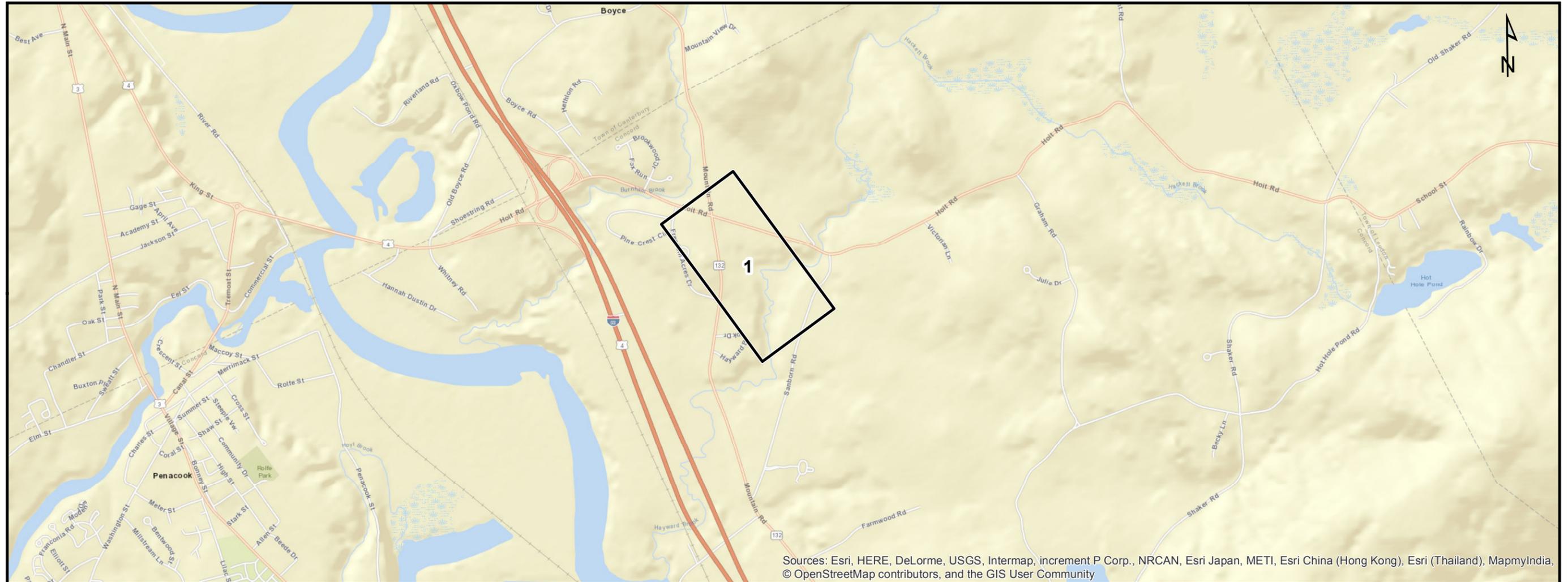


F139 STORM HARDENING PROJECT

CONCORD, NEW HAMPSHIRE ACCESS AND IMPACT PLANS

9/6/2017



PREPARED FOR



INDEX OF FIGURES

1 inch = 1,943 feet

- T1: TITLE SHEET
- 1: MAP SHEETS
- S1: NOTES
- S2: DETAILS

PREPARED BY





Franklin ← Current Town: Concord → Concord

LOCAL WETLAND BUFFER	POTENTIAL VERNAL POOL
STABILIZED CONSTRUCTION ENTRANCE	CONFIRMED VERNAL POOL
ARCHAEOLOGICAL SENSITIVITY AREA	APPROXIMATE ROW
V182 STRUCTURES	WETLAND
F139 STRUCTURE - NO PROPOSED WORK	DOT ROADS
F139 STRUCTURE - REPLACE	DISTRIBUTION LINE
WORK PAD	V182 TRANSMISSION LINE
TEMPORARY LOCAL BUFFER IMPACT	F139 TRANSMISSION LINE
ACCESS ROUTE	TOWN BOUNDARY
ABUTTER PARCEL	EROSION CONTROLS
PARCEL BOUNDARY	10FT ELEVATION CONTOURS
	2FT ELEVATION CONTOURS

NOTES:

1. AERIAL IMAGERY IS DATED TO 2015.
2. DATA LAYERS INCLUDING "APPROXIMATE ROW" AND "WETLANDS" WERE PROVIDED BY DOUGET SURVEY, INC. "WETLANDS" WERE FURTHER VERIFIED BY GZA GEOENVIRONMENTAL IN APRIL AND MAY, 2017 USING A HAND-HELD GPS UNIT WITH THE GIS PROGRAM ICMTGIS II. WITH AN APPROXIMATE ACCURACY RANGE OF 3-5 METERS.
3. DATA LAYERS INCLUDING "V182 STRUCTURES", "F139 STRUCTURES", "V182 TRANSMISSION LINE", AND "F139 TRANSMISSION LINE" WERE PROVIDED BY EVERSOURCE.
4. DATA LAYERS INCLUDING "DOT ROADS", "PARCEL BOUNDARY", "NHD FLOWLINE", AND "TOWN BOUNDARY" WERE OBTAINED FROM UNH GRANIT.
5. 10FT ELEVATION CONTOURS WERE GENERATED FROM LIDAR DATA OBTAINED FROM UNH GRANIT.

1 inch = 200 feet

0 100 200 400 Feet

F139 STORM HARDENING PROJECT

ACCESS AND IMPACT PLANS
SEPTEMBER 06, 2017

CONCORD
NEW HAMPSHIRE
PAGE 1 OF 1

Project No.: 04.0190507.23 Aerial Imagery: 2015

EVERSOURCE ENERGY

GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

CONSTRUCTION SEQUENCE:

1. WETLAND BOUNDARIES TO BE CLEARLY MARKED PRIOR TO THE START OF CONSTRUCTION.
2. SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE DETAIL PROVIDED, AS NECESSARY.
3. WETLAND IMPACTS ASSOCIATED WITH WETLAND CROSSINGS ARE REQUIRED FOR ACCESS BETWEEN STRUCTURES WITHIN THE RIGHT OF WAY. CONSTRUCTION ACTIVITIES SHALL OCCUR DURING PERIODS OF LOW FLOW.
4. ADEQUATE PRECAUTION SHALL BE EXERCISED TO AVOID SPILLAGE OF FUEL OILS, CHEMICALS, OR SIMILAR SUBSTANCES; NO FUELS, LUBRICANTS, CHEMICALS OR SIMILAR SUBSTANCES SHALL BE STORED BENEATH TREES OR IN THE VICINITY OF ANY WETLANDS, RIVER, STREAM OR OTHER BODY OF WATER; OR IN THE VICINITY OF NATURAL OR MAN-MADE CHANNELS LEADING THERETO. NO POWER EQUIPMENT SHALL BE STORED, MAINTAINED, OR FUELED IN ANY AREA ADJACENT TO A WETLAND, RIVER, STREAM OR OTHER BODY OF WATER.
5. REMOVE COMPLETELY ALL CONTAMINATION FROM ANY SPILLAGE OF CHEMICALS OR PETROLEUM PRODUCT WITH COMPLETE REHABILITATION OF THE AFFECTED AREA.
6. ACCESS ROUTES HAVE BEEN SELECTED TO PREVENT DEGRADATION OF THE RIGHT-OF-WAY AND MINIMIZE ENVIRONMENTAL IMPACT. ALL OPERATIONS SHALL BE CONFINED TO THE SPECIFIED ACCESS ROUTES WITHIN THE PROPOSED WETLAND IMPACT AREA. ALL ACCESS ROUTES SHALL NOT EXCEED A 16 FOOT-WIDTH.
7. IMPACT TO VEGETATION WITHIN WETLAND BUFFERS WILL BE LIMITED TO THE EXTENT NECESSARY TO PLACE THE SWAMP MATS WHERE REQUIRED.
8. ALL LOW GROWING VARIETIES OF VEGETATION ADJACENT TO WETLANDS SHALL BE PRESERVED TO THE EXTENT POSSIBLE. STUMPS AND ROCKS SHALL NOT BE REMOVED, AND THERE SHALL BE NO EXCAVATIONS, FILLS OR GRADING DONE ADJACENT TO WETLANDS, UNLESS MINOR EXCAVATIONS IS NEEDED FOR ACCESS.
9. SWAMP MATS WILL BE USED ALONG ALL ACCESS ROUTES WITHIN WETLAND AREAS. THESE MATS ARE CONSTRUCTED OF HEAVY TIMBERS OR COMPOSITE MATERIAL, BOLTED TOGETHER, AND ARE PLACED END-TO-END IN THE WETLAND TO SUPPORT HEAVY EQUIPMENT. ALL SWAMP MATS SHALL BE PLACED AND REMOVED SO AS NOT TO CAUSE ANY RUTS, CHANNELS OR DEPRESSIONS, OR OTHERWISE CAUSE ANY UNDUE DISTURBANCE TO WETLANDS.
10. IF SWAMP MAT BMP IS NOT SUFFICIENT DUE TO HIGH WATER, ADDITIONAL BMP'S MAY INCLUDE THE PLACEMENT OF GEOTEXTILE FABRIC, 3"-4" STONE, AND GRAVEL TO PROVIDE A SUITABLE ROAD BED. A TEMPORARY CULVERT MAY BE REQUIRED IN AREAS OF HIGH FLOW TO MAINTAIN HYDROLOGIC CONNECTIVITY. ALL MATERIAL WILL BE REMOVED FROM JURISDICTIONAL AREAS AFTER CONSTRUCTION COMPLETION.
11. NO MATERIAL SHALL BE PLACED IN ANY LOCATION OR IN ANY MANNER SO AS TO IMPAIR SURFACE WATER FLOW INTO, THROUGH OR OUT OF ANY WETLAND AREA. NO INSTALLATION SHALL CREATE AN IMPOUNDMENT THAT WILL IMPEDE THE FLOW OF WATER OR CAUSE FLOODING.
12. ANY PROPOSED SUPPORT FILLS SHALL BE CLEAN GRAVEL AND STONE, FREE OF WASTE METAL PRODUCTS, ORGANIC MATERIALS AND SIMILAR DEBRIS AND SHALL NOT EXCEED THE AMOUNT PERMITTED. THIS ALLOWABLE FILL IS THE ONLY FILL THAT MAY REMAIN IN THE WETLAND AFTER CONSTRUCTION.
13. COMPLETE POLE REPLACEMENT.
14. ALL SWAMP MATS, MATERIAL, AND DEBRIS WILL BE REMOVED FROM THE WORK AREA UPON THE COMPLETION OF CONSTRUCTION.
15. UPLAND DISTURBED AREAS SHALL BE RESTORED AND STABILIZED UPON COMPLETION OF CONSTRUCTION.
16. ALL TEMPORARY WETLAND IMPACTS WILL BE RE-GRADED TO ORIGINAL CONTOURS FOLLOWING CONSTRUCTION. NEW ENGLAND EROSION CONTROL/RESTORATION MIX, AVAILABLE THROUGH NEW ENGLAND WETLAND PLANTS, INC., 820 WEST STREET, AMHERST, MA 01002, 413-548-8000, OR EQUIVALENT SEED MIX SHALL BE APPLIED IN WETLAND AREAS THAT ARE NOT INUNDATED, AS NECESSARY.
17. SEDIMENT AND EROSION CONTROL MEASURES WILL BE EVALUATED AND REMOVED IF NECESSARY UPON THE COMPLETION OF CONSTRUCTION.

GENERAL NOTES:

OWNER: EVERSOURCE ENERGY
13 LEGENDS DRIVE
HOOKSETT, NH 03106

1. BASE PLAN PROVIDED BY EVERSOURCE ENERGY. GZA DELINEATED AND LOCATED WETLANDS USING A HANDHELD ARROW EOS GNSS RECEIVER. EVERSOURCE ENERGY PROVIDED THE UTILITY DESIGN.
2. JURISDICTIONAL WETLANDS WERE DELINEATED BY GZA GEOENVIRONMENTAL, INC. ON JULY 17,18,19,21,22,23,25, 2016 IN ACCORDANCE WITH THE 1987 U.S. ARMY CORPS OF ENGINEERS' "WETLANDS DELINEATION MANUAL, TECHNICAL REPORT Y-87-1," AND REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTH CENTRAL AND NORTHEAST REGION," JANUARY 2012.
3. GZA EVALUATED WETLANDS AS POTENTIAL VERNAL POOLS ON JULY 17,18,19,21,22,23,25, 2016 IN ACCORDANCE WITH "IDENTIFICATION AND DOCUMENTATION OF VERNAL POOLS IN NEW HAMPSHIRE", 2016, NEW HAMPSHIRE FISH AND GAME DEPARTMENT, NONGAME AND ENDANGERED WILDLIFE PROGRAM.
4. GZA PERFORMED A WETLANDS FUNCTION AND VALUES ASSESSMENT IN ACCORDANCE WITH THE ACOE'S "HIGHWAY METHODOLOGY WORKBOOK SUPPLEMENT," SEPTEMBER 1999, AND CLASSIFIED WETLANDS IN ACCORDANCE WITH THE "CLASSIFICATION OF WETLAND DEEP WATER HABITATS OF THE UNITED STATES" (COWARDIN, 1979).
5. SITE PLAN IS FOR PERMITTING PURPOSES ONLY AND DOES NOT REPRESENT A PROPERTY BOUNDARY SURVEY.

EROSION CONTROL NOTES:

1. INSTALLATION OF STRAW WATTLE, EROSION CONTROL GRINDINGS AND/OR SILT FENCES SHALL BE COMPLETE PRIOR TO THE START OF WORK IN ANY GIVEN AREA. EROSION CONTROLS SHALL BE USED DURING CONSTRUCTION AND REMOVED WHEN ALL SLOPES HAVE A HEALTHY STAND OF VEGETATION COVER. EROSION CONTROL MEASURES SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER .25" OR GREATER RAINFALL EVENTS.
2. AS REQUIRED CONSTRUCT TEMPORARY BERMS, SILTATION FENCES, SEDIMENT TRAPS, ETC. TO PREVENT EROSION & SEDIMENTATION OF WETLANDS.
3. THE WORK AREA SHALL BE GRADED AND SHAPED IN SUCH A MANNER AS TO MINIMIZE SOIL EROSION, SILTATION OF DRAINAGE CHANNELS, DAMAGE TO EXISTING VEGETATION, AND DAMAGE TO PROPERTY OUTSIDE LIMITS OF THE WORK AREA. EROSION CONTROL GRINDINGS WILL BE NECESSARY TO ACCOMPLISH THIS END.
4. ANY STRIPPED TOPSOIL SHALL BE STOCKPILED, WITHOUT COMPACTION, AND STABILIZED AGAINST EROSION, AS NECESSARY.
5. PERMANENT OR TEMPORARY COVER MUST BE IN PLACE BEFORE THE GROWING SEASON ENDS. WHEN SEEDS 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 RYEGRASS PRIOR TO OCTOBER 15TH.

UNLESS SPECIFICALLY STATED BY WRITTEN AGREEMENT, THIS DRAWING IS THE SOLE PROPERTY OF GZA GEOENVIRONMENTAL, INC. (GZA). THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR THE USE BY GZA'S CLIENT OR THE CLIENT'S DESIGNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. THE DRAWING SHALL NOT BE TRANSFERRED, REUSED, COPIED, OR ALTERED IN ANY MANNER FOR USE AT ANY OTHER LOCATION OR FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF GZA. ANY TRANSFER, REUSE, OR MODIFICATION TO THE DRAWING BY THE CLIENT OR OTHERS, WITHOUT THE PRIOR WRITTEN EXPRESS CONSENT OF GZA, WILL BE AT THE USER'S SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA.

F139 TRANSMISSION LINE STORM HARDENING PROJECT
CONCORD
NEW HAMPSHIRE

NOTES

 GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: 	
PROJ MGR: TLT	REVIEWED BY: DMZ	CHECKED BY: TLT	SHEET
DESIGNED BY: LEW	DRAWN BY: LEW	SCALE:	1
DATE: 09/06/2017	PROJECT NO: 04.0190507.23	REVISION NO:	

Best Management Practices (BMP's) for Straw wattles

Definition and purpose:

Straw wattles are burlap rolls filled with straw that trap sediment and interrupt water flow by reducing slope lengths.

Applications:

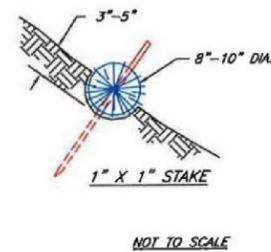
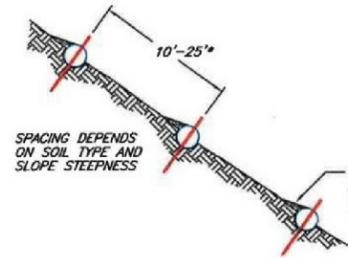
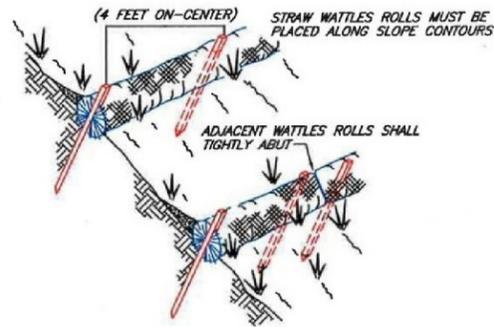
- * Along erodible or unstabilized slopes
- * Spread overland waterflow
- * Trap sediment
- * Around storm drain inlets to slow water and settle out sediment

Installation:

Straw wattles are installed parallel to slope contours and perpendicular to sheet flow.

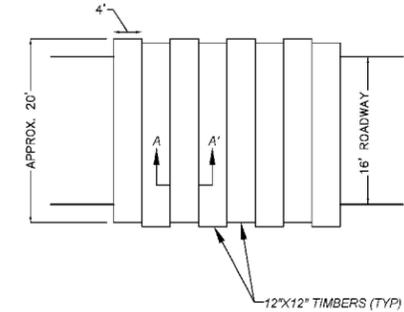
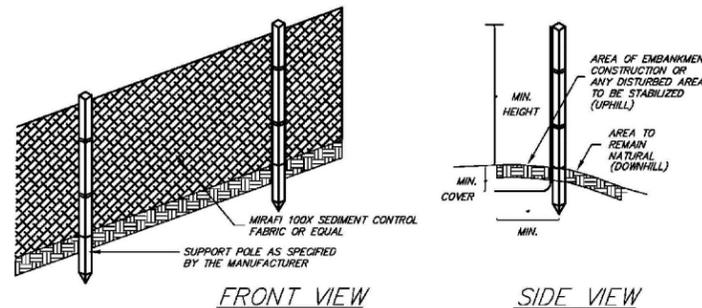
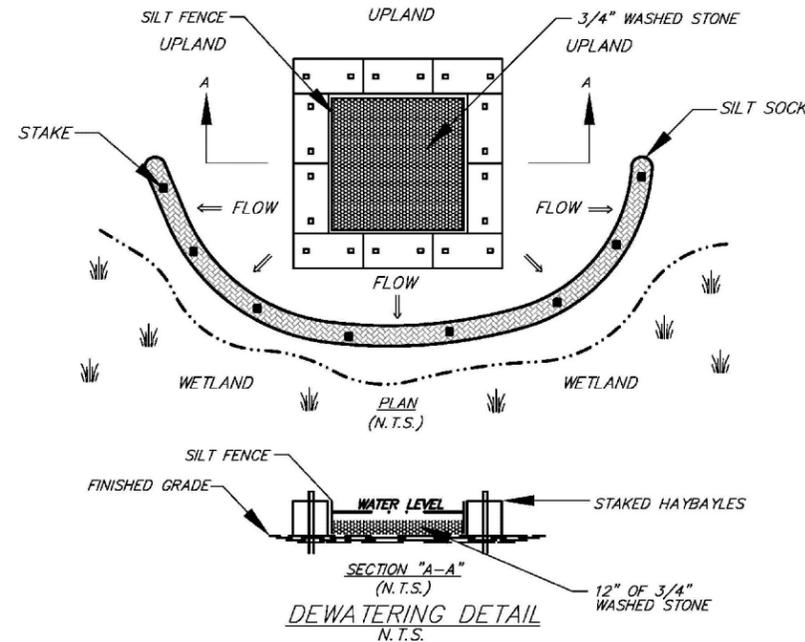
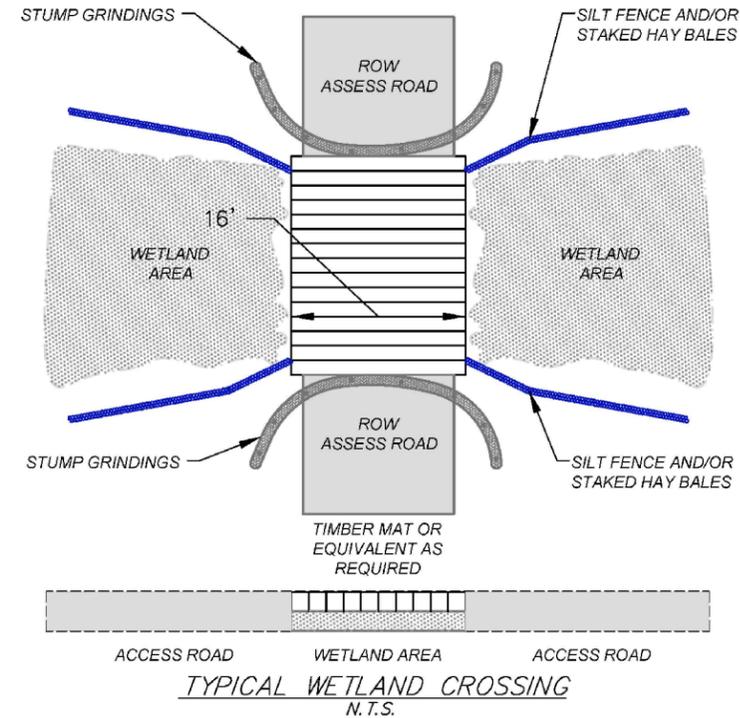
Spacing* - Dependent on slope length, soil steepness and soil type (general range 10 - 25').

Trenching - 2"-5" inch trench
Stacking - at each end and four foot on center (i.e. 25 foot wattle uses 6 stacks)



NOTES (SILT FENCE)

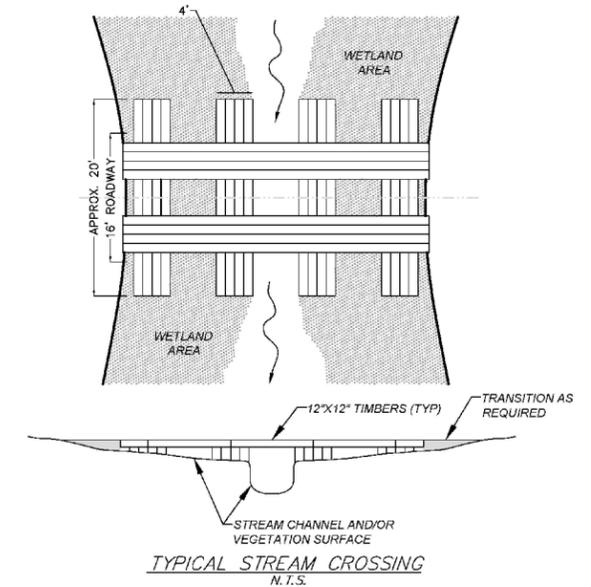
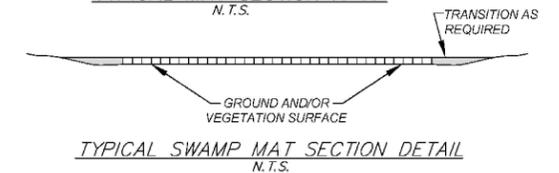
1. THE HEIGHT OF THE BARRIER SHALL NOT EXCEED 36 INCHES.
2. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6-INCH OVERLAP, AND SECURELY SEALED. SEE MANUFACTURER'S RECOMMENDATIONS.
3. POSTS SHALL BE PLACED AT A MAXIMUM OF 10 FEET APART AT THE BARRIER LOCATION AND DRIVEN SECURELY INTO THE GROUND (MINIMUM OF 12 INCHES). WHEN EXTRA STRENGTH FABRIC IS USED WITHOUT THE WIRE SUPPORT FENCE, POST SPACING SHALL BE AS MANUFACTURER RECOMMENDS.
4. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 6 INCHES WIDE AND 6 INCHES DEEP ALONG THE LINE OF POSTS AND UPSLOPE OF THE BARRIER IN ACCORDANCE WITH RECOMMENDATIONS
5. THE FABRIC SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE, AND WILL EXTEND A MINIMUM OF 8 INCHES INTO THE TRENCH. FILTER FABRIC SHALL NOT BE STAPLED TO EXISTING TREES.
6. THE TRENCH SHALL BE BACKFILLED AND THE SOIL COMPACTED OVER THE FILTER FABRIC.
7. FABRIC BARRIERS SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.
8. FILTER BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST ONCE DAILY DURING PROLONGED RAINFALL AND ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
9. SHOULD THE FABRIC DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL BE NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY.
10. SEDIMENT DEPOSITS SHOULD BE REMOVED WHEN THEY REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.
11. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE OR FILTER BARRIER IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDED.



TYPICAL SWAMP MAT PLAN VIEW
N.T.S.



TYPICAL MAT SECTION A-A
N.T.S.



TYPICAL STREAM CROSSING
N.T.S.

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CONCORD
NEW HAMPSHIRE

DETAILS

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

PREPARED FOR:
EVERSOURCE
ENERGY

PROJ MGR: TLT
DESIGNED BY: MJD
DATE: 09/06/2017

REVIEWED BY: DMZ
DRAWN BY: MJD
PROJECT NO: 04.0190507.23

CHECKED BY: TLT
SCALE:
REVISION NO.

SHEET
2