Planning Board
AGENDA

Thursday, April 2, 2026 - 6:00 PM

Regular Meeting
Agawam Senior Center
954 Main Street
Agawam, MA 01001

A. Planning Board

1) 6:00PM-Public Hearing-FY26 Community Development Block Grant Application

2) Public Hearing Cont.-Definitive Plan-Old River Street, 27 Walnut Street, & 17 High Street-Calabrese Construction, LLc

3) Site Plan-699 Silver Street-MSR Properties, LLC

4) Discussion & Possible Vote-Planning Board Representative for the CPA

5) Approval of Minutes-March 19, 2026

6) Correspondences

R LEVESQUE ASSOCIATES, INC.
40 School Street, P.O. BOX 640, Westfield, MA 01085
p 413.568.0985 · f 413.568.0986 · www.rlaland.com

March 24, 2026

Via email: TEgerton@agawam.ma.us

Violet Baldwin, Chairperson
Town of Agawam Planning Board
1000 Suffield Street
Agawam, Massachusetts 01001

RE: Response to Review Comments
Old River Street, 27 Walnut Street & 17 High Street
Agawam, Massachusetts 01001
(Parcel IDs: J17-1-3, J17-1-1 & J17-1-5)
RLA Project File No. 220627

Dear Chairperson Baldwin and Board Members:

On behalf of the applicant and property owner, Calabrese Construction, LLC c/o Mr. Charles Calabrese, R Levesque Associates, Inc. is providing this response letter to address comments received from the following:

- Memorandum from the Town of Agawam Engineering Division to the Planning Board with the subject "Old River Street Subdivision – Definitive Plan Review" dated March 5, 2026.
- Email from Michelle Chase with subject "RE: Old River Street Definitive Plan" dated March 9, 2026.

The review comments from the items listed above is presented below in *italic text*, followed by an RLA Response presented below in blue, boldface text. The comment number and format are consistent with the original document for ease of review.

Memorandum from the Engineering Division

1. *Engineering is highly recommending the sidewalks be extended along both sides of the street and all existing driveways be formalized to meet current Agawam Design Standards. Gravel driveways with no discernable limits are susceptible to tracking sediment into the roadway. The proposed project is calling for an infiltration drainage system which is costly to repair if it becomes clogged with sideman from stormwater runoff. Driveways aprons and a minimum of 10' beyond the back of sidewalk needs to be paved on all driveways on the proposed street to reduce sediment runoff into the roadway. In addition, informal driveways close to intersections can cause safety hazards and shall be moved a far away from the intersection with Walnut Street as possible.*

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RLA Response: As received in the email from Michelle Chase, P.E. dated March 9, 2026, the abutter from 47 Walnut Street met with the Engineering Division. Based on that conversation, the Engineering Division is OK with having a sidewalk on one side of the road, however, the sidewalk should be along the northerly side of High Street. The sidewalk is still continuous around the entirety of the cul-de-sac. All driveways have been formalized with paved aprons extending a minimum of 10 feet beyond the back of sidewalk in accordance with Town of Agawam Design Standards. The plans have been updated to show driveways for 33-35 Walnut Street and 47 Walnut Street off of High Street. The driveways have been located as far from the intersection with Walnut Street as practicable to minimize safety hazards.

2. *The sidewalk shall extend into the Walnut Street right of way and a crosswalk with curb tramps installed within the proposed granite curbing across the proposed street (approx.. STA -0+05 to 0+00). This will allow for the Town to easily extend the sidewalks on Walnut Street without having to adjust the curbing.*

   RLA Response: The plans have been revised accordingly. The sidewalk has been extended into the Walnut Street right-of-way with a crosswalk and curb ramp installed within the proposed granite curbing on both sides of the new roadway.

3. *Crosswalks are required to be painted across the proposed street. Mid-block crosswalks are required to also have MUTCD signage.*

   RLA Response: The plans have been updated to include painted crosswalks near the intersection with Walnut Street and near the cul-de-sac. Additionally, signage has been called out on the plans.

4. *Please add the existing house and driveway for #47 Walnut Street to the plans. This driveway location should be moved as far away from the intersection as possible for safety reasons.*

   RLA Response: The existing house and driveway for #47 Walnut Street have been added to the plans. The driveway has been relocated as far from the intersection as practicable to minimize safety concerns.

5. *The thickness of asphalt binder course shown on the Bituminous Concrete Paving Detail shall be 3", as per Town of Agawam standards.*

   RLA Response: The Bituminous Concrete Paving Detail has been revised to reflect a 3-inch binder course.

6. *The inlet control structure detail on Sheet D-5 shall be labeled PICS-1. It is currently labeled PICS-*

4.

RLA Response: The inlet control structure detail on Sheet D-5 has been corrected and is now labeled PICS-1.

7. *Engineering requests that the directions of downspout flows are shown on the plans.*

   RLA Response: The plans have been updated to show the direction of downspout flows. Additionally, Appendix D – Hydraulic Analysis has been updated to include the roof downspouts.

8. *Engineering requests that the Developer submit soil boring lots and electronic HydroCAD files in order to continue our evaluation of stormwater calculations.*

   RLA Response: Soil evaluation reports have been provided in Appendix B of the Stormwater Drainage Report. As an attachment to this response letter, the electronic HydroCAD files will be submitted to the Engineering Department.

9. *Engineering approves the usage of HDPE pipe for the proposed drainage system and recommends that the requested waiver be granted (if necessary).*

   RLA Response: Comment noted and acknowledged.

10. *Engineering is concerned about a possible utility conflict between the 6" sewer lateral from Lot B and the 12" drainage line between PWQU-1 and PICS-1. Based on our calculations, the separation between the pipes appears to be inadequate. It is recommended that the Developer's Engineer re-evaluate the utility elevations at this location.*

    RLA Response: The utility elevations at this location have been re-evaluated by RLA. The plans have been revised to avoid conflict between the 6-inch sewer lateral from Lot B and the 12-inch drainage line between PWQU-1 and PICS-1.

11. *The hydrant is being proposed in a location that will be susceptible to being hit by vehicles and plows due to the proximity of the two driveways. In addition, the underground electric is in conflict with the hydrant.*

    RLA Response: The hydrant has been relocated to the property line between Lot A and Lot B. Additionally, the hydrant was pushed back to avoid conflict with the underground electric.

12. *Please confirm that the underground electric conduit ends at the eastern side of the cul-de-sac. How is electric service being delivered to Lot D?*

RLA Response: The plans have been updated to extend the underground electric service further along the cul-de-sac and provide service to Lot D.

13. *Please add one Street light to the plans (in the treebelt around cul-de-sac).*

RLA Response: A street light has been added near the property line between Lot C and Lot D in the treebelt.

14. *Please label the proposed private water service easement on Lot B for Lot C.*

RLA Response: The proposed private water service easement on Lot B for the benefit of Lot C has been labeled on the plans.

15. *The drainage easement on Lot D for the outfall needs to be revised to include the entirety of the proposed level spreader (and a minimum of 5' additional feet around it for maintenance).*

RLA Response: The drainage easement on Lot D has been revised to encompass the entirety of the proposed level spreader with a minimum of 5 feet of additional area around it for maintenance access.

16. *The proposed yard drainage system located on Lot D shall be privately owned and maintained. The proposed owner will need to fill out a DPW Storm Drain Permit for this connection to the Town drainage system (when the street is accepted). The connection shall be made at the back of PCB-2 instead of PWQU-1 as this will provide additional TSS removal (sump/hood) and allow for quicker field inspections.*

RLA Response: Comment noted. The proposed yard drainage system on Lot D shall be privately owned and maintained. Additionally, the plans have been updated such that the connection from the yard drains is made at the back of PCB-2. Also, the owner has been made aware that they will be required to obtain a DPW Storm Drain Permit upon street acceptance.

17. *Hay bales and silt sacks are required for the yard drains on Lot D and shall remain in place until vegetation is established. Connection to the drainage system in the road shall be plugged until vegetation is established.*

RLA Response: The plans have been updated to include hay bales and silt sacks at the yard drains on Lot D. Sheet C-4 has been updated to include a note indicating that these erosion controls shall remain in place until permanent vegetation is established and that the connection to the road drainage system shall remain plugged until vegetation is established.

18. *The infiltration system shall be plugged until the base course of pavement and berm is installed.*

RLA Response: Sheet C-5 has been updated to include a note that the infiltration system shall remain plugged until the base course of pavement and berm has been installed.

19. *The granite curb on the south side of the road entrance shall be tapered to match the existing HMA Berm. The north side shall match the existing granite curb.*

    RLA Response: The plans have been revised accordingly. The granite curb on the south side of the road entrance shall be tapered to match the existing HMA Berm, and the north side shall match the existing granite curb.

20. *Please include a planting detail for the center of cul-de-sac. No large trees with deep roots shall be proposed above the infiltration system.*

    RLA Response: A planting detail for the center island of the cul-de-sac has been added to sheet D-1. The proposed plantings consist of low-growing, shallow-rooted species. No large trees with deep root systems have been proposed above or in proximity to the infiltration system.

Email from Michelle Chase, P.E. dated March 9, 2026

1. *After meeting with Jim Deni regarding the design of the sewer, the sewer main needs to be a minimum of 8" diameter. The existing 6" sewer main needs to be upgraded to an 8" diameter main to the Walnut Street sewer manhole as well.*

   RLA Response: The plans have been updated to show an 8" sewer main, including the replacement of the existing 6" main between the two existing sanitary manholes.

2. *This morning Engineering met with Brad Belcher, the owner of 47 Walnut Street. The house for this parcel is not shown on the plans, however, it is close to the property line. The owner has requested that the sidewalk be waived from the right side of the proposed roadway so that the residents can continue to park on the side of the house. Engineering is ok with eliminating the sidewalk along the frontage of 47 Walnut Street with the exception of the curb ramp/crosswalk at the entrance (as mentioned in our memo). There is plenty of room for a sidewalk on the left side of the proposed roadway. The owner is ok with moving the two parking spaces back further from the intersection with Walnut Street*

   RLA Response: As stated previously in this letter, the sidewalks have been revised accordingly.

R LEVESQUE ASSOCIATES, INC.
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Should you have any questions or comments regarding this submission, please do not hesitate to contact our office at your earliest convenience.

Sincerely,
R LEVESQUE ASSOCIATES, INC.

Filipe J. Cravo, P.E.
Vice President

TOWN OF AGAWAM
PLANNING BOARD
APPROVAL UNDER THE SUBDIVISION
CONTROL LAW IS REQUIRED

_____ _____
DATE

I, _____, CLERK OF THE TOWN OF AGAWAM HEREBY CERTIFY THAT NOTICE OF APPROVAL OF THIS PLAN BY THE AGAWAM PLANNING BOARD HAS BEEN RECEIVED AND RECORDED AT THIS OFFICE AND NO APPEAL WAS RECEIVED DURING TWENTY DAYS AFTER SUCH RECEIPT AND RECORDED OF SAID NOTICE.

I CERTIFY THAT THIS PLAN WAS BEEN PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE REGISTRY OF DEEDS.

_____
PROFESSIONAL LAND SURVEYOR

COMMONWEALTH OF MASSACHUSETTS
MARC E. SHUTE
No. 33610
PROFESSIONAL LAND SURVEYOR

Definitive Subdivision Plans

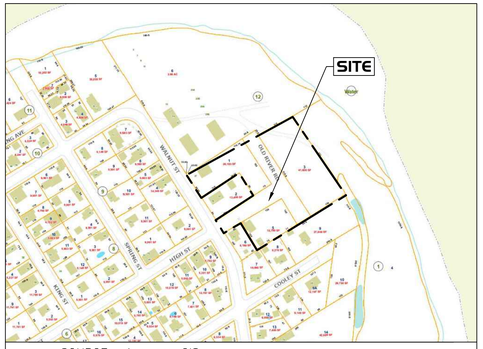
High Street

Old River Street, 27 Walnut Street & 17 High Street
Parcel IDs: J17-1-3, J17-1-1 & J17-1-5
Agawam, Masschusetts 01001

AS PREPARED FOR

Calabrese Construction, LLC
c/o Mr. Charles Calabrese

7 Brewster Road
West Springfield, Massachusetts



SOURCE: Agawam GIS

NORTH

January 30, 2026
Rev: March 23, 2026

DRAWING INDEX

SHEET NO.	SHEET NAME	ISSUE DATE	REVISION DATE
T-1	TITLE SHEET	1/30/26	3/23/26
P-1	DEFINITIVE SUBDIVISION PLAN	1/30/26	3/23/26
EX-1	EXISTING CONDITIONS PLAN	1/30/26	
C-1	NOTES, SYMBOL & LINE LEGEND, AND ABBREVIATIONS	1/30/26	
C-2	CONSTRUCTION NOTES	1/30/26	
C-3	GRADING, EROSION & SEDIMENTATION CONTROL PLAN	1/30/26	3/23/26
C-4	PLAN & PROFILE - HIGH STREET - STA -0+50 to STA 3+50	1/30/26	3/23/26
C-5	SUBSURFACE INFILTRATION BASIN	1/30/26	3/23/26
D-1	DETAILS	1/30/26	3/23/26
D-2	DETAILS	1/30/26	
D-3	DETAILS	1/30/26	
D-4	DETAILS	1/30/26	
D-5	DETAILS	1/30/26	3/23/26

BY

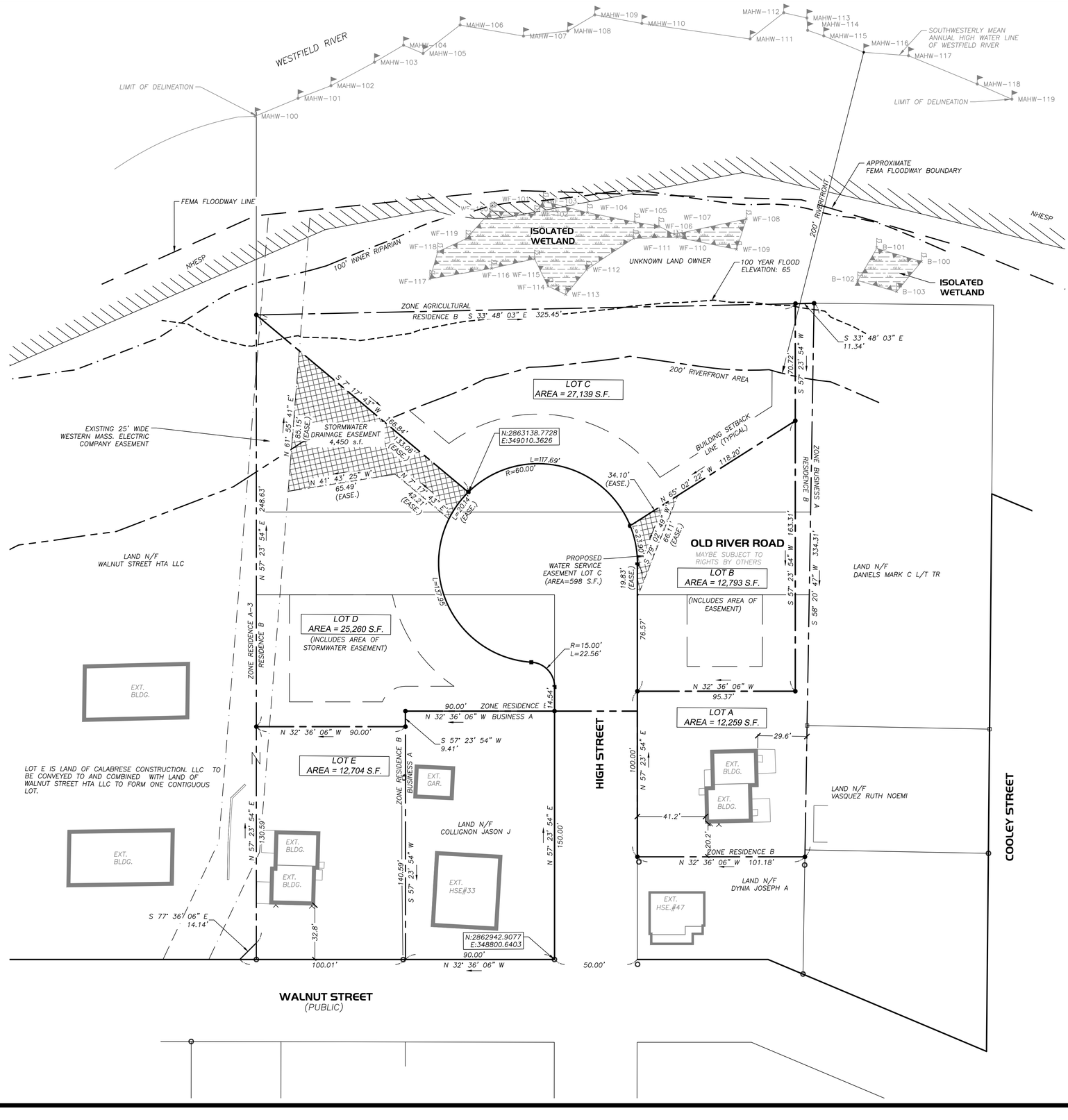
R LEVESQUE ASSOCIATES INC
A LAND PLANNING SERVICES COMPANY
40 School Street · Westfield, MA · 01085
ph 413.568.0985 · fax 413.568.0986
www.rlaland.com

RLA Project Number: 220627

PERMITTING

NOTES

1. THE RECORD OWNER OF THE SUBJECT PARCEL CALABRESE CONSTRUCTION, LLC. SEE HAMPDEN COUNTY REGISTRY OF DEEDS BOOK DEED BOOK 22388 PAGE 42 – 47, BOOK 22935 PAGE 347.
2. THE PROPERTY LINES SHOWN HEREON ARE BASED UPON ON A GROUND SURVEY PERFORMED BY R.LEVESQUE ASSOCIATES INC.
3. THIS PLAN HAS BEEN PREPARED FOR DEFINITIVE SUBDIVISION AND SHALL BE USED FOR THE CONVEYANCE OF LAND.
4. THE SUBJECT PROPERTIES SHOWN HEREON MAY BE SUBJECT TO RIGHTS AND EASEMENTS AS CONTAINED IN THE VARIOUS DEEDS OF RECORD DESCRIBING SAID PROPERTIES. THE LOCATION AND EXTENT OF ANY SUCH RIGHTS AND EASEMENTS IS NOT THE SUBJECT OF THIS PLAN.
5. WETLANDS AND M.A.H.W. DELINEATED BY R.LEVESQUE ASSOCIATES INC JULY 17, 2025.
6. THE EXISTING TOPOGRAPHIC INFORMATION SHOWN IS BASED UPON NOAA LIDAR TOPOGRAPHIC DIGITAL AND R. LEVESQUE ASSOCIATES FIELD SURVEY ON MARCH 2025
7. ADJACENT PROPERTY LINES AND ABUTTERS SHOWN HEREON ARE REFERENCED FROM THE TOWN OF WEST SPRINGFIELD GIS MAPPING.
8. SUBJECT PARCELS ARE ZONED RESIDENCE B ACCORDING TO ZONING MAP AMENDMENT.
9. A PORTION OF SUBJECT PARCEL IS LOCATED WITHIN A SPECIAL FLOOD ZONE AREA ACCORDING TO FLOOD INSURANCE RATE MAP NUMBER 25013C0382E – EFFECTIVE DATE: 7/16/2013. ELEV: 65.0
10. THE SUBJECT PROPERTY IS NOT LOCATED WITHIN NATURAL HERITAGE & ENDANGERED SPECIES PROGRAM (NHESP) JURISDICTION.
11. OFFSITE WETLAND RESOURCE HAVE BEEN SHOWN TO ACCURATELY DEPICT BUFFER ZONE AND RIVERFRONT AREA ON THE SUBJECT PROPERTIES. THE DETERMINATION OF OFFSITE RESOURCE AREAS ARE NOT THE SUBJECT OF THIS FILING.
12. LOTS TO BE SERVICED BY PUBLIC WATER AND PUBLIC SEWER



TOWN OF AGAWAM PLANNING BOARD

APPROVAL UNDER THE SUBDIVISION CONTROL LAW IS REQUIRED

_____ DATE

_____

_____

_____

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_____

I HEREBY CERTIFY THAT THE NOTICE OF APPROVAL OF THIS PLAN BY THE TOWN OF AGAWAM PLANNING BOARD HAS BEEN RECEIVED AND RECORDED AT THIS OFFICE AND NO APPEAL WAS RECEIVED DURING THE TWENTY DAYS NEXT AFTER SUCH RECEIPT AND RECORDINGS OF SAID NOTICE.

_____ _____
CITY CLERK DATE

I CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE REGISTRY OF DEEDS.

_____
PROFESSIONAL LAND SURVEYOR

COMMONWEALTH OF MASSACHUSETTS
MARC E. SHUTE
No. 33610
PROFESSIONAL LAND SURVEYOR

SYMBOL & LINE LEGEND

- IRON PIPE FOUND
- CONCRETE BOUND FOUND
- IRON PIPE TO BE SET
- CONCRETE BOUND TO BE SET
- BUILDING SETBACK LINE
- EDGE OF WETLAND

Owner
Calabrese Construction, LLC

Definitive Subdivision Plan

HIGH STREET EXTENSION
Agawam, MA

Surveyed and Mapped for
Calabrese Construction, LLC
7 Brewster Road
West Springfield, Massachusetts

January 30, 2026 Scale: 1"=30'
Revised: March 23, 2026

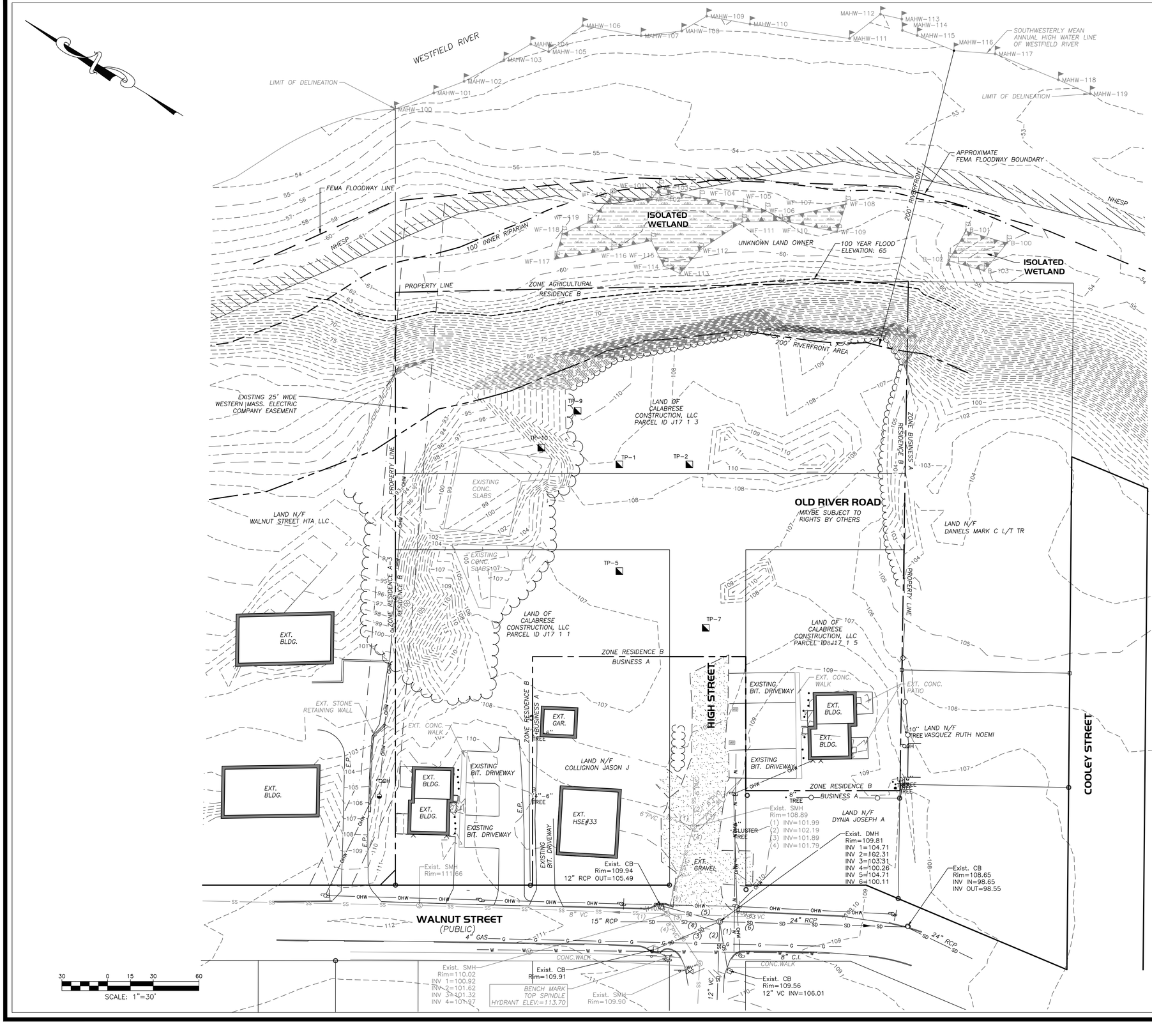
Prepared by

R LEVESQUE ASSOCIATES INC
ph: 413.568.0985 fax: 413.568.0986
40 School Street · P.O. Box 640
Westfield, MA 01086
rlaland.com

30 0 15 30 60
SCALE: 1"=30'

RLA Project Number: 220627

P-1



TOWN OF AGAWAM
PLANNING BOARD

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CITY CLERK _____ DATE

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PROFESSIONAL LAND SURVEYOR

EXISTING SITE CONDITIONS

0 Old River Street
Agawam, Massachusetts
Map J17 Parcel I-3

RLA
R LEVESQUE ASSOCIATES INC
Landscape Architects
Civil Engineers · Land Surveyors
Environmental Consultants
ph: 413.568.0985 fax: 413.568.0986
40 School Street
Westfield, MA 01085
rlaland.com

COMMONWEALTH OF MASSACHUSETTS
MARC E. SHUTE
No. 33610
PROFESSIONAL LAND SURVEYOR

PREPARED FOR:

Chuck Calabrese
Calabrese Construction, LLC

7 Brewster Road
West Springfield, MA.

ISSUANCE DATE: January 30, 2026

REVISIONS:	DATE:

DRAFTED BY: T.A. & F.C.

UNAUTHORIZED ALTERATION OF THIS DOCUMENT IS A VIOLATION OF MASSACHUSETTS STATE LAW

SCALE: As Noted

RLA PROJ. NUMBER: 220627

DRAWING#	REV.
EX-1	

PERMITTING

S:\Projects\2022\220627 - Calabrese - 0 Old River St, Agawam, MA\05 Civil 3D\220627 - Defin.dwg

SYMBOL & LINE LEGEND

- IRON PIPE FOUND
- IRON PIPE TO BE SET
- CONCRETE BOUND FOUND
- CONCRETE BOUND TO BE SET
- COMPUTED POINT
- EXISTING SIGN
- EXISTING MAILBOX
- MW EXISTING MONITORING WELL
- EXISTING LIGHT POLE
- UTILITY POLE
- GUY ANCHOR
- E EXISTING ELECTRIC MANHOLE
- T EXISTING TELEPHONE MANHOLE
- EXISTING CABLE TV BOX
- W EXISTING WELL LOCATION
- WV EXISTING WATER VALVE
- EXISTING WATER SHUT-OFF
- EXISTING HYDRANT
- PROPOSED WATER VALVE
- PROPOSED HYDRANT
- GV EXISTING GAS VALVE
- S EXISTING SANITARY SEWER MANHOLE
- EXISTING CATCH BASIN
- D EXISTING DRAIN MANHOLE
- PROPOSED CATCH BASIN
- PROPOSED MANHOLE
- SB-1 SOIL BORING LOCATION
- TP-1 TEST PIT LOCATION
- P-1 PERC TEST LOCATION
- WF-1 WETLAND FLAG LOCATION
- R-1 M.A.H.W. FLAG LOCATION
- EXISTING STONE WALL
- TREE LINE
- × 102.4 EXISTING SPOT GRADE
- 219 EXISTING CONTOUR
- × 94.7 PROPOSED SPOT GRADE
- 214 PROPOSED CONTOUR
- EDGE OF WETLAND
- FENCE LINE
- GUARDRAIL
- OHW OHW EXISTING OVERHEAD WIRES
- UEL UEL EXISTING UNDERGROUND ELECTRIC
- TEL TEL EXISTING TELEPHONE LINE
- G G EXISTING GAS LINE
- W W EXISTING WATER LINE
- SD SD EXISTING STORM DRAIN
- SS SS EXISTING SANITARY SEWER
- LOW LOW LIMIT OF WORK LINE
- SF SF SF SILT FENCE LINE

ABBREVIATIONS

A.F.F.	–	ABOVE FINISHED FLOOR
A.F.S.	–	ABOVE FINISHED SLAB
APPROX.	–	APPROXIMATE
A.T.F.	–	ABOVE TOP OF FOUNDATION
BLDG.	–	BUILDING
BLK.	–	BLOCK
BOT.	–	BOTTOM
B.O.W.	–	BOTTOM OF WALL
BRG.	–	BEARING
CB.	–	CATCH BASIN
CL	–	CENTERLINE
C.I.	–	CAST IRON
CLR.	–	CLEAR
CONC.	–	CONCRETE
CONT.	–	CONTINUOUS
CONTR.	–	CONTRACTOR
DBL.	–	DOUBLE
DET.	–	DETAIL
D.I.	–	DUCTILE IRON
DIA.	–	DIAMETER
DIM.	–	DIMENSION
DT'L.	–	DETAIL
DWG.	–	DRAWING
EA.	–	EACH
ELEC.	–	ELECTRIC
ELEV.	–	ELEVATION
EXIST.	–	EXISTING
EXT.	–	EXTERIOR
FFE	–	FINISH FLOOR ELEVATION
FIN.	–	FINISH
FLR.	–	FLOOR
FOUND.	–	FOUNDATION
FT.	–	FOOT OR FEET
INSTL.	–	INSTALLED
LT.	–	LIGHT
MAX.	–	MAXIMUM
M.A.H.W.	–	MEAN ANNUAL HIGH WATER
MH.	–	MANHOLE
MIN.	–	MINIMUM
MISC.	–	MISCELLANEOUS
N.T.S.	–	NOT TO SCALE
O.A.	–	OVERALL
O.C.	–	ON CENTER
PCB	–	PROPOSED CATCH BASIN
PDMH	–	PROPOSED DRAIN MANHOLE
PFES	–	PROP. FLARED END SECTION
POCS	–	PROP. OUTLET CONTROL STRUCT.
PROP.	–	PROPOSED
PSMH	–	PROP. SANITARY SEWER MANHOLE
PWQU	–	PROP. WATER QUALITY UNIT
P.S.I.	–	POUNDS PER SQUARE INCH
REINF.	–	REINFORCING
R.H.	–	RIGHT HAND
SHT.	–	SHEET
SPEC.	–	SPECIAL OR SPECIFICATIONS
SQ.	–	SQUARE
ST.	–	STEEL
STA.	–	STATION
T.O.F.	–	TOP OF FOUNDATION
T.O.W.	–	TOP OF WALL
T.S.	–	TOP OF STEEL
TYP.	–	TYPICAL
W/	–	WITH
WTR.	–	WATER
W.W.M.	–	WELDED WIRE MESH

TOWN OF AGAWAM
PLANNING BOARD

APPROVAL UNDER THE SUBDIVISION CONTROL LAW IS REQUIRED

_____ _____
DATE

I HEREBY CERTIFY THAT THE NOTICE OF APPROVAL OF THIS PLAN BY THE TOWN OF AGAWAM PLANNING BOARD HAS BEEN RECEIVED AND RECORDED AT THIS OFFICE AND NO APPEAL WAS RECEIVED DURING THE TWENTY DAYS NEXT AFTER SUCH RECEIPT AND RECORDINGS OF SAID NOTICE.

_____ _____
CITY CLERK DATE

I CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE REGISTRY OF DEEDS.

_____
PROFESSIONAL LAND SURVEYOR

COMMONWEALTH OF MASSACHUSETTS
MARC E. SHUTE
No. 33610
PROFESSIONAL LAND SURVEYOR

EROSION & SEDIMENT CONTROL NOTES

MANAGEMENT STRATEGIES

1. CONSTRUCTION TRAFFIC SHALL BE LIMITED TO THE CONSTRUCTION ENTRANCE.
2. CONSTRUCTION SEQUENCE SHALL BE PHASED TO AVOID LEAVING LARGE AREAS EXPOSED FOR LONG PERIODS OF TIME.
3. TEMPORARY SEED AND MULCH SHALL BE APPLIED IMMEDIATELY FOLLOWING ROUGH GRADING.
4. SEDIMENTATION CONTROL MEASURES SHALL BE INSPECTED CONTINUOUSLY, ESPECIALLY FOLLOWING STORM EVENTS TO LOCATE FAILING CONTROL MEASURES AND CONDUCT ROUTINE MAINTENANCE OPERATIONS.
5. THE CONSTRUCTION SUPERINTENDENT SHALL INFORM ALL ON-SITE WORKERS OF THE SEDIMENTATION CONTROL PROGRAM.

VEGETATIVE CONTROL PRACTICES

1. TOPSOIL STOCKPILING: TOPSOIL SHALL BE STRIPPED FROM AREAS TO BE DISTURBED AND STOCKPILED FOR LATER USE. STOCKPILE LOCATION SHALL BE APPROVED BY THE OWNER AND ENGINEER AND BE WITHIN LIMIT OF WORK.
2. TEMPORARY SEEDING: THE TEMPORARY SEDIMENT BASIN, TOPSOIL STOCKPILE AND ROUGH GRADED AREAS SHALL BE SEEDED WITH WINTER RYE AT A RATE OF 30 LBS. PER ACRE ANY SOILS THAT ARE LEFT EXPOSED AND UNDISTURBED FOR MORE THAN 30 DAYS SHALL BE TEMPORARILY SEEDED.

A. SITE PREPARATION
- COMPLETE ALL ROUGH GRADING ACTIVITIES
- REMOVE ALL ROCKS AND DEBRIS LARGER THAN 3" IN DIAMETER FROM AREAS TO BE TEMPORARILY SEEDED. -EVENLY APPLY LIME TO ACHIEVE A PH VALUE OF 6.0.
- EVENLY APPLY 14 LBS. OF 5-10-10 ANALYSIS FERTILIZER TO A DEPTH OF 4" USING SUITABLE EQUIPMENT.
- SEEDBED IS TO BE LEFT IN FIRM AND SMOOTH CONDITION.
- THE LAST TILLAGE OPERATION SHALL BE PERFORMED ACROSS THE SLOPE.

B. ESTABLISHMENT
- EVENLY APPLY SEED IN ACCORDANCE WITH THE SPECIES AND RATE INDICATED ABOVE BY MEANS OF BROADCASTING OR HYDROSEEDING.
- UNLESS HYDROSEEDED, COVER SEED WITH 1/4" TO 1/2" OF TOPSOIL
- APPLY MULCH OR EROSION CONTROL BLANKET IMMEDIATELY FOLLOWING SEEDING.
- VERIFY SEEDING DATES WITH ENGINEER/LANDSCAPE ARCHITECT. IF ENGINEER/LANDSCAPE ARCHITECT DETERMINES THAT SEED CANNOT BE APPLIED DUE TO CLIMATE, TOPSOIL SHALL NOT BE SPREAD AND MULCHING SHALL BE APPLIED TO THE EXPOSED SURFACE TO STABILIZE SOILS UNTIL THE NEXT RECOMMENDED SEEDING PERIOD.
- PERMANENT SEEDING SHALL BE APPLIED BETWEEN APRIL 15 AND SEPTEMBER 30. TEMPORARY SEEDING SHALL BE APPLIED TO ALL DISTURBED AREAS OUTSIDE THIS TIME FRAME, UPON APPROVAL BY THE ENGINEER/LANDSCAPE ARCHITECT.

C. MAINTENANCE
- ALL SEEDED/MULCHED AREAS SHALL BE INSPECTED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHALL BE REPAIRED AS NECESSARY.

NONSTRUCTURAL CONTROL PRACTICES

1. SCARIFICATION: EXPOSED SLOPES EXCEEDING 4:1 SHALL BE SCARIFIED AT RIGHT ANGLES TO THE SLOPE. PROVIDE PERIODIC UPGRADING OF SERRATIONS DURING EXPOSED PERIOD UNTIL VEGETATION IS ESTABLISHED. PROVIDE VEGETATIVE COVER AS SOON AS POSSIBLE.
2. STRAW MULCH: STRAW MULCH SHALL BE APPLIED IN CONJUNCTION WITH TEMPORARY/PERMANENT SEEDING AND TO GRADED AREAS WHICH REMAIN EXPOSED OUTSIDE OF RECOMMENDED SEEDING DATES. MULCH SHALL BE APPLIED AT 90 LBS. PER 1000 S.F. CONTRACTOR SHALL PERIODICALLY INSPECT AND REAPPLY AS NECESSARY, PARTICULARLY FOLLOWING SIGNIFICANT STORM EVENTS.
3. TOPSOIL: DISTURBED AREAS SHALL BE TOPSOILED PRIOR TO SEED APPLICATION. APPLICATION STANDARDS:
- REMOVE ALL ROCKS AND DEBRIS OVER 1"-1 1/2" IN DIAMETER.
- SCARIFY SURFACE PRIOR TO SEED APPLICATION.
- APPLY 6" DEPTH OF TOPSOIL.
4. SILT FENCE: SILT FENCE SHALL BE INSTALLED AROUND THE PERIMETER OF THE SITE, AT CULVERT OUTLET LOCATIONS, OR AS INDICATED ON THE DRAWINGS. SILT FENCE SHALL BE INSPECTED AND REPAIRED ROUTINELY, ESPECIALLY FOLLOWING STORM EVENTS UNTIL THE SITE HAS BEEN STABILIZED (COVER > 70%) BY VEGETATION.

STRUCTURAL CONTROL PRACTICES

1. RIP-RAP OUTLET PROTECTION: RIP-RAP SHALL BE PROVIDED AT ALL PIPE OUTLETS. MATERIAL SHALL BE HARD, DURABLE FIELD OR QUARRY STONE WHICH IS ANGULAR AND RESISTS BREAKING DOWN WHEN EXPOSED TO WATER OR WEATHERING.
2. CONSTRUCTION ENTRANCE: CONSTRUCTION ENTRANCE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DRAWINGS.
3. DUST CONTROL: A WATER TRUCK SHOULD BE LOCATED ON-SITE FOR DUST CONTROL WHILE WORK IS PROCEEDING. MAINTENANCE SEDIMENTATION CONTROL MEASURES SHALL BE CHECKED WEEKLY AND AFTER EACH SIGNIFICANT RAINFALL EVENT. THE FOLLOWING ITEMS SHALL BE CHECKED IN PARTICULAR:

A. RIP-RAP OUTLET PROTECTION SHALL BE CHECKED REGULARLY FOR SEDIMENT ACCUMULATION. IF SIGNIFICANT AMOUNTS OF SEDIMENT ACCUMULATE, RIP-RAP SHALL BE REMOVED AND REPLACED.
B. SILT FENCING SHALL BE INSPECTED REGULARLY FOR UNDERMINING AND DETERIORATION. REMOVE SEDIMENT FROM BEHIND FENCE WHEN IT BECOMES 6 INCHES DEEP.
C. SEEDED/MULCHED AREAS SHALL BE INSPECTED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHALL BE REPAIRED AS NECESSARY.

SILT FENCE INSTALLATION NOTES

1. THIS SEDIMENT BARRIER UTILIZES MIRAFI ENVIROFENCE (100X) OR EQUAL. IT IS DESIGNED FOR SITUATIONS IN WHICH ONLY SHEET OR OVERLAND FLOWS ARE EXPECTED.
2. THE HEIGHT OF THE BARRIER SHALL NOT EXCEED 36 INCHES (HIGHER BARRIERS MAY IMPOUND VOLUMES OF WATER SUFFICIENT TO CAUSE FAILURE OF THE STRUCTURE). IDEALLY THE FILTER FENCE SHALL BE PLACED 10 FEET AWAY FROM THE TOE OF SLOPE.
3. WHEN JOINTS ARE NECESSARY, FILTER FABRICS SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT STAKES WITH A MINIMUM 6-INCH OVERLAP, AND SECURELY SEALED. SEE MANUFACTURER'S RECOMMENDATION.
4. STAKES SHALL BE SPACED A MAXIMUM OF 10 FEET APART AT THE BARRIER LOCATION AND DRIVEN SECURELY INTO THE GROUND (MINIMUM OF 12 INCHES). IN APPLICATIONS WHERE HEAVY FLOWS ARE EXPECTED SUCH AS IN-STREAM INSTALLATIONS STAKE SPACING SHALL BE PER MANUFACTURER'S RECOMMENDATIONS AND/OR THE ENGINEERS RECOMMENDATIONS.
5. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 6 INCHES WIDE AND 6 INCHES DEEP ALONG THE LINE OF STAKES AND UPSLOPE FROM THE BARRIER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
6. THE PRE ASSEMBLED SILT FENCE SYSTEM SHALL BE UNROLLED, POSITION THE STAKES ON THE DOWNHILL SIDE OF THE TRENCH AND HAMMER THE STAKES AT LEAST 12 INCHES INTO THE GROUND.
7. THE BOTTOM SIX (6) INCHES OF THE FABRIC SHALL BE LAID INTO THE TRENCH TO PREVENT UNDERMINING BY STORM WATER RUNOFF.
8. BACKFILL THE TRENCH OVER THE FILTER FABRIC AND COMPACT SUFFICIENTLY TO PREVENT THE RUNOFF FROM ERODING THE BACKFILL.
9. THE FABRIC SHALL NOT EXTEND MORE THAT 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE. FILTER FABRIC SHALL NOT BE STAPLED TO EXISTING TREES OR SUPPORTS OTHER THAN THE STANDARD STAKES.
10. INSTALLED SILT FENCE BARRIERS SHALL BE MAINTAINED ON A REGULAR SCHEDULE WHICH MAY BE PRESCRIBED BY THE LOCAL, STATE OF FEDERAL REGULATORY AUTHORITY; BUT, AT MINIMUM SHALL BE CHECKED WEEKLY AS WELL AS AFTER EACH STORM EVENT. MAINTENANCE SHALL CONSIST OF AN INSPECTION OF THE ENTIRE LENGTH OF THE BARRIER TO DETERMINE IF IT IS FUNCTIONING AS INTENDED. ALL BREAKS, DETACHED FABRIC, SLUMPED FABRIC, CLOGGED FABRIC, AND UNDERMINED AREAS SHALL BE FIXED THE DAY THAT THEY ARE DISCOVERED.
11. WHEN A MAXIMUM OF SIX (6) INCHES OF SEDIMENT HAS ACCUMULATED BEHIND THE SILT FENCE THIS SEDIMENT SHALL BE REMOVED AND THE FENCE SHALL BE INSPECTED FOR TEARS, CLOGGING OF BREAKS. ALL DEFICIENCIES SHALL BE CORRECTED IMMEDIATELY EITHER BY REPAIR OF REPLACEMENT OF THE SILT FENCE BARRIER AND/OR STAKES AS NEEDED.
12. SILT FENCE BARRIERS SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN CLEANED OF SILT AND PERMANENTLY STABILIZED.

HAY BALE INSTALLATION & MAINTENANCE (AS REQ'D)

1. HAY BALES SHALL BE PLACED IN A SINGLE ROW, LENGTHWISE ON THE CONTOUR, WITH ENDS OF ADJACENT BALES TIGHTLY ABUTTING ONE ANOTHER.
2. ALL BALES SHALL BE EITHER WIRE BOUND OR STRING TIES. BALES SHALL BE INSTALLED SO THAT BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES TO PREVENT DETERIORATION OF THE BINDINGS.
3. THE BARRIER SHALL BE ENTRENCHED AND BACKFILLED. A TRENCH SHALL BE EXCAVATED THE WIDTH OF A BALE AND THE LENGTH OF THE PROPOSED BARRIER TO A MINIMUM DEPTH OF FOUR (4) INCHES AND A MAXIMUM DEPTH OF SIX (6) INCHES. AFTER THE BALES ARE STAKED AND CHINKED, THE EXCAVATED SOIL SHALL BE BACKFILLED AGAINST THE BARRIER. BACKFILL SOIL SHALL CONFORM TO THE GROUND LEVEL ON THE DOWNHILL SIDE AND SHALL BE BUILT UP TO FOUR (4) INCHES AGAINST THE UPHILL SIDE OF THE BARRIER.
4. EACH BALE SHALL BE SECURELY ANCHORED BY AT LEAST TWO (2) STAKES OR REBARS DRIVEN THROUGH THE BALE. THE FIRST STAKE IN EACH BALE SHALL BE DRIVEN TOWARD THE PREVIOUSLY LAID BALE TO FORCE THE BALES TOGETHER. STAKES OR REBARS SHALL BE DRIVEN DEEP ENOUGH INTO THE GROUND TO SECURELY ANCHOR THE BALES.
5. THE GAPS BETWEEN BALES SHALL BE CHINKED (FILLED BY WEDGING) WITH STRAW TO PREVENT WATER FROM ESCAPING BETWEEN THE BALES. (LOOSE STRAW SCATTERED OVER THE AREA IMMEDIATELY UPHILL FROM A STRAW BALE BARRIER TENDS TO INCREASE BARRIER EFFICIENCY.)
6. HAY BALES GENERALLY DETERIORATE IN 2-6 MONTHS AND THUS NEED REPLACEMENT.
7. INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
8. BALE BARRIERS SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS, BUT NOT BEFORE THE UPSLOPE AREAS HAVE BEEN PERMANENTLY STABILIZED.

SITE PREP

1. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELOCATION, INCLUDING BUT NOT LIMITED TO, ALL UTILITIES, STORM DRAINAGE, SIGNS, TRAFFIC SIGNALS & POLES, ETC. AS REQUIRED. ALL WORK SHALL BE IN ACCORDANCE WITH GOVERNING AUTHORITIES SPECIFICATIONS AND SHALL BE APPROVED BY SUCH.
2. CONTRACTOR SHALL ERECT AND MAINTAIN SAFETY BARRICADES AND POST PROPER NOTICES PRIOR TO THE COMMENCEMENT OF WORK.
3. CONTRACTOR SHALL PROTECT EXISTING SITE IMPROVEMENTS, APPURTENANCES, AND LANDSCAPING TO REMAIN.
4. CONTRACTOR SHALL MAINTAIN EXISTING UTILITIES TO REMAIN IN SERVICE AND PROTECT THEM FROM DAMAGE DURING DEMOLITION OPERATIONS.
5. DO NOT DAMAGE EXISTING UTILITIES TO REMAIN WITHIN PROJECT AREA. ALL DAMAGE TO EXISTING UTILITIES TO REMAIN SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE UTILITY OWNER.
6. THERE SHALL BE NO BURNING OF DEMOLISHED MATERIAL ALLOWED ON SITE.
7. CONTRACTOR SHALL COORDINATE WITH OWNER FOR ANY ITEMS TO BE TURNED OVER TO OWNER.
8. DEMOLISH AND REMOVE ALL PAVEMENT, SLABS, FOOTINGS, SUBSURFACE ELEMENTS, MISCELLANEOUS DEBRIS, ETC. WITHIN PROPERTY LINES UNLESS NOTED OTHERWISE.
9. CONTRACTOR IS RESPONSIBLE FOR CONTROLLING DUST SO THAT DUST DOES NOT CREATE A NUISANCE ON ADJACENT ROADS OR PROPERTIES. SITE CONTRACTOR SHALL BE RESPONSIBLE FOR STREET SWEEPING AND CATCH BASIN CLEANING AFTER EACH PHASE OF CONSTRUCTION AND AS NEED IS DETERMINED BY THE ENGINEER.
10. CONTRACTOR SHALL REMOVE AND DISPOSE OF ANY ABANDONED SUBSURFACE SOIL ABSORPTION SYSTEM (SAS) AND MISCELLANEOUS DEBRIS.
11. NO ACTIVITY OTHER THAN NORMAL MAINTENANCE SHALL OCCUR OUTSIDE OF LIMIT OF WORK LINES AS SHOWN ON PLAN WITHOUT THE APPROVAL OF THE ENGINEER.
12. THE CONTRACTOR SHALL NOTIFY DIG SAFE @ 1-888-344-7233 PRIOR TO COMMENCEMENT OF ANY DEMOLITION/CONSTRUCTION ACTIVITY.

LANDSCAPE NOTES

1. THE CONTRACTOR SHALL VERIFY FINAL SELECTION OF PLANT MATERIALS WITH THE LANDSCAPE ARCHITECT AND OWNER PRIOR TO INSTALLATION.
2. NO PLANT MATERIAL WILL BE ACCEPTED WHICH DISPLAYS MAJOR IRREGULARITIES OR DAMAGE. THE OWNER/LANDSCAPE ARCHITECT RETAINS THE RIGHT TO REJECT ANY PLANT MATERIAL DEEMED UNFIT.
3. WARRANTEE: FOR A PERIOD OF TWO GROWING SEASONS FROM THE DATE THAT THE WORK UNDER THIS CONTRACT IS CERTIFIED AS SUBSTANTIALLY COMPLETE, THE CONTRACTOR SHALL: 1) WARRANTEE ALL PLANTS AND SEEDED AREAS UNDER THIS CONTRACT; 2)REMOVE AND REPLACE DURING THIS GUARANTEE PERIOD PLANTS WHICH DIE OR ARE IN POOR CONDITION AS DETERMINED BY THE OWNER; 3) REPLANT WITH STOCK OF SAME SIZE AND QUALITY AS ORIGINALLY SPECIFIED; 4) GUY AND MAINTAIN AS SPECIFIED HEREIN AT NO ADDITIONAL COST TO THE OWNER.
4. ALL NEW LAWN AREAS SHALL RECEIVE A MINIMUM OF 4 INCHES TOPSOIL OF THE PROPER pH AND ORGANIC CONTENT SUITABLE FOR THE HEALTHY GROWTH OF LAWNS. THESE AREAS SHALL BE SEEDED WITH A FINE BLADE LAWN GRASS SEED OR SODDED. ADDITIONAL OFF-SITE TOPSOIL MAY BE REQUIRED.
5. ALL AREAS TO BE MULCHED SHALL RECEIVE 4 INCHES MINIMUM 100% SHREDDED BARK MULCH WITHIN 48 HOURS OF PLANTING UNLESS OTHERWISE NOTED IN PLANTING DETAILS.
6. ALL TREE AND SHRUB PITS SHALL BE AT LEAST 2 FEET WIDER AND 1 FOOT DEEPER THAN THE TREE OR SHRUB ROOT BALL TO BE PLANTED IN IT. BACKFILL SHALL BE HIGH QUALITY LOAM OF THE PROPER pH AND ORGANIC CONTENT SUITABLE FOR THE HEALTHY GROWTH OF PLANT MATERIALS.
7. ALL PLANTS SHALL BE NURSERY GROWN AND CONFORM TO THE LATEST EDITION OF "ANSI Z60.1, AMERICAN STANDARD FOR NURSERY STOCK".
8. EACH PLANT TO BE FREE FROM DISEASE, INSECT INFESTATION, MECHANICAL INJURIES, AND IN ALL RESPECTS BE SUITABLE FOR FIELD PLANTING.
9. EACH PLANT TO BE IN THE TOP OF ITS SIZE CLASS AFTER SHEARING AND PRUNING.
10. ADJACENT TO THE TOP OF ANY WALLS OVER 36" A FENCE OR WALL SHALL BE CONSTRUCTED PER PLAN THAT MEETS LOCAL BUILDING CODE AND ALL OTHER APPLICABLE STATE AND FEDERAL LAWS.
11. SEE DETAIL SHEETS FOR ADDITIONAL DETAILS & SPECIFICATIONS.
12. SHOULD GC OR ANY SUBCONTRACTOR ENCOUNTER A DISCREPANCE/CONFLICT IN THE PLAN AN THE ACTUAL LOCATION OF A SITE FEATURE, THE CONTRACTOR SHALL CONTACT THE LANDSCAPE ARCHITECT/ENGINEER AND OWNER IMMEDIATELY.
13. ALL AREAS DISTURBED DURING CONSTRUCTION NOT DESIGNATED TO RECEIVE OTHER TREATMENT SHALL BE LOAMED TO A MINIMUM DEPTH OF 4" AND SEEDED IN ACCORDANCE WITH THE FOLLOWING:
    A. INCORPORATE GROUND LIMESTONE INTO ALL AREAS TO BE SEEDED AT A RATE OF 50 LBS/1,000 S.F.
    B. APPLY 10-6-4 FERTILIZER TO ALL AREAS TO BE SEEDED AT A RATE OF 2 LBS/1,000 S.F.
    C. THOROUGHLY INCORPORATE LIME AND FERTILIZER INTO SEED BED TO DEPTH OF 3" BY DISCING OR OTHER APPROVED METHOD.
    D. SEED WITH THE FOLLOWING MIXTURE, APPLIED AT A RATE OF 10 LBS/1,000 S.F. SEED MIX:

NAME OF SEED	% BY WEIGHT IN MIXTURE	MIN. % PURITY	MIN. GERMINATION
POS PRETENSES "BARON" BARON BLUEGRASS	50	90	75
FESTUCA RUBRA "PENNLAWN" PENNLAWN FESCUE	25	95	85
LOLIUM PERENNE "PENNFINE" PENNFINE	25	98	95

    E. MULCH ALL SEEDED AREAS WITH STRAW AT A RATE OF 5 LBS/1,000 S.F.UNLESS HYDROSEEDING WAS USED.
    F. ALL SLOPES OF 3:1 OR GREATER AFTER BEING LOAMED, SEEDED AND MULCHED IN ACCORDANCE WITH THE ABOVE SHALL SECURED WITH EROSION CONTROL BLANKETS (NO. AMERICAN GREEN S150 OR EQUAL). OVERLAP ALL NETTING JOINTS A MINIMUM OF 6" AND SECURE WITH DOUBLE ROW OF STAPLES.

RLA
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NOTES, SYMBOL & LINE LEGEND AND ABBREVIATIONS

0 Old River Street
Agawam, Massachusetts
Map J17 Parcel I-3

COMMONWEALTH OF MASSACHUSETTS
FILIPE J. CRAVO
CIVIL
No. 62576
REGISTERED PROFESSIONAL ENGINEER
1/30/26

PREPARED FOR:
Chuck Calabrese
Calabrese Construction, LLC
7 Brewster Road
West Springfield, MA.

ISSUANCE DATE: January 30, 2026

REVISIONS:	DATE:

DRAFTED BY: T.A. & F.C.

UNAUTHORIZED ALTERATION OF THIS DOCUMENT IS A VIOLATION OF MASSACHUSETTS STATE LAW

SCALE: As Noted

RLA PROJ. NUMBER: 220627

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PERMITTING

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GENERAL CONSTRUCTION NOTES

1. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR OR HIS AUTHORIZED REPRESENTATIVE SHALL CONVENE A PRE-CONSTRUCTION CONFERENCE BETWEEN THE CITY/TOWN REPRESENTATIVES, CONSULTING ENGINEER/LANDSCAPE ARCHITECT, UTILITY COMPANY REPRESENTATIVES, AND ANY OTHER AFFECTED PARTIES.

2. THE OWNER, R LEVESQUE ASSOCIATES, INC., AND/OR THEIR REPRESENTATIVES, IN PREPARING THESE PLANS HAVE ATTEMPTED TO LOCATE ALL EXISTING UTILITIES IN THE PROJECT AREA. HOWEVER, THERE MAY BE UTILITIES THAT WERE NOT OR COULD NOT BE LOCATED. UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE IN APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATIONS AND ELEVATIONS OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL CALL ALL APPROPRIATE UTILITY COMPANIES FOR LOCATIONS OF THEIR UTILITIES AT LEAST 48 HOURS BEFORE COMMENCING EXCAVATION. IN THE EVENT THAT A UTILITY IS SITUATED SUCH THAT CONSTRUCTION CANNOT PROCEED AS SHOWN ON THE PLANS, THE PROJECT ENGINEER/LANDSCAPE ARCHITECT AND OWNER SHALL BE NOTIFIED IMMEDIATELY.

3. THE SITE CONTRACTOR IS RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH OCCUR DUE TO HIS FAILURE TO LOCATE AND PRESERVE ANY AND ALL UTILITIES.

4. ALL FILL WORK REQUIRED TO BRING THE PROPOSED ROADWAY UP TO SUB-GRADE LEVEL SHALL CONFORM TO MHD SPECIFICATIONS SECTION 150.

5. CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE GOVERNING CODES AND BE CONSTRUCTED TO SAME.

6. ALL WORK IN THE CITY/TOWN RIGHT-OF-WAY AND EASEMENTS SHALL BE IN ACCORDANCE WITH THE CITY/TOWN SPECIFICATIONS AND MASSACHUSETTS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION.

7. THE CONTRACTOR SHALL GIVE THE CITY/TOWN A MINIMUM OF 48 HOURS NOTICE BEFORE BEGINNING EACH PHASE OF CONSTRUCTION.

8. CONTRACTOR IS RESPONSIBLE FOR REPAIRS OF DAMAGE TO ANY EXISTING IMPROVEMENTS DURING CONSTRUCTION, SUCH AS, BUT NOT LIMITED TO, DRAINAGE, UTILITIES, PAVEMENT, STRIPING, CURB, ETC. REPAIRS SHALL BE EQUAL TO OR BETTER THAN EXISTING CONDITIONS.

9. ALL WORK SHALL BE PERFORMED IN CONFORMANCE WITH THE CONDITIONS OF APPROVAL OUTLINED IN ALL STATE AND LOCAL PERMITS. COPIES OF THE CONDITIONS ARE INCLUDED WITHIN THE PROJECTS TECHNICAL SPECIFICATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING THIS INFORMATION PRIOR TO CONSTRUCTION AND CONFORMING TO THE CONDITIONS AS REQUIRED DURING CONSTRUCTION.

10. THE CONTRACTOR SHALL MAINTAIN THE JOB CLEAR OF TRASH AND DEBRIS. THE WORK AREAS ARE TO BE PICKED UP AT THE END OF EACH WORK DAY.

11. ANY TEMPORARY FACILITIES FOR THE STORAGE OR PROTECTION OF TOOLS, EQUIPMENT OR MATERIALS SHALL CONFORM TO LOCAL REGULATIONS AND SHALL BE THE GENERAL CONTRACTORS RESPONSIBILITY. THESE DOCUMENTS DO NOT INCLUDE THE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. SAFETY, CARE OF ADJACENT PROPERTIES DURING CONSTRUCTION, AND COMPLIANCE WITH STATE AND FEDERAL REGULATIONS REGARDING SAFETY SHALL BE THE GENERAL CONTRACTORS RESPONSIBILITY.

12. THE GENERAL CONTRACTOR AND HIS SUBCONTRACTORS SHALL VISIT THE SITE AND BECOME FAMILIAR WITH ALL CONDITIONS PRIOR TO SUBMITTING HIS PROPOSAL. NO EXTRAS DUE TO UNFAMILIARITY WITH THE EXISTING SITE OR WORKING CONDITIONS WILL BE ALLOWED.

13. CONTRACTOR SHALL BE REQUIRED TO PERFORM FINAL CLEANUP CONSISTING OF CLEANING THE PROPOSED DRAINAGE AND SEWER SYSTEMS OF ALL DEBRIS PRIOR TO THE ACCEPTANCE BY THE OWNER. ADDITIONALLY, THE PROPOSED ROADWAY SHALL BE CLEANED AND SWEPT BY THE CONTRACTOR PRIOR TO ACCEPTANCE.

14. ALL EXCAVATION SHALL COMPLY WITH OSHA'S LATEST STANDARDS. ALL REQUIREMENTS OF OSHA'S EXCAVATION STANDARDS SHALL BE PROVIDED BY THE CONTRACTOR INCLUDING, BUT NOT LIMITED TO, THE PROVISION FOR A COMPETENT PERSON ON SITE MANAGER AND ANY REQUIRED DOCUMENTATION THAT MAY REQUIRE CERTIFICATION BY A PROFESSIONAL ENGINEER. THE OWNER, THROUGH ITS ENGINEER, SHALL EXPRESSLY NOT PROVIDE ANY OF THE ABOVE REQUIREMENTS DESIGNATED BY OSHA'S EXCAVATION STANDARD.

15. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE COST OF LAYING OUT ALL ITEMS OF THE WORK BASED ON CERTAIN HORIZONTAL CONTROL AND BENCHMARK SUPPLIED BY THE SURVEYOR OF RECORD. ANY DISCREPANCIES SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER.

16. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR, EQUIPMENT, PERMITS AND APPURTENANCES NECESSARY TO PROVIDE A COMPLETE PROJECT AS INDICATED ON THE PLANS AND IN THESE SPECIFICATIONS.

17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR A THOROUGH SITE EXAMINATION IN ORDER TO PREPARE SITE FOR CONSTRUCTION.

18. ANY AND ALL DEMOLISHED TREES, STRUCTURES AND OTHER RUBBLE MATERIAL PERTAINING TO THIS PROJECT SHALL BE DISPOSED OF BY THE CONTRACTOR OFF-SITE AT HIS EXPENSE IN ACCORDANCE WITH ALL OF THE CITY/TOWN ORDINANCES AND ALL APPLICABLE STATE AND FEDERAL ENVIRONMENTAL REGULATIONS.

19. ALL PAVEMENT DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPLACED IN ACCORDANCE WITH THE SPECIFICATIONS AND AS SHOWN ON THE DRAWINGS.

20. ALL STREET EXCAVATIONS SHALL BE COMPLETELY CLOSED AT THE END OF EACH WORKING DAY BY BACKFILLING OR COVERING WITH STEEL PLATES.

21. ALL MATERIALS AND METHODS ARE TO COMPLY WITH THE CITY/TOWN DPW STANDARDS OR MASSACHUSETTS DEPARTMENT OF TRANSPORTATION (MASSDOT) (WHERE APPLICABLE), UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

22. PERMITS WILL BE REQUIRED BY CONTRACTOR WHEN WORKING WITHIN OR OCCUPYING PUBLIC WAY. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED WORK PERMITS AND MAINTAINING A COPY OF ALL PERMITS IN A THREE RING BINDER OR PROJECT BOOK AND ON-SITE AT ALL TIMES.

23. BACKFILL WILL BE PLACED IN SUCCESSIVE LAYERS NOT MORE THAN TWELVE INCHES IN THICKNESS AND SHALL BE COMPACTED TO 95% OF MAXIMUM DRY DENSITY DETERMINED BY STANDARD PROCTOR TEST (ASTM 698) FOR ALL APPLICABLE TYPES OF BACKFILL MATERIAL. NO FROZEN MATERIAL SHALL BE USED AS BACKFILL. IF, IN THE OPINION OF THE ENGINEER OR THE DPW, THE EXCAVATED MATERIAL IS UNSUITABLE, THE ENTIRE MATERIAL FOR BACKFILLING SHALL CONSIST OF APPROVED GRAVEL OR APPROVED BORROW, AS DIRECTED. AFTER THOROUGH TAMPING AROUND AND BENEATH THE UTILITY, A SIX-INCH LAYER OF BACKFILL WILL BE THOROUGHLY COMPACTED AS FOLLOWS: IF DRY, SHALL BE MOISTENED AND THEN COMPACTED WITH MECHANICAL TAMPERS OR BY HAND TAMPERS HAVING A TAMPING FACE NOT EXCEEDING 25 SQUARE INCHES IN AREA. THE FINAL TWELVE INCHES OF FILLING WILL, IN ALL CASES, CONSIST OF APPROVED GRAVEL THOROUGHLY TAMPED.

24. CONTRACTOR SHALL PROVIDE FIELD COMPACTION VERIFICATION UTILIZING ASTM D5195-02, STANDARD TEST METHOD FOR DENSITY OF SOIL & ROCK IN-PLACE AT DEPTHS BELOW THE SURFACE BY NUCLEAR METHODS.

25. CONTRACTOR SHALL PROVIDE FIELD COMPACTION RESULTS TO ENGINEER WITHIN 24-HOURS PRIOR TO PLACEMENT OF INFRASTRUCTURE OR BITUMINOUS BINDER.

26. ALL FILL TO BRING PROPOSED ROADWAY UP TO THE SUB-GRADE LEVEL SHALL EXTEND PAST THE EDGE OF THE RIGHT-OF-WAY AT A 2:1 SLOPE. THIS IS TO PROVIDE ADEQUATE SUPPORT FOR THE RIGHT-OF-WAY.

LAYOUT NOTES

1. ALL CONSTRUCTION IN CITY/TOWN RIGHT-OF-WAYS AND/OR EASEMENTS SHALL BE IN ACCORDANCE WITH THE CITY/TOWN STANDARD SPECIFICATIONS.

2. IN THE EVENT OF DISCREPANCIES BETWEEN LOCAL SPECIFICATIONS AND SITE SPECIFICATIONS, THE MORE STRINGENT REQUIREMENT SHALL GOVERN.

3. SITE CONTRACTOR SHALL PROTECT ALL BENCHMARKS AND PROPERTY MONUMENTATION AND SHALL REPLACE OR REPAIR, AT HIS OWN EXPENSE, BENCHMARKS AND MONUMENTATION DISTURBED DURING CONSTRUCTION.

4. ALL STRIPING, PAVEMENT MARKINGS, AND TRAFFIC SIGNAGE SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, UNLESS OTHERWISE NOTED ON THE PLANS.

5. ALL WORK SHALL COMPLY WITH FEDERAL, STATE AND LOCAL CODES AND ORDINANCES INCLUDING BUT NOT LIMITED TO: AASHTO, OSHA, EPA, DEP, MASSDOT , ETC. THE GENERAL CONTRACTOR SHALL APPLY FOR ALL PERMITS AND SHALL PAY ALL PERMIT RELATED FEES. ALL NECESSARY PERMITS SHALL BE OBTAINED PRIOR TO THE START OF WORK.

6. ALL DIMENSIONS AND CONDITIONS SHOWN ON THE DRAWINGS ARE TO BE VERIFIED BY THE CONTRACTOR. IF FIELD CONDITIONS VARY SIGNIFICANTLY ENOUGH TO REQUIRE A CHANGE TO THE CONTRACT DOCUMENTS, THE PROJECT PROPONENT AND ENGINEER SHALL BE NOTIFIED IMMEDIATELY.

7. THE SITE/GENERAL CONTRACTOR AND SUBCONTRACTORS SHALL CONTACT THE OWNER AND ENGINEER SHOULD HE FIND ANY CONFLICT OR INCONSISTENCY BETWEEN THE WORK SHOWN ON THE DRAWINGS AND NORMAL ACCEPTED CONSTRUCTION PRACTICES, OR HE SHALL ASSUME RESPONSIBILITY FOR ALL CORRECTIONS.

8. ANY CORRECTIONS REQUIRED FOR REVISIONS TO THE CONTRACT DRAWINGS INITIATED BY THE GENERAL CONTRACTOR OR SUBCONTRACTORS WITHOUT PRIOR APPROVAL OF THE OWNER AND OR THE ENGINEER SHALL BE ACCOMPLISHED AT THE CONTRACTORS RISK.

9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL & LEGAL DISPOSAL OF ALL MATERIAL NECESSARY TO PREPARE THE SITE FOR THE NEW CONSTRUCTION AS SHOWN ON THE SITE DRAWINGS.

10. REPAIR DAMAGED CITY/TOWN ROADS AND CURBS IN ACCORDANCE WITH MASSDOT AND/OR THE CITY/TOWN REGULATIONS.

11. CONTRACTOR SHALL SAWCUT PAVEMENT EDGE WHERE PAVEMENT TO REMAIN IS ADJACENT TO PAVEMENT TO BE REMOVED.

12. CONTRACTOR SHALL PREPARE SITE AS NECESSARY FOR CONSTRUCTION SHOWN ON THE PLANS.

EARTHWORK NOTES

1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.

2. ALL CUT OR FILL SLOPES SHALL BE 3:1 OR FLATTER UNLESS OTHERWISE NOTED.

3. STORM PIPE SHALL BE AS NOTED ON PLANS.

4. EXISTING DRAINAGE STRUCTURES TO BE INSPECTED AND REPAIRED AS NEEDED, AND EXISTING PIPES TO BE CLEANED OUT TO REMOVE ALL SILT AND DEBRIS.

5. EXISTING GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT INTERVALS.

6. PROPOSED GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT INTERVALS.

7. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER.

8. ALL STORM PIPE ENTERING STRUCTURES SHALL BE SEALED TO ASSURE CONNECTION AT STRUCTURE IS WATERTIGHT.

9. ALL STORM SEWER MANHOLES FRAMES AND GRATES ARE TO BE SET EQUAL TO FINISH GRADES, AND SHALL HAVE TRAFFIC BEARING RING & COVERS (H20).

10. CONTRACTOR SHALL ADJUST AND/OR CUT EXISTING PAVEMENT AS NECESSARY TO ASSURE A SMOOTH FIT AND CONTINUOUS GRADE.

11. CONTRACTOR SHALL ASSURE POSITIVE DRAINAGE AWAY FROM BUILDINGS FOR ALL NATURAL AND PAVED AREAS.

12. ALL UNSURFACED AREAS DISTURBED BY GRADING OPERATION SHALL RECEIVE 4 INCHES OF TOPSOIL. CONTRACTOR SHALL APPLY STABILIZATION FABRIC TO ALL SLOPES 3H:1V OR STEEPER. CONTRACTOR SHALL GRASS DISTURBED AREAS IN ACCORDANCE WITH THE SPECIFICATIONS UNTIL A HEALTHY STAND OF GRASS IS OBTAINED.

13. CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE GOVERNING CODES AND BE CONSTRUCTED TO SAME.

14. IF CONTRACTOR RELOCATES OR SETS NEW BENCHMARKS, THE VERTICAL ELEVATIONS OF THE BENCHMARKS SHALL BE SET WITHIN A TOLERANCE OF 0.010 FT.

15. CONTRACTOR SHALL LEAVE GRADE BEHIND CURB IN ALL PLANTER AREAS A MINIMUM OF 4" LOW FOR THE PLACEMENT OF SUITABLE TOPSOIL OR PLANTING MIX.

SITE UTILITY NOTES

GENERAL:

1. ALL FILL MATERIAL IS TO BE IN PLACE, AND COMPACTED BEFORE INSTALLATION OF PROPOSED UTILITIES.

2. TOPS OF EXISTING MANHOLES SHALL BE SET EQUAL TO FINISH GRADE. IN GRASSED LANDSCAPED AREAS WITH WATER TIGHT LIDS.

3. ALL CONCRETE FOR ENCASEMENTS SHALL HAVE A MINIMUM 28 DAY COMPRESSION STRENGTH AT 3000 P.S.I.

4. DRAWINGS DO NOT PURPORT TO SHOW ALL EXISTING UTILITIES.

5. EXISTING UTILITIES SHALL BE VERIFIED IN FIELD PRIOR TO INSTALLATION OF ANY NEW LINES.

6. SITE/GENERAL CONTRACTOR IS RESPONSIBLE FOR COMPLYING TO THE SPECIFICATIONS OF THE LOCAL AUTHORITIES AT THE CITY WITH REGARD TO MATERIALS AND INSTALLATION OF THE WATER AND SEWER LINES.

7. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.

8. CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES FOR INSTALLATION REQUIREMENTS AND SPECIFICATIONS.

9. CONTRACTOR SHALL COORDINATE INSPECTION OF UTILITY LINES WITH APPROPRIATE AUTHORITIES PRIOR TO BACKFILLING TRENCHES.

10. CONTRACTOR SHALL COMPLY WITH THE LATEST OSHA STANDARDS OR DIRECTIVES OR ANY OTHER AGENCY HAVING JURISDICTION FOR EXCAVATION AND TRENCHING PROCEDURES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND MAINTENANCE OF ALL SUPPORT SYSTEMS, SLOPING, BENCHING, AND OTHER MEANS OF PROTECTION.

11. CONTRACTOR SHALL COORDINATE INSTALLATION OF UTILITIES WITH LOCAL COMPANIES TO AVOID CONFLICTS AND TO ASSURE THAT PROPER DEPTHS ARE ACHIEVED. CONTRACTOR SHALL COORDINATE WITH LOCAL UTILITY COMPANIES FOR EXACT LOCATION AND SCHEDULING OF CONNECTIONS TO THEIR FACILITIES.

12. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY, DUE TO THE LACK OF AVAILABLE DOCUMENTATION. ALL UTILITIES, INCLUDING CURB BOXES, MAY NOT BE SHOWN ON THESE DRAWINGS. THE CONTRACTOR SHALL CALL THE "DIG SAFE CENTER" TO HAVE ALL UTILITIES MARKED ON THE GROUND PRIOR TO THE START OF CONSTRUCTION

13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH OCCUR DUE TO HIS FAILURE TO LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

14. DO NOT INTERRUPT EXISTING UTILITIES WITHOUT AUTHORIZATION FROM THE OWNER, OWNERS OF ADJACENT PROPERTIES, AND THE CORRESPONDING UTILITY OWNER. CONTRACTOR SHALL ARRANGE TO SHUT OFF UTILITIES, AS REQUIRED, WITH THE UTILITY OWNERS.

15. COORDINATE UTILITY TERMINATION WITH UTILITY OWNERS.

SEWER:

1. SANITARY SEWER MAINS AND LATERALS SHALL BE PVC PIPE CONFORMING TO ASTM D 3034-SDR35. THE MINIMUM SIZE FOR SEWER MAINS SHAL BE 8"; SEWER LATERALS SHALL BE 4" MIN.

2. ALL SANITARY SEWERS, SEWER FORCE MAINS, AND SEWER LATERALS SHALL BE INSTALLED IN FIRST-CLASS BEDDING AND IN ACCORDANCE WITH THE DEPARTMENT OF PUBLIC WORKS SPECIFICATIONS. SEWERS SHALL BE INSTALLED TO THE LINE AND GRADE INDICATED ON THE PLANS.

3. ONLY PRECAST CONCRETE MANHOLES OF A DESIGN APPROVED BY THE TOWN ENGINEER SHALL BE INSTALLED ON A SANITARY SEWER MAIN.

4. NO GROUNDWATER OR SURFACE WATER SHALL BE DISCHARGED INTO THE SANITARY SEWER.

5. WHERE ROCK IS ENCOUNTERED, IT SHALL BE REMOVED TO A DEPTH OF ONE FOOT BELOW THE FLOWLINE OF THE SEWER AND THE PIPE LAID IN A PROPERLY COMPACTED GRANULAR MATERIAL APPROVED BY THE TOWN ENGINEER.

6. ONLY GRANULAR MATERIAL APPROVED BY THE TOWN ENGINEER SHALL BE USED AS BACKFILL IN ANY TRENCH EXCAVATION.

WATER:

1. CONTRACTOR SHALL CONTACT THE CITY/TOWN WATER DEPARTMENT FOR SPECIFICATIONS AND MAKE OF VALVES, VALVE BOXES, FIRE HYDRANTS AND ALL OTHER WATER LINE APPURTENANCES.

2. WATER LINE TESTING AND STERILIZATION SHALL BE PERFORMED IN ACCORDANCE WITH LOCAL DPW SPECIFICATIONS AND WATER DISTRIBUTION SYSTEM. CONTRACTOR SHALL COORDINATE TESTING WITH THE CITY WATER DEPARTMENT.

3. ALL WATER MAIN SHALL BE DUCTILE IRON (D.I.), CLASS 52, AWWA C-151 (ANSI A21.40). D.I. PIPE SHALL BE DOUBLE CEMENT LINED WITH A SEAL COAT CONFORMING TO AWWA C-104 (ANSI A-21.4).

4. JOINTS FOR D.I. PIPE SHALL BE PUSH-ON OR OTHERWISE APPROVED, AWWA C151(ANSI A-21.51) WITH GASKETS CONFORMING TO AWWA C-111 (ANSI A-21.11) MAXIMUM LENGTH OF PIPE TO BE 20 L.F.

5. ALL FITTINGS SHALL BE DUCTILE IRON CLASS 53 WITH PRESSURE RATING OF 350 PSI AND MECHANICAL JOINTS CONFORMING TO AWWA C-151 (ANSI A21.51).

6. RETAINER GLANDS: RETAINER GLANDS SHALL BE DESIGNED TO IMPART MULTIPLE WEDGING ACTION AGAINST THE PIPE, INCREASE ITS RESISTANCE AS THE PRESSURE INCREASES. GLANDS SHALL BE MANUFACTURED OF DUCTILE IRON CONFORMING TO ASTM A536-80. RESTRAINING DEVICES SHALL BE DUCTILE IRON HEAT-TREATED TO A MINIMUM HARNESS OF 370 BHN. TWIST-OFF NUTS SHALL BE USED TO INSURE PROPER ACTUATING OF THE RETAINER GLAND. DIMENSIONS OF THE GLAND SHALL BE SUCH THAT IT CAN BE USED WITH THE STANDARD MECHANICAL JOINT BELL AND TEE-HEADED BOLTS CONFORMING TO ANSI/AWWA A21.1 AND ANSI/WWA 153/A21.5. THE RETAINER GLAND SHALL HAVE A WORKING PRESSURE OF 250 PSI WITH A MINIMUM SAFETY FACTOR OF 2:1 AND SHALL BE CERTIFIED BY THE MANUFACTURER TO BE COMPATIBLE WITH THE PIPE CLASS AND PIPE MANUFACTURER FOR ALL SIZES PROVIDED ON THE JOB. THE RETAINER GLAND SHALL BE MEGA-LUG AS MANUFACTURED EBAA IRON, INC., OR APPROVED EQUAL.

7. ALL WATER MAINS, UNLESS OTHERWISE NOTED, SHALL BE INSTALLED WITH A MINIMUM FIVE FEET OF COVER. WHEN CROSSING ABOVE OR BELOW WATER PIPELINES, A MINIMUM VERTICAL SEPARATION OF SIX INCHES SHALL BE PROVIDED. WHEN CROSSING SANITARY SEWERS, A MINIMUM OF 18" SHALL BE PROVIDED.

TOWN OF AGAWAM PLANNING BOARD

APPROVAL UNDER THE SUBDIVISION CONTROL LAW IS REQUIRED

_____ DATE

_____

_____

_____

_____

_____

I HEREBY CERTIFY THAT THE NOTICE OF APPROVAL OF THIS PLAN BY THE TOWN OF AGAWAM PLANNING BOARD HAS BEEN RECEIVED AND RECORDED AT THIS OFFICE AND NO APPEAL WAS RECEIVED DURING THE TWENTY DAYS NEXT AFTER SUCH RECEIPT AND RECORDINGS OF SAID NOTICE.

_____ _____

CITY CLERK DATE

I CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE REGISTRY OF DEEDS.

_____

PROFESSIONAL LAND SURVEYOR

COMMONWEALTH OF MASSACHUSETTS
MARC E. SHUTE
No. 33610
PROFESSIONAL LAND SURVEYOR

SITE UTILITY NOTES (CONTINUED)

8. THE INSTALLED WATER MAIN SHALL BE PRESSURE TESTED, FLUSHED AND DISINFECTED BY CONTRACTOR IN ACCORDANCE WITH AWWA C-600 AND AWWA C-651 OR PER CITY/TOWN WATER DEPARTMENT STANDARDS.

9. DUCTILE IRON PIPES SHALL BE INSTALLED IN ACCORDANCE WITH AWWA C-600.

10. ALL MECHANICAL JOINTS ARE TO BE RESTRAINED. FITTINGS SHALL BE RESTRAINED BY MECHANICAL JOINT RESTRAINTS. THE PIPE CONNECTED TO THE FITTING SHALL BE RESTRAINED PER THE MANUFACTURER'S SCHEDULE.

11. THE CONTRACTOR SHALL MARK THE LOCATION OF THE PROPOSED WATER MAIN AT LEAST 48 HOURS PRIOR TO EXCAVATING. EXCAVATION SHALL NOT PROCEED WITHOUT AUTHORIZATION BY THE ENGINEER.

12. ALL WATER MAINS, HYDRANT BRANCHES, AND SERVICES SHALL HAVE UTILITY WARNING TAPE. THE TAPE SHALL BE BURIED APPROXIMATELY 2 FEET BELOW FINISHED GRADE.

13. BACKFILL SHALL BE COMPACTED TO 95 PERCENT OF THE STANDARD PROCTOR DENSITY AS DETERMINED BY ASTM D698. COMPACTION EQUIPMENT USED MUST BE SPECIFICALLY DESIGNED FOR COMPACTION. TAMPING WITH THE BACK OF THE BACK HOE BUCKET IS UNACCEPTABLE COMPACTION.

14. ALL WATER SERVICES SHALL BE 1" DIA. COPPER TUBING TYPE K, SOFT TEMPER CONFORMING TO ASTM B88 UNLESS OTHERWISE NOTED.

15. DEPRESS WATER MAIN UNDER EXISTING SERVICES AND HYDRANT BRANCHES TO MAINTAIN 5'-0" OF COVER.

16. ALL WATER MAINS SHALL BE LAID PER THE PLANS TO MAINTAIN THE MAXIMUM SEPARATION FROM EXISTING OR PROPOSED SANITARY SEWER. DISTANCE SHALL BE MEASURED EDGE TO EDGE.

17. IDENTIFY EACH PIPE LENGTH & FITTING CLEARLY WITH MANUFACTURE'S NAME & TRADEMARK. NOMINAL PIPE SIZE & MATERIAL DESIGNATION.

18. ALL WATER MAINS & SERVICE PIPES SHALL BE LAID IN A TRENCH SEPARATE FROM ANY OTHER UTILITY (GAS, ELECTRIC, TELEPHONE, ETC.) SHALL BE A MINIMUM NO LESS THAN FIVE (5) FEET FROM ANOTHER UTILITY.

19. ALL MATERIAL SHALL BE IN ACCORDANCE WITH CITY/TOWN WATER DEPARTMENT "RULES & REGULATIONS". ALL WORK TO BE PERFORMED IN ACCORDANCE WITH CITY/TOWN WATER DEPARTMENT "SPECIFICATIONS". CITY/TOWN WATER DEPARTMENT STANDARDS SHALL TAKE PRECEDENCE OVER ANY REQUIREMENTS LISTED ABOVE.

PERMITTING

RLA

R LEVESQUE ASSOCIATES INC

Landscape Architects
Civil Engineers · Land Surveyors
Environmental Consultants

ph: 413.568.0985 fax: 413.568.0986

40 School Street
Westfield, MA 01085

rlaland.com

CONSTRUCTION NOTES

0 Old River Street
Agawam, Massachusetts
Map J17 Parcel I-3

COMMONWEALTH OF MASSACHUSETTS
FILIPE J. CRAVO
CIVIL
No. 49576
REGISTERED PROFESSIONAL ENGINEER
1/30/26

PREPARED FOR:

Chuck Calabrese
Calabrese Construction, LLC

7 Brewster Road
West Springfield, MA.

ISSUANCE DATE:	January 30, 2026
REVISIONS:	**DATE:**

DRAFTED BY: T.A. & F.C.

UNAUTHORIZED ALTERATION OF THIS DOCUMENT IS A VIOLATION OF MASSACHUSETTS STATE LAW

SCALE: As Noted

RLA PROJ. NUMBER: 220627

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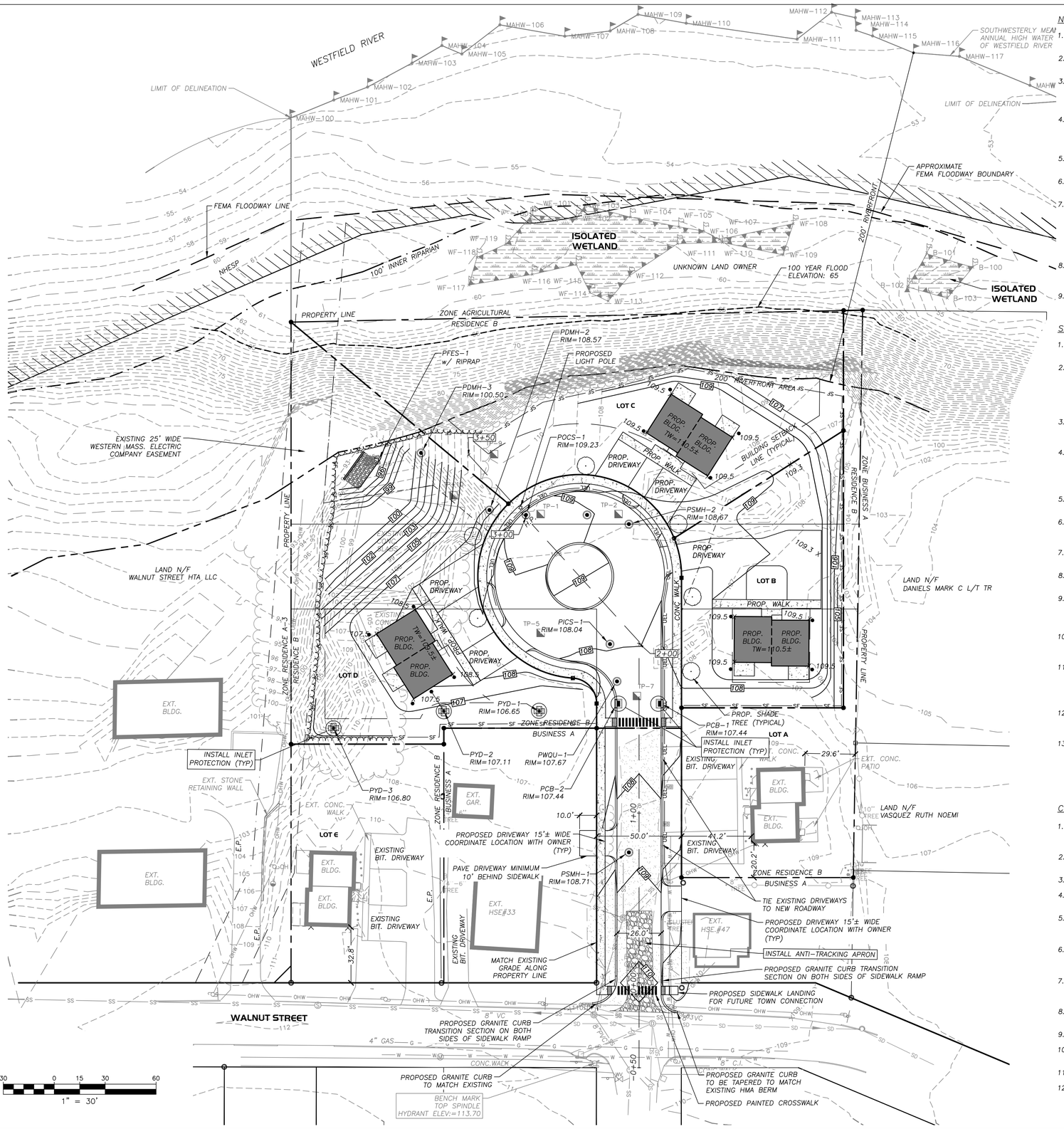

BENCHMARK

TOP OF HYDRANT SPINDLE (SEE BELOW)

I CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE REGISTRY OF DEEDS.

PROFESSIONAL LAND SURVEYOR

I, _____, CLERK OF THE TOWN OF AGAWAM HEREBY CERTIFY THAT NOTICE OF APPROVAL OF THIS PLAN BY THE AGAWAM PLANNING BOARD HAS BEEN RECEIVED AND RECORDED AT THIS OFFICE AND NO APPEAL WAS RECEIVED DURING TWENTY DAYS AFTER SUCH RECEIPT AND RECORDED OF SAID NOTICE.

COMMONWEALTH OF MASSACHUSETTS
MARC E. SHUTE
No. 33610
PROFESSIONAL LAND SURVEYOR

TOWN OF AGAWAM
PLANNING BOARD

APPROVAL UNDER THE SUBDIVISION CONTROL LAW IS REQUIRED

_____ DATE

NOTES

1. THE RECORD OWNER OF THE SUBJECT PARCELS ARE CHARLES R. CALABRESE SEE HAMPDEN COUNTY REGISTRY OF DEEDS BOOK 2727 PAGE 258.
2. PROPERTY LINES SHOWN HEREON WERE DERIVED FROM PLAN BOOK 231 PAGE 47, PLAN BOOK 334 PAGE 8 AND PLAN BOOK 30 PAGE 4.
3. THE SUBJECT PROPERTIES SHOWN HEREON MAY BE SUBJECT TO RIGHTS AND EASEMENTS AS CONTAINED IN THE VARIOUS DEEDS OF RECORD DESCRIBING SAID PROPERTIES. THE LOCATION AND EXTENT OF ANY SUCH RIGHTS AND EASEMENTS IS NOT THE SUBJECT OF THIS PLAN.
4. PARTIAL WETLAND AND M.A.H.W. BOUNDARIES DELINEATED BY R. LEVESQUE ASSOCIATES, INC. (KATE BEDNAZ PWS# 1906) IN SEPTEMBER 2014. OFFSITE WETLANDS ARE NOT THE SUBJECT OF THIS FILING AND HAVE BEEN SHOWN TO DEPICT THE LIMITS OF BUFFER ZONE.
5. ADJACENT PROPERTY LINES AND ABUTTERS SHOWN HEREON ARE REFERENCED FROM THE ASSESSOR DATA.
6. SUBJECT PARCELS ARE ZONED AGRICULTURAL ACCORDING TO THE AGAWAM GIS ZONING MAP.
7. THE UNDERGROUND UTILITIES SHOWN HEREON HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND AVAILABLE RECORD DATA. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN HEREON COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN HERE ARE IN THE EXACT LOCATION INDICATED. ALTHOUGH THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM AVAILABLE INFORMATION.
8. THE SUBJECT PARCELS DO NOT CONTAIN BORDERING LAND SUBJECT TO FLOODING ACCORDING TO FLOOD INSURANCE RATE MAP NUMBER 25013C0384E EFFECTIVE DATE: JULY 16, 2013.
9. THE SUBJECT PROPERTY IS NOT LOCATED WITHIN NATURAL HERITAGE & ENDANGERED SPECIES PROGRAM (NHESP) JURISDICTION (2008 NHESP ATLAS).

SHORT-TERM EROSION CONTROL MAINTENANCE

1. THE CONTRACTOR OR SUBCONTRACTOR WILL BE RESPONSIBLE FOR IMPLEMENTING EACH CONTROL SHOWN ON THE SEDIMENTATION AND EROSION CONTROL PLAN.
2. ALL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE PROPERLY MAINTAINED DURING ALL PHASES OF CONSTRUCTION UNTIL THE COMPLETION OF ALL CONSTRUCTION ACTIVITIES AND ALL DISTURBED AREAS HAVE BEEN STABILIZED. ADDITIONAL CONTROL MEASURES WILL BE INSTALLED DURING CONSTRUCTION IN ORDER TO CONTROL EROSION AND/OR OFF-SITE SEDIMENTATION IF DEEMED NECESSARY BY ON-SITE INSPECTION.
3. EFFECTIVE EROSION CONTROL MEASURES SHALL BE INITIATED PRIOR TO THE COMMENCEMENT OF CLEARING, GRADING, EXCAVATION, OR OTHER OPERATIONS THAT WILL DISTURB THE NATURAL PROTECTION.
4. ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE INSPECTED AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND AFTER ANY STORM EVENT GREATER THAN 0.5 INCHES OF PRECIPITATION DURING ANY 24-HOUR PERIOD, AND THE INSPECTION SHALL BE DOCUMENTED IN WRITING. DAMAGED OR INEFFECTIVE DEVICES SHALL BE REPAIRED OR REPLACED, AS NECESSARY.
5. THE CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS TO AVOID EXCESS EROSION OF THE SITE DUE TO THE CONSTRUCTION OF THIS PROJECT.
6. SILT SHALL BE REMOVED FROM BEHIND BARRIERS IF GREATER THAN 6-INCHES DEEP OR AS NEEDED. SEDIMENT THAT IS COLLECTED IN STRUCTURES SHALL BE DISPOSED OF PROPERLY AND COVERED IF STORED ON-SITE.
7. DAMAGED OR DETERIORATED ITEMS WILL BE REPAIRED IMMEDIATELY AFTER IDENTIFICATION.
8. ALL DITCHES SHALL BE STABILIZED AS SOON AS IS PRACTICABLE TO MINIMIZE EROSION.
9. THE CONTRACTOR SHALL MAINTAIN ALL EROSION CONTROL DEVICES IN A GOOD, WORKING STATE OF REPAIR UNTIL THEIR USE IS NO LONGER WARRANTED. AT THAT TIME, THE EROSION CONTROL DEVICES SHALL BE REMOVED AND DISPOSED OF SO AS TO CAUSE NO OFF-SITE SILTATION.
10. INSPECT AND MAINTAIN CONSTRUCTION ENTRANCE STONE SUCH THAT SEDIMENT DOES NOT TRACK ONTO THE STREET. ANY SEDIMENT TRACKED ONTO THE STREET SHALL BE CLEANED DAILY.
11. AFTER CATCH BASINS HAVE BEEN CONSTRUCTED AND THE SITE HAS BEEN PAVED, THE CONTRACTOR SHALL PROTECT THE INLETS BY CONSTRUCTING INLET PROTECTION AS SHOWN ON THE PLANS. INLET PROTECTION TO REMAIN IN PLACE AND MAINTAINED UNTIL DISTURBED AREAS HAVE BEEN STABILIZED, LOAMED AND SEEDED.
12. EROSION CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL ALL DISTURBED EARTH HAS BEEN SUBSTANTIALLY STABILIZED. AFTER REMOVAL OF MEASURES, DISTURBED AREAS SHALL BE REGRADED AND STABILIZED AS NECESSARY.
13. THIS PLAN IS PROVIDED AS A BASIS FOR THE INITIAL SEDIMENTATION AND EROSION CONTROL MEASURES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UPDATE AND EXPAND THIS PLAN AS SITE CONDITIONS DICTATE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PREVENT THE OCCURRENCE OF SILTATION TO WETLAND RESOURCE AREAS AND THE MOVEMENT OF SEDIMENT BEYOND THE SITE BOUNDARIES.

CONSTRUCTION SEQUENCE

1. CONTACT THE TOWN OF AGAWAM AT LEAST FORTY-EIGHT HOURS PRIOR TO COMMENCEMENT OF ANY DEMOLITION, CONSTRUCTION, OR EARTHWORK ACTIVITY ON THIS PROJECT.
2. CONSTRUCT ANTI-TRACKING PAD AT ENTRANCE AND INSTALL ANY REQUIRED INLET PROTECTION AS DEPICTED ON THE PLAN.
3. INSTALL SILT FENCE AS SHOWN ON THE PLANS.
4. UPON COMPLETION OF EROSION CONTROL MEASURES, CLEARING AND GRUBBING AND EARTHWORK MAY COMMENCE.
5. CLEAR AND GRUB SITE. STOCKPILE ANY CHIPPING OR TOPSOIL MATERIAL TO REMAIN ON SITE FOR LONGER THAN 14 DAYS AND INSTALL SILT FENCE AROUND THE PERIMETER OF THE STOCKPILE.
6. COMMENCE EARTHWORK BY EXCAVATING FOR THE CUT/FILL SLOPES AS SHOWN ON THE PLANS. STABILIZE/SEED ANY SLOPES THAT HAVE ACHIEVED FINAL GRADE.
7. INSTALL UTILITIES AS SHOWN ON PLANS INCLUDING WATER SERVICE, SEWER SERVICE, GAS SERVICE, ELECTRICAL SERVICE AND STORMWATER MANAGEMENT SYSTEM.
8. GRADE THE ALIGNMENT OF THE ROADWAY TO ACCEPT PAVEMENT SECTION MATERIALS.
9. INSTALL PAVEMENT AS SPECIFIED ON THE PLANS.
10. UPON INSTALLATION OF PAVEMENT SURFACE, INSTALL INLET PROTECTION AS REQUIRED ON ANY NEW INLET STRUCTURES.
11. FINAL GRADING AND STABILIZATION OF ANY REMAINING EXPOSED AREAS.
12. AT THE DIRECTION OF THE TOWN, EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED.

PERMITTING

RLA
R LEVESQUE ASSOCIATES INC
Landscape Architects
Civil Engineers · Land Surveyors
Environmental Consultants
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40 School Street
Westfield, MA 01085
rlaland.com

GRADING, EROSION & SEDIMENTATION CONTROL PLAN

0 Old River Street
Agawam, Massachusetts
Map J17 Parcel I-3

COMMONWEALTH OF MASSACHUSETTS
FILIPE J. CRAVO
CIVIL
No. 48376
REGISTERED PROFESSIONAL ENGINEER

PREPARED FOR:

Chuck Calabrese
Calabrese Construction, LLC

7 Brewster Road
West Springfield, MA.

ISSUANCE DATE: January 30, 2026	
REVISIONS:	DATE:
A. Engineering Review Comments	3/23/26

DRAFTED BY: T.A. & F.C.

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SCALE: As Noted

RLA PROJ. NUMBER: 220627

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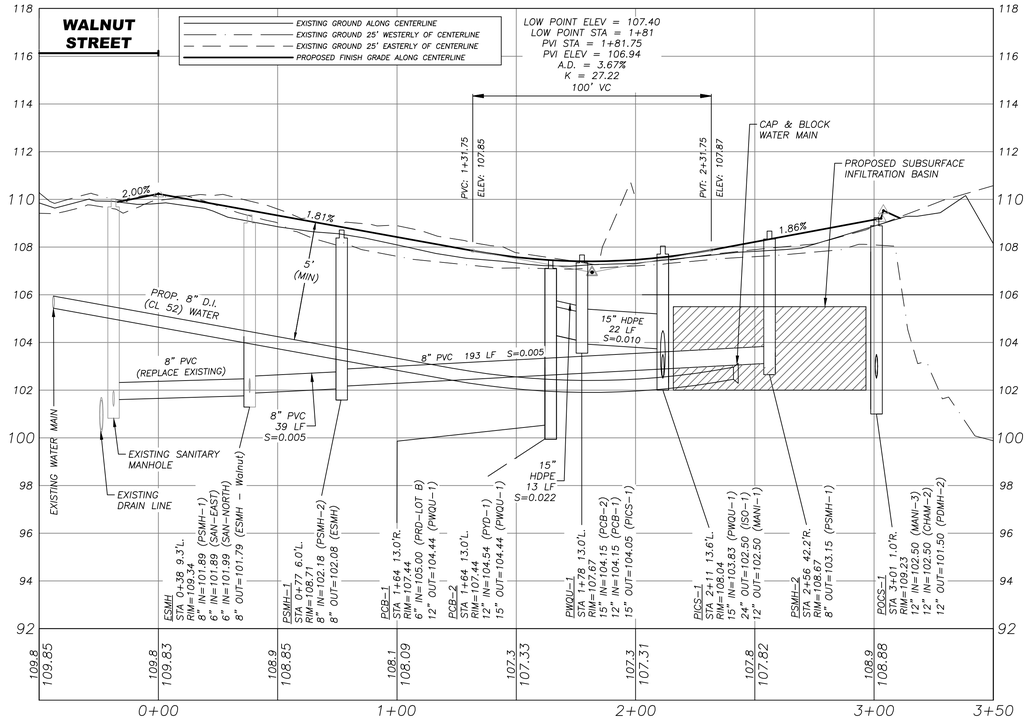
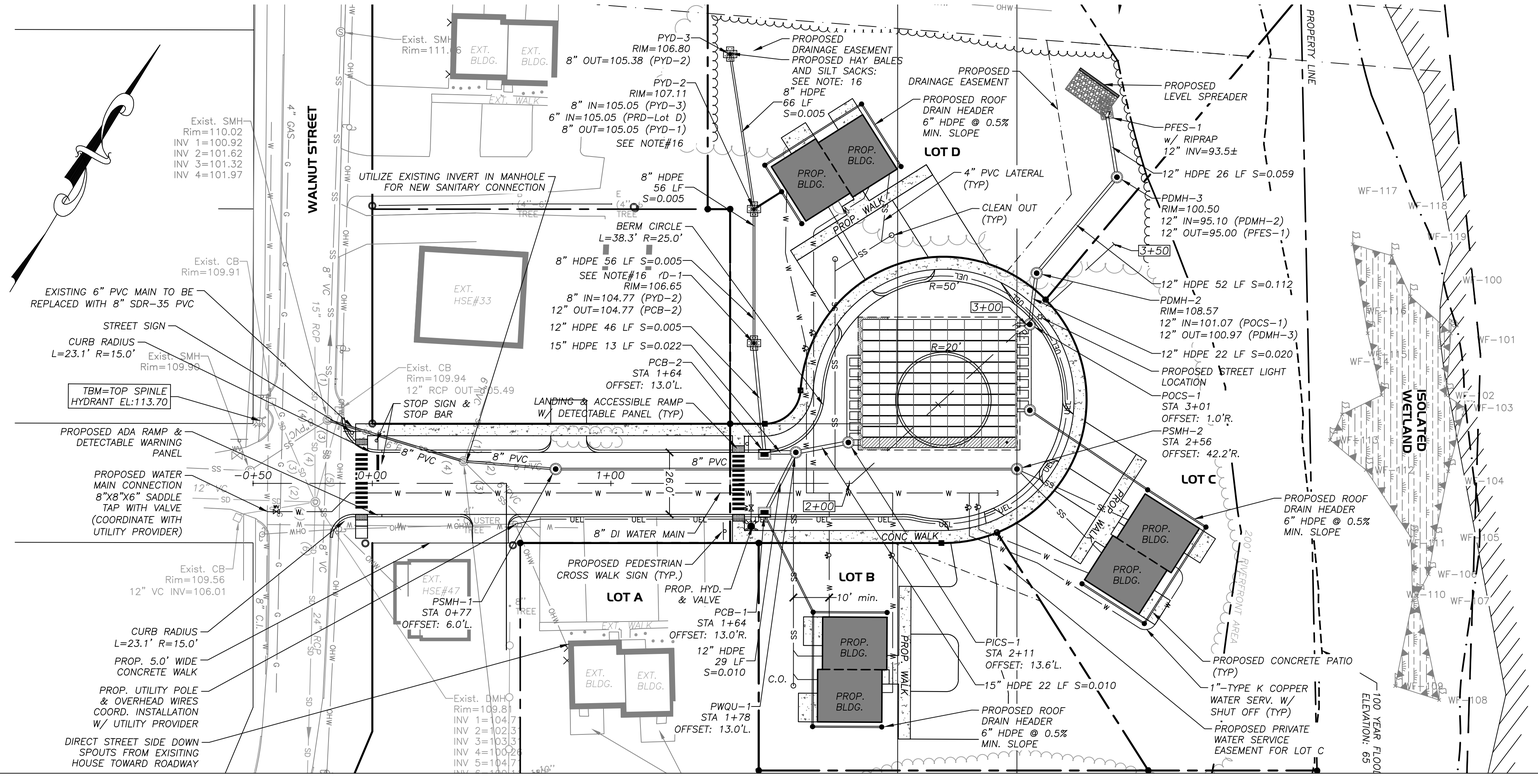


HIGH STREET · PROFILE ALONG CENTERLINE OF ROADWAY

HORIZONTAL 1" = 30'
VERTICAL 1" = 3'



PERMITTING

TOWN OF AGAWAM
PLANNING BOARD

APPROVAL UNDER THE SUBDIVISION CONTROL LAW IS REQUIRED

_____ DATE

_____
_____
_____
_____
_____
_____

COMMONWEALTH OF MASSACHUSETTS
MARC E. SHUTE
No. 33610
PROFESSIONAL LAND SURVEYOR

I CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE REGISTRY OF DEEDS.

_____
PROFESSIONAL LAND SURVEYOR

I, _____, CLERK OF THE TOWN OF AGAWAM HEREBY CERTIFY THAT NOTICE OF APPROVAL OF THIS PLAN BY THE AGAWAM PLANNING BOARD HAS BEEN RECEIVED AND RECORDED AT THIS OFFICE AND NO APPEAL WAS RECEIVED DURING TWENTY DAYS AFTER SUCH RECEIPT AND RECORDED OF SAID NOTICE.

NOTES

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8. THE SUBJECT PARCELS DO NOT CONTAIN BORDERING LAND SUBJECT TO FLOODING ACCORDING TO FLOOD INSURANCE RATE MAP NUMBER 25013C0384E EFFECTIVE DATE: JULY 16, 2013.
9. THE SUBJECT PROPERTY IS NOT LOCATED WITHIN NATURAL HERITAGE & ENDANGERED SPECIES PROGRAM (NHESP) JURISDICTION (2008 NHESP ATLAS).

CONSTRUCTION NOTES

1. UNDERGROUND UTILITIES SHOWN HEREON ARE BASED UPON SURFACE FEATURES AS LOCATED BY SURVEY AND AVAILABLE RECORD DATA AND ARE APPROXIMATE. ACTUAL FIELD LOCATIONS SHOULD BE VERIFIED WITH THE APPROPRIATE UTILITY COMPANY AND/OR MUNICIPAL DEPARTMENT PRIOR TO CONSTRUCTION.
2. CONTRACTOR TO NOTIFY DIG SAFE A MINIMUM OF 72 HOURS PRIOR TO START OF CONSTRUCTION ACCORDING TO MA GENERAL LAWS.
3. APPROVED PLANS TO BE ON SITE AT ALL TIMES.
4. CHANGES TO THIS PLAN MAY OCCUR AS UNFORESEEN CONDITIONS ARISE. ALL CHANGES TO BE APPROVED BY DESIGN ENGINEER, FIELD INSPECTOR AND CITY/TOWN ENGINEER.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE AND SAFETY OF TRAFFIC ON THE PUBLIC AND PRIVATE WAYS AFFECTED BY THE CONSTRUCTION OF THIS PROJECT.
6. CONTRACTOR SHALL PROTECT ALL SLOPES, VEGETATION, PAVING, WALKS, AND IMPROVEMENTS OUTSIDE THE AREAS TO BE AFFECTED BY THE CONSTRUCTION OF THIS PROJECT.
7. TREES, BRUSH AND STUMPS REMOVED BY CLEARING AND GRUBBING OPERATIONS SHALL BE TRANSPORTED OFF THE PROJECT SITE TO AN APPROVED DISPOSAL LOCATION.
8. CALCIUM CHLORIDE/WATER FOR DUST CONTROL TO BE AVAILABLE AT ALL TIMES.
9. ALL CONSTRUCTION METHODS TO CONFORM TO TOWN PLANNING BOARD REGULATIONS AND DEPARTMENT OF PUBLIC WORKS SPECIFICATIONS.
10. TOWN DEPARTMENT OF PUBLIC WORKS APPROVAL IS NOT TO BE CONSTRUED AS AN ALL INCLUSIVE APPROVAL AS OTHER APPROVALS MAY BE NECESSARY, I.E. TOWN ENGINEER, CONSERVATION, FIRE DEPARTMENT, WATER DEPARTMENT, ETC.
11. ALL CATCH BASINS TO HAVE 48" SEALED SUMPS AND HOODS.
12. EROSION CONTROL MEASURES TO BE IN PLACE PRIOR TO START OF CONSTRUCTION.
13. WATER SERVICE TO HAVE A MINIMUM OF 60" OF COVER.
14. ALL WATER LINE CONNECTIONS SHALL HAVE MECHANICAL JOINTS.
15. SANITARY SEWER CONNECTION TO HAVE A MINIMUM OF 48" OF COVER. CLEAN-OUT SHALL BE REQUIRED EVERY 100 FEET AND AT ALL BENDS.
16. HAYBALES AND SILT SACKS ARE REQUIRED FOR ALL THE YARD DRAINS IN LOT D AND SHALL REMAIN IN PLACE UNTIL VEGETATION IS ESTABLISHED. CONNECTION TO THE DRAINAGE SYSTEM IN THE ROAD SHALL BE PLUGGED UNTIL VEGETATION IS ESTABLISHED.

STREET NOTES

1. THE LENGTH OF THE PROPOSED STREET IS APPROXIMATELY 303 FEET THROUGH THE CENTER OF THE CUL-DE-SACE.
2. PROPOSED STREET IS CLASSIFIED AS A "PLACE" ACCORDING TO AGAWAM SUBDIVISION REGULATIONS.
3. THE ESTIMATED AVERAGE DAILY TRAFFIC (ADT) OF THE PROPOSED STREET IS 40 VEHICLES PER DAY.

BENCHMARK

TOP OF HYDRANT SPINDLE LOCATED ON SOUTHERLY SIDE OF WOODSIDE DRIVE APPROXIMATELY 75 FEET EASTERLY OF INTERSECTION WITH SAMUEL STREET.
ELEVATION = 125.10 (NAVD88)

30 0 15 30 60
1" = 30'

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PLAN & PROFILE
HIGH STREET
STA -0+50 to STA 3+25
0 Old River Street
Agawam, Massachusetts
Map J17 Parcel I-3

COMMONWEALTH OF MASSACHUSETTS
FILIPE J. CRAYO
CIVIL
No. 48376
PROFESSIONAL ENGINEER
9/23/26

PREPARED FOR:

Chuck Calabrese
Calabrese Construction, LLC

7 Brewster Road
West Springfield, MA.

ISSUANCE DATE: January 30, 2026	
REVISIONS:	**DATE:**
A. Engineering Review Comments	3/23/26

DRAFTED BY: T.A. & F.C.

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SCALE: As Noted

RLA PROJ. NUMBER: 220627

DRAWING#	REV.
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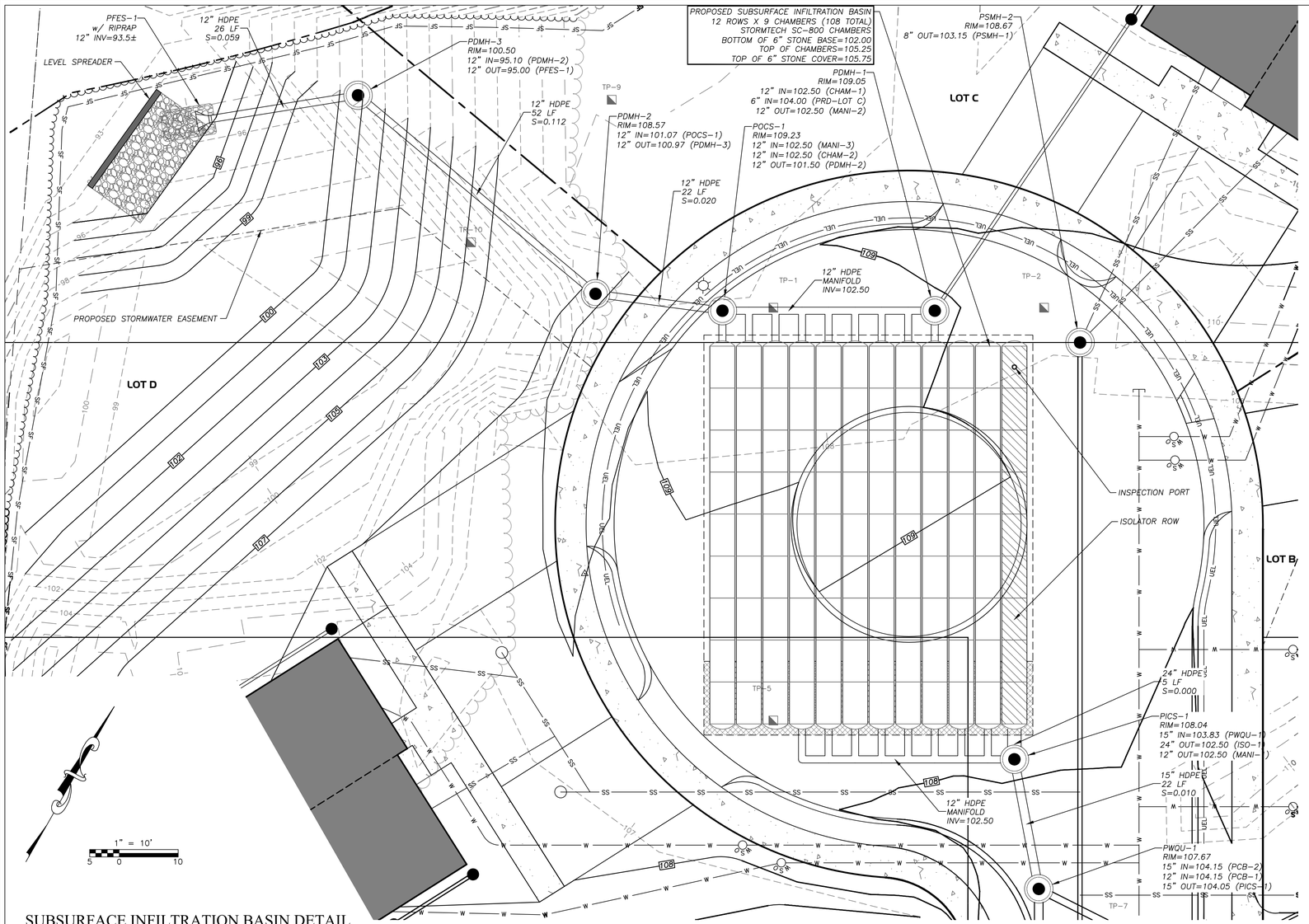
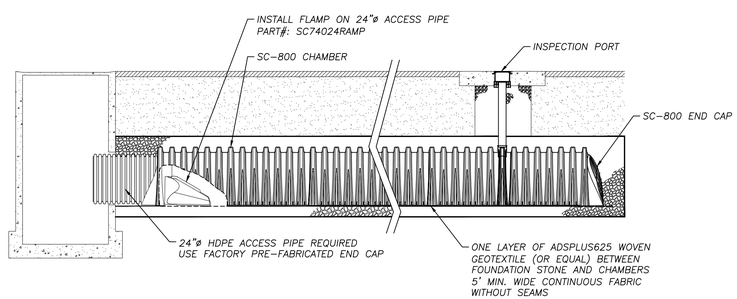


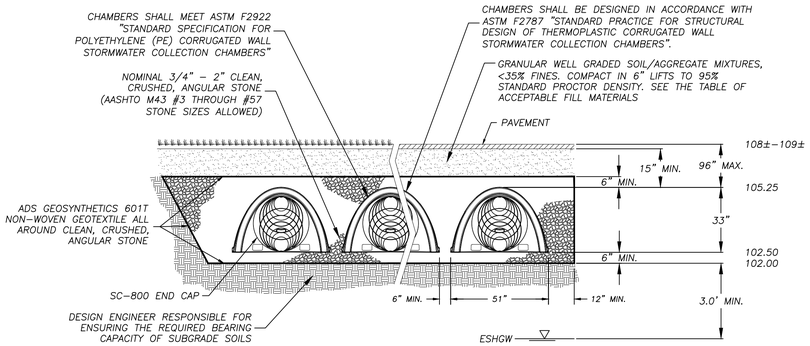
SUBSURFACE INFILTRATION BASIN DETAIL

1" = 10'



STORMTECH SC-800 ISOLATOR ROW DETAIL

NO SCALE



STORMTECH SC-800 CROSS-SECTION

NO SCALE

I CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE REGISTRY OF DEEDS.

PROFESSIONAL LAND SURVEYOR

COMMONWEALTH OF MASSACHUSETTS
MARC E. SHUTE
No. 33610
PROFESSIONAL LAND SURVEYOR

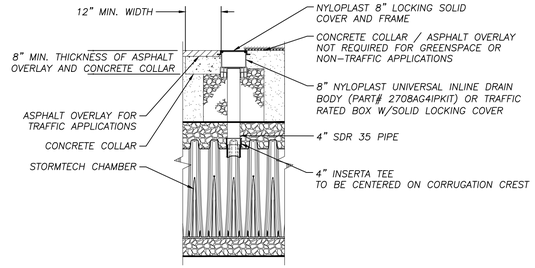
NOTE:
THE INFILTRATION SYSTEM SHALL BE PLUGGED UNTIL THE BASE COURSE OF PAVEMENT AND BERM IS INSTALLED.

TOWN OF AGAWAM PLANNING BOARD

APPROVAL UNDER THE SUBDIVISION CONTROL LAW IS REQUIRED

DATE

I, _____, CLERK OF THE TOWN OF AGAWAM HEREBY CERTIFY THAT NOTICE OF APPROVAL OF THIS PLAN BY THE AGAWAM PLANNING BOARD HAS BEEN RECEIVED AND RECORDED AT THIS OFFICE AND NO APPEAL WAS RECEIVED DURING TWENTY DAYS AFTER SUCH RECEIPT AND RECORDED OF SAID NOTICE.



STORMTECH SC-800 INSPECTION PORT DETAIL

NO SCALE

CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH SC-800 OR APPROVED EQUAL.
2. CHAMBERS SHALL BE MANUFACTURED FROM VIRGIN POLYPROPYLENE OR POLYETHYLENE RESINS TESTED USING ASTM STANDARDS.
3. CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORT PANELS.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12 ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCE.
6. ONLY CHAMBERS THAT ARE APPROVED BY THE ENGINEER WILL BE ALLOWED. THE CONTRACTOR SHALL SUBMIT (3 SETS) OF THE FOLLOWING TO THE ENGINEER FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE:
   a. A STRUCTURAL EVALUATION BY A REGISTERED STRUCTURAL ENGINEER THAT DEMONSTRATES THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12 ARE MET. THE 50-YEAR CREEP MODULUS DATA SPECIFIED IN ASTM F2922 MUST BE USED AS A PART OF THE AASHTO STRUCTURAL EVALUATION TO VERIFY LONG-TERM PERFORMANCE.
7. CHAMBERS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.
8. ALL DESIGN SPECIFICATIONS FOR CHAMBERS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S LATEST DESIGN MANUAL.
9. THE INSTALLATION OF CHAMBERS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S LATEST INSTALLATION INSTRUCTIONS.

PERMITTING

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Landscape Architects
Civil Engineers · Land Surveyors
Environmental Consultants
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DETAILS

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Agawam, Massachusetts
Map J17 Parcel I-3

COMMONWEALTH OF MASSACHUSETTS
FILIPE J. CRAVO
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No. 48376
REGISTERED PROFESSIONAL ENGINEER
3/23/26

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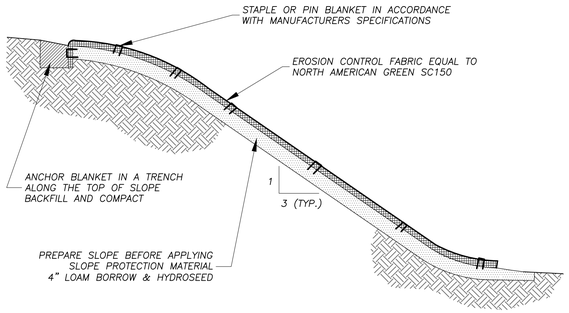
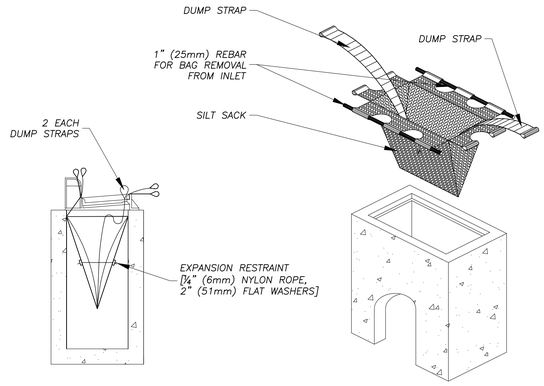


SLOPE PROTECTION MATERIAL INSTALLATION (AS REQ'D)

NO SCALE



INLET PROTECTION - SEDIMENT FILTER SACK

NO SCALE

I CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE REGISTRY OF DEEDS.

PROFESSIONAL LAND SURVEYOR

COMMONWEALTH OF MASSACHUSETTS
MARC E. SHUTE
No. 33610
PROFESSIONAL LAND SURVEYOR

TOWN OF AGAWAM PLANNING BOARD

APPROVAL UNDER THE SUBDIVISION CONTROL LAW IS REQUIRED

_____ DATE

_____

_____

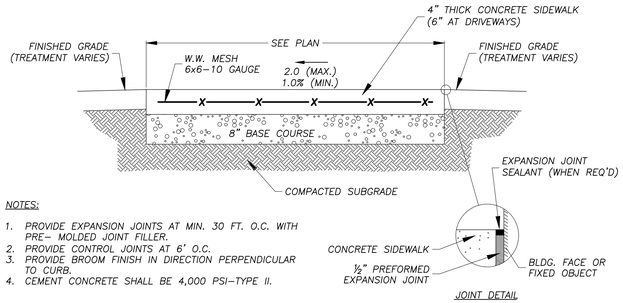
_____

_____

_____

_____

I, _____, CLERK OF THE TOWN OF AGAWAM HEREBY CERTIFY THAT NOTICE OF APPROVAL OF THIS PLAN BY THE AGAWAM PLANNING BOARD HAS BEEN RECEIVED AND RECORDED AT THIS OFFICE AND NO APPEAL WAS RECEIVED DURING TWENTY DAYS AFTER SUCH RECEIPT AND RECORDED OF SAID NOTICE.

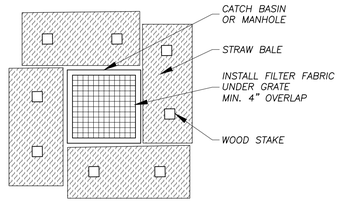


NOTES:

1. PROVIDE EXPANSION JOINTS AT MIN. 30 FT. O.C. WITH PRE– MOLDED JOINT FILLER.
2. PROVIDE CONTROL JOINTS AT 6' O.C.
3. PROVIDE BROOM FINISH IN DIRECTION PERPENDICULAR TO CURB.
4. CEMENT CONCRETE SHALL BE 4,000 PSI–TYPE II.

REINFORCED CONCRETE SIDEWALK SECTION

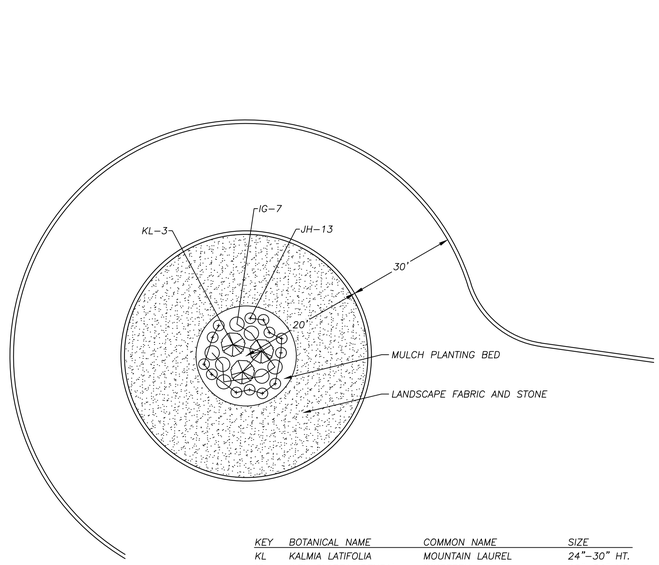
NO SCALE



NOTE
INSTALL BARRIER AT EACH YARD DRAIN. CATCH BASINS IN PAVEMENT AREAS ARE TO RECEIVE SILT SACKS.

INLET PROTECTION - STRAW BALES

NO SCALE

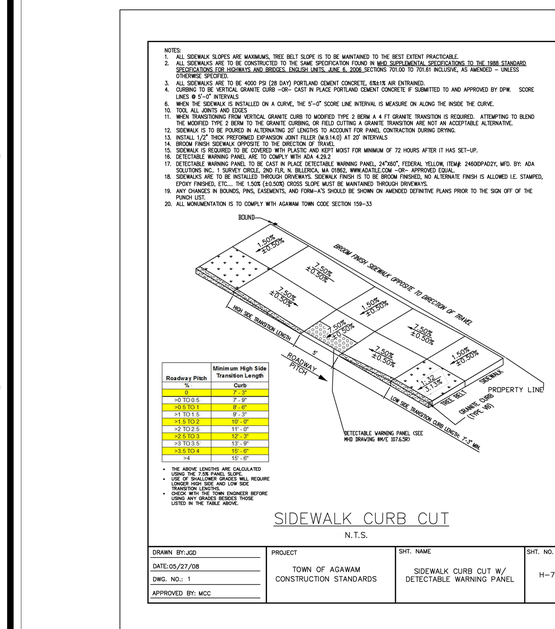


KEY	BOTANICAL NAME	COMMON NAME	SIZE
KL	KALMIA LATIFOLIA	MOUNTAIN LAUREL	24"–30" HT.
IG	ILEX GLABRA 'DENSA'	INKBERRY	18"–24" HT.
JH	JUNIPERUS HORIZONTALIS	COMPACT ANDORRA JUNIPER	18"–24" HT.

NOTE
CUL–DE–SAC ISLAND PLANTINGS SHALL BE RESTRICTED TO SMALL SHRUB PLANTINGS WITH SHALLOW ROOTS. NO LARGE TREES WITH DEEP ROOT SYSTEM SHALL BE ALLOWED.

TYPICAL CUL-DE-SAC PLANTING DETAIL

SCALE: NTS



Roadway Pitch %	Minimum High Side Transition Length Curb
0	7'-5"
>0 TO 0.5	7'-5"
>0.5 TO 1.5	8'-4"
>1.5 TO 2	9'-3"
>2 TO 2.5	10'-0"
>2.5 TO 3	11'-0"
>3 TO 3.5	12'-3"
>3.5 TO 4	13'-4"
>4	15'-6"

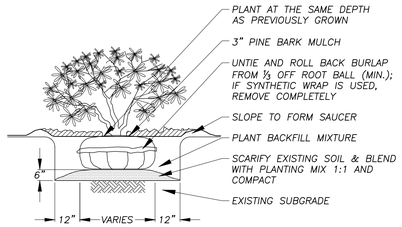
- THE ABOVE LENGTHS ARE CALCULATED USING THE 7.5% PANEL SLOPE.
- USE OF SHALLOWER GRADES WILL REQUIRE LONGER HIGH SIDE AND LOW SIDE TRANSITION LENGTHS.
- CHECK WITH THE TOWN ENGINEER BEFORE USING ANY OTHER GRADES THOSE LISTED IN THE TABLE ABOVE.

SIDEWALK CURB CUT

N.T.S.

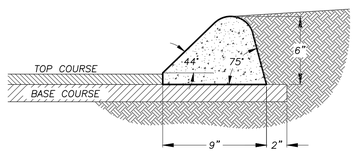
NOTES:
1. ALL SIDEWALK SLOPES ARE MAXIMUMS, TREE BELT SLOPE IS TO BE MAINTAINED TO THE BEST EXTENT PRACTICABLE.
2. ALL SIDEWALKS ARE TO BE CONSTRUCTED TO THE SAME SPECIFICATION FOUND IN MHD SUPPLEMENTAL SPECIFICATIONS TO THE 1988 STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, ENGLISH UNITS, JUNE 8, 2006 SECTIONS 701.00 TO 701.81 INCLUSIVE, AS AMENDED – UNLESS OTHERWISE SPECIFIED.
3. ALL SIDEWALKS ARE TO BE 4000 PSI (28 DAY) PORTLAND CEMENT CONCRETE, 6%±1% AIR ENTRAINED.
4. CURBING TO BE VERTICAL GRANITE CURB –OR– CAST IN PLACE PORTLAND CEMENT CONCRETE IF SUBMITTED TO AND APPROVED BY DPW. SCORE LINES @ 5'–0" INTERVALS
6. WHEN THE SIDEWALK IS INSTALLED ON A CURVE, THE 5'–0" SCORE LINE INTERVAL IS MEASURE ON ALONG THE INSIDE THE CURVE.
10. TOOL ALL JOINTS AND EDGES
11. WHEN TRANSITIONING FROM VERTICAL GRANITE CURB TO MODIFIED TYPE 2 BEDM A 4 FT GRANITE TRANSITION IS REQUIRED. ATTEMPTING TO BLEND THE MODIFIED TYPE 2 BEDM TO THE GRANITE CURBING, OR FIELD CUTTING A GRANITE TRANSITION ARE NOT AN ACCEPTABLE ALTERNATIVE.
12. SIDEWALK IS TO BE POURED IN ALTERNATING 20' LENGTHS TO ACCOUNT FOR PANEL CONTRACTION DURING DRYING.
13. INSTALL 1/2" THICK PREFORMED EXPANSION JOINT FILLER (W.S.14.02) AT 20' INTERVALS
14. BROOM FINISH SIDEWALK OPPOSITE TO THE DIRECTION OF TRAVEL
15. SIDEWALK IS REQUIRED TO BE COVERED WITH PLASTIC AND KEPT MOIST FOR MINIMUM OF 72 HOURS AFTER IT HAS SET–UP.
16. DETECTABLE WARNING PANEL ARE TO COMPLY WITH ADA 4.29.2
17. DETECTABLE WARNING PANEL TO BE CAST IN PLACE DETECTABLE WARNING PANEL, 24"x60", FEDERAL YELLOW, ITEM#: 24500PADZY, MFD. BY: ADA SOLUTIONS INC., 1 SURVEY CIRCLE, 2ND FLR, N. BILLERICA, MA 01862, WWW.ADATILE.COM –OR– APPROVED EQUAL.
18. SIDEWALKS ARE TO BE INSTALLED THROUGH DRIVEWAYS. SIDEWALK FINISH IS TO BE BROOM FINISHED, NO ALTERNATE FINISH IS ALLOWED I.E. STAMPED, EPOXY FINISHED, ETC.... THE 1.50% (±0.50%) CROSS SLOPE MUST BE MAINTAINED THROUGH DRIVEWAYS.
19. ANY CHANGES IN BOUNDS, PINS, EASEMENTS, AND FORM–A'S SHOULD BE SHOWN ON AMENDED DEFINITIVE PLANS PRIOR TO THE SIGN OFF OF THE PUNCH LIST.
20. ALL MONUMENTATION IS TO COMPLY WITH AGAWAM TOWN CODE SECTION 159–33

DRAWN BY: JGD	PROJECT	SHT. NAME	SHT. NO.
DATE: 05/27/08	TOWN OF AGAWAM CONSTRUCTION STANDARDS	SIDEWALK CURB CUT W/ DETECTABLE WARNING PANEL	H–7
DWG. NO.: 1			
APPROVED BY: MCC			



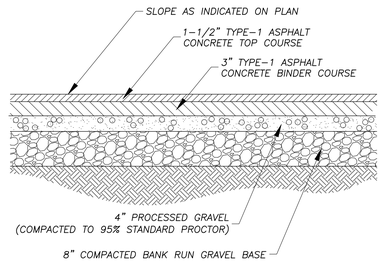
SHRUB PLANTING DETAIL

NO SCALE



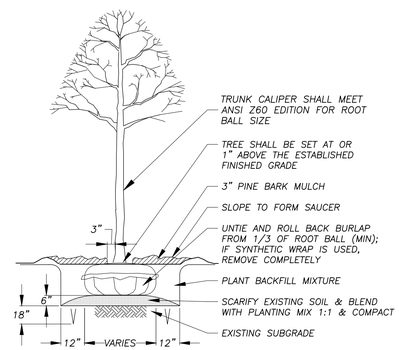
BITUMINOUS CONCRETE BERM (TYPE-2)

NO SCALE



BITUMINOUS CONCRETE PAVING DETAIL

NO SCALE



TREE PLANTING DETAIL

NO SCALE

PERMITTING

RLA
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Landscape Architects
Civil Engineers · Land Surveyors
Environmental Consultants
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REGISTERED PROFESSIONAL ENGINEER
3/23/26

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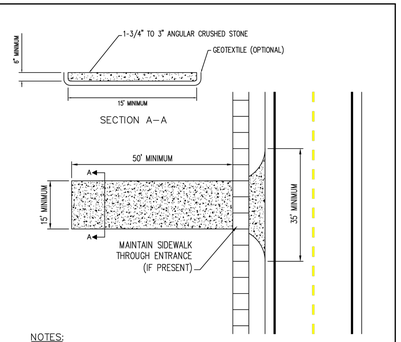
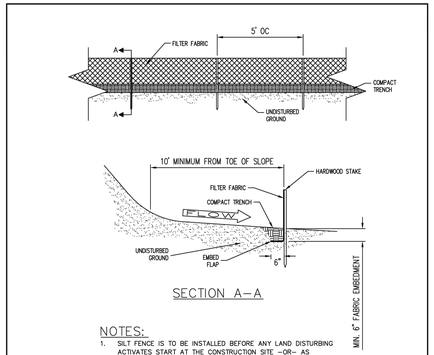


NOTES:

1. EACH SITE ENTRANCE IS TO HAVE A TEMPORARY CONSTRUCTION ENTRANCE.
2. STONE IS TO BE 1–3/4" TO 3" ANGULAR CRUSHED STONE.
3. ANY SEDIMENT TRACKED INTO THE ROADWAY NEEDS TO BE CLEANED IMMEDIATELY.
4. ADDITIONAL STONE IS TO BE ADDED TO THE PAD AS NEEDED TO MAINTAIN THE ORIGINAL DEPTH.
5. ANY SIDEWALK DAMAGED DURING CONSTRUCTION MUST BE REPLACED AT THE CONTRACTORS/DEVELOPERS EXPENSE.
6. SIDEWALK MUST REMAIN PASSABLE, IF THE SIDEWALK BECOMES UNSAFE OR IMPASSABLE, A TEMPORARY SIDEWALK/ SIDEWALK DETOUR MUST BE PROVIDED.

TEMPORARY CONSTRUCTION ENTRANCE
N.T.S

DRAWN BY: JGD DATE: 03/05/07 REV: 01/19/10 DWG. NO.: 1 APPROVED BY: MCC	PROJECT TOWN OF AGAWAM CONSTRUCTION STANDARDS	SHT. NAME TEMPORARY CONSTRUCTION ENTRANCE	SHT. NO. ES–1



NOTES:

1. SILT FENCE IS TO BE INSTALLED BEFORE ANY LAND DISTURBING ACTIVATES START AT THE CONSTRUCTION SITE –OR– AS DIRECTED IN THE SITE'S EROSION AND SEDIMENTATION PLAN.
2. INSPECT SILT FENCE ON WEEKLY BASIS AND AFTER EACH RAIN ANY DETERIORATED/DAMAGED SILT FENCE MUST BE REPLACED IMMEDIATELY.
3. REMOVE SILT FROM FENCE AS NEEDED –OR– WHEN THE SILT HAS ACCUMULATED TO HALF THE ORIGINAL HEIGHT OF THE FENCE.
4. WHEN JOINING TWO SECTIONS OF FENCE, ROLL THE END STAKES TOGETHER SUCH THAT THERE IS NO GAP IN THE FENCE, OVERLAPPING FENCE SECTIONS IS NOT AN ACCEPTABLE ALTERNATIVE

SILT FENCE
N.T.S

DRAWN BY: JGD DATE: 3/8/2007 DWG. NO.: 1 APPROVED BY: MCC	PROJECT TOWN OF AGAWAM CONSTRUCTION STANDARDS	SHT. NAME SILT FENCE	SHT. NO. ES–2

MINIMUM THICKNESS FOR PAVEMENT

TYPE OF STREET	HOT MIX ASPHALT			GRAVEL BASE & GRAVEL SUB-BASE	
	SURFACE COURSE (INCHES)	BINDER COURSE (INCHES)	BASE (INCHES)	BASE (INCHES) DENSE GRADED CRUSHED STONE (M .01.7)	SUB-BASE (INCHES) (M 1.03.0 TYPE B, 3" MAX.)
PLACE	1.5"	3.0"	NA	4.0"	8.0"
LANE	1.5"	3.0"	NA	4.0"	8.0"
SUBCOLLECTOR	1.5"	2.0"	3.0"	4.0"	8.0"
COLLECTOR	1.5"	2.0"	4.0"	4.0"	10.0"

NOTE: THE THICKNESSES ABOVE DO NOT APPLY TO INDUSTRIAL PARK ROADS

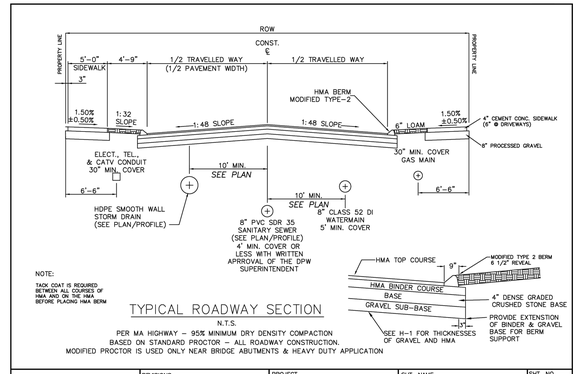
1. THE MATERIAL TO BE USED FOR THE GRAVEL BASE (THE 4" OF MATERIAL DIRECTLY UNDER THE BINDER COURSE OF PAVING) IS TO BE DENSE GRADED CRUSHED STONE (NOT PROCESSED GRAVEL OR OTHER NATURAL STONE PRODUCT.) MHD SPECIFICATION M2.01.7, WHICH MUST BE MET, STATES THAT COARSE AGGREGATE (#4 SIEVE AND LARGER) MUST BE CRUSHER RUN.
2. THE LINE, GRADE AND COMPACTION OF THE GRAVEL SUB-BASE (THE 8" LAYER OF GRAVEL BORROW DIRECTLY UNDER THE DENSE GRADED CRUSHED STONE) MUST BE APPROVED BY ENGINEERING BEFORE THE 4" LAYER OF DENSE GRADED CRUSHED STONE IS PLACED. IT IS IMPORTANT THAT ENOUGH TIME IS ALLOWED IN THE CONSTRUCTION SCHEDULE SO THAT FIELD DENSITY TESTS CAN BE MADE (AT DEVELOPER'S EXPENSE).
3. GRAVEL SAMPLES FOR THE SUB-BASE AND BASE WILL BE TAKEN BY THE ENGINEERING DIVISION FOR TESTING. THE SAMPLE MUST MEET ITS RESPECTIVE MHD SPECIFICATION AND BE APPROVED BY THE TOWN ENGINEER BEFORE ANY OF THE GRAVEL CAN BE SPREAD ON-SITE. THE TOWN ENGINEER OR THEIR AGENT ARE SOLELY RESPONSIBLE FOR CHAIN OF CUSTODY OF ALL SAMPLES; ANY TESTING PERFORMED OUTSIDE OF THE TOWN CHAIN OF CUSTODY WILL NOT BE ACCEPTED.
4. FIELD DENSITY TESTING IS TO BE MADE ON BOTH THE GRAVEL SUB-BASE AND GRAVEL BASE SEPARATELY. THE GRAVEL SUB-BASE IS TO BE TESTED BEFORE THE GRAVEL BASE WILL BE ALLOWED TO BE PLACED.
5. WHEN THE GRAVEL FOR THE SUB-BASE AND BASE IS SPREAD OUT, IT IS TO BE SPREAD INTO THE SITE STARTING AT THE SITE'S ENTRANCE AND WORKING INWARDS.
6. THE BINDER COURSE OF PAVING CANNOT BE LAID UNTIL THE ENGINEERING DIVISION HAS APPROVED THE GRADE FOR THE ROADWAY AND THE COMPACTION OF THE GRAVEL BASE.
7. PRIOR TO INSTALLING THE CURB, THE DEVELOPER SHALL HAVE THE LINES OF THE PROPOSED CURBING LAID OUT WITH RED PAINT OR OTHER MARKING AND THEN NOTIFY ENGINEERING THAT MARKING IS READY FOR INSPECTION. AFTER INSPECTION, ENGINEERING WILL NOTIFY THE DEVELOPER THAT CURBING IS EITHER READY FOR LAYING OR CORRECTIONS MUST BE MADE TO THE MARKINGS. IN THE LATTER CASE, THE DEVELOPER MUST MAKE THE CORRECTIONS PRIOR TO APPROVAL AND INSTALLATION. TACK COAT IS REQUIRED BEFORE PLACMENT OF HMA BERMS.
8. PRIOR TO LAYING THE TOP COURSE OF PAVEMENT, AND AFTER THE CURB IS INSTALLED, THE PAVEMENT MUST BE FLOODED SO THAT ENGINEERING CAN OBSERVE AND SURVEY THE GRADES OF BINDER COURSE TO DETECT ANY DISCREPANCIES IN GRADE. THIS INFORMATION MUST BE FURNISHED TO THE PAVING SUBCONTRACTOR BY THE DEVELOPER SO THAT ANY NECESSARY SHIMMING OF THE PAVEMENT CAN BE MADE. ENGINEERING WILL CHECK SHIMS.
9. AS NOTED IN THE SUBDIVISION REGULATIONS AND STANDARD PERFORMANCE AGREEMENTS, THE PRESENCE OF AN INSPECTOR WILL NOT RELIEVE THE DEVELOPER OF HIS OBLIGATIONS TO PROVIDE A SATISFACTORY INSTALLATION OF ALL FACILITIES WHICH ARE A PART OF THE SUBDIVISION.
10. TACK COAT WILL BE REQUIRED TO BE APPLIED AT A RATE OF 1/20 GAL/SY WHENEVER PLACING HMA OVER EXISTING PAVEMENT, OTHERWISE THE TACK COAT SHALL BE AS SPECIFIED IN SECTION 460.62 OF THE MHD STANDARD SPECIFICATIONS.

STREET DESIGN STANDARDS

TYPE OF STREET	RIGHT OF WAY WIDTH (FEET)	PAVEMENT WIDTH (FEET)
PLACE	✗ 50	26
LANE	50	30
SUBCOLLECTOR	60	36
COLLECTOR	66	40

REVISED 05/2008

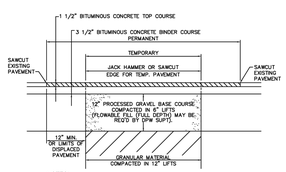
DRAWN BY:DMD REV. BY: JTG, JGD DATE: 1/23/98 REV.: 01/19/10 DWG. NO.: 1 APPROVED BY:JTD, MCC	PROJECT TOWN OF AGAWAM CONSTRUCTION STANDARDS	SHT. NAME STREET STANDARDS	SHT. NO. H–1



TYPICAL ROADWAY SECTION
N.T.S.

PER MA HIGHWAY – 95% MINIMUM DRY DENSITY COMPACTION
BASED ON STANDARD PROCTOR – ALL ROADWAY CONSTRUCTION.
MODIFIED PROCTOR IS USED ONLY NEAR BRIDGE ABUTMENTS & HEAVY DUTY APPLICATION

DRAWN BY: DMD DATE: 12–5–96 DWG. NO.: 1 APPROVED BY: JTD, MCC	REVISIONS 1. 6–30–99 BY JTG 2. 11–22–99 BY MCC 3. 06–02–08 BY JGD	PROJECT TOWN OF AGAWAM CONSTRUCTION STANDARDS	SHT. NAME ROADWAY SECTION – TYPICAL	SHT. NO. H–2

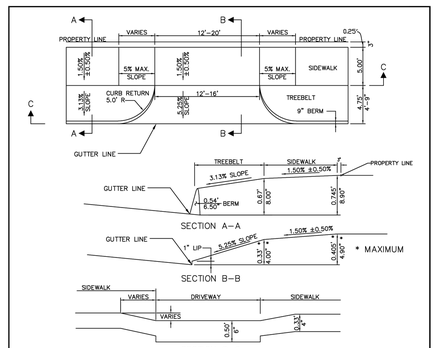


NOTES:

1. TEMPORARY PAVEMENT OVER TRENCHES IN STREET TO REMAIN FOR A MINIMUM OF 60 DAYS. TEMPORARY PAVEMENT 3" BINDER COURSE IN ONE LIFT – COLD PATCH KNOWN AS "DPW" MAYBE USED WHEN TYPE I–1 IS UNAVAILABLE.
2. REMOVE TEMPORARY PAVEMENT AND REPLACE WITH PERMANENT PAVEMENT
3. PAVEMENT THICKNESS TO BE 5" MINIMUM, OR GREATER TO MATCH EXISTING CONDITIONS.
4. WHERE PAVEMENT IS CUT 2'–0" OR LESS FROM EDGE OF ROAD, REPAVING TO EXTEND TO EDGE OF ROAD.
5. EDGE OF EXISTING PAVEMENT SHALL BE TREATED WITH A TACK COAT PRIOR TO PLACEMENT OF THE PERMANENT PATCH.
6. EXCEPT AS OTHERWISE DIRECTED BY THE D.P.W. SUPT., THE EDGE OF PAVEMENT ADJACENT TO PATCH SHALL BE HEATED WITH INFRARED EQUIPMENT TO SEAL THE JOINTS.

PERMANENT PAVEMENT REPLACEMENT DETAIL
N.T.S.

DRAWN BY: DMD DATE: 12–5–96 REV.: 3–15–98 DWG. NO.: 1 APPROVED BY: JTD	PROJECT TOWN OF AGAWAM CONSTRUCTION STANDARDS	SHT. NAME PERMANENT PAVEMENT REPLACEMENT DETAIL	SHT. NO. H–3



NOTES:

1. CONCRETE SIDEWALK IS TO RUN CONTINUOUSLY THROUGH DRIVEWAYS
2. CONCRETE USED SHALL BE 4000 PSI WITH A MAX. AGGREGATE SIZE OF 3/4" AND SHALL CONTAIN 5–7% ENTRAINED AIR.
3. CONCRETE DEPTH DEPTH SHALL BE A MINIMUM OF 4" WITH A MINIMUM DEPTH OF 6" @ DRIVEWAYS
4. SIDEWALKS SHOULD BE INSTALLED PRIOR TO THE APPLICATION FOR A BUILDING PERMIT UNLESS THE BUILDER REQUESTS IN WRITING THAT THE SIDEWALKS BE DELAYED AND GUARANTEES THAT THE SIDEWALK WILL CONFORM TO THE STANDARD DRIVEWAY DETAIL.
5. ALL DRIVEWAYS REQUIRE A DPW DRIVEWAY PERMIT
6. ALL GRADES ARE MAXIMUM, DRIVEWAYS ARE TO BE DESIGNED SUCH THAT WATER WILL NOT FLOW INTO DRIVEWAY FROM THE ROADWAY
7. DRIVEWAY SHALL BE PLACED SO THAT STREET INFRASTRUCTURE, SUCH AS: FIRE HYDRANTS, UTILITY POLES AND CATCH BASINS, ARE LOCATED NO CLOSER THAN 5FT TO THE POINT WHERE THE DRIVEWAY'S CURB RETURN MEETS WITH THE STREET'S CURB LINE.

STANDARD RESIDENTIAL DRIVEWAY
N.T.S.

DRAWN BY:DMD REV. BY: JTG, JGD DATE:12–5–96 REV.: 10–18–10 DWG. NO.: 1 APPROVED BY: MCC	PROJECT TOWN OF AGAWAM CONSTRUCTION STANDARDS	SHT. NAME STANDARD RESIDENTIAL DRIVEWAY	SHT. NO. H–6

I CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE REGISTRY OF DEEDS

COMMONWEALTH OF MASSACHUSETTS MARC E. SHUTE No. 33610 PROFESSIONAL LAND SURVEYOR

PROFESSIONAL LAND SURVEYOR

TOWN OF AGAWAM
PLANNING BOARD
APPROVAL UNDER THE SUBDIVISION CONTROL LAW IS REQUIRED

DATE

I, _____, CLERK OF THE TOWN OF AGAWAM HEREBY CERTIFY THAT NOTICE OF APPROVAL OF THIS PLAN BY THE AGAWAM PLANNING BOARD HAS BEEN RECEIVED AND RECORDED AT THIS OFFICE AND NO APPEAL WAS RECEIVED DURING TWENTY DAYS AFTER SUCH RECEIPT AND RECORDED OF SAID NOTICE.

RLA
R LEVESQUE ASSOCIATES INC
Landscape Architects
Civil Engineers · Land Surveyors
Environmental Consultants
ph: 413.568.0985 fax: 413.568.0986
40 School Street
Westfield, MA 01085
rlaland.com

DETAILS

0 Old River Street
Agawam, Massachusetts
Map J17 Parcel I-3

COMMONWEALTH OF MASSACHUSETTS FILIPE J. GRAVO CIVIL No. 60376 REGISTERED PROFESSIONAL ENGINEER 1/30/26

PREPARED FOR:

Chuck Calabrese
Calabrese Construction, LLC

7 Brewster Road
West Springfield, MA.

ISSUANCE DATE: January 30, 2026

REVISIONS:	DATE:

DRAFTED BY: T.A. & F.C.

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SCALE: As Noted

RLA PROJ. NUMBER: 220627

DRAWING#	REV.
D-2	

PERMITTING

S:\Projects\2022\220627 - Calabrese - 0 Old River St, Agawam, MA\05 Civil 3D\220627 - Defin.dwg

COMMONWEALTH OF MASSACHUSETTS
MARC E. SHUTE
No. 33610
PROFESSIONAL LAND SURVEYOR

I CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE REGISTRY OF DEEDS.

PROFESSIONAL LAND SURVEYOR

PLANNING BOARD

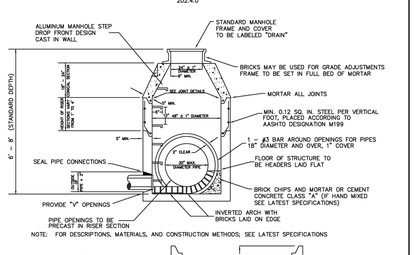
APPROVAL UNDER THE SUBDIVISION CONTROL LAW IS REQUIRED

DATE

I, _____, CLERK OF THE TOWN OF AGAWAM HEREBY CERTIFY THAT NOTICE OF APPROVAL OF THIS PLAN BY THE AGAWAM PLANNING BOARD HAS BEEN RECEIVED AND RECORDED AT THIS OFFICE AND NO APPEAL WAS RECEIVED DURING TWENTY DAYS AFTER SUCH RECEIPT AND RECORDED OF SAID NOTICE.

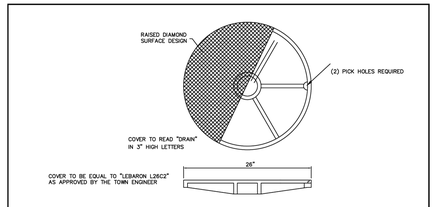
PRECAST CONCRETE DRAIN MANHOLE

N.T.S.
202.4.0

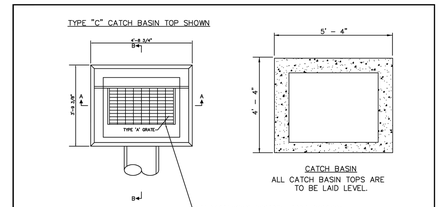


NOTE: FOR DESCRIPTIONS, MATERIALS, AND CONSTRUCTION METHODS; SEE LATEST SPECIFICATIONS

DRAWN BY: MCC DATE:12-30-98 DWG. NO.: 1 APPROVED BY: JTD	PROJECT TOWN OF AGAWAM CONSTRUCTION STANDARDS	SHT. NAME PRECAST DRAIN MANHOLE	SHT. NO. D-1



DRAWN BY:MCC/JTG DATE: 1-10-99/7-23-01 DWG. NO.: 1 APPROVED BY: JTD	PROJECT TOWN OF AGAWAM CONSTRUCTION STANDARDS	SHT. NAME DRAIN MANHOLE FRAME AND COVER	SHT. NO. D-2



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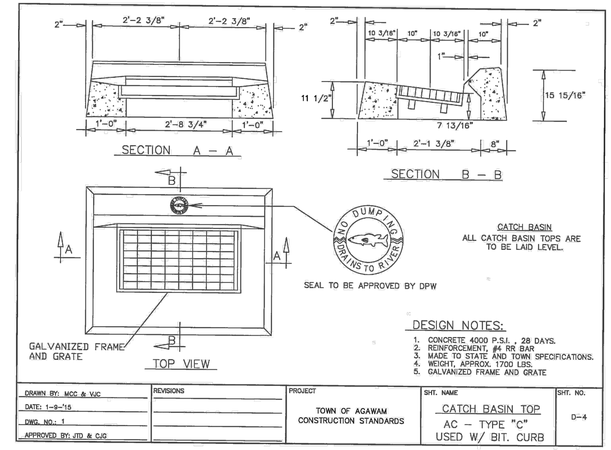
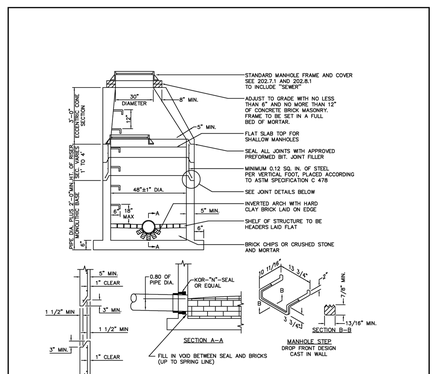


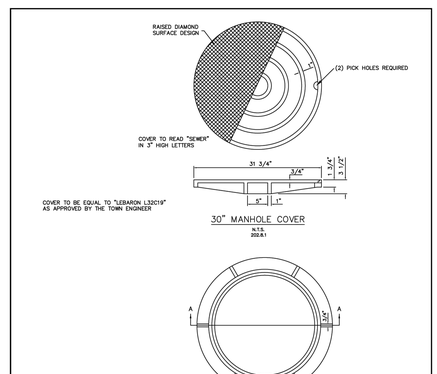
DRAWN BY: MCC & VJC DATE: 1-2-15 DWG. NO.: 1 APPROVED BY: JTD & CJC	REVISIONS	PROJECT TOWN OF AGAWAM CONSTRUCTION STANDARDS	SHT. NAME CATCH BASIN TOP AC – TYPE "C" USED W/ BIT. CURB	SHT. NO. D-4



STANDARD SANITARY SEWER MANHOLE

N.T.S.
202.6.1

DRAWN BY: DMD REV. BY: JTG DATE: 12-5-96 REV. 6-30-99 DWG. NO.: 1 APPROVED BY: JTD	PROJECT TOWN OF AGAWAM CONSTRUCTION STANDARDS	SHT. NAME MANHOLE – SANITARY SEWER	SHT. NO. S-1



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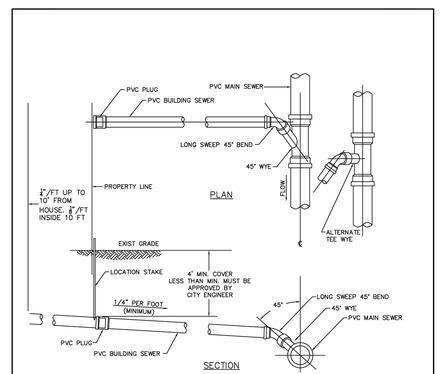
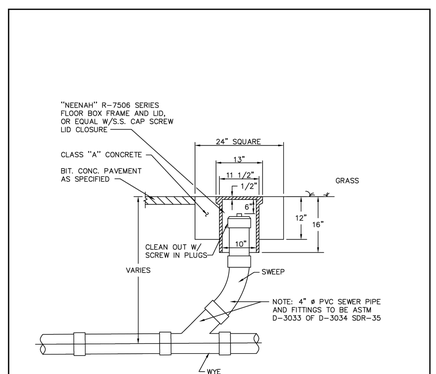


DRAWN BY: DMD/MCC DATE: 12-5-96 REV.: 8/1/03 DWG. NO.: 1 APPROVED BY: JTD	PROJECT TOWN OF AGAWAM CONSTRUCTION STANDARDS	SHT. NAME BUILDING SEWER CONNECTION	SHT. NO. S-4



DRAWN BY: DMD DATE: 12-5-96 DWG. NO.: 1 APPROVED BY: JTD	PROJECT TOWN OF AGAWAM CONSTRUCTION STANDARDS	SHT. NAME SANITARY CLEANOUT	SHT. NO. S-5

PERMITTING

RLA
R LEVESQUE ASSOCIATES INC
Landscape Architects
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Environmental Consultants
ph: 413.568.0985 fax: 413.568.0986
40 School Street
Westfield, MA 01085
rlaland.com

DETAILS

0 Old River Street
Agawam, Massachusetts
Map J17 Parcel I-3

COMMONWEALTH OF MASSACHUSETTS
FILIPE J. CRAVO
CIVIL
No. 40376
REGISTERED PROFESSIONAL ENGINEER
1/30/26

PREPARED FOR:

Chuck Calabrese
Calabrese Construction, LLC

7 Brewster Road
West Springfield, MA.

ISSUANCE DATE: January 30, 2026

REVISIONS:	DATE:

DRAFTED BY: T.A. & F.C.

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SCALE: As Noted

RLA PROJ. NUMBER: 220627

DRAWING#	REV.
D-3	

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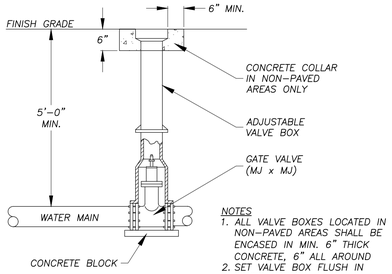
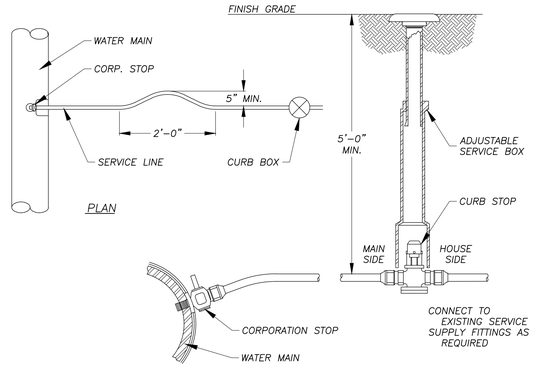


NOTES
1. ALL VALVE BOXES LOCATED IN NON-PAVED AREAS SHALL BE ENCASED IN MIN. 6" THICK CONCRETE, 6" ALL AROUND
2. SET VALVE BOX FLUSH IN PAVED AREAS

TYPICAL BURIED VALVE

NO SCALE



PLAN

SECTION

TYPICAL WATER SERVICE CONNECTION

NO SCALE

PIPE RESTRAINT SCHEDULE FOR GROUND BURIED PRESSURE PIPES

PIPE \ LENGTH OF RESTRAINT REQD (FEET) — DEFLECT. ANGLE	2½°	3¾°	5°	5¾°	6½°	7¾°	90° OR TEE	DESIGN FORCE ON RESTRAINT REQ'D (KIPS) ③ 45°	90° OR TEE
6"	3	6	11	16	23	29	37	2.0	5.0
8"	4	8	15	22	31	41	50	3	9.0
10"	5	11	18	28	38	49	61	4.0	14.0
12"	6	13	22	33	45	59	73	6.0	20.0

① THIS TABLE IS BASED ON A TEST PRESSURE OF 180 PSI (OPERATING PRESSURE + WATER HAMMER). FOR OTHER TEST PRESSURES, ALL VALUES TO BE INCREASED OR DECREASED PROPORTIONALLY

② IN EACH DIRECTION FROM POINT OF DEFLECTION EXCEPT FOR TEE AT WHICH ONLY THE BRANCH IN THE DIRECTION OF THE TEE STEM.

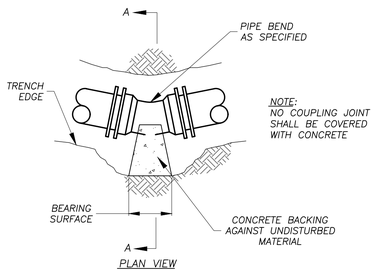
③ IF TIE RODS ARE USED, USE 4 RODS MINIMUM AND ADD ⅛" TO BAR DIA AS CORROSION ALLOWANCE.

MINIMUM AREA OF BEARING FACE OF CONCRETE THRUST BLOCKS IN SQUARE FEET

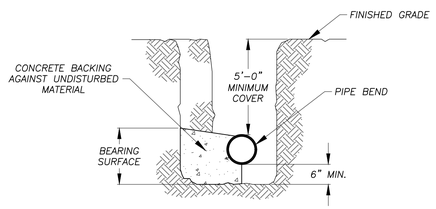
PIPE SIZE (INCHES)	SOIL BEARING 1,000 LBS./ SQ. FT.	2,000 LBS./ SQ. FT.	4,000 LBS./ SQ. FT.
DEAD END, TEE OR HYDRANT			
6	11	6	3
8	20	10	5
12	34	17	9
1/4 BEND – 90°			
6	16	8	4
8	28	14	7
12	56	28	14
1/8 BEND – 45°			
6	9	4	2
8	14	7	4
12	32	16	8
1/16 BEND – 22 1/2° OR LESS			
6	4	2	1
8	8	4	2
12	15	8	4

NOTES: THRUST BLOCKS

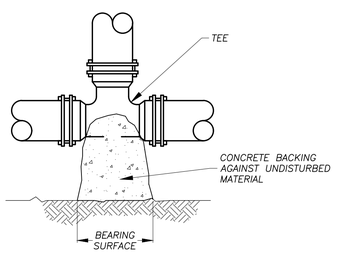
1. FIGURES BASED ON 300 PSI OPERATING PLUS SURGE PRESSURE
2. CONCRETE SHALL NOT BE DUMPED OVER THE FITTING. THE BLOCK MUST BE FORMED
3. RETAINING RODS OR RESTRAINED JOINT PIPE AS APPROVED BY THE ENGINEER MAY BE USED IN PLACE OF THRUST BLOCKS
4. PLACE 15 LB ROOF FELT BETWEEN PIPE AND CONCRETE
5. CONCRETE SHALL NOT COVER PIPE JOINTS
6. ALL BENDS, TEES, HYDRANTS AND DEAD ENDS SHALL BE BRACED WITH CONCRETE THRUST BLOCKS OR SUITABLE RESTRAINING DEVICES
7. BEARING AREA IS AREA OF CONCRETE IN CONTACT WITH WALL OF TRENCH = H x L
8. HEIGHT (H) AND LENGTH (L) AS REQUIRED TO OBTAIN AREA IN TABLE. LENGTH TO BE 2 TIMES HEIGHT
9. ESTIMATED SOIL BEARING LOAD IS 2000 LBS



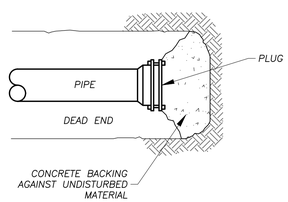
PLAN VIEW



SECTION A – A



PLAN VIEW



PLAN VIEW

WATER MAIN · HORIZONTAL THRUST BLOCK DETAILS

NO SCALE

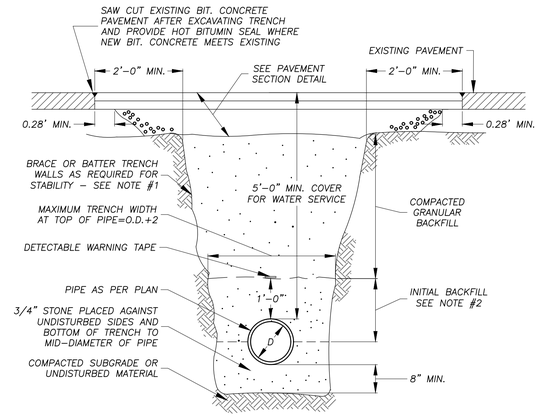
I CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE REGISTRY OF DEEDS.

PROFESSIONAL LAND SURVEYOR

I, _____, CLERK OF THE TOWN OF AGAWAM HEREBY CERTIFY THAT NOTICE OF APPROVAL OF THIS PLAN BY THE AGAWAM PLANNING BOARD HAS BEEN RECEIVED AND RECORDED AT THIS OFFICE AND NO APPEAL WAS RECEIVED DURING TWENTY DAYS AFTER SUCH RECEIPT AND RECORDED OF SAID NOTICE.

TOWN OF AGAWAM
PLANNING BOARD
APPROVAL UNDER THE SUBDIVISION CONTROL LAW IS REQUIRED

_____ DATE



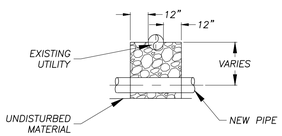
PIPE TRENCH DETAIL (STANDARD)

NO SCALE

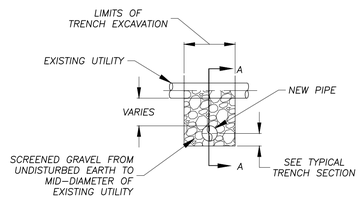
TRENCH NOTES

1. SHEETING, WHEN REQUIRED TO BE CUT OFF AT LEAST 5 FT. BELOW STREET AND A MINIMUM OF 1 FT. ABOVE TOP OF PIPE. WOOD SHEETING DRIVEN BELOW MID-DIAMETER OF THE PIPE SHALL BE LEFT IN PLACE. STEEL SHEETING DRIVEN BELOW MID-DIAMETER MAY BE WITHDRAWN IF APPROVED IN WRITING BY THE ENGINEER. FOR P.V.C. PIPE, ALL SHEETING DRIVEN BELOW MID-DIAMETER SHALL BE LEFT IN PLACE.
2. SELECTED COMMON FILL, HAND PLACED, FROM MID-DIAMETER OF PIPE TO 12" ABOVE, TOP OF PIPE.
3. TRENCHES LOCATED ON THE ROAD SHOULDER SHALL BE TREATED THE SAME AS STREET EXCEPT FOR PAVING.
4. PROVIDE AT LEAST ONE IMPERVIOUS DAM IN GRAVEL BEDDING BETWEEN EACH MANHOLE WHERE DIRECTED, OR EVERY 300 FT., WHICHEVER IS LESS.
5. COMPACT ALL BACKFILL MATERIAL WITH VIBRATORY PLATE EQUIPMENT (MINIMUM TWO PASSES) TO A MINIMUM DENSITY OF 95 PERCENT OF THE STANDARD PROCTOR DENSITY AS DETERMINED BY ASTM D698.
6. PLACE BACKFILL MATERIALS IN MAXIMUM ONE FOOT LIFTS.

NOTE:
SEE "TYPICAL PIPE TRENCH DETAIL" NOTE 8 FOR ADDITIONAL REQUIREMENTS



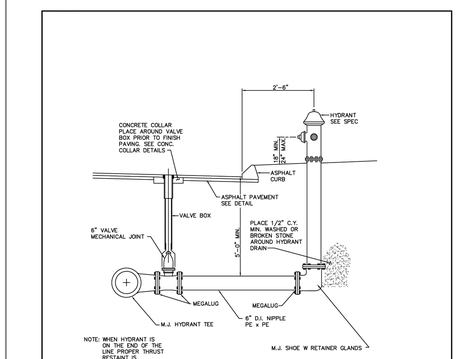
SECTION "A–A"



TYPICAL SECTION

UTILITY CROSSING DETAIL

NO SCALE



HYDRANT DETAIL
N.T.S.

DRAWN BY: DMD REV. BY: JGD	PROJECT	SHT. NAME	SHT. NO.
DATE: 12-5-96 REV: 2-7-2007	TOWN OF AGAWAM CONSTRUCTION STANDARDS	HYDRANT DETAIL	W-1
DWG. NO.: 1			
APPROVED BY: JTD, MCC			

PERMITTING

RLA
R LEVESQUE ASSOCIATES INC
Landscape Architects
Civil Engineers · Land Surveyors
Environmental Consultants
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40 School Street
Westfield, MA 01085
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DETAILS

0 Old River Street
Agawam, Massachusetts
Map J17 Parcel I-3

FILIPE J. CRAVO CIVIL No. 52076 REGISTERED PROFESSIONAL ENGINEER 1/30/26

PREPARED FOR:

Chuck Calabrese
Calabrese Construction, LLC

7 Brewster Road
West Springfield, MA.

ISSUANCE DATE: January 30, 2026

REVISIONS:	DATE:

DRAFTED BY: T.A. & F.C.

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SCALE: As Noted

RLA PROJ. NUMBER: 220627

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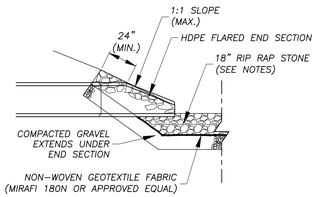

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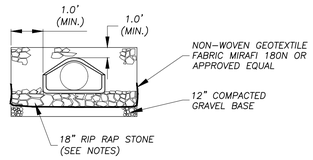

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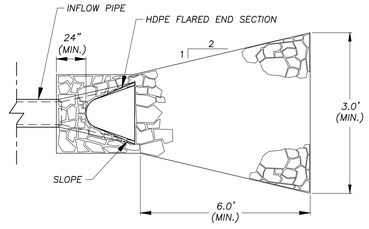


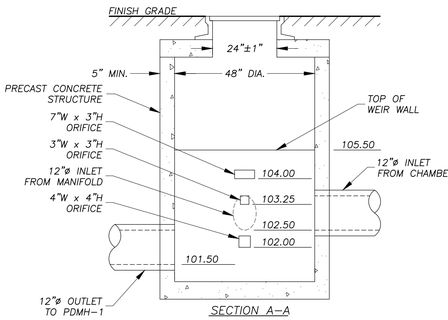
PLAN VIEW

NOTES

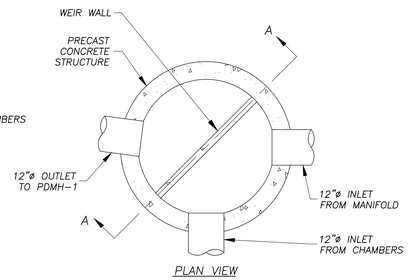
1. FLARED END SECTION PIPE JOINT SHALL BE SIMILAR TO THE MAIN RUN OF PIPE JOINTS
2. STONE RIPRAP SHALL NOT BE LESS THAN 50 POUNDS NOR MORE THAN 125 POUNDS AND AT LEAST 75% OF THE VOLUME SHALL BE AT LEAST 75 POUNDS

STANDARD RIP RAP PIPE OUTLET

NO SCALE



SECTION A–A



PLAN VIEW

OUTLET CONTROL STRUCTURE (POCS-1)

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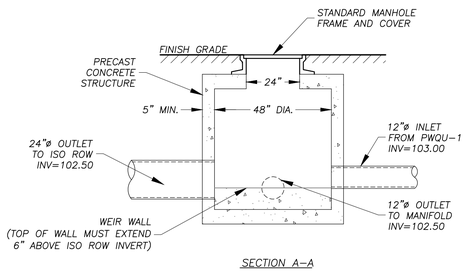
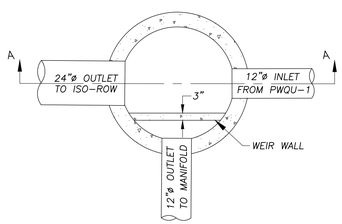


SECTION A–A



PLAN VIEW

INLET CONTROL STRUCTURE (PICS-1)

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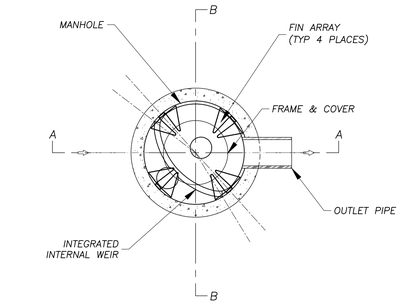

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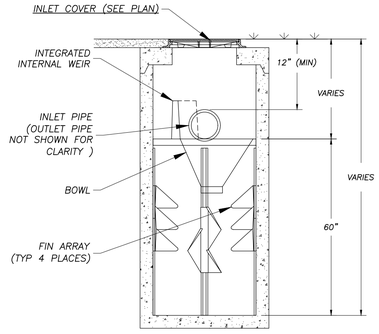
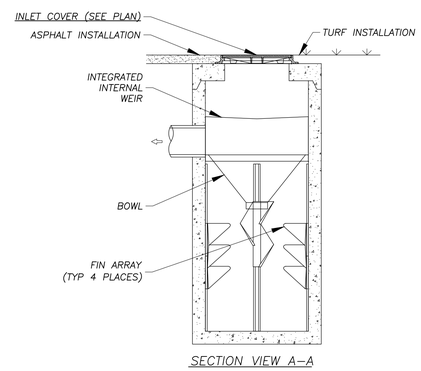


SECTION VIEW B–B



SECTION VIEW A–A

WATER QUALITY UNIT
BARRACUDA MAX S4 (PWQU-1)

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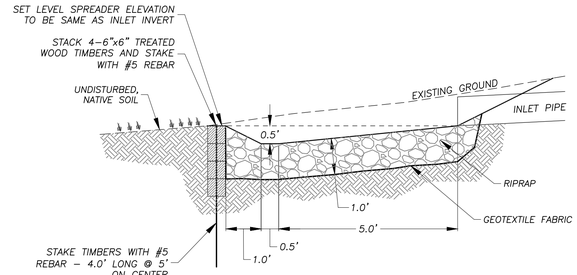
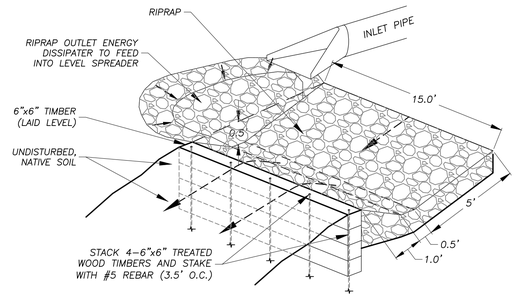


LEVEL SPREADER CROSS-SECTION



NOTES

1.) LEVEL SPREADER SHALL BE INSTALLED WITH A LEVEL INSTRUMENT. CONSTRUCT LEVEL UP TO 0% GRADE TO ENSURE UNIFORM SHEET FLOW. LEVEL SPREADER SHALL BE CONSTRUCTED ON UNDISTURBED SOIL.
2.) CONSTRUCTION OF LEVEL SPREADER SHALL BE FROM UPHILL SIDE ONLY. LEVEL LIP AND AREA BELOW SPREADER SHALL BE AT EXISTING GRADES AND UNDISTURBED BY EARTHWORK OR EQUIPMENT.
3.) CONSTRUCT SPREADER WITH LIP AT EXISTING GRADE AS SPECIFIED.
4.) DOWNGRADIENT RECEIVING AREA MUST BE NATURALLY WELL VEGETATED.

LEVEL SPREADER DETAIL

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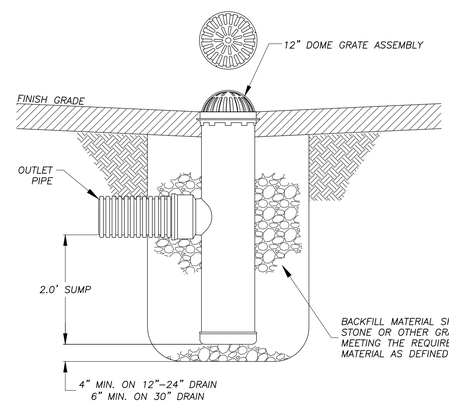

ADS NYLOPLAST YARD DRAIN BASIN

NO SCALE

COMMONWEALTH OF MASSACHUSETTS
MARC E. SHUTE
No. 33610
PROFESSIONAL LAND SURVEYOR

I CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE REGISTRY OF DEEDS.

PROFESSIONAL LAND SURVEYOR

I, _____, CLERK OF THE TOWN OF AGAWAM HEREBY CERTIFY THAT NOTICE OF APPROVAL OF THIS PLAN BY THE AGAWAM PLANNING BOARD HAS BEEN RECEIVED AND RECORDED AT THIS OFFICE AND NO APPEAL WAS RECEIVED DURING TWENTY DAYS AFTER SUCH RECEIPT AND RECORDED OF SAID NOTICE.

TOWN OF AGAWAM
PLANNING BOARD
APPROVAL UNDER THE SUBDIVISION CONTROL LAW IS REQUIRED

_____ DATE
_____
_____
_____
_____
_____
_____

RLA
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0 Old River Street
Agawam, Massachusetts
Map J17 Parcel I-3

COMMONWEALTH OF MASSACHUSETTS
FILIPE J. CRAVO
CIVIL
No. 48376
PROFESSIONAL ENGINEER
3/25/26

PREPARED FOR:

Chuck Calabrese
Calabrese Construction, LLC

7 Brewster Road
West Springfield, MA.

ISSUANCE DATE: January 30, 2026	
REVISIONS:	**DATE:**
A. Engineering Review Comments	3/23/26

DRAFTED BY: T.A. & F.C.

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PERMITTING

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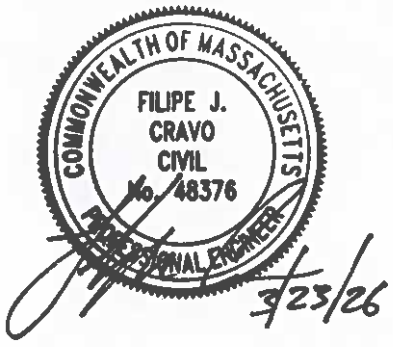
Stormwater Drainage Report

Proposed Residential Subdivision

Project Location:
Old River Street, 27 Walnut Street & 17 High Street
Agawam, Massachusetts 01001
(Parcel IDs: J17-1-3, J17-1-1 & J17-1-5)

Submitted To:
Town of Agawam Planning Board
1000 Suffield Street
Agawam, Massachusetts 01001

Applicant & Property Owner:
Calabrese Construction, LLC
c/o Mr. Charles Calabrese
7 Brewster Road
West Springfield, Massachusetts 01089



RLA Project File No. 220627
January 30, 2026
Revised: March 23, 2026

R LEVESQUE ASSOCIATES, INC
A LAND PLANNING SERVICES COMPANY
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TABLE OF CONTENTS

SECTION PAGE NO.

I. INTRODUCTION 1-1

2. SITE DESCRIPTION 2-1

2.1 Predevelopment Conditions 2-1
2.2 Resource Areas 2-1
2.2.1 Floodplain 2-1
2.2.2 Natural Heritage and Endangered Species Program 2-1
2.2.3 Aquifer Protection District 2-2
2.3 Soils 2-2
2.4 Post Development Conditions 2-3

3. STORMWATER MANAGEMENT SYSTEM 3-1

3.1 Drainage Calculations 3-1
3.1.1 Design Points 3-2
3.1.2 Pre-Development Hydrology 3-2
3.1.3 Post-Development Hydrology 3-2
3.1.4 Peak Discharge Rates 3-3
3.2 Hydraulic Analysis 3-3
3.3 MassDEP Stormwater Management Standards 3-3
3.4 Stormwater Best Management Practices 3-6
3.4.1 Deep Sump Catch Basins 3-6
3.4.2 Proprietary Sedimentation Devices 3-6
3.4.3 Subsurface Detention Basin 3-7
3.5 Protection of Stormwater Best Management Practices during Construction 3-7
3.6 Inspection and Maintenance of Stormwater Best Management Practices 3-7
3.7 Illicit Discharge Compliance Statement 3-7
3.8 Low-Impact Development Alternatives Analysis Narrative 3-7

4. CONCLUSION 4-1

List of Tables

Table Page No.

Table 2.4: Hydrologic Soil Group Classification 2-2
Table 3.1: Design Rainfall Data 3-1
Table 3.1.4 Pre- and Post-Development Peak Discharge Rates 3-3

List of Figures

Figure

Figure 1: Site Locus – USGS Map
Figure 2: FEMA Flood Map
Figure 3: NHESP Map
Figure 4: Pre-Development Watershed Plan
Figure 5: Post-Development Watershed Plan
Figure 6: Inlet Area Plan

Appendices

APPENDIX A: CHECKLIST FOR STORMWATER REPORT
APPENDIX B: SOILS INFORMATION
APPENDIX C: PRE- AND POST- DEVELOPMENT HYDROLOGIC ANALYSIS (2, 10, & 100 YEAR STORM EVENTS)
APPENDIX D: HYDRAULIC ANALYSIS
APPENDIX E: MASSDEP CALCULATIONS
APPENDIX F: CONSTRUCTION PERIOD EROSION CONTROL PLAN
APPENDIX G: LONG-TERM OPERATION AND MAINTENANCE PLAN
APPENDIX H: ILLICIT DISCHARGE COMPLIANCE STATEMENT
APPENDIX I: LOW IMPACT DEVELOPMENT CONSIDERATIONS

I. INTRODUCTION

The project applicant, Calabrese Construction, LLC, is proposing to construct a three (3) lot residential subdivision on approximately 13.1 acres of land located at the terminus of High Street in Agawam, Massachusetts. The project site consists of three parcels located at Old River Street, 27 Walnut Street & 17 High Street and identified as parcels J17-1-3, J17-1-1 & J17-1-5 in the Agawam assessor's office. For the purposes of this report, reference to the project "site" shall comprise all of the properties under common ownership and included in the proposed subdivision. The site where the proposed subdivision is proposed includes properties which are currently developed with residential dwellings. Additionally, the site includes a large portion of property that has been historically disturbed and cleared of mature vegetation. The site is accessed off an undeveloped portion of High Street and is bisected by the Old River Road right-of-way. Currently, there are no stormwater management best management practices located within the project site or High Street right-of-way. Under existing conditions, stormwater runoff generally flows overland toward various design points and ultimately being tributary to the Westfield River offsite to the northeast. A new stormwater management system is being proposed as part of the new residential subdivision.

The proposed project involves the following:

- Construction of approximately 300 feet of roadway from the intersection with Walnut Street to the terminus of the cul-de-sac;
- Construction of three (3) new multi-family residential homes;
- Installation of underground water, sanitary sewer, electric, gas and communication utility services;
- Construction of a stormwater management system including deep sump hooded catch basins, underground infrastructure, proprietary sedimentation device, and subsurface detention basin.

The new drainage infrastructure has been designed utilizing the Agawam Stormwater Management Ordinance Chapter 176, the Town of Agawam Subdivision Rules and Regulations, as well as the Massachusetts Department of Environmental Protection Stormwater Management Handbook.

2. SITE DESCRIPTION

2.1 Predevelopment Conditions

The properties proposed for development are located at Old River Street, 27 Walnut Street, and 17 High Street and are identified by the Town of Agawam Assessor's Office as Parcels J17-1-3, J17-1-1, and J17-1-5. For the purposes of this report, the "site" is defined as all parcels under common ownership included within the limits of the proposed subdivision. The site includes parcels that are currently developed with residential dwellings, as well as a significant portion of land that has been historically disturbed and cleared of mature vegetation. Site access is provided from an undeveloped segment of High Street, and the site is bisected by the Old River Road right-of-way. The project area comprises approximately 13.1 acres and is zoned Residence B. Abutting land uses consist of residentially developed properties to the north and south, Walnut Street to the west, and the Westfield River to the east. The site location is depicted on Figure 1 – USGS Map.

Site topography generally slopes easterly toward Walnut Street or ultimately drains toward the Westfield River. A relatively flat, cleared area is located at the terminus of the High Street right-of-way and will accommodate the majority of the proposed site improvements. A steeply sloping area is present along the northwestern portion of the site, with the top of slope generally coincident with the existing tree line and descending toward the Westfield River. Topography along both the northerly and southerly property boundaries similarly grades downward from Walnut Street toward the river. Pre-development drainage sub-catchment areas are illustrated on Figure 4 – Pre-Development Conditions..

2.2 Resource Areas

Portions of the project site are located within jurisdictional riverfront area associated with the Westfield River to the North. None of the site improvements required to build the proposed subdivision are located within the 200-foot riverfront jurisdictional area.

2.2.1 Floodplain

R. Levesque Associates, Inc. performed due diligence research on the property in regard to FEMA flood zone mapping. According to Flood Insurance Rate Map Number 25013C0382E, effective date 7/16/2013, a portion of the property is shown to be within a special flood zone area "Zone AE" (100-Year storm event) polygon with base flood elevation 65; see Figure 2 – Flood Rate Insurance Map. None of the proposed site improvements required to build the proposed subdivision are located within the floodplain.

2.2.2 Natural Heritage and Endangered Species Program

R. Levesque Associates, Inc. performed due diligence research on the property in regard to Natural Heritage and Endangered Species Program (NHESP) areas. The parcel is not located

within an area delineated by NHESP as priority habitat of endangered species; see Figure 3 – NHESP Map.

2.2.3 Aquifer Protection District

R. Levesque Associates, Inc. performed due diligence research on the property in regard to an Aquifer Protection District. The property is not located within an area delineated as a Zone II Wellhead Protection Area, see Figure 3 – NHESP & Zone II Map.

2.3 Soils

R. Levesque Associates, Inc. researched the soils located on site with information readily available by the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS). Based on a review of the USDA Soil Survey of Hampden County, Massachusetts, Central Part, the site is comprised of the following soil types:

Table 2.4: Hydrologic Soil Group Classification

Soil Description	Map Unit Symbol	Hydrologic Soil Group
Merrimac Fine Sandy Loam	254B	A

A series of test pits were conducted by Ryan Nelson, P.E. (SE #14394), to verify existing site soil conditions and evaluate the feasibility of incorporating infiltration-based stormwater management practices. A total of six test pits were excavated across the site within proposed development and stormwater management areas. The subsurface conditions observed in all test pits consisted of varying depths of varied fill material overlying native soils. The fill material varied significantly across the site and ranged from loamy sand with no visible debris to fill containing mixed construction materials, including asphalt, brick, concrete, and varied soils. Native soils were encountered only in test pits excavated along the western portion of the site (Test Pits 5 and 7), where the fill material transitioned to native silt loam exhibiting a dense, plasticky consistence.

Estimated seasonal high groundwater was not observed within the fill material; however, groundwater was observed at the interface between the fill material and the underlying native soils. Estimated seasonal high groundwater elevations were observed at approximately 130 inches below grade in Test Pit 5 and 100 inches below grade in Test Pit 7, coinciding with the top of the native silt loam layer. This perched groundwater condition at the fill/native interface further limits the suitability of the site for infiltration-based stormwater practices.

The native silt loam soils encountered in the field do not corroborate the NRCS Soil Survey mapping, which identifies the site as Hydrologic Soil Group A sandy loam. As documented in the Massachusetts Stormwater Management Handbook and supported by the Rawls Rate soil classification charts, silt loam soils are typically classified as Hydrologic Soil Group C, reflecting low infiltration capacity and poor suitability for groundwater recharge. The dense structure and plasticky nature of the native silt loam observed on site are consistent with these classifications.

Based on the presence of varied fill material, the underlying very poorly drained native silt loam, and the observed groundwater conditions at the fill/native interface, the site soils are not suitable to support infiltration-based best management practices. Therefore, compliance with Massachusetts Stormwater Management Standard 3 will be achieved to the maximum extent practicable through non-infiltrating stormwater management measures, consistent with the limitations imposed by verified on-site soil conditions.

2.4 Post Development Conditions

The proposed project consists of the construction of a five (5) lot residential subdivision located on the westerly side of Walnut Street, with access provided via an extension of High Street. The proposed roadway will establish the previously undeveloped portion of High Street and will extend approximately 300 feet from the Walnut Street intersection to the end of the proposed cul-de-sac. The subdivision will include the installation of underground sanitary sewer, water, electric, gas, and communication utilities. A comprehensive stormwater management system has been designed in accordance with the Agawam Stormwater Management Ordinance and the Massachusetts Department of Environmental Protection Stormwater Management Handbook.

Post-development stormwater runoff generated from the proposed roadway, residential building roof areas, driveways, and adjacent landscaped areas will be collected through a network of yard drains and deep-sump hooded catch basins. Runoff captured by these inlet structures will be conveyed via an underground storm drainage system to a proprietary water quality unit providing pretreatment prior to discharge to a subsurface detention basin. The subsurface detention basin has been designed with an outlet control structure to provide peak flow attenuation for the 2-, 10-, and 100-year, 24-hour storm events. Discharge from the outlet control structure will be conveyed to a level spreader to promote non-erosive sheet flow and avoid concentrated point discharges.

The proposed stormwater management system has been designed to meet applicable peak flow attenuation, water quality, and recharge requirements. Due to field-verified subsurface soil conditions, including varied fill overlying native silt loam soils with limited infiltration capacity, groundwater recharge is provided to the maximum extent practicable in accordance with Massachusetts Stormwater Management Standard 3. Water quality treatment is achieved through

a treatment train approach consisting of deep-sump hooded catch basins, a proprietary sedimentation device, and subsurface detention prior to discharge. Overall, the proposed post-development conditions will maintain existing drainage patterns, reduce post-development peak discharge rates, and improve stormwater runoff quality relative to existing conditions. Post-development drainage areas are shown on Figure 5 – Post-Development Watershed Plan.

3. STORMWATER MANAGEMENT SYSTEM

R. Levesque Associates, Inc. has prepared the following drainage system calculations for the proposed project site. These calculations were performed to document compliance with the guidelines set forth by the Agawam Stormwater Management Ordinance Chapter 176, the Town of Agawam Subdivision Rules and Regulations, as well as the Massachusetts Department of Environmental Protection Stormwater Management Handbook (MassDEP Handbook). A detailed hydrologic analysis of the system was completed in order to evaluate the performance of the stormwater management system components. The proposed stormwater management system will collect runoff from on-site impervious areas and utilize stormwater best management practices to provide water quality treatment and peak discharge rate attenuation. See Appendix C - Pre- and Post-Development Hydrologic Analysis for supplemental information.

3.1 Drainage Calculations

R. Levesque Associates, Inc. utilized the HydroCAD software program, Version 10.0, developed by HydroCAD Software Solutions LLC, in order to model and analyze site hydrology. The HydroCAD software is based upon the Soil Conservation Service (SCS) "Technical Release 20 – Urban Hydrology for Small Watersheds" and "Technical Release 55 – Urban Hydrology for small Watersheds" which are generally accepted industry standard methodologies. The analysis was conducted in order to establish the peak discharge rates and estimated run-off volume from the project site. This was accomplished to properly evaluate pre- and post-development conditions during various storm events. Contributing drainage areas were identified and soils, surface cover, watershed slope, and flow paths were evaluated to develop the necessary HydroCAD model input parameters. Pre-development time of concentration (Tc) values were calculated based on existing site conditions. The minimum recommended time of concentration of six minutes was used in the hydrologic calculations.

Drainage calculations were performed for the Pre- and Post-Development conditions for the 24-hour, 2, 10, and 100-year Type III storm events. The total rainfall for each of the storm events was based upon data readily available by the National Oceanic and Atmospheric Administration (NOAA) Atlas 14-point precipitation frequency estimates. Total rainfall values used in the hydrologic modeling for each event are shown in the following table:

Table 3.1: Design Rainfall Data		
2-year, 24-hour storm	10-year, 24-hour storm	100-year, 24-hour storm
3.19 inches	5.16 inches	8.28 inches

3.1.1 Design Points

In order to compare the difference between pre- and post-development peak flows, existing and proposed watersheds were delineated. Multiple design points (DP) were established with flow paths representing the longest time of concentration of run-off in each tributary watershed. For this analysis, the design points were determined as follows:

- DP-1: Offsite to Northeast; This design point represents the destination for stormwater runoff from the project area which flows off site in a northeasterly direction;
- DP-2: Offsite to South; This design point represents the destination for stormwater runoff from the project area which flows in a southerly direction;
- DP-3: Walnut Street; This design point represents the destination for stormwater runoff from the project area which flows in a westerly direction toward the Walnut Street drainage infrastructure;
- DP-4: Offsite to Northwest; This design point represents the destination for stormwater runoff from the project area which flows in a northwesterly direction;

3.1.2 Pre-Development Hydrology

The project area under existing conditions was analyzed as six sub-catchment areas discharging to the design points as described above. The sub-catchments were delineated based on existing site topography and property lines. For further watershed detail please see Figure 4 titled "Pre-Development Watershed Plan". Peak discharge rates for the design point are depicted in Table 3.1.4 below.

3.1.3 Post-Development Hydrology

The project area under proposed conditions was analyzed as seven sub-catchment areas discharging to the same design points as in pre-development conditions. For further watershed detail please see Figure 5 titled "Post-Development Watershed Plan". Peak discharge rates for the design point are depicted in Table 3.1.4 below.

3.1.4 Peak Discharge Rates

The table below summarizes the Pre- and Post-Development peak discharge rates for each Design Point:

Table 3.1.4 Pre- and Post-Development Peak Discharge Rates						
	2-year storm (cfs)		10-year storm (cfs)		100-year storm (cfs)	
	Pre-	Post-	Pre-	Post-	Pre-	Post-
Design Point 1	0.6	0.5	1.0	0.9	2.4	2.4
Design Point 2	0.1	0.1	0.1	0.1	0.7	0.4
Design Point 3	0.0	0.0	0.1	0.1	0.2	0.2
Design Point 4	0.1	0.1	0.1	0.1	0.2	0.2

As depicted in the table, the post-development peak discharge rates do not increase over pre-development peak discharge rates for each of the storm events presented. This is accomplished by providing on site attenuation through the proposed subsurface detention basin.

3.2 Hydraulic Analysis

R. Levesque Associates, Inc. utilized the Hydraflow Storm Sewer Extension for AutoCAD Civil 3D 2022 software program developed by Autodesk, Inc., in order to analyze the hydraulic capacity of the proposed underground infrastructure. The analysis was conducted in order to verify that the proposed conveyance piping has sufficient capacity to convey up to and including the 24-hour, 100-year storm event. The data from the analysis was used to properly size the conveyance piping such that there is no surcharge of stormwater above the rim elevations within the paved areas. As part of the input parameter required for the hydraulic analysis, the tributary inlet areas were delineated based on topography and any additional connected discharges. Additionally, the characteristic land use coverages and flow paths were identified. Please refer to Appendix D for the hydraulic analysis of the proposed stormwater management system.

3.3 MassDEP Stormwater Management Standards

R. Levesque Associates, Inc. has designed the proposed stormwater management system to be in compliance with the MassDEP Stormwater Management Standards. Chapter 1, Volume 3 of the

MassDEP Handbook outlines specific calculations, and other information, which must be submitted with each report to document compliance. The following summary highlights elements of the proposed project and how they apply to each standard.

- *Standard #1 - No new stormwater conveyances (e.g., outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.*

  The proposed project provides water quality treatment to the guidelines of the MassDEP Handbook. Therefore, no new untreated stormwater is discharged.

- *Standard #2 – Stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates. This Standard may be waived for discharges to land subject to coastal storm flowage as defined in 310 CMR 10.04.*

  The proposed stormwater management system has been designed such that the post-development peak discharge rates are less than the pre-development discharge rates for the 2-year, 10-year, and 100-year 24-hour storms. See Appendix C for the Hydrologic Analysis.

- *Standard #3 - Loss of annual recharge to groundwater shall be eliminated or minimized through the use of environmentally sensitive site design, low impact development techniques, stormwater BMPs, and good operation and maintenance. At a minimum, the annual recharge from the post-development site shall approximate the annual recharge from pre-development conditions based on soil type. This Standard is met when the stormwater management system is designed to infiltrate the required volume as determined in accordance with the Massachusetts Stormwater Handbook.*

  Based on field-verified soil evaluations demonstrating variable depths of varied fill overlying native Hydrologic Soil Group C silt loam with observed perched seasonal high groundwater at the fill/native soil interface, infiltration-based recharge practices are not feasible; therefore, groundwater recharge is addressed to the maximum extent practicable in accordance with the Massachusetts Stormwater Management Handbook.

- *Standard #4 – Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of TSS. It is presumed that this standard is met when:*

  a. Suitable practices for source control and pollution prevention are identified in a long-term pollution prevention plan, and thereafter are implemented and maintained;

  b. Structural stormwater BMPs practices are sized to capture the required water quality volume determined in accordance with the Massachusetts Stormwater Handbook; and

  c. Pretreatment is provided in accordance with the Massachusetts Stormwater Handbook

The treatment train utilizes deep-sump hooded catch basins, a proprietary sedimentation device and a subsurface detention basin to meet water quality standards. See Appendix E for the Water Quality and Total Suspended Solids Removal Calculations.

- *Standard #5 - For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable. If through source control and/or pollution prevention all land uses with higher potential pollutant loads cannot be completely protected from exposure to rain, snow, snow melt, and stormwater runoff, the proponent shall use the specific structural stormwater BMPs determined by MassDEP to be suitable for such uses as provided in the Massachusetts Stormwater Handbook. Stormwater discharges from land uses with higher potential pollutant loads shall also comply with the requirements of the Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26-53 and the regulations promulgated thereunder at 314 CMR 3.00, 314 CMR 4.00 and 314 CMR 5.00.*

  This standard is not applicable.

- *Standard #6 – Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply, and stormwater discharges near or to any other critical area, require the use of the specific source control and pollution prevention measures and the specific structural stormwater BMPs determined by MassDEP to be suitable for managing discharges to such areas, as provided in the Massachusetts Stormwater Handbook. A discharge is near a critical area if there is a strong likelihood of a significant impact occurring to said area, taking into account site-specific factors. Stormwater discharges to Outstanding Resource Waters and Special Resource Waters shall be removed and set back from the receiving water or wetland and receive the highest and best practical method of treatment. A "storm water discharge" as defined in 314 CMR 3.04(2)(a)1 or (b) to an Outstanding Resource Water or Special Resource Water shall comply with 314 CMR 3.00 and 314 CMR 4.00. Stormwater discharges to a Zone I or Zone A are prohibited unless essential to the operation of a public water supply.*

  This standard is not applicable.

- *Standard #7 – A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural BMPs requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.*

This standard is not applicable.

- *Standard #8 – A plan to control construction-related impacts including erosion, sedimentation and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention) shall be developed and implemented.*

  A Construction Period Erosion Control Plan has been provided in Appendix F.

- *Standard #9 – A long-term operation and maintenance plan shall be developed and implemented to ensure that stormwater management systems function as designed.*

  A Long-term Operation & Maintenance Plan has been provided in Appendix G.

- *Standard #10 - All illicit discharges to the stormwater management system are prohibited.*

  An illicit discharge statement will be provided prior to discharge of stormwater to post-construction BMPs. See Appendix H for a copy of the Illicit Discharge Statement.

3.4 Stormwater Best Management Practices

The proposed stormwater management system was designed utilizing stormwater best management practices (BMP) as set forth by the MassDEP Handbook. The BMPs utilized as part of the stormwater management system include deep-sump hooded catch basins, a proprietary sedimentation device, and a subsurface detention basin. All of the BMPs were designed to meet the requirements of the MassDEP Handbook and will provide water quality treatment and peak rate attenuation in order to mitigate the impacts of the proposed site improvements. See Appendix E – MassDEP Calculations for the calculations required to document compliance. The following section provides a description of the best management practices (BMPs) being utilized on site.

3.4.1 Deep Sump Catch Basins

Deep-sump catch basins equipped with oil/gas hoods are being utilized as structural pretreatment devices within the proposed stormwater management system. The catch basins will be constructed with a 4′-0″ deep sumps to function as a settling chamber and allow for adequate storage of collected sediments. Catch basins are typically first in the line of water quality treatment.

3.4.2 Proprietary Sedimentation Devices

The stormwater management system is utilizing a proprietary treatment device for the pretreatment of stormwater runoff in order to ensure that the required water quality treatment is being performed prior to discharge to the downgradient BMP.

3.4.3 Subsurface Detention Basin

Subsurface Detention Basins are well suited to provide groundwater attenuation from watershed areas such as those associated with this project. The subsurface detention basin consists of underground stormwater chambers embedded in stone. Stormwater discharge is conveyed to the subsurface detention basin via up-gradient drainage infrastructure. The subsurface detention basin has been designed with an outlet control structure such that the post-development discharge rates are less than or equal to pre-development rates.

3.5 Protection of Stormwater Best Management Practices during Construction

Protection of the stormwater best management practices during construction will ensure the proper functioning of the stormwater management system and provide protection to the undisturbed areas until the site has been stabilized. Certain specific erosion and sedimentation controls and good practices to be performed by the site contractor have been documented in a Construction Period Erosion Control Plan. See Appendix F – Construction Period Erosion Control Plan.

3.6 Inspection and Maintenance of Stormwater Best Management Practices

Frequent maintenance of the stormwater best management practices is essential to ensuring that the stormwater management system will function properly long-term. The MassDEP provides guidelines for the regular inspection and maintenance of the proposed stormwater best management practices. A Long-Term Stormwater Operation and Maintenance Plan has been prepared which dictates the inspection frequency and maintenance operations for each BMP. See Appendix G – Long-Term Operation and Maintenance Plan.

3.7 Illicit Discharge Compliance Statement

RLA has prepared an Illicit Discharge Compliance Statement to document compliance with the Massachusetts Department of Environmental Protection Stormwater Management Handbook, see Appendix H.

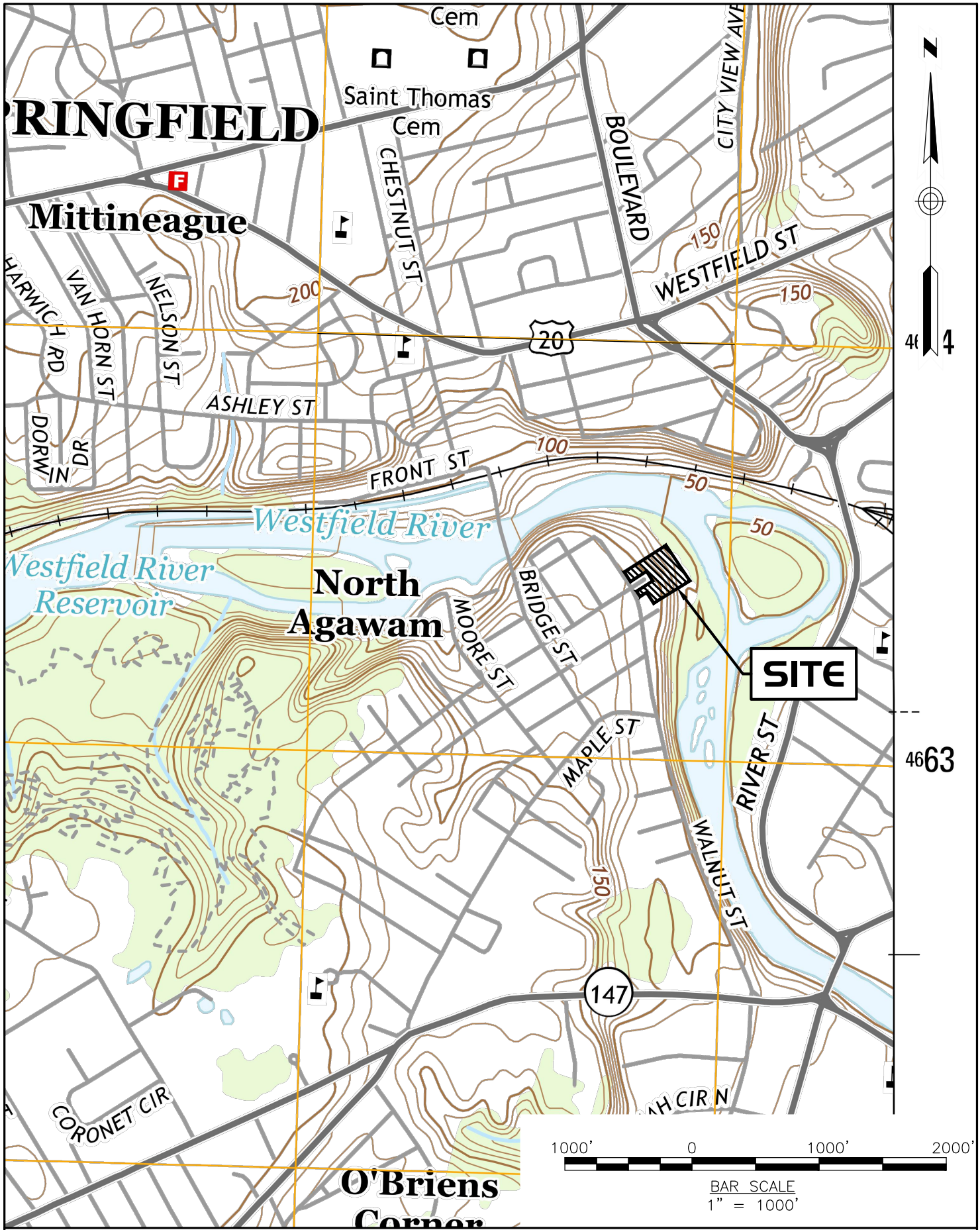
3.8 Low-Impact Development Alternatives Analysis Narrative

RLA has prepared a Low-Impact Development Alternatives Analysis Narrative as part of the Stormwater Drainage Report, see Appendix I.

4. CONCLUSION

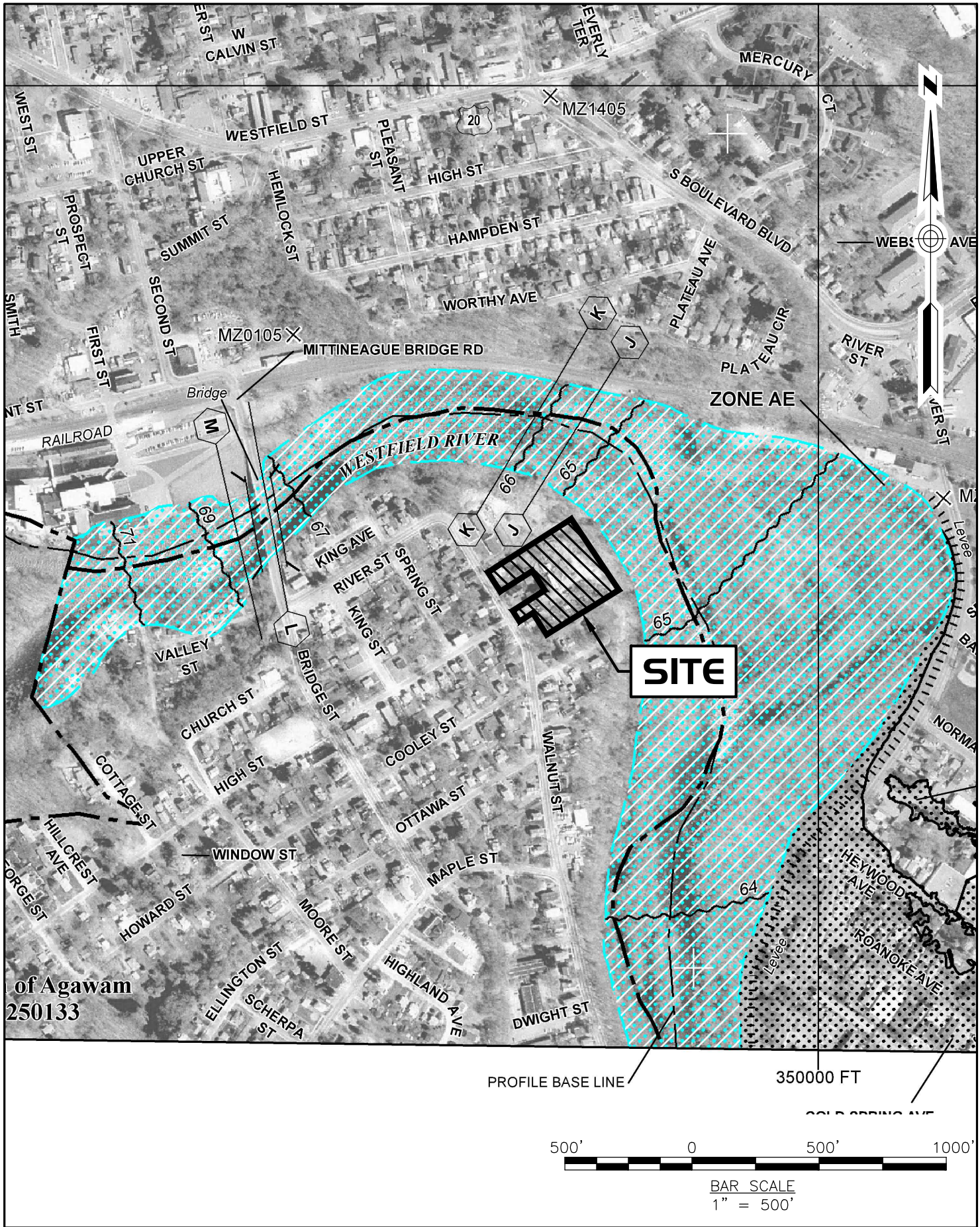
The proposed stormwater management system has been designed to mitigate the impacts of the proposed site improvements by providing effective control of stormwater runoff water quality and water quantity. The proposed site improvements, including the stormwater management system, utilize best management practices approved by the Massachusetts Department of Environmental Protection Stormwater Management Handbook. These best management practices have been incorporated to provide water quality treatment and peak discharge rate attenuation for the post-development conditions. Groundwater recharge is addressed to the maximum extent practicable based on field-verified soil evaluations demonstrating site conditions that are not suitable for infiltration-based practices. Implementation of stormwater best management practices such as deep-sump hooded catch basins, a proprietary sedimentation device, and a subsurface detention basin provides a stormwater drainage design that is in conformance with the criteria set forth in the Agawam Stormwater Management Ordinance (Chapter 176), the Town of Agawam Subdivision Rules and Regulations, and the Massachusetts Department of Environmental Protection Stormwater Management Handbook.

Figure 1: Site Locus – USGS Map



R LEVESQUE ASSOCIATES, INC A Land Planning Services Company 40 School Street · P.O. Box 640 · Westfield, MA 01086 ph: 413.568.0985 fax: 413.568.0986 rlaland.com	SITE LOCUS USGS MAP	Proposed Residential Subdivision 27 Walnut Street and Old River Street Agawam, Massachusetts Calabrese Construction, LLC 7 Brewster Road West Springfield, Massachusetts	JOB NO: 220627 DATE: 1/29/26 SCALE: AS NOTED FIG-1

Figure 2: FEMA Flood Map



500’ 0 500’ 1000’

BAR SCALE
1” = 500’

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FLOOD RATE INSURANCE MAP

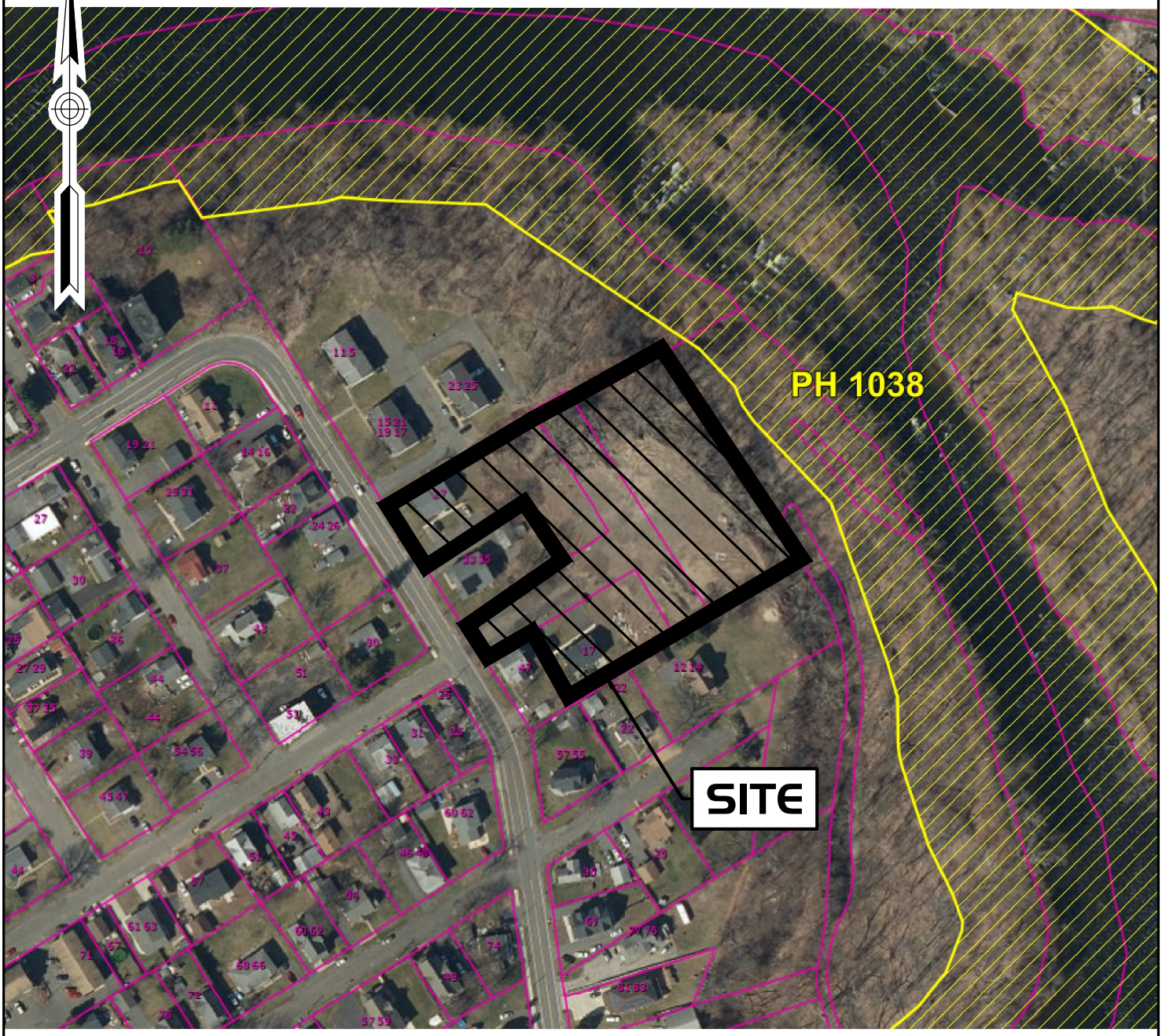
Proposed Residential Subdivision
27 Walnut Street and Old River Street
Agawam, Massachusetts

Calabrese Construction, LLC
7 Brewster Road
West Springfield, Massachusetts

JOB NO: 220627
DATE: 1/29/26
SCALE: AS NOTED

FIG-2

Figure 3: NHESP Map



1000' 0 1000' 2000'

BAR SCALE
1" = 1000'

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NHESP Area Map

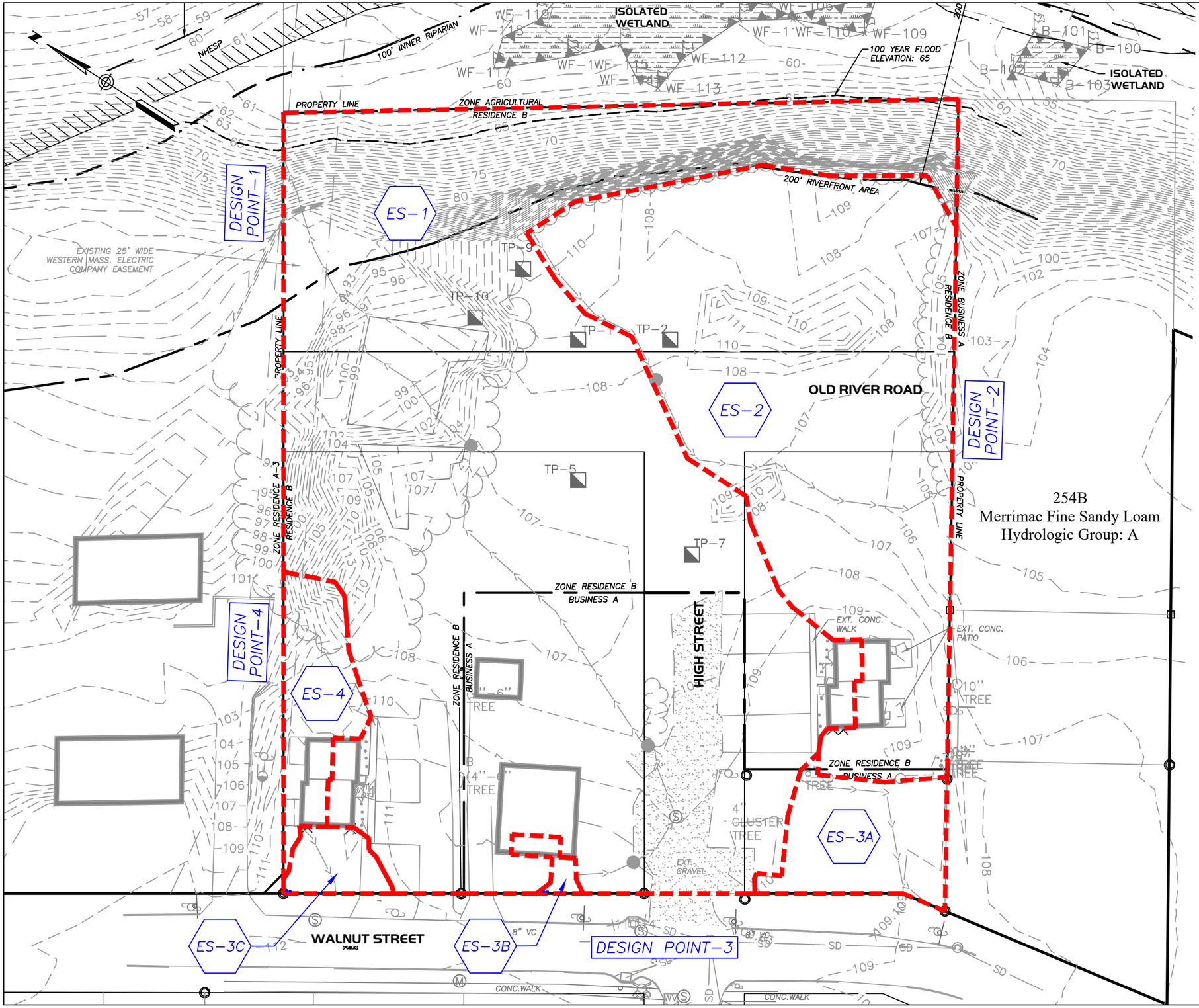
Proposed Residential Subdivision
27 Walnut Street and Old River Street
Agawam, Massachusetts

Calabrese Construction, LLC
7 Brewster Road
West Springfield, Massachusetts

JOB NO: 220627
DATE: 1/29/26
SCALE: AS NOTED

FIG-3

Figure 4: Pre-Development Watershed Plan



LEGEND

- TIME OF CONC. FLOW PATH
- ES-1 — SUBCATCHMENT NAME
- SUB WATERSHED
- SOIL BOUNDARY

1" = 50'
25 0 50

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Pre-Development Watershed Plan

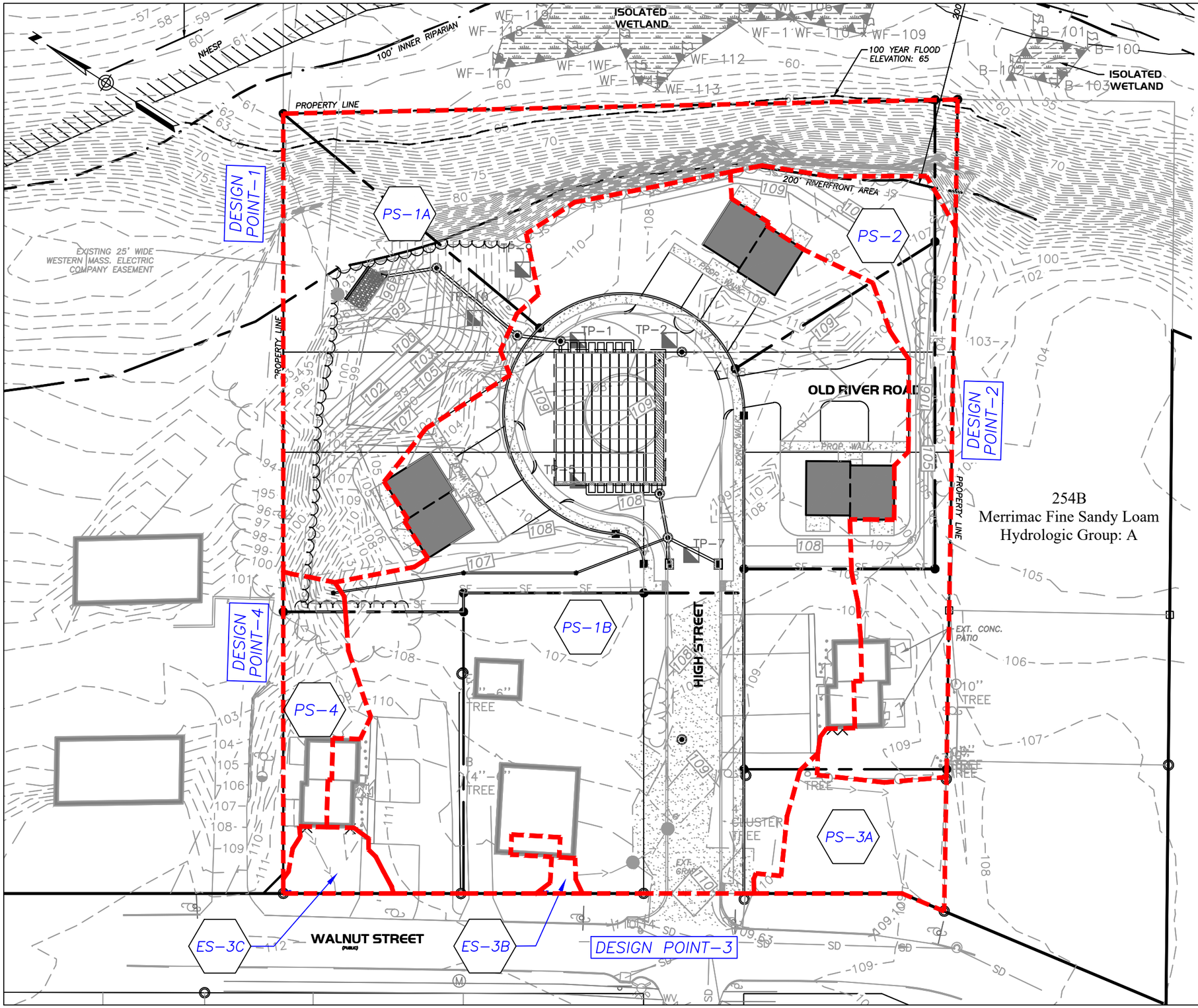
Proposed Residential Subdivision
Old River Road
Agawam, Massachusetts

Calabrese Construction, LLC
7 Brewster Road
West Springfield, MA 01089

JOB NO.: 220627
DATE: 1/30/26
SCALE: As Noted

FIG-4

Figure 5: Post-Development Watershed Plan



LEGEND

- TIME OF CONC. FLOW PATH
- ES-1 — SUBCATCHMENT NAME
- SUB WATERSHED
- SOIL BOUNDARY

1" = 50'
25 0 50

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Post-Development Watershed Plan

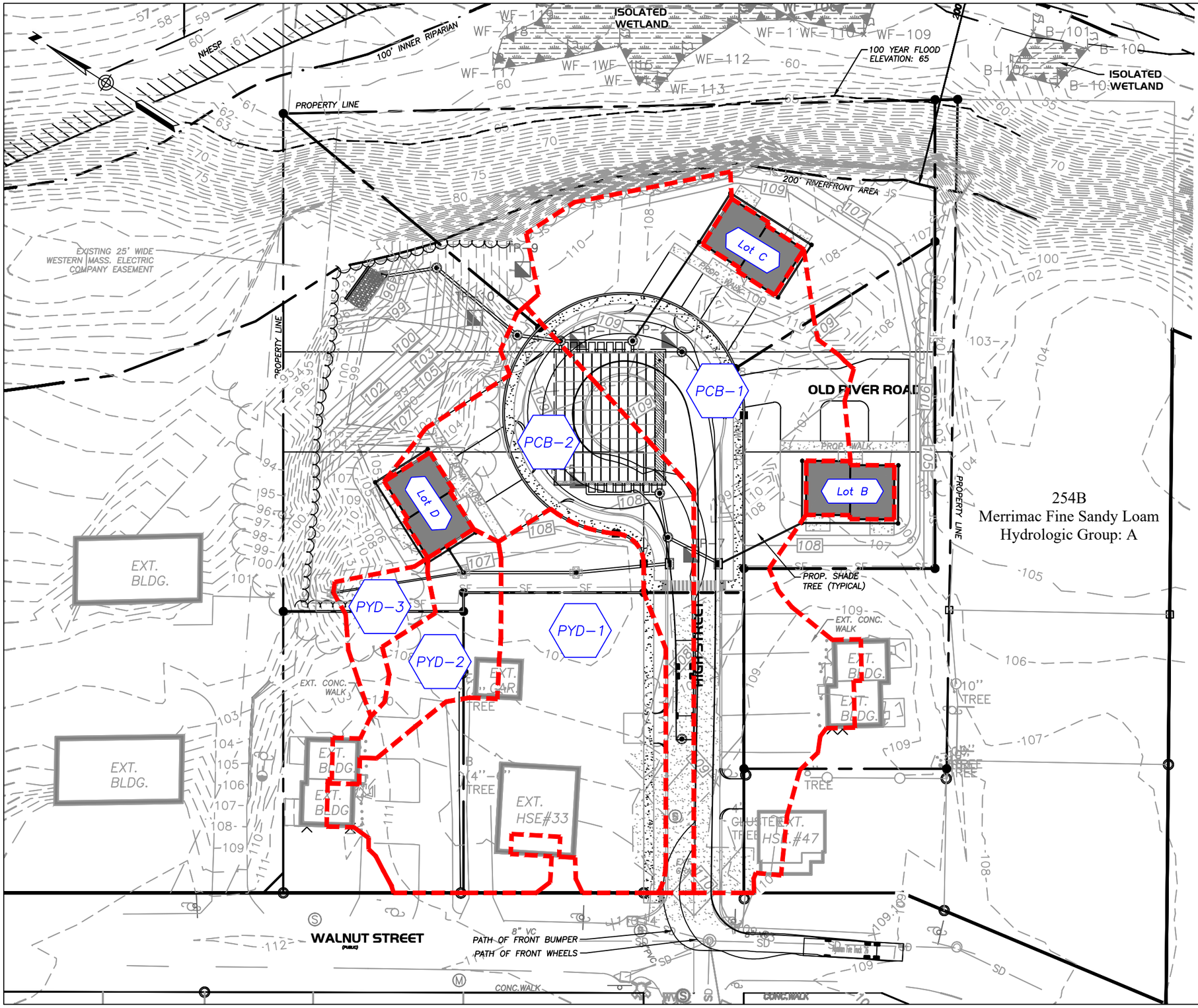
Proposed Residential Subdivision
Old River Road
Agawam, Massachusetts

C.D.C. Realty, Inc.
7 Brewster Road
West Springfield, MA 01089

JOB NO.: 220627
DATE: 1/30/26
SCALE: As Noted

FIG-5

Figure 6: Inlet Area Plan



LEGEND

- TIME OF CONC. FLOW PATH
- ES-1 — SUBCATCHMENT NAME
- SUB WATERSHED
- SOIL BOUNDARY

1" = 50'
25 0 50

Revised: 3/19/26

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Inlet Area Plan

Proposed Residential Subdivision
Old River Road
Agawam, Massachusetts

C.D.C. Realty, Inc.
7 Brewster Road
West Springfield, MA 01089

JOB NO.: 220627
DATE: 1/30/26
SCALE: As Noted

FIG-6

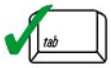
Appendix A: Checklist for Stormwater Report

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

A. Introduction

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the Massachusetts Stormwater Handbook. The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.[1] This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8[2]
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

[1] The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

[2] For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.

Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature

3/23/26

Signature and Date

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

☒ New development

☐ Redevelopment

☐ Mix of New Development and Redevelopment

Checklist for Stormwater Report

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

☒ No disturbance to any Wetland Resource Areas

☐ Site Design Practices (e.g. clustered development, reduced frontage setbacks)

☐ Reduced Impervious Area (Redevelopment Only)

☒ Minimizing disturbance to existing trees and shrubs

☐ LID Site Design Credit Requested:

- ☐ Credit 1
- ☐ Credit 2
- ☐ Credit 3

☐ Use of "country drainage" versus curb and gutter conveyance and pipe

☐ Bioretention Cells (includes Rain Gardens)

☐ Constructed Stormwater Wetlands (includes Gravel Wetlands designs)

☐ Treebox Filter

☐ Water Quality Swale

☐ Grass Channel

☐ Green Roof

☒ Other (describe): Proprietary Sedimentation Device, Subsurface Infiltration Basin

Standard 1: No New Untreated Discharges

☒ No new untreated discharges

☒ Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth

☒ Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.

Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

☐ Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.

☒ Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.

☒ Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

☒ Soil Analysis provided.

☐ Required Recharge Volume calculation provided.

☐ Required Recharge volume reduced through use of the LID site Design Credits.

☐ Sizing the infiltration, BMPs is based on the following method: Check the method used.

☐ Static ☐ Simple Dynamic ☐ Dynamic Field[1]

☐ Runoff from all impervious areas at the site discharging to the infiltration BMP.

☐ Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.

☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume.

☒ Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:

- ☐ Site is comprised solely of C and D soils and/or bedrock at the land surface
- ☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
- ☐ Solid Waste Landfill pursuant to 310 CMR 19.000
- ☒ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.

☐ Calculations showing that the infiltration BMPs will drain in 72 hours are provided.

☐ Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

[1] 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.

Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

☐ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.

☐ Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
- Provisions for storing materials and waste products inside or under cover;
- Vehicle washing controls;
- Requirements for routine inspections and maintenance of stormwater BMPs;
- Spill prevention and response plans;
- Provisions for maintenance of lawns, gardens, and other landscaped areas;
- Requirements for storage and use of fertilizers, herbicides, and pesticides;
- Pet waste management provisions;
- Provisions for operation and management of septic systems;
- Provisions for solid waste management;
- Snow disposal and plowing plans relative to Wetland Resource Areas;
- Winter Road Salt and/or Sand Use and Storage restrictions;
- Street sweeping schedules;
- Provisions for prevention of illicit discharges to the stormwater management system;
- Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
- Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
- List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.

☒ A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.

☐ Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:

- ☐ is within the Zone II or Interim Wellhead Protection Area
- ☐ is near or to other critical areas
- ☐ is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
- ☐ involves runoff from land uses with higher potential pollutant loads.

☐ The Required Water Quality Volume is reduced through use of the LID site Design Credits.

☒ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.

Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

☒ The BMP is sized (and calculations provided) based on:

- ☐ The ½" or 1" Water Quality Volume or
- ☒ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.

☒ The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.

☐ A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

☐ The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.

☐ The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted ***prior to*** the discharge of stormwater to the post-construction stormwater BMPs.

☐ The NPDES Multi-Sector General Permit does ***not*** cover the land use.

☐ LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.

☐ All exposure has been eliminated.

☐ All exposure has ***not*** been eliminated and all BMPs selected are on MassDEP LUHPPL list.

☐ The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

☐ The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.

☐ Critical areas and BMPs are identified in the Stormwater Report.

Checklist for Stormwater Report

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

☐ The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:

- ☐ Limited Project
- ☐ Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
- ☐ Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
- ☐ Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
- ☐ Bike Path and/or Foot Path
- ☐ Redevelopment Project
- ☐ Redevelopment portion of mix of new and redevelopment.

☐ Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.

☐ The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
- Construction Period Operation and Maintenance Plan;
- Names of Persons or Entity Responsible for Plan Compliance;
- Construction Period Pollution Prevention Measures;
- Erosion and Sedimentation Control Plan Drawings;
- Detail drawings and specifications for erosion control BMPs, including sizing calculations;
- Vegetation Planning;
- Site Development Plan;
- Construction Sequencing Plan;
- Sequencing of Erosion and Sedimentation Controls;
- Operation and Maintenance of Erosion and Sedimentation Controls;
- Inspection Schedule;
- Maintenance Schedule;
- Inspection and Maintenance Log Form.

☒ A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.

Checklist for Stormwater Report

Checklist (continued)

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

☐ The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has ***not*** been included in the Stormwater Report but will be submitted ***before*** land disturbance begins.

☐ The project is ***not*** covered by a NPDES Construction General Permit.

☐ The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.

☒ The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

☒ The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:

- ☒ Name of the stormwater management system owners;
- ☒ Party responsible for operation and maintenance;
- ☒ Schedule for implementation of routine and non-routine maintenance tasks;
- ☒ Plan showing the location of all stormwater BMPs maintenance access areas;
- ☒ Description and delineation of public safety features;
- ☒ Estimated operation and maintenance budget; and
- ☒ Operation and Maintenance Log Form.

☐ The responsible party is ***not*** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:

- ☐ A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
- ☐ A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

☐ The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;

☒ An Illicit Discharge Compliance Statement is attached;

☐ NO Illicit Discharge Compliance Statement is attached but will be submitted ***prior to*** the discharge of any stormwater to post-construction BMPs.

Appendix B: Soils Information

- NRCS Custom Soil Resource Report

- Test pit information

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Hampden County, Massachusetts, Central Part

Walnut Street

Preface

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

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

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

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

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

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

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Contents

Preface.....2
How Soil Surveys Are Made.....5
Soil Map.....8
Soil Map.....9
Legend.....10
Map Unit Legend.....12
Map Unit Descriptions.....12
Hampden County, Massachusetts, Central Part.....14
254B—Merrimac fine sandy loam, 3 to 8 percent slopes.....14
References.....16

How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

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

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

Soil Map

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

Map Scale: 1:1,120 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 15 30 60 90

Feet
0 50 100 200 300

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

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

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

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

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

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

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

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

Soil Survey Area: Hampden County, Massachusetts, Central Part
Survey Area Data: Version 19, Sep 5, 2025

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

Date(s) aerial images were photographed: Oct 15, 2020—Oct 31, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND	MAP INFORMATION
	imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
254B	Merrimac fine sandy loam, 3 to 8 percent slopes	2.6	100.0%
Totals for Area of Interest		**2.6**	**100.0%**

Map Unit Descriptions

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

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

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

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

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

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

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

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

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

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

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

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

Hampden County, Massachusetts, Central Part

254B—Merrimac fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2tyqs
Elevation: 0 to 1,290 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Merrimac and similar soils: 86 percent
Minor components: 14 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Merrimac

Setting

Landform: Outwash plains, outwash terraces, moraines, eskers, kames
Landform position (two-dimensional): Summit, shoulder, backslope, footslope
Landform position (three-dimensional): Side slope, crest, riser, tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy glaciofluvial deposits derived from granite, schist, and gneiss over sandy and gravelly glaciofluvial deposits derived from granite, schist, and gneiss

Typical profile

Ap - 0 to 10 inches: fine sandy loam
Bw1 - 10 to 22 inches: fine sandy loam
Bw2 - 22 to 26 inches: stratified gravel to gravelly loamy sand
2C - 26 to 65 inches: stratified gravel to very gravelly sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Maximum salinity: Nonsaline (0.0 to 1.4 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: A
Ecological site: F145XY008MA - Dry Outwash

Hydric soil rating: No

Minor Components

Sudbury

Percent of map unit: 5 percent
Landform: Deltas, terraces, outwash plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Hinckley

Percent of map unit: 5 percent
Landform: Deltas, kames, eskers, outwash plains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Head slope, nose slope, side slope, crest, rise
Down-slope shape: Convex
Across-slope shape: Convex, linear
Hydric soil rating: No

Windsor

Percent of map unit: 3 percent
Landform: Dunes, deltas, outwash terraces, outwash plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread, riser
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Hydric soil rating: No

Walpole

Percent of map unit: 1 percent
Landform: Depressions
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: F144AY028MA - Wet Outwash
Hydric soil rating: Yes

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RLA #220627

Commonwealth of Massachusetts
City/Town of Agawam

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

A. Facility Information

Chuck Calabrese - Calabrese Construction LLC
Owner Name

Old River St
Street Address

J17-1-3
Map/Lot #

Agawam
City

MA
State

01001
Zip Code

B. Site Information

1. (Check one) ☒ New Construction ☐ Upgrade

2. Soil Survey NRCS (Source) 254B (Soil Map Unit) Merrimac fine sandy loam (Soil Series)

outwash plains, terraces, moraines, eskers, Kames greater than 80" from surface
Landform / Soil Limitations

loamy glaciofluvial deposits derived from granite, schist, and gneiss over sandy gravelly glaciofluvial deposits from granite, schist, and gneiss
Soil Parent material

3. Surficial Geological Report (Year Published/Source) (Map Unit)

Description of Geologic Map Unit:

4. Flood Rate Insurance Map Within a regulatory floodway? ☐ Yes ☒ No

5. Within a velocity zone? ☐ Yes ☒ No

6. Within a Mapped Wetland Area? ☐ Yes ☒ No If yes, MassGIS Wetland Data Layer: (Wetland Type)

7. Current Water Resource Conditions (USGS): (Month/Day/ Year) Range: ☐ Above Normal ☒ Normal ☐ Below Normal

8. Other references reviewed:
(Zone II, IWPA, Zone A, EEA Data Portal, etc.)

Commonwealth of Massachusetts
City/Town of Agawam

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review *(minimum of two holes required at every proposed primary and reserve disposal area)*

Deep Observation Hole Number: 1 (Hole #) | 8-19-2025 (Date) | 11:10 AM (Time) | 75°F Sunny (Weather) | ____ (Latitude) | ____ (Longitude)

1. Land Use: Vacant lot - Stockpiles (e.g., woodland, agricultural field, vacant lot, etc.) | weeds (Vegetation) | Small stones (Surface Stones (e.g., cobbles, stones, boulders, etc.)) | 2-3 (Slope (%))

Description of Location: ____

2. Soil Parent Material: ____ | Landform: ____ | SH (Position on Landscape (SU, SH, BS, FS, TS, Plain))

3. Distances from: Open Water Body >100 feet | Drainage Way >100 feet | Wetlands >100 feet | Property Line >50 feet | Drinking Water Well >100 feet | Other ____ feet

4. Unsuitable Materials Present: ☒ Yes ☐ No If Yes: ☒ Disturbed Soil/Fill Material ☐ Weathered/Fractured Rock ☐ Bedrock

5. Groundwater Observed: ☐ Yes ☒ No If yes: - Depth to Weeping in Hole | - Depth to Standing Water in Hole

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-94"	Fill	Sandy loam	Varies	-	Cnc : Dpl:	-	10	10	massive	friable	mostly clean, Some concrete + bricks
	Concrete refusal				Cnc : Dpl:						
					Cnc : Dpl:						
					Cnc : Dpl:						
					Cnc : Dpl:						
					Cnc : Dpl:						

Additional Notes: ____

Commonwealth of Massachusetts
City/Town of Agawam

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review *(minimum of two holes required at every proposed primary and reserve disposal area)*

Deep Observation Hole Number: 2 (Hole #) | 8-19-2025 (Date) | 9:30 AM (Time) | 70°F Sunny (Weather) | ____ (Latitude) | ____ (Longitude)

1. Land Use: Vacant lot - Stockpiles (e.g., woodland, agricultural field, vacant lot, etc.) | Weeds (Vegetation) | Small Stones (Surface Stones (e.g., cobbles, stones, boulders, etc.)) | 2-3 (Slope (%))

Description of Location: ____

2. Soil Parent Material: ____ | Landform: ____ | SH (Position on Landscape (SU, SH, BS, FS, TS, Plain))

3. Distances from: Open Water Body >100 feet | Drainage Way >100 feet | Wetlands >100 feet | Property Line >50 feet | Drinking Water Well >100 feet | Other ____ feet

4. Unsuitable Materials Present: ☒ Yes ☐ No If Yes: ☒ Disturbed Soil/Fill Material ☐ Weathered/Fractured Rock ☐ Bedrock

5. Groundwater Observed: ☐ Yes ☒ No If yes: - Depth to Weeping in Hole | - Depth to Standing Water in Hole

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-128+	Fill	Varies	Varies	-	Cnc: - Dpl: -	-	20	20	Massive	Varies	Concrete, loam, rocks, wood crushed brick, asphalt
					Cnc: Dpl:						
					Cnc: Dpl:						
					Cnc: Dpl:						
					Cnc: Dpl:						
					Cnc: Dpl:						

Additional Notes: ____

Commonwealth of Massachusetts
City/Town of Agawam

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review *(minimum of two holes required at every proposed primary and reserve disposal area)*

Deep Observation Hole Number: 5 (Hole #) | 8-19-25 (Date) | 10 AM (Time) | 70°F Sunny (Weather) | (Latitude) | (Longitude)

1. Land Use: Vacant lot - Stockpiles (e.g., woodland, agricultural field, vacant lot, etc.) | Weeds (Vegetation) | Small Stones (Surface Stones (e.g., cobbles, stones, boulders, etc.)) | 2-3 (Slope (%))

Description of Location:

2. Soil Parent Material: | (Landform) | SH (Position on Landscape (SU, SH, BS, FS, TS, Plain))

3. Distances from: Open Water Body >100 feet | Drainage Way >100 feet | Wetlands >100 feet | Property Line >50 feet | Drinking Water Well >100 feet | Other ____ feet

4. Unsuitable Materials Present: ☒ Yes ☐ No If Yes: ☒ Disturbed Soil/Fill Material ☐ Weathered/Fractured Rock ☐ Bedrock

5. Groundwater Observed: ☒ Yes ☐ No If yes: 144" Depth to Weeping in Hole | — Depth to Standing Water in Hole

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-130"	Fill	Varies	Varies	-	Cnc : Dpl:	-	20	15	massive	-	
130-150"+	C_0	Silt loam	5YR 5/3	130"	Cnc : 10YR 5/4 Dpl: 5YR 5/2	15%	25	2	"	plastic	platy, dense
					Cnc : Dpl:						
					Cnc : Dpl:						
					Cnc : Dpl:						
					Cnc : Dpl:						

Additional Notes:

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Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review *(minimum of two holes required at every proposed primary and reserve disposal area)*

Deep Observation Hole Number: 7 (Hole #) | 8-19-25 (Date) | 9:00 AM (Time) | 65°f cloudy (Weather) | ____ (Latitude) | ____ (Longitude)

1. Land Use: Vacant lot - stockpiles (e.g., woodland, agricultural field, vacant lot, etc.) | weeds (Vegetation) | N/A (Surface Stones (e.g., cobbles, stones, boulders, etc.)) | 1-2 (Slope (%))

Description of Location: Walnut St Ext.

2. Soil Parent Material: ____ | Landform: ____ | SH (Position on Landscape (SU, SH, BS, FS, TS, Plain))

3. Distances from: Open Water Body >100 feet | Drainage Way >50 feet | Wetlands >100 feet | Property Line >50 feet | Drinking Water Well >100 feet | Other ____ feet

4. Unsuitable Materials Present: ☒ Yes ☐ No If Yes: ☒ Disturbed Soil/Fill Material ☐ Weathered/Fractured Rock ☐ Bedrock

5. Groundwater Observed: ☐ Yes ☒ No If yes: - Depth to Weeping in Hole | - Depth to Standing Water in Hole

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features: Depth	Color	Percent	Coarse Fragments % by Volume: Gravel	Cobbles & Stones	Soil Structure	Soil Consistence (Moist)	Other
0-46	Fill	varies	varies	-	Cnc: - / Dpl: -	-	60	15	massive		loam, asphalt, crushed brick
46-100	Fill2	Sandy loam	varies	-	Cnc: - / Dpl: -	-	5	2	"	firm	Smooth sidewalls, darker in color
100-132+	CD	Silt loam	5YR 5/3	100"	Cnc: 10YR 5/4 / Dpl: 5YR 5/2	15%	20	5	"	Plastic	Platy, dense consistent redox
					Cnc: / Dpl:						
					Cnc: / Dpl:						
					Cnc: / Dpl:						

Additional Notes:

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Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review *(minimum of two holes required at every proposed primary and reserve disposal area)*

Deep Observation Hole Number: 9 (Hole #) | 8-19-25 (Date) | 11:20 AM (Time) | 75°F Sunny (Weather) | (Latitude) | (Longitude)

1. Land Use: Vacant lot - Stockpiles (e.g., woodland, agricultural field, vacant lot, etc.) | Vegetation: weeds | Surface Stones (e.g., cobbles, stones, boulders, etc.): N/A | Slope (%): 3-5

Description of Location:

2. Soil Parent Material: | Landform | Position on Landscape (SU, SH, BS, FS, TS, Plain): SH

3. Distances from: Open Water Body >100 feet | Drainage Way >100 feet | Wetlands >100 feet | Property Line >30 feet | Drinking Water Well >100 feet | Other ____ feet

4. Unsuitable Materials Present: ☒ Yes ☐ No If Yes: ☒ Disturbed Soil/Fill Material ☐ Weathered/Fractured Rock ☐ Bedrock

5. Groundwater Observed: ☐ Yes ☒ No If yes: - Depth to Weeping in Hole | - Depth to Standing Water in Hole

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-60	Fill	Mix loam + sand	Mixed	-	Cnc: - Dpl: -	-	25	10	massive	Varies	
60-144+	C?	loamy Sand	10YR 4/3	-	Cnc: - Dpl: -	-	15	2	11	friable	Dry loose, consistent color with no debris
					Cnc: Dpl:						
					Cnc: Dpl:						
					Cnc: Dpl:						
					Cnc: Dpl:						

Additional Notes: former location of loam Stockpile

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Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review *(minimum of two holes required at every proposed primary and reserve disposal area)*

Deep Observation Hole Number: 10 (Hole #) | 8-19-25 (Date) | 11:40 AM (Time) | _____ (Weather) | _____ (Latitude) | _____ (Longitude)

1. Land Use: Vacant lot (e.g., woodland, agricultural field, vacant lot, etc.) | loam stockpile | weeds (Vegetation) | _____ (Surface Stones (e.g., cobbles, stones, boulders, etc.)) | _____ (Slope (%))

Description of Location: _____

2. Soil Parent Material: _____ | _____ (Landform) | _____ (Position on Landscape (SU, SH, BS, FS, TS, Plain))

3. Distances from: Open Water Body >100 feet | Drainage Way >100 feet | Wetlands _____ feet

Property Line >50 feet | Drinking Water Well >100 feet | Other _____ feet

4. Unsuitable Materials Present: ☒ Yes ☐ No If Yes: ☒ Disturbed Soil/Fill Material ☐ Weathered/Fractured Rock ☐ Bedrock

5. Groundwater Observed: ☐ Yes ☒ No If yes: _____ Depth to Weeping in Hole _____ Depth to Standing Water in Hole

Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel	Cobbles & Stones			
0-144	Fill	loamy Sand	10YR 5/4	-	Cnc : - Dpl: -	-	1	1	granular	very friable	
	Concrete refusal				Cnc : Dpl:						
					Cnc : Dpl:						
					Cnc : Dpl:						
					Cnc : Dpl:						
					Cnc : Dpl:						

Additional Notes: _____

Commonwealth of Massachusetts
City/Town of Agawam

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

F. Certification

I certify that I am currently approved by the Department of Environmental Protection pursuant to 310 CMR 15.017 to conduct soil evaluations and that the above analysis has been performed by me consistent with the required training, expertise and experience described in 310 CMR 15.017. I further certify that the results of my soil evaluation, as indicated in the attached Soil Evaluation Form, are accurate and in accordance with 310 CMR 15.100 through 15.107.

Ryan Nelson
Signature of Soil Evaluator

8-19-2025
Date

Ryan Nelson SE# 14394
Typed or Printed Name of Soil Evaluator / License #

6/30/2028
Expiration Date of License

N/A
Name of Approving Authority Witness

N/A
Approving Authority

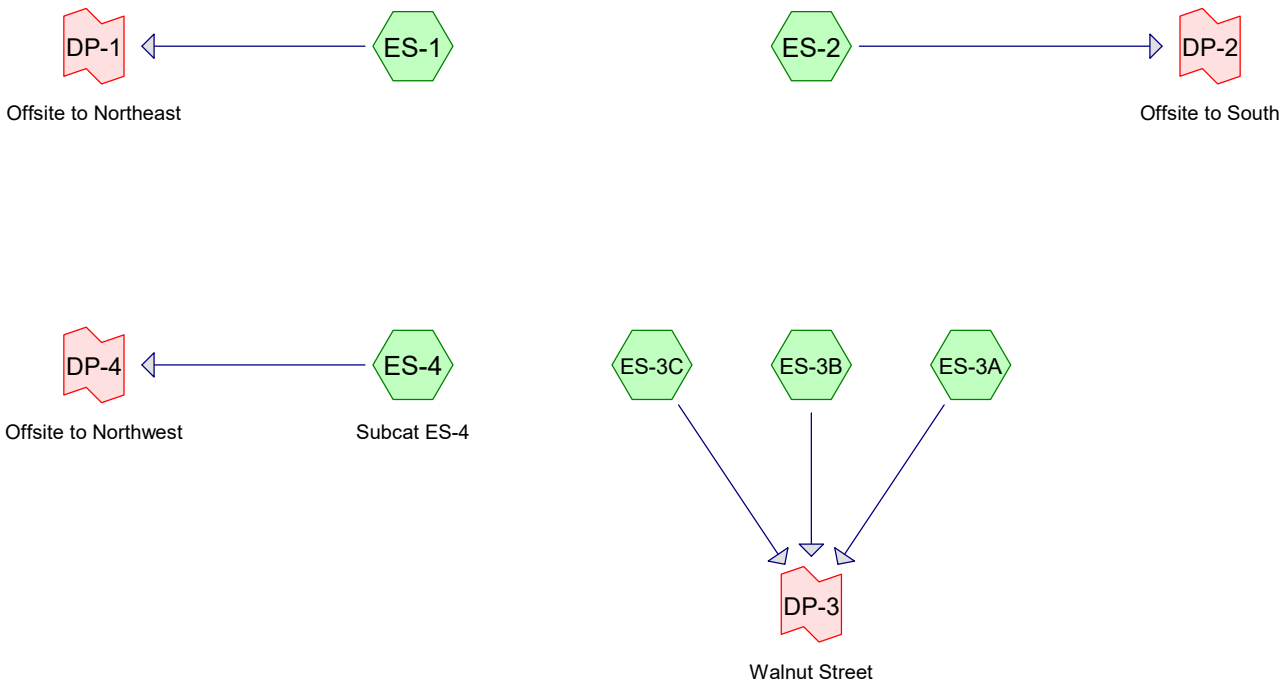
Note: In accordance with 310 CMR 15.018(2) this form must be submitted to the approving authority within 60 days of the date of field testing, and to the designer and the property owner with Percolation Test Form 12.

Field Diagrams: Use this area for field diagrams:

MA State Plane

TP #	Northing	Easting
1	2863119.4818	349015.4885
2	2863080.8105	349040.2213
5	2863081.7662	348956.5179
7	2863013.9907	348955.7581
9	2863161.5658	349030.4267
10	2863168.6315	348997.2077

Appendix C: Pre- and Post- Development Hydrologic Analysis (2, 10, & 100 Year Storm Events)



Subcat Reach Pond Link

Routing Diagram for 220627 - PRE
Prepared by R Levesque Associates
HydroCAD® 10.20-8a s/n 13073 © 2025 HydroCAD Software Solutions LLC

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	Type III 24-hr		Default	24.00	1	3.19	2
2	10-Year	Type III 24-hr		Default	24.00	1	5.16	2
3	100-Year	Type III 24-hr		Default	24.00	1	8.28	2

Time span=0.00-36.00 hrs, dt=0.05 hrs, 721 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment ES-1: Runoff Area=84,098 sf 11.89% Impervious Runoff Depth=0.35"
Flow Length=469' Tc=10.0 min CN=WQ Runoff=0.6 cfs 2,465 cf

Subcatchment ES-2: Runoff Area=36,222 sf 2.65% Impervious Runoff Depth=0.08"
Flow Length=281' Tc=14.6 min CN=WQ Runoff=0.1 cfs 237 cf

Subcatchment ES-3A: Runoff Area=4,834 sf 14.73% Impervious Runoff Depth=0.44"
Flow Length=107' Slope=0.0110 '/' Tc=19.8 min CN=WQ Runoff=0.0 cfs 176 cf

Subcatchment ES-3B: Runoff Area=497 sf 48.79% Impervious Runoff Depth=1.44"
Tc=6.0 min CN=WQ Runoff=0.0 cfs 60 cf

Subcatchment ES-3C: Runoff Area=1,425 sf 0.17% Impervious Runoff Depth=0.01"
Flow Length=39' Slope=0.0103 '/' Tc=9.0 min CN=WQ Runoff=0.0 cfs 1 cf

Subcatchment ES-4: Subcat ES-4 Runoff Area=3,963 sf 20.57% Impervious Runoff Depth=0.61"
Flow Length=71' Slope=0.1296 '/' Tc=6.0 min CN=WQ Runoff=0.1 cfs 201 cf

Link DP-1: Offsite to Northeast Inflow=0.6 cfs 2,465 cf
Primary=0.6 cfs 2,465 cf

Link DP-2: Offsite to South Inflow=0.1 cfs 237 cf
Primary=0.1 cfs 237 cf

Link DP-3: Walnut Street Inflow=0.0 cfs 236 cf
Primary=0.0 cfs 236 cf

Link DP-4: Offsite to Northwest Inflow=0.1 cfs 201 cf
Primary=0.1 cfs 201 cf

Total Runoff Area = 131,039 sf Runoff Volume = 3,139 cf Average Runoff Depth = 0.29"
90.29% Pervious = 118,309 sf 9.71% Impervious = 12,730 sf

Summary for Subcatchment ES-1:

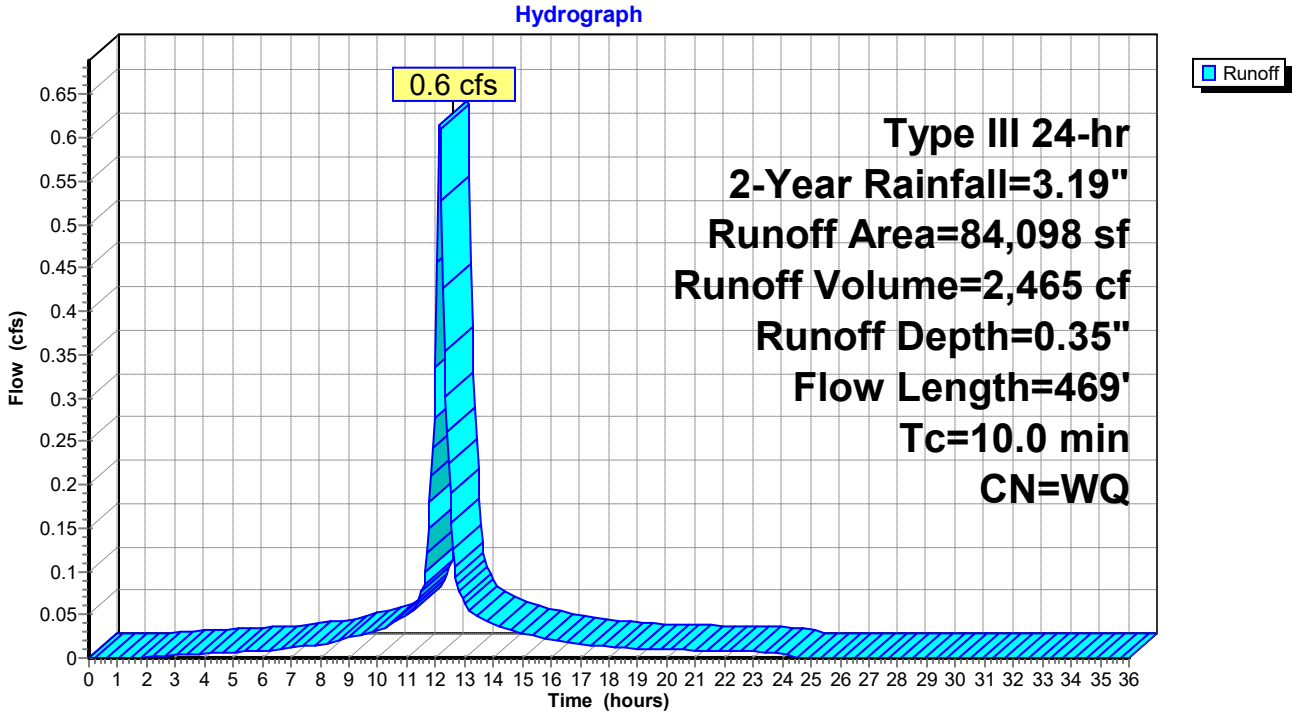
Runoff = 0.6 cfs @ 12.14 hrs, Volume= 2,465 cf, Depth= 0.35"
Routed to Link DP-1 : Offsite to Northeast

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.19"

Area (sf)	CN	Description
39,863	39	>75% Grass cover, Good, HSG A
6,325	98	Paved parking, HSG A
3,674	98	Roofs, HSG A
34,236	30	Woods, Good, HSG A
84,098		Weighted Average
74,099	35	88.11% Pervious Area
9,999	98	11.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	29	0.0207	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
0.8	71	0.0289	1.44		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
2.5	185	0.0059	1.24		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.3	184	0.2065	2.27		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
10.0	469	Total			

Subcatchment ES-1:



Summary for Subcatchment ES-2:

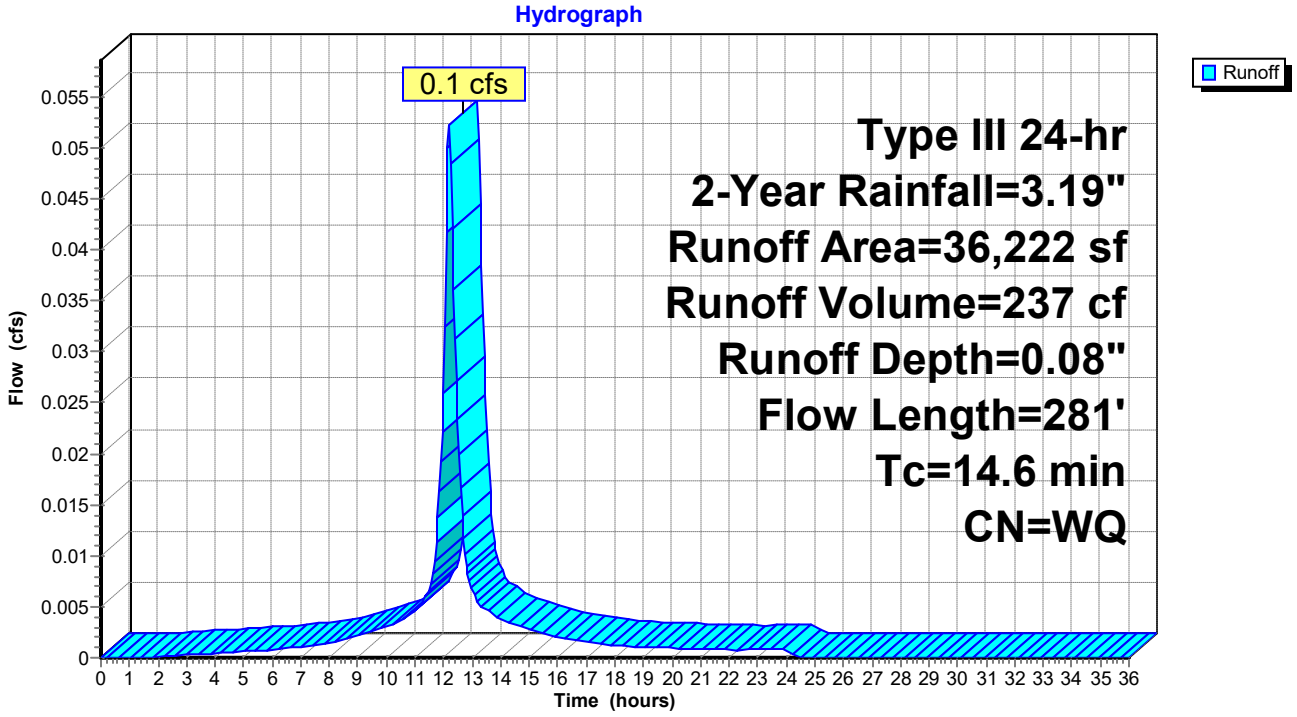
Runoff = 0.1 cfs @ 12.19 hrs, Volume= 237 cf, Depth= 0.08"
Routed to Link DP-2 : Offsite to South

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.19"

Area (sf)	CN	Description
33,745	39	>75% Grass cover, Good, HSG A
325	98	Paved parking, HSG A
634	98	Roofs, HSG A
1,519	30	Woods, Good, HSG A
36,222		Weighted Average
35,263	39	97.35% Pervious Area
959	98	2.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.3	100	0.0260	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
1.3	181	0.0215	2.36		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
14.6	281	Total			

Subcatchment ES-2:



Summary for Subcatchment ES-3A:

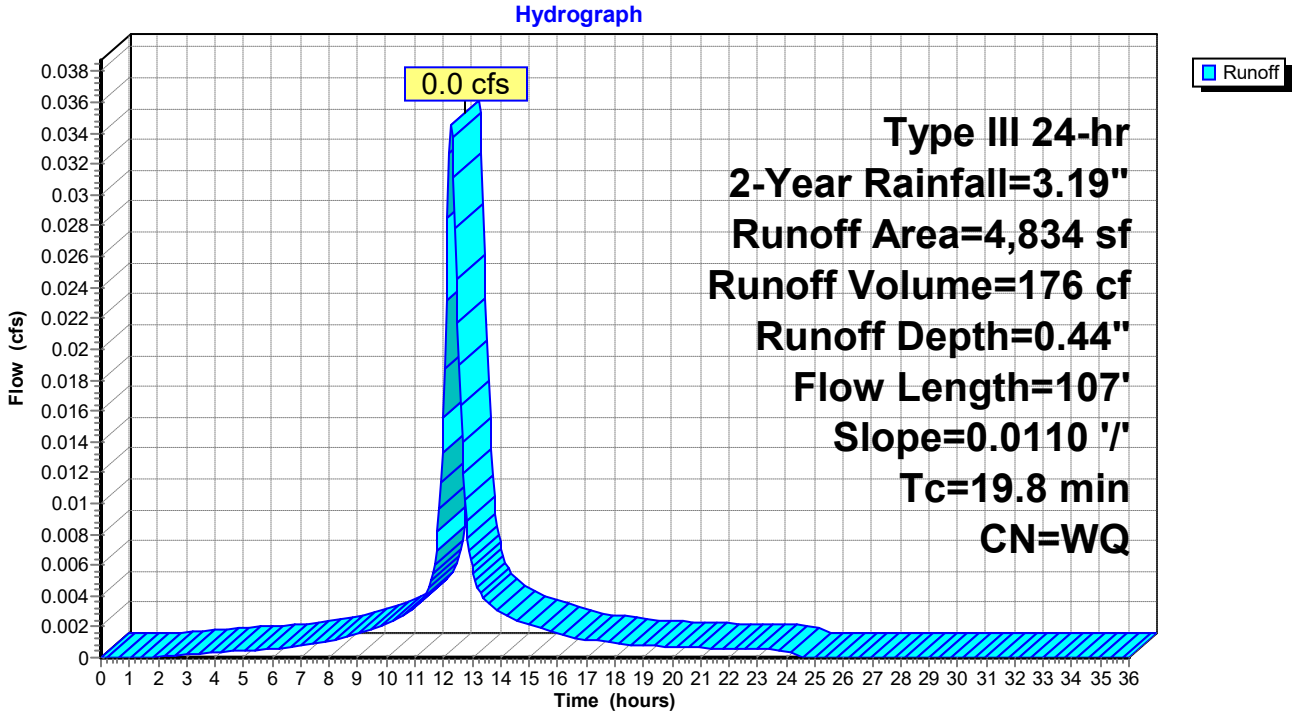
Runoff = 0.0 cfs @ 12.26 hrs, Volume= 176 cf, Depth= 0.44"
Routed to Link DP-3 : Walnut Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.19"

Area (sf)	CN	Description
4,122	39	>75% Grass cover, Good, HSG A
149	98	Paved parking, HSG A
562	98	Roofs, HSG A
4,834		Weighted Average
4,122	39	85.27% Pervious Area
712	98	14.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.8	107	0.0110	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"

Subcatchment ES-3A:



Summary for Subcatchment ES-3B:

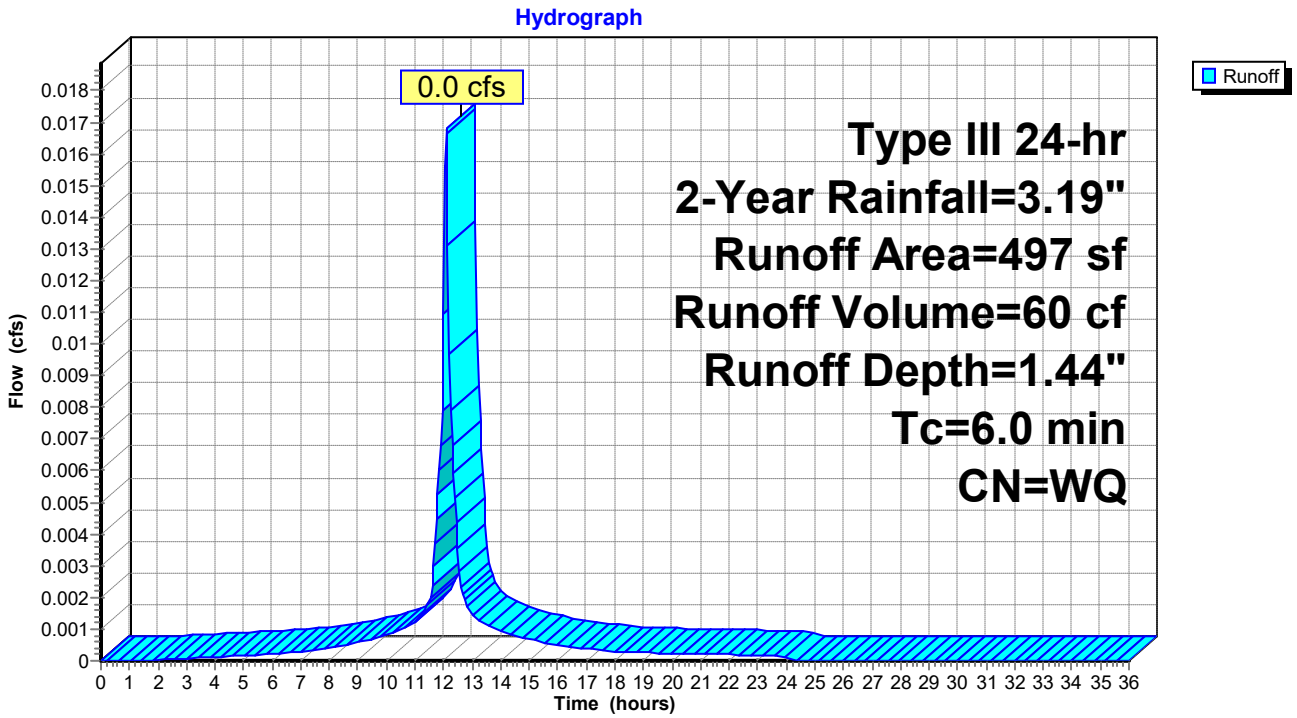
Runoff = 0.0 cfs @ 12.09 hrs, Volume= 60 cf, Depth= 1.44"
Routed to Link DP-3 : Walnut Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.19"

Area (sf)	CN	Description
255	39	>75% Grass cover, Good, HSG A
242	98	Roofs, HSG A
497		Weighted Average
255	39	51.21% Pervious Area
242	98	48.79% Impervious Area

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

Subcatchment ES-3B:



Summary for Subcatchment ES-3C:

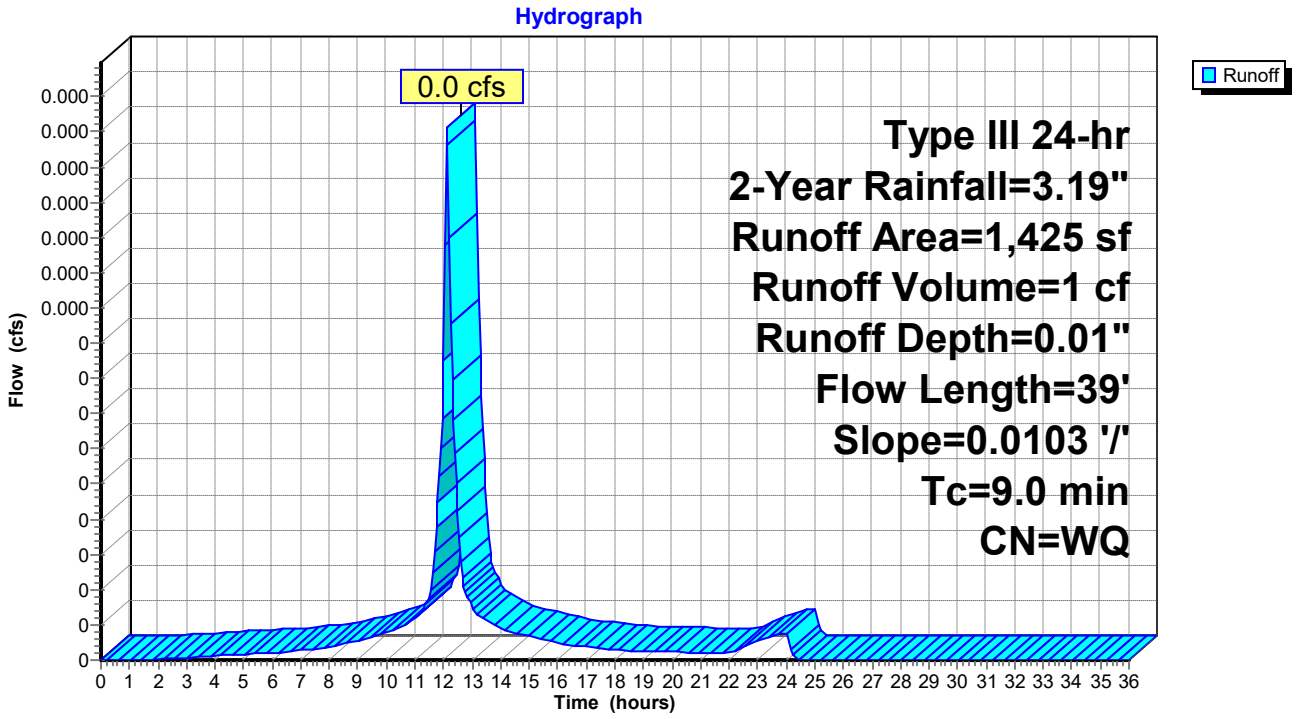
Runoff = 0.0 cfs @ 12.12 hrs, Volume= 1 cf, Depth= 0.01"
Routed to Link DP-3 : Walnut Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.19"

Area (sf)	CN	Description
1,422	39	>75% Grass cover, Good, HSG A
2	98	Paved parking, HSG A
1,425		Weighted Average
1,422	39	99.83% Pervious Area
2	98	0.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	39	0.0103	0.07		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"

Subcatchment ES-3C:



Summary for Subcatchment ES-4: Subcat ES-4

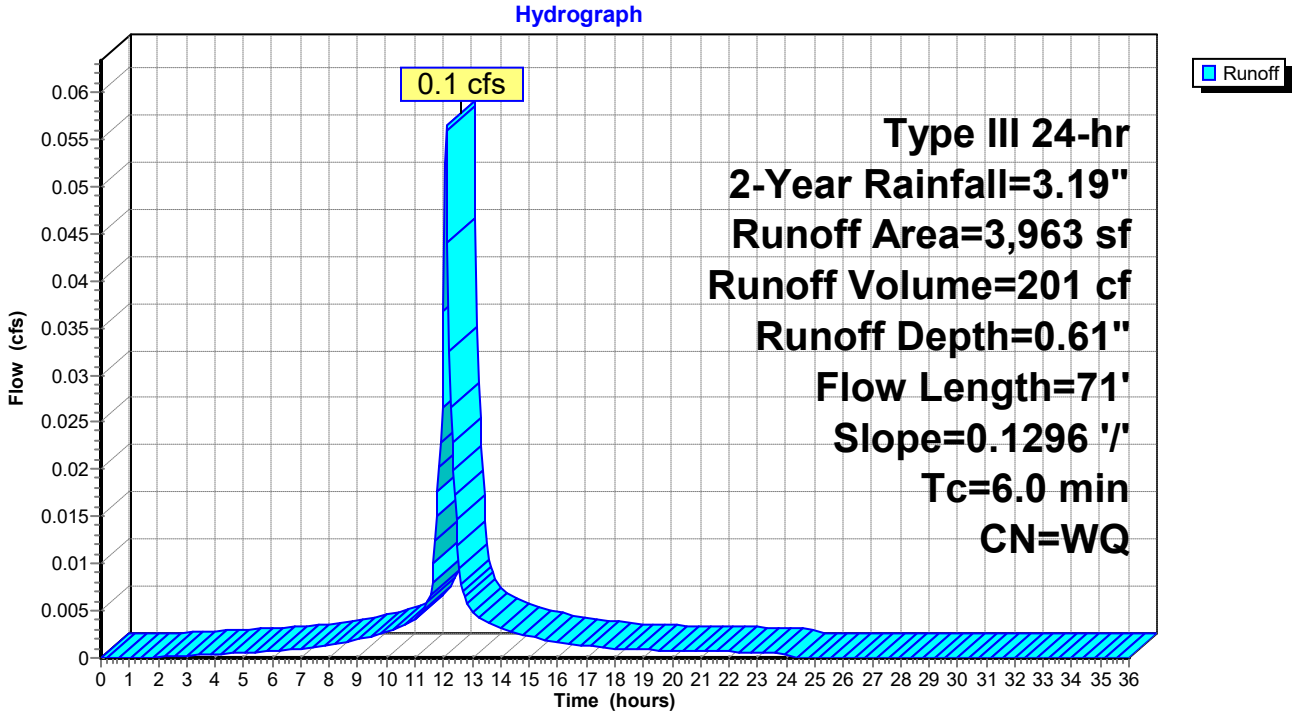
Runoff = 0.1 cfs @ 12.09 hrs, Volume= 201 cf, Depth= 0.61"
Routed to Link DP-4 : Offsite to Northwest

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.19"

Area (sf)	CN	Description
2,344	39	>75% Grass cover, Good, HSG A
211	98	Paved parking, HSG A
604	98	Roofs, HSG A
804	30	Woods, Good, HSG A
3,963		Weighted Average
3,148	37	79.43% Pervious Area
815	98	20.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	71	0.1296	0.22		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
5.3	71	Total, Increased to minimum Tc = 6.0 min			

Subcatchment ES-4: Subcat ES-4

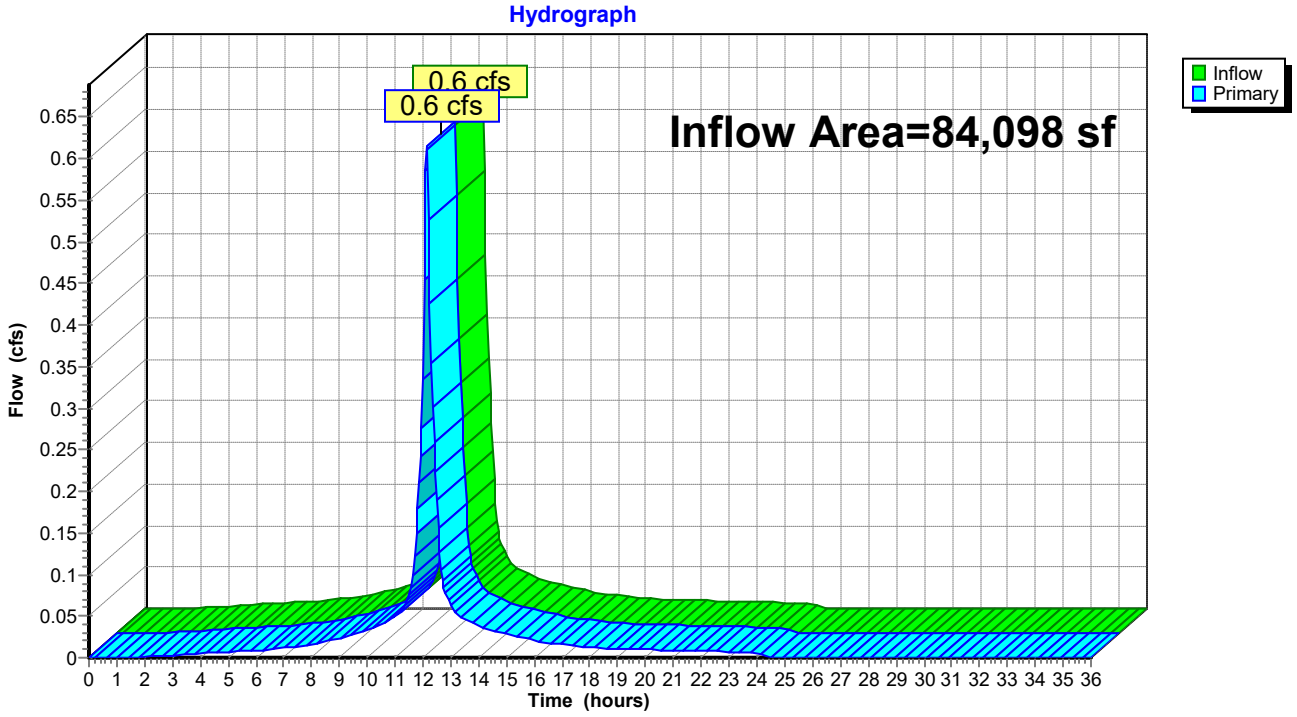


Summary for Link DP-1: Offsite to Northeast

Inflow Area = 84,098 sf, 11.89% Impervious, Inflow Depth = 0.35" for 2-Year event
Inflow = 0.6 cfs @ 12.14 hrs, Volume= 2,465 cf
Primary = 0.6 cfs @ 12.14 hrs, Volume= 2,465 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Link DP-1: Offsite to Northeast

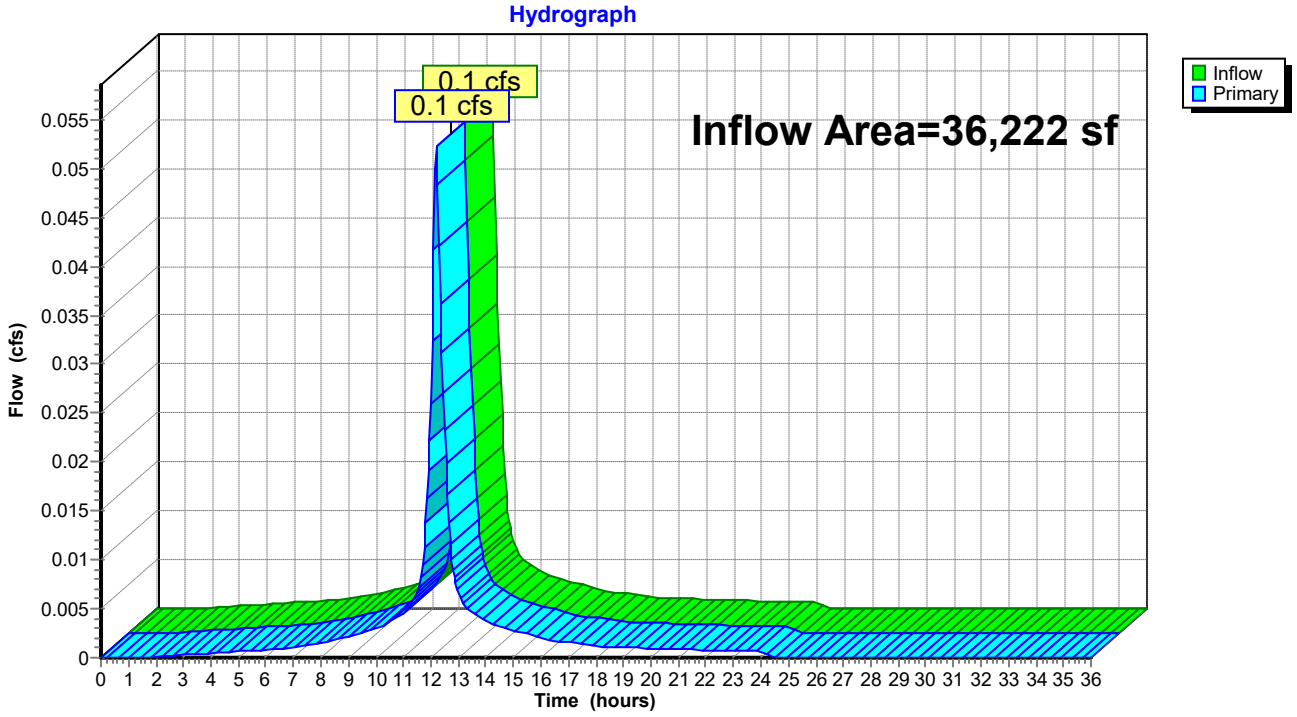


Summary for Link DP-2: Offsite to South

Inflow Area = 36,222 sf, 2.65% Impervious, Inflow Depth = 0.08" for 2-Year event
Inflow = 0.1 cfs @ 12.19 hrs, Volume= 237 cf
Primary = 0.1 cfs @ 12.19 hrs, Volume= 237 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Link DP-2: Offsite to South

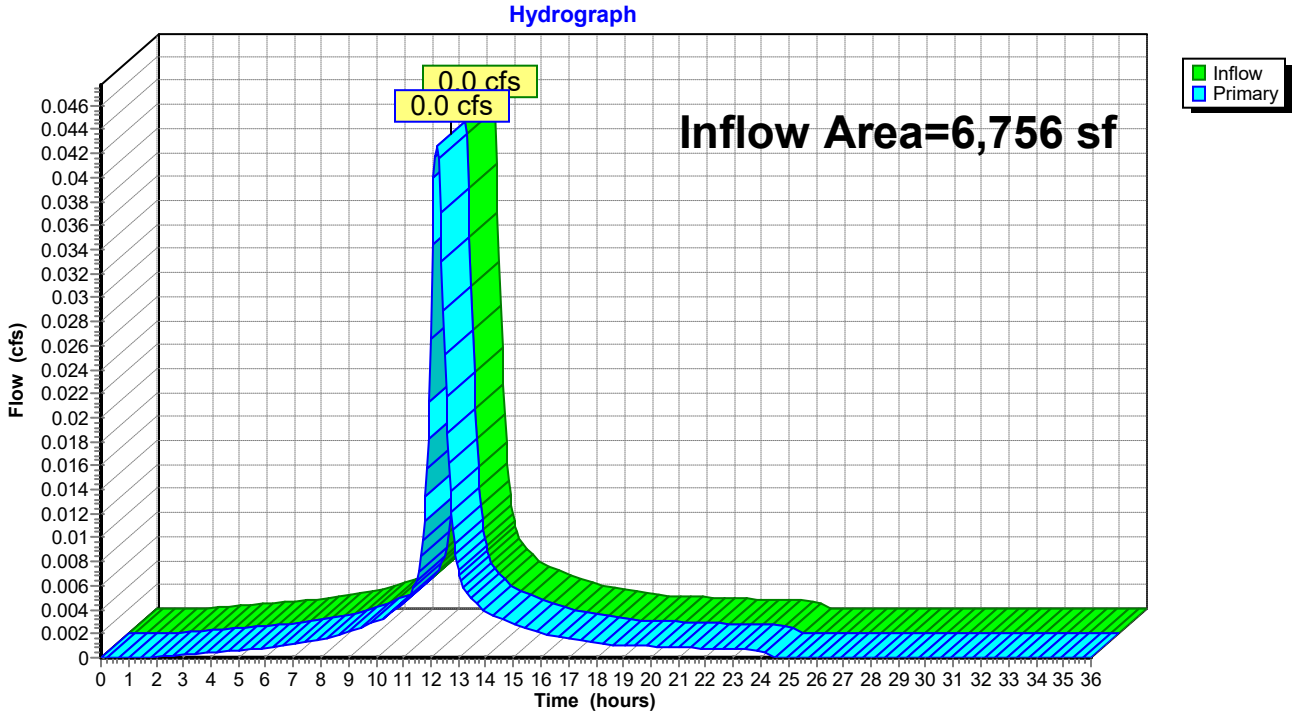


Summary for Link DP-3: Walnut Street

Inflow Area = 6,756 sf, 14.16% Impervious, Inflow Depth = 0.42" for 2-Year event
Inflow = 0.0 cfs @ 12.22 hrs, Volume= 236 cf
Primary = 0.0 cfs @ 12.22 hrs, Volume= 236 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Link DP-3: Walnut Street

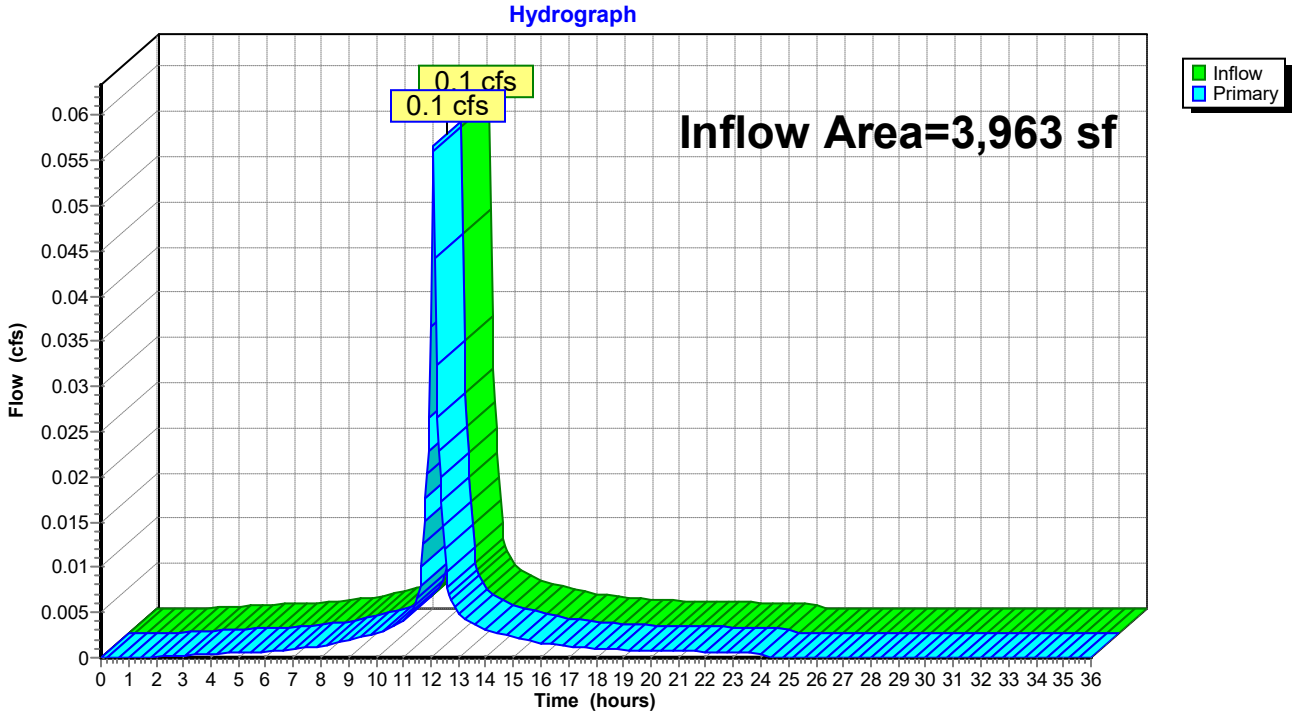


Summary for Link DP-4: Offsite to Northwest

Inflow Area = 3,963 sf, 20.57% Impervious, Inflow Depth = 0.61" for 2-Year event
Inflow = 0.1 cfs @ 12.09 hrs, Volume= 201 cf
Primary = 0.1 cfs @ 12.09 hrs, Volume= 201 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Link DP-4: Offsite to Northwest



Time span=0.00-36.00 hrs, dt=0.05 hrs, 721 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment ES-1: Runoff Area=84,098 sf 11.89% Impervious Runoff Depth=0.70"
Flow Length=469' Tc=10.0 min CN=WQ Runoff=1.0 cfs 4,907 cf

Subcatchment ES-2: Runoff Area=36,222 sf 2.65% Impervious Runoff Depth=0.35"
Flow Length=281' Tc=14.6 min CN=WQ Runoff=0.1 cfs 1,052 cf

Subcatchment ES-3A: Runoff Area=4,834 sf 14.73% Impervious Runoff Depth=0.92"
Flow Length=107' Slope=0.0110 '/' Tc=19.8 min CN=WQ Runoff=0.1 cfs 372 cf

Subcatchment ES-3B: Runoff Area=497 sf 48.79% Impervious Runoff Depth=2.52"
Tc=6.0 min CN=WQ Runoff=0.0 cfs 104 cf

Subcatchment ES-3C: Runoff Area=1,425 sf 0.17% Impervious Runoff Depth=0.24"
Flow Length=39' Slope=0.0103 '/' Tc=9.0 min CN=WQ Runoff=0.0 cfs 29 cf

Subcatchment ES-4: Subcat ES-4 Runoff Area=3,963 sf 20.57% Impervious Runoff Depth=1.15"
Flow Length=71' Slope=0.1296 '/' Tc=6.0 min CN=WQ Runoff=0.1 cfs 381 cf

Link DP-1: Offsite to Northeast Inflow=1.0 cfs 4,907 cf
Primary=1.0 cfs 4,907 cf

Link DP-2: Offsite to South Inflow=0.1 cfs 1,052 cf
Primary=0.1 cfs 1,052 cf

Link DP-3: Walnut Street Inflow=0.1 cfs 505 cf
Primary=0.1 cfs 505 cf

Link DP-4: Offsite to Northwest Inflow=0.1 cfs 381 cf
Primary=0.1 cfs 381 cf

Total Runoff Area = 131,039 sf Runoff Volume = 6,845 cf Average Runoff Depth = 0.63"
90.29% Pervious = 118,309 sf 9.71% Impervious = 12,730 sf

Summary for Subcatchment ES-1:

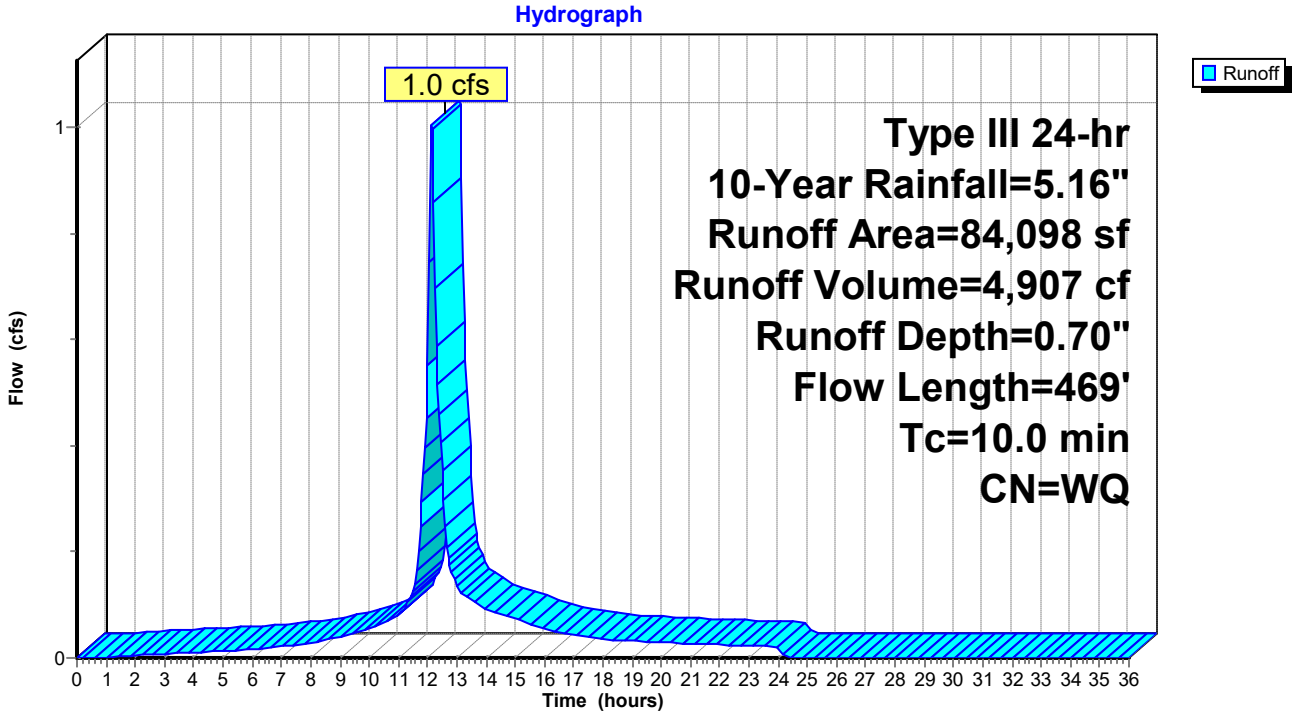
Runoff = 1.0 cfs @ 12.14 hrs, Volume= 4,907 cf, Depth= 0.70"
Routed to Link DP-1 : Offsite to Northeast

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.16"

Area (sf)	CN	Description
39,863	39	>75% Grass cover, Good, HSG A
6,325	98	Paved parking, HSG A
3,674	98	Roofs, HSG A
34,236	30	Woods, Good, HSG A
84,098		Weighted Average
74,099	35	88.11% Pervious Area
9,999	98	11.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	29	0.0207	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
0.8	71	0.0289	1.44		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
2.5	185	0.0059	1.24		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.3	184	0.2065	2.27		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
10.0	469	Total			

Subcatchment ES-1:



Summary for Subcatchment ES-2:

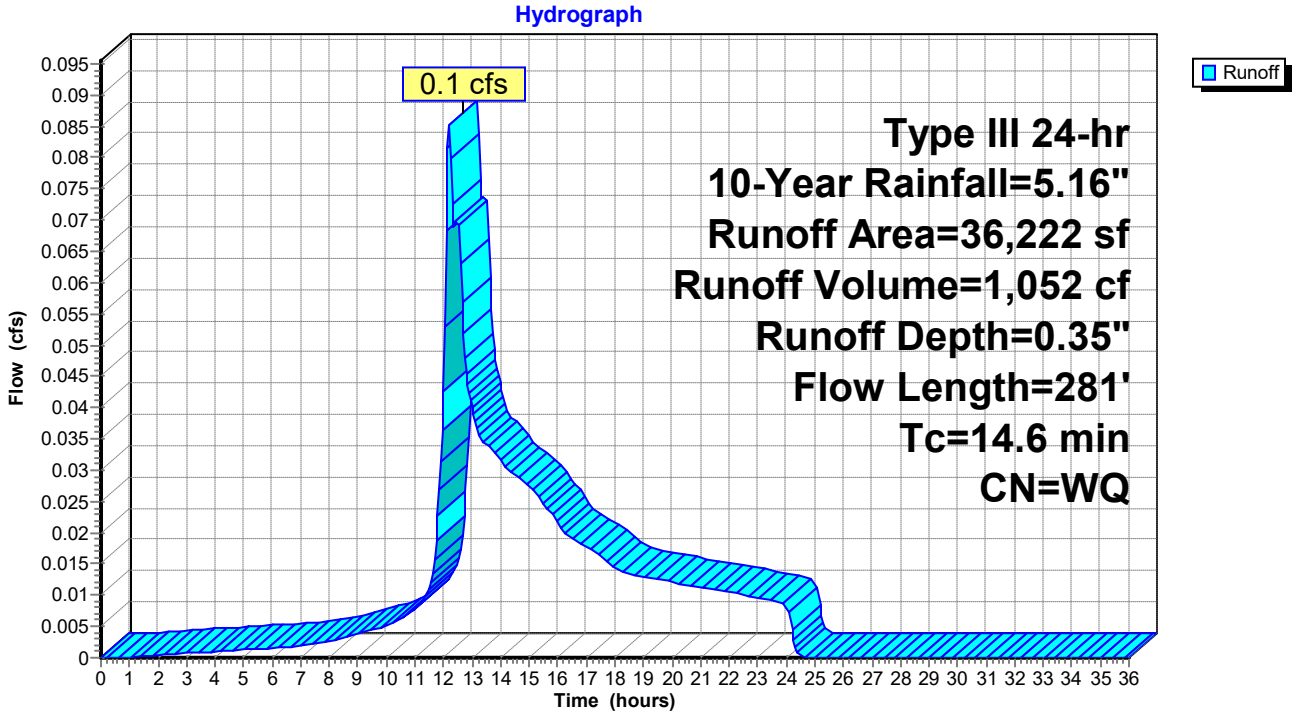
Runoff = 0.1 cfs @ 12.20 hrs, Volume= 1,052 cf, Depth= 0.35"
Routed to Link DP-2 : Offsite to South

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.16"

Area (sf)	CN	Description
33,745	39	>75% Grass cover, Good, HSG A
325	98	Paved parking, HSG A
634	98	Roofs, HSG A
1,519	30	Woods, Good, HSG A
36,222		Weighted Average
35,263	39	97.35% Pervious Area
959	98	2.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.3	100	0.0260	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
1.3	181	0.0215	2.36		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
14.6	281	Total			

Subcatchment ES-2:



Summary for Subcatchment ES-3A:

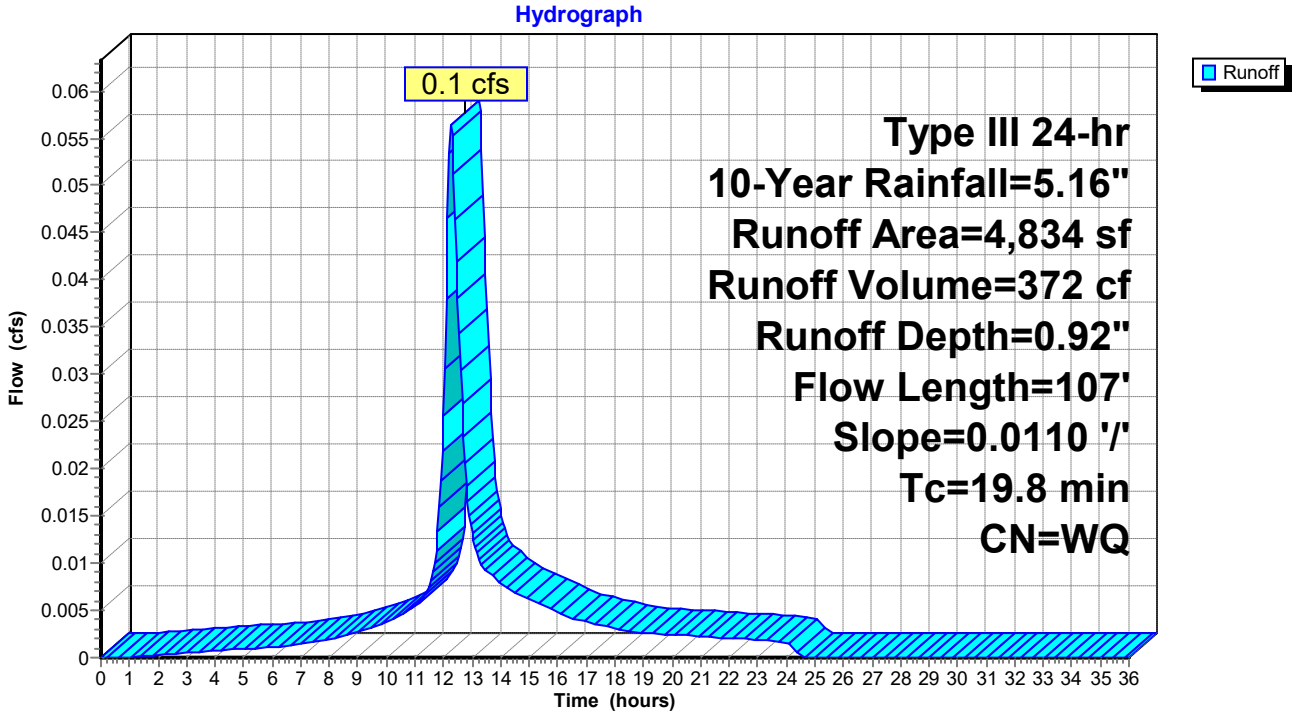
Runoff = 0.1 cfs @ 12.26 hrs, Volume= 372 cf, Depth= 0.92"
Routed to Link DP-3 : Walnut Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.16"

Area (sf)	CN	Description
4,122	39	>75% Grass cover, Good, HSG A
149	98	Paved parking, HSG A
562	98	Roofs, HSG A
4,834		Weighted Average
4,122	39	85.27% Pervious Area
712	98	14.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.8	107	0.0110	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"

Subcatchment ES-3A:



Summary for Subcatchment ES-3B:

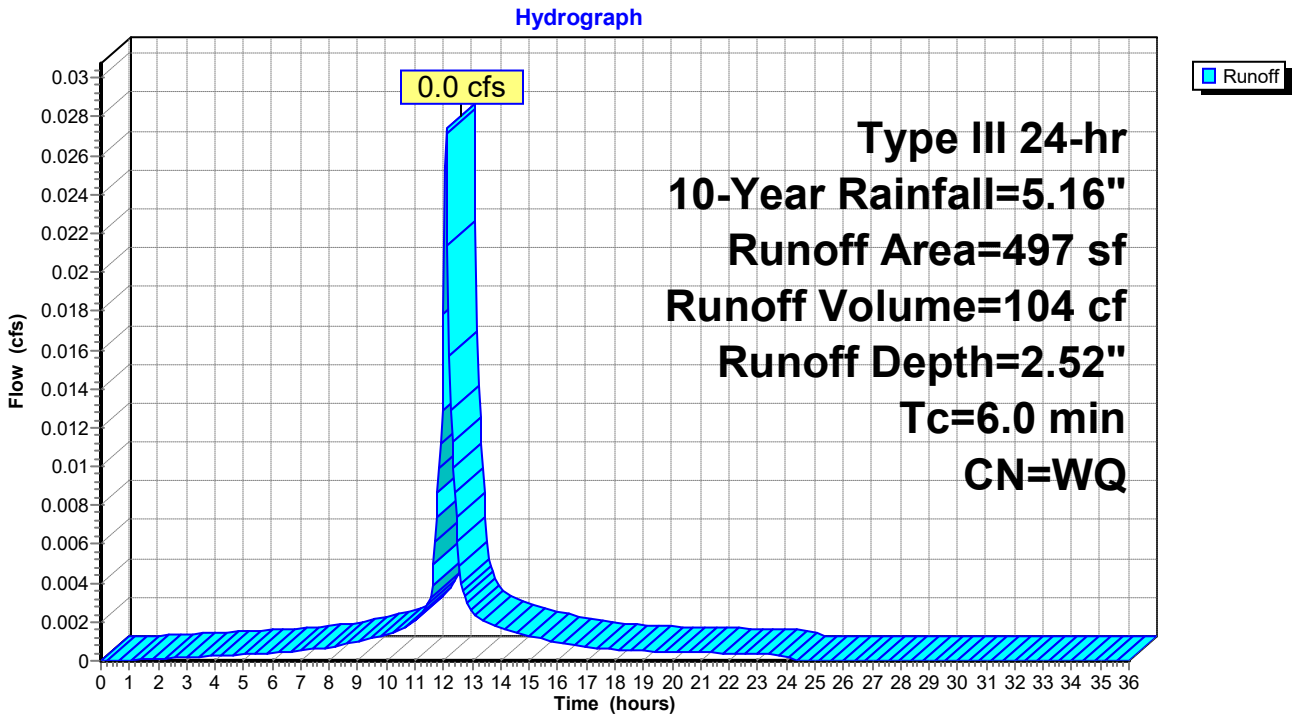
Runoff = 0.0 cfs @ 12.09 hrs, Volume= 104 cf, Depth= 2.52"
Routed to Link DP-3 : Walnut Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.16"

Area (sf)	CN	Description
255	39	>75% Grass cover, Good, HSG A
242	98	Roofs, HSG A
497		Weighted Average
255	39	51.21% Pervious Area
242	98	48.79% Impervious Area

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

Subcatchment ES-3B:



Summary for Subcatchment ES-3C:

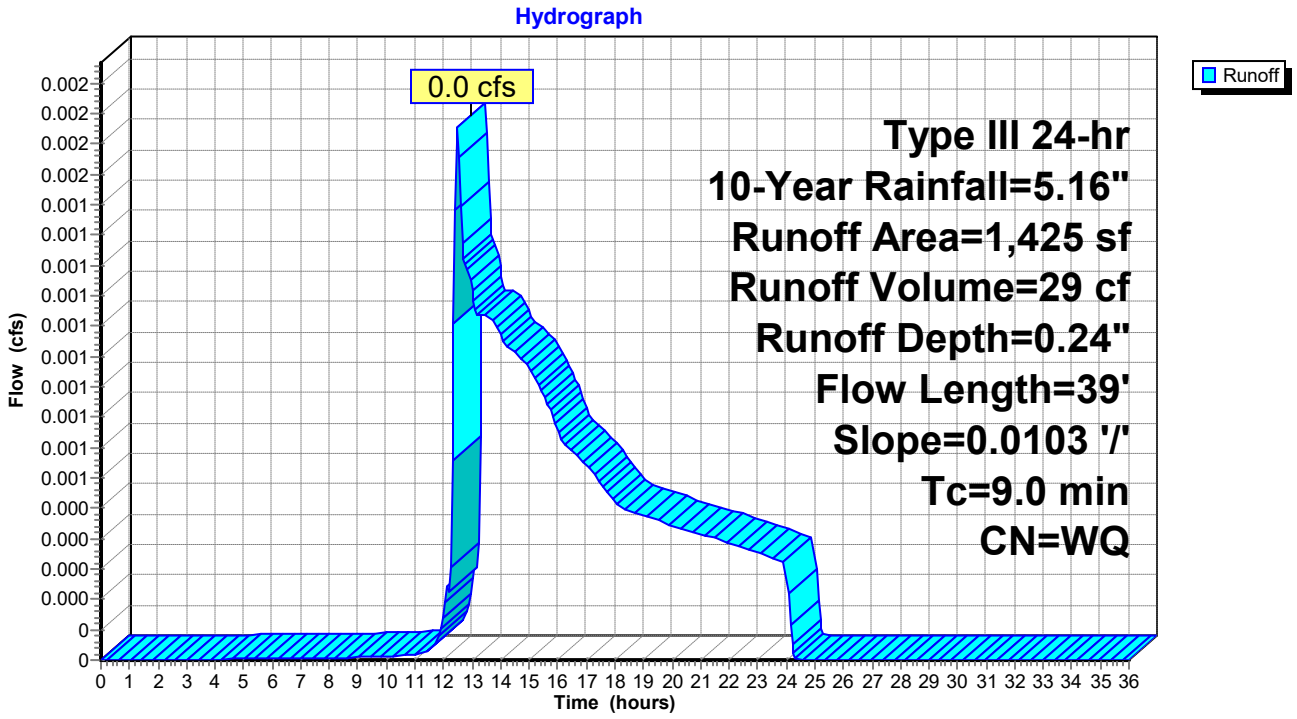
Runoff = 0.0 cfs @ 12.49 hrs, Volume= 29 cf, Depth= 0.24"
Routed to Link DP-3 : Walnut Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.16"

Area (sf)	CN	Description
1,422	39	>75% Grass cover, Good, HSG A
2	98	Paved parking, HSG A
1,425		Weighted Average
1,422	39	99.83% Pervious Area
2	98	0.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	39	0.0103	0.07		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"

Subcatchment ES-3C:



Summary for Subcatchment ES-4: Subcat ES-4

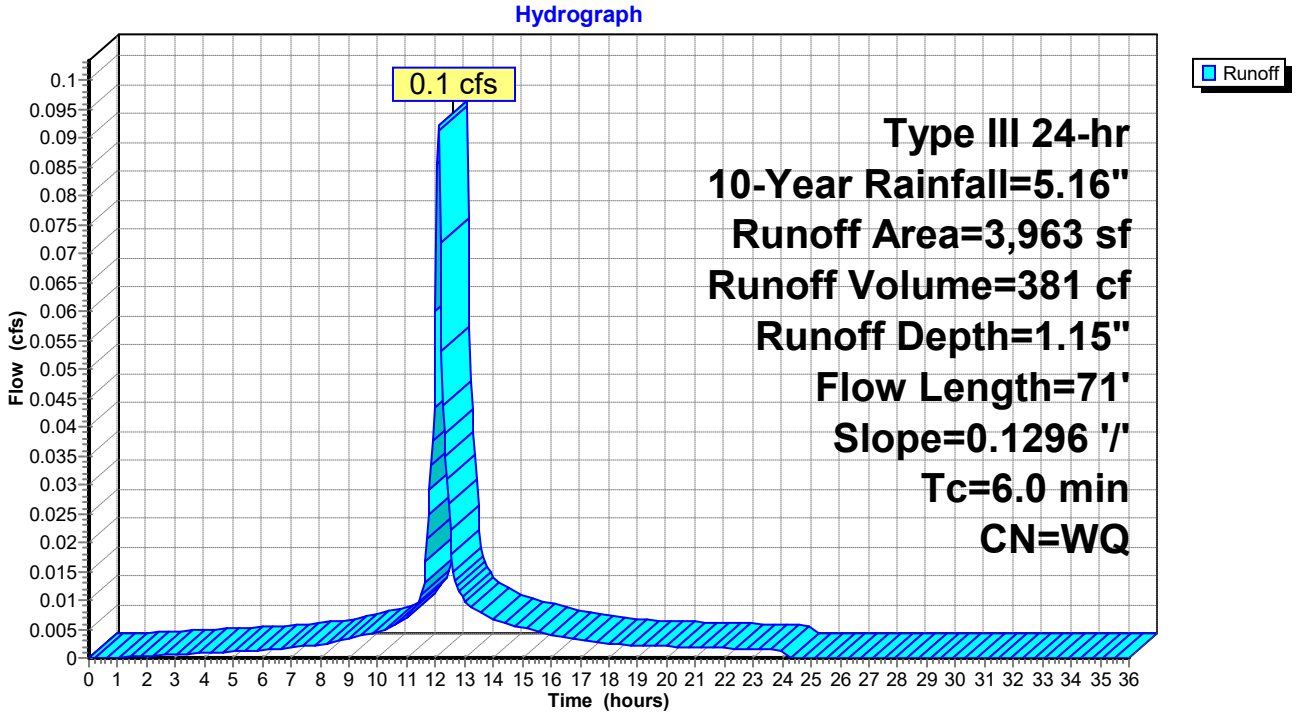
Runoff = 0.1 cfs @ 12.09 hrs, Volume= 381 cf, Depth= 1.15"
Routed to Link DP-4 : Offsite to Northwest

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.16"

Area (sf)	CN	Description
2,344	39	>75% Grass cover, Good, HSG A
211	98	Paved parking, HSG A
604	98	Roofs, HSG A
804	30	Woods, Good, HSG A
3,963		Weighted Average
3,148	37	79.43% Pervious Area
815	98	20.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	71	0.1296	0.22		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
5.3	71	Total, Increased to minimum Tc = 6.0 min			

Subcatchment ES-4: Subcat ES-4

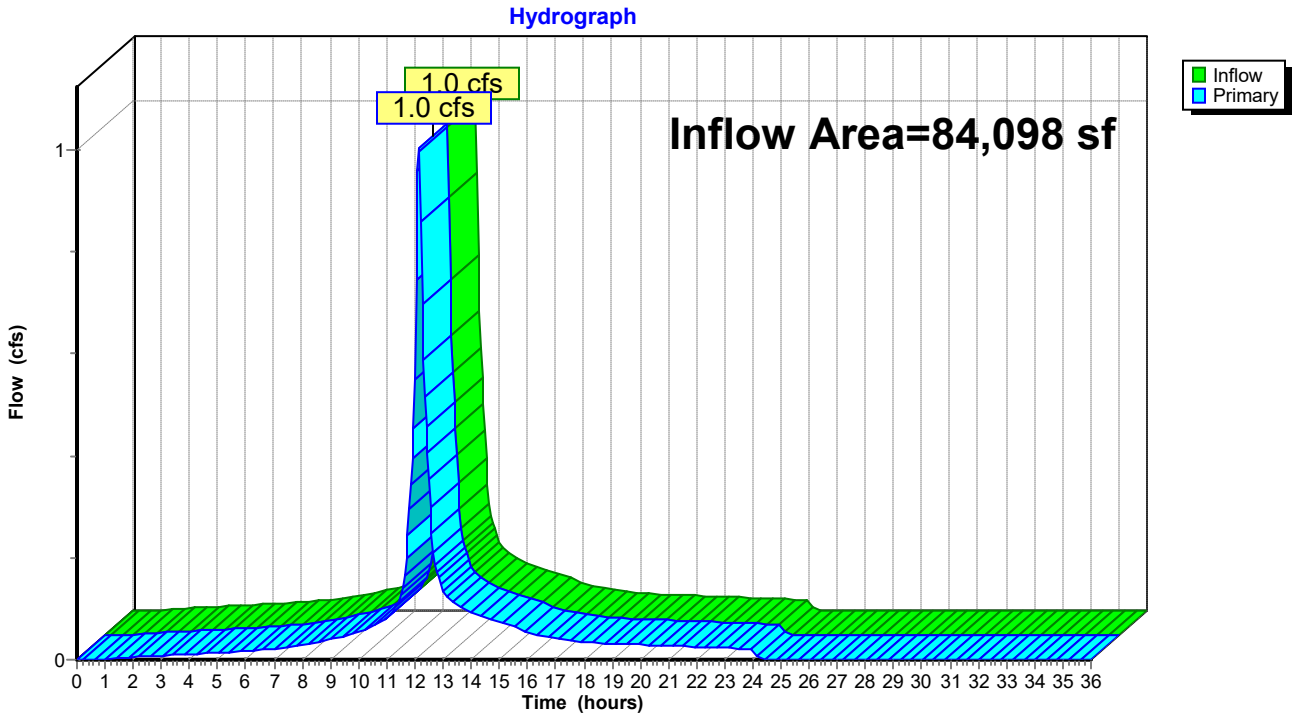


Summary for Link DP-1: Offsite to Northeast

Inflow Area = 84,098 sf, 11.89% Impervious, Inflow Depth = 0.70" for 10-Year event
Inflow = 1.0 cfs @ 12.14 hrs, Volume= 4,907 cf
Primary = 1.0 cfs @ 12.14 hrs, Volume= 4,907 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Link DP-1: Offsite to Northeast

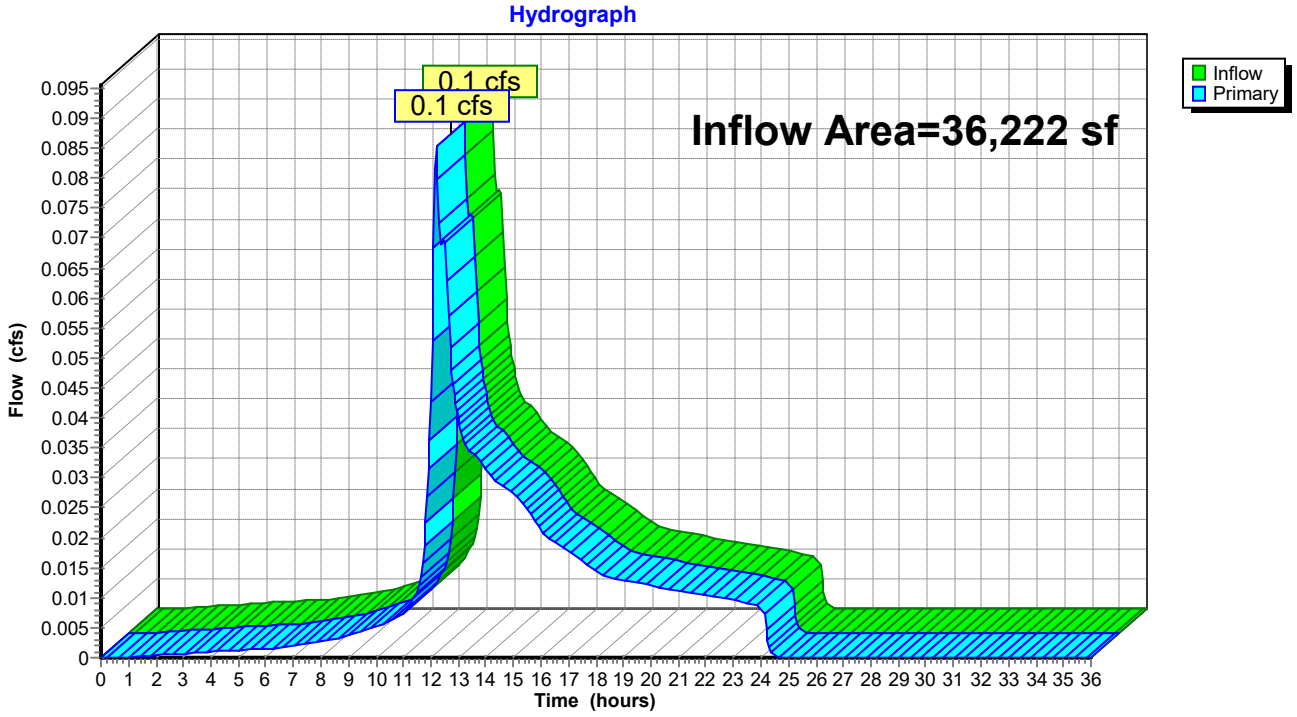


Summary for Link DP-2: Offsite to South

Inflow Area = 36,222 sf, 2.65% Impervious, Inflow Depth = 0.35" for 10-Year event
Inflow = 0.1 cfs @ 12.20 hrs, Volume= 1,052 cf
Primary = 0.1 cfs @ 12.20 hrs, Volume= 1,052 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Link DP-2: Offsite to South

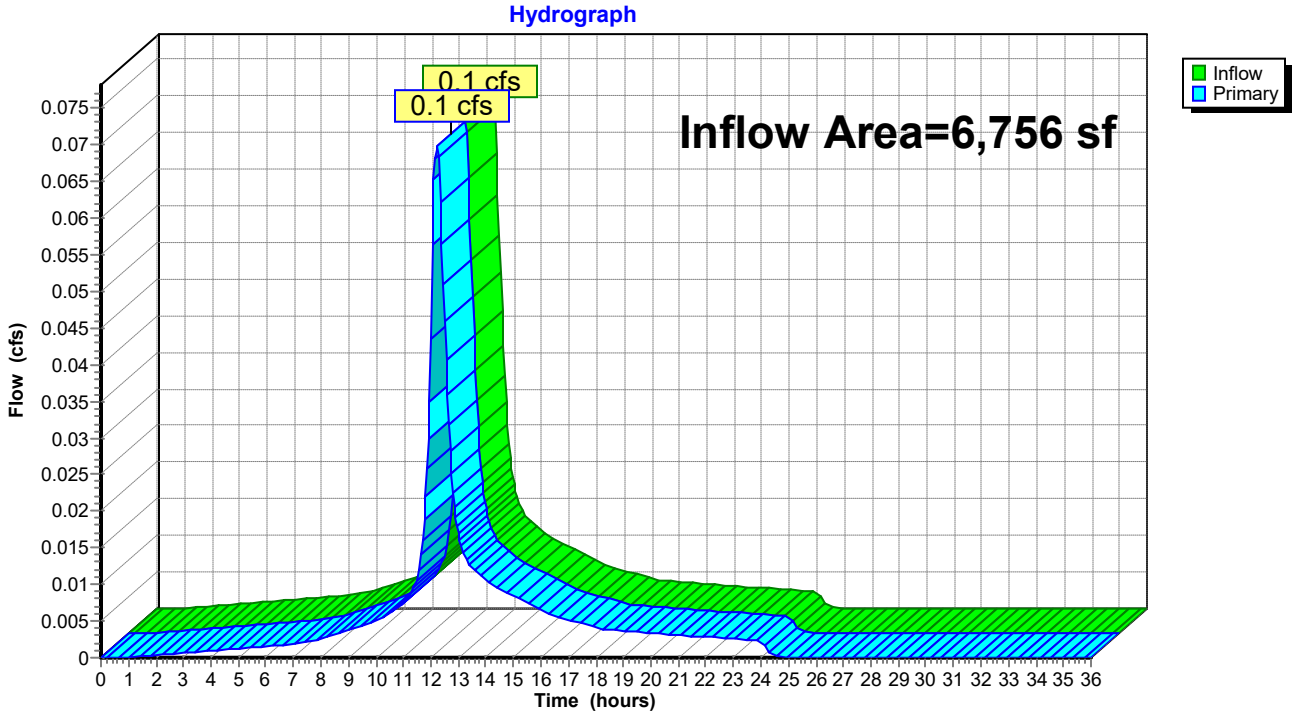


Summary for Link DP-3: Walnut Street

Inflow Area = 6,756 sf, 14.16% Impervious, Inflow Depth = 0.90" for 10-Year event
Inflow = 0.1 cfs @ 12.23 hrs, Volume= 505 cf
Primary = 0.1 cfs @ 12.23 hrs, Volume= 505 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Link DP-3: Walnut Street

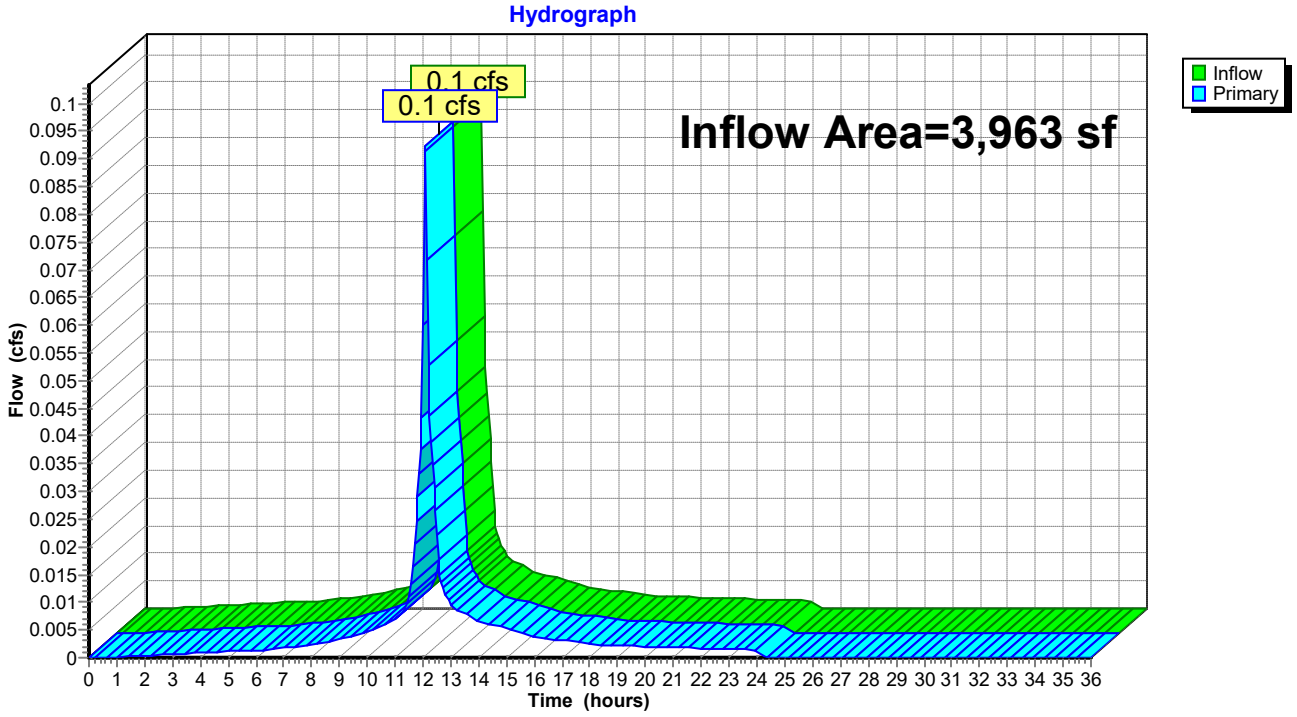


Summary for Link DP-4: Offsite to Northwest

Inflow Area = 3,963 sf, 20.57% Impervious, Inflow Depth = 1.15" for 10-Year event
Inflow = 0.1 cfs @ 12.09 hrs, Volume= 381 cf
Primary = 0.1 cfs @ 12.09 hrs, Volume= 381 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Link DP-4: Offsite to Northwest



Time span=0.00-36.00 hrs, dt=0.05 hrs, 721 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment ES-1: Runoff Area=84,098 sf 11.89% Impervious Runoff Depth=1.76"
Flow Length=469' Tc=10.0 min CN=WQ Runoff=2.4 cfs 12,322 cf

Subcatchment ES-2: Runoff Area=36,222 sf 2.65% Impervious Runoff Depth=1.42"
Flow Length=281' Tc=14.6 min CN=WQ Runoff=0.7 cfs 4,293 cf

Subcatchment ES-3A: Runoff Area=4,834 sf 14.73% Impervious Runoff Depth=2.27"
Flow Length=107' Slope=0.0110 '/' Tc=19.8 min CN=WQ Runoff=0.2 cfs 915 cf

Subcatchment ES-3B: Runoff Area=497 sf 48.79% Impervious Runoff Depth=4.58"
Tc=6.0 min CN=WQ Runoff=0.0 cfs 190 cf

Subcatchment ES-3C: Runoff Area=1,425 sf 0.17% Impervious Runoff Depth=1.29"
Flow Length=39' Slope=0.0103 '/' Tc=9.0 min CN=WQ Runoff=0.0 cfs 153 cf

Subcatchment ES-4: Subcat ES-4 Runoff Area=3,963 sf 20.57% Impervious Runoff Depth=2.51"
Flow Length=71' Slope=0.1296 '/' Tc=6.0 min CN=WQ Runoff=0.2 cfs 828 cf

Link DP-1: Offsite to Northeast Inflow=2.4 cfs 12,322 cf
Primary=2.4 cfs 12,322 cf

Link DP-2: Offsite to South Inflow=0.7 cfs 4,293 cf
Primary=0.7 cfs 4,293 cf

Link DP-3: Walnut Street Inflow=0.2 cfs 1,258 cf
Primary=0.2 cfs 1,258 cf

Link DP-4: Offsite to Northwest Inflow=0.2 cfs 828 cf
Primary=0.2 cfs 828 cf

Total Runoff Area = 131,039 sf Runoff Volume = 18,701 cf Average Runoff Depth = 1.71"
90.29% Pervious = 118,309 sf 9.71% Impervious = 12,730 sf

Summary for Subcatchment ES-1:

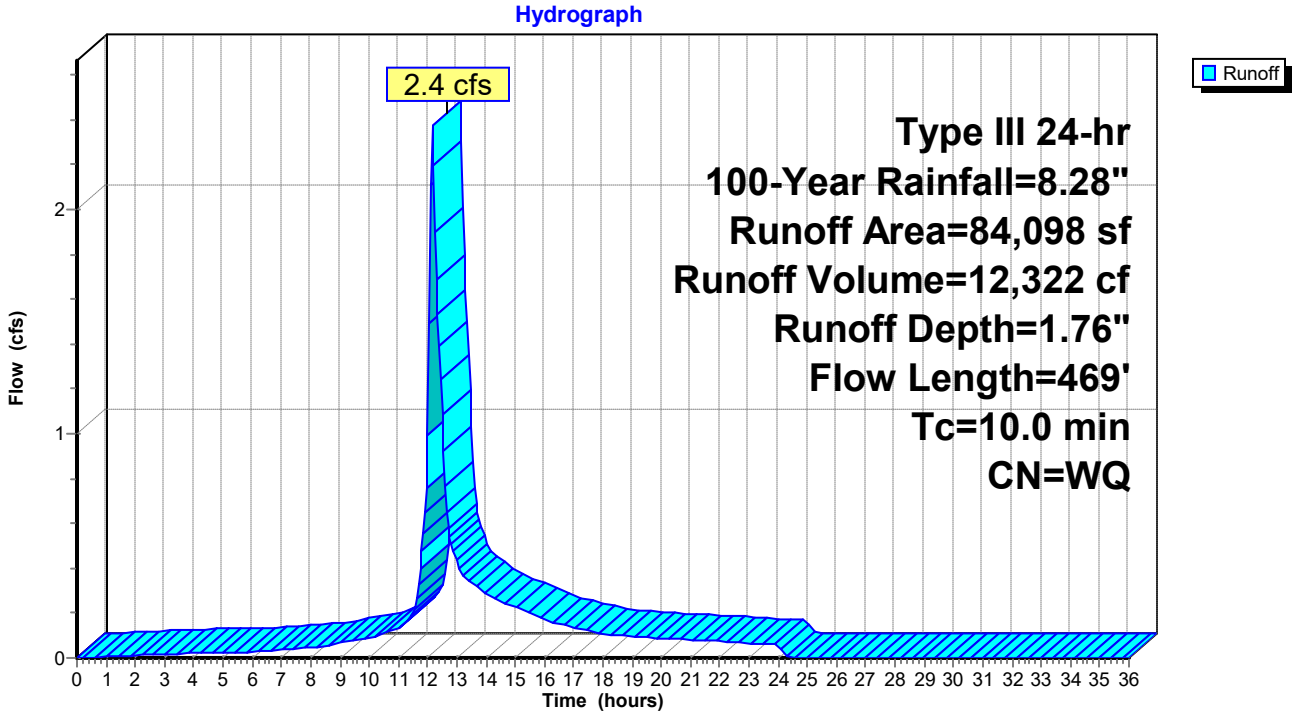
Runoff = 2.4 cfs @ 12.15 hrs, Volume= 12,322 cf, Depth= 1.76"
Routed to Link DP-1 : Offsite to Northeast

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.28"

Area (sf)	CN	Description
39,863	39	>75% Grass cover, Good, HSG A
6,325	98	Paved parking, HSG A
3,674	98	Roofs, HSG A
34,236	30	Woods, Good, HSG A
84,098		Weighted Average
74,099	35	88.11% Pervious Area
9,999	98	11.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	29	0.0207	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
0.8	71	0.0289	1.44		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
2.5	185	0.0059	1.24		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.3	184	0.2065	2.27		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
10.0	469	Total			

Subcatchment ES-1:



Summary for Subcatchment ES-2:

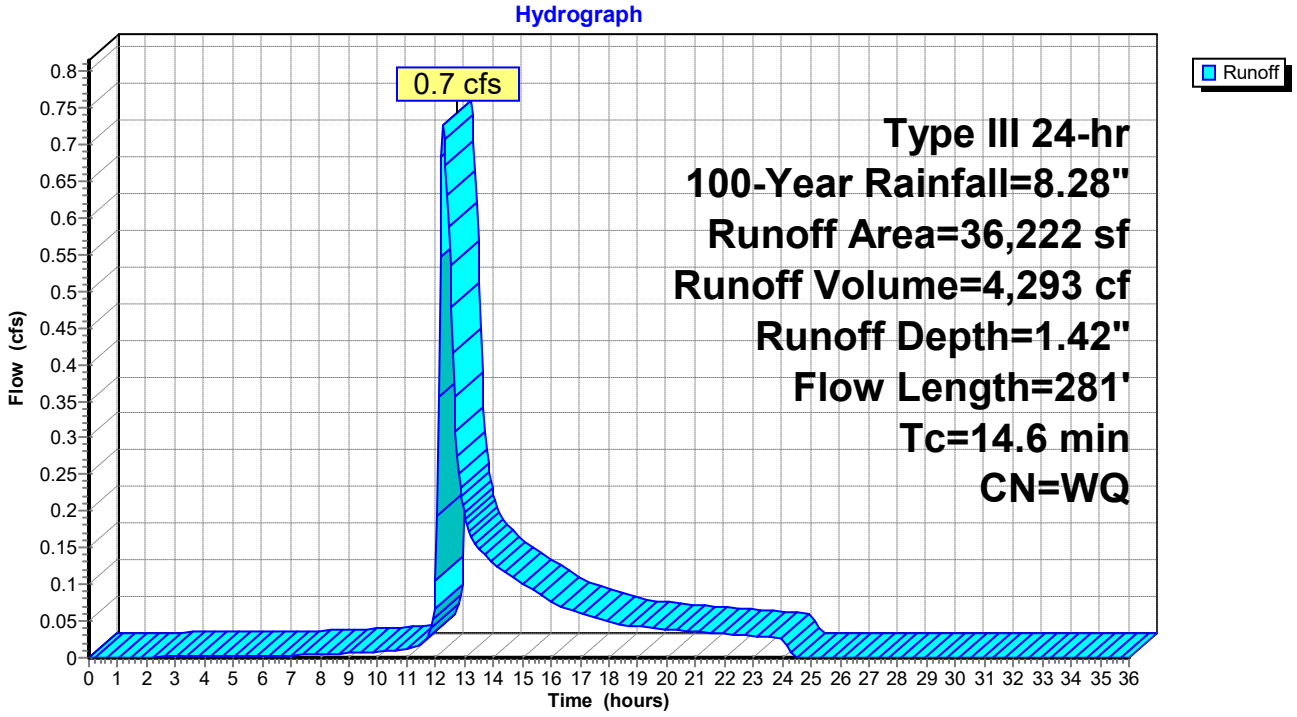
Runoff = 0.7 cfs @ 12.26 hrs, Volume= 4,293 cf, Depth= 1.42"
Routed to Link DP-2 : Offsite to South

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.28"

Area (sf)	CN	Description
33,745	39	>75% Grass cover, Good, HSG A
325	98	Paved parking, HSG A
634	98	Roofs, HSG A
1,519	30	Woods, Good, HSG A
36,222		Weighted Average
35,263	39	97.35% Pervious Area
959	98	2.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.3	100	0.0260	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
1.3	181	0.0215	2.36		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
14.6	281	Total			

Subcatchment ES-2:



Summary for Subcatchment ES-3A:

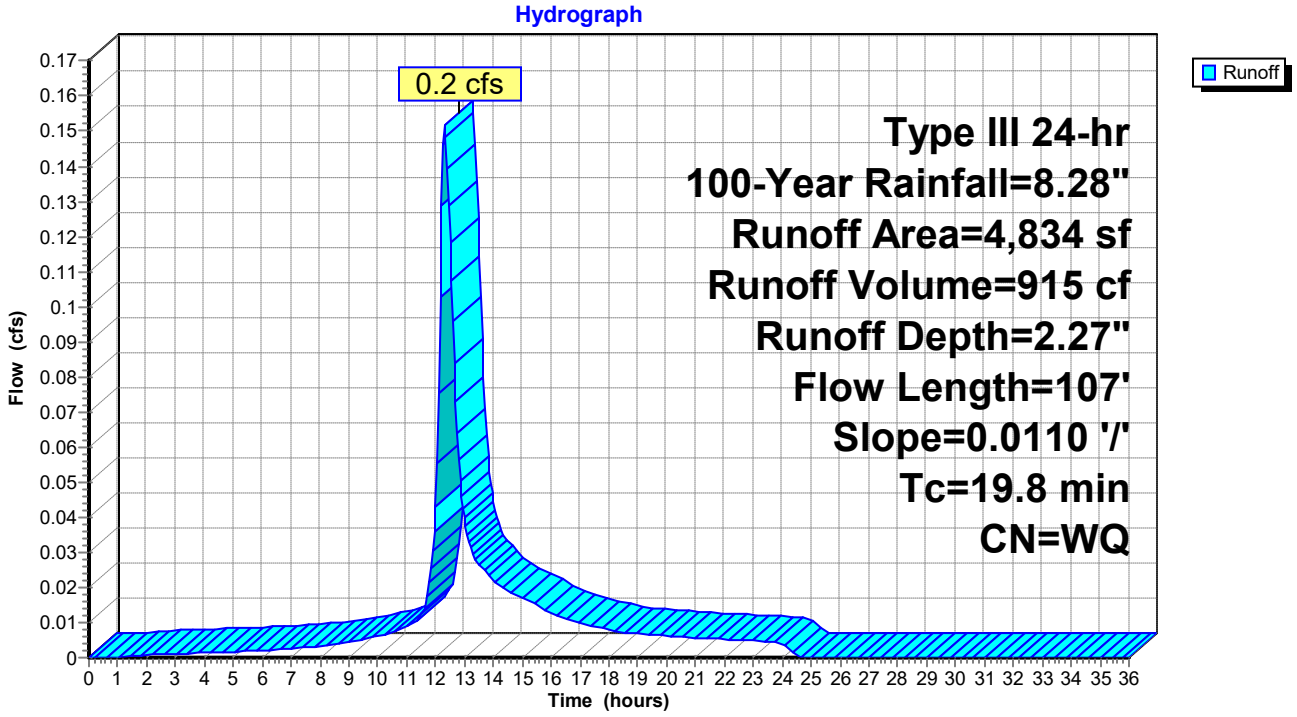
Runoff = 0.2 cfs @ 12.31 hrs, Volume= 915 cf, Depth= 2.27"
Routed to Link DP-3 : Walnut Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.28"

Area (sf)	CN	Description
4,122	39	>75% Grass cover, Good, HSG A
149	98	Paved parking, HSG A
562	98	Roofs, HSG A
4,834		Weighted Average
4,122	39	85.27% Pervious Area
712	98	14.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.8	107	0.0110	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"

Subcatchment ES-3A:



Summary for Subcatchment ES-3B:

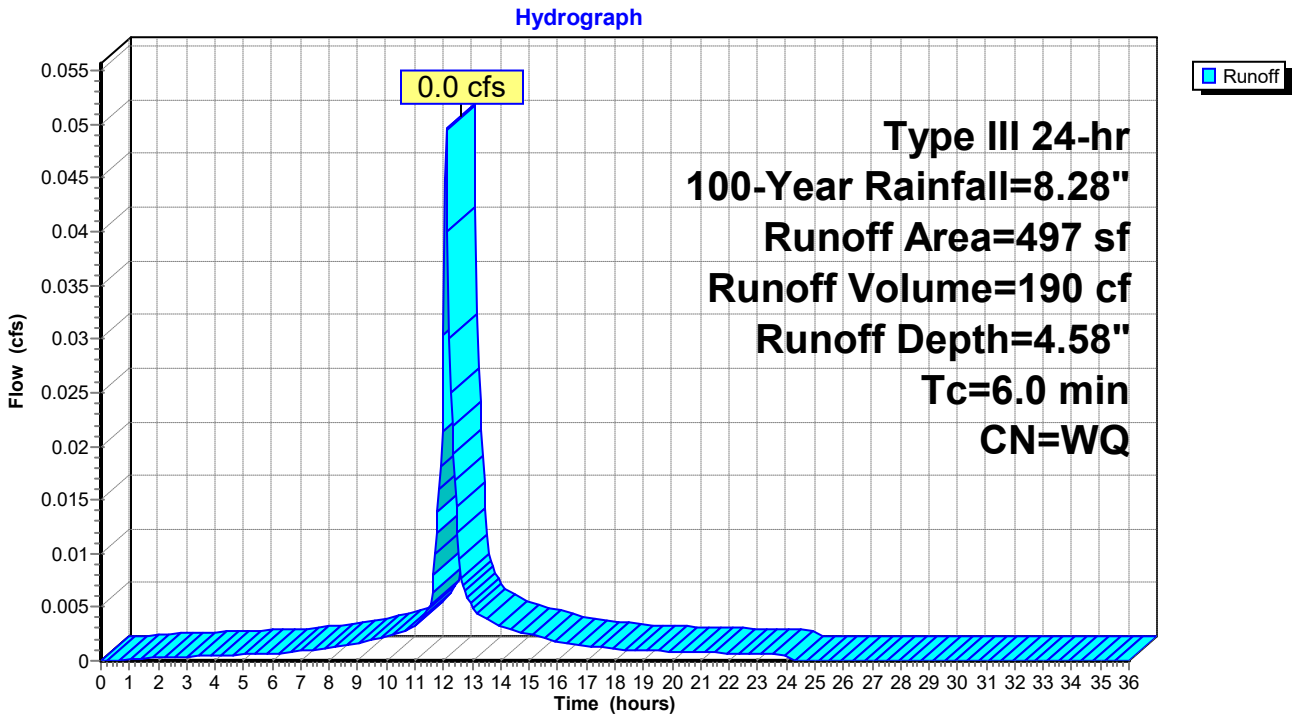
Runoff = 0.0 cfs @ 12.09 hrs, Volume= 190 cf, Depth= 4.58"
Routed to Link DP-3 : Walnut Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.28"

Area (sf)	CN	Description
255	39	>75% Grass cover, Good, HSG A
242	98	Roofs, HSG A
497		Weighted Average
255	39	51.21% Pervious Area
242	98	48.79% Impervious Area

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

Subcatchment ES-3B:



Summary for Subcatchment ES-3C:

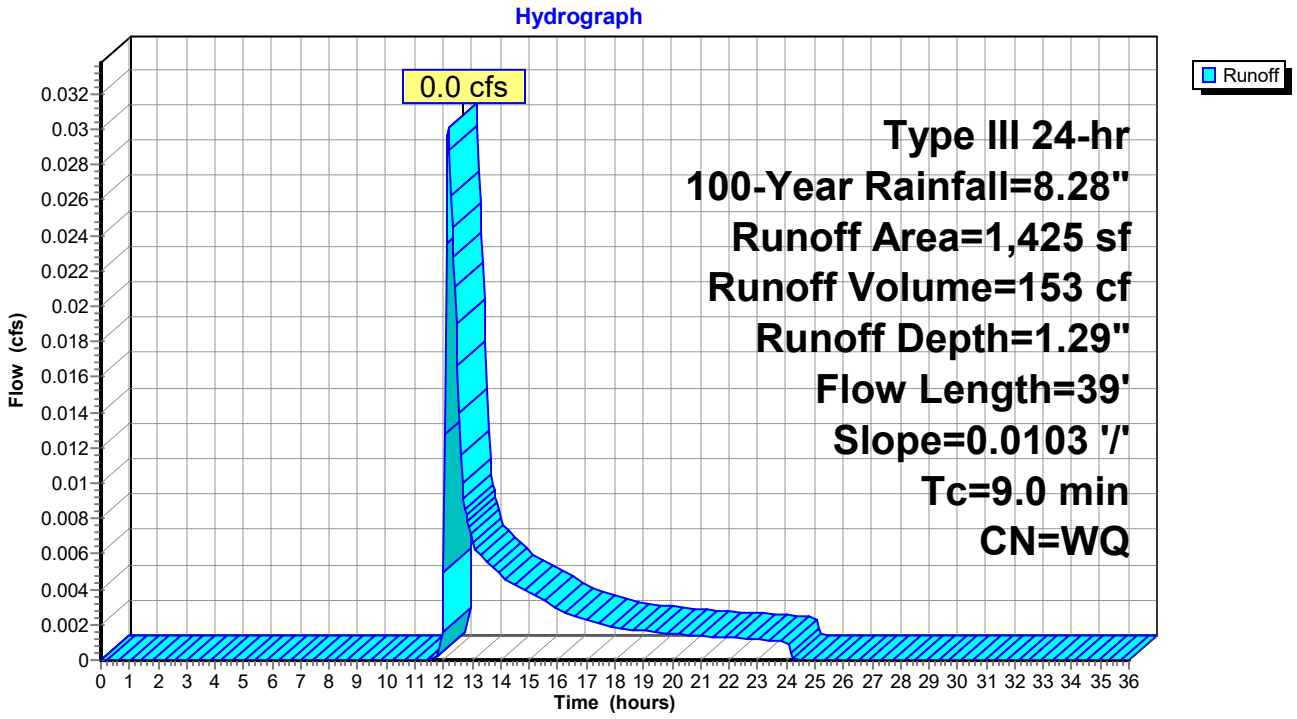
Runoff = 0.0 cfs @ 12.17 hrs, Volume= 153 cf, Depth= 1.29"
Routed to Link DP-3 : Walnut Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.28"

Area (sf)	CN	Description
1,422	39	>75% Grass cover, Good, HSG A
2	98	Paved parking, HSG A
1,425		Weighted Average
1,422	39	99.83% Pervious Area
2	98	0.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	39	0.0103	0.07		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"

Subcatchment ES-3C:



Summary for Subcatchment ES-4: Subcat ES-4

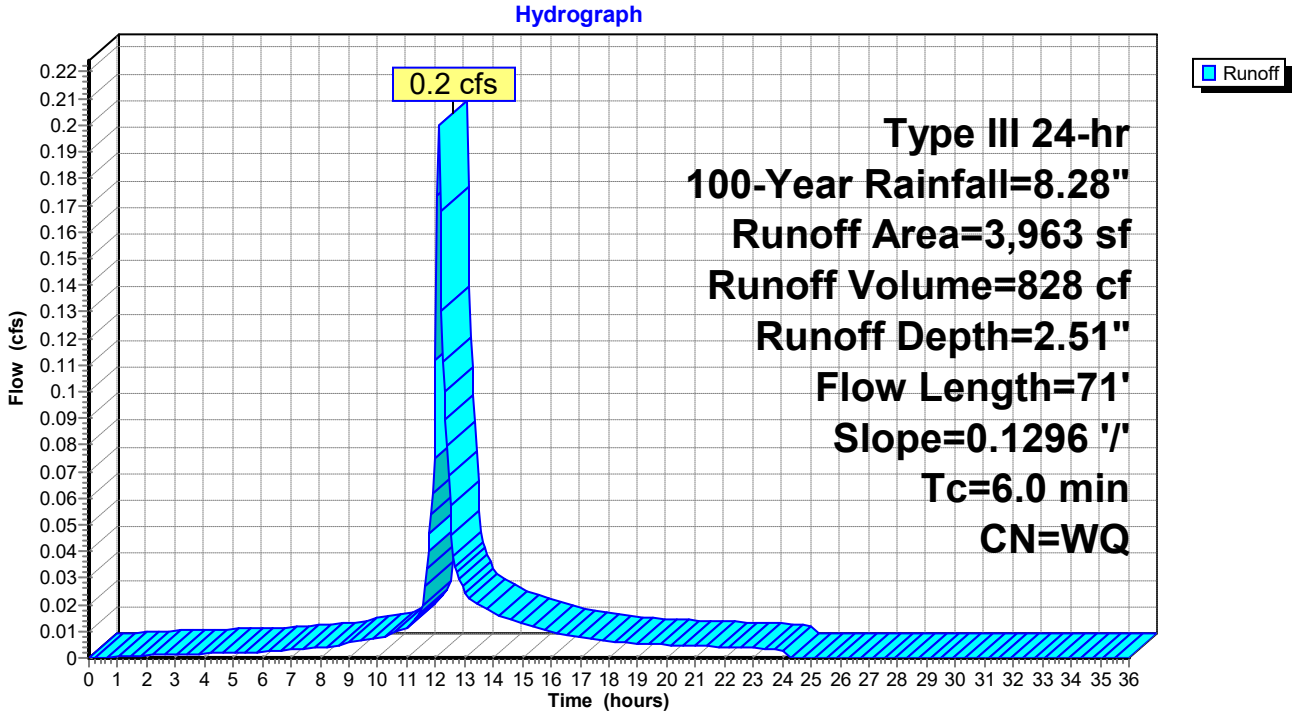
Runoff = 0.2 cfs @ 12.10 hrs, Volume= 828 cf, Depth= 2.51"
Routed to Link DP-4 : Offsite to Northwest

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.28"

Area (sf)	CN	Description
2,344	39	>75% Grass cover, Good, HSG A
211	98	Paved parking, HSG A
604	98	Roofs, HSG A
804	30	Woods, Good, HSG A
3,963		Weighted Average
3,148	37	79.43% Pervious Area
815	98	20.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	71	0.1296	0.22		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
5.3	71	Total, Increased to minimum Tc = 6.0 min			

Subcatchment ES-4: Subcat ES-4

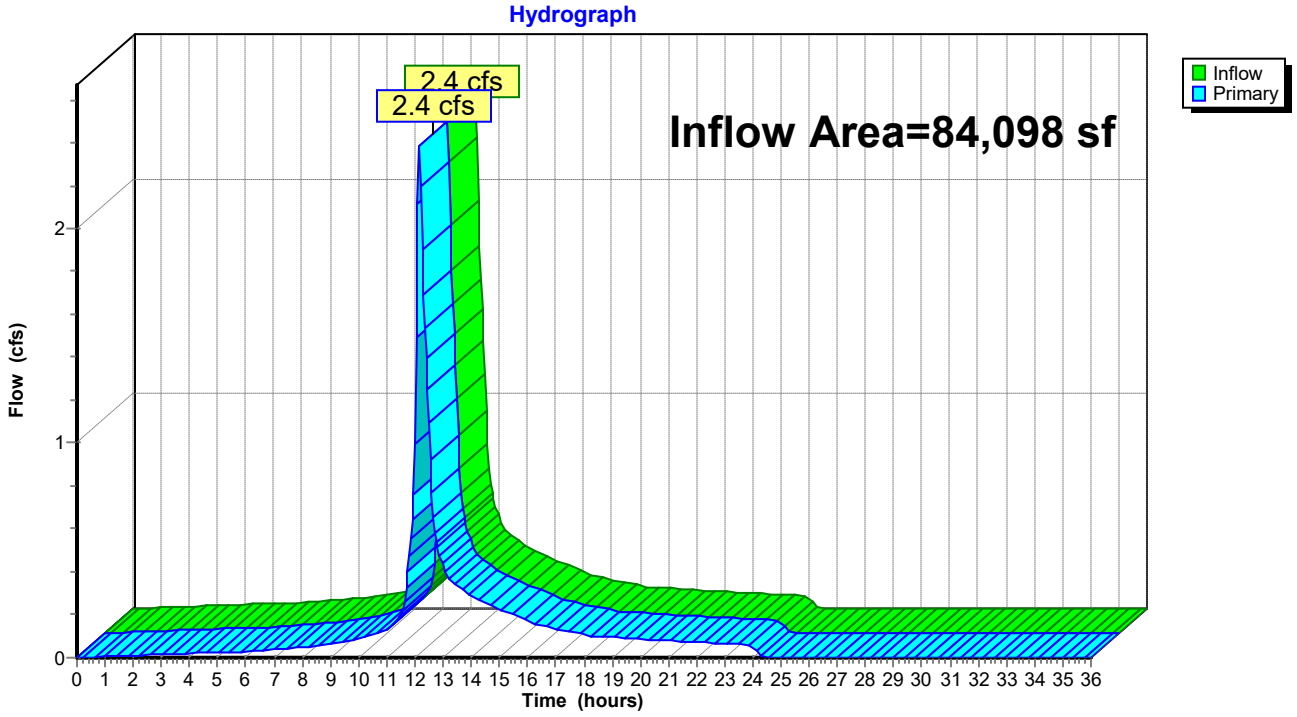


Summary for Link DP-1: Offsite to Northeast

Inflow Area = 84,098 sf, 11.89% Impervious, Inflow Depth = 1.76" for 100-Year event
Inflow = 2.4 cfs @ 12.15 hrs, Volume= 12,322 cf
Primary = 2.4 cfs @ 12.15 hrs, Volume= 12,322 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Link DP-1: Offsite to Northeast

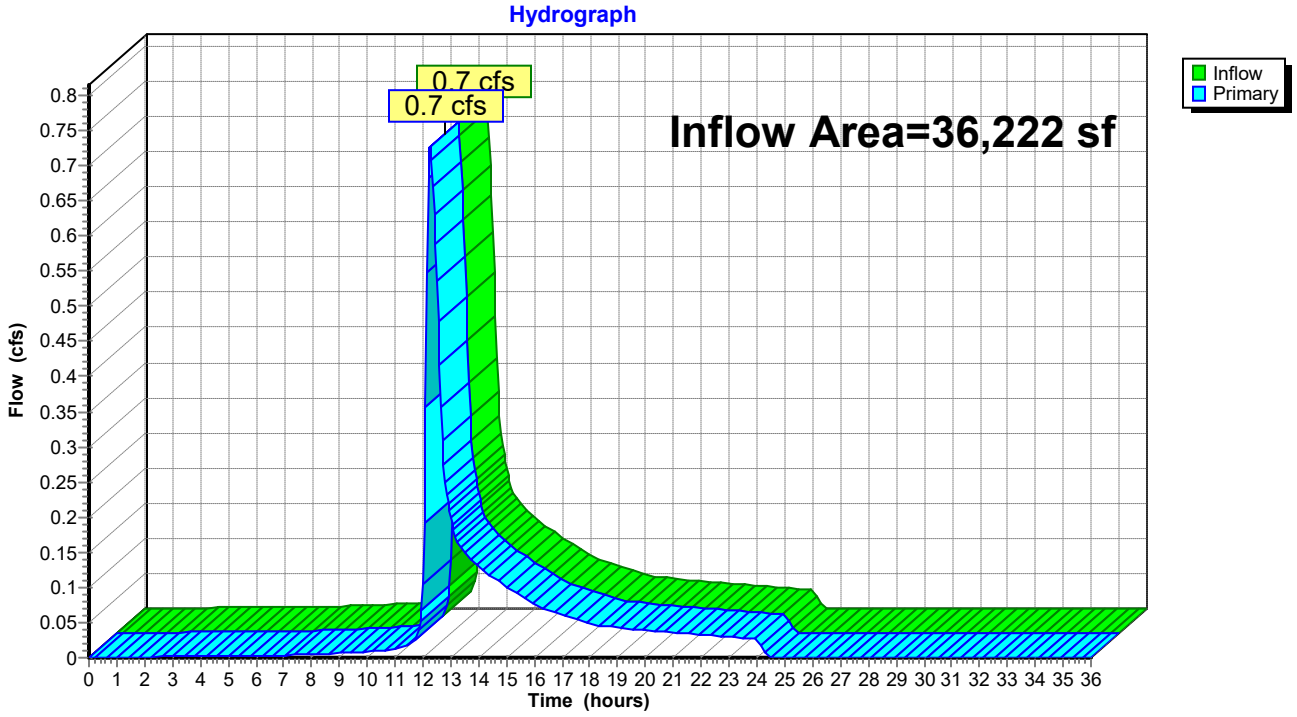


Summary for Link DP-2: Offsite to South

Inflow Area = 36,222 sf, 2.65% Impervious, Inflow Depth = 1.42" for 100-Year event
Inflow = 0.7 cfs @ 12.26 hrs, Volume= 4,293 cf
Primary = 0.7 cfs @ 12.26 hrs, Volume= 4,293 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Link DP-2: Offsite to South

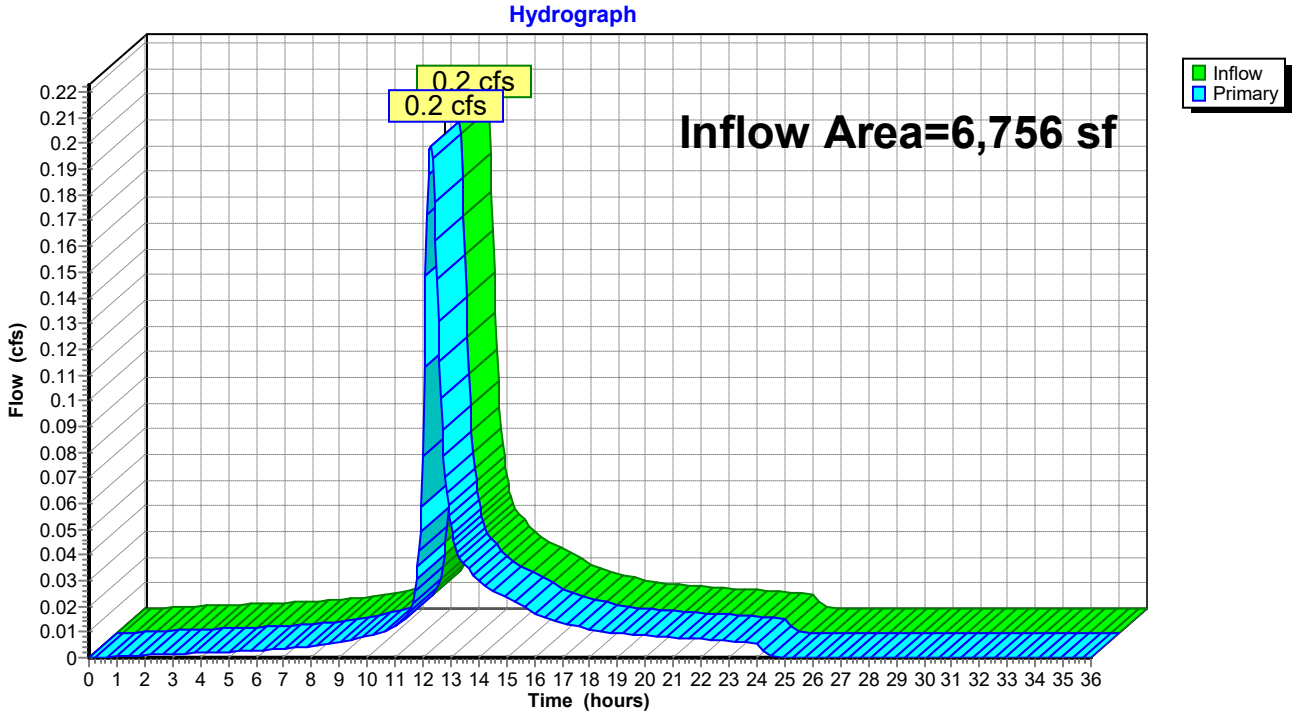


Summary for Link DP-3: Walnut Street

Inflow Area = 6,756 sf, 14.16% Impervious, Inflow Depth = 2.23" for 100-Year event
Inflow = 0.2 cfs @ 12.28 hrs, Volume= 1,258 cf
Primary = 0.2 cfs @ 12.28 hrs, Volume= 1,258 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Link DP-3: Walnut Street

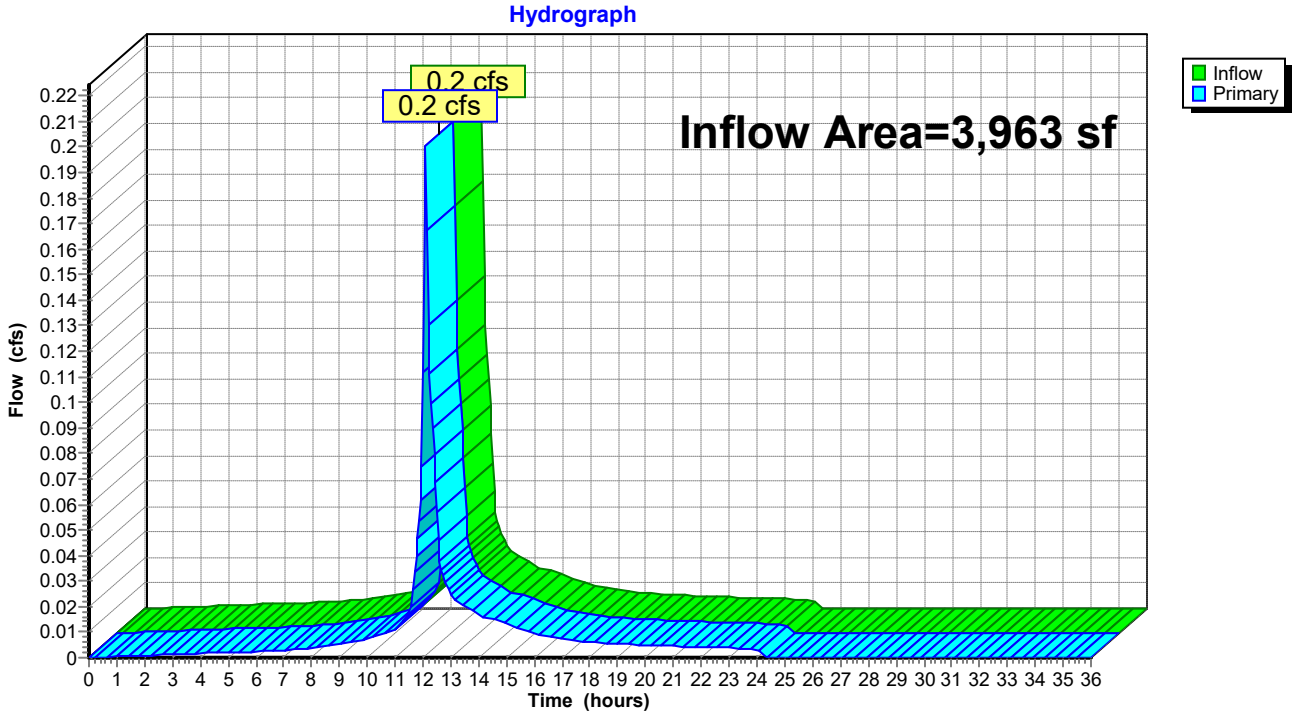


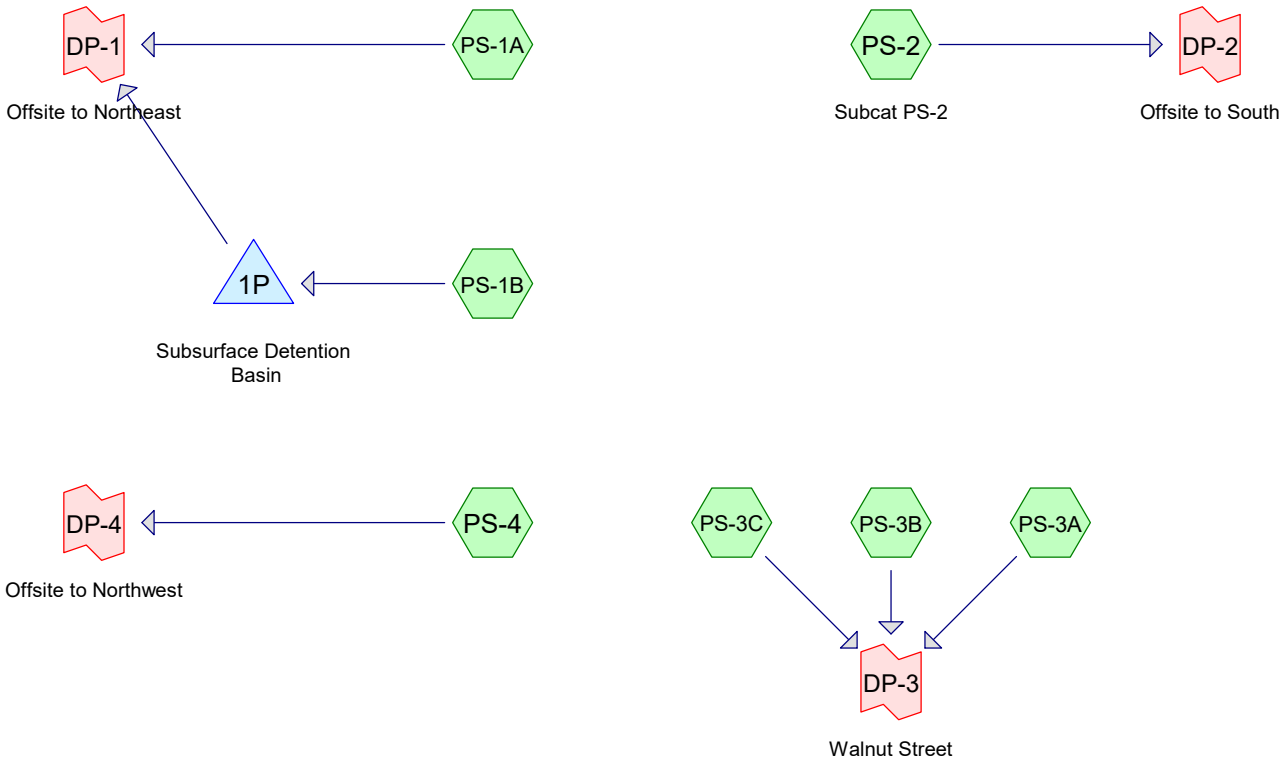
Summary for Link DP-4: Offsite to Northwest

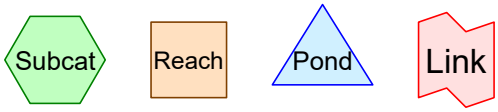
Inflow Area = 3,963 sf, 20.57% Impervious, Inflow Depth = 2.51" for 100-Year event
Inflow = 0.2 cfs @ 12.10 hrs, Volume= 828 cf
Primary = 0.2 cfs @ 12.10 hrs, Volume= 828 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Link DP-4: Offsite to Northwest







Routing Diagram for 220627 - POST
Prepared by R Levesque Associates
HydroCAD® 10.20-8a s/n 13073 © 2025 HydroCAD Software Solutions LLC

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	Type III 24-hr		Default	24.00	1	3.19	2
2	10-Year	Type III 24-hr		Default	24.00	1	5.16	2
3	100-Year	Type III 24-hr		Default	24.00	1	8.28	2

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment PS-1A: Runoff Area=31,504 sf 0.61% Impervious Runoff Depth=0.02"
Flow Length=174' Tc=10.8 min CN=WQ Runoff=0.0 cfs 48 cf

Subcatchment PS-1B: Runoff Area=74,573 sf 48.17% Impervious Runoff Depth=1.42"
Flow Length=217' Tc=6.7 min CN=WQ Runoff=2.5 cfs 8,855 cf

Subcatchment PS-2: Subcat PS-2 Runoff Area=14,243 sf 9.63% Impervious Runoff Depth=0.29"
Flow Length=92' Slope=0.0440 '/' Tc=10.1 min CN=WQ Runoff=0.1 cfs 338 cf

Subcatchment PS-3A: Runoff Area=4,834 sf 14.73% Impervious Runoff Depth=0.44"
Flow Length=107' Slope=0.0110 '/' Tc=19.8 min CN=WQ Runoff=0.0 cfs 176 cf

Subcatchment PS-3B: Runoff Area=497 sf 48.79% Impervious Runoff Depth=1.44"
Tc=6.0 min CN=WQ Runoff=0.0 cfs 60 cf

Subcatchment PS-3C: Runoff Area=1,425 sf 0.17% Impervious Runoff Depth=0.01"
Flow Length=39' Slope=0.0103 '/' Tc=9.0 min CN=WQ Runoff=0.0 cfs 1 cf

Subcatchment PS-4: Runoff Area=3,963 sf 20.57% Impervious Runoff Depth=0.61"
Flow Length=71' Slope=0.1296 '/' Tc=6.0 min CN=WQ Runoff=0.1 cfs 201 cf

Pond 1P: Subsurface Detention Basin Peak Elev=103.16' Storage=2,860 cf Inflow=2.5 cfs 8,855 cf
Outflow=0.5 cfs 8,855 cf

Link DP-1: Offsite to Northeast Inflow=0.5 cfs 8,902 cf
Primary=0.5 cfs 8,902 cf

Link DP-2: Offsite to South Inflow=0.1 cfs 338 cf
Primary=0.1 cfs 338 cf

Link DP-3: Walnut Street Inflow=0.0 cfs 236 cf
Primary=0.0 cfs 236 cf

Link DP-4: Offsite to Northwest Inflow=0.1 cfs 201 cf
Primary=0.1 cfs 201 cf

Total Runoff Area = 131,039 sf Runoff Volume = 9,677 cf Average Runoff Depth = 0.89"
70.04% Pervious = 91,779 sf 29.96% Impervious = 39,260 sf

Summary for Subcatchment PS-1A:

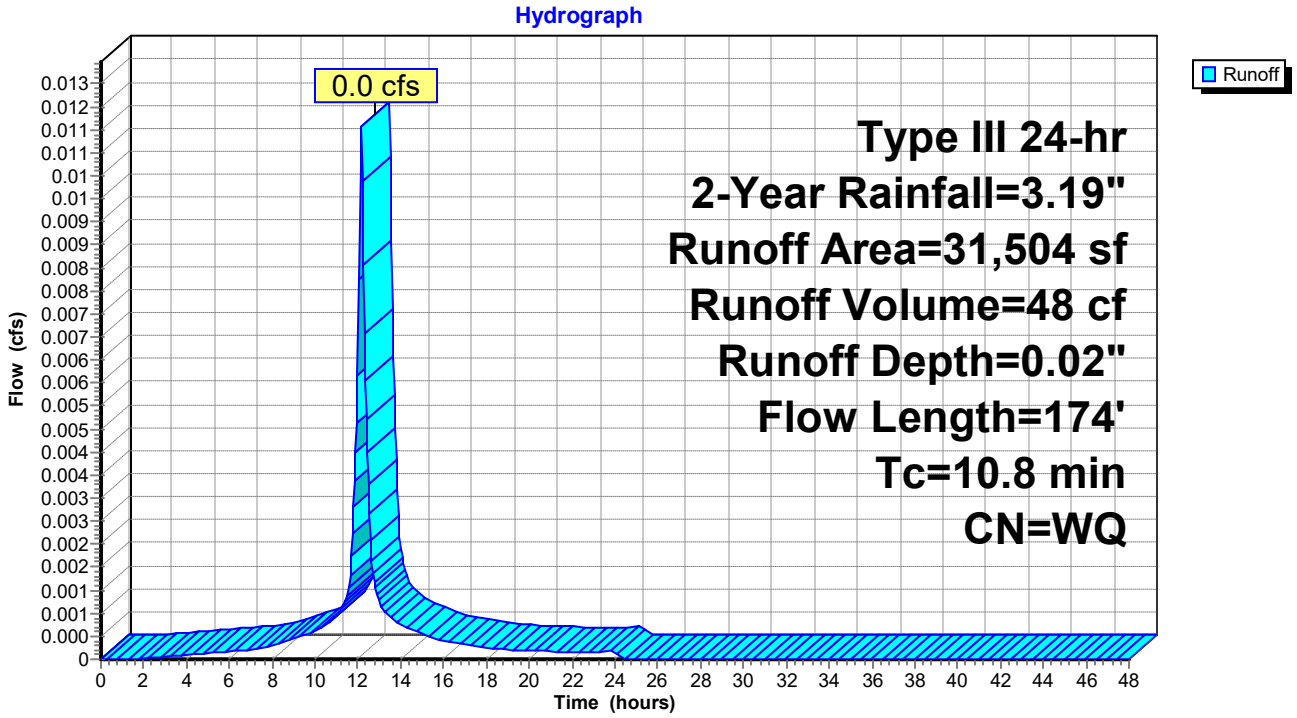
Runoff = 0.0 cfs @ 12.15 hrs, Volume= 48 cf, Depth= 0.02"
Routed to Link DP-1 : Offsite to Northeast

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.19"

Area (sf)	CN	Description
10,927	39	>75% Grass cover, Good, HSG A
192	98	Paved parking, HSG A
20,385	30	Woods, Good, HSG A
31,504		Weighted Average
31,312	33	99.39% Pervious Area
192	98	0.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	100	0.1500	0.17		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.7	36	0.0278	0.83		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	38	0.6053	3.89		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
10.8	174	Total			

Subcatchment PS-1A:



Summary for Subcatchment PS-1B:

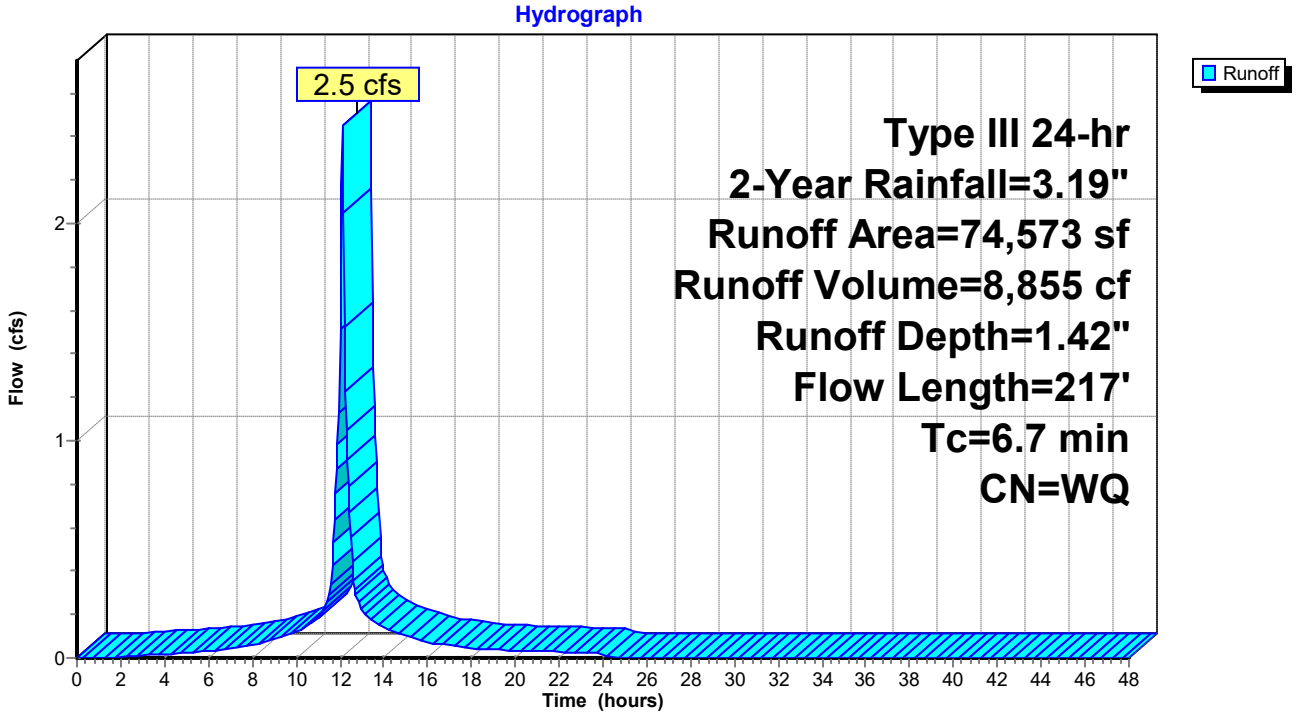
Runoff = 2.5 cfs @ 12.10 hrs, Volume= 8,855 cf, Depth= 1.42"
Routed to Pond 1P : Subsurface Detention Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.19"

Area (sf)	CN	Description
37,767	39	>75% Grass cover, Good, HSG A
28,686	98	Paved parking, HSG A
7,238	98	Roofs, HSG A
882	30	Woods, Good, HSG A
74,573		Weighted Average
38,649	39	51.83% Pervious Area
35,924	98	48.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	29	0.0207	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
0.4	25	0.0260	1.12		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.8	132	0.0181	2.73		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	31	0.0100	4.54	3.56	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
6.7	217	Total			

Subcatchment PS-1B:



Summary for Subcatchment PS-2: Subcat PS-2

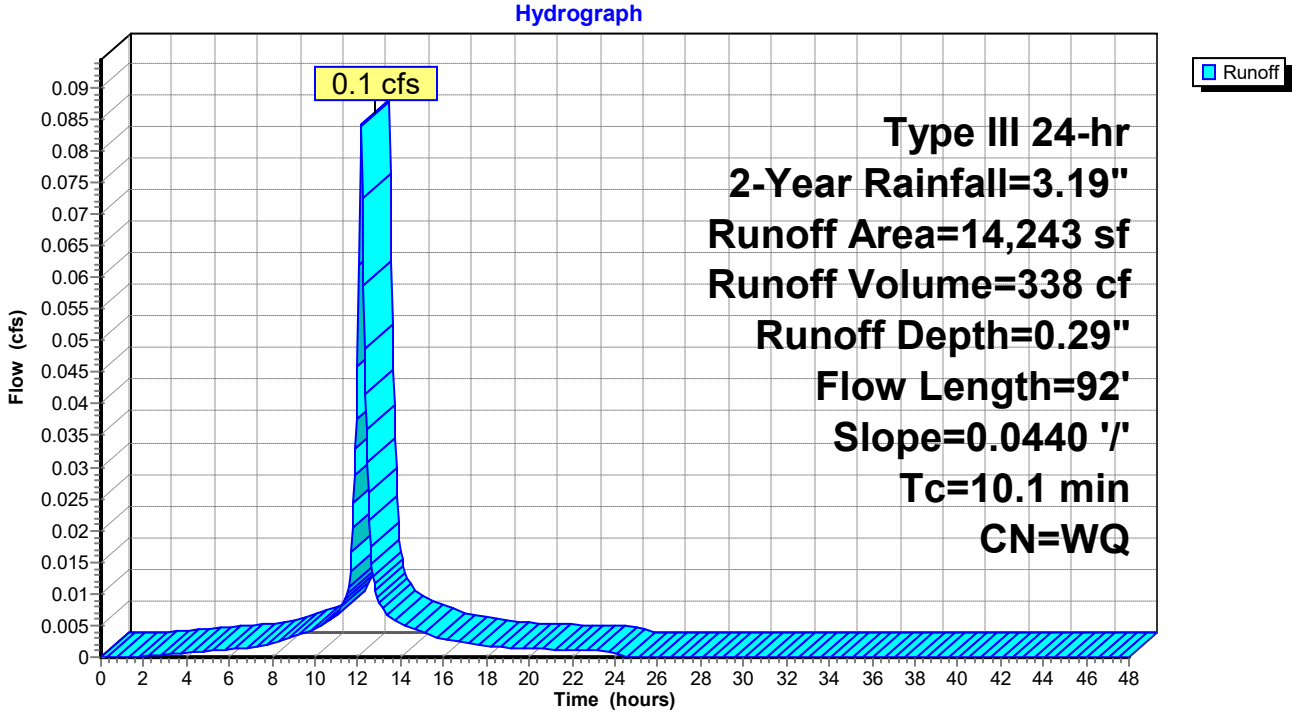
Runoff = 0.1 cfs @ 12.14 hrs, Volume= 338 cf, Depth= 0.29"
Routed to Link DP-2 : Offsite to South

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.19"

Area (sf)	CN	Description
11,589	39	>75% Grass cover, Good, HSG A
738	98	Paved parking, HSG A
634	98	Roofs, HSG A
1,282	30	Woods, Good, HSG A
14,243		Weighted Average
12,871	38	90.37% Pervious Area
1,372	98	9.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	92	0.0440	0.15		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"

Subcatchment PS-2: Subcat PS-2



Summary for Subcatchment PS-3A:

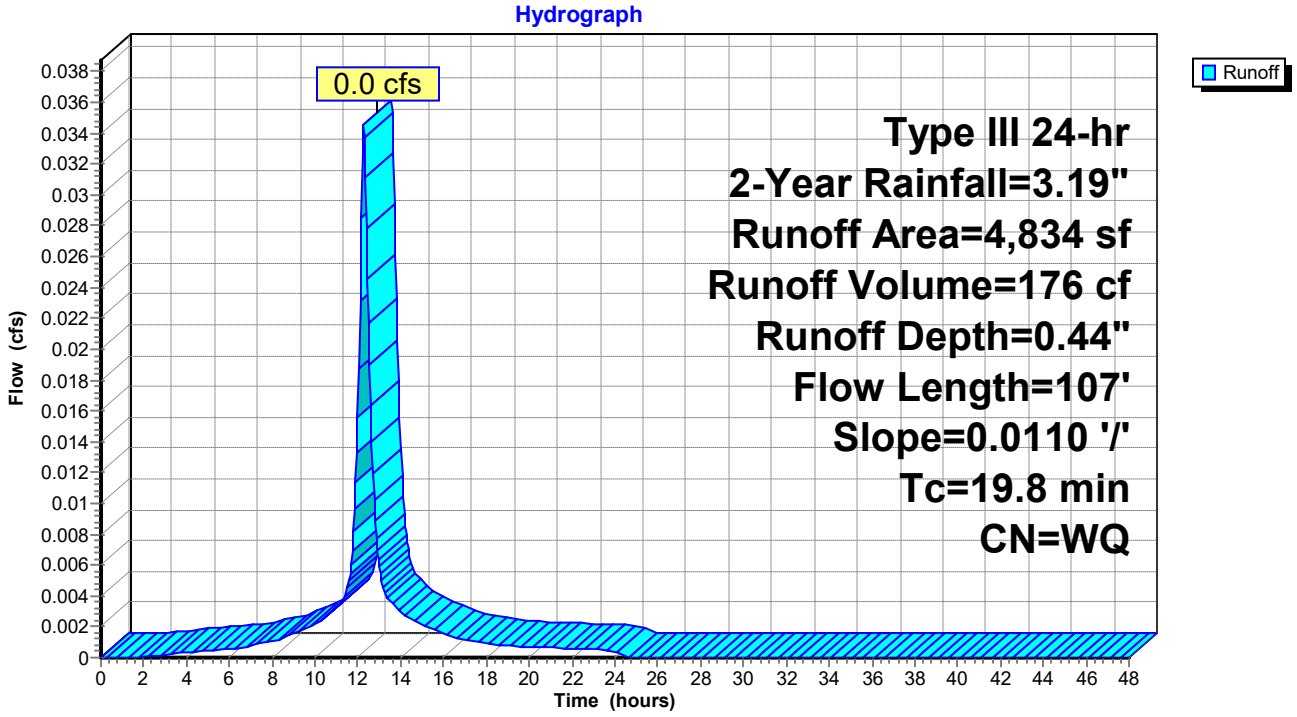
Runoff = 0.0 cfs @ 12.26 hrs, Volume= 176 cf, Depth= 0.44"
Routed to Link DP-3 : Walnut Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.19"

Area (sf)	CN	Description
4,122	39	>75% Grass cover, Good, HSG A
149	98	Paved parking, HSG A
562	98	Roofs, HSG A
4,834		Weighted Average
4,122	39	85.27% Pervious Area
712	98	14.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.8	107	0.0110	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"

Subcatchment PS-3A:



Summary for Subcatchment PS-3B:

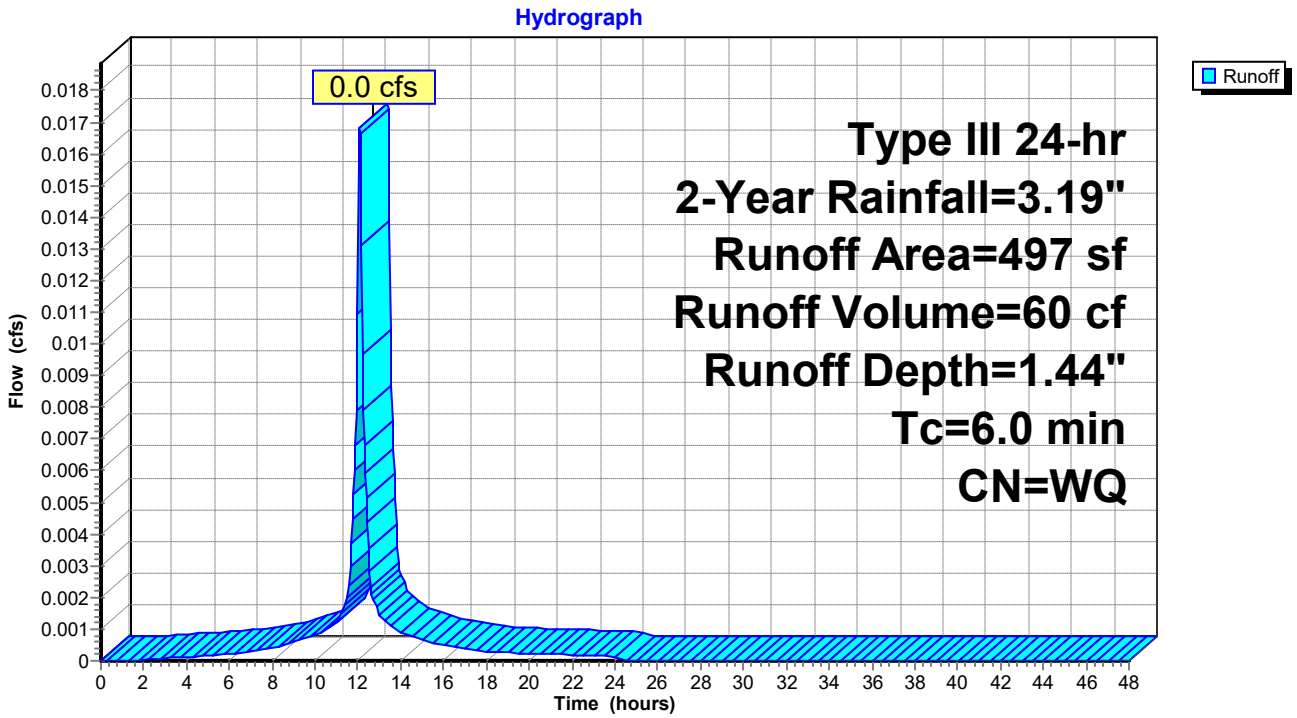
Runoff = 0.0 cfs @ 12.09 hrs, Volume= 60 cf, Depth= 1.44"
Routed to Link DP-3 : Walnut Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.19"

Area (sf)	CN	Description
255	39	>75% Grass cover, Good, HSG A
242	98	Roofs, HSG A
497		Weighted Average
255	39	51.21% Pervious Area
242	98	48.79% Impervious Area

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

Subcatchment PS-3B:



Summary for Subcatchment PS-3C:

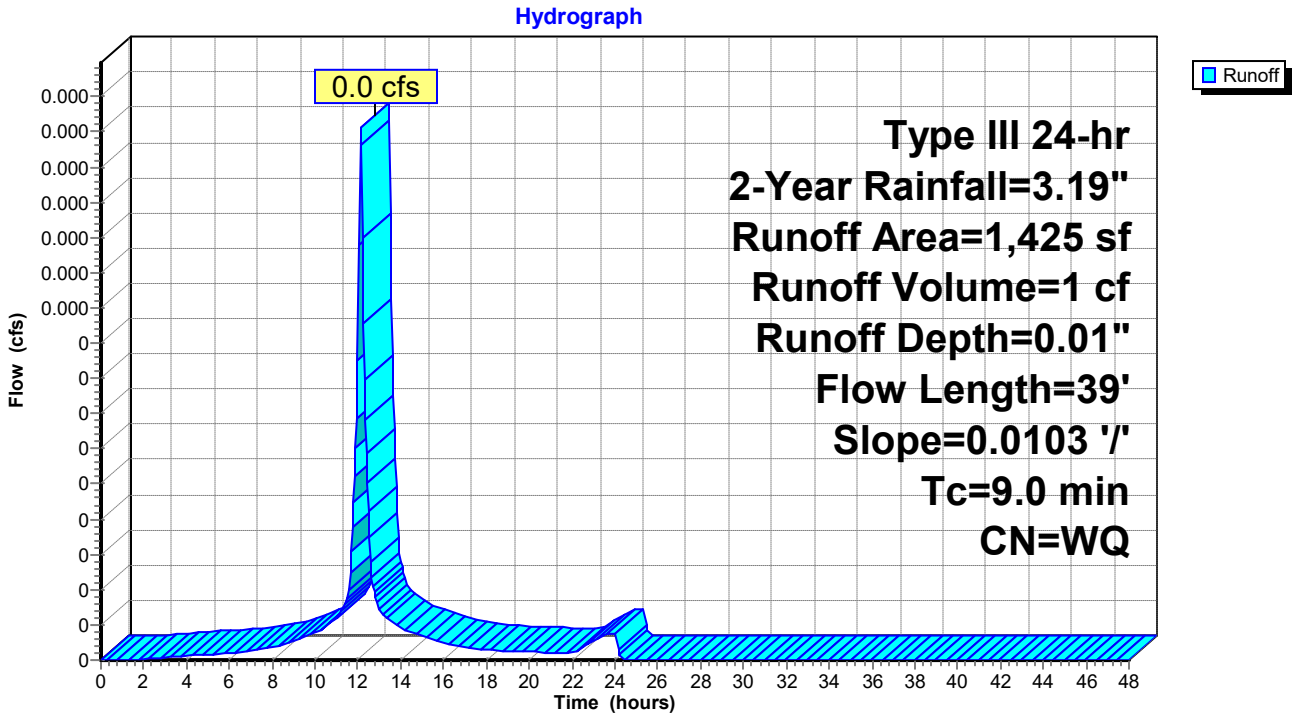
Runoff = 0.0 cfs @ 12.12 hrs, Volume= 1 cf, Depth= 0.01"
Routed to Link DP-3 : Walnut Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.19"

Area (sf)	CN	Description
1,422	39	>75% Grass cover, Good, HSG A
2	98	Paved parking, HSG A
1,425		Weighted Average
1,422	39	99.83% Pervious Area
2	98	0.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	39	0.0103	0.07		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"

Subcatchment PS-3C:



Summary for Subcatchment PS-4:

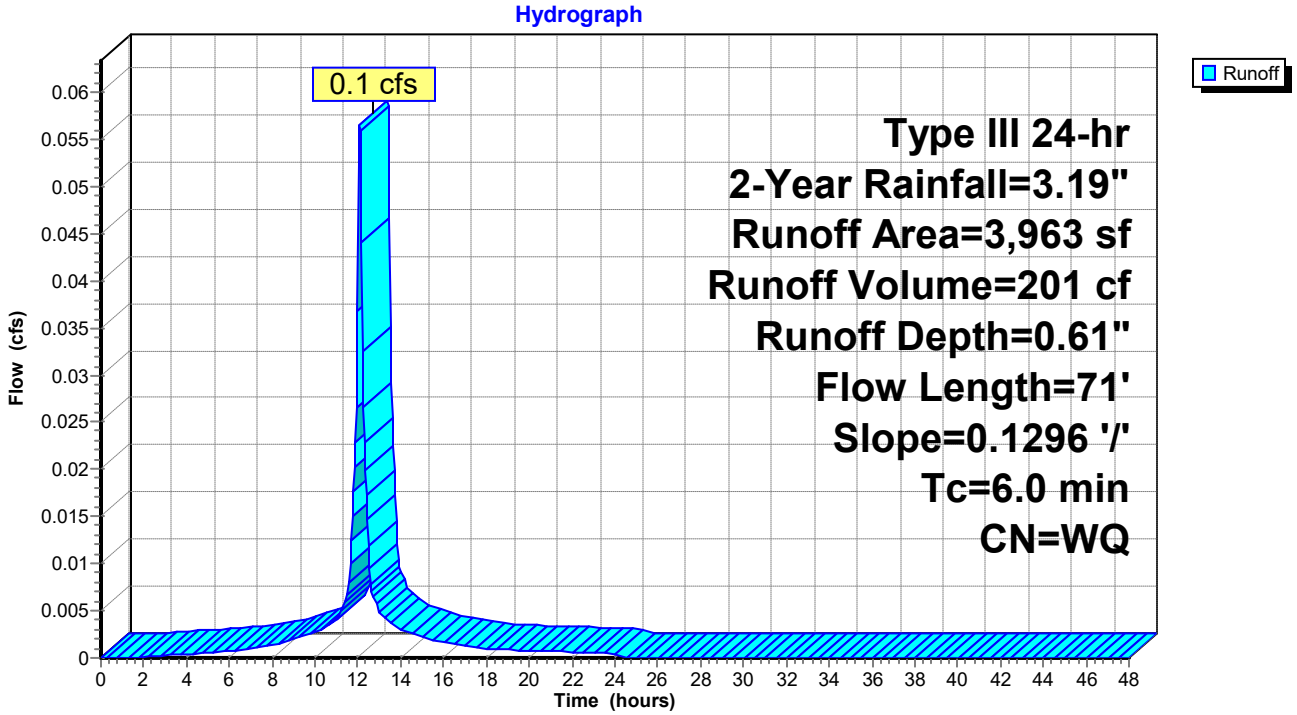
Runoff = 0.1 cfs @ 12.09 hrs, Volume= 201 cf, Depth= 0.61"
Routed to Link DP-4 : Offsite to Northwest

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.19"

Area (sf)	CN	Description
2,563	39	>75% Grass cover, Good, HSG A
211	98	Paved parking, HSG A
604	98	Roofs, HSG A
585	30	Woods, Good, HSG A
3,963		Weighted Average
3,148	37	79.43% Pervious Area
815	98	20.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	71	0.1296	0.22		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
5.3	71	Total, Increased to minimum Tc = 6.0 min			

Subcatchment PS-4:



Summary for Pond 1P: Subsurface Detention Basin

Inflow Area = 74,573 sf, 48.17% Impervious, Inflow Depth = 1.42" for 2-Year event
Inflow = 2.5 cfs @ 12.10 hrs, Volume= 8,855 cf
Outflow = 0.5 cfs @ 12.51 hrs, Volume= 8,855 cf, Atten= 78%, Lag= 24.9 min
Primary = 0.5 cfs @ 12.51 hrs, Volume= 8,855 cf
Routed to Link DP-1 : Offsite to Northeast

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 103.16' @ 12.51 hrs Surf.Area= 3,781 sf Storage= 2,860 cf

Plug-Flow detention time= 64.9 min calculated for 8,845 cf (100% of inflow)
Center-of-Mass det. time= 65.3 min (822.4 - 757.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	102.00'	3,453 cf	**55.75'W x 67.82'L x 3.75'H Field A** 14,178 cf Overall - 5,546 cf Embedded = 8,632 cf x 40.0% Voids
#2A	102.50'	5,546 cf	**ADS_StormTech SC-800 +Cap** x 108 Inside #1 Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap 108 Chambers in 12 Rows Cap Storage= 3.4 cf x 2 x 12 rows = 82.1 cf
		8,999 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	102.00'	**12.0" Round Culvert** L= 98.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 102.00' / 93.00' S= 0.0918 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	102.00'	**4.0" W x 4.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	103.25'	**3.0" W x 3.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	104.00'	**7.0" W x 3.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 1	105.50'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.5 cfs @ 12.51 hrs HW=103.16' (Free Discharge)
└**1=Culvert** (Passes 0.5 cfs of 3.8 cfs potential flow)
├**2=Orifice/Grate** (Orifice Controls 0.5 cfs @ 4.78 fps)
├**3=Orifice/Grate** (Controls 0.0 cfs)
├**4=Orifice/Grate** (Controls 0.0 cfs)
└**5=Sharp-Crested Rectangular Weir** (Controls 0.0 cfs)

Pond 1P: Subsurface Detention Basin - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-800 +Cap (ADS StormTech® SC-800 with cap volume)
Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf
Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap
Cap Storage= 3.4 cf x 2 x 12 rows = 82.1 cf

51.0" Wide + 3.0" Spacing = 54.0" C-C Row Spacing

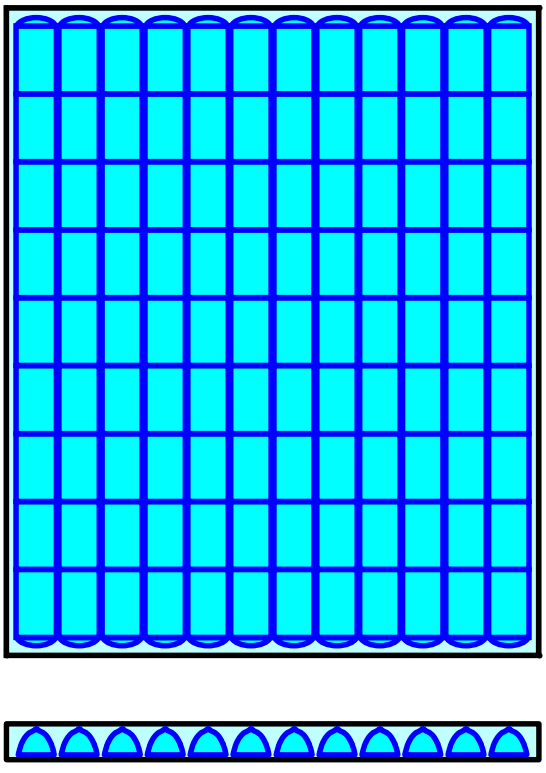
9 Chambers/Row x 7.12' Long +0.88' Cap Length x 2 = 65.82' Row Length +12.0" End Stone x 2 = 67.82' Base Length
12 Rows x 51.0" Wide + 3.0" Spacing x 11 + 12.0" Side Stone x 2 = 55.75' Base Width
6.0" Stone Base + 33.0" Chamber Height + 6.0" Stone Cover = 3.75' Field Height

108 Chambers x 50.6 cf + 3.4 cf Cap Volume x 2 x 12 Rows = 5,546.0 cf Chamber Storage

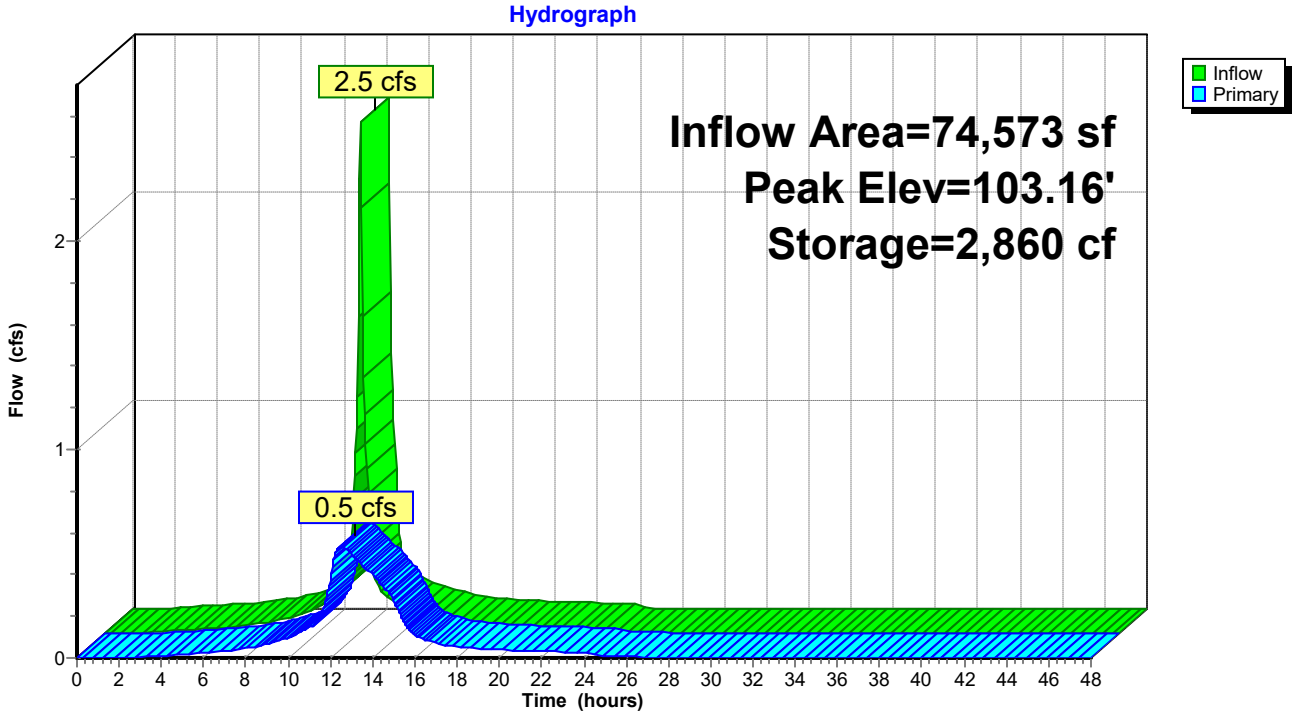
14,177.9 cf Field - 5,546.0 cf Chambers = 8,631.9 cf Stone x 40.0% Voids = 3,452.8 cf Stone Storage

Chamber Storage + Stone Storage = 8,998.8 cf = 0.207 af
Overall Storage Efficiency = 63.5%
Overall System Size = 67.82' x 55.75' x 3.75'

108 Chambers
525.1 cy Field
319.7 cy Stone



Pond 1P: Subsurface Detention Basin

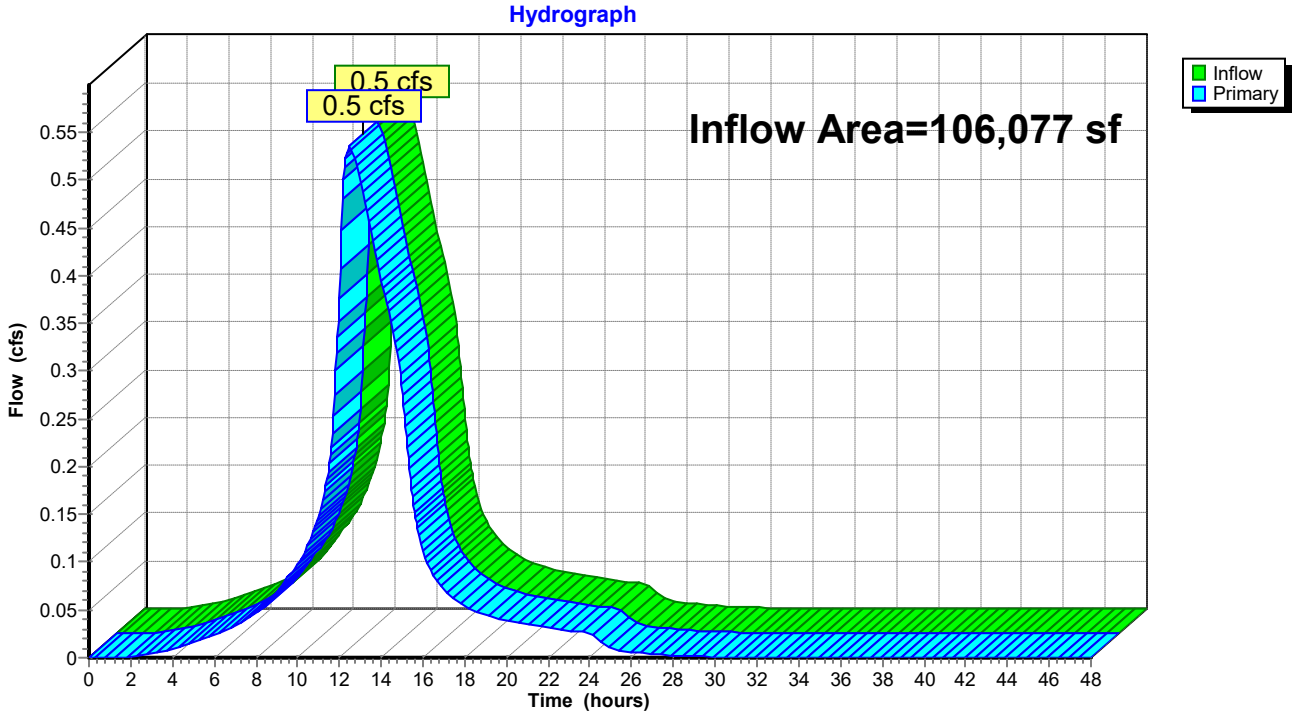


Summary for Link DP-1: Offsite to Northeast

Inflow Area = 106,077 sf, 34.05% Impervious, Inflow Depth = 1.01" for 2-Year event
Inflow = 0.5 cfs @ 12.49 hrs, Volume= 8,902 cf
Primary = 0.5 cfs @ 12.49 hrs, Volume= 8,902 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link DP-1: Offsite to Northeast

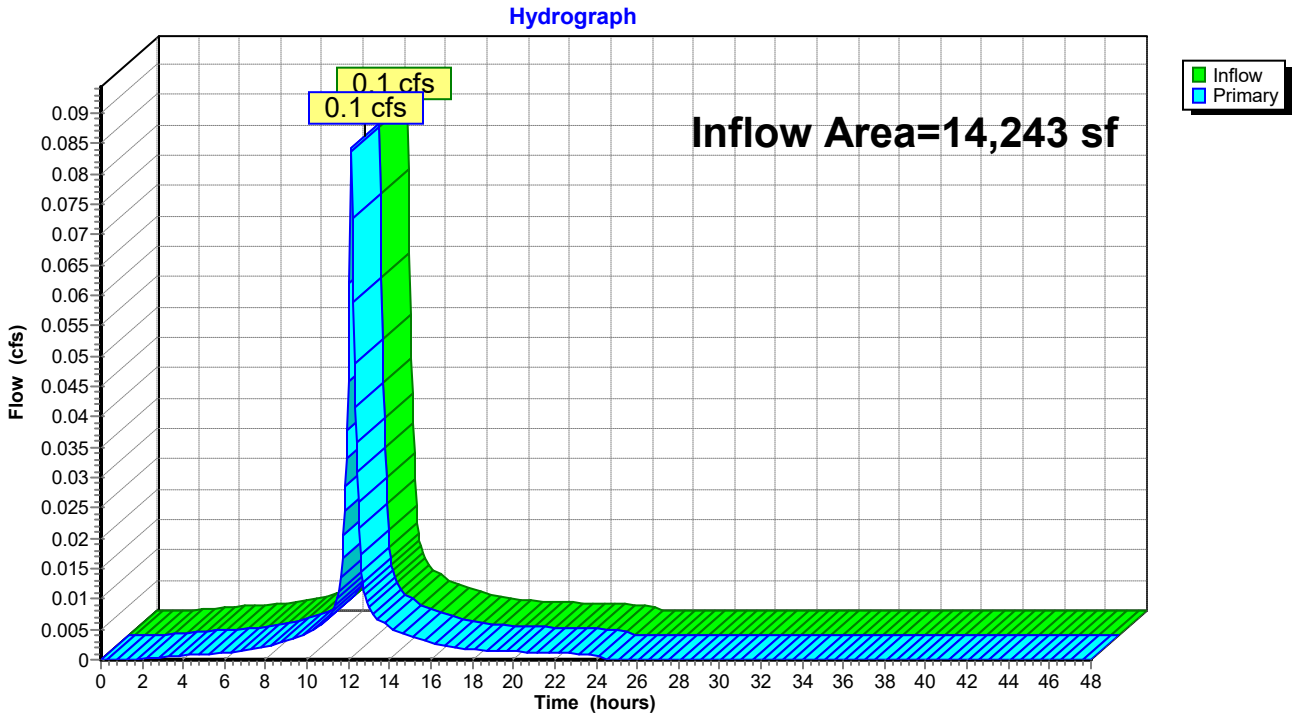


Summary for Link DP-2: Offsite to South

Inflow Area = 14,243 sf, 9.63% Impervious, Inflow Depth = 0.29" for 2-Year event
Inflow = 0.1 cfs @ 12.14 hrs, Volume= 338 cf
Primary = 0.1 cfs @ 12.14 hrs, Volume= 338 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link DP-2: Offsite to South

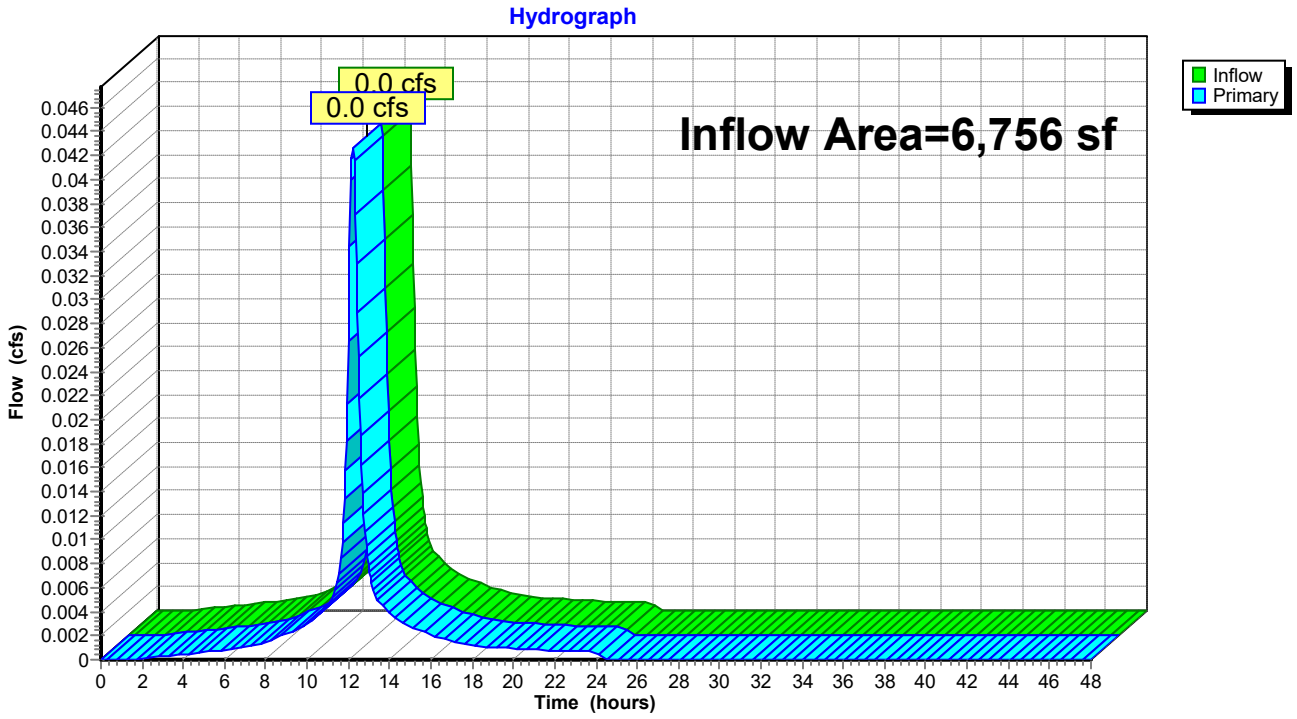


Summary for Link DP-3: Walnut Street

Inflow Area = 6,756 sf, 14.16% Impervious, Inflow Depth = 0.42" for 2-Year event
Inflow = 0.0 cfs @ 12.22 hrs, Volume= 236 cf
Primary = 0.0 cfs @ 12.22 hrs, Volume= 236 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link DP-3: Walnut Street

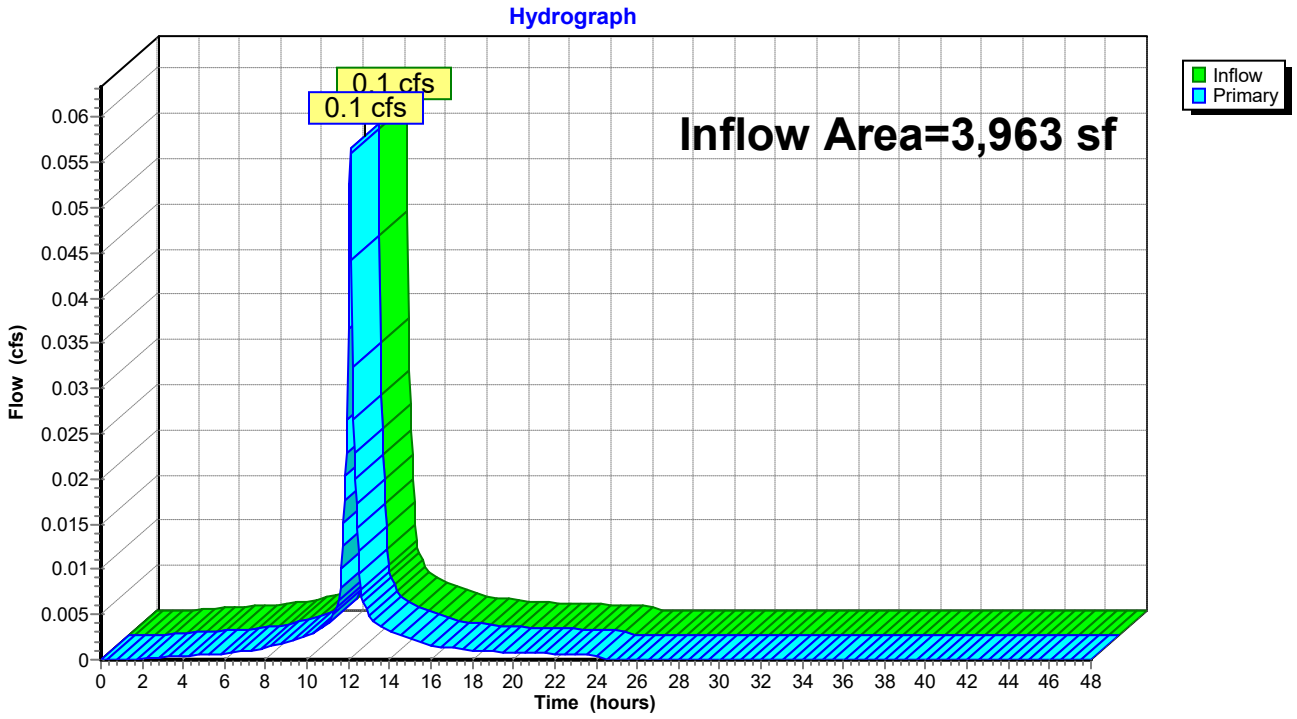


Summary for Link DP-4: Offsite to Northwest

Inflow Area = 3,963 sf, 20.57% Impervious, Inflow Depth = 0.61" for 2-Year event
Inflow = 0.1 cfs @ 12.09 hrs, Volume= 201 cf
Primary = 0.1 cfs @ 12.09 hrs, Volume= 201 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link DP-4: Offsite to Northwest



Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment PS-1A: Runoff Area=31,504 sf 0.61% Impervious Runoff Depth=0.12"
Flow Length=174' Tc=10.8 min CN=WQ Runoff=0.0 cfs 309 cf

Subcatchment PS-1B: Runoff Area=74,573 sf 48.17% Impervious Runoff Depth=2.49"
Flow Length=217' Tc=6.7 min CN=WQ Runoff=4.0 cfs 15,474 cf

Subcatchment PS-2: Subcat PS-2 Runoff Area=14,243 sf 9.63% Impervious Runoff Depth=0.67"
Flow Length=92' Slope=0.0440 '/' Tc=10.1 min CN=WQ Runoff=0.1 cfs 790 cf

Subcatchment PS-3A: Runoff Area=4,834 sf 14.73% Impervious Runoff Depth=0.92"
Flow Length=107' Slope=0.0110 '/' Tc=19.8 min CN=WQ Runoff=0.1 cfs 372 cf

Subcatchment PS-3B: Runoff Area=497 sf 48.79% Impervious Runoff Depth=2.52"
Tc=6.0 min CN=WQ Runoff=0.0 cfs 104 cf

Subcatchment PS-3C: Runoff Area=1,425 sf 0.17% Impervious Runoff Depth=0.24"
Flow Length=39' Slope=0.0103 '/' Tc=9.0 min CN=WQ Runoff=0.0 cfs 29 cf

Subcatchment PS-4: Runoff Area=3,963 sf 20.57% Impervious Runoff Depth=1.17"
Flow Length=71' Slope=0.1296 '/' Tc=6.0 min CN=WQ Runoff=0.1 cfs 385 cf

Pond 1P: Subsurface Detention Basin Peak Elev=103.83' Storage=4,895 cf Inflow=4.0 cfs 15,474 cf
Outflow=0.9 cfs 15,474 cf

Link DP-1: Offsite to Northeast Inflow=0.9 cfs 15,782 cf
Primary=0.9 cfs 15,782 cf

Link DP-2: Offsite to South Inflow=0.1 cfs 790 cf
Primary=0.1 cfs 790 cf

Link DP-3: Walnut Street Inflow=0.1 cfs 505 cf
Primary=0.1 cfs 505 cf

Link DP-4: Offsite to Northwest Inflow=0.1 cfs 385 cf
Primary=0.1 cfs 385 cf

Total Runoff Area = 131,039 sf Runoff Volume = 17,462 cf Average Runoff Depth = 1.60"
70.04% Pervious = 91,779 sf 29.96% Impervious = 39,260 sf

Summary for Subcatchment PS-1A:

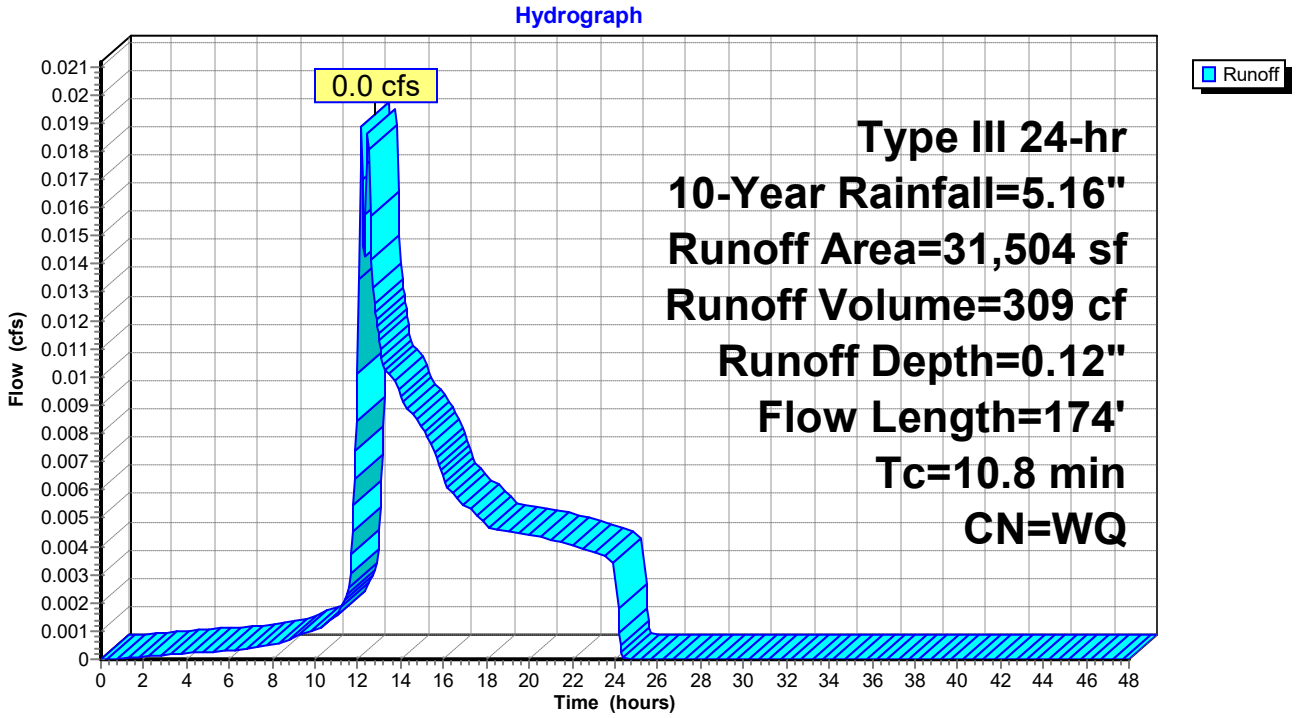
Runoff = 0.0 cfs @ 12.15 hrs, Volume= 309 cf, Depth= 0.12"
Routed to Link DP-1 : Offsite to Northeast

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.16"

Area (sf)	CN	Description
10,927	39	>75% Grass cover, Good, HSG A
192	98	Paved parking, HSG A
20,385	30	Woods, Good, HSG A
31,504		Weighted Average
31,312	33	99.39% Pervious Area
192	98	0.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	100	0.1500	0.17		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.7	36	0.0278	0.83		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	38	0.6053	3.89		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
10.8	174	Total			

Subcatchment PS-1A:



Summary for Subcatchment PS-1B:

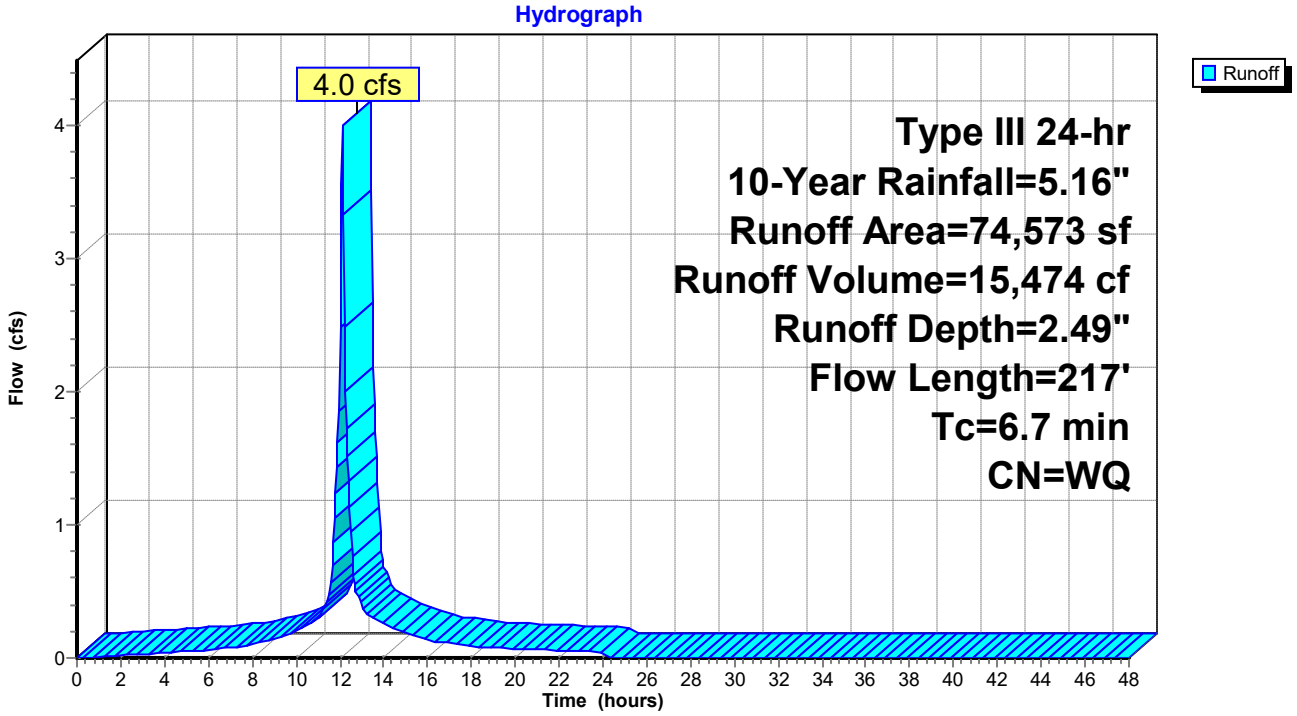
Runoff = 4.0 cfs @ 12.10 hrs, Volume= 15,474 cf, Depth= 2.49"
Routed to Pond 1P : Subsurface Detention Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.16"

Area (sf)	CN	Description
37,767	39	>75% Grass cover, Good, HSG A
28,686	98	Paved parking, HSG A
7,238	98	Roofs, HSG A
882	30	Woods, Good, HSG A
74,573		Weighted Average
38,649	39	51.83% Pervious Area
35,924	98	48.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	29	0.0207	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
0.4	25	0.0260	1.12		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.8	132	0.0181	2.73		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	31	0.0100	4.54	3.56	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
6.7	217	Total			

Subcatchment PS-1B:



Summary for Subcatchment PS-2: Subcat PS-2

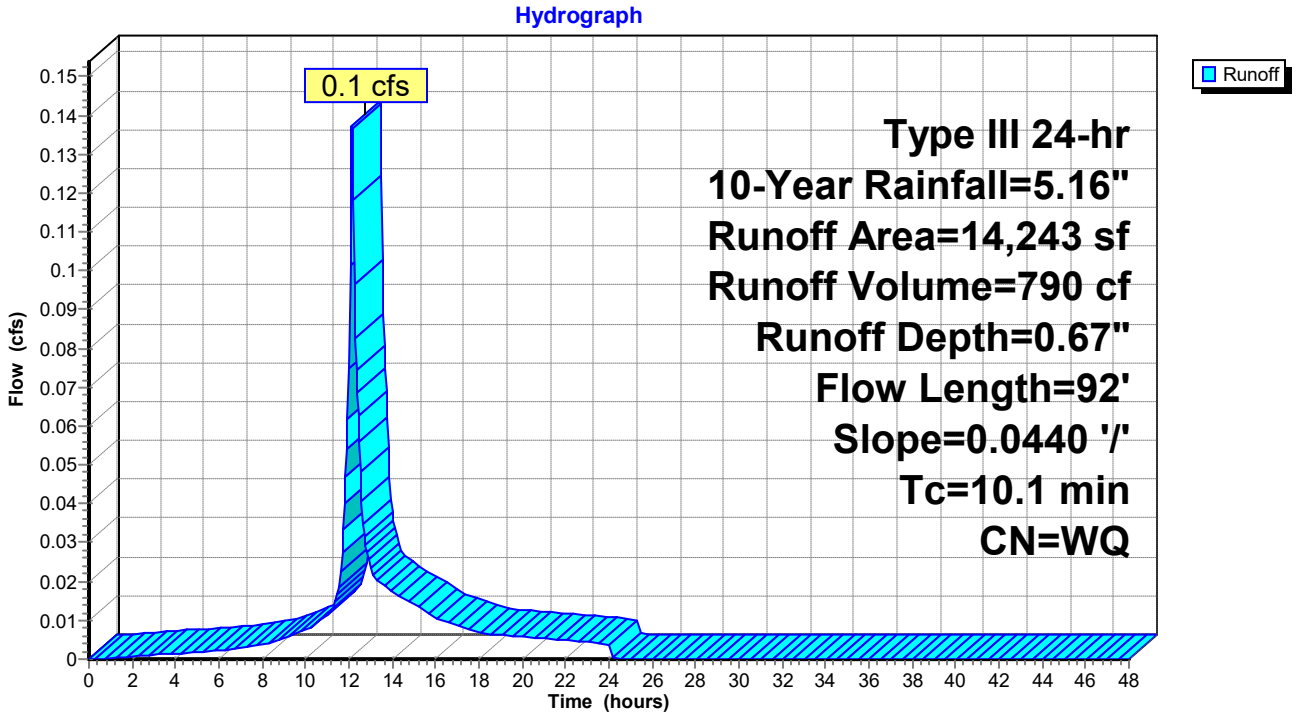
Runoff = 0.1 cfs @ 12.14 hrs, Volume= 790 cf, Depth= 0.67"
Routed to Link DP-2 : Offsite to South

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.16"

Area (sf)	CN	Description
11,589	39	>75% Grass cover, Good, HSG A
738	98	Paved parking, HSG A
634	98	Roofs, HSG A
1,282	30	Woods, Good, HSG A
14,243		Weighted Average
12,871	38	90.37% Pervious Area
1,372	98	9.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	92	0.0440	0.15		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"

Subcatchment PS-2: Subcat PS-2



Summary for Subcatchment PS-3A:

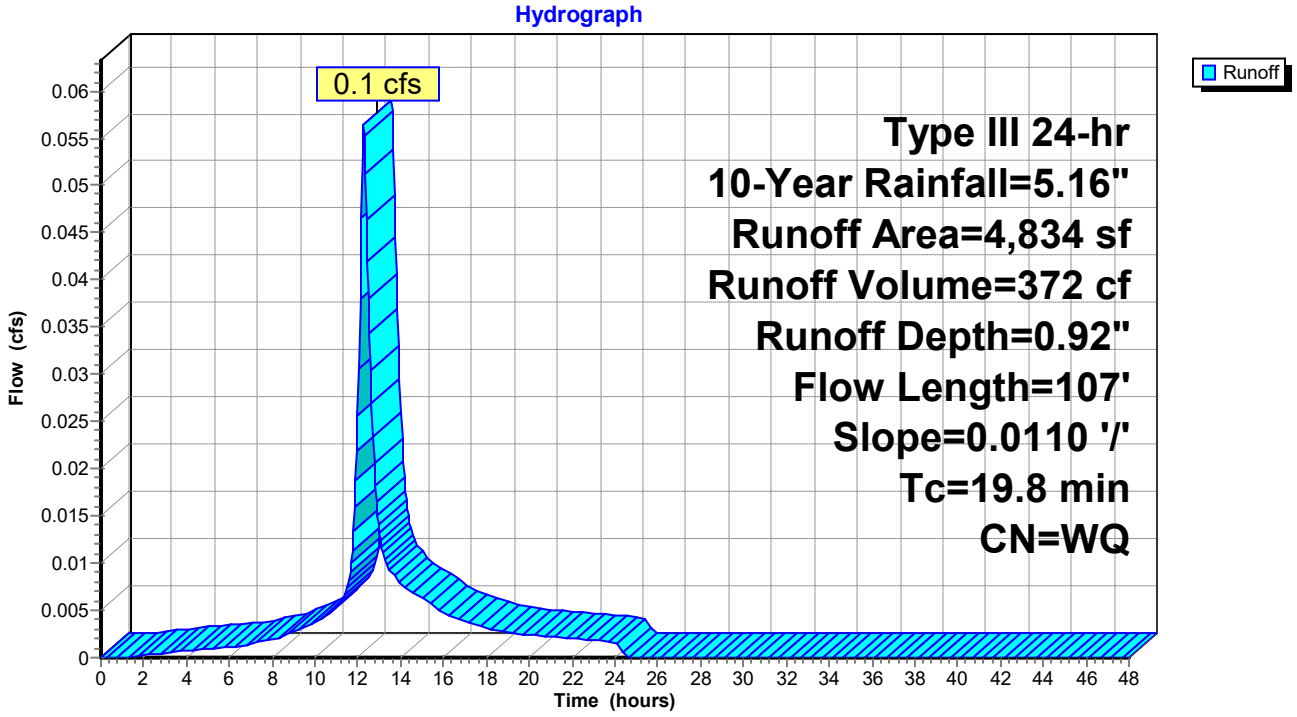
Runoff = 0.1 cfs @ 12.26 hrs, Volume= 372 cf, Depth= 0.92"
Routed to Link DP-3 : Walnut Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.16"

Area (sf)	CN	Description
4,122	39	>75% Grass cover, Good, HSG A
149	98	Paved parking, HSG A
562	98	Roofs, HSG A
4,834		Weighted Average
4,122	39	85.27% Pervious Area
712	98	14.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.8	107	0.0110	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"

Subcatchment PS-3A:



Summary for Subcatchment PS-3B:

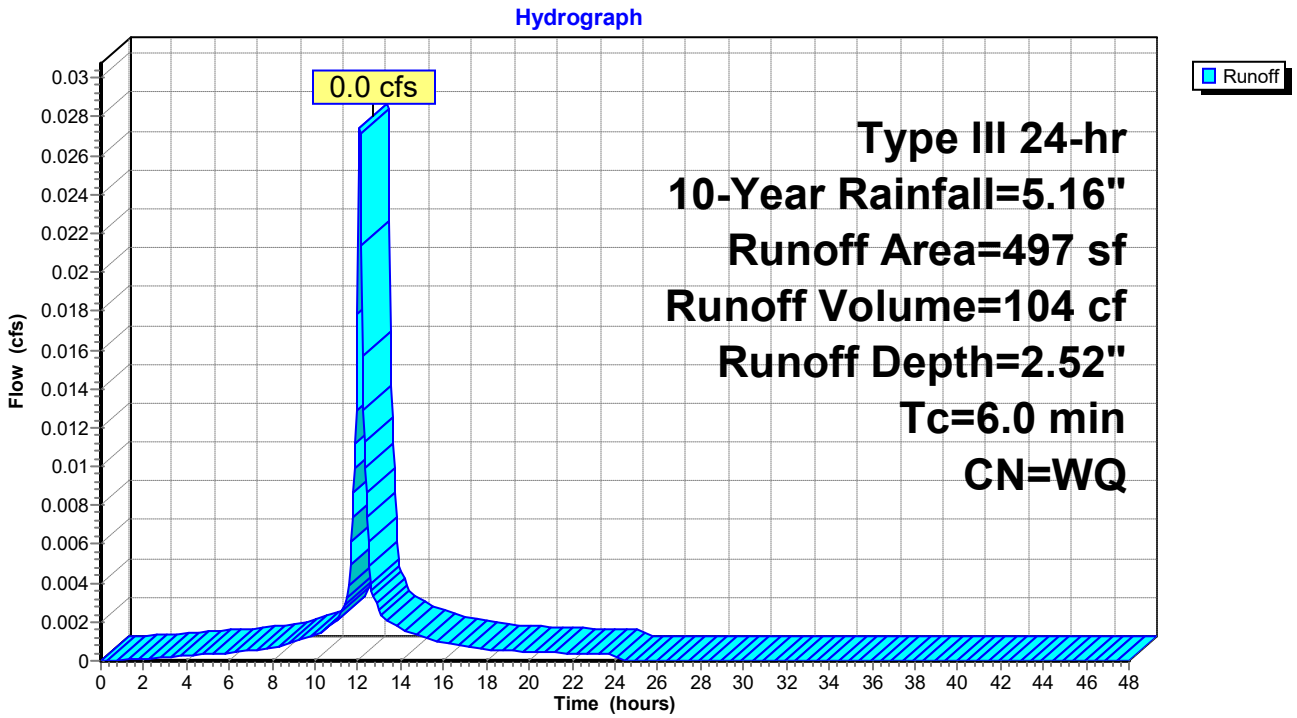
Runoff = 0.0 cfs @ 12.09 hrs, Volume= 104 cf, Depth= 2.52"
Routed to Link DP-3 : Walnut Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.16"

Area (sf)	CN	Description
255	39	>75% Grass cover, Good, HSG A
242	98	Roofs, HSG A
497		Weighted Average
255	39	51.21% Pervious Area
242	98	48.79% Impervious Area

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

Subcatchment PS-3B:



Summary for Subcatchment PS-3C:

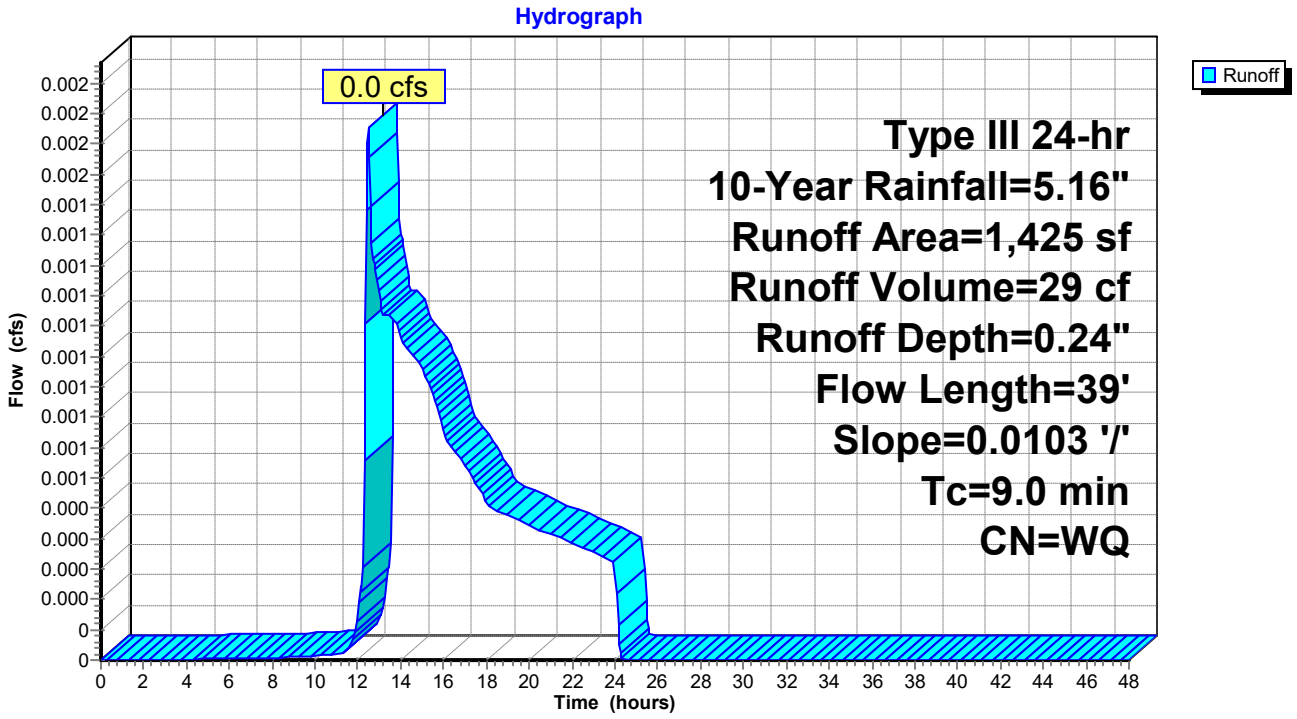
Runoff = 0.0 cfs @ 12.49 hrs, Volume= 29 cf, Depth= 0.24"
Routed to Link DP-3 : Walnut Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.16"

Area (sf)	CN	Description
1,422	39	>75% Grass cover, Good, HSG A
2	98	Paved parking, HSG A
1,425		Weighted Average
1,422	39	99.83% Pervious Area
2	98	0.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	39	0.0103	0.07		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"

Subcatchment PS-3C:



Summary for Subcatchment PS-4:

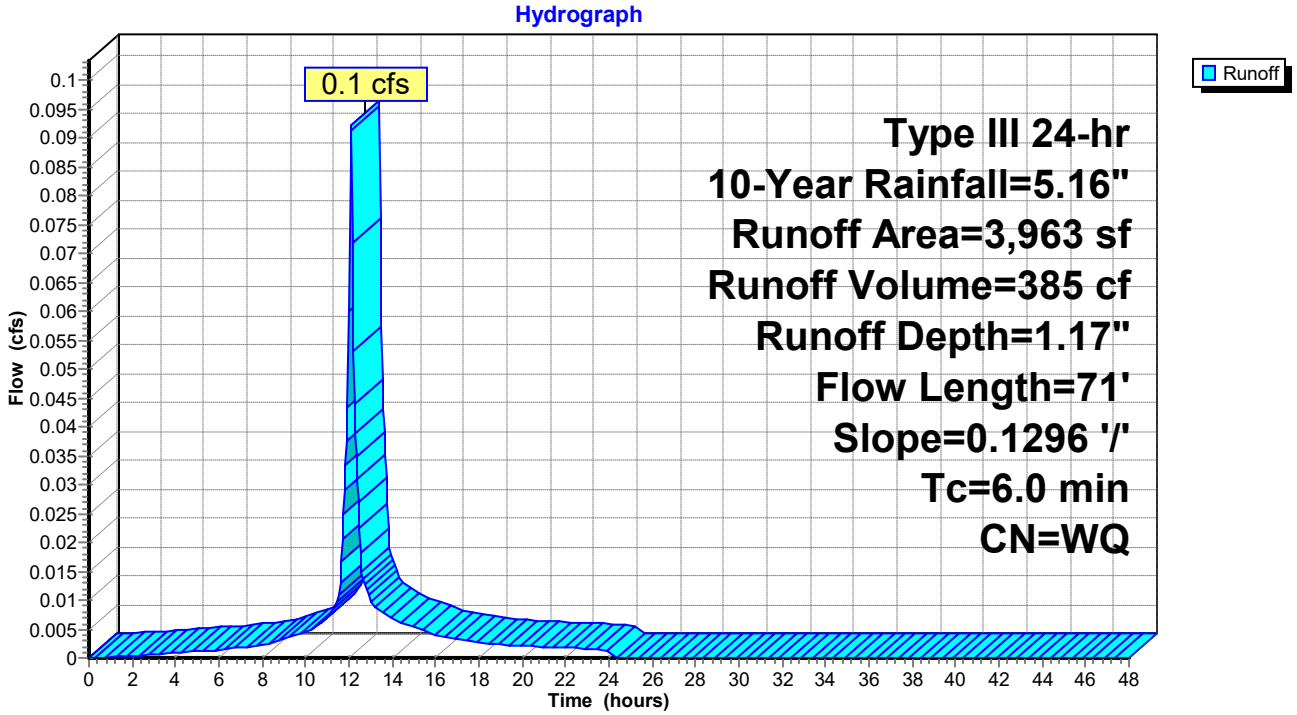
Runoff = 0.1 cfs @ 12.09 hrs, Volume= 385 cf, Depth= 1.17"
Routed to Link DP-4 : Offsite to Northwest

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.16"

Area (sf)	CN	Description
2,563	39	>75% Grass cover, Good, HSG A
211	98	Paved parking, HSG A
604	98	Roofs, HSG A
585	30	Woods, Good, HSG A
3,963		Weighted Average
3,148	37	79.43% Pervious Area
815	98	20.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	71	0.1296	0.22		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
5.3	71	Total, Increased to minimum Tc = 6.0 min			

Subcatchment PS-4:



Summary for Pond 1P: Subsurface Detention Basin

Inflow Area = 74,573 sf, 48.17% Impervious, Inflow Depth = 2.49" for 10-Year event
Inflow = 4.0 cfs @ 12.10 hrs, Volume= 15,474 cf
Outflow = 0.9 cfs @ 12.51 hrs, Volume= 15,474 cf, Atten= 78%, Lag= 25.1 min
Primary = 0.9 cfs @ 12.51 hrs, Volume= 15,474 cf
Routed to Link DP-1 : Offsite to Northeast

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 103.83' @ 12.51 hrs Surf.Area= 3,781 sf Storage= 4,895 cf

Plug-Flow detention time= 70.3 min calculated for 15,457 cf (100% of inflow)
Center-of-Mass det. time= 70.6 min (830.8 - 760.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	102.00'	3,453 cf	**55.75'W x 67.82'L x 3.75'H Field A** 14,178 cf Overall - 5,546 cf Embedded = 8,632 cf x 40.0% Voids
#2A	102.50'	5,546 cf	**ADS_StormTech SC-800 +Cap** x 108 Inside #1 Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap 108 Chambers in 12 Rows Cap Storage= 3.4 cf x 2 x 12 rows = 82.1 cf
		8,999 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	102.00'	**12.0" Round Culvert** L= 98.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 102.00' / 93.00' S= 0.0918 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	102.00'	**4.0" W x 4.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	103.25'	**3.0" W x 3.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	104.00'	**7.0" W x 3.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 1	105.50'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.9 cfs @ 12.51 hrs HW=103.83' (Free Discharge)
└**1=Culvert** (Passes 0.9 cfs of 5.5 cfs potential flow)
├**2=Orifice/Grate** (Orifice Controls 0.7 cfs @ 6.21 fps)
├**3=Orifice/Grate** (Orifice Controls 0.2 cfs @ 3.24 fps)
├**4=Orifice/Grate** (Controls 0.0 cfs)
└**5=Sharp-Crested Rectangular Weir** (Controls 0.0 cfs)

Pond 1P: Subsurface Detention Basin - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-800 +Cap (ADS StormTech® SC-800 with cap volume)
Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf
Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap
Cap Storage= 3.4 cf x 2 x 12 rows = 82.1 cf

51.0" Wide + 3.0" Spacing = 54.0" C-C Row Spacing

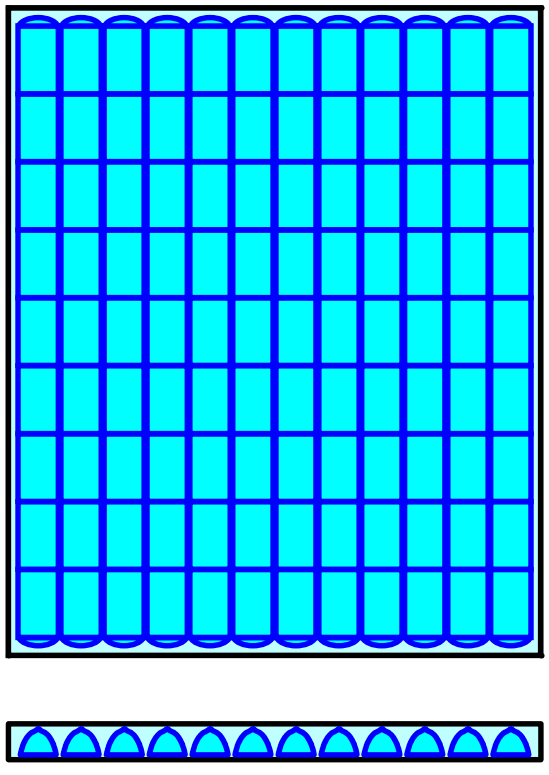
9 Chambers/Row x 7.12' Long +0.88' Cap Length x 2 = 65.82' Row Length +12.0" End Stone x 2 = 67.82' Base Length
12 Rows x 51.0" Wide + 3.0" Spacing x 11 + 12.0" Side Stone x 2 = 55.75' Base Width
6.0" Stone Base + 33.0" Chamber Height + 6.0" Stone Cover = 3.75' Field Height

108 Chambers x 50.6 cf + 3.4 cf Cap Volume x 2 x 12 Rows = 5,546.0 cf Chamber Storage

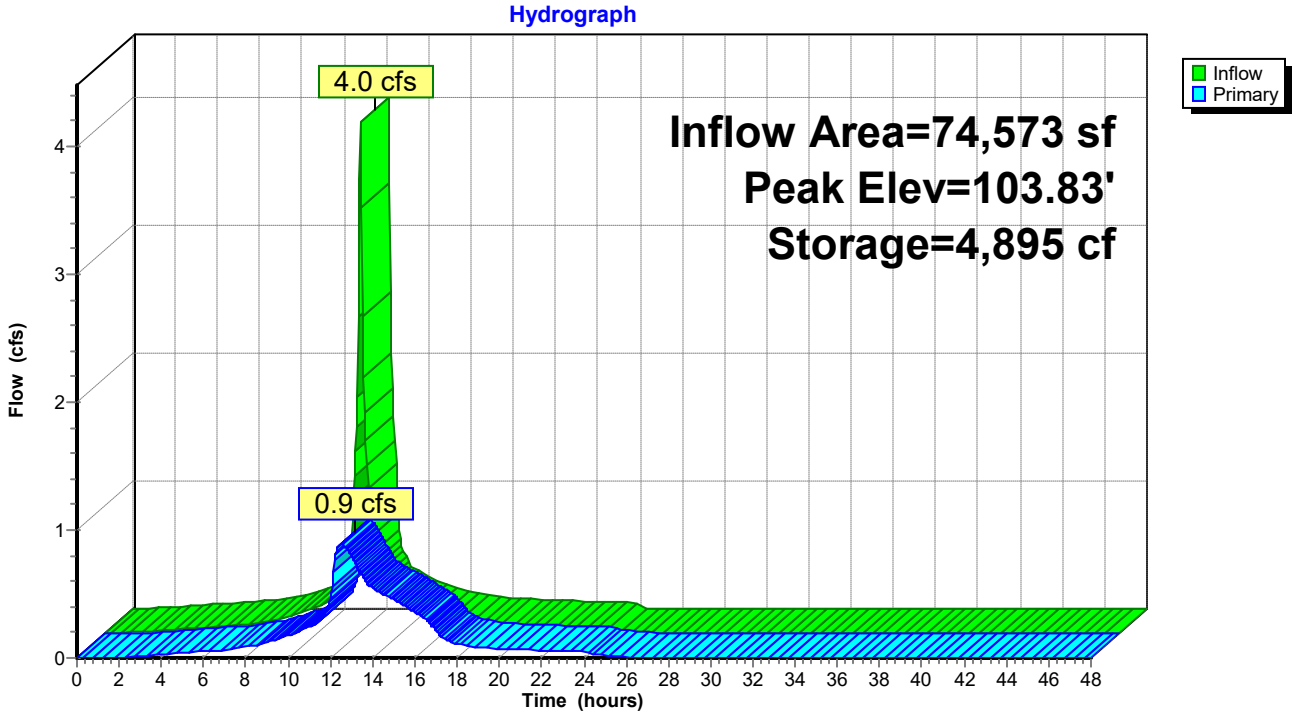
14,177.9 cf Field - 5,546.0 cf Chambers = 8,631.9 cf Stone x 40.0% Voids = 3,452.8 cf Stone Storage

Chamber Storage + Stone Storage = 8,998.8 cf = 0.207 af
Overall Storage Efficiency = 63.5%
Overall System Size = 67.82' x 55.75' x 3.75'

108 Chambers
525.1 cy Field
319.7 cy Stone



Pond 1P: Subsurface Detention Basin

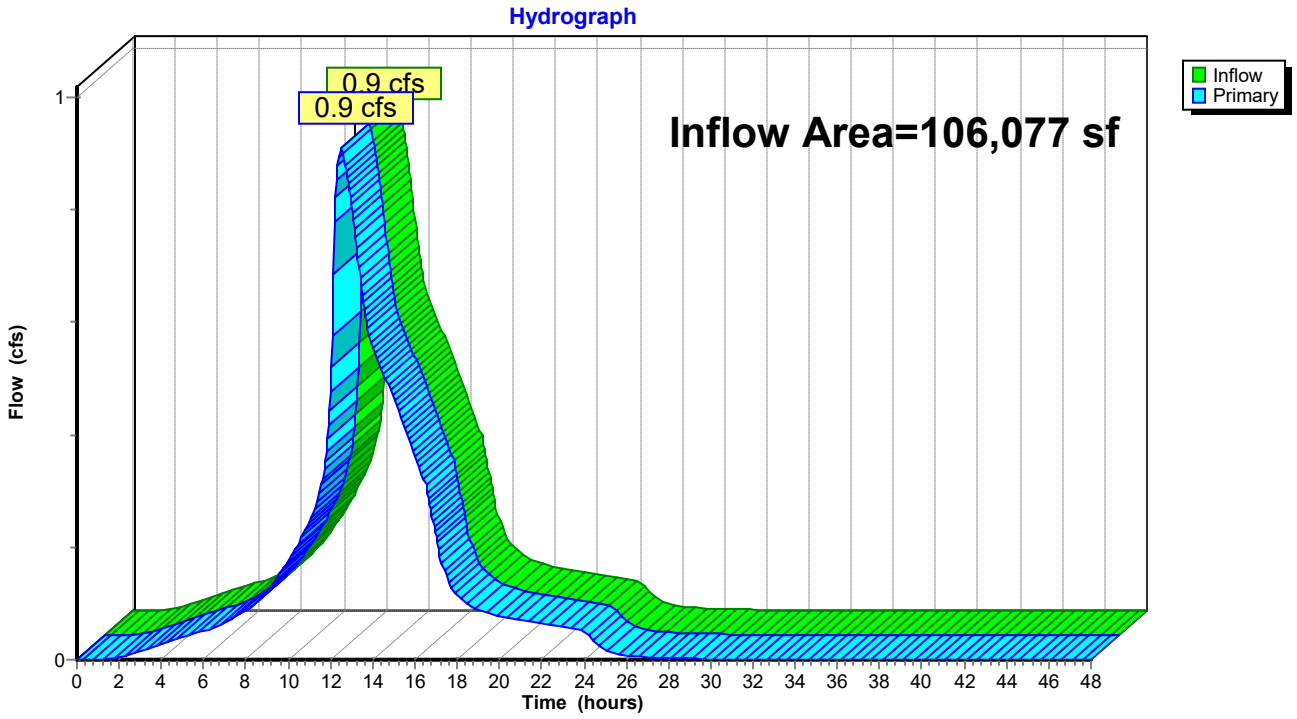


Summary for Link DP-1: Offsite to Northeast

Inflow Area = 106,077 sf, 34.05% Impervious, Inflow Depth = 1.79" for 10-Year event
Inflow = 0.9 cfs @ 12.51 hrs, Volume= 15,782 cf
Primary = 0.9 cfs @ 12.51 hrs, Volume= 15,782 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link DP-1: Offsite to Northeast

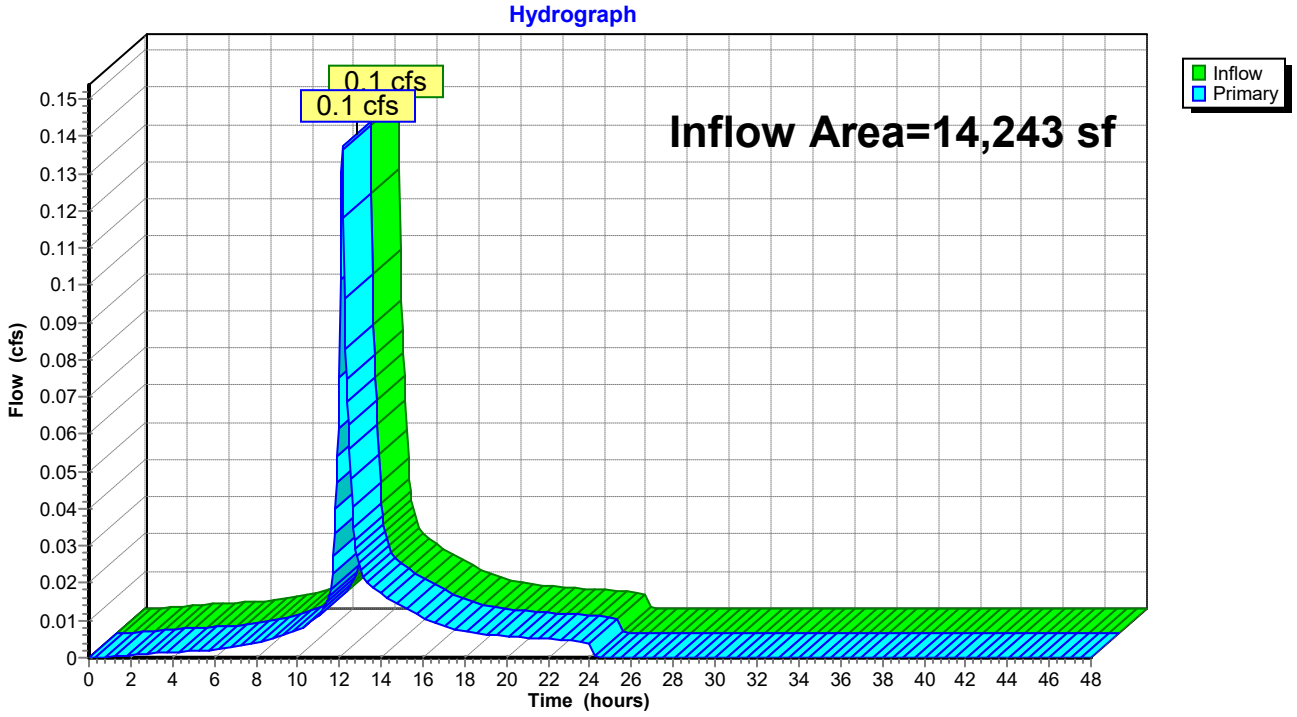


Summary for Link DP-2: Offsite to South

Inflow Area = 14,243 sf, 9.63% Impervious, Inflow Depth = 0.67" for 10-Year event
Inflow = 0.1 cfs @ 12.14 hrs, Volume= 790 cf
Primary = 0.1 cfs @ 12.14 hrs, Volume= 790 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link DP-2: Offsite to South

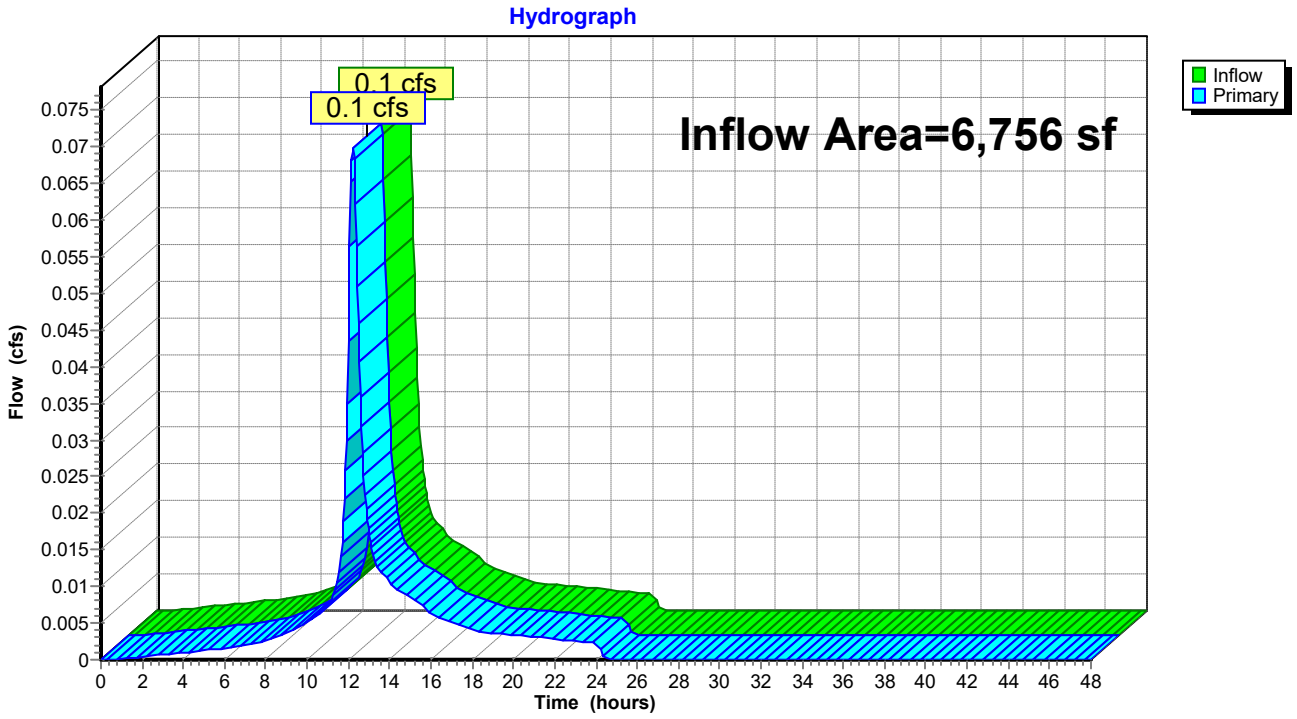


Summary for Link DP-3: Walnut Street

Inflow Area = 6,756 sf, 14.16% Impervious, Inflow Depth = 0.90" for 10-Year event
Inflow = 0.1 cfs @ 12.23 hrs, Volume= 505 cf
Primary = 0.1 cfs @ 12.23 hrs, Volume= 505 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link DP-3: Walnut Street

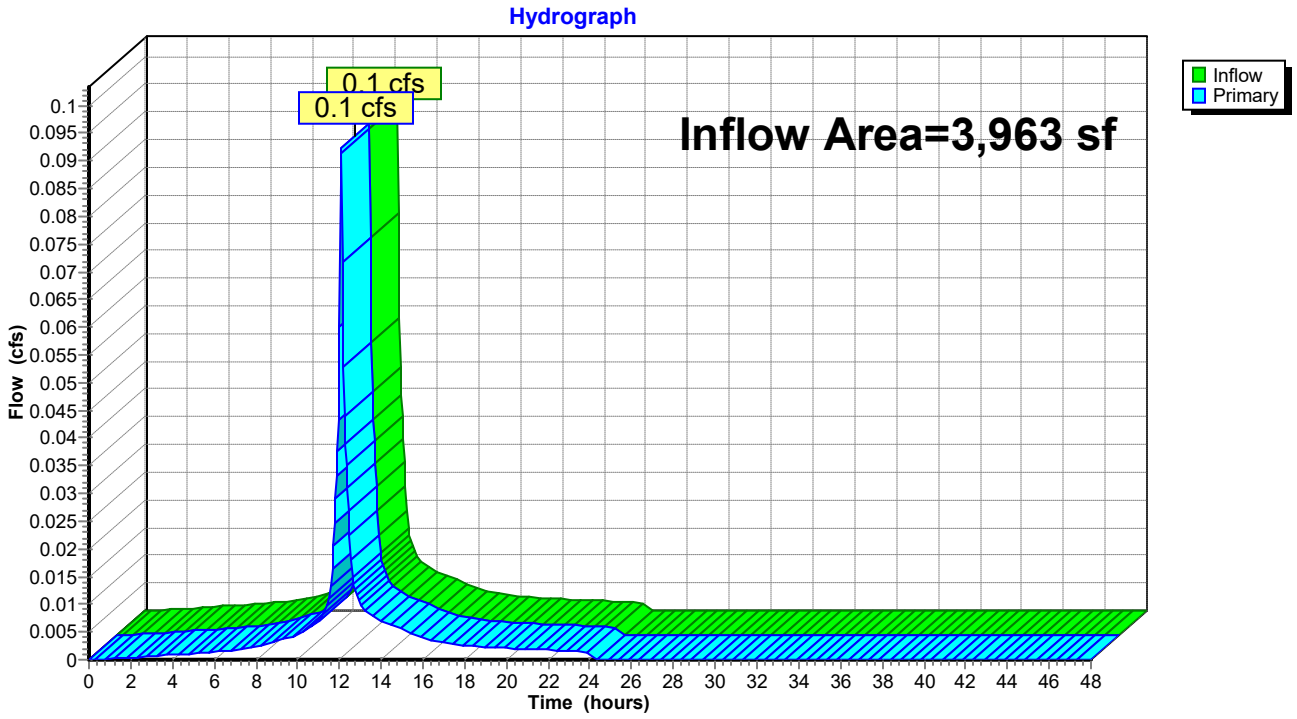


Summary for Link DP-4: Offsite to Northwest

Inflow Area = 3,963 sf, 20.57% Impervious, Inflow Depth = 1.17" for 10-Year event
Inflow = 0.1 cfs @ 12.09 hrs, Volume= 385 cf
Primary = 0.1 cfs @ 12.09 hrs, Volume= 385 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link DP-4: Offsite to Northwest



Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment PS-1A: Runoff Area=31,504 sf 0.61% Impervious Runoff Depth=0.81"
Flow Length=174' Tc=10.8 min CN=WQ Runoff=0.3 cfs 2,114 cf

Subcatchment PS-1B: Runoff Area=74,573 sf 48.17% Impervious Runoff Depth=4.53"
Flow Length=217' Tc=6.7 min CN=WQ Runoff=7.2 cfs 28,122 cf

Subcatchment PS-2: Subcat PS-2 Runoff Area=14,243 sf 9.63% Impervious Runoff Depth=1.86"
Flow Length=92' Slope=0.0440 '/' Tc=10.1 min CN=WQ Runoff=0.4 cfs 2,204 cf

Subcatchment PS-3A: Runoff Area=4,834 sf 14.73% Impervious Runoff Depth=2.27"
Flow Length=107' Slope=0.0110 '/' Tc=19.8 min CN=WQ Runoff=0.2 cfs 915 cf

Subcatchment PS-3B: Runoff Area=497 sf 48.79% Impervious Runoff Depth=4.58"
Tc=6.0 min CN=WQ Runoff=0.0 cfs 190 cf

Subcatchment PS-3C: Runoff Area=1,425 sf 0.17% Impervious Runoff Depth=1.29"
Flow Length=39' Slope=0.0103 '/' Tc=9.0 min CN=WQ Runoff=0.0 cfs 153 cf

Subcatchment PS-4: Runoff Area=3,963 sf 20.57% Impervious Runoff Depth=2.55"
Flow Length=71' Slope=0.1296 '/' Tc=6.0 min CN=WQ Runoff=0.2 cfs 842 cf

Pond 1P: Subsurface Detention Basin Peak Elev=105.38' Storage=8,440 cf Inflow=7.2 cfs 28,122 cf
Outflow=2.2 cfs 28,122 cf

Link DP-1: Offsite to Northeast Inflow=2.4 cfs 30,236 cf
Primary=2.4 cfs 30,236 cf

Link DP-2: Offsite to South Inflow=0.4 cfs 2,204 cf
Primary=0.4 cfs 2,204 cf

Link DP-3: Walnut Street Inflow=0.2 cfs 1,258 cf
Primary=0.2 cfs 1,258 cf

Link DP-4: Offsite to Northwest Inflow=0.2 cfs 842 cf
Primary=0.2 cfs 842 cf

Total Runoff Area = 131,039 sf Runoff Volume = 34,540 cf Average Runoff Depth = 3.16"
70.04% Pervious = 91,779 sf 29.96% Impervious = 39,260 sf

Summary for Subcatchment PS-1A:

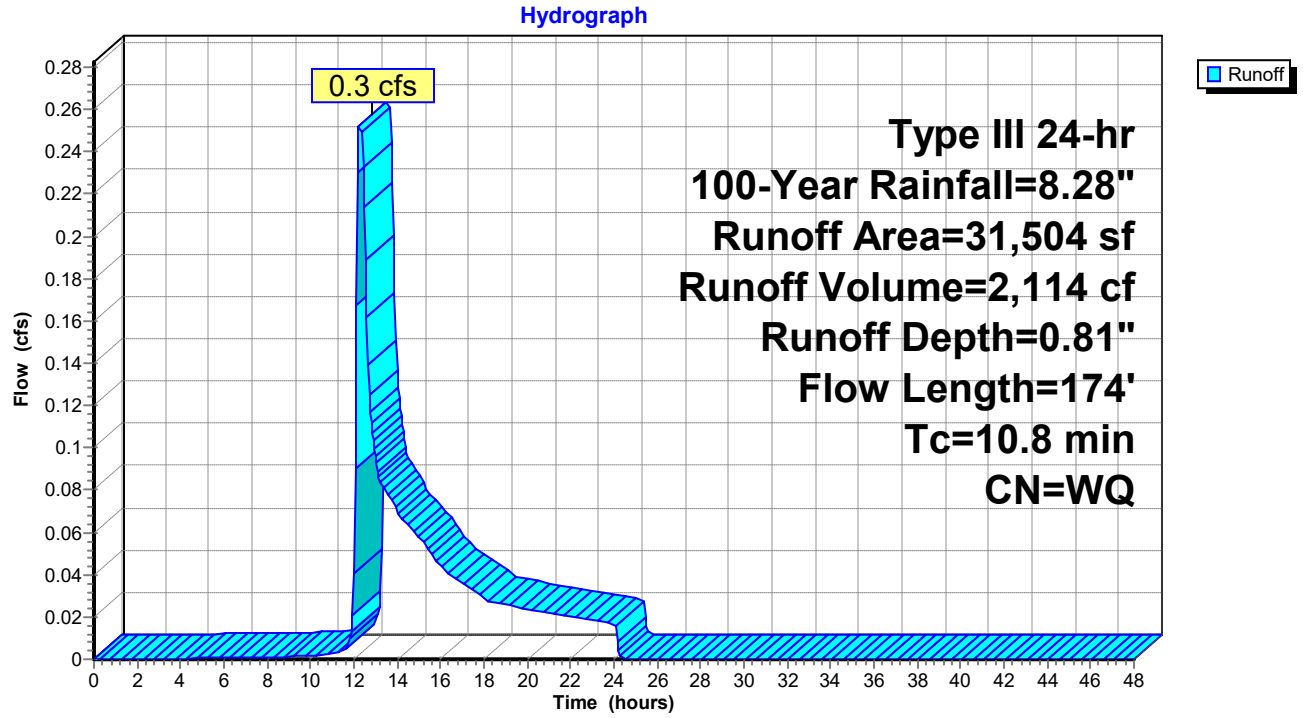
Runoff = 0.3 cfs @ 12.20 hrs, Volume= 2,114 cf, Depth= 0.81"
Routed to Link DP-1 : Offsite to Northeast

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.28"

Area (sf)	CN	Description
10,927	39	>75% Grass cover, Good, HSG A
192	98	Paved parking, HSG A
20,385	30	Woods, Good, HSG A
31,504		Weighted Average
31,312	33	99.39% Pervious Area
192	98	0.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	100	0.1500	0.17		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.7	36	0.0278	0.83		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	38	0.6053	3.89		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
10.8	174	Total			

Subcatchment PS-1A:



Summary for Subcatchment PS-1B:

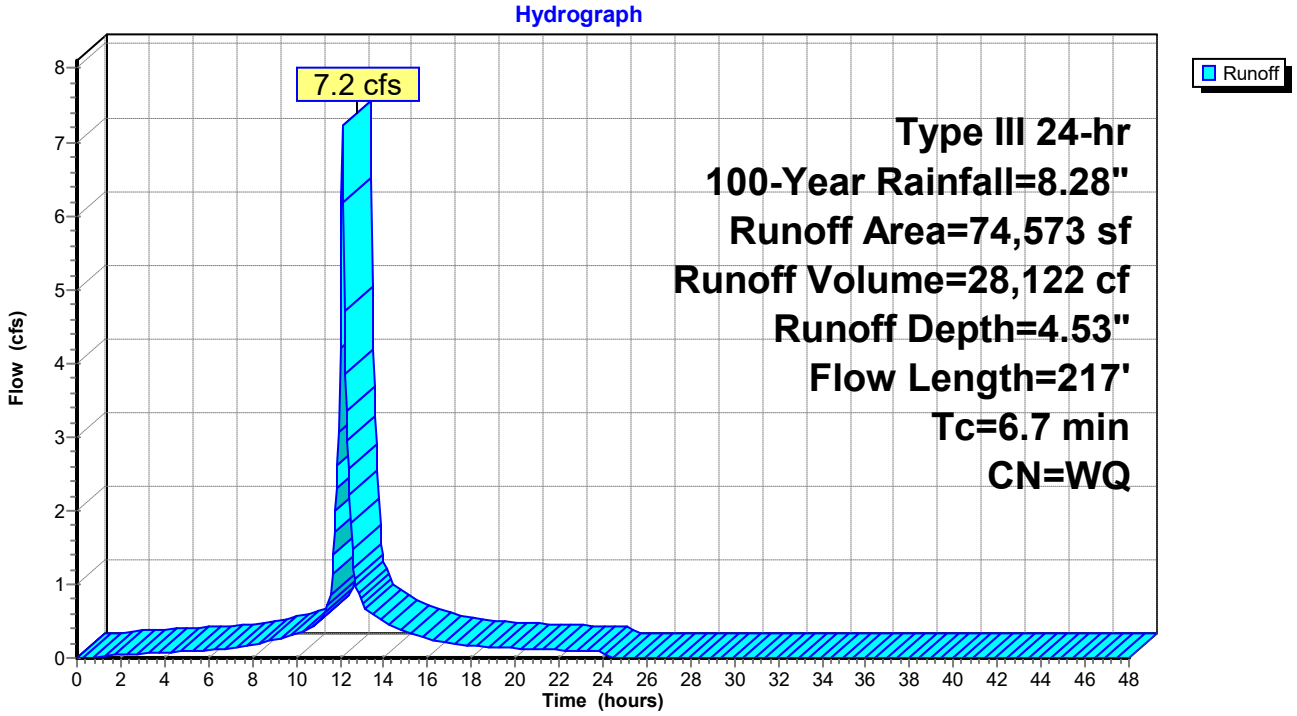
Runoff = 7.2 cfs @ 12.10 hrs, Volume= 28,122 cf, Depth= 4.53"
Routed to Pond 1P : Subsurface Detention Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.28"

Area (sf)	CN	Description
37,767	39	>75% Grass cover, Good, HSG A
28,686	98	Paved parking, HSG A
7,238	98	Roofs, HSG A
882	30	Woods, Good, HSG A
74,573		Weighted Average
38,649	39	51.83% Pervious Area
35,924	98	48.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	29	0.0207	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
0.4	25	0.0260	1.12		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.8	132	0.0181	2.73		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	31	0.0100	4.54	3.56	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
6.7	217	Total			

Subcatchment PS-1B:



Summary for Subcatchment PS-2: Subcat PS-2

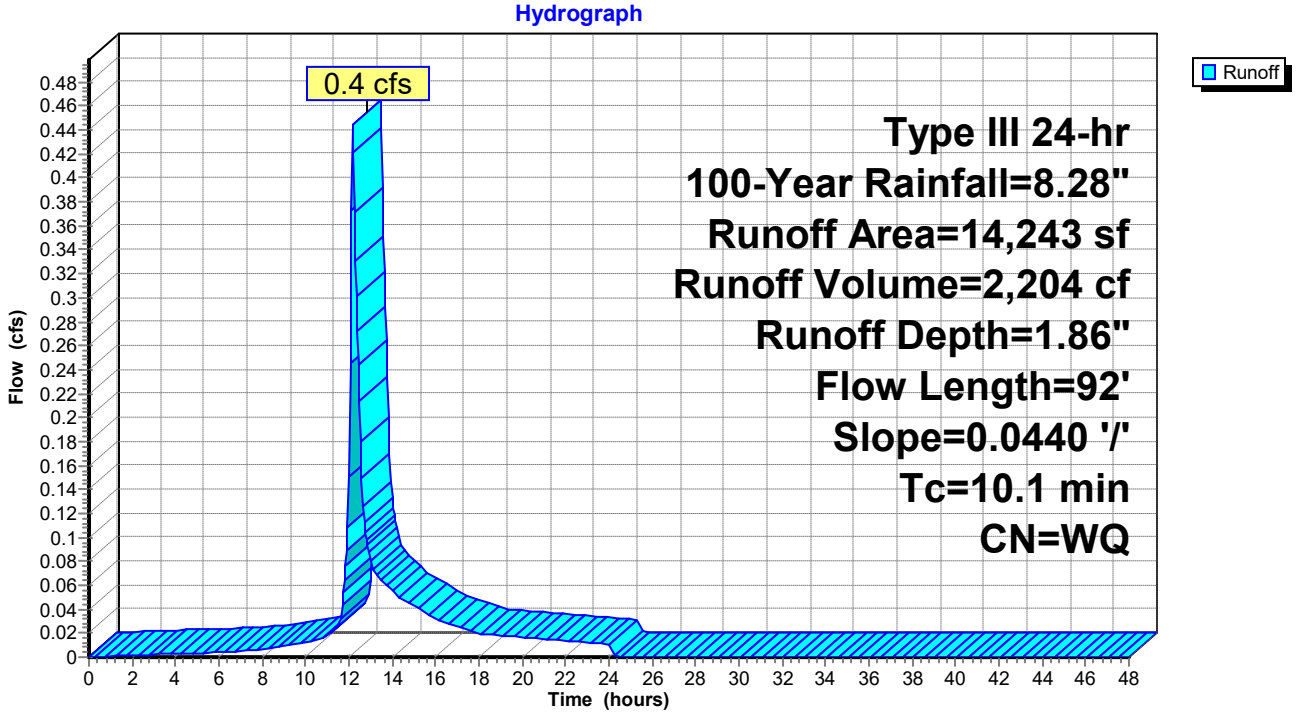
Runoff = 0.4 cfs @ 12.16 hrs, Volume= 2,204 cf, Depth= 1.86"
Routed to Link DP-2 : Offsite to South

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.28"

Area (sf)	CN	Description
11,589	39	>75% Grass cover, Good, HSG A
738	98	Paved parking, HSG A
634	98	Roofs, HSG A
1,282	30	Woods, Good, HSG A
14,243		Weighted Average
12,871	38	90.37% Pervious Area
1,372	98	9.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	92	0.0440	0.15		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"

Subcatchment PS-2: Subcat PS-2



Summary for Subcatchment PS-3A:

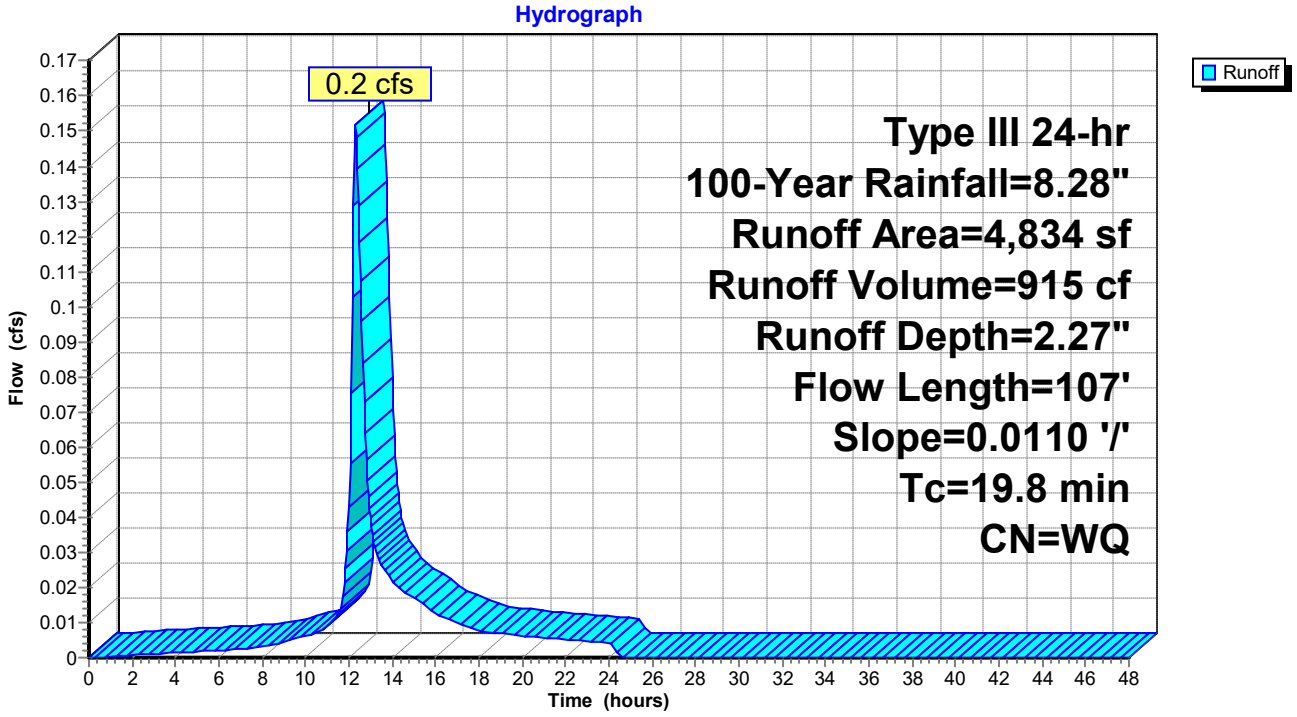
Runoff = 0.2 cfs @ 12.31 hrs, Volume= 915 cf, Depth= 2.27"
Routed to Link DP-3 : Walnut Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.28"

Area (sf)	CN	Description
4,122	39	>75% Grass cover, Good, HSG A
149	98	Paved parking, HSG A
562	98	Roofs, HSG A
4,834		Weighted Average
4,122	39	85.27% Pervious Area
712	98	14.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.8	107	0.0110	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"

Subcatchment PS-3A:



Summary for Subcatchment PS-3B:

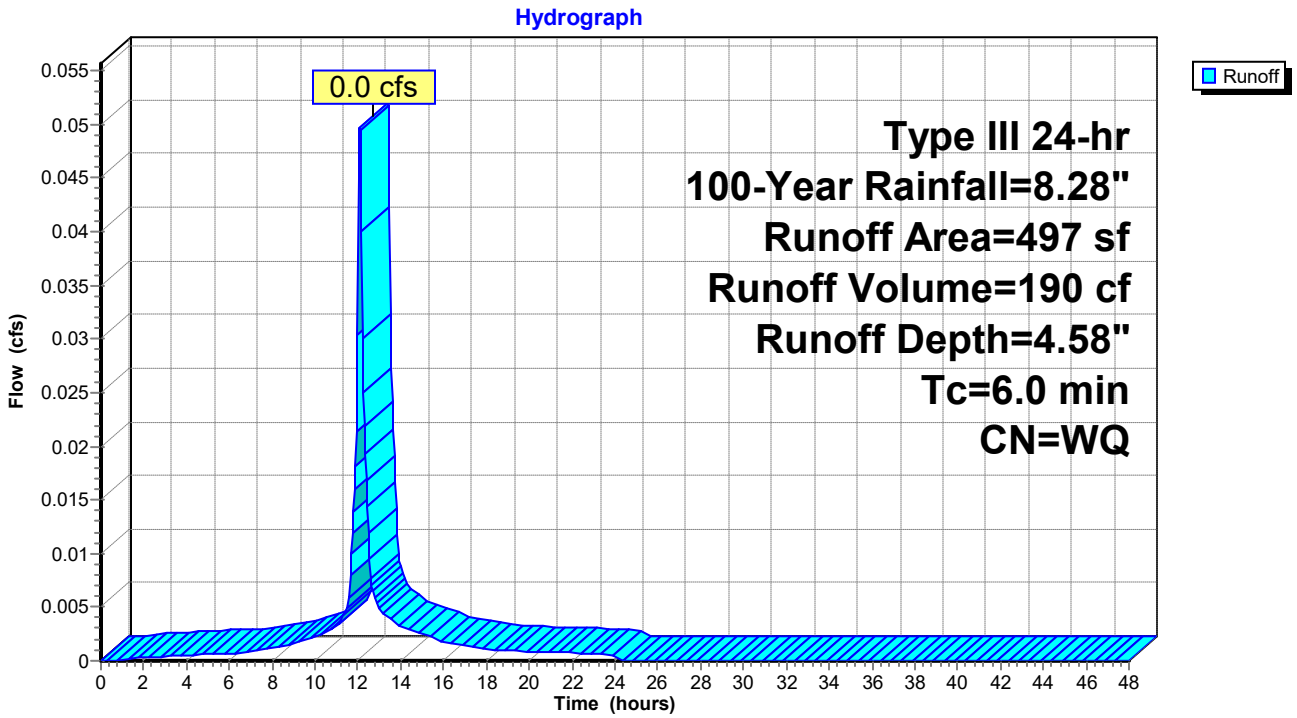
Runoff = 0.0 cfs @ 12.09 hrs, Volume= 190 cf, Depth= 4.58"
Routed to Link DP-3 : Walnut Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.28"

Area (sf)	CN	Description
255	39	>75% Grass cover, Good, HSG A
242	98	Roofs, HSG A
497		Weighted Average
255	39	51.21% Pervious Area
242	98	48.79% Impervious Area

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

Subcatchment PS-3B:



Summary for Subcatchment PS-3C:

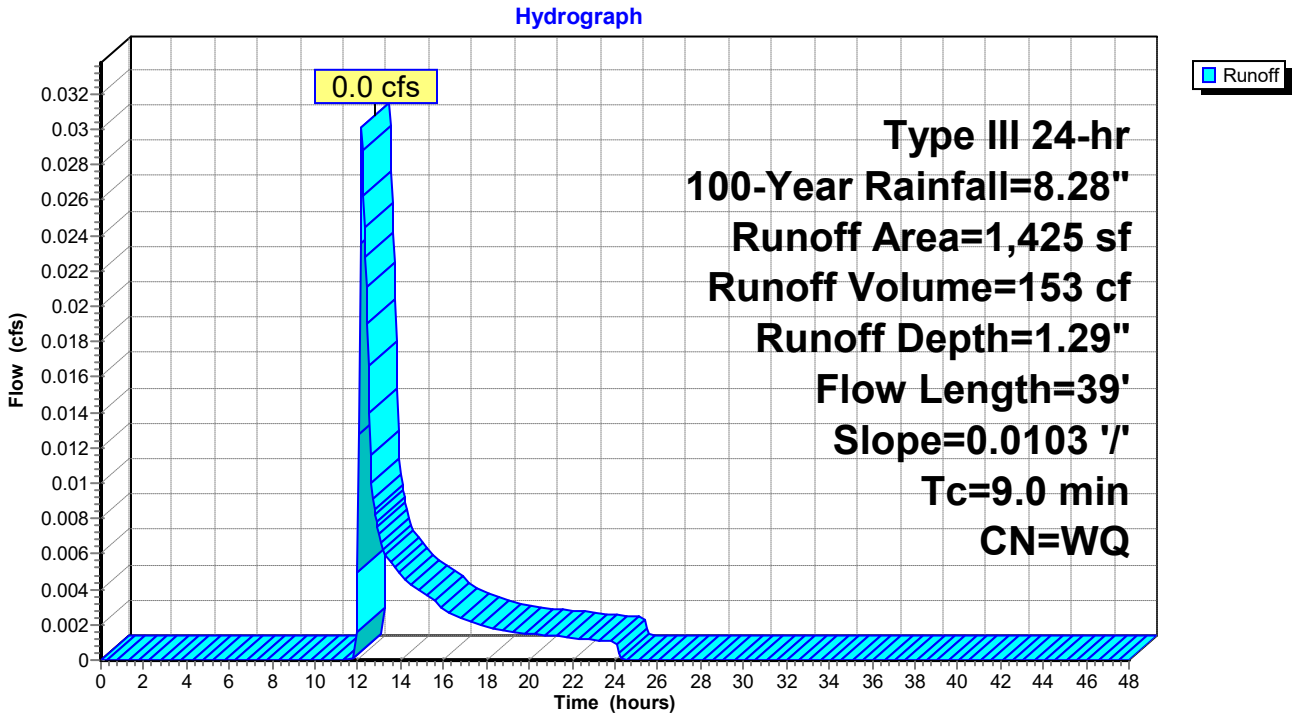
Runoff = 0.0 cfs @ 12.17 hrs, Volume= 153 cf, Depth= 1.29"
Routed to Link DP-3 : Walnut Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.28"

Area (sf)	CN	Description
1,422	39	>75% Grass cover, Good, HSG A
2	98	Paved parking, HSG A
1,425		Weighted Average
1,422	39	99.83% Pervious Area
2	98	0.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	39	0.0103	0.07		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"

Subcatchment PS-3C:



Summary for Subcatchment PS-4:

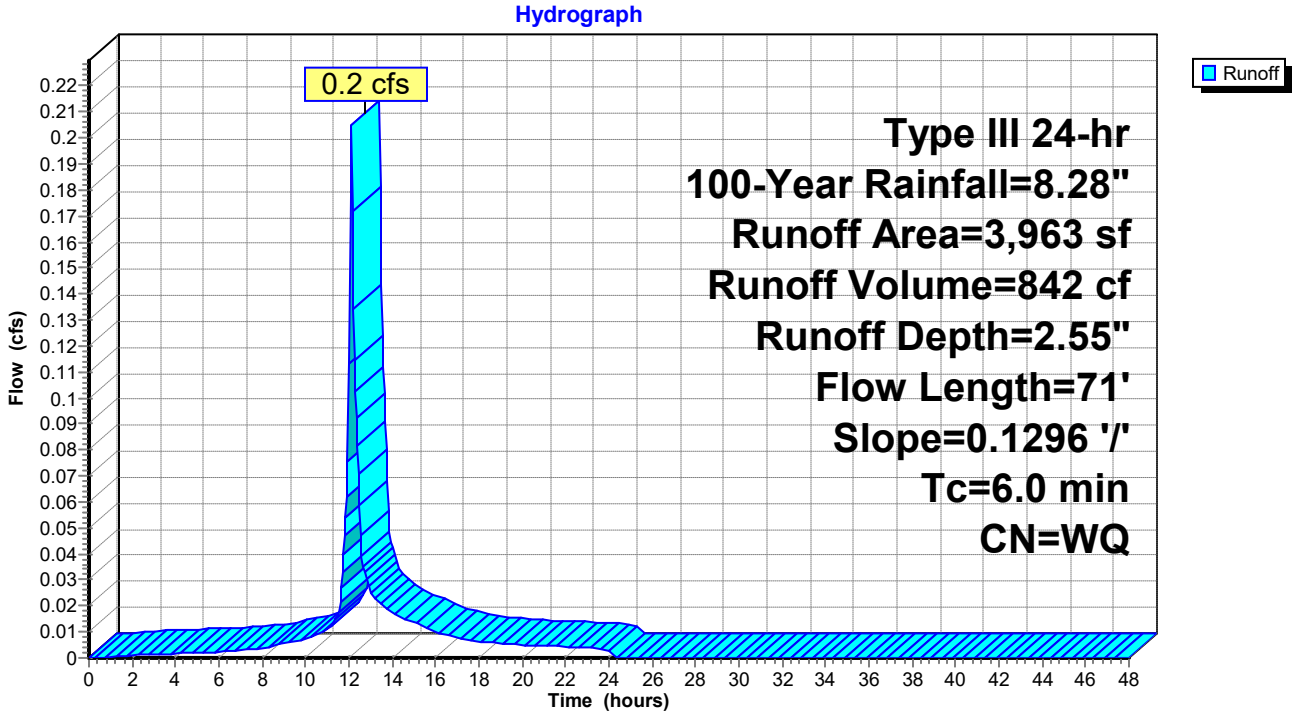
Runoff = 0.2 cfs @ 12.10 hrs, Volume= 842 cf, Depth= 2.55"
Routed to Link DP-4 : Offsite to Northwest

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.28"

Area (sf)	CN	Description
2,563	39	>75% Grass cover, Good, HSG A
211	98	Paved parking, HSG A
604	98	Roofs, HSG A
585	30	Woods, Good, HSG A
3,963		Weighted Average
3,148	37	79.43% Pervious Area
815	98	20.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	71	0.1296	0.22		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
5.3	71	Total, Increased to minimum Tc = 6.0 min			

Subcatchment PS-4:



Summary for Pond 1P: Subsurface Detention Basin

Inflow Area = 74,573 sf, 48.17% Impervious, Inflow Depth = 4.53" for 100-Year event
Inflow = 7.2 cfs @ 12.10 hrs, Volume= 28,122 cf
Outflow = 2.2 cfs @ 12.46 hrs, Volume= 28,122 cf, Atten= 70%, Lag= 21.4 min
Primary = 2.2 cfs @ 12.46 hrs, Volume= 28,122 cf
Routed to Link DP-1 : Offsite to Northeast

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 105.38' @ 12.46 hrs Surf.Area= 3,781 sf Storage= 8,440 cf

Plug-Flow detention time= 69.7 min calculated for 28,122 cf (100% of inflow)
Center-of-Mass det. time= 69.2 min (834.8 - 765.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	102.00'	3,453 cf	**55.75'W x 67.82'L x 3.75'H Field A** 14,178 cf Overall - 5,546 cf Embedded = 8,632 cf x 40.0% Voids
#2A	102.50'	5,546 cf	**ADS_StormTech SC-800 +Cap** x 108 Inside #1 Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap 108 Chambers in 12 Rows Cap Storage= 3.4 cf x 2 x 12 rows = 82.1 cf
		8,999 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	102.00'	**12.0" Round Culvert** L= 98.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 102.00' / 93.00' S= 0.0918 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	102.00'	**4.0" W x 4.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	103.25'	**3.0" W x 3.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	104.00'	**7.0" W x 3.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 1	105.50'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=2.2 cfs @ 12.46 hrs HW=105.38' (Free Discharge)
└**1=Culvert** (Passes 2.2 cfs of 8.0 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 1.0 cfs @ 8.63 fps)
  ├**3=Orifice/Grate** (Orifice Controls 0.4 cfs @ 6.81 fps)
  ├**4=Orifice/Grate** (Orifice Controls 0.8 cfs @ 5.39 fps)
  └**5=Sharp-Crested Rectangular Weir** (Controls 0.0 cfs)

Pond 1P: Subsurface Detention Basin - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-800 +Cap (ADS StormTech® SC-800 with cap volume)
Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf
Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap
Cap Storage= 3.4 cf x 2 x 12 rows = 82.1 cf

51.0" Wide + 3.0" Spacing = 54.0" C-C Row Spacing

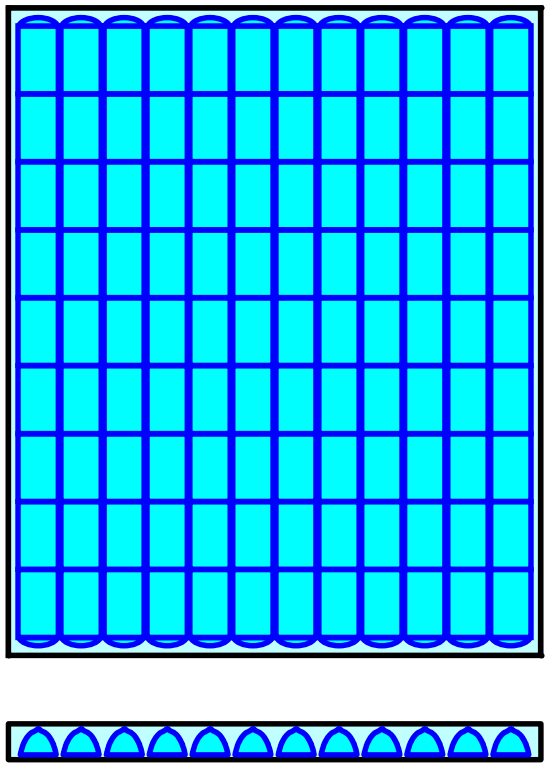
9 Chambers/Row x 7.12' Long +0.88' Cap Length x 2 = 65.82' Row Length +12.0" End Stone x 2 = 67.82' Base Length
12 Rows x 51.0" Wide + 3.0" Spacing x 11 + 12.0" Side Stone x 2 = 55.75' Base Width
6.0" Stone Base + 33.0" Chamber Height + 6.0" Stone Cover = 3.75' Field Height

108 Chambers x 50.6 cf + 3.4 cf Cap Volume x 2 x 12 Rows = 5,546.0 cf Chamber Storage

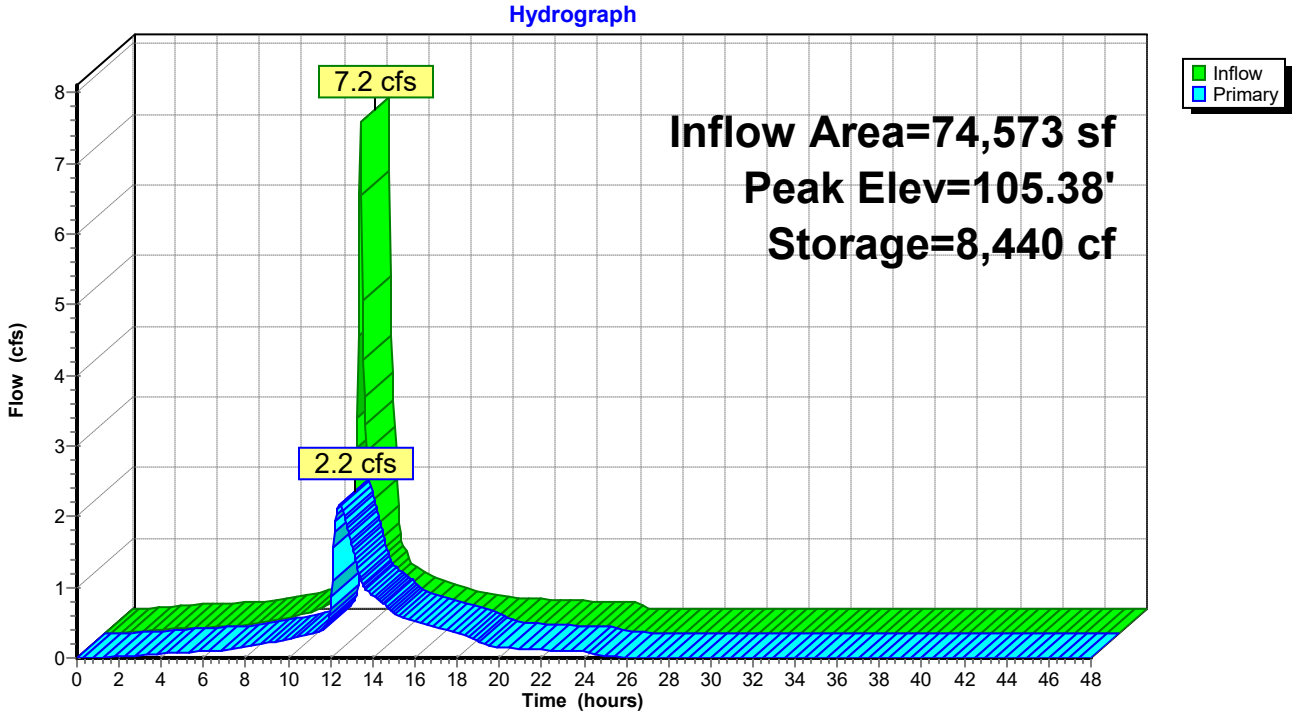
14,177.9 cf Field - 5,546.0 cf Chambers = 8,631.9 cf Stone x 40.0% Voids = 3,452.8 cf Stone Storage

Chamber Storage + Stone Storage = 8,998.8 cf = 0.207 af
Overall Storage Efficiency = 63.5%
Overall System Size = 67.82' x 55.75' x 3.75'

108 Chambers
525.1 cy Field
319.7 cy Stone



Pond 1P: Subsurface Detention Basin

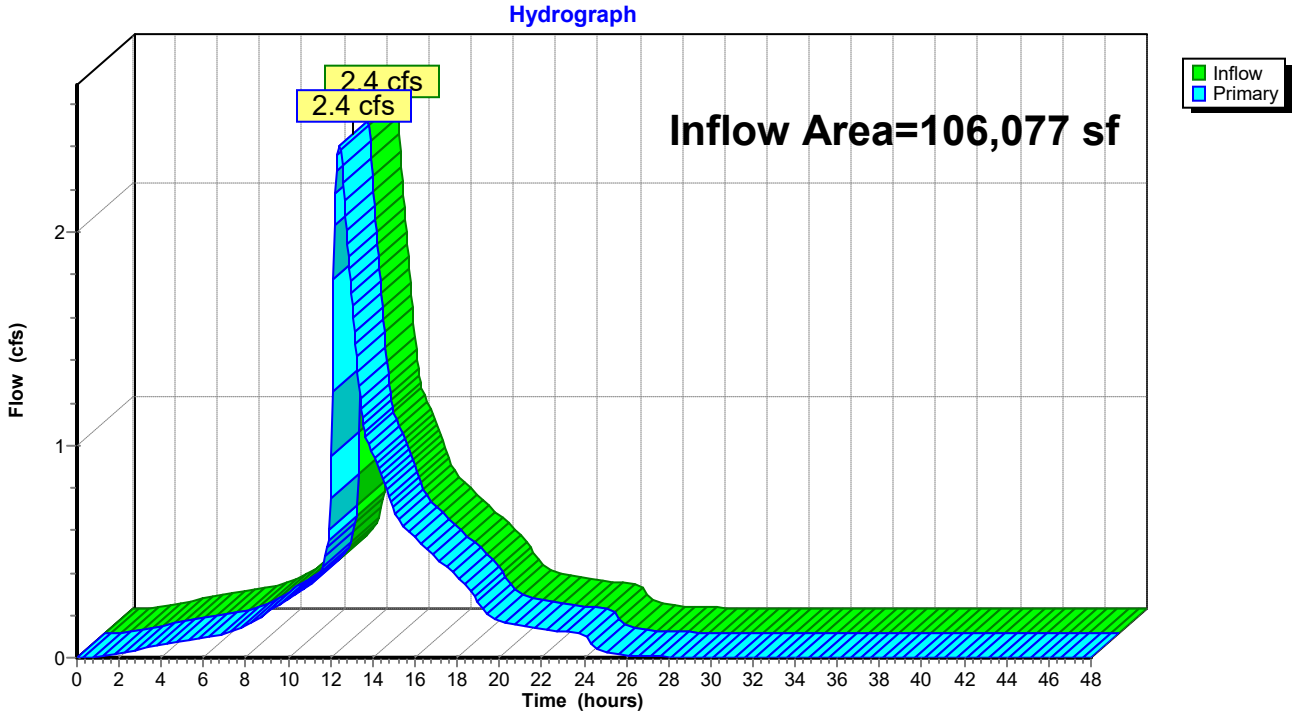


Summary for Link DP-1: Offsite to Northeast

Inflow Area = 106,077 sf, 34.05% Impervious, Inflow Depth = 3.42" for 100-Year event
Inflow = 2.4 cfs @ 12.43 hrs, Volume= 30,236 cf
Primary = 2.4 cfs @ 12.43 hrs, Volume= 30,236 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link DP-1: Offsite to Northeast

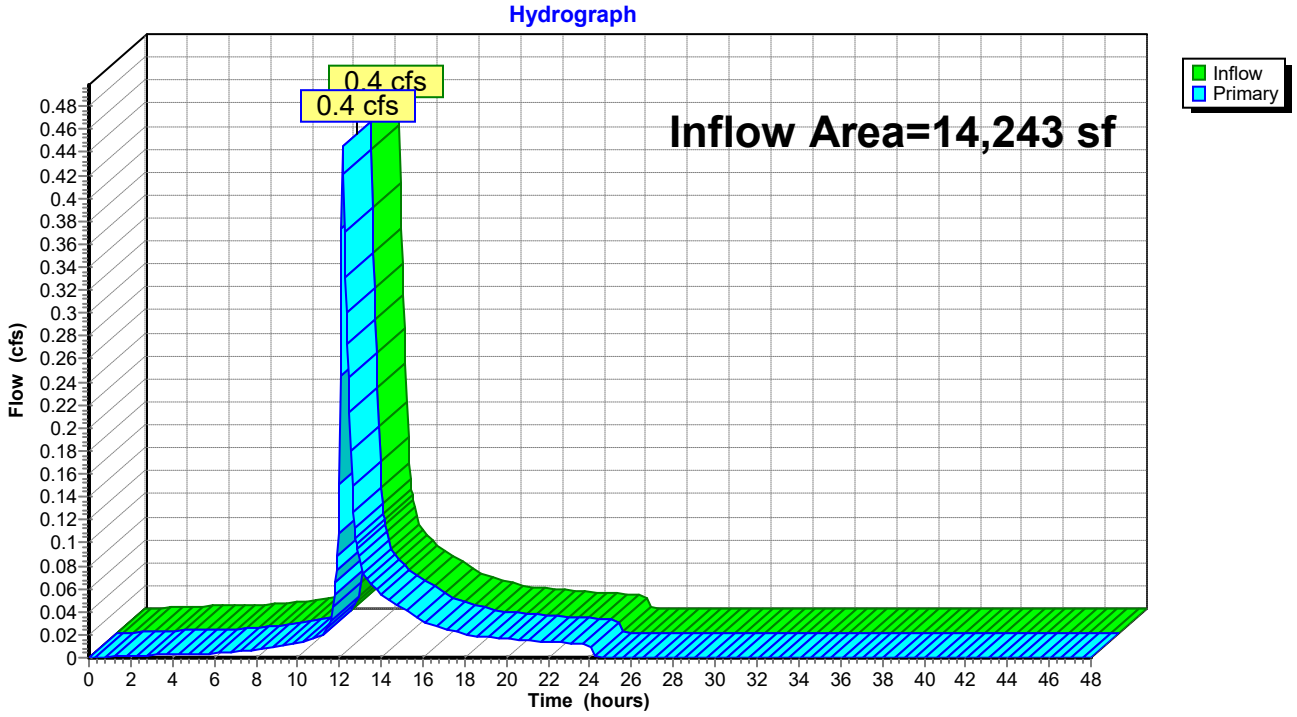


Summary for Link DP-2: Offsite to South

Inflow Area = 14,243 sf, 9.63% Impervious, Inflow Depth = 1.86" for 100-Year event
Inflow = 0.4 cfs @ 12.16 hrs, Volume= 2,204 cf
Primary = 0.4 cfs @ 12.16 hrs, Volume= 2,204 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link DP-2: Offsite to South

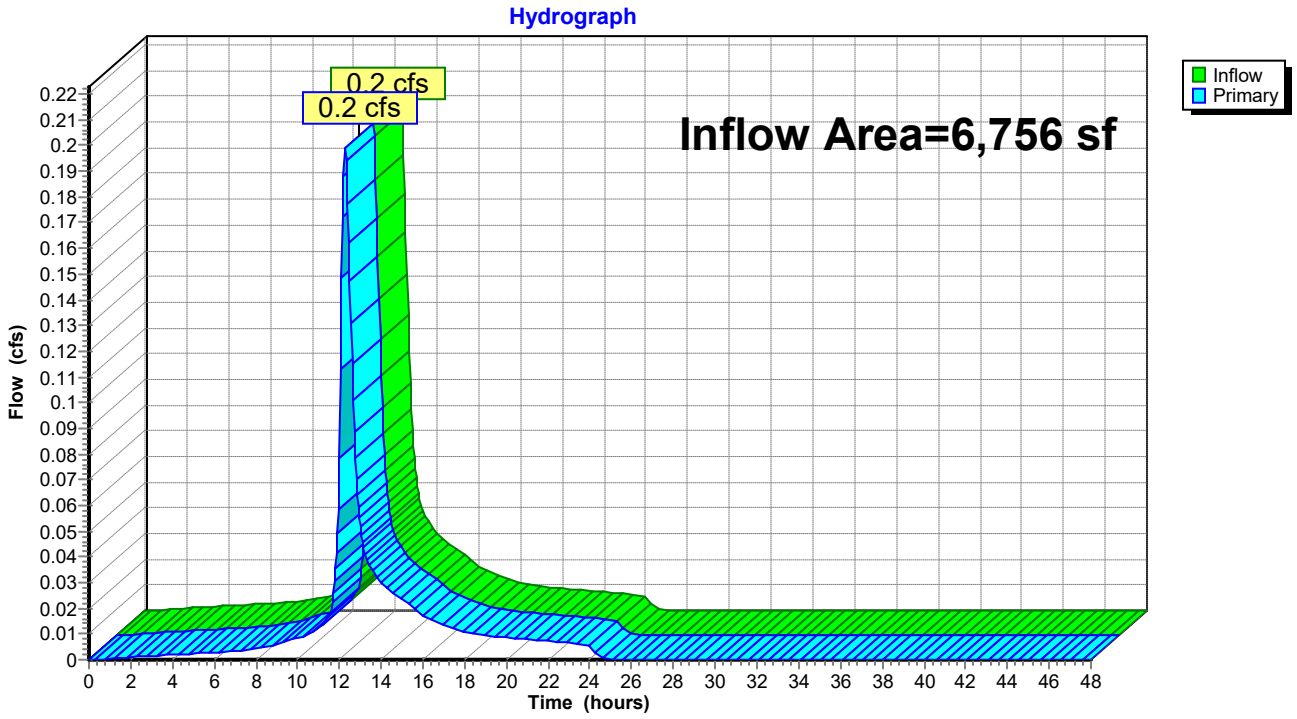


Summary for Link DP-3: Walnut Street

Inflow Area = 6,756 sf, 14.16% Impervious, Inflow Depth = 2.23" for 100-Year event
Inflow = 0.2 cfs @ 12.28 hrs, Volume= 1,258 cf
Primary = 0.2 cfs @ 12.28 hrs, Volume= 1,258 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link DP-3: Walnut Street

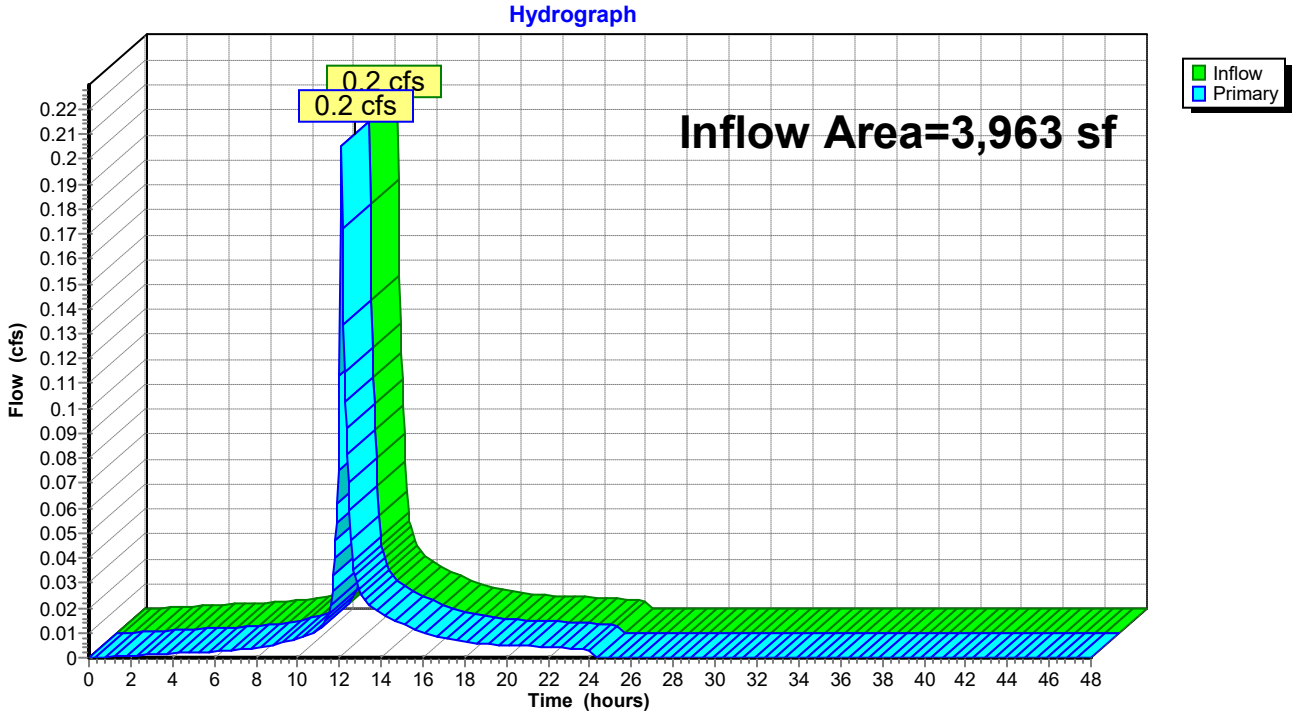


Summary for Link DP-4: Offsite to Northwest

Inflow Area = 3,963 sf, 20.57% Impervious, Inflow Depth = 2.55" for 100-Year event
Inflow = 0.2 cfs @ 12.10 hrs, Volume= 842 cf
Primary = 0.2 cfs @ 12.10 hrs, Volume= 842 cf, Atten= 0%, Lag= 0.0 min

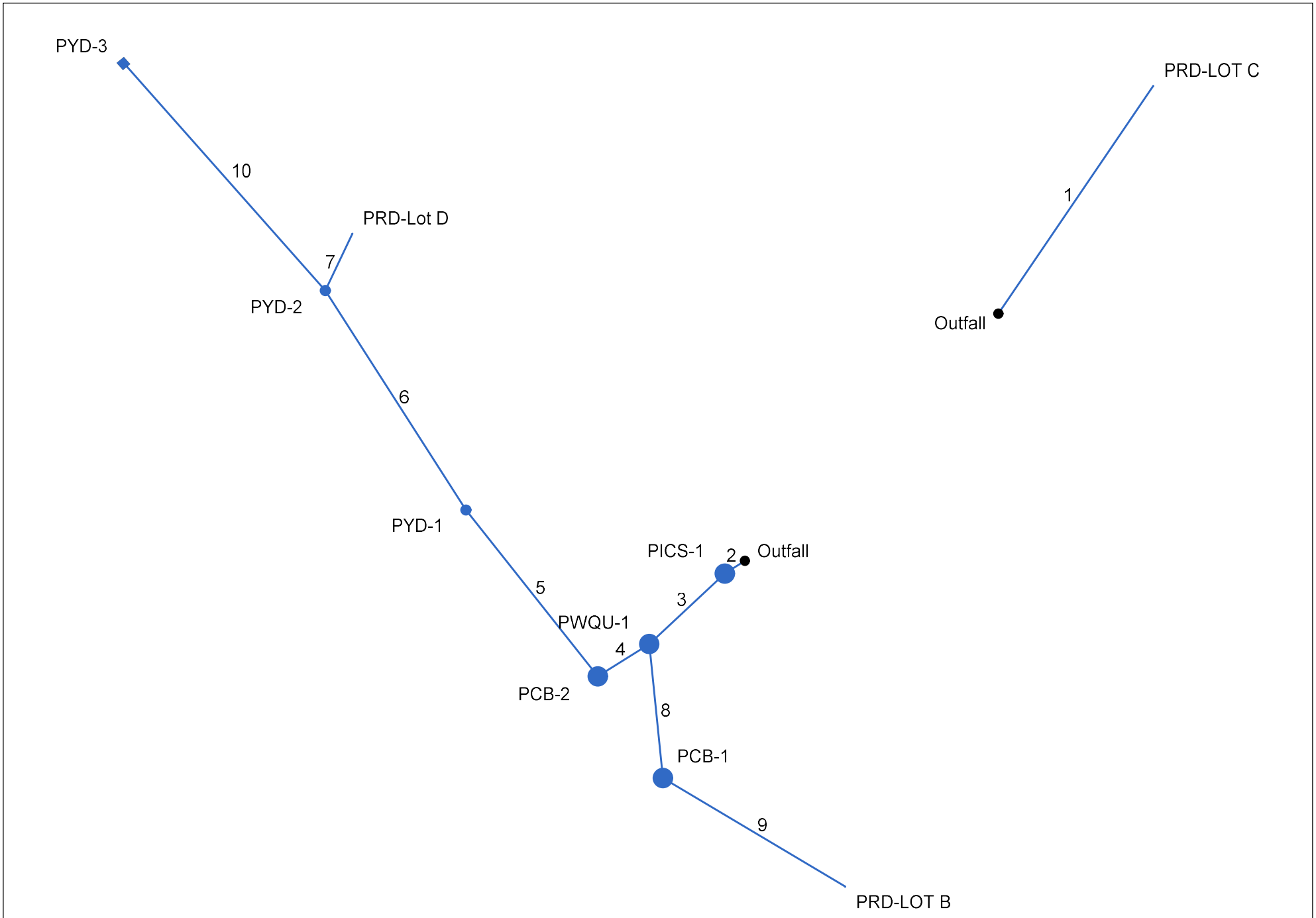
Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link DP-4: Offsite to Northwest



Appendix D: Hydraulic Analysis

Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: PR-STORM_Rev.stm	Number of lines: 10	Date: 3/20/2026

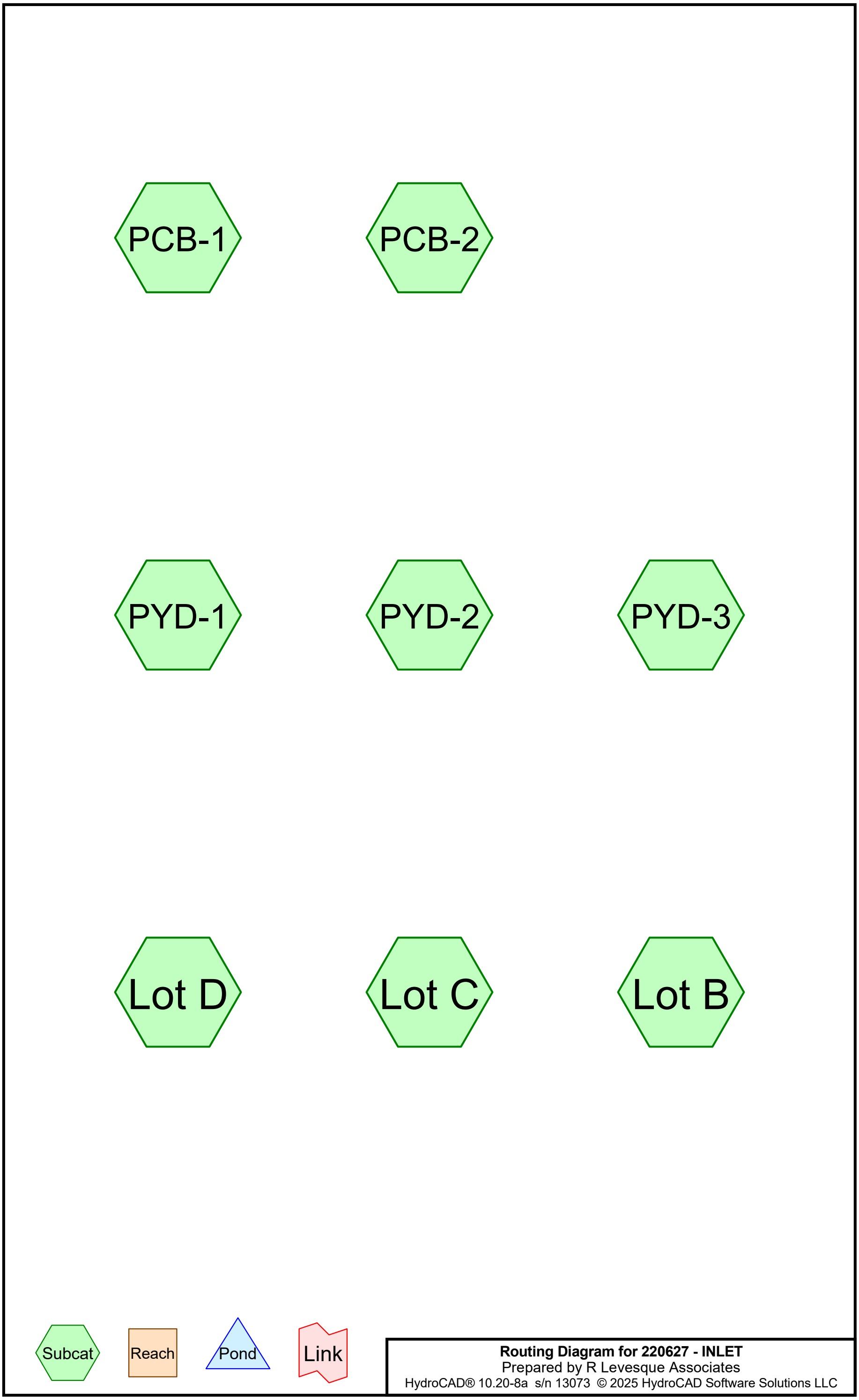
Storm Sewers v2026.00

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	59.601	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.20	1.48	1.83	6	4.13	104.00	106.46	104.36	106.68	109.05	108.48	P-D-PIPE-(38)
2	End	5.120	0.00	0.00	0.00	0.00	0.00	0.0	4.8	0.0	6.90	0.00	2.79	24	0.00	102.50	102.50	103.97	103.97	103.92	108.04	P-D-PIPE-(3)
3	2	22.362	0.00	0.00	0.00	0.00	0.00	0.0	4.7	0.0	6.90	6.41	5.62	15	0.98	103.83	104.05	105.08	105.30	108.04	107.67	P-D-PIPE-(2)
4	3	13.127	0.00	0.00	0.00	0.00	0.00	0.0	4.7	0.0	3.80	9.60	3.10	15	2.21	104.15	104.44	105.71	105.75	107.67	107.44	P-D-PIPE-(1)
5	4	46.025	0.00	0.00	0.00	0.00	0.00	0.0	4.4	0.0	2.00	2.52	2.55	12	0.50	104.54	104.77	105.97	106.12	107.44	106.65	P-D-PIPE-(19)
6	5	56.187	0.00	0.00	0.00	0.00	0.00	0.0	3.8	0.0	0.60	0.85	1.72	8	0.50	104.77	105.05	106.17	106.31	106.65	107.11	P-D-PIPE-(18)
7	6	13.663	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.20	0.52	1.02	6	0.51	105.05	105.12	106.37	106.38	107.11	107.14	P-D-PIPE-(33)
8	3	29.126	0.00	0.00	0.00	0.00	0.00	0.0	0.7	0.0	3.10	3.55	3.95	12	1.00	104.15	104.44	105.71	105.93	107.67	107.44	P-D-PIPE-(4)
9	8	45.763	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.20	0.52	1.02	6	0.50	105.00	105.23	106.23	106.26	107.44	107.41	P-D-PIPE-(41)
10	6	65.758	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.10	0.86	0.29	8	0.50	105.05	105.38	106.37	106.37	107.11	107.77	P-D-PIPE-(17)

Project File: PR-STORM_Rev.stm | Number of lines: 10 | Run Date: 3/20/2026

NOTES:Known Qs only ; c = cir e = ellip b = box


PCB-1
PCB-2
PYD-1
PYD-2
PYD-3
Lot D
Lot C
Lot B
Subcat
Reach
Pond
Link
Routing Diagram for 220627 - INLET
Prepared by R Levesque Associates
HydroCAD® 10.20-8a s/n 13073 © 2025 HydroCAD Software Solutions LLC

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	100-Year	Type III 24-hr		Default	24.00	1	8.28	2

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment Lot B: Runoff Area=1,188 sf 100.00% Impervious Runoff Depth=8.04"
Tc=6.0 min CN=98 Runoff=0.2 cfs 796 cf

Subcatchment Lot C: Runoff Area=1,188 sf 100.00% Impervious Runoff Depth=8.04"
Tc=6.0 min CN=98 Runoff=0.2 cfs 796 cf

Subcatchment Lot D: Runoff Area=1,188 sf 100.00% Impervious Runoff Depth=8.04"
Tc=6.0 min CN=98 Runoff=0.2 cfs 796 cf

Subcatchment PCB-1: Runoff Area=27,583 sf 52.91% Impervious Runoff Depth=4.85"
Tc=6.0 min CN=WQ Runoff=2.9 cfs 11,144 cf

Subcatchment PCB-2: Runoff Area=11,764 sf 82.68% Impervious Runoff Depth=6.86"
Tc=6.0 min CN=WQ Runoff=1.8 cfs 6,723 cf

Subcatchment PYD-1: Runoff Area=20,138 sf 30.11% Impervious Runoff Depth=3.31"
Tc=6.0 min CN=WQ Runoff=1.4 cfs 5,559 cf

Subcatchment PYD-2: Runoff Area=4,491 sf 21.39% Impervious Runoff Depth=2.72"
Tc=6.0 min CN=WQ Runoff=0.3 cfs 1,017 cf

Subcatchment PYD-3: Runoff Area=1,927 sf 0.00% Impervious Runoff Depth=0.85"
Tc=6.0 min CN=WQ Runoff=0.0 cfs 137 cf

Total Runoff Area = 69,467 sf Runoff Volume = 26,967 cf Average Runoff Depth = 4.66"
49.75% Pervious = 34,559 sf 50.25% Impervious = 34,908 sf

Summary for Subcatchment Lot B:

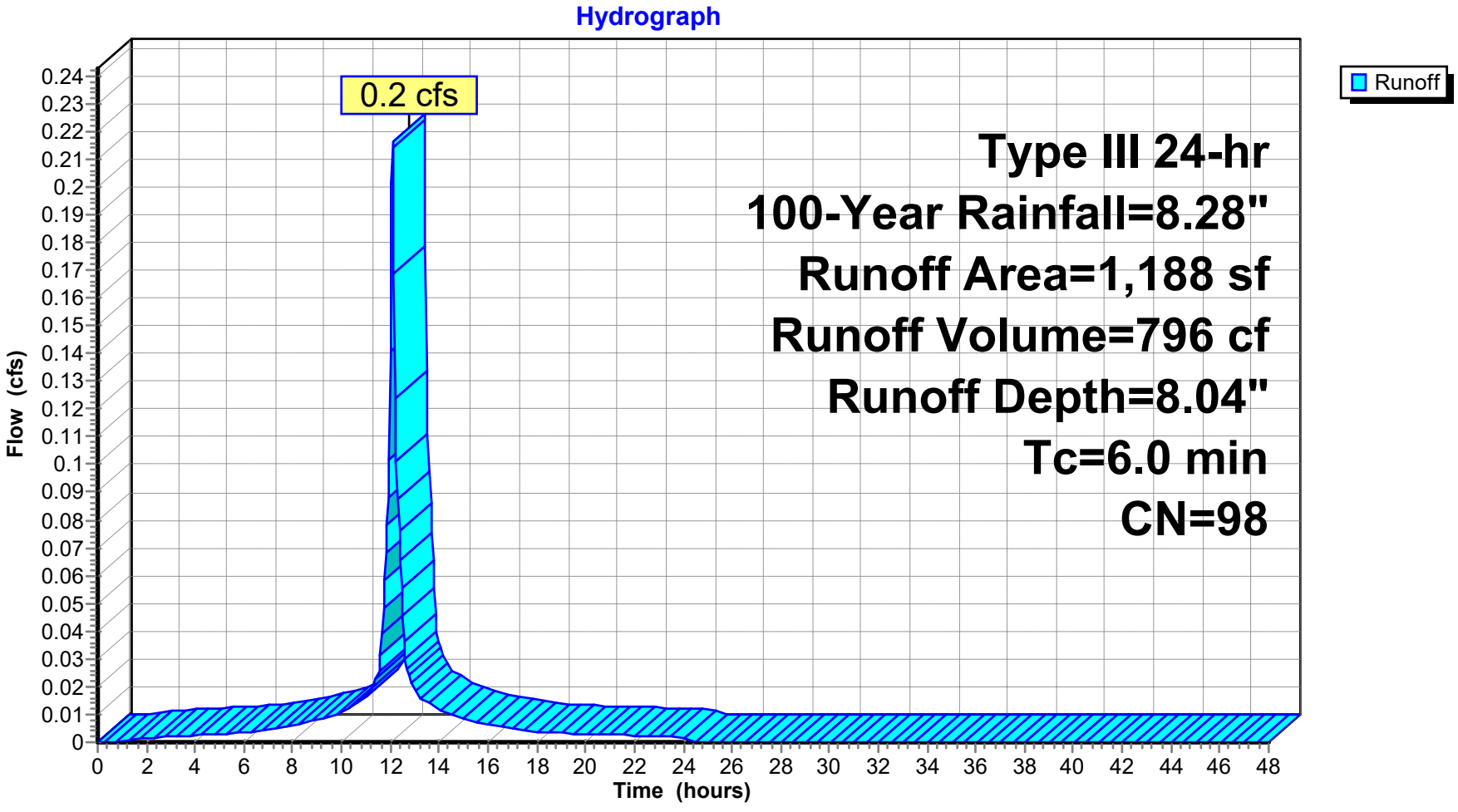
Runoff = 0.2 cfs @ 12.09 hrs, Volume= 796 cf, Depth= 8.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.28"

Area (sf)	CN	Description
1,188	98	Roofs, HSG A
1,188	98	100.00% Impervious Area

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

Subcatchment Lot B:



Summary for Subcatchment Lot C:

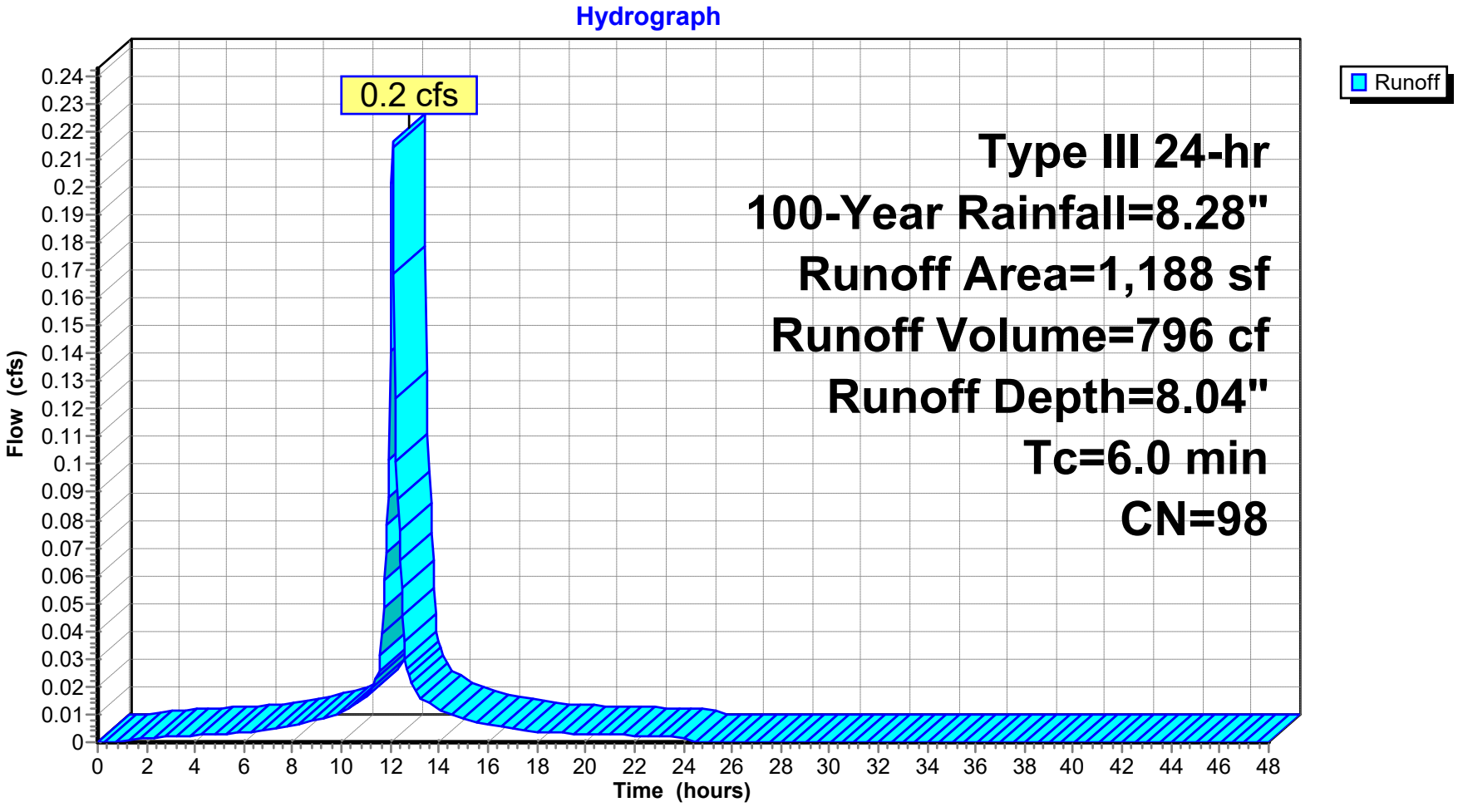
Runoff = 0.2 cfs @ 12.09 hrs, Volume= 796 cf, Depth= 8.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.28"

Area (sf)	CN	Description
1,188	98	Roofs, HSG A
1,188	98	100.00% Impervious Area

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

Subcatchment Lot C:



Summary for Subcatchment Lot D:

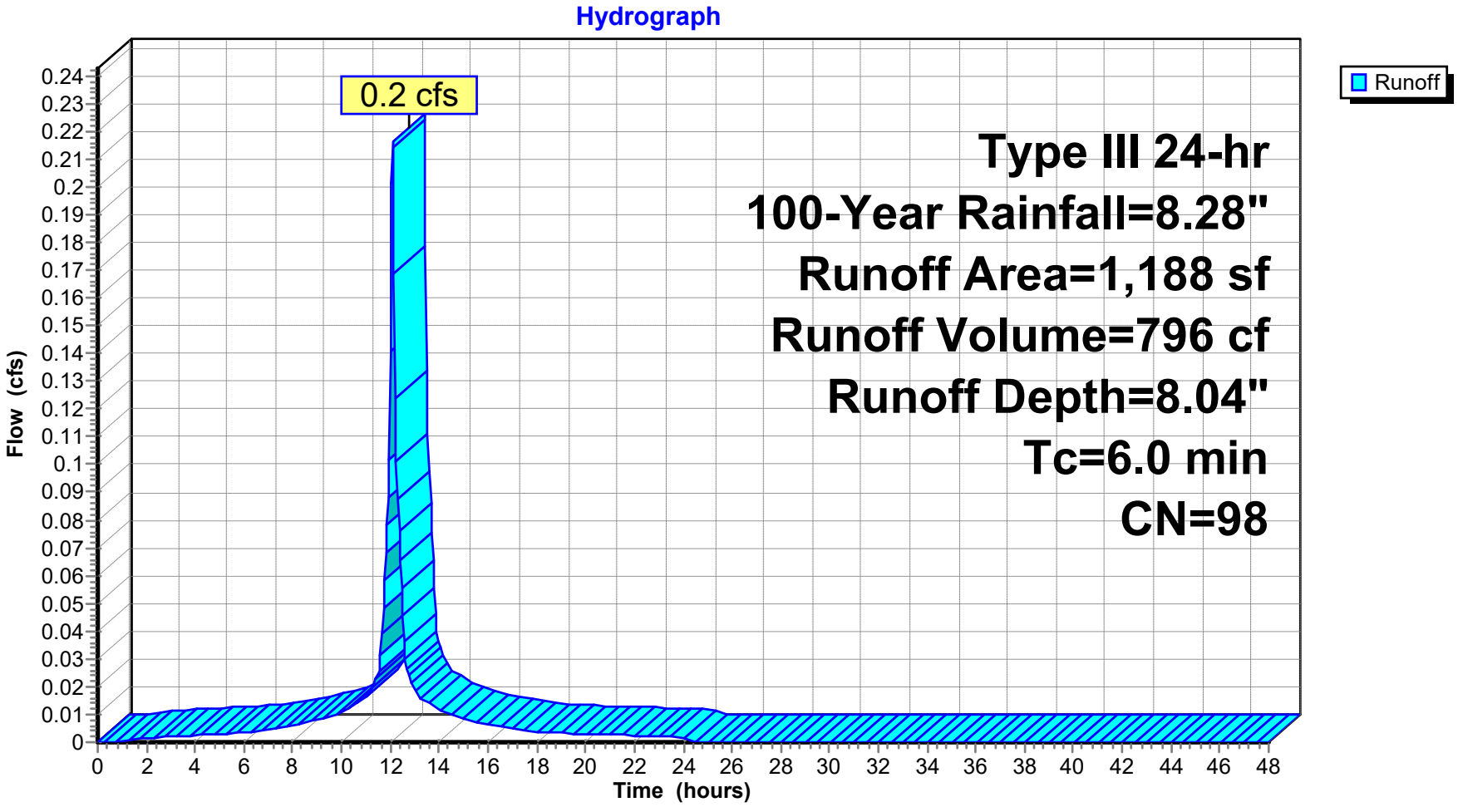
Runoff = 0.2 cfs @ 12.09 hrs, Volume= 796 cf, Depth= 8.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.28"

Area (sf)	CN	Description
1,188	98	Roofs, HSG A
1,188	98	100.00% Impervious Area

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

Subcatchment Lot D:



Summary for Subcatchment PCB-1:

Runoff = 2.9 cfs @ 12.09 hrs, Volume= 11,144 cf, Depth= 4.85"

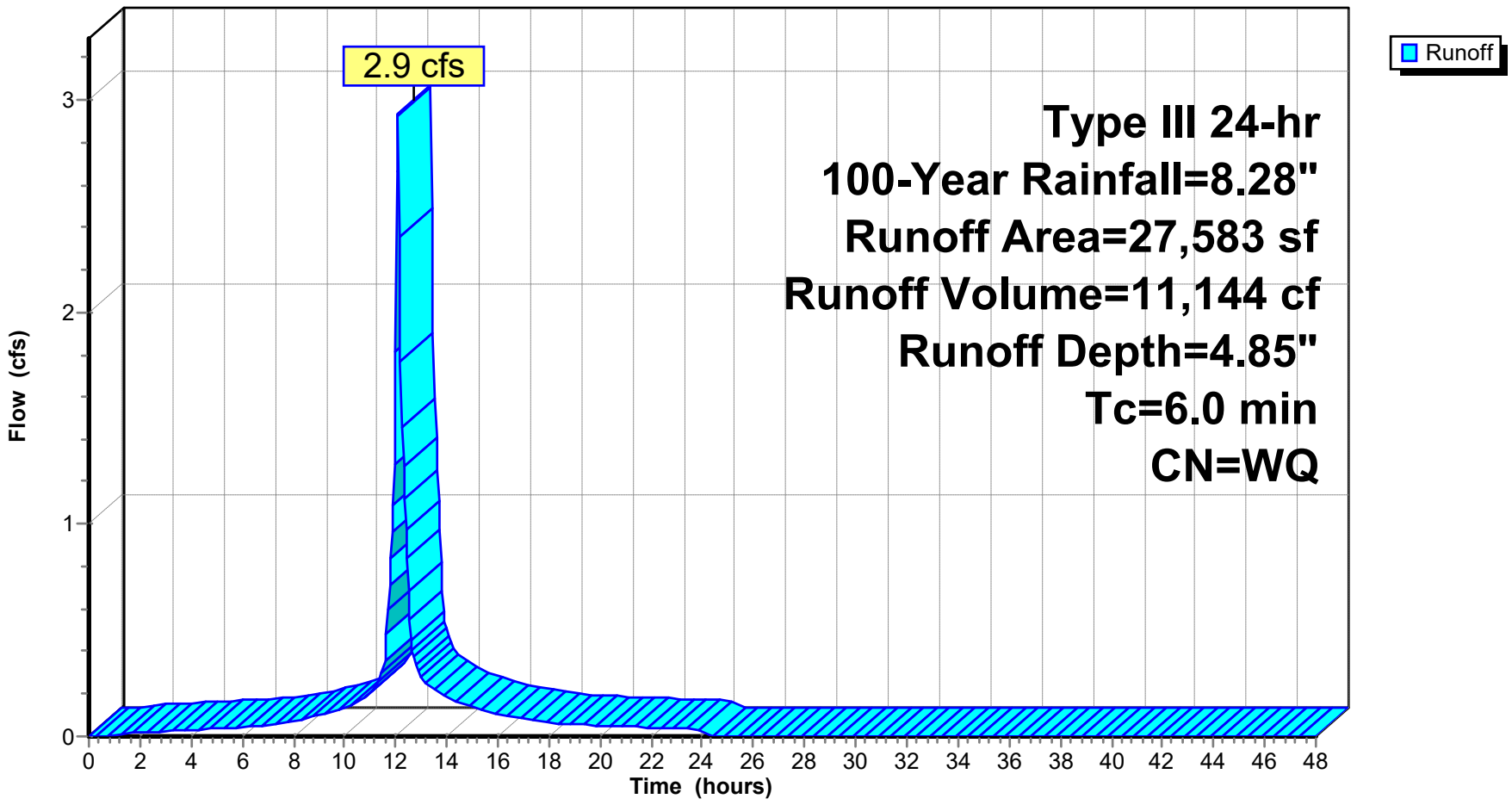
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.28"

Area (sf)	CN	Description
12,748	39	>75% Grass cover, Good, HSG A
13,598	98	Paved parking, HSG A
995	98	Roofs, HSG A
241	30	Woods, Good, HSG A
27,583		Weighted Average
12,989	39	47.09% Pervious Area
14,594	98	52.91% Impervious Area

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

Subcatchment PCB-1:

Hydrograph



Summary for Subcatchment PCB-2:

Runoff = 1.8 cfs @ 12.09 hrs, Volume= 6,723 cf, Depth= 6.86"

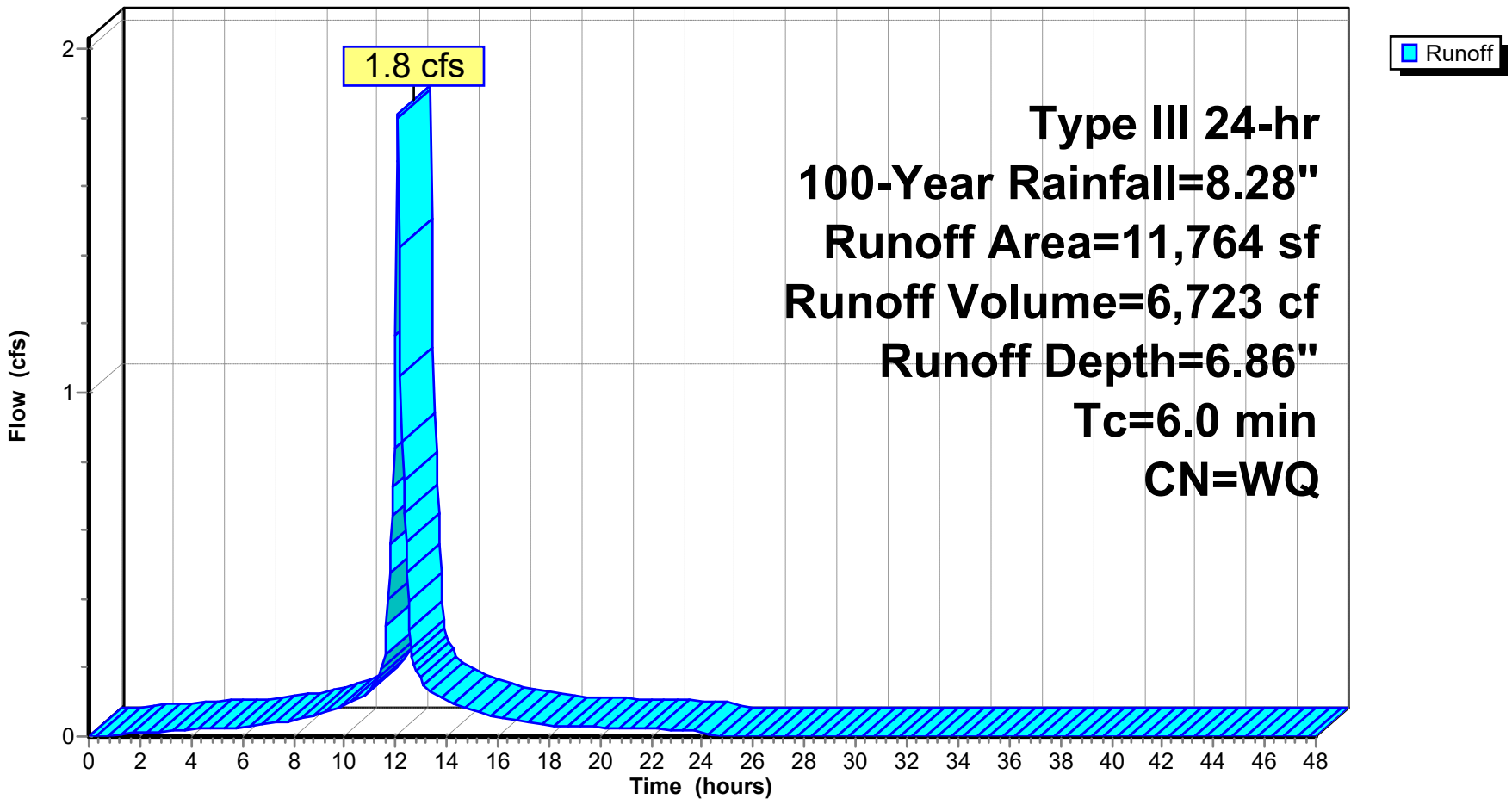
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.28"

Area (sf)	CN	Description
1,872	39	>75% Grass cover, Good, HSG A
9,726	98	Paved parking, HSG A
166	30	Woods, Good, HSG A
11,764		Weighted Average
2,038	38	17.32% Pervious Area
9,726	98	82.68% Impervious Area

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

Subcatchment PCB-2:

Hydrograph



Summary for Subcatchment PYD-1:

Runoff = 1.4 cfs @ 12.10 hrs, Volume= 5,559 cf, Depth= 3.31"

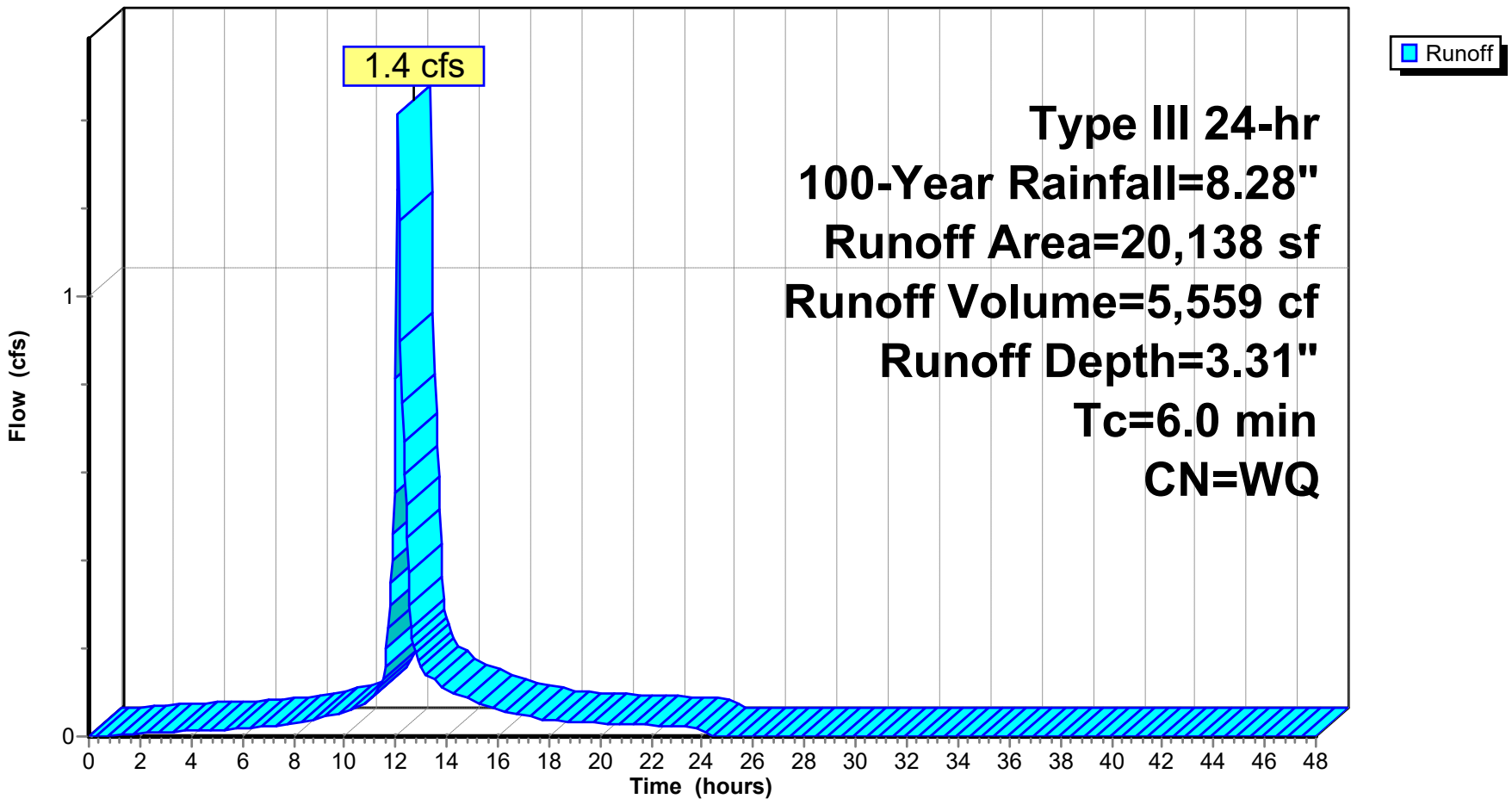
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.28"

Area (sf)	CN	Description
14,075	39	>75% Grass cover, Good, HSG A
3,941	98	Paved parking, HSG A
2,122	98	Roofs, HSG A
20,138		Weighted Average
14,075	39	69.89% Pervious Area
6,063	98	30.11% Impervious Area

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

Subcatchment PYD-1:

Hydrograph



Summary for Subcatchment PYD-2:

Runoff = 0.3 cfs @ 12.10 hrs, Volume= 1,017 cf, Depth= 2.72"

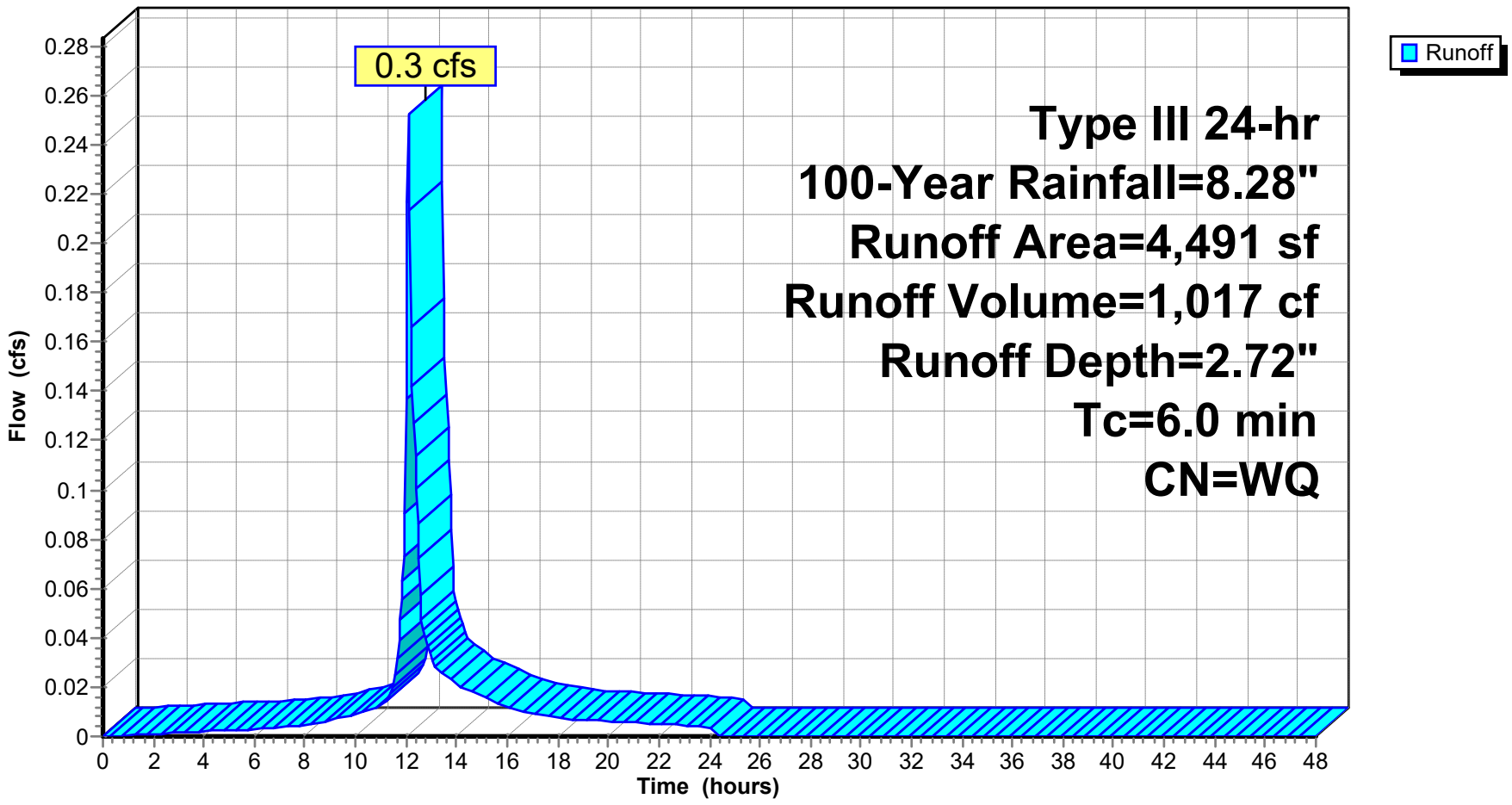
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.28"

Area (sf)	CN	Description
3,505	39	>75% Grass cover, Good, HSG A
404	98	Paved parking, HSG A
557	98	Roofs, HSG A
26	30	Woods, Good, HSG A
4,491		Weighted Average
3,531	39	78.61% Pervious Area
961	98	21.39% Impervious Area

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

Subcatchment PYD-2:

Hydrograph



Summary for Subcatchment PYD-3:

Runoff = 0.0 cfs @ 12.12 hrs, Volume= 137 cf, Depth= 0.85"

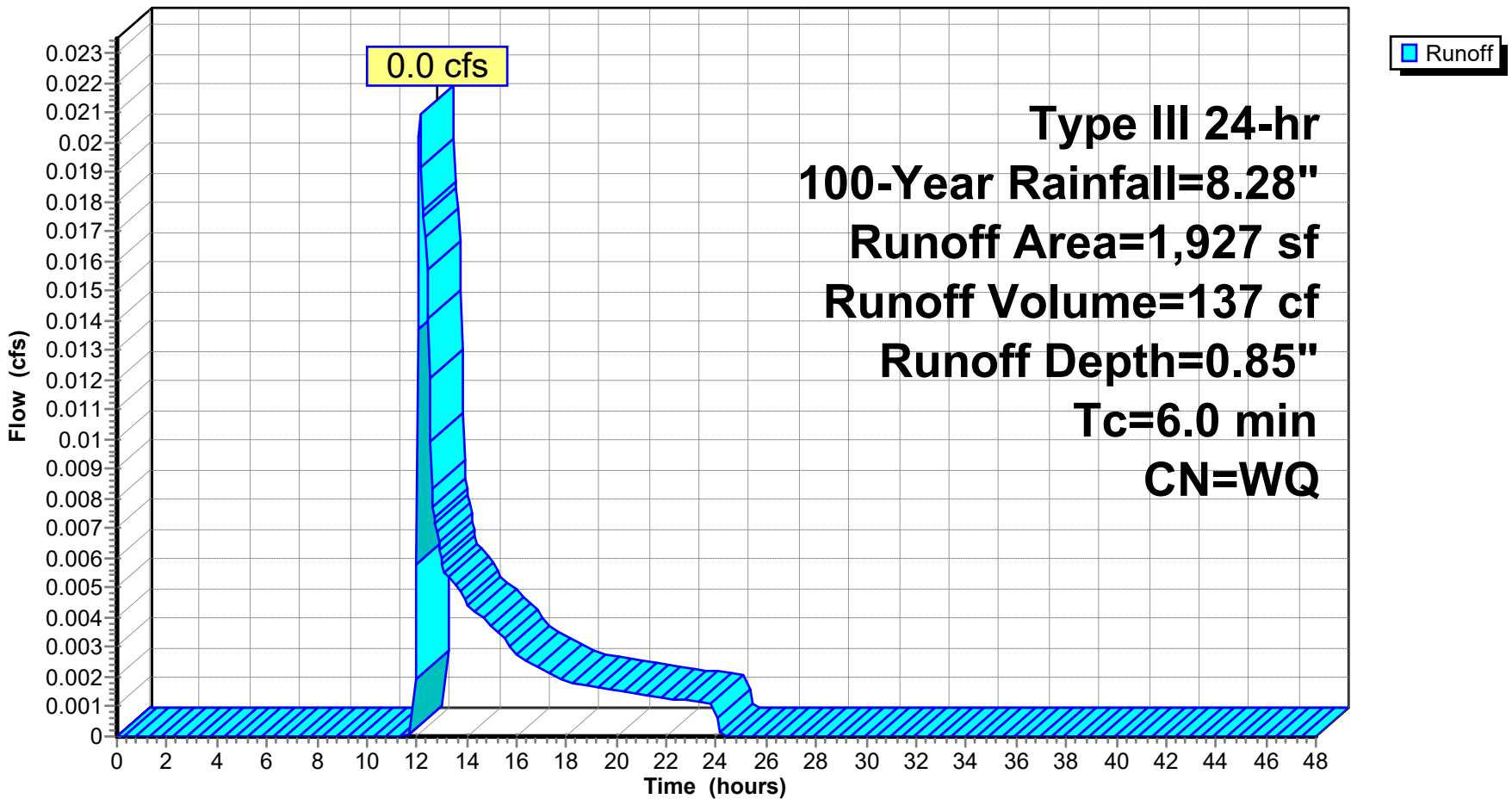
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.28"

Area (sf)	CN	Description
891	39	>75% Grass cover, Good, HSG A
0	98	Paved parking, HSG A
1,035	30	Woods, Good, HSG A
1,927		Weighted Average
1,927	34	100.00% Pervious Area
0	98	0.00% Impervious Area

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

Subcatchment PYD-3:

Hydrograph



Appendix E: MassDEP Calculations

- Impervious Area Calculations
- Water Quality Flow Rate Calculation – PWQU-1
- Water Quality Conversion Table
- TSS Removal Worksheet
- Barracuda Max Info Sheet

Standard 3: Recharge Calculations

Impervious Area Calculations

Existing Total Impervious Area

Sub-Catchment	Roof (sf)	Other Impervious (sf)	Sum (sf)
ES-1	3674	6325	9,999
ES-2	634	325	959
ES-3A	562	149	711
ES-3B	242	0	242
ES-3C	0	2	2
ES-4	604	211	815
			12,728

Proposed Total Impervious Area

Sub-Catchment	Roof (sf)	Other Impervious (sf)	Sum (sf)	
PS-1A	0	192	192	
PS-1B	7238	28686	35924	Tributary to Basin
PS-2	634	738	1372	
PS-3A	562	149	711	
PS-3B	242	0	242	
PS-3C	0	2	2	
PS-4	604	211	815	
			39,258	

Summary Table

Total Existing Impervious Area	12,728	SF
Total Proposed Impervious Area	39,258	SF
Total New Impervious Area	26,530	SF
Total Impervious Area Tributary to Basin	35,924	SF

Standard 4: Water Quality - PWQU-I

Water Quality Volume Conversion to Flow Rate

Note: Required water quality volume based on 0.5-inch of runoff

$Q = (qu)\ (A)\ (WQV)$

where: Q = peak flow rate associated with first 0.5-inch of runoff (c.f.s.)

qu = unit peak discharge (csm/in) - value taken from table based on t_c

A = impervious surface drainage area (sq. mi.)

WQV = water quality volume in watershed inches

Proposed Water Quality Unit (PWQU-1)

t_c =	0.100	hrs	
qu =	752	csm/in	(from table)
A =	0.00129	sq. mi.*	
WQV =	0.5	inch **	

$Q_{0.5}$ = 0.48 c.f.s

The Baracuda Max Model S4 provides treatment of flows up to 1.52 c.f.s.

* Only inlcudes impervious area tributary to PWQU-1

** Water quality depth shall equal 1-inch for discharges within a Zone II or Interim Wellhead Protection Area, to or near another critical area, runoff from a LUHPPL, or exfiltration to soils with infiltration rate greater than 2.4-inches/hour or greater; 1/2-inch for discharges near to to other areas

Figure 2: For First ½-inch of Runoff, Table of qu values for Ia/P Curve = 0.0.058, listed by tc, for Type III Storm Distribution

Tc (Hours)	qu (csm/in)
0.01	821
0.03	821
0.05	813
0.067	794
0.083	773
0.1	752
0.116	733
0.133	713
0.15	694
0.167	677
0.183	662
0.2	646
0.217	632
0.233	619
0.25	606
0.3	572
0.333	552
0.35	542
0.4	516
0.416	508
0.5	472
0.583	443
0.6	437
0.667	417
0.7	408
0.8	383
0.9	361
1	342
1.1	325
1.2	311
1.3	297
1.4	285
1.5	274
1.6	264
1.7	254
1.8	246
1.9	238
2	230
2.1	223
2.2	217
2.3	211
2.4	205
2.5	200
2.6	194
2.7	190
2.8	185
2.9	181
3	176
3.1	173
3.2	169
3.3	165
3.4	162
3.5	158
3.6	155
3.7	152
3.8	149
3.9	147
4	144
4.1	141
4.2	139
4.3	136
4.4	134
4.5	132
4.6	130
4.7	128
4.8	126
4.9	124
5	122
5.1	120
5.2	118
5.3	116
5.4	115
5.5	113
5.6	112
5.7	110
5.8	109
5.9	107
6	106
6.1	104
6.2	103
6.3	102
6.4	100
6.5	99
6.6	98
6.7	97
6.8	96
6.9	94
7	93
7.1	92
7.2	91
7.3	90
7.4	89
7.5	88
7.6	87
7.7	86
7.8	85
7.9	84
8	84
8.1	83
8.2	82
8.3	81
8.4	80
8.5	79
8.6	79
8.7	78
8.8	77
8.9	76
9	76
9.1	75
9.2	74
9.3	74
9.4	73
9.5	72
9.6	72
9.7	71
9.8	70
9.9	70
10	69

TSS Removal Form - Surface Infiltration Basin

Total TSS Removal

BMP	TSS Removal Rate	Starting TSS Load	Amount Removed	Remaining Load
Deep-Sump Hooded Catch Basins	0.25	1.00	0.25	0.75
Propietary Sdimentation Device	0.80	0.75	0.60	0.15

Total TSS Removal = 85%

Barracuda® Max

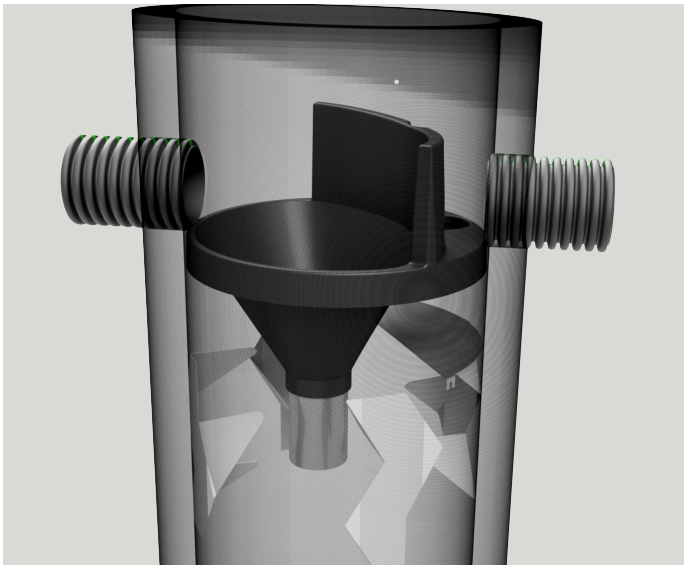
The Barracuda Max is market-changing stormwater quality technology. This high-performance vortex hydrodynamic separator is designed to remove total suspended solids in order to protect our precious receiving waters. The Barracuda Max is also an outstanding value that offers multiple pipe configurations, and quick installation. The “Max” version of the Barracuda is built on the base platform of the original ADS Barracuda with improved removal efficiencies and installation components.

Features

- Single manhole design
- No elevation loss between the inlet and outlet
- Variable inlet/outlet angle configurations (not just 180 degree orientation)
- Internal bypass for inline installation (where applicable)
- Revolutionary, patent pending “teeth” mitigate turbulence in the sump area to prevent resuspension of captured contaminants
- Available with grated drop inlet configuration
- Available with trash and/or oil capture add-ons

Benefits

- Internal components are in stock for quick delivery
- The S3, S4, S6, and S8 can be installed in a standard 36” (900 mm), 48” (1200 m), 72” (1800 m), and 96” (2400 m) precast manhole, respectively
- The S3 & S4 can be provided factory installed within a 36” (900 mm) and 48” (1200 mm) ADS HP manhole and delivered to the jobsite
- The Barracuda Max “teeth” and deflector plate apparatus are fabricated and designed for quick and easy field assembly
- Designed for easy maintenance using a vacuum truck or similar equipment.
- Inspection and maintenance are performed from the surface with no confined space entry



ADS™

Barrucuda Specification

Materials and Design

- Concrete Structures: Designed for H-20 traffic loading and applicable soil loads or as otherwise determined by a Licensed Professional Engineer. The materials and structural design of the devices shall be per ASTM C857 and ASTM C858.
- 36” (900 mm) and 48” (1200 mm) HP Manhole Structures: Made from an impact modified copolymer polypropylene meeting the material requirements of ASTM F2764. The eccentric cone reducer shall be manufactured from polyethylene material meeting ASTM D3350 cell class 213320C. Gaskets shall be made of material meeting the requirements of ASTM F477.
- Separator internals shall be substantially constructed of stainless steel, polyethylene or other thermoplastic material approved by the manufacturer.

Performance

- The stormwater treatment unit shall be an inline unit capable of conveying 100% of the design peak flow. If peak flow rates exceed maximum hydraulic rate, the unit shall be installed offline.
- The Barracuda Max unit shall be designed to remove at least 80% of the suspended solids on an annual aggregate removal basis. Said removal shall be based on full-scale third party testing using OK-110 media gradation or equivalent and 300 mg/L influent concentration. Said full scale testing shall have included sediment capture based on actual total mass collected by the stormwater treatment unit.

  - OR -

  The Barracuda Max unit shall be designed to remove at least 50% of TSS using a media mix with d_{50}=75 micron and 200 mg/L influent concentration.

  - OR -

  The Barracuda Max unit shall be designed to remove at least 50% of TSS per current NJDEP/NJCAT HDS protocol.
- The stormwater treatment unit internals shall consist of (1) separator cone assembly, and (1) sump assembly, which includes the “teeth”.

Barracuda Max Model	Manhole Diameter	OK-110 (80% removal)	Pretreatment for Infiltration[1]
S3	36” (900 mm)	0.86 CFS (24.1 L/s)	1.65 CFS (46.7 L/s)
S4	48” (1200 mm)	1.52 CFS (43.0 L/s)	2.94 CFS (83.3 L/s)
S6	72” (1800 mm)	3.42 CFS (96.8 L/s)	6.62 CFS (187.5 L/s)
S8	96” (2400 mm)	6.08 CFS (172.2 L/s)	11.76 CFS (333.0 L/s)

* Peak bypass flows are dependent on final design

[1] 50% removal of OK-110.

Installation

Installation of the stormwater treatment unit(s) shall be performed per manufacturer’s installation instructions. Such instructions can be obtained by calling Advanced Drainage Systems at 800-821-6710 or by logging on to www.adspipe.com.

ADS “Terms and Conditions of Sale” are available on the website, www.ads-pipe.com . The ADS logo, Barracuda logo, and the Green Stripe are registered trademarks of Advanced Drainage Systems, Inc.
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Appendix F: Construction Period Erosion Control Plan

Construction Period Erosion Control Plan

Proposed Residential Subdivision

Project Location:

Old River Street, 27 Walnut Street & 17 High Street
Agawam, Massachusetts 01001
(Parcel IDs: J17-1-3, J17-1-1 & J17-1-5)

Submitted To:

Town of Agawam Planning Board
1000 Suffield Street
Agawam, Massachusetts 01001

Applicant & Property Owner:

Calabrese Construction, LLC
c/o Mr. Charles Calabrese
7 Brewster Road
West Springfield, Massachusetts 01089

RLA Project File No. 220627

January 30, 2026

R LEVESQUE ASSOCIATES, INC
A LAND PLANNING SERVICES COMPANY
40 School Street · Westfield, MA 01085
p 413.568.0985 · f 413.568.0986 · www.rlaland.com

The project shall implement a construction period erosion control plan. The following provides descriptions and guidelines to ensure that the areas surrounding the project site will be protected from excessive sedimentation and runoff during construction.

1.1 Construction Period Pollution Prevention And Erosion Control Measures

1.1.1 Preconstruction Notifications And Meetings

Prior to the start of construction, the contractor shall call together a pre-construction meeting including a representative from the Town, the design engineer, contractor, and any pertinent persons that should be in attendance. These requirements shall be the responsibility of the Contractor to arrange, attend, and document.

1.1.2 Sediment Barrier And Work Limit

Before installation of the sediment barriers, the location shall be staked in the field for review and approval by the owner or their representative. To facilitate sediment barrier installation, woody vegetation may then be removed and any required trench may be cut by machine, provided all other ground cover is left intact. No excavation, grading, filling, or removal of vegetative ground cover shall begin until sediment barriers have been installed as shown on the plans and have been inspected by the owner or their representative.

1.1.3 Silt Fence

The bottom of the fence shall be trenched into the ground a minimum of 6" and back-filled with compacted soil. Where trenching is not feasible, silt fence skirt shall be covered with compacted soil or crushed stone. The top of the fabric shall be stretched as tightly as is practical, with intermediate stakes added to correct excessive sags. Stakes shall be driven at least 12" into the ground. Splices between sections shall be made by rolling end stakes together one complete turn and driving into the ground together.

1.1.4 Straw Bales

Straw bales may be used as temporary and moveable control measures, temporary check dams, or as reinforcement for silt fence in areas of concentrated runoff or high fills. Bales shall be tightly butted and staked 12" into the ground. Where used without silt fence in front, the bales shall be trenched 4" into the ground, back-filled with compacted soil, and the spaces between bales shall be chinked with loose hay.

1.1.5 Filter Sock (Filtrexx Or Equivalent)

In areas of expected sheet flow, filter sock may be placed directly on the ground without trenching or stakes. In areas of expected concentrated flow, mulch or crushed stone shall be placed along the up-slope face to control and filter underflow. Additional layers of Filter Sock may be required for adequate freeboard. The filter sock shall be staked at 10 feet on-center or in cases where they cannot be staked, utilize heavy concrete blocks to hold in place.

1.1.6 Temporary Sedimentation Basins

Temporary sediment basins may be excavations or bermed stormwater detention structures (depending on grading) that will retain runoff for a sufficient period of time to allow suspended soil particles to settle out prior to discharge. These temporary basins will be located based on construction needs as determined by the contractor and outlet devices will be designed to control velocity and sediment. Points of discharge from sediment basins will be stabilized to minimize erosion. If the temporary basin is to be located within an area of future infiltration as part of the stormwater management system, the excavation for the temporary sedimentation basin shall be limited to one foot above final grade of the infiltration structure.

1.1.7 Stocking Additional Materials

A stock of additional erosion control materials shall be available on the site for emergency repairs and temporary measures. Stock shall be replenished when decreased to 50% of the numbers below. Stock shall include:

Straw Bales – 10 (kept dry) with 20 oak stakes

Or

Silt Fence – 30 Linear feet.

Or

Filter Sock – 4 – 8 foot sections (kept dry)

Washed Stone – One (1) cubic yard, ¾" to 2" diameter

1.1.8 Trench Protection

Open trenches shall be protected from accumulation of surface water or groundwater that could result in erosion of the trench and discharge of sediment. Where feasible, spoil shall be stockpiled on the up-slope side of the trench to prevent entrance of surface runoff. Backfill shall be crowned to allow for settlement and to avoid concentration of runoff on top of the trench.

1.1.9 Site Stabilization – Temporary

Where a portion of the site will not be subject to construction activity for over 14 days, measures shall be taken to provide temporary stabilization of that inactive portion of the site, within 14 days of the cessation of construction activity. Stabilization measures may include seeding for temporary cover, mulching, or other measures to protect exposed soil from erosion and prevent sediment movement.

1.1.10 Site Stabilization – Permanent

Within 14 days of completion of loaming and finish grading on any portion of the site, that area shall be seeded or planted for permanent cover (season permitting) in accordance with USDA NRCS guidelines or equivalent.

1.1.11 Roadway Sweeping

The entrance to the site and affected portions of the access drive or paved project areas shall be swept as needed to control sediment runoff into storm drains or waterways and to control blowing dust.

1.2 Short-Term Erosion Control Maintenance

The following provides short-term erosion control maintenance guidelines and requirements.

1. The contractor or subcontractor will be responsible for implementing each control shown on the sedimentation and erosion control plan.
2. All erosion and sediment control devices shall be properly maintained during all phases of construction until the completion of all construction activities and all disturbed areas have been stabilized. Additional control measures will be installed during construction in order to control erosion and/or off-site sedimentation if deemed necessary by on-site inspection.
3. Effective erosion control measures shall be initiated prior to the commencement of clearing, grading, excavation, or other operations that will disturb the natural protection.
4. All sediment and erosion control devices shall be inspected at least once every seven (7) calendar days and after any storm event greater than 0.5 inches of precipitation during any 24-hour period, and the inspection shall be documented in writing. Damaged or ineffective devices shall be repaired or replaced, as necessary.
5. The contractor shall take all reasonable precautions to avoid excess erosion of the site due to the construction of this project.
6. Silt shall be removed from behind barriers if greater than 6-inches deep or as needed. Sediment that is collected in structures shall be disposed of properly and covered if stored on-site
7. Damaged or deteriorated items will be repaired immediately after identification.
8. All ditches shall be stabilized as soon as is practicable to minimize erosion.
9. The contractor shall maintain all erosion control devices in a good, working state of repair. Upon complete stabilization of any tributary areas, the erosion control devices shall be removed and disposed of so as to cause no off-site siltation.
10. Inspect and maintain construction entrance stone such that sediment does not track onto the street. Any sediment tracked onto the street shall be swept daily.
11. After catch basins have been constructed, the contractor shall protect the inlets by constructing inlet protection as shown on the plans.
12. Once the site has been paved, all catch basin inlets shall receive a silt sack type protection.
13. Erosion control measures shall remain in place until all disturbed earth has been substantially stabilized. After removal of structures, disturbed areas shall be regraded and stabilized as necessary.

Appendix G: Long-Term Operation and Maintenance Plan

- Long-Term Operation & Maintenance Plan Narrative
- Barracuda Max Maintenance Guide
- StormTech Isolator Row Manual
- Isolator Row Sell Sheet
- StormTech SC-800 Sell Sheet
- O&M Checklist

Long-Term Operation & Maintenance Plan

Proposed Residential Subdivision

Project Location:

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I. Long-Term Stormwater Maintenance Program:

This Long-Term Operation and Maintenance Plan (O&M) identifies inspection and maintenance requirements for the proposed stormwater management system. The O&M references guidelines set forth by the Stormwater Management Handbook developed by the Massachusetts Department of Environmental Protection.

Owner/Responsible Party*:

Calabrese Construction, LLC
c/o Mr. Charles Calabrese
7 Brewster Road
West Springfield, Massachusetts 01089

_____
Signature of Authorized Representative

*The party listed shall be responsible for implementation and record keeping of the requirements listed in this operation and maintenance plan. Upon sale of property or any other transition of ownership, the responsible party shall be reinstated as the new owner or any other group created as determined by the owner.

2. Inspection and Maintenance Program:

Regular inspection and routine maintenance are necessary to ensure that the stormwater management system continues to control and treat runoff. The following lists the inspection schedule and maintenance procedures for the proposed stormwater Best Management Practices:

BMP	Inspection Schedule	Maintenance Schedule	Maintenance Procedures
Bituminous Concrete Pavement	Four times per year	Twice per year	• Roadway to be swept in March or April following snow melt and again in late November or early December to remove fallen leaves and debris.
Deep-Sump Catch Basins	Four times per year	Four times per year	• Remove sediment once deposits reach one half the depth from the bottom sump to the lowest invert.
Stormwater Piping	Once per year	Once per year	• Inspect pipe entrances in catch basins and manholes and remove any blockages.
Water Quality Unit*	As specified by the manufacturer	As specified by the manufacturer	• Clean the unit using the method specified by the manufacturer. Vactor trucks are typically used to clean these units.
Subsurface Detention Basin	Twice per year	Twice Per year	• Verify that the inlet structure has no accumulation of sediment.
Isolator Row(s)**	Every 6 months for the first year. Once per year thereafter	3 inches of accumulated sediment	• Measure accumulated sediment depth. Once sediment reaches 3 inches, maintenance cleaning should be performed.
Flared End Section	Four times per year	As Needed	• Remove any debris or vegetation around the flared end section such that flow out of the structure is not impeded.
Roof Leaders	Once per year	Once per year	• Inspect downspout connections at grade and remove any blockages. • Open and inspect cleanout locations and remove any blockages.
Level Spreader	Every six months during the first year. Annually thereafter.	As Needed	• Remove sediment from the toe of slope and/or riprap voids. • Repair gullies and reseed bare spots immediately.

*See attached Device Operation and Maintenance Guides

**See attached Maintenance Guide

See the attached Long-Term O&M Inspection Checklist for record keeping purposes.

3. Additional Long-Term Operation and Maintenance Items

The following is a list of additional operation and maintenance items to be implemented by the owner/governing group to maintain the features proposed in this project.

A. Proper storage, use, and disposal of hazardous chemicals, including automobile fluids, pesticides, paints, solvents, etc. shall be required. Information should be provided on chemicals of concern, proper use, and disposal options. Recycling programs for used motor oil, antifreeze, and other products should be developed.

B. Vehicle Washing. This management measure involves educating the owner on the water quality impacts of the outdoor washing of vehicles and how to avoid allowing polluted runoff to enter the storm drain system. Outdoor vehicle washing has the potential to result in high loads of nutrients, metals, and hydrocarbons which is conveyed by the detergent-rich water into storm drains.

C. Recycling, spill prevention and response plans, and proper material storage and disposal of potentially hazardous materials shall be implemented. It will be the responsibility of the owner to contain and legally remove any materials that are spilled onsite. The use of dry floor cleaners and absorbent materials and limiting the use of water to clean pavement is encouraged. Care should be taken to avoid accidental disposal of hazardous materials.

D. Provisions for storing trash and waste products shall be implemented. The waste materials shall be collected by the owner and all materials shall be properly disposed of.

E. Requirements for routine inspections and maintenance of stormwater best management practices. Routine inspections shall be performed to ensure the correct functioning of stormwater best management practices. See the specific maintenance criteria for detail regarding inspections and maintenance frequency.

F. Requirements for Storage and Use of Fertilizers, Herbicides, and Pesticides. Fertilizers, pesticides, herbicides, lawn care chemicals, or other leachable materials shall be used in accordance with the Lawn Care Regulations of the Massachusetts Pesticide Board, 33 CMR 10.03 (30,31), as amended, with manufacturer's label instructions and all other necessary precautions to minimize adverse impacts on surface and groundwater. The storage of any such materials shall be within structure designed to prevent the escape of contaminated runoff or leachate.

G. Provisions for prevention of illicit discharges to the stormwater management system shall be implemented. Any illicit discharges to the stormwater management system shall be prohibited. It will be the owner's responsibility to ensure compliance with the legal disposal of all materials and containment/cleanup of any illicit discharges.

H. Training for staff or personnel involved with implementation of the Long-Term Pollution Prevention Plan shall be required. The owner/governing group will be responsible for the implementation of the measures set forth in the Long-Term Pollution Prevention Plan. Documentation that personnel and owners involved with the implementation of the Long-Term Pollution Prevention Plan have been trained to conduct such tasks shall be documented.

4. Winter and Snow Conditions

The following is a list of additional operation and maintenance items to be implemented by the owner during winter and snow conditions.

A. Snowfall shall be stored on the grassed areas surrounding the pavement areas, excluding any areas utilized for stormwater management practices. As needed, any snow that cannot be stored on site shall be trucked off site and disposed of properly.

B. Winter road salt and/or sand use and storage restrictions shall be implemented based on any restrictions issued for the project. Sodium chloride for ice control shall be used at the minimum salt to sand ratio which is consistent with the Massachusetts Department of Environmental Protections guidelines. Sodium chloride, calcium chloride, chemically treated abrasives or other chemicals used for the removal of ice and snow on roads/drives shall not be stored on site.

5. Public Safety Features

The proposed site design utilizes the following features which have been incorporated to ensure the safety of the public:

A. Control and collection of stormwater runoff through positive drainage and curbing directing it towards the drainage inlets;

B. Heavy-duty stormwater drain manhole covers and catch basin grates have been designed to withstand H20 loading;

C. Reduction of peak discharge rates from the site in the post-development condition as compared to the pre-developed conditions;

D. Development and implementation of an Operations & Maintenance Plan to ensure the stormwater management system continues to function as designed.

6. Estimated Cost of Maintenance

The following budget was prepared as an estimate of inspection and maintenance costs for the stormwater management system. The budget is an estimate only as the costs may vary depending on the level of sediment accumulation and frequency of maintenance tasks required.

BMP Inspections	Number of Occurrences	Maintenance Cost	Number of Structures	Sum
Water Quality Unit	2/year	$200	1	$400
Catch Basin	4/year	$50	2	$400
Isolator Row	2/year	$100	1	$200
Subsurface Detention Basin	2/year	$100	1	$200
Level Spreader	2/year	$100	1	$200
Total Estimated Annual Cost of Inspections				$1,400

BMP Maintenance	Number of Occurrences	Maintenance Cost	Number of Structures	Sum
Water Quality Unit	2/year	$1,000	1	$2,000
Catch Basin	4/year	$100	2	$800
Isolator Row	2/year	$100	1	$200
Subsurface Detention Basin	2/year	$500	1	$1,000
Level Spreader	1/year	$1,000	1	$1,000
Total Estimated Annual Cost of Maintenance				$5,000

Barracuda® Max & Barracuda Maintenance Guide

One of Barracuda's advantages is the ease of maintenance. Like any system that collects pollutants, the Barracuda must be maintained for continued effectiveness. Maintenance is a simple procedure performed using a vacuum truck or similar equipment. The systems were designed to minimize the volume of water removed during routine maintenance, reducing disposal costs.

Contractors can access the pollutants stored in the manhole through the manhole cover. This allows them to gain vacuum hose access to the bottom of the manhole to remove sediment and trash. There is no confined space entry necessary for inspection or maintenance.

The entire maintenance procedure typically takes 2 to 4 hours, depending on the system's size, the captured material, and the vacuum truck's capacity.

Local regulations may apply to the maintenance procedure. Safe and legal disposal of pollutants is the responsibility of the maintenance contractor. Maintenance should be performed only by a qualified contractor.

Inspection and Cleaning Cycle

Periodic inspection is needed to determine the need for and frequency of maintenance. You should begin inspecting as soon as construction is complete and then on an annual basis. Typically, the system needs to be cleaned every 1-3 years.

Excessive oils, fuels or sediments may reduce the maintenance cycle. Periodic inspection is important.

Determining When to Clean

To determine the sediment depth, the maintenance contractor should lower a stadia rod into the manhole until it contacts the top of the captured sediment and mark that spot on the rod. Then push the probe through to the bottom of the sump and mark that spot to determine sediment depth.

Maintenance should occur when the sediment has reached the levels indicated in the Storage Capacity Chart.

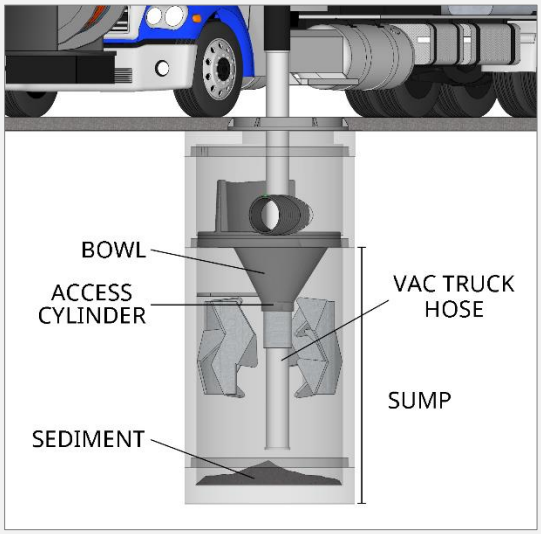
Barracuda Storage Capacities

Model	Manhole Diameter in. (mm)	Total System Volume Gallons (Liters)	Treatment Chamber Capacity Gallons (Liters)	Standard Sediment Capacity (20" depth) Yards^3 (meters^3)	NJDEP Sediment Capacity (50% of standard depth) Yards^3 (meters^3)
S3	36 (900)	264 (999)	212 (803)	0.44 (0.34)	0.22 (0.17)
S4	48 (1200)	665 (2517)	564 (2135)	0.78 (0.60)	0.39 (0.30)
S6	72 (1800)	1497 (5667)	1269 (4804)	1.75 (1.34)	0.88 (0.67)
S8	96 (2400)	4196 (15884)	3835 (14517)	3.10 (2.37)	1.55 (1.19)

Maintenance Instructions

1. Remove the manhole cover to provide access to the pollutant storage. Pollutants are stored in the sump, below the bowl assembly visible from the surface. Access this area through the 8" (200 mm), 10" (250 mm), 15" (375 mm) or 20" (500 mm) diameter access cylinder.
2. Use a vacuum truck or other similar equipment to remove all water, debris, oils and sediment. See figure 1.
3. Use a high pressure hose to clean the manhole of all the remaining sediment and debris. Then, use the vacuum truck to remove the water.
4. Fill the cleaned manhole with water until the level reaches the invert of the outlet pipe.
5. Replace the manhole cover.
6. Dispose of the polluted water, oils, sediment and trash at an approved facility.
    a. Local regulations prohibit the discharge of solid material into the sanitary system. Check with the local sewer authority for authority to discharge the liquid.
    b. Some localities treat the pollutants as leachate. Check with local regulators about disposal requirements.
    c. Additional local regulations may apply to the maintenance procedure.

Figure 1



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ADS® Barracuda® Concrete

Installation Guide

ADS Barracuda Max & Barracuda S4, S6, S8 Concrete Installation Guide

This installation guide is reference for installing the Barracuda Max S4, S6, S8 Water Quality Units into a precast concrete structure in the field.

(1) Deflector Plate

(1) Center Funnel Extender

(2) A/C Stainless Steel Tooth Set

(2) B/D Stainless Steel Tooth Set

(1) Barracuda Max Plastic Funnel

S4	(4) Stainless Steel Funnel Mounting Flanges	(1) Roll of Conseal®	(16) Concrete Anchor ¼ x 2¼"
S6	(4) Stainless Steel Funnel Mounting Flanges	(3) Roll of Conseal®	(16) Concrete Anchor ¼ x 2¼"
S8	(8) Stainless Steel Funnel Mounting Flanges	(4) Roll of Conseal®	(22) Concrete Anchor ¼ x 2¼"

Please check that all components are on site. Below is a list of tools that may be required for installation.

- □ 1/4" Diameter Carbide Tipped Concrete Bit
- □ Standard Electrical or Battery Operated Drill
- □ Adjustable Wrench
- □ Marker for writing on the concrete wall
- □ Hammer Drill for Concrete (Fits the 1/4" Diameter Concrete Drill Bit)
- □ 7/16" Driver or deep socket for installation of provided ¼" Concrete Wedge Anchors
- □ Hammer
- □ Level
- □ Ladder that will extend to bottom of the structure
- □ Safety Glasses
- □ Hard Hat
- □ Protective Gloves
- □ Site Drawings
- □ ADS Design Layout

Installation Instructions (These directions assume the manhole base and riser have been assembled, but that the top slab/cone has not been set).

*Do not insert the inlet or outlet pipes until after the Barracuda Max internals have been installed. If pipes must be inserted in advance, the pipes should not protrude into the structure as they will interfere with installation of the bowl.

1. Install mounting flanges for the Barracuda Max plastic funnel. These flanges need to be installed at the same height, as indicated by model in Table 1. For example, the anchor holes for S4 flanges should be drilled 77" (1925 mm) from the sump floor. S4 and S6 models have four flanges and they need to be evenly spaced at 12, 3, 6, and 9 o'clock positions. S8 funnels require eight flanges that also need to be evenly spaced (i.e., forty-five degrees on a circle) around the inside of the manhole. This flange points are typically located in the third manhole section from the sump and also contain the pipe openings for the Barracuda Max unit. Use the same anchor procedure as you will when mounting the teeth (see step #4 below), using the ¼" (6.25 mm) concrete drill bit to drill 1¼" (31.25 mm) deep holes. Do not over drill the depth of the anchors. Lightly hammer the anchors in place and use locking nuts to firmly secure the flanges (Figure 1).
2. Next, mount the four sets of teeth vertically inside the manhole sump. Using the engineer's plans or the ADS layout, determine the correct orientation for the plastic funnel outlet hole in relation to the outlet pipe (Figures 2 and 5). The first set of teeth (marked as "A" on the teeth part) will be mounted under the center of the outlet hole from the Bowl. Mark that location with a plumb vertical line, this will serve as the "12 o' clock" landmark in the manhole (Figure 3). Repeat this process to mark lines at the 3, 6, and 9 o' clock positions for a total of four.
3. Each kit includes four sets of teeth. Two of these sets are stamped with the letters A and C. The other two sets are stamped B and D. The ADS shop drawing layout will label the teeth letters and all designs will be the A/B configuration (Figure 5). You will install each set of teeth in the correct location, with the indicated letter facing up (Figure 4). See Table 1 for the correct elevation for the top anchor location of each tooth set, measured from the sump floor for each Barracuda Max Unit. The teeth anchors are all at the same elevation. For example, for an S4 Barracuda the top anchor of an A or B indicated set of teeth will be 60" (1500 mm) off the sump floor. Mark the top anchor elevations on each of your four vertical lines (Figure 3), noting that A and B sets of teeth will be at the same height.

Figure 1

Figure 2

Figure 3

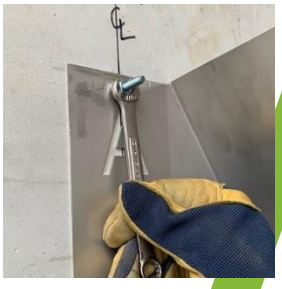
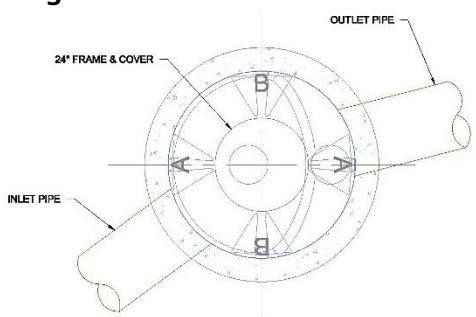


Figure 5

Figure 4



4. To fasten the sets of the teeth to the manhole, use the ¼" concrete drill bit and drill holes approximately 1¼" (31.25 mm) deep at your marked top anchor locations. Do not over drill into the concrete wall. Using a hammer, lightly tap the concrete anchors into the drilled holes (Figure 4). Hang the tooth set on the top anchor with the correct letter facing up and use a locking nut to loosely secure the tooth set to the wall (do not fully tighten the locking nut at this point). With the set of teeth hanging from the top anchor, line up and mark the bottom anchor location and drill the hole. Then hammer the bottom anchor in place and secure the teeth with a lock nut. Use an adjustable or socket wrench to tighten all the top and bottom locking nuts, except for the top nut on the outlet set of teeth (see step #5 below for the deflector plate installation, which will share the top anchor post), so that the teeth are firmly secured to the wall.
5. To attach the deflector plate to the concrete manhole you will use the exit tooth's top concrete anchor and share that linking point with the center tab of the deflector plate. Place the center tab of the deflector plate over the anchor bolt "post" on the outlet set of teeth and hand tighten the nut. Ideally, the plate will be held in place by this center point. Mark the location of the additional mounting tabs for the deflector plate while holding the plate relatively level. All deflector plate concrete anchors will be at the same elevation as the top tooth linking points and the anchors will be installed like the description in step #4. Once the two outer deflector plate linking points have been located, the installer can draw a vertical line and measure the exact location corresponding to the "high" teeth anchoring elevation. Once the deflector plate concrete anchors are installed tighten the nuts to complete the fastening of the deflector plate to the wall of the structure. See Figure 6 to show this more clearly.
6. Lower the plastic funnel into the structure (Figure 7), orienting the weir and outlet hole as depicted in the ADS layout (as identified in step 1). S6 and S8 units have eyebolts threaded holes on the top of the funnel to assist in lifting, and the eyebolts are provided in the equipment kit. If the eyebolts are misplaced, S6 units have ⅜" (9 mm) -16 threads and S8 units utilize ½" (12 mm) -13 threads. After the bowl is in place, install the center funnel extender through the hole and seat it until the tabs of the extender touch the bowl itself (Figure 8). This is a friction-based attachment and no fasteners are needed.
7. Next, you'll use Conseal to fill any gaps around the funnel. S6 and S8 units are provided with a metal funnel plug. This plug is placed in the funnel opening for worker safety and must be utilized ANYTIME SOMEONE ENTERS THE STRUCTURE. Unroll the Conseal and wedge it between the funnel and manhole to create a seal (Figure 9). Conseal should also be used to seal between the vertical edges of the weir wall and the manhole. The plastic funnel can expand with high temperature. Install the funnel during cooler parts of the day, or keep the funnel shaded until installation can mitigate fitment issues. Once the Conseal is installed, the internal component installation is complete. The funnel plug may be discarded (if applicable), and the top slab can be set. If the application calls for a grated inlet, orient the slab so the grate is above the inlet (large bowl) side of the plastic funnel.

For maintenance details, please refer to the Barracuda Max Maintenance Manual. If the application requires a trash rack or oil boom, reference the appropriate supplementary installation instructions.

Figure 6

Figure 7

Figure 8

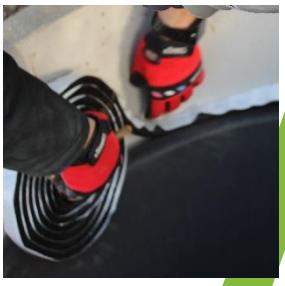


Figure 9

Table 1

	S4	S6	S8
Top Anchor Elevation from Sump Floor (A and B tooth indication)	60” (1270 mm)	68” (1475 mm)	90” (1880 mm)
Funnel Flange Anchor Elevation from Sump Floor	77” (1960 mm)	77” (1960 mm)	127” (3220 mm)

Note: Distances can be +/- 1-2 inches (25-50 mm) from these locations for the A, and B teeth, but flange elevations should be adhered to as much as possible and can only be lowered a maximum of 1 inch (25 mm) from these values listed above.
This guide is intended for field installations of Barracuda Max S4, S6, and S8 water quality units into precast manholes. For pre-casters installing internal components prior to job site delivery, contact ADS for possible modifications to component elevations.

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Isolator® Row Plus
O&M Manual

The Isolator® Row Plus

Introduction

An important component of any Stormwater Pollution Prevention Plan is inspection and maintenance. The StormTech Isolator Row Plus is a technique to inexpensively enhance Total Suspended Solids (TSS), Total Phosphorus (TP), Total Petroluem Hydrocarbons (TPH) and Total Nitrogen (TN) removal with easy access for inspection and maintenance.

The Isolator Row Plus

The Isolator Row Plus is a row of StormTech chambers, either SC-160, SC-310, DC-780, SC-800, MC-3500, MC-4500 or MC-7200 models, are lined with filter fabric and connected to a closely located manhole for easy access. The fabric lined chambers provide for sediment settling and filtration as stormwater rises in the Isolator Row Plus and passes through the filter fabric. The open bottom chambers allow stormwater to flow vertically out of the chambers. Sediments are captured in the Isolator Row Plus protecting the adjacent stone and chambers storage areas from sediment accumulation.

ADS Isolator Row and Plus fabric are placed between the stone and the Isolator Row Plus chambers. The woven geotextile provides a media for stormwater filtration, a durable surface for maintenance, prevents scour of the underlying stone and remains intact during high pressure jetting.

The Isolator Row Plus is designed to capture the “first flush” runoff and offers the versatility to be sized on a volume basis or a flow-rate basis. An upstream manhole provides access to the Isolator Row Plus and includes a high/low concept such that stormwater flow rates or volumes that exceed the capacity of the Isolator Row Plus bypass through a manifold to the other chambers. This is achieved with an elevated bypass manifold or a high-flow weir. This creates a differential between the Isolator Row Plus row of chambers and the manifold to the rest of the system, thus allowing for settlement time in the Isolator Row Plus. After Stormwater flows through the Isolator Row Plus and into the rest of the chamber system it is either exfiltrated into the soils below or passed at a controlled rate through an outlet manifold and outlet control structure.

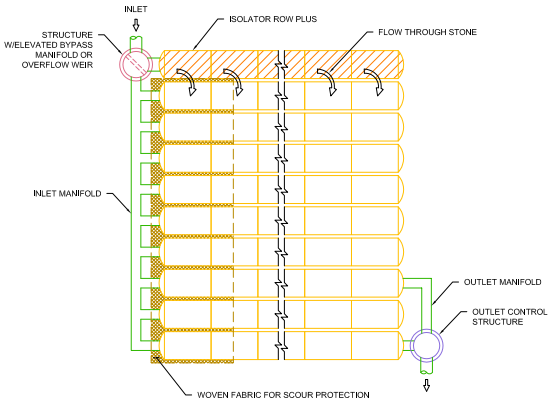
The Isolator Row Plus Flamp™ is a flared end ramp apparatus attached to the inlet pipe on the inside of the chamber end cap. The FLAMP provides a smooth transition from pipe invert to fabric bottom. It is configured to improve chamber function performance by enhancing outflow of solid debris that would otherwise collect at the chamber's end, or more difficult to remove and require confined space entry into the chamber area. It also serves to improve the fluid and solid flow into the access pipe during maintenance and cleaning and to guide cleaning and inspection equipment back into the inlet pipe when complete.

The Isolator Row Plus may be part of a treatment train system. The treatment train design and pretreatment device selection by the design engineer is often driven by regulatory requirements. Whether pretreatment is used or not, StormTech recommend using the Isolator Row Plus to minimize maintenance requirements and maintenance costs.

Note: *See the StormTech Design Manual for detailed information on designing inlets for a StormTech system, including the Isolator Row Plus.*

Looking down the Isolator Row Plus from the manhole opening, ADS Plus Fabric is shown between the chamber and stone base.

StormTech Isolator Row Plus with Overflow Structure (not to scale)



Isolator Row Plus Inspection/Maintenance

Inspection

The frequency of inspection and maintenance varies by location. A routine inspection schedule needs to be established for each individual location based upon site specific variables. The type of land use (i.e. industrial, commercial, residential), anticipated pollutant load, percent imperviousness, climate, etc. all play a critical role in determining the actual frequency of inspection and maintenance practices.

At a minimum, StormTech recommends annual inspections. Initially, the Isolator Row Plus should be inspected every 6 months for the first year of operation. For subsequent years, the inspection should be adjusted based upon previous observation of sediment deposition.

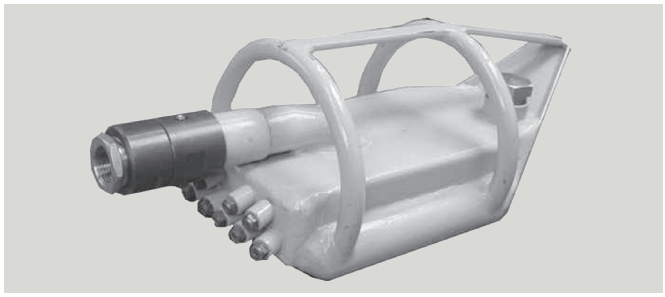
The Isolator Row Plus incorporates a combination of standard manhole(s) and strategically located inspection ports (as needed). The inspection ports allow for easy access to the system from the surface, eliminating the need to perform a confined space entry for inspection purposes.

If upon visual inspection it is found that sediment has accumulated, a stadia rod should be inserted to determine the depth of sediment. When the average depth of sediment exceeds 3" (75 mm) throughout the length of the Isolator Row Plus, clean-out should be performed.

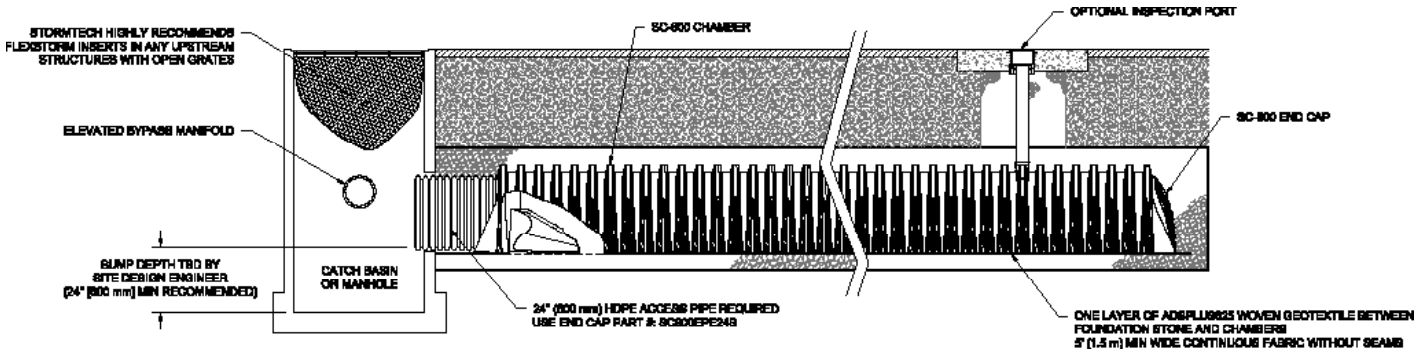
Maintenance

The Isolator Row Plus was designed to reduce the cost of periodic maintenance. By “isolating” sediments to just one row, costs are dramatically reduced by eliminating the need to clean out each row of the entire storage bed. If inspection indicates the potential need for maintenance, access is provided via a manhole(s) located on the end(s) of the row for cleanout. If entry into the manhole is required, please follow local and OSHA rules for a confined space entry.

Maintenance is accomplished with the JetVac process. The JetVac process utilizes a high pressure water nozzle to propel itself down the Isolator Row Plus while scouring and suspending sediments. As the nozzle is retrieved, the captured pollutants are flushed back into the manhole for vacuuming. Most sewer and pipe maintenance companies have vacuum/JetVac combination vehicles. Selection of an appropriate JetVac nozzle will improve maintenance efficiency. Fixed nozzles designed for culverts or large diameter pipe cleaning are preferable. Rear facing jets with an effective spread of at least 45” are best. StormTech recommends a maximum nozzle pressure of 2000 psi be utilized during cleaning. JetVac reels can vary in length. For ease of maintenance, ADS recommends Isolator Row Plus lengths up to 200' (61 m). **The JetVac process shall only be performed on StormTech Isolator Row Plus that have ADS Plus Fabric (as specified by StormTech) over their angular base stone.**



StormTech Isolator Row Plus (*not to scale*)



Isolator Row Plus Step By Step Maintenance Procedures

Step 1

Inspect Isolator Row Plus for sediment.

A) Inspection ports (if present)
   i. Remove lid from floor box frame
   ii. Remove cap from inspection riser
   iii. Using a flashlight and stadia rod,measure depth of sediment and record results on maintenance log.
   iv. If sediment is at or above 3 inch depth, proceed to Step 2. If not, proceed to Step 3.

B) All Isolator Row Plus
   i. Remove cover from manhole at upstream end of Isolator Row Plus
   ii. Using a flashlight, inspect down Isolator Row Plus through outlet pipe
      1. Mirrors on poles or cameras may be used to avoid a confined space entry
      2. Follow OSHA regulations for confined space entry if entering manhole
   iii. If sediment is at or above the lower row of sidewall holes (approximately 3 inches), proceed to Step 2.
   If not, proceed to Step 3.

Step 2

Clean out Isolator Row Plus using the JetVac process.

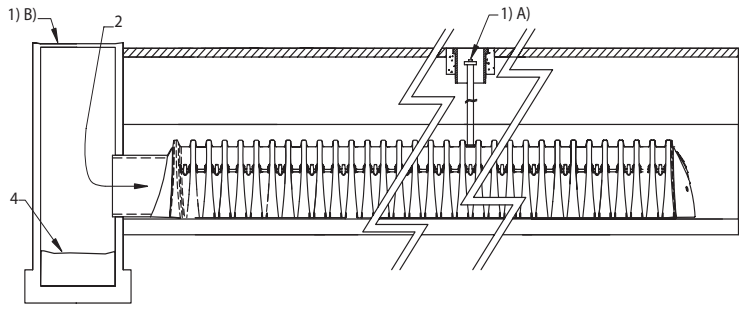
A) A fixed floor cleaning nozzle with rear facing nozzle spread of 45 inches or more is preferable
B) Apply multiple passes of JetVac until backflush water is clean
C) Vacuum manhole sump as required

Step 3

Replace all caps, lids and covers, record observations and actions.

Step 4

Inspect & clean catch basins and manholes upstream of the StormTech system.



Sample Maintenance Log

Date	Stadia Rod Readings		Sedi-ment Depth (1)–(2)	Observations/Actions	Inspector
	Fixed point to chamber bottom (1)	Fixed point to top of sediment (2)			
3/15/11	6.3 ft	none		New installation. Fixed point is CI frame at grade	DJM
9/24/11		6.2	0.1 ft	Some grit felt	SM
6/20/13		5.8	0.5 ft	Mucky feel, debris visible in manhole and in Isolator Row Plus, maintenance due	NV
7/7/13	6.3 ft		0	System jetted and vacuumed	DJM

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800-821-6710

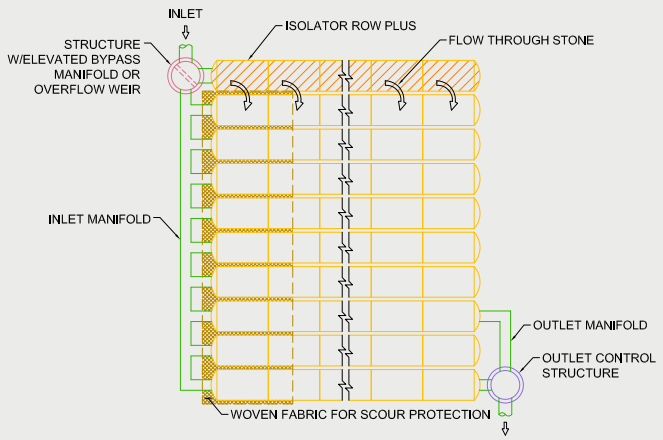
Isolator® Row Plus

The StormTech Isolator Row Plus is an enhancement to our proven water quality treatment system. This updated system is an NJCAT verified water quality treatment device that can be incorporated into any system layout.

Features

- Isolator Row Plus is now NJCAT verified. As a Manufactured Treatment Device it achieves over 80% TSS removal by filtration NJDEP Laboratory Protocol Assessment NJCAT Technology Verification.
- A patented Flamp™ (Flared End Ramp) provides a smooth transition from pipe invert to fabric bottom. The Flamp is attached to the inlet pipe inside the chamber end cap and improves chamber function over time by distributing sediment and debris that would otherwise collect at the inlet. It also serves to improve the fluid and solid flow back into the inlet pipe during maintenance and cleaning.
- Proprietary ADS Plus fabric maintains durability and sediment removal while allowing for higher water quality flow rates. A single layer of ADS Plus fabric is placed between the angular base stone and the Isolator Row Plus chambers.

Schematic of the StormTech Isolator Row Plus System



Technology Descriptions

The Isolator Row Plus is designed to capture the “first flush” runoff and offers the versatility to be sized on a volume or a flow basis. An upstream manhole not only provides access to the Isolator Row Plus but includes a high/low concept such that stormwater flow rates or volumes that exceed the capacity of the Isolator Row Plus bypass through a manifold to the other chambers. This is achieved with either an elevated bypass manifold or a high-flow weir. This creates a differential between the Isolator Row Plus row of chambers and the manifold to the rest of the system, thus allowing for settlement time in the Isolator Row Plus. After Stormwater flows through the Isolator Row Plus and into the rest of the StormTech chamber system it is either infiltrated into the soils below or passed at a controlled rate through an outlet manifold and outlet control structure.

Summary of Verified Claims[1]

Treatment Rate (gpm/ft²)	4.1
Underlying Geotextile Layers	1
NJDEP Test Sediment	D50=75um
Mean Particle Concentration (mg/L)	200
TSS Removal Efficiency	>80%

[1] Verification testing of the StormTech SC-740 Isolator Row PLUS in accordance with NJDEP Laboratory protocol to access total suspended solids removal by filtration manufactured treatment device, 2013

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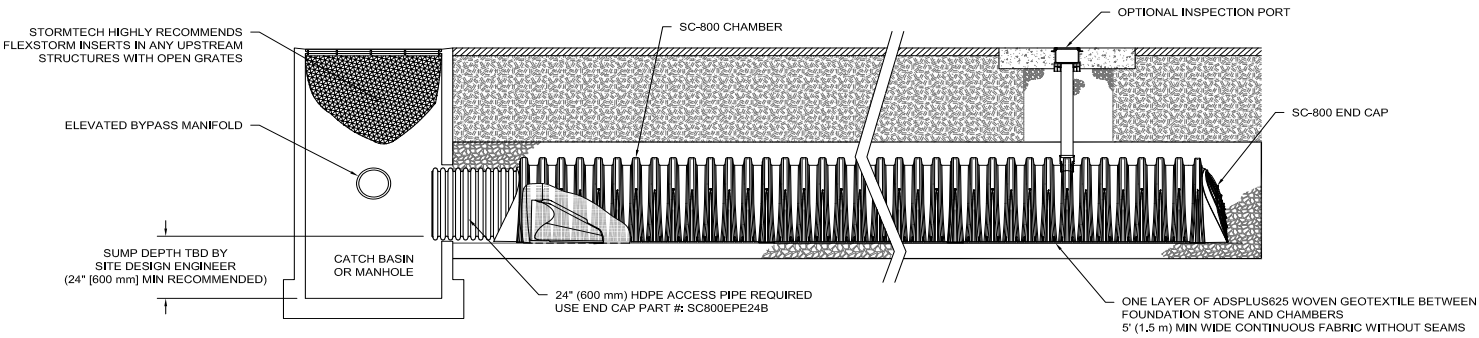
StormTech Isolator Row Plus (not to scale)



Maintenance

The Isolator Row Plus was designed to reduce the cost of periodic maintenance. By "isolating" sediment to just one row of the StormTech system, costs are dramatically reduced by eliminating the need to clean out each row of the entire storage bed. If inspection indicates the potential need for maintenance, access is provided via a manhole(s) located on the end(s) of the row for cleanout.

Maintenance is accomplished with the JetVac® process. The JetVac process utilizes a high-pressure water nozzle to propel itself down the Isolator Row Plus while scouring and suspending sediment. As the nozzle is retrieved, the captured pollutants are flushed back into the manhole for vacuuming. Most sewer and pipe maintenance companies have vacuum/JetVac combination vehicles. Selection of an appropriate JetVac nozzle will improve maintenance efficiency.

StormTech Isolator Row Plus

Chamber Model	Chamber Storage	Chamber Footprint	Treatment Rate
SC-160LP	15.0 cf (0.42 m^3)	11.45 sf (1.06 m^2)	0.11 cfs (3.11 L/s)
SC-310	31.0 cf (0.88 m^3)	17.7 sf (1.64 m^2)	0.16 cfs (4.53 L/s)
DC-780	78.4 cf (2.22 m^3)	27.8 sf (2.58 m^2)	0.26 cfs (7.36 L/s)
SC-800	81.0 cf (2.29 m^3)	27.3 sf (2.54 m^2)	0.25 cfs (7.1 L/s)
MC-3500	175.0 cf (4.96 m^3)	42.9 sf (3.99 m^2)	0.40 cfs (11.32 L/s)
MC-4500	162.6 cf (4.60 m^3)	30.1 sf (2.80 m^2)	0.28 cfs (7.93 L/s)
MC-7200	267.3 cf (7.57 m^3)	50.0 sf (4.65 m^2)	0.45 cfs (12.74 L/s)

Installation

Installation of the stormwater treatment unit(s) shall be preformed per manufacture's installation instructions. Such instructions can be obtained by calling Advanced Drainage Systems Inc. at (800) 821-6710 or by logging on to adspipe.com.

ADS "Terms and Conditions of Sale" are available on the ADS website, www.adspipe.com
The ADS logo, StormTech® and the Green Stripe are registered trademarks of Advanced Drainage Systems, Inc.
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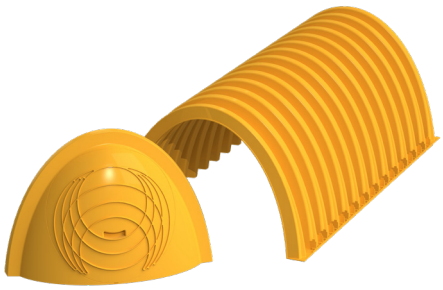
StormTech® SC-800 Chamber

Designed to meet the most stringent industry performance standards for superior structural integrity while providing designers with a cost-effective method to save valuable land and protect water resources. The StormTech system is designed primarily to be used under parking lots, thus maximizing land usage for private (commercial) and public applications. StormTech chambers can also be used in conjunction with Green Infrastructure, thus enhancing the performance and extending the service life of these practices.



Nominal Chamber Specifications
(not to scale)

Size (L x W x H)
85.4” x 51” x 33”
2169 mm x 1295 mm x 838 mm

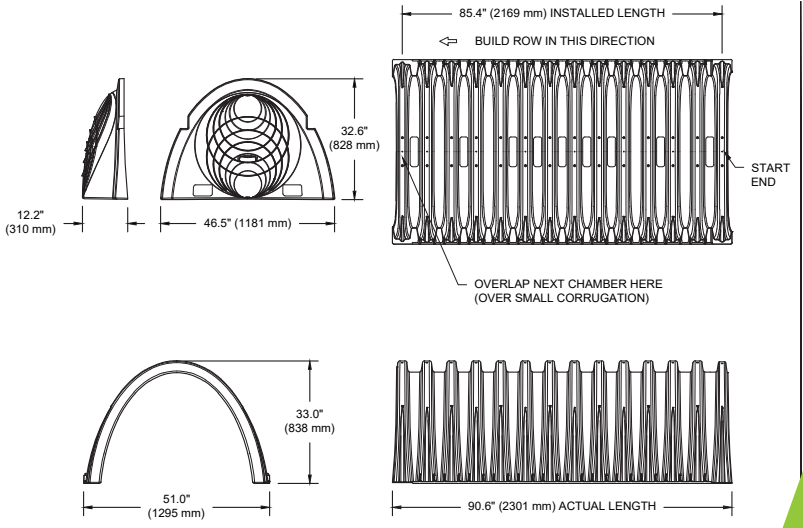
Chamber Storage
50.6 ft³ (1.43 m³)

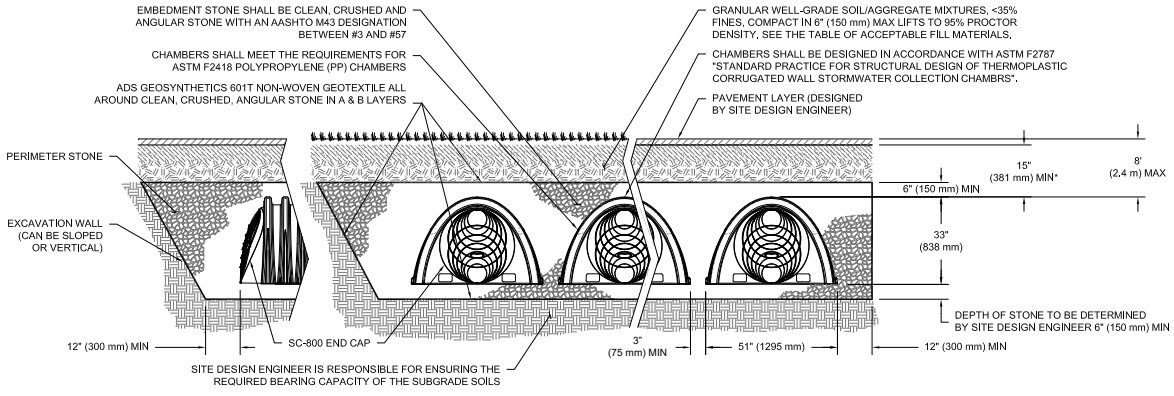
Min. Installed Storage*
78.4 ft³ (2.22 m³)

Weight
81.8 lbs (37.1 kg)

Shipping
30 chambers/pallet
60 end caps/pallet
12 pallets/truck

*Assumes 6” (150 mm) stone above and below chambers, 3” (75 mm) stone between chambers, and 40% stone porosity.





*MINIMUM COVER TO BOTTOM OF FLEXIBLE PAVEMENT. FOR UNPAVED INSTALLATIONS WHERE RUTTING FROM VEHICLES MAY OCCUR, INCREASE COVER TO 21" (533 mm).

ADS StormTech™

StormTech SC-800 Specifications

Cumulative Storage Volumes Per Chamber

Assumes 40% Stone Porosity. Calculations are Based Upon a 6” (150 mm) Stone Base Under Chambers.

Depth of Water in System Inches (mm)	Cumulative Chamber Storage ft³ (m³)	Total System Cumulative Storage ft³ (m³)
45 (1143)	50.62 (1.433)	78.41 (2.22)
44 (1118)	50.62 (1.433)	77.34 (2.19)
43 (1092)	50.62 (1.433)	76.28 (2.16)
42 (1067)	50.62 (1.433)	75.21 (2.13)
41 (1041)	50.62 (1.433)	74.14 (2.10)
40 (1016)	50.62 (1.433)	73.07 (2.07)
39 (991)	50.62 (1.433)	72.01 (2.04)
38 (965)	50.55 (1.431)	70.89 (2.01)
37 (940)	50.35 (1.426)	69.71 (1.97)
36 (914)	50.07 (1.418)	68.47 (1.94)
35 (889)	49.56 (1.403)	67.10 (1.90)
34 (864)	48.82 (1.382)	65.59 (1.86)
33 (838)	47.93 (1.357)	63.98 (1.81)
32 (813)	46.91 (1.328)	62.31 (1.76)
31 (787)	45.79 (1.297)	60.57 (1.72)
30 (762)	44.58 (1.262)	58.77 (1.66)
29 (737)	43.28 (1.226)	56.93 (1.61)
28 (711)	41.91 (1.187)	55.04 (1.56)
27 (686)	40.47 (1.146)	53.10 (1.50)
26 (660)	38.96 (1.103)	51.13 (1.45)
25 (635)	37.40 (1.059)	49.13 (1.39)
24 (610)	35.78 (1.013)	47.09 (1.33)
23 (584)	34.10 (0.966)	45.02 (1.27)
22 (559)	32.38 (0.917)	42.91 (1.22)
21 (533)	30.61 (0.867)	40.79 (1.15)
20 (508)	28.80 (0.816)	38.63 (1.09)
19 (483)	26.95 (0.763)	36.45 (1.03)
18 (457)	25.06 (0.710)	34.25 (0.97)
17 (432)	23.13 (0.655)	32.02 (0.91)
16 (406)	21.17 (0.599)	29.78 (0.84)
15 (381)	19.17 (0.543)	27.51 (0.78)
14 (356)	17.14 (0.485)	25.23 (0.71)
13 (330)	15.09 (0.427)	22.93 (0.65)
12 (305)	13.00 (0.368)	20.61 (0.58)
11 (279)	10.89 (0.308)	18.28 (0.52)
10 (254)	8.76 (0.248)	15.93 (0.45)
9 (229)	6.60 (0.187)	13.57 (0.38)
8 (203)	4.42 (0.125)	11.19 (0.32)
7 (178)	2.22 (0.063)	8.81 (0.25)
6 (152)	0 (0)	6.41 (0.18)
5 (127)	0 (0)	5.34 (0.15)
4 (102)	0 (0)	4.27 (0.12)
3 (76)	0 (0)	3.20 (0.09)
2 (51)	0 (0)	2.14 (0.06)
1 (25)	0 (0)	1.07 (0.03)

Stone Cover

Stone Foundation

Note: Add 1.07 ft³ (0.03 m³) of storage for each additional inch (25 mm) of stone foundation.

Storage Volume Per Chamber ft³ (m³)

	Bare Chamber Storage ft³ (m³)	Chamber and Stone Foundation Depth in. (mm)		
		6 (150)	12 (300)	18 (450)
SC-800 Chamber	50.6 (1.43)	78.4 (2.22)	84.8 (2.4)	91.2 (2.58)

Note: Assumes 6” (150 mm) stone above chambers, 3” (75 mm) row spacing and 40% stone porosity.

Amount of Stone Per Chamber

English Tons (yds³)	Stone Foundation Depth		
	6”	12”	18”
SC-800	3.6 (2.6)	4.4 (3.2)	5.3 (3.8)
Metric Kilograms (m³)	**150 mm**	**300 mm**	**450 mm**
SC-800	3270 (2.0)	3990 (2.4)	4810 (2.9)

Note: Assumes 6” (150 mm) of stone above chambers and 3” (75 mm) stone between chambers.

Volume Excavation Per Chamber yd³ (m³)

	Stone Foundation Depth		
	6” (150 mm)	12” (300 mm)	18” (450 mm)
SC-800	5.3 (4.1)	5.9 (4.5)	6.5 (5.0)

Note: Assumes 3” (75 mm) of row separation and 15” (375 mm) of cover. The volume of excavation will vary as depth of cover increases.

ADS StormTech products, manufactured in accordance with ASTM F2418 or ASTMF2922, comply with all requirements in the Build America, Buy America (BABA) Act.

Working on a project?
Visit us at adspipe.com/stormtech and utilize the Design Tool

ADS StormTech™

adspipe.com
800-821-6710

ADS “Terms and Conditions of Sale” are available on the ADS website, www.adspipe.com
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Project: _____ Responsible Party: _____

Address: _____ Date: _____

BPM Name: _____ Page: 1 of 1

Operation & Maintenance Inspection Checklist

BMP Element:	Potential Problem:	Resolution:	Pass	Fail	Recommended Remediation
Deep-Sump Catch Basins	Sediment has accumulated to a depth greater than the original design depth for sediment storage, approximately 2-feet of sediment.	Remove the sediment and dispose of in accordance with local and state regulations.			
Stormwater Piping	Blockage of inlet/outlet pipes due to debris or sediment accumulation.	Remove any debris and sediment via proper means. Dispose of debris/sediment in accordance with local & state regulations			
Roof Leaders	Downspout connections have been damaged or disconnected.	Repair and reconnect downspout connections.			
	Roof leaders are surcharging at the downspout connections	Open and insepct at cleanout locations and remove any blockages.			
Proprietary Treatment Device	Sediment has accumulated to a depth greater that the original design depth for sediment storage.	Remove sediment and disposed of in accordance with local and state regulations.			
Subsurface Detention Basin	Accumulation of sediment at the inlet structure above maintenance level.	Remove the sediment and conduct proper maintenance to the up-gradient pretreatment devices.			
Isolator Row	Accumulation of sediment over 3-inches within the isolator row.	Remove the sediment and conduct the proper maintenance per the Isolator Row Operation and Maitenance Manual.			
Flared End Sections	Vegetation has started to grow within the riprap area.	Remove vegetation immediately.			
	Accumulation of sediment/debris at the culvert inlet.	Remove sediment or debris such that the culvert has free flow.			
	Erosion is occuring where riprap has been dislodged.	Remedy scoured area and replace riprap immediately.			
Level Spreader	Sediment has accumulated in riprap channel void space.	Remove the sediment and dispose of in accordance with local and state regulations and replace riprap.			
	Down-gradient gullies have formed due to sheet flow concentration.	Fill gullies with native backfill, No. 6 pea-stone, topsoil and errosion control blanket. Sod or re-seed with stabalized errosion control grass mix.			

_____ _____

Inspector's Signature Date

Appendix H: Illicit Discharge Compliance Statement

Illicit Discharge Compliance Statement

The owners of the land/responsible party will be responsible for prohibiting illicit discharges to the stormwater management system during construction and during its life of operation. The stormwater management system is comprised of the components for conveying, treating, and infiltrating stormwater runoff on-site, including stormwater best management practices and any pipes intended to transport stormwater to the groundwater, a surface water, or municipal separate storm sewer system. An illicit discharge shall constitute any connection or discharge to the stormwater management system including, but not limited to, wastewater discharges, discharge of stormwater contaminated by contact with process wastes, raw materials, toxic pollutants, hazardous substances, oil, or grease.

Responsible Party*:

Calabrese Construction, LLC
c/o Mr. Charles Calabrese
7 Brewster Road
West Springfield, Massachusetts 01089

*The party listed shall be responsible for implementation and record keeping of the requirements listed in this operation and maintenance plan. Upon sale of property or any other transition of ownership, the responsible party shall be reinstated as the new owner or any other group created as determined by the owner.

_____ _____

Signature of Responsible Party Representative Date

_____ _____

Signature of Responsible Party Representative** Date

**Required upon transfer of ownership

Appendix I: Low Impact Development Considerations

Low Impact Development Considerations

Proposed Residential Subdivision

Project Location:

Old River Street, 27 Walnut Street & 17 High Street
Agawam, Massachusetts 01001
(Parcel IDs: J17-1-3, J17-1-1 & J17-1-5)

Submitted To:

Town of Agawam Planning Board
1000 Suffield Street
Agawam, Massachusetts 01001

Applicant & Property Owner:

Calabrese Construction, LLC
c/o Mr. Charles Calabrese
7 Brewster Road
West Springfield, Massachusetts 01089

RLA Project File: 220627

January 30, 2026

R LEVESQUE ASSOCIATES, INC
A LAND PLANNING SERVICES COMPANY
40 School Street · Westfield, MA 01085
p 413.568.0985 · f 413.568.0986 · www.rlaland.com

Introduction

Per the Massachusetts Stormwater Handbook, project proponents must consider environmentally sensitive site design and low impact development techniques to effectively manage stormwater. As a part of the proposed project, the proponent has considered a number of environmentally sensitive, low impact development techniques to prevent the generation of stormwater and non-point source pollution.

The following is a detailed description of the considerations for each low impact development measure. For ease of review, RLA has provided the consideration of each measure as detailed in the Massachusetts Stormwater Report Checklist.

Low Impact Development (Lid) Measures

1. Environmentally Sensitive Project Approach

   The proposed project has been designed to create three new building lots and the construction of three new multi-family homes on the northerly end of High Street and the paper street called Old River Street in Agawam, Massachusetts. The site is bordered to the north by the Westfield River and associated riverfront area. The proposed site improvements have been designed specifically to avoid jurisdictional area and therefor provide an environmentally sensitive approach to the site development.

2. No disturbance to any Wetland Resource Areas

   The project was designed in the least intrusive manner possible and almost entirely within previously developed areas. Riverfront area associated with the Westfield River is located on the property to the northeast. There is no work proposed within any wetland resource areas or, in this case, the respective 200-foot riverfront area.

3. Site Design Practices (e.g. clustered development, reduced frontage setbacks)

   The project will entail the creation of a three lot subdivision and will involve the reconstruction of a portion of High Street, a cul-de-sac, utility connections, and stormwater management system. The subdivision lots have been laid out in the most efficient manner possible, effectively utilizing the upland areas within the property and minimizing disturbance within the riverfront area. All proposed work is located outside of the 200-foot riverfront area.

4. Reduced Impervious Area (Redevelopment Only)

   The proposed project is not part of a redevelopment project.

5. Minimizing disturbance to existing trees and shrubs

   The goal of the project proponent is to maintain as much of the existing vegetative cover on-site as possible. The majority of the area being developed as part of the subdivision has been historically disturbed and lacks mature vegetation. Special care has been taken to avoid disturbance within the 200-foot riverfront area.

6. LID Site Design Credit Requested

No LID Site Design Credit is requested for the proposed project.

7. Use of "country drainage" versus curb and gutter conveyance and pipe

Country drainage systems are often times much less costly than closed drainage systems such as gutter conveyance and pipe. Alternatives to the proposed curb and gutter, catch basin, and underground infrastructure were considered. It was discovered that due to the site layout, the project proponent was unable to take advantage of country drainage systems. It was not feasible to convey the water to a pre-treatment and detention area that meets the DEP standards by country drainage methods.

8. Bioretention Cells (includes Rain Gardens)

Due to the site layout along with the proposed curb and gutter stormwater management system, a viable location to include a bioretention cell was not feasible.

9. Constructed Stormwater Wetlands (includes Gravel Wetlands designs)

There are no wetland impacts proposed, therefore, a constructed wetland is not logical and would create additional regulated area.

10. Treebox Filter

Treebox filters were considered for the project, however, due to the nature of the project being a residential subdivision and the site layout, the extensive costs associated with such a method and the climatic conditions of the area, it is believed that such methods would be detrimental to the proposed project and would only provide a maintenance problem and a potential hazard for the owner.

11. Water Quality Swale

Due to the layout of the site, a water quality swale has not been included as part of the treatment train process for the stormwater management system.

12. Grass Channel

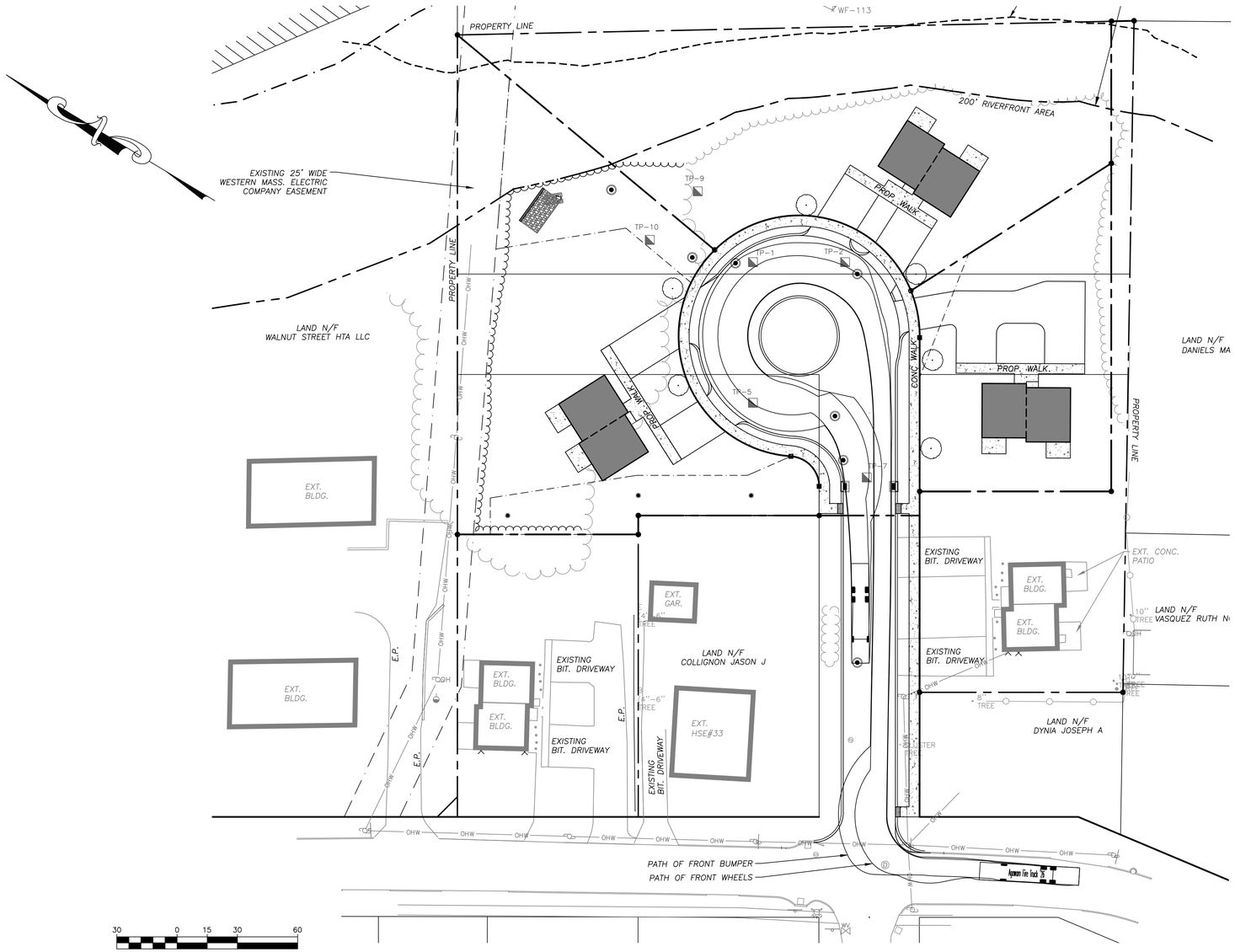
Due to the layout of the site, a grassed channel has not been included as part of the treatment train process for the stormwater management system.

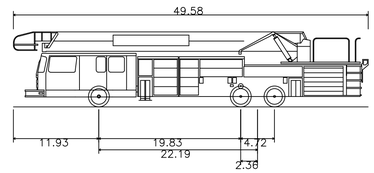
13. Green Roof

Green roofs are not suitable or marketable for the proposed project.

14. Other

Please see the Stormwater Report for more information.





Agawam Fire Truck '26	
Overall Length	49.580ft
Overall Width	8.700ft
Overall Body Height	10.482ft
Min Body Ground Clearance	0.913ft
Track Width	8.290ft
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	37.220ft

PERMITTING

SWEPT PATH ANALYSIS

0 Old River Street
Agawam, Massachusetts
Map J17 Parcel I-3

R LEVESQUE ASSOCIATES INC
Landscape Architects
Civil Engineers · Land Surveyors
Environmental Consultants
ph: 413.568.0985 fax: 413.568.0986
40 School Street
Westfield, MA 01085
rlaland.com

PREPARED FOR:

Chuck Calabrese
Calabrese Construction, LLC

7 Brewster Road
West Springfield, MA.

ISSUANCE DATE: March 5, 2026

REVISIONS:	DATE:

DRAFTED BY: T.A. & F.C.

UNAUTHORIZED ALTERATION OF
THIS DOCUMENT IS A VIOLATION
OF MASSACHUSETTS STATE LAW

SCALE: As Noted

RLA PROJ. NUMBER: 220627

DRAWING#	REV.
VEH-1	-

S:\Projects\2022\220627 - Calabrese - 0 Old River St, Agawam, MA\05 Civil 3D\220627 - Defin.dwg

Planning Department
Definitive Plan Review

Reviewer: Taryn Egerton **Review Date:** February 27, 2026

Date Received: February 10, 2026 **Distribution Date**: February 12, 2026

Planning Board Public Hearing Date: March 5, 2026

Mandatory Date for Final Action: May 11, 2026 (Extensions may be made at the request of the applicant)

Name of Subdivision: High Street (alternative street name is required)

Location: Old River Street, 27 Walnut Street, & 17 High Street

Name of Owner: Charles R. Calabrese

Address: 7 Brewster Rd West Springfield, Ma 01089 **Tel. #**:

Name of Applicant: Same

Address: **Tel. #**

Engineer: R. Levesque Associates

Address: 40 School Street, Westfield, MA Tel. # 568-0985

I. Preliminary Plan Approved: November 6, 2025

II. Definitive Plan conforms to zoning regulations: O.K.

III. Notice filed with Town Clerk (date): January 30, 2026

IV. Filing Fee: $875.00

V. Contents of Application:

A. Statement of Interest in Land: Provided.

B. Attested Copy of Deed: Provided

C. **Updated Environmental Study**: Provided

D. **Final Plans**

1. **Title Sheet (1" = 30'**): O.K.

2. **Lot survey with road layout and lot lines**: See II

a. **Subdivision name, boundaries, north point, date and scale**:
b. **name and address of record owner, subdivider, and engineer or surveyor with stamp**: O.K.
c. **Abutters as found on recent tax list**:
d. **Existing and proposed lines of streets, ways, lots, easements, and public common areas, new street names**: New street name is required
e. **Sufficient data to determine the location, direction and length of every street**: O.K.
f. **Location, names, and widths of streets bounding subdivision**: Width of Walnut Street not provided
g. **Signature Block**: Provided.

3. **Topo sheet at 2' intervals, spot elevations, center line for road, spot elevations for septic systems, location of building and final grade**: Provided.

4. **Road layout and profiles (utilities and curb cuts**): See Engineering comments.

5. **Detail Sheets**: See Engineering comments.

E. **Time development sequence**: O.K..

1. **Town utilities and services**: See Engineering comment.

2. **Sale price and square footage**: Not provided. The applicant should provide approximate square footage and sale price.

F. **Soil Borings**: Not provided. The applicant should provide Soil Boring Logs and locations

G. **Perc Test**: Not provided.

H. **Two (2) sets of originals/five (5) sets of copies**: Originals not needed until final approval is given

I. Number and type of requested waivers:

1. Section 159-23(A) Waiver from the requirement on both sides of the roadway. Sidewalks on one side are proposed.

2. Section 159-8(D) Waiver from the requirement to provide curbline radius of 25'. Curbline radius of 15' is proposed.

3. Section 159-20(A) Waiver from the requirement to provide an 8" sewer main. 6" is proposed.

4. Section 159-21(A) Waiver from the requirement to provide concrete pipe to reinforce storm drains. HDPE is proposed.

Taryn Egerton

From: Lauren Kennedy
Sent: Friday, February 27, 2026 9:49 AM
To: Taryn Egerton
Subject: RE: Definitive Plan - Old River Street, 27 Walnut Street, 17 High Street

The Agawam Health Dept has reviewed the Subdivision Plan and does not have any comments or concerns to make.

Lauren Kennedy, MPA, RS
Health Agent
Agawam Health Dept
36 Main St, Agawam, MA 01001
(413) 726-9721

From: Taryn Egerton <TEgerton@agawam.ma.us>
Sent: Wednesday, February 11, 2026 7:47 AM
To: Kevin Duquette <inspections@agawam.ma.us>; All_Engineering Department <All_Eng_Dept@agawam.ma.us>; Brian Machos <BMachos@agawam.ma.us>; Derek Myers <afdinsp@agawam.ma.us>; Lauren Kennedy <health@agawam.ma.us>
Cc: Stefanie Kesecker <SKesecker@agawam.ma.us>
Subject: Definitive Plan - Old River Street, 27 Walnut Street, 17 High Street

Good morning,
Please review and comment on the attached prior to the March 5, 2026 Planning Board public hearing. I'll be sending the Stormwater Report in a second email due to the size.

Thank you!

Taryn Egerton
Planning Director & Conservation Agent
Planning Department

413.726.9737 | tegerton@agawam.ma.us

TOWN OF Agawam MASSACHUSETTS

Please be aware that applications approved by the Town of Agawam are considered public information. Unfortunately, email spammers often monitor municipal records and attempt to compromise communications by sending fraudulent emails, many of which appear to be invoices from the town to applicants.

To avoid confusion or potential scams, please note that the Planning Office including the Planning Board, Zoning Board of Appeals, and Conservation Commission requires all application fees to be submitted at the time of application.

If you receive an invoice after submitting your application, we recommend you to contact our office at 413-726-9737 to determine the authenticity of the invoice.

Town of Agawam

Building Department
1000 Suffield Street, Agawam, Massachusetts 01001
Telephone - (413) 821-0632

March 17, 2026

To: Office of Planning and Community Development:

Re: Site Plan Review Comments- 699 Silver Street Agawam, MA;

The Building Department has the following comments for the proposed site plan review for the above referenced address:

1) Proposed site plan shows the expansion of additional parking spaces located in the front yard setback area, zoning ordinance #180-64-C specifies any employee parking areas shall be located at the rear and side of all buildings. Expanded parking spaces in the front yard setback to delineate on the site plan this requirement for business use.

2) Massachusetts State Building code 780 CMR requires any newly created parking spaces to comply with the requirements of the International Energy Code 2021 Edition with Massachusetts amendments for "EV Ready Spaces" (Electric Vehicle). See below for code requirement. Site plan to delineate where the 2 required EV spaces will be located.

2021 IECC Massachusetts Amendment- "Section C405.13 Add new text as follows:"

C405.13 Electric Vehicle Ready Parking Spaces ("EV Ready Spaces") (Mandatory). New parking spaces shall provide EV Ready Spaces in accordance with Table C405.13. Installed wiring suitable for 6.6kW or higher SAE J3400 or SAE J1772-2017 AC Level II EVSE shall be connected to the service panel and run to within 6 feet (1828mm) of any qualifying parking space. Conductors and outlets for EVSE shall be sized and installed in accordance with the MA electrical code.

TABLE C405.13 EV-READY SPACE REQUIREMENTS

Occupancy Classification	Minimum percentage of EV-Ready Spaces	EV Charging Performance Requirements
Group R and Group B	20%	40-amp dedicated branch circuit or larger branch circuit with ALMS in accordance with Table C405.13.1
All Other Occupancies	10%	40-amp dedicated branch circuit or larger branch circuit with ALMS in accordance with Table C405.13.1

The proposed site plan shows the creation of 9 new parking spaces. The Massachusetts State stretch Energy code would require 2 spaces to be "EV" ready. These "EV" ready spaces do not specifically have to be located within the newly created parking spaces and could be installed within any existing parking space.

Respectfully,

Kevin Duquette

Kevin Duquette
Inspector of Buildings- Town of Agawam

AGAWAM POLICE DEPARTMENT

681 Springfield Street, Feeding Hills, MA 01030
Telephone (413)786-4767 | FAX (413)786-4821
Eric P. Gillis
Chief of Police

To: Planning Board

From: Sergeant Brian Machos- Safety Officer

Date: March 17, 2026

Re: 699 Silver Street

I have reviewed the proposed site plans for the construction of a storage building located at the rear of the property. At this time, I do not have any safety-related concerns or issues with this project.

Site Plans

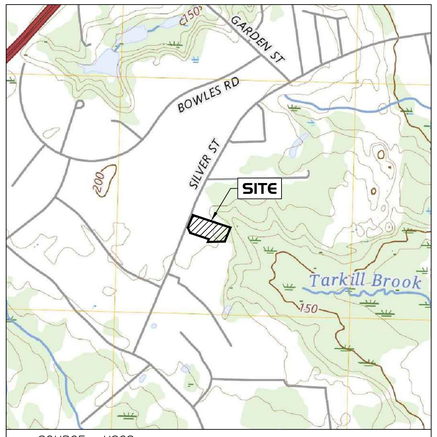
Proposed Storage Building

699 Silver Street
Agawam, MA
Parcel ID: G6-2-12

AS PREPARED FOR

MSR Properties, LLC
c/o Rick Mahan

699 Silver Street
Agawam, MA 01001



SOURCE: USGS

NORTH

March 5, 2026

DRAWING INDEX			
SHEET NO.	SHEET NAME	ISSUE DATE	REVISION DATE
T-1	TITLE SHEET	3/5/26	
EX-1	EXISTING CONDITIONS PLAN	3/4/26	
C-1	NOTES, SYMBOL & LINE LEGEND, AND ABBREVIATIONS	3/5/26	
C-2	CONSTRUCTION NOTES	3/5/26	
C-3	DEMOLITION AND REMOVALS PLAN	3/5/26	
C-4	LAYOUT AND MATERIALS PLAN	3/5/26	
C-5	GRADING, EROSION & SEDIMENTATION CONTROL PLAN	3/5/26	
C-6	DRAINAGE AND UTILITIES PLAN	3/5/26	
C-7	LANDSCAPING PLAN	3/5/26	
D-1	DETAILS	3/5/26	
D-2	DETAILS	3/5/26	
D-3	DETAILS	3/5/26	

BY

R LEVESQUE ASSOCIATES INC
A LAND PLANNING SERVICES COMPANY

40 School Street · Westfield, MA · 01085
ph 413.568.0985 · fax 413.568.0986
www.rlaland.com

RLA Project Number: 250903

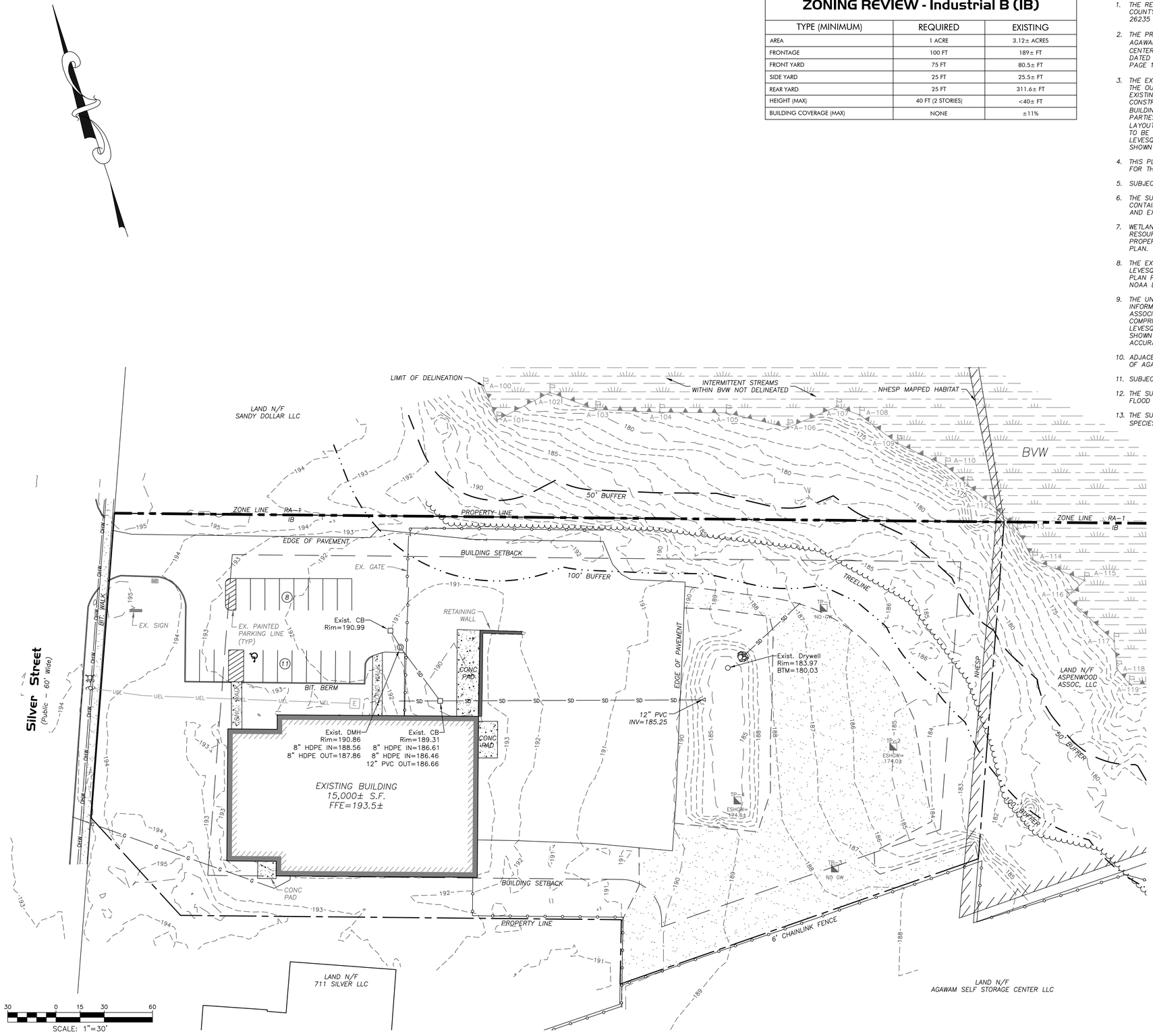
PERMITTING
NOT FOR CONSTRUCTION

ZONING REVIEW - Industrial B (IB)

TYPE (MINIMUM)	REQUIRED	EXISTING
AREA	1 ACRE	3.12± ACRES
FRONTAGE	100 FT	189± FT
FRONT YARD	75 FT	80.5± FT
SIDE YARD	25 FT	25.5± FT
REAR YARD	25 FT	311.6± FT
HEIGHT (MAX)	40 FT (2 STORIES)	<40± FT
BUILDING COVERAGE (MAX)	NONE	±11%

NOTES

1. THE RECORD OWNER OF THE SUBJECT PARCEL IS MSR PROPERTIES, LLC. SEE HAMPDEN COUNTY REGISTRY OF DEEDS BOOK 22411 PAGE 254, BOOK 20869 PAGE 318, AND BOOK 26235 PAGE 356.
2. THE PROPERTY LINES SHOWN HEREON ARE BASED UPON A PLAN TITLED, "PLAN OF LAND IN AGAWAM, MASSACHUSETTS SURVEYED AND MAPPED FOR (OWNERS) AGAWAM SELF STORAGE CENTER, LLC., 711 SILVER, LLC., AND MSR PROPERTIES, LLC." PREPARED BY THIS OFFICE, DATED AUGUST 19, 2025. SEE HAMPDEN COUNTY REGISTRY OF DEEDS BOOK OF PLANS 403 PAGE 110.
3. THE EXISTING BUILDING(S) SHOWN HEREON ARE BASED ON AN APPROXIMATE MEASUREMENT OF THE OUTSIDE PERIMETER OF THE EXISTING STRUCTURES. THE ACTUAL LOCATION OF THE EXISTING BUILDING WALLS AND CORNERS SHOULD BE VERIFIED IN THE FIELD PRIOR TO ANY CONSTRUCTION WORK THAT WOULD ABUT OR TAKE PLACE ADJACENT TO THE EXISTING BUILDING(S). IF THE PLAN HEREON IS USED FOR CONSTRUCTION LAYOUT PURPOSES, THE PARTIES CONDUCTING LAYOUT SHALL CONTACT R. LEVESQUE ASSOCIATES INC. PRIOR TO SAID LAYOUT TO DETERMINE PROPER CONTROL. PLEASE NOTE WHILE THE BUILDING(S) ARE SHOWN TO BE SQUARE, IT SHOULD NOT BE ASSUMED THAT THE WALLS ARE SQUARE OR PLUMB. R. LEVESQUE ASSOCIATES TAKES NO RESPONSIBILITY FOR THIRD PARTY LAYOUT OF THE PLAN SHOWN HEREON.
4. THIS PLAN HAS BEEN PREPARED FOR SITE PLANNING PURPOSES AND SHALL NOT BE USED FOR THE CONVEYANCE OF LAND OR FOR ANY OTHER USE.
5. SUBJECT PARCEL CONTAINS 136,158.9± S.F. OR 3.12± ACRES.
6. THE SUBJECT PROPERTIES SHOWN HEREON MAY BE SUBJECT TO RIGHTS AND EASEMENTS AS CONTAINED IN THE VARIOUS DEEDS OF RECORD DESCRIBING SAID PROPERTIES. THE LOCATION AND EXTENT OF ANY SUCH RIGHTS AND EASEMENTS IS NOT THE SUBJECT OF THIS PLAN.
7. WETLANDS DELINEATED BY R LEVESQUE ASSOCIATES, INC. ON 09–12–2025. OFFSITE WETLAND RESOURCE AREAS HAVE BEEN SHOWN TO ACCURATELY SHOW BUFFER ZONES ON THE SUBJECT PROPERTY. THE DETERMINATION OF WETLAND RESOURCE AREAS IS THE THE SUBJECT OF THIS PLAN.
8. THE EXISTING CONDITIONS INFORMATION SHOWN IS BASED UPON A SURVEY PERFORMED BY R LEVESQUE ASSOCIATES, INC. ON 09–15–2025, AN UNRECORDED EXISTING CONDITIONS SITE PLAN PREPARED BY SMITH ASSOCIATES SURVEYORS, INC., DATED DECEMBER 11, 2015, AND NOAA LIDAR.
9. THE UNDERGROUND UTILITIES SHOWN HEREON HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION, AVAILABLE RECORD DATA, AND THE TOWN OF AGAWAM WEB GIS. R LEVESQUE ASSOCIATES, INC. MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN HEREON COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. R LEVESQUE ASSOCIATES, INC. FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN HERE ARE IN THE EXACT LOCATION INDICATED, ALTHOUGH THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM AVAILABLE INFORMATION.
10. ADJACENT PROPERTY LINES AND ABUTTERS SHOWN HEREON ARE REFERENCED FROM THE TOWN OF AGAWAM WEB GIS.
11. SUBJECT PARCEL IS ZONED INDUSTRIAL B ACCORDING TO THE TOWN OF AGAWAM ZONING MAP.
12. THE SUBJECT PARCEL IS NOT LOCATED WITHIN A SPECIAL FLOOD ZONE AREA ACCORDING TO FLOOD INSURANCE RATE MAP NUMBER 25013C0392E – EFFECTIVE DATE: 07–16–2013.
13. THE SUBJECT PROPERTY IS PARTIALLY LOCATED WITHIN NATURAL HERITAGE & ENDANGERED SPECIES PROGRAM (NHESP) JURISDICTION.



RLA

R LEVESQUE ASSOCIATES INC

Landscape Architects
Civil Engineers · Land Surveyors
Environmental Consultants

ph: 413.568.0985 fax: 413.568.0986

40 School Street
Westfield, MA 01085

rlaland.com

EXISTING CONDITIONS PLAN

699 Silver Street
Agawam, MA 01001
Parcel ID# G6 2 12

COMMONWEALTH OF MASSACHUSETTS
MARC E. SHUTE
No. 33610
PROFESSIONAL LAND SURVEYOR

PREPARED FOR:

Mr. Rick Mahan
699 Silver Street
Agawam, MA 01001

ISSUANCE DATE: March 4, 2026

REVISIONS:	DATE:

DRAFTED BY: J.L.

UNAUTHORIZED ALTERATION OF THIS DOCUMENT IS A VIOLATION OF MASSACHUSETTS STATE LAW

SCALE: As Noted

RLA PROJ. NUMBER: 250903

DRAWING#	REV.
EX-1	-

S:\Projects\2025\250903 - Mahan - 699 Silver S., Agawam\05 Civil 3D\250903 - EXIST.dwg

SYMBOL & LINE LEGEND

- IRON PIPE FOUND
- IRON PIPE TO BE SET
- CONCRETE BOUND FOUND
- CONCRETE BOUND TO BE SET
- COMPUTED POINT
- EXISTING SIGN
- EXISTING MAILBOX
- EXISTING MONITORING WELL
- EXISTING LIGHT POLE
- UTILITY POLE
- GUY ANCHOR
- EXISTING ELECTRIC MANHOLE
- EXISTING TELEPHONE MANHOLE
- EXISTING CABLE TV BOX
- EXISTING WELL LOCATION
- EXISTING WATER VALVE
- EXISTING WATER SHUT-OFF
- EXISTING HYDRANT
- PROPOSED WATER VALVE
- PROPOSED HYDRANT
- EXISTING GAS VALVE
- EXISTING SANITARY SEWER MANHOLE
- EXISTING CATCH BASIN
- EXISTING DRAIN MANHOLE
- PROPOSED CATCH BASIN
- PROPOSED MANHOLE
- SOIL BORING LOCATION
- TEST PIT LOCATION
- PERC TEST LOCATION
- WETLAND FLAG LOCATION
- M.A.H.W. FLAG LOCATION
- EXISTING STONE WALL
- TREE LINE
- × 102.4 EXISTING SPOT GRADE
- 219 EXISTING CONTOUR
- × 94.7 PROPOSED SPOT GRADE
- 214 PROPOSED CONTOUR
- EDGE OF WETLAND
- FENCE LINE
- GUARDRAIL
- OHW OHW EXISTING OVERHEAD WIRES
- UEL UEL EXISTING UNDERGROUND ELECTRIC
- TEL TEL EXISTING TELEPHONE LINE
- G G EXISTING GAS LINE
- W W EXISTING WATER LINE
- SD SD EXISTING STORM DRAIN
- SS SS EXISTING SANITARY SEWER
- LOW LOW LIMIT OF WORK LINE
- SF SF SF SILT FENCE LINE

ABBREVIATIONS

A.F.F.	–	ABOVE FINISHED FLOOR
A.F.S.	–	ABOVE FINISHED SLAB
APPROX.	–	APPROXIMATE
A.T.F.	–	ABOVE TOP OF FOUNDATION
BLDG.	–	BUILDING
BLK.	–	BLOCK
BOT.	–	BOTTOM
B.O.W.	–	BOTTOM OF WALL
BRG.	–	BEARING
CB.	–	CATCH BASIN
CL	–	CENTERLINE
C.I.	–	CAST IRON
CLR.	–	CLEAR
CONC.	–	CONCRETE
CONT.	–	CONTINUOUS
CONTR.	–	CONTRACTOR
DBL.	–	DOUBLE
DET.	–	DETAIL
D.I.	–	DUCTILE IRON
DIA.	–	DIAMETER
DIM.	–	DIMENSION
DT'L.	–	DETAIL
DWG.	–	DRAWING
EA.	–	EACH
ELEC.	–	ELECTRIC
ELEV.	–	ELEVATION
EXIST.	–	EXISTING
EXT.	–	EXTERIOR
FFE	–	FINISH FLOOR ELEVATION
FIN.	–	FINISH
FLR.	–	FLOOR
FOUND.	–	FOUNDATION
FT.	–	FOOT OR FEET
INSTL.	–	INSTALLED
LT.	–	LIGHT
MAX.	–	MAXIMUM
M.A.H.W.	–	MEAN ANNUAL HIGH WATER
MH.	–	MANHOLE
MIN.	–	MINIMUM
MISC.	–	MISCELLANEOUS
N.T.S.	–	NOT TO SCALE
O.A.	–	OVERALL
O.C.	–	ON CENTER
PCB	–	PROPOSED CATCH BASIN
PDMH	–	PROPOSED DRAIN MANHOLE
PFES	–	PROP. FLARED END SECTION
POCS	–	PROP. OUTLET CONTROL STRUCT.
PROP.	–	PROPOSED
PSMH	–	PROP. SANITARY SEWER MANHOLE
PWQU	–	PROP. WATER QUALITY UNIT
P.S.I.	–	POUNDS PER SQUARE INCH
REINF.	–	REINFORCING
R.H.	–	RIGHT HAND
SHT.	–	SHEET
SPEC.	–	SPECIAL OR SPECIFICATIONS
SQ.	–	SQUARE
ST.	–	STEEL
STA.	–	STATION
T.O.F.	–	TOP OF FOUNDATION
T.O.W.	–	TOP OF WALL
T.S.	–	TOP OF STEEL
TYP.	–	TYPICAL
W/	–	WITH
WTR.	–	WATER
W.W.M.	–	WELDED WIRE MESH

EROSION & SEDIMENT CONTROL NOTES

MANAGEMENT STRATEGIES

1. CONSTRUCTION TRAFFIC SHALL BE LIMITED TO THE CONSTRUCTION ENTRANCE.
2. CONSTRUCTION SEQUENCE SHALL BE PHASED TO AVOID LEAVING LARGE AREAS EXPOSED FOR LONG PERIODS OF TIME.
3. TEMPORARY SEED AND MULCH SHALL BE APPLIED IMMEDIATELY FOLLOWING ROUGH GRADING.
4. SEDIMENTATION CONTROL MEASURES SHALL BE INSPECTED CONTINUOUSLY, ESPECIALLY FOLLOWING STORM EVENTS TO LOCATE FAILING CONTROL MEASURES AND CONDUCT ROUTINE MAINTENANCE OPERATIONS.
5. THE CONSTRUCTION SUPERINTENDENT SHALL INFORM ALL ON-SITE WORKERS OF THE SEDIMENTATION CONTROL PROGRAM.

VEGETATIVE CONTROL PRACTICES

1. TOPSOIL STOCKPILING: TOPSOIL SHALL BE STRIPPED FROM AREAS TO BE DISTURBED AND STOCKPILED FOR LATER USE. STOCKPILE LOCATION SHALL BE APPROVED BY THE OWNER AND ENGINEER AND BE WITHIN LIMIT OF WORK.
2. TEMPORARY SEEDING: THE TEMPORARY SEDIMENT BASIN, TOPSOIL STOCKPILE AND ROUGH GRADED AREAS SHALL BE SEEDED WITH WINTER RYE AT A RATE OF 30 LBS. PER ACRE ANY SOILS THAT ARE LEFT EXPOSED AND UNDISTURBED FOR MORE THAN 30 DAYS SHALL BE TEMPORARILY SEEDED.

A. SITE PREPARATION
- COMPLETE ALL ROUGH GRADING ACTIVITIES
- REMOVE ALL ROCKS AND DEBRIS LARGER THAN 3" IN DIAMETER FROM AREAS TO BE TEMPORARILY SEEDED. -EVENLY APPLY LIME TO ACHIEVE A PH VALUE OF 6.0.
- EVENLY APPLY 14 LBS. OF 5-10-10 ANALYSIS FERTILIZER TO A DEPTH OF 4" USING SUITABLE EQUIPMENT.
- SEEDBED IS TO BE LEFT IN FIRM AND SMOOTH CONDITION.
- THE LAST TILLAGE OPERATION SHALL BE PERFORMED ACROSS THE SLOPE.

B. ESTABLISHMENT
- EVENLY APPLY SEED IN ACCORDANCE WITH THE SPECIES AND RATE INDICATED ABOVE BY MEANS OF BROADCASTING OR HYDROSEEDING.
- UNLESS HYDROSEEDED, COVER SEED WITH 1/4" TO 1/2" OF TOPSOIL
- APPLY MULCH OR EROSION CONTROL BLANKET IMMEDIATELY FOLLOWING SEEDING.
- VERIFY SEEDING DATES WITH ENGINEER/LANDSCAPE ARCHITECT. IF ENGINEER/LANDSCAPE ARCHITECT DETERMINES THAT SEED CANNOT BE APPLIED DUE TO CLIMATE, TOPSOIL SHALL NOT BE SPREAD AND MULCHING SHALL BE APPLIED TO THE EXPOSED SURFACE TO STABILIZE SOILS UNTIL THE NEXT RECOMMENDED SEEDING PERIOD.
- PERMANENT SEEDING SHALL BE APPLIED BETWEEN APRIL 15 AND SEPTEMBER 30. TEMPORARY SEEDING SHALL BE APPLIED TO ALL DISTURBED AREAS OUTSIDE THIS TIME FRAME, UPON APPROVAL BY THE ENGINEER/LANDSCAPE ARCHITECT.

C. MAINTENANCE
- ALL SEEDED/MULCHED AREAS SHALL BE INSPECTED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHALL BE REPAIRED AS NECESSARY.

NONSTRUCTURAL CONTROL PRACTICES

1. SCARIFICATION: EXPOSED SLOPES EXCEEDING 4:1 SHALL BE SCARIFIED AT RIGHT ANGLES TO THE SLOPE. PROVIDE PERIODIC UPGRADING OF SERRATIONS DURING EXPOSED PERIOD UNTIL VEGETATION IS ESTABLISHED. PROVIDE VEGETATIVE COVER AS SOON AS POSSIBLE.
2. STRAW MULCH: STRAW MULCH SHALL BE APPLIED IN CONJUNCTION WITH TEMPORARY/PERMANENT SEEDING AND TO GRADED AREAS WHICH REMAIN EXPOSED OUTSIDE OF RECOMMENDED SEEDING DATES. MULCH SHALL BE APPLIED AT 90 LBS. PER 1000 S.F. CONTRACTOR SHALL PERIODICALLY INSPECT AND REAPPLY AS NECESSARY, PARTICULARLY FOLLOWING SIGNIFICANT STORM EVENTS.
3. TOPSOIL: DISTURBED AREAS SHALL BE TOPSOILED PRIOR TO SEED APPLICATION. APPLICATION STANDARDS:
- REMOVE ALL ROCKS AND DEBRIS OVER 1"-1 1/2" IN DIAMETER.
- SCARIFY SURFACE PRIOR TO SEED APPLICATION.
- APPLY 6" DEPTH OF TOPSOIL.
4. SILT FENCE: SILT FENCE SHALL BE INSTALLED AROUND THE PERIMETER OF THE SITE, AT CULVERT OUTLET LOCATIONS, OR AS INDICATED ON THE DRAWINGS. SILT FENCE SHALL BE INSPECTED AND REPAIRED ROUTINELY, ESPECIALLY FOLLOWING STORM EVENTS UNTIL THE SITE HAS BEEN STABILIZED (COVER > 70%) BY VEGETATION.

STRUCTURAL CONTROL PRACTICES

1. RIP-RAP OUTLET PROTECTION: RIP-RAP SHALL BE PROVIDED AT ALL PIPE OUTLETS. MATERIAL SHALL BE HARD, DURABLE FIELD OR QUARRY STONE WHICH IS ANGULAR AND RESISTS BREAKING DOWN WHEN EXPOSED TO WATER OR WEATHERING.
2. CONSTRUCTION ENTRANCE: CONSTRUCTION ENTRANCE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DRAWINGS.
3. DUST CONTROL: A WATER TRUCK SHOULD BE LOCATED ON-SITE FOR DUST CONTROL WHILE WORK IS PROCEEDING. MAINTENANCE SEDIMENTATION CONTROL MEASURES SHALL BE CHECKED WEEKLY AND AFTER EACH SIGNIFICANT RAINFALL EVENT. THE FOLLOWING ITEMS SHALL BE CHECKED IN PARTICULAR:

A. RIP-RAP OUTLET PROTECTION SHALL BE CHECKED REGULARLY FOR SEDIMENT ACCUMULATION. IF SIGNIFICANT AMOUNTS OF SEDIMENT ACCUMULATE, RIP-RAP SHALL BE REMOVED AND REPLACED.
B. SILT FENCING SHALL BE INSPECTED REGULARLY FOR UNDERMINING AND DETERIORATION. REMOVE SEDIMENT FROM BEHIND FENCE WHEN IT BECOMES 6 INCHES DEEP.
C. SEEDED/MULCHED AREAS SHALL BE INSPECTED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHALL BE REPAIRED AS NECESSARY.

SILT FENCE INSTALLATION NOTES

1. THIS SEDIMENT BARRIER UTILIZES MIRAFI ENVIROFENCE (100X) OR EQUAL. IT IS DESIGNED FOR SITUATIONS IN WHICH ONLY SHEET OR OVERLAND FLOWS ARE EXPECTED.
2. THE HEIGHT OF THE BARRIER SHALL NOT EXCEED 36 INCHES (HIGHER BARRIERS MAY IMPOUND VOLUMES OF WATER SUFFICIENT TO CAUSE FAILURE OF THE STRUCTURE). IDEALLY THE FILTER FENCE SHALL BE PLACED 10 FEET AWAY FROM THE TOE OF SLOPE.
3. WHEN JOINTS ARE NECESSARY, FILTER FABRICS SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT STAKES WITH A MINIMUM 6-INCH OVERLAP, AND SECURELY SEALED. SEE MANUFACTURER'S RECOMMENDATION.
4. STAKES SHALL BE SPACED A MAXIMUM OF 10 FEET APART AT THE BARRIER LOCATION AND DRIVEN SECURELY INTO THE GROUND (MINIMUM OF 12 INCHES). IN APPLICATIONS WHERE HEAVY FLOWS ARE EXPECTED SUCH AS IN-STREAM INSTALLATIONS STAKE SPACING SHALL BE PER MANUFACTURER'S RECOMMENDATIONS AND/OR THE ENGINEERS RECOMMENDATIONS.
5. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 6 INCHES WIDE AND 6 INCHES DEEP ALONG THE LINE OF STAKES AND UPSLOPE FROM THE BARRIER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
6. THE PRE ASSEMBLED SILT FENCE SYSTEM SHALL BE UNROLLED, POSITION THE STAKES ON THE DOWNHILL SIDE OF THE TRENCH AND HAMMER THE STAKES AT LEAST 12 INCHES INTO THE GROUND.
7. THE BOTTOM SIX (6) INCHES OF THE FABRIC SHALL BE LAID INTO THE TRENCH TO PREVENT UNDERMINING BY STORM WATER RUNOFF.
8. BACKFILL THE TRENCH OVER THE FILTER FABRIC AND COMPACT SUFFICIENTLY TO PREVENT THE RUNOFF FROM ERODING THE BACKFILL.
9. THE FABRIC SHALL NOT EXTEND MORE THAT 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE. FILTER FABRIC SHALL NOT BE STAPLED TO EXISTING TREES OR SUPPORTS OTHER THAN THE STANDARD STAKES.
10. INSTALLED SILT FENCE BARRIERS SHALL BE MAINTAINED ON A REGULAR SCHEDULE WHICH MAY BE PRESCRIBED BY THE LOCAL, STATE OF FEDERAL REGULATORY AUTHORITY; BUT, AT MINIMUM SHALL BE CHECKED WEEKLY AS WELL AS AFTER EACH STORM EVENT. MAINTENANCE SHALL CONSIST OF AN INSPECTION OF THE ENTIRE LENGTH OF THE BARRIER TO DETERMINE IF IT IS FUNCTIONING AS INTENDED. ALL BREAKS, DETACHED FABRIC, SLUMPED FABRIC, CLOGGED FABRIC, AND UNDERMINED AREAS SHALL BE FIXED THE DAY THAT THEY ARE DISCOVERED.
11. WHEN A MAXIMUM OF SIX (6) INCHES OF SEDIMENT HAS ACCUMULATED BEHIND THE SILT FENCE THIS SEDIMENT SHALL BE REMOVED AND THE FENCE SHALL BE INSPECTED FOR TEARS, CLOGGING OF BREAKS. ALL DEFICIENCIES SHALL BE CORRECTED IMMEDIATELY EITHER BY REPAIR OF REPLACEMENT OF THE SILT FENCE BARRIER AND/OR STAKES AS NEEDED.
12. SILT FENCE BARRIERS SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN CLEANED OF SILT AND PERMANENTLY STABILIZED.

STRAW BALE INSTALLATION & MAINTENANCE (AS REQ'D)

1. STRAW BALES SHALL BE PLACED IN A SINGLE ROW, LENGTHWISE ON THE CONTOUR, WITH ENDS OF ADJACENT BALES TIGHTLY ABUTTING ONE ANOTHER.
2. ALL BALES SHALL BE EITHER WIRE BOUND OR STRING TIES. BALES SHALL BE INSTALLED SO THAT BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES TO PREVENT DETERIORATION OF THE BINDINGS.
3. THE BARRIER SHALL BE ENTRENCHED AND BACKFILLED. A TRENCH SHALL BE EXCAVATED THE WIDTH OF A BALE AND THE LENGTH OF THE PROPOSED BARRIER TO A MINIMUM DEPTH OF FOUR (4) INCHES AND A MAXIMUM DEPTH OF SIX (6) INCHES. AFTER THE BALES ARE STAKED AND CHINKED, THE EXCAVATED SOIL SHALL BE BACKFILLED AGAINST THE BARRIER. BACKFILL SOIL SHALL CONFORM TO THE GROUND LEVEL ON THE DOWNHILL SIDE AND SHALL BE BUILT UP TO FOUR (4) INCHES AGAINST THE UPHILL SIDE OF THE BARRIER.
4. EACH BALE SHALL BE SECURELY ANCHORED BY AT LEAST TWO (2) STAKES OR REBARS DRIVEN THROUGH THE BALE. THE FIRST STAKE IN EACH BALE SHALL BE DRIVEN TOWARD THE PREVIOUSLY LAID BALE TO FORCE THE BALES TOGETHER. STAKES OR REBARS SHALL BE DRIVEN DEEP ENOUGH INTO THE GROUND TO SECURELY ANCHOR THE BALES.
5. THE GAPS BETWEEN BALES SHALL BE CHINKED (FILLED BY WEDGING) WITH STRAW TO PREVENT WATER FROM ESCAPING BETWEEN THE BALES. (LOOSE STRAW SCATTERED OVER THE AREA IMMEDIATELY UPHILL FROM A STRAW BALE BARRIER TENDS TO INCREASE BARRIER EFFICIENCY.)
6. STRAW BALES GENERALLY DETERIORATE IN 2-6 MONTHS AND THUS NEED REPLACEMENT.
7. INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
8. BALE BARRIERS SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS, BUT NOT BEFORE THE UPSLOPE AREAS HAVE BEEN PERMANENTLY STABILIZED.

SITE PREP

1. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELOCATION, INCLUDING BUT NOT LIMITED TO, ALL UTILITIES, STORM DRAINAGE, SIGNS, TRAFFIC SIGNALS & POLES, ETC. AS REQUIRED. ALL WORK SHALL BE IN ACCORDANCE WITH GOVERNING AUTHORITIES SPECIFICATIONS AND SHALL BE APPROVED BY SUCH.
2. CONTRACTOR SHALL ERECT AND MAINTAIN SAFETY BARRICADES AND POST PROPER NOTICES PRIOR TO THE COMMENCEMENT OF WORK.
3. CONTRACTOR SHALL PROTECT EXISTING SITE IMPROVEMENTS, APPURTENANCES, AND LANDSCAPING TO REMAIN.
4. CONTRACTOR SHALL MAINTAIN EXISTING UTILITIES TO REMAIN IN SERVICE AND PROTECT THEM FROM DAMAGE DURING DEMOLITION OPERATIONS.
5. DO NOT DAMAGE EXISTING UTILITIES TO REMAIN WITHIN PROJECT AREA. ALL DAMAGE TO EXISTING UTILITIES TO REMAIN SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE UTILITY OWNER.
6. THERE SHALL BE NO BURNING OF DEMOLISHED MATERIAL ALLOWED ON SITE.
7. CONTRACTOR SHALL COORDINATE WITH OWNER FOR ANY ITEMS TO BE TURNED OVER TO OWNER.
8. DEMOLISH AND REMOVE ALL PAVEMENT, SLABS, FOOTINGS, SUBSURFACE ELEMENTS, MISCELLANEOUS DEBRIS, ETC. WITHIN PROPERTY LINES UNLESS NOTED OTHERWISE.
9. CONTRACTOR IS RESPONSIBLE FOR CONTROLLING DUST SO THAT DUST DOES NOT CREATE A NUISANCE ON ADJACENT ROADS OR PROPERTIES. SITE CONTRACTOR SHALL BE RESPONSIBLE FOR STREET SWEEPING AND CATCH BASIN CLEANING AFTER EACH PHASE OF CONSTRUCTION AND AS NEED IS DETERMINED BY THE ENGINEER.
10. CONTRACTOR SHALL REMOVE AND DISPOSE OF ANY ABANDONED SUBSURFACE SOIL ABSORPTION SYSTEM (SAS) AND MISCELLANEOUS DEBRIS.
11. NO ACTIVITY OTHER THAN NORMAL MAINTENANCE SHALL OCCUR OUTSIDE OF LIMIT OF WORK LINES AS SHOWN ON PLAN WITHOUT THE APPROVAL OF THE ENGINEER.
12. THE CONTRACTOR SHALL NOTIFY DIG SAFE @ 1-888-344-7233 PRIOR TO COMMENCEMENT OF ANY DEMOLITION/CONSTRUCTION ACTIVITY.

LANDSCAPE NOTES

1. THE CONTRACTOR SHALL VERIFY FINAL SELECTION OF PLANT MATERIALS WITH THE LANDSCAPE ARCHITECT AND OWNER PRIOR TO INSTALLATION.
2. NO PLANT MATERIAL WILL BE ACCEPTED WHICH DISPLAYS MAJOR IRREGULARITIES OR DAMAGE. THE OWNER/LANDSCAPE ARCHITECT RETAINS THE RIGHT TO REJECT ANY PLANT MATERIAL DEEMED UNFIT.
3. WARRANTEE: FOR A PERIOD OF TWO GROWING SEASONS FROM THE DATE THAT THE WORK UNDER THIS CONTRACT IS CERTIFIED AS SUBSTANTIALLY COMPLETE, THE CONTRACTOR SHALL: 1) WARRANTEE ALL PLANTS AND SEEDED AREAS UNDER THIS CONTRACT; 2)REMOVE AND REPLACE DURING THIS GUARANTEE PERIOD PLANTS WHICH DIE OR ARE IN POOR CONDITION AS DETERMINED BY THE OWNER; 3) REPLANT WITH STOCK OF SAME SIZE AND QUALITY AS ORIGINALLY SPECIFIED; 4) GUY AND MAINTAIN AS SPECIFIED HEREIN AT NO ADDITIONAL COST TO THE OWNER.
4. ALL NEW LAWN AREAS SHALL RECEIVE A MINIMUM OF 4 INCHES TOPSOIL OF THE PROPER pH AND ORGANIC CONTENT SUITABLE FOR THE HEALTHY GROWTH OF LAWNS. THESE AREAS SHALL BE SEEDED WITH A FINE BLADE LAWN GRASS SEED OR SODDED. ADDITIONAL OFF-SITE TOPSOIL MAY BE REQUIRED.
5. ALL AREAS TO BE MULCHED SHALL RECEIVE 4 INCHES MINIMUM 100% SHREDDED BARK MULCH WITHIN 48 HOURS OF PLANTING UNLESS OTHERWISE NOTED IN PLANTING DETAILS.
6. ALL TREE AND SHRUB PITS SHALL BE AT LEAST 2 FEET WIDER AND 1 FOOT DEEPER THAN THE TREE OR SHRUB ROOT BALL TO BE PLANTED IN IT. BACKFILL SHALL BE HIGH QUALITY LOAM OF THE PROPER pH AND ORGANIC CONTENT SUITABLE FOR THE HEALTHY GROWTH OF PLANT MATERIALS.
7. ALL PLANTS SHALL BE NURSERY GROWN AND CONFORM TO THE LATEST EDITION OF "ANSI Z60.1, AMERICAN STANDARD FOR NURSERY STOCK".
8. EACH PLANT TO BE FREE FROM DISEASE, INSECT INFESTATION, MECHANICAL INJURIES, AND IN ALL RESPECTS BE SUITABLE FOR FIELD PLANTING.
9. EACH PLANT TO BE IN THE TOP OF ITS SIZE CLASS AFTER SHEARING AND PRUNING.
10. ADJACENT TO THE TOP OF ANY WALLS OVER 36" A FENCE OR WALL SHALL BE CONSTRUCTED PER PLAN THAT MEETS LOCAL BUILDING CODE AND ALL OTHER APPLICABLE STATE AND FEDERAL LAWS.
11. SEE DETAIL SHEETS FOR ADDITIONAL DETAILS & SPECIFICATIONS.
12. SHOULD GC OR ANY SUBCONTRACTOR ENCOUNTER A DISCREPANCE/CONFLICT IN THE PLAN AN THE ACTUAL LOCATION OF A SITE FEATURE, THE CONTRACTOR SHALL CONTACT THE LANDSCAPE ARCHITECT/ENGINEER AND OWNER IMMEDIATELY.
13. ALL AREAS DISTURBED DURING CONSTRUCTION NOT DESIGNATED TO RECEIVE OTHER TREATMENT SHALL BE LOAMED TO A MINIMUM DEPTH OF 4" AND SEEDED IN ACCORDANCE WITH THE FOLLOWING:
    A. INCORPORATE GROUND LIMESTONE INTO ALL AREAS TO BE SEEDED AT A RATE OF 50 LBS/1,000 S.F.
    B. APPLY 10-6-4 FERTILIZER TO ALL AREAS TO BE SEEDED AT A RATE OF 2 LBS/1,000 S.F.
    C. THOROUGHLY INCORPORATE LIME AND FERTILIZER INTO SEED BED TO DEPTH OF 3" BY DISCING OR OTHER APPROVED METHOD.
    D. SEED WITH THE FOLLOWING MIXTURE, APPLIED AT A RATE OF 10 LBS/1,000 S.F. SEED MIX:

NAME OF SEED	% BY WEIGHT IN MIXTURE	MIN. % PURITY	MIN. GERMINATION
POS PRETENSES "BARON" BARON BLUEGRASS	50	90	75
FESTUCA RUBRA "PENNLAWN" PENNLAWN FESCUE	25	95	85
LOLIUM PERENNE "PENNFINE" PENNFINE	25	98	95

E. MULCH ALL SEEDED AREAS WITH STRAW AT A RATE OF 5 LBS/1,000 S.F.UNLESS HYDROSEEDING WAS USED.
F. ALL SLOPES OF 3:1 OR GREATER AFTER BEING LOAMED, SEEDED AND MULCHED IN ACCORDANCE WITH THE ABOVE SHALL SECURED WITH EROSION CONTROL BLANKETS (NO. AMERICAN GREEN S150 OR EQUAL). OVERLAP ALL NETTING JOINTS A MINIMUM OF 6" AND SECURE WITH DOUBLE ROW OF STAPLES.

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NOT FOR CONSTRUCTION

RLA
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Environmental Consultants
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NOTES, SYMBOL & LINE LEGEND AND ABBREVIATIONS

699 Silver Street Agawam, MA Parcel ID: G6-2-12

COMMONWEALTH OF MASSACHUSETTS — ROBERT M. BOUCHER — REGISTERED LANDSCAPE ARCHITECT — NO. 1398 — 3/5/26

PREPARED FOR:
MSR Properties, LLC
c/o Rick Mahan
699 Silver Street
Agawam, MA 01001

ISSUANCE DATE: March 5, 2026

REVISIONS:	DATE:

DRAFTED BY: M.B.

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SCALE: As Noted

RLA PROJ. NUMBER: 250903

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GENERAL CONSTRUCTION NOTES

1. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR OR HIS AUTHORIZED REPRESENTATIVE SHALL CONVENE A PRE-CONSTRUCTION CONFERENCE BETWEEN THE CITY/TOWN REPRESENTATIVES, CONSULTING ENGINEER/LANDSCAPE ARCHITECT, UTILITY COMPANY REPRESENTATIVES, AND ANY OTHER AFFECTED PARTIES.
2. THE OWNER, R LEVESQUE ASSOCIATES, INC., AND/OR THEIR REPRESENTATIVES, IN PREPARING THESE PLANS HAVE ATTEMPTED TO LOCATE ALL EXISTING UTILITIES IN THE PROJECT AREA. HOWEVER, THERE MAY BE UTILITIES THAT WERE NOT OR COULD NOT BE LOCATED. UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE IN APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATIONS AND ELEVATIONS OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL CALL ALL APPROPRIATE UTILITY COMPANIES FOR LOCATIONS OF THEIR UTILITIES AT LEAST 48 HOURS BEFORE COMMENCING EXCAVATION. IN THE EVENT THAT A UTILITY IS SITUATED SUCH THAT CONSTRUCTION CANNOT PROCEED AS SHOWN ON THE PLANS, THE PROJECT ENGINEER/LANDSCAPE ARCHITECT AND OWNER SHALL BE NOTIFIED IMMEDIATELY.
3. THE SITE CONTRACTOR IS RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH OCCUR DUE TO HIS FAILURE TO LOCATE AND PRESERVE ANY AND ALL UTILITIES.
4. ALL FILL WORK REQUIRED TO BRING THE PROPOSED ROADWAY UP TO SUB-GRADE LEVEL SHALL CONFORM TO MHD SPECIFICATIONS SECTION 150.
5. CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE GOVERNING CODES AND BE CONSTRUCTED TO SAME.
6. ALL WORK IN THE CITY/TOWN RIGHT-OF-WAY AND EASEMENTS SHALL BE IN ACCORDANCE WITH THE CITY/TOWN SPECIFICATIONS AND MASSACHUSETTS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION.
7. THE CONTRACTOR SHALL GIVE THE CITY/TOWN A MINIMUM OF 48 HOURS NOTICE BEFORE BEGINNING EACH PHASE OF CONSTRUCTION.
8. CONTRACTOR IS RESPONSIBLE FOR REPAIRS OF DAMAGE TO ANY EXISTING IMPROVEMENTS DURING CONSTRUCTION, SUCH AS, BUT NOT LIMITED TO, DRAINAGE, UTILITIES, PAVEMENT, STRIPING, CURB, ETC. REPAIRS SHALL BE EQUAL TO OR BETTER THAN EXISTING CONDITIONS.
9. ALL WORK SHALL BE PERFORMED IN CONFORMANCE WITH THE CONDITIONS OF APPROVAL OUTLINED IN ALL STATE AND LOCAL PERMITS. COPIES OF THE CONDITIONS ARE INCLUDED WITHIN THE PROJECTS TECHNICAL SPECIFICATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING THIS INFORMATION PRIOR TO CONSTRUCTION AND CONFORMING TO THE CONDITIONS AS REQUIRED DURING CONSTRUCTION.
10. THE CONTRACTOR SHALL MAINTAIN THE JOB CLEAR OF TRASH AND DEBRIS. THE WORK AREAS ARE TO BE PICKED UP AT THE END OF EACH WORK DAY.
11. ANY TEMPORARY FACILITIES FOR THE STORAGE OR PROTECTION OF TOOLS, EQUIPMENT OR MATERIALS SHALL CONFORM TO LOCAL REGULATIONS AND SHALL BE THE GENERAL CONTRACTORS RESPONSIBILITY. THESE DOCUMENTS DO NOT INCLUDE THE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. SAFETY, CARE OF ADJACENT PROPERTIES DURING CONSTRUCTION, AND COMPLIANCE WITH STATE AND FEDERAL REGULATIONS REGARDING SAFETY SHALL BE THE GENERAL CONTRACTORS RESPONSIBILITY.
12. THE GENERAL CONTRACTOR AND HIS SUBCONTRACTORS SHALL VISIT THE SITE AND BECOME FAMILIAR WITH ALL CONDITIONS PRIOR TO SUBMITTING HIS PROPOSAL. NO EXTRAS DUE TO UNFAMILIARITY WITH THE EXISTING SITE OR WORKING CONDITIONS WILL BE ALLOWED.
13. CONTRACTOR SHALL BE REQUIRED TO PERFORM FINAL CLEANUP CONSISTING OF CLEANING THE PROPOSED DRAINAGE AND SEWER SYSTEMS OF ALL DEBRIS PRIOR TO THE ACCEPTANCE BY THE OWNER. ADDITIONALLY, THE PROPOSED ROADWAY SHALL BE CLEANED AND SWEPT BY THE CONTRACTOR PRIOR TO ACCEPTANCE.
14. ALL EXCAVATION SHALL COMPLY WITH OSHA'S LATEST STANDARDS. ALL REQUIREMENTS OF OSHA'S EXCAVATION STANDARDS SHALL BE PROVIDED BY THE CONTRACTOR INCLUDING, BUT NOT LIMITED TO, THE PROVISION FOR A COMPETENT PERSON ON SITE MANAGER AND ANY REQUIRED DOCUMENTATION THAT MAY REQUIRE CERTIFICATION BY A PROFESSIONAL ENGINEER. THE OWNER, THROUGH ITS ENGINEER, SHALL EXPRESSLY NOT PROVIDE ANY OF THE ABOVE REQUIREMENTS DESIGNATED BY OSHA'S EXCAVATION STANDARD.
15. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE COST OF LAYING OUT ALL ITEMS OF THE WORK BASED ON CERTAIN HORIZONTAL CONTROL AND BENCHMARK SUPPLIED BY THE SURVEYOR OF RECORD. ANY DISCREPANCIES SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER.
16. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR, EQUIPMENT, PERMITS AND APPURTENANCES NECESSARY TO PROVIDE A COMPLETE PROJECT AS INDICATED ON THE PLANS AND IN THESE SPECIFICATIONS.
17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR A THOROUGH SITE EXAMINATION IN ORDER TO PREPARE SITE FOR CONSTRUCTION.
18. ANY AND ALL DEMOLISHED TREES, STRUCTURES AND OTHER RUBBLE MATERIAL PERTAINING TO THIS PROJECT SHALL BE DISPOSED OF BY THE CONTRACTOR OFF-SITE AT HIS EXPENSE IN ACCORDANCE WITH ALL OF THE CITY/TOWN ORDINANCES AND ALL APPLICABLE STATE AND FEDERAL ENVIRONMENTAL REGULATIONS.
19. ALL PAVEMENT DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPLACED IN ACCORDANCE WITH THE SPECIFICATIONS AND AS SHOWN ON THE DRAWINGS.
20. ALL STREET EXCAVATIONS SHALL BE COMPLETELY CLOSED AT THE END OF EACH WORKING DAY BY BACKFILLING OR COVERING WITH STEEL PLATES.
21. ALL MATERIALS AND METHODS ARE TO COMPLY WITH THE CITY/TOWN DPW STANDARDS OR MASSACHUSETTS DEPARTMENT OF TRANSPORTATION (MASSDOT) (WHERE APPLICABLE), UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
22. PERMITS WILL BE REQUIRED BY CONTRACTOR WHEN WORKING WITHIN OR OCCUPYING PUBLIC WAY. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED WORK PERMITS AND MAINTAINING A COPY OF ALL PERMITS IN A THREE RING BINDER OR PROJECT BOOK AND ON-SITE AT ALL TIMES.
23. BACKFILL WILL BE PLACED IN SUCCESSIVE LAYERS NOT MORE THAN TWELVE INCHES IN THICKNESS AND SHALL BE COMPACTED TO 95% OF MAXIMUM DRY DENSITY DETERMINED BY STANDARD PROCTOR TEST (ASTM 698) FOR ALL APPLICABLE TYPES OF BACKFILL MATERIAL. NO FROZEN MATERIAL SHALL BE USED AS BACKFILL. IF, IN THE OPINION OF THE ENGINEER OR THE DPW, THE EXCAVATED MATERIAL IS UNSUITABLE, THE ENTIRE MATERIAL FOR BACKFILLING SHALL CONSIST OF APPROVED GRAVEL OR APPROVED BORROW, AS DIRECTED. AFTER THOROUGH TAMPING AROUND AND BENEATH THE UTILITY, A SIX-INCH LAYER OF BACKFILL WILL BE THOROUGHLY COMPACTED AS FOLLOWS: IF DRY, SHALL BE MOISTENED AND THEN COMPACTED WITH MECHANICAL TAMPERS OR BY HAND TAMPERS HAVING A TAMPING FACE NOT EXCEEDING 25 SQUARE INCHES IN AREA. THE FINAL TWELVE INCHES OF FILLING WILL, IN ALL CASES, CONSIST OF APPROVED GRAVEL THOROUGHLY TAMPED.
24. CONTRACTOR SHALL PROVIDE FIELD COMPACTION VERIFICATION UTILIZING ASTM D5195-02, STANDARD TEST METHOD FOR DENSITY OF SOIL & ROCK IN-PLACE AT DEPTHS BELOW THE SURFACE BY NUCLEAR METHODS.
25. CONTRACTOR SHALL PROVIDE FIELD COMPACTION RESULTS TO ENGINEER WITHIN 24-HOURS PRIOR TO PLACEMENT OF INFRASTRUCTURE OR BITUMINOUS BINDER.
26. ALL FILL TO BRING PROPOSED ROADWAY UP TO THE SUB-GRADE LEVEL SHALL EXTEND PAST THE EDGE OF THE RIGHT-OF-WAY AT A 2:1 SLOPE. THIS IS TO PROVIDE ADEQUATE SUPPORT FOR THE RIGHT-OF-WAY.

LAYOUT NOTES

1. ALL CONSTRUCTION IN CITY/TOWN RIGHT-OF-WAYS AND/OR EASEMENTS SHALL BE IN ACCORDANCE WITH THE CITY/TOWN STANDARD SPECIFICATIONS.
2. IN THE EVENT OF DISCREPANCIES BETWEEN LOCAL SPECIFICATIONS AND SITE SPECIFICATIONS, THE MORE STRINGENT REQUIREMENT SHALL GOVERN.
3. SITE CONTRACTOR SHALL PROTECT ALL BENCHMARKS AND PROPERTY MONUMENTATION AND SHALL REPLACE OR REPAIR, AT HIS OWN EXPENSE, BENCHMARKS AND MONUMENTATION DISTURBED DURING CONSTRUCTION.
4. ALL STRIPING, PAVEMENT MARKINGS, AND TRAFFIC SIGNAGE SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, UNLESS OTHERWISE NOTED ON THE PLANS.
5. ALL WORK SHALL COMPLY WITH FEDERAL, STATE AND LOCAL CODES AND ORDINANCES INCLUDING BUT NOT LIMITED TO: AASHTO, OSHA, EPA, DEP, MASSDOT , ETC. THE GENERAL CONTRACTOR SHALL APPLY FOR ALL PERMITS AND SHALL PAY ALL PERMIT RELATED FEES. ALL NECESSARY PERMITS SHALL BE OBTAINED PRIOR TO THE START OF WORK.
6. ALL DIMENSIONS AND CONDITIONS SHOWN ON THE DRAWINGS ARE TO BE VERIFIED BY THE CONTRACTOR. IF FIELD CONDITIONS VARY SIGNIFICANTLY ENOUGH TO REQUIRE A CHANGE TO THE CONTRACT DOCUMENTS, THE PROJECT PROPONENT AND ENGINEER SHALL BE NOTIFIED IMMEDIATELY.
7. THE SITE/GENERAL CONTRACTOR AND SUBCONTRACTORS SHALL CONTACT THE OWNER AND ENGINEER SHOULD HE FIND ANY CONFLICT OR INCONSISTENCY BETWEEN THE WORK SHOWN ON THE DRAWINGS AND NORMAL ACCEPTED CONSTRUCTION PRACTICES, OR HE SHALL ASSUME RESPONSIBILITY FOR ALL CORRECTIONS.
8. ANY CORRECTIONS REQUIRED FOR REVISIONS TO THE CONTRACT DRAWINGS INITIATED BY THE GENERAL CONTRACTOR OR SUBCONTRACTORS WITHOUT PRIOR APPROVAL OF THE OWNER AND OR THE ENGINEER SHALL BE ACCOMPLISHED AT THE CONTRACTORS RISK.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL & LEGAL DISPOSAL OF ALL MATERIAL NECESSARY TO PREPARE THE SITE FOR THE NEW CONSTRUCTION AS SHOWN ON THE SITE DRAWINGS.
10. REPAIR DAMAGED CITY/TOWN ROADS AND CURBS IN ACCORDANCE WITH MASSDOT AND/OR THE CITY/TOWN REGULATIONS.
11. CONTRACTOR SHALL SAWCUT PAVEMENT EDGE WHERE PAVEMENT TO REMAIN IS ADJACENT TO PAVEMENT TO BE REMOVED.
12. CONTRACTOR SHALL PREPARE SITE AS NECESSARY FOR CONSTRUCTION SHOWN ON THE PLANS.

EARTHWORK NOTES

1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
2. ALL CUT OR FILL SLOPES SHALL BE 3:1 OR FLATTER UNLESS OTHERWISE NOTED.
3. STORM PIPE SHALL BE AS NOTED ON PLANS.
4. EXISTING DRAINAGE STRUCTURES TO BE INSPECTED AND REPAIRED AS NEEDED, AND EXISTING PIPES TO BE CLEANED OUT TO REMOVE ALL SILT AND DEBRIS.
5. EXISTING GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT INTERVALS.
6. PROPOSED GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT INTERVALS.
7. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER.
8. ALL STORM PIPE ENTERING STRUCTURES SHALL BE SEALED TO ASSURE CONNECTION AT STRUCTURE IS WATERTIGHT.
9. ALL STORM SEWER MANHOLES FRAMES AND GRATES ARE TO BE SET EQUAL TO FINISH GRADES, AND SHALL HAVE TRAFFIC BEARING RING & COVERS (H20).
10. CONTRACTOR SHALL ADJUST AND/OR CUT EXISTING PAVEMENT AS NECESSARY TO ASSURE A SMOOTH FIT AND CONTINUOUS GRADE.
11. CONTRACTOR SHALL ASSURE POSITIVE DRAINAGE AWAY FROM BUILDINGS FOR ALL NATURAL AND PAVED AREAS.
12. ALL UNSURFACED AREAS DISTURBED BY GRADING OPERATION SHALL RECEIVE 4 INCHES OF TOPSOIL. CONTRACTOR SHALL APPLY STABILIZATION FABRIC TO ALL SLOPES 3H:1V OR STEEPER. CONTRACTOR SHALL GRASS DISTURBED AREAS IN ACCORDANCE WITH THE SPECIFICATIONS UNTIL A HEALTHY STAND OF GRASS IS OBTAINED.
13. CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE GOVERNING CODES AND BE CONSTRUCTED TO SAME.
14. IF CONTRACTOR RELOCATES OR SETS NEW BENCHMARKS, THE VERTICAL ELEVATIONS OF THE BENCHMARKS SHALL BE SET WITHIN A TOLERANCE OF 0.010 FT.
15. CONTRACTOR SHALL LEAVE GRADE BEHIND CURB IN ALL PLANTER AREAS A MINIMUM OF 4" LOW FOR THE PLACEMENT OF SUITABLE TOPSOIL OR PLANTING MIX.

SITE UTILITY NOTES

GENERAL:

1. ALL FILL MATERIAL IS TO BE IN PLACE, AND COMPACTED BEFORE INSTALLATION OF PROPOSED UTILITIES.
2. TOPS OF EXISTING MANHOLES SHALL BE SET EQUAL TO FINISH GRADE. IN GRASSED LANDSCAPED AREAS WITH WATER TIGHT LIDS.
3. ALL CONCRETE FOR ENCASEMENTS SHALL HAVE A MINIMUM 28 DAY COMPRESSION STRENGTH AT 3000 P.S.I.
4. DRAWINGS DO NOT PURPORT TO SHOW ALL EXISTING UTILITIES.
5. EXISTING UTILITIES SHALL BE VERIFIED IN FIELD PRIOR TO INSTALLATION OF ANY NEW LINES.
6. SITE/GENERAL CONTRACTOR IS RESPONSIBLE FOR COMPLYING TO THE SPECIFICATIONS OF THE LOCAL AUTHORITIES AT THE CITY WITH REGARD TO MATERIALS AND INSTALLATION OF THE WATER AND SEWER LINES.
7. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
8. CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES FOR INSTALLATION REQUIREMENTS AND SPECIFICATIONS.
9. CONTRACTOR SHALL COORDINATE INSPECTION OF UTILITY LINES WITH APPROPRIATE AUTHORITIES PRIOR TO BACKFILLING TRENCHES.
10. CONTRACTOR SHALL COMPLY WITH THE LATEST OSHA STANDARDS OR DIRECTIVES OR ANY OTHER AGENCY HAVING JURISDICTION FOR EXCAVATION AND TRENCHING PROCEDURES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND MAINTENANCE OF ALL SUPPORT SYSTEMS, SLOPING, BENCHING, AND OTHER MEANS OF PROTECTION.
11. CONTRACTOR SHALL COORDINATE INSTALLATION OF UTILITIES WITH LOCAL COMPANIES TO AVOID CONFLICTS AND TO ASSURE THAT PROPER DEPTHS ARE ACHIEVED. CONTRACTOR SHALL COORDINATE WITH LOCAL UTILITY COMPANIES FOR EXACT LOCATION AND SCHEDULING OF CONNECTIONS TO THEIR FACILITIES.
12. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. DUE TO THE LACK OF AVAILABLE DOCUMENTATION. ALL UTILITIES, INCLUDING CURB BOXES, MAY NOT BE SHOWN ON THESE DRAWINGS. THE CONTRACTOR SHALL CALL THE "DIG SAFE CENTER" TO HAVE ALL UTILITIES MARKED ON THE GROUND PRIOR TO THE START OF CONSTRUCTION
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH OCCUR DUE TO HIS FAILURE TO LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
14. DO NOT INTERRUPT EXISTING UTILITIES WITHOUT AUTHORIZATION FROM THE OWNER, OWNERS OF ADJACENT PROPERTIES, AND THE CORRESPONDING UTILITY OWNER. CONTRACTOR SHALL ARRANGE TO SHUT OFF UTILITIES, AS REQUIRED, WITH THE UTILITY OWNERS.
15. COORDINATE UTILITY TERMINATION WITH UTILITY OWNERS.

SEWER:

1. SANITARY SEWER MAINS AND LATERALS SHALL BE PVC PIPE CONFORMING TO ASTM D 3034-SDR35. THE MINIMUM SIZE FOR SEWER MAINS SHAL BE 8"; SEWER LATERALS SHALL BE 4" MIN.
2. ALL SANITARY SEWERS, SEWER FORCE MAINS, AND SEWER LATERALS SHALL BE INSTALLED IN FIRST-CLASS BEDDING AND IN ACCORDANCE WITH THE DEPARTMENT OF PUBLIC WORKS SPECIFICATIONS. SEWERS SHALL BE INSTALLED TO THE LINE AND GRADE INDICATED ON THE PLANS.
3. ONLY PRECAST CONCRETE MANHOLES OF A DESIGN APPROVED BY THE TOWN ENGINEER SHALL BE INSTALLED ON A SANITARY SEWER MAIN.
4. NO GROUNDWATER OR SURFACE WATER SHALL BE DISCHARGED INTO THE SANITARY SEWER.
5. WHERE ROCK IS ENCOUNTERED, IT SHALL BE REMOVED TO A DEPTH OF ONE FOOT BELOW THE FLOWLINE OF THE SEWER AND THE PIPE LAID IN A PROPERLY COMPACTED GRANULAR MATERIAL APPROVED BY THE TOWN ENGINEER.
6. ONLY GRANULAR MATERIAL APPROVED BY THE TOWN ENGINEER SHALL BE USED AS BACKFILL IN ANY TRENCH EXCAVATION.

WATER:

1. CONTRACTOR SHALL CONTACT THE CITY/TOWN WATER DEPARTMENT FOR SPECIFICATIONS AND MAKE OF VALVES, VALVE BOXES, FIRE HYDRANTS AND ALL OTHER WATER LINE APPURTENANCES.
2. WATER LINE TESTING AND STERILIZATION SHALL BE PERFORMED IN ACCORDANCE WITH LOCAL DPW SPECIFICATIONS AND WATER DISTRIBUTION SYSTEM. CONTRACTOR SHALL COORDINATE TESTING WITH THE CITY WATER DEPARTMENT.
3. ALL WATER MAIN SHALL BE DUCTILE IRON (D.I.), CLASS 52, AWWA C-151 (ANSI A21.40). D.I. PIPE SHALL BE DOUBLE CEMENT LINED WITH A SEAL COAT CONFORMING TO AWWA C-104 (ANSI A-21.4).
4. JOINTS FOR D.I. PIPE SHALL BE PUSH-ON OR OTHERWISE APPROVED, AWWA C151(ANSI A-21.51) WITH GASKETS CONFORMING TO AWWA C-111 (ANSI A-21.11) MAXIMUM LENGTH OF PIPE TO BE 20 L.F.
5. ALL FITTINGS SHALL BE DUCTILE IRON CLASS 53 WITH PRESSURE RATING OF 350 PSI AND MECHANICAL JOINTS CONFORMING TO AWWA C-151 (ANSI A21.51).
6. RETAINER GLANDS: RETAINER GLANDS SHALL BE DESIGNED TO IMPART MULTIPLE WEDGING ACTION AGAINST THE PIPE, INCREASE ITS RESISTANCE AS THE PRESSURE INCREASES. GLANDS SHALL BE MANUFACTURED OF DUCTILE IRON CONFORMING TO ASTM A536-80. RESTRAINING DEVICES SHALL BE DUCTILE IRON HEAT-TREATED TO A MINIMUM HARNESS OF 370 BHN. TWIST-OFF NUTS SHALL BE USED TO INSURE PROPER ACTUATING OF THE RETAINER GLAND. DIMENSIONS OF THE GLAND SHALL BE SUCH THAT IT CAN BE USED WITH THE STANDARD MECHANICAL JOINT BELL AND TEE-HEADED BOLTS CONFORMING TO ANSI/AWWA A21.1 AND ANSI/WWA 153/A21.5. THE RETAINER GLAND SHALL HAVE A WORKING PRESSURE OF 250 PSI WITH A MINIMUM SAFETY FACTOR OF 2:1 AND SHALL BE CERTIFIED BY THE MANUFACTURER TO BE COMPATIBLE WITH THE PIPE CLASS AND PIPE MANUFACTURER FOR ALL SIZES PROVIDED ON THE JOB. THE RETAINER GLAND SHALL BE MEGA-LUG AS MANUFACTURED EBAA IRON, INC., OR APPROVED EQUAL.
7. ALL WATER MAINS, UNLESS OTHERWISE NOTED, SHALL BE INSTALLED WITH A MINIMUM FIVE FEET OF COVER. WHEN CROSSING ABOVE OR BELOW WATER PIPELINES, A MINIMUM VERTICAL SEPARATION OF SIX INCHES SHALL BE PROVIDED. WHEN CROSSING SANITARY SEWERS, A MINIMUM OF 18" SHALL BE PROVIDED.

SITE UTILITY NOTES (CONTINUED)

8. THE INSTALLED WATER MAIN SHALL BE PRESSURE TESTED, FLUSHED AND DISINFECTED BY CONTRACTOR IN ACCORDANCE WITH AWWA C-600 AND AWWA C-651 OR PER CITY/TOWN WATER DEPARTMENT STANDARDS.
9. DUCTILE IRON PIPES SHALL BE INSTALLED IN ACCORDANCE WITH AWWA C-600.
10. ALL MECHANICAL JOINTS ARE TO BE RESTRAINED. FITTINGS SHALL BE RESTRAINED BY MECHANICAL JOINT RESTRAINTS. THE PIPE CONNECTED TO THE FITTING SHALL BE RESTRAINED PER THE MANUFACTURER'S SCHEDULE.
11. THE CONTRACTOR SHALL MARK THE LOCATION OF THE PROPOSED WATER MAIN AT LEAST 48 HOURS PRIOR TO EXCAVATING. EXCAVATION SHALL NOT PROCEED WITHOUT AUTHORIZATION BY THE ENGINEER.
12. ALL WATER MAINS, HYDRANT BRANCHES, AND SERVICES SHALL HAVE UTILITY WARNING TAPE. THE TAPE SHALL BE BURIED APPROXIMATELY 2 FEET BELOW FINISHED GRADE.
13. BACKFILL SHALL BE COMPACTED TO 95 PERCENT OF THE STANDARD PROCTOR DENSITY AS DETERMINED BY ASTM D698. COMPACTION EQUIPMENT USED MUST BE SPECIFICALLY DESIGNED FOR COMPACTION. TAMPING WITH THE BACK OF THE BACK HOE BUCKET IS UNACCEPTABLE COMPACTION.
14. ALL WATER SERVICES SHALL BE 1" DIA. COPPER TUBING TYPE K, SOFT TEMPER CONFORMING TO ASTM B88 UNLESS OTHERWISE NOTED.
15. DEPRESS WATER MAIN UNDER EXISTING SERVICES AND HYDRANT BRANCHES TO MAINTAIN 5'-0" OF COVER.
16. ALL WATER MAINS SHALL BE LAID PER THE PLANS TO MAINTAIN THE MAXIMUM SEPARATION FROM EXISTING OR PROPOSED SANITARY SEWER. DISTANCE SHALL BE MEASURED EDGE TO EDGE.
17. IDENTIFY EACH PIPE LENGTH & FITTING CLEARLY WITH MANUFACTURE'S NAME & TRADEMARK. NOMINAL PIPE SIZE & MATERIAL DESIGNATION.
18. ALL WATER MAINS & SERVICE PIPES SHALL BE LAID IN A TRENCH SEPARATE FROM ANY OTHER UTILITY (GAS, ELECTRIC, TELEPHONE, ETC.) SHALL BE A MINIMUM NO LESS THAN FIVE (5) FEET FROM ANOTHER UTILITY.
19. ALL MATERIAL SHALL BE IN ACCORDANCE WITH CITY/TOWN WATER DEPARTMENT "RULES & REGULATIONS". ALL WORK TO BE PERFORMED IN ACCORDANCE WITH CITY/TOWN WATER DEPARTMENT "SPECIFICATIONS". CITY/TOWN WATER DEPARTMENT STANDARDS SHALL TAKE PRECEDENCE OVER ANY REQUIREMENTS LISTED ABOVE.

PERMITTING
NOT FOR CONSTRUCTION

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CONSTRUCTION NOTES

699 Silver Street
Agawam, MA
Parcel ID: G6-2-12

COMMONWEALTH OF MASSACHUSETTS
ROMEO LEVESQUE
REGISTERED LANDSCAPE ARCHITECT
NO. 1395
3/5/26

PREPARED FOR:
MSR Properties, LLC
c/o Rick Mahan
699 Silver Street
Agawam, MA 01001

ISSUANCE DATE: March 5, 2026

REVISIONS:	DATE:

DRAFTED BY: M.B.

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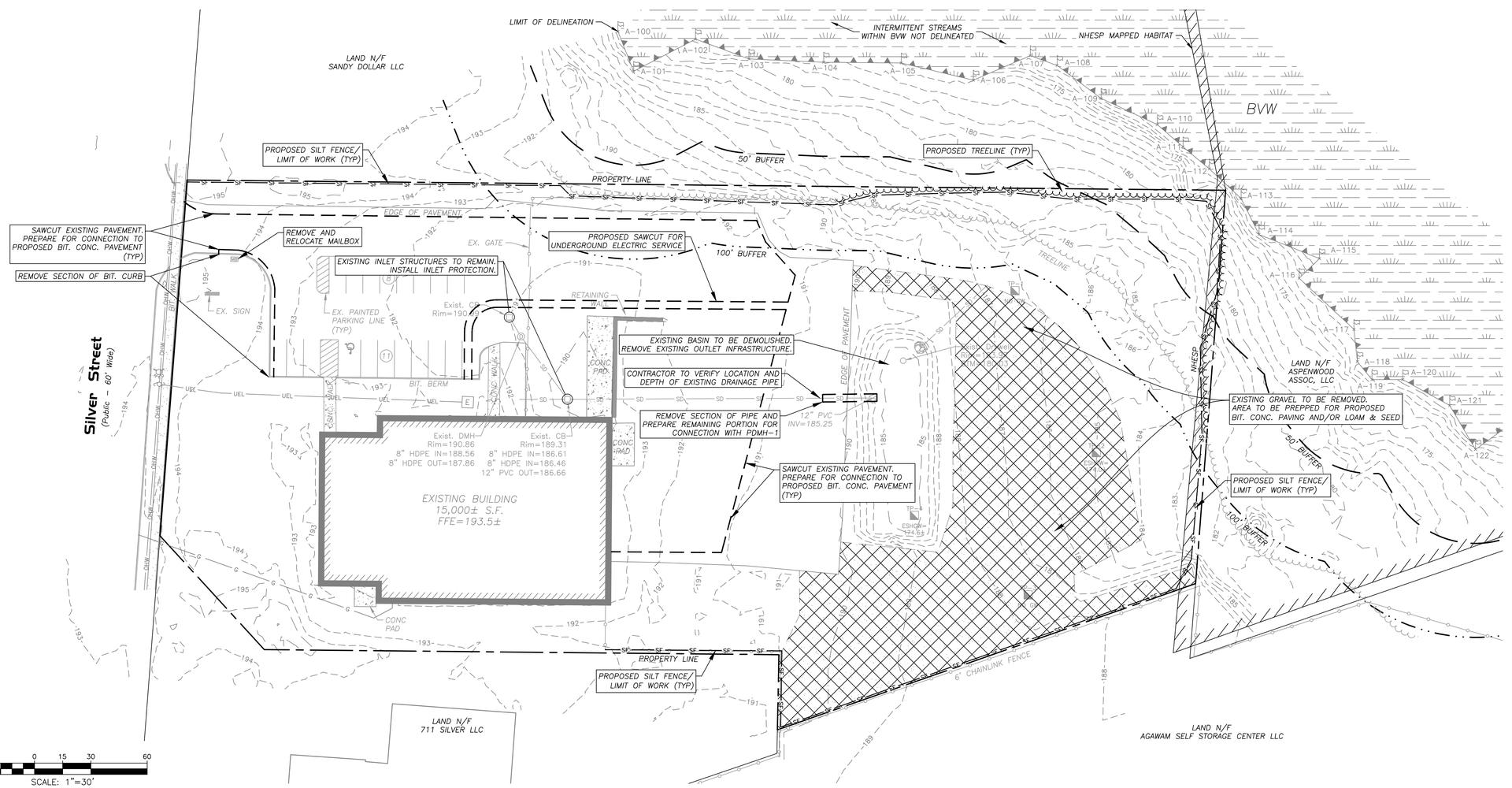
DEMOLITION NOTES

1. THE INFORMATION SHOWN HEREON IS NOT INTENDED TO BE AN EXHAUSTIVE SURVEY OF ALL APPURTENANCES THAT MAY OR MAY NOT BE IN PLACE TO SERVE THE EXISTING ON-SITE STRUCTURES AND USE. SEPTIC SYSTEM COMPONENTS, UNDERGROUND TANKS, AND OTHER SUB-SURFACE STRUCTURES MAY BE IN PLACE AND MAY REQUIRE ATTENTION BEFORE CONSTRUCTION MAY PROCEED.
2. CONTRACTOR SHALL CONDUCT A PRE-DEMOLITION SURVEY TO IDENTIFY ANY AND ALL UTILITIES AND UTILITY COMPONENTS TO BE DISCONTINUED, REMOVED, OR DEMOLISHED IN PLACE AND THE PRESENCE OR ABSENCE OF ANY HAZARDOUS MATERIALS.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEMOLITION, REMOVAL OR RELOCATION, INCLUDING BUT NOT LIMITED TO: ALL UTILITIES, STORM DRAINAGE, SIGNS, TRAFFIC SIGNALS & POLES, ETC. AS REQUIRED. ALL WORK SHALL BE IN ACCORDANCE WITH GOVERNING AUTHORITIES' SPECIFICATIONS AND SHALL BE APPROVED BY SUCH. ALL COSTS SHALL BE INCLUDED IN BASE BID.
4. CONTRACTOR SHALL ERECT AND MAINTAIN SAFETY BARRICADES AND POST PROPER NOTICES PRIOR TO THE COMMENCEMENT OF WORK.
5. CONTRACTOR SHALL PROTECT EXISTING SITE IMPROVEMENTS, APPURTENANCES AND LANDSCAPING TO REMAIN.
6. CONTRACTOR SHALL MAINTAIN EXISTING UTILITIES TO REMAIN IN SERVICE AND PROTECT THEM FROM DAMAGE DURING DEMOLITION OPERATIONS. ANY DAMAGE TO EXISTING UTILITIES TO REMAIN SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE UTILITY OWNER.
7. ALL UTILITY DISCONNECTION SHALL BE PERFORMED TO THE SATISFACTION OF THE RELEVANT UTILITY COMPANY AND COMPLY WITH ANY LOCAL, STATE AND/OR FEDERAL REGULATORY AGENCIES.
8. CONTRACTOR SHALL PROMPTLY TRANSPORT AND LEGALLY DISPOSE OF DEMOLISHED MATERIALS OFF OWNERS PROPERTY. DO NOT ALLOW DEMOLISHED MATERIAL TO COLLECT ON SITE. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DISPOSAL.
9. THERE SHALL BE NO BURNING OF DEMOLISHED MATERIAL ALLOWED ON SITE.
10. CONTRACTOR SHALL COORDINATE WITH OWNER FOR ANY ITEMS TO BE TURNED OVER TO OWNER.
11. CONTRACTOR IS RESPONSIBLE FOR CONTROLLING DUST SO THAT DUST DOES NOT CREATE A NUISANCE ON ADJACENT ROADS OR PROPERTIES. SITE CONTRACTOR SHALL BE RESPONSIBLE FOR STREET SWEEPING AND CATCH BASIN CLEANING AFTER EACH PHASE OF CONSTRUCTION AND AS NEED IS DETERMINED BY THE LANDSCAPE ARCHITECT/ENGINEER.
12. NO ACTIVITY SHALL OCCUR OUTSIDE OF LIMIT OF WORK LINE AS SHOWN ON PLAN WITHOUT THE APPROVAL OF THE LANDSCAPE ARCHITECT/ENGINEER AND LANDOWNER.
13. THE CONTRACTOR SHALL NOTIFY DIG SAFE @ 1-888-344-7233 A MINIMUM OF 72 HOURS (M-F) PRIOR TO COMMENCEMENT OF ANY DEMOLITION/CONSTRUCTION ACTIVITY.
14. THE LANDSCAPE ARCHITECT/ENGINEER IS NOT RESPONSIBLE FOR ANY ITEMS THAT MAY BE DISCOVERED ON-SITE DURING DEMOLITION OR CONSTRUCTION THAT WAS NOT PREVIOUSLY INDICATED ON THE SURVEYS OR INFORMATION PROVIDED.
15. PAVEMENT SHALL BE SAWCUT AT THE LIMIT OF WORK. ALL PAVING, FOOTINGS, UTILITIES, CURBING AND OTHER EXISTING IMPROVEMENTS SHALL BE REMOVED OR SUITABLY MILLED TO THE SATISFACTION OF THE OWNER AND GENERAL CONTRACTOR.

CONSTRUCTION SEQUENCE

1. CONTACT THE TOWN OF AGAWAM AT LEAST FORTY-EIGHT HOURS PRIOR TO COMMENCEMENT OF ANY DEMOLITION, CONSTRUCTION, OR EARTHWORK ACTIVITY ON THIS PROJECT.
2. CONSTRUCT ANTI-TRACKING PAD AT ENTRANCE AND INSTALL ANY REQUIRED INLET PROTECTION AS DEPICTED ON THE PLAN.
3. INSTALL SILT FENCE AS SHOWN ON THE PLANS.
4. UPON COMPLETION OF EROSION CONTROL MEASURES, CLEARING AND GRUBBING AND EARTHWORK MAY COMMENCE.
5. CLEAR AND GRUB SITE. STOCKPILE ANY CHIPPING OR TOPSOIL MATERIAL TO REMAIN ON SITE FOR LONGER THAN 14 DAYS AND INSTALL SILT FENCE AROUND THE PERIMETER OF THE STOCKPILE.
6. COMMENCE EARTHWORK BY EXCAVATING FOR THE CUT/FILL SLOPES AS SHOWN ON THE PLANS. STABILIZE/SEED ANY SLOPES THAT HAVE ACHIEVED FINAL GRADE.
7. INSTALL UTILITIES AS SHOWN ON PLANS INCLUDING WATER SERVICE, SEWER SERVICE, GAS SERVICE, ELECTRICAL SERVICE AND STORMWATER MANAGEMENT SYSTEM.
8. GRADE THE SITE TO ACCEPT PAVEMENT SECTION MATERIALS.
9. INSTALL PAVEMENT AS SPECIFIED ON THE PLANS.
10. UPON INSTALLATION OF PAVEMENT SURFACE, INSTALL INLET PROTECTION AS REQUIRED ON ANY NEW INLET STRUCTURES.
11. FINAL GRADING AND STABILIZATION OF ANY REMAINING EXPOSED AREAS.
12. AT THE DIRECTION OF THE TOWN OF AGAWAM, EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED.



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RLA
R LEVESQUE ASSOCIATES INC
Landscape Architects
Civil Engineers · Land Surveyors
Environmental Consultants
ph: 413.568.0985 fax: 413.568.0986
40 School Street
Westfield, MA 01085
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DEMOLITION & REMOVALS PLAN

699 Silver Street
Agawam, MA
Parcel ID: G6-2-12

MASSACHUSETTS REGISTERED LANDSCAPE ARCHITECT ROBERT A. LEVESQUE NO. 1395 35126

PREPARED FOR:
MSR Properties, LLC
c/o Rick Mahan
699 Silver Street
Agawam, MA 01001

ISSUANCE DATE: March 5, 2026

REVISIONS:	DATE:

DRAFTED BY: M.B.

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SCALE: As Noted

RLA PROJ. NUMBER: 250903

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ZONING REVIEW - Industrial B (IB)

TYPE (MINIMUM)	REQUIRED	PROPOSED
AREA	1 ACRE	3.12± ACRES
FRONTAGE	100 FT	189.86 FT
FRONT YARD	75 FT	80.5± FT
SIDE YARD	25 FT	25.5± FT
REAR YARD	25 FT	131.6± FT
HEIGHT (MAX)	40 FT (2 STORIES)	<40± FT
BUILDING COVERAGE (MAX)	NONE	±16%
PARKING	30*	31

* PARKING REQUIREMENTS: Service Industrial Building - 1 space per 500 square feet of gross floor area
15,000 S.F. / 500 S.F. = 30 REQUIRED SPACES

NOTES

1. THE RECORD OWNER OF THE SUBJECT PARCEL IS MSR PROPERTIES, LLC. SEE HAMPDEN COUNTY REGISTRY OF DEEDS BOOK 22411 PAGE 254, BOOK 20869 PAGE 318, AND BOOK 26235 PAGE 356.
2. THE PROPERTY LINES SHOWN HEREON ARE BASED UPON A PLAN TITLED, "PLAN OF LAND IN AGAWAM, MASSACHUSETTS SURVEYED AND MAPPED FOR (OWNERS) AGAWAM SELF STORAGE CENTER, LLC., 711 SILVER, LLC., AND MSR PROPERTIES, LLC." PREPARED BY THIS OFFICE, DATED AUGUST 19, 2025. SEE HAMPDEN COUNTY REGISTRY OF DEEDS BOOK OF PLANS 403 PAGE 110.
3. THE EXISTING BUILDING(S) SHOWN HEREON ARE BASED ON AN APPROXIMATE MEASUREMENT OF THE OUTSIDE PERIMETER OF THE EXISTING STRUCTURES. THE ACTUAL LOCATION OF THE EXISTING BUILDING WALLS AND CORNERS SHOULD BE VERIFIED IN THE FIELD PRIOR TO ANY CONSTRUCTION WORK THAT WOULD ABUT OR TAKE PLACE ADJACENT TO THE EXISTING BUILDING(S). IF THE PLAN HEREON IS USED FOR CONSTRUCTION LAYOUT PURPOSES, THE PARTIES CONDUCTING LAYOUT SHALL CONTACT R. LEVESQUE ASSOCIATES INC. PRIOR TO SAID LAYOUT TO DETERMINE PROPER CONTROL. PLEASE NOTE WHILE THE BUILDING(S) ARE SHOWN TO BE SQUARE, IT SHOULD NOT BE ASSUMED THAT THE WALLS ARE SQUARE OR PLUMB. R. LEVESQUE ASSOCIATES TAKES NO RESPONSIBILITY FOR THIRD PARTY LAYOUT OF THE PLAN SHOWN HEREON.
4. THIS PLAN HAS BEEN PREPARED FOR SITE PLANNING PURPOSES AND SHALL NOT BE USED FOR THE CONVEYANCE OF LAND OR FOR ANY OTHER USE.
5. SUBJECT PARCEL CONTAINS 136,158.9± S.F. OR 3.12± ACRES.
6. THE SUBJECT PROPERTIES SHOWN HEREON MAY BE SUBJECT TO RIGHTS AND EASEMENTS AS CONTAINED IN THE VARIOUS DEEDS OF RECORD DESCRIBING SAID PROPERTIES. THE LOCATION AND EXTENT OF ANY SUCH RIGHTS AND EASEMENTS IS NOT THE SUBJECT OF THIS PLAN.
7. WETLANDS DELINEATED BY R LEVESQUE ASSOCIATES, INC. ON 09-12-2025. OFFSITE WETLAND RESOURCE AREAS HAVE BEEN SHOWN TO ACCURATELY SHOW BUFFER ZONES ON THE SUBJECT PROPERTY. THE DETERMINATION OF WETLAND RESOURCE AREAS IS THE THE SUBJECT OF THIS PLAN.
8. THE EXISTING CONDITIONS INFORMATION SHOWN IS BASED UPON A SURVEY PERFORMED BY R LEVESQUE ASSOCIATES, INC. ON 09-15-2025, AN UNRECORDED EXISTING CONDITIONS SITE PLAN PREPARED BY SMITH ASSOCIATES SURVEYORS, INC., DATED DECEMBER 11, 2015, AND NOAA LIDAR.
9. THE UNDERGROUND UTILITIES SHOWN HEREON HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION, AVAILABLE RECORD DATA, AND THE TOWN OF AGAWAM WEB GIS. R LEVESQUE ASSOCIATES, INC. MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN HEREON COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. R LEVESQUE ASSOCIATES, INC. FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN HERE ARE IN THE EXACT LOCATION INDICATED, ALTHOUGH THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM AVAILABLE INFORMATION.
10. ADJACENT PROPERTY LINES AND ABUTTERS SHOWN HEREON ARE REFERENCED FROM THE TOWN OF AGAWAM WEB GIS.
11. SUBJECT PARCEL IS ZONED INDUSTRIAL B ACCORDING TO THE TOWN OF AGAWAM ZONING MAP.
12. THE SUBJECT PARCEL IS NOT LOCATED WITHIN A SPECIAL FLOOD ZONE AREA ACCORDING TO FLOOD INSURANCE RATE MAP NUMBER 25013C0392E – EFFECTIVE DATE: 07-16-2013.
13. THE SUBJECT PROPERTY IS PARTIALLY LOCATED WITHIN NATURAL HERITAGE & ENDANGERED SPECIES PROGRAM (NHESP) JURISDICTION.

LAYOUT NOTES

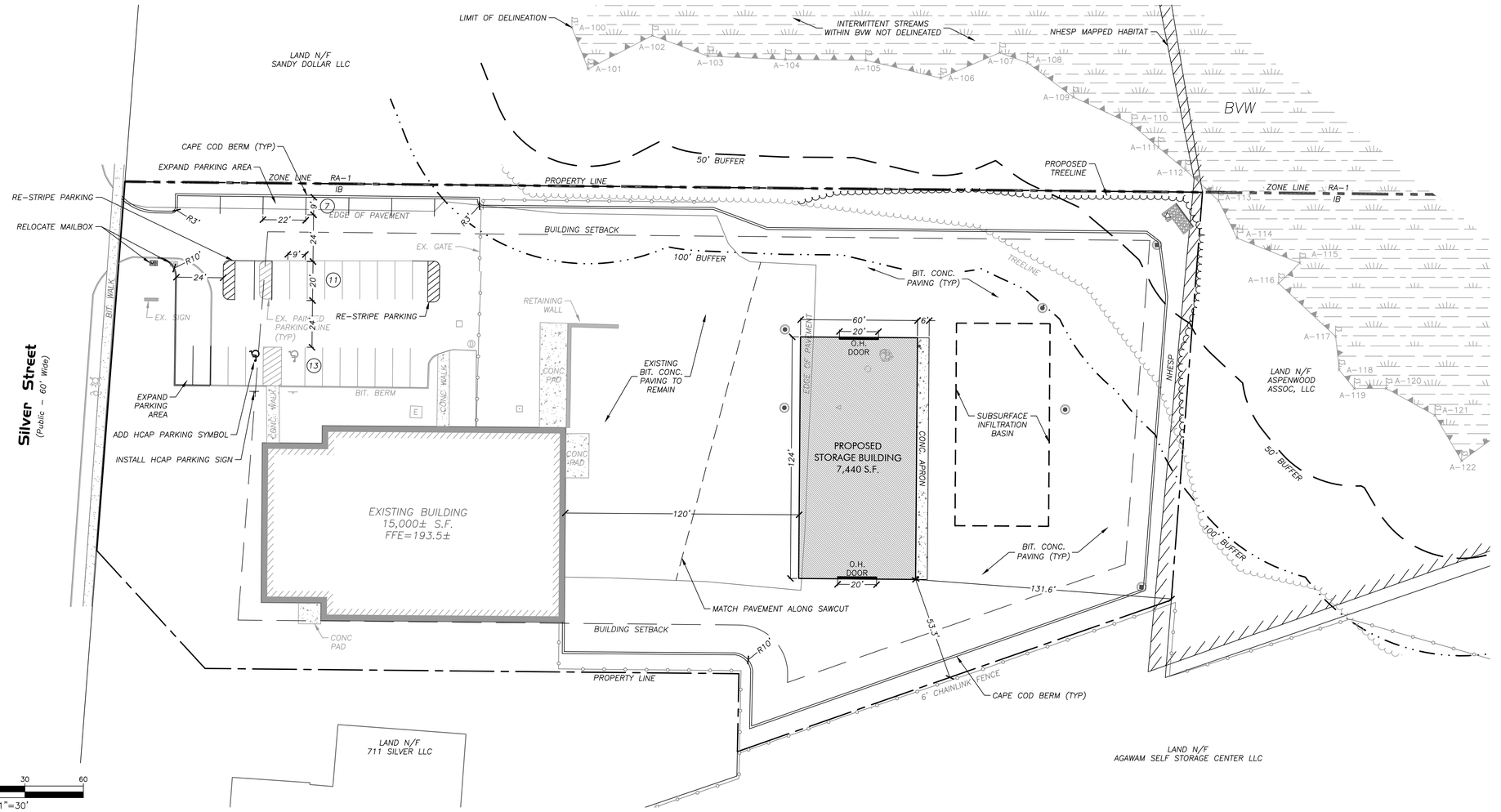
1. SITE CONTRACTOR SHALL REFER TO REMAINING PLAN SET FOR INFORMATION REGARDING SITE LAYOUT.
2. IT SHALL BE THE SITE CONTRACTORS RESPONSIBILITY TO CROSS REFERENCE INFORMATION CONTAINED IN OTHER SHEETS WITH SITE INFORMATION SHOWN HEREON.
3. PRIOR TO SUBMITTING THEIR BID FOR CONSTRUCTION, THE SITE CONTRACTOR SHALL COMMUNICATE ANY DISCREPANCIES BETWEEN THE PROPOSED DESIGN AND THE SAID SPECIFICATIONS WITH THE PROJECT PROPONENT AND LANDSCAPE ARCHITECT/ENGINEER. SHOULD THE SITE CONTRACTOR FAIL TO COMMUNICATE ANY DISCREPANCIES, HE/SHE SHALL BE RESPONSIBLE FOR ANY COSTS RESULTING FROM SAID DISCREPANCY.

SIGNAGE AND PAVEMENT MARKING NOTES

1. STRIPE ALL PARKING AREAS AS SHOWN, INCLUDING PARKING SPACES, STOP BARS, CROSSWALKS, AND ACCESSIBLE ROUTE MARKINGS AND SYMBOLS USING WHITE TRAFFIC PAINT. PAINTED ISLANDS, FIRE LANES, AND TRAVEL WAY CENTERLINES SHALL BE PAINTED USING YELLOW TRAFFIC PAINT. ALL TRAFFIC PAINT SHALL CONFORM TO AASHTO M248 TYPE "N".
2. STOP BARS SHALL BE 12" WIDE (WHITE).
3. ALL PARKING STALL LINES SHALL BE 4" WIDE (WHITE).
4. ALL PAVEMENT MARKINGS AND SIGNS SHALL CONFORM TO "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS", MASSDOT, STATE BUILDING CODE AND ADA REQUIREMENTS, AND AS SHOWN ON THE PLANS & DETAILS.

ACCESSIBILITY NOTES

1. ALL ACCESSIBLE ROUTES, TRANSITIONS, AND ACCESSIBLE PARKING/LOADING AREAS, INCLUDING ALL ENTRANCES TO BUILDING, SHALL ADHERE TO 521 CMR.
2. SHOULD THE ARCHITECT PROVIDE ADDITIONAL ENTRANCES OR MEANS OF EGRESS, ADDITIONAL ACCESSIBLE ROUTES MAY BE REQUIRED.
3. IT IS THE RESPONSIBILITY OF THE ARCHITECT AND CONTRACTOR TO NOTIFY THE ENGINEER AND LANDSCAPE ARCHITECT OF ANY CHANGES TO THE PROPOSED BUILDING THAT WOULD AFFECT THE ACCESSIBILITY REQUIREMENTS OF THE PROPOSED SITE.
4. THE CONTRACTOR SHALL REVIEW IN DETAIL THE REQUIREMENTS OF 521 CMR AND SHALL BE RESPONSIBLE FOR CONFORMANCE WITH SAID REGULATIONS.



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RLA
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Civil Engineers · Land Surveyors
Environmental Consultants
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rlaland.com

LAYOUT & MATERIALS PLAN

699 Silver Street
Agawam, MA
Parcel ID: G6-2-12

MASSACHUSETTS REGISTERED LANDSCAPE ARCHITECT ROBERT J. LEVESQUE NO. 1398 3/5/26

PREPARED FOR:
MSR Properties, LLC
c/o Rick Mahan
699 Silver Street
Agawam, MA 01001

ISSUANCE DATE: March 5, 2026

REVISIONS:	DATE:

DRAFTED BY: M.B.

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SHORT–TERM EROSION CONTROL MAINTENANCE

1. THE CONTRACTOR OR SUBCONTRACTOR WILL BE RESPONSIBLE FOR IMPLEMENTING EACH CONTROL SHOWN ON THE SEDIMENTATION AND EROSION CONTROL PLAN.
2. ALL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE PROPERLY MAINTAINED DURING ALL PHASES OF CONSTRUCTION UNTIL THE COMPLETION OF ALL CONSTRUCTION ACTIVITIES AND ALL DISTURBED AREAS HAVE BEEN STABILIZED. ADDITIONAL CONTROL MEASURES WILL BE INSTALLED DURING CONSTRUCTION IN ORDER TO CONTROL EROSION AND/OR OFF–SITE SEDIMENTATION IF DEEMED NECESSARY BY ON–SITE INSPECTION.
3. EFFECTIVE EROSION CONTROL MEASURES SHALL BE INITIATED PRIOR TO THE COMMENCEMENT OF CLEARING, GRADING, EXCAVATION, OR OTHER OPERATIONS THAT WILL DISTURB THE NATURAL PROTECTION.
4. ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE INSPECTED AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND AFTER ANY STORM EVENT GREATER THAN 0.5 INCHES OF PRECIPITATION DURING ANY 24–HOUR PERIOD, AND THE INSPECTION SHALL BE DOCUMENTED IN WRITING. DAMAGED OR INEFFECTIVE DEVICES SHALL BE REPAIRED OR REPLACED, AS NECESSARY.
5. THE CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS TO AVOID EXCESS EROSION OF THE SITE DUE TO THE CONSTRUCTION OF THIS PROJECT.
6. SILT SHALL BE REMOVED FROM BEHIND BARRIERS IF GREATER THAN 6–INCHES DEEP OR AS NEEDED. SEDIMENT THAT IS COLLECTED IN STRUCTURES SHALL BE DISPOSED OF PROPERLY AND COVERED IF STORED ON–SITE.
7. DAMAGED OR DETERIORATED ITEMS WILL BE REPAIRED IMMEDIATELY AFTER IDENTIFICATION.
8. ALL DITCHES SHALL BE STABILIZED AS SOON AS IS PRACTICABLE TO MINIMIZE EROSION.
9. THE CONTRACTOR SHALL MAINTAIN ALL EROSION CONTROL DEVICES IN A GOOD, WORKING STATE OF REPAIR UNTIL THEIR USE IS NO LONGER WARRANTED. AT THAT TIME, THE EROSION CONTROL DEVICES SHALL BE REMOVED AND DISPOSED OF SO AS TO CAUSE NO OFF–SITE SILTATION.
10. INSPECT AND MAINTAIN CONSTRUCTION ENTRANCE STONE SUCH THAT SEDIMENT DOES NOT TRACK ONTO THE STREET. ANY SEDIMENT TRACKED ONTO THE STREET SHALL BE CLEANED DAILY.
11. AFTER CATCH BASINS HAVE BEEN CONSTRUCTED AND THE SITE HAS BEEN PAVED, THE CONTRACTOR SHALL PROTECT THE INLETS BY CONSTRUCTING INLET PROTECTION AS SHOWN ON THE PLANS. INLET PROTECTION TO REMAIN IN PLACE AND MAINTAINED UNTIL DISTURBED AREAS HAVE BEEN STABILIZED, LOAMED AND SEEDED.
12. EROSION CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL ALL DISTURBED EARTH HAS BEEN SUBSTANTIALLY STABILIZED. AFTER REMOVAL OF MEASURES, DISTURBED AREAS SHALL BE REGRADED AND STABILIZED AS NECESSARY.
13. THIS PLAN IS PROVIDED AS A BASIS FOR THE INITIAL SEDIMENTATION AND EROSION CONTROL MEASURES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UPDATE AND EXPAND THIS PLAN AS SITE CONDITIONS DICTATE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PREVENT THE OCCURRENCE OF SILTATION TO WETLAND RESOURCE AREAS AND THE MOVEMENT OF SEDIMENT BEYOND THE SITE BOUNDARIES.

CONSTRUCTION NOTES

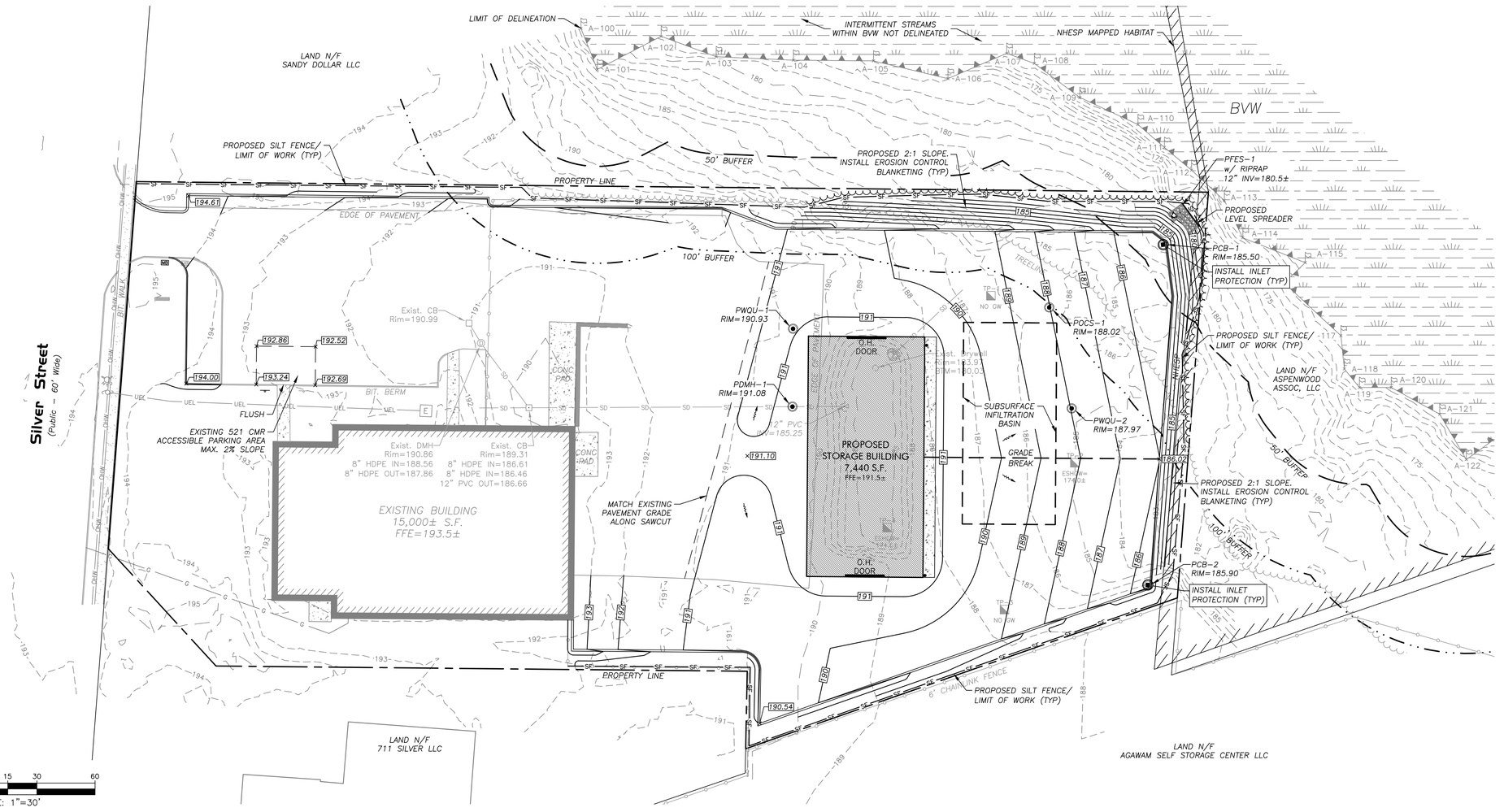
1. THE CONTRACTOR/OWNER/DEVELOPER TO BE AWARE THAT A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) AND AN ILLICIT DISCHARGE COMPLIANCE STATEMENT ARE REQUIRED PRIOR TO ANY LAND DISTURBANCE.
2. UNDERGROUND UTILITIES SHOWN HEREON ARE BASED UPON SURFACE FEATURES AS LOCATED BY SURVEY AND AVAILABLE RECORD DATA AND ARE APPROXIMATE. ACTUAL FIELD LOCATIONS SHOULD BE VERIFIED WITH THE APPROPRIATE UTILITY COMPANY AND/OR MUNICIPAL DEPARTMENT PRIOR TO CONSTRUCTION.
3. CONTRACTOR TO NOTIFY DIG SAFE A MINIMUM OF 72 HOURS PRIOR TO START OF CONSTRUCTION ACCORDING TO MA GENERAL LAWS.
4. APPROVED PLANS TO BE ON SITE AT ALL TIMES.
5. CHANGES TO THIS PLAN MAY OCCUR AS UNFORESEEN CONDITIONS ARISE. ALL CHANGES TO BE APPROVED BY DESIGN ENGINEER, FIELD INSPECTOR AND CITY/TOWN ENGINEER.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE AND SAFETY OF TRAFFIC ON THE PUBLIC AND PRIVATE WAYS AFFECTED BY THE CONSTRUCTION OF THIS PROJECT.
7. CONTRACTOR SHALL PROTECT ALL SLOPES, VEGETATION, PAVING, WALKS, AND IMPROVEMENTS OUTSIDE THE AREAS TO BE AFFECTED BY THE CONSTRUCTION OF THIS PROJECT.
8. TREES, BRUSH AND STUMPS REMOVED BY CLEARING AND GRUBBING OPERATIONS SHALL BE TRANSPORTED OFF THE PROJECT SITE TO AN APPROVED DISPOSAL LOCATION.
9. ALL PAVEMENT MARKINGS CHANGED, ALTERED OR REMOVED SHALL BE REAPPLIED.
10. ALL CONSTRUCTION METHODS TO CONFORM TO AGAWAM PLANNING BOARD REGULATIONS AND DEPARTMENT OF PUBLIC WORKS SPECIFICATIONS.
11. AGAWAM DEPARTMENT OF PUBLIC WORKS APPROVAL IS NOT TO BE CONSTRUED AS AN ALL INCLUSIVE APPROVAL AS OTHER APPROVALS MAY BE NECESSARY, I.E. TOWN ENGINEER, CONSERVATION, FIRE DEPARTMENT, WATER DEPARTMENT, ETC.
12. EROSION CONTROL MEASURES TO BE IN PLACE PRIOR TO START OF CONSTRUCTION.

GRADING & DRAINAGE NOTES

1. SITE CONTRACTOR SHALL REFER TO REMAINING PLAN SET FOR INFORMATION REGARDING GRADING AND DRAINAGE.
2. IT SHALL BE THE SITE CONTRACTORS RESPONSIBILITY TO CROSS REFERENCE INFORMATION CONTAINED IN OTHER SHEETS WITH GRADING AND DRAINAGE INFORMATION SHOWN HEREON.
3. PRIOR TO SUBMITTING A BID FOR CONSTRUCTION, THE SITE CONTRACTOR SHALL COMMUNICATE ANY DISCREPANCIES BETWEEN THE PROPOSED DESIGN AND THE SPECIFICATIONS WITH THE PROJECT PROPONENT AND LANDSCAPE ARCHITECT/ENGINEER. SHOULD THE SITE CONTRACTOR FAIL TO COMMUNICATE ANY DISCREPANCIES, HE/SHE SHALL BE RESPONSIBLE FOR ANY COSTS RESULTING FROM SAID DISCREPANCY.
4. CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT/ENGINEER OF ANY UNEXPECTED CONDITIONS THAT ARE ENCOUNTERED DURING CONSTRUCTION.
5. ONCE DRAINAGE SYSTEM IS INSTALLED AND FUNCTIONING, THE OWNER/SITE CONTRACTOR SHALL COORDINATE WITH R LEVESQUE ASSOCIATES, INC. (RLA) TO CONDUCT A POST–CONSTRUCTION ANALYSIS OF THE DRAINAGE SYSTEM DURING ACTUAL STORM EVENTS TO DETERMINE THE FUNCTIONALITY OF THE INSTALLED DRAINAGE SYSTEM DURING SAID EVENTS. SHOULD THE DRAINAGE SYSTEM NOT FUNCTION AS DESIGNED UNDER REAL WORLD CONDITIONS, RLA WILL RECOMMEND ADJUSTMENTS TO THE DRAINAGE SYSTEM TO BE IMPLEMENTED BY THE OWNER/SITE CONTRACTOR.
6. ALL UTILITY CONSTRUCTION SHALL CONFORM TO THEIR RESPECTIVE CITY DEPARTMENT SPECIFICATIONS.
7. CONTRACTOR TO ACHIEVE POSITIVE DRAINAGE AWAY FROM PROPOSED BUILDINGS.

ACCESSIBILITY NOTES

1. ALL ACCESSIBLE ROUTES, TRANSITIONS, AND ACCESSIBLE PARKING/LOADING AREAS, INCLUDING ALL ENTRANCES TO BUILDING, SHALL ADHERE TO 521 CMR.
2. SHOULD THE ARCHITECT PROVIDE ADDITIONAL ENTRANCES OR MEANS OF EGRESS, ADDITIONAL ACCESSIBLE ROUTES MAY BE REQUIRED.
3. IT IS THE RESPONSIBILITY OF THE ARCHITECT AND CONTRACTOR TO NOTIFY THE ENGINEER AND LANDSCAPE ARCHITECT OF ANY CHANGES TO THE PROPOSED BUILDING THAT WOULD AFFECT THE ACCESSIBILITY REQUIREMENTS OF THE PROPOSED SITE.
4. THE CONTRACTOR SHALL REVIEW IN DETAIL THE REQUIREMENTS OF 521 CMR AND SHALL BE RESPONSIBLE FOR CONFORMANCE WITH SAID REGULATIONS.



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Landscape Architects
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40 School Street
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GRADING, EROSION & SEDIMENTATION CONTROL PLAN

699 Silver Street
Agawam, MA
Parcel ID: G6-2-12

COMMONWEALTH OF MASSACHUSETTS — ROBERT J. LEVESQUE — REGISTERED LANDSCAPE ARCHITECT — NO. 1981 — 5/5/26

PREPARED FOR:
MSR Properties, LLC
c/o Rick Mahan
699 Silver Street
Agawam, MA 01001

ISSUANCE DATE: March 5, 2026

REVISIONS:	DATE:

DRAFTED BY: M.B.

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GRADING & DRAINAGE NOTES

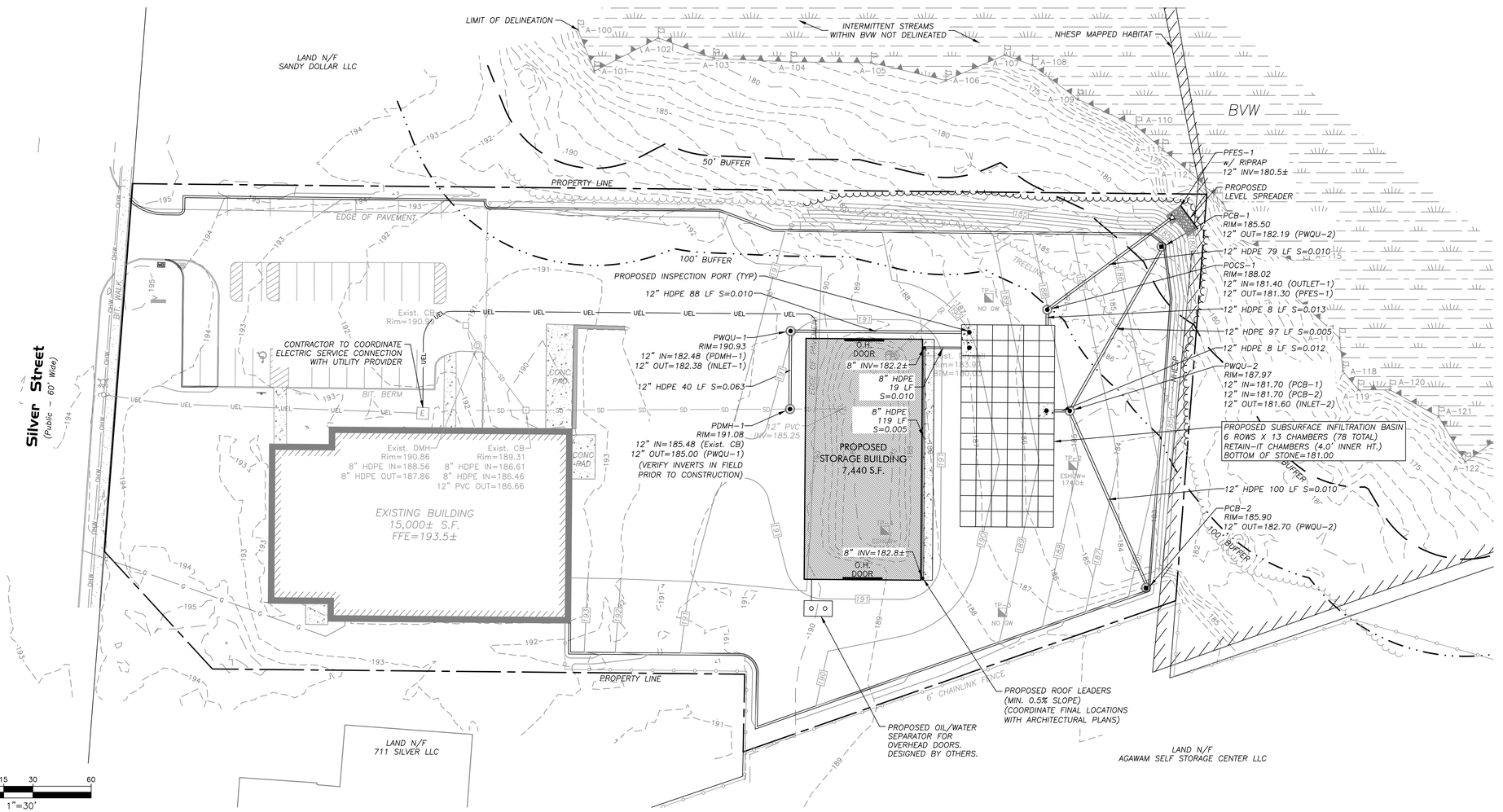
1. SITE CONTRACTOR SHALL REFER TO REMAINING PLAN SET FOR INFORMATION REGARDING GRADING AND DRAINAGE.
2. IT SHALL BE THE SITE CONTRACTOR'S RESPONSIBILITY TO CROSS REFERENCE INFORMATION CONTAINED IN OTHER SHEETS WITH GRADING AND DRAINAGE INFORMATION SHOWN HEREON.
3. PRIOR TO SUBMITTING A BID FOR CONSTRUCTION, THE SITE CONTRACTOR SHALL COMMUNICATE ANY DISCREPANCIES BETWEEN THE PROPOSED DESIGN AND THE SPECIFICATIONS WITH THE PROJECT PROPONENT AND LANDSCAPE ARCHITECT/ENGINEER. SHOULD THE SITE CONTRACTOR FAIL TO COMMUNICATE ANY DISCREPANCIES, HE/SHE SHALL BE RESPONSIBLE FOR ANY COSTS RESULTING FROM SAID DISCREPANCY.
4. CONTRACTOR SHALL NOTIFY DESIGNER/ENGINEER OF ANY UNEXPECTED CONDITIONS THAT ARE ENCOUNTERED DURING CONSTRUCTION.
5. ONCE DRAINAGE SYSTEM IS INSTALLED AND FUNCTIONING, THE OWNER/SITE CONTRACTOR SHALL COORDINATE WITH R LEVESQUE ASSOCIATES, INC. (RLA) TO CONDUCT A POST-CONSTRUCTION ANALYSIS OF THE DRAINAGE SYSTEM DURING ACTUAL STORM EVENTS TO DETERMINE THE FUNCTIONALITY OF THE INSTALLED DRAINAGE SYSTEM DURING SAID EVENTS. SHOULD THE DRAINAGE SYSTEM NOT FUNCTION AS DESIGNED UNDER REAL WORLD CONDITIONS, RLA WILL RECOMMEND ADJUSTMENTS TO THE DRAINAGE SYSTEM TO BE IMPLEMENTED BY THE OWNER/SITE CONTRACTOR.
6. ALL UTILITY CONSTRUCTION SHALL CONFORM TO THEIR RESPECTIVE AGAWAM DEPARTMENT SPECIFICATIONS.
7. ALL FILL MATERIAL DISCOVERED UNDER INFILTRATION SITES SHALL BE REMOVED AND PROPERLY DISPOSED OF PRIOR TO INSTALLATION OF INFILTRATION STRUCTURE.
8. A LICENSED SOIL EVALUATOR AND/OR PROFESSIONAL ENGINEER MUST BE PRESENT DURING GRADING AND CONSTRUCTION OF THE SUBSURFACE INFILTRATION SYSTEM TO ENSURE NATIVE OR SIMILAR SOILS UNDERLAY THE STRUCTURES.

CONSTRUCTION NOTES

1. UNDERGROUND UTILITIES SHOWN HEREON ARE BASED UPON SURFACE FEATURES AS LOCATED BY SURVEY AND AVAILABLE RECORD DATA AND ARE APPROXIMATE. ACTUAL FIELD LOCATIONS SHOULD BE VERIFIED WITH THE APPROPRIATE UTILITY COMPANY AND/OR MUNICIPAL DEPARTMENT PRIOR TO CONSTRUCTION.
2. CONTRACTOR TO NOTIFY DIG SAFE A MINIMUM OF 72 HOURS PRIOR TO START OF CONSTRUCTION ACCORDING TO MA GENERAL LAWS.
3. APPROVED PLANS TO BE ON SITE AT ALL TIMES.
4. CHANGES TO THIS PLAN MAY OCCUR AS UNFORESEEN CONDITIONS ARISE. ALL CHANGES TO BE APPROVED BY DESIGN ENGINEER, FIELD INSPECTOR AND CITY/TOWN ENGINEER.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE AND SAFETY OF TRAFFIC ON THE PUBLIC AND PRIVATE WAYS AFFECTED BY THE CONSTRUCTION OF THIS PROJECT.
6. CONTRACTOR SHALL PROTECT ALL SLOPES, VEGETATION, PAVING, WALKS, AND IMPROVEMENTS OUTSIDE THE AREAS TO BE AFFECTED BY THE CONSTRUCTION OF THIS PROJECT.
7. TREES, BRUSH AND STUMPS REMOVED BY CLEARING AND GRUBBING OPERATIONS SHALL BE TRANSPORTED OFF THE PROJECT SITE TO AN APPROVED DISPOSAL LOCATION.
8. CALCIUM CHLORIDE/WATER FOR DUST CONTROL TO BE AVAILABLE AT ALL TIMES.
9. ALL PAVEMENT MARKINGS CHANGED, ALTERED OR REMOVED SHALL BE REAPPLIED.
10. ALL CONSTRUCTION METHODS TO CONFORM TO AGAWAM PLANNING BOARD REGULATIONS AND BOARD OF PUBLIC WORKS SPECIFICATIONS.
11. AGAWAM DEPARTMENT OF PUBLIC WORKS APPROVAL IS NOT TO BE CONSTRUED AS AN ALL INCLUSIVE APPROVAL AS OTHER APPROVALS MAY BE NECESSARY, I.E. TOWN ENGINEER, CONSERVATION, FIRE DEPARTMENT, WATER DEPARTMENT, ETC.
12. ALL CATCH BASINS TO HAVE 48" SEALED SUMPS AND HOODS.
13. EROSION CONTROL MEASURES TO BE IN PLACE PRIOR TO START OF CONSTRUCTION.

UTILITY NOTES

1. SITE CONTRACTOR SHALL REFER TO REMAINING PLAN SET FOR INFORMATION REGARDING GRADING AND DRAINAGE.
2. IT SHALL BE THE SITE CONTRACTORS RESPONSIBILITY TO CROSS REFERENCE INFORMATION CONTAINED IN OTHER SHEETS WITH GRADING AND DRAINAGE INFORMATION SHOWN HEREON.
3. PRIOR TO SUBMITTING A BID FOR CONSTRUCTION, THE SITE CONTRACTOR SHALL COMMUNICATE ANY DISCREPANCIES BETWEEN THE PROPOSED DESIGN AND THE SPECIFICATIONS WITH THE PROJECT PROPONENT AND LANDSCAPE ARCHITECT/ENGINEER. SHOULD THE SITE CONTRACTOR FAIL TO COMMUNICATE ANY DISCREPANCIES, HE/SHE SHALL BE RESPONSIBLE FOR ANY COSTS RESULTING FROM SAID DISCREPANCY.
4. CONTRACTOR TO VERIFY ALL UTILITY CONNECTIONS AND INVERTS FROM EXISTING/PROPOSED BUILDING TO SERVICES IN THE STREET. IF ANY DISCREPANCIES EXISTS BETWEEN PLAN AND INFORMATION FOUND IN THE FIELD, CONTACT ENGINEER AND LANDSCAPE ARCHITECT IMMEDIATELY.
5. SEE ARCHITECTURAL PLANS FOR BUILDING CONNECTIONS OF ALL UTILITIES.
6. UTILITY CONNECTIONS (NATURAL GAS, ELECTRICAL, TELECOMMUNICATIONS, ETC) SHOWN HEREON ARE SCHEMATIC IN NATURE TO DEPICT CONNECTION OF SAID UTILITIES TO THE SUBJECT BUILDING(S). THE RESPECTIVE UTILITY PROVIDER SHALL BE RESPONSIBLE FOR THE FINAL DESIGN OF THE RELEVANT UTILITY.
7. ONCE DRAINAGE SYSTEM IS INSTALLED AND FUNCTIONING, THE OWNER/SITE CONTRACTOR SHALL COORDINATE WITH R LEVESQUE ASSOCIATES, INC. (RLA) TO CONDUCT A POST-CONSTRUCTION ANALYSIS OF THE DRAINAGE SYSTEM DURING ACTUAL STORM EVENTS TO DETERMINE THE FUNCTIONALITY OF THE INSTALLED DRAINAGE SYSTEM DURING SAID EVENTS. SHOULD THE DRAINAGE SYSTEM NOT FUNCTION AS DESIGNED UNDER REAL WORLD CONDITIONS, RLA WILL RECOMMEND ADJUSTMENTS TO THE DRAINAGE SYSTEM TO BE IMPLEMENTED BY THE OWNER/SITE CONTRACTOR.
8. ALL UTILITY CONSTRUCTION SHALL CONFORM TO THEIR RESPECTIVE TOWN DEPARTMENT SPECIFICATIONS.



PERMITTING
NOT FOR CONSTRUCTION

RLA
R LEVESQUE ASSOCIATES INC
Landscape Architects
Civil Engineers · Land Surveyors
Environmental Consultants
ph: 413.568.0985 fax: 413.568.0986
40 School Street
Westfield, MA 01085
rlaland.com

DRAINAGE & UTILITIES PLAN

699 Silver Street
Agawam, MA
Parcel ID: G6-2-12

COMMONWEALTH OF MASSACHUSETTS
FILIPE J. CRAVO
CIVIL
NO. 46576
REGISTERED PROFESSIONAL ENGINEER
3/5/26

PREPARED FOR:
MSR Properties, LLC
c/o Rick Mahan
699 Silver Street
Agawam, MA 01001

ISSUANCE DATE: March 5, 2026

REVISIONS:	DATE:

DRAFTED BY: M.B.

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SCALE: As Noted

RLA PROJ. NUMBER: 250903

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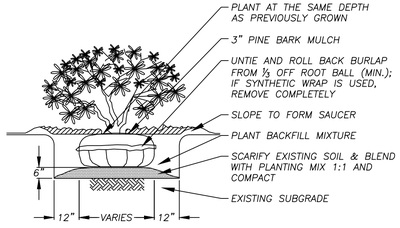
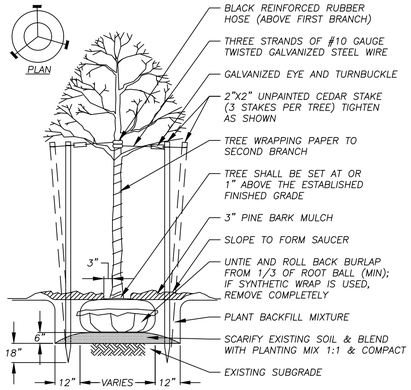


SHRUB PLANTING DETAIL

NO SCALE



TREE PLANTING DETAIL

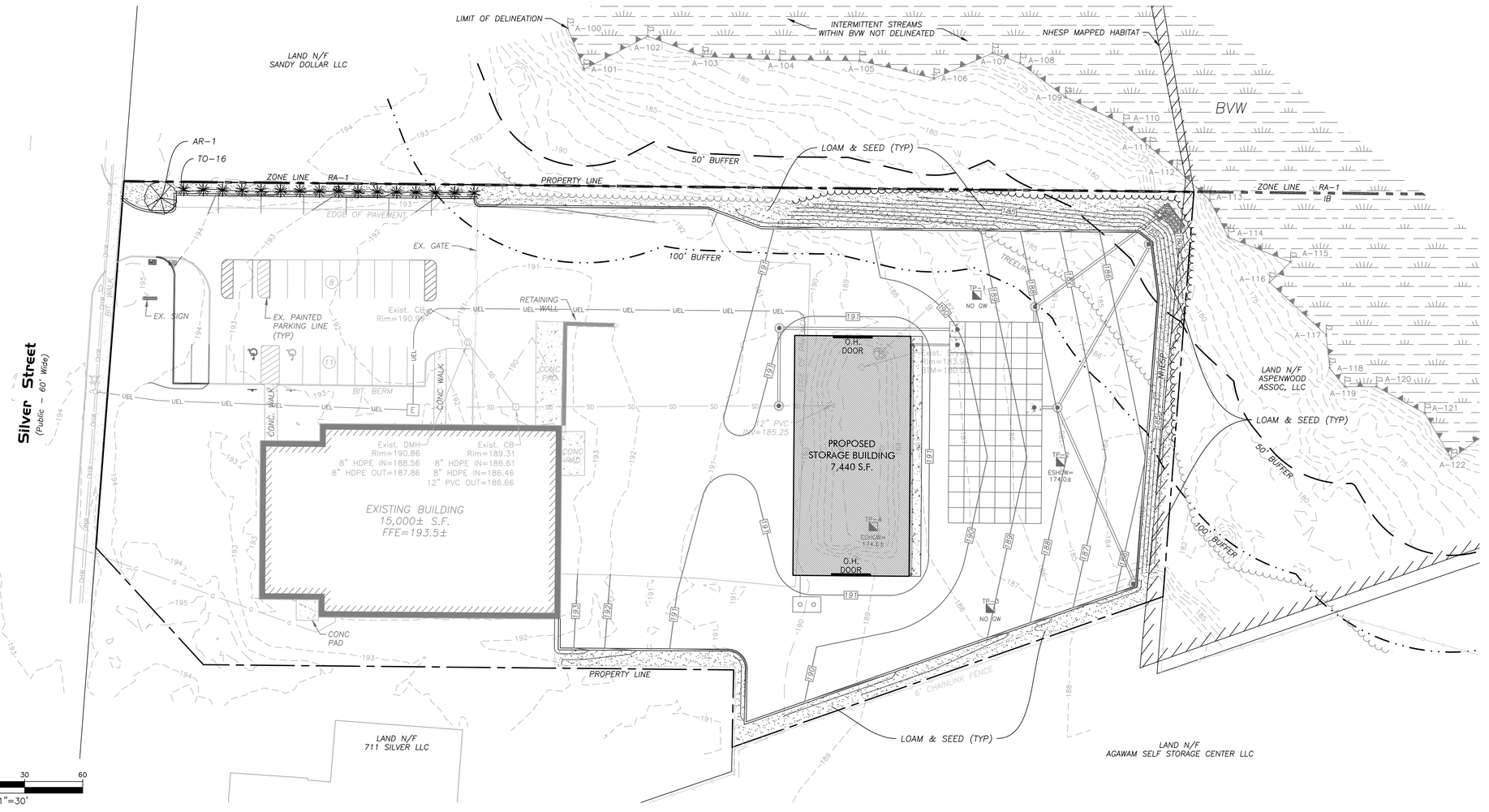
NO SCALE

PLANT LIST				
KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE/SPACING
TO	16	THUJA OCCIDENTALIS	AMERICAN ARBORVITAE	2–3' HT.
AR	1	ACER RUBRUM	RED MAPLE	2.5–3" CAL.
	–	LAWN AREA (MIN. 4" LOAM & SEED)		RATE PER SUPPLIER REC.
	–	PERENNIAL PLANTING BED*		MAX. 3' O.C.

* PERENNIAL PLANTING BEDS MAY TYPICALLY INCLUDE NATIVE AND NON–INVASIVE VARIETIES SUCH AS VERNONIA NOVEBORACENSIS, PHLOX PANICULATA, ACHILLEA MILLEFOLIUM, ASTILBE VAR., HEUCHERA VAR., SAPONARIA OCYMOIDES, VERONICASTRUM VIRGINICUM ALBUM, RUDBECKIA HIRTA, AND ORNAMENTAL NON–SPREADING GRASSES. ANNUAL PLANTINGS MAY BE CHOSEN TO PROVIDE ADDITIONAL SEASONAL INTEREST.

LANDSCAPE NOTES

1. SITE CONTRACTOR SHALL REFER TO SHEET C–1, C–2, DETAIL SHEETS AND REMAINING PLAN SET FOR INFORMATION REGARDING LANDSCAPING.
2. IT SHALL BE THE SITE CONTRACTOR'S RESPONSIBILITY TO CROSS–REFERENCE INFORMATION CONTAINED IN OTHER SHEETS WITH THE LANDSCAPE INFORMATION SHOWN HEREON.
3. ALL SITE PLANTINGS ARE TO MEET OR EXCEED THE MINIMUM SPECIFICATIONS DETAILED IN THE AFOREMENTIONED NOTES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW THE SPECIFICATIONS FOR EACH INDIVIDUAL PLANTING AND SOURCE IT APPROPRIATELY.
4. PRIOR TO SUBMITTING THEIR BID FOR CONSTRUCTION, THE SITE CONTRACTOR SHALL COMMUNICATE ANY DISCREPANCIES BETWEEN THE PROPOSED DESIGN AND SAID SPECIFICATIONS WITH THE PROJECT PROPONENT, LANDSCAPE ARCHITECT/ENGINEER. SHOULD THE SITE CONTRACTOR FAIL TO COMMUNICATE ANY DISCREPANCIES, HE/SHE SHALL BE RESPONSIBLE FOR ANY COSTS RESULTING FROM SAID DISCREPANCY.
5. LANDSCAPE CONTRACTOR SHALL HAVE EXCAVATING CONTRACTOR, "DIGSAFE", AND ANY APPLICABLE NON–[DIGSAFE] MEMBER UTILITIES MARK ALL UNDERGROUND UTILITIES AND PRIOR TO ANY PLANTING. LANDSCAPE CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT AND PROJECT PROPONENT IF ANY CONFLICTS ARISE AND STOP ALL WORK UNTIL CONFLICT IS RESOLVED.



PERMITTING
NOT FOR CONSTRUCTION

RLA
R LEVESQUE ASSOCIATES INC
Landscape Architects
Civil Engineers · Land Surveyors
Environmental Consultants
ph: 413.568.0985 fax: 413.568.0986
40 School Street
Westfield, MA 01085
rlaland.com

SITE LANDSCAPING PLAN

699 Silver Street
Agawam, MA
Parcel ID: G6-2-12

MASSACHUSETTS ROBERT A. LEVESQUE REGISTERED LANDSCAPE ARCHITECT NO. 1395
3/5/26

PREPARED FOR:

MSR Properties, LLC
c/o Rick Mahan
699 Silver Street
Agawam, MA 01001

ISSUANCE DATE: March 5, 2026

REVISIONS:	DATE:

DRAFTED BY: M.B.

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SCALE: As Noted

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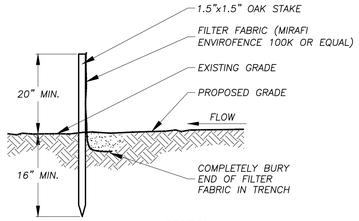
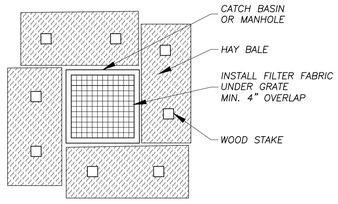


SECTION

SILT FENCE DETAIL

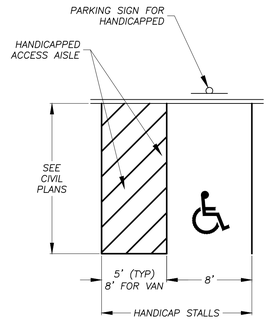
NO SCALE



NOTE
INSTALL BARRIER AT EACH CATCH BASIN AND DRAINAGE BASIN. CATCH BASINS IN PAVEMENT AREAS ARE TO RECEIVE ONLY THE FILTER FABRIC TREATMENT.

INLET PROTECTION - HAY BALES

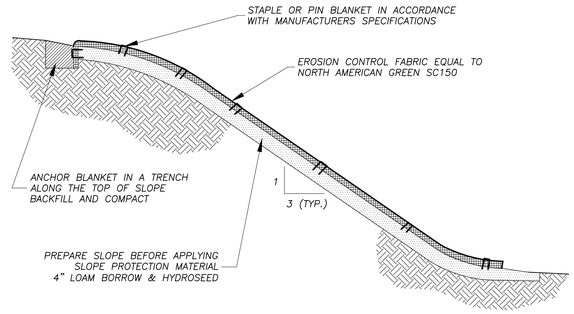
NO SCALE



NOTES:
1. ALL DIMENSIONS TO CENTER OF 4" PAVEMENT STRIPING.
2. ALL STRIPING SHALL BE 4" SOLID WHITE PAVEMENT MARKING PAINT UNLESS OTHERWISE NOTED.
3. CONTRACTOR TO ENSURE HANDICAP ACCESSIBLE PARKING SPACE SHALL HAVE A SLOPE OF 2% OR LESS IN ALL DIRECTIONS.
4. SEE AAB 521 CMR 23.00 FOR REQUIRED NUMBER AND PROPORTION OF VAN ACCESSIBLE SPACES.

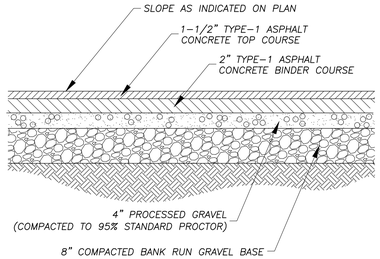
HANDICAP PARKING STALL

NO SCALE



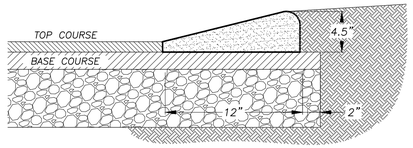
SLOPE PROTECTION MATERIAL INSTALLATION (AS REQ'D)

NO SCALE



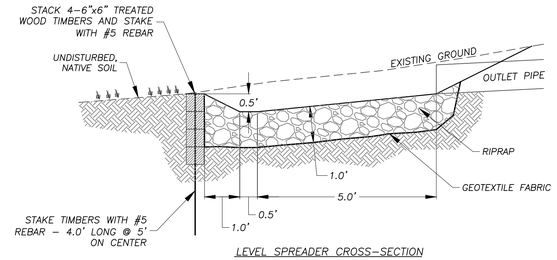
BITUMINOUS CONCRETE PAVING DETAIL

NO SCALE

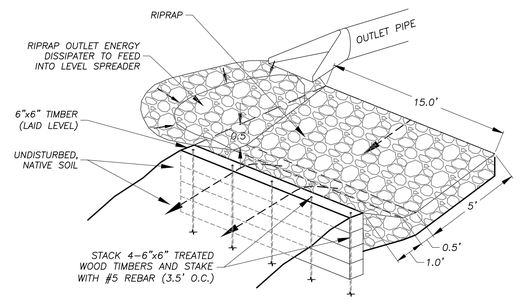


BITUMINOUS CONCRETE BERM (CAPE COD)

NO SCALE



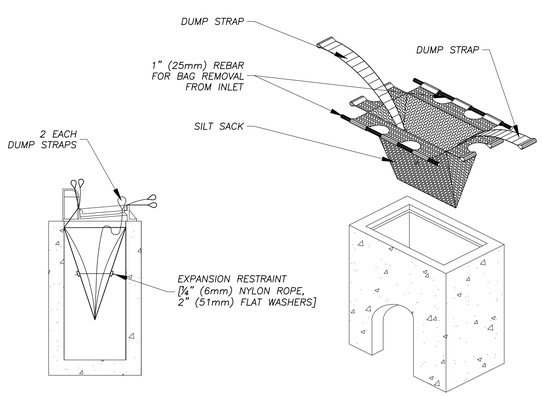
LEVEL SPREADER CROSS-SECTION



NOTES
1.) LEVEL SPREADER SHALL BE INSTALLED WITH A LEVEL INSTRUMENT. CONSTRUCT LEVEL UP TO 0% GRADE TO ENSURE UNIFORM SHEET FLOW. LEVEL SPREADER SHALL BE CONSTRUCTED ON UNDISTURBED SOIL.
2.) CONSTRUCTION OF LEVEL SPREADER SHALL BE FROM UPHILL SIDE ONLY. LEVEL LIP AND AREA BELOW SPREADER SHALL BE AT EXISTING GRADES AND UNDISTURBED BY EARTHWORK OR EQUIPMENT.
3.) CONSTRUCT SPREADER WITH LIP AT EXISTING GRADE AS SPECIFIED.
4.) DOWNGRADIENT RECEIVING AREA MUST BE NATURALLY WELL VEGETATED.

LEVEL SPREADER DETAIL

NO SCALE



INLET PROTECTION - SEDIMENT FILTER SACK

NO SCALE

PERMITTING
NOT FOR CONSTRUCTION

RLA
R LEVESQUE ASSOCIATES INC
Landscape Architects
Civil Engineers · Land Surveyors
Environmental Consultants
ph: 413.568.0985 fax: 413.568.0986
40 School Street
Westfield, MA 01085
rlaland.com

DETAILS

699 Silver Street
Agawam, MA
Parcel ID: G6-2-12

COMMONWEALTH OF MASSACHUSETTS · ROBERT LEVESQUE · REGISTERED LANDSCAPE ARCHITECT · NO. 1395 · 3/5/26

PREPARED FOR:
MSR Properties, LLC
c/o Rick Mahan
699 Silver Street
Agawam, MA 01001

ISSUANCE DATE: March 5, 2026

REVISIONS:	DATE:

DRAFTED BY: M.B.

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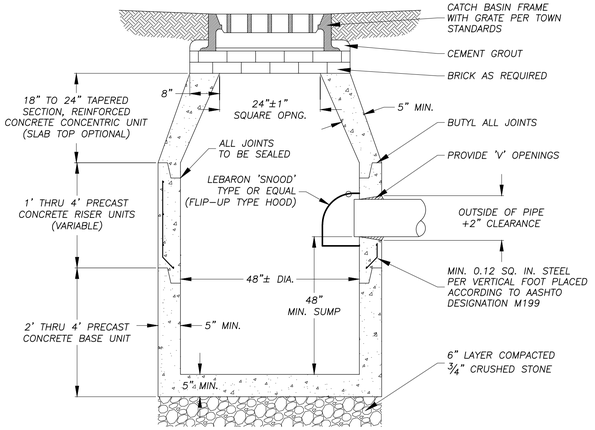
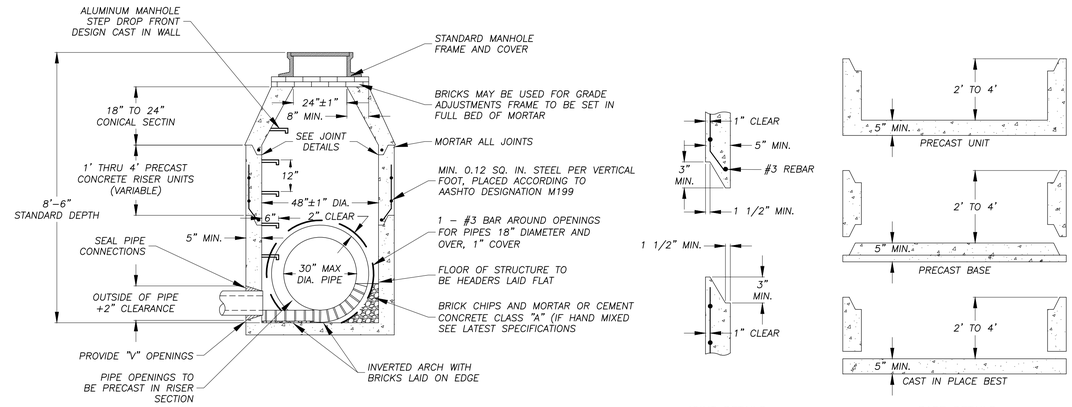


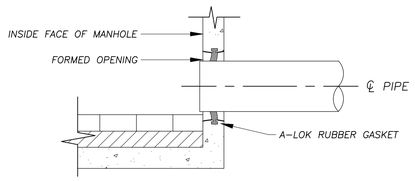
STANDARD PRECAST CONCRETE CATCH BASIN

NO SCALE

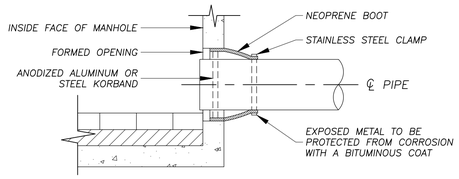


PRECAST CONCRETE MANHOLE

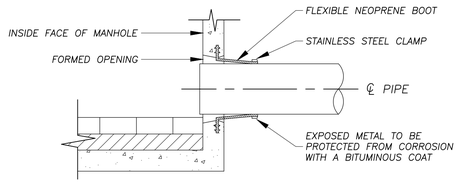
NO SCALE



A–LOK SYSTEM



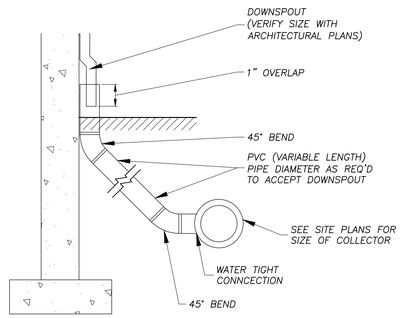
KOR–N–SEAL BOOT



FLEXIBLE SLEEVE

PIPE CONNECTION DETAILS

NO SCALE



DOWNSPOUT COLLECTOR DETAIL

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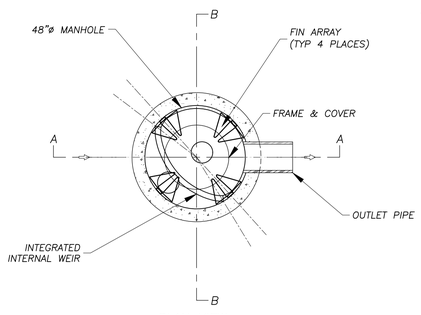
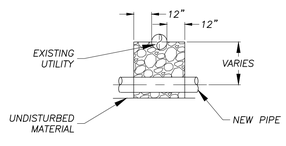
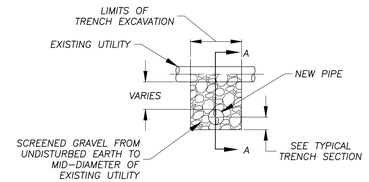


PLAN VIEW



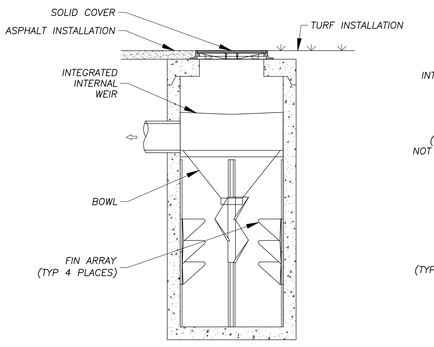
SECTION "A–A"



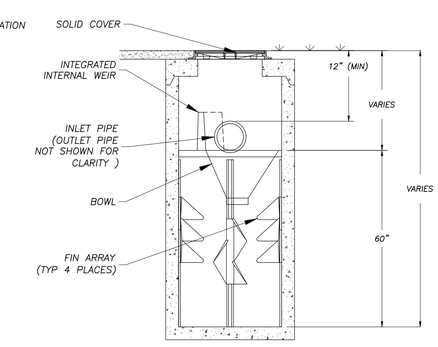
TYPICAL SECTION

UTILITY CROSSING DETAIL

NO SCALE



SECTION VIEW A–A



SECTION VIEW B–B

WATER QUALITY UNIT - BARRACUDA MAX S4

NO SCALE

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R LEVESQUE ASSOCIATES INC
Landscape Architects
Civil Engineers · Land Surveyors
Environmental Consultants
ph: 413.568.0985 fax: 413.568.0986
40 School Street
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DETAILS

699 Silver Street
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Parcel ID: G6-2-12

COMMONWEALTH OF MASSACHUSETTS
FILIPE J. CRAVO
CIVIL
NO. 46376
REGISTERED PROFESSIONAL ENGINEER
3/5/26

PREPARED FOR:

MSR Properties, LLC
c/o Rick Mahan
699 Silver Street
Agawam, MA 01001

ISSUANCE DATE: March 5, 2026

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DRAFTED BY: M.B.

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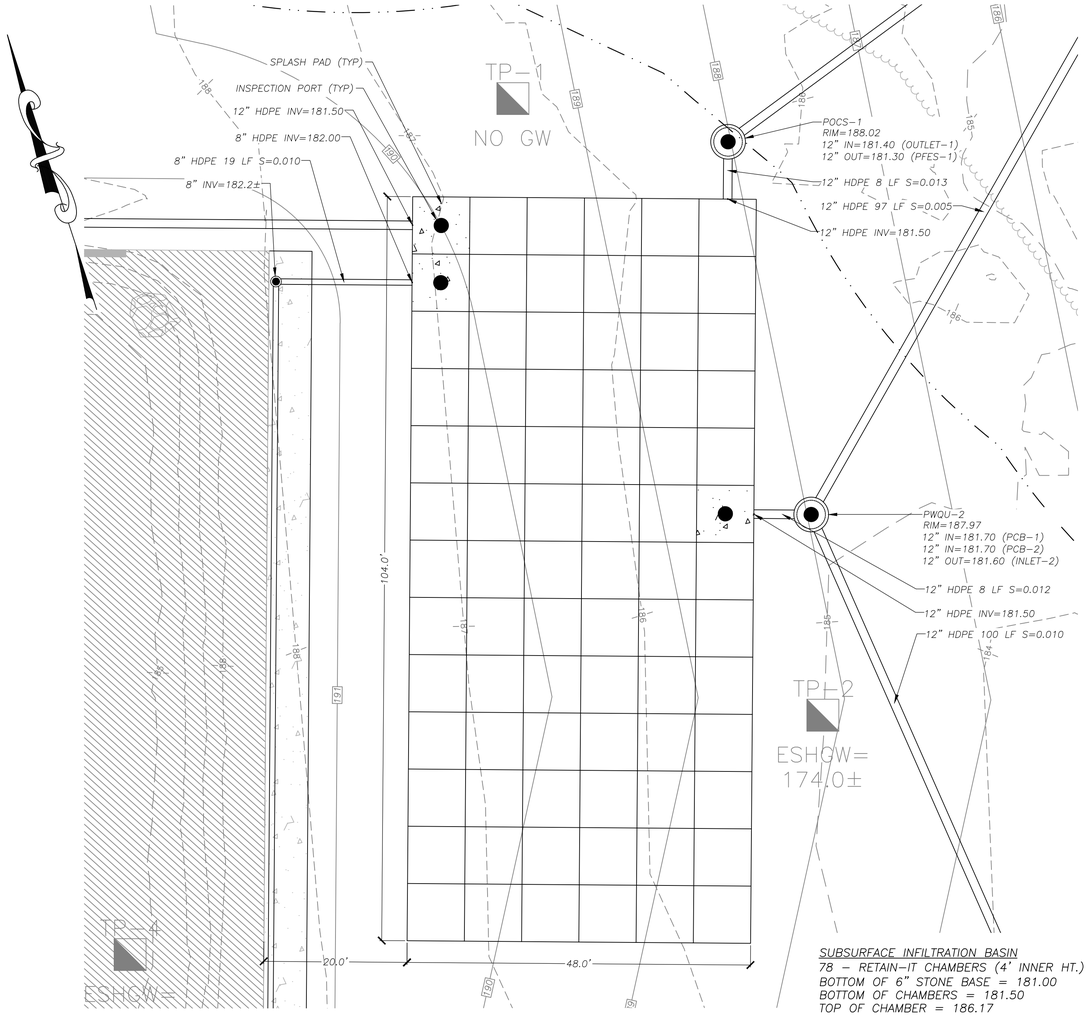


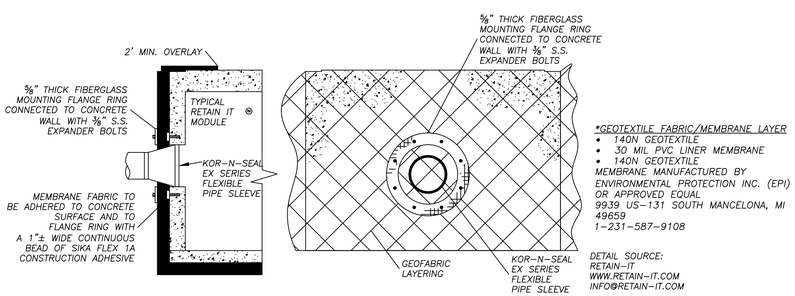
SUBSURFACE INFILTRATION BASIN
78 – RETAIN-IT CHAMBERS (4' INNER HT.)
BOTTOM OF 6" STONE BASE = 181.00
BOTTOM OF CHAMBERS = 181.50
TOP OF CHAMBER = 186.17

SUBSURFACE INFILTRATION BASIN DETAIL

1" = 10'

10 0 5 10 20

1" = 10'



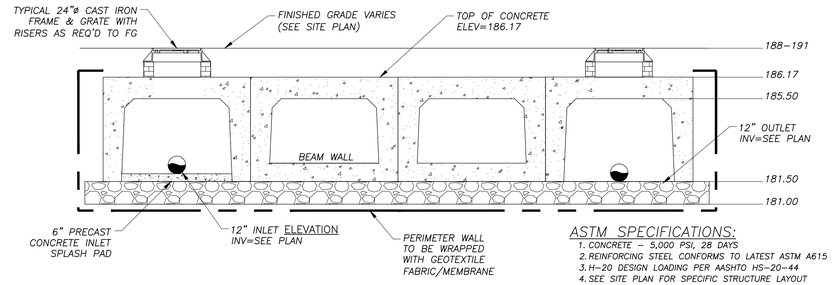
*GEOTEXTILE FABRIC/MEMBRANE LAYER
- 140N GEOTEXTILE
- 30 MIL PVC LINER MEMBRANE
- 140N GEOTEXTILE

MEMBRANE MANUFACTURED BY ENVIRONMENTAL PROTECTION INC. (EPI) OR APPROVED EQUAL
9939 US-131 SOUTH MANCELONA, MI 49659
1-231-587-9108

DETAIL SOURCE:
RETAIN-IT
WWW.RETAIN-IT.COM
INFO@RETAIN-IT.COM

WATERTIGHT PIPE CONNECTION DETAIL

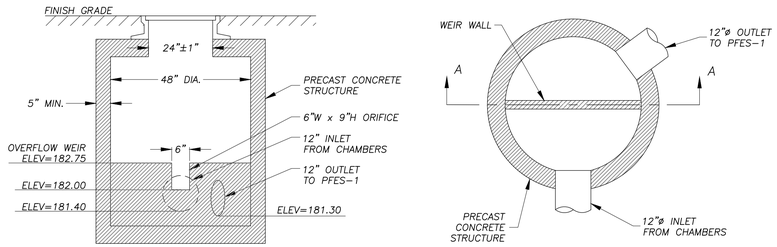
NO SCALE



ASTM SPECIFICATIONS:
1. CONCRETE – 5,000 PSI, 28 DAYS
2. REINFORCING STEEL CONFORMS TO LATEST ASTM A615
3. H-20 DESIGN LOADING PER AASHTO HS-20-44
4. SEE SITE PLAN FOR SPECIFIC STRUCTURE LAYOUT

RETAIN-IT PRECAST CONCRETE STORMWATER MANAGEMENT SYSTEM

NO SCALE

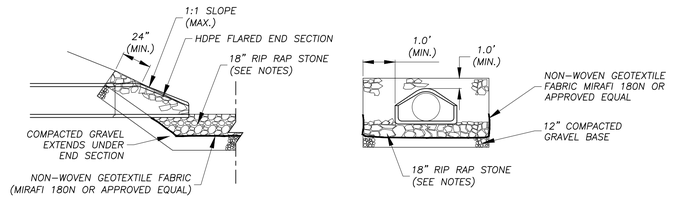


SECTION A-A

PLAN VIEW

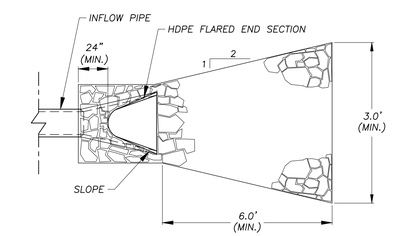
OUTLET CONTROL STRUCTURE (POCS-1)

NO SCALE



SIDE SECTION

FRONT SECTION



PLAN VIEW

NOTES
1. FLARED END SECTION PIPE JOINT SHALL BE SIMILAR TO THE MAIN RUN OF PIPE JOINTS
2. STONE RIPRAP SHALL NOT BE LESS THAN 50 POUNDS NOR MORE THAN 125 POUNDS AND AT LEAST 75% OF THE VOLUME SHALL BE AT LEAST 75 POUNDS

STANDARD RIP RAP PIPE OUTLET

NO SCALE

PERMITTING
NOT FOR CONSTRUCTION

RLA
R LEVESQUE ASSOCIATES INC
Landscape Architects
Civil Engineers · Land Surveyors
Environmental Consultants
ph: 413.568.0985 fax: 413.568.0986
40 School Street
Westfield, MA 01085
rlaland.com

DETAILS

699 Silver Street
Agawam, MA
Parcel ID: G6-2-12

COMMONWEALTH OF MASSACHUSETTS
FILIPE J. CRAVO
CIVIL
NO. 46376
PROFESSIONAL ENGINEER
3/5/26

PREPARED FOR:

MSR Properties, LLC
c/o Rick Mahan
699 Silver Street
Agawam, MA 01001

ISSUANCE DATE: March 5, 2026

REVISIONS:	DATE:

DRAFTED BY: M.B.

UNAUTHORIZED ALTERATION OF THIS DOCUMENT IS A VIOLATION OF MASSACHUSETTS STATE LAW

SCALE: As Noted

RLA PROJ. NUMBER: 250903

DRAWING#	REV.
D-3	-

S:\Projects\2025\250903 - Mahan - 699 Silver St, Agawam\05 Civil 3D\250903 - SITE.dwg

Site Plan Approval Application

Under the Town of Agawam Zoning Ordinance Section 180-13 Site Plans

Proposed Storage Building

Project Location:

699 Silver Street
Agawam, Massachusetts 01001
(Parcel ID: G6-2-12)

Submitted To:

Town of Agawam Planning Board
1000 Suffield Street
Agawam, Massachusetts 01001

Applicant & Property Owner:

MSR Properties, LLC
c/o Rick Mahan
699 Silver Street
Agawam, Massachusetts 01001

RLA Project File No. 250903

March 5, 2026

R LEVESQUE ASSOCIATES, INC.

A LAND PLANNING SERVICES COMPANY

40 School Street, Westfield, MA 01085

p 413.568.0985 · f 413.568.0986 · www.rlaland.com

TABLE OF CONTENTS

SECTION

1. COVER LETTER
2. ADMINISTRATIVE FORMS
    - 2.1 ZONING DETERMINATION
    - 2.2 FORM D – APPLICATION FOR SITE PLAN APPROVAL
3. PROJECT NARRATIVE
4. LOCUS MAP
5. DEED REFERENCE

LIST OF APPENDICES

APPENDICES

APPENDIX A: SITE PLAN SET

APPENDIX B: STORMWATER REPORT

I. COVER LETTER

R LEVESQUE ASSOCIATES, INC.
40 School Street, P.O. BOX 640, Westfield, MA 01085
p 413.568.0985 · f 413.568.0986 · www.rlaland.com

March 5, 2026

Violet Baldwin, Chairperson
Town of Agawam Planning Board
1000 Suffield Street
Agawam, Massachusetts 01001

RE: Site Plan Approval Application
699 Silver Street
Agawam, Massachusetts 01001
(Parcel ID: G6-2-12)
RLA Project File No. 250903

Dear Chairperson Baldwin and Board Members:

On behalf of the applicant and property owner, MSR Properties, LLC c/o Rick Mahan, please find the requisite number of copies of a Site Plan Approval application and supporting documentation. The applicant proposes the construction of a storage building with associated site improvements located at the above-referenced property.

As required, a copy of this application packet has been submitted electronically via email to the Town of Agawam Planning Department.

We are requesting to be placed on the Board's next available agenda. Should you have any questions or comments regarding this submission, please do not hesitate to contact our office at your earliest convenience.

Sincerely,
R LEVESQUE ASSOCIATES, INC.

Nina Fazio

Nina Fazio
Permitting Coordinator

2. ADMINISTRATIVE FORMS

2.1 ZONING DETERMINATION

2.2 FORM D – APPLICATION FOR SITE PLAN APPROVAL

The Commonwealth of Massachusetts

Town of Agawam

Inspection Services - Building Department

1000 Suffield Street, Agawam MA 01001 – (413) 821-0632

OFFICE ONLY
Date Filed:
RECEIVED BY BUILDING DEPARTMENT
FEB 26 2026
TOWN OF AGAWAM

Application for Zoning Determination

FILING INSTRUCTIONS: Deliver this form (no fee required) to Inspection Services.
For digital submissions, please confirm receipt. A *complete* application will be processed within 30 days.
The applicant must pick-up, or arrange for the receipt of, this processed form.

1) PROPERTY INFORMATION			
a. Street Address	699 Silver Street	**b. Zoning District**	HA, TB
c. Assessor's Map	G6	**d. Lot(s)**	2-12
e. Registry of Deeds Book	20869	**f. Page**	318
g. Overlay Districts	☐Historic Preservation ☐ Mixed-Use Business C		
h. Previous Special Permits, Site Plan Approvals, Findings or Variances Issued for this Site			

2) APPLICANT & OWNER INFORMATION			
a. Applicant Name	MSR Properties, LLC	**b. Applicant Phone**	413-788-9529
c. Applicant Email	rick@mahanslate.com		
d. Applicant Mailing Address	699 Silver Street, Agawam, MA 01001		
e. Applicant Relationship to Property	☑Owner ☐ Agent ☐Other:		
f. Representative Name *(if any)*	R Levesque Associates, Inc.	**g. Rep. Phone**	413-568-0985
h. Rep. Email	NinaF@rlaland.com		
i. Owner Mailing Address	699 Silver Street, Agawam, MA 01001		
j. Owner Name *(if different)*	MSR Properties, LLC	**k. Owner Phone**	413-788-9529
l. Owner Email	rick@mahanslate.com		
m.Owner Mailing Address	699 Silver Street, Agawam, MA 01001		

3) PROJECT & SITE DETAILS
NOTE: Any omission of requested information may result in an INCOMPLETE determination

	Existing	***Proposed*** ☐ *No changes to building, site or lot*	-FOR BUILDING DEPT. REVIEW- REQUIRED / NCU	
a. Lot Size	136,159 SF	136,159 SF	LOT SIZE	☐
b. Frontage	**189** FT	189 FT	FRONTAGE	☐
c. Front Lot Line	**80.5** FT	80.5 FT	FRONT SB	☐
d. Side Lot Line (Left/Right)	L: FT **124** R: 25.5 FT	L: 76 FT R: 76 FT	SIDE SB	☐
e. Rear Lot Line	FT 311	FT 131	REAR SB	☐
f. Building Height	<40 FT	<40 FT	BLDG HT	☐
g. Total BLDG/Res Area	15,000 SF N/A SF	22,440 SF N/A SF	AREA LIM	☐
h. BLDG Coverage (Footprint)	15,000 SF 11 % of lot	22,440 SF 16 % of lot	LOT COVER	☐
i. Impervious Coverage	56,346 SF 41 % of lot	103,713 SF 76 % of lot	IMPERVIOUS	☐
j. Parking/Loading Spaces	P: 19 L: **N/A**	P: **31** L: N/A	PARKING	☐
k. Bicycle/EV Charge Spaces	B: **0** EV: **0**	B: **0** EV: 0	BIKE/EV	☐
l. Signs (Size & Type)	x T: **Ground**	x T: Ground	SIGNS	☐
m. Fence (Size & Type)	LIN FT T:	LIN FT T:		
n. Wetland Area	0 (Off-site) SF	0 (Off-site) SF		
o. Utility Services	☑ Town Water ☑ Town Sewer	☑ Town Water ☑ Town Sewer	NON-CONFORMING USE	☐

p. Current Use of Property	Industrial - Mahan Slate Roofing
q. Proposed Use of Property	Industrial - Mahan Slate Roofing
r. Project Description	

The applicant proposes an accessory storage building.

s. I have attached additional narrative, plans or supporting materials *(any oversize plans should also be included in an 8.5 x 11" format)*	☑ Yes ☐ No
t. Work is proposed in or within 100' of a wetland or 200' of a stream/river, or construction will occur within the Floodplain district. ***If so, CONSERVATION COMMISSION review is required.***	☑ Yes ☐ No ☐ Unsure
u. The following projects shall be required to comply with the requirements of a STORM DRAIN PERMIT: **[1] Any alteration to sites on parcels of one acre or greater.** **[2] Any alteration to individual lots less than one acre, but which are contiguous or are deemed part of a common project which is one acre or greater.**	☑ Yes ☐ No ☐ Unsure
v. The project will affect at least one of the following; additional gross floor area by 2,000 square feet, any change of use, changes to parking and/ or curb cuts.	☑ Yes ☐ No

4) CERTIFICATION

This determination is based only on the information provided, which I represent as accurate. The issuance of a Zoning Determination does not relieve the Applicant of the responsibility to obtain other zoning or non-zoning permits, as may be required, and this determination is based on the zoning in effect at the issue date and grants no protection from any pending or future zoning changes. Additional information may be requested and required to properly process this form. Any non-zoning related comments provided are cursory in nature; Applicants should follow-up with appropriate Town Departments. ***Sec. 1-7 of the Town of Agawam's General Ordinances authorizes the denial of a license or permit where an outstanding debt or obligation to the Town exists.***

Signature	Nina Fazio	**Date**	02-26-2026

☐ Applicant ☑ Applicant's Representative

ZONING DETERMINATION - OFFICE USE ONLY

☐ Approved ☐ Denied: ☐ The proposed use is not permitted in the subject zoning district
☐ Only permissible with variance relief from the Zoning Board of Appeals

☒ Approved ***Pending additional approval:***

Per Zoning Ordinance Section(s)	Required Permit(s)	Approval Required	Permitting Authority
☒ 180-13-B-1	☒ Building Permit(s)	☐ Special Permit(s)	☒ Planning Board
☒ 180-13-B-4	☒ Electrical Permit(s)	☒ Site Plan Review	☐ Board of Appeals
	☐ Plumbing/Gas Permit(s)	☐ Variance	☐ City Council

Town Building Official		**Issue Date**	2/26/2026

This determination may be appealable to the Zoning Board of Appeals under the provisions of MGL Ch. 40A Sec. 8.
Revised 09/08/2022

TOWN OF AGAWAM, MASSACHUSETTS

FORM D

Application for Site Plan Approval

Please complete the following form and electronically submit with site plans, completed Zoning Determination and Storm Water Management Report to: siteplan@agawam.ma.us in addition to sending four (4) hard copies of the Site Plan and one (1) hard copy of the Storm Water Management Report and completed Zoning Determination to:

Agawam Planning Department

36 Main Street

Agawam, MA 01001

March 5 20 26

1. Name of Business Mahan Slate Roofing, Co.

   Address 699 Silver Street, Agawam, MA 01001

   Phone # 413-788-9529 email rick@mahanslate.com

2. Name of Applicant/Owner MSR Properties, LLC

   Address 699 Silver Street, Agawam, MA 01001

   Phone # 413-788-9529 email rick@mahanslate.com

3. Name of Engineer/Architect R Levesque Associates, Inc.

   Address 40 School Street, Westfield, MA 01085

   Phone # 413-568-0985 email ninaf@rlaland.com

4. Please give a brief description of the proposed project:

   The applicant proposes the construction of a storage building with associated site improvements accessory to the existing building at 699 Silver Street. Please refer to the attached project narrative for greater detail.

3. PROJECT NARRATIVE

PROJECT NARRATIVE

For

PROPOSED STORAGE BUILDING
699 SILVER STREET
AGAWAM, MASSACHUSETTS 0001
(PARCEL ID: G6-2-12)

INTRODUCTION

On behalf of the applicant and property owner, MSR Properties, LLC c/o Rick Mahan, R Levesque Associates, Inc. is providing this project narrative as a supplement to the Site Plan Approval application. The applicant proposes the construction of a storage building with associated site improvements accessory to the existing building at 699 Silver Street.

The applicant respectfully requests Site Plan Approval from the Planning Board in accordance with:

(1) Section 180-13(B)(1) for non-residential construction greater than 2,000 SF; and
(2) Section 180-13(B)(4) for changes to parking.

PROPERTY DESCRIPTION

The subject property is located east of Silver Street and consists of approximately 3.13 ± acres as shown on the associated site plan prepared by R Levesque Associates, Inc. The subject property is owned by MSR Properties, LLC and is recorded in the Hampden County Registry of Deeds in Book 20869, Page 318. A copy of the deed reference is included within this application packet under Section 5. According to the Town of Agawam Zoning Map, the subject property is located within the Industrial B (IB) zoning district. A Locus Map is included within this application packet under Section 4.

EXISTING CONDITIONS & SURROUNDING LAND USES

The subject property is currently improved with an existing 15,000 ± SF building with associated site improvements utilized by Mahan Slate Roofing Co. The subject property is bound by commercial and industrial utilized parcels within the Industrial A (IA) and Industrial B (IB) zoning districts.

PROJECT DESCRIPTION

The applicant proposes the construction of a storage building with associated site improvements. Associated site improvements include, but are not limited to, stormwater management, additional parking, utility connection, and site landscaping.

The proposed project work will proceed in the following general sequence:

1. Installation of erosion controls along the permitted limit of work;
2. Clear and grub the project area;
3. Demolition and removal of existing stormwater basin and associated site improvements;
4. Construction of new subsurface stormwater management system;
5. Extension of existing utility connections;
6. Construction of a 7,440 ± SF storage building;
7. Restripe and expand existing parking area;
8. Installation of site landscaping; and
9. Site stabilization and removal of erosion controls at the direction of the Town of Agawam Conservation Commission.

PARKING & SITE CIRCULATION

The existing parking area will be restriped and modestly expanded. The revised layout has been designed to improve overall organization of parking stalls while maintaining safe and efficient internal vehicle circulation throughout the site. A total of thirty-one (31) parking spaces are proposed, including two (2) ADA compliant accessible spaces located in proximity to the primary building entrance.

The proposed modifications are limited to internal site improvements and do not alter existing traffic patterns or access configuration. No changes are proposed to the established site access along Silver Street, and existing ingress and egress operations will remain unchanged. Circulation aisles have been configured to maintain adequate maneuverability for passenger vehicles and service traffic while minimizing disturbance to existing site features.

UTILITIES

Utility service to the proposed storage building will be provided through connections extended from the existing principal structure. Utility demand for the new building is

anticipated to be minimal and primarily limited to electrical service necessary for lighting and basic operational functions. Final utility routing, connection details, and service requirements will be coordinated as part of the final architectural and mechanical design process. All installations will comply with applicable utility provider standards and local regulations and may be refined as necessary.

LANDSCAPING & LIGHTING

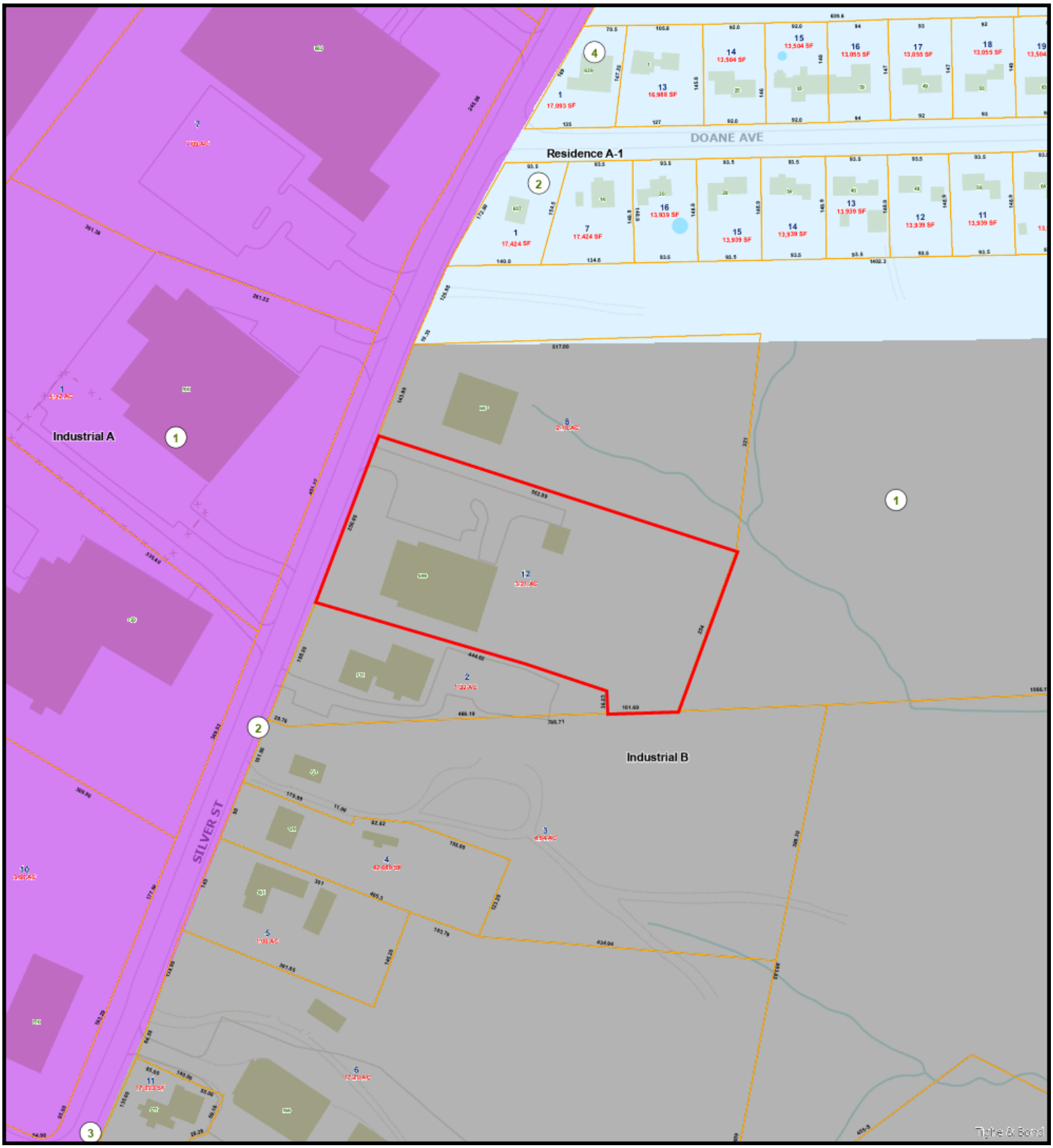
Landscape improvements are proposed to enhance site aesthetics and provide additional buffering along the northern edge of the parking area. Disturbed lawn areas associated with site improvements will be restored through placement of loam and seed to promote stabilization.

Site lighting will remain unchanged from existing conditions.

[END OF PROJECT NARRATIVE]

4. LOCUS MAP

(SOURCE: TOWN OF AGAWAM GIS)



Locus Map

2/23/2026 11:14:22 AM

Scale: 1"=200'

Scale is approximate

The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analyses.

5. DEED REFERENCE

(SOURCE: HAMPDEN COUNTY REGISTRY OF DEEDS)

Bk 20869 Pg318 #50848
09-14-2015 @ 10:49a

MASSACHUSETTS STATE EXCISE TAX
HAMPDEN COUNTY REGISTRY OF DEEDS
Date: 09-14-2015 @ 10:49am
Ctl#: 83 Doc#: 50848
Fee: $4,240.80 Cons: $930,000.00

QUITCLAIM DEED

SILVER STREET REALTY, LLC, a Massachusetts Limited Liability Company having a principal place of business at 699 Silver Street, Agawam, Hampden County, Massachusetts,

for consideration paid and in full consideration of **NINE HUNDRED THIRTY THOUSAND AND 00/100 ($930,000.00) DOLLARS**

grants to **MSR PROPERTIES, LLC**, a Massachusetts Limited Liability Company having a principal place of business at 32 Verge Street, Springfield, Hampden County, Massachusetts,

with ***QUITCLAIM COVENANTS***

The address of the within premises is: Lot A Silver Street, Agawam, Massachusetts, and also known as 699 Silver Street, Agawam, Massachusetts.

The land in Agawam, Hampden County, Massachusetts with the buildings thereon, being known and designated lot "A" as shown on a plan entitled Division of Property Agawam, Massachusetts for: (Owner) Park West Bank and Trust Company, Date: January 8, 1998, D.L. Bean, Inc. Surveyors & Engineers" which plan is recorded with the Hampden County Registry of Deeds herewith in Book of Plans 307, Page 65, to which plan reference may be had for a more particular description.

Containing according to said plan 3.1662 acres.

Granting together with the above described property, the right and easement running in favor of the grantee, its successors and assigns, to divert and flow water which may be generated or congregates on the land of the grantee herein onto that portion of the remaining land of the grantor as is shown on a plot plan by D.L. Bean, Inc. Land Consultants, dated March 20, 1988 which plan is annexed hereto and incorporated herein by reference, and the right to enter to do necessary repairs, maintenance and improvements to the same.

Being the premises conveyed to the Grantor herein by Deed dated January 23, 2001 and recorded in the Hampden County Registry of Deeds in Book 11483, Page 246.

The grantor is not classified for the current taxable year as a corporation for federal income tax purposes.

Property Address: 699 Silver Street Agawam, MA 01001

WITNESS my hand and seal this 10 day of September, 2015.

Witness:

SILVER STREET REALTY, LLC

By: Jean M. Graham, Manager
JEAN M. GRAHAM, Manager

COMMONWEALTH OF MASSACHUSETTS

Hampden, ss

Then personally appeared **JEAN M. GRAHAM, Manager of Silver Street Realty, LLC**, on this 10 day of September, 2015, before me, the undersigned Notary Public, who proved to me through satisfactory evidence of identification in the form of a driver's license or is personally known to me, to be the person whose name is signed on this document and acknowledged to me that she signed it voluntarily for its stated purpose and that it is the free act and deed of Silver Street Realty, LLC.

Notary Public

STEPHEN R. MANNING
NOTARY PUBLIC
Commonwealth of Massachusetts
My Commission Expires 04/20/2018

DONALD E. ASHE, REGISTER
HAMPDEN COUNTY REGISTRY OF DEEDS

APPENDIX A: SITE PLAN SET

SITE PLAN SET ENTITLED “PROPOSED STORAGE BUILDING”

PREPARED FOR MSR PROPERTIES, LLC

PREPARED BY R LEVESQUE ASSOCIATES, INC.

DATED MARCH 5, 2026

APPENDIX B: STORMWATER REPORT

STORMWATER DRAINAGE REPORT

PREPARED FOR MSR PROPERTIES, LLC

PREPARED BY R LEVESQUE ASSOCIATES, INC.

DATED MARCH 5, 2026

Town of Agawam
Department Of Public Works

DPW
1000 Suffield Street
Agawam, MA 01001
Phone: 413-821-0600
Fax: 413-821-0631

MEMORANDUM

To: Planning Board
CC: File
From: Engineering Division
Date: March 19, 2026
Subject: SP 676 – Proposed Storage Building – 699 Silver Street

Per your request, we have reviewed the revised Site Plans and Stormwater Management Plan for the proposed storage building to be located at 699 Silver Street; prepared by R. Levesque Associates and submitted on March 5, 2026. Based on our review, Engineering has the following comments:

1. Please show the existing and proposed impervious area amount on the site plans. The existing impervious area shall be aligned with the original site plan approval before the expansion of impervious area that occurred sometime between September 16, 2015 and April 14, 2016.
2. The pavement detail on sheet D-1 shows a 2" binder course. Engineering recommends a 3" binder course.
3. Please confirm in the field if the existing catch basins are deep sump and have hoods. If not, Engineering recommend catch basin hoods be installed.
4. Please included the how often will the oil/water separator will be cleaned and maintained in the Long-Term Operation and Maintenance Plan.
5. The proposed grading near the southwest property line makes it appear the runoff will either be retained near the building or flow onto the abutting property located at 711 Silver Street. Please confirm where that water is intended to be released. This may also require revisions to the HydroCAD calculations.
6. Engineering is requesting an electronic version of the HydroCAD calculations.
    a. The pre-development conditions in HydroCAD shall match to the existing conditions prior to the expansion of impervious area that occurred sometime between September 2015 and April 2016.

Engineering reserves the right to make additional comments as new information is submitted. If you have any questions, please do not hesitate to contact this division.

Sincerely,

Michelle C. Chase, P.E.
Town Engineer

Michael Albro – mcc
Michael F. Albro, P.E.
Assistant Town Engineer

Benjamin D. Ashley Jr., P.E.
Civil Engineer II

MEMBERS PRESENT:
Frank DeStefano – Vice Chair
Charles Elfman
Michael DiLullo

MEMBERS ABSENT:
Vi Baldwin – Chair
Michael Cleavall

ALSO PRESENT:
Taryn Egerton

Mr. DeStefano called the meeting to order at 6:00pm.

1. Public Hearing Cont. – Definitive Plan – Old River Street, 27 Walnut Street, & 17 High Street – Calabrese Construction, LLC

The Planning Board received a request to continue this public hearing to the April 2, 2026 meeting.

Motion was made by Mr. Elfman and seconded by Mr. DiLullo to continue the Public Hearing for the Definitive Plan on Old River Street, 27 Walnut Street, & 17 High Street – Calabrese Construction, LLC to the April 2, 2026 meeting, as requested.

VOTE 3 – 0

2. Site Plan – 769 Silver Street – Agawam Energy Center, LLC

Adam Duchesneau, BSC Group, was present to discuss this application. He explained that all Engineering Department comments have been addressed and that any Fire Department, Inspection Services, and Safety Officer comments were satisfied previously. Mr. Duchesneau explained that plan revisions included adding a handicap accessible and rip rap protection detail, revising the north arrow, and changes to the basin. He explained that the Stormwater Report was updated as well to satisfy Engineering Department comments.

Ms. Egerton explained that the project still needs Conservation Commission approval, NHESP approval, and the project will have to comply with any further requirements in the Code of the City of Agawam Chapter 180 Article XXIII "Battery Energy Storage Systems."

Motion was made by Mr. DiLullo and seconded by Mr. Elfman to approve the Site Plan for 769 Silver Street – Agawam Energy Center LLC, conditional on Conservation Commission approval, NHESP approval, and the project will have to comply with any further requirements in the Code of the City of Agawam Chapter 180 Article XXIII "Battery Energy Storage Systems."

VOTE 3 – 0

3. Site Plan – 699 Silver Street – MSR Properties, LLC

The Planning Board received a request to continue this item to the April 2, 2026 meeting.

Motion was made by Mr. Elfman and seconded by Mr. DiLullo to continue the Site Plan for 699 Silver Street – MSR Properties, LLC to the next meeting, as requested.

VOTE 3 – 0

4. Request for Bond Release – Samuel Street Subdivision – Calabrese Construction, LLC

Engineering sent a memo to the Planning Department recommending a full bond release of $11,000.00.

Motion was made by Mr. DiLullo and seconded by Mr. Elfman to release the $11,000.00 bond for the Samuel Street Subdivision – Calabrese Construction LLC

VOTE 3 – 0

5. Discussion and Possible Vote – Planning Board Representative for the CPA

The Planning Board will discuss this agenda item when a full board is present.

6. Approval of Minutes – March 5, 2026

Motion was made by Mr. Elfman and seconded by Mr. DiLullo to approve the March 5, 2026 as written.

VOTE 3 – 0

7. Correspondences – None

Motion was made by Mr. Elfman and seconded by DiLullo to adjourn the meeting.

VOTE 3 – 0

Meeting adjourned at 6:10pm.