

**MASS. STREAM CROSSING STANDARDS**

WIDTH: 1.2 X 5 = 6'  
 12' PROVIDED  
 OPENNESS: (HEIGHT X WIDTH)/LENGTH  
 (4'-1/2" AVG. X 12)56 = 0.96>0.82

**RESOURCE IMPACTS**

**BORDERING VEGETATED WETLANDS (BWM)**

BW CONVERTED TO LUW	UPSTREAM	-593 SF	DOWNSTREAM	-143 SF
BW LOST TO FILL SLOPE		-36 SF		
NET LOSS		-631 SF		-199 SF =

**LAND UNDER WATER (LUW)**

BW CONVERTED TO LUW	+99 SF	+16 SF
BW ADDED-DOWNSTREAM CHANNEL RESTORATION	-20 SF	
LUW ADDED	+140 SF	
NET GAIN	+174 SF	+159 SF =

**RIVERFRONT RIPARIAN ZONE**

RIVERBANK LOST	-55 SF	-20 SF
RIVERBANK ADDED	+52 SF	+38 SF
NET GAIN ADDS 172 LF OF BANK	+2 SF	+18 SF
NET GAIN 192 LF OF BANK		

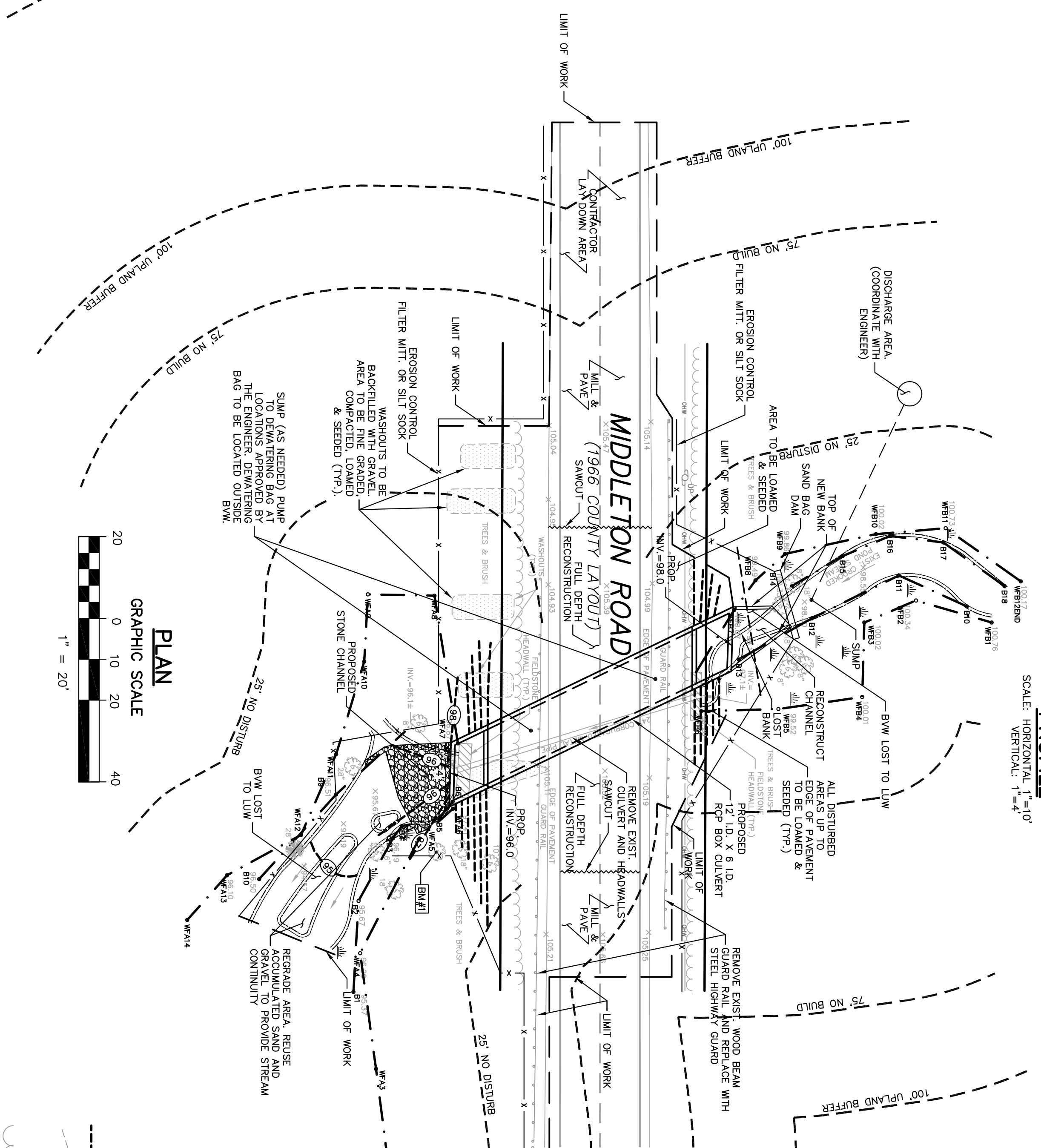
**PAVEMENT NOTES:**

**ROADWAY PAVEMENT: (FULL DEPTH RECONSTRUCTION)**  
 SUBSURFACE COURSE:  
 3-1/2" HOT MIX ASPHALT PAVEMENT PLACED IN TWO LAYERS, 1-1/2" TOP COURSE MATERIAL OVER 2" BINDER COURSE MATERIAL.  
 BASE COURSE:  
 3" HOT MIX ASPHALT BASE COURSE MATERIAL, PLACED IN ONE LAYER.  
 SUBBASE: 12" GRAVEL BURROW

**ROADWAY PAVEMENT: (COLD PLANING/RESURFACING)**  
 SURFACE COURSE:  
 1-1/2" MIN HOT MIX ASPHALT PAVEMENT PLACED IN ONE LAYER, TOP COURSE MATERIAL.  
 MILLED PAVEMENT SURFACE TREATED WITH BRUMEN FOR TACK COAT, 0.07 GAL. PER SF.  
**TEMPORARY PATCH:**  
 SURFACE COURSE:  
 3" HOT MIX ASPHALT BASE COURSE MATERIAL PLACED IN ON LAYER.  
 SUBBASE:  
 GRAVEL BORROW

**BENCHMARKS (ASSUMED DATUM)**

NO.	DESCRIPTION	ELEVATION
BM#1	MAG NAIL SET IN TREE	100.00



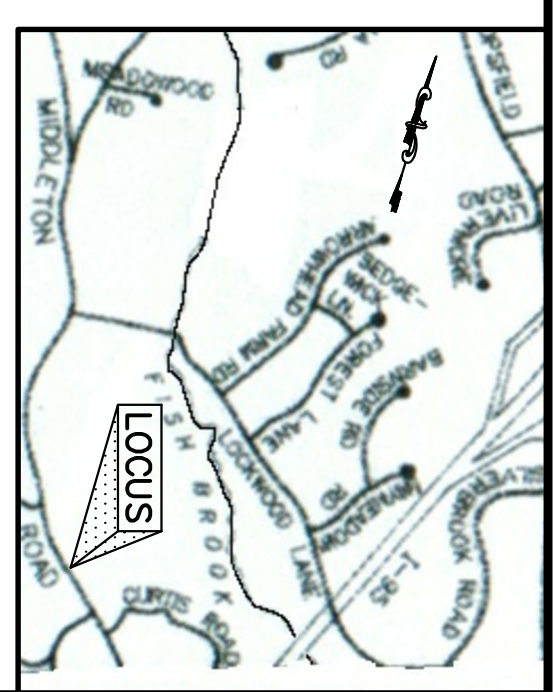
**LEGEND**

- EXISTING UTILITY POLE
- EXISTING TREE
- PROPOSED CONTOUR
- EXISTING CONTOUR
- EXISTING SPOT GRADE
- EXISTING TREE/BRUSH LINE
- EXISTING OVERHEAD WIRE
- BENCH MARK (SEE CHART)
- RIVERFRONT DELINEATION
- WETLANDS DELINEATION
- AXX OR BXX
- WFX

**PREPARED FOR:**  
 TOWN OF BOXFORD DEPARTMENT  
 OF PUBLIC WORKS

**CONSTRUCTION NOTES (SEE CONSTRUCTION SEQUENCE)**

1. INSTALL SEDIMENTATION AND EROSION CONTROLS PRIOR TO BEGINNING WORK.
2. ALL WORK SHALL BE CLOSELY COORDINATED WITH THE BOXFORD CONSERVATION COMMISSION OR THEIR DESIGNEE.
3. ALL IN-STREAM WORK SHALL BE COORDINATED SO THAT THE CULVERT REMOVAL AND NEW CULVERT INSTALLATION BEGINS AND IS COMPLETED DURING A PERIOD OF LOW FLOW. CONSTRUCTION IS PROHIBITED DURING PERIODS OF HIGH FLOW. THE ORDER OF CONSTRUCTION SHALL BE DETERMINED BY THE ENGINEER. THE VERIFICATION OF WEATHER CONDITIONS SHALL BE SUBMITTED TO THE BOXFORD DEPARTMENT OF PUBLIC WORKS FOR REVIEW AND APPROVAL PRIOR TO COMMENCING WORK.
4. EXISTING STREAMBED MATERIAL SHALL BE STOCKPILED SEPARATELY FOR REUSE. ADDITIONAL STREAMBED MATERIAL SHALL CONSIST OF CLEAN GRANULAR MATERIAL WITH THE SAME GRADATION AS THE EXISTING STREAM CHANNEL. STREAMBED MATERIAL SHALL BE DURABLE WASHED ROUNDED AGGREGATE FREE OF FINES, ORGANIC AND DEBRIS. MATERIAL SHALL BE STORED IN A MANNER THAT PREVENTS EROSION. THE ENGINEER SHALL APPROVE MATERIAL PRIOR TO PLACEMENT.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL OF WATER AND SEDIMENT. ALL ACTIVITIES INCLUDING BLOWING, GRADING, AND UNLOADING SHALL BE STOPPED IMMEDIATELY IF THERE IS A RISK OF EROSION OR SEDIMENT FROM LEAVING THE SITE AND ENTERING WETLAND RESOURCE AREAS.
6. THE RETRIEVAL OF VEHICLES AND/OR THE STOCKPILING OF NEW OR EXCAVATED FILL MATERIALS WITHIN 100 FEET OF THE STREAM NOT BE PERMITTED.
7. THE CONTRACTOR SHALL COORDINATE ROAD CLOSURE CLOSELY WITH THE TOWN OF BOXFORD DEPARTMENT OF PUBLIC WORKS, TOWN MANAGER, POLICE, FIRE AND NEIGHBORING TOWN PUBLIC SAFETY DEPARTMENTS IN ACCORDANCE WITH ANY MUTUAL AID AGREEMENTS WITH THE MANUFACTURER'S REQUIREMENTS.
8. WORK IN WETLAND RESOURCE AREAS SHALL BE CONDUCTED MANUALLY WITH EXCEPTION OF HAND HELD TOOLS, NO MECHANICAL EQUIPMENT SHALL BE OPERATED WITH THE RESOURCE AREAS AND STREAM.
9. DISTURBED AREAS AND SLOPES SHALL BE STABILIZED WITH APPROVED SEED MIX, PLANTINGS AND/OR EROSION CONTROL BLANKET AS NECESSARY, AS SHOWN ON THE PLANS, DETAILS AND SECTIONS, OR AS DIRECTED BY THE ENGINEER OR THE TOWN PRIOR TO REMOVING WATER CONTROL MEASURES.
10. DEBRIS FROM CONSTRUCTION THAT FALLS INTO THE RESOURCE AREA WILL BE REMOVED PRIOR TO THE COMPLETION OF EACH WORKDAY.
11. ALL DISTURBED LAND UNDER WATER AREAS SHALL BE STABILIZED AS INDICATED ON THE PLANS, DETAILS AND SECTIONS, OR AS DIRECTED BY THE ENGINEER OR THE TOWN PRIOR TO REMOVING WATER CONTROL MEASURES.
12. EROSION AND SEDIMENTATION CONTROLS SHALL BE REMOVED AFTER COMPLETION OF CONSTRUCTION AND RESTORATION OF THE RESOURCE AREA TO THE ORIGINAL CONDITION OR DESIGN.
13. CONSTRUCTION DISTURBANCE TO VEGETATED WETLAND BUFFER AREA MUST BE RESTORED TO EXISTING CONDITIONS. RESTORATION SHALL INCLUDE ALL EXISTING PLANTINGS.



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**NOTICE OF INTENT**  
 CROOKED POND STREAM CROSSING  
 MIDDLETON ROAD  
 BOXFORD, MASSACHUSETTS