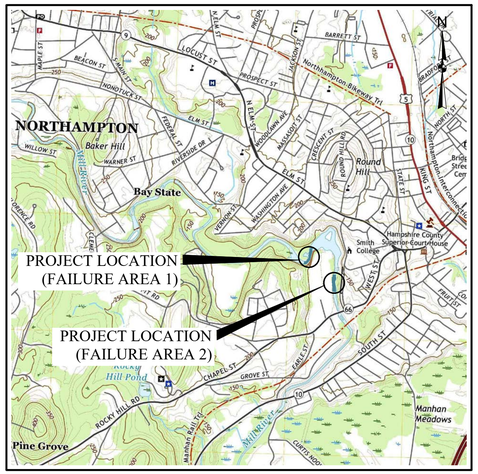
# MILL RIVER BANK REPAIR PROJECT

## SMITH COLLEGE

## NORTHAMPTON, MASSACHUSETTS

## OCTOBER, 2023






LOCUS PLAN
U.S.G.S. Easthampton MA Quad 2021
1" = 2000'

**PRELIMINARY DRAWING**
**TO ACCOMPANY PERMIT APPLICATIONS AND REVIEW**
**NOT FOR CONSTRUCTION**
**OCTOBER 2023**

REFERENCE NOTES:

1. THE BASE MAP WAS DEVELOPED FROM SEALED PLANS PROVIDED BY NORTHEAST SURVEY CONSULTANTS ENTITLED "PLAN OF LAND IN NORTHAMPTON, MA PREPARED FOR GZA GEOENVIRONMENTAL, INC. & SMITH COLLEGE", DATED 12-30-2019, SHEETS 1 - 2 OF 2.
2. VERTICAL COORDINATE BASE = N.A.V.D. 1988. HORIZONTAL COORDINATE BASE = MASSACHUSETTS STATE PLANE, N.A.D. 83 (MASS MAINLAND).
3. WETLAND FLAGS SERIES RA DELINEATION BY GZA GEOENVIRONMENTAL, INC., 10/22/2019.
4. WETLAND FLAGS SERIES WF FROM DIKE REPAIR PLAN, PARADISE POND DAM REPAIRS, PARE CORPORATION, AUGUST 3, 2012.
5. THE BASE MAP FOR AREAS ALONG PARADISE POND FROM THE BOAT RAMP TO NORTH OF THE LAMONT BRIDGE WERE DEVELOPED FROM DIKE REPAIR PLAN, PARADISE POND DAM REPAIRS, PARE CORPORATION, AUGUST 3, 2012.

## PREPARED FOR:

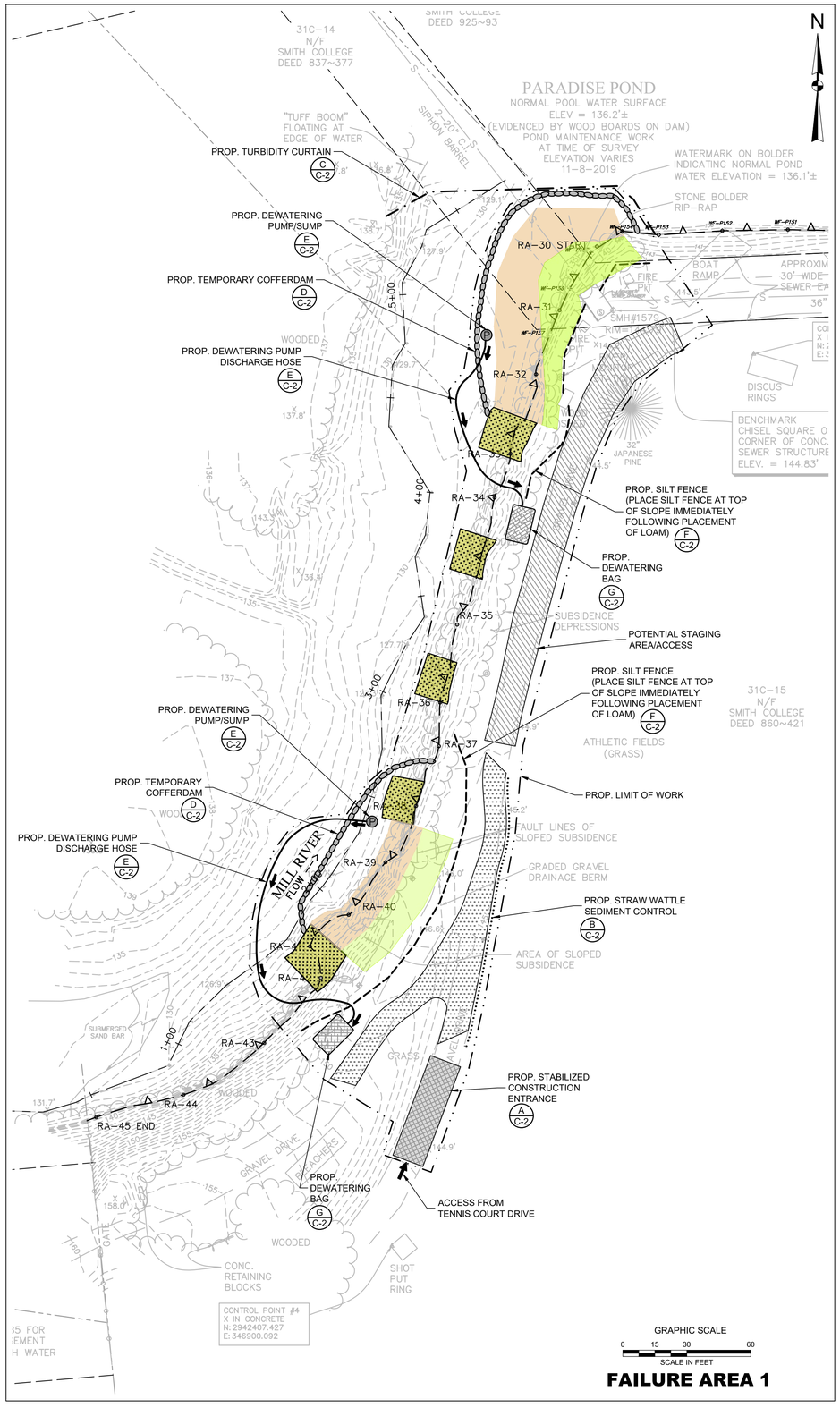
**Smith College Facilities Management**
126 West Street
Northampton, MA

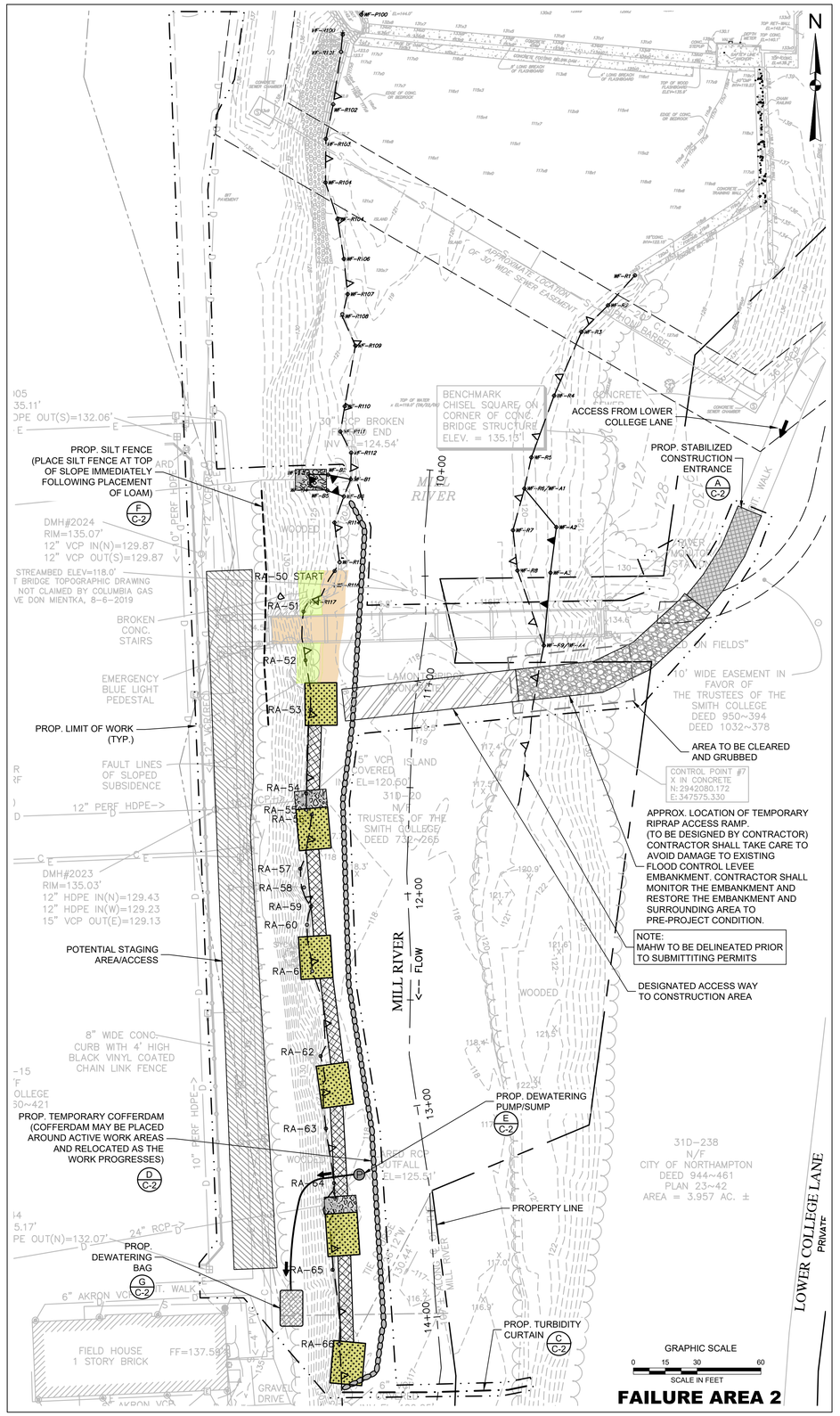
## SURVEYOR:

**Northeast Survey Consultants**
116 Pleasant Street, Suite 302
P.O. Box 109
Easthampton, MA 01027
413-203-5144

## DESIGNER:

**GZA GeoEnvironmental, Inc.**
**Engineers and Scientists**
ONE FINANCIAL PLAZA
1350 Main Street, Suite 1400
Springfield, MA 01103
413-726-2100




## LEGEND

- BORDERING VEGETATED WETLAND
- BANK/MEAN ANNUAL HIGH WATER/ORDINARY HIGH WATER
- RA-33 / WF-R5 — WETLAND FLAG (10/22/2019) / WETLAND FLAG (8/3/2012)
- EDGE OF WATER
- PROPERTY LINE
- INTERIOR PROPERTY LINE
- EASEMENT LINE
- 1 FT. CONTOUR
- 5 FT. CONTOUR
- SPOT GRADE
- GRAVEL ROAD
- CHAIN LINK FENCE
- STOCKADE FENCE
- D — DRAIN LINE
- S — SEWER LINE
- E — BURIED ELECTRIC LINE
- C — BURIED COMMUNICATION LINE
- G — GAS LINE
- TREE LINE
- TREE
- CATCH BASIN
- DRAIN MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRIC MANHOLE
- ELECTRIC BOX
- WATER GATE
- LIGHT POLE
- 2+00 — BASELINE (ASSUMED POINTS OF BEGINNING)
- LIMIT OF WORK
- 150 — PROPOSED CONTOUR
- PROPOSED STRAW WATTLE SEDIMENT CONTROL (B C-2)
- PROPOSED SILT FENCE (F C-2)
- PROPOSED TURBIDITY CURTAIN (C C-2)
- PROPOSED TEMPORAY COFFERDAM (D C-2)
- PROPOSED STABILIZED CONSTRUCTION ENTRANCE (A C-2)
- POTENTIAL STAGING AREA/ACCESS RAMP
- TEMPOARY RIPRAP ACCESS RAMP (DESIGNED BY CONTRACTOR)
- PROPOSED RELOCATED GRAVEL DRIVE (G C-6)
- PROPOSED LOG JAM (SEE DETAILS ON C-6)
- PROPOSED ROOTWAD BENCH BANK REPAIR (B C-6) (C C-6)
- PROPOSED OUTFALL REPAIR AREA (E C-6)
- STONE SLOPE PROTECTION VEGETATED ABOVE MAHWL (F C-6)
- STONE SLOPE PROTECTION – NO VEGETATION

# PRELIMINARY DRAWING

## TO ACCOMPANY PERMIT APPLICATIONS AND REVIEW
## NOT FOR CONSTRUCTION
## OCTOBER 2023

| NO. | ISSUE/DESCRIPTION | BY | DATE |
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| | | | |



MILL RIVER BANK REPAIR PROJECT
SMITH COLLEGE
NORTHAMPTON, MA

**SITE ACCESS, EROSION & SEDIMENT CONTROL, AND WATER CONTROL PLAN**

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
SMITH COLLEGE
FACILITIES MANAGEMENT
126 WEST STREET
NORTHAMPTON, MA

| | | | |
|---|---|---|---|
| PROJ MGR: RTS | REVIEWED BY: NLR | CHECKED BY: SLL | DRAWING C-1 |
| DESIGNED BY: RTS | DRAWN BY: EDM | SCALE: 1"=30' | |
| DATE: OCTOBER, 2023 | PROJECT NO. 15.0166791.01 | REVISION NO. - | |

## SEDIMENT AND EROSION CONTROL NOTES

1. DURING ANY IN-STREAM WORK, FLOATING TURBIDITY CURTAINS SHALL BE DEPLOYED ALONG THE LIMIT OF WORK IN THE ACTIVE WORK AREA AND DOWNSTREAM OF THE SECTION UNDERGOING ACTIVE CONSTRUCTION. THE TURBIDITY CURTAIN ALONG THE LIMIT OF WORK CAN BE SECURED TO VERTICAL PILES AND MOVED AS NEEDED AS CONSTRUCTION PROGRESSES.

2. THE CONTRACTOR SHALL CONSTRUCT ALL EROSION AND SEDIMENT CONTROL MEASURES PER THE SPECIFICATIONS AND THE SEDIMENT AND EROSION CONTROL PLAN PRIOR TO BEGINNING ANY OTHER LAND DISTURBANCES, SHALL ENSURE THAT ALL RUNOFF FROM DISTURBED AREAS IS DIRECTED TO THE SEDIMENT CONTROL DEVICES, AND SHALL NOT REMOVE ANY EROSION OR SEDIMENT CONTROL MEASURES UNTIL THE AREAS DRAINING TO THEM ARE STABILIZED. THE CONTRACTOR SHALL INSPECT DAILY AND MAINTAIN CONTINUOUSLY IN EFFECTIVE OPERATING CONDITION ALL EROSION AND SEDIMENT CONTROL MEASURES UNTIL SUCH TIME AS THEY ARE REMOVED. CONDUCT INSPECTIONS AND REPORTING IN ACCORDANCE WITH ALL PERMITS.

3. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE CONTRACTOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES (BMPS) TO ELIMINATE THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION. THE CONTRACTOR SHALL INSTALL AND MAINTAIN, AT NO ADDITIONAL COST TO THE OWNER, ANY ADDITIONAL EROSION CONTROL MEASURES DEEMED NECESSARY FOR PERMIT COMPLIANCE BY THE CONTRACTOR, THE OWNER AND/OR THEIR REPRESENTATIVES, OR BY FEDERAL/STATE/LOCAL GOVERNMENT INSPECTORS.

4. ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH APPLICABLE PUBLISHED STANDARDS AND SPECIFICATIONS AND THE "MASSACHUSETTS EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS: A GUIDE FOR PLANNERS, DESIGNERS, AND MUNICIPAL OFFICIALS" (MA DEP, MAY 2003).

5. CONSTRUCTION ENTRANCE(S) SHALL BE INSTALLED CONCURRENTLY WITH THE INITIATION OF CLEARING AND GRUBBING OPERATIONS. THE CONTRACTOR SHALL PROTECT ALL POINTS OF CONSTRUCTION INGRESS AND EGRESS TO PREVENT THE DEPOSITION OF MATERIALS ONTO TRAVERSED PUBLIC THOROUGHFARES. ALL MATERIALS DEPOSITED ONTO PUBLIC THOROUGHFARES SHALL BE REMOVED IMMEDIATELY. ANTI-TRACKING PADS (CONSTRUCTION ENTRANCES) SHALL BE INSTALLED AS DETAILED ON THE DRAWINGS, AT NO ADDITIONAL COST TO THE OWNER, WHERE DEEMED NECESSARY BY THE ENGINEER TO PREVENT THE TRACKING OF MUD, SEDIMENTS, SOIL, OR DEBRIS ONTO THE PUBLIC WAYS OR ONTO SURFACES UNPROTECTED BY DOWNGRADIENT EROSION AND SEDIMENTATION CONTROLS.

6. ALL DISTURBED AREAS SHALL BE RESTORED IN ACCORDANCE WITH THE SPECIFICATIONS AND THE REQUIREMENTS OF THE U.S. EPA'S NPDES "GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION SITES". NO AREAS OUTSIDE OF THE PERIMETER SEDIMENT CONTROL BARRIER OR LIMIT OF WORK SHALL BE DISTURBED.

7. ALL STOCKPILES OF SOIL OR AGGREGATE MATERIALS SHALL BE ENCIRCLED BY A PERIMETER EROSION CONTROL BARRIER. STOCKPILES WHICH HAVE NOT BEEN USED FOR 14 CALENDAR DAYS SHALL BE STABILIZED THROUGH THE APPLICATION OF SOD, SEED AND ANCHORED STRAW MULCH, OR OTHER APPROVED STABILIZATION MEASURES.

8. EFFLUENT FROM DEWATERING OPERATIONS SHALL BE DIRECTED INTO FIBER MATS, NETTING, RIPRAP, OR NATURALLY OCCURRING GROUND COVER TO MINIMIZE EROSION. EFFLUENT FROM DEWATERING OPERATIONS SHALL BE PUMPED EITHER TO SEDIMENT TANKS, SEDIMENT BAGS, AND/OR SEDIMENT TRAPS FOR SEDIMENT REMOVAL. DEWATERING SHALL BE PERFORMED IN ACCORDANCE WITH THE "MASSACHUSETTS EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS: A GUIDE FOR PLANNERS, DESIGNERS, AND MUNICIPAL OFFICIALS" AND IN A MANNER THAT DOES NOT ADVERSELY AFFECT AREAS OUTSIDE OF THE LIMIT OF WORK.

9. TEMPORARY SEDIMENT TRAP(S) SHALL BE CLEANED OUT AND RESTORED TO ORIGINAL DIMENSIONS WHEN SEDIMENT HAS ACCUMULATED TO A POINT ONE HALF (1/2) THE DEPTH BETWEEN THE OUTLET CREST AND THE BOTTOM OF THE TRAP.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL OF DUST AND DIRT RISING AND SCATTERING IN THE AIR DURING CONSTRUCTION AND SHALL PROVIDE WATER SPRINKLING, CALCIUM CHLORIDE, OR OTHER EFFECTIVE MEANS OF CONTROL.

11. ALL WASTE MATERIALS GENERATED AT THE SITE SHALL BE IMMEDIATELY REMOVED AND DISPOSED OF OR STORED IN A SECURELY-COVERED CONTAINER IN ACCORDANCE WITH LOCAL AND STATE REGULATIONS. CONTAINER SHALL BE EMPTIED ON A REGULAR BASIS AND AS NECESSARY. NO CONSTRUCTION WASTE, SLASH, OR DEBRIS SHALL BE BURIED ONSITE.

12. PERMANENT SWALES OR OTHER POINTS OF CONCENTRATED WATER FLOW SHALL BE STABILIZED WITH SOD OR SEED AND WITH AN APPROVED EROSION CONTROL MATTING OR BY OTHER APPROVED STABILIZATION MEASURES.

13. FOR FINISHED GRADING, THE CONTRACTOR SHALL PROVIDE ADEQUATE GRADIENTS SO AS TO PREVENT WATER FROM STANDING ON THE SURFACE OF LAWNS MORE THAN 24 HOURS AFTER THE END OF A RAINFALL, EXCEPT IN DESIGNATED DRAINAGE COURSES AND SWALE FLOW AREAS WHICH MAY DRAIN AS LONG AS 48 HOURS AFTER THE END OF A RAINFALL, AND PROVIDE POSITIVE DRAINAGE AWAY FROM ALL BUILDING FOUNDATIONS OR OPENINGS.

14. PRIOR TO REMOVAL OF SEDIMENT CONTROL MEASURES THE CONTRACTOR SHALL STABILIZE ALL CONTRIBUTORY DISTURBED AREAS USING THE SPECIFIED SEED MIXTURE, SOIL AMENDMENTS, AND THE APPLICATION OF A STAPLED EROSION CONTROL BLANKET AS SPECIFIED. IN ADDITION TO THE SPECIFIC REQUIREMENTS FOR THE RESTORATION OF DISTURBED AREAS AS FOUND IN THE SPECIFICATIONS, AREAS BROUGHT TO FINISHED GRADE DURING THE SEEDING SEASON SHALL BE PERMANENTLY STABILIZED WITHIN 14 CALENDAR DAYS OF ESTABLISHMENT. WHEN PROPERTY IS BROUGHT TO FINISHED GRADE DURING THE MONTHS WHEN PERMANENT STABILIZATION IS FOUND TO BE IMPRACTICAL, AN APPROVED TEMPORARY SEED AND STRAW ANCHORED MULCH OR OTHER ACCEPTABLE MEANS SHALL BE APPLIED TO DISTURBED AREAS.

15. TEMPORARY SEDIMENT CONTROL DEVICES SHALL BE REMOVED WITHIN (30) CALENDAR DAYS FOLLOWING ESTABLISHMENT OF PERMANENT STABILIZATION (HEALTHY STAND OF ACCEPTABLE GRASS OR SURFACE PAVING) IN ALL CONTRIBUTORY DRAINAGE AREAS. STORMWATER MANAGEMENT STRUCTURES USED TEMPORARILY FOR SEDIMENT CONTROL SHALL BE CLEANED AND CONVERTED TO THEIR PERMANENT CONFIGURATION WITHIN THIS TIME PERIOD AS WELL. ALL STORM DRAINAGE STRUCTURES, SUMPS, AND PIPES SHALL BE CLEANED OF ALL SEDIMENTS PRIOR TO FINAL PAYMENT.

16. THESE SEDIMENT AND EROSION CONTROL NOTES WERE DEVELOPED TO ADDRESS THE REQUIREMENTS OF THE U.S. EPA'S NPDES "GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION SITES". THE SPECIFICATIONS CONTAIN MANY REQUIREMENTS RELATIVE TO SEDIMENTATION AND EROSION CONTROL AND RESTORATION OF DISTURBED AREAS THAT ARE MORE STRINGENT THAN THE REQUIREMENTS OF THE GENERAL PERMIT. IN SUCH CASES, THE MORE STRINGENT REQUIREMENT SHALL GOVERN THE WORK OF THIS CONTRACT.

## STORMWATER PERMIT NOTES:

1. THIS PROJECT IS REGULATED UNDER THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY'S (EPA'S) NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORMWATER PERMIT PROGRAM. OPERATORS OF SUCH CONSTRUCTION SITES MUST MEET THE REQUIREMENTS OF EPA'S CONSTRUCTION GENERAL PERMIT (CGP). PART OF THE CGP REQUIREMENTS IS THE PREPARATION OF A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FOR THE PROPOSED PROJECT. A SWPPP HAS BEEN PREPARED FOR THIS PROJECT AND WILL BE PROVIDED TO THE CONTRACTOR BY THE OWNER.

2. UNDER THE CONTRACT FOR THE CONSTRUCTION OF THIS PROJECT, THE CONTRACTOR SHALL BE THE OWNER'S AGENT IN THE IMPLEMENTATION AND MAINTENANCE OF THE SWPPP.

3. TO OBTAIN COVERAGE UNDER THE CONSTRUCTION GENERAL PERMIT (CGP), A COMPLETE AND ACCURATE NOTICE OF INTENT (NOI) SHALL BE SUBMITTED TO THE ENVIRONMENTAL PROTECTION AGENCY (EPA) BY THE OWNER AND EACH CONTRACTOR AND SUBCONTRACTOR THAT HAS OPERATIONAL CONTROL OVER THE CONSTRUCTION PLANS AND/OR SPECIFICATIONS.

4. EACH PARTY THAT HAS OPERATIONAL CONTROL OVER THE CONSTRUCTION PLANS AND/OR SPECIFICATIONS IS CONSIDERED AN OPERATOR, AND SHALL ALSO SIGN THE CERTIFICATION FORM INCLUDED IN THE SWPPP.

5. EACH OPERATOR IS EQUALLY RESPONSIBLE FOR COMPLYING WITH THE TERMS OF THE CGP AND FOR THE EFFECTIVE IMPLEMENTATION OF THE SWPPP. EACH OPERATOR SHALL AMEND THE SWPPP AS SITE CONDITIONS WARRANT TO MEET REQUIRED PERMIT ELEMENTS. ALL PARTIES SHALL ALSO MAINTAIN THE SWPPP DOCUMENT, CONDUCT INSPECTIONS, UPGRADE AND MAINTAIN SEDIMENT AND EROSION CONTROLS AS NEEDED, AND MEET ALL NOTICE OF INTENT (NOI) / NOTICE OF TERMINATION (NOT) REQUIREMENTS.

6. IMPLEMENTATION OF THE SWPPP BY THE CONTRACTOR SHALL BEGIN AT THE COMMENCEMENT OF CONSTRUCTION ACTIVITY AND MUST BE FULLY AND CONTINUALLY DOCUMENTED UNTIL FINAL STABILIZATION OF THE SITE IS COMPLETE.

7. A SIGN SHALL BE VISIBLY POSTED AT THE SITE WHICH PROVIDES NOTICE OF THE CGP, A COPY OF EACH NOI, A CONTACT NAME AND PHONE NUMBER, AND THE ONSITE LOCATION WHERE THE SWPPP IS STORED. IF THE SWPPP IS TO BE MAINTAINED OFFSITE, THIS LOCATION MUST BE INDICATED AS WELL. IT IS THE RESPONSIBILITY OF THE OWNER, CONTRACTOR, AND ALL APPLICABLE SUB-CONTRACTORS TO INDICATE CONSTRUCTION ACTIVITY SEQUENCING AND TIMING IN THE SWPPP.

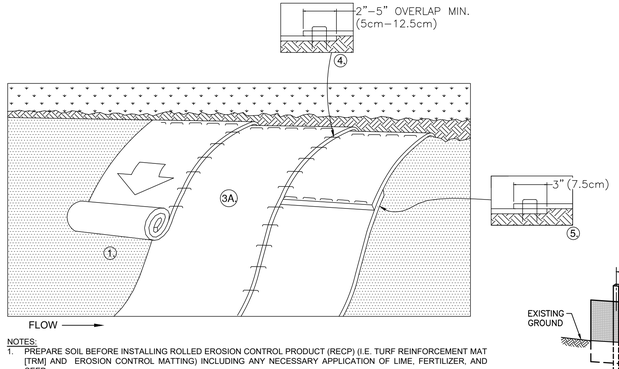
8. INSPECTION AND MAINTENANCE SHALL BE PERFORMED REGULARLY FOR PERMIT COMPLIANCE, AND DOCUMENTATION OF INSPECTIONS AND MAINTENANCE SHALL BE APPENDED TO THE SWPPP.

9. WHENEVER THERE IS A CHANGE IN DESIGN, CONSTRUCTION OPERATION, OR MAINTENANCE AT THE CONSTRUCTION SITE THAT HAS, OR COULD HAVE, A SIGNIFICANT EFFECT ON THE DISCHARGE OF STORM WATER POLLUTANTS, THE SWPPP SHALL BE AMENDED.

10. CONTRACTOR SHALL IDENTIFY THE LOCATIONS OF THE FOLLOWING ON THE S&EC OR PROJECT PLANS:
    a. PORTABLE SANITARY UNITS (TOILETS)
    b. FUEL TANKS
    c. LIMITS OF STAGING AREAS & SOIL DISTURBANCE AREAS
    d. WASTE CONTAINERS (E.G., DUMPSTERS)
    e. CHEMICAL, MATERIAL, EQUIPMENT, & VEHICLE STORAGE AREAS
    f. CONCRETE WASHOUT AREA
    g. SOIL STOCKPILES & CONTROLS
    h. VEHICLE/EQUIPMENT MAINTENANCE AND WASHING AREAS.

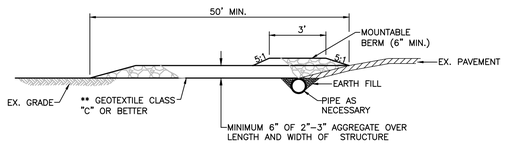
11. IF ADDITIONAL CONTROLS OR BMPS ARE ADDED, THESE SHALL BE DEPICTED ON THE S&EC OR PROJECT PLANS AND A DESCRIPTION ADDED TO THE SWPPP. THESE NEW CONTROLS SHALL BE ADDED TO THE WEEKLY INSPECTIONS AS WELL. CONTRACTOR SHALL IDENTIFY ON THE S&EC PLANS ALL AREAS THAT HAVE UNDERGONE FINAL STABILIZATION.

12. UPON FINAL STABILIZATION, A NOTICE OF TERMINATION (NOT) SHALL BE SUBMITTED TO THE EPA BY ALL OPERATORS WHO COMPLETED A NOI.




NOTES:
1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCT (RECP) (I.E. TURF REINFORCEMENT MAT [TRM] AND EROSION CONTROL MATTING) INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECP's IN A 12" (30 CM) DEEP X 12" (30 CM) WIDE TRENCH WITH APPROXIMATELY 18" (45cm) OF RECP's EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP's WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 18" (45 CM) 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" (30 CM) APART ACROSS THE WIDTH OF THE RECP's.
3. ROLL THE RECP's DOWN 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.
4. RECP's SHOULD BE INSTALLED DOWNSTREAM FIRST AND PROGRESS UPSTREAM SO PARALLEL EDGES OF RECP's OVERLAP CREATING A SHINGLE-TYPE ARRANGEMENT (SO WATER MAY FLOW OVER THE MATERIAL WITHOUT UNDERMINING IT). THE EDGES OF OF PARALLEL RECP's MUST BE STAPLED WITH APPROXIMATELY 2"-5" (5 CM - 12.5 CM) OVERLAP DEPENDING ON RECP's TYPE.
5. CONSECUTIVE RECP's SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5 CM) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30 CM) APART ACROSS ENTIRE RECP's WIDTH.
6. IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY SECURE THE RECP's.
7. AFTER TURF REINFORCEMENT MATTING HAS BEEN INSTALLED WORK AN ADDITIONAL THIN LAYER (3" TO 4") OF TOPSOIL INTO THE MATRIX FOLLOWED BY OVERSEEDING AND WATERING TO PROMOTE HEALTHY VEGETATIVE GROWTH.

J C-2 EROSION CONTROL MATTING
NTS

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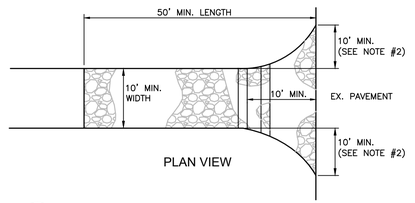
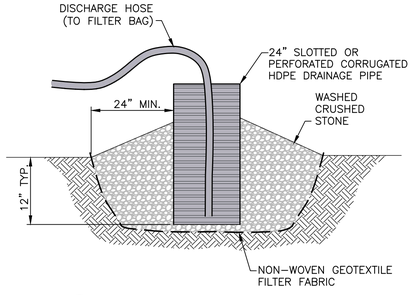



PLAN VIEW

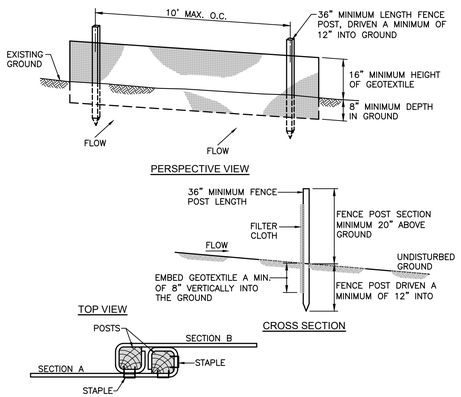
A C-2 STABILIZED CONSTRUCTION ENTRANCE
NTS

### STABILIZED CONSTRUCTION ENTRANCE SPECIFICATIONS

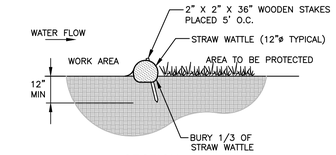
1. LENGTH – MINIMUM OF 50'.
2. WIDTH – 10' MINIMUM, SHOULD BE FLARED AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
3. GEOTEXTILE FABRIC (FILTER CLOTH) SHALL BE PLACED OVER THE EXISTING GROUND PRIOR TO PLACING STONE.
4. STONE – CRUSHED AGGREGATE (2" TO 3") OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT SHALL BE PLACED AT LEAST 6" DEEP OVER THE LENGTH AND WIDTH OF THE ENTRANCE.
5. SURFACE WATER – ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED THROUGH THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PIPE INSTALLED THROUGH THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE PROTECTED WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 6" OF STONE OVER THE PIPE. PIPE HAS TO BE SIZED ACCORDING TO THE DRAINAGE. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY A PIPE WILL NOT BE NECESSARY. PIPE SHOULD BE SIZED ACCORDING TO THE AMOUNT OF RUNOFF TO BE CONVEYED. A 6" MINIMUM DIAMETER PIPE WILL BE REQUIRED.
6. LOCATION – A STABILIZED CONSTRUCTION ENTRANCE SHALL BE LOCATED AT EVERY POINT WHERE CONSTRUCTION TRAFFIC ENTERS OR LEAVES A CONSTRUCTION SITE. VEHICLES LEAVING THE SITE MUST TRAVEL OVER THE ENTIRE LENGTH OF THE STABILIZED CONSTRUCTION ENTRANCE.




E C-2 DEWATERING SUMP DETAIL
NTS




F C-2 SILT FENCE
NTS

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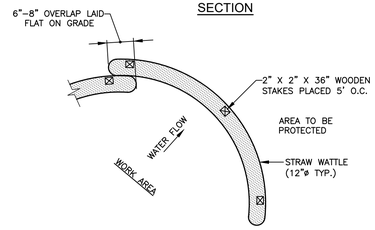
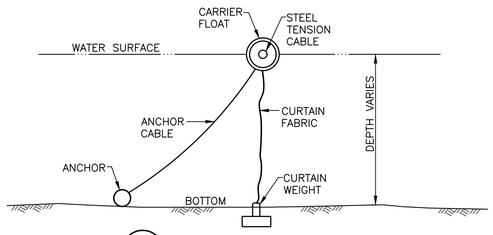
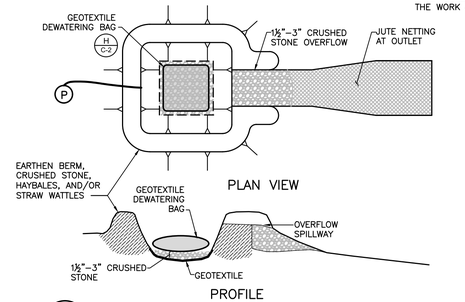



PLAN

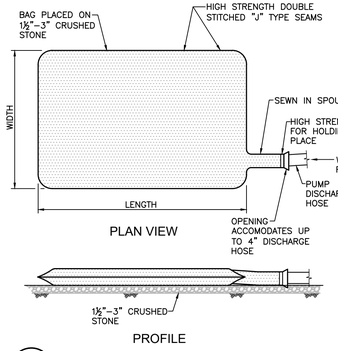
B C-2 STRAW WATTLE FOR SEDIMENT CONTROL
NTS



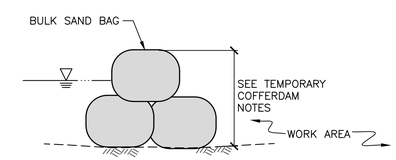

C C-2 TURBIDITY CURTAIN
NTS




G C-2 TEMPORARY DEWATERING FILTER BASIN
NTS




H C-2 GEOTEXTILE DEWATERING BAG
(OR EQUAL)
NTS




NOTE: COFFERDAM SHALL BE DESIGNED BY CONTRACTOR

D C-2 SCHEMATIC COFFERDAM DETAIL
NTS

### TEMPORARY COFFERDAM NOTES:

1. THE TEMPORARY COFFERDAMS SHALL BE PLACED SO AS NOT TO INTERFERE WITH THE OTHER COMPONENTS OF THE WORK. THE FINAL ALIGNMENT OF THE TEMPORARY COFFERDAMS SHALL BE DETERMINED BY THE CONTRACTOR, PROVIDED IT DOES NOT EXCEED THE LIMITS OF CONSTRUCTION SHOWN ON THE CONTRACT DRAWINGS.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE REQUIRED HEIGHT OF THE TEMPORARY COFFERDAM. HOWEVER, IN NO CASE SHALL THE TEMPORARY COFFERDAM BE OF SUCH CONSTRUCTION AS TO CAUSE OR CONTRIBUTE TO FLOODING OR FLOODING DAMAGES SHOULD THE REQUIRED BYPASS FLOW BE EXCEEDED AND THE ACTIVE WORK AREAS OR THE TEMPORARY COFFERDAM BE INUNDATED BY HIGH FLOW CONDITIONS IN MILL RIVER.
3. THE TEMPORARY COFFERDAMS SHALL BE DESIGNED FOR ALL EXPECTED SITE SPECIFIC CONDITIONS, INCLUDING, BUT NOT LIMITED TO: VARIATIONS IN RIVER LEVEL AND FLOW RATE, BOTTOM CONDITIONS AND SITE BATHYMETRY/TOPOGRAPHY.
4. IN THE EVENT OF THE WATER LEVEL IN MILL RIVER RISING HIGHER THAN THE LIMITS OF THE COFFERDAM DURING THE PERFORMANCE OF THE WORK, THE CONTRACTOR SHALL UNDERTAKE MEASURES TO PROTECT EXISTING STRUCTURES, NEW WORK, AND UPSTREAM AND DOWNSTREAM AREAS.
5. THE TEMPORARY COFFERDAM SYSTEM SHALL BE DESIGNED TO ACCOMMODATE ICE LOADING IF THE COFFERDAM IS EXPECTED TO BE IN PLACE DURING THE WINTER SEASON WHEN ICE WILL BE PRESENT.
6. INITIAL AND ONGOING DEWATERING WITHIN THE COFFERDAMS, AS WELL AS SEEPAGE CONTROL MEASURES SHALL BE PROVIDED BY THE CONTRACTOR'S TEMPORARY WATER CONTROL, WHICH SHALL BE SPECIFICALLY DESIGNED AND IMPLEMENTED BY THE CONTRACTOR TO WORK WITH THE CONTRACTOR'S TEMPORARY COFFERDAM SYSTEMS TO KEEP THE WORK AREA DRY AND STABLE.
7. WATER CONTROL SYSTEMS SHALL BE SIZED TO ACCOMMODATE THE EXPECTED LEAKAGE THROUGH AND SEEPAGE UNDER THE COFFERDAM. THE CONTRACTOR SHALL HAVE SOLE RESPONSIBILITY FOR WATER CONTROL WITHIN THE WORK AREAS.

**PRELIMINARY DRAWING**
**TO ACCOMPANY PERMIT APPLICATIONS AND REVIEW**
**NOT FOR CONSTRUCTION**
**OCTOBER 2023**

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MILL RIVER BANK REPAIR PROJECT
SMITH COLLEGE
NORTHAMPTON, MA

**EROSION & SEDIMENT CONTROL NOTES AND DETAILS**

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|---|---|---|---|
| PROJ MGR: RTS | REVIEWED BY: NLR | CHECKED BY: SLL | DRAWING C-2 |
| DESIGNED BY: RTS | DRAWN BY: EDM | SCALE: AS NOTED | |
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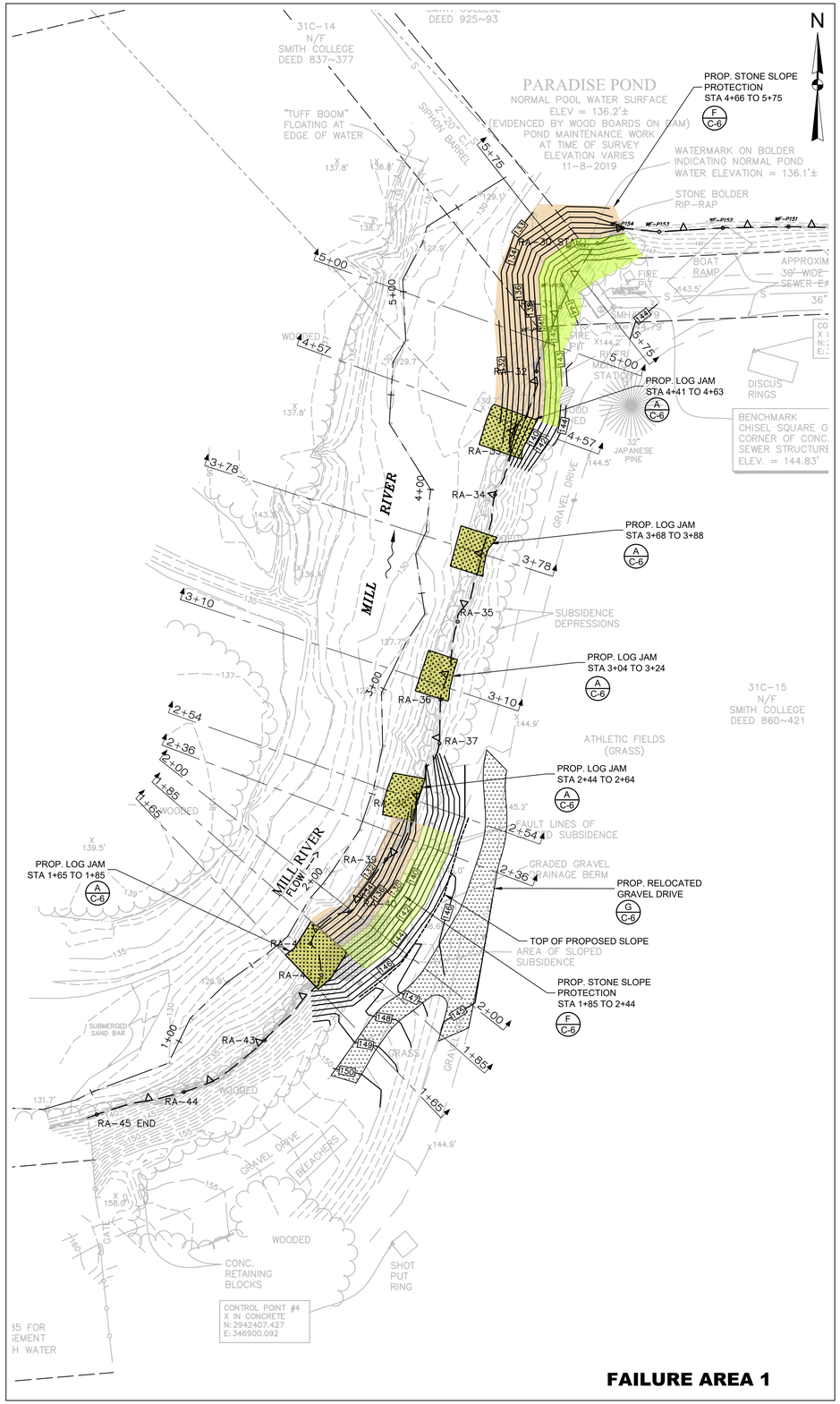


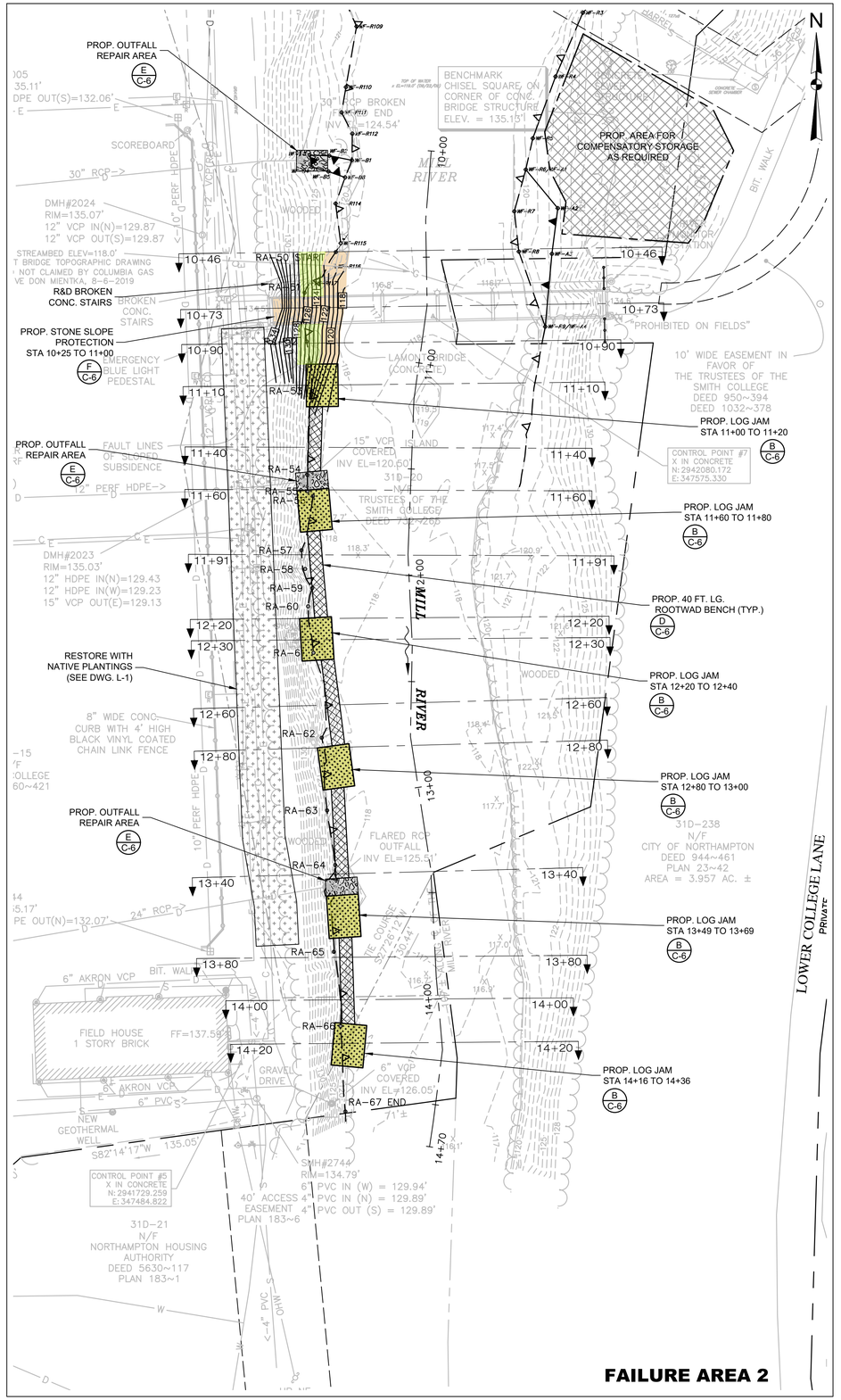


LEGEND

- BORDERING VEGETATED WETLAND
- BANK/MEAN ANNUAL HIGH WATER/ORDINARY HIGH WATER
- RA-33 WETLAND FLAG (10/22/2019)
- WF-R5 WETLAND FLAG (8/3/2012)
- EDGE OF WATER
- PROPERTY LINE
- EASEMENT LINE
- 1 FT. CONTOUR
- 5 FT. CONTOUR
- 127.3 SPOT GRADE
- GRAVEL ROAD
- CHAIN LINK FENCE
- STOCKADE FENCE
- D DRAIN LINE
- S SEWER LINE
- E BURIED ELECTRIC LINE
- C BURIED COMMUNICATION LINE
- G GAS LINE
- TREE LINE
- TREE
- CATCH BASIN
- DRAIN MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRIC MANHOLE
- ELECTRIC BOX
- WATER GATE
- LIGHT POLE
- 2+00 BASELINE (ASSUMED POINTS OF BEGINNING)
- 1+47 1+47 CROSS-SECTION (SEE DRAWINGS C-4 & C-5)
- 1.50 PROPOSED CONTOUR
- PROPOSED RELOCATED GRAVEL DRIVE G C-6
- PROPOSED LOG JAM (SEE DETAILS ON C-6)
- PROPOSED ROOTWAD BENCH BANK REPAIR B C-6 C C-6
- PROPOSED OUTFALL REPAIR AREA E C-6
- PROPOSED NATIVE PLANTINGS AREA (SEE DWG. L-1)
- PROPOSED AREA FOR COMPENSATORY STORAGE
- STONE SLOPE PROTECTION VEGETATED ABOVE MAHWL F C-6
- STONE SLOPE PROTECTION – NO VEGETATION

# PRELIMINARY DRAWING

**TO ACCOMPANY PERMIT APPLICATIONS AND REVIEW**
**NOT FOR CONSTRUCTION**
**OCTOBER 2023**

GRAPHIC SCALE
0 15 30 60
SCALE IN FEET

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MILL RIVER BANK REPAIR PROJECT
SMITH COLLEGE
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## PROPOSED LAYOUT PLAN BANK REPAIRS

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| DESIGNED BY: RTS | DRAWN BY: EDM | SCALE: 1"=30' | |
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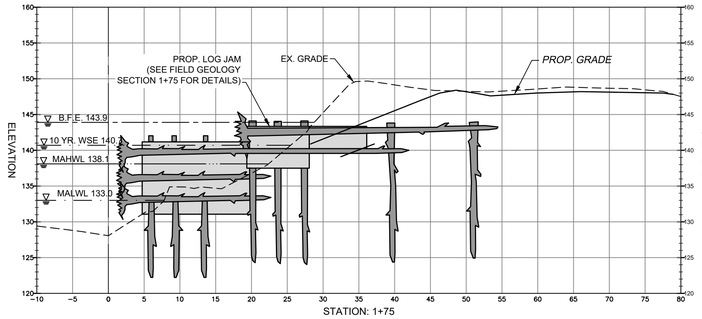
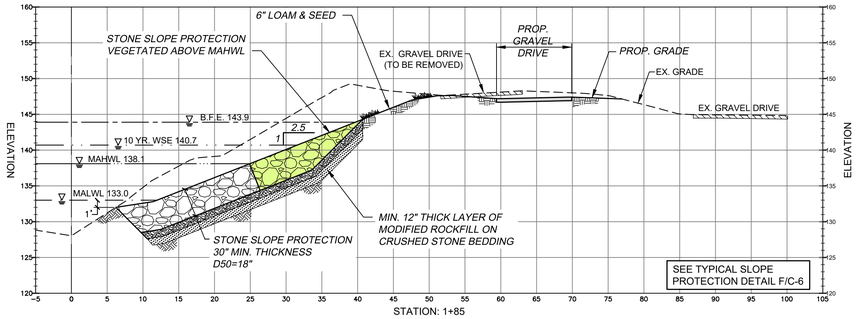
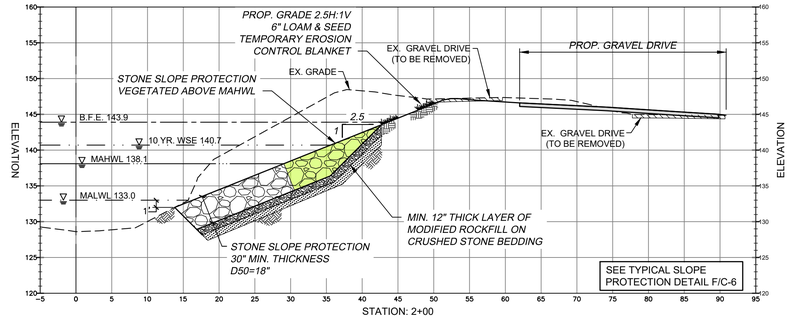
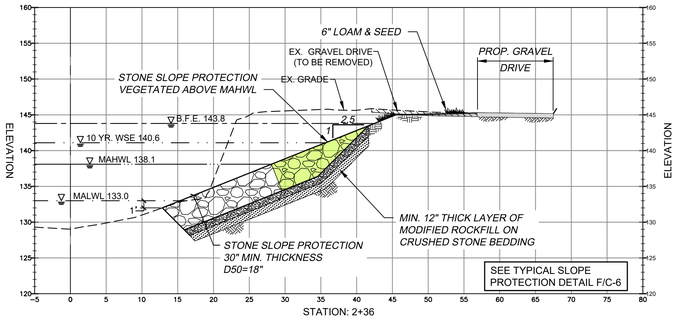
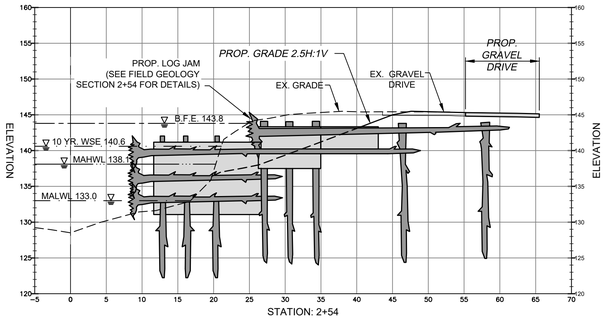
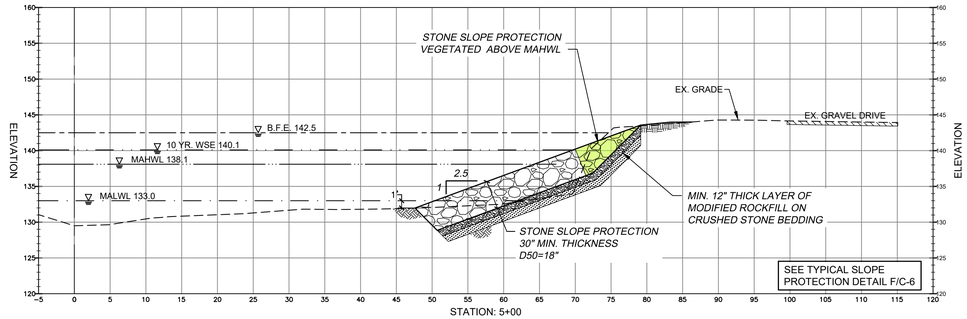


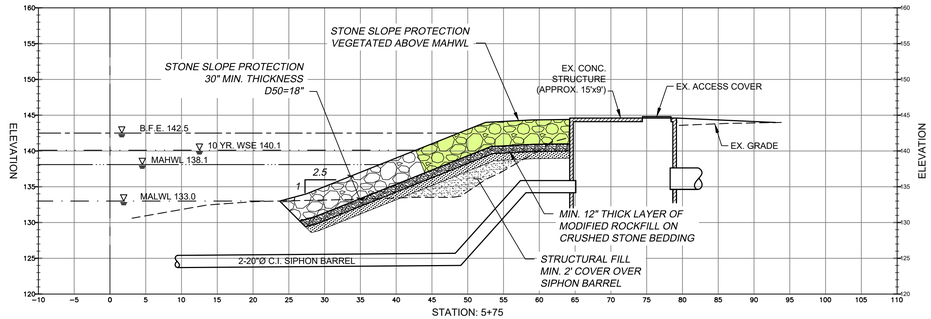



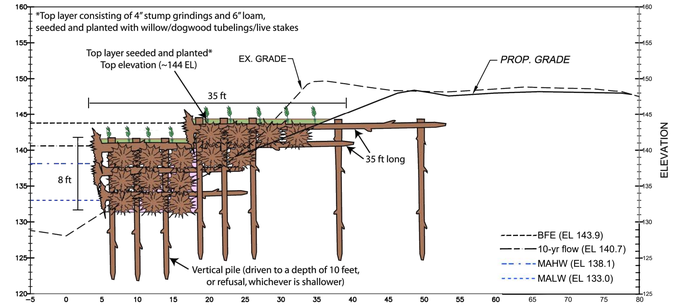



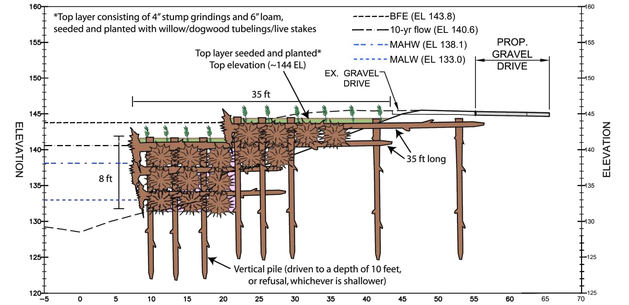



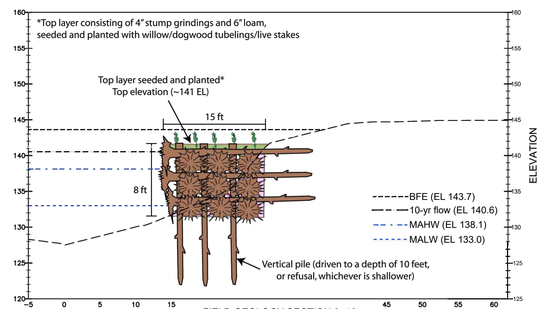



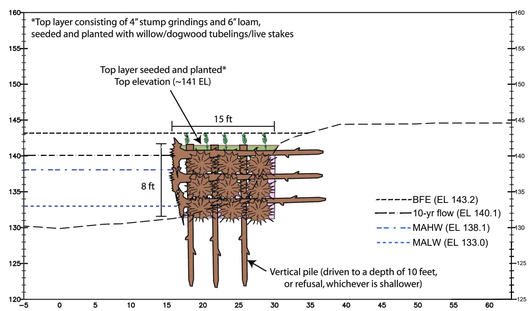

Note: log jams filled with brush/slash/tops and boulder ballast (not shown for clarity)



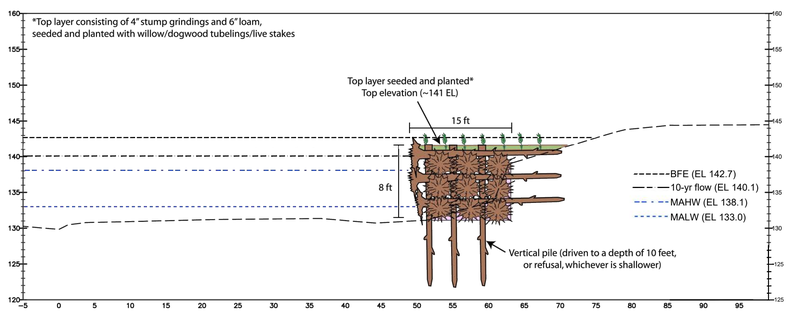

Note: log jams filled with brush/slash/tops and boulder ballast (not shown for clarity)




Note: log jams filled with brush/slash/tops and boulder ballast (not shown for clarity)




Note: log jams filled with brush/slash/tops and boulder ballast (not shown for clarity)




Note: log jams filled with brush/slash/tops and boulder ballast (not shown for clarity)

FIELD GEOLOGY LEGEND

Rootwad

Willow/dogwood tubelings/live stake

VERTICAL SCALE IN FEET
0 5 10 20
HORIZONTAL SCALE IN FEET
0 5 10 20

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MILL RIVER BANK REPAIR PROJECT
SMITH COLLEGE
NORTHAMPTON, MA

**FAILURE AREA 1**
**CROSS SECTIONS**

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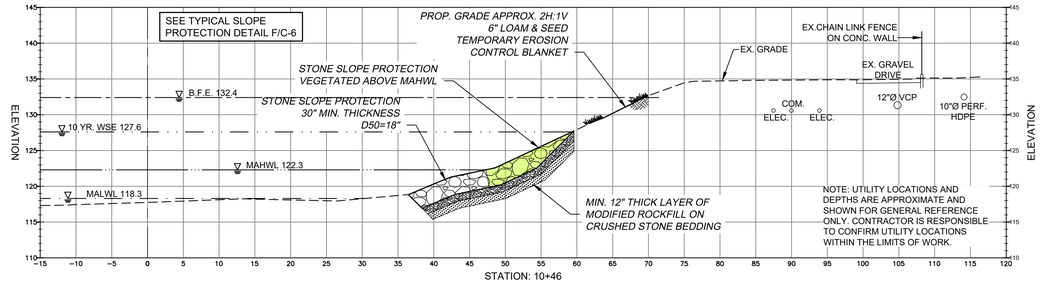


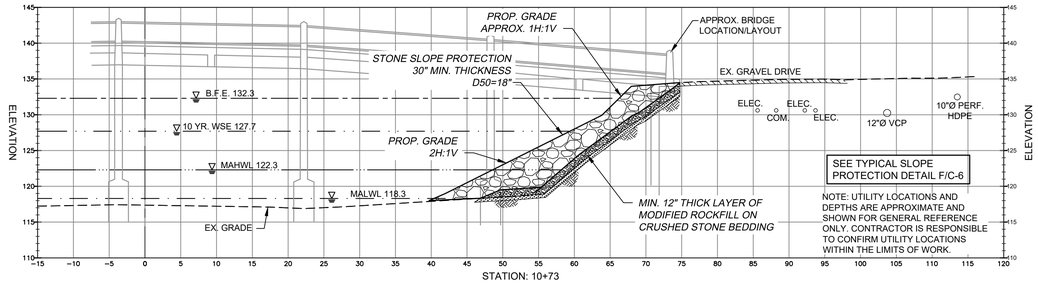


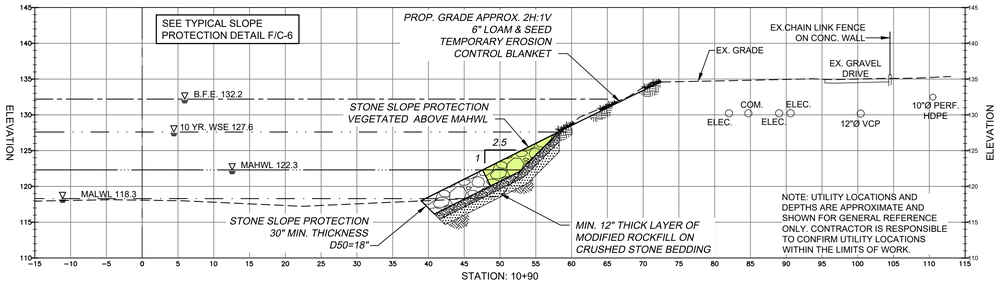


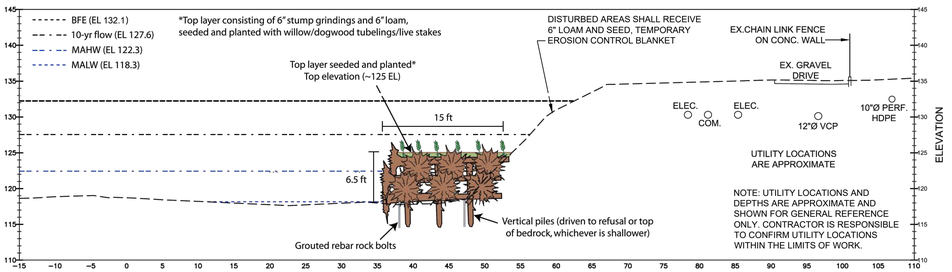


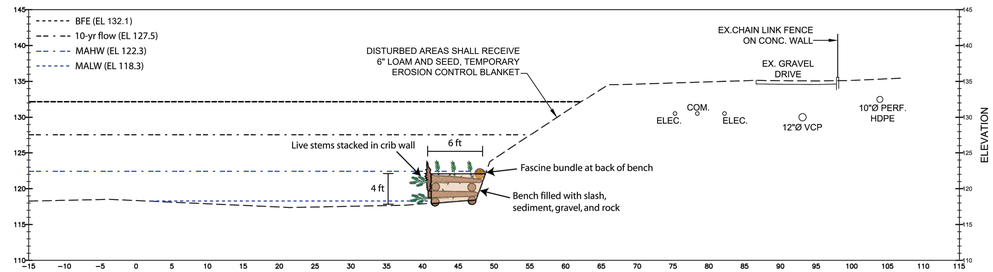


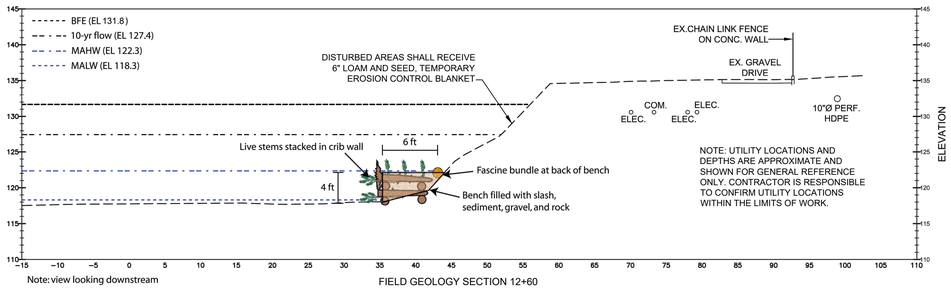


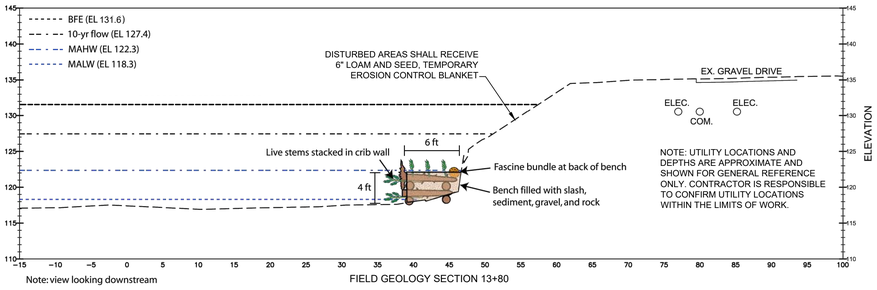


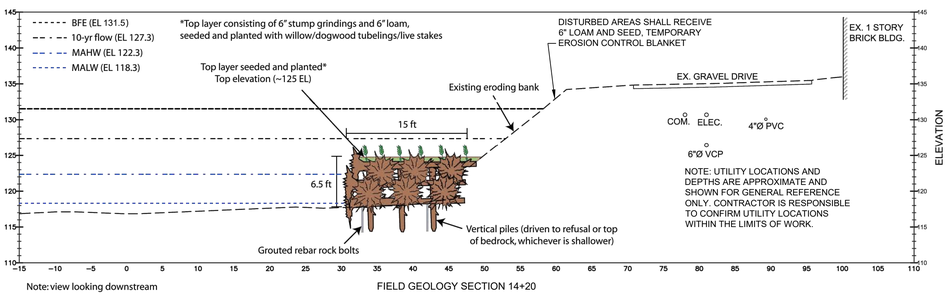


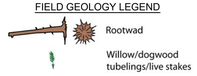


VERTICAL SCALE IN FEET
0 5 10 20
0 5 10 20
HORIZONTAL SCALE IN FEET

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MILL RIVER BANK REPAIR PROJECT
SMITH COLLEGE
NORTHAMPTON, MA

**FAILURE AREA 2**
**CROSS SECTIONS**

**PRELIMINARY DRAWING**
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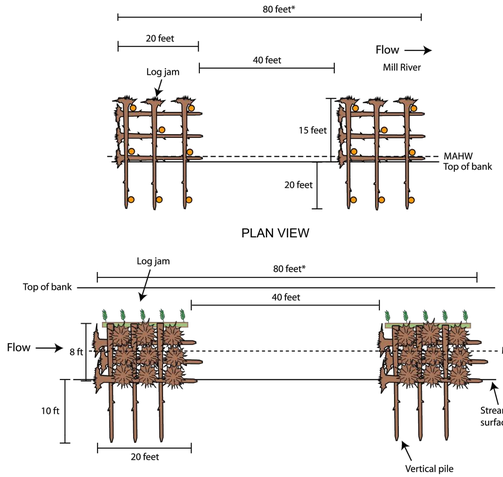
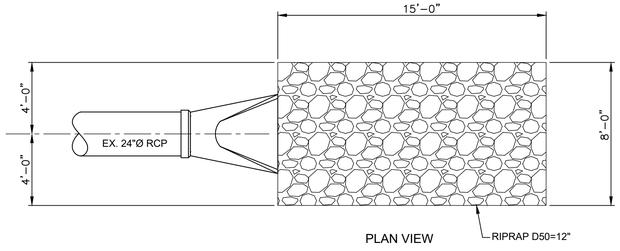
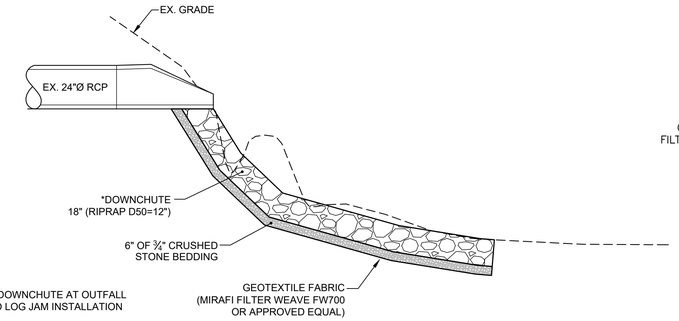
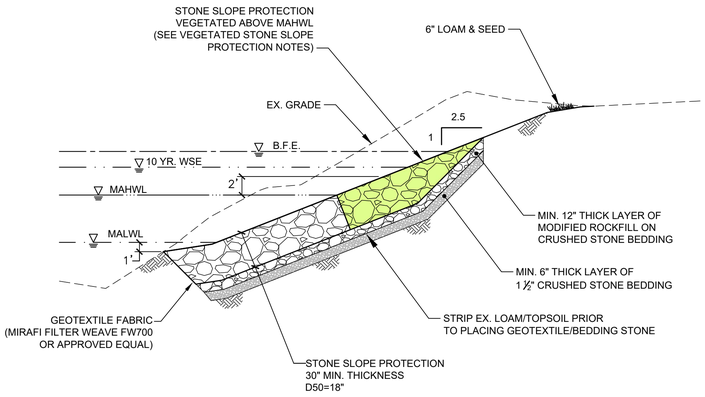



A C-6 FAILURE AREA 1 - LOG JAM TYPICAL PLAN AND LONGITUDINAL VIEWS
NTS

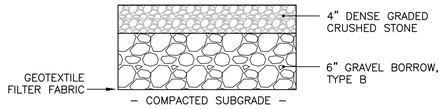



E C-6 OUTFALL REPAIR
NTS



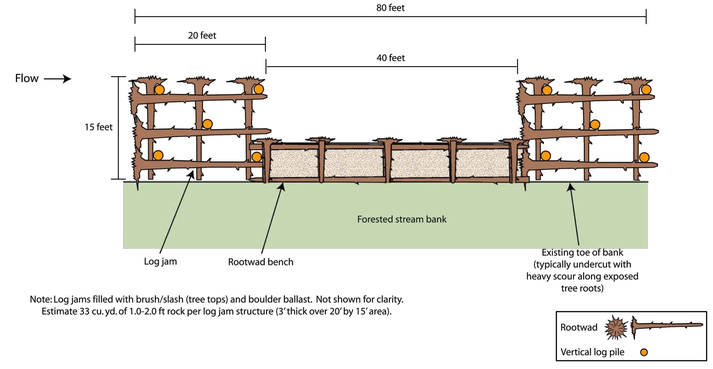

F C-6 TYPICAL STONE SLOPE PROTECTION DETAIL
NTS



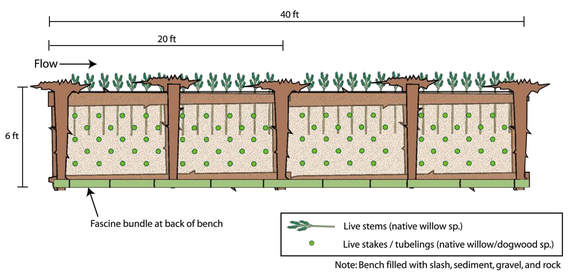

G C-6 GRAVEL DRIVE DETAIL
NTS

VEGETATED STONE SLOPE PROTECTION NOTES:

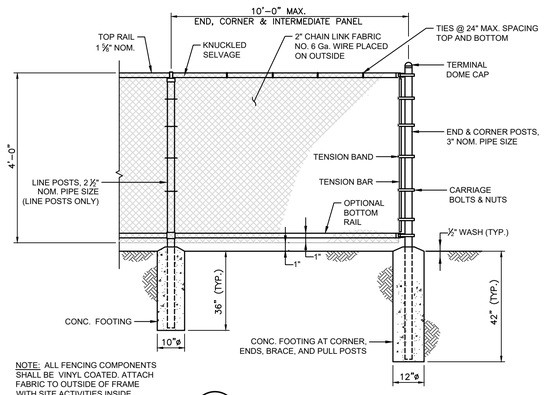
1. MATERIALS AND CONSTRUCTION FOR VEGETATED STONE REVETMENT SHALL CONFORM TO THE RELEVANT PROVISIONS OF SECTION 983 OF THE STANDARD SPECIFICATIONS.
2. SOIL MIX SHALL BE PLACED OVER THE NATURAL STONE REVETMENT TO A SURFACE DEPTH OF APPROXIMATELY 2 INCHES. ALL NATURAL STONE AND BOULDER VOIDS WITHIN THE STONE REVETMENT SHALL BE CHOKED USING THE SOIL MIX.
3. THE STONE REVETMENT AREA SHALL BE SEEDED WITH NEW ENGLAND CONSERVATION WILDLIFE MIX BY NEW ENGLAND WETLAND PLANTS OR APPROVED EQUAL. APPLICATION RATE SHALL BE 30 LBS/ACRE ALONG THE UPPER ONE-THIRD OF THE SLOPE AND 25 LBS/ACRE ALONG THE REMAINDER OF THE SLOPE.
4. BONDED FIBER MATRIX (BFM) SHALL BE APPLIED OVER THE TOP OF THE SEEDED SLOPE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS. APPLICATION RATE SHALL BE 5000 LBS/ACRE. BONDED FIBER MATRIX (BFM) SHALL BE CONSTRUCTED OF 100% BIODEGRADABLE MATERIALS AND SHALL CONTAIN NO WEED SEEDS OR PLASTIC COMPONENTS.
5. THE CONTRACTOR SHALL INSPECT AND MAINTAIN THE VEGETATED STONE REVETMENT UNTIL SUCH TIME AS A UNIFORM GROWTH OF VEGETATION HAS BEEN ESTABLISHED.



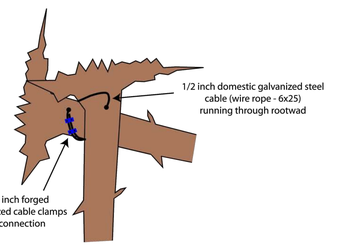

B C-6 FAILURE AREA 2 - TYPICAL LOG JAM / ROOTWAD BENCH BANK REPAIR
NTS



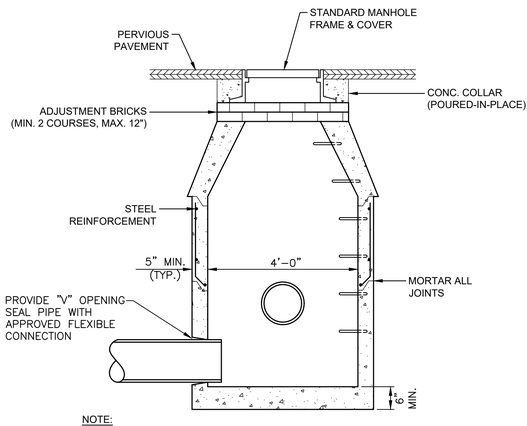

C C-6 FAILURE AREA 2 - TYPICAL ROOTWAD BENCH BANK REPAIR
NTS




I C-6 CHAIN LINK FENCE
NTS




D C-6 CABLE DETAIL FOR SECURING LOG JAM LAYERS 2-5
NTS




NOTE:
MANHOLES OVER 15' DEEP SHALL
BE 60 " (5') INSIDE DIAMETER.

H C-6 STANDARD PRECAST DRAIN MANHOLE
NTS

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MILL RIVER BANK REPAIR PROJECT
SMITH COLLEGE
NORTHAMPTON, MA

**CONSTRUCTION DETAILS**

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| DESIGNED BY: RTS | DRAWN BY: EDM | SCALE: AS NOTED | |
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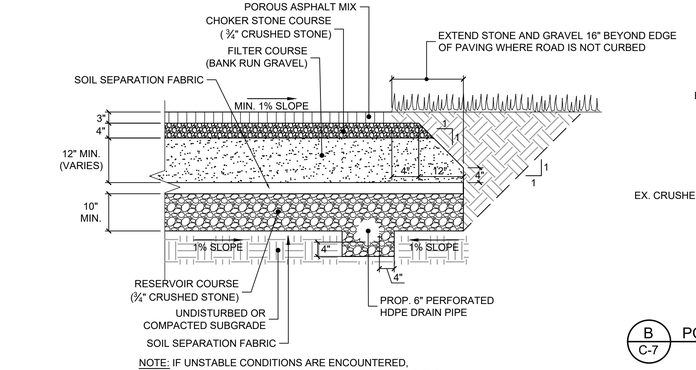
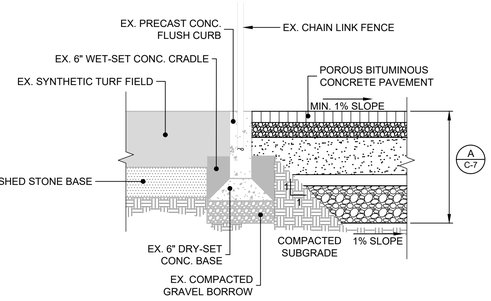


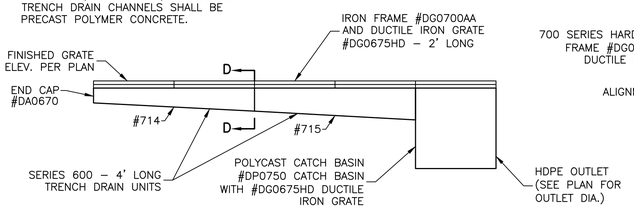

NOTE: IF UNSTABLE CONDITIONS ARE ENCOUNTERED, DEPTH OF BASE MATERIAL MAY BE INCREASED IN THE FIELD

A C-7 POROUS BITUMINOUS CONCRETE PAVEMENT DETAIL
NTS

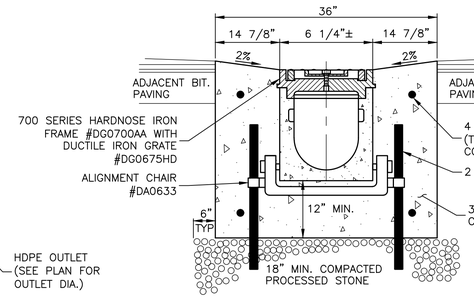



B C-7 POROUS BITUMINOUS CONCRETE PAVEMENT AT EXISTING FLUSH CURB
NTS

TRENCH DRAINS SHALL BE THE POLYCAST SYSTEM AS MANUFACTURED BY QUAZITE, LENOIR CITY, TENNESSEE. TRENCH DRAIN CHANNELS SHALL BE PRECAST POLYMER CONCRETE.




PROFILE THROUGH TRENCH DRAIN

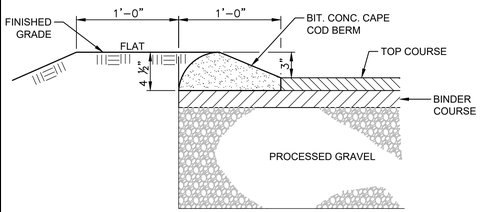



TRENCH DRAIN PROFILE SECTION D-D

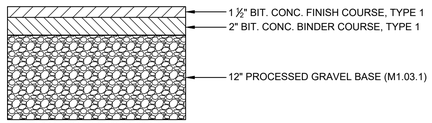
C C-7 TRENCH DRAIN DETAIL
NTS

CONCRETE NOTES

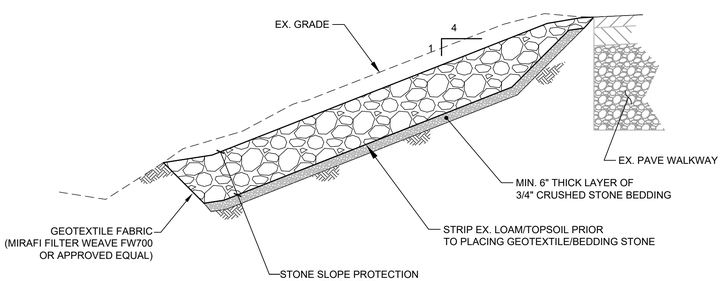
1. CLASS A, f'c=5,000 PSI
2. RENF. TO BE ASTM A–1616 GRADE 60, EPOXY COATED.
3. PROVIDE 3" COVER OVER ALL STEEL.
4. ALL EXPOSED EDGES TO BE NEATLY TOOLED.
5. ALL EXPOSED EDGES TO BE BROOM FINISHED.




D C-7 CAPE COD BERM
NTS

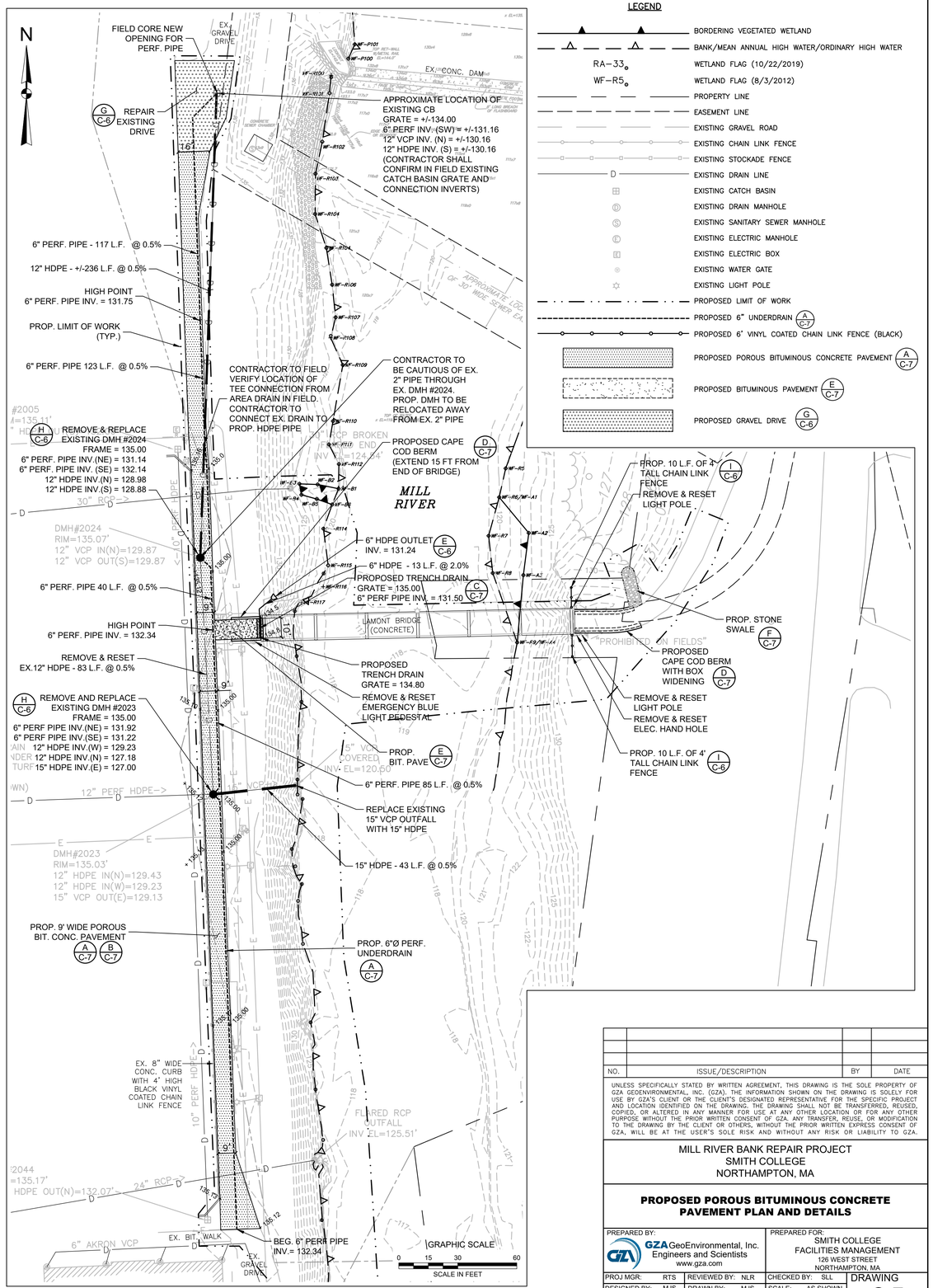



E C-7 TYPICAL SECTION BITUMINOUS CONCRETE PAVEMENT
NTS




F C-7 STONE SWALE DETAIL
NTS

**PRELIMINARY DRAWING**
**TO ACCOMPANY PERMIT APPLICATIONS AND REVIEW**
**NOT FOR CONSTRUCTION**
**OCTOBER 2023**




POROUS BIT. CONC. PAVEMENT PLAN
1"=30'

| NO. | ISSUE/DESCRIPTION | BY | DATE |
|---|---|---|---|
| | | | |



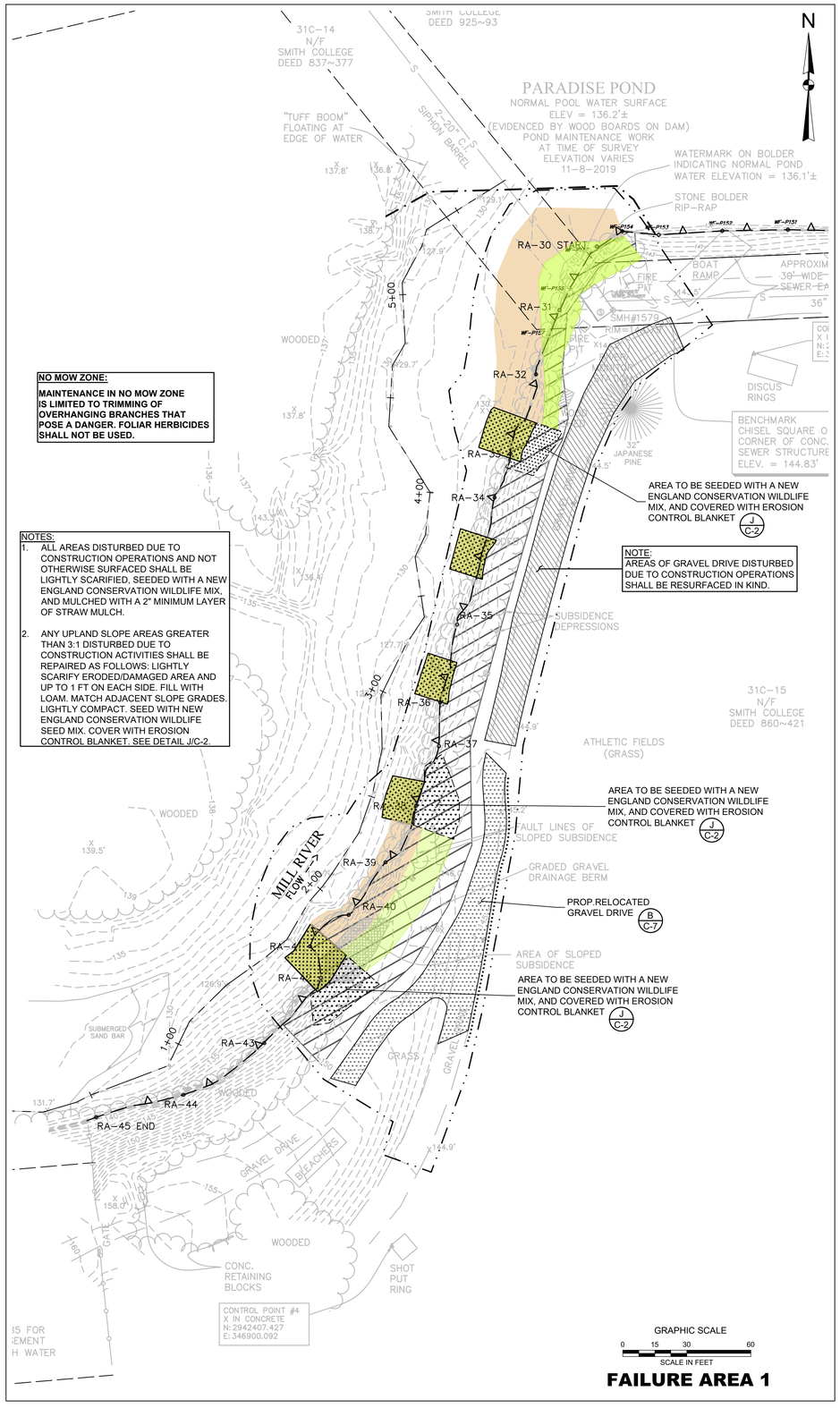
MILL RIVER BANK REPAIR PROJECT
SMITH COLLEGE
NORTHAMPTON, MA

**PROPOSED POROUS BITUMINOUS CONCRETE PAVEMENT PLAN AND DETAILS**

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
SMITH COLLEGE
FACILITIES MANAGEMENT
126 WEST STREET
NORTHAMPTON, MA

| | | | |
|---|---|---|---|
| PROJ MGR: RTS | REVIEWED BY: NLR | CHECKED BY: SLL | DRAWING C-7 |
| DESIGNED BY: MJS | DRAWN BY: MJS | SCALE: AS SHOWN | |
| DATE: OCTOBER, 2023 | PROJECT NO. 15.0166791.01 | REVISION NO. - | |




**NO MOW ZONE:**

**MAINTENANCE IN NO MOW ZONE IS LIMITED TO TRIMMING OF OVERHANGING BRANCHES THAT POSE A DANGER. FOLIAR HERBICIDES SHALL NOT BE USED.**

NOTES:

1. ALL AREAS DISTURBED DUE TO CONSTRUCTION OPERATIONS AND NOT OTHERWISE SURFACED SHALL BE LIGHTLY SCARIFIED, SEEDED WITH A NEW ENGLAND CONSERVATION WILDLIFE MIX, AND MULCHED WITH A 2" MINIMUM LAYER OF STRAW MULCH.
2. ANY UPLAND SLOPE AREAS GREATER THAN 3:1 DISTURBED DUE TO CONSTRUCTION ACTIVITIES SHALL BE REPAIRED AS FOLLOWS: LIGHTLY SCARIFY ERODED/DAMAGED AREA AND UP TO 1 FT ON EACH SIDE. FILL WITH LOAM. MATCH ADJACENT SLOPE GRADES. LIGHTLY COMPACT. SEED WITH NEW ENGLAND CONSERVATION WILDLIFE SEED MIX. COVER WITH EROSION CONTROL BLANKET. SEE DETAIL J/C-2.

LEGEND

- BORDERING VEGETATED WETLAND
- BANK/MEAN ANNUAL HIGH WATER/ORDINARY HIGH WATER
- RA-33 — WETLAND FLAG (10/22/2019)
- WF-R5 — WETLAND FLAG (8/3/2012)
- EDGE OF WATER
- PROPERTY LINE
- EASEMENT LINE
- 1 FT. CONTOUR
- 5 FT. CONTOUR
- SPOT GRADE
- GRAVEL ROAD
- CHAIN LINK FENCE
- STOCKADE FENCE
- D — DRAIN LINE
- S — SEWER LINE
- E — BURIED ELECTRIC LINE
- C — BURIED COMMUNICATION LINE
- G — GAS LINE
- TREE LINE
- TREE
- CATCH BASIN
- DRAIN MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRIC MANHOLE
- ELECTRIC BOX
- WATER GATE
- LIGHT POLE
- 2+00 — BASELINE (ASSUMED POINTS OF BEGINING)
- LIMIT OF WORK
- PROPOSED RELOCATED GRAVEL DRIVE (G / C-6)
- PROPOSED LOG JAM (SEE DETAILS ON C-6)
- PROPOSED ROOTWAD BENCH BANK REPAIR (B / C-6) (C / C-6)
- NO MOW ZONE
- STONE SLOPE PROTECTION VEGETATED ABOVE MAHWL (F / C-6)
- STONE SLOPE PROTECTION – NO VEGETATION
- PROPOSED AREA SEEDED WITH NEW ENGLAND CONSERVATION WILDLIFE MIX (J / C-2)

**PRELIMINARY DRAWING**
**TO ACCOMPANY PERMIT APPLICATIONS AND REVIEW**
**NOT FOR CONSTRUCTION**
**OCTOBER 2023**

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| | | | |
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MILL RIVER BANK REPAIR PROJECT
SMITH COLLEGE
NORTHAMPTON, MA

**FAILURE AREA 1**
**RESTORATION PLAN**

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
SMITH COLLEGE
FACILITIES MANAGEMENT
126 WEST STREET
NORTHAMPTON, MA

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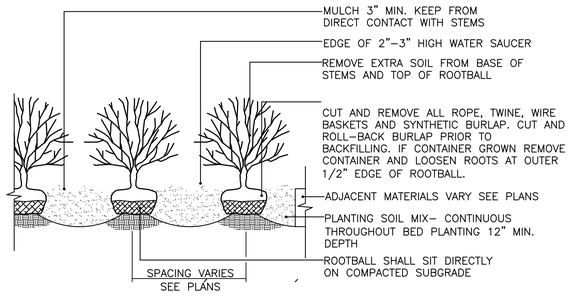
|---|---|---|---|
| PROJ MGR: RTS | REVIEWED BY: NLR | CHECKED BY: SLL | DRAWING C-8 |
| DESIGNED BY: RTS | DRAWN BY: EDM | SCALE: 1"=30' | |
| DATE: OCTOBER, 2023 | PROJECT NO. 15.0166791.01 | REVISION NO. - | |

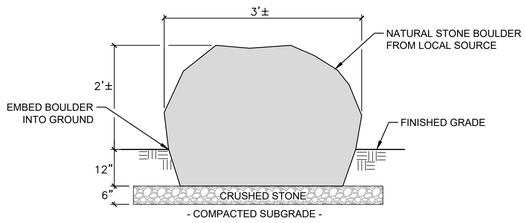
## PLANT LIST

| TYPE | ABBREV. | COMMON / BOTANICAL NAME | SIZE | QTY. | REMARKS |
|---|---|---|---|---|---|
| Deciduous Trees | As | Silver Maple / *Acer saccharinum* | 2.5-3.5" Cal. | 2 | B&B |
| | Ba | Yellow Birch / *Betula alleghaniensis* | 2.5-3.5" Cal. | 4 | B&B |
| | Bp | Gray Birch / *Betula populifolia* | 2.5-3.5" Cal. | 3 | B&B |
| Shrubs | Am | Black Chokecherry / *Aronia melanocarpa* | 3 Gal. | 19 | |
| | Ag | Ground Hug Black Chokecherry / *Aronia melanocarpa 'ground hug'* | 3 Gal. | 20 | |
| | Nj | New Jersey Tea / *Ceanothus americanus* | 3 Gal. | 9 | |
| | Ca | Summersweet / *Clethra alnifolia* | 5 Gal. | 10 | |
| | Cs | Redosier Dogwood / *Cornus sericea* | 5 Gal. | 10 | |
| | Ig | Inkberry / *Ilex glabra* | 5 Gal. | 12 | |
| | Ic | Compact Inkberry / *Ilex glabra 'compacta'* | 3 Gal. | 7 | |
| | Mp | Northern Bayberry / *Myrica pensylvanica* | 5 Gal. | 4 | |
| | Va | Mapleleaf Viburnum / *Viburnum acerfolium* | 3 Gal. | 6 | |
| Perennial, Grasses & Groundcover | Ac | Blue Wood Aster / *Aster cordifolius* | Flats | 234 | 18-24" O.C. |
| | Bs | Broom Sedge / *Carex scoparia* | Flats | 118 | 18-24" O.C. |

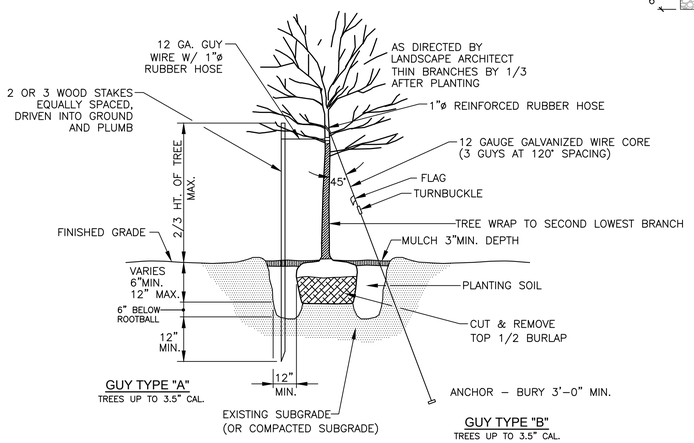
NOTE: SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
1. SHRUBS SHALL BE SET PLUMB AND PLANTED SO THAT THE TOP OF THE ROOTBALL IS 1"-2" ABOVE FINISHED GRADE.
2. NO PRUNING OR CUTTING UNLESS DIRECTED BY THE LANDSCAPE ARCHITECT.
3. SAUCER SHALL BE FLOODED TWICE DURING THE FIRST 24 HOURS AFTER PLANTING.




A / L-1 SHRUB PLANTING BED
NTS

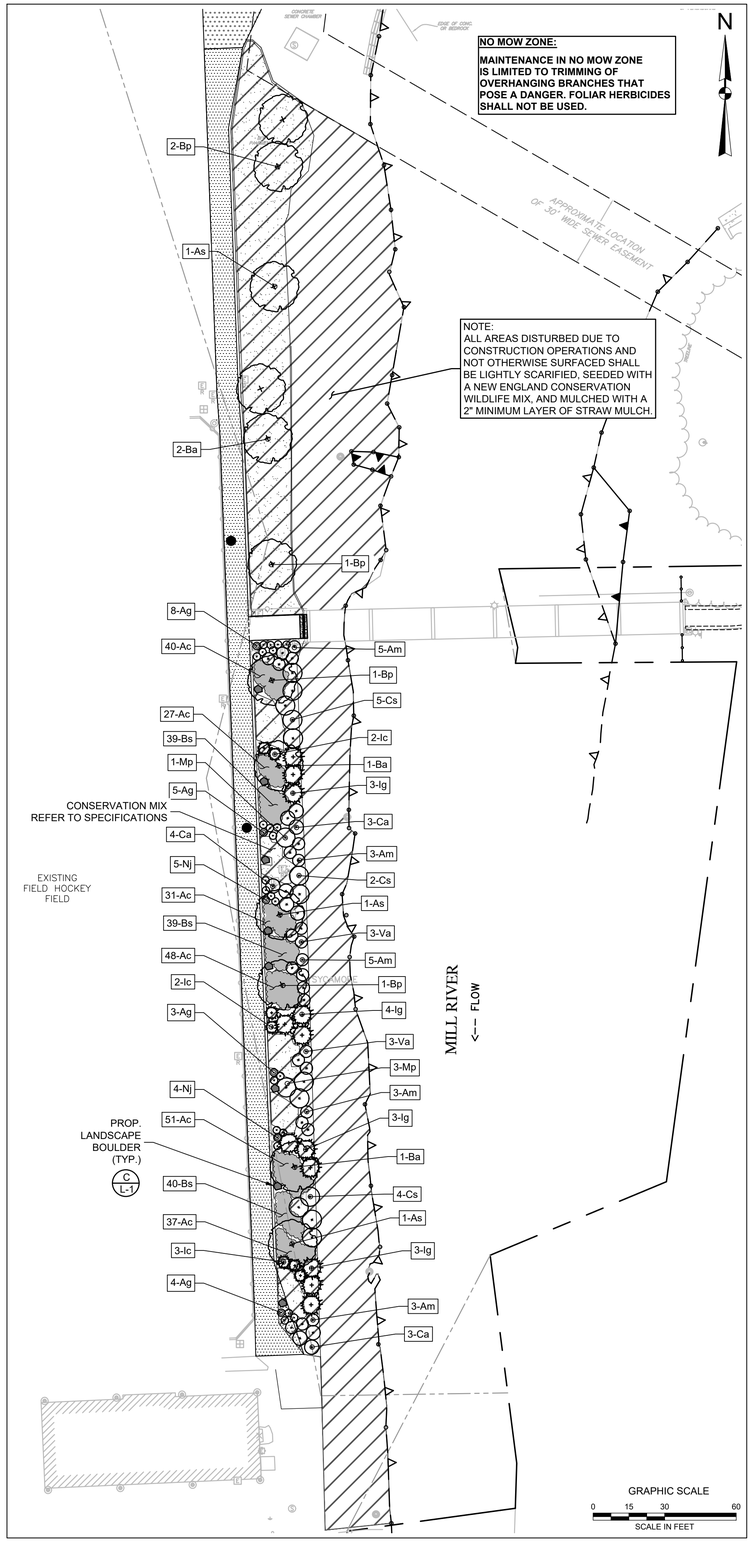



C / L-1 LANDSCAPE BOULDER
NTS




B / L-1 TREE PLANTING DETAIL
NTS

**PRELIMINARY DRAWING**
**TO ACCOMPANY PERMIT APPLICATIONS AND REVIEW**
**NOT FOR CONSTRUCTION**
**OCTOBER 2023**




LANDSCAPE PLAN
1"=30'

LEGEND

- BORDERING VEGETATED WETLAND
- BANK/MEAN ANNUAL HIGH WATER/ORDINARY HIGH WATER
- RA-33 — WETLAND FLAG (10/22/2019)
- WF-R5 — WETLAND FLAG (XX/XX/XXXX)
- EDGE OF WATER
- PROPERTY LINE
- EASEMENT LINE
- GRAVEL ROAD
- CHAIN LINK FENCE
- STOCKADE FENCE
- TREE LINE
- TREE
- CATCH BASIN
- DRAIN MANHOLE
- SANITARY SEWER MANHOLE
- ELECTRIC MANHOLE
- ELECTRIC BOX
- WATER GATE
- LIGHT POLE
- PROPOSED LANDSCAPE BOULDER (C / L-1)
- DECIDUOUS TREE
- EVERGREEN SHRUB
- DECIDUOUS SHRUB
- GROUND COVER / PERENNIALS /ORNAMENTAL GRASSES
- CONSERVATION MIX
- NO MOW ZONE
- PROPOSED POROUS BITUMINOUS CONCRETE PAVEMENT (A / C-7)

## PLANTING NOTES:

1. LANDSCAPE CONTRACTOR SHALL REVIEW ALL SITE UTILITY PLANS AND COORDINATE WITH THE GENERAL CONTRACTOR TO AVOID HAZARDS AND CONFLICTS WITH EXISTING/NEW UNDERGROUND UTILITIES.
2. ALL PLANTS SHALL BE HEALTHY NURSERY STOCK MEETING REQUIREMENTS OF NURSERYMEN'S ASSOCIATION STANDARDS FOR TYPE, SIZE, AND CONDITION. ALL OTHERS WILL BE REJECTED.
3. OWNER'S REPRESENTATIVE WILL INSPECT ALL PLANT BEDS PRIOR TO ANY PLANTING.
4. ALL PLANT BEDS SHALL RECEIVE A 3" SETTLED DEPTH OF AGED SHREDDED HEMLOCK BARK MULCH, IMMEDIATELY AFTER INSTALLATION OF MULCH, THE CONTRACTOR SHALL THOROUGHLY WET ALL BEDS WITH THE EQUIVALENT OF 2" RAINFALL TO SETTLE MULCH TO 3" DEPTH.
5. PLANT LIST IS INFORMATIONAL ONLY. IF THERE IS A DISCREPANCY BETWEEN QUANTITIES SHOWN ON THE PLANT LIST AND THOSE SHOWN ON THE PLANS, QUANTITIES SHOWN ON THE PLAN SHALL GOVERN.
6. ALL TREE PITS AND PLANT BEDS SHALL RECEIVE PREPARED PLANTING SOIL MIXTURE AS DETAILED AND SPECIFIED. PLANT BEDS: 12" DEPTH WITH SURFACE 3" BELOW FINISHED GRADE TO ALLOW FOR MULCH.
7. ALL AREAS DISTURBED DUE TO CONSTRUCTION OPERATIONS AND NOT DESIGNATED FOR OTHER SURFACE TREATMENT SHALL RECEIVE A 6" DEPTH OF TOPSOIL, AND SHALL BE FINE-GRADED AND SEEDED TO LAWN, PER LANDSCAPE SPECIFICATIONS.
8. ANY UPLAND SLOPE AREAS GREATER THAN 3:1 DISTURBED DUE TO CONSTRUCTION ACTIVITIES SHALL BE REPAIRED AS FOLLOWS: LIGHTLY SCARIFY ERODED/DAMAGED AREA AND UP TO 1 FT ON EACH SIDE. FILL WITH LOAM. MATCH ADJACENT SLOPE GRADES. LIGHTLY COMPACT. SEED WITH NEW ENGLAND CONSERVATION WILDLIFE SEED MIX. COVER WITH EROSION CONTROL BLANKET. SEE DETAIL J/C-2.

| NO. | ISSUE/DESCRIPTION | BY | DATE |
|---|---|---|---|
| | | | |



MILL RIVER BANK REPAIR PROJECT
SMITH COLLEGE
NORTHAMPTON, MA

**LANDSCAPE PLAN**

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
SMITH COLLEGE
FACILITIES MANAGEMENT
126 WEST STREET
NORTHAMPTON, MA

| | | | |
|---|---|---|---|
| PROJ MGR: RTS | REVIEWED BY: NLR | CHECKED BY: SLL | DRAWING L-1 |
| DESIGNED BY: RTS | DRAWN BY: EDM | SCALE: AS NOTED | |
| DATE: OCTOBER, 2023 | PROJECT NO. 15.0166791.01 | REVISION NO. - | |

NOTE: REPAIR LOCATIONS ESTIMATED AND SHOWN SCHEMATICALLY. ENGINEER OF RECORD WILL SURVEY REQUIRED REPAIR LOCATIONS TO BE INCLUDED AS PART OF THE BID DOCUMENTS

NOTE: SEE DRAWING BR-1 FOR APPROXIMATE TEMPORARY AND PERMANENT AREAS OF AFFECTED WETLANDS

WF–R115

WF–R116

WF–R117

WF–R8

WF–A3

WF–R9/WF–A4

REPAIR LARGE RUTS AND SPALLED CONCRETE IN TOP SURFACE OF BRIDGE DECK, CURB AND RAILING POSTS WITH SIKA-TOP 123 OR APPROVED EQUIVALENT

INSTALL NEW ADA HANDRAIL ON INSIDE OF EXISTING RAILING

PROPOSED DRAIN AT END OF WEST APPROACH SLAB (SEE DWG. C-7 FOR DETAILS)

PROPOSED BIT. CONC. WALKWAY (SEE DWG. C-7 FOR DETAILS)

REPAIR SPALLED CONCRETE ON UNDERSIDE OF BRIDGE DECK, GIRDER BEAMS, AND BENTS, AS NECESSARY, USING SIKA-TOP 123 OR APPROVED EQUIVALENT

PROPOSED STABILIZED CONSTRUCTION ENTRANCE

PROPOSED CAPE COD BERMS AND STONE SWALE (SEE DWG. C-7 FOR DETAILS)

RESURFACE THE ENTIRE BRIDGE DECK AND CURBS WITH SIKAGARD FLEXCOAT OR APPROVED EQUIVALENT. SEE DRAWING BR-4 FOR INSTALLATION PROCEDURE.

1 BR-2,3

2 BR-2

N

130

117

118

## BRIDGE SUPERSTRUCTURE REPAIR PLAN

1/8" = 1'-0"

NOTE: EIGHT (8) TOTAL COLUMN PIERS SHALL BE REPAIRED FROM BEDROCK AT APPROX. EL. 115 TO EL. 124.3

3 BR-3

CONSTRUCT TIMBER RETAINING WALL BELOW WESTERN APPROACH SLAB

APPROX. PERMANENT DISTURBANCE OF LAND UNDERWATER AREAS 1 - 4 (COLUMN PIER RETROFIT) = 3.5 S.F. (EACH)

LAND UNDERWATER LIMIT (TYP.)

BORDERING VEGETATED WETLAND (BVW)

4 BR-3

5 BR-3

1 2 3 4 5 6 7 8

A B C D E F G H

TEMPORARY DISTURBANCE OF LAND UNDERWATER AREAS E AND H (DEWATER AND DREDGE) = 178 S.F. (EACH) (ANTICIPATED DURATION 6 WEEKS)

TEMPORARY DISTURBANCE OF LAND UNDERWATER AREA A (SURFICIAL) = 772 S.F. (ANTICIPATED DURATION 3 WEEKS)

TEMPORARY DISTURBANCE OF LAND UNDERWATER AREAS F AND G (DEWATER AND DREDGE) = 123 S.F. (EACH) (ANTICIPATED DURATION 6 WEEKS)

TEMPORARY DISTURBANCE OF LAND UNDERWATER AREAS B AND C (SURFICIAL) = 971 S.F. (EACH) (ANTICIPATED DURATION 3 WEEKS)

APPROX. PERMANENT DISTURBANCE OF LAND UNDERWATER AREAS 5 - 8 (COLUMN PIER RETROFIT) = 3.3 S.F. (EACH)

TEMPORARY DISTURBANCE OF LAND UNDERWATER AREA D (SURFICIAL) = 1,187 S.F. (ANTICIPATED DURATION 3 WEEKS)

NOTES:

- LAND UNDERWATER AREAS A-D ARE INTENDED TO BE ACCESSED FOR THE REPAIRS TO THE UNDERSIDE OF THE BRIDGE, DURING WHICH SCAFFOLDING OR MANLIFTS MAY BE POSITIONED IN THE LAND UNDERWATER AREAS. THESE AREAS MAY BE TRAVELED THROUGH AT ANY TIME, HOWEVER ONLY ONE AREA MAY BE WORKED IN AT A TIME.
- LAND UNDERWATER AREAS E-H (WHICH INCLUDE AREAS 1-8) ARE INTENDED TO BE ACCESSED FOR THE REPAIRS TO THE BRIDGE COLUMN PIERS. THESE AREAS MAY BE WORKED IN SIMULTANEOUSLY, OR INDIVIDUALLY IN ANY ORDER, AT THE CONTRACTORS DISCRETION. SANDBAG COFFERDAMS, FORMWORK, DREDGING MAY OCCUR IN ALL AREAS E-H AT THE SAME TIME.
- THE PERMANENT LAND UNDERWATER DISTURBANCE AREAS 1-8 (SHOWN IN PURPLE) REPRESENT THE NEW FOOTPRINT OF THE COLUMN PIERS AFTER REPAIR. SEE SHEET BR-3 FOR COLUMN PIER REPAIR DETAILS.
- REPAIR WORK TO THE BRIDGE SUPERSTRUCTURE MAY BE PERFORMED AT ANY TIME RELATIVE TO THE SUBSTRUCTURE REPAIR WORK.

## BRIDGE SUBSTRUCTURE REPAIRS AND AFFECTED WETLANDS PLAN

1/8" = 1'-0"

LEGEND

- BORDERING VEGETATED WETLAND
- BANK/MEAN ANNUAL HIGH WATER/ORDINARY HIGH WATER
- RA-33 — WETLAND FLAG (10/22/2019)
- WF-R5 — WETLAND FLAG (8/3/2012)
- EXISTING COLUMN PIER
- G — DISTURBANCE AREA IDENTIFICATION
- NEW HANDRAIL
- CONCRETE REPAIR (SIKATOP–123)
- BRIDGE DECK RESURFACING (SIKAGARD FLEXCOAT)
- PROPOSED POROUS BITUMINOUS CONCRETE PAVEMENT
- TEMPORARY LAND UNDERWATER AFFECTED AREA
- PERMANENT LAND UNDERWATER AFFECTED AREA

| NO. | ISSUE/DESCRIPTION | BY | DATE |
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MILL RIVER BANK REPAIR PROJECT
SMITH COLLEGE
NORTHAMPTON, MA

**LAMONT BRIDGE REHABILITATION REPAIR PLANS**

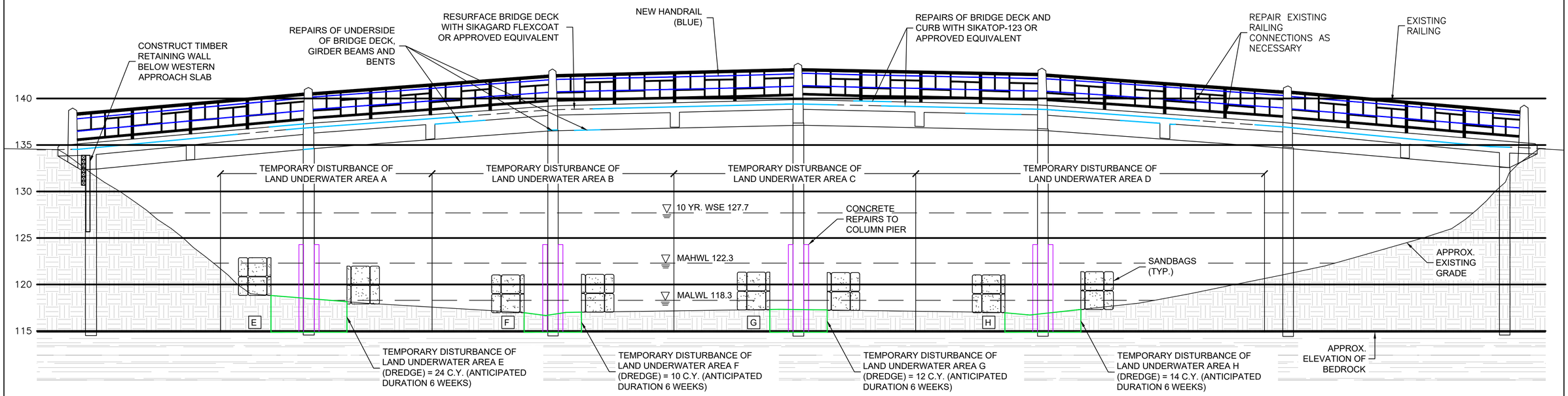
**PRELIMINARY DRAWING TO ACCOMPANY PERMIT APPLICATIONS AND REVIEW NOT FOR CONSTRUCTION OCTOBER 2023**

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

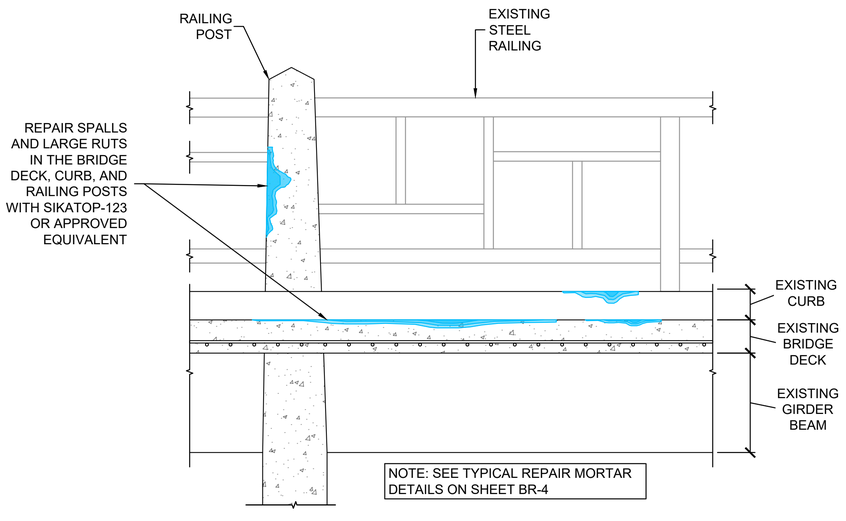
PREPARED FOR:
SMITH COLLEGE
FACILITIES MANAGEMENT
126 WEST STREET
NORTHAMPTON, MA

| PROJ MGR: PDZ | REVIEWED BY: JAA | CHECKED BY: JAA | DRAWING |
|---|---|---|---|
| DESIGNED BY: PDZ | DRAWN BY: PDZ | SCALE: AS SHOWN | BR-1 |
| DATE: OCTOBER, 2023 | PROJECT NO. 02.0166791.04 | REVISION NO. - | |

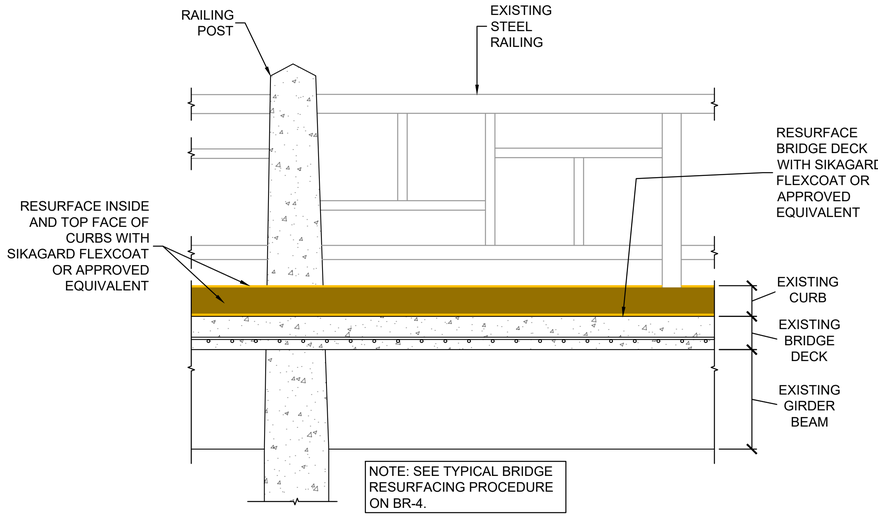
NOTE: REPAIR LOCATIONS ESTIMATED AND SHOWN SCHEMATICALLY. ENGINEER OF RECORD WILL SURVEY REQUIRED REPAIR LOCATIONS TO BE INCLUDED AS PART OF THE BID DOCUMENTS




2 / BR-1 BRIDGE REPAIR ELEVATION
N.T.S




1A / BR-1 BRIDGE SUPERSTRUCTURE REPAIR STEP 1
N.T.S




1B / BR-1 BRIDGE SUPERSTRUCTURE REPAIR STEP 2
N.T.S

LEGEND

- NEW HANDRAIL
- CONCRETE REPAIR (SIKATOP-123)
- TEMPORARY LAND UNDERWATER AFFECTED AREA
- PERMANENT LAND UNDERWATER AFFECTED AREA
- BRIDGE DECK AND CURB RESURFACING (SIKAGARD FLEXCOAT)
- EARTH
- BEDROCK

| NO. | ISSUE/DESCRIPTION | BY | DATE |
|---|---|---|---|
| | | | |



MILL RIVER BANK REPAIR PROJECT
SMITH COLLEGE
NORTHAMPTON, MA

**LAMONT BRIDGE REHABILITATION**
**REPAIR ELEVATION AND DETAILS**

**PRELIMINARY DRAWING TO ACCOMPANY PERMIT APPLICATIONS AND REVIEW NOT FOR CONSTRUCTION OCTOBER 2023**

PREPARED BY:
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www.gza.com

PREPARED FOR:
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126 WEST STREET
NORTHAMPTON, MA

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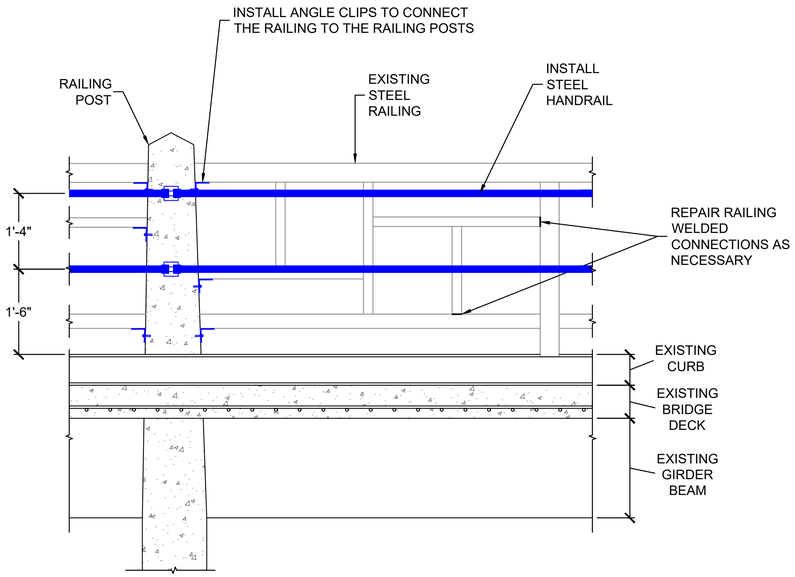
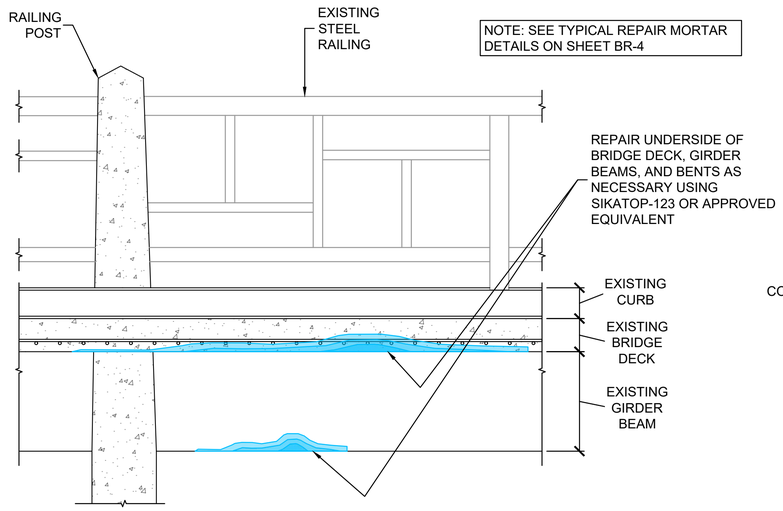
|---|---|---|---|---|---|
| PROJ MGR: | PDZ | REVIEWED BY: | JAA | CHECKED BY: | JAA |
| DESIGNED BY: | PDZ | DRAWN BY: | PDZ | SCALE: | AS SHOWN |
| DATE: | OCTOBER, 2023 | PROJECT NO. | 02.0166791.04 | REVISION NO. | - |

DRAWING
BR-2

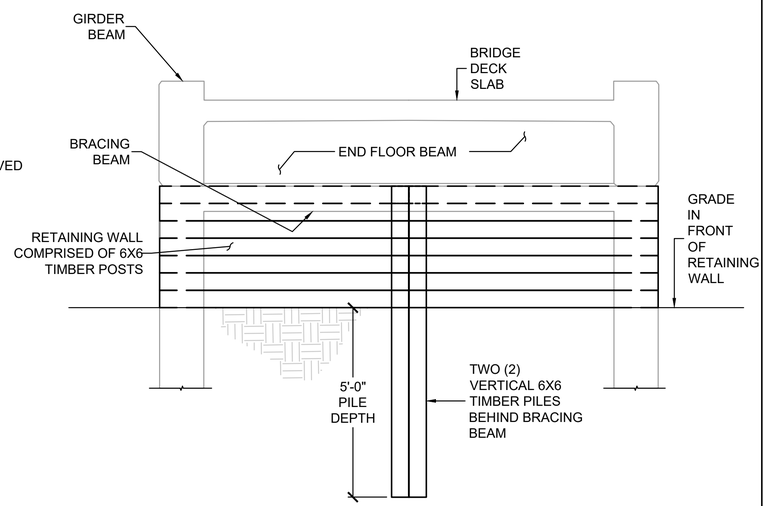
NOTE: BRIDGE SUPERSTRUCTURE AND RAILING REPAIR LOCATIONS ESTIMATED AND SHOWN SCHEMATICALLY.
ENGINEER OF RECORD WILL SURVEY REQUIRED REPAIR LOCATIONS TO BE INCLUDED AS PART OF THE BID DOCUMENTS.



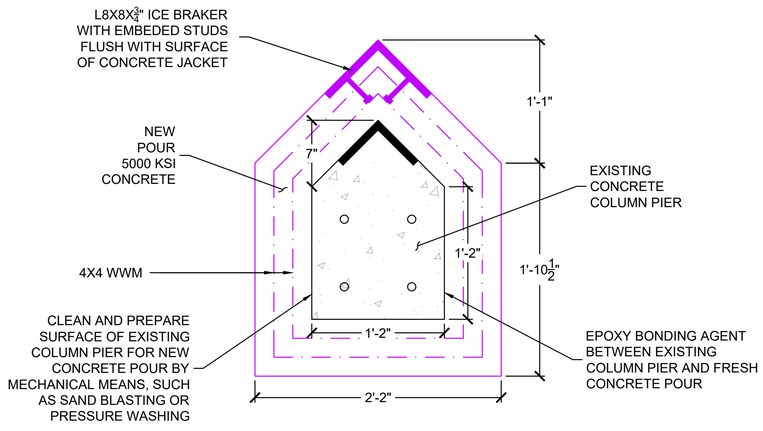

1C / BR-1 BRIDGE SUPERSTRUCTURE REPAIR STEP 3
N.T.S



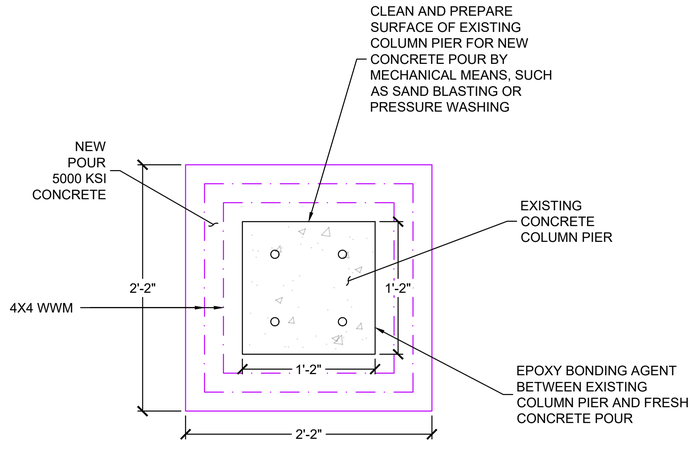

1D / BR-1 BRIDGE SUPERSTRUCTURE REPAIR STEP 4
N.T.S




3 / BR-1 WEST APPROACH SLAB RETAINING WALL DETAIL
N.T.S




4 / BR-1 TYPICAL UPSTREAM COLUMN PIER REPAIR DETAIL
N.T.S




5 / BR-1 TYPICAL DOWNSTREAM COLUMN PIER REPAIR DETAIL
N.T.S

COLUMN PIER REPAIR PROCEDURE:

1. CLEAN AND PREPARE THE SURFACE OF THE EXISTING COLUMN PIER BY MECHANICAL MEANS, SUCH AS SAND BLASTING OR PRESSURE WASHING. PREPARE THE SURFACE FROM THE BASE OF THE COLUMN PIER (TOP OF BEDROCK) TO EL. 124.3.
2. APPLY AN APPROVED EPOXY BONDING AGENT TO THE CLEAN SURFACE OF THE EXISTING COLUMN PIER.
3. INSTALL TWO (2) LAYERS OF WELDED WIRE MESH AND POUR THE NEW COLUMN PIER CONCRETE JACKET AROUND THE EXISTING CONCRETE AND ALLOW TO MOIST-CURE.
4. WHEN CURING IS COMPLETE, RETURN STOCKPILED DREDGE MATERIAL TO FILL THE DREDGED AREA.

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MILL RIVER BANK REPAIR PROJECT
SMITH COLLEGE
NORTHAMPTON, MA

**LAMONT BRIDGE REHABILITATION**
**REPAIR DETAILS**

**PRELIMINARY DRAWING TO ACCOMPANY PERMIT APPLICATIONS AND REVIEW NOT FOR CONSTRUCTION OCTOBER 2023**

PREPARED BY:
GZA GeoEnvironmental, Inc.
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PREPARED FOR:
SMITH COLLEGE
FACILITIES MANAGEMENT
126 WEST STREET
NORTHAMPTON, MA

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| PROJ MGR: PDZ | REVIEWED BY: JAA | CHECKED BY: JAA | DRAWING |
| DESIGNED BY: PDZ | DRAWN BY: PDZ | SCALE: AS SHOWN | BR-3 |
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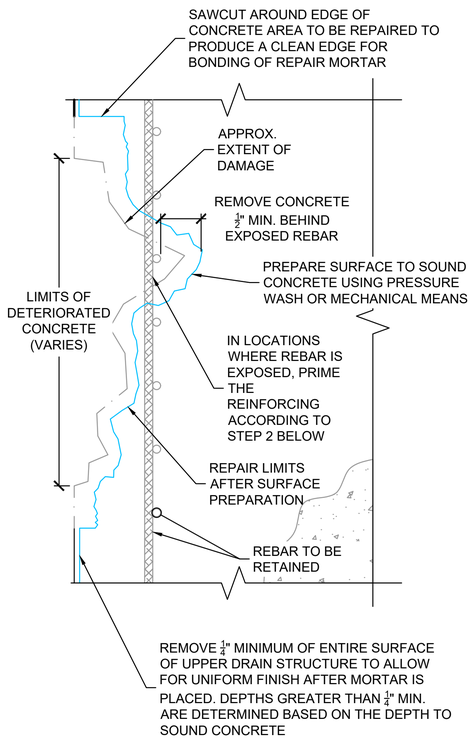
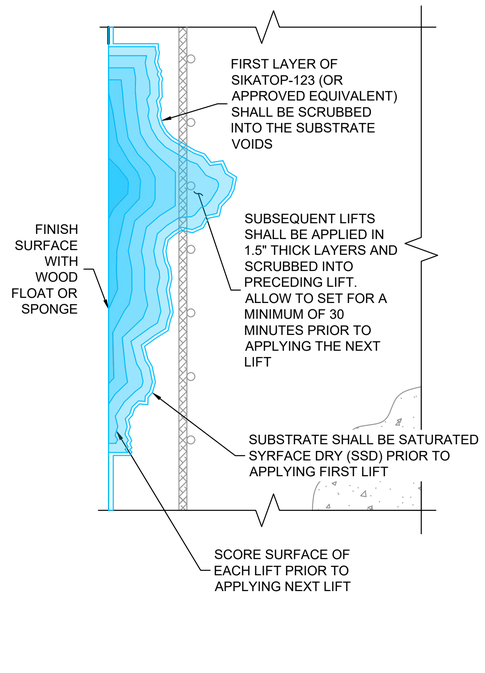
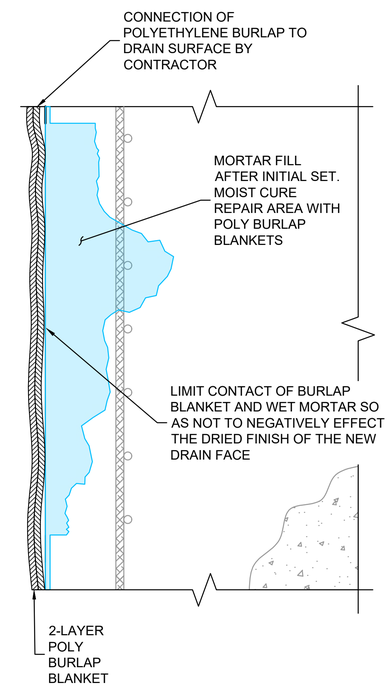
NOTE: GEOMETRY AND EXISTING REINFORCING IN THE BELOW DETAILS IS SHOWN SCHEMATICALLY




TYPICAL CONCRETE REPAIR SECTION STEP 1 & 2
N.T.S




TYPICAL CONCRETE REPAIR SECTION STEP 3 & 4
N.T.S




TYPICAL CONCRETE REPAIR SECTION STEP 5
N.T.S

NOTE: THE TYPICAL CONCRETE REPAIR PROCEDURE, AS OUTLINED BELOW, APPLIES ONLY TO THE USE OF SIKATOP-123 PLUS REPAIR MORTAR. EQUIVALENT REPAIR MORTAR MAY BE USED IF APPROVED BY THE ENGINEER RESPONSIBLE FOR THIS REPAIR PROCEDURE. NOTE THAT THE USE OF AN ALTERNATE MORTAR MATERIAL MAY ALTER THE INSTALLATION PROCEDURE.

STEP 1: PREPARATION

- REMOVE ALL DETERIORATED CONCRETE, DIRT, OIL, GREASE, AND OTHER BOND-INHIBITING MATERIALS FROM THE AREA TO BE REPAIRED.
- PREPARATION WORK SHALL BE DONE BY HIGH PRESSURE WATER BLAST, SCABBLER OR OTHER APPROPRIATE MECHANICAL MEANS TO OBTAIN AN EXPOSED AGGREGATE SURFACE PROFILE OF $\frac{1}{16}$".
- TO ENSURE OPTIMUM REPAIR RESULTS, THE EFFECTIVENESS OF DECONTAMINATION AND PREPARATION SHOULD BE ASSESSED BY A PULL-OFF TEST.
- SAW CUTTING OF EDGES IS PREFERRED AND A DOVETAIL IS RECOMMENDED.
- SUBSTRATE SHOULD BE SATURATED SURFACE DRY (SSD) WITH CLEAN WATER PRIOR TO APPLICATION. NO STANDING WATER SHOULD REMAIN DURING APPLICATION.
- REPAIR AREA SHALL NOT BE LESS THAN 1/4" IN DEPTH.

STEP 2: PRIMING

- <u>REINFORCING STEEL:</u> STEEL REINFORCEMENT SHOULD BE THOROUGHLY PREPARED BY MECHANICAL CLEANING TO REMOVE ALL TRACES OF RUST. WHERE CORROSION HAS OCCURRED DUE TO THE PRESENCE OF CHLORIDES, THE STEEL SHOULD BE HIGH PRESSURE WASHED WITH CLEAN WATER AFTER MECHANICAL CLEANING. FOR PRIMING OF REINFORCING STEEL USE SIKA ARMATEC 110 EPOCEM (OR APPROVED EQUIVALENT).
- <u>CONCRETE SUBSTRATE:</u>
  - PRIME THE PREPARED SUBSTRATE WITH A BRUSH OR SPRAYED APPLIED COAT OF SIKA ARMATEC 110 EPOCEM (OR APPROVED EQUIVALENT)
  - ALTERNATELY, A SCRUB COAT OF SIKATOP-123 PLUS (OR APPROVED EQUIVALENT) CAN BE APPLIED PRIOR TO PLACEMENT OF THE MORTAR. THE REPAIR MORTAR HAS TO BE APPLIED INTO THE WET SCRUB COAT BEFORE IT DRIES.

STEP 3: MIXING

- MIX THE SIKATOP-123 PLUS (OR APPROVED EQUIVALENT) COMPONENTS ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

STEP 4: APPLICATION

- SIKATOP-123 PLUS (OR APPROVED EQUIVALENT) MUST BE SCRUBBED INTO THE SUBSTRATE, FILLING ALL PORES AND VOIDS.
- FORCE MATERIAL AGAINST THE EDGE OF REPAIR, WORKING TOWARD THE CENTER.
- AFTER FILLING REPAIR, CONSOLIDATE, THEN SCREED.
- WHERE MULTIPLE LIFTS ARE REQUIRED, SCORE TOP OF SURFACE OF EACH LIFT TO PRODUCE A ROUGHENED SURFACE FOR NEXT LIFT.
- ALLOW PRECEDING LIFT TO REACH INITIAL SET, 30 MINUTES MINIMUM, BEFORE APPLYING FRESH MATERIAL.
- SUBSTRATE SHOULD BE SATURATED SURFACE DRY (SSD) WITH CLEAN WATER PRIOR TO APPLICATION. NO STANDING WATER SHOULD REMAIN DURING APPLICATION.
- SCRUB FRESH MORTAR INTO PRECEDING LIFT.
- ALLOW MORTAR OR CONCRETE TO SET TO DESIRED STIFFNESS, THEN FINISH WITH WOOD OR SPONGE FLOAT FOR A SMOOTH SURFACE.

NOTE: SIKATOP-123 PLUS MUST BE APPLIED AT A MIN. AMBIENT AIR TEMPERATURE OF 45°F. TO ACHIEVE THIS CONDITION A HEATED ENCLOSURE MAY NEED TO BE PROVIDED TO REACH THE DESIRED TEMPERATURE.

STEP 5: CURING

- AS PER ACI RECOMMENDATIONS FOR PORTLAND CEMENT CONCRETE, CURING IS REQUIRED.
- MOIST CURE WITH WET BURLAP AND POLYETHYLENE, A FINE MIST OF WATER OR WATER BASED COMPATIBLE CURING COMPOUND (ASTM C-309).
- MOIST CURING SHOULD COMMENCE IMMEDIATELY AFTER FINISHING. PROTECT FRESHLY APPLIED MORTAR FROM DIRECT SUNLIGHT, WIND, WATER AND FROST.

## SIKAGARD FLEXCOAT SYSTEM INSTALLATION PROCEDURE:

(TO BE USED FOR BRIDGE DECK AND CURB RESURFACING)

STEP 1: PREPARATION

- SURFACE MUST BE CLEAN AND SOUND. REMOVE ALL DETERIORATED CONCRETE, DIRT, OIL, GREASE, AND OTHER BOND-INHIBITING MATERIALS FROM THE AREA TO BE REPAIRED.
- AN OPEN TEXTURED SURFACE ICRI CSP-3 IS RECOMMENDED.
- DEEPER AREAS SHALL BE PATCHED WITH APPROPRIATE PATCH MATERIAL LIKE SIKAQUICK® OR SIKAREPAIR® PRODUCTS.

STEP 2: MIXING

- PLACE THE LIQUID COMPONENT IN APPROPRIATE MIXING CONTAINER. IT IS ALWAYS RECOMMENDED TO START MIXING WITH APPROXIMATELY 80 % OF THE LIQUID.
- ADD THE POWDER WHILE CONTINUING TO MIX WITH A LOWSPEED DRILL (400–600 RPM) AND PADDLE. MIX TO A UNIFORM CONSISTENCY, MAXIMUM 3 MINUTES.

STEP 3: APPLICATION

- PRE-WET SURFACE TO SSD (SATURATE SURFACE DRY).
- ENSURE GOOD INTIMATE CONTACT WITH THE SUBSTRATE IS ACHIEVED.
- SIKAGARD® FLEXCOAT CAN BE APPLIED IN MULTIPLE COATS BY BRUSH, ROLLER, TROWEL OR SPRAY TO A TYPICAL THICKNESS OF 60 MILS (1.5 MM).
- APPLY FIRST COAT OF SIKAGARD® FLEXCOAT. APPLY FOLLOWING COATS (ONE OR TWO DEPENDING ON SERVICE CONDITIONS/ REQUIREMENTS) BY BRUSH, TROWEL ROLLER OR SPRAY.
- FINISH TO SPECIFIED TEXTURE.
- PROTECT NEWLY APPLIED SIKAGARD® FLEXCOAT FROM DIRECT SUNLIGHT, WIND, RAIN AND FREEZING.

STEP 4: COLOR FINISH (OPTIONAL)

- APPLY SIKAGARD ® FLEXCOAT ATC ACRYLIC TOP COAT FOR COLOR FINISH, WHEN SPECIFIED, IN TWO COATS BY ROLLER, BRUSH OR SPRAY.

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