

March 8, 2021

Via Email

Christopher Carthy and members of the Planning Board
Town of North Castle
17 Bedford Road
Armonk, NY 10504-1898

**Re: Amended Site Plan
868 North Broadway LLC**

Dear Chairman Carthy and Members of the Planning Board,

Our firm represents 868 North Broadway LLC, the owner of the above referenced property located at 868 North Broadway in North White Plains, New York.

Our client was last before this Planning Board in June of 2019, at which time a Resolution of Approval for a Site Plan and Steep Slope Permit (the May 2019 Resolution) was issued by your board pursuant to plans prepared by Site Design Consultants, dated November 27, 2017 last revised May 23, 2019.

A Copy of the May 2019 Resolution is attached hereto as **Exhibit A**.

The May 2019 Resolution date had an expiration date of June 10, 2020.

Neither Site Design Consultants nor the undersigned were kept informed by the then Project Manager, Lou Levy Construction, that it had not completed all of the conditions and modifications as required by the May 2019 Resolution and construction had not been substantially completed by the June 10, 2020 expiration date. In fact, we only learned after the fact that a Building Permit could not have been issued by the expiration date as there were no mechanical, electrical or sprinkler plans to support such issuance.

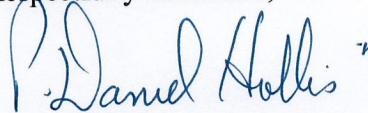
In the time since previous planning board approval was issued, the applicant has secured a permit from the NYS DOT to perform the site work within the DOT ROW. To acquire this permit, the approved plans required some modifications. The first change was a rearrangement and expansion of the proposed subsurface stormwater detention system proposed for the site. The approved plans showed a subsurface stormwater detention at the entrance to the site. The plans now show detention systems at both the entrance and exit to the site. The system at the entrance was reduced, but the net storage between the two proposed systems has increased from what was

Hollis Laidlaw & Simon

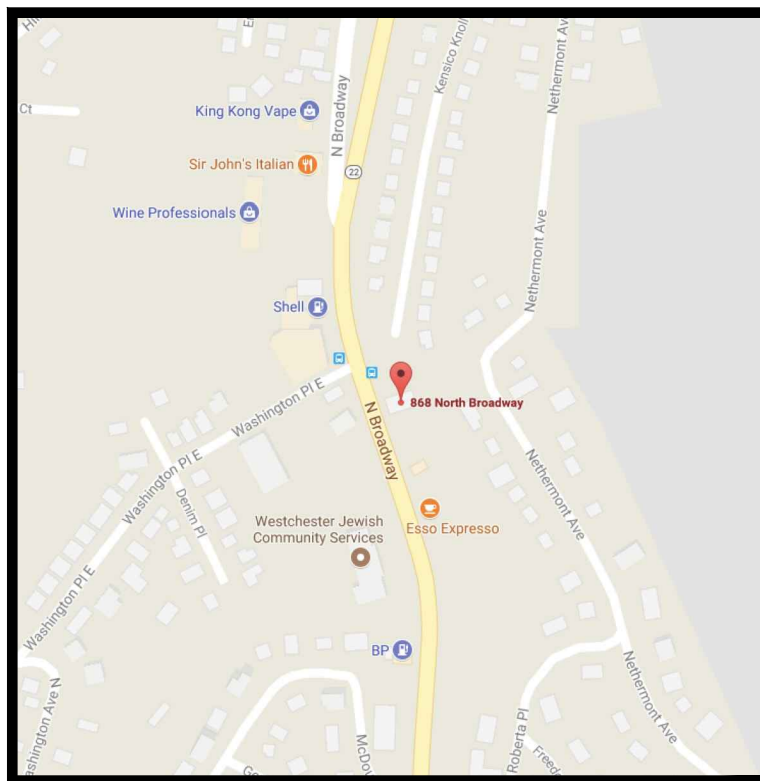
approved. In addition, small modifications were made the entrances. The plans show a radius transition between the driveway curb and the curb along North Broadway.

Accordingly, I respectfully request that the matter be placed on your March 22nd agenda for consideration. As Site Design Consultants will explain at the meeting the plans are essentially the same except for enhancements to the stormwater management plans and those modifications as required by the NYSDOT Permit. (A copy of that NYSDOT Permit is submitted with this application).

Respectfully submitted,

A handwritten signature in blue ink that reads "P. Daniel Hollis, III". The signature is written in a cursive style with a small trademark symbol (™) at the end.

P. Daniel Hollis, III



SITE DATA:

OWNER / DEVELOPER:
 LORDAE II, LLC.
 CHRIS SANTOMARO
 1 NEW KING STREET
 HARRISON, NY, 10604

PROJECT LOCATION:
 868 NORTH BROADWAY
 TOWN OF NORTH CASTLE, WESTCHESTER CO., NY

EXISTING TOWN ZONING:
 CB CENTRAL BUSINESS

PROPOSED USE:
 CB CENTRAL BUSINESS

TOWN TAX MAP DATA:
 SECTION 122.12, BLOCK 5, LOT 63

SITE AREA:
 0.42 ACRES (18,462 SF)

SEWAGE FACILITIES:
 PUBLIC SEWERS

WATER FACILITIES:
 PUBLIC WATER FACILITIES

FIRE DISTRICT:
 NORTH WHITE PLAINS FIRE DEPARTMENT

SCHOOL DISTRICT:
 VALHALA SCHOOL DISTRICT

LOCATION MAP
 NOT TO SCALE



AERIAL VIEW



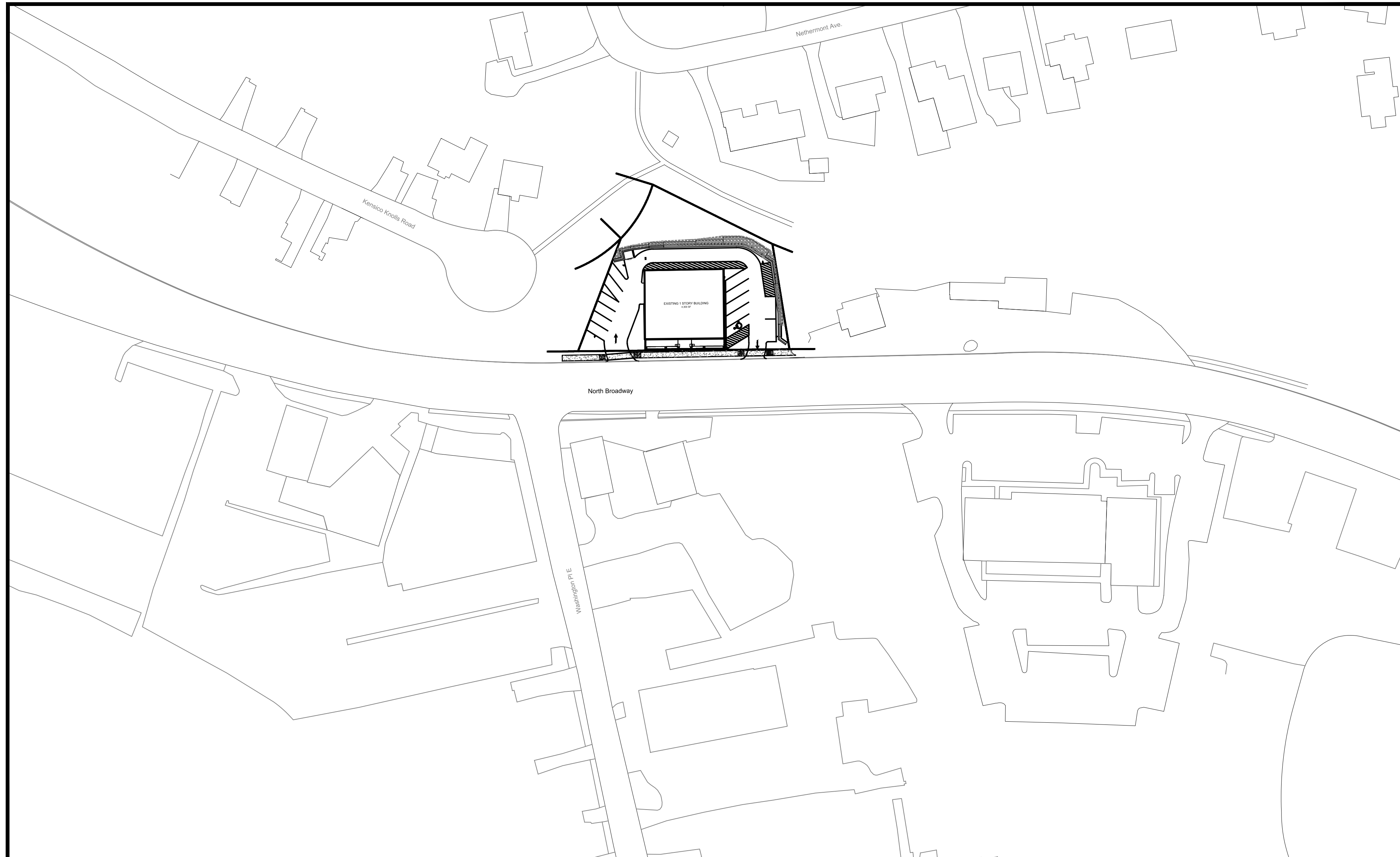
FRONT VIEW



VIEW LOOKING UP NORTHERN PROPERTY LINE



VIEW LOOKING UP SOUTHERN PROPERTY LINE



ZONING SCHEDULE:

| ZONING DISTRICT: CB - CENTRAL BUSINESS ZONE | | | |
|---|-----------------|--------------------|-------------------|
| DIMENSIONAL REGULATIONS: | REQUIRED | PROVIDED | VARIANCE REQUIRED |
| MINIMUM SIZE OF LOT: | | | |
| MINIMUM LOT AREA: | 5,000 SF. | 18,426 SF. | NONE |
| MINIMUM FRONTAGE: | 50 FT. | 188 FT. | NONE |
| MINIMUM LOT DEPTH: | 100 FT. | 124 FT. | NONE |
| MINIMUM YARD DIMENSIONS: | | | |
| PRINCIPAL BUILDING: | | | 9.5' GRANTED |
| FRONT YARD SETBACK: | 10 FT. | 0.5 FT. | APRIL 4, 2019 |
| REAR YARD SETBACK: | 30 FT. | 39.3 FT. | NONE |
| ONE SIDE YARD SETBACK: | 0 FT. | 29.6 FT. | NONE |
| MAXIMUM % OF LOT TO BE OCCUPIED: | | | |
| PRINCIPAL BUILDING COVERAGE: | 35% OF LOT AREA | 23.3 % OF LOT AREA | NONE |
| FLOOR AREA RATIO: | 0.40 | 0.23 % OF LOT AREA | NONE |
| MAXIMUM HEIGHT: | | | |
| PRINCIPAL BUILDING - FEET: | 30 FT. | 15 FT. | NONE |
| PRINCIPAL BUILDING - STORIES: | 2 | 1 | NONE |

OTHER REQUIREMENTS:

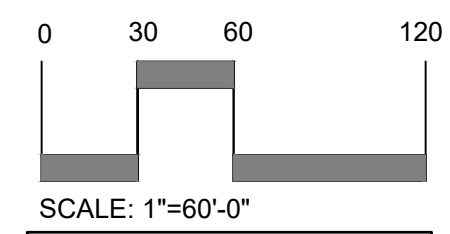
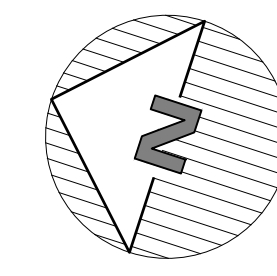
- No fabrication or manufacturing shall be permitted, except that which is incidental to and on the same premises with a permitted use, and further provided that such incidental fabrication or manufacturing shall not occupy more than 25% of the gross floor area of the use, nor shall use motor power other than electric.
- No residential use or occupancy shall be permitted in any building used for business, except in a separate apartment unit, which unit shall conform to all requirements for a residential use and shall have a separate entrance from the exterior of the building

PARKING SCHEDULE

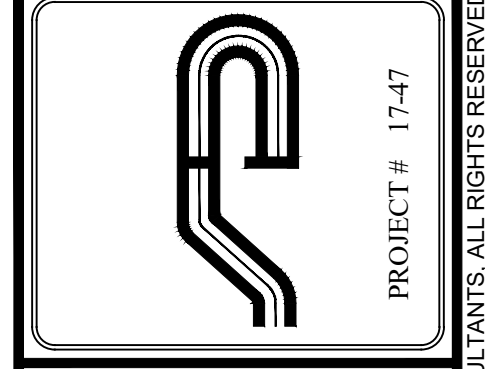
| | |
|----------------------------|--|
| REQUIRED PARKING: | 1 SPACES PER 200 SF OF BUILDING |
| RETAIL BUILDING: | 4,300 S.F. @ 1 SPACES/200 S.F. = 21.5 SPACES |
| PROVIDED PARKING: | 12 STANDARD, GRANTED APRIL 4, 2019 1 HANDICAP |
| TOTAL PROVIDED PARKING: | 13 SPACES |
| PARKING VARIANCE REQUIRED: | 9 SPACES |
| LOADING SPACE: | 1 PROVIDED |

LORDAE II, LLC - CHRIS SANTOMARO - 868 NORTH BROADWAY - NORTH CASTLE, NY - 10604 - 2019-06-10 - 11:20 AM - 11:20 AM - 11:20 AM - 11:20 AM

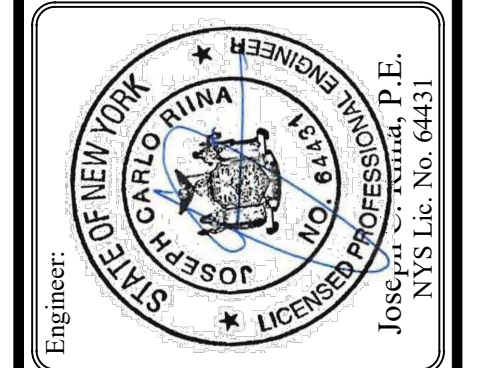
NOTE:
 1. THIS IS NOT A SURVEY. ALL SURVEY INFORMATION SHOWN ON THIS PLAN HAS BEEN TAKEN FROM SURVEY MAP PREPARED BY WARD CARPENTER ENGINEERS INC., DATED 3/7/13. TOPOGRAPHIC INFORMATION OBTAINED FROM WESTCHESTER COUNTY GIS DATABASE AND SHOULD BE VERIFIED AT TIME OF CONSTRUCTION. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.



SCALE: 1"=60'-0"
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| Revisions: | No. | Date | Comments |
|------------|-----|----------|----------------------|
| | 1 | 2/23/18 | Town Comments |
| | 2 | 12/17/18 | Amended Plan |
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| | 4 | 5/23/19 | Lighting Revisions |
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| | 7 | 1/23/20 | Resolution Revisions |

| | | |
|--------------------|-----------------|-------------------|
| SCALE: 1" = 60' | DRAWN BY: MD | DATE: 11-27-17 |
|--------------------|-----------------|-------------------|

ZONING & VICINITY PLAN

APPROVED BY THE TOWN OF NORTH CASTLE PLANNING BOARD
 RESOLUTION DATED: JUNE 10, 2019

DATE: _____
 CHRISTOPHER CARTHY, CHAIRMAN
 TOWN OF NORTH CASTLE PLANNING BOARD

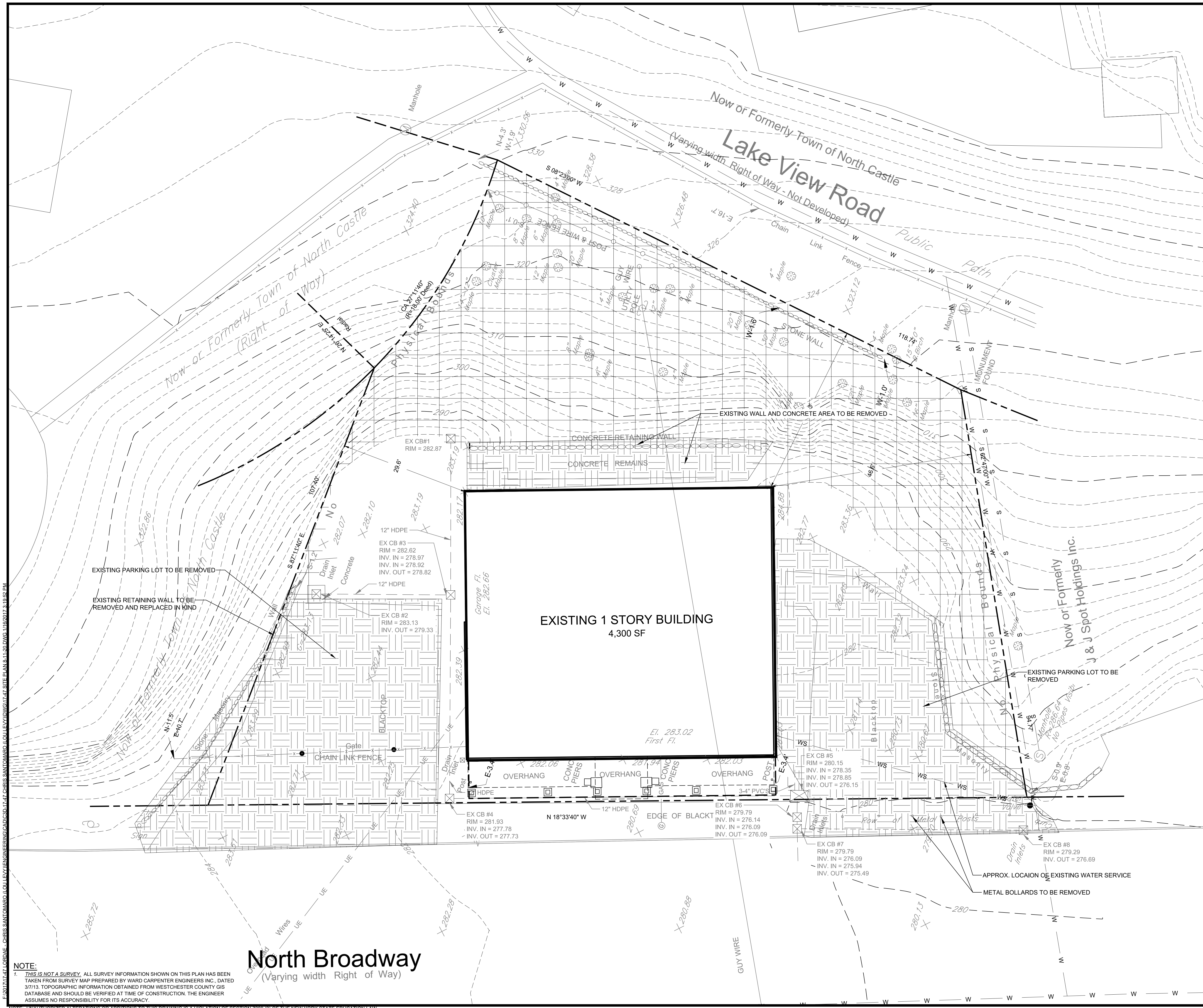
ENGINEERING DRAWING PLANS REVIEWED BY TOWN ENGINEER

DATE: _____
 JOSEPH CERMELE, PE
 KELLARD SESSIONS CONSULTING
 CONSULTING TOWN ENGINEERS

SITE PLAN PREPARED FOR
LORDAE II, LLC.
 868 NORTH BROADWAY
 Town of North Castle
 Westchester County

Sheet 1 of 14

PROJECT # 17-47
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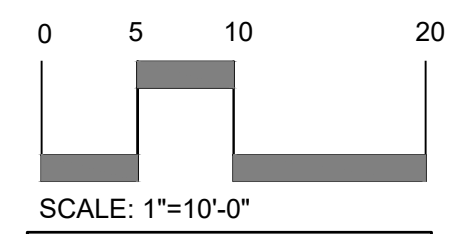
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 TOWN OF NORTH CASTLE
 PLANNING BOARD

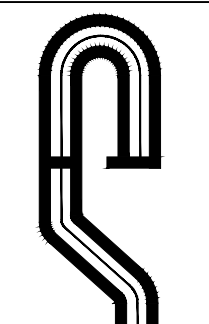
ENGINEERING DRAWING PLANS REVIEWED BY
 TOWN ENGINEER

DATE: _____
 JOSEPH CERMELE, PE
 KELLARD SESSIONS CONSULTING
 CONSULTING TOWN ENGINEERS

- LEGEND**
- 222 --- EXISTING GRADING
 - x 222.8 EXISTING SPOT GRADE
 - EXISTING STONE WALL
 - - - - - PROPERTY LINE / RIGHT OF WAY
 - W EXISTING WATER LINE
 - S EXISTING DRAINAGE INLET
 - S EXISTING SANITARY LINE
 - GAS EXISTING GAS SERVICE
 - [Symbol] SLOPES GREATER THAN 15%
 - [Symbol] AREAS TO BE DEMOLISHED

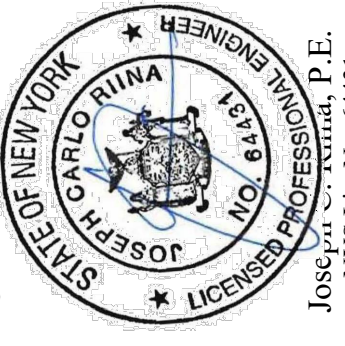


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Engineer: Joseph Cermele, P.E.
 NYS Lic. No. 64431

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| | 7 | 7/23/20 | Resolution Revisions |

SCALE: 1" = 10'

DRAWN BY: MD

DATE: 11-27-17

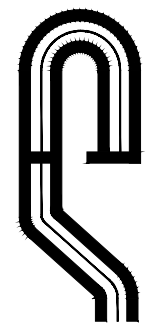
EXISTING CONDITIONS & DEMOLITION PLAN

SITE PLAN PREPARED FOR
LORDAE II, LLC.
 868 NORTH BROADWAY
 Town of North Castle

Westchester County

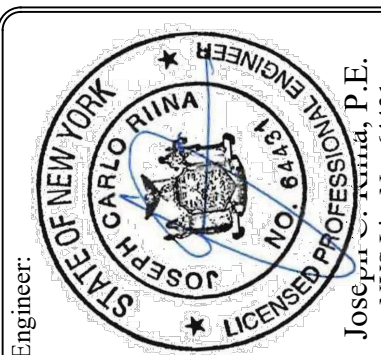
Sheet 3 of 14

14



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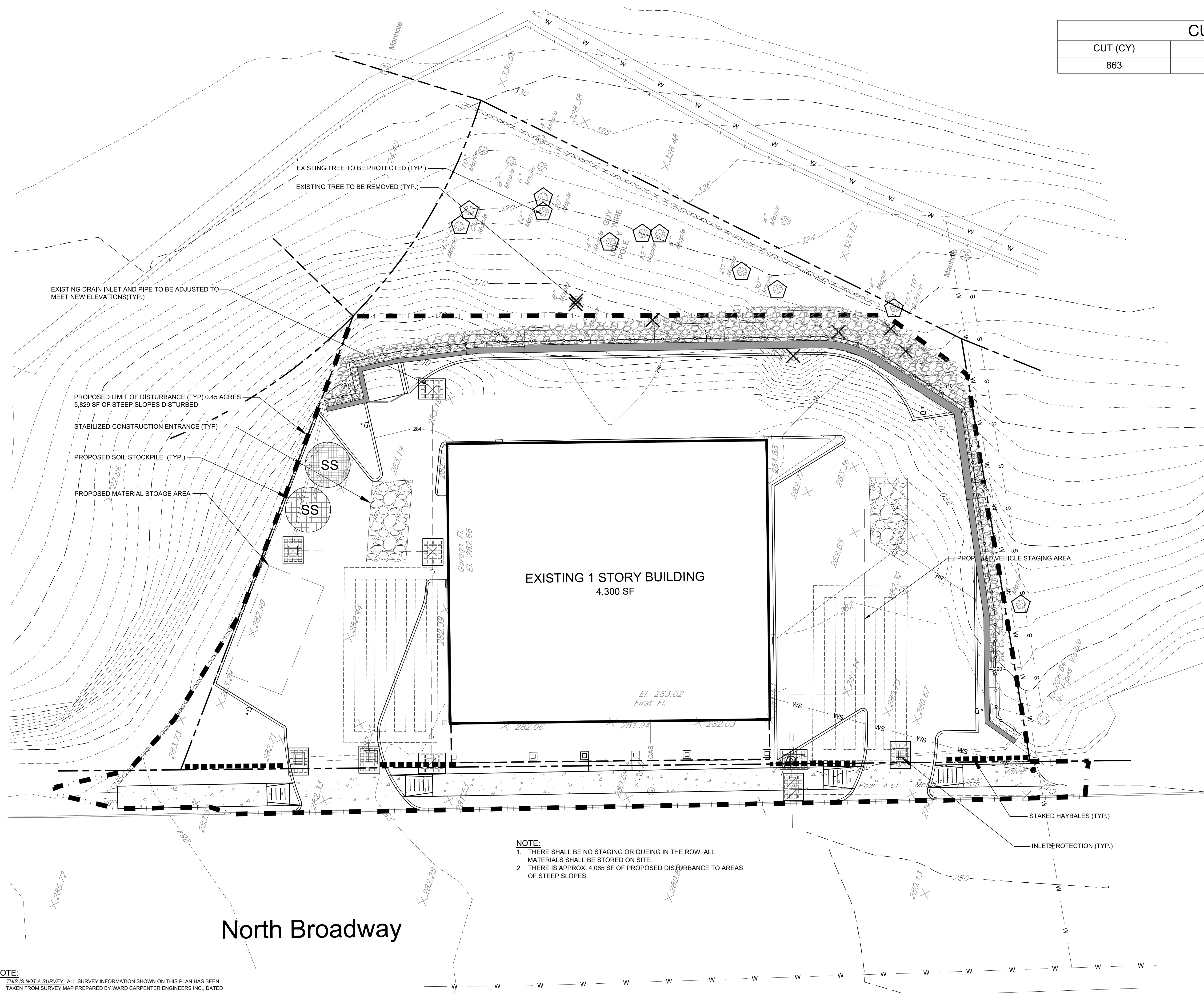
SCALE: 1" = 10'
DRAWN BY: MD
DATE: 11-27-17

EROSION & SEDIMENT CONTROL PLAN

SITE PLAN PREPARED FOR
LORDAE II, LLC.
868 NORTH BROADWAY
Westchester County
Town of North Castle

Sheet 4 of 14

| CUT - FILL | | |
|------------|-----------|---------|
| CUT (CY) | FILL (CY) | NET(CY) |
| 863 | 229 | 634 CUT |



APPROVED BY THE TOWN OF NORTH CASTLE PLANNING BOARD
RESOLUTION DATED: JUNE 10, 2019

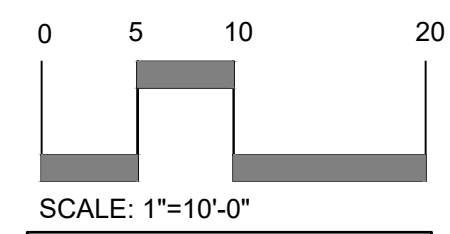
DATE: _____
CHRISTOPHER CARTHY, CHAIRMAN
TOWN OF NORTH CASTLE PLANNING BOARD

ENGINEERING DRAWING PLANS REVIEWED BY TOWN ENGINEER

DATE: _____
JOSEPH CERMELE, PE
KELLARD SESSIONS CONSULTING
CONSULTING TOWN ENGINEERS

- ### LEGEND
- EXISTING GRADING
 - EXISTING SPOT GRADE
 - PROPOSED GRADING
 - PROPERTY LINE / RIGHT OF WAY
 - PROPOSED CURB
 - PROPOSED RETAINING WALLS
 - PROPOSED SOIL STOCKPILES
 - PROPOSED CRUSHED STONE INLET PROTECTION
 - PROPOSED STABILIZED CONSTRUCTION ENTRANCE
 - PROPOSED LIMIT OF DISTURBANCE
 - PROPOSED STAKED HAYBAYLES
 - PROPOSED CATCH BASIN
 - EXISTING TREE TO BE PROTECTED
 - EXISTING TREE TO BE REMOVED

NOTE:
1. THERE SHALL BE NO STAGING OR QUEING IN THE ROW. ALL MATERIALS SHALL BE STORED ON SITE.
2. THERE IS APPROX. 4,065 SF OF PROPOSED DISTURBANCE TO AREAS OF STEEP SLOPES.

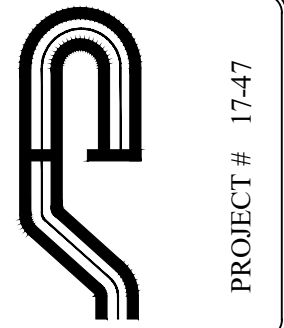


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E:\2017\17-47 LORDAE II, LLC\LEVY\ENGINEERING\CADD\17-47 CHRIS SANTOMARO\17-47 SITE PLAN.dwg, 11/27/17 3:18:58 PM

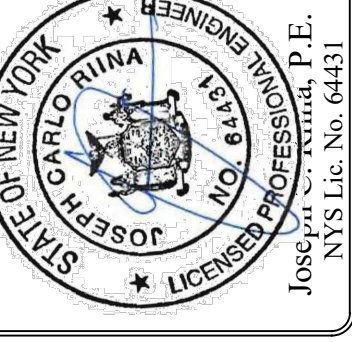
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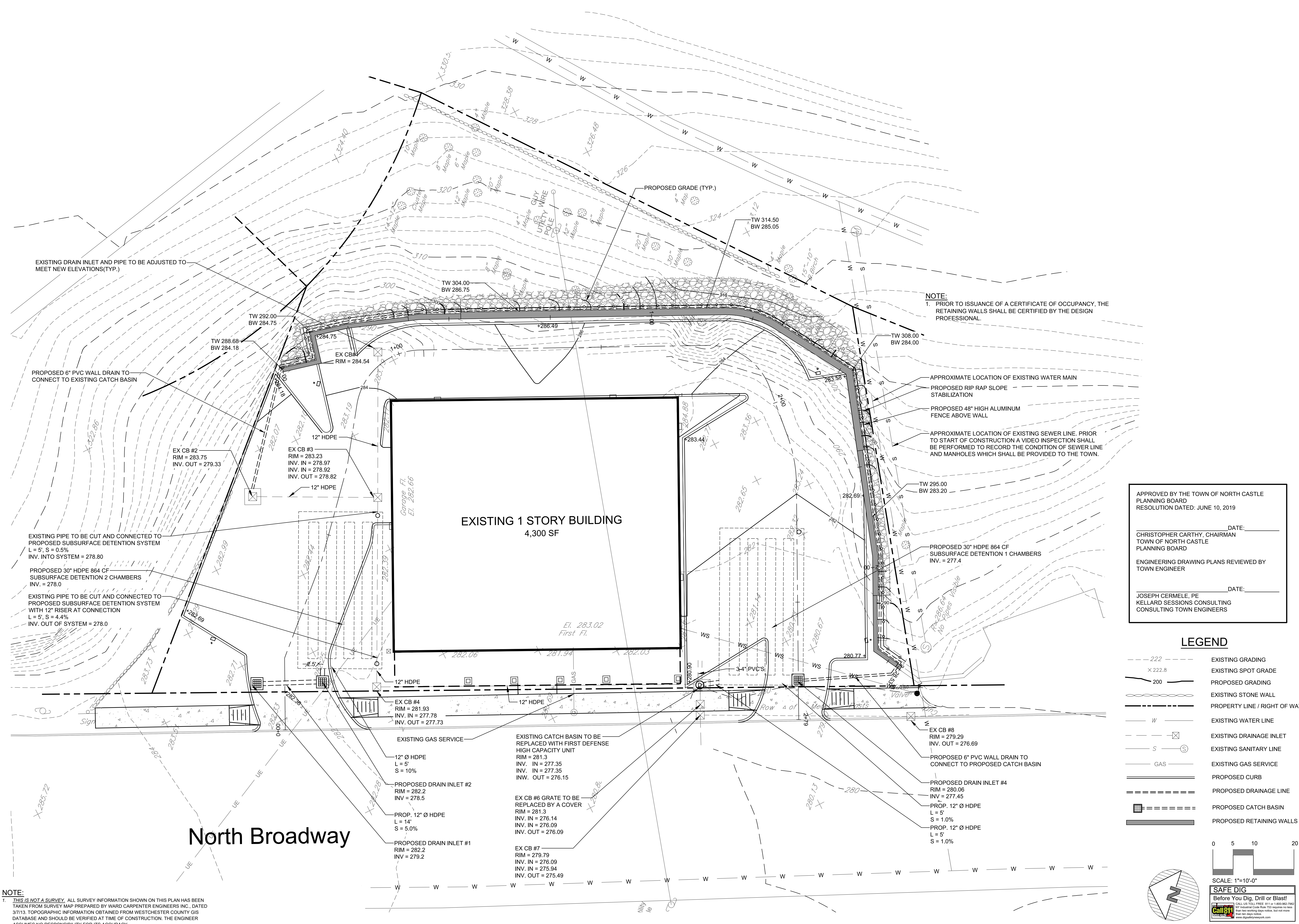


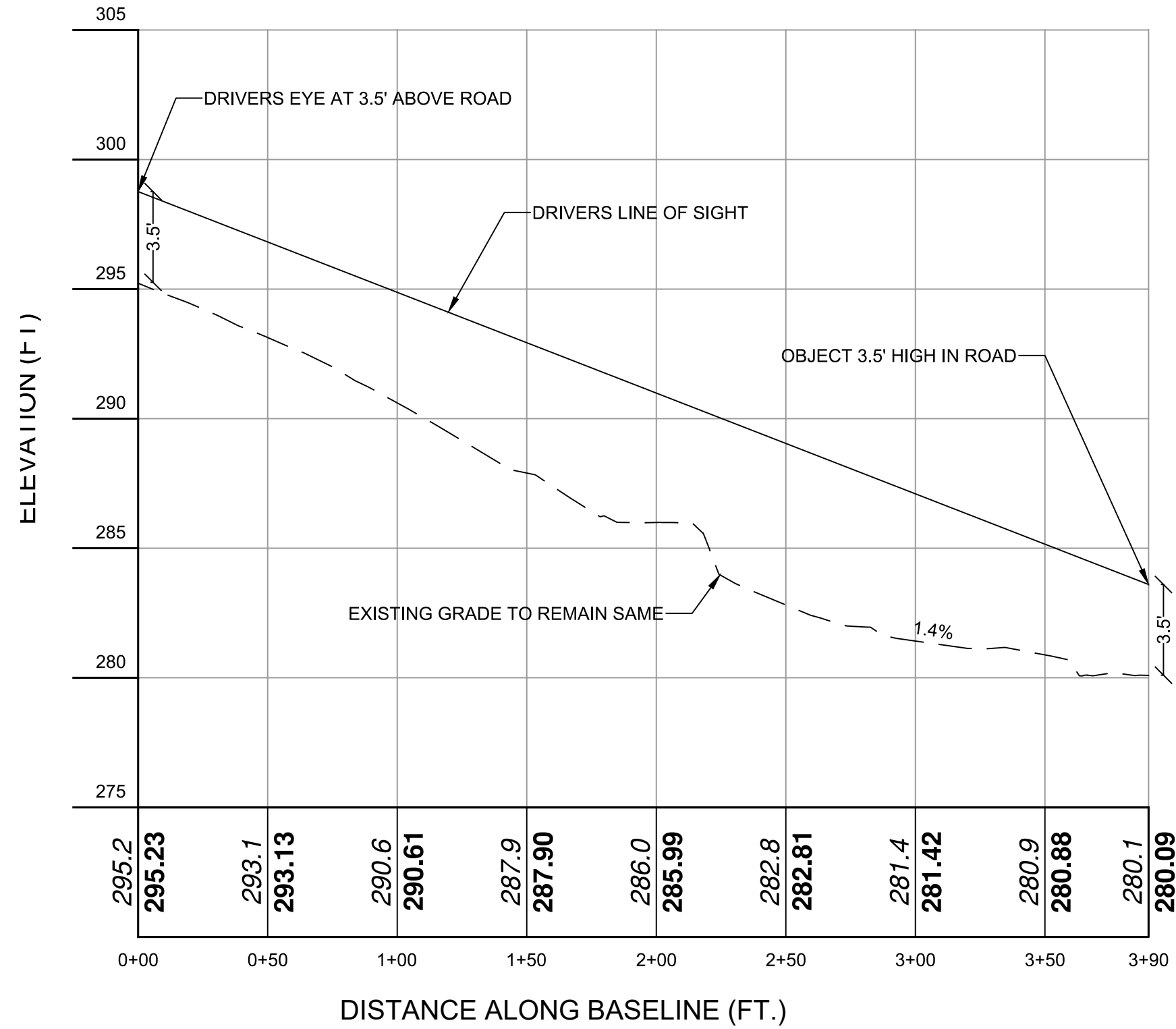
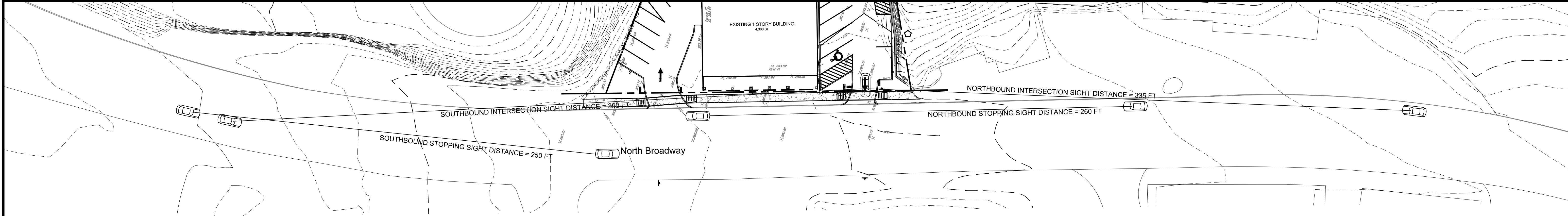
| Revisions: | No. | Date | Comments |
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| | 3 | 7/31/19 | Town Comments |
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| | 7 | 1/23/20 | Resolution Revisions |

| | |
|-----------|----------|
| SCALE: | 1" = 10' |
| DRAWN BY: | MD |
| DATE: | 11-27-17 |

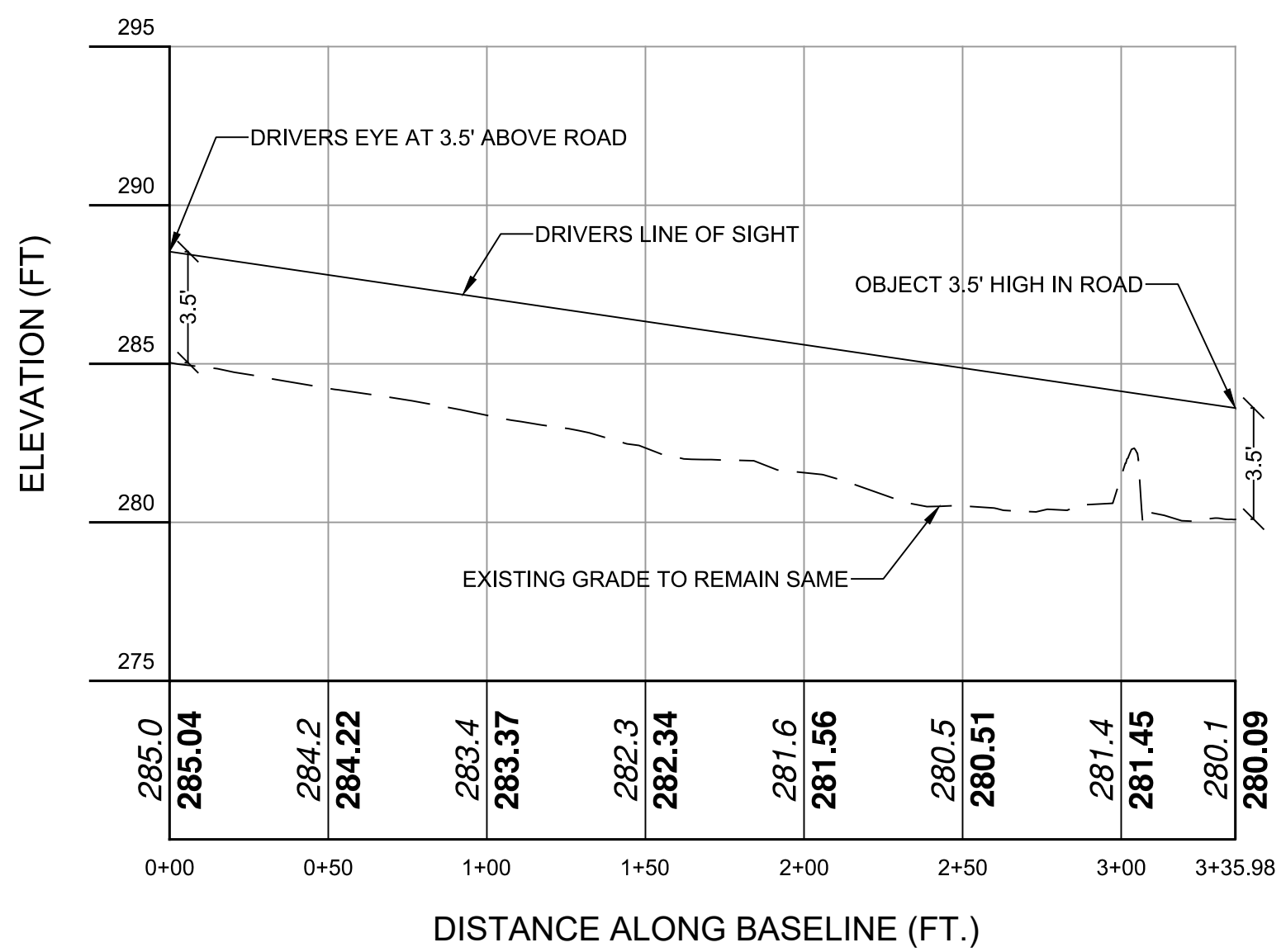
IMPROVEMENT PLAN

SITE PLAN PREPARED FOR
LORDAE II, LLC.
868 NORTH BROADWAY
Town of North Castle
Westchester County

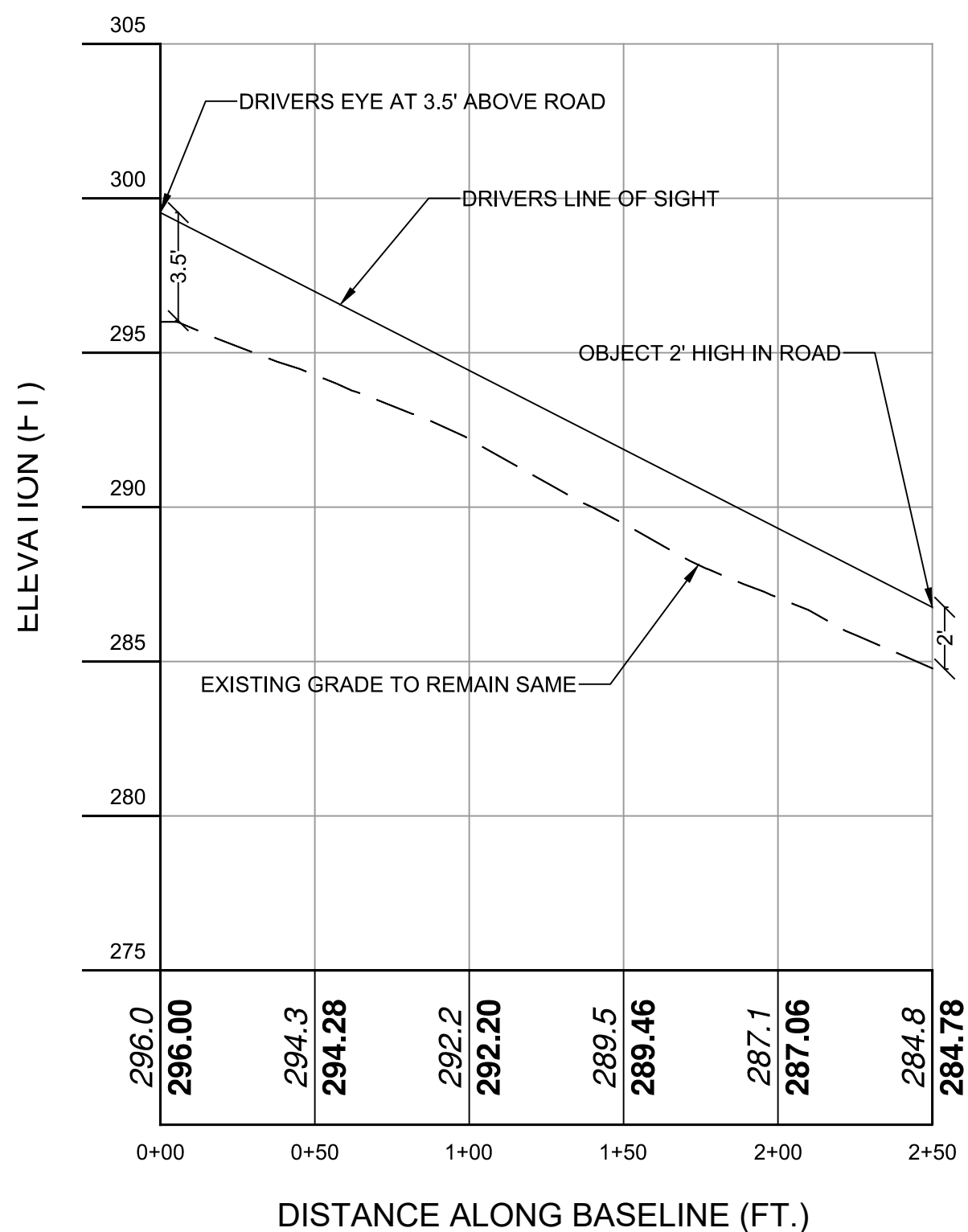




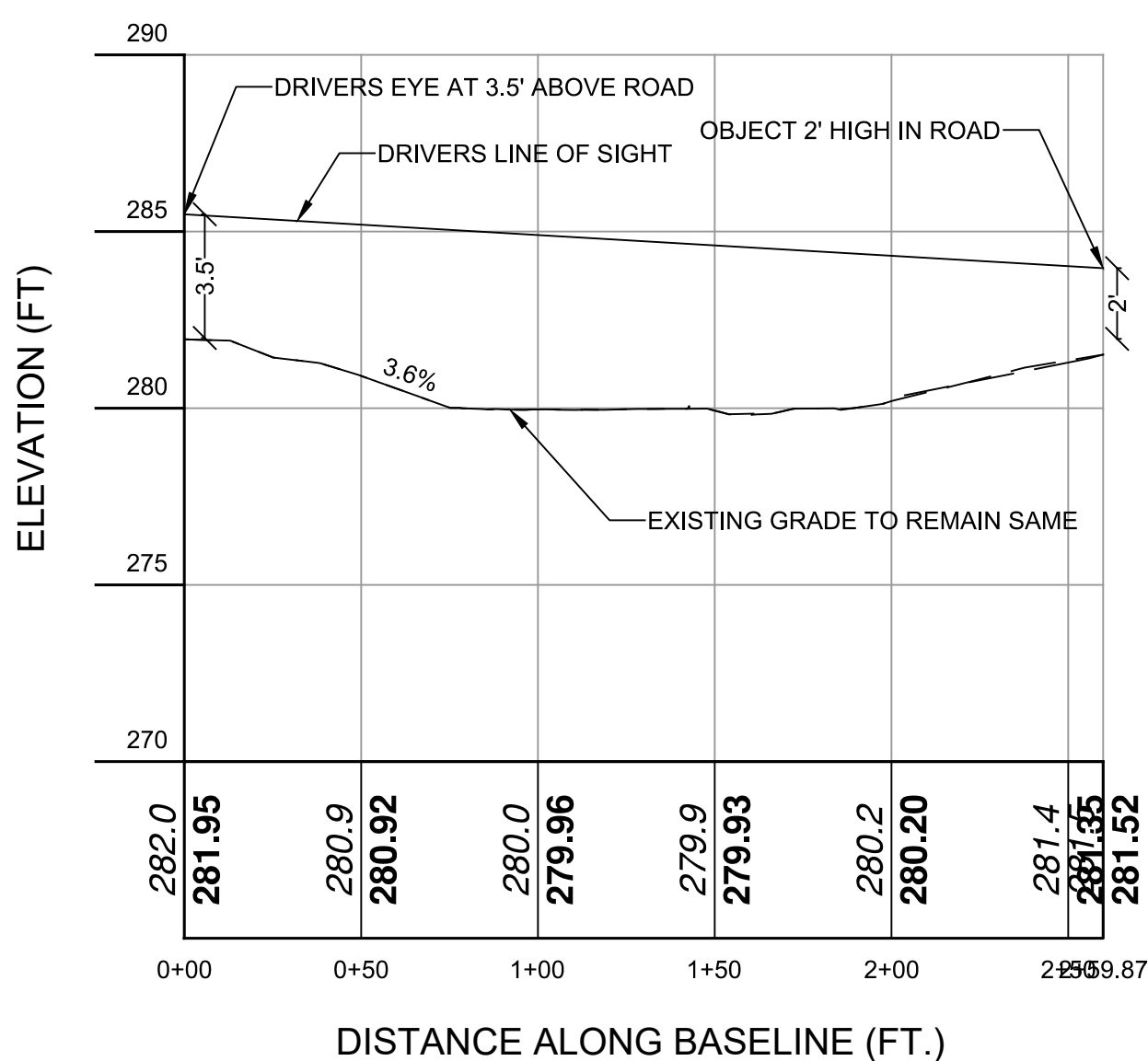
SOUTHBOUND INTERSECTION SIGHT DISTANCE
VERT. SCALE: 1" = 5
HORIZ. SCALE: 1" = 50



NORTHBOUND INTERSECTION SIGHT DISTANCE
VERT. SCALE: 1" = 5
HORIZ. SCALE: 1" = 50



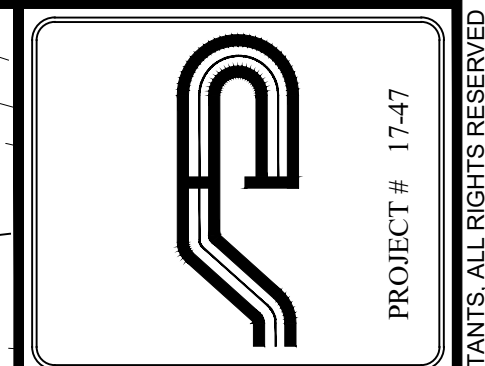
SOUTHBOUND STOPPING SIGHT DISTANCE
VERT. SCALE: 1" = 5
HORIZ. SCALE: 1" = 50



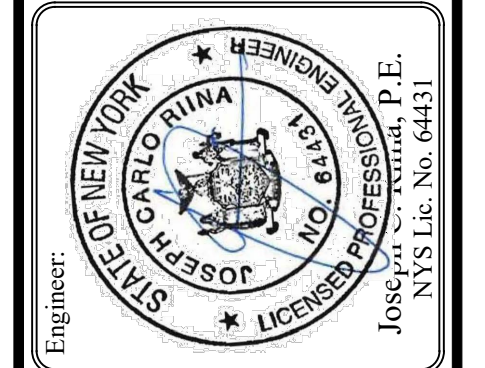
NORTHBOUND STOPPING SIGHT DISTANCE
VERT. SCALE: 1" = 5
HORIZ. SCALE: 1" = 50

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SIGHT DISTANCE NOTE:
1. THE DESIGN SPEEDS ARE 35 MPH FOR THE SOUTHBOUND AND NORTHBOUND LANES.
2. MAXIMUM SIGHT DISTANCE FOR THE NORTHERN ENTRANCE EXTENDS BEYOND THE LIMITS OF THE SURVEY AT PROPERTY LINES. OUTSIDE ELEVATIONS TAKEN FROM WESTCHESTER COUNTY GIS. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.
3. AASHTO/AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS) REQUIREMENTS BASED ON CALCULATED VALUES



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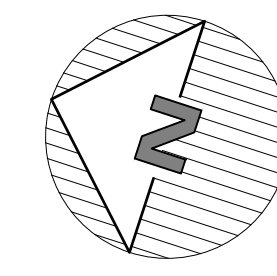
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KELLARD SESSIONS CONSULTING
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LEGEND

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- x 222.8 EXISTING SPOT GRADE
- 200 — PROPOSED GRADING
- — — EXISTING STONE WALL
- — — PROPERTY LINE / RIGHT OF WAY
- W — — — EXISTING WATER LINE
- — — EXISTING DRAINAGE INLET
- S — — — EXISTING SANITARY LINE
- GAS — — — EXISTING GAS SERVICE
- — — PROPOSED CURB
- — — PROPOSED DRAINAGE LINE
- — — PROPOSED CATCH BASIN
- — — PROPOSED RETAINING WALLS

0 5 10 20
SCALE: 1"=10'-0"



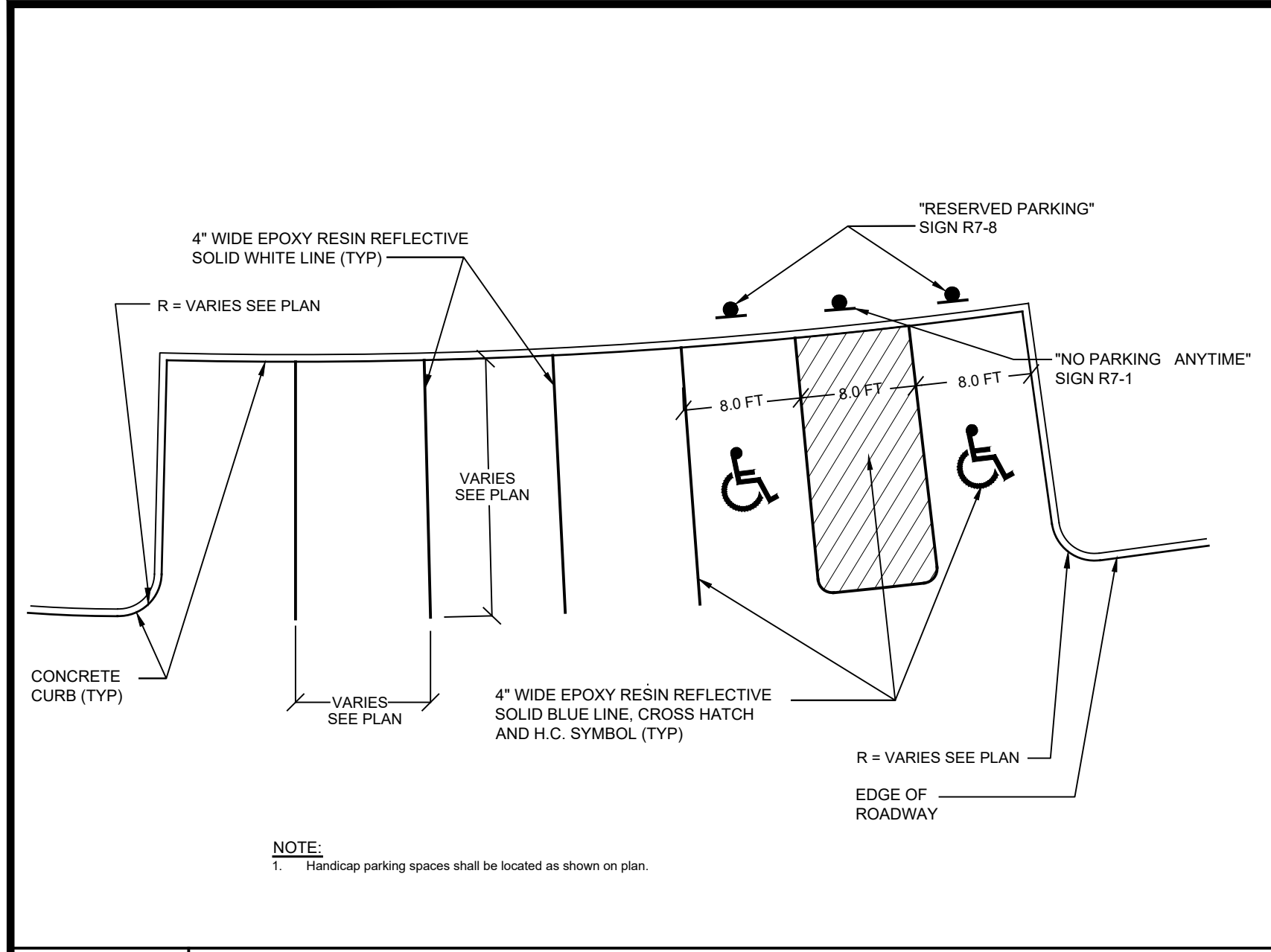
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SIGHT DISTANCE PLAN

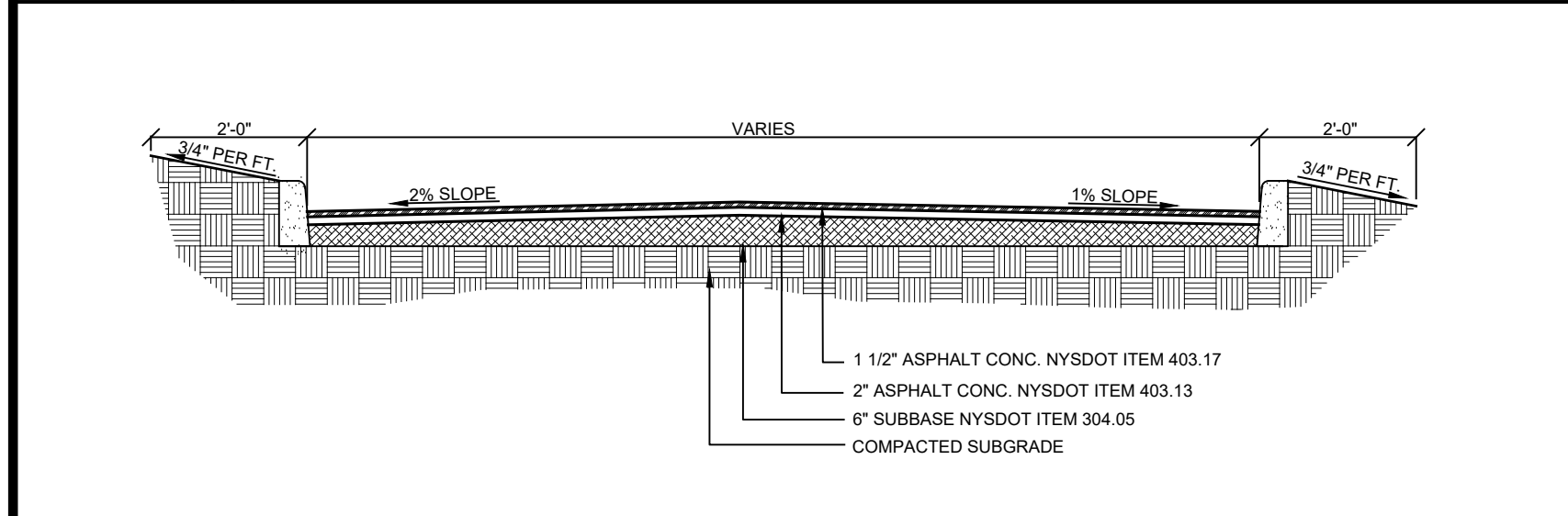
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868 NORTH BROADWAY
Westchester County
Town of North Castle

E:\2021\21-47 LORDAE - CHRIS SANTOMARCO\COLLEGE\ENGINEERING\CAD\21-47 LORDAE\DWG\17-47 SITE PLAN.dwg, 8/11/2020, 11:02:00 AM, 11/20/2020, 3:18:52 PM

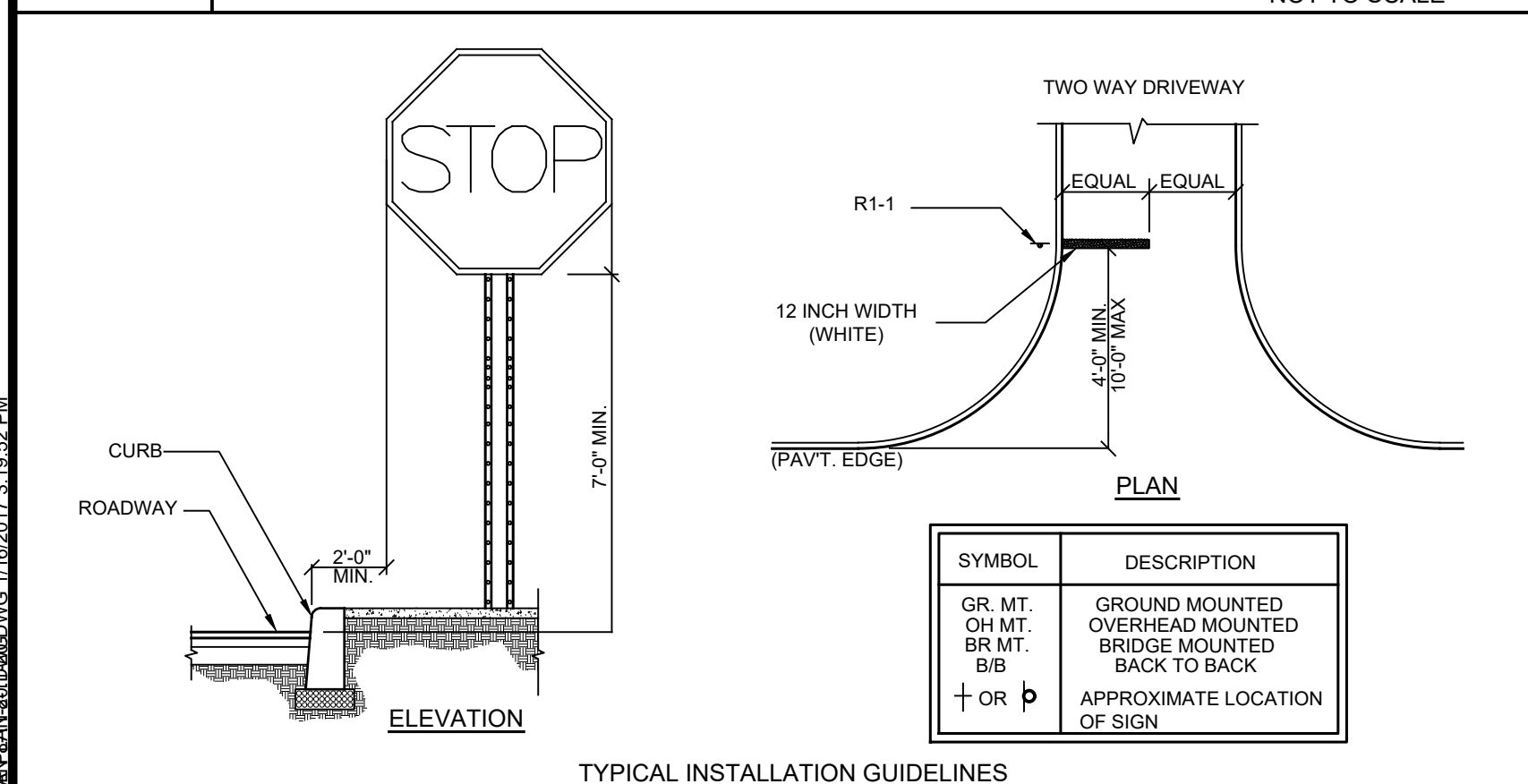
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R-1 **TYPICAL PARKING STALL LAYOUT**
NOT TO SCALE



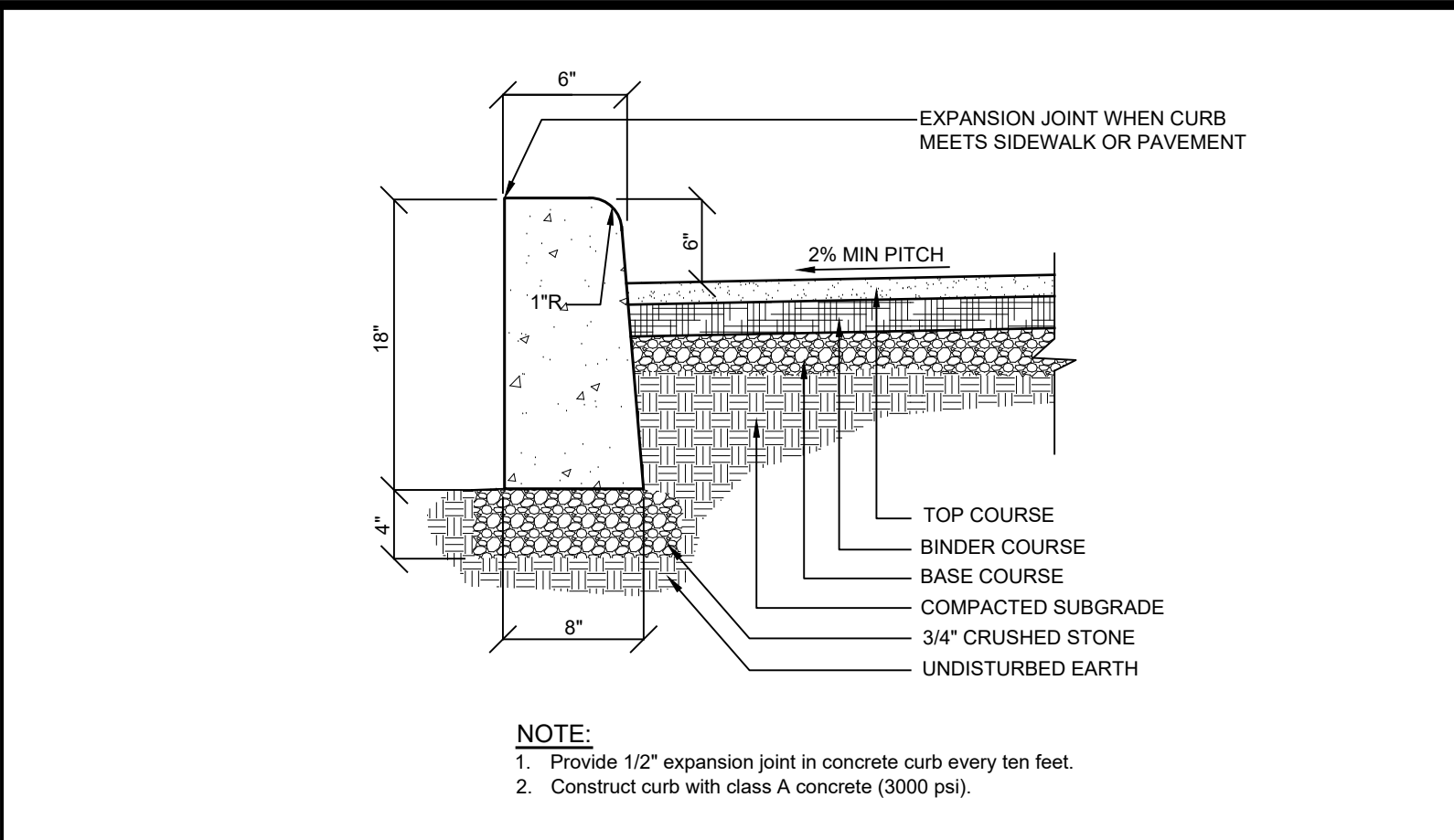
R-2 **TYPICAL DRIVEWAY AND PARKING LOT SECTION**
NOT TO SCALE



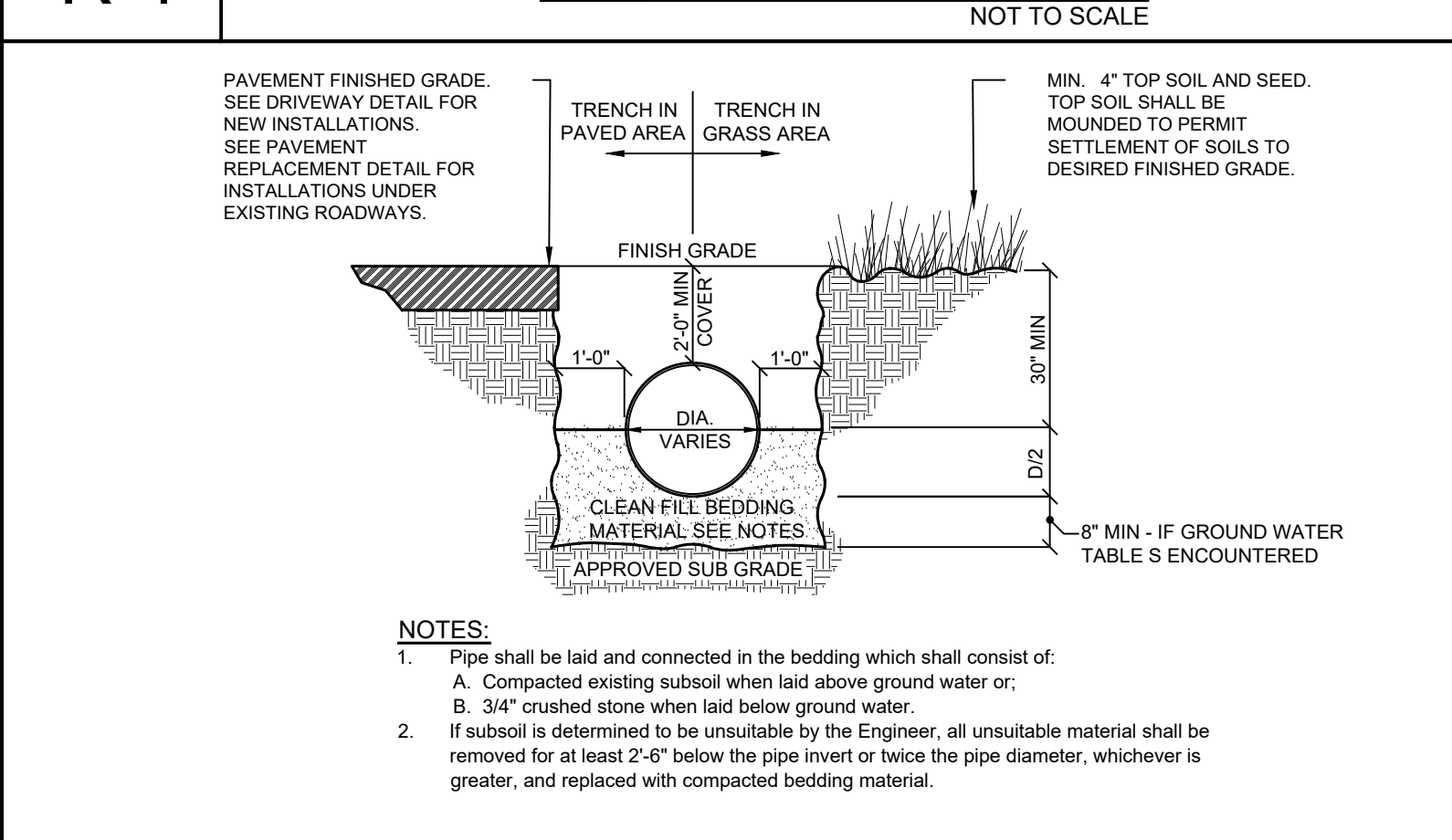
| SIGN | M.U.T.C.D. NUMBER | SIZE OF SIGN | TYPE OF MOUNT |
|------------------|-------------------|--------------|---------------|
| STOP | R-1 | 24" X 24" | GR. MT. |
| RESERVED PARKING | R-7-8 | 12" X 18" | GR. MT. |
| ONE WAY | R-3-2 | 24" X 24" | NO |

GENERAL NOTES:
1. All signage shall be in accordance with the latest edition of the national MUTCD and the N.Y.S Supplement (MUTCD), September 2007, including the following:
A. Letter size and series
B. Legend and background color
C. Reflectivity
D. Size of sign
2. The type of characters as specified in the standard specifications shall be as follows:
MUTCD CODE LETTER TYPE OF CHARACTER
G.I. TYPE IV
R.P.W.M. TYPE IV OR V
3. Sign locations as shown on plans are approximate. The Contractor shall relocate existing signs and install new signs in accordance with the MUTCD, latest edition. The Contractor shall contact the Town Engineer to discuss/resolve problem areas.
4. Except where otherwise specified, parking signs shall be placed facing approaching traffic at an angle of between 30 and 45 degrees with the line of traffic flow. Parking signs shall be placed at each end of a regulation (single-headed arrows) and, within the regulation (double-headed arrows), at intervals not to exceed 200 ft.
5. Where new signs are installed the Contractor shall affix a label to the back of the sign panel. This label will show the date of installation and identification numbers.
6. Placement of W3-17 sign is prescribed in the General Municipal Law.

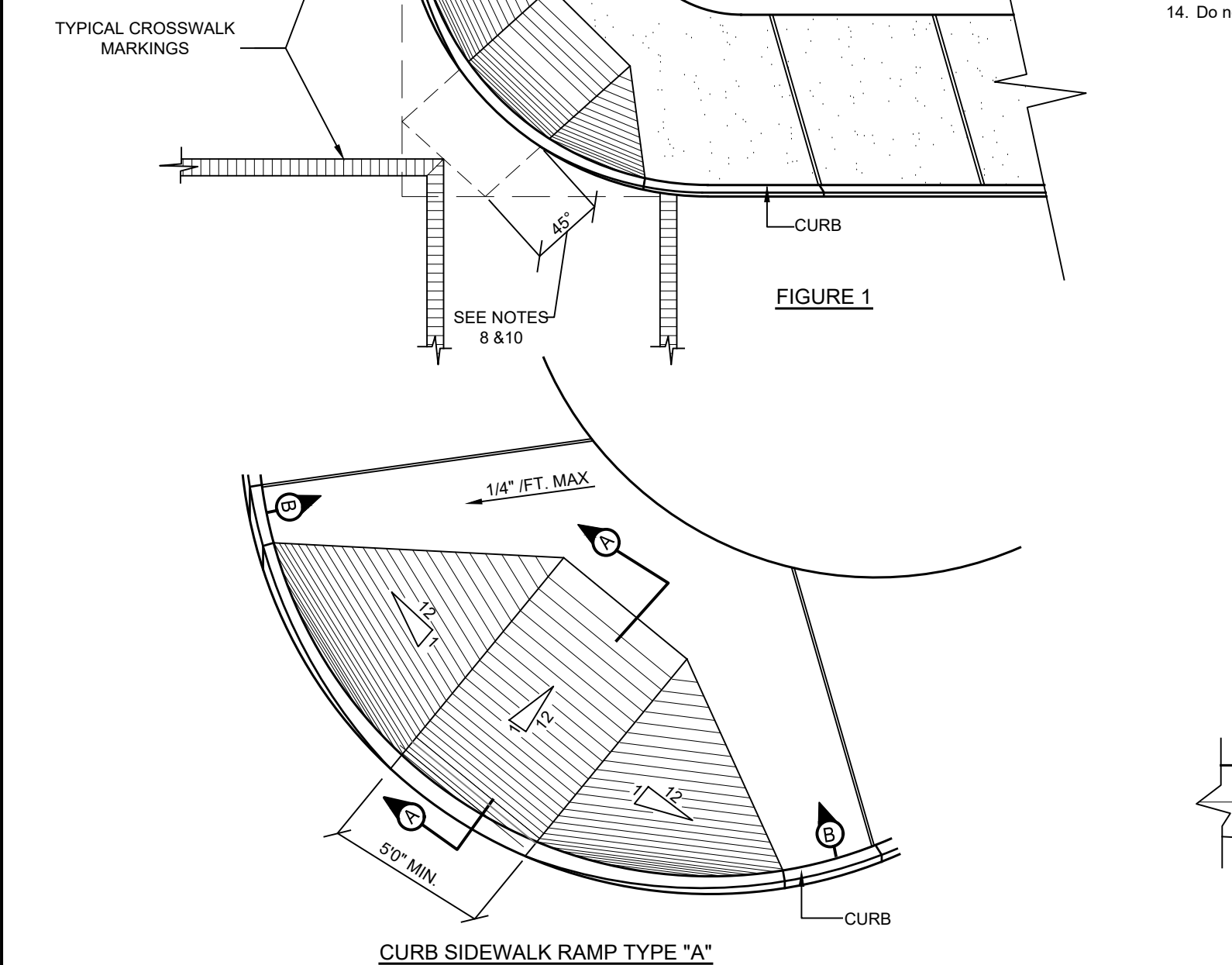
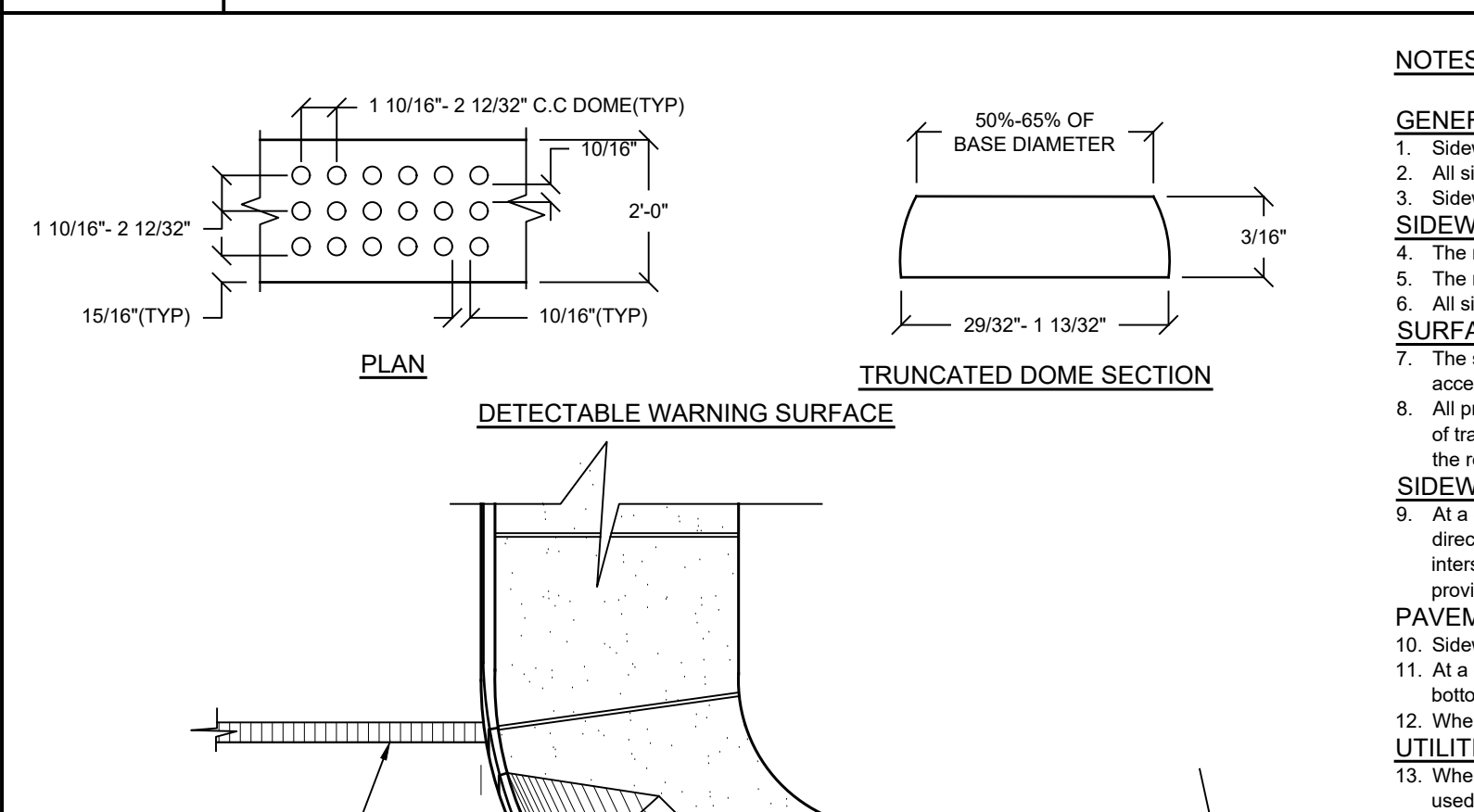
R-3 **TRAFFIC SIGN DETAIL**
NOT TO SCALE



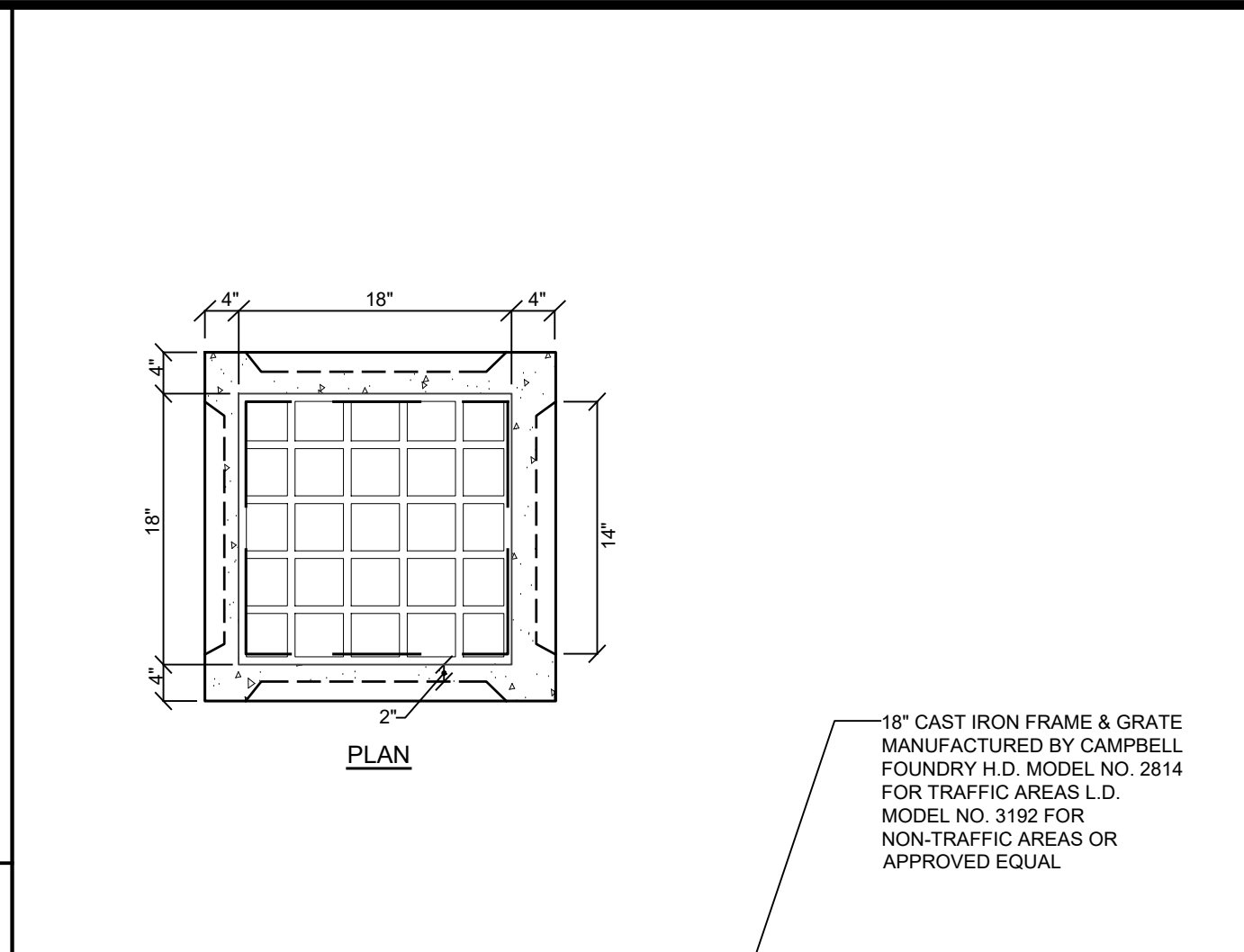
R-4 **CONCRETE CURB DETAIL**
NOT TO SCALE



D-1 **STORM PIPE BEDDING DETAIL**
NOT TO SCALE

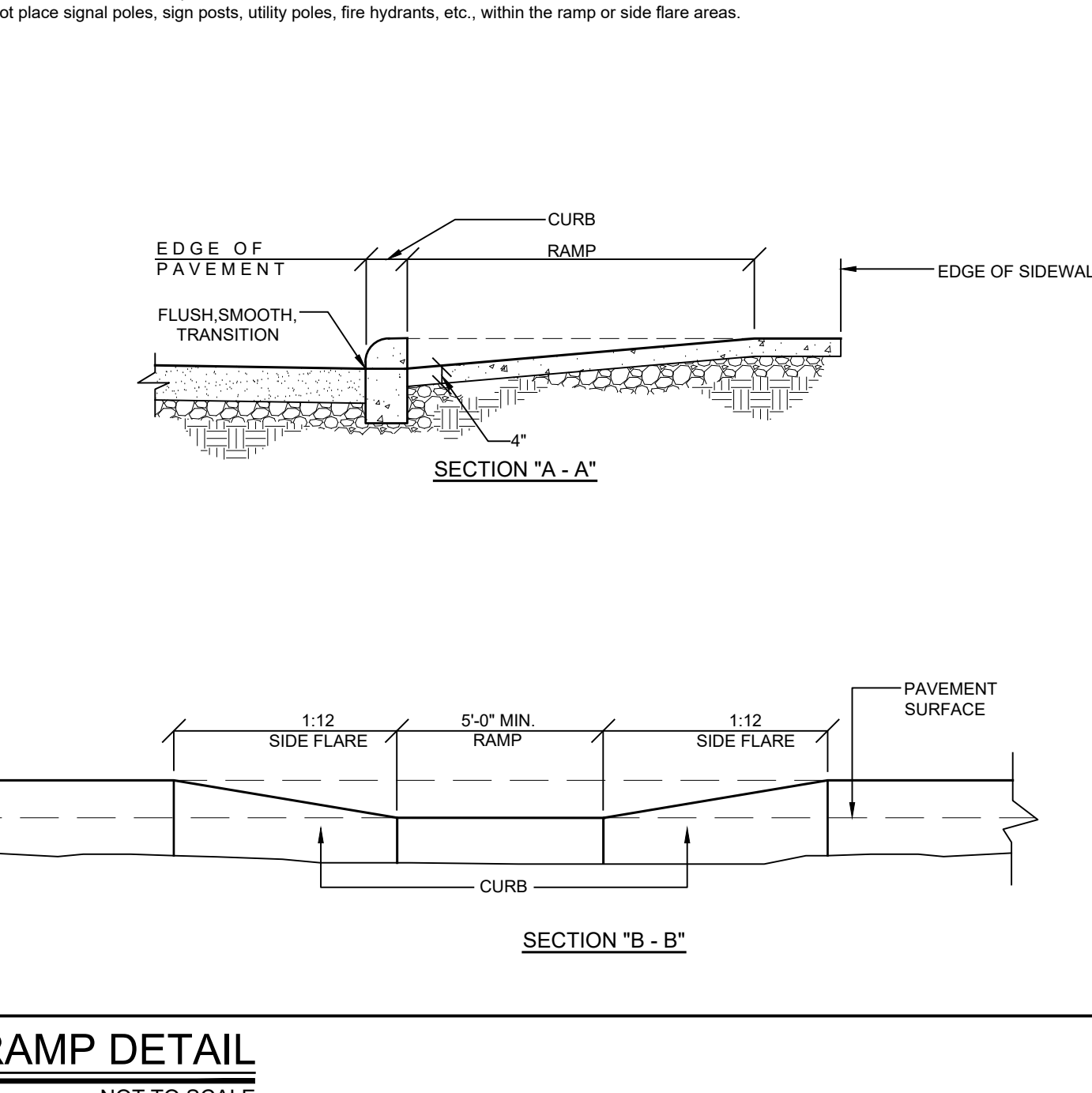


R-5 **SIDEWALK CURB-RAMP DETAIL**
NOT TO SCALE

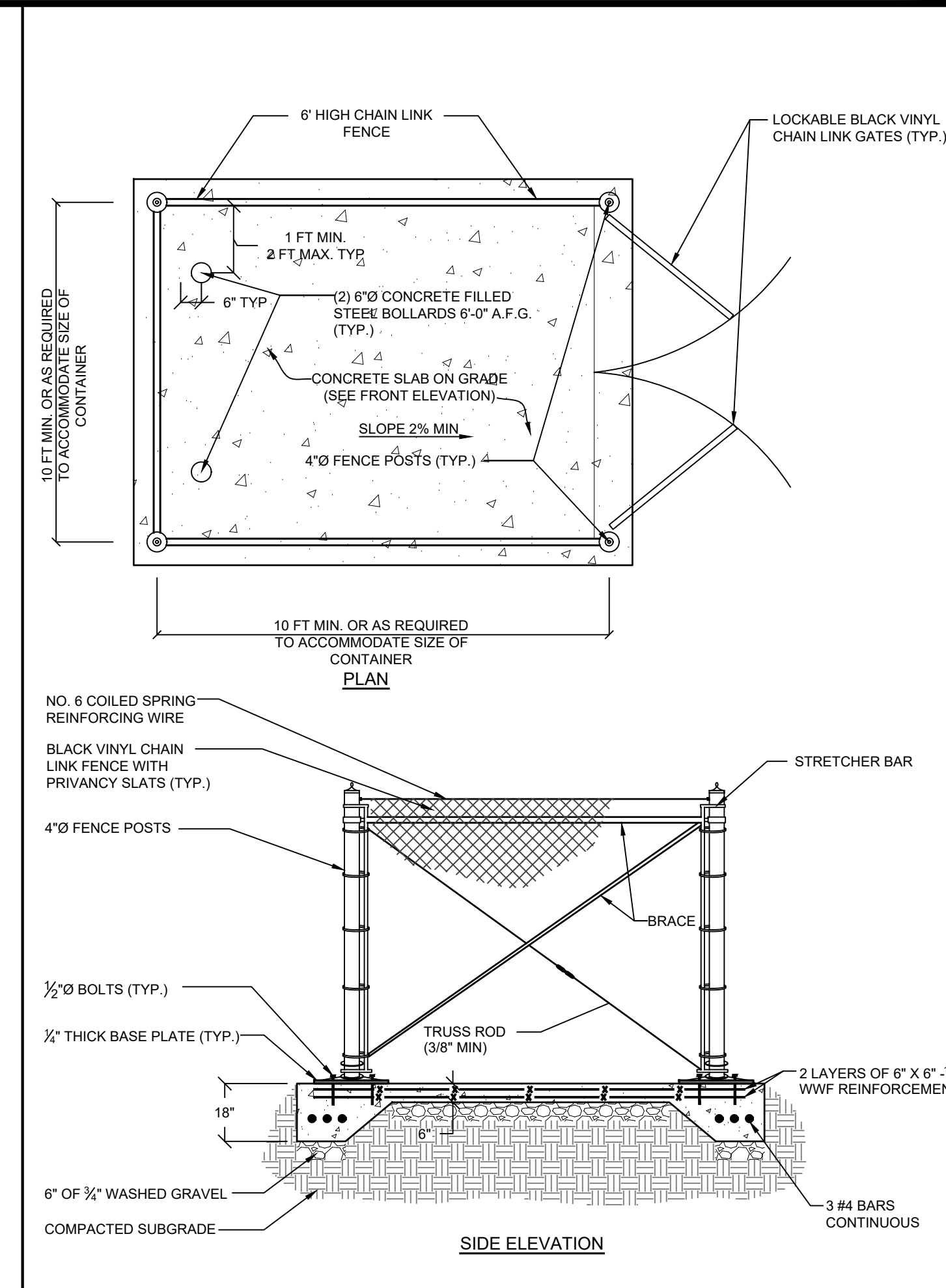


D-2 **PRECAST DRAIN INLET DETAIL**
NOT TO SCALE

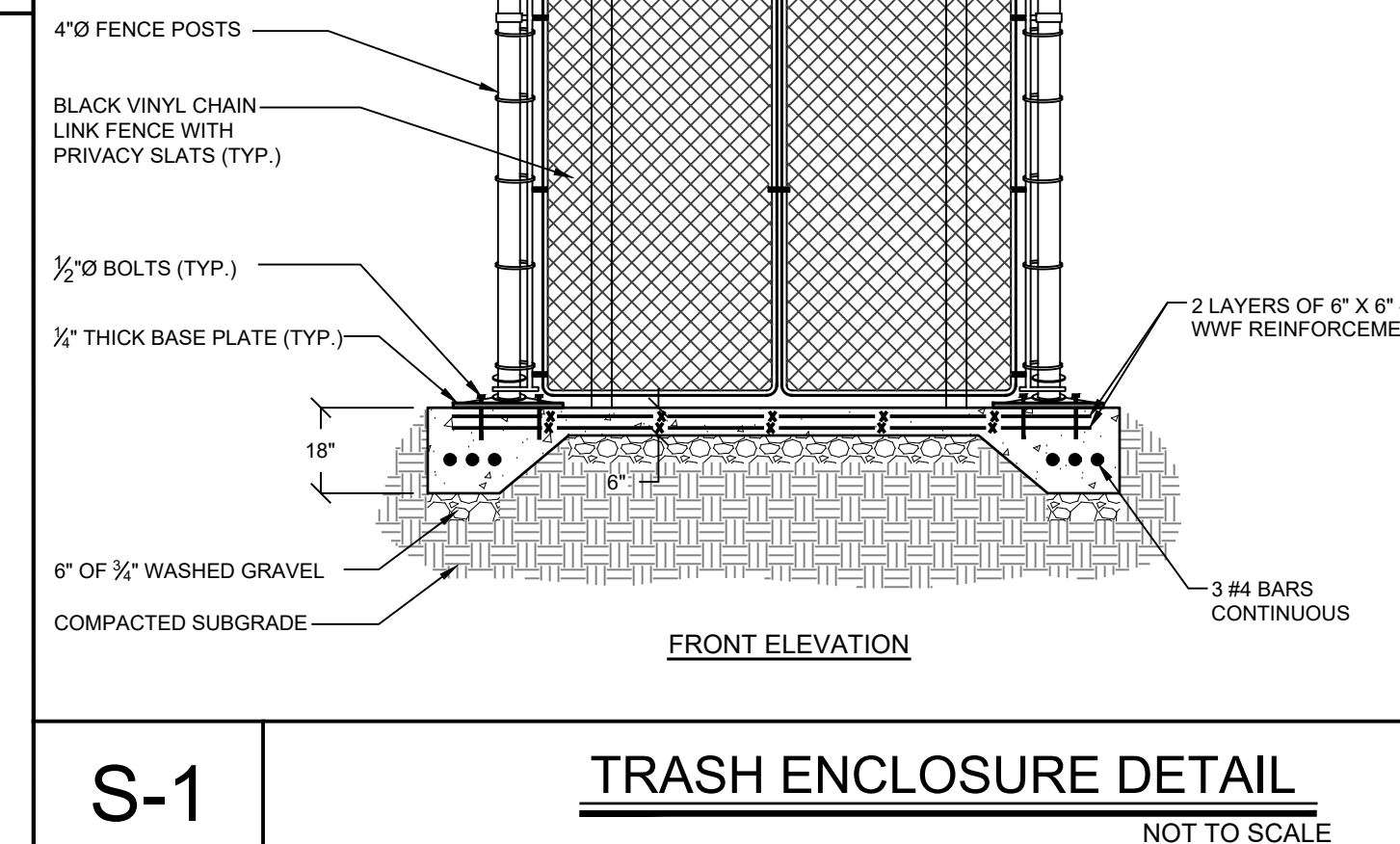
NOTES:
GENERAL:
1. Sidewalk curb ramp type and location are as shown on the plans or as directed.
2. All sidewalk curb ramp types may be used as straight or curved curb sections.
3. Sidewalk curb ramp types may be different at each location within an intersection.
SIDEWALK CURB RAMP CRITERIA:
4. The maximum slope of a sidewalk curb ramp shall be 1:12.
5. The maximum width of a sidewalk curb ramp shall be five feet. Exclusive of flared sides.
6. All sidewalk curb ramps shall have flush, smooth transitions to the adjacent street or highway surface.
SURFACE FINISH:
7. The surface of all sidewalk curb ramps shall be stable, firm, and slip resistant (E.G. A coarse broom finish perpendicular to the ramp slope is acceptable on cement concrete curb ramps.)
8. All proposed sidewalk curb ramps shall have a detectable warning surface installed from the back of the curb for a distance of 2 feet in the direction of travel on the ramp and extending the full width of the ramp, excluding the ramp sides or flares. The detectable warning surface shall comply with the requirements of section 4.29.2 of the Americans with Disabilities Act accessibility guidelines (ADAAG).
SIDEWALK CURB RAMP PLACEMENT:
9. At a corner, where the curb radius is 25-feet or less, a single ramp (either type a or b) located diagonally can often serve crosswalks in two directions. However, a single ramp shall only be used where there is a minimum clear space of 48" falling entirely within the projection of the intersection curbs (see figure 1). Where the radius exceeds 25' or the minimum 48" clear space is not achievable, then separate ramps should be provided for each crosswalk.
PAVEMENT MARKINGS AT CROSSWALKS:
10. Sidewalk curb ramps at marked crossings shall be wholly contained within the markings excluding any flared sides.
11. At a corner where a single ramp (either type a or b) located diagonally serves two crosswalks, this shall be a 48" minimum clear space at the ramp bottom wholly contained within the intersection crosswalk markings (see figure 1).
12. Where stop lines are necessary, they shall be located in advance of sidewalk curb ramps.
UTILITIES - DRAINAGE INLETS OR GRATES:
13. Where feasible, provide for drainage inlets or grates immediately upstream from the curb ramps. Reticule or rectangular drainage grates are to be used in the area of curb ramps.
14. Do not place signal poles, sign posts, utility poles, fire hydrants, etc., within the ramp or side flare areas.



S-1 **TRASH ENCLOSURE DETAIL**
NOT TO SCALE

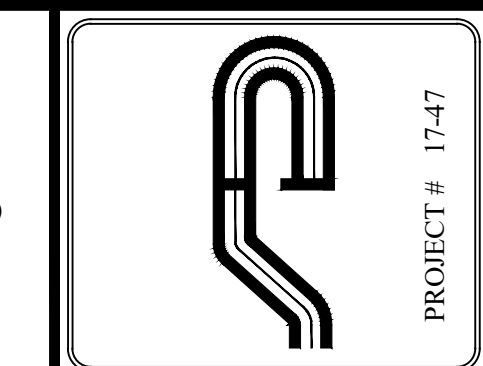


R-4 **CONCRETE CURB DETAIL**
NOT TO SCALE



NOTES:
GENERAL:
1. Sidewalk curb ramp type and location are as shown on the plans or as directed.
2. All sidewalk curb ramp types may be used as straight or curved curb sections.
3. Sidewalk curb ramp types may be different at each location within an intersection.
SIDEWALK CURB RAMP CRITERIA:
4. The maximum slope of a sidewalk curb ramp shall be 1:12.
5. The maximum width of a sidewalk curb ramp shall be five feet. Exclusive of flared sides.
6. All sidewalk curb ramps shall have flush, smooth transitions to the adjacent street or highway surface.
SURFACE FINISH:
7. The surface of all sidewalk curb ramps shall be stable, firm, and slip resistant (E.G. A coarse broom finish perpendicular to the ramp slope is acceptable on cement concrete curb ramps.)
8. All proposed sidewalk curb ramps shall have a detectable warning surface installed from the back of the curb for a distance of 2 feet in the direction of travel on the ramp and extending the full width of the ramp, excluding the ramp sides or flares. The detectable warning surface shall comply with the requirements of section 4.29.2 of the Americans with Disabilities Act accessibility guidelines (ADAAG).
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PAVEMENT MARKINGS AT CROSSWALKS:
10. Sidewalk curb ramps at marked crossings shall be wholly contained within the markings excluding any flared sides.
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12. Where stop lines are necessary, they shall be located in advance of sidewalk curb ramps.
UTILITIES - DRAINAGE INLETS OR GRATES:
13. Where feasible, provide for drainage inlets or grates immediately upstream from the curb ramps. Reticule or rectangular drainage grates are to be used in the area of curb ramps.
14. Do not place signal poles, sign posts, utility poles, fire hydrants, etc., within the ramp or side flare areas.

S-1 **TRASH ENCLOSURE DETAIL**
NOT TO SCALE



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| Revisions: | No. | Date | Comments |
|------------|-----|---------|----------------------|
| | 1 | 2/23/18 | Town Comments |
| | 2 | 12/7/18 | Amended Plan |
| | 3 | 1/31/19 | Town Comments |
| | 4 | 5/23/19 | Looking Revisions |
| | 5 | 7/24/19 | Resolution Revisions |
| | 6 | 7/24/19 | Resolution Revisions |
| | 7 | 1/23/20 | Resolution Revisions |

SCALE: N/A
DRAWN BY: MD
DATE: 11-27-17

SITE DETAILS

SITE PLAN PREPARED FOR
LORDAE II, LLC.
868 NORTH BROADWAY
Westchester County
Town of North Castle

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ADS RETENTION/DETENTION PIPE SYSTEM SPECIFICATION

SCOPE
THIS SPECIFICATION DESCRIBES ADS RETENTION/DETENTION PIPE SYSTEMS FOR USE IN NON-PRESSURE GRAVITY-FLOW STORM WATER COLLECTION SYSTEMS UTILIZING A CONTINUOUS OUTFALL STRUCTURE.

PIPE REQUIREMENTS
ADS RETENTION/DETENTION SYSTEMS MAY UTILIZE ANY OF THE VARIOUS PIPE PRODUCTS BELOW:

- N-12' ST IB PIPE (PER AASHTO) SHALL MEET AASHTO M294, TYPE S OR ASTM F2306
- N-12' ST IB PIPE (PER ASTM F2648) SHALL MEET ASTM F2648
- N-12' MEGA GREEN-ST IB SHALL MEET ASTM F2648
- N-12' WT IB PIPE (PER AASHTO) SHALL MEET AASHTO M294, TYPE S OR ASTM F2306
- N-12' WT IB PIPE (PER ASTM F2648) SHALL MEET ASTM F2648
- N-12' MEGA GREEN-WT IB SHALL MEET ASTM F2648

ALL PRODUCTS SHALL HAVE A SMOOTH INTERIOR AND ANNULAR EXTERIOR CORRUGATIONS. ALL ST IB PIPE PRODUCTS ARE AVAILABLE AS PERFORATED OR NON-PERFORATED. WT IB PIPE PRODUCTS ARE ONLY AVAILABLE AS NON-PERFORATED. PRODUCT-SPECIFIC PIPE SPECIFICATIONS ARE AVAILABLE IN THE DRAINAGE HANDBOOK SECTION 1 SPECIFICATIONS

JOINT PERFORMANCE

PLAIN END /SOIL-TIGHT (ST IB):
ST IB PIPE SHALL BE JOINED USING A BELL & SPIGOT JOINT. THE BELL & SPIGOT JOINT SHALL MEET THE SOIL-TIGHT REQUIREMENTS OF ASTM F2306 AND GASKETS SHALL MEET THE REQUIREMENTS OF ASTM F477. 12" THROUGH 60" INCH (300 TO 1500MM) DIAMETERS SHALL HAVE A BELL REINFORCED WITH A POLYMER COMPOSITE BAND. THE BELL TOLERANCE DEVICE SHALL BE INSTALLED BY THE MANUFACTURER.

PLAIN END PIPE & FITTINGS CONNECTIONS SHALL BE JOINED WITH COUPLING BANDS COVERING AT LEAST TWO FULL CORRUGATIONS ON EACH END OF THE PIPE. GASKETED SOIL-TIGHT COUPLING BAND CONNECTIONS SHALL INCORPORATE A CLOSED-CELL SYNTHETIC EXPANDED RUBBER GASKET MEETING THE REQUIREMENTS OF ASTM D1056 GRADE 2A2. GASKETS, WHEN APPLICABLE, SHALL BE INSTALLED BY THE PIPE MANUFACTURER.

WATERTIGHT (WT IB):
WT IB PIPE SHALL BE JOINED USING A BELL & SPIGOT JOINT. THE JOINT SHALL BE WATERTIGHT ACCORDING TO THE REQUIREMENTS OF ASTM D3212. GASKETS SHALL MEET THE REQUIREMENTS OF ASTM F477. 12" THROUGH 60" INCH (300 TO 1500MM) DIAMETERS SHALL HAVE A BELL REINFORCED WITH A POLYMER COMPOSITE BAND. THE BELL TOLERANCE DEVICE SHALL BE INSTALLED BY THE MANUFACTURER.

PIPE & FITTING CONNECTIONS SHALL BE WITH A BELL AND SPIGOT CONNECTION UTILIZING A SPUN-ON OR WELDED BELL AND VALLEY OR SADDLE GASKET. THE JOINT SHALL MEET THE WATERTIGHT REQUIREMENTS OF ASTM D3212, AND GASKETS SHALL MEET THE REQUIREMENTS OF ASTM F477. DETENTION SYSTEMS ARE SUBJECT TO GREATER LEAKAGE THAN TYPICAL SINGLE RUN STORM SEWER APPLICATIONS AND THEREFORE ARE NOT APPROPRIATE FOR APPLICATIONS REQUIRING LONG-TERM FLUID CONTAINMENT OR HYDROSTATIC PRESSURE. FOR ADDITIONAL DETAILS REFER TO TECHNICAL NOTE 7.01 RAINWATER HARVESTING WITH HDPE CISTERNS.

FITTINGS
FITTINGS SHALL CONFORM TO ASTM F2306 AND MEET JOINT PERFORMANCE INDICATED ABOVE FOR FITTINGS CONNECTIONS. CUSTOM FITTINGS ARE AVAILABLE AND MAY REQUIRE SPECIAL INSTALLATION CRITERION.

INSTALLATION
INSTALLATION SHALL BE IN ACCORDANCE WITH ASTM D2321 AND ADS RECOMMENDED INSTALLATION GUIDELINES, WITH THE EXCEPTION THAT MINIMUM COVER IN NON-TRAFFIC AREAS FOR 12" THROUGH 60" INCH (300 TO 1500MM) DIAMETERS SHALL BE ONE FOOT (0.3M). MINIMUM COVER IN TRAFFICED AREAS FOR 12" THROUGH 36" INCH (300 TO 900MM) DIAMETERS SHALL BE ONE FOOT (0.3M) AND FOR 42" THROUGH 60" INCH (1050 TO 1500MM) DIAMETERS THE MINIMUM COVER SHALL BE 2 FT (0.6M). BACKFILL SHALL CONSIST OF CLASS I MATERIAL ONLY. MINIMUM COVER HEIGHTS DO NOT ACCOUNT FOR PIPE BUOYANCY. REFER TO ADS TECHNICAL NOTE 8.05 HDPE PIPE FLOTATION FOR BUOYANCY DESIGN CONSIDERATIONS. MAXIMUM COVER OVER SYSTEM USING STANDARD BACKFILL IS 8 FT (2.4M); CONTACT A REPRESENTATIVE WHEN MAXIMUM FILL HEIGHT MAY BE EXCEEDED ADDITIONAL INSTALLATION REQUIREMENTS ARE PROVIDED IN THE DRAINAGE HANDBOOK SECTION 6 RETENTION/DETENTION.

NOTES:

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

NOTES:

- 1) ALL ELEVATIONS, DIMENSIONS AND LOCATIONS OF RISERS, INLETS AND OUTLETS, SHALL BE VERIFIED BY THE ENGINEER PRIOR TO RELEASING FOR FABRICATION.
- 2) IN SITUATIONS WHERE A FINE-GRAINED BACKFILL MATERIAL IS USED ADJACENT TO THE PIPE SYSTEM, AND ESPECIALLY INVOLVING GROUND WATER CONDITIONS, CONSIDERATION SHOULD BE GIVEN TO THE USE OF GASKETED PIPE JOINTS. AT THE VERY LEAST THE PIPE JOINTS SHOULD BE WRAPPED IN A SUITABLE, NON-WOVEN GEOTEXTILE FABRIC TO PREVENT INFILTRATION OF FINES INTO THE PIPE SYSTEM.
- 3) CONSIDERATION FOR CONSTRUCTION EQUIPMENT LOADS MUST BE TAKEN INTO ACCOUNT.
- 4) ALL PIPE DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCES.
- 5) ALL RISERS TO BE FIELD EXTENDED OR TRIMMED TO FINAL GRADE.

THE PROCEEDING DETAILS WERE GENERATED USING ADS DESIGN PRO®, A SOFTWARE PROGRAM DEVELOPED BY ADVANCED DRAINAGE SYSTEMS, INC. ("ADS"). THESE DRAWINGS ARE INTENDED TO DEPICT THE ADS COMPONENTS AS REQUESTED BY THE USER. ADS HAS NOT PERFORMED ANY ENGINEERING OR DESIGN SERVICES FOR THIS PROJECT, NOR HAS ADS INDEPENDENTLY VERIFIED THE INFORMATION SUPPLIED. THE INSTALLATION DETAILS PROVIDED HEREIN ARE GENERAL RECOMMENDATIONS AND ARE NOT SPECIFIC FOR THIS PROJECT. THE DESIGN ENGINEER SHALL REVIEW THESE DETAILS PRIOR TO CONSTRUCTION. IT IS THE DESIGN ENGINEERS RESPONSIBILITY TO ENSURE THE DETAILS PROVIDED HEREIN MEETS OR EXCEEDS THE APPLICABLE NATIONAL, STATE, OR LOCAL REQUIREMENTS AND TO ENSURE THAT THE DETAILS PROVIDED HEREIN ARE ACCEPTABLE FOR THIS PROJECT.

APPROVED BY THE TOWN OF NORTH CASTLE PLANNING BOARD
RESOLUTION DATED: JUNE 10, 2019

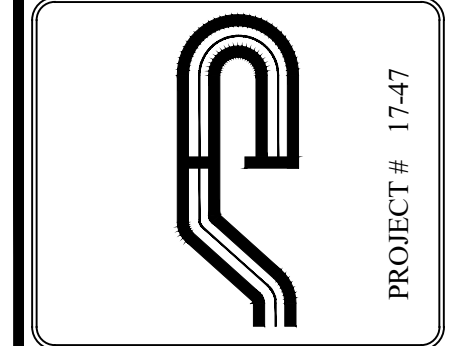
DATE: _____
CHRISTOPHER CARTHY, CHAIRMAN
TOWN OF NORTH CASTLE PLANNING BOARD

ENGINEERING DRAWING PLANS REVIEWED BY TOWN ENGINEER

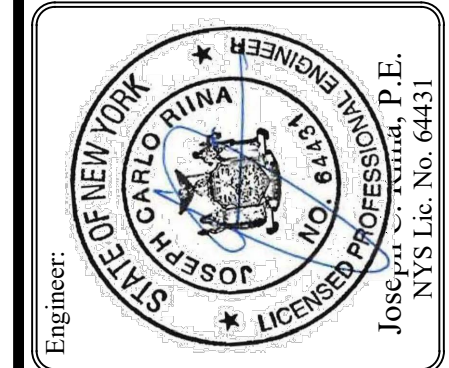
DATE: _____
JOSEPH CERMELE, PE
KELLARD SESSIONS CONSULTING
CONSULTING TOWN ENGINEERS

THE UNDERSIGNED HERBY APPROVES THE ATTACHED () PAGES.

DATE: _____



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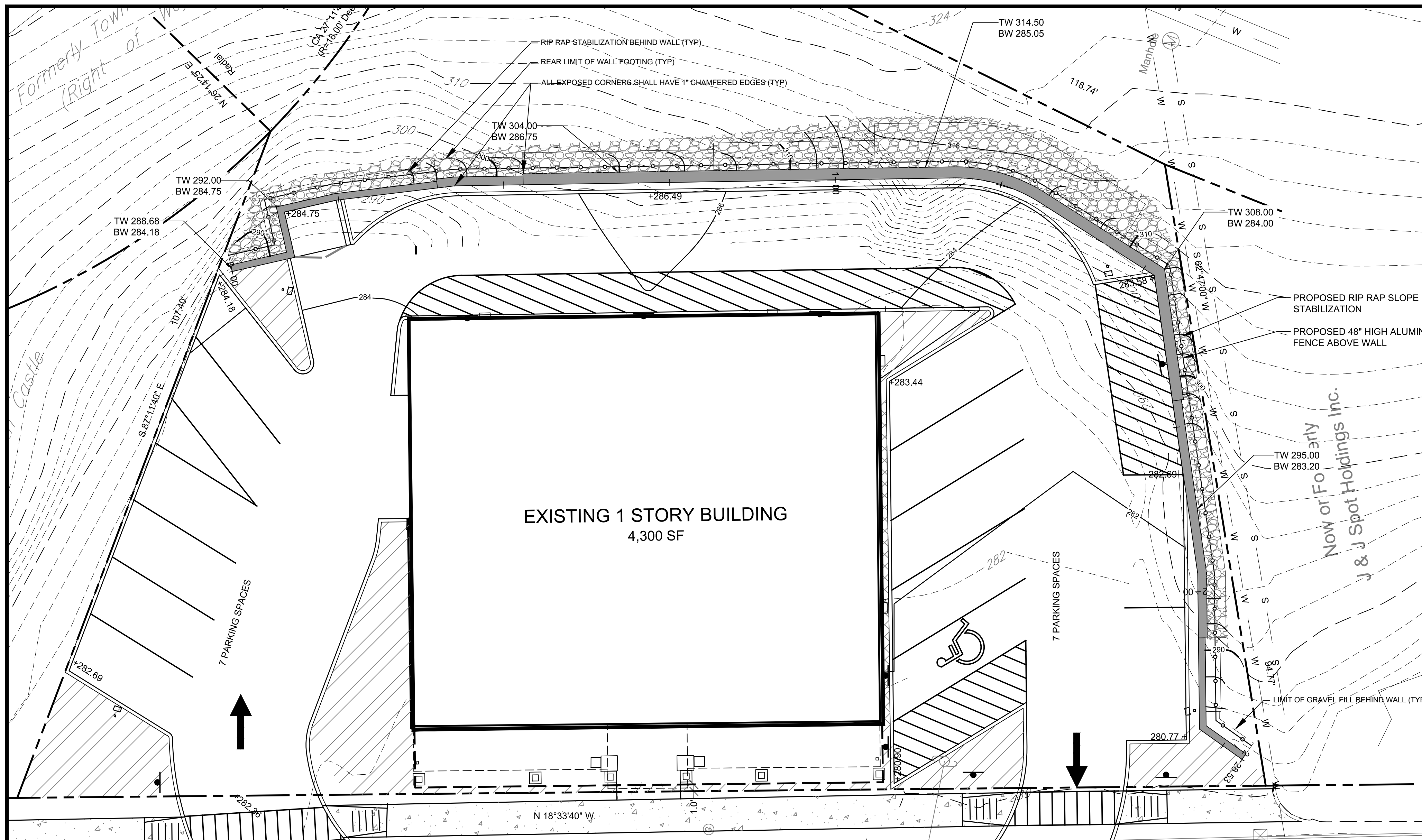


| Revisions: | No. | Date | Comments |
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| | 1 | 2/23/18 | Town Comments |
| | 2 | 12/17/18 | Amended Plan |
| | 3 | 5/17/19 | Town Comments |
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| | 5 | 5/21/19 | Resolution Revisions |
| | 6 | 7/24/19 | Resolution Revisions |
| | 7 | 1/23/20 | Resolution Revisions |

SCALE: N/A
DRAWN BY: MD
DATE: 11-27-17

**SUBSURFACE
DETENTION
DETAILS**

SITE PLAN PREPARED FOR
LORDAE II, LLC.
868 NORTH BROADWAY
Westchester County
Town of North Castle



GENERAL NOTES:

- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE TOWN CODE OF PRACTICE AND THE NEW YORK STATE BUILDING CONSTRUCTION CODE.
- ALL CHANGES MADE TO THESE PLANS SHALL BE APPROVED BY THE ENGINEER AND ANY SUCH CHANGES SHALL BE FILED AS AMENDMENTS TO THE ORIGINAL BUILDING PERMIT.
- ALL WRITTEN DIMENSIONS ON THE DRAWINGS SHALL TAKE PRECEDENCE OVER ANY SCALED DIMENSIONS.
- THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK USING HIS BEST SKILL AND ATTENTION. HE SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO THE OWNER FOR THE ACTS AND OMISSIONS OF HIS EMPLOYEES, SUBCONTRACTORS, AND THEIR AGENTS AND EMPLOYEES, AND ANY OTHER PERSONS PERFORMING ANY WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT HIS WORK AND WILL BE HELD RESPONSIBLE FOR CONSEQUENTIAL DAMAGE DUE TO HIS ACTIVITIES. THE OWNER AND THE ENGINEER SHALL BE HELD HARMLESS.
- THE CONTRACTOR SHALL SECURE & PAY FOR A BUILDERS RISK POLICY TO COVER THE PERIOD OF CONSTRUCTION. THE ENGINEER & OWNER SHALL BE NAMED AS ADDITIONAL INSURED. ALL CONTRACTORS EMPLOYED AT THE SITE SHALL BE COVERED BY WORKMANS COMPENSATION.
- ENGINEERS WHOSE SEAL APPEARS HEREON HAS NOT BEEN RETAINED FOR SUPERVISION OF CONSTRUCTION. SUBSEQUENTLY, HE IS NOT RESPONSIBLE FOR CONSTRUCTION AND THEREFORE ASSUMES NO RESPONSIBILITY FOR CONSTRUCTION PRACTICES, PROCEDURES, AND RESULTS THEREFROM.

CONSTRUCTION NOTES:

- ALL CONCRETE WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE AMERICAN CONCRETE INSTITUTE, ACI 318, LATEST EDITION.
- EXCAVATION IN GENERAL SHALL CONFORM TO THE LINES AND GRADES SHOWN ON THE CONTRACT DRAWINGS.
- FILL MATERIAL SHALL BE PLACED IN LOOSE 8 INCH LIFTS. PRIOR TO COMPACTION, EACH LIFT SHALL BE MOISTENED OR AERATED AS NECESSARY TO PROVIDE OPTIMUM MOISTURE CONTENT. EACH LIFT SHALL BE COMPACTED TO A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY A S.T.M. D1557 METHOD. C. THE CONTRACTOR WILL BE REQUIRED TO HIRE AN INDEPENDENT CERTIFIED TESTING LAB TO PERFORM FIELD DENSITY TESTS. FIELD TESTING SHALL BE PERFORMED IN ACCORDANCE WITH A S.T.M. D1556 OR D2922. A MINIMUM OF 6 IN-PLACE FIELD DENSITY TESTS SHALL BE PERFORMED ON ALTERNATE LIFTS. FILLING OPERATIONS MAY NOT PROCEED UNTIL IN-PLACE DENSITY TESTS HAVE BEEN PERFORMED AND THE FILL PROPERLY COMPACTED.
- FILL SHALL CONSIST OF SOUND DURABLE PARTICLES TO THE GRADATION SHOWN IN THE TABLE BELOW. THE MATERIAL SHALL BE GRANULAR AND FREE OF ORGANIC OR OTHER DELETERIOUS MATERIAL. IN GENERAL THE SOIL SHALL BE NON-PLASTIC WITH A PLASTICITY INDEX LESS THAN 5 AND SHALL CONFORM TO THE UNIFIED SOIL CLASSIFICATION SYSTEM FOR AN "SW" SOIL OR THE REQUIREMENTS OF THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATION SECTION 203-2 ITEM NO. 203.07 SELECT GRANULAR FILL, HOWEVER THE MAXIMUM SIZE SHALL BE 3 INCHES.

| SIEVE SIZE | PERCENT PASSING BY WEIGHT |
|------------|---------------------------|
| 3" | 100 |
| No. 40 | 0 - 70 |
| No. 200 | 0 - 15 |

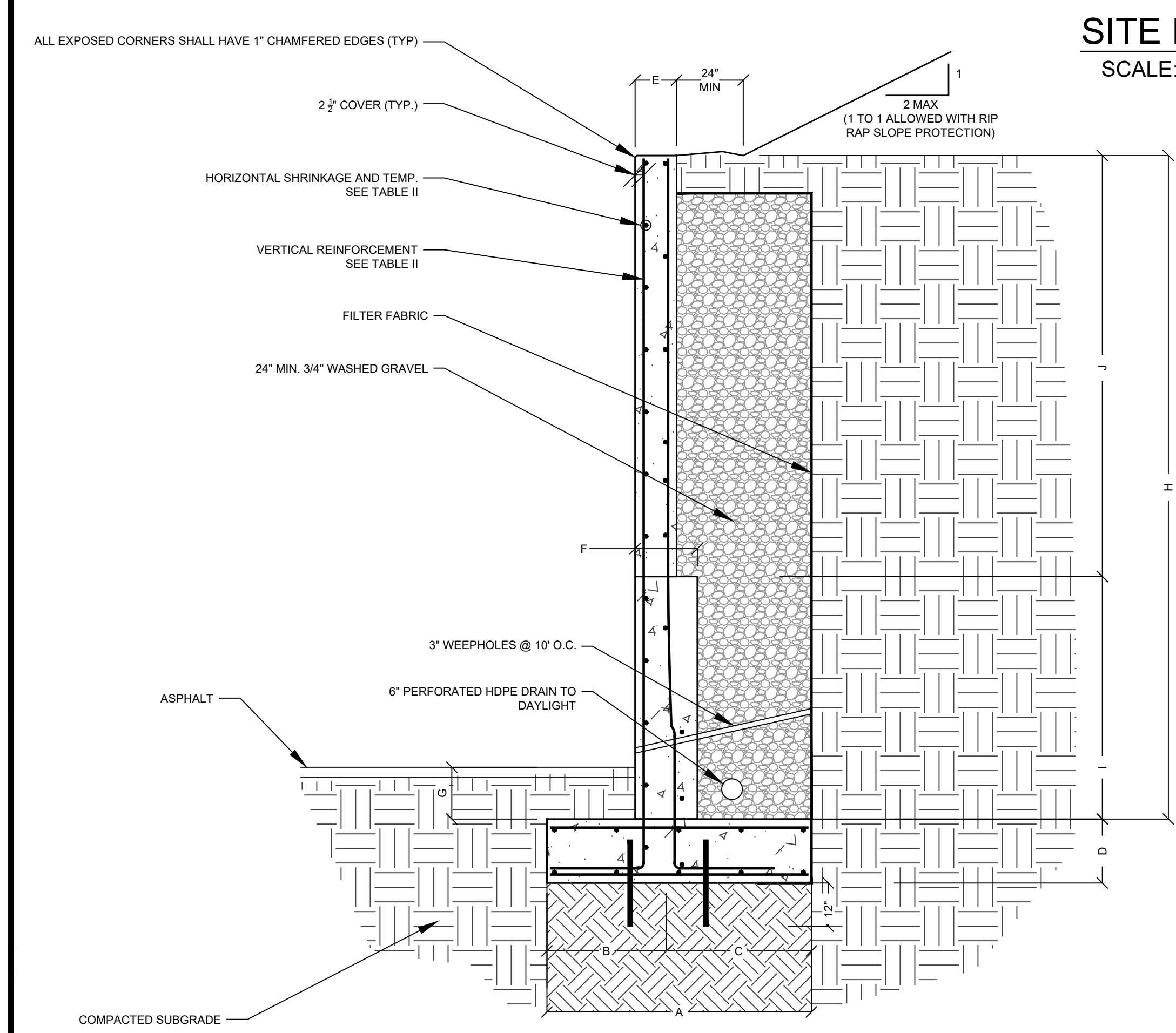
- IF ON-SITE EXCAVATED MATERIAL IS USED IT MUST CONFORM TO THE SAME MINIMUM REQUIREMENTS SPECIFIED. IN ALL INSTANCES, THE CONTRACTOR MUST SUBMIT CERTIFIED LABORATORY TEST REPORTS ON ALL MATERIALS USED FOR BACKFILL. THE FOLLOWING REPORTS SHALL BE PROVIDED AND BE IN ACCORDANCE WITH THE FOLLOWING ASTM SPECIFICATIONS:
- PARTICLE SIZE ANALYSIS - A.S.T.M. D422
 - SOIL CLASSIFICATION - A.S.T.M. D2487
 - LIQUID & PLASTIC LIMITS - A.S.T.M. D424
 - MODIFIED PROCTOR MAXIMUM DENSITY - A.S.T.M. D1557 METHOD C
- EXCAVATION SHALL BE PERFORMED IN ACCORDANCE WITH THE "CONSTRUCTION SAFETY & HEALTH ACT O.S.H.A. PART 192
 - GEOTEXTILE FABRIC SHALL BE TREVIRA SPUNBOUND NON-WOVEN #1125 OR APPROVED EQUAL. THE GEOTEXTILE SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS AND GUIDELINES.
 - THE CONTRACTOR SHALL NOT USE LARGE OR HEAVY CONSTRUCTION EQUIPMENT WITHIN 10 FEET OF THE RETAINING WALL. SUITABLE HAND/SMALL COMPACTION EQUIPMENT SHALL BE USED WITHIN 5 FEET OF THE WALL.
 - FOOTINGS CONSTRUCTED ON VIRGIN IN-SITU SOIL SHALL HAVE A MINIMUM ALLOWABLE BEARING CAPACITY OF 3000 PSF.
 - TO INSURE A PROPER BEARING SURFACE FOR THE FOOTINGS CONSTRUCTED ON NATURAL IN-SITU SOIL, THE CONTRACTOR SHALL STRIP ALL TOP SOIL. PRIOR TO CONSTRUCTION OF THE FOOTINGS, THE AREA SHALL BE COMPACTED USING SUITABLE COMPACTION EQUIPMENT. A MINIMUM 3 PASSES SHALL BE MADE. THE ENGINEER SHALL VERIFY THE FOUNDATION SOIL PRIOR TO CONCRETE PLACEMENT.
 - DURING BACKFILL OPERATIONS, THE CONTRACTOR SHALL BE CAREFUL NOT TO CREATE UNBALANCED LOADING CONDITIONS ON THE WALL. BACKFILL SHOULD BE PLACED AND COMPACTED ON BOTH SIDES OF THE WALL SIMULTANEOUSLY.
 - ALL FOOTINGS SHALL BE LOCATED A MINIMUM OF 3'-6" BELOW ANY ADJACENT FINISHED GRADE.
 - ALL CONCRETE SUPPLIED TO THE PROJECT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH $f'_c = 4000$ PSI AND SHALL CONTAIN A MINIMUM 5% AIR ENTRAINING ADMIXTURE IN ACCORDANCE WITH A.S.T.M. C 260.
 - STEEL REINFORCEMENT SHALL BE OF THE SIZES SPECIFIED AND SHALL HAVE A MIN. YIELD STRENGTH $f_y = 60,000$ PSI.
 - THE CONTRACTOR SHALL PROVIDE EXPANSION JOINTS @ 60'-0" O.C. (MAX.) IN THE WALL.
 - FOOTINGS SHALL NOT BE CONSTRUCTED ON WET OR FROZEN GROUND. UNSUITABLE MATERIAL SHALL BE EXCAVATED AND REPLACED WITH COMPACTED GRANULAR FILL OR 3/4" CRUSHED STONE.
 - WALL SHALL BE BACKFILLED SO AS NOT TO CREATE AN UNEVEN LOADING CONDITION. WALL SHALL NOT BE BACKFILLED UNTIL SUCH TIME THAT UPPER WALL STRUCTURAL SUPPORTS AND ROOF ARE IN PLACE AND COMPLETELY FASTENED TOGETHER.
 - DO NOT BACKFILL REAR FOUNDATION CONC. WALL UNTIL FLOOR SLAB HAS BEEN PLACED AND PROPERLY CURED.
 - EXTEND ALL REINFORCING INTO KEY.
 - CONSTRUCT BUTTRESS @ 5'-0" O.C. TYP. SEE FOUNDATION PLAN.
 - BACKFILL SHALL NOT BE PLACED UNTIL FLOOR SLAB HAS BEEN POURED.
 - FOUNDATION FORMS SHALL NOT BE REMOVED MIN. 2 DAYS TO ALLOW FOR PROPER SET
 - THE FOUNDATION WALL SHALL NOT BE LOADED FOR A MIN. 7 DAYS

WALL NOTES:

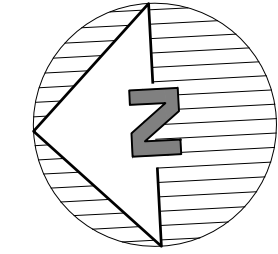
- EXCAVATION IN GENERAL SHALL CONFORM TO THE LINES AND GRADES SHOWN ON THE CONTRACT DRAWINGS.
- THE ENGINEER SHALL BE NOTIFIED OF UNSUITABLE SUB-GRADE SOILS PRIOR TO PLACEMENT OF THE WALL SYSTEM.
- WALLS TO BE CONSTRUCTED ON VIRGIN IN-SITU SOIL SHALL HAVE A MINIMUM ALLOWABLE BEARING CAPACITY OF 2 TSF. ALL OTHER CONDITIONS SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER.
- TO INSURE A PROPER BEARING SURFACE, THE WALL SHALL BE CONSTRUCTED ON NATURAL IN-SITU SOIL. THE CONTRACTOR SHALL STRIP ALL TOP SOIL. THE AREA SHALL THEN BE COMPACTED USING SUITABLE COMPACTION EQUIPMENT. A MINIMUM OF 3 PASSES SHALL BE MADE. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING SAFE CUT AND FILL SLOPES IN FRONT OF AND BEHIND THE WALL THROUGHOUT CONSTRUCTION.
- WALLS SHALL NOT BE CONSTRUCTED ON WET OR FROZEN GROUND.
- SOILS USED AS BACKFILL SHALL CONSIST OF CLEAN DRY SOIL. THE MATERIAL SHALL BE GRANULAR AND FREE OF ORGANIC OR OTHER DELETERIOUS MATERIAL. IN GENERAL THE SOIL SHALL BE NON-PLASTIC WITH A PLASTICITY INDEX LESS THAN 5 AND SHALL CONFORM TO THE AASHTO SOIL CLASSIFICATION SYSTEM FOR AN "A-1-A" SOIL. HOWEVER THE MAXIMUM SIZE SHALL BE 6". IN GENERAL ALL FILL SHALL BE APPROVED BY THE ENGINEER PRIOR TO ITS USE. WET MATERIAL OR UNSUITABLE MATERIAL SHOULD NOT BE USED.
- BACKFILL SHALL BE PLACED AND COMPACTED IN MAXIMUM 12" LIFTS.
- IF GROUNDWATER IS ENCOUNTERED, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY TO DETERMINE IF THE ADDITION OF AN UNDERDRAIN MAY BE REQUIRED.
- THE CONTRACTOR SHALL NOT USE LARGE OR HEAVY CONSTRUCTION EQUIPMENT WITHIN 5 FT OF THE RETAINING WALLS OR NEW FOUNDATION WALLS. HAND OPERATED COMPACTING EQUIPMENT SHALL BE USED WITHIN 5 FT OF THE WALL FACE.
- ALTERNATE WALL DESIGNS MUST BE SEALED BY A NEW YORK STATE LICENSED PROFESSIONAL ENGINEER. THE MINIMUM FACTORS OF SAFETY FOR SLIDING AND OVERTURNING SHALL BE 2.0.

WALL NOTES:

- EXCAVATION IN GENERAL SHALL CONFORM TO THE LINES AND GRADES SHOWN ON THE CONTRACT DRAWINGS.
- THE ENGINEER SHALL BE NOTIFIED OF UNSUITABLE SUB-GRADE SOILS PRIOR TO PLACEMENT OF THE WALL SYSTEM.



SITE PLAN
SCALE: 1" = 10'



| WALL HEIGHT | FOOTING DIMENSIONS | | | | | | | | | | STEM DIMENSIONS | | | | REINFORCING | | | | SHRINKAGE & TEMPERATURE REINFORCING | | | |
|-------------|--------------------|-------|-------|-----|-----|-----|-----|-----|--------|---|-----------------|---------------|------------------|---------|---------------|---------------|-----------------------|---------------|-------------------------------------|-----------------------------|--|--|
| | H | A | B | C | D | E | F | G | I | J | HEIGHT ON WALL | USE | SPLICE DIMENSION | FOOTING | HEEL | TOE | FRONT STEM HORIZONTAL | FRONT STEM | FOOTING | | | |
| 8'-6" | 3'-0" | 1'-0" | 2'-0" | 12" | 12" | 12" | 30" | - | - | - | 0' - 8'-6" | #7 @ 18" O.C. | 33" | - | #7 @ 18" O.C. | #7 @ 18" O.C. | 0' - 8'-6" | #5 @ 18" O.C. | #5 @ 18" O.C. | 8 #5 @ 18" O.C. TWO LAYERS | | |
| 12'-2" | 4'-0" | 1'-3" | 2'-9" | 16" | 12" | 12" | 26" | - | - | - | 0' - 12'-2" | #7 @ 16" O.C. | 33" | - | #7 @ 18" O.C. | #7 @ 18" O.C. | 0' - 12'-2" | #5 @ 18" O.C. | #5 @ 16" O.C. | 12 #5 @ 18" O.C. TWO LAYERS | | |
| 17'-2" | 6'-0" | 1'-6" | 3'-6" | 16" | 16" | 16" | 26" | - | - | - | 0' - 17'-2" | #7 @ 12" O.C. | 33" | - | #7 @ 18" O.C. | #7 @ 18" O.C. | 0' - 17'-2" | #5 @ 18" O.C. | #5 @ 12" O.C. | 20 #5 @ 18" O.C. TWO LAYERS | | |
| 22'-2" | 6'-0" | 2'-0" | 4'-0" | 16" | 20" | 20" | 26" | 6" | 16'-2" | - | 0' - 6" | #8 @ 10" O.C. | 33" | - | #7 @ 9" O.C. | #7 @ 18" O.C. | 0' - 6" | #5 @ 15" O.C. | #5 @ 10" O.C. | 50 #5 @ 18" O.C. TWO LAYERS | | |
| | | | | | | | | | | | 6' - 22'-2" | #7 @ 10" O.C. | | | | | 6' - 22'-2" | #5 @ 15" O.C. | #5 @ 10" O.C. | | | |
| 27' | 7'-6" | 2'-6" | 5'-0" | 24" | 20" | 20" | 18" | 12" | 15" | - | 0' - 12" | #8 @ 6" O.C. | 37" | 33" | #7 @ 6" O.C. | #7 @ 12" O.C. | 0' - 12" | #5 @ 15" O.C. | #5 @ 12" O.C. | #5 @ 14" O.C. TWO LAYERS | | |
| | | | | | | | | | | | 12' - 27" | #8 @ 12" O.C. | | | | | 12' - 27" | #5 @ 15" O.C. | #5 @ 12" O.C. | | | |
| 22'-2" SPL* | 6'-0" | 2'-9" | 3'-3" | 16" | 20" | 20" | 26" | 6" | 16'-2" | - | 0' - 6" | #8 @ 10" O.C. | 33" | - | #7 @ 9" O.C. | #7 @ 18" O.C. | 0' - 6" | #5 @ 15" O.C. | #5 @ 10" O.C. | 50 #5 @ 18" O.C. TWO LAYERS | | |
| | | | | | | | | | | | 6' - 22'-2" | #7 @ 10" O.C. | | | | | 6' - 22'-2" | #5 @ 15" O.C. | #5 @ 10" O.C. | | | |
| 27' SPL* | 7'-6" | 4'-6" | 3'-3" | 24" | 20" | 20" | 18" | 12" | 15" | - | 0' - 12" | #8 @ 6" O.C. | 37" | 33" | #7 @ 6" O.C. | #7 @ 12" O.C. | 0' - 12" | #5 @ 15" O.C. | #5 @ 12" O.C. | #5 @ 14" O.C. TWO LAYERS | | |
| | | | | | | | | | | | 12' - 27" | #8 @ 12" O.C. | | | | | 12' - 27" | #5 @ 15" O.C. | #5 @ 12" O.C. | | | |
| 32' | 9'-6" | 2'-6" | 7'-6" | 24" | 20" | 30" | 18" | 12" | 20" | - | 0' - 12" | #8 @ 6" O.C. | 37" | 33" | #7 @ 6" O.C. | #7 @ 12" O.C. | 0' - 12" | #5 @ 10" O.C. | #5 @ 12" O.C. | #5 @ 14" O.C. TWO LAYERS | | |
| | | | | | | | | | | | 12' - 32" | #8 @ 12" O.C. | | | | | 12' - 32" | #5 @ 15" O.C. | #5 @ 12" O.C. | | | |

* SPL DENOTES DIMENSIONS TO BE USED ALONG SOUTHERN PROPERTY LINE.

APPROVED BY THE TOWN OF NORTH CASTLE PLANNING BOARD
RESOLUTION DATED: JUNE 10, 2019

DATE: _____

CHRISTOPHER CARTHY, CHAIRMAN
TOWN OF NORTH CASTLE
PLANNING BOARD

ENGINEERING DRAWING PLANS REVIEWED BY
TOWN ENGINEER

DATE: _____

JOSEPH CERMELE, PE
KELLARD SESSIONS CONSULTING
CONSULTING TOWN ENGINEERS

Site Design Consultants
Civil Engineers • Land Planners
251-J Underhill Avenue, Yorktown Heights, NY 10598
(914) 962-4488 - Fax: (914) 962-7386
www.SiteDesignConsultants.com

Engineer:
Joseph Cermele, P.E.
NYS Lic. No. 64431

| Revisions: | No. | Date | Comments |
|------------|-----|----------|---------------------|
| | 1 | 2/23/18 | Town Comments |
| | 2 | 12/17/18 | Amended Plan |
| | 3 | 1/31/19 | Town Comments |
| | 4 | 5/23/19 | Logline Revision |
| | 5 | 7/24/19 | Resolution Revision |
| | 6 | 1/23/20 | Resolution Revision |

SCALE: AS NOTED
DRAWN BY: JCR
DATE: 8/15/19

RETAINING WALL PLAN & WALL PLAN & DETAILS

RETAINING WALL PLAN
PREPARED FOR
LORDAE II, LLC
868 NORTH BROADWAY
Westchester Co., New York

Sheet 14 of 14



**State of New York
Department of Transportation**



Highway Work Permit

Permit No.: 20200886206
Date Issued: 10/30/2020
Project ID No.:
Expiration Date: 06/29/2021

***Permittee 1:**

ARROW BLACK TOP & MASONRY, INC.
 28 CLAREMONT AVENUE
 THORNWOOD, NY 10595
 Emergency Contact: DAVE PEREIRA
 Emergency Number: 914-906-0733

Under the provisions of the Highway Law or Vehicle & Traffic Law, permission is hereby granted to the permittee to:

REMOVE AND REPLACE PARKING LOT, CURBING AND WALKWAYS ON 868 NORTH BROADWAYS, TOWN OF NORTH CASTLES, NEW YORK. WORK TO BE DONE AS PER NYSDOT STANDARDS AND SPECIFICATIONS. ALL ATTACHMENTS SHALL APPLY. DEVELOPERS/PERMITTEES MUST COMPLY WITH ALL EO 202.6 REQUIREMENTS - SPECIFICALLY PARAGRAPH 9: CONSTRUCTION. [HTTPS://ESD.NY.GOV/GUIDANCE-EXECUTIVE-ORDER-2026](https://esd.ny.gov/guidance-executive-order-2026).

THE PERMITTEE IS RESPONSIBLE FOR TEMPORARY TRAFFIC CONTROL IN ACCORDANCE WITH THE CURRENT NATIONAL MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AND THE NYS SUPPLEMENT. ANYONE WORKING WITHIN THE HIGHWAY RIGHT-OF-WAY SHALL WEAR HIGH-VISIBILITY APPAREL MEETING THE CURRENT ANSI 107 CLASS II OR CLASS III (AT NIGHT) STANDARDS AND A HARD HAT MEETING THE CURRENT ANSI/ISEA Z89.1 TYPE 1, CLASS C OR IF WORKING WITHIN CLOSE PROXIMITY TO ELECTRICAL POWER LINE, CLASS E OR G.

| County | Municipality | State Hwy | State Route | Beg Ref | End Ref |
|-------------|--------------|-----------|-------------|-------------|-------------|
| WESTCHESTER | NORTH CASTLE | 20 | 22 | 22 87022006 | 22 87022007 |

as set forth and represented in the attached application at the particular location or areas, or over the routes as stated therein, if required; and pursuant to the conditions and regulations general or special, and methods of performing work, if any; all of which are set forth in the application and form of this permit. See additional conditions on PAGE 2.

THIS PERMIT IS ISSUED BASED ON ALL LOCAL, STATE, AND FEDERAL REQUIREMENTS BEING SATISFIED.

Dated at: Poughkeepsie **Date Signed:** 10/30/2020 **Commissioner of Transportation** **By:** Lee Zimmer

IMPORTANT:

THIS PERMIT, WITH APPLICATION AND DRAWING (OR COPIES THEREOF) ATTACHED, SHALL BE PLACED IN THE HANDS OF THE CONTRACTOR BEFORE ANY WORK BEGINS. THE HIGHWAY WORK PERMIT SHALL BE AVAILABLE AT THE SITE DURING CONSTRUCTION.

BEFORE WORK IS STARTED AND UPON ITS COMPLETION, THE PERMITTEE ABSOLUTELY MUST NOTIFY:

Jorge Argote, Resident Engineer 914-592-6557

"UPON COMPLETION OF WORK", SECOND TO LAST PAGE, MUST BE COMPLETED, SIGNED BY THE PERMITTEE, AND DELIVERED TO THE RESIDENT ENGINEER.

STORMWATER MANAGEMENT PLAN

Prepared for

**Lordae II, LLC
868 North Broadway
Town of North Castle, NY**

Prepared by:

**Site Design Consultants
251F Underhill Avenue
Yorktown Heights, New York 10598
914-962-4488**

**Joseph C. Riina, P.E.
NYS Lic. No. 64431
CPESC No. 2670
CPSWQ No. 0073**

**March 2018
Revised April 2019**



STORMWATER MANAGEMENT PLAN

Prepared for

Lordae II, LLC
868 North Broadway
Town of North Castle, NY

Property Owner: Chris Santomero
Lordae II, LLC
1 New King Street
West Harrison, NY 10604

Site Engineer: Joseph C. Riina, P.E.
NYS Lic. No. 64431
CPESC No. 2670
CPSQW No. 0073

Site Design Consultants
251-F Underhill Avenue
Yorktown Heights, NY 10598
914-962-4488



March 2018

Revised April 2019

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- 11.0 Construction Sequence
- 12.0 Maintenance of Stormwater Management Practices During Construction
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- 15.0 Conclusion

Appendices

Figures Figures 5.1 and 5.2 – Pre/Post Development Conditions Watershed Map
 Figure 1.1 – Location Map
 Figure 4.1 – Soils Map

Appendix A List of Approvals and Applications
 Town of North Castle Building Permit – approvals pending

Appendix B Town of North Castle Chapter 267, Stormwater Management

Appendix C Stormwater Runoff Calculations and Stormwater Runoff Management Practices
 Sizing Calculations

1.0 Project Description

The subject property is located at 868 North Broadway in the Town of North Castle, New York. The property is 0.42 acres in size and contains an existing residence. The property is zoned CB for Central Business. The site slopes up from North Broadway towards the building. Behind the building are steep slopes back to the property lines on the back and sides. There are currently two entry points off of North Broadway to the site. They are not connected. About half of the site is developed, and the other half is steep slopes. The property is bounded on the north, east, and west by Town property, and to the south by a commercial property. There is currently a storm sewer system that discharges to the storm sewer in the roadway. There is no treatment located on the site for this storm sewer.

It is proposed to install a new driveway and parking area for the site. The proposed driveway will connect the two existing access points and provide additional parking for the site. The existing access points will be replaced with DOT approved driveway aprons. A stormwater management system is proposed to capture and treat runoff from the site.

The total disturbance proposed for the site will be 19,398 SF. This disturbance will be managed during construction by implementing this stormwater management plan which will control stormwater runoff and related erosion potential. During construction, temporary erosion and sediment control measures will be kept in place and maintained. After construction surface runoff will be discharged to the subsurface infiltration system. The infiltration practice will accommodate the runoff from the pool, patio, and bluestone walk.

The following Report and Plans describe in detail the design and implementation of the Stormwater Management Plan.

2.0 Site Hydrology

The proposed improvements will not significantly change the surface runoff patterns. Currently, the surface runoff pattern is from the back of the site towards North Broadway and entering the storm sewer therein. The flow is a combination of sheet flow, shallow concentrated flow, and channel flow. As was previously stated the site has no existing treatment system to capture the existing building and driveway.

Under the proposed condition the general direction of the surface runoff will not be altered. Almost all of the surface runoff from the new impervious areas will be collected and detained. The proposed improvements as shown will result in an increase in the imperviousness of the area. Therefore, there will be an increase in the volume of runoff generated by the project for a given rainfall event. This will be mitigated with the stormwater management system.

In the planning, design and construction of the development, stormwater will be managed to minimize or eliminate potential off-site impacts. The proper implementation of temporary sediment and erosion control measures are used to achieve this goal. An Erosion and Sediment Control Plan has been established and will be implemented during all phases of construction until the completion of the project. The Erosion and Sediment Control Plan incorporates the

sequence of construction and designed measures to be installed, operated and maintained during all aspects of each phase. The erosion and sediment controls are designed in accordance with the NYS Standards and Specifications for Erosion and Sediment Control.

3.0 Soils

On-site soils were classified by using the USDA Natural Resources Conservation Service (NRCS) Websoil survey for Westchester County, NY, see Figure 4.1 – Soil Map.

The predominant soil types for this project are Urban Land. The soils in the area to be developed are UhB which have a hydrologic classification of “D”. The erosion hazard level for these soils are slight to moderate. These soil properties are essential in the design and proper construction management of the site.

4.0 Stormwater Regulatory Requirements

Regulatory Obligation

Since the project disturbance is less than one acre, the filing of a Notice of Intent with the NYS DEC for compliance with General Permit 00-15-002 is not required. Therefore, the project only needs to comply with the provisions of the Town of North Castle Code Chapter 267 Stormwater Management. This project as designed complies with the Town Code Chapter 267.

A stormwater analysis has been performed and Stormwater Management Systems have been designed to provide for water quality treatment and the detention of stormwater. The basis of analysis was to capture, treat and retain the 100-year storm event with a runoff depth of 9.0”.

5.0 Reducing Pollutant Impact

Stormwater Management During Construction

The Erosion and Sediment Control plan will be implemented during all phases of construction until the completion of the project. This will minimize or eliminate the potential short-term adverse impacts which may occur during construction. After completion, the erosion and sediment control will become a maintenance plan to insure that permanent erosion and sediment controls continue to function and prevent the transport of sediments.

The Erosion and Sediment Control plan includes the Sequence of Construction and designed measures to be installed, operated and maintained during all aspects of construction. The appropriate measures were selected and detailed in plan for implementation by the site contractor. The main objective of the plan is to prevent erosion from occurring by stabilization of the construction site where possible. Sediment controls are to be used as a containment system to allow the removal of sediment from runoff to the greatest extent possible before leaving the work site. Control methods and standards utilized are provided in the NYS GUE&SC.

Potential sources of destabilization of the site have been determined so that proper measures will be used. The locations and methods designed for erosion and sediment control measures change as the construction sequence progresses. The priority is to stabilize disturbed areas subject to erosion and use containment and / or filtering practices where sediment may concentrate. Some of the practices and methods that will be used for this project are:

- Minimization of open disturbance by use of stabilizers such as seed, mulch, and erosion blankets, stone, etc. Areas not subject to construction traffic for extended periods will be temporarily stabilized.
- The work areas will be contained. Down grade perimeters will be lined with barriers such as silt fence, diversions, berms, etc.
- Where possible, clean stormwater will be diverted away or around the work site to reduce the amount of runoff requiring treatment.
- Sediment traps will be constructed where heavy concentrations of runoff may accumulate.
- Dust control measures will be maintained on-site such as water trucks.
- Runoff will be prevented from gaining erosive velocities on long slopes. This can be achieved with seed and mulch, erosion control blankets, curb dams and multiple rows of silt fence.
- Existing drainage structures will be protected from sediment-laden runoff.

Additional methods of practices may be employed dependent on the situation. The NYS GUE&SC consists of NYS DEC accepted and recommended practices. The design requirements of temporary and permanent erosion and sediment control practices of this Manual have been followed.

Prior to completion of the project, all permanent structural features will be cleaned, restored, and re-vegetated as necessary. The erosion and sediment control phase of the project is complete when all work is done and all areas are stabilized. The post-construction Stormwater Management Inspection and Maintenance agreement will describe the long term inspection schedule, periodic maintenance requirements, and the responsible party.

6.0 Methodology

To satisfy the requirements of the Town of North Castle standard practices have been selected. These practices meet either attenuation or water quality goals. The practices selected and the sizing analyses are found in Chapter 6 of the NYS DEC Stormwater Management Design Manual May 2010.

7.0 Hydrologic Analysis

A hydrologic analysis was performed for the area of interest or subject to development site for existing and proposed conditions. For the purpose of this analysis the existing and proposed conditions were compared to determine the increase in runoff volume to be controlled. The method used to compute project runoff was the Soil Conservation Service TR-55. The basis for the analysis was the Type III, 24-hour storm, for the 100-year storm event. The rainfall depth for the 100-year storm is 9.0 inches. The runoff coefficient "CN" and Time of Concentration for

existing and post-development conditions were computed using Standard TR-55 criteria. The summary of the input can be found in Appendix C.

As runoff flows onto the site from the rear and enters the storm sewer located in north Broadway, the design line for the project that was chosen is the front property line. This was chosen so that the analysis looked at only the runoff the left the site. This includes areas adjacent to the property the flow onto the site. This done so that the runoff numbers represented only the runoff leaving the site, and not the overall area entering the storm sewer in North Broadway. This area was called DA-1 in the predeveloped condition and consists of the entire property and offsite areas that flow onto the site which discharge to design line 1. The tributary area is 1.587 acres with a runoff coefficient Cn of 88 for the existing condition and 0.66 acres and a CN of 91 for the proposed condition. The maximum discharge to the design line expected during the 25-year storm is 9.66 cfs which is significantly less than the 11.40 cfs under the existing condition. In the proposed condition, DA-1 is directed to a filter unit for treatment rather going untreated to the North Broadway storm sewer as it is currently.

Under the proposed condition part of the existing DA-1, which includes part of the building, driveway and other improvements were separated analyzed as DA-2. This area is 0.930 acres in size with a CN number of 88. Runoff from this area is collected in drain inlets and then conveyed to a subsurface detention system. The system will consist of a group of interconnected 30” diameter HDPE pipes. The units will be encased in gravel as detailed. They have been design to accommodate the 100 year storm. They will outlet to the same filter unit that DA-1 will flows to for treatment after detention.

The contributing watershed is limited to the project site with the design point which is the lowest point of the site where all of the current surface runoff flows to. The following table summarizes the runoff calculations shown in Appendix C.

Drainage Summary – Design Line 1

| Storm Frequency | Existing, cfs | Proposed, cfs | Net Change, cfs | Storage Provided |
|------------------------|----------------------|----------------------|------------------------|-------------------------|
| 1 year | 2.69 | 2.66 | -0.03 | 392 cf |
| 2 year | 3.39 | 3.34 | -0.05 | 479 cf |
| 10 year | 5.80 | 5.47 | -0.33 | 827 cf |
| 25 year | 7.77 | 7.21 | -0.56 | 1176 cf |
| 100 year | 11.40 | 9.66 | -1.74 | 1393 cf |

The peak rate of discharge from the 24-hour rainfall for each rainfall event shows no increase over the existing condition. Therefore there are no downstream impacts associated with this project.

8.0 Selected Stormwater Management Practices (SMPs)

Since the only requirement is the detention of the increase in stormwater runoff during the 100-year storm event most of the runoff from the impervious areas is being collected and

detained with a controlled release at the discharge with no increase in peak runoff over existing conditions.

The selected practices are as follows:

Subsurface Storage Chambers: The selected stormwater system captures runoff from drain inlets which are piped to the system. The system is comprised of a 30" HDPE detention System. The design requires eight rows of chambers with 26' lengths of pipe per row. The system will be encased in gravel. The chambers are interconnected to provide over 1,393 cf of storage. The entire 100-year storm will be detained.

Downstream Defender Unit: The Downstream Defender Unit will provide treatment prior to discharge to the storm sewer. It is designed to capture and remove sediment from the surface runoff through this flow-through stormwater practice. These vaults are designed to capture 89% of suspended sediment and 40% of Phosphorus that enters the unit. Additionally, these units have been sized to capture and treat up to a 100-year, 24-hour storm event. The Downstream Defender is accepted by the NYS DEC as a proprietary system.

See Routing Calculations in Appendix C for sizing calculations.

9.0 **Stormwater Management Practice Justification and Design**

The selection of the management practice was based on evaluating the site to determine what would best fit the conditions providing maximum benefits. The goal was to select practices which would meet treatment and attenuation standards and minimize the disturbance footprint. The selection of Stormwater Practices was based on the surface and subsurface conditions of the site. In addition, the site design concept is to create a natural and environmentally sensitive setting. The high bedrock made it very clear that infiltration was not a possible practice. Therefore, subsurface detention chambers and a water quality filter were selected for their low profile and aesthetically appealing qualities.

10.0 **Erosion and Sediment Control Selection**

Stabilized Construction Entrance:

This has been specified for the entrance of the driveway in compliance with the NYSSDESC. The installation will occur at the beginning of the project as described in the Suggested Construction Sequence. It will be maintained so as to prevent the tracking of sediment off-site. The location and detail can be found on the Construction Drawings.

Silt / Sediment Fence:

Silt fence has been specified to control and contain sediment from leaving areas under disturbance to undisturbed areas. The type, placement, and installation shall meet the requirements of the NYSGUESC. The fence shall be installed as best as possible following the

contours and will be spaced in accordance with the same criteria. The fence will be inspected daily, repaired, and sediment removed. The location and details can be found on the site plan.

Soil Stockpile:

Areas are provided for temporary stockpiling of delivered soil material for the construction. These areas will be contained with sediment fence to prevent the movement of sediment. The stockpiles if not active for less than 14 days will be seeded and mulched. The stockpile areas were placed to best suit the proposed construction activity. The stockpile will be installed as described in the Construction Sequence. The location and detail can be found on the site plan.

Temporary and Permanent Vegetative Cover:

Disturbed areas that will not contain structures or other improvements must be stabilized. The stabilization may be temporary and in other cases permanent vegetative cover. The vegetative cover specifications are based on the NYS GUES&C Manual. On the Construction Plans are notes, locations, and specifications as to the vegetative cover requirements. In the notes, there are specific situations and time constraints related to stabilization of disturbed areas. The specifications give seed and fertilizer mixes as well as placement.

11.0 Construction Sequence

A key object of the SWPPP is to reduce erosion and sedimentation potentials for the project. The construction sequence was developed to assist the site contractor. Its intent is to coordinate the installation of E&SCs with the site disturbing activities as a means to minimize the adverse impacts of the site work.

Construction Sequence

Refer to the Plan Set for all plans and details which relate to Construction Sequence.

1. A licensed surveyor must define infrastructure locations, limits of disturbance, stormwater basin limits, and grades in the field prior to start of any construction. Limits of disturbance shall be marked with the installation of construction fence or approved equal. The extents of all of the stormwater management systems shall be cordoned off to minimize the disturbance on this area.
2. Install all perimeter erosion control measures, construction entrance as shown on the Erosion and Sediment Control Plan and the associated Details. Install haybale barriers at the bottom of slopes.
3. Strip site and place topsoil in stockpile locations shown on the plan. Remove existing on site sidewalk.
4. Begin rough grading the site. Contractor to limit exposure of denuded soils by providing temporary stabilization for work areas that will remain undisturbed for over seven (7) days. Excess material shall be stockpiled in the location shown on the plan as grades allow. Material unable to be stockpiled shall be removed from the site.

5. Rough grade driveway and parking area.
6. Begin construction of retaining wall. Wall shall be completed prior to the installation of the proposed driveway and parking area.
7. Begin the excavation and installation of stormwater management system. Protect trenches and open excavations from erosion. Entry into the system shall be blocked off until site has reached final stabilization. Once system has been installed, backfill, seed where necessary, and reinstall measures to cordon off the system from disturbance. This shall only be removed to install overlapping sections of sidewalk and driveway/parking.
8. During site construction maintain and re-establish as required erosion control and stabilization measures as required by the site plan and details.
9. Excavate to the sub-grade level. Scarify the existing soil to a depth of 12-inches by rototilling or other means acceptable to the Engineer. Install all courses of stone as per the specifications given on the Plan.
10. Install base course of Item 4 in all pavement areas. Stabilize all open areas with seed and mulch.
11. Construct remainder of driveway and parking areas. First install curbs, asphalt binder, and concrete sidewalk. Once binder course is installed, drainage outlet may be unblocked.
12. Backfill curbs, grade, place final soil topping and put in place permanent vegetative cover over all disturbed areas, landscape beds, slopes, etc.
13. Once site stabilization has taken place (An area shall be considered to have achieved final stabilization when it has a minimum uniform 80% perennial vegetative cover or other permanent non-vegetative cover with a density sufficient to resist accelerated surface erosion and subsurface characteristics sufficient to resist sliding and other movements), remove all temporary erosion and sediment controls, unplug the drainage system to allow runoff to enter the stormwater management system.

Winter Stabilization Notes:

If construction activities are expected to extend into or occur during the winter season the contractor shall anticipate proper stabilization and sequencing. Construction shall be sequenced such that wherever possible areas of disturbance that can be completed and permanently stabilized shall be done by applying and establishing permanent vegetative cover before the first frost. Areas subject to temporary disturbance that will not be worked for an extended period of time shall be treated with temporary seed, mulch, and/or erosion blankets.

The Construction Sequence is also shown on the E&SC Notes and Details. A signature line for the Owner and Operator, if different, to certify that they have read, understand and agree to follow the Site Development, including the Construction Sequence and Erosion and Sedimentation Control Plan.

Responsible Party during and after Construction:

Chris Santomero
1 New King Street
West Harrison, NY 10604

12.0 Maintenance of Stormwater Management Practices During Construction

Regular site inspections will be performed by the Town throughout the construction of the project. Inspections will be made weekly and after major rainfall events, i.e. ½" or greater. A report will be made of each inspection.

13.0 Maintenance of Stormwater Management Practices After Construction

This will be clearly detailed in the Stormwater Management Inspection and Maintenance Agreement. These responsibilities will reside with the Town.

The following is the proposed Inspection and Maintenance Schedule:

| Control to be Inspected | Inspection Frequency | Maintenance Threshold Criteria | Maintenance Procedure |
|--------------------------------|-----------------------------|---------------------------------------|--|
| Drain Inlets | Quarterly | 3"+ accumulated sediment | Remove debris and sediment annually. |
| Stormwater Chamber System | Bi-Annually | 12" accumulated sediment | Flush And Vacuum out Sediment. |
| Downstream Defender Unit | Annually | Sediment @ 25% | Remove debris and sediment annually. Flush & vacuum. |

Drain Inlets:

Access through grate structure and remove debris and sediment with hand tools.

Pipe System:

Access chamber system through inspection ports and remove debris and sediment with hand tools or vacuum truck. Inspect the structure bi-annually.

Downstream Defender Unit

Access through manhole cover. Pump down permanent water volume. Vacuum sediment.

In General:

- Controls should be inspected periodically for the first few months after construction and on a semi-annual basis thereafter. They should also be inspected after major storm events (greater than 0.5 inches).
- All stormwater controls shall be inspected and cleaned of any debris or sediment.
- Any erosion shall be repaired and stabilized with seeding and mulch or stone.

Please note that additional notes regarding maintenance activities are contained on the project Construction Drawings and should be adhered to during and after construction.

15.0 Conclusion

The Stormwater Management Plan has been established for this project in accordance with the requirements of Town of North Castle Code Chapter 267 Stormwater Management. This plan will effectively control stormwater generated by this project during and after construction. The management of the stormwater is based on controlling increases in peak runoff as well as water quality. The design of the water quality component not only will treat runoff due to the project, but also that which is currently not treated. Overall it would improve even the existing conditions.

The effectiveness of the stormwater practices selected in design will be insured by implementing a maintenance plan. The maintenance plan details specific activities, safeguards and provisions to be monitored and performed by specified frequencies. By adhering to the maintenance plan, optimum performance of the stormwater practices can be expected.

In conclusion, the Stormwater Management System will not create negative downstream impacts as a result of this project.

April 26, 2019

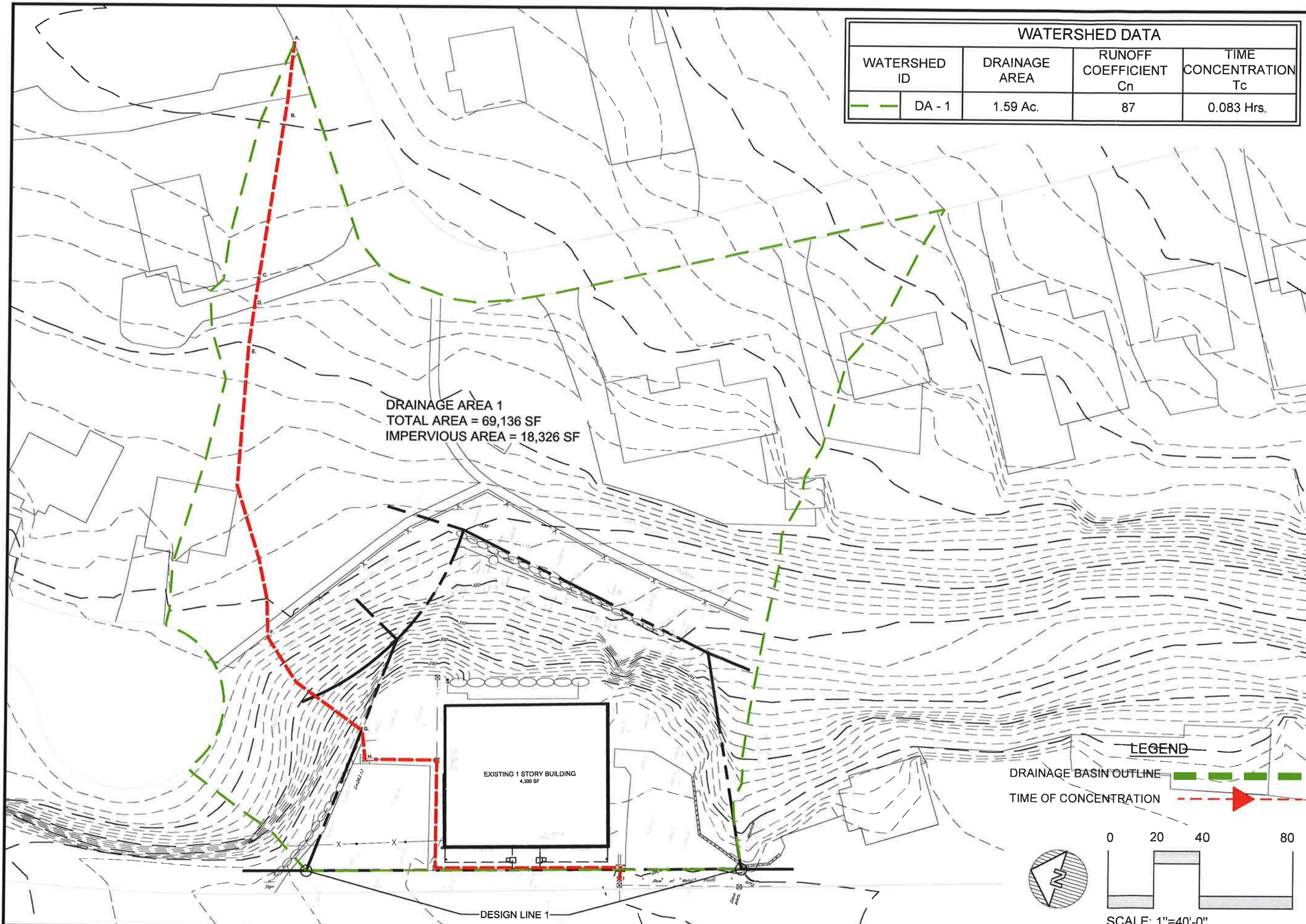
Joseph C. Riina, P.E.
NYS License No. 64431

Figures

Figures 5.1 and 5.2 – Pre/Post Development Conditions Watershed Map

Figure 1.1 – Location Map

Figure 4.1 – Soils Map



| WATERSHED DATA | | | |
|----------------|---------------|-----------------------|-----------------------|
| WATERSHED ID | DRAINAGE AREA | RUNOFF COEFFICIENT Cn | TIME CONCENTRATION Tc |
| DA - 1 | 1.59 Ac. | 87 | 0.083 Hrs. |

DRAINAGE AREA 1
 TOTAL AREA = 69,136 SF
 IMPERVIOUS AREA = 18,326 SF

EXISTING 1 STORY BUILDING
 4,300 SF

LEGEND

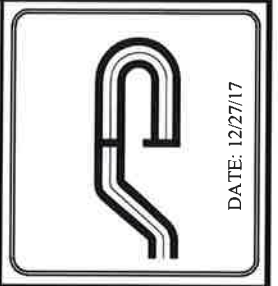
DRAINAGE BASIN OUTLINE

TIME OF CONCENTRATION

0 20 40 80

SCALE: 1"=40'-0"

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



DATE: 12/27/17

Site Design Consultants

Civil Engineers • Land Planners

251 F Underhill Avenue Yorktown Heights, NY 10598
 (914) 962-4488 - Fax (914) 962-7386
 www.sitedesignconsultants.com

FIGURE 5.1 - PRE-DEVELOPMENT CONDITIONS WATERSHED MAP

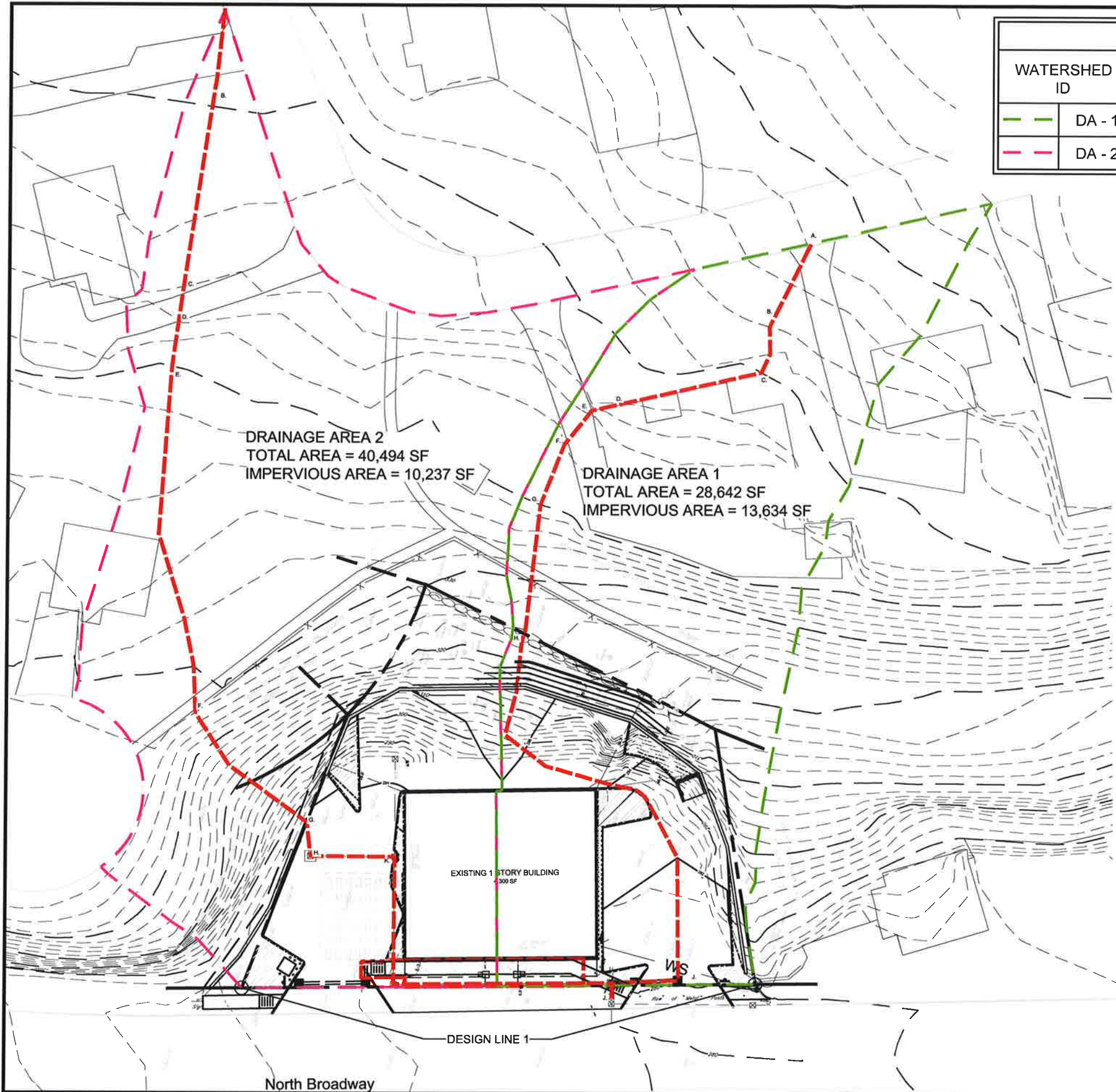
PREPARED FOR

CHRIS SANTOMARO

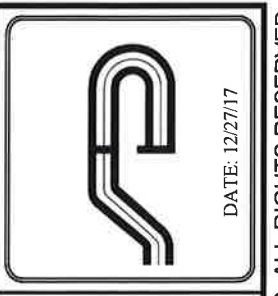
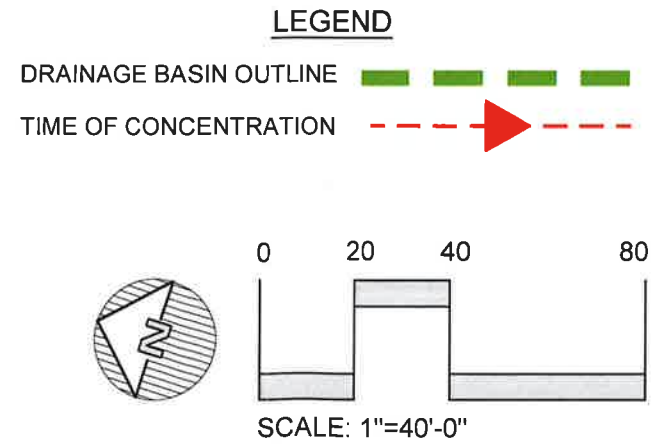
Westchester Co., New York

Town of North Castle

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| WATERSHED DATA | | | |
|----------------|---------------|-----------------------|-----------------------|
| WATERSHED ID | DRAINAGE AREA | RUNOFF COEFFICIENT Cn | TIME CONCENTRATION Tc |
| DA - 1 | 0.93 Ac. | 88 | 0.083 Hrs. |
| DA - 2 | 0.66 Ac. | 91 | 0.083 Hrs. |



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FIGURE 5.2 - POST-DEVELOPMENT CONDITIONS WATERSHED MAP
PREPARED FOR
CHRIS SANTOMARO
Westchester Co., New York
Town of North Castle

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



NOTE:

1. Map Source: USDA National Resources Conservation Service, National Cooperative Soil Survey, Web Soil Survey Map.

FIG. 4.1.1 SOIL MAP

Lordae II, LLC.

Town of North Castle

Westchester County, NY

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NOT TO SCALE
DATE: 3/23/18

Appendix A

List of Approvals and Applications:

Town of North Castle Building Permit – approvals pending

Appendix B

Town of North Castle Code Chapter 267 Stormwater Management

Chapter 267. Stormwater Management

[HISTORY: Adopted by the Town Board of the Town of North Castle 12-19-2007 by L.L. No. 22-2007 (Ch. 173 of the 1987 Code).
Amendments noted where applicable.]

GENERAL REFERENCES

Building code administration and enforcement — See Ch. 127.

Excavations — See Ch. 157.

Filling and grading — See Ch. 161.

Flood damage prevention — See Ch. 177.

Sewers — See Ch. 250.

Subdivision of land — See Ch. 275.

Water — See Ch. 336.

Wetlands and watercourses — See Ch. 340.

Zoning — See Ch. 355.

Article I. Stormwater Management and Erosion and Sediment Control

§ 267-1. Title.

This chapter shall be known and cited as the "Stormwater Management, Erosion and Sediment Control Law and Illicit Discharges, Activities and Connections to Separate Storm Sewer System of the Town of North Castle."

§ 267-2. Statutory authority.

In accordance with § 10 of the Municipal Home Rule Law of the State of New York, the Town Board of North Castle has the authority to enact local laws and amend local laws for the purpose of promoting the health, safety or general welfare of the Town of North Castle and for the protection and enhancement of its physical environment. The Town Board of North Castle may include in any such local law provisions for the appointment of any municipal officer, employees or independent contractor to effectuate, administer and enforce such local law.

§ 267-3. Findings; purpose; applicability; exemptions.

A. Findings. The Town Board of the Town of North Castle hereby finds that:

- (1) Land development activities and associated increases in site impervious cover often alter the hydrologic response of local watersheds and increase stormwater runoff rates and volumes, flooding, stream channel erosion, or sediment transport and deposition.
- (2) This stormwater runoff contributes to increased quantities of waterborne pollutants, including siltation of aquatic habitat for fish and other desirable species.
- (3) Clearing and grading during construction tends to increase soil erosion and add to the loss of native vegetation necessary for terrestrial and aquatic habitat.
- (4) Improper design and construction of stormwater management practices can increase the velocity of stormwater runoff, thereby increasing stream bank erosion and sedimentation.
- (5) Impervious surfaces allow less water to percolate into the soil, thereby decreasing groundwater recharge and stream base flow.

- (6) Substantial economic losses can result from these adverse impacts on the waters of the municipality.
- (7) Stormwater runoff, soil erosion and nonpoint source pollution can be controlled and minimized through the regulation of stormwater runoff from land development activities.
- (8) The regulation of stormwater runoff discharges from land development activities in order to control and minimize increases in stormwater runoff rates and volumes, soil erosion, stream channel erosion, and nonpoint source pollution associated with stormwater runoff is in the public interest and will minimize threats to public health and safety.
- (9) Regulation of land development activities by means of performance standards governing stormwater management and site design will produce development compatible with the natural functions of a particular site or an entire watershed and thereby mitigate the adverse effects of erosion and sedimentation from development.

B. Purpose. The purpose of this chapter is to establish minimum stormwater management requirements and controls to protect and safeguard the general health, safety and welfare of the public residing within this jurisdiction and to address the findings of fact identified in § 267-3 of this chapter. This chapter seeks to meet those purposes by achieving the following objectives:

- (1) Meet the requirements of Minimum Control Measures four and five of the New York State Department of Environmental Conservation (NYSDEC) State Pollutant Discharge Elimination System SPDES General Permit for Stormwater Discharges from Municipal Separate Stormwater Sewer Systems (MS4s), Permit No. GP-15-003, or as amended or revised; [Amended 11-18-2015 by L.L. No. 9-2015]
- (2) Require land development activities to conform to the substantive requirements of the New York State Department of Environmental Conservation State Pollutant Discharge Elimination System (SPDES) General Permit for Construction Activities, Permit No. GP-15-002, or as amended or revised; [Amended 11-18-2015 by L.L. No. 9-2015]
- (3) Minimize increases in stormwater runoff from land development activities in order to reduce flooding, siltation, increases in stream temperature and stream bank erosion and maintain the integrity of stream channels;
- (4) Minimize increases in pollution caused by stormwater runoff from land development activities which would otherwise degrade local water quality;
- (5) Minimize the total annual volume of stormwater runoff which flows from any specific site during and following development to the maximum extent practicable; and
- (6) Reduce stormwater runoff rates and volumes, soil erosion and nonpoint source pollution, wherever possible, through stormwater management practices and to ensure that these management practices are properly maintained and eliminate threats to public safety.

C. Applicability.

- (1) This chapter shall be applicable to all land development activities as defined in § 267-4B of this chapter.
- (2) The municipality shall designate a Stormwater Management Officer (SMO), who shall accept and review all stormwater pollution prevention plans and forward such plans to the applicable municipal board. The Stormwater Management Officer may:
 - (a) Review the plans.
 - (b) Upon approval by the Town Board of the Town of North Castle, engage the services of a registered professional engineer to review the plans, specifications and related documents.
- (3) All land development activities subject to review and approval by the applicable board of the Town of North Castle under subdivision, site plan and/or special permit regulations shall be reviewed subject to the standards contained in this chapter.
- (4) All land development activities not subject to review as stated in § 267-3C(3) of this chapter shall be required to submit a stormwater pollution prevention plan (SWPPP) to the Stormwater Management Officer, who shall approve the SWPPP if it complies with the requirements of this chapter.
- (5) The provisions of this chapter shall not apply to any project that has been physically completed prior to the effective date of this chapter.

[Added 11-18-2015 by L.L. No. 9-2015]

- (6) A project that was approved prior to the effective date of this chapter, but which is not in conformity with the provisions of this chapter, may be continued, subject to the following:

[Added 11-18-2015 by L.L. No. 9-2015]

- (a) All such activities shall continue to be governed by the present regulations of the Town of North Castle.
- (b) No such activity shall be expanded, changed, enlarged or altered without compliance with this chapter.
- (c) If such activity is discontinued for 12 consecutive months, any resumption of the activity shall conform to this chapter.
- (d) If any use or activity is destroyed by human activities, a force of nature or an act of God, it shall not be resumed except in conformity with the provisions of this chapter.

D. Exemptions.

- (1) Repairs to any stormwater management practice or facility deemed necessary by the Stormwater Management Officer.
- (2) Any part of a subdivision if a plat for the subdivision has been approved by the Town of North Castle on or before the effective date of this chapter.
- (3) Land development activities for which a building permit has been approved on or before the effective date of this chapter.
- (4) Cemetery graves.
- (5) Installation of fence, sign, telephone and electric poles and other kinds of posts or poles.
- (6) Emergency activity immediately necessary to protect life, property or natural resources.
- (7) Activities of an individual engaging in home gardening by growing flowers, vegetables and other plants primarily for use by that person and his or her family.
- (8) Landscaping and horticultural activities in connection with an existing structure.

§ 267-4. Definitions and word usage.

- A. Unless specifically defined below, words and phrases used in this chapter shall be interpreted to have the meaning they have in common English usage, to give effect to the purpose set forth in § 267-3B, and to provide reasonable application of this chapter.
- B. As used in this chapter, the following terms shall have the meanings indicated:

AGRICULTURAL ACTIVITY

The activity of an active farm, including grazing and watering livestock, irrigating crops, harvesting crops, using land for growing agricultural products, and cutting timber for sale, but shall not include the operation of a dude ranch or similar operation or the construction of new structures associated with agricultural activities.

APPLICANT

A property owner or agent of a property owner who has filed an application for a land development activity.

BEST MANAGEMENT PRACTICES (BMPs)

Schedules of activities, prohibitions of practices, general good housekeeping practices, pollution prevention and educational practices, maintenance procedures and other management practices to prevent or reduce the discharge of pollutants directly or indirectly to stormwater, receiving waters or stormwater conveyance systems. BMPs also include treatment practices, operating procedures and practices to control site runoff, spillage or leaks, sludge or water disposal, or drainage from raw materials storage.

BUILDING

Any structure, either temporary or permanent, having walls and a roof, designed for the shelter of any person, animal or property, and occupying more than 100 square feet of area.

CHANNEL

A natural or artificial watercourse with a definite bed and banks that conducts continuously or periodically flowing water.

CLEAN WATER ACT

The Federal Water Pollution Control Act (33 U.S.C. § 1251 et seq.), and any subsequent amendments thereto.

CLEARING

Any activity that removes the vegetative surface cover.

CONSTRUCTION ACTIVITY

Activity requiring authorization under the NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity, GP-15-002, as amended or revised. These activities include construction projects resulting in land disturbance of one or more acres. Such activities include, but are not limited to, clearing and grubbing, grading, excavating and demolition.

[Amended 11-18-2015 by L.L. No. 9-2015]

DEDICATION

The deliberate appropriation of property by its owner for general public use.

DEPARTMENT

The New York State Department of Environmental Conservation.

DESIGN MANUAL

The New York State Stormwater Management Design Manual, most recent version, including applicable updates, that serve as the official guide for stormwater management principles, methods and practices.

DEVELOPER

A person who undertakes land development activities.

EROSION CONTROL MANUAL

The most recent version of the New York Standards and Specifications for Erosion and Sediment Control manual, commonly known as the "Blue Book."

GREEN INFRASTRUCTURE PRACTICE

As set forth in Chapter 5 of the New York State Stormwater Management Design Manual.

[Added 11-18-2015 by L.L. No. 9-2015]

GRADING

Excavation or fill of material, including the resulting conditions thereof.

HAZARDOUS MATERIAL

Any material, including any substance, waste or combination thereof, which, because of its quantity, concentration or physical, chemical or infectious characteristics, may cause or significantly contribute to a substantial present or potential hazard to human health, safety, property or the environment when improperly treated, stored, transported, disposed of or otherwise managed.

ILLCIT CONNECTION

Any drain or conveyance, whether on the surface or subsurface, which allows an illegal discharge to enter the MS4, including but not limited to:

- (1) Any conveyances which allow any nonstormwater discharge, including treated or untreated sewage, process wastewater and wash water, to enter the MS4 and any connections to the storm drain system from indoor drains and sinks, regardless of whether said drain or connection had been previously allowed, permitted or approved by an authorized enforcement agency; or
- (2) Any drain or conveyance connected from a commercial or industrial land use to the MS4 which has not been documented in plans, maps or equivalent records and approved by an authorized enforcement agency.

ILLCIT DISCHARGE

Any direct or indirect nonstormwater discharge to the MS4, except as exempted in § 267-12 of this chapter.

IMPERVIOUS COVER

Those surfaces, improvements and structures that cannot effectively infiltrate rainfall, snowmelt and water (e.g., building rooftops, pavement, sidewalks, driveways, etc.).

INDUSTRIAL ACTIVITY

Activities requiring the NYSDEC SPDES Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity, GP-0-12-001, as amended or revised.

[Amended 11-18-2015 by L.L. No. 9-2015]

INDUSTRIAL STORMWATER PERMIT

A State Pollutant Discharge Elimination System permit issued to a commercial industry or group of industries, which regulates the pollutant levels associated with industrial stormwater discharges or specifies on-site pollution control strategies.

INFILTRATION

The process of percolating stormwater into the subsoil.

JURISDICTIONAL WETLAND

An area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as "hydrophytic vegetation."

LAND DEVELOPMENT ACTIVITY

Construction activity, including clearing, grubbing, grading, filling, excavating or stockpiling activities, that results in soil disturbance equal to or greater than 5,000 square feet. Clearing activities include, but are not limited to, logging equipment operations, the cutting and skidding of trees, and stump removal and/or brush root removal. Land development activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity or original purpose of a facility.

[Amended 11-18-2015 by L.L. No. 9-2015]

LANDOWNER

The legal or beneficial owner of land, including those holding the right to purchase or lease the land, or any other person holding proprietary rights in the land.

LARGER COMMON PLAN OF DEVELOPMENT OR SALE

A contiguous area where multiple separate and distinct land development activities are occurring, or will occur, under one plan. The term "plan" in "larger common plan of development or sale" is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, marketing plan, advertisement, drawing, permit application, State Environmental Quality Review Act (SEQRA) application, zoning request, computer design, etc.) or physical demarcation (including signs, lot stakes, surveyor markings, etc.) indicating that land development activities may occur on a specific plot. For discrete construction projects that are located within a "larger common plan of development or sale" that are at least 1/4 mile apart, each activity can be treated as a separate plan of development or sale, provided any interconnecting road, pipeline or utility project that is part of the same common plan is not concurrently being disturbed.

[Added 11-18-2015 by L.L. No. 9-2015]

MAINTENANCE AGREEMENT

A legally recorded document that acts as a property deed restriction and which provides for long-term maintenance of stormwater management practices.

MS4

Municipal separate storm sewer system.

MUNICIPALITY

The Town of North Castle.

MUNICIPAL SEPARATE STORM SEWER SYSTEM

A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels or storm drains):

- (1) Owned or operated by the Town of North Castle;
- (2) Designed or used for collecting or conveying stormwater;
- (3) Which is not a combined sewer; and
- (4) Which is not part of a publicly owned treatment works (POTW) as defined at 40 CFR 122.2.

NONPOINT SOURCE POLLUTION

Pollution from any source other than from any discernible, confined and discrete conveyances and shall include, but not be limited to, pollutants from agricultural, silvicultural, mining, construction, subsurface disposal and urban runoff sources.

NONSTORMWATER DISCHARGE

Any discharge to the MS4 that is not composed entirely of stormwater.

PERSON

Any individual, association, organization, partnership, firm, corporation or other entity recognized by law and acting as either the owner or as the owner's agent.

PHASING

Clearing a parcel of land in distinct pieces or parts, with the stabilization of each piece completed before the clearing of the next.

POINT SOURCE POLLUTION

Pollution from a single identifiable localized source, typically a discernible, confined and discrete conveyance.

[Added 11-18-2015 by L.L. No. 9-2015]

POLLUTANT

Dredged spoil, filter backwash, solid waste, incinerator residue, treated or untreated sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand and industrial, municipal, agricultural waste and ballast discharged into water, which may cause or might reasonably be expected to cause pollution of the waters of the state in contravention of the standards.

POLLUTANT OF CONCERN

Sediment or a water quality measurement that addresses sediment (such as total suspended solids, turbidity or siltation) and any other pollutant that has been identified as a cause of impairment of any water body that will receive a discharge from the land development activity.

PREMISES

Any building, lot, parcel of land or portion of land, whether improved or unimproved, including adjacent sidewalks and parking strips.

PROJECT

Land development activity.

QUALIFIED INSPECTOR

A person that is knowledgeable in the principles and practices of erosion and sediment control, such as a licensed professional engineer, certified professional in erosion and sediment control (CPESC), registered landscape architect, or other NYSDEC endorsed individual(s). It can also mean someone working under the direct supervision of, and at the same company as, the licensed professional engineer or registered landscape architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that the individual working under the direct supervision of the licensed professional engineer or registered landscape architect has received four hours of NYSDEC endorsed training in proper erosion and sediment control principles every three years.

[Added 11-18-2015 by L.L. No. 9-2015]

QUALIFIED PROFESSIONAL

A person that is knowledgeable in the principles and practices of stormwater management and treatment, such as a licensed professional engineer, registered landscape architect or other NYSDEC endorsed individual(s). Individuals

preparing SWPPPs that require post-construction stormwater management practices must have an understanding of the principles of hydrology, water quality management practice design, water quantity control design and, in many cases, the principles of hydraulics, in order to prepare a SWPPP that conforms to the NYSDEC's technical standard. All components of the SWPPP that involve the practice of engineering, as defined by the New York State Education Law, shall be prepared by, or under the direct supervision of, a professional engineer licensed to practice in the State of New York.
[Added 11-18-2015 by L.L. No. 9-2015]

RECHARGE

The replenishment of underground water reserves.

SEDIMENT CONTROL

Measures that prevent eroded sediment from leaving the site.

SENSITIVE AREAS

Cold-water fisheries, shellfish beds, swimming beaches, groundwater recharge areas, water supply reservoirs, habitats for threatened, endangered or special concern species.

SPDES GENERAL PERMIT FOR CONSTRUCTION ACTIVITIES GP-15-002

A permit under the New York State Pollutant Discharge Elimination System (SPDES) issued to developers of construction activities to regulate disturbance of one or more acres of land, or 5,000 square feet or more within the New York City east of Hudson Watershed.

[Amended 11-18-2015 by L.L. No. 9-2015]

SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM MUNICIPAL SEPARATE STORMWATER SEWER SYSTEMS GP-15-003

A permit under the New York State Pollutant Discharge Elimination System (SPDES) issued to municipalities to regulate discharges from municipal separate storm sewers for compliance with EPA-established water quality standards and/or to specify stormwater control standards.

[Amended 11-18-2015 by L.L. No. 9-2015]

SPECIAL CONDITION

- (1) Discharge compliance with water quality standards: the condition that applies where a municipality has been notified that the discharge of stormwater authorized under its MS4 permit may have caused or has the reasonable potential to cause or contribute to the violation of an applicable water quality standard. Under this condition, the municipality must take all necessary actions to ensure future discharges do not cause or contribute to a violation of water quality standards.
- (2) Section 303(d)-listed waters: the condition in the municipality's MS4 permit that applies where the MS4 discharges to a 303(d)-listed water. Under this condition, the stormwater management program must ensure no increase of the listed pollutant of concern to the 303(d)-listed water.
- (3) Total maximum daily load (TMDL) strategy: the condition in the municipality's MS4 permit where a TMDL including requirements for control of stormwater discharges has been approved by the EPA for a water body or watershed into which the MS4 discharges. If the discharge from the MS4 did not meet the TMDL stormwater allocations prior to September 10, 2007, the municipality was required to modify its stormwater management program to ensure that reduction of the pollutant of concern specified in the TMDL is achieved.
- (4) The condition in the municipality's MS4 permit that applies if a TMDL is approved in the future by the EPA for any water body or watershed into which an MS4 discharges. Under this condition, the municipality must review the applicable TMDL to see if it includes requirements for control of stormwater discharges. If an MS4 is not meeting the TMDL stormwater allocations, the municipality must, within six months of the TMDL's approval, modify its stormwater management program to ensure that reduction of the pollutant of concern specified in the TMDL is achieved.

303(D) LIST

A list of all surface waters in the state for which beneficial uses of the water (drinking, recreation, aquatic habitat and industrial use) are impaired by pollutants, prepared periodically by the Department as required by Section 303(d) of the Clean Water Act. Section 303(d)-listed waters are estuaries, lakes and streams that fall short of state surface water quality standards and are not expected to improve within the next two years.

STABILIZATION

The use of practices that prevent exposed soil from eroding.

STABILIZED

That all soil disturbance activities have ceased and a uniform, perennial vegetative cover with a minimum density of 80% over the entire pervious surface has been established; or other equivalent stabilization measures, such as permanent landscape mulches, rock riprap or washed/crushed stone have been applied on all disturbed areas that are not covered by permanent structures, concrete or pavement.

[Added 11-18-2015 by L.L. No. 9-2015]

STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM (SPDES) STORMWATER DISCHARGE PERMIT

A permit issued by the Department that authorizes the discharge of pollutants to waters of the state.

STOP-WORK ORDER

An order issued which requires that all construction activity on a site be stopped.

STORMWATER

Rainwater, surface runoff, snowmelt and drainage.

STORMWATER HOT SPOT

A land use or activity that generates higher concentrations of hydrocarbons, trace metals or toxicants than are found in typical stormwater runoff, based on monitoring studies.

STORMWATER MANAGEMENT

The use of structural or nonstructural practices that are designed to reduce stormwater runoff and mitigate its adverse impacts on property, natural resources and the environment.

STORMWATER MANAGEMENT FACILITY

One or a series of stormwater management practices installed, stabilized and operating for the purpose of controlling stormwater runoff.

STORMWATER MANAGEMENT OFFICER (SMO)

An employee or officer designated by the municipality to accept and review stormwater pollution prevention plans, forward the plans to the applicable municipal board and inspect stormwater management practices. In addition, the SMO enforces the prohibition of illicit discharges, activities and connections to the separate storm sewer system.

STORMWATER MANAGEMENT PRACTICES (SMPS)

Measures, either structural or nonstructural, that are determined to be the most-effective practical means of preventing flood damage and preventing or reducing point source or nonpoint source pollution inputs to stormwater runoff and water bodies.

STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

A plan for controlling stormwater runoff and pollutants from a site during and after construction activities, prepared in conformance with this chapter, the SPDES General Permit for Construction Activities, and applicable NYSDEC technical standards.

[Amended 11-18-2015 by L.L. No. 9-2015]

STORMWATER RUNOFF

Flow on the surface of the ground, resulting from precipitation.

SURFACE WATERS OF THE STATE OF NEW YORK

Lakes, bays, sounds, ponds, impounding reservoirs, springs, wells, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Atlantic Ocean within the territorial seas of the State of New York and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters that do not combine or effect a junction with natural surface or underground waters), which are wholly or partially within or bordering the state or within its jurisdiction. Storm sewers and waste treatment systems, including treatment ponds or lagoons which also meet the criteria of this definition, are not waters of the state. This exclusion applies only to man-made bodies of water which neither were originally created in waters of the state (such as a disposal area in wetlands) nor resulted from impoundment of waters of the state.

TMDL

Total maximum daily load.

TOTAL MAXIMUM DAILY LOAD

The maximum amount of a pollutant to be allowed to be released into a water body so as not to impair uses of the water, allocated among the sources of that pollutant.

TRAINED CONTRACTOR

An employee from the contracting (construction) company that has received four hours of NYSDEC-endorsed training in proper erosion and sediment control principles. After receiving the initial training, the trained contractor shall receive four hours of training every three years. It can also mean an employee from the contracting (construction) company that meets the qualified inspector qualifications as defined herein.

[Added 11-18-2015 by L.L. No. 9-2015]

WASTEWATER

Water that is not stormwater, is contaminated with pollutants, and is or will be discarded.

WATERCOURSE

A permanent or intermittent stream or other body of water, either natural or man-made, which gathers or carries surface water.

WATERWAY

A channel that directs surface runoff to a watercourse or to the public storm drain.

§ 267-5. Stormwater pollution prevention plans.

[Amended 11-18-2015 by L.L. No. 9-2015]

- A. Stormwater pollution prevention plan requirement. No application for approval of a land development activity shall be reviewed until either the SMO or the appropriate board has received a stormwater pollution prevention plan (SWPPP) prepared in accordance with the specifications in this chapter. For projects also requiring coverage under the SPDES General Permit for Construction Activities, applications must also be accompanied by all related NYSDEC forms and certifications.
- B. All SWPPPs shall be prepared by a qualified professional, as defined in § 267-4 of this chapter.
- C. All SWPPPs shall be prepared in conformance with this chapter, the SPDES General Permit for Construction Activities, and the NYSDEC technical standards, as applicable.
- D. Contents of stormwater pollution prevention plans.
 - (1) All SWPPPs shall provide the following background information and erosion and sediment controls:
 - (a) Background information about the scope of the project, including location, type and size of project;
 - (b) Site map/construction drawing(s) for the project, including a general location map. At a minimum, the site map should show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s); wetlands and drainage patterns that could be affected by the construction activity; existing and final slopes; locations of off-site material, waste, borrow or equipment storage areas; and location(s) of the stormwater discharge(s);
 - (c) Description of the soil(s) present at the site;
 - (d) Construction phasing plan describing the intended sequence of construction activities, including clearing and grubbing, excavation and grading, utility and infrastructure installation and any other activity at the site that results in soil disturbance. Consistent with the New York Standards and Specifications for Erosion and Sediment Control (Erosion Control Manual), not more than five acres shall be disturbed at any one time unless a greater amount is determined necessary pursuant to an approved SWPPP;
 - (e) Description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a pollutant source in stormwater runoff;

- (f) Description of construction and waste materials expected to be stored on site, with updates as appropriate, and a description of controls to reduce pollutants from these materials, including storage practices to minimize exposure of the materials to stormwater, and spill prevention and response;
 - (g) Temporary and permanent structural and vegetative measures to be used for soil stabilization, runoff control and sediment control for each stage of the project, from initial land clearing and grubbing to project closeout;
 - (h) A site map/construction drawing(s) specifying the location(s), size(s) and length(s) of each erosion and sediment control practice;
 - (i) Dimensions, material specifications and installation details for all erosion and sediment control practices, including the siting and sizing of any temporary sediment basins;
 - (j) Temporary practices that will be converted to permanent control measures;
 - (k) Implementation schedule for staging temporary erosion and sediment control practices, including the timing of initial placement and the duration that each practice should remain in place;
 - (l) Maintenance schedule to ensure continuous and effective operation of the erosion and sediment control practice;
 - (m) Name(s) of the receiving water(s);
 - (n) Delineation of SWPPP implementation responsibilities for each part of the site;
 - (o) Description of structural practices designed to divert flows from exposed soils, store flows or otherwise limit runoff and the discharge of pollutants from exposed areas of the site to the degree attainable;
 - (p) Any existing data that describes the stormwater runoff at the site; and
 - (q) Post-construction stormwater quantity and quality controls, at the discretion of the SMO and/or the Town Engineer, may be required.
- (2) Post-construction stormwater management practice component.
- (a) All construction projects identified as needing post-construction stormwater management practices pursuant to the SPDES General Permit for Construction Activities shall prepare a SWPPP that includes practices designed in conformance with the Design Manual, including green infrastructure practices, in addition to the items listed under § 267-5D(1) above. Where post-construction stormwater management practices are not designed in conformance with this technical standard, the applicant must demonstrate equivalence to the technical standard.
 - (b) At a minimum, the post-construction stormwater practice component of the SWPPP shall include the following:
 - [1] Identification of all post-construction stormwater management practices to be constructed as part of the project.
 - [2] Site map/construction drawing(s) showing the specific location(s) and size(s) of each post-construction stormwater management practice.
 - [3] Hydrologic and hydraulic analysis for all structural components of the stormwater management control system for the applicable design storms. The analysis shall include tributary area maps with two-foot contours for the predevelopment and post-development conditions.
 - [4] Detailed summary (including calculations) of the sizing criteria that was used to design all post-construction stormwater management practices. At a minimum, the summary shall address the required design criteria from the applicable chapter of the Design Manual; including the identification of and justification for any deviations from the Design Manual, and identification of any design criteria that are not required based on the design criteria or waiver criteria included in the Design Manual.
 - [5] Identification of any elements of the design that are not in conformance with the Design Manual. Include the reason for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is equivalent to the technical standards.
 - [6] Comparison of post-development stormwater runoff conditions with predevelopment conditions.

- [7] Dimensions, material specifications and installation details for each post-construction stormwater management practice or facility.
 - [8] Site maps must include existing topography with two-foot contours, a proposed grading plan with a limit of disturbance line, and the calculated area of disturbance in acres.
 - [9] An operations and maintenance plan that includes inspection and maintenance schedules and actions to ensure continuous and effective operation of each post-construction stormwater management practice or facility. The plan shall identify the entity that will be responsible for the long-term operation and maintenance of each practice.
 - [10] Maintenance easements to ensure access to all stormwater management practices at the site for the purpose of inspection and repair. Easements shall be recorded on the plan and shall remain in effect with transfer of title to the property.
 - [11] Inspection and maintenance agreement binding on all subsequent landowners served by the on-site stormwater management measures in accordance with § 267-7 of this chapter.
- (3) Enhanced phosphorus. All projects that are required to conform to the Enhanced Phosphorus Removal Standards, pursuant to the SPDES General Permit for Construction Activities, shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the Enhanced Phosphorus Removal Standards included in the Design Manual. At a minimum, the post-construction stormwater management practice component of the SWPPP shall include items D(2)(b)[1] through D(2)(b)[11] above.
- E. Other environmental permits. The applicant shall assure that all other applicable environmental permits have been or will be acquired for the land development activity prior to approval of the final stormwater design plan.
- F. Contractor certification.
- (1) All certifications required pursuant to the SPDES General Permit for Construction Activities shall be submitted, endorsed and incorporated into the SWPPP.
 - (2) Each contractor and subcontractor identified in the SWPPP who will be responsible for installing, constructing, repairing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP and the post-construction stormwater management practice installation must sign and date a copy of the following contractor certification statement before undertaking any land development activity: "I hereby certify that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that the owner or operator must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") General Permit for Stormwater Discharges from Construction Activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings."
 - (3) The certification must include the name and title of the person providing the signature, address and telephone number of the contracting firm, the address (or other identifying description) of the site, and the date the certification is made.
 - (4) The certification statement(s) shall become part of the SWPPP for the land development activity.
- G. A copy of the SWPPP shall be retained at the site of the land development activity during construction from the date of initiation of construction activities to the date of final stabilization.

§ 267-6. Performance and design criteria.

All land development activities shall be subject to the following performance and design criteria:

- A. Technical standards. For the purpose of this chapter, the following documents shall serve as the official guides and specifications for stormwater management. Stormwater management practices that are designed and constructed in accordance with these technical documents shall be presumed to meet the standards imposed by this chapter.

- (1) The New York State Stormwater Management Design Manual (New York State Department of Environmental Conservation, most current version or its successor, hereafter referred to as the "Design Manual").
 - (2) New York Standards and Specifications for Erosion and Sediment Control (Empire State Chapter of the Soil and Water Conservation Society, 2004, most current version or its successor, hereafter referred to as the "Erosion Control Manual").
- B. Equivalence to technical standards. Where stormwater management practices are not in accordance with technical standards, the applicant or developer must demonstrate equivalence to the technical standards set forth in Subsection A of this section, and the SWPPP shall be prepared by a licensed professional.
- C. Water quality standards. Any land development activity shall not cause an increase in turbidity that will result in substantial visible contrast to natural conditions in surface waters of the State of New York.

§ 267-7. Maintenance, inspection and repair of stormwater facilities.

A. Maintenance and inspection during construction.

[Amended 11-18-2015 by L.L. No. 9-2015]

- (1) Inspection requirements shall be as specified within the SPDES General Permit for Construction Activities.
- (2) The applicant or developer of the land development activity or his or her representative shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the applicant or developer to achieve compliance with the conditions of this chapter. Sediment shall be removed from sediment traps or sediment ponds whenever their design capacity has been reduced by 50%.
- (3) The applicant/developer must ensure that all erosion and sediment control practices and all post-construction stormwater management practices identified in the SWPPP are maintained in effective operating condition at all times.
- (4) The applicant/developer shall inspect, in accordance with the requirements of the most current version of the Erosion Control Manual, the erosion and sediment controls identified in the SWPPP to ensure that they are being maintained in effective operating condition at all times. The applicant/developer shall have each of the contractors and subcontractors identify at least one person from their company that will be responsible for implementation of the SWPPP. This person shall be known as the trained contractor. The applicant/developer shall ensure that at least one trained contractor is on site on a daily basis when soil disturbance activities are being performed.
- (5) For land development activities that disturb one or more acres of land, the applicant shall have a qualified inspector conduct site inspections and document the effectiveness of all erosion and sediment control practices every seven calendar days. Inspection reports shall be prepared in compliance with standards outlined within the SPDES General Permit for Construction Activities. Inspection reports shall be maintained on site and copies furnished to the SMO upon request.
- (6) Inspections of any post-construction stormwater management practice that includes structural components shall be performed by a New York State licensed professional engineer.

B. Maintenance easement(s). Prior to the issuance of any approval that has a stormwater management facility as one of the requirements, the applicant or developer must execute a maintenance easement agreement that shall be binding on all subsequent landowners served by the stormwater management facility. The easement shall provide for access to the facility at reasonable times for periodic inspection by the Town of North Castle to ensure that the facility is maintained in proper working condition to meet design standards and any other provisions established by this chapter. The easement shall be recorded by the grantor in the office of the County Clerk after approval by the North Castle Town Attorney.

C. Maintenance after construction. The owner or operator of permanent stormwater management practices installed in accordance with this chapter shall ensure they are operated and maintained to achieve the goals of this chapter. Proper operation and maintenance also includes, as a minimum, the following:

- (1) A preventive/corrective maintenance program for all critical facilities and systems of treatment and control (or related appurtenances) which are installed or used by the owner or operator to achieve the goals of this chapter.
- (2) Written procedures for operation and maintenance and training new maintenance personnel.

- (3) Discharges from the SMPs shall not exceed design criteria or cause or contribute to water quality standard violations in accordance with § 267-6C of this chapter.
- D. Maintenance agreements. The Town of North Castle shall approve a formal maintenance agreement for stormwater management facilities binding on all subsequent landowners and recorded in the office of the County Clerk as a deed restriction on the property prior to final plan approval. The maintenance agreement shall be consistent with the terms and conditions of the Town of North Castle Stormwater Control Facility Maintenance Agreement on file with the Town Attorney. The Town of North Castle, in lieu of a maintenance agreement, at its sole discretion, may accept dedication of any existing or future stormwater management facility, provided such facility meets all the requirements of this chapter and includes adequate and perpetual access and sufficient area, by easement or otherwise, for inspection and regular maintenance.

§ 267-8. Inspections; performance guarantees; enforcement; penalties for offenses; fees.

A. Construction inspections.

(1) Erosion and sediment control inspection.

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

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

- (b) If any violations are found, the applicant and developer shall be notified in writing of the nature of the violation and the required corrective actions. No further land development activity shall be conducted except for site stabilization until any violations are corrected and all work previously completed has received approval by the Stormwater Management Officer.
- (2) Stormwater management practice inspections. The Town of North Castle Stormwater Management Officer is responsible for conducting inspections of stormwater management practices (SMPs). All applicants are required to submit as-built plans for any stormwater management practices located on site after final construction is completed. The plan must show the final design specifications for all stormwater management facilities and must be certified by a professional engineer.
 - (3) Inspection of stormwater facilities after project completion. Inspection programs shall be established on any reasonable basis, including but not limited to routine inspections; random inspections; inspections based upon complaints or other notice of possible violations; inspection of drainage basins or areas identified as higher-than-typical sources of sediment or other contaminants or pollutants; inspections of businesses or industries of a type associated with higher-than-usual discharges of contaminants or pollutants or with discharges of a type which are more likely than the typical discharge to cause violations of state or federal water or sediment quality standards or the SPDES stormwater permit; and joint inspections with other agencies inspecting under environmental or safety laws. Inspections may include, but are not limited to, reviewing maintenance and repair records; sampling discharges, surface water, groundwater and material or water in drainage control facilities; and evaluating the condition of drainage control facilities and other stormwater management practices.

- (4) Submission of reports. The Town of North Castle Stormwater Management Officer may require monitoring and reporting from entities subject to Chapter 267 of the Town Code as are necessary to determine compliance with this Chapter 267 of the Town Code.
- (5) Right of entry for inspection. When any new stormwater management facility is installed on private property or when any new connection is made between private property and the public stormwater system, the landowner shall grant to the Town of North Castle the right to enter the property at reasonable times and in a reasonable manner for the purpose of inspection as specified in Subsection A(3) of this section.

B. Performance guarantee.

- (1) Construction completion guarantee. In order to ensure the full and faithful completion of all land development activities related to compliance with all conditions set forth by the Town of North Castle in its approval of the stormwater pollution prevention plan, the Town of North Castle may require the applicant or developer to provide, prior to construction, a performance bond, cash escrow or irrevocable letter of credit from an appropriate financial or surety institution which guarantees satisfactory completion of the project and names the Town of North Castle as the beneficiary. The security shall be in an amount to be determined by the Town of North Castle based on submission of final design plans, with reference to actual construction and landscaping costs. The performance guarantee shall remain in force until the surety is released from liability by the Town of North Castle, provided that such period shall not be less than one year from the date of final acceptance or such other certification that the facility(ies) has (have) been constructed in accordance with the approved plans and specifications and that a one-year inspection has been conducted and the facilities have been found to be acceptable to the Town of North Castle. Per annum interest on cash escrow deposits shall be reinvested in the account until the surety is released from liability.
- (2) Maintenance guarantee. Where stormwater management and erosion and sediment control facilities are to be operated and maintained by the developer or by a corporation that owns or manages a commercial or industrial facility, the developer, prior to construction, may be required to provide the Town of North Castle with an irrevocable letter of credit from an approved financial institution or surety to ensure proper operation and maintenance of all stormwater management and erosion control facilities both during and after construction and until the facilities are removed from operation. If the developer or landowner fails to properly operate and maintain stormwater management and erosion and sediment control facilities, the Town of North Castle may draw upon the account to cover the costs of proper operation and maintenance, including engineering and inspection costs.
- (3) Recordkeeping. The Town of North Castle may require entities subject to Chapter 267 of the Town Code to maintain records demonstrating compliance with this Chapter 267 of the Town Code.

C. Enforcement and penalties.

- (1) Notice of violation. When the Town of North Castle determines that a land development activity is not being carried out in accordance with the requirements of this Chapter 267 of the Town Code, it may issue a written notice of violation to the landowner. The notice of violation shall contain:
 - (a) The name and address of the landowner, developer or applicant.
 - (b) The address, when available, or a description of the building, structure or land upon which the violation is occurring.
 - (c) A statement specifying the nature of the violation.
 - (d) A description of the remedial measures necessary to bring the land development activity into compliance with this chapter and a time schedule for the completion of such remedial action.
 - (e) A statement of the penalty or penalties that shall or may be assessed against the person to whom the notice of violation is directed.
 - (f) A statement that the determination of violation may be appealed to the municipality by filing a written notice of appeal within 15 days of service of notice of violation.
- (2) Stop-work orders. The Town of North Castle may issue a stop-work order for violations of Chapter 267 of the Town Code. Persons receiving a stop-work order shall be required to halt all land development activities, except those activities that address the violations leading to the stop-work order. The stop-work order shall be in effect until the Town of North Castle confirms that the land development activity is in compliance and the violation has been satisfactorily addressed.

Failure to address a stop-work order in a timely manner may result in civil, criminal or monetary penalties in accordance with the enforcement measures authorized in this Chapter 267 of the Town Code.

- (3) Violations. Any land development activity that is commenced or is conducted contrary to this chapter may be restrained by injunction or otherwise abated in a manner provided by law.
 - (4) Penalties. In addition to or as an alternative to any penalty provided herein or by law, any person who violates the provisions of this article shall be guilty of a violation punishable by a fine not exceeding \$350 or imprisonment for a period not to exceed six months, or both, for conviction of a first offense; for conviction of a second offense, both of which were committed within a period of five years, punishable by a fine not less than \$350 nor more than \$700 or imprisonment for a period not to exceed six months, or both; and upon conviction for a third or subsequent offense, all of which were committed within a period of five years, punishable by a fine not less than \$700 nor more than \$1,000 or imprisonment for a period not to exceed six months, or both. However, for the purpose of conferring jurisdiction upon courts and judicial officers generally, violations of this article shall be deemed misdemeanors, and for such purpose only, all provisions of law relating to misdemeanors shall apply to such violations. Each week's continued violation shall constitute a separate additional violation.
 - (5) Withholding of certificate of occupancy. If any building or land development activity is installed or conducted in violation of this chapter, the Stormwater Management Officer may prevent the occupancy of said building or land.
 - (6) Restoration of lands. Any violator may be required to restore land to its undisturbed condition. In the event that restoration is not undertaken within a reasonable time after notice, the Town of North Castle may take necessary corrective action, the cost of which shall become a lien upon the property until paid.
- D. Fees for services. The Town of North Castle may require any person undertaking land development activities regulated by Chapter 267 of the Town Code to pay reasonable costs at prevailing rates for review of SWPPPs, inspections or SMP maintenance performed by the Town of North Castle or performed by a third party for the Town of North Castle in such amounts as set forth in the Master Fee Schedule.
[Amended 8-14-2013 by L.L. No. 7-2013]

Article II. Illicit Discharges and Connections to Storm Sewer System

§ 267-9. Purpose.

The purpose of this article is to provide for the health, safety and general welfare of the citizens of the Town of North Castle through the regulation of nonstormwater discharges to the municipal separate storm sewer system (MS4) to the maximum extent practicable as required by federal and state law. This chapter establishes methods for controlling the introduction of pollutants into the MS4 in order to comply with requirements of the SPDES General Permit for Municipal Separate Storm Sewer Systems. The objectives of this article are:

- A. To meet the requirements of the SPDES General Permit for Stormwater Discharges from MS4s, Permit No. GP-15-003, or as amended or revised;
[Amended 11-18-2015 by L.L. No. 9-2015]
- B. To regulate the contribution of pollutants to the MS4 since such systems are not designed to accept, process or discharge nonstormwater wastes;
- C. To prohibit illicit connections, activities and discharges to the MS4;
- D. To establish legal authority to carry out all inspection, surveillance and monitoring procedures necessary to ensure compliance with this chapter; and
- E. To promote public awareness of the hazards involved in the improper discharge of trash, yard waste, lawn chemicals, pet waste, wastewater, grease, oil, petroleum products, cleaning products, paint products, hazardous waste, sediment and other pollutants into the MS4.

§ 267-10. Applicability.

This article shall apply to all water entering the MS4 generated on any developed and undeveloped lands unless explicitly exempted by an authorized enforcement agency.

§ 267-11. Responsibility for administration.

The Stormwater Management Officer(s) [SMO(s)] shall administer, implement and enforce the provisions of this article. Such powers granted or duties imposed upon the authorized enforcement official may be delegated in writing by the SMO as may be authorized by the municipality.

§ 267-12. Discharge prohibitions.

- A. Prohibition of illegal discharges. No person shall discharge or cause to be discharged into the MS4 any materials other than stormwater except as provided in Subsection A(1). The commencement, conduct or continuance of any illegal discharge to the MS4 is prohibited except as described as follows:
- (1) The following discharges are exempt from discharge prohibitions established by this chapter, unless the Department or the municipality has determined them to be substantial contributors of pollutants: waterline flushing or other potable water sources; landscape irrigation or lawn watering; existing diverted stream flows; rising groundwater; uncontaminated groundwater infiltration to storm drains; uncontaminated pumped groundwater; foundation or footing drains; crawl space or basement sump pumps; air-conditioning condensate; irrigation water; springs; water from individual residential car washing; natural riparian habitat or wetland flows; dechlorinated swimming pool discharges; residential street wash water; water from firefighting activities; and any other water source not containing pollutants. Such exempt discharges shall be made in accordance with an appropriate plan for reducing pollutants.
 - (2) Discharges approved in writing by the SMO to protect life or property from imminent harm or damage, provided that such approval shall not be construed to constitute compliance with other applicable laws and requirements, and further provided that such discharges may be permitted for a specified time period and under such conditions as the SMO may deem appropriate to protect such life and property while reasonably maintaining the purpose and intent of this chapter.
 - (3) Dye testing in compliance with applicable state and local laws is an allowable discharge but requires a verbal notification to the SMO prior to the time of the test.
 - (4) The prohibition shall not apply to any discharge permitted under an SPDES permit, waiver or waste discharge order issued to the discharger and administered under the authority of the Department, provided that the discharger is in full compliance with all requirements of the permit, waiver or order and other applicable laws and regulations, and provided that written approval has been granted for any discharge to the MS4.
- B. Prohibition of illicit connections.
- (1) The construction, use, maintenance or continued existence of illicit connections to the MS4 is prohibited.
 - (2) This prohibition expressly includes, without limitation, illicit connections made in the past, regardless of whether the connection was permissible under law or practices applicable or prevailing at the time of connection.
 - (3) A person is considered to be in violation of this article if the person connects a line conveying sewage to the municipality's MS4 or allows such a connection to continue.

§ 267-13. Prohibition against activities contaminating stormwater.

- A. Activities that are subject to the requirement of this article are those types of activities that:
- (1) Cause or contribute to a violation of the municipality's MS4 SPDES permit.
 - (2) Cause or contribute to the municipality being subject to a special condition, as defined in § 267-4 of this chapter.
- B. Upon notification to a person that he or she is engaged in activities that cause or contribute to violations of the municipality's MS4 SPDES permit authorization, that person shall take all reasonable actions to correct such activities such that he or she no longer causes or contributes to violations of the municipality's MS4 SPDES permit authorization.

§ 267-14. Use of best management practices to prevent, control and reduce stormwater pollutants.

- A. Best management practices. Where the SMO has identified illicit discharges as defined in § 267-4 of this chapter or activities contaminating stormwater as defined in § 267-13, the municipality may require implementation of best management practices (BMPs) to control those illicit discharges and activities.
- (1) The owner or operator of a commercial or industrial establishment shall provide, at its own expense, reasonable protection from accidental discharge of prohibited materials or other wastes into the MS4 through the use of structural and nonstructural BMPs.
 - (2) Any person responsible for a property or premises, which is or may be the source of an illicit discharge as defined in § 267-4 of this chapter or an activity contaminating stormwater as defined in § 267-13, may be required to implement, at said person's expense, additional structural and nonstructural BMPs to reduce or eliminate the source of pollutant(s) to the MS4.
 - (3) Compliance with all terms and conditions of a valid SPDES permit authorizing the discharge of stormwater associated with industrial activity, to the extent practicable, shall be deemed compliance with the provisions of this article.

§ 267-15. Suspension of access to MS4; illicit discharges in emergency situations.

- A. The SMO may, without prior notice, suspend MS4 discharge access to a person when such suspension is necessary to stop an actual or threatened discharge which presents or may present imminent and substantial danger to the environment, to the health or welfare of persons, or to the MS4. The SMO shall notify the person of such suspension within a reasonable time thereafter, in writing, of the reasons for the suspension. If the violator fails to comply with a suspension order issued in an emergency, the SMO may take such steps as deemed necessary to prevent or minimize damage to the MS4 or to minimize danger to persons.
- B. Suspension due to the detection of illicit discharge. Any person discharging to the municipality's MS4 in violation of this chapter may have his or her MS4 access terminated if such termination would abate or reduce an illicit discharge. The SMO will notify a violator in writing of the proposed termination of its MS4 access and the reasons therefor. The violator may petition the SMO for a reconsideration and hearing. Access may be granted by the SMO if he/she finds that the illicit discharge has ceased and the discharger has taken steps to prevent its recurrence. Access may be denied if the SMO determines in writing that the illicit discharge has not ceased or is likely to recur. A person commits an offense if the person reinstates MS4 access to premises terminated pursuant to this section without the prior approval of the SMO.

§ 267-16. Industrial or construction activity discharges.

Any person subject to an industrial or construction activity SPDES stormwater discharge permit shall comply with all provisions of such permit. Proof of compliance with said permit may be required in a form acceptable to the Town prior to the allowing of discharges to the MS4.

§ 267-17. Access to facilities; monitoring of discharges.

- A. Applicability. This section applies to all facilities that the SMO must inspect to enforce any provision of this article or whenever the authorized enforcement agency has cause to believe that there exists, or potentially exists, in or upon any premises, any condition which constitutes a violation of this article.
- B. Access to facilities.
- (1) The SMO shall be permitted to enter and inspect facilities subject to regulation under this chapter as often as may be necessary to determine compliance with this article. If a discharger has security measures in force which require proper identification and clearance before entry into its premises, the discharger shall make the necessary arrangements to allow access to the SMO.
 - (2) Facility operators shall allow the SMO ready access to all parts of the premises for the purposes of inspection, sampling, examination and the copying of records as may be required to implement this article.

- (3) The Town shall have the right to set up on any facility subject to this chapter such devices as are necessary in the opinion of the SMO to conduct monitoring and/or sampling of the facility's stormwater discharge.
- (4) The Town has the right to require the facilities subject to this article to install monitoring equipment as is reasonably necessary to determine compliance with this article. The facility's sampling and monitoring equipment shall be maintained at all times in a safe and proper operating condition by the discharger at its own expense. All devices used to measure stormwater flow and quality shall be calibrated to ensure their accuracy.
- (5) Unreasonable delays in allowing the Town access to a facility subject to this chapter are a violation of this article. A person who is the operator of a facility subject to this article commits an offense if the person denies the Town reasonable access to the facility for the purpose of conducting any activity authorized or required by this article.
- (6) If the SMO has been refused access to any part of the premises from which stormwater is discharged and he/she is able to demonstrate probable cause to believe that there may be a violation of this article or that there is a need to inspect and/or sample as part of a routine inspection and sampling program designed to verify compliance with this article or any order issued hereunder, then the SMO may seek issuance of a search warrant from any court of competent jurisdiction.

§ 267-18. Notification of spills.

Notwithstanding other requirements of law, as soon as any person responsible for a facility or operation, or responsible for emergency response for a facility or operation, has information of any known or suspected release of materials which are resulting or may result in illegal discharges or pollutants discharging into the MS4, said person shall take all necessary steps to ensure the discovery, containment and cleanup of such release. In the event of such a release of hazardous materials, said person shall immediately notify emergency response agencies of the occurrence via emergency dispatch services. In the event of a release of nonhazardous materials, said person shall notify the Town in person or by telephone or facsimile no later than the next business day. Notifications in person or by telephone shall be confirmed by written notice addressed and mailed to the Town within three business days of the telephone notice. If the discharge of prohibited materials emanates from a commercial or industrial establishment, the owner or operator of such establishment shall also retain an on-site written record of the discharge and the actions taken to prevent its recurrence. Such records shall be retained for at least three years.

§ 267-19. Enforcement.

A. Notice of violation.

- (1) When the Town's SMO finds that a person has violated a prohibition or failed to meet a requirement of this article, he/she may order compliance by written notice of violation to the responsible person. Such notice may require, without limitation:
 - (a) The elimination of illicit connections or discharges;
 - (b) That violating discharges, practices or operations shall cease and desist;
 - (c) The abatement or remediation of stormwater pollution or contamination hazards and the restoration of any affected property;
 - (d) The performance of monitoring, analyses and reporting;
 - (e) Payment of a fine; and
 - (f) The implementation of source control or treatment BMPs.
- (2) If abatement of a violation and/or restoration of affected property is required, the notice shall set forth a deadline within which such remediation or restoration must be completed. Said notice shall further advise that, should the violator fail to remediate or restore within the established deadline, the work will be done by a designated governmental agency or a contractor, and the expense thereof shall be charged to the violator.

- ### B. Penalties.
- In addition to or as an alternative to any penalty provided herein or by law, any person who violates the provisions of this article shall be guilty of a violation punishable by a fine not exceeding \$350 or imprisonment for a period not to exceed six months, or both, for conviction of a first offense; for conviction of a second offense, both of which were committed within a period of five years, punishable by a fine not less than \$350 nor more than \$700 or imprisonment for a period not to exceed six

months, or both; and upon conviction for a third or subsequent offense, all of which were committed within a period of five years, punishable by a fine not less than \$700 nor more than \$1,000 or imprisonment for a period not to exceed six months, or both. However, for the purposes of conferring jurisdiction upon courts and judicial officers generally, violations of this article shall be deemed misdemeanors, and for such purpose only, all provisions of law relating to misdemeanors shall apply to such violations. Each week's continued violation shall constitute a separate additional violation.

§ 267-20. Appeal of notice of violation.

Any person receiving a notice of violation may appeal the determination of the SMO to the Town Board within 15 days of its issuance, which Board shall hear the appeal within 30 days after the filing of the appeal and, within five days of making its decision, file its decision in the office of the Town Clerk and mail a copy of its decision by certified mail to the discharger.

§ 267-21. Corrective measures after appeal.

- A. If the violation has not been corrected pursuant to the requirements set forth in the notice of violation or, in the event of an appeal, within five business days of the decision of the municipal authority upholding the decision of the SMO, then the SMO shall request the owner's permission for access to the subject private property to take any and all measures reasonably necessary to abate the violation and/or restore the property.
- B. If refused access to the subject private property, the SMO may seek a warrant in a court of competent jurisdiction to be authorized to enter upon the property to determine whether a violation has occurred. Upon determination that a violation has occurred, the SMO may seek a court order to take any and all measures reasonably necessary to abate the violation and/or restore the property. The cost of implementing and maintaining such measures shall be the sole responsibility of the discharger.

§ 267-22. Injunctive relief.

It shall be unlawful for any person to violate any provision or fail to comply with any of the requirements of this article. If a person has violated or continues to violate the provisions of this article, the SMO may petition for a preliminary or permanent injunction restraining the person from activities which would create further violations or compelling the person to perform abatement or remediation of the violation.

§ 267-23. Alternative remedies.

- A. Where a person has violated a provision of this article, he/she may be eligible for alternative remedies in lieu of a civil penalty, upon recommendation of the Town Attorney and concurrence of the Town Building Inspector, where:
 - (1) The violation was unintentional.
 - (2) The violator has no history of previous violations of this article.
 - (3) Environmental damage was minimal.
 - (4) The violator acted quickly to remedy the violation.
 - (5) The violator cooperated in investigation and resolution.
- B. Alternative remedies may consist of one or more of the following:
 - (1) Attendance at compliance workshops.
 - (2) Storm drain stenciling or storm drain marking.
 - (3) River, stream or creek cleanup activities.

§ 267-24. Violations deemed public nuisance.

In addition to the enforcement processes and penalties provided, any condition caused or permitted to exist in violation of any of the provisions of this article is a threat to public health, safety and welfare and is declared and deemed a nuisance, and may be summarily abated or restored at the violator's expense, and/or a civil action to abate, enjoin or otherwise compel the cessation of such nuisance may be taken.

§ 267-25. Remedies not exclusive.

The remedies listed in this article are not exclusive of any other remedies available under any applicable federal, state or local law, and it is within the discretion of the authorized enforcement agency to seek cumulative remedies.

Appendix C

**Stormwater Runoff Calculations
and Stormwater Runoff Management Practices Sizing Calculations**

Subsurface Chamber System

Water Quality Unit Sizing

Hydrologic Analysis



THE MOST ADVANCED NAME IN DRAINAGE SYSTEMS
Version 7.9

Enter or Select values in the Yellow fields ONLY

| UNITS | |
|-----------------------------------|---|
| Unit of Measure | <input checked="" type="radio"/> Imperial (ft, in) <input type="radio"/> Metric (mm, m) |
| SYSTEM | |
| Joint Type | Gasketed WT |
| Design Storage Volume | 1400 CF |
| Average Cover Height ⁴ | 2.00 FT |

Project Name: 868 North Broadway
 Location (City, State): North Castle, NY
 Prepared For:
 Date Prepared:
 Engineer: Joseph Riina
 Contractor:
 Regional Engineer:
 Area Sales Representative:
 Surface Application:

STORMWATER RETENTION / DETENTION PIPE SYSTEM SIZING WORKSHEET

| HEADER | | LATERALS | | | BACKFILL | |
|--|-----|-----------------------|---------------------|--------------------|-----------------------|-----------------------------|
| Header Diameter | 30 | Lateral Diameter (in) | Lateral Length (ft) | Number of Laterals | # of Sticks / Lateral | Approx. Length of End Stick |
| Number of Headers | 2 | 30 | 27.5 | 8 | 2 | 8.7-ft |
| Perforate Headers? | No | 60 | | | 0 | 0-ft |
| Include Header(s) in Storage Volume? | Yes | 60 | | | 0 | 0-ft |
| Perforate Laterals? <input type="radio"/> No <input type="radio"/> Yes | | | | | | |
| A non-perforated system has been selected | | | | | | |

| STORAGE VOLUME COMPONENT | | APPROXIMATE SYSTEM SIZE | | EXCAVATION | | | | | | |
|--------------------------|--------------|-------------------------|-------------------|--------------------|------------|-------------|------------------------------|-------------------------------|---------------------------------------|-----------|
| Product Volume (CF) | Stone (CF) | ASV (CF) | Total System (CF) | Pipe Diameter (IN) | Width (FT) | Length (FT) | Disturbed Surface Area (SYD) | Excavation ² (CYD) | Estimated Backfill ³ (CYD) | ASV (CYD) |
| Group 1 | 1,413 | 0 | 1,413 | 30 | 37 | 38 | 155 | 272 | 220 | 0 |
| Group 2 | 0 | 0 | 0 | 60 | 0 | 0 | 0 | 0 | 0 | 0 |
| Group 3 | 0 | 0 | 0 | 60 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTALS | 1,413 | 0 | 1,412.73 | | | | 155 | 272 | 220 | 0 |

100.9% of the required storage

NOTES

- 1 - Full Stick: Assumed a standard lay length of 19'-8"
- 2 - Excavation: Based on manufacturer's recommended trench width and bedding depth. Estimated volumes assume a flat system based on the user-entered Average Cover Height.
- 3 - Backfill: Does not account for pipe corrugations - calculated for conservative quantities. Not for use with take-offs or ordering purposes.
- 4 - Cover Height: For traffic installations, 1-ft of minimum cover is required for diameters 12-36", 2-ft for 42-60". Maximum cover shall not exceed 8-ft without consulting Applications Engineering.
- 5 - Bill of Materials: Does not differentiate between ST and WT fittings or between A and H profile connections. Determined on a project-specific basis.
- 6 - Quantities: Assumes all Groups are same diameter. Run separate calculations to determine quantities and costs for different Group diameters.

This Excel spreadsheet is provided for rough estimating purposes only. This tool is intended to assist the design engineer in sizing stormwater management systems using ADS pipe and manifold components. As with any calculation aid, this tool should be used for estimating only; the engineer must verify the assumptions and methods to ensure they satisfy the project and local design criteria.



Operation and Maintenance Manual

First Defense® and First Defense® High Capacity

Vortex Separator for Stormwater Treatment

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DISCLAIMER: Information and data contained in this manual is exclusively for the purpose of assisting in the operation and maintenance of Hydro International plc's First Defense®. No warranty is given nor can liability be accepted for use of this information for any other purpose. Hydro International plc has a policy of continuous product development and reserves the right to amend specifications without notice.

I. First Defense® by Hydro International

Introduction

The First Defense® is an enhanced vortex separator that combines an effective and economical stormwater treatment chamber with an integral peak flow bypass. It efficiently removes total suspended solids (TSS), trash and hydrocarbons from stormwater runoff without washing out previously captured pollutants. The First Defense® is available in several model configurations (refer to *Section II. Model Sizes & Configurations*, page 4) to accommodate a wide range of pipe sizes, peak flows and depth constraints.

Operation

The First Defense® operates on simple fluid hydraulics. It is self-activating, has no moving parts, no external power requirement and is fabricated with 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 First Defense® has been designed to allow for easy and safe access for inspection, monitoring and clean-out procedures. Neither entry into the unit nor removal of the internal components is necessary for maintenance, thus safety concerns related to confined-space-entry are avoided.

Pollutant Capture and Retention

The internal components of the First Defense® have been designed to optimize pollutant capture. Sediment is captured and retained in the base of the unit, while oil and floatables are stored on the water surface in the inner volume (Fig.1).

The pollutant storage volumes are isolated from the built-in bypass chamber to prevent washout during high-flow storm events. The sump of the First Defense® retains a standing water level between storm events. This ensures a quiescent flow regime at the onset of a storm, preventing resuspension and washout of pollutants captured during previous events.

Accessories such as oil absorbent pads are available for enhanced oil removal and storage. Due to the separation of the oil and floatable storage volume from the outlet, the potential for washout of stored pollutants between clean-outs is minimized.

Applications

- Stormwater treatment at the point of entry into the drainage line
- Sites constrained by space, topography or drainage profiles with limited slope and depth of cover
- Retrofit installations where stormwater treatment is placed on or tied into an existing storm drain line
- Pretreatment for filters, infiltration and storage

Advantages

- Inlet options include surface grate or multiple inlet pipes
- Integral high capacity bypass conveys large peak flows without the need for "offline" arrangements using separate junction manholes
- Proven to prevent pollutant washout at up to 500% of its treatment flow
- Long flow path through the device ensures a long residence time within the treatment chamber, enhancing pollutant settling
- Delivered to site pre-assembled and ready for installation

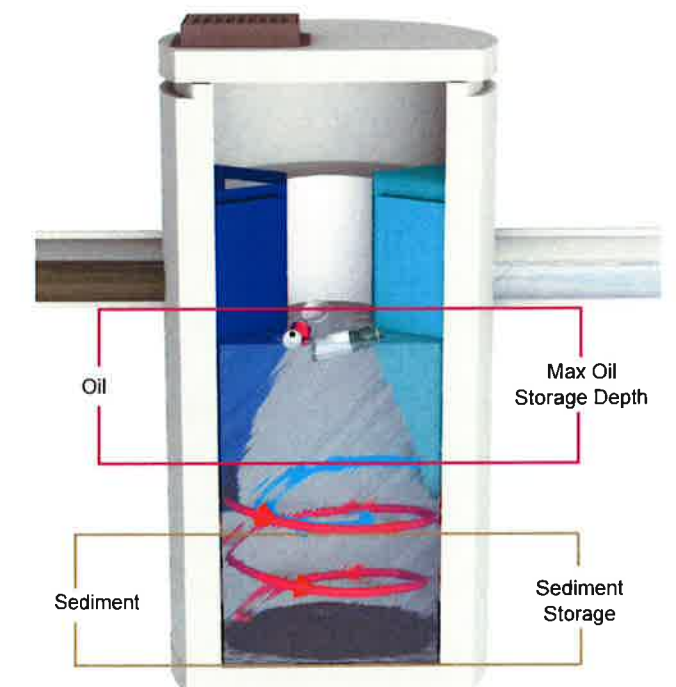


Fig.1 Pollutant storage volumes in the First Defense®.

II. Model Sizes & Configurations

The First Defense® inlet and internal bypass arrangements are available in several model sizes and configurations. The components of the First Defense®-4HC and First Defense®-6HC have modified geometries as to allow greater design flexibility needed to accommodate various site constraints.

All First Defense® models include the internal components that are designed to remove and retain total suspended solids (TSS), gross solids, floatable trash and hydrocarbons (Fig.2a - 2b). First Defense® model parameters and design criteria are shown in Table 1.

First Defense® Components

- 1. Built-In Bypass
- 2. Inlet Pipe
- 3. Inlet Chute
- 4. Floatables Draw-off Port
- 5. Outlet Pipe
- 6. Floatables Storage
- 7. Sediment Storage
- 8. Inlet Grate or Cover

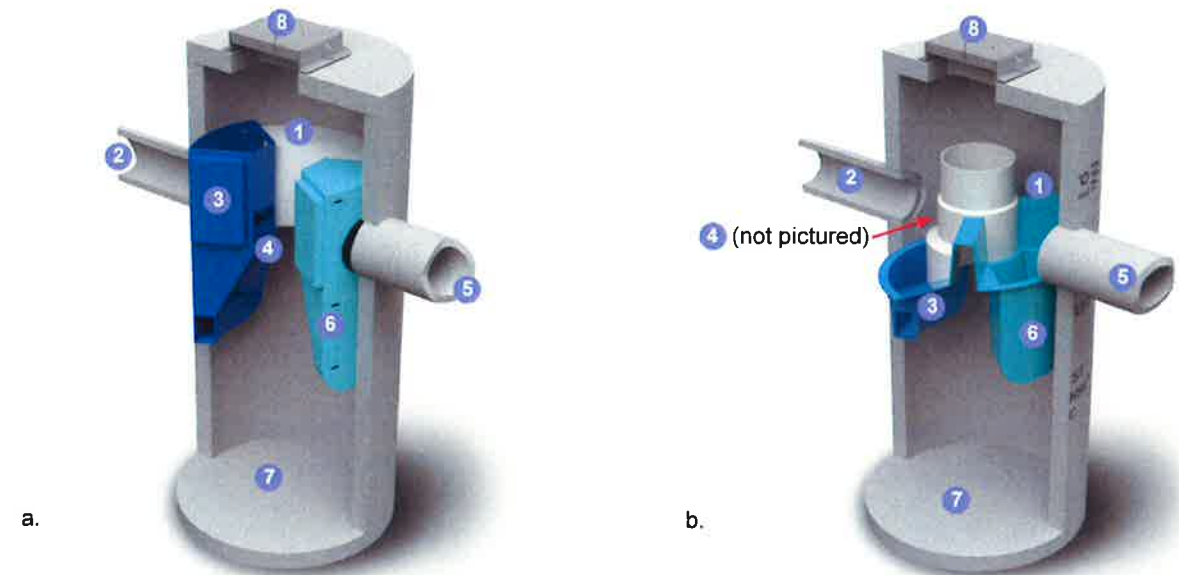


Fig.2a) First Defense®-4 and First Defense®-6; b) First Defense®-4HC and First Defense®-6HC, with higher capacity dual internal bypass and larger maximum pipe diameter.

| First Defense® High Capacity Model Number | Diameter | Typical TSS Treatment Flow Rates | Peak Online Flow Rate | Maximum Pipe Diameter ¹ | Oil Storage Capacity | Typical Sediment Storage Capacity ² | Minimum Distance from Outlet Invert to Top of Rim ³ | Chamber Depth |
|---|----------|----------------------------------|-----------------------|------------------------------------|----------------------|--|--|---------------|
| | | NJDEP Certified | | | | | | |
| | (ft / m) | (cfs / L/s) | (cfs / L/s) | (in / mm) | (gal / L) | (yd ³ / m ³) | (ft / m) | (ft / m) |
| FD-3HC | 3 / 0.9 | 0.85 / 24.0 | 15 / 424 | 18 / 457 | 125 / 473 | 0.4 / 0.3 | 2.0 - 3.5 / 0.6 - 1.0 | 3.75 / 1.14 |
| FD-4HC | 4 / 1.2 | 1.50 / 42.4 | 18 / 510 | 24 / 600 | 191 / 723 | 0.7 / 0.5 | 2.3 - 3.9 / 0.7 - 1.2 | 5.00 / 1.52 |
| FD-5HC | 5 / 1.5 | 2.35 / 66.2 | 20 / 566 | 24 / 609 | 300 / 1135 | 1.1 / .84 | 2.5 - 4.5 / 0.7 - 1.3 | 5.25 / 1.60 |
| FD-6HC | 6 / 1.8 | 3.38 / 95.7 | 32 / 906 | 30 / 750 | 496 / 1878 | 1.6 / 1.2 | 3.0 - 5.1 / 0.9 - 1.6 | 6.25 / 1.90 |
| FD-7HC | 7 / 2.1 | 4.60 / 130.2 | 40 / 1133 | 42 / 1067 | 750 / 2839 | 2.1 / 1.9 | 3.0 - 5.5 / 0.9 - 1.7 | 7.25 / 2.20 |
| FD-8HC | 8 / 2.4 | 6.00 / 169.9 | 50 / 1,415 | 48 / 1219 | 1120 / 4239 | 2.8 / 2.1 | 3.0 - 6.0 / 0.9 - 1.8 | 8.00 / 2.43 |

¹Contact Hydro International when larger pipe sizes are required.

²Contact Hydro International when custom sediment storage capacity is required.

³Minimum distance for models depends on pipe diameter.

III. Maintenance

Overview

The First Defense® 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 First Defense®. The First Defense® 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 First Defense® will no longer be able to store removed sediment and oil. Maximum pollutant storage capacities are provided in Table 1.

The First Defense® allows for easy and safe inspection, monitoring 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.

Maintenance events may include Inspection, Oil & Floatables Removal, and Sediment Removal. Maintenance events do not require entry into the First Defense®, nor do they require the internal components of the First Defense® to be removed. In the case of inspection and floatables removal, a vactor truck is not required. However, a vactor truck is required if the maintenance event is to include oil removal and/or sediment removal.

Maintenance Equipment Considerations

The internal components of the First Defense®-HC have a centrally located circular shaft through which the sediment storage sump can be accessed with a sump vac hose. The open diameter of this access shaft is 15 inches in diameter (Fig.3). Therefore, the nozzle fitting of any vactor hose used for maintenance should be less than 15 inches in diameter.

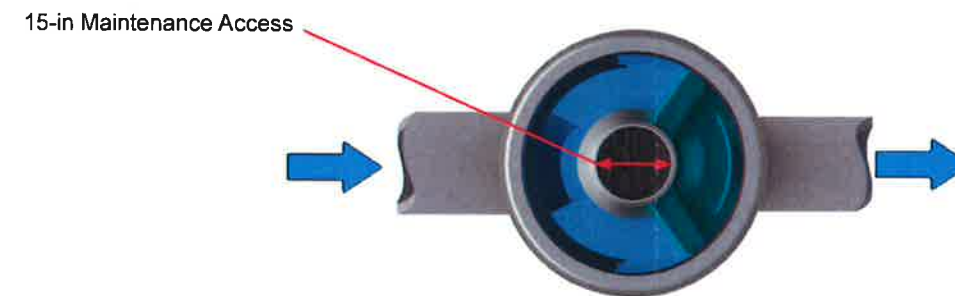


Fig.3 The central opening to the sump of the First Defense®-HC is 15 inches in diameter.

Determining Your Maintenance Schedule

The frequency of clean out 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 log (see page 9) to establish a routine maintenance schedule.

The vactor procedure, including both sediment and oil / floatables removal, for a 6-ft First Defense® typically takes less than 30 minutes and removes a combined water/oil volume of about 765 gallons.

Inspection Procedures

1. Set up any necessary safety equipment around the access port or grate of the First Defense® as stipulated by local ordinances. Safety equipment should notify passing pedestrian and road traffic that work is being done.
2. Remove the grate or lid to the manhole.
3. Without entering the vessel, look down into the chamber to inspect the inside. Make note of any irregularities. Fig.4 shows the standing water level that should be observed.
4. Without entering the vessel, use the pole with the skimmer net to remove floatables and loose debris from the components and water surface.
5. Using a sediment probe such as a Sludge Judge®, measure the depth of sediment that has collected in the sump of the vessel.
6. On the Maintenance Log (see page 9), record the date, unit location, estimated volume of floatables and gross debris removed, and the depth of sediment measured. Also note any apparent irregularities such as damaged components or blockages.
7. Securely replace the grate or lid.
8. Take down safety equipment.
9. Notify Hydro International of any irregularities noted during inspection.

Floatables and Sediment Clean Out

Floatables clean out is typically done in conjunction with sediment removal. A commercially or municipally owned sump-vac is used to remove captured sediment and floatables (Fig.5).

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.

Scheduling

- Floatables and sump clean out are typically conducted once a year during any season.
- Floatables and sump clean out should occur as soon as possible following a spill in the contributing drainage area.



Fig.4 Floatables are removed with a vactor hose (First Defense model FD-4, shown).

Recommended Equipment

- Safety Equipment (traffic cones, etc)
- Crow bar or other tool to remove grate or lid
- Pole with skimmer or net (if only floatables are being removed)
- Sediment probe (such as a Sludge Judge®)
- Vactor truck (flexible hose recommended)
- First Defense® Maintenance Log

Floatables and sediment Clean Out Procedures

1. Set up any necessary safety equipment around the access port or grate of the First Defense® as stipulated by local ordinances. Safety equipment should notify passing pedestrian and road traffic that work is being done.
2. Remove the grate or lid to the manhole.
3. Without entering the vessel, look down into the chamber to inspect the inside. Make note of any irregularities.
4. Remove oil and floatables stored on the surface of the water with the vactor hose (Fig.5) or with the skimmer or net (not pictured).
5. 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 Log (page 9).
6. Once all floatables have been removed, drop the vactor hose to the base of the sump. Vactor out the sediment and gross debris off the sump floor (Fig.5).
7. Retract the vactor hose from the vessel.
8. On the Maintenance Log provided by Hydro International, record the date, unit location, estimated volume of floatables and gross debris removed, and the depth of sediment measured. Also note any apparent irregularities such as damaged components, blockages, or irregularly high or low water levels.
9. Securely replace the grate or lid.



Fig.5 Sediment is removed with a vactor hose (First Defense model FD-4, shown).

Maintenance at a Glance

| | |
|----------------------------|--|
| 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 - Following a spill in the drainage area |
| Sediment Removal | - Once per year or as needed - Following a spill in the drainage area |

NOTE: For most clean outs the entire volume of liquid does not need to be removed from the manhole. Only remove the first few inches of oils and floatables from the water surface to reduce the total volume of liquid removed during a clean out.

Pre Developed

Project Summary

Title

Engineer

Company

Date 12/19/2017

Notes

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Pre Developed

Subsection: Master Network Summary

Catchments Summary

| Label | Scenario | Return Event (years) | Hydrograph Volume (ac-ft) | Time to Peak (hours) | Peak Flow (ft ³ /s) |
|-------|--------------------------|----------------------|---------------------------|----------------------|--------------------------------|
| DA-1 | Pre-Development 1-Year | 1 | 0.217 | 12.100 | 2.69 |
| DA-1 | Pre-Development 2-Year | 2 | 0.276 | 12.100 | 3.39 |
| DA-1 | Pre-Development 10-Year | 10 | 0.485 | 12.100 | 5.80 |
| DA-1 | Pre-Development 25-Year | 25 | 0.662 | 12.100 | 7.77 |
| DA-1 | Pre-Development 100-Year | 100 | 0.998 | 12.100 | 11.40 |

Node Summary

| Label | Scenario | Return Event (years) | Hydrograph Volume (ac-ft) | Time to Peak (hours) | Peak Flow (ft ³ /s) |
|-------|--------------------------|----------------------|---------------------------|----------------------|--------------------------------|
| DL-1 | Pre-Development 1-Year | 1 | 0.217 | 12.100 | 2.69 |
| DL-1 | Pre-Development 2-Year | 2 | 0.276 | 12.100 | 3.39 |
| DL-1 | Pre-Development 10-Year | 10 | 0.485 | 12.100 | 5.80 |
| DL-1 | Pre-Development 25-Year | 25 | 0.662 | 12.100 | 7.77 |
| DL-1 | Pre-Development 100-Year | 100 | 0.998 | 12.100 | 11.40 |

Pre Developed

Subsection: Time-Depth Curve
 Label: Westchester County 1-100 2015

Return Event: 1 years
 Storm Event: 1 Year

| Time-Depth Curve: 1 Year | |
|--------------------------|--------------|
| Label | 1 Year |
| Start Time | 0.000 hours |
| Increment | 0.100 hours |
| End Time | 24.000 hours |
| Return Event | 1 years |

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

| Time (hours) | Depth (in) | Depth (in) | Depth (in) | Depth (in) | Depth (in) |
|-----------------|---------------|---------------|---------------|---------------|---------------|
| 0.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.500 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 1.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 1.500 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 |
| 2.000 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 2.500 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 3.000 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 3.500 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 4.000 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 4.500 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 |
| 5.000 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| 5.500 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| 6.000 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| 6.500 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| 7.000 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| 7.500 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| 8.000 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 |
| 8.500 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| 9.000 | 0.4 | 0.4 | 0.4 | 0.4 | 0.5 |
| 9.500 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 10.000 | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 |
| 10.500 | 0.6 | 0.6 | 0.6 | 0.7 | 0.7 |
| 11.000 | 0.7 | 0.7 | 0.7 | 0.8 | 0.8 |
| 11.500 | 0.8 | 0.9 | 1.0 | 1.0 | 1.2 |
| 12.000 | 1.4 | 1.6 | 1.8 | 1.8 | 1.9 |
| 12.500 | 2.0 | 2.0 | 2.0 | 2.1 | 2.1 |
| 13.000 | 2.1 | 2.1 | 2.1 | 2.2 | 2.2 |
| 13.500 | 2.2 | 2.2 | 2.2 | 2.2 | 2.3 |
| 14.000 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 |
| 14.500 | 2.3 | 2.3 | 2.4 | 2.4 | 2.4 |
| 15.000 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 |
| 15.500 | 2.4 | 2.4 | 2.5 | 2.5 | 2.5 |
| 16.000 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
| 16.500 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |

Pre Developed

Subsection: Time-Depth Curve
Label: Westchester County 1-100 2015

Return Event: 1 years
Storm Event: 1 Year

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

| Time (hours) | Depth (in) | Depth (in) | Depth (in) | Depth (in) | Depth (in) |
|--------------|------------|------------|------------|------------|------------|
| 17.000 | 2.5 | 2.6 | 2.6 | 2.6 | 2.6 |
| 17.500 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 |
| 18.000 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 |
| 18.500 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 |
| 19.000 | 2.6 | 2.6 | 2.6 | 2.7 | 2.7 |
| 19.500 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 |
| 20.000 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 |
| 20.500 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 |
| 21.000 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 |
| 21.500 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 |
| 22.000 | 2.7 | 2.7 | 2.8 | 2.8 | 2.8 |
| 22.500 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 |
| 23.000 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 |
| 23.500 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 |
| 24.000 | 2.8 | (N/A) | (N/A) | (N/A) | (N/A) |

Pre Developed

Subsection: Time-Depth Curve
 Label: Westchester County 1-100 2015

Return Event: 10 years
 Storm Event: 10 Year

| Time-Depth Curve: 10 Year | |
|---------------------------|--------------|
| Label | 10 Year |
| Start Time | 0.000 hours |
| Increment | 0.100 hours |
| End Time | 24.000 hours |
| Return Event | 10 years |

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

| Time (hours) | Depth (in) | Depth (in) | Depth (in) | Depth (in) | Depth (in) |
|-----------------|---------------|---------------|---------------|---------------|---------------|
| 0.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.500 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 1.000 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 |
| 1.500 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 2.000 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 2.500 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 3.000 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| 3.500 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| 4.000 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| 4.500 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 |
| 5.000 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| 5.500 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 |
| 6.000 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| 6.500 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| 7.000 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 7.500 | 0.5 | 0.5 | 0.5 | 0.5 | 0.6 |
| 8.000 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 8.500 | 0.6 | 0.7 | 0.7 | 0.7 | 0.7 |
| 9.000 | 0.7 | 0.7 | 0.8 | 0.8 | 0.8 |
| 9.500 | 0.8 | 0.9 | 0.9 | 0.9 | 0.9 |
| 10.000 | 0.9 | 1.0 | 1.0 | 1.0 | 1.1 |
| 10.500 | 1.1 | 1.1 | 1.1 | 1.2 | 1.2 |
| 11.000 | 1.2 | 1.3 | 1.3 | 1.4 | 1.4 |
| 11.500 | 1.5 | 1.6 | 1.7 | 1.9 | 2.1 |
| 12.000 | 2.5 | 2.9 | 3.1 | 3.3 | 3.4 |
| 12.500 | 3.5 | 3.6 | 3.6 | 3.7 | 3.7 |
| 13.000 | 3.7 | 3.8 | 3.8 | 3.9 | 3.9 |
| 13.500 | 3.9 | 3.9 | 4.0 | 4.0 | 4.0 |
| 14.000 | 4.1 | 4.1 | 4.1 | 4.1 | 4.1 |
| 14.500 | 4.2 | 4.2 | 4.2 | 4.2 | 4.3 |
| 15.000 | 4.3 | 4.3 | 4.3 | 4.3 | 4.3 |
| 15.500 | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 |
| 16.000 | 4.4 | 4.4 | 4.5 | 4.5 | 4.5 |
| 16.500 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |

Pre Developed

Subsection: Time-Depth Curve
 Label: Westchester County 1-100 2015

Return Event: 10 years
 Storm Event: 10 Year

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

| Time (hours) | Depth (in) | Depth (in) | Depth (in) | Depth (in) | Depth (in) |
|--------------|------------|------------|------------|------------|------------|
| 17.000 | 4.5 | 4.6 | 4.6 | 4.6 | 4.6 |
| 17.500 | 4.6 | 4.6 | 4.6 | 4.6 | 4.6 |
| 18.000 | 4.6 | 4.6 | 4.7 | 4.7 | 4.7 |
| 18.500 | 4.7 | 4.7 | 4.7 | 4.7 | 4.7 |
| 19.000 | 4.7 | 4.7 | 4.7 | 4.7 | 4.7 |
| 19.500 | 4.8 | 4.8 | 4.8 | 4.8 | 4.8 |
| 20.000 | 4.8 | 4.8 | 4.8 | 4.8 | 4.8 |
| 20.500 | 4.8 | 4.8 | 4.8 | 4.8 | 4.8 |
| 21.000 | 4.8 | 4.9 | 4.9 | 4.9 | 4.9 |
| 21.500 | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 |
| 22.000 | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 |
| 22.500 | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 |
| 23.000 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| 23.500 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| 24.000 | 5.0 | (N/A) | (N/A) | (N/A) | (N/A) |

Pre Developed

Subsection: Time-Depth Curve
 Label: Westchester County 1-100 2015

Return Event: 100 years
 Storm Event: 100 Year

Time-Depth Curve: 100 Year

| | |
|--------------|--------------|
| Label | 100 Year |
| Start Time | 0.000 hours |
| Increment | 0.100 hours |
| End Time | 24.000 hours |
| Return Event | 100 years |

CUMULATIVE RAINFALL (in)

Output Time Increment = 0.100 hours

Time on left represents time for first value in each row.

| Time (hours) | Depth (in) | Depth (in) | Depth (in) | Depth (in) | Depth (in) |
|-----------------|---------------|---------------|---------------|---------------|---------------|
| 0.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.500 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 |
| 1.000 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 1.500 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 |
| 2.000 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| 2.500 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 |
| 3.000 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| 3.500 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 |
| 4.000 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| 4.500 | 0.4 | 0.5 | 0.5 | 0.5 | 0.5 |
| 5.000 | 0.5 | 0.5 | 0.5 | 0.6 | 0.6 |
| 5.500 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 6.000 | 0.6 | 0.7 | 0.7 | 0.7 | 0.7 |
| 6.500 | 0.7 | 0.7 | 0.8 | 0.8 | 0.8 |
| 7.000 | 0.8 | 0.8 | 0.9 | 0.9 | 0.9 |
| 7.500 | 0.9 | 0.9 | 1.0 | 1.0 | 1.0 |
| 8.000 | 1.0 | 1.0 | 1.1 | 1.1 | 1.1 |
| 8.500 | 1.2 | 1.2 | 1.2 | 1.2 | 1.3 |
| 9.000 | 1.3 | 1.3 | 1.4 | 1.4 | 1.5 |
| 9.500 | 1.5 | 1.5 | 1.6 | 1.6 | 1.7 |
| 10.000 | 1.7 | 1.7 | 1.8 | 1.8 | 1.9 |
| 10.500 | 1.9 | 2.0 | 2.1 | 2.1 | 2.2 |
| 11.000 | 2.2 | 2.3 | 2.4 | 2.5 | 2.6 |
| 11.500 | 2.7 | 2.8 | 3.1 | 3.4 | 3.7 |
| 12.000 | 4.5 | 5.3 | 5.6 | 5.9 | 6.2 |
| 12.500 | 6.3 | 6.4 | 6.5 | 6.6 | 6.7 |
| 13.000 | 6.7 | 6.8 | 6.9 | 6.9 | 7.0 |
| 13.500 | 7.1 | 7.1 | 7.2 | 7.2 | 7.3 |
| 14.000 | 7.3 | 7.3 | 7.4 | 7.4 | 7.5 |
| 14.500 | 7.5 | 7.5 | 7.6 | 7.6 | 7.7 |
| 15.000 | 7.7 | 7.7 | 7.8 | 7.8 | 7.8 |
| 15.500 | 7.8 | 7.9 | 7.9 | 7.9 | 8.0 |
| 16.000 | 8.0 | 8.0 | 8.0 | 8.0 | 8.1 |
| 16.500 | 8.1 | 8.1 | 8.1 | 8.1 | 8.2 |

Pre Developed

Subsection: Time-Depth Curve
Label: Westchester County 1-100 2015

Return Event: 100 years
Storm Event: 100 Year

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

| Time (hours) | Depth (in) | Depth (in) | Depth (in) | Depth (in) | Depth (in) |
|--------------|------------|------------|------------|------------|------------|
| 17.000 | 8.2 | 8.2 | 8.2 | 8.2 | 8.3 |
| 17.500 | 8.3 | 8.3 | 8.3 | 8.3 | 8.3 |
| 18.000 | 8.4 | 8.4 | 8.4 | 8.4 | 8.4 |
| 18.500 | 8.4 | 8.4 | 8.4 | 8.5 | 8.5 |
| 19.000 | 8.5 | 8.5 | 8.5 | 8.5 | 8.5 |
| 19.500 | 8.6 | 8.6 | 8.6 | 8.6 | 8.6 |
| 20.000 | 8.6 | 8.6 | 8.6 | 8.6 | 8.7 |
| 20.500 | 8.7 | 8.7 | 8.7 | 8.7 | 8.7 |
| 21.000 | 8.7 | 8.7 | 8.7 | 8.8 | 8.8 |
| 21.500 | 8.8 | 8.8 | 8.8 | 8.8 | 8.8 |
| 22.000 | 8.8 | 8.8 | 8.8 | 8.9 | 8.9 |
| 22.500 | 8.9 | 8.9 | 8.9 | 8.9 | 8.9 |
| 23.000 | 8.9 | 8.9 | 8.9 | 8.9 | 9.0 |
| 23.500 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 |
| 24.000 | 9.0 | (N/A) | (N/A) | (N/A) | (N/A) |

Pre Developed

Subsection: Time-Depth Curve
 Label: Westchester County 1-100 2015

Return Event: 2 years
 Storm Event: 2 Year

| Time-Depth Curve: 2 Year | |
|--------------------------|--------------|
| Label | 2 Year |
| Start Time | 0.000 hours |
| Increment | 0.100 hours |
| End Time | 24.000 hours |
| Return Event | 2 years |

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

| Time (hours) | Depth (in) | Depth (in) | Depth (in) | Depth (in) | Depth (in) |
|-----------------|---------------|---------------|---------------|---------------|---------------|
| 0.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.500 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 1.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 1.500 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 |
| 2.000 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 2.500 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 3.000 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 3.500 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 4.000 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 |
| 4.500 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| 5.000 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| 5.500 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| 6.000 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 |
| 6.500 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| 7.000 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| 7.500 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 |
| 8.000 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| 8.500 | 0.4 | 0.4 | 0.4 | 0.5 | 0.5 |
| 9.000 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 9.500 | 0.5 | 0.6 | 0.6 | 0.6 | 0.6 |
| 10.000 | 0.6 | 0.6 | 0.7 | 0.7 | 0.7 |
| 10.500 | 0.7 | 0.7 | 0.8 | 0.8 | 0.8 |
| 11.000 | 0.8 | 0.9 | 0.9 | 0.9 | 0.9 |
| 11.500 | 1.0 | 1.0 | 1.1 | 1.2 | 1.4 |
| 12.000 | 1.6 | 1.9 | 2.1 | 2.2 | 2.3 |
| 12.500 | 2.3 | 2.4 | 2.4 | 2.4 | 2.4 |
| 13.000 | 2.5 | 2.5 | 2.5 | 2.5 | 2.6 |
| 13.500 | 2.6 | 2.6 | 2.6 | 2.6 | 2.7 |
| 14.000 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 |
| 14.500 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 |
| 15.000 | 2.8 | 2.8 | 2.8 | 2.9 | 2.9 |
| 15.500 | 2.9 | 2.9 | 2.9 | 2.9 | 2.9 |
| 16.000 | 2.9 | 2.9 | 2.9 | 2.9 | 3.0 |
| 16.500 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |

Pre Developed

Subsection: Time-Depth Curve
Label: Westchester County 1-100 2015

Return Event: 2 years
Storm Event: 2 Year

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

| Time (hours) | Depth (in) | Depth (in) | Depth (in) | Depth (in) | Depth (in) |
|--------------|------------|------------|------------|------------|------------|
| 17.000 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| 17.500 | 3.0 | 3.0 | 3.0 | 3.1 | 3.1 |
| 18.000 | 3.1 | 3.1 | 3.1 | 3.1 | 3.1 |
| 18.500 | 3.1 | 3.1 | 3.1 | 3.1 | 3.1 |
| 19.000 | 3.1 | 3.1 | 3.1 | 3.1 | 3.1 |
| 19.500 | 3.1 | 3.1 | 3.1 | 3.1 | 3.2 |
| 20.000 | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 |
| 20.500 | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 |
| 21.000 | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 |
| 21.500 | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 |
| 22.000 | 3.2 | 3.2 | 3.2 | 3.2 | 3.3 |
| 22.500 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 |
| 23.000 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 |
| 23.500 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 |
| 24.000 | 3.3 | (N/A) | (N/A) | (N/A) | (N/A) |

Pre Developed

Subsection: Time-Depth Curve
 Label: Westchester County 1-100 2015

Return Event: 25 years
 Storm Event: 25 Year

Time-Depth Curve: 25 Year

| | |
|--------------|--------------|
| Label | 25 Year |
| Start Time | 0.000 hours |
| Increment | 0.100 hours |
| End Time | 24.000 hours |
| Return Event | 25 years |

CUMULATIVE RAINFALL (in)

Output Time Increment = 0.100 hours

Time on left represents time for first value in each row.

| Time (hours) | Depth (in) | Depth (in) | Depth (in) | Depth (in) | Depth (in) |
|-----------------|---------------|---------------|---------------|---------------|---------------|
| 0.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.500 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 |
| 1.000 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 1.500 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 2.000 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 |
| 2.500 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| 3.000 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| 3.500 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 |
| 4.000 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| 4.500 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 |
| 5.000 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| 5.500 | 0.4 | 0.4 | 0.4 | 0.4 | 0.5 |
| 6.000 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 6.500 | 0.5 | 0.5 | 0.5 | 0.6 | 0.6 |
| 7.000 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 7.500 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 |
| 8.000 | 0.7 | 0.7 | 0.8 | 0.8 | 0.8 |
| 8.500 | 0.8 | 0.8 | 0.9 | 0.9 | 0.9 |
| 9.000 | 0.9 | 1.0 | 1.0 | 1.0 | 1.0 |
| 9.500 | 1.1 | 1.1 | 1.1 | 1.1 | 1.2 |
| 10.000 | 1.2 | 1.2 | 1.3 | 1.3 | 1.3 |
| 10.500 | 1.4 | 1.4 | 1.5 | 1.5 | 1.6 |
| 11.000 | 1.6 | 1.6 | 1.7 | 1.8 | 1.8 |
| 11.500 | 1.9 | 2.0 | 2.2 | 2.4 | 2.7 |
| 12.000 | 3.2 | 3.7 | 4.0 | 4.2 | 4.4 |
| 12.500 | 4.5 | 4.6 | 4.6 | 4.7 | 4.8 |
| 13.000 | 4.8 | 4.8 | 4.9 | 4.9 | 5.0 |
| 13.500 | 5.0 | 5.1 | 5.1 | 5.1 | 5.2 |
| 14.000 | 5.2 | 5.2 | 5.3 | 5.3 | 5.3 |
| 14.500 | 5.3 | 5.4 | 5.4 | 5.4 | 5.4 |
| 15.000 | 5.5 | 5.5 | 5.5 | 5.5 | 5.6 |
| 15.500 | 5.6 | 5.6 | 5.6 | 5.6 | 5.7 |
| 16.000 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| 16.500 | 5.7 | 5.8 | 5.8 | 5.8 | 5.8 |

Pre Developed

Subsection: Time-Depth Curve
Label: Westchester County 1-100 2015

Return Event: 25 years
Storm Event: 25 Year

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

| Time (hours) | Depth (in) | Depth (in) | Depth (in) | Depth (in) | Depth (in) |
|--------------|------------|------------|------------|------------|------------|
| 17.000 | 5.8 | 5.8 | 5.8 | 5.9 | 5.9 |
| 17.500 | 5.9 | 5.9 | 5.9 | 5.9 | 5.9 |
| 18.000 | 5.9 | 5.9 | 6.0 | 6.0 | 6.0 |
| 18.500 | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 |
| 19.000 | 6.0 | 6.0 | 6.1 | 6.1 | 6.1 |
| 19.500 | 6.1 | 6.1 | 6.1 | 6.1 | 6.1 |
| 20.000 | 6.1 | 6.1 | 6.1 | 6.1 | 6.2 |
| 20.500 | 6.2 | 6.2 | 6.2 | 6.2 | 6.2 |
| 21.000 | 6.2 | 6.2 | 6.2 | 6.2 | 6.2 |
| 21.500 | 6.2 | 6.2 | 6.3 | 6.3 | 6.3 |
| 22.000 | 6.3 | 6.3 | 6.3 | 6.3 | 6.3 |
| 22.500 | 6.3 | 6.3 | 6.3 | 6.3 | 6.3 |
| 23.000 | 6.3 | 6.3 | 6.4 | 6.4 | 6.4 |
| 23.500 | 6.4 | 6.4 | 6.4 | 6.4 | 6.4 |
| 24.000 | 6.4 | (N/A) | (N/A) | (N/A) | (N/A) |

Pre Developed

Subsection: Time of Concentration Calculations
Label: DA-1

Return Event: 1 years
Storm Event: 1 Year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow

| | |
|-------------------------------|-------------|
| Hydraulic Length | 30.00 ft |
| Manning's n | 0.011 |
| Slope | 0.035 ft/ft |
| 2 Year 24 Hour Depth | 3.3 in |
| Average Velocity | 1.37 ft/s |
| Segment Time of Concentration | 0.006 hours |

Segment #2: TR-55 Shallow Concentrated Flow

| | |
|-------------------------------|-------------|
| Hydraulic Length | 76.00 ft |
| Is Paved? | False |
| Slope | 0.056 ft/ft |
| Average Velocity | 3.82 ft/s |
| Segment Time of Concentration | 0.006 hours |

Segment #3: TR-55 Shallow Concentrated Flow

| | |
|-------------------------------|-------------|
| Hydraulic Length | 13.00 ft |
| Is Paved? | True |
| Slope | 0.145 ft/ft |
| Average Velocity | 7.74 ft/s |
| Segment Time of Concentration | 0.000 hours |

Segment #4: TR-55 Shallow Concentrated Flow

| | |
|-------------------------------|-------------|
| Hydraulic Length | 17.00 ft |
| Is Paved? | False |
| Slope | 0.245 ft/ft |
| Average Velocity | 7.99 ft/s |
| Segment Time of Concentration | 0.001 hours |

Segment #5: TR-55 Shallow Concentrated Flow

| | |
|-------------------------------|-------------|
| Hydraulic Length | 130.00 ft |
| Is Paved? | False |
| Slope | 0.092 ft/ft |
| Average Velocity | 4.89 ft/s |
| Segment Time of Concentration | 0.007 hours |

Segment #6: TR-55 Shallow Concentrated Flow

Pre Developed

Subsection: Time of Concentration Calculations
Label: DA-1

Return Event: 1 years
Storm Event: 1 Year

| | |
|--|-------------|
| Hydraulic Length | 58.00 ft |
| Is Paved? | False |
| Slope | 0.759 ft/ft |
| Average Velocity | 14.06 ft/s |
| Segment Time of Concentration | 0.001 hours |
| <hr/> | |
| Segment #7: TR-55 Shallow Concentrated Flow | |
| Hydraulic Length | 12.00 ft |
| Is Paved? | False |
| Slope | 0.019 ft/ft |
| Average Velocity | 2.22 ft/s |
| Segment Time of Concentration | 0.001 hours |
| <hr/> | |
| Time of Concentration (Composite) | |
| Time of Concentration (Composite) | 0.083 hours |

Pre Developed

Subsection: Time of Concentration Calculations
Label: DA-1

Return Event: 1 years
Storm Event: 1 Year

==== SCS Channel Flow

$$T_c = \frac{R = Q_a / W_p}{V = (1.49 * (R^{2/3}) * (S_f^{-0.5})) / n}$$

Where: $(L_f / V) / 3600$
R= Hydraulic radius
A_q= Flow area, square feet
W_p= Wetted perimeter, feet
V= Velocity, ft/sec
S_f= Slope, ft/ft
n= Manning's n
T_c= Time of concentration, hours
L_f= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

$$T_c = \frac{\text{Unpaved surface:}}{V = 16.1345 * (S_f^{0.5})}$$

$$\text{Paved Surface:}$$
$$V = 20.3282 * (S_f^{0.5})$$

Where: $(L_f / V) / 3600$
V= Velocity, ft/sec
S_f= Slope, ft/ft
T_c= Time of concentration, hours
L_f= Flow length, feet

Pre Developed

Subsection: Runoff CN-Area
Label: DA-1

Return Event: 1 years
Storm Event: 1 Year

Runoff Curve Number Data

| Soil/Surface Description | CN | Area (acres) | C (%) | UC (%) | Adjusted CN |
|---|--------|-----------------|----------|-----------|-------------|
| Open space (Lawns,parks etc.) - Fair condition; grass cover 50% to 75% - Soil D | 84.000 | 1.166 | 0.0 | 0.0 | 84.000 |
| Impervious Areas - Paved parking lots, roofs, driveways, Streets and roads - Soil D | 98.000 | 0.421 | 0.0 | 0.0 | 98.000 |
| COMPOSITE AREA & WEIGHTED CN ---> | (N/A) | 1.587 | (N/A) | (N/A) | 87.714 |

Pre Developed

Subsection: Unit Hydrograph Equations

Unit Hydrograph Method (Computational Notes)

Definition of Terms

| | |
|--------|--|
| At | Total area (acres): $A_t = A_i + A_p$ |
| Ai | Impervious area (acres) |
| Ap | Pervious area (acres) |
| CNi | Runoff curve number for impervious area |
| CNp | Runoff curve number for pervious area |
| fLoss | f loss constant infiltration (depth/time) |
| gKs | Saturated Hydraulic Conductivity (depth/time) |
| Md | Volumetric Moisture Deficit |
| Psi | Capillary Suction (length) |
| hK | Horton Infiltration Decay Rate (time^{-1}) |
| fo | Initial Infiltration Rate (depth/time) |
| fc | Ultimate(capacity)Infiltration Rate (depth/time) |
| Ia | Initial Abstraction (length) |
| dt | Computational increment (duration of unit excess rainfall) Default dt is smallest value of $0.1333T_c$, t_{rm} , and t_h (Smallest dt is then adjusted to match up with T_p) |
| UDdt | User specified override computational main time increment (only used if UDdt is $\Rightarrow .1333T_c$) |
| D(t) | Point on distribution curve (fraction of P) for time step t |
| K | $2 / (1 + (T_r/T_p))$: default $K = 0.75$: (for $T_r/T_p = 1.67$) |
| Ks | Hydrograph shape factor = Unit Conversions * K : = $((1\text{hr}/3600\text{sec}) * (1\text{ft}/12\text{in}) * ((5280\text{ft})^2/\text{sq.mi})) * K$ Default $K_s = 645.333 * 0.75 = 484$ |
| Lag | Lag time from center of excess runoff (dt) to T_p : $\text{Lag} = 0.6T_c$ |
| P | Total precipitation depth, inches |
| Pa(t) | Accumulated rainfall at time step t |
| Pi(t) | Incremental rainfall at time step t |
| qp | Peak discharge (cfs) for 1in. runoff, for 1hr, for 1 sq.mi. = $(K_s * A * Q) / T_p$ (where $Q = 1\text{in. runoff}$, $A = \text{sq.mi.}$) |
| Qu(t) | Unit hydrograph ordinate (cfs) at time step t |
| Q(t) | Final hydrograph ordinate (cfs) at time step t |
| Rai(t) | Accumulated runoff (inches) at time step t for impervious area |
| Rap(t) | Accumulated runoff (inches) at time step t for pervious area |
| Rii(t) | Incremental runoff (inches) at time step t for impervious area |
| Rip(t) | Incremental runoff (inches) at time step t for pervious area |
| R(t) | Incremental weighted total runoff (inches) |
| Rtm | Time increment for rainfall table |
| Si | S for impervious area: $S_i = (1000/CN_i) - 10$ |
| Sp | S for pervious area: $S_p = (1000/CN_p) - 10$ |
| t | Time step (row) number |
| Tc | Time of concentration |
| Tb | Time (hrs) of entire unit hydrograph: $T_b = T_p + T_r$ |
| Tp | Time (hrs) to peak of a unit hydrograph: $T_p = (dt/2) + \text{Lag}$ |
| Tr | Time (hrs) of receding limb of unit hydrograph: $T_r = \text{ratio of } T_p$ |

Pre Developed

Subsection: Unit Hydrograph Equations

Unit Hydrograph Method

Computational Notes

Precipitation

| | |
|------------|--|
| Column (1) | Time for time step t |
| Column (2) | $D(t)$ = Point on distribution curve for time step t |
| Column (3) | $P_i(t) = P_a(t) - P_a(t-1)$: Col.(4) - Preceding Col.(4) |
| Column (4) | $P_a(t) = D(t) \times P$: Col.(2) \times P |

Pervious Area Runoff (using SCS Runoff CN Method)

| | |
|------------|--|
| Column (5) | $R_{ap}(t)$ = Accumulated pervious runoff for time step t If $(P_a(t))$ is $\leq 0.2S_p$ then use: $R_{ap}(t) = 0.0$ If $(P_a(t))$ is $> 0.2S_p$ then use: $R_{ap}(t) = (Col.(4) - 0.2S_p) \times 2 / (Col.(4) + 0.8S_p)$ |
| Column (6) | $R_{ip}(t)$ = Incremental pervious runoff for time step t $R_{ip}(t) = R_{ap}(t) - R_{ap}(t-1)$ $R_{ip}(t) = Col.(5)$ for current row - $Col.(5)$ for preceding row. |

Impervious Area Runoff

| | |
|-------------------|--|
| Column (7 & 8)... | Did not specify to use impervious areas. |
|-------------------|--|

Incremental Weighted Runoff

| | |
|------------|--|
| Column (9) | $R(t) = (A_p/A_t) \times R_{ip}(t) + (A_i/A_t) \times R_{ii}(t)$ $R(t) = (A_p/A_t) \times Col.(6) + (A_i/A_t) \times Col.(8)$ |
|------------|--|

SCS Unit Hydrograph Method

| | |
|-------------|--|
| Column (10) | $Q(t)$ is computed with the SCS unit hydrograph method using $R(t)$ and $Q_u(t)$. |
|-------------|--|

Pre Developed

Subsection: Unit Hydrograph Summary
Label: DA-1

Return Event: 1 years
Storm Event: 1 Year

| | |
|--|-------------------------|
| Storm Event | 1 Year |
| Return Event | 1 years |
| Duration | 24.000 hours |
| Depth | 2.8 in |
| Time of Concentration (Composite) | 0.083 hours |
| Area (User Defined) | 1.587 acres |
| Computational Time Increment | 0.011 hours |
| Time to Peak (Computed) | 12.111 hours |
| Flow (Peak, Computed) | 2.70 ft ³ /s |
| Output Increment | 0.050 hours |
| Time to Flow (Peak Interpolated Output) | 12.100 hours |
| Flow (Peak Interpolated Output) | 2.69 ft ³ /s |
| Drainage Area | |
| SCS CN (Composite) | 88.000 |
| Area (User Defined) | 1.587 acres |
| Maximum Retention (Pervious) | 1.4 in |
| Maximum Retention (Pervious, 20 percent) | 0.3 in |
| Cumulative Runoff | |
| Cumulative Runoff Depth (Pervious) | 1.6 in |
| Runoff Volume (Pervious) | 0.217 ac-ft |
| Hydrograph Volume (Area under Hydrograph curve) | |
| Volume | 0.217 ac-ft |
| SCS Unit Hydrograph Parameters | |
| Time of Concentration (Composite) | 0.083 hours |
| Computational Time Increment | 0.011 hours |
| Unit Hydrograph Shape Factor | 483.432 |
| K Factor | 0.749 |
| Receding/Rising, Tr/Tp | 1.670 |

Pre Developed

Subsection: Unit Hydrograph Summary
Label: DA-1

Return Event: 1 years
Storm Event: 1 Year

| SCS Unit Hydrograph Parameters | |
|--------------------------------|--------------------------|
| Unit peak, qp | 21.58 ft ³ /s |
| Unit peak time, Tp | 0.056 hours |
| Unit receding limb, Tr | 0.222 hours |
| Total unit time, Tb | 0.278 hours |

Pre Developed

Subsection: Unit Hydrograph Summary
Label: DA-1

Return Event: 2 years
Storm Event: 2 Year

| | |
|---|-------------------------|
| Storm Event | 2 Year |
| Return Event | 2 years |
| Duration | 24.000 hours |
| Depth | 3.3 in |
| Time of Concentration (Composite) | 0.083 hours |
| Area (User Defined) | 1.587 acres |
| <hr/> | |
| Computational Time Increment | 0.011 hours |
| Time to Peak (Computed) | 12.100 hours |
| Flow (Peak, Computed) | 3.39 ft ³ /s |
| Output Increment | 0.050 hours |
| Time to Flow (Peak Interpolated Output) | 12.100 hours |
| Flow (Peak Interpolated Output) | 3.39 ft ³ /s |
| <hr/> | |
| Drainage Area | |
| SCS CN (Composite) | 88.000 |
| Area (User Defined) | 1.587 acres |
| Maximum Retention (Pervious) | 1.4 in |
| Maximum Retention (Pervious, 20 percent) | 0.3 in |
| <hr/> | |
| Cumulative Runoff | |
| Cumulative Runoff Depth (Pervious) | 2.1 in |
| Runoff Volume (Pervious) | 0.276 ac-ft |
| <hr/> | |
| Hydrograph Volume (Area under Hydrograph curve) | |
| Volume | 0.276 ac-ft |
| <hr/> | |
| SCS Unit Hydrograph Parameters | |
| Time of Concentration (Composite) | 0.083 hours |
| Computational Time Increment | 0.011 hours |
| Unit Hydrograph Shape Factor | 483.432 |
| K Factor | 0.749 |
| Receding/Rising, Tr/Tp | 1.670 |

Pre Developed

Subsection: Unit Hydrograph Summary
Label: DA-1

Return Event: 2 years
Storm Event: 2 Year

| SCS Unit Hydrograph Parameters | |
|--------------------------------|--------------------------|
| Unit peak, qp | 21.58 ft ³ /s |
| Unit peak time, Tp | 0.056 hours |
| Unit receding limb, Tr | 0.222 hours |
| Total unit time, Tb | 0.278 hours |

Pre Developed

Subsection: Unit Hydrograph Summary
Label: DA-1

Return Event: 10 years
Storm Event: 10 Year

| | |
|--|-------------------------|
| Storm Event | 10 Year |
| Return Event | 10 years |
| Duration | 24.000 hours |
| Depth | 5.0 in |
| Time of Concentration (Composite) | 0.083 hours |
| Area (User Defined) | 1.587 acres |
| <hr/> | |
| Computational Time Increment | 0.011 hours |
| Time to Peak (Computed) | 12.100 hours |
| Flow (Peak, Computed) | 5.80 ft ³ /s |
| Output Increment | 0.050 hours |
| Time to Flow (Peak Interpolated Output) | 12.100 hours |
| Flow (Peak Interpolated Output) | 5.80 ft ³ /s |
| <hr/> | |
| Drainage Area | |
| SCS CN (Composite) | 88.000 |
| Area (User Defined) | 1.587 acres |
| Maximum Retention (Pervious) | 1.4 in |
| Maximum Retention (Pervious, 20 percent) | 0.3 in |
| <hr/> | |
| Cumulative Runoff | |
| Cumulative Runoff Depth (Pervious) | 3.7 in |
| Runoff Volume (Pervious) | 0.485 ac-ft |
| <hr/> | |
| Hydrograph Volume (Area under Hydrograph curve) | |
| Volume | 0.485 ac-ft |
| <hr/> | |
| SCS Unit Hydrograph Parameters | |
| Time of Concentration (Composite) | 0.083 hours |
| Computational Time Increment | 0.011 hours |
| Unit Hydrograph Shape Factor | 483.432 |
| K Factor | 0.749 |
| Receding/Rising, Tr/Tp | 1.670 |

Pre Developed

Subsection: Unit Hydrograph Summary
Label: DA-1

Return Event: 10 years
Storm Event: 10 Year

| SCS Unit Hydrograph Parameters | |
|--------------------------------|--------------------------|
| Unit peak, qp | 21.58 ft ³ /s |
| Unit peak time, Tp | 0.056 hours |
| Unit receding limb, Tr | 0.222 hours |
| Total unit time, Tb | 0.278 hours |

Pre Developed

Subsection: Unit Hydrograph Summary
Label: DA-1

Return Event: 25 years
Storm Event: 25 Year

| | |
|---|-------------------------|
| Storm Event | 25 Year |
| Return Event | 25 years |
| Duration | 24.000 hours |
| Depth | 6.4 in |
| Time of Concentration (Composite) | 0.083 hours |
| Area (User Defined) | 1.587 acres |
| <hr/> | |
| Computational Time Increment | 0.011 hours |
| Time to Peak (Computed) | 12.100 hours |
| Flow (Peak, Computed) | 7.77 ft ³ /s |
| Output Increment | 0.050 hours |
| Time to Flow (Peak Interpolated Output) | 12.100 hours |
| Flow (Peak Interpolated Output) | 7.77 ft ³ /s |
| <hr/> | |
| Drainage Area | |
| SCS CN (Composite) | 88.000 |
| Area (User Defined) | 1.587 acres |
| Maximum Retention (Pervious) | 1.4 in |
| Maximum Retention (Pervious, 20 percent) | 0.3 in |
| <hr/> | |
| Cumulative Runoff | |
| Cumulative Runoff Depth (Pervious) | 5.0 in |
| Runoff Volume (Pervious) | 0.663 ac-ft |
| <hr/> | |
| Hydrograph Volume (Area under Hydrograph curve) | |
| Volume | 0.662 ac-ft |
| <hr/> | |
| SCS Unit Hydrograph Parameters | |
| Time of Concentration (Composite) | 0.083 hours |
| Computational Time Increment | 0.011 hours |
| Unit Hydrograph Shape Factor | 483.432 |
| K Factor | 0.749 |
| Receding/Rising, Tr/Tp | 1.670 |

Pre Developed

Subsection: Unit Hydrograph Summary
Label: DA-1

Return Event: 25 years
Storm Event: 25 Year

| SCS Unit Hydrograph Parameters | |
|--------------------------------|--------------------------|
| Unit peak, qp | 21.58 ft ³ /s |
| Unit peak time, Tp | 0.056 hours |
| Unit receding limb, Tr | 0.222 hours |
| Total unit time, Tb | 0.278 hours |

Pre Developed

Subsection: Unit Hydrograph Summary
Label: DA-1

Return Event: 100 years
Storm Event: 100 Year

| | |
|---|--------------------------|
| Storm Event | 100 Year |
| Return Event | 100 years |
| Duration | 24.000 hours |
| Depth | 9.0 in |
| Time of Concentration (Composite) | 0.083 hours |
| Area (User Defined) | 1.587 acres |
| Computational Time Increment | 0.011 hours |
| Time to Peak (Computed) | 12.100 hours |
| Flow (Peak, Computed) | 11.40 ft ³ /s |
| Output Increment | 0.050 hours |
| Time to Flow (Peak Interpolated Output) | 12.100 hours |
| Flow (Peak Interpolated Output) | 11.40 ft ³ /s |
| Drainage Area | |
| SCS CN (Composite) | 88.000 |
| Area (User Defined) | 1.587 acres |
| Maximum Retention (Pervious) | 1.4 in |
| Maximum Retention (Pervious, 20 percent) | 0.3 in |
| Cumulative Runoff | |
| Cumulative Runoff Depth (Pervious) | 7.5 in |
| Runoff Volume (Pervious) | 0.998 ac-ft |
| Hydrograph Volume (Area under Hydrograph curve) | |
| Volume | 0.998 ac-ft |
| SCS Unit Hydrograph Parameters | |
| Time of Concentration (Composite) | 0.083 hours |
| Computational Time Increment | 0.011 hours |
| Unit Hydrograph Shape Factor | 483.432 |
| K Factor | 0.749 |
| Receding/Rising, Tr/Tp | 1.670 |

Pre Developed

Subsection: Unit Hydrograph Summary
Label: DA-1

Return Event: 100 years
Storm Event: 100 Year

| SCS Unit Hydrograph Parameters | |
|--------------------------------|--------------------------|
| Unit peak, qp | 21.58 ft ³ /s |
| Unit peak time, Tp | 0.056 hours |
| Unit receding limb, Tr | 0.222 hours |
| Total unit time, Tb | 0.278 hours |

Pre Developed

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Post Developed

Project Summary

Title

Engineer

Company

Date

12/19/2017

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Post Developed

Subsection: Master Network Summary

Catchments Summary

| Label | Scenario | Return Event (years) | Hydrograph Volume (ac-ft) | Time to Peak (hours) | Peak Flow (ft ³ /s) |
|-------|---------------------------|----------------------|---------------------------|----------------------|--------------------------------|
| DA-1 | Post-Development 1-Year | 1 | 0.103 | 12.100 | 1.26 |
| DA-1 | Post-Development 2-Year | 2 | 0.129 | 12.100 | 1.55 |
| DA-1 | Post-Development 10-Year | 10 | 0.218 | 12.100 | 2.55 |
| DA-1 | Post-Development 25-Year | 25 | 0.293 | 12.100 | 3.35 |
| DA-1 | Post-Development 100-Year | 100 | 0.434 | 12.100 | 4.84 |
| DA-2 | Post-Development 1-Year | 1 | 0.127 | 12.100 | 1.58 |
| DA-2 | Post-Development 2-Year | 2 | 0.162 | 12.100 | 1.99 |
| DA-2 | Post-Development 10-Year | 10 | 0.284 | 12.100 | 3.40 |
| DA-2 | Post-Development 25-Year | 25 | 0.388 | 12.100 | 4.56 |
| DA-2 | Post-Development 100-Year | 100 | 0.585 | 12.100 | 6.68 |

Node Summary

| Label | Scenario | Return Event (years) | Hydrograph Volume (ac-ft) | Time to Peak (hours) | Peak Flow (ft ³ /s) |
|-------|---------------------------|----------------------|---------------------------|----------------------|--------------------------------|
| DL-1 | Post-Development 1-Year | 1 | 0.230 | 12.100 | 2.66 |
| DL-1 | Post-Development 2-Year | 2 | 0.290 | 12.100 | 3.34 |
| DL-1 | Post-Development 10-Year | 10 | 0.502 | 12.100 | 5.47 |
| DL-1 | Post-Development 25-Year | 25 | 0.681 | 12.100 | 7.21 |
| DL-1 | Post-Development 100-Year | 100 | 1.045 | 12.100 | 9.66 |

Pond Summary

| Label | Scenario | Return Event (years) | Hydrograph Volume (ac-ft) | Time to Peak (hours) | Peak Flow (ft ³ /s) | Maximum Water Surface Elevation (ft) | Maximum Pond Storage (ac-ft) |
|-------|----------|----------------------|---------------------------|----------------------|--------------------------------|--------------------------------------|------------------------------|
|-------|----------|----------------------|---------------------------|----------------------|--------------------------------|--------------------------------------|------------------------------|

Post Developed

Subsection: Master Network Summary

Pond Summary

| Label | Scenario | Return Event (years) | Hydrograph Volume (ac-ft) | Time to Peak (hours) | Peak Flow (ft ³ /s) | Maximum Water Surface Elevation (ft) | Maximum Pond Storage (ac-ft) |
|-----------------|---------------------------|----------------------|---------------------------|----------------------|--------------------------------|--------------------------------------|------------------------------|
| DETENTION (IN) | Post-Development 1-Year | 1 | 0.127 | 12.100 | 1.58 | (N/A) | (N/A) |
| DETENTION (OUT) | Post-Development 1-Year | 1 | 0.127 | 12.150 | 1.43 | 278.64 | 0.009 |
| DETENTION (IN) | Post-Development 2-Year | 2 | 0.162 | 12.100 | 1.99 | (N/A) | (N/A) |
| DETENTION (OUT) | Post-Development 2-Year | 2 | 0.161 | 12.150 | 1.81 | 278.77 | 0.011 |
| DETENTION (IN) | Post-Development 10-Year | 10 | 0.284 | 12.100 | 3.40 | (N/A) | (N/A) |
| DETENTION (OUT) | Post-Development 10-Year | 10 | 0.284 | 12.150 | 3.00 | 279.29 | 0.019 |
| DETENTION (IN) | Post-Development 25-Year | 25 | 0.388 | 12.100 | 4.56 | (N/A) | (N/A) |
| DETENTION (OUT) | Post-Development 25-Year | 25 | 0.388 | 12.150 | 3.98 | 279.81 | 0.027 |
| DETENTION (IN) | Post-Development 100-Year | 100 | 0.585 | 12.100 | 6.68 | (N/A) | (N/A) |
| DETENTION (OUT) | Post-Development 100-Year | 100 | 0.611 | 12.050 | 4.82 | 280.35 | 0.032 |

Post Developed

Subsection: Time-Depth Curve
 Label: Westchester County 1-100 2015

Return Event: 1 years
 Storm Event: 1 Year

Time-Depth Curve: 1 Year

| | |
|--------------|--------------|
| Label | 1 Year |
| Start Time | 0.000 hours |
| Increment | 0.100 hours |
| End Time | 24.000 hours |
| Return Event | 1 years |

CUMULATIVE RAINFALL (in)

Output Time Increment = 0.100 hours

Time on left represents time for first value in each row.

| Time (hours) | Depth (in) | Depth (in) | Depth (in) | Depth (in) | Depth (in) |
|-----------------|---------------|---------------|---------------|---------------|---------------|
| 0.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.500 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 1.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 1.500 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 |
| 2.000 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 2.500 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 3.000 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 3.500 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 4.000 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 4.500 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 |
| 5.000 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| 5.500 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| 6.000 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| 6.500 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| 7.000 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| 7.500 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| 8.000 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 |
| 8.500 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| 9.000 | 0.4 | 0.4 | 0.4 | 0.4 | 0.5 |
| 9.500 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 10.000 | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 |
| 10.500 | 0.6 | 0.6 | 0.6 | 0.7 | 0.7 |
| 11.000 | 0.7 | 0.7 | 0.7 | 0.8 | 0.8 |
| 11.500 | 0.8 | 0.9 | 1.0 | 1.0 | 1.2 |
| 12.000 | 1.4 | 1.6 | 1.8 | 1.8 | 1.9 |
| 12.500 | 2.0 | 2.0 | 2.0 | 2.1 | 2.1 |
| 13.000 | 2.1 | 2.1 | 2.1 | 2.2 | 2.2 |
| 13.500 | 2.2 | 2.2 | 2.2 | 2.2 | 2.3 |
| 14.000 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 |
| 14.500 | 2.3 | 2.3 | 2.4 | 2.4 | 2.4 |
| 15.000 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 |
| 15.500 | 2.4 | 2.4 | 2.5 | 2.5 | 2.5 |
| 16.000 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
| 16.500 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |

Post Developed

Subsection: Time-Depth Curve
 Label: Westchester County 1-100 2015

Return Event: 1 years
 Storm Event: 1 Year

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

| Time (hours) | Depth (in) | Depth (in) | Depth (in) | Depth (in) | Depth (in) |
|--------------|------------|------------|------------|------------|------------|
| 17.000 | 2.5 | 2.6 | 2.6 | 2.6 | 2.6 |
| 17.500 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 |
| 18.000 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 |
| 18.500 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 |
| 19.000 | 2.6 | 2.6 | 2.6 | 2.7 | 2.7 |
| 19.500 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 |
| 20.000 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 |
| 20.500 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 |
| 21.000 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 |
| 21.500 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 |
| 22.000 | 2.7 | 2.7 | 2.8 | 2.8 | 2.8 |
| 22.500 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 |
| 23.000 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 |
| 23.500 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 |
| 24.000 | 2.8 | (N/A) | (N/A) | (N/A) | (N/A) |

Post Developed

Subsection: Time-Depth Curve
 Label: Westchester County 1-100 2015

Return Event: 10 years
 Storm Event: 10 Year

| Time-Depth Curve: 10 Year | |
|---------------------------|--------------|
| Label | 10 Year |
| Start Time | 0.000 hours |
| Increment | 0.100 hours |
| End Time | 24.000 hours |
| Return Event | 10 years |

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

| Time (hours) | Depth (in) | Depth (in) | Depth (in) | Depth (in) | Depth (in) |
|-----------------|---------------|---------------|---------------|---------------|---------------|
| 0.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.500 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 1.000 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 |
| 1.500 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 2.000 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 2.500 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 3.000 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| 3.500 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| 4.000 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| 4.500 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 |
| 5.000 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| 5.500 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 |
| 6.000 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| 6.500 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| 7.000 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 7.500 | 0.5 | 0.5 | 0.5 | 0.5 | 0.6 |
| 8.000 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 8.500 | 0.6 | 0.7 | 0.7 | 0.7 | 0.7 |
| 9.000 | 0.7 | 0.7 | 0.8 | 0.8 | 0.8 |
| 9.500 | 0.8 | 0.9 | 0.9 | 0.9 | 0.9 |
| 10.000 | 0.9 | 1.0 | 1.0 | 1.0 | 1.1 |
| 10.500 | 1.1 | 1.1 | 1.1 | 1.2 | 1.2 |
| 11.000 | 1.2 | 1.3 | 1.3 | 1.4 | 1.4 |
| 11.500 | 1.5 | 1.6 | 1.7 | 1.9 | 2.1 |
| 12.000 | 2.5 | 2.9 | 3.1 | 3.3 | 3.4 |
| 12.500 | 3.5 | 3.6 | 3.6 | 3.7 | 3.7 |
| 13.000 | 3.7 | 3.8 | 3.8 | 3.9 | 3.9 |
| 13.500 | 3.9 | 3.9 | 4.0 | 4.0 | 4.0 |
| 14.000 | 4.1 | 4.1 | 4.1 | 4.1 | 4.1 |
| 14.500 | 4.2 | 4.2 | 4.2 | 4.2 | 4.3 |
| 15.000 | 4.3 | 4.3 | 4.3 | 4.3 | 4.3 |
| 15.500 | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 |
| 16.000 | 4.4 | 4.4 | 4.5 | 4.5 | 4.5 |
| 16.500 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |

Post Developed

Subsection: Time-Depth Curve
 Label: Westchester County 1-100 2015

Return Event: 10 years
 Storm Event: 10 Year

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

| Time (hours) | Depth (in) | Depth (in) | Depth (in) | Depth (in) | Depth (in) |
|--------------|------------|------------|------------|------------|------------|
| 17.000 | 4.5 | 4.6 | 4.6 | 4.6 | 4.6 |
| 17.500 | 4.6 | 4.6 | 4.6 | 4.6 | 4.6 |
| 18.000 | 4.6 | 4.6 | 4.7 | 4.7 | 4.7 |
| 18.500 | 4.7 | 4.7 | 4.7 | 4.7 | 4.7 |
| 19.000 | 4.7 | 4.7 | 4.7 | 4.7 | 4.7 |
| 19.500 | 4.8 | 4.8 | 4.8 | 4.8 | 4.8 |
| 20.000 | 4.8 | 4.8 | 4.8 | 4.8 | 4.8 |
| 20.500 | 4.8 | 4.8 | 4.8 | 4.8 | 4.8 |
| 21.000 | 4.8 | 4.9 | 4.9 | 4.9 | 4.9 |
| 21.500 | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 |
| 22.000 | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 |
| 22.500 | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 |
| 23.000 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| 23.500 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| 24.000 | 5.0 | (N/A) | (N/A) | (N/A) | (N/A) |

Post Developed

Subsection: Time-Depth Curve
 Label: Westchester County 1-100 2015

Return Event: 100 years
 Storm Event: 100 Year

| Time-Depth Curve: 100 Year | |
|----------------------------|--------------|
| Label | 100 Year |
| Start Time | 0.000 hours |
| Increment | 0.100 hours |
| End Time | 24.000 hours |
| Return Event | 100 years |

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

| Time (hours) | Depth (in) | Depth (in) | Depth (in) | Depth (in) | Depth (in) |
|-----------------|---------------|---------------|---------------|---------------|---------------|
| 0.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.500 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 |
| 1.000 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 1.500 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 |
| 2.000 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| 2.500 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 |
| 3.000 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| 3.500 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 |
| 4.000 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| 4.500 | 0.4 | 0.5 | 0.5 | 0.5 | 0.5 |
| 5.000 | 0.5 | 0.5 | 0.5 | 0.6 | 0.6 |
| 5.500 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 6.000 | 0.6 | 0.7 | 0.7 | 0.7 | 0.7 |
| 6.500 | 0.7 | 0.7 | 0.8 | 0.8 | 0.8 |
| 7.000 | 0.8 | 0.8 | 0.9 | 0.9 | 0.9 |
| 7.500 | 0.9 | 0.9 | 1.0 | 1.0 | 1.0 |
| 8.000 | 1.0 | 1.0 | 1.1 | 1.1 | 1.1 |
| 8.500 | 1.2 | 1.2 | 1.2 | 1.2 | 1.3 |
| 9.000 | 1.3 | 1.3 | 1.4 | 1.4 | 1.5 |
| 9.500 | 1.5 | 1.5 | 1.6 | 1.6 | 1.7 |
| 10.000 | 1.7 | 1.7 | 1.8 | 1.8 | 1.9 |
| 10.500 | 1.9 | 2.0 | 2.1 | 2.1 | 2.2 |
| 11.000 | 2.2 | 2.3 | 2.4 | 2.5 | 2.6 |
| 11.500 | 2.7 | 2.8 | 3.1 | 3.4 | 3.7 |
| 12.000 | 4.5 | 5.3 | 5.6 | 5.9 | 6.2 |
| 12.500 | 6.3 | 6.4 | 6.5 | 6.6 | 6.7 |
| 13.000 | 6.7 | 6.8 | 6.9 | 6.9 | 7.0 |
| 13.500 | 7.1 | 7.1 | 7.2 | 7.2 | 7.3 |
| 14.000 | 7.3 | 7.3 | 7.4 | 7.4 | 7.5 |
| 14.500 | 7.5 | 7.5 | 7.6 | 7.6 | 7.7 |
| 15.000 | 7.7 | 7.7 | 7.8 | 7.8 | 7.8 |
| 15.500 | 7.8 | 7.9 | 7.9 | 7.9 | 8.0 |
| 16.000 | 8.0 | 8.0 | 8.0 | 8.0 | 8.1 |
| 16.500 | 8.1 | 8.1 | 8.1 | 8.1 | 8.2 |

Post Developed

Subsection: Time-Depth Curve
 Label: Westchester County 1-100 2015

Return Event: 100 years
 Storm Event: 100 Year

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

| Time (hours) | Depth (in) | Depth (in) | Depth (in) | Depth (in) | Depth (in) |
|--------------|------------|------------|------------|------------|------------|
| 17.000 | 8.2 | 8.2 | 8.2 | 8.2 | 8.3 |
| 17.500 | 8.3 | 8.3 | 8.3 | 8.3 | 8.3 |
| 18.000 | 8.4 | 8.4 | 8.4 | 8.4 | 8.4 |
| 18.500 | 8.4 | 8.4 | 8.4 | 8.5 | 8.5 |
| 19.000 | 8.5 | 8.5 | 8.5 | 8.5 | 8.5 |
| 19.500 | 8.6 | 8.6 | 8.6 | 8.6 | 8.6 |
| 20.000 | 8.6 | 8.6 | 8.6 | 8.6 | 8.7 |
| 20.500 | 8.7 | 8.7 | 8.7 | 8.7 | 8.7 |
| 21.000 | 8.7 | 8.7 | 8.7 | 8.8 | 8.8 |
| 21.500 | 8.8 | 8.8 | 8.8 | 8.8 | 8.8 |
| 22.000 | 8.8 | 8.8 | 8.8 | 8.9 | 8.9 |
| 22.500 | 8.9 | 8.9 | 8.9 | 8.9 | 8.9 |
| 23.000 | 8.9 | 8.9 | 8.9 | 8.9 | 9.0 |
| 23.500 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 |
| 24.000 | 9.0 | (N/A) | (N/A) | (N/A) | (N/A) |

Post Developed

Subsection: Time-Depth Curve
 Label: Westchester County 1-100 2015

Return Event: 2 years
 Storm Event: 2 Year

Time-Depth Curve: 2 Year

| | |
|--------------|--------------|
| Label | 2 Year |
| Start Time | 0.000 hours |
| Increment | 0.100 hours |
| End Time | 24.000 hours |
| Return Event | 2 years |

CUMULATIVE RAINFALL (in)

Output Time Increment = 0.100 hours

Time on left represents time for first value in each row.

| Time (hours) | Depth (in) | Depth (in) | Depth (in) | Depth (in) | Depth (in) |
|-----------------|---------------|---------------|---------------|---------------|---------------|
| 0.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.500 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 1.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 1.500 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 |
| 2.000 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 2.500 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 3.000 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 3.500 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 4.000 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 |
| 4.500 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| 5.000 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| 5.500 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| 6.000 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 |
| 6.500 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| 7.000 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| 7.500 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 |
| 8.000 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| 8.500 | 0.4 | 0.4 | 0.4 | 0.5 | 0.5 |
| 9.000 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 9.500 | 0.5 | 0.6 | 0.6 | 0.6 | 0.6 |
| 10.000 | 0.6 | 0.6 | 0.7 | 0.7 | 0.7 |
| 10.500 | 0.7 | 0.7 | 0.8 | 0.8 | 0.8 |
| 11.000 | 0.8 | 0.9 | 0.9 | 0.9 | 0.9 |
| 11.500 | 1.0 | 1.0 | 1.1 | 1.2 | 1.4 |
| 12.000 | 1.6 | 1.9 | 2.1 | 2.2 | 2.3 |
| 12.500 | 2.3 | 2.4 | 2.4 | 2.4 | 2.4 |
| 13.000 | 2.5 | 2.5 | 2.5 | 2.5 | 2.6 |
| 13.500 | 2.6 | 2.6 | 2.6 | 2.6 | 2.7 |
| 14.000 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 |
| 14.500 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 |
| 15.000 | 2.8 | 2.8 | 2.8 | 2.9 | 2.9 |
| 15.500 | 2.9 | 2.9 | 2.9 | 2.9 | 2.9 |
| 16.000 | 2.9 | 2.9 | 2.9 | 2.9 | 3.0 |
| 16.500 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |

Post Developed

Subsection: Time-Depth Curve
 Label: Westchester County 1-100 2015

Return Event: 2 years
 Storm Event: 2 Year

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

| Time (hours) | Depth (in) | Depth (in) | Depth (in) | Depth (in) | Depth (in) |
|--------------|------------|------------|------------|------------|------------|
| 17.000 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| 17.500 | 3.0 | 3.0 | 3.0 | 3.1 | 3.1 |
| 18.000 | 3.1 | 3.1 | 3.1 | 3.1 | 3.1 |
| 18.500 | 3.1 | 3.1 | 3.1 | 3.1 | 3.1 |
| 19.000 | 3.1 | 3.1 | 3.1 | 3.1 | 3.1 |
| 19.500 | 3.1 | 3.1 | 3.1 | 3.1 | 3.2 |
| 20.000 | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 |
| 20.500 | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 |
| 21.000 | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 |
| 21.500 | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 |
| 22.000 | 3.2 | 3.2 | 3.2 | 3.2 | 3.3 |
| 22.500 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 |
| 23.000 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 |
| 23.500 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 |
| 24.000 | 3.3 | (N/A) | (N/A) | (N/A) | (N/A) |

Post Developed

Subsection: Time-Depth Curve
 Label: Westchester County 1-100 2015

Return Event: 25 years
 Storm Event: 25 Year

| Time-Depth Curve: 25 Year | |
|---------------------------|--------------|
| Label | 25 Year |
| Start Time | 0.000 hours |
| Increment | 0.100 hours |
| End Time | 24.000 hours |
| Return Event | 25 years |

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

| Time (hours) | Depth (in) | Depth (in) | Depth (in) | Depth (in) | Depth (in) |
|-----------------|---------------|---------------|---------------|---------------|---------------|
| 0.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.500 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 |
| 1.000 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 1.500 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 2.000 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 |
| 2.500 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| 3.000 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| 3.500 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 |
| 4.000 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| 4.500 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 |
| 5.000 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| 5.500 | 0.4 | 0.4 | 0.4 | 0.4 | 0.5 |
| 6.000 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| 6.500 | 0.5 | 0.5 | 0.5 | 0.6 | 0.6 |
| 7.000 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 7.500 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 |
| 8.000 | 0.7 | 0.7 | 0.8 | 0.8 | 0.8 |
| 8.500 | 0.8 | 0.8 | 0.9 | 0.9 | 0.9 |
| 9.000 | 0.9 | 1.0 | 1.0 | 1.0 | 1.0 |
| 9.500 | 1.1 | 1.1 | 1.1 | 1.1 | 1.2 |
| 10.000 | 1.2 | 1.2 | 1.3 | 1.3 | 1.3 |
| 10.500 | 1.4 | 1.4 | 1.5 | 1.5 | 1.6 |
| 11.000 | 1.6 | 1.6 | 1.7 | 1.8 | 1.8 |
| 11.500 | 1.9 | 2.0 | 2.2 | 2.4 | 2.7 |
| 12.000 | 3.2 | 3.7 | 4.0 | 4.2 | 4.4 |
| 12.500 | 4.5 | 4.6 | 4.6 | 4.7 | 4.8 |
| 13.000 | 4.8 | 4.8 | 4.9 | 4.9 | 5.0 |
| 13.500 | 5.0 | 5.1 | 5.1 | 5.1 | 5.2 |
| 14.000 | 5.2 | 5.2 | 5.3 | 5.3 | 5.3 |
| 14.500 | 5.3 | 5.4 | 5.4 | 5.4 | 5.4 |
| 15.000 | 5.5 | 5.5 | 5.5 | 5.5 | 5.6 |
| 15.500 | 5.6 | 5.6 | 5.6 | 5.6 | 5.7 |
| 16.000 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| 16.500 | 5.7 | 5.8 | 5.8 | 5.8 | 5.8 |

Post Developed

Subsection: Time-Depth Curve
 Label: Westchester County 1-100 2015

Return Event: 25 years
 Storm Event: 25 Year

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

| Time (hours) | Depth (in) | Depth (in) | Depth (in) | Depth (in) | Depth (in) |
|--------------|------------|------------|------------|------------|------------|
| 17.000 | 5.8 | 5.8 | 5.8 | 5.9 | 5.9 |
| 17.500 | 5.9 | 5.9 | 5.9 | 5.9 | 5.9 |
| 18.000 | 5.9 | 5.9 | 6.0 | 6.0 | 6.0 |
| 18.500 | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 |
| 19.000 | 6.0 | 6.0 | 6.1 | 6.1 | 6.1 |
| 19.500 | 6.1 | 6.1 | 6.1 | 6.1 | 6.1 |
| 20.000 | 6.1 | 6.1 | 6.1 | 6.1 | 6.2 |
| 20.500 | 6.2 | 6.2 | 6.2 | 6.2 | 6.2 |
| 21.000 | 6.2 | 6.2 | 6.2 | 6.2 | 6.2 |
| 21.500 | 6.2 | 6.2 | 6.3 | 6.3 | 6.3 |
| 22.000 | 6.3 | 6.3 | 6.3 | 6.3 | 6.3 |
| 22.500 | 6.3 | 6.3 | 6.3 | 6.3 | 6.3 |
| 23.000 | 6.3 | 6.3 | 6.4 | 6.4 | 6.4 |
| 23.500 | 6.4 | 6.4 | 6.4 | 6.4 | 6.4 |
| 24.000 | 6.4 | (N/A) | (N/A) | (N/A) | (N/A) |

Post Developed

Subsection: Time of Concentration Calculations
Label: DA-1

Return Event: 1 years
Storm Event: 1 Year

Time of Concentration Results

| Segment #1: TR-55 Sheet Flow | |
|-------------------------------|-------------|
| Hydraulic Length | 30.00 ft |
| Manning's n | 0.030 |
| Slope | 0.125 ft/ft |
| 2 Year 24 Hour Depth | 3.3 in |
| Average Velocity | 1.02 ft/s |
| Segment Time of Concentration | 0.008 hours |

| Segment #2: TR-55 Shallow Concentrated Flow | |
|---|-------------|
| Hydraulic Length | 21.00 ft |
| Is Paved? | False |
| Slope | 0.202 ft/ft |
| Average Velocity | 7.25 ft/s |
| Segment Time of Concentration | 0.001 hours |

| Segment #3: TR-55 Shallow Concentrated Flow | |
|---|-------------|
| Hydraulic Length | 52.00 ft |
| Is Paved? | True |
| Slope | 0.038 ft/ft |
| Average Velocity | 3.96 ft/s |
| Segment Time of Concentration | 0.004 hours |

| Segment #4: TR-55 Shallow Concentrated Flow | |
|---|-------------|
| Hydraulic Length | 11.00 ft |
| Is Paved? | False |
| Slope | 0.181 ft/ft |
| Average Velocity | 6.86 ft/s |
| Segment Time of Concentration | 0.000 hours |

| Segment #5: TR-55 Shallow Concentrated Flow | |
|---|-------------|
| Hydraulic Length | 16.00 ft |
| Is Paved? | True |
| Slope | 0.250 ft/ft |
| Average Velocity | 10.16 ft/s |
| Segment Time of Concentration | 0.000 hours |

| Segment #6: TR-55 Shallow Concentrated Flow | |
|---|--|
|---|--|

Post Developed

Subsection: Time of Concentration Calculations
Label: DA-1

Return Event: 1 years
Storm Event: 1 Year

| | |
|---|-------------|
| Hydraulic Length | 24.00 ft |
| Is Paved? | False |
| Slope | 0.083 ft/ft |
| Average Velocity | 4.65 ft/s |
| Segment Time of Concentration | 0.001 hours |
| Segment #7: TR-55 Shallow Concentrated Flow | |
| Hydraulic Length | 51.00 ft |
| Is Paved? | False |
| Slope | 0.314 ft/ft |
| Average Velocity | 9.04 ft/s |
| Segment Time of Concentration | 0.002 hours |
| Segment #8: TR-55 Shallow Concentrated Flow | |
| Hydraulic Length | 16.00 ft |
| Is Paved? | False |
| Slope | 1.875 ft/ft |
| Average Velocity | 22.09 ft/s |
| Segment Time of Concentration | 0.000 hours |
| Segment #9: TR-55 Shallow Concentrated Flow | |
| Hydraulic Length | 1.00 ft |
| Is Paved? | False |
| Slope | 7.250 ft/ft |
| Average Velocity | 43.44 ft/s |
| Segment Time of Concentration | 0.000 hours |
| Segment #10: TR-55 Shallow Concentrated Flow | |
| Hydraulic Length | 80.00 ft |
| Is Paved? | False |
| Slope | 0.047 ft/ft |
| Average Velocity | 3.50 ft/s |
| Segment Time of Concentration | 0.006 hours |
| Time of Concentration (Composite) | |
| Time of Concentration (Composite) | 0.083 hours |

Post Developed

Subsection: Time of Concentration Calculations
Label: DA-1

Return Event: 1 years
Storm Event: 1 Year

==== SCS Channel Flow

$$T_c = \frac{R = Q_a / W_p}{V = (1.49 * (R^{2/3}) * (S_f^{-0.5})) / n}$$

Where: $(L_f / V) / 3600$
R= Hydraulic radius
A_q= Flow area, square feet
W_p= Wetted perimeter, feet
V= Velocity, ft/sec
S_f= Slope, ft/ft
n= Manning's n
T_c= Time of concentration, hours
L_f= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

$$T_c = \frac{\text{Unpaved surface:}}{V = 16.1345 * (S_f^{0.5})}$$

$$\text{Paved Surface:}$$
$$V = 20.3282 * (S_f^{0.5})$$

Where: $(L_f / V) / 3600$
V= Velocity, ft/sec
S_f= Slope, ft/ft
T_c= Time of concentration, hours
L_f= Flow length, feet

Post Developed

Subsection: Runoff CN-Area
Label: DA-1

Return Event: 1 years
Storm Event: 1 Year

Runoff Curve Number Data

| Soil/Surface Description | CN | Area (acres) | C (%) | UC (%) | Adjusted CN |
|---|--------|-----------------|----------|-----------|-------------|
| Open space (Lawns,parks etc.) - Fair condition; grass cover 50% to 75% - Soil D | 84.000 | 0.345 | 0.0 | 0.0 | 84.000 |
| Impervious Areas - Paved parking lots, roofs, driveways, Streets and roads - Soil D | 98.000 | 0.313 | 0.0 | 0.0 | 98.000 |
| COMPOSITE AREA & WEIGHTED CN ---> | (N/A) | 0.658 | (N/A) | (N/A) | 90.660 |

Post Developed

Subsection: Runoff CN-Area
Label: DA-2

Return Event: 1 years
Storm Event: 1 Year

Runoff Curve Number Data

| Soil/Surface Description | CN | Area (acres) | C (%) | UC (%) | Adjusted CN |
|---|--------|-----------------|----------|-----------|-------------|
| Open space (Lawns,parks etc.) - Fair condition; grass cover 50% to 75% - Soil D | 84.000 | 0.695 | 0.0 | 0.0 | 84.000 |
| Impervious Areas - Paved parking lots, roofs, driveways, Streets and roads - Soil D | 98.000 | 0.235 | 0.0 | 0.0 | 98.000 |
| COMPOSITE AREA & WEIGHTED CN ---> | (N/A) | 0.930 | (N/A) | (N/A) | 87.538 |

Post Developed

Subsection: Unit Hydrograph Equations

Unit Hydrograph Method (Computational Notes)

Definition of Terms

| | |
|--------|--|
| At | Total area (acres): $A_t = A_i + A_p$ |
| Ai | Impervious area (acres) |
| Ap | Pervious area (acres) |
| CNi | Runoff curve number for impervious area |
| CNp | Runoff curve number for pervious area |
| fLoss | f loss constant infiltration (depth/time) |
| gKs | Saturated Hydraulic Conductivity (depth/time) |
| Md | Volumetric Moisture Deficit |
| Psi | Capillary Suction (length) |
| hK | Horton Infiltration Decay Rate (time^{-1}) |
| fo | Initial Infiltration Rate (depth/time) |
| fc | Ultimate(capacity)Infiltration Rate (depth/time) |
| Ia | Initial Abstraction (length) |
| dt | Computational increment (duration of unit excess rainfall) Default dt is smallest value of $0.1333T_c$, r_{tm} , and t_h (Smallest dt is then adjusted to match up with T_p) |
| UDdt | User specified override computational main time increment (only used if UDdt is $\Rightarrow .1333T_c$) |
| D(t) | Point on distribution curve (fraction of P) for time step t |
| K | $2 / (1 + (T_r/T_p))$: default $K = 0.75$: (for $T_r/T_p = 1.67$) |
| Ks | Hydrograph shape factor = Unit Conversions * $K = ((1\text{hr}/3600\text{sec}) * (1\text{ft}/12\text{in}) * ((5280\text{ft})^2/\text{sq.mi})) * K$ Default $K_s = 645.333 * 0.75 = 484$ |
| Lag | Lag time from center of excess runoff (dt) to T_p : $\text{Lag} = 0.6T_c$ |
| P | Total precipitation depth, inches |
| Pa(t) | Accumulated rainfall at time step t |
| Pi(t) | Incremental rainfall at time step t |
| qp | Peak discharge (cfs) for 1in. runoff, for 1 hr, for 1 sq.mi. = $(K_s * A * Q) / T_p$ (where $Q = 1\text{in. runoff}$, $A = \text{sq.mi.}$) |
| Qu(t) | Unit hydrograph ordinate (cfs) at time step t |
| Q(t) | Final hydrograph ordinate (cfs) at time step t |
| Ral(t) | Accumulated runoff (inches) at time step t for impervious area |
| Rap(t) | Accumulated runoff (inches) at time step t for pervious area |
| Rii(t) | Incremental runoff (inches) at time step t for impervious area |
| Rip(t) | Incremental runoff (inches) at time step t for pervious area |
| R(t) | Incremental weighted total runoff (inches) |
| Rtm | Time increment for rainfall table |
| Si | S for impervious area: $S_i = (1000/CN_i) - 10$ |
| Sp | S for pervious area: $S_p = (1000/CN_p) - 10$ |
| t | Time step (row) number |
| Tc | Time of concentration |
| Tb | Time (hrs) of entire unit hydrograph: $T_b = T_p + T_r$ |
| Tp | Time (hrs) to peak of a unit hydrograph: $T_p = (dt/2) + \text{Lag}$ |
| Tr | Time (hrs) of receding limb of unit hydrograph: $T_r = \text{ratio of } T_p$ |

Post Developed

Subsection: Unit Hydrograph Equations

Unit Hydrograph Method

Computational Notes

Precipitation

| | |
|------------|---|
| Column (1) | Time for time step t |
| Column (2) | $D(t)$ = Point on distribution curve for time step t |
| Column (3) | $PI(t) = Pa(t) - Pa(t-1)$: Col.(4) - Preceding Col.(4) |
| Column (4) | $Pa(t) = D(t) \times P$: Col.(2) \times P |

Pervious Area Runoff (using SCS Runoff CN Method)

| | |
|------------|--|
| Column (5) | $Rap(t)$ = Accumulated pervious runoff for time step t If $(Pa(t))$ is $\leq 0.2Sp$ then use: $Rap(t) = 0.0$ If $(Pa(t))$ is $> 0.2Sp$ then use: $Rap(t) = (Col.(4) - 0.2Sp) * 2 / (Col.(4) + 0.8Sp)$ |
| Column (6) | $Rip(t)$ = Incremental pervious runoff for time step t $Rip(t) = Rap(t) - Rap(t-1)$ $Rip(t) = Col.(5)$ for current row - $Col.(5)$ for preceding row. |

Impervious Area Runoff

Column (7 & 8)... Did not specify to use impervious areas.

Incremental Weighted Runoff

| | |
|------------|--|
| Column (9) | $R(t) = (Ap/At) \times Rip(t) + (Ai/At) \times Rii(t)$ $R(t) = (Ap/At) \times Col.(6) + (Ai/At) \times Col.(8)$ |
|------------|--|

SCS Unit Hydrograph Method

Column (10) $Q(t)$ is computed with the SCS unit hydrograph method using $R(t)$ and $Qu(t)$.

Post Developed

Subsection: Unit Hydrograph Summary
Label: DA-1

Return Event: 1 years
Storm Event: 1 Year

| | |
|--|-------------------------|
| Storm Event | 1 Year |
| Return Event | 1 years |
| Duration | 24.000 hours |
| Depth | 2.8 in |
| Time of Concentration (Composite) | 0.083 hours |
| Area (User Defined) | 0.658 acres |
| Computational Time | |
| Increment | 0.011 hours |
| Time to Peak (Computed) | 12.100 hours |
| Flow (Peak, Computed) | 1.26 ft ³ /s |
| Output Increment | 0.050 hours |
| Time to Flow (Peak Interpolated Output) | 12.100 hours |
| Flow (Peak Interpolated Output) | 1.26 ft ³ /s |
| Drainage Area | |
| SCS CN (Composite) | 91.000 |
| Area (User Defined) | 0.658 acres |
| Maximum Retention (Pervious) | 1.0 in |
| Maximum Retention (Pervious, 20 percent) | 0.2 in |
| Cumulative Runoff | |
| Cumulative Runoff Depth (Pervious) | 1.9 in |
| Runoff Volume (Pervious) | 0.103 ac-ft |
| Hydrograph Volume (Area under Hydrograph curve) | |
| Volume | 0.103 ac-ft |
| SCS Unit Hydrograph Parameters | |
| Time of Concentration (Composite) | 0.083 hours |
| Computational Time Increment | 0.011 hours |
| Unit Hydrograph Shape Factor | 483.432 |
| K Factor | 0.749 |
| Receding/Rising, Tr/Tp | 1.670 |

Post Developed

Subsection: Unit Hydrograph Summary
Label: DA-1

Return Event: 1 years
Storm Event: 1 Year

SCS Unit Hydrograph Parameters

| | |
|------------------------|-------------------------|
| Unit peak, qp | 8.95 ft ³ /s |
| Unit peak time, Tp | 0.056 hours |
| Unit receding limb, Tr | 0.222 hours |
| Total unit time, Tb | 0.278 hours |

Post Developed

Subsection: Unit Hydrograph Summary
Label: DA-1

Return Event: 2 years
Storm Event: 2 Year

| | |
|---|-------------------------|
| Storm Event | 2 Year |
| Return Event | 2 years |
| Duration | 24.000 hours |
| Depth | 3.3 in |
| Time of Concentration (Composite) | 0.083 hours |
| Area (User Defined) | 0.658 acres |
| <hr/> | |
| Computational Time Increment | 0.011 hours |
| Time to Peak (Computed) | 12.100 hours |
| Flow (Peak, Computed) | 1.55 ft ³ /s |
| Output Increment | 0.050 hours |
| Time to Flow (Peak Interpolated Output) | 12.100 hours |
| Flow (Peak Interpolated Output) | 1.55 ft ³ /s |
| <hr/> | |
| Drainage Area | |
| SCS CN (Composite) | 91.000 |
| Area (User Defined) | 0.658 acres |
| Maximum Retention (Pervious) | 1.0 in |
| Maximum Retention (Pervious, 20 percent) | 0.2 in |
| <hr/> | |
| Cumulative Runoff | |
| Cumulative Runoff Depth (Pervious) | 2.4 in |
| Runoff Volume (Pervious) | 0.129 ac-ft |
| <hr/> | |
| Hydrograph Volume (Area under Hydrograph curve) | |
| Volume | 0.129 ac-ft |
| <hr/> | |
| SCS Unit Hydrograph Parameters | |
| Time of Concentration (Composite) | 0.083 hours |
| Computational Time Increment | 0.011 hours |
| Unit Hydrograph Shape Factor | 483.432 |
| K Factor | 0.749 |
| Receding/Rising, Tr/Tp | 1.670 |

Post Developed

Subsection: Unit Hydrograph Summary
Label: DA-1

Return Event: 2 years
Storm Event: 2 Year

| SCS Unit Hydrograph Parameters | |
|--------------------------------|-------------------------|
| Unit peak, qp | 8.95 ft ³ /s |
| Unit peak time, Tp | 0.056 hours |
| Unit receding limb, Tr | 0.222 hours |
| Total unit time, Tb | 0.278 hours |

Post Developed

Subsection: Unit Hydrograph Summary
Label: DA-1

Return Event: 10 years
Storm Event: 10 Year

| | |
|---|-------------------------|
| Storm Event | 10 Year |
| Return Event | 10 years |
| Duration | 24.000 hours |
| Depth | 5.0 in |
| Time of Concentration (Composite) | 0.083 hours |
| Area (User Defined) | 0.658 acres |
| <hr/> | |
| Computational Time Increment | 0.011 hours |
| Time to Peak (Computed) | 12.100 hours |
| Flow (Peak, Computed) | 2.55 ft ³ /s |
| Output Increment | 0.050 hours |
| Time to Flow (Peak Interpolated Output) | 12.100 hours |
| Flow (Peak Interpolated Output) | 2.55 ft ³ /s |
| <hr/> | |
| Drainage Area | |
| SCS CN (Composite) | 91.000 |
| Area (User Defined) | 0.658 acres |
| Maximum Retention (Pervious) | 1.0 in |
| Maximum Retention (Pervious, 20 percent) | 0.2 in |
| <hr/> | |
| Cumulative Runoff | |
| Cumulative Runoff Depth (Pervious) | 4.0 in |
| Runoff Volume (Pervious) | 0.218 ac-ft |
| <hr/> | |
| Hydrograph Volume (Area under Hydrograph curve) | |
| Volume | 0.218 ac-ft |
| <hr/> | |
| SCS Unit Hydrograph Parameters | |
| Time of Concentration (Composite) | 0.083 hours |
| Computational Time Increment | 0.011 hours |
| Unit Hydrograph Shape Factor | 483.432 |
| K Factor | 0.749 |
| Receding/Rising, Tr/Tp | 1.670 |

Post Developed

Subsection: Unit Hydrograph Summary
Label: DA-1

Return Event: 10 years
Storm Event: 10 Year

SCS Unit Hydrograph Parameters

| | |
|------------------------|-------------------------|
| Unit peak, qp | 8.95 ft ³ /s |
| Unit peak time, Tp | 0.056 hours |
| Unit receding limb, Tr | 0.222 hours |
| Total unit time, Tb | 0.278 hours |

Post Developed

Subsection: Unit Hydrograph Summary
Label: DA-1

Return Event: 25 years
Storm Event: 25 Year

| | |
|---|-------------------------|
| Storm Event | 25 Year |
| Return Event | 25 years |
| Duration | 24.000 hours |
| Depth | 6.4 in |
| Time of Concentration (Composite) | 0.083 hours |
| Area (User Defined) | 0.658 acres |
| <hr/> | |
| Computational Time Increment | 0.011 hours |
| Time to Peak (Computed) | 12.100 hours |
| Flow (Peak, Computed) | 3.35 ft ³ /s |
| Output Increment | 0.050 hours |
| Time to Flow (Peak Interpolated Output) | 12.100 hours |
| Flow (Peak Interpolated Output) | 3.35 ft ³ /s |
| <hr/> | |
| Drainage Area | |
| SCS CN (Composite) | 91.000 |
| Area (User Defined) | 0.658 acres |
| Maximum Retention (Pervious) | 1.0 in |
| Maximum Retention (Pervious, 20 percent) | 0.2 in |
| <hr/> | |
| Cumulative Runoff | |
| Cumulative Runoff Depth (Pervious) | 5.3 in |
| Runoff Volume (Pervious) | 0.293 ac-ft |
| <hr/> | |
| Hydrograph Volume (Area under Hydrograph curve) | |
| Volume | 0.293 ac-ft |
| <hr/> | |
| SCS Unit Hydrograph Parameters | |
| Time of Concentration (Composite) | 0.083 hours |
| Computational Time Increment | 0.011 hours |
| Unit Hydrograph Shape Factor | 483.432 |
| K Factor | 0.749 |
| Receding/Rising, Tr/Tp | 1.670 |

Post Developed

Subsection: Unit Hydrograph Summary
Label: DA-1

Return Event: 25 years
Storm Event: 25 Year

| SCS Unit Hydrograph Parameters | |
|--------------------------------|-------------------------|
| Unit peak, qp | 8.95 ft ³ /s |
| Unit peak time, Tp | 0.056 hours |
| Unit receding limb, Tr | 0.222 hours |
| Total unit time, Tb | 0.278 hours |

Post Developed

Subsection: Unit Hydrograph Summary
Label: DA-1

Return Event: 100 years
Storm Event: 100 Year

| | |
|---|-------------------------|
| Storm Event | 100 Year |
| Return Event | 100 years |
| Duration | 24.000 hours |
| Depth | 9.0 in |
| Time of Concentration (Composite) | 0.083 hours |
| Area (User Defined) | 0.658 acres |
| Computational Time Increment | 0.011 hours |
| Time to Peak (Computed) | 12.100 hours |
| Flow (Peak, Computed) | 4.84 ft ³ /s |
| Output Increment | 0.050 hours |
| Time to Flow (Peak Interpolated Output) | 12.100 hours |
| Flow (Peak Interpolated Output) | 4.84 ft ³ /s |
| Drainage Area | |
| SCS CN (Composite) | 91.000 |
| Area (User Defined) | 0.658 acres |
| Maximum Retention (Pervious) | 1.0 in |
| Maximum Retention (Pervious, 20 percent) | 0.2 in |
| Cumulative Runoff | |
| Cumulative Runoff Depth (Pervious) | 7.9 in |
| Runoff Volume (Pervious) | 0.434 ac-ft |
| Hydrograph Volume (Area under Hydrograph curve) | |
| Volume | 0.434 ac-ft |
| SCS Unit Hydrograph Parameters | |
| Time of Concentration (Composite) | 0.083 hours |
| Computational Time Increment | 0.011 hours |
| Unit Hydrograph Shape Factor | 483.432 |
| K Factor | 0.749 |
| Receding/Rising, Tr/Tp | 1.670 |

Post Developed

Subsection: Unit Hydrograph Summary
Label: DA-1

Return Event: 100 years
Storm Event: 100 Year

| SCS Unit Hydrograph Parameters | |
|--------------------------------|-------------------------|
| Unit peak, qp | 8.95 ft ³ /s |
| Unit peak time, Tp | 0.056 hours |
| Unit receding limb, Tr | 0.222 hours |
| Total unit time, Tb | 0.278 hours |

Post Developed

Subsection: Unit Hydrograph Summary
Label: DA-2

Return Event: 1 years
Storm Event: 1 Year

| | |
|---|-------------------------|
| Storm Event | 1 Year |
| Return Event | 1 years |
| Duration | 24.000 hours |
| Depth | 2.8 in |
| Time of Concentration (Composite) | 0.083 hours |
| Area (User Defined) | 0.930 acres |
| <hr/> | |
| Computational Time Increment | 0.011 hours |
| Time to Peak (Computed) | 12.111 hours |
| Flow (Peak, Computed) | 1.58 ft ³ /s |
| Output Increment | 0.050 hours |
| Time to Flow (Peak Interpolated Output) | 12.100 hours |
| Flow (Peak Interpolated Output) | 1.58 ft ³ /s |
| <hr/> | |
| Drainage Area | |
| SCS CN (Composite) | 88.000 |
| Area (User Defined) | 0.930 acres |
| Maximum Retention (Pervious) | 1.4 in |
| Maximum Retention (Pervious, 20 percent) | 0.3 in |
| <hr/> | |
| Cumulative Runoff | |
| Cumulative Runoff Depth (Pervious) | 1.6 in |
| Runoff Volume (Pervious) | 0.127 ac-ft |
| <hr/> | |
| Hydrograph Volume (Area under Hydrograph curve) | |
| Volume | 0.127 ac-ft |
| <hr/> | |
| SCS Unit Hydrograph Parameters | |
| Time of Concentration (Composite) | 0.083 hours |
| Computational Time Increment | 0.011 hours |
| Unit Hydrograph Shape Factor | 483.432 |
| K Factor | 0.749 |
| Receding/Rising, Tr/Tp | 1.670 |

Post Developed

Subsection: Unit Hydrograph Summary
Label: DA-2

Return Event: 1 years
Storm Event: 1 Year

SCS Unit Hydrograph Parameters

| | |
|------------------------|--------------------------|
| Unit peak, qp | 12.64 ft ³ /s |
| Unit peak time, Tp | 0.056 hours |
| Unit receding limb, Tr | 0.222 hours |
| Total unit time, Tb | 0.278 hours |

Post Developed

Subsection: Unit Hydrograph Summary
Label: DA-2

Return Event: 2 years
Storm Event: 2 Year

| | |
|--|-------------------------|
| Storm Event | 2 Year |
| Return Event | 2 years |
| Duration | 24.000 hours |
| Depth | 3.3 in |
| Time of Concentration (Composite) | 0.083 hours |
| Area (User Defined) | 0.930 acres |
| <hr/> | |
| Computational Time Increment | 0.011 hours |
| Time to Peak (Computed) | 12.100 hours |
| Flow (Peak, Computed) | 1.99 ft ³ /s |
| Output Increment | 0.050 hours |
| Time to Flow (Peak Interpolated Output) | 12.100 hours |
| Flow (Peak Interpolated Output) | 1.99 ft ³ /s |
| <hr/> | |
| Drainage Area | |
| SCS CN (Composite) | 88.000 |
| Area (User Defined) | 0.930 acres |
| Maximum Retention (Pervious) | 1.4 in |
| Maximum Retention (Pervious, 20 percent) | 0.3 in |
| <hr/> | |
| Cumulative Runoff | |
| Cumulative Runoff Depth (Pervious) | 2.1 in |
| Runoff Volume (Pervious) | 0.162 ac-ft |
| <hr/> | |
| Hydrograph Volume (Area under Hydrograph curve) | |
| Volume | 0.162 ac-ft |
| <hr/> | |
| SCS Unit Hydrograph Parameters | |
| Time of Concentration (Composite) | 0.083 hours |
| Computational Time Increment | 0.011 hours |
| Unit Hydrograph Shape Factor | 483.432 |
| K Factor | 0.749 |
| Receding/Rising, Tr/Tp | 1.670 |

Post Developed

Subsection: Unit Hydrograph Summary
Label: DA-2

Return Event: 2 years
Storm Event: 2 Year

| SCS Unit Hydrograph Parameters | |
|--------------------------------|--------------------------|
| Unit peak, qp | 12.64 ft ³ /s |
| Unit peak time, Tp | 0.056 hours |
| Unit receding limb, Tr | 0.222 hours |
| Total unit time, Tb | 0.278 hours |

Post Developed

Subsection: Unit Hydrograph Summary
Label: DA-2

Return Event: 10 years
Storm Event: 10 Year

| | |
|---|-------------------------|
| Storm Event | 10 Year |
| Return Event | 10 years |
| Duration | 24.000 hours |
| Depth | 5.0 in |
| Time of Concentration (Composite) | 0.083 hours |
| Area (User Defined) | 0.930 acres |
| <hr/> | |
| Computational Time Increment | 0.011 hours |
| Time to Peak (Computed) | 12.100 hours |
| Flow (Peak, Computed) | 3.40 ft ³ /s |
| Output Increment | 0.050 hours |
| Time to Flow (Peak Interpolated Output) | 12.100 hours |
| Flow (Peak Interpolated Output) | 3.40 ft ³ /s |
| <hr/> | |
| Drainage Area | |
| SCS CN (Composite) | 88.000 |
| Area (User Defined) | 0.930 acres |
| Maximum Retention (Pervious) | 1.4 in |
| Maximum Retention (Pervious, 20 percent) | 0.3 in |
| <hr/> | |
| Cumulative Runoff | |
| Cumulative Runoff Depth (Pervious) | 3.7 in |
| Runoff Volume (Pervious) | 0.284 ac-ft |
| <hr/> | |
| Hydrograph Volume (Area under Hydrograph curve) | |
| Volume | 0.284 ac-ft |
| <hr/> | |
| SCS Unit Hydrograph Parameters | |
| Time of Concentration (Composite) | 0.083 hours |
| Computational Time Increment | 0.011 hours |
| Unit Hydrograph Shape Factor | 483.432 |
| K Factor | 0.749 |
| Receding/Rising, Tr/Tp | 1.670 |

Post Developed

Subsection: Unit Hydrograph Summary
Label: DA-2

Return Event: 10 years
Storm Event: 10 Year

SCS Unit Hydrograph Parameters

| | |
|------------------------|--------------------------|
| Unit peak, qp | 12.64 ft ³ /s |
| Unit peak time, Tp | 0.056 hours |
| Unit receding limb, Tr | 0.222 hours |
| Total unit time, Tb | 0.278 hours |

Post Developed

Subsection: Unit Hydrograph Summary
Label: DA-2

Return Event: 25 years
Storm Event: 25 Year

| | |
|---|-------------------------|
| Storm Event | 25 Year |
| Return Event | 25 years |
| Duration | 24.000 hours |
| Depth | 6.4 in |
| Time of Concentration (Composite) | 0.083 hours |
| Area (User Defined) | 0.930 acres |
| <hr/> | |
| Computational Time Increment | 0.011 hours |
| Time to Peak (Computed) | 12.100 hours |
| Flow (Peak, Computed) | 4.56 ft ³ /s |
| Output Increment | 0.050 hours |
| Time to Flow (Peak Interpolated Output) | 12.100 hours |
| Flow (Peak Interpolated Output) | 4.56 ft ³ /s |
| <hr/> | |
| Drainage Area | |
| SCS CN (Composite) | 88.000 |
| Area (User Defined) | 0.930 acres |
| Maximum Retention (Pervious) | 1.4 in |
| Maximum Retention (Pervious, 20 percent) | 0.3 in |
| <hr/> | |
| Cumulative Runoff | |
| Cumulative Runoff Depth (Pervious) | 5.0 in |
| Runoff Volume (Pervious) | 0.388 ac-ft |
| <hr/> | |
| Hydrograph Volume (Area under Hydrograph curve) | |
| Volume | 0.388 ac-ft |
| <hr/> | |
| SCS Unit Hydrograph Parameters | |
| Time of Concentration (Composite) | 0.083 hours |
| Computational Time Increment | 0.011 hours |
| Unit Hydrograph Shape Factor | 483.432 |
| K Factor | 0.749 |
| Receding/Rising, Tr/Tp | 1.670 |

Post Developed

Subsection: Unit Hydrograph Summary
Label: DA-2

Return Event: 25 years
Storm Event: 25 Year

| SCS Unit Hydrograph Parameters | |
|--------------------------------|--------------------------|
| Unit peak, qp | 12.64 ft ³ /s |
| Unit peak time, Tp | 0.056 hours |
| Unit receding limb, Tr | 0.222 hours |
| Total unit time, Tb | 0.278 hours |

Post Developed

Subsection: Unit Hydrograph Summary
Label: DA-2

Return Event: 100 years
Storm Event: 100 Year

| | |
|--|-------------------------|
| Storm Event | 100 Year |
| Return Event | 100 years |
| Duration | 24.000 hours |
| Depth | 9.0 in |
| Time of Concentration (Composite) | 0.083 hours |
| Area (User Defined) | 0.930 acres |
| <hr/> | |
| Computational Time Increment | 0.011 hours |
| Time to Peak (Computed) | 12.100 hours |
| Flow (Peak, Computed) | 6.68 ft ³ /s |
| Output Increment | 0.050 hours |
| Time to Flow (Peak Interpolated Output) | 12.100 hours |
| Flow (Peak Interpolated Output) | 6.68 ft ³ /s |
| <hr/> | |
| Drainage Area | |
| SCS CN (Composite) | 88.000 |
| Area (User Defined) | 0.930 acres |
| Maximum Retention (Pervious) | 1.4 in |
| Maximum Retention (Pervious, 20 percent) | 0.3 in |
| <hr/> | |
| Cumulative Runoff | |
| Cumulative Runoff Depth (Pervious) | 7.5 in |
| Runoff Volume (Pervious) | 0.585 ac-ft |
| <hr/> | |
| Hydrograph Volume (Area under Hydrograph curve) | |
| Volume | 0.585 ac-ft |
| <hr/> | |
| SCS Unit Hydrograph Parameters | |
| Time of Concentration (Composite) | 0.083 hours |
| Computational Time Increment | 0.011 hours |
| Unit Hydrograph Shape Factor | 483.432 |
| K Factor | 0.749 |
| Receding/Rising, Tr/Tp | 1.670 |

Post Developed

Subsection: Unit Hydrograph Summary
Label: DA-2

Return Event: 100 years
Storm Event: 100 Year

| SCS Unit Hydrograph Parameters | |
|--------------------------------|--------------------------|
| Unit peak, qp | 12.64 ft ³ /s |
| Unit peak time, Tp | 0.056 hours |
| Unit receding limb, Tr | 0.222 hours |
| Total unit time, Tb | 0.278 hours |

Post Developed

Subsection: Pipe Volume
Label: DETENTION

Return Event: 1 years
Storm Event: 1 Year

Volume Results (Pipe)

| | |
|---------------------------------|-----------|
| Pipe Storage Upstream Invert | 277.85 ft |
| Pipe Storage Downstream Invert | 277.85 ft |
| Pipe Storage Length | 35.50 ft |
| Pipe Storage Diameter | 30.0 in |
| Pipe Storage Number of Barrels | 8 |
| Pipe Storage Slice Width | 5.00 ft |
| Pipe Storage Vertical Increment | 0.10 ft |

| Elevation (ft) | Perpendicular Downstream Depth (ft) | Perpendicular Downstream Area (ft ²) | Wetted Length (ft) | Filled Length (ft) | Perpendicular Upstream Depth (ft) | Perpendicular Upstream Area (ft ²) | Total Volume (ac-ft) |
|----------------|-------------------------------------|--|--------------------|--------------------|-----------------------------------|--|----------------------|
| 277.85 | 0.00 | 0.0 | 35.50 | 0.00 | 0.00 | 0.0 | 0.000 |
| 277.95 | 0.10 | 0.1 | 35.50 | 0.00 | 0.10 | 0.1 | 0.000 |
| 278.05 | 0.20 | 0.2 | 35.50 | 0.00 | 0.20 | 0.2 | 0.001 |
| 278.15 | 0.30 | 0.3 | 35.50 | 0.00 | 0.30 | 0.3 | 0.002 |
| 278.25 | 0.40 | 0.5 | 35.50 | 0.00 | 0.40 | 0.5 | 0.003 |
| 278.35 | 0.50 | 0.7 | 35.50 | 0.00 | 0.50 | 0.7 | 0.005 |
| 278.45 | 0.60 | 0.9 | 35.50 | 0.00 | 0.60 | 0.9 | 0.006 |
| 278.55 | 0.70 | 1.1 | 35.50 | 0.00 | 0.70 | 1.1 | 0.007 |
| 278.65 | 0.80 | 1.4 | 35.50 | 0.00 | 0.80 | 1.4 | 0.009 |
| 278.75 | 0.90 | 1.6 | 35.50 | 0.00 | 0.90 | 1.6 | 0.010 |
| 278.85 | 1.00 | 1.8 | 35.50 | 0.00 | 1.00 | 1.8 | 0.012 |
| 278.95 | 1.10 | 2.1 | 35.50 | 0.00 | 1.10 | 2.1 | 0.014 |
| 279.05 | 1.20 | 2.3 | 35.50 | 0.00 | 1.20 | 2.3 | 0.015 |
| 279.15 | 1.30 | 2.6 | 35.50 | 0.00 | 1.30 | 2.6 | 0.017 |
| 279.25 | 1.40 | 2.8 | 35.50 | 0.00 | 1.40 | 2.8 | 0.018 |
| 279.35 | 1.50 | 3.1 | 35.50 | 0.00 | 1.50 | 3.1 | 0.020 |
| 279.45 | 1.60 | 3.3 | 35.50 | 0.00 | 1.60 | 3.3 | 0.022 |
| 279.55 | 1.70 | 3.6 | 35.50 | 0.00 | 1.70 | 3.6 | 0.023 |
| 279.65 | 1.80 | 3.8 | 35.50 | 0.00 | 1.80 | 3.8 | 0.025 |
| 279.75 | 1.90 | 4.0 | 35.50 | 0.00 | 1.90 | 4.0 | 0.026 |
| 279.85 | 2.00 | 4.2 | 35.50 | 0.00 | 2.00 | 4.2 | 0.027 |
| 279.95 | 2.10 | 4.4 | 35.50 | 0.00 | 2.10 | 4.4 | 0.029 |
| 280.05 | 2.20 | 4.6 | 35.50 | 0.00 | 2.20 | 4.6 | 0.030 |
| 280.15 | 2.30 | 4.7 | 35.50 | 0.00 | 2.30 | 4.7 | 0.031 |
| 280.25 | 2.40 | 4.8 | 35.50 | 0.00 | 2.40 | 4.8 | 0.032 |
| 280.35 | 2.50 | 4.9 | 35.50 | 35.50 | 2.50 | 4.9 | 0.032 |
| 280.35 | 2.50 | 4.9 | 35.50 | 35.50 | 2.50 | 4.9 | 0.032 |

Post Developed

Subsection: Outlet Input Data
Label: DETENTION OUT

Return Event: 1 years
Storm Event: 1 Year

Requested Pond Water Surface Elevations

| | |
|-----------------------|-----------|
| Minimum (Headwater) | 277.85 ft |
| Increment (Headwater) | 0.50 ft |
| Maximum (Headwater) | 280.35 ft |

Outlet Connectivity

| Structure Type | Outlet ID | Direction | Outfall | E1 (ft) | E2 (ft) |
|--|--------------------------|-----------|---------|-----------------|-----------------|
| Culvert-Circular Tailwater Settings | Culvert - 1 Tailwater | Forward | TW | 277.85 (N/A) | 280.35 (N/A) |

Post Developed

Subsection: Outlet Input Data
Label: DETENTION OUT

Return Event: 1 years
Storm Event: 1 Year

| | |
|----------------------------------|-------------|
| Structure ID: Culvert - 1 | |
| Structure Type: Culvert-Circular | |
| Number of Barrels | 1 |
| Diameter | 12.0 in |
| Length | 5.00 ft |
| Length (Computed Barrel) | 5.00 ft |
| Slope (Computed) | 0.014 ft/ft |
| Outlet Control Data | |
| Manning's n | 0.012 |
| Ke | 0.500 |
| Kb | 0.027 |
| Kr | 0.500 |
| Convergence Tolerance | 0.00 ft |
| Inlet Control Data | |
| Equation Form | Form 1 |
| K | 0.0210 |
| M | 1.3300 |
| C | 0.0463 |
| Y | 0.7500 |
| T1 ratio (HW/D) | 1.161 |
| T2 ratio (HW/D) | 1.501 |
| Slope Correction Factor | 0.700 |

Use unsubmerged inlet control 0 equation below T1 elevation.

Use submerged inlet control 0 equation above T2 elevation

In transition zone between unsubmerged and submerged inlet control, interpolate between flows at T1 & T2...

| | | | |
|--------------|-----------|---------|-------------------------|
| T1 Elevation | 279.01 ft | T1 Flow | 2.75 ft ³ /s |
| T2 Elevation | 279.35 ft | T2 Flow | 3.14 ft ³ /s |

Post Developed

Subsection: Outlet Input Data
Label: DETENTION OUT

Return Event: 1 years
Storm Event: 1 Year

| | |
|--------------------------------------|---------------------------|
| Structure ID: TW | |
| Structure Type: TW Setup, DS Channel | |
| Tailwater Type | Free Outfall |
| Convergence Tolerances | |
| Maximum Iterations | 30 |
| Tailwater Tolerance (Minimum) | 0.01 ft |
| Tailwater Tolerance (Maximum) | 0.50 ft |
| Headwater Tolerance (Minimum) | 0.01 ft |
| Headwater Tolerance (Maximum) | 0.50 ft |
| Flow Tolerance (Minimum) | 0.001 ft ³ /s |
| Flow Tolerance (Maximum) | 10.000 ft ³ /s |

Post Developed

Subsection: Elevation-Volume-Flow Table (Pond)
 Label: DETENTION

Return Event: 1 years
 Storm Event: 1 Year

| Infiltration | |
|------------------------------------|-------------------------|
| Infiltration Method (Computed) | No Infiltration |
| Initial Conditions | |
| Elevation (Water Surface, Initial) | 277.85 ft |
| Volume (Initial) | 0.000 ac-ft |
| Flow (Initial Outlet) | 0.00 ft ³ /s |
| Flow (Initial Infiltration) | 0.00 ft ³ /s |
| Flow (Initial, Total) | 0.00 ft ³ /s |
| Time Increment | 0.050 hours |

| Elevation (ft) | Outflow (ft ³ /s) | Storage (ac-ft) | Area (acres) | Infiltration (ft ³ /s) | Flow (Total) (ft ³ /s) | 2S/t + O (ft ³ /s) |
|----------------|------------------------------|-----------------|--------------|-----------------------------------|-----------------------------------|-------------------------------|
| 277.85 | 0.00 | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 |
| 278.35 | 0.60 | 0.005 | 0.000 | 0.00 | 0.60 | 2.81 |
| 278.85 | 2.05 | 0.012 | 0.000 | 0.00 | 2.05 | 7.84 |
| 279.35 | 3.14 | 0.020 | 0.000 | 0.00 | 3.14 | 12.84 |
| 279.85 | 4.07 | 0.027 | 0.000 | 0.00 | 4.07 | 17.35 |
| 280.35 | 4.82 | 0.032 | 0.000 | 0.00 | 4.82 | 20.31 |

Post Developed

Subsection: Level Pool Pond Routing Summary
 Label: DETENTION (IN)

Return Event: 1 years
 Storm Event: 1 Year

| Infiltration | | | |
|------------------------------------|-------------------------|-----------------------------|--------------|
| Infiltration Method (Computed) | No Infiltration | | |
| Initial Conditions | | | |
| Elevation (Water Surface, Initial) | 277.85 ft | | |
| Volume (Initial) | 0.000 ac-ft | | |
| Flow (Initial Outlet) | 0.00 ft ³ /s | | |
| Flow (Initial Infiltration) | 0.00 ft ³ /s | | |
| Flow (Initial, Total) | 0.00 ft ³ /s | | |
| Time Increment | 0.050 hours | | |
| Inflow/Outflow Hydrograph Summary | | | |
| Flow (Peak In) | 1.58 ft ³ /s | Time to Peak (Flow, In) | 12.100 hours |
| Flow (Peak Outlet) | 1.43 ft ³ /s | Time to Peak (Flow, Outlet) | 12.150 hours |
| Elevation (Water Surface, Peak) | 278.64 ft | | |
| Volume (Peak) | 0.009 ac-ft | | |
| Mass Balance (ac-ft) | | | |
| Volume (Initial) | 0.000 ac-ft | | |
| Volume (Total Inflow) | 0.127 ac-ft | | |
| Volume (Total Infiltration) | 0.000 ac-ft | | |
| Volume (Total Outlet Outflow) | 0.127 ac-ft | | |
| Volume (Retained) | 0.000 ac-ft | | |
| Volume (Unrouted) | 0.000 ac-ft | | |
| Error (Mass Balance) | 0.1 % | | |

Post Developed

Subsection: Level Pool Pond Routing Summary
 Label: DETENTION (IN)

Return Event: 2 years
 Storm Event: 2 Year

| Infiltration | | | |
|------------------------------------|-------------------------|-----------------------------|--------------|
| Infiltration Method (Computed) | No Infiltration | | |
| Initial Conditions | | | |
| Elevation (Water Surface, Initial) | 277.85 ft | | |
| Volume (Initial) | 0.000 ac-ft | | |
| Flow (Initial Outlet) | 0.00 ft ³ /s | | |
| Flow (Initial Infiltration) | 0.00 ft ³ /s | | |
| Flow (Initial, Total) | 0.00 ft ³ /s | | |
| Time Increment | 0.050 hours | | |
| Inflow/Outflow Hydrograph Summary | | | |
| Flow (Peak In) | 1.99 ft ³ /s | Time to Peak (Flow, In) | 12.100 hours |
| Flow (Peak Outlet) | 1.81 ft ³ /s | Time to Peak (Flow, Outlet) | 12.150 hours |
| Elevation (Water Surface, Peak) | 278.77 ft | | |
| Volume (Peak) | 0.011 ac-ft | | |
| Mass Balance (ac-ft) | | | |
| Volume (Initial) | 0.000 ac-ft | | |
| Volume (Total Inflow) | 0.162 ac-ft | | |
| Volume (Total Infiltration) | 0.000 ac-ft | | |
| Volume (Total Outlet Outflow) | 0.161 ac-ft | | |
| Volume (Retained) | 0.000 ac-ft | | |
| Volume (Unrouted) | 0.000 ac-ft | | |
| Error (Mass Balance) | 0.1 % | | |

Post Developed

Subsection: Level Pool Pond Routing Summary
 Label: DETENTION (IN)

Return Event: 10 years
 Storm Event: 10 Year

| Infiltration | | | |
|------------------------------------|-------------------------|-----------------------------|--------------|
| Infiltration Method (Computed) | No Infiltration | | |
| Initial Conditions | | | |
| Elevation (Water Surface, Initial) | 277.85 ft | | |
| Volume (Initial) | 0.000 ac-ft | | |
| Flow (Initial Outlet) | 0.00 ft ³ /s | | |
| Flow (Initial Infiltration) | 0.00 ft ³ /s | | |
| Flow (Initial, Total) | 0.00 ft ³ /s | | |
| Time Increment | 0.050 hours | | |
| Inflow/Outflow Hydrograph Summary | | | |
| Flow (Peak In) | 3.40 ft ³ /s | Time to Peak (Flow, In) | 12.100 hours |
| Flow (Peak Outlet) | 3.00 ft ³ /s | Time to Peak (Flow, Outlet) | 12.150 hours |
| Peak Conditions | | | |
| Elevation (Water Surface, Peak) | 279.29 ft | | |
| Volume (Peak) | 0.019 ac-ft | | |
| Mass Balance (ac-ft) | | | |
| Volume (Initial) | 0.000 ac-ft | | |
| Volume (Total Inflow) | 0.284 ac-ft | | |
| Volume (Total Infiltration) | 0.000 ac-ft | | |
| Volume (Total Outlet Outflow) | 0.284 ac-ft | | |
| Volume (Retained) | 0.000 ac-ft | | |
| Volume (Unrouted) | 0.000 ac-ft | | |
| Error (Mass Balance) | 0.1 % | | |

Post Developed

Subsection: Level Pool Pond Routing Summary
 Label: DETENTION (IN)

Return Event: 25 years
 Storm Event: 25 Year

| Infiltration | | | |
|--|-------------------------|-----------------------------|--------------|
| Infiltration Method (Computed) | No Infiltration | | |
| Initial Conditions | | | |
| Elevation (Water Surface, Initial) | 277.85 ft | | |
| Volume (Initial) | 0.000 ac-ft | | |
| Flow (Initial Outlet) | 0.00 ft ³ /s | | |
| Flow (Initial Infiltration) | 0.00 ft ³ /s | | |
| Flow (Initial, Total) | 0.00 ft ³ /s | | |
| Time Increment | 0.050 hours | | |
| Inflow/Outflow Hydrograph Summary | | | |
| Flow (Peak In) | 4.56 ft ³ /s | Time to Peak (Flow, In) | 12.100 hours |
| Flow (Peak Outlet) | 3.98 ft ³ /s | Time to Peak (Flow, Outlet) | 12.150 hours |
| Peak Conditions | | | |
| Elevation (Water Surface, Peak) | 279.81 ft | | |
| Volume (Peak) | 0.027 ac-ft | | |
| Mass Balance (ac-ft) | | | |
| Volume (Initial) | 0.000 ac-ft | | |
| Volume (Total Inflow) | 0.388 ac-ft | | |
| Volume (Total Infiltration) | 0.000 ac-ft | | |
| Volume (Total Outlet Outflow) | 0.388 ac-ft | | |
| Volume (Retained) | 0.000 ac-ft | | |
| Volume (Unrouted) | 0.000 ac-ft | | |
| Error (Mass Balance) | 0.1 % | | |

Post Developed

Subsection: Level Pool Pond Routing Summary
 Label: DETENTION (IN)

Return Event: 100 years
 Storm Event: 100 Year

| Infiltration | | | |
|------------------------------------|-------------------------|-----------------------------|--------------|
| Infiltration Method (Computed) | No Infiltration | | |
| Initial Conditions | | | |
| Elevation (Water Surface, Initial) | 277.85 ft | | |
| Volume (Initial) | 0.000 ac-ft | | |
| Flow (Initial Outlet) | 0.00 ft ³ /s | | |
| Flow (Initial Infiltration) | 0.00 ft ³ /s | | |
| Flow (Initial, Total) | 0.00 ft ³ /s | | |
| Time Increment | 0.050 hours | | |
| Inflow/Outflow Hydrograph Summary | | | |
| Flow (Peak In) | 4.56 ft ³ /s | Time to Peak (Flow, In) | 12.100 hours |
| Flow (Peak Outlet) | 3.98 ft ³ /s | Time to Peak (Flow, Outlet) | 12.150 hours |
| Peak Conditions | | | |
| Elevation (Water Surface, Peak) | 279.81 ft | | |
| Volume (Peak) | 0.027 ac-ft | | |
| Mass Balance (ac-ft) | | | |
| Volume (Initial) | 0.000 ac-ft | | |
| Volume (Total Inflow) | 0.388 ac-ft | | |
| Volume (Total Infiltration) | 0.000 ac-ft | | |
| Volume (Total Outlet Outflow) | 0.388 ac-ft | | |
| Volume (Retained) | 0.000 ac-ft | | |
| Volume (Unrouted) | 0.000 ac-ft | | |
| Error (Mass Balance) | 0.1 % | | |

Post Developed

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

PLANNING DEPARTMENT
Adam R. Kaufman, AICP
Director of Planning

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

Application for Site Development Plan Approval

Application Name



TOWN OF NORTH CASTLE
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Important General Information

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

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

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

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



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

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

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

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

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



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NOTICE TO APPLICANTS

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

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

FEES:

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

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

ESCROW ACCOUNT:

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



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PROCEDURE:

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

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

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

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

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



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

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

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

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

WWW.NORTHCASTLENY.COM



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

PLANNING DEPARTMENT
Adam R. Kaufman, AICP
Director of Planning

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

INFORMATION REGARDING PUBLIC HEARINGS

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

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

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

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

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

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

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

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

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



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

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

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

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



Name and Address of Sender

Check type of mail or service

Adult Signature Required Priority Mail Express

Adult Signature Restricted Delivery Registered Mail

Certified Mail Return Receipt for Merchandise

Certified Mail Restricted Delivery Signature Confirmation

Collect on Delivery (COD) Signature Confirmation Restricted Delivery

Insured Mail

Priority Mail

Affix Stamp Here
(if issued as an international certificate of mailing or for additional copies of this receipt).
Postmark with Date of Receipt.

| USPS Tracking/Article Number | Addressee (Name, Street, City, State, & ZIP Code™) | Postage | (Extra Service) Fee | Handling Charge | Actual Value if Registered | Insured Value | Due Sender if COD | ASR Fee | ASRD Fee | RD Fee | RR Fee | SC Fee | SCRD Fee | SH Fee |
|---|--|--|---------------------|--|----------------------------|---------------|-------------------|---------|--------------------------|-------------------------------------|----------------|------------------------|--|------------------|
| 1. | | | | Handling Charge - if Registered and over \$50,000 in value | | | | | | | | | | |
| 2. | | | | | | | | | | | | | | |
| 3. | | | | | | | | | Adult Signature Required | Adult Signature Restricted Delivery | | | | |
| 4. | | | | | | | | | | Restricted Delivery | Return Receipt | Signature Confirmation | Signature Confirmation Restricted Delivery | Special Handling |
| 5. | | | | | | | | | | | | | | |
| 6. | | | | | | | | | | | | | | |
| 7. | | | | | | | | | | | | | | |
| 8. | | | | | | | | | | | | | | |
| Total Number of Pieces Listed by Sender | Total Number of Pieces Received at Post Office | Postmaster, Per (Name of receiving employee) | | | | | | | | | | | | |



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APPLICATIONS REQUIRING PLANNING BOARD APPROVAL
SCHEDULE OF APPLICATION FEES

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

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



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PLANNING BOARD SCHEDULE OF ESCROW ACCOUNT DEPOSITS

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

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

Applicant Signature

Date:

I. IDENTIFICATION OF PROPERTY OWNER, APPLICANT AND PROFESSIONAL REPRESENTATIVES

Name of Property Owner: _____
Mailing Address: _____
Telephone: _____ Fax: _____ e-mail _____

Name of Applicant (if different): _____
Address of Applicant: _____
Telephone: _____ Fax: _____ e-mail _____
Interest of Applicant, if other than Property Owner:

Is the Applicant (if different from the property owner) a Contract Vendee?
Yes No
If yes, please submit affidavit stating such. If no, application cannot be reviewed by Planning Board

Name of Professional Preparing Site Plan:

Address: _____
Telephone: _____ Fax: _____ e-mail _____

Name of Other Professional: _____
Address: _____
Telephone: _____ Fax: _____ e-mail _____

Name of Attorney (if any): _____
Address: _____
Telephone: _____ Fax: _____ e-mail _____

Applicant Acknowledgement

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

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

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

Signature of Applicant: _____ Date: _____

Signature of Property Owner: _____ Date: _____

MUST HAVE BOTH SIGNATURES

II. IDENTIFICATION OF SUBJECT PROPERTY

Street Address: _____

Location (in relation to nearest intersecting street):

_____ feet (north, south, east or west) of _____

Abutting Street(s): _____

Tax Map Designation (NEW): Section _____ Block _____ Lot _____

Tax Map Designation (OLD): Section _____ Block _____ Lot _____

Zoning District: _____ Total Land Area _____

Land Area in North Castle Only (if different) _____

Fire District(s) _____ School District(s) _____

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

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

The boundary of any existing or proposed County or State park or any other recreation area?
No ____ Yes (adjacent) ____ Yes (within 500 feet) ____

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

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

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

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

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

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

III. DESCRIPTION OF PROPOSED DEVELOPMENT

Proposed Use: _____

Gross Floor Area: Existing _____ S.F. Proposed _____ S.F.

Proposed Floor Area Breakdown:

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

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

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

Number of Dwelling Units: _____

Number of Parking Spaces: Existing _____ Required _____ Proposed _____

Number of Loading Spaces: Existing _____ Required _____ Proposed _____

Earthwork Balance: Cut _____ C.Y. Fill _____ C.Y.

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

Areas of special flood hazard? No _____ Yes _____

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

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

No _____ Yes _____

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

Town-regulated wetlands? No _____ Yes _____

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

State-regulated wetlands? No _____ Yes _____

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

IV. SUBMISSION REQUIREMENTS

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

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

(continued next page)

V. INFORMATION TO BE INCLUDED ON SITE DEVELOPMENT PLAN

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

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

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

Legal Data:

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

Existing Conditions Data:

- _____ Location of existing use and design of buildings, identifying first floor elevation, and other structures.
- _____ Location of existing parking and truck loading areas, with access and egress drives thereto.
- _____ Location of existing facilities for water supply, sanitary sewage disposal, storm water drainage, and gas and electric service, with pipe sizes, grades, rim and inverts, direction of flow, etc. indicated.
- _____ Location of all other existing site improvements, including pavement, walks, curbing, retaining walls and fences.
- _____ Location, size and design of existing signs.
- _____ Location, type, direction, power and time of use of existing outdoor lighting.
- _____ Location of existing outdoor storage, if any.
- _____ Existing topographical contours with a vertical interval of two (2) feet or less.
- _____ Location of existing floodplains, wetlands, slopes of 15% or greater, wooded areas, landscaped areas, single trees with a DBH of 8" or greater, rock outcrops, stone walls and any other significant existing natural or cultural features.

Proposed Development Data:

- _____ Proposed location of lots, streets, and public areas, and property to be affected by proposed easements, deed restrictions and covenants.
- _____ Proposed location, use and architectural design of all buildings, including proposed floor elevations and the proposed division of buildings into units of separate occupancy.
- _____ Proposed means of vehicular and pedestrian access to and egress from the site onto adjacent streets.
- _____ Proposed sight distance at all points of vehicular access.
- _____ Proposed number of employees for which buildings are designed
- _____ Proposed streets, with profiles indicating grading and cross-sections showing the width of the roadway; the location and width of sidewalks; and the location and size of utility lines.
- _____ Proposed location and design of any pedestrian circulation on the site and off-street parking and loading areas, including handicapped parking and ramps, and including details of construction, surface materials, pavement markings and directional signage.
- _____ Proposed location and design of facilities for water supply, sanitary sewage disposal, storm water drainage, and gas and electric service, with pipe sizes, grades, rim and inverts, direction of flow, etc. indicated.

- _____ Proposed location of all structures and other uses of land, such as walks, retaining walls, fences, designated open space and/or recreation areas and including details of design and construction.
- _____ Location, size and design of all proposed signs.
- _____ Location, type, direction, power and time of use of proposed outdoor lighting.
- _____ Location and design of proposed outdoor garbage enclosure.
- _____ Location of proposed outdoor storage, if any.
- _____ Location of proposed landscaping and buffer screening areas, including the type (scientific and common names), size and amount of plantings.
- _____ Type of power to be used for any manufacturing
- _____ Type of wastes or by-products to be produced and disposal method
- _____ In multi-family districts, floor plans, elevations and cross sections
- _____ The proposed location, size, design and use of all temporary structures and storage areas to be used during the course of construction.
- _____ Proposed grade elevations, clearly indicating how such grades will meet existing grades of adjacent properties or the street.
- _____ Proposed soil erosion and sedimentation control measures.
- _____ For all proposed site development plans containing land within an area of special flood hazard, the data required to ensure compliance with Chapter 177 of the North Castle Town Code.
- _____ For all proposed site development plans involving clearing or removal of trees with a DBH of 8" or greater, the data required to ensure compliance with Chapter 308 of the North Castle Town Code.
- _____ For all proposed site development plans involving disturbance to Town-regulated wetlands, the data required to ensure compliance with Chapter 340 of the North Castle Town Code.

Short Environmental Assessment Form

Part 1 - Project Information

Instructions for Completing

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

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

| <u>Part 1 - Project and Sponsor Information</u> | | | |
|--|--|------------|--------------------------|
| Name of Action or Project: | | | |
| Project Location (describe, and attach a location map): | | | |
| Brief Description of Proposed Action: | | | |
| Name of Applicant or Sponsor: | | Telephone: | |
| | | E-Mail: | |
| Address: | | | |
| City/PO: | | State: | Zip Code: |
| 1. <u>Does the proposed action only involve the legislative adoption of a plan, local law, ordinance, administrative rule, or regulation?</u> | | | NO |
| 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. | | | <input type="checkbox"/> |
| 2. <u>Does the proposed action require a permit, approval or funding from any other governmental Agency?</u> | | | NO |
| If Yes, list agency(s) name and permit or approval: | | | <input type="checkbox"/> |
| 3.a. <u>Total acreage of the site of the proposed action?</u> _____ acres | | | |
| b. <u>Total acreage to be physically disturbed?</u> _____ acres | | | |
| c. <u>Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor?</u> _____ acres | | | |
| 4. <u>Check all land uses that occur on, adjoining and near the proposed action.</u> | | | |
| <input type="checkbox"/> Urban <input type="checkbox"/> Rural (non-agriculture) <input type="checkbox"/> Industrial <input type="checkbox"/> Commercial <input type="checkbox"/> Residential (suburban) | | | |
| <input type="checkbox"/> Forest <input type="checkbox"/> Agriculture <input type="checkbox"/> Aquatic <input type="checkbox"/> Other (specify): _____ | | | |
| <input type="checkbox"/> Parkland | | | |

| | | | |
|---|--------------------------|--------------------------|--------------------------|
| 5. Is the proposed action, a. <u>A permitted use under the zoning regulations?</u> | NO | YES | N/A |
| | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. <u>Consistent with the adopted comprehensive plan?</u> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. <u>Is the proposed action consistent with the predominant character of the existing built or natural landscape?</u> | NO | YES | |
| | <input type="checkbox"/> | <input type="checkbox"/> | |
| 7. <u>Is the site of the proposed action located in, or does it adjoin, a state listed Critical Environmental Area?</u> If Yes, identify: _____ _____ | NO | YES | |
| | <input type="checkbox"/> | <input type="checkbox"/> | |
| 8. a. <u>Will the proposed action result in a substantial increase in traffic above present levels?</u> 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? | NO | YES | |
| | <input type="checkbox"/> | <input type="checkbox"/> | |
| | <input type="checkbox"/> | <input type="checkbox"/> | |
| 9. <u>Does the proposed action meet or exceed the state energy code requirements?</u> If the proposed action will exceed requirements, describe design features and technologies: _____ _____ | NO | YES | |
| | <input type="checkbox"/> | <input type="checkbox"/> | |
| 10. <u>Will the proposed action connect to an existing public/private water supply?</u> If No, describe method for providing potable water: _____ _____ | NO | YES | |
| | <input type="checkbox"/> | <input type="checkbox"/> | |
| 11. <u>Will the proposed action connect to existing wastewater utilities?</u> If No, describe method for providing wastewater treatment: _____ _____ | NO | YES | |
| | <input type="checkbox"/> | <input type="checkbox"/> | |
| 12. a. <u>Does the site contain a structure that is listed on either the State or National Register of Historic Places?</u> b. Is the proposed action located in an archeological sensitive area? | NO | YES | |
| | <input type="checkbox"/> | <input type="checkbox"/> | |
| 13. a. <u>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?</u> 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: _____ _____ _____ | NO | YES | |
| | <input type="checkbox"/> | <input type="checkbox"/> | |
| | <input type="checkbox"/> | <input type="checkbox"/> | |
| 14. <u>Identify the typical habitat types that occur on, or are likely to be found on the project site.</u> Check all that apply: <input type="checkbox"/> Shoreline <input type="checkbox"/> Forest <input type="checkbox"/> Agricultural/grasslands <input type="checkbox"/> Early mid-successional <input type="checkbox"/> Wetland <input type="checkbox"/> Urban <input type="checkbox"/> Suburban | | | |
| 15. <u>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?</u> | NO | YES | |
| | <input type="checkbox"/> | <input type="checkbox"/> | |
| 16. <u>Is the project site located in the 100 year flood plain?</u> | NO | YES | |
| | <input type="checkbox"/> | <input type="checkbox"/> | |
| 17. <u>Will the proposed action create storm water discharge, either from point or non-point sources?</u> If Yes, a. Will storm water discharges flow to adjacent properties? <input type="checkbox"/> NO <input type="checkbox"/> YES b. Will storm water discharges be directed to established conveyance systems (runoff and storm drains)? If Yes, briefly describe: <input type="checkbox"/> NO <input type="checkbox"/> YES _____ _____ | NO | YES | |
| | <input type="checkbox"/> | <input type="checkbox"/> | |
| | <input type="checkbox"/> | <input type="checkbox"/> | |

| | | |
|---|--|---|
| <p>18. <u>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)?</u></p> <p>If Yes, explain purpose and size: _____</p> <p>_____</p> <p>_____</p> | <p>NO</p> <p><input type="checkbox"/></p> | <p>YES</p> <p><input type="checkbox"/></p> |
| <p>19. <u>Has the site of the proposed action or an adjoining property been the location of an active or closed solid waste management facility?</u></p> <p>If Yes, describe: _____</p> <p>_____</p> <p>_____</p> | <p>NO</p> <p><input type="checkbox"/></p> | <p>YES</p> <p><input type="checkbox"/></p> |
| <p>20. <u>Has the site of the proposed action or an adjoining property been the subject of remediation (ongoing or completed) for hazardous waste?</u></p> <p>If Yes, describe: _____</p> <p>_____</p> <p>_____</p> | <p>NO</p> <p><input type="checkbox"/></p> | <p>YES</p> <p><input type="checkbox"/></p> |
| <p>I AFFIRM THAT THE INFORMATION PROVIDED ABOVE IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE</p> <p>Applicant/sponsor name: _____ Date: _____</p> <p><u>Signature</u>: _____</p> | | |

**Full Environmental Assessment Form
Part 1 - Project and Setting**

Instructions for Completing Part 1

Part 1 is to be completed by the applicant or project sponsor. 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; indicate whether missing information does not exist, or is not reasonably available to the sponsor; and, when possible, generally describe work or studies which would be necessary to update or fully develop that information.

Applicants/sponsors must complete all items in Sections A & B. In Sections C, D & E, most items contain an initial question that must be answered either "Yes" or "No". If the answer to the initial question is "Yes", complete the sub-questions that follow. If the answer to the initial question is "No", proceed to the next question. Section F allows the project sponsor to identify and attach any additional information. Section G requires the name and signature of the project sponsor to verify that the information contained in Part 1 is accurate and complete.

A. Project and Sponsor Information.

| | | |
|---|-----------|--|
| Name of Action or Project: Lordae II, LLC. - Chris Santomaro | | |
| Project Location (describe, and attach a general location map): 868 North Broadway, Town of North Castle, Westchester County, New York | | |
| Brief Description of Proposed Action (include purpose or need): The property consists of an existing 4,300 square foot one story commercial building with two separate parking areas on the north and south side of the building. The proposal is to redevelop the building and site. The building will be renovated with new facades as well as interior renovations at the time a tenant has been established. The parking will be enhanced and expanded by interconnecting the two parking areas and adding approximately 13 new parking spaces. In order to facilitate the additional parking area retaining walls will be constructed to retain slopes at the rear of the site. | | |
| Name of Applicant/Sponsor: Lordae II, LLC. - Chris Santomaro | | Telephone: 914-448-8300 |
| | | E-Mail: chris@lordae.com |
| Address: 1 New King Street | | |
| City/PO: Harrison | State: NY | Zip Code: 10604 |
| Project Contact (if not same as sponsor; give name and title/role): Joseph C. Riina, P.E., Project Engineer | | Telephone: 914-962-4488 |
| | | E-Mail: jriina@sitedesignconsultants.com |
| Address: 251 F Underhill Avenue | | |
| City/PO: Yorktown Heights | State: NY | Zip Code: 10598 |
| Property Owner (if not same as sponsor): | | Telephone: |
| | | E-Mail: |
| Address: | | |
| City/PO: | State: | Zip Code: |

B. Government Approvals

| B. Government Approvals, Funding, or Sponsorship. (“Funding” includes grants, loans, tax relief, and any other forms of financial assistance.) | | |
|---|---|---|
| Government Entity | If Yes: Identify Agency and Approval(s) Required | Application Date (Actual or projected) |
| a. City Council, Town Board, <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No or Village Board of Trustees | | |
| b. City, Town or Village Planning Board or Commission <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Town of No. Castle Planning Board Site Plan Approval | |
| c. City Council, Town or Village Zoning Board of Appeals <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | |
| d. Other local agencies <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Town of No. Castle Building Permit | |
| e. County agencies <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | |
| f. Regional agencies <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | |
| g. State agencies <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | NYS Department of Transportation | |
| h. Federal agencies <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | |
| i. Coastal Resources. | | |
| i. Is the project site within a Coastal Area, or the waterfront area of a Designated Inland Waterway? | | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| ii. Is the project site located in a community with an approved Local Waterfront Revitalization Program? | | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| iii. Is the project site within a Coastal Erosion Hazard Area? | | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |

C. Planning and Zoning

| | |
|---|---|
| C.1. Planning and zoning actions. | |
| Will administrative or legislative adoption, or amendment of a plan, local law, ordinance, rule or regulation be the only approval(s) which must be granted to enable the proposed action to proceed? | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| <ul style="list-style-type: none"> • If Yes, complete sections C, F and G. • If No, proceed to question C.2 and complete all remaining sections and questions in Part 1 | |
| C.2. Adopted land use plans. | |
| a. Do any municipally- adopted (city, town, village or county) comprehensive land use plan(s) include the site where the proposed action would be located? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| If Yes, does the comprehensive plan include specific recommendations for the site where the proposed action would be located? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| b. Is the site of the proposed action within any local or regional special planning district (for example: Greenway Brownfield Opportunity Area (BOA); designated State or Federal heritage area; watershed management plan; or other?) | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| If Yes, identify the plan(s): | |
| _____ | |
| _____ | |
| _____ | |
| c. Is the proposed action located wholly or partially within an area listed in an adopted municipal open space plan, or an adopted municipal farmland protection plan? | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| If Yes, identify the plan(s): | |
| _____ | |
| _____ | |
| _____ | |

C.3. Zoning

a. Is the site of the proposed action located in a municipality with an adopted zoning law or ordinance. Yes No
If Yes, what is the zoning classification(s) including any applicable overlay district?

CB Central Business

b. Is the use permitted or allowed by a special or conditional use permit? Yes No

c. Is a zoning change requested as part of the proposed action? Yes No

If Yes,

i. What is the proposed new zoning for the site? _____

C.4. Existing community services.

a. In what school district is the project site located? Valhala

b. What police or other public protection forces serve the project site?

No. Castle Police Department

c. Which fire protection and emergency medical services serve the project site?

No. White Plains Fire Department

d. What parks serve the project site?

Clove Road Park

D. Project Details

D.1. Proposed and Potential Development

a. What is the general nature of the proposed action (e.g., residential, industrial, commercial, recreational; if mixed, include all components)? Commercial

b. a. Total acreage of the site of the proposed action? _____ 0.42 acres

b. Total acreage to be physically disturbed? _____ 0.30 acres

c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? _____ 0.42 acres

c. Is the proposed action an expansion of an existing project or use? Yes No

i. If Yes, what is the approximate percentage of the proposed expansion and identify the units (e.g., acres, miles, housing units, square feet)? % 33 Units: _____

d. Is the proposed action a subdivision, or does it include a subdivision? Yes No

If Yes,

i. Purpose or type of subdivision? (e.g., residential, industrial, commercial; if mixed, specify types) _____

ii. Is a cluster/conservation layout proposed? Yes No

iii. Number of lots proposed? _____

iv. Minimum and maximum proposed lot sizes? Minimum _____ Maximum _____

e. Will proposed action be constructed in multiple phases? Yes No

i. If No, anticipated period of construction: _____ 6 months

ii. If Yes:

• Total number of phases anticipated _____ 1

• Anticipated commencement date of phase 1 (including demolition) _____ 4 month 2018 year

• Anticipated completion date of final phase _____ 10 month 2018 year

• Generally describe connections or relationships among phases, including any contingencies where progress of one phase may determine timing or duration of future phases: _____

Single phase constructing new parking facilities

f. Does the project include new residential uses? Yes No

If Yes, show numbers of units proposed.

One Family Two Family Three Family Multiple Family (four or more)

Initial Phase _____

At completion _____

of all phases _____

g. Does the proposed action include new non-residential construction (including expansions)? Yes No

If Yes,

i. Total number of structures _____

ii. Dimensions (in feet) of largest proposed structure: _____ height; _____ width; and _____ length

iii. Approximate extent of building space to be heated or cooled: _____ square feet

h. Does the proposed action include construction or other activities that will result in the impoundment of any liquids, such as creation of a water supply, reservoir, pond, lake, waste lagoon or other storage? Yes No

If Yes,

i. Purpose of the impoundment: _____

ii. If a water impoundment, the principal source of the water: Ground water Surface water streams Other specify: _____

iii. If other than water, identify the type of impounded/contained liquids and their source. _____

iv. Approximate size of the proposed impoundment. Volume: _____ million gallons; surface area: _____ acres

v. Dimensions of the proposed dam or impounding structure: _____ height; _____ length

vi. Construction method/materials for the proposed dam or impounding structure (e.g., earth fill, rock, wood, concrete): _____

D.2. Project Operations

a. Does the proposed action include any excavation, mining, or dredging, during construction, operations, or both? Yes No
(Not including general site preparation, grading or installation of utilities or foundations where all excavated materials will remain onsite)

If Yes:

i. What is the purpose of the excavation or dredging? _____

ii. How much material (including rock, earth, sediments, etc.) is proposed to be removed from the site?

• Volume (specify tons or cubic yards): _____

• Over what duration of time? 4 months _____

iii. Describe nature and characteristics of materials to be excavated or dredged, and plans to use, manage or dispose of them.

The removal of fractured rock with some soil overburden. If the rock is unstable it would be structurally retained. _____

iv. Will there be onsite dewatering or processing of excavated materials? Yes No

If yes, describe. _____

v. What is the total area to be dredged or excavated? _____ acres

vi. What is the maximum area to be worked at any one time? _____ Less than 0.1 acres

vii. What would be the maximum depth of excavation or dredging? _____ 10 feet

viii. Will the excavation require blasting? Yes No

ix. Summarize site reclamation goals and plan: _____

There is an existing rock slope behind the building which will be cut back to expand the parking area. The rock which on the surface is loose will be removed mainly by use of excavation equipment and rock hammers. If needed blasting will be done. Any blasting will be done in accordance with all governing regulations. Excavated material will be removed from site for proper disposal.

b. Would the proposed action cause or result in alteration of, increase or decrease in size of, or encroachment into any existing wetland, waterbody, shoreline, beach or adjacent area? Yes No

If Yes:

i. Identify the wetland or waterbody which would be affected (by name, water index number, wetland map number or geographic description): _____

ii. Describe how the proposed action would affect that waterbody or wetland, e.g. excavation, fill, placement of structures, or alteration of channels, banks and shorelines. Indicate extent of activities, alterations and additions in square feet or acres:

iii. Will proposed action cause or result in disturbance to bottom sediments? Yes No
If Yes, describe: _____

iv. Will proposed action cause or result in the destruction or removal of aquatic vegetation? Yes No
If Yes:

- acres of aquatic vegetation proposed to be removed: _____
- expected acreage of aquatic vegetation remaining after project completion: _____
- purpose of proposed removal (e.g. beach clearing, invasive species control, boat access): _____
- proposed method of plant removal: _____
- if chemical/herbicide treatment will be used, specify product(s): _____

v. Describe any proposed reclamation/mitigation following disturbance: _____

c. Will the proposed action use, or create a new demand for water? Yes No
If Yes:

i. Total anticipated water usage/demand per day: _____ 450 gallons/day

ii. Will the proposed action obtain water from an existing public water supply? Yes No
If Yes:

- Name of district or service area: North Castle Water District No. 1
- Does the existing public water supply have capacity to serve the proposal? Yes No
- Is the project site in the existing district? Yes No
- Is expansion of the district needed? Yes No
- Do existing lines serve the project site? Yes No

iii. Will line extension within an existing district be necessary to supply the project? Yes No
If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____
- Source(s) of supply for the district: _____

iv. Is a new water supply district or service area proposed to be formed to serve the project site? Yes No
If, Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- Proposed source(s) of supply for new district: _____

v. If a public water supply will not be used, describe plans to provide water supply for the project: _____

vi. If water supply will be from wells (public or private), maximum pumping capacity: _____ gallons/minute.

d. Will the proposed action generate liquid wastes? Yes No
If Yes:

i. Total anticipated liquid waste generation per day: _____ 400 gallons/day

ii. Nature of liquid wastes to be generated (e.g., sanitary wastewater, industrial; if combination, describe all components and approximate volumes or proportions of each): _____
Sanitary Waste

iii. Will the proposed action use any existing public wastewater treatment facilities? Yes No
If Yes:

- Name of wastewater treatment plant to be used: Yonkers Joint Sewage Treatment Plant
- Name of district: Upper Bronx River
- Does the existing wastewater treatment plant have capacity to serve the project? Yes No
- Is the project site in the existing district? Yes No
- Is expansion of the district needed? Yes No

- Do existing sewer lines serve the project site? Yes No
- Will line extension within an existing district be necessary to serve the project? Yes No

If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____

iv. Will a new wastewater (sewage) treatment district be formed to serve the project site? Yes No

If Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- What is the receiving water for the wastewater discharge? _____

v. If public facilities will not be used, describe plans to provide wastewater treatment for the project, including specifying proposed receiving water (name and classification if surface discharge, or describe subsurface disposal plans):

vi. Describe any plans or designs to capture, recycle or reuse liquid waste: _____

e. Will the proposed action disturb more than one acre and create stormwater runoff, either from new point sources (i.e. ditches, pipes, swales, curbs, gutters or other concentrated flows of stormwater) or non-point source (i.e. sheet flow) during construction or post construction? Yes No

If Yes:

i. How much impervious surface will the project create in relation to total size of project parcel?

_____ Square feet or _____ .19 acres (impervious surface)

_____ Square feet or _____ .42 acres (parcel size)

ii. Describe types of new point sources. Asphalt parking areas

iii. Where will the stormwater runoff be directed (i.e. on-site stormwater management facility/structures, adjacent properties, groundwater, on-site surface water or off-site surface waters)?

To existing onsite drainage system which currently connect to municipal drainage

- If to surface waters, identify receiving water bodies or wetlands: _____

- Will stormwater runoff flow to adjacent properties? Yes No

iv. Does proposed plan minimize impervious surfaces, use pervious materials or collect and re-use stormwater? Yes No

f. Does the proposed action include, or will it use on-site, one or more sources of air emissions, including fuel combustion, waste incineration, or other processes or operations? Yes No

If Yes, identify:

i. Mobile sources during project operations (e.g., heavy equipment, fleet or delivery vehicles)

Heavy Equipment during construction

ii. Stationary sources during construction (e.g., power generation, structural heating, batch plant, crushers)

None

iii. Stationary sources during operations (e.g., process emissions, large boilers, electric generation)

None

g. Will any air emission sources named in D.2.f (above), require a NY State Air Registration, Air Facility Permit, or Federal Clean Air Act Title IV or Title V Permit? Yes No

If Yes:

i. Is the project site located in an Air quality non-attainment area? (Area routinely or periodically fails to meet ambient air quality standards for all or some parts of the year) Yes No

ii. In addition to emissions as calculated in the application, the project will generate:

- _____ Tons/year (short tons) of Carbon Dioxide (CO₂)
- _____ Tons/year (short tons) of Nitrous Oxide (N₂O)
- _____ Tons/year (short tons) of Perfluorocarbons (PFCs)
- _____ Tons/year (short tons) of Sulfur Hexafluoride (SF₆)
- _____ Tons/year (short tons) of Carbon Dioxide equivalent of Hydroflouorocarbons (HFCs)
- _____ Tons/year (short tons) of Hazardous Air Pollutants (HAPs)

h. Will the proposed action generate or emit methane (including, but not limited to, sewage treatment plants, landfills, composting facilities)? Yes No

If Yes:

i. Estimate methane generation in tons/year (metric): _____

ii. Describe any methane capture, control or elimination measures included in project design (e.g., combustion to generate heat or electricity, flaring): _____

i. Will the proposed action result in the release of air pollutants from open-air operations or processes, such as quarry or landfill operations? Yes No

If Yes: Describe operations and nature of emissions (e.g., diesel exhaust, rock particulates/dust): _____

j. Will the proposed action result in a substantial increase in traffic above present levels or generate substantial new demand for transportation facilities or services? Yes No

If Yes:

i. When is the peak traffic expected (Check all that apply): Morning Evening Weekend
 Randomly between hours of 8 to 7.

ii. For commercial activities only, projected number of semi-trailer truck trips/day: 0

iii. Parking spaces: Existing 7 Proposed 13 Net increase/decrease +6

iv. Does the proposed action include any shared use parking? Yes No

v. If the proposed action includes any modification of existing roads, creation of new roads or change in existing access, describe: _____

vi. Are public/private transportation service(s) or facilities available within 1/2 mile of the proposed site? Yes No

vii. Will the proposed action include access to public transportation or accommodations for use of hybrid, electric or other alternative fueled vehicles? Yes No

viii. Will the proposed action include plans for pedestrian or bicycle accommodations for connections to existing pedestrian or bicycle routes? Yes No

k. Will the proposed action (for commercial or industrial projects only) generate new or additional demand for energy? Yes No

If Yes:

i. Estimate annual electricity demand during operation of the proposed action: _____
13,000 Kwatts per year

ii. Anticipated sources/suppliers of electricity for the project (e.g., on-site combustion, on-site renewable, via grid/local utility, or other):
Consoliated Edison

iii. Will the proposed action require a new, or an upgrade to, an existing substation? Yes No

l. Hours of operation. Answer all items which apply.

| | | | |
|-------------------------|---------------------|------------------------|----------------------|
| i. During Construction: | | ii. During Operations: | |
| • Monday - Friday: | <u>7 am to 5 pm</u> | • Monday - Friday: | <u>8 am to 10 pm</u> |
| • Saturday: | <u>7 am to 5 pm</u> | • Saturday: | <u>8 am to 10 pm</u> |
| • Sunday: | <u>none</u> | • Sunday: | <u>10 am to 5 pm</u> |
| • Holidays: | <u>none</u> | • Holidays: | <u>10 am to 5 pm</u> |

m. Will the proposed action produce noise that will exceed existing ambient noise levels during construction, operation, or both? Yes No

If yes:

i. Provide details including sources, time of day and duration:
Typical noise associated with heavy construction and rock removal

ii. Will proposed action remove existing natural barriers that could act as a noise barrier or screen? Yes No
Describe: _____

n.. Will the proposed action have outdoor lighting? Yes No

If yes:

i. Describe source(s), location(s), height of fixture(s), direction/aim, and proximity to nearest occupied structures:
Building mounted security lighting and decorative building lighting

ii. Will proposed action remove existing natural barriers that could act as a light barrier or screen? Yes No
Describe: _____

o. Does the proposed action have the potential to produce odors for more than one hour per day? Yes No
If Yes, describe possible sources, potential frequency and duration of odor emissions, and proximity to nearest occupied structures: _____

p. Will the proposed action include any bulk storage of petroleum (combined capacity of over 1,100 gallons) or chemical products 185 gallons in above ground storage or any amount in underground storage? Yes No

If Yes:

i. Product(s) to be stored _____

ii. Volume(s) _____ per unit time _____ (e.g., month, year)

iii. Generally describe proposed storage facilities: _____

q. Will the proposed action (commercial, industrial and recreational projects only) use pesticides (i.e., herbicides, insecticides) during construction or operation? Yes No

If Yes:

i. Describe proposed treatment(s):
Typical pesticides

ii. Will the proposed action use Integrated Pest Management Practices? Yes No

r. Will the proposed action (commercial or industrial projects only) involve or require the management or disposal of solid waste (excluding hazardous materials)? Yes No

If Yes:

i. Describe any solid waste(s) to be generated during construction or operation of the facility:

- Construction: _____ 30 tons per _____ 6 months (unit of time)
- Operation : _____ 0.5 tons per _____ month (unit of time)

ii. Describe any proposals for on-site minimization, recycling or reuse of materials to avoid disposal as solid waste:

- Construction: recycling of construction waste
- Operation: Recycling in compliance with Westchester County requirements

iii. Proposed disposal methods/facilities for solid waste generated on-site:

- Construction: _____
- Operation: _____

s. Does the proposed action include construction or modification of a solid waste management facility? Yes No
 If Yes:

i. Type of management or handling of waste proposed for the site (e.g., recycling or transfer station, composting, landfill, or other disposal activities): _____

ii. Anticipated rate of disposal/processing:

- _____ Tons/month, if transfer or other non-combustion/thermal treatment, or
- _____ Tons/hour, if combustion or thermal treatment

iii. If landfill, anticipated site life: _____ years

t. Will proposed action at the site involve the commercial generation, treatment, storage, or disposal of hazardous waste? Yes No
 If Yes:

i. Name(s) of all hazardous wastes or constituents to be generated, handled or managed at facility: _____

ii. Generally describe processes or activities involving hazardous wastes or constituents: _____

iii. Specify amount to be handled or generated _____ tons/month

iv. Describe any proposals for on-site minimization, recycling or reuse of hazardous constituents: _____

v. Will any hazardous wastes be disposed at an existing offsite hazardous waste facility? Yes No
 If Yes: provide name and location of facility: _____

If No: describe proposed management of any hazardous wastes which will not be sent to a hazardous waste facility: _____

E. Site and Setting of Proposed Action

E.1. Land uses on and surrounding the project site

a. Existing land uses.

i. Check all uses that occur on, adjoining and near the project site.

Urban Industrial Commercial Residential (suburban) Rural (non-farm)
 Forest Agriculture Aquatic Other (specify): _____

ii. If mix of uses, generally describe: _____

b. Land uses and covertypes on the project site.

| Land use or Covertypes | Current Acreage | Acreage After Project Completion | Change (Acres +/-) |
|--|-----------------|----------------------------------|--------------------|
| • Roads, buildings, and other paved or impervious surfaces | 0.1 | 0.29 | +0.19 |
| • Forested | 0.067 | .05 | -.017 |
| • Meadows, grasslands or brushlands (non-agricultural, including abandoned agricultural) | | | |
| • Agricultural (includes active orchards, field, greenhouse etc.) | | | |
| • Surface water features (lakes, ponds, streams, rivers, etc.) | | | |
| • Wetlands (freshwater or tidal) | | | |
| • Non-vegetated (bare rock, earth or fill) | 0.256 | .05 | -0.206 |
| • Other Describe: <u>Landscape areas</u> | | .03 | +0.03 |

c. Is the project site presently used by members of the community for public recreation? Yes No
i. If Yes: explain: _____

d. Are there any facilities serving children, the elderly, people with disabilities (e.g., schools, hospitals, licensed day care centers, or group homes) within 1500 feet of the project site? Yes No
If Yes,
i. Identify Facilities:
Westchester Jewish Community Services,

e. Does the project site contain an existing dam? Yes No
If Yes:
i. Dimensions of the dam and impoundment:
• Dam height: _____ feet
• Dam length: _____ feet
• Surface area: _____ acres
• Volume impounded: _____ gallons OR acre-feet
ii. Dam's existing hazard classification: _____
iii. Provide date and summarize results of last inspection:

f. Has the project site ever been used as a municipal, commercial or industrial solid waste management facility, or does the project site adjoin property which is now, or was at one time, used as a solid waste management facility? Yes No
If Yes:
i. Has the facility been formally closed? Yes No
• If yes, cite sources/documentation: _____
ii. Describe the location of the project site relative to the boundaries of the solid waste management facility:

iii. Describe any development constraints due to the prior solid waste activities: _____

g. Have hazardous wastes been generated, treated and/or disposed of at the site, or does the project site adjoin property which is now or was at one time used to commercially treat, store and/or dispose of hazardous waste? Yes No
If Yes:
i. Describe waste(s) handled and waste management activities, including approximate time when activities occurred:

h. Potential contamination history. Has there been a reported spill at the proposed project site, or have any remedial actions been conducted at or adjacent to the proposed site? Yes No
If Yes:
i. Is any portion of the site listed on the NYSDEC Spills Incidents database or Environmental Site Remediation database? Check all that apply: Yes No
 Yes – Spills Incidents database Provide DEC ID number(s): _____
 Yes – Environmental Site Remediation database Provide DEC ID number(s): _____
 Neither database
ii. If site has been subject of RCRA corrective activities, describe control measures: _____

iii. Is the project within 2000 feet of any site in the NYSDEC Environmental Site Remediation database? Yes No
If yes, provide DEC ID number(s): _____
iv. If yes to (i), (ii) or (iii) above, describe current status of site(s):

v. Is the project site subject to an institutional control limiting property uses? Yes No

- If yes, DEC site ID number: _____
- Describe the type of institutional control (e.g., deed restriction or easement): _____
- Describe any use limitations: _____
- Describe any engineering controls: _____
- Will the project affect the institutional or engineering controls in place? Yes No
- Explain: _____

E.2. Natural Resources On or Near Project Site

a. What is the average depth to bedrock on the project site? _____ 0 feet

b. Are there bedrock outcroppings on the project site? Yes No
 If Yes, what proportion of the site is comprised of bedrock outcroppings? _____ 30 %

c. Predominant soil type(s) present on project site: _____ %
 The project site is comprised of mostly rock _____ %
 with very little soil cover. _____ %

d. What is the average depth to the water table on the project site? Average: _____ > 6 feet

e. Drainage status of project site soils: Well Drained: _____ % of site
 Moderately Well Drained: _____ % of site
 Poorly Drained 100 % of site

f. Approximate proportion of proposed action site with slopes: 0-10%: _____ 62 % of site
 10-15%: _____ 16 % of site
 15% or greater: _____ 22 % of site

g. Are there any unique geologic features on the project site? Yes No
 If Yes, describe: _____

h. Surface water features.

i. Does any portion of the project site contain wetlands or other waterbodies (including streams, rivers, ponds or lakes)? Yes No

ii. Do any wetlands or other waterbodies adjoin the project site? Yes No

If Yes to either *i* or *ii*, continue. If No, skip to E.2.i.

iii. Are any of the wetlands or waterbodies within or adjoining the project site regulated by any federal, state or local agency? Yes No

iv. For each identified regulated wetland and waterbody on the project site, provide the following information:

- Streams: Name _____ Classification _____
- Lakes or Ponds: Name _____ Classification _____
- Wetlands: Name _____ Approximate Size _____
- Wetland No. (if regulated by DEC) _____

v. Are any of the above water bodies listed in the most recent compilation of NYS water quality-impaired waterbodies? Yes No
 If yes, name of impaired water body/bodies and basis for listing as impaired: _____

i. Is the project site in a designated Floodway? Yes No

j. Is the project site in the 100 year Floodplain? Yes No

k. Is the project site in the 500 year Floodplain? Yes No

l. Is the project site located over, or immediately adjoining, a primary, principal or sole source aquifer? Yes No
 If Yes:
 i. Name of aquifer: _____

| | |
|---|----------------|
| m. Identify the predominant wildlife species that occupy or use the project site: <u>Typical suburban small mammals & bird</u> _____ _____ | _____ _____ |
| n. Does the project site contain a designated significant natural community? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes: i. Describe the habitat/community (composition, function, and basis for designation): _____ ii. Source(s) of description or evaluation: _____ iii. Extent of community/habitat: • Currently: _____ acres • Following completion of project as proposed: _____ acres • Gain or loss (indicate + or -): _____ acres | |
| o. Does project site contain any species of plant or animal that is listed by the federal government or NYS as endangered or threatened, or does it contain any areas identified as habitat for an endangered or threatened species? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| p. Does the project site contain any species of plant or animal that is listed by NYS as rare, or as a species of special concern? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| q. Is the project site or adjoining area currently used for hunting, trapping, fishing or shell fishing? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, give a brief description of how the proposed action may affect that use: _____ _____ | |
| E.3. Designated Public Resources On or Near Project Site | |
| a. Is the project site, or any portion of it, located in a designated agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Section 303 and 304? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, provide county plus district name/number: _____ | |
| b. Are agricultural lands consisting of highly productive soils present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No i. If Yes: acreage(s) on project site? _____ ii. Source(s) of soil rating(s): _____ | |
| c. Does the project site contain all or part of, or is it substantially contiguous to, a registered National Natural Landmark? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes: i. Nature of the natural landmark: <input type="checkbox"/> Biological Community <input type="checkbox"/> Geological Feature ii. Provide brief description of landmark, including values behind designation and approximate size/extent: _____ _____ _____ | |
| d. Is the project site located in or does it adjoin a state listed Critical Environmental Area? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes: i. CEA name: <u>Watershed Properties</u> ii. Basis for designation: <u>Exceptional or unique character</u> iii. Designating agency and date: <u>Agency:Westchester County, Date:1-31-90</u> | |

| | |
|--|---|
| e. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on, or has been nominated by the NYS Board of Historic Preservation for inclusion on, the State or National Register of Historic Places? | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| If Yes: i. Nature of historic/archaeological resource: <input type="checkbox"/> Archaeological Site <input type="checkbox"/> Historic Building or District ii. Name: _____ iii. Brief description of attributes on which listing is based: _____ | |
| f. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory? | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| g. Have additional archaeological or historic site(s) or resources been identified on the project site? If Yes: i. Describe possible resource(s): _____ ii. Basis for identification: _____ | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| h. Is the project site within five miles of any officially designated and publicly accessible federal, state, or local scenic or aesthetic resource? If Yes: i. Identify resource: <u>Town Pathway</u> ii. Nature of, or basis for, designation (e.g., established highway overlook, state or local park, state historic trail or scenic byway, etc.): <u>Pedestrian connection</u> iii. Distance between project and resource: _____ 0 miles. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| i. Is the project site located within a designated river corridor under the Wild, Scenic and Recreational Rivers Program 6 NYCRR 666? If Yes: i. Identify the name of the river and its designation: _____ ii. Is the activity consistent with development restrictions contained in 6NYCRR Part 666? | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No |

F. Additional Information

Attach any additional information which may be needed to clarify your project.

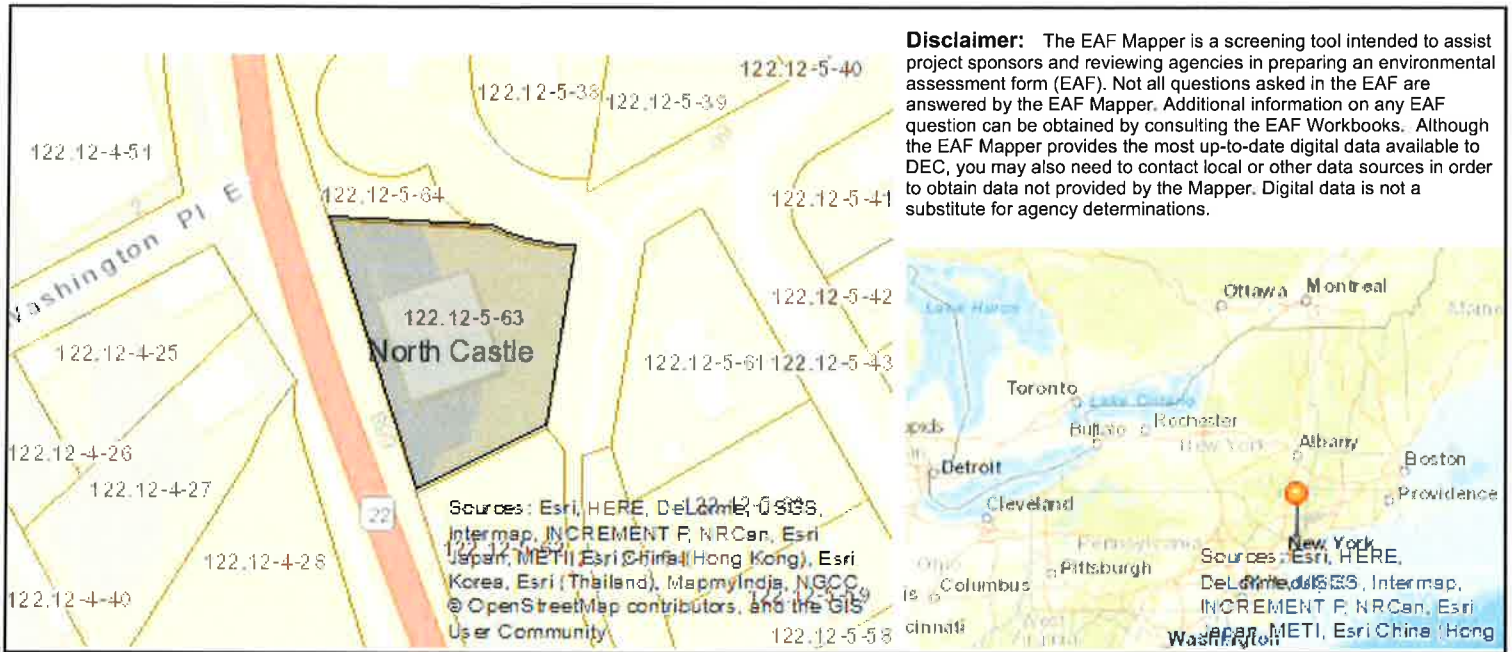
If you have identified any adverse impacts which could be associated with your proposal, please describe those impacts plus any measures which you propose to avoid or minimize them.

G. Verification

I certify that the information provided is true to the best of my knowledge.

Applicant/Sponsor Name Joseph C. Riina, P.E. Date March 5, 2021

Signature _____ Title Project Engineer



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| B.i.i [Coastal or Waterfront Area] | No |
| B.i.ii [Local Waterfront Revitalization Area] | No |
| C.2.b. [Special Planning District] | Digital mapping data are not available or are incomplete. Refer to EAF Workbook. |
| E.1.h [DEC Spills or Remediation Site - Potential Contamination History] | Digital mapping data are not available or are incomplete. Refer to EAF Workbook. |
| E.1.h.i [DEC Spills or Remediation Site - Listed] | Digital mapping data are not available or are incomplete. Refer to EAF Workbook. |
| E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database] | Digital mapping data are not available or are incomplete. Refer to EAF Workbook. |
| E.1.h.iii [Within 2,000' of DEC Remediation Site] | No |
| E.2.g [Unique Geologic Features] | No |
| E.2.h.i [Surface Water Features] | No |
| E.2.h.ii [Surface Water Features] | No |
| E.2.h.iii [Surface Water Features] | No |
| E.2.h.v [Impaired Water Bodies] | No |
| E.2.i. [Floodway] | No |
| E.2.j. [100 Year Floodplain] | No |
| E.2.k. [500 Year Floodplain] | No |
| E.2.l. [Aquifers] | No |
| E.2.n. [Natural Communities] | No |
| E.2.o. [Endangered or Threatened Species] | No |
| E.2.p. [Rare Plants or Animals] | No |
| E.3.a. [Agricultural District] | No |

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|---|--|
| E.3.d [Critical Environmental Area] | Yes |
| E.3.d [Critical Environmental Area - Name] | Watershed Properties |
| E.3.d.ii [Critical Environmental Area - Reason] | Exceptional or unique character |
| E.3.d.iii [Critical Environmental Area – Date and Agency] | Agency:Westchester County, Date:1-31-90 |
| E.3.e. [National Register of Historic Places] | Digital mapping data are not available or are incomplete. Refer to EAF Workbook. |
| E.3.f. [Archeological Sites] | No |
| E.3.i. [Designated River Corridor] | No |