housing Allocation Plan (2000-2015). Funding for the development will include programs provided by Westchester County and NYSHCR.

.

The ~~design of the~~ proposed buildings will be ~~an attractive addition to the neighborhood,~~ set back from NYS Route 22*.* ~~with appropriately scaled architecture and landscaping that will be compatible with its residential and mixed-use setting.~~ The size, scale and architecture for the proposed residential buildings will be similar to a recently completed ~~and well-received~~ multi-family affordable development in North Salem, New York named Bridleside, which community serves as the Applicant's vision for the proposed action.

Objectives of the Applicant

The Applicant's proposal intends to accomplish the following:

- To provide affordable rental housing opportunities in an area of the Town zoned for and ~~well~~ suited to support such land use, especially its location in *relation*~~close proximity~~ to mass transportation and shopping opportunities *within the I-684, Route 22 and Route 138 interchange area in* ~~(~~Goldens Bridge~~)~~.
- To create an ~~attractive~~ residential development ~~that takes advantage of~~*in accordance with* the recent changes in the Town Code to allow multi-family housing in the CC-20 zoning district, and a development that is compatible *with surrounding land uses and those permitted by the Town Code in the CC-20 district.*~~with the character of the community and the long-range plans for the area.~~
- To minimize the environmental impacts of the development by locating the development on the western portion of the property on the most level and suitable areas of the property. The eastern portion of the site (Parcel 40.2-2-5), is proposed to be permanently preserved through the use of restrictive covenants and/or conservation easements.

The Applicant, Wilder Balter Partners, Inc. *("WBP")* is a ~~leading~~ developer of ~~award-winning new~~ residential developments in the New York metropolitan area. WBP companies have built market rate and affordable communities throughout the Hudson Valley, in Connecticut and in Nassau and Suffolk counties in Long Island for 25 years. WB Residential Communities, Inc. (WBRES) is the property management affiliate of ~~Wilder Balter Partners~~*WBP*. This group successfully manages and oversees 32 WBP developed properties with more than 3,200 apartments located in New York, Connecticut and the US Virgin Islands.

<u>Site Location and Environmental Setting</u>

Property Location

The development site is located on the east side of NYS Route 22*,* ~~and~~ immediately east of Interstate 684 *and*~~. The site is located~~ approximately three-quarters of a mile south of Route 138*.* ~~and *approximately one mile from* the Goldens Bridge Metro North train station.~~ The subject property is bounded on the north and east by vacant land, to the south by low density residential properties and on the west by NYS Route 22. Interstate 684 lies directly west of NYS Route 22 and the highway parallel the Metro North rail line. The Croton Reservoir, part of the New York City water supply system, lies approximately 550 feet west of the site.

The development site is located approximately one mile from the Goldens Bridge *Metro North* train station (*5,540 feet walking distance* as measured from *proposed* Building 2*).*~~), and approximately 0.7 miles from the closest taxi service in Goldens Bridge.~~ The Goldens Bridge Post Office is approximately 0.8 miles north of the development site and is also located in Goldens Bridge. *The closest taxi service to the site is based in Katonah, approximately 2.5 miles from the project site.*[1] *A telecommunications facility and tower, which operates pursuant to a permit issued by the Planning Board, is located directly across Route 22 from the development site (520 feet from proposed Building 2).*

Route 22 provides the only road frontage to the subject property. The site is comprised of three tax lots.

Environmental Setting

The ~~subject property~~*development site* is located within an area of low density residential development, undeveloped land and transportation uses, as shown in Figure 2-2 Aerial Photo. The land uses in the area are predominantly low density residential, although the western portion of the property is located in the CC-20 Campus Commercial zoning district. This district is located along the Route 22 corridor, approximately three-quarters mile south of the Goldens Bridge Village Center.

The topographic setting of the property includes an east-west trending rocky hill which slopes towards lower elevations to the north, west, south and east. Elevations on the property range from 208 feet in the wetlands in the southwest portion of the site to 450 feet at the hilltop in the north central portion of the site. Steep slopes, consisting of slopes greater than 15 % are located on the slopes of the hill and many upland portions of the property. Steep slopes comprise approximately 67 percent of the subject site (23.8 acres).

The property is currently undeveloped with the exception of two water supply wells that were installed in the 1980's as part of an earlier proposed development that was never completed. The site is primarily wooded with second growth successional forest on upland portions of the site and mapped wetlands are located in the southeastern portion of the property. A small intermittent stream runs through the middle of the wetland. The wetlands are regulated by the Town of Lewisboro, the NYSDEC (Wetland F-29) and by the U.S. Army Corps of Engineers. Based upon mapping by the NYSDEC the property is not part of or adjacent to any designated significant natural community or state listed Critical Environmental Area.

The site is serviced by electric, telephone and cable service from private utilities on Route 22. No municipal water or sewer services are available to the site.

<u>Development Description, Proposed Uses, and Layout</u>

Building Layout and Design

The proposed residential development will include five (5) multi-family buildings serviced by a single 24-foot wide access driveway. Development is concentrated in upland areas in the western portion of the property. Each of the five buildings will contain between 8 and 10 residential units and one building (Building 2) will *also* contain a community *meeting and recreation* space (clubhouse *for project residents' use*). *The size of the clubhouse space is*

[1] *The taxi fare from the site to Goldens Bridge train station is approximately $5.00 according to Katonah Taxi Service.*

proposed to be ~~*determined*~~*+2,500 sf and will include a social meeting room, computer room, exercise rooms, kitchenette and restroom.* The layout plan is provided as Figure 2-3 and full sized drawings are attached. The buildings were located to minimize grading and site disturbance to the extent necessary on a property that has varied topography and areas of exposed bedrock. The buildings, driveways and parking areas were situated to make use of more level portions of the site and minimize disturbance to slopes.

Parking and driveway access for emergency vehicles is provided at the front of all buildings and additional parking is provided at the west side of Buildings 2 and 3, to take advantage of the difference in elevations from the front to the back of the Buildings. A traffic circle with a full radius of 65 feet is provided between Buildings 4 and 5 to allow for emergency vehicles to circulate through the development. In addition to the community space in Building 2, a children's play area is proposed between Buildings 2 and 3 and a multi-purpose sports court is provided next to Building 5. *These recreation facilities will be available for the project residents' use and not for the general public.* Sidewalks will link all of the buildings, parking and play areas. *The locations of trash and recyclables receptacle enclosures are shown on the Layout Plan. Arrangements for collection of recyclables will occur along with the trash disposal by private carting at the project sponsor's expense.*

Given the natural slopes on the property, *the building designs will facilitate a grade change from front to back, with retaining walls between Buildings 2 through 5.*~~development will require retaining walls south of Buildings 3 and 4 and between Buildings 4 and 5.~~ *The location and elevation of the retaining walls have been designed to minimize their visibility, while preserving their functional integrity. Portions of the buildings and retaining walls, as well as light poles and lighting in the development will be partially visible to drivers on Route 22 and from Exit 6A, with new landscaping providing mitigation of direct views of the development (see further description in Section 3.6 Aesthetic Impacts).* Two stormwater management basins are located south of the residential development, at lower elevations where stormwater naturally flows. A graded driveway will be provided for maintenance access to the stormwater management basins. *Due to the topography, the stormwater basins will not be visible to drivers on Route 22 or Exit 6A.*

The residential development will be fully landscaped with vegetation that is common to the northeast.

Compliance with Zoning Code

The ~~subject property~~*development site* lies in two Town zoning districts: the two westerly lots are located in the CC-20 zoning district and the easterly lot is located in the R-4A zoning district. The proposed residential development is proposed for the two westerly lots in the CC-20 district, while the eastern lot is proposed to be permanently preserved through the use of restrictive covenants and/or conservation easements. A portion of the community septic system will *be placed*~~need to be constructed~~ on the easterly lot (R-4A district), but no structures or impervious surface *will be constructed or sited on this portion of the property*. The proposed action will include a lot consolidation to result in a single tax lot for the entire property, replacing the three existing lots.

The site plans developed for this affordable housing application show and tabulate the various zoning requirements of the CC-20 and R-4A districts applicable to the property, including the new reference to the provisions for multi-family dwellings which are found in the R-MF requirements.

Multi-family dwellings are a permitted use in the CC-20 district, subject to the requirements of Section 220-26, Multifamily Residence District (R-MF), of the Zoning Code. The dimension and bulk zoning requirements of the R-MF district replace those of the underlying CC-20 district. The proposed plan meets all of the dimension and bulk requirements of the R-MF district, with the exception of parking.

The Applicant is proposing a total of 92 parking spaces for this facility, whereas 124 spaces are required by zoning based on the proposed bedroom count. The Applicant is requesting a parking variance from the Zoning Board of Appeals, based upon the actual parking usage at similar projects developed and managed by the Applicant.

The Applicant proposes to permanently preserve at least 17 acres of the site through the use of restrictive covenants and/or conservation easements. This preserved area will be located substantially on the R-4A zoned parcel and provide a permanent buffer and open space resource for the benefit *and use* of the development's residents~~. and~~ *The maintenance of open space will further benefit the* surrounding properties. *The Applicant is open to discussions with the Planning Board to accommodate public access to the 17 acres for passive recreation, provided that the access is from adjoining lands owned by the NYCDEP and/or the Bedford Audubon Society and not from the proposed residential development. Hunting or motorized vehicles would not be permitted.*

Compliance with the Master Plan

The Town Master Plan outlines policies and goals formally adopted by the Town of Lewisboro in 1985[2] as a guide for land use and future development in the Town. In its Plan, the Town identified considerations for preservation of open space resources as well as for development that are generally applicable to the subject proposal today. The Plan does not identify site-specific consistency criteria, but it was intended to provide overall guidance on the local scale for land planning decisions.

The 1985 Town Master Plan speaks of a vision for land use in the I-684/Route 22 corridor that would provide for development of campus commercial land use *incorporating*~~that would also incorporate~~ the preservation of open space. Campus commercial development was envisioned and planned for in ~~the area~~*lands* bordering Route 22 *(lands totaling approximately 113 acres)* including the ~~subject~~ *35-acre development* site*, which explains its*~~ and paved the way for the subsequent~~ rezoning to CC-20. As stated in the Master Plan relative to campus commercial facilities, adequate buffering between such use and adjacent residential areas would allow the two different types of land use to coexist, and reduce impacts to the natural environment resulting from development.

The ~~subject property~~*development site* is not designated as an "open space resource" by the Town Master Plan and the property is privately owned. *The Town Master Plan identifies the Route 22 road frontage as an "Open Space Corridor Buffer Area or Key Natural Area." The frontage of the development site is in the Area, and implementation of buffering requirements associated with development in the CC-20 zoning district is consistent with the designation.*

According to a member of the Lewisboro Planning Board, the property may have been used, from time to time, by one or more members of the community for hunting purposes. *The property is privately owned and its informal use for this purpose is solely at the owner's*

[2] Accessed on the Town's website 1/21/16.

discretion, regardless of whether it is developed. The proposed residential development would eliminate future informal hunting opportunities since the ~~p~~*P*roject ~~s~~*S*ponsor intends to post the property to ~~prohibit~~ *enforce a prohibition of* public trespass and hunting. *(See discussion above regarding the potential for public access for passive recreation)*.

The Town's Master Plan cites general design principles to guide future public and private development in the Town to support the goals and objectives of the Town. These recommendations refer to landscape buffering of buildings and parking areas, minimization of disturbance on steep slopes where potential for erosion needs to be addressed, and provisions to minimize adverse visual impact on Town character and neighboring uses.

The proposed plan will comply with the requirements of the Town~~'s~~ ~~Z~~*z*oning *regulations*, with the exception of a parking variance. The site plan will incorporate various conventional slope protection and wetland protection measures that will minimize the potential for soil erosion and surface water impacts. The plan also will incorporate tree preservation measures (particularly by minimizing the overall area of site disturbance) and proposed landscape plantings that will minimize visual intrusion and create an asset to the community. Moreover, the site plan will preserve a significant area located outside of the limits of disturbance in permanent open space.

The proposed development plan addresses the Town's design principles relative to environmental protection and visual consistency, in the ~~a~~*A*pplicant's opinion. The proposed site plan has been laid out such that the buildings and other site features will be substantially surrounded by permanently preserved, wooded open spaces and will not be visually prominent at any time of year. In addition to the proposed landscape plan, natural topographic conditions render the development area of the site largely obscured from view from most offsite locations thereby avoiding potential impact on community character.

Residential Use and Management

The proposed development will be exclusively used for residential purposes. The Applicant proposes an affordable AFFH development with 45 rental units and a single caretakers unit (46 units total). The rental apartments will meet the requirements of the Westchester County Fair and Affordable Housing Implementation Plan (2000). While the development will be funded utilizing programs provided by Westchester County and NYSHCR, the development will be developed, built, marketed, owned and operated by ~~Wilder Balter Partners, Inc~~*WBP*.

The development will include a mix of one, two and three bedroom units as follows:

1 BR – 14 Units
2 BR – 28 Units (including caretakers units)
3 BR – 4 Units

The units will range will in size from approximately 842 square feet (1-BR unit), 1,025 square feet (2-BR unit) and 1,285 square feet (3-BR unit).

The development is proposed as a fair and affordable community subject to maximum income requirements. The units will be available to residents whose household incomes do not exceed 60% of the Area Median Income (AMI), based on family size, as established by the Department of Housing and Urban Development (HUD) on an annual basis. Nine of the units (20 percent) will be set aside for households at or below 50% of the AMI. In 2015, the area median income in Westchester County was established at $105,700 for a 4 person household. Therefore, for a

family of 4, 60% of the AMI would be $63,420 and 50% would be $52,850. Further information on income eligibility, marketing and building occupancy is provided in Section 3.9 Community Facilities and Services and in the January 6, 1016 letter from Wilder Balter Partners, Inc. to the Planning Board (see Appendix A – Correspondence).

The apartments will be marketed by ~~Wilder Balter Partners, Inc.~~*WBP* together with a non-profit partner (expected to be the Housing Action Council) to households meeting the income eligibility requirements. Marketing will comply with the Westchester County Affirmative Fair Housing Marketing Plan. A typical application is provided in Appendix A (see January 6, 2016 ~~Wilder Balter Partners, Inc.~~*WBP* letter). Applicants will be selected for an interview by public lottery. Interviews will be conducted by ~~trained and experienced~~ management staff. In addition to income and asset information, all applicants will be required to pass established credit and criminal screening processes.

Further information regarding anticipated community demographics is provided in Section 3.9 – Community Facilities and Services. Information provided in the demographics and community services discussion is based, in part, on a recently completed and fully occupied affordable rental community in North Salem managed by ~~Wilder Balter Partners, Inc.~~*WBP* named Bridleside at North Salem.

Drainage / Stormwater Management Plan

A preliminary stormwater management plan for the proposed development has been prepared by the project engineer, Insite Engineering, Surveying, & ~~l~~*L*andscape Architecture, P.C. The plan includes a stormwater pollution prevention plan report, or SWPPP and relevant engineering drawings. A copy of the preliminary SWPPP is provided in Appendix B.

The SWPPP is required to meet the regulatory requirements of the Town of Lewisboro, the NYSDEC and the New York City Department of Environmental Conservation (NYCDEP). Once the SWPPP is approved in final form (as part of the final site plan approval after the conclusion of the SEQR process), the document will govern all activities associated with site disturbance for construction and all permanent drainage features required to comply with applicable stormwater management regulations. Section 3.2 provides further description of the proposed stormwater management system.

The site plans call for a stormwater collection system to collect and direct stormwater from developed impervious surface to a single stormwater management practice, given the use of an infiltration practice for treatment. Therefore, the stormwater design consists of a dry pretreatment extended detention basin followed by discharge to an infiltration area (see Drawing SP-2 Conceptual Grading Plan).

The SWPPP also provides for erosion and sediment control during construction and on-going maintenance for stormwater management facilities.

Utilities (Water and Sewer)

The development site is not located in an area served by municipal water and sewer service. Water service will be provided by a new community water system supplied by on-site wells and wastewater will be treated by a new community on-site septic system. These systems are being designed by the project engineer, Insite Engineering, Surveying & ~~l~~*L*andscape Architecture, P.C.

The engineer has developed preliminary water and sewer reports for the residential development and they are attached in Appendix C and D. The community water and sewer systems will be designed and constructed in accordance with the standards and subject to the approval of the Westchester County Department of Health (WCDOH) and New York State Department of Environmental Conservation (NYSDEC).

Water demand for the development has been estimated in the Water Facilities Report to be 9,020 gallons per day (gpd) based upon bedroom count. Average daily flow is estimated to be 6 gpm, with peak hourly flow estimated at 60 gpm. Each building will be equipped with sprinklers and the combined peak flow from domestic and fire sprinkler demand will be used to design the water system.

Water will be supplied from two existing wells, but an additional 1 to 2 wells will be required (3 to 4 wells total) to meet the NYSDEC requirements for maximum day demand with the best well out of service. Water supply for the development was evaluated by Leggette Brashears & Graham (see Water Supply Report – Appendix E). Further discussion of groundwater supply is provided in Section 3.4 Groundwater.

The community water system will include on-site water treatment facilities and an estimated 15,000 gallon storage tank. *The location of the water control/treatment building will be based on the locations of the project wells after all wells are drilled. Preliminary discussions with the Goldens Bridge Fire Department have included the developer's proposal to install a water storage tank on-site for use by the Fire Department. The details of the system are currently being discussed with the Department.*

Wastewater design flow for the residential development is based upon bedroom count and is estimated at 9,020 gallons per day (gpd). Preliminary soil testing for the Subsurface Treatment System (SSTS) areas have been completed by ~~Insite~~*the project engineer*. Suitable soils for the SSTS areas have been identified in the southwestern, northern and eastern portion of the site. *No portion of the proposed septic system will impact wetlands or wetland buffer.* Based on the site constraints, preliminary testing and initial assessment indicate that the on-site soils can accommodate a SSTS to support a wastewater design flow of up to 9,020 gpd *(see Appendix D)*. The final SSTS capacity will be based on witnessed soil testing with the WCDOH and NYCDEP and the final bedroom count for the development. *There will be a backup generator only for the wastewater pumps and the water control/treatment system.*

<u>Construction</u>

Construction Period Anticipated

The duration of the construction is anticipated to be approximately 16 months, beginning in Spring 2017. The residential development will be constructed as one continuous project. Construction activity will occur weekdays from 8:00 AM and Sunset, in conformance with the Town of Lewisboro regulations. No construction activity will occur between Sunset and 8:00 AM or on weekends or holidays.

Erosion and Sediment Controls During Construction

The site plan documents for permitting and construction will include detailed erosion and sedimentation control plans, details and notes designed in accordance with Town, NYSDEC and NYCDEP requirements for stormwater management. Erosion and sediment controls will

include implementation and maintenance of temporary measures throughout the duration of the construction activities and installation of structural measures for the permanent stabilization of the site. Details of the proposed erosion and sediment controls are specified in the preliminary Stormwater Pollution Prevention Plan (SWPPP) (see Appendix B).

Site excavation will entail excavation and earth removal. Based upon observation and preliminary soil testing, it is anticipated that grading for construction will require rock hammering and blasting. Earthwork calculations prepared by the project engineer indicate a total cut of 24,000 cubic yards and a total fill of 33,000 cubic yards. This results in a net deficiency of 9,000 cubic yards. These calculations are based upon total volumes and do not account for the expected swell of excavated material. Accordingly, this deficiency is likely to be substantially reduced by the swell of processed/crushed material excavated and used onsite. As the project design progresses, opportunities to better balance earthwork will be considered as the goal is to balance the onsite earthwork. A discussion of truck traffic is provided below, should the import of any material be required. Re-using the on-site rock as construction fill will require on-site rock processing by a rock crusher. Any required blasting and/or rock crushing will be done in compliance with all Town of Lewisboro and New York State regulations and requirements. A Blasting Permit from the Town of Lewisboro is required for the work. Blasting procedures, including a Blasting Plan, are further described in Section 3.1 Soils, Topography and Geology.

A stabilized gravel construction access pad will be installed at the construction entrance point identified on the erosion control plans to limit soil transport onto the local roadways from trucks leaving the site. The SWPPP will specify measures to stabilize the steep slopes during and after construction and to divert clean runoff water away from the construction area.

Construction Staging

Construction material and staging areas will be maintained on the site. Areas for equipment staging and soil stockpiling within the site will need to be designated prior to commencement of construction activities. Erosion controls will be utilized around all areas selected for material storage and equipment staging. The construction equipment entrance will be stabilized with broken stone and perimeter silt fencing will be installed around all construction areas.

Truck Traffic

Construction traffic will arrive at the beginning of the construction period, primarily consisting of trucks delivering equipment and building materials, and daily trips of construction workers. Large construction equipment will include bulldozers, graders, excavators and dump trucks. This equipment is typically brought to the site on tractor trailers and generally is kept at the site for the duration of site preparation activities.

As indicated, the project engineer will endeavor to balance cut and fill through the re-use of excavated material on-site and minimize the transport of material to and from the site. Based upon conservative preliminary estimates which do not take into account the expected swell of excavated materials to be reused on-site, up to 9,000 cubic yards may need to be imported to the subject property. The 9,000 cubic yards equates to approximately 500 truckloads, assuming 18 cubic yards per truck.

The conservative estimate of needed fill material would result in approximately 500 truckloads of soil being imported to the site. Assuming approximately 290 working days per year (excluding Sundays and holidays), the soil transport would result in approximately 2 truckloads per day

over a one year construction period (for site grading activity). The number of truck trips per day is likely to vary depending upon the specific construction activity. The installation of the access road and grading for the building pads will require the most soil to be imported to the site. The addition of approximately 2 truckloads (4 truck trips to and from the site) per day is not expected to significantly impact local traffic. Truck trips will occur throughout the day and therefore only a limited number of trips will occur during the morning peak traffic periods. *Construction traffic will be coordinated with the NYS DOT and the Katonah-Lewisboro School District. To the extent practical, deliveries will be scheduled to avoid peak morning and afternoon traffic periods.*

Construction staff flaggers will assist all large trucks to safely exit the site onto Route 22. It is likely that delivery trucks will travel to *the site via Exit 6A from Interstate 684 and leave the site using Route 22 to Exit 5* ~~and from the subject site from Exit 5 on Interstate 684~~ at NYS Route 35, south of the site. ~~This exit~~*Exit 5* has both northbound and southbound ramps.

While the construction activity is ongoing, construction materials will be brought in throughout the 16 month construction period.

EAF Part 3 Evaluation

As described, the EAF Part 3 Evaluation provides information and analyses for those potential impact categories that are relevant to the proposed development. The Part 3 sections provide a description of existing conditions, potential impacts and proposed mitigation to avoid and/or minimize potential impacts.

3.1 Impact on Land (Soils, Topography, Geology)
The development will require grading and excavation for project construction. The project has been designed to minimize the limits and extent of grading. Mitigation measures including a Soil Erosion Control Plan are described in the section.

3.2 Impact on Surface Water
Site development, grading and soil erosion have the potential to impact on-site and off-site water quality. Mitigation measures including a Stormwater Pollution Prevention Plan (SWPPP) are described in the section.

3.3 Impact on Wetlands
The subject property contains a wetland regulated by the NYSDEC, the Town of Lewisboro and the US Army Corps of Engineers. The proposed Site Plan requires encroachment into the Town of Lewisboro and NYSDEC designated wetland buffer area (designated wetlands are avoided). Approximately 7,000 sf of DEC adjacent area and 14,500 sf of Town of Lewisboro buffer will be disturbed. Mitigation measures including a wetlands mitigation plan are described *(see Section 3.3 for further analysis, including alternatives and mitigation).*

3.4 Impact on Groundwater
The development site is not located in an area served by municipal water and therefore water service will be provided by a new community water system supplied by on-site wells. A hydrogeologic assessment for the property has been prepared and it is anticipated that on-site wells can meet the estimated water demand of 9,020 gallons per day (gpd), with no significant impact to the nearby private wells.

3.5 Impact on Ecology
The site is primarily wooded with second growth successional forest on upland portions of the site and a mapped wetland is located in the southeastern portion of the property. Grading for site development will alter approximately *10*~~9~~ acres of existing vegetation and habitat. An evaluation of existing vegetation and mitigation measures are provided.

3.6 Impact on Aesthetic Resources
The development will alter the view for drivers on the I-684 exit ramp and on a limited section of NYS Route 22. A visual analysis has been completed and mitigation measures are described. Mitigation will include building design elements such as building materials and colors.

3.7 Impact on Historic and Archeological Resources
On-site grading has the potential to impact archeological resources. Phase 1A and 1B Cultural Resources Surveys have been completed for the project area. The Phase 1B investigation involved soil test pits. Based upon the surveys, the development will have no impacts upon Historic and Archeological resources.

3.8 Impact on Transportation
The proposed development will result in approximately 43 new vehicle trips during the p.m. peak traffic hour. A traffic study has been completed and is described in the section. The development will not result in significant impacts to local traffic.

3.9 Impact on Community Facilities and Services
The new development will result in new demand for municipal services, including the addition of an estimated 17 school children to the Katonah-Lewisboro School District. The potential impacts to the Town of Lewisboro and the School District are evaluated.

3.10 Consistency with Community Character
The subject property lies in two Town zoning districts: the two westerly lots are located in the CC-20 zoning district and the easterly lot is located in the R-4A zoning district. The proposed residential development is proposed for the two westerly lots in the CC-20 district, while the eastern lot is proposed to be permanently preserved through the use of restrictive covenants and/or conservation easements. A discussion is provided regarding the development's consistency with nearby existing land uses, the Town Zoning Code and the Master Plan.

Approvals, Reviews and Permits

Approvals, reviews and/or permits required for the implementation of this development are listed below by issuing agency. These agencies are called Involved Agencies under SEQRA, and have approval authority over one or more aspects of this application.

Site Plan, Wetlands Permit and Stormwater Permit
Town of Lewisboro Planning Board
20 North Salem Road
Cross River, NY 10518

Variances from Zoning Code
Town of Lewisboro Zoning Board of Appeals
20 North Salem Road
Cross River, NY 10518

Building Permit, Blasting Permit
Town of Lewisboro Building Department
20 North Salem Road
Cross River, NY 10518

Community Septic System, Community Water Supply
Westchester County Department of Health
145 Huguenot Street
New Rochelle, NY 10801

Community Septic System, SWPPP
NYC Department of Environmental Preservation
465 Columbus Avenue
Valhalla, NY 10595

SPDES General Permit for Stormwater, Wetland Permit
NYS Department of Environmental Conservation
21 South Putt Corners Road
New Paltz, NY 12561

Highway Permit
NYS Department of Transportation
4 Burnett, Boulevard
Poughkeepsie, New York 12603

Development Funding
Westchester County Board of Legislators
148 Maritine Avenue
White Plains, New York 10601

Development Funding
New York State Homes & Community Renewal
641 Lexington Avenue
New York, New York 10022

3.1 SOILS, TOPOGRAPHY and GEOLOGY

***E*□□□□□□ *C*□□*d*□□□□□**

The soils on the development site have been mapped by the United States Department of Agriculture (USDA) Soil Conservation Service (SCS) of Putnam and Westchester County, New York. Soils on the property are varied and are partly controlled by the varied topography and bedrock that is shallow or exposed in portions of the site.

The eight (8) soil types mapped on-site include: Chatfield-Hollis-Rock outcrop complex (CtC and CuD), Hollis-Rock outcrop (HrF), Palms muck (Pa), Riverhead loam (RhB), Leicester loam (LcB), Chatfield-Charlton Complex (CsD), Charlton Loam (ChD), and Charlton-Chatfield Complex (CrC). The location of these soils groups on the site is shown in Figure 3.1-1, Soils Map. A summary of on-site soils, soil characteristics, depth to groundwater and depth to bedrock is provided in Table 3.1-1.

The Chatfield-Hollis-Rock outcrop complex soils (CtC and CuD) are either hilly (CuD) or rolling (CtC) and are moderately to very deep and well drained to excessively drained. Slopes range from 3 to 15 percent (CtC) and 15 to 35 percent (CuD). Depth to water is more than 6 feet throughout the year, permeability is moderate to moderately rapid, and available water capacity is very low to moderate. The depth to bedrock is typically between 10 inches and 40 inches.

The Hollis-Rock outcrop complex soils (HrF) are shallow, very steep and well drained soils with areas of rock outcrop. Slopes will range from 35 to 60 percent. Depth to water is more than 6 feet throughout the year, permeability is moderate or moderately rapid, and the available water capacity is very low. The depth to bedrock is generally between 10 to 20 inches.

The Palms muck soils (Pa) are nearly level, very deep and very poorly drained soils and consists of 16 to 51 inches of organic material. Depth to water is typically 6 inches above to 12 inches below the surface from September through June, and up to 24 inches during dry periods. Permeability is moderately slow to moderately rapid with a high water capacity. Depth to bedrock is typically more than 60 inches.

The Riverhead loam (RhB) soils are gently sloping, very deep and well drained. Slopes range from 3 to 8 percent. Depth to water is more than 6 feet throughout the year. Permeability is moderately rapid with a moderate water capacity. The depth to bedrock is typically more than 60 inches.

The Leicester loam (LcB) soils are gently sloping, very deep and somewhat poorly drained. Slopes range from 3 to 8 percent. Depth to water is typically 1.5 feet in depth from November to May. Permeability is moderate or moderately rapid with a moderate water capacity. Depth the bedrock is greater than 60 inches.

The Chatfield-Charlton complex (CsD) is a soils unit that is very deep and well drained. Slopes range from 15 to 35 percent. Depth to water is generally more than 6 feet throughout the year. Permeability is moderate to moderately rapid with a low water capacity. Depth to bedrock is typically 20 to 40 inches.

The Charlton loam (ChD) soils are moderately steep, very deep and well drained. Slopes range from 15 to 25 percent. Depth to water is 6 feet below the ground surface throughout the year.

Permeability is moderate to moderately rapid with a moderate water capacity. Depth to bedrock is more than 60 inches.

The Charlton-Chatfield complex (CrC) consists of very deep and well drained soils. Slopes range from 2 to 15 percent. Depth to water is typically 6 feet throughout the year. Permeability is moderate to moderately rapid with a low to moderate water capacity. Depth to bedrock is greater than 60 inches.

Table 3-1-1
Soil Characteristics and Limitations

Soil Series	Hydrologic Group[1]	Permeability (in./hr.)	Erosion Factor K[2]	Depth to Bedrock (inches below the ground surface)	Depth to Water (feet below the ground surface)
Chatfield-Hollis-Rock outcrop (CtC & CuD)	B/C/D	0.6-6.0 (0-24" deep)	0.20-0.32	10-40 inches	>6 feet
Hollis-Rock outcrop (HrF)	C/D	0.6-6.0 (0-16" deep)	0.24-0.32	10-20 inches	>6 feet
Palms muck (Pa)	A/D	0.2-6.0 (0-48" deep) 0.2-2.0 (48-60" deep)	0.37	>60 inches	+1-1.0 feet (November thru May)
Riverhead loam (RhB)	B	2.0-6.0 (0-30" deep) >20 (30-60" deep)	0.17-.28	>60 inches	>6 feet
Leicester loam (LcB)	C	0.6-6.0 (0-26" deep) 0.6-20.0 (26-60" deep)	0.24-0.28	>60 inches	0-1.5 feet (November thru May)
Chatfield-Charlton complex (CsD)	B	0.6-6.0 (0-60" deep)	0.20-0.24	20-40 iches	>6 feet
Charlton loam (ChD)	B	0.6-6.0 (0-60" deep)	0.24	>60 inches	>6 feet
Charlton-Chatfield complex (CrC)	B	0.6-6.0 (0-60" deep)	0.20-0.24	>60 inches	>6 feet

[1] Hydrologic groups are used to estimate runoff from precipitation; they range from high infiltration (A) to low infiltration (D).
[2] Erosion Factor K indicates susceptibility to sheet and rill erosion by water measured in tons/acre/year. K values range from 0.05 to 0.69. Higher values indicate greater susceptibility
Source: Soil Survey of Westchester and Putnam Counties, New York, USDA SCS.

The site generally slopes from the north to the south towards the wetland in the southwestern portion or the property. Bedrock underlying the development site consists of Fordham Gneiss and Inwood Marble.

The project engineer has analyzed the existing slopes on the property. As shown in Drawing CM-1 Constraints and Net Lot Area Map, development is proposed on the more level, western

portions of the property. Existing slopes based upon slope categories are shown in Table 3.1-2 Existing Slopes.

Table 3.1-2 Existing Slopes	
0-15 %	11.6 acres
15-20%	4.1 acres
>20%	19.7 acres
Total	35.4 acres
Source: insite Engineering, Surveying, & Landscape Architecture, P.C. March 2016	

Potential Impacts

Grading is required to build the internal road network, install utilities, prepare areas for the proposed residential buildings and parking, and to create the stormwater management facilities located in the southern portion of the site. The conceptual grading is shown in Figure 3.1-2 - Conceptual Grading Plan. The site plan layout is designed to utilize the existing topography thereby minimizing the amount of earthwork necessary. Based on preliminary engineering estimates approximately [illegible]~~9~~ acres is proposed to be disturbed for the development. Exposed soils, especially in areas of steep slopes has the potential to result in soil erosion and sedimentation into areas of lower topography including wetland buffers and wetlands located in the southwest portion of the site.

Attached is Figure 3-3 showing the mass earthwork for the site improvements depicting the changes between finished grades and existing grades in the developed portion of the site. The earthwork calculations indicate a total cut of 24,000 cubic yards and a total fill of 33,000 cubic yards. This results in a net deficiency of 9,000 cubic yards. This deficiency is likely to be made up by the swell of material excavated and used onsite. As the project design progresses, opportunities to better balance earthwork will be considered as the goal is to balance the onsite earthwork.

Based upon analysis by the project engineer, the development will require some disturbance to slopes greater than 15 percent. Disturbance to slopes by category is provided in Table 3.1-3. Grading on steeper grades increases the potential for soil erosion, if stabilization and erosion control techniques are not properly implemented. An erosion and sediment control plan has been prepared to assure proper management of exposed soils and to minimize erosion, as further described below.

Table 3.1-3 Slope Disturbance	
0-15%	3.9 acres
15-20%	1.4 acres
>20%	3.6 acres
Total	8.9 acres[illegible]
Source: Insite Engineering, Surveying, & Landscape Architecture, P.C. March 2016[illegible] *d* [illegible] *rd S* [illegible] *r* [illegible] *d* [illegible] *r* [illegible] *d* [illegible]	

Bedrock outcrops are more prevalent in the eastern portion of the property and include a topographic ridge. Development on the eastern portion of the property is not proposed, with the

possible exception of septic fields. The septic fields, as shown in the plans, would only occur on level portions of the site with sufficient soil cover above the bedrock. All major development is located on the western portion of the property. If bedrock is encountered during construction, mechanical means (i.e. ripping, chipping) would be employed first to avoid any unnecessary blasting. Development of the site for residential building pads, parking lots and the access drive is likely to encounter bedrock where bedrock is exposed or within 5 feet of the surface. The proposed grading is shown in Figure 3.1-2 and the depth of cut and fill is shown in Figure 3.1-3 Cut and Fill Map. Based upon observation and preliminary soil testing, it is anticipated that grading for construction will require rock hammering and blasting. In limited circumstances such as improper design or implementation, blasting has the potential to damage off-site foundations. The nearest existing off-site residences are located on Todd Road south of the property and approximately 850 feet from the proposed area of potential blasting development. Blasting mitigation measures are described below.

Av[illegible]*d*[illegible] [illegible]*r M*[illegible] [illegible] [illegible] [illegible]*l*[illegible] [illegible] and Mitigation

Soils

As indicated, construction of the development will require the grading of approximately [illegible]~~9~~ acres of the 35.4 acre property or [illegible]~~25~~ percent. The project engineer has provided an estimate of the amount of grading required in each slope category, as shown in Table 3.1-3. As shown in the grading plan (Figure 3.1-2), grading on slopes greater than 15 percent is unavoidable, but has been minimized to the extent practical through the layout of the buildings, parking areas, driveways and septic fields.

Engineering measures such as proper design of foundations, subsurface drainage as needed, and proper designs of pavement subbase and excavated slopes can be utilized to overcome any construction limitations of the onsite soils.

A Soil Erosion and Sediment Control Plan (Drawing SP-3) has been prepared for the subject development, as part of the Stormwater Pollution Prevention Plan (SWPPP) to assure proper management of soils to minimize erosion, as further described below.

Blasting

A Blasting Permit will be obtained from the Town of Lewisboro for any required blasting, [illegible] *d*[illegible]*r* [illegible] [illegible] [illegible] *T*[illegible] *C*[illegible]*d*[illegible] *r*[illegible]*r*[illegible] [illegible] [illegible]~~according to the Building Code (~~[illegible]92-18 Blasting Operations~~)~~.

Any necessary blasting would only be carried out in conformance with an approved Blasting Plan, specific to this project, developed between the Blasting Contractor and the Town. The Blasting Plan would include, but not be limited to the following:

- Determination of a radius of sensitive receptors to the blasting site.
- Notification of property owners within the radius of sensitive receptors. This notification would provide warning that blasting will occur and the dates it is planned to start and finish.
- Conducting pre-blasting inspections for buildings within the radius of sensitive receptors. This will be completed by the Blasting Contractor.
- Conducting post-blasting inspections of the buildings within the specified radius.

- Blasting would only be conducted during specified hours in conformance with the Town of Lewisboro Building Code (7:00 AM to 7:00 PM).

The Blasting Plan would be developed in full conformance with the Town of Lewisboro's Building Code and in accordance with New York State blasting law. A preliminary Blasting Plan is attached as Appendix H. The contractor's Blasting Contract would be based on site specific blasting requirements, and would be submitted to the Town for approval in advance of any site work activity. In accordance with the Town Building Code, the Building Inspector shall not issue a permit for blasting unless the applicant has filed with the Building Inspector a certificate of insurance evidencing comprehensive general liability insurance.

Potential Erosion

The anticipated development includes the grading and disturbance of □□~~9~~ forested acres. The area proposed to be disturbed is in the western portion of the site with more level topography minimizing disturbance to steep slopes to the extent practical. During construction, erosion control measures will be implemented to mitigate any steep slope disturbance that may occur. It is anticipated that the potential for soil erosion would be limited to the construction period, since following construction, all disturbed ground will be stabilized with either impervious surface or with landscaping such as lawn, groundcover plantings or native grasses and vegetation. No exposed ground will be left unstabilized and any limited future treatment by herbicides would not result in increased erosion (see discussion on herbicides on page 3.2-2).

A Soil Erosion and Sediment Control Plan (Drawing SP-3) has been prepared for the subject development, as part of the Stormwater Pollution Prevention Plan (SWPPP). The SWPPP is provided in Appendix B. The Erosion and Sediment Control Plan shows the limits of disturbance and the placement of silt fencing in locations down-slope from areas of grading. The proposed stabilized construction entrance is also shown in the Plan. Drainage inlets with inlet protection will be installed in conjunction with the stormwater collection drain system.

Construction phasing for the project will be limited to 5 acre maximum disturbance area. The construction is envisioned to initiate with the construction of the entry road, stormwater basins, and western buildings. The second phase would include the eastern buildings and related improvements. The final phase of work will include the installation of the subsurface sewage treatment system (SSTS). As the details in the project Stormwater Pollution Prevention Plan (SWPPP) progress, the sequencing plan will be further detailed, and keyed to the site stormwater and erosion control improvements.

The SWPPP has been designed to conform to applicable requirements of the New York State Department of Environmental Conservation (NYSDEC), SPDES General Permit GP-0-15-002. The Plan will be completed in accordance with New York State Department of Environmental Conservation best management practices ("BMPs") as further described below.

□□□□*M*□□□□□□ □□□□*r*□□□□□□□ *(*□*M*□□*)*

The principle objectives of the Soil Erosion and Sediment Control Plan include the following:

- divert clean surface water before it reaches the construction area;
- control erosion at its source with temporary and permanent soil protection measures;
- capture sediment-laden runoff from areas of disturbance and filter the runoff prior to discharge; and,

- decelerate and distribute storm water runoff through use of natural vegetative buffers or structural means before discharge to off-site areas.

These objectives will be achieved by utilizing a collective approach to managing runoff, i.e. Best Management Practices (BMPs). Prior to any disturbance, erosion and sediment control measures will be installed in accordance with the specifications of the Erosion Control Plan. The construction contractor will be required to install all sediment and erosion control measures and maintain them throughout the entire construction process.

Based upon the proposed erosion control measures being implemented, construction impacts will be minimized.

3.2 IMPACT ON WATER RESOURCES

***E*[illegible] *C*[illegible]*d*[illegible]**

The development site is mostly wooded with second growth forest and an area of wetland located in the southwestern portion of the site. Topography on the property is varied and elevations range from about 210 feet to 450 feet. An east-west trending ridge is located in the northern portion of the property, and run-off generally drains from north to south towards the wetland. Surface water drainage flows by sheet flow from higher elevations to lower elevations on the site. Pre-development drainage is shown in Figure 3.2-1 Pre-Development Drainage Map.

The wetland in the southwest portion of the property is mapped as a NYSDEC regulated wetland (F-29). This wetland is also regulated by the Town of Lewisboro and the US Army Corps of Engineers. According to the NYSDEC on-line database Wetland F-29 is 14.4 acres in size. Approximately 2.3 acres of this wetland is located on the subject property.

An [illegible] *d* intermittent watercourse is located in the mapped wetland and this watercourse flows towards the west under Route 22 and the eventually drains to the Muscoot Reservior located west of the property. A site walk with the New York City Department of Environmental Protection (NYCDEP) on March 9, 2016 confirmed that the on-site watercourse is not a reservoir stem. This intermittent watercourse is not designated on NYSDEC maps (NYSDEC Environmental Resource Mapper) [illegible]*d* [illegible] *r*[illegible]*d*[illegible] *S*[illegible] [illegible]*r*[illegible] [illegible] [illegible]*d* [illegible]*r*[illegible]*r* [illegible] [illegible] [illegible]*r*[illegible]The property contains no other streams, ponds or lakes.

The development site is in the Muscoot Watershed Basin. This Reservoir is located in the New York City East-of-Hudson Croton Watershed, where the Environmental Protection Agency (EPA) has established a Total Maximum Daily Load (TMDLs) for phosphorus. The burden for reducing current phosphorous loading to achieve the TMDL presently lies with the ~~a~~*A*pplicant, Town of Lewisboro and its regional partners. The program for phosphorous reduction has been established in the NYSDEC document entitled *Cr*[illegible] [illegible] [illegible]*r*[illegible]*d* [illegible] *II* [illegible]*r*[illegible] *TMDL N*[illegible]*S*[illegible]*r*[illegible] *I*[illegible] [illegible] [illegible] [illegible] (TMDL Implementation Plan) dated January 14, 2009.

T[illegible] *NYSDEC TMDL I*[illegible] [illegible] [illegible] [illegible] [illegible] [illegible]*r* [illegible] [illegible] [illegible] [illegible]*d* [illegible] [illegible] [illegible] [illegible]*r*[illegible] [illegible]*d*[illegible] [illegible]*r*[illegible] [illegible] [illegible] [illegible]*r*[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]*r*[illegible] [illegible] [illegible]*r*[illegible]*d*[illegible] [illegible] [illegible] [illegible] [illegible]*r*[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]*r*[illegible]*r*[illegible]*d*[illegible] [illegible]*T*[illegible] [illegible]*r*[illegible] [illegible] [illegible]*d*[illegible]

- [illegible]*dd*[illegible] [illegible] [illegible] [illegible] [illegible]*r*[illegible] *r*[illegible]*d*[illegible] [illegible]
- *NYSDEC S*[illegible]*DES* [illegible] [illegible]*r*[illegible] [illegible]*r* [illegible]*r S*[illegible]*r*[illegible] [illegible] [illegible]*r D*[illegible] [illegible]*r*[illegible] [illegible]*r M*[illegible] [illegible] [illegible]*S*[illegible]*r*[illegible] *S*[illegible]*r*[illegible] [illegible] [illegible]*r S*[illegible] [illegible]*r S*[illegible] [illegible] *(MS*[illegible]*)* [illegible]*r*[illegible] [illegible]*N*[illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
- *S*[illegible] [illegible]*d r*[illegible] [illegible] [illegible] [illegible] [illegible]*r*[illegible] [illegible] [illegible]*r*[illegible]*d* [illegible]*r*[illegible] [illegible]*r*[illegible]*r*[illegible]*r*[illegible] [illegible]
- [illegible]*S E*[illegible]*A F*[illegible]*r*[illegible] [illegible] *A*[illegible]*d*[illegible] *D*[illegible]*r*[illegible] [illegible] [illegible] [illegible]*r*[illegible]*r*[illegible] [illegible]
- [illegible] [illegible] [illegible] [illegible] [illegible]*r C*[illegible] [illegible]*Cr*[illegible] [illegible]
- *NYSDEC* [illegible]*Cr*[illegible] *S*[illegible]*r*[illegible]
- *NYCDE*[illegible] *EO*[illegible] [illegible] [illegible]*r* [illegible] [illegible] *I*[illegible] [illegible]*F*[illegible]*d*[illegible]
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- *NYSDEC* [illegible]*NYCDE*[illegible] *C*[illegible]*rd*[illegible] [illegible]*d S*[illegible]*r*[illegible] [illegible] [illegible]*r E*[illegible]*r*[illegible] [illegible] [illegible]*r*[illegible] [illegible]

T[illegible] [illegible]d S[illegible] [illegible] (S[illegible]) [illegible] TMDL I[illegible] [illegible] [illegible]d [illegible] [illegible]d [illegible] C[illegible] A[illegible] [illegible]d [illegible] d[illegible] NYC E[illegible]d [illegible]d [illegible] S[illegible] [illegible] TMDL I[illegible] [illegible]d [illegible]

[illegible]/[illegible]

Stormwater run-off during construction or post-development, has the potential to affect water quality for wetlands and water courses identified on-site and may potentially affect off-site water courses. During construction, stormwater run-off has the potential to transport sediment into wetlands and water courses and may result in turbidity, siltation or other degradation of receiving water bodies. The development will result in the introduction of 2.4 acres of new impervious surface to the site. As described in Section 3.3 Wetlands, the proposed development will involve the construction of a stormwater management facility within the NYSDEC 100 foot buffer and within the Town 150 foot Control Area. No direct impacts to Town or NYSDEC wetlands or watercourses are proposed.

*T[illegible] NYSDEC [illegible]d [illegible] Fr[illegible] [illegible] A[illegible] [illegible]d [illegible] [illegible]d [illegible] [illegible]d [illegible] [illegible] [illegible]

any surface water resources. The proposed development septic system is subject to review and approval by Westchester County Department of Health and NYCDEP and the discharge is permitted by the NYSDEC.

The proposed development may involve the limited application of pesticides and herbicides in the maintained landscaped portion of the development. Pesticides and herbicides would not be used in or around any water body, with the exception of limited use of Rodeo-Type glyphosate to eliminate invasive plants in the wetland buffer as part of the Wetland Buffer Restoration and Enhancement Plan (see discussion below). An Integrated Pest Management Plan (IPM Plan) has been prepared for the future maintenance of property landscaping (see discussion below).

Post-development, stormwater may transport sediment, sand from winter deicing and oil and grease from parking lots and driveways. Effective stormwater management, both during and following the development, will minimize these potential stormwater impacts.

A d r M l d M

In connection to the project plans, the project engineer has prepared a preliminary Stormwater Pollution Prevention Plan (SWPPP) for the proposed development. The development will require grading, excavation and the construction of driveways, parking areas and buildings. Approximately 2.4 acres will be converted to impervious surface for the development. Mitigation for the proposed impervious surfaces resulting from the development will be provided by the proposed stormwater management practices (SMP's) described in the SWPPP. The proposed SMP's will be designed to capture and treat runoff from the impervious surfaces associated with the proposed buildings, parking areas and access drive. A copy of the preliminary SWPPP is attached in Appendix B.

Pesticides and herbicides may be used on a limited basis to maintain proposed landscaping or in the event of a serious infestation of pests in the future residential development. Pesticides and herbicides on the exterior grounds would only be used by professional landscaping staff, supervised by the development owner. An Integrated Pest Management Plan (IPM) has been prepared for the WB Lewisboro Affordable Housing development and is attached in Appendix K. The IPM provides specific procedures and criteria for the limited future use of pesticides and herbicides at the development. Pesticides and herbicides will be used in the minimum quantities needed and only after other, non-chemical means of pest control are found to be ineffective.

The existing drainage patterns on the site will be maintained to the maximum extent practical in the proposed condition. As shown in the Post-Development Drainage Map, stormwater on the site will continue to flow from north to south towards lower elevations and will be directed to proposed stormwater basins located at the base of the slope. Treated stormwater will flow and infiltrate to the wetland in the southern portion of the site, similar to existing conditions. The existing wetland buffer provides additional water quality treatment and further minimizes the potential for erosion and sedimentation from the development.

Stormwater treatment for the subject project will be accomplished with several practices including an extended detention dry stormwater basin, used as pretreatment practice prior to an infiltration basin. The infiltration basin and extended detention pretreatment dry stormwater basin will both be sized to capture and treat the Water Quality Volume from the contributing area of the proposed development. The stormwater runoff from the proposed development will be captured in a collection system and conveyed to the extended detention dry stormwater

basin for pretreatment of the stormwater runoff, prior to discharging to the infiltration basin for final treatment.

Given the topography and natural constraints on the subject property, limited practical area was available for stormwater management practices. As shown in Figure 3.1-2 Conceptual Grading Plan, the infiltration basin and extended detention pretreatment dry stormwater basin are located partially within the Town of Lewisboro 150 foot wetland buffer and the NYSDEC 100 foot adjacent area. Approximately 7,000 sf of NYSDEC adjacent area and 14,500 sf of Town of Lewisboro buffer will be disturbed.

As mitigation for this disturbance, a wetland mitigation plan has been prepared and is attached in Appendix I. These transition areas will receive manual removal of invasive species during basin construction that will allow the native species to regenerate and compete with the more aggressive invasive species that currently occupy this part of the site. The Wetland Buffer Restoration and Enhancement Plan also includes the planting of trees, shrubs and herbaceous plants to enhance the existing vegetation. The proposed enhancement of the wetland buffer is intended to minimize any erosion from the developed site and maintain water quality. The removal of invasive species vegetation would include the limited application of “Rodeo” type glyphosate. This compound would only be used on the re-growth of Phragmites after the first cut. In addition the stormwater management facilities will be planted with wetland vegetation, as further described in Section 3.5 - Impact on Ecology.

The proposed stormwater management system for the development has been designed to meet the requirements of local, city, and state stormwater ordinances and guidelines, including but not limited to those of the Town of Lewisboro, the NYSDEC, and the New York City Department of Environmental Protection (NYCDEP). Since the subject development proposes the disturbance of more than one (1) acre, coverage under the New York State Department of Environmental Conservation (NYSDEC) SPDES General Permit No. GP-0-15-002 is required. In order to meet the requirements set forth by this permit, the latest edition of the NYSDEC *N□□ Y□r□ S□□□ S□r□ □□□r M□□□□□□ □□□ D□□□□ M□□□□□* (NYSSMDM), including Chapter 10: *E□□□□□d □□□□□□□r□□ R□□ □□□□S□□□d□rd□* (Chapter 10)□was referenced for the design of the proposed stormwater management system. Based upon NYCDEP rules and regulations in the watershed, NYCDEP review and approval of a SWPPP Approval is required for this for this project. The proposed stormwater management facilities are intended to minimize the potential for siltation, turbidity and degradation of water quality both during construction and long--term, following construction. In the opinion of the ~~a~~*A*pplicant, adherence to the NYSDEC, NYCDEP and Town of Lewisboro stormwater regulations and requirements will ensure that stormwater quality from the development will be maintained.

Given the above mitigation measures, it is the ~~a~~*A*pplicant’s opinion that the proposed action will have no significant impact to on-site or off-site water resources.

3.3 IMPACT ON WETLANDS

***E*□□□□□□ *C*□□*d*□□□□□**

The 36 acre subject site is a mix of wooded upland slopes and wetland/stream corridor, located between undeveloped lands to the north and east, undeveloped lands and large lot residential development along Todd Road to the south, and Route 22 and I-684 to the west. The site wetland corridor is located along the southern property line, and drains to New York City owned property to the south. The 27 acre undeveloped parcel to the north is also owned by the DEP.

Site observations were conducted by Steve Marino, PWS, of Tim Miller Associates in October and November of 2015 and January of 2016. The following description complies with Section 271-7A(5) and (6) of the Town of Lewisboro Code. A Wetland / Watercourse Delineation Report and Assessment consistent with the Town wetland ordinance is provided in Appendix J.

The site wetlands have been subject to disturbance over the years. Hydrology for the wetland is derived from the steep rocky slopes both north and south of the wetland, with runoff collecting at the bottom of the slopes within a relatively broad flat area. This wetland is identified as DEC Wetland F-29, and is listed as 14.4 acres total (Figure 3.3-1). It is shown as a palustirne scrub-shrub wetland on NWI mapping (Figure 3.3-2)

Soils in the wetland are best described as Palms Muck for the majority of the flatter areas (Figure 3.3-3). As noted above, the soils in the western part of the wetland have been disturbed by previous activities, and exhibit some characteristics of udorthents (i.e., previously disturbed soils). Along the northwestern part of the wetland, the soils transition into Leicester loam as the slope rises, before changing over to the Chatfield Hollis soil group on the rocky steep upland slopes.

In the relatively undisturbed portions of the wetland, the most common species are red maple (FAC), slippery elm (FAC), green ash (FACW) and occasionally pin oak (FACW). A well-developed shrub layer was not observed. Skunk cabbage (OBL), cinnamon fern (FACW), sensitive fern (FACW), Canada goldenrod (FACU) and occasional tussock sedge (OBL) were the most common native herbaceous species. Representative photos of the wetland are provided with this EAF.

However, the majority of the wetland area on site is previously disturbed, resulting in a mix of non-native and invasive species throughout the wetland and the surrounding buffers. Several impenetrable areas of □□*r*□□□ □□□ □□□□*r*□□□ (FACW) were observed. Fox grape (FACU), multifloral rose (FACU), climbing bittersweet (UPL), garlic mustard (FACU), and Japanese barberry (FACU) were observed throughout the wetland and adjacent areas. Occasional morrow honeysuckle (FACU), tartarian honeysuckle (FACU) and brambles (FACU) were also observed. The majority of these introduced species are FACU and UPL, and are an indication of the wetland drying out over time, most likely due to the channelizing of the watercourse through the area.

A watercourse has been created (or channelized) by past site activities, which flows from east to west, then turning south at the southwest property line and onto DEP property. This watercourse derives its hydrology from the rocky, steep slopes to the north, south and east, and becomes channelized on the parcel to the east of the subject property. After leaving the site, the watercourse flows south, and presumably eventually reaches a culvert under Route 684 and to

the Muscoot Reservoir. This could not be verified in the field. The watercourse is not mapped by the DEC.

[illegible]

Due to its location in the watershed, this wetland functions primarily to capture and treat stormwater runoff from the adjacent rocky hillsides before it makes its way into the stream channel and offsite. Nutrient attenuation by the wetland is high due to it dense vegetation and flat slope, which provides for a long residence time in the wetland. However, the "vegetative diversity" function is relatively low due to the high percentage of non-native species within the wetland corridor. While no wetland dependent wildlife were observed during the site inspections, it is likely that common salamanders (red-backed, slimy and two-lined) live within the wetland and its adjacent areas, and a number of bird species feed on the fruit and seeds of the various herbaceous plants. It is also possible that box turtles may utilize this corridor if they are present in the surrounding woods. The adjacent areas are less densely vegetated, due to the rocky substrate, but do function somewhat as a filter before runoff enters the wetland. Runoff is rapid, due to the rocky soils, but is also aerated as it flows over the rocks down the slope.

[illegible]

No direct impacts to Town or DEC regulated wetlands is proposed. One of the two stormwater management areas is proposed to be constructed partially within the 100 DEC adjacent area and entirely within the Town 150 foot control area. Of necessity these basins will be located within DEC and Town of Lewisboro buffer areas. Approximately 7,000 sf of DEC adjacent area and 14,500 sf of Town of Lewisboro buffer will be disturbed. No buildings, parking or other impervious surfaces will be placed within the adjacent area.

In order to minimize site grading and take advantage of site topography, the basins must be located in the flattest portion of the site that is downgradient of the development areas. There is such an area available on the northern side of the flagged wetland, and the project engineer has developed plans that use this area while minimizing disturbance to the adjacent area. The chosen location is part of the previously disturbed buffer area, which is dominated by opportunistic volunteer species (primarily Canada goldenrod and multifloral rose), so that vegetative impacts will be minimized as well.

No grading or other activities will occur within the wetland, but will of necessity be near the wetland. The New York City DEP's interpretation of the Watershed Rules and Regulations results in a redundant stormwater treatment program, requiring two basins on the current design and sufficient capacity to capture the regulated runoff volumes.

[illegible]

[illegible]

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The stormwater management basins will be planted with wetland vegetation (both woody and herbaceous) and overseeded with seed mixes appropriate for the transitional nature of the hydrology associated with storm basins. Additionally, a program of wetland and buffer restoration is proposed for transition areas immediately bordering the stormwater basin construction disturbance area (See Appendix I). As mitigation for this disturbance, these transition areas will receive manual removal of invasive species during basin construction that will allow the native species to regenerate and compete with the more aggressive invasive species that currently occupy this part of the site. The Wetland Buffer Restoration and Enhancement Plan also includes the planting of trees, shrubs and herbaceous plants to enhance the existing vegetation. The proposed enhancement of the wetland buffer is intended to minimize any erosion from the developed site and maintain water quality. The removal of invasive species vegetation would include the limited application of “Rodeo” type glyphosate. This compound would only be used on the re-growth of Phragmites after the first cut. A detailed plan, showing the areas to be treated, details of the methodology and plants to be installed is included with this EAF (See Appendix I).

3.4 IMPACT ON GROUNDWATER RESOURCES

E C d

The development site is located in a rural suburban setting with surrounding properties a mix of undeveloped wooded land and low density residential properties. The property is approximately 35.4 acres in size and located on the east side of NYS Route 22 and Interstate 684 which lie directly west of the site.

Topography on the property is varied and elevations range from about 210 feet to 450 feet. A east-west trending ridge is located in the northern portion of the property, and an area of wetland is located in the southwest corner of the site adjacent to Route 22. Approximately 67 percent of the property (23.8 acres) contain steep slopes (15 percent or greater) and bedrock is exposed or near surface in much of the northern portion of the property.

Since no municipal water supply is available to the property, the proposed residential development will require the installation and testing of new water supply wells and the development of a new community water system. The development of such a system will result in residential uses in areas of Lewisboro without water and sewer services. As noted herein, residential uses are a permitted use in the CC-20 zoning district and any new residential development on this property would require a new water supply system. A hydrogeologic assessment has been completed for the property by Leggette Brashears & Graham, Inc. (LBG) and is provided in Appendix E. The technical information provided below summarizes the LBG hydrogeologic assessment.

Surficial Geology

The subject property is underlain by glacial till with areas of bedrock at or near the surface. Glacial till is composed of unsorted and non-stratified sediments deposited by glacial activity. These sediments contain variable proportions of clay, silt, sand, gravel and boulders. Till is usually not suitable for wells and water supply since the unsorted material does not readily transmit water. No sand and gravel deposits are mapped in the vicinity of the property. A map of the surficial material for the study area is provided in Appendix E, Figure 2.

Bedrock Geology

Bedrock underlying the development site is mapped as Inwood Marble on the northern portion and Fordam Gneiss on the central and southern portions. A map showing the distribution of bedrock types is shown in Appendix E - Figure 3. Inwood marble consists of white to whitish grey calcite and dolomite marble. In general, marble formations exhibit similar characteristics to other carbonate rocks, but have fewer solution cavities. Marble bedrock is susceptible to weathering and under deformational stress forms numerous open fractures. Groundwater is contained in the interconnected fractures, joints and secondary openings.

Fordam Gneiss consists of undifferentiated gneiss bedrock units. Gneiss is a metamorphic rock that typically appears layered with light and dark minerals. Gneiss bedrock is highly resistant to weathering and erosion and therefore forms the varied topography and ridges where it is found. Groundwater is found in secondary fractures, joint systems and weathered zones in gneiss bedrock.

A fracture trace analysis was conducted for the study area to identify potential areas that have to potential to develop bedrock wells with higher than average yields. A fracture trace map includes the delineation of faults, fracture trace joint systems, old or buried stream courses. These surface features often identify areas of subsurface fractures and weathering that provided favorable well locations for productive well yields. The fracture trace map is provided in Appendix E, Figure 3.

Precipitation Recharge

A recharge analysis provides a comparison of the natural precipitation recharge for a given property compared to the estimated water demand for proposed development. This analysis can determine if a property is self sufficient with regard to precipitation available to supply groundwater, or whether proposed water demand exceeds the available recharge. If on-site recharge meets or exceeds the proposed demand, the water supply should be reliable and not adversely affect the aquifer in off-site areas. Although recharge analysis or water-budget analysis, is useful in estimating available groundwater, drilling and pump-testing wells is the only definitive indicator of groundwater availability and method to identify potential off-site impacts. Bedrock fractures and the nature of the bedrock underlying a given property greatly affects groundwater availability and potential off-site impacts.

Groundwater recharge is generally related to precipitation, but the amount of rain-fall that reaches the aquifer and becomes groundwater is difficult to measure. Groundwater recharge occurs as a portion of overall precipitation infiltrates soil and bedrock fractures to reach the bedrock aquifer. Records for nearby Westchester County airport, in White Plains, NY report an annual rainfall of 50.45 inches. Approximately one-half of this amount is lost to run-off and the transpiration process. Recharge to till-covered metamorphic bedrock is estimated to be approximately 7 inches annually (Mazzaferro et.al., 1979)[1] or about 520 gpd/acre (gallons per day per acre). This estimate provides approximately 18,300 gpd for the 35.4 acre site, which greatly exceeds the estimated water demand for the development of 1,350 gpd. *(S A d E)*

Existing Wells

Two wells were drilled on the subject property in March 1987 by P.F. Beal and Sons. Inc. The wells were installed for a previously proposed site plan application for the property that was never developed beyond well installation. Based upon preliminary estimates those wells yield approximately 5 gpm each or *d* 10 gpm *r* ~~total.~~ The combined yield of the two wells would be approximately 14,400 gpd. The existing wells will require testing to confirm actual sustainable yields and any potential impacts to off-site water supplies. *A r r d r d d (r r r) r d d r*

The estimated yields reported on the well driller's logs were obtained by the driller conducting air-lift tests on the wells. The driller inserts the drilling rods into the well down to the bottom and injects air. The continuous overflow from the well is measured as the well yield. This method of measuring a well's yield does not allow for the direct measurement of a pumping water level. Therefore, the driller reports the depth at which the drill rods are set as the pumping water level.

[1] Mazzaferro, D., E. Handman, and M. Thomas. 1979. Water Resource Inventory of Connecticut, Part 8, Quinnipiac River Basin, CT Water Resource Bulletin, 27.

A yield test conducted in accordance with Westchester County Department of Health (WCD*O*H) and New York State Department of Health (NYSDOH) will need to be conducted on any well that is proposed for use to supply potable water to the proposed development. These well tests will assess the stabilized pumping rate and water-level drawdown in the wells, and will determine whether the wells are suitable for use as public water-supply sources. A 72-hour pumping test is further described below.

[illegible]

Development Water Demand

The proposed development will require an estimated water demand of approximately 9,0[illegible]~~00~~ gallons per day (gpd), or 6.25 gallons per minute (gpm) based upon bedroom counts and engineering estimates (see Appendix C - Engineers Water Report). NYS*DO*[illegible] ~~Department of Health~~ standards require new water supply systems to provide twice the average daily water demand with the best well out of service. To meet this requirement, on-site wells would need to provide a combined rate of 12.5 gpm ([illegible]~~18,000~~ gpd), with the best well out of service.

The table below contains a summary of the water demand calculation for the project along with a breakdown of the unit type and number. The New York State Department of Environmental Conservation's (NYSDEC) March 2014 "Design Standards for Intermediate Sized Wastewater Treatment Systems" water usage values were used to calculate the water demand.

Type Unit	Number of Units	Water Usage Multiplier (gpd)	Total Water Usage (gpd)
1 Bedroom	14	110	1,540
2 Bedroom	28	220	6,160
3 Bedroom	4	330	1,320
		Total Water Demand	9,020
gpd = gallons per day			

The use of subsurface wastewater disposal would return approximately 85 percent of the withdrawn water back to the groundwater. This would reduce the consumptive water use by the development to 1,350 gpd *([illegible] A[illegible]d[illegible] E). T[illegible] [illegible]r[illegible] [illegible]r [illegible] [illegible]d[illegible]d [illegible]r NYSDO[illegible] [illegible]d [illegible] CDO[illegible] [illegible]d[illegible]rd[illegible] [illegible] [illegible]r[illegible] [illegible] d[illegible] [illegible] [illegible] [illegible]r [illegible]d r[illegible]r[illegible] [illegible] [illegible]r[illegible]d[illegible] T[illegible] [illegible] [illegible]r[illegible] d[illegible] [illegible] r[illegible]d [illegible]d [illegible]r[illegible]d [illegible] [illegible] CDO[illegible]*

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[illegible]

The bedrock groundwater recharge estimate for the 35.4 acre property is 18,330 gallons per day (gpd) under normal precipitation conditions and 13,000 gpd under one-year-in-thirty drought conditions. The estimated recharge under both normal and drought conditions is more than sufficient to support the estimated consumptive demand of 1,350 gpd for the proposed development.

The desktop evaluation of the contributing recharge from the 35.25-acre subject property 18,330 gpd (gallons per day) under average precipitation conditions and 13,000 gpd under extreme drought conditions with a 3.3 percent probability of recurrence. The recharge under both of these scenarios exceeds the calculated water demand of the project of 9,020 gpd. Therefore, the evaluation indicates that the site's water usage does not exceed its recharge contribution to the groundwater system. These calculations are based on the site acreage's contribution to recharge within the whole watershed. Groundwater recharge and groundwater flow will cross the project site boundaries under natural conditions.

Additionally, the project will be utilizing onsite subsurface wastewater discharge. Therefore, approximately 85 percent of the groundwater withdrawal from onsite wells would be returned to the groundwater system through percolation of the wastewater discharge. This results in a consumptive water use of about 1,350 gpd for the project. The calculated recharge under both normal (18,330 gpd) and drought (13,000 gpd) precipitation conditions significantly exceed the project's consumptive water use. Based upon the development demand and contributing recharge estimates, the water supply demand from the development is not expected to exceed safe and sustainable withdrawal capacity rate of the local aquifer.

As indicated *[illegible]*, the two existing on-site wells *[illegible]* have a <u>combined</u> estimated yield of 10 gpm. An additional one to two new wells (three to four wells total) will be necessary to produce the developments water demand of 12.5 gpm with the best well out of service. For the development of a new water supply, the NYS*DO* ~~Health Department~~ requires the demonstration of a stabilized yield of 5 gpm or greater, regardless of the development's water demand.

In addition, public water supplies must also comply with minimum separation distances from potential contamination sources identified in Appendix 5-D of the NYSDOH sanitary code. The proposed development will require the construction of a community on-site septic system. The required minimum separation distance to protect public water supply wells from contamination is 200 feet for absorption fields and for stormwater infiltration basins (treating stormwater from driveways and parking lots). The proposed development will meet or exceed all NYSDOH required minimum separation distances and therefore is not expected to affect water quality. The proposed development septic system is subject to review and approval by *CDO* ~~Westchester County Department of Health~~ and NYCDEP and the discharge is permitted by the NYSDEC.

The proposed residential development will be heated with propane and therefore no petroleum such as fuel oil will be stored at the property. Two emergency generators will be installed to supply the water supply treatment and pumping equipment and a sewer pump station and those generators will also be supplied with propane. *T*[illegible]

Limited quantities of chlorine (less than 50 gallons stored in 5 gallon containers will be stored on-site for water treatment. This material will be stored inside the water pumping / treatment building on pallets. No other petroleum or chemical storage will occur on the residential property.

As discussed in Section 3.2 Surface Water, the development may require the future use of pesticides and herbicides in limited quantities for the maintenance of the development landscaping. Pesticides and herbicides will only be applied by professional licensed commercial applicators, in compliance with all NYSDEC and federal regulations (see Appendix K - Integrated Pest Management Plan). No pesticides or herbicides will be applied within 100 feet of potable water supply wells [illegible]

Based upon LBG's hydrogeologic assessment of the development site and environs, [illegible] wells drilled at geologically favorable locations (i.e. fracture trace liniations) will likely yield water in the range of 5 to 10 gpm.

The relatively low average water withdrawal for the proposed development of [illegible]~~9,000~~ gpd (6.25 gpm) indicates a low likelihood of significant mutual interference between the on-site wells and existing nearby off-site wells. The closest nearby wells are approximately 600 feet from the on-site wells. These include existing homes on Todd Road south and southeast of the subject site. However, the drilling and pump testing of the proposed wells is the only definitive indicator of groundwater availability and any potential impacts to neighboring water supplies.

***A*[illegible]*d*[illegible] *M*[illegible]*I*[illegible]*r M*[illegible]**

As described above, the relatively low average water withdrawal for the development indicates a low likelihood of significant mutual interference between on-site wells and existing nearby off-site wells. The drilling and pump testing of the proposed supply wells will provide definitive information regarding groundwater availability and potential impacts to neighboring wells.

As indicated in the Hydrogeologic Report, a 72-hour pump test will be required by the ~~a~~*A*pplicant to be completed prior to approval of the project. Existing on-site and off-site wells located a minimum of 2000 l.f. ("subject area") from the proposed on-site wells will need to be monitored during the 72-hour pump test to determine if the pumping of the new wells will result in drawdown of the static water on any of the existing wells within the subject area.

[illegible]*r C*[illegible] *D*[illegible]

Once the proposed wells are drilled and pump tested, the ~~a~~*A*pplicant shall submit the results of the pump tests and the proposed pump test plan to the Town for review. *I*[illegible]

dd dr d d d r r

In order to address the unlikely event that an impact to a neighboring well occurs that would potentially require mitigation, a draft Complaint Response and Mitigation Plan has been prepared (see Appendix E Hydrogeologic Assessment and Mitigation Plan). The Plan provides a process for off-site well owners to file a complaint to the ~~a~~*A*pplicant and for the complaint to be promptly investigated. If the complaint is found to be valid, remedies will be provided to the private well owner, fully paid for by the ~~a~~*A*pplicant. Remedies may include lowering a well pump, replacing a well pump, deepening a well, redeveloping a well or replacing a well. *S r r r r r d d r* The draft Complaint Response and Mitigation Plan will be finalized in consultation with the Planning Board.

3.5 IMPACT ON ECOLOGY

***E*□□□□□□ *C*□□*d*□□□□□**

The 36 acre subject site is a mix of wooded upland slopes and wetland/stream corridor, located between undeveloped lands to the north and east, undeveloped lands and large lot residential development along Todd Road to the south, and Route 22 and I-684 to the west. The site wetland corridor is located along the southern property line, and drains to New York City owned property to the south. The 27 acre undeveloped parcel to the north is also owned by the DEP. According to the NYSDEC database (EAF Mapper) no portion of the property is a designated significant natural community.

□□□□□□□□□

Site observations were conducted by Steve Marino, PWS of Tim Miller Associates in October and November of 2015 and January of 2016. Dedicated wildlife and vegetation inventories were conducted on April, 15, April 20 and April 28, 2016. Each inventory date included four hours of time in the field. The investigation employed a series of random/zig-zag transects with observation, listening, and/or ground searches being conducted as site specific features changed along the walking transect route. The random nature of these transects allowed the investigator to observe and actively investigate features of interest along the way. This tactic also allowed data to be collected from a greater variety of micro-habitats. The following conditions were noted.

The site slopes downward from east to west, with steep slopes downward toward the wetland corridor along the southern border of the site. leveling off at the central stream corridor. The upland areas of the project site are predominately wooded with tree and shrub species typical of a mix of oak-tulip forest and successional northern hardwoodforest community in a rocky substrate, as described by NYNHP “Ecological Communities of New York State, second edition (Edinger and Reschke, 2002) (Figure 3.5-1). Vegetation on the site is characterized as second growth woodlands including sugar maple, red oak, white oak, white ash, and various birches. Beech, tulip poplar and black cherry were occasionally observed. The shrub and herbaceous layer are sparse due to heavy deer grazing. Where there are groundcovers Christmas fern and Pennsylvania sedge are the most common.

Historically, the majority of the site has remained wooded since the 1940’s, probably due to the rocky topography. Those areas closest to Route 22 are shown as open pasture in the 1947 aerial, and it is likely that some logging occurred through the 1960’s. See Figures 3.5-2 and 3.5-3.

The site wetlands have been subject to disturbance over the years, as indicated in the aerial photograph from 1947. That photograph shows hedgerows and rock walls through the wetland area and the wetland cleared of trees. Hydrology for the wetland is derived from the steep slopes both north and south of the wetland, with runoff collecting at the bottom of the slopes within a relatively broad flat area. This wetland is identified as DEC Wetland F-29, and is listed as 14.4 acres total. A watercourse has been created by past site activities, which flows from east to west, then turning south at the southwest property line and onto DEP property.

In the relatively undisturbed portions of the wetland, the most common species are red maple, slippery elm, green ash and occasionally pin oak, and best described as a “red maple hardwood swamp”. A well-developed shrub layer was not observed. Skunk cabbage, cinnamon fern,

sensitive fern, Canada goldenrod and occasional tussock sedge were the most common native herbaceous species.

However, the majority of the wetland area on site is previously disturbed, resulting in a mix of non-native and invasive species throughout the wetland and the surrounding buffers. Several impenetrable areas of [illegible] were observed. Fox grape, multifloral rose, climbing bittersweet, garlic mustard, and Japanese barberry were observed throughout the wetland and adjacent areas. Occasional morrow honeysuckle, tartarian honeysuckle and brambles were also observed.

A table of those plant species that were observed on the site is provided below.

Project Site Vegetation	
Common Name (*S*[illegible])	
TREES	**SHRUBS**
Red oak ([illegible])	Flowering dogwood (*C*[illegible])
White oak ([illegible])	Witch hazel ([illegible])
Chestnut oak ([illegible])	Tartarian honeysuckle (*L*[illegible])
Pin oak ([illegible])	Morrow honeysuckle *(L*[illegible])
American beech (*F*[illegible])	Japanese barberry ([illegible])
Red maple (*A*[illegible])	Multiflora rose (*R*[illegible])
Sugar maple (*A*[illegible])	Winged euonymus (*E*[illegible])
Pignut hickory (*C*[illegible])	Privet (*L*[illegible])
Shagbark hickory (*C*[illegible])	**FORBS AND VINES**
Black birch ([illegible])	Grape ([illegible])
Black locust (*R*[illegible])	Aster species (*A*[illegible] spp.)
Eastern hop-hornbeam (*O*[illegible])	Common yarrow (*A*[illegible])
Black cherry ([illegible])	Mugwort (*Ar*[illegible])
Sassafras (*S*[illegible])	Garlic mustard (*A*[illegible])
Slippery elm *(*[illegible])	Bittersweet *(C*[illegible])
American elm ([illegible])	Skunk cabbage (*S*[illegible])
Eastern red cedar ([illegible])	Dandeliion (*T*[illegible])
Eastern cottonwood ([illegible])	Trout lily (*Er*[illegible])
Crabapple *(M*[illegible])	Violet ([illegible])
Larch (*L*[illegible])	Yarrow (*A*[illegible])
	Goldenrod species (*S*[illegible] spp.)
FERNS AND CLUBMOSSES	Bedstraw species ([illegible] spp.)
New York fern (*Dr*[illegible])	Aster species (*A*[illegible] spp.)
Sensitive fern (*O*[illegible])	
Peat moss *(S*[illegible])	**GRASSES AND SEDGES**
	Onion grass *(R*[illegible])
	Common reed ([illegible])
	Catail *(T*[illegible])
	Tussock sedge (*C*[illegible])
Note: Species observed during site visits - 10/16/2015, 04/15/2016, and 04/20/2016 Note: This list includes many species that could potentially inhabit this site. It is not, however, an exhaustive list. Source: Tim Miller Associates, Inc. 2016	

[illegible]

The site is part of a large open space corridor located to the east of the Route 22/684 corridor. Several hundred acres of undeveloped properties extend from Route 138 to the north to Todd Road to the south, with additional open space areas located south of Todd Road. In general this corridor is wooded with ridge and valley topography, including steep slopes and rocky

substrates. It is likely that the connecting lowlands, with stream corridors running through the center of the valley features, could act as a wildlife corridor for larger animal species in the area. The sloped upland forests, with little understory or groundcovers for cover, are less likely to support movement of wildlife due to the open exposure to predation.

During the course of the fieldwork for this assessment several species of wildlife and signs were observed. The following is a list of wildlife species that were either observed on site or sign, including tracks or scat, was observed. The wooded slopes on the north part of the site provides habitat for some of the more common species in the area, including white-tailed deer, raccoon, eastern gray squirrel, striped skunk, red fox and opossum. These species are likely to move back and forth through the wetland and upland areas. The overall quality of the wildlife habitat for less common species is compromised by the absence of understory and herbaceous layers and diversity of habitat available. However, undeveloped lands to the north and south do present opportunities for wildlife movement, and it is likely that coyote, rodents, some snake species and a variety of birds move through the area. Significant noise from Route 684 was observed during each of the site visits, and it is likely that the proximity to the highway impacts wildlife use of the site somewhat. The lack of larger numbers of bird species, particularly during the earlier hours of the April site visits, was surprising, and perhaps is attributed to the proximity to Route 684 and the noise associated with that. More birds were found and more song heard further east into the site.

The level of past site disturbance in the wetland is reflected in the habitat potential and number of species that are expected to be observed on these parcels. Green frogs, spring peepers, wood frogs, American toads and other small mobile species may utilize the wetland system. Some of the smaller bird species (wrens, sparrows, bluebirds) likely feed on the seeds of the grasses and wildflowers that are found on the site.

There are no known listed rare or threatened plant species on the site. The NYSDEC Environmental Resource Mapper did not identify the possible existence of a sensitive species in the immediate site vicinity (see attached Figure 3.5-4). However, NYSDEC Natural Heritage did notify the ~~a~~*A*pplicant about a record of a bog turtle (□ □□□□□ □□ □ □□□□□□□□*r*□□) being seen south of the site near Todd Road in 1978. Bog turtles are considered to be extirpated from Westchester County, and as Natural Heritage puts it, “there is uncertainty regarding their continued presence” (see attached letter from Natural Heritage Program). However, the bog turtle was unlikely to come from the site wetland, which is generally a wooded wetland and does not meet the typical habitat criteria for this species.

Potential habitat for other species of conservation concern was also evaluated based on the site investigations. Ambystomid salamander species are not likely to be present due to the absence of vernal pools on or near the site. Timber rattlesnakes prefer rocky hilltops with southern sun exposure for over-wintering, which is not available on this site since the entire property is essentially a closed canopy. Winter hibernaculum for the Indiana bat and northern long-eared bat are not available or known on or near the site. The site is a significant distance from known maternity and roosting trees for these species.

Habitat does exist for several listed species of special concern, including box turtle, hog-nosed snake and worm snake. Extensive areas of undisturbed woodlands and adjacent wetlands will remain after site development, and the long term potential for impacts to these species, if they exist on the site, is unlikely.

A table of those animal species that were observed during the spring inventories is provided below.

Project Site Wildlife	
Common Name (S[illegible])	
REPTILES	**AMPHIBIANS**
Garter snake (*T*[illegible])	Green frog (*R*[illegible])
BIRDS	**MAMMALS**
chickadee *(*[illegible]spp*)*	Eastern gray squirrel (*S*[illegible])
crow *(C*[illegible]*)*	Eastern chipmunk (*T*[illegible])
blue jay *(C*[illegible]*)*	Woodchuck (*M*[illegible]*)*
white-throated sparrow *(*[illegible]*)*	Raccoon ([illegible])
wood thrush ([illegible])	White-tailed deer (*Od*[illegible]*)*
ovenbird *(S*[illegible]*)*	
downy woodpecker *(Dr*[illegible]*)*	
turkey vulture *(C*[illegible]*)*	
Note: Species observed during site visits - 10/16/2015, 04/15/2016, and 04/20/2016 Note: This list includes many species that could potentially inhabit this site. It is not, however, an exhaustive list. Source: Tim Miller Associates, Inc. 2016	

[illegible]/[illegible]

[illegible]

The current plans call for the disturbance of approximately [illegible]~~9~~ acres of the 35.4 acre site for the construction of the new residences, parking facilities and stormwater management basins. These activities will occur primarily within the wooded upland areas of the site, in both the successional hardwood forest and the oak-tulip dominated forest (Figure 3.5-5). Most of these structures will be located within the higher elevations of the site, with the exception of the stormwater basins.

T[illegible]

T[illegible] ~~These~~ will be located out of necessity at the lower elevations closer to the wetland. The location of the stormwater facilities have been laid out at flattest available parts of the hillside slopes and parallel to the topography to the extent practicable. Of necessity (due to site topography) these basins will be located within DEC and Town of Lewisboro buffer areas. Approximately 7,000 sf of DEC adjacent area and 14,500 sf of Town of Lewisboro buffer will be disturbed. The proposed conversion of ~~close to~~ 10 acres of existing forest and wetland buffer to

residential development, including landscaped area, will not affect any designated regional or locally important habitat.

C[illegible]

[illegible]

The site does not contain areas of significant or unusual wildlife habitat that would be impacted by the development project, and the project itself affects only [illegible] ~~nine~~ of the 35.4 acres available. Approximately [illegible] ~~nine~~ acres of wooded habitat will be lost as a result of this development, with most of this loss occurring on the western part of the site closest to the Route 684 corridor. Some large trees, primarily oaks, will be cut for this development. Bird and mammal species that depend on these particular trees for habitat and food will be somewhat impacted by this action. A large number of trees of a variety of species, some of a significant size, will be preserved, mitigating this loss.

Figure 3.5-6 shows the extent of the site disturbance in the context of the adjacent open spaces that are available for wildlife habitat. In the context of this larger corridor, the development of the site as proposed, owing largely to its proximity to the western side of the site and the Route 22/684 corridor, is unlikely to impact any existing wildlife corridors that may exist. *F*[illegible]

The loss of [illegible] ~~nine~~ acres of upland and wetland buffer habitat is an unavoidable impact to develop the affordable residential community. The development will retain approximately 75 percent of the existing vegetation and wildlife habitat. As noted above, no species of conservation concern were identified on the property or are likely to utilize it, and therefore no impacts to such species is expected. Given the adjacent open space available for wildlife habitat and the retention of approximately 75 percent of the existing habitat, the proposed development is not expected to substantially interfere with nesting/breeding, foraging, or overwintering habitat for the predominant species that use the site.

***A*[illegible]*d*[illegible]*r M*[illegible]*l*[illegible]*d M*[illegible]**

With the preservation of the 18 acre eastern parcel as conservation land, and the undisturbed portions of the two western parcels (another eight acres), in the opinion of the ~~a~~*A*pplicant the development will not result in adverse environmental impacts to ecologically significant or unusual vegetation.

The proposed plan incorporates a landscape program for all areas disturbed by construction around the perimeter of the buildings and parking lots. Any disturbed side slopes below the development on the south side will be seeded with a restoration mix of quick germinating grass cover crop and herbaceous perennials to establish vegetative stabilization of the soil. Additionally, the mix used for the slopes will include seed for native grass and woody species

that produce berries and seeds that will provide a food source for a greater diversity of animal species.

The stormwater management basins, which will serve to capture and treat stormwater runoff before it is discharged to receiving waters downstream of the site, will be planted with wetland vegetation (both woody and herbaceous) and overseeded with seed mixes appropriate for the transitional nature of the hydrology associated with storm basins. Additionally, a program of wetland and buffer restoration is proposed for transition areas immediately bordering the stormwater basin construction disturbance area. As mitigation for this disturbance, these transition areas will receive manual removal of invasive species during basin construction that will allow the native species to regenerate and compete with the more aggressive invasive species that currently occupy this part of the site. The wetland mitigation plan is provided in Appendix I.

In the opinion of the ~~a~~*A*pplicant, enhancement of the existing wetland and adjacent areas will provide an opportunity for the restoration of a more diverse and native vegetation community to that portion of the site, which will benefit a wider diversity of animal species, particularly birds.

3.6 IMPACT ON AESTHETIC RESOURCES

***E*[illegible] *C*[illegible]*d*[illegible]**

D[illegible] *S*[illegible] *L*[illegible] *C*[illegible]

The setting in which the development site is situated consists of a mix of land uses -- commercial development to the north (including North County Shopping Center, aka Goldens Bridge Village Center), a major regional transportation corridor immediately to the west (NY State Route 22, Interstate Route 684 and the Metro-North railroad), single family residences on relatively large lots to the south, and wooded, undeveloped land and open water of the Croton reservoir system in much of the surrounding area. Figure 1-2 shows the site vicinity in a recent aerial photograph; Figure 3.6-1 shows the site on a topographic map.

The visual character of the immediate site vicinity is dominated by the Route 22 / I-684 transportation corridor including Exit 6A for Goldens Bridge, which meets Route 22 opposite the site. Route 22 and I-684 follow a winding north/south route in very undulating and irregular topography that has many small hills and narrow valleys and dense woodland cover that characterizes the rural feel of Lewisboro.

The site is a topographic knoll, rising some 200 feet above the road elevation, similar to numerous other knolls in the area. The site is almost entirely wooded with the exception of a rock outcrop exposed by the construction of Route 22. The trees are up to 55+ feet tall, predominantly deciduous, with moderately dense understory vegetation. The sizable rock outcrop provides a visual feature along the property frontage. While not prominent in the landscape of the street corridor, it provides a reminder of the nature of the Lewisboro landscape.

Views of the site would be experienced predominantly by occupants in vehicles using the nearby roadways in routine daily travel, such as to and from work. Viewers on I-684 would be traveling at highway speeds, except those who use Exit 6A where they would be stationary for a short interval[1] while making the turn onto Route 22; viewers on Route 22 would also be traveling at moderate speed.

The visual experience for someone traveling in the road corridor in the site vicinity is a mix of single family residential lots, commercial development of varying sizes, and wooded open space. Buildings are visible, in many instances partially obscured, amongst the extensive woodland cover (evident in Figure 1-2), particularly for users of Route 22. In the immediate site area, the corridor is visually dominated by I-684. There are no provisions for pedestrian traffic in the corridor and incidental use by bicyclists was observed on Route 22.

The potential for views of the subject site were reviewed during a site area visit in January 2016. Key study views were identified within approximately one-half mile of the site. Views toward the site from publicly accessible locations are depicted in photographs presented in Figures 3.6-2 through 3.6-6. The limits of the possible view of the site are indicated in the figures. A key to the locations of the view points is shown in Figure 3.6-1. A ±125 foot high cell tower located on the opposite side of Route 22 from the subject property provides a landmark in the photographs. The study area views are:

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[1] *D*[illegible] *S*[illegible] *r*[illegible] *d* [illegible] *d* [illegible] *d* [illegible] *r*[illegible] *(M*[illegible] *r Tr*[illegible] *S*[illegible] *T*[illegible] *)* *D*[illegible] *d*[illegible] *r*[illegible] *r*[illegible] *d* [illegible] *r*[illegible] *d*[illegible]

- The street corridor within about one-half mile, which is primarily experienced by motorists passing the site on I-684 at highway speed or on Route 22 at varying speeds. Views 1A and 1B from southbound and northbound I-684, respectively, were investigated. These views are partially obscured by intervening vegetation and diminished by the speed of travel. These views are further obstructed during the warmer months when leaves are on the trees. Figure 3.6-2 shows existing views 1A and 1B looking toward the subject site from I-684 southbound and northbound. View 1A is interrupted as the driver passes under the bridge and quickly disappears behind intervening vegetation as one travels south. Likewise, the mid-distance view toward the site (View 1B) for drivers approaching the Goldens Bridge exit quickly disappears behind intervening roadside vegetation.

- Views 2A and 2B from northbound and southbound Route 22, respectively, were found to reveal visibility of the development site for motorists approaching the site. Figure 3.6-3 shows these existing views from Route 22 northbound and southbound. There is roadside vegetation that interrupts or obscures portions of the view as a driver approaches the site from either vantage point.

  Additional photographic images are shown in Figures 3.6-9A, B and C, taken approximately 300 feet apart starting at View point 2A and traveling north on Route 22, toward and passing the subject site. These images, which include brackets indicating the site development area, show the extent of the intervening trees that exist along the roadway that largely obscure views to the development area.

- The Exit 6A ramp from I-684 northbound meets Route 22 opposite the site at a Stop sign. Thus, there is a stationary view (View 3) [illegible]*r* ~~in close proximity of~~ the site frontage and looking into the western portion of the site, as experienced by drivers while they negotiate a right or left turn onto Route 22. Figure 3.6-4 shows a wide-angle view from this location in winter. The site rises above the road and, being a topographic knoll, much of the site is hidden from view due to the topography and intervening vegetation. During the winter months it is possible to see into the site several hundred feet amongst the tree trunks; when leaves are on the trees views into the site are largely obscured. [illegible]*r*[illegible]*d*[illegible]*r*[illegible]*r*[illegible]*r*[illegible]*d*[illegible]*d*[illegible]

- Figure 3.6-5 shows Views 4A and 4B from the ramp from Route 138 to Route 22, looking south, and from the top of the Route 138 ramp onto I-684 southbound, respectively. View 4A may be briefly experienced by drivers while they negotiate the turn onto southbound Route 22. View 4B may be experienced by drivers ~~for a brief moment~~ after they negotiate the turn from Route 138 onto the southbound ramp. The view from this viewpoint quickly vanishes as the driver descends the ramp and enters I-684.

- Views toward the site from Todd Road (south of the site) were investigated. Due to the intervening topography of Todd Road properties, view of the subject site from publicly accessible vantage points on the road is limited to a partial view beyond the intervening trees from one location in the vicinity of #35 Todd Road, the Bedford Audubon Society property. This is identified as View 5. Figure 3.6-6 shows a wide-angle view from this location, looking westward through the intervening trees.

There are no formally designated aesthetic resources or designated scenic views sensitive to visual change in the viewshed of the subject site. It is noted that the Town's Master Plan map of 1985 depicts an "Open Space Corridor, Buffer Area or Key Natural Area" along the property's Route 22 frontage and over the rear portion of the property.[3] Although the Town's zoning code

[2] *E*[illegible] *M*[illegible]*r*[illegible] *d* [illegible] *N*[illegible]*r*[illegible] *C*[illegible] *S*[illegible] *C*[illegible]*r* [illegible]*r*[illegible] [illegible]*r*[illegible] [illegible] *I*[illegible]

[3] The Master Plan specifically distinguishes a difference between "open space" and "undeveloped" land. "To be

imposes no such restrictions on these areas of the property, the proposed development's design nevertheless respects these areas by maintaining, to the greatest extent practicable, the natural landscape buffer that is being preserved along the public road (including the visually prominent rock outcrop) and through the permanent preservation of more than 17 acres of open space at the interior and rear portions of the property.

Given the topography and dense tree cover of the site area, there is limited view of the development site from surrounding roads and there is no location in the study area that would afford a view of the entire site, based on site area reconnaissance undertaken in January 2016 along I-684, Route 22, Route 138, and Todd Road and at Goldens Bridge train station.

The Code of the Town of Lewisboro includes mention of aesthetics, most pointedly in §220-1 Zoning, Statement of Purpose: "To preserve the natural beauty of the physiography of the Town; to protect the Town against unsightly, obtrusive and obnoxious land uses and operations; to enhance the aesthetic aspect of the natural and man-made elements of the Town; and to ensure appropriate development with regard to those elements."

[illegible]

To utilize the site in accordance with current zoning and a site-sensitive affordable housing plan, the proposed development will remove trees from the western portion of the site and small pockets in the interior of the site, create an opening in the tree canopy on the middle elevations of the site, and create an opening on Route 22 for a driveway, while preserving the existing tree cover on most of the property. The proposed action may be visible from publicly accessible vantage points, to the limited extent from the various study vantage points as explained below. Given its topographic position and the density of woodland cover around it, this clearing is not expected to be startling, visually prominent, nor out of character from the surrounding landscape.

The proposed buildings will be placed along the contour on the southwest-facing slopes of the knoll on the site. The 2-story buildings will be lower in elevation than the existing tree tops that will remain, thereby avoiding prominent visual exposure of the development and minimizing direct visibility from offsite. There will also be four SSTS areas cleared in the rear of the property (located where suitable soils are found), covering small areas of one-quarter to one-half acre in size. These areas are proposed to be replanted with a low growing conservation mix.

Site Profile Figure 3.6-7 shows a profile of the post-development ground line and tree line taken through the site generally in a southwest/northeast orientation. This profile is taken through the center of the proposed development area and one of the SSTS clearings. The profile is drawn to scale, with the height of the existing trees being approximately 50 feet. An enlarged version of this profile is depicted in Figure 3.6-7E. (See Figure 3.6-1 showing the location of the profile line.) The Site Profile figure shows the line of sight for a person in a vehicle stopped on the Exit 6A Stop sign at Route 22, facing the subject property. This is View 3 depicted in the existing condition photograph in Figure 3.6-4. Figure 3.6-14 depicts a rendering of the anticipated view toward the proposed development from the Exit 6A Stop sign at Route 22. As identified above,

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termed open space, a decision has been made to dedicate or reserve the land for recreational purposes or for conservation, aesthetic or passive use. There is no such commitment on "undeveloped" land and, absent that, it can be assumed that the land, or portions of it, will eventually be developed for some other use." (Master Plan, page 97.)

[4] *T*[illegible] *NYSDEC* [illegible] *A*[illegible] *M*[illegible]

this vantage point would provide the most visual exposure of the proposed development from any of the identified vantage points. The graphics show how portions of the site development and buildings, limited to partial sections of the entrance drive and buildings 2, 3 and 4, will be visible through the intervening trees and landscaping, while the parking areas and other buildings will be largely hidden from view.

[illegible] *O*[illegible] *S*[illegible]*C*[illegible]*d*[illegible] *Fr*[illegible] *S*[illegible]*d*[illegible]

The development will open a view into the subject property via the new entrance driveway on Route 22. (See the Conceptual Grading Plan, Figure 3.1-2.) Tree clearing will occur where the proposed driveway will access the site and climb the west side of the knoll, leaving a strip of existing trees along the driveway and atop the rock outcrop that faces Route 22. The lower portion of the driveway and buildings 2, 3 and 4 (as described above) will be seen from the Exit 6A Stop sign and from vehicles traveling north past the site on Route 22. Vehicles traveling south past the site will see the driveway intersection on Route 22, and the entrance area landscaping. South of the driveway, an SSTS area is proposed in an area that already has low growing vegetation, and further into the site stormwater management basins are proposed. These areas will be situated some 15 to over 20 feet below the elevation of the road, virtually out of sight from the public.

Site Profile Figure 3.6-8 shows a north/south profile of the post-development ground line and tree line taken through the proposed development area of the site -- is drawn to scale, with the height of the existing trees being approximately 50 feet. An enlarged version of this profile is depicted in Figure 3.6-8E. (See Figure 3.6-1 showing the location of the profile line.) The Site Profile figure shows the line of sight for a person in a vehicle traveling south on Route 22, facing the subject property and approximately one-quarter mile away. In this case the potential line of sight is obscured by trees located on the intervening properties north of the site. This is View 2B depicted in the existing condition photograph in Figure 3.6-3.

M[illegible] ***M***[illegible]***r***[illegible]

The ~~a~~*A*pplicant and its consultants have worked with the Planning Board, its consultants and the CAC to locate the buildings and site improvements on the site so as, to the maximum extent practicable, work with the topography of the site to minimize disturbance on steep slopes, provide landscape buffering surrounding the development area, and thereby minimize adverse visual impact on the character of Lewisboro and neighboring uses.

The streetscape character of the property frontage along Route 22 will not be [illegible]~~adversely~~ changed by the development: the proposed driveway entrance will be the only disturbance of existing vegetation on the frontage, which will receive appropriate landscape treatment. The existing rock outcrop and vegetation immediately above it will be preserved, thereby screening [illegible]*r* [illegible]*r*[illegible] direct views into the site so that the new development will be compatible with the characteristics of the neighborhood *(*[illegible]*d*[illegible]*r*[illegible]*d*[illegible]*d*[illegible]*d*[illegible]*). I*[illegible] *A*[illegible]*r* [illegible]*r*[illegible]*r*[illegible]*d*[illegible]*r*[illegible]

[5] *T*[illegible]*d*[illegible]*R*[illegible]*r*[illegible]*r*[illegible]*T*[illegible]*r*[illegible]*d*[illegible]*r*[illegible]*T*[illegible]*r*[illegible]*r*[illegible]*d*[illegible]*d*[illegible]*r*[illegible]*d*[illegible]

The Route 22 frontage and the rear portion of the property (indicated on the Town's Master Plan map for buffers) are proposed to remain natural landscape buffers that preserve opportunities for [illegible]public enjoyment and appreciation of the Lewisboro landscape and [illegible] Route 22 view corridor. The property frontage including the visually prominent rock outcrop is being preserved (with the mere addition of the access driveway which will be landscaped) and permanent open space will be preserved on the rear of the property in the proposed development plan.

T[illegible] E[illegible]A[illegible] R[illegible] (illegible) dr[illegible]

T[illegible] E[illegible] S[illegible] T[illegible] A[illegible] R[illegible] NYSDOT [illegible]

The aApplicant conducted a balloon flight at the property on January 21, 2016, to provide two points of reference for investigating possible views to the proposed development from local area vantage points. Two 3-foot red balloons were raised to the proposed height of the roof peak of buildings 1 and 3.[6] In both locations the balloons were situated well below the tops of the trees.

The eight vantage points shown in the accompanying graphics were visited, however only from the Exit 6A Stop sign location could one of the balloons be seen, largely obscured by the trees. (Balloons are not visible in any of the accompanying photos.) Observations while driving the area roads found that the balloons were visible from Route 22 and I-684 in very close proximity to the site (within approximately 800 feet of the proposed development area), demonstrating that the density of the existing tree cover on and off the property can be expected to provide significant buffering of views (mitigation) of the proposed buildings in winter. In summer months, it is likely that there will be little or no visibility of the buildings from offsite other than from Route 22 between Exit 6A and the site driveway.

There will be no new direct views created from any nearby residence. Regarding site lighting for the development, the proposal includes street lighting designed with respect to pole height and light intensity as specified in §220-14 of the Lewisboro Code: All lighting in connection with all structures and uses shall be directed away from nearby streets and properties and shall not cause any objectionable glare observable from such street and properties. Exterior lights shall be placed or shielded so that no direct light source (i.e., bulb, lamp, tube) shall be visible at any property line at a height of more than four feet above grade. Exterior lights shall be mounted not more than 14 feet above adjacent finished grade or floor level. "Mounting height" is defined as the distance between the adjacent finished grade or floor level and the bottom of the luminaire (the light unit). The vertical dimension of a luminaire shall not exceed 36 inches.

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[6] *T[illegible] C[illegible]*

Light levels at the lot line will generally not exceed 0.2 foot-candle at ground level. Energy efficient LED lighting is proposed. The specification of site lighting will take into account potential nighttime visibility from Route 22 and I-684 to avoid any glare or excessive intensity, and will be Dark Sky compliant.

All of the proposed buildings will be below the height of the tree line, and, while portions of buildings will likely be visible through the trees from vehicles passing the site, more so in winter than in summer, their presence will be compatible with the characteristics of the neighborhood and the Route 22 corridor, which includes glimpses of buildings in the largely wooded landscape. From no location will the entire development be visible; the "worst case" view studied in Figure 3.5-7E demonstrates the limited exposure of the development to outside views, and mitigation of partial views will be incorporated into the design plans such that no significant adverse visual impact will result. The documentation provided demonstrates that such visibility would not be considered a significant adverse or unmitigated impact, nor an avoidable significant alteration of the views experienced by drivers on Route 22, I-684, or Exit 6A that connects these corridors.

In summary, the proposed affordable housing development will create new openings in the tree canopy on portions of the existing wooded knoll, and to the greatest extent practicable will place new buildings below the tree line and behind a dense buffer of existing trees, resulting in very limited visibility from off-site due to the extent of existing trees and understory vegetation proposed to remain on the site and the surrounding predominance of woodland cover.

Overall, in the applicant's opinion, the development will have a minimal effect on the wooded, open space character of this area of the Town of Lewisboro and will not have a significant adverse impact on any visual or aesthetic resources. The visual changes which will result from the development, in the applicant's opinion, will not result in significant adverse impacts to identified aesthetic resources or vantage points with views to the subject site.

Photographs of representative building architecture planned for the WB Lewisboro development are depicted in Figures 3.6-10 and 3.6-11. These images show the Bridleside project recently built by the ~~a~~*A*pplicant in North Salem. Figures 3.6-12 and 3.6-13 show architectural elevations of the style of building proposed at WB Lewisboro. The ~~a~~*A*pplicant anticipates working directly with the Town during development of the design plans with the intent of purposefully creating a project appearance that will complement the community. Such design elements would include building facade materials and color, roof pitch, materials of the landscape features such as light fixtures, signage and retaining walls, and selection of plant materials. The ~~a~~*A*pplicant is committed to designing a housing development that will be an asset to the Town.

3.7 IMPACT ON HISTORICAL AND ARCHEOLOGICAL RESOURCES

E□□□□□□□ C□□d□□□□□□

As described herein, the 35.4 acre subject site is undeveloped and mostly wooded land. No structures or foundations have been observed on the property. Based upon historical photographs, the majority of the site has remained wooded since the 1940's, probably due to the rocky topography. Those areas closest to Route 22 are shown as open pasture in the 1947 aerial photograph, and it is likely that some logging occurred through the 1960's.

A Phase 1A and Phase 1B Cultural Resource Investigation has recently been conducted on the property. The Phase 1A / 1B investigation is provided in Appendix F. A file search at the NYS Office of Parks, Recreation and Historic Preservation (OPRHP) identified no New York State Museum (NYSM), OPRHP sites or National Register Listed or Eligible properties on or within 500 feet of the subject property. There have been no prior archeological investigations conducted within 500 feet of the subject property.

□□□□□□□□/□ □□□□

According to the Phase 1A investigation, the subject site is considered to have moderate sensitivity for the presence of prehistoric cultural remains. The location exhibits several characteristics that are known to have been conducive to Native American occupation including the elevated hilltop adjacent to water sources that are themselves tributaries to a larger nearby river system. No rockshelters or usable lithic resources were identified within the proposed area of disturbance indicating that pre-contact sites would likely be limited to small temporary hunting camps rather than larger long-term settlements.

The proposed residential development will involve the grading of approximately 9 acres of relatively undeveloped land. The grading and excavation has the potential to disturb archeological cultural resources, should they be present on the property.

The Phase 1B fieldwork was conducted in December, 2015 at the subject site. The fieldwork consisted of 45 hand-excavated shovel tests across more level portions of the Area of Potential Effect (APE). The Area of Potential Effect is based upon the project plans. The test locations are shown in the Phase 1A/1B Archeological Investigation (Maps 9 and 10). No significant cultural resources were identified and no further archeological work was recommended.

M□□□□□□□□ M□□□□r□□

Based on the results of the Phase 1A/1B Cultural Resources investigation, no historic or archeological resources have been identified on or near the subject property and none will be impacted. No mitigation measures are warranted or proposed.

3.8 IMPACTS ON TRANSPORTATION

***E*□□□□□□□ *C*□□*d*□□□□□□**

The ~~p~~□roject ~~s~~*S*ponsor~~, Wilder Balter Partners, Inc. (the "Applicant"),~~ proposes to develop a 46 unit affordable residential community on a 35.4-acre site located on NYS Route 22 in the western portion of the Town of Lewisboro, Westchester County, New York. The project site is located □□□□□ □□□□□ □□□□□*r*~~in the Hamlet~~ of Goldens Bridge□approximately □□*r*□□□□□□*r*□□*r*□ □□□~~¾~~ ~~-~~mile south of Route 138□and □□□ □ □□□ □*r*□□ the Goldens Bridge train station. The location of the site is shown on maps in Figures 2-1 and 2-2. The site will have a single access slightly north of the northbound Interstate 684 Exit 6A ramp. This section summarizes the detailed transportation report by Maser Consulting P.A. contained in Appendix G.

Interstate 684 is a six lane divided limited access highway and is a major commuter route to Interstate 287 in southern Westchester County. Thus most regional commuter traffic does not use NYS Route 22 that passes by the site and parallels Interstate 684 in this area. The northbound exit ramp (6A) from Interstate 684 is located immediately south of the site and was studied along with the site access to NYS Route 22. NYS Route 22 is a two lane road with a posted □□□□*d* □□□ □□□□□□~~40~~ miles per hour. Peak hour traffic volumes (weekday a.m. and p.m.) were counted in December of 2015 and compared with counts taken in 2014 for the Goldens Bridge Shopping Centre to the north.

□□□□□□□□□*I*□ □□□□□

F□□*r*□ *Tr*□□□□□ □ □□□□□□□□□□ □*r*□□□□□*(N*□ □□□*d* □□□□□ □□*)*

Traffic volumes were projected to the design year of 2020 using a background growth of 2.5 percent (0.5 percent per year) based on historical data. Traffic from the proposed Golden Bridge Village Shopping Centre expansion was also added to the future traffic.

F□□*r*□ *Tr*□□□□□ □ □□□ □□□ □*r*□□□□□*(*□□□*d* □□□□□ □□*)*

Site generated traffic was estimated for the apartments (Land Use code 220) using the Institute of Transportation Engineers, *Tr*□□ □ □□□*r*□□□□ *M*□□□□□, 9th edition, 2012. In the a.m. peak hour 5 entering and 21 exiting trips were estimated. In the p.m. peak hour 28 entering and 15 exiting trips were projected. Distribution of arrival and departure traffic was based on existing traffic volumes and supplemental data.

The intersections of NYS Route 22 and North Street and of NYS Route 138 and North Street were analyzed in detail as part of the Goldens Bridge Shopping Center expansion. That study had considered background traffic growth which accounts for the expected volumes from the proposed multi-family development. Even considering the conservatively high trip estimates used in the traffic study for the proposed multi-family housing project, these volumes equate to 2 entering and 9 exiting vehicles during the ~~AM~~□□□ □peak hour and 9 entering and 6 exiting vehicles during the ~~PM~~□□□ □peak hour at NYS Route 22 and North Street and less at North Street and Route 138. As shown in the Level of Service Summary Table (Table No. 2A), the project will not have a significant impact on the Levels of Service or vehicle delays at these intersections.

Tabular summaries have been prepared to indicate the existing and proposed trip rate traffic volumes, levels of service, and sight distance summaries. Copies of Tables 2A (Level of Service

Summary), 3A (Traffic Volume Summary-~~AM~~[illegible]), 3B (Traffic Volume Summary-~~PM~~[illegible]) and 3 (Sight Distance Summary) are attached.

The site access centerline is now located approximately 250' [illegible] north of the centerline of the I-684 Exit 6A Off Ramp. This location was chosen to maximize sight distance for entering and exiting vehicles and the driveway includes appropriate radii to accommodate entering and exiting vehicles. As part of the Highway Work Permit Review, curbing and shoulder/pavement improvements will be finalized with NYSDOT.

C[illegible] *A*[illegible]

Capacity analysis using SYNCHRO analysis software is based on procedures documented in the [illegible] *C*[illegible] *M*[illegible] Traffic conditions are defined based on a level of service grade from A the best to F the worst conditions. NYS Route 22 and the site driveway are anticipated to operate at a level of service C or better for all movements.

"The results of the capacity analysis indicated the proposed residential development will not significantly change the overall Levels of Service at each of the key locations. The intersection of I-684 and Route 22 will continue to experience operating problems during peak periods and should continue to be monitored in the future for a possible traffic signal." (See Appendix G - Page 6 Mr. Grealy letter to Mr. Bainlardi, January 29, 2016).

The Interstate 684 northbound off ramp (Exit 6A) at NYS Route 22 experiences a level of service F in both the a.m. and p.m. peak hours in the Existing Condition and will experience increased delay with future traffic. *T*[illegible] *I*[illegible] *E*[illegible] *A*[illegible] *R*[illegible]

I[illegible] *T*[illegible] *E*[illegible] *A*[illegible] *I*[illegible]

Although a traffic signal would improve operation to a level of service B or better for all movements, the review of traffic volumes indicates the intersection does not satisfy signal warrants as specified by the *M*[illegible] *Tr*[illegible] *C*[illegible] *D*[illegible] [illegible] *NYSDOT*[illegible]

T[illegible] *S*[illegible] *Ad*[illegible] *A*[illegible] *R*[illegible]

T[illegible] *R*[illegible]

[illegible]

A[illegible] *S*[illegible] *D*[illegible]

NYS Route 22 speed limits are 45 miles per hour entering into the 40 mile per hour speed limit in the section including the site access. Sight distances were observed and summarized with only the intersection sight distance not meeting a 55 mile per hour posted speed looking to the right. Vegetation pruning is recommended to the north of the site access to increase the sight distance to exceed the intersection sight distance. A W2-2 "Intersection Ahead" sign should be posted in advance of the site north and south on NYS Route 22 with a final determination to be made by the New York State Department of Transportation as part of the Highway Work Permit Process.

A[illegible] *Tr*[illegible] *I*[illegible] *S*[illegible] *R*[illegible] *M*[illegible] *T*[illegible] *M*[illegible] *T*[illegible] *Tr*[illegible] *S*[illegible] *A*[illegible] *M*[illegible]

The site access centerline is now located approximately 250' north of the centerline of the I-684 Exit 6A Off Ramp. This location was chosen to maximize sight distance for entering and exiting vehicles and the driveway includes appropriate radii to accommodate entering and exiting vehicles. As part of the Highway Work Permit Review, curbing and shoulder/pavement improvements will be finalized with NYSDOT.

[illegible] *A*[illegible]

The subject site is located approximately three-quarters mile south of NYS Route 138 and the *N*[illegible] *C*[illegible] *S*[illegible] *C*[illegible] Goldens Bridge ~~shopping center~~ on NYS Route 22. The Metro-North rail station is directly west of the Route 22/ Route 138 Intersection on the west side of Interstate 684. A ~~taxi service,~~ post office and grocery store [illegible] all located in close vicinity to the Route 22/ Route 138 intersection [illegible] *N*[illegible] *C*[illegible] *S*[illegible] *C*[illegible]. The nearest bus service to the development site is in the Hamlet of Katonah, located approximately 2.2 miles south of the site (via Jay Street). Information and schedules regarding the Westchester County bus service and Metro-North railroad is provided in Appendix G - Transportation Report. No sidewalks or designated bike lanes are provided on Route 22 either to the north and Goldens Bridge or to the south to Katonah. *T*[illegible] NYS Route 22 has a relatively wide paved shoulder (approximately 10 feet wide), which would allow pedestrians or cyclists from the development to travel to the Hamlet of Goldens Bridge.

It is anticipated that most residents of the WB Lewisboro Affordable Housing development will possess vehicles, based upon the applicant's experience with the Bridleside development in North Salem. Consistent with Bridleside, the ~~a~~*A*pplicant has proposed to provide a 10 passenger shuttle bus or van with handicapped accessibility, to be provided and maintained by the project owner at no cost to the residents. Based upon the owner's experience with the shuttle bus service provided at Bridleside, it is expected that the shuttle bus will provide daily transport to the train station and/or bus stop (for both the a.m. and p.m. peak commuting

period), as well as set scheduled shopping opportunities during the week and on Saturdays. The availability of the shuttle bus is intended to reduce the need for pedestrian travel to and from the site and may reduce the need for vehicles for some residents.

T[illegible] R[illegible] A[illegible] NYSDOT [illegible] T[illegible]

[illegible]

C[illegible]

During construction, as required as part of the NYSDOT Highway Work Permits, a Maintenance and Protection of Traffic Plan will be prepared to ensure than any impacts to the adjacent state highway are minimized during construction. These plans include appropriate signing, and limits of hours of any work within the State *r[illegible]* ~~R.O.W.~~ associated with the project and also maintenance of the construction entrance to the site all in accordance with state standards and requirements. The details will be finalized as part of the Highway Work Permit.

A[illegible] M[illegible]

Based on the transportation report, the proposed residential development will not significantly change the overall levels of service at ~~each of the key locations studied.~~ *NYS R[illegible] (E[illegible]A)[illegible] F[illegible]* Based on the Transportation Report, the projected traffic increase from the development will not exceed the capacity of the existing road network and will not significantly alter the present pattern of movement of people or goods. The ~~a~~*A*pplicant will work with the NYS Department of Transportation regarding the entrance driveway and the development's traffic as part of the Highway Work Permit Process. Given the lack of the project's impact on key locations, no [illegible] mitigation measures are proposed.

3.9 COMMUNITY FACILITIES AND SERVICES

3.9.1 Demographic Resources

***E*[illegible] *C*[illegible]*d*[illegible]**

As discussed, The ~~p~~[illegible]roject ~~s~~*S*ponsor~~, Wilder Balter Partners, Inc. (the "Applicant"),~~ proposes to develop a 46 unit affordable residential community on a 35.4-acre site located on NYS Route 22 in the western portion of the Town of Lewisboro, Westchester County, New York. The project site is located south of the [illegible]*r*~~Hamlet~~ of Goldens Bridge [illegible]approximately three-quarters of a mile south of Route 138 [illegible]and [illegible] *r*[illegible] the Goldens Bridge train station. The project site is currently vacant.

[illegible]***l***[illegible]

The Applicant proposes to construct 45 units of affordable rental apartments plus one superintendents apartment (46 units total). The rental apartments will meet the requirements of the Westchester County Fair and Affordable Housing Implementation Plan. The proposed development will assist Westchester County in meeting its court mandated obligation to complete 750 affordable AFFH units, with building permits and funding in place, by December 31, 2016. The proposed AFFH apartments will also count toward the Town of Lewisboro's substantially unmet "fair share obligation" to create 239 units of affordable housing as established by the County's Affordable Housing Allocation Plan (2000-2015).

As illustrated in Figure 1-3, the 46 apartments will be located in five buildings of eight to ten units. The buildings will contain a mix of one, two and three bedroom units. The majority (eighty percent) of the units will be affordable to residents whose income does not exceed 60% of the Area Median Income (AMI), based upon family size, as established by the Department of Housing and Urban Development (HUD) on an annual basis. To further meet the affordability guidelines, twenty percent of the rental units will be marketed to residents whose income does not exceed 50% of the (AMI).

For the purpose of this analysis the development is envisioned to include 14 one bedroom units, 24 two bedroom units and 8 three bedroom units. The actual number of units and the proposed bedroom counts will be finalized prior to site plan approval. According to the NYS HCR funding guidelines the units are projected to rent for $988 to $1,643 depending upon number of bedrooms, unit size and affordability criteria.

Demographic multipliers published by the Rutgers University Center for Urban Policy Research (CUPR) were used to project the future population of the proposed affordable 46 unit AFFH multifamily community. Population projections are based upon the geographic region, type of unit, number of bedrooms, and the anticipated rental value. *A*[illegible] *d* [illegible] *C*[illegible]*R* [illegible] *d* [illegible] *d* [illegible] *dr*[illegible] [illegible] *d* [illegible] *T*[illegible] *r*[illegible] *d L*[illegible] *d* [illegible] *d* [illegible] *C*[illegible]*R* [illegible] *d* [illegible] *d* [illegible] *d* [illegible] *d*[illegible]As shown in Table 3.9-1, based upon the nature of this development, the multipliers used to project the population are as follows; three bedroom units house 3.81 persons per unit, two bedroom units are 2.31 persons per unit and a one bedroom unit is 1.67 to 1.99 persons per unit depending upon the rental value. By comparison, 2010 U.S. Census data indicate that the average household size for all

housing types in the Town of Lewisboro is 2.78 persons, and the average family size is 3.16 persons.

Based upon the CUPR residential multipliers, approximately 110 persons, including 16 school age children are projected to reside in the anticipated housing. *T*[illegible]

Table 3.9-1 Population Projections					
Unit Type	**Number of Units**	**Population Multiplier**	**Population**	**School Age Children Multiplier**	**School Age Population**
1-BR 50% AMI	3	1.99	6	0.30	0.9
2-BR 50% AMI	5	2.31	11	0.23	1.15
3-BR 50% AMI	1	3.81	4	1.50	1.5
1-BR 60% AMI	11	1.67	18	0.08	0.88
2-BR 60% AMI	18	2.31	42	0.23	4.14
3-BR 60% AMI	7	3.81	27	1.00	7
2-BR Superintendent Apartment	1	2.31	2	0.23	0.23
TOTAL	**46**		**110**		**16**

Source: Rutgers University Center for Urban Policy Research, June 2006. Table prepared by TMA, 2016. Values are based upon 5+ Unit Structures for Rent at more than $1,000 per month for one, two and three bedroom units as noted in the table.

3.9.2 Fiscal Resources

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C[illegible]*rr*[illegible]*A*[illegible]*d* [illegible]

The proposed AFFH multifamily community is contained on the following Town Tax Parcels:

- Sheet 5 - Block 10776 - Lot 19
- Sheet 5 - Block 10776 - Lot 20
- Sheet 5 - Block 10776 - Lot 21

The current equalized assessed value of the three undeveloped parcels is $87,300. This represents 9.9 percent of the total market value of the three parcels. According to a review of the 2015 tax bills for the subject parcels, the total annual property taxes paid to the Town of Lewisboro are $1,639 and the municipal taxes paid to the Goldens Bridge Fire Department are $890. The municipal taxes paid to Westchester County are $2,990. Thus, the total municipal taxes paid are $5,520 while the annual property taxes paid to the Katonah Lewisboro School District (KLSD) are $17,061.

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The New York State Office of Real Property Services (NYSRPS) requires that rental properties are assessed in terms of the value of the income they provide. Based upon the income value of the proposed affordable rental apartments, the total market value of the proposed community is estimated to be $4,717,342. Using the current Town of Lewisboro 2015 equalization rate of 9.9 percent, the total future Assessed Value for this analysis is estimated to be $467,017

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Table 3.9-2 compares the revenues generated presently by the property to the revenues to be generated after the proposed rental community is complete. Revenues are based on the most current 2015 municipal tax rates (2015-2016 tax rate for the Katonah Lewisboro School District).

According to the Town of Lewisboro budget, the Town's tax rate includes Town governmental services, highway maintenance, justice court, police services, and parks & recreation.

As presented in Table 3.9-2, annual revenues to the Town of Lewisboro are projected to be approximately $8,770. Tax revenues to the Goldens Bridge Fire Department are estimated to be $4,762. The tax revenues to Westchester County would be approximately $15,995 annually, thus the total municipal revenue is estimated to be $29,527.

Table 3.9-2 also indicates the annual revenues to the Katonah Lewisboro School District would be approximately $91,268. The net □□*r*□□□□ between the current tax revenues generated by the site and paid to the School District and the total future project-generated revenues to the school district are projected to be approximately $74,207 annually.

As can be seen in Table 3.9-2, overall, the combined tax revenues from each jurisdiction are projected to total more than $120 thousand annually.

Table 3.9-2
Current & Projected Taxes Generated by the 46 Unit AFFH Residential Community

Taxing Authority	Current Tax Rate	Current Taxes ($)	AFFH Projected Taxes Total ($)	Net Increase Between Current & Projected Taxes ($)
Westchester County	$34.2497	$2,990	$15,995	$13,005
Town of Lewisboro	$18.7796	$1,640	$8,771	$7,131
Goldens Bridge Fire District	$10.1963	$890	$4,762	$3,872
Total Town of Lewisboro		$2,530	$13,533	$11,003
Total Municipal	$63.2256	**$5,220**	**$29,258**	**$24,008**
Katonah Lewisboro School District	$195.4287	**$17,061**	**$91,268**	**$74,207**
TOTAL	$258.6543	**$22,581**	**$120,796**	**$98,215**

Notes:
Municipal taxes are based upon Town of Lewisboro 2015 Tax Rates. These rates are in effect 4/1/15 through 4/1/16.
Katonah Lewisboro School District Tax Rates are for the 2015-2016 school year.

I r r r C

A management company will operate and maintain all common areas, facilities and infrastructure included in the proposed action. All of the community aspects of the project will be privately maintained, including the roadway. There are no aspects of the project which are anticipated to result in an ownership, maintenance or operational responsibility to the Town of Lewisboro, thus reducing municipal costs to the maximum extent practicable.

3.9.3 Police, Fire and Emergency Services

E C d

T T L r d N Y r S d R S r NY r d (dr d) r T NYS r L r T ~~The police department~~ headquarters is located at 20 North Salem Road, Cross River, NY, approximately 5.5 miles (driving distance) southeast of the *d* ~~project site. The Town of Lewisboro is served by the New York State Police in conjunction with the Lewisboro Town Police. The New York State Police are stationed on Route 100 in Somers, NY.~~

T N Y r S d L r D r r d ~~The Lewisboro police force provides~~ police protection for the Town of Lewisboro including the hamlets of Cross River, Goldens Bridge, South Salem, Waccabuc *d* ~~,~~ Vista ~~and Grants Corner.~~

The Lewisboro Police Department is led by Police Chief Frank Secret. *A rd d C S r* ~~T~~he Town of Lewisboro ~~has a~~ police force of 12 officers *r r d r r T T* p *r r d r r r* dispatched by the New York State Police when Lewisboro officers are on duty.[1] *L r O r r d* ~~Supplemental~~ police coverage is provided *r d d r* by the NYS Police as needed. According to the Police Chief[2], in 2015 the department handled approximately 1,851 calls for service. The population data from the 2010 Census indicates there are 12,411 persons residing in the Town of Lewisboro. Based upon these figures, there is approximately one *T* police officer for every 1,000 residents and annual average calls per capita equates to 0.15.

Sworn personnel are involved in various programs including Crime Prevention, Accident Investigation, STOP DWI, Commercial Vehicle Enforcement, Intelligence, and Youth Court.

A rd C ~~B~~ased upon location, typical response time to a residence in the proposed community is estimated to be five to ten minutes.

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[1] Source; Lewisborogov.com/police.
[2] Phone conversation with Police Chief Secret on February 1, 2016.

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The proposed development is within the Goldens Bridge Fire District and is served by the Goldens Bridge Fire Department which is a 100% volunteer fire department. *A[illegible]rd[illegible] F[illegible] D[illegible]r[illegible]* the Fire District covers an area of approximately 8 square miles in *[illegible]d [illegible]r[illegible]d* the hamlet of Goldens Bridge which includes a mix of both business and residential areas, as well as a section of Interstate 684 and the Metro North Railroad. Serving a population of approximately 4,000 residents and countless number of commuters who use both Interstate 684 and Metro-North Railroad, the fire department provides coverage 24 hours a day, 365 days a year. The Goldens Bridge Fire Department typically responds to an average of approximately 275 calls annually. Based upon these figures, annual average calls per capita equates to 0.07.

There are approximately 70 active members who serve the community by providing Fire, Rescue, Disaster Relief and Emergency Medical Services to anyone in need. The Goldens Bridge Fire Department is also dedicated to community service by offering scholarships for community minded youth, supporting Scouting organizations of America and supporting other local charities.

The Goldens Bridge Fire Department currently operates 3 engines, 1 tanker truck, 2 heavy rescue vehicles, ~~1 brush unit,~~ and 3 Chiefs' vehicles. These units are staffed by 100 volunteer members who respond from a fire station at 254 Waccabuc Road in Goldens Bridge. The station is approximately 1.5 miles (driving distance) from the subject site. In 2015, the department responded to approximately 250 alarms. These alarms consisted of structural fires, motor vehicle accidents (MVA's), automatic alarms, vehicle fires, mutual aid, and various other calls for assistance. The Goldens Bridge Fire Department does not respond to medical emergency calls. This service is provided by the Lewisboro Volunteer Ambulance Corps LVAC.

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The Lewisboro Volunteer Ambulance Corps (LVAC) provides emergency ambulance service to the project area. ~~Average response time is between five and seven minutes.~~ In 2013, LVAC responded to 416 ambulance calls. According to their records, 320 patients were transported to area hospitals. Based upon these figures, annual average calls per capita equates to 0.04.

Each ambulance response is staffed by a crew chief who is a New York State Certified Emergency Medical Technician, and a driver, who may or may not be an EMT. Most calls have a third crew member, referred to as the first aider, who also may or may not be an EMT. The crew chief is in charge of patient care decisions, including which hospital the patient is transported to.

The Town of Lewisboro is one of several towns in northern Westchester County which are additionally served by a paramedic service, Westchester EMS. *A[illegible]rd[illegible] [illegible] [illegible]r EMS [illegible]r[illegible] [illegible]r[illegible] r[illegible] [illegible] N[illegible]r[illegible]r[illegible] [illegible]r [illegible] [illegible]r[illegible] [illegible]* There are three paramedic fly cars in service at all times and one is paged out along with LVAC on all calls. If the patient's condition warrants ALS, the paramedic will ride with the LVAC crew and provide advanced life support.

LVAC currently operates 2 ambulances, 67B1 and 67B2, the B standing for basic life support. The Corps also has a first response vehicle, a fully-equipped Chevrolet Tahoe. The Corps has

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[illegible] *[illegible]r[illegible] [illegible] D[illegible] C[illegible]dd[illegible] [illegible] [illegible]r EMS[illegible]A[illegible]*

approximately 40 riding members. All members are trained to use AEDs (Automatic Electronic Defibrillators), and LVAC has 10 Lifepak AEDs. LVAC also participates in the Epipen program to administer epinephrine, is certified to use albuterol for the treatment of asthma, and trained to use glocometry. They have recently added the Lucas device to all vehicles which is used to provide continuous CPR for any patients that require the treatment.

The primary hospital serving the project area is Northern Westchester Hospital in Mt. Kisco. Services offered by this hospital include: emergency services, ambulatory surgery, cardiopulmonary center, diagnostic imaging, mental health unit, MRI center, nutritional services, occupational therapy, pediatrics, physical therapy, prostate cancer treatment, alcohol & substance abuse, speech & hearing, and a wound care center.

According to Northern Westchester Hospital[□], its physicians represent all of the medical specialties and offer their patients the latest in medical care supported by nursing, clinical, and technical staff. Northern Westchester Hospital also offers various outreach programs that present preventive medicine and wellness subjects.

Although LVAC transports most patients to Northern Westchester Hospital in Mt. Kisco, occasionally patients are transported to Putnam Hospital in Carmel, Westchester Medical Center in Valhalla, and Danbury or Norwalk Hospitals in Connecticut.

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As shown in Table 3.9-1, development of the proposed residential community is anticipated to result in a population increase of approximately 110 persons. This increase represents less than one percent of the current Town population of 12,411 (2010 Census).

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Based on planning standards contained in the Development Impact Assessment Handbook published by the Urban Land Institute, model factors for police protection recommend two (2) police personnel per 1,000 persons which further breaks down to 1.5 police personnel per 1,000 persons for residential uses and 0.5 police personnel per 1,000 persons for nonresidential uses. Based on this standard, 110 persons would increase police staffing needs by less than one quarter of a person which is not likely to have an impact on the Town's police personnel ratio of 1.0 officers personnel per 1,000 residents. As discussed earlier, annual average calls per capita equates to 0.15, thus it can be expected that calls for service to the Police Department would increase by approximately 17 calls annually.

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Based on planning standards published in the Development Impact Assessment Handbook, approximately 1.65 fire department personnel per 1,000 population is recommended to provide adequate fire protection service. One hundred ten new residents would generate demand for an additional 0.18 fire department personnel. As discussed earlier in this section, the proposed development would generate $4,762 in annual property tax revenues to the fire district to offset any additional demand. The proposed site access roads will be designed in accordance with Town road specifications which are designed to adequately accommodate emergency service vehicles. As discussed earlier, annual average calls per capita equates to 0.07, thus it can be

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expected that calls for service to the Goldens Bridge Department would increase by approximately 8 calls annually.

Each of the proposed residential buildings will be equipped with fire sprinklers and the water system is designed to meet the combined peak flow for domestic and sprinkler use. Fire hydrants are not proposed given the use of sprinklers. The ~~a~~*A*pplicant will provide emergency back-up water supply storage in underground tanks. The ~~a~~*A*pplicant will work with the Goldens Bridge Fire Department regarding the final design for emergency back-up water supply.

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Based on planning standards contained in the Development Impact Assessment Handbook, approximately 36.5 calls per 1,000 population are made annually. Based on this standard, the 110 residents would increase EMS calls by approximately four calls annually on average. The Lewisboro Volunteer Ambulance Corps has sufficient capabilities to handle this increase. As discussed earlier, annual average calls per capita equates to 0.04, thus it can be expected that calls for service to the Lewisboro Volunteer Ambulance Corps from the proposed development would be approximately 4 calls annually.

□ □□□□□□

Based on planning standards contained in the Development Impact Assessment Handbook, four (4.0) hospital beds should be provided per 1,000 persons. Based on this standard, the projected population increase associated with the proposed residential development has the potential to increase the need for beds in hospitals serving the Northern Westchester County area by less than half of a bed. This is not considered a significant impact**.**

3.9.4 Comparison to Bridleside, North Salem

New housing developments are often controversial. Existing residents like the character of their existing neighborhoods and are often attached to the undeveloped parcels which have provided areas of open space. There are also practical considerations like traffic, property values and additional school children, that can be cause for concern. These concerns can be even more exaggerated when the proposal is for affordable housing.

~~Wilder Balter, t~~*T*he ~~p~~□roject ~~s~~*S*ponsor~~,~~ has successfully developed many multifamily communities throughout the Hudson Valley, including a substantially similar affordable housing development in the neighboring Town of North Salem, known as “Bridleside” which provides a vision for the subject proposal. The Bridleside residential development includes 65 units of affordable housing with a similar mix of one, two and three bedroom units as are proposed in the 45 unit WB Lewisboro Affordable Housing Development. The projected funding sources and rental values will be virtually identical in the two developments. The market values of residential real estate is comparable in North Salem and Lewisboro. The tax structure, tax rates and equalization rates are also similar in the two communities. Beyond the projections provided in development models, real life experience with similar development can provide an accurate window into what the future will bring post development.

Table 3.9-3 shown below provides data on population and relevant demands for community services at the Bridleside project. Data was gathered from the Town of North Salem Police Department, the North Salem Fire Department, the North Salem Volunteer Ambulance Corps. And the North Salem School District. Table 3.9-3 lists the annual calls for service to the North

Salem emergency service providers, and compares this data to the projections of demands for community services anticipated from the Lewisboro residential community. Since the proposed Lewisboro development is 45 units compared to the 65 units built in Bridleside, the statistics for Bridleside have been factored by 69% to provide a direct comparison to the Lewisboro projections.

A count of school age children who reside at Bridleside indicates there are a total of 35 students, however of this total 9 students already lived within the North Salem School District, indicating the increase in the school districts enrollment was 26 students as shown in Table 3.9-3.

Table 3.9-3
Impact Comparison Bridleside vs. Lewisboro AFFH

Area of Concern	**Bridleside North Salem**		**AFFH Lewisboro**
[illegible]***d*** [illegible]			
Total Site Area (acres)	40.0		35.4
Total Area of Disturbance (acres)	14.1		9.0
Impervious Surfaces (acres)	3.1		2.4
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	Bridleside Full Value	**Bridleside Factored at 69%**	**AFFH Lewisboro**
Residential Units	65	45	45
Population	137	95	110
School-age Children - New to the District	26	18	16
Police Annual Calls for Service	23	16	17 *
Fire Annual Calls for Service	17	12	8 *
Ambulance Annual Calls for Service	7	5	4 *
Municipal Taxes	$44,588	$30,766	$29,527
School Taxes	$102,076	$70,423	$91,268

Notes: Estimates are approximate.
Source: Insite Engineering; Tim Miller Associates, Inc., 2016
* Based upon existing average annual calls within the current service area.

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~~As Table 3.9-3 shows the actual calls for emergency service at Bridleside are consistent with the projection of need from the Lewisboro development.~~ *T* [illegible] *L* [illegible] *d* [illegible] The anticipated [illegible] calls for emergency services [illegible] *d* [illegible] is not anticipated to result in any significant impact to police protection, or fire and emergency service provision in the Town of Lewisboro ~~as a result of the construction of the proposed residential development~~.

Add[illegible]~~T~~he proposed development will generate tax revenues to [illegible]~~balance any potential increases in the cost to various municipal and other district services~~.

T[illegible] *L*[illegible] *T*[illegible] *CC*[illegible]

S[illegible]

There are expected to be secondary benefits to the local economy as a result of construction activities and the future spending by the new residents of this project. The spending of residents expected to live at the proposed development will benefit commercial businesses in the local area and the region, both in the Town of Lewisboro and the surrounding region.

3.9.5 Schools

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The project site is served by the Katonah Lewisboro Union Free School District. The District includes three K-5 elementary schools, one middle school (grades 6, 7 and 8), and one high school. The Katonah Lewisboro Union Free School District geographically includes all of the Town of Lewisboro and the Katonah Hamlet area in the Town of Bedford, and smaller portions of the Town of North Salem and the Town of Pound Ridge.

According to information provided by the School District[6], enrollments have been steadily decreasing over the past 10 years. As of October 2014, 3,204 students were enrolled in the District. Table 3.9-4 below summarizes the 2014-2015 grade distributions and enrollments of the various schools within the District:

Table 3.9-4
Katonah Lewisboro School District (2014-2015 School Year)

School	Grades Served	2014 Enrollment
Increase Miller Elementary School	K-5	479
Katonah Elementary School	K-5	415
Meadow Pond Elementary School	K-5	384
John Jay Middle School	6-8	777
John Jay High School	9-12	1,149
TOTAL		**3,204**

Katonah Lewisboro School District, 2015.

All of the schools in this School District received a rating of “5” from the New York State Public School Report Card of Comprehensive Information with respect to the “district need to resource capacity”. This rating states that “this is a school district with average student needs in relation to district resources capacity”.

[6] Katonah Lewisboro Union free School District 2015-2016 General Fund Budget Book, April 2015.

[illegible]

As shown in Table 3.9-1, based upon demographic multipliers published by the Rutgers University Center for Urban Policy Research, approximately 16 students are projected to reside in the proposed residential development.

According to the Assistant Superintendent for Business, Based upon the geographic location of the project site and the current student distribution among schools in the district, it is likely that students from the proposed residential development would attend the Increase Miller Elementary School, the John Jay Middle School and the John Jay high School. It should be noted that student distribution is reviewed annually and is subject to change.

[illegible]

The budget for the 2015-2016 school year for the Katonah Lewisboro Union Free School District totals approximately $108,731,720. The portion of the budget to be raised through taxation is $95,904,695 - approximately 88 percent of the budget is met through the property tax levy. The addition of 16 students to a population of more than 3,200 students represents an increase of less than half of one percent. [illegible] This deminimus increase in student population will not have a significant impact on administrative or capital needs of the district. Any costs to the District's would be related specifically to instruction and transportation, which are referred to as marginal costs, District wide, these costs total $49,544,464[8]. Since 88 percent of the Budget is to be raised by the tax levy, the portion of these costs to be raised by the tax levy total $43,599,128.

With an enrollment of 3,204 students, the per-student marginal cost to be raised by the tax levy are calculated to be $13,608, ($43,599,128 / 3,204). This cost is likely overstated given the small percentage of new students compared to the existing student population. Projected costs to the school district could be up to $217,728 annually based on an estimated 16 students that would reside in the community.

The proposed residential housing development is estimated to generate $91,268 in property tax revenues annually to the school district. Thus, the overall impact on the district's budget could conservatively result in a cost of up to $126,460. If this cost materializes, it would need to be met by an adjustment to the overall tax rates of the School District of approximately 25 cents per $1,000 of assessed valuation. For a typical home in the Katonah Lewisboro District, this translates into approximately $12.50 per household.

The anticipated cost of education must be balanced with the fact that the WB Lewisboro Affordable Housing Development will be a resource that will provide for affordable housing that will help to advance the Town and County goals for such housing and will help to satisfy local and regional housing needs, truly a mitigation factor that must be given appropriate consideration.

[illegible]

[8] Katonah Lewisboro Union Free School District 2015-2016 General Fund Budget Book, April 2015, page 11.

Construction is projected to take 12 to 18 months which is likely to be spread over two school years. The increased student population is also expected to be distributed throughout the grade levels, resulting in an average of less than one student per grade. The multi-year phasing and distribution of students will allow for an additional 16 students to be integrated to the local schools with minimal impact. Conversation with the Business Administrator for the Katonah Lewisboro District[9] indicated absorption of the new students should not present a capacity problem for the school district, particularly in light of the declining enrollment trend the district is experiencing.

A letter from the School District, dated April 25, 2016 states "If the enrollment continues to decline as projected, and if these new students are distributed among all of the different grade levels, we will likely be able to handle the students without any problem." The District provides additional detail as to the potential for impact in the unlikely event that all 16 students were to attend the same grade. The letter is included in Appendix B for reference.

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[9] Information provided via phone conversation, 1/26/16 with Mike Jumper, Assistant Superintendent for Business of the Katonah Lewisboro School District.

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T A d d S D r r rd r r The development plans will be forwarded to the School District for review and comment on transportation safety, bus turning radius and bus stop locations. *T A rd D r r r d r d r d r r d r r d r r d r r* Since the potential for significant impacts is minimal, no further mitigation is proposed.

3.9.6 Summary

Lewisboro has a responsibility to provide its share of the regional need for affordable housing. This need was recognized by the Town Board in its adoption of Local Law 7-2015 permitting the development of multi-family housing, including AFFH units, in various zoning districts throughout the Town (including the CC-20 zone in which the subject site exists).

As set forth in the Westchester County Affordable Housing Allocation Plan 2000-2015 (November 9, 2005), 239 units were estimated as Lewisboro's "fair share obligation" which has been substantially unmet. The WB Lewisboro Affordable Housing Development will provide needed affordable housing opportunities for the Town of Lewisboro. *A r d* will be designated affordable, in accordance with Westchester County's eligibility requirements. *T C d d r r d AFF r T L r (r) d d r rd r r r d d r*

Most impacts to be considered in development projects are site specific – traffic, visual, natural resources, etc. But fiscal impacts are not site specific other than whether or not a site has public roads, water, sewer and/or sanitation. Fiscal impacts relating to school children are not at all site specific and therefore must be supported by the entire community.

A d r C A rd A (N r) d L r r r r r rd ( ) The proposed 45 units in the WB Lewisboro Affordable Housing Development represent less than ~~25~~% of the Town's "fair share obligation" to provide affordable housing. Given the privately owned infrastructure and the relatively low expected population of school age children, the fiscal impacts of these affordable units r ~~could not be any less.~~

L r r r C r T L r N r Dr d D C r r C D r r d d M r

3.10 IMPACT ON THE COMMUNITY

C[illegible] *C*[illegible]*d C*[illegible]*C*[illegible]*r*

***E*[illegible] *C*[illegible]*d*[illegible]**

The subject property encompasses 35.4 acres of land on three lots located in the Town of Lewisboro, Westchester County, New York. The property is located on the east side of NYS Route 22, proximate to the I-684 northbound Exit 6A ramp and south of *R*[illegible] [illegible]~~the hamlet of Goldens Bridge.~~ The three parcels are located in the following special districts: Katonah-Lewisboro School District and Goldens Bridge Fire District. The two westerly lots are located in the CC-20 zoning district and the easterly lot is located in the R-4A zoning district.

The site is located approximately three-quarters of a mile south of the *N*[illegible]*r*[illegible] *C*[illegible] *S*[illegible] *C*[illegible]*r*~~hamlet of Goldens Bridge~~, which includes several community-scale commercial businesses~~,~~ [illegible]*d* a post office, [illegible]~~a community center and~~ *l*[illegible]*r*[illegible] [illegible]*r*[illegible] the Goldens Bridge Metro-North train station. Generally within approximately [illegible]~~three-quarters of a~~ mile of the site, land uses to the north and west include residential, public uses, warehouse (King's Lumber), commercial, retail, transportation and vacant land. To the south and east, land use is predominantly single family residential, and vacant land.

The subject property, while possibly used informally ~~(and illicitly)~~ by individuals for hunting activities *(*[illegible]*r*[illegible] [illegible]*r*[illegible] [illegible]*d*[illegible]*r)*, is privately owned land that is not designated for any public use by the community.

T[illegible] *M*[illegible]*r* [illegible]

The Town Master Plan outlines policies and goals formally adopted by the Town of Lewisboro in 1985[1] as a guide for land use and future development in the Town. In its Plan, the Town identified considerations for preservation of open space[2] resources as well as for development that are generally applicable to the subject proposal today. The Plan does not identify site-specific consistency criteria, but it was intended to provide overall guidance on the local scale for land planning decisions. Consistency of the proposed development with policies identified in the Plan, to the extent such policies are defined, is described below.

The 1985 Town Master Plan speaks of a vision for land use in the I-684/Route 22 corridor that would provide for development of campus commercial land use that would also incorporate the preservation of open space. Campus commercial development was envisioned and planned for in the area bordering Route 22 including the subject site and paved the way for the subsequent rezoning to CC-20. As stated in the Master Plan relative to campus commercial facilities, adequate buffering between such use and adjacent residential areas would allow the two different types of land use to coexist, and reduce impacts to the natural environment resulting from development.

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[1] Accessed on the Town's website 1/21/16.

[2] The Master Plan specifically distinguishes a difference between "open space" and "undeveloped" land, as further explained in a footnote in section 3.6. By its definition, the Master Plan does not consider the undeveloped project site as open space.

R r

A recent amendment to the zoning code adopted by the Town Board in 2015 (LL 7-2015) added provisions that would permit multi-family housing in commercial and business areas. ~~A joint task force composed of members of the Planning Board, Zoning Board of Appeals, Architectural Review Council and Housing Committee had been tasked with exploring ways to enable Lewisboro to comply with the obligations of the Westchester County Housing Settlement, and to facilitate the effort to provide fair and affordable housing in Town.~~ The amended provisions of the code apply to the subject site and is particularly appropriate for this application for affordable housing.

In ~~her~~ letter of January 25, 2016 to the Chair of the Lewisboro Planning Board, the Chair of the Lewisboro Housing Committee stated:

> The majority of the Housing Committee feels that the proposed Wilder Balter 45-unit development would accomplish the goal for which the Zoning code was amended: providing fair and affordable housing in Lewisboro. The construction of the proposed AFFH housing in Lewisboro would also substantially help Lewisboro and the County in complying with the Settlement, joining other nearby towns such as North Salem, Pound Ridge and Bedford, who have also taken steps in this direction.[3]

/

The site plans developed for this affordable housing application show and tabulate the various zoning requirements of the CC-20 and R-4A districts applicable to the property, including the new reference to the provisions for multi-family dwellings which are found in the R-MF requirements. The plans identify the conformance of this proposal to the applicable zoning requirements including the following information:

- Front, side and rear yard setbacks of the R-MF district or double the R-4A district setback, as applicable (these replace the setbacks of the CC-20 district);
- Density transition area of the R-MF district (replaces the perimeter buffer of the CC-20 district);
- Buffer lot with conservation easement (CC-20 district requirement);
- Town wetland control area and State wetland adjacent area; and,
- Tables with the applicable net land area calculations, density unit calculations, parking requirements and recreation requirements.

Multi-family dwellings is a permitted use in the CC-20 district, subject to the requirements of Section 220-26, Multifamily Residence District (R-MF), of the Zoning Code. The dimension and bulk zoning requirements of the R-MF district replace those of the underlying CC-20 district (to be confirmed by the Planning Board Attorney or Building Inspector).

The ~~a~~*A*pplicant is proposing a total of 92 parking spaces for this facility (2.0 per unit), whereas 124 spaces are required by zoning based on the proposed bedroom count. The required number of spaces far exceeds the parking needs of the development based upon the ~~a~~*A*pplicant's experience with other similar developments owned and managed by the ~~a~~*A*pplicant throughout the Hudson Valley. For example, the Bridleside 65-unit affordable rental community

[3] See January 25, 2016 letter to the Chair of the Lewisboro Planning Board from the Chair of the Lewisboro Housing Committee.

in North Salem was approved with 144 parking spaces but a recent three day survey showed that only 76 spaces were being used (53 percent of the requirement or 1.17 cars per dwelling unit). Another example is the 92-unit Roundtop affordable rental community in Montrose which was approved with 141 parking spaces (1.5 parking spaces per unit).[4] The survey for that property showed that only 98 spaces were being used (70 percent or 1.07 cars per dwelling unit). Accordingly, the ~~a~~*A*pplicant is requesting a parking variance from the Zoning Board of Appeals.

The project site is located in a rural setting where there is no public sewer and water infrastructure available nearby. Like other development in the local area, the proposed action includes development of its own water supply from groundwater wells and a conventional sanitary treatment (septic) system. This project is of modest size, and is located next to a major transportation corridor, so that [illegible] *A*[illegible] the project ~~that~~ does not warrant any road improvements (see Section 3.8.)[illegible] *NYSDOT* [illegible] *d*[illegible] *r*[illegible] [illegible] *r*[illegible] *r*[illegible] *r*[

The site plan will incorporate various conventional slope protection and wetland protection measures that will minimize the potential for soil erosion and surface water impacts. The plan also will incorporate tree preservation measures (particularly by minimizing the overall area of site disturbance) and proposed landscape plantings that will minimize visual intrusion and create an asset to the community. Moreover, the site plan will preserve a significant area located outside of the limits of disturbance in permanent open space.

Refer to the preceding narratives in this Part 3 on specific subject areas for discussions of environmental concerns relating to particular physical components of the proposed plan that are integral to the design and will effectively avoid or minimize impacts.

The proposed plan, in the *aApplicant's opinion, will be consistent with the Town's Zoning Statement of Purpose (§220-1): "To preserve the natural beauty of the physiography of the Town; to protect the Town against unsightly, obtrusive and obnoxious land uses and operations; to enhance the aesthetic aspect of the natural and man-made elements of the Town; and to ensure appropriate development with regard to those elements." The current zoning code permits multi-family housing at this site and the proposed plan incorporates measures to make it compatible with its surroundings, such as preservation of aesthetic buffers (described above), placement of buildings and other site elements that minimizes visibility from off-site, and permanent preservation of wooded open space. *T[illegible] C[illegible]d[illegible] SE[illegible]RA [illegible]*

While there is a mix of architecture evident in the local area including the train station, shopping center, various commercial establishments and a variety of house styles, there is no predominant architectural scale or character in the Route 22 corridor with which the proposed buildings would be inconsistent. Likewise, the proposal to preserve a large portion of the property as natural woodland is not inconsistent with the surrounding wooded landscape.

The proposed plan will meet the site plan standards set forth in §220-48 which the Planning Board will consider in acting on a site development plan application:

> (1) The proposed number, size, location, height, bulk, use, appearance and architectural features of all structures and facilities.
>
> (a) The overall building and site design shall enhance and protect the character and property values in the surrounding neighborhood.
>
> (b) Development shall be compatible with the architectural style and visual composition of the hamlet area in which it is located.
>
> (c) Development shall have a harmonious relationship with the natural terrain and vegetation on the site and on adjacent properties.

The proposed plan will address a housing need cited in the Town Master Plan. In it's determination of significance at the time that multi-family dwellings was added as a permitted use in the CC-20 district regulations (LL 7-2015), the Town's findings stated the "...definition of AFFH Unit ... in addition to allowing multifamily housing within the Town's commercial zones, is consistent with the Goal and Policy set forth in the Town Master Plan, which recites that 'opportunities should be provided for a range of housing, including type, cost and character' (Town Master Plan, Goal 1C)."

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[6] *T[illegible] C[illegible]d[illegible]NY S[illegible] T[illegible] L[illegible]d SE[illegible]RA [illegible]*

The Westchester County Department of Planning supports the development of affordable affirmatively furthering fair housing (AFFH) rental units in the Town of Lewisboro. Specifically related to this proposal, the County has indicated it is ready to move forward with the request for housing assistance funding made by the developer.[7]

According to the Commissioner, Westchester County Planning Board, this application is consistent with the County's long-range planning policies and strategies. The Commissioner stated this application is consistent with the Westchester County Planning Board's long-range planning policies set forth in □ □□□□□□□□*r* □□□□ □*C*□□□□□□□□*r C*□□□□□ □□*d M*□□□□□□□□□□□□□□□ □□*d* □□□□□□□□ □□ □□*d*□ *C*□□□□□ □□□□□□□□ *(*adopted 2008 and amended 2010), and its recommended strategies set forth in □□□□*r*□□ □□*r* □ □□□□□□□□□*r*□ *T*□□ *L*□□*d* □□*d* □□□ □□□□□□ (adopted 1995), which calls for increasing the range of housing types in Westchester County.[8]

The ~~a~~*A*pplicant is cognizant of the Town's Complete Streets Policy adopted in 2011 and although the policy does not specifically address individual site plans, this development proposal will conform with the policy as it might be applied to the plan.

The proposed affordable housing development plan addresses the Town's design principles relative to environmental protection and visual consistency, in the ~~a~~*A*pplicant's opinion. The proposed site plan has been laid out such that the buildings and other site features will be virtually surrounded by wooded open space, will not be visually prominent at any time of year, and will be largely obscured from off-site views when leaves are on the trees.

The development includes a natural landscape buffer to the public roads and nearby uses through the preservation of existing vegetation over much of the property. (These buffers reflect what is depicted for the property in the Town's Master Plan map of 1985.) In addition to the mixture of native and adaptive deciduous and evergreen tree and shrub species proposed on the landscape plan, natural topographic conditions render the development area of the site largely obscured from view from most off-site locations thereby avoiding potential impact on community character.

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[7] Letter to Jerome Kerner, Chair, Town of Lewisboro Planning Board, from Norma V. Drummond, Deputy Commissioner, Westchester County Department of Planning, dated March 11, 2016.

[8] Letter to Ciorsdan Conrad, Planning Board Secretary, Town of Lewisboro, from Edward Buroughs, AICP, Commissioner, Westchester County Planning Board, dated February 12, 2016.

APPENDIX K

Integrated Pest Management Plan

INTEGRATED PEST MANAGEMENT PLAN

WB Lewisboro Affordable Housing
NYS Route 22
Town of Lewisboro, New York

Lead Agency: Town of Lewisboro Planning Board
20 North Salem Road, Suite L / Lower level
P.O. Box 725
Cross River, New York 10518

Prepared by: Tim Miller Associates, Inc.
10 North Street
Cold Spring, New York 10516
Contact: Jon Dahlgren
(845) 265-4400

A ~~**June 2,**~~ **2016**

WB Lewisboro Affordable Housing
Integrated Pest Management Plan

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1.0 OBJECTIVES AND GOALS

The overall objective of an Integrated Pest Management (IPM) Plan for the WB Lewisboro Affordable Housing development is to provide a safe, comfortable and attractive living environment for the residents of WB Lewisboro, while effectively and safely managing biological pests at the development with minimum impacts to human health and the environment. This plan is intended to be used by the WB Lewisboro owner as a site specific, hands-on guidance document for pest management. It is not intended to supersede NYS law or NYSDEC guidance procedures for the application and management of pesticides.

The WB Lewisboro development owner will be responsible to: maintain the integrity of the buildings and grounds, protect the health and safety of the residents and general public, maintain a viable living environment and reduce potential impacts to the watershed. Following are the goals of the IPM Plan:

- minimize pesticide exposure to residents and the watershed.
- manage pests and the environment so as to balance costs, benefits, public health, and environmental quality.
- reduce the use of pesticides through proactive application of non-chemical management practices; by maximizing spot treatments and eliminating broadcast treatments; by making applications only where development of a pest has exceeded an established tolerance threshold as determined by routine monitoring; by selecting and using conventional pesticides through favoring products that minimize risks to human health and safety and are least-toxic to the watershed and the environment in general.
- reduce phosphorus pollution caused by the excessive use of fertilizers and roadway deicers containing phosphorus.

2.0 POLICY STATEMENT

The WB Lewisboro development owner recognizes that (1) pests can pose a significant risk to health and property, (2) that there may be significant risks inherent in using chemicals in a residential environment, and, (3) that there are alternatives to conventional treatments. Therefore, policies of the WB Lewisboro development owner will be as follows:

- implement and practice a comprehensive IPM program for all properties contained within and under the jurisdiction of the development owner;
- control pests within and on those lands and facilities under the regulation of the development owner. Pests can pose hazards to human health, damage property, and create unappealing visual blight;
- reduce potential exposure to pesticides to residents and to the watershed. Exposure to pesticides can pose a health risk to WB Lewisboro residents families, which can be minimized by practicing IPM;
- prohibit regularly scheduled broadcast applications of pesticides; and,
- prohibit use of phosphorus laden deicers.

3.0 DEFINITIONS - ROLES & RESPONSIBILITIES

Integrated Pest Management:

The Integrated Pest Management approach essentially involves: the practice of prevention, treating only when necessary, and use of the safest available alternative to do the job. The key to IPM is accurate pest identification and the knowledge of the pest's life cycle and vulnerability. Integrated Pest Management involves careful monitoring for pests, and the use of a wide range of methods to exclude, remove, drive away, or kill pests with the least possible hazard to people, property, and the environment. A combination of cultural, mechanical, biological, and other techniques is used; chemical controls are a last resort.

An important aspect of the IPM approach involves planning ahead to avoid or minimize future pest problems. Decisions made during the landscape design, turf and plant selection and maintenance of a turf area can significantly reduce the potential for pest development.

WB Lewisboro was designed to minimize the total area of managed turfgrass, reducing the *d*~~need for~~ landscape maintenance. Lawn is proposed in limited areas around the residential buildings. The proposed Subsurface Septic Disposal System (SSDS) will be planted with a wildflower conservation seed mix and will be minimally maintained. A conservation seed mix is also proposed at the edges of the development, between managed lawn and existing native vegetation. Native species of shrubs and trees were selected for pest and disease resistance. Reducing the area of maintained turfgrass has several advantages. The area requiring mowing, fertilizing, and potential pesticide use is substantially reduced. Secondly, smaller, more isolated patches of turfgrass are less prone to disease and pest infestations.

The Integrated Pest Management approach ~~stresses~~ less emphasis on traditional pesticide (insecticide, herbicide, fungicide, etc) use. Less pesticide use and disposal by WB Lewisboro residents and maintenance contractors also means less pesticide to make its way into streets, storm drains, streams and eventually, into the watershed. In rural residential areas such as Lewisboro even a small reduction in the use of pesticides by individual residents can have a significant impact on the reduction of pollutants that make their way into the watershed.

The Integrated Pest Management approach goes beyond routine applications of pesticides. Rather, the IPM Coordinator will assess why a pest outbreak has occurred, and whether cultural practices can be adjusted to reduce damage and the risk from future problems. All appropriate management options are considered. Pesticides are only applied when necessary *d r d d r r r r d*.

IPM is a common sense pest control strategy based on two simple tenets:

1) treat only when necessary, and,
2) use the safest available alternative to do the job.

Thus, in practice, IPM involves careful monitoring for pests, and the use of a wide range of methods to exclude, remove, drive away or kill pests with the least possible hazard to people, property, the watershed and the environment in general.

Project Owner

The WB Lewisboro development owner is responsible for the maintenance of common areas, including all common landscaping, *dr* *d* *r* *r* ~~streets~~ and common utilities. While the project owner is ultimately responsible for the implementation of the IPM policy, the duties and responsibilities of day-to-day pest management will fall to the IPM Coordinator/ Contractor.

IPM Coordinator

The IPM Coordinator is a qualified individual *d* ~~or~~ company designated (hired) by the development owner to oversee the IPM program and perform notification duties. For the WB Lewisboro development, ~~the facility landscaping contractor will serve as the IPM Coordinator. One individual~~ staff member of the *d* *r* *d* WB Lewisboro ~~landscaping contractor firm~~ will be designated as the IPM Coordinator.

The IPM Coordinator will be responsible for making decisions regarding pest control and shall have an understanding of the pest control needs of the project owner. This person shall also partake in continuing education and have access to Integrated Pest Management resources. The IPM Coordinator shall have primary responsibility for ensuring that this IPM policy is carried out. Duties shall include:

- Reporting IPM activities to the project owner;
- Accurate identification of pests, and research and development of suitable and cost-effective IPM methods to enable continued reduction of pesticide use;
- Coordination with project owner, residents and staff to gather current information on pesticide or pest-related health and safety issues;
- Coordination with custodial, building and grounds maintenance staff and service providers to ensure implementation of pest prevention measures;
- Oversight of any staff engaged in monitoring of pest problems and pest management actions;
- Carrying out posting and notification, record keeping, education and IPM training provisions of this policy;
- Oversee the use of approved deicing methods and materials for snow and ice removal;
- Establishing population levels (tolerance thresholds) that constitute unacceptable levels of pest presence in residence *d* s and in WB Lewisboro common areas.

Action/Tolerance Threshold

The action threshold is the population level of a pest, above which it becomes necessary to actively manage its population. Action thresholds are unique to both specific pests and specific locations, and reflect the priority that is attached to controlling a particular pest. High priority pests are considered a threat to human health and immediate action is warranted (e.g., wasps, roaches, *r* rodents~~,~~ in close proximity to human habitations). Those that do not pose such a threat have lower priority, and treatment or removal can be delayed. The WB Lewisboro owner in cooperation with the IPM Coordinator will establish pest tolerance thresholds to indicate pest population levels at which control measures will be undertaken. An example of action thresholds

for common pests is provided as Appendix A. The IPM Coordinator will modify action thresholds as needed to address the specific requirements of the WB Lewisboro development.

Monitoring

Monitoring is the regular inspection of the buildings, grounds and facilities throughout the year~~, allowing pest managers~~ to detect pests early before they reach damaging levels. By monitoring, the designated IPM Coordinator shall assess the need for action, evaluate how well control tactics have worked, and ~~develop~~ site history information that helps in anticipating future problems. Careful monitoring that is documented is the key to IPM and distinguishes it from conventional pest control programs. Monitoring identifies those areas that are most likely to need treatment and will determine the type and nature of treatment. While comprehensive, the monitoring aspect of the program shall be as simple as possible.

Monitoring procedures are further described in Section 4.1 Monitoring, below.

Pest

Article 33 of the New York State Environmental Conservation Law defines a pest in part as: (1) any insect, rodent, nematode, fungus, weed, or (2) any other form of terrestrial or aquatic plant or animal life which the commissioner declares to be a pest.

Pesticide

Article 33 of the New York State Environmental Conservation Law defines a pesticide as (1) any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, or (2) any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant. Commonly, pesticides are known as insecticides and herbicides.

4.0 PEST MANAGEMENT PROCEDURES

4.1 Monitoring

Monitoring Techniques

Monitoring involves regular inspections of areas and features where pest problems might occur to provide information for determining if, when, where, and how pest management practices shall be implemented. Once treatments have been applied, monitoring is done to record the results of those treatments. Over time, as monitoring results accumulate, patterns in the occurrence of pests and the results of applied pest management practices become evident. This information shall then be used to evaluate and then improve the integrated pest management program.

Successful management of pests and insects depends on the early detection of pests before they reach damaging levels. This shall be accomplished through frequent facility and plant inspections to detect early signs of insects and their damage. Monitoring is a systematic method of inspecting structures, turf and landscaping for pests and cultural problems, and is the backbone of the pest management program. Its primary goal is to detect, identify, delineate, and rank pest infestations.

The IPM Coordinator shall inspect turfgrass, planted bushes and trees, and *r* ~~rain garden plantings~~ on a weekly basis during the growing season (May through October). Natural *d* ~~ly maintained~~ areas (including *r* *rd* ~~the proposed~~ Subsurface Septic Disposal System *r* ~~)~~, ~~planted~~ stormwater basins, and wetland mitigation plantings*)*~~,~~ shall be inspected on a monthly basis during the growing season. Any indications of plant disease, stressed or dying plants or turf, and/or pest infestations will be documented in writing ~~and records maintained of potential pest problems~~ (see Section 6.0. Record Keeping).

The WB Lewisboro owner, through informational outreach, will encourage residents to report any pest problems (indoor or outdoor) to the owner representative *d* *r* *d* *d* *d* *d* *r* *d* . The ~~development~~ owner representative shall contact the IPM Coordinator to inspect *d* ~~or~~ follow-up on potential pest problems reported by homeowners. ~~The development owner will encourage WB Lewisboro residents to coordinate any pest treatment with the IPM Coordinator and avoid pesticide application by individual residents.~~

4.2 Tolerance Thresholds

Tolerance thresholds are flexible guidelines that are usually defined in terms of the level of pest abundance or damage that can be tolerated before taking action. They are typically based on a number of variables including pest species, abundance, and life stage; variety and value of the impacted resource (turf, trees); relative effectiveness *r* ~~and~~ cost of control measures; and time of year. Treatment thresholds are not hard rules that apply to every situation, but when used conscientiously they help IPM Coordinators make effective pest management decisions.

The development owner in cooperation with the IPM Coordinator shall establish pest tolerance thresholds to determine pest population levels at which control measures will be undertaken. These thresholds will be consistent with the ~~Project owner~~ goals *r* ~~of~~ maintaining the integrity of buildings and grounds, protecting the health and safety of residents ~~and tenants~~ and maintain a viable living environment. Thresholds will not be set based on aesthetic criteria alone. Control measures will not be undertaken if pest damage or populations are below these levels.

When thresholds are exceeded, some pest management action shall be necessary, but not necessarily chemical application. Although pests may be below threshold correction levels, it is still important to monitor and maintain records, correct sanitation problems and conduct preventative measures.

Appendix A (attached) provides examples of tolerance thresholds. While reasonable, these are only examples and thresholds shall be modified based on owner input and IPM Coordinator experience.

4.3 Non-Chemical Pest Control

Integrated Pest Management is a strategy that combines accurate pest monitoring and appropriate control methods to exclude, prevent, and manage pest problems. Following the identification of specific pests, an initial assessment shall be made by the IPM Coordinator

whether non-chemical methods can be used to exclude, prevent or manage pests. Non-chemical methods include the following:

Cultural Management

Cultural management methods reduce the amount of pesticides used in *d r d d* ~~the home~~ and in outdoor landscaped areas. Examples include:

- Remove and destroy over-wintering or breeding sites of pests.
- Select disease and insect resistant plant varieties.
- Cut turfgrass at the correct mowing height.
- Mulch landscape-planting areas. Mulches can be very useful for the suppression of weeds, insect pests, and some plant diseases. If heavy enough, mulch can also conserve water and prevent germination of many annual weed seeds.
- *E r d r* ~~Cultural control: Avoid areas of~~ open standing water to minimize mosquito breeding~~, e~~
- *E*nsur~~ing~~ that *d* screens are maintained~~,~~
- *E r r r d d r d* ~~covering and securing garbage~~.

Mechanical Management

Potential pest problems can be reduced by physical methods to either exclude or trap pests. Examples of mechanical management include:

- Physical Controls - Use of traps, screens, nets, and sticky paper to serve as physical barriers to pest entry/attack.
- Sanitation - Clean up and removal of pest food sources and harborages and removal of the pests themselves. Ensuring that garbage containers are kept secure (covered) and clean can avoid attracting pests.
- Physically pulling weeds or removing and disposing of insects.

Biological Management

Biological control is the use of living organisms such as parasites, predators, or pathogens. These organisms may occur naturally or be applied. Biological control results when naturally occurring enemies maintain pests at a lower level than would occur without them. Birds, bats, insects, fungi, and bacteria all play a role as predators or parasites in the local ecology. Employing biological control involves the purchase and release of natural enemies into an area as well as the conservation and support of natural enemies already present. Examples include:

- Predators, such as lady beetles, green lacewing larvae, fly larvae, damsel bugs, and predatory mites. Bats can also reduce flying insect populations.
- Parasites, such as parasitic wasps and flies.
- Pathogens, such as bacteria, viruses, fungi, nematodes, and protozoa.
- Weed feeders, such as weevils, leaf beetles, caterpillars.

Alternatives to Synthetic Chemical Pesticides

Botanical pesticides

Because botanical pesticides are derived from natural plant material, they are perceived to be safe. However, "natural" does not mean "nontoxic." It is important to be aware that they are still pesticides and fall under the same federal and state regulations as synthetic or chemical pesticides. All pesticides require an EPA pesticide registration number that can be found on the product label. Some examples include ryania, sabadilla, rotenone, neem, pyrethrum, and pyrethrins.

Microbial insecticides

These products combat insects with microscopic living organisms: viruses, bacteria, fungi, protozoa, and nematodes. Most affect a single species or group of insects, often with minimal impact on beneficial insects and other nontarget organisms. One example is [illegible] (Bt), a bacterium that is used to kill the larval stage of the gypsy moth. Another example is [illegible] ([illegible]Naturalis-O", [illegible]Botanigard") a fungus used to control aphids, whiteflies and other pests.

Insecticidal soap

Similar to other soaps, insecticidal soap is generally considered to be among the least toxic pesticides available. Soaps are used to control soft-bodied pests such as aphids and mealybugs. Soaps are effective only against those insects that come in direct contact with the spray before it dries.

Horticultural oil

Horticultural oil has gained wide acceptance in recent years in pest management programs because of its environmental safety and effectiveness in controlling many types of insect and mite pests [illegible]. Dormant and summer oil applications interfere with the pest's respiration and membrane function. For oil to be effective, it must come in direct contact with the pest or egg; therefore, thorough coverage [illegible] is essential for [illegible]~~proper~~ control. Some plants may be sensitive to horticultural oil, particularly when under stress.

5.0 CHEMICAL USE and MANAGEMENT

The decision to use chemical controls at WB Lewisboro will be made only when other measures, such as biological or cultural controls [illegible] have [illegible] failed to keep pest populations from approaching damaging levels. When chemical pesticides must be used, the licensed applicator shall use the lowest labeled rate of the least toxic pesticide that will manage the pest.

5.1 Deicer Use in Winter Operations

Certain winter time roadway deicer products have been identified by New York State and the NYCDEP as significant sources of phosphorus pollution. *T*~~Based upon the desire to~~ minimize [illegible] phosphorus [illegible], no salt based deicers will be used at the WB Lewisboro development~~,~~ by ~~residents, or~~ contracted winter maintenance operators. De-icing products with less environmental concerns such as calcium magnesium acetate (CMA) will be

utilized sparingly when icy conditions warrant the use of same to protect the safety of the residents. The development owner shall require documentation that this policy is adhered to.

T[illegible] *L*[illegible]

5.2 Fertilizer and Soil Amendment Use

When fertilizers are applied to lawns and landscaping, care will be taken to apply only what the plants will use. Too much fertilizer can damage plants and can impair water quality. The key is to determine proper nutrient applications for each landscape. The IPM Coordinator will develop a site specific fertilizer application program for WB Lewisboro, based upon: 1) soil properties and chemistry 2) turf and landscaping drainage, 3) specific turf and plant requirements, and 4) application timing. The application of fertilizers will be minimized to the extent possible, and will likely occur once annually, at the beginning of the growing season. Newly planted shrubs and trees may require specific root fertilizers to ensure the health of the plant. Turf and managed lawn areas will not be routinely fertilized throughout the growing season.

Fertilizers are most effective when applied in the spring, when plants are naturally growing. Turf areas at WB Lewisboro will be routinely fertilized one time per year at the beginning of the growing season. If turf is stressed or damaged during the summer months due to drought, fertilizer shall be applied in the fall season to boost growth before the winter months. The decision to fertilize in the fall shall be made by the IPM Coordinator after inspection of the turf at WB Lewisboro.

5.3 Weed Control and Herbicides

To preserve aesthetics, it is necessary to manage weeds in landscaped areas. Weeds can detract from the appearance of annual or perennial flower beds. Weeds also compete with desirable vegetation for water, nutrients, and space, and can prevent landscape plants from achieving maximum growth and health. Effective weed management requires a combination of Integrated Pest Management approaches including cultural and mechanical practices [illegible] *d* ~~as well as~~ chemical control~~,~~ if needed.

The WB Lewisboro IPM Coordinator will use mechanical means to control weeds, wherever possible. The use of mulches, weed barriers and maintaining healthy turf will reduce the need for herbicide application. Chemical herbicides will only be used by the WB Lewisboro IPM Coordinator when other methods have not effectively reduced the number and spread of weeds to a manageable level (see Section 5.5 Pesticide Application and Use).

A [illegible] *d* [illegible] *r R*[illegible] *d E*[illegible] ~~Wetlands Mitigation~~ Plan has been prepared, in part to manage existing invasive species that are present on the site. ~~While t~~*T*hat plan involves invasive species *r*[illegible] ~~, it is~~ consistent with the goals and objectives of this Integrated Pest Management Plan. [illegible] *(*[illegible] *T*[illegible] *"R*[illegible] *T*[illegible] *EAF A*[illegible] *l*[illegible]

5.4 Pesticide Selection on Turfgrass

Depending upon specific conditions, pesticides may be required for the health and maintenance of turfgrass at WB Lewisboro. A key to the long term success of turfgrass is the selection of a turf seed and species that is hardy and appropriate for the WB Lewisboro setting. WB Lewisboro was designed to minimize the total area of managed turfgrass. Lawn is proposed in limited areas around the residential buildings and parking areas, as shown in the Landscaping Plan. The proposed Subsurface Septic Disposal System (SSDS) will be planted with a wildflower seed mix and will be minimally maintained. Meadow seed mix is also proposed at the edges of the development, between managed lawn and existing native vegetation. Reducing the area of maintained turfgrass has several advantages. The area requiring mowing, fertilizing, and potential pesticide use is substantially reduced. Secondly, smaller, more isolated patches of turfgrass are less prone to disease and pest infestations.

The selection of specific pesticides to be used on the turf area will be based on several criteria including: the pest to be controlled, the turfgrass species, the season and growth stage of the pest, the level of control desired, and the pesticide persistence and environmental characteristics. After all factors are considered, the appropriate pesticide for the control of the pest shall be selected.

Pesticides currently available for use in New York State have been thoroughly tested by the various pesticide manufacturers and have been approved by the United States Environmental Protection Agency (EPA) before registration and release to the public. Pesticide applicators shall be aware that the pesticide label is an official and binding contract between the chemical manufacturer, the EPA, and the purchaser of the product. If the label directions are not followed, the applicator can be subject to prosecution.

5.5 Pesticide Application and Use

A qualified individual or contractor shall be responsible for application of pesticides □□ □□□□*rd*□□□□ □□□~~according to~~ the product label□. All pesticides used by the individual or contractor must be registered with the U.S. Environmental Protection Agency (EPA) and by the State of New York. Transport, handling, and use of all pesticides shall be in strict accordance with the manufacturer's label instructions and all applicable federal, and NY State regulations. Specifically, 6 NYCRR Part 325 provides the requirements for the training and licensing of pesticide applicators.

When it is determined that a pesticide must be used in order to obtain adequate control, the licensed applicator shall employ the least hazardous material, most precise application technique, and minimum quantity of pesticide necessary to achieve control. Containerized and other types of crack and crevice-applied bait formulations, rather than sprays, shall be used for cockroach and ant control wherever appropriate.

Application of pesticide liquid, aerosol, or dust to exposed surfaces, and pesticide sprays (including fogs, mists, and ultra-low volume applications) shall be restricted to unique situations where no alternative measures are practical. The qualified applicator shall obtain the approval of the IPM Coordinator prior to any application of pesticide liquid, aerosol, or dust to exposed surfaces, or any space spray treatment. The qualified applicator shall take all necessary precautions to ensure public safety, and all necessary steps to ensure the containment of the pesticide to the site of application.

Pesticide Use Recommendations

- The intent of the policy is to minimize the use of pesticides.
- Pesticide application shall be according to need and not by schedule. Routinely scheduled applications shall be avoided. Application of pesticides in any inside or outside area shall not occur unless visual inspections or reports by homeowners indicate the presence of pests in that specific area. Preventive pesticide treatment of areas where surveillance indicates a potential insect or rodent infestation shall be done on a case-by-case basis, as approved by the IPM Coordinator.
- Pesticides shall be used only when other pest prevention and non-chemical control measures are unavailable, impractical, ineffective, or are likely to fail to reduce pests below tolerance thresholds.
- All pesticides shall be applied by commercial certified pesticide applicators in ways that are consistent with label restrictions and use directions.
- Pesticides shall be applied when no building occupants are in the treatment area, and when these areas will remain unoccupied for the reentry time span specified on the pesticide label. Building use and occupants shall be considered prior to any pesticide application.
- When more than one option exists, pesticides and application methods will be chosen that reduce exposure:
  1. Lowest volatility formulations shall be preferred.
  2. Application methods that place pesticides into inaccessible locations (tamper-resistant bait stations, void, and crack and crevice treatments) shall be preferred over fogging or space spraying.
  3. Spot treatments shall be preferred over area-wide treatments.
- Pesticides which have a low pesticide leaching potential index shall be used, when possible.
- Determine the size of the area of application and mix only the quantity of pesticide needed in order to save money, avoid disposal, and protect the environment.
- Spot treat whenever possible.
- Note groundwater advisories on the label.
- Pesticides shall be used only when their application is a necessary component of an IPM prescription.
- All IPM prescriptions, including those that involve pesticide use, shall be reviewed and approved by the IPM Coordinator before implementation and periodically thereafter as long as they remain part of the IPM program.

Posting

Prior to any applications in common areas, written announcements shall be made by the Project owner notifying residents of any outdoor pesticide applications. The announcements will instruct residents and visitors to avoid posted and flagged areas until signs are removed. Outdoor application areas shall posted in accordance with New York State Laws and Regulations as set forth in Article 33, Title 10 of the Environmental Conservation Law. This regulation requires that:

markers must be affixed within or along the perimeter of the area where pesticides will be applied, and clearly instruct persons to not enter the treated area. *N*[illegible]

6.0 MAINTENANCE SCHEDULE

As indicated in the above discussion, pesticides will not be routinely applied at WB Lewisboro, but rather on an as needed basis, based upon monitoring, inspections and to address specific pest problems. The following provides a general schedule for landscaping maintenance at WB Lewisboro.

- Turf Maintenance. Lawn will be cut generally on a weekly basis during the growing season. Lawn may be cut more or less frequently, based upon precipitation and growing conditions.

  All landscaped areas, including turf, meadow areas, and planted bushes and trees will be inspected on a weekly basis, during the growing season, for indications of disease, insect infestations, or plant stress.

  Fertilizer will be applied to turf areas once per year, at the beginning of the growing season. If turf is stressed or damaged during the summer months due to drought, fertilizer may be applied in the fall season to boost growth before the winter months. The decision to fertilize in the fall will be made by the IPM Coordinator.

  Herbicides will not be applied on a routine basis. Herbicides will only be used in response to a specific weed problem that cannot be managed by mechanical means.

- Natural Areas Maintenance. Areas planted with conservation seed mix, including the SSDS area and transition borders between lawn and native vegetation will be cut once per year during the fall. No fertilizers will be applied to these areas. If disease or drought damage the SSDS area, replacement seeding will be done.

- Pesticide Application. Pesticides will not be applied on a routine basis, as described in Section 5.5 above. Chemically based pesticides will only be used for specific pest control problems after it is determined by the IPM Coordinator that either mechanical or natural pest control measures are not effective.

7.0 RECORD KEEPING

Accurate records are essential for the success of an Integrated Pest Management program. Effective record keeping greatly increases the long-term value of this information by providing the IPM Coordinator with historical, site-specific knowledge of pest activity. This information can assist in predicting when certain pest problems are most likely to occur later in the season and in subsequent seasons. In addition, records call attention to patterns and associations that may be overlooked during a pest outbreak.

The IPM Coordinator shall be responsible for maintaining a pest control logbook or file for all applicable grounds and buildings. At a minimum the logbook shall contain the following items:

- Pest Control Plan: A copy of the Contractor's approved Pest Control Plan for WB Lewisboro, including labels and MSDS sheets for all pesticides used, brand names of all

pest control devices and equipment used in the application, and the Contractor's service schedule for the area.

- Service Report and Complaint Logs: A logbook for recording service visit activities, complaints from residents concerning pest sitings, and detailed information regarding pesticide applications. These logs shall also provide information on pest sitings, sanitation issues, and building and grounds maintenance issues as they relate to pest control (such as missing screens, drainage problem attracting mosquitoes).

The IPM Coordinator will record:

1) the kinds and numbers of pests present
2) when and where they were found
3) physical setting and conditions
4) temperature and weather
5) locations and extent of any vegetation/ turf damage or abnormalities observed
6) what was undertaken to rid identified pests

Information recorded will be as specific and quantitative as possible. Record the actual number of insects per unit area and assign damage ratings to injured turf (e.g., 1= severe damage, 3= moderate damage, 5= no observable damage).

If physical or biological methods are employed, then routine inspections will be made and the results of the non-chemical pest control methods will be recorded. Thereby the effectiveness of these methods will be documented for future reference and use.

If pesticides are used, the IPM Coordinator will record:

1) Date of pesticide application
2) Name, classification, and amount of active ingredient
3) Amount of material and water mixed for the application
4) How much of the pesticide was actually applied
5) Where the pesticide was applied
6) Size of the area
7) Type of application method (spray, granular, etc.)
8) Applicators' name
9) Labor hours.

Keeping good records enables the IPM program to ascertain important pest and control trends. For example, have there been reductions in total amounts applied, or has there been a shift to pesticides of a higher or lower toxicity? Comparing annual information points out recurrence and trends of pests. The IPM program records will be maintained on-site by the IPM Coordinator and WB Lewisboro property management staff.

8.0 PROGRAM EVALUATION/ QUALITY CONTROL

The IPM Coordinator shall continually evaluate the progress of the Integrated Pest Management plan in terms of effectiveness and safety, and will recommend such changes as are necessary. The Coordinator and grounds crew shall take prompt action to correct all identified deficiencies.

Assessing the effectiveness of cultural and pest control practices is an important yet often overlooked component of an IPM program. The IPM Coordinator will use the evaluation process to determine management approaches that were effective and those that need to be modified. At the end of the season, this information shall be reviewed in order to plan and prioritize monitoring and management activities for the future. The end of a growing season will also provide sufficient records and data to notice trends, recurring pest issues, and areas where improvements can be made to the plan.

While pesticide use is a critical factor in an IPM program, other IPM elements shall also be reviewed, including:

- monitoring system,
- record keeping system,
- training of grounds and maintenance staff,
- communication with the residents and building occupants, and
- budgeting,

As indicated above, the IPM program records will be maintained on-site by the IPM Coordinator.

9.0 IPM EDUCATION AND TRAINING

Education and communication are important not only in implementing the IPM but also in developing program support by WB Lewisboro residents.

Continuing education and training shall be an objective of the IPM program, including education of the development owner, the IPM Coordinator, and residents. The IPM Coordinator and any required subcontractors shall partake in continuing education and training that focuses on current landscaping, turf and pest management to assure that participating parties will have the knowledge to make sound management decisions.

The Project owner shall develop as a part of this Integrated Pest Management a policy to:

- issue periodic information bulletins for residents, as appropriate, to inform them of important issues relating to the IPM policy, their respective roles in pest prevention and sanitation, and pesticide use guidelines,
- annually review its Integrated Pest Management program to evaluate how well its pest prevention and control objectives are being met and to identify areas where more work is needed, and
- ensure contractor and staff who apply pesticides are trained and certified applicators.

10.0 CONCLUSION

The primary goal of Integrated Pest Management is improved safety and quality of life with minimal adverse impacts to the watershed and environment. The WB Lewisboro owner shall provide leadership and education to homeowners to implement this Integrated Pest Management Plan. The development owner, the IPM Coordinator and the WB Lewisboro residents will work towards the common goal of minimizing the use of pesticides and fertilizers to manage pests and implement an effective IPM Plan.

APPENDICES

A. Tolerance Thresholds for Common Pests

[illegible]

Ants (common house-infesting)
Public areas: 5 ants/room; kitchen: 3 ant/room; maintenance and storage areas: 5 ants/100 square feet in two successive inspections; outside grounds: 2 field ants mounds/square yard.

Ants (carpenter)
Public areas, maintenance areas: 3 ants/room; kitchen: 2 ant/room; immediate action if ant colony suspected inside or within 25 feet of any building.

Bagworms
Control on conifers when 2 or more large bags/tree or bush. In light infestations, hand pick and destroy; in heavy infestations, spray with B.t. between June 15 and July 15, or spray residual insecticides after July 15.

Bees (honey)
Kitchen and public areas: 1 bee; maintenance areas: 3 bees; outdoors: no action unless public threatened.

Bees (bumble)
Kitchen and public areas: 1 bee; maintenance areas: 3 bees; outdoors: action necessary if communal nests are present in common areas. Also action whenever public is threatened.

Bees (carpenter)
Kitchen and public areas: 1 bee; maintenance areas: 3 bees; outdoors: 1 carpenter bee/5 linear feet if susceptible, unfinished wood. Also action whenever the public is threatened.

Cockroaches
Public areas: 2 cockroaches/room. If 2-10 cockroaches per room, apply cockroach bait. If 10 or more, track down infestations, review sanitation, trash handling, clutter, etc.; open equipment, check inaccessible areas; vacuum and clean room; apply baits or other insecticides as necessary. Kitchen: 1 cockroach/room; maintenance areas: 5 cockroaches/room; outside grounds [illegible]: no action unless noticeable infestation.

Crickets
Public areas: 3 crickets/room; kitchen: 2 crickets/room; maintenance areas: 10 crickets/room; outside grounds: no action unless causing problems.

Grain and flour pests
Found in food for human consumption: 1/package or container; pet food: 1 if escaping from packaging; if found in pheromone traps: 2 of any one species (total of all traps)

House flies
Public areas: 3 flies/room; kitchen: 1 fly/room; maintenance areas: 5 flies/room; outside grounds: 5 flies around any one trash can or 10 flies around a dumpster.

Landscape plants (general)
Whenever pest damage approaches 10 percent/plant.

Lawn pests (insects, nematodes, disease)
Whenever visible damage approaches 10 percent in any 100 square foot area.

Mice
Indoors: any mouse sighting or evidence of mice (such as new mouse droppings, tracks, etc.) triggers pest management action; outdoors: any noticeable burrows or activity in [illegible] ~~student~~ areas.

Pigeons
Roof ledges: 10/building for 3 consecutive inspections; public area or roof: whenever droppings accumulate more than 1-inch or nests obstruct gutters or equipment.

Poison ivy
Common areas: 1 plant; wooded areas: no control necessary unless near path or common area.

Rats
Indoors: any rat sighting or evidence of rats (such as new droppings, tracks, etc.) triggers pest management action; outdoors: any active burrows or activity.

Silverfish
Wherever books, paper, files are stored: 1/room; other indoor areas: 2/room

Spiders
Take immediate action if a brown recluse is suspected in any area; other spiders — [illegible] ~~classrooms: 1 spider/room; kitchen/cafeteria: 1 spider/room; hallways: 2 spiders/hallway;~~ maintenance and unoccupied areas: 3 spiders/room; outdoors: only if in large numbers or causing problems.

Tent caterpillars
Desirable ornamental plants: 1 tent or egg mass/tree; woodland trees, non-ornamental trees: if potentially damaging or aesthetically intolerable, or after two complaints in two weeks (to prevent repeated infestations, remove wild cherry hosts).

Ticks
Outdoor common areas: 3 ticks, any species; outdoor wooded and other areas of low activity: keep grass and weeds trimmed; if any blacklegged ticks found, treat woods edges; for other species, take action if moderate to heavy populations.

Weeds
Lawns: whenever weeds approach 15 percent in any 100 square foot area; ornamental plantings: whenever competing with ornamental plants or whenever aesthetically displeasing.

Yellow jackets/hornets
Public areas: 1 yellow jacket or hornet; outdoors: action necessary if nests are present in or near ~~student~~ activity area; 10/10 minutes at trash can or dumpster; 1 yellow jacket or hornet anywhere if public is threatened.

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Maryland Department of Agriculture
New York Coalition for Alternatives to Pesticides (NYCAP)

New York State Department of Environmental Conservation (NYSDEC)
New York State Education Department (NYSED)
New York State Office of Government Services (NYSOGS)
New York State Office of the Attorney General (NYSOAG)
Northwestern Coalition for Alternatives to Pesticides (NCAP)
Pesticide Management and Education Program (PMEP), Cornell University
Texas Agricultural Extension Service (TAEX)
United States Environmental Protection Agency (EPA)
University of Florida Institute of Food and Agricultural Sciences (UF/IFAS)

Member Organizations: New York State Urban IPM Coordinating Council:

County Associations of Cornell Cooperative Extension
Environmental Advocates
Legislative Commission on Toxic Substances & Hazardous Wastes
Long Island Pest Control Association
Nassau/Suffolk Landscape Gardeners
New York Audubon Society
New York Coalition for Alternatives to Pesticides (NYCAP)
New York Public Interest Research Group (NYPIRG)
New York State Office of the Attorney General (NYSOAG)
New York State Department of Agriculture and Markets
New York State Education Department (NYSED)
New York State Department of Environmental Conservation (NYSDEC)
New York State Department of Health
New York State Office of Government Services (NYSOGS)
New York State Turfgrass Association (NYSTA)
Program on Breast Cancer & Environmental Risk Factors in New York (BCERF)
The Integrated Pest Management Program at Cornell University
Pesticide Management and Education Program (PMEP), Cornell University

C. IPM Information Sheet for Residents and Tenants

Integrated Pest Management

It is the policy of the □ □ *L*□□□□□□*r*□ owner to control pest problems in a way that poses the least hazard to human health and the environment. Therefore, we have adopted an Integrated Pest Management (IPM) program. IPM is a pest control program that combines prevention, non-chemical pest control methods, and the appropriate use of pesticides with preference for products that are the least harmful to human health and the environment. By addressing and correcting the root causes of pest problems, IPM can provide long-term, economical pest control while minimizing the potential risk posed □□ □□□ □□□ □□*d* □□□ □□□*r*□□□ □□□by frequent pesticide applications.

How Can I Help?

We are asking for your cooperation with our IPM program! The success of IPM depends on the involvement of many individuals. Together we can help reduce pest problems and pesticide applications.

You can have a positive impact on the □ □ *L*□□□□□□*r*□ development's goal to reduce pest problems by doing the following and encouraging others to do the same:

- Report pest sightings to the IPM Coordinator
- Clean up leftover or spilled food and beverages immediately
- Store food, including animal food, in tightly sealed containers in designated areas
- Keep refrigerators and microwaves clean and free of spills
- Do not prop open window screens or doors that could allow pests to enter common buildings
- Remove trash daily
- Keep areas dry and report leaks
- Do not pressure staff to apply pesticides; since there are other effective means of controlling pest problems
- Do not tamper with sticky traps, bait stations, bait boxes, and traps laid out to monitor or kill pests

For more information:
If you would like more information on the □ □ *L*□□□□□□*r*□ development pest control practices or IPM, please contact the IPM Coordinator or the project owner.

D. Sample Pesticide Application Notice

Dear Resident / Tenant:

The □ □ *L*□□□□□□*r*□ owner practices Integrated Pest Management (IPM), an approach to pest control that reduces pest populations while minimizing pesticide applications.

After trying non-chemical means to control a current pest problem, a pesticide has been deemed necessary.

On _____ (date), an application of _____ (name of pesticide) will be applied at _____ (location) for the control of _____ (pest).

If you have any questions or comments, please contact _____ (name of responsible person) at _____ (phone).

E. Sample Pesticide Application Registry Notice

Dear Resident / Tenant:

The [illegible] *L*[illegible]*r*[illegible] owner practices Integrated Pest Management, a program that combines preventive techniques, non-chemical pest control methods, and the appropriate use of pesticides with a preference for products that are the least harmful to human health and the environment.

Applications of pesticides are made only when deemed necessary to control a pest problem and after trying other means to control the problem. The term "pesticide" includes insecticides, herbicides, rodenticides, and fungicides.

The [illegible] *L*[illegible]*r*[illegible] owner is establishing a registry of people who wish to be notified prior to pesticide applications. To be included in this registry, please complete the attached form and submit it to _____ (name of responsible person).

I would like to be notified two days before the use of pesticides on properties managed by the [illegible] *L*[illegible]*r*[illegible] owner. I understand that if there is an immediate threat to health or property that requires treatment before notification can be sent out, I will receive notification as soon as practicable.

Resident / Tenant Name _____

Signature / Date _____

Address _____