DESIGN LOADS, MATERIALS AND SPECIFICATIONS

(1) DESIGN LOADING: HL-93

(2) DESIGN METHOD: LOAD AND RESISTANCE FACTOR DESIGN (LRFD)

(3) SPECIFICATIONS: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 7TH ED., 2014 AS AMENDED
NHDOT 2010 STANDARD SPECIFICATIONS AS AMENDED

DESIGNER TO REVISE NOTE TO THE DESIGNED SPECIFICATION

(4) FOUNDATION DATA: ABUTMENTS AND WINGS:
FOOTINGS SUPPORTED ON BEARING PILES

BEARING PILES:
HP12X53 WITH APPROVED PILE POINTS (AASHTO M270, ASTM A709 GRADE 50) MAX. FACTORED COMPRESSIVE AXIAL LOAD IS XX KIPS (STRENGTH I)

PIER:
SPREAD FOOTING SUPPORTED ON STRUCTURAL FILL ON UNDISTURBED SOIL WITH A NOMINAL BEARING CAPACITY OF XX TSF IN COMBINATION WITH A RESISTANCE FACTOR OF XX.

(5) REINFORCING STEEL: AASHTO M31 (ASTM A 615) GRADE 60
EPOXY COATED BARS:
DECK, BRUSH CURBS, SIDEWALKS, APPROACH SLABS, APPROACH SLAB DOWELS, BACKWALL BLOCKOUT FOR EXPANSION JOINT (ABOVE CONSTRUCTION JOINT), CORNERS OF ABUTMENTS ABOVE TOP OF BACKWALL, AND WALL CAPS.

(6) STRUCTURAL STEEL: AASHTO M270, GRADE 50W (ASTM A709, GRADE 50W), UNPAINTED (EXCEPT NOTED OTHERWISE)

(7) CONCRETE:

DECK, BRUSH CURBS, SIDEWALKS, WALL CAPS, AND ABUTMENTS (ABOVE BEARING SEAT CONSTRUCTION JOINT):
ITEM 520.7002X, CONCRETE BRIDGE DECK (QC/QA) (F)
4,000 PSI (AT 28 DAYS)

APPROACH SLABS:
ITEM 520.0302, CONCRETE CLASS AA, APPROACH SLABS (QC/QA)(F)
4,000 PSI (AT 28 DAYS)

WINGWALLS, WALL PIERS, PIER COLUMNS, PIER CAPS & ABUTMENTS (BELOW BEARING SEAT CONSTR. JOINT):
ITEM 520.12, CONCRETE CLASS A, ABOVE FOOTINGS (F)
3,000 PSI (AT 28 DAYS)

FOOTINGS (ABUTMENTS, WINGWALLS, & PIERS):
ITEM 520.211, CONCRETE CLASS B, FOOTINGS (ON ROCK)
ITEM 520.213, CONCRETE CLASS B, FOOTINGS (ON SOIL) (F)
3,000 PSI (AT 28 DAYS)

TREMIE SEAL (FOUNDATION SEAL @ PIER X):
ITEM 520.6, CONCRETE CLASS T, FOUNDATION SEAL
3,000 PSI (AT 28 DAYS)

PRECAST MSE ARCHITECTURAL PANELS AND CAPS:
ITEM 592.1, MECHANICALLY STABILIZED EARTH RETAINING WALL CONCRETE CLASS AAA
5,000 PSI (AT 28 DAYS)

(8) PRESTRESSED CONCRETE: NEBT XXXX GIRDERS:
ITEM 528.11XX, PRESTRESSED CONCRETE GIRDERS, NEBT XXXX (F)
CONCRETE CLASS AAA
5,000 PSI (AT 28 DAYS)

(9) SEISMIC: PEAK GROUND ACCELERATION (PGA) = 10
SITE CLASS = E
ZONE = 2

GENERAL NOTES

(1) EXISTING PLANS (FILE NOS. XXX, XXX) ARE AVAILABLE, ON-LINE IN THE BID PACKAGE ON THE INVITATION TO BID WEBPAGE DURING THE BIDDING PERIOD. AFTER THE CONTRACT HAS BEEN AWARDED, A COMPLETE SET OF EXISTING PLANS WILL BE FORWARDED TO THE CONTRACTOR UPON REQUEST.

(2) THE CONTRACTOR SHALL CONTACT DIG SAFE TO SURVEY AND TAG ALL BRIDGE CURB AND UNDERGROUND LOCATIONS NEAR THE BRIDGE, FOR POSSIBLE UTILITIES.

(3) THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO ENSURE THAT DEBRIS DOES NOT FALL ON ANY ROADWAY, RAILROAD, OR WATERWAY BELOW THE EXISTING STRUCTURE. ALL COSTS INCLUDING ERECTON, MAINTENANCE AND REMOVAL OF TEMPORARY STRUCTURES OR OTHER SUCH APPROVED METHODS, SHALL BE SUBSIDIARY TO THE APPROPRIATE ITEMS OF WORK BEING PERFORMED.

(4) ITEM 585.21, STONE FILL, CLASS B (BRIDGE) SHALL BE 2'-0" THICK, UNLESS OTHERWISE NOTED.

(5) ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED ¾", UNLESS OTHERWISE NOTED.

(6) SHEAR KEYS SHALL BE 3" HIGH BY ONE-THIRD THE WIDTH OF THE WALL, CENTERED.

(7) ALL EXISTING BRONZE DISCS REPRESENTING STATE BENCHMARKS OR SURVEY TRIANGULATION POINTS MUST NOT BE DISTURB. WHEN THE WORK CALLED FOR INVOLVES DISTURBING A BRONZE DISC THE CONTRACTOR SHALL NOTIFY THE ENGINEER SUFFICIENTLY IN ADVANCE OF THE WORK TO PERMIT THE STATE TO TEMPORARLLY RELOCATE THE AFFECTED MARKER.

(8) ITEM 538.2, BARRIER MEMBRANE, PEEL AND STICK - VERTICAL SURFACES (F), 2' WIDE WITH PROTECTION BOARD (SUBSIDIARY), SHALL BE PLACED CENTERED OVER ALL HORIZONTAL AND VERTICAL CONSTRUCTION JOINTS.

(9) ITEM 538.2, BARRIER MEMBRANE, PEEL AND STICK - VERTICAL SURFACES (F), 2' WIDE WITH PROTECTION BOARD (SUBSIDIARY), SHALL BE PLACED CENTERED OVER ALL PHASE CONSTRUCTION JOINTS (SUBSTRUCTURE AND DECK).

(10) FOR SURVEY LAYOUT SEE BRIDGE SHEET XX.

(11) FOR BORING NOTES SEE BRIDGE SHEET XX.

(12) FOR HYDRAULIC DATA SEE BRIDGE SHEET XX.

(13) FOR DECK SLAB ELEVATION NOTES SEE BRIDGE SHEET XX.

(14) FOR EXPANSION JOINT NOTES SEE BRIDGE SHEET XX.

BRIDGE REMOVAL NOTES

(1) THE CONTRACTOR'S METHOD FOR REMOVAL OF THE EXISTING BRIDGE SHALL BE SUBMITTED FOR DOCUMENTATION, IN ACCORDANCE WITH SECTION 105.02, PRIOR TO THE COMMENCEMENT OF ANY REMOVAL OPERATIONS.

(2) ITEM 502.10X, REMOVAL OF EXISTING BRIDGE STRUCTURE, SHALL INCLUDE THE REMOVAL OF THE ENTIRE SUPERSTRUCTURE.

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(2) ITEM 502.10X, REMOVAL OF EXISTING BRIDGE STRUCTURE SHALL INCLUDE THE COMPLETE REMOVAL OF THE BRIDGE SUPERSTRUCTURE AND THE PIER PILE BENTS.

(3) THE EXISTING BRIDGE SUBSTRUCTURES WITHIN THE LIMITS OF BRIDGE AND CHANNEL EXCAVATION SHALL BE COMPLETELY REMOVED UNDER THE PROVISIONS OF SECTIONS 207, AND 504 OF THE STANDARD SPECIFICATIONS AS APPROPRIATE.

(4) THE EXISTING BRIDGE SUBSTRUCTURES OUTSIDE THE LIMITS OF BRIDGE AND CHANNEL EXCAVATION SHALL BE REMOVED UNDER THE PROVISIONS OF SECTION 502 OF THE STANDARD SPECIFICATIONS.

(1) ALL COSTS FOR REMOVAL OF THE ENTIRE EXISTING X'-X"x X'-X" STRUCTURAL PLATE PIPE ARCH SHALL BE SUBSIDIARY TO ITEMS 504.1 AND 207.3. NO PAYMENT SHALL BE MADE FOR THE VOLUME DISPLACED BY THE EXISTING ARCH.

TEMPORARY BRIDGE NOTES

(1) VEHICULAR TRAFFIC WILL BE MAINTAINED DURING CONSTRUCTION ON A TEMPORARY BRIDGE, ITEM 501.101. SEE ROADWAY PLANS FOR THE HORIZONTAL AND VERTICAL ALIGNMENT OF THE TEMPORARY DIVERSION.

(2) THE TEMPORARY BRIDGE, INCLUDING RAILING AND SUBSTRUCTURES, SHALL BE DESIGNED AS SPECIFIED IN SECTION 501. ADEQUATE CONNECTION AND TRANSITION SHALL BE PROVIDED FOR TEMPORARY GUARDRAIL IN THE TEMPORARY ROADWAY DIVERSION. SEE ROADWAY PLANS FOR BITUMINOUS PAVEMENT REQUIREMENTS.

(3) THE MINIMUM CLEAR ROADWAY WIDTH OF THE TEMPORARY BRIDGE SHALL BE XXX FEET FACE OF RAIL TO FACE OF RAIL.

(4) THE TEMPORARY BRIDGE SHALL BE SIZED TO PROVIDE A WATERWAY AREA BELOW ELEVATION XXX.X OF NOT LESS THAN XXXX SQUARE FEET. PLACEMENT OF ABUTMENTS WITHIN THE DELINEATED ORDINARY HIGH WATER ON THE SITE PLAN IS PROHIBITED. A SINGLE PIER BENT IN ALIGNMENT WITH THE EXISTING PIER IS ALLOWED. FILLS FOR TEMPORARY DIVERSION NOT INCLUDED IN THE PROPOSED ROADWAY EMBANKMENTS SHALL BE REMOVED OR RECONSTRUCTED AS DETAILED IN THE PLANS. SEE ROADWAY PLANS AND CROSS-SECTIONS.

(5) ALL COSTS ASSOCIATED WITH THE DESIGN, CONSTRUCTION, MAINTENANCE AND REMOVAL OF THE TEMPORARY BRIDGE, TEMPORARY ABUTMENTS AND PIER, AND TEMPORARY BRIDGE AND BRIDGE RAIL TRANSITIONS SHALL BE PAID FOR UNDER ITEM 501.101, TEMPORARY BRIDGE. DETAILED PLANS AND CALCULATIONS SHALL BE SUBMITTED FOR DOCUMENTATION AS REQUIRED IN SECTION 501.

(6) SEE HIGHWAY DESIGN PLANS FOR PAYMENT OF THE CONSTRUCTION AND REMOVAL OF THE APPROACHES TO THE TEMPORARY BRIDGE.

ACCESS FOR BRIDGE CONSTRUCTION

(1) ITEM 500.02, ACCESS FOR BRIDGE CONSTRUCTION, SHALL CONSIST OF THE DESIGN, CONSTRUCTION, MAINTENANCE, AND REMOVAL OF ANY TEMPORARY ACCESS BY THE CONTRACTOR. SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.

(2) TEMPORARY FILLS SHALL REMAIN WITHIN WETLAND IMPACT AREAS SHOWN IN THE WETLAND PERMIT AND WITHIN EASEMENTS SHOWN ON THE SITE PLANS. A GETOEXTILE FABRIC SHALL BE PLACED UNDER ALL TEMPORARY FILLS TO MINIMIZE DISRUPTION OF NATIVE SOILS AND VEGETATION. ALL COSTS SUBSIDIARY TO ITEM 500.02.

(3) SEE THE SITE PLAN FOR APPROXIMATE LIMITS OF TEMPORARY FILLS FOR PIER CONSTRUCTION. TEMPORARY FILLS SHALL BE RESTRICTED TO ONE SIDE OF THE PIER AT A TIME.

PILE NOTES

(USE NOTES GIVEN BY GEOTECHNICAL ENGINEER)
(BELOW ARE SAMPLES OF POSSIBLE PILE NOTES)

(1) MAXIMUM FACTORED PILE LOAD: ABUTMENT A - XX TONS PER PILE
ABUTMENT B - XX TONS PER PILE

(2) STEEL H-PILES SHALL CONFORM TO AASHTO M270, GRADE 50 (ASTM A 709, GRADE 50). ALL PILES SHALL BE HP14 X 73. PILE POINTS ARE REQUIRED

(3) THE PILES SHALL BE DRIVEN IN ACCORDANCE WITH SECTION 510 TO A NOMINAL GEOTECHNICAL RESISTANCE EQUAL TO THE MAXIMUM FACTORED LOAD DIVIDED BY A RESISTANCE FACTOR OF 0.65. THE DEPARTMENT WILL CONDUCT PILE DYNAMIC ANALYIZER (PDA) TESTS IN ACCORDANCE WITH SECTION 510 TO VERIFY THE NOMINAL GEOTECHNICAL RESISTANCE AND THE ACCEPTABILITY OF THE CONTRACTOR'S DRIVING SYSTEM.

(4) ESTIMATED PILE LENGTHS: ABUTMENT A: XX FT - NORTHERN X PILES
XX FT - SOUTHERN X PILES
ABUTMENT B: XX FT

(5) ONE SPLICE PER PILE WITHIN THE ESTIMATED LENGTH AND SPLICES REQUIRED FOR PILES THAT EXCEED THE ESTIMATED LENGTH WILL BE PAID. NO PAYMENT FOR ADDITIONAL PILE SPLICES WITHIN THE ESTIMATED LENGTH WILL BE PAID UNLESS ORDERED. APPROVED ADDITIONAL PILE SPLICES WILL BE PAID UNDER ITEM 510.9.

(6) PILE LOCATION AND ALIGNMENT TOLERANCES AT ABUTMENTS SHALL CONFORM TO SECTION 510.3.6.4 REQUIREMENTS FOR BENT CAPS SUPPORTED BY PILES.

(7) PILE LAYOUT DIMENSIONS ARE GIVEN AT THE BOTTOM OF THE STUB ABUTMENTS OR FOOTINGS.

(8) PILES AT ABUTMENTS SHALL BE INSTALLED PRIOR TO INSTALLATION OF THE MSE WALLS.

(9) PLACE REINFORCING STEEL TO CLEAR PILES.

FOUDATION PRE-LOAD NOTES

(USE NOTES GIVEN BY GEOTECHNICAL ENGINEER)
(BELOW ARE SAMPLES OF POSSIBLE PRE-LOAD NOTES)

(1) PRELOADING EMBANKMENT FILLS WILL BE REQUIRED IN ORDER TO MINIMIZE DOWNDRAG AND LATERAL SOIL MOVEMENT EFFECTS ON PROPOSED ABUTMENT PILES. THE PILES SHALL NOT BE CONSTRUCTED UNTIL BRIDGE PRELOAD WAITING PERIOD HAS BEEN COMPLETED.

(2) GEOTECHNICAL INSTRUMENTATION REQUIRED THROUGH SECTION 210 SHALL BE INSTALLED PRIOR TO CONSTRUCTION OF THE BRIDGE PRELOAD.

(3) THE MINIMUM TOP OF THE FULL HEIGHT PRELOAD IS THE TOP ROADWAY SAND BASE COURSE LAYER WITHIN THE LONGITUDINAL AND TRANSVERSE PRELOAD LIMITS DESCRIBED BELOW. THE REMAINING MATERIAL ABOVE THESE ELEVATIONS CAN BE PLACED AT ANY TIME WITHIN THE CONSTRUCTION SEQUENCE, WITHOUT A WAITING PERIOD.

(4) FULL HEIGHT LONGITUDINAL PRELOAD LIMITS SHALL EXTEND FROM STA XXX+XX TO STA XXX+XX. PVC-DRAIN SPACING "S", SHALL BE X FEET AND THE WAITING PERIOD SHALL BE X MONTHS WITHIN THIS AREA.

(5) FULL HEIGHT TRANSVERSE PRELOAD LIMITS SHALL EXTEND OUTWARD FROM THE CREST OF EXISTING ROADWAY EMBANKMENT TO THE CREST OF PROPOSED EMBANKMENT SLOPES. THE SIDE SLOPE SHALL HAVE A MINIMUM SLOPE OF 1.5 H TO 1 V.

(6) THE WAITING PERIOD FOR THE PRELOAD AFTER IT HAS BEEN CONSTRUCTED TO FULL HEIGHT IS XX DAYS. REMOVAL OF TEMPORARY SURCHARGE SHALL BE PAID UNDER ITEM 203.7, REHANDLING SURCHARGE MATERIAL (ROADWAY ITEM).

COFFERDAMS

(USE NOTES GIVEN BY GEOTECHNICAL ENGINEER)
(BELOW ARE SAMPLES OF POSSIBLE COFFERDAM NOTES)

(1) ALL ITEMS COVERED UNDER SECTION 503 OF THE SPECIFICATIONS SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER, LICENSED IN THE STATE OF N.H. THE CONTRACTOR SHALL SUBMIT STAMPED WORKING DRAWINGS AND CALCULATIONS FOR REVIEW AND DOCUMENTATION IN ACCORDANCE WITH SECTION 105.02.

(2) COFFERDAMS SHALL BE REQUIRED AT EACH ABUTMENT LOCATION TO CONTROL THE STREAM INFLOW AND ADEQUATELY DEWATER THE FOOTING EXCAVATION. SUMP PUMPING AREAS AROUND THE ENTIRE PERIMETER MAY BE REQUIRED TO ADEQUATELY CONTROL THE GROUND WATER WITHIN THE FOOTING EXCAVATION. IT MAY BE POSSIBLE TO USE A WATER DIVERSION STRUCTURE SUCH AS A SANDBAG DIKE IN LIEU OF A SHEETED COFFERDAM AS A MEANS OF CONTROLLING INFLOW FROM THE STREAM. IF WATER DIVERSION IS USED IT WILL BE PAID FOR AS A COFFERDAM.

(3) COFFERDAMS ARE REQUIRED AT EACH ABUTMENT LOCATION TO CONTROL THE RIVER INFLOW AND ADEQUATELY DEWATER THE FOOTING EXCAVATION AND TO CONSTRUCT ABUTMENTS, WINGWALLS AND STONE FILLS. STEEL SHEETING MAY BE REQUIRED DEPENDING ON THE AVERAGE RIVER LEVEL CONDITIONS AT THE TIME OF CONSTRUCTION AND THE CONTRACTOR'S METHOD OF DEWATERING. ALL COSTS FOR MATERIALS, INSTALLATION, MAINTENANCE AND REMOVAL SHALL BE INCLUDED IN ITEM 503.20X, COFFERDAMS. ALL WORK REQUIRED TO MAINTAIN A DEWATERED CONDITION SHALL BE INCLUDED IN ITEM 503.20X.

(4) CONTROL OF WATER WITHIN THE COFFERDAMS SHALL BE CONDUCTED IN SUCH A MANNER AS TO PREVENT DISTURBANCE OF THE BEARING SOIL. PUMPING AREAS SHALL BE LOCATED OUTSIDE THE FOOTING SUPPORT LIMITS AND PROPERLY FILTERED TO PREVENT THE PUMPING OF FINES.

(5) ANY FOUNDATION SOIL WEAKENED AS A RESULT OF INSUFFICIENT CARE TAKEN IN MAINTAINING A DEWATERED CONDITION SHALL BE REMOVED AND REPLACED WITH STRUCTURAL FILL AT THE EXPENSE OF THE CONTRACTOR.

(6) THE CONTRACTOR SHALL BE REQUIRED TO POUR SUBSTRUCTURE CONCRETE IN THE DRY.

(7) DEWATERING SHALL BE CONTINUOUS UNTIL SUBSTRUCTURES ARE BACKFILLED TO THE ELEVATIONS OF THE SURROUNDING WATER TABLE, UNLESS OTHERWISE DIRECTED.

(8) ALL MEANS AND METHODS ASSOCIATED WITH HANDLING WATER DURING CONSTRUCTION OF FOUNDATIONS SHALL BE LOCATED WITHIN THE LIMITS OF WORK SHOWN ON THE WETLANDS PERMIT APPROVED FOR THE PROJECT.

(9) THE COFFERDAM DESIGN SHALL ACCOUNT FOR THE EFFECTS OF UNBALANCED EARTH PRESSURE AND PILE DRIVING ON THE COFFERDAM STABILITY.

(10) SHEETING OR A SUPPORT SYSTEM SHALL BE REQUIRED FOR MAINTENANCE OF TRAFFIC AND PROTECTION OF EXISTING BRIDGE FOUNDATIONS DURING CONSTRUCTION OF THE PROPOSED BRIDGE. THE LOCATION AND LIMITS FOR TEMPORARY SUPPORTS DETAILED ON THE PLANS ARE APPROXIMATE AND MAY BE ADJUSTED AS REQUIRED TO ACCOMODATE THE CONTRACTOR'S MEANS AND METHOD OF CONSTRUCTION. ALL COSTS FOR THIS SUPPORT SYSTEM SHALL BE INCLUDED IN ITEM 503.30X.

(11) IT SHOULD BE NOTED THAT IN SOME LOCATIONS PRE-EXCAVATION OF COBBLES AND BOULDERS MAY BE REQUIRED PRIOR TO PLACING STEEL SHEETING. DURING EXCAVATION THE CONTRACTOR SHALL DISTURB THE AREA AS LITTLE AS POSSIBLE AND USE NECESSARY PRECAUTIONS TO MINIMIZE THE IMPACTS TO THE RIVER. ALL COSTS INCLUDED IN ITEM 503.20X AND 503.20X.

(12) EXCAVATION BACKSLOPES BELOW IN-SERVICE ROADWAYS THAT ARE USED IN COMBINATION WITH, OR IN-PLACE OF, A COFFERDAM SHALL MEET THE FOLLOWING CRITERIA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND MAINTENANCE OF ALL EXCAVATION BACKSLOPES.

A) THE EXCAVATION BACKSLOPE SHALL BE NO STEEPER THAN 1.5H:1V. A FLATTER BACKSLOPE SHALL BE USED, IF THE CONTRACTOR'S CALCULATIONS INDICATE INSUFFICIENT SLOPE STABILITY AT 1.5H:1V.

B) FOR CASES WHERE THE EXISTING GUARDRAIL IS USED FOR TRAFFIC BARRIER ABOVE THE EXCAVATION, THE CREST OF EXCAVATED BACKSLOPES SHALL BE OFFSET A MINIMUM OF 8 FEET FROM FACE OF EXISTING GUARDRAIL. THE EXISTING GROUND SURFACES BETWEEN THE GUARDRAIL AND THE EXCAVATED BACKSLOPES SHALL BE MAINTAINED IN ITS ORIGINAL CONFIGURATION.

C) FOR CASES WHERE CONCRETE TRAFFIC BARRIERS ARE USED IN PLACE OF EXISTING GUARDRAIL, THE CREST OF EXCAVATED BACKSLOPES SHALL BE OFFSET A MINIMUM OF 2 FEET FROM THE OUTSIDE EDGE OF THE CONCRETE BARRIER.

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN

TOWN | BRIDGE NO. | STATE PROJECT
LOCATION

SAMPLE PROJECT NOTES

BRIDGE SHEET 1 OF 7

REVISIONS AFTER PROPOSAL	BY	DATE		BY	DATE
DESIGNED	NHDOT	1/2015	CHECKED		
DRAWN			CHECKED		
QUANTITIES			CHECKED		

FILE NUMBER

SHEET SCALE

ISSUE DATE 1/2015 | FEDERAL PROJECT NO. | SHEET NO. | TOTAL SHEETS

REV. DATE

COFFERDAMS CONT.

(13) THE CONTRACTOR SHOULD BE PREPARED TO PERFORM ANY SUBSURFACE INVESTIGATIONS NEEDED FOR THE COFFERDAM DESIGN. ALL COSTS ASSOCIATED WITH THE COMPLETION OF SUBSURFACE INVESTIGATIONS, THE REDESIGN, OR THE REINSTALLATION OF COFFERDAMS DUE TO SUBSURFACE CONDITIONS ENCOUNTERED DURING THE COFFERDAM INSTALLATION THAT ARE DIFFERENT FROM WHAT THE COFFERDAM DESIGNER ASSUMED AND/OR INTERPRETED FROM THE AVAILABLE SUBSURFACE INFORMATION, SHALL BE SUBSIDIARY TO THE ASSOCIATED COFFERDAM ITEM. SECTION 102.05 SHALL BE REFERENCED REGARDING THE SUBSURFACE INFORMATION PROVIDED IN THE CONTRACT.

FOUNDATION NOTES

(USE NOTES GIVEN BY GEOTECHNICAL ENGINEER)
(BELOW ARE SAMPLES OF POSSIBLE FOUNDATION NOTES)

(1) ALL MISCELLANEOUS FILL THAT IS ENCOUNTERED BELOW THE PROPOSED ABUTMENT FOOTINGS SHALL BE REMOVED DOWN TO THE GLACIAL TILL SURFACE AND REPLACED WITH STRUCTURAL FILL. LATERAL LIMITS FOR REMOVAL OF ANY UNSUITABLE MATERIAL AND PLACEMENT OF STRUCTURAL FILL FOR THE FOOTINGS SHALL BE A 1H:2V SLOPE EXTENDING FROM A POINT ON TOP OF GLACIAL TILL 2' OUTSIDE THE PROPOSED EDGE OF FOOTINGS.

(2) CLEAN STONE FILL, MEETING THE REQUIREMENTS OF SECTION 508.2.1.3, MAY BE SUBSTITUTED FOR STRUCTURAL FILL IF THE MAXIMUM DEPTH IS LESS THAN 12" AND DIRECTED BY THE ENGINEER.

(3) PROTRUDING BOULDERS OR COBBLES ENCOUNTERED AT THE FINAL EXCAVATION DEPTH SHALL BE REMOVED OR SPLIT TO PROVIDE A LEVEL BEARING SURFACE.

(4) ALL FOOTINGS SHALL BE FOUNDED ON A 1'-0" THICK LAYER OF STRUCTURAL FILL PLACED OVER UNDISTURBED SOIL. CLEAN STONE FILL, MEETING THE REQUIREMENTS OF SECTION 508.2.1.3 MAY BE SUBSTITUTED FOR STRUCTURAL FILL IF THE MAXIMUM DEPTH IS LESS THAN 1'-0" AND DIRECTED BY THE ENGINEER.

(5) FOR LOCATIONS REQUIRING ROCK REMOVAL, THE REQUIRED ELEVATION FOR ROCK REMOVAL SHALL BE 1 FOOT BELOW THE TOP OF THE LEVELING PAD. ANY ROCK REMOVED BELOW AN ELEVATION 1 FOOT LOWER THAN THE REQUIRED ELEVATION WILL BE CONSIDERED AS EXCESS REMOVAL AND WILL NOT BE PAID. NO PAYMENT WILL BE MADE FOR GRANULAR BACKFILL THAT IS REQUIRED TO REPLACE EXCESS ROCK REMOVAL.

(6) ROCK BRIDGE EXCAVATION MAY USE EITHER DRILLING AND BLASTING METHODS OR MECHANICAL METHODS AND WILL BE PAID FOR UNDER ITEM 504.2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE OR REPAIRS TO THE COFFERDAM THAT RESULT FROM BLASTING.

(7) THE FOOTING THICKNESS MAY VARY FROM 3'-0" MIN. TO 4'-0" MAX. WITH THE TOP OF FOOTING AT THE ELEVATION AS DETAILED ON THE PLANS. FOOTING DESIGN IS BASED ON A 3'-0" THICKNESS AND REINFORCEMENT SHALL BE PLACED AS SHOWN IN THE PLANS.

(8) FRACTURES OR SEAMS IN THE BEDROCK SURFACES EXPOSED AT THE BOTTOM OF THE FOUNDATION EXCAVATION SHALL BE CLEANED AND GROUTED IN ACCORDANCE WITH 504.3.2 OR CHINKED WITH CLEAN STONE FOR STRUCTURAL FILL AS DIRECTED TO PREVENT MIGRATION OF MSE BACKFILL MATERAILS INTO ANY BEDROCK FRACTURES.

FOUNDATION ON SUBFOOTING NOTES

(USE NOTES GIVEN BY GEOTECHNICAL ENGINEER)
(BELOW ARE SAMPLES OF POSSIBLE FOUNDATION NOTES)

(1) A CONCRETE SUBFOOTING SHALL BE USED ONLY WHERE THE EXISTING BEDROCK LINE IS MORE THAN 4'-0" BELOW TOP OF FOOTING. NO PAYMENT SHALL BE MADE FOR CONCRETE SUBFOOTINGS WHERE THE CONTRACTOR HAS REMOVED ROCK BELOW THE PAY LIMITS FOR ITEM 504.2, ROCK BRIDGE EXCAVATION, EXCEPT WHERE BEDROCK HAS BEEN REMOVED TO MINIMIZE STEEP SLOPES AS DESCRIBED IN FOUNDATION NOTE X. THE CONCRETE SUBFOOTING, IF NECESSARY, SHALL BE PAID AS ITEM 520.211. MINIMUM SUBFOOTING DEPTH SHALL BE 1'-0".

(2) THE TOP OF CONCRETE SUBFOOTINGS THAT ARE TO BE IN CONTACT WITH FOOTINGS SHALL HAVE A ROUGHENED SURFACE.

(3) THE FINAL BEDROCK SURFACE SHALL BE NO STEEPER THAN 5H:1V AND FREE OF ANY SHARP PROTRUSIONS. TRANSVERSE AND LONGITUDINAL BEDROCK SLOPES STEEPER THAN 5H:1V SHALL BE STEPPED IN LEVEL INCREMENTS WITH A MINIMUM HORIZONTAL STEP LENGTH OF 2 FEET, OR AS DIRECTED. THE USE OF STEEL DOWELS OR OTHER MEASURES TO CONSTRUCT THE WALL FOUNDATION ON A SLOPING BEDROCK SURFACE SHALL BE AS DIRECTED AND PAID UNDER ITEM 1008.99.

(5) ALL SUBFOOTING AND FOOTING CONCRETE SHALL BE PLACED IN THE DRY.

(6) PRIOR TO PLACEMENT OF CONCRETE, THE BEDROCK SURFACE SHALL BE COMPLETELY CLEANED OF LOOSE BEDROCK AND DEBRIS. ANY OPEN JOINTS OR SEAMS SHALL BE CLEANED AND GROUTED IN ACCORDANCE WITH SECTION 504. SUBSIDIARY TO ITEM 504.2.

(7) ALL SUBFOOTING CONCRETE SHALL BE PAID AS ITEM 520.211, CONCRETE CLASS B, FOOTINGS (ON ROCK)

(8) SUBFOOTINGS SHALL BE CONSTRUCTED ON A 1'-0" THICK LAYER OF STRUCTURAL FILL.

ABUTMENT AND WINGWALL NOTES

(1) ITEM 534.3, WATER REPELLENT (SILANE-SILOXANE), SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES OF ABUTMENTS (INCL. BRIDGE SEATS), WINGS, AND BACKWALLS TO 1'-0" BELOW FILL LINES.

(2) ITEM 538.2, BARRIER MEMBRANE, PEEL AND STICK - VERTICAL SURFACES (F), 2' WIDE WITH PROTECTION BOARD (SUBSIDIARY), SHALL BE PLACED CENTERED OVER THE BEARING SEAT CONSTRUCTION JOINT AND CENTERED OVER THE VERTICAL CONSTRUCTION JOINTS.

(3) WEEPERS SHALL BE PLACED SYMMETRICALLY 10'-0" APART AND CENTERED AT 12" ABOVE THE TOP OF FOOTINGS. WEEPERS SHALL BE 4" Φ AND SLOPED TO DRAIN WITH A 12:1 SLOPE. ALL COSTS SHALL BE SUBSIDIARY TO ITEM 520.12.

(4) ITEM 585.21, STONE FILL, CLASS B (BRIDGE), SHALL BE 2'-0" THICK, UNLESS OTHERWISE NOTED.

(5) SLEEVES SHALL BE PROVIDED IN THE ABUTMENT A BACKWALL, BETWEEN GIRDERS #X AND #X, TO ALLOW FOR THE INSTALLATION OF UTILITES AND CONDUIT. SEE BRIDGE SHEET XX FOR DETAILS.

(6) ABUTMENTS SHALL BE BACKFILLED TO THE LEVEL OF THE BRIDGE SEAT ELEVATION PRIOR TO ERECTING THE GIRDERS.

(7) ABUTMENT DIMENSIONS AND MSE LAYOUT ASSUME 5 1/2" WALL PANELS EXCLUDING 1 1/2" ALLOWANCE FOR RUSTICATION.

(8) PLACE 1/2" THICK SELF-EXPANDING CORK FILLER BETWEEN ABUTMENT MASONRY AND MSE PANELS. SET CORK FILLER 1/2" BELOW EXPOSED SURFACE AND APPLY 1/2" X 1/2" SILICONE JOINT SEALER OVER FILLER. ALL COSTS INCLUDED IN ITEM 562.1

PIER NOTES

(1) THE CONTRACTOR IS REQUIRED TO POUR ALL PIER CONCRETE, EXCEPT FOR THE FOUNDATION SEAL (PIER SUBFOOTING), IN THE DRY.

(2) WATER LEVELS WITHIN THE COFFERDAM AT THE PIER SHALL BE MAINTAINED AT THE SAME LEVEL AS THE RIVER UNTIL THE FOUNDATION SEAL (ITEM 520.6) IS IN PLACE AND CURED.

(3) FOUNDATION FOR THE PIER SHALL CONSIST OF A SPREAD FOOTING ON A CONCRETE TREMIE SEAL. THE TREMIE SEAL, ITEM 520.6, SHALL BE POURED TO ELEVATION XX AND SHALL BE XX' THICK (MINIMUM). TOP SURFACE OF THE TREMIE SEAL WHICH WILL BE IN CONTACT WITH THE PIER FOOTING SHALL HAVE A ROUGHENED SURFACE.

(4) THE DESIGN MAXIMUM VENT ELEVATION FOR THE TREMIE SEAL IS XX. VENT ELEVATIONS HIGHER THAN ELEVATION XX WILL REQUIRE A DEEPER SEAL POUR. THE FACTOR OF SAFETY FOR THE SEAL SHALL BE AT LEAST 1.10. THE USE OF A HIGHER VENT ELEVATION SHALL BE SUBMITTED TO THE BUREAU OF BRIDGE DESIGN FOR APPROVAL IN ACCORDANCE WITH 105.2.

(5) COAT ALL SURFACES OF THE PIER ABOVE THE FOOTING, INCLUDING THE BEARING SEAT AND PEDESTALS, WITH ITEM 534.3, WATER REPELLENT (SILANE-SILOXANE).

REINFORCEMENT NOTES

(1) REINFORCEMENT IN THE FOOTING AND APPROACH SLABS SHALL HAVE 3" CLEAR COVER. ALL OTHER REINFORCEMENT SHALL HAVE 2 1/2" CLEAR COVER, UNLESS OTHERWISE NOTED.

(2) PLACE REINFORCING STEEL TO AVOID WEEPERS, RAIL POST ANCHOR ASSEMBLIES, PILES AND EXPANSION JOINT STEEL.

(3) REINFORCING IN TOP OF PIER AND ABUTMENT CAP BEAMS SHALL BE ADJUSTED TO CLEAR ANCHOR BOLTS.

(4) ANY EPOXY COATED REBARS CUT TO FIT SHALL BE TOUCHED UP WITH AN APPROVED EPOXY COATING MATERIAL. ALL COSTS SHALL BE INCLUDED IN ITEM 544.2 OR 544.21.

(5) REINFORCING LEGEND:

ALT	= ALTERNATE	BOT	= BOTTOM	BRG	= BEARING
CLR	= CLEAR	DOW	= DOWEL	EQ	= EQUAL
FS	= FAR SIDE	MAX	= MAXIMUM	MC	= MECHANICAL CONNECTOR
MID	= MIDDLE	MIN	= MINIMUM	NS	= NEAR SIDE
SECT	= SECTION	SP	= SPACE	SPL	= SPLICE
SYM	= SYMMETRICAL	TYP	= TYPICAL	E	= EPOXY COATED
SS	= STAINLESS STEEL				

STAINLESS STEEL REINFORCEMENT NOTES

(1) REINFORCING BAR MARKS APPENDED WITH AN "SS", INDICATE SOLID STAINLESS STEEL BARS.

(2) STAINLESS STEEL REINFORCING SHALL NOT BE "HOT" BENT OR "HEAT STRAIGHTENED".

(3) DO NOT USE GRINDING TOOLS OR ABRASIVE CUT-OFF DISCS ON STAINLESS STEEL REINFORCING IF SUCH EQUIPMENT HAS BEEN PREVIOUSLY USED ON CARBON STEEL.

(4) STAINLESS STEEL REINFORCING SHALL BE SUPPORTED AND SPACED WITH PLASTIC CHAIRS AND SPACERS.

(5) TIE WIRE FOR STAINLESS STEEL REINFORCING SHALL BE STAINLESS STEEL WITH A LEVEL OF CORROSION RESISTANCE EQUIVALENT TO THE STAINLESS STEEL REINFORCEMENT.

(6) STAINLESS STEEL COUPLERS SHALL BE USED WHEN CONNECTING STAINLESS STEEL WITH A MECHANICAL CONNECTION.

APPROACH SLAB NOTES

(1) ITEM 544.7, SYNTHETIC FIBER REINFORCEMENT (F), SHALL BE ADDED TO THE CONCRETE USED FOR THE APPROACH SLABS.

(2) FILL SPACE BETWEEN TIPPED DOWN APPROACH SLAB AND ROADWAY CURB WITH ITEM 520.0302, CONCRETE CLASS AA, APPROACH SLABS (QC/QA) (F) (6" MIN DEPTH). EXTEND CONCRETE FROM ABUTMENT END OF APPROACH SLAB 6' ALONG SLAB, OR AS DIRECTED BY ENGINEER (QC/QA TESTING REQUIREMENTS WAIVED).

(3) ITEM 520.0302, SHALL BE FORMED INTO 1'-0"x 2'-0" BLOCKS ON APPROACH SLAB SEATS TO SUPPORT APPROACH CURBS. 8 INCHES OF THE CONCRETE BLOCKS SHALL REST ON THE APPROACH SLAB SEAT AND 16 INCHES ON SOIL. (THE QC/QA REQUIREMENTS SHALL BE WAIVED.)

(4) APPROACH SLABS FOR BOTH ABUTMENTS SHALL BE CAST 2 1/2" BELOW FINISHED GRADE AT THE APPROACH SLAB SEATS.

UTILITY NOTES

(1) ALL NECESSARY MATERIAL INCLUDING CONDUIT, HANGER SYSTEMS, COUPLINGS, PULL WIRES, EXPANSION COUPLINGS, AND END CAPS FOR THE ITS CONDUITS SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. PAY LIMITS FOR STEEL CONDUIT SHALL BE FROM PULL-BOX TO PULL-BOX INCLUDING THE PORTIONS ACROSS THE BRIDGE AND ANY SWEEPS OR BENDS REQUIRED BETWEEN THE PULL-BOXES AND THE BRIDGES. ALL COSTS SHALL BE INCLUDED IN ITEM 614.3439.

(2) EXPANSION COUPLINGS CAPABLE OF XX" TOTAL LONGITUDINAL MOVEMENT SHALL BE PROVIDED AT EACH ABUTMENT FOR ITS CONDUITS. COSTS SHALL BE INCLUDED IN ITEM 614.3439.

STRUCTURAL STEEL AND SUPERSTRUCTURE NOTES

(1) ALL STRUCTURAL STEEL SHALL BE PAID UNDER ITEM 550.1, STRUCTURAL STEEL (F), INCLUDING THE GIRDERS, CROSS FRAMES, GUSSET PLATES, FILL PLATES, CONNECTION PLATES, SPLICE PLATES, STIFFENERS, AND FASTENERS.

(2) THE NHDOT WILL INSPECT THE SHOP FABRICATION OF THE STRUCTURAL STEEL.

(3) NOTCH TOUGHNESS REQUIREMENTS SHALL BE IN ACCORDANCE TO NHDOT STANDARD SPECIFICATIONS SECTION 550.2.3.

(4) ALL BOLTED CONNECTIONS SHALL BE SLIP-CRITICAL (CLASS-B) MADE WITH 7/8" Φ HIGH STRENGTH BOLTS IN 15/16" Φ HOLES. ALL FASTENERS SHALL CONFORM TO REQUIREMENTS FOR AASHTO M164 (ASTM A325) TYPE 3. (IN PAINTED AREAS, BOLTS SHALL BE TYPE 1 GALVANIZED)

(5) DIRECT TENSION INDICATORS SHALL BE INSTALLED WITH HIGH STRENGTH BOLTS.

(6) INTENDED FINAL ERECTED POSITION OF I-GIRDER WEBS SHALL BE VERTICAL OR PLUMB. THIS SHALL BE ACHIEVED BY DETAILING FOR 'FULL DEAD LOAD FIT CONDITION' FOR STRAIGHT I-GIRDERS WITH A SKEW, AND DETAILING FOR 'STEEL DEAD LOAD FIT CONDITION' FOR HORIZONTALLY CURVED I-GIRDERS WITH OR WITHOUT A SKEW.

(7) GIRDERS SHALL BE CAMBERED FOR VERTICAL CURVATURE AND TO FULL DEAD LOAD DEFLECTION. THE CAMBER SHALL BE ACHIEVED BY CUTTING THE WEB PLATE ACCORDING TO DIMENSIONS SHOWN ON THE GIRDER WEB LAYOUT ON BRIDGE SHEET XX. CAMBER TOLERANCE IS + XX", -0.

(8) BEARING STIFFENERS AND THE ENDS OF GIRDERS SHALL BE VERTICAL UNDER FULL DEAD LOAD DEFLECTION.

(9) ALL WELDS SHALL HAVE CORROSION RESISTANCE AND WEATHERING APPEARANCE AS SPECIFIED FOR WEATHERING STRUCTURAL STEEL.

(10) THE STRUCTURAL STEEL FABRICATOR SHALL ARRANGE FOR NON-DESTRUCTIVE TESTING OF THE WELDS. ALL COSTS TO BE INCLUDED IN ITEM 550.1.

(11) SHOP DRAWINGS SHALL INDICATE THE METHOD AND SEQUENCE TO BE FOLLOWED IN WELDING THE GIRDER COMPONENTS.

(12) CROSS FRAMES SHALL BE FABRICATED IN THE SHOP WITH 1/4" FILLET WELDS, UNLESS NOTED OTHERWISE. GRAVITY AXES OF THE MEMBERS SHALL INTERSECT AS NEARLY AS PRACTICABLE AT THE CENTERLINE OF THE GIRDER.

(13) LOCATION OF WELDED SHOP SPLICES SHALL BE APPROVED BY THE BUREAU OF BRIDGE DESIGN. WEB SPLICES SHALL BE LOCATED A MINIMUM OF 9" FROM WELDED FLANGE SPLICES. WEB AND FLANGE SPLICES SHALL BE LOCATED A MINIMUM OF 6" FROM TRANSVERSE STIFFENERS OR CONNECTION PLATES.

(14) HOLES FOR FIELD SPLICES SHALL BE DRILLED IN THE SHOP WHILE GIRDERS ARE ASSEMBLED TO FINAL BEARING ELEVATIONS.

(15) ANY SHOP OR FIELD WELDING OF ATTACHMENTS TO ANY PORTION OF THE PLATE GIRDERS FOR CONSTRUCTION PURPOSES WILL NOT BE PERMITTED, UNLESS APPROVED BY THE BUREAU OF BRIDGE DESIGN.

(16) THE CONTRACTOR SHALL SUBMIT A HANDLING AND ERECTION PROCEDURE TO THE ENGINEER PRIOR TO HANDLING THE STRUCTURAL STEEL IN ACCORDANCE WITH SECTIONS 550.3.14 AND 550.3.15. THE ERECTION PROCEDURE SHALL INDICATE THE LOCATION AND NUMBER OF LIFTING POINTS AS DETERMINED BY CHECKING THE L/B RATIOS IN ACCORDANCE WITH SECTION 550.3.14.2.4 TO GUARD AGAINST LATERAL BUCKLING OF THE GIRDERS. THESE DRAWINGS SHALL BE DOCUMENTED BEFORE ERECTION STARTS.

(17) STEEL ERECTION SHALL NOT BE PERMITTED UNTIL THE ABUTMENTS HAVE BEEN BACKFILLED TO THE LEVEL OF THE BRIDGE SEATS.

(18) ALL SHEAR CONNECTORS SHALL BE FIELD WELDED TO THE TOP FLANGE WITH AUTOMATICALLY TIMED STUD WELDING EQUIPMENT. RELOCATE SHEAR CONNECTORS AT SPLICE LOCATIONS TO AVOID INTERFERENCE WITH FASTENERS.

(19) SCREED RAIL SUPPORTS REQUIRED FOR PLACEMENT OF THE DECK SLAB CONCRETE SHALL BE LOCATED AT THE CENTERLINE OF GIRDERS.

(20) ALL WELDING AND FABRICATION SHALL BE PERFORMED IN CONFORMANCE WITH NHDOT STANDARD SPECIFICATION SECTION 550.

(21) ALL STRUCTURAL STEEL (INCLUDING BRIDGE SHOES) SHALL BE PAINTED WITHIN 10 FEET OF THE CENTERLINE OF BEARING, BOTH ENDS OF THE BRIDGE, EXCEPT FASCIA SURFACES OF THE EXTERIOR GIRDERS (e.g.: BOTTOM OF TOP FLANGE, THE WEB, TOP AND EDGE OF THE BOTTOM FLANGE) SHALL NOT BE PAINTED.

(22) THE TOP OF TOP FLANGE SHALL BE PAINTED WITH A LIGHT RUST PROTECTIVE COAT OF PRIMER, ONLY IN THE LOCATIONS WHERE THE WEB AND BOTTOM FLANGE ARE PAINTED (I.E.: FOR PAINTED GIRDERS, FULL LENGTH OF TOP FLANGE; FOR WEATHERING STEEL GIRDERS, TOP FLANGE WITHIN 10 FT OF CL ABUTMENT BEARINGS). ALL COSTS INCLUDED IN ITEM 550.1, STRUCTURAL STEEL (F).

(23) THE BRIDGE DECK POURING SEQUENCE SHALL BE SUBMITTED IN ACCORDANCE WITH 105.02 AND SUBJECT TO APPROVAL OF THE BUREAU OF BRIDGE DESIGN. BRIDGE DECK CONCRETE SHALL REMAIN PLASTIC THROUGHOUT THE ENTIRE POURING SEQUENCE.

(24) TWO X" DIAMETER CONDUITS SHALL BE INSTALLED IN THE BRUSH CURB OF THE DOWNSTREAM SIDE OF THE BRIDGE. CONDUITS SHALL BE PLACED FOR THE FULL LENGTH OF PROPOSED DECK AND WINGWALLS AS SHOWN IN THE PLANS (SEE BRIDGE RAIL & APPROACH RAIL SHEETS FOR DETAILS). ALL COSTS TO BE PAID UNDER ITEM 614.XXXX.

(25) ALL PLAN DIMENSIONS ARE MEASURED HORIZONTAL AT 45°F WITHOUT ACCOUNT FOR PROFILE GRADE, UNLESS OTHERWISE NOTED.

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN

TOWN | BRIDGE NO. | STATE PROJECT
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SAMPLE PROJECT NOTES

BRIDGE SHEET 2 OF 7

REVISIONS AFTER PROPOSAL	BY	DATE		BY	DATE
	DESIGNED	NHDOT	1/2015	CHECKED	
	DRAWN			CHECKED	
	QUANTITIES			CHECKED	

SHEET SCALE | ISSUE DATE 1/2015 | FEDERAL PROJECT NO. | SHEET NO. | TOTAL SHEETS
REV. DATE | FILE NUMBER

POT BEARING SHOE NOTES

(PLACE THESE NOTES ON THE BEARING SHEET)

(1) FIXED AND GUIDED HIGH-LOAD MULTI-ROTATIONAL (POT) BEARINGS, INCLUDING MASONRY PLATE, SOLE PLATE, ANCHOR BOLTS, NUTS AND WASHERS AND BEARING PAD SHALL BE PAID AS ITEM 550.210, BRIDGE SHOES (F).

(2) ALL STEEL PLATES SHALL CONFORM TO AASHTO M 270 GRADE 50W (ASTM A709 GRADE 50W), (UNPAINTED AT PIER AND PAINTED AT ABUTMENTS), EXCEPT STAINLESS STEEL SHALL CONFORM TO ASTM A240 TYPE 304. PTFE SURFACES SHALL CONFORM TO SECTION 550.2.10 OF THE NHDOT STANDARD SPECIFICATIONS.

(3) THE STAINLESS STEEL SURFACE IN CONTACT WITH THE PTFE SHALL HAVE A #8 MIRROR FINISH.

(4) THE PREFORMED FABRIC PADS SHALL BE TYPE 1 AND CONFORM TO SECTION 550.2.6 OF THE NHDOT STANDARD SPECIFICATIONS.

(5) ALL ANCHOR BOLTS, THREADED RODS, NUTS, AND WASHERS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH AASHTO M 232 (ASTM A153).

(6) BEARING SURFACES IN CONTACT TO BE WELDED SHALL BE FINISHED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS SECTION 11.4.6.

(7) ALL PLATES SHALL BE FLAT AND TRUE AFTER WELDING.

(8) RECESS AND BOND THE PTFE TO THE TOP OF THE POT BEARING AND SIDES OF THE GUIDE BARS WITH AN APPROVED ADHESIVE. THE SURFACE PREPARATION OF THE PTFE AND MATING STEEL SHALL BE ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

(9) THE BONDED PTFE, STAINLESS STEEL PLATES, AND ADHESIVES USED SHALL BE THOSE MANUFACTURED BY AN APPROVED SUPPLIER, WITH PROVEN EXPERIENCE IN THE FIELD.

(10) BEARING HEIGHT MUST ALLOW SUFFICIENT CLEARANCE FOR ALL ANCHOR BOLTS TO BE REMOVED AND RE-INSTALLED AFTER GIRDERS ARE WELDED TO THE SOLE PLATES. BEAM SEAT ELEVATIONS SHALL BE ADJUSTED BASED ON ACTUAL BEARING HEIGHT.

(11) OTHER TYPES OF HIGH-LOAD MULTI-ROTATIONAL BEARINGS WILL BE ACCEPTED PROVIDED THEY MEET THE DESIGN REQUIREMENTS. THE BUREAU OF BRIDGE DESIGN SHALL MAKE THE FINAL DETERMINATION OF A BEARING'S ABILITY TO MEET THE REQUIREMENTS.

(12) BEARING DEVICES SHALL NOT BE DISASSEMBLED DURING INSTALLATION. INSTALLATION PROCEDURES SHALL BE IN CONFORMANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND AS APPROVED BY THE BUREAU OF BRIDGE DESIGN.

(13) THE TOP OF THE SOLE PLATES SHALL BE BEVELED TO MATCH THE APPROXIMATE GRADE.

(14) ALL BEARINGS SHALL BE MARKED PRIOR TO SHIPPING. THE MARKS SHALL INCLUDE THE BEARING LOCATION ON THE BRIDGE AND A DIRECTION ARROW THAT POINTS UP-STATION. ALL MARKS SHALL BE PERMANENT AND SHALL BE VISIBLE AFTER THE BEARING IS INSTALLED.

(15) ALL ANCHOR BOLTS AT THE PIER SHALL BE SET BY TEMPLATE BEFORE CONCRETE IS PLACED.

(16) SEE SPECIAL PROVISION SECTION 550 FOR ADDITIONAL INFORMATION.

FIXED STEEL BRIDGE SHOE NOTES

(PLACE THESE NOTES ON THE BEARING SHEET)

(1) FIXED SHOE ASSEMBLIES, INCLUDING ANCHOR BOLTS, SHALL BE PAID FOR UNDER ITEM 550.2, BRIDGE SHOES (F).

(2) ALL PLATES SHALL BE FLAT AND TRUE AFTER WELDING.

(3) ALL STEEL PLATES SHALL CONFORM TO AASHTO M 270 GRADE 50 (ASTM A709 GRADE 50) AND SHALL BE PAINTED.

(4) ANCHOR BOLTS SHALL BE GALVANIZED AND FABRICATED IN ACCORDANCE WITH SECTION 550.2.5. OF THE NHDOT STANDARD SPECIFICATIONS.

(5) BEARING SURFACES MARKED "f", OR SURFACES IN CONTACT TO BE WELDED, SHALL BE FINISHED IN ACCORDANCE WITH AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS, SECTION 11.4.6.

(6) LEAVE A $^{1}/_{4}$" GAP BETWEEN THE SOLE PLATE & BOTTOM NUT. DOUBLE NUT THE ANCHOR BOLTS.

(7) THE PREFORMED FABRIC PADS SHALL CONFORM TO SECTION 550.2.6 OF THE NHDOT STANDARD SPECIFICATIONS.

(8) ALL ANCHOR BOLTS AT THE PIER SHALL BE SET BY TEMPLATE BEFORE CONCRETE IS PLACED.

EXPANSION STEEL BRIDGE SHOE NOTES

(PLACE THESE NOTES ON THE BEARING SHEET)

(1) EXPANSION SHOE ASSEMBLIES, INCLUDING ANCHOR BOLTS, SHALL BE PAID FOR AS ITEM 550.2, BRIDGE SHOES (F).

(2) ALL PLATES SHALL BE FLAT AND TRUE AFTER WELDING.

(3) ALL STEEL PLATES SHALL CONFORM TO ASTM A709 GRADE 50, AND SHALL BE PAINTED, EXCEPT $^{3}/_{16}$" STAINLESS STEEL PLATES SHALL BE ASTM A240 TYPE 304.

(4) ANCHOR BOLTS SHALL BE GALVANIZED AND FABRICATED IN ACCORDANCE WITH SECTION 550.2.5 OF THE NHDOT STANDARD SPECIFICATIONS.

(5) BEARING SURFACES MARKED "f", OR SURFACES IN CONTACT TO BE WELDED, SHALL BE FINISHED IN ACCORDANCE WITH AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS SECTION 11.4.6.

(6) PTFE (TEFLON) SHALL BE FABRICATED AS UNFILLED SHEET AND THE SURFACE SHALL BE DIMPLED-LUBRICATED IN ACCORDANCE WITH AASHTO LRFD DESIGN SPECIFICATIONS SECTION 14.7.2.1.

(7) THE PTFE SHALL CONFORM TO SECTION 550.2.10 OF THE NHDOT STANDARD SPECIFICATIONS. THE COEFFICIENT OF FRICTION BETWEEN THE PTFE AND STAINLESS STEEL SURFACES SHALL BE DETERMINED IN ACCORDANCE WITH AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS SECTION 18.1.5.2.3. THE DESIGN COEFFICIENT OF FRICTION SHALL BE PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 14.7.2.5.

(8) THE PTFE SHALL BE BONDED TO THE STEEL BY AN EPOXY RESIN SATISFYING THE REQUIREMENTS OF AASHTO M 235M/M 235 (ASTM C 881/C 881M), FEP FILM, OR EQUAL, AS APPROVED BY THE ENGINEER.

(9) THE STAINLESS STEEL SURFACES IN CONTACT WITH THE TEFLON SHALL HAVE A #8 MIRROR FINISH.

(10) THE PREFORMED FABRIC PADS SHALL CONFORM TO SECTION 550.2.6 OF THE NHDOT STANDARD SPECIFICATIONS.

(11) ALL ANCHOR BOLTS AT THE PIER SHALL BE SET BY TEMPLATE BEFORE CONCRETE IS PLACED.

ELASTOMERIC BEARING NOTES

(PLACE THESE NOTES ON THE BEARING SHEET)

(1) BEARING ASSEMBLIES, INCLUDING ELASTOMERIC BEARING PADS, SOLE PLATES, MASONRY PLATES, BOLSTERS, ANCHOR BOLTS, NUTS, WASHERS, SHALL BE PAID AS ELASTOMERIC BEARING ASSEMBLIES (F), ITEM 548.21.

DESIGNER TO CHOOSE WHICH DESCRIPTION TO USE AND DESIGN FOR GRADE 3 OR 4 PER AASHTO 14.7.5.2

(2) ELASTOMERIC BEARING PADS SHALL BE VIRGIN NATURAL RUBBER, HARDNESS (SHORE "A" DUROMETER) OF 60 AND A MINIMUM LOW-TEMPERATURE GRADE X.

(2) ELASTOMERIC BEARING PADS SHALL BE VIRGIN NATURAL RUBBER WITH A SHEAR MODULUS OF 0.XX KSI (±15%) AND A MINIMUM LOW-TEMPERATURE GRADE X.

(3) ANCHOR BOLTS SHALL BE FABRICATED IN ACCORDANCE WITH SECTION 550.2.5 OF THE NHDOT STANDARD SPECIFICATIONS. ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AFTER FABRICATION AND CONFORM TO AASHTO M232 ASTM A153.

(4) SOLE PLATES AND LOAD PLATES SHALL CONFORM TO AASHTO M 270 GRADE 50 (ASTM A709 GRADE 50) AND SHALL BE PAINTED.

(5) STEEL LAMINATES FOR ELASTOMERIC BEARING PADS SHALL CONFORM TO ASTM A1011 WITH A MINIMUM GRADE OF 36.

(6) SOLE AND MASONRY PLATES SHALL BE BLAST CLEANED (SSPC-SP 10) AFTER THE VULCANIZING PROCEDURE PRIOR TO PAINTING. SHOP PAINT BEARING ASSEMBLIES PER SPECIAL PROVISION 550. AFTER WELDING TO THE GIRDER FLANGE, CLEAN AND APPLY FINISH COATS TO THE SOLE PLATES.

DESIGNER SHALL SPECIFY TEMPERATURE RANGE AS REQ'D PER DESIGN

(7) IF STEEL GIRDERS ARE ERECTED WITH BEARINGS PLUMB AT AN AMBIENT TEMPERATURE HIGHER THAN XX°F OR LOWER THAN XX°F, AND THE BEARING SHEAR DEFLECTION EXCEEDS ONE-SIXTH OF THE BEARING HEIGHT AT 60°F±10°F, THE GIRDERS SHALL BE JACKED AND THE BEARINGS RESET TO PLUMB (UNDEFORMED SHAPE) AT 60°F±10°F AS DIRECTED BY THE ENGINEER. ALL COSTS SUBSIDIARY TO ITEM 548.XX.

(8) THE FABRICATOR SHALL CLEARLY MARK THE BEARING ASSEMBLIES TO ENSURE PROPER ORIENTATION IN THE FIELD.

(9) KEEPER ASSEMBLIES SHALL BE PAINTED PAID UNDER ITEM 548.21

(10) THE CONTINUOUS WELD CONNECTING THE BOTTOM FLANGE OF GIRDERS TO THE TOP OF THE SOLE STEEL PLATES SHALL BE ALLOWED TO COOL AFTER EACH PASS. THE TEMPERATURE OF THE STEEL ADJACENT TO THE ELASTOMER SHALL NOT EXCEED 200°F (TEMPERATURE SHALL BE CONTROLLED BY WELDING PROCEDURES AND TEMPERATURE INDICATING CRAYON, OR OTHER DEVICES APPROVED BY THE ENGINEER). ALL PLATES SHALL BE FLAT AND TRUE AFTER WELDING.

(11) THE GIRDER BOTTOM FLANGE SHALL NOT BE FIELD WELDED TO THE TOP OF THE STEEL SOLE PLATE UNTIL AFTER THE CONCRETE DECK IS POURED.

(12) THE TOP OF ALL SOLE PLATES SHALL BE BEVELED TO MATCH THE APPROXIMATE GRADE OF X.XXX% FOR ABUT "A" AND X.XXX% FOR ABUT "B". BEVELED WASHERS SHALL BE REQUIRED BENEATH THE NUTS FOR THE FIXED BEARINGS.

(13) FOLLOWING THE MANUFACTURE OF ELASTOMERIC BEARINGS AND VERIFICATION OF THE INTERNAL STEEL LAMINATES, THE PIN GROOVE OPENING SHALL BE COATED WITH AN APPROVED ASPHALTIC SEALER AND THE SPACE FILLED WITH SILICONE CAULKING.

(14) ALL ANCHOR BOLTS AT THE PIER SHALL BE SET BY TEMPLATE BEFORE CONCRETE IS PLACED.

(15) APPLY AN APPROVED SEALANT ALONG THE TRANSVERSE EDGES UP AND AROUND TO THE FILLET WELD TERMINATION ON THE SOLE PLATE. COST SHALL BE INCLUDED IN ITEM 548.21.

(16) BEARING HEIGHT SHOWN ON THE PLANS IS FOR THE NO-LOAD CONDITION. FOR COMPRESSIVE DEFLECTION DUE TO DEAD LOAD SEE THE FOLLOWING TABLE:

BEARING DESIGN LOADS AND DEFLECTION

(SERVICE I LIMIT STATE - DESIGN METHOD A)

	COMPRESSIVE LOAD (KIPS)				INITIAL TOTAL DL COMPRESSIVE DEFLECTION (IN)
	DC	DW	LL W/O IMPACT	TOTAL	
ABUTMENT A					
PIER 1					
PIER 2					
ABUTMENT B					

BORING NOTES

(PLACE THESE NOTES ON THE BORINGS LAYOUT SHEET)
(EDIT AS NOTED ON GEOTECHNICAL REPORT)

(1) BORINGS INDICATED THUS ✪ WERE MADE BY THE NHDOT IN XX AND XX OF XXXX. FIGURES IN THE "BLOWS PER" COLUMN INDICATE THE NUMBER OF BLOWS REQUIRED TO DRIVE A 2" STANDARD SPLIT SPOON SAMPLER 6", USING A 140 LB. WEIGHT FALLING 30 INCHES.

(2) BORINGS ARE FOR DESIGN PURPOSES SHOWING CONDITIONS AT BORING POINTS ONLY, AND DO NOT NECESSARILY INDICATE MATERIAL TO BE ENCOUNTERED DURING CONSTRUCTION.

(3) THE GEOTECHNICAL REPORT IS AVAILABLE ON-LINE IN THE BID PACKAGE ON THE INVITATION TO BID WEB PAGE DURING THE BIDDING PERIOD. AFTER THE CONTRACT HAS BEEN AWARDED THE REPORT IS AVAILABLE IN THE NHDOT BUREAU OF MATERIALS AND RESEARCH OFFICE.

(4) ROCK CORES WERE MADE USING AN NX 2" I.D. CORE BARREL.

(5) WATER LEVELS INDICATED THUS ▽ WERE MEASURED AT THE TIME OF EXPLORATION. THE WATER LEVELS ENCOUNTERED DURING CONSTRUCTION MAY VARY CONSIDERABLY DUE TO PREVAILING CLIMATE, RAINFALL, OR OTHER FACTORS.

(6) THE SURFACE ELEVATION ON EACH BORING LOG IS THE ELEVATION OF THE EXISTING GROUND AT THE TIME THE BORING WAS TAKEN.

(PLACE THIS CHART ON THE GENERAL PLAN)

HYDRAULIC DATA

DRAINAGE AREA	XX SQ. MILES
DESIGN FLOOD DISCHARGE (XX YR)	XX CFS
DESIGN FLOOD ELEVATION (XX YR)	XX FEET
DESIGN FLOOD VELOCITY (XX YR)	XX FPS
SCOUR CHECK DISCHARGE (500 YR)	XX CFS
ANTICIPATED DEPTH OF SCOUR (100 YR)	XX FEET (XX LOCATION)
ANTICIPATED DEPTH OF SCOUR (500 YR)	XX FEET (XX LOCATION)
BRIDGE FULL WATERWAY OPENING TO ⊥ RIVER	XX SQ. FEET

DECK SLAB ELEVATION NOTES

(PLACE THESE NOTES WITH THE BOTTOM OF SLAB ELEVATION TABLES)

(1) AFTER THE STRUCTURAL STEEL IS ERECTED BUT BEFORE THE DECK FORMS ARE BUILT (OR DECK PANELS INSTALLED), ELEVATIONS ON THE TOP FLANGE OF THE GIRDERS ARE TO BE OBTAINED AT THE POINTS INDICATED IN THE TABLE. THE DIFFERENCE BETWEEN THE ELEVATIONS OBTAINED AND THOSE IN THE TABLE IS THE ACTUAL BLOCKING DISTANCE FROM THE TOP OF THE GIRDER TO THE BOTTOM OF DECK SLAB (OR DECK PANEL) AT THE ℄ OF GIRDERS. SEE ELEVATION TABLE AND HAUNCH DETAIL THIS SHEET.

(2) ELEVATIONS SHOWN IN THE TABLE ARE FINISHED BOTTOM OF SLAB ELEVATIONS ADJUSTED FOR TOTAL DEAD LOAD DEFLECTION DUE TO GIRDER WEIGHT.

(3) FOR ELEVATIONS AT THE BOTTOM OF THE SLAB FOR THE PRECAST CONCRETE PANEL OPTION, USE THE FOLLOWING EQUATION: ELEVATION FROM THE BOTTOM OF DECK ELEVATION TABLE PLUS $3^{1}/_{2}$" (SIP FORM THICKNESS) PLUS DEFLECTION DUE TO PRECAST CONCRETE PANELS.

(4) FOR GIRDER DEFLECTIONS DUE TO DECK PANEL DEAD LOAD, SEE TABLE ON BRIDGE SHEET XX.

SLOPE PAVING NOTES

(1) ALL COSTS ASSOCIATED WITH THE CONSTRUCTION OF THE SLOPE PAVING, INCLUDING WELDED WIRE FABRIC AND JOINT FILLER, SHALL BE INCLUDED IN ITEM 582.1, SLOPE PAVING WITH CONCRETE (F). SEE SECTION 582 OF THE NHDOT SPECIFICATIONS.

(2) ONCE CURING OF SLOPE PAVING IS COMPLETE, THE ENTIRE SURFACE SHALL BE COATED WITH ITEM 534.3, WATER REPLELLENT (SILANE/SILOXANE).

STATE OF NEW HAMPSHIRE
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QUANTITIES			CHECKED		
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FILE NUMBER

SHEET SCALE

PRECAST BOX CULVERT, WINGWALL & FOUNDATION NOTES

(1) INSTALLATION OF THE PRECAST BOX CULVERT SHALL CONSIST OF UNITS TOTALING AN OUT-TO-OUT DIMENSION OF xxx'-xx" ALONG THE CENTERLINE OF THE CULVERT.

(2) ALL COSTS FOR FABRICATION, ERECTION/INSTALLATION OF THE BOX CULVERT AS WELL AS THE PRECAST HEADWALLS, WING FOOTINGS, AND WINGWALLS, SHALL BE INCLUDED IN ITEM 520.0021, PRECAST BOX CULVERT.

(3) THE DIMENSIONS AND GEOMETRIC LAYOUT OF THE STRUCTURE (LAYOUT DIMENSIONS, ELEVATIONS AND WORKING POINTS COORDINATES) WERE DEVELOPED BASED ON THE PRECAST CONCRETE BOX CULVERT AND WINGWALL DIMENSIONS SHOWN IN THESE PLANS. IF THE DIMENSIONS OR GEOMETRY OF THE PRECAST BOX CULVERT OR THE PRECAST WINGWALLS ARE ALTERED BY THE FABRICATOR FROM WHAT IS SHOWN, THE FABRICATOR SHOULD ADJUST THE AFFECTED DIMENSIONS, ELEVATIONS AND WORKING POINT COORDINATES ACCORDINGLY. ANY REQUIRED CHANGES TO THE DIMENSIONS OR GEOMETRIC LAYOUT ON THE PLANS SHALL BE SUBSIDIARY TO ITEM 520.0021

(4) JOINTS BETWEEN BOX CULVERT SECTIONS SHALL BE WATERTIGHT.

(5) FOR CULVERTS WITH 5 FT. OR MORE OF COVER, ITEM 538.1, BARRIER MEMBRANE, PEEL AND STICK (F) SHALL BE APPLIED IN A 2'-0" WIDE STRIP CENTERED ON ALL THE JOINTS IN THE TOP SLAB AND EXTEND 1 FT. DOWN CULVERT WALLS. PROTECTION BOARD SHALL BE USED TO PROTECT THE MEMBRANE FROM DAMAGE IN ACCORDANCE WITH 538.3.3.

(6) FOR CULVERTS WITH LESS THAN OR EQUAL TO 5 FT. OF COVER, ITEM 538.1, BARRIER MEMBRANE, PEEL AND STICK (F) SHALL BE INSTALLED OVER THE ENTIRE TOP SURFACE OF THE BOX CULVERT AND SHALL EXTEND 1'-0" DOWN THE SIDES. PROTECTION BOARD SHALL BE USED TO PROTECT THE MEMBRANE FROM DAMAGE IN ACCORDANCE WITH 538.3.3.

(7) ITEM 538.1, BARRIER MEMBRANE, PEEL AND STICK (F) SHALL BE PLACED IN A 1'-0" WIDE STRIP CENTERED ABOUT JOINTS BETWEEN THE BOX CULVERT AND THE HEADWALLS. PROTECTION BOARD SHALL BE USED TO PROTECT THE MEMBRANE FROM DAMAGE IN ACCORDANCE WITH 538.3.3.

(8) GALVANIZED STEEL ANGLES AND BOLTS AS SHOWN IN THE BOX CULVERT JOINT DETAIL (BRIDGE SHEET xx) SHALL BE UTILIZED TO DRAW CULVERT SECTIONS TOGETHER. THESE HARDWARE ASSEMBLIES SHALL BE ATTACHED TO THE OUTSIDE SURFACES OF THE CULVERT SECTIONS AND SHALL BE LEFT IN PLACE. FERRULE LOOP INSERTS FOR ATTACHMENT SHALL BE PROVIDED IN THE CULVERT SECTIONS. ALL COST FOR ASSEMBLY SHALL BE INCLUDED IN ITEM 520.0021.

(9) ALL EXPOSED CONCRETE SURFACES OF THE PRE-CAST BOX CULVERT, HEADWALLS AND WINGWALLS, EXCEPT INSIDE SURFACES OF THE BOX CULVERT SECTIONS, SHALL BE COATED WITH ITEM 534.3, WATER REPELLENT (SILANE-SILOXANE) TO 1'-0" BELOW FILL LINES.

(10) SUITABLE EXCAVATED CHANNEL MATERIAL SHALL BE STOCKPILED IN SUFFICIENT QUANTITY TO BE PLACED WITHIN THE BOX CULVERT AND OVER THE STONE FILL IN THE CHANNEL BOTTOM AS NOTED ON THE PLANS. ALL COSTS FOR PLACEMENT OF THIS MATERIAL SHALL BE SUBSIDIARY TO ITEM 520.0021

(11) THE CONTRACTOR SHALL BE REQUIRED TO PREPARE AND SUBMIT AN ERECTION PLAN FOR DOCUMENTATION IN ACCORDANCE WITH SECTION 105.02 OF THE NHDOT STANDARD SPECIFICATIONS. ERECTION PLAN SUBMITTALS SHALL BE DESIGNED AND STAMPED BY A PROFESSIONAL ENGINEER, LICENSED IN THE STATE OF NEW HAMPSHIRE.

(12) THE CONTRACTOR IS RESPONSIBLE FOR THE PROPER FIT OF ALL PRECAST AND CAST-IN-PLACE ELEMENTS, PER FABRICATOR'S RECOMMENDATIONS AND APPROVED SHOP/ENGINEERING DRAWINGS, TO THE SATISFACTION OF THE CONTRACT ADMINISTRATOR.

(13) SHOP DRAWINGS SHALL BE SUBMITTED FOR APPROVAL IN ACCORDANCE WITH 105.02 FOR ALL PRE-CAST COMPONENTS. THESE DRAWINGS SHALL BE SUBMITTED IN ACCORDANCE WITH THE SPECIAL PROVISION. ALL COSTS SHALL BE SUBSIDIARY TO ITEM 520.0021.

(14) CONCRETE COVER REQUIREMENTS IN THE PRECAST UNITS SHALL BE AS DEFINED IN THE SPECIAL PROVISION.

(15) ITEM 585.21, STONE FILL, CLASS B (BRIDGE) AND ITEM 209.4, GRANULAR BACKFILL (GRAVEL), SHALL BE PLACED WITHIN THE BOX CULVERT AS SHOWN ON THE PLANS TO A TOTAL DEPTH OF X'-X". INSTALL THE STONE FILL TO A DEPTH OF APPROXIMATELY 2 FEET THEN USE SPALLS AND THE GRANULAR BACKFILL TO FILL VOIDS IN THE STONE FILL AND ACHIEVE A DENSE MASS THROUGHOUT THE TOTAL X'-X" COURSE DEPTH REQUIRED.

(16) REMOVE 2'-0" (MIN) OF EXISTING CULVERT CONCRETE BY SAW CUTTING A 1" DEEP LINE TO PROVIDE CLEAN REMOVAL LINES. THE EXISTING REINFORCEMENT IS TO REMAIN. ALL COST SHALL BE INCLUDED IN ITEM 504.2, ROCK BRIDGE EXCAVATION. MECHANICAL CONNECTORS SHALL BE PROVIDED IN THE PRECAST UNIT AND STEEL REINFORCING SHALL BE MADE CONTINUOUS FROM THE CAST-IN- PLACE BOX CULVERT TO THE PRECAST UNITS. FORMS FOR THE TRANSITION POUR MUST PROVIDE A SMOOTH INTERIOR TRANSITION FROM THE EXISTING CAST-IN-PLACE CULVERT TO THE NEW PRECAST UNITS. THE CONCRETE & ALL COSTS FOR FORMING THE TRANSITION SHALL BE PAID FOR UNDER CONCRETE CLASS B, FOOTING (ON SOIL) (F), ITEM 520.213

(17) ALL EXCAVATION FOR THE PROPOSED BOX CULVERT WILL BE PAID FOR UNDER THE PROVISIONS OF SECTION 504, BRIDGE EXCAVATION.

(18) CONSTRUCT THE BOX CULVERT AND WING FOOTINGS ON STRUCTURAL FILL, ITEM 508.(MINIMUM X'-X" BELOW BOX CULVERT AND WING FOOTINGS)

(19) PROTRUDING BOULDERS OR COBBLES ENCOUNTERED AT THE FINAL EXCAVATION DEPTH SHALL BE REMOVED OR SPLIT TO PROVIDE A LEVEL BEARING SURFACE.

(20) EXCAVATION FOR THE BOX CULVERT, TOE WALLS, AND WING FOOTINGS SHALL BE COMPLETED IN THE DRY.

(21) CONTROL OF WATER WITHIN CULVERT AND WINGWALL EXCAVATION SHALL BE CONDUCTED IN ACCORDANCE WITH 503 AND PAID UNDER ITEM 503.20X. PUMPING AREAS SHALL BE LOCATED OUTSIDE THE FOOTING SUPPORT LIMITS AND PROPERLY FILTERED TO PREVENT THE PUMPING OF FINES.

(22) ANY FOUNDATION MATERIALS WEAKENED AS A RESULT OF INSUFFICIENT CARE TAKEN IN MAINTAINING A DEWATERED CONDITION SHALL BE REMOVED AND REPLACED WITH STRUCTURAL FILL AT THE EXPENSE OF THE CONTRACTOR.

(23) PLACEMENT OF STRUCTURAL FILL SHALL BE COMPLETED IN THE DRY.

PRESTRESSED BOX BEAM NOTES

(1) THE CONCRETE COMPRESSIVE STRENGTH OF THE PRECAST BOX BEAM UNITS SHALL BE 4800 PSI AT RELEASE AND 6000 PSI AT 28 DAYS.

(2) PRESTRESSING STANDS SHALL BE 0.6" DIA. UNCOATED SEVEN-WIRE STRAND CONFORMING TO AASHTO M203-05 (ASTM A416) GRADE 270 LOW RELAXATION. ALL STRANDS SHALL BE PRE-TENSIONED TO 44 KIPS PER STRAND (75% INITIAL PULL).

(3) POST-TENSIONING STRANDS SHALL BE 0.6" DIA. SEVEN-WIRE STRAND CONFORMING TO AASHTO M203 (ASTM A416) GRADE 270 LOW RELAXATION. POST-TENSIONING STRANDS SHALL BE COMPLETELY COATED WITH A CORROSION PREVENTATIVE COATING SUCH AS FLO-GARD, AS MANUFACTURED BY INSTEEL INDUSTRIES, INC., SANDERSON, FL., OR POLYSTRAND, AS MANUFACTURED BY LANG TENDONS, INC., TOUGHKENAMON, PA. OR AN APPROVED EQUAL. IF THE FLO-GARD COATING SYSTEM IS SUPPLIED, GROUT SHALL BE EXCLUDED FROM THE LATERAL POST-TENSIONING DUCTS DURING GROUTING OF SHEAR KEYS BETWEEN THE BEAMS. THE CONTRACTOR'S PROPOSED METHOD FOR EXCLUDING GROUT FROM THE POST-TENSIONING DUCTS SHALL BE SUBMITTED WITH THE SHOP DRAWINGS. POST-TENSIONING ANCHORAGE SYSTEM SHALL BE MONO-STRAND CORROSION PROTECTION SYSTEM AS MANUFACTURED BY HAYES INDUSTRIES, INC., HOUSTON, TEXAS, OR APPROVED EQUAL.

(4) TRANSVERSE POST-TENSIONING OF THE PRECAST BOX BEAMS SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 528 OF THE NHDOT STANDARD SPECIFICATIONS.

(5) ALL REINFORCING STEEL FOR THE SUPERSTRUCTURE SHALL CONFORM TO AASHTO M31 (ASTM A615) GRADE 60 AND SHALL BE EPOXY COATED.

(6) THE PRECAST BOX BEAM REINFORCING STEEL SHALL HAVE A MINIMUM CLEAR COVER OF 1 1/4-IN. UNLESS OTHERWISE NOTED.

(7) THE COST OF PRESTRESSING STRANDS, POST-TENSIONING STRANDS AND ANCHORAGES, AND REINFORCING STEEL CAST INTO THE PRECAST BOX BEAM UNITS SHALL BE PAID UNDER ITEM 528.32XX. ALL OTHER STEEL IN THE SUPERSTRUCTURE SHALL BE PAID UNDER ITEM 544.2.

(8) LIFTING DEVICES SHALL BE WITHIN 24-IN. OF EACH END OF THE PRECAST BOX BEAM UNITS. COST SHALL BE PAID UNDER ITEM 528.32XX.

(9) 1" DIA. DRAINS SHALL BE PROVIDED AT THE LOW END OF ALL BOX BEAM VOIDS.

(10) THE BOX BEAM SHEAR KEYS SHALL BE BLAST CLEANED PRIOR TO SHIPPING.

(11) THE TOP SURFACE OF BOX BEAMS SHALL BE RAKED TRANSVERSELY TO A 1/4-IN. AMPLITUDE.

(12) DRILLING INTO THE BOX BEAMS SHALL NOT BE ALLOWED.

(13) DIFFERENTIAL CAMBER (AT ERECTION) BETWEEN ADJACENT MEMBERS SHALL BE LIMITED TO 1-IN. VALUES FOR MID-SPAN CAMBER AT TRANSFER SHALL BE DETAILED ON THE SHOP DRAWINGS.

(14) PROVIDE INSERTS TO SUPPORT THE CONTRACTOR'S OVERHANG BRACKETS IN THE TOP SLAB ON EXTERIOR UNITS AT THE SPACING REQUESTED BY THE GENERAL CONTRACTOR. INSERTS SHALL BE SHOWN ON THE SHOP DRAWINGS. ALL COSTS SHALL BE INCLUDED IN ITEM 528.32XX.

PRESTRESSED NEBT GIRDER NOTES

(1) PRESTRESSING STRANDS SHALL BE UNCOATED 0.6" DIAMETER SEVEN WIRE STRAND, CONFORMING TO AASHTO M203 (ASTM A416), GRADE 270 LOW RELAXATION, INITIAL PRESTRESSING FORCE EQUAL TO 44 KIPS PER STRAND.

(2) MINIMUM CONCRETE STRENGTH AT RELEASE IS 4500 PSI, AT 28 DAYS IS 6000 PSI.

(3) REINFORCING STEEL, SLEEVES, THREADED INSERTS, STEEL STRANDS, SOLE PLATES, AND SHEAR CONNECTORS USED IN PRESTRESSED GIRDERS SHALL BE PAID UNDER ITEM 528.11XXX, PRESTRESSED CONCRETE GIRDERS NEBT XXXX (F).

(4) THE GIRDER HANDLING AND ERECTION PLAN SHALL BE SUBMITTED FOR DOCUMENTATION IN ACCORDANCE WITH 105.02.

(5) PRESTRESSED CONCRETE GIRDERS SHALL NOT BE ERECTED UNTIL THE ABUTMENTS HAVE BEEN BACKFILLED TO THE LEVEL OF THE BEAM SEATS.

(6) DRILLING OF HOLES IN THE PRESTRESSED GIRDERS AND THE USE OF POWER ACTUATED TOOLS ON THE GIRDERS WILL NOT BE PERMITTED.

(7) SCREED RAIL SUPPORTS REQUIRED FOR THE PLACEMENT OF THE DECK SHALL BE LOCATED AT THE CENTERLINE OF THE GIRDERS.

(8) TEMPORARY BRACING SHALL BE PROVIDED TO STABILIZE GIRDERS UNTIL DIAPHRAGMS ARE IN PLACE.

(9) THREADED INSERTS FOR THE CONCRETE DIAPHRAGMS SHALL BE CAPABLE OF WITHSTANDING A 25 KIP PULL (ULTIMATE LOAD). INSERTS SHALL BE SUPPLIED WITH COMPATIBLE THREADED PLUGS.

(10) ALL STRAND ENDS SHALL BE RECESSED AND PATCHED. THE RECESS SHALL BE 1 1/2" SQUARE AND 3/4" DEEP. THE PROJECTING STRAND SHALL BE BURNED OUT AND THE RECESS CLEANED PRIOR TO PATCHING WITH AND APPROVED MATERIAL. THE ENTIRE END CROSS-SECTION OF THE GIRDER SHALL THEN BE COATED WITH AN APPROVED BITUMASTIC MATERIAL. ALL COSTS ARE TO BE INCLUDED IN ITEM 528.11XXX.

(11) ALL REINFORCING STEEL IN THE GIRDERS SHALL BE EPOXY COATED AND CONFIRM TO SECTION 544.2.

(12) THE TOP SURFACE OF THE UPPER FLANGE OF PRECAST GIRDERS SHALL BE RAKED (PERPENDICULAR TO THE CENTERLINE) TO A SURFACE ROUGHNESS OF 1/4" +/-, EXCEPT THE FLATTENED AREAS OF 4" X 4" SHALL BE PROVIDED AT THE CENTER LINE OF BEARINGS AND TENTH POINTS TO FACILITATE TAKING ELEVATIONS FOR MEASURING CAMBER AND DEFLECTION. THESE AREAS SHALL BE STEEL TROWEL FINISHED.

(13) THREADED INSERTS FOR THE UTILITY SUPPORTS SHALL ACCOMMODATE A 3/4" ASTM A325 BOLT AND SHALL HAVE A MINIMUM ALLOWABLE SHEAR CAPACITY OF 4 KIPS.

(14) THE ENDS OF THE GIRDERS SHALL BE VERTICAL 1/4" +/- UNDER FULL DEAD LOAD AND GRADE.

(15) FABRICATION SCHEDULES SHALL BE SUBMITTED TO THE BUREAU OF MATERIALS AND RESEARCH 60 DAYS IN ADVANCE OF THE START OF FABRICATION TO ALLOW INSPECTION OF THE PLANT AND PROCEDURES AS REQUIRED BY THE NHDOT SPECIFICATIONS.

TIE-BACK WALL DESIGN & MATERIALS NOTES

(1) DESIGN METHOD:
LOAD RESISTANCE FACTOR DESIGN (LRFD)

(2) SPECIFICATION:
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 7TH ED., AS AMENDED
NHDOT 2010 STANDARD SPECIFICATIONS AS AMENDED

(3) DESIGN CRITERIA:
EXISTING SLOPE (FILL SIDE) = XX°
EXISTING SLOPE (DREDGE SIDE) = -XX° (DOWNHILL)
ANGLE OF REPOSE (FILL SIDE) = XX°
ANGLE OF REPOSE (DREDGE SIDE) = XX°
FRICTION ANGLE OF INTERFACE MATERIALS = XX°
UNIT WEIGHT OF SOIL = 120 PCF
MINIMUM BOND LENGTH = XX FT
DESIGN LOAD = XX KIPS
LOCK OFF LOAD IS 90% OF DESIGN LOAD
TEST LOAD IS 150% OF DESIGN LOAD
SOIL TO GROUT MINIMUM ULTIMATE BOND STRENGTH = XX LBS/FT
SOIL TO GROUT FACTOR OF SAFTEY = X.X
SOIL TO GROUT MINIMUM ALLOWABLE BOND STRENGTH = XX LBS/FT

(4) STRUCTURAL STEEL:
SHEET PILE
REGULAR CARBON STEEL, fy of 38,500 psi x 0.65 = fs of 25,000 psi
WALER
fy of 50,000 psi x 0.60 = fs of 30,000 psi
THREAD BAR
fu of 75,000 psi x 0.50 = fs of 37,500 psi

(5) TIE-BACK ANCHORS:
SHEET PILE WALL
ASTM A722, GRADE 150 HIGH STRENGTH STEEL BARS (1.25" DIA.)
DESIGN LOAD = 75 KIPS

TIE-BACK WALL NOTES

(1) A MINIMUM OF THREE PERFORMANCE TESTS FOR THE TIE-BACK ANCHORS WILL BE REQUIRED FOR EACH PHASE AND EACH ABUTMENT LOCATION. ALL COSTS SHALL BE INCLUDED IN ITEM 545.1.

(2) CORROSION PROTECTION SHALL BE PROVIDED FOR ALL TIE-BACKS. MINIMUM REQUIREMENTS OF THE PROPOSED DOUBLE CORROSION PROTECTION SYSTEM ARE SHOWN ON BRIDGE SHEET XX. FINAL DETAILS OF THE DOUBLE CORRSION PROTECTION SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. ALL COSTS SHALL BE INCLUDED IN ITEMS 545.1 AND 545.2.

(3) ALL COSTS FOR TIE-BACK ANCHORS, GROUTING, STRESSING AND TESTING, WALERS, PIPE SLEEVES, ANCHOR PLATES, BEVELED PLATES AND ALL ASSOCIATED HARDWARE SHALL BE INCLUDED IN ITEMS 545.1 AND 545.2 AS APPROPRIATE.

(4) ALL HARDWARE FOR THE TIE-BACK ANCHORS SHALL BE EPOXY COATED.

(5) SEE THE SPECIAL PROVISION FOR ADDITIONAL INFORMATION.

(6) THE CONTRACTOR SHALL DESIGN THE BOND LENGTH AND HOLE DIAMETER IN ACCORDANCE WITH THE MINIMUM HOLE DIAMETER AND PERFORMANCE/PROOF TEST REQUIREMENTS. THE MINIMUM BOND LENGTH SHALL BE XX FEET.

(7) ANCHOR DETAILS (I.E. BAR DIAMETER STRESSING LENGTH, BOND LENGTH, ETC.) SHALL BE DESIGNED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER FOR APPROVAL. ALL COSTS INCLUDED IN ITEMS 545.1 AND 545.2.

MSE WALL NOTES

(1) DIMENSIONS FOR THE REINFORCED SOIL ZONE SHOWN ON THE PLANS ARE MINIMUM DIMENSIONS. THE ACTUAL SIZE OF THE REINFORCED SOIL ZONE FOR ALL MECHANICALLY STABILIZED EARTH WALLS (ABUTMENTS AND WINGWALLS) SHALL BE DESIGNED BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 592. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING CHANGES TO OTHER COMPONENTS AND DIMENSIONS TO FIT THE DESIGN.

(2) THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND INTERNAL STABILITY OF THE SELECTED MSE RETAINING WALL SYSTEM. THE CONTRACTOR SHALL SUBMIT MSE RETAINING WALL PLANS AND CALCULATIONS FOR APPROVAL IN ACCORDANCE WITH SECTION 105.02. ALL PLANS AND CALCULATIONS SHALL BE PREPARED BY A PROFESSIONAL ENGINEER, LICENSED IN THE STATE OF NEW HAMPSHIRE AND SHALL BEAR THE ENGINEER'S SEAL AND SIGNATURE.

(3) FULL-HEIGHT PORTIONS OF MSE WALL AND WINGWALLS WITH A LEVELING PAD AT OR BELOW EL. XX SHALL HAVE A 1'-0" THICK LAYER OF ITEM 508, BEHIND THE REINFORCED SOIL ZONE. THE 1'-0" THICK LAYER OF STRUCTURAL FILL FOR WINGWALLS WITH A LEVELING PAD ABOVE EL. XX SHALL EXTEND TWO FEET MINIMUM BEYOND THE EDGES OF THE PAD.

(4) EXPOSED MSE PANELS SHALL HAVE AN ASHLAR STONE FORM PATTERN, AS SHOWN ON THE PLANS. THE FORM LINER SHALL BE ASHLAR STONE P/C 30664, SYMONS DURA-TEX, AS MANUFACTURED BY SYMONS CORPORATION, 200 E. TOUHY AVENUE, DES PLAINES, IL 60018 (TEL: 1-800-733-7654) OR ASHLAR STONE NO. 330 MULTI-CAST, AS MANUFACTURED BY GREENSTREAK, 3400 TREE COURT INDUSTRIAL BOULEVARD, ST. LOUIS, MO 63122 (TEL: 1-800-325-9504) OR AN APPROVED EQUAL. THE COST OF THE FORM LINER SHALL BE INCLUDED IN ITEM 592.1.

(5) FORM LINER FINISH SHALL EXTEND TO A MINIMUM OF 1'-0" BELOW THE PROPOSED GRADE AT FACE OF WALL.

(6) IMPERVIOUS MEMBRANE SHALL BE PROVIDED WITHIN THE MSE REINFORCED SOIL ZONE IN AREAS AS DETAILED ON THE PLANS. GEOTEXTILE SHALL BE PLACED ON TOP OF THE IMPERVIOUS MEMBRANE. PRIOR TO PLACING THE IMPERVIOUS MEMBRANE, THE SUBGRADE SHALL BE GRADED SMOOTH WITH NO IRREGULARITIES OR STONE PROTRUSIONS. GEOTEXTILE AND IMPERVIOUS MEMBRANE SHALL BE LOCATED A MINIMUM OF 6" BELOW BOTTOM OF BEAM GUARDRAIL POSTS TO AVOID DAMAGE DURING INSTALLATION OF THE POSTS. LIMITS OF IMPERVIOUS MEMBRANE AND GEOTEXTILE SHALL EXTEND 5'-0" BEYOND THE END OF THE MSE WALL.

(7) ALL COSTS ASSOCIATED WITH THE DESIGN, FABRICATION, AND CONSTRUCTION OF THE MSE RETAINING WALL INCLUDING THE LEVELING PAD, WALL COPINGS, CAP SLABS, IMPERVIOUS MEMBRANE, GEOTEXTILE, AND PERFORATED PIPE AND ALL OTHER APPRUTENANCES SHALL BE INCLUDED IN ITEM 592.1 MECHANICALLY STABILIZED EARTH RETAINING WALL (F).

(8) THE POSITION OF REINFORCING STRIPS SHALL BE ADJUSTED AS REQUIRED TO MAINTAIN A 3" MINIMUM CLEARANCE FROM STEEL PILES.

(9) THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS WHEN LAYING OUT THE MSE SOIL REINFORCING STRIPS TO PREVENT CONFLICTS WITH APPROACH AND BEAM GUARDRAIL POSTS AND DRAINAGE STRUCTURES.

(10) THE CONTRACTOR SHALL FILL ALL LIFTING DEVICE RECESSES IN THE PRECAST COPING WITH NON-SHRINK GROUT AFTER INSTALLATION. ALL COSTS INCLUDED IN ITEM 592.1.

(11) CONCRETE FOR CAST-IN-PLACE COPING AND CAP SLAB SHALL CONFORM TO SECTION 520, CONCRETE CLASS AA. ALL COSTS FOR COPING AND CAP SLAB, INCLUDING REINFORCING, ARE INCLUDED IN ITEM 592.1.

(12) ITEM 534.3, WATER REPELLENT (SILANE-SILOXANE) SHALL BE APPLIED TO THE ENTIRE COPING AND ALL EXPOSED MSE WALL SURFACES EXCEPT AS NOTED, TO 1'-0" BELOW PROPOSED GROUND.

(13) THE CONTRACTOR CAN PROPOSE MODIFICATIONS TO THE BEARING ELEVATIONS OF LEVELING PADS DETAILED ON THE CONTRACT DRAWINGS. PROPOSED MODIFICATIONS SHALL MAINTAIN A MINIMUM OF 4'-6" FROST COVER TO THE TOP OF THE LEVELING PAD IN FRONT OF THE WALL. STEP ANGLES SHALL BE NO STEEPER THAN 2H:1V AND STEP LENGTHS SHALL HAVE A MINIMUM DIMENSION OF 5'-0". ALL MODIFICATIONS SHALL BE INCLUDED WITH THE MSE WALL SUBMISSION DETAILED IN NOTE XX. NO ADJUSTMENTS WILL BE MADE TO EXCAVATION, BACKFILL OR OTHER QUANTITIES DESIGNATED WITH "(F)" IN THE DESCRIPTION.

(14) THE CONTRACTOR MAY SUBSTITUTE A PRECAST WALL CAP FOR THE CAST-IN-PLACE CAP SHOWN ON THE PLANS. TOP OF WALL CAP SHALL FOLLOW A SMOOTH PROFILE. NO STEPS SHALL BE ALLOWED. EXPANSION JOINTS IN THE WALL CAP SHALL BE PROVIDED AS SHOWN ON BRIDGE SHEET XX. ALL DETAILS FOR THIS SUBSTITUTION SHALL BE INCLUDED IN THE SHOP DRAWINGS FOR THE MSE WALL.

(15) TO AVOID INTERFERENCE BETWEEN REINFORCEMENT ELEMENTS AND COLUMNS AT ABUTMENT A, REINFORCEMENT ELEMENTS SHALL BE DESIGNED IN ACCORDANCE WITH AASHTO LRFD SECTION 11.10.10.4. REINFORCEMENT ELEMENTS MAY BE SPLAYED AT A HORIZONTAL ANGLE UP TO BUT NOT GREATER THAN 15 DEGREES FROM PERPENDICULAR TO THE BACKFACE OF THE MSE WALL PANEL.

(17) FOR MSE WALL DETAILS, SEE BRIDGE SHEET XX.

(18) THERE IS THE POTENTIAL FOR CONFLICTS BETWEEN THE REINFORCING STRAPS AND THE BURIED APPROACH SLABS. PARTICULARLY AT THE XX WINGWALL. THE TOP ROW OF REINFORCING STRAPS SHALL BE LOCATED NO HIGHER THAN 6" BELOW THE BOTTOM OF THE APPROACH SLABS. SEE SPECIAL PROVISION 592 FOR ADDITIONAL INFORMATION.

(19) QUANTITY ESTIMATES ARE BASED ON L=XH OR 8'-0", WHICHEVER IS GREATER FOR MSE BREAST WALLS AND L=XH OR 8'-0", WHICHEVER IS GREATER, FOR MSE WINGWALLS WITH SLOPING BACKFILL.

MSE WALL GEOTECHNICAL NOTES

(USE NOTES GIVEN BY GEOTECHNICAL ENGINEER)
(BELOW ARE SAMPLES OF POSSIBLE MSE WALL NOTES)

(1) A MAXIMUM ULTIMATE BEARING PRESSURE OF X.X TONS PER SQUARE FOOT (TSF) IS RECOMMENDED FOR THE MSE WALL SUPPORTED ON GLACIAL OUTWASH IN CONJUNCTION WITH A SAFETY FACTOR OF X.X FOR THE NON-SEISMIC CASE AND X.X FOR THE SEISMIC CASE. THE BEARING PRESSURE INFORMATION IS INCLUDED IN THE 592.1 SPECIAL PROVISION.

(2) THE MSE WALL CAN BE STEPPED TO ACCOMMODATE THE SLOPING GROUND SURFACE IN FRONT OF THE WALL. FOR THE PRECAST PANEL FACINGS, VERTICAL STEP HEIGHTS IN INCREMENTS OF 2.5 FEET AND STEP WIDTHS IN INCREMENTS OF 5 FEET ARE RECOMMENDED IN ORDER TO BETTER ACCOMMODATE THE MORE STANDARD MSE PANEL DIMENSIONS. THE SEGMENTAL BLOCK FACINGS CAN BE STEPPED AT MORE FREQUENT VERTICAL AND HORIZONTAL INTERVALS, DUE TO THE SMALL BLOCK DIMENSIONS.

(3) THE DESIGN LIFE OF THE MSE STRUCTURE BASED ON CORROSION SHALL BE FOR 100 YEARS.

(4) THE MSE DESIGN SHOULD BE BASED ON A FRICTION ANGLE OF XX DEGREES AND A SOIL UNIT WEIGHT OF 120 POUNDS PER CUBIC FOOT FOR THE REINFORCED SOIL, AND A FRICTION ANGLE OF XX DEGREES AND A SOIL UNIT WEIGHT OF 120 POUNDS PER CUBIC FOOT FOR THE RETAINED SOIL.

(5) THE SLIDING RESISTANCE OF THE MSE WALL SHOULD BE BASED ON A COEFFICIENT OF SLIDING EQUAL TO 0.XX (TAN XX DEGREES) BETWEEN THE MSE WALL AND THE UNDERLYING MATERIALS.

(6) EMBANKMENT FILL SLOPES - THE PROPOSED 1.5H:1V EMBANKMENT SLOPES SHOULD BE STABILIZED WITH A MINIMUM OF 2 FEET OF CLASS B STONE FILL (ITEM 585.2). IF A VEGETATED SURFACE IS DESIRED, THEN THE SURFACE OF THE STONE FILL SHOULD BE CHINKED IN ACCORDANCE WITH SECTION 585.3.1, SUCH THAT THE OVERLYING HUMUS DOES NOT INFILTRATE AND POTENTIALLY REDUCE THE FREE DRAINING CAPABILITY OF THE STONE FILL. ALL MATERIALS AND WORK FOR CHINKING THE STONE FILL IS SUBSIDIARY TO THE 585 ITEM.
THE PLAN QUANTITY OF THE RESPECTIVE STONE FILL ITEM SHOULD BE USED AS THE BASIS OF PAYMENT. THE DESIGN THICKNESS OF HUMUS SHOULD BE BASED ON THE THICKNESS THAT IS CONSIDERED NECESSARY TO REASONABLY ESTABLISH GROWTH ABOVE THE CHINKED STONE FILL (E.G., 6 INCHES, OR AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER). THE HUMUS QUANTITY ESTIMATE SHOULD NOT BE INCREASED BEYOND THE DESIGN THICKNESS QUANTITY TO ACCOUNT FOR ANY HUMUS THAT IS PLACED WITHIN THE STONE FILL MASS. THE PLAN QUANTITY OF HUMUS SHOULD BE THE BASIS OF PAYMENT DURING THE CONSTRUCTION PHASE.

FINGER EXPANSION JOINT NOTES

(PLACE THESE NOTES ON THE EXPANSION JOINT SHEET)

(1) EXPANSION JOINT STEEL SHALL BE AASHTO M223 (ASTM A572) GR 50. MINOR STEEL PLATES MAY CONFORM TO AASTHO M183 (ASTM A36). ALL STEEL SHALL BE GALVANIZED. THE ENTIRE ASSEMBLY SHALL BE PAID AS ITEM 561.30XX, PREFABRICATED EXPANSION JOINT, FINGER JOINT (F).

(2) BOLTS IN THE CURBS OR SIDEWALKS SHALL BE STAINLESS STEEL COUNTERSUNK HEAD BOLTS WITH SOCKET HEAD AND SHALL CONFORM TO ASTM A276, TYPE 304. BOLTS IN THE ROADWAY SHALL BE GALVANIZED HIGH-STRENGTH BOLTS AND SHALL CONFORM TO ASTM A325. ANCHOR RODS SHALL BE GALVANIZED AND CONFORM TO ASTM A307.

(3) SPLICES FOR EXPANSION JOINT STEEL SHALL DEVELOP FULL STRENGTH.

(4) THE EXPANSION JOINT SHALL BE PRESET TO THE TEMPERATURE ANTICIPATED AT THE TIME OF INSTALLATION. FINAL SETTING IN THE FIELD SHALL BE DETERMINED BY THE CONTRACT ADMINISTRATOR (SEE TEMPERATURE ADJUSTMENT TABLE). THE MAXIMUM FACTORED MOVEMENT IS XX INCHES.

(5) PROTECT TOP OF EXPANSION JOINT DURING PLACEMENT OF CONCRETE AND BITUMINOUS PAVEMENT.

(6) JOINT SUPPORT AND CURB PLATES SHALL BE SHOP WELDED TO THE EXPANSION JOINT STEEL AND SHALL BE VERTICAL AFTER THE JOINT ASSEMBLY HAS BEEN ADJUSTED FOR ROADWAY CROSS-SLOPE AND PROFILE GRADE.

(7) IMMEDIATELY AFTER THE JOINT HAS BEEN SECURED TO THE STRUCTURAL STEEL AND BACKWALL, REMOVE SHIPPING DEVICES. WELDING OF SHIPPING DEVICES TO THE FINGER PLATE SHALL NOT BE ALLOWED.

(8) THE FINGER PLATES SHALL BE CUT FROM ONE CONTINUOUS X'-X" WIDE x $2\frac{1}{4}$" THICK PLATE AS SHOWN ON THE FINGER CUTTING DETAIL.

(9) THE HOPPERS AND DOWNSPOUTS SHALL BE A36 STEEL AND GALVANIZED IN ACCORDANCE WITH SECTION 550. PAYMENT FOR HOPPERS, DOWNSPOUTS BLOCKING PADS AND ATTACHMENTS WILL BE SUBSIDIARY TO ITEM 561.30XX.

(10) ELEVATIONS SHOWN AT THE TOP OF FINGER PLATES ARE $\frac{1}{8}$" LOWER THAN THE PROPOSED FINSIHED ROADWAY GRADE.

(11) THE DRAIN TROUGH SHALL BE 3-PLY PREFORMED FABRIC MATERIAL, SUPPLIED IN ONE CONTINUOUS LENGTH AND SHALL BE CUT AS REQUIRED TO CONFORM TO THE ROADWAY CROSS SLOPE AND GRADE DURING SHOP PRE-ASSEMBLY. PLACEMENT OF THE TROUGH SHALL BE DONE AFTER COMPLETE INSTALLATION OF THE FINGER JOINT ASSEMBLY. EXCESS FABRIC BEHIND CURB PLATES SHALL BE TRIMMED TO BACK OF PLATES.

(12) DRAIN TROUGH MAY BE CUT INTO XX LENGTHS WITH X'-X" OVERLAP AT ROADWAY CROWN LINE. SEE FABRIC TROUGH SPLICE DETAIL.

(13) THE EXPANSION JOINT ASSEMBLY SHALL BE INSTALLED ONLY AFTER THE APPROACH FILLS HAVE BEEN CONSTRUCTED TO THE BOTTOM OF THE APPROACH SLAB.

(14) RUBBER BLOCKS USED BETWEEN ABUTMENT CONCRETE AND DOWNSPOUTS SHALL BE MOLDED TO A THICKNESS OF X" AND CUT BY THE FABRICATOR TO LENGTHS AND WIDTHS SPECIFIED IN THE PLANS. RUBBER BLOCKS SHALL BE OZONE, WATER, AND TEMPERATURE RESISTANT AND BONDED TO THE FACE OF ABUTMENT CONCRETE WITH A COMPATIBLE ADHESIVE IN ACCORDANCE WITH THE MANUFACTURE'S RECOMMENDATIONS.

MODULAR EXPANSION JOINT NOTES

(PLACE THESE NOTES ON THE EXPANSION JOINT SHEET)

(1) THE MODULAR JOINT SHOWN IS REPRESENTATIVE OF THE TYPE OF EXPANSION JOINT ACCEPTABLE FOR USE. THE EXACT JOINT CONFIGURATION WILL DEPEND UPON THE MANUFACTURER'S DETAILS. SHOP DRAWINGS OF MODULAR EXPANSION JOINT SYSTEM INCLUDING BARRIER/CURB DETAILS, PLACEMENT DETAILS, AND SHIPPING DEVICES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. THE ENTIRE ASSEMBLY AT EACH ABUTMENT, INCLUDING ELASTOMERIC SEALS, SHALL BE PAID FOR AS ITEM 561.20X, PREFABRICATED MODULAR BRIDGE JOINT SYSTEM (F). (SEE SPECIAL PROVISION)

(2) EXPANSION JOINT STEEL SHALL BE AASHTO M223 (ASTM A572) GRADE 50. THE MINOR STEEL PLATES AND EXTRUSIONS MAY CONFORM TO AASHTO M183 (ASTM A36). ALL STEEL SHALL BE GALVANZIED.

(3) SPLICES FOR EXPANSION JOINT STEEL SHALL DEVELOP FULL STRENGTH.

(4) ELASTOMERIC SEALS SHALL BE FURNISHED IN ONE CONTINUOUS LENGTH AT EACH JOINT. NO SPLICES WILL BE ALLOWED.

(5) THE EXPANSION JOINT MANUFACTURER SHALL INCLUDE A TEMPERATURE SETTING TABLE FOR EACH EXPANSION JOINT LOCATION ON THE SHOP DRAWINGS. THE MODULAR BRIDGE JOINT SYSTEM SHALL HAVE A RANGE OF MOVEMENT OF XX". THIS DESIGN INCLUDES MOVEMENT DUE TO TEMPERATURE AND SKEW.

(6) ADJUSTMENT IN EXPANSION JOINT ASSEMBLY OPENING FOR A 15°F CHANGE IN TEMPERATURE IMMEDIATELY PRIOR TO POURING THE CONCRETE BLOCKOUTS = XX"

(7) JOINT SUPPORT PLATES AND HARDWARE SHALL BE SHOP WELDED TO THE EXPANSION JOINT STEEL AND SHALL BE DETAILED TO ALLOW FOR ALL NECESSARY ADJUSTMENTS TO ACCOMMODATE ROADWAY CROSS SLOPE, GRADE, AND TEMPERATURE SETTINGS. WELDING TO THE ABUTMENT CROSS FRAMES IS ALLOWED FOR EXPANSION JOINT ASSEMBLY ADJUSTMENT AND SUPPORT DEVICES. DRILLING AND GROUTING SUPPORT RODS INTO THE TOP OF THE BACKWALL AT THE CONSTRUCTION JOINT IS ALSO ALLOWED TO ACCOMMODATE EXPANSION JOINT SUPPORT HARDWARE.

(8) THE EXPANSION JOINT ASSEMBLY SHALL BE INSTALLED ONLY AFTER THE APPROACH FILLS HAVE BEEN CONSTRUCTED TO THE BOTTOM OF THE APPROACH SLAB.

(9) PROTECT TOP OF EXPANSION JOINT DURING PLACEMENT OF CONCRETE AND BITUMINOUS PAVEMENT.

(10) ELEVATIONS SHOWN AT THE TOP OF THE EXPANSION JOINT STEEL ARMOR ANGLES AND BEAMS ARE $\frac{1}{8}$" LOWER THAN ADJACENT PROPOSED FINISHED ROADWAY GRADE.

(11) NO REINFORCING STEEL SHALL BE CUT TO CLEAR THE BRIDGE EXPANSION DEVICE WITHOUT PRIOR APPROVAL OF THE ENGINEER.

(12) IMMEDIATELY AFTER THE JOINT HAS BEEN SECURED TO THE STRUCTURAL STEEL AND BACKWALL, REMOVE SHIPPING DEVICES AND GRIND SMOOTH ANY WELDS ON EXPOSED SURFACES. REPAIR ANY DAMAGE TO GALAVNIZED SURFACES PER SECTION 550.

STATE OF NEW HAMPSHIRE
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BRIDGE REHABILITATION NOTES

DESIGN LOADS, MATERIALS, AND SPECIFICATIONS
(DECK REPLACEMENT)

(1) DESIGN LOADING: HL-93 (NEW DECK)

(2) DESIGN METHOD: LOAD AND RESISTANCE FACTOR DESIGN (LRFD)
(NEW DECK)

(3) SPECIFICATIONS: AASHTO LRFD BRIDGE DEISGN SPECIFICATIONS, 7TH ED., 2014 AS AMENDED
NHDOT 2010 STANDARD SPECIFICATIONS AS AMENDED

DESIGNER TO REVISE NOTE TO THE DESIGNED SPECIFICATION

(5) REINFORCING STEEL: AASHTO M31 (ASTM A 615) GRADE 60
EPOXY COATED BARS:
DECK, BRUSH CURBS, SIDEWALKS, BACKWALL BLOCKOUT
FOR EXPANSION JOINT (ABOVE CONSTRUCTION JOINT),
CORNERS OF ABUTMENTS ABOVE TOP OF BACKWALLS.

(7) CONCRETE: SUBSTRUCTURE REPAIR:
ITEM 520.01, CONCRETE CLASS A, ABOVE FOOTINGS
4,000 PSI (AT 28 DAYS)

DECK, BRUSH CURBS, SIDEWALKS, WALL CAPS, AND ABUTMENT
BACKWALL RECONSTRUCTION:
ITEM 520.7002X, CONCRETE BRIDGE DECK (QC/QA) (F)
4,000 PSI (AT 28 DAYS)

DESIGNER TO CHANGE NOTES TO FIT PROJECT

MATERIALS AND SPECIFICATIONS
(DECK REHABILITATION)

(1) SPECIFICATIONS: NHDOT 2010 STANDARD SPECIFICATIONS AS AMENDED

(2) REINFORCING STEEL: AASHTO M31 (ASTM A 615) GRADE 60
EPOXY COATED BARS:
DECK, BRUSH CURBS, SIDEWALKS, BACKWALL BLOCKOUT
FOR EXPANSION JOINT (ABOVE CONSTRUCTION JOINT),
CORNERS OF ABUTMENTS ABOVE TOP OF BACKWALLS.

(3) CONCRETE: 4,000 PSI:
DECK, BRUSH CURBS, SIDEWALKS, WALL CAPS, SUBSTRUCTURE
REPAIR, AND ABUTMENT BACKWALL RECONSTRUCTION.

PARTIAL-DECK AND SUBSTRUCTURE REPAIR:
ITEM 520.01, CONCRETE CLASS AA

FULL-DECK REPAIRS, BRUSH CURBS, SIDEWALKS, WALL CAPS, DECK
END AND ABUTMENT BACKWALL RECONSTRUCTION:
ITEM 520.0201, CONCRETE CLASS AA, ABOVE FOOTINGS

GENERAL CONSTRUCTION NOTES

(1) EXISTING PLANS (FILE NOS. XXX, XXX) ARE AVAILABLE, ON-LINE IN THE BID PACKAGE ON THE INVITATION TO BID WEBPAGE, DURING THE BIDDING PERIOD. AFTER THE CONTRACT HAS BEEN AWARDED, A COMPLETE SET OF EXISTING PLANS WILL BE FORWARDED TO THE CONTRACTOR UPON REQUEST.

(2) THE CONTRACTOR SHOULD BE AWARE THAT EXISTING STRUCTURE DIMENSIONS AND ELEVATIONS SHOWN IN THESE PLANS WERE TAKEN FROM THE ORIGINAL BRIDGE PLANS AND/OR SUBSEQUENT REHABILITATION PLANS AND DO NOT NECESSARILY REPRESENT "AS BUILT" DIMENSIONS AND ELEVATIONS. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS OF EXISTING STRUCTURES AND BE PREPARED TO MAKE ADJUSTMENTS REQUIRED TO PROPERLY COMPLETE THE PROPOSED RECONSTRUCTION. ANY DISCREPANCIES IN DIMENSIONS, CHARACTER, OR EXTENT OF EXISTING FEATURES, SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO ADVANCING THE WORK.

(3) THE CONTRACTOR SHALL CONTACT DIG SAFE TO SURVEY AND TAG ALL BRIDGE CURB AND UNDERGROUND LOCATIONS NEAR THE BRIDGE, FOR POSSIBLE UTILITIES.

(4) THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO ENSURE THAT DEBRIS DOES NOT FALL INTO THE WATERWAY BELOW THE EXISTING STRUCTURE. ALL COSTS SHALL BE PAID UNDER ITEM 502 AND SHALL INCLUDE ERECTION, MAINTENANCE, AND REMOVAL OF TEMPORARY STRUCTURES OR OTHER SUCH METHODS AS APPROVED BY THE ENGINEER.

(5) THE WELDING OF ATTACHMENTS TO GIRDERS FOR CONSTRUCTION PURPOSES SHALL NOT BE PERMITTED UNLESS APPROVED BY NHDOT, BUREAU OF BRIDGE DESIGN.

(6) NO SCAFFOLDS SHALL BE ERECTED OR OPERATIONS CONDUCTED IN THE WATERWAY, UNLESS APPROVED BY THE CONTRACT ADMINISTRATOR.

(7) ALL EXPOSED EDGES OF PROPOSED CONCRETE SURFACES SHALL BE CHAMFERED $^3/_4$", UNLESS OTHERWISE NOTED.

(8) NO EXISTING MONUMENTS, BOUNDS, OR BENCHMARKS SHALL BE DISTURBED WITHOUT FIRST MAKING PROVISIONS FOR RELOCATION.

(9) FOR SALVAGE OF MATERIALS SEE PROSECUTION OF WORK.

(10) ITEM 534.3, WATER REPELLENT (SILANE-SILOXANE), SHALL BE APPLIED TO ALL NEW EXPOSED CONCRETE SURFACES AS SHOWN IN THE PLANS OR AS DIRECTED BY THE CONTRACT ADMINISTRATOR.

(11) EXISTING DECK COPING, ABUTMENTS, WINGS, BACKWALLS, PIERS, AND BRIDGE SEATS SHALL BE POWER WASHED (SUBSIDIARY TO ITEM 534.3). IN SUCH A MANNER THAT OVERSPRAY INTO SURFACE WATERS IS KEPT TO A MINIMUM. IF THE WATER BEADS, NO COATING NEEDS TO BE APPLIED. IF THE WATER DOES NOT BEAD, COAT THE SURFACE WITH ITEM 534.3, WATER REPELLENT (SILANE-SILOXANE). APPLICATION RATE = 150 SF/GAL.

(12) SEAL ABUTMENT AND WINGWALL $^1/_2$" CORK JOINTS FRONT FACE ACROSS TOP AND DOWN BACK OF JOINT WITH $^1/_2$" X $^1/_2$" ITEM 562.1 SILICONE JOINT SEALANT (F).

(13) LIGHTLY BLAST-CLEAN ABUTMENTS, WINGWALLS AND PIERS TO REMOVE GRAFFITI AS DIRECTED BY THE ENGINEER. ALL COSTS SHALL BE INCLUDED IN ITEM 534.3, WATER REPLELLENT (SILANE-SILOXANE).

BRIDGE REMOVAL NOTES

(1) THE CONTRACTOR'S METHOD FOR REMOVAL OF THE EXISTING BRIDGE SHALL BE SUBMITTED FOR DOCUMENTATION IN ACCORDANCE WITH 105.02, PRIOR TO THE COMMENCEMENT OF ANY REMOVAL OPERATIONS.

(2) PORTABLE CONCRETE BARRIER SHALL BE IN PLACE BEFORE REMOVAL OPERATIONS BEGIN FOR EACH CONSTRUCTION PHASE.

(3) REMOVAL OF EXISTING BRIDGE STRUCTURE, ITEM 502, UNLESS OTHERWISE SHOWN ON THE PLANS, SHALL INCLUDE THE FOLLOWING:
- COMPLETE REMOVAL OF THE EXISTING BRIDGE DECK INCLUDING ALL SCUPPERS, PAVEMENT, EXISTING ANGLES ON TOP FLANGES, GRANITE CURB, AND MEMBRANE.
- REMOVAL OF EXISTING BRIDGE RAIL AND BRIDGE APPROACH RAIL.
- REMOVAL OF BACKWALL CONCRETE TO LIMITS SHOWN ON PLANS, INCLUDING EXISTING EXPANSION JOINT STEEL.
- REMOVAL OF ALL BRIDGE SHOES.

(4) FOR BRIDGE GRANITE CURB AND DETERIORATED CONCRETE REMOVAL, SAWCUT EXISTING CONCRETE 1" DEEP ON ALL EXPOSED SURFACES TO PROVIDE CLEAN REMOVAL LINES. REMOVE EXISTING CONCRETE AS SHOWN IN THE PLANS. ALL COSTS TO BE INCLUDED IN ITEM 502, REMOVAL OF EXISTING BRIDGE STRUCTURE.

(5) THE EXISTING DECK SHALL BE REMOVED AND RECONSTRUCTED IN XX PHASES. DURING CONCRETE DECK REMOVAL OPERATIONS, CARE SHALL BE TAKEN NOT TO DAMAGE TOP FLANGES OR TOP FLANGE COVER PLATES. ANY DAMAGE SHALL BE IMMEDIATELY REPORTED TO THE BUREAU OF BRIDGE DESIGN AND REPAIRED AS DIRECTED, AT THE CONTRACTOR'S EXPENSE.

SUPERSTRUCTURE REHABILITATION NOTES

(1) NO STRUCTURAL REPAIRS ARE ANTICIPATED. STRUCTURAL STEEL SHALL BE INSPECTED FOR STRUCTURAL DEFICIENCIES (e.g. SIGNIFICANT STEEL LOSS, CRACKS, MISSING BOLTS, ETC.), JOINTLY BY THE CONTRACT ADMINISTRATOR AND CONTRACTOR. ANY REPAIRS REQUIRED BY THE DEPARTMENT SHALL BE PERFORMED BY THE CONTRACTOR AND PAID UNDER ITEM 1002.1X, REPAIRS OR REPLACEMENTS AS NEEDED - BRIDGE STRUCTURES.

(2) ITEM 538.6, BARRIER MEMBRANE, HEAT WELDED, MACHINE METHOD (F) SHALL BE LAPPED PER MANUFACTURER'S REQUIREMENTS. AT DECK ENDS, WHERE THE MEMBRANE WILL NOT LAP NEW OR EXISTING MEMBRANE, A SEALANT/REPAIR MASTIC COMPATIBLE WITH ITEM 538.6 SHALL BRIDGE ANY GAP BETWEEN THE EXISTING AND NEW MEMBRANE, OR BETWEEN THE NEW MEMBRANE AND THE END OF DECK WHEN THERE IS NO EXISTING MEMBRANE. ALL COSTS SHALL BE SUBSIDIARY TO ITEM 538.6.

(3) JACKING IS REQUIRED TO REMOVE AND REPLACE BRIDGE SHOES AS OUTLINED IN THE PLANS AND SPECIAL PROVISIONS. THE PROPOSED JACKING METHOD SHALL BE SUBMITTED TO THE ENGINEER FOR DOCUMENTATION. THE MAXIMUM ALLOWABLE DIFFERENCE BETWEEN ADJACENT JACKING POINTS SHALL BE $^1/_4$". TEMPORARY SHIMS OR BLOCKS SHALL BE PLACED BENEATH GIRDER FLANGES DURING THE TIME THAT JACKS ARE SUPPORTING THE LOADS. ALL COSTS SHALL BE INCLUDED IN ITEM 550.19X, TEMPORARY GIRDER SUPPORT SYSTEM.

(4) NEW SHEAR CONNECTORS SHALL BE INSTALLED AS SHOWN IN THE PLANS. NEW STUDS SHALL BE FIELD WELDED TO THE TOP FLANGE OF ALL GIRDERS WITH AUTOMATICALLY TIMED STUD WELDING EQUIPMENT. ALL COSTS FOR MATERIALS AND INSTALLATION SHALL BE PAID UNDER ITEM 547, SHEAR CONNECTORS (F).

(5) THE TOP COVER PLATE-TO-TOP FLANGE CONNECTIONS AT EACH PIER SHALL BE INSPECTED FOR FATIGUE CRACKS (ITEM 500.021). SEE SPECIAL PROVISION FOR DETAILS AND INSPECTION LOCATIONS.

(6) AFTER REMOVAL OF EXISTING PAVEMENT AND MEMBRANE, THE EXISTING CONCRETE BRIDGE DECKS SHALL BE "SOUNDED" TO DETERMINE AREAS REQUIRING PARTIAL AND FULL DEPTH DECK REPAIRS. DETERIORATED CONCRETE SHALL BE REMOVED AND REMAINING CONCRETE SURFACES AND EXPOSED REINFORCEMENT CLEANED AS SPECIFIED SECTIONS 511. ALL COSTS TO BE INCLUDED IN ITEM 511.02 OR ITEM 511.03.

(7) DETERIORATED AREAS OF DECK AND SUBSTRUCTURES SHALL BE PATCHED WITH CONCRETE CLASS AA (SEE SPECIFICATIONS). PRIOR TO PLACING NEW CONCRETE, THE PATCHED AREAS SHALL BE PREPARED TO A SATURATED, SURFACE-DRY CONDITION (ALL COSTS INCLUDED IN ITEM 520.0X).

(8) FOR EXPANSION JOINT REPLACEMENT, THE EXISTING CONCRETE BRIDGE DECK AND ABUTMENT BACKWALLS SHALL BE REMOVED TO LIMITS SHOWN IN THE PLANS UNDER ITEM 502.10X, REMOVAL OF EXISTING BRIDGE STRUCTURE. ALL CONCRETE SURFACES SHALL BE SAWCUT 1" DEEP TO PROVIDE CLEAN REMOVAL LINES (ALL COSTS INCLUDED IN ITEM 502.10X). BACKWALLS AND DECKS ENDS SHALL BE RECONSTRUCTED WITH ITEM 520.0201, CONCRETE CLASS AA, ABOVE FOOTINGS. PRIOR TO PLACING NEW CONCRETE, THE REMOVAL SURFACES SHALL BE BLAST CLEANED AND PREPARED TO A SATURATED, SURFACE-DRY CONDITION (ALL COSTS INCLUDED IN ITEM 520.0201).

(9) SEE BRIDGE SHEET XX, FOR EXPANSION JOINT ARMOR PROTECTION REHABILITATION. THE EXISTING CONCRETE BRIDGE DECK AND ABUTMENT BACKWALLS SHALL BE REMOVED TO LIMITS SHOWN IN THE PLANS UNDER ITEM 502.10X, REMOVAL OF EXISTING BRIDGE STRUCTURE. ALL CONCRETE SURFACES SHALL BE SAWCUT 1" DEEP TO PROVIDE CLEAN REMOVAL LINES (ALL COSTS INCLUDED IN ITEM 502.10X). BACKWALL AND DECK ARMORED ENDS SHALL BE RECONSTRUCTED WITH ITEM 520.0201, CONCRETE CLASS AA, ABOVE FOOTINGS, PRIOR TO PLACING NEW CONCRETE, THE REMOVAL SURFACES SHALL BE BLAST CLEANED AND PREPARED TO A SATURATED SURFACE-DRY CONDITION (ALL COSTS INCLUDED IN ITEM 520.0201).

(10) FOR BRIDGE CURB AND THE DETERIORATED CONCRETE AT THE TOP OF S.W. CORNER OF ABUTMENT PILASTER, ON BRIDGE XXX/XXX, SAWCUT EXISTING CONCRETE 1" DEEP ON ALL EXPOSED SURFACES TO PROVIDE CLEAN REMOVAL LINES. REMOVE EXISTING CONCRETE AS SHOWN IN THE PLANS. ALL COSTS TO BE INCLUDED IN ITEM 512.02, PREPARATION FOR CONCRETE REPAIRS, CLASS II.

(11) PROFILE ADJUSTMENTS IN THE VICINITY OF THE REHABILITATED BRIDGES SHALL BE MADE AS REQUIRED OR AS DIRECTED TO ACCOUNT FOR VARIATIONS IN THE BRIDGE DECK CROSS SLOPES. ALL COSTS SHALL BE INCLUDED IN THE APPROPRIATE ROADWAY ITEMS.

(12) BRIDGE XXX/XXX, SEAL JOINTS BETWEEN DECK, PILASTERS, CURB PLATES AND GRANITE CURBS WITH ITEM 562.1, SILICONE JOINT SEALANT (F), AS SHOWN ON THE PLANS OR AS DIRECTED.

(14) FOR DECK PATCHING, CURB OR BACKWALL WORK, ALL NEW REINFORCEMENT SHALL BE EPOXY COATED BARS. THE EXISTING BLACK REINFORCEMENT SHALL BE COATED WITH ANTI-CORROSION COATING AS NOTED IN THE SUPPLEMENTAL SPECIFICATION AMENDMENT TO SECTION 511. ALL COSTS SHALL BE SUBSIDIARY TO ITEM 511.0x, PREPARTATION FOR PARTIAL/FULL DEPTH CONCRETE BRIDGE DECK REPAIRS.

(15) FOR PHASE CONSTRUCTION OF A DECK REPLACEMENT, TEMPORARILY REMOVE ENOUGH BOLTS CONNECTING THE CROSSFRAMES BETWEEN GIRDERS X AND X TO FACILITATE GIRDER DEFLECTION VARIATION BETWEEN PHASES. NEW NUTS, BOLTS AND WASHERS SHALL BE REINSTALLED IN CONFORMANCE WITH SECTION 550 AFTER PHASE 2. ALL COSTS SHALL BE INCLUDED IN ITEM 502.10X.

(16) EXISTING STRUCTURAL STEEL SHALL BE CLEANED AND PAINTED AFTER COMPLETION OF ALL OTHER SUPERSTRUCTURE WORK, 10 FT. FROM EACH END OF THE GIRDERS AS OUTLINED IN THE SPECIAL PROVISION FOR ITEM 556.

(17) SOLE PLATES SHALL BE CENTERED UNDER GIRDER FLANGE AND BEARING STIFFENERS PRIOR TO FIELD WELDING. ADJUSTMENT FOR TEMPERATURE IS NOT REQUIRED.

(18) APPLY AN APPROVED SEALANT ALONG THE TRANSVERSE EDGES UP AND AROUND TO THE FILLET WELD TERMINATION ON THE SOLE PLATE. COST SHALL BE INCLUDED IN ITEM 548.21.

(19) EXISTING ANCHOR BOLTS SHALL BE REPLACED ONLY IF THEIR CONDITION HAS DETERIORATED, AT THE DIRECTION OF THE CONTRACT ADMINISTRATOR.

(20) ANCHOR BOLTS AT ABUTMENT X SHALL BE REMOVED AND REPLACED. EXISTING ANCHOR BOLTS SHALL BE CUT, GROUND FLUSH TO THE EXISTING BEARING SURFACE AND COATED WITH AN APPROVED GALVANIZING REPAIR COATING. COSTS SUBSIDIARY TO ITEM 502. NEW ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED AND FABRICATED IN ACCORDANCE WITH SECTION 550.2.5. ALL COSTS SUBSIDIARY TO ITEM 548.21.

SUBSTRUCTURE REHABILITATION NOTES

(1) EXISTING ABUTMENTS, WINGWALLS, AND PIERS SHALL BE INSPECTED FOR DETERIORATED CONCRETE JOINTLY BY THE CONTRACT ADMINISTRATOR AND CONTRACTOR. ALL DETERIORATED CONCRETE SHALL BE REMOVED. CONCRETE SURFACES OF THE REMOVAL LIMITS SHALL BE SAWCUT TO A 1" DEPTH TO PROVIDE CLEAN REMOVAL LINES. ALL INSPECTION, REMOVAL, AND CLEANING SHALL BE AS SPECIFIED IN SECTION 512 AND PAID FOR UNDER ITEM 512.02 OR ITEM 512.01. NEW CONCRETE PLACED IN THESE AREAS SHALL BE PAID UNDER 520.0201, CONCRETE CDLASS AA, ABOVE FOOTINGS.

(2) REMOVE ANY EXISTING LOOSE OR FLAKING EPOXY COATING FROM THE BACKWALL AND SEATS AS DIRECTED, COSTS PAID UNDER ITEM 502.

(3) PRIOR TO PLACING NEW CONCRETE AGAINST EXISTING CONCRETE SURFACES, THE EXISTING CONCRETE SURFACES SHALL BE BLAST CLEANED AND PREPARED TO A SATURATED SURFACE-DRY CONDITION. ALL COSTS SHALL BE SUBSIDIARY TO THE CONCRETE ITEM TO BE PLACED.

(4) CONCRETE USED TO RECONSTRUCT THE ABUTMENT A BACKWALL, AS SHOWN ON THE PLANS, OR AS DIRECTED, SHALL BE ITEM 520.0201, CONCRETE CLASS AA, ABOVE FOOTINGS.

(5) HOLES DRILLED IN EXISTING CONCRETE SHALL BE DRILLED $^1/_2$" LARGER THAN THE BAR DIAMETER AND GROUTED WITH AN APPROVED HIGH STRENGTH, NON-SHRINK GROUT LISTED UNDER SECTION 529.1 OF THE NHDOT QUALIFIED PRODUCTS LIST. ALL COSTS FOR DRILLING AND GROUTING SHALL BE SUBSIDIARY TO ITEM 544.2, UNLESS OTHERWISE NOTED.

REINFORCEMENT NOTES

(1) ALL REINFORCEMENT SHALL HAVE 2$^1/_2$" MINIMUM CLEAR COVER, UNLESS OTHERWISE NOTED.

(2) PLACE REINFORCING STEEL TO AVOID RAIL POST ANCHOR ASSEMBLIES AND EXPANSION JOINT STEEL.

(3) ANY EPOXY COATED REBARS CUT TO FIT SHALL BE TOUCHED UP WITH AN APPROVED EPOXY COATING MATERIAL. ALL COSTS SHALL BE INCLUDED IN ITEM 544.2 OR 544.21.

(4) REINFORCING LEGEND:

ALT	= ALTERNATE	BOT	= BOTTOM	BRG	= BEARING
CLR	= CLEAR	DOW	= DOWEL	EQ	= EQUAL
FS	= FAR SIDE	MAX	= MAXIMUM	MC	= MECHANICAL CONNECTOR
MID	= MIDDLE	MIN	= MINIMUM	NS	= NEAR SIDE
SECT	= SECTION	SP	= SPACE	SPL	= SPLICE
SYM	= SYMMERTICAL	TYP	= TYPICAL	E	= EPOXY COATED

(5) ALL DECK REINFORCEMENT SHALL BE EPOXY COATED BARS.

(6) EXISTING REINFORCING STEEL THAT IS TO REMAIN IN PLACE WITHIN THE REMOVAL AREAS SHALL BE CUT OR BENT AS REQUIRED TO PROVIDE 2$^1/_2$" MINIMUM CLEAR COVER FROM THE PROPOSED CONCRETE SURFACES, UNLESS NOTED OTHERWISE. THE CONTRACT ADMINISTRATOR SHALL APPROVE ANY BARS TO BE CUT. ALL COSTS INCLUDED IN ITEM 502.

(7) FOR TYPICAL BENDING DETAILS, RECOMMENDED PIN DIAMETER "D" OF BENDS AND HOOKS AND OTHER STANDARD PRACTICE SEE CURRENT CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE".

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BRIDGE REHABILITATION NOTES

COMPRESSION & STRIP SEAL EXPANSION JOINT NOTES - BRIDGE REHABILITATION

(PLACE ON THE EXPANSION JOINT SHEETS)

(XX) ITEM 560.13XX, PREFABRICATED COMPRESSION SEAL EXPANSION JOINT - REHABILITATION (F), SHALL INCLUDE REMOVAL OF EXISTING EXPANSION JOINT PLATES, TRIMMING AND GRINDING EXISTING EXPANSION JOINT PLATES TO MATCH THE NEW DECK AND CURB CONCRETE, AND CLEANING EXISTING PLATES TO ALLOW FOR THE PLACEMENT OF A NEW COMPRESSION SEAL (XX). THE COMPRESSION SEAL SHALL BE INSTALLED AS ONE CONTINUOUS PIECE ACROSS THE ENTIRE BRIDGE. STRAIGHTENING OF BENT EXPANSION JOINT PLATES SHALL BE PAID UNDER 1002.1.

(XX) ITEM 561.13XX, PREFABRICATED STRIP SEAL EXPANSION JOINT - REHABILIATION (F), SHALL INCLUDE REMOVAL OF EXISTING EXPANSION JOINT PLATES, TRIMMING AND GRINDING EXISTING EXPANSION JOINT PLATES TO MATCH THE NEW DECK AND CURB CONCRETE, AND CLEANING EXISTING PLATES TO ALLOW FOR THE PLACEMENT OF A NEW STRIP SEAL (XX). THE STRIP SEAL SHALL BE INSTALLED AS ONE CONTINUOUS PIECE ACROSS THE ENTIRE BRIDGE. STRAIGHTENING OF BENT EXPANSION JOINT PLATES SHALL BE PAID UNDER 1002.1.

(XX) IF THE EXPANSION JOINT INSTALLATION OCCURS BETWEEN WINTER AND SPRING, THE JOINT OPENING AND ABUTMENT SHALL BE WASHED, PRIOR TO PLACING THE SEAL. ALTERNATIVELY, A TEMPORARY SEAL CAN BE PLACED AND REMOVED FOR THE FINAL SEAL. ALL COSTS SHALL BE SUBSIDIARY TO THE EXPANSION JOINT.

FINGER EXPANSION JOINT NOTES - BRIDGE REHABILITATION

(PLACE THESE NOTES ON THE EXPANSION JOINT SHEET)

USE THE FOLLOWING NOTES FOR PROJECTS THAT HAVE 3-PHASE CONSTRUCTION, IF PHASE 2 TRAFFIC MIGHT IMPACT THE NEW/EXISITING EXPANSION JOINT.

(XX) SUFFICIENT PORTIONS OF EXISTING EXPANSION JOINT STEEL AND CONCRETE SHALL BE REMOVED TO ALLOW FOR EXTENDING PROPOSED ANGLES BEYOND THE LIMITS OF PHASE 1 & 2 CONCRETE TO FACILITATE FIELD WELDS DURING PHASE 3 RECONSTRUCTION.

(XX) THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE PROTECTION AND STABILIZATION OF THE JUCTION BETWEEN NEW AND EXISTING EXPANSION JOINT STEEL (ALL COSTS SUBSIDIARY TO ITEM 561.30XX). THE PROPOSED METHOD(S) SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

BRIDGE RAILING NOTES

(1) ITEM 563.81, REHABILITATION OF BRIDGE RAIL (F), SHALL INCLUDE REMOVING AND REPLACING THE EXISTING BOTTOM RAIL ELEMENT AT THE S.E. CORNER OF WELLINGTON ROAD, BR. NO. 118/117. ALL COSTS FOR RAIL ASSEMBLY BOLTS, NUTS, WASHERS AND SPACERS, APPURTENANCES, AND GALVANIZING SHALL BE SUBSIDIARY TO ITEM 563.81.

(2) ENDS OF RAIL TUBE SECTIONS SHALL BE SAWED OR MILLED AND SHALL BE TRUE AND SMOOTH. ALL CUT EDGES OF ALL MATERIAL SHALL BE GROUND SMOOTH.

(3) EACH PIECE OF RAIL TUBING SHALL BE ATTACHED TO A MINIMUM OF THREE POSTS.

(4) BOLT HOLES SHALL BE DRILLED OR PUNCHED. FLAME CUTTING MAY BE USED TO FINISH SLOTTED HOLES IF MECHANICALLY GUIDED.

SAMPLE

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REVISIONS AFTER PROPOSAL		BY	DATE		BY	DATE
	DESIGNED	NHDOT	1/2015	CHECKED		
	DRAWN			CHECKED		
	QUANTITIES			CHECKED		

SHEET SCALE	ISSUE DATE	1/2015	FEDERAL PROJECT NO.	SHEET NO.	TOTAL SHEETS
	REV. DATE				