

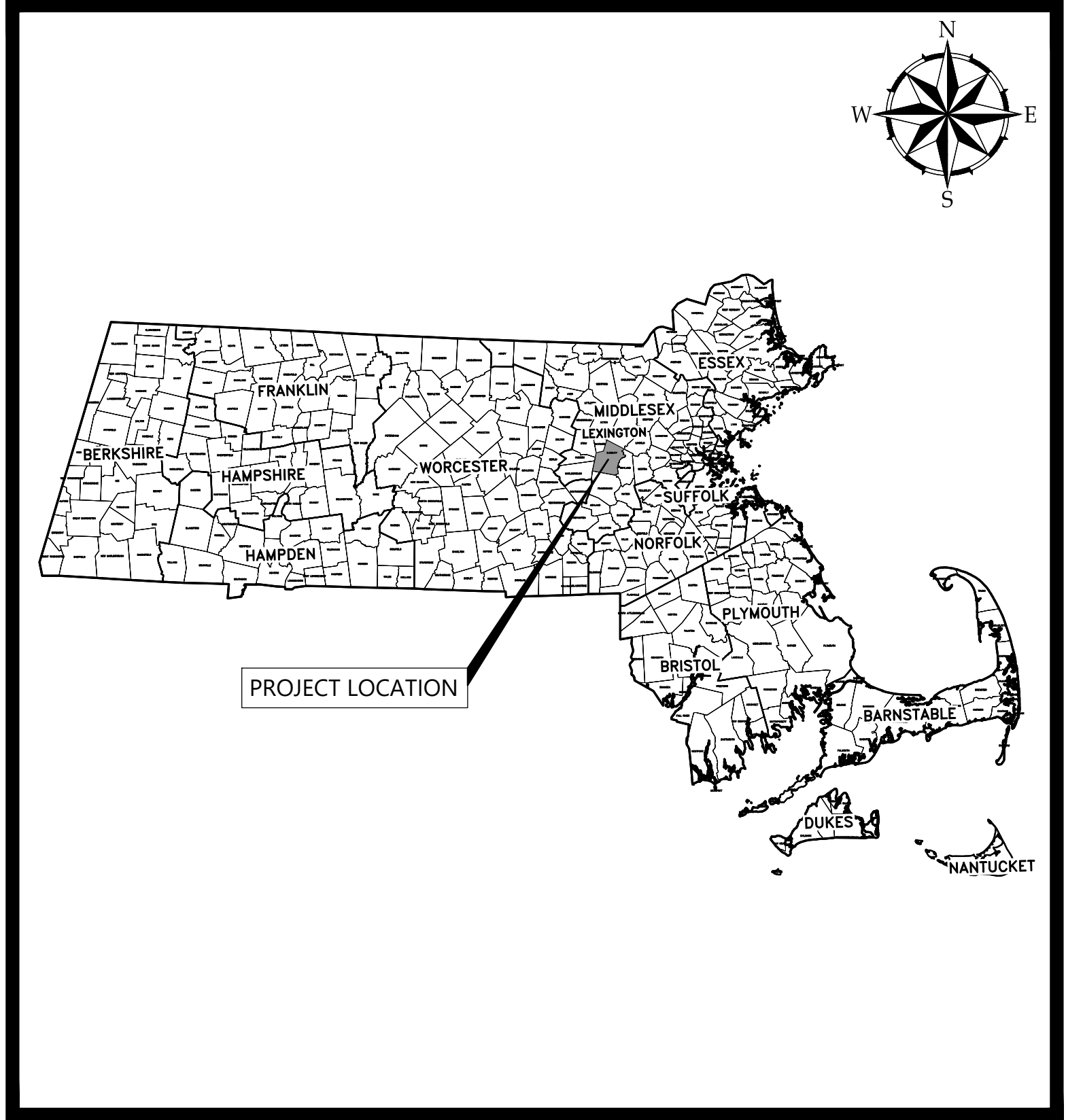
TOWN OF SUDBURY, MA

PUBLIC WORKS DEPARTMENT

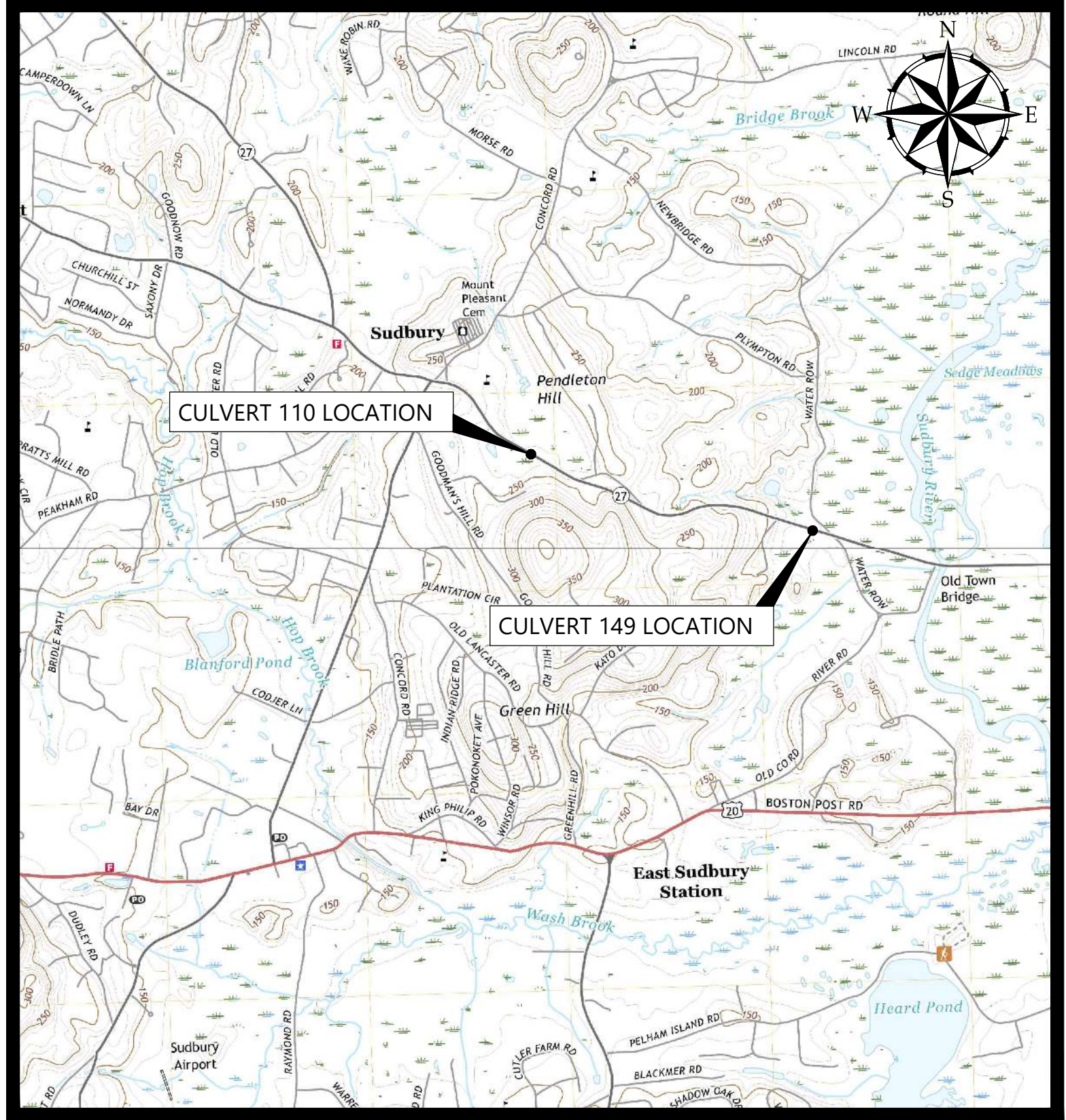
OLD SUDBURY ROAD CULVERTS 110 AND 149 REPLACEMENT

ISSUE FOR BID

APRIL 2024



PROJECT LOCATION MAP



SITE LOCATION MAP

SOURCE: USGS TOPO QUADRANGLE



Woodard & Curran

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Scott Salucci

ISSUE FOR BID

CLIENT INFO:
TOWN OF SUDBURY, MA
PUBLIC WORKS DEPARTMENT
OLD SUDBURY ROAD
CULVERTS 110 AND 149
REPLACEMENT

REV	MM/DD/YY	DESCRIPTION

DRAWING TITLE:
COVER SHEET

DRAWING NO:
G-001

GENERAL NOTES:

- 1. EXISTING CONDITIONS ARE BASED ON SURVEYS PERFORMED BY CHAPPELL ENGINEERING ASSOCIATES...
2. CHAPPELL ENGINEERING ASSOCIATES IS LOCATED AT THE FOLLOWING ADDRESS: 201 BOSTON POST ROAD WEST, SUITE 101...
3. CONTRACTOR SHALL INVESTIGATE EXISTING CONDITIONS AND FIELD VERIFY LOCATIONS, DEPTH, AND SIZE OF UTILITIES AND SUB-SURFACE STRUCTURES PRIOR TO CONSTRUCTION...
4. THE HORIZONTAL DATUM DEPICTED ON THE MAPS HEREON IS BASED ON THE MASSACHUSETTS STATE PLANE COORDINATE SYSTEM, MAINLAND ZONE, REFERENCED TO THE NORTH AMERICAN DATUM OF 1983...
5. ANY PROPERTY AND RIGHT OF WAY LOCATIONS THAT MAY BE SHOWN HEREIN ARE APPROXIMATE AND DO NOT REPRESENT A PROPERTY BOUNDARY SURVEY...
6. WOODARD & CURRAN ASSUMES NO RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES OMITTED OR INACCURATELY SHOWN...
7. COORDINATE CONSTRUCTION ACTIVITY WITH UTILITY COMPANIES, EMERGENCY SERVICES AND TOWN. CONTRACTOR SHALL NOTIFY ALL UTILITIES PRIOR TO COMMENCING WORK...
8. RESTORE ALL AREAS DISTURBED BY CONTRACTOR'S OPERATIONS TO ORIGINAL FINISH (GRAVEL, PAVEMENT, GRASS, ETC.) UNLESS NOTED OTHERWISE ON THE PLANS...
9. PROPERLY PROTECT AND DO NOT DISTURB PROPERTY IRONS AND MONUMENTS. IF DISTURBED, THE PROPERTY MONUMENT SHALL BE RESET AT THE CONTRACTOR'S EXPENSE...
10. EXISTING FACILITIES (I.E. TREES, POLES, LIGHT POSTS, CATCH BASINS, STONE FROM CULVERT, ETC.) SHALL BE REMOVED AND/OR PROTECTED DURING CONSTRUCTION...
11. ALL TREES NOT NOTED TO BE REMOVED OR RELOCATED SHALL BE PROTECTED BY CONTRACTOR DURING CONSTRUCTION...
12. RESTRICT ACCESS TO SITE THROUGH THE USE OF APPROPRIATE SIGNAGE, BARRIERS, FENCES, ETC. SITE SHALL BE LEFT WITH APPROPRIATE SAFETY MEASURES IN PLACE DURING NON-WORKING HOURS...
13. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY CONSTRUCTION PERMITS INCLUDING STREET OPENING PERMIT AND TRENCH PERMIT FROM THE TOWN...
14. ALL WORK ASSOCIATED WITH THE PROJECT SHALL BE COMPLETED IN ACCORDANCE WITH THE TOWN OF SUDBURY BYLAW AND LOCAL REGULATIONS AND MASSACHUSETTS DOT STANDARD SPECIFICATIONS...
15. UPON COMPLETION OF CONSTRUCTION, A COMPLETE SET OF "RECORD" DRAWINGS SHALL BE SUBMITTED TO THE TOWN ENGINEER...
16. PROTECTION OF EXISTING UTILITIES DURING CONSTRUCTION SHALL BE PROVIDED AT NO ADDITIONAL COST...
17. CONTRACTOR SHALL BE RESPONSIBLE FOR SWEEPING OLD SUDBURY ROAD EVERY FRIDAY AND AS NECESSARY DURING THE DURATION OF THE WORK...
18. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL ATTEND A PRE-CONSTRUCTION MEETING HELD AT THE PROJECT SITE WITH THE CONTRACTOR, ENGINEER, OWNER, AND CONSERVATION OFFICIAL...
19. ALL DISTURBED UPLAND AREAS SHALL BE BROUGHT TO FINAL GRADE AND SHALL BE PERMANENTLY STABILIZED WITHIN 30 DAYS AFTER DISTURBANCE...
20. CONTRACTOR SHALL DEMARCAT CONSTRUCTION EQUIPMENT AND MATERIAL STORAGE AREAS PRIOR TO CONSTRUCTION...
21. THE CONSTRUCTION SITE SHALL BE MAINTAINED IN CLEAN CONDITIONS AT ALL TIMES AND CONSTRUCTION REFUSE AND DEBRIS SHALL BE DISPOSED OF PROMPTLY AND IN A LEGAL MANNER...
22. STORING, SERVICING, OR CLEANING OF TRUCKS OR EQUIPMENT SHALL BE PERFORMED IN AN UPLAND AREA AT A HORIZONTAL DISTANCE GREATER THAN 100 FEET FROM THE WETLAND RESOURCE AREAS...
23. IN-PERSON SITE VISITS/MEETINGS AND EXECUTION OF PROJECT CONSTRUCTION SHALL BE IN COMPLIANCE WITH CURRENT COVID-19 STATE AND LOCAL REGULATIONS...
24. GEOTECHNICAL INVESTIGATION WAS CONDUCTED BY GZA GEOTECHNICAL ON NOVEMBER 17, 2020 AND DECEMBER 11, 2020 AND DOCUMENTED IN A REPORT DATED JANUARY 7, 2021...
25. WETLAND DELINEATION WAS PREPARED BY ECOTEC, INC. 102 GROVE STREET, WORCESTER, MA 01605. THE WETLAND RESOURCE EVALUATION REPORT IS DATED NOVEMBER 5, 2020 AND WETLAND FIELD INSPECTION WAS CONDUCTED ON NOVEMBER 4, 2020...
26. DO NOT PARK, IMPEDE ACCESS TO, OR STORE EQUIPMENT BEYOND LIMIT OF WORK, UNLESS PERMISSION HAS BEEN GRANTED IN WRITING BY TOWN AND/OR LAND OWNER...
27. PRIOR TO THE START OF WORK, CONTRACTOR SHALL CONFIRM EXISTING WETLAND FLAGS ARE IN PLACE AND SHALL BE MAINTAINED DURING CONSTRUCTION...
28. NO EQUIPMENT IS TO CROSS OR ENTER WETLAND RESOURCE AREAS AT ANY TIME UNLESS THE LOCATION OF DISTURBANCE IS MARKED ON THE PLANS REFERENCED IN THE ORDER OF CONDITIONS AND FLAGGED IN THE FIELD (DEP FILE #301-1327)...
29. THE CONTRACTOR, SITE ENGINEER, OR OTHER INDIVIDUAL IN CHARGE OF WORK ON THE SITE SHALL HAVE A COPY OF THE ORDER OF CONDITIONS AT ALL TIMES (DEP FILE #301-1327).

EROSION CONTROL NOTES:

- 1. EROSION CONTROL DEVICES SHALL REMAIN IN PLACE, UNTIL ALL DISTURBED SURFACES HAVE BEEN STABILIZED WITH FINAL VEGETATION COVER OR THE COMMISSION HAS AUTHORIZED THEIR REMOVAL...
2. EROSION CONTROL MEASURES AND BARRIERS SHALL BE MONITORED DAILY AND MAINTAINED, OR REINFORCED AS NECESSARY TO ENSURE AND PREVENT EROSION AND SILTATION OF SOILS TO WETLAND RESOURCE AREAS...
3. DURING ALL PHASES OF CONSTRUCTION, ALL DISTURBED OR EXPOSED AREAS OUTSIDE THE ROADWAY SHALL BE BROUGHT TO FINISHED GRADE AND EITHER A) LOAMED AND SEEDED FOR PERMANENT STABILIZATION...
4. PROJECT IS SUBJECT TO THE CONDITIONS SET FORTH IN PERMITS ISSUED BY THE SUDBURY CONSERVATION COMMISSION AND MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION...
5. AN ADEQUATE STOCKPILE OF EROSION AND SEDIMENTATION CONTROL MATERIALS SHALL BE ON SITE AT ALL TIMES FOR EMERGENCY OR ROUTINE REPLACEMENT...
6. ANY DAMAGE CAUSED AS A DIRECT RESULT OF CONSTRUCTION TO THE WETLAND RESOURCE AREAS SHALL BE REPAIRED, RESTORED AND/OR REPLACED...
7. THE SILT FENCE AND STRAW BALES MUST BE INSPECTED PRIOR TO THE START OF ANY WORK OR A \$100 PER DAY FINE WILL BE LEVIED ON THE CONTRACTOR.

DEWATERING NOTES

- 1. IT IS ANTICIPATED THAT EXCAVATION FOR BOTH CULVERTS WILL OCCUR IN THE WET. THE CONTRACTOR SHALL SUBMIT A WATER CONTROL MANAGEMENT PLAN FOR THE PROJECT LOCATIONS IN ACCORDANCE WITH THE SPECIFICATIONS...
2. ALL DEWATERING ACTIVITIES SHALL MEET LOCAL, STATE, AND FEDERAL REGULATIONS...
3. THE CONTRACTOR IS RESPONSIBLE FOR ALL LABOR AND EQUIPMENT REQUIRED TO PERFORM THE WORK INCLUDING BUT NOT LIMITED TO PROPER SHORING, DEWATERING EQUIPMENT, AND WATER TREATMENT EQUIPMENT...
4. LOCATE DISCHARGE SITE ON FLAT UPLAND AREAS AS FAR AWAY AS POSSIBLE FROM STREAMS, WETLANDS, OTHER RESOURCES AND POINTS OF CONCENTRATED FLOW...
5. NEVER DISCHARGE TO AREAS THAT ARE BARE OR NEWLY VEGETATED...
6. DIRT BAG MATERIAL BASED ON PARTICLE SIZE IN DIRTY WATER, I.E., FOR COARSE PARTICLES A WOVEN MATERIAL; FOR SILTS/CLAYS A NON-WOVEN MATERIAL...
7. DO NOT OVER PRESSURIZE DIRT BAG OR USE BEYOND CAPACITY...
8. CHANNELS DUG FOR DISCHARGING WATER FROM THE EXCAVATED AREA NEED TO BE STABLE. IF FLOW VELOCITIES CAUSE EROSION WITHIN THE CHANNEL THEN A DITCH LINING SHOULD BE USED...
9. BUCKETED WATER SHOULD BE DISCHARGED IN A STABLE MANNER TO THE SEDIMENT REMOVAL AREA...
10. DEWATERING IN PERIODS OF INTENSE, HEAVY RAIN, WHEN THE INFILTRATIVE CAPACITY OF THE SOIL IS EXCEEDED, SHOULD BE AVOIDED...
11. INSTALL DIVERSION DITCHES OR BERMS TO MINIMIZE THE AMOUNT OF CLEAN STORMWATER RUNOFF ALLOWED INTO THE EXCAVATED AREA...
12. DURING THE ACTIVE DEWATERING PROCESS, INSPECTION OF THE DEWATERING FACILITY SHOULD BE REVIEWED FREQUENTLY...
13. EROSION CONTROL REQUIRED AROUND DEWATERING DISCHARGE SEDIMENT CONTROL DEVICE.

TRAFFIC CONTROL NOTES

- 1. CONTRACTOR SHALL USE THEIR BEST EFFORTS TO SEQUENCE WORK IN A MANNER TO MINIMIZE THE DURATION OF ROADWAY CLOSURES...
2. CONTRACTOR SHALL SUBMIT A TRAFFIC MANAGEMENT PLAN TO THE OWNER FOR APPROVAL PRIOR TO ANY PARTIAL OR FULL ROAD CLOSURES...
3. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND MAINTAINING DETOUR/TRAFFIC CONTROL SIGNAGE THROUGHOUT THE DURATION OF CONSTRUCTION...
4. ALL CONSTRUCTION SIGNAGE SHALL BE IN ACCORDANCE WITH MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS...
5. COORDINATE ROAD CLOSURES WITH THE TOWN OF SUDBURY POLICE DEPARTMENT AND TOWN OF SUDBURY FIRE DEPARTMENT, AND RESIDENTS OF OLD SUDBURY ROAD AS REQUIRED BY THE TOWN.

ABBREVIATIONS

Table with 2 columns: Abbreviation and Full Name. Includes entries like & A.G. ABOVE GROUND, BIT BITUMINOUS, CB CATCH BASIN, D STORM DRAIN, EHH UNDERGROUND ELECTRICAL, FF FINISH FLOOR, G GAS MAIN, HDPE HIGH DENSITY POLYETHYLENE, INV. INVERT, MASSDEP MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION, MAX. MAXIMUM, N.I.C. NOT IN CONTRACT NUMBER, OE OVERHEAD ELECTRICAL OVERHEAD, R.O.W. RIGHT-OF-WAY, S SLOPE (FT./FT.), SBDH STONE BOUND DRILL HOLE, TOWN TYP. TOWN OF SUDBURY TYPICAL, UG UNDERGROUND, VC VITRIFIED CLAY, W WATER, WGR WOODEN GUARDRAIL, WS WATER SERVICE, WV WATER VALVE.

SYMBOLS

Table with 2 columns: Description and Symbol. Includes entries like UTILITY POLE, CATCH BASIN, WETLAND FLAG LOCATION, BENCHMARK, MANHOLE, TREE, BORING, SIGN.

SHEET INDEX table with columns: Sheet Number and Description. Includes entries like G-001 COVER SHEET, G-002 GENERAL NOTES, LEGEND AND ABBREVIATIONS, C-100 EXISTING CONDITIONS PLAN - CULVERT 110, C-101 EXISTING CONDITIONS PLAN - CULVERT 149, C-200 EROSION CONTROL AND DEMOLITION PLAN - CULVERT 110, C-201 EROSION CONTROL AND DEMOLITION PLAN - CULVERT 149, C-300 SITE PLAN AND PROFILE - CULVERT 110, C-301 SITE PLAN AND PROFILE - CULVERT 149, C-400 CIVIL DETAILS 1, C-401 CIVIL DETAILS 2.

RESOURCE AREA LEGEND

Legend for Resource Area types: BORDERING VEGETATED WETLAND (BVW), EDGE OF WATER/FLOW PATH, NATURAL HERITAGE & ENDANGERED SPECIES PROGRAM (NHESP) PRIORITY HABITATS OF RARE SPECIES.

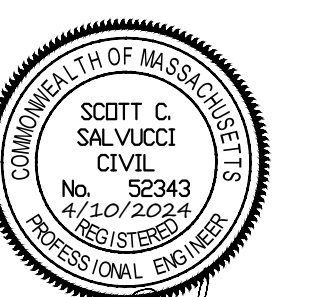
NOTE:
1. CULVERT 110 AND CULVERT 149 PROJECT AREAS ENTIRELY WITHIN BORDERING VEGETATED WETLAND (BVW) BUFFER (ADJACENT UPLAND RESOURCE AREA).
2. CULVERT 149 PROJECT AREA ENTIRELY WITHIN BORDERING LAND SUBJECT TO FLOODING (100-YEAR FLOOD ZONE).

LINE TYPES & HATCHES

Table with 3 columns: Description, Existing, Proposed. Includes entries like RIGHT OF WAY/PROPERTY LINE, CONTOUR (1' INTERVAL), CONTOUR (INDEX), EDGE OF PAVEMENT, STORM DRAIN BOX CULVERT, STORM DRAIN LINE, UNDERGROUND GAS, WATER LINE, GUARDRAIL, OVERHEAD ELECTRICAL, WOODS, DOUBLE YELLOW LINE, SINGLE YELLOW LINE, LIMIT OF WORK, COFFERDAM, TURBIDITY CURTAIN, SEDIMENT BARRIER, SAWCUT, RETAINING WALL, STONE WALL, RIPRAP, BITUMINOUS PAVEMENT, MILL AND OVERLAY, PAVEMENT TO BE REMOVED, CULVERT DEMOLITION.



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TOWN OF SUDBURY, MA
PUBLIC WORKS DEPARTMENT
OLD SUDBURY ROAD
CULVERTS 110 AND 149
REPLACEMENT

Table with 2 columns: REV and DESCRIPTION. Includes entries like 0233335.05, APRIL 2024, N.T.S., MB/DLP, MB, HCP/SS, 0233335.01-G-XXX.dwg.

JOB NO: 0233335.05
DATE: APRIL 2024
SCALE: N.T.S.
DESIGNED BY: MB/DLP
DRAWN BY: MB
CHECKED BY: HCP/SS
FILENAME: 0233335.01-G-XXX.dwg

GENERAL NOTES, LEGEND AND ABBREVIATIONS

DRAWING NO: G-002



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CLIENT INFO:

TOWN OF SUDBURY, MA
PUBLIC WORKS DEPARTMENT

OLD SUDBURY ROAD
CULVERTS 110 AND 149
REPLACEMENT

REV MM/DD/YY DESCRIPTION

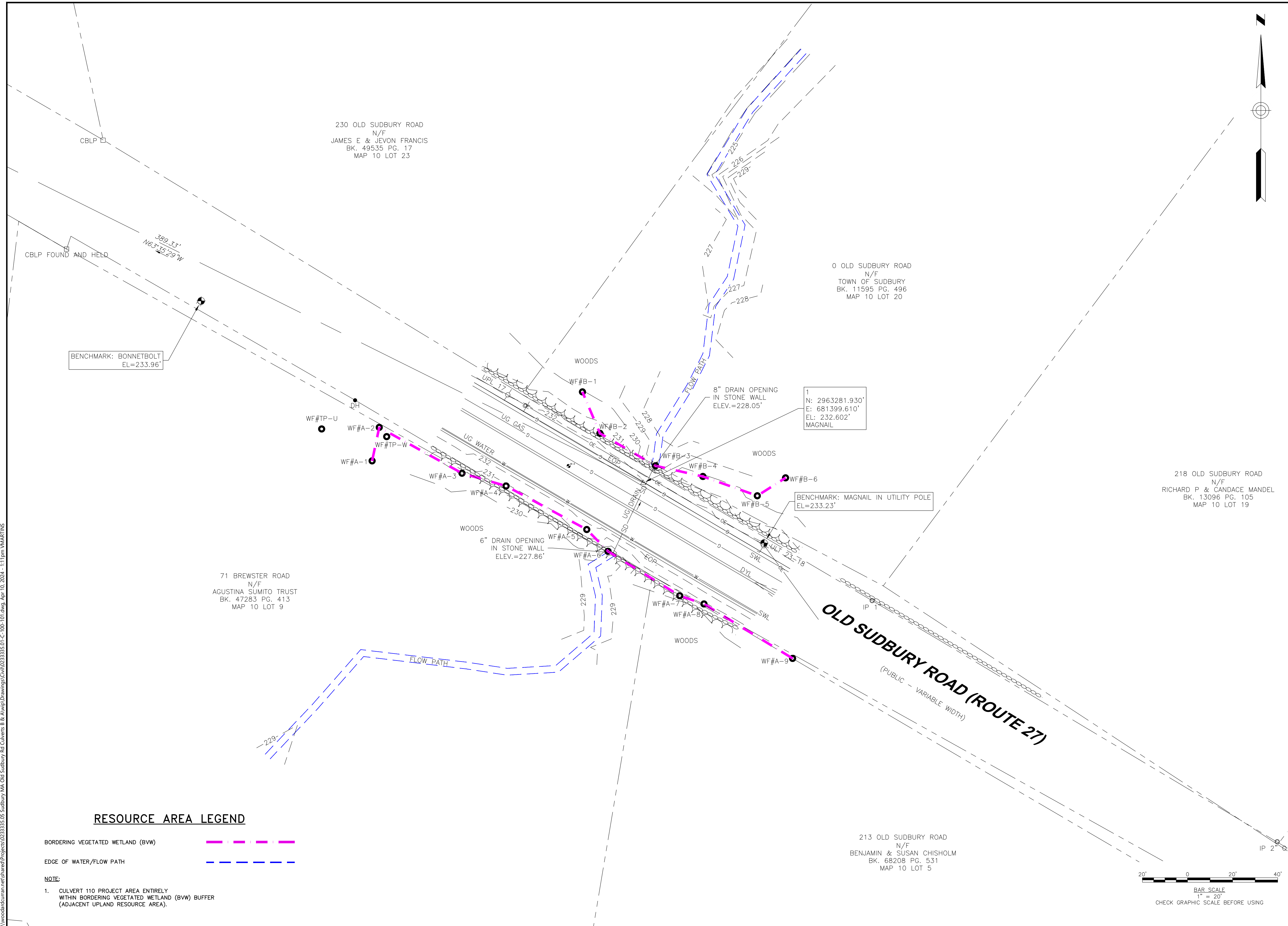
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DATE:	APRIL 2024
SCALE:	AS SHOWN
DESIGNED BY:	DLP/MB
DRAWN BY:	MB
CHECKED BY:	HCP/SS
FILENAME:	023335.01-C-100-101.dwg

DRAWING TITLE:

**EXISTING CONDITIONS PLAN -
CULVERT 110**

DRAWING NO:

C-100



230 OLD SUDBURY ROAD
N/F
JAMES E & JEVON FRANCIS
BK. 49535 PG. 17
MAP 10 LOT 23

0 OLD SUDBURY ROAD
N/F
TOWN OF SUDBURY
BK. 11595 PG. 496
MAP 10 LOT 20

218 OLD SUDBURY ROAD
N/F
RICHARD P & CANDACE MANDEL
BK. 13096 PG. 105
MAP 10 LOT 19

71 BREWSTER ROAD
N/F
AGUSTINA SUMITO TRUST
BK. 47283 PG. 413
MAP 10 LOT 9

213 OLD SUDBURY ROAD
N/F
BENJAMIN & SUSAN CHISHOLM
BK. 68208 PG. 531
MAP 10 LOT 5

BENCHMARK: BONNETBOLT
EL=233.96'

1
N: 2963281.930'
E: 681399.610'
EL: 232.602'
MAGNAIL

BENCHMARK: MAGNAIL IN UTILITY POLE
EL=233.23'

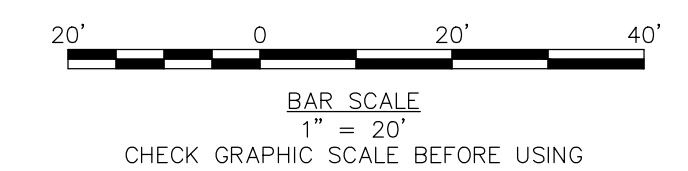
6" DRAIN OPENING
IN STONE WALL
ELEV.=227.86'

8" DRAIN OPENING
IN STONE WALL
ELEV.=228.05'

RESOURCE AREA LEGEND

- BORDERING VEGETATED WETLAND (BWW)
- EDGE OF WATER/FLOW PATH

NOTE:
1. CULVERT 110 PROJECT AREA ENTIRELY
WITHIN BORDERING VEGETATED WETLAND (BWW) BUFFER
(ADJACENT UPLAND RESOURCE AREA).



WoodardCurran\external\Projects\023335.05 Sudbury, MA Old Sudbury Rd Culverts & Aligned Drawings\Civil\023335.01-C-100-101.dwg, Apr 10, 2024, 11:11pm VMARTINS

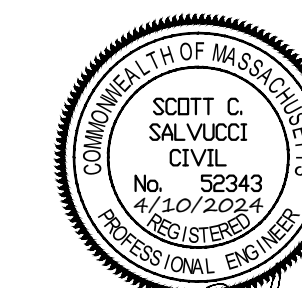


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TOWN OF SUDBURY, MA
PUBLIC WORKS DEPARTMENT

OLD SUDBURY ROAD
CULVERTS 110 AND 149
REPLACEMENT

REV	MM/DD/YY	DESCRIPTION

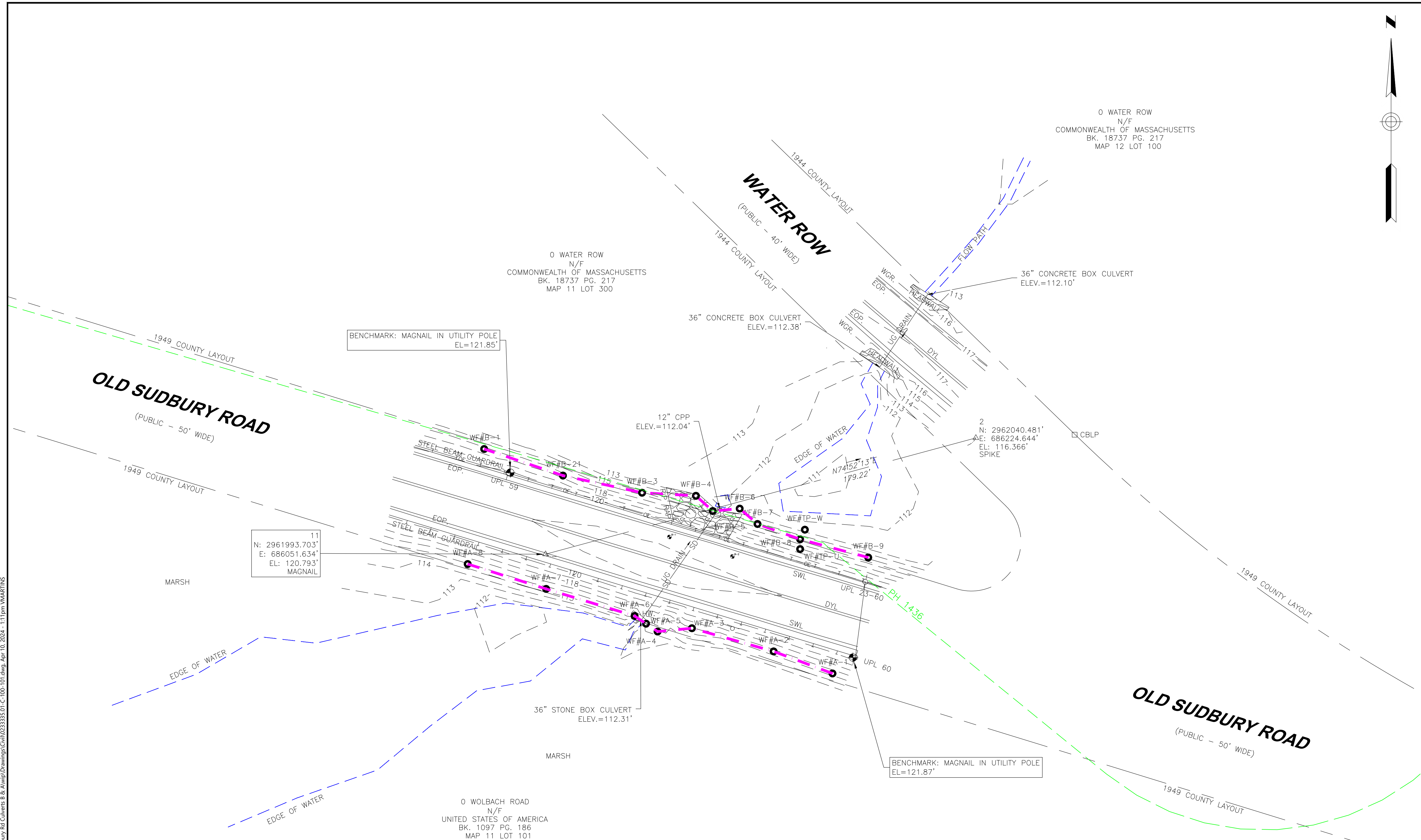
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DATE:	APRIL 2024
SCALE:	AS SHOWN
DESIGNED BY:	DLP/MB
DRAWN BY:	MB
CHECKED BY:	HCP/SS
FILENAME:	023335.01-C-100-101.dwg

DRAWING TITLE:

**EXISTING CONDITIONS PLAN -
CULVERT 149**

DRAWING NO:

C-101



RESOURCE AREA LEGEND

- BORDERING VEGETATED WETLAND (BW) - - - - -
- EDGE OF WATER/FLOW PATH - - - - -
- NATURAL HERITAGE & ENDANGERED SPECIES PROGRAM (NHESP) PRIORITY HABITATS OF RARE SPECIES - - - - -

- NOTE:**
- CULVERT 149 PROJECT AREA ENTIRELY WITHIN BORDERING VEGETATED WETLAND (BW) BUFFER (ADJACENT UPLAND RESOURCE AREA).
 - CULVERT 149 PROJECT AREA ENTIRELY WITHIN BORDERING LAND SUBJECT TO FLOODING (100-YEAR FLOOD ZONE).

NOTE:

1. THE EXTENTS OF THE EDGE OF WATER BOUNDARIES SHOWN HEREON DEPICT THE WATER LEVEL AS ENCOUNTERED IN THE FIELD WHEN FIELD SURVEY DATA WAS COLLECTED (BETWEEN OCTOBER 26TH-30TH, 2020).

BAR SCALE
1" = 20'
CHECK GRAPHIC SCALE BEFORE USING

WoodardCurran\\network\shared\Projects\023335\05_Sudbury_MA_Old_Sudbury_Rd_Culverts_8_&_Always\Drawings\Civil\023335\01-C-100-101.dwg, Apr 10, 2024, 1:11pm VMARTINS



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TOWN OF SUDBURY, MA
PUBLIC WORKS DEPARTMENT

OLD SUDBURY ROAD
CULVERTS 110 AND 149
REPLACEMENT

REV MM/DD/YY DESCRIPTION

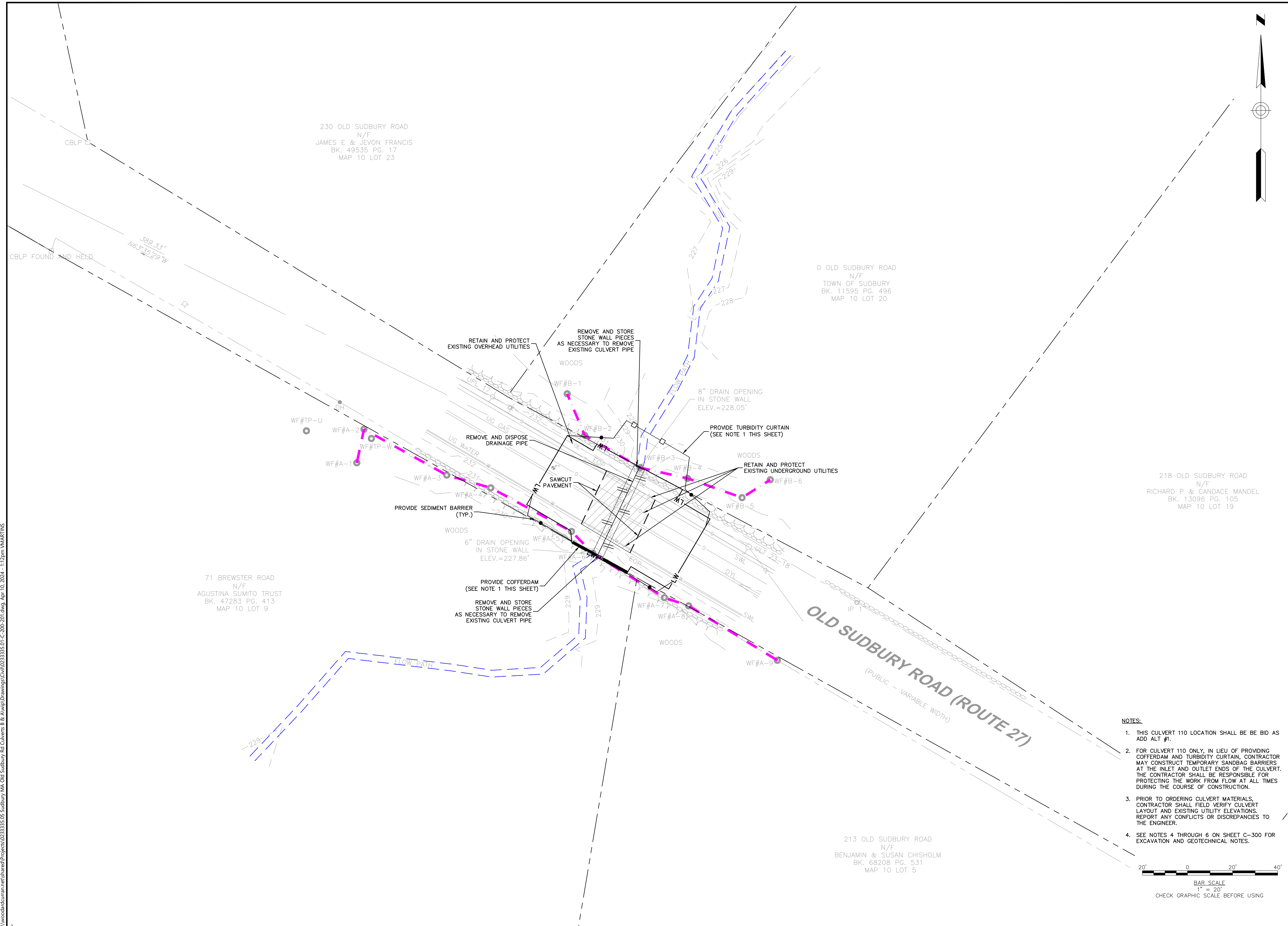
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DATE:	APRIL 2024
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DRAWN BY:	MB
CHECKED BY:	HCP/SS
FILENAME:	023335.01-C-200-201.dwg

DRAWING TITLE:

**EROSION CONTROL AND
DEMOLITION PLAN - CULVERT
110**

DRAWING NO:

C-200



\\woodardcurran.net\shared\Projects\023335.05 Sudbury, MA Old Sudbury Rd Culverts B & A\wp\Drawings\Civil\023335.01-C-200-201.dwg, Apr 10, 2024, 11:28am VMARTINS



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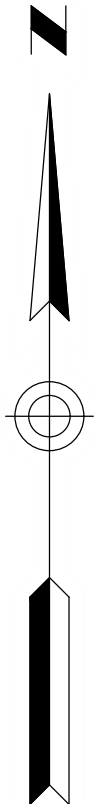
TOWN OF SUDBURY, MA
PUBLIC WORKS DEPARTMENT

OLD SUDBURY ROAD
CULVERTS 110 AND 149
REPLACEMENT

REV	MM/DD/YY	DESCRIPTION
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DATE:	APRIL 2024	
SCALE:	AS SHOWN	
DESIGNED BY:	DLP/MB	
DRAWN BY:	MB	
CHECKED BY:	HCP/SS	
FILENAME:	023335.01-C-200-201.dwg	

DRAWING TITLE:
**EROSION CONTROL AND
DEMOLITION PLAN - CULVERT
149**

DRAWING NO:
C-201



0 WATER ROW
N/F
COMMONWEALTH OF MASSACHUSETTS
BK. 18737 PG. 217
MAP 12 LOT 100

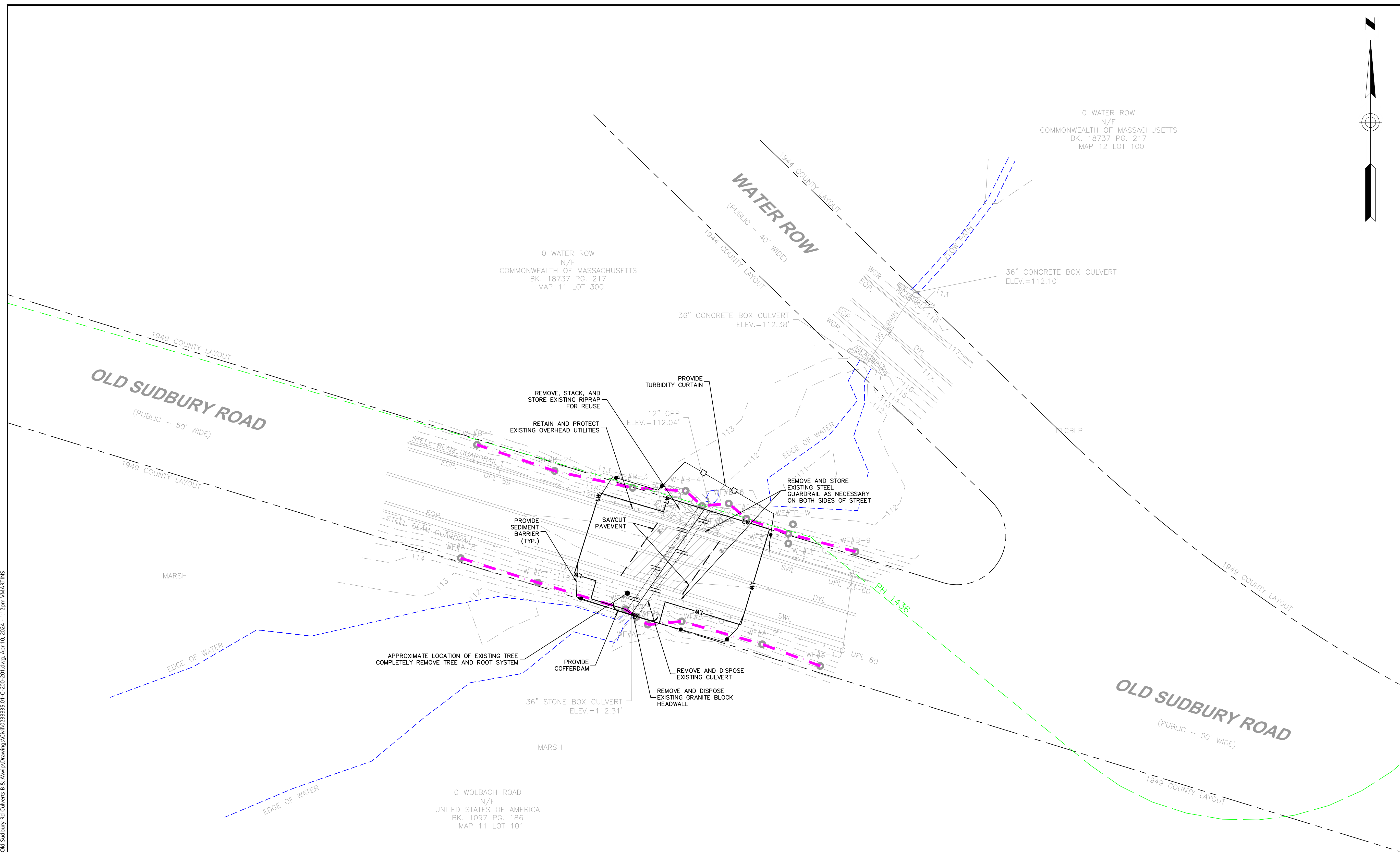
0 WATER ROW
N/F
COMMONWEALTH OF MASSACHUSETTS
BK. 18737 PG. 217
MAP 11 LOT 300

0 WOLBACH ROAD
N/F
UNITED STATES OF AMERICA
BK. 1097 PG. 186
MAP 11 LOT 101

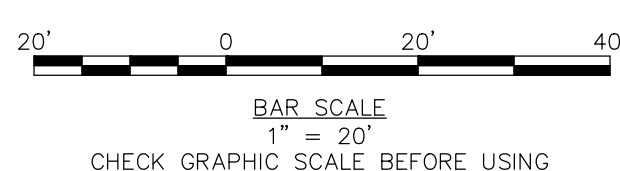
WATER ROW
(PUBLIC - 40' WIDE)

OLD SUDBURY ROAD
(PUBLIC - 50' WIDE)

OLD SUDBURY ROAD
(PUBLIC - 50' WIDE)



- NOTES:**
- PRIOR TO ORDERING CULVERT MATERIALS, CONTRACTOR SHALL FIELD VERIFY PROPOSED CULVERT AND HEADWALL LAYOUT. REPORT ANY CONFLICTS OR DISCREPANCIES TO THE ENGINEER.
 - SEE NOTES 5 THROUGH 7 ON SHEET C-301 FOR EXCAVATION AND GEOTECHNICAL NOTES.



\\woodardcurran.net\shared\Projects\023335\05 Sudbury, MA Old Sudbury Rd Culverts & Abseip\Drawings\Civil\023335\01-C-200-201.dwg, Apr 10, 2024, 11:32am VMARTINS



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TOWN OF SUDBURY, MA
PUBLIC WORKS DEPARTMENT

OLD SUDBURY ROAD
CULVERTS 110 AND 149
REPLACEMENT

REV	MM/DD/YY	DESCRIPTION

JOB NO: 023335.05

DATE: APRIL 2024

SCALE: AS SHOWN

DESIGNED BY: DLP/MB

DRAWN BY: MB

CHECKED BY: HCP/SS

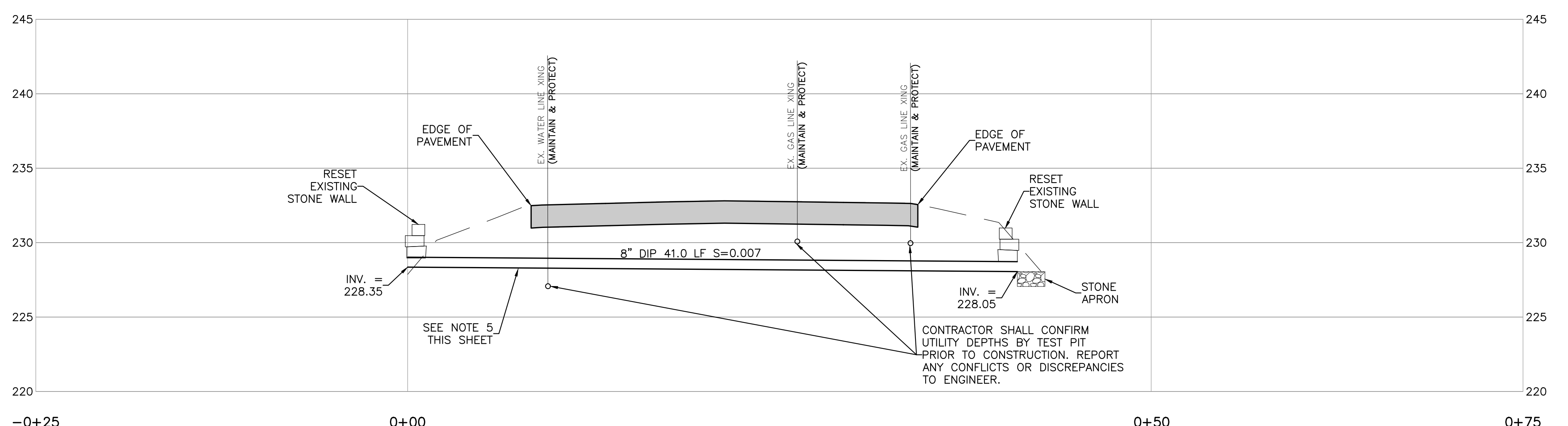
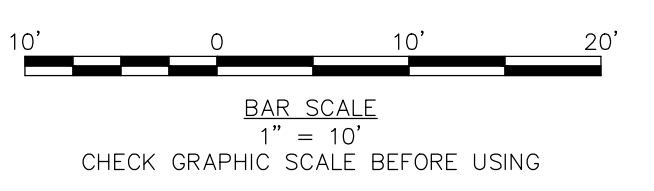
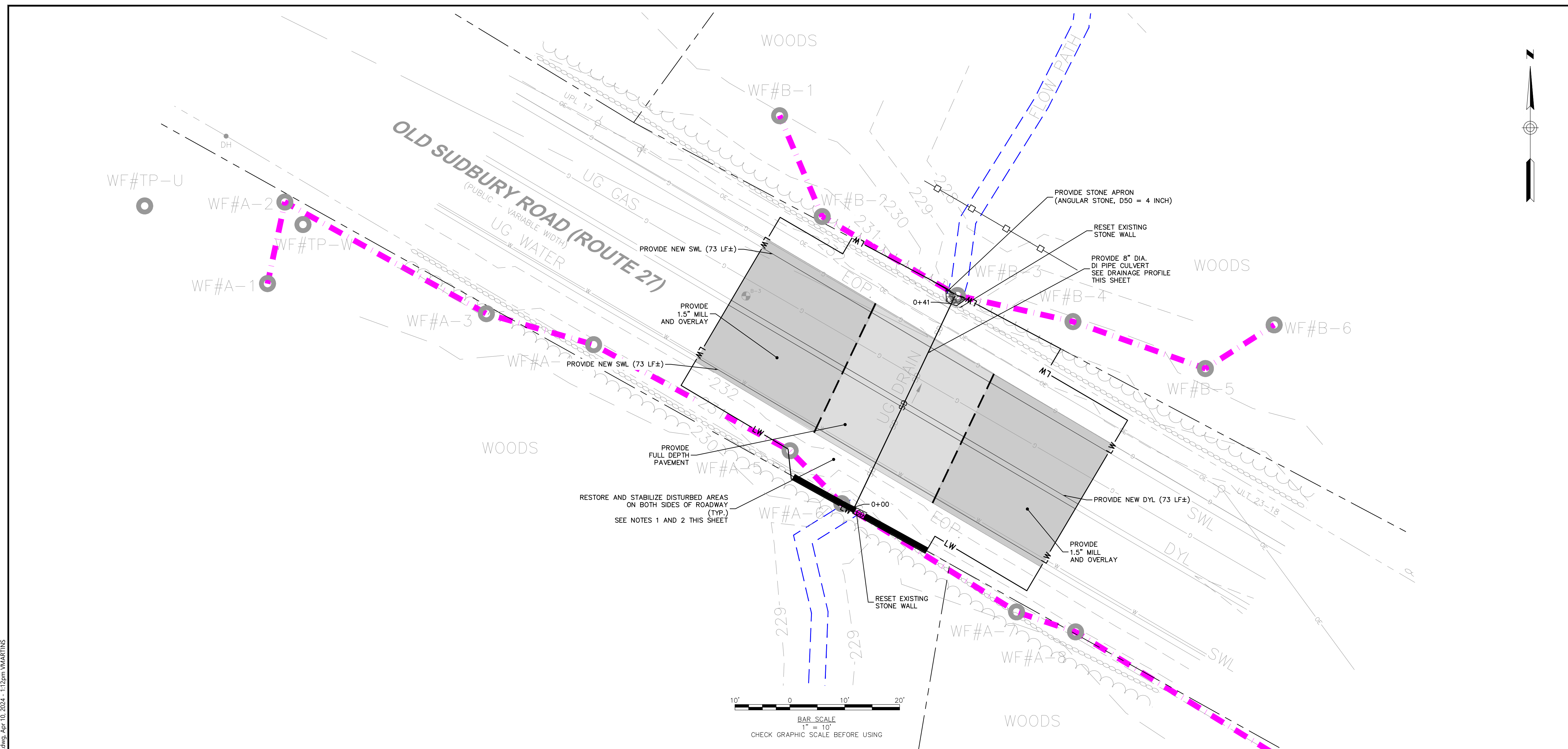
FILENAME: 023335.01-C-300-301.dwg

DRAWING TITLE:

**SITE PLAN AND PROFILE -
CULVERT 110**

DRAWING NO:

C-300



DRAINAGE PROFILE STA. -0+25 TO STA. 0+75

HORIZONTAL SCALE: 1" = 5'
VERTICAL SCALE: 1" = 5'

- NOTES:**
- THIS CULVERT 110 LOCATION SHALL BE BID AS ADD ALT #1.
 - NATIVE UPLAND SEED MIX SHALL BE USED TO RE-VEGETATE DISTURBED ROADSIDE AREAS UPGRADIENT OF BORDERING VEGETATED WETLANDS. REFER TO SPECIFICATION SECTION 32 90 00.
 - NATIVE WETLAND SEED MIX SHALL BE USED TO RE-VEGETATE ANY WETLAND AREAS DISTURBED INCIDENTALLY DURING CONSTRUCTION. REFER TO SPECIFICATION SECTION 32 90 00.
 - CONDUCT WORK IN ACCORDANCE WITH GEOTECHNICAL EVALUATION REPORT PREPARED BY GZA GEONVIRONMENTAL, INC DATED JANUARY 7, 2021. THE CULVERT REPLACEMENT WILL TAKE PLACE "IN THE WET" SO AS TO NOT DISTURB THE EXISTING PEAT LAYER. DEWATERING SHALL BE ALLOWED ONLY AS APPROVED BY THE GEOTECHNICAL ENGINEER IN THE FIELD.
 - CONTRACTOR TO FULLY COORDINATE WORK WITH OWNER'S GEOTECHNICAL ENGINEER. THE GEOTECHNICAL ENGINEER SHALL BE PRESENT DURING REMOVAL OF THE EXISTING CULVERT AND INSTALLATION OF NEW CULVERT.
 - OVEREXCAVATE PEAT ENCOUNTERED AT THE SUBGRADE. BACKFILL WITH 1 1/4" CRUSHED STONE.



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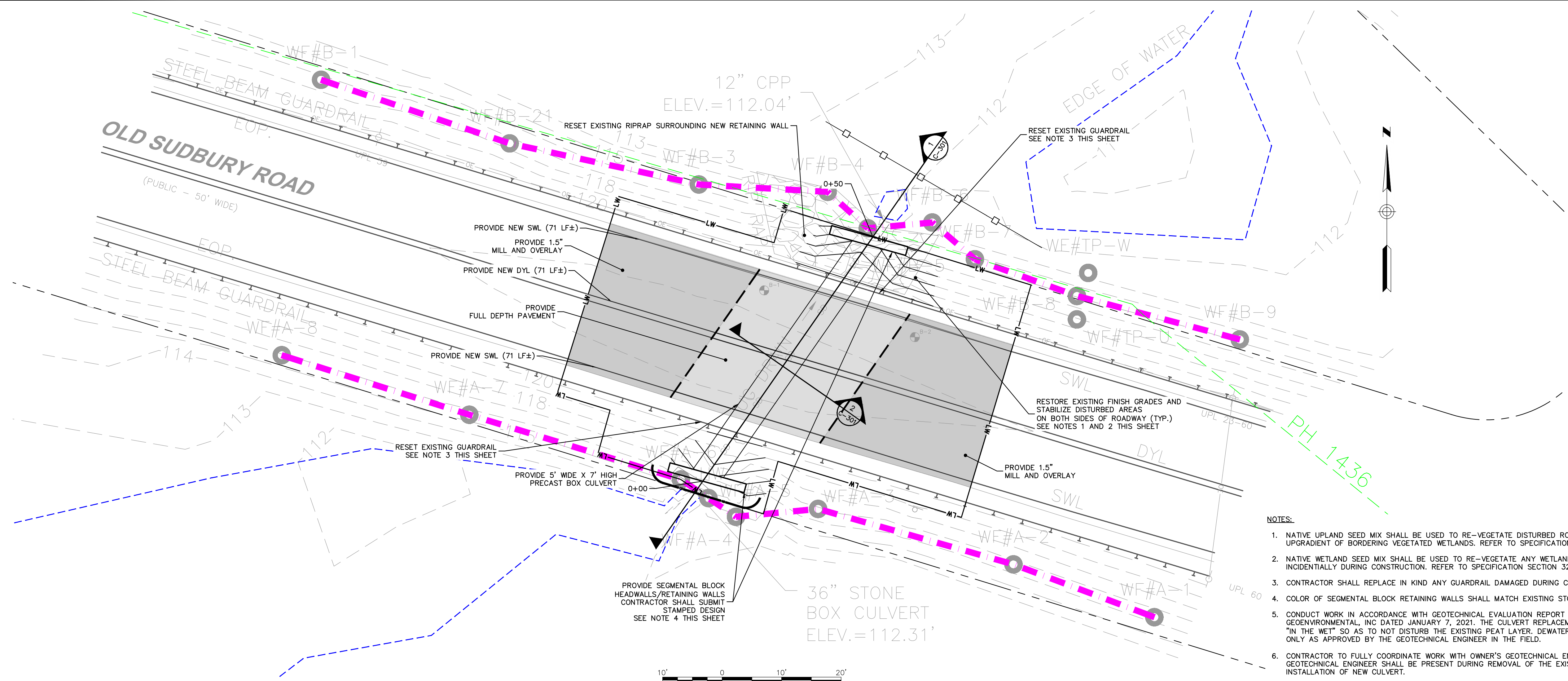
TOWN OF SUDBURY, MA
PUBLIC WORKS DEPARTMENT

OLD SUDBURY ROAD
CULVERTS 110 AND 149
REPLACEMENT

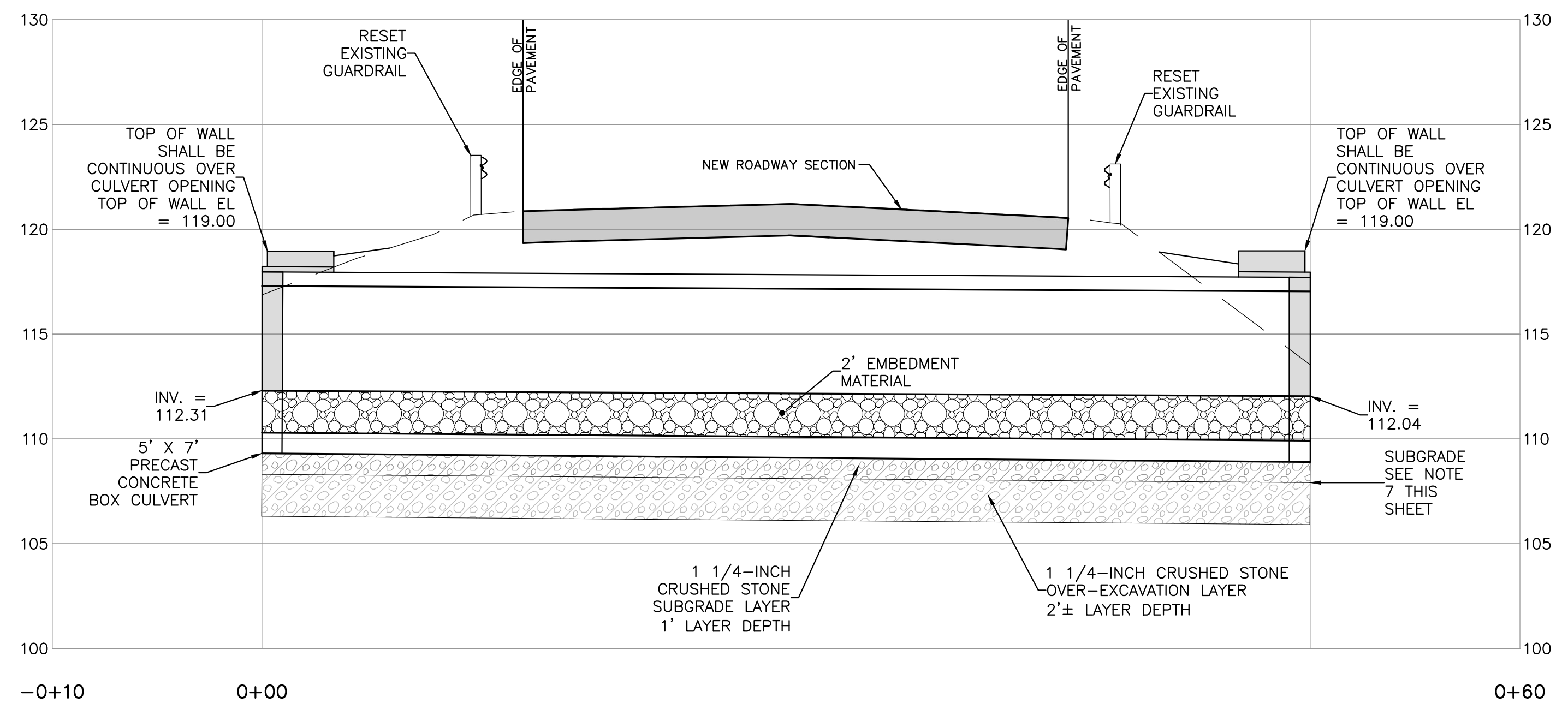
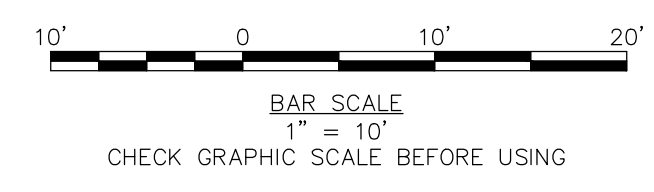
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SCALE:	AS SHOWN	
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DRAWING TITLE:
**SITE PLAN AND PROFILE -
CULVERT 149**

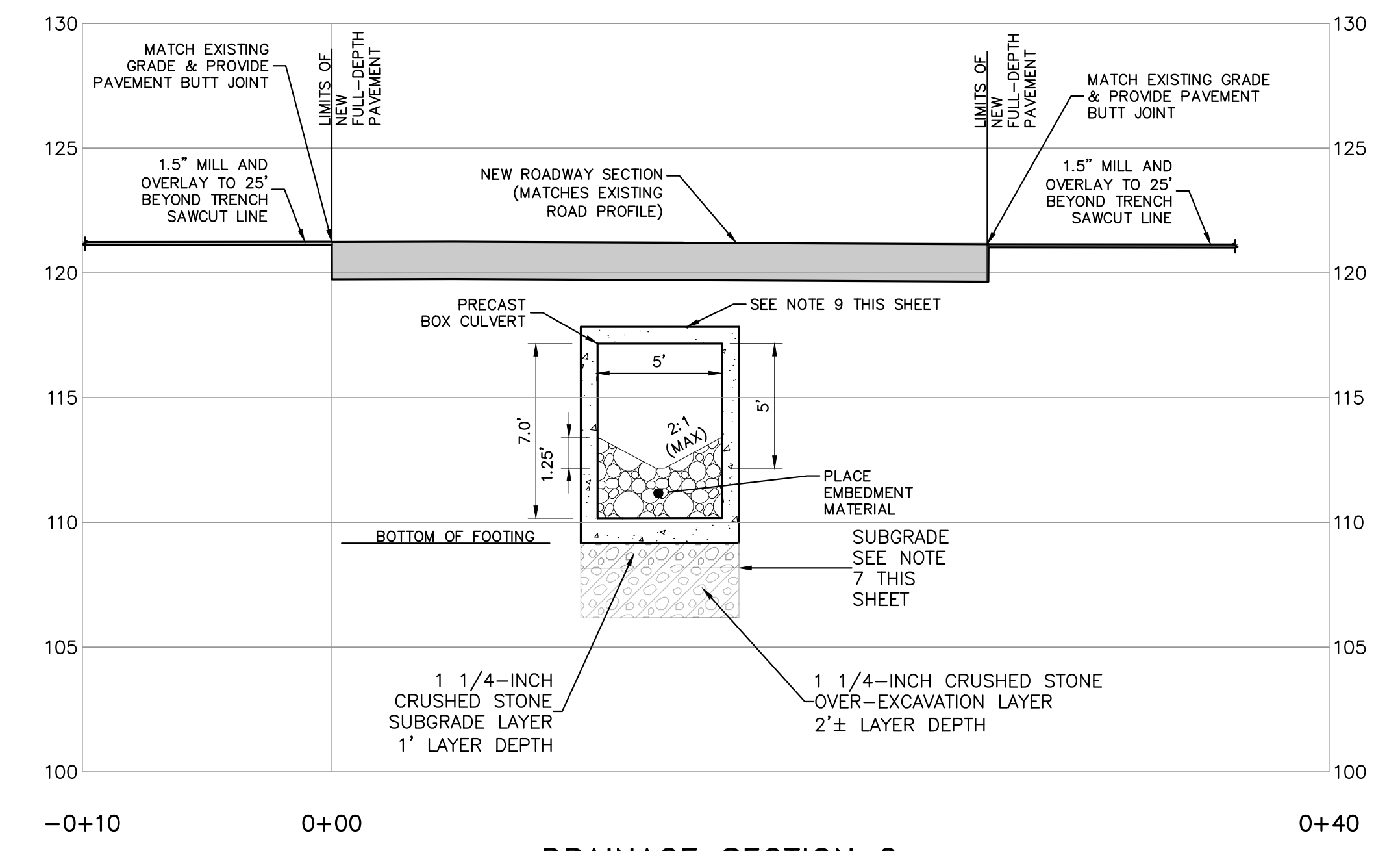
DRAWING NO:
C-301



- NOTES:**
- NATIVE UPLAND SEED MIX SHALL BE USED TO RE-VEGETATE DISTURBED ROADSIDE AREAS UPGRADIENT OF BORDERING VEGETATED WETLANDS. REFER TO SPECIFICATION SECTION 32 90 00.
 - NATIVE WETLAND SEED MIX SHALL BE USED TO RE-VEGETATE ANY WETLAND AREAS DISTURBED INCIDENTALLY DURING CONSTRUCTION. REFER TO SPECIFICATION SECTION 32 90 00.
 - CONTRACTOR SHALL REPLACE IN KIND ANY GUARDRAIL DAMAGED DURING CONSTRUCTION.
 - COLOR OF SEGMENTAL BLOCK RETAINING WALLS SHALL MATCH EXISTING STONE HEADWALL COLOR.
 - CONDUCT WORK IN ACCORDANCE WITH GEOTECHNICAL EVALUATION REPORT PREPARED BY GZA GEOENVIRONMENTAL, INC DATED JANUARY 7, 2021. THE CULVERT REPLACEMENT WILL TAKE PLACE "IN THE WET" SO AS TO NOT DISTURB THE EXISTING PEAT LAYER. DEWATERING SHALL BE ALLOWED ONLY AS APPROVED BY THE GEOTECHNICAL ENGINEER IN THE FIELD.
 - CONTRACTOR TO FULLY COORDINATE WORK WITH OWNER'S GEOTECHNICAL ENGINEER. THE GEOTECHNICAL ENGINEER SHALL BE PRESENT DURING REMOVAL OF THE EXISTING CULVERT AND INSTALLATION OF NEW CULVERT.
 - OVEREXCAVATE PEAT ENCOUNTERED AT THE SUBGRADE. BACKFILL WITH 1 1/4" CRUSHED STONE.
 - SUPPORT HEADWALL/RETAINING WALL AND ABUTMENTS ON 1 FOOT OF DENSE GRADED CRUSHED STONE ABOVE 1 1/4-INCH CRUSHED STONE, UNLESS DIRECTED OTHERWISE BY WALL DESIGNER OR GEOTECHNICAL ENGINEER.
 - CONTRACTOR OPTION: SUPPLY PRECAST BOX CULVERT WITH SEPARATE TOP SECTION OR MANHOLE ACCESS COVERS (TO BE CLOSED) TO FACILITATE PLACEMENT OF EMBEDMENT MATERIAL.



DRAINAGE PROFILE 1 STA. -0+10 TO STA. 0+60
HORIZONTAL SCALE: 1" = 5'
VERTICAL SCALE: 1" = 5'



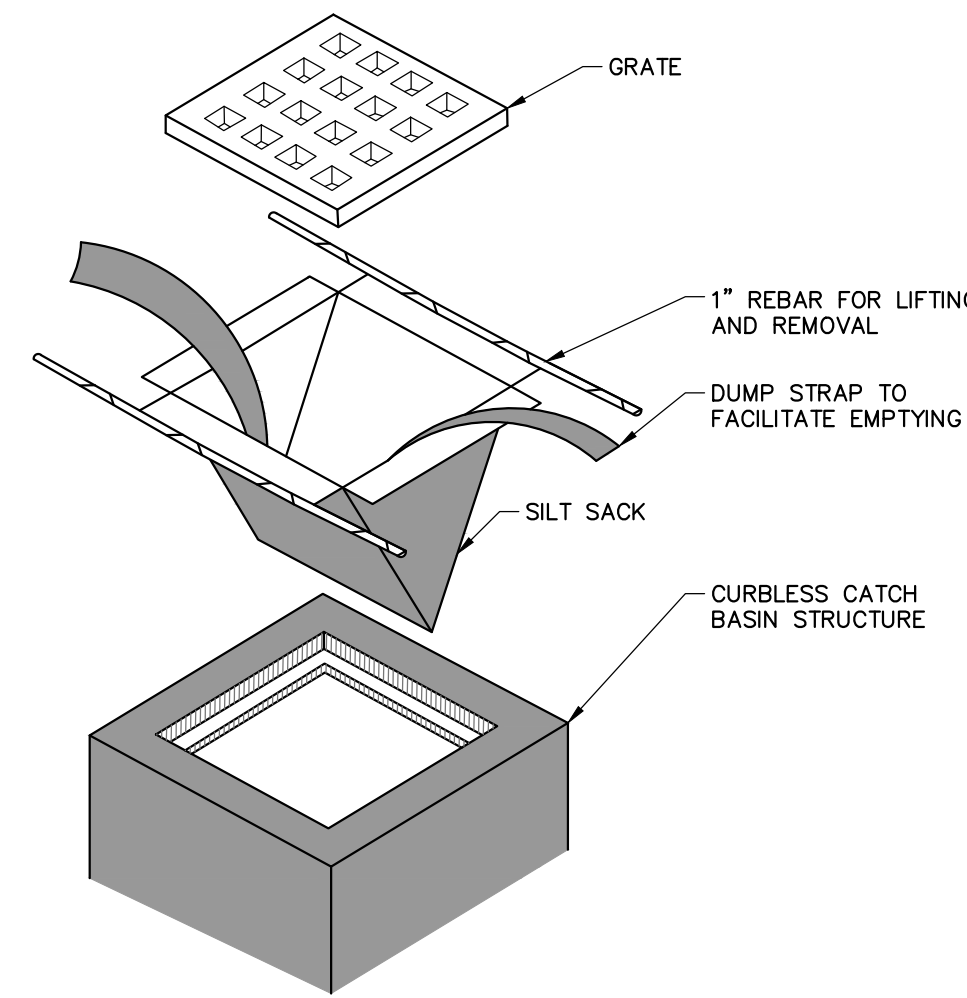
DRAINAGE SECTION 2
HORIZONTAL SCALE: 1" = 5'
VERTICAL SCALE: 1" = 5'

V:\woodardcurran\shared\Projects\023335.05 Sudbury, MA Old Sudbury Rd Culverts & Abutments\Drawings\Civil\023335.01-C-300-301.dwg, Apr 10, 2024 - 11:39am VMARTINS

EROSION AND SEDIMENT CONTROL NOTES

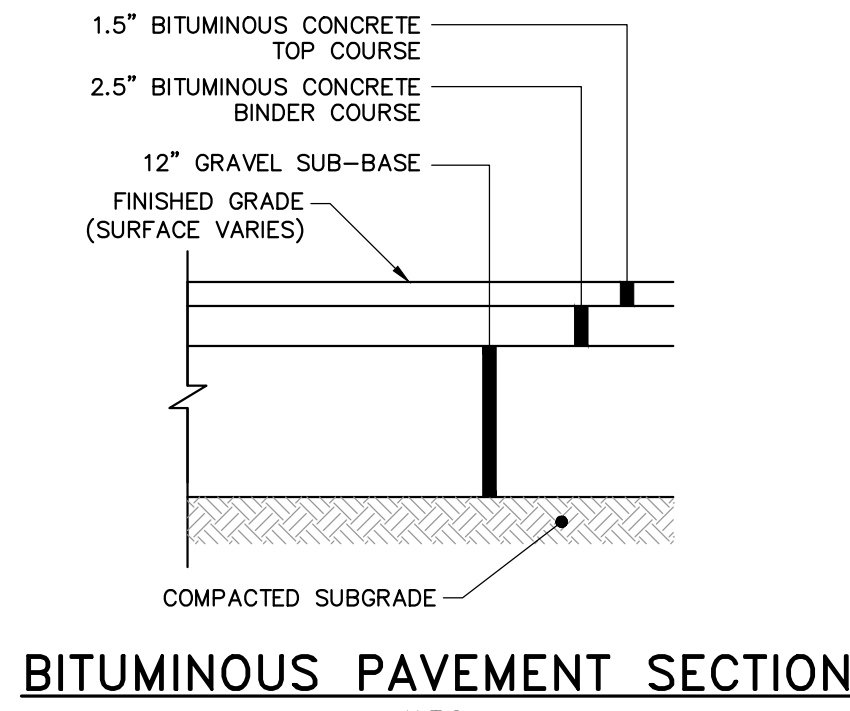
Temporary Erosion Control

Measure	Dates For Use	Timing, Activity, and Location
Sedimentation Barrier	ALL	Before soil disturbance, install downhill of areas to be disturbed and around material stockpiles.
Up-slope Diversion	ALL	Before soil disturbance, install uphill of areas to be disturbed and around material stockpiles.
Catch Basin Protection	ALL	Before soil or pavement disturbance, install ACF Environmental, Inc. High Flow Siltsock, Siltsover Inlet Filter, or equal, installed per manufacturer's requirements.
Dust Control	ALL	During dry weather, apply water and calcium chloride to control dust.
Temporary Seeding	April 15 to Oct. 15	Soil stockpiles that are not covered and disturbed areas that will not be disturbed again within 14 days. If grass growth provides less than 95% soil coverage by Nov. 1, apply mulch and anchor with erosion control blanket.
Mulch	April 15 to Sept. 15	On all areas of exposed soil prior to rain events apply 100-150 lbs (2.5 bales) per 1,000 sq. ft. by mechanical blower.
Winter Mulch	Sept. 16 to Oct. 31 Nov. 1 to April 14	On all areas of exposed soil prior to precipitation apply 150 to 170 lbs. mulch (4 bales) per 1,000 sq. ft. by mechanical blower. Erosion control blanket may be used as a substitute for winter mulch. On all areas of exposed soil, apply 150 to 170 lbs. mulch (4 bales) per 1,000 sq. ft. and anchor with netting at the end of each working day. Erosion control blanket may be used as a substitute for winter mulch.
Inspections	Until site is permanently stabilized	Inspect the erosion and sedimentation control measures daily, and after rainfall of half inch or greater in a 24-hour period, and maintain and repair as necessary.

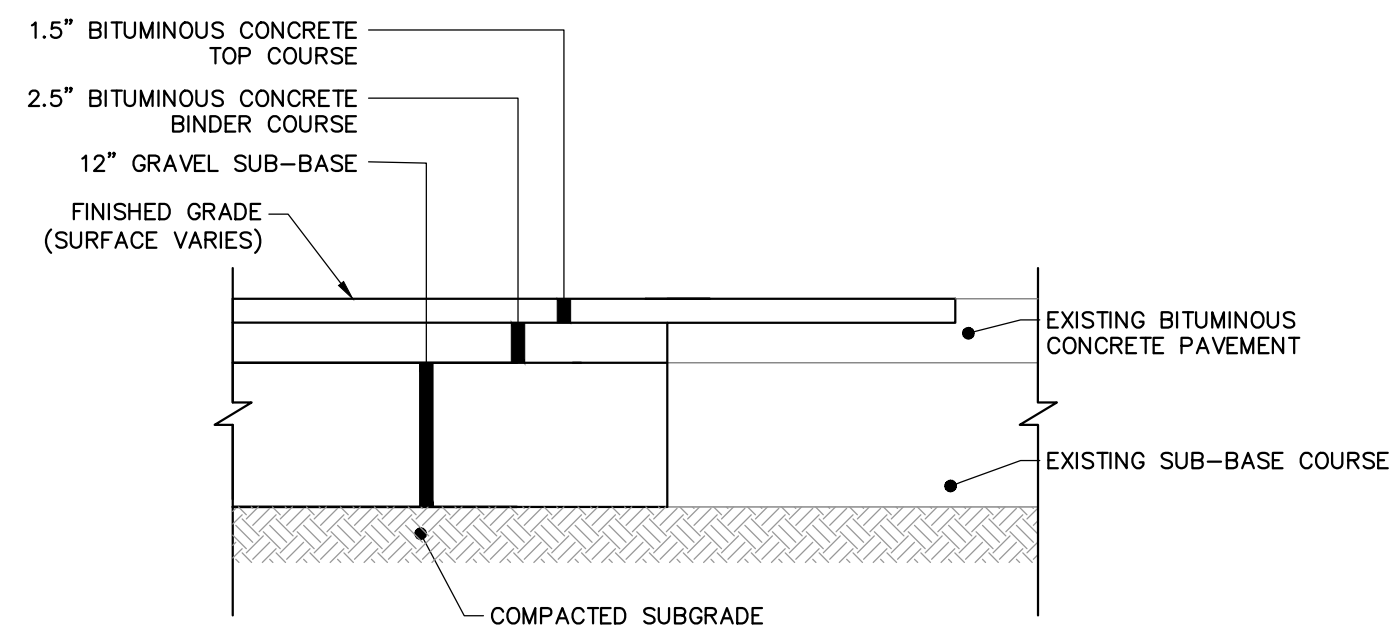


- NOTES:**
- INSTALL SILTSACK PER MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.
 - EMPTY OR REMOVE SEDIMENT FROM SILTSACK WHEN RESTRAINT CORD IS NO LONGER VISIBLE. CLEAN, RINSE, AND REPLACE AS NEEDED.
 - SILT SACKS TO BE INSTALLED WHEN THE POTENTIAL FOR SEDIMENT TO ENTER EXISTING & PROPOSED BASINS EXISTS.

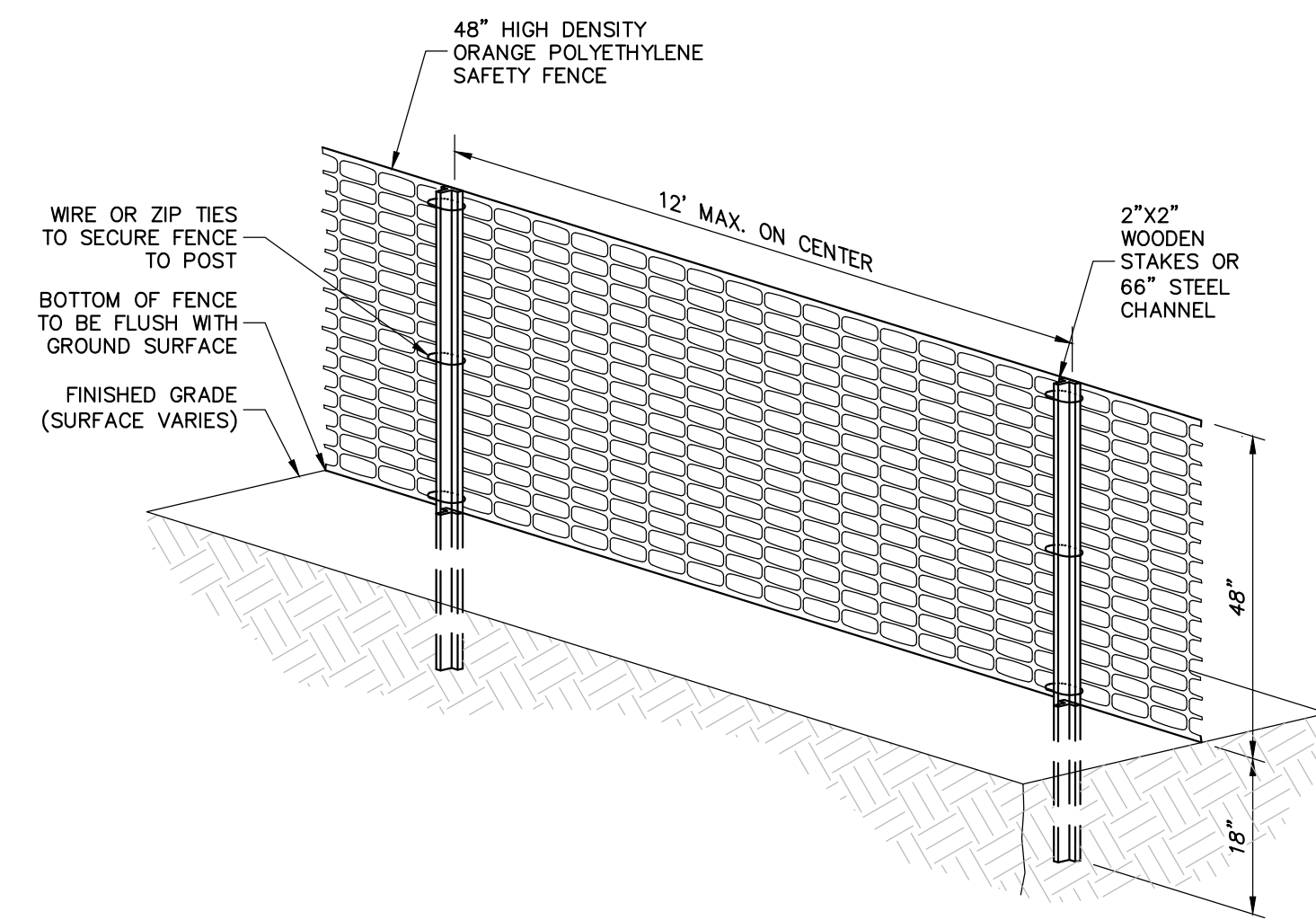
SILTSACK- CURBLESS INLET
NOT TO SCALE



BITUMINOUS PAVEMENT SECTION
N.T.S.



BITUMINOUS PAVEMENT BUTT JOINT
N.T.S.



- NOTE:**
- MAINTAIN TENSION ACROSS FULL HEIGHT AND LENGTH OF FENCE.
 - PROVIDE PERIODIC INSPECTION AND MAINTENANCE OF FENCE.
 - FENCE SHALL BE HIGH DENSITY ORANGE POLYETHYLENE SAFETY FENCE AS MANUFACTURED BY EROSION RUNNER® OR APPROVED EQUAL.

PLASTIC CONSTRUCTION SAFETY FENCE
N.T.S.

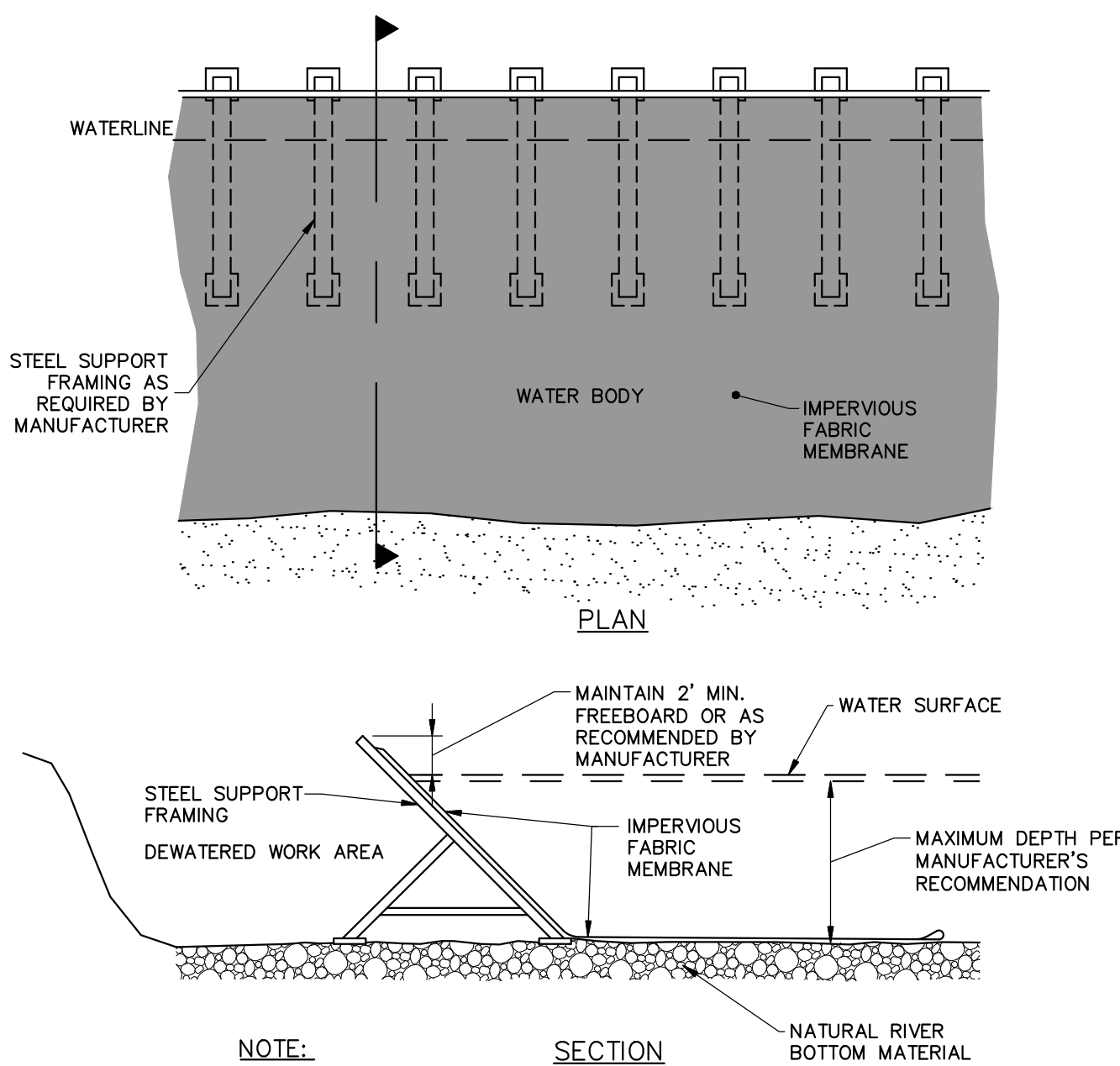
Permanent Erosion Control:

Measure	Dates For Use	Timing, Activity, and Location
Pavement - Base Course - Final Course	When no frost is in ground	Install only in areas shown on the plan, shortly after pavement base is brought to final grade. Install near completion of project.
Permanent Seeding	April 15 to Sept. 15	On final grade areas, within 7 days of grade preparation, prepare topsoil, followed by seed and mulch application.
Dormant Seeding	Sept. 16 to April 15	On final grade areas, with prepared topsoil. Apply seed at double the specified rate on bare soil, and follow with an application of winter mulch.
Ground Cover, Trees, Shrubs	April 15 to Nov. 1	Install with final landscaping.
Permanent Mulch	ALL	Install with final landscaping.

Inspections:

Regular inspections of all erosion and sedimentation controls shall be made at least weekly and prior to and following storm events. Minimum inspections shall be made as listed in the table below.

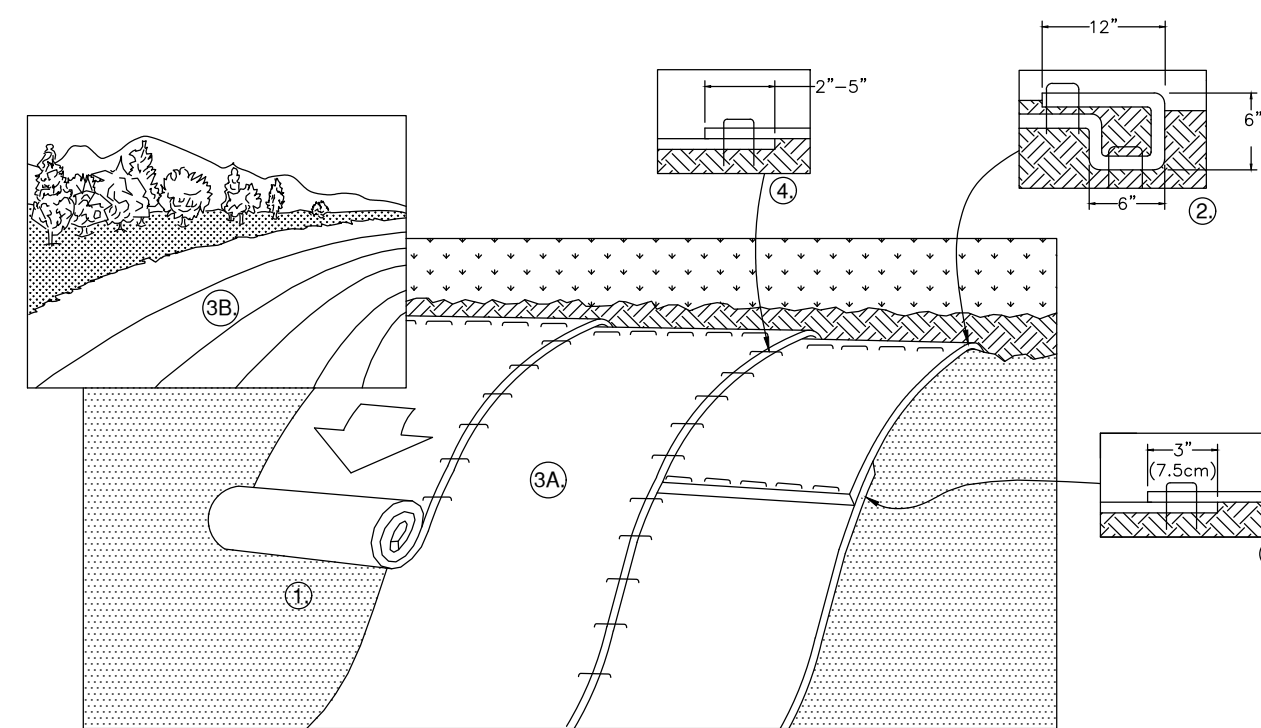
Inspected Item	Look For
Mulched Surfaces	Thin mulch or inadequate application. Wind movement.
Seeded Surfaces	Poor seed germination. Loss of mulch. Development of rivulets.
Sediment Barrier	Sediment build-up to one half the height of the barrier. Undermining of the barrier. Supporting stakes loose, toppled, or unmarked. Breaks in barrier.
Perimeter Diversion	Discharge is to stabilized area. Erosion or breaks in barrier. Supporting stakes loose, toppled or unmarked.
Catch Basin Protection	Sediment build-up and structure blockages. Slow flow/ponding water. Breaks in fabric or voids in barrier.
Site Roadways	Sedimentation of roadways. Off-site dust complaints.



NOTE:
COFFERDAM DETAIL SHOWN FOR REFERENCE PURPOSES. CONTRACTOR SHALL PROVIDE DESIGN OF TEMPORARY COFFERDAMS, STAMPED BY A LICENSED PROFESSIONAL ENGINEER IN THE COMMONWEALTH OF MASSACHUSETTS.

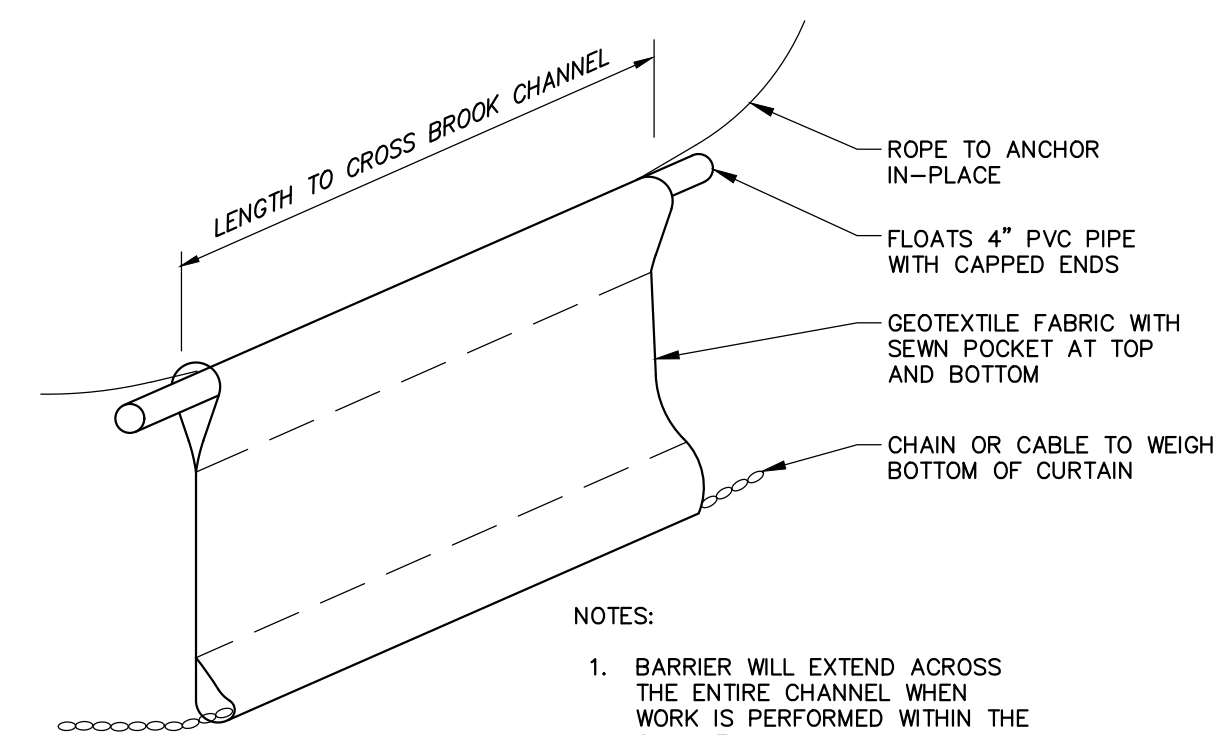
COFFER DAM DETAIL
N.T.S.

TO BE INSTALLED AROUND WORK AREA IN ACCORDANCE WITH CONTRACTOR'S WORK PLAN



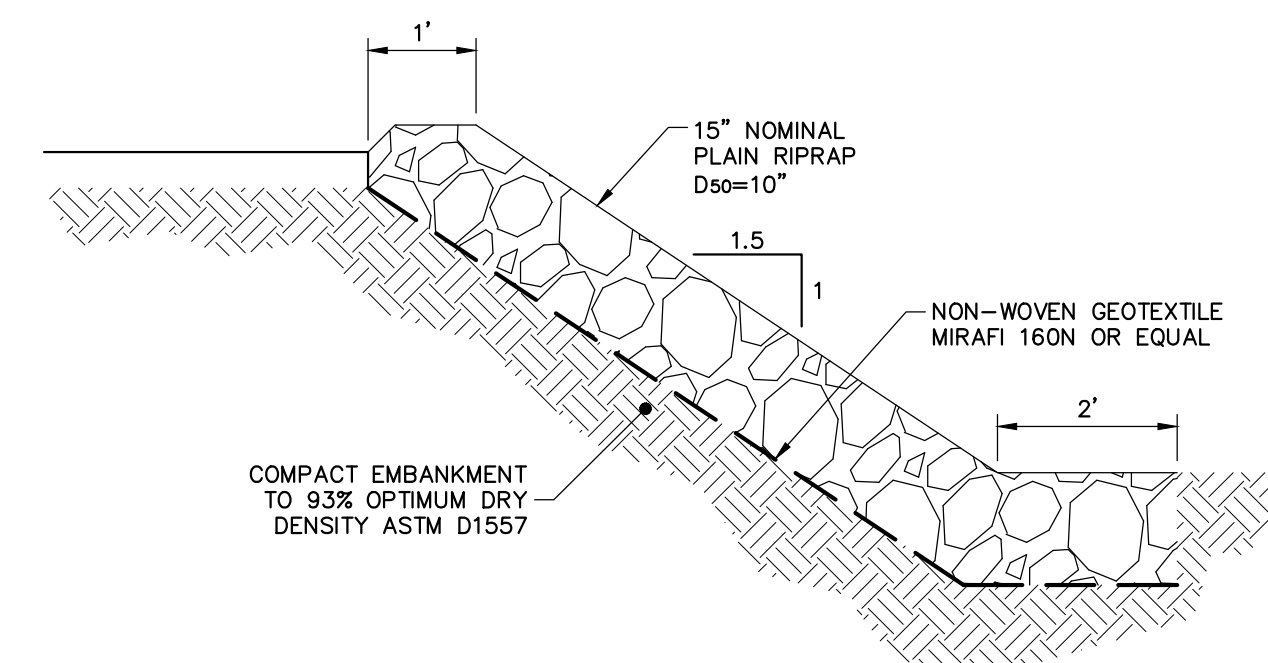
- PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP'S), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED AS WELL AS REMOVING ANY PROTRUDING ROCKS, STUMPS OR ROOTS. DURING THE GROWING SEASON (APRIL 15 - SEPTEMBER 15) USE RECP'S ON SLOPES HAVING A GRADE GREATER THAN 15%, OR ANYWHERE WHERE HAY MULCH HAS PROVEN TO BE INEFFECTIVE AT CONTROLLING SHEET EROSION. RECP'S ARE A MANUFACTURED COMBINATION OF MULCH AND NETTING DESIGNED TO PREVENT EROSION AND RETAIN SOIL MOISTURE. FOR OVER WINTER PROTECTION, APPLY RECP'S ON SLOPES STEEPER THAN AN 8% GRADE.
- BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECP'S IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF RECP'S EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP'S WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH (USE OF METAL STAPLES IS PROHIBITED). BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF RECP'S BACK OVER SEED AND COMPACTED SOIL. SECURE RECP'S OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE RECP'S.
- ROLL THE RECP'S (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. RECP'S WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP'S MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
- THE EDGES OF PARALLEL RECP'S MUST BE STAPLED WITH APPROXIMATELY 2" - 5" OVERLAP DEPENDING ON RECP'S TYPE.
- CONSECUTIVE RECP'S SPICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE RECP'S WIDTH. NOTE: *IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE RECP'S.
- UNTIL GRASS HAS GOOD COVERAGE, INSPECT PERIODICALLY AND AFTER EACH RAINSTORM TO CHECK FOR EROSION, IMMEDIATELY REPAIR AND ADD MORE MULCH UNTIL GRASSES ARE FIRMLY ESTABLISHED. DO NOT MOW THE FIRST YEAR.
- EROSION CONTROL MATTING AND GROUND FASTENERS SHALL BE 100% BIODEGRADABLE.

EROSION CONTROL MATTING
N.T.S.



- NOTES:**
- BARRIER WILL EXTEND ACROSS THE ENTIRE CHANNEL WHEN WORK IS PERFORMED WITHIN THE CHANNEL.
 - ROPE SHALL BE 1/2" NYLON OR MANILA.

FLOATING TURBIDITY BARRIER
N.T.S.



RIPRAP SLOPE DETAIL
N.T.S.



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PE SEAL:



ISSUE FOR BID

CLIENT INFO:
TOWN OF SUDBURY, MA
PUBLIC WORKS DEPARTMENT
OLD SUDBURY ROAD
CULVERTS 110 AND 149
REPLACEMENT

REV MM/DD/YY DESCRIPTION

JOB NO:	023335.05
DATE:	APRIL 2024
SCALE:	AS SHOWN
DESIGNED BY:	DLP/MB
DRAWN BY:	MB
CHECKED BY:	HCP/SS
FILENAME:	023335.01-C-40X.dwg

DRAWING TITLE:

CIVIL DETAILS 1

DRAWING NO:

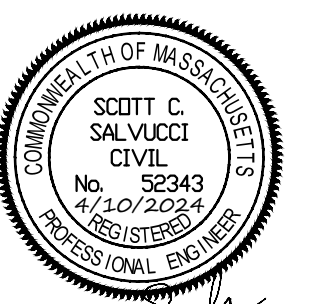
C-400



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Scott Salucci

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TOWN OF SUDBURY, MA
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 OLD SUDBURY ROAD
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REV MM/DD/YY DESCRIPTION

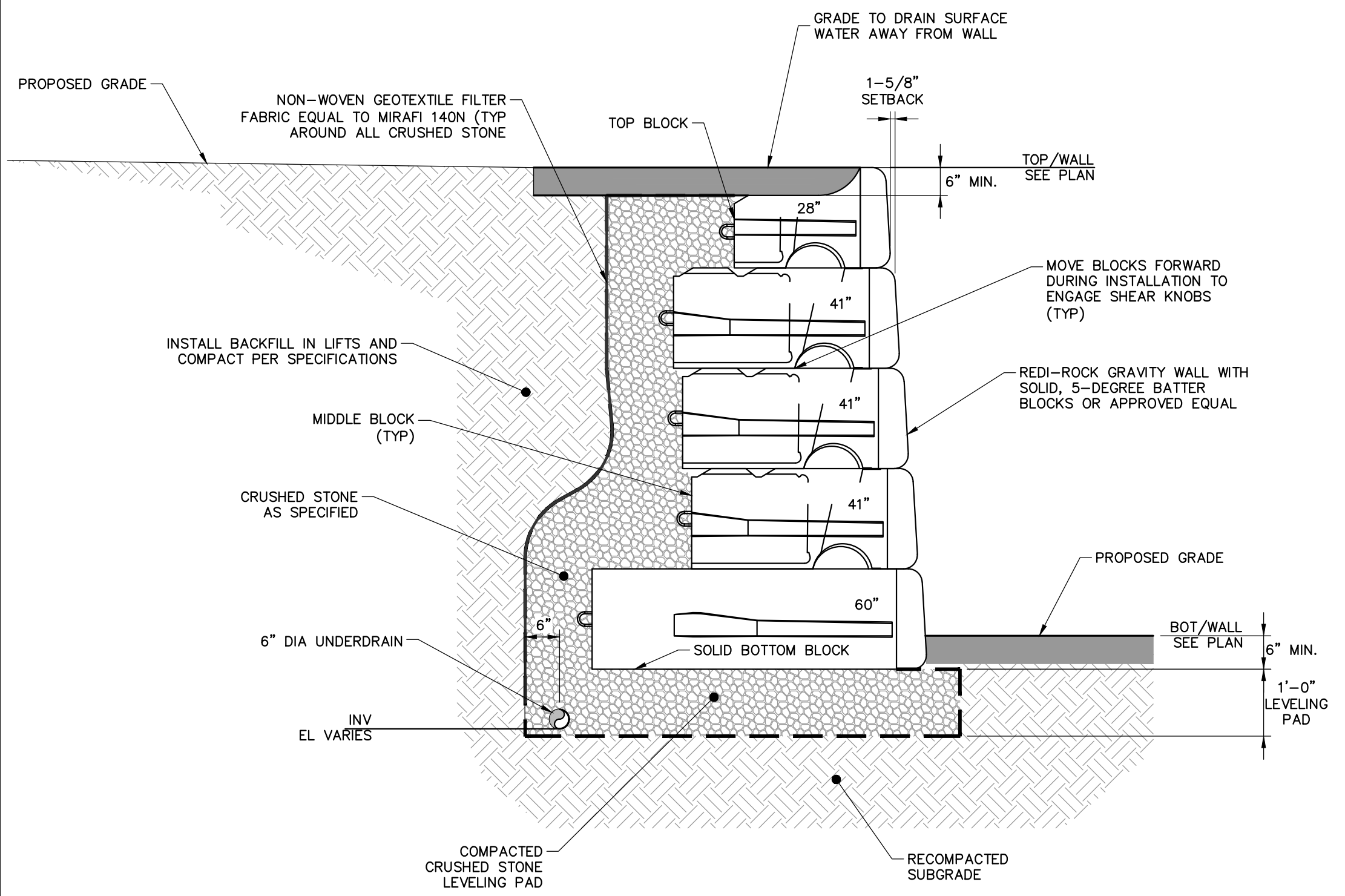
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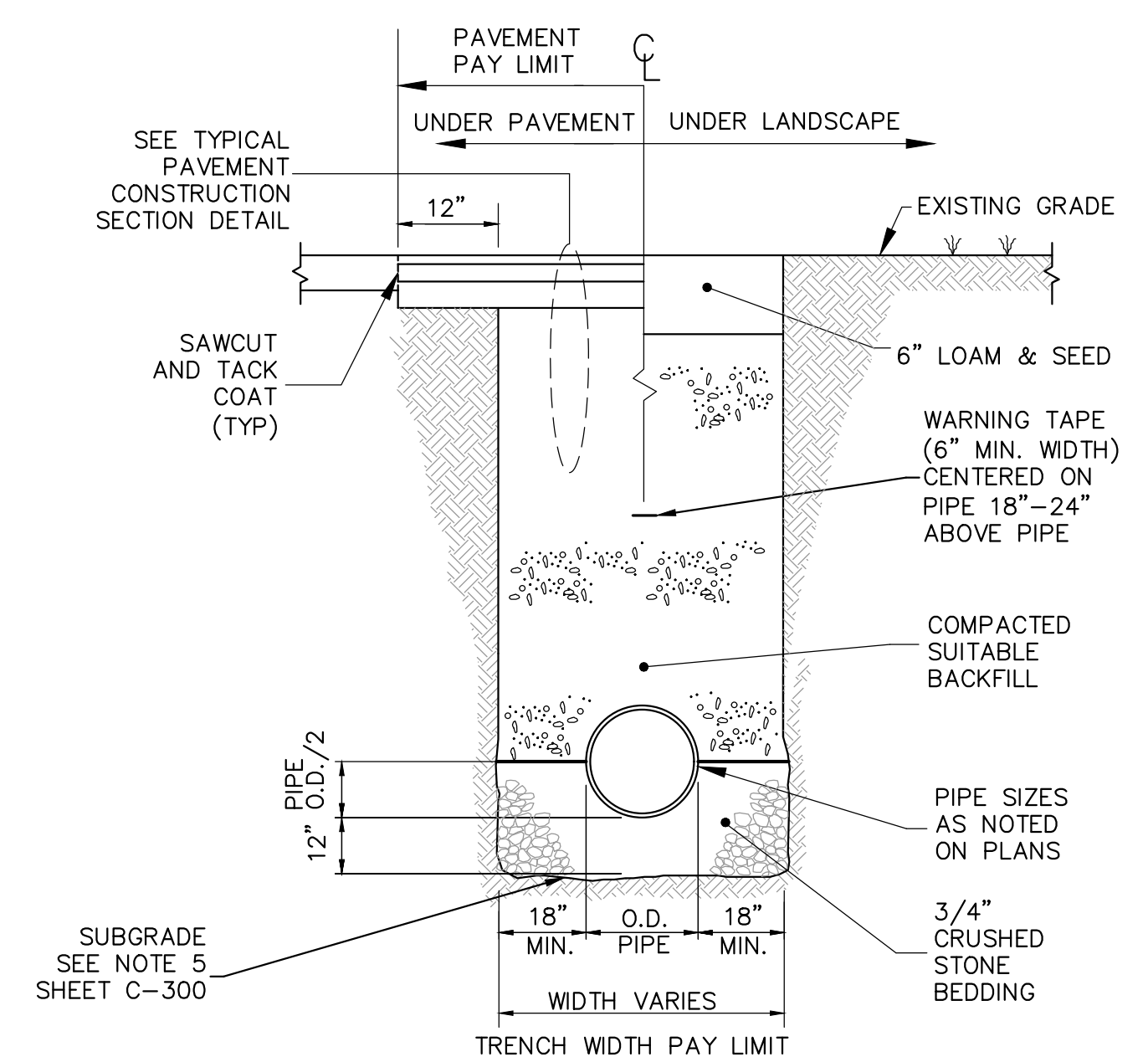
CIVIL DETAILS 2

DRAWING NO:

C-401



- NOTES:**
1. RETAINING WALL SECTIONS ARE CONCEPTUAL IN NATURE AND FOR REFERENCE PURPOSES TO AID IN THE LAYOUT AND DEVELOPMENT OF WALL DESIGN (BY OTHERS). GRAVITY WALL ENGINEER SHALL PROVIDE FINAL WALL DESIGN AND CALCULATIONS, STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF MASSACHUSETTS SUBJECT TO REVIEW OF THE ENGINEER.
 2. REFER TO SHEET C-301 FOR PLAN VIEW AND LIMITS OF PROPOSED RETAINING WALL.
 3. REFER TO SPECIFICATION SECTION 31 00 00 FOR MATERIAL GRADATIONS AND REQUIREMENTS.
 4. ELEVATIONS SHOWN ARE APPROXIMATE AND SHALL BE FIELD VERIFIED.
 5. REFER TO SECTIONS AND PLANS FOR BACK FILL INFORMATION.

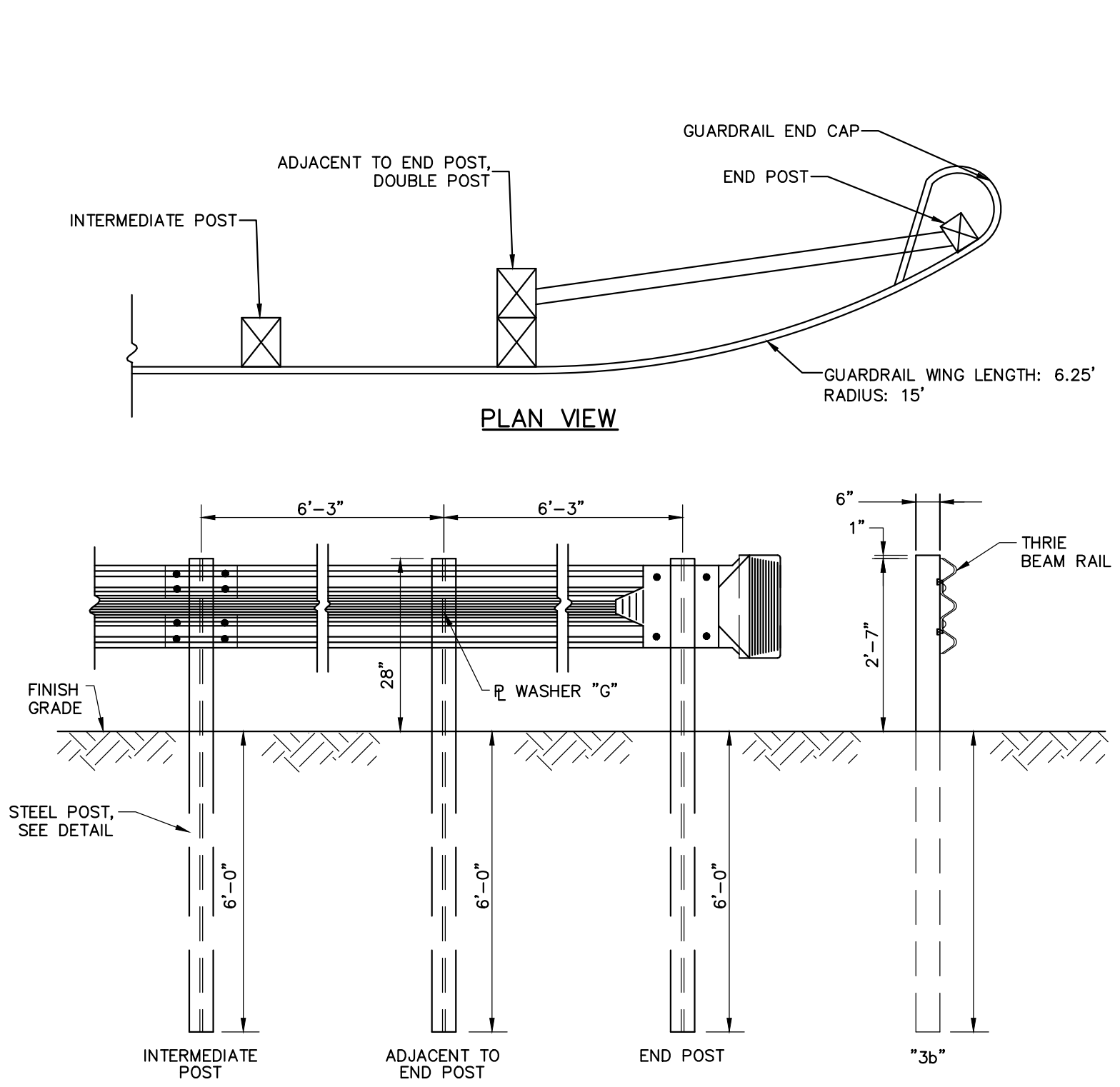


TRENCH WIDTHS (a)	
PIPE SIZE	MAX (ONE PIPE) (b)
24" OR LESS	5'-0"
30"	6'-0"
MANHOLES	10' X 10'

- a. REPRESENTS TRENCH WIDTH PAY LIMIT
 b. FOR ROCK EXCAVATION SUBTRACT 1'-0"

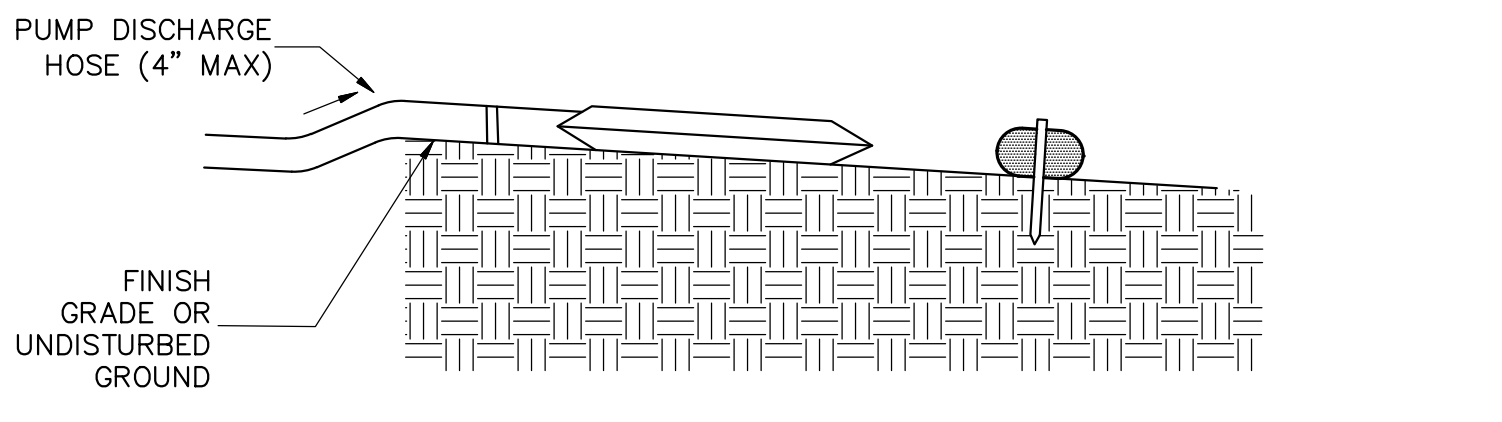
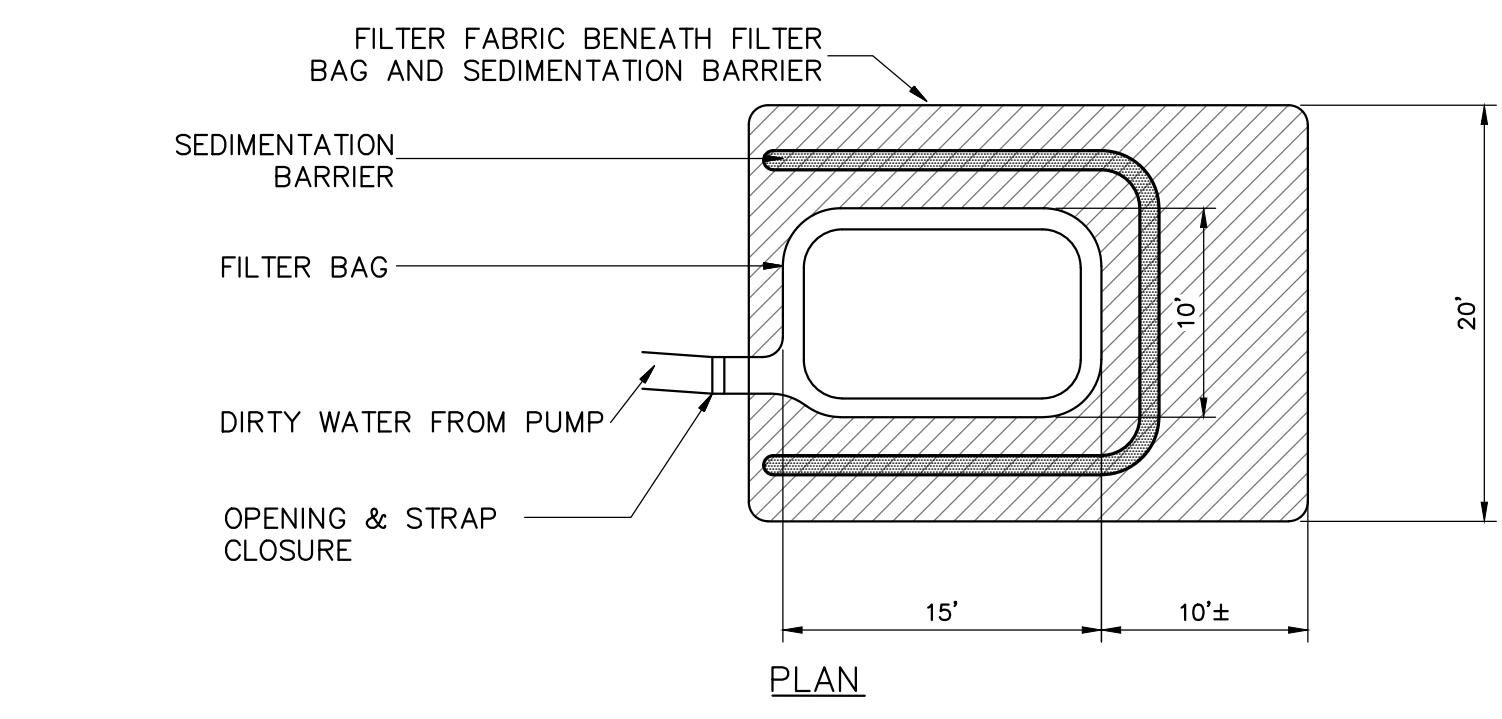
TRENCH DETAIL NOTES:

1. MAINTAIN UNIFORM TRENCH WIDTH TO 6" OVER PIPE.
2. BRACING AND SHEETING OR OTHER TRENCH PROTECTION TO BE PROVIDED TO MEET APPLICABLE O.S.H.A. SAFETY REGULATIONS. ALL SUCH TRENCH PROTECTION TO BE RESPONSIBILITY OF CONTRACTOR. CONTRACTOR TO PROVIDE SHOP DRAWINGS OF TRENCH SUPPORT SYSTEMS ENDORSED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF MASSACHUSETTS.
3. CONTRACTOR SHALL OBTAIN TRENCHING PERMIT AND SATISFY ALL PERMITTING REQUIREMENTS.
4. ALL TRENCHING SUPPORT SHALL BE REMOVED FROM TRENCH AS INSTALLATION PROGRESSES. NO SUPPORTS SHALL REMAIN WITHIN THE R.O.W.



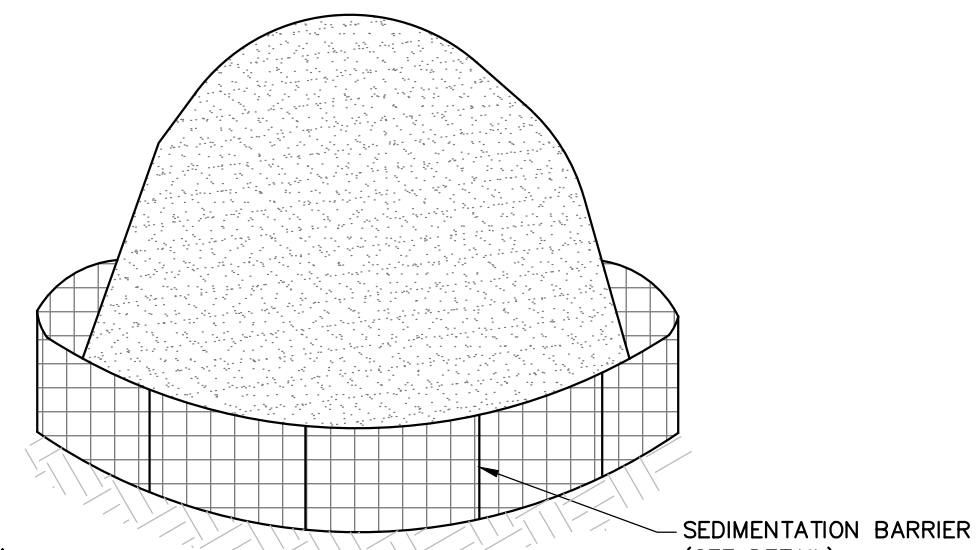
NOTES:

- ALL POST SPACING SHALL BE 6'-3" UNLESS OTHERWISE DIRECTED BY ENGINEER.
- GUARDRAIL SHALL MEET ALL MASSDOT SPECIFICATIONS
- ALL HOLES IN BEAM SHALL BE SHOP-PUNCHED BEFORE GALVANIZING.
- GUARDRAIL SHALL MEET NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP) 350



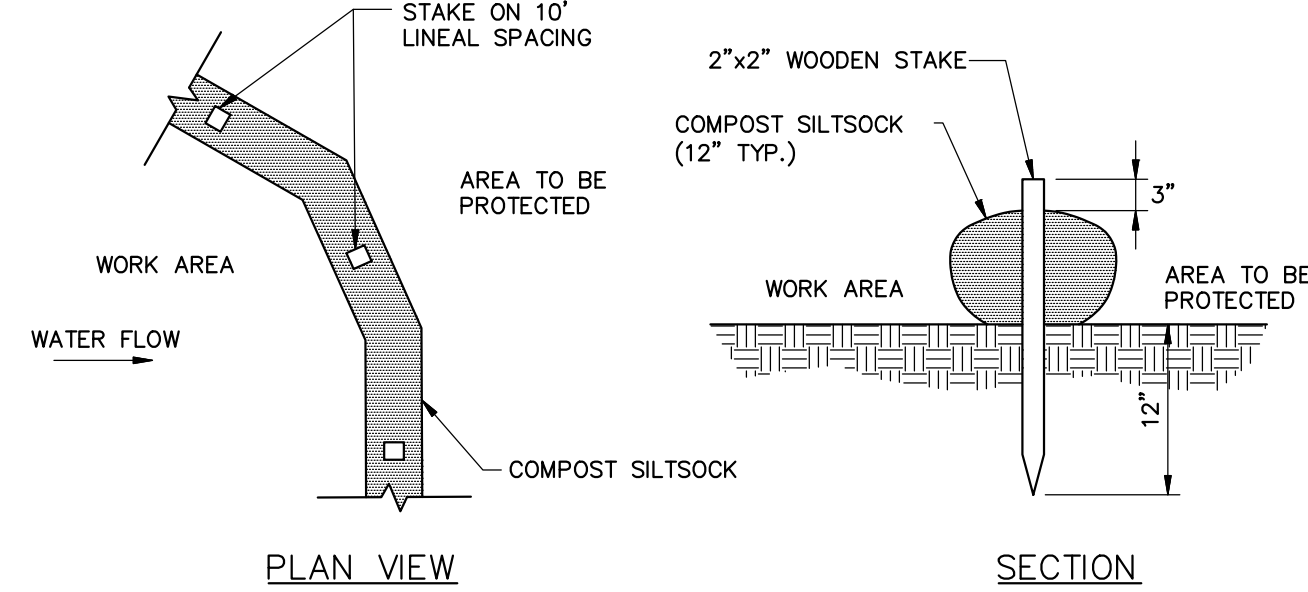
DEWATERING NOTES

1. LOCATE DISCHARGE SITE ON FLAT UPLAND AREAS AS FAR AWAY AS POSSIBLE FROM STREAMS, WETLANDS, OTHER RESOURCES AND POINTS OF CONCENTRATED FLOW.
2. DOWNGRADIENT RECEIVING AREA MUST BE WELL VEGETATED OR OTHERWISE STABLE FROM EROSION, I.E. FOREST FLOOR OR COARSE GRAVEL/STONE.
3. NEVER DISCHARGE TO AREAS THAT ARE BARE OR NEWLY VEGETATED.
4. DIRT BAG MATERIAL BASED ON PARTICLE SIZE IN DIRTY WATER, I.E., FOR COARSE PARTICLES A WOVEN MATERIAL; FOR SILTS/CLAYS A NON-WOVEN MATERIAL.
5. DO NOT OVER PRESSURIZE DIRT BAG OR USE BEYOND CAPACITY.
6. CHANNELS DUG FOR DISCHARGING WATER FROM THE EXCAVATED AREA NEED TO BE STABLE. IF FLOW VELOCITIES CAUSE EROSION WITHIN THE CHANNEL THEN A DITCH LINING SHOULD BE USED.
7. BUCKETED WATER SHOULD BE DISCHARGED IN A STABLE MANNER TO THE SEDIMENT REMOVAL AREA. A SPLASH PAD OF RIPRAP UNDERLAIN WITH GEOTEXTILE MAY BE NECESSARY TO PREVENT SCOURING OF SOIL.
8. DEWATERING IN PERIODS OF INTENSE, HEAVY RAIN, WHEN THE INFILTRATIVE CAPACITY OF THE SOIL IS EXCEEDED, SHOULD BE AVOIDED.
9. INSTALL DIVERSION DITCHES OR BERMS TO MINIMIZE THE AMOUNT OF CLEAN STORMWATER RUNOFF ALLOWED INTO THE EXCAVATED AREA.
10. DURING THE ACTIVE DEWATERING PROCESS, INSPECTION OF THE DEWATERING FACILITY SHOULD BE REVIEWED FREQUENTLY. SPECIAL ATTENTION SHOULD BE PAID TO THE BUFFER AREA FOR ANY SIGN OF EROSION AND CONCENTRATION OF FLOW THAT MAY COMPROMISE THE BUFFER AREA. OBSERVE WHERE POSSIBLE THE VISUAL QUALITY OF THE EFFLUENT AND DETERMINE IF ADDITIONAL TREATMENT CAN BE PROVIDED.
11. EROSION CONTROL REQUIRED AROUND DEWATERING DISCHARGE SEDIMENT CONTROL DEVICE.



NOTES:

1. STOCKPILES SHALL BE SURROUNDED BY SEDIMENTATION BARRIER.
2. STOCKPILES SHALL HAVE A MAXIMUM 2:1 (H:V) SIDE SLOPE.
3. REPAIR OR REPLACE DAMAGED SEDIMENTATION BARRIER DUE TO CONSTRUCTION ACTIVITIES OR STOCKPILE MITIGATION.
4. STOCKPILE SHALL BE LOCATED IN AREAS AS SHOWN ON THE DRAWINGS OR APPROVED BY THE ENGINEER.



NOTE:

WHEN STAKING IS NOT POSSIBLE, HEAVY CONCRETE BLOCKS SHALL BE USED BEHIND THE SEDIMENT CONTROL TO HELP STABILIZE DURING RAINFALL/RUNOFF EVENTS.

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