GRADING & DRAINAGE NOTES:

1. ALL CONSTRUCTION SHALL CONFORM TO THE APPLICABLE REGULATIONS AND STANDARDS INCLUDING LOCAL, MDOT, MADEP, MUTCD, AND AASHTO.
2. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND FOR CONDITIONS AT THE SITE. THESE PLANS, PREPARED BY ALLEN & MAJOR ASSOCIATES DO NOT EXTEND TO OR INCLUDE SYSTEMS PERTAINING TO THE SAFETY OF THE CONSTRUCTION CONTRACTOR OR THEIR EMPLOYEES, AGENTS OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK, OR THE OWNER'S EMPLOYEES, CUSTOMERS, OR THE GENERAL PUBLIC. THE SEAL OF THE ENGINEER AS INCLUDED IN THE PLAN SET DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED INTO THESE PLANS. THE CONSTRUCTION CONTRACTOR SHALL PROVIDE THE APPROPRIATE SAFETY SYSTEMS WHICH MAY BE REQUIRED BY THE
3. ALL ELEVATIONS REFER TO NAVD 88.
4. PIPE DIMENSIONS ARE MEASURED FROM THE CENTER OF THE STRUCTURE.
5. CONTRACTOR IS RESPONSIBLE FOR DEMOLITION OF EXISTING STRUCTURES INCLUDING REMOVAL OF ANY EXISTING UTILITIES SERVING THE STRUCTURE. UTILITIES ARE TO BE REMOVED TO THE RIGHT-OF-WAY.
6. ALL CUT OR FILL SLOPES SHALL BE 3:1 OR FLATTER UNLESS OTHERWISE NOTED.
7. EXISTING AND PROPOSED GRADE CONTOUR INTERVALS SHOWN AT 2 FOOT
8. ROOF DRAINS SHALL BE COLLECTED BY GUTTER SYSTEM AND DIRECTED TO A LOCAL SUBSURFACE INFILTRATION SYSTEM.
9. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER.
10. ALL STORM PIPE ENTERING STRUCTURES SHALL BE GROUTED TO ASSURE CONNECTION AT STRUCTURE IS WATERTIGHT.
11. ALL STORM SEWER MANHOLES IN PAVED AREAS SHALL BE FLUSH WITH PAVEMENT AND SHALL HAVE TRAFFIC BEARING RING & COVERS. MANHOLES IN UNPAVED AREAS SHALL BE 6" ABOVE FINISH GRADE. LIDS SHALL BE LABELED "DRAIN".
12. THE CONTRACTOR SHALL ADHERE TO ALL TERMS & CONDITIONS AS OUTLINED IN THE GENERAL N.P.D.E.S. PERMIT FOR STORMWATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES.
13. CONTRACTOR SHALL ADJUST AND/OR CUT EXISTING PAVEMENT AS NECESSARY TO ASSURE A SMOOTH FIT AND CONTINUOUS GRADE.
14. CONTRACTOR SHALL ASSURE POSITIVE DRAINAGE AWAY FROM BUILDINGS FOR ALL NATURAL AND PAVED AREAS.
15. 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 COUNTY SPECIFICATIONS UNTIL A HEALTHY STAND OF GRASS IS OBTAINED.
16. ALL CATCH BASINS ON-SITE SHALL BE EQUIPPED WITH HOODS AND 4 FOOT SUMPS AND SHALL CONFORM TO LOCAL DRAINAGE REQUIREMENTS.
17. A MINIMUM OF 18" VERTICAL CLEARANCE SHALL BE MAINTAINED WHERE WATER SERVICES CROSS STORM DRAIN LINES. WATER SERVICES SHALL BE ENCASED IN CONCRETE REGARDLESS OF CLEARANCE WHEN PASSING BELOW STORM DRAIN LINES. ENCASEMENT SHALL EXTEND ALONG WATER SERVICE A MINIMUM DISTANCE OF TEN FEET FROM THE CROSSING POINT OF THE OTHER PIPE AS MEASURED NORMALLY FROM ALL POINTS ALONG THE PIPE.
18. ALL DRAINAGE SHALL CONFORM TO LOCAL AND MADEP REQUIREMENTS.
19. PRIOR TO CONSTRUCTION OF IMPERVIOUS AREAS, ALL DRAINAGE STRUCTURES, PIPES AND BASINS SHALL BE INSTALLED AND INSPECTED FOR PROPER FUNCTION.
20. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THE PROJECT WORK SCOPE PRIOR TO THE START OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DRAWINGS, SPECIFICATIONS, OR RELATIVE CODES, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE ENGINEER AND/OR ARCHITECT PRIOR TO START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE ENGINEER AND/OR ARCHITECT SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF WORK AND/OR DESIGN INTENT OF THE DRAWINGS AND IN FULL COMPLIANCE WITH LOCAL REGULATIONS AND CODES.
21. THE DESIGN ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS, AND/OR THE DESIGN INTENT THEY CONVEY, OR FOR PROBLEMS WHICH ARISE FROM OTHERS' FAILURE TO OBTAIN AND/OR FOLLOW THE GUIDANCE OF THE DESIGN ENGINEER WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES, AMBIGUITIES, OR CONFLICTS WHICH ARE DISCOVERED OR ALLEGED.
22. THE TOWN'S ENGINEER AND THE DESIGN ENGINEER SHALL BE NOTIFIED TO INSPECT AND APPROVE SUBGRADE WITHIN THE AREAS OF THE PROPOSED INFILTRATION SYSTEM(S) TO CONFIRM THAT THE ON-SITE CONDITIONS ARE CONSISTENT WITH THE MODELED INFILTRATION RATE PRIOR TO THE SYSTEM INSTALLATION.
23. THE CONTRACTOR SHALL CONTACT "DIGSAFE" AND THE TOWN OF SHERBORN DEPARTMENT OF PUBLIC WORKS AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST THE LOCATION OF THE EXISTING UTILITIES.

    DIGSAFE: 1-800-344-7233
    SHERBORN DEPARTMENT OF PUBLIC WORKS: 508-651-7878
24. AS-BUILT DRAWINGS SHALL BE PROVIDED NO LATER THAN TWO YEARS AFTER COMPLETION OF CONSTRUCTION.
25. THE INFORMATION SHOWN ON THIS PLAN IS THE SOLE PROPERTY OF ALLEN & MAJOR ASSOCIATES, INC. ITS INTENDED USE IS TO PROVIDE INFORMATION. ANY ALTERATION, MISUSE, OR RECALCULATION OF INFORMATION OR DATA WITHOUT THE EXPRESSED, WRITTEN CONSENT OF ALLEN & MAJOR ASSOCIATES, INC. IS STRICTLY PROHIBITED.
26. RUNOFF SHALL NOT BE DIRECTED TO THE PERFORATED CORRUGATED METAL PIPE INFILTRATION SYSTEM UNTIL THE SITE IS FULLY STABILIZED.

SOIL TESTING NOTES:

1. ADDITIONAL TEST PITS SHALL BE DUG WITHIN THE FOOTPRINT OF THE INFILTRATION SYSTEM AS INDICATED ON THE PLANS TO A MINIMUM OF 4 VERTICAL FEET BELOW THE BOTTOM OF STONE ELEVATION AS NOTED ON THE DESIGN DRAWINGS. DURING EXCAVATION, DEPTHS TO BEDROCK AND/OR SEASONAL HIGH WATER SHALL BE OBSERVED AND RECORDED IF ENCOUNTERED. IF LEDGE, BEDROCK OR SIMILAR SUBSURFACE MATERIAL IS DISCOVERED WITHIN 4 VERTICAL FEET FROM THE DESIGNED BOTTOM STONE ELEVATION OF THE INFILTRATION SYSTEM, THE MATERIAL SHALL BE EXCAVATED AND REPLACED WITH CRUSHED STONE OF EQUAL DIAMETER THAT WILL BE USED TO CONSTRUCT THE INFILTRATION SYSTEM.
2. IN THE EVENT THE ON-SITE CONDITIONS ARE NOT CONSISTENT WITH THE MODELED INFILTRATION RATE, MODIFICATIONS TO THE SYSTEM MUST BE REVIEWED AND APPROVED BY THE TOWN'S ENGINEER AND BY THE PLANNING STAFF.

DRAINAGE STRUCTURE TABLE

STRUCTURE	STRUCTURE DETAILS
CB-01	RIM=259.43 INV.OUT=256.20 (DMH-01) 33LF, 12"HDPE, S=3.32%
CB-02	RIM=258.73 INV.OUT=255.50 (DMH-01) 22LF, 12"HDPE, S=1.80%
CB-03	RIM=261.72 INV.OUT=257.60 (DMH-02) 27LF, 12"HDPE, S=3.00%
CB-04	RIM=261.26 INV.OUT=257.46 (DMH-02) 22LF, 12"HDPE, S=3.00%
CB-05	RIM=254.15 INV.OUT=250.71 (DMH-03) 21LF, 12"HDPE, S=1.00%
CB-06	RIM=254.22 INV.OUT=250.61 (DMH-03) 11LF, 12"HDPE, S=1.00%
CB-07	RIM=247.49 INV.OUT=243.46 (DMH-06) 20LF, 12"HDPE, S=2.00%
CB-08	RIM=246.68 INV.OUT=243.40 (DMH-06) 17LF, 12"HDPE, S=2.00%

DRAINAGE STRUCTURE TABLE

STRUCTURE	STRUCTURE DETAILS
CB-09	RIM=240.61 INV.OUT=234.88 (DMH-07) 28LF, 12"HDPE, S=1.00%
CB-10	RIM=239.42 INV.OUT=234.69 (DMH-07) 9LF, 12"HDPE, S=1.00%
CB-11	RIM=233.67 INV.OUT=229.24 (DMH-08) 14LF, 12"HDPE, S=1.00%
CB-12	RIM=233.72 INV.OUT=229.29 (DMH-08) 19LF, 12"HDPE, S=1.00%
CB-13	RIM=227.25 INV.OUT=223.63 (DMH-09) 9LF, 12"HDPE, S=3.00%
CB-14	RIM=227.69 INV.OUT=223.98 (DMH-09) 21LF, 12"HDPE, S=3.00%
CB-15	RIM=220.63 INV.OUT=217.40 (DMH-10) 9LF, 12"HDPE, S=3.72%
CB-16	RIM=220.61 INV.OUT=217.40 (DMH-10) 15LF, 12"HDPE, S=2.29%

DRAINAGE STRUCTURE TABLE

STRUCTURE	STRUCTURE DETAILS
CB-17	RIM=213.81 INV.OUT=210.27 (DMH-11) 33LF, 12"HDPE, S=1.00%
CB-18	RIM=213.83 INV.OUT=210.30 (DMH-11) 37LF, 12"HDPE, S=1.00%
DMH-01	RIM=258.52 INV.IN=255.10 (CB-02) INV.IN=255.10 (CB-01) INV.OUT=251.51 (DMH-04) 64LF, 15"HDPE, S=3.00%
DMH-02	RIM=260.66 INV.IN=256.80 (CB-04) INV.IN=256.80 (CB-03) INV.OUT=251.84 (DMH-04) 75LF, 15"HDPE, S=3.00%
DMH-03	RIM=254.76 INV.IN=250.50 (CB-06) INV.IN=250.50 (CB-05) INV.OUT=250.40 (DMH-04) 55LF, 15"HDPE, S=1.00%
DMH-04	RIM=257.23 INV.IN=249.60 (DMH-01) INV.IN=249.60 (DMH-02) INV.IN=249.85 (DMH-03) INV.OUT=248.85 (HW-01) 159LF, 18"HDPE, S=1.79%
DMH-05	RIM=237.75 INV.IN=229.33 (DMH-12) INV.OUT=229.23 (IS-1-RISER) 124LF, 15"HDPE, S=2.00%
DMH-06	RIM=246.62 INV.IN=243.06 (CB-07) INV.IN=243.06 (CB-08) INV.OUT=242.96 (DMH-07) 146LF, 15"HDPE, S=5.72%

DRAINAGE STRUCTURE TABLE

STRUCTURE	STRUCTURE DETAILS
DMH-07	RIM=239.64 INV.IN=234.60 (DMH-06) INV.IN=234.60 (CB-09) INV.IN=234.60 (CB-10) INV.OUT=234.35 (DMH-08) 140LF, 18"HDPE, S=3.93%
DMH-08	RIM=233.28 INV.IN=228.85 (DMH-07) INV.IN=229.10 (CB-12) INV.IN=229.10 (CB-11) INV.OUT=227.21 (DMH-09) 137LF, 24"HDPE, S=3.00%
DMH-09	RIM=227.10 INV.IN=223.10 (DMH-08) INV.IN=223.35 (CB-14) INV.IN=223.35 (CB-13) INV.OUT=219.49 (DMH-10) 147LF, 24"HDPE, S=2.00%
DMH-10	RIM=220.46 INV.IN=216.55 (DMH-09) INV.IN=217.05 (CB-15) INV.IN=217.05 (CB-16) INV.OUT=210.40 (DMH-11) 113LF, 24"HDPE, S=1.30%
DMH-11	RIM=215.34 INV.IN=208.93 (DMH-10) INV.IN=209.93 (CB-17) INV.IN=209.93 (CB-18) INV.OUT=208.83 (HW-02) 62LF, 24"HDPE, S=1.34%
DMH-12	RIM=238.03 INV.IN=234.80 (OCS-02) INV.OUT=232.63 (DMH-05) 76LF, 15"HDPE, S=4.32%
DMH-13	RIM=207.36 INV.IN=204.75 (EX-CB-A) INV.IN=204.65 (JELLYFISH) INV.OUT=204.65 (EX-CB-B) 6LF, 12"RCP, S=0.82%
GABION-C/O	RIM=227.00 INV.IN=222.00 (IS-1-RISER) INV.OUT=222.00 () 15LF, 15"HDPE, S=0.00% INV.OUT=222.00 () 15LF, 15"HDPE, S=0.00%

DRAINAGE STRUCTURE TABLE

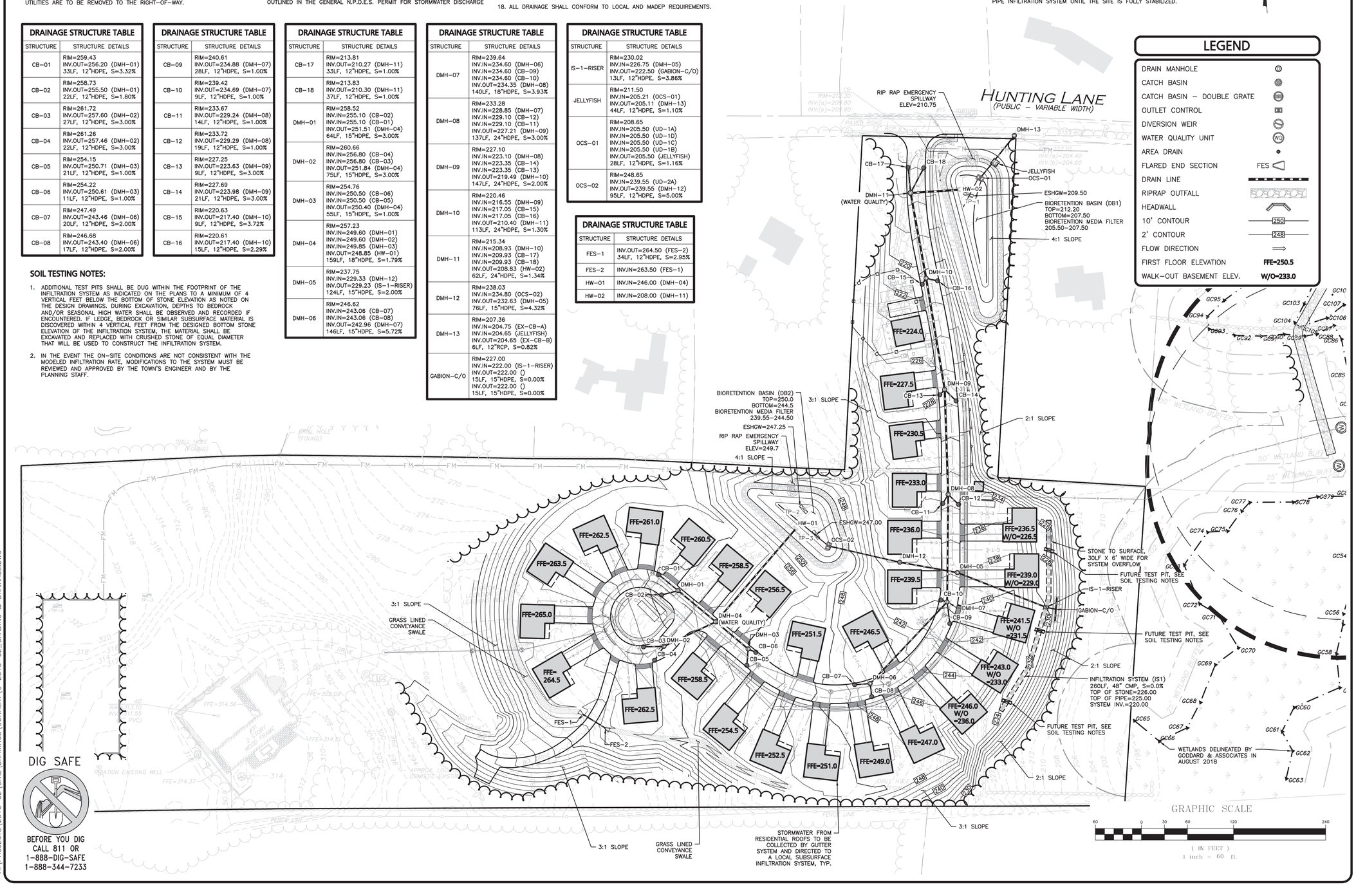
STRUCTURE	STRUCTURE DETAILS
IS-1-RISER	RIM=230.02 INV.IN=226.75 (DMH-05) INV.OUT=222.50 (GABION-C/O) 13LF, 12"HDPE, S=3.86%
JELLYFISH	RIM=211.50 INV.IN=205.21 (OCS-01) INV.OUT=205.11 (DMH-13) 44LF, 12"HDPE, S=1.10%
OCS-01	RIM=208.65 INV.IN=205.50 (UD-1A) INV.IN=205.50 (UD-1D) INV.IN=205.50 (UD-1C) INV.IN=205.50 (UD-1B) INV.OUT=205.50 (JELLYFISH) 28LF, 12"HDPE, S=1.16%
OCS-02	RIM=248.65 INV.IN=239.55 (UD-2A) INV.OUT=239.55 (DMH-12) 95LF, 12"HDPE, S=5.00%

DRAINAGE STRUCTURE TABLE

STRUCTURE	STRUCTURE DETAILS
FES-1	INV.OUT=264.50 (FES-2) 34LF, 12"HDPE, S=2.95%
FES-2	INV.IN=263.50 (FES-1)
HW-01	INV.IN=246.00 (DMH-04)
HW-02	INV.IN=208.00 (DMH-11)

LEGEND

DRAIN MANHOLE	
CATCH BASIN	
CATCH BASIN – DOUBLE GRATE	
OUTLET CONTROL	
DIVERSION WEIR	
WATER QUALITY UNIT	WQ
AREA DRAIN	
FLARED END SECTION	FES
DRAIN LINE	
RIPRAP OUTFALL	
HEADWALL	
10' CONTOUR	250
2' CONTOUR	248
FLOW DIRECTION	
FIRST FLOOR ELEVATION	FFE=250.5
WALK-OUT BASEMENT ELEV.	W/O=233.0



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R:\PROJECTS\2513-02\CIVIL\DRAWINGS\CURRENT\C-2513-02_GRADING & DRAINAGE.DWG

COMMONWEALTH OF MASSACHUSETTS
MICHAEL A. MALYNOWSKI
CIVIL
No. 47269
REGISTERED PROFESSIONAL ENGINEER
4/26/2021

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
6	04-26-2021	REVS PER PEER REVIEW
5	04-09-2021	REVS PER PEER REVIEW
4	02-25-2021	CONVERSION TO SINGLE FAMILY HOMES
3	10-01-2020	ISSUED FOR ZBA APPLICATION
2	05-19-2020	MISC. REV. PER MASSHOUSING & ABUTTER WALK
1	01-21-2020	MISCELLANNEOUS REVISIONS

APPLICANT\OWNER:

BARSKY ESTATE REALTY TRUST
23 HUNTING LANE
SHERBORN, MA 01770

PROJECT:

APPLE HILL ESTATES
31 HUNTING LANE
SHERBORN, MA 01770

PROJECT NO.	2513-02	DATE:	10-23-20
SCALE:	1" = 60'	DWG. NAME:	C2513-02
DESIGNED BY:	SM	CHECKED BY:	MAM

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
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environmental consulting ◆ landscape architecture
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DRAWING TITLE:

GRADING &
DRAINAGE PLAN

SHEET No.

C-103