

TITUS POND RESTORATION

SOUTH HADLEY · MASSACHUSETTS
PERMITTING DESIGN PLANS

MAY 1, 2023

PREPARED FOR
TOWN OF SOUTH HADLEY
 116 MAIN STREET
 ROOM U6
 SOUTH HADLEY, MA 01075



PREPARED BY
FUSS & O'NEILL
 1550 MAIN STREET, SUITE 400
 SPRINGFIELD, MA 01103
 413.452.0445
 www.fando.com

SHEET INDEX

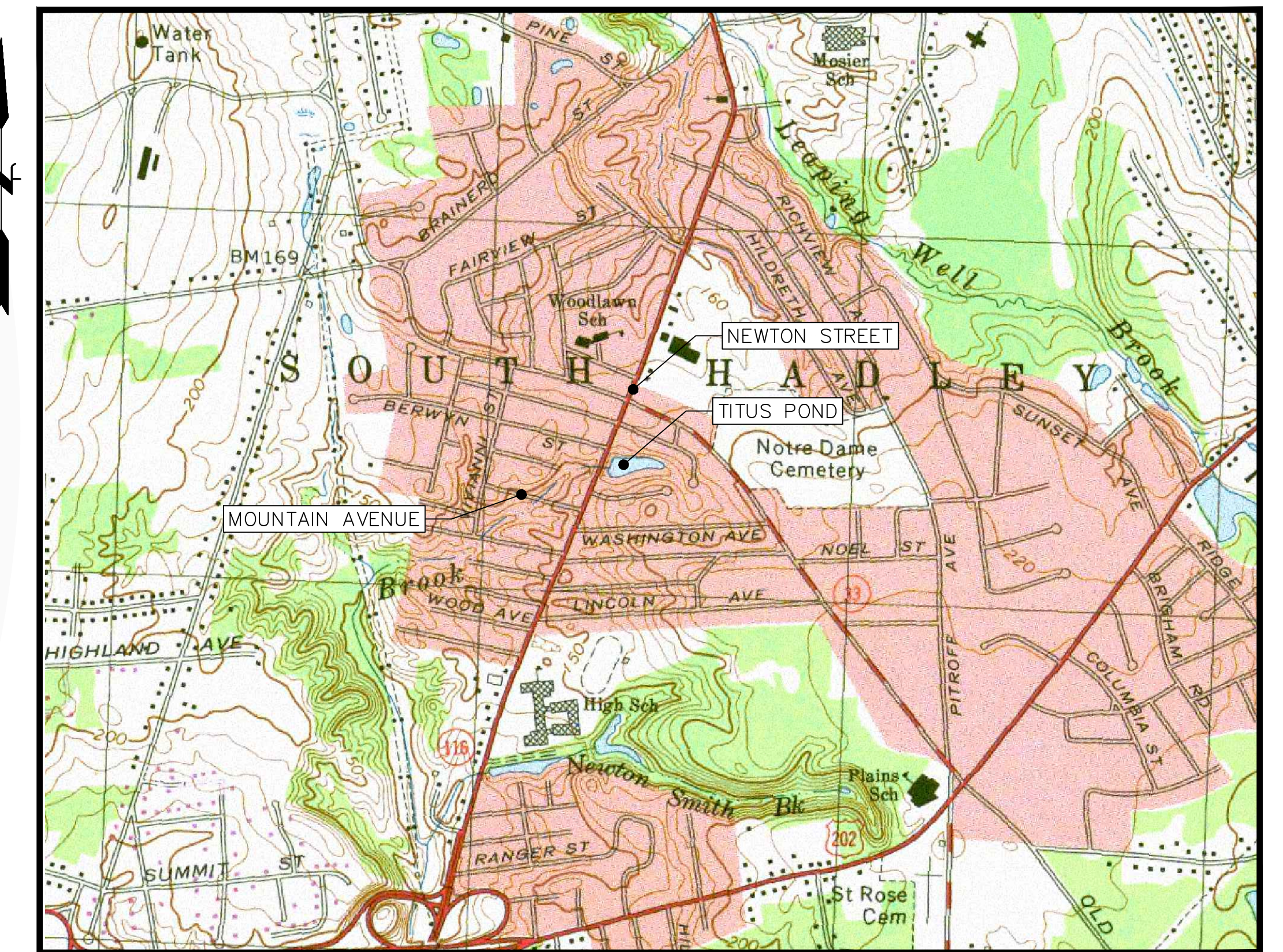
SHEET No.	SHEET TITLE
GI-001	COVER SHEET
GI-002	GENERAL NOTES
EX-101	EXISTING CONDITIONS
CS-101	SITE PLAN
CE-101	EROSION & SEDIMENT CONTROL/ SITE PREPARATION PLAN
CG-101	STREAM GRADING PLAN & PROFILE
CR-101	RESTORATION & PLANTINGS PLAN
CR-102	RESTORATION & PLANTINGS NOTES
CW-101	WATER CONTROL PLAN
CD-501	CONSTRUCTION DETAILS
CD-502	CONSTRUCTION DETAILS
CD-503	RESTORATION DETAILS

PROJECT TEAM

MUNICIPAL VULNERABILITY
 PREPAREDNESS PROGRAM
 (MVP)
 MASSACHUSETTS EXECUTIVE OFFICE
 OF ENERGY AND ENVIRONMENTAL
 AFFAIRS
 SALTONSTALL BUILDING
 100 CAMBRIDGE STREET SUITE 900
 BOSTON, MA 02114
 617.626.1000



SHERMAN & FRYDRYK
 A DIVISION OF HANCOCK SURVEY
 ASSOCIATES, INC.
 3 CONVERSE STREET, SUITE 203
 PALMER, MA 01069
 413.283.6210



LOCATION MAP
 SCALE: 1" = 1000'



5/2/23

PROJ. No.: 20170390.V50
 DATE: MAY 1, 2023

GI-001

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PC3: AUTOCAD PDF (GENERAL DOCUMENTATION)PC3_STB/CTB: FO STB
MS VIEW: LAYER STATE:

GENERAL NOTES

1. REFERENCES:
 - A. COMMONWEALTH OF MASSACHUSETTS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGES, 2022 EDITION, REVISIONS AND ALL CURRENT ADDENDA, ARE MADE A PART HEREOF, AS IF ATTACHED HERETO. ALL REFERENCES TO "STATE STANDARD SPECIFICATIONS" SHALL REFER TO THE LATEST EDITION OF THE COMMONWEALTH OF MASSACHUSETTS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES CONSTRUCTION.
 - B. THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION CONSTRUCTION STANDARD DETAILS, 2017 EDITION, AND ALL CURRENT REVISIONS, ARE MADE A PART HEREOF, AS IF ATTACHED HERETO.
 - C. THE MASSACHUSETTS EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS, 2013 EDITION, REVISIONS AND ALL CURRENT ADDENDA, ARE MADE A PART HEREOF, AS IF ATTACHED HERETO. ALL REFERENCES TO "SOIL EROSION AND SEDIMENT CONTROL HANDBOOK" SHALL REFER TO THE LATEST EDITION OF THE MASSACHUSETTS EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS.
2. EXISTING CONDITIONS:
 - A. EXISTING CONDITIONS DEPICTED ON THIS PLAN ARE BASED ON A PLAN ENTITLED: PLAN OF LAND IN SOUTH HADLEY, MASSACHUSETTS, PREPARED FOR FUSS & O'NEILL, EXISTING CONDITIONS QUEENSVILLE DAM/BUTTERY BROOK, REVISED THROUGH: OCTOBER 14, 2022 PREPARED BY SHERMAN & FRYDRYK, 3 CONVERSE STREET, SUITE 203, PALMER, MASSACHUSETTS, JOB #21178, DWG #21178-EC.
 - B. WETLANDS WERE DELINEATED BY FUSS & O'NEILL WETLAND SCIENTIST MICHAEL SOARES ON OCTOBER 18 AND 21, 2021.
 - C. UTILITIES ARE SHOWN HEREON FROM FIELD LOCATIONS OF SURFACE VISIBLE STRUCTURES AND AVAILABLE RECORD INFORMATION. OTHER UNDERGROUND UTILITIES MAY EXIST. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION, SIZE & ELEVATION OF ALL UTILITIES WITHIN THE AREA OF PROPOSED WORK AND TO CONTACT "DIG-SAFE" AT 811 AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION, DEMOLITION OR CONSTRUCTION.
 - D. PROPERTY AND EASEMENT LINES SHOWN ARE BASED ON MASSGIS DATA AND ARE NOT THE RESULT OF A PROPERTY LINE SURVEY.
 - E. ABUTTER INFORMATION SHOWN IS BASED ON SOUTH HADLEY'S ASSESSOR'S RECORDS AS SHOWN ON THE TOWNS WEB SITE.
3. MATERIAL:
 - A. LANDSCAPE AREAS:
ALL SURFACED AREAS OR DISTURBED AREAS NOT SPECIFIED ON THE PLANS SHALL RECEIVE 4 INCHES OF TOPSOIL, SEED, MULCH, AND BE WATERED UNTIL A HEALTHY STAND OF GRASS IS OBTAINED.

GENERAL CONSTRUCTION REQUIREMENTS

1. THE CONTRACTOR SHALL VERIFY THE PROPOSED LAYOUT WITH ITS RELATIONSHIP TO THE EXISTING SITE SURVEY. THE CONTRACTOR SHALL ALSO VERIFY ALL DIMENSIONS, SITE CONDITIONS, AND MATERIAL SPECIFICATIONS AND SHALL NOTIFY THE OWNER AND ENGINEER IN WRITING OF ANY ERRORS, OMISSIONS OR DISCREPANCIES BEFORE COMMENCING OR PROCEEDING WITH WORK.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS, INSPECTIONS, BONDS, ETC. AND OTHER APPROVAL RELATED ITEMS WITH THE LOCAL AND STATE MUNICIPALITIES. APPLICATION FEES SHALL BE PAID BY OWNER. NO CONSTRUCTION SHALL COMMENCE UNTIL SUCH PERMITS HAVE BEEN SECURED AND THE CONTRACTOR HAS SUPPLIED THE REQUIRED NOTICES.
3. METHODS AND MATERIALS USED IN THE CONSTRUCTION OF IMPROVEMENTS FOR THIS PROJECT SHALL CONFORM TO THE CURRENT CONSTRUCTION STANDARDS AND SPECIFICATIONS OF THE LOCAL MUNICIPALITY AND THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION.
4. DEVIATIONS OR CHANGES FROM THESE PLANS WILL NOT BE ALLOWED UNLESS APPROVED BY THE ENGINEER/OWNER.
5. THE CONTRACTOR SHALL CONTACT "DIG SAFE" AT 1-888-344-7233, 72 HOURS PRIOR, EXCLUDING WEEKENDS AND HOLIDAYS, TO ANY EXCAVATION PERFORMED ON SITE.
6. THE EXISTENCE AND/OR LOCATION OF UTILITIES SHOWN ON THESE PLANS MAY BE ONLY APPROXIMATELY CORRECT. THE CONTRACTOR SHALL MAKE EXPLORATORY EXCAVATIONS AND LOCATE ANY EXISTING UTILITIES AND NOTIFY OWNER/ENGINEER OF ANY DISCREPANCIES FROM CONTRACT DOCUMENTS. THE OWNER SHALL BE NOTIFIED AS TO THE RELOCATIONS REQUIRED PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR IS REQUIRED TO TAKE PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES SHOWN HEREON AND ANY OTHER EXISTING UTILITIES NOT OF RECORD OR NOT SHOWN ON THESE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING, AT HIS/HER EXPENSE, ANY EXISTING UTILITIES DAMAGED DURING CONSTRUCTION.
7. AN APPROVED SET OF PLANS AND ALL APPLICABLE PERMITS MUST BE AVAILABLE AT THE CONSTRUCTION SITE AT ALL TIMES.
8. CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.
9. CONTRACTOR SHALL IDENTIFY TREES TO BE REMOVED PRIOR TO CONSTRUCTION AND MARK THEM WITH CONSTRUCTION TAPE FOR REVIEW BY THE OWNER/ENGINEER. TREES AND OTHER EXISTING VEGETATION SHALL BE RETAINED WHEREVER FEASIBLE. CONTRACTOR SHALL NOT REMOVE TREES UNTIL REVIEWED AND APPROVED BY THE OWNER/ENGINEER.
10. PROVIDE PROPER TRANSITIONS BETWEEN EXISTING AND PROPOSED SITE IMPROVEMENTS.
11. THE CONTRACTOR SHALL RESTORE HARDSCAPE IMPROVEMENTS WITH MATCHING MATERIALS (I.E. ANY PAVEMENT, WALKS, CURBS, ETC.) THAT MUST BE CUT OR THAT ARE DAMAGED DURING CONSTRUCTION.
12. THE CONTRACTOR SHALL RESTORE DISTURBED LANDSCAPE AREAS TO ORIGINAL CONDITION (I.E. SEEDED, SODDED, PLANTED) UNLESS OTHERWISE DIRECTED WITHIN CONTRACT DOCUMENTS.
13. ALL EXCESS EXCAVATED MATERIALS, EXCESS FILL, EXCESS CONSTRUCTION MATERIALS, DEBRIS, AND WASTE SHALL BE REMOVED FROM THE SITE AND SHALL BE DISPOSED OF IN ACCORDANCE WITH APPLICABLE LAWS.
14. DO NOT CLOSE OR OBSTRUCT ROADWAYS, SIDEWALKS, FIRE HYDRANTS, AND UTILITIES WITHOUT APPROPRIATE PERMITS.
15. WORK IS RESTRICTED TO THE HOURS OF 7 AM TO 5 PM ON MONDAY THROUGH FRIDAY, EXCLUDING HOLIDAYS, UNLESS OTHERWISE APPROVED BY THE OWNER.

SOIL EROSION AND SEDIMENT CONTROL INSTALLATION

1. THE CONTRACTOR SHALL FOLLOW THE SITE-SPECIFIC EROSION & SEDIMENT CONTROL PLAN, SITE PREPARATION PLAN, AS WELL AS THE EROSION & SEDIMENT CONTROL SPECIFICATION IN CONSTRUCTING THE EROSION AND SEDIMENT CONTROLS INDICATED ON THE PLANS. ALL EROSION AND SEDIMENT CONTROL MEASURES OR WORKS AND REHABILITATION MEASURES MUST CONFORM TO OR EXCEED THESE REQUIREMENTS.
2. THE TIMELY INSTALLATION, INSPECTION, AND MAINTENANCE/REPLACEMENT OF SEDIMENT AND EROSION CONTROL DEVICES TO ENSURE PROPER OPERATION AND PERMIT COMPLIANCE IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL CONSTRUCTION OF THE PROJECT IS COMPLETE AND ACCEPTED BY THE OWNER. THE OWNER IS RESPONSIBLE THEREAFTER. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL CONTINUE TO BE MAINTAINED IN EFFECTIVE CONDITION UNTIL SITE STABILIZATION.
3. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL INSTALL ALL EROSION AND SEDIMENT CONTROL DEVICES AS SHOWN ON THE PLAN, OR AS MAY BE REQUIRED TO PREVENT SEDIMENT FLOW TO STORM DRAINS OR SURFACE WATERS.

LEGEND (EXISTING)

- WETLAND DELINEATION FLAG
- BORDERING VEGETATED WETLANDS
- CONTOUR (MAJOR)
- CONTOUR (MINOR)
- 50' CONSERVATION ZONE (LOCAL)
- 100' BUFFER ZONE
- LIMITS OF BORDERING LAND SUBJECT TO FLOODING
- BANK/MEAN ANNUAL HIGH WATER (MAHW)
- PROPERTY LINE
- SANITARY SEWER
- STORM DRAIN
- WATER MAIN
- UNDERGROUND ELECTRIC
- UNDERGROUND TELEPHONE
- GAS LINE
- OVERHEAD ELECTRIC
- GUARDRAIL
- EDGE OF PAVEMENT
- BITUMINOUS CURB

LEGEND (PROPOSED)

- MINOR CONTOUR
- MAJOR CONTOUR
- LIMIT OF DISTURBANCE
- SILT FENCE
- TEMPORARY COFFERDAM
- TEMPORARY ACCESS ROUTE
- EROSION CONTROL BLANKETS
- TEMPORARY STREAM CROSSING
- STONE CROSS VANE
- ROOTWAD



5/2/23

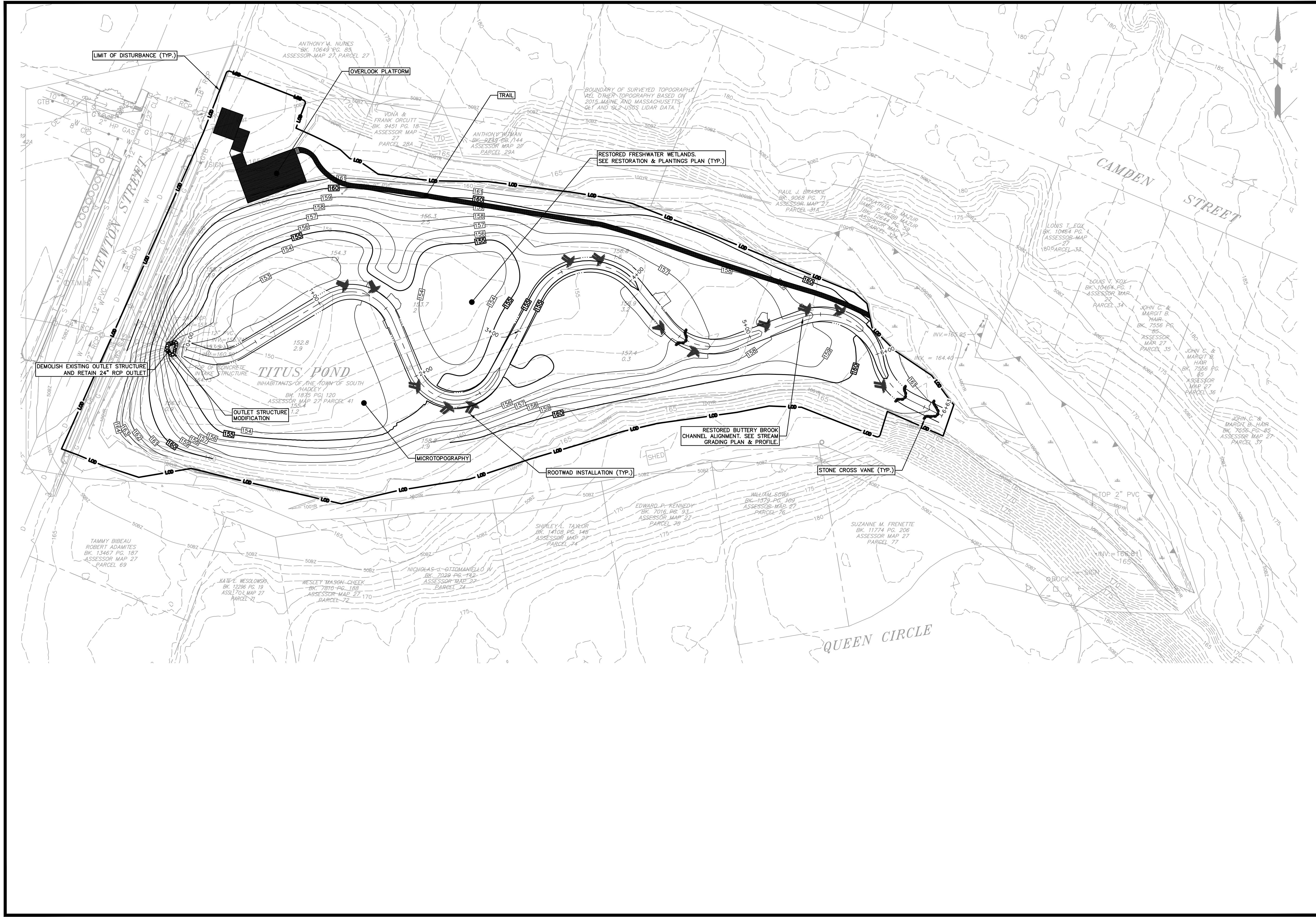
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FUSS & O'NEILL
 1550 MAIN STREET, SUITE 400
 SPRINGFIELD, MA 01103
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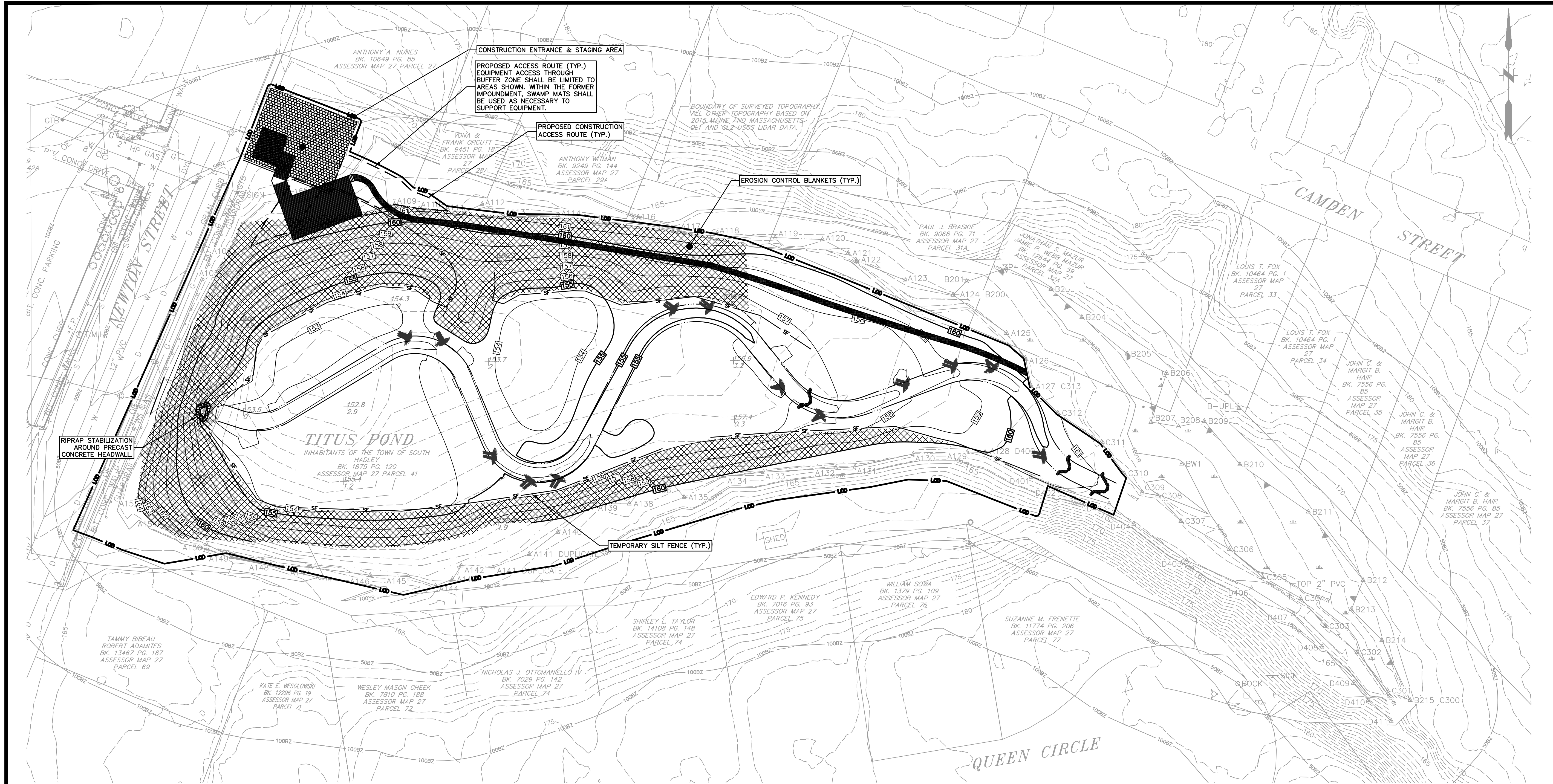
TOWN OF SOUTH HADLEY
 GENERAL NOTES
 TITUS POND RESTORATION
 SOUTH HADLEY MASSACHUSETTS

PROJ. No.: 20170390.V50
 DATE: 05/01/2023
GI-002

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER



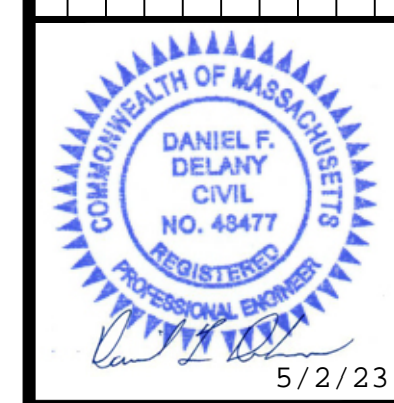
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TOWN OF SOUTH HADLEY SITE PLAN TITUS POND RESTORATION SOUTH HADLEY MASSACHUSETTS	
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CS-101	



DURING CONSTRUCTION AND THEREAFTER, EROSION CONTROL MEASURES ARE TO BE IMPLEMENTED AS NOTED:

- INSTALLATION OF PERIMETER CONTROLS (SILT FENCE) SHALL BE COMPLETED PRIOR TO THE START OF SITE WORK IN ANY GIVEN AREA. PREFABRICATED SILT FENCES SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
- PERIMETER CONTROLS SHALL BE KEPT CLEAN DURING CONSTRUCTION AND REMOVED WHEN ALL SLOPES HAVE A HEALTHY STAND OF VEGETATIVE COVER. EROSION CONTROL MEASURES SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER EVERY RAINFALL.
- EXISTING VEGETATION IS TO REMAIN UNDISTURBED WHEREVER POSSIBLE.
- ALL DISTURBED AREAS SHALL BE STABILIZED WITHIN 72 HOURS AFTER FINAL GRADING.
- PERMANENT OR TEMPORARY COVER MUST BE IN PLACE BEFORE THE GROWING SEASON ENDS. WHEN SEEDING AREAS ARE MULCHED, PLANTINGS MAY BE MADE FROM EARLY SPRING TO EARLY OCTOBER. WHEN SEEDING AREAS ARE NOT MULCHED, PLANTINGS SHOULD BE MADE FROM EARLY SPRING TO MAY 20 OR FROM AUGUST 15 TO SEPTEMBER 15. NO DISTURBED AREA SHALL BE LEFT EXPOSED DURING WINTER MONTHS, PLANT ANNUAL RYE GRASS PRIOR TO OCTOBER 15TH.
- THE LAND AREA EXPOSED SHOULD BE KEPT TO THE SHORTEST PRACTICAL PERIOD OF TIME AND SHALL NOT REMAIN EXPOSED MORE THAN 45 DAYS FROM INITIAL DISTURBANCE.
- THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION.
- AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
 - A MINIMUM OF 85% OF VEGETATED GROWTH HAS BEEN ESTABLISHED
 - A MINIMUM OF 3" NON EROSION MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED
 - EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.
- ALL CONTRIBUTING WATERSHED AREAS MUST BE FULLY STABILIZED PRIOR TO DIRECTING STORMWATER TO THEM.
- DURING CONSTRUCTION ALL EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER EVERY 0.25" OR GREATER RAINFALL WITHIN A 24-HOUR PERIOD.
- TEMPORARY WATER DIVERSION (SEDIMENT BASINS, SWALES, ETC.) MUST BE USED AS NECESSARY TO CONTAIN RUNOFF UNTIL SOILS ARE STABILIZED.
- STAGING AREAS SHALL BE LOCATED WITHIN LIMITS OF WORK. STAGING AREAS MUST BE LOCATED OUTSIDE RESOURCE AREAS.
- SEDIMENT STOCKPILES SHALL HAVE A SIDE SLOPE OF NO STEEPER THAN 2:1. ALL STOCKPILES SHALL BE ROUGH GRADED OR MAINTAIN A ROUGHENED SURFACE TO PREVENT EROSION. STOCKPILES THAT ARE NOT TO BE USED WITHIN 7 DAYS SHALL BE SEEDER AFTER FORMATION OF STOCKPILE AS TO PREVENT EROSION. A SILT FENCE BARRIER SHALL BE INSTALLED AROUND STOCKPILE AREA APPROXIMATELY 10 FEET FROM TOE OF SLOPE.
- IN THE EVENT OF DEWATERING, ENSURE THAT THERE IS NO DISCHARGE PLACED DIRECTLY INTO WETLANDS AREAS OR WATERCOURSES. USE PROPER METHODS AND DEVICES TO MINIMIZE AND RETAIN SUSPENDED SOLIDS, SUCH AS PUMPING WATER INTO A TEMPORARY SEDIMENTATION BASIN, PROVIDING SURGE PROTECTION AT THE INLET AND THE OUTLET OF PUMPS, FLOATING THE INTAKE OF THE PUMP OR OTHER METHODS. ALSO BE RESPONSIBLE FOR ANY PERMITTING REQUIRED FOR DEWATERING ACTIVITIES. IF A PUMPING OPERATION IS CAUSING TURBIDITY PROBLEMS, SAID OPERATION SHALL CEASE UNTIL SUCH TIME AS FEASIBLE MEANS OF CONTROLLING TURBIDITY ARE DETERMINED AND IMPLEMENTED. SUBMIT DESIGN ALONG WITH THE LOCATIONS OF THE BASIN TO THE TOWN PRIOR TO CONSTRUCTION.
- NO CHEMICALS CLEANERS ARE PERMITTED TO BE USED ON SITE.

No.	DATE	DESCRIPTION	DESIGNER/REVIEWER



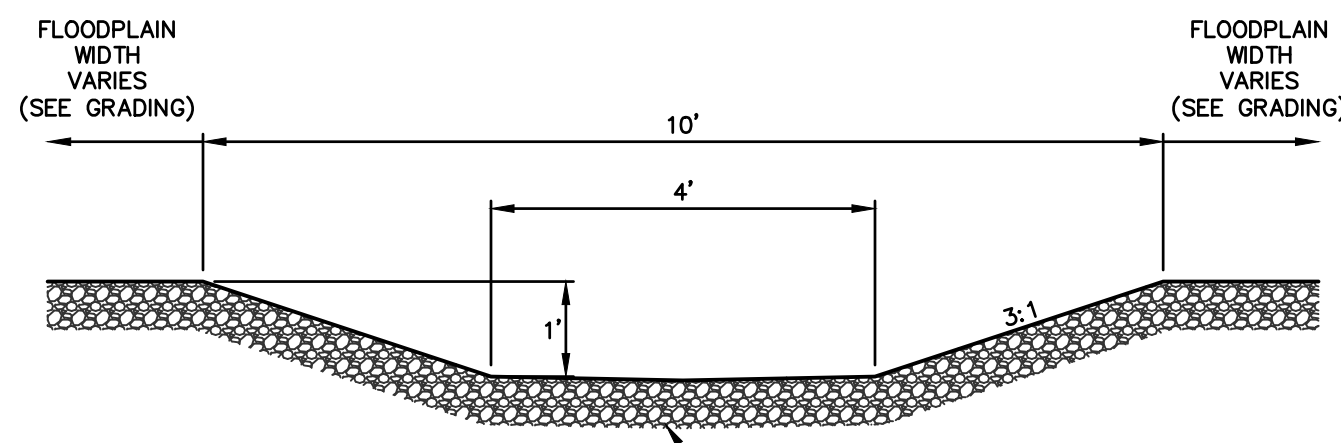
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FUSS & O'NEILL
 155 MAIN STREET, SUITE 400
 BOSTON, MA 02115
 www.fussandoneill.com

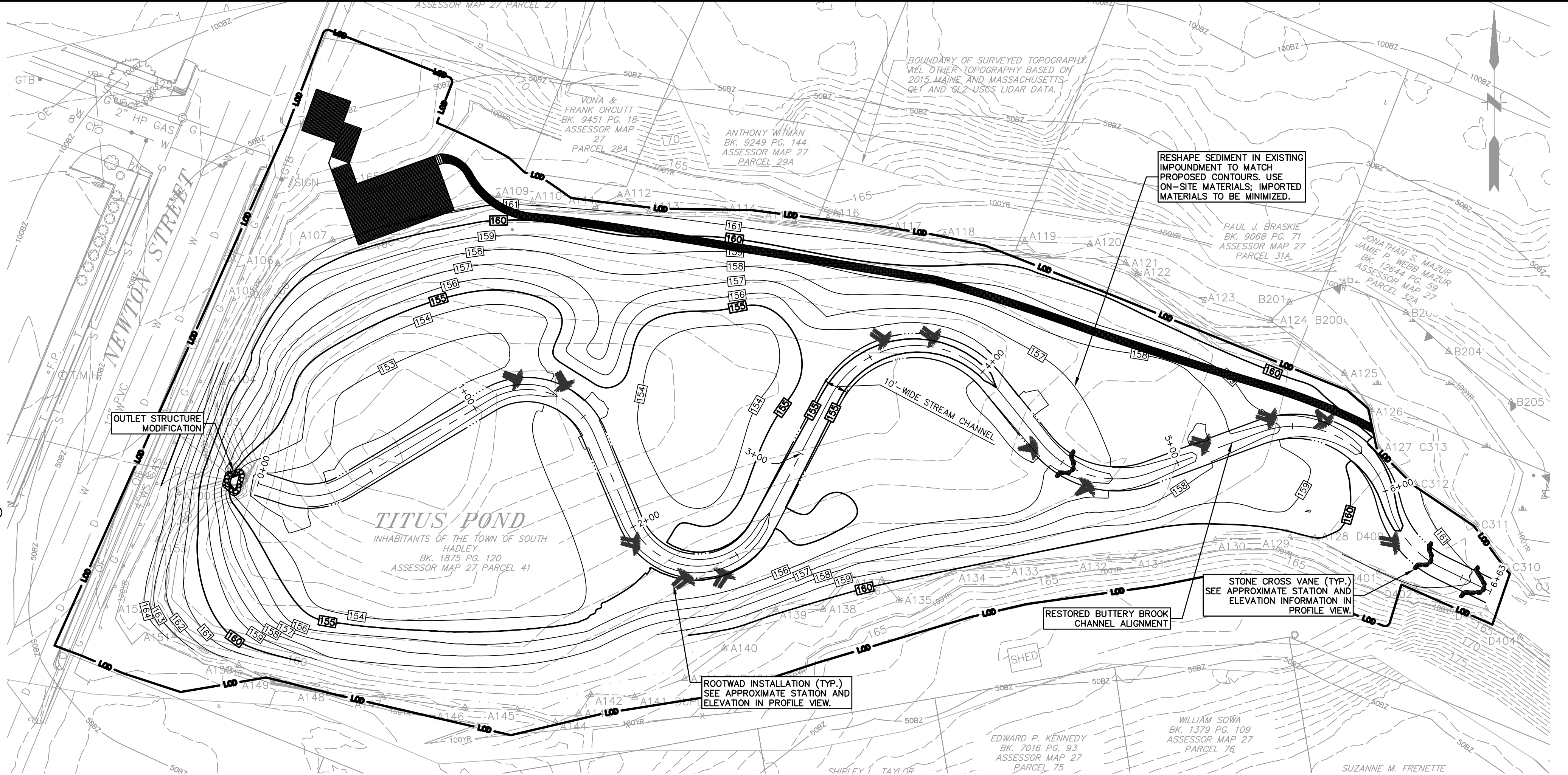
TOWN OF SOUTH HADLEY
 EROSION & SEDIMENT CONTROL/
 SITE PREPARATION PLAN
 TITUS POND RESTORATION
 MASSACHUSETTS
 SOUTH HADLEY

PROJ. No.: 20170330.V50
 DATE: 05/01/2023
CE-101

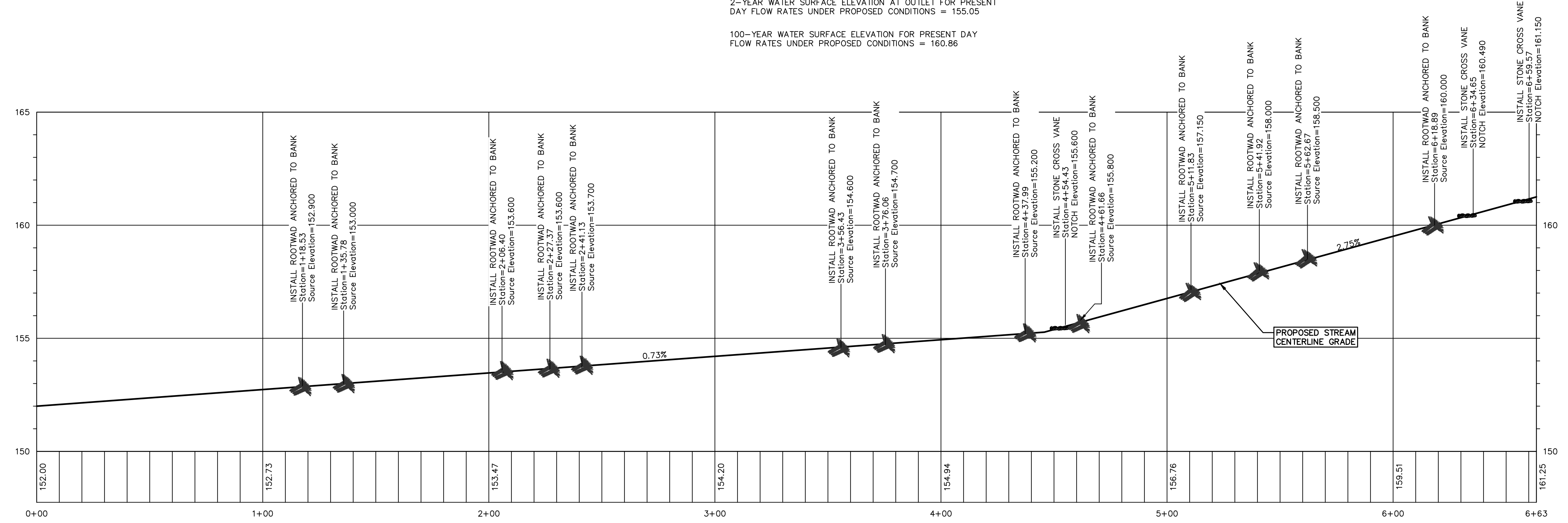
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 LAYER STATE:



PROPOSED STREAM CHANNEL TYPICAL SECTION
 SCALE: 1"=2'



2-YEAR WATER SURFACE ELEVATION AT OUTLET FOR PRESENT DAY FLOW RATES UNDER PROPOSED CONDITIONS = 155.05
 100-YEAR WATER SURFACE ELEVATION FOR PRESENT DAY FLOW RATES UNDER PROPOSED CONDITIONS = 160.86



BUTTERY BROOK RESTORED CHANNEL CENTERLINE PROFILE
 SCALE: H: 1"=30'
 V: 1"=3'

DESIGNER REVIEWER	
DESCRIPTION	
DATE	
No.	

5/2/23

SCALE: HORIZ: 1"=30'
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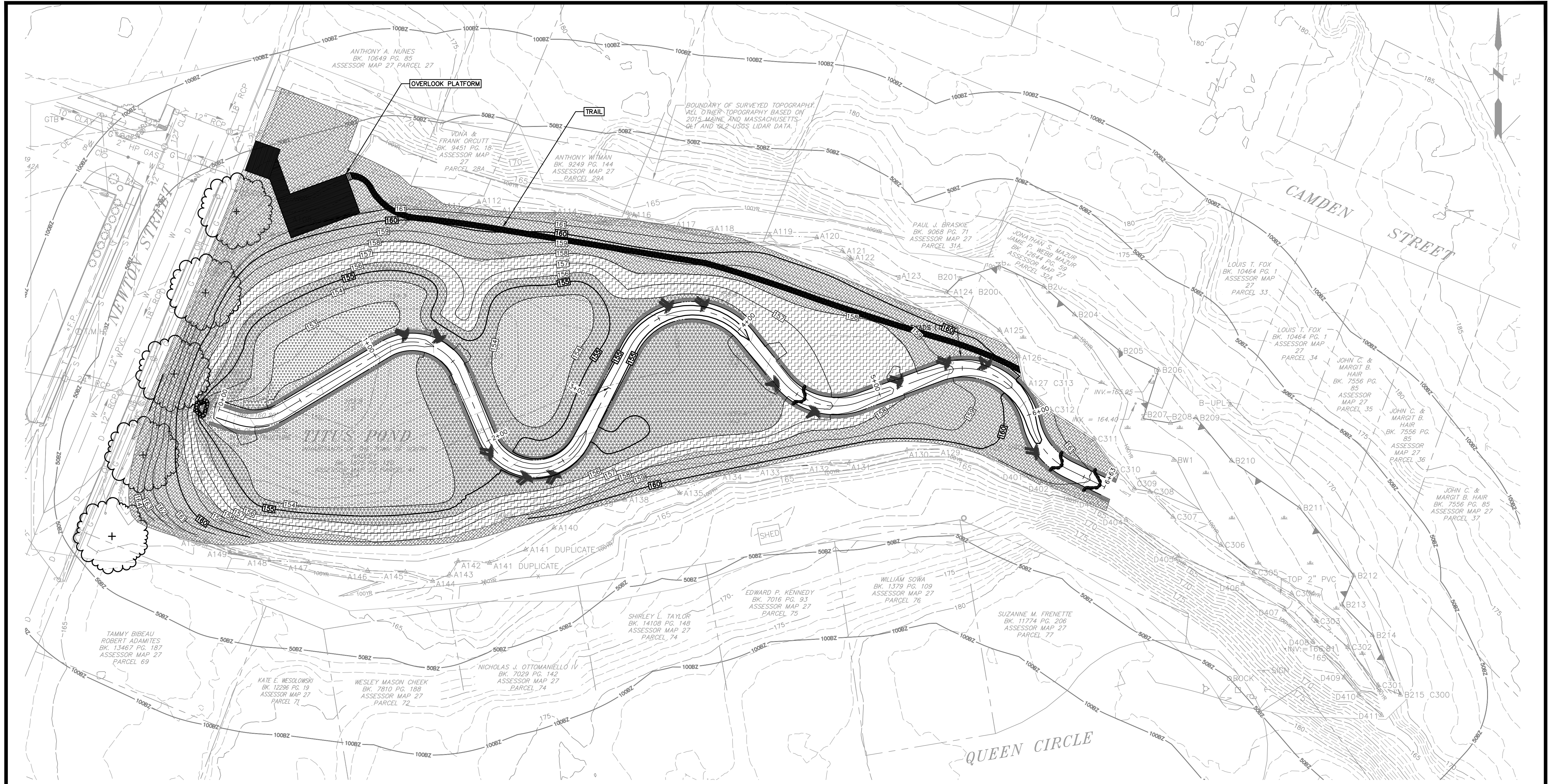
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 155 MAIN STREET, SUITE 400
 SOUTH HADLEY, MA 01015
 413-552-0445
 www.fussandoneill.com

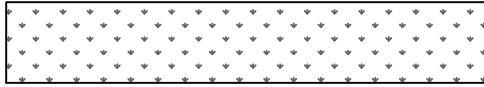

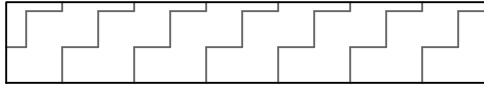
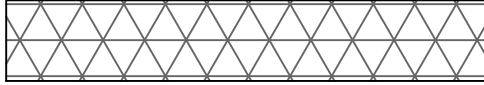
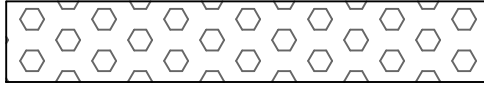

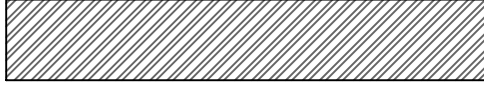
TOWN OF SOUTH HADLEY
 STREAM GRADING PLAN &
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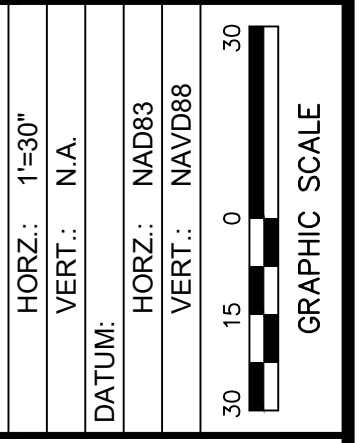
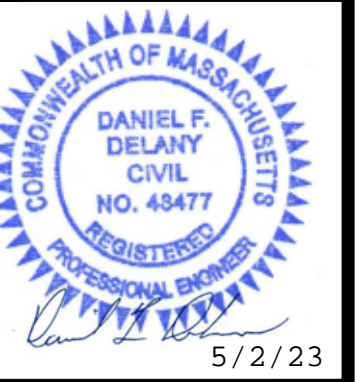
CG-101



LEGEND

- TURF GRASS 
- FORESTED WETLAND RESTORATION AREA 
- SCRUB SHRUB WETLAND RESTORATION AREA 
- WET MEADOW RESTORATION AREA 
- EMERGENT WETLAND RESTORATION AREA 
- DEEP EMERGENT WETLAND RESTORATION AREA 
- CHANNEL EDGE RESTORATION AREA 

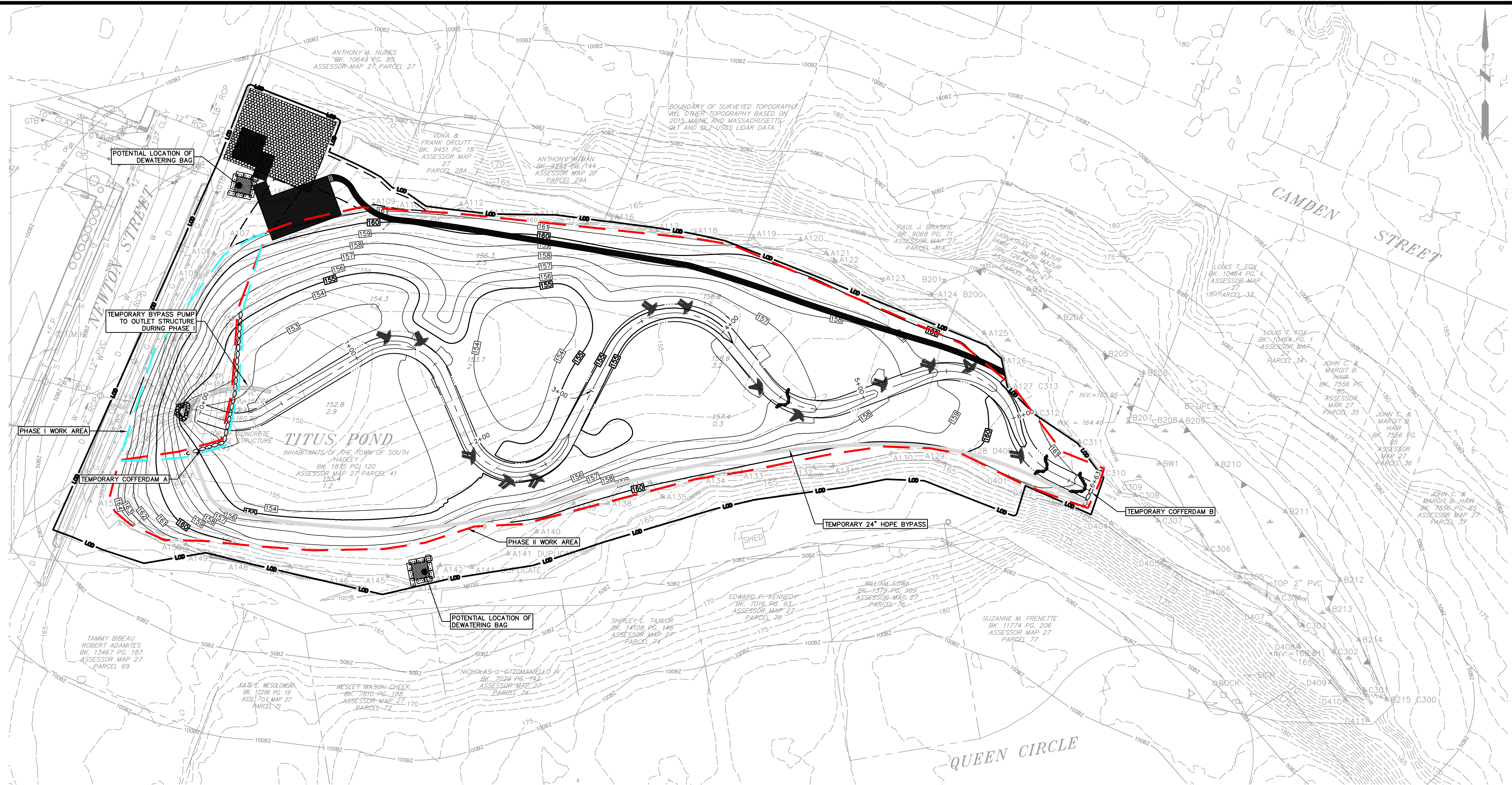
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FUSS & O'NEILL
 155 MAIN STREET, SUITE 400
 01930 SOUTH HADLEY, MA 01015
 www.fussandoneill.com

TOWN OF SOUTH HADLEY
RESTORATION & PLANTINGS PLAN
 TITUS POND RESTORATION
 SOUTH HADLEY MASSACHUSETTS

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CR-101



GENERAL WATER CONTROL SYSTEM NOTES:

1. PRIOR TO ANY LAND DISTURBANCE ACTIVITIES, THE CONTRACTOR MUST PHYSICALLY MARK THE LIMITS OF DISTURBANCE IN ACCORDANCE WITH THE APPROVED PLANS.
2. THE TEMPORARY COFFERDAMS MUST BE INSTALLED DURING THE LOW FLOW PERIOD (I.E., THE PERIOD BETWEEN JULY 1 THROUGH OCTOBER 31). COFFERDAMMED AREAS, WHERE APPLICABLE, SHALL BE MAINTAINED TO ALLOW A DRY WORKING CONDITION (NO SEDIMENT PLUME) IN THE WATERCOURSE. SOIL DISTURBANCE IN COFFERDAMMED AREAS OR THE WATERCOURSE MUST TEMPORARILY CEASE IN THE EVENT OF ANY ABNORMALLY HIGH STORMWATER RUNOFF EVENT THAT OVERTOPS THE COFFERDAMS OR TEMPORARY RIVER CROSSINGS.
3. SELECTIVE DEMOLITION/REMOVAL OF THE OUTLET STRUCTURE AND ASSOCIATED IMPOUNDMENT MUST BE CONDUCTED SEQUENTIALLY TO CONTROL UPSTREAM DRAWDOWN TO NO MORE THAN TWELVE (12) INCHES PER DAY.
4. OBTAIN CONFIRMATORY ELEVATIONS OF THE CHANNEL BOTTOM ALONG THE PROPOSED ALIGNMENTS OF THE TEMPORARY COFFERDAMS AND RIVER CROSSINGS TO VERIFY EXISTING CONDITIONS AND ACTUAL COFFERDAM HEIGHTS PRIOR TO INSTALLATION.
5. THIS PLAN ILLUSTRATES ONE CONCEPTUAL APPROACH TO WATER CONTROL FOR THE PROJECT. THE CONTRACTOR SHALL SUBMIT A FINAL WATER CONTROL PLAN TO FUSS & O'NEILL AND THE MASSDEP FOR REVIEW WITH ADEQUATE TIME FOR THEIR REVIEW AND ACCEPTANCE PRIOR TO THE INITIATION OF CONSTRUCTION.
6. TEMPORARY COFFERDAMS AND BYPASS PROVISIONS SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD TO ENSURE RESPECTIVE COMPONENTS FUNCTION AS INTENDED TO PROTECT ADJACENT PROPERTIES, WETLAND RESOURCES AND DOWNSTREAM WORK AREAS.

PHASE I WATER CONTROL & CONSTRUCTION SEQUENCE

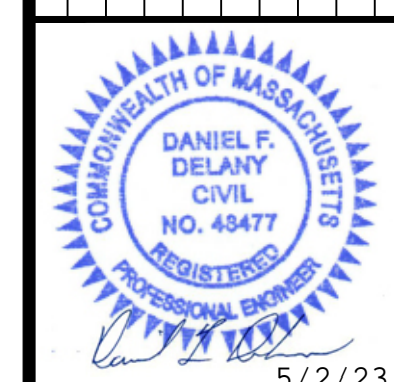
1. INSTALL TEMPORARY EROSION CONTROL MEASURES AND CONSTRUCTION STAGING AREAS.
2. USING SIPHONS AND/OR PUMPS THROUGH THE EXISTING OUTLET STRUCTURE, INCREMENTALLY LOWER THE IMPOUNDMENT BY 3-INCHES PER DAY TO AN ELEVATION SUITABLE FOR ACCESS AND INSTALLATION OF COFFERDAM A.
3. GRADE AND STABILIZE CONSTRUCTION ACCESS WITH SWAMP MATS.
4. INSTALL COFFERDAM A AND CONTINUE PUMPING IMPOUNDMENT AREA AS NECESSARY TO MAINTAIN SUFFICIENT ACCESS. PUMP AREA BETWEEN EXISTING OUTLET STRUCTURE AND COFFERDAM A AS NECESSARY TO MAINTAIN DRY CONDITION.
5. TEMPORARILY PAUSE PUMPING AND RELOCATE HOSE(S) TO ALLOW REMOVAL OF EXISTING OUTLET STRUCTURE. PROTECT AND RETAIN EXISTING 24" RCP OUTLET. RESUME PUMPING AS NECESSARY IF WATER LEVEL RISES.
6. PAUSE PUMPING AS NECESSARY TO EXCAVATE AND/OR BACKFILL PRIOR TO INSTALLATION OF PRECAST CONCRETE HEADWALL.
7. INSTALL PRECAST CONCRETE HEADWALL AT EXISTING 24" RCP INLET AND RESUME PUMPING AS NECESSARY.
8. BACKFILL AND GRADE IN ACCORDANCE WITH PROPOSED CONTOURS.
9. INSTALL RIPRAP SLOPE STABILIZATION AROUND HEADWALL AND INLET AREA.
10. GRADE SURROUNDING AREA INCLUDING ROADWAY EMBANKMENT IN ACCORDANCE WITH PROPOSED CONTOURS.
11. STABILIZE SURROUNDING AREA IN ACCORDANCE WITH RESTORATION & PLANTINGS PLAN.

PHASE II WATER CONTROL & CONSTRUCTION SEQUENCE

1. INSTALL ADDITIONAL TEMPORARY EROSION CONTROL MEASURES AND CONSTRUCTION STAGING AREAS AS NECESSARY FOR PHASE II WORK.
2. INSTALL PHASE II BYPASS PIPE AND MODIFY COFFERDAM A TO ACCOMMODATE PHASE II BYPASS PIPE.
2. INSTALL ADDITIONAL SWAMP MATS FOR EQUIPMENT ACCESS AND SUPPORT AS NECESSARY.
3. INSTALL COFFERDAM B TO CREATE DRY CONDITION THROUGH IMPOUNDMENT AREA.
4. GRADE CHANNEL, WETLAND RESTORATION AREAS, AND BANKS IN ACCORDANCE WITH PROPOSED CONTOURS.
5. INSTALL CROSS VANES AND ROOTWADS IN PHASE II WORK AREA.
6. STABILIZE AND PLANT PHASE II WORK AREA IN ACCORDANCE WITH RESTORATION & PLANTINGS PLAN.
7. REMOVE MATERIALS FROM PHASE II WORK AREA AND STABILIZE WHILE INCREMENTALLY REMOVING COFFERDAM A AND PHASE II BYPASS PIPE TO RETURN FLOW TO PHASE I AND PHASE II WORK AREA.
8. COMPLETE RESTORATION OF PRIMARY CONSTRUCTION ACCESS AND GRADE IN ACCORDANCE WITH PROPOSED CONTOURS.
9. CONTINUE WITH RESTORATION ACTIVITIES NOT ASSOCIATED WITH OR DEPENDENT ON WATER CONTROL SEQUENCING.

2-YEAR WATER SURFACE ELEVATION AT OUTLET FOR PRESENT DAY FLOWS UNDER PROPOSED CONDITIONS = 155.05
 2-YEAR PRESENT DAY FLOW = 15.3 CFS

No.	DATE	DESCRIPTION	DESIGNER/REVIEWER



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 VERT.: NAVD88

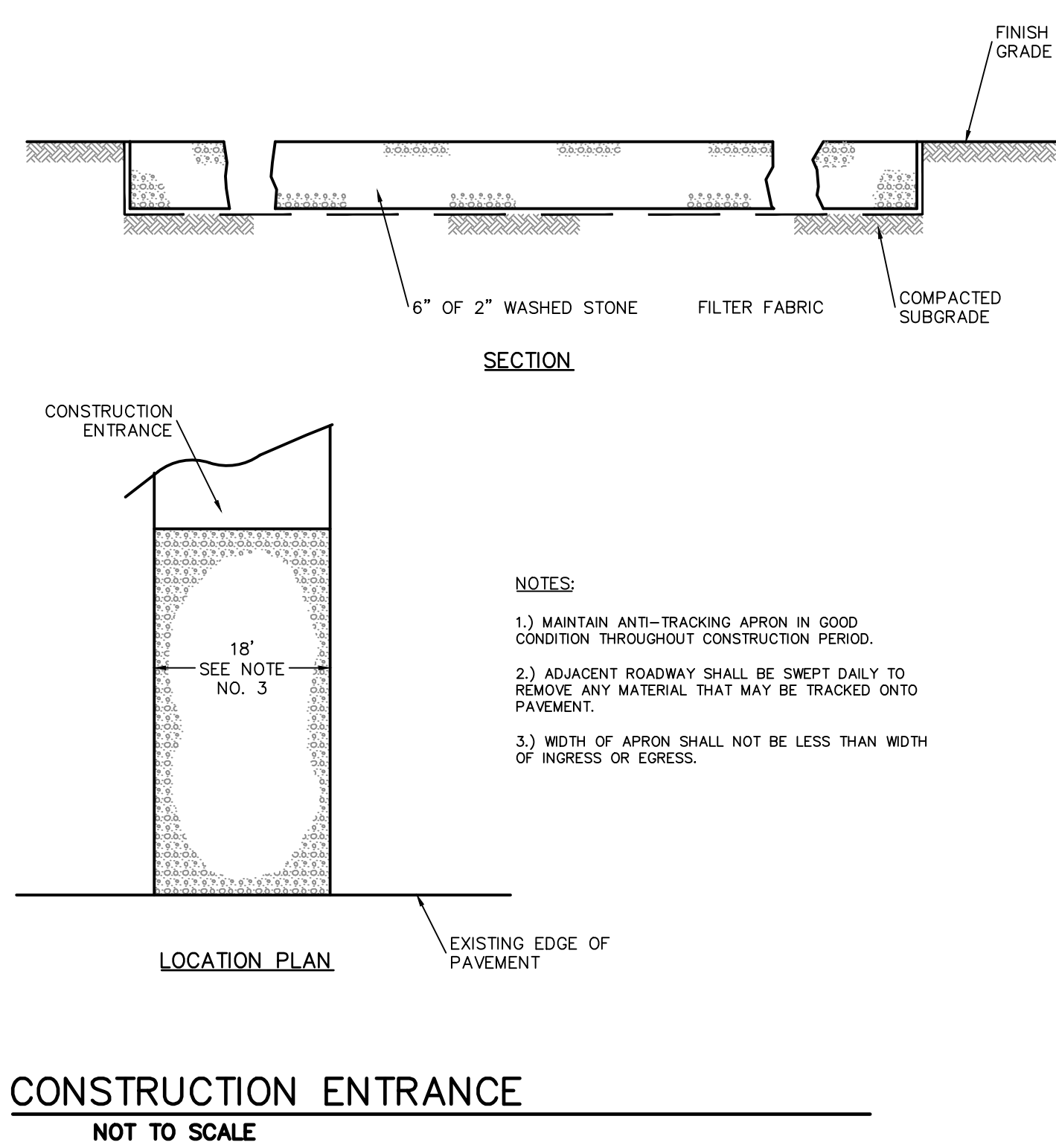
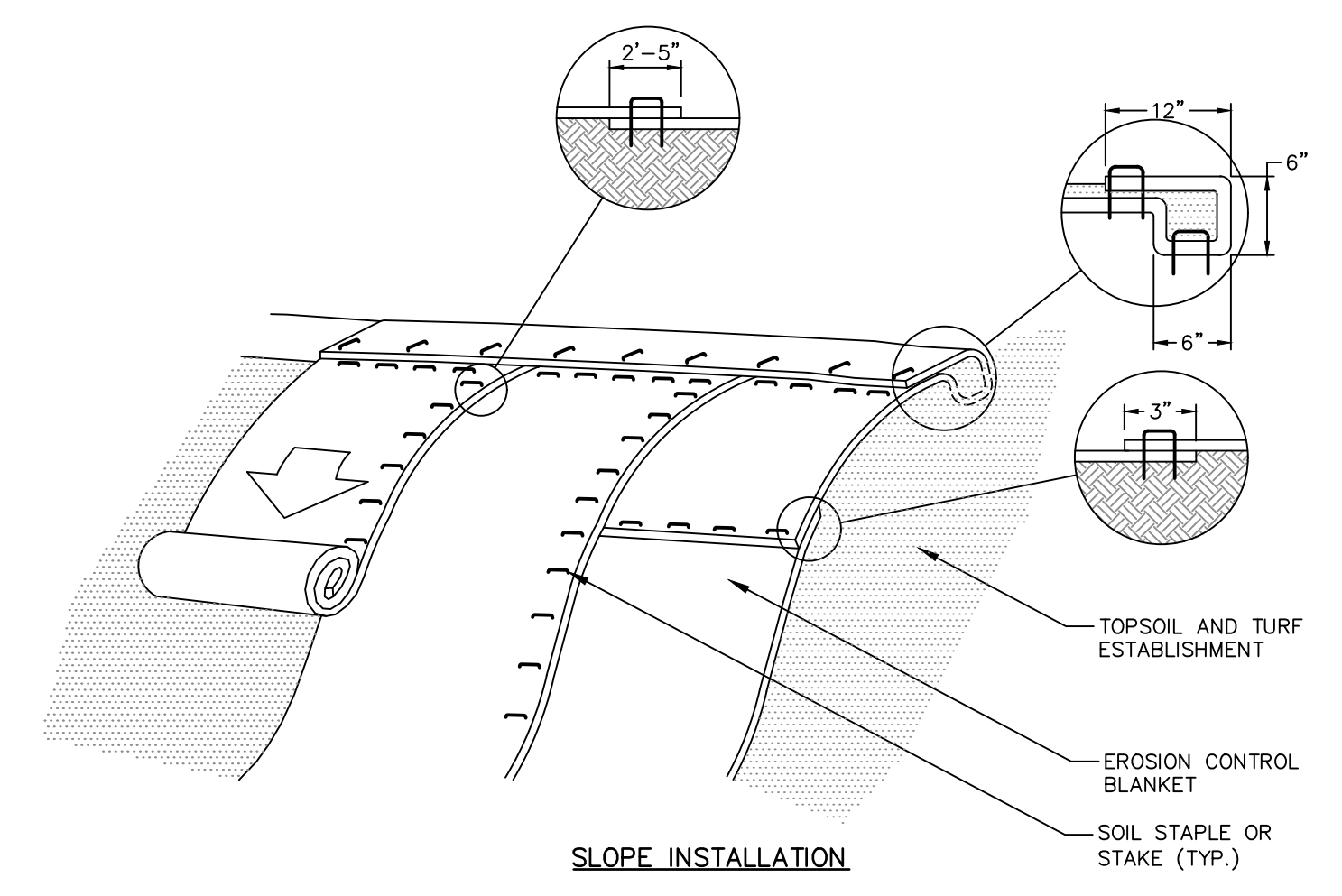
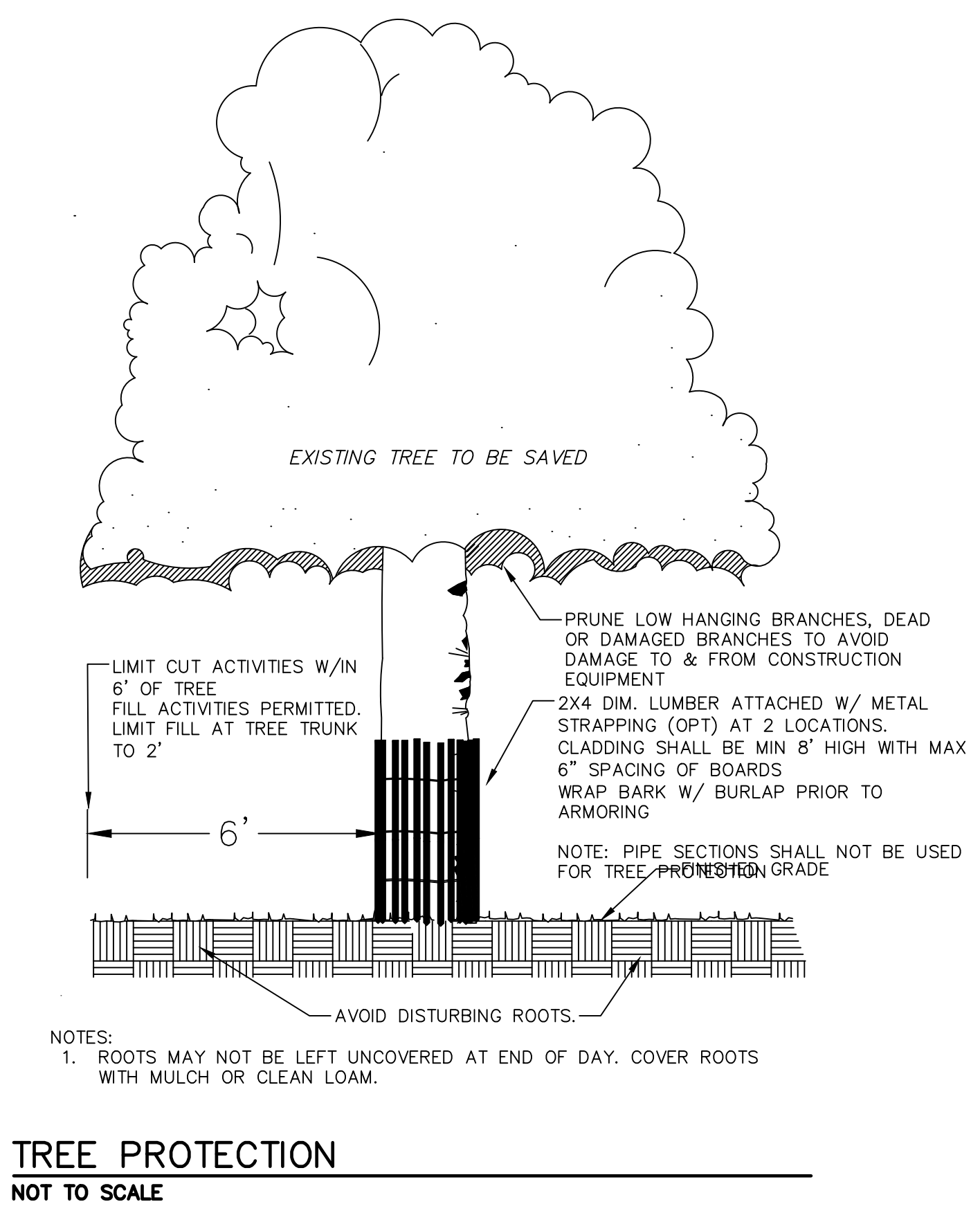
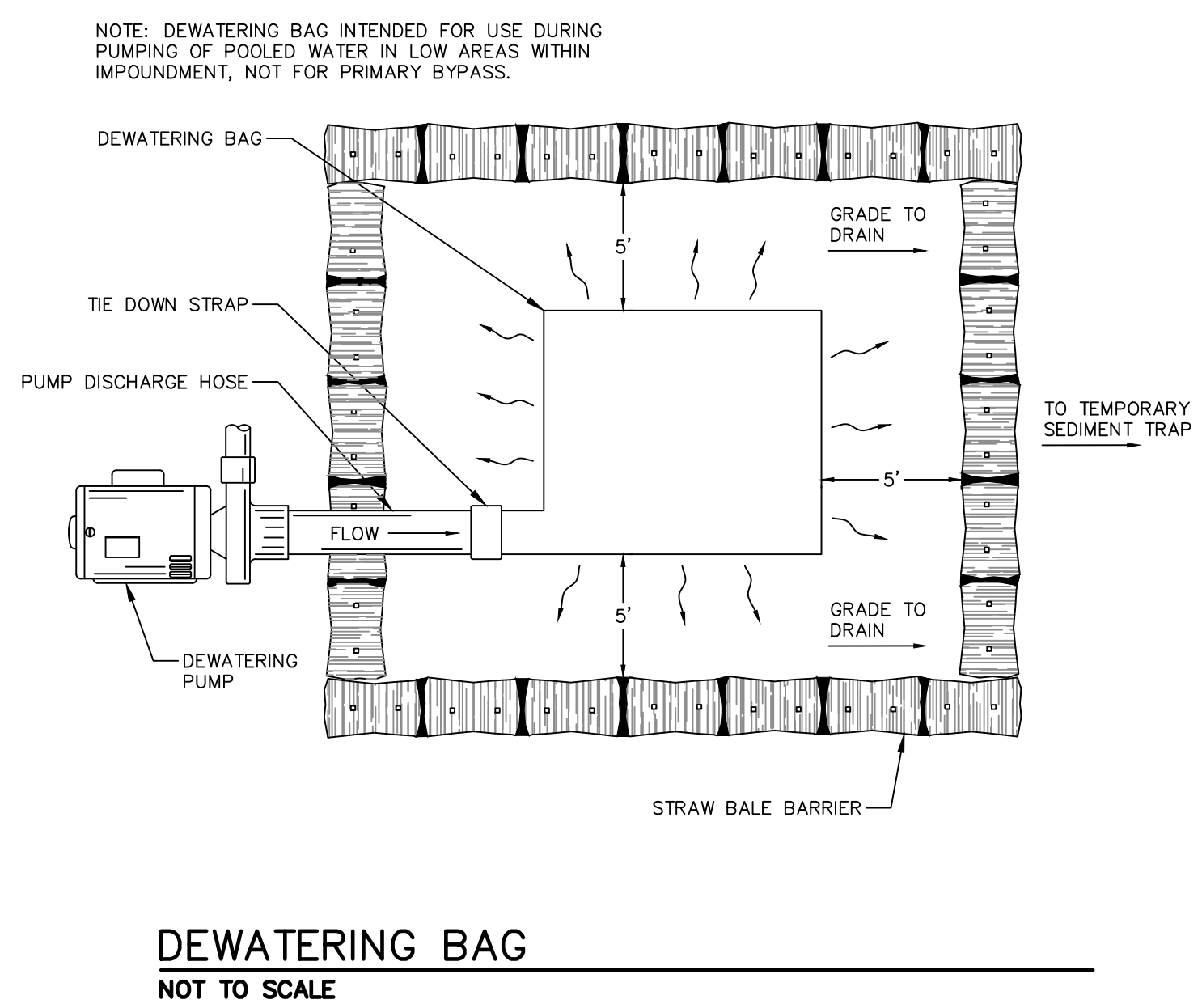
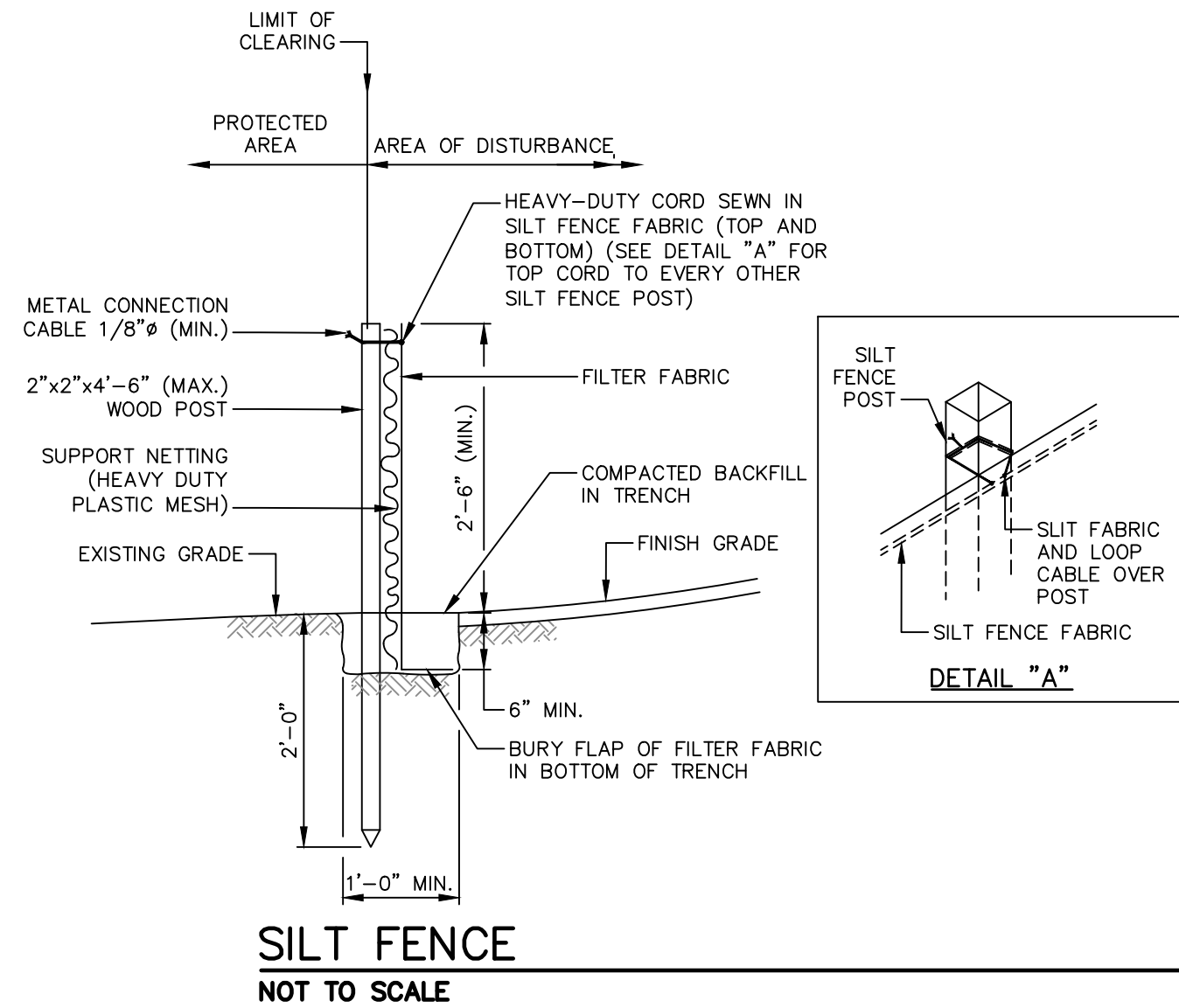
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TOWN OF SOUTH HADLEY
WATER CONTROL & SEQUENCING PLAN
 TITUS POND RESTORATION
 SOUTH HADLEY MASSACHUSETTS

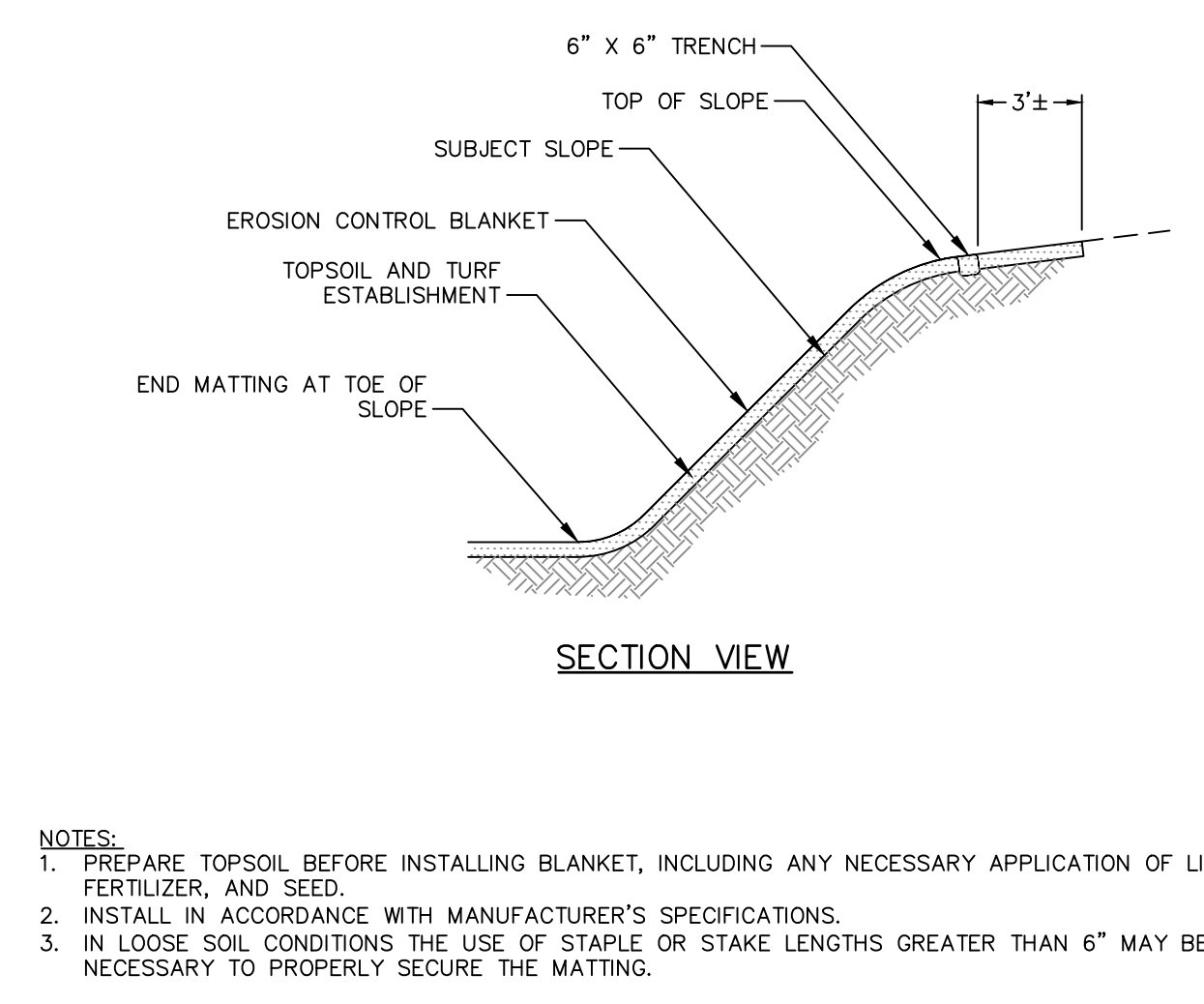
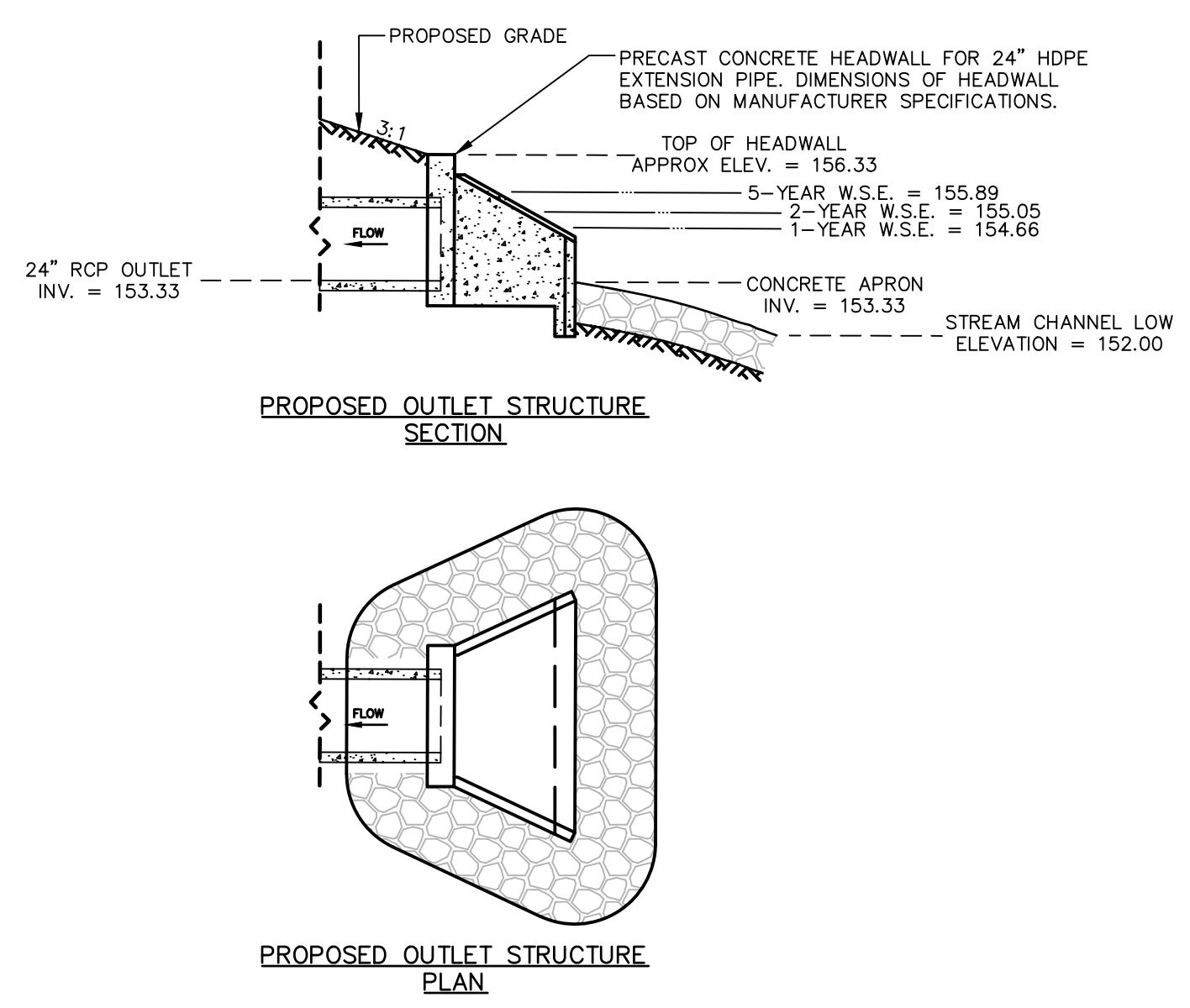
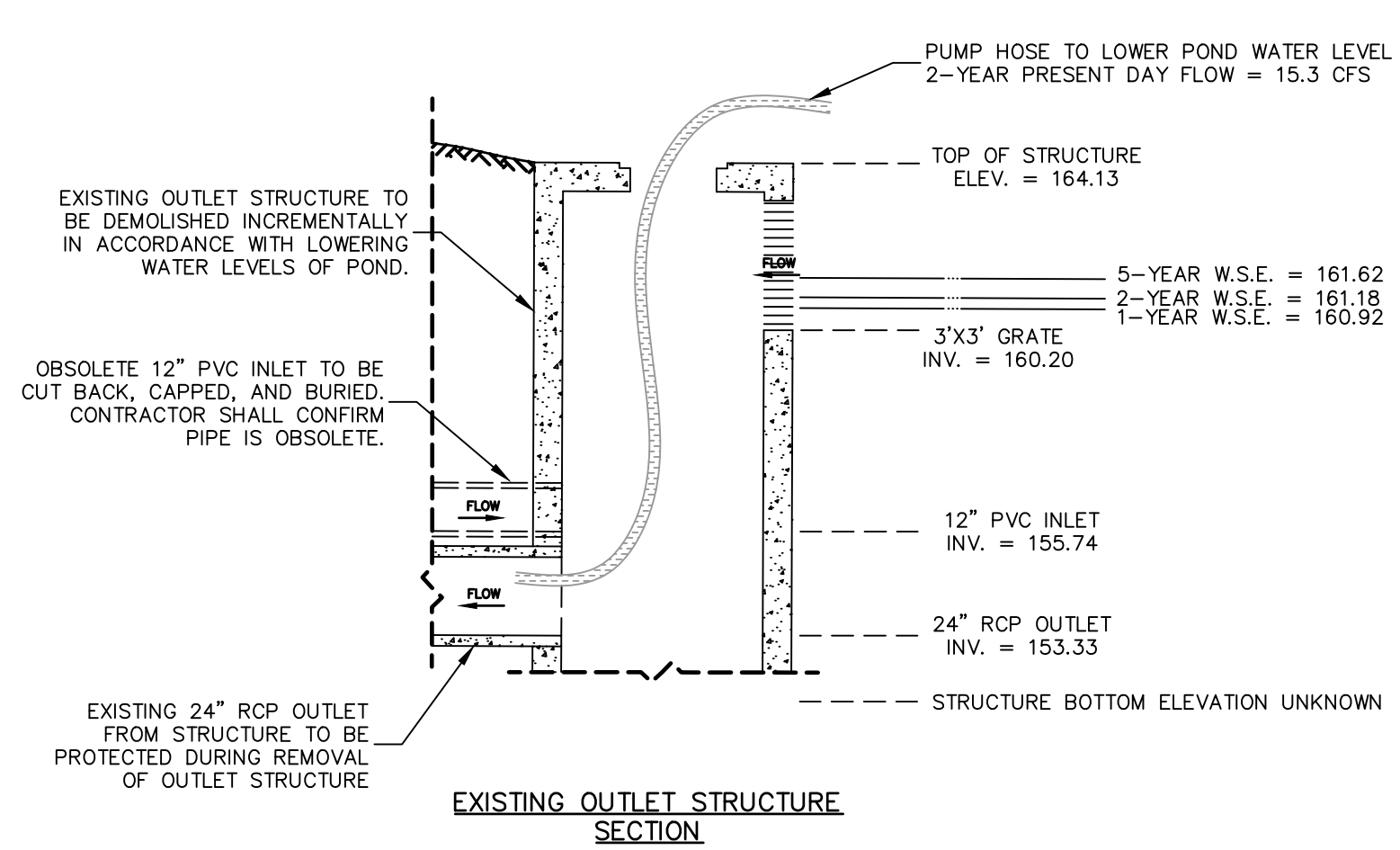
PROJ. No.: 20170390.V50
 DATE: 05/01/2023

CW-101

File: J:\DWG\IP2017\0390\0501\Title\Plan\Title Pond Restoration\20170390\50_DET01_TITLUS POND.dwg Layout: CD-501 Plotted: 2023-05-01 3:05 PM Saved: 2023-05-01 2:35 PM User: LCromer
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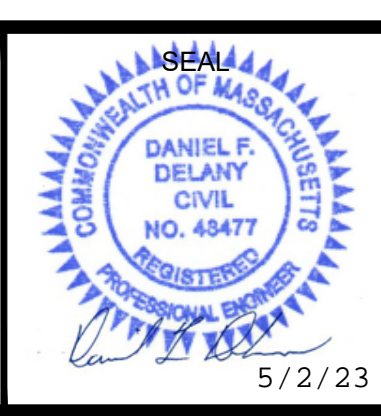
- NOTES:**
- 1.) MAINTAIN ANTI-TRACKING APRON IN GOOD CONDITION THROUGHOUT CONSTRUCTION PERIOD.
 - 2.) ADJACENT ROADWAY SHALL BE SWEEPED DAILY TO REMOVE ANY MATERIAL THAT MAY BE TRACKED ONTO PAVEMENT.
 - 3.) WIDTH OF APRON SHALL NOT BE LESS THAN WIDTH OF INGRESS OR EGRESS.



- NOTES:**
1. PREPARE TOPSOIL BEFORE INSTALLING BLANKET, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
 2. INSTALL IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
 3. IN LOOSE SOIL CONDITIONS THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6\"/>

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER

SEAL



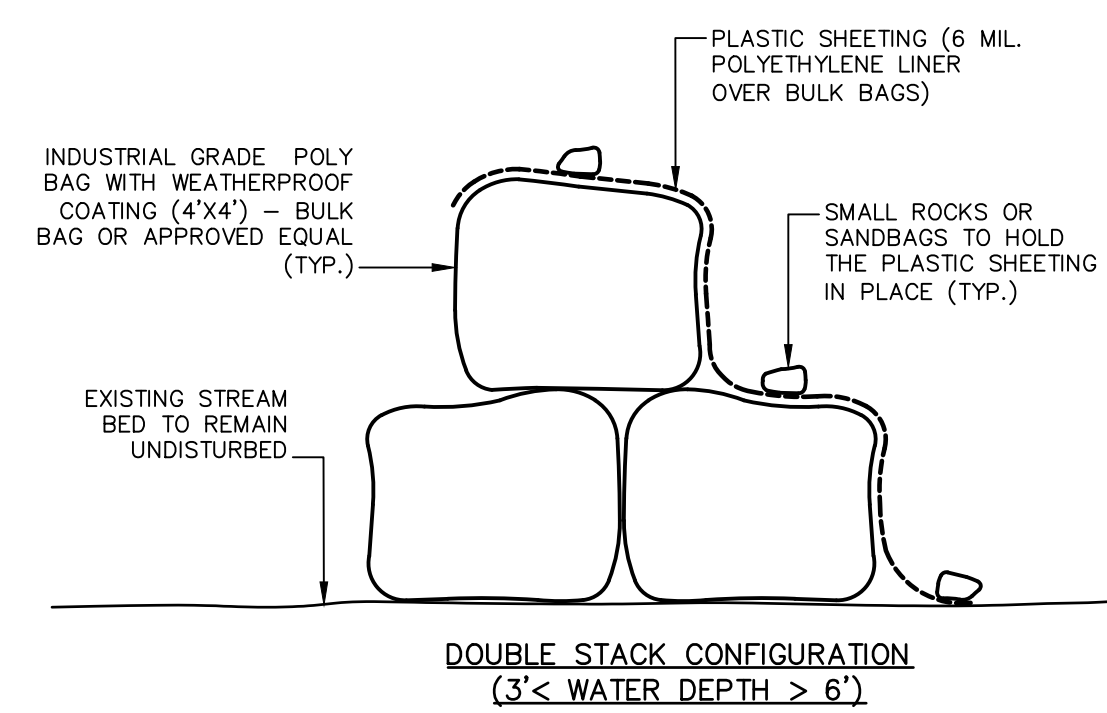
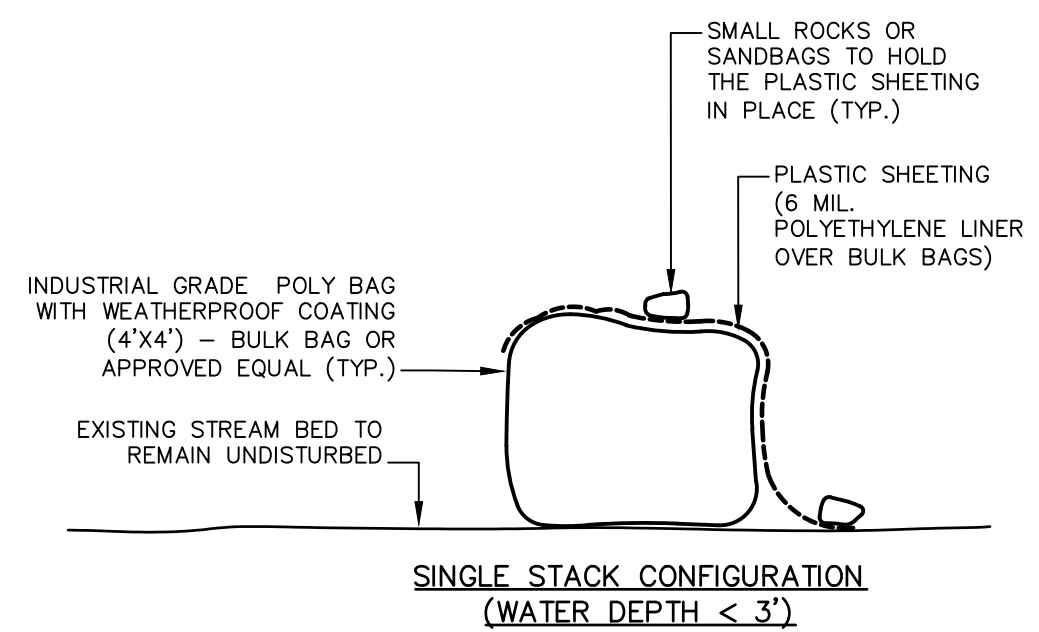
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SCALE:
 HORZ.: AS NOTED
 VERT.: N.A.
 DATUM:
 HORZ.:
 VERT.:
 GRAPHIC SCALE

f **FUSS & O'NEILL**
 1559 MAIN STREET, SUITE 400
 SPRINGFIELD, MA 01103
 413.452.0445
 www.fando.com

TOWN OF SOUTH HADLEY
 CONSTRUCTION DETAILS
 TITUS POND RESTORATION
 SOUTH HADLEY MASSACHUSETTS

PROJ. No.: 20170390.V50
 DATE: 05/01/2023
CD-501

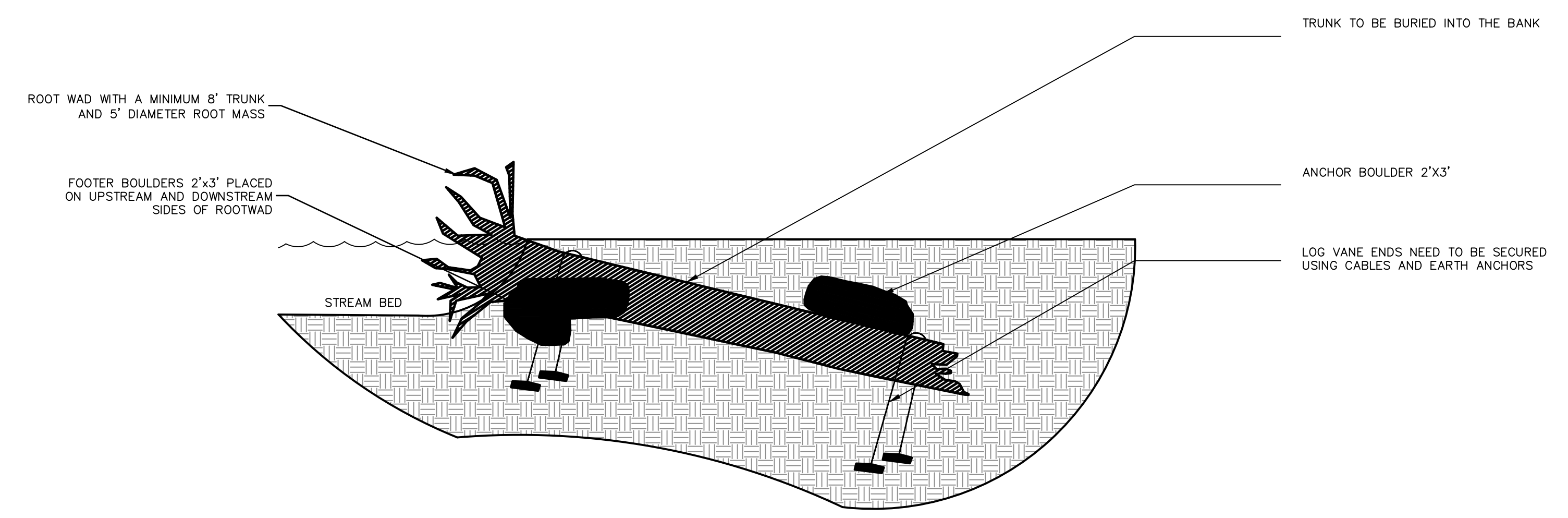


WATER CONTROL NOTES:

- TEMPORARY SANDBAGS SHALL CONSIST OF POLYPROPYLENE LARGE SANDBAGS, BULK BAGS OR APPROVED EQUAL, AND SHALL BE FILLED WITH SAND CONFORMING TO SUBSECTION M1.04.0 (TYPE B) OF THE MASSDOT STANDARD SPECIFICATIONS.
- INSTALL DURING PERIOD OF LOW-FLOW IN BROOK. MONITOR WATER CONTROL SYSTEM DAILY. PROMPTLY CORRECT SEEPAGE, BREAKAGE, OR OTHER EVIDENCE OF MOVEMENT TO ENSURE THAT TEMPORARY COFFERDAM(S) AND WATER BYPASS CONVEYANCES REMAIN STABLE AND FUNCTIONING AS INTENDED.
- MAINTAIN CRUSHED STONE AND PUMPS AS NECESSARY TO MAINTAIN DEWATERED CONDITIONS WITHIN COFFERDAMMED AREAS SUFFICIENT FOR COMPLETION OF WORK AND PLACEMENT PROPOSED MATERIALS UNDER SAFE, CONTROLLED CONDITIONS.
- REMOVE ALL SANDBAGS, ACCUMULATED SEDIMENT, AND OTHER COFFERDAM MATERIALS AFTER IN-RIVER CONSTRUCTION IN RESPECTIVE PHASE IS COMPLETE.

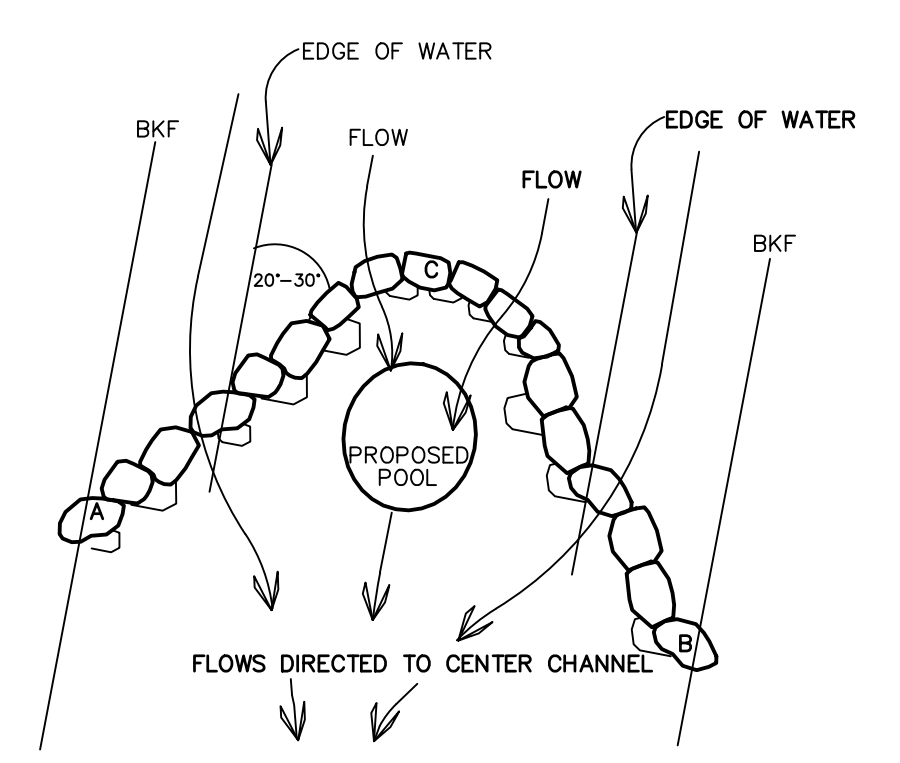
TEMPORARY LARGE SANDBAG COFFERDAM (BULK BAGS OR APPROVED EQUAL)

NOT TO SCALE



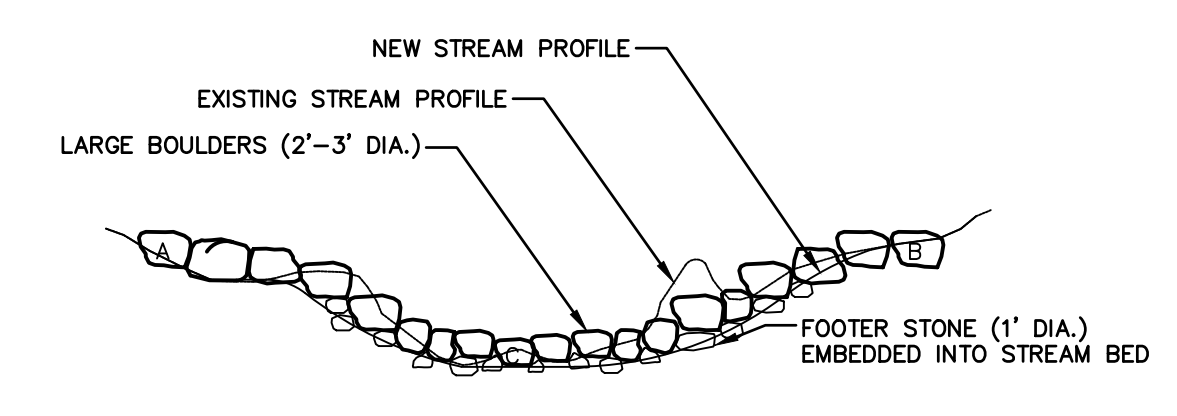
ROOTWAD

NOT TO SCALE



STONE CROSS VANE PLAN VIEW

NOT TO SCALE



STONE CROSS VANE SECTION

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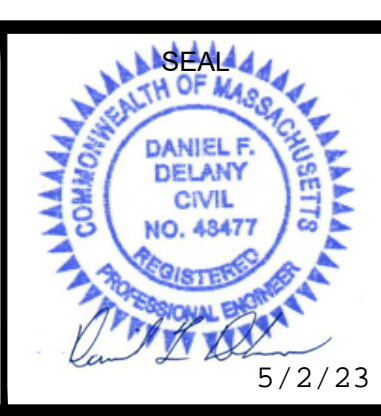
- GENERAL NOTES:
- THE PURPOSE OF THE CROSS VANE STRUCTURE IS TO INCREASE THE SPEED OF FUTURE FLOWS AND DIRECT FLOW TO THE CENTER OF THE CHANNEL, ALLOWING MORE SEDIMENT TO BE TRANSPORTED.
 - CROSS VANE TO BE CONSTRUCTED UNDER THE SUPERVISION OF PROJECT DESIGNER.
 - CROSS VANE TO BE CONSTRUCTED USING 2'-3' DIAMETER BOULDERS.
 - THE FOOTER STONE SHALL BE 1-2' DIAMETER BOULDERS.
 - FOOTER STONES ARE TO BE EMBEDDED IN THE STREAMBED AND LARGER BOULDERS TO BE PLACED ON TOP.
 - VANE SHALL RUN UPSTREAM AT A 20-30 DEGREE ANGLE FROM THE EDGE OF THE BANK.
 - A PLUNGE POOL SHALL BE CREATED WITHIN THE DOWNSTREAM CENTER OF THE CROSS VANE.

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SCALE:

HORIZ.: AS NOTED
VERT.: N.A.

DATUM:

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GRAPHIC SCALE

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TOWN OF SOUTH HADLEY

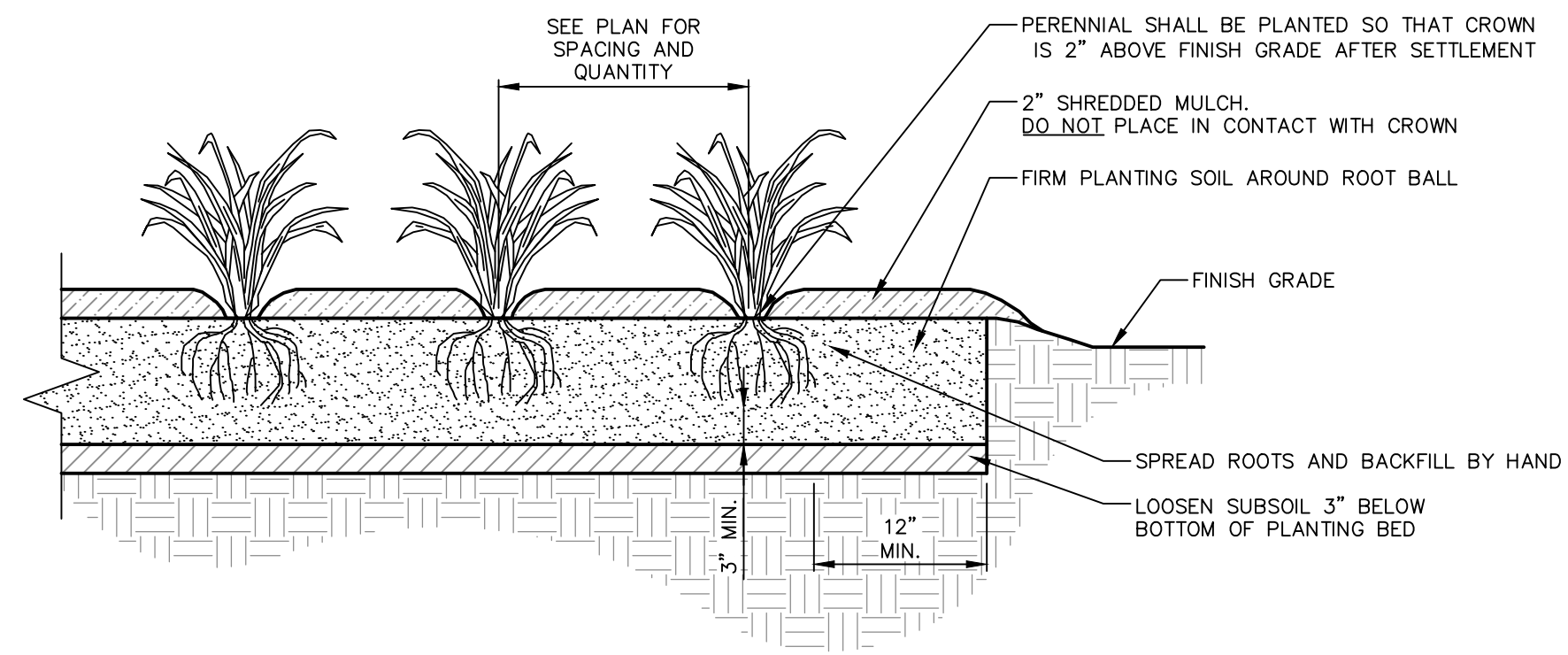
CONSTRUCTION DETAILS

TITUS POND RESTORATION

SOUTH HADLEY MASSACHUSETTS

PROJ. No.: 20170390.V50
DATE: 05/01/2023

CD-502



- NOTES:
1. SPADED PLANTING SOIL MIX SHALL BE PLACED 3" BELOW ROOT BALL AND BE MIXED WITH FERTILIZER. DO NOT COMPACT AFTER PLANTING.
 2. WATER THOROUGHLY AFTER PLANTING.
 3. PROVIDE WELL DRAINING SUBSOIL WHEN SOIL IS HEAVY OR COMPACTED.
 4. FOR CONTAINER GROWN PLANTS, USE FINGERS OR SMALL HAND TOOLS TO PULL THE ROOTS OUT OF THE OUTER LAYER OF POTTING SOIL; THEN CUT OR PULL APART ANY ROOTS CIRCLING THE PERIMETER OF THE CONTAINER.

PERENNIAL PLANT BED

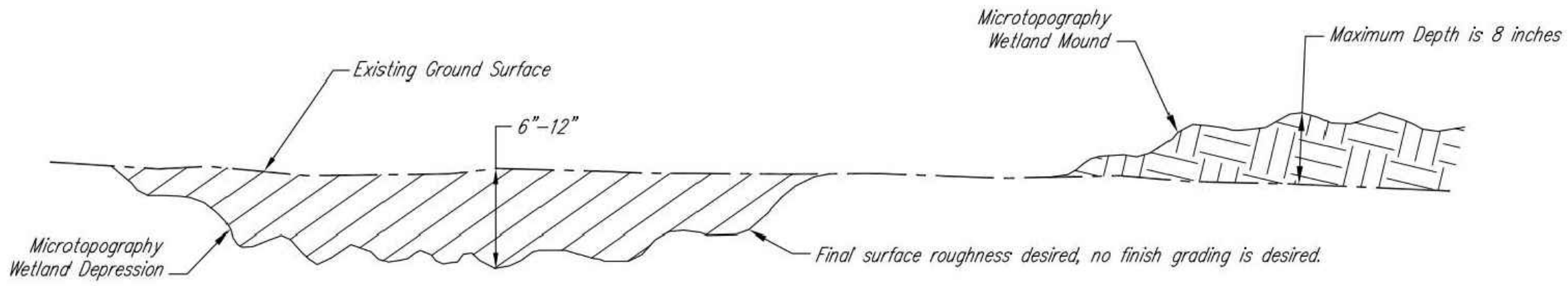
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4" LOAM & SEED
SEE EROSION CONTROL NOTES FOR PROCEDURES AND MIXTURES

LOAM & SEED DETAIL

NOT TO SCALE



- NOTES:
1. CUSTOMIZE SHAPES TO FIT EXISTING LANDSCAPE CONDITIONS IN A RANDOM ORDER. EXCAVATION AND MOUND AREAS ARE TO BE IRREGULAR IN SHAPE AND VARY IN DEPTH (SEE TYPICAL CROSS SECTION FOR EXAMPLE). LENGTH AND WIDTH RATIO OF DEPRESSION AND MOUND SHAPES SHALL NOT EXCEED 2:1.
 2. MINIMUM TOPSOIL DEPTH IN AREAS FOR MICROTOPOGRAPHY SHALL BE 8 INCHES. WHERE THERE IS INSUFFICIENT TOPSOIL, SALVAGING AND SPREADING WILL BE REQUIRED TO ENSURE A MINIMUM LAYER OF 2 INCHES TOPSOIL THROUGHOUT THE DEPRESSION.

TYPICAL MICROTOPOGRAPHY CROSS SECTION

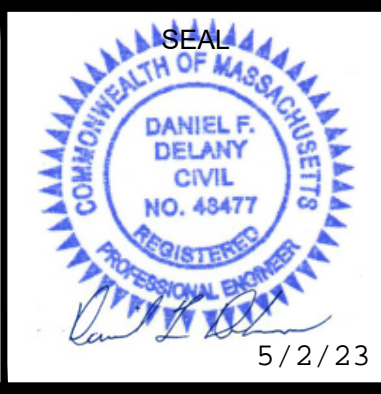
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TOWN OF SOUTH HADLEY
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