



## **Planning Board AGENDA**

Thursday, August 7, 2025 - 6:00 PM

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

### **A. Planning Board**

- 1) SITE PLAN-727 Silver Street-Agawam Self Storage Center, LLC
- 2) APPROVAL OF MINUTES-JULY 17, 2025
- 3) Correspondences

Site Plans

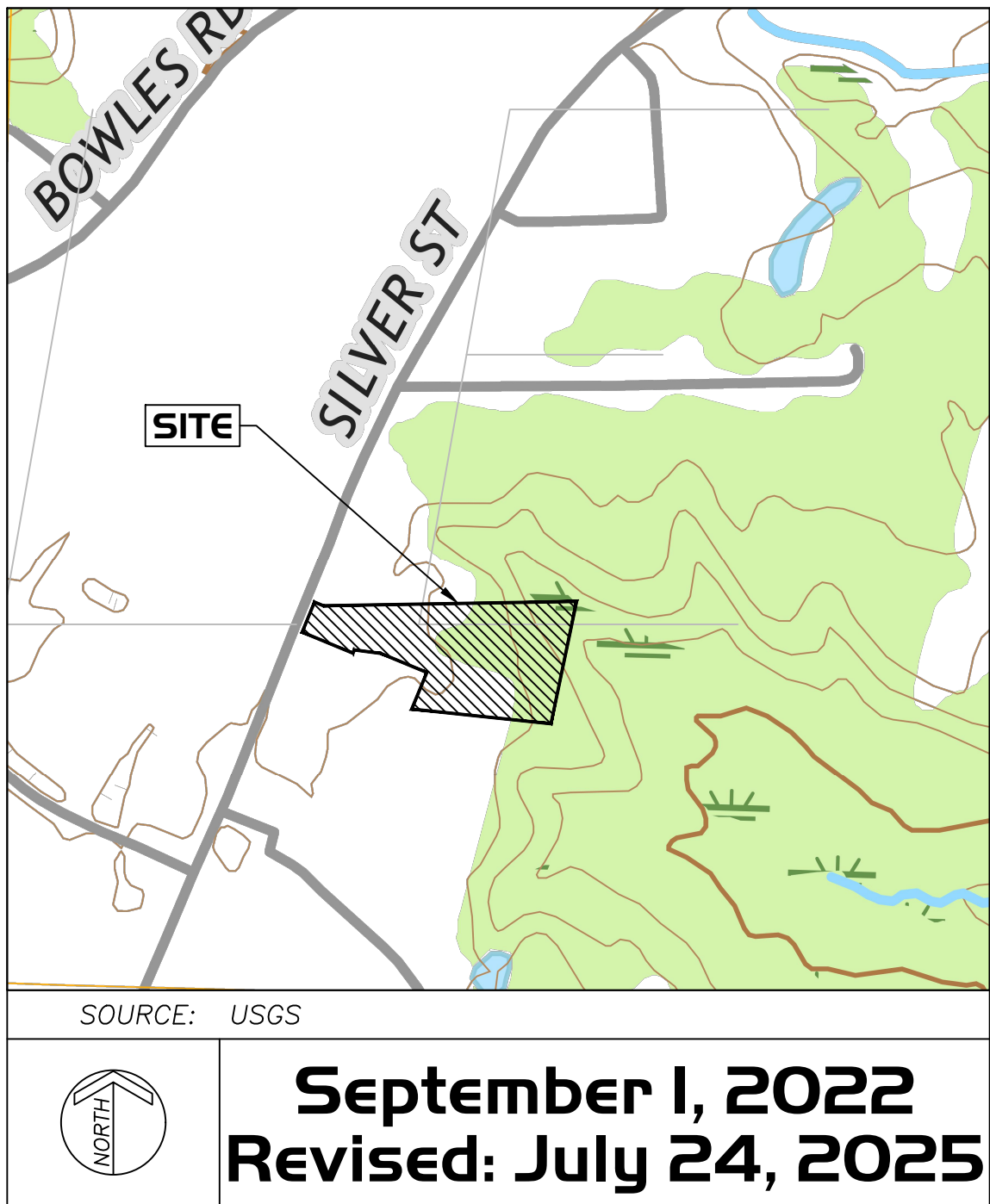
# Proposed Self-Storage Facility

727 Silver Street  
& Portions of: 699 & 711 Silver Street  
Agawam, MA.  
Parcels G6-2-3, G6-2-2, & G6-2-12

AS PREPARED FOR

Agawam Self Storage Center LLC  
c/o Mr. Rick Mahan

699 Silver Street  
Agawam, MA. 01001



| DRAWING INDEX |                                                |            |          |               |
|---------------|------------------------------------------------|------------|----------|---------------|
| SHEET NO.     | SHEET NAME                                     | ISSUE DATE | REVISION | REVISION DATE |
| T-1           | TITLE SHEET                                    | 9/1/22     | REV. D   | 7/24/2025     |
| EX-1          | EXISTING CONDITIONS PLAN                       | 7/11/22    | —        | —             |
| AB-1          | "AS-BUILT" PLAN                                | 7/21/25    |          |               |
| C-1           | NOTES, SYMBOL & LINE LEGEND, AND ABBREVIATIONS | 9/1/22     | —        | —             |
| C-2           | CONSTRUCTION NOTES                             | 9/1/22     | —        | —             |
| C-3           | DEMOLITION AND REMOVALS PLAN                   | 9/1/22     | REV. C   | 7/24/2025     |
| C-4           | LAYOUT AND MATERIALS PLAN                      | 9/1/22     | REV. D   | 7/24/2025     |
| C-5           | GRADING, EROSION & SEDIMENTATION CONTROL PLAN  | 9/1/22     | REV. D   | 7/24/2025     |
| C-6           | DRAINAGE AND UTILITIES PLAN                    | 9/1/22     | REV. D   | 7/24/2025     |
| C-7           | LANDSCAPING PLAN                               | 9/1/22     | REV. C   | 7/24/2025     |
| SL-1          | PHOTOMETRIC PLAN                               | 9/1/22     | —        | —             |
| D-1           | DETAILS                                        | 9/1/22     | —        | —             |
| D-2           | DETAILS                                        | 9/1/22     | REV. A   | 10/3/2022     |
| D-3           | DETAILS                                        | 9/1/22     | —        | —             |
| D-4           | DETAILS                                        | 9/1/22     | REV. B   | 7/24/2025     |

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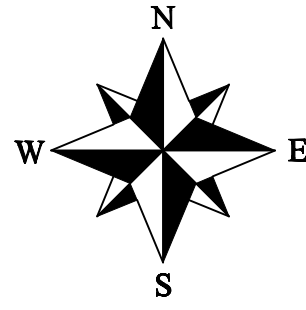
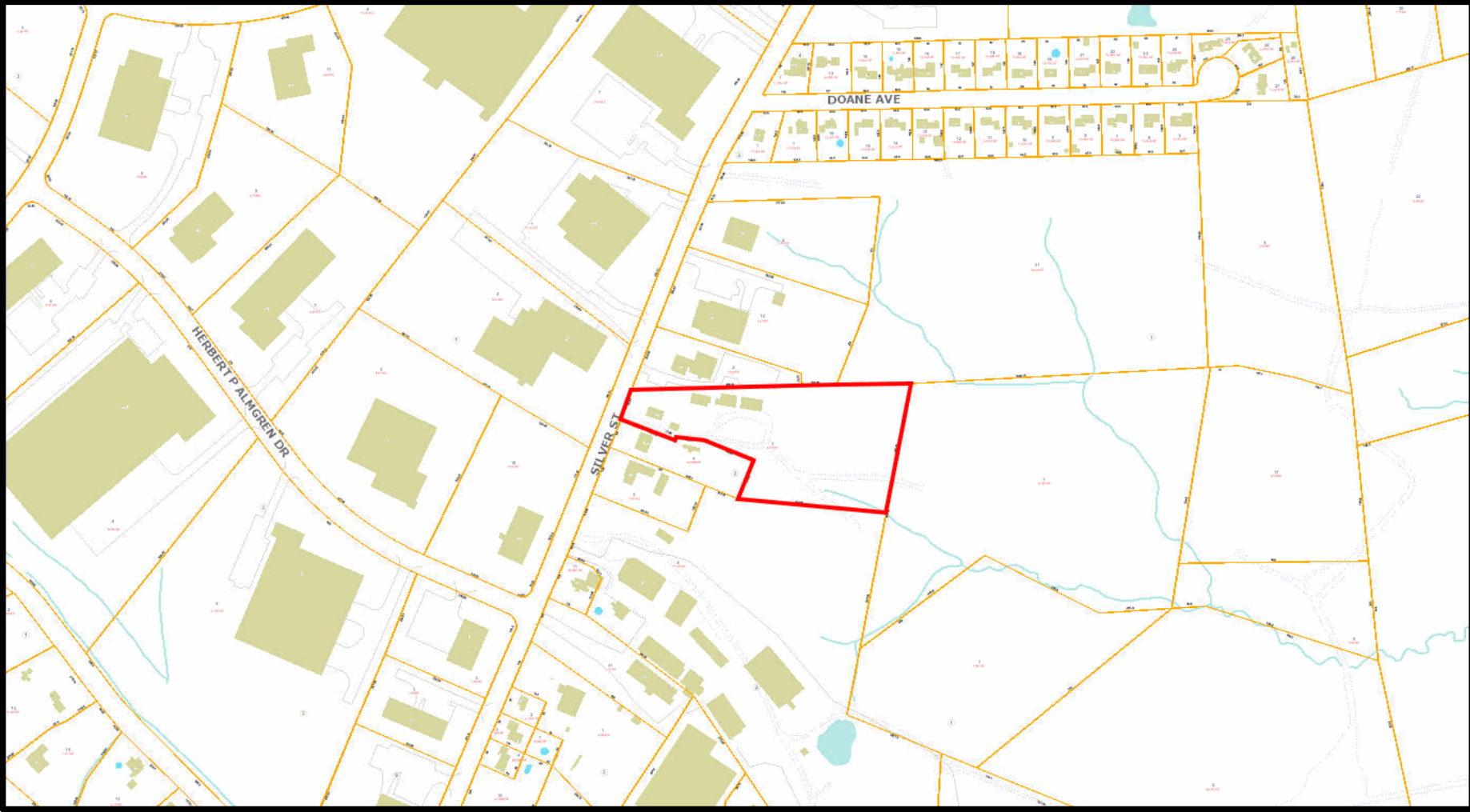


40 School Street · Westfield, MA · 01085  
ph 413.568.0985 · fax 413.568.0986  
www.rlaland.com

RLA Project Number: 220522

PERMITTING  
NOT FOR CONSTRUCTION





NOTES:

- 1) LOCUS DEED REFERENCE = 11373/395 (GLORY DAYS), 22411/254 (MSR PROPERTIES), 22409/70 (MSR PROPERTIES).
- 2) LOCUS PLAN REFERENCE = 321/76, 261/35, 378/51, 228/38, 257/10, 384/33, 307/65, 260/113
- 3) THE PURPOSE OF THIS PLAN IS CONVEY PARCEL B FROM GLORY DAYS REALTY, LLC. TO MSR PROPERTIES LLC. TO CREATE NEW LOTS 1-B AND 2-B AS SHOWN HEREON.
- 4) PROPERTY IS LOCATED IN THE INDUSTRIAL B ZONE PER THE AGAWAM GIS.

N/F MSR PROPERTIES, LLC.  
699 SILVER STREET  
AGAWAM GIS PID# G6-2-12  
PLAN: 307/65

N/F ASPENWOOD ASSOC., LLC.  
0 SILVER STREET  
AGAWAM GIS PID# H6-1-21  
PLAN: 321/76, 307/65

N/F WESTERN MASS ELECTRIC CO.  
REAR DOANE AVE.  
AGAWAM GIS PID# H6-1-1

N/F PICKETT, C.  
729 SILVER STREET  
AGAWAM GIS PID# G6-2-4

N/F LUCIA, R.  
769 SILVER STREET  
AGAWAM GIS PID# G6-2-6

MICHAEL D. SMITH - SMITH ASSOCIATES SURVEYORS, INC.

SITE PLAN APPROVAL  
AGAWAM  
PLANNING BOARD



WETLAND SITE PLAN

727 SILVER STREET  
AGAWAM, MA  
OWNED BY

MSR PROPERTIES, LLC.  
AND  
GLORY DAYS REALTY, LLC.

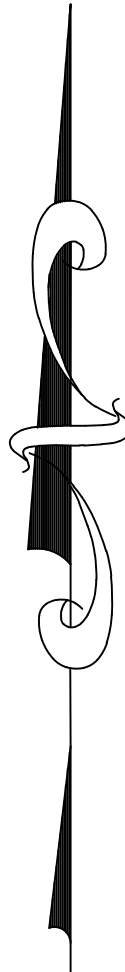
DATE: 10/26/2021

SCALE: 1" = 40'

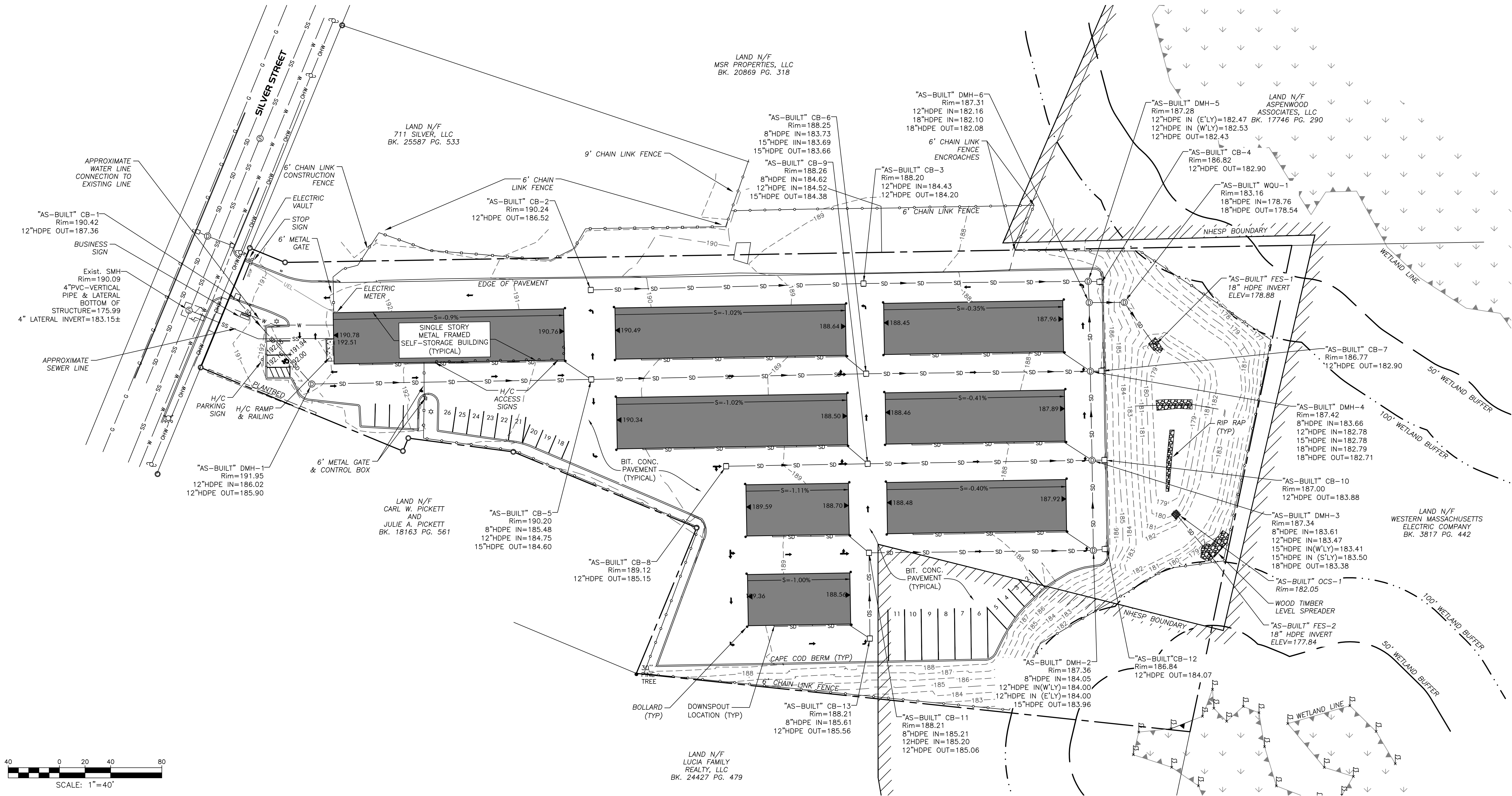
SMITH ASSOCIATES  
SURVEYORS, INC.

46 B BALDWIN STREET - EAST LONGMEADOW, MA 01028 - P:(413) 525-8801 F: (413) 525-8841  
SMITHASSOCIATESURVEYORS@HOTMAIL.COM WWW.SMITHASSOCIATESURVEYORS.COM





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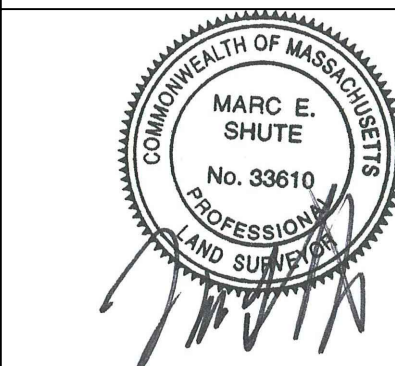


#### NOTES

1. THE RECORD OWNER OF THE SUBJECT PARCEL IS AGAWAM SELF STORAGE CENTER, LLC. SEE HAMPDEN COUNTY REGISTRY OF DEEDS BOOK 24826 PAGE 361.
2. THE PROPERTY LINES SHOWN HEREON ARE BASED UPON A PLAN TITLED, "PLAN OF LAND, 727 SILVER STREET, AGAWAM, MA OWNED BY MSR PROPERTIES, LLC AND GLORY DAYS REALTY, LLC" PREPARED BY SMITH ASSOCIATES SURVEYORS, INC., DATED OCTOBER 26, 2021. SEE HAMPDEN COUNTY REGISTRY OF DEEDS PLAN BOOK 394 PAGE 18.
3. THIS PLAN HAS BEEN PREPARED FOR SITE PLANNING PURPOSES AND SHALL NOT BE USED FOR THE CONVEYANCE OF LAND OR FOR ANY OTHER USE.
4. SUBJECT PARCEL CONTAINS 4.84 ACRES.
5. 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.
6. WETLANDS DELINEATED BY SMITH ASSOCIATES SURVEYORS, INC. ON 10-26-2021.
7. ADJACENT PROPERTY LINES AND ABUTTERS SHOWN HEREON ARE REFERENCED FROM THE TOWN OF AGAWAM ZONING MAP.
8. SUBJECT PARCEL IS ZONED INDUSTRIAL B ACCORDING TO THE TOWN OF AGAWAM ZONING MAP.
9. 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.
10. THE SUBJECT PROPERTY IS PARTIALLY LOCATED WITHIN NATURAL HERITAGE & ENDANGERED SPECIES PROGRAM (NHESP) JURISDICTION.
11. THE "AS-BUILT" SURVEY INFORMATION DEPICTED HEREON IS DERIVED FROM A SURVEY PERFORMED BY R LEVESQUE ASSOCIATES INC. BETWEEN JULY 2, 2025 AND JULY 7, 2025.

## "AS-BUILT" PLAN

727 Silver Street  
Agawam, MA



PREPARED FOR:

Agawam Self Storage, LLC  
c/o Rick Mahan  
727 Silver Street  
Agawam, MA

ISSUANCE DATE: July 21, 2025

| REVISIONS: | DATE: |
|------------|-------|
|            |       |
|            |       |
|            |       |
|            |       |
|            |       |

DRAFTED BY: J.L.

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

SCALE: As Noted

RLA PROJ. NUMBER: 220522

| DRAWING# | REV. |
|----------|------|
| AB-1     | -    |







S:\Projects\2022\220522 - Mahan - 699 Silver Street - Agawam, MA\Civil 3D\220522 - SITE.dwg

GENERAL CONSTRUCTION NOTES

1. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR OR HIS AUTHORIZED REPRESENTATIVE SHALL CONVENE A PRE-CONSTRUCTION CONFERENCE BETWEEN THE TOWN REPRESENTATIVES, CONSULTING ENGINEER/LANDSCAPE ARCHITECT, UTILITY COMPANY REPRESENTATIVES, AND ANY OTHER AFFECTED PARTIES.
2. THE OWNER, R LEVESQUE ASSOCIATES, INC., AND PAUL S. SMITH LAND SURVEYING 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 TOWN RIGHT-OF-WAY AND EASEMENTS SHALL BE IN ACCORDANCE WITH THE TOWN SPECIFICATIONS AND MASSACHUSETTS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION.
7. THE CONTRACTOR SHALL GIVE THE 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 REMOVAL OF 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 SWEEPED 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 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 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 TOWN RIGHT-OF-WAYS AND/OR EASEMENTS SHALL BE IN ACCORDANCE WITH THE 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: ASHTO, 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 TOWN ROADS AND CURBS IN ACCORDANCE WITH MASSDOT AND/OR THE 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 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 IF MANUFACTURED IF 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 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 TOWN WATER DEPARTMENT "RULES & REGULATIONS". ALL WORK TO BE PERFORMED IN ACCORDANCE WITH TOWN WATER DEPARTMENT "SPECIFICATIONS". TOWN WATER DEPARTMENT STANDARDS SHALL TAKE PRECEDENCE OVER ANY REQUIREMENTS LISTED ABOVE.

CONSTRUCTION NOTES

727 Silver Street  
Agawam, MA  
Parcel ID: G6-2-3



PREPARED FOR:

MSR Properties, LLC  
c/o Rick Mahan  
699 Silver Street  
Agawam MA. 01001

ISSUANCE DATE: September 1, 2022

| REVISIONS: | DATE: |
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DRAFTED BY: C.M. & M.O.

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SCALE: As Noted

RLA PROJ. NUMBER: 220522

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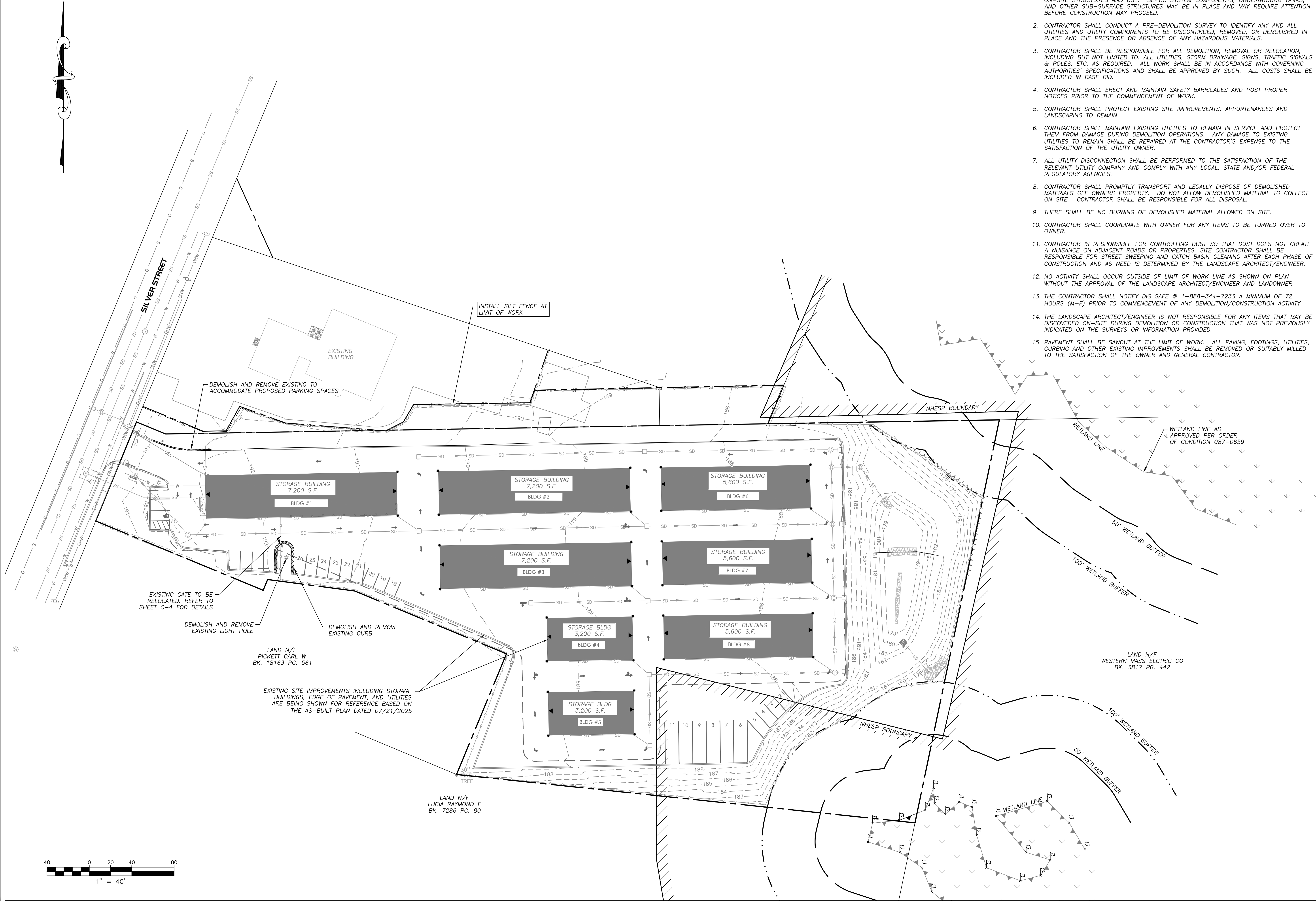
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PERMITTING  
NOT FOR CONSTRUCTION



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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.

**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

**AMENDED DEMOLITION & REMOVALS PLAN**  
**727 Silver Street & Portions of 699 & 711 Silver Street**  
**Agawam, MA**  
**Parcel IDs: G6-2-3, G6-2-2 & G6-2-12**

**PREPARED FOR:**  
Agawam Self Storage, LLC  
c/o Rick Mahan  
727 Silver Street  
Agawam, MA

**ISSUANCE DATE:** September 1, 2022

| REVISIONS:                           | DATE:      |
|--------------------------------------|------------|
| A. Referenced approved wetland line  | 10/12/2022 |
| B. Update to reflect as-built survey | 7/24/2025  |

**DRAFTED BY:** C.M. & R.E.L.

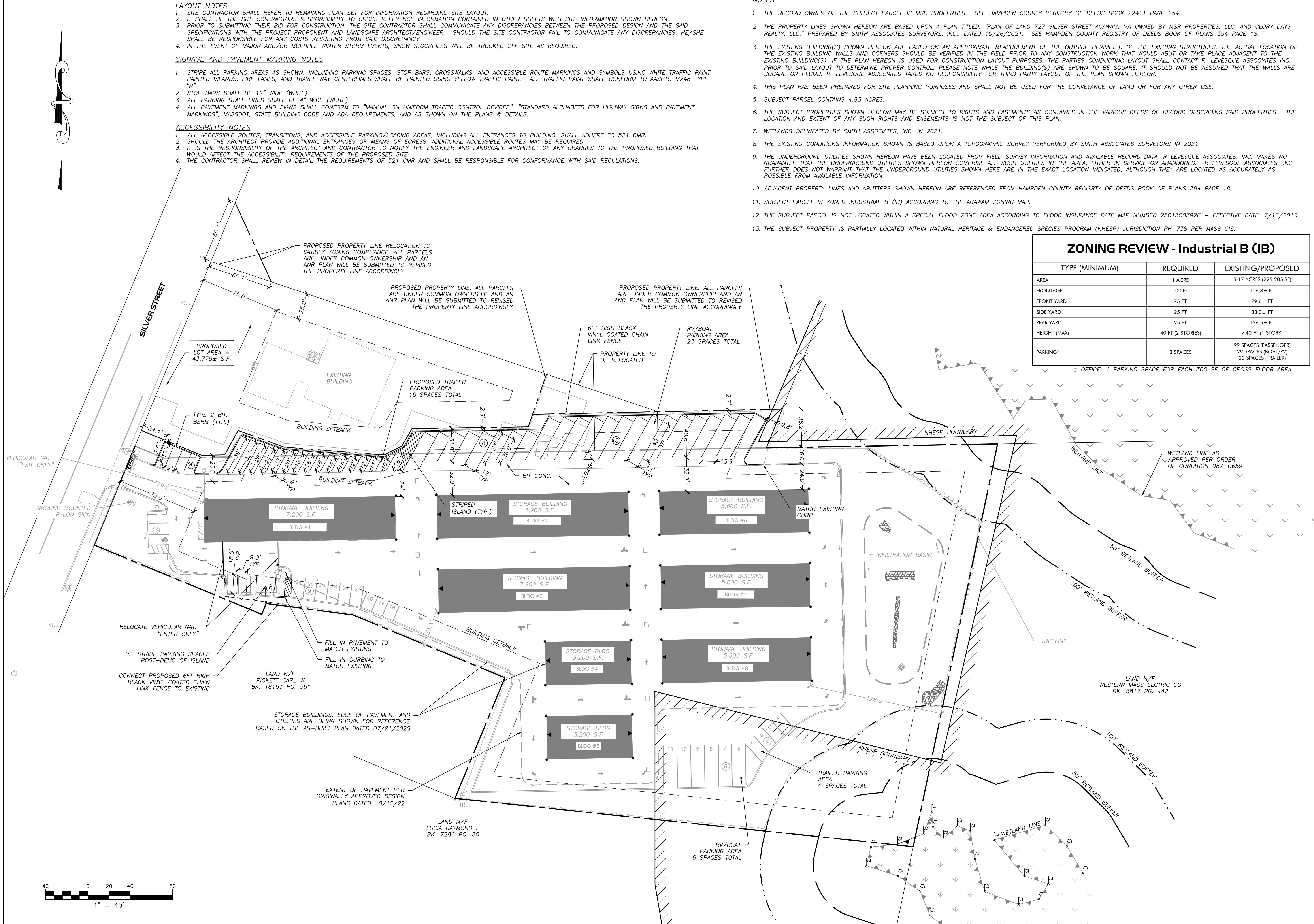
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**SCALE:** As Noted

**RLA PROJ. NUMBER:** 220522

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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.
4. IN THE EVENT OF MAJOR AND/OR MULTIPLE WINTER STORM EVENTS, SNOW STOCKPILES WILL BE TRUCKED OFF SITE AS REQUIRED.

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.

NOTES

1. THE RECORD OWNER OF THE SUBJECT PARCEL IS MSR PROPERTIES. SEE HAMPDEN COUNTY REGISTRY OF DEEDS BOOK 22411 PAGE 254.
2. THE PROPERTY LINES SHOWN HEREON ARE BASED UPON A PLAN TITLED, "PLAN OF LAND 727 SILVER STREET AGAWAM, MA OWNED BY MSR PROPERTIES, LLC. AND GLORY DAYS REALTY, LLC." PREPARED BY SMITH ASSOCIATES SURVEYORS, INC., DATED 10/26/2021. SEE HAMPDEN COUNTY REGISTRY OF DEEDS BOOK OF PLANS 394 PAGE 18.
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 4.83 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 SMITH ASSOCIATES, INC. IN 2021.
8. THE EXISTING CONDITIONS INFORMATION SHOWN IS BASED UPON A TOPOGRAPHIC SURVEY PERFORMED BY SMITH ASSOCIATES SURVEYORS IN 2021.
9. THE UNDERGROUND UTILITIES SHOWN HEREON HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND AVAILABLE RECORD DATA. 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 HAMPDEN COUNTY REGISRTY OF DEEDS BOOK OF PLANS 394 PAGE 18.
11. SUBJECT PARCEL IS ZONED INDUSTRIAL B (IB) ACCORDING TO THE 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: 7/16/2013.
13. THE SUBJECT PROPERTY IS PARTIALLY LOCATED WITHIN NATURAL HERITAGE & ENDANGERED SPECIES PROGRAM (NHESP) JURISDICTION PH-738 PER MASS GIS.

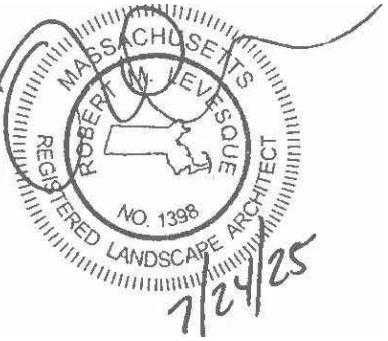
ZONING REVIEW - Industrial B (IB)

| TYPE (MINIMUM) | REQUIRED          | EXISTING/PROPOSED                                                   |
|----------------|-------------------|---------------------------------------------------------------------|
| AREA           | 1 ACRE            | 5.17 ACRES (225,205 SF)                                             |
| FRONTAGE       | 100 FT            | 116.8± FT                                                           |
| FRONT YARD     | 75 FT             | 79.6± FT                                                            |
| SIDE YARD      | 25 FT             | 33.3± FT                                                            |
| REAR YARD      | 25 FT             | 126.5± FT                                                           |
| HEIGHT (MAX)   | 40 FT (2 STORIES) | <40 FT (1 STORY)                                                    |
| PARKING*       | 3 SPACES          | 22 SPACES (PASSENGER)<br>29 SPACES (BOAT/RV)<br>20 SPACES (TRAILER) |

\* OFFICE: 1 PARKING SPACE FOR EACH 300 SF OF GROSS FLOOR AREA

AMENDED LAYOUT & MATERIALS PLAN

727 Silver Street & Portions of 699 & 711 Silver Street  
Agawam, MA  
Parcel IDs: G6-2-3, G6-2-2 & G6-2-12



PREPARED FOR:

Agawam Self Storage, LLC  
c/o Rick Mahan  
727 Silver Street  
Agawam, MA

ISSUANCE DATE: September 1, 2022

| REVISIONS:                           | DATE:      |
|--------------------------------------|------------|
| A. Engineering comments              | 10/03/2022 |
| B. Referenced approved wetland line  | 10/12/2022 |
| C. Parking area added                | 6/17/2025  |
| D. Update to reflect as-built survey | 7/24/2025  |

DRAFTED BY: C.M. & R.E.L.

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SCALE: As Noted

RLA PROJ. NUMBER: 220522

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## 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.

## GRADING &amp; DRAINAGE NOTES

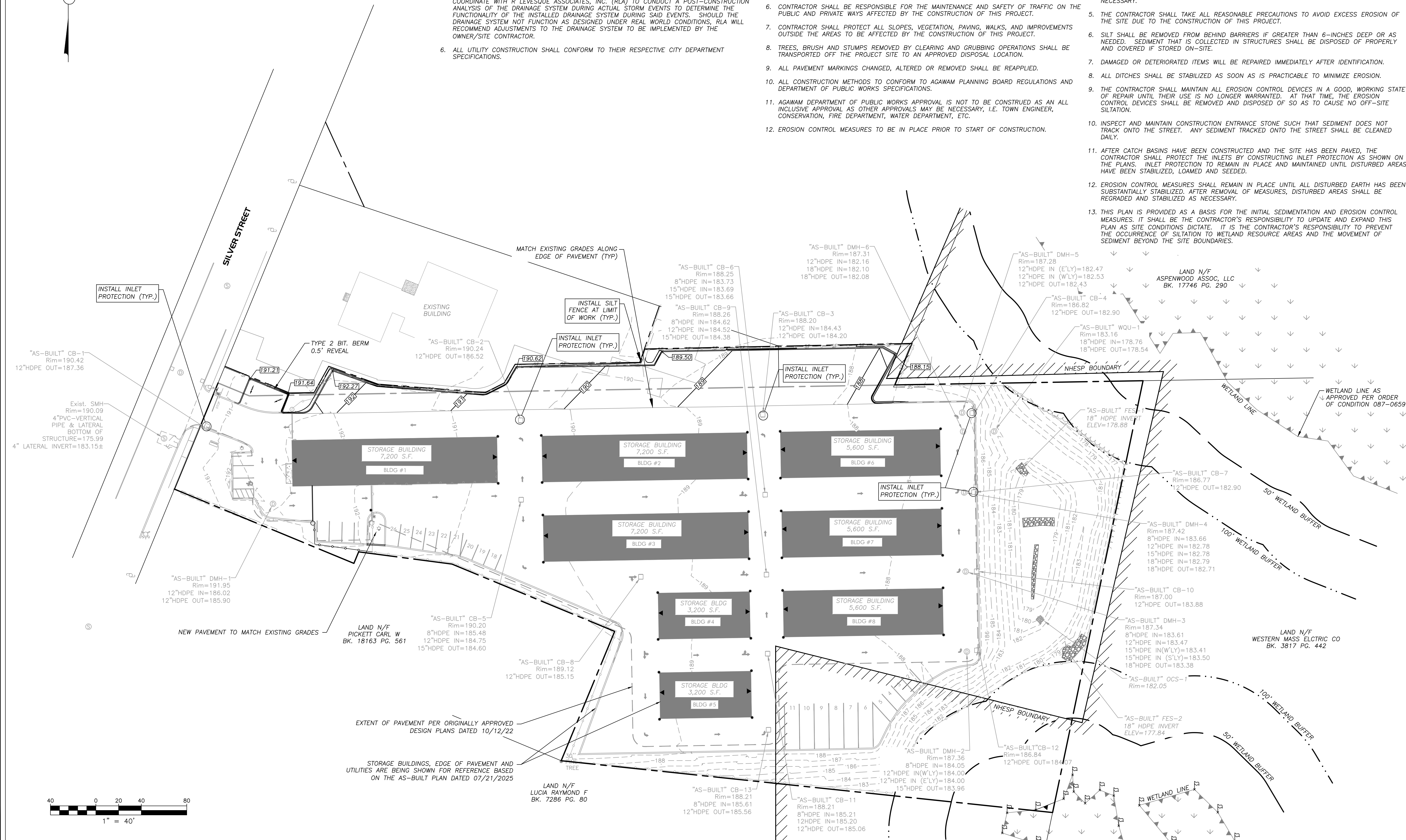
1. SITE CONTRACTOR SHALL REFER TO REMAINING PLAN SET FOR INFORMATION REGARDING GRADING AND DRAINAGE.
2. IT SHALL BE THE SITE CONTRACTORS RESPONSIBILITY TO CROSS REFERENCE INFORMATION CONTAINED IN OTHER SHEETS WITH GRADING AND DRAINAGE INFORMATION SHOWN HEREON.
3. PRIOR TO SUBMITTING A BID FOR CONSTRUCTION, 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.

## 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.

## 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.



# RLA

## R LEVESQUE ASSOCIATES INC.

Landscape Architects  
Civil Engineers - Land Surveyors  
Environmental Consultants

ph: 413.568.0985 fax: 413.568.0986

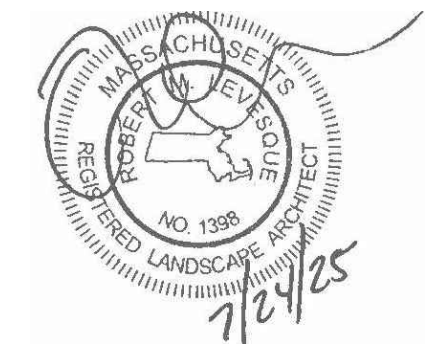
40 School Street  
Westfield, MA 01085

rlaland.com

### AMENDED GRADING, EROSION & SEDIMENTATION CONTROL PLAN

727 Silver Street & Portions of 699 & 711 Silver Street  
Agawam, MA

Parcel IDs: G6-2-3, G6-2-2 & G6-2-12



## PREPARED FOR:

Agawam Self Storage, LLC  
c/o Rick Mahan

727 Silver Street  
Agawam, MA

## ISSUANCE DATE: September 1, 2022

| REVISIONS:                           | DATE:      |
|--------------------------------------|------------|
| A. Engineering comments              | 10/03/2022 |
| B. Referenced approved wetland line  | 10/12/2022 |
| C. Parking area added                | 6/17/2025  |
| D. Update to reflect as-built survey | 7/24/2025  |

## DRAFTED BY: C.M. &amp; R.E.L.

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## SCALE: As Noted

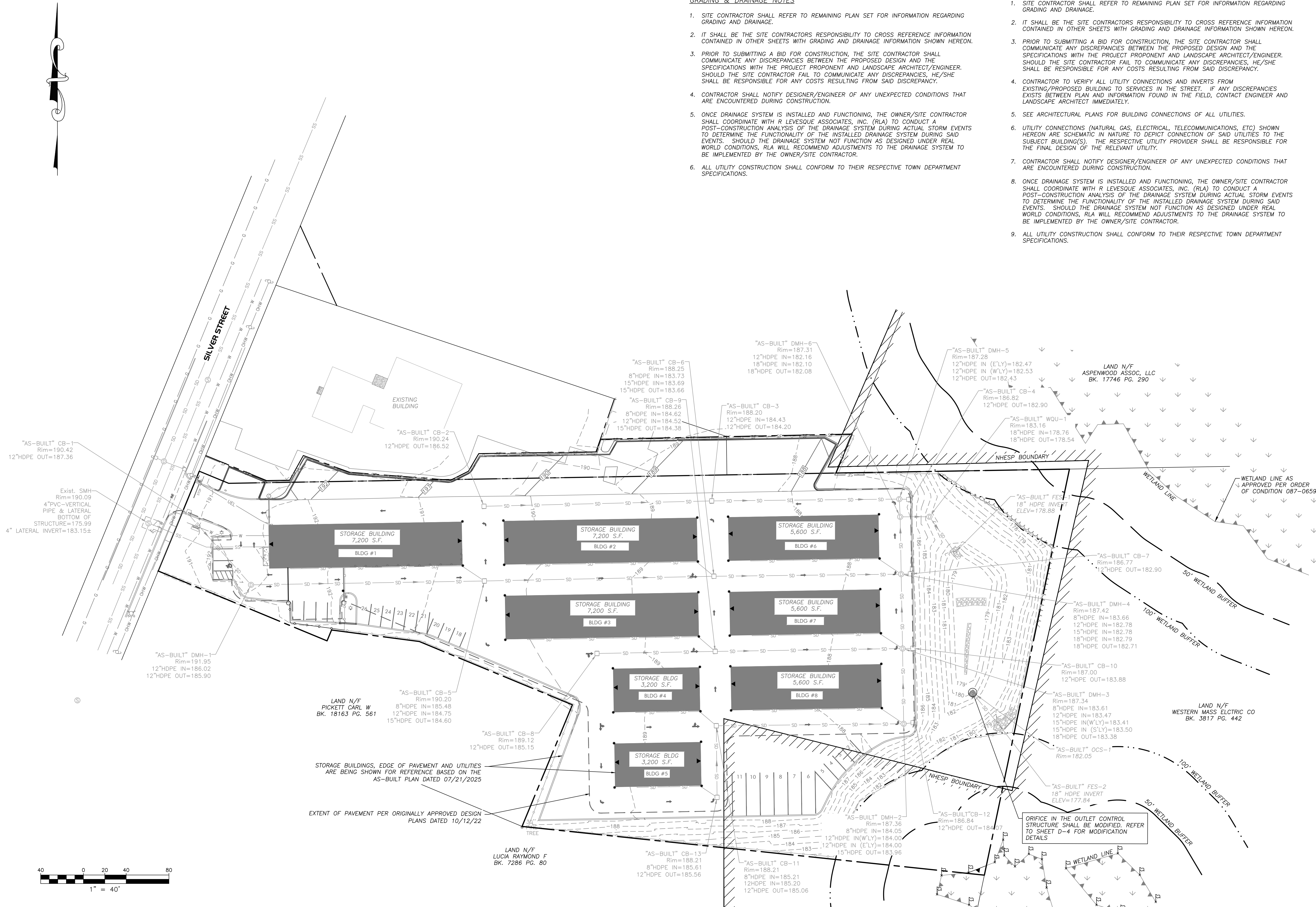
RLA PROJ. NUMBER: 220522

DRAWING# REV.

C-5

D





#### 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 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 TOWN DEPARTMENT SPECIFICATIONS.

#### 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. CONTRACTOR SHALL NOTIFY DESIGNER/ENGINEER OF ANY UNEXPECTED CONDITIONS THAT ARE ENCOUNTERED DURING CONSTRUCTION.
8. 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.
9. ALL UTILITY CONSTRUCTION SHALL CONFORM TO THEIR RESPECTIVE TOWN DEPARTMENT SPECIFICATIONS.

**RLA**  
**R LEVESQUE ASSOCIATES INC.**

Landscape Architects  
Civil Engineers - Land Surveyors  
Environmental Consultants

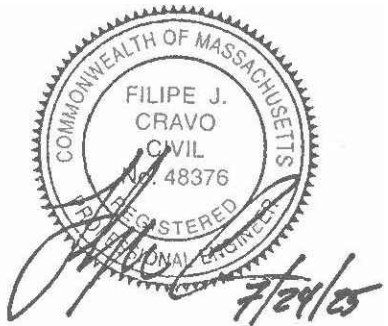
ph: 413.568.0985 fax: 413.568.0986

40 School Street  
Westfield, MA 01085

[rlaland.com](http://rlaland.com)

#### AMENDED DRAINAGE & UTILITIES PLAN

727 Silver Street & Portions of 699 & 711 Silver Street  
Agawam, MA  
Parcel IDs: G6-2-3, G6-2-2 & G6-2-12



#### PREPARED FOR:

Agawam Self Storage, LLC  
c/o Rick Mahan  
727 Silver Street  
Agawam, MA

#### ISSUANCE DATE: September 1, 2022

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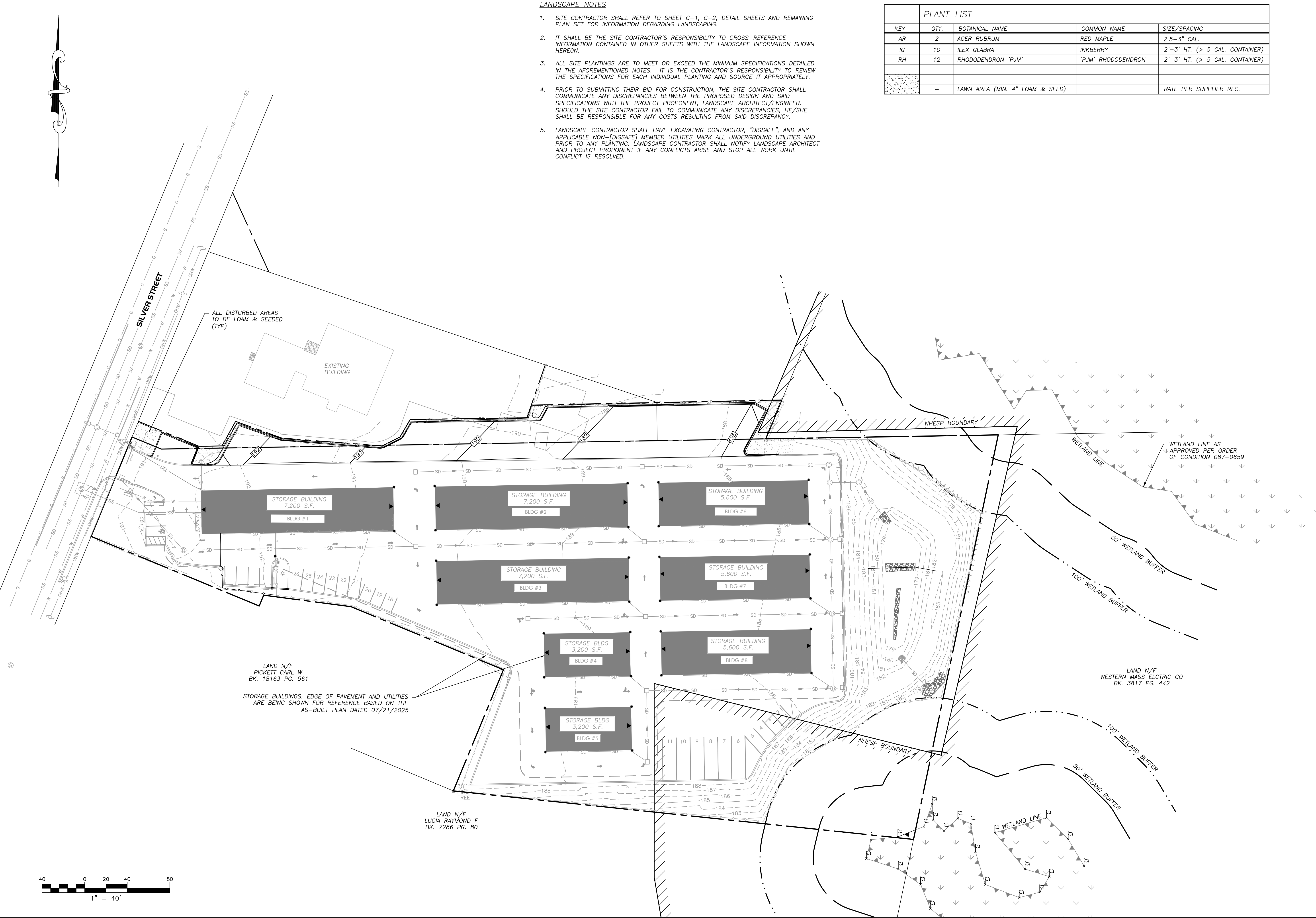
#### DRAWING# REV.

C-6

D



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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.

| PLANT LIST |      |                                 |                    |                                |
|------------|------|---------------------------------|--------------------|--------------------------------|
| KEY        | QTY. | BOTANICAL NAME                  | COMMON NAME        | SIZE/SPACING                   |
| AR         | 2    | ACER RUBRUM                     | RED MAPLE          | 2.5-3" CAL.                    |
| IG         | 10   | ILEX GLABRA                     | INKBERRY           | 2'-3' HT. (> 5 GAL. CONTAINER) |
| RH         | 12   | RHODODENDRON 'PJM'              | 'PJM' RHODODENDRON | 2'-3' HT. (> 5 GAL. CONTAINER) |
|            |      |                                 |                    |                                |
|            | -    | LAWN AREA (MIN. 4" LOAM & SEED) |                    | RATE PER SUPPLIER REC.         |

**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](http://rlaland.com)

**AMENDED SITE LANDSCAPING PLAN**  
**727 Silver Street & Portions of 699 & 711 Silver Street**  
**Agawam, MA**  
**Parcel IDs: G6-2-3, G6-2-2 & G6-2-12**

**PREPARED FOR:**  
Agawam Self Storage, LLC  
c/o Rick Mahan  
727 Silver Street  
Agawam, MA

**ISSUANCE DATE:** September 1, 2022

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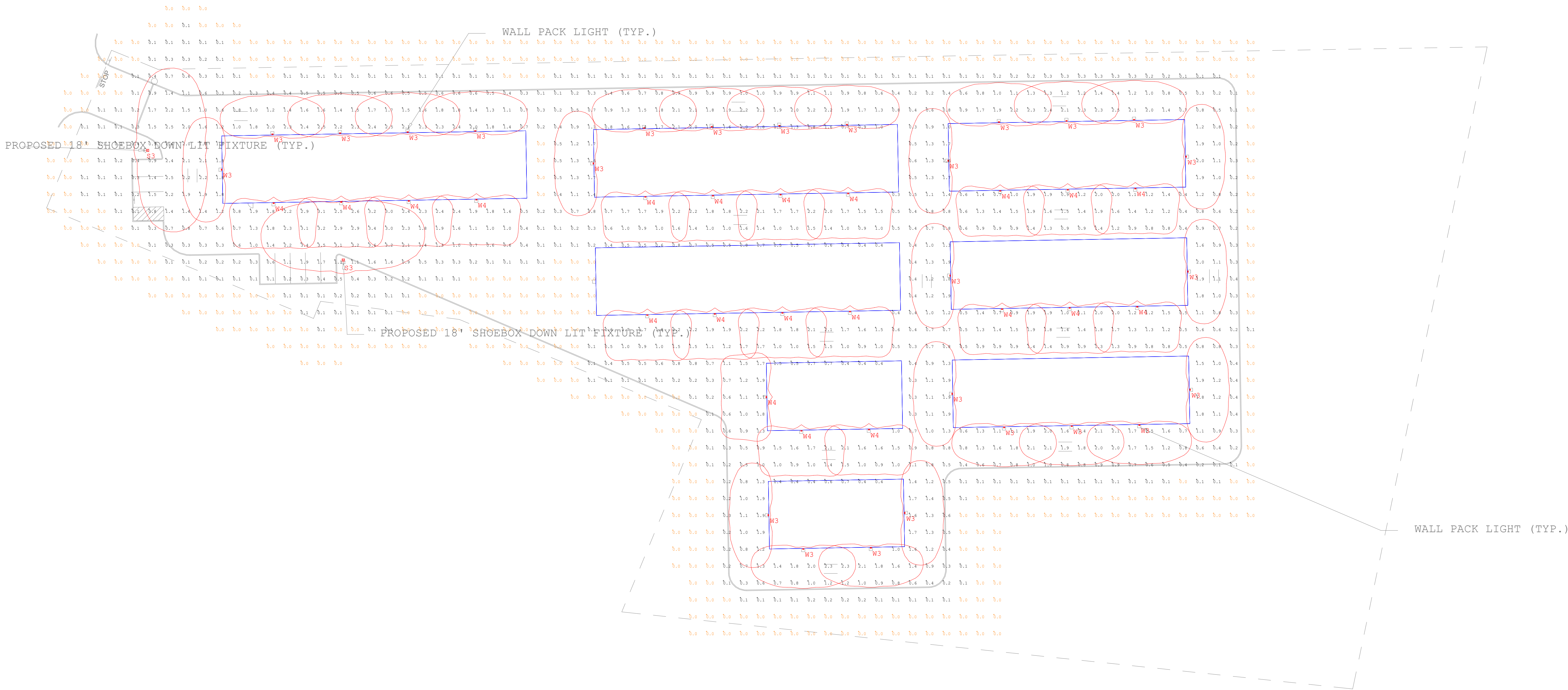
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**SCALE:** As Noted

**RLA PROJ. NUMBER:** 220522

| DRAWING# | REV. |
|----------|------|
| C-7      | C    |





| Luminaire Schedule |       |       |             |       |                                                            |
|--------------------|-------|-------|-------------|-------|------------------------------------------------------------|
| Qty                | Label | Watts | Arrangement | ILP   | Description                                                |
| 2                  | S3    | 50.5  | Single      | 0.900 | Beacon VP-1-1601-50-3K7-3-UNV-x TOP @ 18FT AFG             |
| 26                 | W3    | 20    | Single      | 0.900 | Hubbell LMC2-481-20-3K7-3-UNV-x Mounted @ 12FT AFG to BOF  |
| 21                 | W4    | 20    | Single      | 0.900 | Hubbell LMC2-481-20-3K7-4W-UNV-x Mounted @ 12FT AFG to BOF |

| Calculation Summary  |       |      |     |     |         |         |             |
|----------------------|-------|------|-----|-----|---------|---------|-------------|
| Label                | Units | Avg  | Max | Min | Avg/Min | Max/Min | Grid Height |
| Site                 | Fc    | 0.67 | 3.6 | 0.0 | N.A.    | N.A.    | 0           |
| Parking & Drive Lane | Fc    | 1.12 | 3.6 | 0.0 | N.A.    | N.A.    |             |

Project:  
727 Silver St - Self Storage

Contact:  
Liza Tuttle  
Specification Sales  
(860) 751-4388  
ltuttle@illuminatene.com

**illuminate**  
263 Winn Street  
Burlington, MA 01803  
(781) 935-8500  
333 Pleasant Valley Road  
South Windsor, CT 06074  
(860) 282-0597

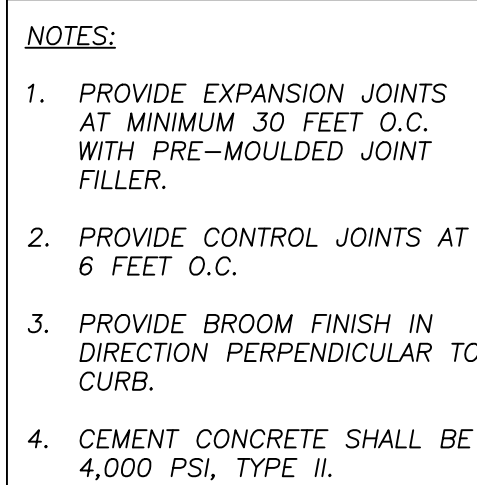
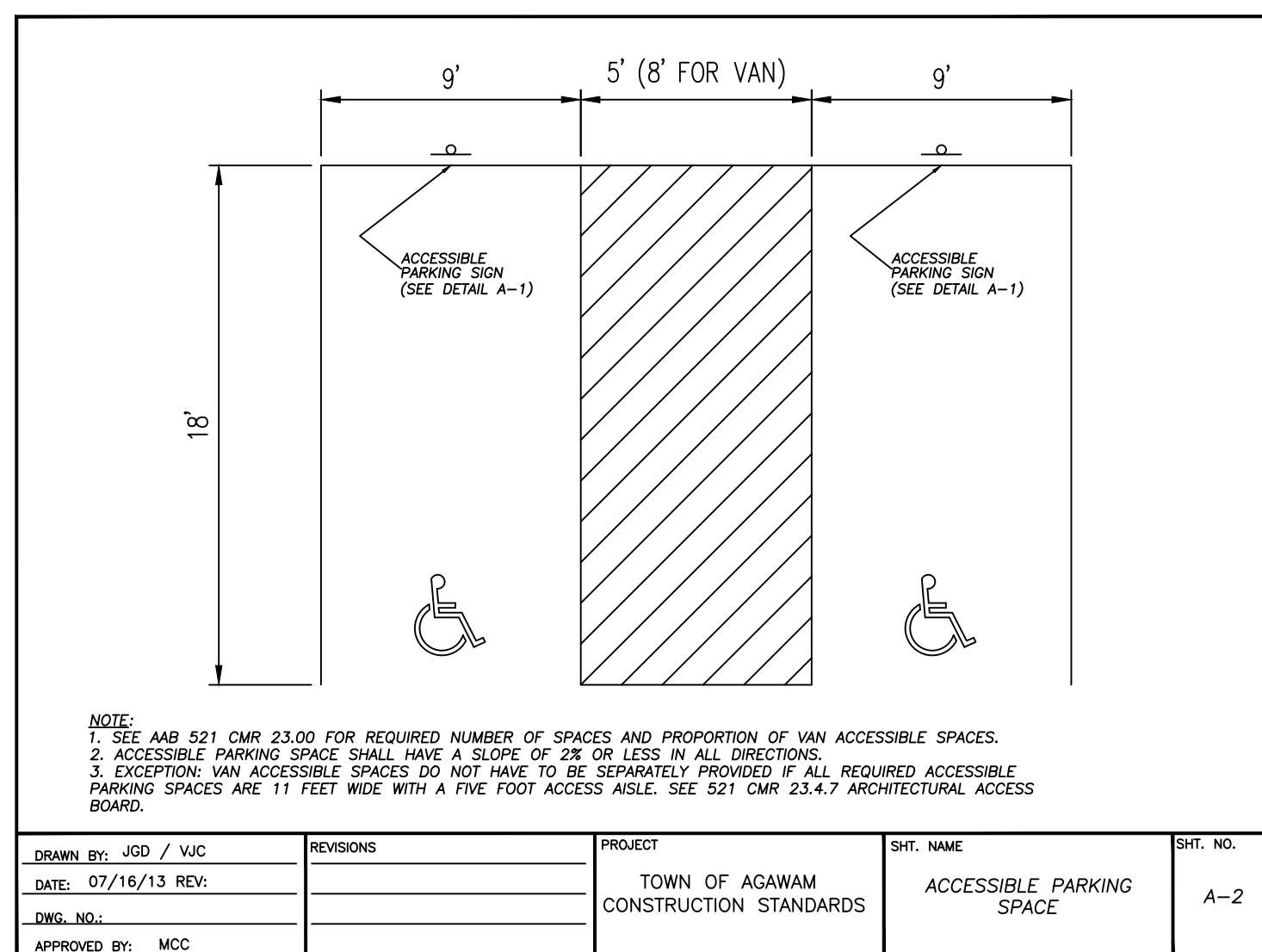
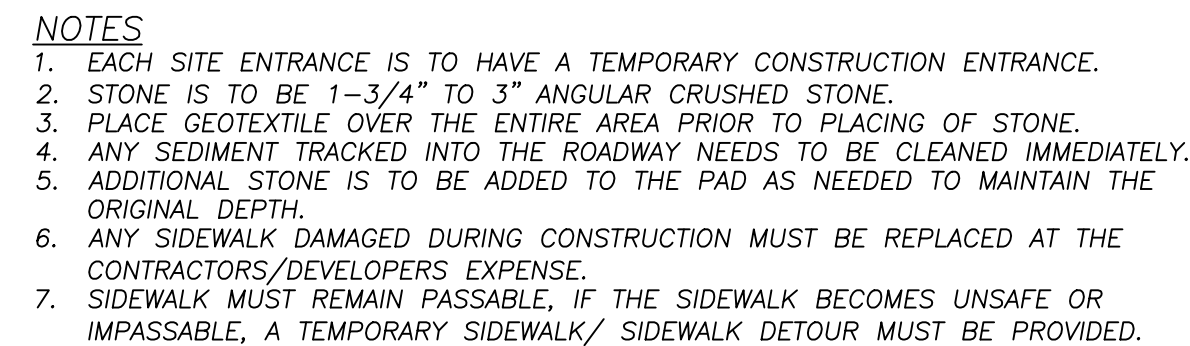
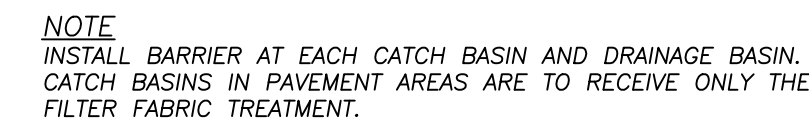
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Date: 8/31/2022  
Revision: ---  
Scale: 1" = 30'-0"  
Drawn By: CK

Drawing Number:

SL-1

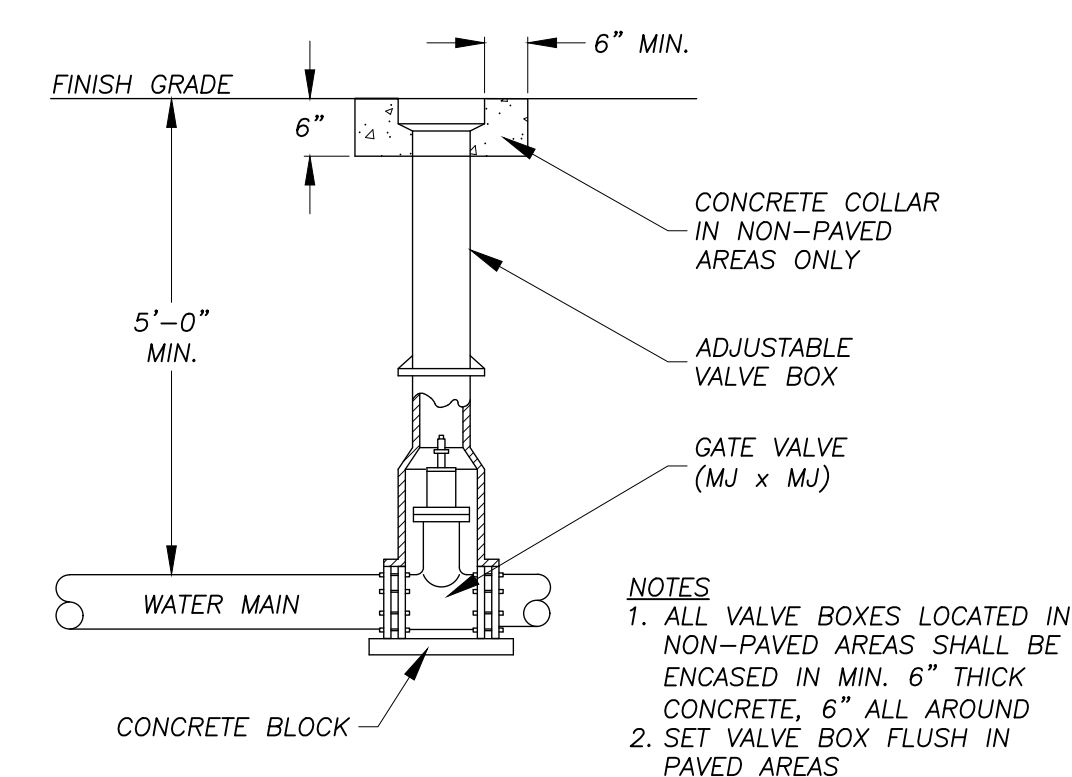
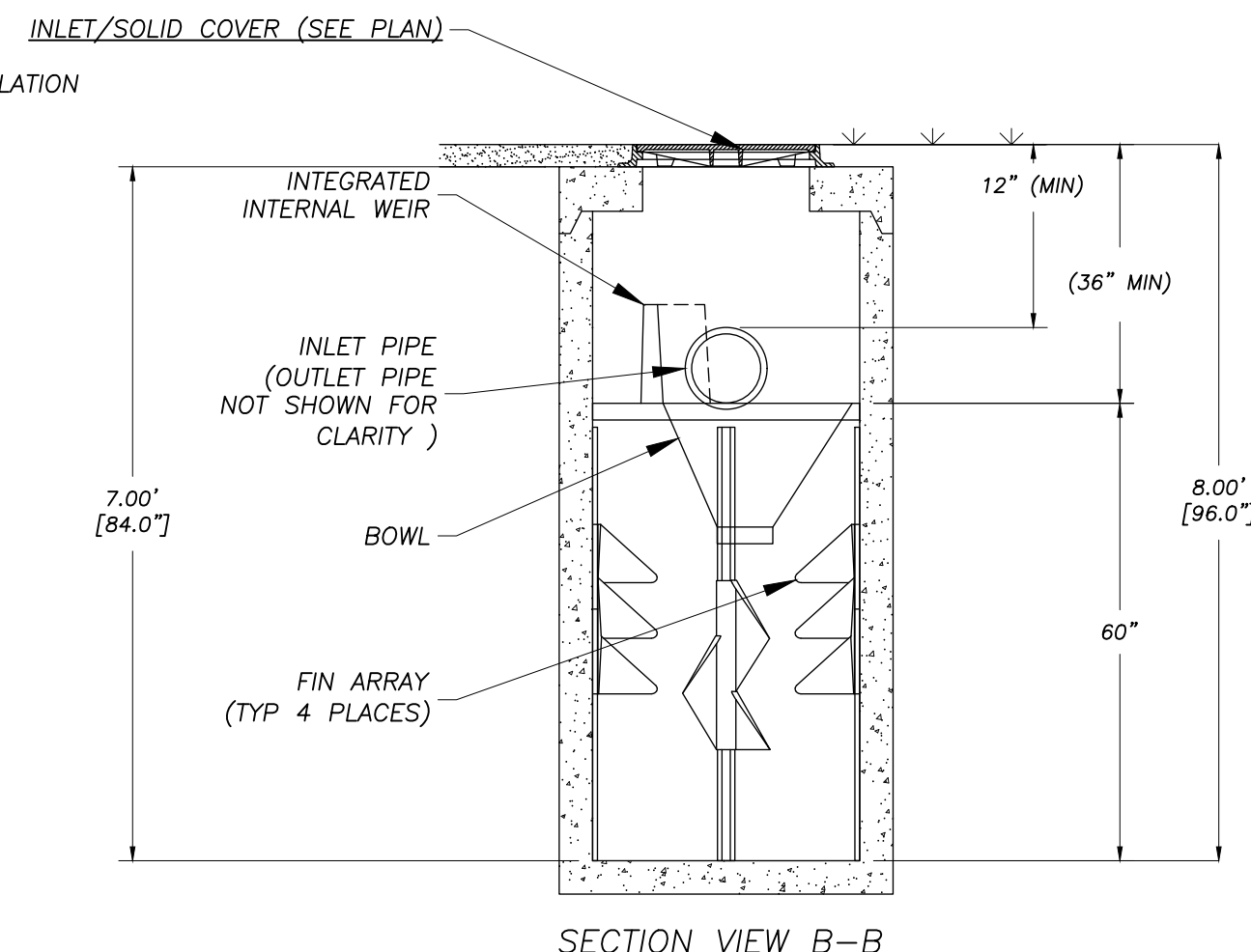
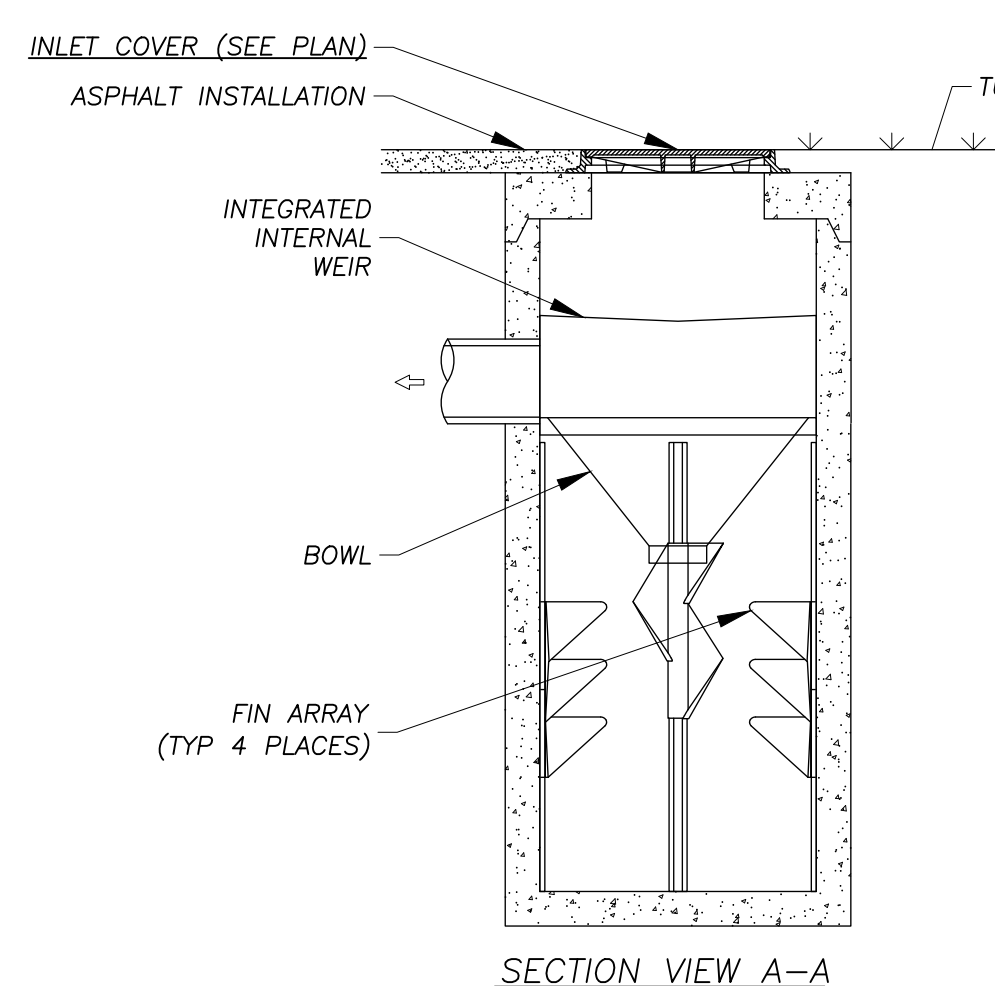
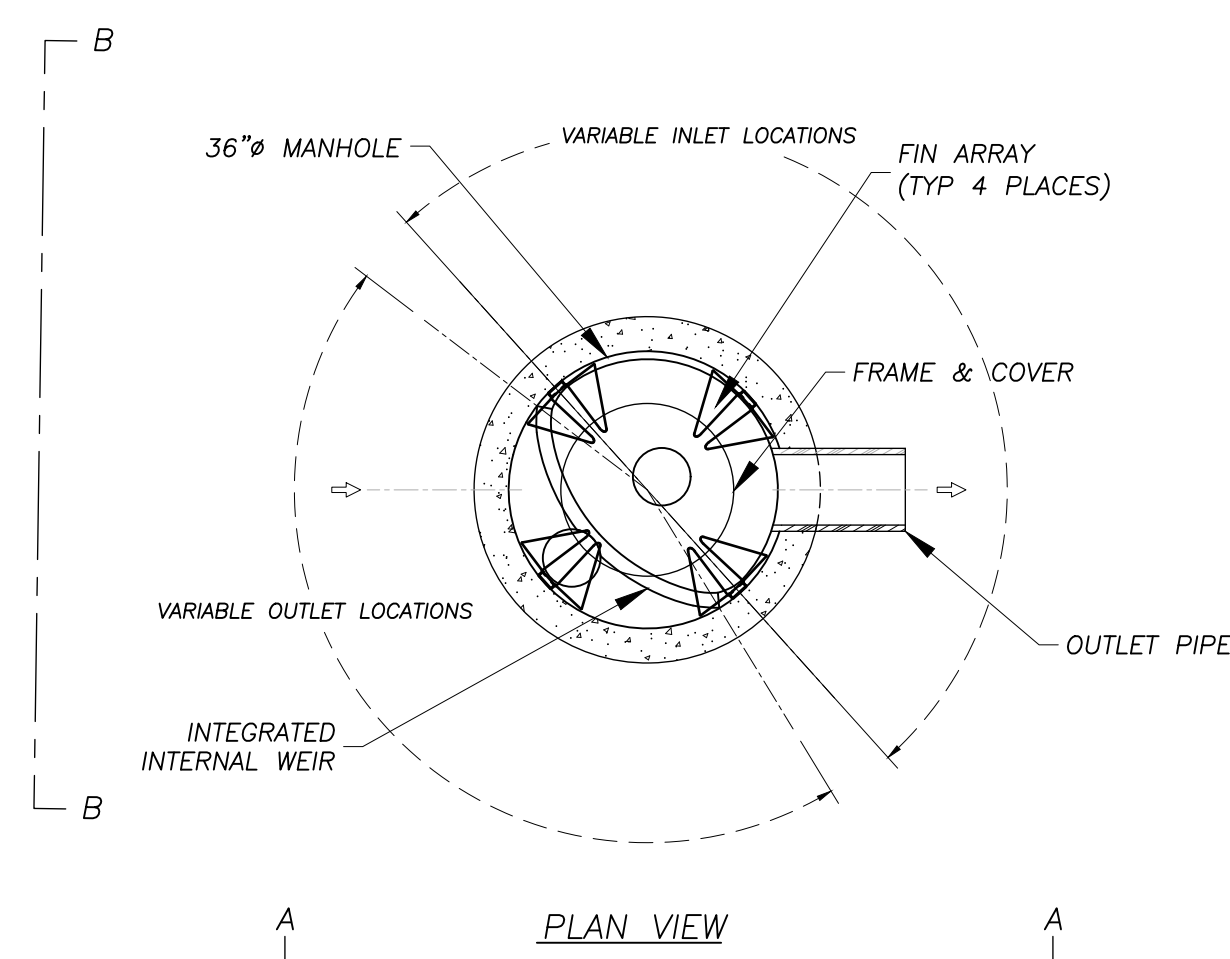
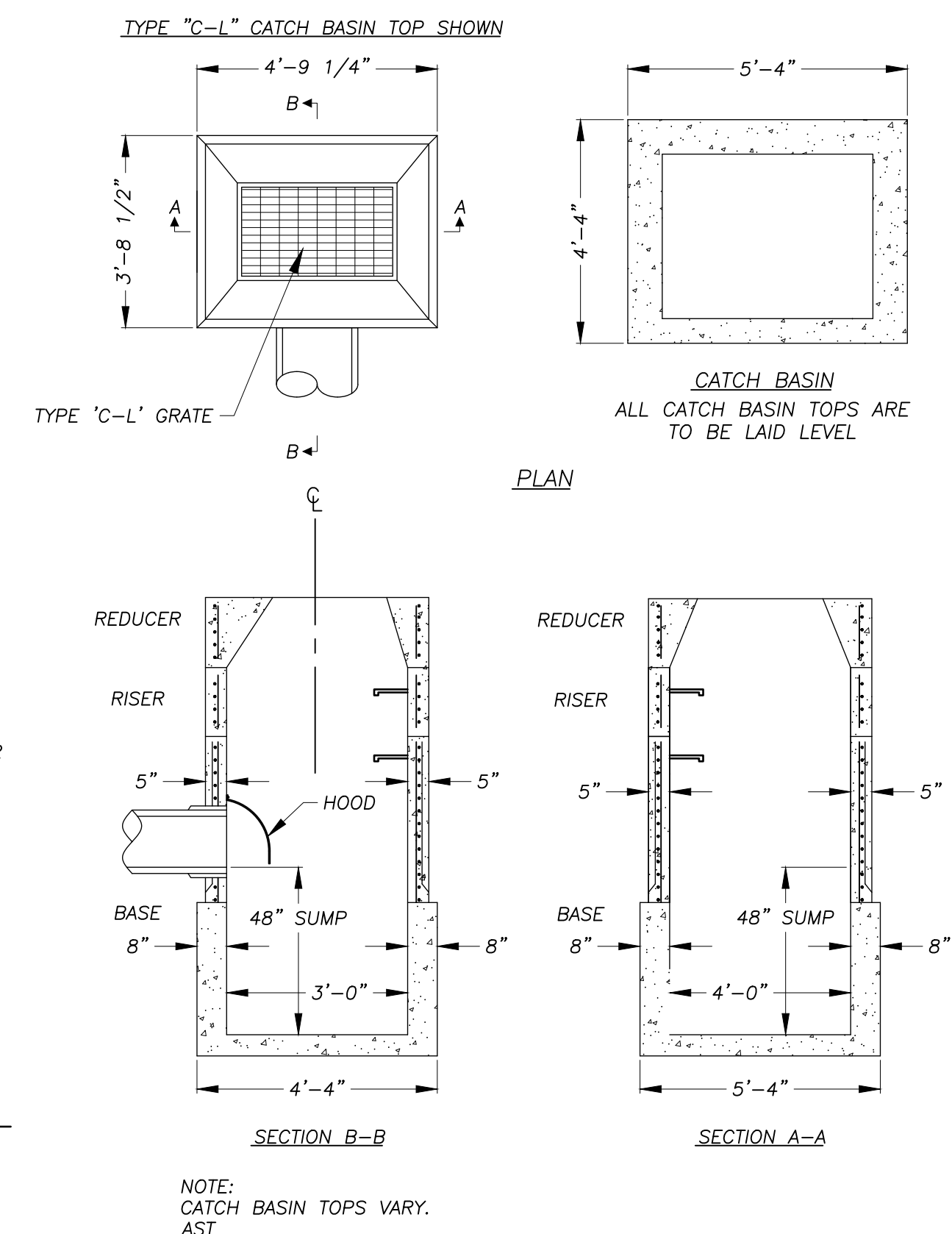
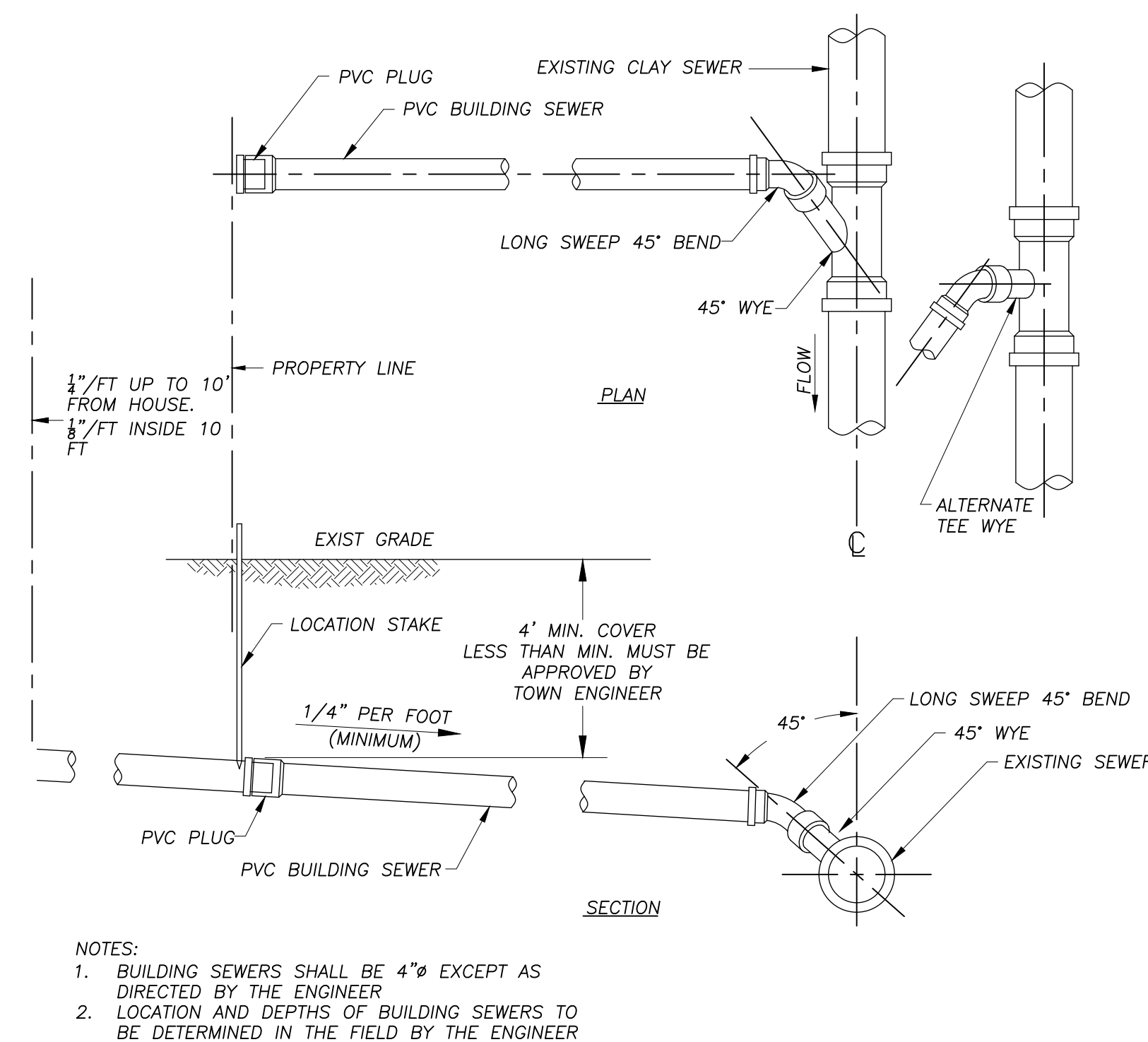
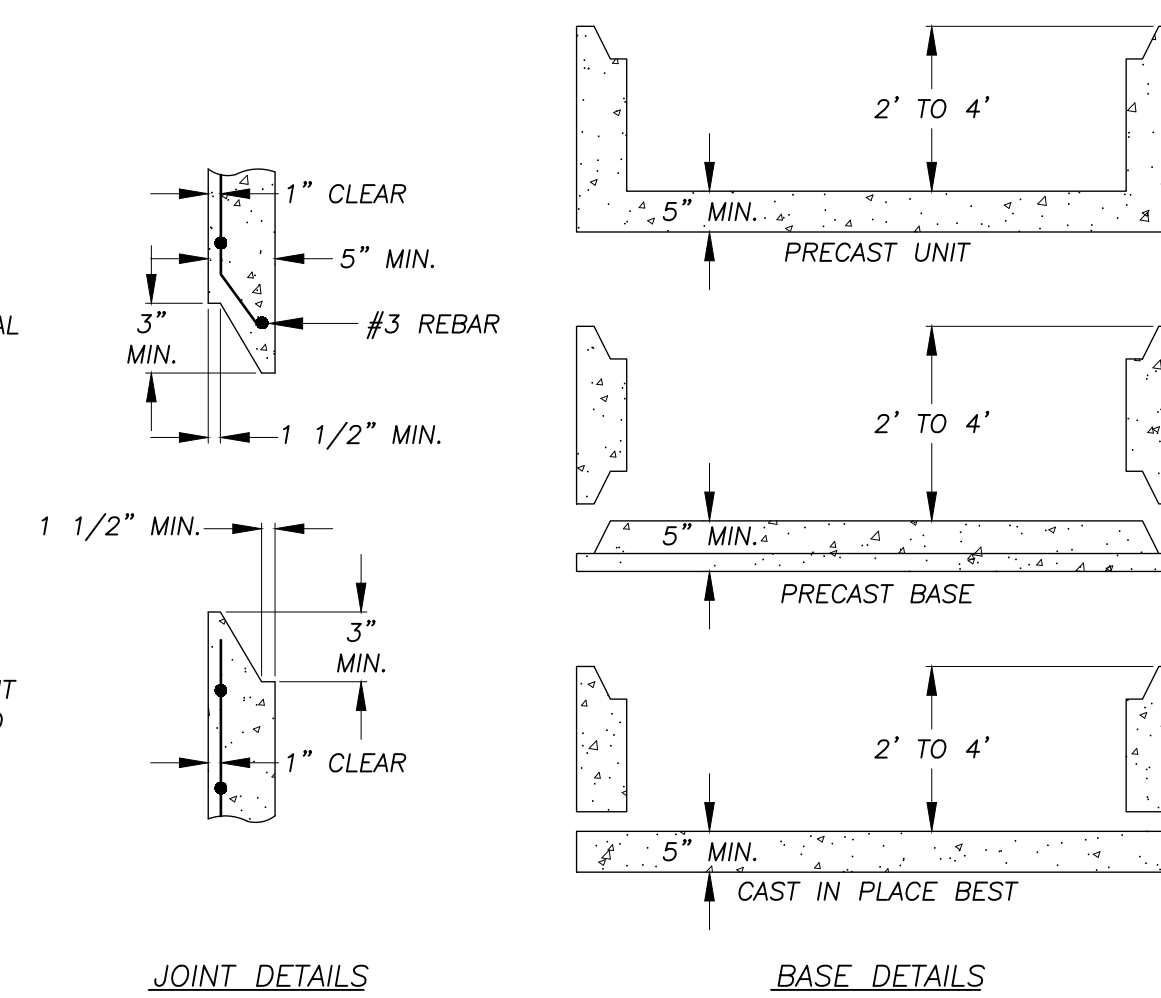
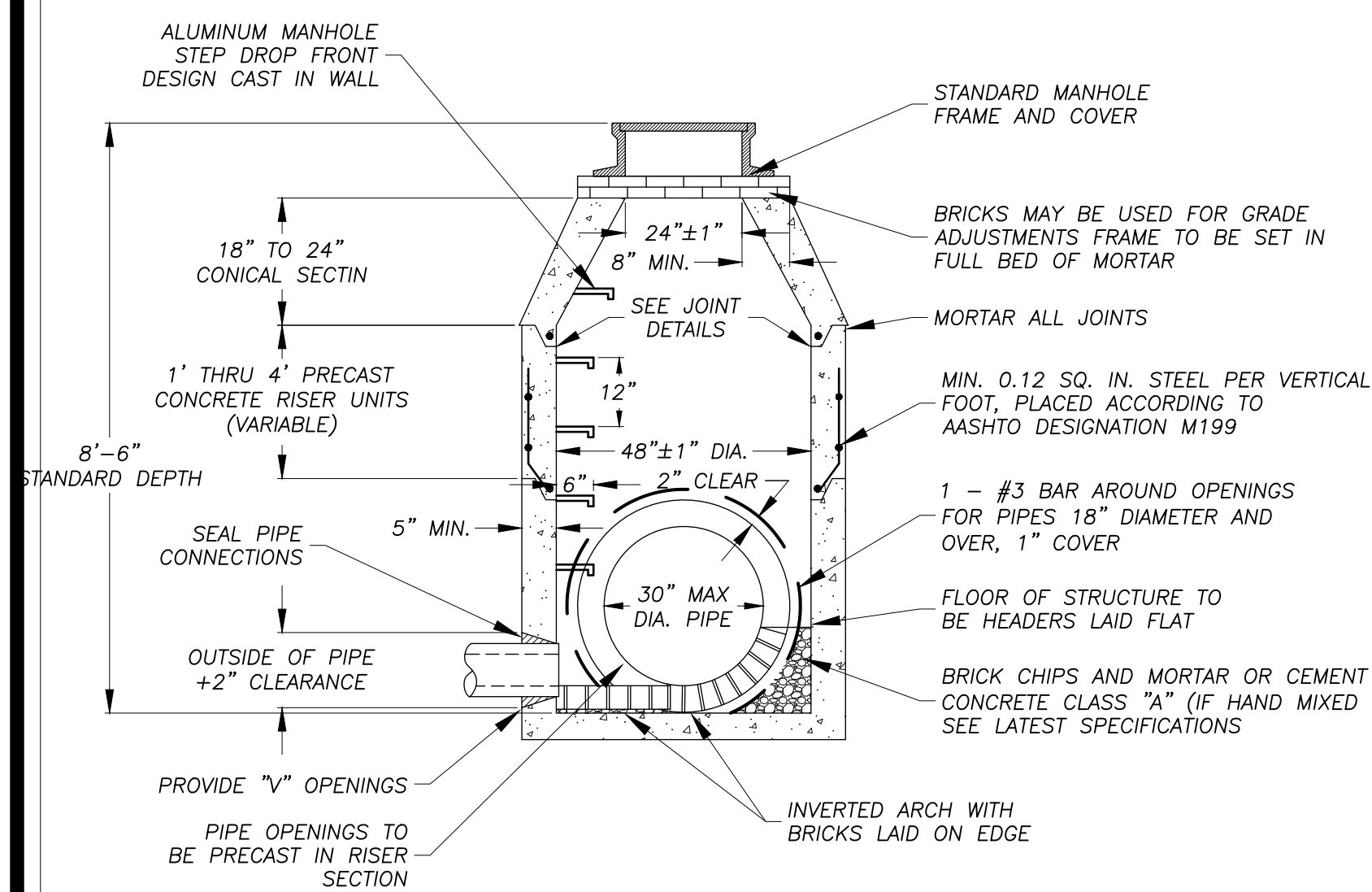
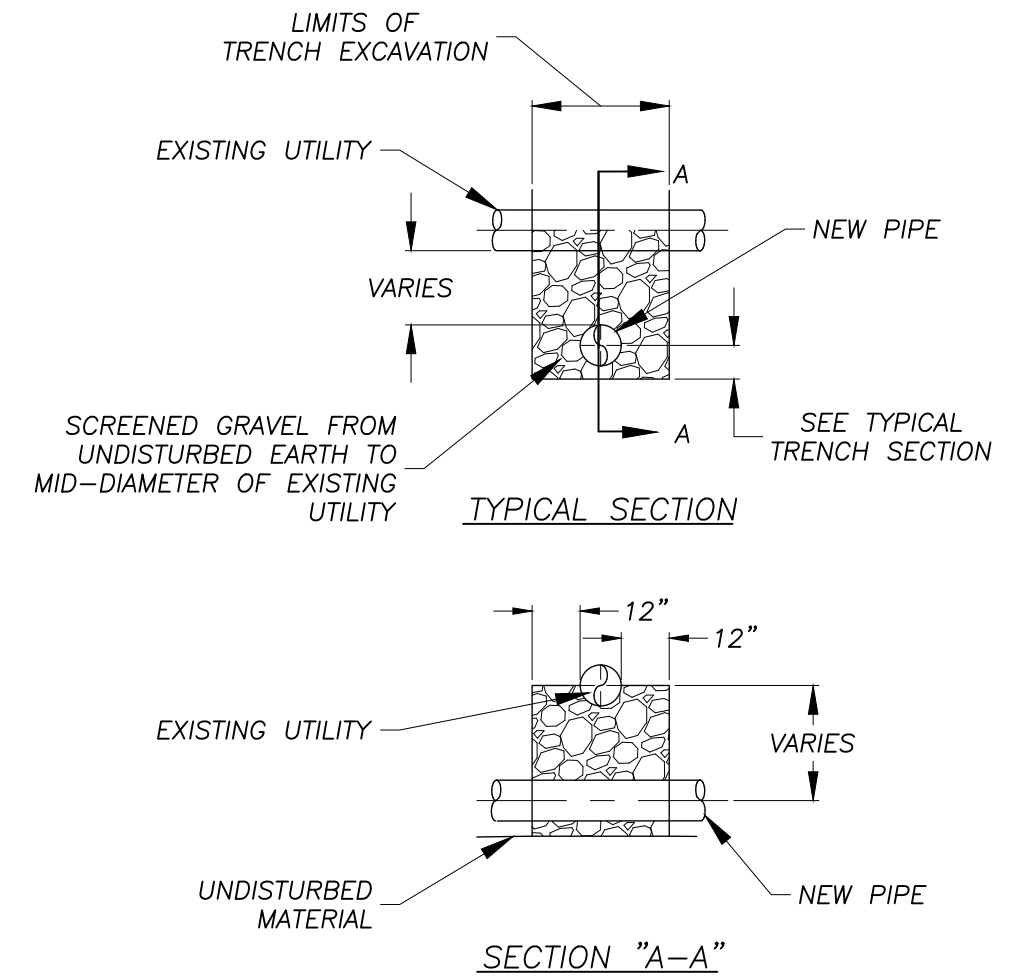
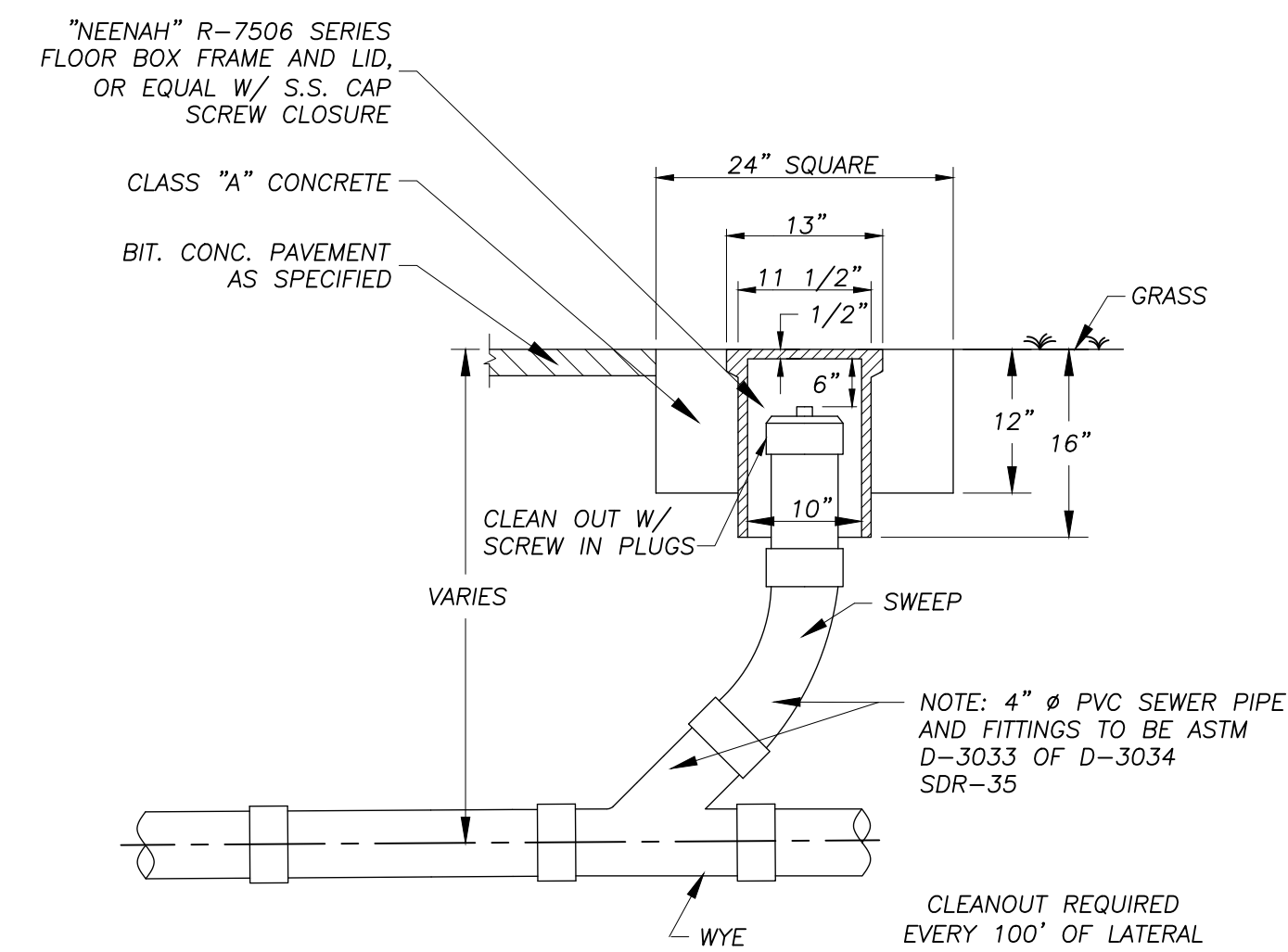
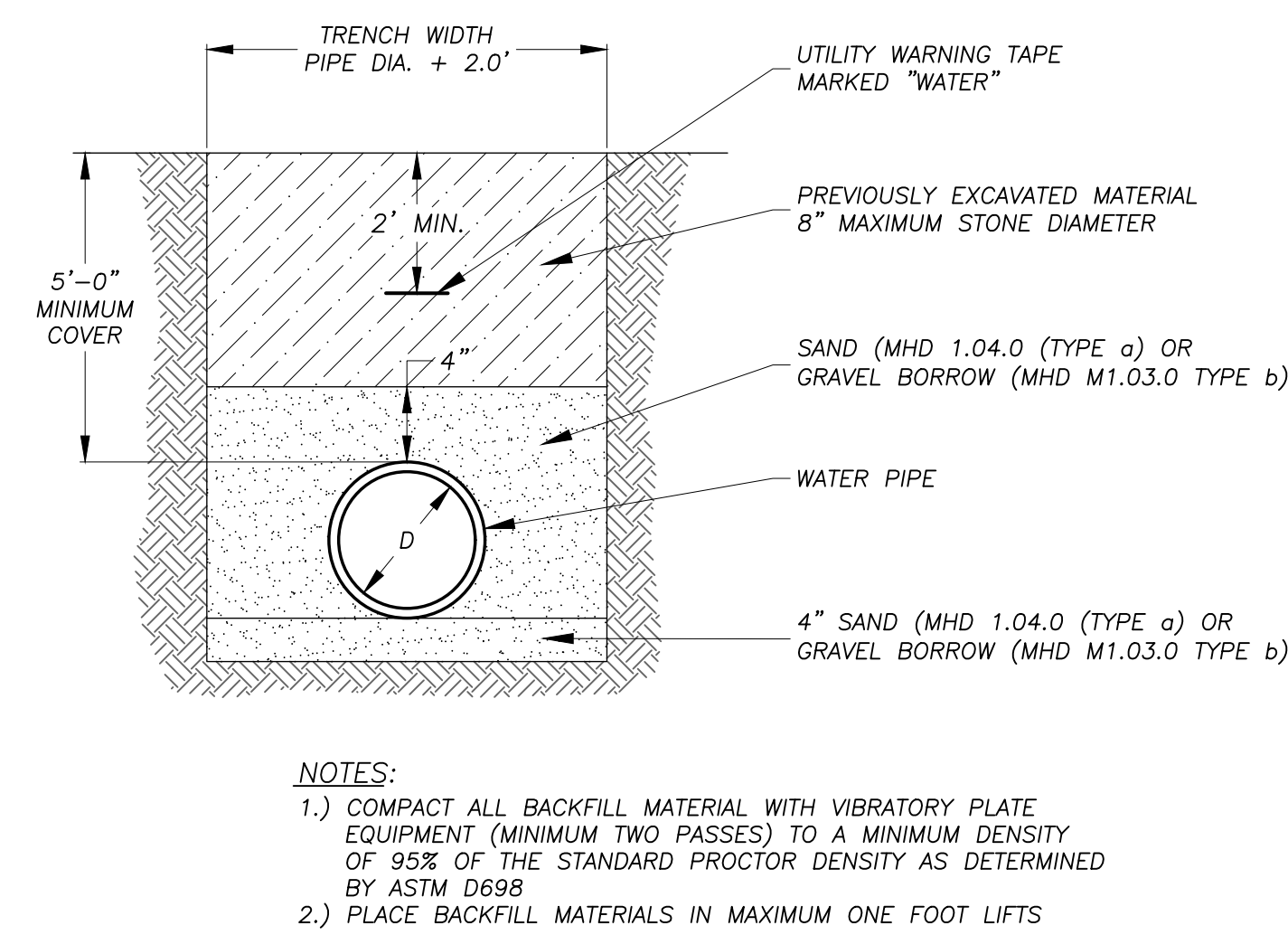
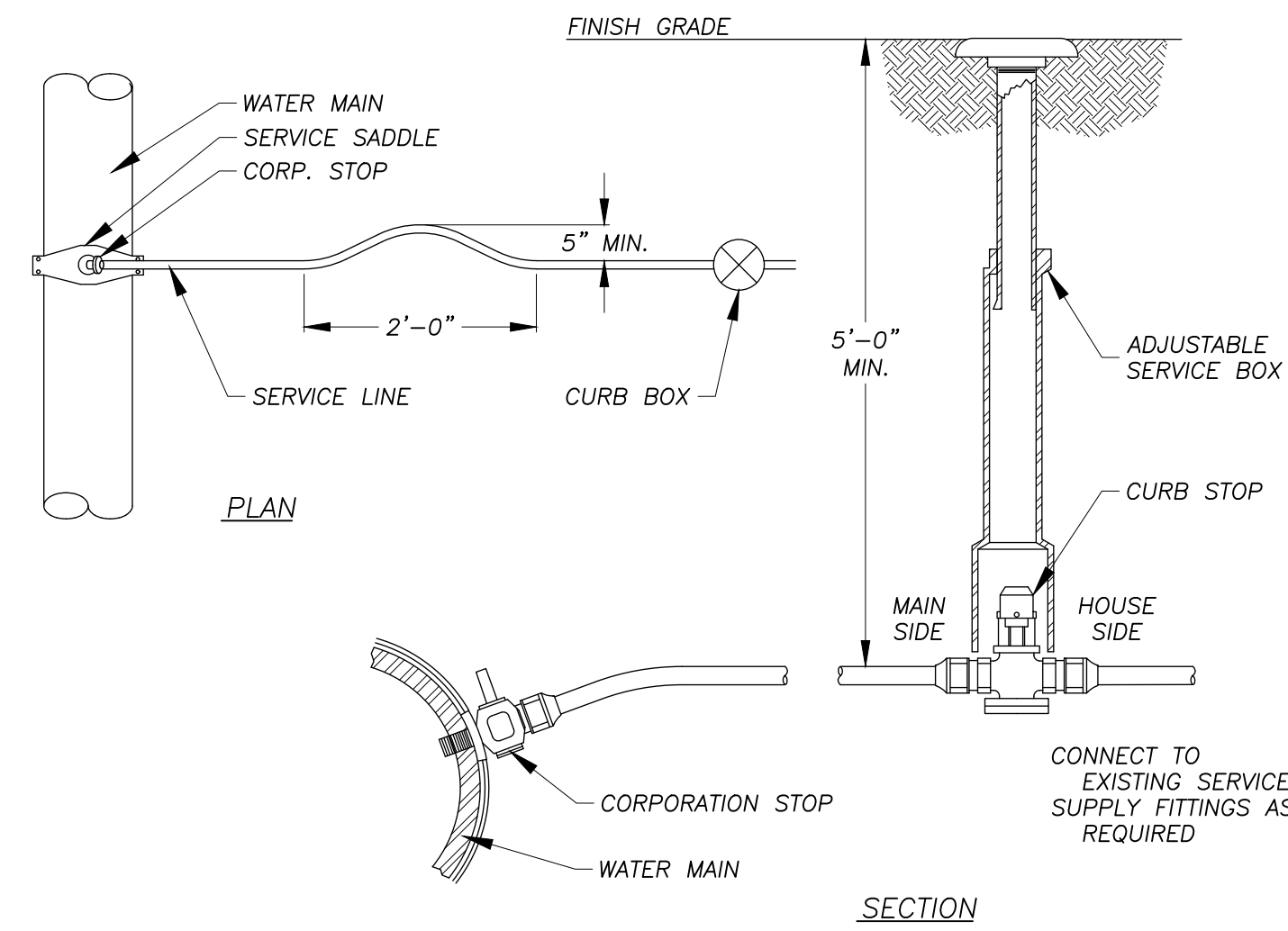
Sheet 1 of 1





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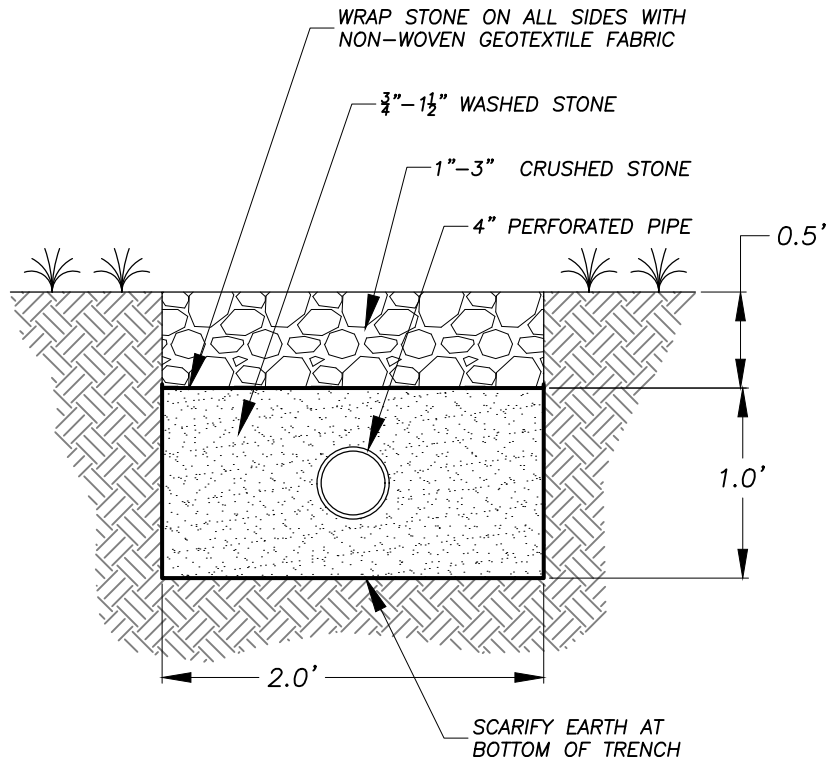




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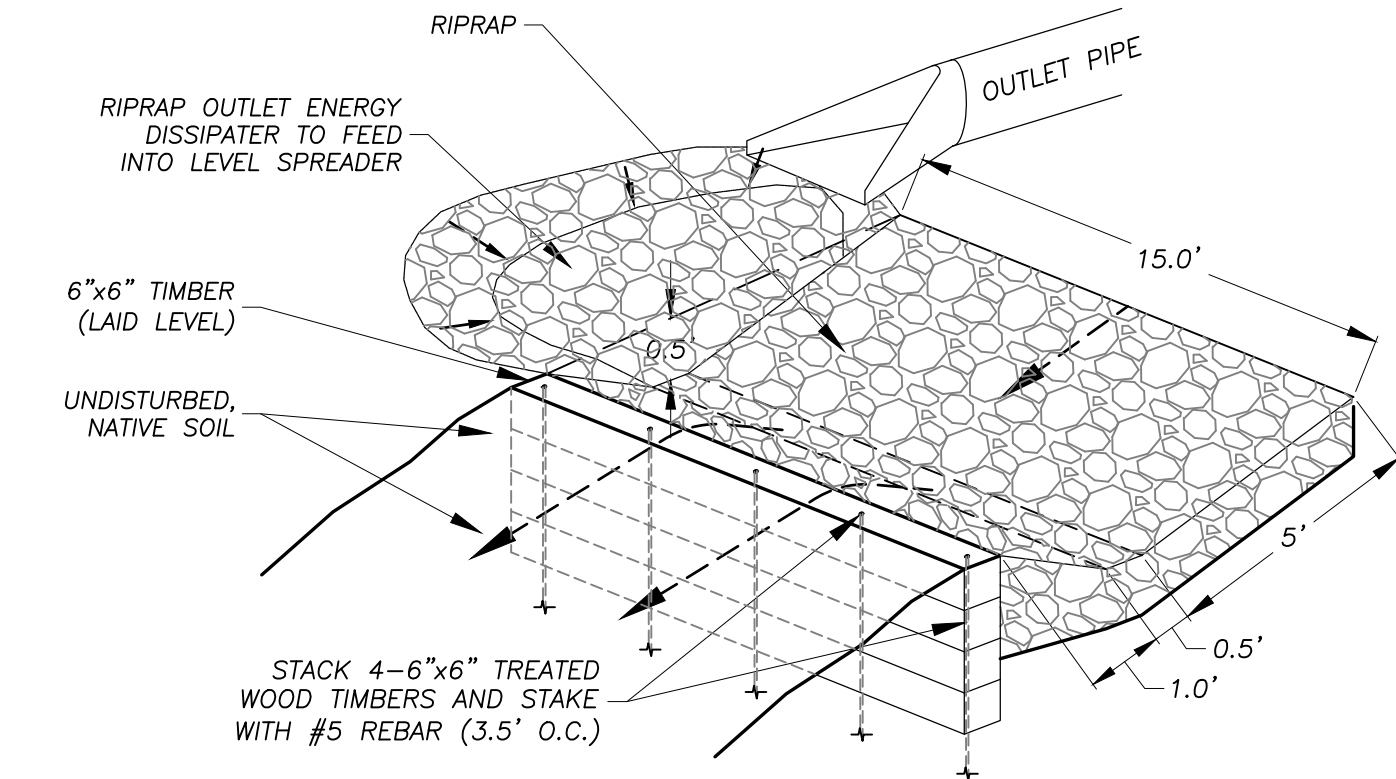
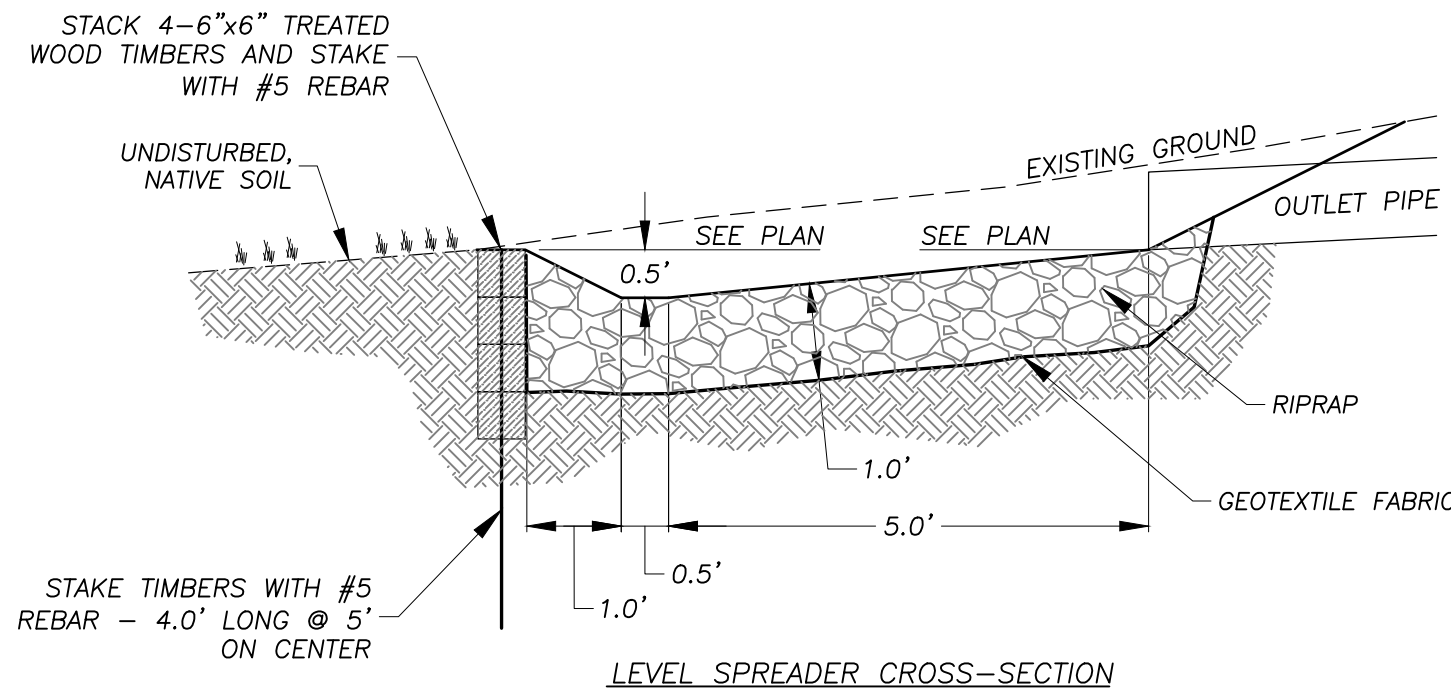


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UNDERDRAIN DETAIL

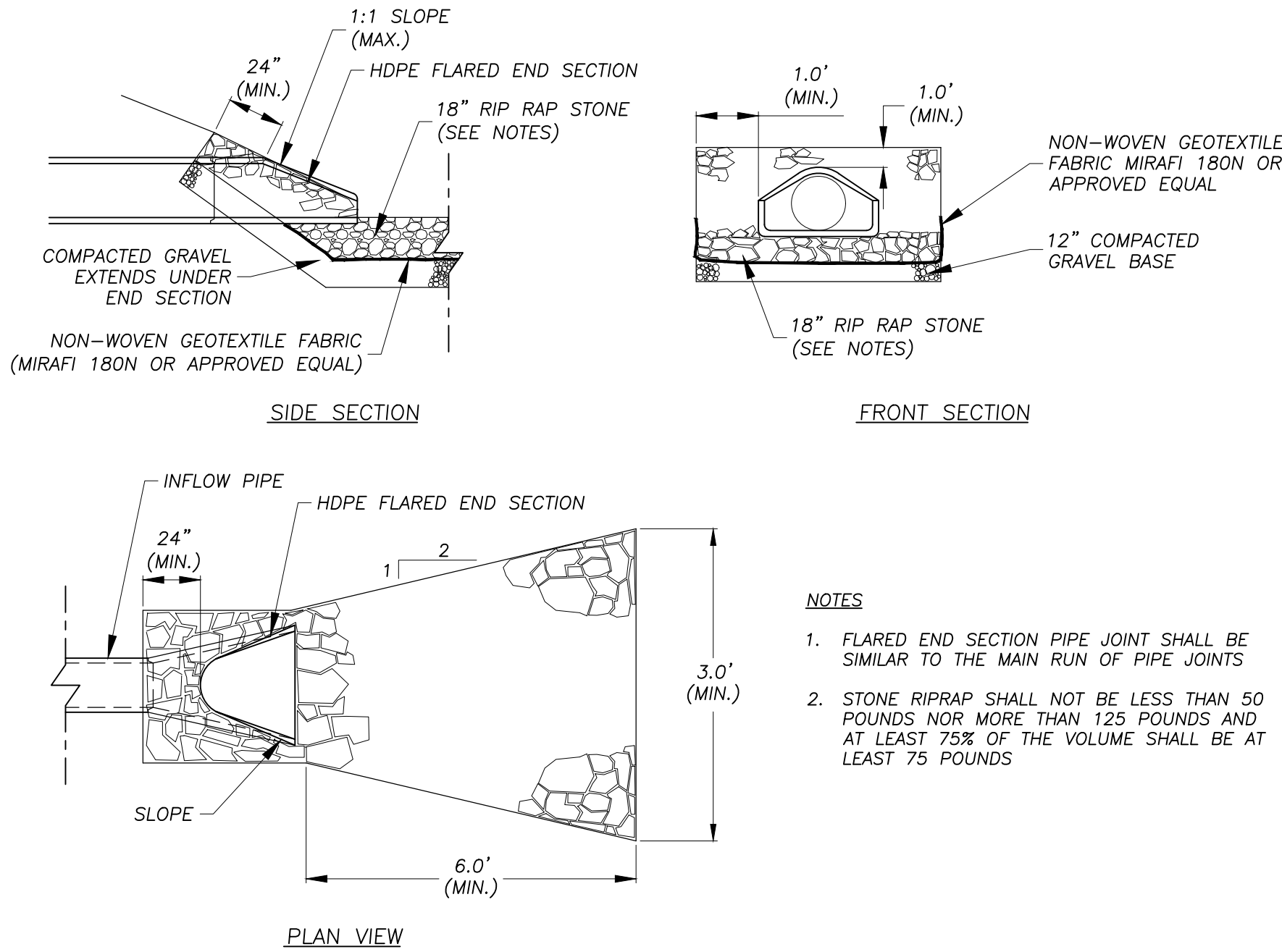
NO SCALE



- 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



STANDARD RIP RAP PIPE OUTLET

NO SCALE

PERMITTING  
NOT FOR CONSTRUCTION

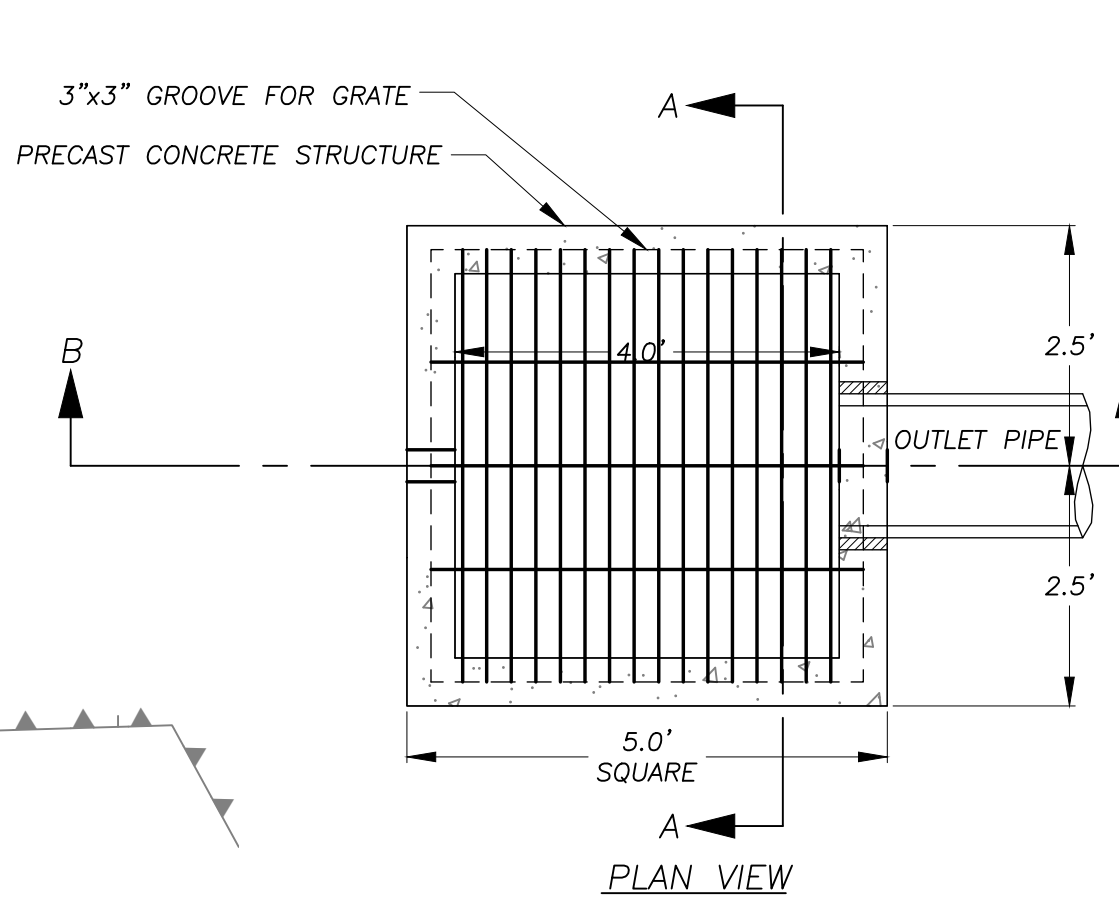
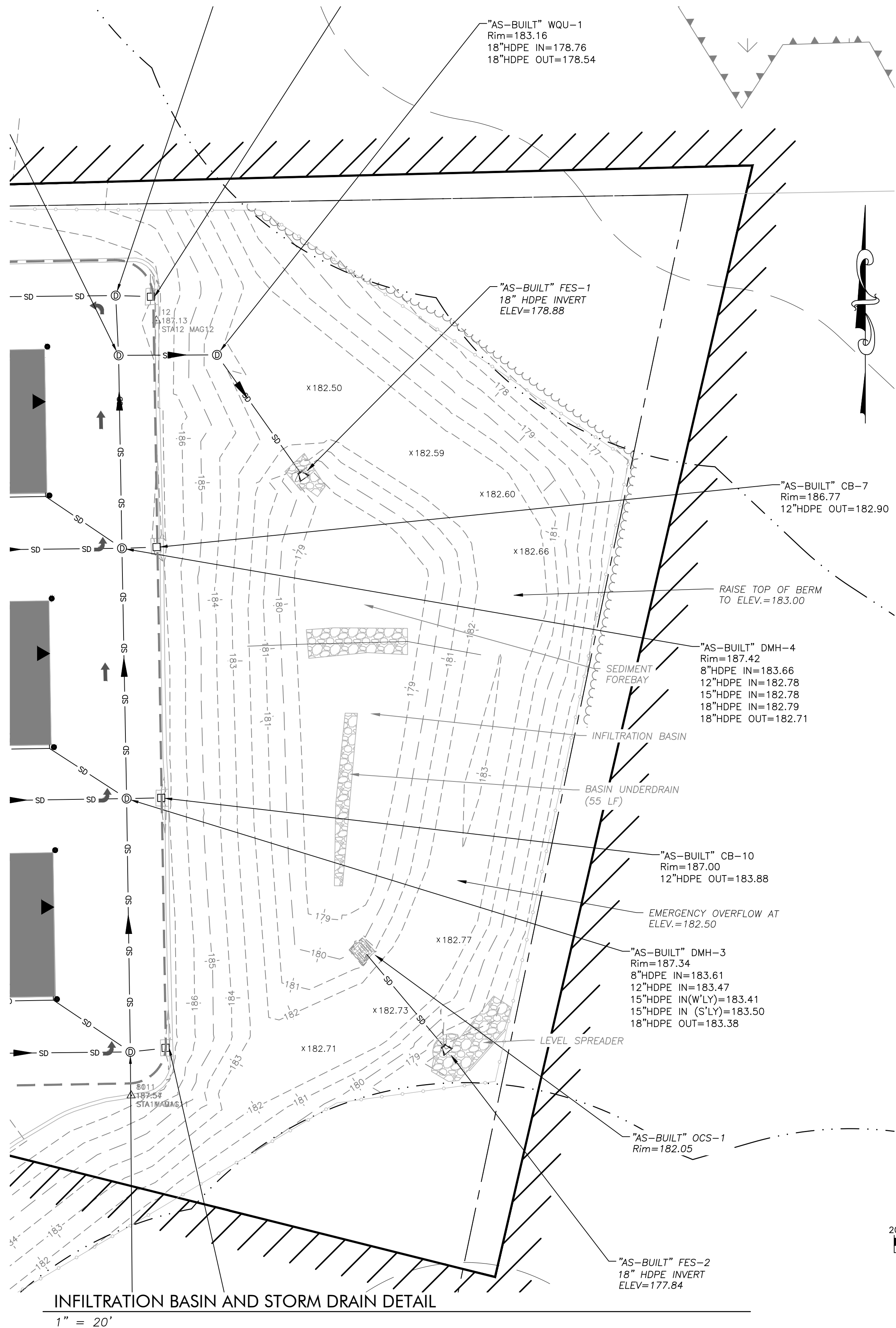
RLA  
R LEVESQUE  
ASSOCIATES INC.  
Landscape Architects  
Civil Engineers - Land Surveyors  
Environmental Consultants  
ph: 413.568.0985 fax: 413.568.0986  
40 School Street  
Westfield, MA 01085  
rlaland.com

DETAILS  
727 Silver Street  
Agawam, MA  
Parcel ID: G6-2-3

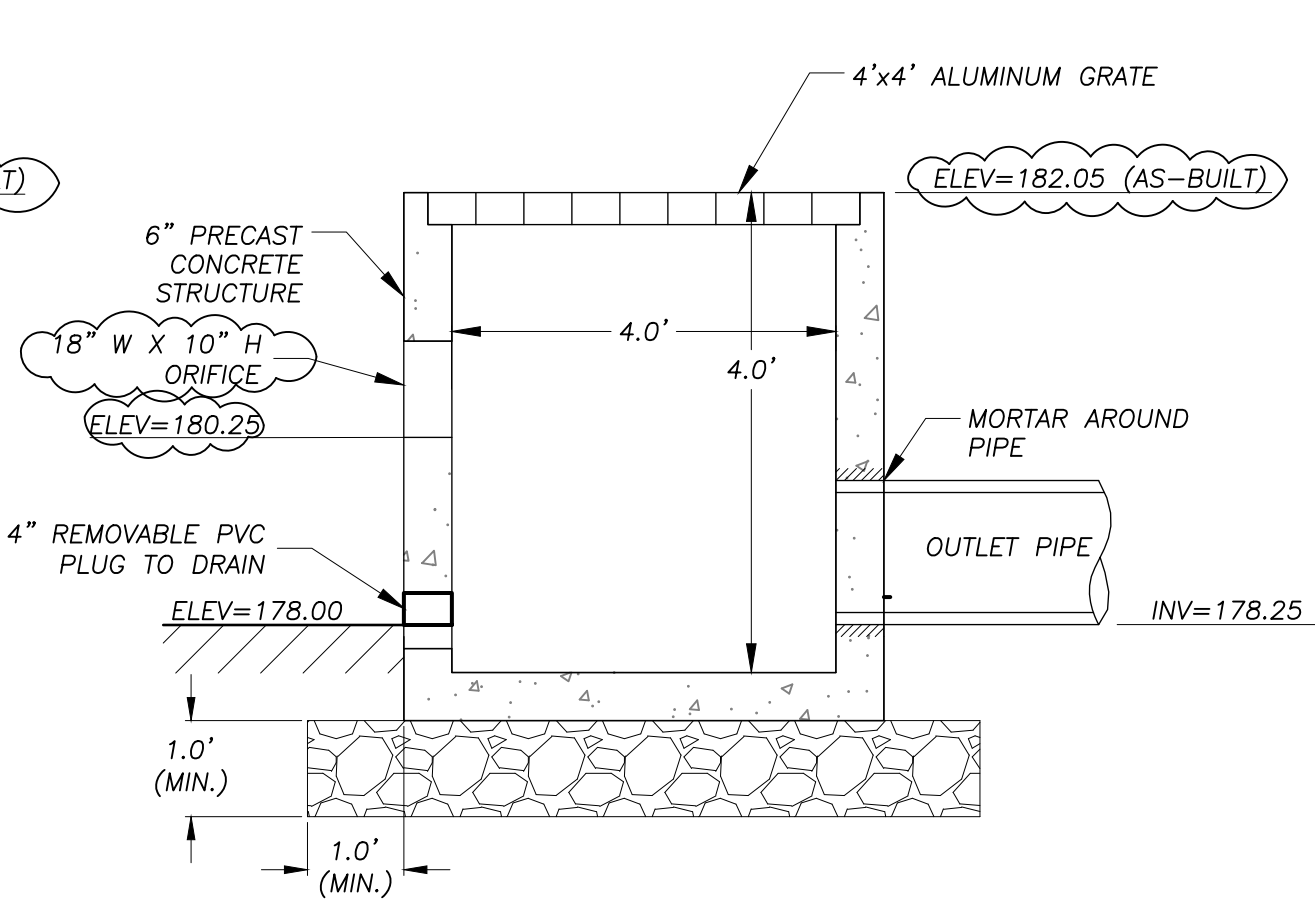
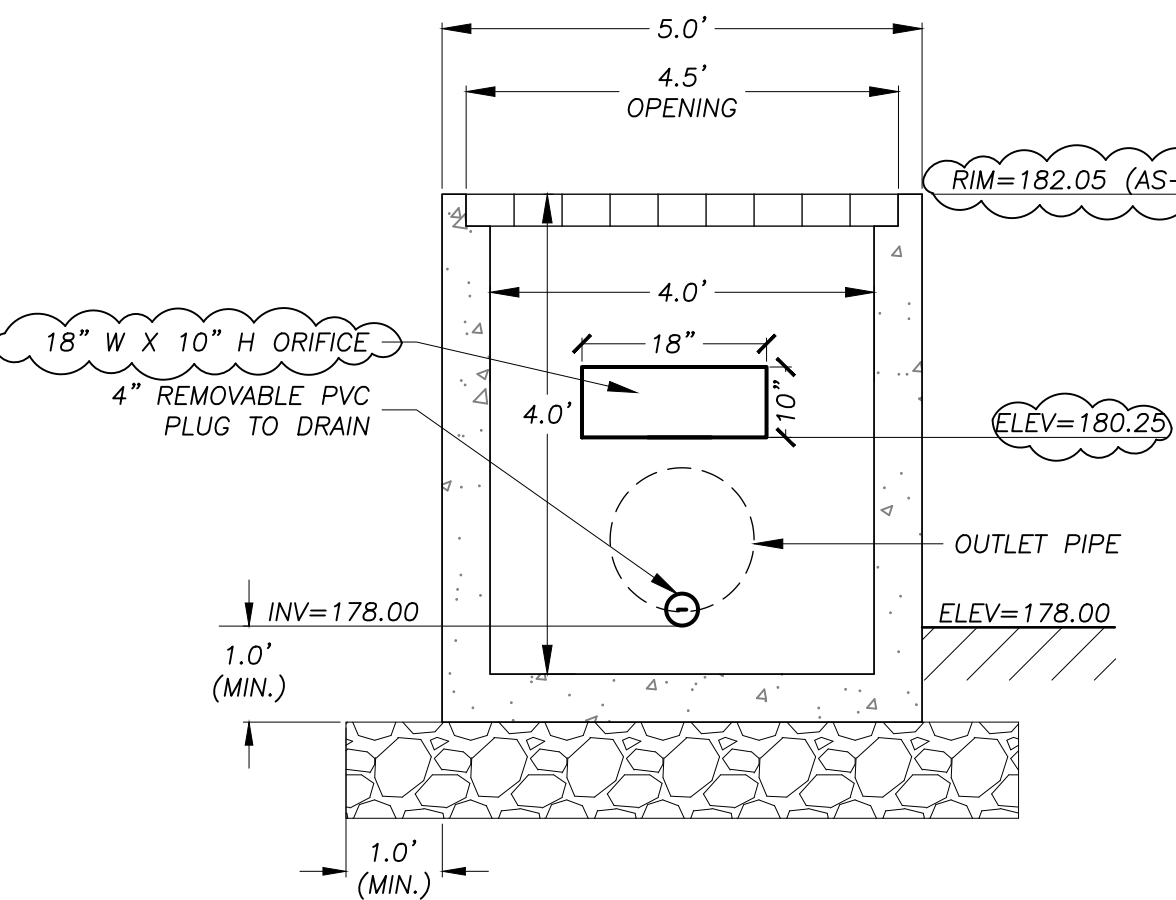
COMMONWEALTH OF MASSACHUSETTS  
FILIPE J. CRAVO  
CIVIL  
48376  
REGISTERED  
9/1/22  
PREPARED FOR:  
MSR Properties, LLC  
c/o Rick Mahan  
699 Silver Street  
Agawam MA. 01001

|                                                                                    |       |
|------------------------------------------------------------------------------------|-------|
| ISSUANCE DATE: September 1, 2022                                                   |       |
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|                                                                                    |       |
|                                                                                    |       |
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| D-3                                                                                | -     |





OUTLET CONTROL STRUCTURE (POCS-1)  
NO SCALE



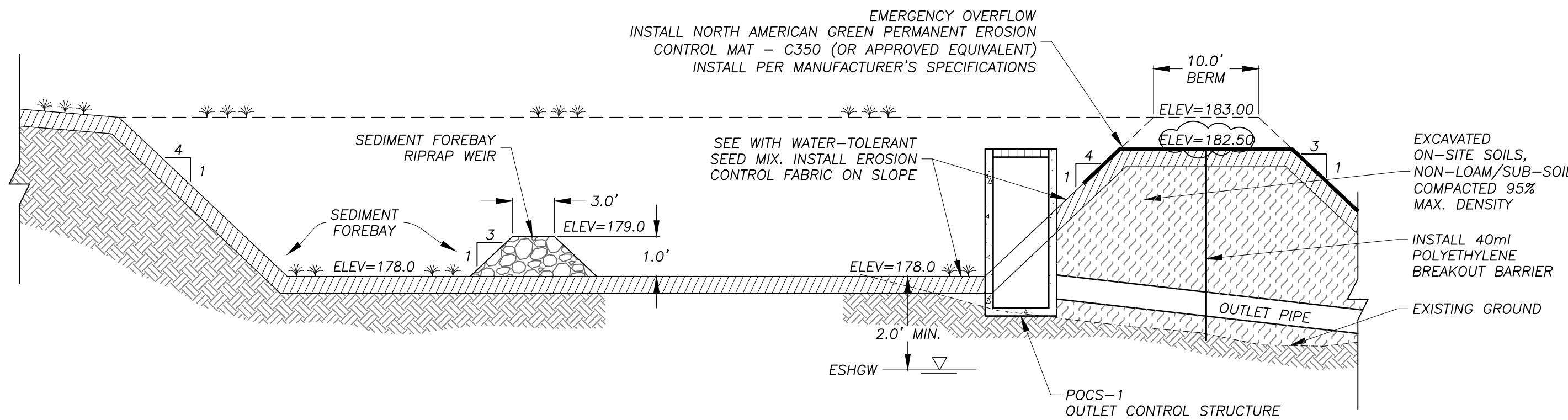
#### INFILTRATION BASIN NOTES

1. INFILTRATION BASIN BOTTOM TO BE LOCATED A MINIMUM OF 2.0' ABOVE ESTIMATED SEASONAL HIGH GROUNDWATER (ESHGW).
2. IMMEDIATELY AFTER CONSTRUCTING THE BASIN, STABILIZE THE BOTTOM AND SIDE SLOPES WITH WATER-TOLERANT FESCUE GRASS.
3. DURING BASIN EXCAVATION, USE NATIVE SOILS THAT WERE EXCAVATED FROM THE A OR B HORIZONS AND MIX WITH COMPOST, PROPERLY AGED TO KILL ANY SEED STOCK. SCARIFY THE NATIVE MATERIALS AND USE THE COMPOST MATERIAL TO SHAPE THE BASIN. MIX INTO THE PARENT MATERIAL TO A DEPTH OF 12 INCHES.
4. DO NOT DISCHARGE SEDIMENT-LADEN WATERS FROM CONSTRUCTION ACTIVITIES (RUNOFF, WATER FROM EXCAVATIONS, ETC.) TO THE INFILTRATION BASIN AREAS DURING ANY STAGE OF CONSTRUCTION.
5. DO NOT TRAFFIC EXPOSED SOIL SURFACE WITH HEAVY CONSTRUCTION EQUIPMENT. PERFORM EXCAVATIONS WITH LIGHT EARTH-MOVING EQUIPMENT POSITIONED OUTSIDE THE LIMITS OF THE INFILTRATION COMPONENTS OF THE SYSTEM IF FEASIBLE.
6. IF INFILTRATION BASIN AREAS ARE EXPOSED DURING CONSTRUCTION AND DO RECEIVE SEDIMENT DEPOSITS, BASIN BOTTOM MUST BE OVER EXCAVATED 6-8" INTO NATIVE MATERIAL TO REMOVE SEDIMENT DEPOSITS.
7. ALL DRAINAGE AREAS TO AN INFILTRATION BASIN FACILITY ARE TO BE STABILIZED PRIOR TO INSTALLATION OF TOPSOIL/COMPOST MIX AND SEED MIX.
8. INFILTRATION BASIN BOTTOMS AND EMBANKMENTS TO BE SEEDED AS NOTED ON PLANS. NO TREES OR SHRUBS TO BE PLANTED WITHIN INFILTRATION BASINS OR EMBANKMENTS. DO NOT USE SOD.

#### SURFACE INFILTRATION BASIN CONSTRUCTION NOTE

THE ENGINEER SHALL INSPECT THE CONSTRUCTION OF THE BASIN AT THE MILESTONES LISTED BELOW. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST 24 HOURS PRIOR TO BEGINNING CONSTRUCTION ON THE FOLLOWING:

1. COMPLETION OF EXCAVATION FOR THE INFILTRATION BASIN AREA TO SUBGRADE.
2. AFTER SPREADING OF WATER-TOLERANT, FESCUE GRASS.



SECTION THROUGH SURFACE INFILTRATION BASIN  
NO SCALE

RLA

R LEVESQUE  
ASSOCIATES INC.

Landscape Architects  
Civil Engineers - Land Surveyors  
Environmental Consultants

ph: 413.568.0985 fax: 413.568.0986

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Westfield, MA 01085

rlaland.com

#### DETAILS

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Parcel IDs: G6-2-3, G6-2-2 & G6-2-12



PREPARED FOR:

Agawam Self Storage, LLC  
c/o Rick Mahan

727 Silver Street  
Agawam, MA

ISSUANCE DATE: September 1, 2022

REVISIONS: DATE:

A. Outlet control structure edits 6/17/2025

B. Outlet control structure edits 7/24/2025

DRAFTED BY: C.M. & R.E.L.

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DRAWING# REV.

D-4

B



# **Town of Agawam**

## ***Building Department***

1000 Suffield Street, Agawam, Massachusetts 01001

Telephone - (413) 821-0632

Kevin Duquette

*Inspector of Buildings*  
inspections@agawam.ma.us

July 31, 2025

To: Office of Planning and Community Development:

Re: Amended Site Plan Review Comments –727 Silver Street- Agawam Self Storage Center;

The Building Department has no specific zoning issues or concerns for the amendment request for the property referenced above.

The following would need to be addressed for site plan review criteria;

- A Form-A (ANR) would be required to expand the parcel for the proposed project.

Respectfully,

*Kevin Duquette*

Kevin Duquette  
Inspector of Buildings  
Town of Agawam



# Stormwater Drainage Report

## Proposed Self-Storage Facility

727 Silver Street & Portions of 699 & 711 Silver Street  
Agawam, Massachusetts  
(Parcels: G6-2-2, G6-2-3 & G6-2-12)

### Applicant:

Agawam Self Storage Center, LLC  
c/o Mr. Richard Mahan  
699 Silver Street  
Agawam, Massachusetts 01001



### Property Owner(s):

727 Silver Street  
Agawam Self Storage Center, LLC  
c/o Mr. Richard Mahan  
699 Silver Street  
Agawam, Massachusetts 01001  
01001

711 Silver Street  
711 Silver, LLC  
c/o Mr. Richard Mahan  
699 Silver Street  
Agawam, Massachusetts 01001

699 Silver Street  
MSR Properties, LLC  
c/o Mr. Richard Mahan  
699 Silver Street  
Agawam, Massachusetts

RLA Project File: 220522

**September 1, 2022**

**Revised: July 24, 2025**

## 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](http://www.rlaland.com)







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## I. INTRODUCTION

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The purpose of this report is to present information regarding the technical aspects of the stormwater management system for the proposed project. All work is intended to be in full compliance with Agawam Stormwater Management Ordinance as well as the Massachusetts Department of Environmental Protection Stormwater Management Handbook. The stormwater management system includes best management practices (BMPs) to meet the requirements.

The applicant, Agawam Self Storage Center, LLC, is proposing to construct a self-storage facility located at 727 Silver Street in Agawam, Massachusetts. The proposed project resides on existing parcel identified by the Agawam Assessor's office as parcel G6-2-3. The western portion of the site currently has a single-family residential building, associated paved driveway and fence. The remainder of the property is mainly utilized as a gravel contractors yard. The entirety of the project site has been historically developed and cleared of mature vegetation. Currently, there are no stormwater best management practices located on the project site. The topography of the site is such that the high point is at the location of the residential building on the western side of the site. Runoff from the eastern side of the residential building is tributary via sheet flow to various off-site and on-site bordering vegetated wetlands along the eastern side of the site. Runoff from the western side of the residential building is tributary to Silver Street.

The proposed project involves the following:

1. Demolition of the existing site improvements including the residential building, fence and surface covers;
2. Construction of eight (8) buildings to house storage units and office space;
3. Construction of associated site improvements including access drives and landscaping;
4. Installation of underground utilities including water, sanitary sewer, and electric and telecommunication services;
5. Construction of a stormwater management system including proprietary sedimentation devices, surface infiltration basin with sediment forebay, and level spreader.

The new drainage infrastructure has been designed utilizing the Agawam Stormwater Management Ordinance as well as the Massachusetts Department of Environmental Protection Stormwater Management Handbook. The proposed development will generally maintain the existing drainage patterns of the site and direct treated stormwater toward the same bordering vegetated wetlands as in pre-development conditions. Additionally, a new catch basin has been proposed to collect runoff before entering onto Silver Street.

## 2. SITE DESCRIPTION

---

### 2.1 Predevelopment Conditions

The property to be developed is located at 727 Silver Street and listed as parcel G6-2-3 by the Town of Agawam's GIS database. The locus parcel is zoned Industrial B (IB) as referenced from the Town of Agawam's zoning map. The property is bounded to the north by a Real Estate Firm, to the South by a residential property, to the west by Silver Street and to the east by vacant land. The total parcel area is approximately 4.83 acres in size. Figure 1 – USGS Map illustrates the location of the project.

The majority of the site has been historically developed with various site improvements including a single-family residence, paved access drive, fence, and gravel lot. There are on-site and off-site bordering vegetated wetlands to the east of the project site. In general, the topography of the site can be described as gradually sloped. Within the site, terrain is highest towards the western side of the parcel at 192 feet and drops down to 178 feet east of the high point and 191 feet west of the high point. The average grade varies from 2% to 4%. Please refer to the existing conditions plan submitted herewith for more detailed topographical information.

### 2.2 Resource Areas

Portions of the parcel are located within jurisdictional buffer zone areas associated with on-site and off-site bordering vegetated wetlands. While portions of the parcel are located within the jurisdictional buffer zone of the bordering vegetated wetlands, all proposed site improvements are located outside of these areas.

#### 2.2.1 Floodplain

R. Levesque Associates, Inc. performed due diligence research on the property in regard to FEMA flood zone mapping. As demonstrated by the most recent FEMA Flood Insurance Rate Maps, the property is not located within any flood hazard areas as defined by the most recent FEMA Flood Insurance Rate Maps, see Figure 2 – FEMA FIRM Map.

#### 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. Portions of the property are located within areas delineated by NHESP as priority habitats of endangered species, see Figure 3 – NHESP & Zone II Map. Please refer to the application sent to NHESP for additional information.



### 2.2.3 Aquifer Protection District

R. Levesque Associates, Inc. performed due diligence research on the property in regard to wellhead protection overlay districts. 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 available from the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS). Based on a review of the USDA Soil Survey of Hampshire County, Massachusetts, 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                        | 254A            | A                     |
| Merrimac fine sandy loam                        | 254B            | A                     |
| Merrimac fine sandy loam                        | 254C            | A                     |

A series of test pits were conducted by Ryan Nelson, P.E. SE#14394 to evaluate the ability of the site to support the stormwater drainage system components. A total of nine (9) test holes were dug on the property in the vicinity of the proposed storage building and infiltration basin area. The test pits showed evidence of groundwater at depths ranging from 50-inches to 100-inches. See Appendix B for the United States Department of Agriculture Natural Resources Conservation Service Soil Resource Report (NRCS) and Soil Evaluation log sheets. In general, the soil evaluations confirmed the NRCS mapping.

## 2.4 Post Development Conditions

The proposed site improvements include a number of stormwater management features to properly meet the requirements set forth by the Town of Agawam Stormwater Management Ordinance as well as the Massachusetts Department of Environmental Protection Stormwater Management Handbook. The proposed stormwater features include:

- Deep-Sump Catch Basins;
- Proprietary sedimentation device;
- Surface Infiltration Basin with Sediment Forebay;

- Level Spreader

The developer is proposing to construct a new self-storage facility on the site. Based on the existing topography, the finished grades of the storage buildings range from approximately elevation 192 feet to about 188. The proposed self-storage facility includes the construction of eight (8) new buildings. The buildings will house storage units, office space and the associated site improvements including paved access drives, parking and a stormwater management system. Utilities to provide services for the new buildings will be brought on site via Silver Street. Storage Building #1 will receive electric services, water, and sanitary sewer services while the remaining storage buildings will receive electric service for lighting purposes.

The proposed stormwater management system has been designed to mimic the existing drainage patterns of the site and maintain discharge in the same general manner as existing conditions. Under the proposed conditions, the site has been carefully regraded such that the stormwater that is generated from on-site impervious area is directed towards stormwater BMP's. Stormwater generated from paved areas will be collected in deep-sump hooded catch basins located at intermittent and low points throughout the site. After collection, the stormwater will be conveyed via underground infrastructure to the proprietary sedimentation device prior to discharge to the surface infiltration basin with a sediment forebay located at the eastern side of the site. The surface infiltration basin was designed such that the runoff can be infiltrated to provide groundwater recharge as well as provide peak rate attenuation. The basin will be equipped with an outlet control structure which will allow discharge of runoff at the higher storm events.

The proposed site improvements will maintain the general drainage patterns of the site by discharging runoff to the same design points in post-development as pre-development conditions. Each component of the proposed stormwater management systems has been designed to meet the standards set forth by the Town of Agawam Stormwater Management Ordinance as well as the Massachusetts Department of Environmental Protection Stormwater Management Handbook.

### 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 Town of Agawam Stormwater Management Permit requirements and 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, see Appendix C – Pre- and Post-Development Hydrologic Analysis. The proposed stormwater management system will collect runoff from on-site impervious areas and utilize stormwater best management practices to provide water quality treatment, groundwater recharge, and peak discharge rate attenuation.

#### 3.1 Drainage Calculations

R. Levesque Associates, Inc. utilized the HydroCAD software program, Version 10.10-7b, developed by HydroCAD Software Solutions LLC, in order to create and analyze the 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.

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 provided by the United States Department of Commerce Technical Paper No. 40 – Rainfall Frequency Atlas of the United States. The 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 |
| 3.00 inches                     | 4.60 inches            | 6.50 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. Three 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 Silver Street): This design point represents runoff from the property which is tributary to Silver Street;
- DP-2 (Offsite to Wetlands South): This design point represents runoff from the property which is tributary to the existing bordering vegetated wetlands southeast of the site;
- DP-3 (Offsite to Wetlands North): This design point represents runoff from the property which is tributary to the existing bordering vegetated wetlands northeast of the site;

### 3.1.2 Pre-Development Hydrology

The project area under existing conditions was broken down into three (3) sub-catchments discharging to the three design points as described above. The sub-catchments were delineated based on the existing topography of the parcel and surrounding areas. The existing watershed areas are shown on the attached Figure 4 entitled "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 broken down into four (4) sub-catchments discharging to the same design points as the existing conditions. The proposed watershed areas are shown on the attached Figure 5 entitled "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                                             | 0.1                | 0.1   | 0.2                 | 0.1   | 0.4                  | 0.1   |
| Design Point 2                                             | 8.9                | 4.4   | 14.1                | 6.8   | 20.1                 | 12.1  |
| Design Point 3                                             | 2.8                | 0.0   | 4.4                 | 0.0   | 6.3                  | 0.1   |

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 onsite attenuation with the proposed surface infiltration basin.

### 3.2 Hydraulic Analysis

R. Levesque Associates, Inc. utilized the Hydraflow Storm Sewer Extension for AutoCAD Civil 3D 2020 software program, Version 9, 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, 10-year storm event. The data from the analysis was used to properly size the conveyance piping such that there is no or minimal surcharge of stormwater above the rim elevations within the paved areas. As part of the input parameters required for the hydraulic analysis, the tributary inlet areas were delineated based on topography, any additional connected discharges, characteristic land use coverages and flow paths, see Figure 6 – Inlet Area Plan. A minimum Time of Concentration (Tc) of (6) minutes was used in the calculations. 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, that 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 stormwater management system has been designed to provide best management practices 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 or equal to 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.*

The proposed surface infiltration basin has been designed with the capacity to infiltrate the required recharge volume. See Appendix E for the Required Recharge Volume Calculations..

- *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 proposed stormwater management system has been designed to provide the required total suspended solids pre-treatment prior to discharge to the surface infiltration basin. The treatment train for the infiltration basin include a proprietary sedimentation device and sediment forebay, in addition to the infiltration basin. 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 proprietary sedimentation devices and surface infiltration basins with sediment forebays. All of the BMPs were designed to meet the requirements of the MassDEP Handbook and will provide water quality treatment, groundwater recharge, 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 Proprietary Sedimentation Devices

Proprietary sedimentation devices are being utilized on site for the pretreatment of stormwater runoff prior to conveyance to the surface infiltration basins. The stormwater management system is utilizing the proprietary treatment devices in order to ensure that the required water quality treatment is being performed prior to discharge to down gradient infrastructure.

#### 3.4.2 Surface Infiltration Basin with Sediment Forebay

Infiltration basin accompanied by a sediment forebay are well suited to meet the water quality and water quantity requirements from watershed areas such as those associated with this project.

An infiltration basin with associated sediment forebay mitigates the impact of the proposed site improvements by attenuating the peak discharge rates and retaining the stormwater volume over a period of time. The proposed infiltration basin has been designed to mimic the existing drainage patterns of the site. An outlet control structure will be installed in the basin so the discharge is similar to pre-development conditions upon completion of the proposed site improvements.

### **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 J.



#### 4. CONCLUSION

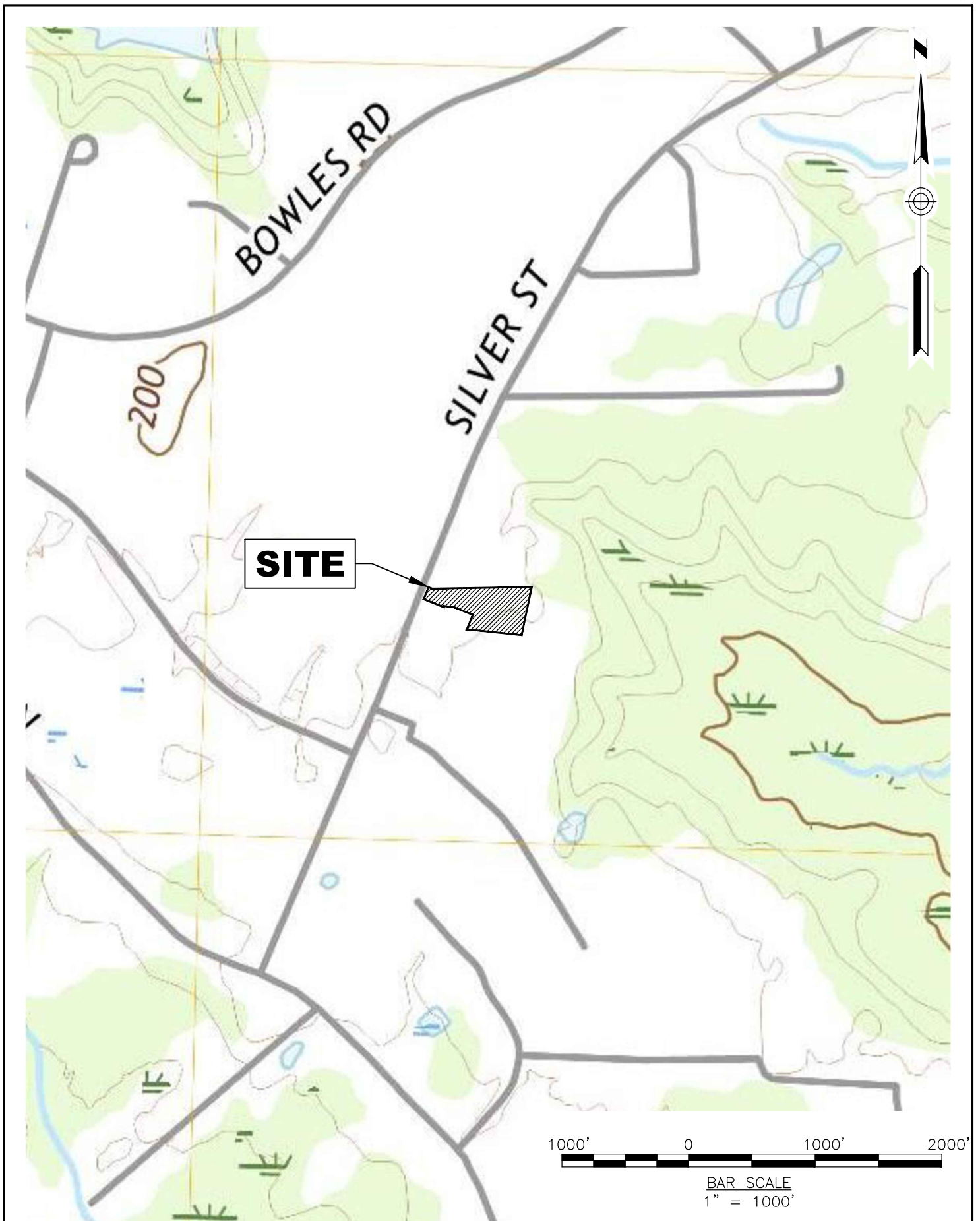
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The proposed stormwater management system has been designed to mitigate the impacts of the proposed site improvements by providing a control for runoff water quality and water quantity. Implementation of stormwater best management practices such as a proprietary sedimentation device and a surface infiltration basin with sediment forebay allow for a stormwater drainage design that is in conformance with the criteria set forth in the Town of Agawam Stormwater Management Ordinance as well as the Massachusetts Department of Environmental Protection Stormwater Management Handbook.

## Figure 1: Site Locus – USGS Map







|                                                                                    |                                                                                                       |
|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
|  | <b>R LEVESQUE ASSOCIATES, INC</b><br>A Land Planning Services Company                                 |
|                                                                                    | 40 School Street · P.O. Box 640 · Westfield, MA 01086<br>ph: 413.568.0985 fax: 413.568.0986 rland.com |
|                                                                                    |                                                                                                       |

SITE LOCUS  
USGS MAP

|                                                                       |
|-----------------------------------------------------------------------|
| Mr. Rick Mahan<br>699 Silver St.<br>Agawam, MA. 01001                 |
| Proposed Self-Storage Facility<br>727 Silver St.<br>Agawam, MA. 01001 |

|                                                        |              |
|--------------------------------------------------------|--------------|
| JOB NO: 2200522<br>DATE: 07/11/2022<br>SCALE: AS NOTED | <b>FIG-1</b> |
|--------------------------------------------------------|--------------|



## Figure 2: FEMA Flood Map







|                                                                                     |                                                                                                       |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
|  | <b>R LEVESQUE ASSOCIATES, INC</b>                                                                     |
|                                                                                     | <b>A Land Planning Services Company</b>                                                               |
|                                                                                     | 40 School Street · P.O. Box 640 · Westfield, MA 01086<br>ph: 413.568.0985 fax: 413.568.0986 rland.com |

FEMA  
FLOOD MAP

|                                                                       |
|-----------------------------------------------------------------------|
| Mr. Rick Mahan<br>699 Silver St.<br>Agawam, MA. 01001                 |
| Proposed Self-Storage Facility<br>727 Silver St.<br>Agawam, MA. 01001 |

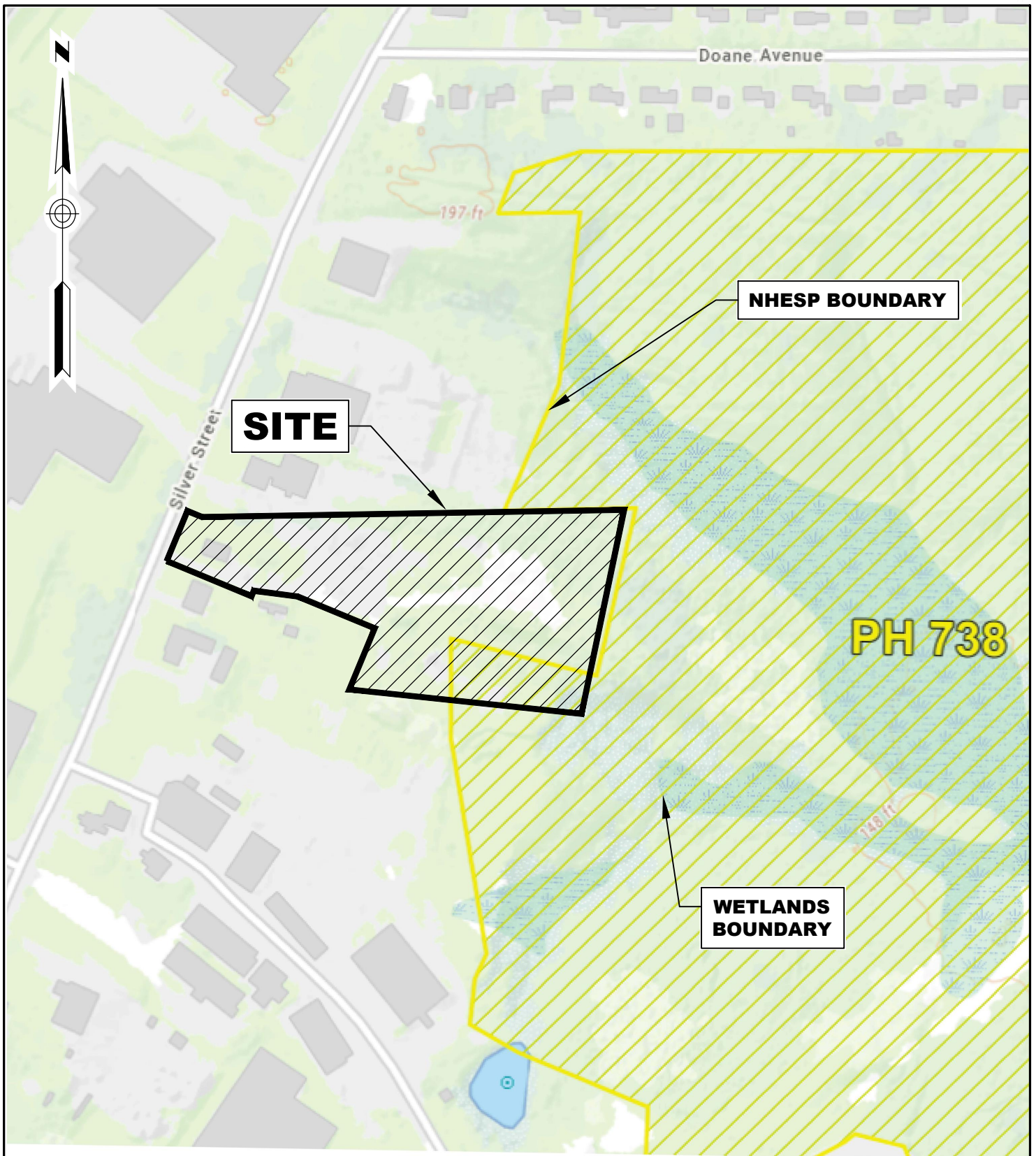
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|--------------------------------------------------------|
| JOB NO: 2200522<br>DATE: 07/11/2022<br>SCALE: AS NOTED |
| <b>FIG-2</b>                                           |



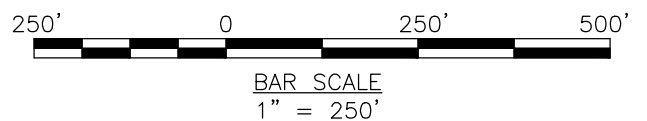
### Figure 3: NHESP and Zone II Map







\* NHESP and Zone II boundaries referenced from current MassGIS data.



**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 rland.com

NHESP &  
Zone II Map

Mr. Rick Mahan  
699 Silver St.  
Agawam, MA. 01001

Proposed Self-Storage Facility  
727 Silver St.  
Agawam, MA. 01001

JOB NO: 2200522  
DATE: 07/11/2022  
SCALE: AS NOTED

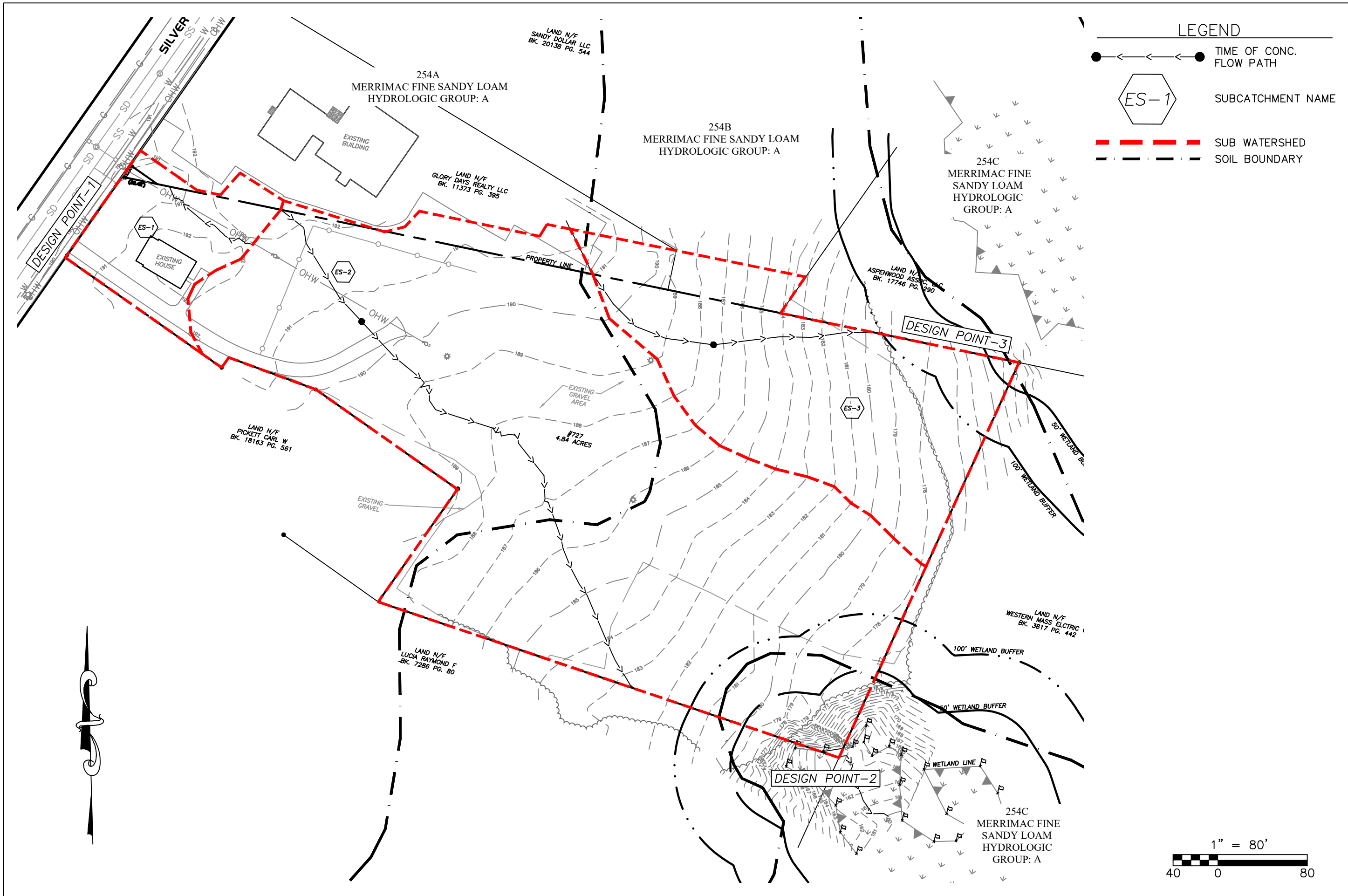
**FIG-3**



## Figure 4: Pre-Development Watershed Plan







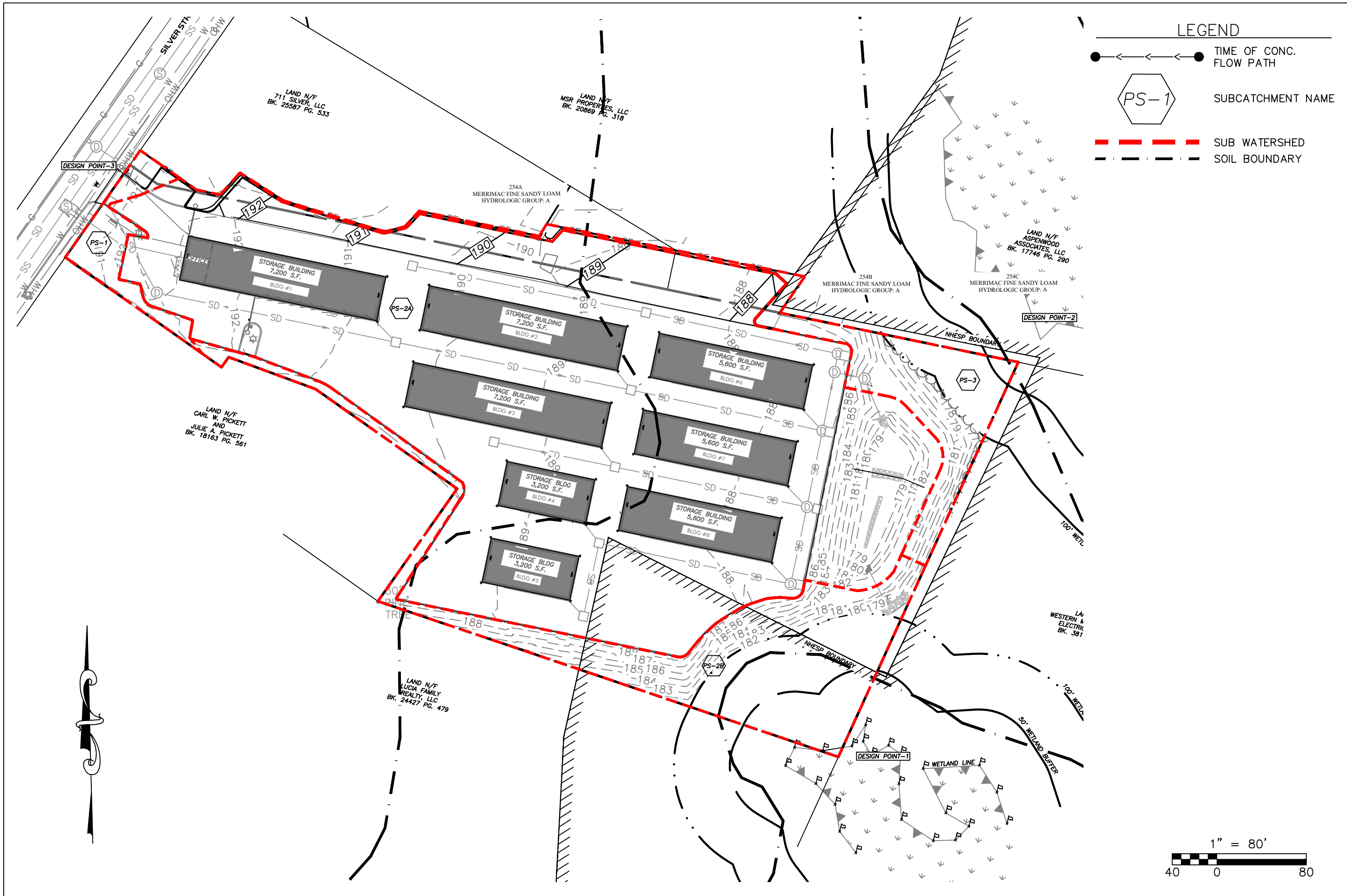
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| <b>R LEVESQUE ASSOCIATES, INC</b><br>A Land Planning Services Company<br>40 School Street · P.O. Box 640 · Westfield, MA 01086<br>ph: 413.568.0985 fax: 413.568.0986 rland.com |                                                         |
| <b>Pre-Development Watershed Plan</b>                                                                                                                                          |                                                         |
| Proposed Self-Storage Facility<br>727 Silver Street<br>Agawam, MA 01001                                                                                                        | Mr. Rick Mahan<br>699 Silver Street<br>Agawam, MA 01001 |
| JOB NO.: 220522                                                                                                                                                                |                                                         |
| DATE: 7/24/2025                                                                                                                                                                |                                                         |
| SCALE: As Noted                                                                                                                                                                |                                                         |
| <b>FIG-4</b>                                                                                                                                                                   |                                                         |



## Figure 5: Post-Development Watershed Plan





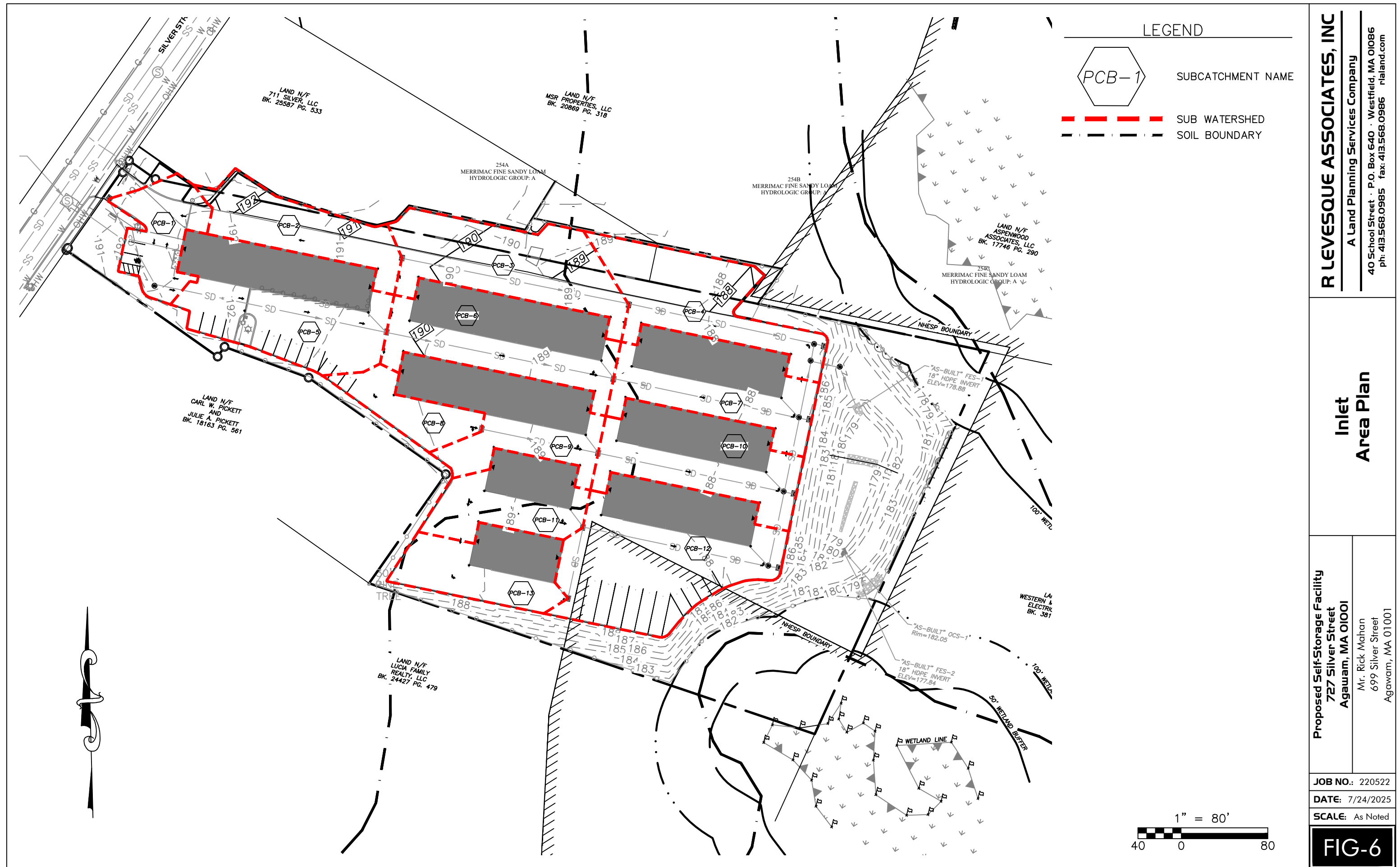


|                                                                                                                                                                                |                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| <b>R LEVESQUE ASSOCIATES, INC</b><br>A Land Planning Services Company<br>40 School Street · P.O. Box 640 · Westfield, MA 01086<br>ph: 413.568.0985 fax: 413.568.0986 rland.com |                                                         |
| <b>Post-Development Watershed Plan</b>                                                                                                                                         |                                                         |
| <b>Proposed Self-Storage Facility</b><br>727 Silver Street<br>Agawam, MA 01001                                                                                                 | Mr. Rick Mahan<br>699 Silver Street<br>Agawam, MA 01001 |
| JOB NO.: 220522                                                                                                                                                                |                                                         |
| DATE: 7/24/2025                                                                                                                                                                |                                                         |
| SCALE: As Noted                                                                                                                                                                |                                                         |
| <b>FIG-5</b>                                                                                                                                                                   |                                                         |



## Figure 6: Inlet Area Plan









## Appendix A: Checklist for Stormwater Report





# 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.<sup>1</sup> 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<sup>2</sup>
- 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.

<sup>1</sup> 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.

<sup>2</sup> 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.

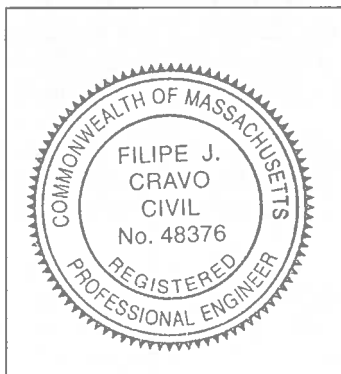
*Note:* Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that 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



Signature and Date

*Filipe J. Cravo* 7/24/25

### 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): Infiltration Basin, sediment forebay, and level spreader

### 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<sup>1</sup>
- ☒ 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.

---

<sup>1</sup> 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 Soils Report
- Soil Evaluation Logs





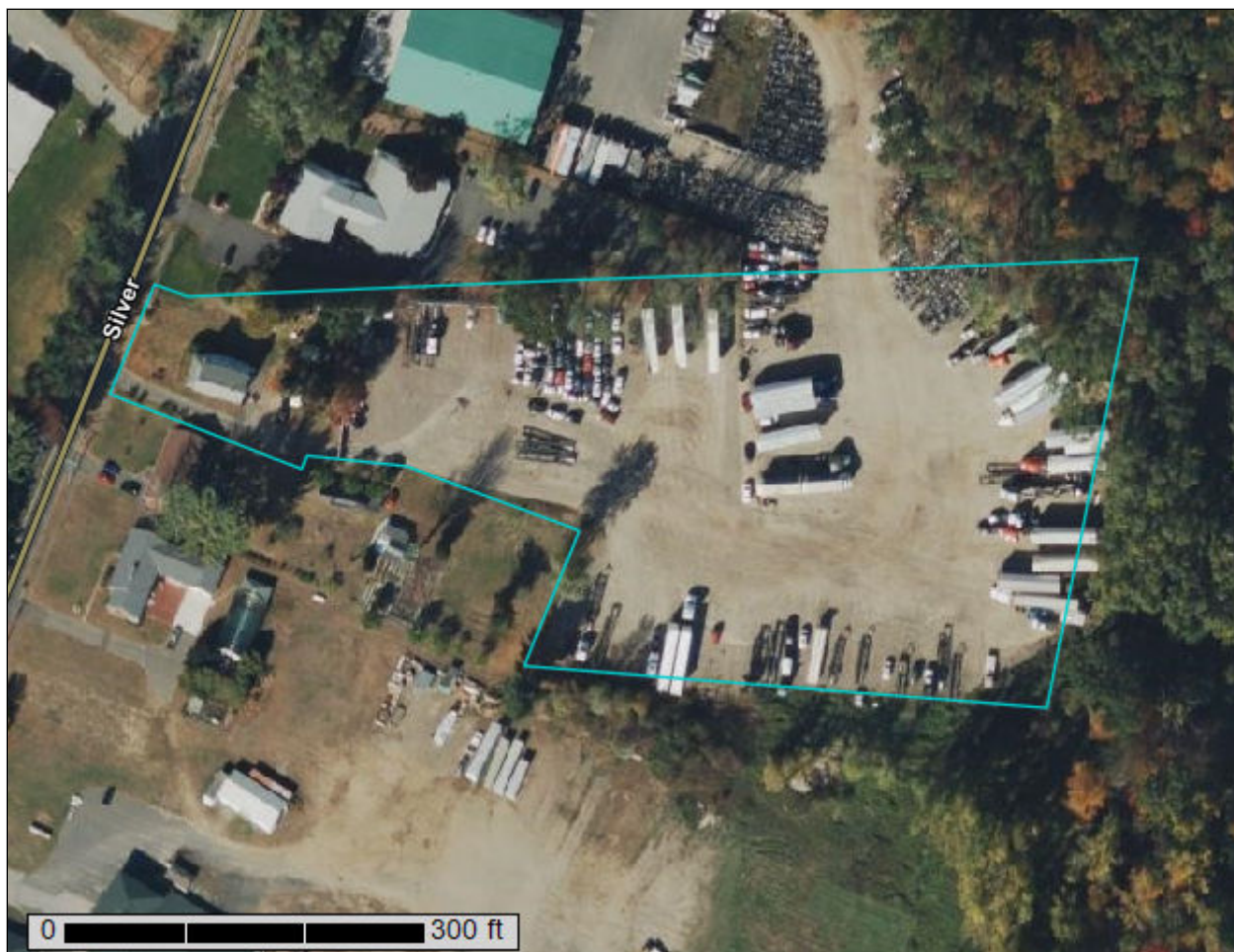
United States  
Department of  
Agriculture

**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**



# 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](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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# How Soil Surveys Are Made

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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

## Custom Soil Resource Report

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.



# Custom Soil Resource Report Soil Map



## 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 1:25,000.

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

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

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

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

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

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

Soil Survey Area: Hampden County, Massachusetts, Central Part  
Survey Area Data: Version 15, Sep 2, 2021

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 |
|------------------------------------|--------------------------------------------------|--------------|----------------|
| 254A                               | Merrimac fine sandy loam, 0 to 3 percent slopes  | 2.0          | 42.5%          |
| 254B                               | Merrimac fine sandy loam, 3 to 8 percent slopes  | 2.6          | 53.9%          |
| 254C                               | Merrimac fine sandy loam, 8 to 15 percent slopes | 0.2          | 3.6%           |
| <b>Totals for Area of Interest</b> |                                                  | <b>4.8</b>   | <b>100.0%</b>  |

## 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

### 254A—Merrimac fine sandy loam, 0 to 3 percent slopes

#### Map Unit Setting

*National map unit symbol:* 2tyqr  
*Elevation:* 0 to 1,100 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:* 85 percent  
*Minor components:* 15 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):* Backslope, footslope, summit, shoulder  
*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:* 0 to 3 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**

**Hinckley**

*Percent of map unit:* 5 percent

*Landform:* Deltas, kames, eskers, outwash plains

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Nose slope, side slope, crest, head slope, rise

*Down-slope shape:* Convex

*Across-slope shape:* Convex, linear

*Hydric soil rating:* No

**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

**Agawam**

*Percent of map unit:* 3 percent

*Landform:* Stream terraces, outwash terraces, outwash plains, moraines, eskers, kames

*Landform position (three-dimensional):* Rise

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Hydric soil rating:* No

**Windsor**

*Percent of map unit:* 2 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

**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:* 85 percent

*Minor components:* 15 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):* Backslope, footslope, summit, shoulder

*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

#### Hinckley

*Percent of map unit:* 5 percent

*Landform:* Deltas, kames, eskers, outwash plains

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Nose slope, side slope, crest, head slope, rise

*Down-slope shape:* Convex

*Across-slope shape:* Convex, linear

*Hydric soil rating:* No

**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

**Windsor**

*Percent of map unit:* 3 percent  
*Landform:* Outwash terraces, dunes, deltas, outwash plains  
*Landform position (two-dimensional):* Shoulder  
*Landform position (three-dimensional):* Tread, riser  
*Down-slope shape:* Linear, convex  
*Across-slope shape:* Linear, convex  
*Hydric soil rating:* No

**Agawam**

*Percent of map unit:* 2 percent  
*Landform:* Outwash plains, outwash terraces, moraines, stream terraces, eskers, kames  
*Landform position (three-dimensional):* Rise  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

**254C—Merrimac fine sandy loam, 8 to 15 percent slopes**

**Map Unit Setting**

*National map unit symbol:* 2tyqt  
*Elevation:* 0 to 1,030 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:* Farmland of statewide importance

**Map Unit Composition**

*Merrimac and similar soils:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Merrimac**

**Setting**

*Landform:* Eskers, outwash plains, moraines, kames, outwash terraces  
*Landform position (two-dimensional):* Backslope, footslope, summit, shoulder  
*Landform position (three-dimensional):* Side slope, crest, riser, tread  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex

## Custom Soil Resource Report

*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:* 8 to 15 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):* Nose slope, side slope, crest, head slope, rise  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex, linear  
*Hydric soil rating:* No

#### Windsor

*Percent of map unit:* 5 percent  
*Landform:* Outwash plains, dunes, deltas, outwash terraces  
*Landform position (two-dimensional):* Backslope

## Custom Soil Resource Report

*Landform position (three-dimensional):* Tread, riser  
*Down-slope shape:* Linear, convex  
*Across-slope shape:* Linear, convex  
*Hydric soil rating:* No

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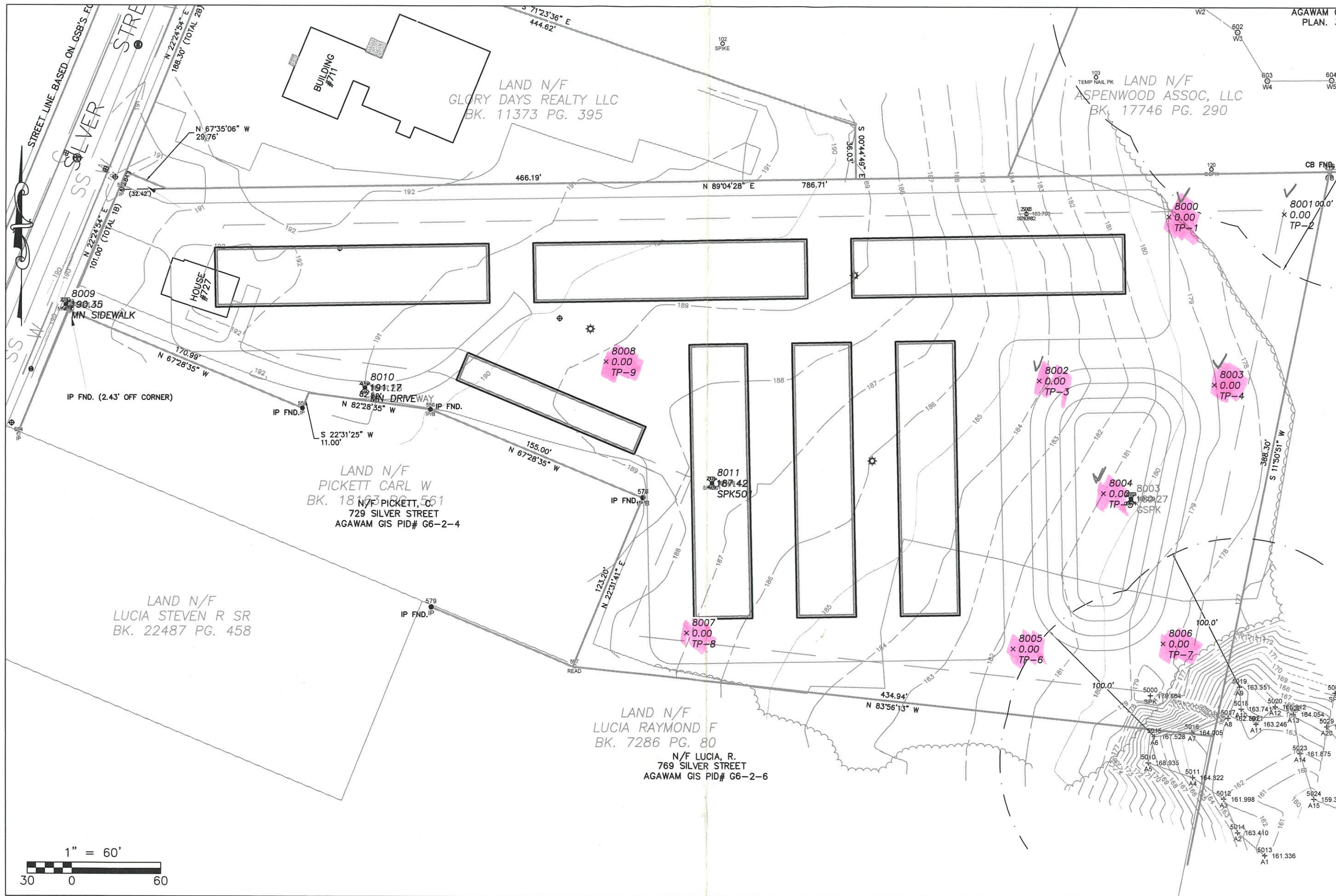


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|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| <b>R LEVESQUE ASSOCIATES, INC</b><br>Landscape Architects • Civil Engineers • Land Surveys • Environmental Consultants<br>40 School Street • P.O. Box 640 • Westfield, MA 01086<br>ph: 413.568.0985 fax: 413.568.0986 rlandand.com |            |
| <b>Construction Staking<br/>Test Pits</b>                                                                                                                                                                                          |            |
| Grayson Estates<br>727 Silver Street<br>Agawam, MA                                                                                                                                                                                 | Rick Mahan |
| JOB NO.: 220522                                                                                                                                                                                                                    |            |
| DATE: 05/27/22                                                                                                                                                                                                                     |            |
| SCALE: As noted                                                                                                                                                                                                                    |            |
| <b>CS-1</b>                                                                                                                                                                                                                        |            |





Commonwealth of Massachusetts  
City/Town of

Mahan-Silver St, 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 # 6-2-22 Date 10:10 AM Time 70°F Cloudy Weather 5 Longitude

1. Land Use Gravel Contractors yard Gravel Vegetation N/A Surface Stones (e.g., cobbles, stones, boulders, etc.) 5 Slope (%)

Description of Location:

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

3. Distances from: Open Water Body >100 feet Drainage Way >100 feet Wetlands >75 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: 66" Depth to Weeping in Hole 70" 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 |                |                          |       |
| 0-5        | Gravel              | -                   | -                                  | -                      | Cnc :<br>Dpl:                    | -       | 100                          | -                | M              | Single grain             |       |
| 5-13       | Fill                | Med sand            | 10YR 5/6                           | -                      | Cnc :<br>Dpl:                    | -       | -                            | -                | L              | SG                       |       |
| 13-18      | Ab                  | LS                  | 10YR 3/2                           | -                      | Cnc :<br>Dpl:                    | -       | -                            | -                |                |                          |       |
| 18-33      | Bw                  | LS                  | 10YR 5/8                           | -                      | Cnc :<br>Dpl:                    | -       | -                            | -                |                |                          |       |
| 33-80+     | C                   | fine sand           | 2.5Y 6/4                           | 54"                    | Cnc : 10YR 3/3<br>Dpl: 7.5YR 5/6 | 20%     | -                            | -                |                |                          |       |
|            |                     |                     |                                    |                        | Cnc :<br>Dpl:                    |         |                              |                  |                |                          |       |

Additional Notes:



Commonwealth of Massachusetts  
City/Town of

## 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 # 6-2-22 Date 11:00 AM Time 70°F Cloudy Weather 2-3 Longitude  
1. Land Use Woodland (e.g., woodland, agricultural field, vacant lot, etc.) Elm + cherry, vines Vegetation N/A Surface Stones (e.g., cobbles, stones, boulders, etc.) 2-3 Slope (%)

Description of Location:

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

3. Distances from: Open Water Body >100 feet Drainage Way >100 feet Wetlands >50 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: 58" Depth to Weeping in Hole 65" 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 |                |                          |       |
| 0-10       | A                   | LS                  | 10YR 4/3                           | -                      | Cnc :<br>Dpl:         | -                            | -      | G              | F                        |       |
| 10-34      | B <sub>w</sub>      | LS                  | 10YR 6/6                           | -                      | Cnc :<br>Dpl:         | -                            | -      | M              | F                        |       |
| 34-80+     | C                   | med Sand            | 2.5Y 6/2                           |                        | Cnc : 5YR 4/6<br>Dpl: | 30%                          | -      | L              | SG                       |       |
|            |                     |                     |                                    |                        | Cnc :<br>Dpl:         |                              |        |                |                          |       |
|            |                     |                     |                                    |                        | Cnc :<br>Dpl:         |                              |        |                |                          |       |
|            |                     |                     |                                    |                        | Cnc :<br>Dpl:         |                              |        |                |                          |       |
|            |                     |                     |                                    |                        | Cnc :<br>Dpl:         |                              |        |                |                          |       |

Additional Notes:





## 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: 3 Hole # 6-2-22 Date 9:40 AM Time 65°F Cloudy Weather 5 Longitude

1. Land Use Gravel Contractors Yard Vegetation N/A Surface Stones (e.g., cobbles, stones, boulders, etc.) Gravel Slope (%) 5

Description of Location:

2. Soil Parent Material: Plain Landform 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 >100 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 |                |                          |       |
| 0-4        | Gravel              | -                   | -                                  | -                      | Cnc :<br>Dpl: | -       | 100                          | -                | M              | Single Grain             |       |
| 4-6        | Bw                  | med sand            | 10YR 5/6                           | -                      | Cnc :<br>Dpl: | -       | -                            | -                | L              | SG                       |       |
| 6-115"     | C                   | fine sand           | 2.5Y 6/4                           | -                      | Cnc :<br>Dpl: | -       | -                            | -                | L              | SG                       |       |
|            |                     |                     |                                    |                        | Cnc :<br>Dpl: |         |                              |                  |                |                          |       |
|            |                     |                     |                                    |                        | Cnc :<br>Dpl: |         |                              |                  |                |                          |       |
|            |                     |                     |                                    |                        | Cnc :<br>Dpl: |         |                              |                  |                |                          |       |
|            |                     |                     |                                    |                        | Cnc :<br>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: 4 Hole # 6-2-2022 Date 8:30 AM Time 65°F Cloudy Weather Gravel Surface Stones (e.g., cobbles, stones, boulders, etc.) 5 Slope (%) 5

1. Land Use Gravel Contractors yard Vegetation N/A

Description of Location:

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

3. Distances from: Open Water Body >100 feet Drainage Way >100 feet Wetlands >100 feet  
Property Line >100 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: 84" 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 |                |                          |       |
| 0-6        | Gravel              | -                   | -                                  | -                      | Cnc :<br>Dpl:                    | -                            | 100    | M              | Single grain             |       |
| 6-19       | Bw                  | med sand            | 10YR 5/6                           | -                      | Cnc :<br>Dpl:                    | -                            | -      | L              | SG                       |       |
| 19-110+    | C                   | fine sand           | 2.5Y 6/4                           | 60                     | Cnc : 7.5YR 4/6<br>Dpl: 2.5Y 5/2 | 25%                          | -      | L              | SG                       |       |
|            |                     |                     |                                    |                        | Cnc :<br>Dpl:                    |                              | -      | M              | Friable                  |       |
|            |                     |                     |                                    |                        | Cnc :<br>Dpl:                    |                              |        |                |                          |       |
|            |                     |                     |                                    |                        | Cnc :<br>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: 5 Hole # 5 Date 6/2/22 Time 8:00 AM Weather 65°F Cloudy Longitude 5°  
1. Land Use Gravel contractors yard (e.g., woodland, agricultural field, vacant lot, etc.) Vegetation N/A Surface Stones (e.g., cobbles, stones, boulders, etc.) Latitude  
Description of Location: \_\_\_\_\_ Slope (%) \_\_\_\_\_

2. Soil Parent Material: \_\_\_\_\_ Landform \_\_\_\_\_ Position on Landscape (SU, SH, BS, FS, TS, Plain) Plain  
3. Distances from: Open Water Body >100 feet Drainage Way >100 feet Wetlands >100 feet  
Property Line >100 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: 90" Depth to Weeping in Hole 95" 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 |                |                          |       |
| 0-7        | Gravel              | -                   | -                                  | -                      | Cnc :<br>Dpl:          | -                            | 100    | M              | Single grain             |       |
| 7-11       | Bw                  | Med sand            | 10YR 5/6                           | -                      | Cnc :<br>Dpl:          | -                            | -      | L              | SG                       |       |
| 11-84      | C <sub>1</sub>      | Med sand            | 2.5Y 6/3                           | -                      | Cnc :<br>Dpl:          | -                            | -      | L              | SG                       |       |
| 84-110+    | C <sub>2</sub>      | med sand            | 2.5Y 4/2                           | 84"                    | Cnc : 10YR 3/6<br>Dpl: | 20%                          | -      | M              | Friable                  |       |
|            |                     |                     |                                    |                        | Cnc :<br>Dpl:          |                              |        |                |                          |       |
|            |                     |                     |                                    |                        | Cnc :<br>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: 6 Hole # 6-2-22 Date 12:45 pm Time 75°F cloudy Weather 5 Longitude 5 Slope (%)

1. Land Use Gravel construction yard Vegetation N/A Surface Stones (e.g., cobbles, stones, boulders, etc.) Gravel

Description of Location:

2. Soil Parent Material: Plain Landform Plain 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: 105" 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 |                |                          |                                        |
| 0-10       | Gravel              | —                   | —                                  | —                      | Cnc : —<br>Dpl: — | —       | 95                           | 5                | M              | Single Grain             |                                        |
| 10-81      | Fill                | SL                  | 5YR 4/3                            | —                      | Cnc : —<br>Dpl: — | —       | 30                           | 10               | M              | firm                     | non native red soil w/ fabric + stones |
| 81-115"    | C                   | med sand            | 2.5Y 5/2                           | —                      | Cnc : —<br>Dpl: — | —       | —                            | —                | L              | SG                       | moist                                  |
|            |                     |                     |                                    |                        | Cnc : —<br>Dpl: — |         |                              |                  |                |                          |                                        |
|            |                     |                     |                                    |                        | Cnc : —<br>Dpl: — |         |                              |                  |                |                          |                                        |
|            |                     |                     |                                    |                        | Cnc : —<br>Dpl: — |         |                              |                  |                |                          |                                        |
|            |                     |                     |                                    |                        | Cnc : —<br>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 # 7 Date 6-2-22 Time 12:00 pm Weather 75°F Sunny Longitude 5°  
Land Use Gravel Contractors Yard Vegetation Gravel + grass Surface Stones (e.g., cobbles, stones, boulders, etc.) N/A Latitude 42°  
Slope (%) 5%

Description of Location:

2. Soil Parent Material: Plain Landform Plain Position on Landscape (SU, SH, BS, FS, TS, Plain)  
3. Distances from: Open Water Body > 100 feet Drainage Way > 100 feet Wetlands > 75 feet  
Property Line > 75 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: 97" Depth to Weeping in Hole 100" 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 |                |                          |                                                |
| 0-13       | Gravel              |                     | -                                  | -                      | Cnc :<br>Dpl:          | -       | 95                           | 5                | M              | Single Grain             |                                                |
| 13-58      | Fill                | Mixed               | Mix                                | -                      | Cnc :<br>Dpl:          | -       | 20                           | 5                | M              | friable/firm             | Mix of non native parent material, rocks, loam |
| 58-110"    | C                   | Med Sand            | 2.5Y 4/2                           | 84"                    | Cnc : 10YR 3/6<br>Dpl: | 10%     | -                            | -                | L              | SG                       | very dense                                     |
|            |                     |                     |                                    |                        | Cnc :<br>Dpl:          |         |                              |                  |                |                          |                                                |
|            |                     |                     |                                    |                        | Cnc :<br>Dpl:          |         |                              |                  |                |                          |                                                |
|            |                     |                     |                                    |                        | Cnc :<br>Dpl:          |         |                              |                  |                |                          |                                                |
|            |                     |                     |                                    |                        | Cnc :<br>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: 8 Hole # 8 Date 6-2-22 Time 1:30 pm Weather 75°F Cloudy Latitude \_\_\_\_\_ Longitude 2-3  
1. Land Use Gravel contractors yard Vegetation Gravel Surface Stones (e.g., cobbles, stones, boulders, etc.) \_\_\_\_\_ Slope (%) \_\_\_\_\_  
Description of Location: \_\_\_\_\_

2. Soil Parent Material: Plain Landform \_\_\_\_\_ 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 >20 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: 100" 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 |                |                          |       |
| 0-5        | Gravel              | -                   | -                                  | -                      | Cnc :<br>Dpl: | -       | 100                          | -                | M              | Single grain             |       |
| 5-13       | Bw                  | med sand            | 10YR 5/6                           | -                      | Cnc :<br>Dpl: | -       | -                            | -                | L              | SG                       |       |
| 13-110"    | C                   | fine sand           | 2.5Y 6/3                           | -                      | Cnc :<br>Dpl: | -       | -                            | -                | L              | SG                       |       |
|            |                     |                     |                                    |                        | Cnc :<br>Dpl: |         |                              |                  |                |                          |       |
|            |                     |                     |                                    |                        | Cnc :<br>Dpl: |         |                              |                  |                |                          |       |
|            |                     |                     |                                    |                        | Cnc :<br>Dpl: |         |                              |                  |                |                          |       |
|            |                     |                     |                                    |                        | Cnc :<br>Dpl: |         |                              |                  |                |                          |       |

Additional Notes:





Commonwealth of Massachusetts  
City/Town of

## 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 # 6-2-22 Date 2:00 pm Time 75°F cloudy Weather 2-3 Longitude  
Land Use Grove! Contactor yard Vegetation N/A Surface Stones (e.g., cobbles, stones, boulders, etc.) 2-3 Slope (%)

Description of Location:

2. Soil Parent Material: Plain Landform Drainage Way Position on Landscape (SU, SH, BS, FS, TS, Plain) Wetlands >100 feet  
3. Distances from: Open Water Body >100 feet Drinking Water Well >100 feet Other \_\_\_\_\_ feet  
Property Line >300 feet  
4. Unsuitable Materials Present: ☐ Yes ☒ No If Yes: ☐ Disturbed Soil/Fill Material ☐ Weathered/Fractured Rock ☐ Bedrock  
5. Groundwater Observed: ☒ Yes ☐ No If yes: 90" Depth to Weeping in Hole 95" Depth to Standing Water in Hole

### Soil Log

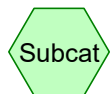
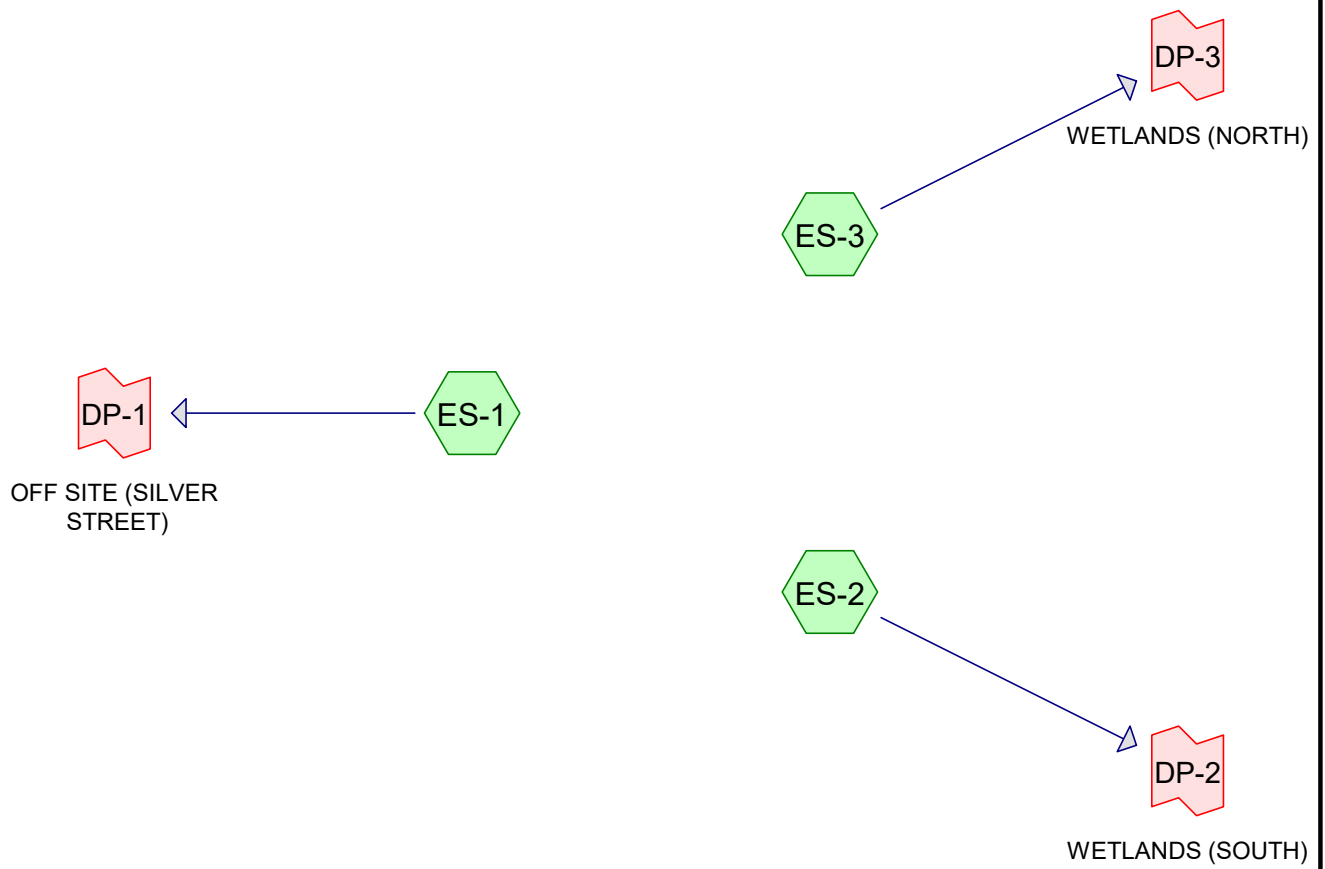
| Depth (in) | Soil Horizon /Layer | Soil Texture (USDA) | Soil Matrix: Color-Moist (Munsell) | Redoximorphic Features |                        | Coarse Fragments % by Volume |        | Soil Structure | Soil Consistence (Moist) | Other |
|------------|---------------------|---------------------|------------------------------------|------------------------|------------------------|------------------------------|--------|----------------|--------------------------|-------|
|            |                     |                     |                                    | Depth                  | Color                  | Percent                      | Gravel |                |                          |       |
| 0-4        | Grove               | -                   | -                                  | -                      | Cnc :<br>Dpl:          | -                            | 100    | M              | Single grain             |       |
| 4-42       | Bw                  | fine sand           | 2.5Y 6/4                           | -                      | Cnc :<br>Dpl:          | -                            | -      | L              | SG                       |       |
| 42-110+    | C                   | med sand            | 2.5Y 6/3                           | 80"                    | Cnc :<br>Dpl: 2.5Y 5/2 | 10%                          | -      | L              | SG                       |       |
|            |                     |                     |                                    |                        | Cnc :<br>Dpl:          |                              |        |                |                          |       |
|            |                     |                     |                                    |                        | Cnc :<br>Dpl:          |                              |        |                |                          |       |
|            |                     |                     |                                    |                        | Cnc :<br>Dpl:          |                              |        |                |                          |       |
|            |                     |                     |                                    |                        | Cnc :<br>Dpl:          |                              |        |                |                          |       |

Additional Notes:



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

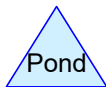




Subcat



Reach



Pond



Link

**Routing Diagram for 220522 - PRE**

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**220522 - PRE**

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Page 2

**Rainfall Events Listing**

| Event# | Event<br>Name | Storm Type     | Curve | Mode    | Duration<br>(hours) | B/B | Depth<br>(inches) | AMC |
|--------|---------------|----------------|-------|---------|---------------------|-----|-------------------|-----|
| 1      | 2-Year        | Type III 24-hr |       | Default | 24.00               | 1   | 3.00              | 2   |
| 2      | 10-Year       | Type III 24-hr |       | Default | 24.00               | 1   | 4.60              | 2   |
| 3      | 100-Year      | Type III 24-hr |       | Default | 24.00               | 1   | 6.50              | 2   |

**220522 - PRE***Type III 24-hr 2-Year Rainfall=3.00"*

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Time span=0.00-48.00 hrs, dt=0.03 hrs, 1601 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=16,161 sf 19.73% Impervious Runoff Depth=0.55"  
Flow Length=95' Slope=0.0100 '/' Tc=18.7 min CN=WQ Runoff=0.1 cfs 736 cf

**Subcatchment ES-2:** Runoff Area=155,484 sf 1.75% Impervious Runoff Depth=2.29"  
Flow Length=556' Tc=6.0 min CN=WQ Runoff=8.9 cfs 29,735 cf

**Subcatchment ES-3:** Runoff Area=51,869 sf 0.00% Impervious Runoff Depth=2.16"  
Flow Length=243' Tc=6.0 min CN=WQ Runoff=2.8 cfs 9,342 cf

**Link DP-1: OFF SITE (SILVER STREET)** Inflow=0.1 cfs 736 cf  
Primary=0.1 cfs 736 cf

**Link DP-2: WETLANDS (SOUTH)** Inflow=8.9 cfs 29,735 cf  
Primary=8.9 cfs 29,735 cf

**Link DP-3: WETLANDS (NORTH)** Inflow=2.8 cfs 9,342 cf  
Primary=2.8 cfs 9,342 cf

**Total Runoff Area = 223,514 sf Runoff Volume = 39,814 cf Average Runoff Depth = 2.14"**  
**97.36% Pervious = 217,604 sf 2.64% Impervious = 5,910 sf**



**220522 - PRE**

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Type III 24-hr 2-Year Rainfall=3.00"

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Page 4

**Summary for Subcatchment ES-1:**

Runoff = 0.1 cfs @ 12.24 hrs, Volume= 736 cf, Depth= 0.55"  
 Routed to Link DP-1 : OFF SITE (SILVER STREET)

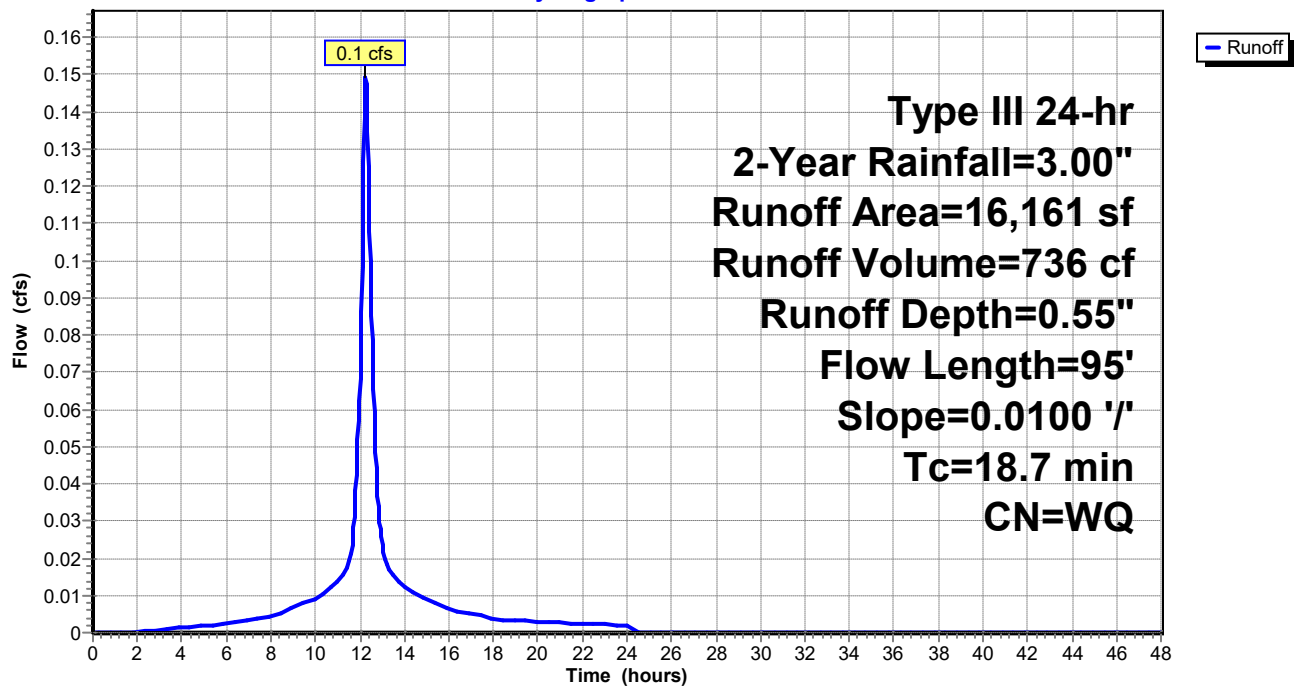
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
 Type III 24-hr 2-Year Rainfall=3.00"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 12,968    | 39 | >75% Grass cover, Good, HSG A |
| 3         | 96 | Gravel surface, HSG A         |
| 1,883     | 98 | Paved parking, HSG A          |
| 1,306     | 98 | Roofs, HSG A                  |
| 16,161    |    | Weighted Average              |
| 12,972    | 39 | 80.27% Pervious Area          |
| 3,189     | 98 | 19.73% Impervious Area        |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                    |
|-------------|------------------|------------------|----------------------|-------------------|------------------------------------------------|
| 18.7        | 95               | 0.0100           | 0.08                 |                   | Sheet Flow,<br>Grass: Dense n= 0.240 P2= 3.00" |

**Subcatchment ES-1:**

Hydrograph



**Summary for Subcatchment ES-2:**

Runoff = 8.9 cfs @ 12.09 hrs, Volume= 29,735 cf, Depth= 2.29"  
 Routed to Link DP-2 : WETLANDS (SOUTH)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
 Type III 24-hr 2-Year Rainfall=3.00"

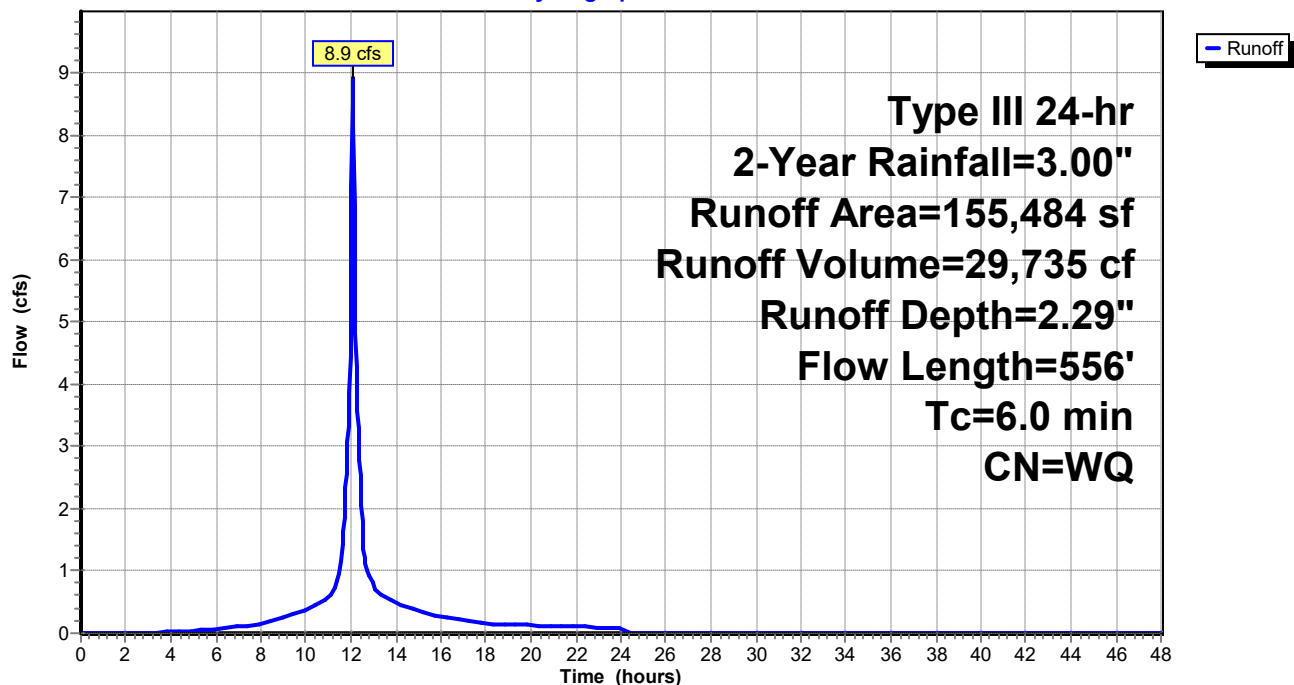
| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 13,850    | 39 | >75% Grass cover, Good, HSG A |
| 136,866   | 96 | Gravel surface, HSG A         |
| 2,720     | 98 | Paved parking, HSG A          |
| 2,048     | 30 | Woods, Good, HSG A            |
| 155,484   |    | Weighted Average              |
| 152,764   | 90 | 98.25% Pervious Area          |
| 2,720     | 98 | 1.75% Impervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft)                            | Velocity (ft/sec) | Capacity (cfs) | Description                                               |
|----------|---------------|------------------------------------------|-------------------|----------------|-----------------------------------------------------------|
| 1.4      | 100           | 0.0150                                   | 1.19              |                | <b>Sheet Flow,</b><br>Smooth surfaces n= 0.011 P2= 3.00"  |
| 3.5      | 456           | 0.0180                                   | 2.16              |                | <b>Shallow Concentrated Flow,</b><br>Unpaved Kv= 16.1 fps |
| 4.9      | 556           | Total, Increased to minimum Tc = 6.0 min |                   |                |                                                           |

**Subcatchment ES-2:**

Hydrograph



**Summary for Subcatchment ES-3:**

Runoff = 2.8 cfs @ 12.09 hrs, Volume= 9,342 cf, Depth= 2.16"  
 Routed to Link DP-3 : WETLANDS (NORTH)

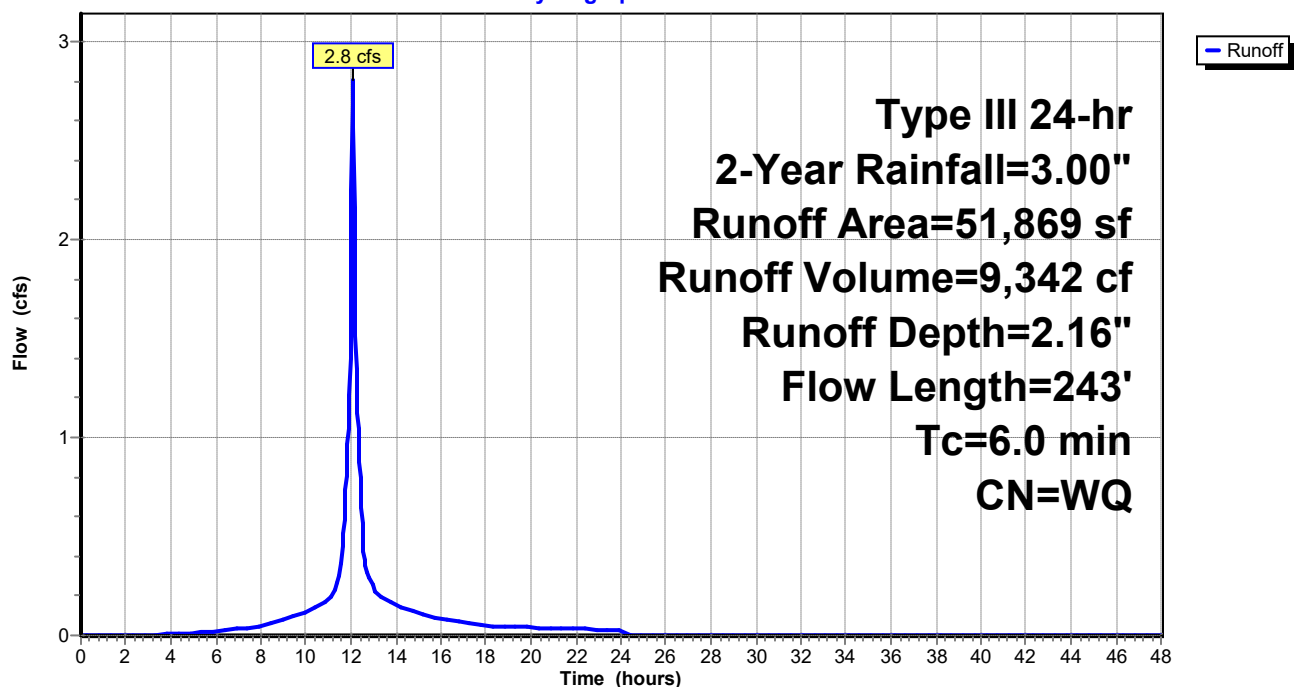
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
 Type III 24-hr 2-Year Rainfall=3.00"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 0         | 39 | >75% Grass cover, Good, HSG A |
| 43,926    | 96 | Gravel surface, HSG A         |
| 7,942     | 30 | Woods, Good, HSG A            |
| 51,869    |    | Weighted Average              |
| 51,869    | 86 | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft)                            | Velocity (ft/sec) | Capacity (cfs) | Description                                               |
|----------|---------------|------------------------------------------|-------------------|----------------|-----------------------------------------------------------|
| 1.1      | 100           | 0.0250                                   | 1.46              |                | <b>Sheet Flow,</b><br>Smooth surfaces n= 0.011 P2= 3.00"  |
| 0.6      | 143           | 0.0520                                   | 3.67              |                | <b>Shallow Concentrated Flow,</b><br>Unpaved Kv= 16.1 fps |
| 1.7      | 243           | Total, Increased to minimum Tc = 6.0 min |                   |                |                                                           |

**Subcatchment ES-3:**

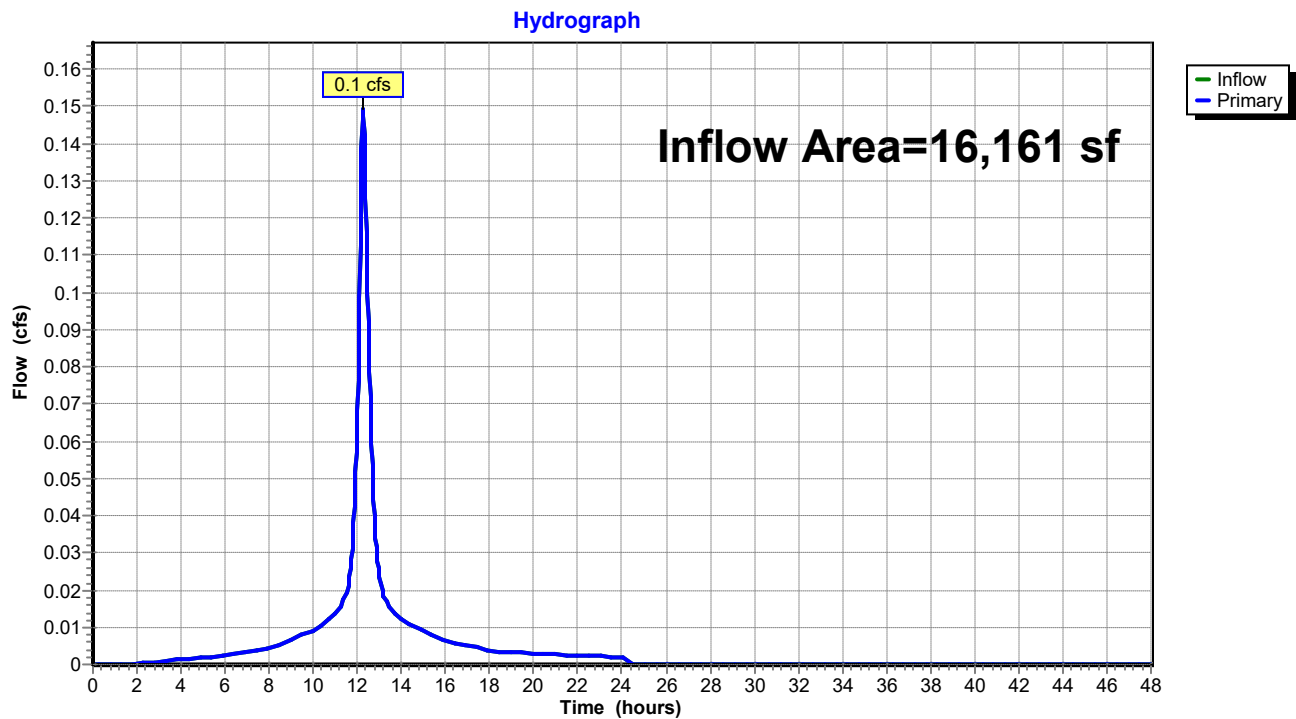
Hydrograph



**Summary for Link DP-1: OFF SITE (SILVER STREET)**

Inflow Area = 16,161 sf, 19.73% Impervious, Inflow Depth = 0.55" for 2-Year event  
Inflow = 0.1 cfs @ 12.24 hrs, Volume= 736 cf  
Primary = 0.1 cfs @ 12.24 hrs, Volume= 736 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

**Link DP-1: OFF SITE (SILVER STREET)**

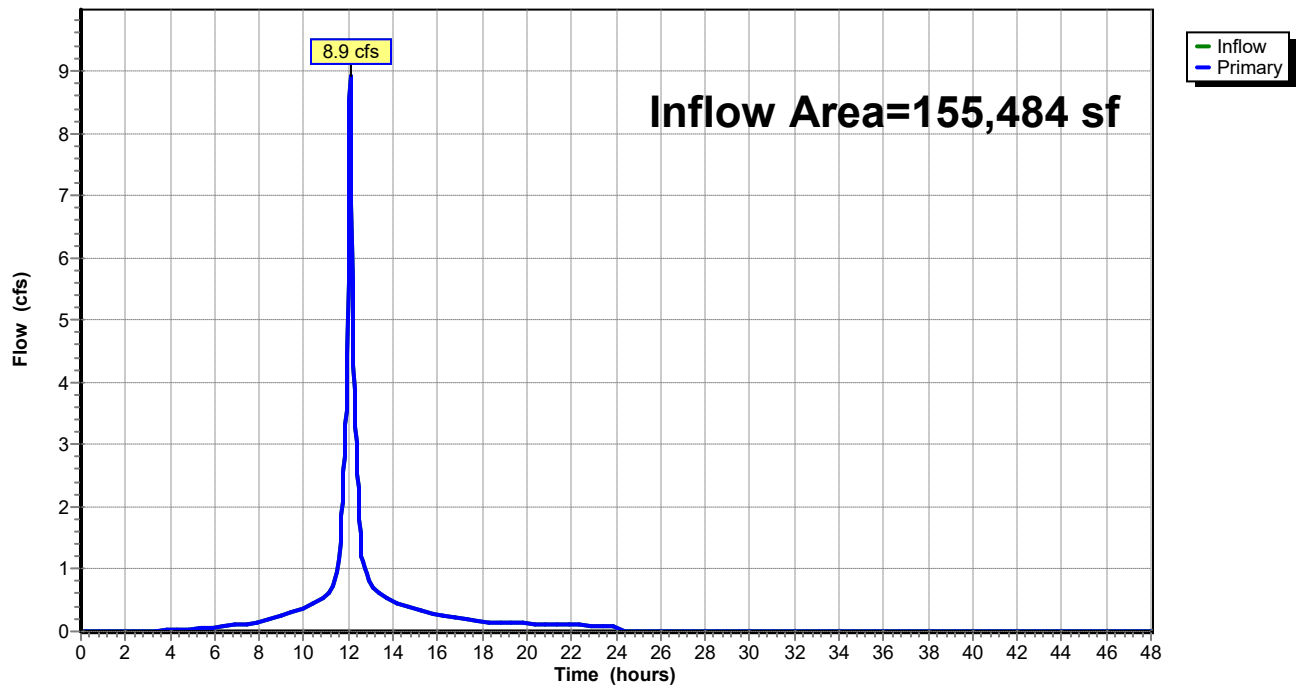
**Summary for Link DP-2: WETLANDS (SOUTH)**

Inflow Area = 155,484 sf, 1.75% Impervious, Inflow Depth = 2.29" for 2-Year event  
Inflow = 8.9 cfs @ 12.09 hrs, Volume= 29,735 cf  
Primary = 8.9 cfs @ 12.09 hrs, Volume= 29,735 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

**Link DP-2: WETLANDS (SOUTH)**

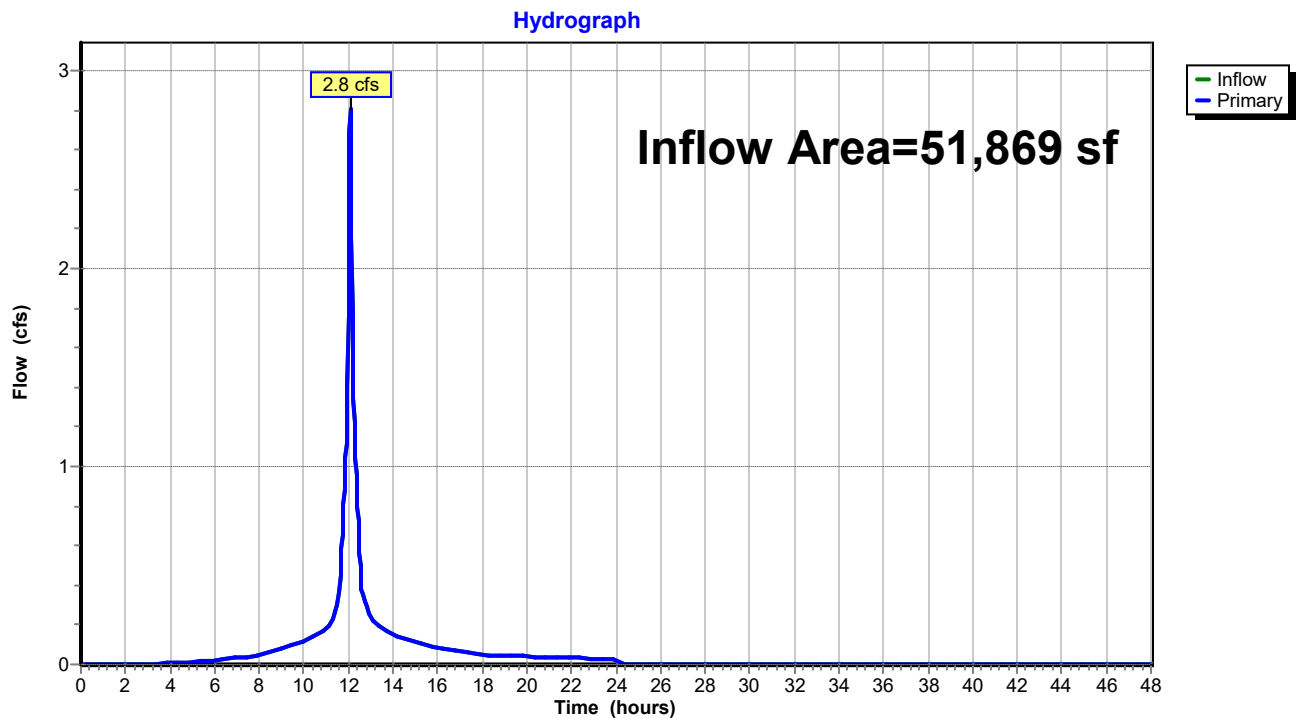
Hydrograph



**Summary for Link DP-3: WETLANDS (NORTH)**

Inflow Area = 51,869 sf, 0.00% Impervious, Inflow Depth = 2.16" for 2-Year event  
Inflow = 2.8 cfs @ 12.09 hrs, Volume= 9,342 cf  
Primary = 2.8 cfs @ 12.09 hrs, Volume= 9,342 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

**Link DP-3: WETLANDS (NORTH)**

**220522 - PRE***Type III 24-hr 10-Year Rainfall=4.60"*

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Time span=0.00-48.00 hrs, dt=0.03 hrs, 1601 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=16,161 sf 19.73% Impervious Runoff Depth=0.96"  
Flow Length=95' Slope=0.0100 '/' Tc=18.7 min CN=WQ Runoff=0.2 cfs 1,298 cf**Subcatchment ES-2:**Runoff Area=155,484 sf 1.75% Impervious Runoff Depth=3.73"  
Flow Length=556' Tc=6.0 min CN=WQ Runoff=14.1 cfs 48,299 cf**Subcatchment ES-3:**Runoff Area=51,869 sf 0.00% Impervious Runoff Depth=3.50"  
Flow Length=243' Tc=6.0 min CN=WQ Runoff=4.4 cfs 15,137 cf**Link DP-1: OFF SITE (SILVER STREET)**Inflow=0.2 cfs 1,298 cf  
Primary=0.2 cfs 1,298 cf**Link DP-2: WETLANDS (SOUTH)**Inflow=14.1 cfs 48,299 cf  
Primary=14.1 cfs 48,299 cf**Link DP-3: WETLANDS (NORTH)**Inflow=4.4 cfs 15,137 cf  
Primary=4.4 cfs 15,137 cf**Total Runoff Area = 223,514 sf Runoff Volume = 64,734 cf Average Runoff Depth = 3.48"**  
**97.36% Pervious = 217,604 sf 2.64% Impervious = 5,910 sf**



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Type III 24-hr 10-Year Rainfall=4.60"

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**Summary for Subcatchment ES-1:**

Runoff = 0.2 cfs @ 12.24 hrs, Volume= 1,298 cf, Depth= 0.96"  
 Routed to Link DP-1 : OFF SITE (SILVER STREET)

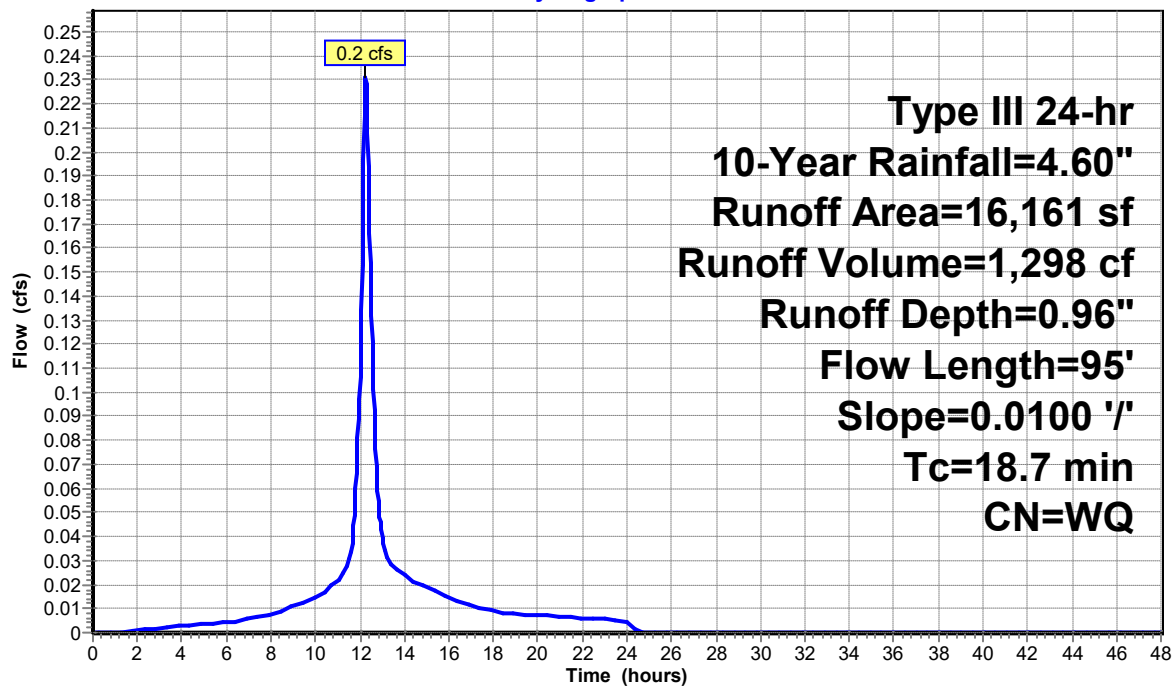
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
 Type III 24-hr 10-Year Rainfall=4.60"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 12,968    | 39 | >75% Grass cover, Good, HSG A |
| 3         | 96 | Gravel surface, HSG A         |
| 1,883     | 98 | Paved parking, HSG A          |
| 1,306     | 98 | Roofs, HSG A                  |
| 16,161    |    | Weighted Average              |
| 12,972    | 39 | 80.27% Pervious Area          |
| 3,189     | 98 | 19.73% Impervious Area        |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                    |
|-------------|------------------|------------------|----------------------|-------------------|------------------------------------------------|
| 18.7        | 95               | 0.0100           | 0.08                 |                   | Sheet Flow,<br>Grass: Dense n= 0.240 P2= 3.00" |

**Subcatchment ES-1:**

Hydrograph



**Summary for Subcatchment ES-2:**

Runoff = 14.1 cfs @ 12.08 hrs, Volume= 48,299 cf, Depth= 3.73"  
 Routed to Link DP-2 : WETLANDS (SOUTH)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
 Type III 24-hr 10-Year Rainfall=4.60"

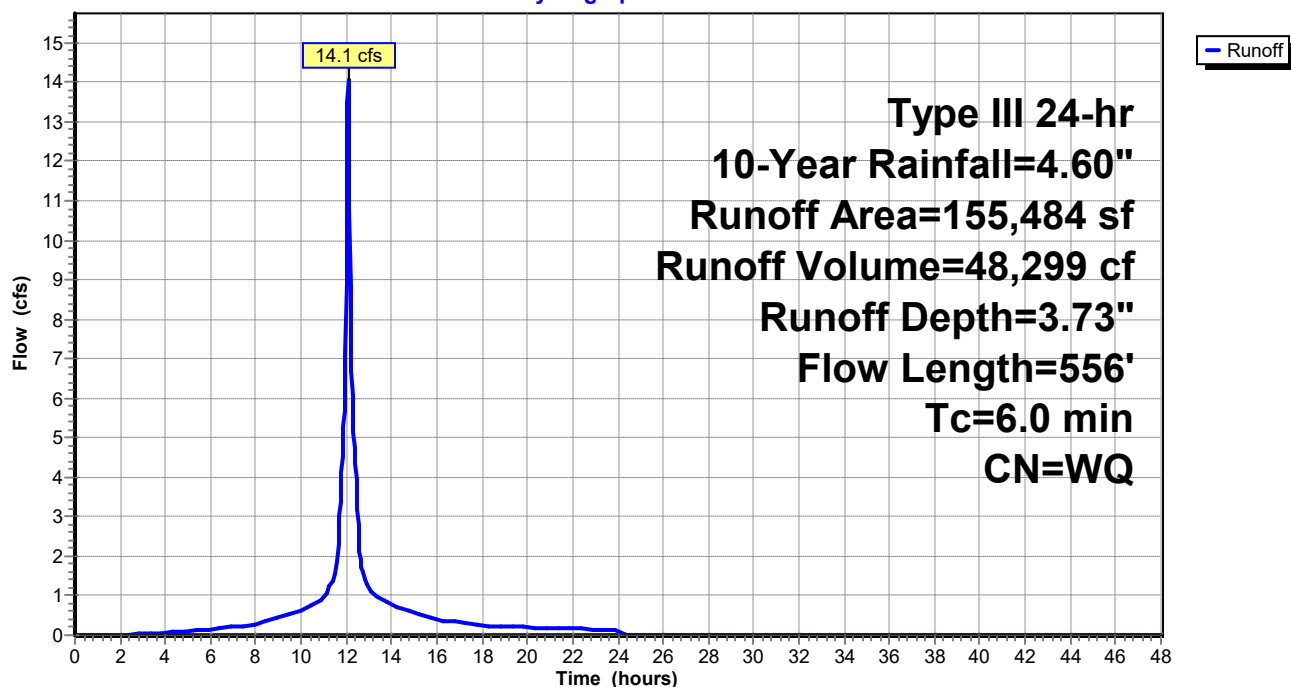
| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 13,850    | 39 | >75% Grass cover, Good, HSG A |
| 136,866   | 96 | Gravel surface, HSG A         |
| 2,720     | 98 | Paved parking, HSG A          |
| 2,048     | 30 | Woods, Good, HSG A            |
| 155,484   |    | Weighted Average              |
| 152,764   | 90 | 98.25% Pervious Area          |
| 2,720     | 98 | 1.75% Impervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft)                            | Velocity (ft/sec) | Capacity (cfs) | Description                                               |
|----------|---------------|------------------------------------------|-------------------|----------------|-----------------------------------------------------------|
| 1.4      | 100           | 0.0150                                   | 1.19              |                | <b>Sheet Flow,</b><br>Smooth surfaces n= 0.011 P2= 3.00"  |
| 3.5      | 456           | 0.0180                                   | 2.16              |                | <b>Shallow Concentrated Flow,</b><br>Unpaved Kv= 16.1 fps |
| 4.9      | 556           | Total, Increased to minimum Tc = 6.0 min |                   |                |                                                           |

**Subcatchment ES-2:**

Hydrograph



**Summary for Subcatchment ES-3:**

Runoff = 4.4 cfs @ 12.08 hrs, Volume= 15,137 cf, Depth= 3.50"  
 Routed to Link DP-3 : WETLANDS (NORTH)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
 Type III 24-hr 10-Year Rainfall=4.60"

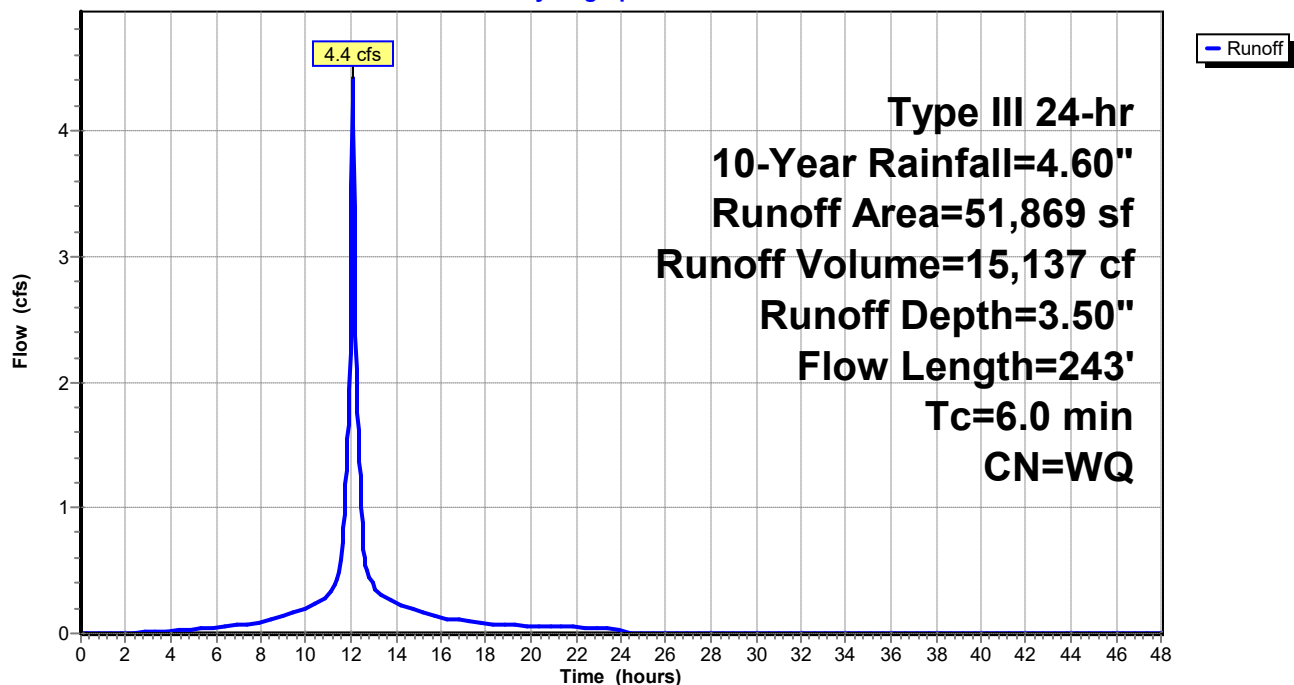
| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 0         | 39 | >75% Grass cover, Good, HSG A |
| 43,926    | 96 | Gravel surface, HSG A         |
| 7,942     | 30 | Woods, Good, HSG A            |
| 51,869    |    | Weighted Average              |
| 51,869    | 86 | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft)                            | Velocity (ft/sec) | Capacity (cfs) | Description                                               |
|----------|---------------|------------------------------------------|-------------------|----------------|-----------------------------------------------------------|
| 1.1      | 100           | 0.0250                                   | 1.46              |                | <b>Sheet Flow,</b><br>Smooth surfaces n= 0.011 P2= 3.00"  |
| 0.6      | 143           | 0.0520                                   | 3.67              |                | <b>Shallow Concentrated Flow,</b><br>Unpaved Kv= 16.1 fps |
| 1.7      | 243           | Total, Increased to minimum Tc = 6.0 min |                   |                |                                                           |

**Subcatchment ES-3:**

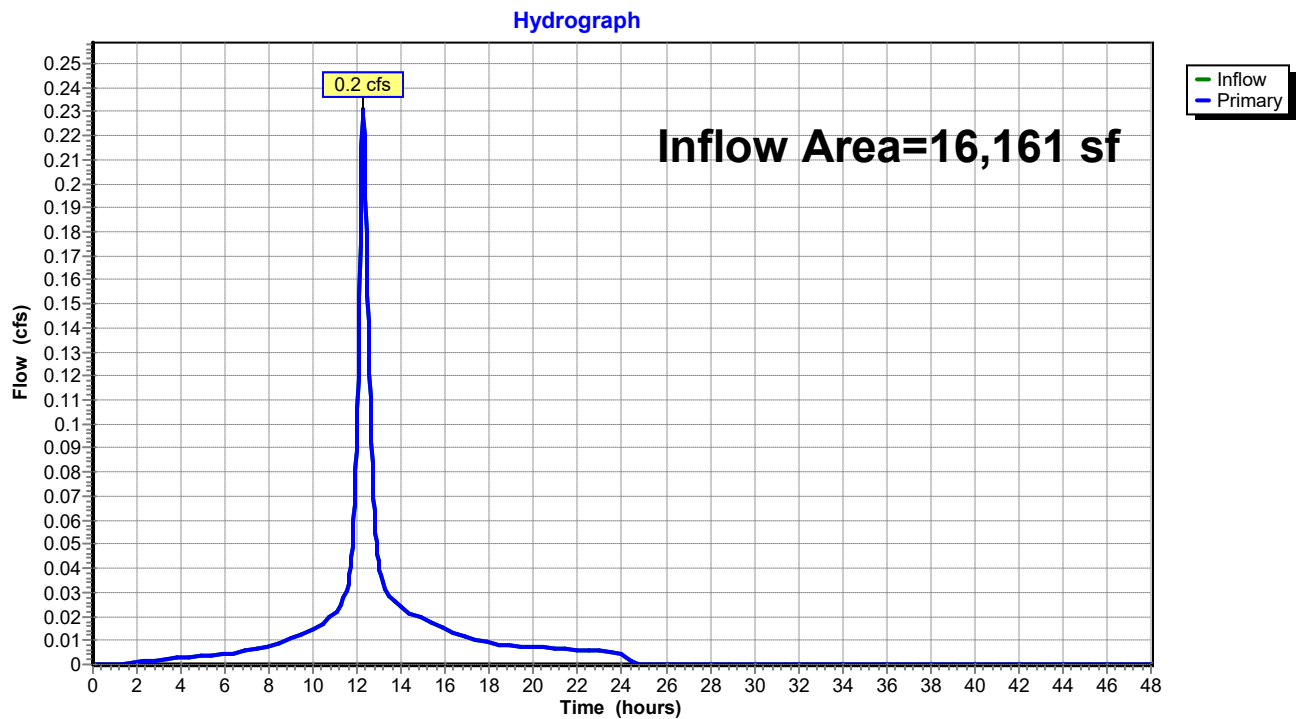
Hydrograph



**Summary for Link DP-1: OFF SITE (SILVER STREET)**

Inflow Area = 16,161 sf, 19.73% Impervious, Inflow Depth = 0.96" for 10-Year event  
Inflow = 0.2 cfs @ 12.24 hrs, Volume= 1,298 cf  
Primary = 0.2 cfs @ 12.24 hrs, Volume= 1,298 cf, Atten= 0%, Lag= 0.0 min

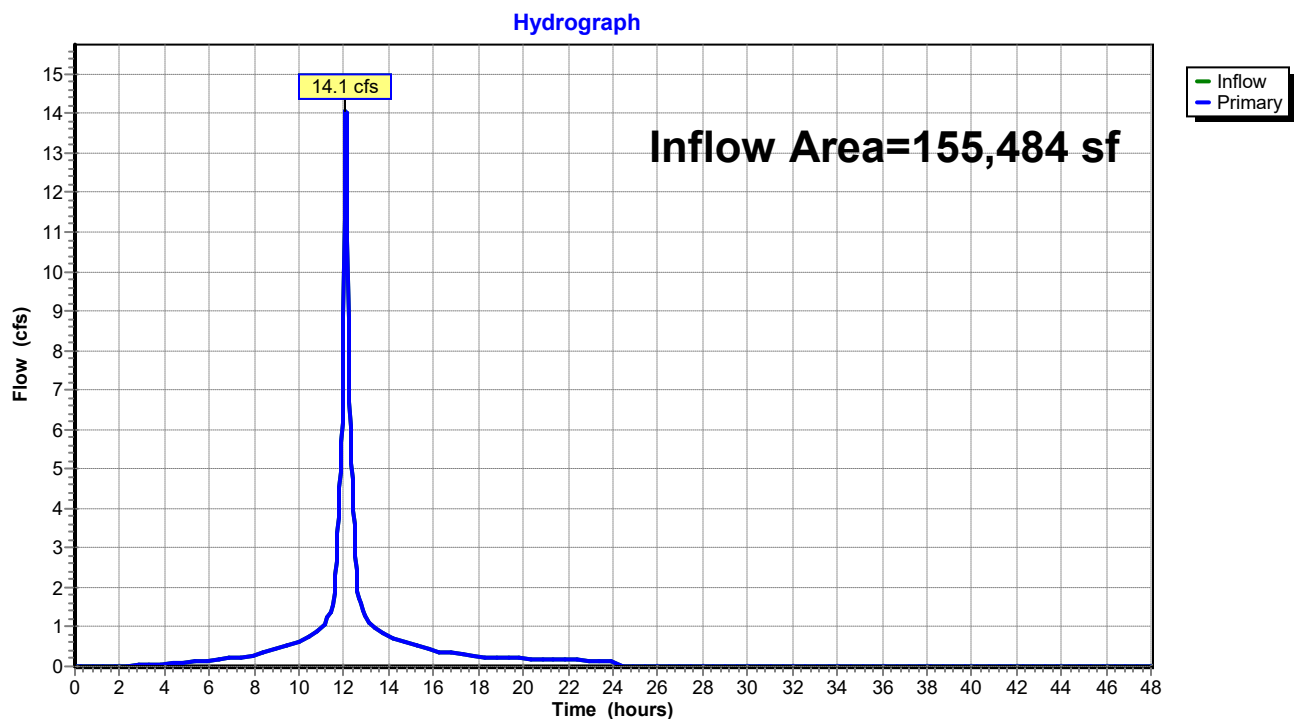
Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

**Link DP-1: OFF SITE (SILVER STREET)**

**Summary for Link DP-2: WETLANDS (SOUTH)**

Inflow Area = 155,484 sf, 1.75% Impervious, Inflow Depth = 3.73" for 10-Year event  
Inflow = 14.1 cfs @ 12.08 hrs, Volume= 48,299 cf  
Primary = 14.1 cfs @ 12.08 hrs, Volume= 48,299 cf, Atten= 0%, Lag= 0.0 min

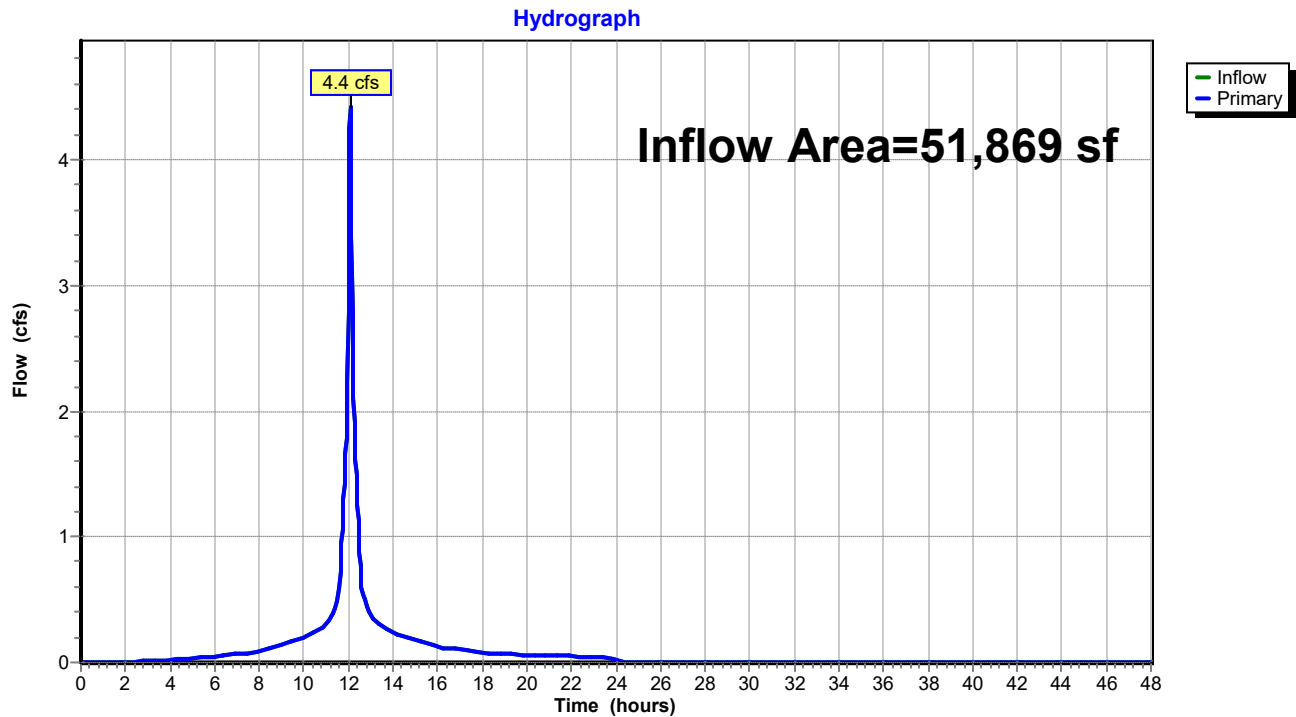
Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

**Link DP-2: WETLANDS (SOUTH)**

**Summary for Link DP-3: WETLANDS (NORTH)**

Inflow Area = 51,869 sf, 0.00% Impervious, Inflow Depth = 3.50" for 10-Year event  
Inflow = 4.4 cfs @ 12.08 hrs, Volume= 15,137 cf  
Primary = 4.4 cfs @ 12.08 hrs, Volume= 15,137 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

**Link DP-3: WETLANDS (NORTH)**

**220522 - PRE***Type III 24-hr 100-Year Rainfall=6.50"*

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Time span=0.00-48.00 hrs, dt=0.03 hrs, 1601 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=16,161 sf 19.73% Impervious Runoff Depth=1.72"  
Flow Length=95' Slope=0.0100 '/' Tc=18.7 min CN=WQ Runoff=0.4 cfs 2,312 cf

**Subcatchment ES-2:** Runoff Area=155,484 sf 1.75% Impervious Runoff Depth=5.47"  
Flow Length=556' Tc=6.0 min CN=WQ Runoff=20.1 cfs 70,855 cf

**Subcatchment ES-3:** Runoff Area=51,869 sf 0.00% Impervious Runoff Depth=5.12"  
Flow Length=243' Tc=6.0 min CN=WQ Runoff=6.3 cfs 22,145 cf

**Link DP-1: OFF SITE (SILVER STREET)** Inflow=0.4 cfs 2,312 cf  
Primary=0.4 cfs 2,312 cf

**Link DP-2: WETLANDS (SOUTH)** Inflow=20.1 cfs 70,855 cf  
Primary=20.1 cfs 70,855 cf

**Link DP-3: WETLANDS (NORTH)** Inflow=6.3 cfs 22,145 cf  
Primary=6.3 cfs 22,145 cf

**Total Runoff Area = 223,514 sf Runoff Volume = 95,312 cf Average Runoff Depth = 5.12"**  
**97.36% Pervious = 217,604 sf 2.64% Impervious = 5,910 sf**



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Type III 24-hr 100-Year Rainfall=6.50"

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**Summary for Subcatchment ES-1:**

Runoff = 0.4 cfs @ 12.27 hrs, Volume= 2,312 cf, Depth= 1.72"  
 Routed to Link DP-1 : OFF SITE (SILVER STREET)

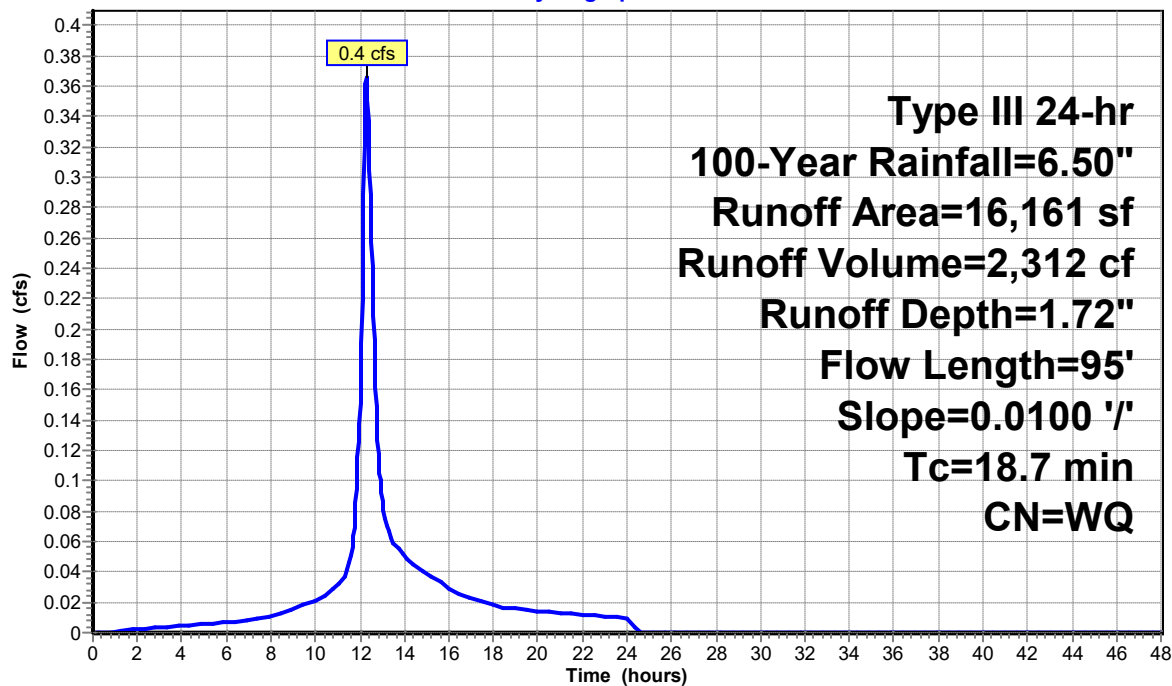
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
 Type III 24-hr 100-Year Rainfall=6.50"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 12,968    | 39 | >75% Grass cover, Good, HSG A |
| 3         | 96 | Gravel surface, HSG A         |
| 1,883     | 98 | Paved parking, HSG A          |
| 1,306     | 98 | Roofs, HSG A                  |
| 16,161    |    | Weighted Average              |
| 12,972    | 39 | 80.27% Pervious Area          |
| 3,189     | 98 | 19.73% Impervious Area        |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                    |
|----------|---------------|---------------|-------------------|----------------|------------------------------------------------|
| 18.7     | 95            | 0.0100        | 0.08              |                | Sheet Flow,<br>Grass: Dense n= 0.240 P2= 3.00" |

**Subcatchment ES-1:**

Hydrograph



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Type III 24-hr 100-Year Rainfall=6.50"

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**Summary for Subcatchment ES-2:**

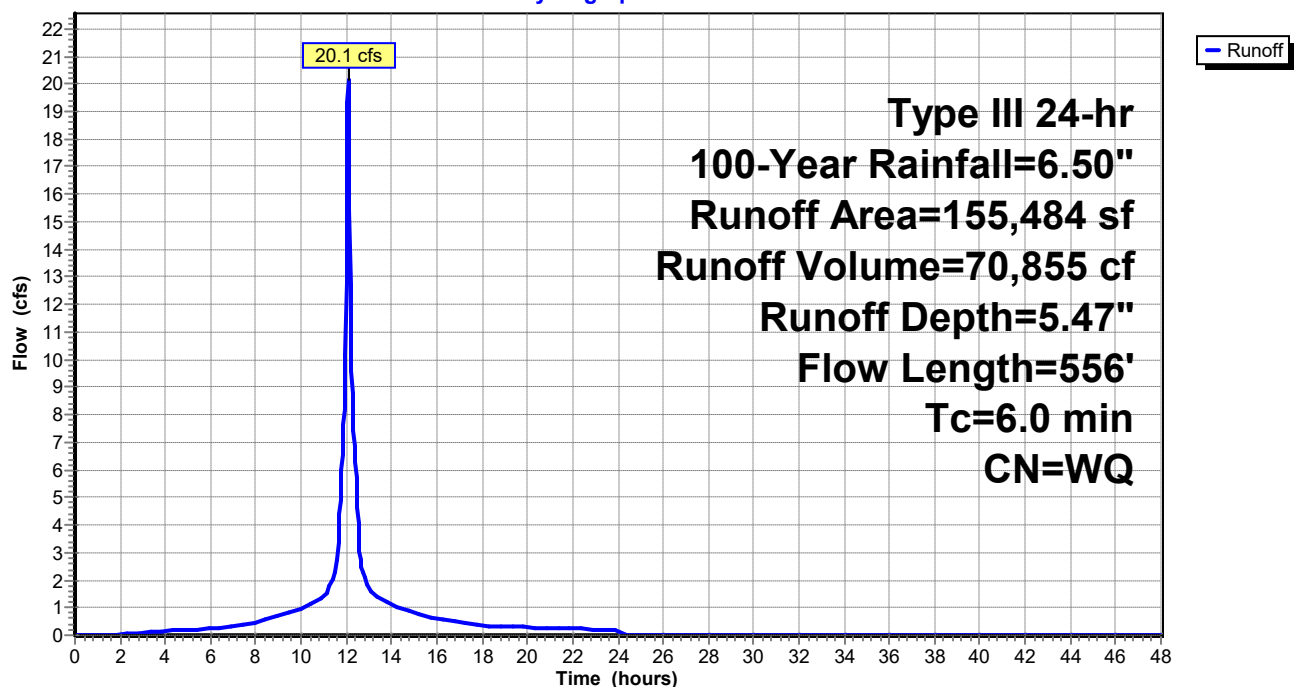
Runoff = 20.1 cfs @ 12.08 hrs, Volume= 70,855 cf, Depth= 5.47"  
 Routed to Link DP-2 : WETLANDS (SOUTH)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
 Type III 24-hr 100-Year Rainfall=6.50"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 13,850    | 39 | >75% Grass cover, Good, HSG A |
| 136,866   | 96 | Gravel surface, HSG A         |
| 2,720     | 98 | Paved parking, HSG A          |
| 2,048     | 30 | Woods, Good, HSG A            |
| 155,484   |    | Weighted Average              |
| 152,764   | 90 | 98.25% Pervious Area          |
| 2,720     | 98 | 1.75% Impervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft)                            | Velocity (ft/sec) | Capacity (cfs) | Description                                               |
|----------|---------------|------------------------------------------|-------------------|----------------|-----------------------------------------------------------|
| 1.4      | 100           | 0.0150                                   | 1.19              |                | <b>Sheet Flow,</b><br>Smooth surfaces n= 0.011 P2= 3.00"  |
| 3.5      | 456           | 0.0180                                   | 2.16              |                | <b>Shallow Concentrated Flow,</b><br>Unpaved Kv= 16.1 fps |
| 4.9      | 556           | Total, Increased to minimum Tc = 6.0 min |                   |                |                                                           |

**Subcatchment ES-2:****Hydrograph**

**Summary for Subcatchment ES-3:**

Runoff = 6.3 cfs @ 12.08 hrs, Volume= 22,145 cf, Depth= 5.12"  
 Routed to Link DP-3 : WETLANDS (NORTH)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
 Type III 24-hr 100-Year Rainfall=6.50"

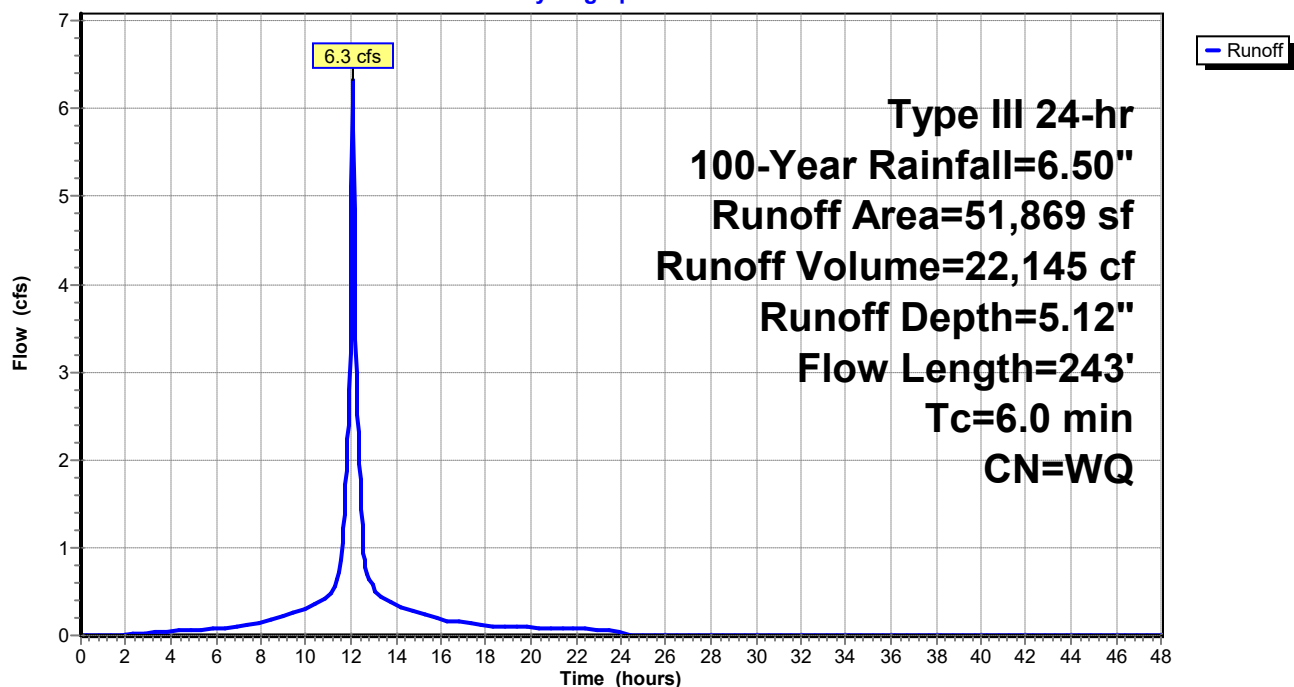
| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 0         | 39 | >75% Grass cover, Good, HSG A |
| 43,926    | 96 | Gravel surface, HSG A         |
| 7,942     | 30 | Woods, Good, HSG A            |
| 51,869    |    | Weighted Average              |
| 51,869    | 86 | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft)                            | Velocity (ft/sec) | Capacity (cfs) | Description                                               |
|----------|---------------|------------------------------------------|-------------------|----------------|-----------------------------------------------------------|
| 1.1      | 100           | 0.0250                                   | 1.46              |                | <b>Sheet Flow,</b><br>Smooth surfaces n= 0.011 P2= 3.00"  |
| 0.6      | 143           | 0.0520                                   | 3.67              |                | <b>Shallow Concentrated Flow,</b><br>Unpaved Kv= 16.1 fps |
| 1.7      | 243           | Total, Increased to minimum Tc = 6.0 min |                   |                |                                                           |

**Subcatchment ES-3:**

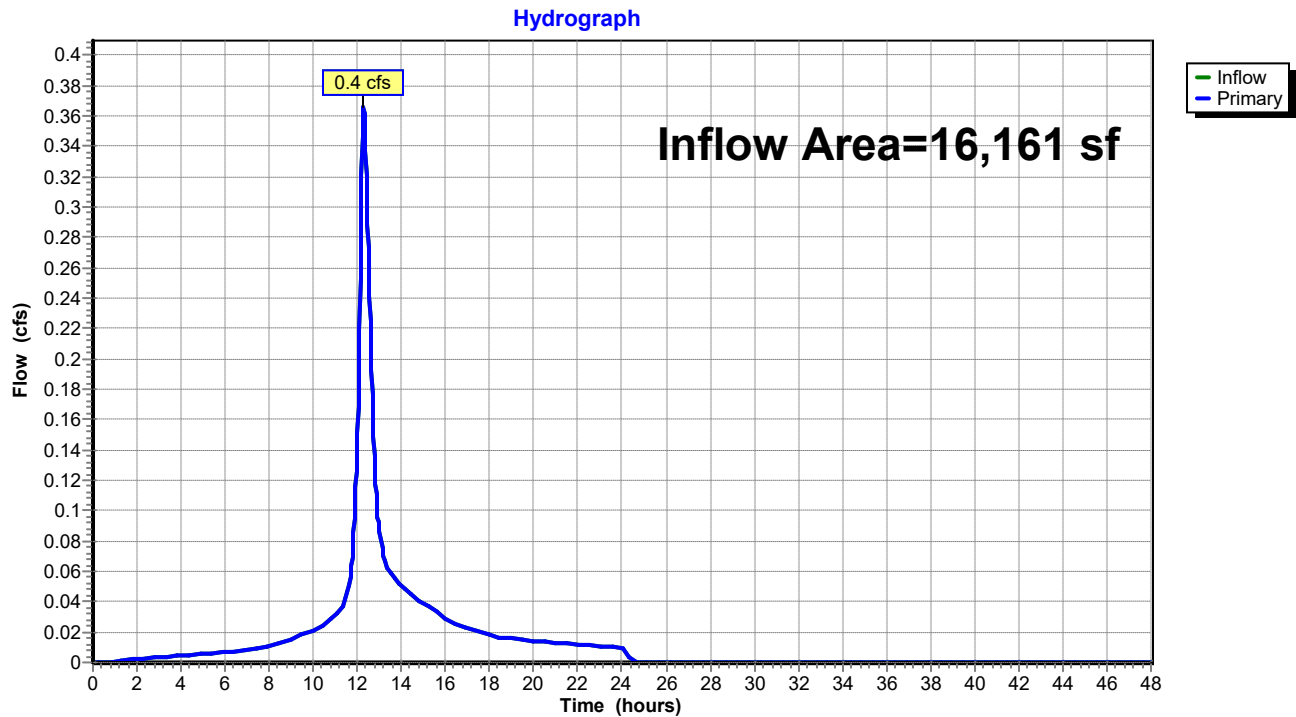
Hydrograph



**Summary for Link DP-1: OFF SITE (SILVER STREET)**

Inflow Area = 16,161 sf, 19.73% Impervious, Inflow Depth = 1.72" for 100-Year event  
Inflow = 0.4 cfs @ 12.27 hrs, Volume= 2,312 cf  
Primary = 0.4 cfs @ 12.27 hrs, Volume= 2,312 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

**Link DP-1: OFF SITE (SILVER STREET)**

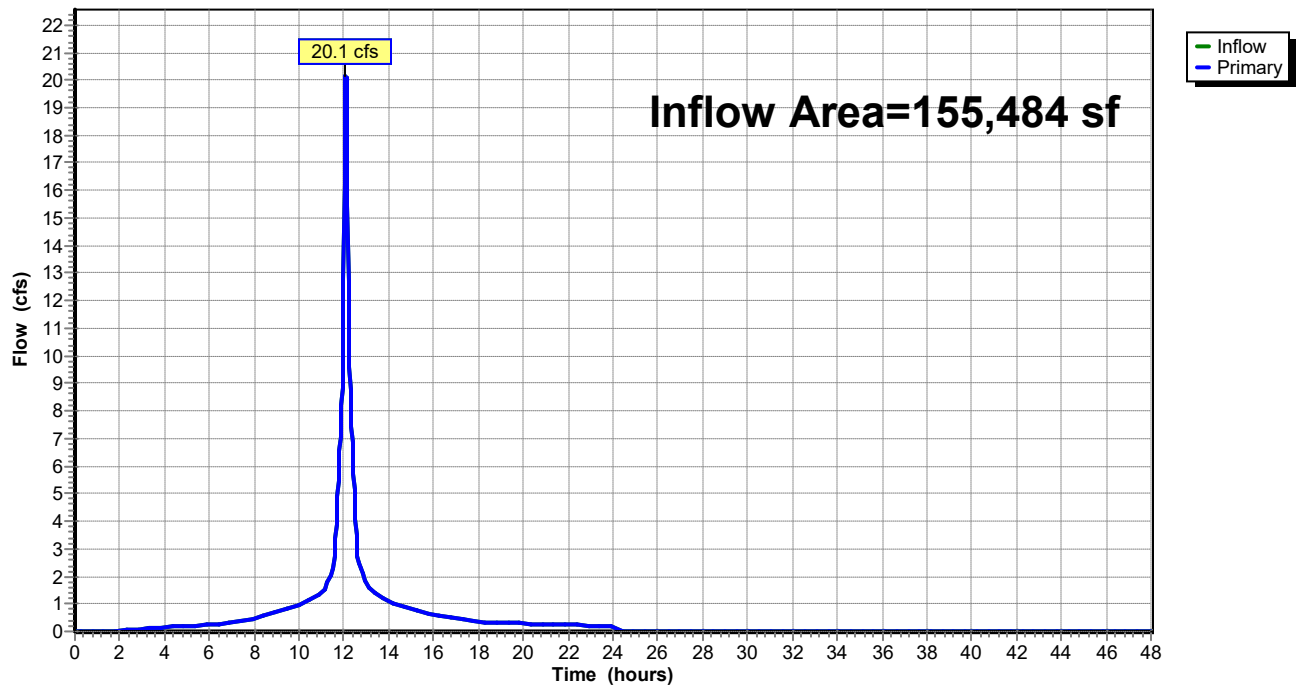
**Summary for Link DP-2: WETLANDS (SOUTH)**

Inflow Area = 155,484 sf, 1.75% Impervious, Inflow Depth = 5.47" for 100-Year event  
Inflow = 20.1 cfs @ 12.08 hrs, Volume= 70,855 cf  
Primary = 20.1 cfs @ 12.08 hrs, Volume= 70,855 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

**Link DP-2: WETLANDS (SOUTH)**

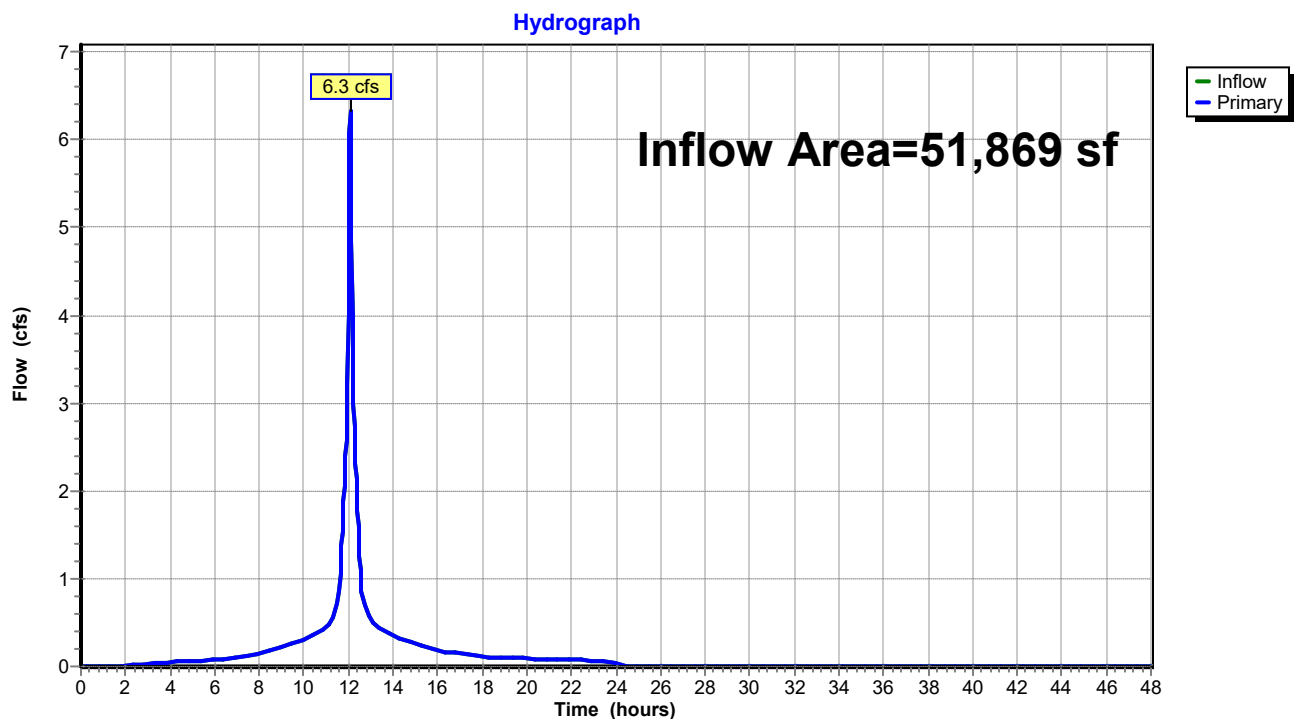
Hydrograph



**Summary for Link DP-3: WETLANDS (NORTH)**

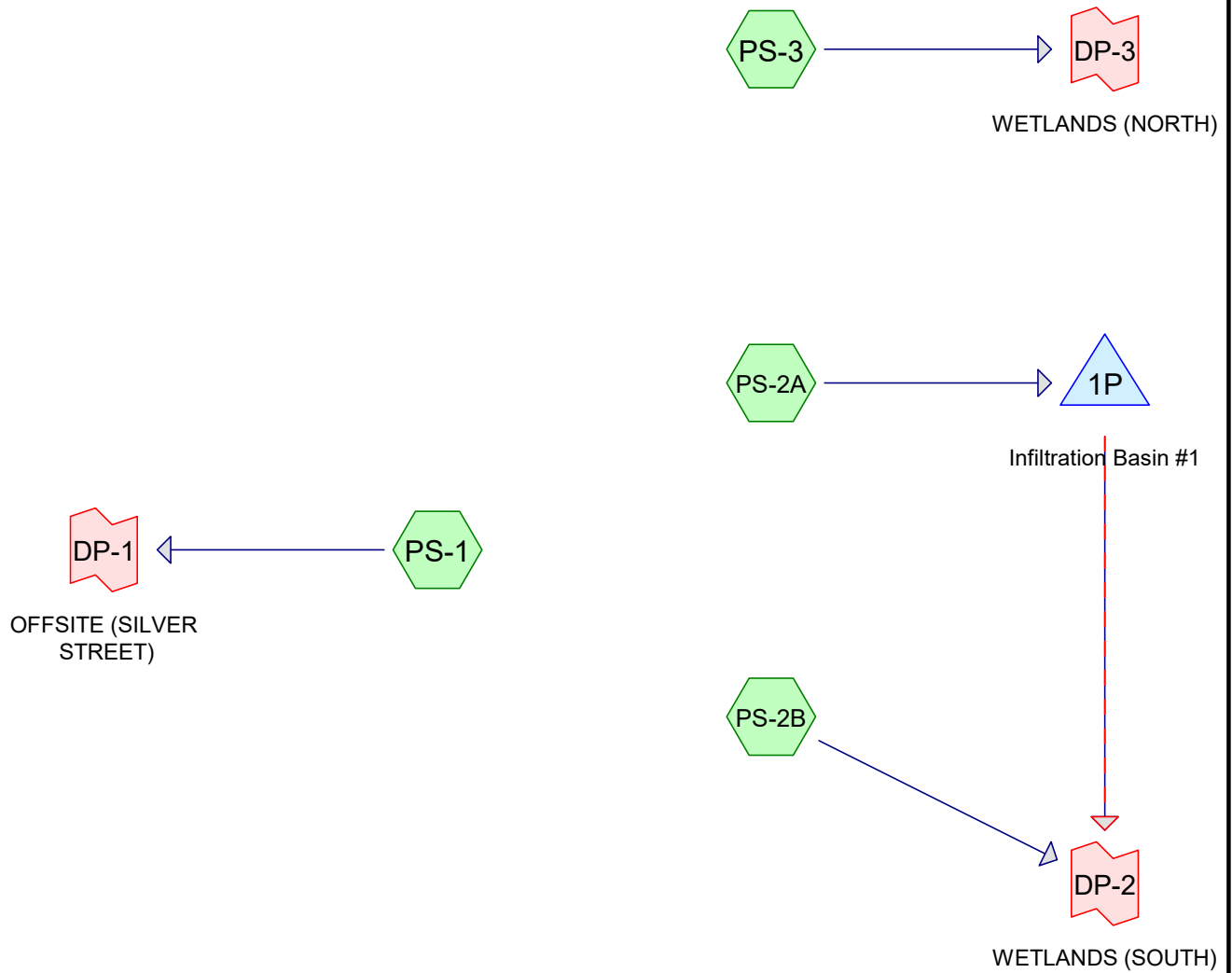
Inflow Area = 51,869 sf, 0.00% Impervious, Inflow Depth = 5.12" for 100-Year event  
Inflow = 6.3 cfs @ 12.08 hrs, Volume= 22,145 cf  
Primary = 6.3 cfs @ 12.08 hrs, Volume= 22,145 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

**Link DP-3: WETLANDS (NORTH)**







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**Rainfall Events Listing**

| Event# | Event<br>Name | Storm Type     | Curve | Mode    | Duration<br>(hours) | B/B | Depth<br>(inches) | AMC |
|--------|---------------|----------------|-------|---------|---------------------|-----|-------------------|-----|
| 1      | 2-Year        | Type III 24-hr |       | Default | 24.00               | 1   | 3.00              | 2   |
| 2      | 10-Year       | Type III 24-hr |       | Default | 24.00               | 1   | 4.60              | 2   |
| 3      | 100-Year      | Type III 24-hr |       | Default | 24.00               | 1   | 6.50              | 2   |

**220522 - POST***Type III 24-hr 2-Year Rainfall=3.00"*

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Time span=0.00-48.00 hrs, dt=0.03 hrs, 1601 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-1:** Runoff Area=5,210 sf 14.96% Impervious Runoff Depth=0.41"  
Tc=6.0 min CN=WQ Runoff=0.1 cfs 180 cf

**Subcatchment PS-2A:** Runoff Area=171,974 sf 91.11% Impervious Runoff Depth=2.52"  
Tc=6.0 min CN=WQ Runoff=10.4 cfs 36,145 cf

**Subcatchment PS-2B:** Runoff Area=31,055 sf 0.01% Impervious Runoff Depth=0.00"  
Tc=6.0 min CN=WQ Runoff=0.0 cfs 1 cf

**Subcatchment PS-3:** Runoff Area=15,284 sf 0.21% Impervious Runoff Depth=0.01"  
Tc=6.0 min CN=WQ Runoff=0.0 cfs 7 cf

**Pond 1P: Infiltration Basin #1** Peak Elev=181.24' Storage=13,391 cf Inflow=10.4 cfs 36,145 cf  
Discarded=0.3 cfs 20,063 cf Primary=4.4 cfs 16,082 cf Outflow=4.7 cfs 36,145 cf

**Link DP-1: OFFSITE (SILVER STREET)** Inflow=0.1 cfs 180 cf  
Primary=0.1 cfs 180 cf

**Link DP-2: WETLANDS (SOUTH)** Inflow=4.4 cfs 16,083 cf  
Primary=4.4 cfs 16,083 cf

**Link DP-3: WETLANDS (NORTH)** Inflow=0.0 cfs 7 cf  
Primary=0.0 cfs 7 cf

**Total Runoff Area = 223,522 sf Runoff Volume = 36,333 cf Average Runoff Depth = 1.95"**  
**29.54% Pervious = 66,025 sf 70.46% Impervious = 157,497 sf**

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Type III 24-hr 2-Year Rainfall=3.00"

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**Summary for Subcatchment PS-1:**

Runoff = 0.1 cfs @ 12.08 hrs, Volume= 180 cf, Depth= 0.41"  
Routed to Link DP-1 : OFFSITE (SILVER STREET)

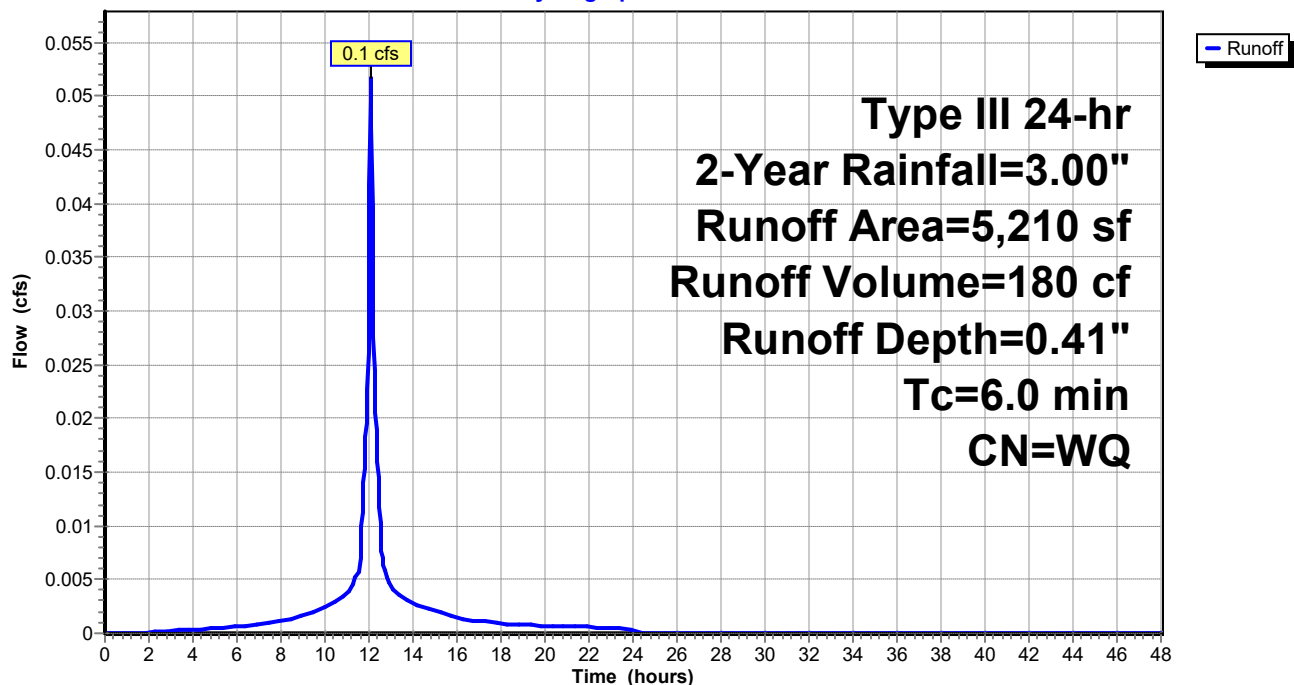
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
Type III 24-hr 2-Year Rainfall=3.00"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 4,430     | 39 | >75% Grass cover, Good, HSG A |
| 779       | 98 | Paved parking, HSG A          |
| 5,210     |    | Weighted Average              |
| 4,430     | 39 | 85.04% Pervious Area          |
| 779       | 98 | 14.96% Impervious Area        |

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

**Subcatchment PS-1:**

Hydrograph



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Type III 24-hr 2-Year Rainfall=3.00"

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**Summary for Subcatchment PS-2A:**

Runoff = 10.4 cfs @ 12.08 hrs, Volume= 36,145 cf, Depth= 2.52"  
 Routed to Pond 1P : Infiltration Basin #1

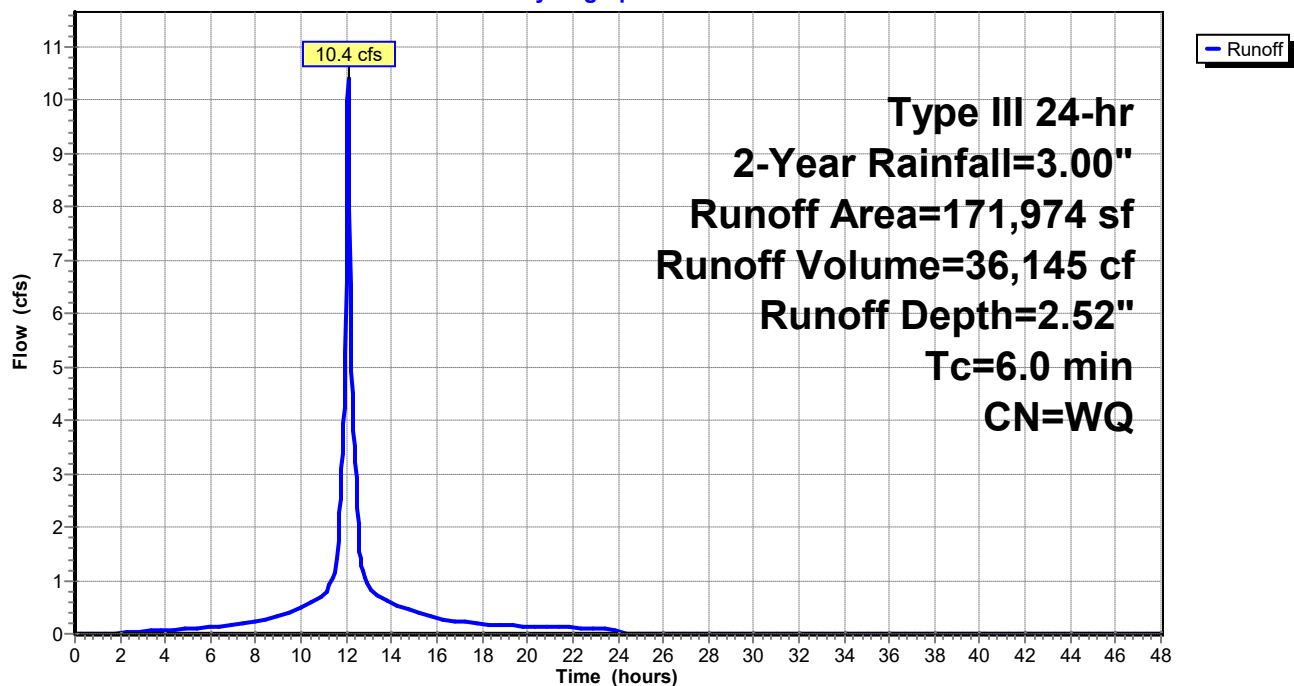
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
 Type III 24-hr 2-Year Rainfall=3.00"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 15,291    | 39 | >75% Grass cover, Good, HSG A |
| 111,882   | 98 | Paved parking, HSG A          |
| 44,800    | 98 | Roofs, HSG A                  |
| 171,974   |    | Weighted Average              |
| 15,291    | 39 | 8.89% Pervious Area           |
| 156,682   | 98 | 91.11% Impervious Area        |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description   |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 6.0         |                  |                  |                      |                   | Direct Entry, |

**Subcatchment PS-2A:**

Hydrograph



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Type III 24-hr 2-Year Rainfall=3.00"

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**Summary for Subcatchment PS-2B:**

Runoff = 0.0 cfs @ 12.08 hrs, Volume= 1 cf, Depth= 0.00"  
 Routed to Link DP-2 : WETLANDS (SOUTH)

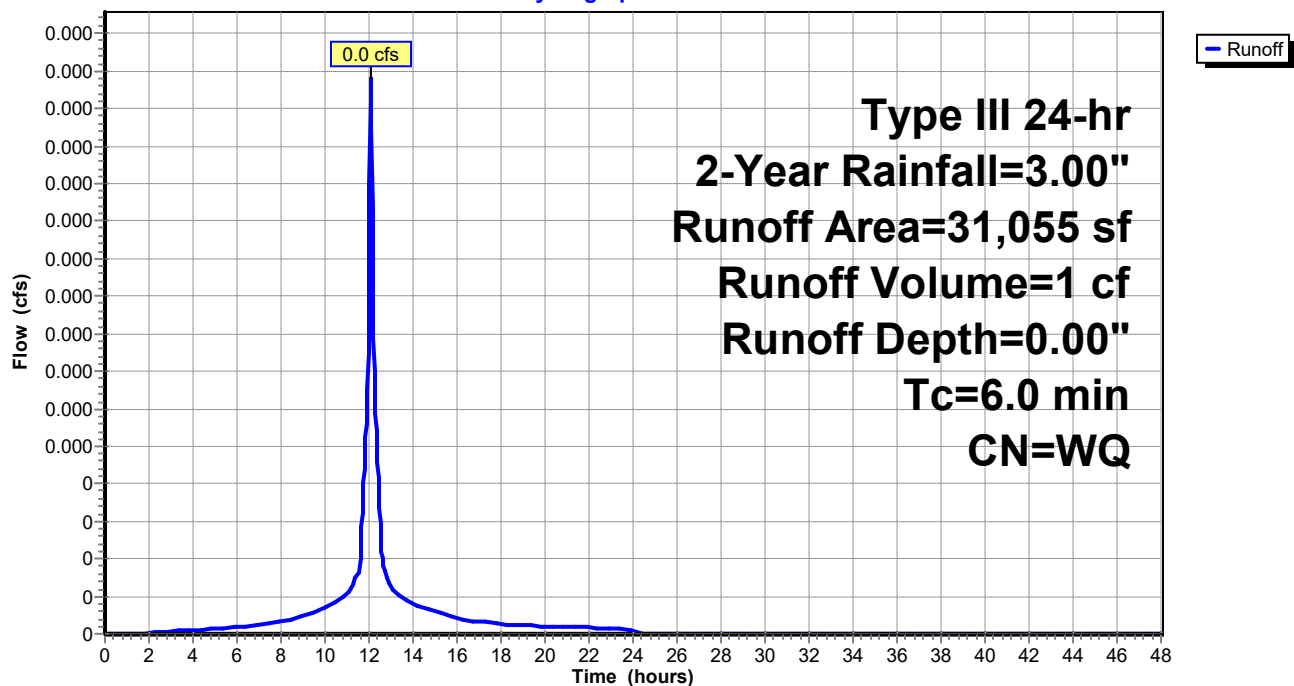
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
 Type III 24-hr 2-Year Rainfall=3.00"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 29,003    | 39 | >75% Grass cover, Good, HSG A |
| 4         | 98 | Paved parking, HSG A          |
| 2,048     | 30 | Woods, Good, HSG A            |
| 31,055    |    | Weighted Average              |
| 31,051    | 38 | 99.99% Pervious Area          |
| 4         | 98 | 0.01% Impervious Area         |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description   |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 6.0         |                  |                  |                      |                   | Direct Entry, |

**Subcatchment PS-2B:**

Hydrograph



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Type III 24-hr 2-Year Rainfall=3.00"

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**Summary for Subcatchment PS-3:**

Runoff = 0.0 cfs @ 12.08 hrs, Volume= 7 cf, Depth= 0.01"  
 Routed to Link DP-3 : WETLANDS (NORTH)

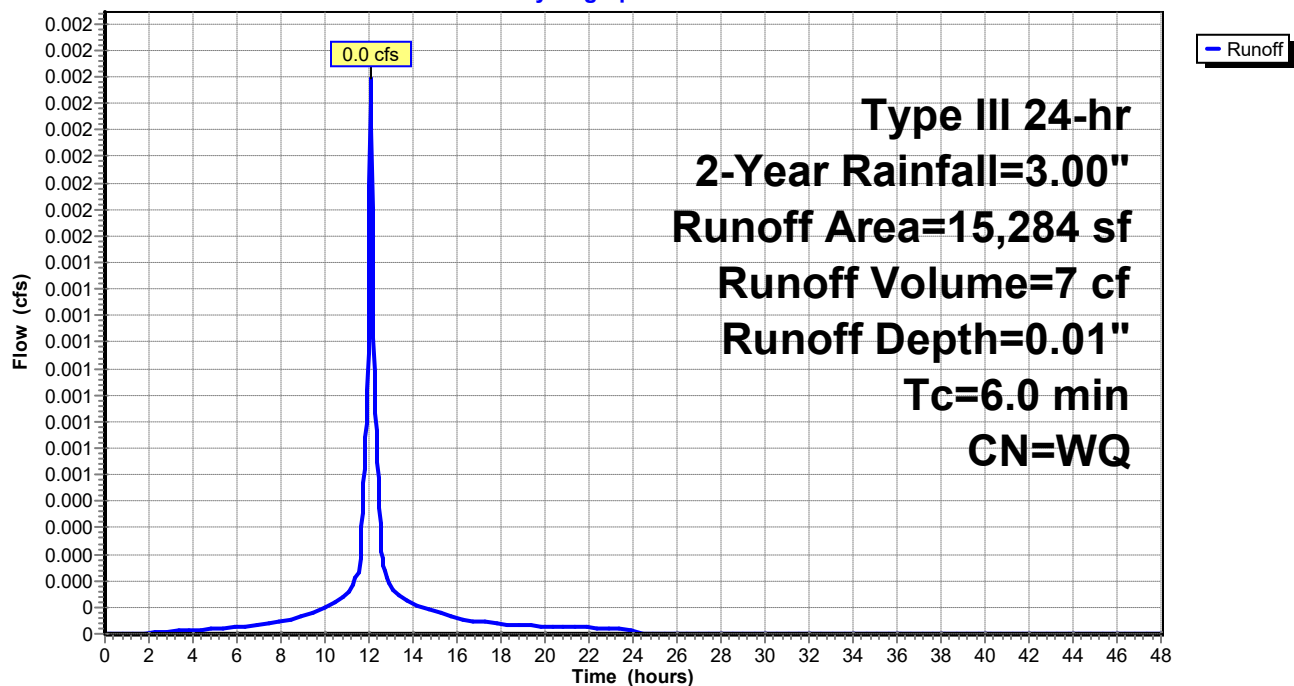
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
 Type III 24-hr 2-Year Rainfall=3.00"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 11,025    | 39 | >75% Grass cover, Good, HSG A |
| 32        | 98 | Paved parking, HSG A          |
| 4,227     | 30 | Woods, Good, HSG A            |
| 15,284    |    | Weighted Average              |
| 15,252    | 37 | 99.79% Pervious Area          |
| 32        | 98 | 0.21% Impervious Area         |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description   |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 6.0         |                  |                  |                      |                   | Direct Entry, |

**Subcatchment PS-3:**

Hydrograph



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Type III 24-hr 2-Year Rainfall=3.00"

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**Summary for Pond 1P: Infiltration Basin #1**

Inflow Area = 171,974 sf, 91.11% Impervious, Inflow Depth = 2.52" for 2-Year event  
 Inflow = 10.4 cfs @ 12.08 hrs, Volume= 36,145 cf  
 Outflow = 4.7 cfs @ 12.25 hrs, Volume= 36,145 cf, Atten= 55%, Lag= 10.2 min  
 Discarded = 0.3 cfs @ 12.25 hrs, Volume= 20,063 cf  
 Primary = 4.4 cfs @ 12.25 hrs, Volume= 16,082 cf  
 Routed to Link DP-2 : WETLANDS (SOUTH)

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
 Peak Elev= 181.24' @ 12.25 hrs Surf.Area= 5,048 sf Storage= 13,391 cf

Plug-Flow detention time= 220.2 min calculated for 36,122 cf (100% of inflow)  
 Center-of-Mass det. time= 220.5 min ( 978.3 - 757.8 )

| Volume | Invert  | Avail.Storage | Storage Description                                                |
|--------|---------|---------------|--------------------------------------------------------------------|
| #1     | 178.00' | 468 cf        | <b>Sediment Forebay (Irregular)</b> Listed below (Recalc)          |
| #2     | 178.50' | 8,427 cf      | <b>Above Forebay (Irregular)</b> Listed below (Recalc) -Impervious |
| #3     | 178.00' | 14,254 cf     | <b>Infiltration Basin (Irregular)</b> Listed below (Recalc)        |
|        |         | 23,149 cf     | Total Available Storage                                            |

| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Perim.<br>(feet) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet) | Wet.Area<br>(sq-ft) |
|---------------------|----------------------|------------------|---------------------------|---------------------------|---------------------|
| 178.00              | 825                  | 112.0            | 0                         | 0                         | 825                 |
| 178.50              | 1,051                | 125.0            | 468                       | 468                       | 1,077               |

| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Perim.<br>(feet) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet) | Wet.Area<br>(sq-ft) |
|---------------------|----------------------|------------------|---------------------------|---------------------------|---------------------|
| 178.50              | 1,051                | 125.0            | 0                         | 0                         | 1,051               |
| 179.00              | 1,256                | 151.0            | 576                       | 576                       | 1,626               |
| 180.00              | 1,776                | 171.0            | 1,509                     | 2,085                     | 2,163               |
| 181.00              | 2,319                | 192.0            | 2,041                     | 4,126                     | 2,797               |
| 182.00              | 2,921                | 212.0            | 2,614                     | 6,740                     | 3,471               |
| 182.50              | 3,848                | 243.0            | 1,687                     | 8,427                     | 4,599               |

| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Perim.<br>(feet) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet) | Wet.Area<br>(sq-ft) |
|---------------------|----------------------|------------------|---------------------------|---------------------------|---------------------|
| 178.00              | 1,357                | 177.0            | 0                         | 0                         | 1,357               |
| 179.00              | 1,933                | 201.0            | 1,637                     | 1,637                     | 2,103               |
| 180.00              | 2,836                | 233.0            | 2,370                     | 4,007                     | 3,230               |
| 181.00              | 3,769                | 262.0            | 3,291                     | 7,298                     | 4,398               |
| 182.00              | 4,769                | 291.0            | 4,259                     | 11,557                    | 5,704               |
| 182.50              | 6,042                | 326.0            | 2,696                     | 14,254                    | 7,430               |

| Device | Routing  | Invert  | Outlet Devices                                                                                                                                                                   |
|--------|----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | Primary  | 178.25' | <b>18.0" Round Culvert</b><br>L= 45.0' RCP, groove end projecting, Ke= 0.200<br>Inlet / Outlet Invert= 178.25' / 177.84' S= 0.0091 ' / Cc= 0.900<br>n= 0.013, Flow Area= 1.77 sf |
| #2     | Device 1 | 180.25' | <b>18.0" W x 10.0" H Vert. Orifice/Grate</b> C= 0.600<br>Limited to weir flow at low heads                                                                                       |



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|    |           |         |                                            |                   |
|----|-----------|---------|--------------------------------------------|-------------------|
| #3 | Device 1  | 182.05' | 2.0" x 2.0" Horiz. CB/Grate X 7.00 columns | X 7 rows C= 0.600 |
| #4 | Discarded | 178.00' | 2.410 in/hr Exfiltration over Surface area | Phase-In= 0.01'   |

**Discarded OutFlow** Max=0.3 cfs @ 12.25 hrs HW=181.24' (Free Discharge)

↑ **4=Exfiltration** (Exfiltration Controls 0.3 cfs)

**Primary OutFlow** Max=4.4 cfs @ 12.25 hrs HW=181.24' (Free Discharge)

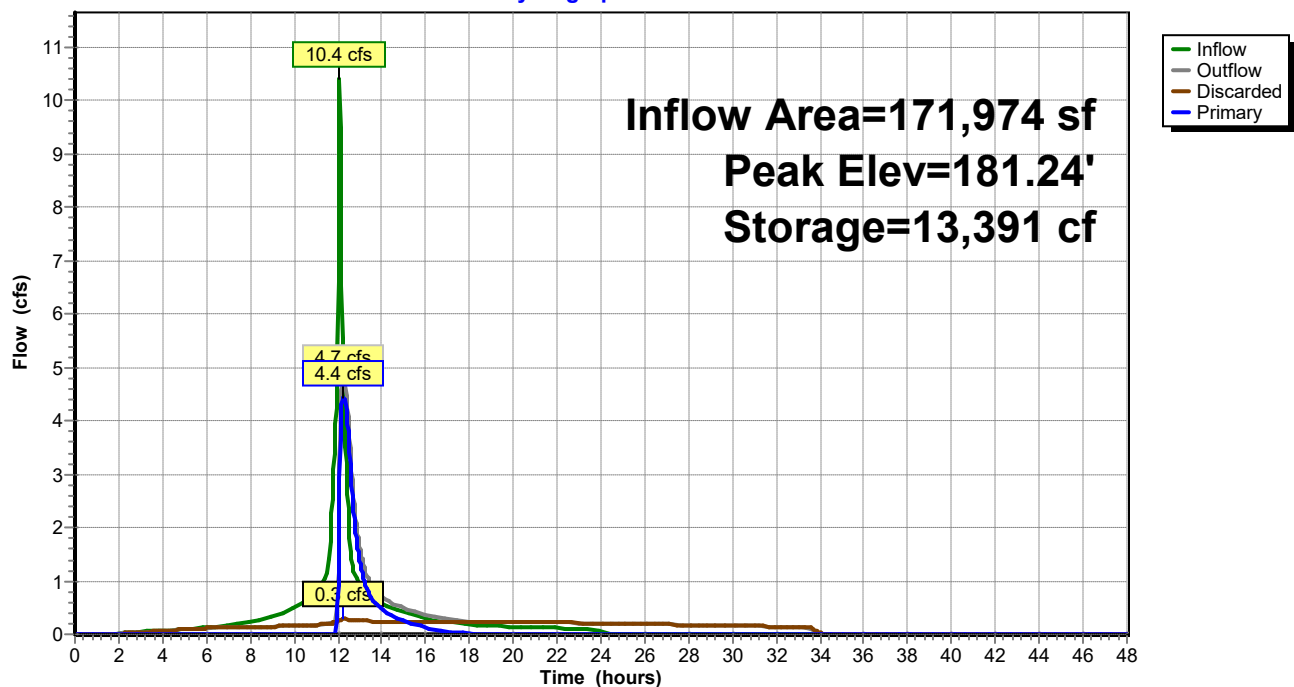
↑ **1=Culvert** (Passes 4.4 cfs of 13.7 cfs potential flow)

↑ **2=Orifice/Grate** (Orifice Controls 4.4 cfs @ 3.55 fps)

↑ **3=CB/Grate** ( Controls 0.0 cfs)

### Pond 1P: Infiltration Basin #1

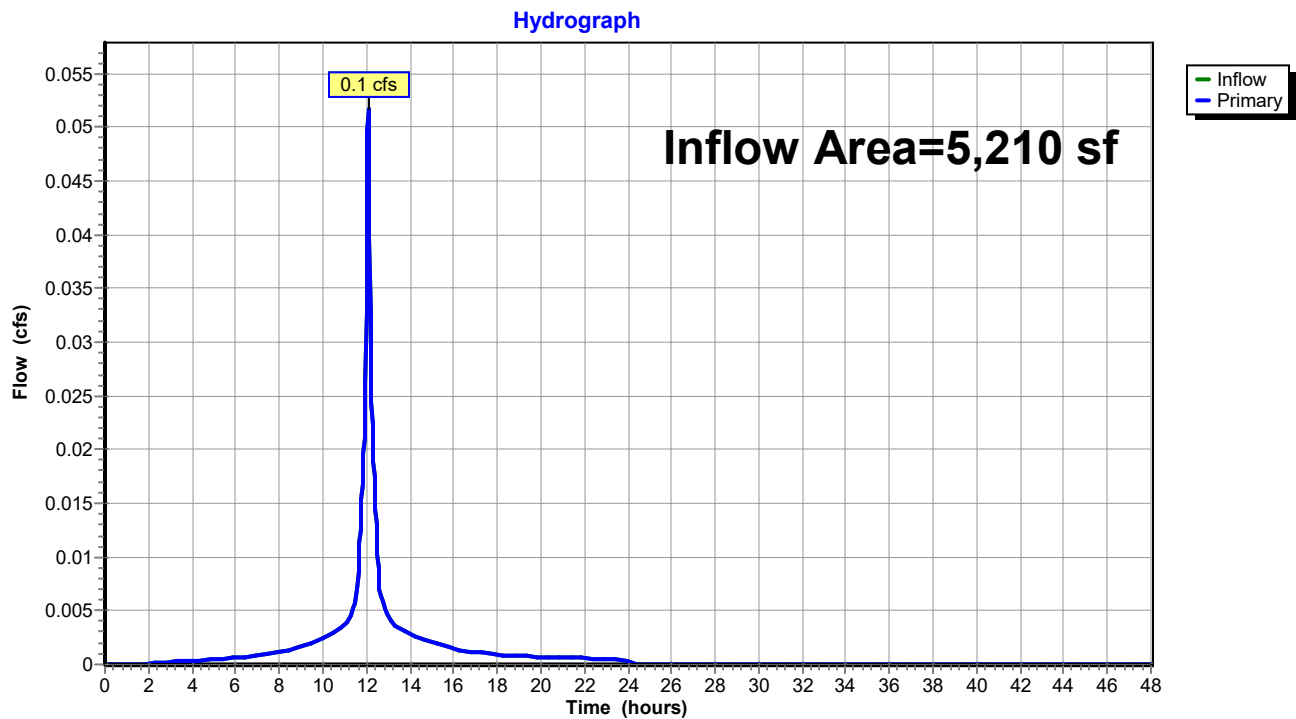
#### Hydrograph



**Summary for Link DP-1: OFFSITE (SILVER STREET)**

Inflow Area = 5,210 sf, 14.96% Impervious, Inflow Depth = 0.41" for 2-Year event  
Inflow = 0.1 cfs @ 12.08 hrs, Volume= 180 cf  
Primary = 0.1 cfs @ 12.08 hrs, Volume= 180 cf, Atten= 0%, Lag= 0.0 min

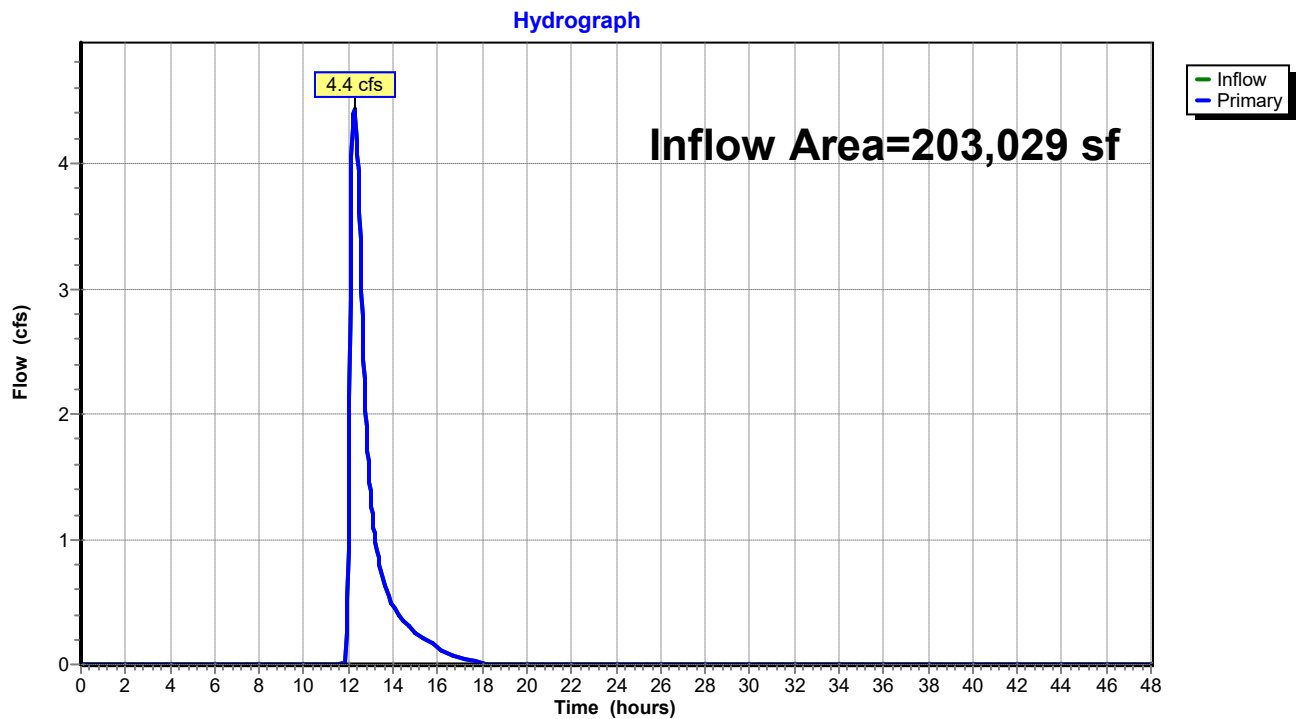
Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

**Link DP-1: OFFSITE (SILVER STREET)**

**Summary for Link DP-2: WETLANDS (SOUTH)**

Inflow Area = 203,029 sf, 77.17% Impervious, Inflow Depth = 0.95" for 2-Year event  
Inflow = 4.4 cfs @ 12.25 hrs, Volume= 16,083 cf  
Primary = 4.4 cfs @ 12.25 hrs, Volume= 16,083 cf, Atten= 0%, Lag= 0.0 min

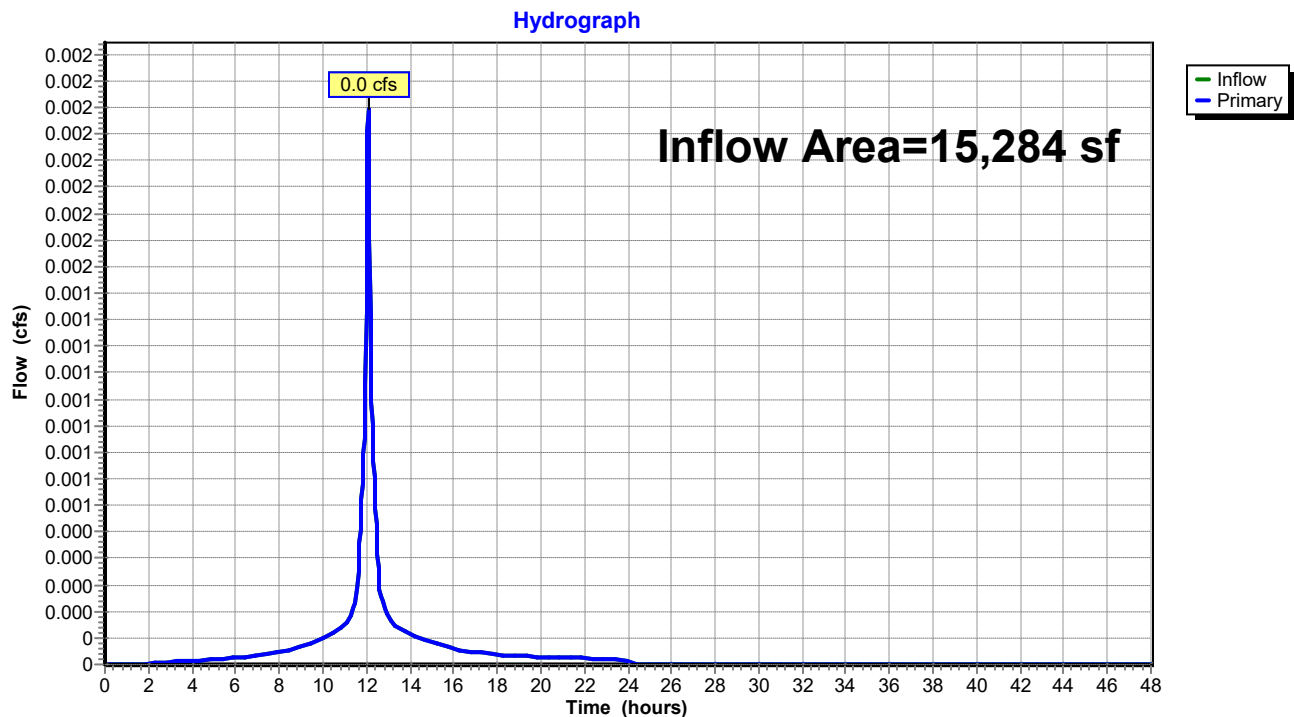
Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

**Link DP-2: WETLANDS (SOUTH)**

**Summary for Link DP-3: WETLANDS (NORTH)**

Inflow Area = 15,284 sf, 0.21% Impervious, Inflow Depth = 0.01" for 2-Year event  
Inflow = 0.0 cfs @ 12.08 hrs, Volume= 7 cf  
Primary = 0.0 cfs @ 12.08 hrs, Volume= 7 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

**Link DP-3: WETLANDS (NORTH)**

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Time span=0.00-48.00 hrs, dt=0.03 hrs, 1601 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

|                                                                                                                                                                   |                                                                                                                                                  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Subcatchment PS-1:</b>                                                                                                                                         | Runoff Area=5,210 sf 14.96% Impervious Runoff Depth=0.76"<br>Tc=6.0 min CN=WQ Runoff=0.1 cfs 330 cf                                              |
| <b>Subcatchment PS-2A:</b>                                                                                                                                        | Runoff Area=171,974 sf 91.11% Impervious Runoff Depth=3.99"<br>Tc=6.0 min CN=WQ Runoff=16.1 cfs 57,139 cf                                        |
| <b>Subcatchment PS-2B:</b>                                                                                                                                        | Runoff Area=31,055 sf 0.01% Impervious Runoff Depth=0.12"<br>Tc=6.0 min CN=WQ Runoff=0.0 cfs 308 cf                                              |
| <b>Subcatchment PS-3:</b>                                                                                                                                         | Runoff Area=15,284 sf 0.21% Impervious Runoff Depth=0.10"<br>Tc=6.0 min CN=WQ Runoff=0.0 cfs 128 cf                                              |
| <b>Pond 1P: Infiltration Basin #1</b>                                                                                                                             | Peak Elev=181.96' Storage=18,487 cf Inflow=16.1 cfs 57,139 cf<br>Discarded=0.3 cfs 23,123 cf Primary=6.8 cfs 34,016 cf Outflow=7.1 cfs 57,139 cf |
| <b>Link DP-1: OFFSITE (SILVER STREET)</b>                                                                                                                         | Inflow=0.1 cfs 330 cf<br>Primary=0.1 cfs 330 cf                                                                                                  |
| <b>Link DP-2: WETLANDS (SOUTH)</b>                                                                                                                                | Inflow=6.8 cfs 34,324 cf<br>Primary=6.8 cfs 34,324 cf                                                                                            |
| <b>Link DP-3: WETLANDS (NORTH)</b>                                                                                                                                | Inflow=0.0 cfs 128 cf<br>Primary=0.0 cfs 128 cf                                                                                                  |
| <b>Total Runoff Area = 223,522 sf Runoff Volume = 57,905 cf Average Runoff Depth = 3.11"</b><br><b>29.54% Pervious = 66,025 sf 70.46% Impervious = 157,497 sf</b> |                                                                                                                                                  |

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**Summary for Subcatchment PS-1:**

Runoff = 0.1 cfs @ 12.08 hrs, Volume= 330 cf, Depth= 0.76"  
Routed to Link DP-1 : OFFSITE (SILVER STREET)

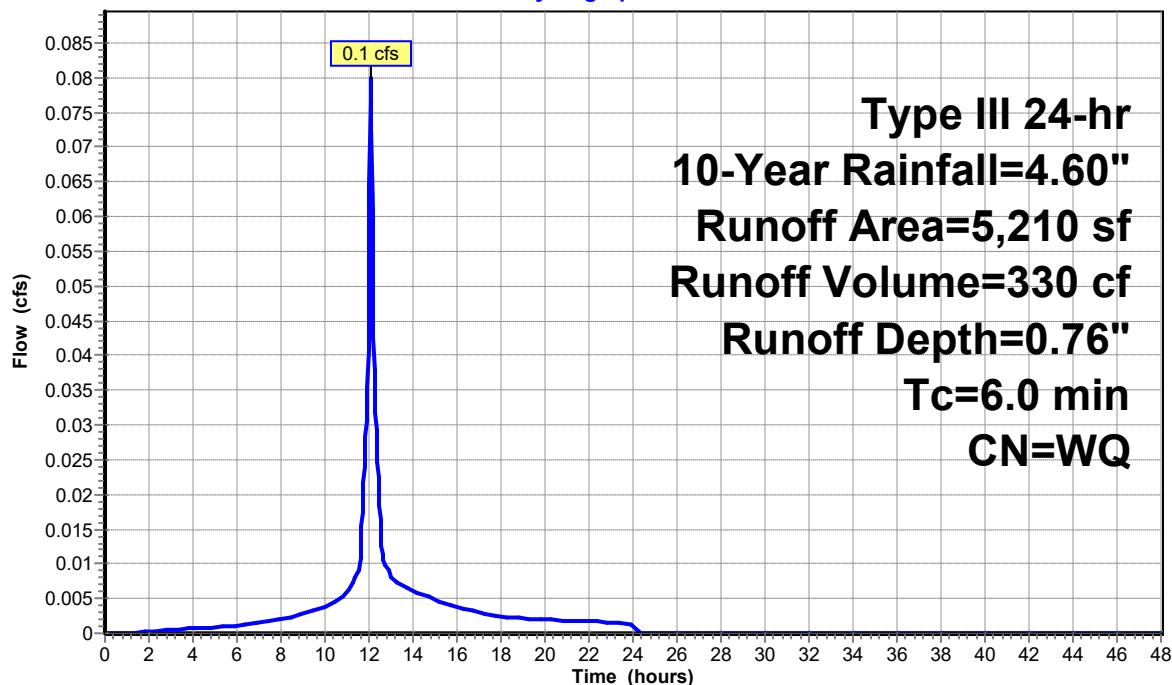
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
Type III 24-hr 10-Year Rainfall=4.60"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 4,430     | 39 | >75% Grass cover, Good, HSG A |
| 779       | 98 | Paved parking, HSG A          |
| 5,210     |    | Weighted Average              |
| 4,430     | 39 | 85.04% Pervious Area          |
| 779       | 98 | 14.96% Impervious Area        |

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

**Subcatchment PS-1:**

Hydrograph



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**Summary for Subcatchment PS-2A:**

Runoff = 16.1 cfs @ 12.08 hrs, Volume= 57,139 cf, Depth= 3.99"  
Routed to Pond 1P : Infiltration Basin #1

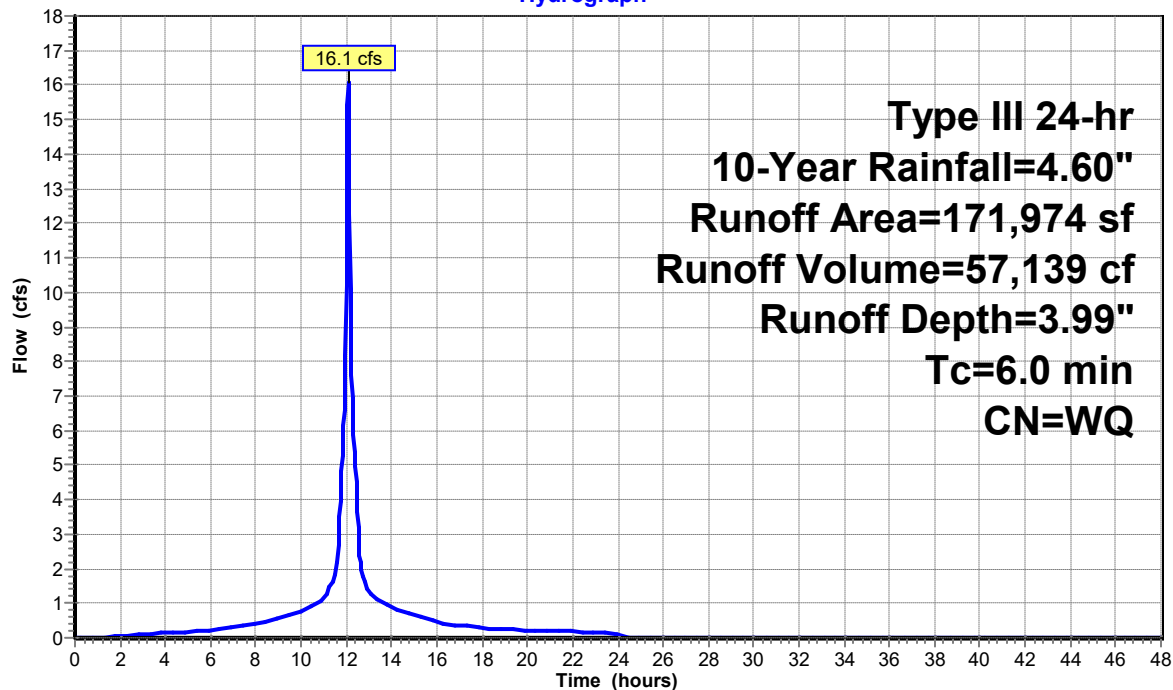
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
Type III 24-hr 10-Year Rainfall=4.60"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 15,291    | 39 | >75% Grass cover, Good, HSG A |
| 111,882   | 98 | Paved parking, HSG A          |
| 44,800    | 98 | Roofs, HSG A                  |
| 171,974   |    | Weighted Average              |
| 15,291    | 39 | 8.89% Pervious Area           |
| 156,682   | 98 | 91.11% Impervious Area        |

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

**Subcatchment PS-2A:**

Hydrograph



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**Summary for Subcatchment PS-2B:**

Runoff = 0.0 cfs @ 14.58 hrs, Volume= 308 cf, Depth= 0.12"  
 Routed to Link DP-2 : WETLANDS (SOUTH)

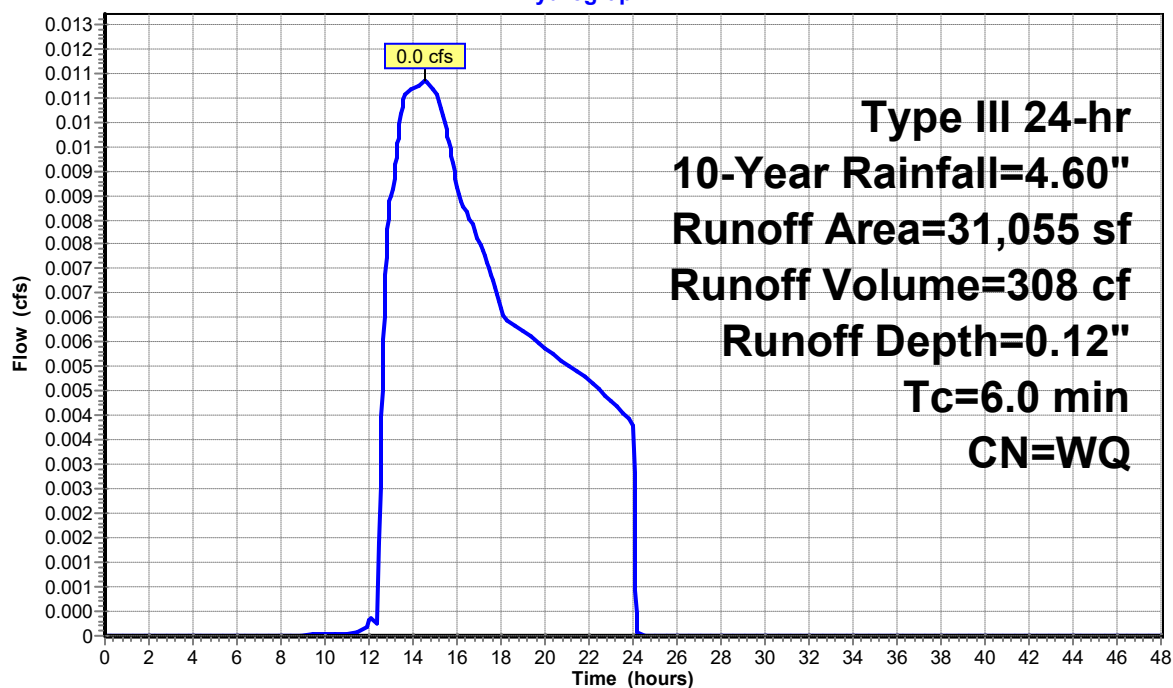
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
 Type III 24-hr 10-Year Rainfall=4.60"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 29,003    | 39 | >75% Grass cover, Good, HSG A |
| 4         | 98 | Paved parking, HSG A          |
| 2,048     | 30 | Woods, Good, HSG A            |
| 31,055    |    | Weighted Average              |
| 31,051    | 38 | 99.99% Pervious Area          |
| 4         | 98 | 0.01% Impervious Area         |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description   |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 6.0         |                  |                  |                      |                   | Direct Entry, |

**Subcatchment PS-2B:**

Hydrograph





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**Summary for Subcatchment PS-3:**

Runoff = 0.0 cfs @ 14.55 hrs, Volume= 128 cf, Depth= 0.10"  
 Routed to Link DP-3 : WETLANDS (NORTH)

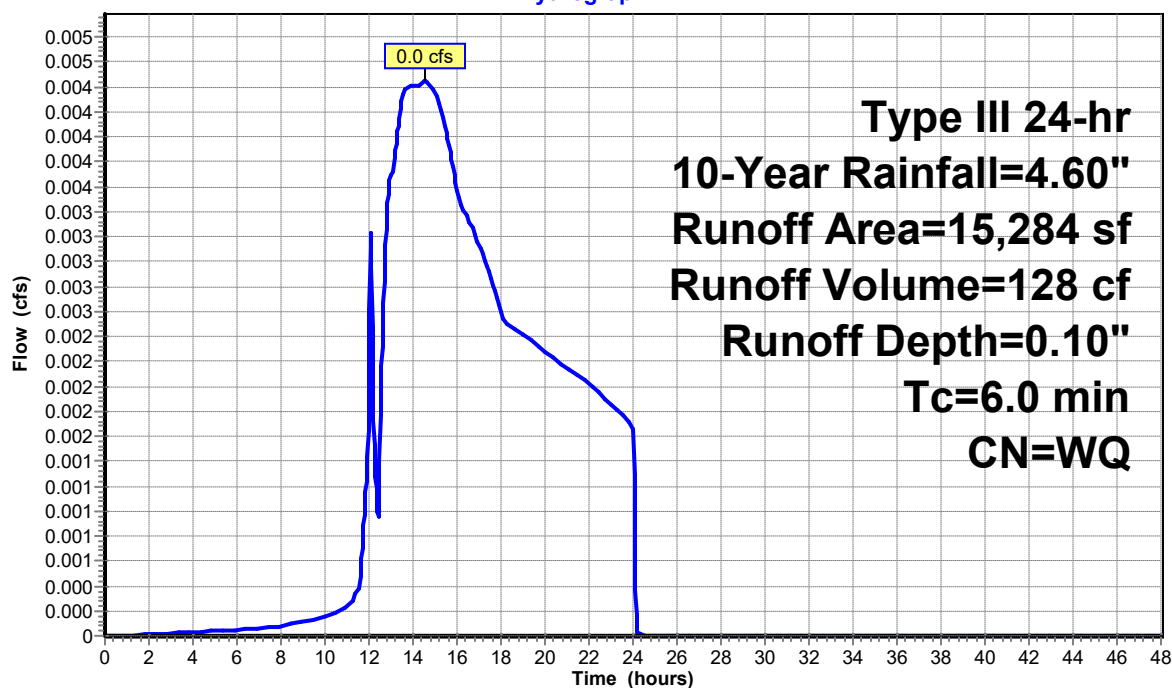
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
 Type III 24-hr 10-Year Rainfall=4.60"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 11,025    | 39 | >75% Grass cover, Good, HSG A |
| 32        | 98 | Paved parking, HSG A          |
| 4,227     | 30 | Woods, Good, HSG A            |
| 15,284    |    | Weighted Average              |
| 15,252    | 37 | 99.79% Pervious Area          |
| 32        | 98 | 0.21% Impervious Area         |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description   |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 6.0         |                  |                  |                      |                   | Direct Entry, |

**Subcatchment PS-3:**

Hydrograph



Runoff

**Summary for Pond 1P: Infiltration Basin #1**

Inflow Area = 171,974 sf, 91.11% Impervious, Inflow Depth = 3.99" for 10-Year event  
 Inflow = 16.1 cfs @ 12.08 hrs, Volume= 57,139 cf  
 Outflow = 7.1 cfs @ 12.26 hrs, Volume= 57,139 cf, Atten= 56%, Lag= 10.6 min  
 Discarded = 0.3 cfs @ 12.26 hrs, Volume= 23,123 cf  
 Primary = 6.8 cfs @ 12.26 hrs, Volume= 34,016 cf  
 Routed to Link DP-2 : WETLANDS (SOUTH)

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
 Peak Elev= 181.96' @ 12.26 hrs Surf.Area= 5,782 sf Storage= 18,487 cf

Plug-Flow detention time= 175.9 min calculated for 57,104 cf (100% of inflow)  
 Center-of-Mass det. time= 176.2 min ( 926.5 - 750.3 )

| Volume | Invert  | Avail.Storage | Storage Description                                                |
|--------|---------|---------------|--------------------------------------------------------------------|
| #1     | 178.00' | 468 cf        | <b>Sediment Forebay (Irregular)</b> Listed below (Recalc)          |
| #2     | 178.50' | 8,427 cf      | <b>Above Forebay (Irregular)</b> Listed below (Recalc) -Impervious |
| #3     | 178.00' | 14,254 cf     | <b>Infiltration Basin (Irregular)</b> Listed below (Recalc)        |
|        |         | 23,149 cf     | Total Available Storage                                            |

| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Perim.<br>(feet) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet) | Wet.Area<br>(sq-ft) |
|---------------------|----------------------|------------------|---------------------------|---------------------------|---------------------|
| 178.00              | 825                  | 112.0            | 0                         | 0                         | 825                 |
| 178.50              | 1,051                | 125.0            | 468                       | 468                       | 1,077               |

| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Perim.<br>(feet) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet) | Wet.Area<br>(sq-ft) |
|---------------------|----------------------|------------------|---------------------------|---------------------------|---------------------|
| 178.50              | 1,051                | 125.0            | 0                         | 0                         | 1,051               |
| 179.00              | 1,256                | 151.0            | 576                       | 576                       | 1,626               |
| 180.00              | 1,776                | 171.0            | 1,509                     | 2,085                     | 2,163               |
| 181.00              | 2,319                | 192.0            | 2,041                     | 4,126                     | 2,797               |
| 182.00              | 2,921                | 212.0            | 2,614                     | 6,740                     | 3,471               |
| 182.50              | 3,848                | 243.0            | 1,687                     | 8,427                     | 4,599               |

| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Perim.<br>(feet) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet) | Wet.Area<br>(sq-ft) |
|---------------------|----------------------|------------------|---------------------------|---------------------------|---------------------|
| 178.00              | 1,357                | 177.0            | 0                         | 0                         | 1,357               |
| 179.00              | 1,933                | 201.0            | 1,637                     | 1,637                     | 2,103               |
| 180.00              | 2,836                | 233.0            | 2,370                     | 4,007                     | 3,230               |
| 181.00              | 3,769                | 262.0            | 3,291                     | 7,298                     | 4,398               |
| 182.00              | 4,769                | 291.0            | 4,259                     | 11,557                    | 5,704               |
| 182.50              | 6,042                | 326.0            | 2,696                     | 14,254                    | 7,430               |

| Device | Routing  | Invert  | Outlet Devices                                                                                                                                                                   |
|--------|----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | Primary  | 178.25' | <b>18.0" Round Culvert</b><br>L= 45.0' RCP, groove end projecting, Ke= 0.200<br>Inlet / Outlet Invert= 178.25' / 177.84' S= 0.0091 ' / Cc= 0.900<br>n= 0.013, Flow Area= 1.77 sf |
| #2     | Device 1 | 180.25' | <b>18.0" W x 10.0" H Vert. Orifice/Grate</b> C= 0.600<br>Limited to weir flow at low heads                                                                                       |

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|    |           |         |                                            |                   |
|----|-----------|---------|--------------------------------------------|-------------------|
| #3 | Device 1  | 182.05' | 2.0" x 2.0" Horiz. CB/Grate X 7.00 columns | X 7 rows C= 0.600 |
| #4 | Discarded | 178.00' | 2.410 in/hr Exfiltration over Surface area | Phase-In= 0.01'   |

**Discarded OutFlow** Max=0.3 cfs @ 12.26 hrs HW=181.96' (Free Discharge)

↑ **4=Exfiltration** (Exfiltration Controls 0.3 cfs)

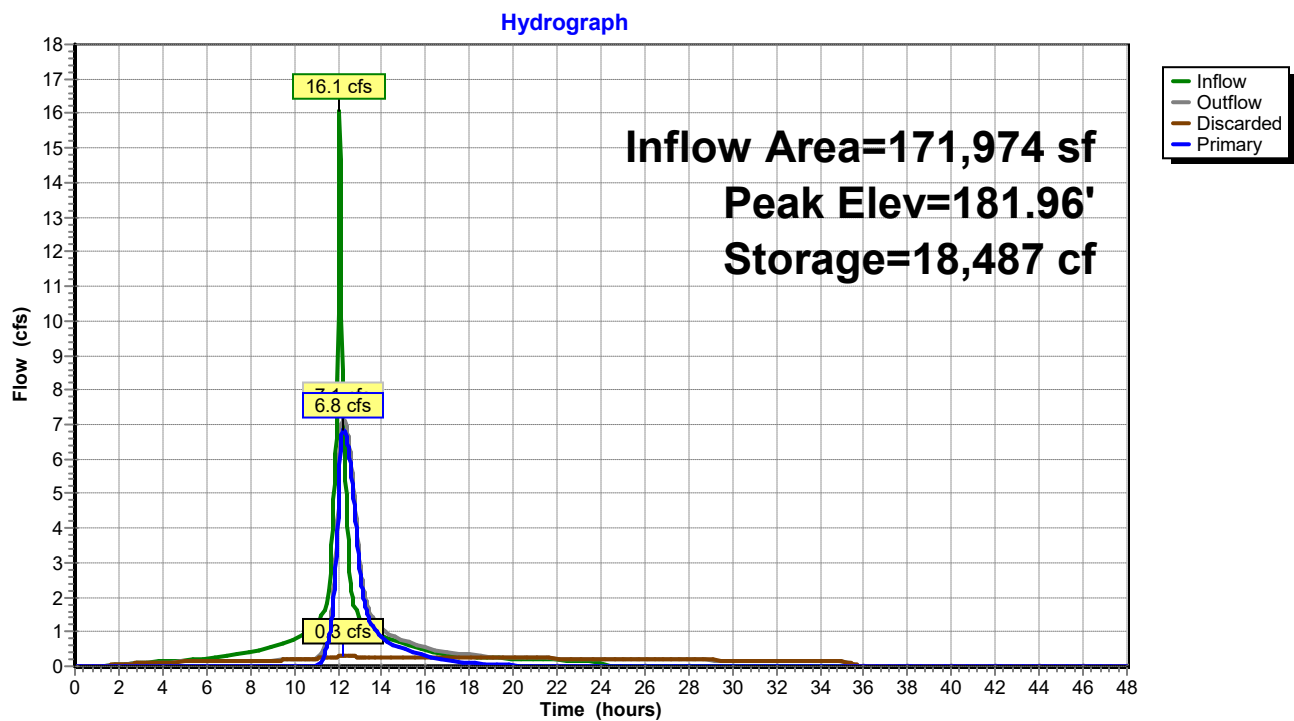
**Primary OutFlow** Max=6.8 cfs @ 12.26 hrs HW=181.96' (Free Discharge)

↑ **1=Culvert** (Passes 6.8 cfs of 16.1 cfs potential flow)

↑ **2=Orifice/Grate** (Orifice Controls 6.8 cfs @ 5.46 fps)

↑ **3=CB/Grate** ( Controls 0.0 cfs)

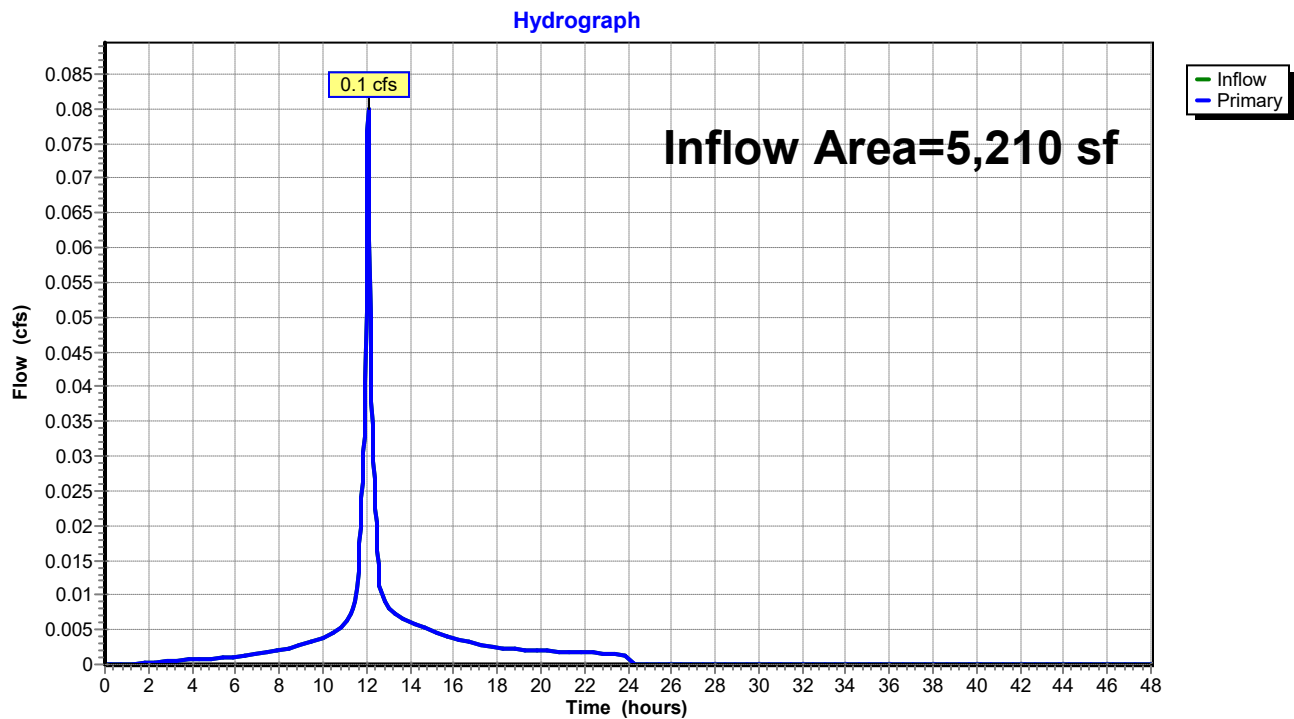
### Pond 1P: Infiltration Basin #1



**Summary for Link DP-1: OFFSITE (SILVER STREET)**

Inflow Area = 5,210 sf, 14.96% Impervious, Inflow Depth = 0.76" for 10-Year event  
Inflow = 0.1 cfs @ 12.08 hrs, Volume= 330 cf  
Primary = 0.1 cfs @ 12.08 hrs, Volume= 330 cf, Atten= 0%, Lag= 0.0 min

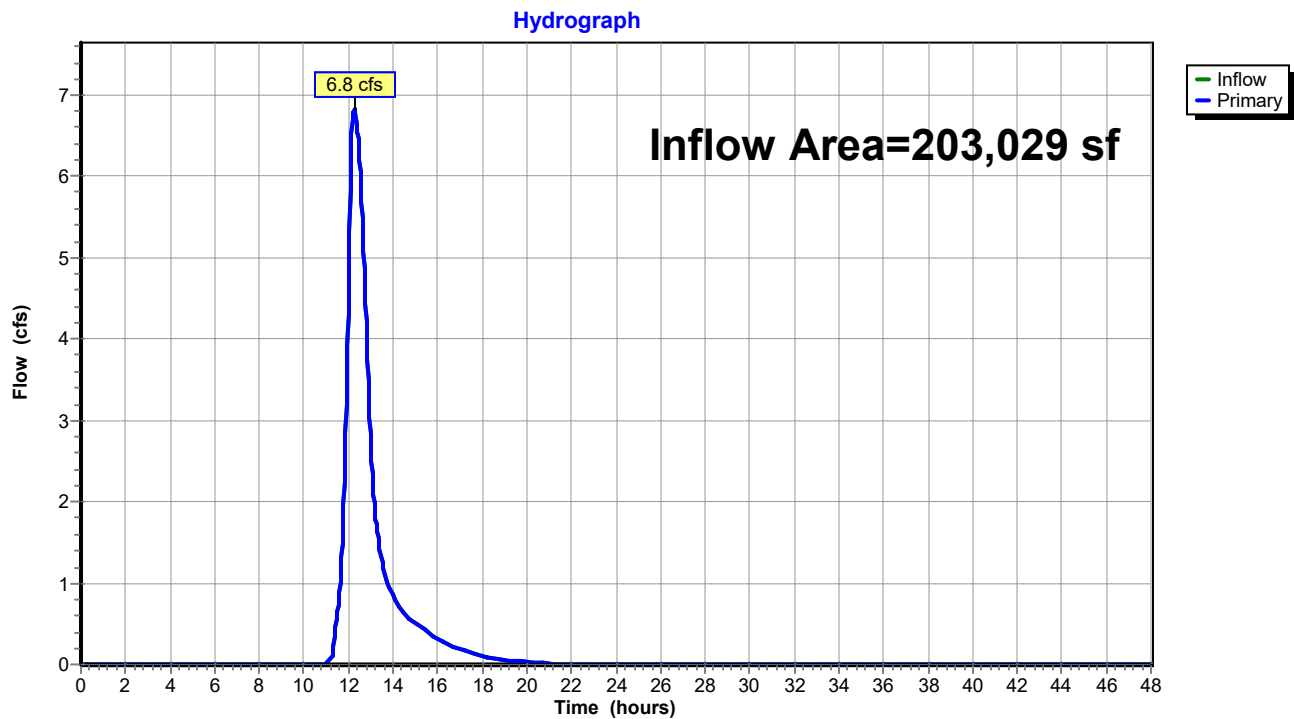
Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

**Link DP-1: OFFSITE (SILVER STREET)**

**Summary for Link DP-2: WETLANDS (SOUTH)**

Inflow Area = 203,029 sf, 77.17% Impervious, Inflow Depth = 2.03" for 10-Year event  
Inflow = 6.8 cfs @ 12.26 hrs, Volume= 34,324 cf  
Primary = 6.8 cfs @ 12.26 hrs, Volume= 34,324 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

**Link DP-2: WETLANDS (SOUTH)**

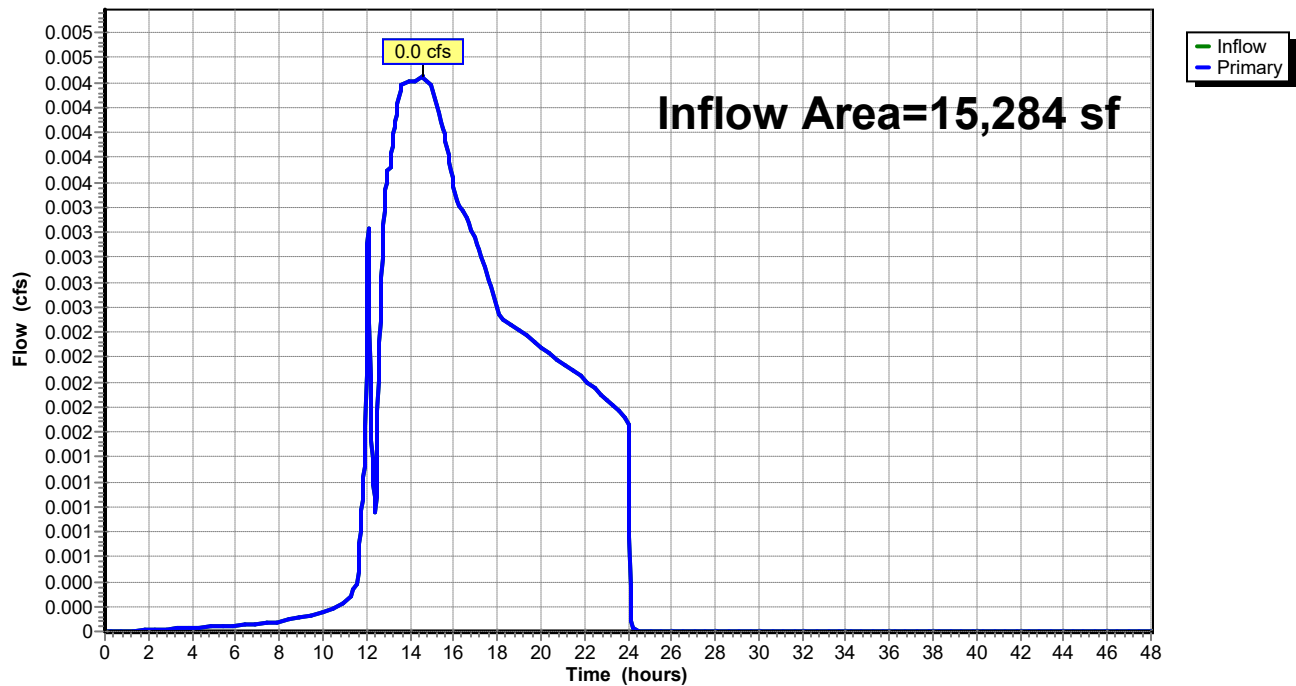
**Summary for Link DP-3: WETLANDS (NORTH)**

Inflow Area = 15,284 sf, 0.21% Impervious, Inflow Depth = 0.10" for 10-Year event  
Inflow = 0.0 cfs @ 14.55 hrs, Volume= 128 cf  
Primary = 0.0 cfs @ 14.55 hrs, Volume= 128 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

**Link DP-3: WETLANDS (NORTH)**

Hydrograph



**220522 - POST***Type III 24-hr 100-Year Rainfall=6.50"*

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Time span=0.00-48.00 hrs, dt=0.03 hrs, 1601 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-1:** Runoff Area=5,210 sf 14.96% Impervious Runoff Depth=1.45"  
Tc=6.0 min CN=WQ Runoff=0.1 cfs 627 cf

**Subcatchment PS-2A:** Runoff Area=171,974 sf 91.11% Impervious Runoff Depth=5.76"  
Tc=6.0 min CN=WQ Runoff=22.8 cfs 82,515 cf

**Subcatchment PS-2B:** Runoff Area=31,055 sf 0.01% Impervious Runoff Depth=0.57"  
Tc=6.0 min CN=WQ Runoff=0.2 cfs 1,470 cf

**Subcatchment PS-3:** Runoff Area=15,284 sf 0.21% Impervious Runoff Depth=0.48"  
Tc=6.0 min CN=WQ Runoff=0.1 cfs 613 cf

**Pond 1P: Infiltration Basin #1** Peak Elev=182.42' Storage=22,358 cf Inflow=22.8 cfs 82,515 cf  
Discarded=0.4 cfs 25,112 cf Primary=11.9 cfs 57,403 cf Outflow=12.3 cfs 82,515 cf

**Link DP-1: OFFSITE (SILVER STREET)** Inflow=0.1 cfs 627 cf  
Primary=0.1 cfs 627 cf

**Link DP-2: WETLANDS (SOUTH)** Inflow=12.1 cfs 58,874 cf  
Primary=12.1 cfs 58,874 cf

**Link DP-3: WETLANDS (NORTH)** Inflow=0.1 cfs 613 cf  
Primary=0.1 cfs 613 cf

**Total Runoff Area = 223,522 sf Runoff Volume = 85,226 cf Average Runoff Depth = 4.58"**  
**29.54% Pervious = 66,025 sf 70.46% Impervious = 157,497 sf**

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Type III 24-hr 100-Year Rainfall=6.50"

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**Summary for Subcatchment PS-1:**

Runoff = 0.1 cfs @ 12.10 hrs, Volume= 627 cf, Depth= 1.45"  
Routed to Link DP-1 : OFFSITE (SILVER STREET)

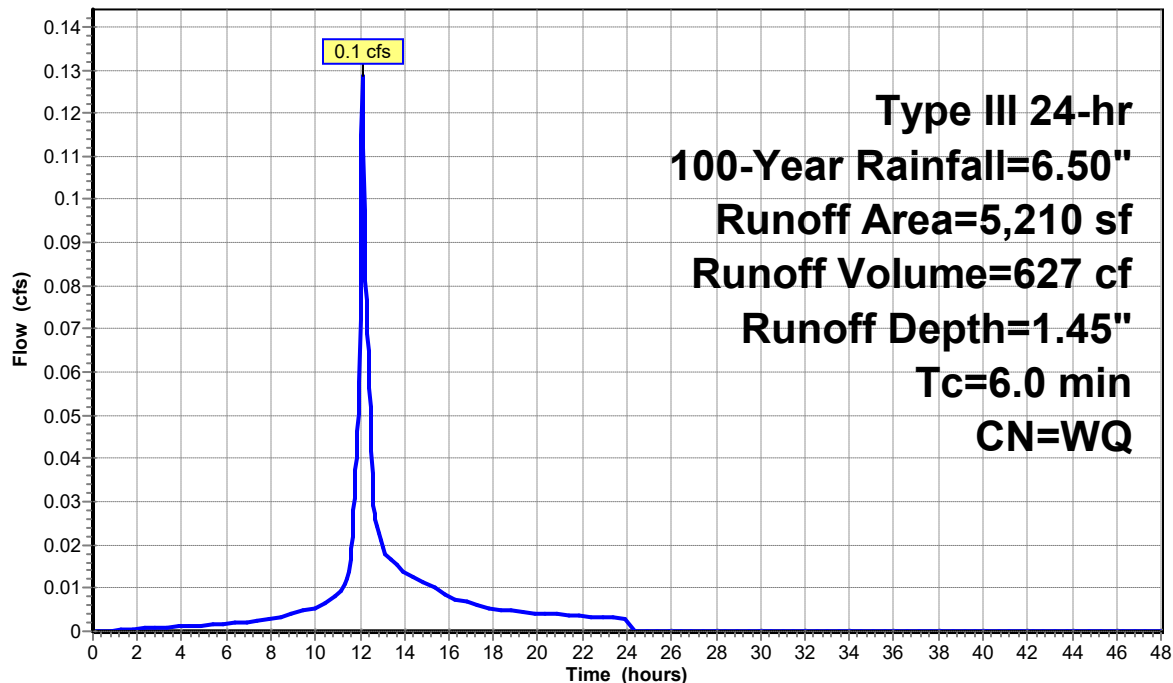
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
Type III 24-hr 100-Year Rainfall=6.50"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 4,430     | 39 | >75% Grass cover, Good, HSG A |
| 779       | 98 | Paved parking, HSG A          |
| 5,210     |    | Weighted Average              |
| 4,430     | 39 | 85.04% Pervious Area          |
| 779       | 98 | 14.96% Impervious Area        |

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

**Subcatchment PS-1:**

Hydrograph





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Type III 24-hr 100-Year Rainfall=6.50"

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**Summary for Subcatchment PS-2A:**

Runoff = 22.8 cfs @ 12.08 hrs, Volume= 82,515 cf, Depth= 5.76"  
 Routed to Pond 1P : Infiltration Basin #1

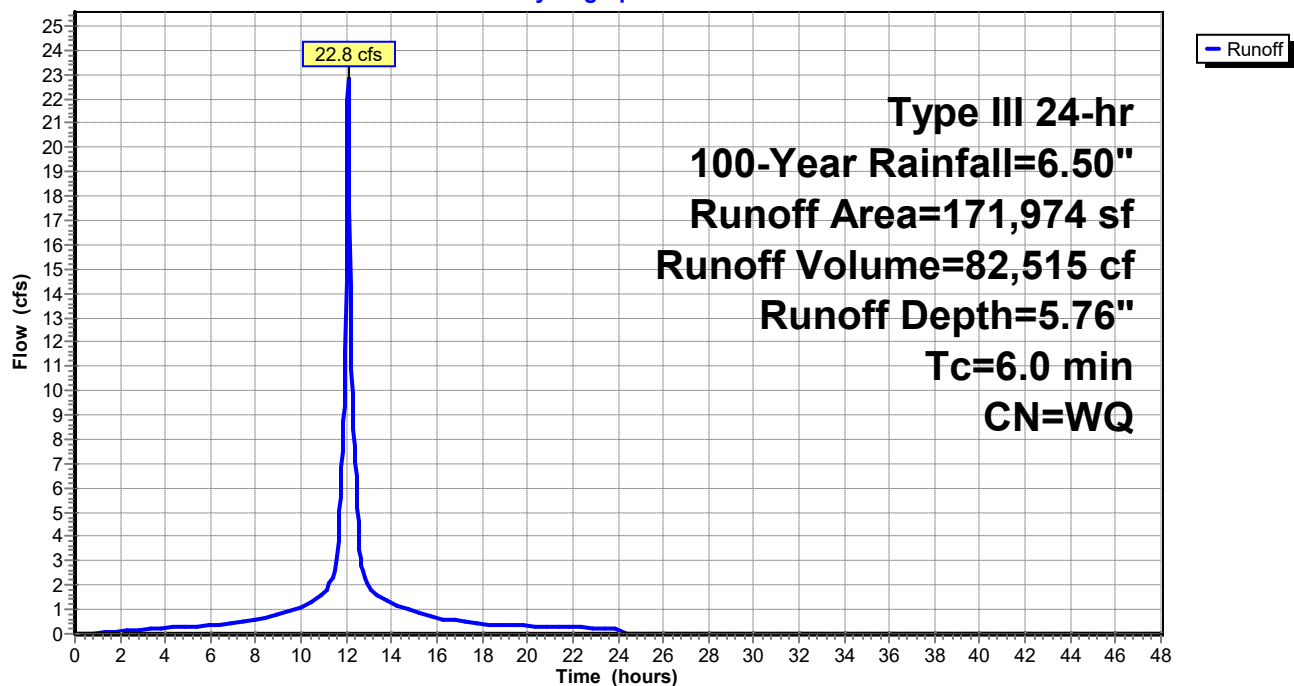
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
 Type III 24-hr 100-Year Rainfall=6.50"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 15,291    | 39 | >75% Grass cover, Good, HSG A |
| 111,882   | 98 | Paved parking, HSG A          |
| 44,800    | 98 | Roofs, HSG A                  |
| 171,974   |    | Weighted Average              |
| 15,291    | 39 | 8.89% Pervious Area           |
| 156,682   | 98 | 91.11% Impervious Area        |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description   |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 6.0         |                  |                  |                      |                   | Direct Entry, |

**Subcatchment PS-2A:**

Hydrograph



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**Summary for Subcatchment PS-2B:**

Runoff = 0.2 cfs @ 12.29 hrs, Volume= 1,470 cf, Depth= 0.57"  
Routed to Link DP-2 : WETLANDS (SOUTH)

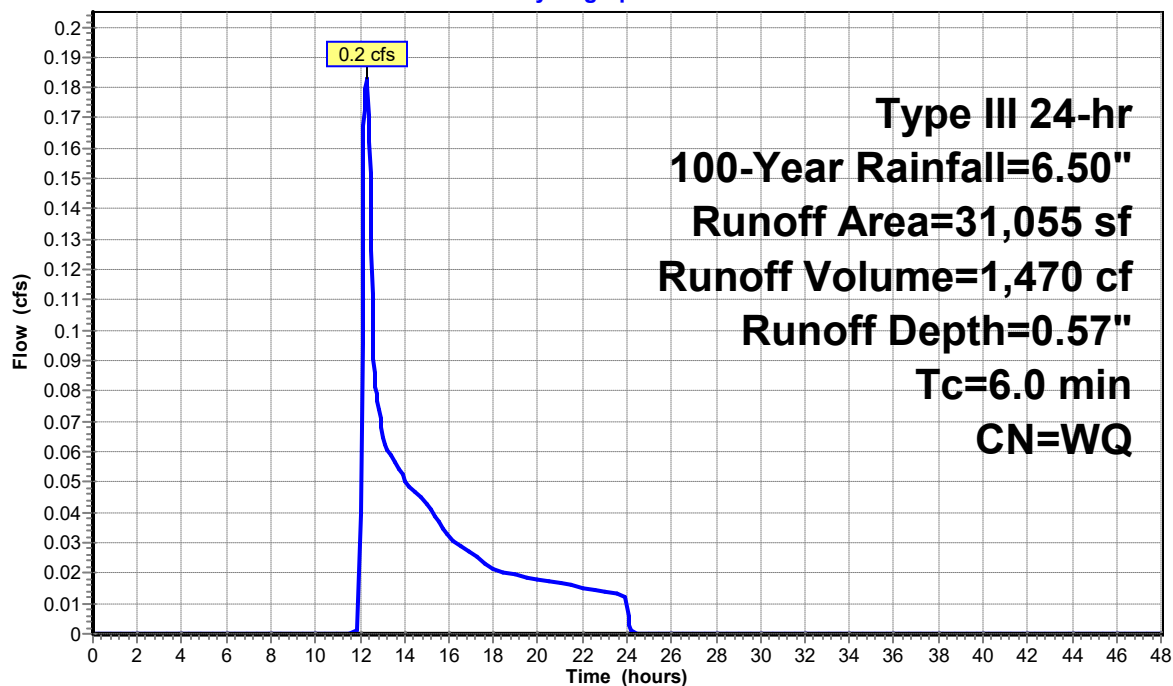
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
Type III 24-hr 100-Year Rainfall=6.50"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 29,003    | 39 | >75% Grass cover, Good, HSG A |
| 4         | 98 | Paved parking, HSG A          |
| 2,048     | 30 | Woods, Good, HSG A            |
| 31,055    |    | Weighted Average              |
| 31,051    | 38 | 99.99% Pervious Area          |
| 4         | 98 | 0.01% Impervious Area         |

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

**Subcatchment PS-2B:**

Hydrograph



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Type III 24-hr 100-Year Rainfall=6.50"

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**Summary for Subcatchment PS-3:**

Runoff = 0.1 cfs @ 12.29 hrs, Volume= 613 cf, Depth= 0.48"  
Routed to Link DP-3 : WETLANDS (NORTH)

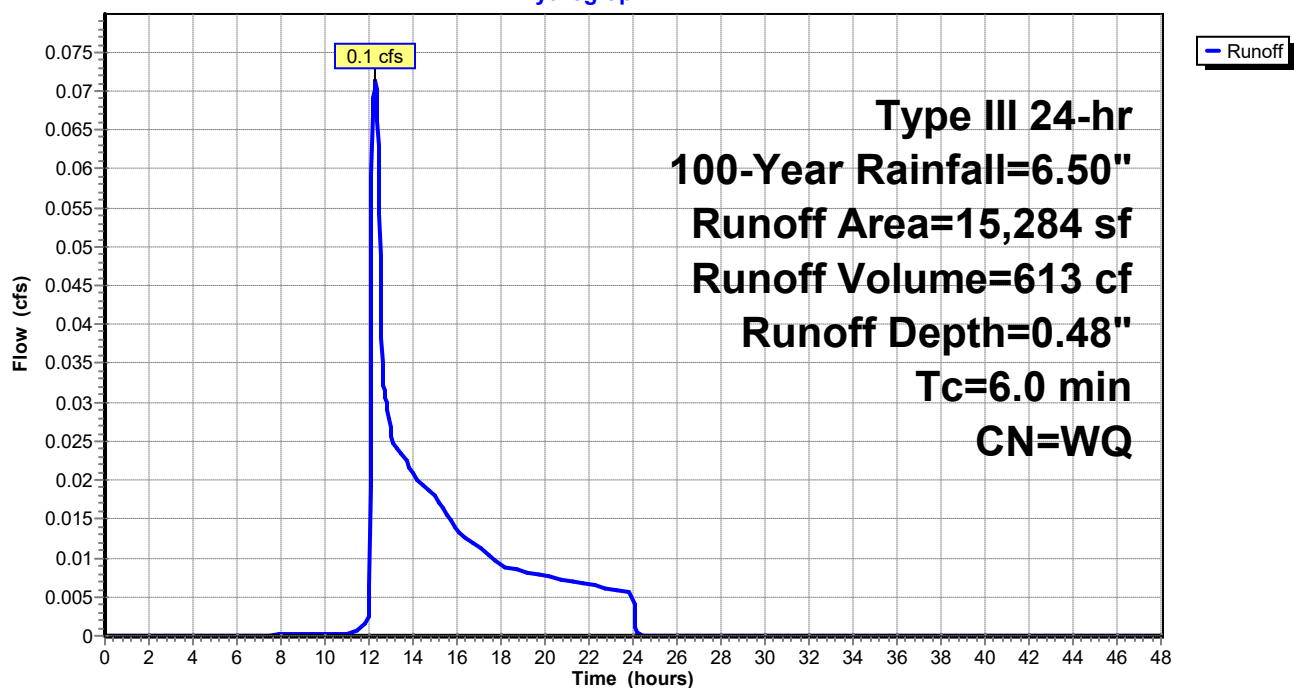
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
Type III 24-hr 100-Year Rainfall=6.50"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 11,025    | 39 | >75% Grass cover, Good, HSG A |
| 32        | 98 | Paved parking, HSG A          |
| 4,227     | 30 | Woods, Good, HSG A            |
| 15,284    |    | Weighted Average              |
| 15,252    | 37 | 99.79% Pervious Area          |
| 32        | 98 | 0.21% Impervious Area         |

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

**Subcatchment PS-3:**

Hydrograph



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Type III 24-hr 100-Year Rainfall=6.50"

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**Summary for Pond 1P: Infiltration Basin #1**

Inflow Area = 171,974 sf, 91.11% Impervious, Inflow Depth = 5.76" for 100-Year event  
 Inflow = 22.8 cfs @ 12.08 hrs, Volume= 82,515 cf  
 Outflow = 12.3 cfs @ 12.21 hrs, Volume= 82,515 cf, Atten= 46%, Lag= 7.7 min  
 Discarded = 0.4 cfs @ 12.21 hrs, Volume= 25,112 cf  
 Primary = 11.9 cfs @ 12.21 hrs, Volume= 57,403 cf  
 Routed to Link DP-2 : WETLANDS (SOUTH)

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
 Peak Elev= 182.42' @ 12.21 hrs Surf.Area= 6,875 sf Storage= 22,358 cf

Plug-Flow detention time= 142.0 min calculated for 82,464 cf (100% of inflow)  
 Center-of-Mass det. time= 142.3 min ( 888.2 - 745.8 )

| Volume | Invert  | Avail.Storage | Storage Description                                                |
|--------|---------|---------------|--------------------------------------------------------------------|
| #1     | 178.00' | 468 cf        | <b>Sediment Forebay (Irregular)</b> Listed below (Recalc)          |
| #2     | 178.50' | 8,427 cf      | <b>Above Forebay (Irregular)</b> Listed below (Recalc) -Impervious |
| #3     | 178.00' | 14,254 cf     | <b>Infiltration Basin (Irregular)</b> Listed below (Recalc)        |
|        |         | 23,149 cf     | Total Available Storage                                            |

| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Perim.<br>(feet) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet) | Wet.Area<br>(sq-ft) |
|---------------------|----------------------|------------------|---------------------------|---------------------------|---------------------|
| 178.00              | 825                  | 112.0            | 0                         | 0                         | 825                 |
| 178.50              | 1,051                | 125.0            | 468                       | 468                       | 1,077               |

| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Perim.<br>(feet) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet) | Wet.Area<br>(sq-ft) |
|---------------------|----------------------|------------------|---------------------------|---------------------------|---------------------|
| 178.50              | 1,051                | 125.0            | 0                         | 0                         | 1,051               |
| 179.00              | 1,256                | 151.0            | 576                       | 576                       | 1,626               |
| 180.00              | 1,776                | 171.0            | 1,509                     | 2,085                     | 2,163               |
| 181.00              | 2,319                | 192.0            | 2,041                     | 4,126                     | 2,797               |
| 182.00              | 2,921                | 212.0            | 2,614                     | 6,740                     | 3,471               |
| 182.50              | 3,848                | 243.0            | 1,687                     | 8,427                     | 4,599               |

| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Perim.<br>(feet) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet) | Wet.Area<br>(sq-ft) |
|---------------------|----------------------|------------------|---------------------------|---------------------------|---------------------|
| 178.00              | 1,357                | 177.0            | 0                         | 0                         | 1,357               |
| 179.00              | 1,933                | 201.0            | 1,637                     | 1,637                     | 2,103               |
| 180.00              | 2,836                | 233.0            | 2,370                     | 4,007                     | 3,230               |
| 181.00              | 3,769                | 262.0            | 3,291                     | 7,298                     | 4,398               |
| 182.00              | 4,769                | 291.0            | 4,259                     | 11,557                    | 5,704               |
| 182.50              | 6,042                | 326.0            | 2,696                     | 14,254                    | 7,430               |

| Device | Routing  | Invert  | Outlet Devices                                                                                                                                                                   |
|--------|----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | Primary  | 178.25' | <b>18.0" Round Culvert</b><br>L= 45.0' RCP, groove end projecting, Ke= 0.200<br>Inlet / Outlet Invert= 178.25' / 177.84' S= 0.0091 ' / Cc= 0.900<br>n= 0.013, Flow Area= 1.77 sf |
| #2     | Device 1 | 180.25' | <b>18.0" W x 10.0" H Vert. Orifice/Grate</b> C= 0.600<br>Limited to weir flow at low heads                                                                                       |

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Type III 24-hr 100-Year Rainfall=6.50"

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|    |           |         |                                            |                   |
|----|-----------|---------|--------------------------------------------|-------------------|
| #3 | Device 1  | 182.05' | 2.0" x 2.0" Horiz. CB/Grate X 7.00 columns | X 7 rows C= 0.600 |
| #4 | Discarded | 178.00' | 2.410 in/hr Exfiltration over Surface area | Phase-In= 0.01'   |

**Discarded OutFlow** Max=0.4 cfs @ 12.21 hrs HW=182.42' (Free Discharge)

↳ **4=Exfiltration** (Exfiltration Controls 0.4 cfs)

**Primary OutFlow** Max=11.9 cfs @ 12.21 hrs HW=182.42' (Free Discharge)

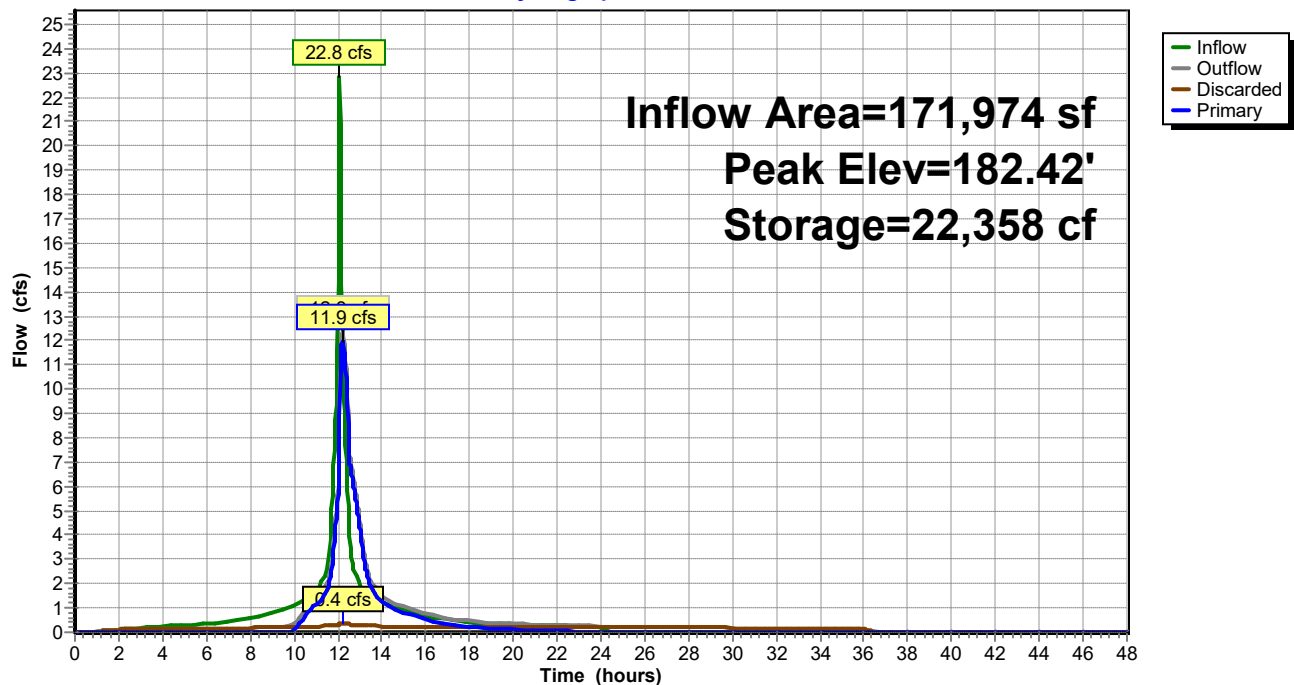
↳ **1=Culvert** (Passes 11.9 cfs of 17.5 cfs potential flow)

↳ **2=Orifice/Grate** (Orifice Controls 7.9 cfs @ 6.36 fps)

↳ **3=CB/Grate** (Orifice Controls 4.0 cfs @ 2.92 fps)

### Pond 1P: Infiltration Basin #1

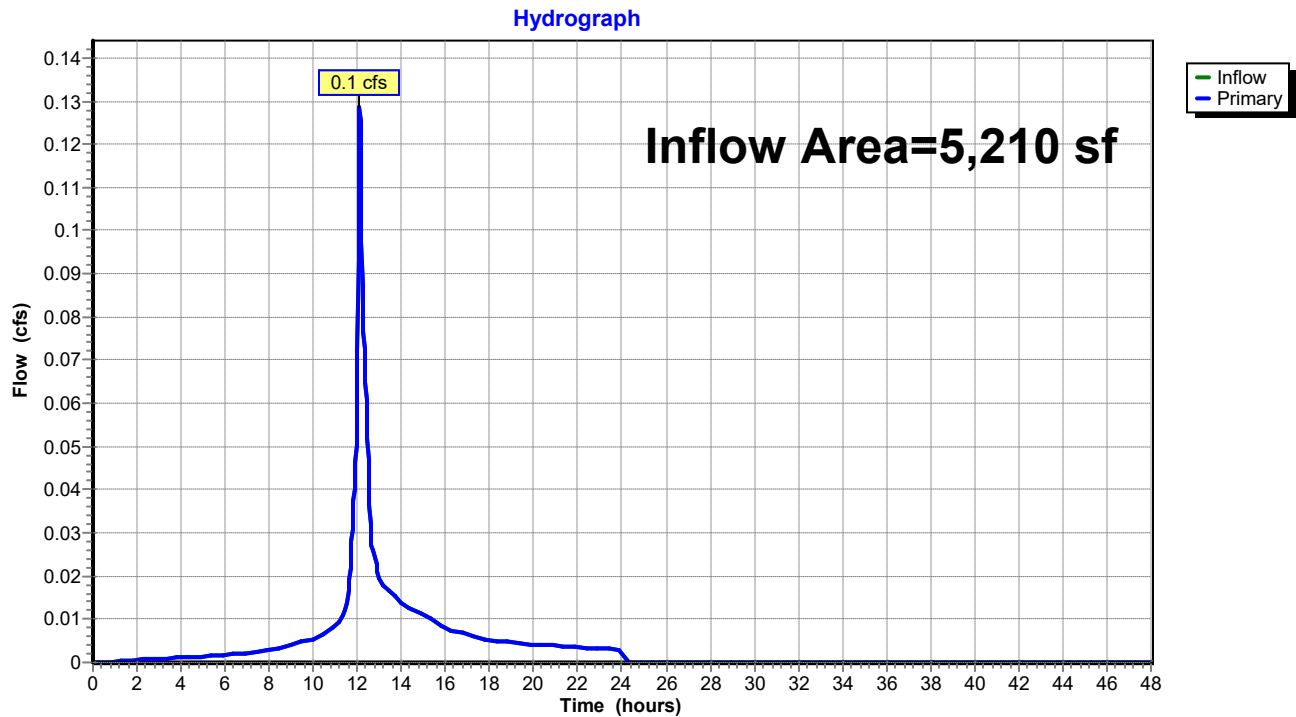
#### Hydrograph



**Summary for Link DP-1: OFFSITE (SILVER STREET)**

Inflow Area = 5,210 sf, 14.96% Impervious, Inflow Depth = 1.45" for 100-Year event  
Inflow = 0.1 cfs @ 12.10 hrs, Volume= 627 cf  
Primary = 0.1 cfs @ 12.10 hrs, Volume= 627 cf, Atten= 0%, Lag= 0.0 min

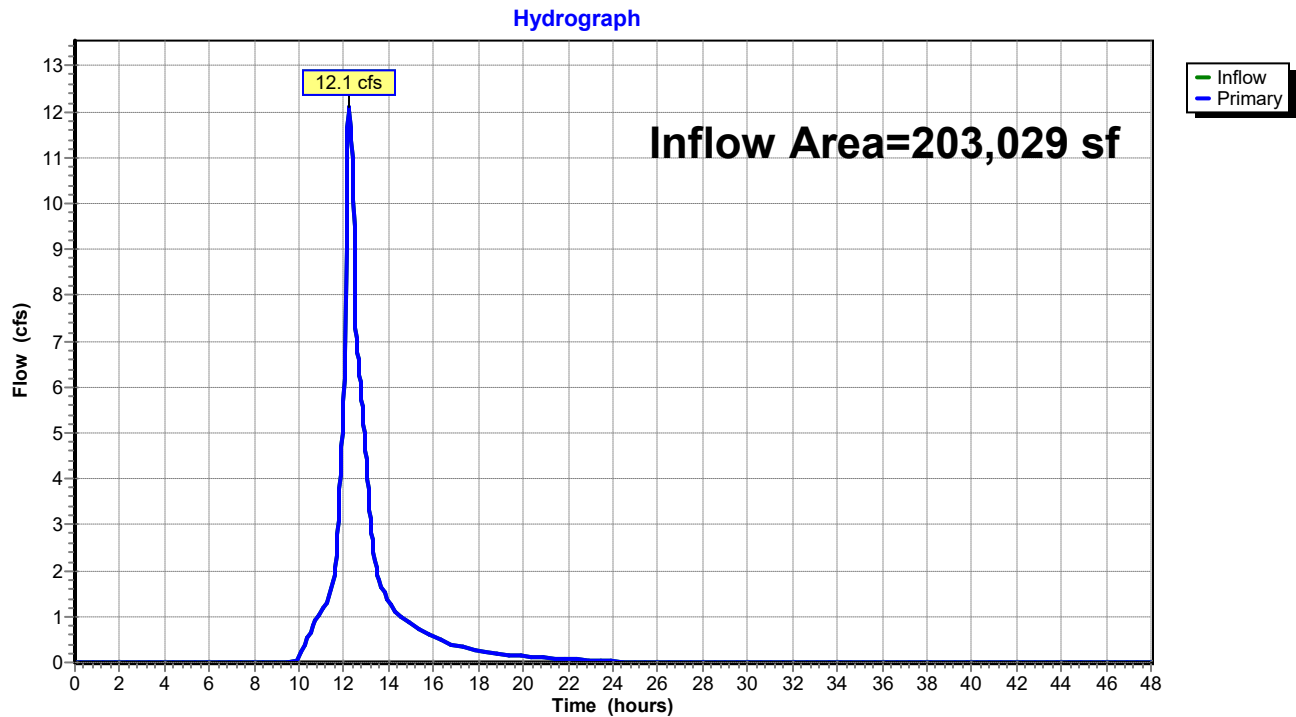
Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

**Link DP-1: OFFSITE (SILVER STREET)**

**Summary for Link DP-2: WETLANDS (SOUTH)**

Inflow Area = 203,029 sf, 77.17% Impervious, Inflow Depth = 3.48" for 100-Year event  
Inflow = 12.1 cfs @ 12.21 hrs, Volume= 58,874 cf  
Primary = 12.1 cfs @ 12.21 hrs, Volume= 58,874 cf, Atten= 0%, Lag= 0.0 min

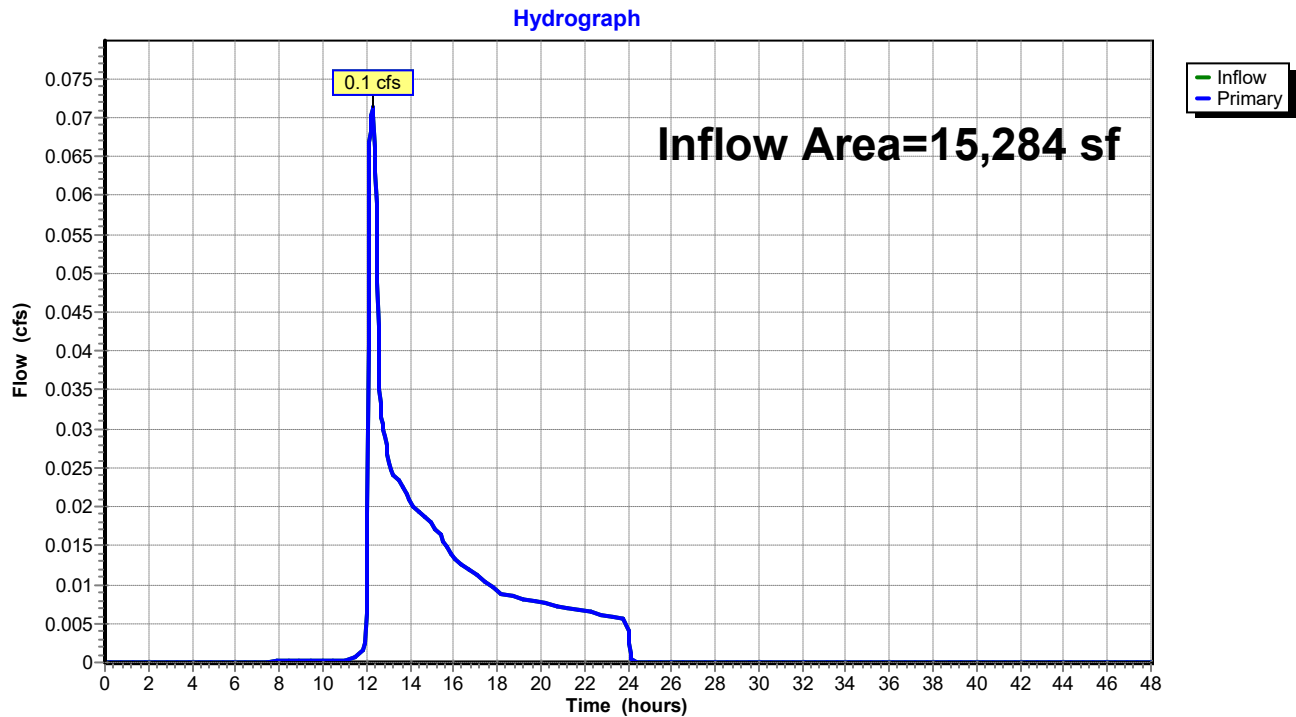
Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

**Link DP-2: WETLANDS (SOUTH)**

**Summary for Link DP-3: WETLANDS (NORTH)**

Inflow Area = 15,284 sf, 0.21% Impervious, Inflow Depth = 0.48" for 100-Year event  
Inflow = 0.1 cfs @ 12.29 hrs, Volume= 613 cf  
Primary = 0.1 cfs @ 12.29 hrs, Volume= 613 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs

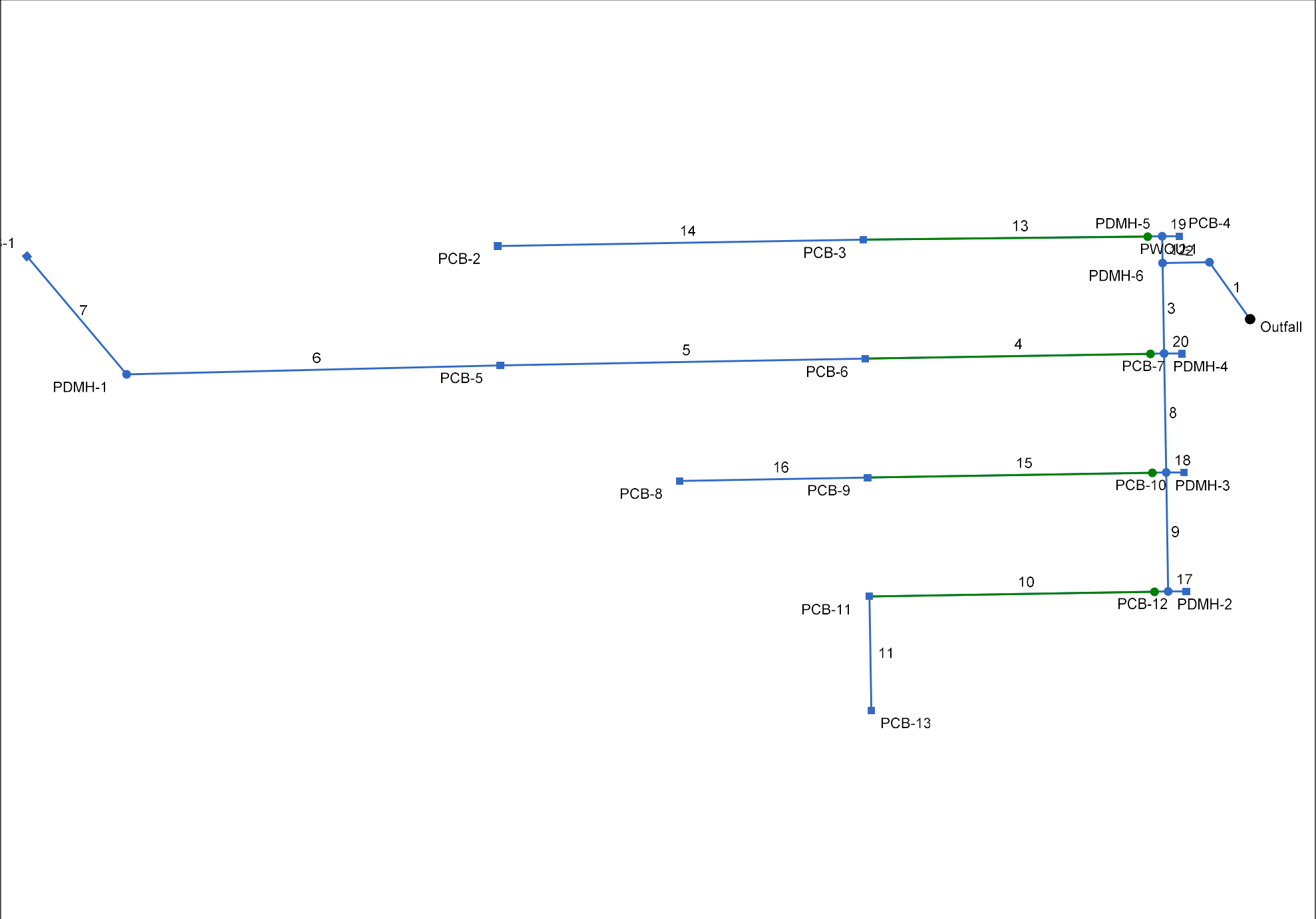
**Link DP-3: WETLANDS (NORTH)**



## Appendix D: Hydraulic Analysis



# Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



|                                       |                     |                 |
|---------------------------------------|---------------------|-----------------|
| Project File: Hydraflow (7-24-25).stm | Number of lines: 20 | Date: 7/23/2025 |
|---------------------------------------|---------------------|-----------------|

# Storm Sewer Tabulation

| Station                                         |            | Len     | Drng Area |       | Rnoff<br>coeff | Area x C |       | Tc    |       | Rain<br>(I) | Total<br>flow | Cap<br>full | Vel    | Pipe |       | Invert Elev         |        | HGL Elev |        | Grnd / Rim Elev     |        | Line ID       |
|-------------------------------------------------|------------|---------|-----------|-------|----------------|----------|-------|-------|-------|-------------|---------------|-------------|--------|------|-------|---------------------|--------|----------|--------|---------------------|--------|---------------|
| Line                                            | To<br>Line |         | Incr      | Total |                | Incr     | Total | Inlet | Syst  |             |               |             |        | Size | Slope | Dn                  | Up     | Dn       | Up     | Dn                  | Up     |               |
|                                                 |            | (ft)    | (ac)      | (ac)  | (C)            |          |       | (min) | (min) | (in/hr)     | (cfs)         | (cfs)       | (ft/s) | (in) | (%)   | (ft)                | (ft)   | (ft)     | (ft)   | (ft)                | (ft)   |               |
| 1                                               | End        | 41.035  | 0.00      | 0.00  | 0.00           | 0.00     | 0.00  | 0.0   | 15.6  | 0.0         | 16.00         | 10.37       | 9.09   | 18   | 0.97  | 179.00              | 179.40 | 180.46   | 181.38 | 180.44              | 183.00 | P-D-PIPE-(40) |
| 2                                               | 1          | 27.500  | 0.00      | 0.00  | 0.00           | 0.00     | 0.00  | 0.0   | 15.5  | 0.0         | 16.00         | 31.97       | 9.14   | 18   | 9.27  | 179.50              | 182.05 | 182.46   | 183.47 | 183.00              | 187.40 | P-D-PIPE-(47) |
| 3                                               | 2          | 53.413  | 0.00      | 0.00  | 0.00           | 0.00     | 0.00  | 0.0   | 15.4  | 0.0         | 12.40         | 10.50       | 7.02   | 18   | 1.00  | 182.15              | 182.68 | 183.65   | 184.39 | 187.40              | 187.40 | P-D-PIPE-(50) |
| 4                                               | 3          | 175.000 | 0.00      | 0.00  | 0.00           | 0.00     | 0.00  | 6.0   | 14.5  | 0.0         | 4.00          | 4.58        | 3.26   | 15   | 0.50  | 182.78              | 183.66 | 185.16   | 185.83 | 187.40              | 188.30 | P-D-PIPE-(34) |
| 5                                               | 4          | 214.000 | 0.00      | 0.00  | 0.00           | 0.00     | 0.00  | 6.0   | 12.8  | 0.0         | 2.50          | 4.57        | 2.04   | 15   | 0.50  | 183.76              | 184.83 | 185.91   | 186.23 | 188.30              | 190.25 | P-D-PIPE-(33) |
| 6                                               | 5          | 218.810 | 0.00      | 0.00  | 0.00           | 0.00     | 0.00  | 0.0   | 8.0   | 0.0         | 0.60          | 2.52        | 1.30   | 12   | 0.50  | 184.93              | 186.02 | 186.27   | 186.46 | 190.25              | 192.10 | P-D-PIPE-(32) |
| 7                                               | 6          | 90.726  | 0.00      | 0.00  | 0.00           | 0.00     | 0.00  | 6.0   | 6.0   | 0.0         | 0.60          | 3.57        | 2.46   | 12   | 1.00  | 186.12              | 187.03 | 186.50   | 187.35 | 192.10              | 190.53 | P-D-PIPE-(31) |
| 8                                               | 3          | 70.000  | 0.00      | 0.00  | 0.00           | 0.00     | 0.00  | 0.0   | 10.9  | 0.0         | 7.10          | 10.50       | 4.02   | 18   | 1.00  | 182.78              | 183.48 | 185.16   | 185.48 | 187.40              | 187.40 | P-D-PIPE-(49) |
| 9                                               | 8          | 70.000  | 0.00      | 0.00  | 0.00           | 0.00     | 0.00  | 0.0   | 8.2   | 0.0         | 4.00          | 5.00        | 3.26   | 15   | 0.60  | 183.58              | 184.00 | 185.73   | 186.00 | 187.40              | 187.40 | P-D-PIPE-(48) |
| 10                                              | 9          | 175.000 | 0.00      | 0.00  | 0.00           | 0.00     | 0.00  | 6.0   | 7.0   | 0.0         | 1.80          | 2.90        | 2.29   | 12   | 0.66  | 184.10              | 185.26 | 186.16   | 186.61 | 187.40              | 188.30 | P-D-PIPE-(39) |
| 11                                              | 10         | 67.000  | 0.00      | 0.00  | 0.00           | 0.00     | 0.00  | 6.0   | 6.0   | 0.0         | 0.90          | 2.54        | 1.15   | 12   | 0.51  | 185.36              | 185.70 | 186.73   | 186.78 | 188.30              | 188.30 | P-D-PIPE-(68) |
| 12                                              | 2          | 15.642  | 0.00      | 0.00  | 0.00           | 0.00     | 0.00  | 0.0   | 10.1  | 0.0         | 3.60          | 7.03        | 4.93   | 12   | 3.89  | 182.15              | 182.76 | 183.47   | 183.57 | 187.40              | 187.20 | P-D-PIPE-(46) |
| 13                                              | 12         | 175.003 | 0.00      | 0.00  | 0.00           | 0.00     | 0.00  | 6.0   | 9.1   | 0.0         | 2.30          | 3.56        | 3.60   | 12   | 1.00  | 182.76              | 184.51 | 184.00   | 185.16 | 187.20              | 188.30 | P-D-PIPE-(36) |
| 14                                              | 13         | 214.164 | 0.00      | 0.00  | 0.00           | 0.00     | 0.00  | 6.0   | 6.0   | 0.0         | 0.90          | 3.56        | 2.57   | 12   | 1.00  | 184.61              | 186.75 | 185.16   | 187.15 | 188.30              | 190.25 | P-D-PIPE-(35) |
| 15                                              | 8          | 175.000 | 0.00      | 0.00  | 0.00           | 0.00     | 0.00  | 6.0   | 8.9   | 0.0         | 1.80          | 4.58        | 1.47   | 15   | 0.50  | 183.58              | 184.46 | 185.73   | 185.87 | 187.40              | 188.30 | P-D-PIPE-(38) |
| 16                                              | 15         | 110.000 | 0.00      | 0.00  | 0.00           | 0.00     | 0.00  | 6.0   | 6.0   | 0.0         | 0.50          | 2.52        | 0.69   | 12   | 0.50  | 184.56              | 185.11 | 185.88   | 185.90 | 188.30              | 189.20 | P-D-PIPE-(37) |
| 17                                              | 9          | 10.500  | 0.00      | 0.00  | 0.00           | 0.00     | 0.00  | 6.0   | 6.0   | 0.0         | 2.20          | 3.65        | 2.80   | 12   | 1.05  | 184.10              | 184.21 | 186.16   | 186.20 | 187.40              | 187.20 | P-D-PIPE-(58) |
| 18                                              | 8          | 10.500  | 0.00      | 0.00  | 0.00           | 0.00     | 0.00  | 6.0   | 6.0   | 0.0         | 1.30          | 3.81        | 1.66   | 12   | 1.14  | 183.58              | 183.70 | 185.73   | 185.74 | 187.40              | 187.20 | P-D-PIPE-(57) |
| 19                                              | 12         | 10.000  | 0.00      | 0.00  | 0.00           | 0.00     | 0.00  | 6.0   | 6.0   | 0.0         | 1.30          | 10.92       | 2.57   | 12   | 9.40  | 182.76              | 183.70 | 184.00   | 184.18 | 187.20              | 187.20 | P-D-PIPE-(55) |
| 20                                              | 3          | 10.500  | 0.00      | 0.00  | 0.00           | 0.00     | 0.00  | 6.0   | 6.0   | 0.0         | 1.30          | 3.65        | 1.66   | 12   | 1.05  | 180.05              | 180.16 | 185.16   | 185.17 | 187.40              | 187.20 | P-D-PIPE-(56) |
| Project File: Hydroflow (7-24-25).stm           |            |         |           |       |                |          |       |       |       |             |               |             |        |      |       | Number of lines: 20 |        |          |        | Run Date: 7/23/2025 |        |               |
| NOTES:Known Qs only ; c = cir e = ellip b = box |            |         |           |       |                |          |       |       |       |             |               |             |        |      |       |                     |        |          |        |                     |        |               |

PCB-1

PCB-7

PCB-2

PCB-8

PCB-3

PCB-9

PCB-4

PCB-10

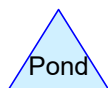
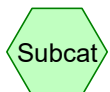
PCB-5

PCB-11

PCB-6

PCB-12

PCB-13



**Routing Diagram for 220522 - INLET**

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**220522 - INLET**

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Type III 24-hr 10-Year Rainfall=4.60"

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**Summary for Subcatchment PCB-1:**

Runoff = 0.6 cfs @ 12.08 hrs, Volume= 2,251 cf, Depth= 4.19"  
 Routed to nonexistent node DP-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
 Type III 24-hr 10-Year Rainfall=4.60"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 269       | 39 | >75% Grass cover, Good, HSG A |
| 6,183     | 98 | Paved parking, HSG A          |
| 6,452     |    | Weighted Average              |
| 269       | 39 | 4.17% Pervious Area           |
| 6,183     | 98 | 95.83% Impervious Area        |

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

**Summary for Subcatchment PCB-10:**

Runoff = 1.3 cfs @ 12.08 hrs, Volume= 4,764 cf, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
 Type III 24-hr 10-Year Rainfall=4.60"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 7,500     | 98 | Paved parking, HSG A    |
| 5,600     | 98 | Roofs, HSG A            |
| 13,100    |    | Weighted Average        |
| 13,100    | 98 | 100.00% Impervious Area |

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

**Summary for Subcatchment PCB-11:**

Runoff = 0.9 cfs @ 12.08 hrs, Volume= 3,202 cf, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
 Type III 24-hr 10-Year Rainfall=4.60"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 34        | 39 | >75% Grass cover, Good, HSG A |
| 5,603     | 98 | Paved parking, HSG A          |
| 3,200     | 98 | Roofs, HSG A                  |
| 8,837     |    | Weighted Average              |
| 34        | 39 | 0.38% Pervious Area           |
| 8,803     | 98 | 99.62% Impervious Area        |

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Type III 24-hr 10-Year Rainfall=4.60"

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| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description          |
|-------------|------------------|------------------|----------------------|-------------------|----------------------|
| 6.0         |                  |                  |                      |                   | <b>Direct Entry,</b> |

**Summary for Subcatchment PCB-12:**

Runoff = 2.2 cfs @ 12.08 hrs, Volume= 7,839 cf, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
Type III 24-hr 10-Year Rainfall=4.60"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 20        | 39 | >75% Grass cover, Good, HSG A |
| 15,956    | 98 | Paved parking, HSG A          |
| 5,600     | 98 | Roofs, HSG A                  |
| 21,576    |    | Weighted Average              |
| 20        | 39 | 0.09% Pervious Area           |
| 21,556    | 98 | 99.91% Impervious Area        |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description          |
|-------------|------------------|------------------|----------------------|-------------------|----------------------|
| 6.0         |                  |                  |                      |                   | <b>Direct Entry,</b> |

**Summary for Subcatchment PCB-13:**

Runoff = 0.9 cfs @ 12.08 hrs, Volume= 3,277 cf, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
Type III 24-hr 10-Year Rainfall=4.60"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 6         | 39 | >75% Grass cover, Good, HSG A |
| 5,812     | 98 | Paved parking, HSG A          |
| 3,200     | 98 | Roofs, HSG A                  |
| 9,018     |    | Weighted Average              |
| 6         | 39 | 0.07% Pervious Area           |
| 9,012     | 98 | 99.93% Impervious Area        |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description          |
|-------------|------------------|------------------|----------------------|-------------------|----------------------|
| 6.0         |                  |                  |                      |                   | <b>Direct Entry,</b> |

**Summary for Subcatchment PCB-2:**Runoff = 0.9 cfs @ 12.08 hrs, Volume= 3,045 cf, Depth= 4.19"  
Routed to nonexistent node 1PRunoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
Type III 24-hr 10-Year Rainfall=4.60"

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Type III 24-hr 10-Year Rainfall=4.60"

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| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 351       | 39 | >75% Grass cover, Good, HSG A |
| 8,363     | 98 | Paved parking, HSG A          |
| 8,714     |    | Weighted Average              |
| 351       | 39 | 4.02% Pervious Area           |
| 8,363     | 98 | 95.98% Impervious Area        |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description   |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 6.0         |                  |                  |                      |                   | Direct Entry, |

**Summary for Subcatchment PCB-3:**

Runoff = 1.4 cfs @ 12.08 hrs, Volume= 5,007 cf, Depth= 4.36"  
 Routed to nonexistent node DP-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
 Type III 24-hr 10-Year Rainfall=4.60"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 1         | 39 | >75% Grass cover, Good, HSG A |
| 13,768    | 98 | Paved parking, HSG A          |
| 13,768    |    | Weighted Average              |
| 1         | 39 | 0.01% Pervious Area           |
| 13,768    | 98 | 99.99% Impervious Area        |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description   |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 6.0         |                  |                  |                      |                   | Direct Entry, |

**Summary for Subcatchment PCB-4:**

Runoff = 1.3 cfs @ 12.08 hrs, Volume= 4,480 cf, Depth= 4.36"  
 Routed to nonexistent node DP-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
 Type III 24-hr 10-Year Rainfall=4.60"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 2         | 39 | >75% Grass cover, Good, HSG A |
| 12,319    | 98 | Paved parking, HSG A          |
| 12,320    |    | Weighted Average              |
| 2         | 39 | 0.01% Pervious Area           |
| 12,319    | 98 | 99.99% Impervious Area        |



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Type III 24-hr 10-Year Rainfall=4.60"

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| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description          |
|-------------|------------------|------------------|----------------------|-------------------|----------------------|
| 6.0         |                  |                  |                      |                   | <b>Direct Entry,</b> |

**Summary for Subcatchment PCB-5:**

Runoff = 1.9 cfs @ 12.08 hrs, Volume= 6,634 cf, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
Type III 24-hr 10-Year Rainfall=4.60"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 0         | 39 | >75% Grass cover, Good, HSG A |
| 11,042    | 98 | Paved parking, HSG A          |
| 7,200     | 98 | Roofs, HSG A                  |
| 18,242    |    | Weighted Average              |
| 0         | 39 | 0.00% Pervious Area           |
| 18,242    | 98 | 100.00% Impervious Area       |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description          |
|-------------|------------------|------------------|----------------------|-------------------|----------------------|
| 6.0         |                  |                  |                      |                   | <b>Direct Entry,</b> |

**Summary for Subcatchment PCB-6:**

Runoff = 1.5 cfs @ 12.08 hrs, Volume= 5,434 cf, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
Type III 24-hr 10-Year Rainfall=4.60"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 7,742     | 98 | Paved parking, HSG A    |
| 7,200     | 98 | Roofs, HSG A            |
| 14,942    |    | Weighted Average        |
| 14,942    | 98 | 100.00% Impervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description          |
|-------------|------------------|------------------|----------------------|-------------------|----------------------|
| 6.0         |                  |                  |                      |                   | <b>Direct Entry,</b> |

**Summary for Subcatchment PCB-7:**

Runoff = 1.3 cfs @ 12.08 hrs, Volume= 4,763 cf, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
Type III 24-hr 10-Year Rainfall=4.60"

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Type III 24-hr 10-Year Rainfall=4.60"

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| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 7,499     | 98 | Paved parking, HSG A    |
| 5,600     | 98 | Roofs, HSG A            |
| 13,099    |    | Weighted Average        |
| 13,099    | 98 | 100.00% Impervious Area |

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

**Summary for Subcatchment PCB-8:**

Runoff = 0.5 cfs @ 12.08 hrs, Volume= 1,738 cf, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
Type III 24-hr 10-Year Rainfall=4.60"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 4,779     | 98 | Paved parking, HSG A    |
| 4,779     | 98 | 100.00% Impervious Area |

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

**Summary for Subcatchment PCB-9:**

Runoff = 1.3 cfs @ 12.08 hrs, Volume= 4,540 cf, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.03 hrs  
Type III 24-hr 10-Year Rainfall=4.60"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 0         | 39 | >75% Grass cover, Good, HSG A |
| 5,284     | 98 | Paved parking, HSG A          |
| 7,200     | 98 | Roofs, HSG A                  |
| 12,484    |    | Weighted Average              |
| 0         | 39 | 0.00% Pervious Area           |
| 12,484    | 98 | 100.00% Impervious Area       |

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

## Appendix E: MassDEP Calculations

- Impervious Area Calculations
- Required Recharge Calculations – Infiltration Basin #1
- Stage Storage Table – Infiltration Basin #1
- Water Quality Flow Rate Calculations – PWQU-1
- Water Quality Flow Rate Conversion Table
- TSS Removal Worksheet
- Drawdown Calculations
- Barracuda Water Quality Unit Detail
- Barracuda Selection Sheet



### **Standard 3: Recharge Calculations**

#### **Impervious Area Calculations**

Existing Total Impervious Area

| Sub-Catchment | Roof (sf) | Other Impervious (sf) | Sum (sf) |
|---------------|-----------|-----------------------|----------|
| ES-1          | 1306      | 1883                  | 3,189    |
| ES-2          | 0         | 2720                  | 2,720    |
| ES-3          | 0         | 0                     | 0        |
|               | 0         | 0                     | 5,909    |

Proposed Total Impervious Area

| Sub-Catchment | Roof (sf) | Other Impervious (sf) | Sum (sf) |
|---------------|-----------|-----------------------|----------|
| PS-1          | 0         | 779                   | 779      |
| PS-2A         | 44800     | 111882                | 156682   |
| PS-2B         | 0         | 4                     | 4        |
| PS-3          | 0         | 32                    | 32       |
|               | 44,800    | 112,697               | 157,497  |

Tributary to surface basin

Summary Table

|                                          |         |    |
|------------------------------------------|---------|----|
| Total Existing Impervious Area           | 5,909   | SF |
| Total Proposed Impervious Area           | 157,497 | SF |
| Total New Impervious Area                | 151,588 | SF |
| Total Impervious Area Tributary to Basin | 156,682 | SF |

### Standard 3: Recharge Calculations - Surface Basin

$$R_v (\text{required}) = F \times \text{Impervious Area}$$

where:  $R_v$  = Required Recharge Volume (cu. ft.)

|                           |                     |
|---------------------------|---------------------|
| $F$ = Target Depth Factor | 0.60 inch (A-soils) |
|                           | 0.35 inch (B-soils) |
|                           | 0.25 inch (C-soils) |
|                           | 0.10 inch (D-soils) |

#### New Impervious Area by Hydrologic Soil Type

|                           |                 |        |
|---------------------------|-----------------|--------|
| Impervious Area (A-soils) | 151,588 sq. ft. | 100.0% |
| Impervious Area (B-soils) | 0 sq. ft.       | 0.0%   |
| Impervious Area (C-soils) | 0 sq. ft.       | 0.0%   |
| Impervious Area (D-soils) | 0 sq. ft.       | 0.0%   |
| Total Impervious area     | 151,588 sq. ft. | 100.0% |

#### Required Recharge Volume Sizing ( $R_v$ )

$$R_v (\text{required}) = \sum [F_{\text{Soil Type}} \times \text{Impervious Area}_{\text{Soil Type}}] \times 1 \text{ ft./12 in.}$$

$$R_v (\text{required}) = 7,579 \text{ cu. ft.}$$

#### Capture Area Adjustment

|                                           |                 |
|-------------------------------------------|-----------------|
| Total Imperv. To Recharge Facilities =    | 156,682 sq. ft. |
| Percent Imperv. To Recharge Facilities* = | 100%            |
| Adjustment Factor =                       | 1.00            |
| Adjusted $R_v$ (required) =               | 7,579 cu. ft.   |

\*Impervious Area tributary to recharge facilities must be greater than 65%

#### Storage Volume Provided

| Recharge Facility   | Volume Provided                         |
|---------------------|-----------------------------------------|
| Subsurface Basin #1 | 7,579 cu. ft.**                         |
|                     | <u>7,579 cu. ft. &gt; 7,755 cu. ft.</u> |

\*\*Volume represents the available storage in the surface infiltration basin below orifice in outlet control structure (El. 180.25')

**220522 - POST**

Type III 24-hr 100-Year Rainfall=6.50"

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**Stage-Area-Storage for Pond 1P: Infiltration Basin #1 (continued)**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 180.08              | 3,957              | 6,932                   | 180.60              | 4,431              | 9,581                   |
| 180.09              | 3,966              | 6,980                   | 180.61              | 4,440              | 9,636                   |
| 180.10              | 3,974              | 7,027                   | 180.62              | 4,450              | 9,691                   |
| 180.11              | 3,983              | 7,075                   | 180.63              | 4,459              | 9,746                   |
| 180.12              | 3,992              | 7,122                   | 180.64              | 4,469              | 9,801                   |
| 180.13              | 4,001              | 7,170                   | 180.65              | 4,478              | 9,856                   |
| 180.14              | 4,010              | 7,218                   | 180.66              | 4,488              | 9,912                   |
| 180.15              | 4,019              | 7,266                   | 180.67              | 4,497              | 9,968                   |
| 180.16              | 4,027              | 7,315                   | 180.68              | 4,507              | 10,023                  |
| 180.17              | 4,036              | 7,363                   | 180.69              | 4,517              | 10,079                  |
| 180.18              | 4,045              | 7,412                   | 180.70              | 4,526              | 10,136                  |
| 180.19              | 4,054              | 7,460                   | 180.71              | 4,536              | 10,192                  |
| 180.20              | 4,063              | 7,509                   | 180.72              | 4,545              | 10,248                  |
| 180.21              | 4,072              | 7,558                   | 180.73              | 4,555              | 10,305                  |
| 180.22              | 4,081              | 7,607                   | 180.74              | 4,565              | 10,362                  |
| 180.23              | 4,090              | 7,657                   | 180.75              | 4,574              | 10,419                  |
| 180.24              | 4,099              | 7,706                   | 180.76              | 4,584              | 10,476                  |
| 180.25              | 4,108              | 7,755                   | 180.77              | 4,594              | 10,533                  |
| 180.26              | 4,117              | 7,805                   | 180.78              | 4,603              | 10,590                  |
| 180.27              | 4,126              | 7,855                   | 180.79              | 4,613              | 10,648                  |
| 180.28              | 4,135              | 7,905                   | 180.80              | 4,623              | 10,706                  |
| 180.29              | 4,144              | 7,955                   | 180.81              | 4,633              | 10,763                  |
| 180.30              | 4,153              | 8,005                   | 180.82              | 4,642              | 10,821                  |
| 180.31              | 4,162              | 8,056                   | 180.83              | 4,652              | 10,880                  |
| 180.32              | 4,171              | 8,106                   | 180.84              | 4,662              | 10,938                  |
| 180.33              | 4,180              | 8,157                   | 180.85              | 4,672              | 10,996                  |
| 180.34              | 4,189              | 8,208                   | 180.86              | 4,681              | 11,055                  |
| 180.35              | 4,198              | 8,259                   | 180.87              | 4,691              | 11,114                  |
| 180.36              | 4,208              | 8,310                   | 180.88              | 4,701              | 11,173                  |
| 180.37              | 4,217              | 8,361                   | 180.89              | 4,711              | 11,232                  |
| 180.38              | 4,226              | 8,413                   | 180.90              | 4,721              | 11,291                  |
| 180.39              | 4,235              | 8,464                   | 180.91              | 4,731              | 11,350                  |
| 180.40              | 4,244              | 8,516                   | 180.92              | 4,740              | 11,410                  |
| 180.41              | 4,254              | 8,568                   | 180.93              | 4,750              | 11,470                  |
| 180.42              | 4,263              | 8,620                   | 180.94              | 4,760              | 11,530                  |
| 180.43              | 4,272              | 8,672                   | 180.95              | 4,770              | 11,590                  |
| 180.44              | 4,281              | 8,724                   | 180.96              | 4,780              | 11,650                  |
| 180.45              | 4,290              | 8,777                   | 180.97              | 4,790              | 11,710                  |
| 180.46              | 4,300              | 8,829                   | 180.98              | 4,800              | 11,771                  |
| 180.47              | 4,309              | 8,882                   | 180.99              | 4,810              | 11,831                  |
| 180.48              | 4,318              | 8,935                   | 181.00              | 4,820              | 11,892                  |
| 180.49              | 4,328              | 8,988                   | 181.01              | 4,829              | 11,953                  |
| 180.50              | 4,337              | 9,041                   | 181.02              | 4,839              | 12,014                  |
| 180.51              | 4,346              | 9,094                   | 181.03              | 4,848              | 12,075                  |
| 180.52              | 4,356              | 9,148                   | 181.04              | 4,858              | 12,137                  |
| 180.53              | 4,365              | 9,201                   | 181.05              | 4,867              | 12,198                  |
| 180.54              | 4,374              | 9,255                   | 181.06              | 4,877              | 12,260                  |
| 180.55              | 4,384              | 9,309                   | 181.07              | 4,886              | 12,322                  |
| 180.56              | 4,393              | 9,363                   | 181.08              | 4,896              | 12,384                  |
| 180.57              | 4,403              | 9,417                   | 181.09              | 4,905              | 12,446                  |
| 180.58              | 4,412              | 9,472                   | 181.10              | 4,915              | 12,508                  |
| 180.59              | 4,421              | 9,526                   | 181.11              | 4,924              | 12,571                  |

**Standard 4: Water Quality - PWQU-I****Water Quality Volume Conversion to Flow Rate**

Note: Required water quality volume based on 1.0-inch of runoff

$$Q = (qu) (A) (WQV)$$

where:  $Q$  = peak flow rate associated with first 1.0-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 (1.0-inch)

· Proposed Water Quality Unit (PWQU-1)

$$t_c = 0.100 \text{ hrs}$$

$$qu = 774 \text{ csm/in} \quad (\text{from table})$$

$$A = 0.00562 \text{ sq. mi.}^*$$

$$WQV = 1.0 \text{ inch}^{**}$$

$$Q_{1.0} = 4.35 \text{ c.f.s}$$

The Baracuda Max Model S6 provides treatment of flows up to 6.62 c.f.s.

\* Only includes 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 other areas



**Figure 4: for First 1-inch Runoff, Table of qu values for Ia/P Curve = 0.034, listed by tc, for Type III Storm Distribution**

| Tc<br>(Hours) | qu<br>(csm/in) | Tc<br>(Hours) | qu<br>(csm/in) | Tc<br>(Hours) | qu<br>(csm/in) |
|---------------|----------------|---------------|----------------|---------------|----------------|
| 0.01          | 835            | 2.7           | 197            | 7.1           | 95             |
| 0.03          | 835            | 2.8           | 192            | 7.2           | 94             |
| 0.05          | 831            | 2.9           | 187            | 7.3           | 93             |
| 0.067         | 814            | 3             | 183            | 7.4           | 92             |
| 0.083         | 795            | 3.1           | 179            | 7.5           | 91             |
| 0.1           | 774            | 3.2           | 175            | 7.6           | 90             |
| 0.116         | 755            | 3.3           | 171            | 7.7           | 89             |
| 0.133         | 736            | 3.4           | 168            | 7.8           | 88             |
| 0.15          | 717            | 3.5           | 164            | 7.9           | 87             |
| 0.167         | 700            | 3.6           | 161            | 8             | 86             |
| 0.183         | 685            | 3.7           | 158            | 8.1           | 85             |
| 0.2           | 669            | 3.8           | 155            | 8.2           | 84             |
| 0.217         | 654            | 3.9           | 152            | 8.3           | 84             |
| 0.233         | 641            | 4             | 149            | 8.4           | 83             |
| 0.25          | 628            | 4.1           | 146            | 8.5           | 82             |
| 0.3           | 593            | 4.2           | 144            | 8.6           | 81             |
| 0.333         | 572            | 4.3           | 141            | 8.7           | 80             |
| 0.35          | 563            | 4.4           | 139            | 8.8           | 79             |
| 0.4           | 536            | 4.5           | 137            | 8.9           | 79             |
| 0.416         | 528            | 4.6           | 134            | 9             | 78             |
| 0.5           | 491            | 4.7           | 132            | 9.1           | 77             |
| 0.583         | 460            | 4.8           | 130            | 9.2           | 76             |
| 0.6           | 454            | 4.9           | 128            | 9.3           | 76             |
| 0.667         | 433            | 5             | 126            | 9.4           | 75             |
| 0.7           | 424            | 5.1           | 124            | 9.5           | 74             |
| 0.8           | 398            | 5.2           | 122            | 9.6           | 74             |
| 0.9           | 376            | 5.3           | 120            | 9.7           | 73             |
| 1             | 356            | 5.4           | 119            | 9.8           | 72             |
| 1.1           | 339            | 5.5           | 117            | 9.9           | 72             |
| 1.2           | 323            | 5.6           | 115            | 10            | 71             |
| 1.3           | 309            | 5.7           | 114            |               |                |
| 1.4           | 296            | 5.8           | 112            |               |                |
| 1.5           | 285            | 5.9           | 111            |               |                |
| 1.6           | 274            | 6             | 109            |               |                |
| 1.7           | 264            | 6.1           | 108            |               |                |
| 1.8           | 255            | 6.2           | 106            |               |                |
| 1.9           | 247            | 6.3           | 105            |               |                |
| 2             | 239            | 6.4           | 104            |               |                |
| 2.1           | 232            | 6.5           | 102            |               |                |
| 2.2           | 225            | 6.6           | 101            |               |                |
| 2.3           | 219            | 6.7           | 100            |               |                |
| 2.4           | 213            | 6.8           | 99             |               |                |
| 2.5           | 207            | 6.9           | 98             |               |                |
| 2.6           | 202            | 7             | 96             |               |                |

**TSS Removal Form - Subsurface Infiltration Basin**

| <b>Pre-Treatment</b> | BMP                              | TSS Removal Rate | Starting TSS Load | Amount Removed | Remaining Load |
|----------------------|----------------------------------|------------------|-------------------|----------------|----------------|
|                      | Proprietary Sedimentation Device | 0.50             | 1.00              | 0.50           | 0.50           |
|                      |                                  |                  |                   |                |                |
| Total TSS Removal =  |                                  |                  |                   |                | 50%            |

| <b>Total Removal</b> | BMP                        | TSS Removal Rate | Starting TSS Load | Amount Removed | Remaining Load |
|----------------------|----------------------------|------------------|-------------------|----------------|----------------|
|                      | Surface Infiltration Basin | 0.80             | 1.00              | 0.80           | 0.20           |
|                      |                            |                  |                   |                |                |
| Total TSS Removal =  |                            |                  |                   |                | 80%            |

### Drawdown Analysis

$$T_{\text{DRAWDOWN}} = \frac{R_v}{KA}$$

where:  $T_{\text{DRAWDOWN}}$  = time in hours

$R_v$  = required recharge volume (cu. ft.)

$K$  = Rawls rate                      2.41 inches/hour (A-soils)\*\*  
                                                 0.52 inches/hour (B-soils)\*\*  
                                                 0.27 inches/hour (C-soils)\*\*

$A$  = bottom area of recharge facility (cu. ft.)

\*\* Most conservative Rawls rate values for given soil type used for analysis purposes

### Infiltration Basin

$R_v$  =            7,755 cu. ft.

$A$  =            1,357 sq. ft.

$T_{\text{DRAWDOWN}} =$             28.5 hours            < 72 hours            (A-soils)

# Barracuda<sup>®</sup> Max

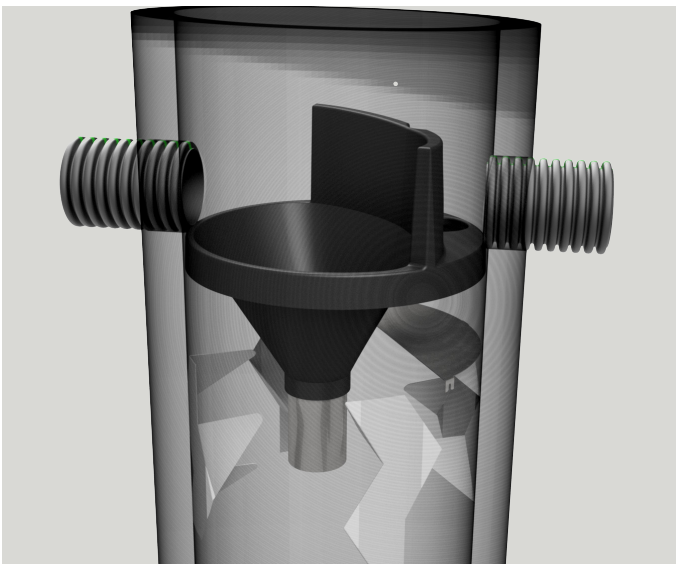
The Barracuda Max is market-changing stormwater quality technology. This high-performance vortex hydrodynamic separator is designed to remove total suspended solids in order to protect our precious receiving waters. The Barracuda Max is also an outstanding value that offers multiple pipe configurations, 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 mm), 72” (1800 mm), and 96” (2400 mm) 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



# Barracuda 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 <sup>1</sup> |
|---------------------|------------------|----------------------|--------------------------------------------|
| 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

<sup>1</sup> 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](http://www.adspipe.com).





## State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION

Bureau of NJPDES Stormwater Permitting & Water  
Quality Management

Division of Watershed Protection and Restoration  
401-02B

Post Office Box 420

Trenton, New Jersey 08625-0420

609-633-7021 Fax: 609-777-0432

PHILIP D. MURPHY  
*Governor*

SHEILA Y. OLIVER  
*Lt. Governor*

SHAWN M. LATOURETTE  
*Acting Commissioner*

**April 28, 2021**

Daniel J. Figola, P.E.  
Director of Sustainability Development  
Advanced Drainage Systems, Inc.  
1030 Deer Hollow Drive  
Mt. Airy, MD 21771

Re: MTD Lab Certification  
Barracuda™ MAX Hydrodynamic Separator Stormwater Treatment Device  
On-line Installation

### **TSS Removal Rate 50%**

Dear Mr. Figola:

The Stormwater Management rules under N.J.A.C. 7:8-5.5(b) and 5.7(c) allow the use of manufactured treatment devices (MTDs) for compliance with the design and performance standards at N.J.A.C. 7:8-5 if the pollutant removal rates have been verified by the New Jersey Corporation for Advanced Technology (NJCAT) and have been certified by the New Jersey Department of Environmental Protection (NJDEP). Advanced Drainage Systems, Inc. (ADS) has requested an MTD Laboratory Certification for the Barracuda™ MAX Hydrodynamic Separator stormwater treatment system (Barracuda™ MAX).

The project falls under the "Procedure for Obtaining Verification of a Stormwater Manufactured Treatment Device from New Jersey Corporation for Advance Technology" dated January 25, 2013. The applicable protocol is the "New Jersey Laboratory Testing Protocol to Assess Total Suspended Solids Removal by a Hydrodynamic Sedimentation Manufactured Treatment Device" dated January 25, 2013.

NJCAT verification documents submitted to the NJDEP indicate that the requirements of the aforementioned protocol have been met or exceeded. The NJCAT letter also included a recommended certification TSS removal rate and the required maintenance plan. The NJCAT Verification Report with the Verification Appendix (dated April 2021) for this device is published online at <http://www.njcat.org/verification-process/technology-verification-database.html>.

**The NJDEP certifies the use of the Barracuda™ MAX stormwater treatment system at a TSS removal rate of 50% when designed, operated, and maintained in accordance with the information provided in the Verification Appendix and the following conditions:**

1. The maximum treatment flow rate (MTFR) for the manufactured treatment device (MTD) is calculated using the New Jersey Water Quality Design Storm (1.25 inches in 2 hrs) in N.J.A.C. 7:8-5.5.
2. The Barracuda™ MAX shall be installed using the same configuration reviewed by NJCAT and shall be sized in accordance with the criteria specified in item 6 below.
3. This Barracuda™ MAX cannot be used in series with another MTD or a media filter (such as a sand filter) to achieve an enhanced removal rate for total suspended solids (TSS) removal under N.J.A.C. 7:8-5.5.
4. Additional design criteria for MTDs can be found in Chapter 11.3 of the New Jersey Stormwater Best Management Practices (NJ Stormwater BMP) Manual, which can be found online at [www.njstormwater.org](http://www.njstormwater.org).
5. The maintenance plan for a site using this device shall incorporate, at a minimum, the maintenance requirements for the Barracuda™ MAX. A copy of the maintenance plan is attached to this certification. However, it is recommended to review the maintenance website at <https://assets.ads-pipe.com/m/2c834056a5a22888/original/Barracuda-Maintenance-Guide-MG1-01.pdf> for any changes to the maintenance requirements.
6. Sizing Requirement:

The example on the following page demonstrates the sizing procedure for the Barracuda™ MAX:

Example: A 0.25-acre impervious site is to be treated to 50% TSS removal using an Barracuda™ MAX treatment unit. The impervious site runoff (Q) based on the New Jersey Water Quality Design Storm was determined to be 0.79 cfs.

Maximum Treatment Flow Rate (MTFR) Evaluation:

The site runoff (Q) was based on the following:

time of concentration = 10 minutes

i = 3.2 in/hr (page 74, Fig. 5-16 of the NJ Stormwater BMP Manual)

c = 0.99 (runoff coefficient for impervious)

Q = ciA = 0.99 x 3.2 x 0.25 = 0.79 cfs

Given the site runoff is 0.79 cfs and based on Table A-1 below, the Barracuda™ MAX Model S3 with an MTFR of 0.85 cfs would be the smallest model that could be used for this site to remove 50% of the TSS from the impervious area without exceeding the MTFR.

The sizing table corresponding to the available system models is noted below. Additional specifications regarding each model can be found in the NJCAT Technology Verification Appendix under Tables A-1 and A-2.

**Table A-1 Barracuda™ MAX HDS Models and Associated MTFRs**

| <b>Model</b>      | <b>Manhole Diameter (ft)</b> | <b>Maximum Treatment Flow Rate (cfs)</b> | <b>50% Maximum Sediment Storage Area Volume (ft<sup>3</sup>)</b> |
|-------------------|------------------------------|------------------------------------------|------------------------------------------------------------------|
| Barracuda MAX S3  | 3                            | 0.85                                     | 5.89                                                             |
| Barracuda MAX S4  | 4                            | 1.52                                     | 10.47                                                            |
| Barracuda MAX S5  | 5                            | 2.37                                     | 16.36                                                            |
| Barracuda MAX S6  | 6                            | 3.40                                     | 23.56                                                            |
| Barracuda MAX S8  | 8                            | 6.08                                     | 41.89                                                            |
| Barracuda MAX S10 | 10                           | 9.48                                     | 65.45                                                            |

A detailed maintenance plan is mandatory for any project with a stormwater BMP subject to the Stormwater Management rules under N.J.A.C. 7:8. The plan must include all of the items identified in the Maintenance requirements section of the Stormwater Management rules under N.J.A.C. 7:8-5.8. Such items include, but are not limited to, the list of inspection and maintenance equipment and tools, specific corrective and preventative maintenance tasks, indication of problems in the system, and training of maintenance personnel. Additional information can be found in Chapter 8: Maintenance and Retrofit of Stormwater Management Measures.



If you have any questions regarding the above information, please contact Lisa Schaefer of my office at [lisa.schaefer@dep.nj.gov](mailto:lisa.schaefer@dep.nj.gov).

Sincerely,

A handwritten signature in blue ink that reads "Gabriel Mahon". The signature is fluid and cursive, with the first name "Gabriel" and last name "Mahon" clearly distinguishable.

Gabriel Mahon, Chief  
Bureau of NJPDES Stormwater Permitting & Water Quality Management

Attachment: Maintenance Plan

cc: Chron File  
Richard Magee, NJCAT  
Changi Wu, NJDEP-BFHSE  
Madhu Guru, NJDEP - BFHSE

# Barracuda<sup>®</sup> Max<sup>™</sup>

## & 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.

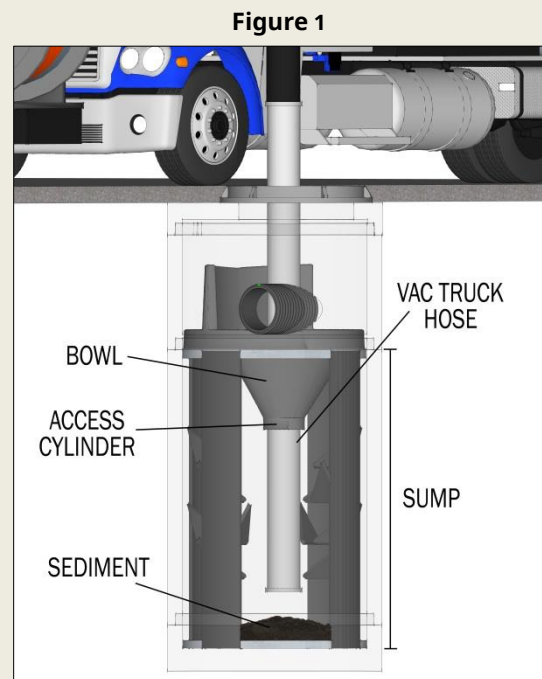
Maintenance should occur when the sediment has reached the levels indicated in the Storage Capacity Chart.

## Barracuda Storage Capacities

| Model | Manhole Diameter in. (mm) | Total System Volume Gallons (Liters) | Treatment Chamber Capacity Gallons (Liters) | Standard Sediment Capacity (20" depth) Yards <sup>3</sup> (meters <sup>3</sup> ) | NJDEP Sediment Capacity (50% of standard depth) Yards <sup>3</sup> (meters <sup>3</sup> ) |
|-------|---------------------------|--------------------------------------|---------------------------------------------|----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| 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)                                                                               |
| S5    | 60 (1500)                 | 1040 (3937)                          | 881 (3335)                                  | 1.21 (0.93)                                                                      | 0.61 (0.47)                                                                               |
| 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)                                                                               |
| S10   | 120 (3000)                | 7976 (30192)                         | 7496 (28375)                                | 4.85 (3.71)                                                                      | 2.43 (1.86)                                                                               |

## 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.



# Maintenance Guide

BaySaver Barracuda™

July 2017

One of the advantages of the BaySaver Barracuda is the ease of maintenance. Like any system that collects pollutants, the BaySaver 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 from 2 to 4 hours, depending on the size of the system, the captured material, and the capacity of the vacuum truck.

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 thereafter 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.

## BaySaver Barracuda Storage Capacities

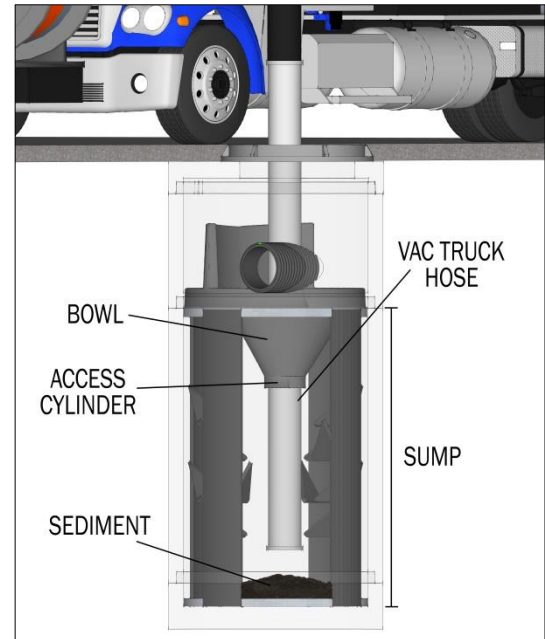
| Model | Manhole Diameter | Treatment Chamber Capacity | Standard Sediment Capacity (20" depth) | NJDEP Sediment Capacity (50% of standard depth) |
|-------|------------------|----------------------------|----------------------------------------|-------------------------------------------------|
| S3    | 36"              | 212 gallons                | 0.44 cubic yards                       | 0.22 cubic yards                                |
| S4    | 48"              | 564 gallons                | 0.78 cubic yards                       | 0.39 cubic yards                                |
| S5    | 60"              | 881 gallons                | 1.21 cubic yards                       | 0.61 cubic yards                                |
| S6    | 72"              | 1269 gallons               | 1.75 cubic yards                       | 0.88 cubic yards                                |
| S8    | 96"              | 3835 gallons               | 3.10 cubic yards                       | 1.55 cubic yards                                |
| S10   | 120"             | 7496 gallons               | 4.85 cubic yards                       | 2.43 cubic yards                                |

## 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. You'll access this area through the 10" 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.
  - Local regulations prohibit the discharge of solid material into the sanitary system. Check with the local sewer authority for authority to discharge the liquid.
  - Some localities treat the pollutants as leachate. Check with local regulators about disposal requirements.
  - Additional local regulations may apply to the maintenance procedure.



**Figure 1**

# Barracuda<sup>®</sup> 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.

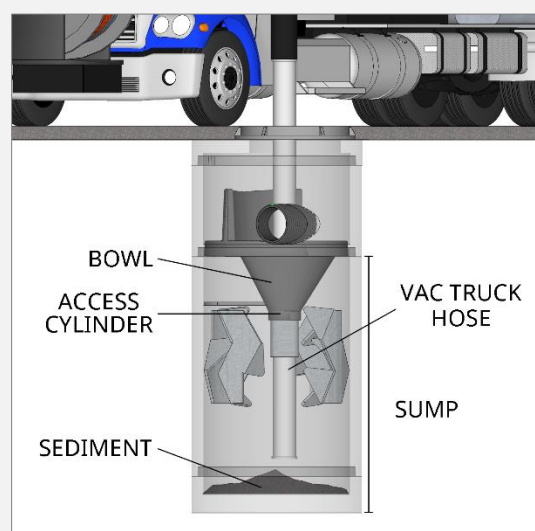
## Barracuda Storage Capacities

| Model | Manhole Diameter in. (mm) | Total System Volume Gallons (Liters) | Treatment Chamber Capacity Gallons (Liters) | Standard Sediment Capacity (20" depth) Yards <sup>3</sup> (meters <sup>3</sup> ) | NJDEP Sediment Capacity (50% of standard depth) Yards <sup>3</sup> (meters <sup>3</sup> ) |
|-------|---------------------------|--------------------------------------|---------------------------------------------|----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| 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







## Appendix F: Construction Period Erosion Control Plan



# Construction Period Erosion Control Plan

## Proposed Self-Storage Facility

727 Silver Street  
Agawam, Massachusetts  
(Parcel: G6-2-3)

### Applicant:

Agawam Self Storage Center, LLC  
c/o Mr. Richard Mahan  
699 Silver Street  
Agawam, Massachusetts 01001

### Property Owner(s):

*727 Silver Street*  
Agawam Self Storage Center, LLC  
c/o Mr. Richard Mahan  
699 Silver Street  
Agawam, Massachusetts 01001  
01001

*711 Silver Street*  
711 Silver, LLC  
c/o Mr. Richard Mahan  
699 Silver Street  
Agawam, Massachusetts 01001

*699 Silver Street*  
MSR Properties, LLC  
c/o Mr. Richard Mahan  
699 Silver Street  
Agawam, Massachusetts

RLA Project File: 220522

**September 1, 2022**

**Revised: July 24, 2025**

**R LEVESQUE ASSOCIATES, INC**  
**A LAND PLANNING SERVICES COMPANY**

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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 (Filtrex 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 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,  $\frac{3}{4}$ " 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
- Barracuda Inspection and Maintenance Guide
- O&M Checklist





# Long-Term Operation & Maintenance Plan

## Proposed Self-Storage Facility

727 Silver Street  
Agawam, Massachusetts  
(Parcel: G6-2-3)

### Applicant:

Agawam Self Storage Center, LLC  
c/o Mr. Richard Mahan  
699 Silver Street  
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### Property Owner(s):

*727 Silver Street*  
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## I. Long-Term Stormwater Maintenance Program:

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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\*:**

Agawam Self Storage Center, LLC  
c/o Rick Mahan  
699 Silver Street  
Agawam, MA 01001

\*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                   | <ul style="list-style-type: none"> <li>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</li> </ul>                                                                                                                                              |
| Catch Basins                      | Four times per year                                                                                                                       | Four times per year              | <ul style="list-style-type: none"> <li>Remove sediment once deposits reach one half the depth from the bottom sump to the lowest invert.</li> </ul>                                                                                                                                                                                      |
| Stormwater Piping                 | Once per year                                                                                                                             | Once per year                    | <ul style="list-style-type: none"> <li>Inspect pipe entrances in catch basins and manholes and remove any blockages</li> </ul>                                                                                                                                                                                                           |
| Roof Leaders                      | Once per year                                                                                                                             | Once per year                    | <ul style="list-style-type: none"> <li>Inspect downspout connections at grade and remove any blockages</li> <li>Open and inspect cleanout locations and remove any blockages</li> </ul>                                                                                                                                                  |
| Proprietary Sedimentation Device* | As specified by the manufacturer                                                                                                          | As specified by the manufacturer | <ul style="list-style-type: none"> <li>Clean the unit using the method specified by the manufacturer. Vactor trucks are typically used to clean these units.</li> </ul>                                                                                                                                                                  |
| Sediment Forebay                  | Monthly                                                                                                                                   | Four times per year              | <ul style="list-style-type: none"> <li>Remove sediment when it reaches one foot;</li> <li>Mow the grass to no less than 3 inches and no greater than 6 inches;</li> <li>Replace vegetation damaged during sediment removal.</li> </ul>                                                                                                   |
| Infiltration Basin                | <ul style="list-style-type: none"> <li>After every major storm for the first three months;</li> <li>Twice per year thereafter.</li> </ul> | Twice Per year                   | <ul style="list-style-type: none"> <li>Check for signs of differential settlement, cracking, erosion, leakage in the embankments, tree growth, riprap condition, sediment accumulation, and health of the turf;</li> <li>Mow side slopes and basin bottom and remove clippings;</li> <li>Remove accumulated trash and debris.</li> </ul> |

| BMP                | Inspection Schedule                                          | Maintenance Schedule | Maintenance Procedures                                                                                                                                               |
|--------------------|--------------------------------------------------------------|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Flared End Section | Four times per year                                          | As Needed            | <ul style="list-style-type: none"><li>Remove any debris or vegetation around the flared end section such that flow out of the structure is not impeded.</li></ul>    |
| Level Spreader     | Every six months during the first year. Annually thereafter. | As Needed            | <ul style="list-style-type: none"><li>Remove sediment from the toe of slope and/or riprap voids.</li><li>Repair gullies and reseed bare spots immediately.</li></ul> |

\*See attached Device Operation and Maintenance Guides

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 H2O 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     |
|--------------------------------------------|-----------------------|------------------|----------------------|---------|
| Catch Basin                                | 4/year                | \$30             | 12                   | \$1,440 |
| Proprietary Sedimentation Device           | 2/year                | \$100            | 1                    | \$200   |
| Sediment Forebay                           | 2/year                | \$50             | 1                    | \$100   |
| Infiltration Basin                         | 2/year                | \$100            | 1                    | \$200   |
| Level Spreader                             | 2/year                | \$50             | 1                    | \$100   |
| Total Estimated Annual Cost of Inspections |                       |                  |                      | \$2,040 |

| BMP Maintenance                            | Number of Occurrences | Maintenance Cost | Number of Structures | Sum     |
|--------------------------------------------|-----------------------|------------------|----------------------|---------|
| Catch Basin                                | 4/year                | \$100            | 12                   | \$4,800 |
| Proprietary Sedimentation Device           | 2/year                | \$500            | 1                    | \$1,000 |
| Sediment Forebay                           | 2/year                | \$300            | 1                    | \$600   |
| Infiltration Basin                         | 2/year                | \$500            | 1                    | \$1,000 |
| Level Spreader                             | 1/year                | \$600            | 1                    | \$600   |
| Total Estimated Annual Cost of Maintenance |                       |                  |                      | \$8,000 |

# ADS® Barracuda® Concrete

## Installation Guide

### ADS Barracuda Max & Barracuda S4, S6, S8 Concrete Installation Guide

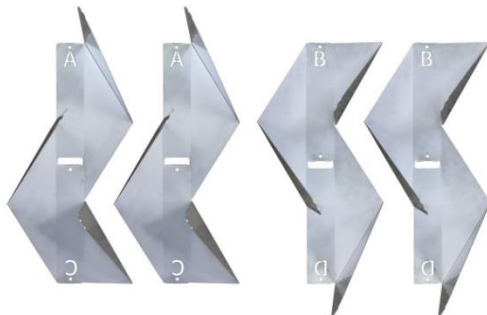
This installation guide is reference for installing the Barracuda Max S4, S6, S8 Water Quality Units into a precast concrete structure in the field.



(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  
 $\frac{1}{4} \times 2\frac{1}{4}$ "

**S6**



(4) Stainless Steel Funnel  
Mounting Flanges



(3) Roll of Conseal®



(16) Concrete Anchor  
 $\frac{1}{4} \times 2\frac{1}{4}$ "

**S8**



(8) Stainless Steel Funnel  
Mounting Flanges



(4) Roll of Conseal®



(22) Concrete Anchor  
 $\frac{1}{4} \times 2\frac{1}{4}$ "

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 1/4" 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.

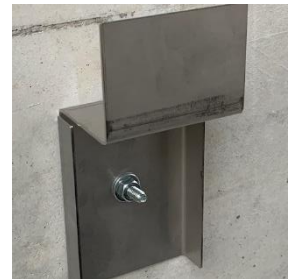


Figure 1



Figure 2



Figure 3

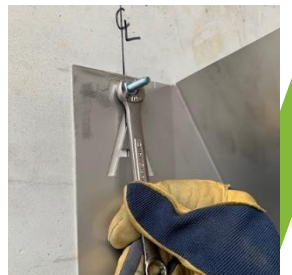
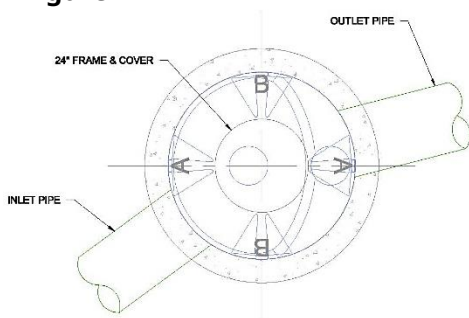


Figure 5

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

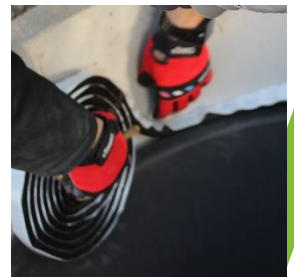


Figure 9

**Table 1**

|                                                                    | S4            | S6            | S8             |
|--------------------------------------------------------------------|---------------|---------------|----------------|
| Top Anchor Elevation from Sump Floor<br>(A and B tooth indication) | 60" (1270 mm) | 68" (1475 mm) | 90" (1880 mm)  |
| Funnel Flange Anchor Elevation from<br>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.



# Barracuda<sup>®</sup> 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.

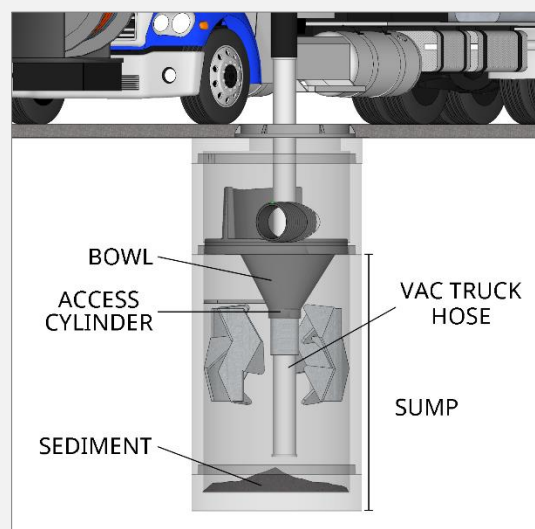
## Barracuda Storage Capacities

| Model | Manhole Diameter in. (mm) | Total System Volume Gallons (Liters) | Treatment Chamber Capacity Gallons (Liters) | Standard Sediment Capacity (20" depth) Yards <sup>3</sup> (meters <sup>3</sup> ) | NJDEP Sediment Capacity (50% of standard depth) Yards <sup>3</sup> (meters <sup>3</sup> ) |
|-------|---------------------------|--------------------------------------|---------------------------------------------|----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| 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



Project: \_\_\_\_\_

Address: \_\_\_\_\_

BPM Name: \_\_\_\_\_

Responsible Party: \_\_\_\_\_

Date: \_\_\_\_\_

Page: 1 of 2

## Operation & Maintenance Inspection Checklist

| BMP Element:                       | Potential Problem:                                                                                                                 | Resolution:                                                                                                              | Pass | Fail | Recommended Remediation |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|------|------|-------------------------|
| Bituminous<br>Concrete<br>Roadway  | Build-up of sediment over the winter months and collection of leaves during the fall months.                                       | Sweep roadway using a high-efficiency street sweeper.                                                                    |      |      |                         |
| Deep-Sump<br>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<br>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 |      |      |                         |
| Proprietary<br>Treatment<br>Device | Sediment has accumulated to a depth greater than the original design depth for sediment storage.                                   | Remove sediment and disposed of in accordance with local and state regulations.                                          |      |      |                         |
| Roof Leaders                       | Downspout connections have been damaged or disconnected.                                                                           | Repair and reconnect downspout connections.                                                                              |      |      |                         |

Project: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 BPM Name: \_\_\_\_\_

Responsible Party: \_\_\_\_\_  
 Date: \_\_\_\_\_  
 Page: 2 of 2

### Operation & Maintenance Inspection Checklist

| BMP Element:        | Potential Problem:                                                       | Resolution:                                                                                                                                        | Pass | Fail | Recommended Remediation |
|---------------------|--------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|------|------|-------------------------|
| Sediment Forebay    | Excessive sediment accumulation.                                         | Remove sediment and debris.                                                                                                                        |      |      |                         |
|                     | Erosion is occurring on the side slope or around the flared end section. | Remedy scoured area and/or replace riprap immediately.                                                                                             |      |      |                         |
|                     | Debris has collected inside the basin.                                   | Remove debris and remedy any damage caused.                                                                                                        |      |      |                         |
|                     | Sediment has accumulated to 6" or above.                                 | Remove the sediment and reestablish the sediment forebay with vegetaion to the original bottom elevation                                           |      |      |                         |
| Infiltration Basin  | Standing water inside basin.                                             | Verify that sediment is not entering the basin. Remove collected sediment and scour basin bottom. Replace damaged vegetation                       |      |      |                         |
|                     | Erosion is occurring on the side slope or around the flared end section. | Remedy scoured area and replace vegetation.                                                                                                        |      |      |                         |
|                     | Trees/Shrubs are starting to grow within the basin.                      | Remove trees/shrubs and vegetate with grass.                                                                                                       |      |      |                         |
|                     | Debris has collected inside the basin.                                   | Remove debris and remedy any damage caused.                                                                                                        |      |      |                         |
| 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 occurring 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 erosion control blanket. Sod or re-seed with stabalized erosion control grass mix. |      |      |                         |

Inspector's Signature

Date





## Appendix H: Illicit Discharge Compliance Statement



## Illicit Discharge Compliance Statement

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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\*:

MSR Properties, LLC.  
c/o Rick Mahan  
699 Silver Street  
Agawam, MA 01001

\*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

8-31-2022  
Date

\_\_\_\_\_  
Signature of Responsible Party Representative\*\*

\_\_\_\_\_  
Date

\*\*Required upon transfer of ownership



## Appendix I: Low Impact Development Alternatives Analysis Narrative



# Low Impact Development Considerations

## Proposed Self-Storage Facility

727 Silver Street  
Agawam, Massachusetts  
(Parcel: G6-2-3)

### Applicant:

Agawam Self Storage Center, LLC  
c/o Mr. Richard Mahan  
699 Silver Street  
Agawam, Massachusetts 01001

### Property Owner(s):

*727 Silver Street*  
Agawam Self Storage Center, LLC  
c/o Mr. Richard Mahan  
699 Silver Street  
Agawam, Massachusetts 01001  
01001

*711 Silver Street*  
711 Silver, LLC  
c/o Mr. Richard Mahan  
699 Silver Street  
Agawam, Massachusetts 01001

*699 Silver Street*  
MSR Properties, LLC  
c/o Mr. Richard Mahan  
699 Silver Street  
Agawam, Massachusetts

RLA Project File: 220522

**September 1, 2022**

**Revised: July 24, 2025**

# 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](http://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 runoff. As 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. Due to site design constraints, options for low-impact development best management practice techniques were limited. However, the proposed stormwater management system design was able to incorporate some LID techniques throughout the project. The LID stormwater best management practices include proprietary sedimentation devices, surface infiltration basins with sediment forebays, and level spreaders. The proposed stormwater management system has been designed to meet Town of Agawam Stormwater Management Ordinance as well as the Massachusetts Department of Environmental Protection Stormwater Management Handbook.

This letter serves to describe the relationship between the requirements of the MassDEP Handbook and “environmentally sensitive site design” considerations as well as the analysis of alternatives to any “point source” of “stormwater discharge” which may be regulated. The following sections provide detailed descriptions for the consideration of low impact development measures as listed by the MassDEP.

### **Environmentally Sensitive Site Design Considerations**

The Department’s requirement for the inclusion of Environmentally Sensitive Site Design was considered as part of the design of the stormwater management system. These considerations include review of low impact development techniques to prevent the generation of stormwater and non-point source pollution by reducing impervious surfaces, disconnecting stormwater sheet flow paths and treating stormwater at its source, maximizing open space, minimizing disturbance, protecting natural features and processes, and/or enhancing wildlife habitat. The stormwater management system was designed to meet Town of Agawam Stormwater Management Ordinance as well as the Massachusetts Department of Environmental Protection Stormwater Management Handbook. The proposed stormwater management system does not introduce any new point source discharges to resource areas.

#### **A. Disconnecting stormwater sheet flow paths and treating stormwater at its source**

The stormwater that is generated within the paved areas is collected reasonably close to their respective sources by the proposed catch basins. Collected stormwater is discharged to the infiltration basin area in an effort to treat stormwater at its respective source.

#### **B. Maximizing open space**

Open space areas have been provided to the maximum extent practicable. The open spaces were located as efficiently as possible while still achieving functionality across the site for the applicant.



*C. Minimizing disturbance*

The entirety of the project site has been historically disturbed and utilized as residential housing and contractor storage yard. No disturbance to wetland resource areas is proposed as part of this project.

*D. Protecting natural features and processes*

The proposed stormwater management system has been designed to mimic the existing drainage patterns of the site while increasing water quality and groundwater recharge and reducing peak discharge rates.

*E. Enhancing wildlife habitat*

Impacts to wildlife habitat have been limited to functional minimums. The entirety of the site has been historically disturbed and any new disturbance to wildlife habitats are kept to a minimum.

***Point Source Stormwater Discharge Alternatives Analysis***

Under the Department's Outreach Document for 310 CMR 10.05(6)(k) through (q) and 314 CMR 9.06(5) & (6)(a) through (f), a list of considerations is provided for use in developing an Alternatives Analysis to point source stormwater discharge within Departmental jurisdiction. In the case of the currently proposed project, there are no new point source discharges being proposed.

For ease of review, the aforementioned list is repeated below in italics with responses after each item:

*a. Removal of all proposed work and/or impervious surfaces from the Department's jurisdiction;*

All of the work proposed is outside of the jurisdictional boundaries.

*b. Division of the upper portion of the subject catchments into smaller subcatchments, where resultant stormwater discharges should be completely infiltrated and/or retained;*

The proposed stormwater management infrastructure layout was designed in such a manner that it achieves this requirement to a logical extent. The proposed infiltration basin has been located along the eastern side of the site in an effort to create smaller subcatchments.

*c. Maintaining existing drainage patterns and not mixing country drainage with untreated stormwater;*

The intent of this item has been achieved with the proposed layout of the stormwater management system. The site has been designed to maintain the existing drainage patterns of the site by discharging runoff under post-development conditions to the same location as pre-development conditions.

*d. Treatment of remaining stormwater at or proximate to its source within these subcatchments;*

The intent of this requirement has been achieved. Treatment of stormwater will occur within the proprietary sedimentation device which is located proximate to source collection.

*e. Installation of "qualifying pervious areas" to accept stormwater discharge from roads and driveways within each subcatchment;*

Due to the commercial nature of the site and the operation and maintenance concerns this BMP was not implemented.

f. Installation of dry wells for acceptance of roof drainage;

Infiltration/attenuation of roof runoff from the proposed buildings is achieved within the proposed infiltration basin. Due to the nature of a self-storage facility layout with a number of buildings directly adjacent to each other, siting dry wells within the drive aisles was not a practical solution for roof runoff.

g. Disconnection of roof drainage;

As stated above, the nature of a self-storage facility layout with a number of buildings directly adjacent to each other, collecting downspouts and gutters with underground infrastructure was a more practical and safe solution to prevent excessive ice formation during the winter months.

h. Installation of discrete structural Best Management Practices at relatively high elevations in each subcatchment;

The proposed stormwater management system has been designed with an infiltration basin to decentralize the stormwater discharge and disperse the drainage network across the site. No new point source discharges are being proposed within jurisdictional wetland resource areas.

i. Further describe:

1. Reduction in impervious surfaces;

Impervious surfaces are limited to the proposed buildings and the minimum paved area for required drive aisles, parking, and walkway to service for the proposed use.

2. Road width and length reductions;

The access drive width is at the minimum acceptable dimension in order to provide a functional site design.

3. Clustering of impervious surfaces;

The impervious surfaces have been clustered to the maximum functional extent.

4. Addition of planted materials and landscaped areas;

All pervious areas are to be planted, seeded, or landscaped.

5. Re-grading of landscaped areas away from jurisdictional Resource Areas and their Buffer Zones; and

The general drainage patterns of the site have been maintained by the proposed site improvements and a stormwater management system has been designed to mitigate the impacts imposed by the development. No new point source discharges are being proposed within jurisdictional wetland resource areas.

6. Preservation of vegetated areas within the Buffer Zone, and immediately proximate to jurisdictional resource areas.

The development area has been consolidated to the maximum extent practicable. There are no proposed impacts to wetland resource areas, only within the associated buffer areas which have been historically developed.

# Amended Site Plan Review Application

*Under the Town of Agawam Zoning Ordinance Section 180-13 Site Plans*

## Proposed Site Improvements at Self-Storage Facility

### Project Location:

727 Silver Street & A portion of: 711 Silver Street & 699 Silver Street  
Agawam, Massachusetts 01001  
(Assessor's Map & Parcel: G6-2-3 & A portion of: G6-2-2 & G6-2-12)

### Submitted To:

Town of Agawam Planning Board  
36 Main Street  
Agawam, Massachusetts 01001

### Applicant:

Agawam Self Storage Center, LLC  
c/o Mr. Richard Mahan  
699 Silver Street  
Agawam, Massachusetts 01001

### Property Owner(s):

|                                 |                             |                             |
|---------------------------------|-----------------------------|-----------------------------|
| <i>727 Silver Street</i>        | <i>711 Silver Street</i>    | <i>699 Silver Street</i>    |
| Agawam Self Storage Center, LLC | 711 Silver, LLC             | MSR Properties, LLC         |
| c/o Mr. Richard Mahan           | c/o Mr. Richard Mahan       | c/o Mr. Richard Mahan       |
| 699 Silver Street               | 699 Silver Street           | 699 Silver Street           |
| Agawam, Massachusetts 01001     | Agawam, Massachusetts 01001 | Agawam, Massachusetts 01001 |

RLA Project File No. 220522

**July 24, 2025**

## 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](http://www.rlaland.com)



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## **LIST OF APPENDICES**

### **APPENDICES**

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APPENDIX A: SITE PLAN SET

APPENDIX B: STORMWATER DRAINAGE REPORT

## **I. COVER LETTER**

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# R LEVESQUE ASSOCIATES, INC.

40 School Street, P.O. BOX 640, Westfield, MA 01085

p 413.568.0985 · f 413.568.0986 · www.rland.com



July 24, 2025

Violet Baldwin, Chairperson  
Town of Agawam Planning Board  
36 Main Street  
Agawam, Massachusetts 01001

**RE: Amended Site Plan Review Application  
727 Silver Street & A portion of: 711 Silver Street & 699 Silver Street  
Agawam, Massachusetts 01001  
(Assessor's Map & Parcel: G6-2-3 & A portion of: G6-2-2 & G6-2-12)  
RLA Project File No. 220522**

Dear Chairperson Baldwin and Board Members:

On behalf of the applicant, Agawam Self Storage Center, LLC c/o Mr. Richard Mahan, please find the requisite number of copies of a Site Plan Review application and supporting documentation. The applicant proposes site improvements to the self-storage facility approved by the Planning Board in October 2022. The proposed improvements include the addition of a parking area on portions of land of 711 Silver Street and 699 Silver Street and stormwater upgrades. An Approval Not Required (ANR) application will be filed following Site Plan Review approval.

As required, a copy of this application package has been submitted electronically via email to the Town of Agawam Planning Board.

We are requesting to be placed on the Planning 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

**A LAND PLANNING SERVICES COMPANY**

## **2. ADMINISTRATIVE FORMS**

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2.1 TOWN OF AGAWAM ZONING DETERMINATION

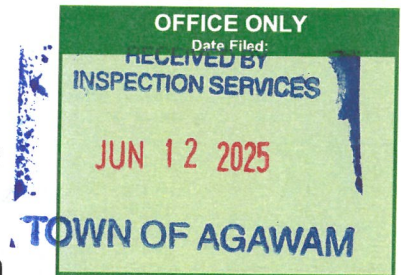
2.2 TOWN OF AGAWAM SITE PLAN APPROVAL APPLICATION – FORM D

2.3 PREVIOUSLY ISSUED PERMIT





The Commonwealth of Massachusetts  
**Town of Agawam**  
**Inspection Services - Building Department**  
1000 Suffield Street, Agawam MA 01001 – (413) 821-0632



## 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                                                                            | 727 <del>771-8-0985</del> Silver Street                                                      | b. Zoning District | Industrial B        |
| c. Assessor's Map                                                                            | G6-2                                                                                         | d. Lot(s)          | 3 <del>828-12</del> |
| e. Registry of Deeds Book                                                                    | 24826 / 25587                                                                                | f. Page            | 361 / 533           |
| g. Overlay Districts                                                                         | <input type="checkbox"/> Historic Preservation <input type="checkbox"/> Mixed-Use Business C |                    |                     |
| h. Previous Special Permits, Site Plan Approvals, Findings or Variances Issued for this Site |                                                                                              |                    |                     |

Site Plan Review Approval - October 2022

### 2) APPLICANT & OWNER INFORMATION

|                                       |                                                                                                          |                    |              |
|---------------------------------------|----------------------------------------------------------------------------------------------------------|--------------------|--------------|
| a. Applicant Name                     | Rick Mahan                                                                                               | b. Applicant Phone |              |
| c. Applicant Email                    | rick@mahanslate.com                                                                                      |                    |              |
| d. Applicant Mailing Address          | 727 Silver Street, Agawam, MA 01001                                                                      |                    |              |
| e. Applicant Relationship to Property | <input checked="" type="checkbox"/> Owner <input type="checkbox"/> Agent <input type="checkbox"/> 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              |                                                                                                          |                    |              |
| j. Owner Name (if different)          | Rick Mahan                                                                                               | k. Owner Phone     |              |
| l. Owner Email                        | rick@mahanslate.com                                                                                      |                    |              |
| m. Owner Mailing Address              | 727 Silver Street, Agawam, MA 01001                                                                      |                    |              |

### 3) PROJECT & SITE DETAILS

NOTE: Any omission of requested information may result in an INCOMPLETE determination

|                               | Existing                                                                                      |               | Proposed                                                                                      |               | -FOR BUILDING DEPT. REVIEW-<br>REQUIRED / NCU |                          |
|-------------------------------|-----------------------------------------------------------------------------------------------|---------------|-----------------------------------------------------------------------------------------------|---------------|-----------------------------------------------|--------------------------|
|                               |                                                                                               |               | <input type="checkbox"/> No changes to building, site or lot                                  |               |                                               |                          |
| a. Lot Size                   | 4.83 acres                                                                                    | SF            | 5.17                                                                                          | SF            | LOT SIZE                                      | <input type="checkbox"/> |
| b. Frontage                   | 101                                                                                           | FT            | 116.8                                                                                         | FT            | FRONTAGE                                      | <input type="checkbox"/> |
| c. Front Lot Line             | 79.6                                                                                          | FT            | 79.6                                                                                          | FT            | FRONT SB                                      | <input type="checkbox"/> |
| d. Side Lot Line (Left/Right) | L: FT 24                                                                                      | R: 26 FT      | L: 33 FT                                                                                      | R: 33 FT      | SIDE SB                                       | <input type="checkbox"/> |
| e. Rear Lot Line              | 127                                                                                           | FT            | 127                                                                                           | FT            | REAR SB                                       | <input type="checkbox"/> |
| f. Building Height            | 1 story                                                                                       | FT            | 1 story                                                                                       | FT            | BLDG HT                                       | <input type="checkbox"/> |
| g. Total BLDG/Res Area        | 44800 SF                                                                                      | 0 SF          | 44800 SF                                                                                      | 0 SF          | AREA LIM                                      | <input type="checkbox"/> |
| h. BLDG Coverage (Footprint)  | 44800 SF                                                                                      | 21.3 % of lot | 44800 SF                                                                                      | 19.9 % of lot | LOT COVER                                     | <input type="checkbox"/> |
| i. Impervious Coverage        | 124820 SF                                                                                     | 59.3 % of lot | 143791 SF                                                                                     | 63.8 % of lot | IMPERVIOUS                                    | <input type="checkbox"/> |
| j. Parking/Loading Spaces     | P: 8                                                                                          | L:            | P: 50                                                                                         | L:            | PARKING                                       | <input type="checkbox"/> |
| k. Bicycle/EV Charge Spaces   | B: 0                                                                                          | EV: 0         | B: 0                                                                                          | EV: 0         | BIKE/EV                                       | <input type="checkbox"/> |
| l. Signs (Size & Type)        | x                                                                                             | T: Ground     | 614 x                                                                                         | T: No Change  | SIGNS                                         | <input type="checkbox"/> |
| m. Fence (Size & Type)        | 1289 LIN FT                                                                                   | T: Chain Link | 614 LIN FT                                                                                    | T: Chain Link |                                               |                          |
| n. Wetland Area               | 0                                                                                             | SF            | 0                                                                                             | SF            |                                               |                          |
| o. Utility Services           | <input checked="" type="checkbox"/> Town Water <input checked="" type="checkbox"/> Town Sewer |               | <input checked="" type="checkbox"/> Town Water <input checked="" type="checkbox"/> Town Sewer |               | NON-CONFORMING USE                            | <input type="checkbox"/> |



|                                                                                                                                                                                                                                                                                                                                                 |                                                                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| <b>p. Current Use of Property</b>                                                                                                                                                                                                                                                                                                               | Self-Storage                                                                                        |
| <b>q. Proposed Use of Property</b>                                                                                                                                                                                                                                                                                                              | Self-Storage                                                                                        |
| <b>r. Project Description</b>                                                                                                                                                                                                                                                                                                                   |                                                                                                     |
| The applicant proposes an RV/Boat/Trailer parking area at the approved self-storage facility.                                                                                                                                                                                                                                                   |                                                                                                     |
| <b>s. I have attached additional narrative, plans or supporting materials</b><br>(any oversize plans should also be included in an 8.5 x 11" format)                                                                                                                                                                                            | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                 |
| <b>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.</b><br>If so, <u>CONSERVATION COMMISSION</u> review is required.                                                                                                                                    | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unsure |
| <b>u. The following projects shall be required to comply with the requirements of a <u>STORM DRAIN PERMIT</u>:</b><br>[1] Any alteration to sites on parcels of one acre or greater.<br>[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. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unsure |
| <b>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.</b>                                                                                                                                                                     | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                 |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| <b>4) CERTIFICATION</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                |
| <p>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.</p> <p><b>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.</b></p> |                                                                |
| <b>Signature</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <i>Nina Fazio</i>                                              |
| <input type="checkbox"/> Applicant                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <input checked="" type="checkbox"/> Applicant's Representative |
| <b>Date</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 06-11-2025                                                     |

| ZONING DETERMINATION - OFFICE USE ONLY                                                                                                                                                                                                                          |                                                 |                                                      |                                                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|------------------------------------------------------|----------------------------------------------------|
| <input type="checkbox"/> Approved <input type="checkbox"/> Denied: <input type="checkbox"/> The proposed use is not permitted in the subject zoning district<br><input type="checkbox"/> Only permissible with variance relief from the Zoning Board of Appeals |                                                 |                                                      |                                                    |
| <input checked="" type="checkbox"/> Approved <b>Pending additional approval:</b>                                                                                                                                                                                |                                                 |                                                      |                                                    |
| <u>Per Zoning Ordinance Section(s)</u>                                                                                                                                                                                                                          | <u>Required Permit(s)</u>                       | <u>Approval Required</u>                             | <u>Permitting Authority</u>                        |
| #180-13-4                                                                                                                                                                                                                                                       | <input type="checkbox"/> Building Permit(s)     | <input type="checkbox"/> Special Permit(s)           | <input checked="" type="checkbox"/> Planning Board |
| AND Approval                                                                                                                                                                                                                                                    | <input type="checkbox"/> Electrical Permit(s)   | <input checked="" type="checkbox"/> Site Plan Review | <input type="checkbox"/> Board of Appeals          |
|                                                                                                                                                                                                                                                                 | <input type="checkbox"/> Plumbing/Gas Permit(s) | <input type="checkbox"/> Variance                    | <input type="checkbox"/> City Council              |
| <b>Town Building Official</b>                                                                                                                                                                                                                                   | <i>Kevin D...</i>                               | <b>Issue Date</b>                                    | 6/12/2025                                          |

This determination may be appealable to the Zoning Board of Appeals under the provisions of MGL Ch. 40A Sec. 8.  
Revised 09/08/2022

\* Draft plan dated 6/17/2025

# 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](mailto: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

\_\_\_\_ July 24 20 25

1. Name of Business Agawam Self Storage Center, LLC

Address 727 Silver Street, Agawam, MA 01001

Phone # \_\_\_\_\_ email rick@mahanslate.com

Applicant: Agawam Self Storage Center, LLC c/o Rick Mahan  
Owner(s): Agawam Self Storage Center, LLC c/o Rick Mahan;

2. Name of Applicant/Owner 711 Silver, LLC c/o Rick Mahan; MSR Properties, LLC c/o Rick Mahan

Address 699 Silver Street, Agawam, MA 01001

Phone # \_\_\_\_\_ email rick@mahanslate.com

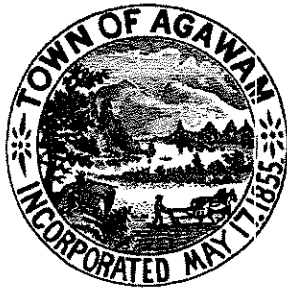
3. Name of Engineer/Architect R Levesque Associates, Inc.

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 site improvements to the existing self-storage facility permitted by the Planning Board in October 2022. Proposed site improvements include an additional parking area on a portion of land of 711 Silver Street & 699 Silver Street. An Approval Not Required (ANR) will be filed following Site Plan Review approval. Please refer to the attached project narrative for greater detail.



# Town of Agawam Planning Board

36 Main Street, Agawam, Massachusetts 01001-1801

Tel. 413-726-9737 Fax 413-786-9927

October 7, 2022

MSR Properties, LLC  
c/o Richard Mahan  
699 Silver Street  
Agawam, Ma 01001

Dear Mr. Mahan:

At its duly called meeting held on October 6, 2022, the Agawam Planning Board approved the Site Plan entitled "Proposed Self Storage Facility 727 Silver St Agawam, Ma" prepared by R. Levesque Associates, Inc, dated September 1, 2022 and revised October 3, 2022.

If you have any questions, please contact this office at 413-726-9737.

Sincerely,

Mark R. Paleologopoulos, Chairman  
Agawam Planning Board

Cc: R. Levesque Associates, Inc.  
Inspection Services  
Engineering Department  
Town Clerk  
File

### **3. PROJECT NARRATIVE**

---

## PROJECT NARRATIVE

For

PROPOSED SITE IMPROVEMENTS AT SELF-STORAGE FACILITY  
727 SILVER STREET & A PORTION OF: 711 SILVER STREET & 699 SILVER STREET  
AGAWAM, MASSACHUSETTS 01001  
(ASSESSOR'S MAP & PARCEL: G6-2-3 & A PORTION OF: G6-2-2 & G6-1-12)

### II INTRODUCTION

On behalf of the applicant, Agawam Self Storage Center, LLC c/o Mr. Richard Mahan, R Levesque Associates, Inc. is providing this project narrative as a supplement to the Site Plan Review application. The applicant proposes site improvements to the self-storage facility approved by the Planning Board in October 2022. The proposed improvements include the addition of a parking area on portions of land of 711 Silver Street and 699 Silver Street and stormwater upgrades. An Approval Not Required (ANR) application will be filed following Site Plan Review approval.

In accordance with Section 180-13(B)(1), the applicant respectfully requests Site Plan Review approval from the Planning Board for the renovation of industrially zoned land.

### PROPERTY DESCRIPTION

The subject properties are located east of Silver Street. The proposed project area consists of approximately 5.17 ± acres and is shown on the associated site plan set prepared by R Levesque Associates, Inc. An Approval Not Required (ANR) application will be filed following Site Plan Review approval to convey a portion of 711 Silver Street and 699 Silver Street to 727 Silver Street.

727 Silver Street is owned by Agawam Self Storage Center, LLC c/o Richard Mahan and is recorded in the Hampden County Registry of Deeds in Book 24826, Page 361. 711 Silver Street is owned by 711 Silver, LLC c/o Richard Mahan and is recorded in the Hampden County Registry of Deeds in Book 25587, Page 533. 699 Silver Street is owned by MSR Properties, LLC c/o Richard Mahan and is recorded in the Hampden County Registry of Deed Book 20869, Page 318. Copies of the deed references are included under Section 5 of this application packet. According to the Town of Agawam Assessor's Database, the subject properties are within the Industrial B (IB) zoning district. A Locus Map is included under Section 4 of this application packet.

## **EXISTING CONDITIONS & SURROUNDING LAND USES**

The property known as 727 Silver Street is currently developed with an eight (8) building self-storage facility with associated site improvements, as approved by the Planning Board in October 2022.

The surrounding area consists of commercially and industrially utilized parcels within the Industrial A (IA) and Industrial B (IB) zoning districts.

## **DETAILED PROJECT DESCRIPTION**

The proposed site improvements include, but are not limited to, paving and striping of an RV/Board parking area, associated site grading, installation of curbing, and stormwater upgrades.

The proposed project work will proceed in the following general sequence:

1. Installation of erosion controls along the permitted limit of work;
2. Clearing, grubbing, and excavation of the project site within the permitted limit of work;
3. Rough site grading for the additional parking area and stormwater management upgrades;
4. Associated stormwater management upgrades / revisions;
5. Paving and striping of the parking area;
6. Final site grading and installation of curbing; and
7. Removal of erosion control measures at the direction of the Town of Agawam.

## **PARKING & SITE CIRCULATION**

As part of this project, provisions are provided for 42 additional parking spaces to be used for accessory motor vehicles such as passenger vehicles, recreational vehicles, boats, motorcycles, etc. Internal drive aisles between the parking area and the nearest existing self-storage building are maintained. There are no proposed changes to the existing curb cut along Silver Street.

## **UTILITIES**

As part of this project, there are no proposed changes to the existing utilities on the subject property.

## **LANDSCAPING & LIGHTING**

Additional landscaping will be provided and will be in general conformance with municipal regulations.

As part of this project, there are no proposed changes to the existing lighting on the subject property.

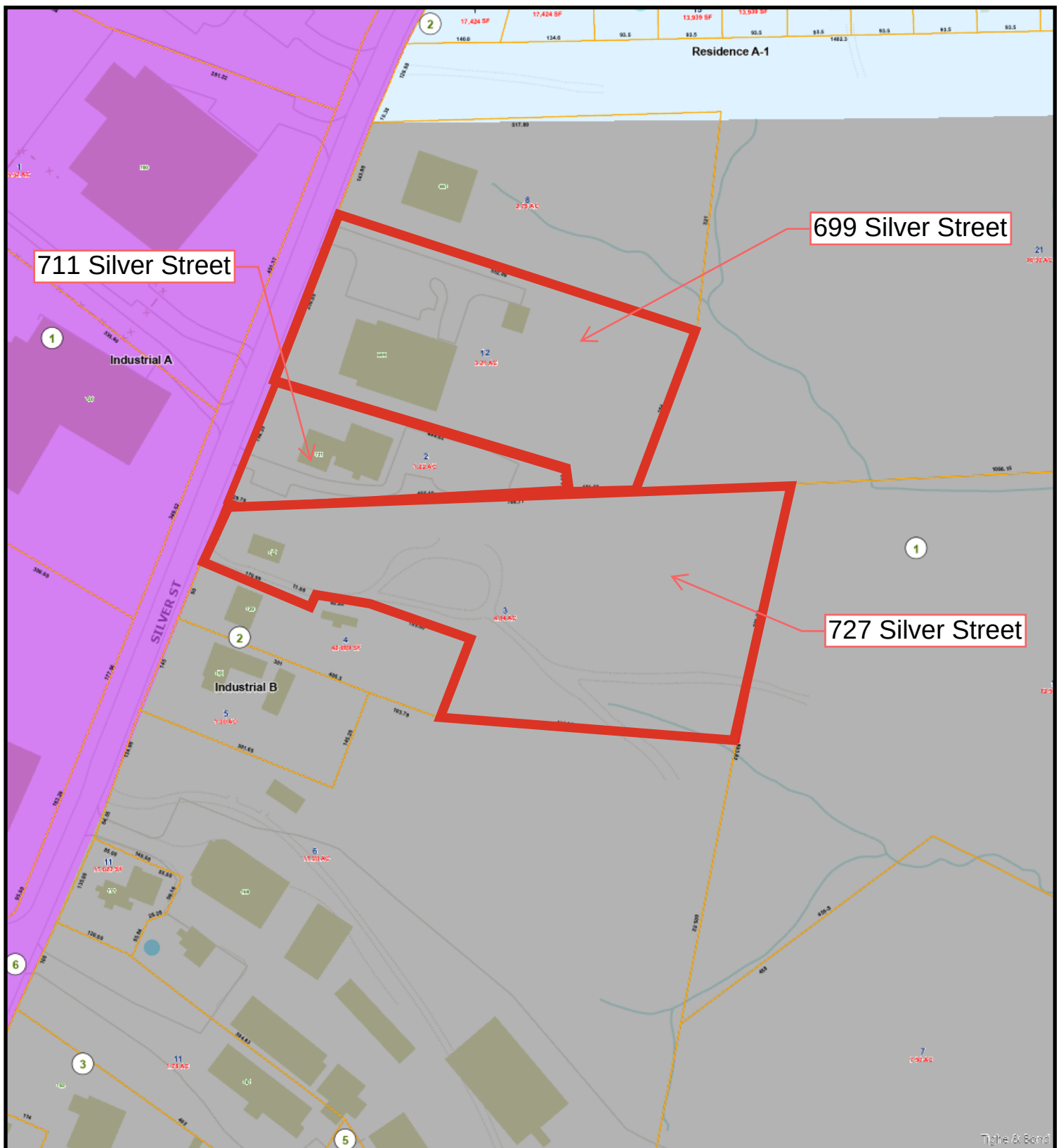
[ END OF PROJECT NARRATIVE ]

## 4. LOCUS MAP

---

(SOURCE: TOWN OF AGAWAM GIS)





## Locus Map

4/24/2025 9:24:40 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)

MASSACHUSETTS STATE EXCISE TAX  
HAMPDEN COUNTY REGISTRY OF DEEDS  
Date: 12-02-2022 @ 12:09pm  
Ctl#: 113 Doc#: 70593  
Fee: \$.00 Cons: \$1.00

**QUITCLAIM DEED**

KNOW ALL PERSONS BY THESE PRESENTS, that

**MSR PROPERTIES LLC**, a Massachusetts limited liability company with an address at 699 Silver Street, Agawam, Massachusetts 01001

in consideration of ONE AND 00/100 DOLLAR (\$1.00)

hereby grants to **AGAWAM SELF STORAGE CENTER LLC**, a Massachusetts limited liability company with an address at 699 Silver Street, Agawam, Massachusetts 01001

with QUITCLAIM COVENANTS

A certain parcel of land situated on the Easterly line of Silver Street in Agawam, Hampden County, Massachusetts shown as "LOT 1-B" on a plan of land entitled "PLAN OF LAND, 727 SILVER STREET, AGAWAM, MA OWNED BY MSR PROPERTIES, LLC AND GLORY DAYS REALTY, LLC" dated October 26, 2021, prepared by Smith Associates Surveyors, Inc. and recorded with the Hampden County Registry of Deeds in Book of Plans 394, Page 18, consisting of approximately 4.84 acres.

Being the same premises conveyed to the grantor herein by deed dated October 18, 2018 and recorded with the Hampden County Registry of Deeds in Book 22409, Page 70 and by deed dated December 28, 2021 and recorded as aforesaid in Book 24330, Page 275.

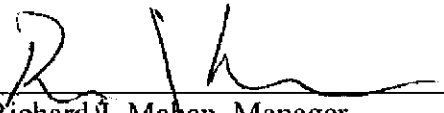
The grantor herein is not classified as a corporation for federal income tax purposes for the current taxable year.

[SIGNATURE PAGE TO FOLLOW]

Property Address: 727 Silver Street, Agawam, Massachusetts

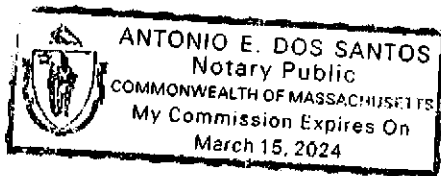
EXECUTED as a sealed instrument this 2nd day of December, 2022.

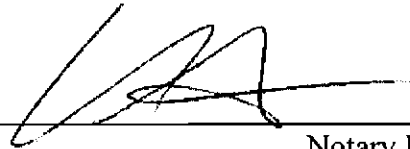
**MSR PROPERTIES LLC**

By:   
Richard J. Mahan, Manager

COMMONWEALTH OF MASSACHUSETTS  
HAMPDEN, ss.

On this 2nd day of December, 2022, before me, the undersigned notary public, personally appeared Richard J. Mahan, Manager of **MSR PROPERTIES LLC**, personally known to me to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he signed it voluntarily for its stated purpose on behalf of said limited liability company.



  
\_\_\_\_\_  
Notary Public  
My commission expires:

MASSACHUSETTS STATE EXCISE TAX  
HAMPDEN COUNTY REGISTRY OF DEEDS  
Date: 09-26-2024 @ 12:36pm  
Ctl#: 136 Doc#: 44650  
Fee: \$3,192.00 Cons: \$700,000.00

**QUITCLAIM DEED**

KNOW ALL THESE PRESENTS, that **GLORY DAYS REALTY, L.L.C.**, a Massachusetts limited liability company with a place of business at 228 Adams Street, Agawam, MA

in consideration of **SEVEN HUNDRED THOUSAND AND 00/100 (\$700,000.00) DOLLARS**,

Grants to **711 SILVER LLC**, a Massachusetts limited liability company with an address at 727 Silver Street, Agawam, Massachusetts

with **QUITCLAIM COVENANTS**,

The land situated in the Town of Agawam, Hampden County, Massachusetts, being more particularly described as follows:

Certain real estate being known and designated as Lot 2-B, consisting of approximately 53,046.9 Square feet, as shown on a plan of land entitled "Plan of Land 727 Silver Street, Agawam, MA, Owned by MSR Properties, LLC and Glory Days Realty, L.L.C., prepared by Smith Associates Surveyors, Inc., dated October 26, 2021 and recorded in the Hampden County Registry of Deeds in Book of Plans 394, Page 18. Said Lot 2-B being more particularly bounded and described as follows:

|               |                                                                                            |
|---------------|--------------------------------------------------------------------------------------------|
| NORTHWESTERLY | by Silver Street one hundred eighty-eight and 30/100 (188.30) feet; and                    |
| NORTHEASTERLY | by other land of MSR Properties LLC, four hundred forty-four and 62/100 (444.62) feet; and |
| EASTERLY      | by said land of MSR Properties LLC, thirty-six and 03/100 (36.03) feet; and                |
| SOUTHERLY     | by other land of MSR Properties LLC, four hundred sixty-six and 19/100 (466.19) feet; and  |
| SOUTHWESTERLY | by said land of MSR Properties LLC, twenty-nine and 76/100 (29.76)                         |

Said parcel being triangular in shape.

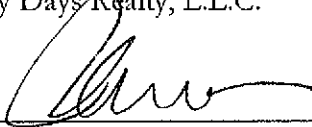
Being a portion of the premises conveyed to the Grantor herein by deed dated October 17, 2000 and recorded in the Hampden County Registry of Deeds in Book 11373, Page 395.

Glory Days Realty, L.L.C. states that it has not elected to be treated as a corporation for federal tax purposes.

PROPERTY: Lot 2-B, Agawam, Massachusetts a/k/a 711 Silver Street, Agawam, Massachusetts

Executed as a sealed instrument this 23 day of September, 2024.

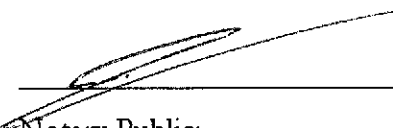
Glory Days Realty, L.L.C.

By:   
William D. Corbin  
Manager, duly authorized

COMMONWEALTH OF MASSACHUSETTS

Hampden, ss

On this 23 day of September, 2024, before me the undersigned notary public personally appeared, William D. Corbin, Manager of Glory Days Realty, L.L.C., proved to me through satisfactory evidence of identification which was Personal Knowledge to be the person whose name is signed on the preceding or attached document and acknowledged to me that he signed it voluntarily for its stated purpose as the free act and deed of Glory Days Realty, L.L.C.

  
\_\_\_\_\_  
Notary Public:

My Commission Expires:

 **JONATHAN A. BRETON**  
Notary Public  
Commonwealth of Massachusetts  
My Commission Expires  
December 16, 2027

MASSACHUSETTS STATE EXCISE TAX  
HAMPDEN COUNTY REGISTRY OF DEEDS  
Date: 09-14-2015 @ 10:49am  
Ct1#: 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:

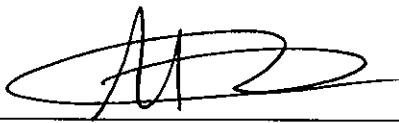
**SILVER STREET REALTY, LLC**

By:   
 \_\_\_\_\_  
**JEAN M. GRAHAM, Manager**

**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**

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SITE PLAN SET ENTITLED "SELF-STORAGE FACILITY"

PREPARED FOR AGAWAM SELF STORAGE CENTER, LLC

PREPARED BY R LEVESQUE ASSOCIATES, INC.

DATED SEPTEMBER 1, 2022; REVISED JULY 24, 2025

## **APPENDIX B: STORMWATER REPORT**

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STORMWATER DRAINAGE REPORT

PREPARED FOR AGAWAM SELF STORAGE CENTER, LLC

PREPARED BY R LEVESQUE ASSOCIATES, INC.

DATED SEPTEMBER 1, 2022; REVISED JULY 24, 2025

9589 0710 5270 0746 7943 90

**U.S. Postal Service™  
CERTIFIED MAIL® RECEIPT**  
Domestic Mail Only

For delivery information, visit our website at [www.usps.com](http://www.usps.com)®.

**Westborough, MA 01581**

Certified Mail Fee \$5.30

Extra Services & Fees (check box, add to postage)

☐ Return Receipt (hardcopy)

☐ Return Receipt (electronic)

☐ Certified Mail Restricted Delivery

☐ Adult Signature Required

☐ Adult Signature Restricted Delivery

Postage \$10.50

Total Postage and Fees \$20.20

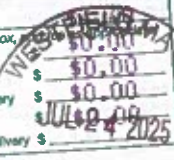
Sent To

Street and Apt. No., or

City, State, ZIP+4®

**NHESP Regulatory Review -  
Field Headquarters - MassWildlife  
1 Rabbit Hill Road  
Westborough, MA 01581**

PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions



Postmark  
Here

07/24/2025

0085  
25



# **Town of Agawam**

## ***Building Department***

1000 Suffield Street, Agawam, Massachusetts 01001

Telephone - (413) 821-0632

Kevin Duquette

*Inspector of Buildings*  
inspections@agawam.ma.us

July 31, 2025

To: Office of Planning and Community Development:

Re: Amended Site Plan Review Comments –727 Silver Street- Agawam Self Storage Center;

The Building Department has no specific zoning issues or concerns for the amendment request for the property referenced above.

The following would need to be addressed for site plan review criteria;

- A Form-A (ANR) would be required to expand the parcel for the proposed project.

Respectfully,

*Kevin Duquette*

Kevin Duquette  
Inspector of Buildings  
Town of Agawam

## Agawam Planning Board July 17, 2025

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### MEMBERS PRESENT:

Violet Baldwin, Chair  
Frank DeStefano, Vice Chair  
Michael DiLullo  
Michael Cleavall

### MEMBERS ABSENT:

Charles Elfman

### ALSO PRESENT:

Taryn Egerton

Ms. Baldwin called the meeting to order at 6:00pm.

#### 1. 6:00PM PUBLIC HEARING-FY24 CDBG Project Review-Moore & Valley Street Infrastructure Improvement Project

Mark McClusky, with Pare Corporation and Joe Hagopian with Pioneer Valley Planning Commission was present for this agenda item. He stated this is a proposed infrastructure project for Moore and Valley Streets. He stated the project starts at the intersection of High Street and extends to Moore Street. He stated trench work and drainage work was performed in years past, and will be brought up to modern standards. He stated one manhole on Church Street will be repaired completely. There will be pavement repairs and drainage work and repairs to deteriorated roadways. He stated they are not changing any elevations. There will be a water main replacement.

Jim Retzler-28 Moore Street-is concerned if more drainage will be added to the street, as it always floods when it rains. Mr. McClusky stated there is an existing catch basin on Moore Street that was buried in debris. It will be replaced and a catch basin will be added on the other side of Moore Street. He stated this will be an improvement and water will not go into people yards, but will remain in the gutter areas.

Michael Santanello-12 Moore Street-asked if the extra catch basin would be added on the West side of Moore Street. Mr. McClusky stated yes.

Ms. Baldwin asked the potential start date and when it will be completed. Mr. McClusky stated once the final plan and construction costs are submitted, it will head to the construction phase, potentially as early as this year. He stated the construction will take a total of 3 months.

Peter Smus-149 Elmar Dr-asked if Valley West would be paved. Mr. McClusky stated just Valley east.

Motion was made by Mr. DeStefano and seconded by Mr. DiLullo to close the Public Hearing for FY24 CDBG Project Review-Moore & Valley Street Infrastructure Improvement Project.

VOTE 4-0-0

## Agawam Planning Board July 17, 2025

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### 2. FORM A-575 North Street-Tirone

Ms. Baldwin stated there were no concerns from the Building Inspector or Engineering. Ms. Egerton stated the petitioner wants to split the lot in half. It is Residential-A2 and Agricultural. For Residential-A2 they need 110 ft. of frontage and for agricultural 120 ft., and this split is within those measurements.

Motion was made by Mr. DiLullo and seconded by Mr. Cleavall to approve the Plan for 575 North Street-Tirone under "Subdivision Control Law Not Required."

VOTE 4-0-0

### 3. FORM A-164 & 172 Leonard Street-Lawless

Ms. Baldwin stated 164 Leonard Street is conveying land to 172 Leonard Street. She stated there were no concerns from the Building Inspector or Engineering. Ms. Egerton stated a small portion of 164 Leonard Street will be conveyed and they have enough frontage remaining for Residential-A2. The other parcel does not have enough frontage, but it is preexisting non-confirming.

Motion was made by Ms. Cleavall and seconded by Ms. DiLullo to approve the Plan for 164 & 172 Leonard Street-Lawless under "Subdivision Control Law Not Required."

VOTE 4-0-0

### 4. Request to Extend Performance Agreement-61 Hemlock Ridge

Ms. Baldwin stated the Engineering Department has sent pictures of the lot showing the owners are working on the project and making progress. Ms. Egerton stated they are requesting a 6 month extension.

Motion was made by Mr. DeStefano and seconded by Mr. Cleavall to extend the Performance Agreement-61 Hemlock Ridge to February 1, 2026.

VOTE 4-0-0

### 5. APPROVAL OF MINUTES-July 2, 2025

Motion was made by Mr. DiLullo and seconded by Mr. DeStefano to approve the July 2, 2025 minutes as written.

VOTE 3-0-1(Cleavall)

### 6.

None

## Agawam Planning Board July 17, 2025

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Motion was made by Mr. Cleavall and seconded by Mr. DiLullo to adjourn the meeting.  
VOTE 4-0-0

Meeting adjourned at 6:35pm.

DRAFT