

CONSTRUCTION

- AT LEAST 72 HOURS PRIOR TO STARTING CONSTRUCTION, THE CONTRACTOR MUST NOTIFY THE DIG SAFE CENTER AT 1-888-344-7233 OR 1-888-DIG-SAFE AND PROCURE A DIG SAFE NUMBER FOR EACH LOCATION PRIOR TO DISTURBING THE EXISTING GROUND IN ANY WAY.
- THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL PERMITS, LICENSES, SAFETY CODES, LEGAL REQUIREMENTS, ETC. IN THE CONSTRUCTION OF ALL IMPROVEMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL CONSTRUCTION PERMITS AND LICENSES FROM THE NEW ENGLAND CENTRAL RAILROAD, TOWN OF BRATTLEBORO, VERMONT AGENCY OF TRANSPORTATION OR ANY OTHER LOCAL, STATE OR FEDERAL AGENCIES TO CONSTRUCT THE PROJECT. ALL NECESSARY FEES AND PERMITS SHALL BE PAID FOR BY THE CONTRACTOR.
- ALL SIGNS AND PAVEMENT MARKINGS SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES; THE LETTERING GUIDE OF THE U.S. D.O.T. F.H.W.A., THE VAOT TRAFFIC DESIGN MANUAL AND THE VAOT STANDARD DRAWINGS.
- ALL TREES AND STUMPS WITHIN THE LIMITS OF PROPOSED CONSTRUCTION ARE TO BE REMOVED UNLESS OTHERWISE INDICATED ON THE PLANS OR DIRECTED BY THE ENGINEER.
- ALL SURFACES DISTURBED BY THIS WORK SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AS DETAILED OR AS SPECIFIED BY THE ENGINEER.
- REMOVE ENTIRELY ALL PAVEMENT, EDGES, WALLS AND OTHER MATERIALS INDICATED TO BE REMOVED. PAVEMENT SHALL BE SAW CUT AND PROTECTED FROM DAMAGE UNTIL NEW PAVEMENT IS PLACED AGAINST IT.
- STRIPPED TOPSOIL SHALL BE STOCKPILED ON THE SITE AS DIRECTED BY THE ENGINEER. NO STRIPPING OF TOPSOIL WILL BE ALLOWED IN ANY AREA WHERE THE GRADES ARE NOT TO BE ALTERED.
- PITCH EVENLY BETWEEN SPOT GRADES. ALL PAVING AREAS MUST PITCH TO DRAIN AT MIN. PITCH OF 1/8" PER FOOT UNLESS OTHERWISE SHOWN. REPORT ANY DISCREPANCIES BETWEEN EXISTING AND PROPOSED GRADES THAT DO NOT PITCH ACCORDINGLY TO THE ENGINEER BEFORE COMMENCING WORK.
- ALL EXISTING MANHOLES AND DRAINAGE STRUCTURES WITHIN THE PROJECT WORK AREA SHALL BE ADJUSTED TO GRADE OR REMODELED UNLESS OTHERWISE NOTED.
- THE MAXIMUM SIDE SLOPE SHALL BE 1:2 EXCEPT IN STONE FILL AND ROCK CUT AREAS.
- IT IS THE INTENT OF THIS CONTRACT THAT ALL EXISTING FEATURES LOCATED OUTSIDE OF SLOPE LIMIT LINES ARE TO REMAIN IN PLACE UNLESS OTHERWISE NOTED.
- IF ROCK IS ENCOUNTERED AT AN ELEVATION HIGHER THAN THE PROPOSED FOOTING THEN IT SHALL BE REMOVED TO A DEPTH THAT WILL ALLOW THE MINIMUM FOOTING THICKNESS SHOWN ON THE PLANS. IF ROCK IS ENCOUNTERED LOWER THAN PROPOSED BOTTOM OF FOOTING, THE CONTRACTOR SHALL FILL THE AREA WITH CONCRETE AS DIRECTED BY ENGINEER.

SOLID ROCK REMOVAL BY VARIOUS METHODS

- CONTROLLED BLASTING FOR SOLID ROCK EXCAVATION AND CLOSE-IN EXCAVATION INCLUDING MECHANICAL ROCK REMOVAL ADJACENT TO SENSITIVE STRUCTURES ASSOCIATED WITH THE RAILWAY BRIDGE REPLACEMENT AND ROADWAY CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND CONTRACTORS MEANS AND METHODS APPROVED BY THE ENGINEER.
- ROCK REMOVAL WITHIN 1.5 METERS OF SENSITIVE STRUCTURES IDENTIFIED BY THE ENGINEER SHALL BE COMPLETED USING NON-BLASTING METHODS ONLY.
- ROCK REMOVAL WITHIN 10 METERS OF SENSITIVE STRUCTURES SHALL BE COMPLETED IN ACCORDANCE WITH THE SPECIFICATIONS AND CONTRACTORS APPROVED PLAN FOR CLOSE-IN BLASTING METHODS ONLY.
- THE BLASTING SUB-CONTRACTOR SHALL SUBMIT THE FOLLOWING DOCUMENTS IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS: PLANNED ROCK EXCAVATION METHOD, BLASTER AND DRILLER EXPERIENCE, WORKING DRAWINGS AND SCHEDULE, AND BLASTING PLAN.
- AS OUTLINED IN THE SPECIFICATIONS A PREBLASTING MEETING WILL BE HELD PRIOR TO THE COMMENCEMENT OF BLASTING.
- ALL BLASTING OPERATIONS, INCLUDING DRILLING WITHIN THE RAILROAD RIGHT-OF-WAY, WILL BE COORDINATED WITH THE RAILROAD. NO BLASTING OPERATIONS WILL BE ALLOWED DURING THE PASSAGE OF EITHER A FREIGHT OR PASSENGER TRAIN.

STRUCTURAL STEEL

- ALL STRUCTURAL STEEL SHALL BE DETAILED AND FABRICATED USING PROCEDURES AND TOLERANCES IN ACCORDANCE WITH APPLICABLE PUBLICATIONS OF THE AMERICAN RAILWAY ENGINEERING AND MAINTENANCE-OF-WAY ASSOCIATION (AREMA).
- ANY CONNECTIONS THAT ARE NOT DETAILED ON THE PLANS SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED TO THE STRUCTURES ENGINEER FOR APPROVAL.
- ALL STRUCTURAL STEEL SHALL CONFORM TO AASHTO M270M/M 270M-93 GRADE 345 W UNLESS OTHERWISE NOTED ON THE PLANS. ALL BOLTS SHALL BE 22MM DIAMETER AASHTO M164M-93 TYPE 3 (7/8" DIAM. ASTM A325 TYPE 3) IN 24MM HOLES UNLESS OTHERWISE NOTED. ANCHOR BOLTS FOR BRIDGE BEARINGS SHALL CONFORM TO AASHTO M164M93 (ASTM A325). NUTS SHALL BE AASHTO M291M-93, GRADE 1053 (ASTM A563 C3 AND CH3), HEAVY HEX NUTS. WASHERS SHALL BE AASHTO M 293M (ASTM F436) WEATHERING STEEL UNLESS NOTED.
- ALL WELDING SHALL CONFORM TO ANSI/AASHTO/AWS D1.5.
- FLOOR BEAMS SHALL BE FABRICATED WITH THEIR NATURAL CAMBER UP.
- ALL GIRDERS ARE FRACTURE CRITICAL MEMBERS (FCM) AND WILL REQUIRE THE FABRICATOR TO FOLLOW THE FRACTURE CONTROL PLAN AS DESCRIBED IN AREMA CHAPTER 15. THE TEST REPORTS AND SPECIMENS SHALL BE DELIVERED TO THE ENGINEER FOR EXAMINATION. ALL CERTIFICATION AND TESTING REQUIREMENTS OF AREMA SHALL BE FOLLOWED AND REPORTS AND DOCUMENTATION SHALL BE PROVIDED TO THE ENGINEER.
- A NAME PLATE SHALL BE ATTACHED, IN A VISIBLE LOCATION, AT THE SOUTH END OF THE EAST GIRDER. THE NAME PLATE SHALL SHOW THE NAME OF THE MANUFACTURER AND THE YEAR OF CONSTRUCTION.
- THE FLOOR PLATE SHALL BE SPLICED AS NECESSARY ALONG THE CENTERLINE OF THE TRANSVERSE FLOOR BEAMS.
- THE CURB PLATES SHALL BE SPLICED AS NECESSARY ALONG THE CENTERLINE OF THE KNEE BRACES.
- AFTER FIELD WELDING THE FLOOR AND CURB PLATES THE 100mm DIAMETER HOLES SHALL BE FILLED WITH NON SHRINK GROUT BEFORE APPLICATION OF THE WATERPROOF MEMBRANE. THE NON SHRINK SHALL BE TYPED IV PER VAOT STANDARD SPECIFICATION 707.03.
- THE FOLLOWING ELEMENTS ARE INCLUDED IN THE STRUCTURAL STEEL BID ITEMS:
 - 506.50 STRUCTURAL STEEL (ROLLED BEAM): FLOORBEAMS, DIAPHRAMS, STIFFENER PLATES
 - 506.55 STRUCTURAL STEEL (PLATE GIRDER): GIRDER W/KNEEBRACE, INTERMEDIATE STIFFENERS, BEARING STIFFENERS, CONNECTION PLATE, END PLATE, CURB APRON PLATE CONNECTION ANGLE, STIFFENER PLATES.
 - 506.60 STRUCTURAL STEEL CONNECTION ANGLES, BALLAST PLATE, CURB PLATE, CURB APRON PLATE, SEAL PLATE, STIFFENING ANGLE FOR BALLAST END PLATE, BOLTS, UTILITY SUPPORTS, PARAPET PLATE, GALVANIZED DRAIN PIPE W/CAPS FITTINGS AND U-BOLTS.
 - 531.10 BEARING DEVICE ASSEMBLY: FIXED BEARINGS, EXPANSION BEARINGS, BEARING PADS, AND ANCHOR BOLTS.
- TEFLON BEARING MATERIALS SHALL BE "LUBRITE F" AS MANUFACTURED BY MERRIMAN INC. 100 INDUSTRIAL PARK ROAD, WINGHAM, MA 02043, OR APPROVED EQUAL.
- BEARING SHALL BE SHOP FITTED TO GIRDER, MATCHMARKED. THEN ASSEMBLED IN UNITS FOR SHIPMENT.

CONCRETE

- NO LIVE LOAD SHALL BE ALLOWED ON NEW CONCRETE UNTIL THE CURE PERIOD IS UP AND THE 28-DAY DESIGN STRENGTH IS ATTAINED, AS EVIDENCED BY TEST CYLINDERS CURED UNDER FIELD CONDITIONS.
- THE KEY IN CONCRETE CONSTRUCTION JOINTS SHALL BE MONOLITHIC AND CONTINUOUS FOR THE FULL LENGTH OF THE JOINT; ANY UPWARD KEY SHALL BE PLACED INTEGRALLY WITH THE CONCRETE BELOW THE JOINT.
- ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 25mm BY 25mm OR AS OTHERWISE INDICATED ON THE PLANS.
- JOINTS AND SCORE MARKS IN CONCRETE SHALL BE CONSTRUCTED AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
- ALL CONCRETE REINFORCING STEEL SHALL BE AASHTO M31/M 31 GRADE 420 BILLET STEEL BARS.
- ALL REINFORCING STEEL SHALL BE DETAILED AND FABRICATED USING PROCEDURES AND TOLERANCES IN ACCORDANCE WITH APPLICABLE PUBLICATIONS OF THE CONCRETE REINFORCING STEEL INSTITUTE (CRSI).
- REINFORCING PLACEMENT TOLERANCES SHALL BE:
 - SPACING ±20mm
 - CLEARANCE ±5mm
- MINIMUM COVER FOR REINFORCING STEEL SHALL BE 50mm ALONG THE BACK FACE OF WALLS AGAINST EARTH, 65mm ALONG THE TOP SURFACE OF THE DECK, 40mm ALONG THE BOTTOM SURFACE OF THE DECK AND 80mm ELSEWHERE, UNLESS OTHERWISE NOTED.
- WATER REPELLENT SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES EXCEPT THE UNDERSIDE OF THE DECK BETWEEN THE DRIP BEADS.
- ALL CONCRETE SHALL BE CONSTRUCTED WITH CONCRETE, HIGH PERFORMANCE CLASS A. USE A 20mm STONE AGGREGATE FOR BACKWALL AND BRIDGE SEATS.
- AT LOCATIONS SHOWN ON THE PLANS, MECHANICAL SPLICES SHALL BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS TO ALLOW FOR THE STAGED CONSTRUCTION OF THE ROUTE 9 BRIDGE ABUTMENTS.
- ELASTOMERIC BEARINGS FOR THE PRECAST CONCRETE SLABS AT THE SARGENT BROOK BRIDGE SHALL BE PROVIDED AS SHOWN ON THE PLANS AND IN ACCORDANCE WITH AREMA, CHAPTER 19. THE DESIGN LIVE LOAD AND IMPACT PER BEARING IS 74.3KN (167K), AND THE DESIGN DEAD LOAD PER BEARING IS 347KN (78K).

TRACK MONITORING

- THE CONTRACTOR SHALL PREPARE AND INSTITUTE AN INSTRUMENTATION MONITORING PROGRAM TO MONITOR THE TIE BACK LOAD CELLS AND TRACK SURFACE AND ALIGNMENT THROUGHOUT THE SOLID ROCK REMOVAL, AND INSTALL AND REMOVAL OF THE TEMPORARY EXCAVATION SUPPORT OF TRACK AND EMBANKMENT STRUCTURES. TWO LOAD CELLS SHALL BE INSTALLED FOR EACH WALER LEVEL (TYPICAL EACH ABUTMENT).
- THE RAILROAD HAS IDENTIFIED THE FOLLOWING INSTRUMENTATION AND MONITORING SCHEDULE:

DESCRIPTION	TIEBACK LOAD CELLS	SURFACE SURVEY POINTS	COMMENTS
INSTRUMENT INSTALLATION	X	X	SEE NOTE 3
IMMEDIATELY FOLLOWING EACH BLAST WITHIN 30m (100 feet) OF TRACK	X	X	PRIOR TO PASSING OF TRAIN
AFTER EACH EXCAVATION STAGE	X	X	PRIOR TO PASSING OF TRAIN
JUST PRIOR TO TIEBACK INSTALLATION	X	X	
JUST AFTER TIEBACK INSTALLATION	X	X	
AS DIRECTED BY THE ENGINEER	X	X	
WEEKLY UNTIL LOAD CELLS ARE REMOVED	X	X	
WEEKLY UNTIL EXCAVATION IS BACKFILLED	X	X	

- THE CONTRACTOR SHALL SUBMIT DETAILS OF AN INITIAL READING PROGRAM TO ASSURE ACCURATE READINGS FOR INITIAL ZERO MEASUREMENTS. THE CONTRACTOR SHALL PERFORM THE INITIAL READING PROGRAM IN THE PRESENCE OF THE ENGINEER AND THE RAILROAD. THE INITIAL READINGS SHALL INCLUDE LOAD CELL CALIBRATION CERTIFICATES FOR EACH LOAD CELL PRIOR TO START OF CONSTRUCTION TO SHOW ACCURACY OF THE INITIAL READINGS AND RELIABILITY OF THE INSTRUMENTS.
- THE CONTRACTOR SHALL ESTABLISH A SERIES OF SURVEY STATIONS ON 5 METER STATIONS ON THE TOP OF EACH RAIL ADJACENT TO EXCAVATION LOCATIONS AS SHOWN ON THE CONTRACT DOCUMENTS. (SEE SHEETS 85, 86, 93 & 94) SIMILARLY, SURVEY STATIONS SHALL ALSO BE ESTABLISHED ALONG THE TOP OF THE EXCAVATION SUPPORT ON 3-METER CENTERS OR ON EACH SOLDIER PILE FOR SOLDIER PILE AND LAGGING WALLS. AT THE BEGINNING AND END OF EACH DAY, THE STATIONS SHALL BE SURVEYED FOR ELEVATION AND PLAN LOCATIONS. ANY EXCAVATION SUPPORT SYSTEM OR RAIL DISPLACEMENT CAUSED BY ADVANCEMENT OF THE EXCAVATIONS OR OTHER CONSTRUCTION ACTIVITY SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER. RAIL DISPLACEMENT OF 8 MM OR MORE SHALL BE REPORTED TO THE ENGINEER AND RAILROAD IMMEDIATELY SO REPAIR OF THE RAILWAY CAN BE INITIATED AND RAIL TRAFFIC CAN RESUME AS QUICKLY AS POSSIBLE. DISPLACEMENT OF RAILS OF 8 MM OR MORE WILL REQUIRE REPAIR OF THE RAILS AT CONTRACTORS SOLE COST. CHARGES FOR DELAY OF NORMAL TRAIN SERVICE WILL BE ASSESSED IN ACCORDANCE WITH THE RIGHT-OF-WAY FINANCE AND MAINTENANCE AGREEMENT, ATTACHMENT *3 GENERAL STATEMENT OF CONDITIONS CAUSING RAILROAD HAZARDS, IF THE RAILROAD IS NOT ABLE TO OPERATE TRAINS DUE TO RAIL DISPLACEMENT VARYING FROM PRE-CONSTRUCTION CONDITIONS.

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