

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.

HOYLE, TANNER & ASSOCIATES, INC.
 SIGNED: *J. Reply*
 MARCH 2016

NOTE: WORDING CONTAINED HEREON IS UNDERSTOOD TO BE PAST TENSE.

DATE	DATE	DATE	DATE
2/2015	2/2015	3/2016	

DRW. CHKD. BY: PBD WLD TAG JCR
 REV. DESCRIPTION: REVISIONS FOR CONSTRUCTION RECORD COPY REVISIONS

JUNE 2014
 DESIGN BY: WLD
 DRAWN BY: JBM
 CHKD. BY: STJ
 SCALE: AS SHOWN

Hoyle, Tanner & Associates, Inc.
 © Copyright 2014 Hoyle, Tanner & Associates, Inc.
 150 Dow Street, Manchester, NH 03101-1227
 Tel (603) 669-5555 · Fax (603) 669-4168
 Webpage: www.hoyletanner.com

TOWN OF AMHERST
 AMHERST, NEW HAMPSHIRE
 MANCHESTER ROAD OVER BEAVER BROOK
 TITTLE SHEET

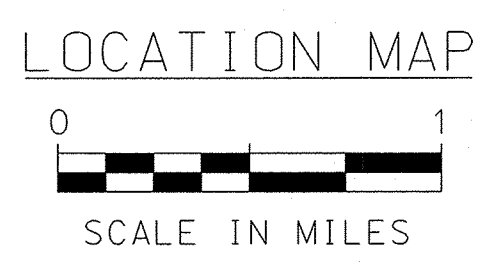
PROJECT NO.: 919101
 FILE NAME: AB919101FSC
 MODEL NAME: TITTLE SHEET
 SHEET NO.
1
 SHEET 1 OF 40

TOWN OF AMHERST
 HILLSBOROUGH COUNTY
 NEW HAMPSHIRE



PLANS OF THE PROPOSED REPLACEMENT
 OF THE MANCHESTER ROAD BRIDGE
 OVER BEAVER BROOK (BR. NO. 134/100)
 NHDOT PROJECT NO. 20242
 JULY 2014

PROJECT LOCATION
 BRIDGE NO. 134/100



INDEX OF SHEETS

SHEET NO	DESCRIPTION
1 OF 40	TITLE SHEET
2 OF 40	PROJECT NOTES (1 OF 2)
3 OF 40	PROJECT NOTES (2 OF 2)
4 OF 40	SUMMARY OF QUANTITIES
5 OF 40	EASEMENT PLAN
6 OF 40	BORING LOCATION PLAN
7 OF 40	BORING LOGS
8 OF 40	TYPICAL ROADWAY SECTIONS
9 OF 40	DRIVEWAY DETAILS
10 OF 40	MISCELLANEOUS DETAILS
11 OF 40	ROADWAY GENERAL PLAN
12 OF 40	ROADWAY PROFILE (1 OF 2)
13 OF 40	ROADWAY PROFILE (2 OF 2)
14 OF 40	CURBING, MARKING, SIGNING, AND LAYOUT PLAN
15 OF 40	TRAFFIC CONTROL PLAN PHASE 1B
16 OF 40	TRAFFIC CONTROL NOTES
17 OF 40	TRAFFIC CONTROL PLAN PHASE 2
18 OF 40	GENERAL PLAN AND ELEVATION
19 OF 40	SITE PLAN
20 OF 40	WETLAND IMPACT PLAN
21 OF 40	FOOTING LAYOUT PLAN
22 OF 40	ABUTMENT A PLAN AND ELEVATION
23 OF 40	ABUTMENT B PLAN AND ELEVATION
24 OF 40	WINGWALL MASONRY
25 OF 40	WINGWALL DETAILS
26 OF 40	SUBSTRUCTURE REINFORCING DETAILS
27 OF 40	RETAINING WALL AND WATERLINE BYPASS DETAILS
28 OF 40	WATER MAIN LAYOUT PLAN
29 OF 40	TYPICAL BRIDGE SECTIONS
30 OF 40	SUPERSTRUCTURE PLAN AND DETAILS
31 OF 40	DECK REINFORCING PLAN AND DETAILS
32 OF 40	PRESTRESSED DECK BEAM DETAILS (1 OF 4)
33 OF 40	PRESTRESSED DECK BEAM DETAILS (2 OF 4)
34 OF 40	PRESTRESSED DECK BEAM DETAILS (3 OF 4)
35 OF 40	PRESTRESSED DECK BEAM DETAILS (4 OF 4)
36 OF 40	BRIDGE RAIL LAYOUT PLAN
37 OF 40	T4 STEEL BRIDGE RAIL
38 OF 40	T4 BRIDGE AND APPROACH RAIL (STEEL POST)
39 OF 40	ROADWAY CROSS SECTIONS (1 OF 3)
40 OF 40	ROADWAY CROSS SECTIONS (2 OF 3)
40 OF 40	ROADWAY CROSS SECTIONS (3 OF 3)

PRESTRESSED DECK BEAM SHEETS

SHEET NO	DESCRIPTION
F1	PRESTRESSED CONCRETE BEAMS
F2	PRESTRESSED CONCRETE BEAMS
S1	PRESTRESSED CONCRETE BEAMS
S2	PRESTRESSED CONCRETE BEAMS
S3	PRESTRESSED CONCRETE BEAMS
S4	PRESTRESSED CONCRETE BEAMS
S5	PRESTRESSED CONCRETE BEAMS
S6	PRESTRESSED CONCRETE BEAMS
M1	PRESTRESSED CONCRETE BEAMS
M2	PRESTRESSED CONCRETE BEAMS

MSE BLOCK WALL SHEETS

SHEET NO	DESCRIPTION
S1.0	REDI-ROCK WALL DESIGN DRAWINGS

GUARD RAIL SHEETS

SHEET NO	DESCRIPTION
1 OF 4	BRIDGE RAILING / BRIDGE RAILING APPROACH
2 OF 4	BRIDGE RAILING / BRIDGE RAILING APPROACH
3 OF 4	BRIDGE RAILING / BRIDGE RAILING APPROACH
4 OF 4	BRIDGE RAILING / BRIDGE RAILING APPROACH

EDWARD G. WENGARTNER
 No. 9140
 LICENSED PROFESSIONAL ENGINEER
 11/3/14

RECORD DRAWINGS

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.

HOYLE, TANNER & ASSOCIATES, INC.

SIGNED: *J. Reply*
 MARCH 2016

NOTE: WORDING CONTAINED HEREON IS UNDERSTOOD TO BE PAST TENSE.

LEGEND:

	UTILITY POLE		GAS LINE
	GUY WIRE ANCHOR		SEWER
	UTILITY POLE W/LIGHT		WATER
	MAILBOX		OVERHEAD UTILITY WIRES
	CATCH BASIN		WOOD FENCE
	WATER VALVE		STONE WALL
	WATER SHUTOFF		CHAIN LINK FENCE
	HYDRANT		EXISTING EDGE OF PAVEMENT
	FLOODLIGHT		EDGE OF TRAVEL WAY
	ELECTRIC METER		WETLANDS
	CON. SHRUB		TREELINE
	DEC. SHRUB		APPROX. PROPERTY LINE
	SIGNS		EDGE OF CHANNEL
	MANHOLE (SEWER, TEL)		CUT SLOPE
	TREES		FILL SLOPE
			TOP OF BANK

3/24/2016 11:44:50 AM C:\B919101\CADD\As-Built\AB919101FSC.dgn

GENERAL NOTES

- (1) GENERAL NOTES SHALL APPLY TO ALL DRAWINGS PREPARED BY HOYLE, TANNER & ASSOCIATES (HOYLE, TANNER) AND THE PROPOSED WORK THEY CONVEY.
- (2) ALL WORK SHALL CONFORM TO ALL FEDERAL, STATE AND LOCAL CODES, REGULATIONS AND STANDARDS, THE MORE STRINGENT SHALL GOVERN.
- (3) THE GENERAL CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS AND COORDINATION OF OTHER TRADES.
- (4) THESE DOCUMENTS DO NOT INCLUDE THE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY, CARE OF ADJACENT PROPERTIES DURING CONSTRUCTION AND COMPLIANCE WITH STATE AND FEDERAL REGULATIONS REGARDING SITE SAFETY SHALL SOLELY BE THE CONTRACTORS RESPONSIBILITY.
- (5) ALL DIMENSIONS, ELEVATIONS AND CONDITIONS MUST BE VERIFIED BY THE GENERAL CONTRACTOR OR RESPONSIBLE TRADES PRIOR TO COMMENCING WITH THE WORK, FABRICATION OR ORDERING MATERIALS. DO NOT SCALE DRAWINGS, USE DIMENSIONS SHOWN.
- (6) ANY DISCREPANCIES BETWEEN THESE DRAWINGS AND EXISTING CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY, BEFORE PROCEEDING WITH THE WORK.
- (7) THE INFORMATION SHOWN ON THESE PLANS CONCERNING THE TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL-INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING DETERMINATIONS AS TO THE TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. ALL COSTS FOR DETERMINING UNDER GROUND UTILITY TYPES AND LOCATIONS SHALL BE SUBSIDIARY TO THE CONTRACT.
- (8) ALL APPLICABLE UTILITY DEPARTMENTS AND COMPANIES SHALL BE NOTIFIED BEFORE EXCAVATION IS STARTED. UTILITIES WITHIN 50 FEET OF AN EXCAVATION SHALL BE MARKED IN THE FIELD.
- (9) HOYLE, TANNER WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS THAT ARISE DUE TO THE FAILURE OF THE CONTRACTOR:
 - * TO FOLLOW THESE DRAWINGS AND SPECIFICATIONS AND THE DESIGN INTENT THEY CONVEY.
 - * TO NOTIFY HOYLE, TANNER OF ANY DISCREPANCIES, ERRORS, OMISSIONS OR CONFLICTS AND OBTAIN THEIR GUIDANCE TO RESOLVE.
- (10) THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SHORING AND BRACING REQUIRED DURING CONSTRUCTION.
- (11) THE CONTRACTOR SHOULD NOTE THAT THE NHDOT "STANDARD PLANS FOR ROAD AND BRIDGE CONSTRUCTION" ARE MADE A PART OF THIS PROJECT AND ALL APPLICABLE DETAILS, STANDARDS AND SPECIFICATIONS SHALL APPLY. THIS PROJECT SHALL INCLUDE, BUT IS NOT LIMITED TO, THE FOLLOWING STANDARD PLANS:

- CR-1 - GRANITE CURB DETAILS
- DL-1 - ROADSIDE DELINEATION
- DR-1 - GRATE AND FRAME DETAILS
- DR-2 - D.I. MANHOLE COVER AND PAVEMENT DEPRESSION DETAILS
- DR-4 - UNDERDRAIN FLUSHING BASIN AND POLYETHYLENE LINER DETAILS
- DR-5 - PRECAST REINFORCED CONCRETE C.B., D.I. AND M.H.
- GR-2 - BEAM GUARDRAIL STANDARD SECTION - STEEL POSTS AND HARDWARE DETAILS
- GR-3 - PREFERRED PLATFORM FOR ENERGY ABSORBING GUARDRAIL TERMINAL (EAGRT)
- PM-1 - LAYOUT DETAILS
- PM-2 - TOLERANCES FOR PAVEMENT MARKING LINES
- PM-9 - PAVEMENT MARKING AT MINOR INTERSECTIONS
- PS-3 - ALUMINUM SHEET DETAILS FOR TUBING AND U-CHANNEL POSTS

- (12) THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING AN EROSION AND SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3 EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION" BY THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES.

- (13) DESIGN SPEED: 25 MPH

TOPOGRAPHIC SURVEY NOTES

- (1) THE SURVEY FOR THIS PROJECT WAS COMPLETED BY:
SANDFORD SURVEYING & ENGINEERING
597 NEW BOSTON ROAD
BEDFORD, NH 03110
(603) 472-2265
EARL J. SANDFORD, LICENSED LAND SURVEYOR NO. 700
- (2) THE SURVEY CONSISTED OF 1 SHEET TITLED:
EXISTING CONDITIONS PLAN MANCHESTER ROAD OVER BEAVER BROOK
- (3) WETLAND RESOURCES WITHIN THE SURVEY AREA WERE DELINEATED BY:
CHRISTOPHER K. DANFORTH, C.W.S. NO. 77
- (4) THE SURVEY IS BASED UPON THE FOLLOWING DATUMS:
VERTICAL: NAVD 88
HORIZONTAL: NEW HAMPSHIRE STATE PLANE COORDINATE SYSTEM

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 6TH EDITION WITH 2013 INTERIMS NHDOT 2010 STANDARD SPECIFICATIONS AS AMENDED
- (4) FOUNDATION DATA: ABUTMENTS AND WINGS:
SPREAD FOOTINGS ON STRUCTURAL FILL WITH A NOMINAL BEARING CAPACITY OF 2.81 TSF IN COMBINATION WITH A RESISTANCE FACTOR OF 0.45.
- (5) REINFORCING STEEL: AASHTO M31 (ASTM A 615) GRADE 60
EPOXY COATED BARS:
OVERLAY, DECK BEAMS, BRUSH CURB, SIDEWALK AND FLARED BEAM
- (6) CONCRETE: 4,000 PSI:
OVERLAY, BRUSH CURB AND SIDEWALK
3,000 PSI:
FOOTINGS, WINGWALLS AND ABUTMENTS
FOOTINGS (ABUTMENTS, WINGWALLS):
ITEM 520.213, CONCRETE CLASS B, FOOTINGS (ON SOIL) (F)
WINGWALLS AND ABUTMENTS:
ITEM 520.12, CONCRETE CLASS A, ABOVE FOOTINGS (F)
OVERLAY, BRUSH CURB AND SIDEWALK:
ITEM 520.7, CONCRETE BRIDGE DECK (F)
- (7) PRESTRESSED CONCRETE: DECK BEAMS AND FLARED BEAM:
f'c = 6,500 PSI (AT 28 DAYS) (f'ci = 5,200 PSI)
ITEM 528.311, PRESTRESSED CONCRETE BRIDGE DECK, BUTTED DECK BEAMS (F)
- (8) SEISMIC: PEAK GROUND ACCELERATION (PGA) = 0.09
SITE CLASS = B
ZONE = 1

HYDRAULIC DATA

- (1) DRAINAGE AREA: 8.9 SQUARE MILES
- (2) DESIGN FLOOD: Q₅₀
- (3) DESIGN VELOCITY: 5.6 FPS
- (4) DESIGN FLOOD ELEVATION: 242.7 FT
- (5) DESIGN FLOOD FLOW: 1,430 CFS
- (6) BRIDGE OPENING: 280 SF
- (7) BRIDGE WATERWAY OPENING BELOW THE DESIGN FLOOD ELEVATION: 260 SF

MOBILIZATION AREA NOTES

- (1) PRIOR TO COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR SHALL LAYOUT LIMITS OF ALL EASEMENTS AND TOWN'S RIGHT-OF-WAY WITHIN THE PROJECT LIMITS. COST IS INCLUDED UNDER ITEM 692, MOBILIZATION. LAYOUT SHALL BE PERFORMED BY A LAND SURVEYOR LICENSED IN THE STATE OF NEW HAMPSHIRE. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- (2) THE CONTRACTOR SHALL BE LIMITED TO MOBILIZATION WITHIN THE TOWN'S RIGHT-OF-WAY AND EASEMENT LIMITS SHOWN ON THESE PLANS. ADDITIONAL MOBILIZATION AREAS REQUIRED BY THE CONTRACTOR SHALL BE COORDINATED BY THE CONTRACTOR WITH THE AFFECTED PROPERTY OWNERS AND SHALL BE AT THE CONTRACTOR'S EXPENSE.

EXISTING BRIDGE REMOVAL NOTES

- (1) ALL COSTS FOR REMOVAL OF THE ENTIRE THREE EXISTING 9'-9"x6'-7"± STRUCTURAL PLATE PIPE ARCHES SHALL BE SUBSIDIARY TO ITEMS 504.1 AND 207.3. NO PAYMENT SHALL BE MADE FOR THE VOLUME DISPLACED BY THE EXISTING PIPE ARCHES.
- (2) REMOVAL OF THE EXISTING STONE HEADWALLS AT THE INLET AND OUTLET OF THE CORRUGATED METAL PIPES SHALL BE PAID UNDER ITEM 504.2, ROCK BRIDGE EXCAVATION.
- (3) THE CONTRACTOR SHALL TAKE SPECIAL CARE TO ENSURE THAT NO DEBRIS FALLS INTO BEAVER BROOK DURING CONSTRUCTION OPERATIONS. THE ERECTION, MAINTENANCE AND REMOVAL OF TEMPORARY STRUCTURES OR OTHER METHODS TO PREVENT DEBRIS FROM FALLING INTO BEAVER BROOK, AND THE CONTRACTOR'S METHOD OF REMOVAL SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL. ALL COSTS SHALL BE SUBSIDIARY TO THE APPROPRIATE ITEM OF WORK BEING PERFORMED.
- (4) PLANS OF THE EXISTING BRIDGE STRUCTURE ARE NOT AVAILABLE.

COFFERDAM NOTES

- (1) ALL ITEMS COVERED UNDER SECTION 503 OF THE SPECIFICATIONS SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW HAMPSHIRE. THE CONTRACTOR SHALL SUBMIT STAMPED WORKING DRAWINGS AND CALCULATIONS TO THE ENGINEER FOR REVIEW AND APPROVAL IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS.
- (2) COFFERDAMS SHALL BE REQUIRED FOR THE REMOVAL OF THE EXISTING PIPE ARCHES AND AT EACH ABUTMENT CONSTRUCTION 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 WATER 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 THE APPROPRIATE 503. PAY ITEM. ALL WORK REQUIRED TO MAINTAIN A DEWATERED CONDITION SHALL BE INCLUDED IN THE APPROPRIATE 503. PAY ITEM. COFFERDAM LOCATIONS AND PAY ITEMS ARE SUMMARIZED AS FOLLOWS:
 - ABUTMENT A: ITEM 503.201, COFFERDAMS
ITEM 503.301, COFFERDAMS WITH SHEETING LEFT-IN-PLACE (W/IN LIMITS SHOWN)
 - ABUTMENT B: ITEM 503.202, COFFERDAMS
ITEM 503.302, COFFERDAMS WITH SHEETING LEFT-IN-PLACE (W/IN LIMITS SHOWN) AND 503.302
- (3) COFFERDAM LIMITS SHOWN ON THESE PLANS ARE APPROXIMATE. CONTRACTOR IS RESPONSIBLE FOR THE LAYOUT OF THE COFFERDAMS UNLESS THE LOCATIONS SHOWN ARE DENOTED AS ITEM 503.301 AND 503.302 COFFERDAMS WITH SHEETING LEFT-IN-PLACE, WHICH SHALL BE CONSTRUCTED IN THE LOCATION SHOWN. COFFERDAMS REQUIRED TO CONSTRUCT THE PROJECT SHALL REMAIN WITHIN THE PERMANENT SITE FOOTPRINT AND TEMPORARY IMPACT AREAS DENOTED ON THE WETLANDS IMPACT PLAN.
- (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 THIS PROJECT.
- (9) THE COFFERDAM DESIGN SHALL ACCOUNT FOR THE EFFECTS OF UNBALANCED EARTH PRESSURE ON THE COFFERDAM STABILITY.
- (10) IT SHOULD BE NOTED THAT IN SOME LOCATIONS PRE-EXCAVATION OF COBBLES AND BOULDERS MAY BE REQUIRED TO PLACE 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 THE APPROPRIATE 503. PAY ITEM.
- (11) COFFERDAMS LOCATED WITHIN THE DEFLECTION DISTANCE OF THE TRAFFIC BARRIER SHALL BE DESIGNED TO WITHSTAND THE APPROPRIATE TRAFFIC BARRIER COLLISION LOAD AS SPECIFIED IN THE CURRENT AASHTO GUIDELINES. THE COFFERDAM SHALL EXTEND UP TO A HEIGHT THAT IS EQUAL TO OR HIGHER THAN THE TOP OF THE ADJACENT TRAFFIC BARRIER.
- (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 EXCAVATED BACKSLOPES.
 - A) THE EXCAVATION BACKSLOPES 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 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 AND THE EXCAVATED BACKSLOPES SHALL BE MAINTAINED IN THEIR 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.
- (13) ABBUTTER HOME INSPECTIONS WILL BE REQUIRED PRIOR TO ALL SHEET PILING OPERATIONS. SEE CONTRACT SPECIFICATIONS FOR DETAILS.

GENERAL CONSTRUCTION NOTES

- (1) SEE SHEET 21 FOR BRIDGE LAYOUT WORKING POINTS COORDINATES.
- (2) THE EXISTING BRIDGE HAS ZERO LIVE LOAD CAPACITY AND IS CLOSED. TRAFFIC SHALL CONTINUE TO BE DETOURED VIA MANCHESTER ROAD AND MACK HILL ROAD. MANCHESTER ROAD AND MACK HILL ROAD TRAFFIC WILL BE REDUCED TO ONE LANE DURING CONSTRUCTION (SEE TRAFFIC CONTROL PLANS). LIMITED CLOSURES OF THESE ROADS, IF REQUIRED TO PERFORM CERTAIN WORK, MUST BE APPROVED BY THE TOWN TWO WEEKS PRIOR TO COMMENCING THE WORK. ACCESS TO DRIVES WITHIN THE PROJECT LIMITS SHALL BE MAINTAINED DURING CONSTRUCTION.
- (3) DIMENSIONS, ANGLES, BEARINGS AND ELEVATIONS SHOWN ON THESE CONTRACT PLANS HAVE BEEN OBTAINED FROM LIMITED FIELD INVESTIGATIONS AND SURVEY, AND MAY NOT ACCURATELY REFLECT ACTUAL FIELD CONDITIONS. ACCORDINGLY, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING FIELD MEASUREMENTS OF ALL EXISTING STRUCTURE COMPONENTS IMPACTED BY THE PROPOSED WORK TO ASSURE CONSISTENCY WITH THE PROPOSED MODIFICATIONS. ANY DISCREPANCIES IN DIMENSIONS, CHARACTER OR EXTENT OF THE EXISTING FEATURES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE ADVANCING THE WORK.
- (4) THE CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES FROM DAMAGE DURING CONSTRUCTION.
- (5) WATER LEVEL MAY VARY FROM THAT SHOWN.

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.

HOYLE, TANNER & ASSOCIATES, INC.
SIGNED: *[Signature]*

MARCH 2016
NOTE: WORKING CONTAINED HEREON IS UNDERSTOOD TO BE PAST TENSE.

REV.	DESCRIPTION	DATE	DRW. BY	CHKD. BY
JUNE 2014	WLD			
	DESIGN BY:		JBM	
	DRAWN BY:			
	CHKD. BY:		STJ	
	SCALE:		AS SHOWN	

Hoyle, Tanner & Associates, Inc.
 © Copyright 2014 Hoyle, Tanner & Associates, Inc.
 150 Dow Street, Manchester, NH 03101-1227
 Tel (603) 669-5555 • Fax (603) 669-4168
 Webpage: www.hoyletanner.com

TOWN OF AMHERST
 AMHERST, NEW HAMPSHIRE
 MANCHESTER ROAD OVER BEAVER BROOK
 PROJECT NOTES (1 OF 2)

PROJECT NO.: 919101
 FILE NAME: AB919101NTS1
 MODEL NAME: 919101NTS1
 SHEET NO.
2
 SHEET 2 OF 40

PRESTRESSED DECK BEAM NOTES

- (1) THE CONCRETE COMPRESSIVE STRENGTH OF THE PRECAST DECK BEAM UNITS AND FLARED BEAM SHALL BE 5200 PSI AT RELEASE AND 6500 PSI AT 28 DAYS.
(2) PRESTRESSING STANDS SHALL BE 0.6-IN. 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-IN. 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 THE 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 DECK BEAMS SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 528 OF NHDOT'S STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.
(5) ALL REINFORCING STEEL FOR THE SUPERSTRUCTURE SHALL CONFORM TO AASHTO M31 (ASTM A615) GRADE 60 AND SHALL BE EPOXY COATED.
(6) THE PRECAST DECK BEAM REINFORCING STEEL SHALL HAVE A MINIMUM CLEAR COVER OF 1 1/2" UNLESS OTHERWISE NOTED.
(7) THE COST OF PRESTRESSING STRANDS, POST-TENSIONING STRANDS AND ANCHORAGES, AND REINFORCING STEEL CAST INTO THE PRECAST DECK BEAM UNITS SHALL BE PAID UNDER ITEM 528.311. ALL OTHER STEEL IN THE SUPERSTRUCTURE SHALL BE PAID UNDER ITEM 544.31.
(8) LIFTING DEVICES SHALL BE WITHIN 24" OF EACH END OF THE PRECAST DECK BEAM UNITS. COST SHALL BE PAID UNDER ITEM 528.311.
(9) 1 -IN. DIA. DRAINS SHALL BE PROVIDED AT THE LOW END OF ALL DECK BEAM VOIDS.
(10) THE DECK BEAM SHEAR KEYS SHALL BE BLAST CLEANED PRIOR TO SHIPPING.
(11) THE TOP SURFACE OF THE DECK BEAMS SHALL BE RAKED TRANSVERSELY TO A 1/4" AMPLITUDE.
(12) DRILLING INTO THE DECK BEAMS SHALL NOT BE ALLOWED.
(13) CONTRACTOR SHALL SUBMIT TWO (2) SETS OF APPROVED SHOP DRAWINGS ON PERMANENT, ARCHIVAL QUALITY 22"x34" DOUBLE-MATTE MYLAR.
(14) THE EXTERIOR FACES OF THE PRESTRESSED DECK BEAMS SHALL BE COATED WITH COLORED CONCRETE SEALANT TO THE LIMITS SHOWN ON THE TYPICAL BRIDGE SECTIONS SHEET, THE COST OF WHICH SHALL BE PAID FOR WITH ITEM 535.1. THE SEALANT COLOR WILL BE SELECTED BY THE OWNER.

ELASTOMERIC BEARING NOTES

- (1) BEARING ASSEMBLIES, INCLUDING ELASTOMERIC BEARING LAYERS AND INTERNAL STEEL PLATES SHALL BE PAID AS ELASTOMERIC BEARING ASSEMBLIES (F), ITEM 548.21.
(2) DESIGN LOADS (SERVICE 1 LOADS - DESIGN METHOD A):
MAXIMUM DEAD LOAD 13.1 KIPS
MAXIMUM SUPERIMPOSED DEAD LOAD 2.7 KIPS
MAXIMUM LIVE LOAD 13.6 KIPS
DESIGN MOVEMENT
COMPRESSIVE DEFLECTION 0.039 IN
TOTAL MOVEMENT (AT = 80°F) 0.12 IN
DESIGN MOVEMENT (SHEAR DEFORMATION) 0.24 IN
(3) ELASTOMERIC BEARING PADS SHALL BE VIRGIN RUBBER, HARDNESS (SHORE "A" DUROMETER) OF 60, GRADE 4. BUT WITH A SHEAR MODULUS RANGE 130 PSI TO 200 PSI.
(4) STEEL REINFORCING FOR ELASTOMERIC BEARING PADS SHALL CONFORM TO SECTION 548.2.3.
(5) BEARINGS SHALL BE INSTALLED AT TEMPERATURES BETWEEN 20°F AND 70°F. INSTALLATION TEMPERATURES OUTSIDE THIS RANGE WILL REQUIRE ADJUSTMENT AT NO ADDITIONAL COST TO THE OWNER.
(6) FOLLOWING THE MANUFACTURE OF ELASTOMERIC BEARINGS AND VERIFICATION OF THE INTERNAL STEEL LAMINATES, THE PIN GROOVE OPENINGS SHALL BE COATED WITH AN APPROVED ASPHALTIC SEALER AND THE SPACE FILLED WITH SILICONE CAULKING.

PAVING NOTES

- (1) ALL PAVING OPERATIONS SHALL BE PERFORMED BY A SUBCONTRACTOR THAT IS LISTED ON THE NHDOT PREQUALIFIED CONTRACTORS LIST IN THE CATEGORY OF PAVING.
(2) THE BITUMINOUS MIXTURE SHALL BE THOROUGHLY UNIFORMLY COMPACTED BY ROLLING. THE INITIAL ROLLING SHALL BE DONE WITH A STATIC OR VIBRATORY STEEL-DRUM ROLLER. INTERMEDIATE ROLLING SHALL BE DONE BY A PNEUMATIC-TIRED ROLLER. FINAL ROLLING SHALL BE DONE WITH A STATIC-DRUM ROLLER. THE MINIMUM WEIGHT OF STATIC ROLLER SHALL BE 8 TONS.
(3) SUBMIT PAVEMENT MIX DESIGN TO ENGINEER FOR APPROVAL PRIOR TO PAVING. SEE SECTION 401 OF THE NHDOT STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
(4) THE GRADE OF ASPHALT CEMENT SHALL BE PG64-28.

UTILITY COORDINATION

- (1) OVERHEAD UTILITIES ARE PRESENT WITHIN THE PROJECT SITE. THE CONTRACTOR SHALL BE FAMILIAR AND TAKE NECESSARY PRECAUTIONS WITH THESE UTILITIES DURING CONSTRUCTION. CONTRACTOR SHALL COORDINATE TEMPORARY RELOCATIONS (IF REQUIRED); SHIELDING NECESSARY FOR EQUIPMENT MOBILIZATION (SUCH AS CRANE TO INSTALL THE NEW SUPERSTRUCTURE) AND TEMPORARY DISCONNECTION OF POWER WITH THE UTILITY OWNERS IF REQUIRED. ALL COST FOR THIS COORDINATION SHALL BE INCLUDED IN ITEM 692, MOBILIZATION. ALL COSTS ASSOCIATED WITH MISCELLANEOUS TREE TRIMMING & CLEARING FOR TEMPORARY UTILITY RELOCATIONS SHALL BE INCLUDED IN ITEM 201.1, CLEARING AND GRUBBING (F), AND REQUIRE ABUTTER PERMISSION.
OVERHEAD UTILITY OWNER INFORMATION:
PSNH (ELECTRIC)
CONTACT: RAYNA ACAMPORA
PHONE: (603) 673-0108 EXT. 5555805
EMAIL: RAYNA.ACAMPORA@NU.COM
FAIRPOINT COMMUNICATIONS (TELEPHONE)
CONTACT: YEW CHAI
PHONE: (603) 645-2705
EMAIL: YCHAI@FAIRPOINT.COM
COMCAST (CABLE TELEVISION)
CONTACT: BARRY SULLIVAN
PHONE: (617) 279-6460
EMAIL: BARRY_SULLIVAN@CABLE.COMCAST.COM
(2) UNDERGROUND UTILITIES ARE PRESENT WITHIN THE PROJECT SITE. THE CONTRACTOR SHALL BE FAMILIAR AND TAKE NECESSARY PRECAUTIONS WITH THESE UTILITIES DURING CONSTRUCTION.
UNDERGROUND UTILITY OWNER INFORMATION:
PENNICHUCK WATER WORKS, INC. (WATER)
CONTACT: PETE TEDDER
PHONE: (603) 882-5191
FAIRPOINT COMMUNICATIONS (TELEPHONE)
CONTACT: YEW CHAI
PHONE: (603) 645-2705
EMAIL: YCHAI@FAIRPOINT.COM
(3) THE EXISTING WATERLINE LOCATION UPSTREAM OF THE BRIDGE WAS PROVIDED BY PENNICHUCK WATER WORKS, INC. AND IS APPROXIMATE. A TEMPORARY BYPASS OF THIS LINE WILL BE REQUIRED DURING CONSTRUCTION AND PAID UNDER ITEM 611.99 (SEE SPECIFICATIONS).

ABUTMENT AND WINGWALL NOTES

- (1) ITEM 535.1, COLORED CONCRETE SEALANT, SHALL BE APPLIED TO EXPOSED VERTICAL SURFACES OF BOTH ABUTMENTS AND ALL WINGWALLS TO 1'-0" BELOW THE FILL LINES. ITEM 534.3, WATER REPELLENT (SILANE/SILOXANE) SHALL BE APPLIED TO THE EXPOSED CONCRETE BRIDGE SEATS AND ANY OTHER EXPOSED CONCRETE SURFACES NOT COATED WITH ITEM 535.1. THE SEALANT COLOR WILL BE SELECTED BY THE OWNER.
(2) ITEM 538.2, BARRIER MEMBRANE, PEEL AND STICK-VERTICAL SURFACES (F), 2'-0" WIDE, SHALL BE PLACED OVER THE ABUTMENT AND WINGWALL EXPANSION JOINT, 1'-0" EACH SIDE OF THE JOINT.
(3) WEEPERS SHALL BE PLACED SYMETRICALLY 10'-0" APART AND CENTERED AT 12" ABOVE THE TOP OF FOOTINGS. WEEPERS SHALL BE 4" DIA. 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) ALL FOOTING CONCRETE SHALL BE PAID AS ITEM 520.213, CONCRETE CLASS B, FOOTINGS (ON SOIL) (F). ALL CONCRETE IN THE ABUTMENT AND WINGWALL STEMS SHALL BE PAID AS ITEM 520.12, CONCRETE CLASS A, ABOVE FOOTINGS (F).
(6) ABUTMENTS SHALL BE BACKFILLED TO THE LEVEL OF THE BRIDGE SEAT ELEVATION PRIOR TO CONSTRUCTING THE SUPERSTRUCTURE.
(7) ABUTMENT AND WINGWALL REINFORCEMENT SHALL BE PAID AS ITEM 544.3, REINFORCING STEEL (CONTRACTOR DETAILED).
(8) REINFORCEMENT DENOTED (E) SHALL BE EPOXY COATED AND SHALL BE PAID UNDER ITEM 544.31, REINFORCING STEEL, EPOXY COATED (CONTRACTOR DETAILED).
(9) SHEAR KEYS SHALL BE 3" HIGH BY ONE-THIRD THE WIDTH OF THE WALL, CENTERED.
(10) ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 3/4".
(11) EXPOSED FACES OF THE ABUTMENTS, WINGWALLS AND EXTERIOR FACE OF THE CONCRETE CURB AND SIDEWALK SHALL HAVE A ROCK FACE BLOCK FORM LINER PATTERN. THE FORM LINER SHALL BE SYMONS 48"x16" ROCK FACE BLOCK P/C F70636 AS MANUFACTURED BY DAYTON SUPERIOR, 1125 BYERS ROAD, MIAMISBURG, OH 45342 (937) 866-0711 OR RUNNING BOND ASHLAR NO. 329 MULTICAST AS MANUFACTURED BY GREENSTREAK, 3400 TREE COURT INDUSTRIAL BOULEVARD, ST. LOUIS, MO 63233 (TEL: 1-800-325-9504) OR AN APPROVED EQUAL. THE COST OF THE FORM LINER SHALL BE INCLUDED IN ITEM 520.12.
(12) THE FORM LINER FINISH SHALL EXTEND TO A MINIMUM 12" BELOW THE LOWEST FINISHED GRADE AT THE FACE OF WALL.

FOOTING 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) PROTRUDING BOULDERS OR COBBLES ENCOUNTERED AT THE FINAL EXCAVATION DEPTH SHALL BE REMOVED OR SPLIT TO PROVIDE A LEVEL BEARING SURFACE.
(3) FINAL EXCAVATIONS TO SUITABLE SUBGRADES SHALL BE PERFORMED USING A SMOOTH-BLADED EXCAVATOR BUCKET TO PREVENT EXCESS DISTURBANCE TO THE EXISTING SUBGRADE.
(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) ANY FOUNDATION MATERIALS WEAKENED AS A RESULT OF INSUFFICIENT CARE WHILE MAINTAINING A DEWATERED CONDITION, SHALL BE REMOVED AND REPLACED WITH STRUCTURAL FILL AT THE CONTRACTOR'S EXPENSE.

REINFORCEMENT NOTES

- (1) REINFORCEMENT IN THE BOTTOM OF FOOTING SHALL HAVE 3" MINIMUM CLEAR COVER. ALL OTHER REINFORCEMENT SHALL HAVE 2 1/2" MINIMUM CLEAR COVER, UNLESS OTHERWISE NOTED.
(2) PLACE REINFORCING STEEL TO AVOID WEEPERS AND RAIL POST ANCHOR ASSEMBLIES.
(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 544.3 OR 544.31.
(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 = SYMMETRICAL TYP = TYPICAL E = EPOXY COATED

INVASIVE SPECIES NOTES

- (1) INVASIVE SPECIES HAVE BEEN OBSERVED WITHIN THE PROJECT LIMITS. UPON APPROVAL OF ITEM 697.11, INVASIVE SPECIES CONTROL AND MANAGEMENT PLAN THE CONTRACTOR SHALL PERFORM THE WORK NECESSARY TO CONTROL, REMOVE AND DISPOSE OF THE INVASIVE PLANT SPECIES INDICATED ON THE PLANS. ALL COSTS (MATERIALS AND LABOR REQUIRED) SHALL BE INCLUDED IN ITEM 201.881, INVASIVE SPECIES CONTROL TYPE I AS RECOMMENDED IN THE APPROVED PLAN.
(2) WORK SHALL BE DONE IN ACCORDANCE WITH THE NHDOT BEST MANAGEMENT PRACTICES FOR ROADSIDE INVASIVE SPECIES PLANTS HANDBOOK.
(3) THE CONTRACTOR IS ADVISED TO REVIEW THE CONTRACT DOCUMENTS FOR ADDITIONAL INFORMATION.

WATER DIVERSION NOTES

- (1) ITEM 503.101, WATER DIVERSION STRUCTURES WILL BE REQUIRED TO CONSTRUCT THE PROJECT. THE WATER DIVERSION STRUCTURE MUST ACCOMMODATE, AT A MINIMUM, THE MEAN ANNUAL FLOOD (Q2.33) FLOW OF 400 CFS. IT IS ANTICIPATED THAT THE TEMPORARY WATER DIVERSION STRUCTURE WILL PROVIDE ADEQUATE WATER FLOW THROUGH THE EXCAVATION AREA. MEASURES SUCH AS CLEAN STONE FILL SHALL BE PROVIDED AT THE INLET AND OUTLET ENDS TO PROTECT AGAINST EROSION, SCOUR AND SILTATION OF THE BEAVER BROOK. ALL COSTS FOR MATERIALS, INSTALLATION, MAINTENANCE AND REMOVAL SHALL BE INCLUDED IN ITEM 503.101, WATER DIVERSION STRUCTURES.
(2) WATER DIVERSION STRUCTURES SHOWN ON THESE PLANS ARE APPROXIMATE. CONTRACTOR IS RESPONSIBLE FOR THE LAYOUT OF WATER DIVERSION STRUCTURES. WATER DIVERSION STRUCTURES REQUIRED TO CONSTRUCT THE PROJECT SHALL REMAIN WITHIN THE PERMANENT SITE FOOTPRINT AND THE TEMPORARY IMPACT AREAS SHOWN ON THE WETLANDS IMPACT PLAN.
(3) A DOUBLE TURBIDITY CURTAIN SHALL BE INSTALLED ACROSS THE LIMITS OF THE BEAVER BROOK DOWNSTREAM OF THE WATER DIVERSION STRUCTURE, PRIOR TO ANY EXCAVATION IN THE BEAVER BROOK, TO PREVENT SILTATION OF THE BEAVER BROOK OUTSIDE THE PROJECT LIMITS. ALL COSTS FOR SUCH WORK SHALL BE INCLUDED IN ITEM 503.101, MISCELLANEOUS TEMPORARY EROSION AND SEDIMENT CONTROL.
(4) FOR ANY WORK ASSOCIATED WITH ITEM 699, MISCELLANEOUS TEMPORARY EROSION AND SEDIMENT CONTROL, DETAILED ESTIMATES FOR THE WORK SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO START OF THE WORK.

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.
HOYLE, TANNER & ASSOCIATES, INC.
SIGNED: [Signature]
MARCH 2016
NOTE: WORDING CONTAINED HEREIN IS UNDERSTOOD TO BE PAST TENSE.

Table with columns: REV., DESCRIPTION, RECORD COPY REVISIONS, DATE, DRW. CHD. BY, TAG, JCR. Includes revision details for JUNE 2014 and design/drawn/checked/scale information.

Hoyle, Tanner & Associates, Inc.
150 Dow Street, Manchester, NH 03101-4227
Tel (603) 669-5555 - Fax (603) 669-4168
Webpage: www.hoyletanner.com

TOWN OF AMHERST
AMHERST, NEW HAMPSHIRE
MANCHESTER ROAD OVER BEAVER BROOK
PROJECT NOTES (2 OF 2)

PROJECT NO.: 919101
FILE NAME: AB919101NTS2
MODEL NAME: 919101NTS2
SHEET NO.
3
SHEET 3 OF 40

3/24/2016 10:39:11 AM K:\919101\cad\hds-buil\AB919101NTS2.dgn

3/24/2016
10:39:16 AM
K:\19101\Cadd\as-built\AB919101NTS3.dgn

SUMMARY OF QUANTITIES 2

ITEM NO	ITEM DESCRIPTION	Quantity		
		Unit	Amount	
201.1	CLEARING AND GRUBBING (F)	A	0.1	
201.21	REMOVING SMALL TREES	EA	-2	3
201.881	INVASIVE SPECIES CONTROL TYPE I	SY	-100	200
202.41	REMOVAL OF EXISTING PIPE 0-24" DIAMETER	LF	5	
202.5	REMOVAL OF CATCH BASINS, DROP INLETS, AND MANHOLES	EA	1	
202.7	REMOVAL OF GUARDRAIL	LF	410	
203.1	COMMON EXCAVATION	CY	1080	
203.5555	GUARDRAIL 25'EAGR PLATFORM	U	1	
203.55551	GUARDRAIL 25' EAGR PLATFORM ALTERNATE	U	2	
203.6	EMBANKMENT-IN-PLACE (F)	CY	120	
206.19	COMMON STRUCTURE EXCAVATION EXPLORATORY	CY	20	
207.3	UNCLASSIFIED CHANNEL EXCAVATION	CY	525	
209.201	GRANULAR BACKFILL (BRIDGE) (F)	CY	650	
304.2	GRAVEL (F)	CY	565	
304.21	GRAVEL (STREAMBED)	CY	-79	42
304.3	CRUSHED GRAVEL (F)	CY	370	
304.35	CRUSHED GRAVEL FOR DRIVES	CY	10	
403.11	HOT BITUMINOUS PAVEMENT, MACHINE METHOD	TON	-422	397.830
403.12	HOT BITUMINOUS PAVEMENT, HAND METHOD	TON	10	
403.6	PAVEMENT JOINT ADHESIVE	LF	-1250	1046
403.911	HOT BITUMINOUS BRIDGE PAVEMENT, 1" BASE COURSE (F)	TON	8	
403.99	TEMPORARY BITUMINOUS PAVEMENT	TON	15	
417	COLD PLANING BITUMINOUS SURFACES	SY	-100	65
503.101	WATER DIVERSION STRUCTURES	U	1	
503.201	COFFERDAMS	U	1	
503.202	COFFERDAMS	U	1	
503.301	COFFERDAMS WITH SHEETING LEFT-IN-PLACE	U	1	
503.302	COFFERDAMS WITH SHEETING LEFT-IN-PLACE	U	-4	1.5
504.1	COMMON BRIDGE EXCAVATION (F)	CY	950	
504.2	ROCK BRIDGE EXCAVATION	CY	-60	203
508	STRUCTURAL FILL	CY	75	
520.1	CONCRETE CLASS A	CY	2	
520.12	CONCRETE CLASS A, ABOVE FOOTINGS (F)	CY	147	
520.213	CONCRETE CLASS B, FOOTINGS (ON SOIL) (F)	CY	121	
520.7	CONCRETE BRIDGE DECK (F)	CY	46	
528.311	PRESTRESSED CONCRETE BRIDGE DECK, BUTTED DECK BEAMS (F)	SF	1688	
534.3	WATER REPELLENT (SILANE/ SILOXANE)	GAL	6	
535.1	COLORLED CONCRETE SEALANT	GAL	15	
538.2	BARRIER MEMBRANE, PEEL AND STICK - VERTICAL SURFACES (F)	SY	42	
538.5	BARRIER MEMBRANE, HEAT WELDED (F)	SY	150	
541.4	PVC WATERSTOPS, NH TYPE 4 (F)	LF	55	
544.1	REINFORCING STEEL (ROADWAY)	LB	16	
544.3	REINFORCING STEEL (CONTRACTOR DETAILED)	LB	-10800	21,835
544.31	REINFORCING STEEL, EPOXY COATED (CONTRACTOR DETAILED)	LB	-6400	7,716
548.21	ELASTOMERIC BEARING ASSEMBLIES (F)	EA	42	
562.1	SILICONE JOINT SEALANT (F)	LF	87	
563.24	BRIDGE RAIL T4	LF	90	
565.242	BRIDGE APPROACH RAIL T4 (STEEL POSTS)	U	4	
585.21	STONE FILL, CLASS B (BRIDGE)	CY	275	
585.3	STONE FILL, CLASS C	CY	4	
592.1	MECHANICALLY STABILIZED EARTH RETAINING WALL	SF	72	
593.411	GEOTEXTILE, PERM. CONTROL CL. 1, NON-WOVEN	SY	468	
603.00315	15" R.C. PIPE, 3000D	LF	48	
603.00318	18" R.C. PIPE, 3000D	LF	64	
604.0007	POLYETHYLENE LINER	EA	1	
604.12	CATCH BASINS TYPE B	U	3	
606.1255	BEAM GUARDRAIL (TERM. UNIT TYPE EAGR 25 FT) (STEEL POST)	U	4	
606.18001	31" W-BEAM GR W/8" BLOCKOUTS (STEEL POSTS)	LF	-87.5	123.5
606.417	PORTABLE CONCRETE BARRIER FOR TRAFFIC CONTROL	LF	-220	96
606.9522	TEMP. IMPACT ATTENUATION DEVICE (NON-REDIRECTIVE) TEST LEVEL 2	U	2	
608.12	2" BITUMINOUS SIDEWALK (F)	SY	115	
609.01	STRAIGHT GRANITE CURB	LF	250	
609.3	STRAIGHT GRANITE CURB (BRIDGE)	LF	90	
611.90001	ADJUSTING WATER GATES AND SHUTOFFS SET BY OTHERS	EA	-3	15
611.99	TEMPORARY WATER & APPURTENANCES	U	1	
615.03	TRAFFIC SIGN TYPE C (F)	SF	34.25	
615.034	RELOCATING TRAFFIC SIGN, TYPE C	U	1	
615.06	TRAFFIC SIGN TYPE CC (F)	SF	8.67	
615.064	RELOCATING TRAFFIC SIGN TYPE CC	U	1	
616.171	PORTABLE TEMPORARY TRAFFIC SIGNALS, TRAILER MOUNTED	U	1	
618.61	UNIFORMED OFFICERS WITH VEHICLE	\$	-4	0.077
618.7	FLAGGERS	HR	-1250	247
619.1	MAINTENANCE OF TRAFFIC	U	1	
621.2	RETROREFLECTIVE BEAM GUARDRAIL DELINEATOR	EA	-15	3
622.1	STEEL WITNESS MARKERS	EA	2	
622.52	RESETTING BOUNDS	EA	1	
628.2	SAWED BITUMINOUS PAVEMENT	LF	300	
632.0104	RETROREFLECTIVE PAINT PAVE, MARKING, 4" LINE	LF	-4300	1,070
632.0124	RETROREFLECTIVE PAINT PAVE, MARKING, 24" LINE	LF	-50	24
632.3118	RETROREFLECT. THERMOPLAS. PAVE, MARKING, 18" LINE	LF	-40	40
632.911	OBLITERATE PAVE, MARKING LINE, 12" WIDE & UNDER	LF	-250	0
632.912	OBLITERATE PAVE, MARKING LINE, OVER 12" WIDE	LF	-25	24
641	LOAM	CY	130	
645.3	EROSION STONE	TON	-125	10
645.41	TEMPORARY SLOPE STABILIZATION TYPE A	SY	1000	
645.43	TEMPORARY SLOPE STABILIZATION TYPE C	SY	200	
645.51	HAY BALES FOR TEMPORARY EROSION CONTROL	EA	50	
645.52	RYEGRASS FOR TEMPORARY EROSION CONTROL	LB	-14	20
645.531	SILT FENCE	LF	870	
645.7	STORM WATER POLLUTION PREVENTION PLAN	U	1	
645.71	MONITORING SWPPP AND EROSION AND SEDIMENT CONTROLS	EA	-25	26
646.31	TURF ESTABLISHMENT WITH MULCH AND TACKIFIERS	SY	1230	
670.101	TEMPORARY LIGHTING	U	-4	0
692	MOBILIZATION	U	1	
697.11	INVASIVE SPECIES CONTROL AND MANAGEMENT PLAN	U	-4	0.38
699	MISCELLANEOUS TEMPORARY EROSION AND SEDIMENT CONTROL	\$	1	

CHANGE ORDER NO. 1 2

ITEM NO.	DESCRIPTION	QUANTITY	
		UNIT	AMOUNT
1	BURRIED UTILITIES	LS	1
2	ALTERNATE CONCRETE STAIN	LS	1
3	6" ELASTOMERIC EXP. JOINT	LF	60

CHANGE ORDER NO. 2 2

ITEM NO.	DESCRIPTION	QUANTITY	
		UNIT	AMOUNT
4	ADDITIONAL DRAINAGE	LS	1
5	ALTERNATE COMPACTION	CY	520

CHANGE ORDER NO. 3 2

ITEM NO.	DESCRIPTION	QUANTITY	
		UNIT	AMOUNT
6	ALTERNATE CONCRETE STAIN (REVISED)	LS	1
7	STAIN MOCK-UP	LS	1

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.
 HOYLE, TANNER & ASSOCIATES, INC.
 SIGNED: *[Signature]*
 MARCH 2016
 NOTE: WORDING CONTAINED HEREON IS UNDERSTOOD TO BE PAST TENSE.

REV. A	DATE	DESCRIPTION	DRW. CHG. BY	DATE
	JUNE 2014	RECORD COPY REVISIONS	JCR	3/2016
DESIGN BY:	WLD			
DRAWN BY:	JBM			
CHKD. BY:	STJ			
SCALE:	AS SHOWN			

This document is prepared as an instrument of service and shall remain the property of Hoyle, Tanner, Inc. It may not be used, reproduced, disseminated or transferred in any manner, including electronically, for any other purpose than the project, without the written permission of Hoyle, Tanner, Inc.

Hoyle, Tanner & Associates, Inc.
 © Copyright 2014 Hoyle, Tanner & Associates, Inc.
 150 Dow Street, Manchester, NH 03101-1227
 Tel (603) 669-5555 • Fax (603) 669-4168
 Webpage: www.hoyletanner.com

TOWN OF AMHERST	PROJECT NO.: 919101
AMHERST, NEW HAMPSHIRE	FILE NAME: AB919101NTS3
MANCHESTER ROAD OVER BEAVER BROOK	MODEL NAME: 919101NTS3
SUMMARY OF QUANTITIES	SHEET NO.

CURVE No. 1
 PI = 100+48.91
 N = 133452.99464
 E = 995786.18959
 Delta = 9°37'47.89"
 T = 48.91'
 R = 580.65'
 L = 97.59'
 E = 2.06'

CURVE No. 2
 PI = 102+04.13
 N = 133595.61216
 E = 995848.03016
 Delta = 30°27'46.12"
 T = 68.07'
 R = 250.00'
 L = 132.92'
 E = 9.10'

CURVE No. 3
 PI = 103+20.31
 N = 133714.12341
 E = 995833.43532
 Delta = 5°20'38.38"
 T = 51.34'
 R = 1100.00'
 L = 102.60'
 E = 1.20'

CURVE No. 4
 PI = 201+56.76
 N = 133585.24540
 E = 995995.49045
 Delta = 15°51'22.24"
 T = 72.42'
 R = 520.00'
 L = 143.91'
 E = 5.02'

CURVE No. 5
 PI = 202+73.95
 N = 133600.93739
 E = 996112.55476
 Delta = 2°04'39.64"
 T = 45.70'
 R = 2520.00'
 L = 91.38'
 E = 0.41'

VERTICAL CONTROL TABLE			
NUMBER	ELEVATION	STATION & OFFSET	DESCRIPTION
TBM#1	249.17	102+90 RT 21'	NAIL WITH SSE CAP
TBM#2	245.99	100+63 LT 22'	ARROW BOLT ON HYDRANT
TBM#3	249.35	201+05 LT 15'	NAIL WITH SSE CAP

HORIZONTAL CONTROL TABLE					
NUMBER	NORTHING	EASTING	ELEVATION	STATION & OFFSET*	DESCRIPTION
CP#1	133686.4349	995847.2279	246.72	102+91 RT 11'	MAGNETIC NAIL
CP#2	133411.5247	995787.4582	245.32	100+09 RT 11'	MAGNETIC NAIL

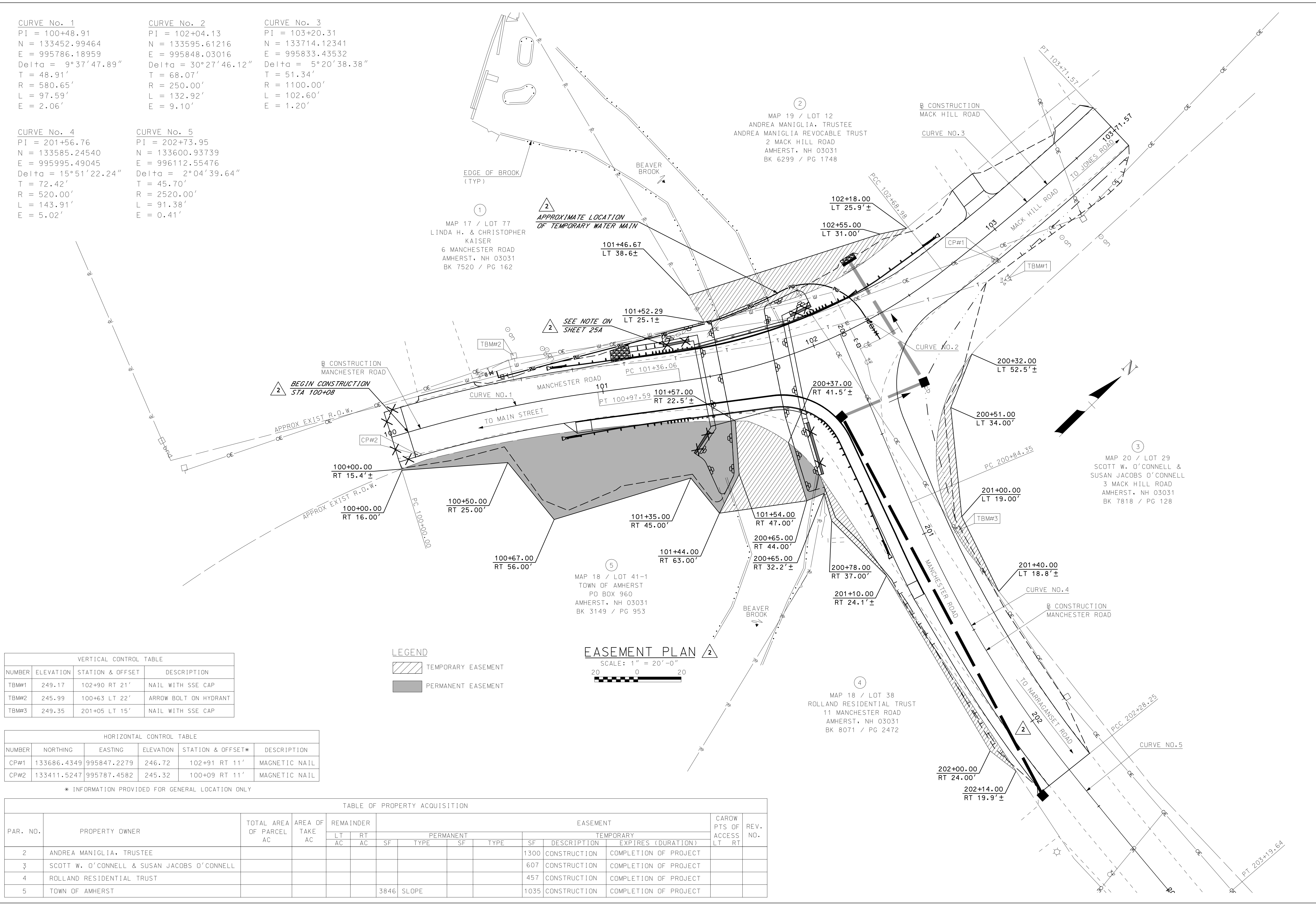
* INFORMATION PROVIDED FOR GENERAL LOCATION ONLY

LEGEND
 TEMPORARY EASEMENT
 PERMANENT EASEMENT

EASEMENT PLAN
 SCALE: 1" = 20'-0"

PAR. NO.	PROPERTY OWNER	TOTAL AREA OF PARCEL AC	AREA OF TAKE AC	REMAINDER	EASEMENT						CAROW PTS OF ACCESS LT RT	REV. NO.
					PERMANENT		TEMPORARY					
					LT AC	RT AC	SF	TYPE	SF	DESCRIPTION		
2	ANDREA MANIGLIA, TRUSTEE							1300	CONSTRUCTION	COMPLETION OF PROJECT		
3	SCOTT W. O'CONNELL & SUSAN JACOBS O'CONNELL							607	CONSTRUCTION	COMPLETION OF PROJECT		
4	ROLLAND RESIDENTIAL TRUST							457	CONSTRUCTION	COMPLETION OF PROJECT		
5	TOWN OF AMHERST			3846	SLOPE			1035	CONSTRUCTION	COMPLETION OF PROJECT		

3/24/2016 10:39:17 AM K:\919101\cad\as-built\AB919101EASE.dgn



I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.

HOYLE, TANNER & ASSOCIATES, INC.
 SIGNED:
 MARCH 2016

NOTE: WORDING CONTAINED HEREIN IS UNDERSTOOD TO BE PAST TENSE.

REV.	DESCRIPTION	DATE	DRW. BY	CHKD. BY
A	RECORD COPY REVISIONS	3/2016	JCR	JCR

This document is prepared as an instrument of service and shall remain the property of Hoyle, Tanner, & Associates, Inc. It may not be used, reproduced, disseminated or transferred in any manner, including electronically, for any other purpose than that project, without the written permission of Hoyle, Tanner, & Associates, Inc.

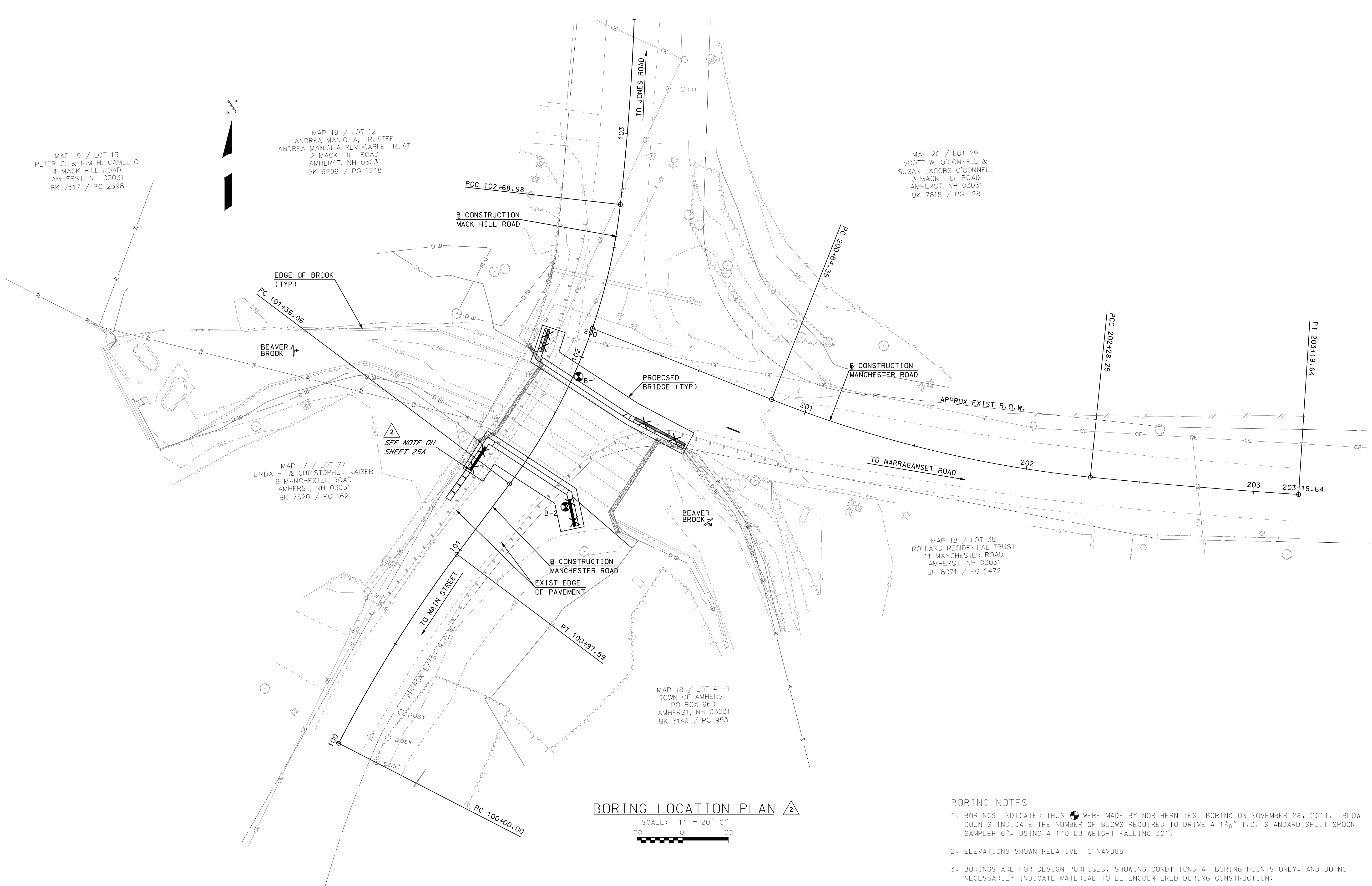
JUNE 2014	WLD	JBM	STJ	AS SHOWN
DESIGN BY:				
DRAWN BY:				
CHKD. BY:				
SCALE:				

Hoyle, Tanner & Associates, Inc.
 © Copyright 2014 Hoyle, Tanner & Associates, Inc.
 150 Dow Street, Manchester, NH 03101-1227
 Tel (603) 669-5555 • Fax (603) 669-4168
 Webpage: www.hoyletanner.com

TOWN OF AMHERST
 AMHERST, NEW HAMPSHIRE
 MANCHESTER ROAD OVER BEAVER BROOK
 EASEMENT PLAN

PROJECT NO.: 919101
 FILE NAME: AB919101EASE
 MODEL NAME: 919101EASE
 SHEET NO.
5
 SHEET 5 OF 40

3/24/2016 10:39:19 AM K:\19101\cad\as-built\AB9101BOR1.dgn



BORING LOCATION PLAN \triangle
 SCALE: 1" = 20'-0"
 20 0 20

BORING LOCATIONS					
NO.	STATION	OFFSET	NORTHING	EASTING	GROUND EL
B-1	101+91.59	2.2' RT	133585.73	995839.39	246.13±
B-2	101+42.03	25.5' RT	133529.07	995846.93	245.13±

BORING NOTES

- BORINGS INDICATED THUS \bullet WERE MADE BY NORTHERN TEST BORING ON NOVEMBER 28, 2011. BLOW COUNTS INDICATE THE NUMBER OF BLOWS REQUIRED TO DRIVE A 1 3/8" I.D. STANDARD SPLIT SPOON SAMPLER 6", USING A 140 LB WEIGHT FALLING 30".
- ELEVATIONS SHOWN RELATIVE TO NAVD88
- BORINGS ARE FOR DESIGN PURPOSES, SHOWING CONDITIONS AT BORING POINTS ONLY, AND DO NOT NECESSARILY INDICATE MATERIAL TO BE ENCOUNTERED DURING CONSTRUCTION.
- ROCK CORES WERE MADE USING A 2" I.D. CORE BARREL.
- 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.

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.
 HOYLE, TANNER & ASSOCIATES, INC.
 SIGNED: *[Signature]*
 MARCH 2016
 NOTE: WORDING CONTAINED HEREIN IS UNDERSTOOD TO BE PAST TENSE.

REV.	DESCRIPTION	DATE
A	RECORD COPY REVISIONS <td>3/2016 </td>	3/2016

DRW. CHD. BY: TAG JCR
 DATE: 3/2016

DESIGN BY: WLD
 DRAWN BY: JBM
 CHKD. BY: STJ
 SCALE: AS SHOWN

JUNE 2014

Hoyle, Tanner & Associates, Inc.
 © Copyright 2014 Hoyle, Tanner & Associates, Inc.
 150 Dow Street, Manchester, NH 03101-1227
 Tel (603) 669-5555 • Fax (603) 669-4168
 Webpage: www.hoyletanner.com

TOWN OF AMHERST
 AMHERST, NEW HAMPSHIRE
 MANCHESTER ROAD OVER BEAVER BROOK
 BORING LOCATION PLAN

PROJECT NO.: 919101
 FILE NAME: AB9101BOR1
 MODEL NAME: 919101BOR1
 SHEET NO.
6
 SHEET 6 OF 40

This document is prepared as an instrument of service and shall remain the property of Hoyle, Tanner, Inc. It may not be used, reproduced, disseminated or transferred in any manner, including electronically, for any other purpose than that project, without the written permission of Hoyle, Tanner, Inc.

Northern Test Boring, Inc. Boring Log

Client: HTA	Project Name: Manchester Road over Beaver Brook
Location: Amherst, NH	Driller: Michael Nadeau

Type	Casing	Sample	Core	Ground Water Observation
Size	HW	SS		8.7'
Hammer Wt.	4"	1 3/8"		Start Date: 11/28/11 Finish Date: 11/28/11
Hammer Fall		140		
		30"		

No.	Pen	Rec	Sample Depth	Sample Blow Counts				Depth	Stratum Description
				25	30	19	18		
S-1	24"	11"	0'-2'	25	30	19	18	6.5'	Pavement Brown Fine-Medium Sand and Gravel Trace Silt
S-2	24"	12"	5'-7'	2	2	3	2	5'	Brown Fine-Coarse Sand Trace Silt
S-3	24"	8"	10'-12'	27	30	27	19	10'	Brown Sandy Gravel Trace Silt
S-4	24"	11"	15'-17'	30	27	14	14	15'	Brown Fine-Medium Sand Some Gravel and Silt
S-5	5"	5"	20'-22'	50/5"				20'	Bedrock Surface @ 20.4'
R-1	5'	5'	20.4'-25.4'						White/Red Coarse Granite R-1 RQD = 78%
R-2	5'	5'	25.4'-30.4'					25'	R-2 RQD = 92%
								30'	Bottom of Exploration @ 30.4'

Boring #: B-1
Sheet: 1 of 1

Northern Test Boring, Inc. Boring Log

Client: HTA	Project Name: Manchester Road over Beaver Brook
Location: Amherst, NH	Driller: Michael Nadeau

Type	Casing	Sample	Core	Ground Water Observation
Size	HW	SS		8.3'
Hammer Wt.	4"	1 3/8"		Start Date: 11/28/11 Finish Date: 11/28/11
Hammer Fall		140		
		30"		

No.	Pen	Rec	Sample Depth	Sample Blow Counts				Depth	Stratum Description
				4	4	8	10		
S-1	24"	12"	0'-2'	4	4	8	10	5'	Brown Fine-Medium Sand and Gravel Trace Silt
S-2	24"	18"	5'-7'	5	6	5	10	5'	Brown Fine-Coarse Sand Trace Silt
S-3	24"	15"	10'-12'	12	12	12	10	10'	Brown Coarse Sand Gravel Trace Silt
S-4	24"	14"	15'-17'	17	15	12	11	15'	Brown Fine-Medium Sand Some Gravel and Silt
S-5	24"	20"	20'-22'	12	14	14	19	20'	Bedrock Surface @ 24.0'
R-1	5'	4.7'	24'-29'					25'	White/Red Coarse Granite R-1 RQD = 63%
R-2	5'	4.6'	29'-34'					30'	R-2 RQD = 94%
									Bottom of Exploration @ 34.0'

Boring #: B-2
Sheet: 1 of 1

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.
HOYLE, TANNER & ASSOCIATES, INC.
SIGNED: *[Signature]*
MARCH 2016
NOTE: WORDING CONTAINED HEREIN IS UNDERSTOOD TO BE PAST TENSE.

REV.	DESCRIPTION	DATE	CHKD. BY	DATE
JUNE 2014				
DESIGN BY: WLD				
DRAWN BY: JBM				
CHKD. BY: STJ				
SCALE: AS SHOWN				

Hoyle, Tanner & Associates, Inc.
© Copyright 2014 Hoyle, Tanner & Associates, Inc.
150 Dow Street, Manchester, NH 03101-1227
Tel (603) 669-5555 • Fax (603) 669-4168
Webpage: www.hoyletanner.com

TOWN OF AMHERST
AMHERST, NEW HAMPSHIRE
MANCHESTER ROAD OVER BEAVER BROOK
BORING LOGS

PROJECT NO.: 919101
FILE NAME: AB919101BOR2
MODEL NAME: 919101BOR2
SHEET NO.
7
SHEET 7 OF 40

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.

HOYLE, TANNER & ASSOCIATES, INC.
 SIGNED: *[Signature]*
 MARCH 2016

NOTE: WORDING CONTAINED HEREIN IS UNDERSTOOD TO BE PAST TENSE.

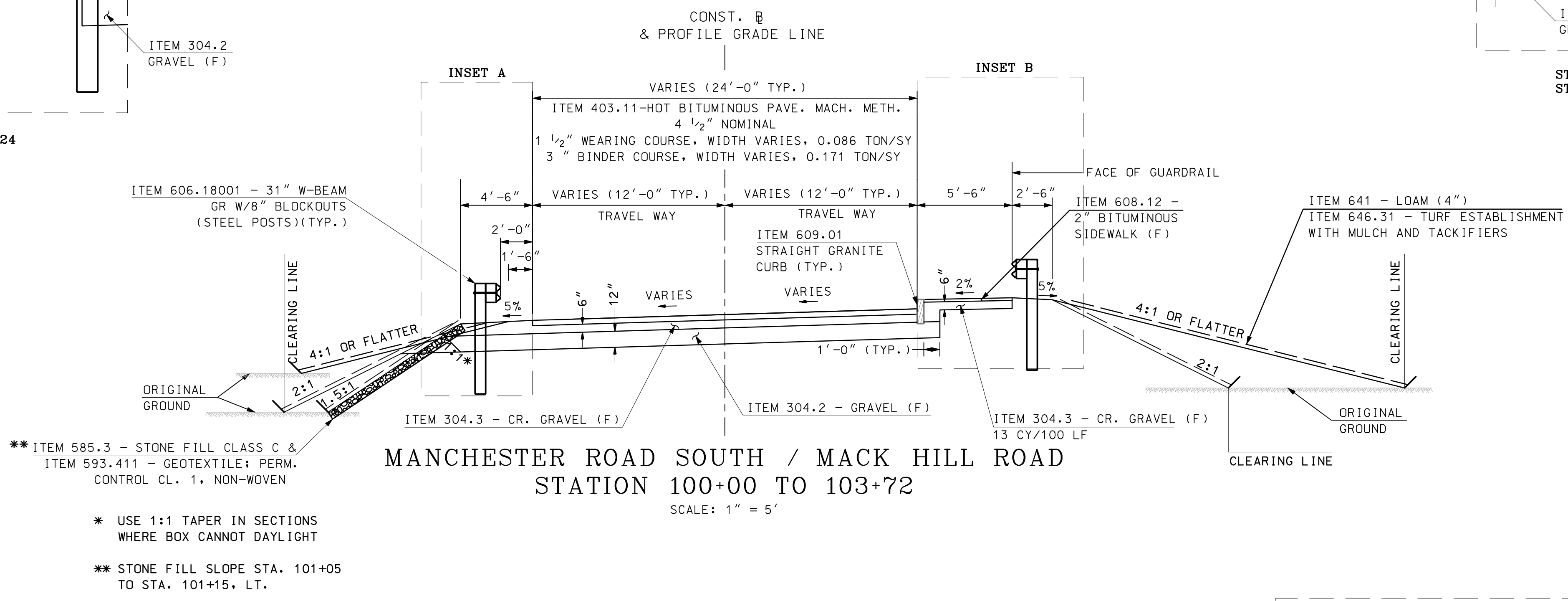
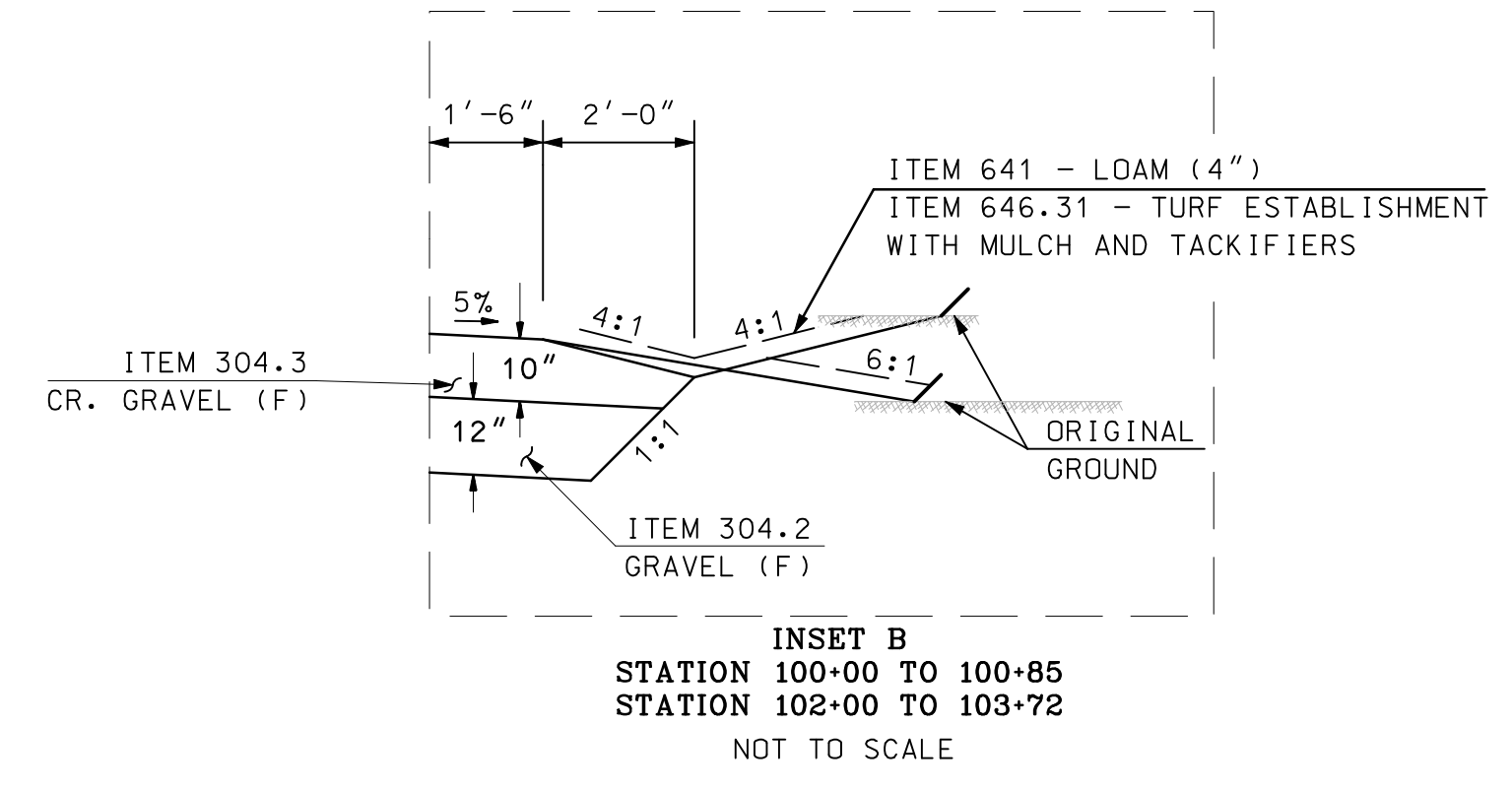
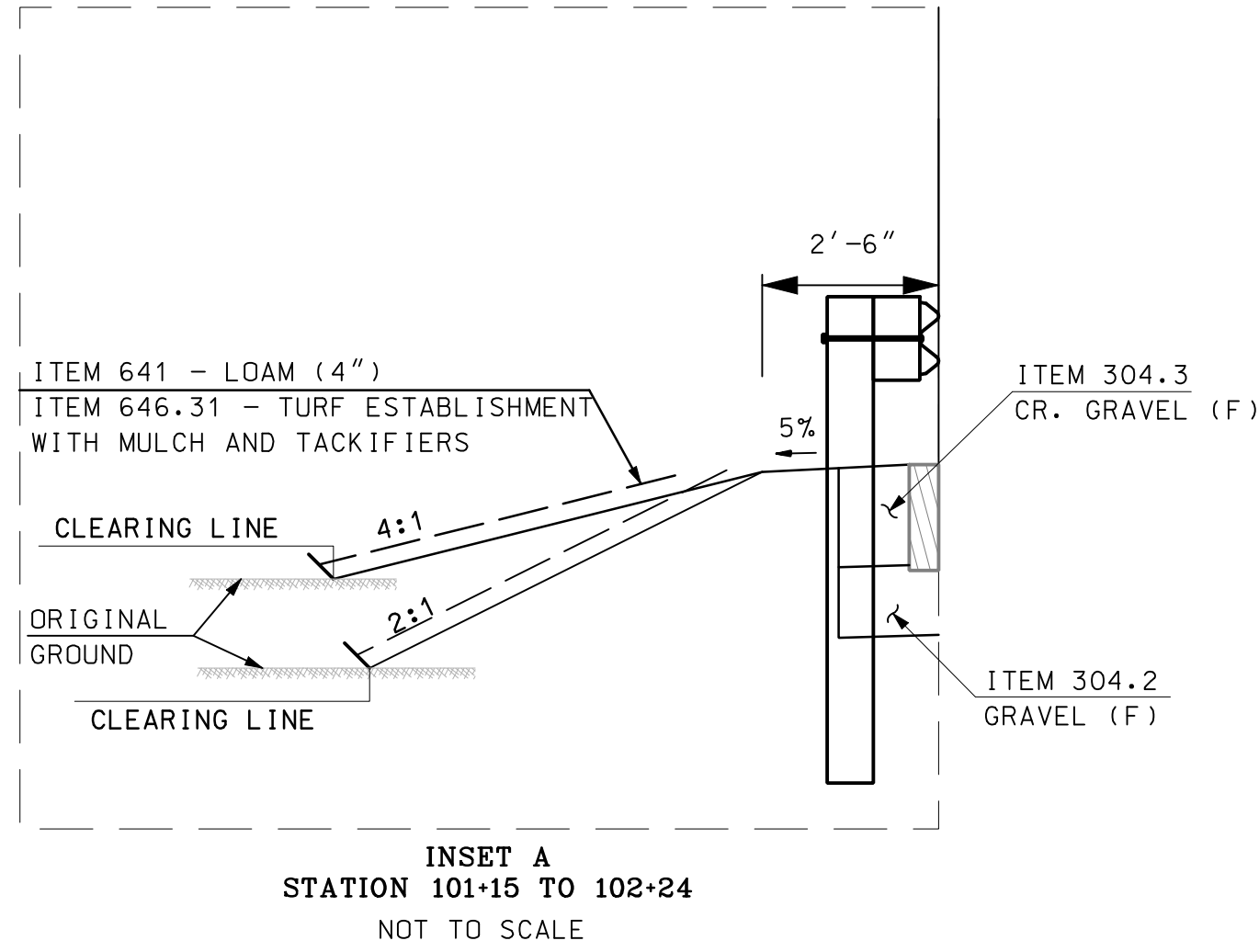
REV.	DATE	DESCRIPTION	DRW. CHD. BY	DATE
JULY 2014	SBH	JFMS	CEB	AS SHOWN

DESIGN BY: SBH
 DRAWN BY: JFMS
 CHD. BY: CEB
 SCALE: AS SHOWN

Hoyle, Tanner & Associates, Inc.
 © Copyright 2014 Hoyle, Tanner & Associates, Inc.
 150 Dow Street, Manchester, NH 03101-1227
 Tel (603) 669-5555 • Fax (603) 669-4168
 Webpage: www.hoyletanner.com

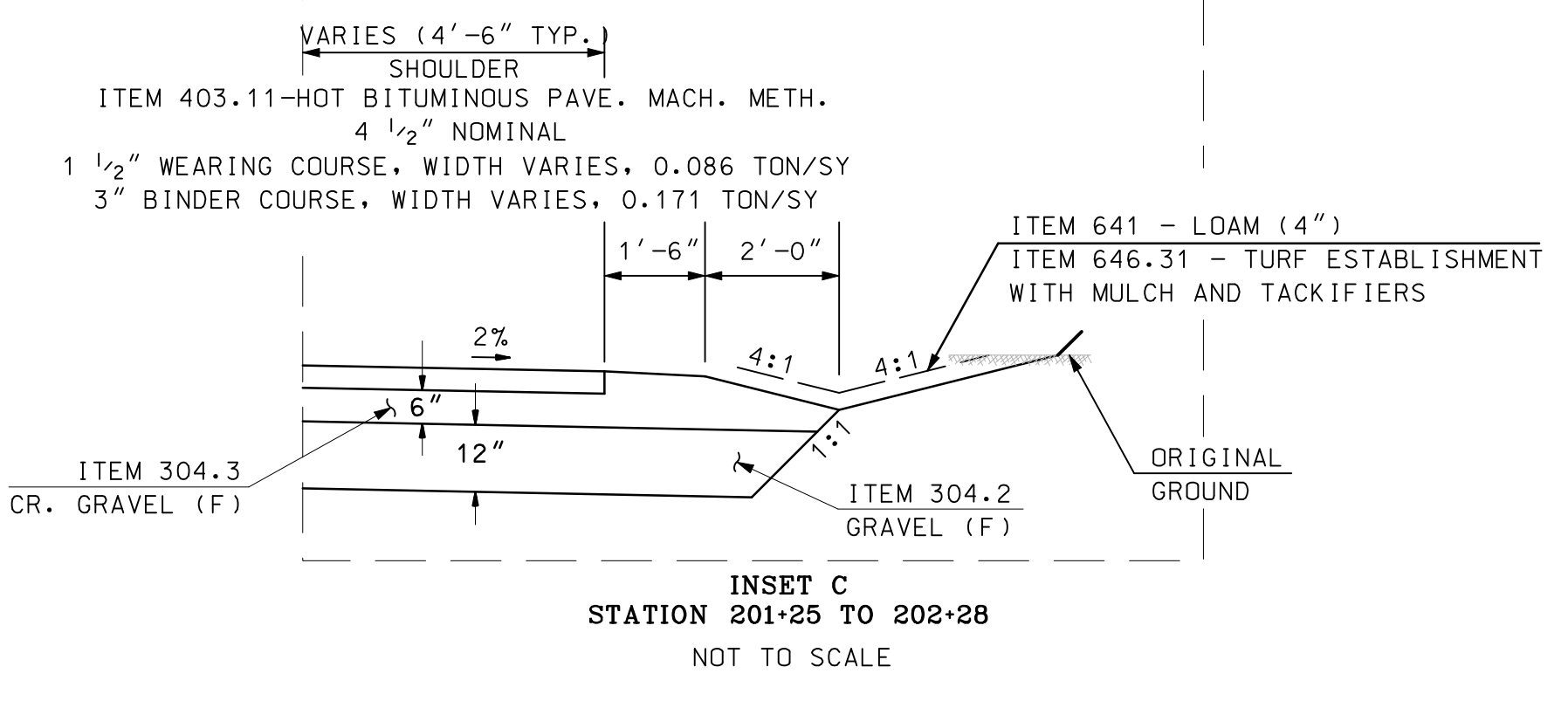
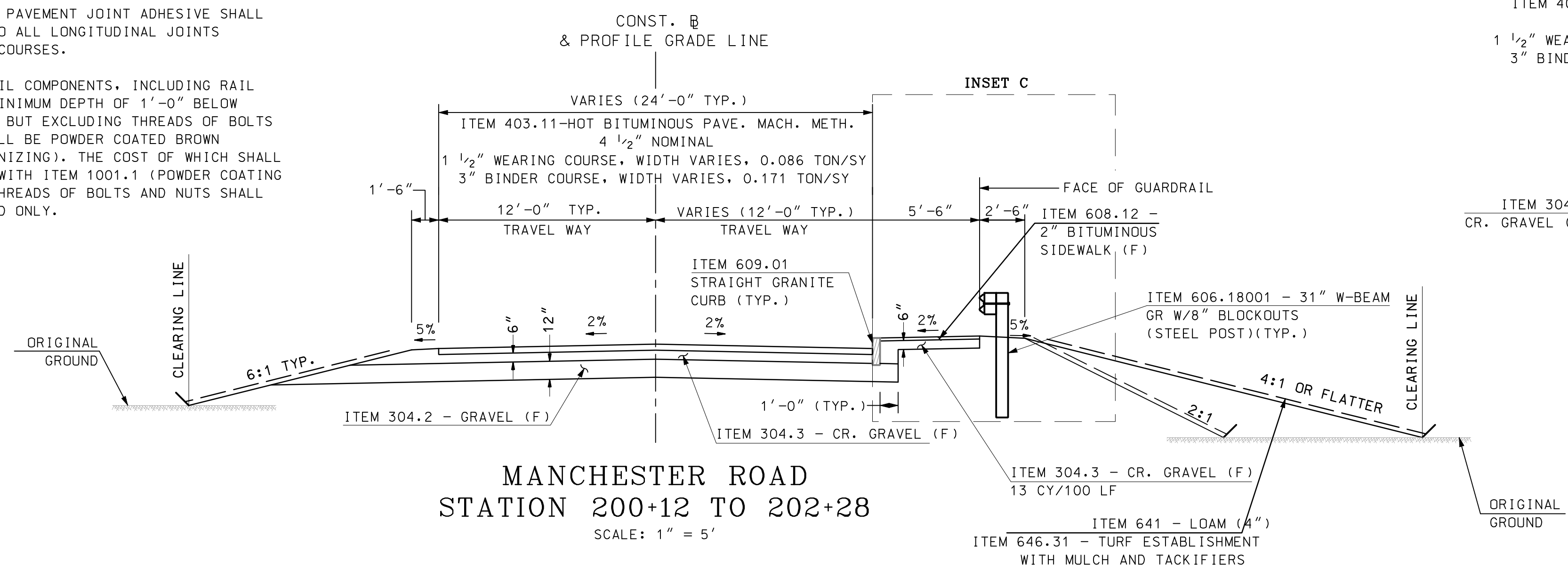
TOWN OF AMHERST
 AMHERST, NEW HAMPSHIRE
 MANCHESTER ROAD OVER BEAVER BROOK
 TYPICAL ROADWAY SECTIONS

PROJECT NO.: 919101
 FILE NAME: AB919101TYP00
 MODEL NAME: 919101T01
 SHEET NO.
8
 SHEET 8 OF 40



GENERAL NOTES:

- ITEM 403.6 - PAVEMENT JOINT ADHESIVE SHALL BE APPLIED TO ALL LONGITUDINAL JOINTS ON PAVEMENT COURSES.
- ALL STEEL RAIL COMPONENTS, INCLUDING RAIL POSTS TO A MINIMUM DEPTH OF 1'-0" BELOW FINISH GRADE BUT EXCLUDING THREADS OF BOLTS AND NUTS SHALL BE POWDER COATED BROWN (AFTER GALVANIZING). THE COST OF WHICH SHALL BE PAID FOR WITH ITEM 1001.1 (POWDER COATING RAIL (U)). THREADS OF BOLTS AND NUTS SHALL BE GALVANIZED ONLY.



I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.

HOYLE, TANNER & ASSOCIATES, INC.
 SIGNED: *S. Ely*
 MARCH 2016

NOTE: WORDING CONTAINED HEREIN IS UNDERSTOOD TO BE PAST TENSE.

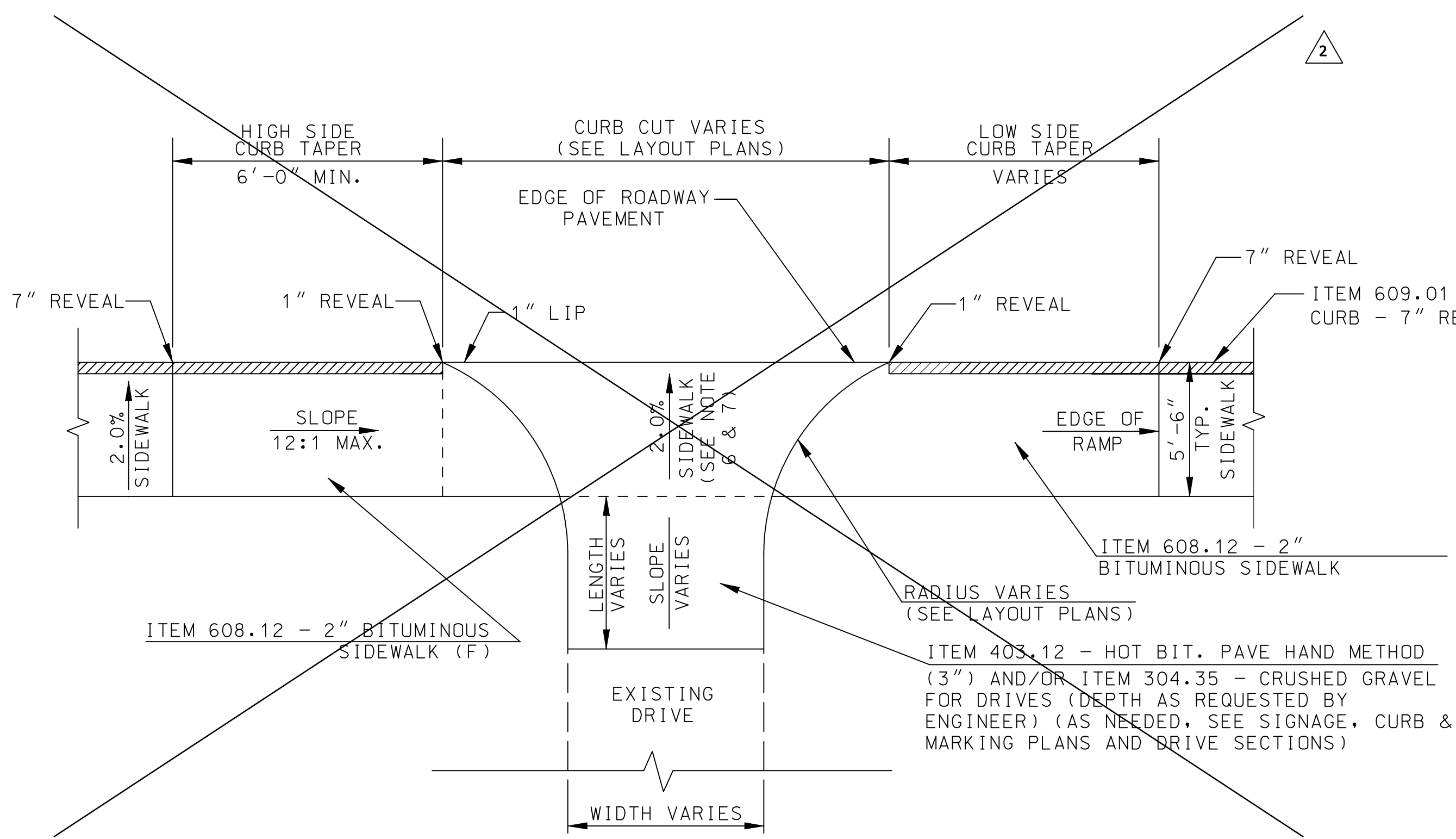
REV.	DATE	DESCRIPTION
1	3/2016	RECORD COPY REVISIONS

DESIGN BY: SBH
 DRAWN BY: JFMS
 CHKD. BY: CED
 SCALE: AS SHOWN

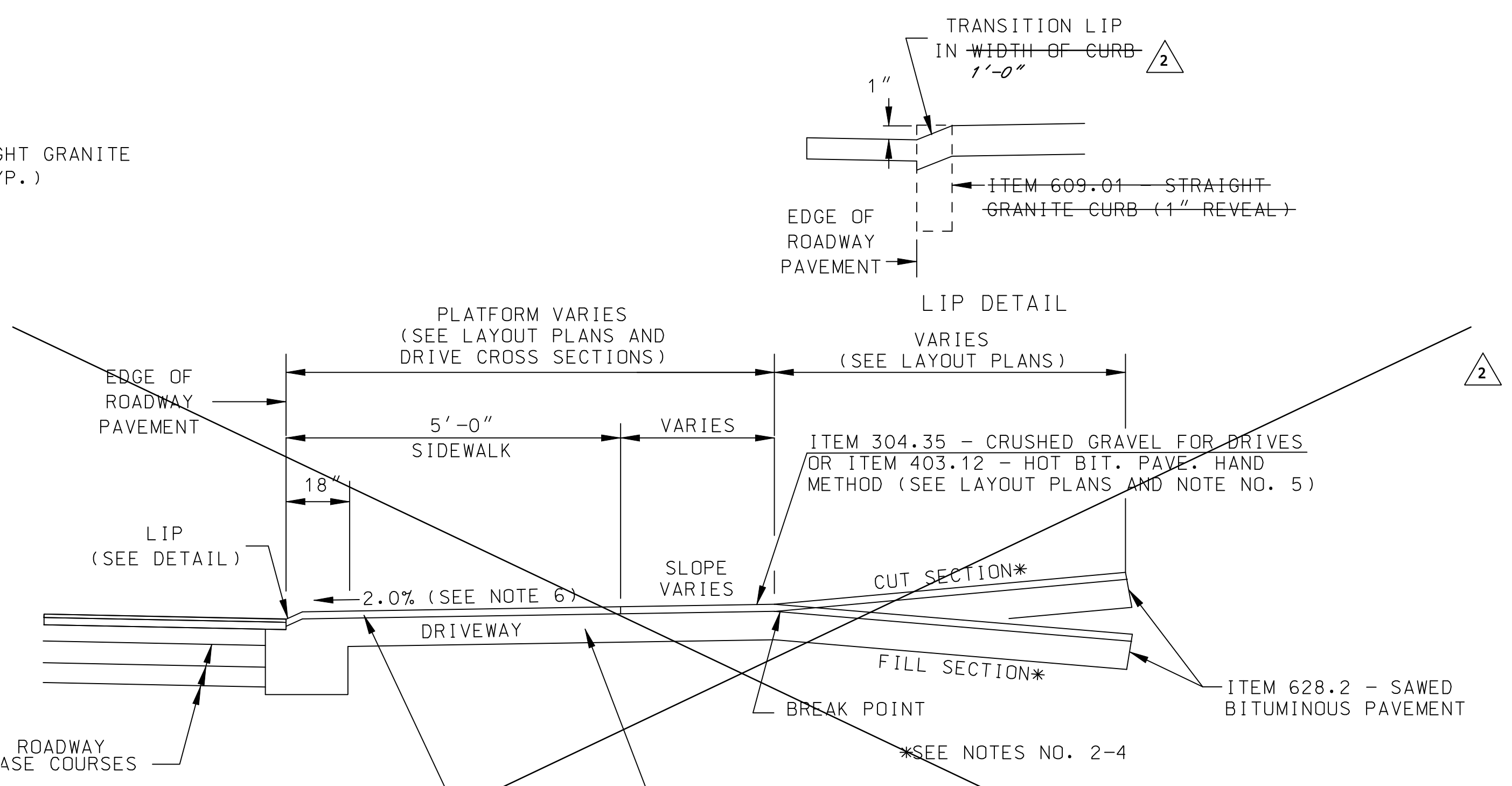
Hoyle, Tanner & Associates, Inc.
 © Copyright 2014 Hoyle, Tanner & Associates, Inc.
 150 Dow Street, Manchester, NH 03101-1227
 Tel (603) 669-5555 • Fax (603) 669-4168
 Webpage: www.hoyletanner.com

TOWN OF AMHERST
 AMHERST, NEW HAMPSHIRE
 MANCHESTER ROAD OVER BEAVER BROOK
 DRIVEWAY DETAILS

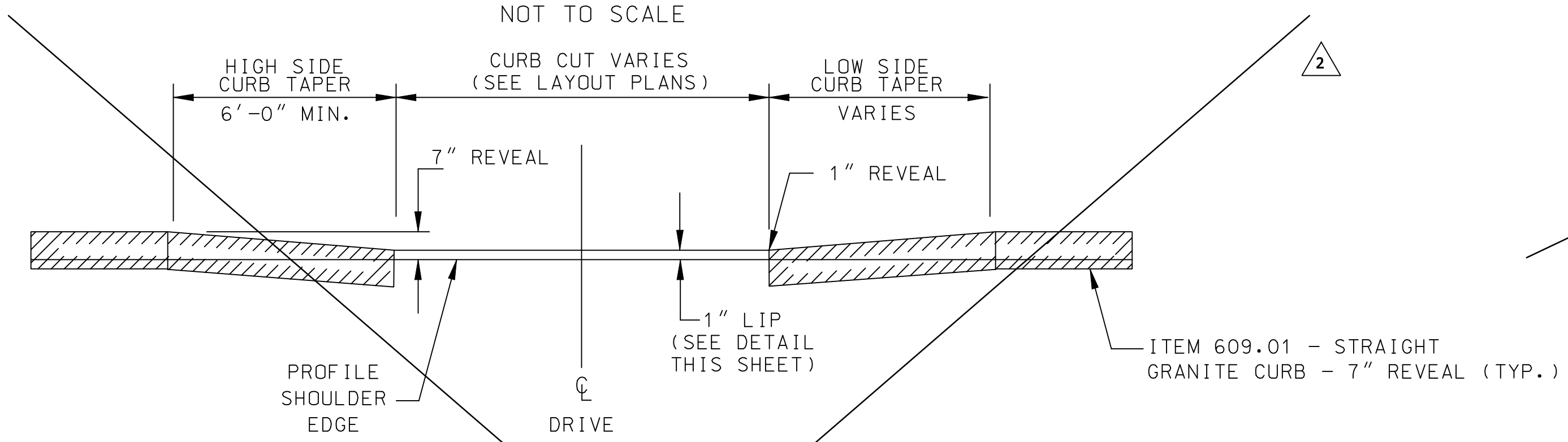
PROJECT NO.: 919101
 FILE NAME: AB919101DTL00
 MODEL NAME: 919101DTL01
 SHEET NO.
9
 SHEET 9 OF 40



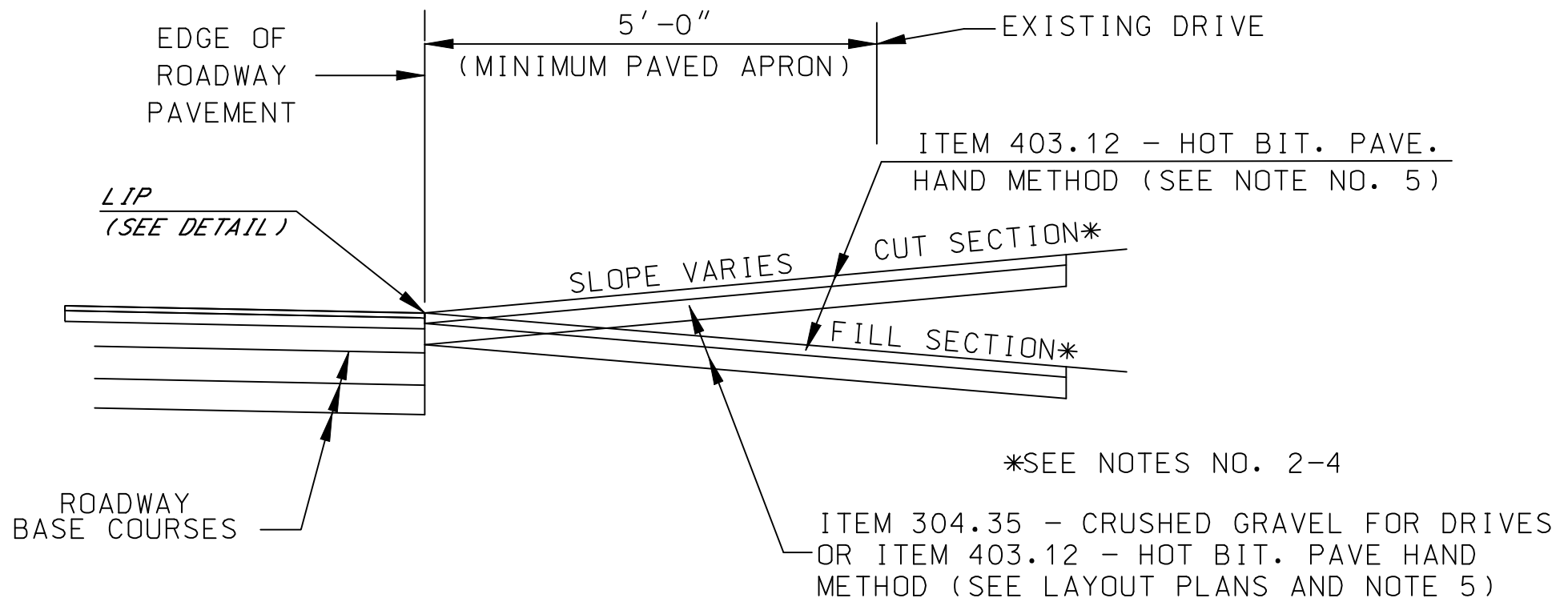
DRIVEWAY PLAN VIEW WITH SIDEWALK RAMP



TYPICAL DRIVE SECTION WITH SIDEWALK



DRIVEWAY END VIEW

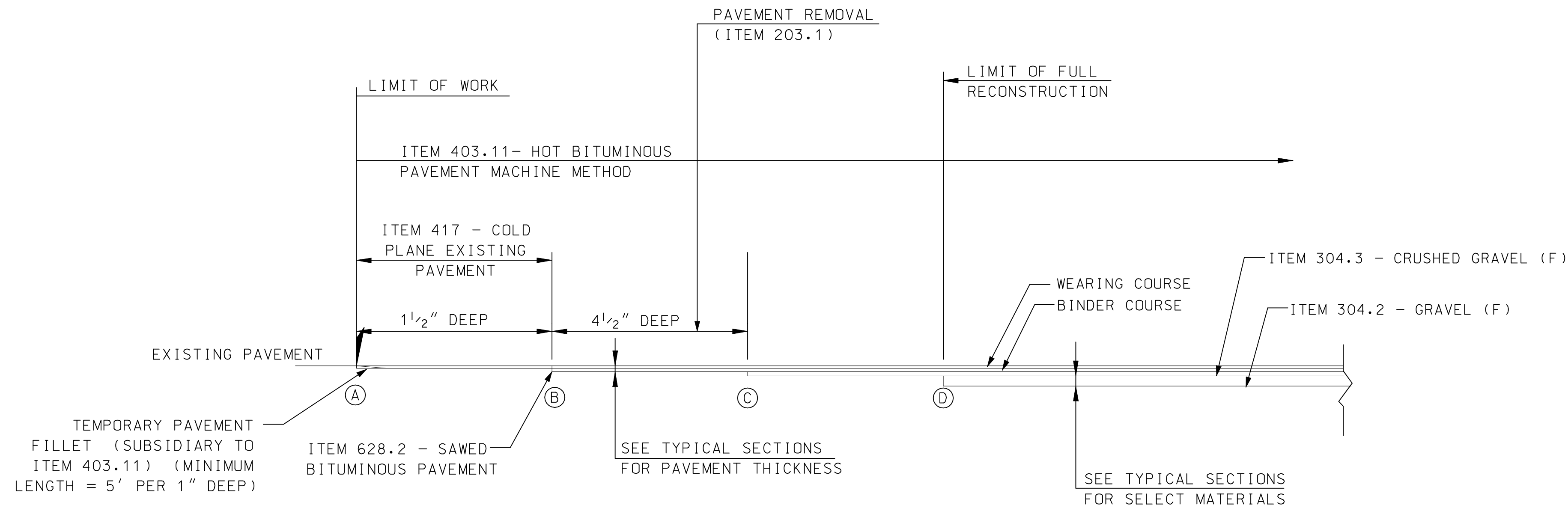


TYPICAL DRIVE SECTION WITHOUT SIDEWALK

GENERAL NOTES

1. REFER TO TYPICAL SECTION, LAYOUT PLANS, AND DRIVE CROSS SECTIONS FOR DRIVEWAY LENGTHS, WIDTHS, CURB CUTS, GRADES, AND PAVEMENT & BASE COURSE DEPTHS.
2. GRADES OF ROADWAYS AND COMMERCIAL DRIVES BEYOND THE PLATFORM SHOULD NOT EXCEED 8%.
3. GRADES OF OTHER DRIVES BEYOND THE PLATFORM SHOULD NOT EXCEED 15%.
4. THE ALGEBRAIC DIFFERENCE BETWEEN TWO ADJACENT GRADES SHOULD NOT EXCEED 10%.
5. PAVEMENT & BASE COURSE DEPTHS FOR RESIDENTIAL DRIVES ARE TYPICALLY 8" CRUSHED GRAVEL WITH 3" H.B.P. (HAND METHOD) PLACED IN TWO COURSES.
6. ALL DRIVES SHALL HAVE A 5' PLATFORM SLOPED AT 2% TOWARD THE ROADWAY UNLESS OTHERWISE NOTED ON THE DRIVE CROSS SECTIONS.
7. TRANSITIONS BETWEEN SIDEWALK AND DRIVEWAY CROSS SLOPES, IF REQUIRED, SHALL OCCUR OVER 5' LINEAR FEET.

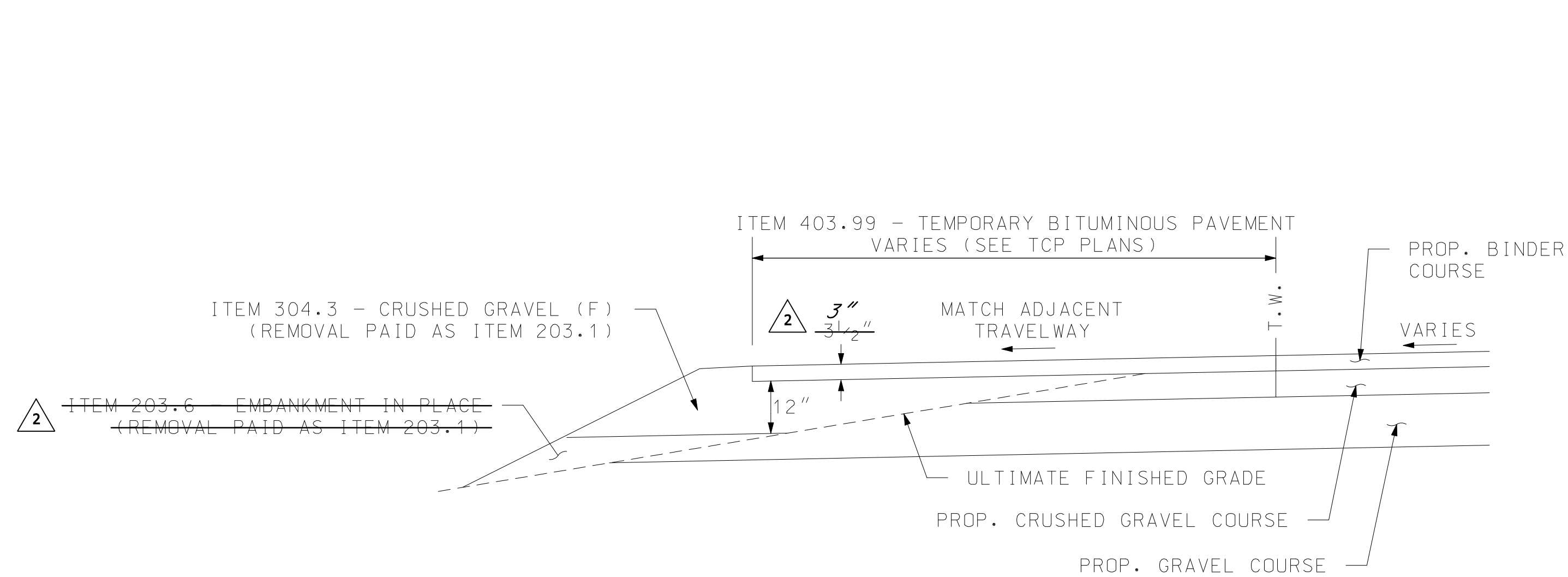
3/24/2016 10:39:26 AM K:\919101\Cadd\as-built\AB919101DTL00.dgn



PAVEMENT MATCH DETAIL

N.T.S.

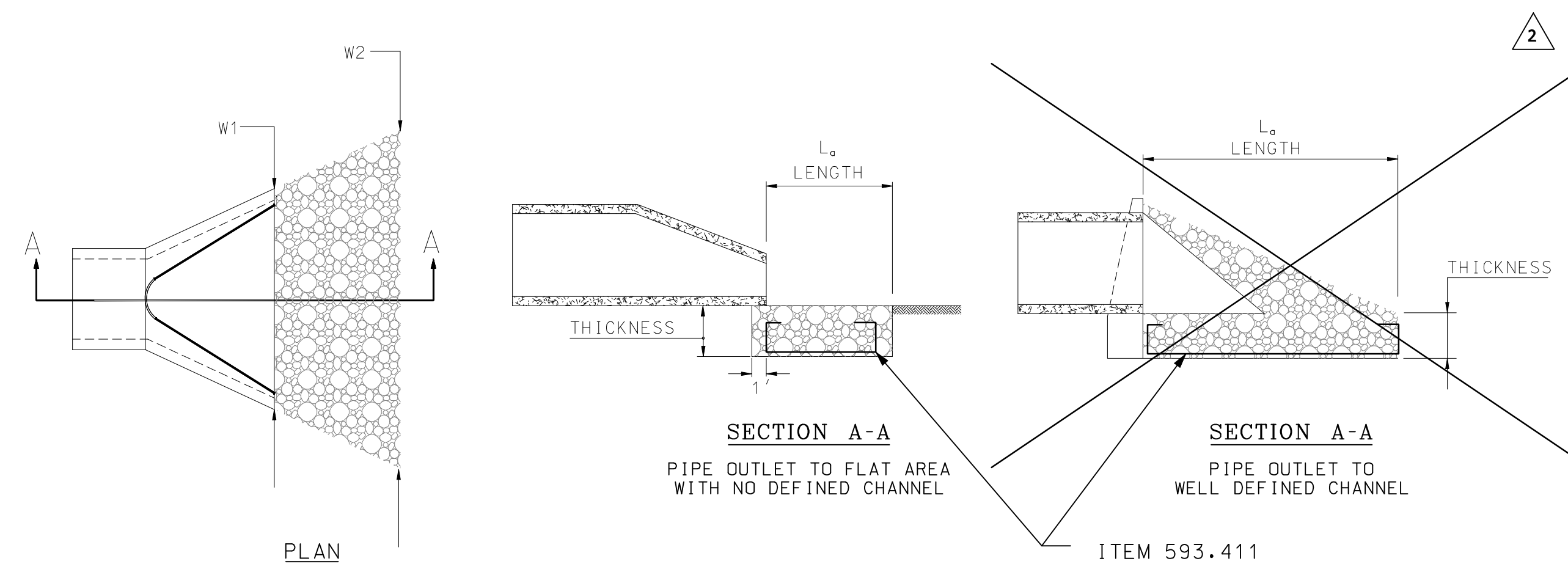
2	STATION				
	A	B	C	D	
MANCHESTER ROAD (SOUTH)	100+00.08	100+10	100+20	100+30	
MACK HILL ROAD	103+72	103+60	103+50	103+40	
MANCHESTER ROAD (EAST)	202+28	202+20	202+10	202+00	



TEMPORARY PAVEMENT WIDENING DETAIL

N.T.S.

NOTE: CONSTRUCTED IN PHASE 1A. SHOWN ON PHASE 1B PLAN.



CULVERT OUTLET EROSION PROTECTION DETAILS

NOT TO SCALE

2							
CULVERT OUTLET EROSION PROTECTION							
DRAIN NOTE #	OUTLET STATION	W ₁ (ft)	W ₂ (ft)	L _a (ft)	THICKNESS (ft)	STONE CLASS	VOLUME (CY)
		11'	11'	8'			3.25
1	102+33.99, LT. 24.28	7.0	7.0	5.0	1.00	CLASS C	1.3
							3.25
		ITEM	585.3	CLASS C	SUB-TOTAL		1.3

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.

HOYLE, TANNER & ASSOCIATES, INC.
SIGNED: *[Signature]*
MARCH 2016

NOTE: WORDING CONTAINED HEREIN IS UNDERSTOOD TO BE PAST TENSE.

REV.	CHD. BY	DATE	DESCRIPTION
A	JCR	3/2016	RECORD COPY REVISIONS

DRW. TAG
CHKD. BY: SBH
DESIGN BY: JFMS
DRAWN BY: CED
CHECKED BY: AS SHOWN
SCALE: AS SHOWN

This document is prepared as an instrument of service and shall remain the property of Hoyle, Tanner, Inc. It may not be used, reproduced, disseminated or transmitted in any manner, including electronically, for any other purpose than the project, without the written permission of Hoyle, Tanner, Inc.

Hoyle, Tanner & Associates, Inc.
© Copyright 2014 Hoyle, Tanner & Associates, Inc.
150 Dow Street, Manchester, NH 03101-1227
Tel (603) 669-5555 • Fax (603) 669-4168
Webpage: www.hoyletanner.com

TOWN OF AMHERST
AMHERST, NEW HAMPSHIRE
MANCHESTER ROAD OVER BEAVER BROOK
MISCELLANEOUS DETAILS

PROJECT NO.: 919101
FILE NAME: AB919101DTL00
MODEL NAME: 919101DTL02
SHEET NO.
10
SHEET 10 OF 40

3/24/2016 10:39:27 AM K:\19101\cadd\as-built\AB919101DTL00.dgn

DRAINAGE NOTES

- 1 STA. 102+33.99, LT. 24.28 - STA. 102+35.64, RT. 37.69
 CONST. 62 LF x 18" RCP (3000D)
 CONST. PC-3 HEADWALL @+33.99, LT. 24.28
 18" OUTLET ELEV. = 241.00 (FIELD VERIFY)
 CONST. CB-B W/ SLAB TOP (4" GRATE), @+35.64, RT. 37.69
 15" INV. IN = 241.55
 18" INV. OUT = 241.30 (FIELD VERIFY)
 GRATE = 245.00
 CONST. STONE FILL CLASS C @ OUTLET
 CONST. GEOTEXTILE, PERM CONTROL CLASS 1, NON-WOVEN
 REMOVE EXIST. 61" X 18" CMP (SUBSID.)
 REMOVE EXIST. CB @ +35.64, RT 37.69 (SUBSID.)

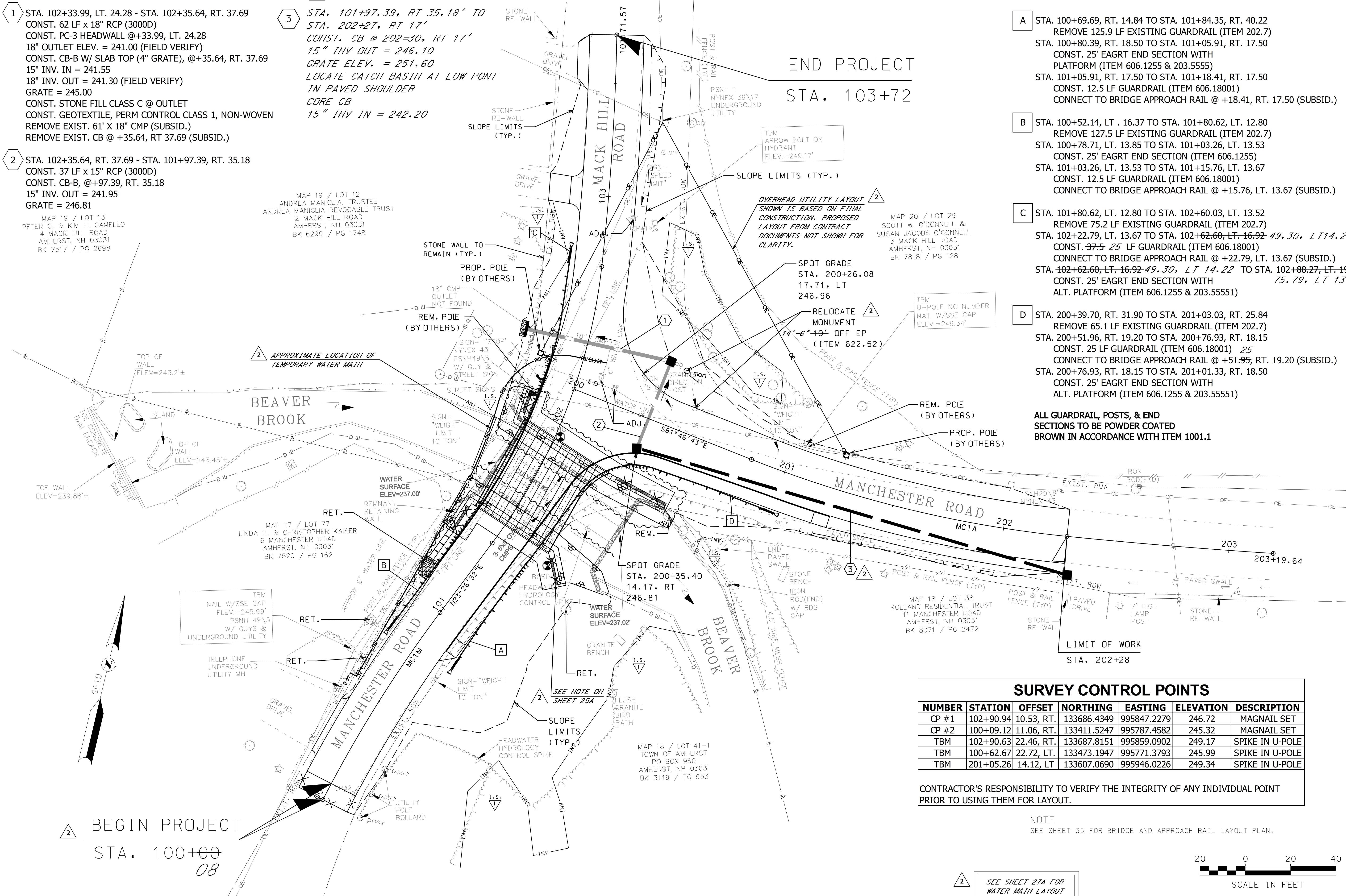
- 2 STA. 102+35.64, RT. 37.69 - STA. 101+97.39, RT. 35.18
 CONST. 37 LF x 15" RCP (3000D)
 CONST. CB-B, @+97.39, RT. 35.18
 15" INV. OUT = 241.95
 GRATE = 246.81

- 3 STA. 101+97.39, RT 35.18' TO
 STA. 202+27, RT 17'
 CONST. CB @ 202=30, RT 17'
 15" INV OUT = 246.10
 GRATE ELEV. = 251.60
 LOCATE CATCH BASIN AT LOW POINT
 IN PAVED SHOULDER
 CORE CB
 15" INV IN = 242.20

GUARDRAIL NOTES

- A STA. 100+69.69, RT. 14.84 TO STA. 101+84.35, RT. 40.22
 REMOVE 125.9 LF EXISTING GUARDRAIL (ITEM 202.7)
 STA. 100+80.39, RT. 18.50 TO STA. 101+05.91, RT. 17.50
 CONST. 25' EAGRT END SECTION WITH
 PLATFORM (ITEM 606.1255 & 203.5555)
 STA. 101+05.91, RT. 17.50 TO STA. 101+18.41, RT. 17.50
 CONST. 12.5 LF GUARDRAIL (ITEM 606.18001)
 CONNECT TO BRIDGE APPROACH RAIL @ +18.41, RT. 17.50 (SUBSID.)
- B STA. 100+52.14, LT. 16.37 TO STA. 101+80.62, LT. 12.80
 REMOVE 127.5 LF EXISTING GUARDRAIL (ITEM 202.7)
 STA. 100+78.71, LT. 13.85 TO STA. 101+03.26, LT. 13.53
 CONST. 25' EAGRT END SECTION (ITEM 606.1255)
 STA. 101+03.26, LT. 13.53 TO STA. 101+15.76, LT. 13.67
 CONST. 12.5 LF GUARDRAIL (ITEM 606.18001)
 CONNECT TO BRIDGE APPROACH RAIL @ +15.76, LT. 13.67 (SUBSID.)
- C STA. 101+80.62, LT. 12.80 TO STA. 102+60.03, LT. 13.52
 REMOVE 75.2 LF EXISTING GUARDRAIL (ITEM 202.7)
 STA. 102+22.79, LT. 13.67 TO STA. 102+62.60, LT. 16.92 49.30, LT 14.22
 CONST. 37.5 25' LF GUARDRAIL (ITEM 606.18001)
 CONNECT TO BRIDGE APPROACH RAIL @ +22.79, LT. 13.67 (SUBSID.)
 STA. 102+62.60, LT. 16.92 49.30, LT 14.22 TO STA. 102+88.27, LT. 19.08
 CONST. 25' EAGRT END SECTION WITH 75.79, LT 13.98
 ALT. PLATFORM (ITEM 606.1255 & 203.55551)
- D STA. 200+39.70, RT. 31.90 TO STA. 201+03.03, RT. 25.84
 REMOVE 65.1 LF EXISTING GUARDRAIL (ITEM 202.7)
 STA. 200+51.96, RT. 19.20 TO STA. 200+76.93, RT. 18.15
 CONST. 25 LF GUARDRAIL (ITEM 606.18001) 25
 CONNECT TO BRIDGE APPROACH RAIL @ +51.95, RT. 19.20 (SUBSID.)
 STA. 200+76.93, RT. 18.15 TO STA. 201+01.33, RT. 18.50
 CONST. 25' EAGRT END SECTION WITH
 ALT. PLATFORM (ITEM 606.1255 & 203.55551)

ALL GUARDRAIL, POSTS, & END SECTIONS TO BE POWDER COATED BROWN IN ACCORDANCE WITH ITEM 1001.1



SURVEY CONTROL POINTS

NUMBER	STATION	OFFSET	NORTHING	EASTING	ELEVATION	DESCRIPTION
CP #1	102+90.94	10.53, RT.	133686.4349	995847.2279	246.72	MAGNAIL SET
CP #2	100+09.12	11.06, RT.	133411.5247	995787.4582	245.32	MAGNAIL SET
TBM	102+90.63	22.46, RT.	133687.8151	995859.0902	249.17	SPIKE IN U-POLE
TBM	100+62.67	22.72, LT.	133473.1947	995771.3793	245.99	SPIKE IN U-POLE
TBM	201+05.26	14.12, LT	133607.0690	995946.0226	249.34	SPIKE IN U-POLE

CONTRACTOR'S RESPONSIBILITY TO VERIFY THE INTEGRITY OF ANY INDIVIDUAL POINT PRIOR TO USING THEM FOR LAYOUT.

NOTE
 SEE SHEET 35 FOR BRIDGE AND APPROACH RAIL LAYOUT PLAN.

2 SEE SHEET 27A FOR WATER MAIN LAYOUT



I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.

HOYLE, TANNER & ASSOCIATES, INC.
 SIGNED: [Signature]
 MARCH 2016

NOTE: WORDING CONTAINED HEREIN IS UNDERSTOOD TO BE PAST TENSE.

REV.	DESCRIPTION	DATE	DRW. CHD. BY	TAG	JCR
1	RECORD COPY REVISIONS	3/2016			

This document is prepared as an instrument of service and shall remain the property of Hoyle, Tanner, Inc. It may not be used, reproduced, disseminated or transmitted in any form or by any means, electronic or mechanical, for any purpose other than that for which it was prepared, without the written permission of Hoyle, Tanner, Inc.

JULY 2014	DESIGN BY:	SBH	JFMS	CEB	AS SHOWN
	DRAWN BY: <td></td> <td></td> <td></td> <td></td>				
	CHKD. BY: <td></td> <td></td> <td></td> <td></td>				
	SCALE: <td></td> <td></td> <td></td> <td></td>				

Hoyle, Tanner & Associates, Inc.
 150 Dow Street, Manchester, NH 03101-1227
 Tel (603) 669-5555 • Fax (603) 669-4168
 Webpage: www.hoyletanner.com

TOWN OF AMHERST
 AMHERST, NEW HAMPSHIRE
 MANCHESTER ROAD OVER BEAVER BROOK
 ROADWAY GENERAL PLAN

PROJECT NO.: 919101
 FILE NAME: AB919101G00
 MODEL NAME: 919101G01
 SHEET NO.
11
 SHEET 11 OF 40

3/24/2016 10:39:30 AM K:\19101\Roadway-buil\Map919101G00.dgn

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.

HOYLE, TANNER & ASSOCIATES, INC.
 SIGNED: *[Signature]*
 MARCH 2016

NOTE: WORDING CONTAINED HEREIN IS UNDERSTOOD TO BE PAST TENSE.

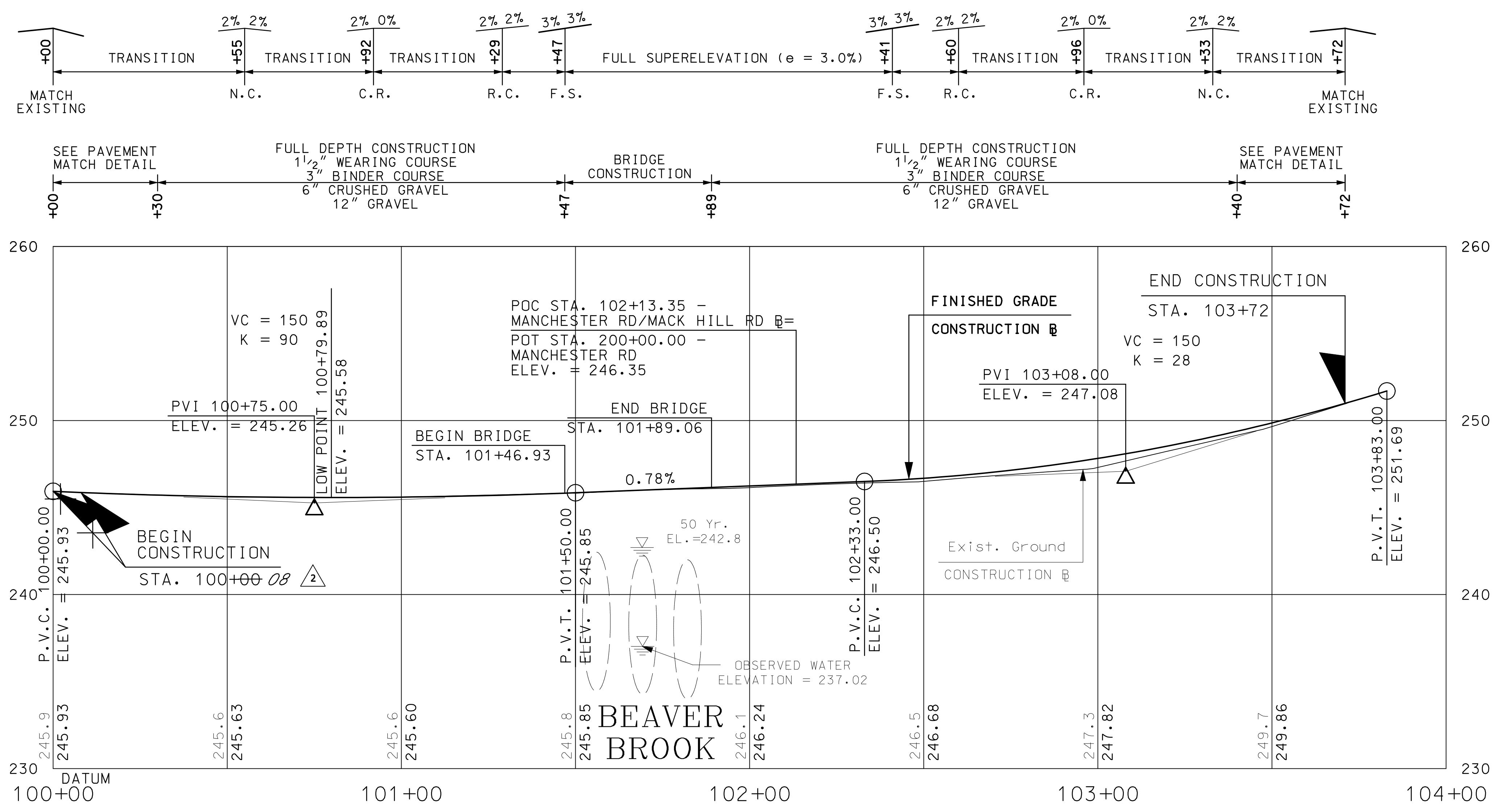
REV.	DESCRIPTION	DATE
1	RECORD COPY REVISIONS	3/2016

JULY 2014	DESIGN BY:	SBH
	DRAWN BY: <td>JFMS</td>	JFMS
	CHKD. BY: <td>CEJ</td>	CEJ
	SCALE: <td>AS SHOWN</td>	AS SHOWN

Hoyle, Tanner & Associates, Inc.
 © Copyright 2014 Hoyle, Tanner & Associates, Inc.
 150 Dow Street, Manchester, NH 03101-1227
 Tel (603) 669-5555 · Fax (603) 669-4168
 Webpage: www.hoyletanner.com

PROJECT NO.:	919101
FILE NAME:	AB919101P00
MODEL NAME:	919101P01
SHEET NO.	12
SHEET 12 OF 40	

MANCHESTER ROAD (SOUTH) / MACK HILL ROAD



SCALE:
 1" = 20' HORIZ.
 1" = 4' VERT.

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.

HOYLE, TANNER & ASSOCIATES, INC.
 SIGNED: *S. Lilly*
 MARCH 2016

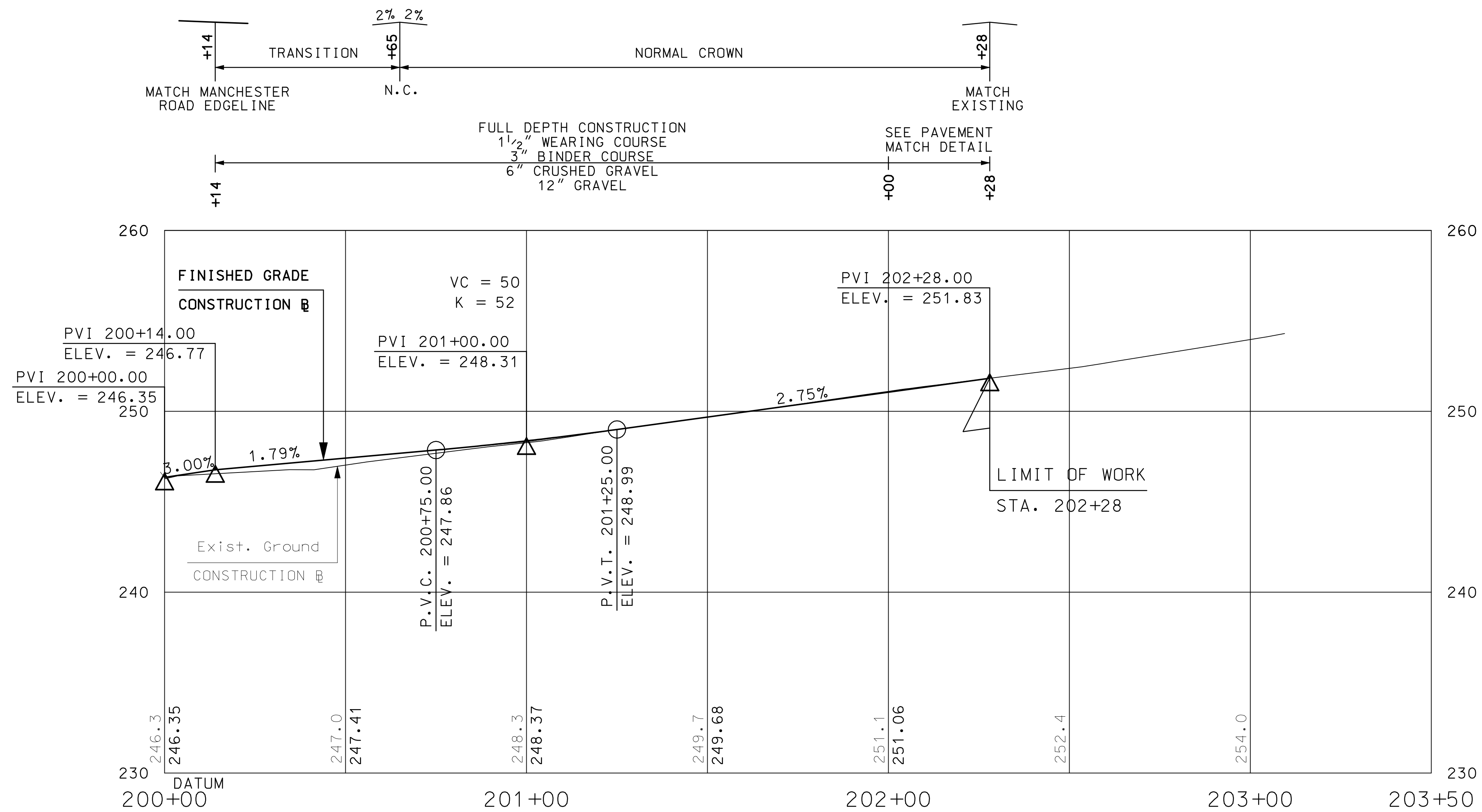
NOTE: WORDING CONTAINED HEREIN IS UNDERSTOOD TO BE PAST TENSE.

REV.	DESCRIPTION	DRW. CHG. BY	DATE

This document is prepared as an instrument of service and shall remain the property of Hoyle, Tanner, Inc. It may not be used, reproduced, disseminated or transmitted in any manner, including electronically, for any other purpose than that for which it was prepared without the written permission of Hoyle, Tanner, Inc.

JULY 2014	SBH	JFMS	AS SHOWN
DESIGN BY:	SBH		
DRAWN BY:	JFMS		
CHKD. BY:			
SCALE:			

MANCHESTER ROAD (EAST)



SCALE:
 1" = 20' HORIZ.
 1" = 4' VERT.

Hoyle, Tanner & Associates, Inc.
 © Copyright 2014 Hoyle, Tanner & Associates, Inc.
 150 Dow Street, Manchester, NH 03101-1227
 Tel (603) 669-5555 • Fax (603) 669-4168
 Webpage: www.hoyletanner.com

TOWN OF AMHERST
 AMHERST, NEW HAMPSHIRE
 MANCHESTER ROAD OVER BEAVER BROOK
 ROADWAY PROFILE (2 OF 2)

PROJECT NO.: 919101
 FILE NAME: AB919101P00
 MODEL NAME: 919101P02
 SHEET NO.
13
 SHEET 13 OF 40

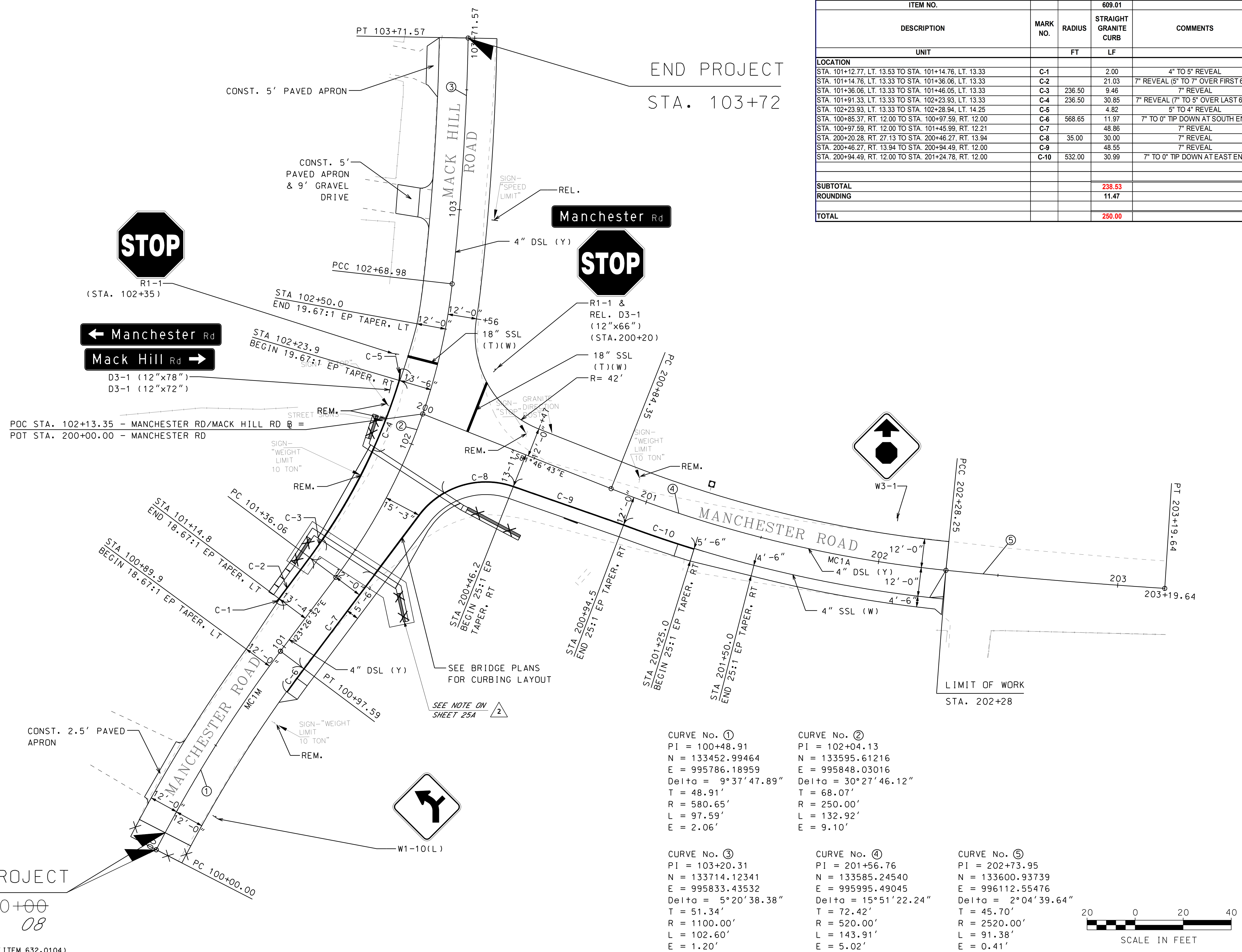
CURBING

ITEM NO.	DESCRIPTION	MARK NO.	RADIUS	STRAIGHT GRANITE CURB	COMMENTS
			FT	LF	
LOCATION					
	STA. 101+12.77, LT. 13.53 TO STA. 101+14.76, LT. 13.33	C-1		2.00	4" TO 5" REVEAL
	STA. 101+14.76, LT. 13.33 TO STA. 101+36.06, LT. 13.33	C-2		21.03	7" REVEAL (5" TO 7" OVER FIRST 6.25')
	STA. 101+36.06, LT. 13.33 TO STA. 101+46.05, LT. 13.33	C-3	236.50	9.46	7" REVEAL
	STA. 101+91.33, LT. 13.33 TO STA. 102+23.93, LT. 13.33	C-4	236.50	30.85	7" REVEAL (7" TO 5" OVER LAST 6.25')
	STA. 102+23.93, LT. 13.33 TO STA. 102+28.94, LT. 14.25	C-5		4.82	5" TO 4" REVEAL
	STA. 100+85.37, RT. 12.00 TO STA. 100+97.59, RT. 12.00	C-6	568.65	11.97	7" TO 0" TIP DOWN AT SOUTH END
	STA. 100+97.59, RT. 12.00 TO STA. 101+45.99, RT. 12.21	C-7		48.86	7" REVEAL
	STA. 200+20.28, RT. 27.13 TO STA. 200+46.27, RT. 13.94	C-8	35.00	30.00	7" REVEAL
	STA. 200+46.27, RT. 13.94 TO STA. 200+94.49, RT. 12.00	C-9		48.55	7" REVEAL
	STA. 200+94.49, RT. 12.00 TO STA. 201+24.78, RT. 12.00	C-10	532.00	30.99	7" TO 0" TIP DOWN AT EAST END
SUBTOTAL				238.53	
ROUNDING				11.47	
TOTAL				250.00	

REV.	DESCRIPTION	DATE
1	RECORD COPY REVISIONS <td>3/2016</td>	3/2016
2		
3		
4		
5		

TOWN OF AMHERST
 AMHERST, NEW HAMPSHIRE
 MANCHESTER ROAD OVER BEAVER BROOK
 CURBING, MARKING, SIGNING AND LAYOUT PLAN

PROJECT NO.: 919101
 FILE NAME: AB919101C00
 MODEL NAME: 919101C01
 SHEET NO.
14
 SHEET 14 OF 40



CURVE No. ① PI = 100+48.91 N = 133452.99464 E = 995786.18959 Delta = 9°37'47.89" T = 48.91' R = 580.65' L = 97.59' E = 2.06'	CURVE No. ② PI = 102+04.13 N = 133595.61216 E = 995848.03016 Delta = 30°27'46.12" T = 68.07' R = 250.00' L = 132.92' E = 9.10'	CURVE No. ③ PI = 103+20.31 N = 133714.12341 E = 995833.43532 Delta = 5°20'38.38" T = 51.34' R = 1100.00' L = 102.60' E = 1.20'	CURVE No. ④ PI = 201+56.76 N = 133585.24540 E = 995995.49045 Delta = 15°51'22.24" T = 72.42' R = 520.00' L = 143.91' E = 5.02'	CURVE No. ⑤ PI = 202+73.95 N = 133600.93739 E = 996112.55476 Delta = 2°04'39.64" T = 45.70' R = 2520.00' L = 91.38' E = 0.41'
---	---	---	---	--



3/24/2016 10:39:35 AM K:\19101\Road\as-built\AB919101C00.dgn

LEGEND:
 REM. = REMOVE
 REL. = RELOCATE
 RET. = RETAIN
 4" DSL(Y) = 4" DOUBLE SOLID LINE YELLOW (ITEM 632.0104)
 4" SSL(W) = 4" SINGLE SOLID LINE WHITE (ITEM 632.0104)
 18" SSL(W)(T) = 18" SINGLE SOLID THERMOPLASTIC LINE WHITE (ITEM 632.3118)

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.
 HOYLE, TANNER & ASSOCIATES, INC.
 SIGNED: *[Signature]*
 MARCH 2016
 NOTE: WORDING CONTAINED HEREIN IS UNDERSTOOD TO BE PAST TENSE.

This document is prepared as an instrument of service and shall remain the property of Hoyle, Tanner, Inc. It may not be used, reproduced, disseminated or transmitted in any manner, including electronically, for any other purpose than that for which it was prepared without the written permission of Hoyle, Tanner, Inc.

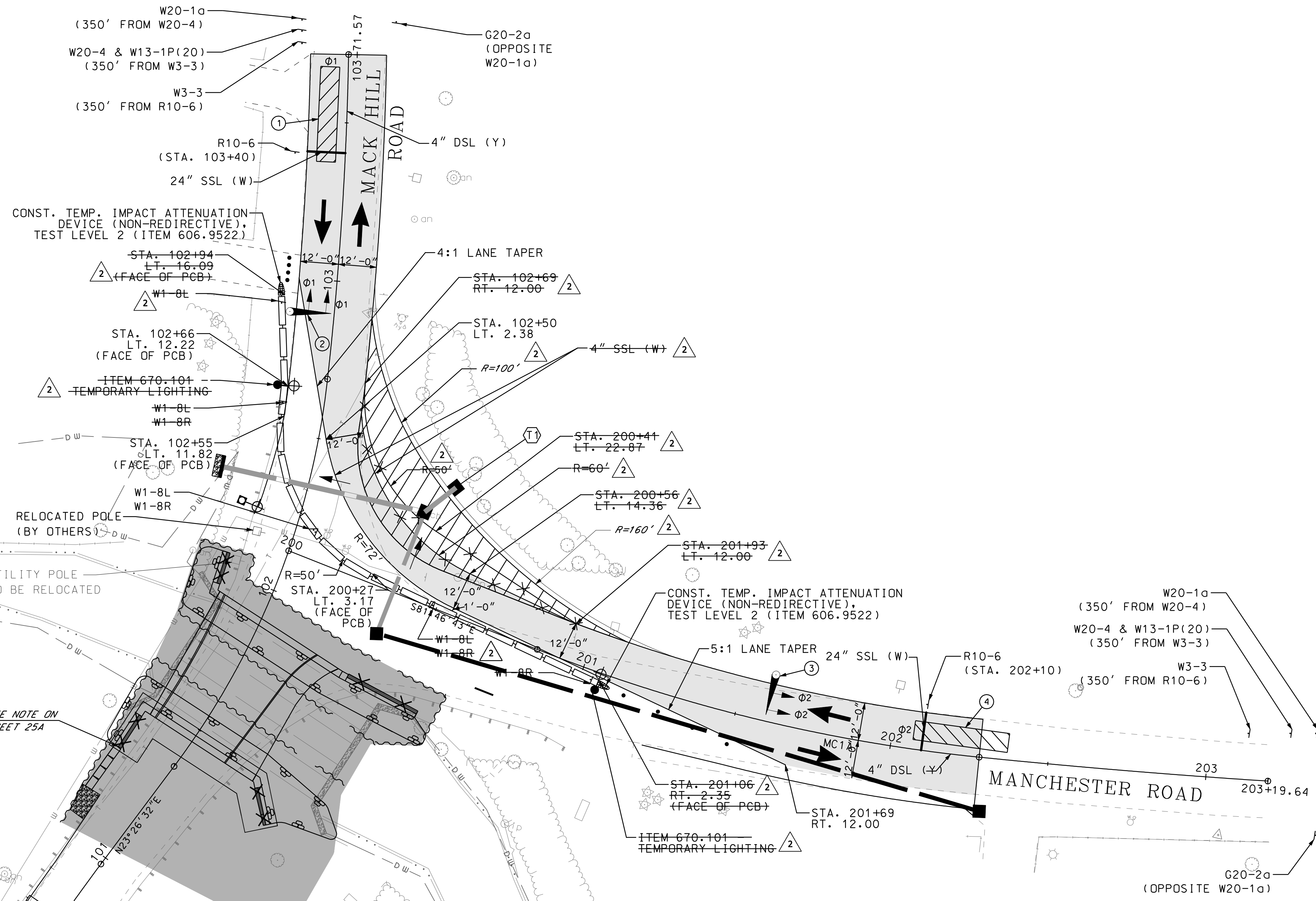
TRAFFIC CONTROL SEQUENCING 2

PHASE 1A (NOT SHOWN)

- MAINTAIN BRIDGE CLOSED DETOUR SIGNAGE. ADJUST AS REQUIRED.
- UTILIZING DAILY LANE SHIFTS AND 1-WAY ALTERNATING TRAFFIC PATTERN, CONSTRUCT STA. 102+15 TO 103+72 LT & RT AND STA. 200+00 TO 202+28 LT TO BINDER GRADE. RESTORE 2-WAY TRAFFIC NIGHTLY.
- INSTALL TEMPORARY WATERLINE BYPASS
- CONSTRUCT DRAINAGE NOTE T1, 1, PORTIONS OF 2, AND EMBANKMENT WITHIN WORK ZONE.
- CONSTRUCT TEMPORARY WIDENING STA. 200+12 TO 200+95, LT (SEE DETAIL).
- CONSTRUCT TEMPORARY TRAFFIC SIGNAL AND LIGHTING.
- CONSTRUCT PHASE 1B BARRIER, AS SHOWN. SHIFT TRAFFIC INTO PHASE 1B LANE USE.

PHASE 1B

- CONSTRUCT PHASE 2, 3, & 4 PORTION OF BRIDGE CONSTRUCTION SEQUENCING (FOOTINGS, ABUTMENTS, & WINGWALLS)(SEE SHEET 19).
- CONSTRUCT STA. 200+00 TO 202+28, RT TO BINDER GRADE. CONSTRUCT REMAINING PORTIONS OF DRAINAGE NOTE 2 AND 3.
- CONSTRUCT PHASE 2 BARRIER LAYOUT. SHIFT TRAFFIC INTO PHASE 2 LANE USE.
- REMOVE TEMPORARY TRAFFIC SIGNAL AND LIGHTING.
- REMOVE TEMPORARY WIDENING AND CONSTRUCT SLOPE WORK STA. 200+12 TO 200+95, LT.

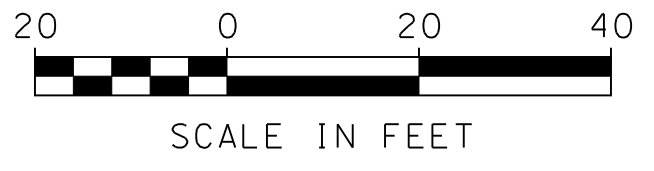


TEMPORARY DRAINAGE NOTES 2

T1 STA. 102+35.64, RT. 37.69 - STA. 102+40.70, RT. 42.33
 CONST. 4 LF x 18" RCP (20000) 12.5 LF x 15" SDR
 CONST. CB-B W/ SLAB TOP (4" GRATE), @+40.70, RT. 42.33-
 18" INV. OUT = 241.30 102+43.95, RT. 45.51
 GRATE = 244.50

LEGEND

- TEMPORARY PAVEMENT
- PHASE 1B WORK ZONE
- TRAFFIC LANES
- TRAFFIC FLOW
- PORTABLE CONCRETE BARRIER
- TEMPORARY CRASH CUSHION
- TEMPORARY LIGHTING
- TRAFFIC BARRELS



I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.	
HOYLE, TANNER & ASSOCIATES, INC. SIGNED: <i>[Signature]</i> MARCH 2016	
NOTE: WORDING CONTAINED HEREIN IS UNDERSTOOD TO BE PAST TENSE.	
DATE	04/2015
DRW. CHD. BY	STJ
REV.	RECORDED COPY REVISIONS
DESCRIPTION	REVISIONS
JULY 2014	DESIGN BY: SBH
AS SHOWN	SCALE:

Hoyle, Tanner & Associates, Inc.
 © Copyright 2014 Hoyle, Tanner & Associates, Inc.
 150 Dow Street, Manchester, NH 03101-1227
 Tel (603) 669-5555 • Fax (603) 669-4168
 Webpage: www.hoyletanner.com

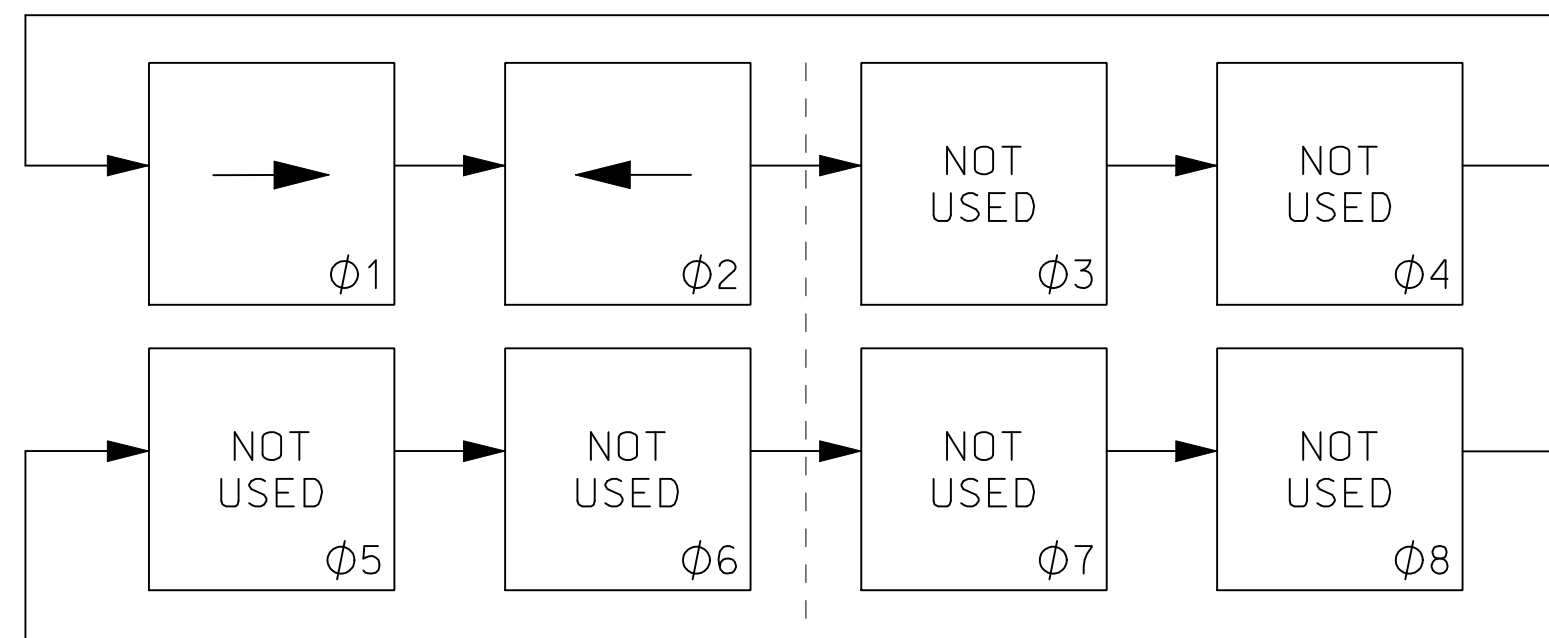
TOWN OF AMHERST
 AMHERST, NEW HAMPSHIRE
 MANCHESTER ROAD OVER BEAVER BROOK
 TRAFFIC CONTROL PLAN
 PHASE 1B

PROJECT NO.: 919101
 FILE NAME: AB919101TCPRI
 MODEL NAME: 919101TCP02
 SHEET NO.
15
 SHEET 15 OF 40

TRAFFIC CONTROL NOTES

- TRAFFIC CONTROL DEVICES SHALL CONFORM TO SECTION 619 OF THE NHDOT STANDARD SPECIFICATIONS, AND THE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), AS PUBLISHED BY THE U.S. DEPARTMENT OF TRANSPORTATION (USDOT) AND ADOPTED BY THE COMMISSIONER OF THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION. SIGNS SHALL ALSO CONFORM TO USDOT STANDARD HIGHWAY SIGNS AND NHDOT CONSTRUCTION SIGN STANDARDS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLYING, ERECTING AND MAINTAINING PERMANENT CONSTRUCTION SIGNS AND WARNING DEVICES AS LISTED ON THE PLANS, AND SHALL ALSO BE RESPONSIBLE FOR SUPPLYING, ERECTING AND MAINTAINING ALL OPERATIONAL SIGNS AND WARNING DEVICES FOR THE PLANNED METHODS OF OPERATION IN CONFORMANCE WITH THE MUTCD.
- THE CONTRACTOR SHALL MARK ALL HAZARDS WITHIN THE LIMITS OF THE PROJECT AND CONNECTING ROADS WITH WELL MAINTAINED SIGNS AND WARNING DEVICES. ALL SIGNS AND WARNING DEVICES SHALL BE MOVED, SUPPLEMENTED, CHANGED, OR REMOVED DURING THE PROGRESS OF THE CONSTRUCTION AS NEEDED.
- TRAFFIC CONTROL DEVICES SHALL BE REMOVED, AND SIGNS SHALL BE COVERED OR REMOVED, WHEN THEY NO LONGER APPLY TO THE EXISTING CONDITIONS.
- PLYWOOD SUBSTRATE FOR CONSTRUCTION SIGNS SHALL CONFORM TO SECTION 619. AND FLAT ALUMINUM SHEETS SHALL CONFORM TO SECTION 615 OF THE NHDOT STANDARD SPECIFICATIONS.
- DETOURS INVOLVING THE ROUTING OF TRAFFIC OVER ROADS OUTSIDE THE LIMITS OF THE PROJECT SHALL BE MARKED AND MAINTAINED BY THE CONTRACTOR (UNLESS OTHERWISE NOTED). THE CONTRACTOR SHALL BE REQUIRED TO ERECT AND MAINTAIN ANY REQUIRED SIGNS AND WARNING DEVICES AT THE BEGINNING AND END OF THE WORK AND AT INTERSECTING ROADWAYS. THE LOCATION AND POSITION OF THESE SIGNS AND WARNING DEVICES SHALL BE AS APPROVED BY THE ENGINEER. THE CONTRACTOR MAY ALSO BE REQUIRED TO UNCOVER, COVER AND OTHERWISE MAINTAIN DETOUR SIGNS SUPPLIED BY OTHERS.
- WORK ON THE PROJECT, OR ANY SEPARATE ACTIVITY THEREIN, SHALL NOT START UNTIL ALL THE REQUIRED SIGNS AND WARNING DEVICES ARE INSTALLED AND APPROVED BY THE ENGINEER.
- SIGN LOCATIONS SHOWN ON THESE STANDARDS ARE RECOMMENDED AND MAY BE ADJUSTED AS DETERMINED BY THE ENGINEER. TYPICAL LAYOUTS SHOWN ARE NOT TO SCALE.
- THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE THE ENGINEER WITH CERTIFICATION THAT ALL THE SIGNS AND WARNING DEVICES USED ON THE PROJECT MEET THE SPECIFICATIONS.
- THE USE OF CONSTRUCTION SIGNS AND WARNING DEVICES NOT SHOWN ON THESE STANDARDS OR MUTCD, UNLESS APPROVED BY THE ENGINEER, SHALL BE PROHIBITED.
- ALL COSTS FOR TRAFFIC CONTROL DEVICES, INCLUDING PLACEMENT, RELOCATION AND REMOVAL OF SIGNS SHALL BE INCLUDED IN ITEM 619.1, MAINTENANCE OF TRAFFIC.
- THE CONTRACTOR SHALL MAINTAIN SAFE, CONTINUOUS ACCESS TO ALL PROPERTIES ADJACENT TO THE PROJECT LOCATION.

NEMA STD 8Φ CONTROLLER



SIGNAL PHASING

	Φ1	Φ2
TIMING IN SECONDS	→	←
INITIAL INTERVAL	10	10
VEHICLE EXTENSION	5	5
MAX. I	20	20
MAX. II	-	-
YELLOW	4	4
ALL RED	20	20
RECALL	OFF	SOFT
DETECTOR MEMORY	L	L
FLASH	RED	RED

CONSTRUCTION NOTES

(CONSTRUCTION AND REMOVAL OF TEMPORARY SIGNAL PAID UNDER ITEM 616.171)
 (CONSTRUCTION AND REMOVAL OF TEMPORARY LIGHTING PAID UNDER ITEM 670.101)

- | | |
|---|---|
| <p>① CONST. 6' X 30' DETECTION ZONE (CONTRACTOR'S OPTION)</p> <p>② STA. 102+89.1, LT. 14.1' CONST. TEMPORARY PORTABLE TRAFFIC SIGNAL SYSTEM INSTALL TRAFFIC SIGNAL HEADS AS SHOWN</p> | <p>③ STA. 201+59.7, LT. 15.1' CONST. TEMPORARY PORTABLE TRAFFIC SIGNAL SYSTEM INSTALL TRAFFIC SIGNAL HEADS AS SHOWN</p> <p>④ CONST. 6' X 30' DETECTION ZONE (CONTRACTOR'S OPTION)</p> |
|---|---|

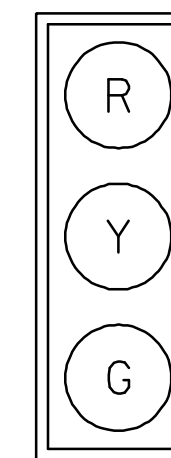
2

CONSTRUCTION SIGNS AND WARNING DEVICES (ITEM 619.1)

TYPE	DESCRIPTION	SIZE WxH	SQ. FT.	NO REQ.	TOTAL AREA	POST	COLOR
G20-2a		36" x 18"	4.5	2	9	1 POST PER SIGN	B/O
R10-6		24" x 36"	6	2	12	1 POST PER SIGN	B/W
W1-8		18" x 24"	3	8	24	5' MOUNTING HEIGHT 55' SPACING (TYP.)	B/Y
W3-3		30" x 30"	6.25	2	12.5	1 POST PER SIGN	B/O
W13-1P		18" x 18"	2.25	2	4.5	MOUNT WITH W20-4	B/O
W20-1a		36" x 36"	9	2	18	1 POST PER SIGN	B/O
W20-4		36" x 36"	9	2	18	1 POST PER SIGN	B/O

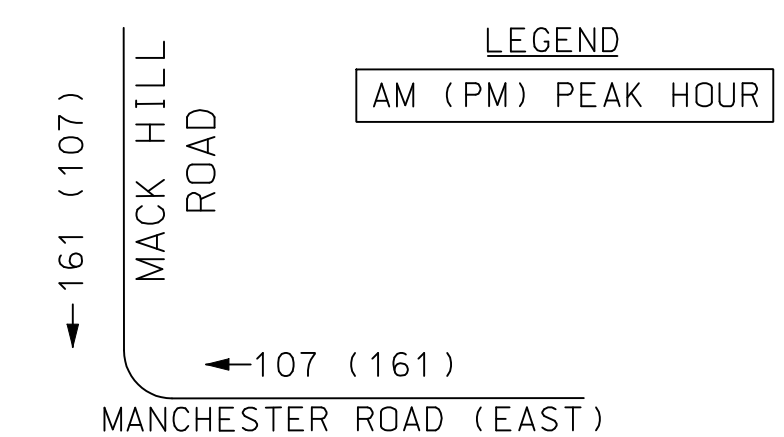
SIGNAL HEADS

ALL LENSES ARE 12" LED WITH 5" LOUVERED BACK PLATE



1, 2

AM, PM PEAK TRAFFIC VOLUMES



I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.

HOYLE, TANNER & ASSOCIATES, INC.
 SIGNED: *S. Hoyle*

MARCH 2016
 NOTE: WORDING CONTAINED HEREIN IS UNDERSTOOD TO BE PAST TENSE.

REV.	DESCRIPTION	DATE	DRW. CHD. BY	BY	TAG	JCR
1	RECORD COPY REVISIONS	3/2016				

JULY 2014
 DESIGN BY: SBH
 DRAWN BY: JFMS
 CHKD. BY: CED
 SCALE: AS SHOWN

Hoyle, Tanner & Associates, Inc.
 © Copyright 2014 Hoyle, Tanner & Associates, Inc.
 150 Dow Street, Manchester, NH 03101-1227
 Tel (603) 669-5555 • Fax (603) 669-4168
 Webpage: www.hoyletanner.com

TOWN OF AMHERST
 AMHERST, NEW HAMPSHIRE
 MANCHESTER ROAD OVER BEAVER BROOK

TRAFFIC CONTROL NOTES

PROJECT NO.: 919101
 FILE NAME: AB919101TCP01
 MODEL NAME: 919101TCP01

SHEET NO.
16
 SHEET 16 OF 40

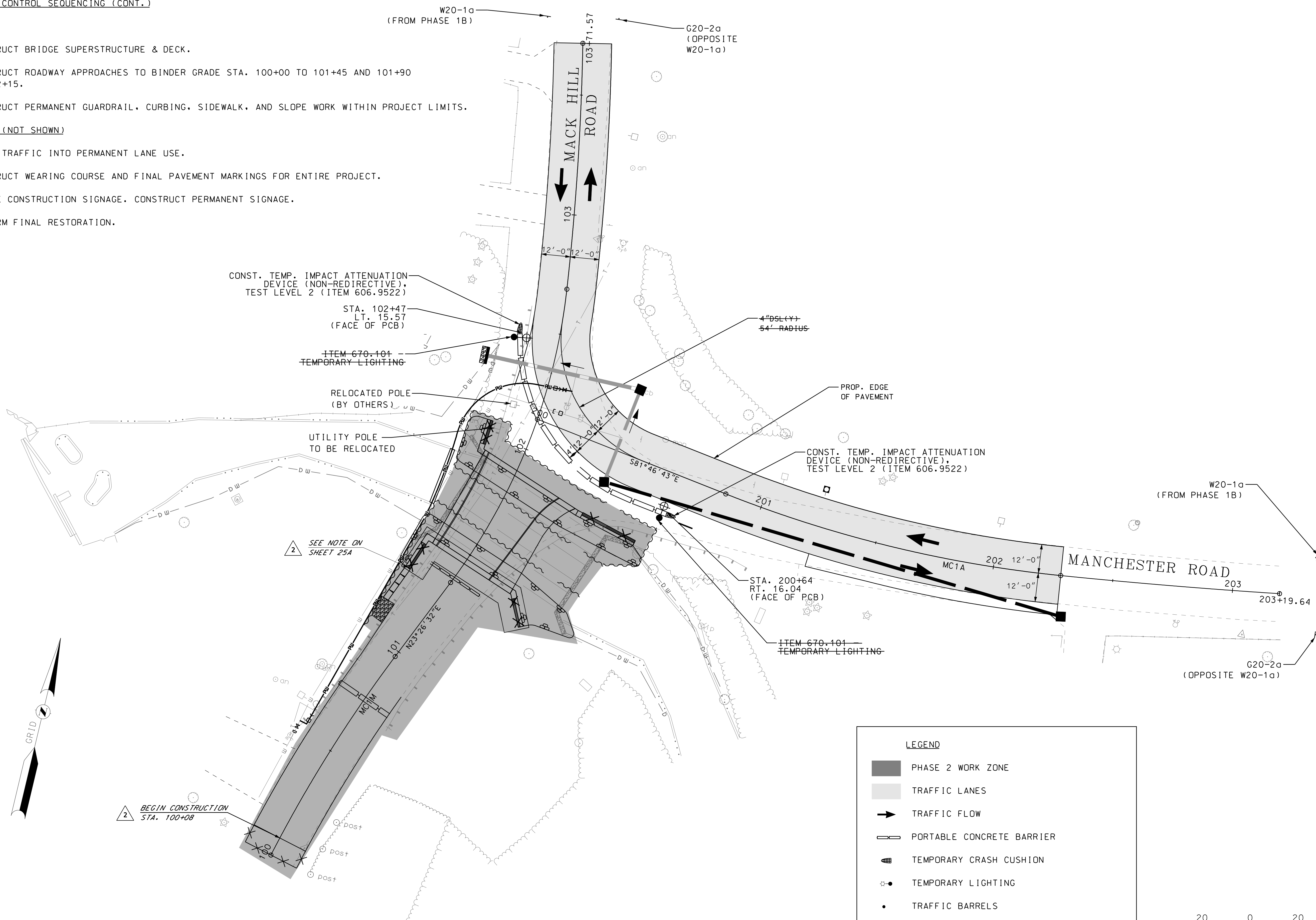
TRAFFIC CONTROL SEQUENCING (CONT.)

PHASE 2

- CONSTRUCT BRIDGE SUPERSTRUCTURE & DECK.
- CONSTRUCT ROADWAY APPROACHES TO BINDER GRADE STA. 100+00 TO 101+45 AND 101+90 TO 102+15.
- CONSTRUCT PERMANENT GUARDRAIL, CURBING, SIDEWALK, AND SLOPE WORK WITHIN PROJECT LIMITS.

PHASE 3 (NOT SHOWN)

- SHIFT TRAFFIC INTO PERMANENT LANE USE.
- CONSTRUCT WEARING COURSE AND FINAL PAVEMENT MARKINGS FOR ENTIRE PROJECT.
- REMOVE CONSTRUCTION SIGNAGE. CONSTRUCT PERMANENT SIGNAGE.
- PERFORM FINAL RESTORATION.



LEGEND

- PHASE 2 WORK ZONE
- TRAFFIC LANES
- TRAFFIC FLOW
- PORTABLE CONCRETE BARRIER
- TEMPORARY CRASH CUSHION
- TEMPORARY LIGHTING
- TRAFFIC BARRELS



3/24/2016 10:39:43 AM K:\19101\Road\has-bull\AB919101TCPR1.dgn

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.

HOYLE, TANNER & ASSOCIATES, INC.
SIGNED: *[Signature]*
MARCH 2016

NOTE: WORDING CONTAINED HEREIN IS UNDERSTOOD TO BE PAST TENSE.

REV.	DESCRIPTION	DATE	DRW. BY	CHKD. BY
1	REVISED FOR CONSTRUCTION	04/2015	STJ	
2	RECORD COPY REVISIONS	3/2016	JCR	

This document is prepared as an instrument of service and shall remain the property of Hoyle, Tanner, Inc. It may not be used, reproduced, disseminated or transmitted in any manner, including electronically, for any other purpose than that for which it was prepared without the written permission of Hoyle, Tanner, Inc.

DATE	DESIGN BY	DRAWN BY	CHKD. BY	SCALE
JULY 2014	SBH	JFMS	CEB	AS SHOWN

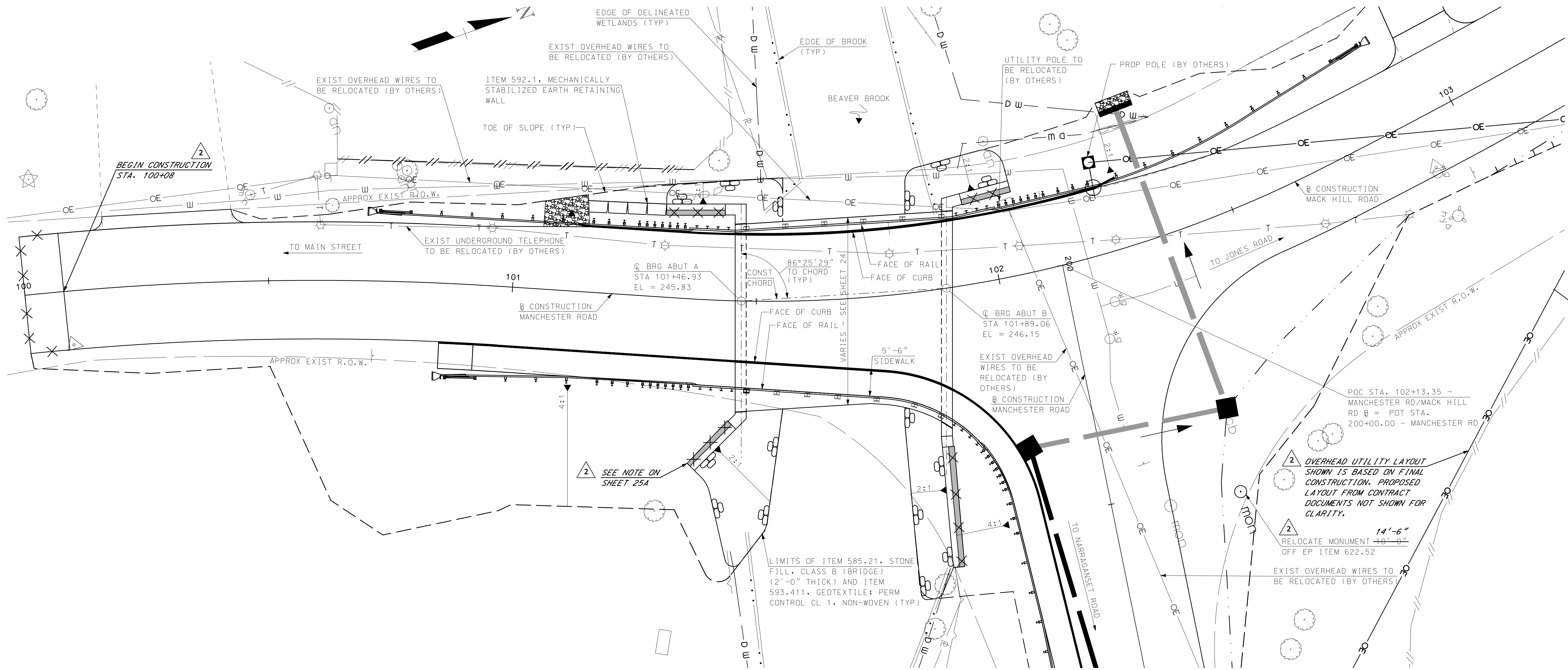
Hoyle, Tanner & Associates, Inc.
© Copyright 2014 Hoyle, Tanner & Associates, Inc.
150 Dow Street, Manchester, NH 03101-1227
Tel (603) 669-5555 • Fax (603) 669-4168
Webpage: www.hoyletanner.com

TOWN OF AMHERST
AMHERST, NEW HAMPSHIRE
MANCHESTER ROAD OVER BEAVER BROOK

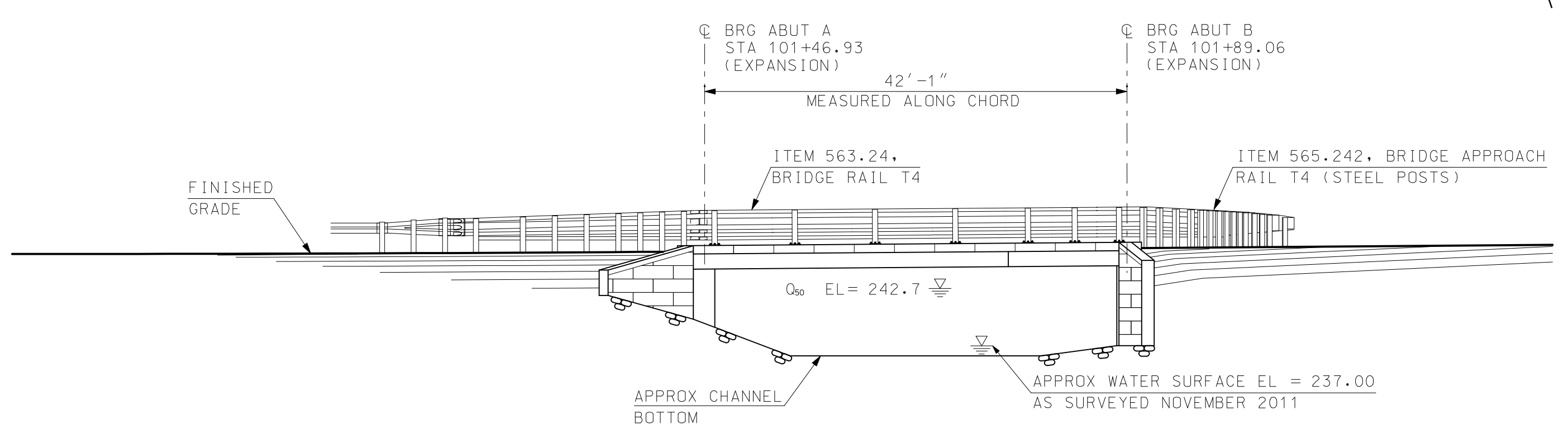
TRAFFIC CONTROL PLAN
PHASE 2

PROJECT NO.: 919101
FILE NAME: AB919101TCPR1
MODEL NAME: 919101TCPR03

SHEET NO.
17
SHEET 17 OF 40



PLAN 2
SCALE: 3/32" = 1'-0"



ELEVATION
SCALE: 3/32" = 1'-0"

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.
HOYLE, TANNER & ASSOCIATES, INC.
SIGNED: [Signature]
MARCH 2016
NOTE: WORDING CONTAINED HEREON IS UNDERSTOOD TO BE PAST TENSE.

DATE	DRW. CHD. BY	DATE	DESCRIPTION
3/2016 <td>JCR <td></td> <td>RECORD COPY REVISIONS </td></td>	JCR <td></td> <td>RECORD COPY REVISIONS </td>		RECORD COPY REVISIONS

JUNE 2014	WLD	JBM	STJ	AS SHOWN
DESIGN BY:				
DRAWN BY:				
CHKD. BY:				
SCALE:				

This document is prepared as an instrument of service and shall remain the property of Hoyle, Tanner & Associates, Inc. It may not be used, reproduced, disseminated or transmitted in any manner, including electronically, for any other purpose than the project, without the written permission of Hoyle, Tanner & Associates, Inc.
© Copyright 2014 Hoyle, Tanner & Associates, Inc.
150 Dow Street, Manchester, NH 03101-1227
Tel (603) 669-5555 • Fax (603) 669-4168
Webpage: www.hoyletanner.com

TOWN OF AMHERST
AMHERST, NEW HAMPSHIRE
MANCHESTER ROAD OVER BEAVER BROOK
GENERAL PLAN AND ELEVATION

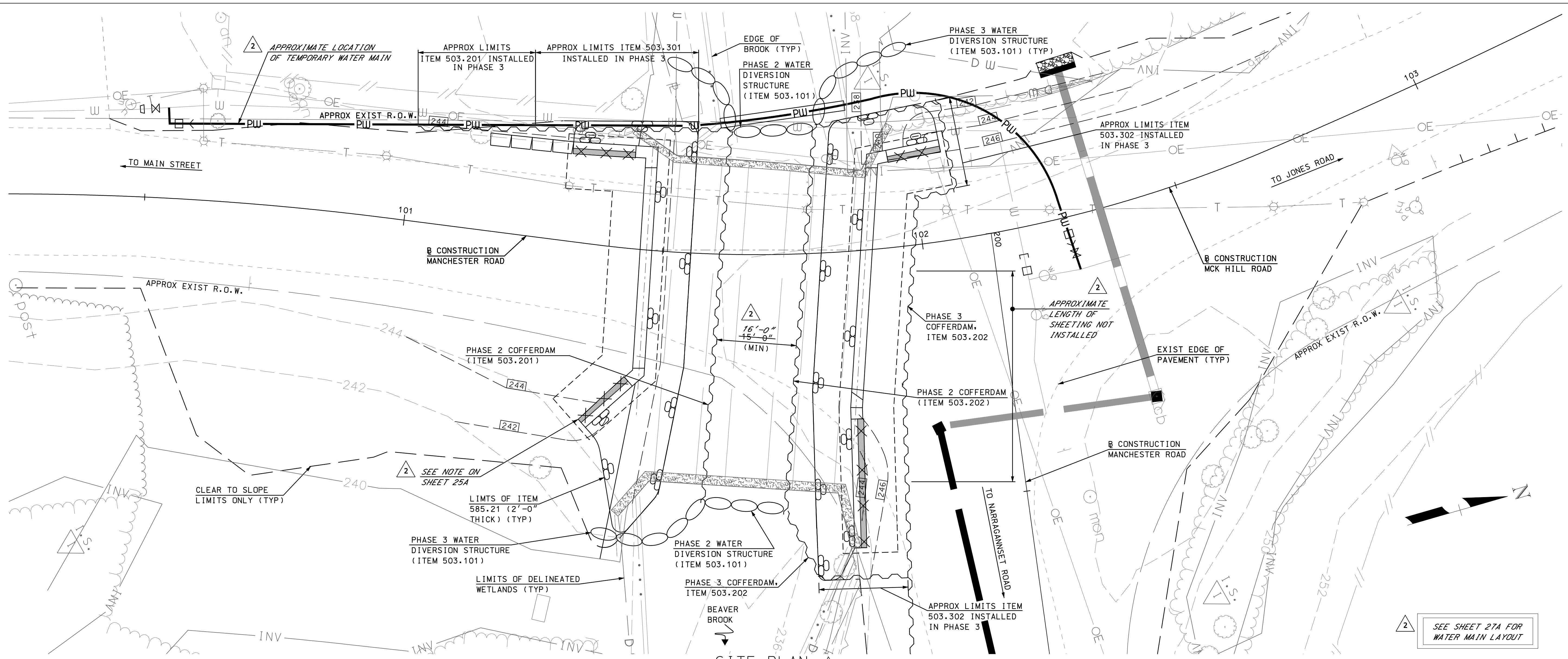
PROJECT NO.: 919101
FILE NAME: AB919101GPE
MODEL NAME: 919101GPE
SHEET NO.

18
SHEET 18 OF 40

2 SEE SHEET 27A FOR WATER MAIN LAYOUT

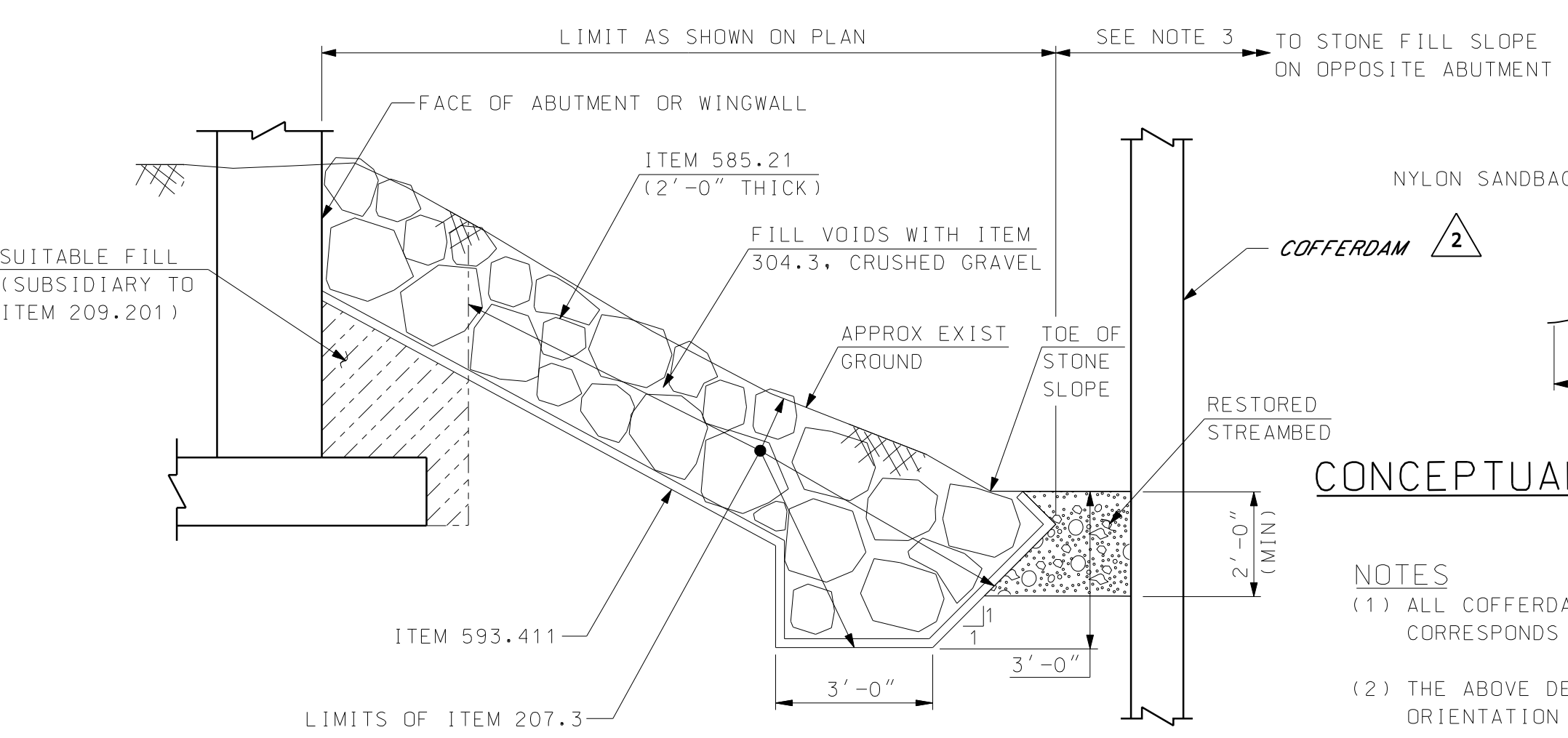
SCALE: 3/32" = 1'-0"
2 0 4 8 12 16

3/24/2016 10:39:45 AM K:\919101\Cadd\as-built\AB919101GPE.dgn



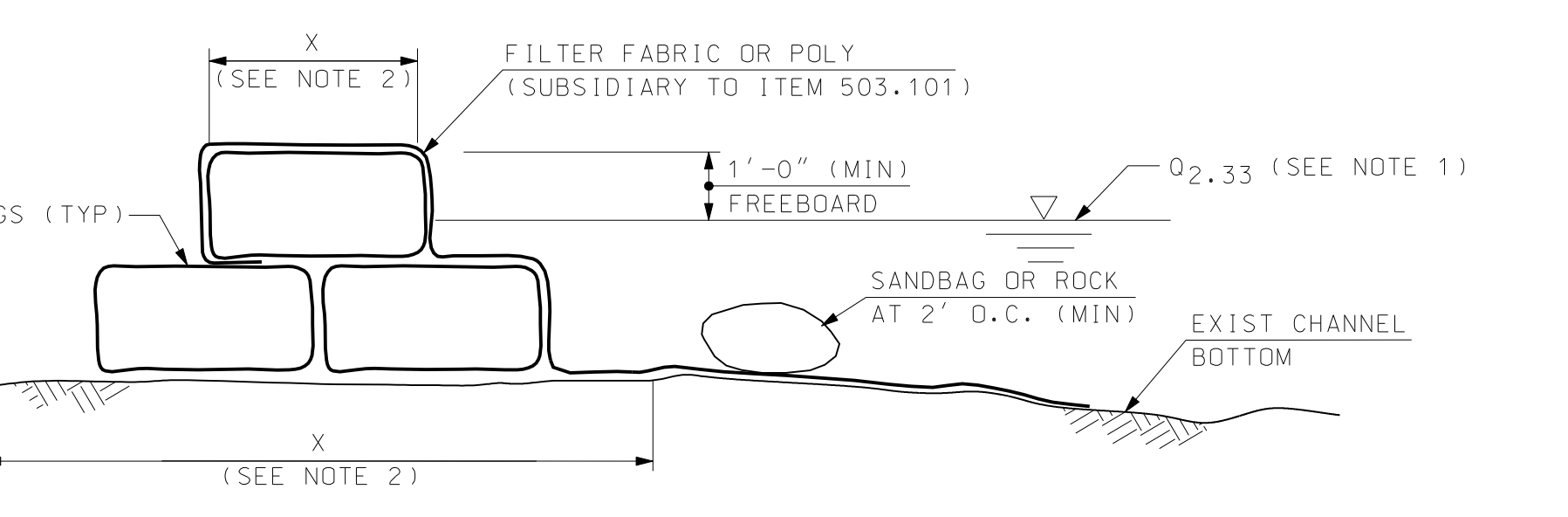
SITE PLAN

SCALE: 1" = 10'-0"
 1 0 1 2 3 4



STONE FILL AND STREAMBED RESTORATION DETAIL

SCALE: 3/8" = 1'-0"
 1 0 1 2 3 4



CONCEPTUAL SANDBAG WATER DIVERSION STRUCTURE (HIGH FLOW)

SCALE: 1" = 1'-0"
 1 9 6 3 0 1 2

NOTES

- (1) ALL COFFERDAMS AND WATER DIVERSION STRUCTURES SHALL BE DESIGNED FOR MEAN ANNUAL FLOOD FLOWS (Q_{2.33}), THIS CORRESPONDS TO A FLOW OF 400 CFS.
- (2) THE ABOVE DETAIL IS CONCEPTUAL IN NATURE FOR PERMITTING PURPOSES ONLY. THE SANDBAG SIZE NUMBER AND ORIENTATION SHALL BE DETERMINED BY THE SWPPP PREPAPER AND SUBMITTED FOR REVIEW AND APPROVAL.
- (3) THE COMPOSITION OF THE EXISTING BEDDING MATERIAL IS UNKNOWN. FOR BIDDING PURPOSES THE CONTRACTOR SHALL ASSUME THE FOLLOWING WITHIN THE FOOTPRINT OF THE EXISTING CULVERTS: REMOVE 2' MINIMUM OF EXISTING BEDDING MATERIAL WITHIN THE FOOTPRINT OF THE EXISTING CULVERTS ONLY. INSTALL ITEM 585.21 STONE FILL CLASS B AND ITEM 304.21 GRAVEL (STREAMBED). THE CLASS B STONE SHALL BE RANDOMLY PLACED TO COMPRISE APPROXIMATELY HALF OF THE TOTAL AREA TO REPLICATE UPSTREAM AND DOWNSTREAM CONDITIONS AND INFILLED WITH GRAVEL. SHOULD THE ENGINEER DETERMINE THAT THE EXISTING BEDDING MATERIAL IS SUITABLE FOR THE STREAMBED, IT MAY REMAIN IN PLACE TO THE LIMITS IDENTIFIED IN THE FIELD AND SUPPLEMENTED WITH STONE FILL CLASS B EMBEDDED IN THE STREAMBED MATERIAL AS REQUESTED BY THE ENGINEER.

SUGGESTED CONSTRUCTION SEQUENCE NOTES

- PHASE 1**
- (1) INSTALL DOUBLE TURBIDITY CURTAIN DOWNSTREAM OF THE EXISTING BRIDGE. SEE GENERAL WETLAND IMPACT NOTES 5 THROUGH 9 FOR TURBIDITY CURTAIN REQUIREMENTS AND BASIS OF PAYMENT.
 - (2) REMOVE ALL EXISTING ROADWAY MATERIALS AND SOIL TO THE TOP OF THE EXISTING CORRUGATED METAL PIPE ARCHES. REMOVE PORTIONS OF THE STONE HEADWALL AS NECESSARY TO INSTALL PHASE 2 COFFERDAM. SEE EXISTING BRIDGE REMOVAL NOTES 1 AND 2 ON SHEET 2 FOR METHOD OF PAYMENT.
 - (3) INSTALL TEMPORARY WATER LINE (SEE SHEET 27).
- PHASE 2**
- (1) INSTALL THE PHASE 2 COFFERDAM BETWEEN THE EXISTING CORRUGATED METAL PIPE ARCHES TO PROVIDE A MINIMUM OF 16'-0" CLEAR BETWEEN COFFERDAMS LINES. ABUTMENT A AND ABUTMENT B COFFERDAMS ARE PAID UNDER ITEM 503.201 AND ITEM 503.202 RESPECTIVELY.
 - (2) INSTALL THE PHASE 2 WATER DIVERSION STRUCTURES (ITEM 503.101) TO DIRECT FLOW INTO THE EXTERIOR CORRUGATED METAL PIPE ARCHES.
 - (3) REMOVE THE CENTER CORRUGATED METAL PIPE ARCH, REMAINING PORTIONS OF THE STONE HEADWALL BETWEEN THE COFFERDAMS AND EXCAVATE EXISTING MATERIAL TO THE LIMITS OF THE PROPOSED CHANNEL.
 - (4) REMOVE THE WATER DIVERSION STRUCTURES INSTALLED IN PHASE 2.
- PHASE 3**
- (1) INSTALL PHASE 2 WATER DIVERSION STRUCTURES (ITEM 503.101) TO DIRECT FLOW BETWEEN THE PHASE 2 COFFERDAM LINES.
 - (2) INSTALL THE REMAINING SIDES OF THE CLOSED CELL COFFERDAM AT ABUTMENT B (ITEM 503.202) AND THE PORTION OF THE COFFERDAM TO BE LEFT IN PLACE AT ABUTMENT A (ITEM 503.301).
 - (3) REMOVE THE TWO EXTERIOR CORRUGATED METAL PIPE ARCHES, REMAINING PORTIONS OF THE STONE HEADWALL AND EXCAVATE EXISTING MATERIAL TO THE LIMITS OF THE PROPOSED CHANNEL.
 - (4) REMOVE THE WATER DIVERSION STRUCTURES INSTALLED IN PHASE 3.
- PHASE 4**
- (1) CONSTRUCT THE PROPOSED ABUTMENTS AND WINGWALLS AND COMPLETE INSTALLATION OF STONE FILL IN THE CHANNEL OF BEAVER BROOK AS INDICATED ON THE PLANS.
 - (2) REMOVE PHASE 2 COFFERDAMS AS WELL AS ABUTMENT B COFFERDAMS.

1. I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.

HOYLE, TANNER & ASSOCIATES, INC.
 SIGNED: [Signature]
 MARCH 2016

NOTE: WORDING CONTAINED HEREIN IS UNDERSTOOD TO BE PAST TENSE.

REV.	DATE	DESCRIPTION
1	3/2016	RECORD COPY REVISIONS

DRW. CHD. BY: TAG
 BY: JCR

DESIGN BY: WLD
 DRAWN BY: JBM
 CHKD. BY: STJ
 SCALE: AS SHOWN

Hoyle, Tanner & Associates, Inc.
 150 Dow Street, Manchester, NH 03101-1227
 Tel (603) 669-5555 • Fax (603) 669-4168
 Webpage: www.hoyletanner.com

TOWN OF AMHERST
 AMHERST, NEW HAMPSHIRE
 MANCHESTER ROAD OVER BEAVER BROOK

SITE PLAN

PROJECT NO.: 919101
 FILE NAME: AB919101SITE
 MODEL NAME: 919101SITEPLAN

SHEET NO.
19
 SHEET 19 OF 40

3/24/2016 10:39:47 AM K:\919101\Lead\as-built\AB919101SITE.dgn

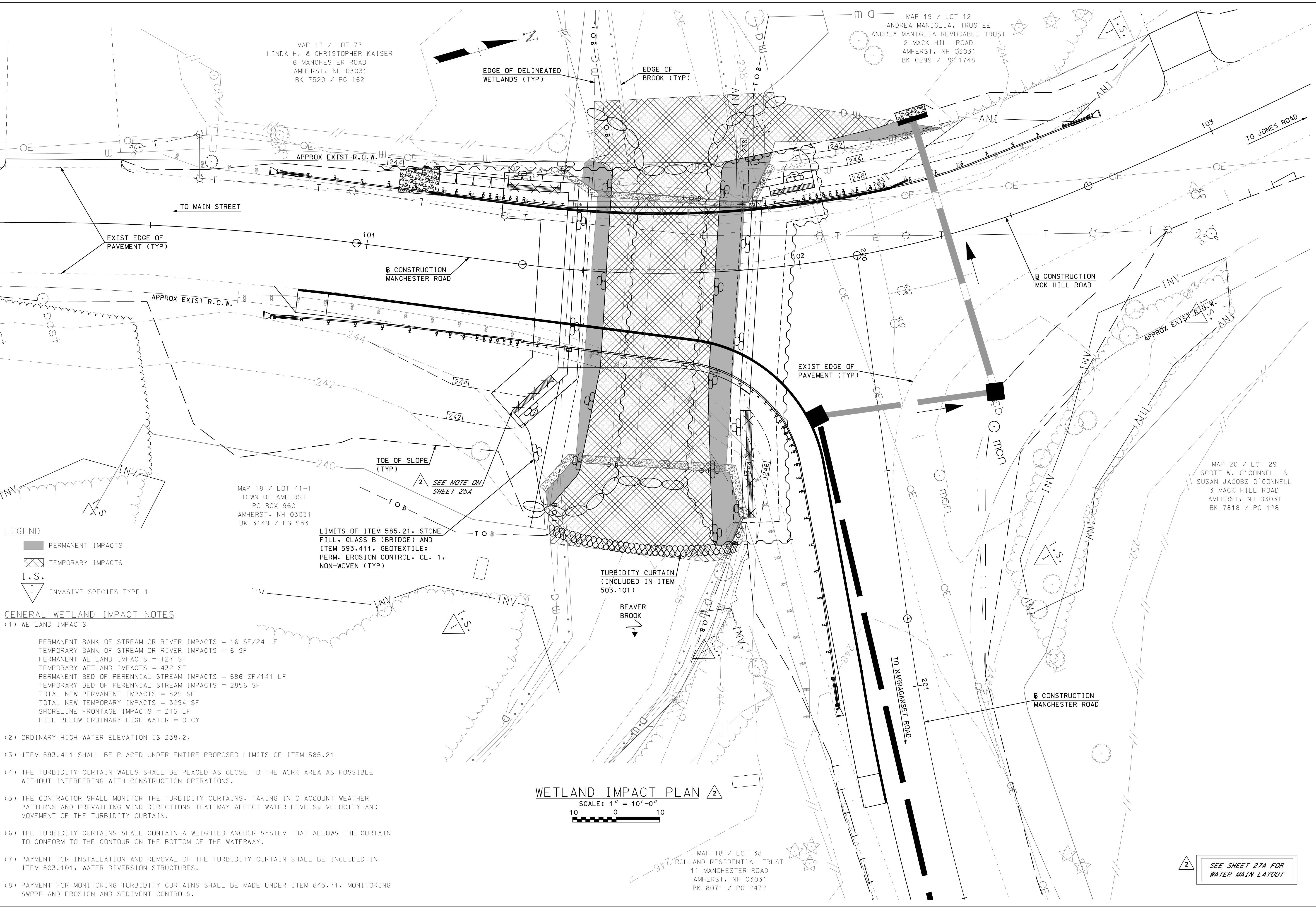
MAP 17 / LOT 77
LINDA H. & CHRISTOPHER KAISER
6 MANCHESTER ROAD
AMHERST, NH 03031
BK 7520 / PG 162

MAP 19 / LOT 12
ANDREA MANIGLIA, TRUSTEE
ANDREA MANIGLIA REVOCABLE TRUST
2 MACK HILL ROAD
AMHERST, NH 03031
BK 6299 / PG 1748

MAP 18 / LOT 41-1
TOWN OF AMHERST
PO BOX 960
AMHERST, NH 03031
BK 3149 / PG 953

MAP 20 / LOT 29
SCOTT W. O'CONNELL &
SUSAN JACOBS O'CONNELL
3 MACK HILL ROAD
AMHERST, NH 03031
BK 7818 / PG 128

MAP 18 / LOT 38
ROLLAND RESIDENTIAL TRUST
11 MANCHESTER ROAD
AMHERST, NH 03031
BK 8071 / PG 2472



LEGEND
 ■ PERMANENT IMPACTS
 ▨ TEMPORARY IMPACTS
 I.S.
 ▽ INVASIVE SPECIES TYPE 1

GENERAL WETLAND IMPACT NOTES

- (1) WETLAND IMPACTS
 - PERMANENT BANK OF STREAM OR RIVER IMPACTS = 16 SF/24 LF
 - TEMPORARY BANK OF STREAM OR RIVER IMPACTS = 6 SF
 - PERMANENT WETLAND IMPACTS = 127 SF
 - TEMPORARY WETLAND IMPACTS = 432 SF
 - PERMANENT BED OF PERENNIAL STREAM IMPACTS = 686 SF/141 LF
 - TEMPORARY BED OF PERENNIAL STREAM IMPACTS = 2856 SF
 - TOTAL NEW PERMANENT IMPACTS = 829 SF
 - TOTAL NEW TEMPORARY IMPACTS = 3294 SF
 - SHORELINE FRONTAGE IMPACTS = 215 LF
 - FILL BELOW ORDINARY HIGH WATER = 0 CY
- (2) ORDINARY HIGH WATER ELEVATION IS 238.2.
- (3) ITEM 593.411 SHALL BE PLACED UNDER ENTIRE PROPOSED LIMITS OF ITEM 585.21
- (4) THE TURBIDITY CURTAIN WALLS SHALL BE PLACED AS CLOSE TO THE WORK AREA AS POSSIBLE WITHOUT INTERFERING WITH CONSTRUCTION OPERATIONS.
- (5) THE CONTRACTOR SHALL MONITOR THE TURBIDITY CURTAINS, TAKING INTO ACCOUNT WEATHER PATTERNS AND PREVAILING WIND DIRECTIONS THAT MAY AFFECT WATER LEVELS, VELOCITY AND MOVEMENT OF THE TURBIDITY CURTAIN.
- (6) THE TURBIDITY CURTAINS SHALL CONTAIN A WEIGHTED ANCHOR SYSTEM THAT ALLOWS THE CURTAIN TO CONFORM TO THE CONTOUR ON THE BOTTOM OF THE WATERWAY.
- (7) PAYMENT FOR INSTALLATION AND REMOVAL OF THE TURBIDITY CURTAIN SHALL BE INCLUDED IN ITEM 503.101, WATER DIVERSION STRUCTURES.
- (8) PAYMENT FOR MONITORING TURBIDITY CURTAINS SHALL BE MADE UNDER ITEM 645.71, MONITORING SWPPP AND EROSION AND SEDIMENT CONTROLS.

LIMITS OF ITEM 585.21, STONE FILL, CLASS B (BRIDGE) AND ITEM 593.411, GEOTEXTILE; PERM. EROSION CONTROL, CL. 1, NON-WOVEN (TYP)

TURBIDITY CURTAIN (INCLUDED IN ITEM 503.101)
BEAVER BROOK

WETLAND IMPACT PLAN

SCALE: 1" = 10'-0"
 10 0 10

2 SEE SHEET 27A FOR WATER MAIN LAYOUT

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.
 HOYLE, TANNER & ASSOCIATES, INC.
 SIGNED: [Signature]
 MARCH 2016
 NOTE: WORDING CONTAINED HEREIN IS UNDERSTOOD TO BE PAST TENSE.

REV.	DATE	DESCRIPTION	DRW. CHKD. BY	TAG	DATE
1	JUNE 2014	RECORD COPY REVISIONS	WLD	JCR	3/2016
	DESIGN BY:		JBM		
	DRAWN BY:		STJ		
	CHKD. BY:		AS SHOWN		
	SCALE:				

Hoyle, Tanner & Associates, Inc.
 © Copyright 2014 Hoyle, Tanner & Associates, Inc.
 150 Dow Street, Manchester, NH 03101-1227
 Tel (603) 669-5555 • Fax (603) 669-4168
 Webpage: www.hoyletanner.com

TOWN OF AMHERST AMHERST, NEW HAMPSHIRE MANCHESTER ROAD OVER BEAVER BROOK	PROJECT NO.: 919101
WETLAND IMPACT PLAN	FILE NAME: AB919101WET
	MODEL NAME: 919102WET
	SHEET NO. 20
	SHEET 20 OF 40

3/24/2016 10:39:49 AM K:\1919101\Cadd\as-built\AB919101WET.dgn

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.

HOYLE, TANNER & ASSOCIATES, INC.
SIGNED: *[Signature]*
MARCH 2016

NOTE: WORDING CONTAINED HEREIN IS UNDERSTOOD TO BE PAST TENSE.

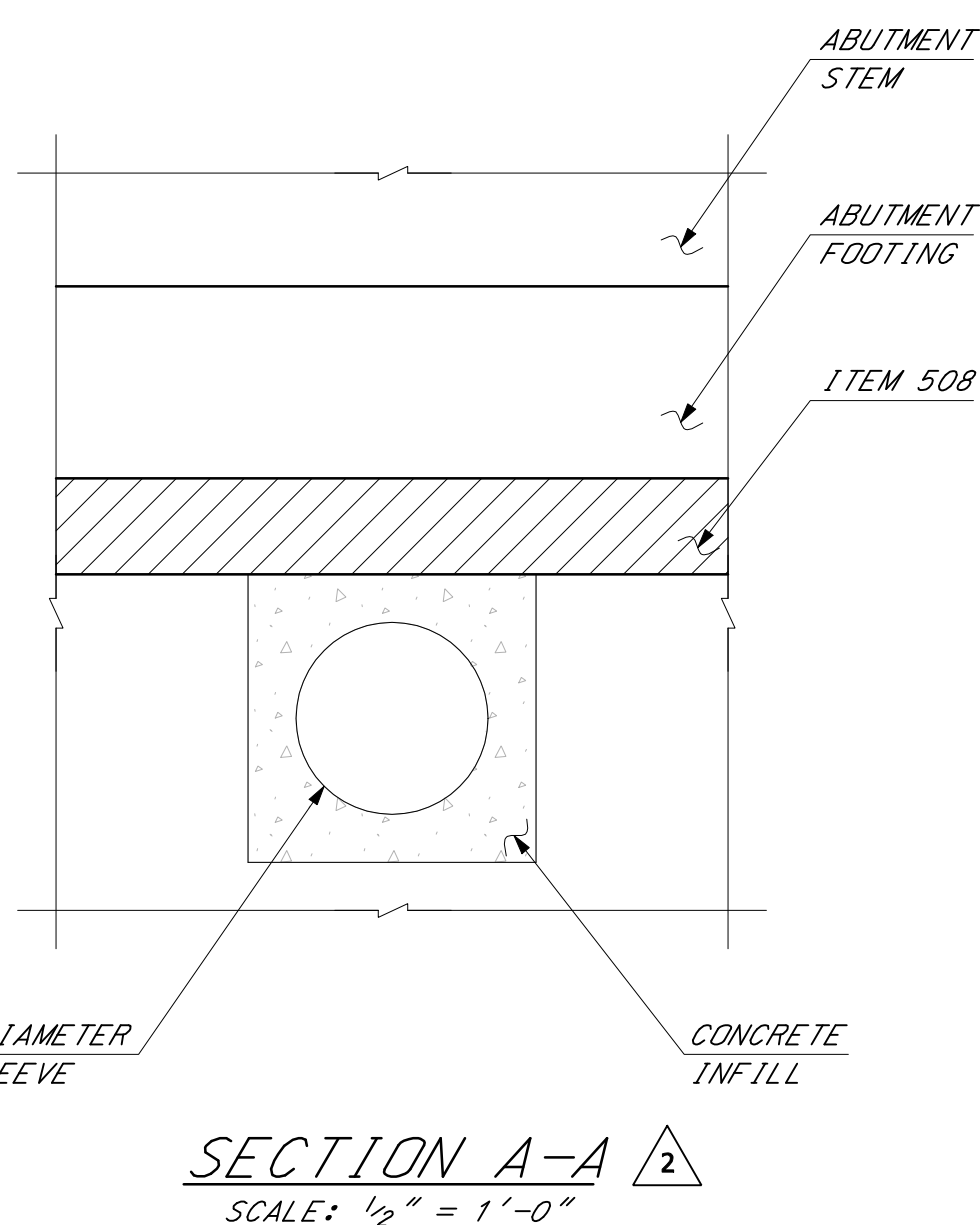
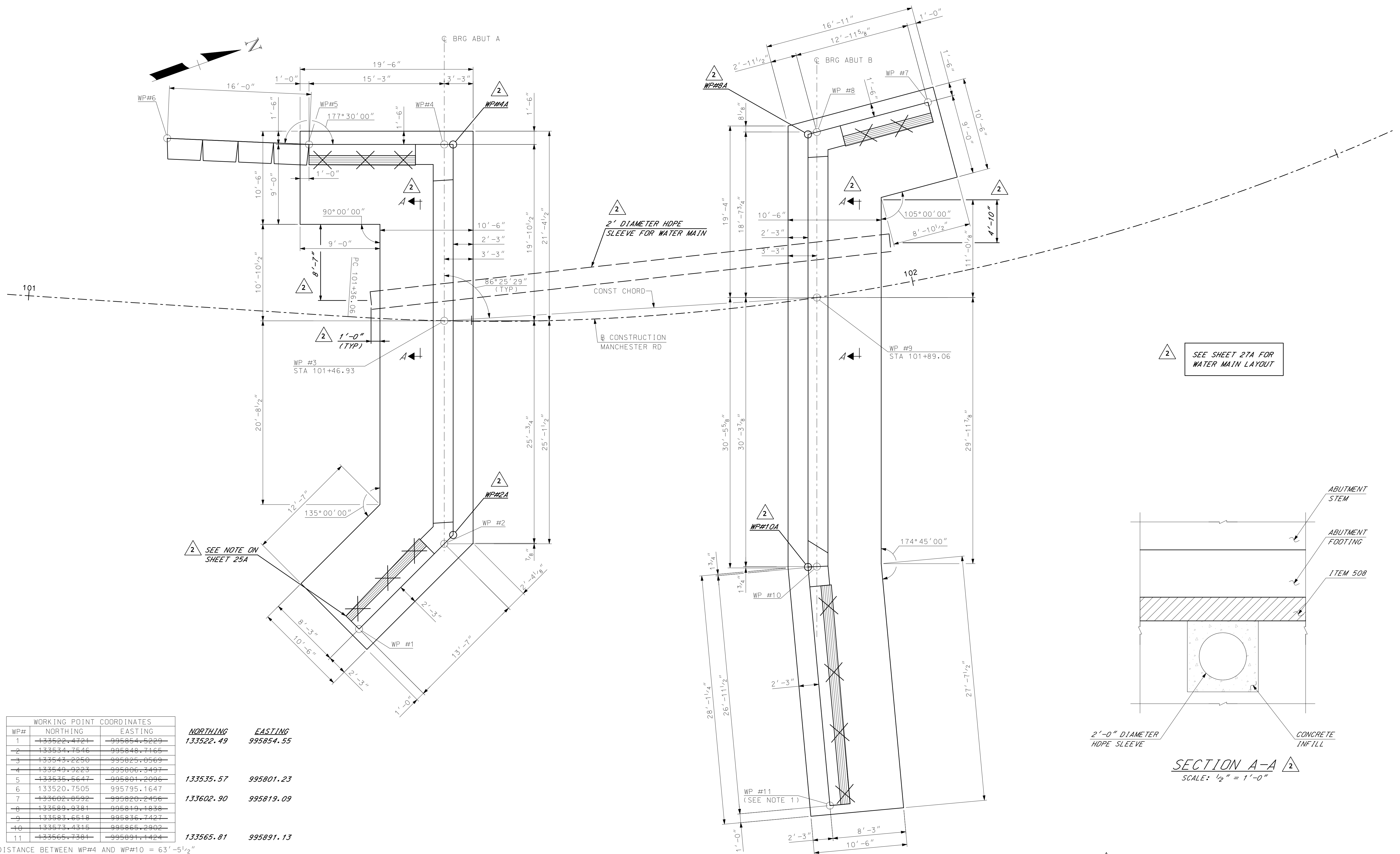
REV.	DESCRIPTION	DATE	DRW. CHD. BY	TAG	CHKD. BY	SCALE
1	RECORD COPY REVISIONS	3/7/2016	JCR			AS SHOWN
2						

DESIGN BY: WLD
DRAWN BY: JBM
CHKD. BY: STJ

Hoyle, Tanner & Associates, Inc.
150 Dow Street, Manchester, NH 03101-1227
Tel (603) 669-5555 • Fax (603) 669-4168
Webpage: www.hoyletanner.com

TOWN OF AMHERST
AMHERST, NEW HAMPSHIRE
MANCHESTER ROAD OVER BEAVER BROOK
FOOTING LAYOUT PLAN

PROJECT NO.: 919101
FILE NAME: AB919101Dtl6
MODEL NAME: 919101DTL6
SHEET NO.
21
SHEET 21 OF 40



NOTE
(1) FINAL LOCATION OF WP#11 TO BE DETERMINED IN THE FIELD DEPENDENT ON EXTENT OF THE EXISTING STONE MASONRY WALL.

FOOTING LAYOUT PLAN
SCALE: 3/16" = 1'-0"

WP#	NORTHING	EASTING	NORTHING	EASTING
1	133522.4724	995854.5229	133522.49	995854.55
2	133534.7546	995848.7165		
3	133543.2250	995825.8569		
4	133549.9223	995806.3497		
5	133535.5647	995801.2096	133535.57	995801.23
6	133520.7505	995795.1647		
7	133602.8592	995820.2456	133602.90	995819.09
8	133589.9381	995819.1838		
9	133583.6518	995836.7427		
10	133573.4315	995865.2902		
11	133565.7381	995891.1424	133565.81	995891.13

DISTANCE BETWEEN WP#4 AND WP#10 = 63'-5 1/2"
DISTANCE BETWEEN WP#2 AND WP#8 = 62'-7 1/8"

WP#	NORTHING	EASTING
2A	133536.02	995848.14
4A	133550.86	995806.70
8A	133588.94	995819.09
10A	133572.50	995864.95

3/24/2016 10:39:52 AM K:\919101\cad\as-built\AB919101Dtl6.dgn

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.

HOYLE, TANNER & ASSOCIATES, INC.
 SIGNED: *J. Rydy*
 MARCH 2016

NOTE: WORDING CONTAINED HEREIN IS UNDERSTOOD TO BE PAST TENSE.

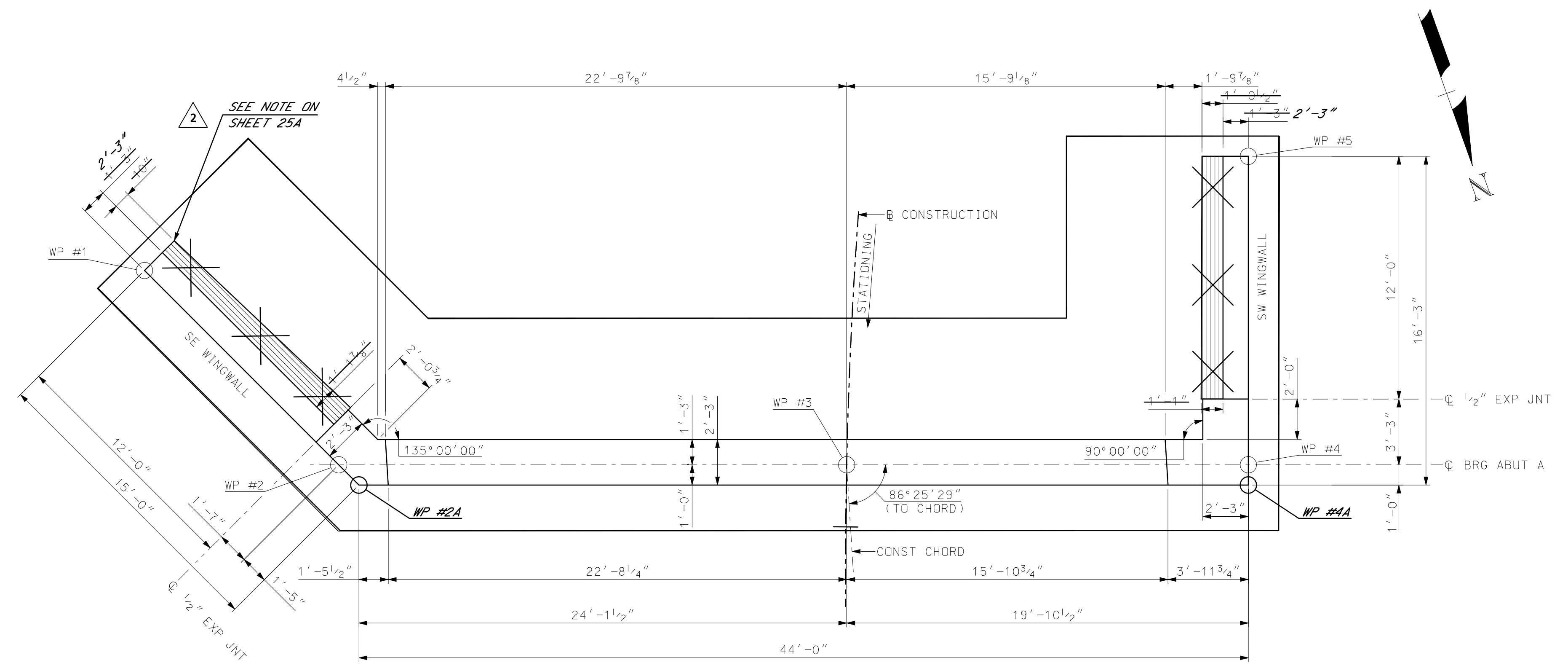
REV.	DESCRIPTION	DATE
1	RECORD COPY REVISIONS	3/2016

DESIGN BY:	WLD
DRAWN BY:	JBM
CHKD. BY:	STJ
SCALE:	AS SHOWN

Hoyle, Tanner & Associates, Inc.
 © Copyright 2014 Hoyle, Tanner & Associates, Inc.
 150 Dow Street, Manchester, NH 03101-1227
 Tel (603) 669-5555 · Fax (603) 669-4168
 Webpage: www.hoyletanner.com

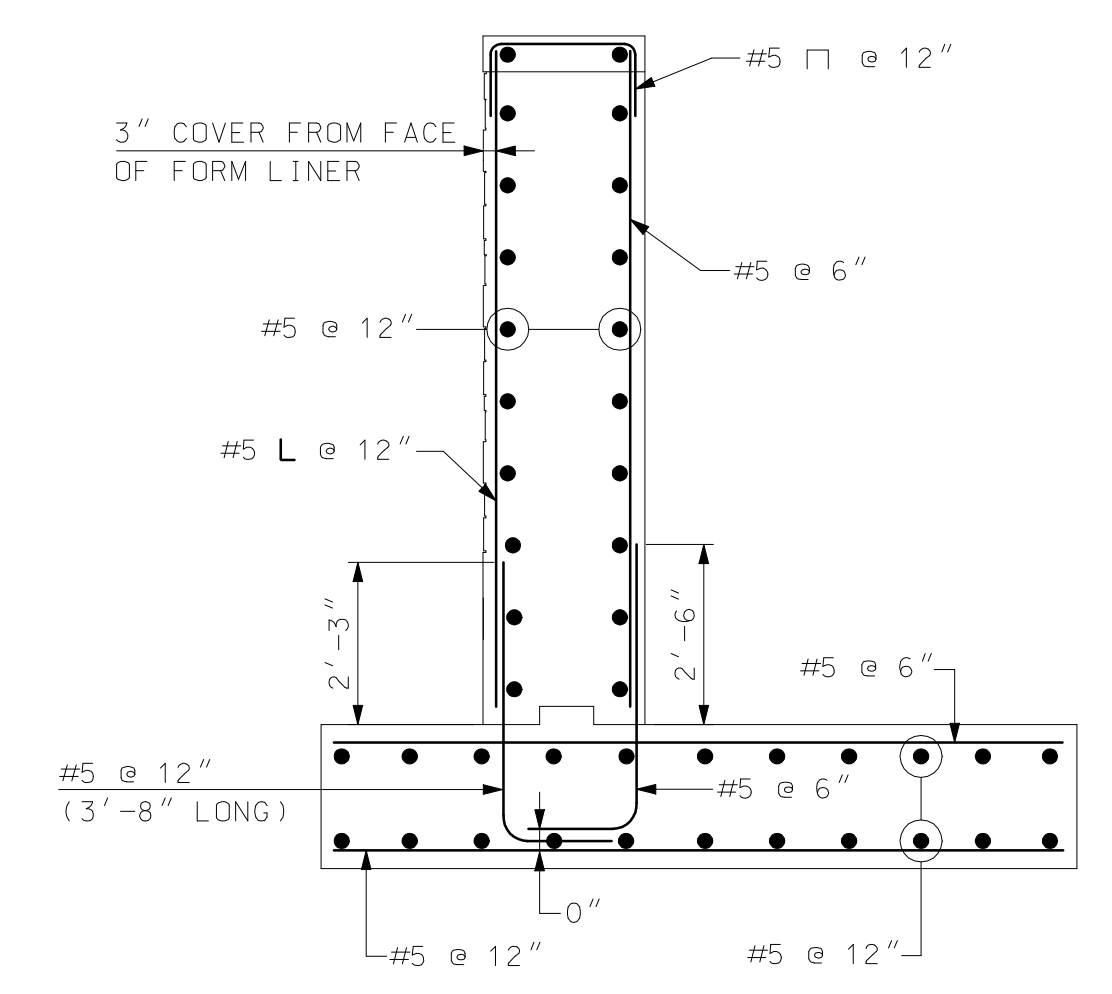
TOWN OF AMHERST
 AMHERST, NEW HAMPSHIRE
 MANCHESTER ROAD OVER BEAVER BROOK
 ABUTMENT A PLAN AND ELEVATION

PROJECT NO.: 919101
 FILE NAME: AB919101A-ABUT
 MODEL NAME: 919101A-ABUT
 SHEET NO.
22
 SHEET 22 OF 40

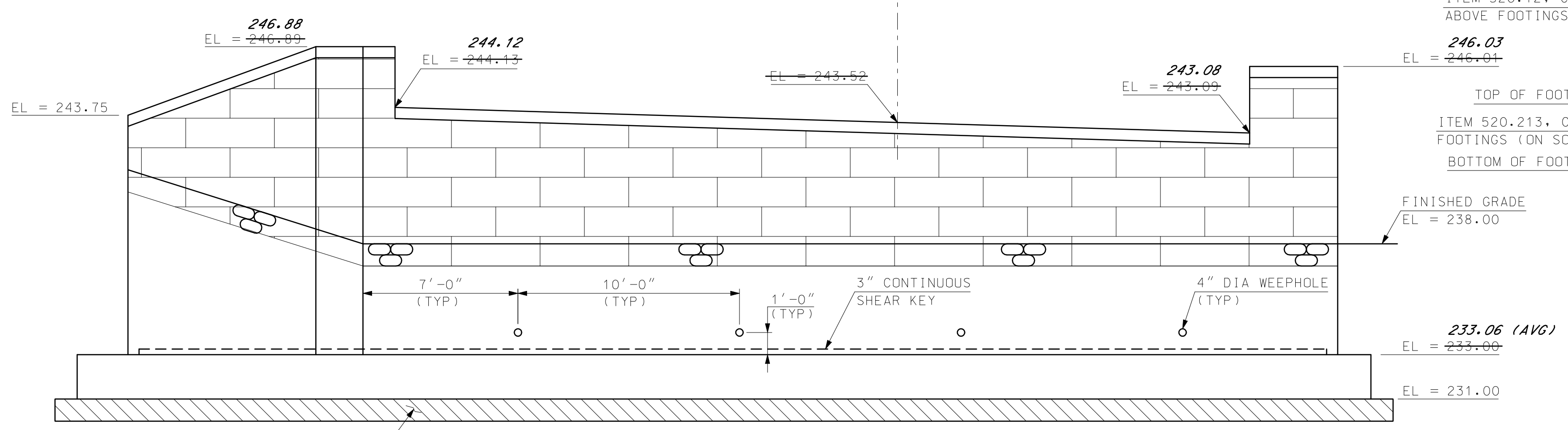


PLAN 2
 SCALE: 1/4" = 1'-0"

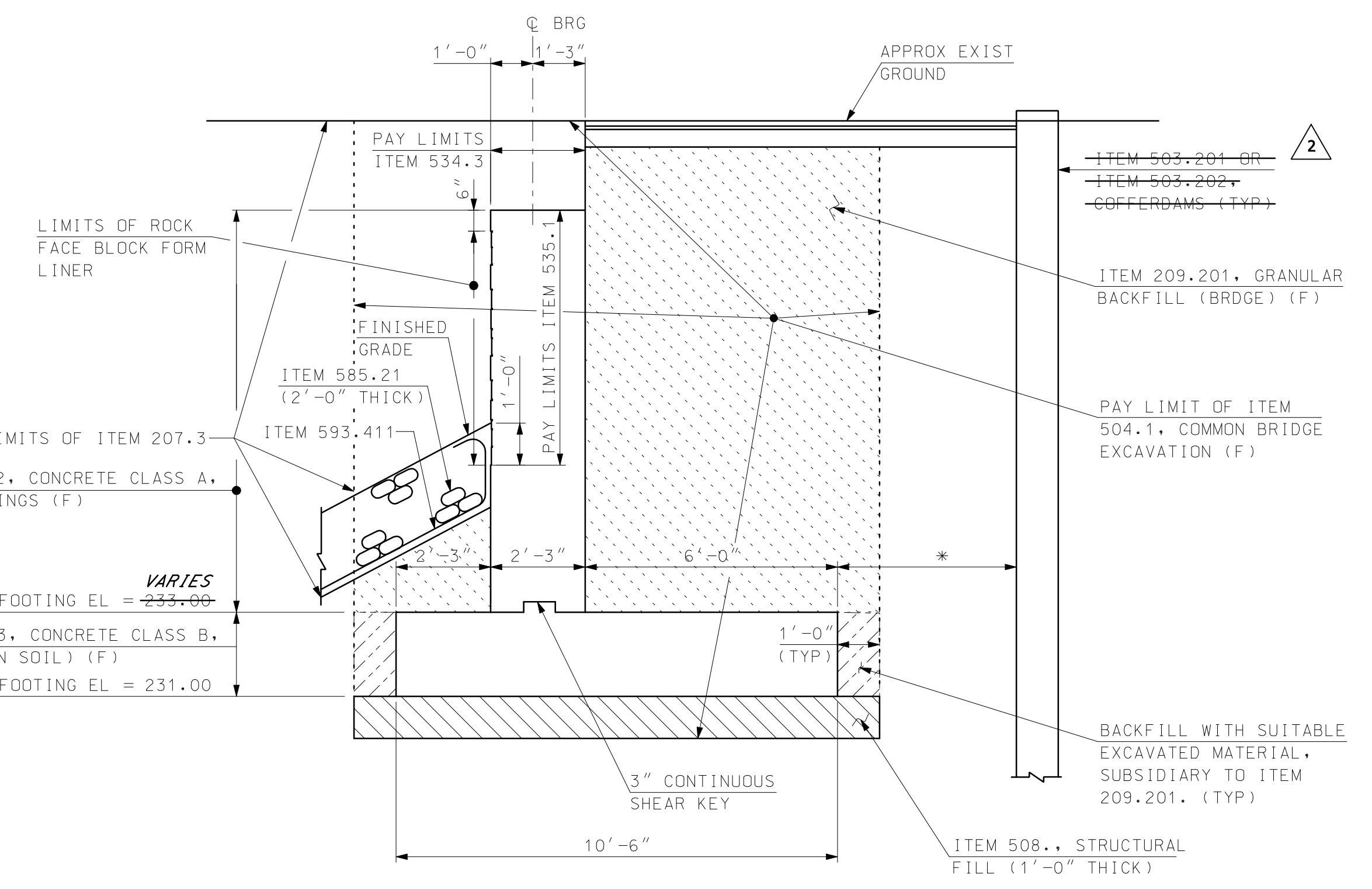
NOTE: MECHANICALLY STABILIZED EARTH RETAINING WALL NOT SHOWN FOR CLARITY.



TYPICAL ABUTMENT REINFORCEMENT 2
 SCALE: 3/8" = 1'-0"

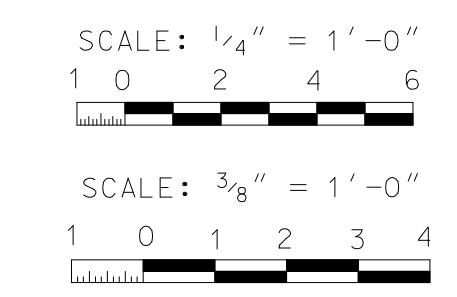


ELEVATION 2
 SCALE: 1/4" = 1'-0"

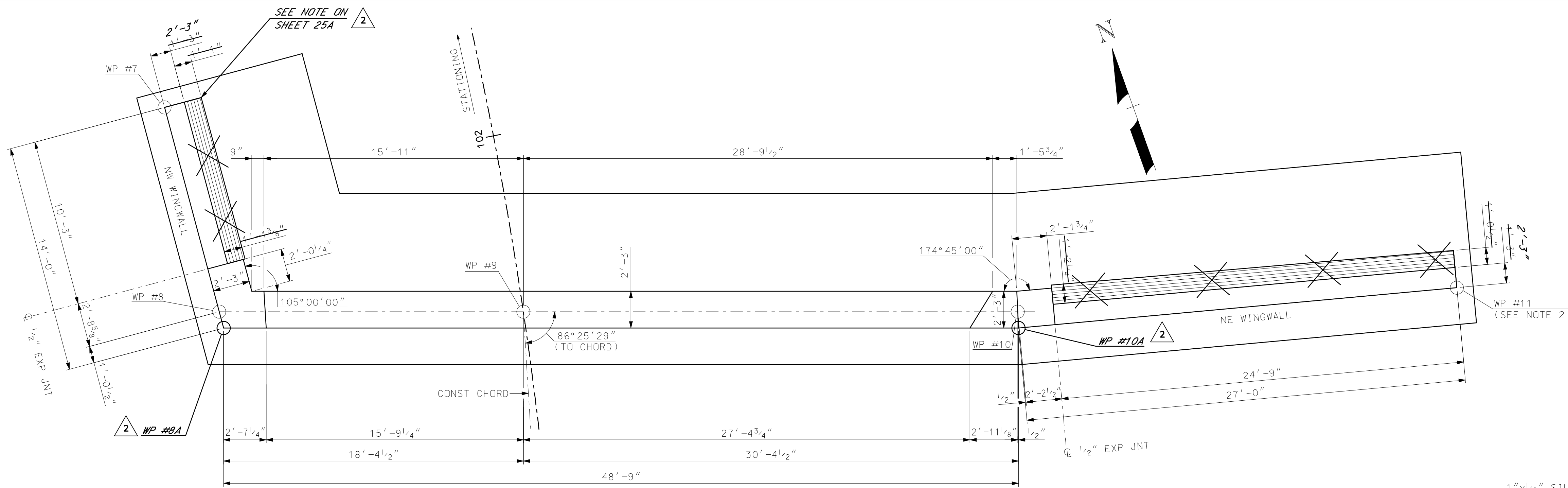


TYPICAL ABUTMENT SECTION 2
 SCALE: 3/8" = 1'-0"

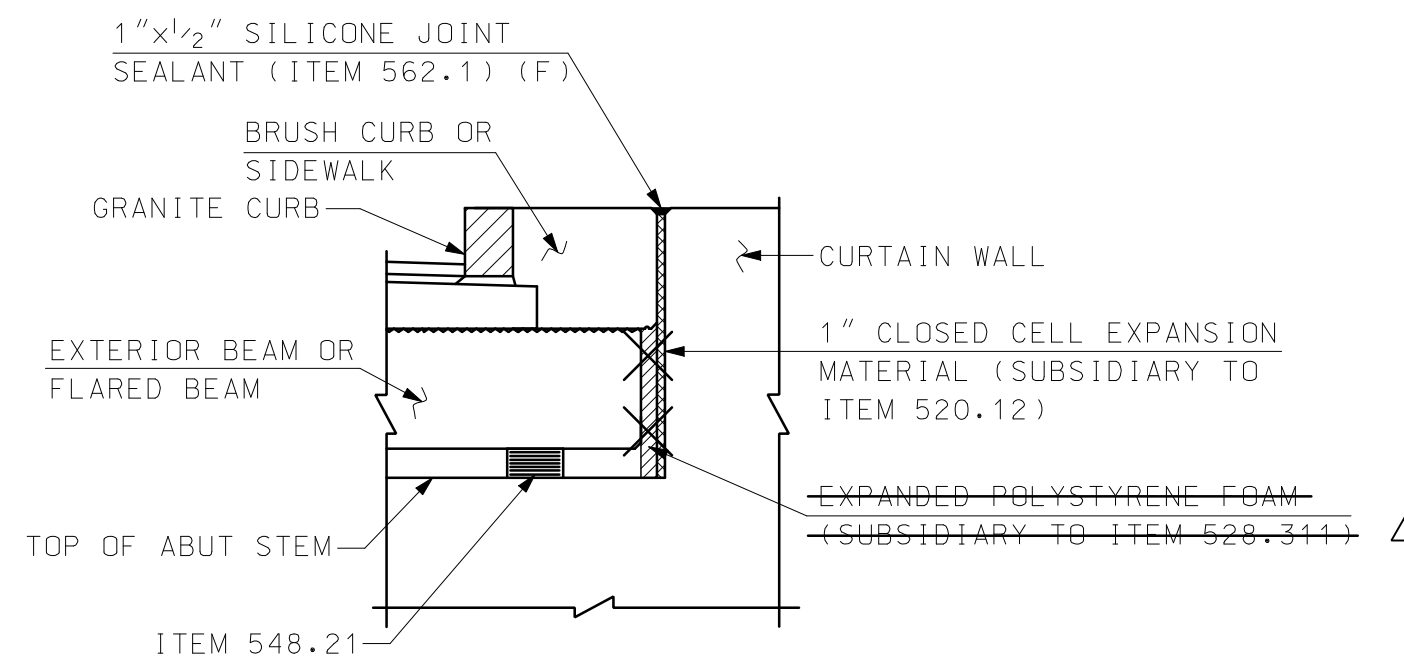
- NOTES**
- (1) ABUTMENT B SHOWN, ABUTMENT A SIMILAR.
 - (2) DIMENSION DENOTED * INDICATES LOCATION TO BE DETERMINED BY CONTRACTOR.
 - (3) SEE SITE PLAN FOR APPROXIMATE COFFERDAM AND WATER DIVERSION STRUCTURE LAYOUT.
 - (4) FORMLINER SHALL BE CUT AT EXPANSION JOINT SUCH THAT BLOCK APPEARANCE IS CONTINUOUS THROUGH JOINT.



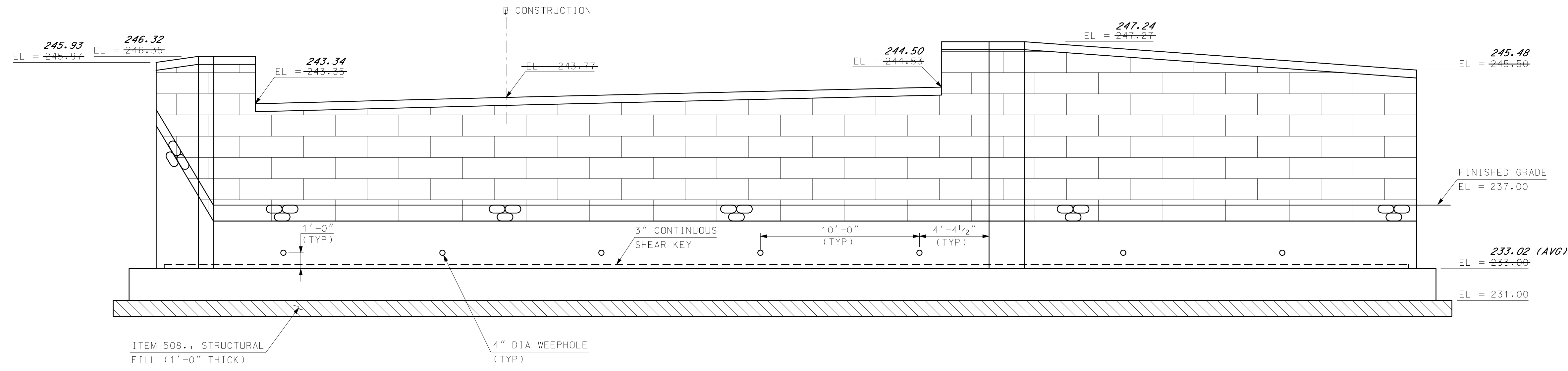
3/24/2016 10:39:53 AM K:\19101\Cadd\as-built\AB919101A-ABUT.dgn



PLAN 2
SCALE: 1/4" = 1'-0"

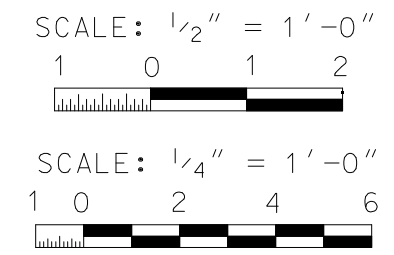


FASCIA DETAIL AT CURTAIN WALL 2
SCALE: 1/2" = 1'-0"



ELEVATION 2
SCALE: 1/4" = 1'-0"

- NOTES**
- (1) SEE ABUTMENT A PLAN AND ELEVATION SHEET FOR TYPICAL ABUTMENT SECTION.
 - (2) FINAL LOCATION OF WP #11 TO BE DETERMINED IN THE FIELD DEPENDENT ON EXTENT OF EXISTING STONE MASONRY WALL.
 - (3) FORMLINER SHALL BE CUT AT EXPANSION JOINT SUCH THAT BLOCK APPEARANCE IS CONTINUOUS THROUGH JOINT.



I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.

HOYLE, TANNER & ASSOCIATES, INC.
SIGNED: *[Signature]*
MARCH 2016

NOTE: WORDING CONTAINED HEREIN IS UNDERSTOOD TO BE PAST TENSE.

REV.	DESCRIPTION	DATE
1	RECORD COPY REVISIONS	3/2016

DRW. CHD. BY: JCR TAG: JCR

This document is prepared as an instrument of service and shall remain the property of Hoyle, Tanner, Inc. It may not be used, reproduced, disseminated or transferred in any manner, including electronically, for any other purpose than that project, without the written permission of Hoyle, Tanner.

REV.	DESIGN BY:	WLD	DATE
1	JBM		JUNE 2014

REV.	DRAWN BY:	CHKD. BY:	SCALE:
1	JBM	STJ	AS SHOWN

Hoyle, Tanner & Associates, Inc.
© Copyright 2014 Hoyle, Tanner & Associates, Inc.
150 Dow Street, Manchester, NH 03101-1227
Tel (603) 669-5555 • Fax (603) 669-4168
Webpage: www.hoyletanner.com

TOWN OF AMHERST
AMHERST, NEW HAMPSHIRE
MANCHESTER ROAD OVER BEAVER BROOK
ABUTMENT B PLAN AND ELEVATION

PROJECT NO.: 919101
FILE NAME: AB919101B-ABUT
MODEL NAME: 919101B-ABUT
SHEET NO.
23
SHEET 23 OF 40

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.

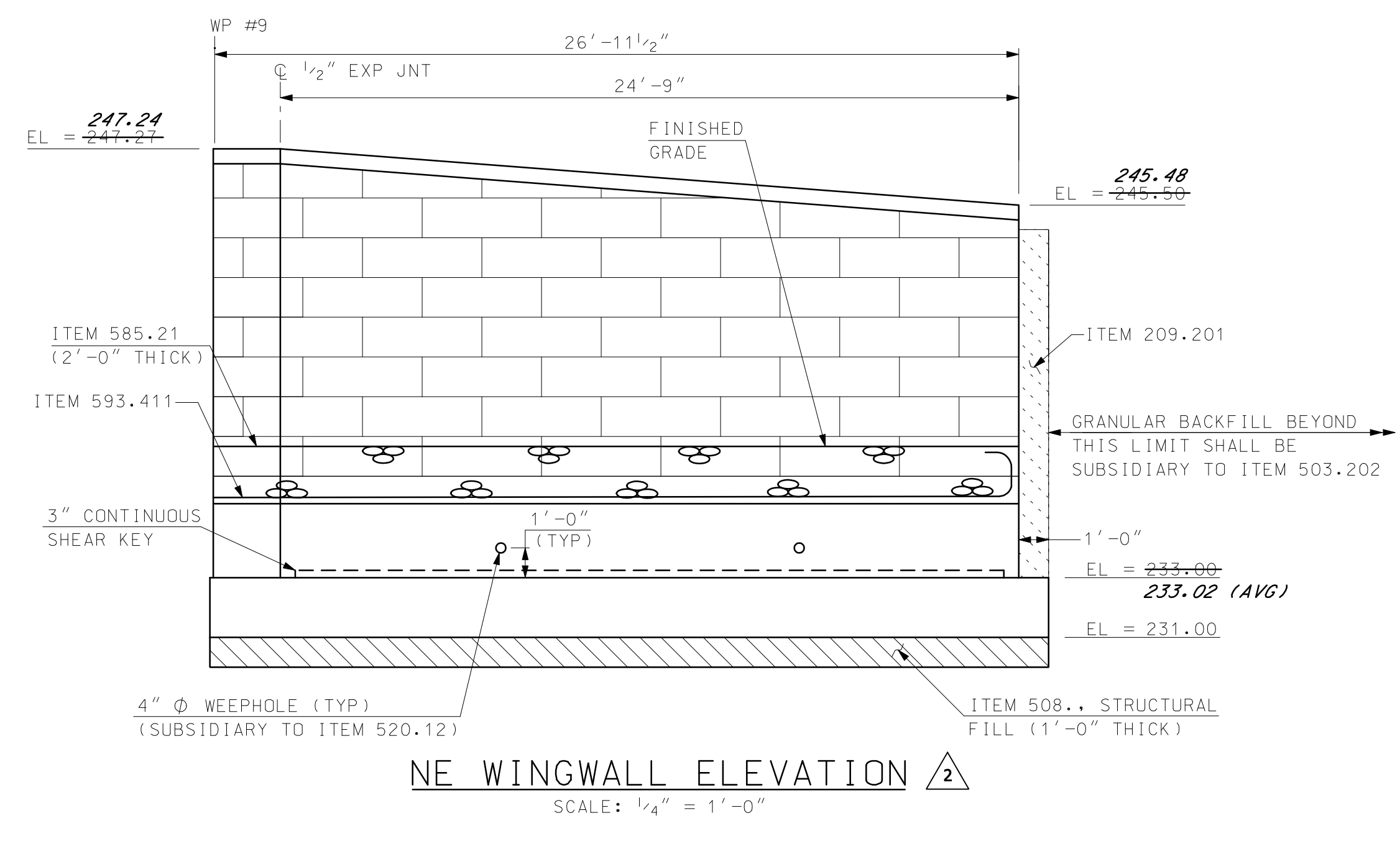
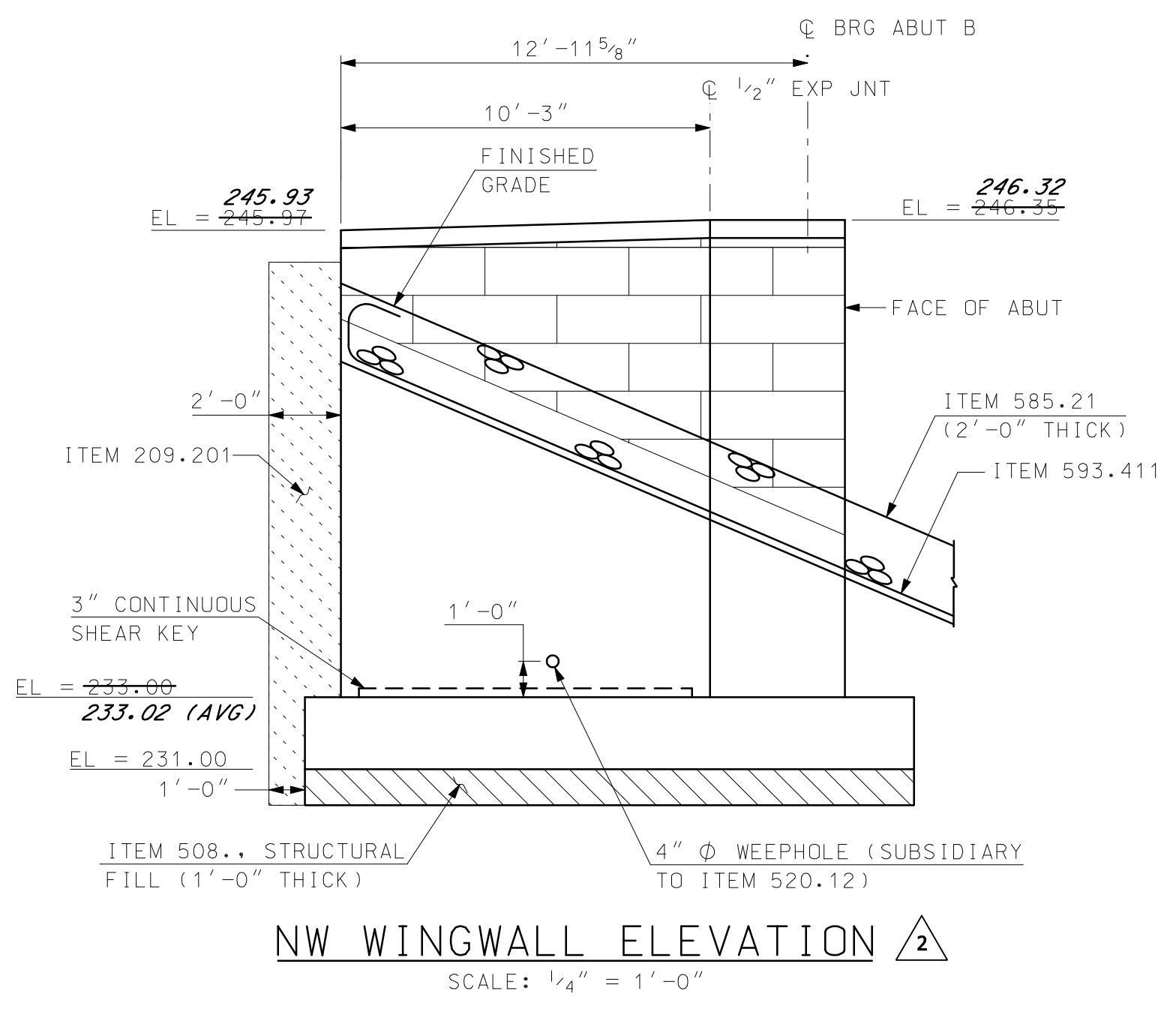
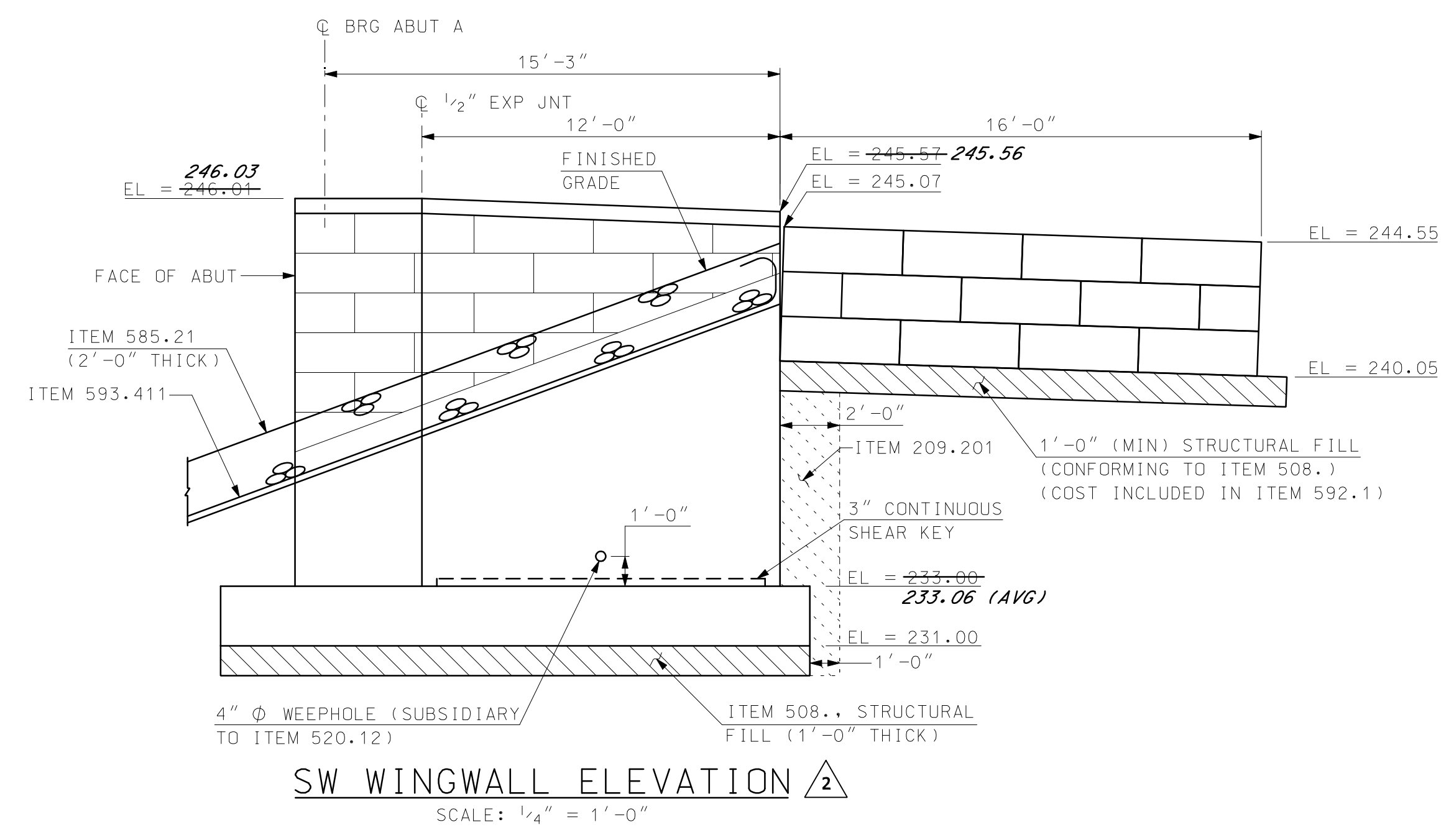
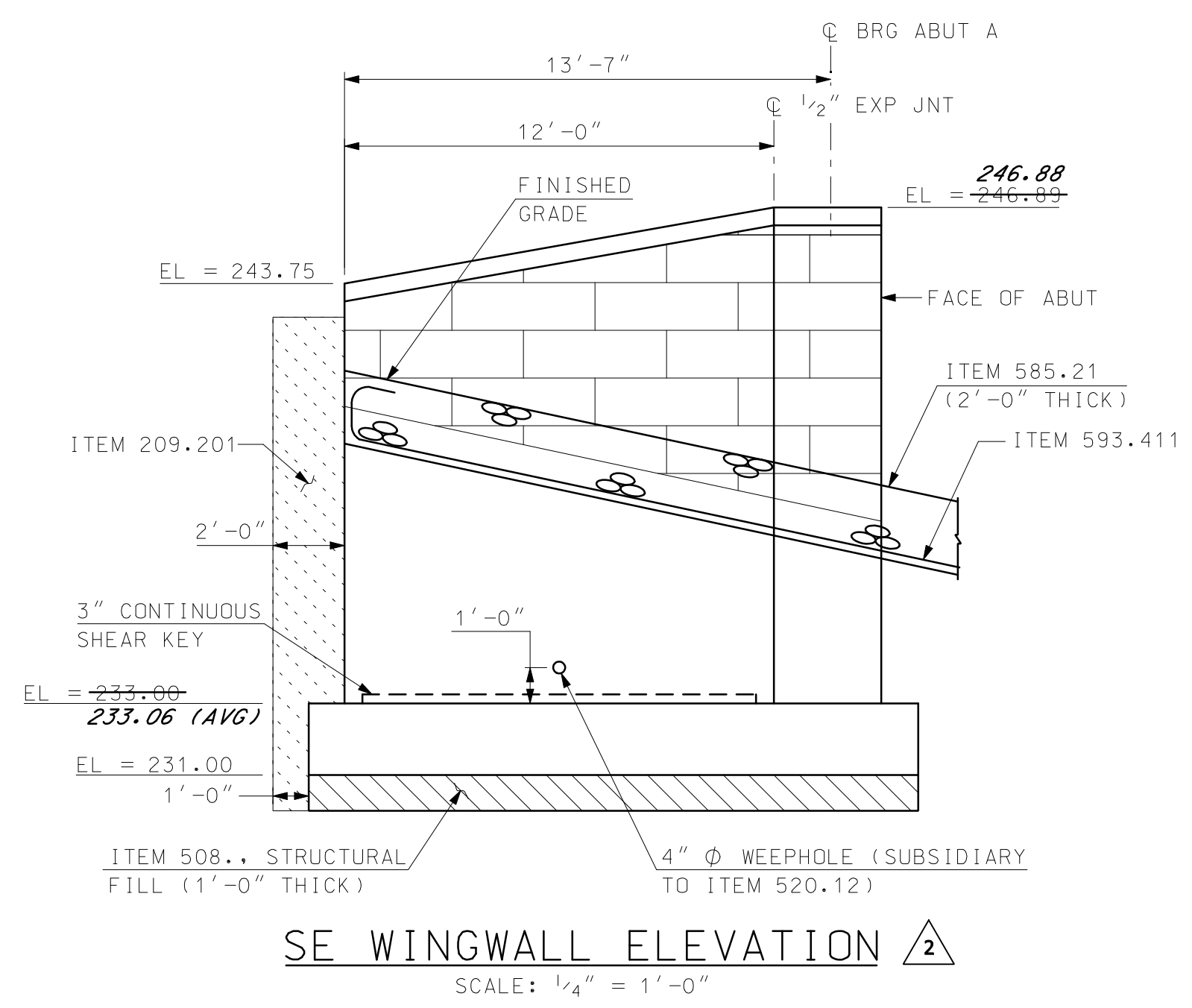
HOYLE, TANNER & ASSOCIATES, INC.
 SIGNED: *J. Taylor*
 MARCH 2016

NOTE: WORDING CONTAINED HEREIN IS UNDERSTOOD TO BE PAST TENSE.

REV.	DESCRIPTION	DATE	DRW. BY	CHKD. BY
1	RECORD COPY REVISIONS	3/2016	JCR	
2				
3				
4				
5				

DESIGN BY: WLD
 DRAWN BY: JBM
 CHKD. BY: STJ
 SCALE: AS SHOWN

This document is prepared as an instrument of service and shall remain the property of Hoyle, Tanner, Inc. It may not be used, reproduced, disseminated or transmitted in any manner, including electronically, for any other purpose than this project, without the written permission of Hoyle, Tanner, Inc.



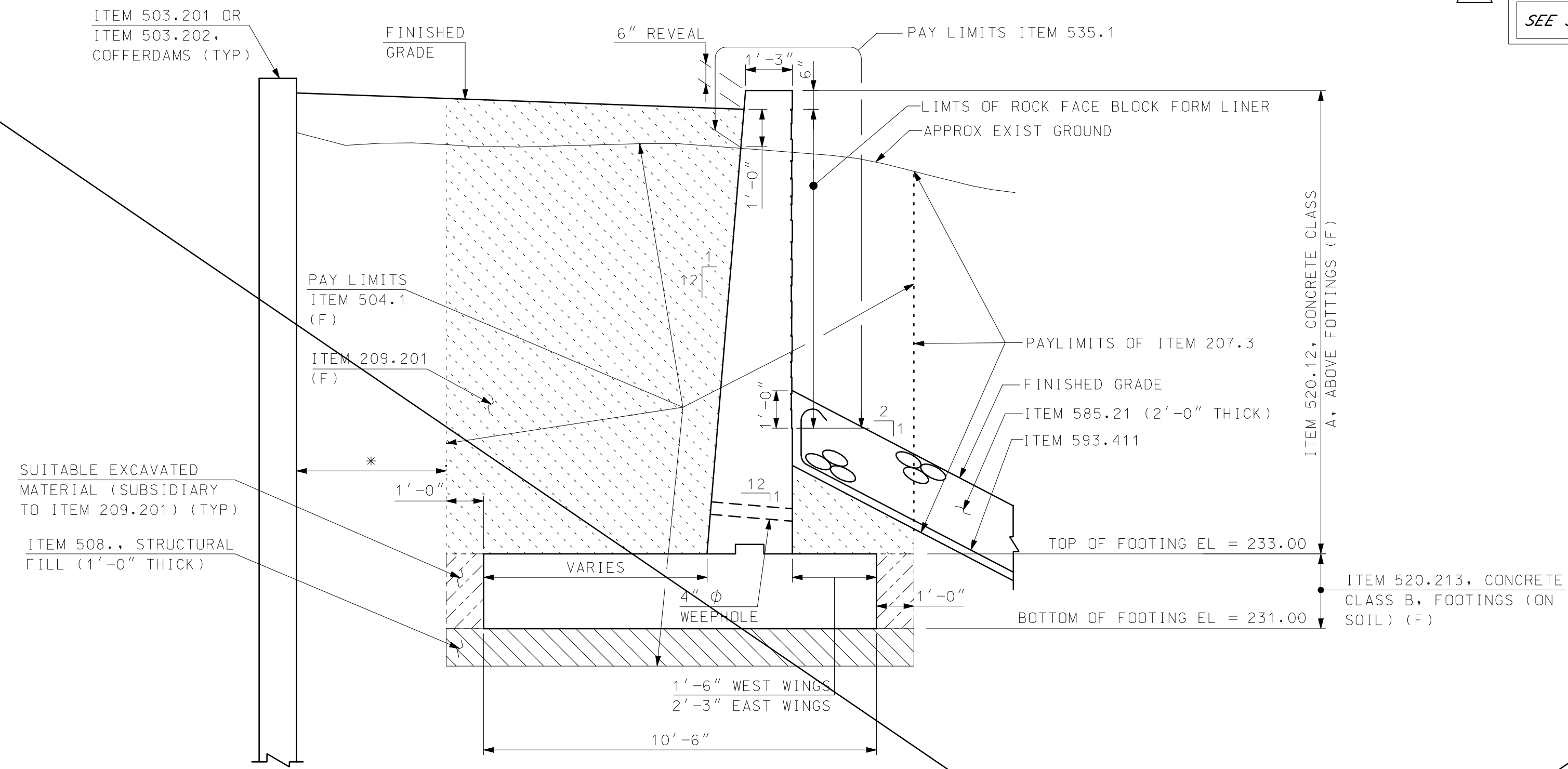
Hoyle, Tanner & Associates, Inc.
 © Copyright 2014 Hoyle, Tanner & Associates, Inc.
 150 Dow Street, Manchester, NH 03101-1227
 Tel (603) 669-5555 • Fax (603) 669-4168
 Webpage: www.hoyletanner.com

TOWN OF AMHERST
 AMHERST, NEW HAMPSHIRE
 MANCHESTER ROAD OVER BEAVER BROOK
 WINGWALL MASONRY

PROJECT NO.: 919101
 FILE NAME: AB919101Wing2
 MODEL NAME: 919102WINGS2

SHEET NO.
24
 SHEET 24 OF 40

3/24/2016 10:39:55 AM K:\919101\Cadd\as-built\AB919101Wing2.dgn

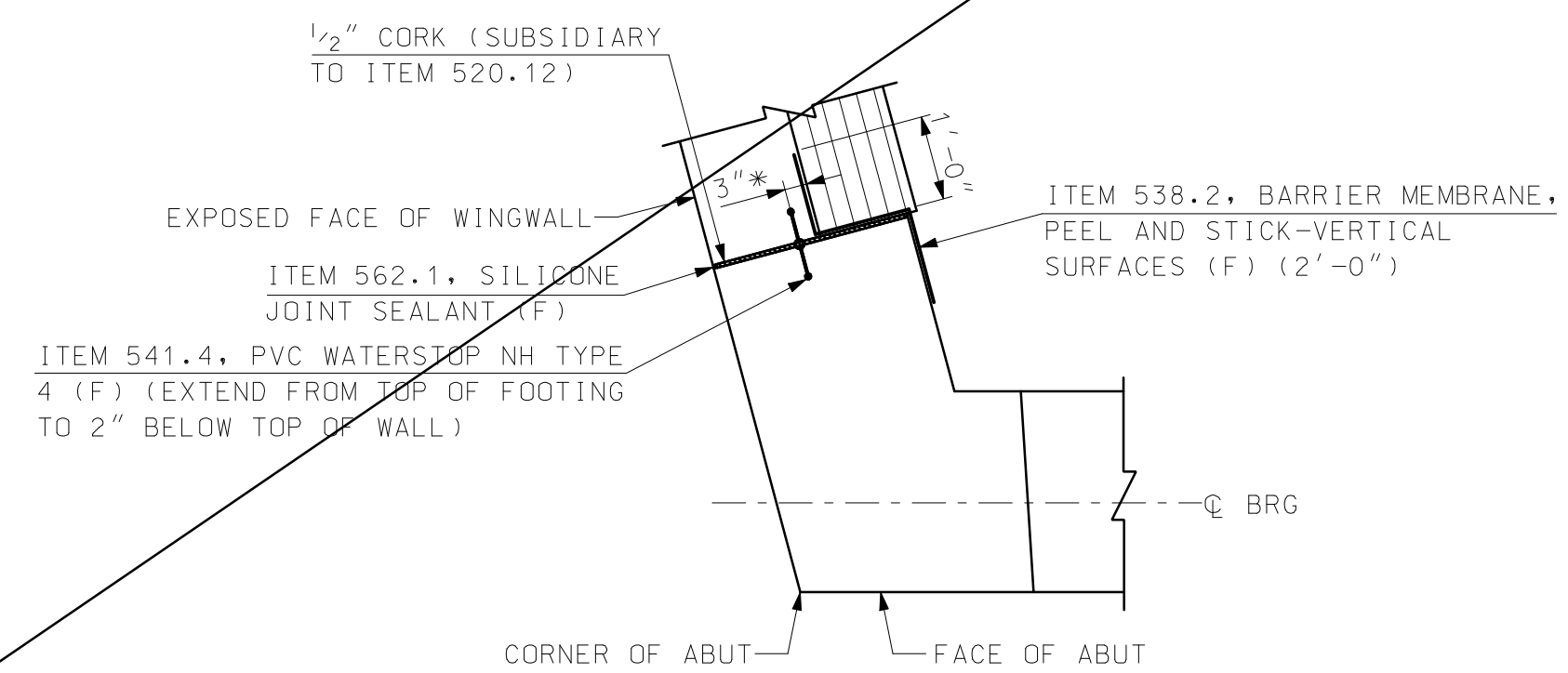


TYPICAL WINGWALL SECTION

SCALE: $\frac{3}{8}'' = 1'-0''$
 * SEE SITE PLAN FOR LOCATION.

NOTES

- (1) NORTHEAST WINGWALL SHOWN, OTHERS SIMILAR.
- (2) DIMENSION DENOTED * INDICATES LOCATION TO BE DETERMINED BY CONTRACTOR.
- (3) SEE SITE PLAN FOR APPROXIMATE COFFERDAM AND WATER DIVERSION STRUCTURE LAYOUT.

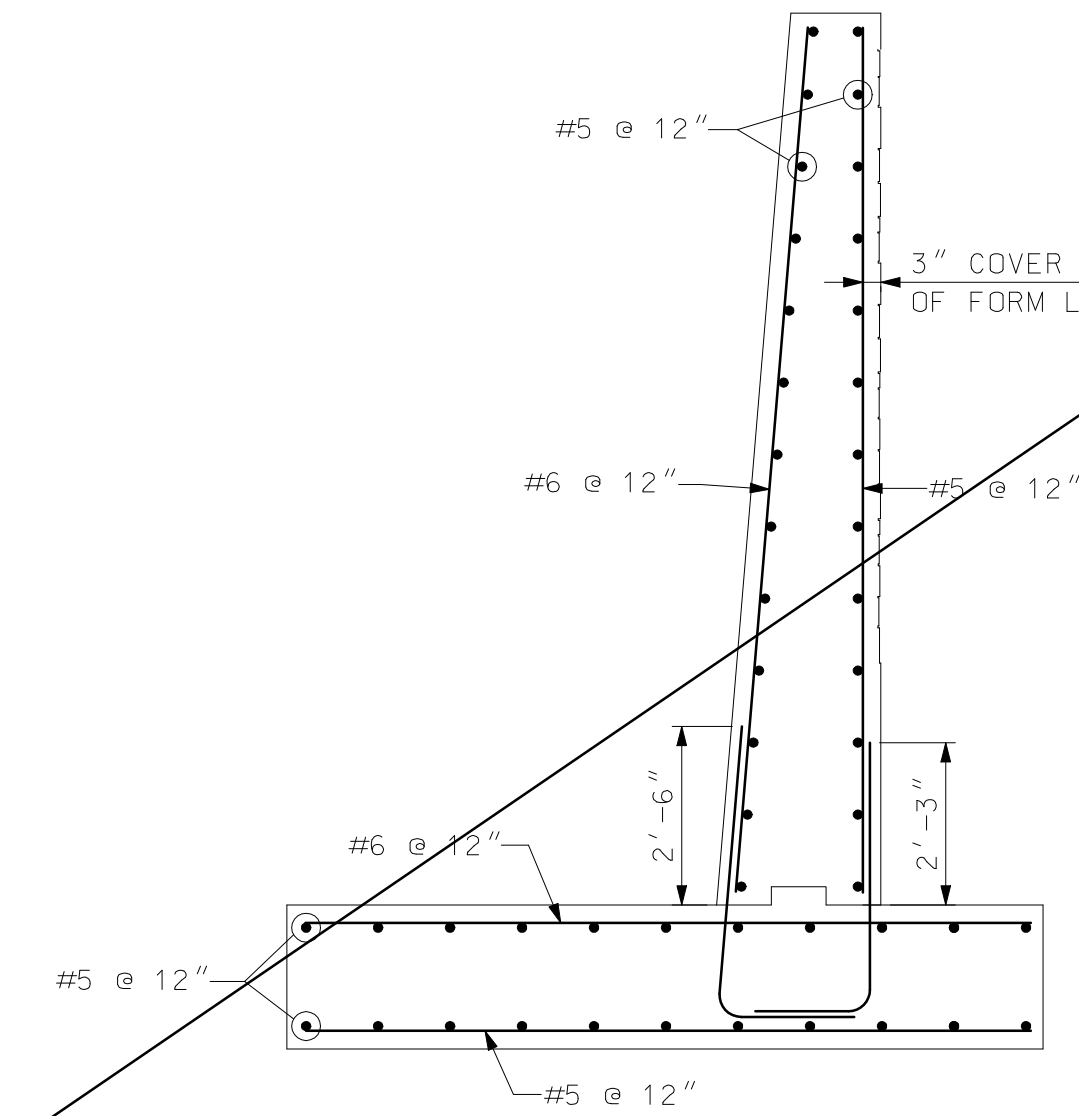


EXPANSION JOINT DETAIL

* AS MEASURED FROM REAR FACE OF WINGWALL AT TOP OF WALL. WATER STOP SHALL BE INSTALLED PLUMB (PARALLEL WITH FRONT FACE)

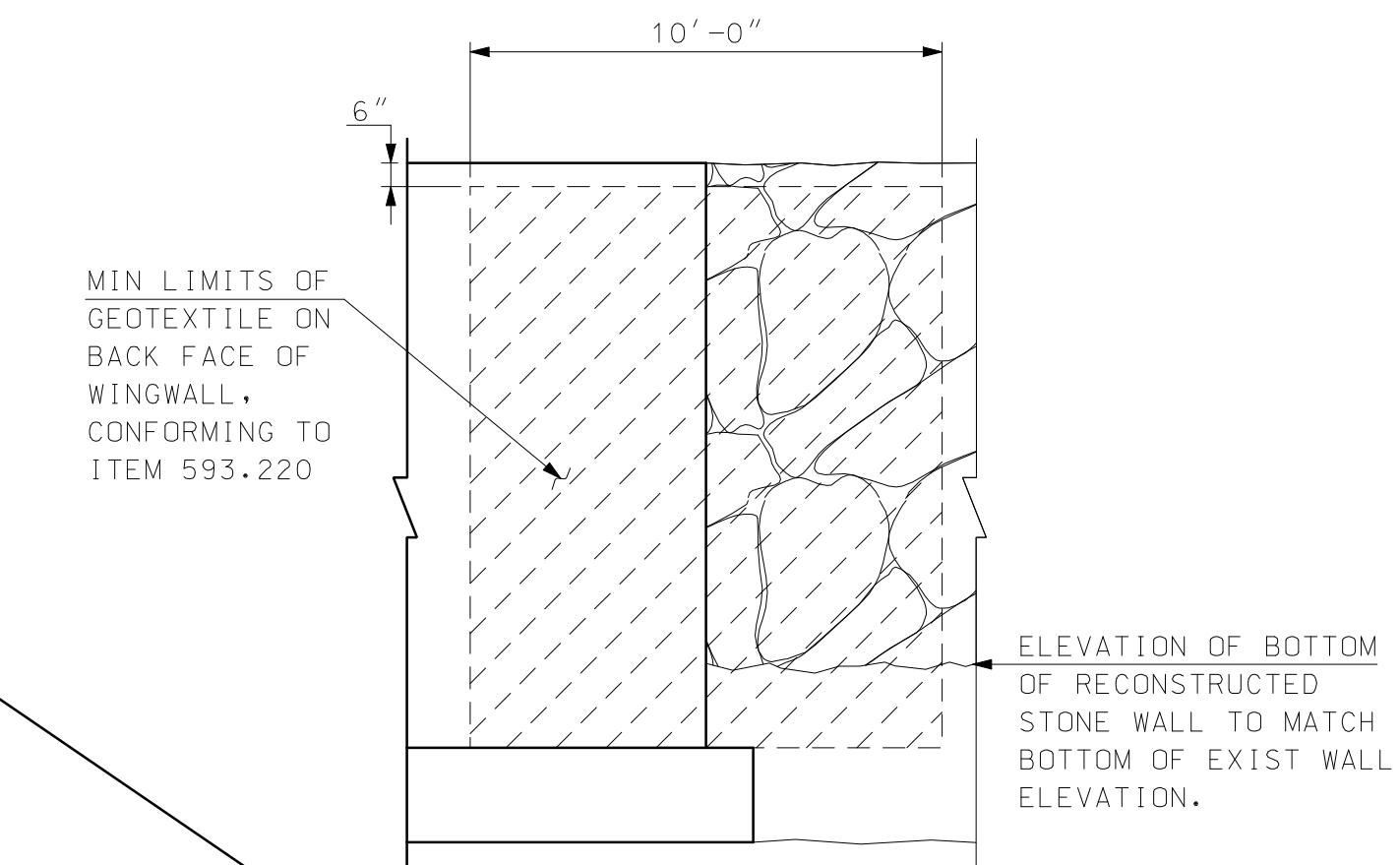
SCALE: $\frac{1}{2}'' = 1'-0''$

1 SEE SHEET 25A

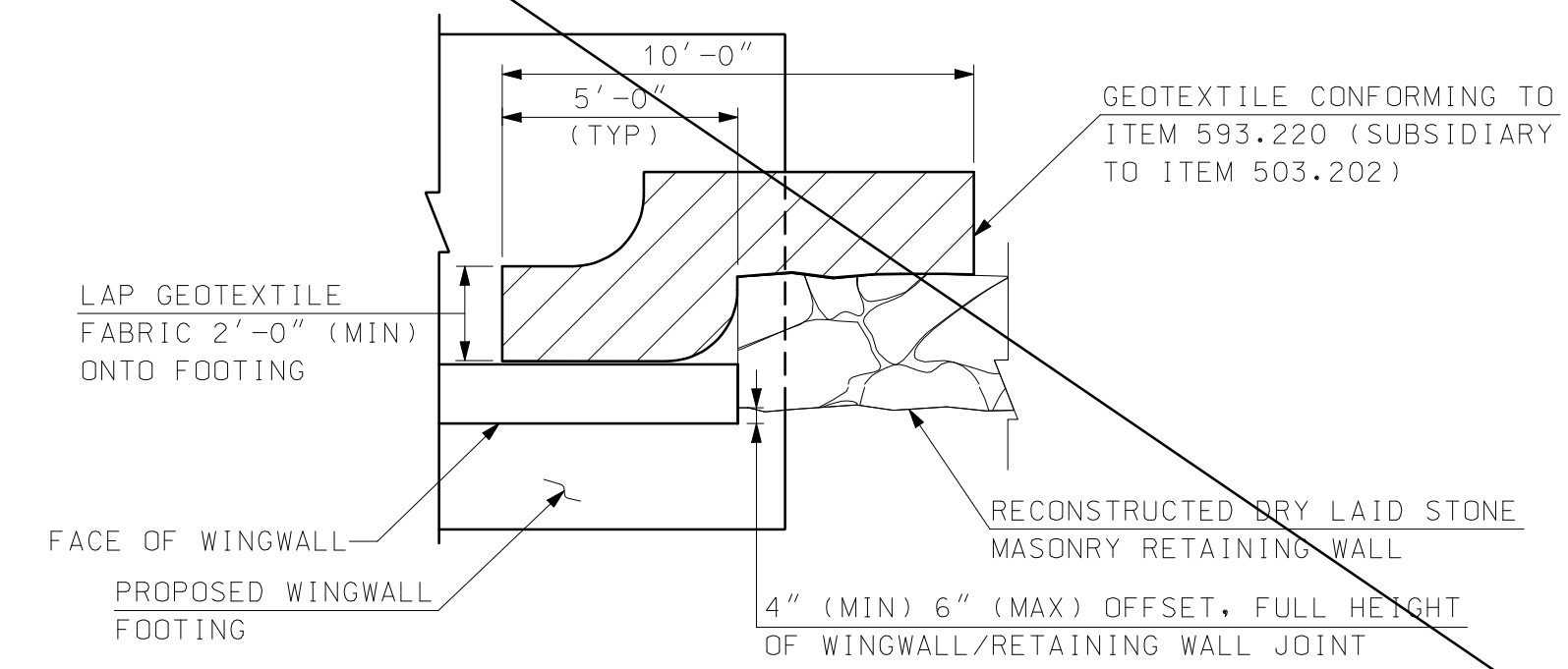


TYPICAL WINGWALL REINFORCEMENT

SCALE: $\frac{3}{8}'' = 1'-0''$



ELEVATION



PLAN

WINGWALL TO EXISTING DRY LAID RETAINING WALL DETAIL
 SCALE: $\frac{1}{4}'' = 1'-0''$

SCALE: $\frac{3}{8}'' = 1'-0''$

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.
 HOYLE, TANNER & ASSOCIATES, INC.
 SIGNED: *[Signature]*
 MARCH 2016
 NOTE: WORDING CONTAINED HEREIN IS UNDERSTOOD TO BE PAST TENSE.

REV.	DESCRIPTION	DATE	CHKD. BY	WLD BY
1	REVISED FOR CONSTRUCTION	2/2015		

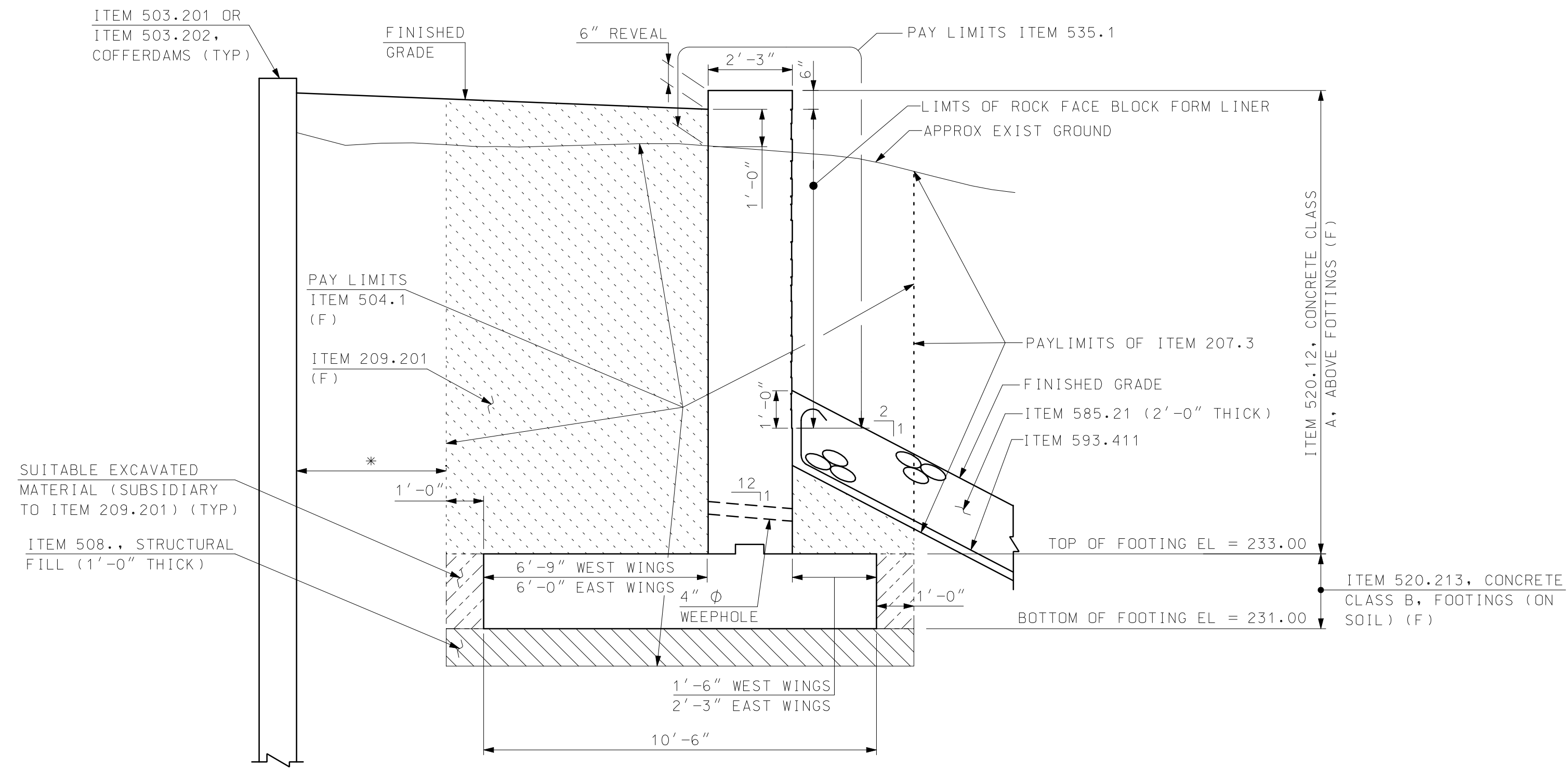
DESIGN BY: WLD
 DRAWN BY: JBM
 CHKD. BY: STJ
 SCALE: AS SHOWN

Hoyle, Tanner & Associates, Inc.
 150 Dow Street, Manchester, NH 03101-1227
 Tel (603) 669-5555 • Fax (603) 669-4168
 Webpage: www.hoyletanner.com

TOWN OF AMHERST
 AMHERST, NEW HAMPSHIRE
 MANCHESTER ROAD OVER BEAVER BROOK
 WINGWALL DETAILS

PROJECT NO.: 919101
 FILE NAME: AB919101Wing
 MODEL NAME: 919102WINGS
 SHEET NO.
25
 SHEET 25 OF 40

3/24/2016 10:39:57 AM K:\919101\Cadd\as-built\AB919101Wing.dgn

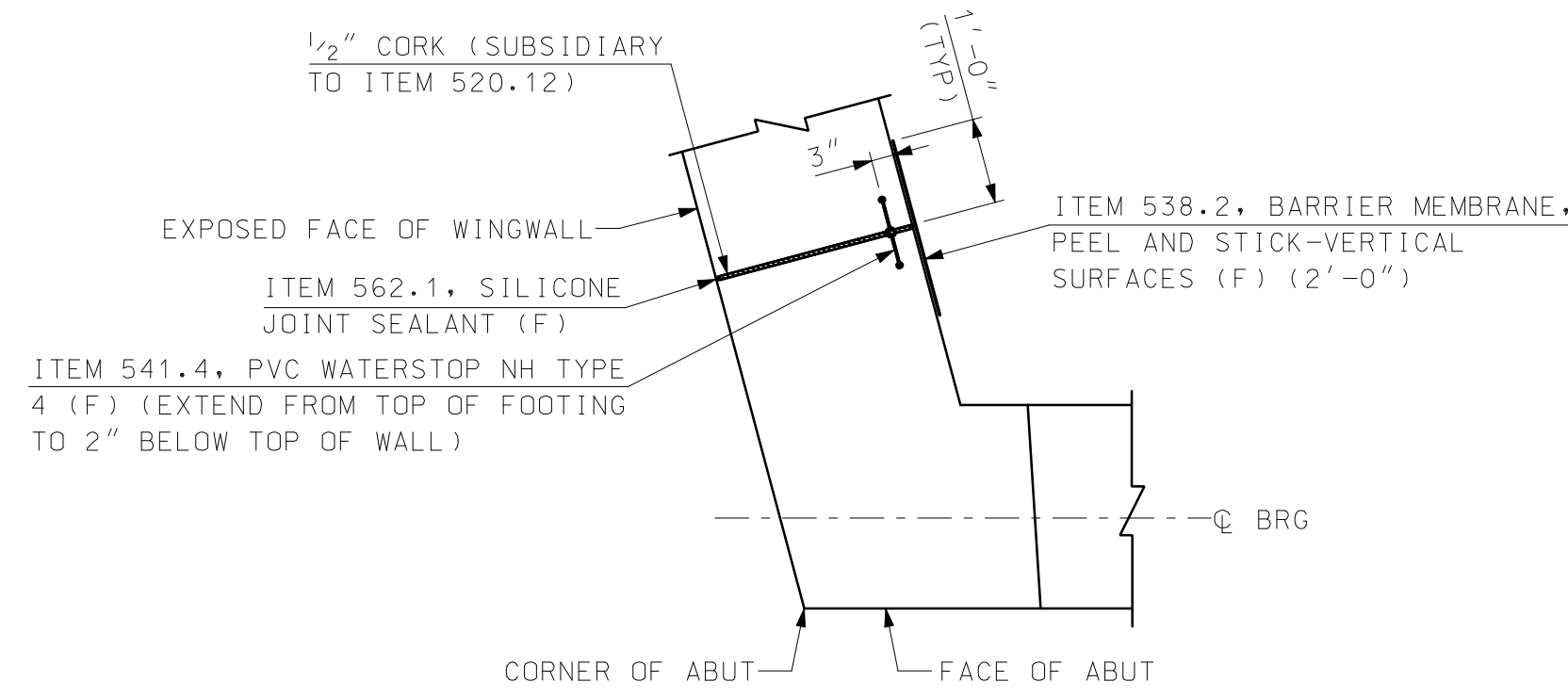


TYPICAL WINGWALL SECTION 1

SCALE: 3/8" = 1'-0"
* SEE SITE PLAN FOR LOCATION.

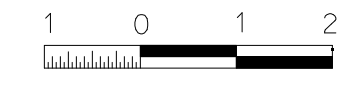
NOTES

- (1) NORTHEAST WINGWALL SHOWN, OTHERS SIMILAR.
- (2) DIMENSION DENOTED * INDICATES LOCATION TO BE DETERMINED BY CONTRACTOR.
- (3) SEE SITE PLAN FOR APPROXIMATE COFFERDAM AND WATER DIVERSION STRUCTURE LAYOUT.

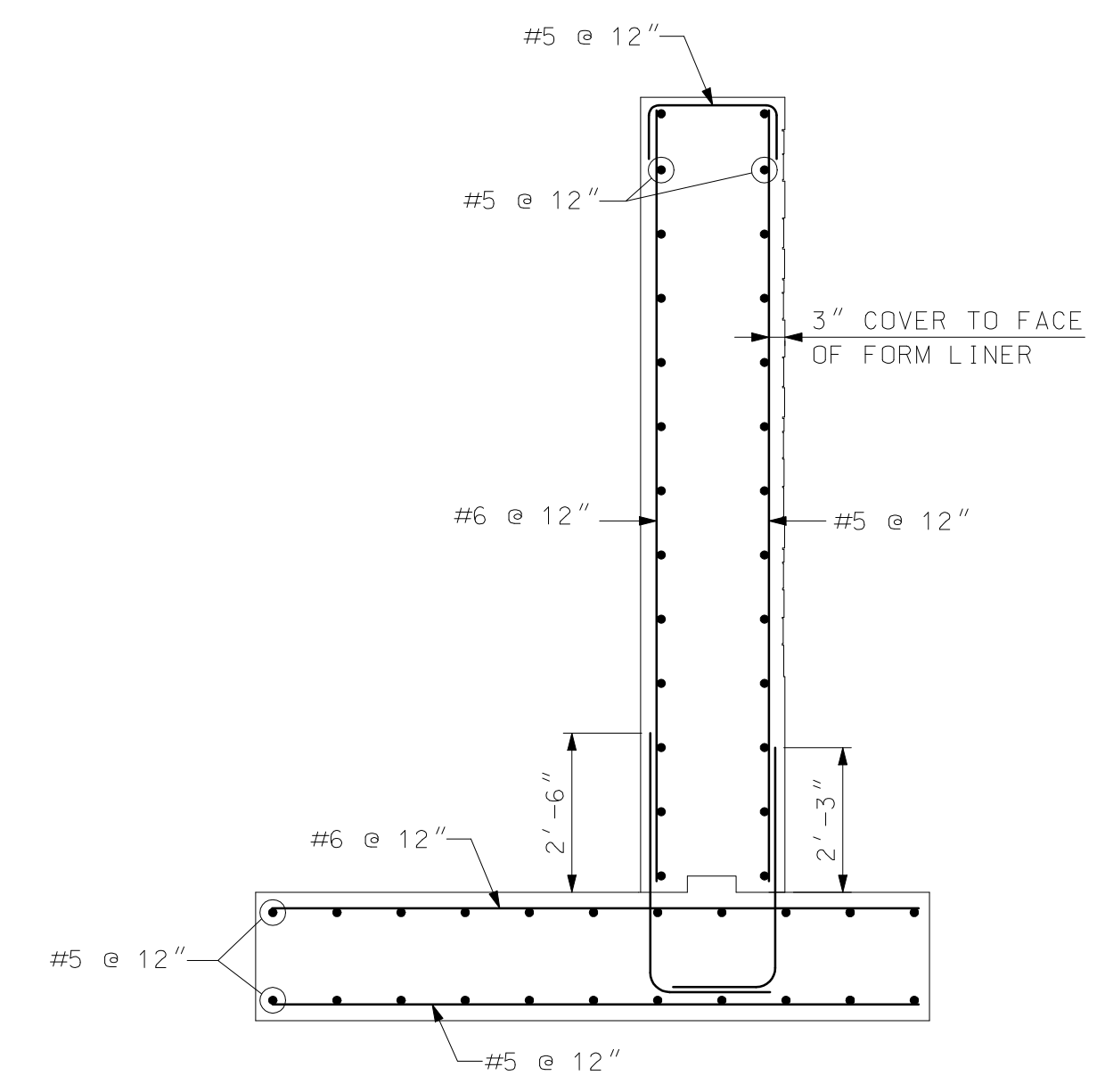


EXPANSION JOINT DETAIL 1

SCALE: 1/2" = 1'-0"

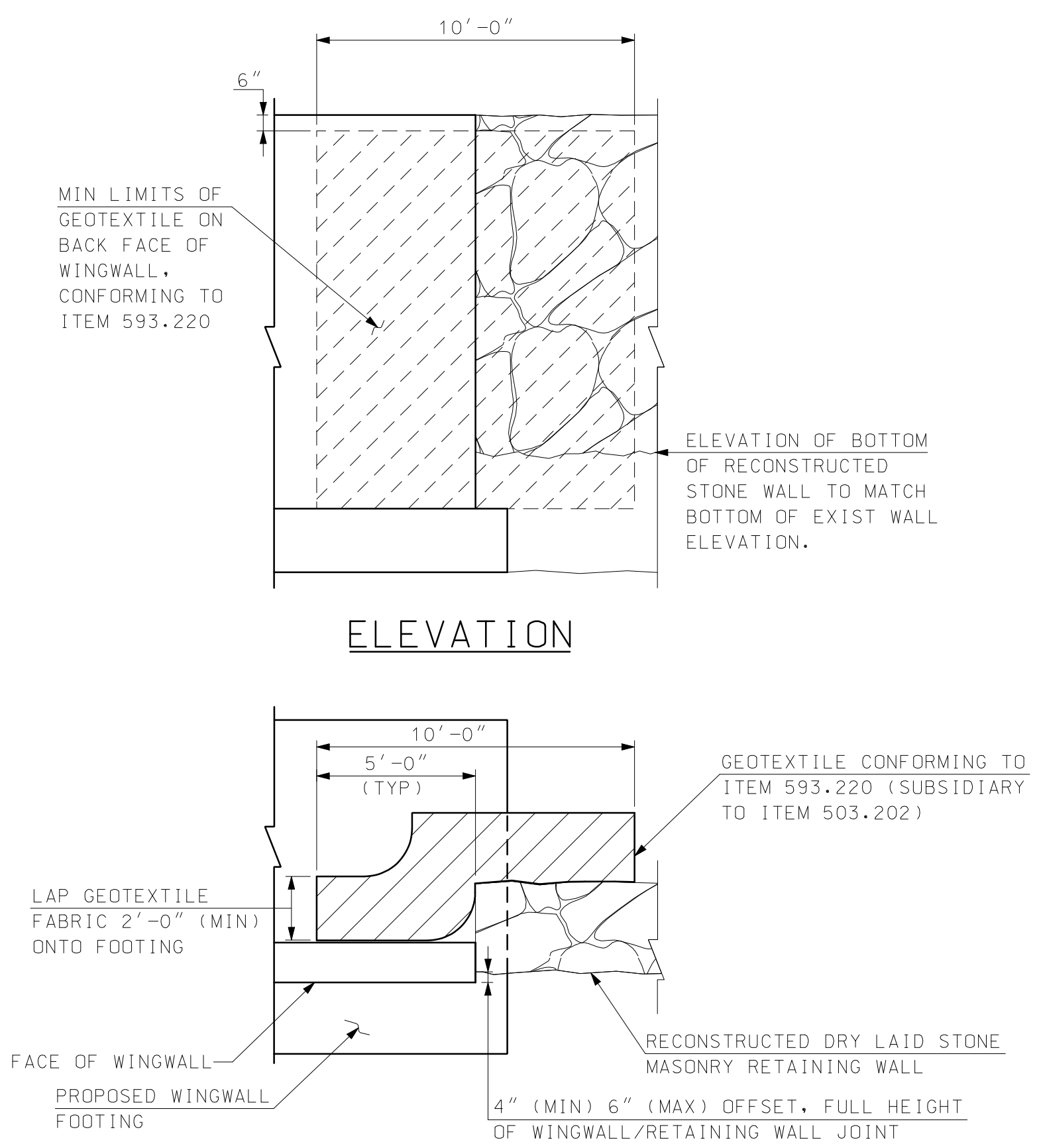


NOTE 2
AT THE REQUEST OF THE CONTRACTOR, THE WINGWALLS WERE NOT BATTERED.



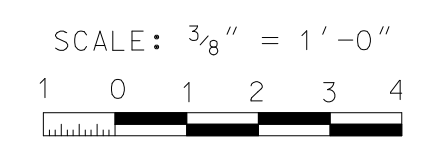
TYPICAL WINGWALL REINFORCEMENT 1

SCALE: 3/8" = 1'-0"



WINGWALL TO EXISTING DRY LAID RETAINING WALL DETAIL

SCALE: 1/4" = 1'-0"



I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.
HOYLE, TANNER & ASSOCIATES, INC.
SIGNED: [Signature]
MARCH 2016
NOTE: WORDING CONTAINED HEREIN IS UNDERSTOOD TO BE PAST TENSE.

REV.	DESCRIPTION	DATE	CHKD. BY	WLD. BY	TAG	JCR
1	REVISED FOR CONSTRUCTION	2/2015				
2	RECORD COPY REVISIONS	3/2016				

This document is prepared as an instrument of service and shall remain the property of Hoyle, Tanner, Inc. It may not be used, reproduced, disseminated or transmitted in any manner, including electronically, for any other purpose than this project, without the written permission of Hoyle, Tanner, Inc.

REV.	DESCRIPTION	DATE	CHKD. BY	WLD. BY	TAG	JCR

JUNE 2014
DESIGN BY: WLD
DRAWN BY: JBM
CHKD. BY: STJ
SCALE: AS SHOWN

Hoyle, Tanner & Associates, Inc.
150 Dow Street, Manchester, NH 03101-1227
Tel (603) 669-5555 • Fax (603) 669-4168
Webpage: www.hoyletanner.com

TOWN OF AMHERST
AMHERST, NEW HAMPSHIRE
MANCHESTER ROAD OVER BEAVER BROOK
WINGWALL DETAILS

PROJECT NO.: 919101
FILE NAME: AB919101WingR
MODEL NAME: 919102WINGS
SHEET NO.
25A
SHEET 25A OF 40

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.

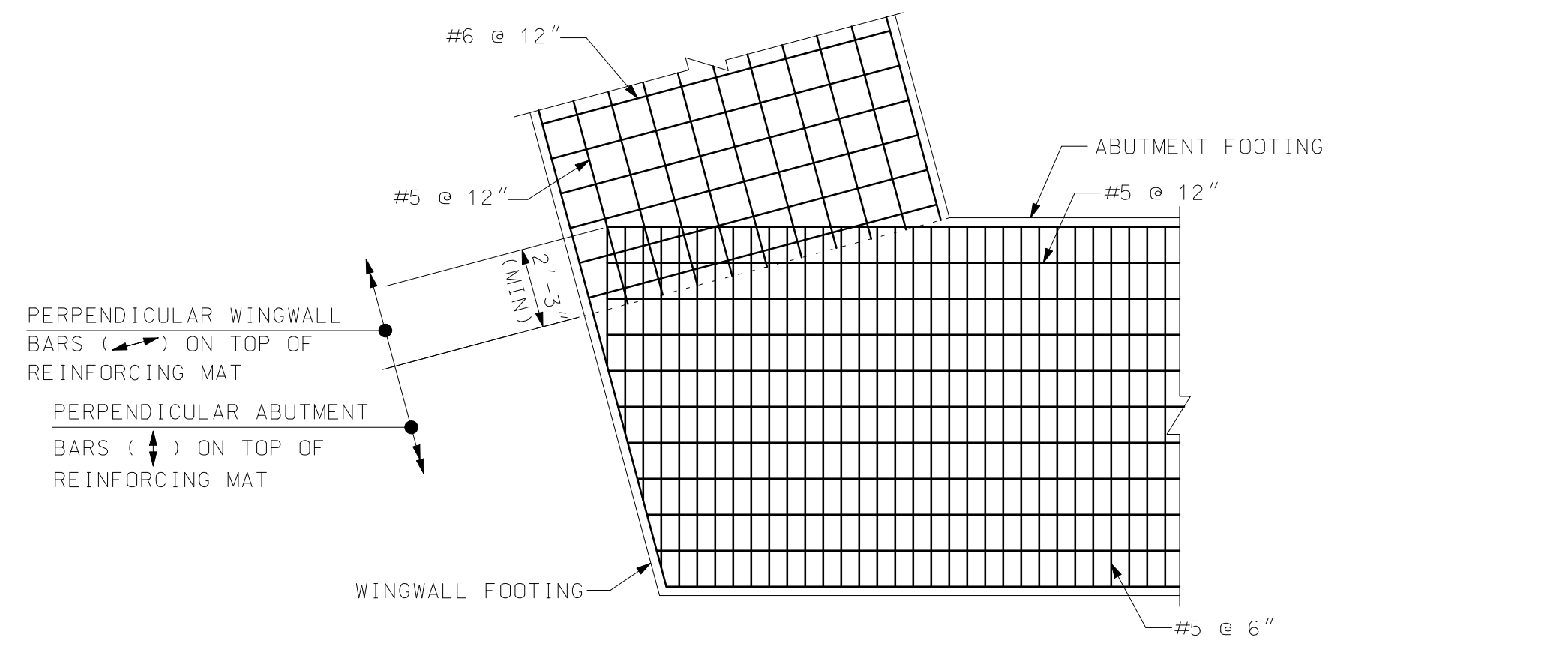
HOYLE, TANNER & ASSOCIATES, INC.
 SIGNED: *[Signature]*
 MARCH 2016

REV.	DESCRIPTION	DATE	DRW. CHD. BY	DATE
1	RECORD COPY REVISIONS	3/7/2016	TAG JCR	

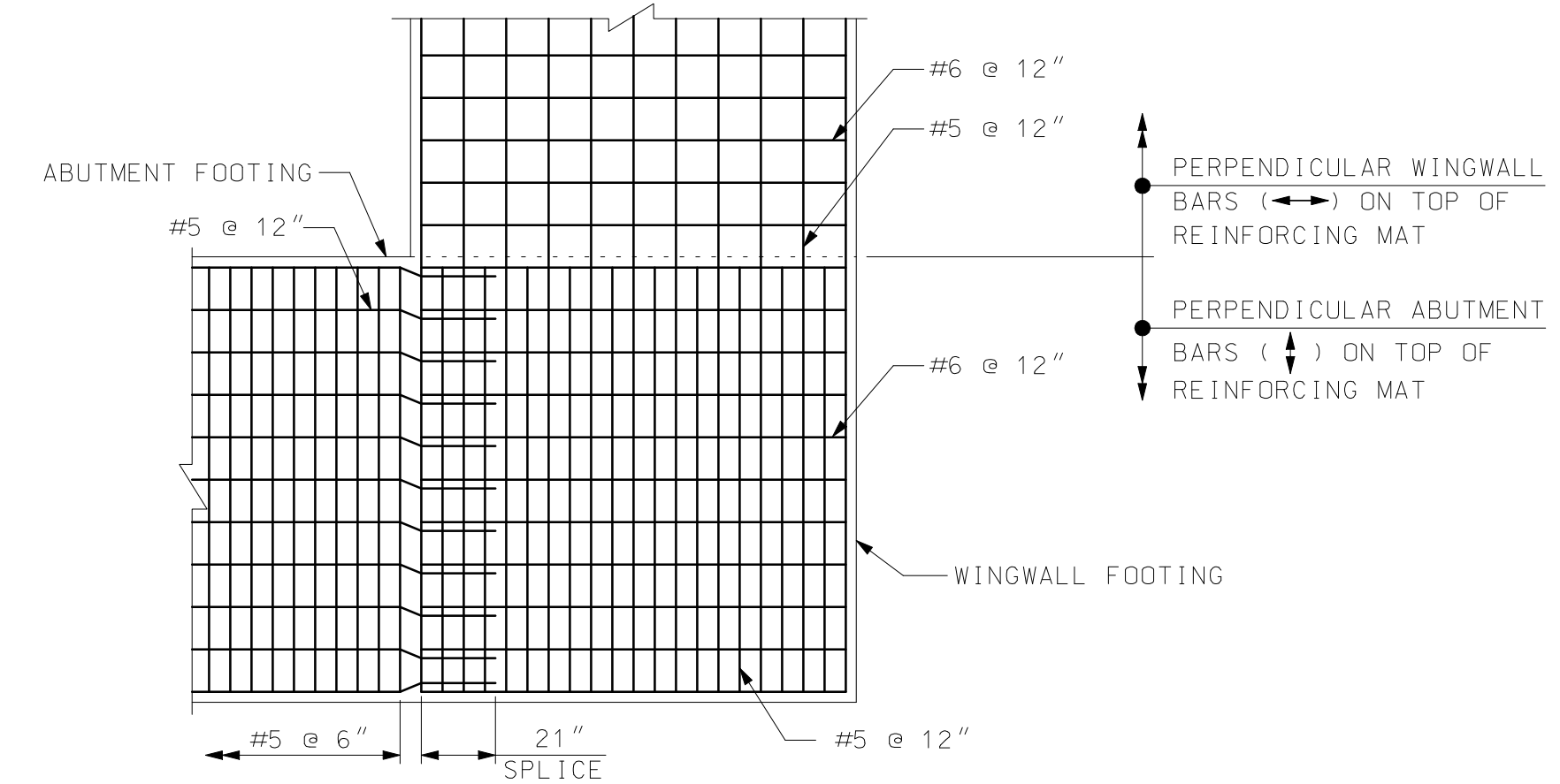
NOTE: WORDING CONTAINED HEREIN IS UNDERSTOOD TO BE PAST TENSE.

This document is prepared as an instrument of service and shall remain the property of Hoyle, Tanner, Inc. It may not be used, reproduced, disseminated or transmitted in any manner, including electronically, for any other purpose than that project, without the written permission of Hoyle, Tanner, Inc.

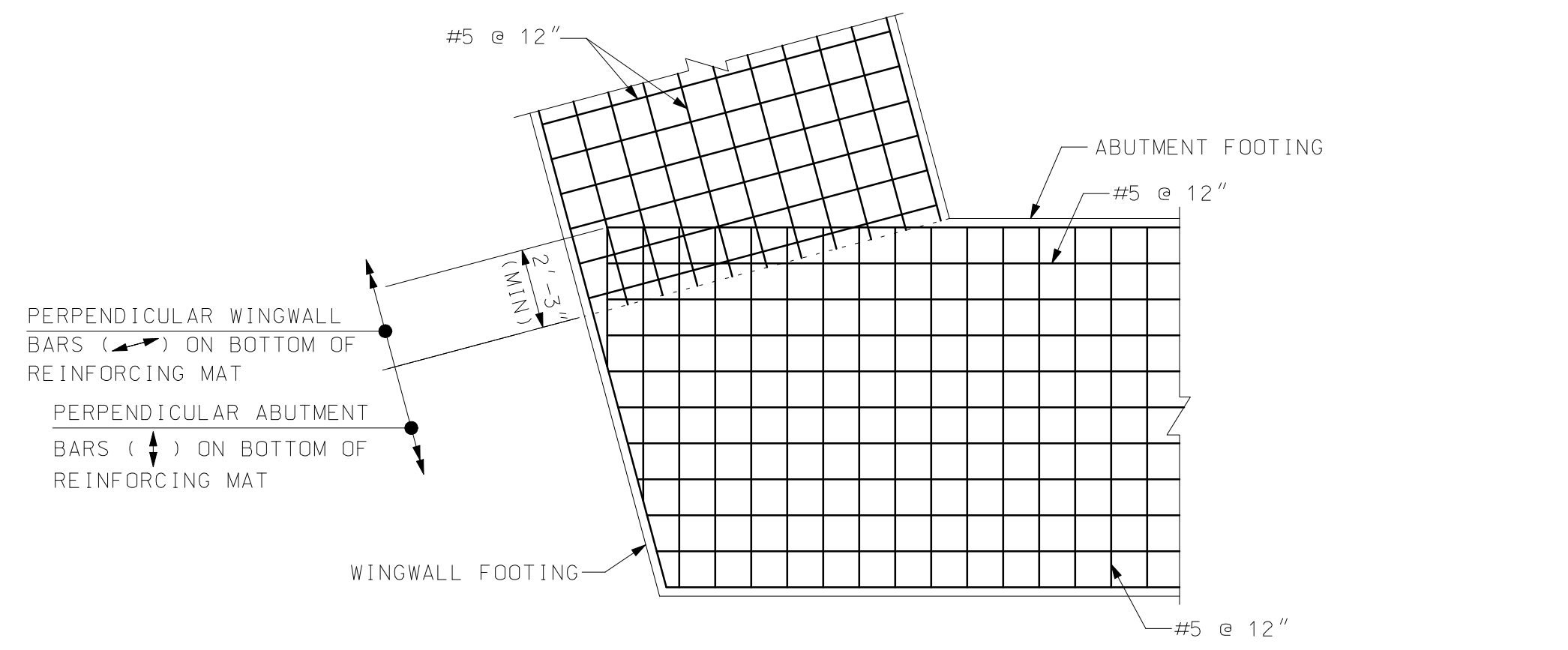
JUNE 2014	WLD	JBM	STJ	AS SHOWN
DESIGN BY:				
DRAWN BY:				
CHKD. BY:				
SCALE:				



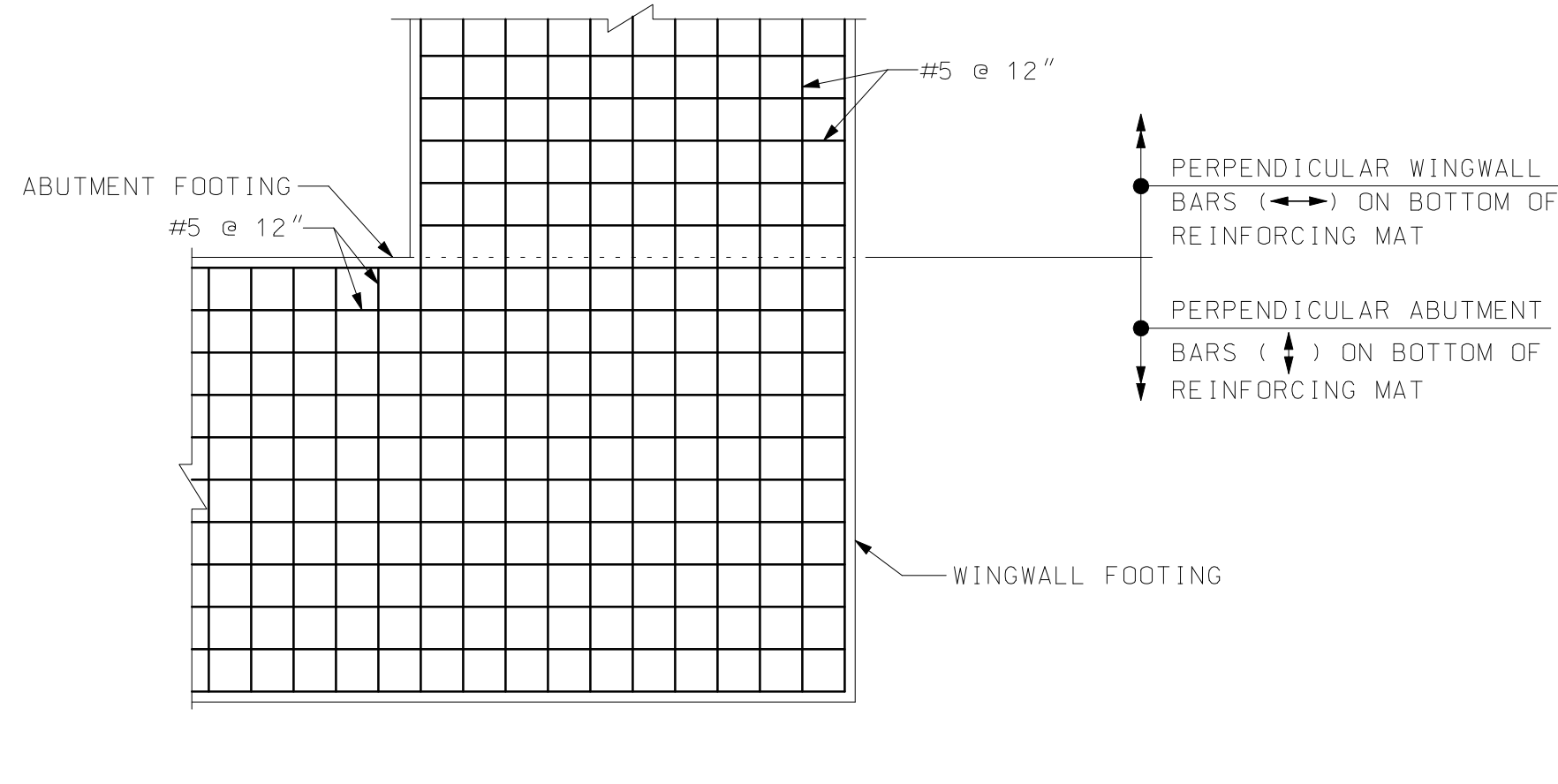
FOOTING REINFORCING - NORTHWEST* CORNER DETAIL
 TOP LAYER
 SCALE: 1/4" = 1'-0"



FOOTING REINFORCING - SOUTHWEST CORNER DETAIL
 TOP LAYER
 SCALE: 1/4" = 1'-0"

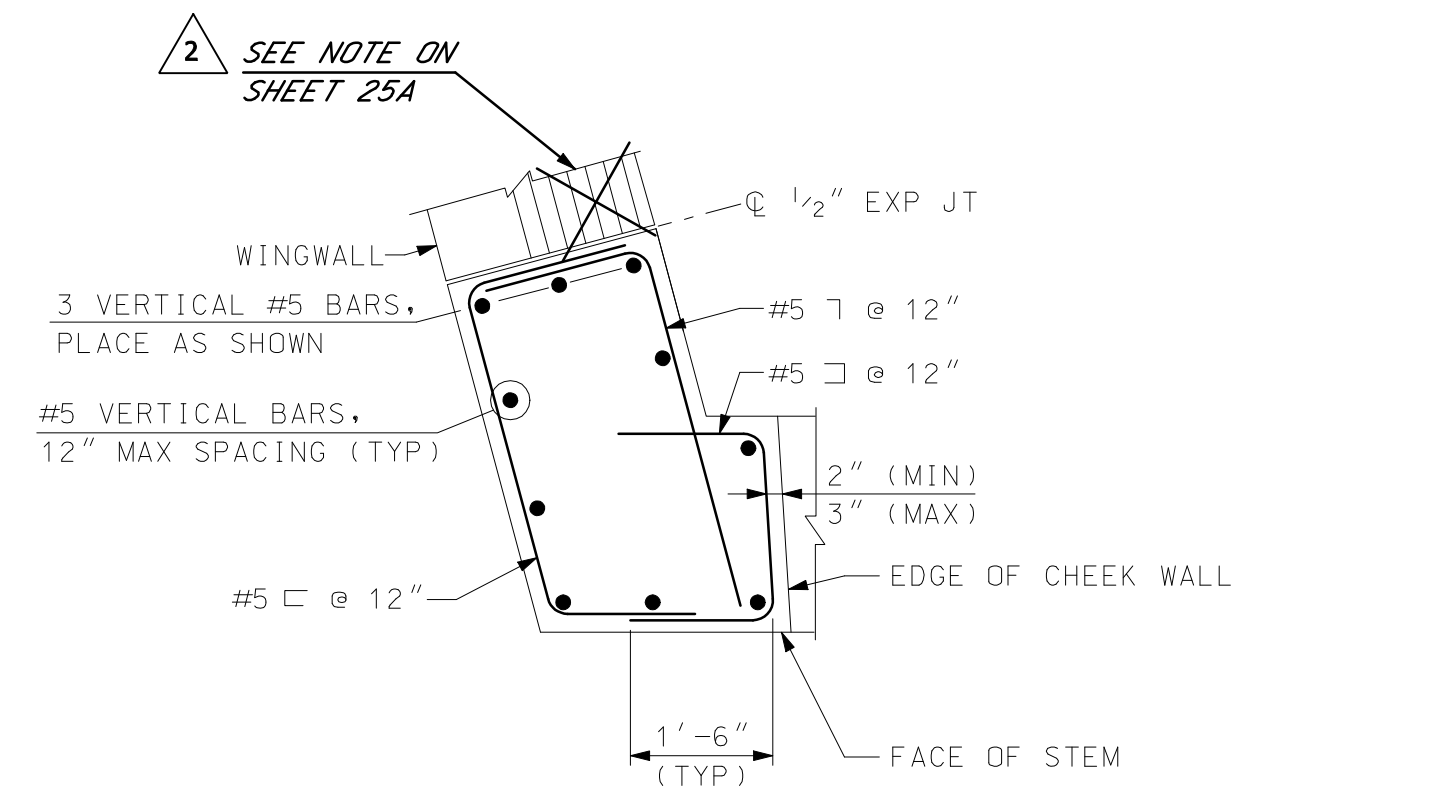


FOOTING REINFORCING - NORTHWEST* CORNER DETAIL
 BOTTOM LAYER
 SCALE: 1/4" = 1'-0"

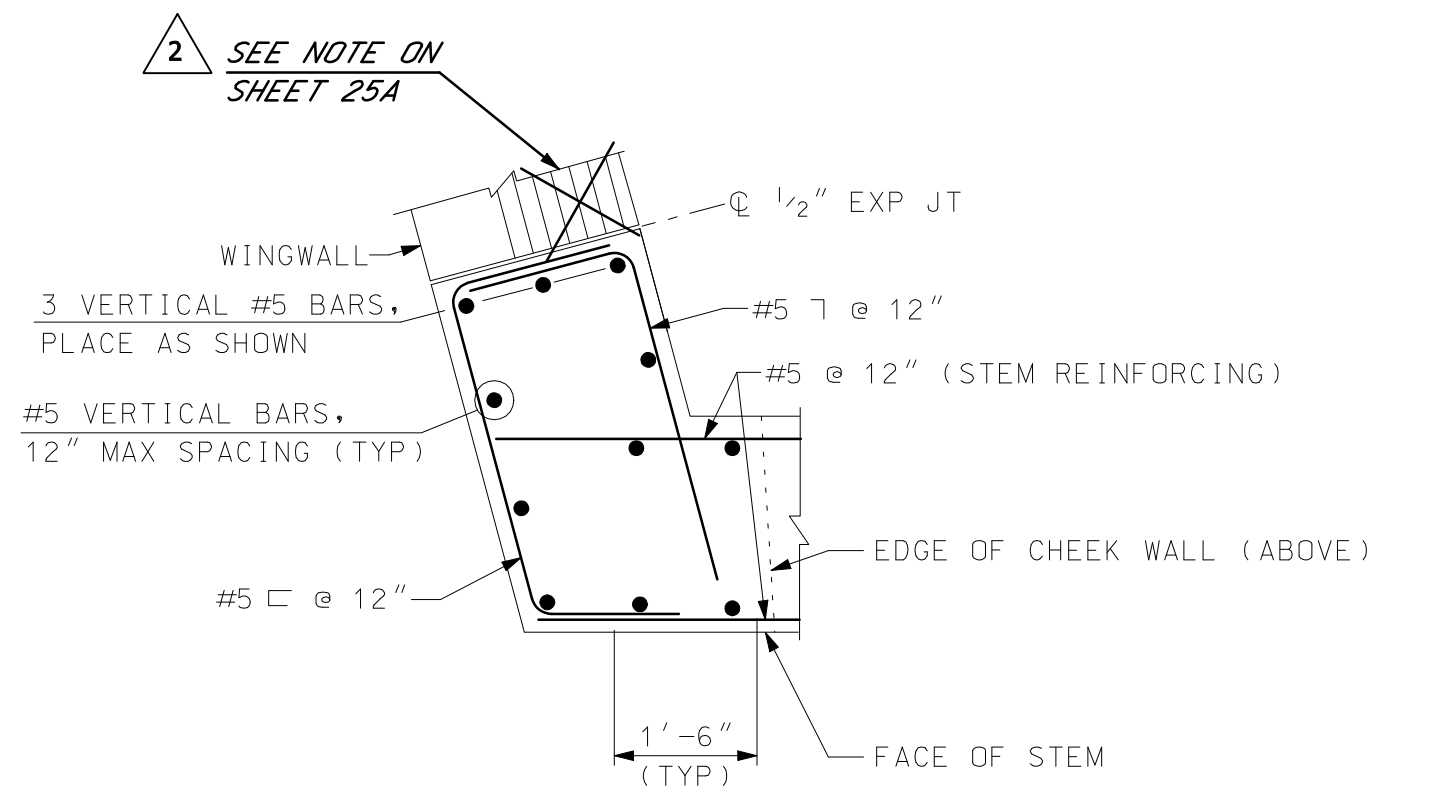


FOOTING REINFORCING - SOUTHWEST CORNER DETAIL
 BOTTOM LAYER
 SCALE: 1/4" = 1'-0"

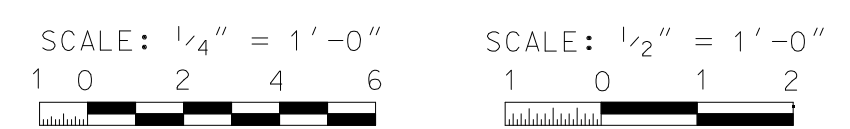
* NORTHWEST CORNER SHOWN. NORTHEAST AND SOUTHEAST CORNERS SIMILAR WITH SLIGHT DIFFERENCES IN ANGLE BETWEEN WINGWALL AND ABUTMENT, AND ARRANGEMENT OF WINGWALL WITH RESPECT TO ABUTMENT.



CHEEK WALL REINFORCING DETAILS (ABOVE BEAM SEAT)
 (NORTHWEST AN SOUTHEAST CORNERS SHOWN. SOUTHWEST SIMILAR BUT OPPOSITE)
 SCALE: 1/2" = 1'-0"



CHEEK WALL REINFORCING DETAILS (BELOW BEAM SEAT)
 (NORTHWEST AN SOUTHEAST CORNERS SHOWN. SOUTHWEST SIMILAR BUT OPPOSITE)
 SCALE: 1/2" = 1'-0"



Hoyle, Tanner & Associates, Inc.
 © Copyright 2014 Hoyle, Tanner & Associates, Inc.
 150 Dow Street, Manchester, NH 03101-1227
 Tel (603) 669-5555 • Fax (603) 669-4168
 Webpage: www.hoyletanner.com

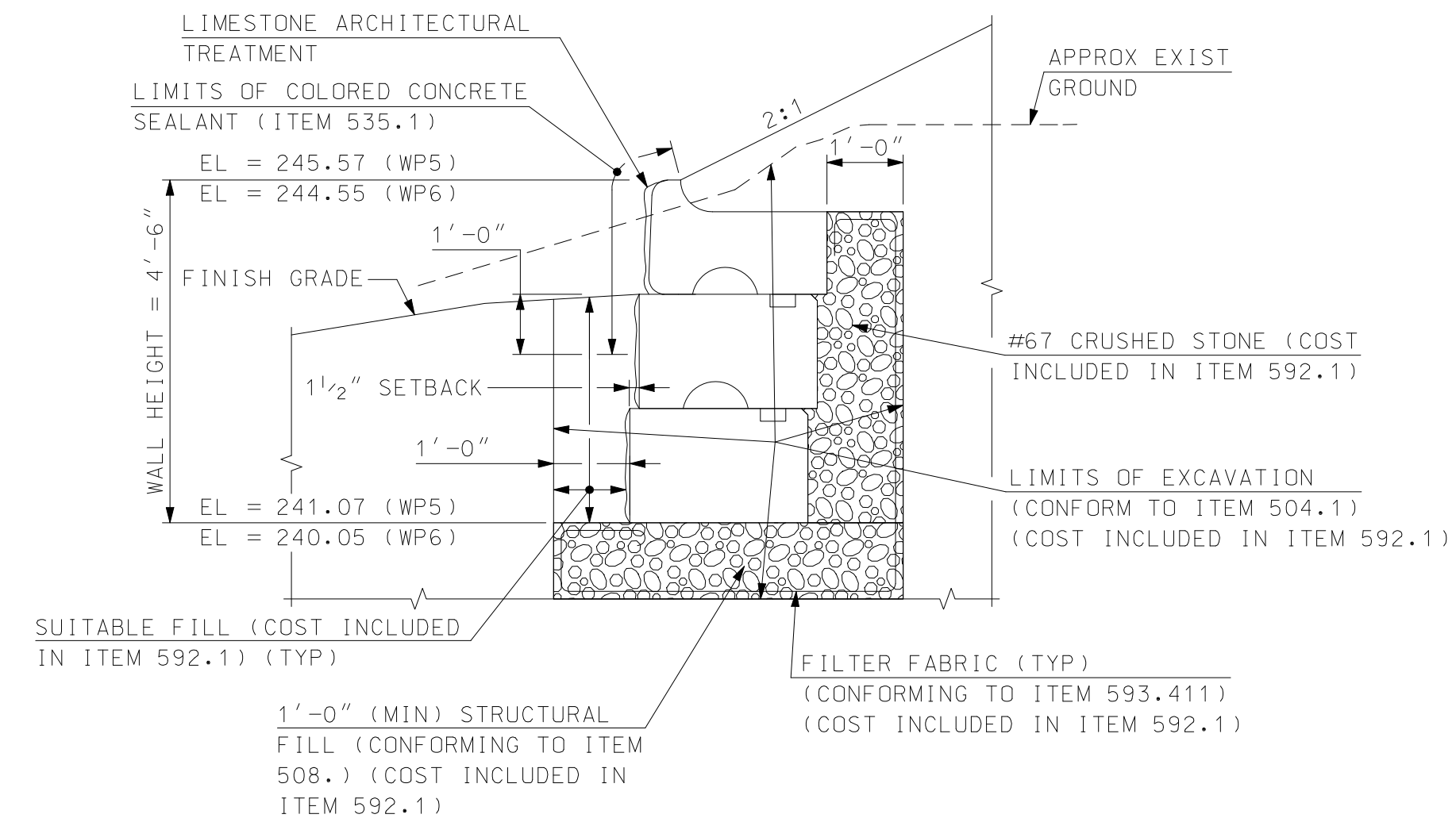
TOWN OF AMHERST
 AMHERST, NEW HAMPSHIRE
 MANCHESTER ROAD OVER BEAVER BROOK
 SUBSTRUCTURE REINFORCING DETAILS

PROJECT NO.: 919101
 FILE NAME: AB919101Dtl10
 MODEL NAME: 915302DTL10

SHEET NO.
26
 SHEET 26 OF 40

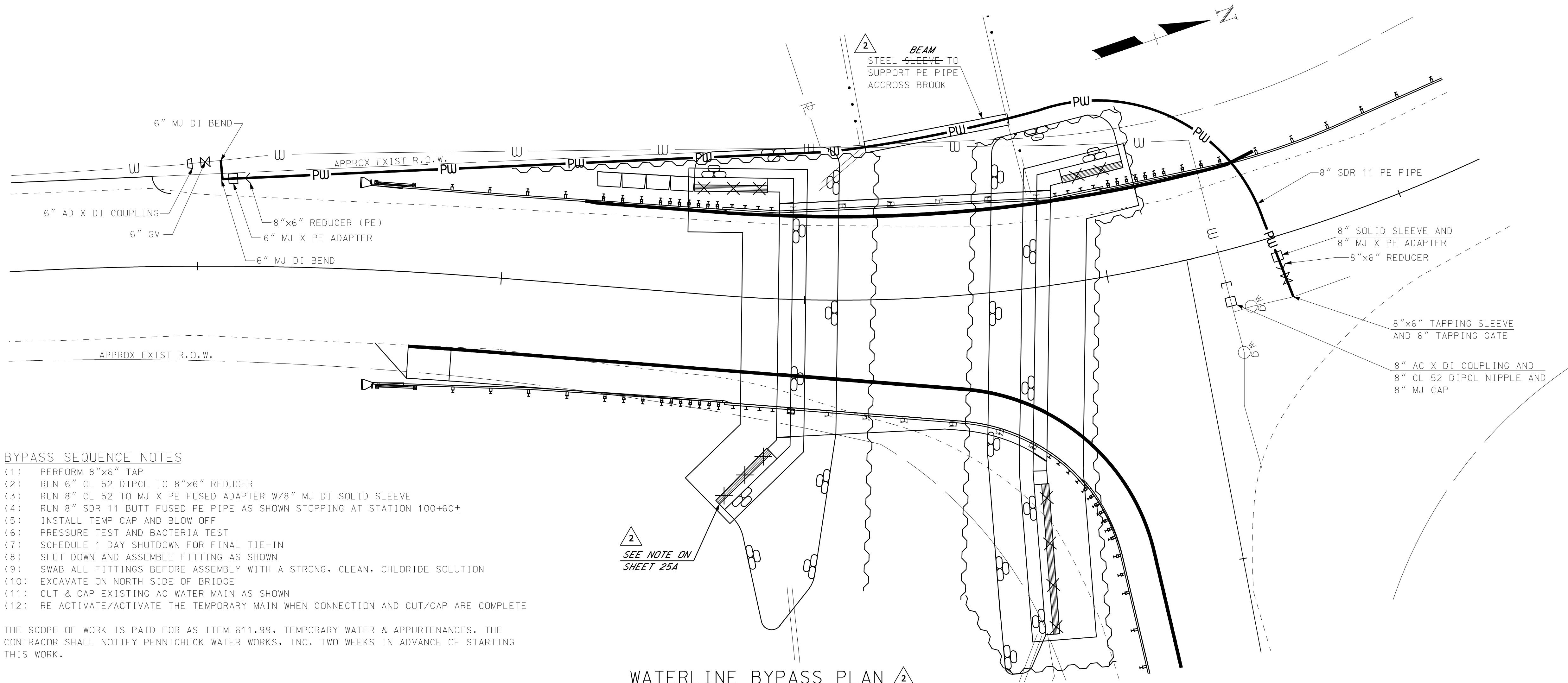
RETAINING WALL NOTES

- (1) SEE SPECIAL PROVISION ITEM 592.1, MECHANICALLY STABILIZED EARTH RETAINING WALL, FOR ACCEPTABLE MANUFACTURED WALL SYSTEMS.
- (2) CONTRACTOR SHALL SUPPLY SHOP DRAWINGS AND DESIGN CALCULATIONS, SEALED AND SIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW HAMPSHIRE FOR REVIEW AND APPROVAL PRIOR TO FABRICATION. SEE SPECIAL PROVISION FOR ITEM 592.1, MECHANICALLY STABILIZED EARTH RETAINING WALL, FOR FURTHER INFORMATION.
- (3) THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS AND EQUIPMENT REQUIRED TO PERFORM ALL OPERATIONS IN CONNECTION WITH THE INSTALLATION OF MECHANICALLY STABILIZED EARTH RETAINING WALL IN ACCORDANCE WITH THE LINES AND GRADES SHOWN ON THE PLANS.
- (4) MECHANICALLY STABILIZED EARTH CONCRETE WALL BLOCK UNITS SHALL BE FABRICATED USING THE FOLLOWING MATERIALS: CONCRETE WITH MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3,000 PSI, REINFORCING STEEL WITH A MINIMUM YIELD STRENGTH OF 60,000 PSI.
- (5) ITEM 592.1, MECHANICALLY STABILIZED EARTH RETAINING WALL SHALL INCLUDE ALL EXCAVATION, BACKFILL, PRECAST CONCRETE BLOCK UNITS, GEOTEXTILE FABRIC, STRUCTURAL FILL, REINFORCING GRIDS OR STRIPS (IF REQUIRED), ATTACHMENT DEVICES, FASTENERS, JOINT MATERIALS AND ALL NECESSARY INCIDENTALS, COMPLETE AND IN PLACE.
- (6) THE WALL PANEL LAYOUT ILLUSTRATED, SHOWN ON SHEET 21, ASSUMES NOMINAL DIMENSIONS OF 46"x28"x18" FOR THE PRECAST CONCRETE BLOCK UNITS. THE DIMENSIONS OF THE WALL SYSTEM SELECTED MAY VARY FROM THE ASSUMED DIMENSIONS. THE CONTRACTOR IS RESPONSIBLE FOR MATCHING, AS CLOSE AS PRACTICABLE, THE ELEVATIONS AND DIMENSIONS ILLUSTRATED WITH THE WALL SYSTEM SELECTED.
- (7) THE BOTTOM ROWS OF BLOCKS SHALL BE IN FULL CONTACT WITH FOUNDATION MATERIAL. INSTALL NEXT COURSE OF UNITS SUCH THAT THE VERTICAL SEAMS ARE OFFSET. THE VERTICAL GAPS BETWEEN WALL UNITS SHALL BE FILLED WITH CRUSHED STONE PRIOR TO STARTING THE NEXT COURSE.
- (8) TWO (2) SETS OF APPROVED SHOP DRAWINGS SHALL BE SUBMITTED ON PERMANENT ARCHIVAL QUALITY 22" x 34" DOUBLE-MATTE MYLAR.
- (9) EXPOSED FACES OF THE MECHANICALLY STABILIZED EARTH RETAINING WALL SHALL HAVE A COBBLESTONE ARCHITECTURAL TREATMENT AND MATCH THE WINGWALL FORMLINER AS CLOSELY AS POSSIBLE.
- (10) ITEM 535.1 - COLORED CONCRETE SEALANT SHALL BE APPLIED TO ALL EXPOSED SURFACES OF THE MECHANICALLY STABILIZED EARTH RETAINING WALL TO 1'-0" BELOW FILL LINES.
- (11) RETAINING WALL BLOCKS SHALL BE LAID OUT SUCH THAT THE JOINTS BETWEEN ROWS OF BLOCKS ALIGNS VERTICALLY WITH THE ADJACENT HORIZONTAL JOINT(S) IN THE WINGWALL FORM LINER PATTERN, TO THE GREATEST EXTENT PRACTICAL. DEPENDING ON THE ACTUAL WALL SYSTEM CHOSEN AND THE CORRESPONDING SIZE OF RETAINING WALL BLOCKS, THIS MAY REQUIRE LOWERING THE BOTTOM OF WALL ELEVATION. THIS ISSUE SHALL BE ADDRESSED IN THE CONTRACTOR SUPPLIED SHOP DRAWINGS.



TYPICAL RETAINING WALL SECTION

NOT TO SCALE



WATERLINE BYPASS PLAN

SCALE: 1" = 10'-0"

NOTE: SOME EXISTING UTILITIES AND OTHER FEATURES NOT SHOWN FOR CLARITY.

BYPASS SEQUENCE NOTES

- (1) PERFORM 8"x6" TAP
- (2) RUN 6" CL 52 DIPCL TO 8"x6" REDUCER
- (3) RUN 8" CL 52 TO MJ X PE FUSED ADAPTER W/8" MJ DI SOLID SLEEVE
- (4) RUN 8" SDR 11 BUTT FUSED PE PIPE AS SHOWN STOPPING AT STATION 100+60±
- (5) INSTALL TEMP CAP AND BLOW OFF
- (6) PRESSURE TEST AND BACTERIA TEST
- (7) SCHEDULE 1 DAY SHUTDOWN FOR FINAL TIE-IN
- (8) SHUT DOWN AND ASSEMBLE FITTING AS SHOWN
- (9) SWAB ALL FITTINGS BEFORE ASSEMBLY WITH A STRONG, CLEAN, CHLORIDE SOLUTION
- (10) EXCAVATE ON NORTH SIDE OF BRIDGE
- (11) CUT & CAP EXISTING AC WATER MAIN AS SHOWN
- (12) RE ACTIVATE/ACTIVATE THE TEMPORARY MAIN WHEN CONNECTION AND CUT/CAP ARE COMPLETE

THE SCOPE OF WORK IS PAID FOR AS ITEM 611.99, TEMPORARY WATER & APPURTENANCES. THE CONTRACTOR SHALL NOTIFY PENNICHUCK WATER WORKS, INC. TWO WEEKS IN ADVANCE OF STARTING THIS WORK.

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.
 HOYLE, TANNER & ASSOCIATES, INC.
 SIGNED: *[Signature]*
 MARCH 2016
 NOTE: WORDING CONTAINED HEREIN IS UNDERSTOOD TO BE PAST TENSE.

REV.	DESCRIPTION	DATE	DRW. CHD. BY	BY
1	RECORD COPY REVISIONS	3/7/2016	TAG	JCR

This document is prepared as an instrument of service and shall remain the property of Hoyle, Tanner & Associates, Inc. It may not be used, reproduced, disseminated or transmitted in any manner, including electronically, for any other project or purpose than this project, without the written permission of Hoyle, Tanner & Associates, Inc.

JUNE 2014
 DESIGN BY: WLD
 DRAWN BY: JBM
 CHD. BY: STJ
 SCALE: AS SHOWN

Hoyle, Tanner & Associates, Inc.
 © Copyright 2014 Hoyle, Tanner & Associates, Inc.
 150 Dow Street, Manchester, NH 03101-1227
 Tel (603) 669-5555 • Fax (603) 669-4168
 Webpage: www.hoyletanner.com

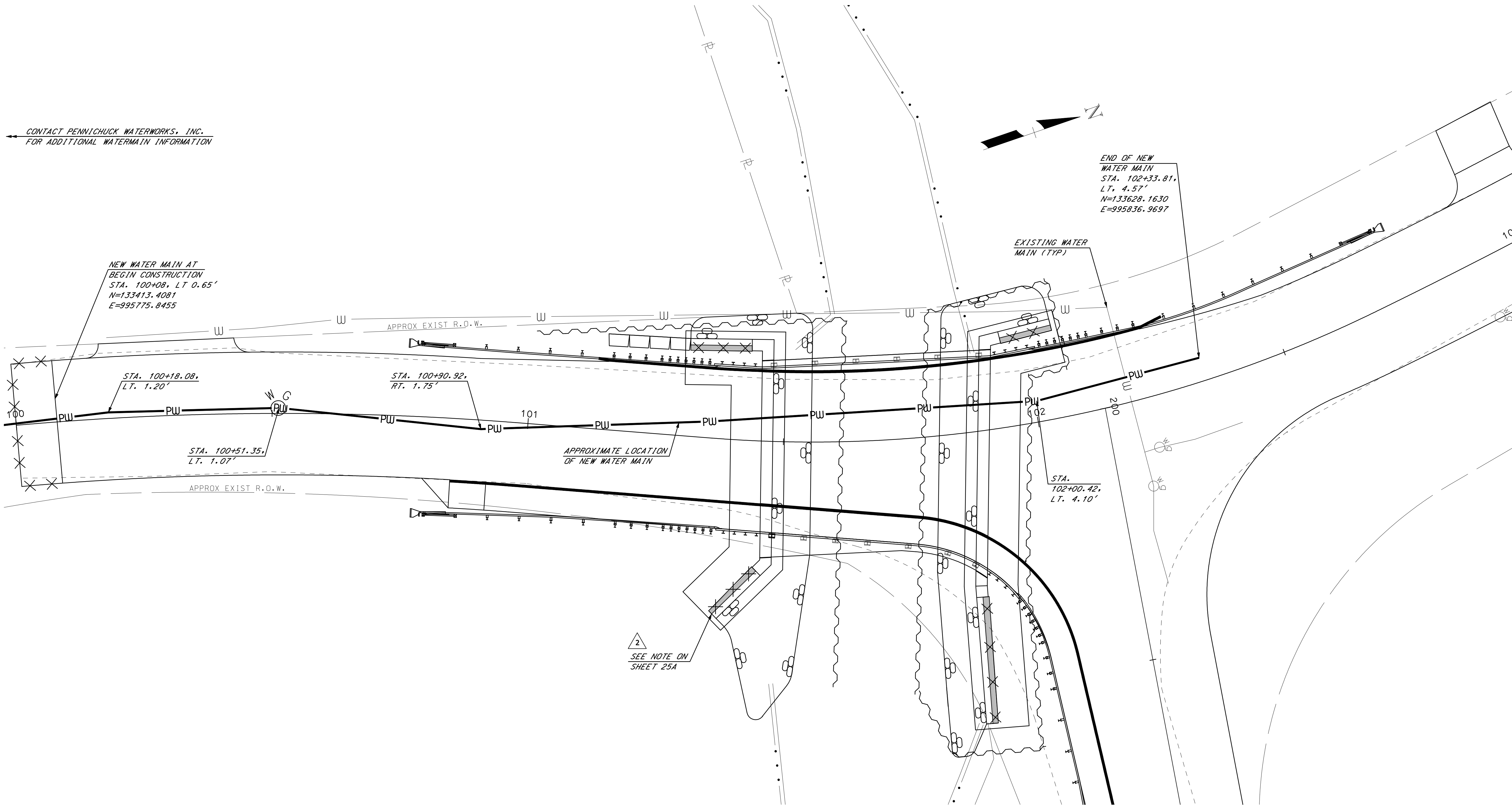
TOWN OF AMHERST
 AMHERST, NEW HAMPSHIRE
 MANCHESTER ROAD OVER BEAVER BROOK
 RETAINING WALL AND WATERLINE BYPASS DETAILS

PROJECT NO.: 919101
 FILE NAME: AB919101Dtl11
 MODEL NAME: 919101DTL11
 SHEET NO.

27

SHEET 27 OF 40

CONTACT PENNICHUCK WATERWORKS, INC.
FOR ADDITIONAL WATERMAIN INFORMATION



WATER MAIN LAYOUT PLAN \triangle
SCALE: 1" = 10'-0"

\triangle
SEE NOTE ON
SHEET 25A

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.
HOYLE, TANNER & ASSOCIATES, INC.
SIGNED: *[Signature]*
MARCH 2016
NOTE: WORDING CONTAINED HEREIN IS UNDERSTOOD TO BE PAST TENSE.

REV.	DESCRIPTION	DATE	DRW. BY	CHKD. BY
1	RECORD COPY REVISIONS	3/2016	JCR	JCR
2				
3				
4				
5				

This document is prepared as an instrument of service and shall remain the property of Hoyle, Tanner & Associates, Inc. It may not be used, reproduced, disseminated or transmitted in any manner, including electronically, for any other purpose than that for which it was prepared without the written permission of Hoyle, Tanner & Associates, Inc.

JUNE 2014	WLD	JBM	STJ	AS SHOWN
DESIGN BY:		DRAWN BY:	CHKD. BY:	SCALE:

Hoyle, Tanner & Associates, Inc.
© Copyright 2014 Hoyle, Tanner & Associates, Inc.
150 Dow Street, Manchester, NH 03101-1227
Tel (603) 669-5555 • Fax (603) 669-4168
Webpage: www.hoyletanner.com

TOWN OF AMHERST
AMHERST, NEW HAMPSHIRE
MANCHESTER ROAD OVER BEAVER BROOK
RETAINING WALL AND WATERLINE BYPASS DETAILS

PROJECT NO.: 919101
FILE NAME: AB919101D111A
MODEL NAME: 919101DTL11
SHEET NO.
27A
SHEET 27A OF 40

- NOTES**
- (1) WATER MAIN WAS CONSTRUCTED UNDER A SEPERATE CONTRACT.
 - (2) LOCATION OF WATER MAIN WAS PROVIDED BASED ON FIELD MEASUREMENTS FROM PENNICHUCK WATER WORKS, INC.
 - (3) SOME EXISTING UTILITIES AND OTHER FEATURES NOT SHOWN FOR CLARITY.

3/24/2016 10:50:11 AM K:\919101\cad\dwg-buil\AB919101D111A.dgn

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.

HOYLE, TANNER & ASSOCIATES, INC.
 SIGNED: *[Signature]*
 MARCH 2016

NOTE: WORDING CONTAINED HEREIN IS UNDERSTOOD TO BE PAST TENSE.

DATE	DESCRIPTION	RECORD COPY REVISIONS
17/2016		

DESIGN BY:	WLD
DRAWN BY:	JBM
CHKD. BY:	STJ
SCALE:	AS SHOWN

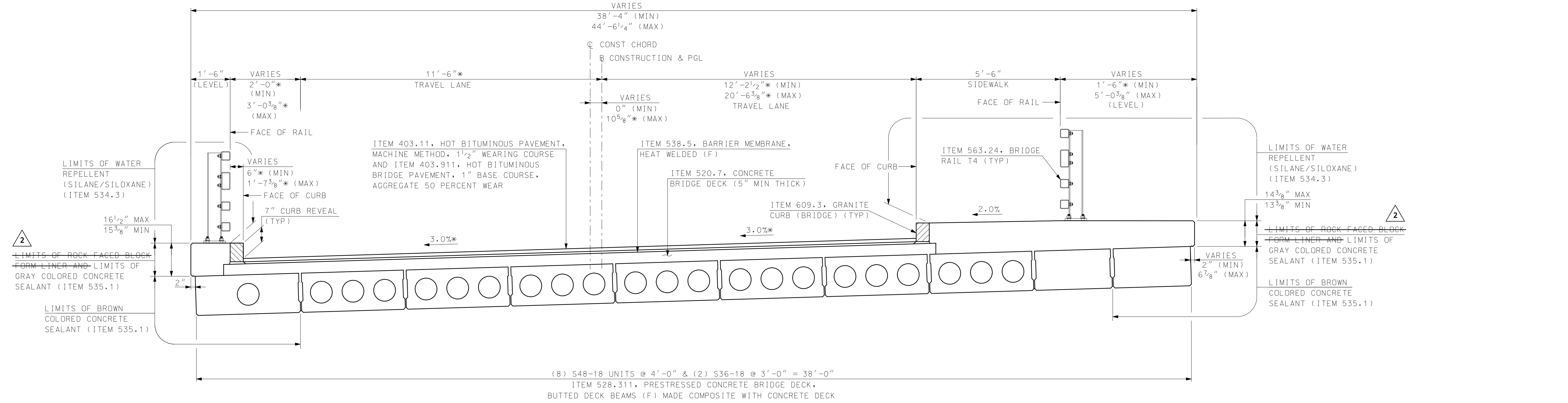
This document is prepared as an instrument of service and shall remain the property of Hoyle, Tanner & Associates, Inc. It may not be used, reproduced, disseminated or transmitted in any manner, including electronically, for any other purpose than that for which it was prepared without the written permission of Hoyle, Tanner & Associates, Inc.

© Copyright 2014 Hoyle, Tanner & Associates, Inc.
 150 Dow Street, Manchester, NH 03101-1227
 Tel (603) 669-5555 • Fax (603) 669-4168
 Webpage: www.hoyletanner.com

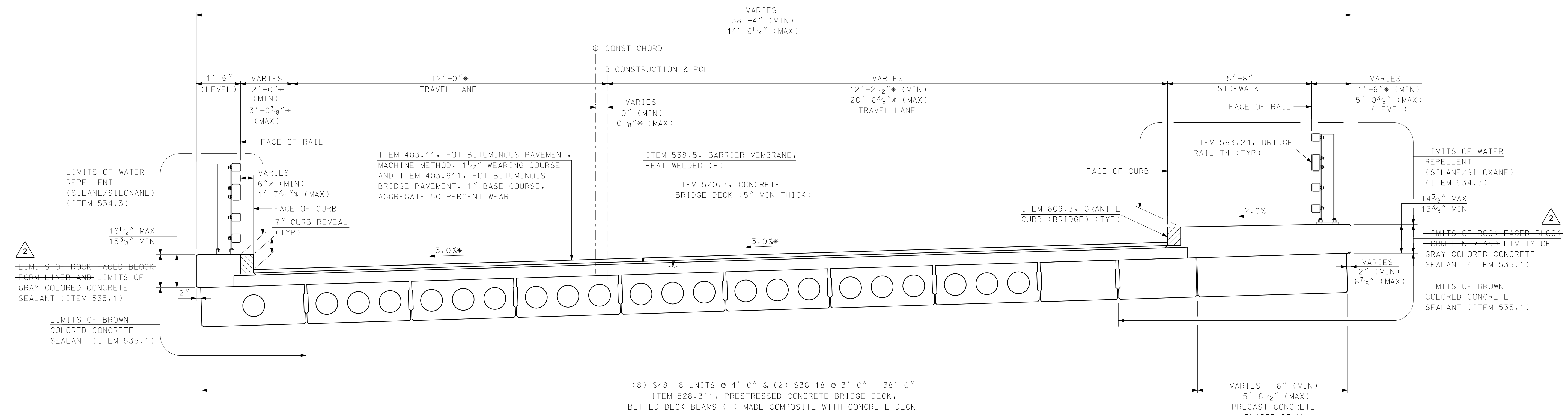
TOWN OF AMHERST
 AMHERST, NEW HAMPSHIRE
 MANCHESTER ROAD OVER BEAVER BROOK

TYPICAL BRIDGE SECTIONS

PROJECT NO.: 919101
 FILE NAME: AB919101Dh7
 MODEL NAME: 919102Dd7
 SHEET NO.
28
 SHEET 28 OF 40



TYPICAL SECTION 2
 SCALE: 1/2" = 1'-0"

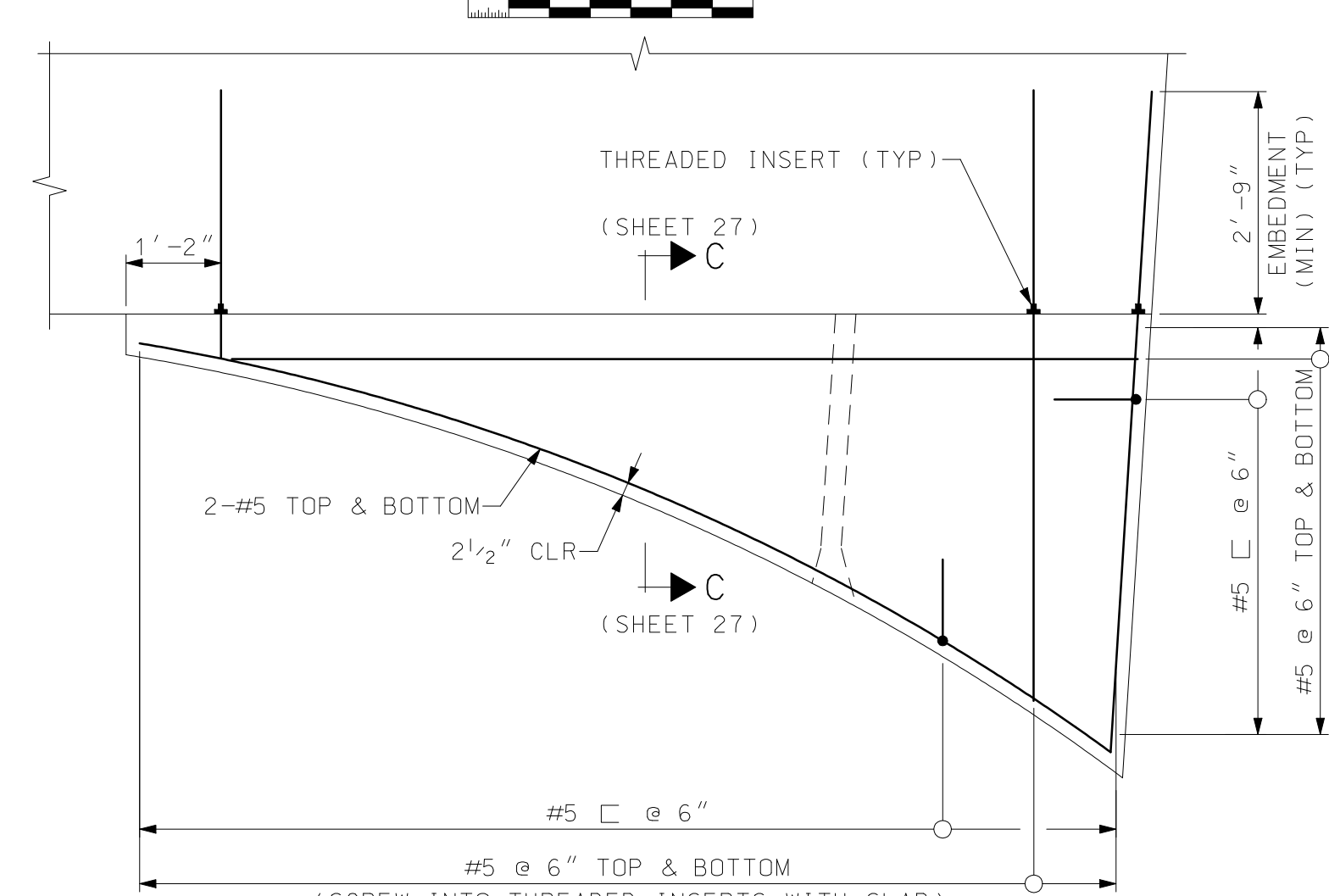
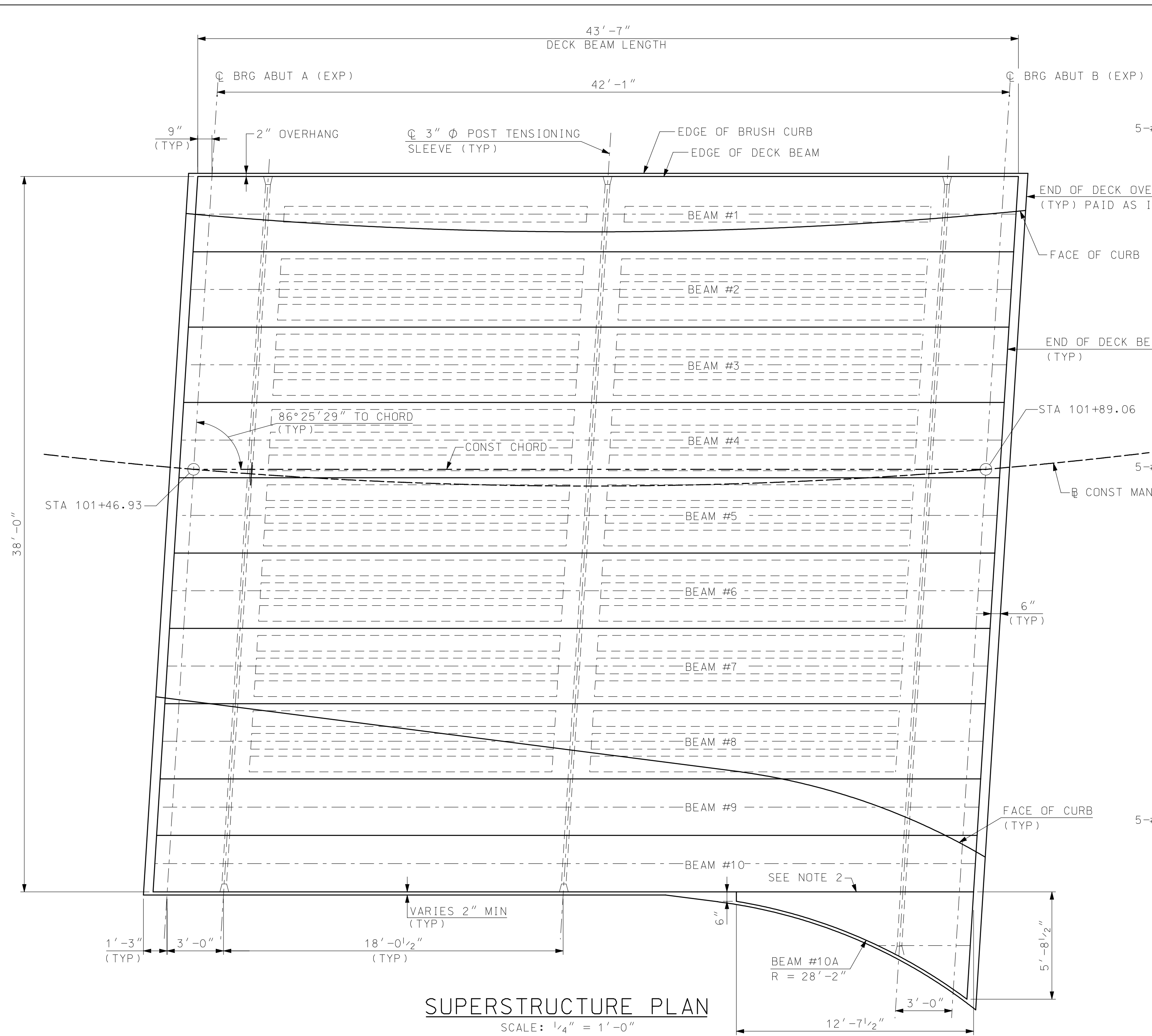


TYPICAL SECTION WITH FLARED BEAM 2
 SCALE: 1/2" = 1'-0"

- NOTES**
- (1) PRECAST CONCRETE FLARED BEAM SHALL BE CAST FULL DEPTH WITH THE FASCIA DECK BEAM AT THE PRECAST FABRICATION PLANT AND SHALL BE PAID AS ITEM 528.311.
 - (2) DIMENSIONS DENOTED WITH * ARE GIVEN RADIALLY.

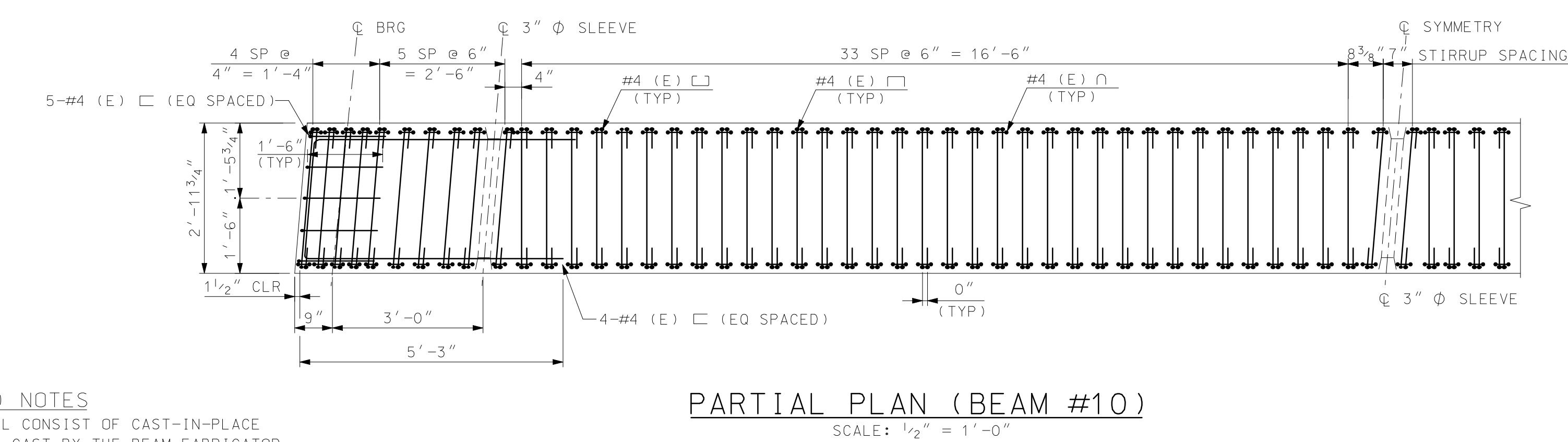
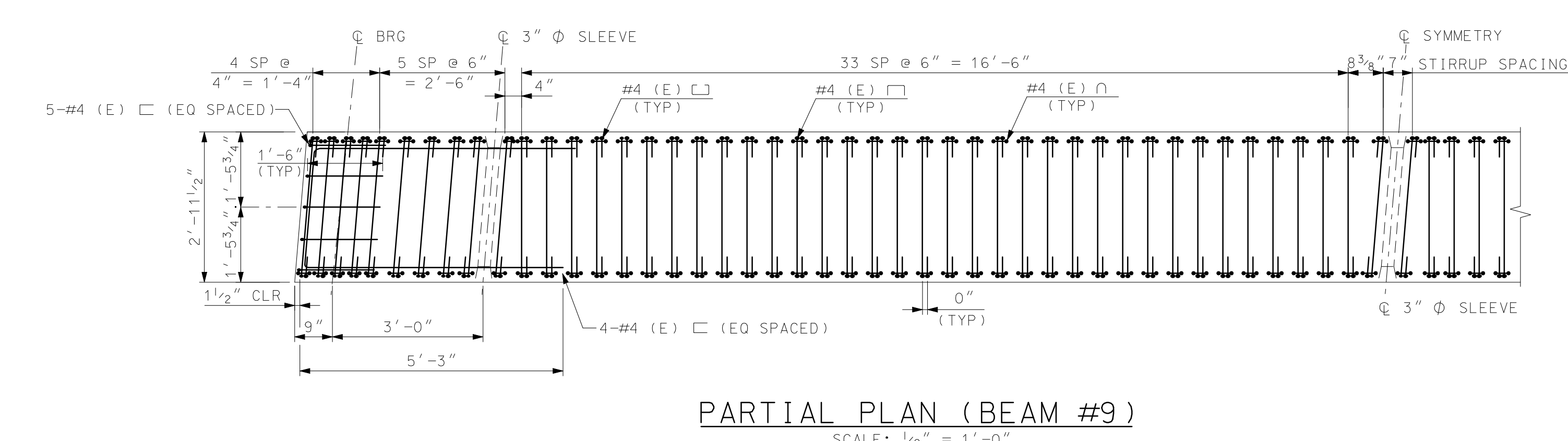
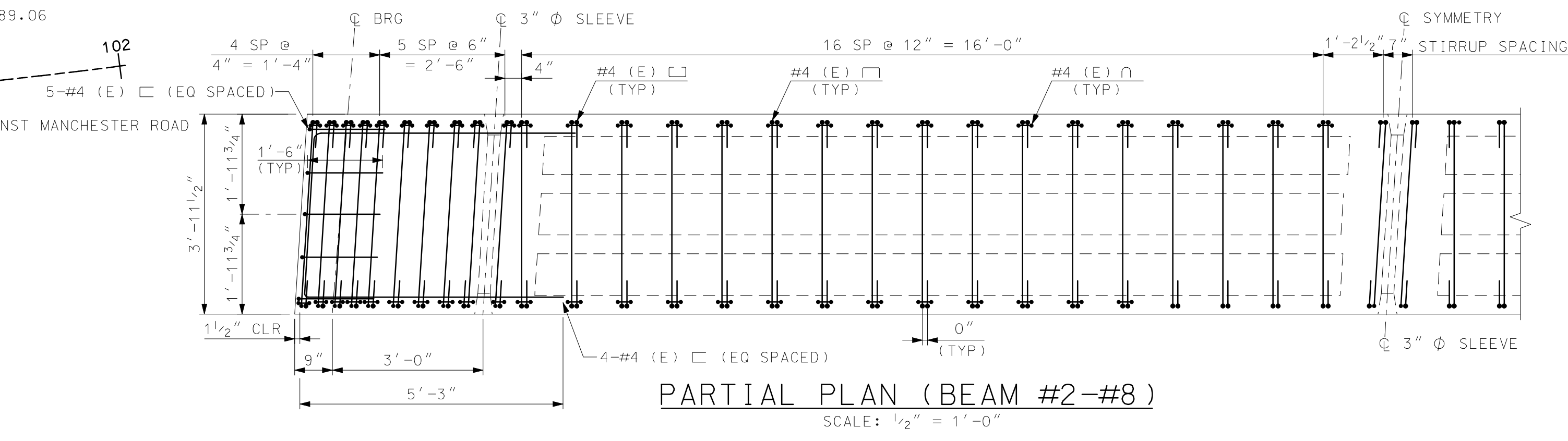
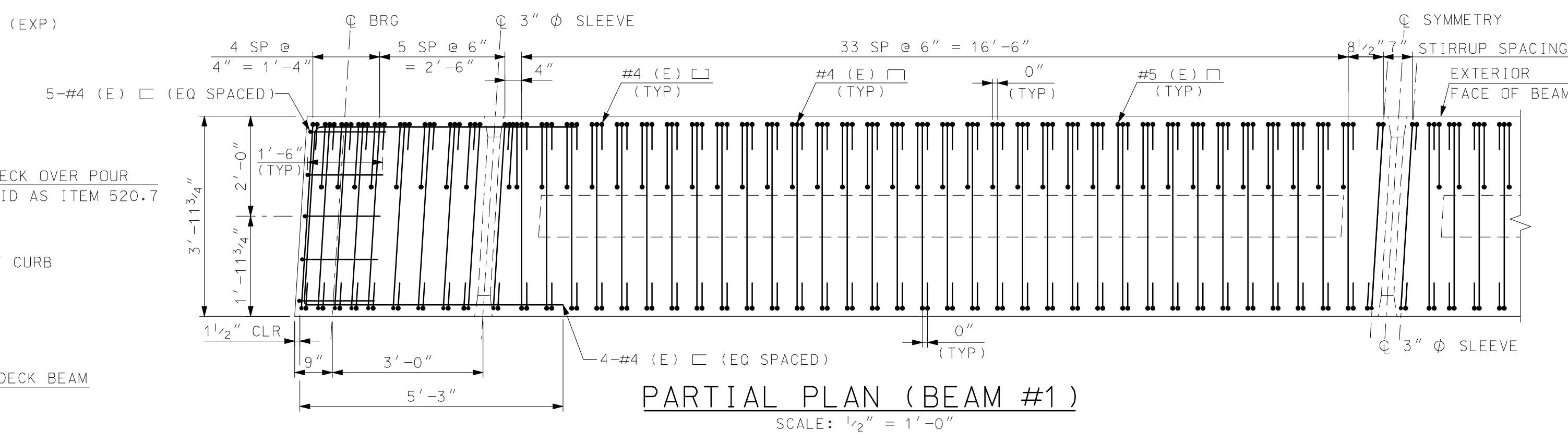
SCALE: 1/2" = 1'-0"
 1 0 1 2

3/24/2016 10:40:01 AM K:\919101\Cadd\has-built\AB919101Dh7.dgn

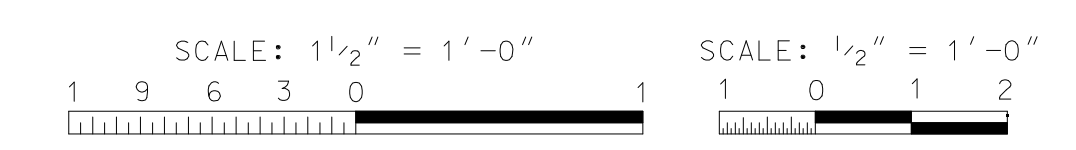


REINFORCING PLAN (BEAM #10A)
(DECK BEAM DETAILS NOT SHOWN FOR CLARITY)
SCALE: 1/2" = 1'-0"

- FLARED BEAM (#10A) NOTES**
- (1) DECK FLARED BEAM SHALL CONSIST OF CAST-IN-PLACE CONCRETE AND SHALL BE CAST BY THE BEAM FABRICATOR.
 - (2) INTENTIONALLY ROUGHEN EXTERIOR DECK BEAM #10 TO 1/4" AMPLITUDE IN AREA WHERE FLARED BEAM WILL BE CAST AGAINST THE DECK BEAM.
 - (3) DEPTH OF FLARED BEAM SHALL MATCH DECK BEAM #10 DEPTH.
 - (4) ADJUST RAINFOREING AS REQUIRED TO AVOID CONFLICTS WITH DECK BEAM #10 RAINFOREING.



SEE PRESTRESSED DECK BEAM SHEETS FOR FABRICATION DETAILS



I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.

HOYLE, TANNER & ASSOCIATES, INC.
SIGNED: *[Signature]*
MARCH 2016

NOTE: WORDING CONTAINED HEREIN IS UNDERSTOOD TO BE PAST TENSE.

REV.	DATE	DESCRIPTION
1	JUNE 2014	RECORD COPY REVISIONS

DRW. CHD. BY: TAG JCR
DATE: 3/2016

DESIGN BY: WLD
DRAWN BY: JBM
CHKD. BY: STJ
SCALE: AS SHOWN

This document is prepared as an instrument of service and shall remain the property of Hoyle, Tanner & Associates, Inc. It may not be used, reproduced, disseminated or transmitted in any manner, including electronically, for any other purpose than the project, without the written permission of Hoyle, Tanner & Associates, Inc.

Hoyle, Tanner & Associates, Inc.
© Copyright 2014 Hoyle, Tanner & Associates, Inc.
150 Dow Street, Manchester, NH 03101-1227
Tel (603) 669-5555 • Fax (603) 669-4168
Webpage: www.hoyletanner.com

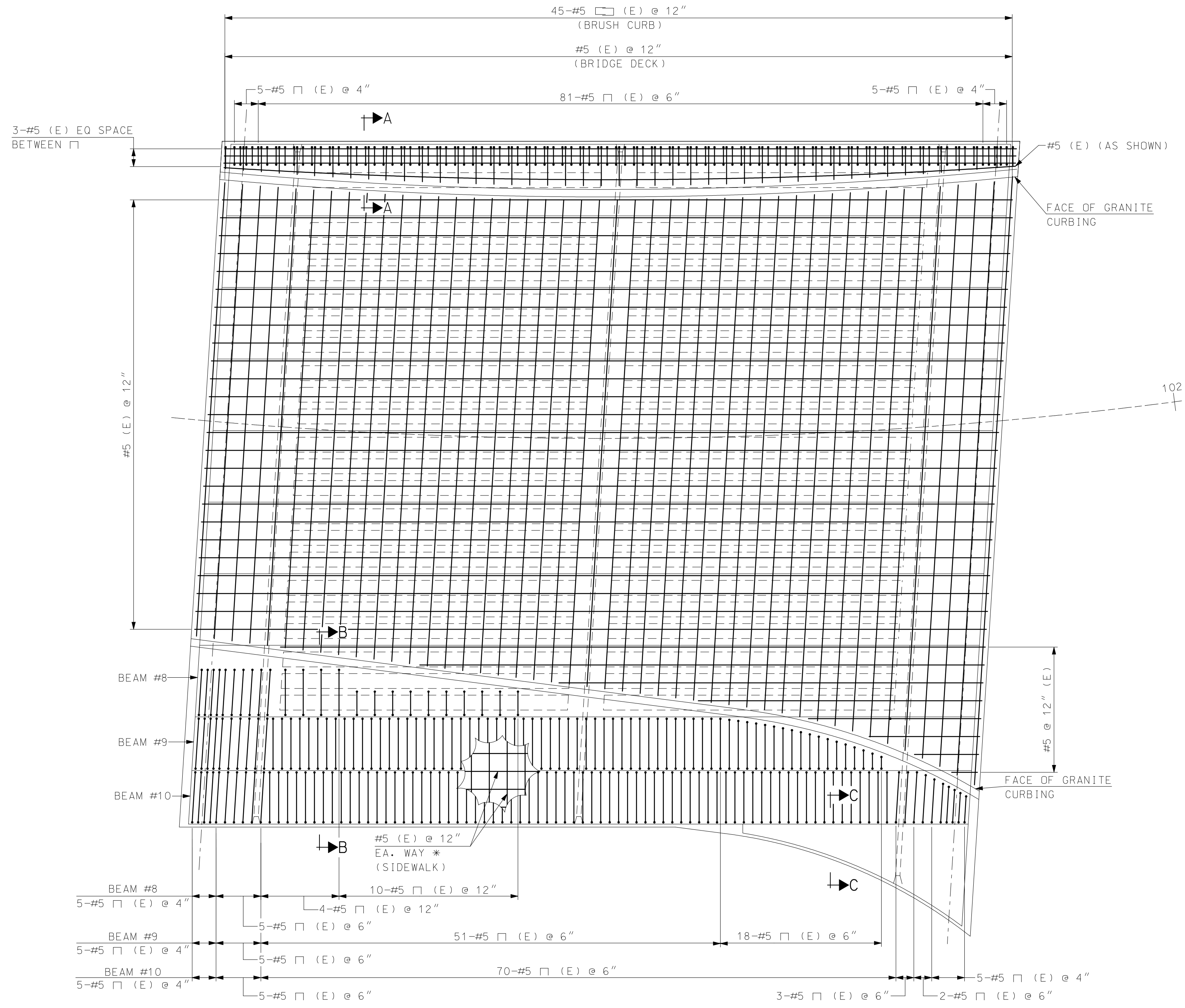
TOWN OF AMHERST
AMHERST, NEW HAMPSHIRE
MANCHESTER ROAD OVER BEAVER BROOK

SUPERSTRUCTURE PLAN AND DETAILS

PROJECT NO.: 919101
FILE NAME: AB919101DH2
MODEL NAME: 919102Dd2
SHEET NO.

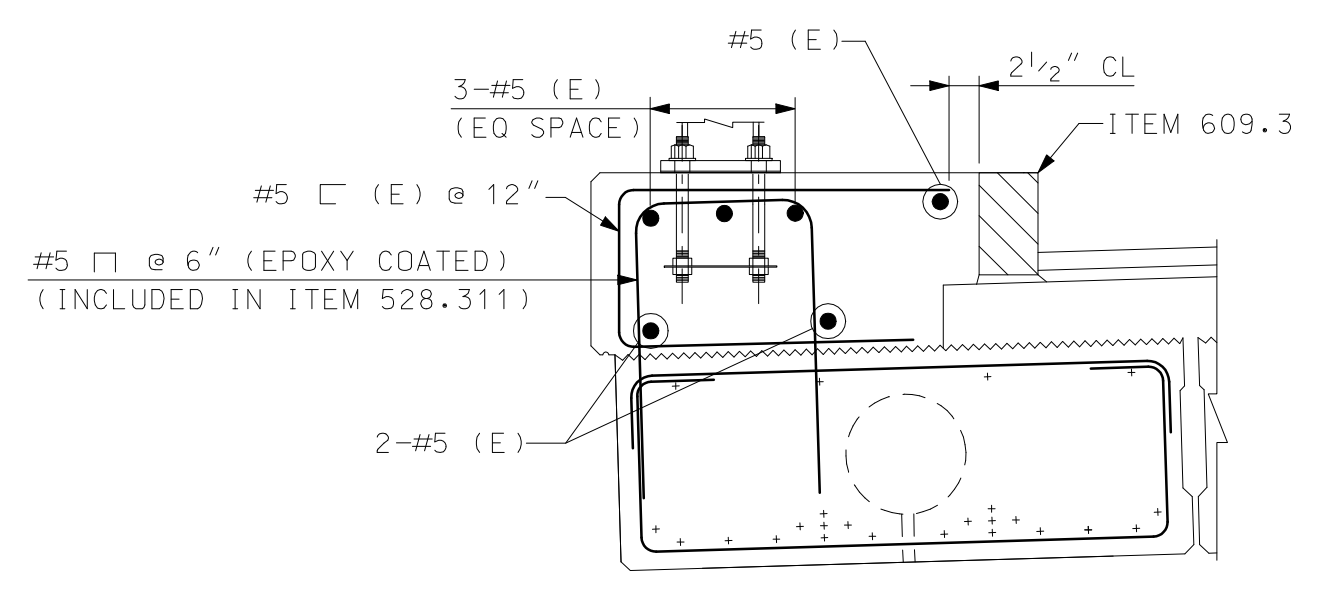
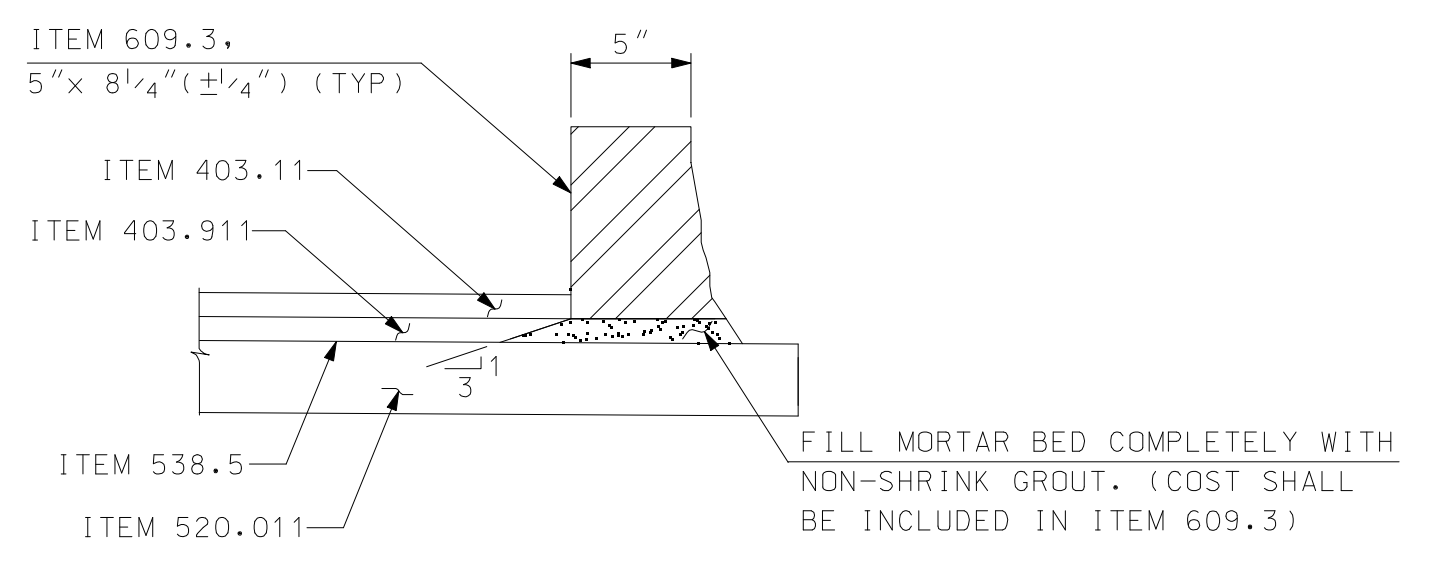
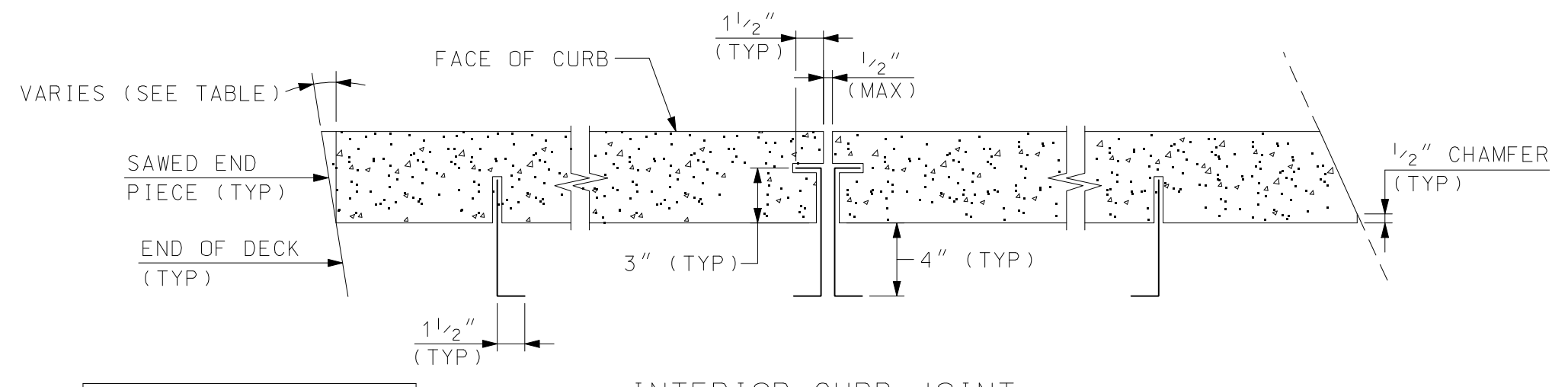
29

SHEET 29 OF 40

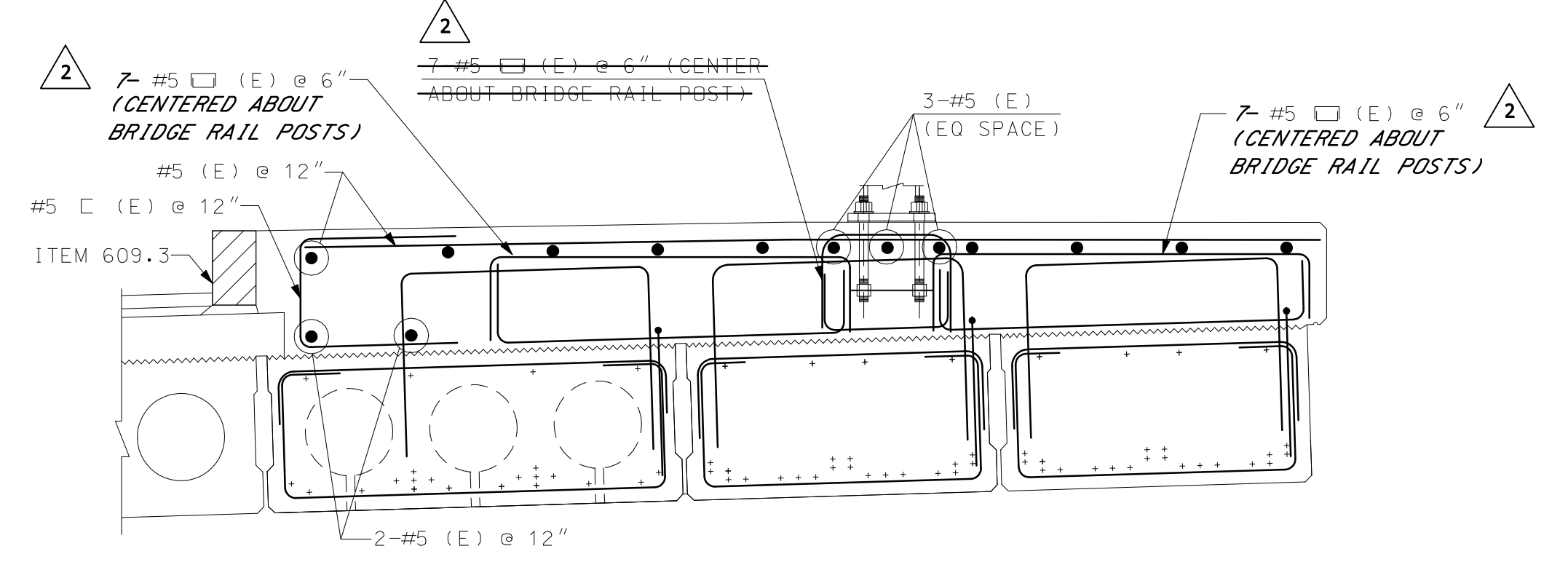


DECK PLAN
 SCALE: 1/4" = 1'-0"
 1 0 2 4 6

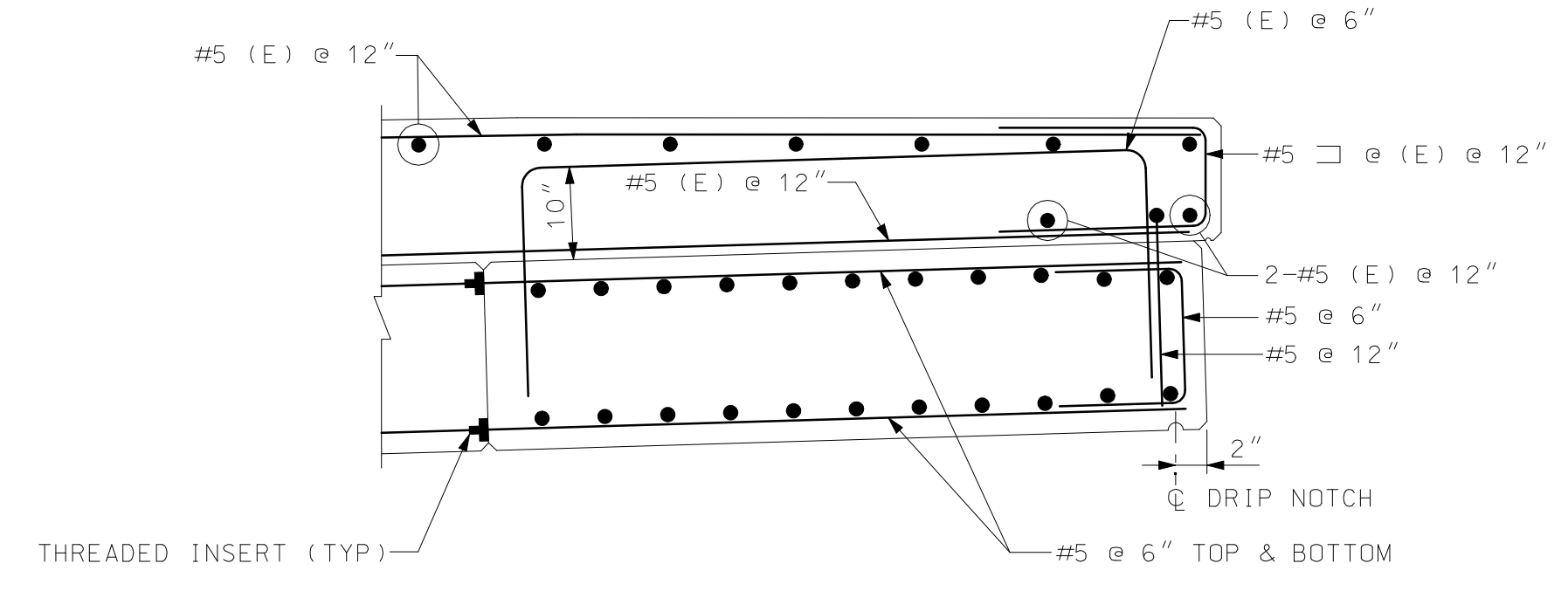
* OTHER SIDEWALK REINFORCING BARS NOT SHOWN FOR CLARITY.



SECTION A-A
 (BRIDGE RAIL PARTIALLY SHOWN FOR CLARITY)
 SCALE: 3/4" = 1'-0"



SECTION B-B
 (BRIDGE RAIL PARTIALLY SHOWN FOR CLARITY)
 SCALE: 3/4" = 1'-0"



SECTION C-C
 (BRIDGE RAIL NOT SHOWN FOR CLARITY)
 SCALE: 3/4" = 1'-0"

SEE PRESTRESSED DECK BEAM SHEETS FOR FABRICATION DETAILS

SCALE 3/4" = 1'-0"
 1 0 1 2

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.

HOYLE, TANNER & ASSOCIATES, INC.
 SIGNED: [Signature]
 MARCH 2016

NOTE: WORDING CONTAINED HEREON IS UNDERSTOOD TO BE PAST TENSE.

REV.	DESCRIPTION	DATE	DRW. CHG. BY	CHKD. BY
1	RECORD COPY REVISIONS	3/2016	JCR	

This document is prepared as an instrument of service and shall remain the property of Hoyle, Tanner, & Associates, Inc. It may not be used, reproduced, disseminated or transmitted in any manner, including electronically, for any other project or purpose than the project, without the written permission of Hoyle, Tanner, & Associates, Inc.

DESIGN BY:	WLD	JBM	STJ	AS SHOWN
JUN 2014				

Hoyle, Tanner & Associates, Inc.
 © Copyright 2014 Hoyle, Tanner & Associates, Inc.
 150 Dow Street, Manchester, NH 03101-1227
 Tel (603) 669-5555 • Fax (603) 669-4168
 Webpage: www.hoyletanner.com

TOWN OF AMHERST
 AMHERST, NEW HAMPSHIRE
 MANCHESTER ROAD OVER BEAVER BROOK

DECK REINFORCING PLAN AND DETAILS

PROJECT NO.: 919101
 FILE NAME: AB919101DH9
 MODEL NAME: 919102DH9

SHEET NO.
30
 SHEET 30 OF 40

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.

HOYLE, TANNER & ASSOCIATES, INC.
 SIGNED: *[Signature]*
 MARCH 2016

NOTE: WORDING CONTAINED HEREON IS UNDERSTOOD TO BE PAST TENSE.

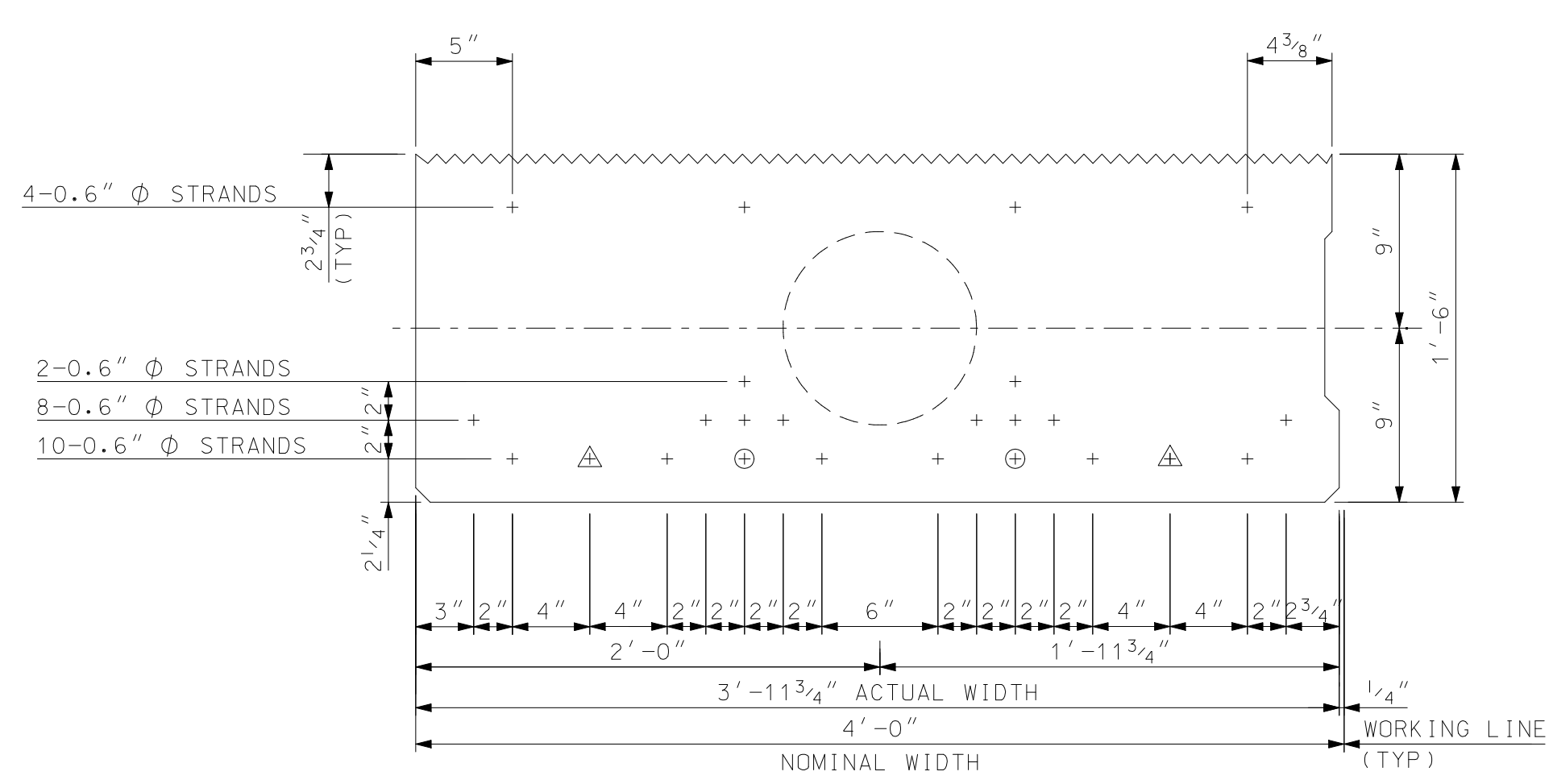
REV.	DESCRIPTION	DATE
1	RECORD COPY REVISIONS <td>3/2016</td>	3/2016

JUNE 2014
 DESIGN BY: WLD
 DRAWN BY: JBM
 CHKD. BY: STJ
 SCALE: AS SHOWN

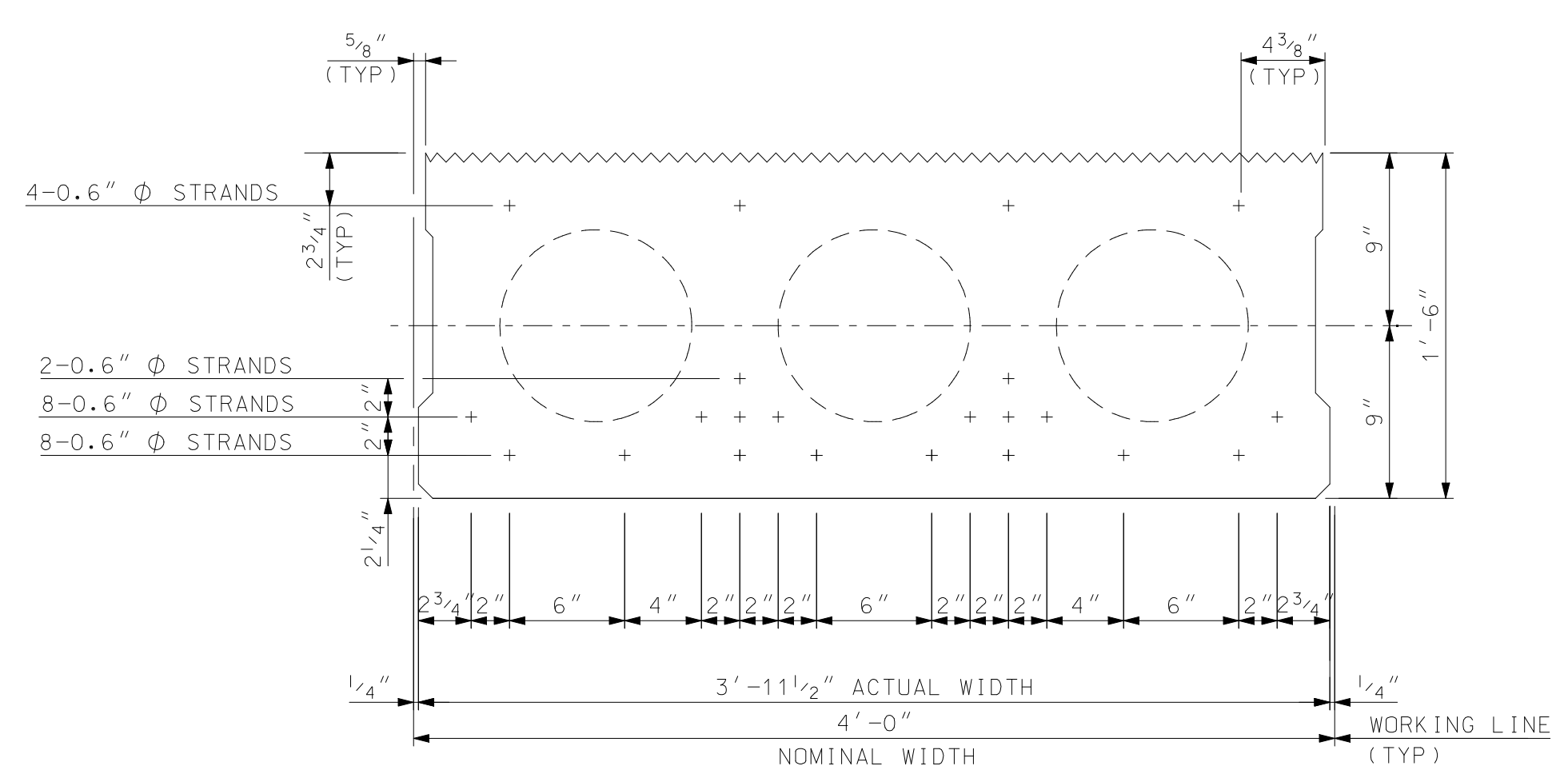
Hoyle, Tanner & Associates, Inc.
 © Copyright 2014 Hoyle, Tanner & Associates, Inc.
 150 Dow Street, Manchester, NH 03101-1227
 Tel (603) 669-5555 • Fax (603) 669-4168
 Webpage: www.hoyletanner.com

TOWN OF AMHERST
 AMHERST, NEW HAMPSHIRE
 MANCHESTER ROAD OVER BEAVER BROOK
 PRESTRESSED DECK BEAM DETAILS (1 OF 4)

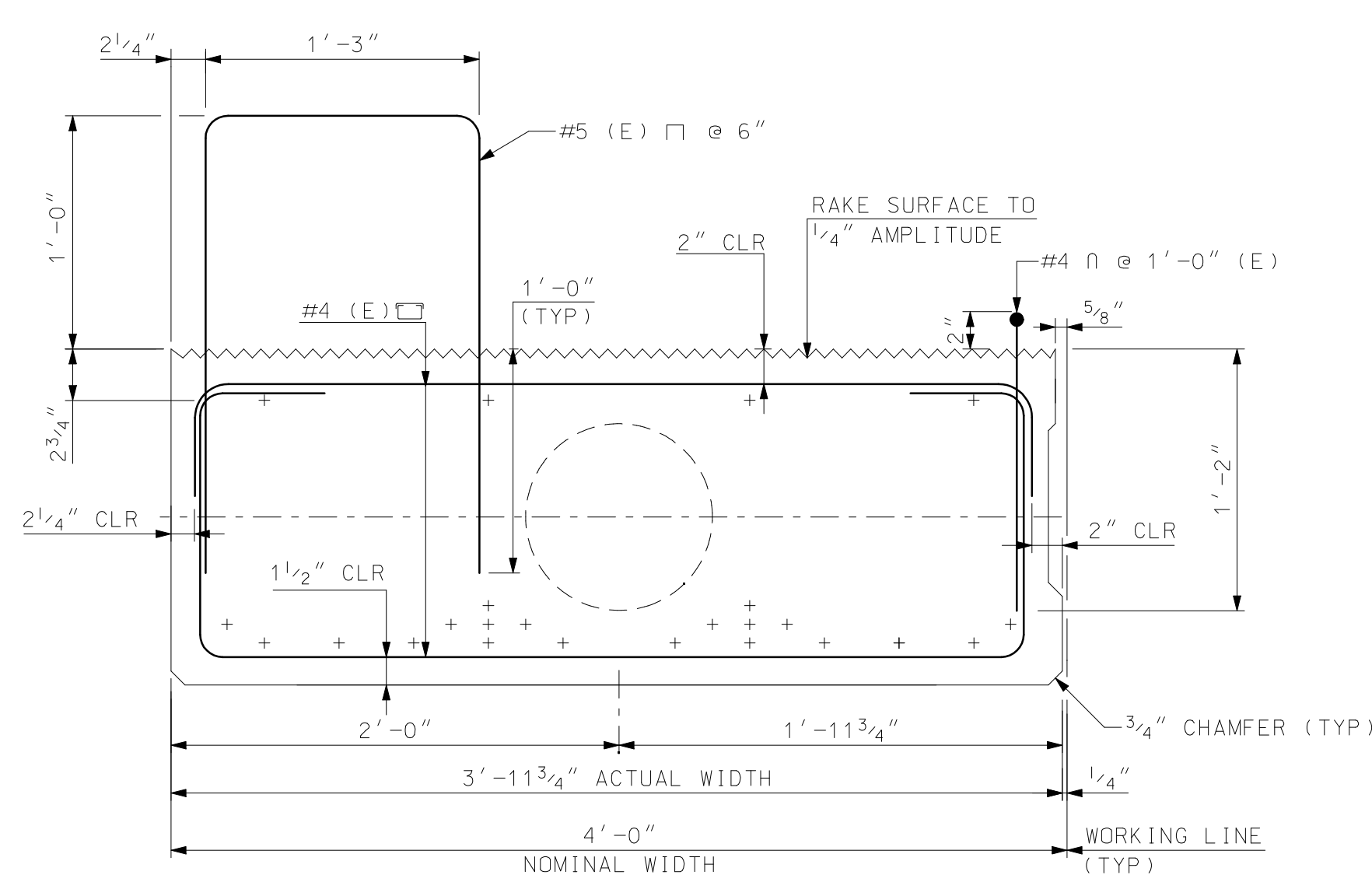
PROJECT NO.: 919101
 FILE NAME: AB919101DH4
 MODEL NAME: 919101DtlS4
 SHEET NO.
31
 SHEET 31 OF 40



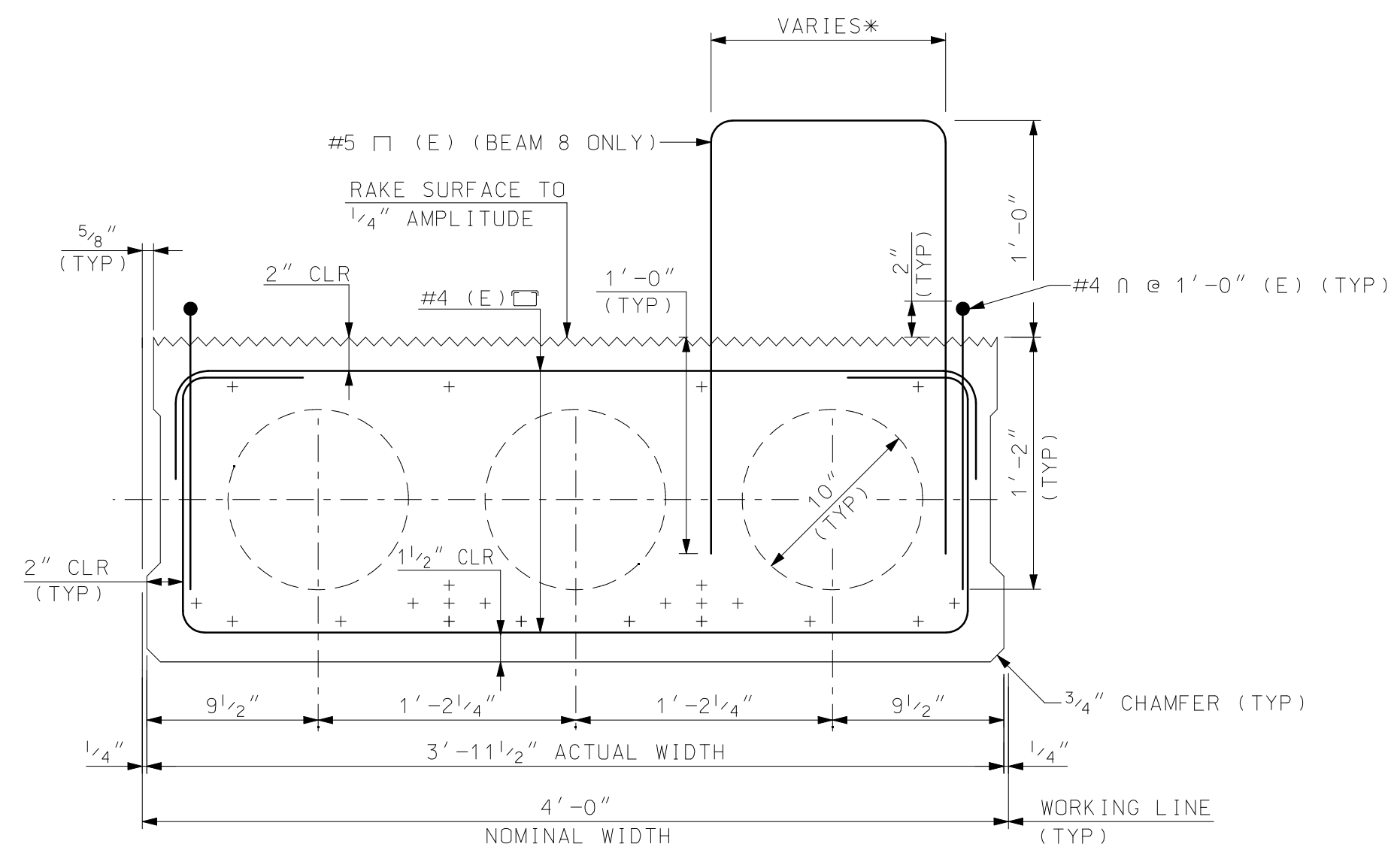
DECK BEAM PRESTRESSING SECTION (BEAM #1)
 SCALE: 1 1/2" = 1'-0"



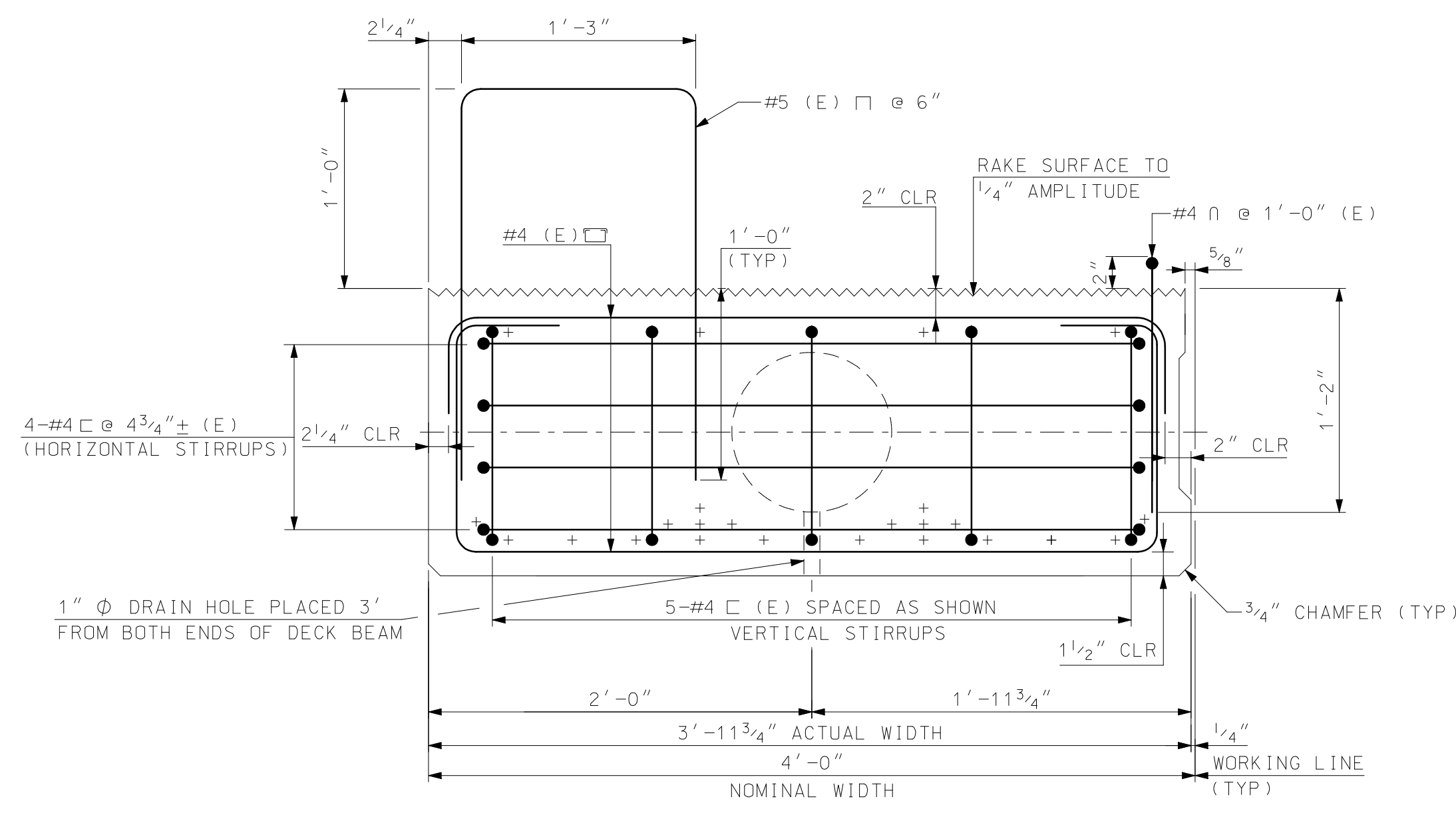
DECK BEAM PRESTRESSING SECTION (BEAM #2 THRU #8)
 SCALE: 1 1/2" = 1'-0"



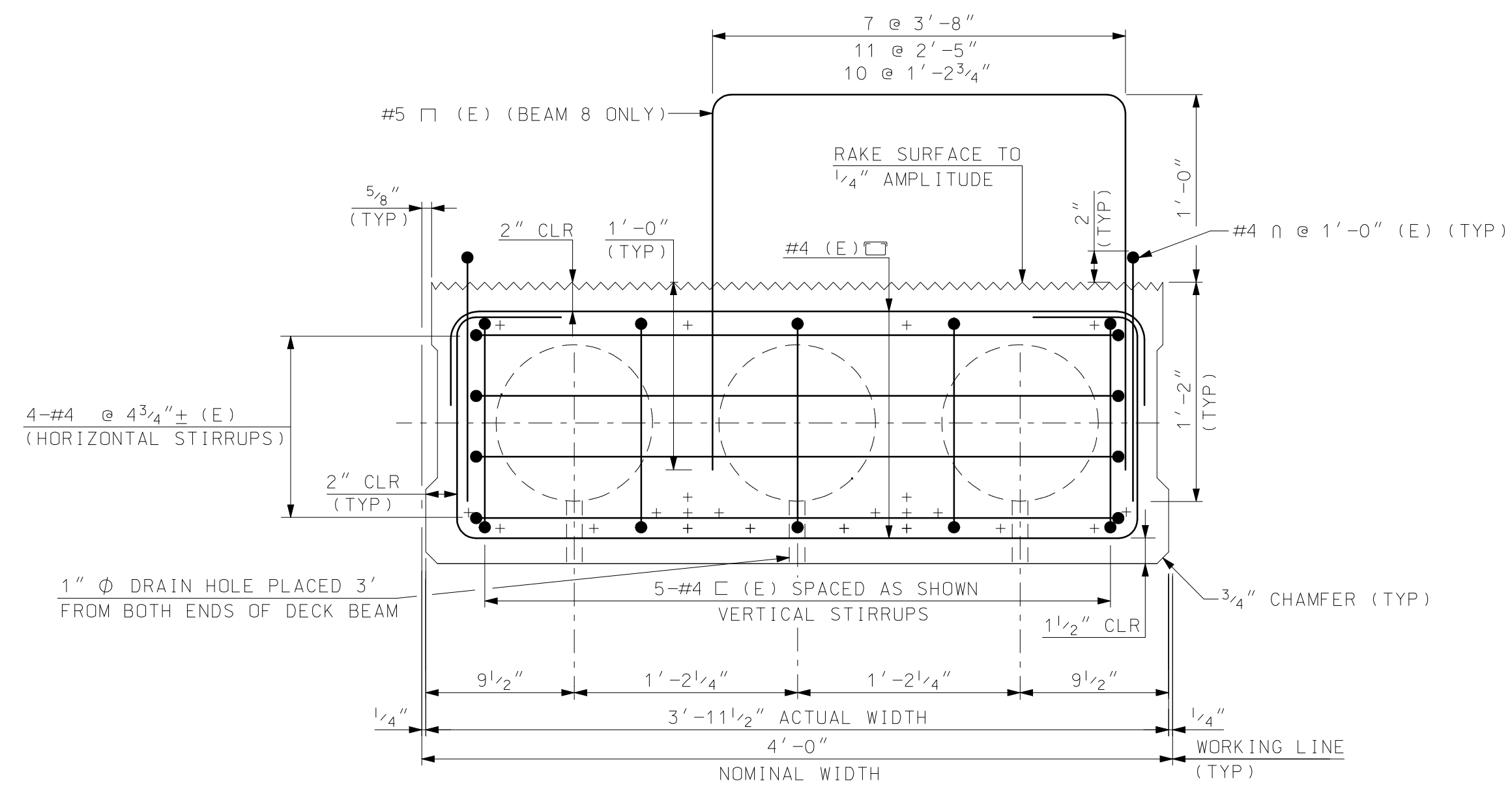
DECK BEAM MIDSPAN SECTION (BEAM #1)
 SCALE: 1 1/2" = 1'-0"



DECK BEAM MIDSPAN SECTION (BEAM #2 THRU #8)
 SCALE: 1 1/2" = 1'-0"



DECK BEAM END SECTION (BEAM #1)
 SCALE: 1 1/2" = 1'-0"

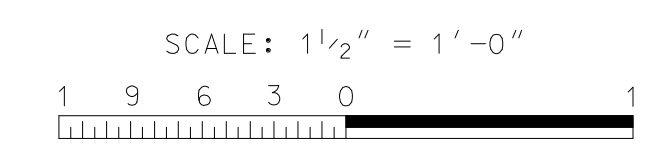


DECK BEAM END SECTION (BEAM #2 THRU #8)
 SCALE: 1 1/2" = 1'-0"

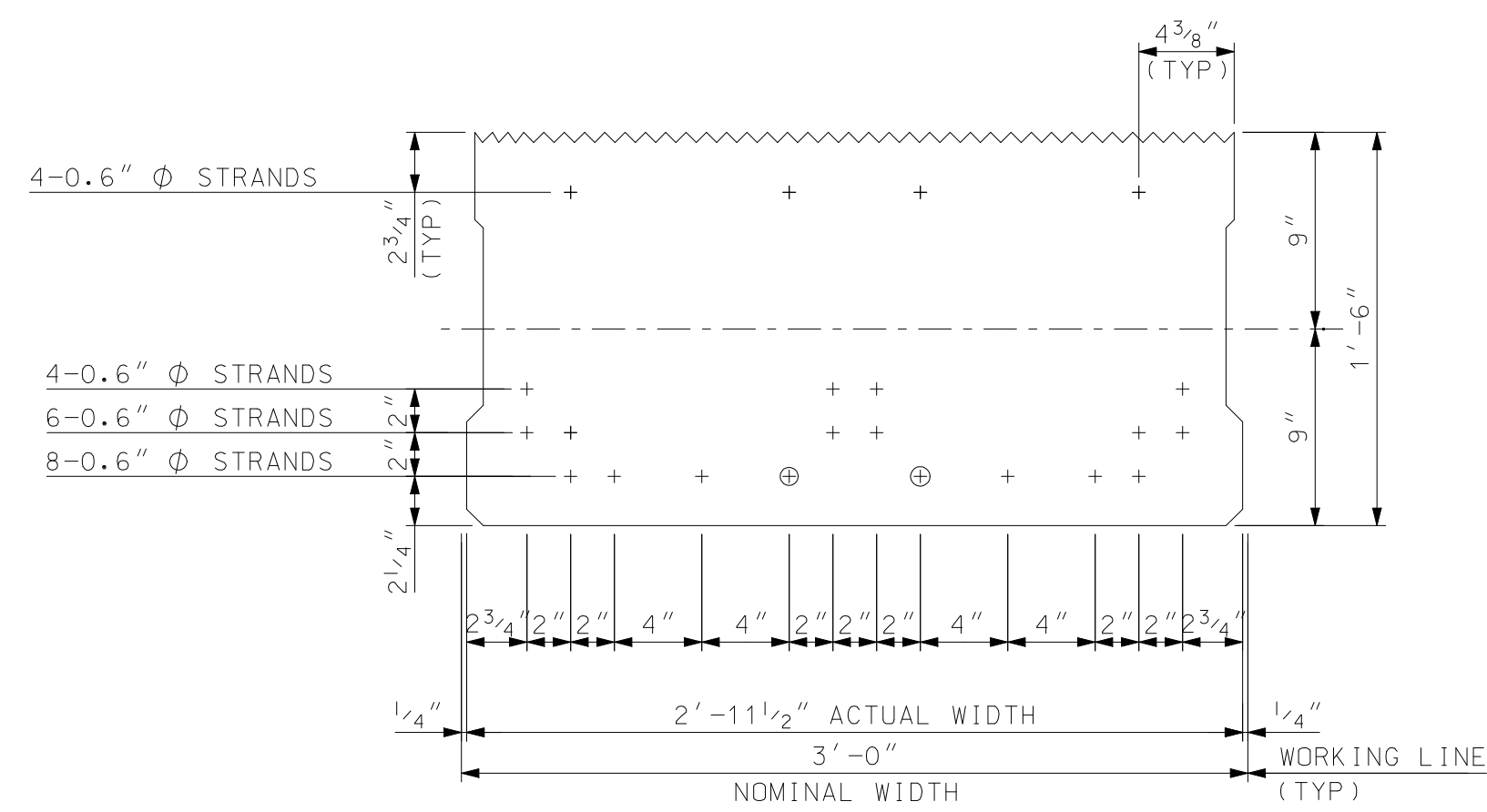
2 SEE PRESTRESSED DECK BEAM SHEETS FOR FABRICATION DETAILS

- LEGEND**
- + DENOTES STRAIGHT STRAND
 - ⊕ DENOTES DEBONDED STRAND 3'-0" FROM END OF BEAM
 - ⊗ DENOTES DEBONDED STRAND 5'-0" FROM END OF BEAM
 - ⊞ DENOTES DEBONDED STRAND 7'-0" FROM END OF BEAM

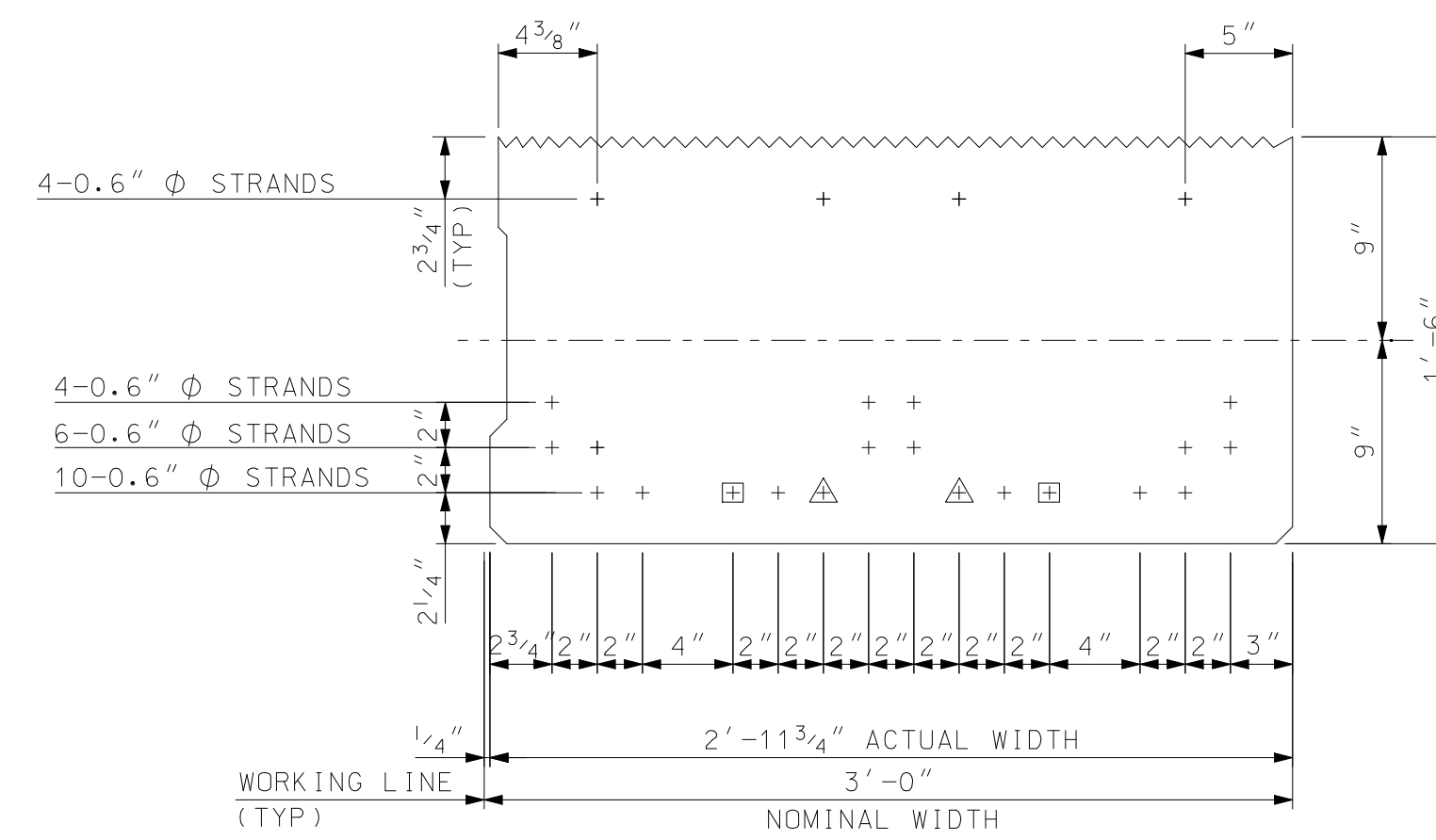
NOTE
 (1) ALL REINFORCING STEEL TO BE EPOXY COATED AND IS INCLUDED IN ITEM 528.311.



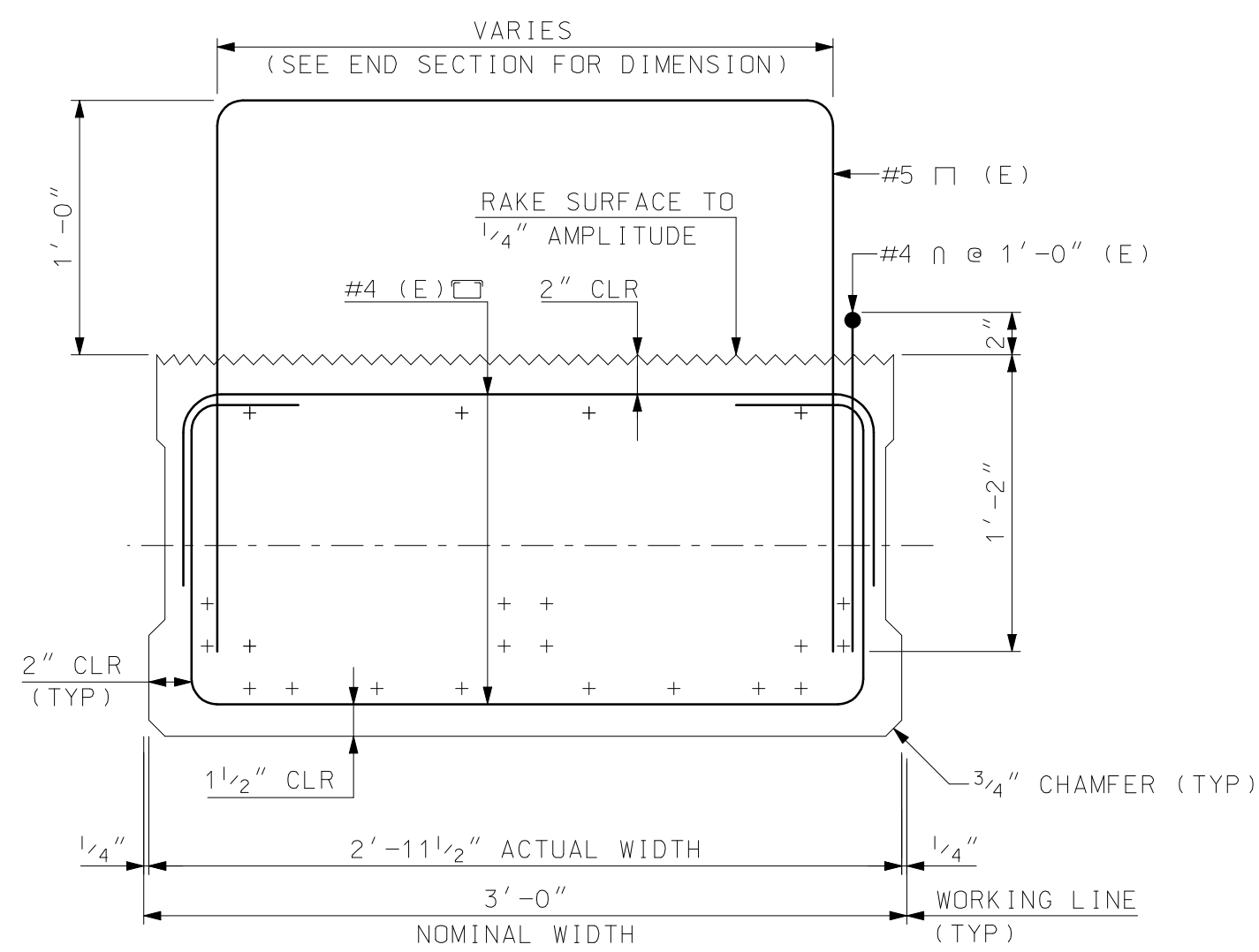
3/24/2016 10:40:06 AM K:\919101\Cadd\as-built\AB919101DH4.dgn



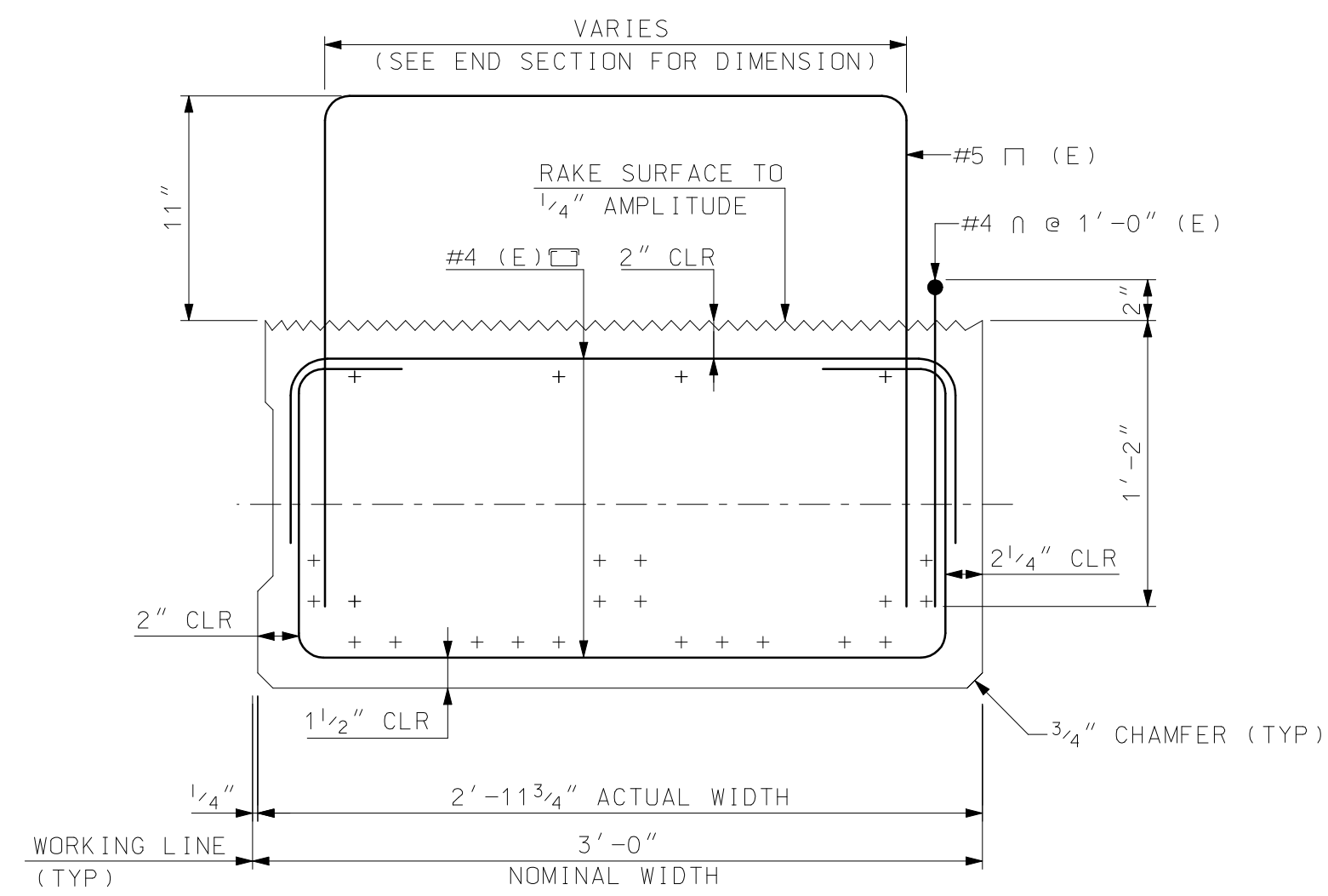
DECK BEAM PRESTRESSING SECTION (BEAM #9)
SCALE: 1 1/2" = 1'-0"



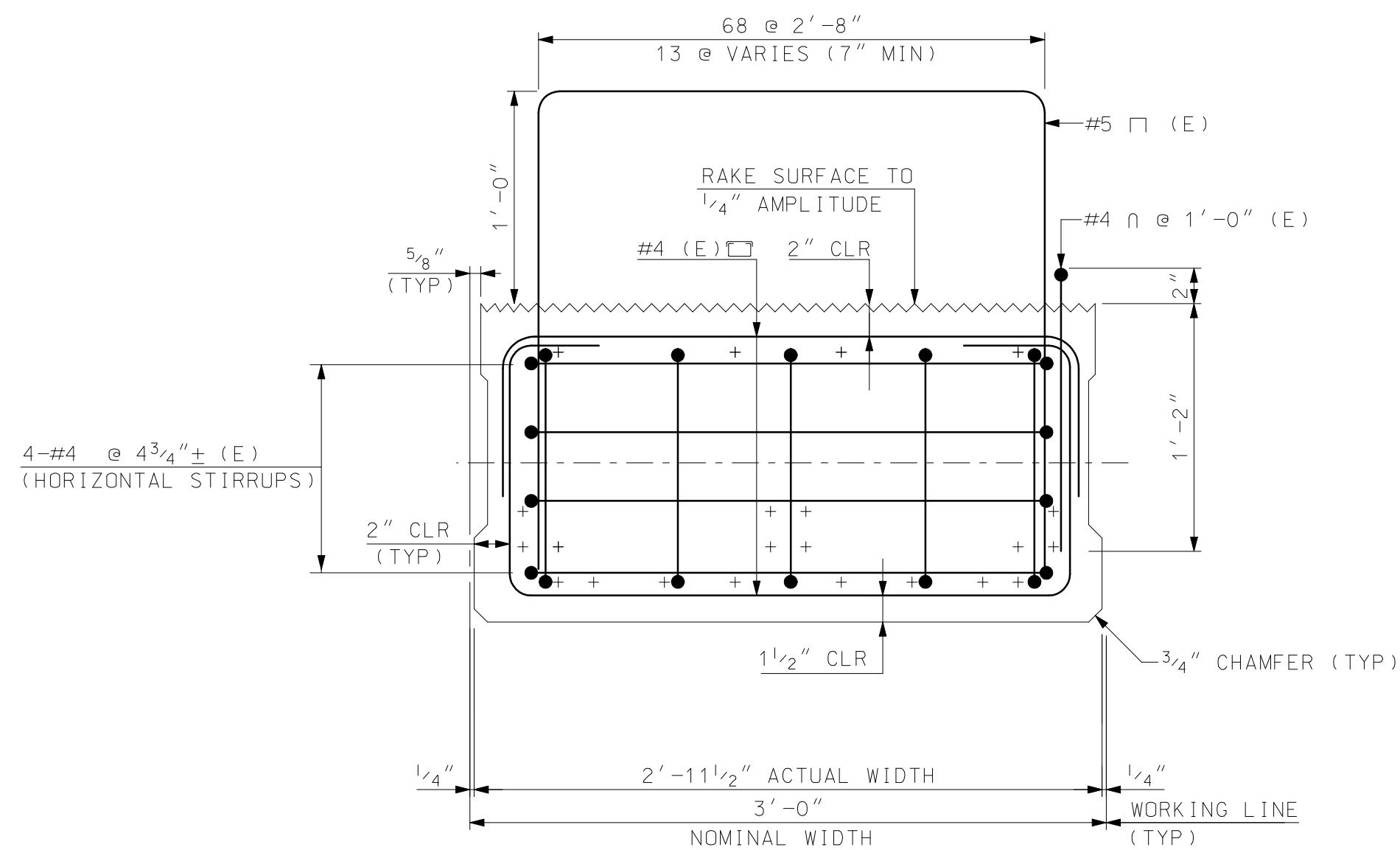
DECK BEAM PRESTRESSING SECTION (BEAM #10)
SCALE: 1 1/2" = 1'-0"



DECK BEAM MIDSPAN SECTION (BEAM #9)
SCALE: 1 1/2" = 1'-0"

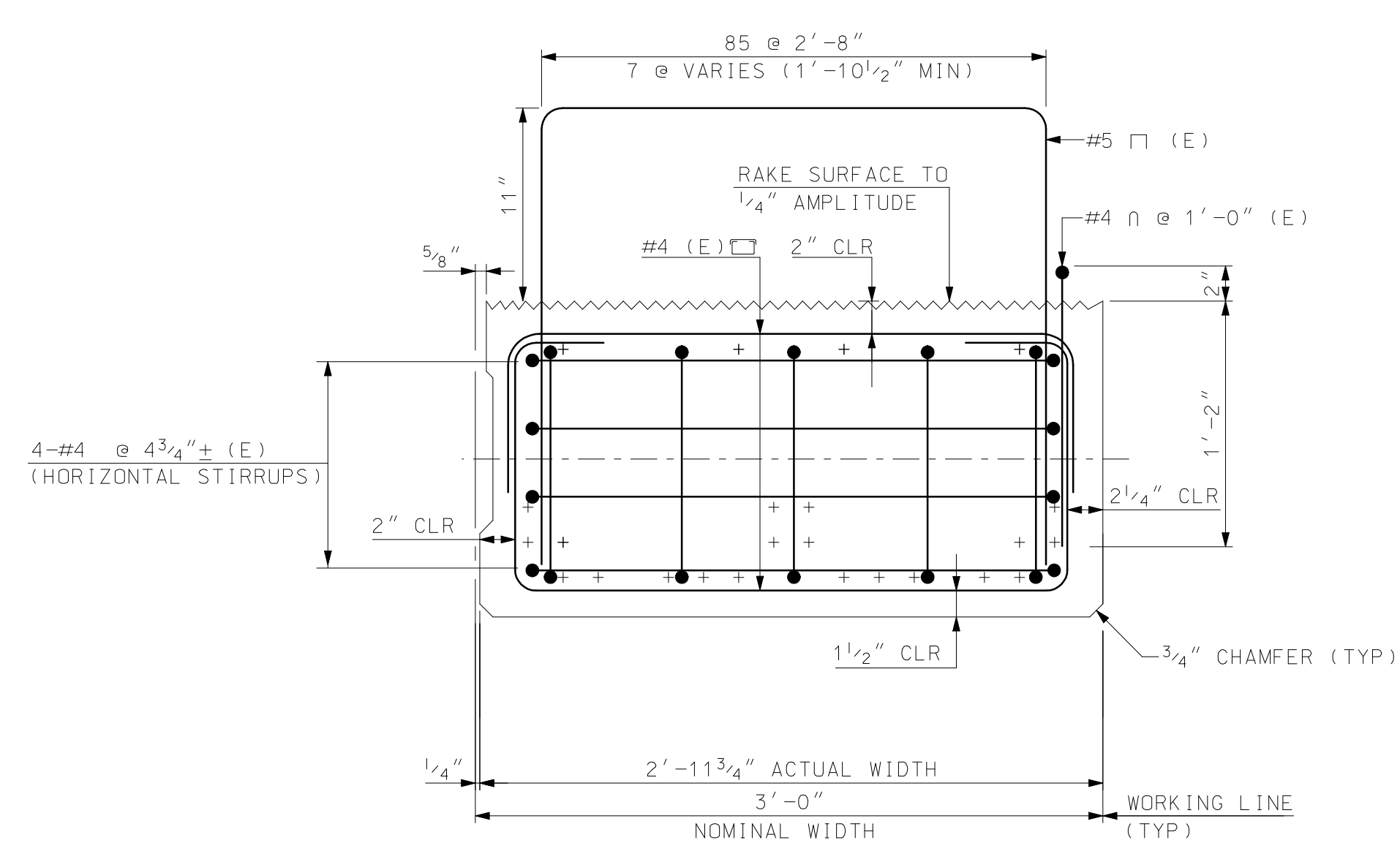


DECK BEAM MIDSPAN SECTION (BEAM #10)
SCALE: 1 1/2" = 1'-0"



DECK BEAM END SECTION (BEAM #9)
SCALE: 1 1/2" = 1'-0"

NOTE: DEBONDED STRANDS NOT SHOWN FOR CLARITY.



DECK BEAM END SECTION (BEAM #10)
SCALE: 1 1/2" = 1'-0"

NOTES

- (1) DEBONDED STRANDS NOT SHOWN FOR CLARITY.
- (2) THREADED INSERTS NOT SHOWN FOR CLARITY. SEE SHEETS 29 AND 30 FOR FLARED BEAM DETAILS.

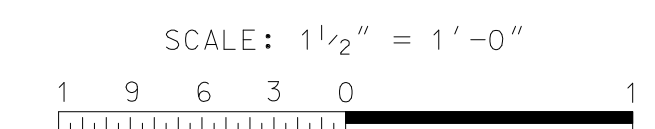
2 SEE PRESTRESSED DECK BEAM SHEETS FOR FABRICATION DETAILS

LEGEND

- + DENOTES STRAIGHT STRAND
- ⊕ DENOTES DEBONDED STRAND 3'-0" FROM END OF BEAM
- △ DENOTES DEBONDED STRAND 5'-0" FROM END OF BEAM
- ⊞ DENOTES DEBONDED STRAND 7'-0" FROM END OF BEAM

NOTE

- (1) ALL REINFORCING STEEL TO BE EPOXY COATED AND IS INCLUDED IN ITEM 528.311.



I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.	
HOYLE, TANNER & ASSOCIATES, INC.	
SIGNED: <i>[Signature]</i>	
MARCH 2016	
NOTE: WORDING CONTAINED HEREIN IS UNDERSTOOD TO BE PAST TENSE.	
REV.	DESCRIPTION
	RECORD COPY REVISIONS
DATE	DRW. CHG. BY
3/2016 <td>JCR </td>	JCR

JUNE 2014	WLD
DESIGN BY:	JBM
DRAWN BY:	STJ
CHKD. BY:	AS SHOWN
SCALE:	AS SHOWN

Hoyle, Tanner & Associates, Inc.
 © Copyright 2014 Hoyle, Tanner & Associates, Inc.
 150 Dow Street, Manchester, NH 03101-1227
 Tel (603) 669-5555 • Fax (603) 669-4168
 Webpage: www.hoyletanner.com

TOWN OF AMHERST
 AMHERST, NEW HAMPSHIRE
 MANCHESTER ROAD OVER BEAVER BROOK
 PRESTRESSED DECK BEAM DETAILS (2 OF 4)

PROJECT NO.: 919101
 FILE NAME: AB919101D08
 MODEL NAME: 919101D08

SHEET NO.
32
 SHEET 32 OF 40

3/24/2016 10:40:07 AM K:\919101\Cadd\as-built\AB919101D08.dgn

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.
 HOYLE, TANNER & ASSOCIATES, INC.
 SIGNED: *[Signature]*
 MARCH 2016
 NOTE: WORDING CONTAINED HEREON IS UNDERSTOOD TO BE PAST TENSE.

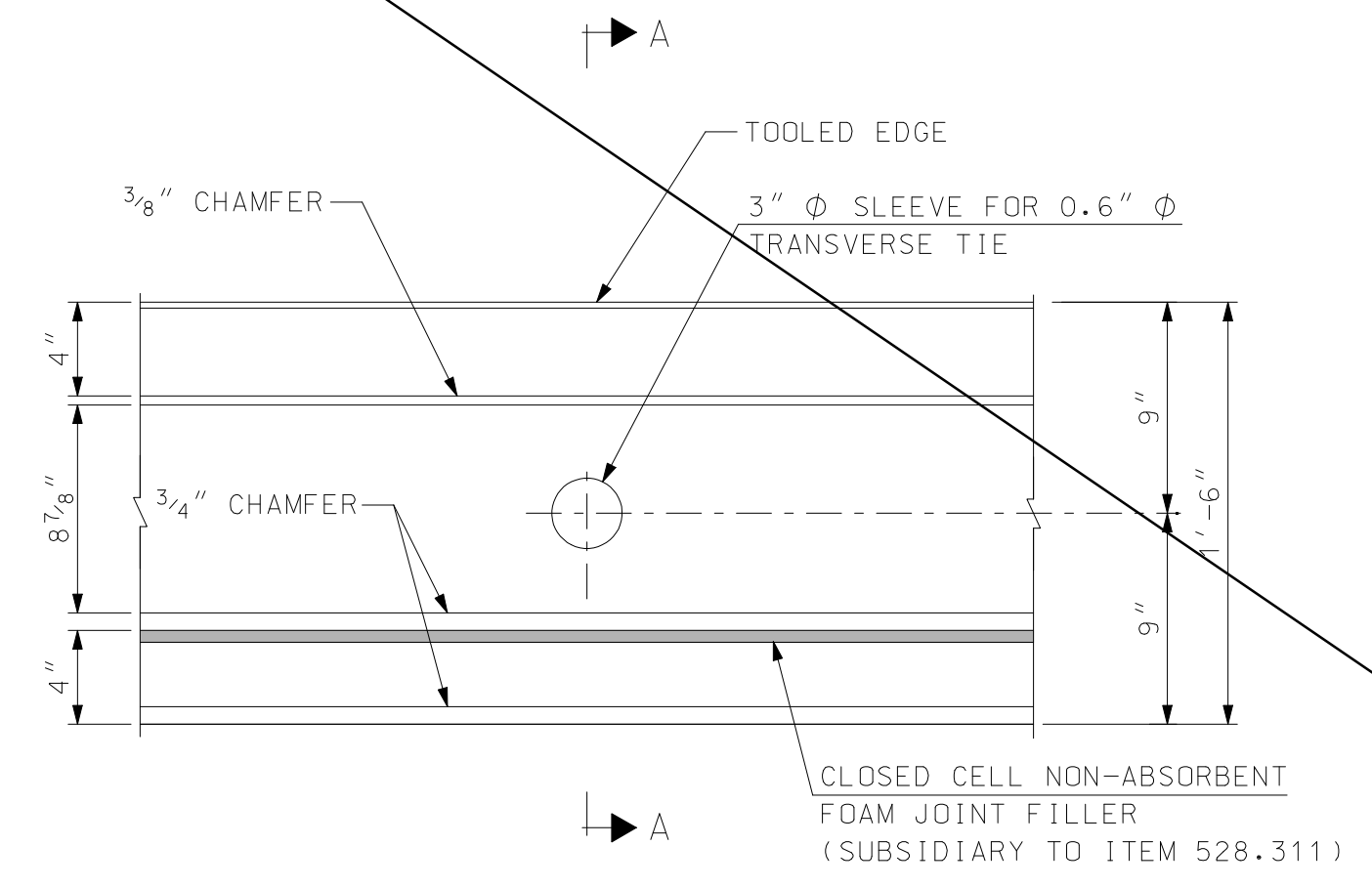
REV.	DESCRIPTION	DATE	DRW. CHGD. BY	CHKD. BY
1	RECORD COPY REVISIONS	3/2016	JCR	JCR

DESIGN BY: WLD
 DRAWN BY: JBM
 CHKD. BY: STJ
 SCALE: AS SHOWN

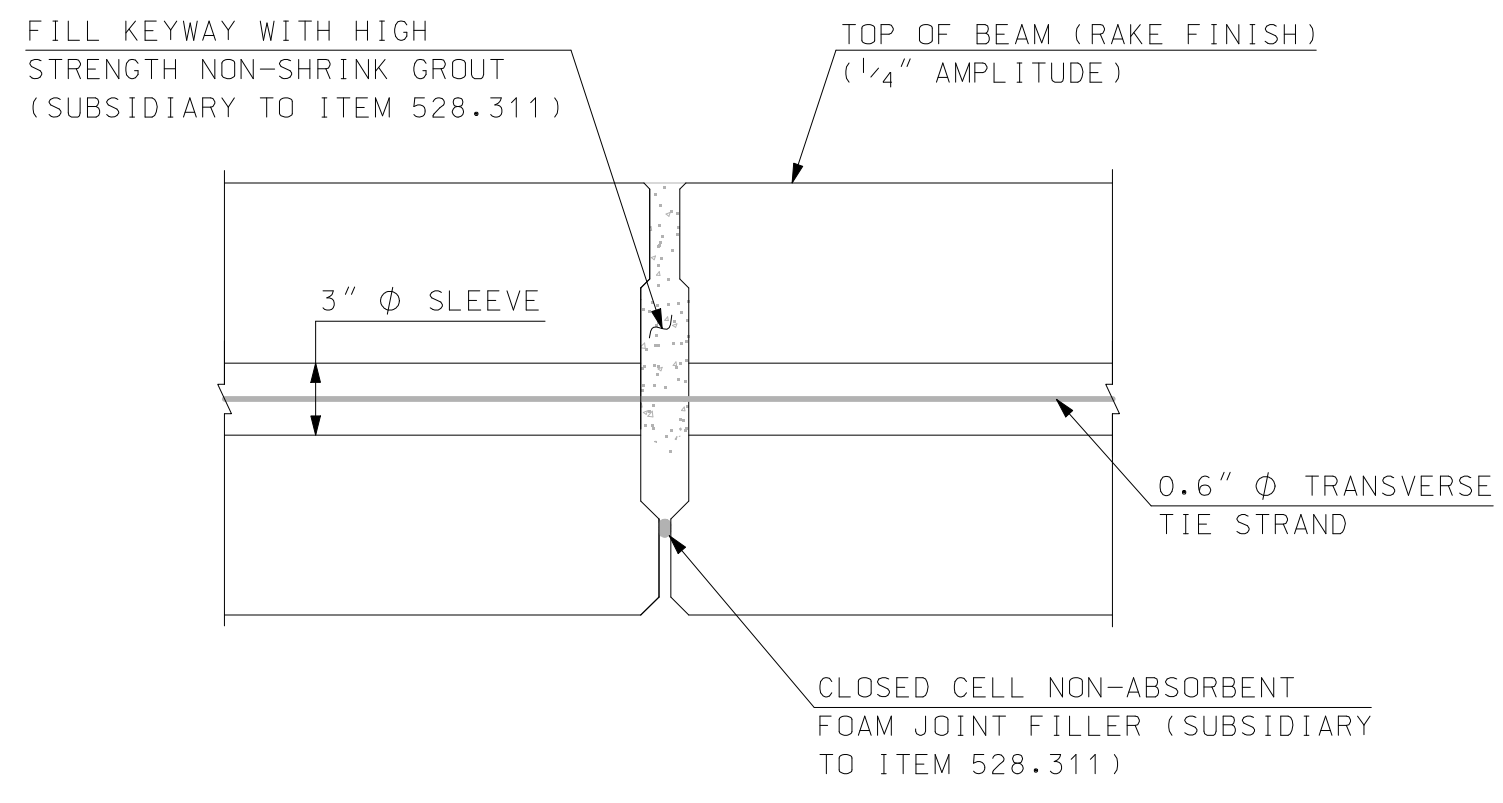
Hoyle, Tanner & Associates, Inc.
 © Copyright 2014 Hoyle, Tanner & Associates, Inc.
 150 Dow Street, Manchester, NH 03101-1227
 Tel (603) 669-5555 • Fax (603) 669-4168
 Webpage: www.hoyletanner.com

TOWN OF AMHERST
 AMHERST, NEW HAMPSHIRE
 MANCHESTER ROAD OVER BEAVER BROOK
 PRESTRESSED DECK BEAM DETAILS (3 OF 4)

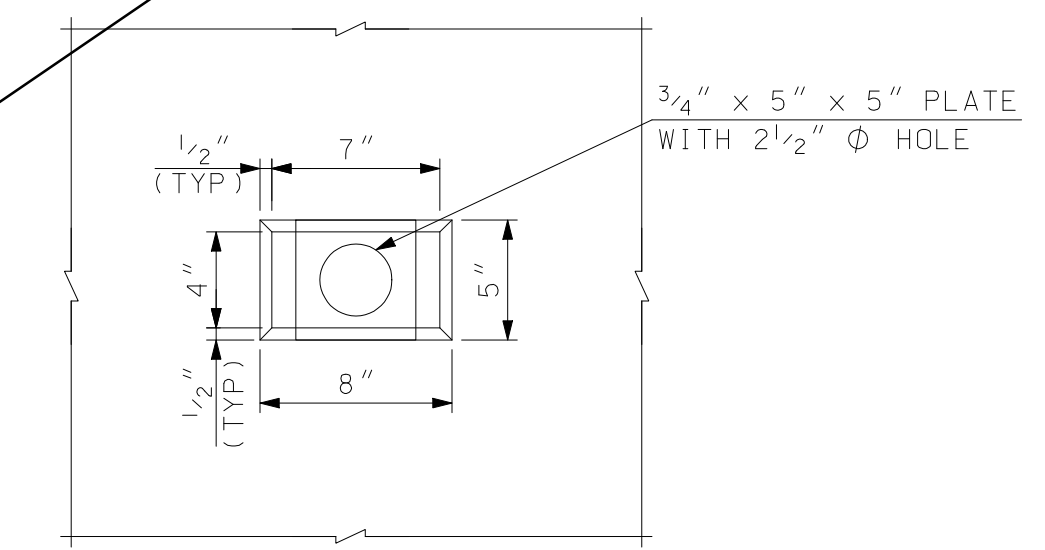
PROJECT NO.: 919101
 FILE NAME: AB919101Dtd3
 MODEL NAME: 918101Dtds3
 SHEET NO.
33
 SHEET 33 OF 40



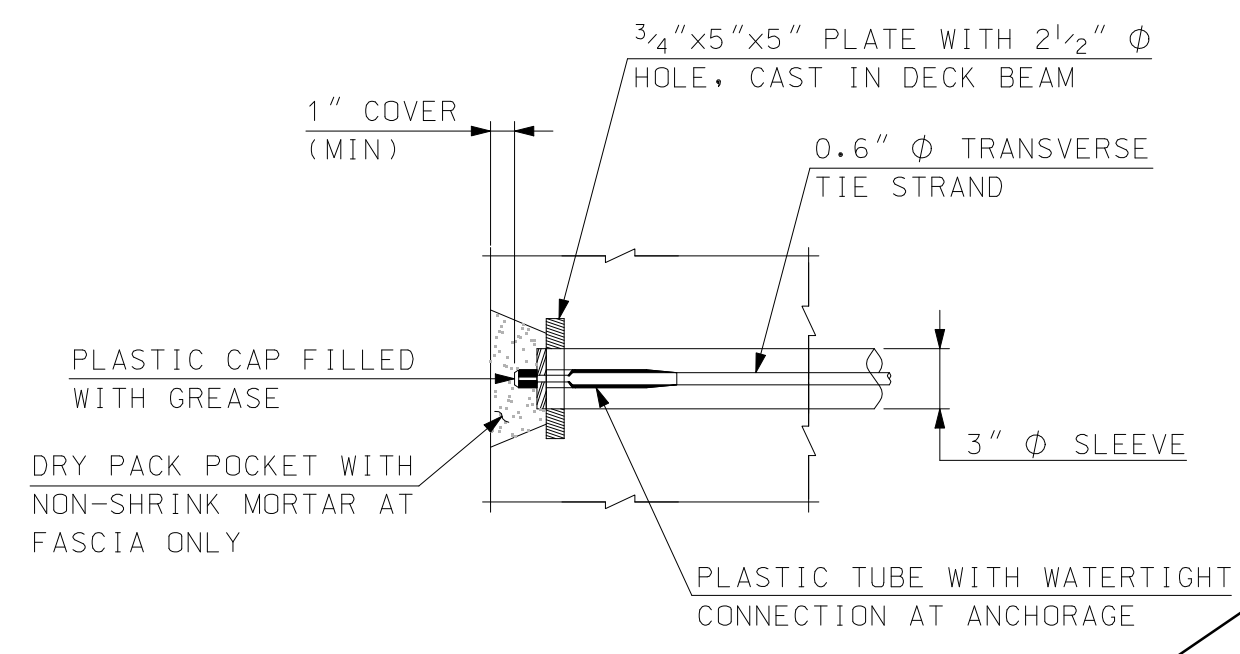
TYPICAL BEAM ELEVATION AT TRANSVERSE TIE LOCATIONS
 SCALE: 1 1/2" = 1'-0"



SECTION A-A
 SCALE: 1 1/2" = 1'-0"

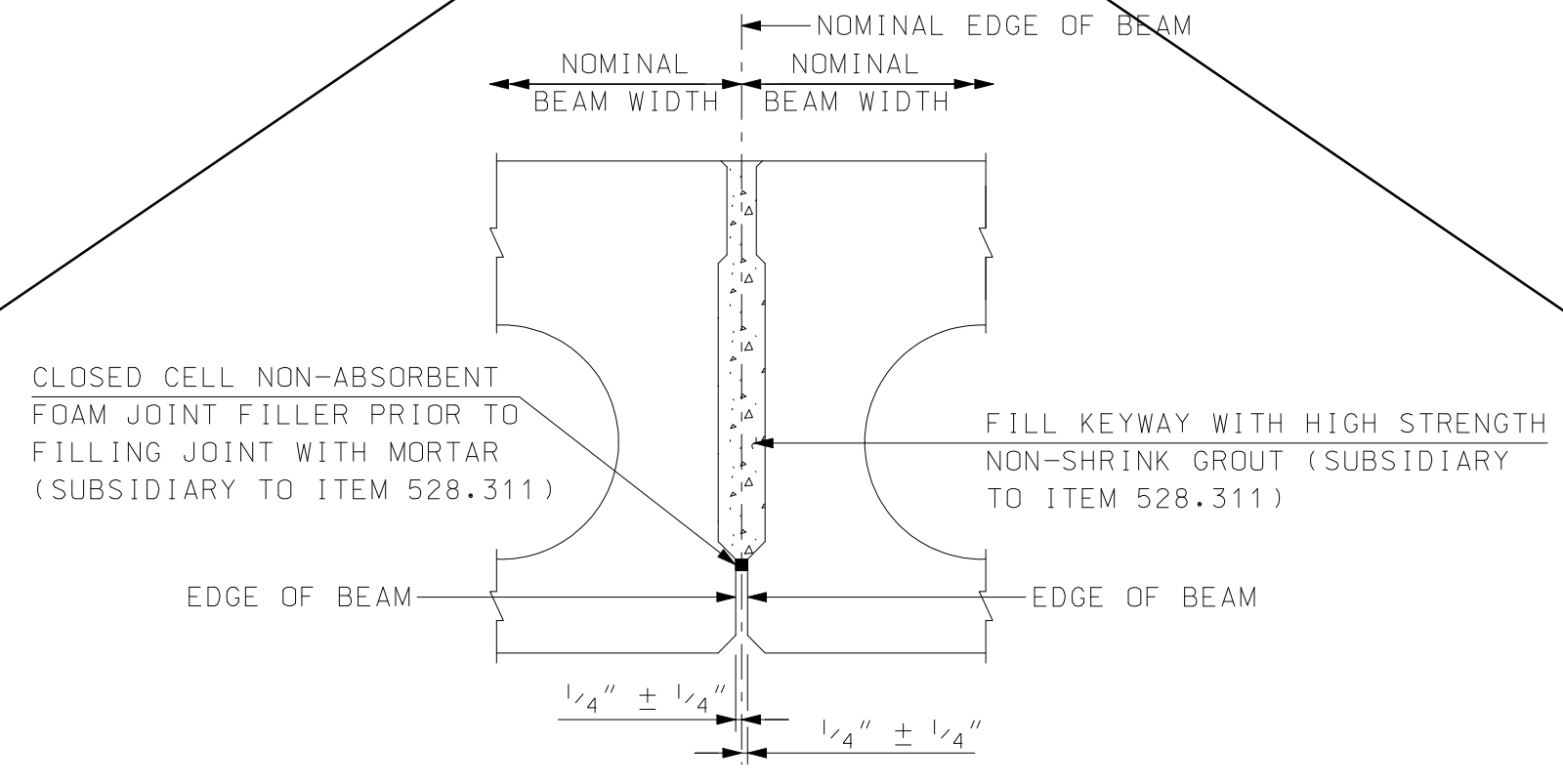


TRANSVERSE TIE ANCHORAGE ELEVATION DETAIL
 SCALE: 1 1/2" = 1'-0"

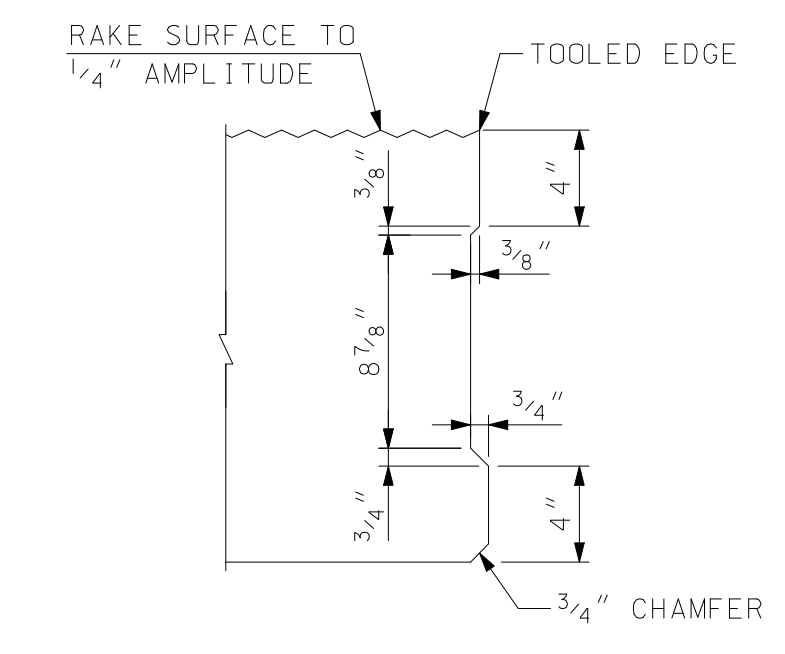


TRANSVERSE TIE ANCHORAGE DETAIL
 SCALE: 1 1/2" = 1'-0"

NOTE
 SEE PRESTRESSED DECK BEAM NOTES ON SHEET 3 FOR ADDITIONAL INFORMATION.

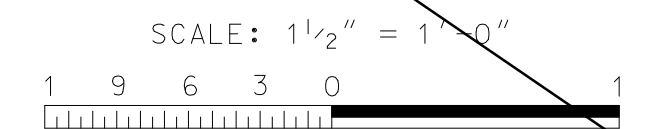


TYPICAL LONGITUDINAL JOINT SECTION
 SCALE: 1 1/2" = 1'-0"

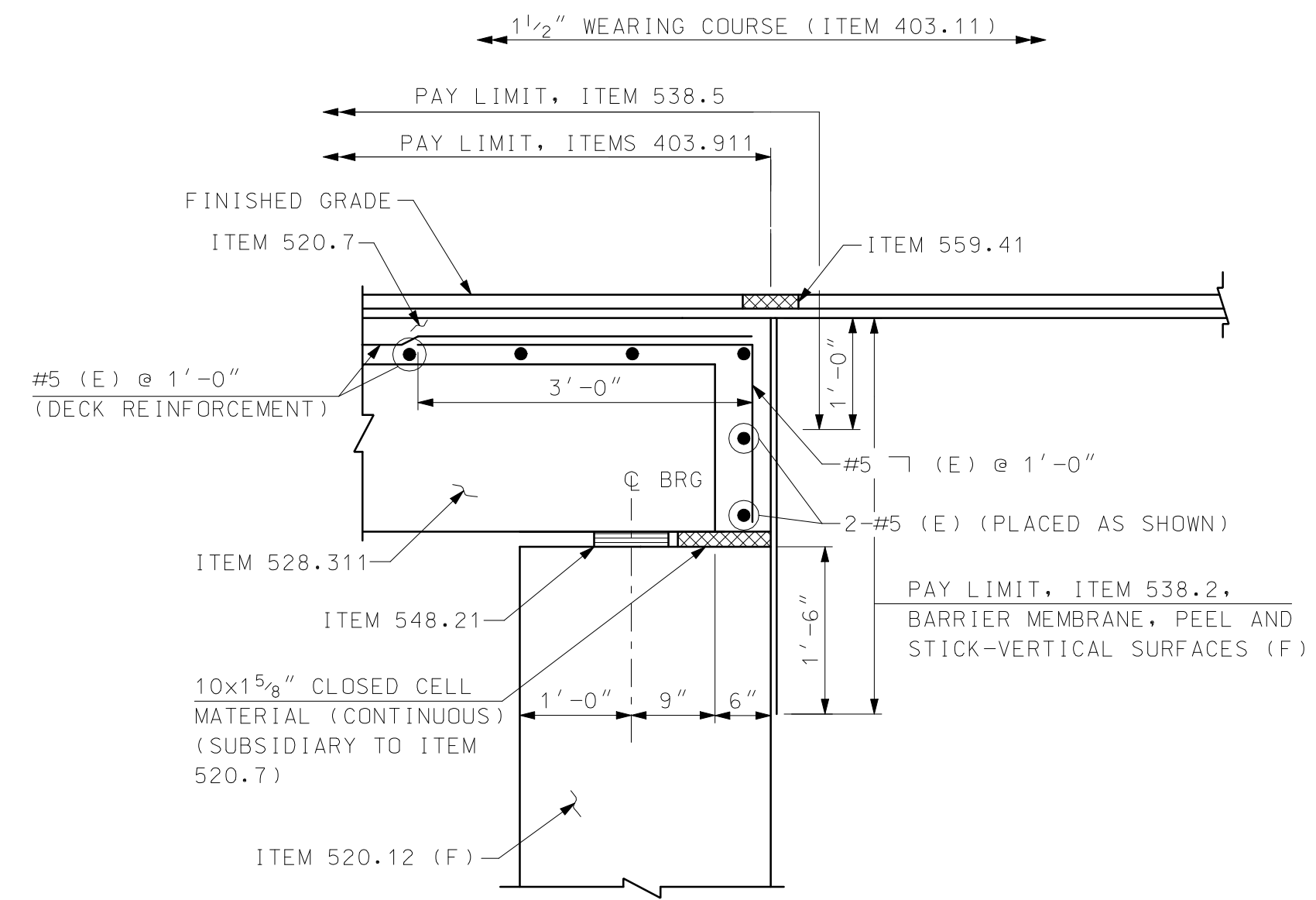


SHEAR KEY DETAIL
 SCALE: 1 1/2" = 1'-0"

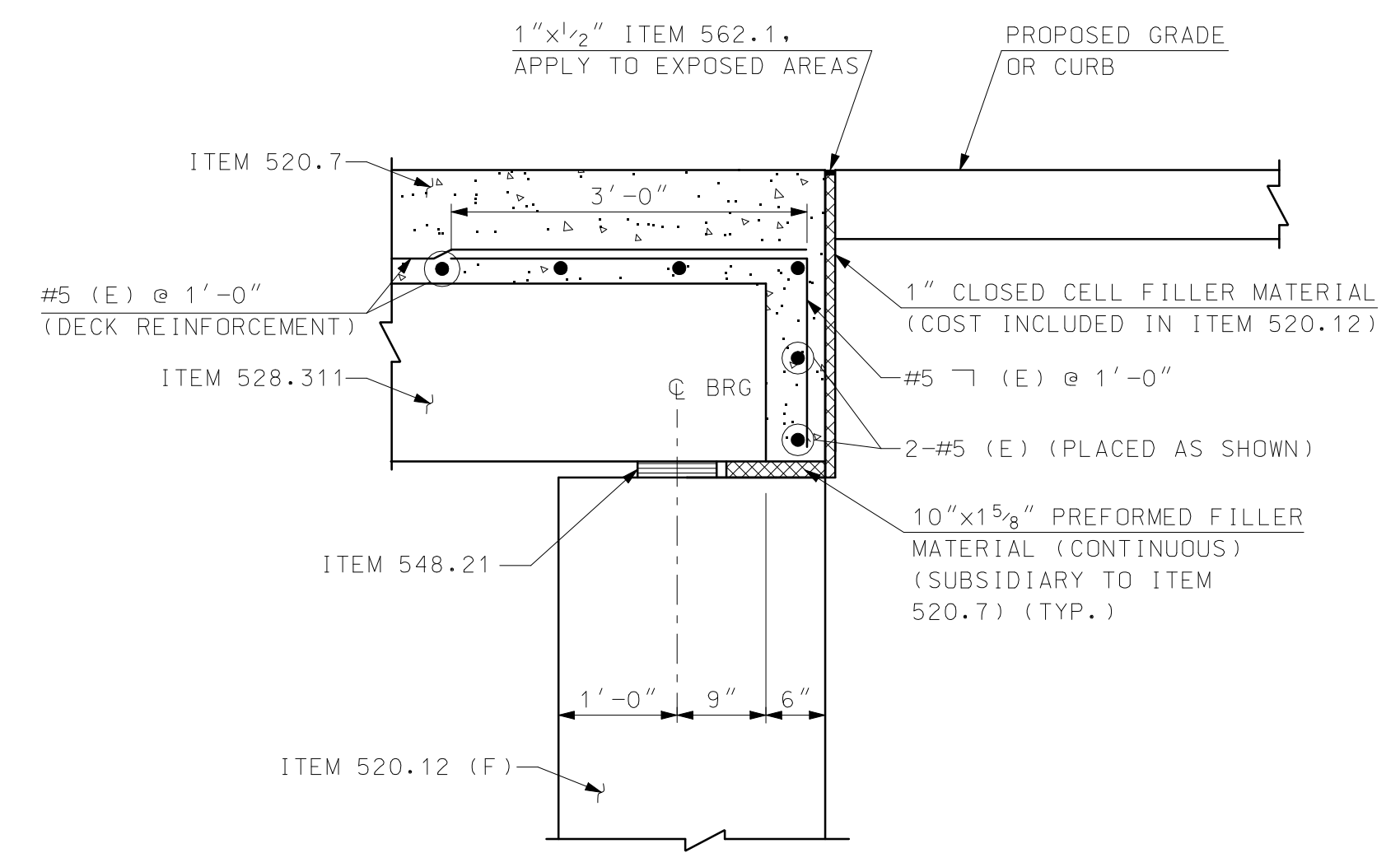
2 SEE PRESTRESSED DECK BEAM SHEETS FOR DETAILS CONSTRUCTED



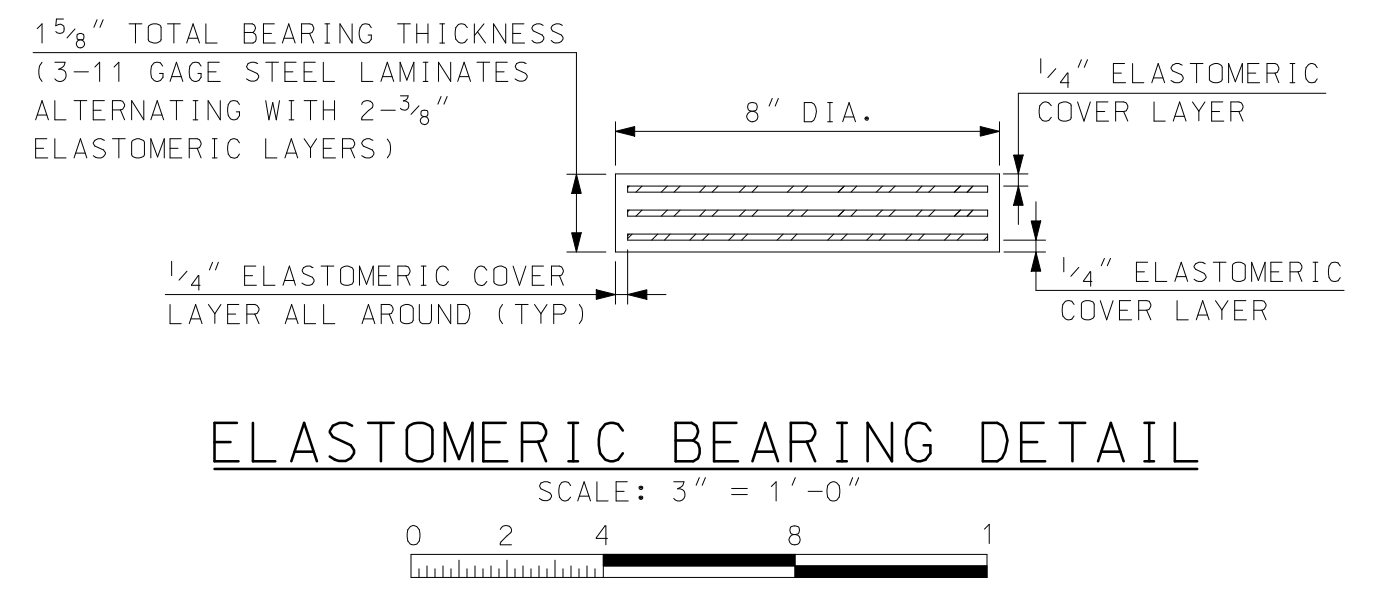
3/24/2016 10:40:09 AM K:\919101\Cadd\as-built\AB919101.Dwg.dgn



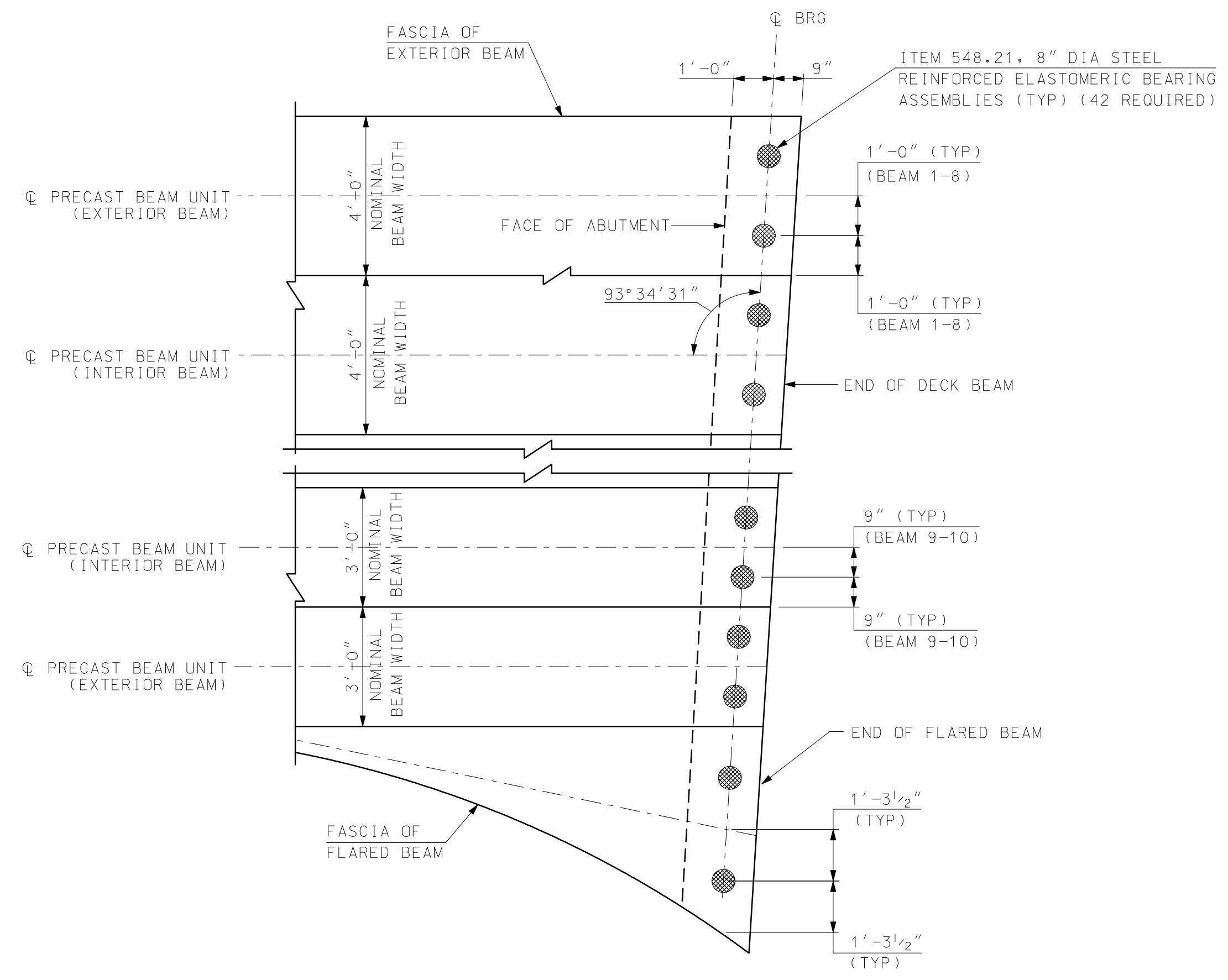
END OF DECK DETAIL - AT ROADWAY
 (ABUT B SHOWN, ABUT A SIMILAR)
 SCALE: 3/4" = 1'-0"



END OF DECK DETAIL - AT SIDEWALK AND CURB
 (ABUT B SHOWN, ABUT A SIMILAR)
 SCALE: 3/4" = 1'-0"



ELASTOMERIC BEARING DETAIL
 SCALE: 3" = 1'-0"



BEARING LAYOUT PLAN
 SCALE: 3/8" = 1'-0"

NOTE
 CONTINUOUS PREFORMED FILLER MATERIAL NOT SHOWN FOR CLARITY.

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.
 HOYLE, TANNER & ASSOCIATES, INC.
 SIGNED: *[Signature]*
 MARCH 2016
 NOTE: WORDING CONTAINED HEREON IS UNDERSTOOD TO BE PAST TENSE.

REV.	DESCRIPTION	DATE	CHKD. BY	DATE
JUNE 2014	WLD			
	JBM			
	STJ			
	AS SHOWN			

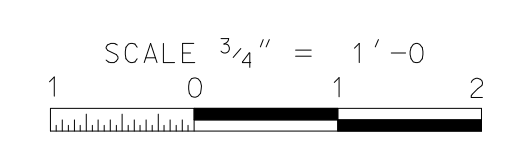
This document is prepared as an instrument of service and shall remain the property of Hoyle, Tanner & Associates, Inc. It may not be used, reproduced, disseminated or transmitted in any manner, including electronically, for any other purpose than the project, without the written permission of Hoyle, Tanner & Associates, Inc.

Hoyle, Tanner & Associates, Inc.
 © Copyright 2014 Hoyle, Tanner & Associates, Inc.
 150 Dow Street, Manchester, NH 03101-1227
 Tel (603) 669-5555 • Fax (603) 669-4168
 Webpage: www.hoyletanner.com

TOWN OF AMHERST
 AMHERST, NEW HAMPSHIRE
 MANCHESTER ROAD OVER BEAVER BROOK
 PRESTRESSED DECK BEAM DETAILS (4 OF 4)

PROJECT NO.: 919101
 FILE NAME: AB919101DH5
 MODEL NAME: 919101DTL5

SHEET NO.
34
 SHEET 34 OF 40



3/24/2016 10:40:10 AM K:\919101\Cad\as-built\AB919101.DWG.dgn

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.

HOYLE, TANNER & ASSOCIATES, INC.
 SIGNED: *[Signature]*
 MARCH 2016

NOTE: WORDING CONTAINED HEREIN IS UNDERSTOOD TO BE PAST TENSE.

REV.	DESCRIPTION	DATE
1	RECORD COPY REVISIONS	3/2016

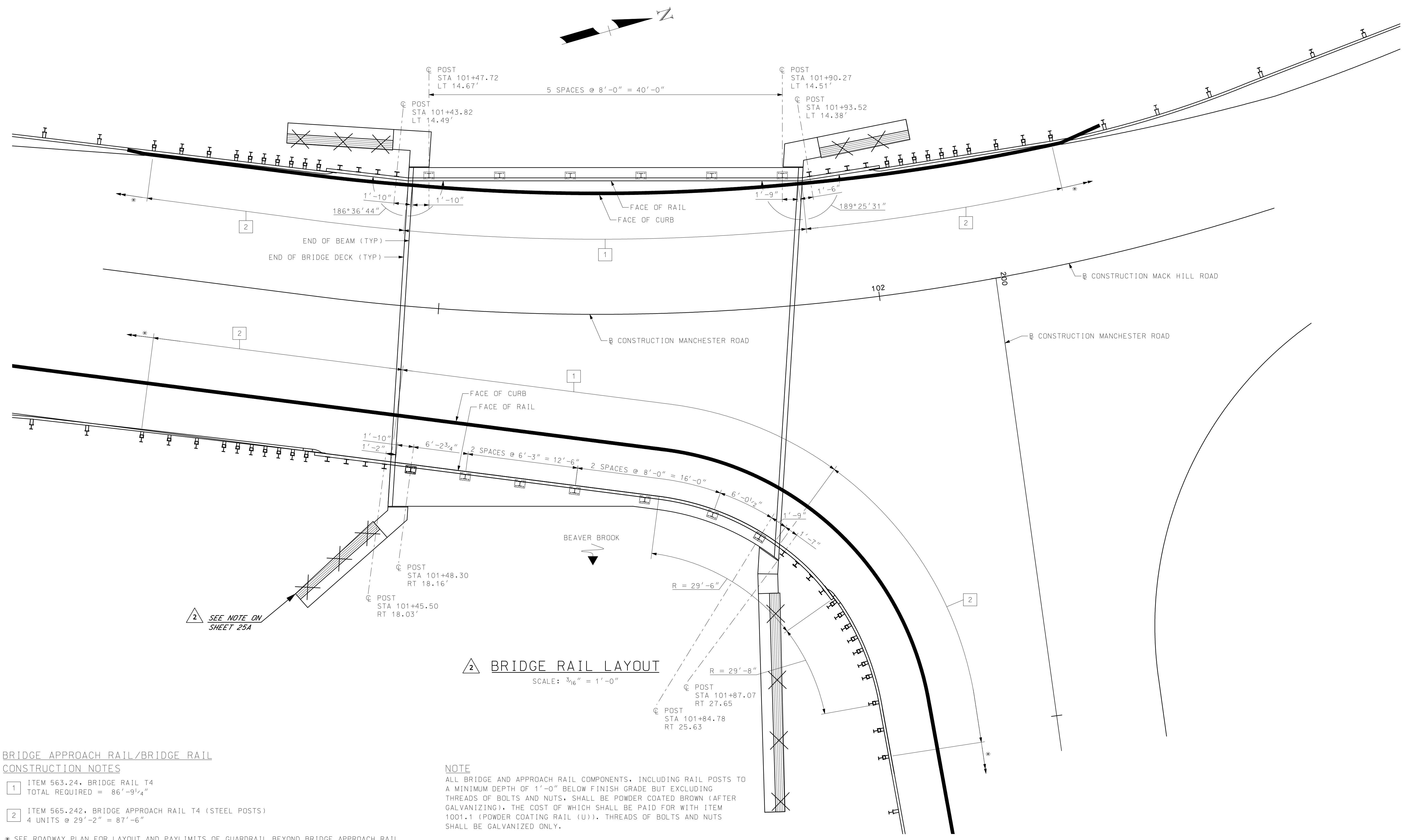
DRW. CHKD. BY:	TAG	JCR

JUNE 2014	WLD	JBM	STJ	AS SHOWN
DESIGN BY:				
DRAWN BY:				
CHKD. BY:				
SCALE:				

Hoyle, Tanner & Associates, Inc.
 © Copyright 2014 Hoyle, Tanner & Associates, Inc.
 150 Dow Street, Manchester, NH 03101-1227
 Tel (603) 669-5555 • Fax (603) 669-4168
 Webpage: www.hoyletanner.com

TOWN OF AMHERST
 AMHERST, NEW HAMPSHIRE
 MANCHESTER ROAD OVER BEAVER BROOK
 BRIDGE RAIL LAYOUT PLAN

PROJECT NO.: 919101
 FILE NAME: AB919101RLP
 MODEL NAME: 919101RLP
 SHEET NO.
35
 SHEET 35 OF 40

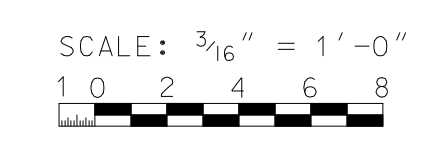


2 BRIDGE RAIL LAYOUT
 SCALE: 3/16" = 1'-0"

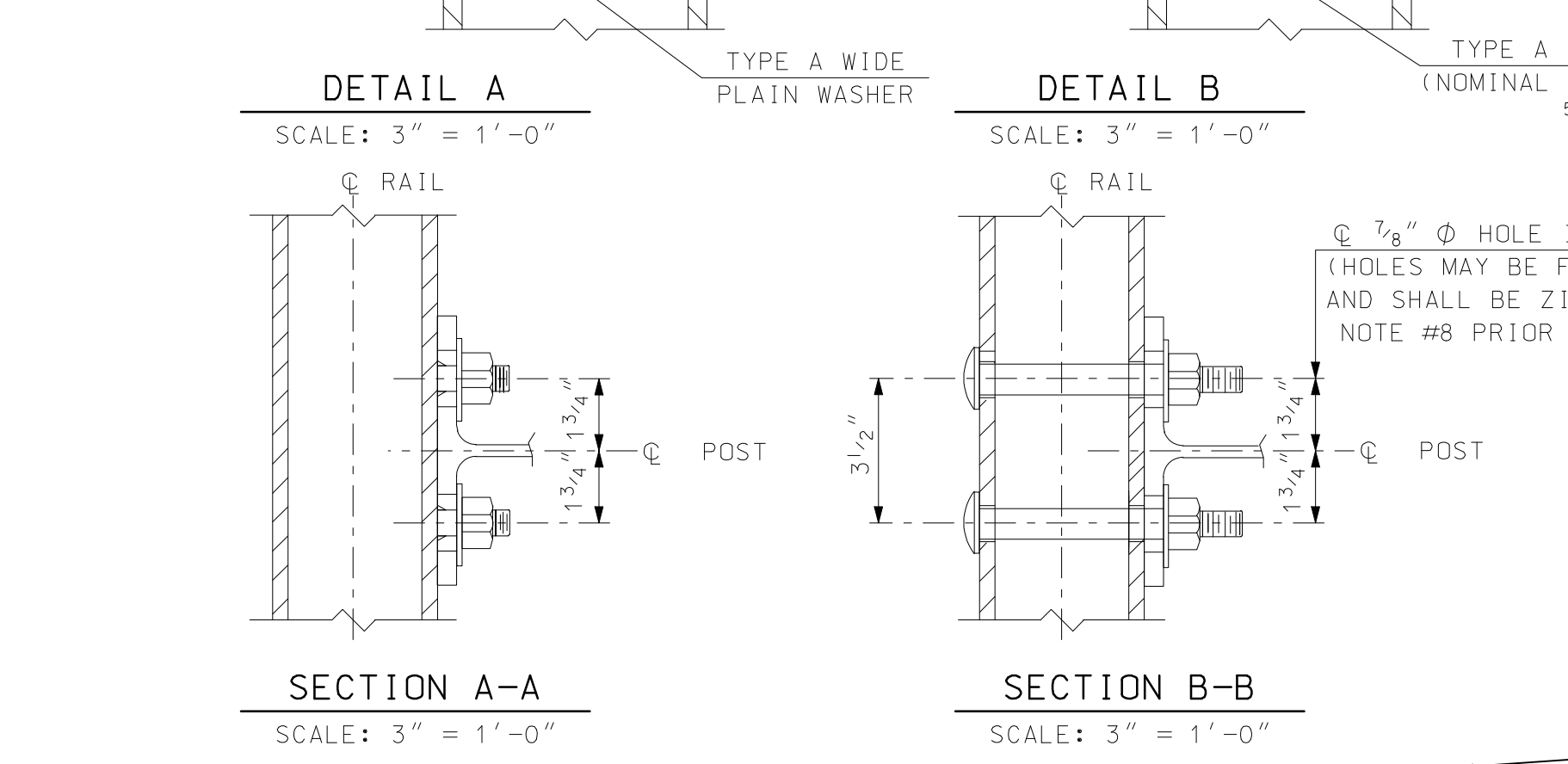
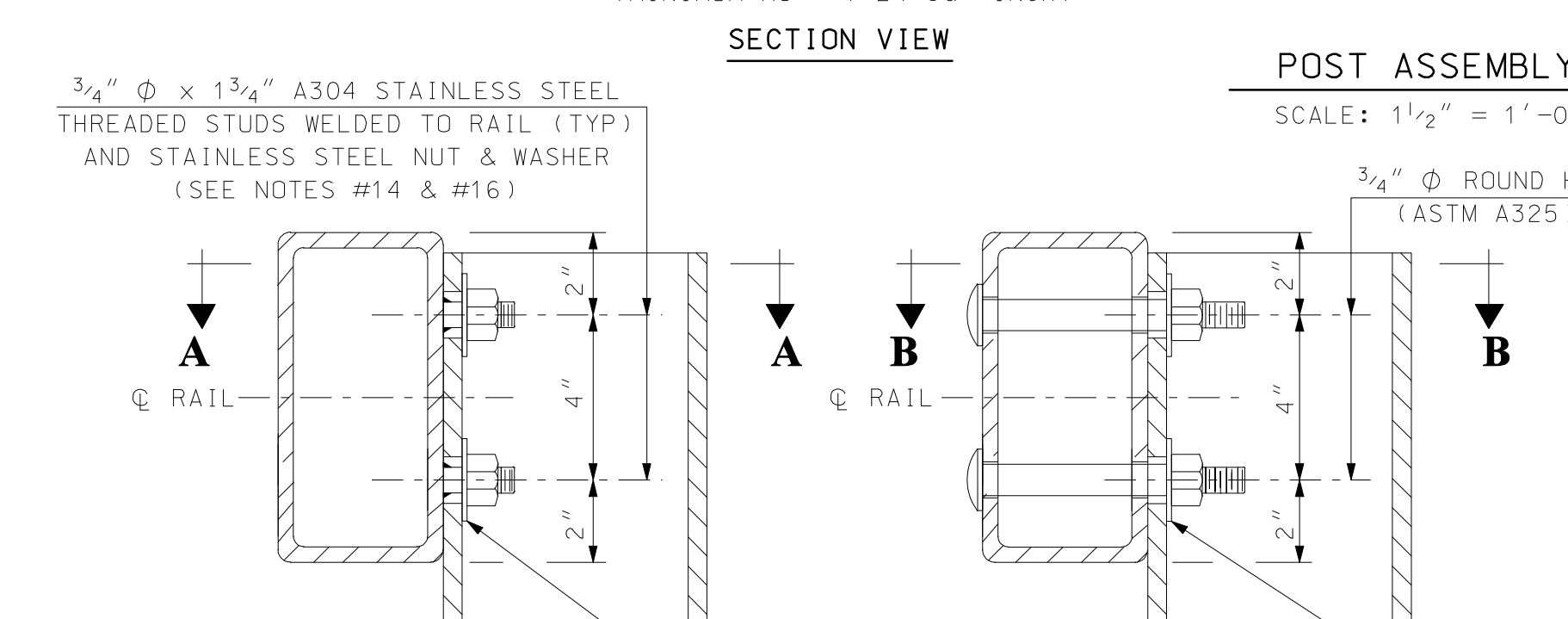
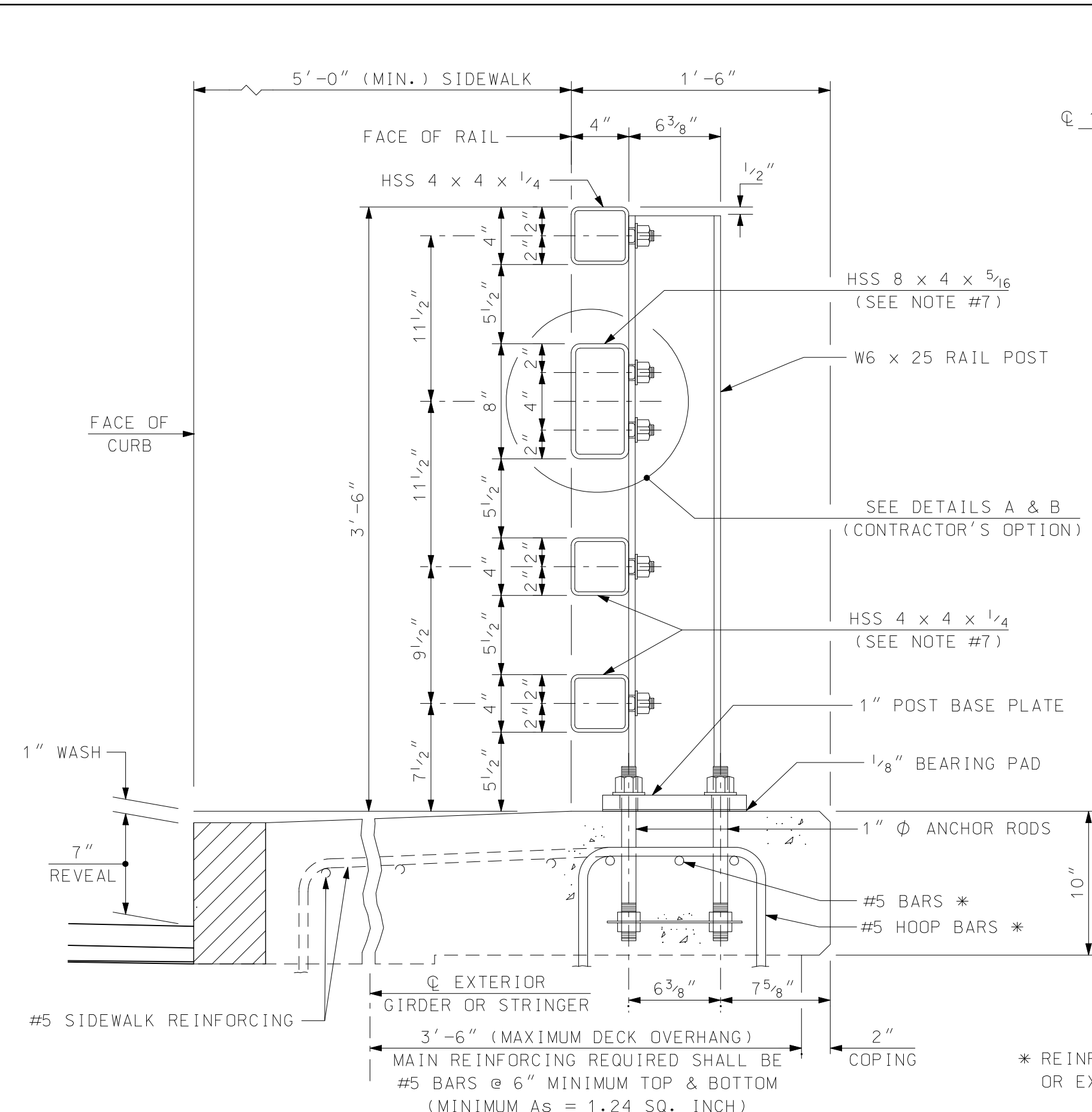
NOTE
 ALL BRIDGE AND APPROACH RAIL COMPONENTS, INCLUDING RAIL POSTS TO A MINIMUM DEPTH OF 1'-0" BELOW FINISH GRADE BUT EXCLUDING THREADS OF BOLTS AND NUTS, SHALL BE POWDER COATED BROWN (AFTER GALVANIZING), THE COST OF WHICH SHALL BE PAID FOR WITH ITEM 1001.1 (POWDER COATING RAIL (U)). THREADS OF BOLTS AND NUTS SHALL BE GALVANIZED ONLY.

- BRIDGE APPROACH RAIL/BRIDGE RAIL CONSTRUCTION NOTES**
- 1 ITEM 563.24, BRIDGE RAIL T4
TOTAL REQUIRED = 86'-9 1/4"
 - 2 ITEM 565.242, BRIDGE APPROACH RAIL T4 (STEEL POSTS)
4 UNITS @ 29'-2" = 87'-6"

* SEE ROADWAY PLAN FOR LAYOUT AND PAYLIMITS OF GUARDRAIL BEYOND BRIDGE APPROACH RAIL

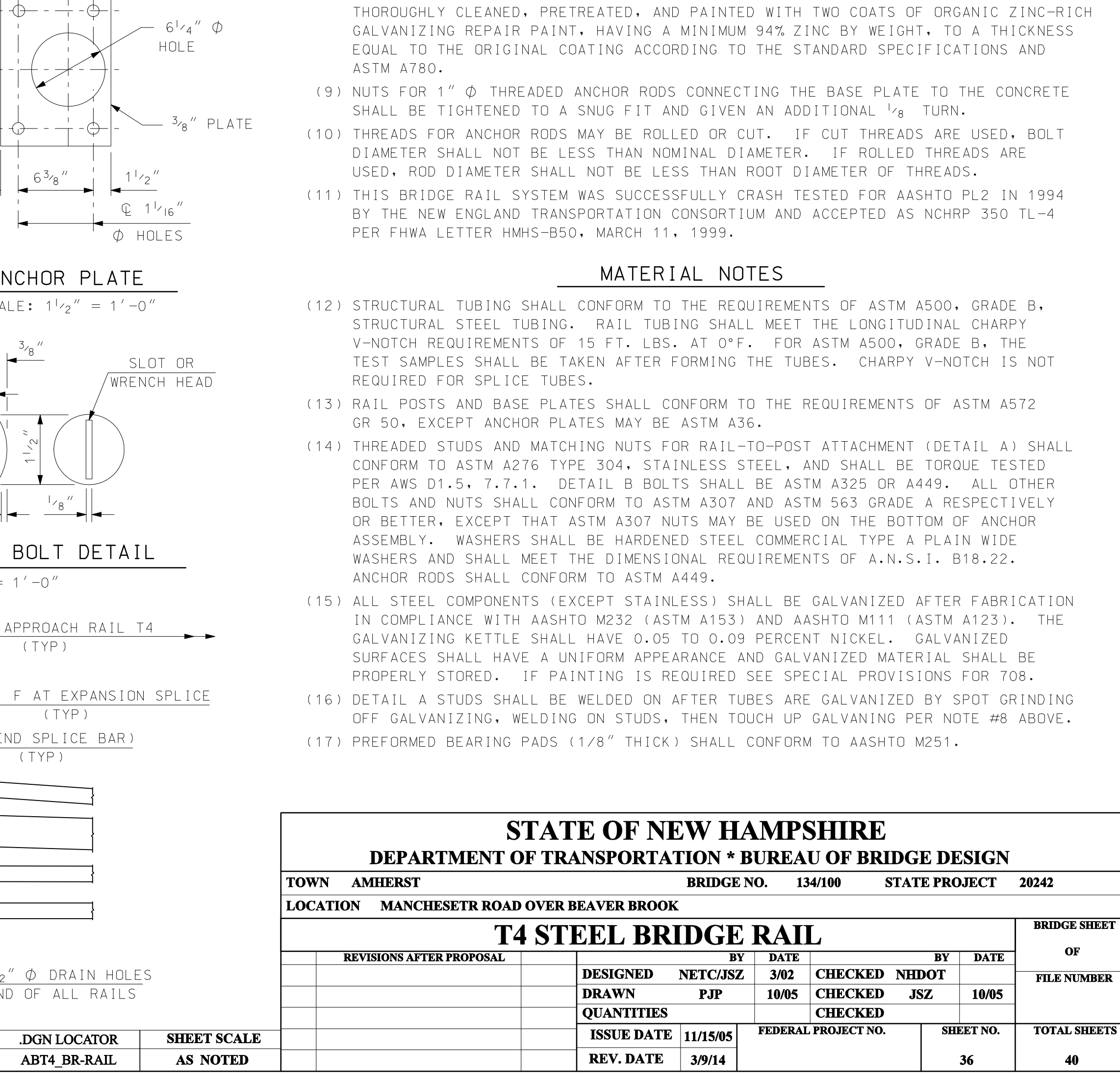
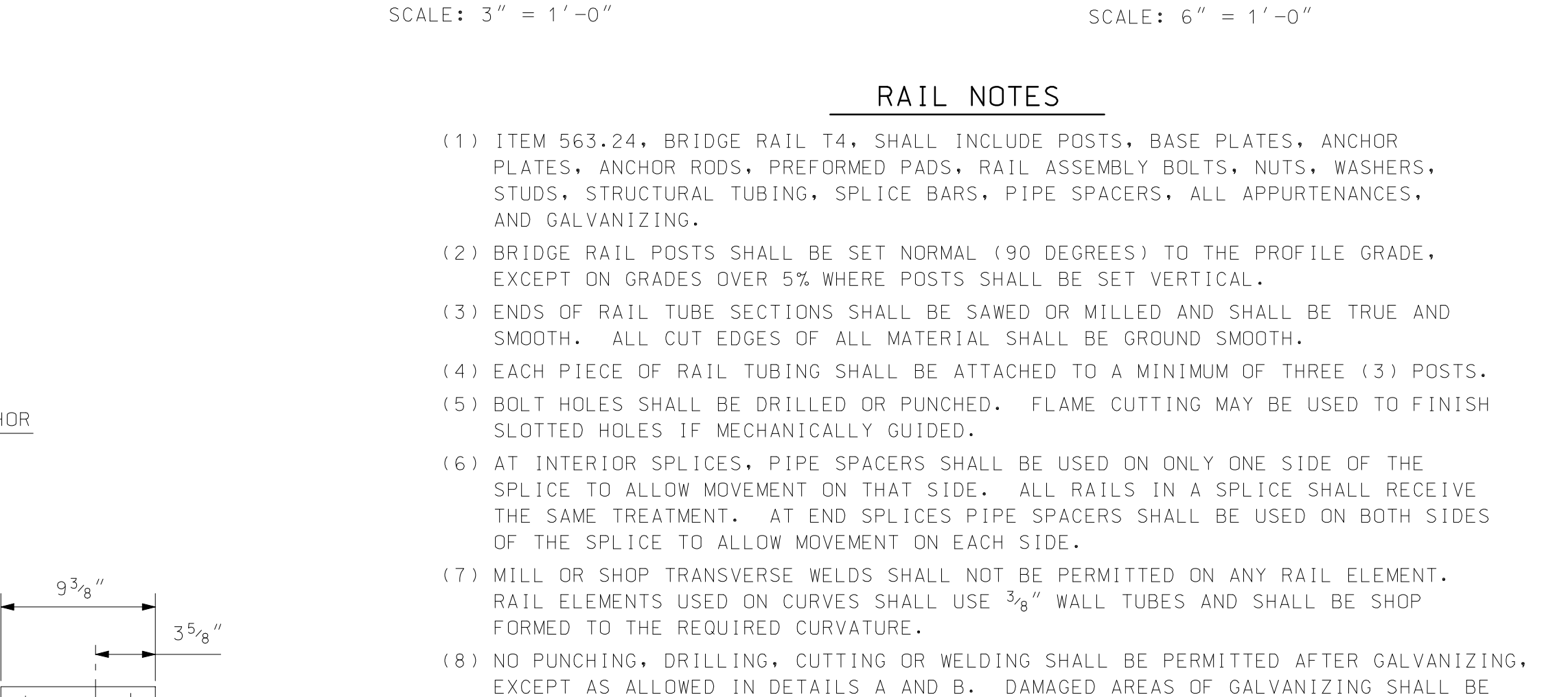
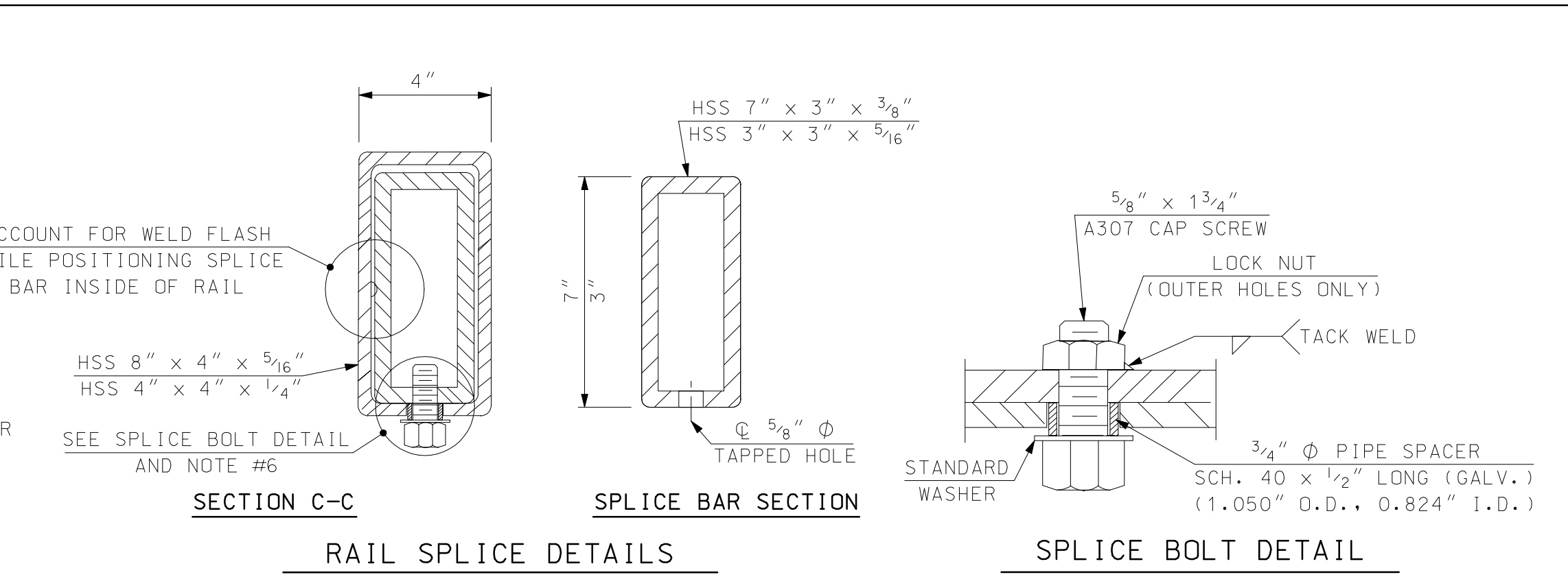
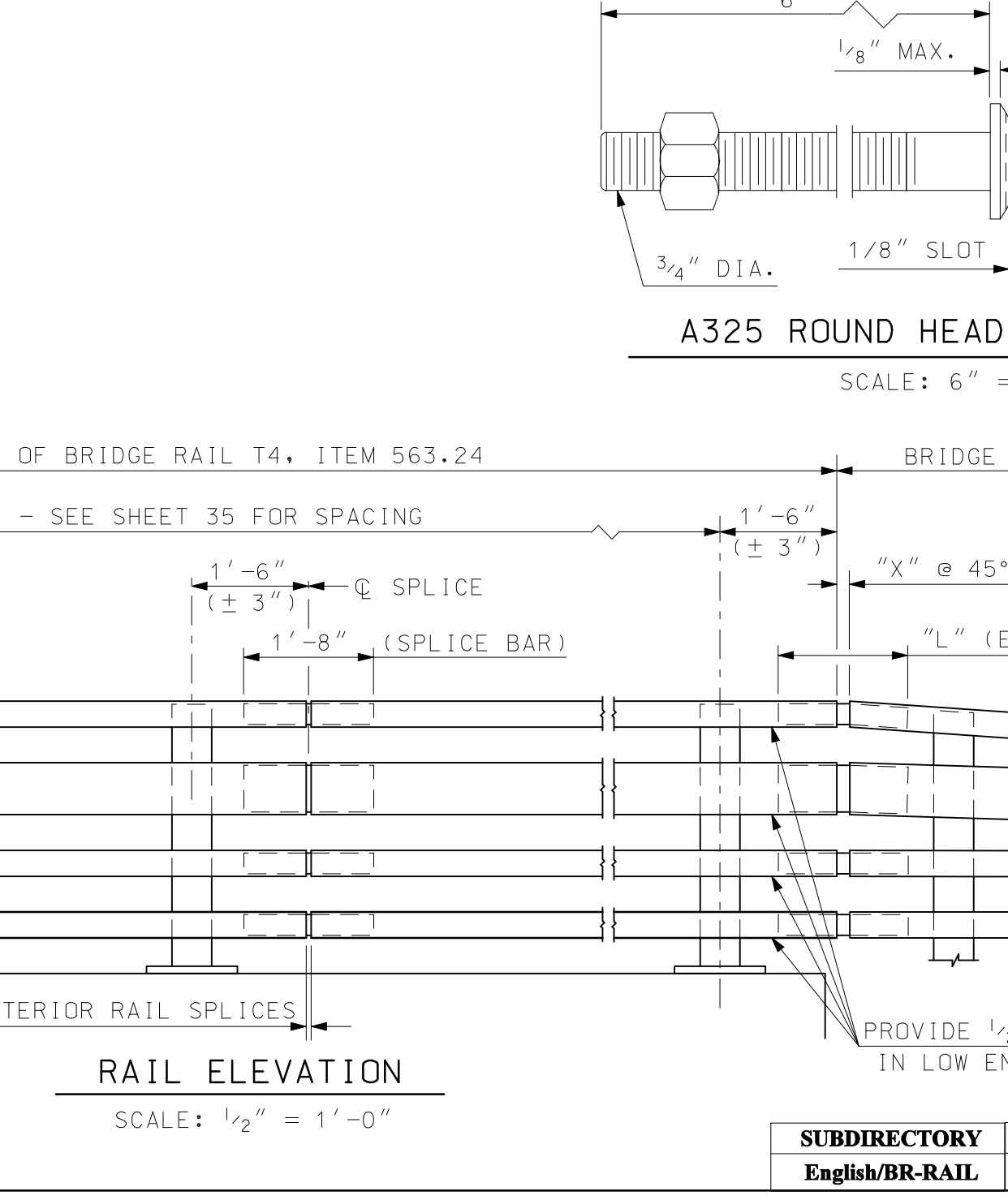
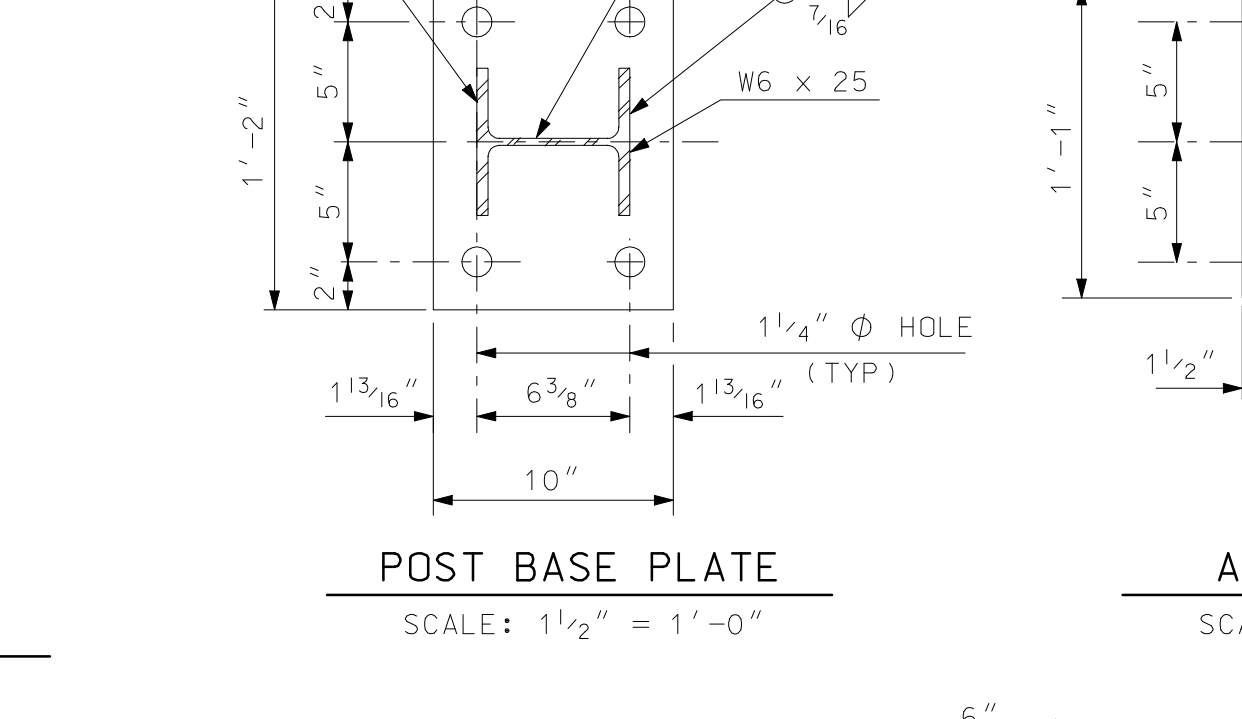
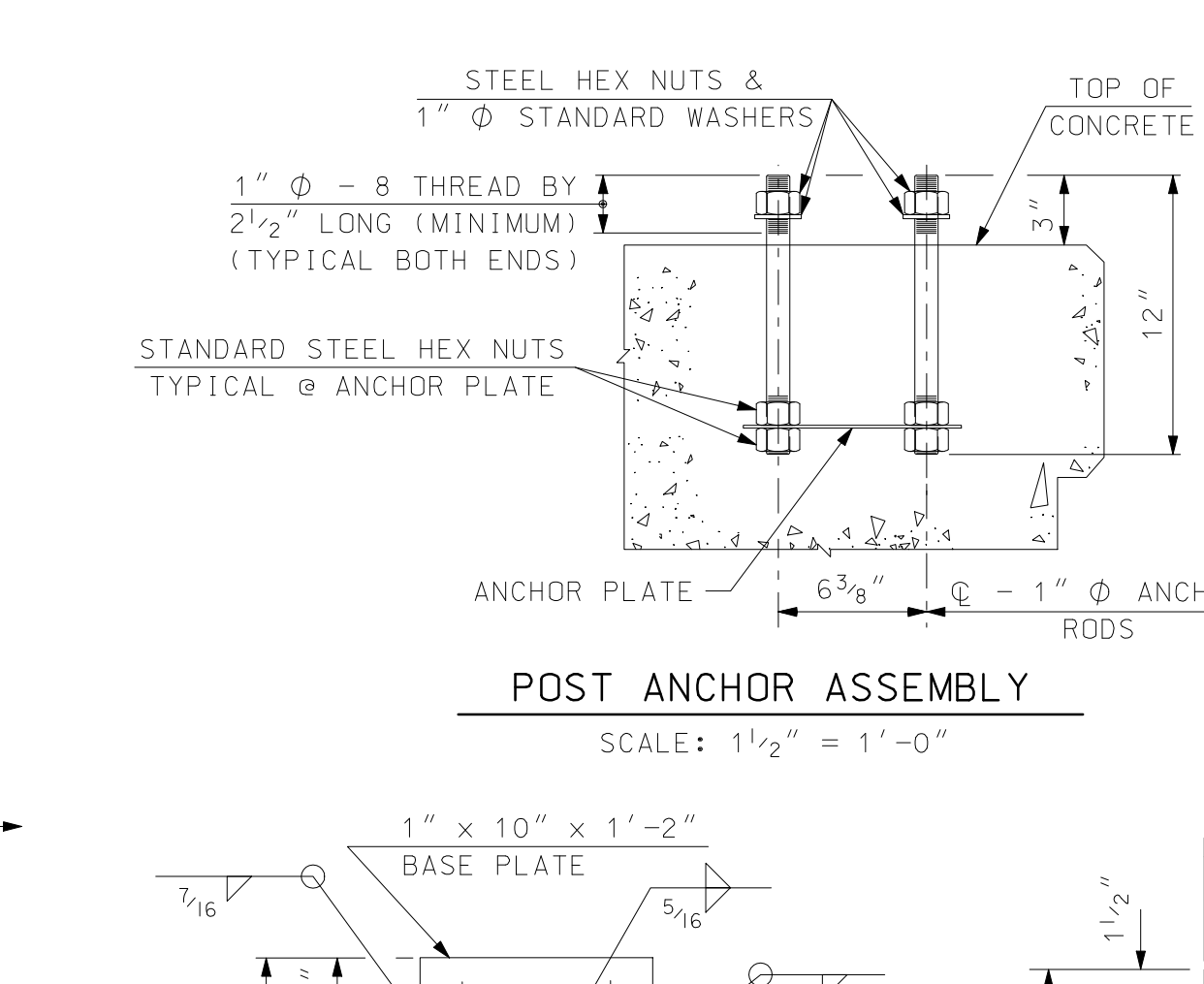
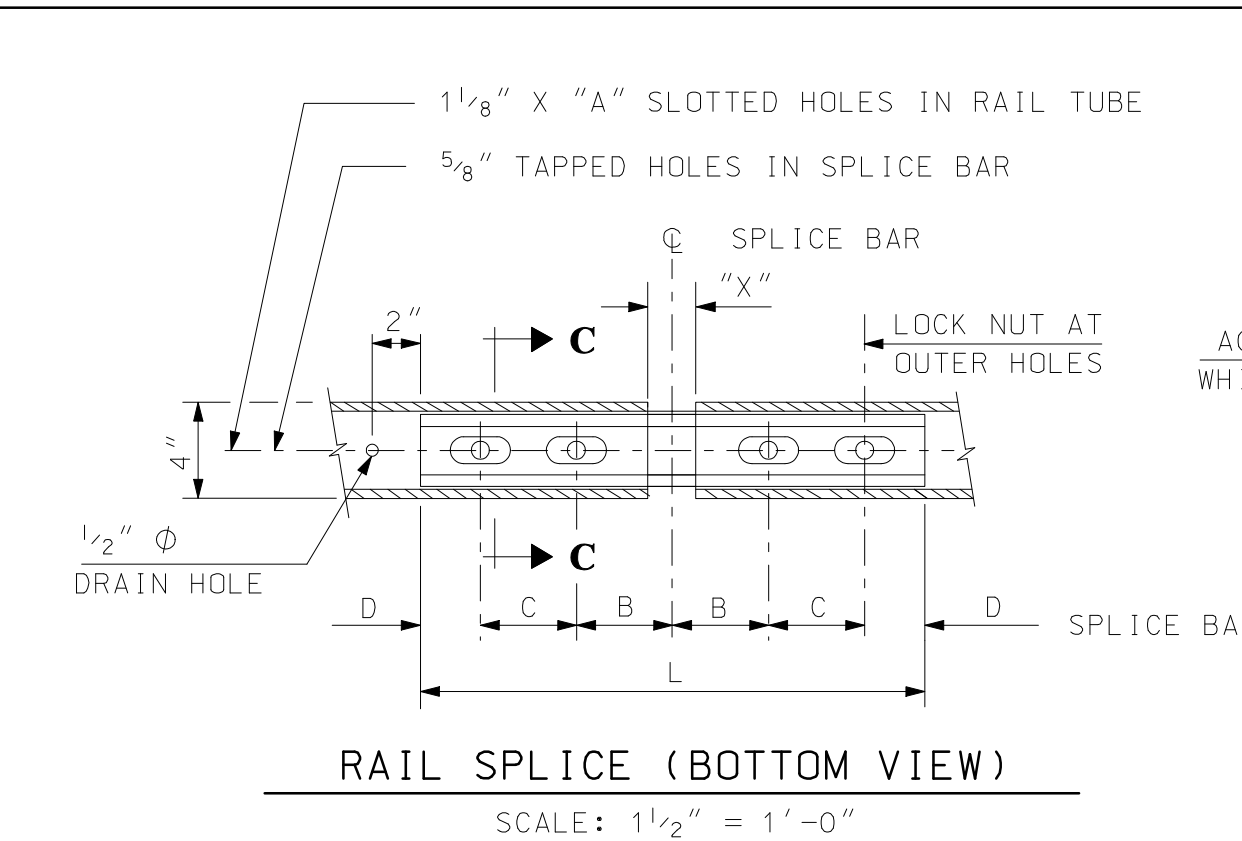
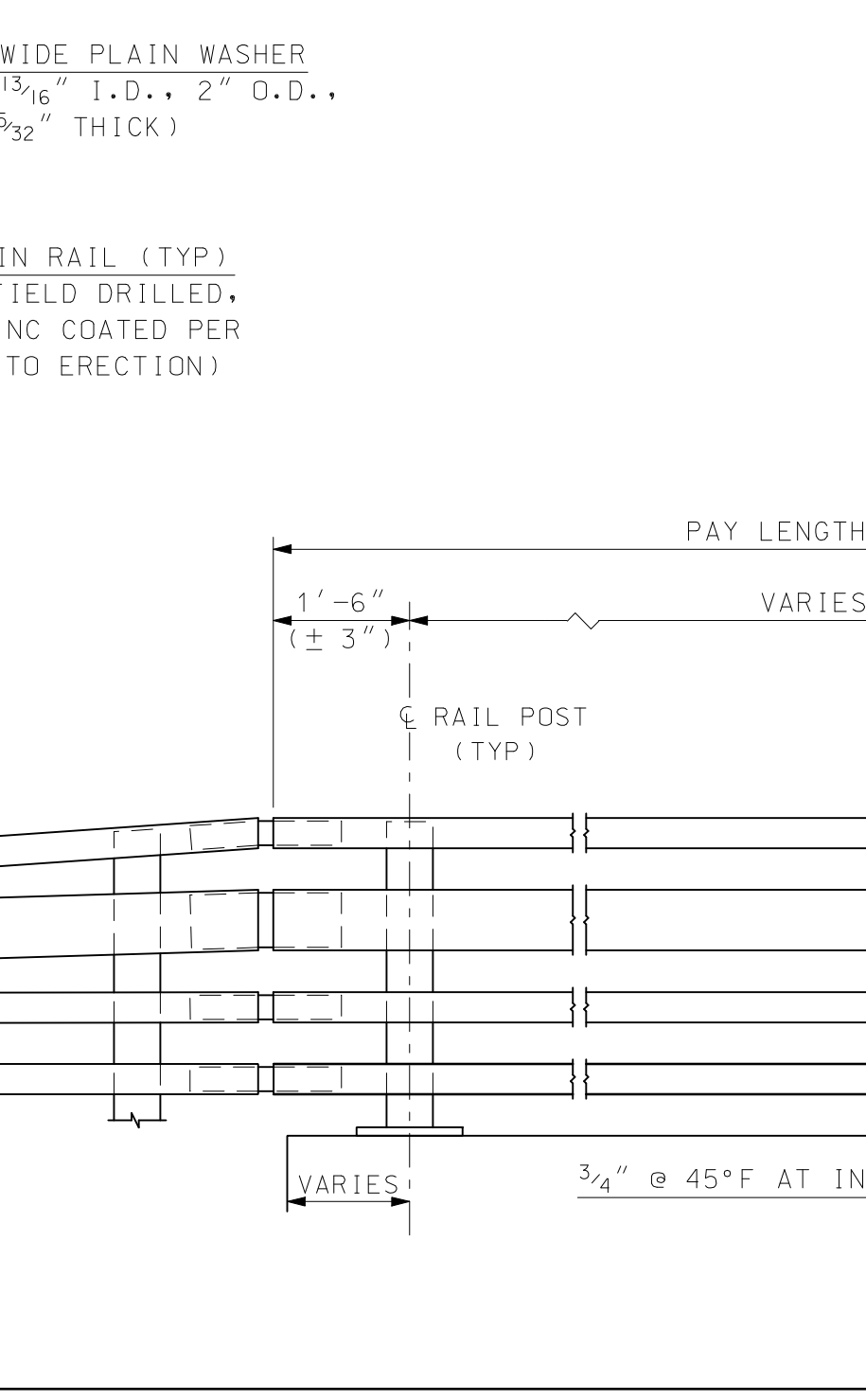
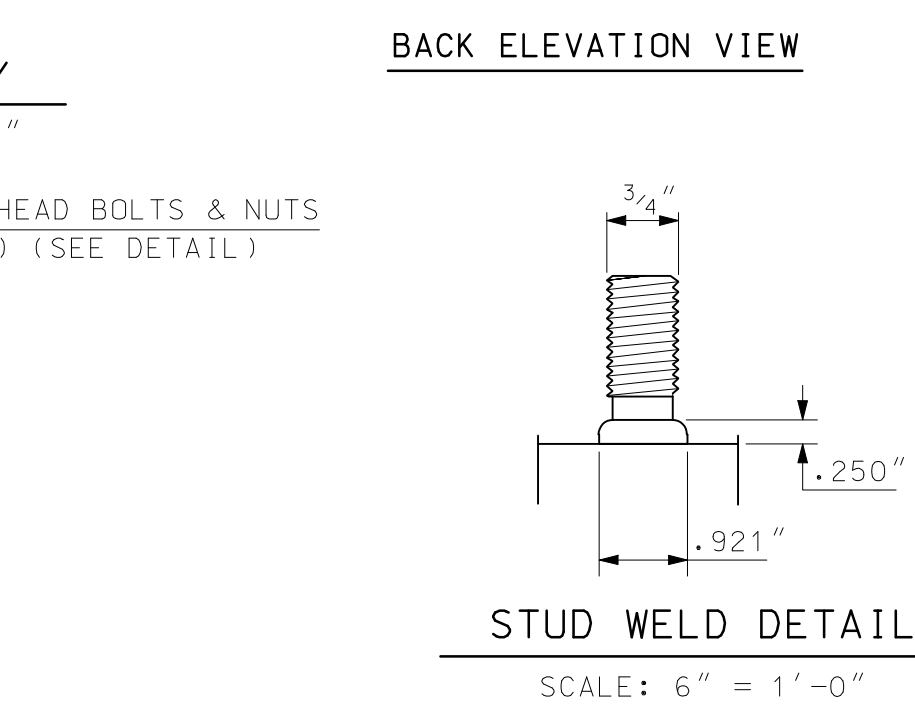
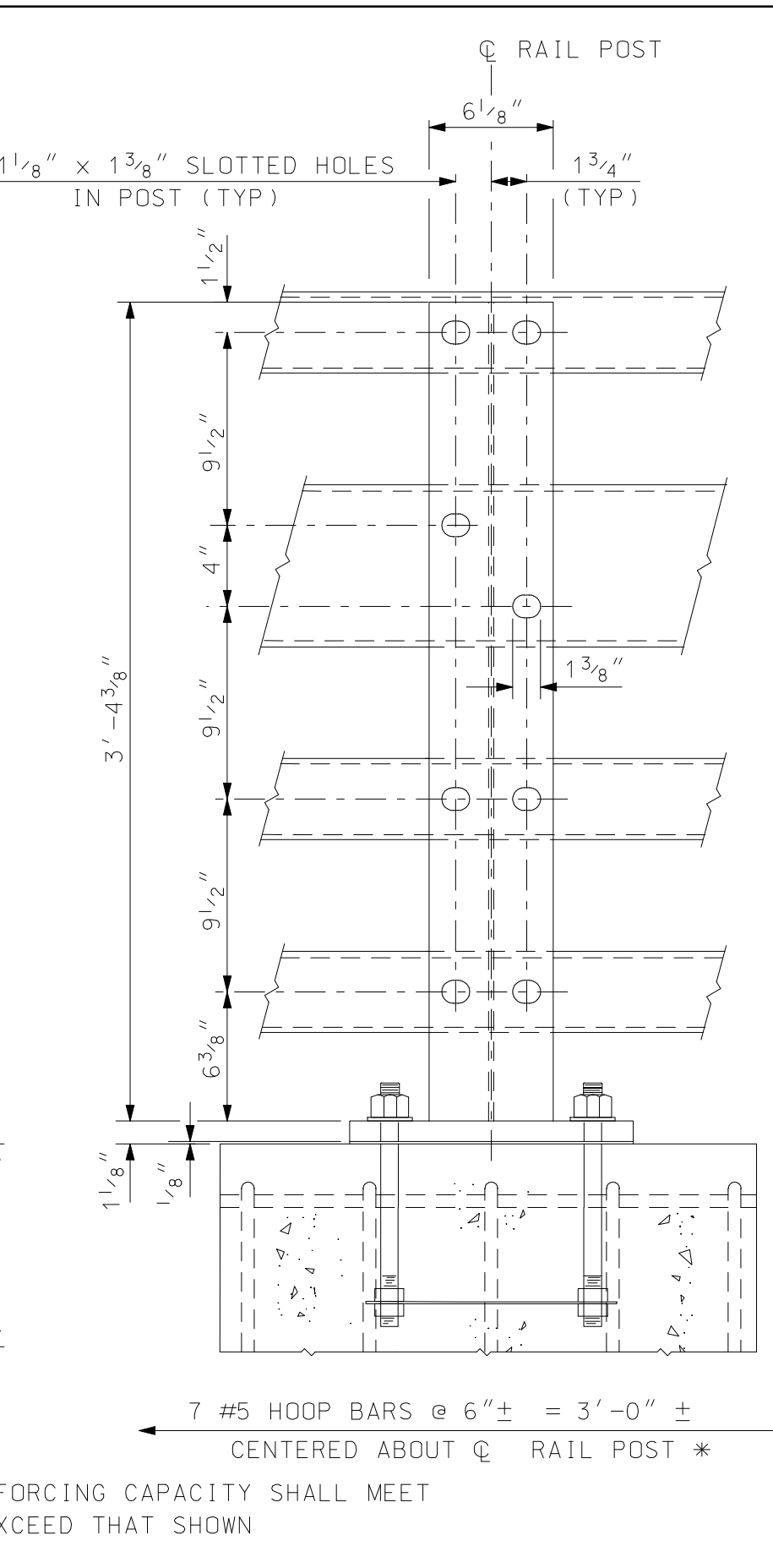


3/24/2016 10:40:11 AM K:\919101\Cadd\as-built\AB919101RLP.dgn

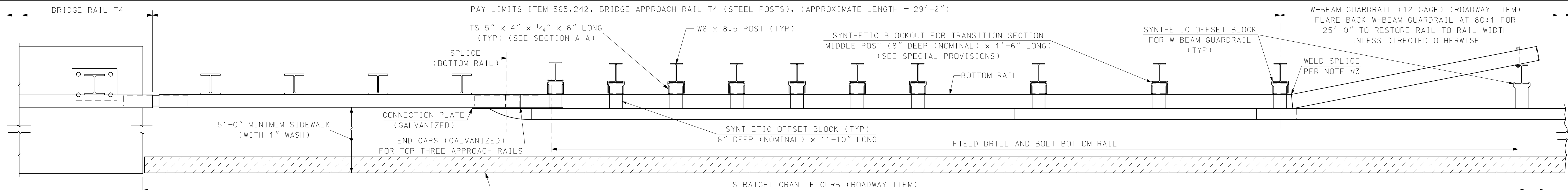


T	A	B	C	D	X	L
INTERIOR	2 1/2"	4"	4"	2"	3/4"	1'-8"
** < 3 1/4"	2 1/2"	4"	4"	2"	2"	1'-8"
** 3 1/4" < T < 5 1/4"	3 1/2"	5"	5"	2 1/2"	3"	2'-1"

T = TOTAL MOVEMENT OF BRIDGE
** = END SPLICE BAR

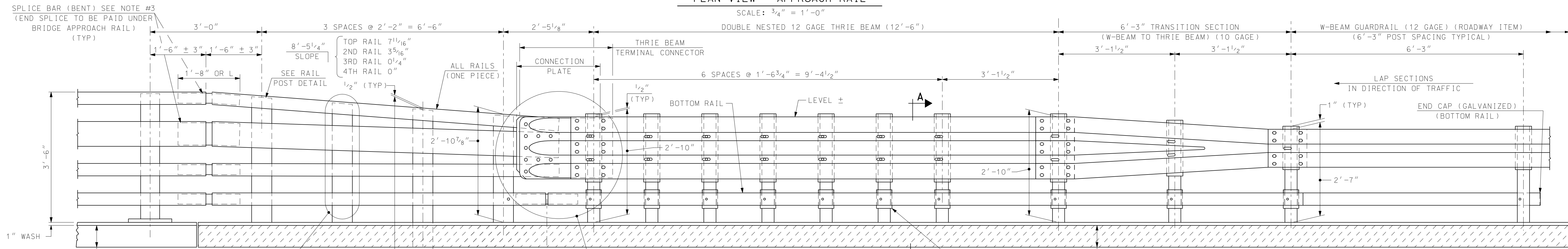


STATE OF NEW HAMPSHIRE									
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN									
TOWN	AMHERST	BRIDGE NO.	134/100	STATE PROJECT	20242				
LOCATION	MANCHESETR ROAD OVER BEAVER BROOK								
T4 STEEL BRIDGE RAIL									BRIDGE SHEET
REVISIONS AFTER PROPOSAL			BY	DATE	BY	DATE	OF		
DESIGNED			NETC/JSZ	3/02	CHECKED	NHDT	FILE NUMBER		
DRAWN			PJP	10/05	CHECKED	JSZ	10/05		
QUANTITIES			CHECKED						
ISSUE DATE		11/15/05	FEDERAL PROJECT NO.		SHEET NO.		TOTAL SHEETS		
REV. DATE		3/9/14			36		40		



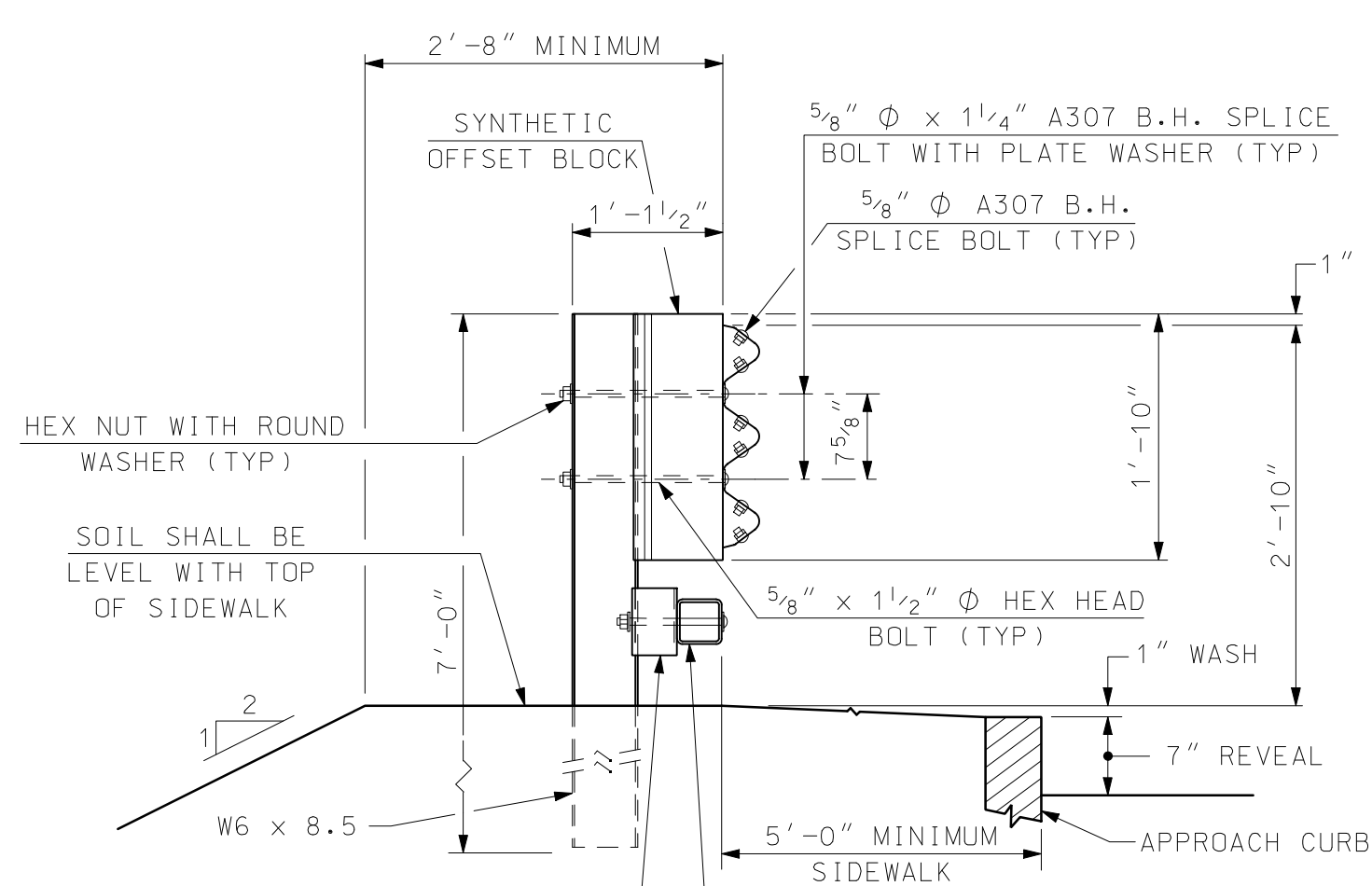
PLAN VIEW - APPROACH RAIL

SCALE: 3/4" = 1'-0"



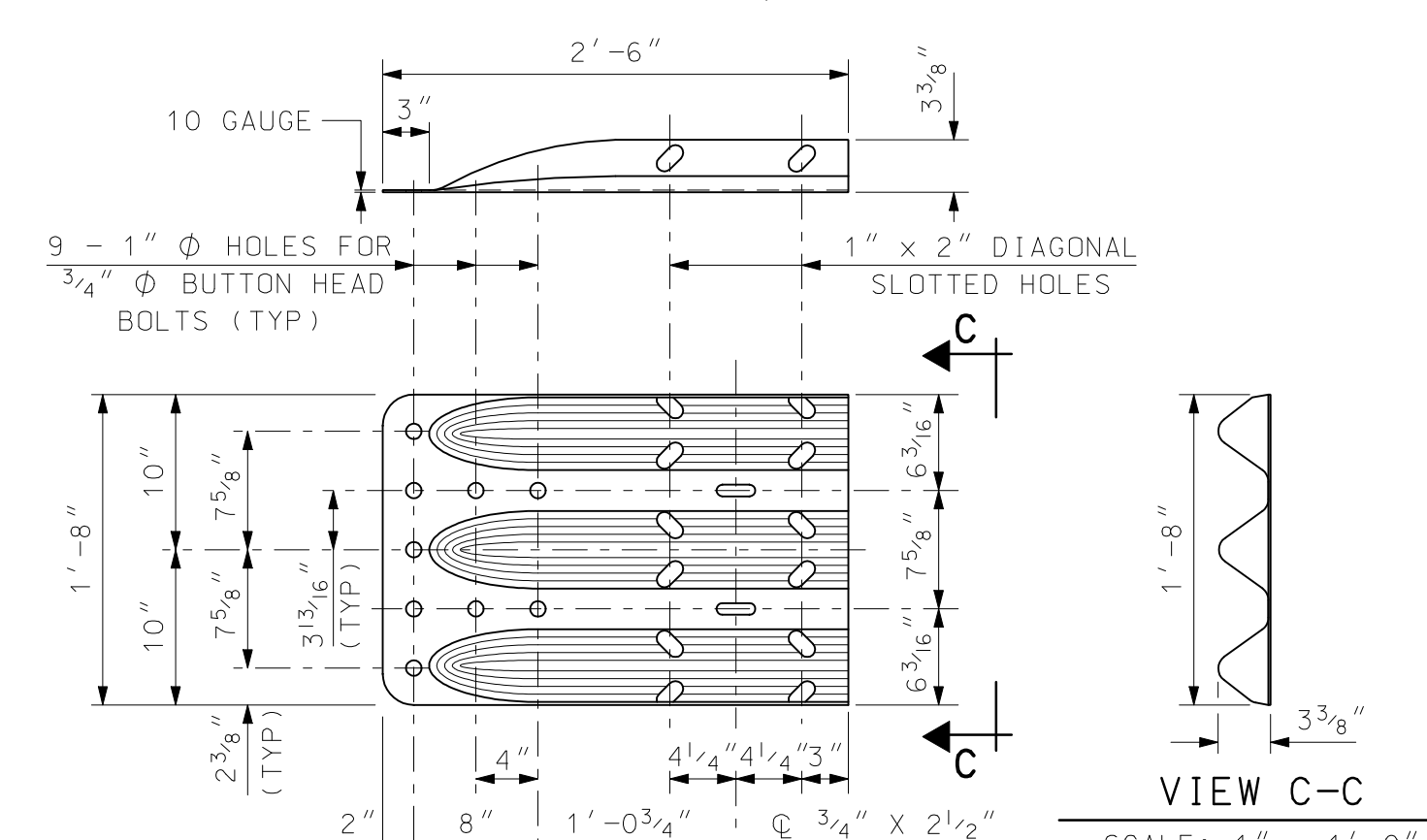
ELEVATION - APPROACH RAIL

SCALE: 3/4" = 1'-0"



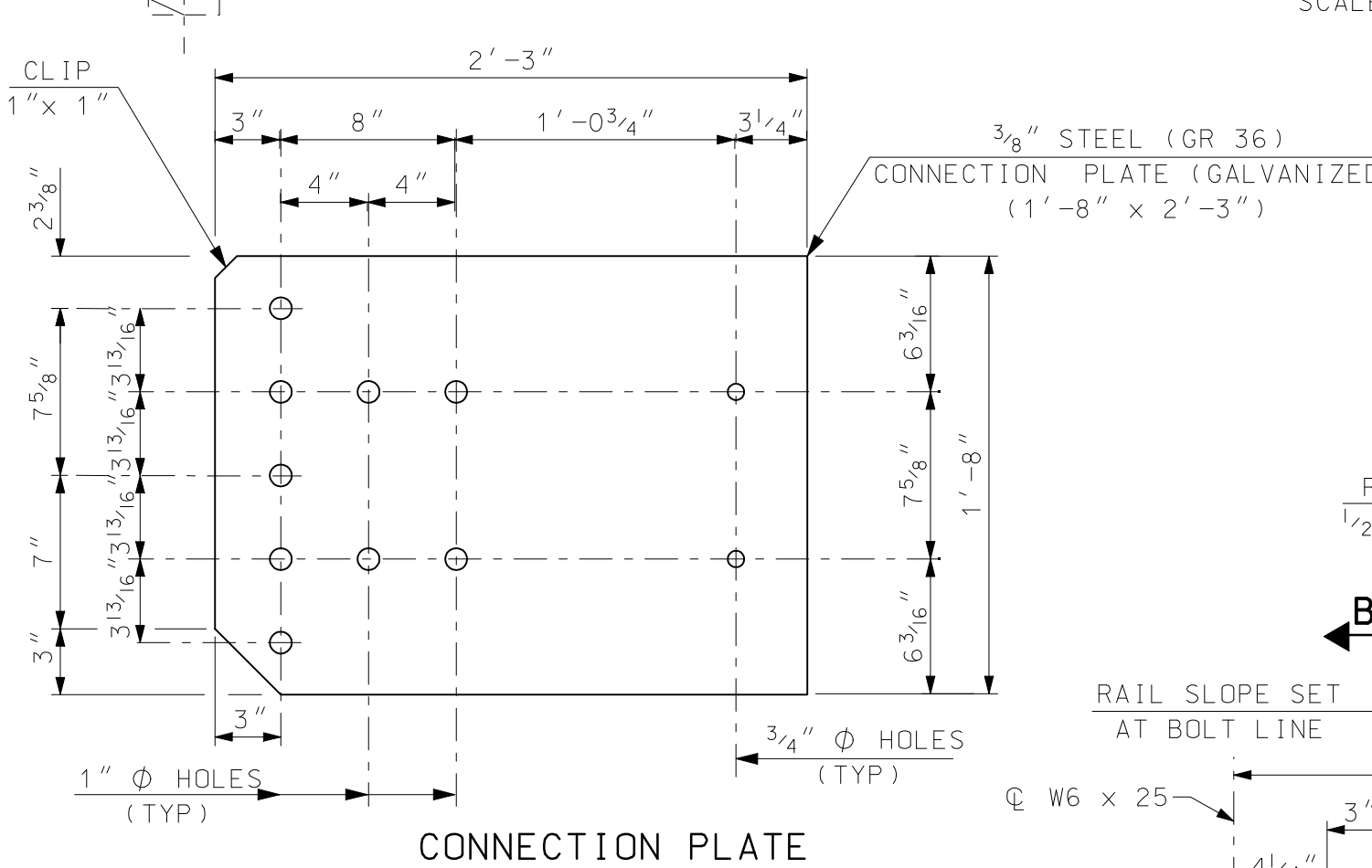
SECTION A-A (POST RAIL ASSEMBLY)

SCALE: 3/4" = 1'-0"



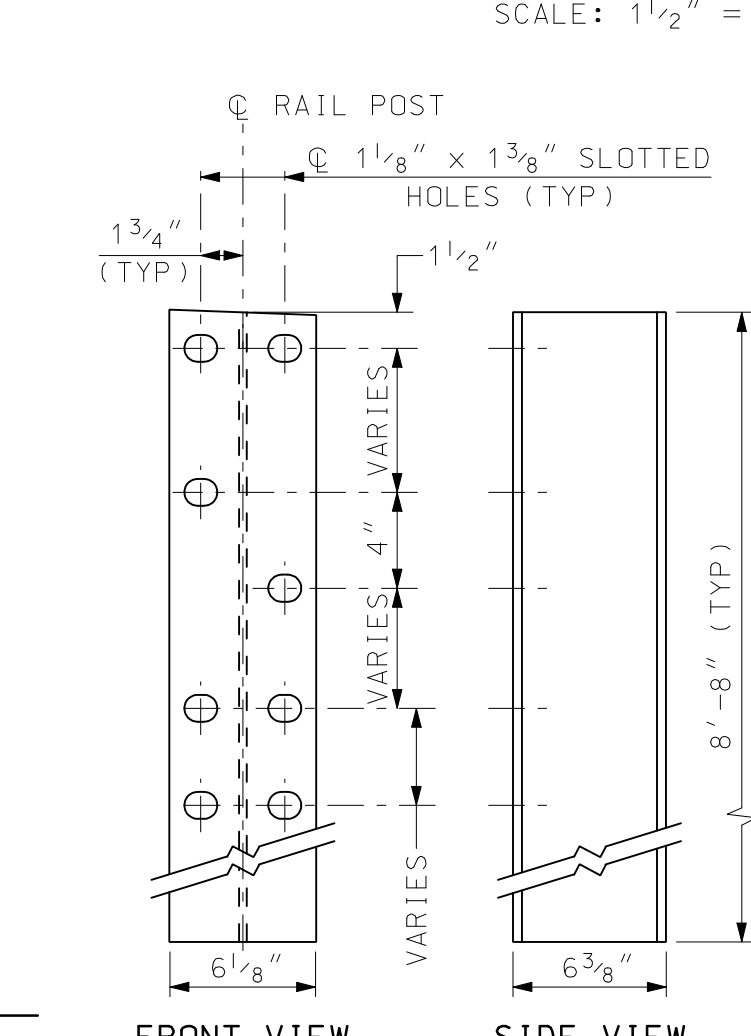
THRIE-BEAM TERMINAL CONNECTOR

SCALE: 1" = 1'-0"



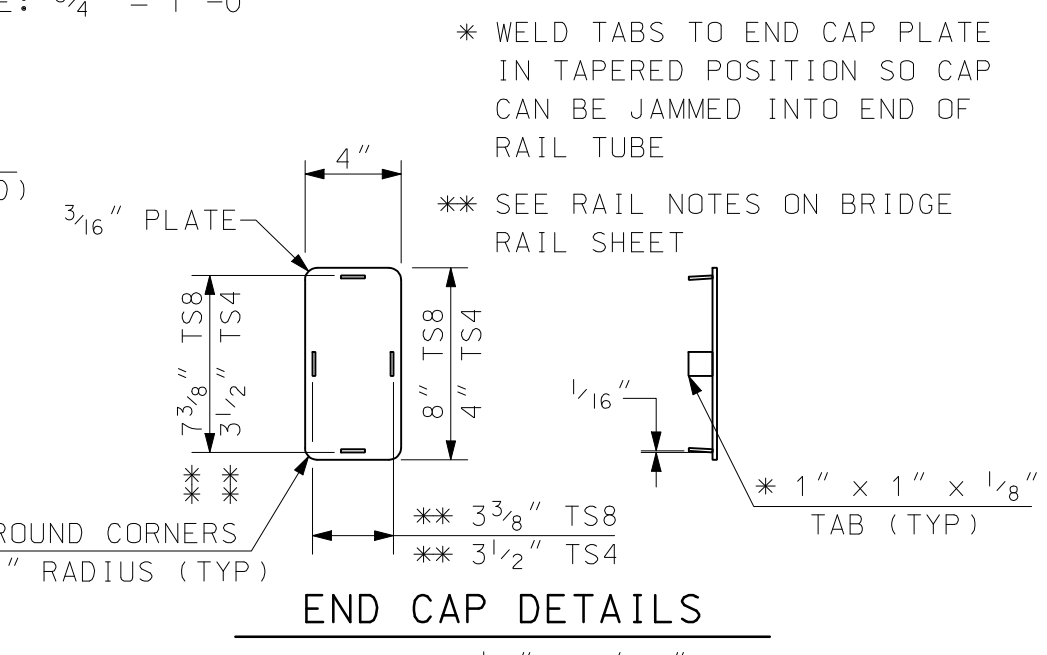
CONNECTION PLATE

SCALE: 1 1/2" = 1'-0"



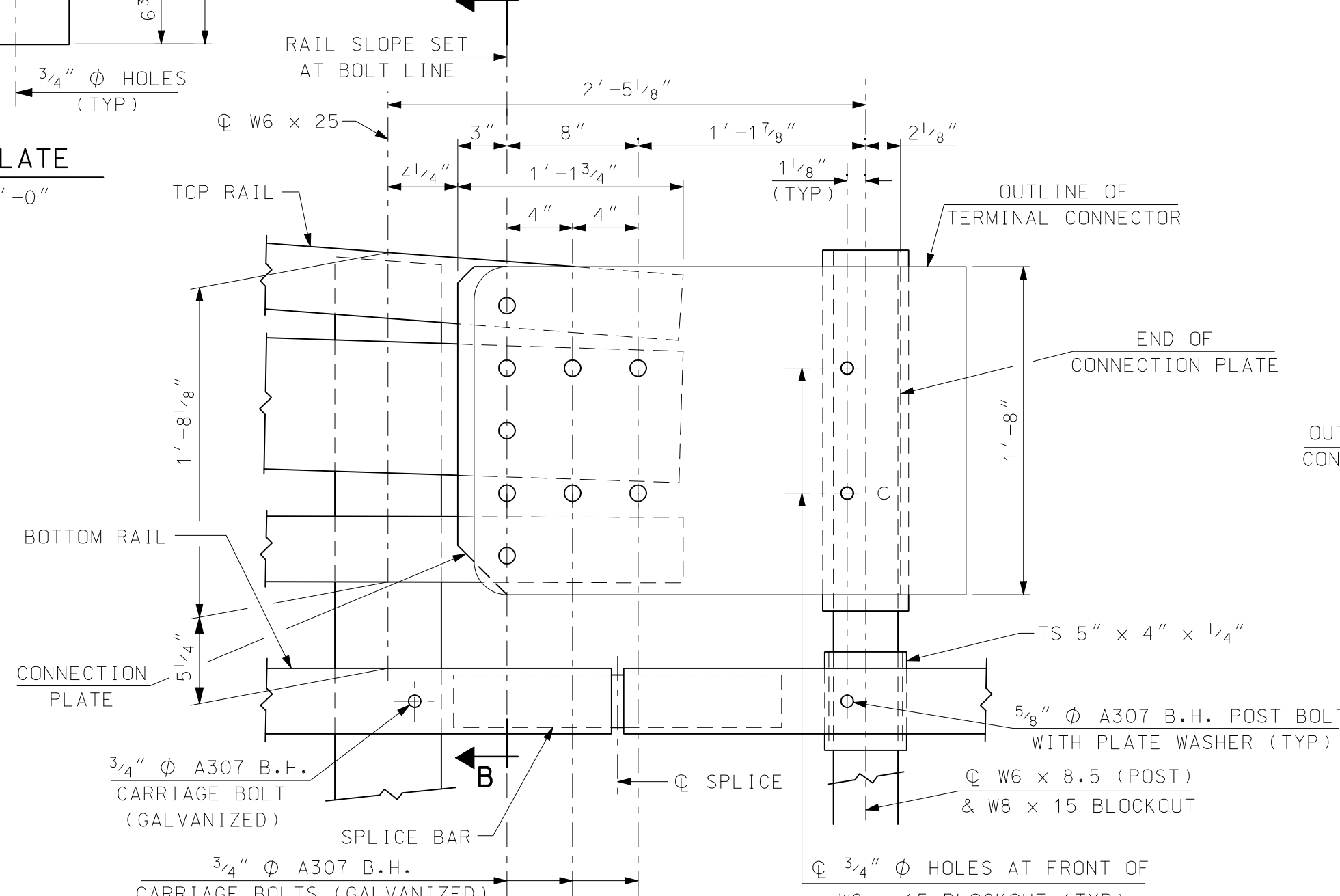
FRONT VIEW SIDE VIEW

SCALE: 1 1/2" = 1'-0"



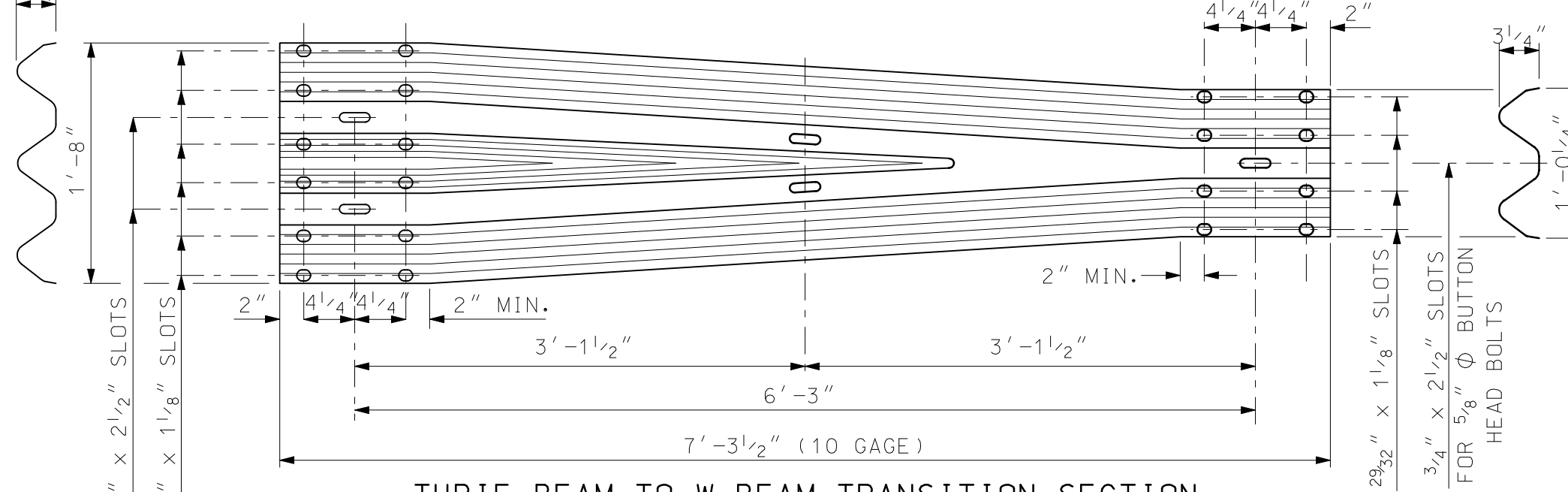
END CAP DETAILS

SCALE: 1 1/2" = 1'-0"



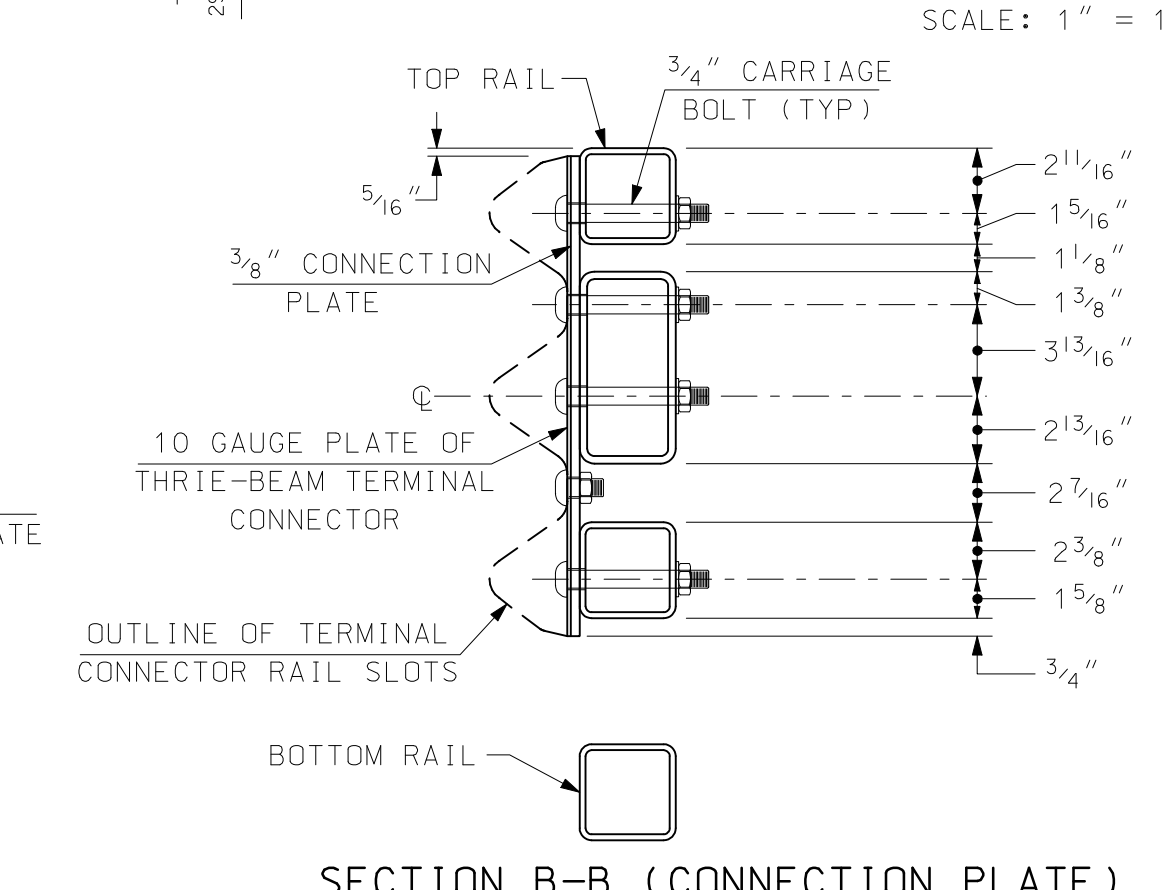
DETAIL A

SCALE: 1 1/2" = 1'-0"



THRIE-BEAM TO W-BEAM TRANSITION SECTION

SCALE: 1" = 1'-0"



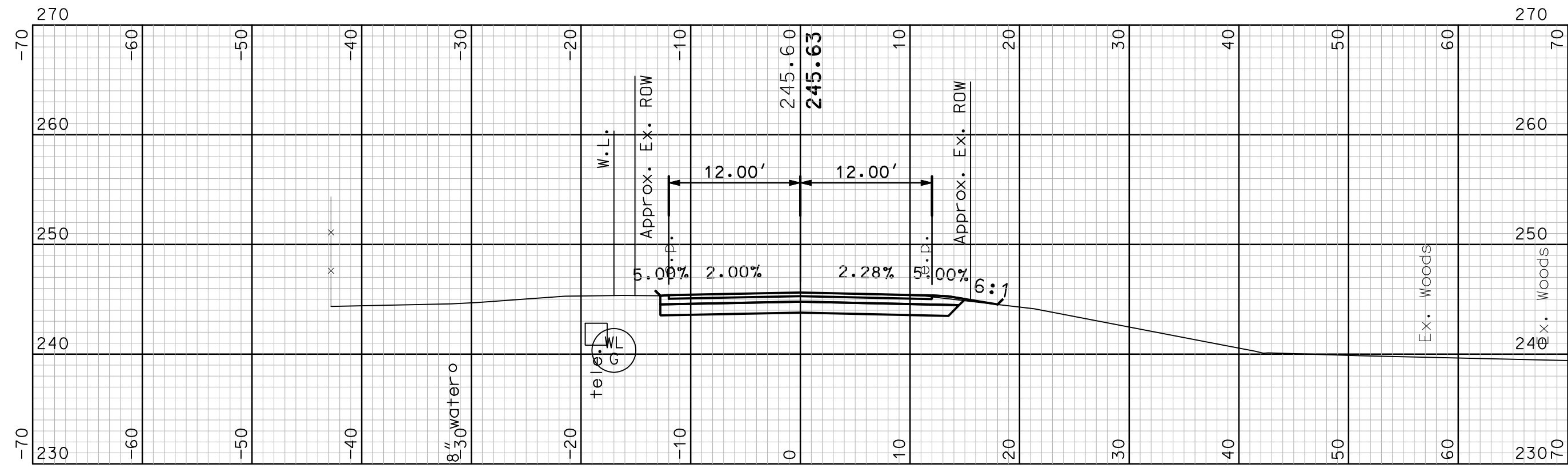
SECTION B-B (CONNECTION PLATE)

SCALE: 1 1/2" = 1'-0"

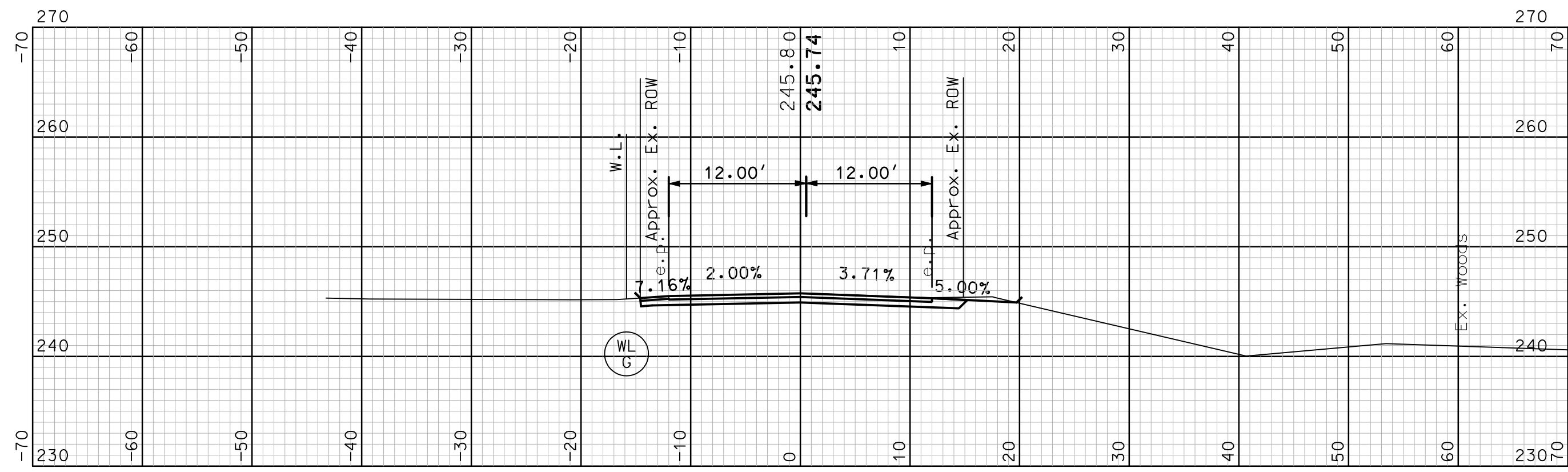
- NOTES:**
- (1) ALL BRIDGE APPROACH RAIL MATERIALS, DIMENSIONS, SIZES, AND NOTES SHALL BE THE SAME AS THOSE OF THE BRIDGE RAIL, UNLESS OTHERWISE NOTED. SEE BRIDGE RAIL SHEET FOR NOTES AND ADDITIONAL INFORMATION.
 - (2) CARRIAGE BOLTS SHALL BE ASTM A307, AND NUTS SHALL BE ASTM A563 GRADE A OR BETTER (GALVANIZED).
 - (3) WELD BOTTOM SPLICE BAR TO FIT BEND. USE COMPLETE JOINT PENETRATION BUTT WELD (B-U2).
 - (4) THIS BRIDGE RAIL TRANSITION SYSTEM WAS SUCCESSFULLY CRASH TESTED IN APRIL 2005 BY THE NEW ENGLAND TRANSPORTATION CONSORTIUM AND ACCEPTED AS NCHRP 350 TL-3 PER FHWA LETTER HSSD/B-146.
 - (5) ALL COMPONENTS, EXCEPT TUBULAR RAIL, SHALL CONFORM TO SECTION 606 OF NHDOT SPECIFICATIONS.

STATE OF NEW HAMPSHIRE									
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN									
TOWN	AMHERST	BRIDGE NO.	134/100	STATE PROJECT	20242				
LOCATION	MANCHESETR ROAD OVER BEAVER BROOK								
T4 STEEL BRIDGE APPROACH RAIL (STEEL POSTS)									
REVISIONS AFTER PROPOSAL		BY	DATE	BY	DATE	BRIDGE SHEET			
		DESIGNED	NETC/JSZ	3/02	CHECKED	NHDOT	OF		
		DRAWN	FJP	10/05	CHECKED	JSZ	FILE NUMBER		
		QUANTITIES			CHECKED				
		ISSUE DATE	11/15/05	FEDERAL PROJECT NO.		SHEET NO.	TOTAL SHEETS		
		REV. DATE	3/25/14			37	40		

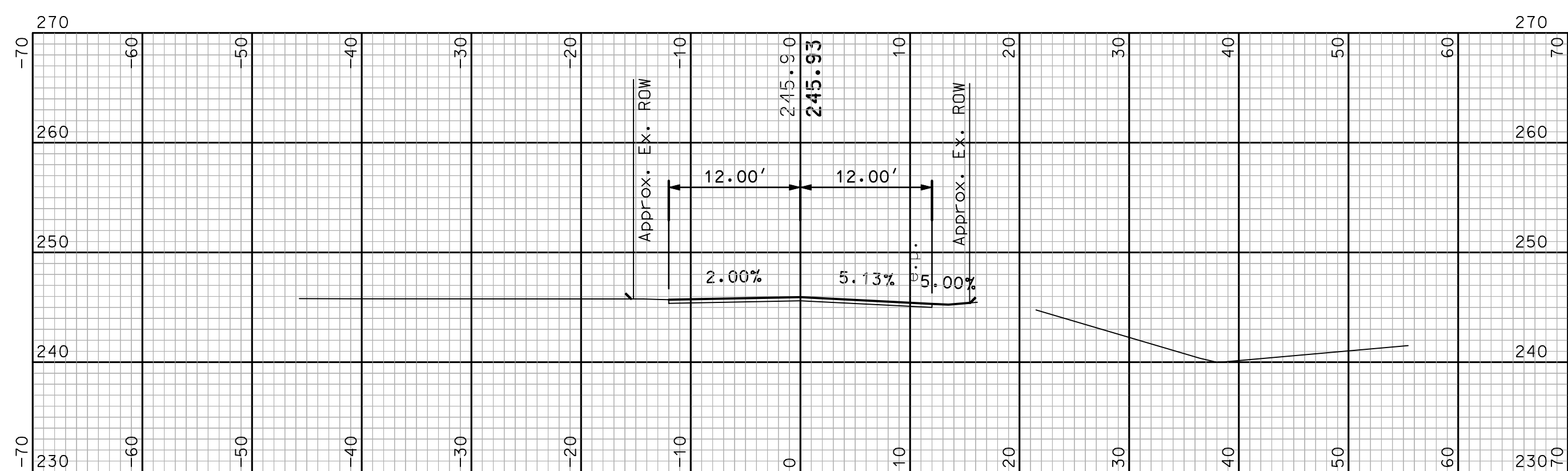
SUBDIRECTORY	DGN LOCATOR	SHEET SCALE
English/BR-RAIL	ABT4SP_APPRAIL	AS NOTED



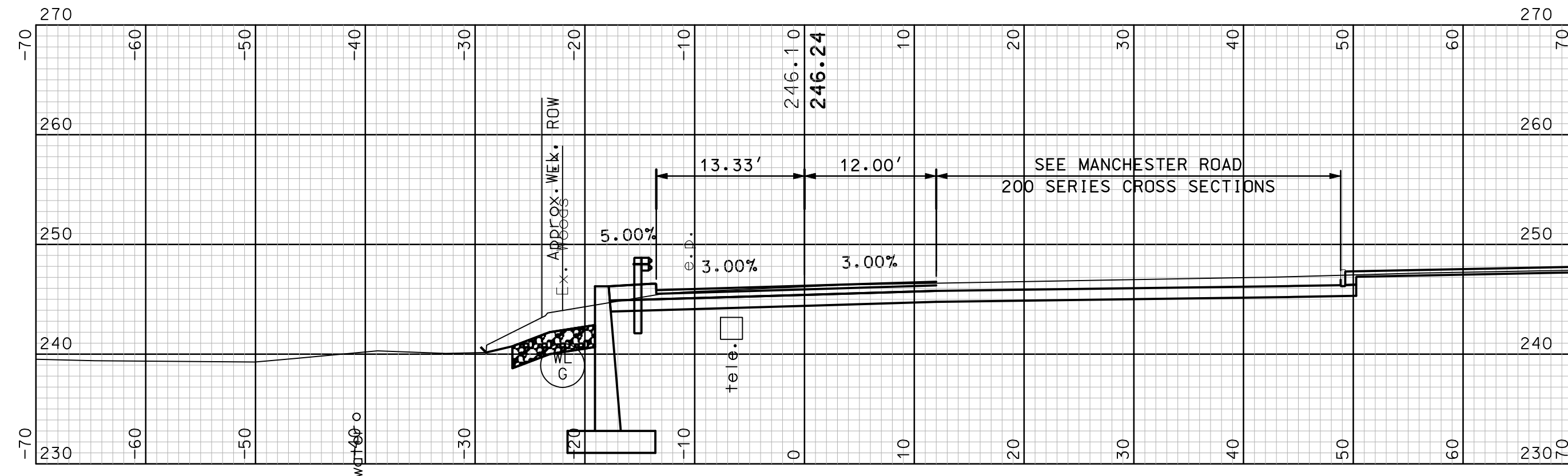
100+50



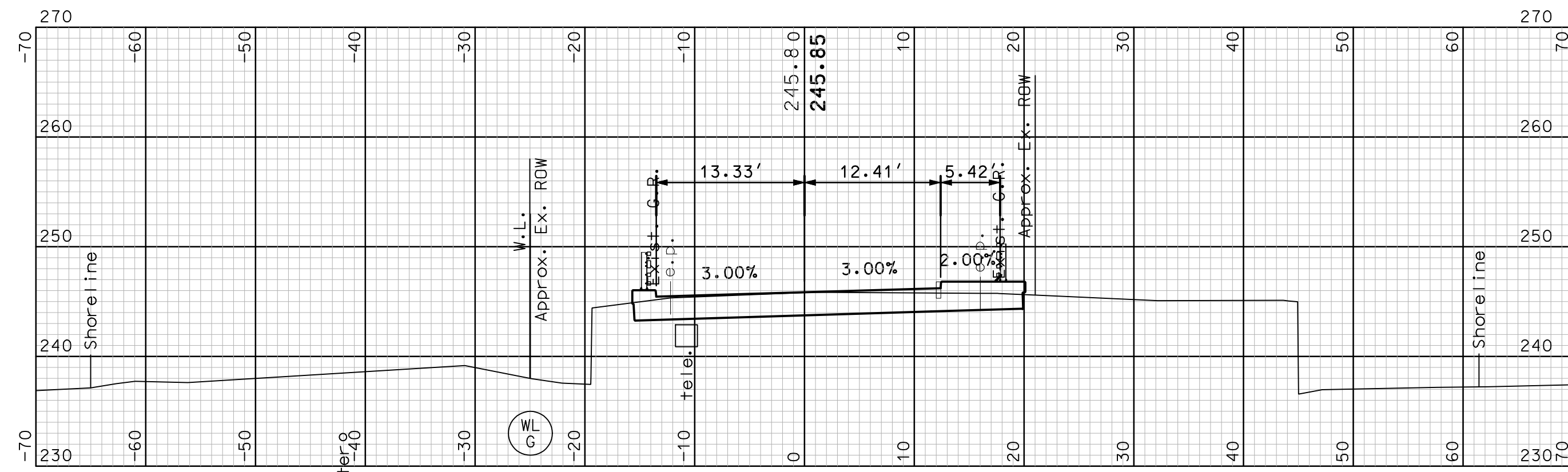
(DRIVE LT) 100+25



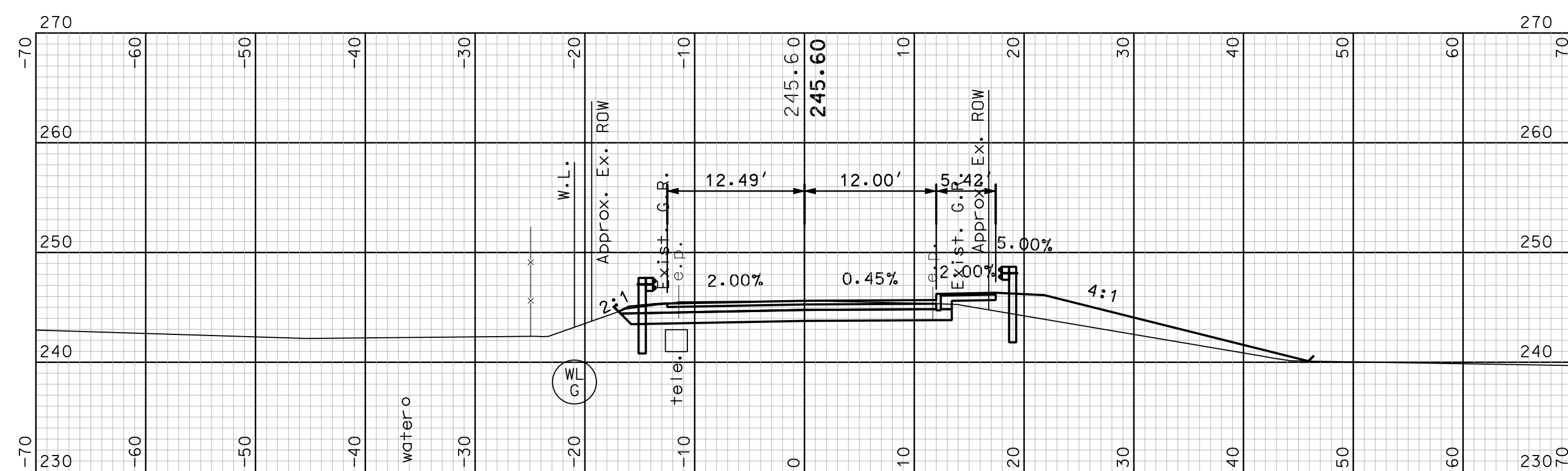
100+00



102+00 (MANCHESTER ROAD RT)



101+50



101+00

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.
 HOYLE, TANNER & ASSOCIATES, INC.
 SIGNED: *[Signature]*
 MARCH 2016
 NOTE: WORDING CONTAINED HEREON IS UNDERSTOOD TO BE PAST TENSE.

REV.	DESCRIPTION	DATE	CHKD. BY
JULY 2014	SBH		
	JFMS		
	CEB		
	AS SHOWN		

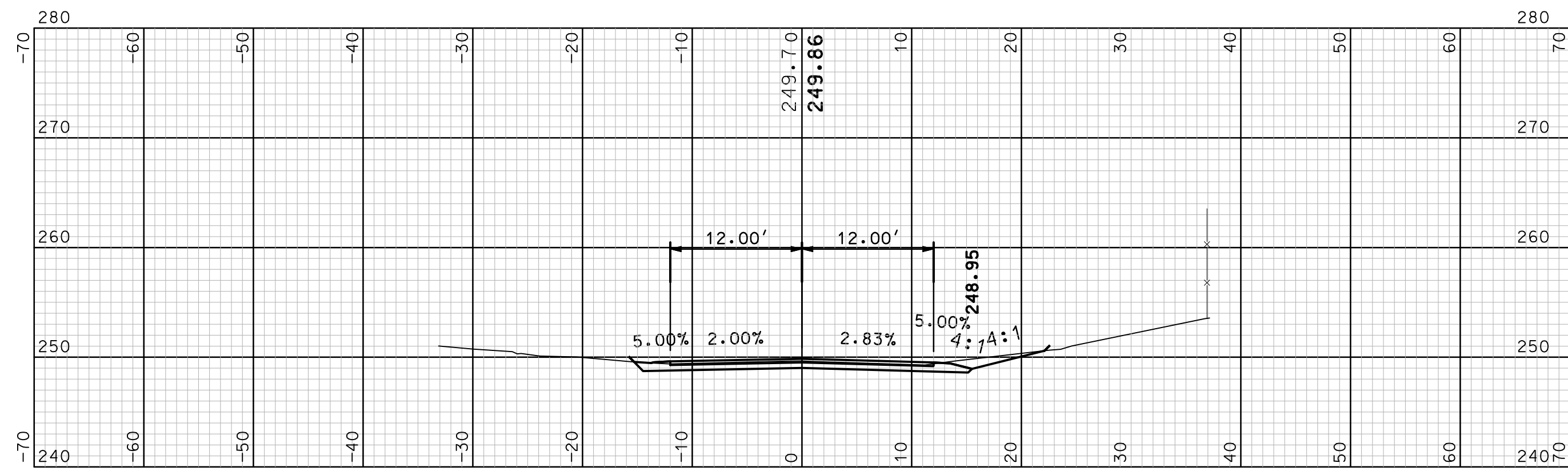
DESIGN BY: SBH
 DRAWN BY: JFMS
 CHKD. BY: CEB
 SCALE: AS SHOWN

This document is prepared as an instrument of service and shall remain the property of Hoyle, Tanner, Inc. It may not be used, reproduced, disseminated or transmitted in any manner electronically, for any purpose other than the purpose for which it was prepared, without the written permission of Hoyle, Tanner, Inc.

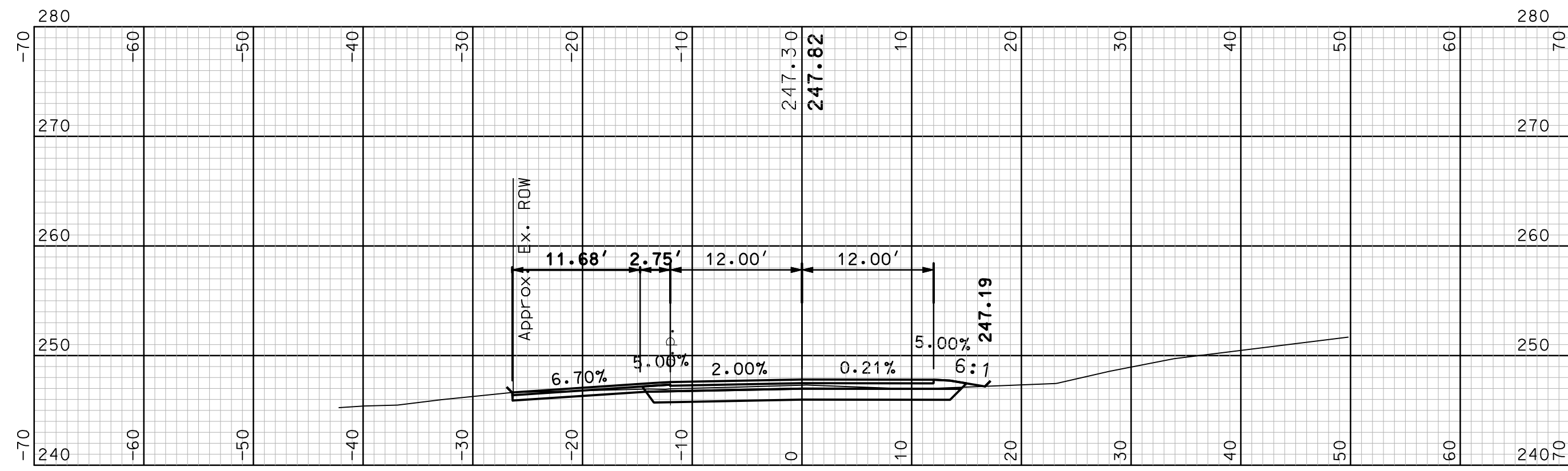
Hoyle, Tanner & Associates, Inc.
 Copyright © 2014 Hoyle, Tanner & Associates, Inc.
 150 Dow Street, Manchester, NH 03101-1227
 Tel (603) 669-5555 • Fax (603) 669-4168
 Webpage: www.hoyletanner.com

TOWN OF AMHERST
 AMHERST, NEW HAMPSHIRE
 MANCHESTER ROAD OVER BEAVER BROOK
 ROADWAY CROSS SECTIONS (1 OF 3)

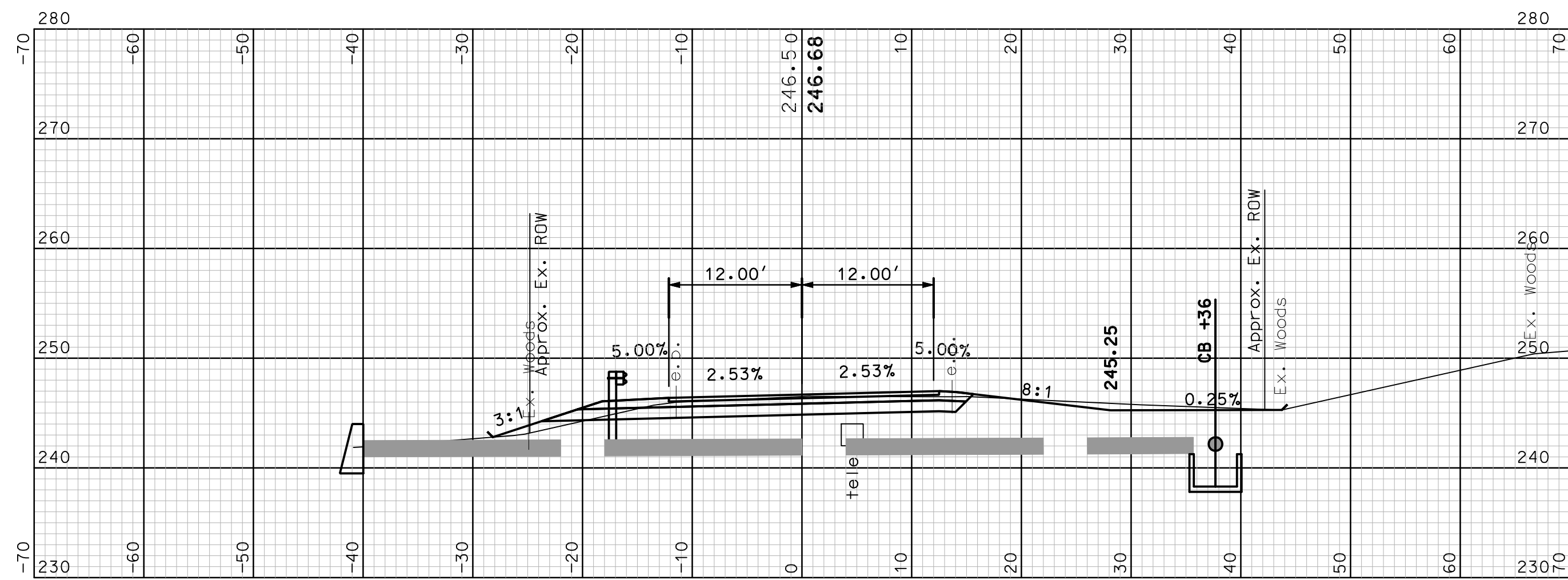
PROJECT NO.: 919101
 FILE NAME: AB919101XMC1M
 MODEL NAME: 919101XMC1M1
 SHEET NO.
38
 SHEET 38 OF 40



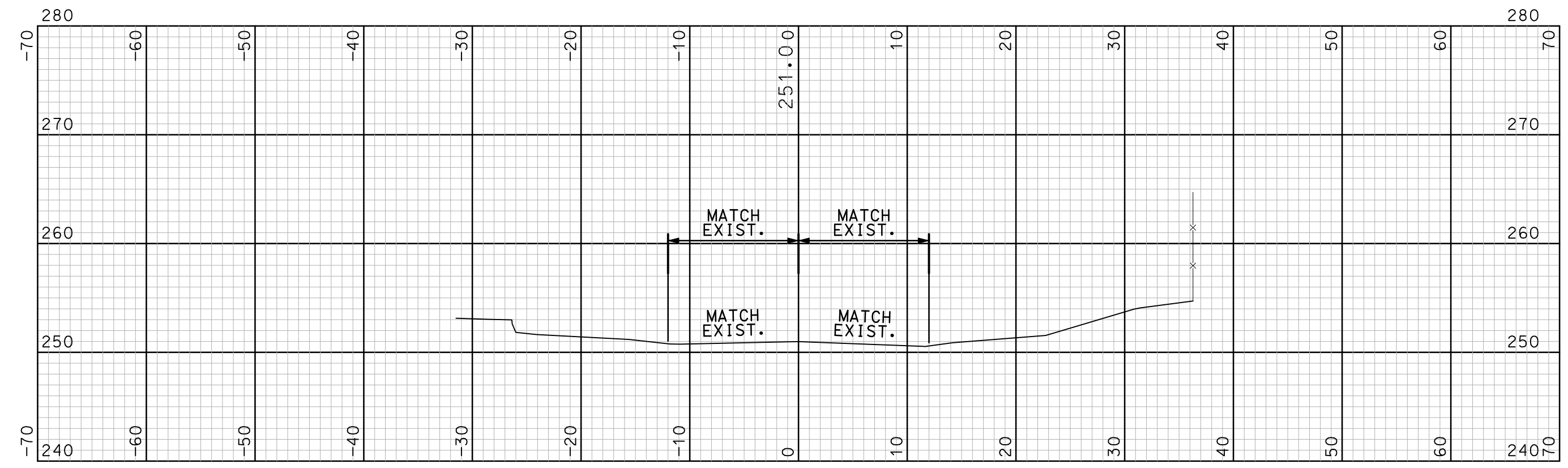
103+50



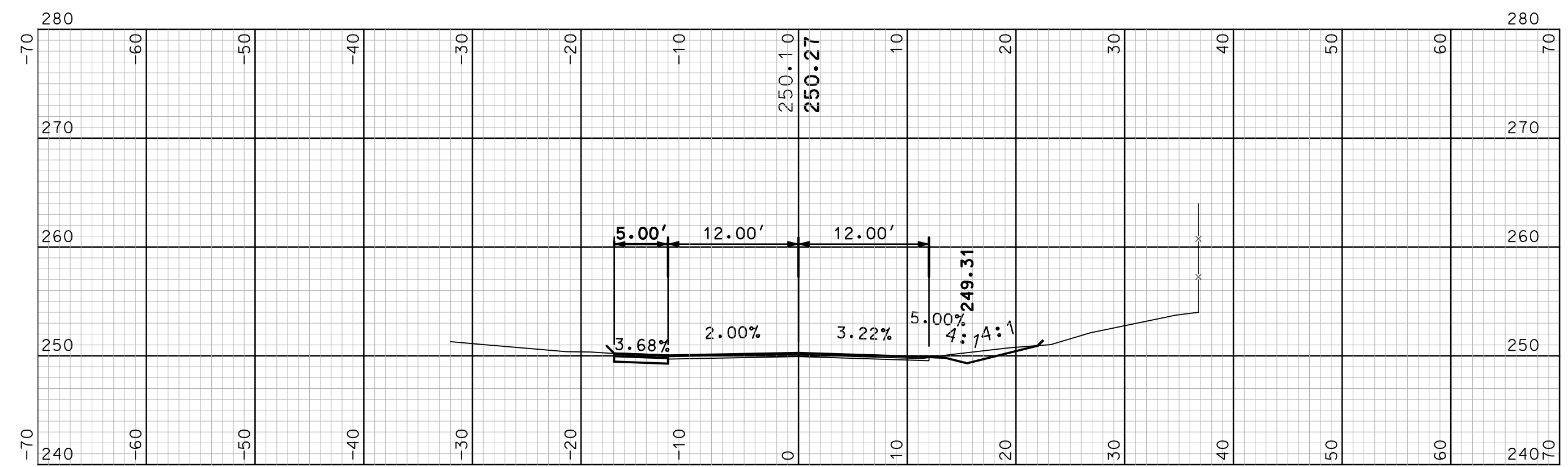
(DRIVE LT) 103+00



102+50



103+72



(DRIVE LT) 103+58

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.
 HOYLE, TANNER & ASSOCIATES, INC.
 SIGNED: *[Signature]*
 MARCH 2016
 NOTE: WORDING CONTAINED HEREON IS UNDERSTOOD TO BE PAST TENSE.

REV.	DESCRIPTION	DATE	CHKD. BY

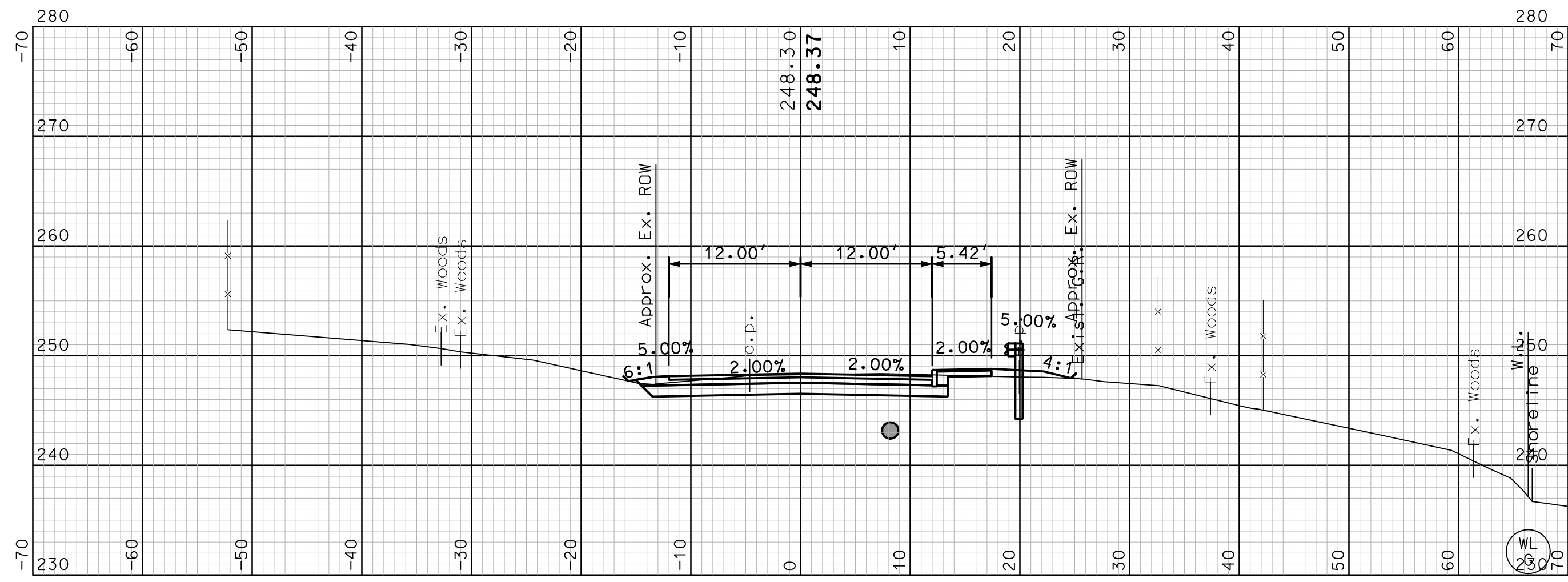
This document is prepared as an instrument of service and shall remain the property of Hoyle, Tanner & Associates, Inc. It may not be used, reproduced, disseminated or otherwise made available for any purpose other than the specific purpose for which it was prepared without the written permission of Hoyle, Tanner & Associates, Inc.

JULY 2014	DESIGN BY:	SBH	CHKD. BY:	SCALE:

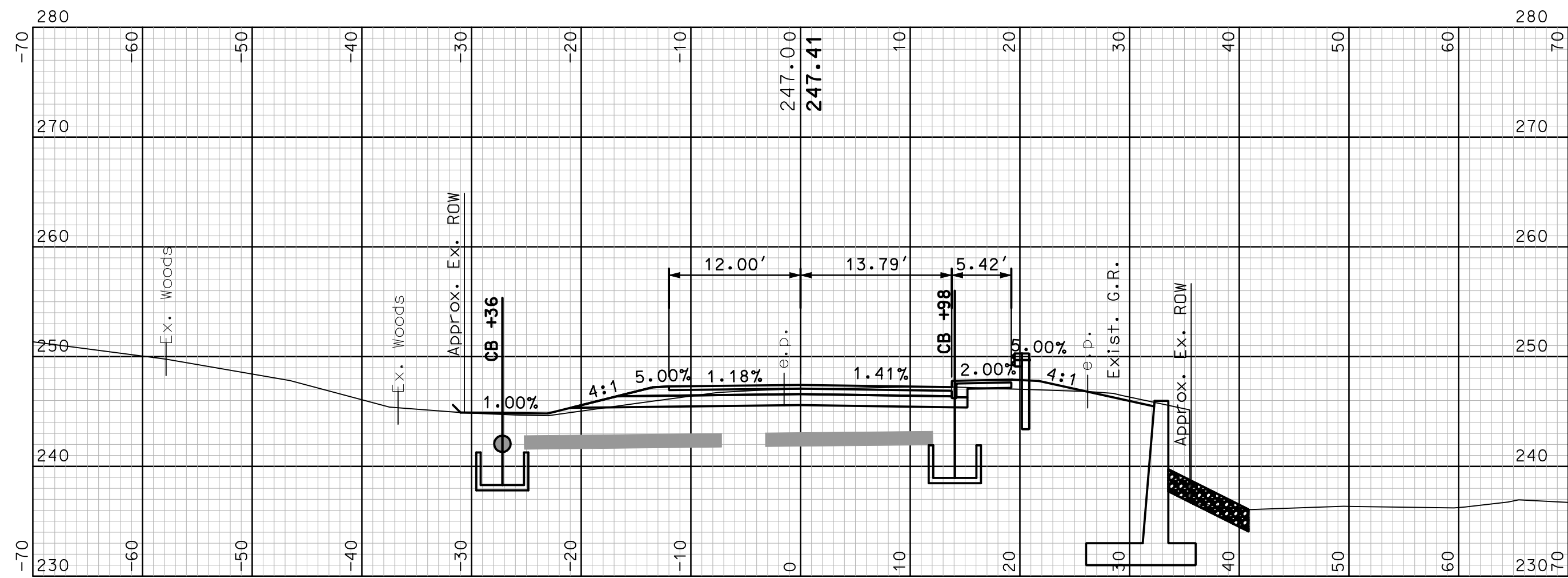
Hoyle, Tanner & Associates, Inc.
 Copyright © 2014 Hoyle, Tanner & Associates, Inc.
 150 Dow Street, Manchester, NH 03101-1227
 Tel (603) 669-5555 • Fax (603) 669-4168
 Webpage: www.hoyletanner.com

TOWN OF AMHERST
 AMHERST, NEW HAMPSHIRE
 MANCHESTER ROAD OVER BEAVER BROOK
 ROADWAY CROSS SECTIONS (2 OF 3)

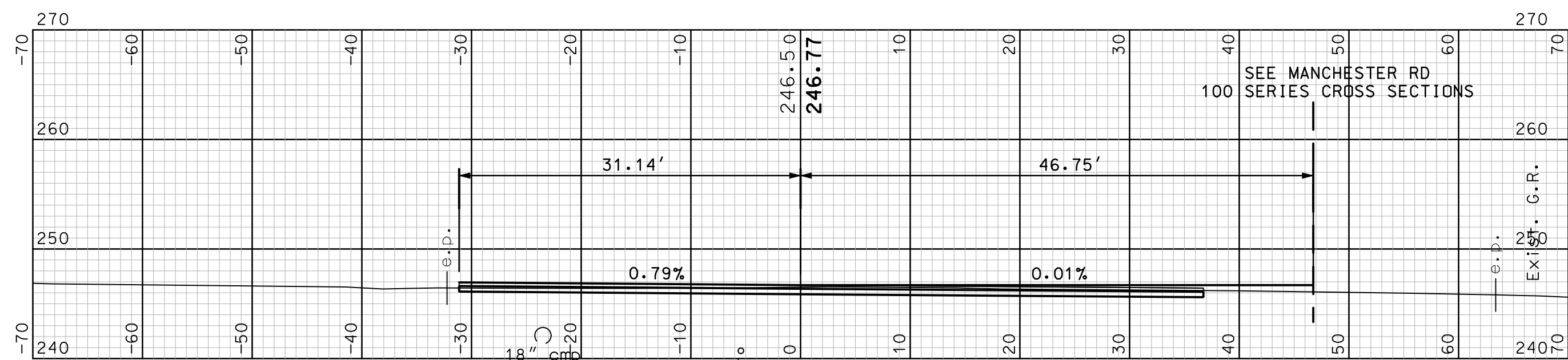
PROJECT NO.: 919101
 FILE NAME: AB919101XMC1M
 MODEL NAME: 919101XMC1M2
 SHEET NO.
39
 SHEET 39 OF 40



201+00 Δ 2



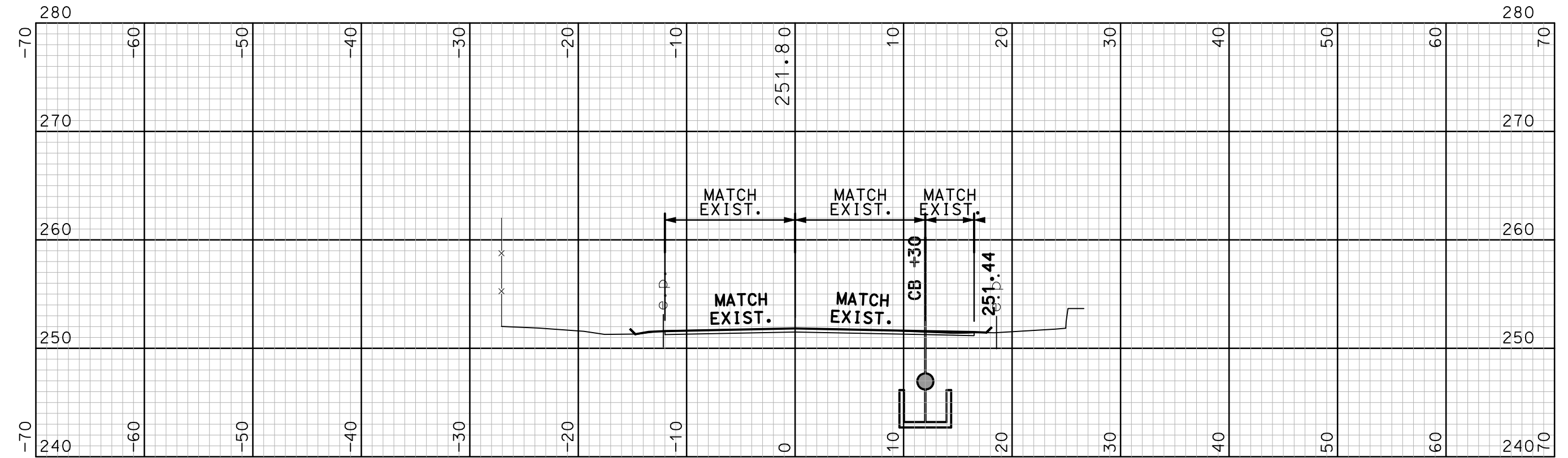
200+50



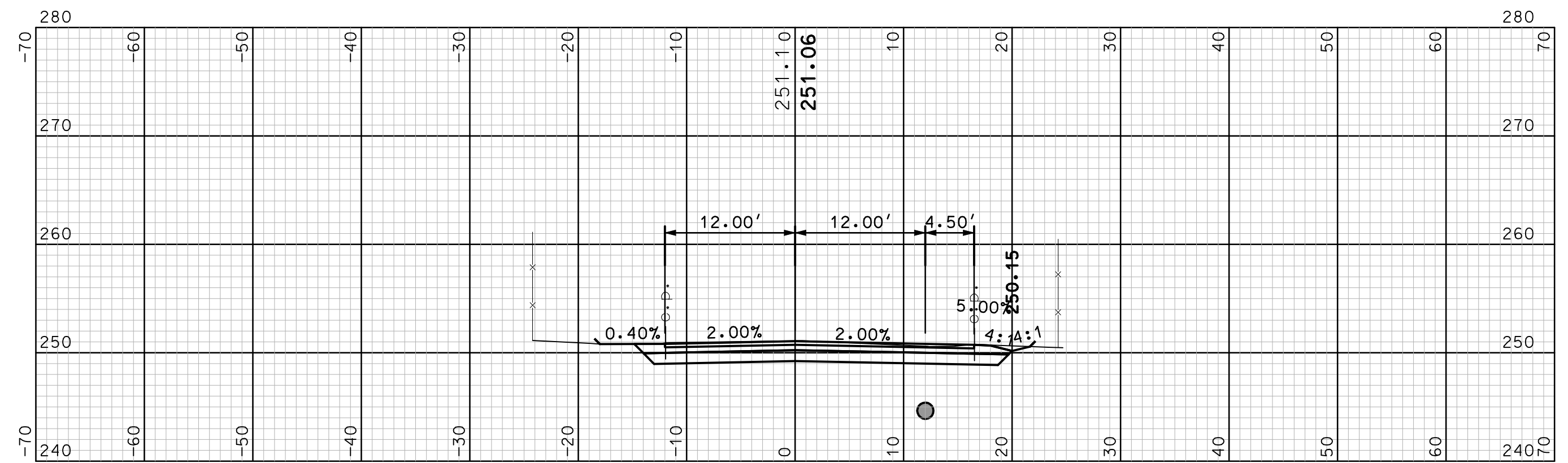
200+14

6" Vertical

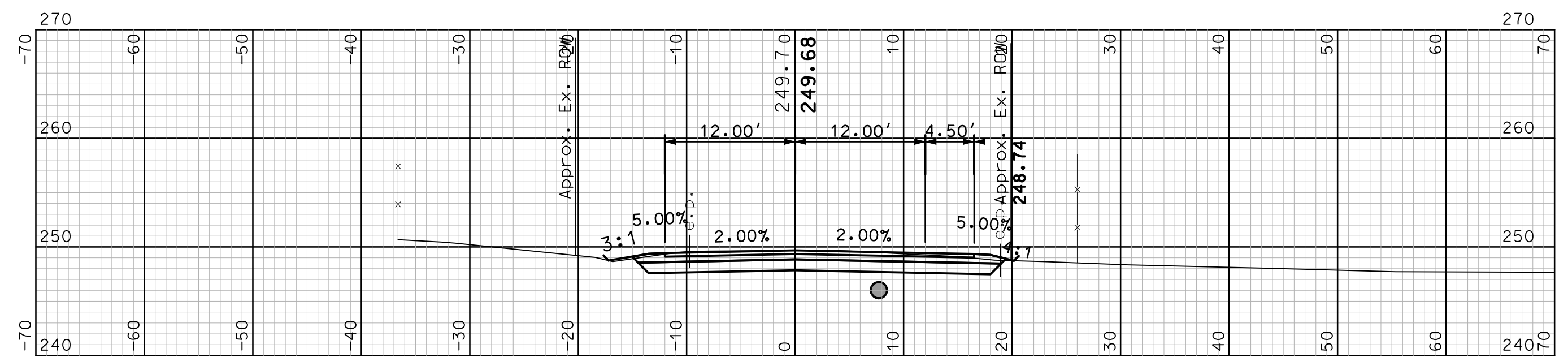
SEE MANCHESTER RD
100 SERIES CROSS SECTIONS



202+28 Δ 2



202+00 Δ 2



201+50 Δ 2

I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, BASED UPON CONSTRUCTION RECORDS, THAT ALL WORK SHOWN IN THESE DRAWINGS HAS BEEN COMPLETED AS SHOWN.
HOYLE, TANNER & ASSOCIATES, INC.
SIGNED: *[Signature]*
MARCH 2016
NOTE: WORDING CONTAINED HEREIN IS UNDERSTOOD TO BE PAST TENSE.

REV.	DESCRIPTION	DATE	DRW. CHD. BY
1	RECORD COPY REVISIONS	3/2016	JCR

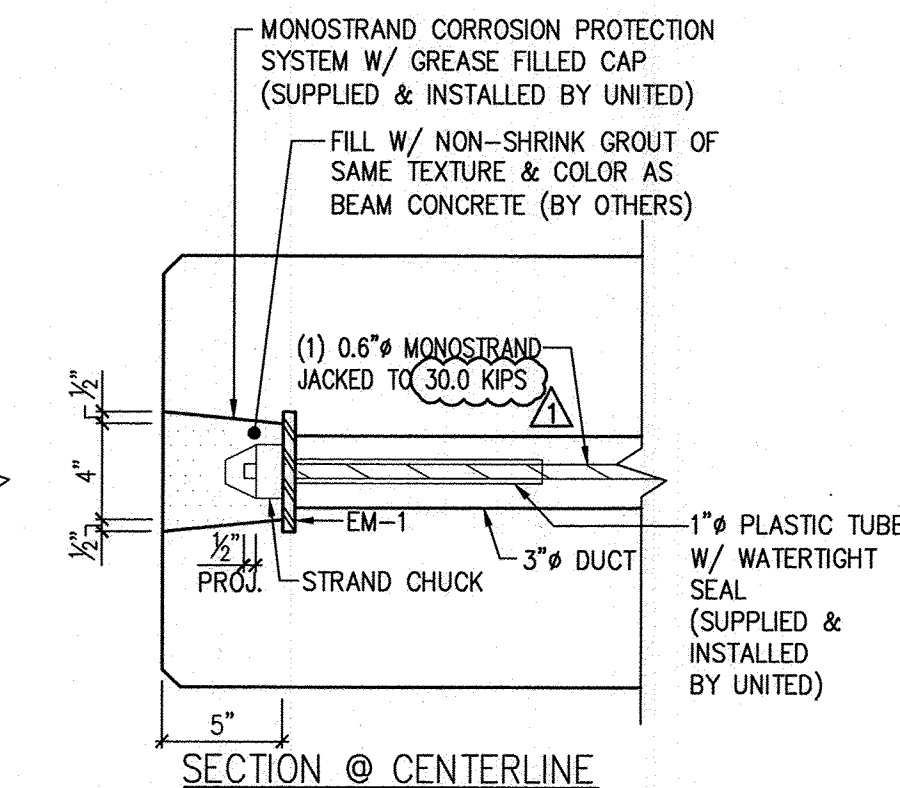
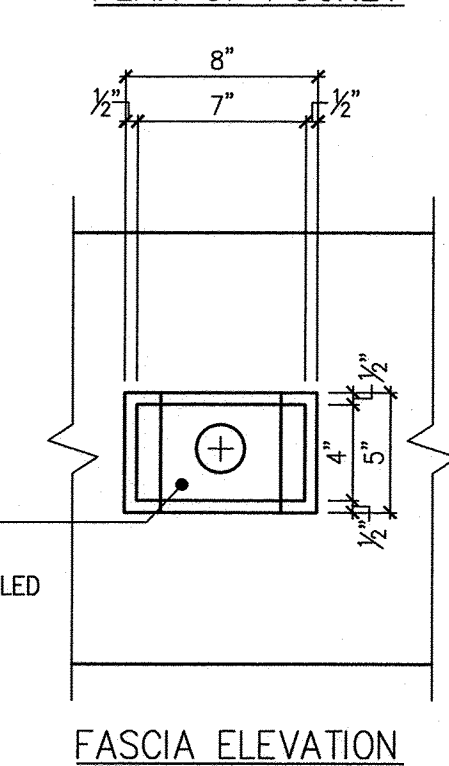
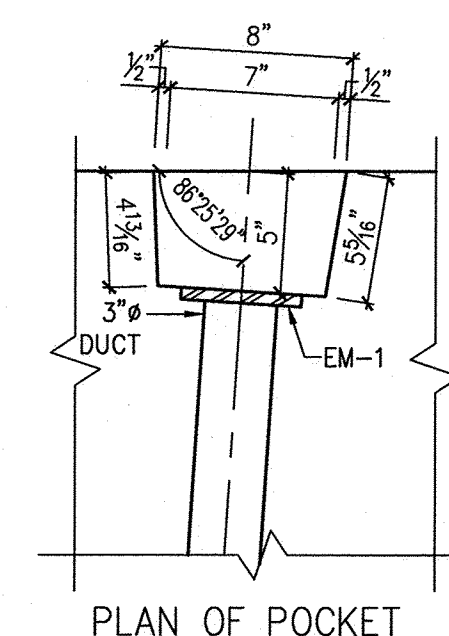
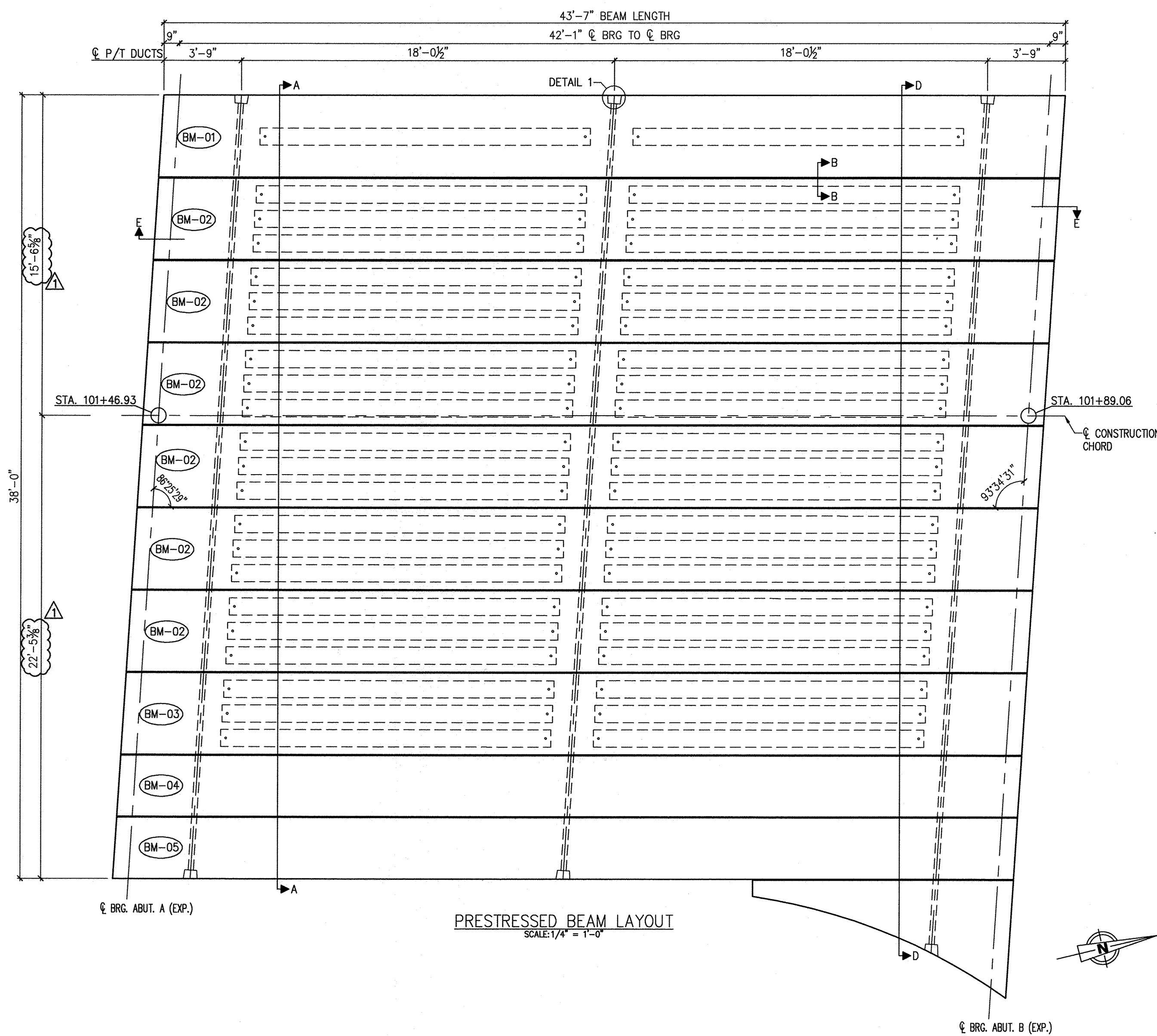
DESIGN BY: SBH
DRAWN BY: JFMS
CHKD. BY: CED
SCALE: AS SHOWN

This document is prepared as an instrument of service and shall remain the property of Hoyle, Tanner, Inc. It may not be used, reproduced, disseminated or transmitted in any manner, including electronically, for any other purpose than that project, without the written permission of Hoyle, Tanner, Inc.

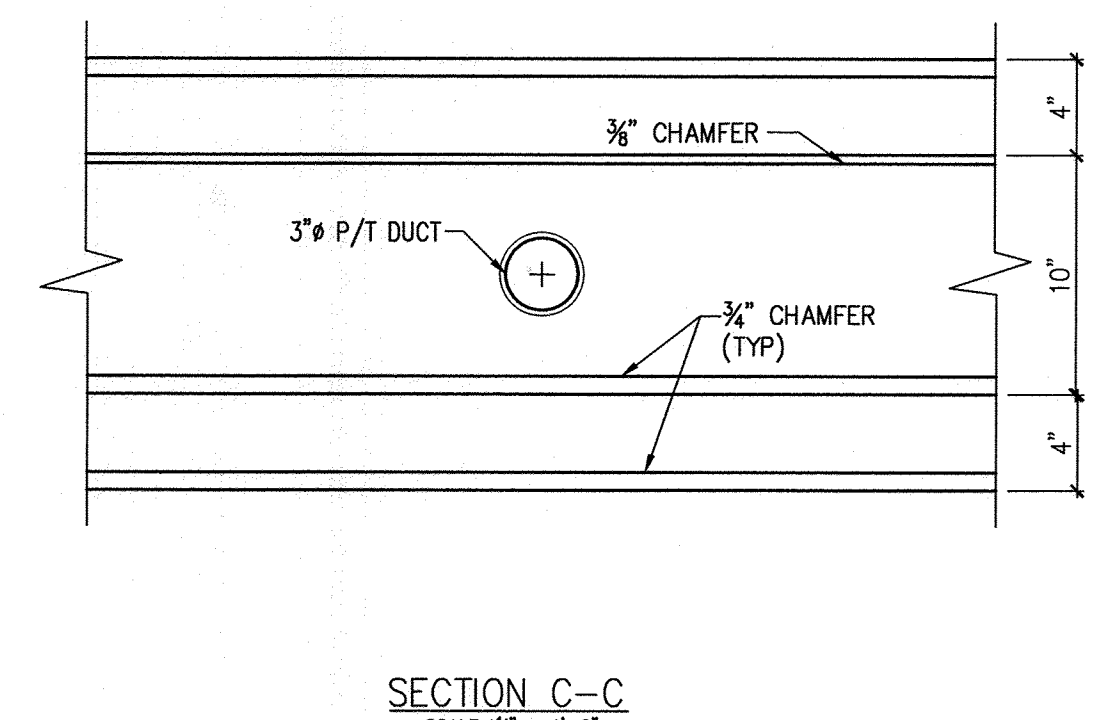
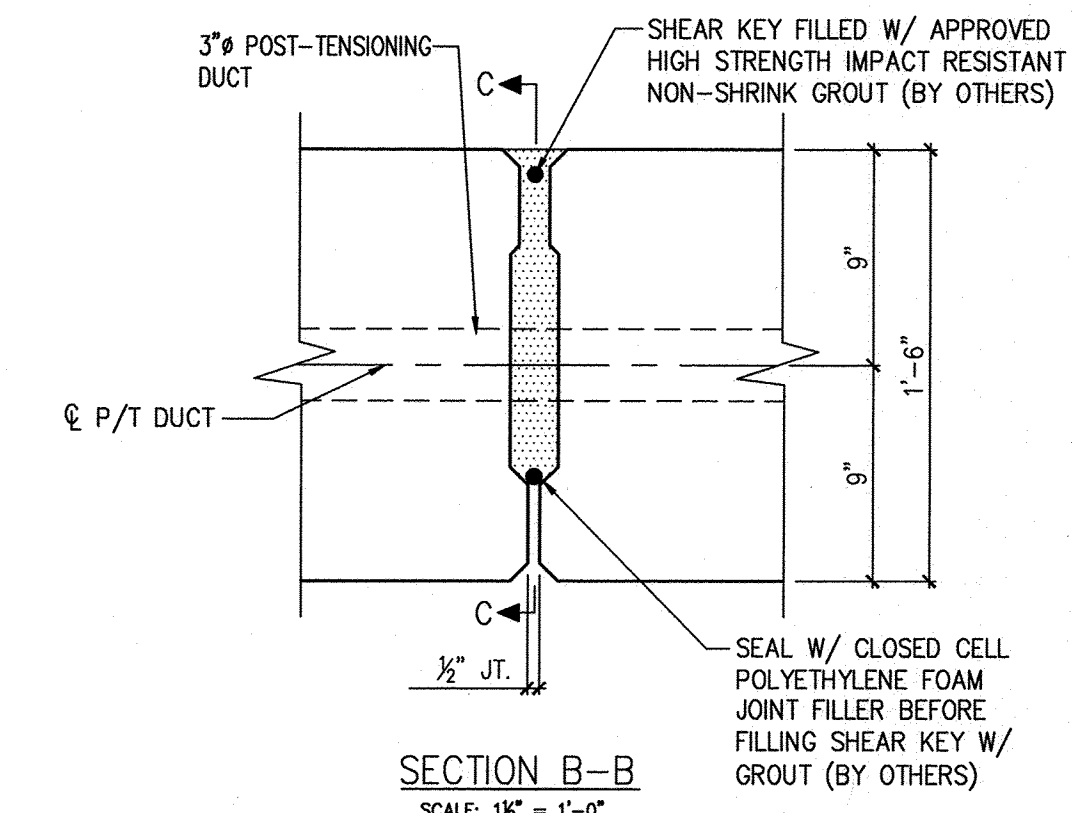
Hoyle, Tanner & Associates, Inc.
Copyright © 2010 Hoyle, Tanner & Associates, Inc.
150 Dow Street, Manchester, NH 03101-1227
Tel (603) 669-5555 • Fax (603) 669-4168
Webpage: www.hoyletanner.com

TOWN OF AMHERST
AMHERST, NEW HAMPSHIRE
MANCHESTER ROAD OVER BEAVER BROOK
ROADWAY CROSS SECTIONS (3 OF 3)

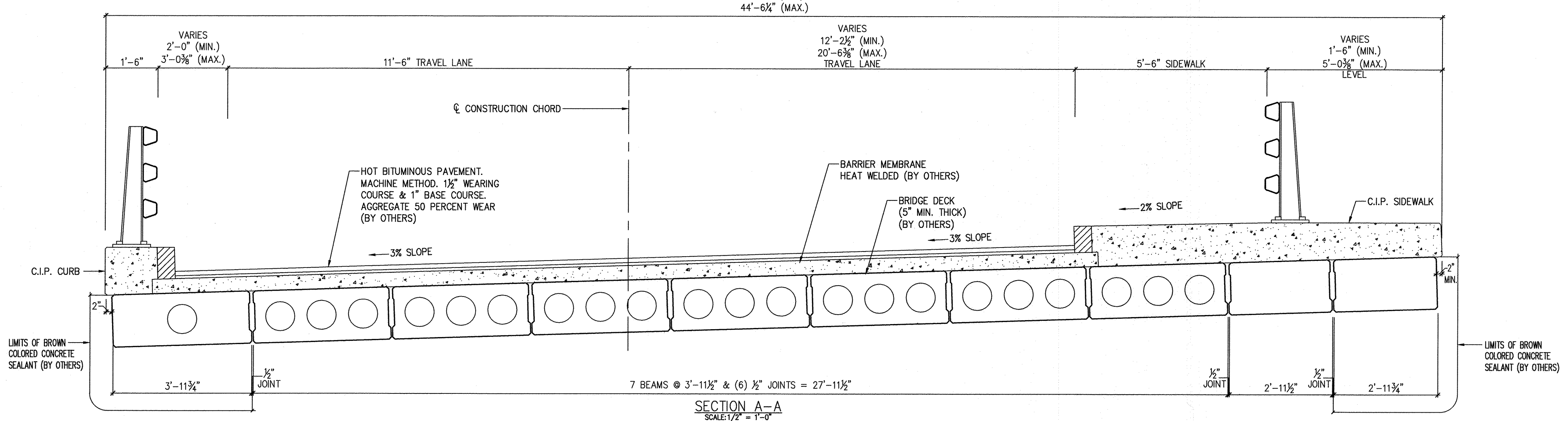
PROJECT NO.: 919101
FILE NAME: AB919101XMC1A
MODEL NAME: 919101XMC1A01
SHEET NO.
40
SHEET 40 OF 40



DETAIL 1
SCALE: 1/2" = 1'-0"



VARIES
38'-4" (MIN.)
44'-6 1/4" (MAX.)



GENERAL NOTES

- MINIMUM CONCRETE STRENGTH AT 28 DAYS SHALL BE 6,500 PSI. MINIMUM CONCRETE STRENGTH AT STRESS TRANSFER SHALL BE 5,200 PSI.
 - REINFORCING STEEL SHALL BE GR-60, ASTM A416 AND SHALL BE EPOXY COATED.
 - PRESTRESSING STRANDS SHALL CONFORM TO AASHTO M203, GRADE 270 AND SHALL CONSIST OF .6" x 7-WIRE, LOW-RELAXATION STRANDS. PRESTRESSING STRANDS SHALL BE PULLED TO HAVE A NET TENSION OF 44 KIPS EACH (UNLESS NOTED OTHERWISE) AFTER ACCOUNTING FOR CHUCK SLIPPAGE. TENSION SHALL BE VERIFIED BY MEASURING STRAND ELONGATION.
 - ENDS OF PRESTRESSING STRANDS RECESSED AND PATCHED. THE PROJECTING STRAND SHALL BE BURNED OUT AND THE RECESS CLEANED PRIOR TO PATCHING WITH AN APPROVED MATERIAL. THE ENDS OF THE BEAMS SHALL BE PAINTED WITH APPROVED BITUMASTIC MATERIAL.
 - TOPS OF THE BEAMS SHALL BE RAKED TRANSVERSELY TO A SURFACE ROUGHNESS OF 1/4".
 - BEAMS SHALL BE HANDLED AND ERECTED USING THE LIFTING LOOPS ONLY. THE MINIMUM SLING ANGLE FROM THE HORIZONTAL SHALL BE 60°. BEAMS SHALL BE STORED AND TRANSPORTED WITH TIMBER SUPPORTS WITHIN 2'-0" OF THE BEAM ENDS, UNLESS APPROVED BY UNITED CONCRETE PRODUCTS, INC.
 - SHEAR KEY SURFACES SHALL BE PRESSURE WASHED CLEAN.
 - QUALITY CONTROL PROCEDURES ARE IN ACCORDANCE WITH PCI REQUIREMENTS & NHDOT STANDARD SPECIFICATIONS.
 - THE ENGINEER OF RECORD WILL BE NOTIFIED FOURTEEN (14) WORKING DAYS PRIOR TO START SO THAT ALL PRECAST OPERATIONS MAY BE WITNESSED.
- CURING METHOD
- CURING METHOD SHALL BE IN ACCORDANCE WITH NHDOT STANDARD SPECIFICATIONS SECTION 528.3.14. NATURAL CURE: AS SOON AS THE TOP OF THE BEAM IS FINISHED, COVER WITH POLY UNTIL RELEASE STRENGTH IS ACHIEVED. STEAM CURE: STEAM CURE BEAMS ACCORDING TO PCI-MNL-116, DIVISION 4.19, ACCELERATED CURING OF CONCRETE.
 - POST-TENSIONING STRANDS SHALL BE COMPLETELY COATED WITH A CORROSION PREVENTIVE COATING SUCH AS FLO-GUARD OR POLYSTRAND OR AN APPROVED EQUAL. POST-TENSIONING ANCHORAGE SYSTEM SHALL BE MONO-STRAND CORROSION PROTECTION SYSTEM OR APPROVED EQUAL.
 - TRANSVERSE POST-TENSIONING SEQUENCE:
 - ONCE BEAMS ARE ERECTED, INSTALL HARDWARE WEDGES TO PREVENT SLIPPAGE AND TENSION TENDONS TO 5 KIPS EACH.
 - GROUT SHEAR KEYS
 - ONCE SHEAR KEY GROUT HAS CURED (24 HOURS AND ACHIEVED 1500 PSI MINIMUM), TENSION TENDONS TO 30 KIPS EACH.
 - BEAMS SHALL NOT BE FIELD-DRILLED.
 - ALL UNANSWERED VERIFIES WILL BE CONSIDERED CORRECT.

REVISIONS	DRAWN	CHECKED	APPROVED
Rev. Note DATE 02/27/2015	JLB 02/12/15	JJJ 02/12/15	RLE 02/12/15

Eriksson
technologies

813.989.3317
TAMPA, FL
LRFD.COM

UNITED CONCRETE PRODUCTS, Inc.

173 CHURCH STREET
YALESVILLE, CT 06492
TEL: (203)-269-3119
FAX: (203)-265-4941

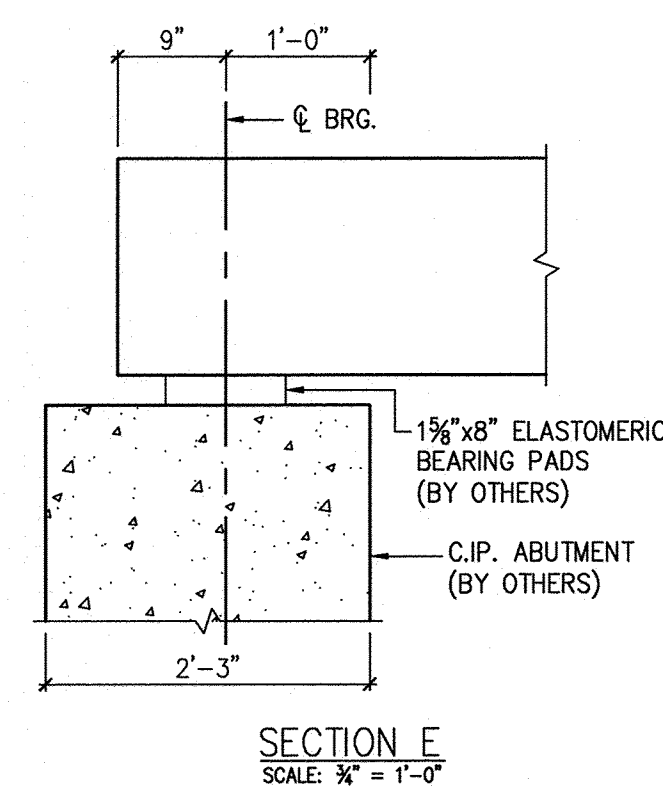
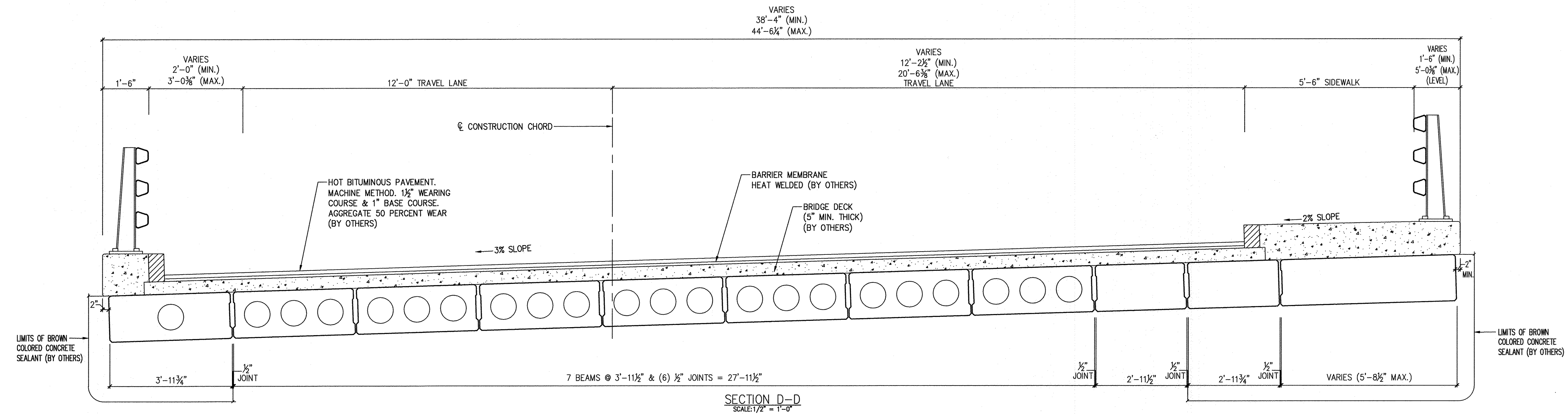
PRESTRESSED CONCRETE BEAMS

CUSTOMER	NEIL H. DANIELS, INC.
JOB	MANCHESTER ROAD BRIDGE
LOCATION	AMHERST, NH

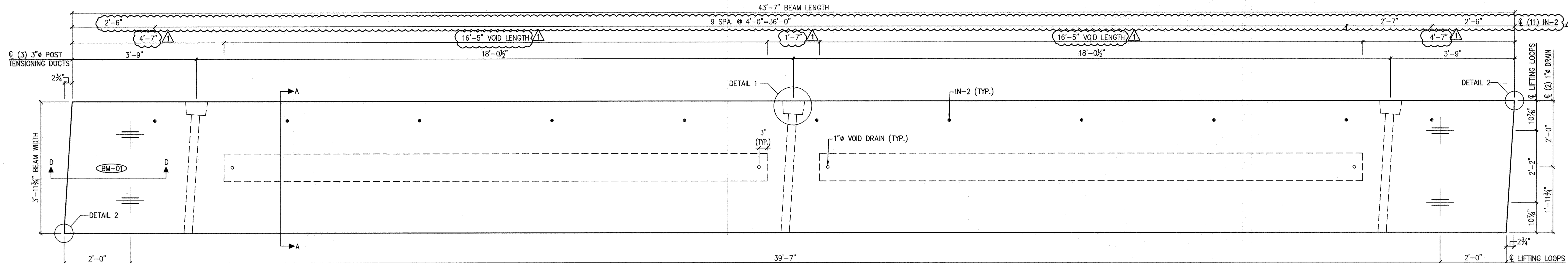
PROJECT #21514

BRIDGE #134/100

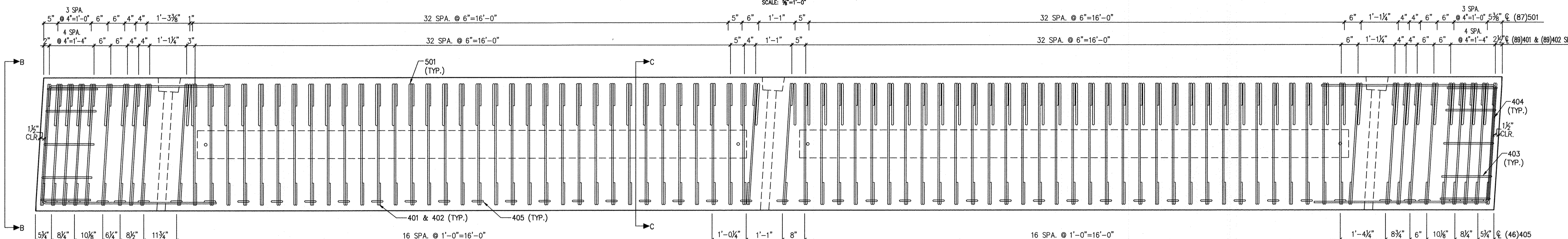
SHOP DRAWINGS BASED ON CONTRACT DRAWINGS DATED: 11/3/2014	SHEET F1
--	-------------



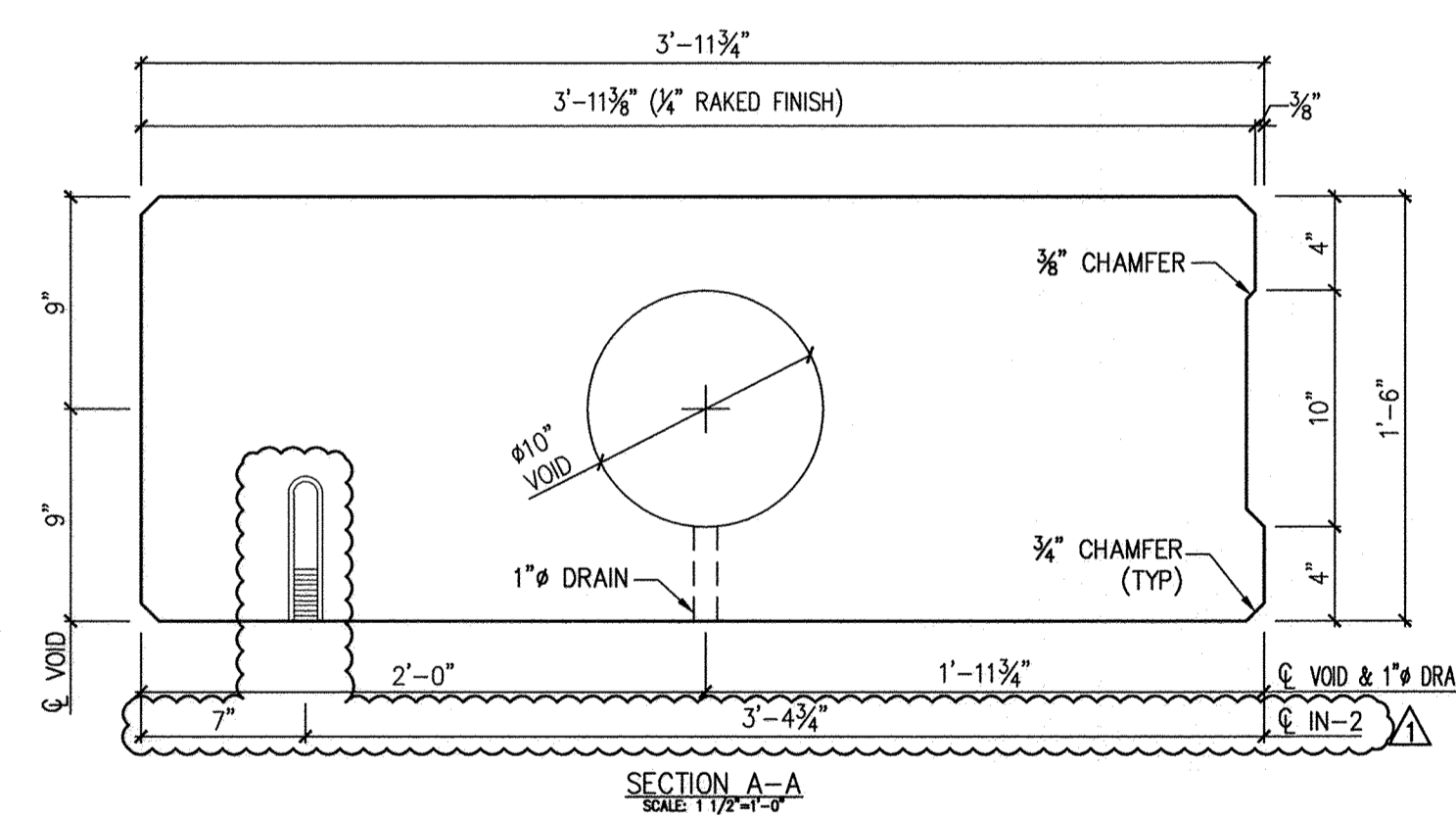
	REVISIONS	DRAWN	CHECKED	APPROVED	UNITED CONCRETE PRODUCTS, Inc. 173 CHURCH STREET YALESVILLE, CT 06492 TEL: (203)-269-3119 FAX: (203)-265-4941	PRESTRESSED CONCRETE BEAMS		PROJECT #21514		
		JLB 02/12/15	JJJ 02/12/15	RLE 02/12/15		CUSTOMER	NEIL H. DANIELS, INC.		BRIDGE #134/100	
		 813.989.3317 TAMPA, FL LRFD.COM				JOB	MANCHESTER ROAD BRIDGE		SHOP DRAWINGS BASED ON CONTRACT DRAWINGS DATED:	SHEET F2
						LOCATION	AMHERST, NH		11/3/2014	



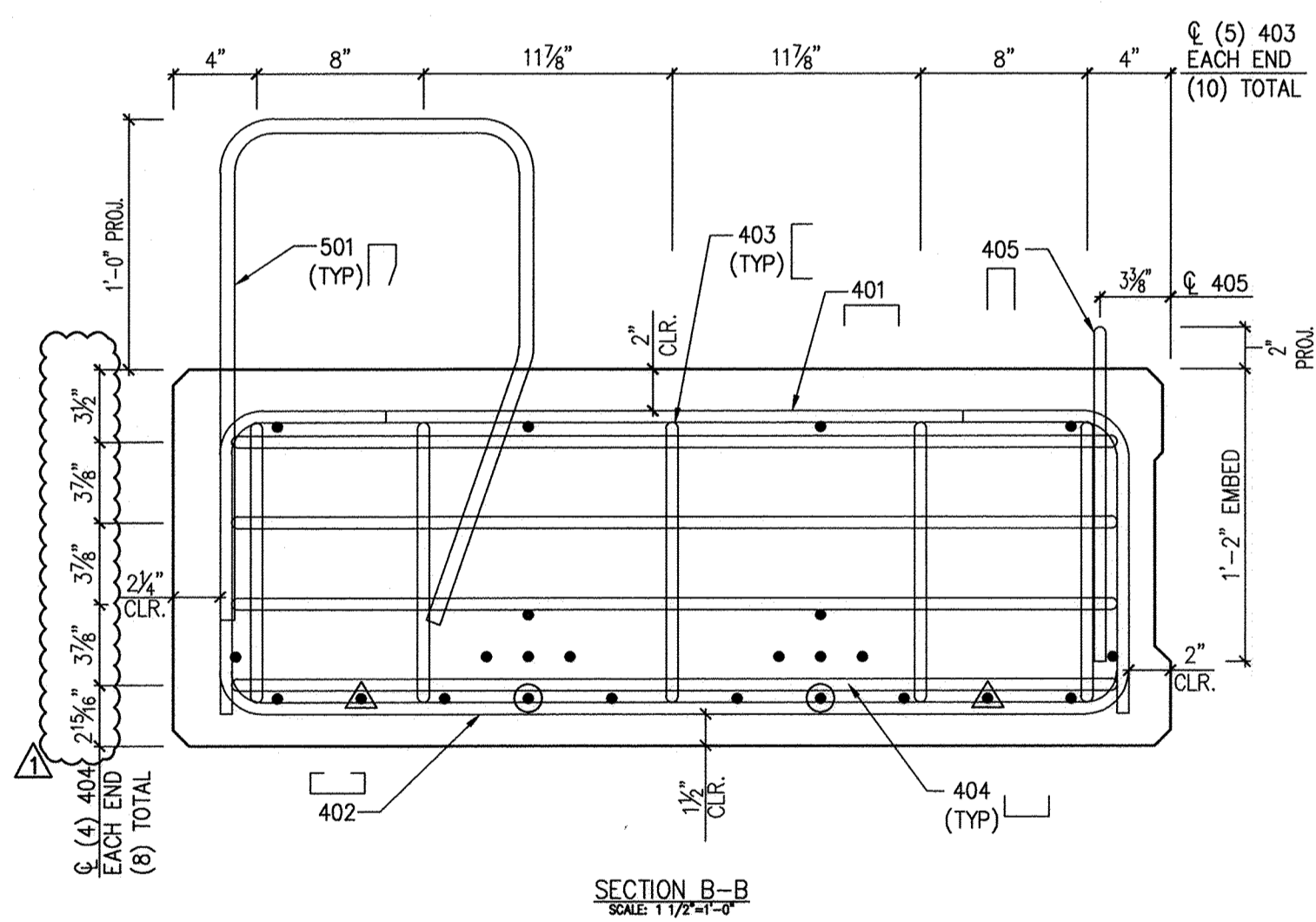
PLAN-IN-FORM (DIMENSIONS)
SCALE: 3/4"=1'-0"



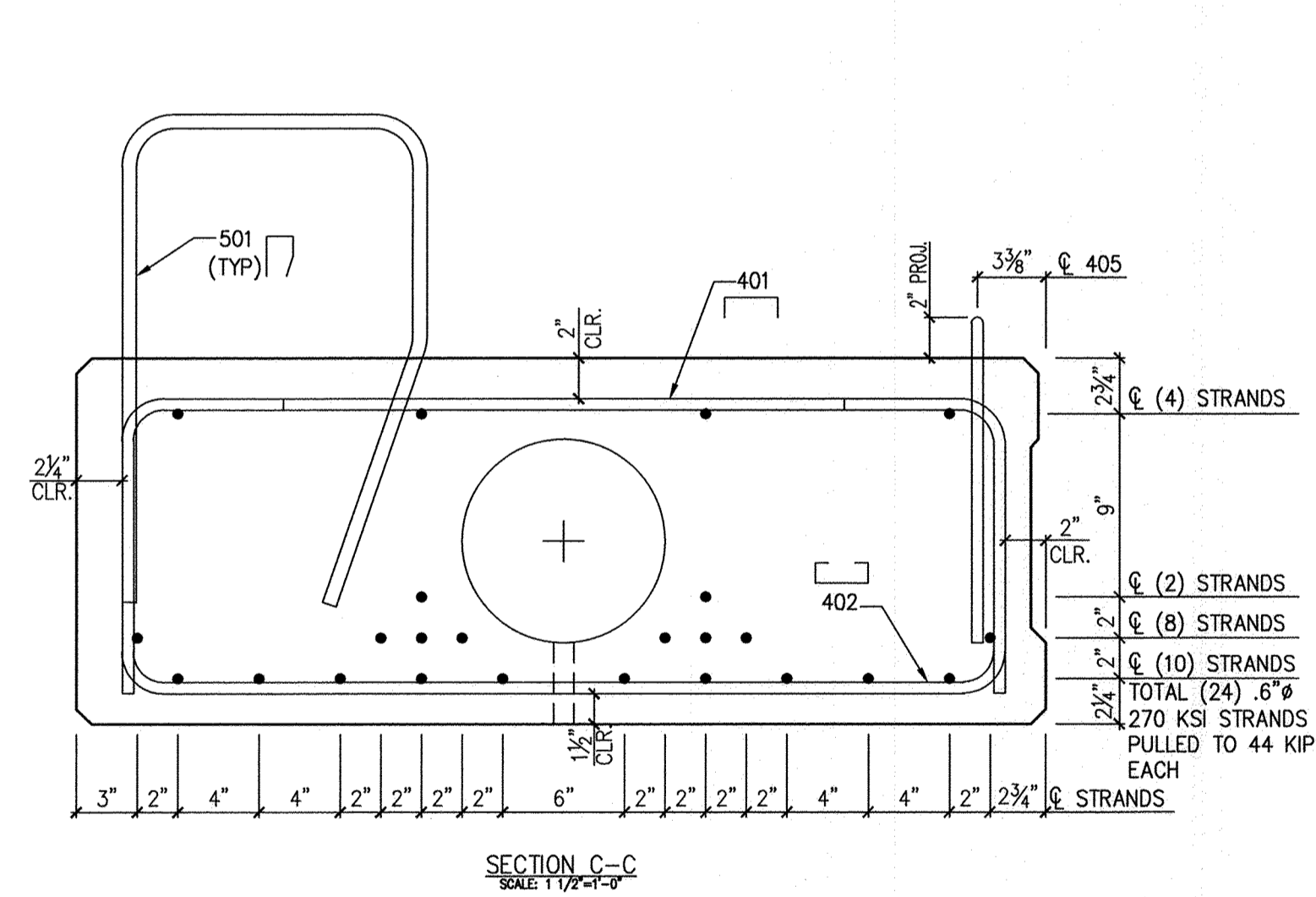
PLAN-IN-FORM (REINFORCING)
SCALE: 3/4"=1'-0"



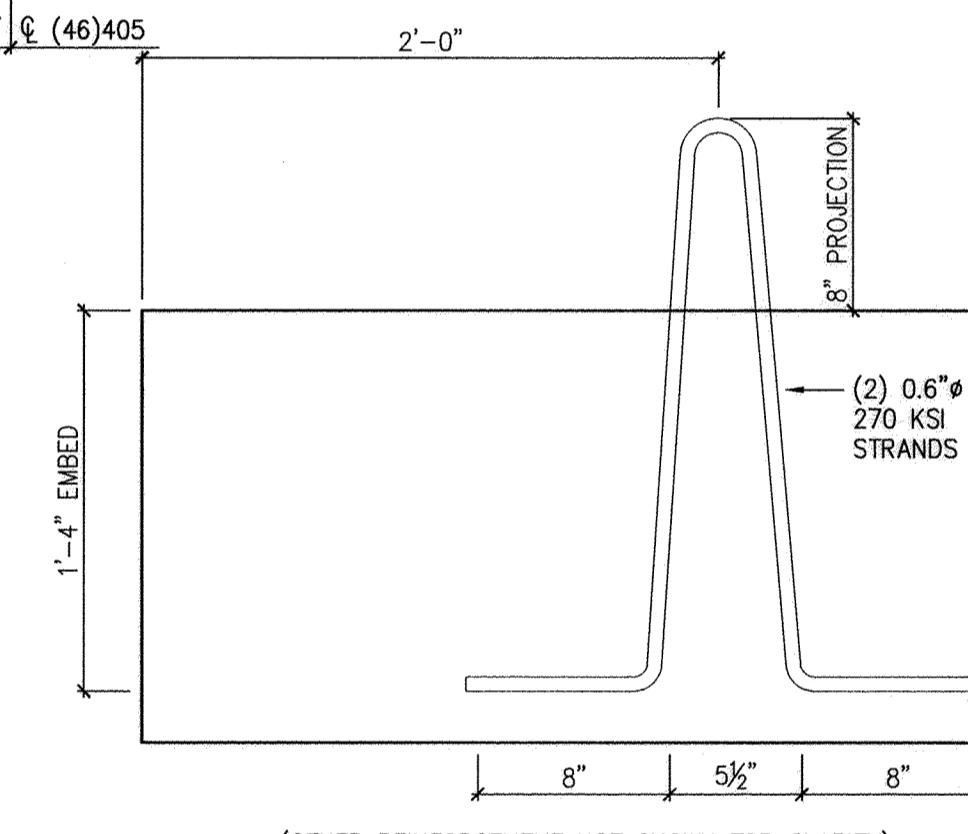
SECTION A-A
SCALE: 3/4"=1'-0"



SECTION B-B
SCALE: 3/4"=1'-0"



SECTION C-C
SCALE: 3/4"=1'-0"

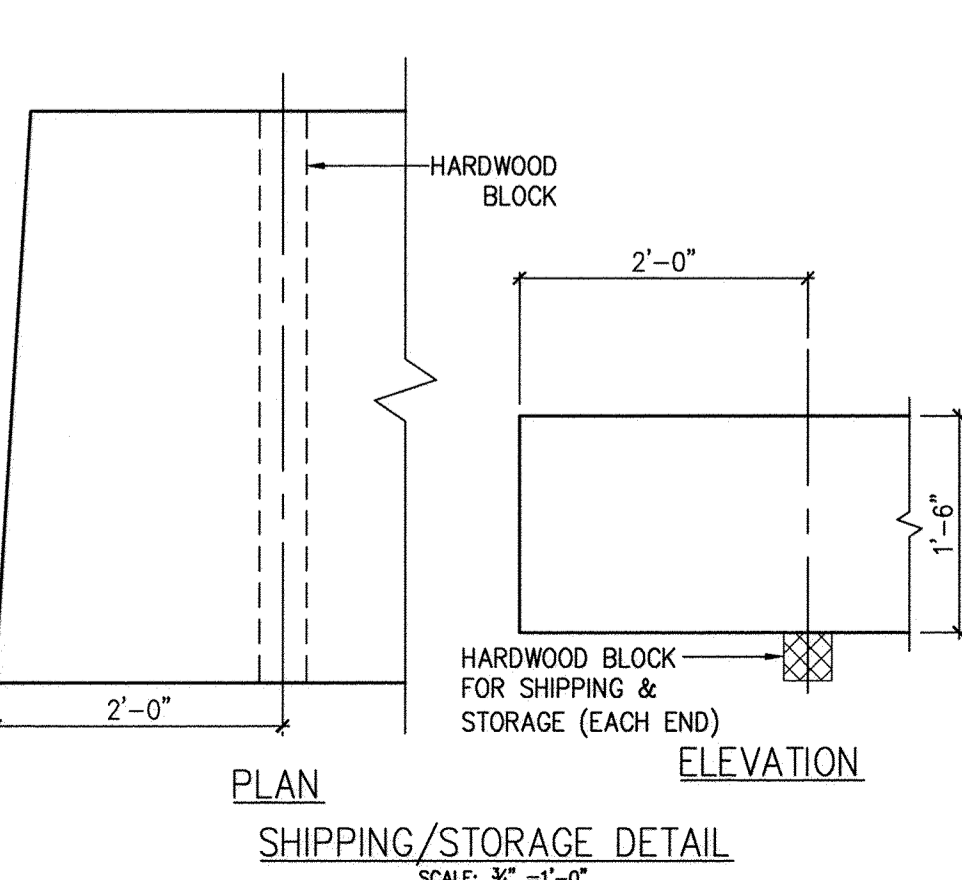


SECTION D-D
SCALE: 1 1/2"=1'-0"

MARK: BM-01 QTY: 1 WT: 18.0 T VOL: 8.88 cy
CONCRETE STRENGTH 28 DAY: 6,500 PSI STRESS TRANSFER: 5,200 PSI

MATERIAL LIST

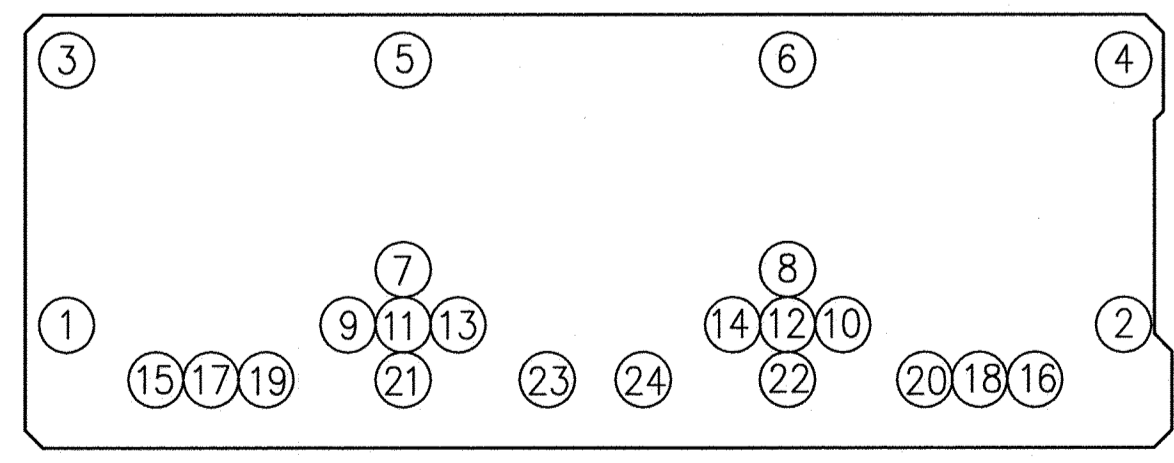
ITEM	MARK	DESCRIPTION	QTY
1	401	#4 BENT BAR, EPOXY COATED	89
2	402	#4 BENT BAR, EPOXY COATED	89
3	403	#4 BENT BAR, EPOXY COATED	10
4	404	#4 BENT BAR, EPOXY COATED	8
5	405	#4 BENT BAR, EPOXY COATED	46
6	501	#5 BENT BAR, EPOXY COATED	87
7		DOUBLE 0.6" Ø STRAND LIFTING LOOPS	4
8		0.6" Ø STRANDS	24
9		3" Ø X 3'-7" LONG P/T DUCTS	3
10	EM-1	3/4" X 5" PLATE W/ 2 1/2" Ø HOLE	3
11		1" Ø X 5 1/2" NON-FERROUS VOID DRAIN	4
12		DEBONDING (32 LF)	
13		10" Ø X 16'-5" LONG VOID	2
14	IN-2	DAYTON SUPERIOR (F-64) 1/2" X 6 1/2" LONG, SWL=5 KIPS, (GALV.)	11



SHIPPING/STORAGE DETAIL
SCALE: 3/4"=1'-0"

LEGEND

- FULLY BONDED STRAND
- STRAND DEBONDED 3'-0" FROM ENDS
- STRAND DEBONDED 5'-0" FROM ENDS



DETENSIONING SEQUENCE
SCALE: 3/4"=1'-0"

REVISIONS	DRAWN	CHECKED	APPROVED
Rev. Note DATE 02/27/2015	JLB 02/12/15	JIJ 02/12/15	RLE 02/12/15



813.989.3317
TAMPA, FL
LRFD.COM

UNITED CONCRETE
PRODUCTS, Inc.

173 CHURCH STREET
YALESVILLE, CT 06492
TEL: (203)-269-3119
FAX: (203)-265-4941

PRESTRESSED CONCRETE BEAMS

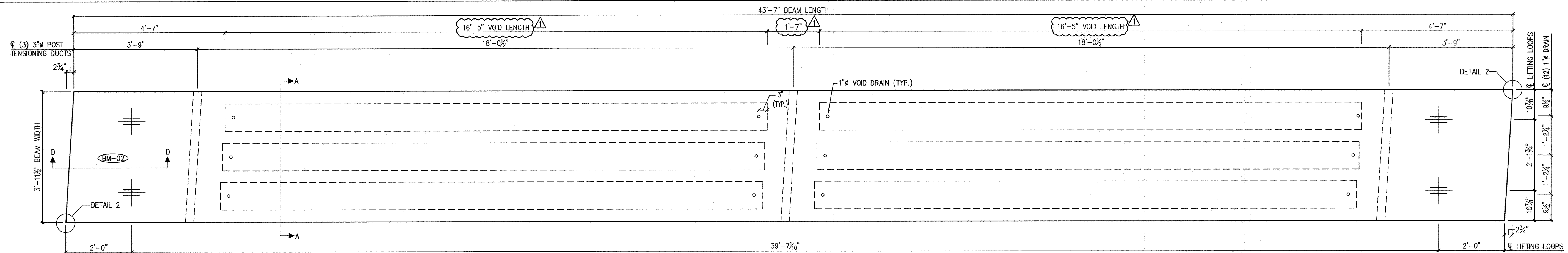
CUSTOMER	NEIL H. DANIELS, INC.
JOB	MANCHESTER ROAD BRIDGE
LOCATION	AMHERST, NH

PROJECT #21514

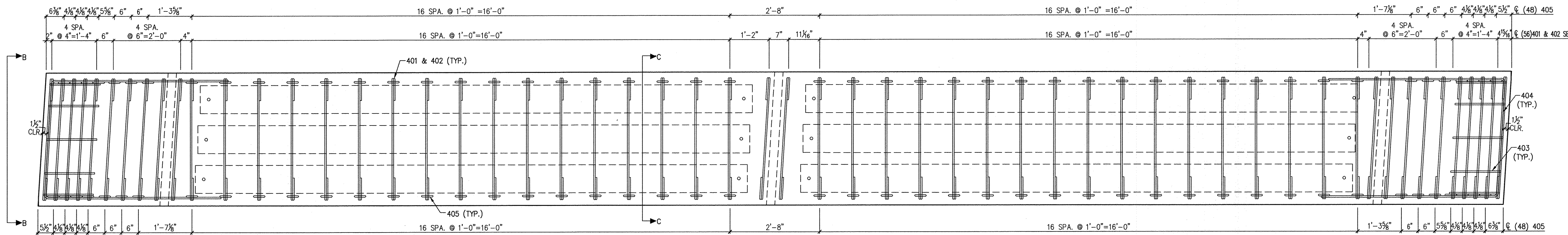
BRIDGE #134/100

SHOP DRAWINGS
BASED ON CONTRACT
DRAWINGS DATED:
11/3/2014

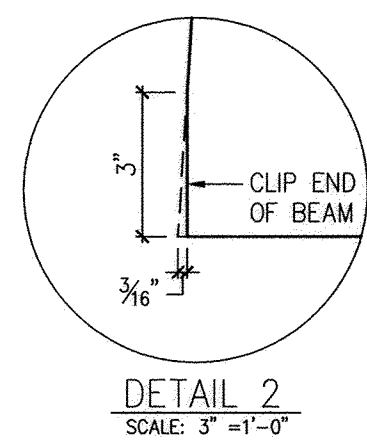
SHEET
S1



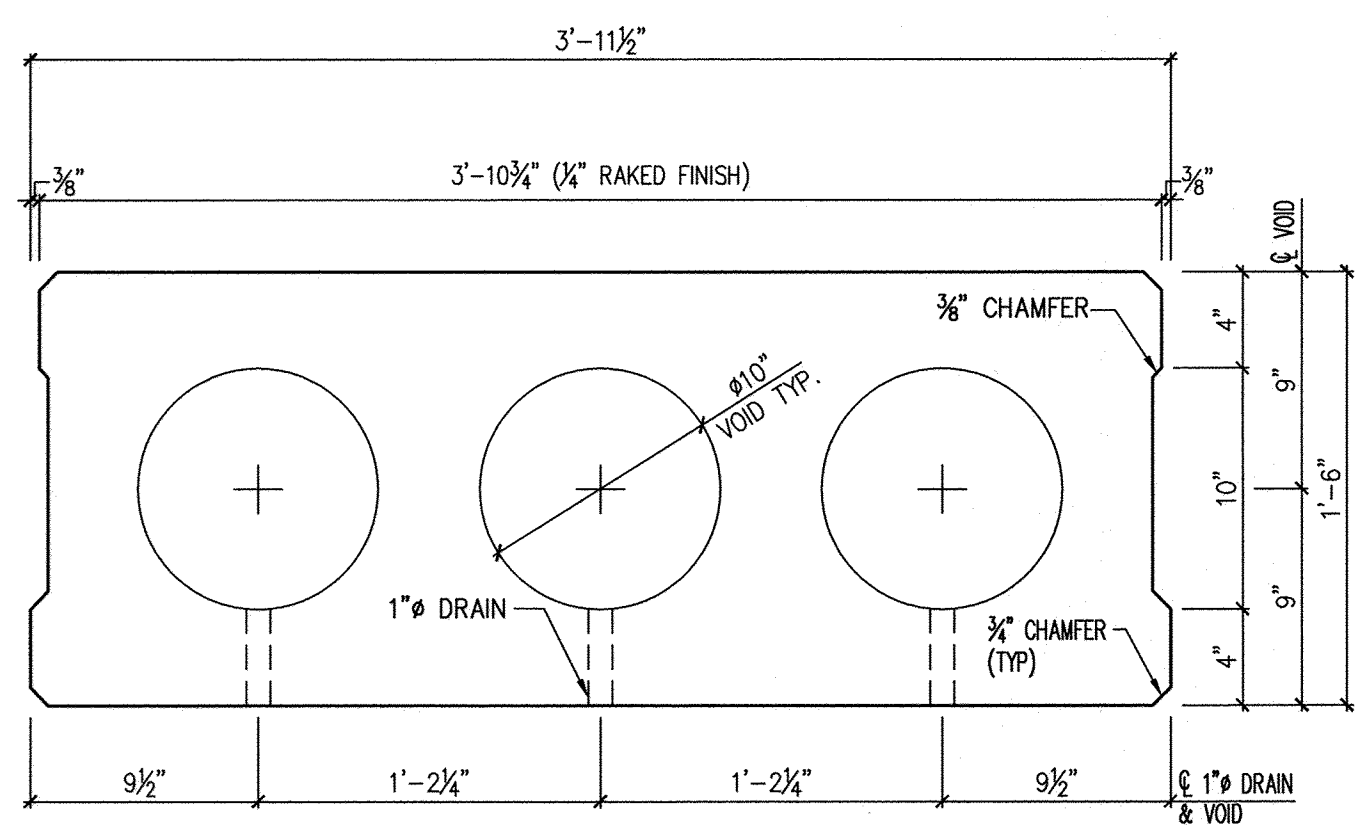
PLAN-IN-FORM (DIMENSIONS)
SCALE: 3/8"=1'-0"



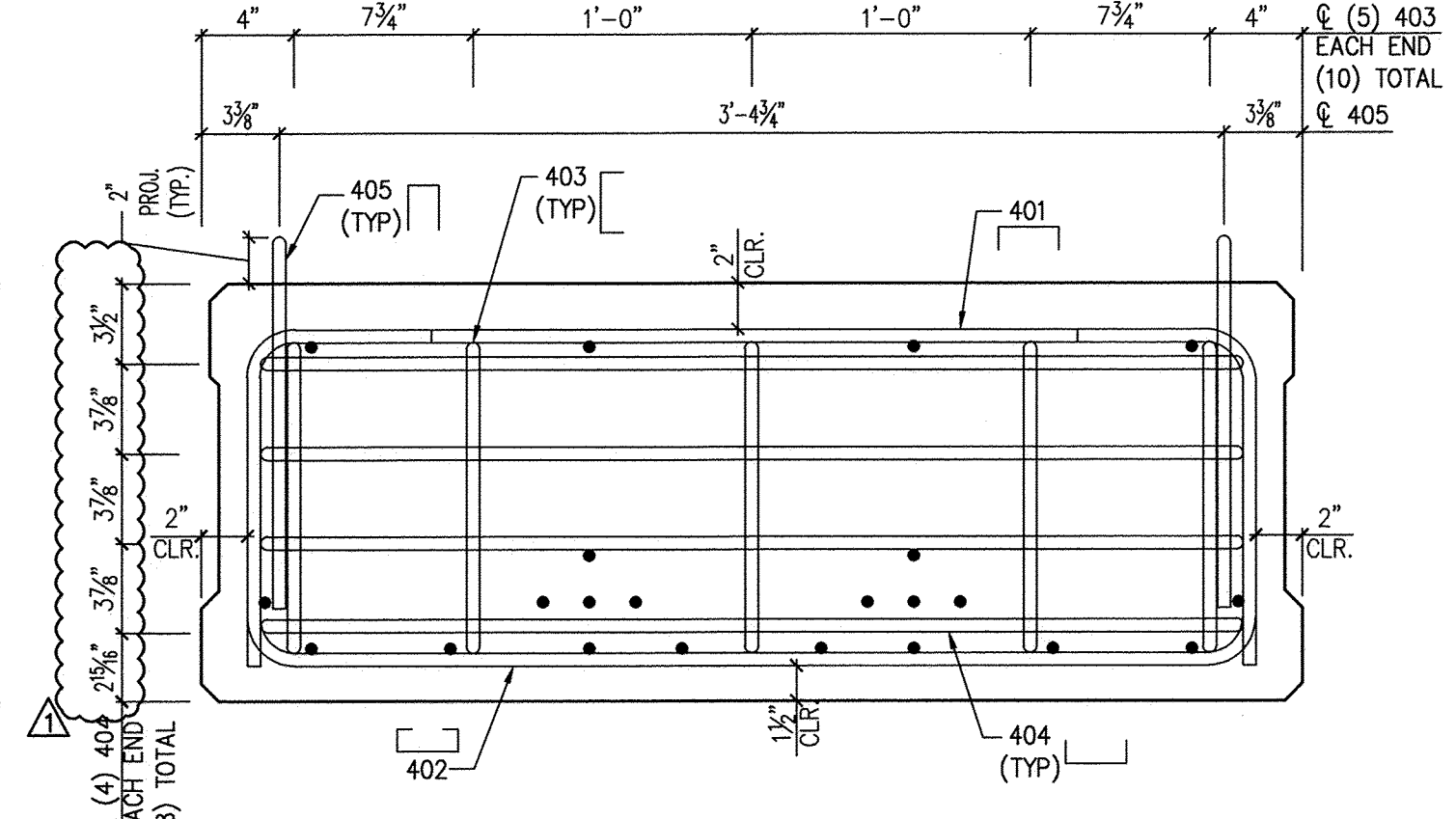
PLAN-IN-FORM (REINFORCING)
SCALE: 3/8"=1'-0"



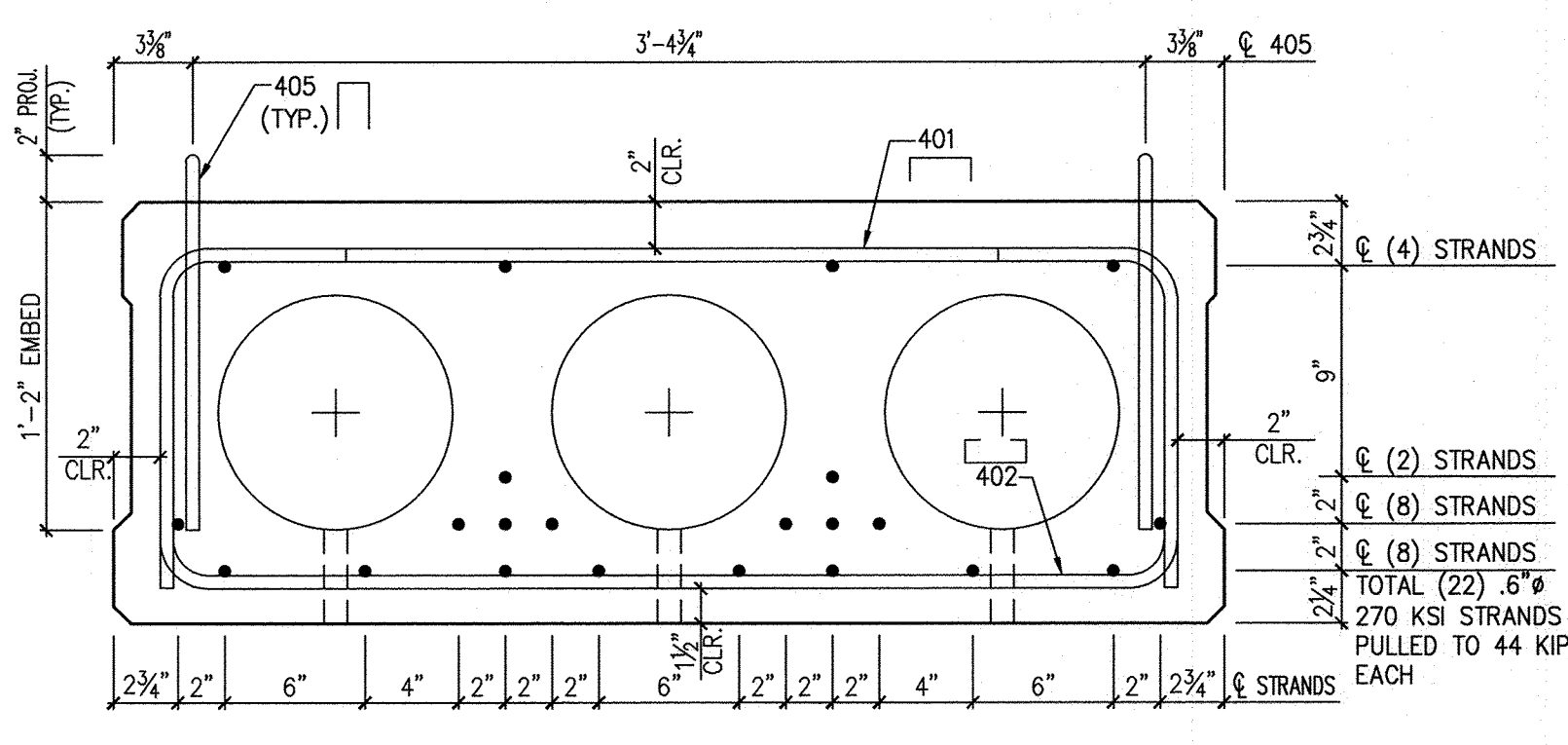
DETAIL 2
SCALE: 3/8"=1'-0"



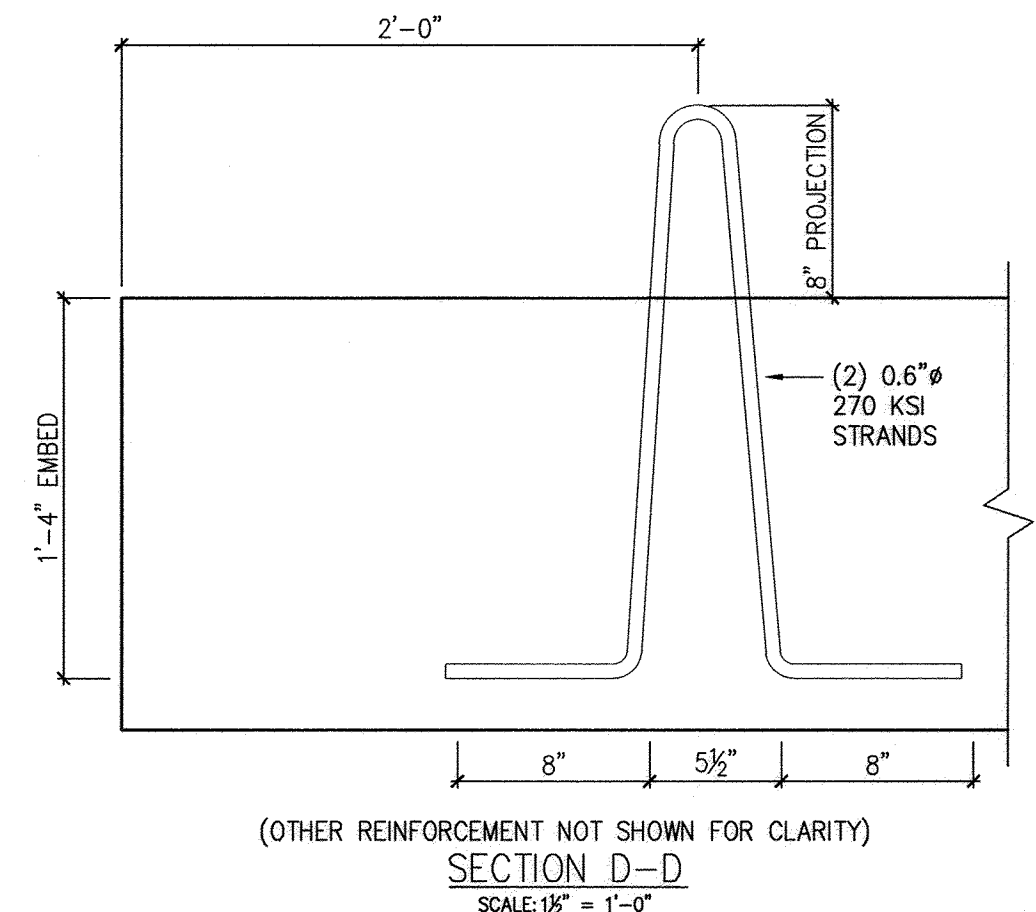
SECTION A-A
SCALE: 1/2"=1'-0"



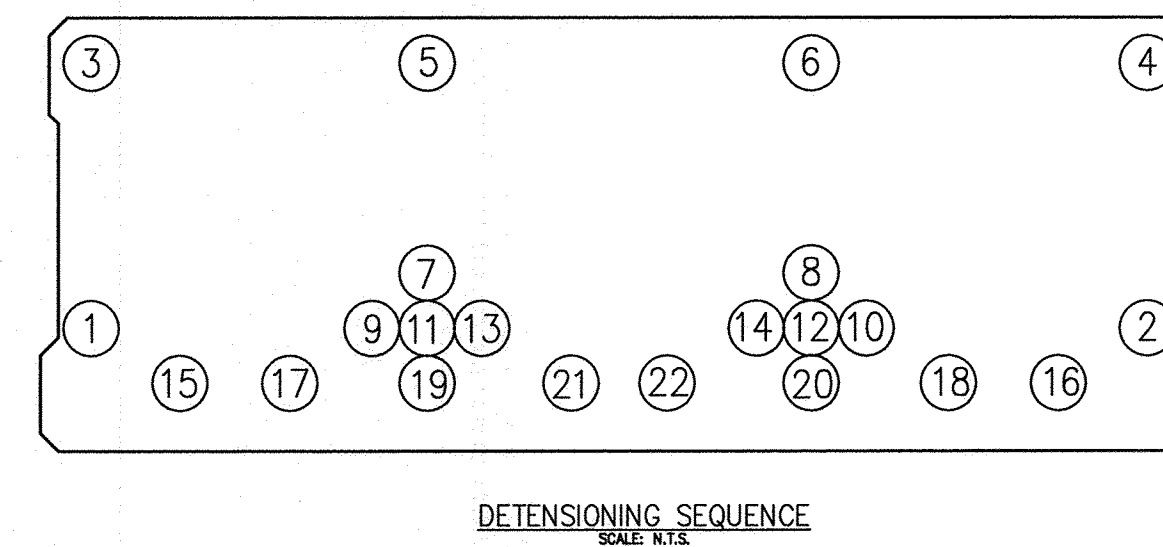
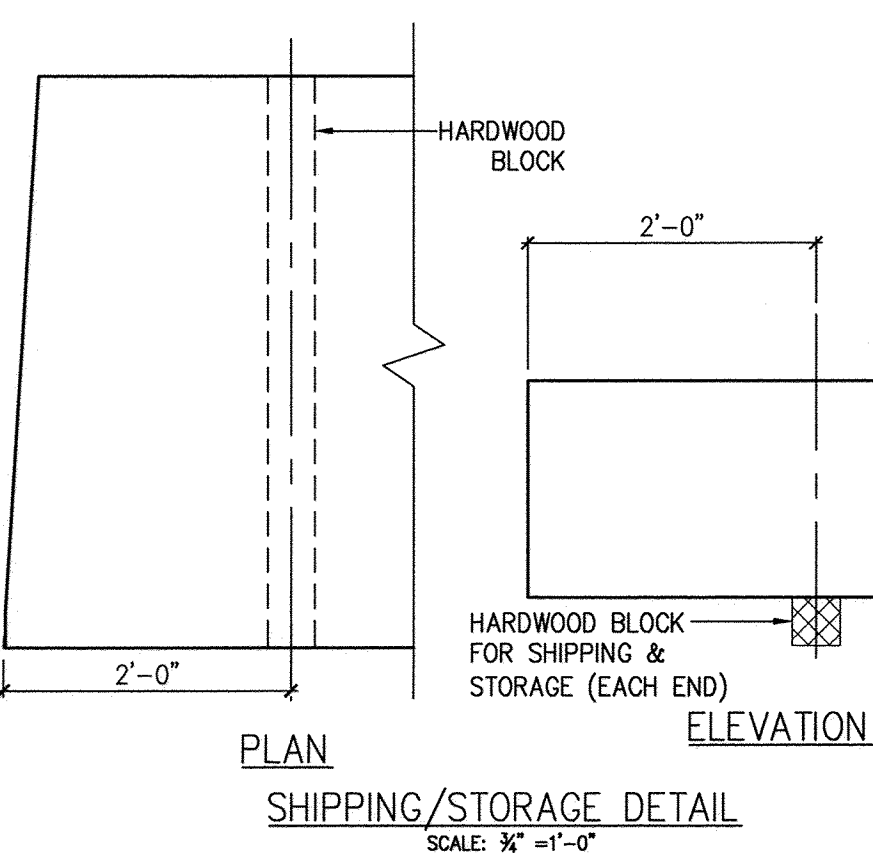
SECTION B-B
SCALE: 1/2"=1'-0"



SECTION C-C
SCALE: 1/2"=1'-0"



SECTION D-D
SCALE: 1/2"=1'-0"



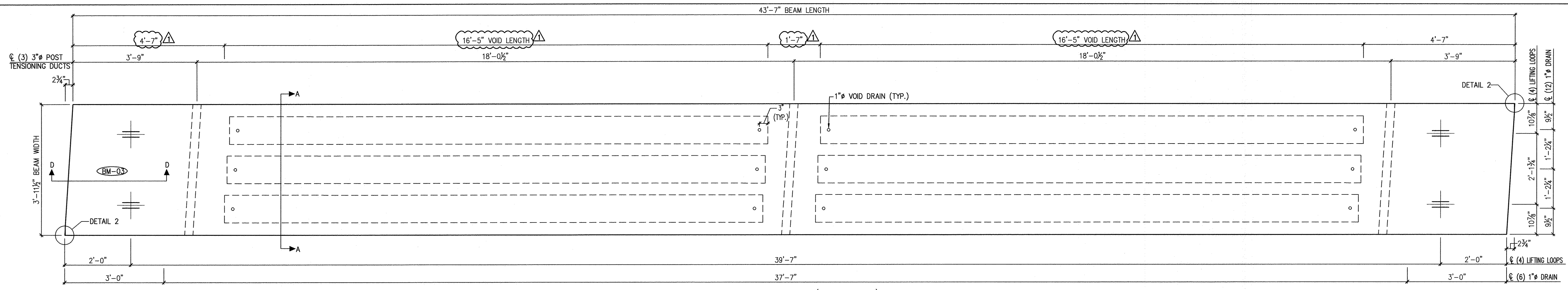
MARK:	BM-02	QTY:	6	WT:	15.1 T	VOL:	7.44 cy				
CONCRETE STRENGTH		28 DAY:		6,500 PSI		STRESS TRANSFER:		5,200 PSI			
MATERIAL LIST				ITEM		MARK		DESCRIPTION		QTY	
1	401	#4	BENT BAR, EPOXY COATED	56	2	402	#4	BENT BAR, EPOXY COATED	56		
3	403	#4	BENT BAR, EPOXY COATED	10	4	404	#4	BENT BAR, EPOXY COATED	8		
5	405	#4	BENT BAR, EPOXY COATED	96	6	DOUBLE 0.6" STRAND LIFTING LOOPS			4		
7	0.6" STRANDS			22	8	3" X 3'-11 1/2" LONG P/T DUCTS			3		
9	1" X 5 1/2" NON-FERROUS VOID DRAIN			12	10	10" X 16'-5" LONG VOID			6		

REVISIONS	DRAWN	CHECKED	APPROVED
Rev. Note DATE 02/27/2015	JLB 02/12/15	JIJ 02/12/15	RLE 02/12/15
 813.989.3317 TAMPA, FL LRFD.COM			

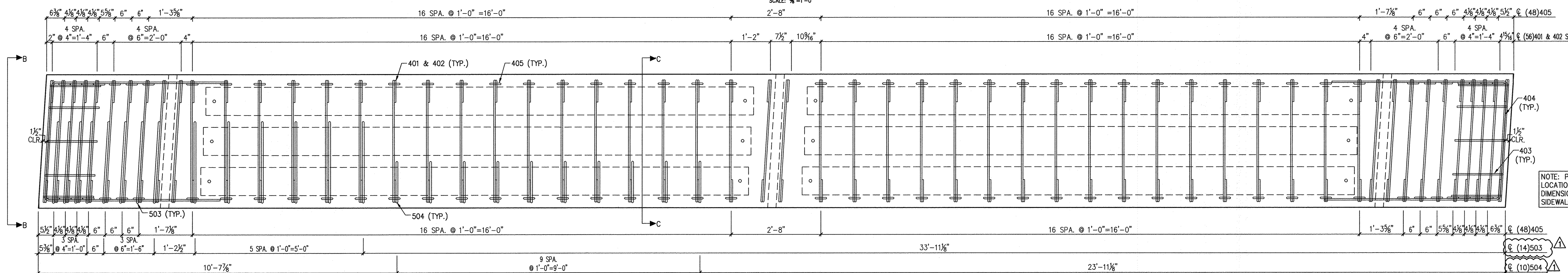
UNITED CONCRETE PRODUCTS, Inc.
 173 CHURCH STREET
 YALESVILLE, CT 06492
 TEL: (203)-269-3119
 FAX: (203)-265-4941

PRESTRESSED CONCRETE BEAMS	
CUSTOMER	NEIL H. DANIELS, INC.
JOB	MANCHESTER ROAD BRIDGE
LOCATION	AMHERST, NH

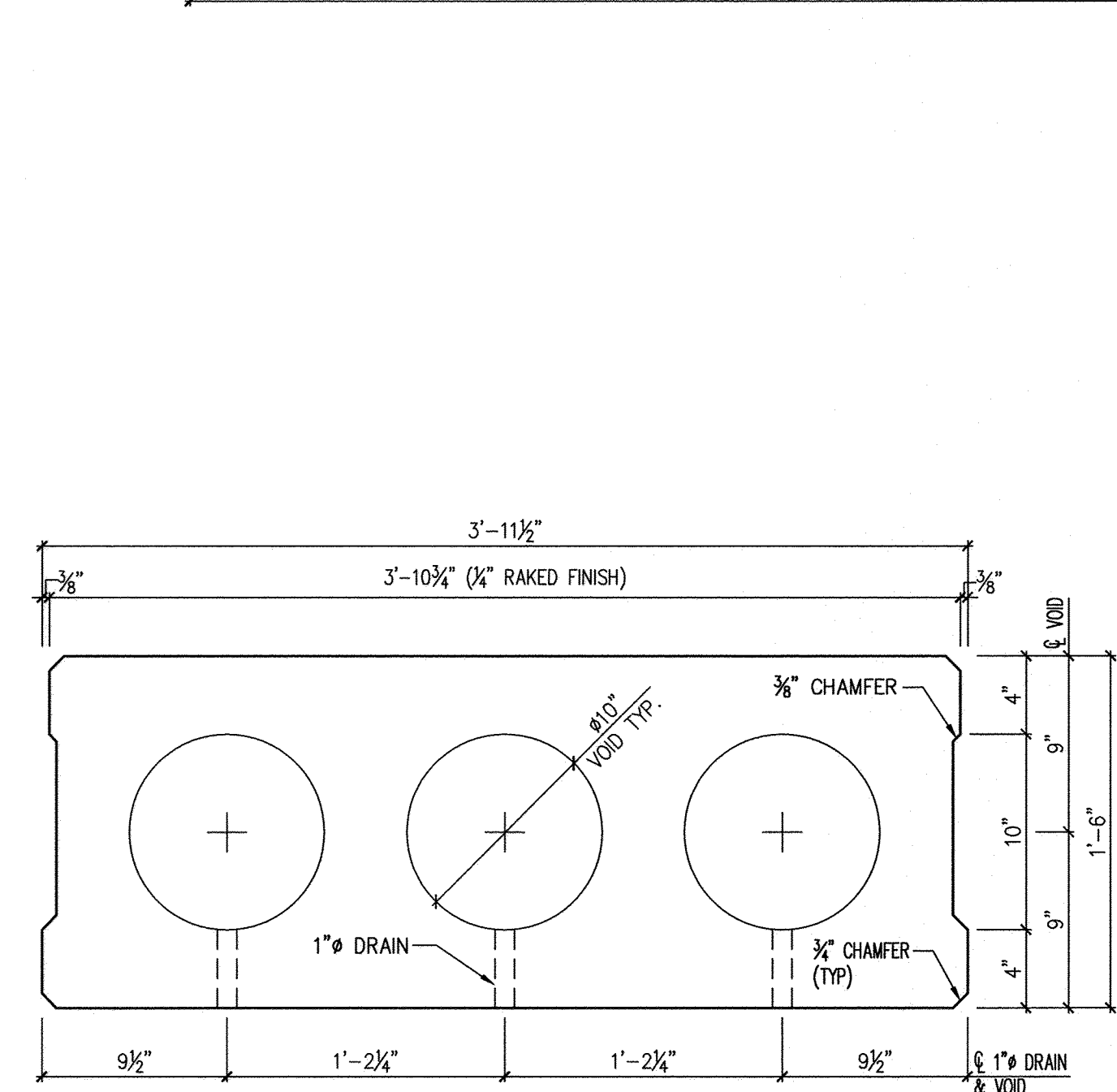
PROJECT #21514	
BRIDGE #134/100	
SHOP DRAWINGS BASED ON CONTRACT DRAWINGS DATED:	11/3/2014
SHEET	S2



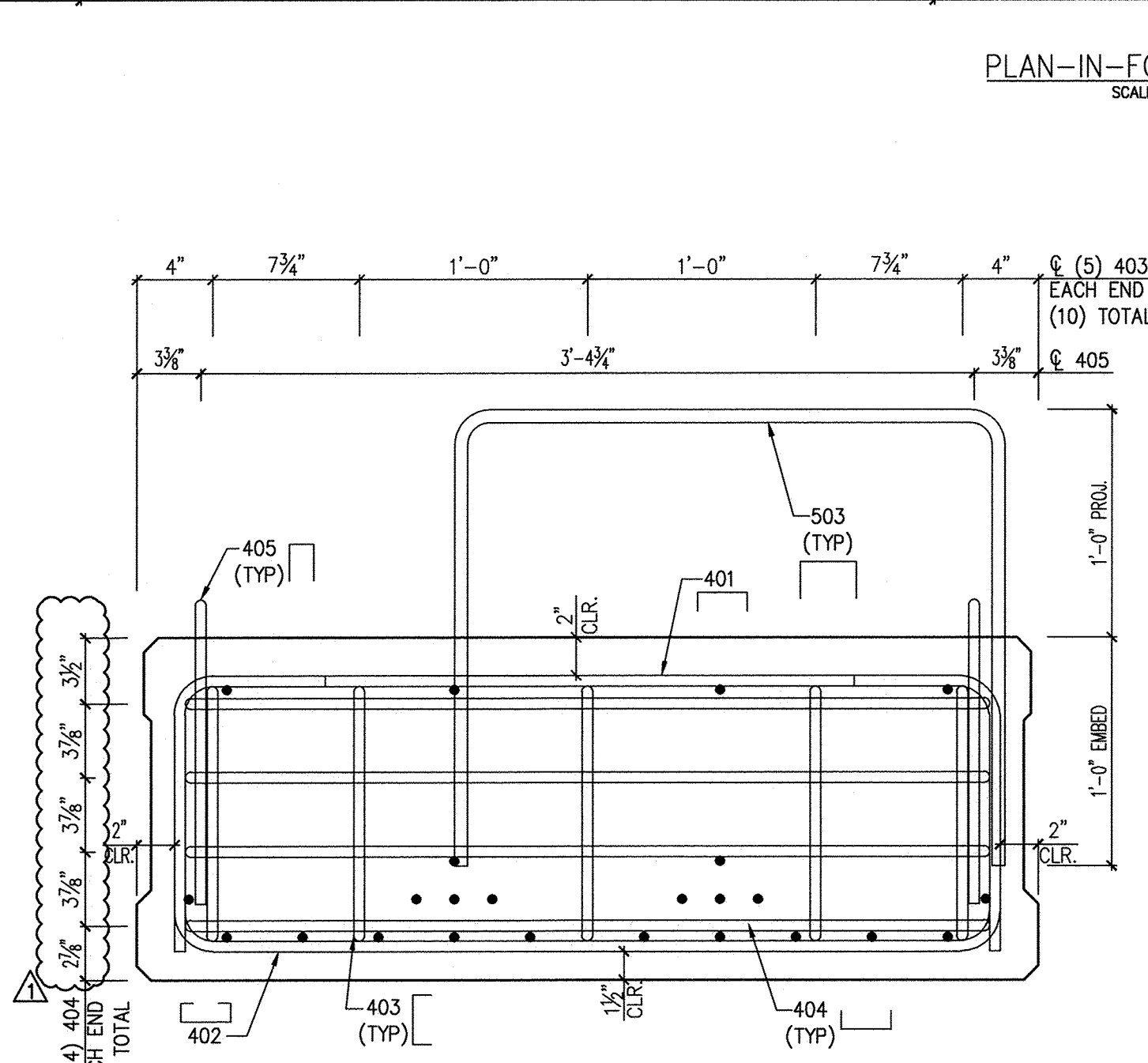
PLAN-IN-FORM (DIMENSIONS)
SCALE: 3/8"=1'-0"



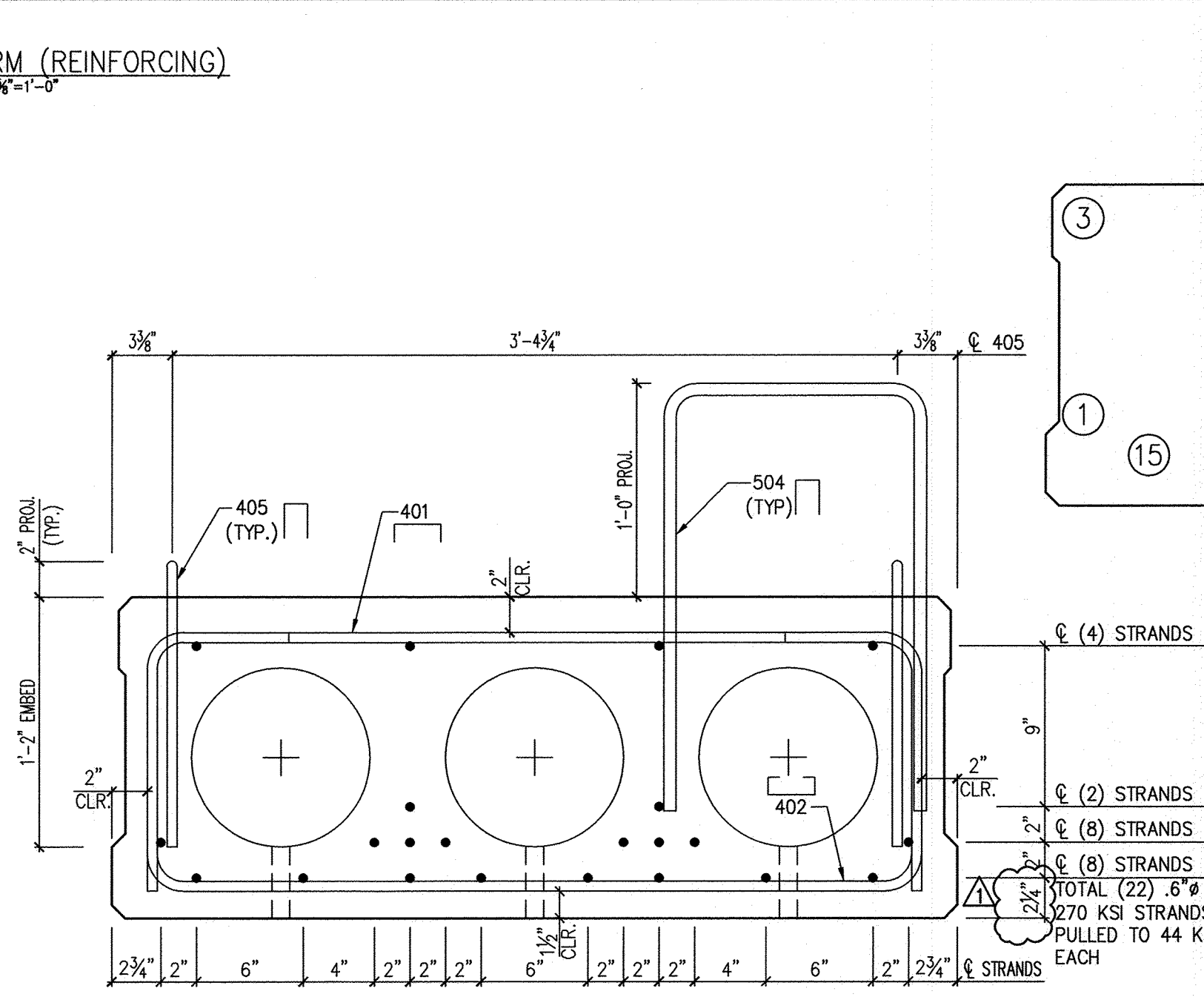
PLAN-IN-FORM (REINFORCING)
SCALE: 3/8"=1'-0"



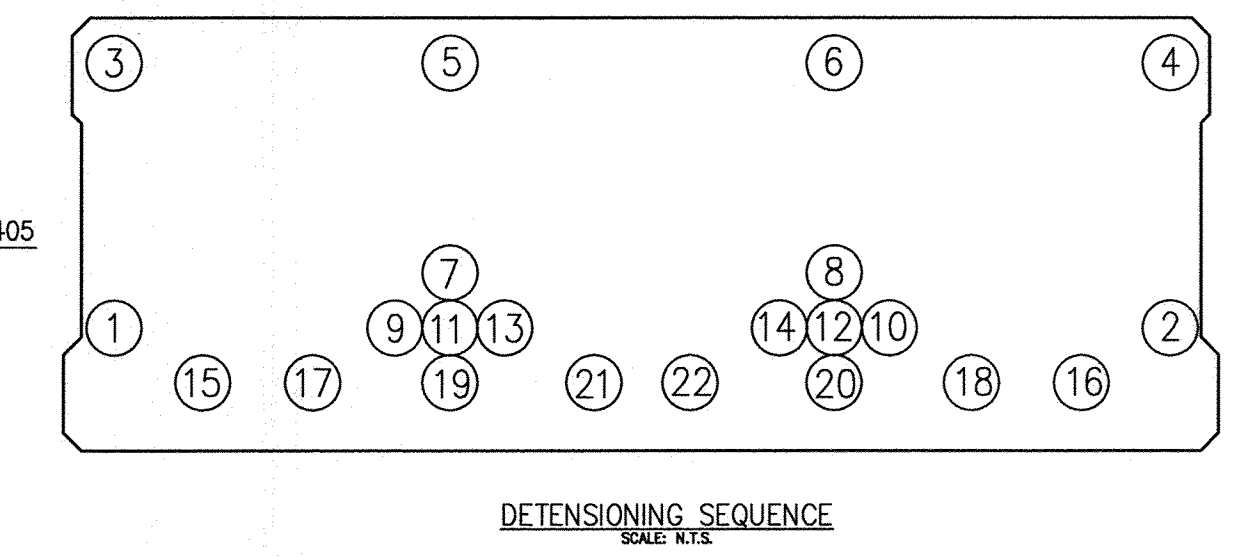
SECTION A-A
SCALE: 3/4"=1'-0"



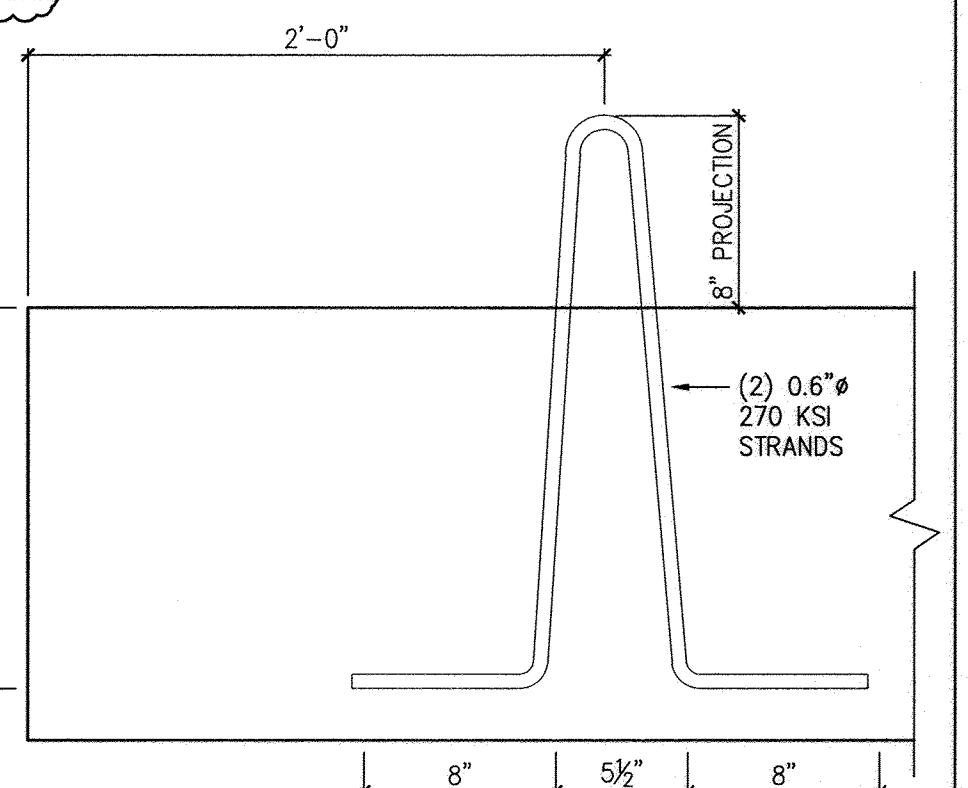
SECTION B-B
SCALE: 3/4"=1'-0"



SECTION C-C
SCALE: 3/4"=1'-0"

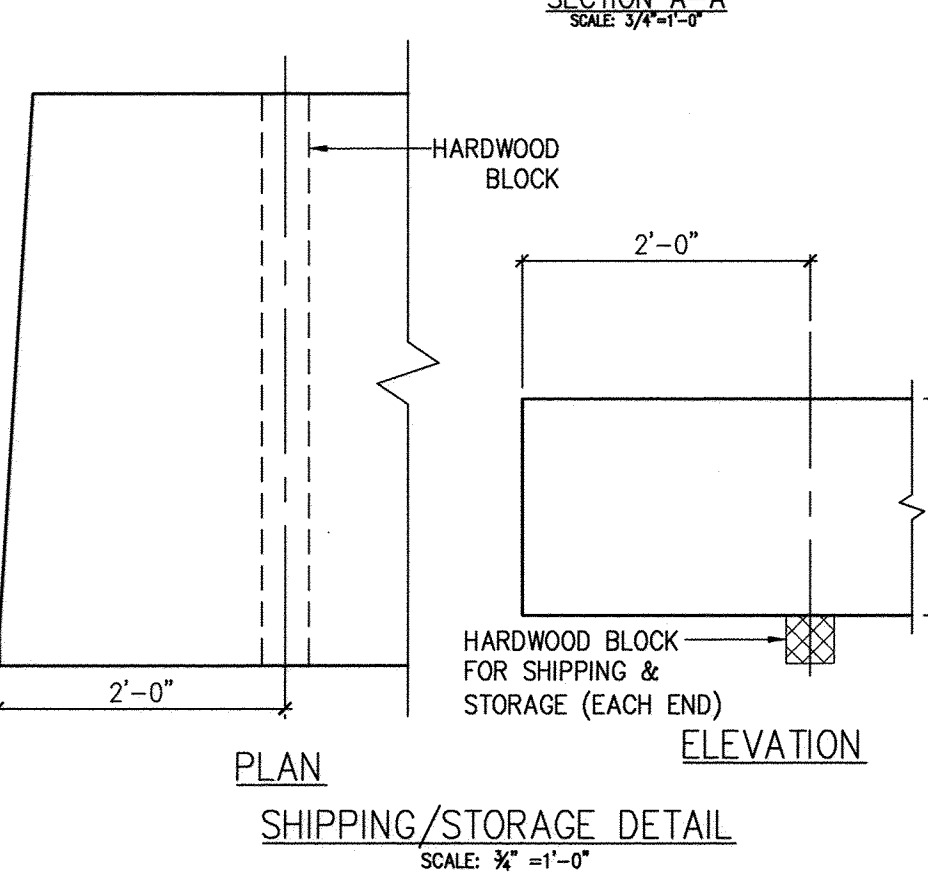


DETENSIONING SEQUENCE
SCALE: 3/8"=1'-0"



SECTION D-D
SCALE: 1/2"=1'-0"

MARK: BM-03	QTY: 1	WT: 15.1 T	VOL: 7.44 cy
CONCRETE STRENGTH	28 DAY: 6,500 PSI	STRESS TRANSFER: 5,200 PSI	
MATERIAL LIST			
ITEM	MARK	DESCRIPTION	QTY
1	401	#4 BENT BAR, EPOXY COATED	56
2	402	#4 BENT BAR, EPOXY COATED	56
3	403	#4 BENT BAR, EPOXY COATED	10
4	404	#4 BENT BAR, EPOXY COATED	8
5	405	#4 BENT BAR, EPOXY COATED	96
6	503	#5 BENT BAR, EPOXY COATED	14
7	504	#5 BENT BAR, EPOXY COATED	10
8		DOUBLE 0.6" STRAND LIFTING LOOPS	4
9		0.6" STRANDS	22
10		3" x 3'-11 1/2" LONG P/T DUCTS	3
11		1" x 5 1/2" NON-FERROUS VOID DRAIN	12
12		10" x 16'-5" LONG VOID	6



SHIPPING/STORAGE DETAIL
SCALE: 3/8"=1'-0"

REVISIONS	DRAWN	CHECKED	APPROVED
Rev. Note DATE 02/27/2015	JLB 02/12/15	JIJ 02/12/15	RLE 02/12/15

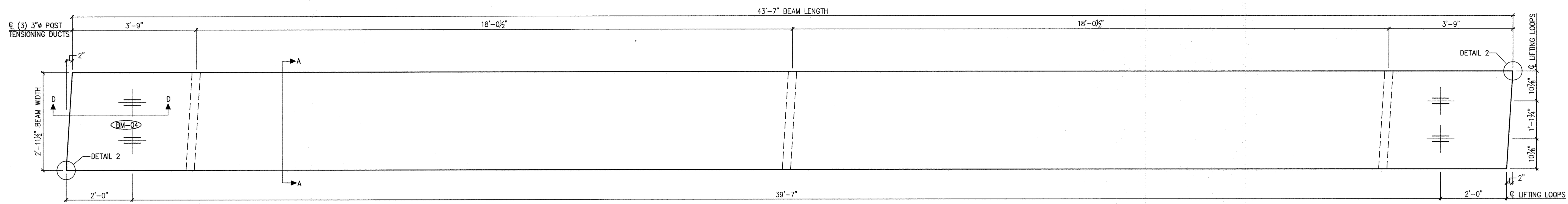
UNITED CONCRETE PRODUCTS, Inc.
173 CHURCH STREET
YALEVILLE, CT 06492
TEL: (203)-269-3119
FAX: (203)-265-4941

Eriksson technologies
© 2015 ERIKSSON TECHNOLOGIES, INC. ALL RIGHTS RESERVED

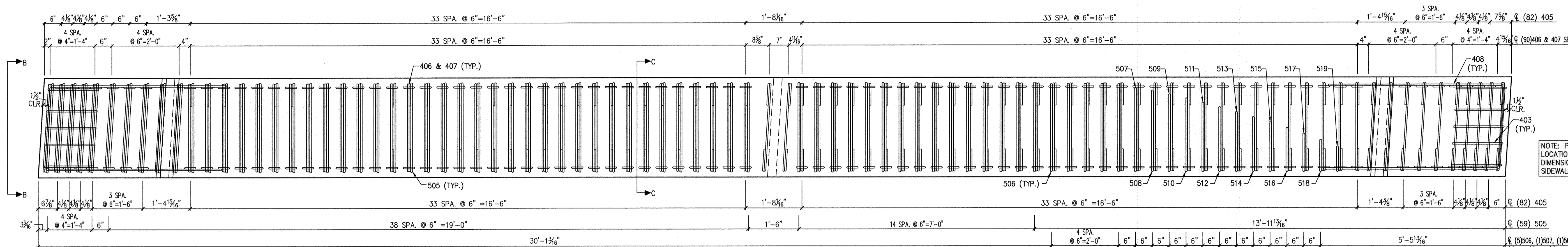
813.989.3317
TAMPA, FL
LRFD.COM

PRESTRESSED CONCRETE BEAMS	
CUSTOMER	NEIL H. DANIELS, INC.
JOB	MANCHESTER ROAD BRIDGE
LOCATION	AMHERST, NH

PROJECT #21514	
BRIDGE #134/100	
SHOP DRAWINGS BASED ON CONTRACT DRAWINGS DATED: 11/3/2014	SHEET S3

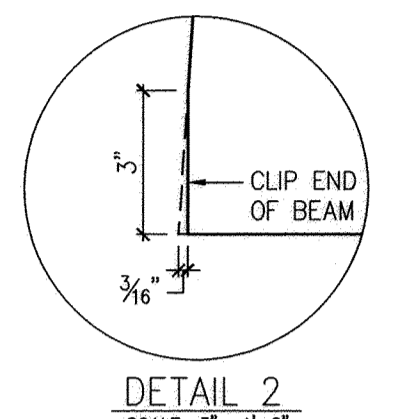


PLAN-IN-FORM (DIMENSIONS)
SCALE: 3/8"=1'-0"

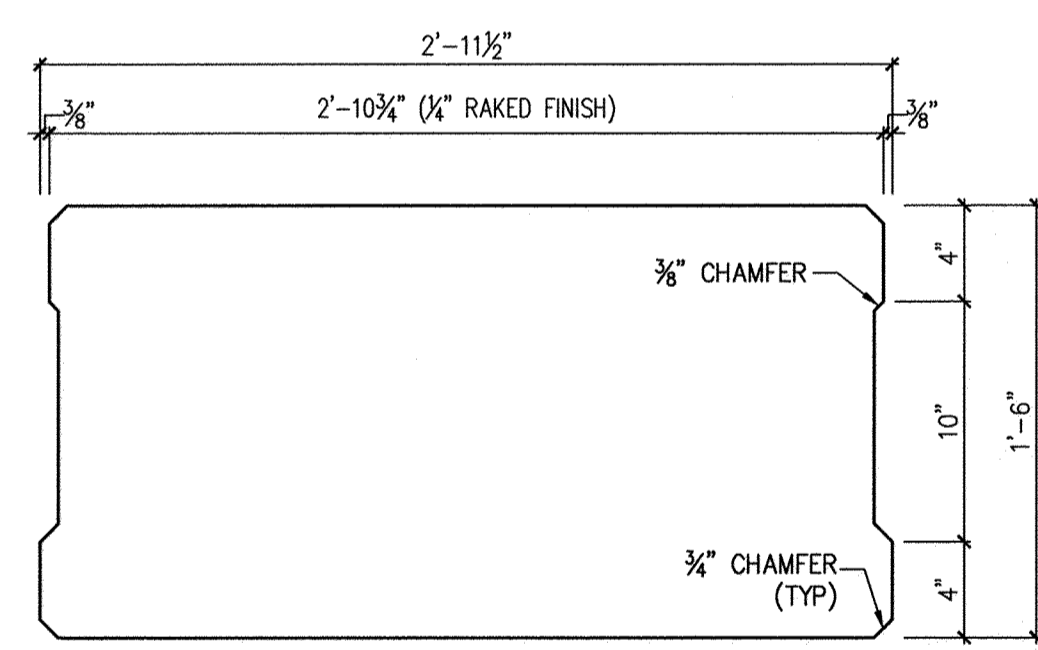


PLAN-IN-FORM (REINFORCING)
SCALE: 3/8"=1'-0"

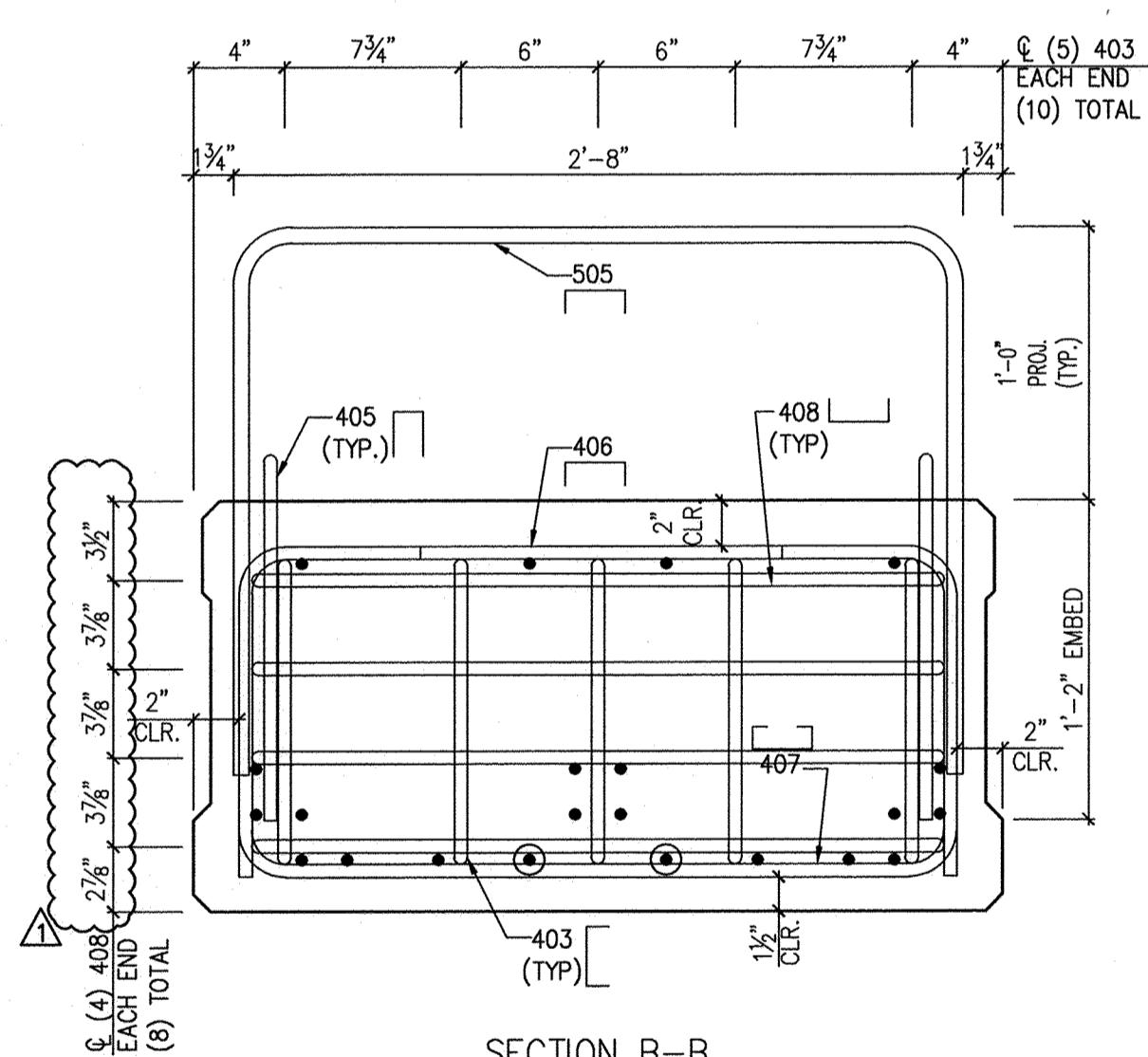
NOTE: PLEASE VERIFY LOCATIONS AND OUT-TO-OUT DIMENSIONS FOR PROJECTED SIDEWALK REINFORCEMENT



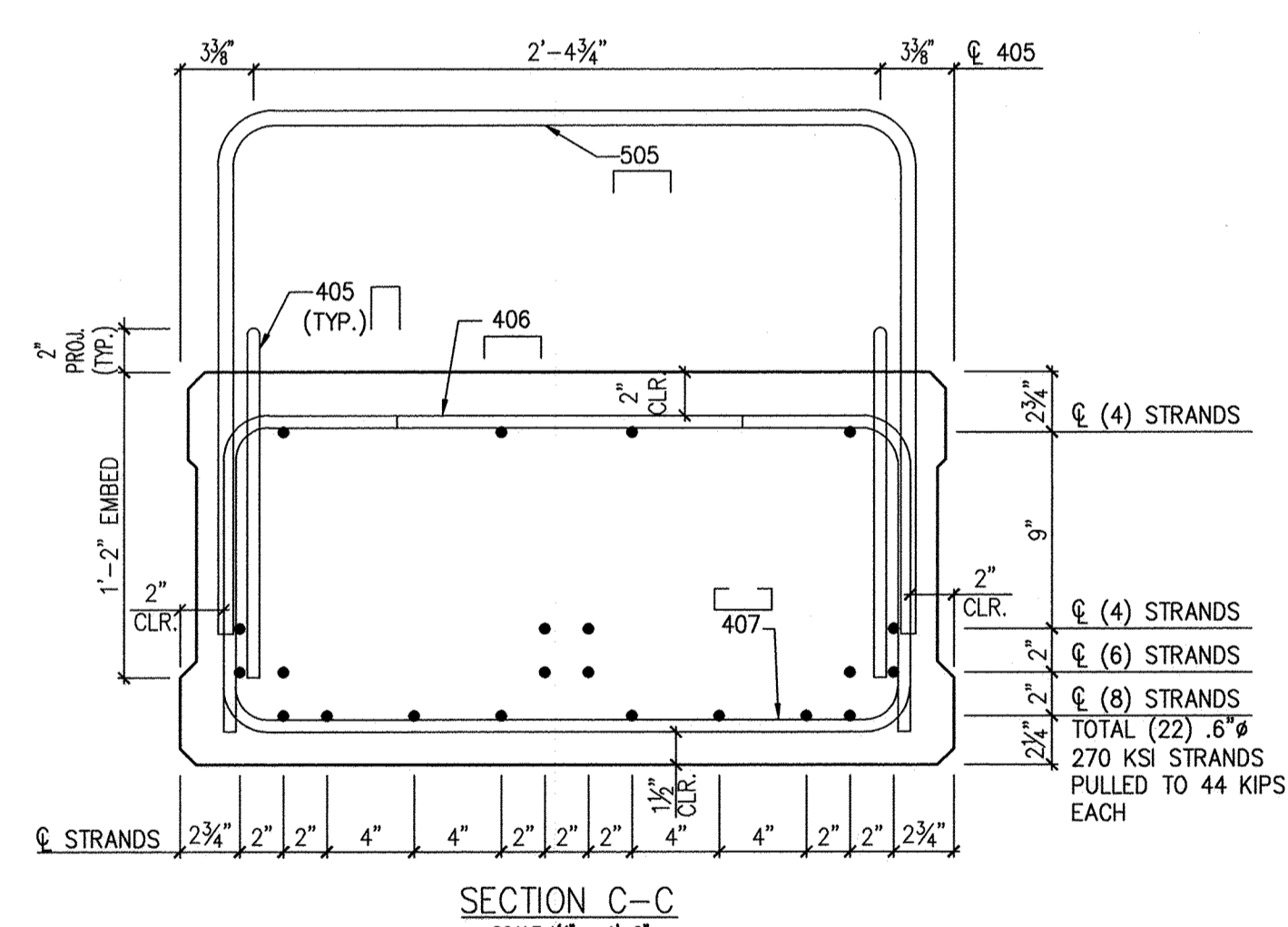
DETAIL 2
SCALE: 3\"/>



SECTION A-A
SCALE: 1/4\"/>

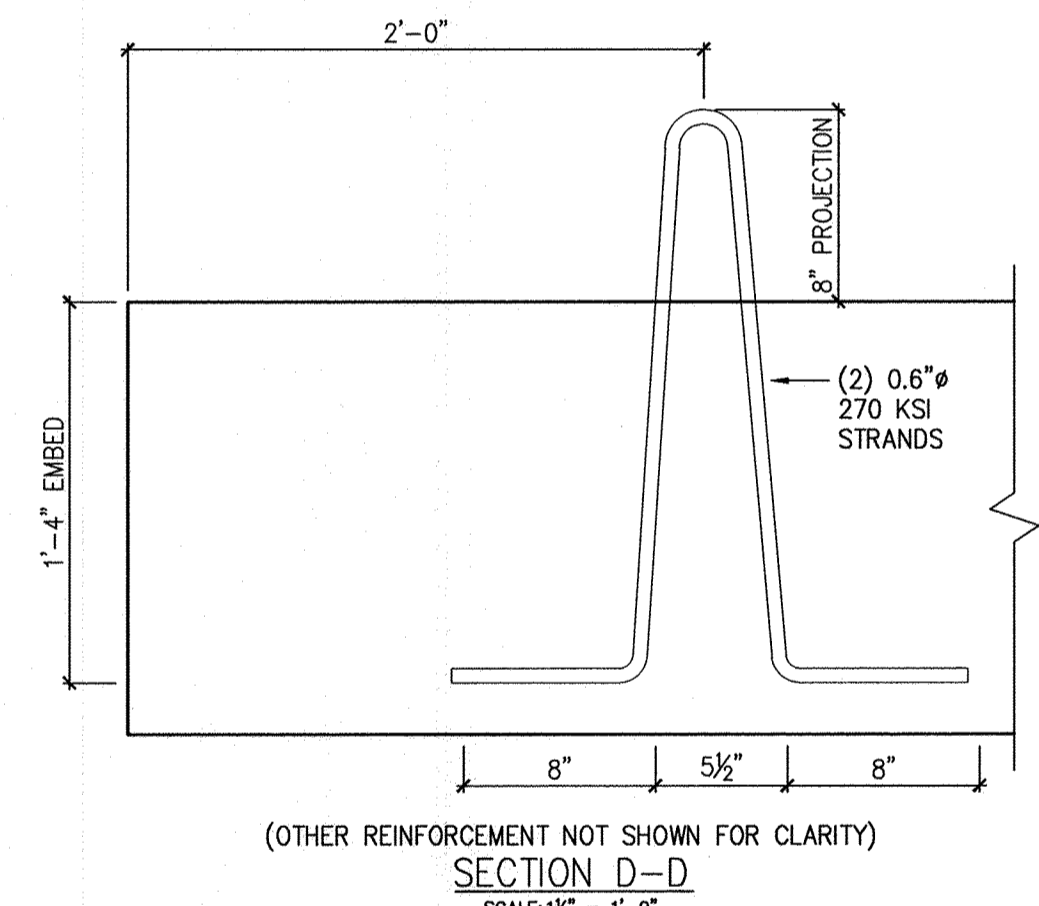


SECTION B-B
SCALE: 1/4\"/>

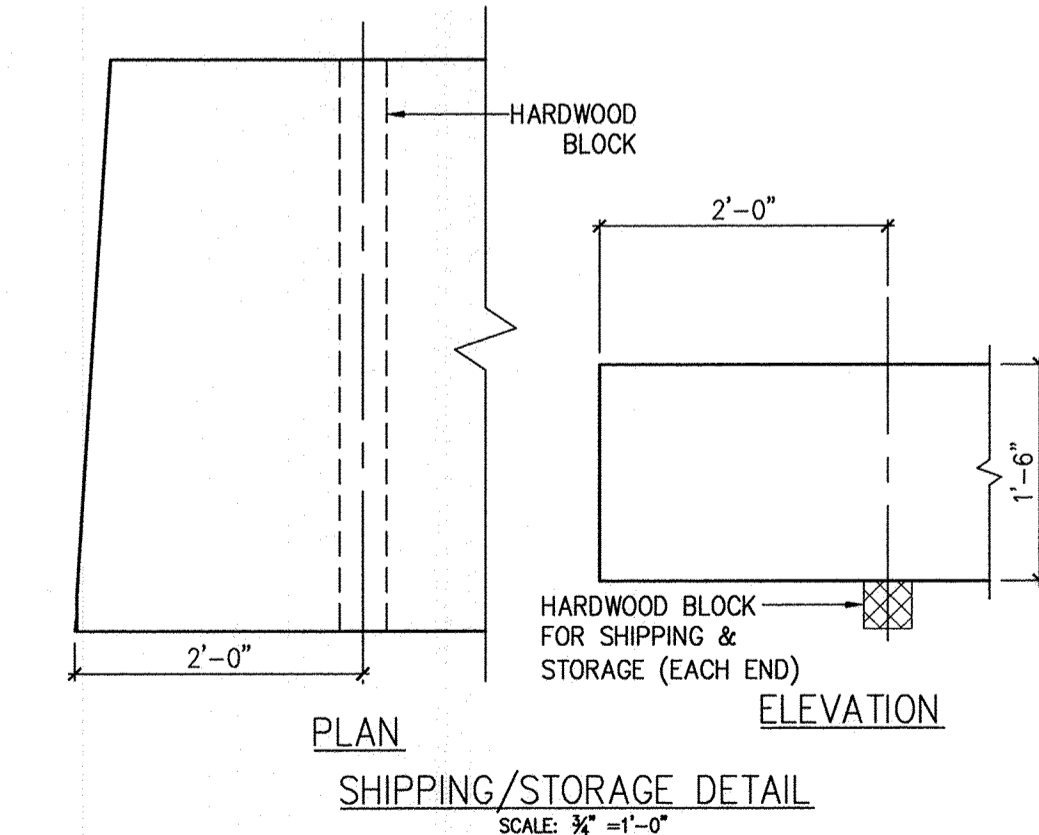


SECTION C-C
SCALE: 1/4\"/>

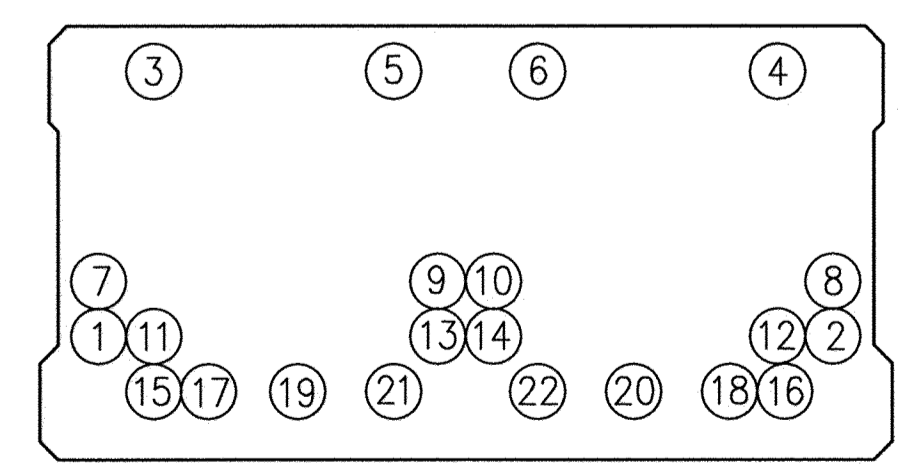
LEGEND	
●	FULLY BONDED STRAND
○	STRAND DEBONDED 3'-0" FROM ENDS



SECTION D-D
SCALE: 1/4\"/>



SHIPPING/STORAGE DETAIL
SCALE: 3/8\"/>



DETENSIONING SEQUENCE
N.T.S.

MARK: BM-04	QTY: 1	WT: 14.1 T	VOL: 6.96 cy
CONCRETE STRENGTH		28 DAY: 6,500 PSI	STRESS TRANSFER: 5,200 PSI
MATERIAL LIST			
ITEM	MARK	DESCRIPTION	QTY
1	403	#4 BENT BAR, EPOXY COATED	10
2	405	#4 BENT BAR, EPOXY COATED	164
3	406	#4 BENT BAR, EPOXY COATED	90
4	407	#4 BENT BAR, EPOXY COATED	90
5	408	#4 BENT BAR, EPOXY COATED	8
6	505	#5 BENT BAR, EPOXY COATED	59
7	506	#5 BENT BAR, EPOXY COATED	5
8	507	#5 BENT BAR, EPOXY COATED	ONE
9	508	#5 BENT BAR, EPOXY COATED	ONE
10	509	#5 BENT BAR, EPOXY COATED	ONE
11	510	#5 BENT BAR, EPOXY COATED	ONE
12	511	#5 BENT BAR, EPOXY COATED	ONE
13	512	#5 BENT BAR, EPOXY COATED	ONE
14	513	#5 BENT BAR, EPOXY COATED	ONE
15	514	#5 BENT BAR, EPOXY COATED	ONE
16	515	#5 BENT BAR, EPOXY COATED	ONE
17	516	#5 BENT BAR, EPOXY COATED	ONE
18	517	#5 BENT BAR, EPOXY COATED	ONE
19	518	#5 BENT BAR, EPOXY COATED	ONE
20	519	#5 BENT BAR, EPOXY COATED	ONE
21		DOUBLE 1/2\"/>	4
22		0.6\"/>	22
23		3\"/>	3
24		DEBONDING (12 LF)	3

REVISIONS	DRAWN	CHECKED	APPROVED
Rev. Note DATE 02/27/2015	JLB 02/12/15	JIJ 02/12/15	RLE 02/12/15

Eriksson
technologies
© 2015 ERIKSSON TECHNOLOGIES, INC. ALL RIGHTS RESERVED

813.989.3317
TAMPA, FL
LRFD.COM

UNITED CONCRETE PRODUCTS, Inc.

173 CHURCH STREET
YALESVILLE, CT 06492
TEL: (203)-269-3119
FAX: (203)-265-4941

PRESTRESSED CONCRETE BEAMS

CUSTOMER: NEIL H. DANIELS, INC.

JOB: MANCHESTER ROAD BRIDGE

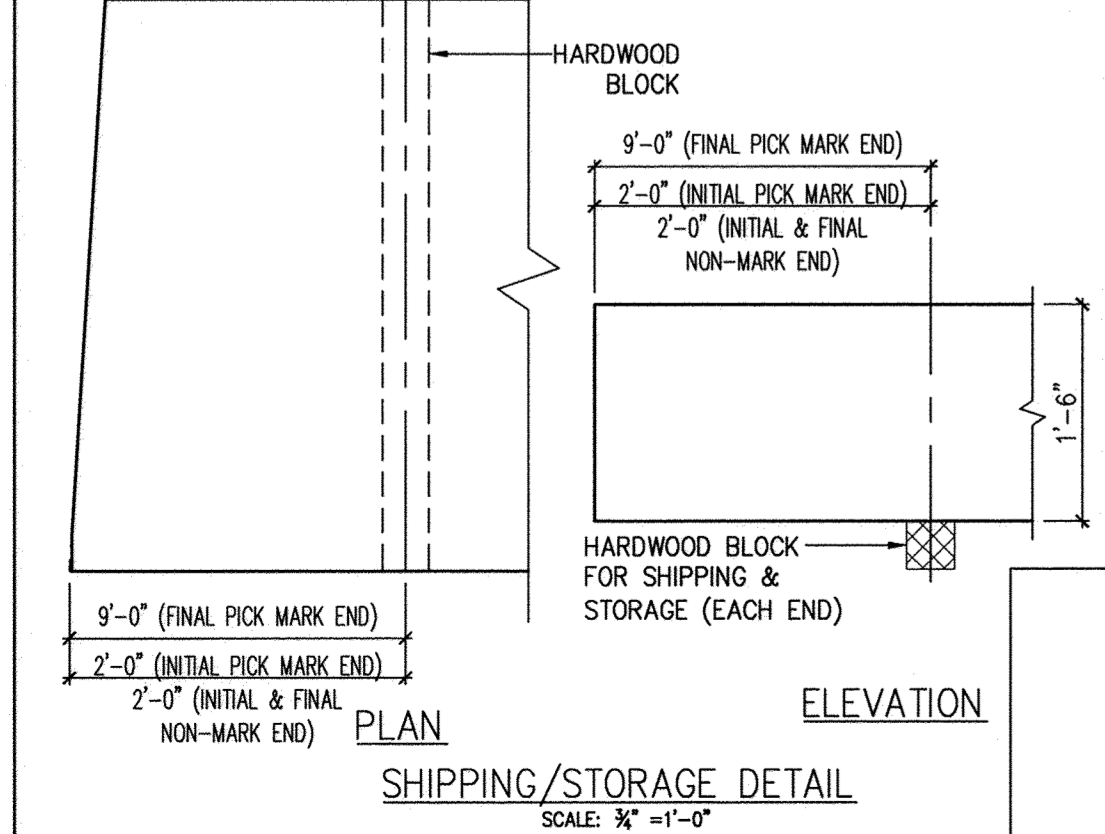
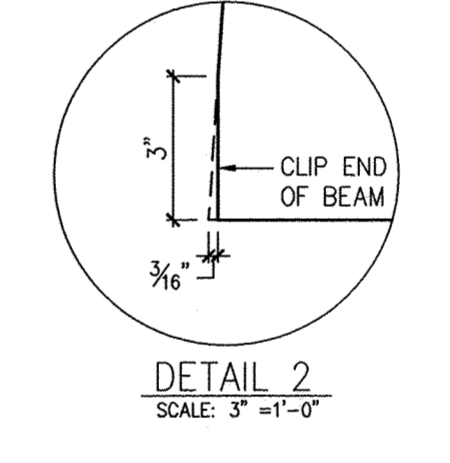
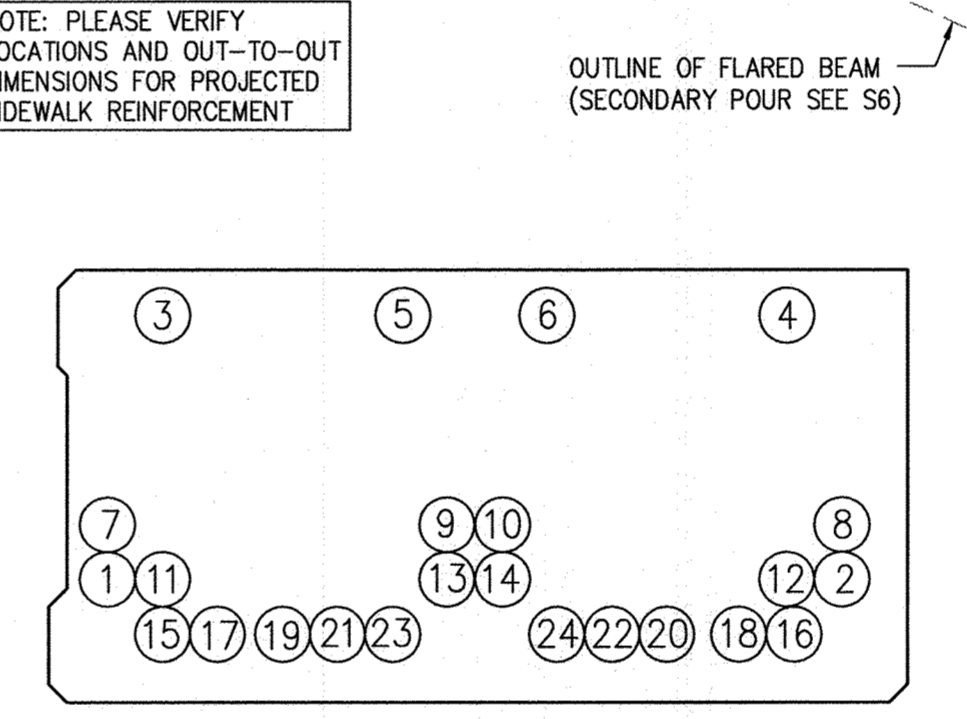
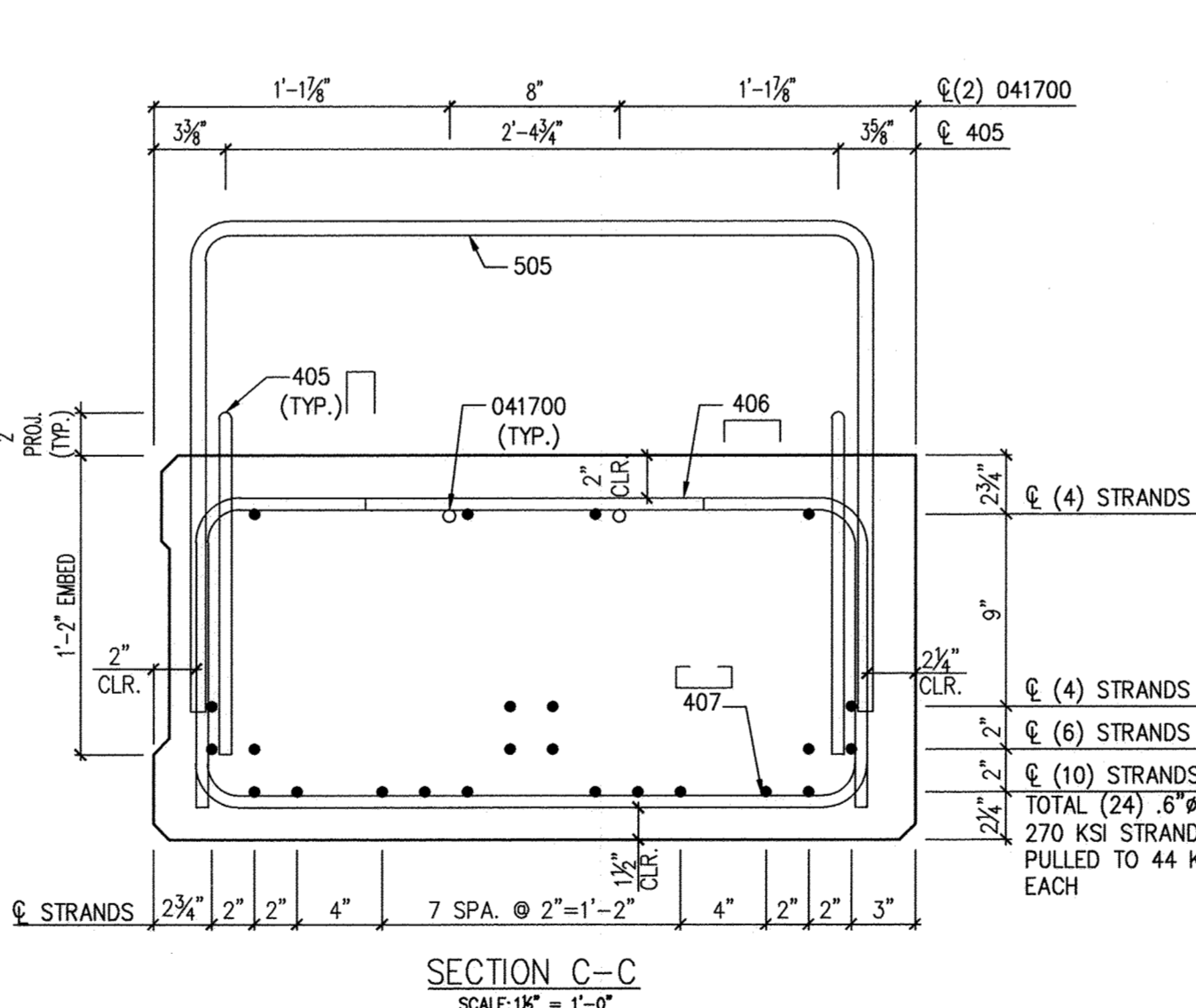
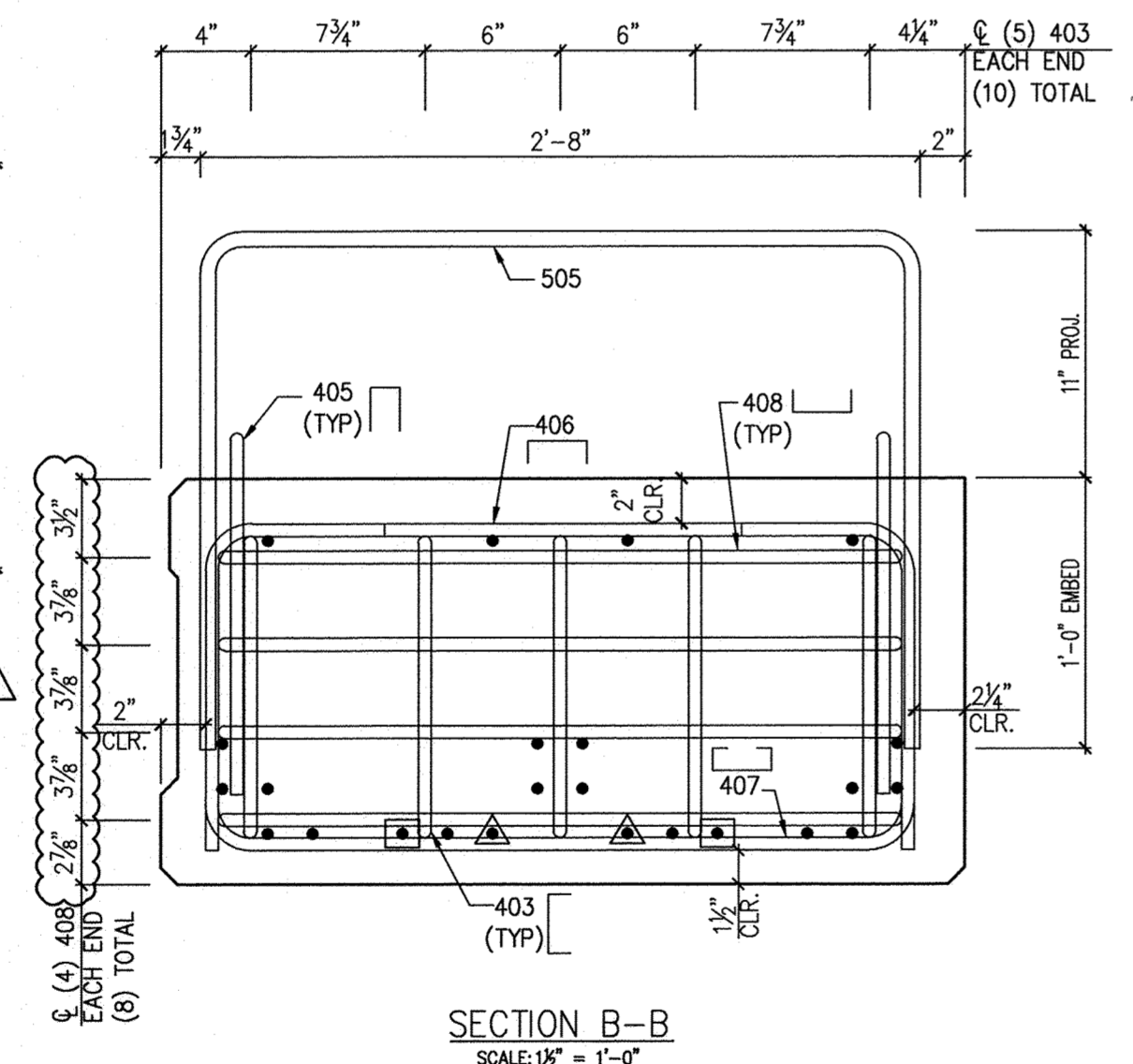
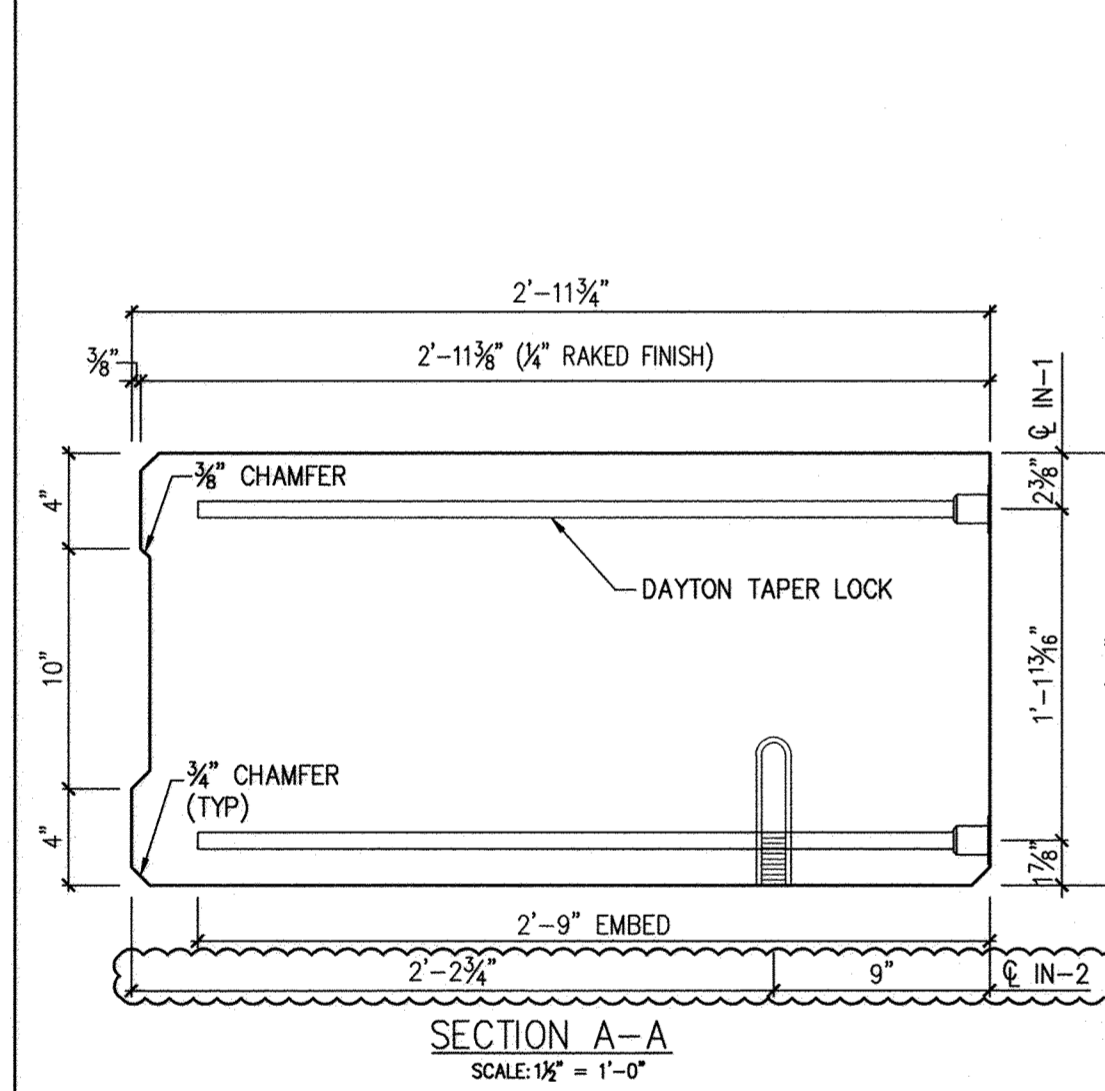
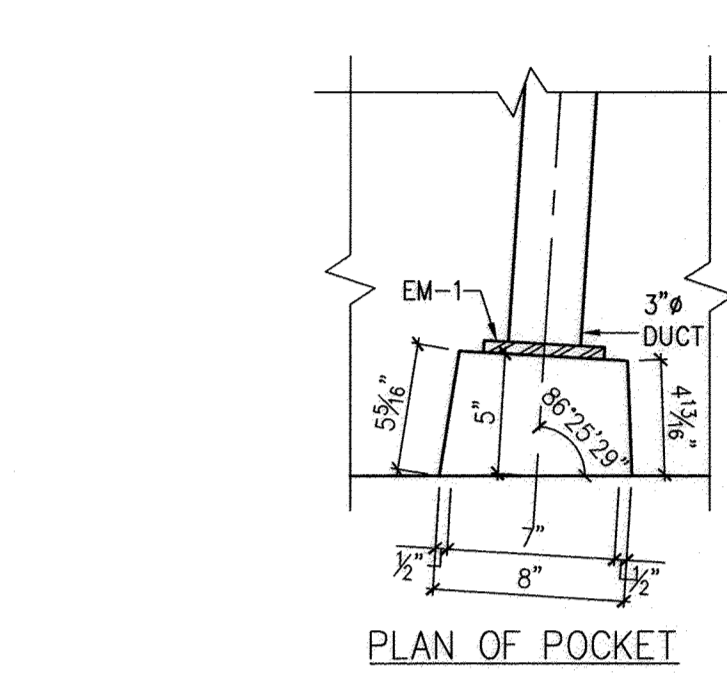
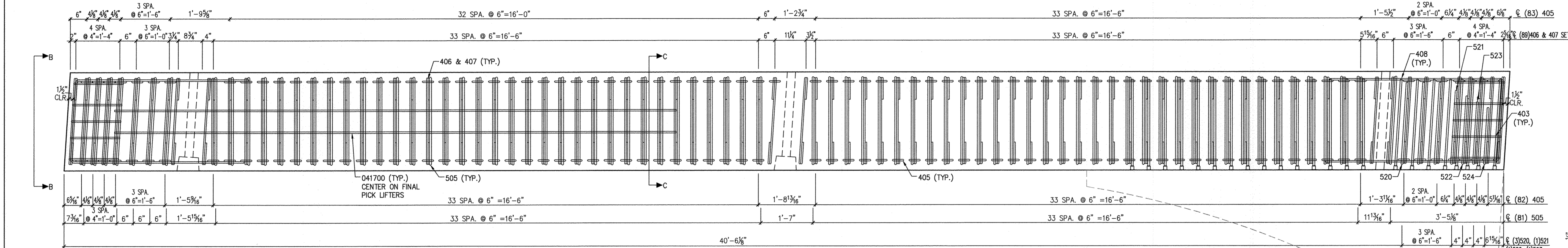
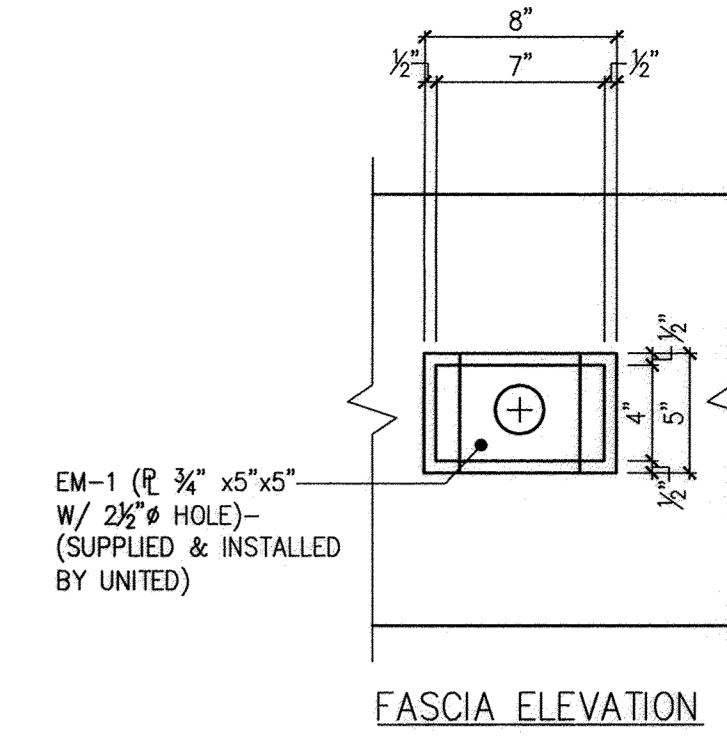
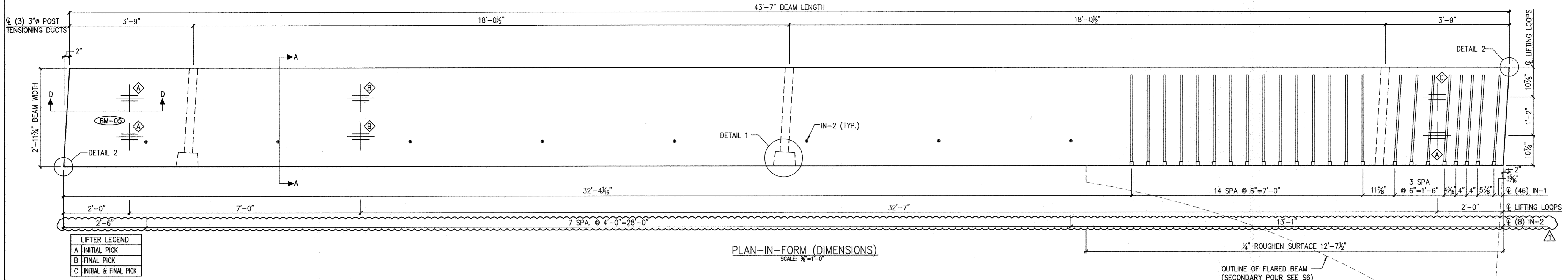
LOCATION: AMHERST, NH

PROJECT #21514

BRIDGE #134/100

SHOP DRAWINGS
BASED ON CONTRACT
DRAWINGS DATED:
11/3/2014

SHEET
S4



LEGEND	
●	FULLY BONDED STRAND
▲	STRAND DEBONDED 5'-0" FROM ENDS
■	STRAND DEBONDED 7'-0" FROM ENDS

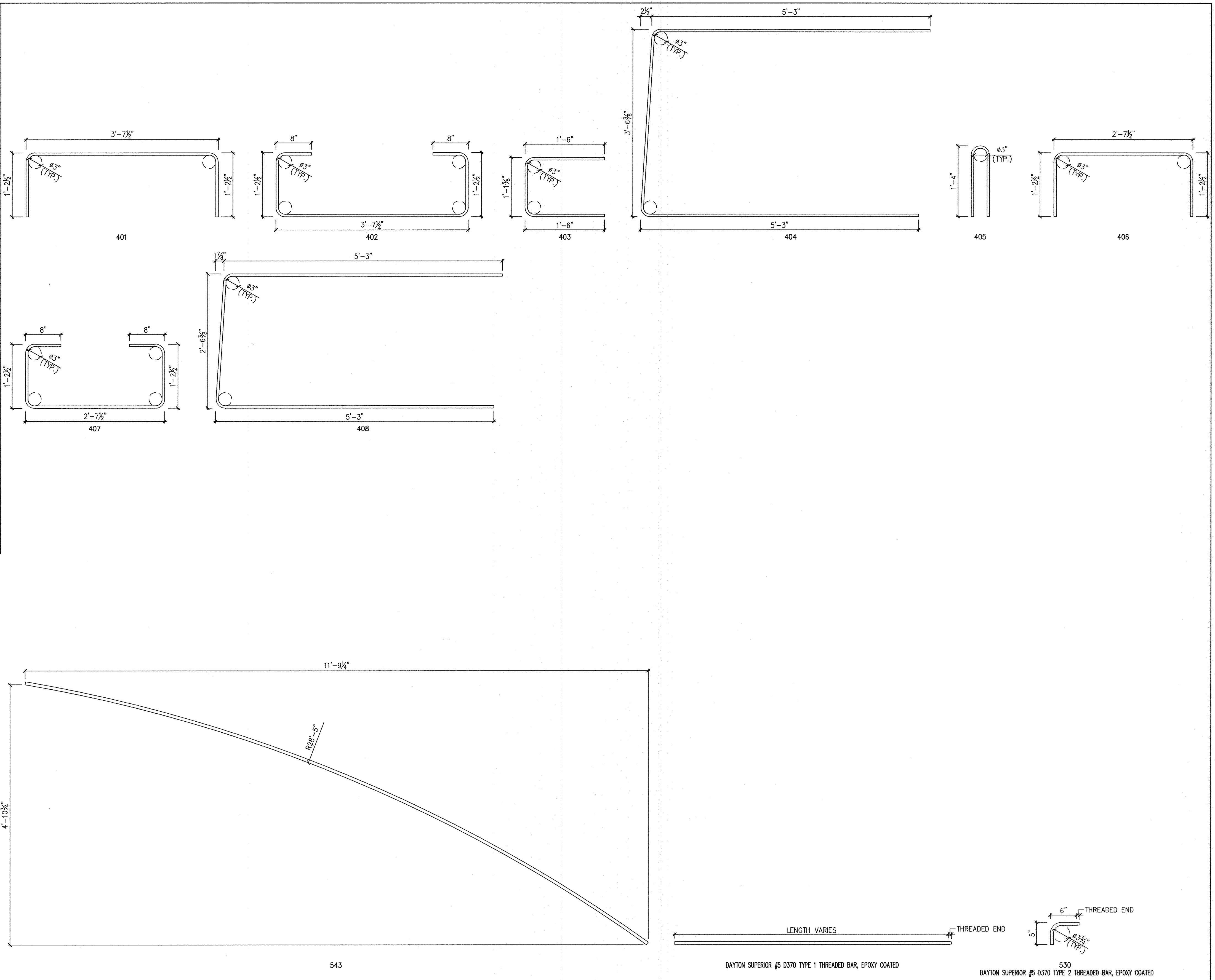
MARK: BM-05	QTY: 1	WT: 14.1 T	VOL: 6.96 cy
CONCRETE STRENGTH		28 DAY: 6,500 PSI	STRESS TRANSFER: 5,200 PSI


ITEM	MARK	DESCRIPTION	QTY
1	403	#4 BENT BAR, EPOXY COATED	10
2	405	#4 BENT BAR, EPOXY COATED	165
3	406	#4 BENT BAR, EPOXY COATED	92
4	407	#4 BENT BAR, EPOXY COATED	92
5	408	#4 BENT BAR, EPOXY COATED	8
6	505	#5 BENT BAR, EPOXY COATED	81
7	520	#5 BENT BAR, EPOXY COATED	3
8	521	#5 BENT BAR, EPOXY COATED	ONE
9	522	#5 BENT BAR, EPOXY COATED	ONE
10	523	#5 BENT BAR, EPOXY COATED	ONE
11	524	#5 BENT BAR, EPOXY COATED	ONE
12	041700	#4 STR. BAR, EPOXY COATED	2
13		TRIPLE 0.6" STRAND LIFTING LOOPS	6
14		0.6" STRANDS	24
15		3" x 2'-7" LONG P/T DUCTS	2
16		3" x 3'-0" LONG P/T DUCTS	ONE
17	IN-1	DAYTON SUPERIOR D368 (TYPE 1) #5 x 2'-9" LONG, EPOXY	46
18	EM-1	3/4" x 5" x 5" PLATE W/ 2 1/2" HOLE	2
19	IN-2	DAYTON SUPERIOR (F-64) 1/2" x 6 3/8" LONG, SWL=5 KIPS (GALV.)	8
20		DEBONDING (24 LF)	

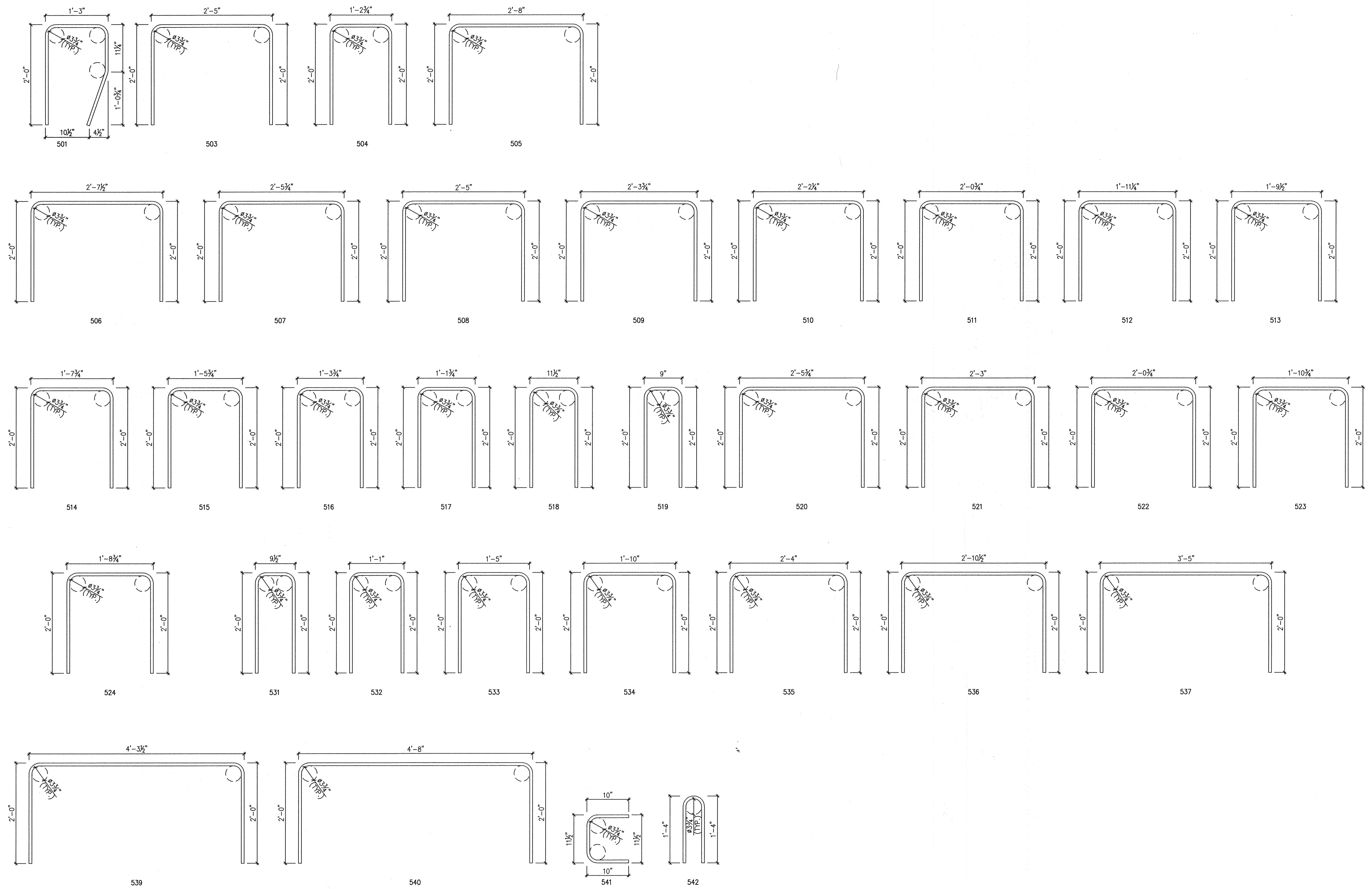
REVISIONS Rev. Note DATE 02/27/2015	DRAWN	CHECKED	APPROVED	UNITED CONCRETE PRODUCTS, Inc. 173 CHURCH STREET YALESVILLE, CT 06492 TEL: (203)-269-3119 FAX: (203)-265-4941	PRESTRESSED CONCRETE BEAMS		PROJECT #21514	
	JLB 02/12/15	JIJ 02/12/15	RLE 02/12/15		CUSTOMER	NEIL H. DANIELS, INC.		
					JOB	MANCHESTER ROAD BRIDGE		
© 2015 ERIKSSON TECHNOLOGIES, INC. ALL RIGHTS RESERVED				LOCATION	AMHERST, NH			
					SHOP DRAWINGS BASED ON CONTRACT DRAWINGS DATED: 11/3/2014		SHEET S5	

BENT BARS, TIES, & STIRRUPS						
MARK #	BAR SIZE	QTY	LENGTH	WT./PC (LBS)	TOT. WT. (LBS)	REMARKS
401	#4	481	5'-10"	3.9	1874	EPOXY COATED
402	#4	481	6'-11"	4.6	2222	EPOXY COATED
403	#4	100	3'-11"	2.6	262	EPOXY COATED
404	#4	64	13'-10"	9.2	591	EPOXY COATED
405	#4	1047	2'-10"	1.9	1982	EPOXY COATED
406	#4	182	4'-10"	3.2	588	EPOXY COATED
407	#4	182	5'-11"	4.0	719	EPOXY COATED
408	#4	16	12'-10"	8.6	137	EPOXY COATED
501	#5	87	5'-2"	5.4	469	EPOXY COATED
503	#5	14	6'-2"	6.4	90	EPOXY COATED
504	#5	10	5'-0"	5.2	52	EPOXY COATED
505	#5	140	6'-5"	6.7	937	EPOXY COATED
506	#5	5	6'-4"	6.6	33	EPOXY COATED
507	#5	ONE	6'-3"	6.5	7	EPOXY COATED
508	#5	ONE	6'-2"	6.4	6	EPOXY COATED
509	#5	ONE	6'-0"	6.3	6	EPOXY COATED
510	#5	ONE	5'-11"	6.2	6	EPOXY COATED
511	#5	ONE	5'-9"	6.0	6	EPOXY COATED
512	#5	ONE	5'-8"	5.9	6	EPOXY COATED
513	#5	ONE	5'-6"	5.7	6	EPOXY COATED
514	#5	ONE	5'-4"	5.6	6	EPOXY COATED
515	#5	ONE	5'-2"	5.4	5	EPOXY COATED
516	#5	ONE	5'-0"	5.2	5	EPOXY COATED
517	#5	ONE	4'-10"	5.0	5	EPOXY COATED
518	#5	ONE	4'-8"	4.9	5	EPOXY COATED
519	#5	ONE	4'-6"	4.7	5	EPOXY COATED
520	#5	3	6'-3"	6.5	20	EPOXY COATED
521	#5	ONE	6'-0"	6.3	6	EPOXY COATED
522	#5	ONE	5'-10"	6.1	6	EPOXY COATED
523	#5	ONE	5'-7"	5.8	6	EPOXY COATED
524	#5	ONE	5'-5"	5.6	6	EPOXY COATED
531	#5	2	4'-6"	4.7	9	EPOXY COATED
532	#5	2	4'-10"	5.0	10	EPOXY COATED
533	#5	2	5'-2"	5.4	11	EPOXY COATED
534	#5	2	5'-7"	5.8	12	EPOXY COATED
535	#5	3	6'-1"	6.3	19	EPOXY COATED
536	#5	ONE	6'-7"	6.9	7	EPOXY COATED
537	#5	3	7'-2"	7.5	22	EPOXY COATED
539	#5	ONE	8'-0"	8.3	8	EPOXY COATED
540	#5	2	8'-5"	8.8	18	EPOXY COATED
541	#5	30	2'-4"	2.4	73	EPOXY COATED
542	#5	11	2'-10"	3.0	33	EPOXY COATED
543	#5	2	12'-10"	13.4	27	EPOXY COATED
041700	#4	2	17'-0"	17.7	35	EPOXY COATED
050106	#5	2	1'-6"	1.6	3	EPOXY COATED
050204	#5	2	2'-4"	2.4	5	EPOXY COATED
050300	#5	2	3'-0"	3.1	6	EPOXY COATED
050404	#5	2	4'-4"	4.5	9	EPOXY COATED
050505	#5	3	5'-5"	5.6	17	EPOXY COATED
050608	#5	2	6'-8"	7.0	14	EPOXY COATED
050801	#5	2	8'-1"	8.4	17	EPOXY COATED
050911	#5	2	9'-11"	10.3	21	EPOXY COATED
051203	#5	2	12'-3"	12.8	26	EPOXY COATED
TOTAL BAR WEIGHT					10475	

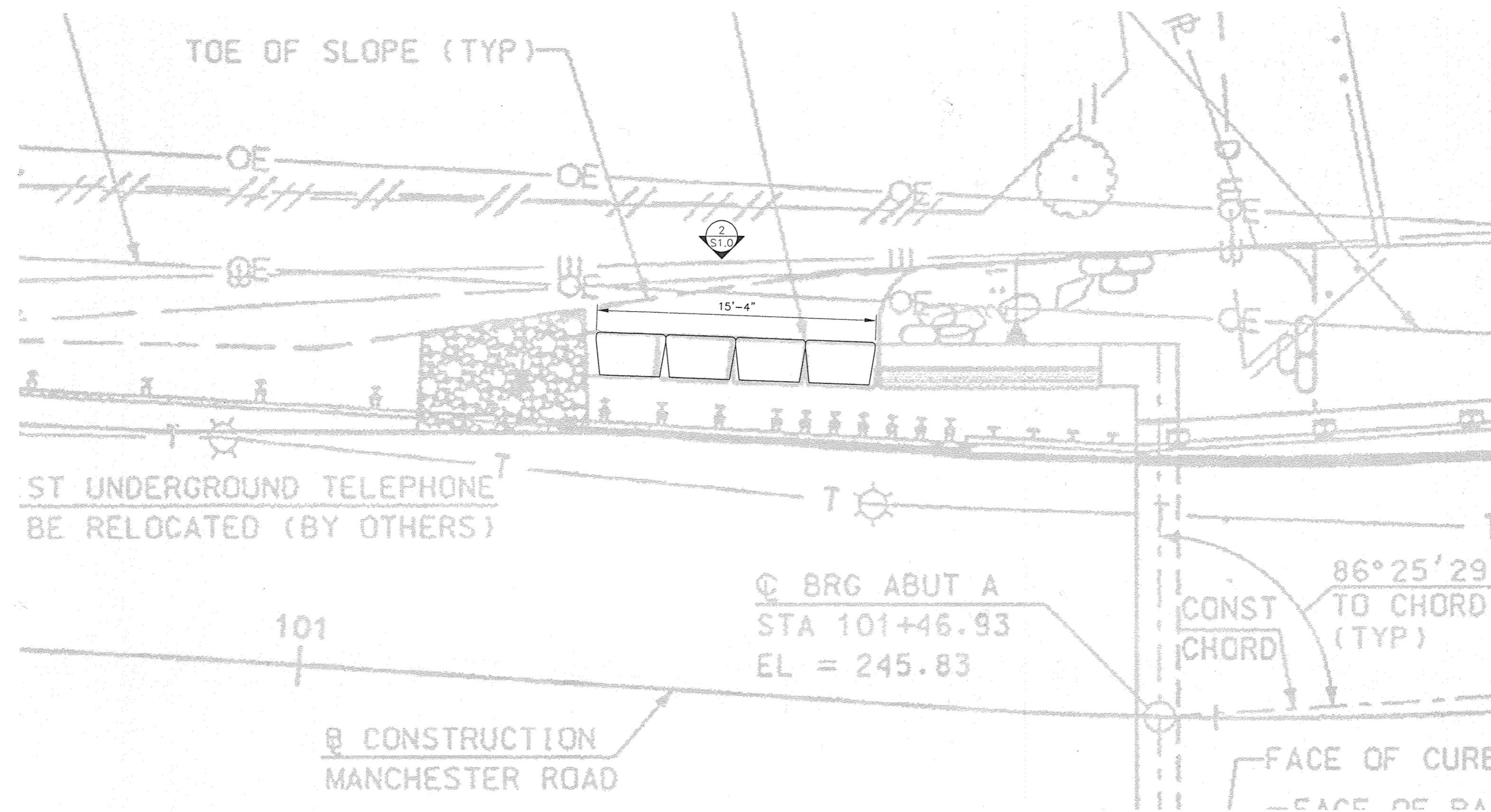
EMBEDMENTS			
MARK #	QTY	DESCRIPTION	REMARKS
EM-1	6	PL. 3/4"x5"x5" W/ 2 1/2" Ø HOLE	
	6	SINGLE USE STRESSING CHUCK	FOR ERECTION
	2	0.6" MONOSTRAND X 39'-0"	FOR ERECTION
	ONE	0.6" MONOSTRAND X 42'-0"	FOR ERECTION
	36	DOUBLE 0.6" STRAND LIFTING LOOPS	
	7	TRIPLE 0.6" STRAND LIFTING LOOPS	
	4	3" Ø X 2'-7" LONG P/T DUCTS	
	ONE	3" Ø X 3'-0" LONG P/T DUCTS	
	3	3" Ø X 3'-7" LONG P/T DUCTS	
	21	3" Ø X 3'-11 1/2" LONG P/T DUCTS	
		DEBONDING (68 LF)	
	88	1" Ø X 5 1/2" NON-FERROUS VOID DRAIN	
	44	10" Ø X 16'-0" LONG VOID	
IN-1	46	DAYTON SUPERIOR D388 (TYPE 1) #5 X 2'-9" LONG, EPOXY	
IN-2	22	DAYTON SUPERIOR (F-64) 1/2" Ø X 6 1/2" LONG, SWL=5 KIPS, (CALV.)	
530	6	DAYTON SUPERIOR #5 D370 TYPE 2 THREADED BAR, EPOXY COATED	
050010	2	DAYTON SUPERIOR #5 D370 TYPE 1 THREADED BAR, EPOXY COATED	
050100	2	DAYTON SUPERIOR #5 D370 TYPE 1 THREADED BAR, EPOXY COATED	
050103	2	DAYTON SUPERIOR #5 D370 TYPE 1 THREADED BAR, EPOXY COATED	
050105	2	DAYTON SUPERIOR #5 D370 TYPE 1 THREADED BAR, EPOXY COATED	
050107	2	DAYTON SUPERIOR #5 D370 TYPE 1 THREADED BAR, EPOXY COATED	
050110	2	DAYTON SUPERIOR #5 D370 TYPE 1 THREADED BAR, EPOXY COATED	
050200	2	DAYTON SUPERIOR #5 D370 TYPE 1 THREADED BAR, EPOXY COATED	
050203	2	DAYTON SUPERIOR #5 D370 TYPE 1 THREADED BAR, EPOXY COATED	
050205	2	DAYTON SUPERIOR #5 D370 TYPE 1 THREADED BAR, EPOXY COATED	
050208	2	DAYTON SUPERIOR #5 D370 TYPE 1 THREADED BAR, EPOXY COATED	
050211	2	DAYTON SUPERIOR #5 D370 TYPE 1 THREADED BAR, EPOXY COATED	
050305	2	DAYTON SUPERIOR #5 D370 TYPE 1 THREADED BAR, EPOXY COATED	
050308	2	DAYTON SUPERIOR #5 D370 TYPE 1 THREADED BAR, EPOXY COATED	
050400	2	DAYTON SUPERIOR #5 D370 TYPE 1 THREADED BAR, EPOXY COATED	
050403	2	DAYTON SUPERIOR #5 D370 TYPE 1 THREADED BAR, EPOXY COATED	
050405	4	DAYTON SUPERIOR #5 D370 TYPE 1 THREADED BAR, EPOXY COATED	
050411	2	DAYTON SUPERIOR #5 D370 TYPE 1 THREADED BAR, EPOXY COATED	
050502	2	DAYTON SUPERIOR #5 D370 TYPE 1 THREADED BAR, EPOXY COATED	



REVISIONS Rev. Note DATE 02/27/2015 JLB 02/12/15	DRAWN 02/12/15 JIJ	CHECKED 02/12/15 JIJ	APPROVED 02/12/15 RLE	UNITED CONCRETE PRODUCTS, Inc. 173 CHURCH STREET YALESVILLE, CT 06492 TEL: (203)-269-3119 FAX: (203)-265-4941	PRESTRESSED CONCRETE BEAMS		PROJECT #21514		
	 813.989.3317 TAMPA, FL LRFD.COM				CUSTOMER NEIL H. DANIELS, INC.	BRIDGE #134/100			
					JOB MANCHESTER ROAD BRIDGE	LOCATION AMHERST, NH	SHOP DRAWINGS BASED ON CONTRACT DRAWINGS DATED: 11/3/2014	SHEET M1	



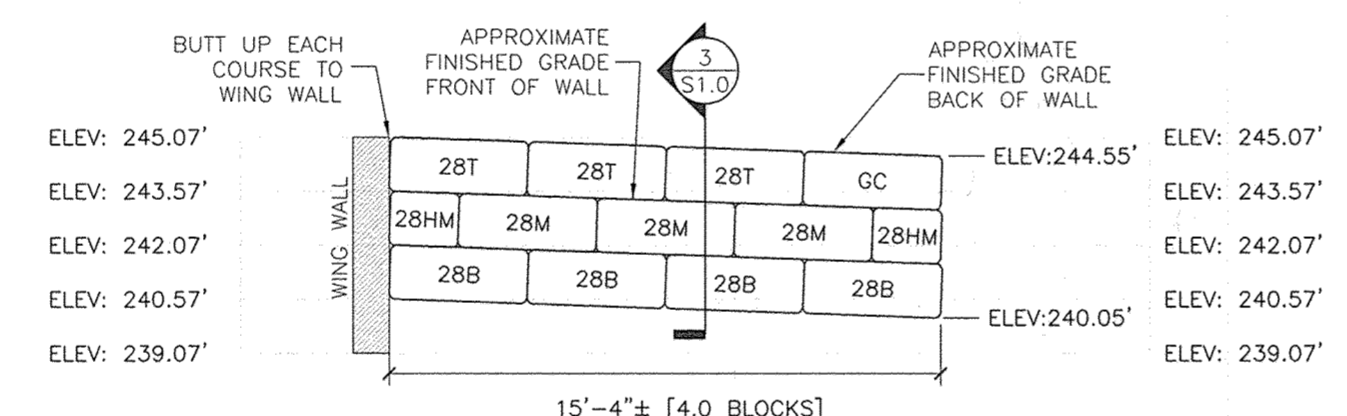
	REVISIONS	DRAWN	CHECKED	APPROVED	UNITED CONCRETE PRODUCTS, Inc. 173 CHURCH STREET YALESVILLE, CT 06492 TEL: (203)-269-3119 FAX: (203)-265-4941	PRESTRESSED CONCRETE BEAMS		PROJECT #21514		
		JLB 02/12/15	JIJ 02/12/15	RLE 02/12/15		CUSTOMER	NEIL H. DANIELS, INC.		BRIDGE #134/100	
	 813.989.3317 TAMPA, FL LRFD.COM <small>© 2015 ERIKSSON TECHNOLOGIES, INC. ALL RIGHTS RESERVED</small>					LOCATION	MANCHESTER ROAD BRIDGE		SHOP DRAWINGS BASED ON CONTRACT DRAWINGS DATED: 11/3/2014	SHEET M2



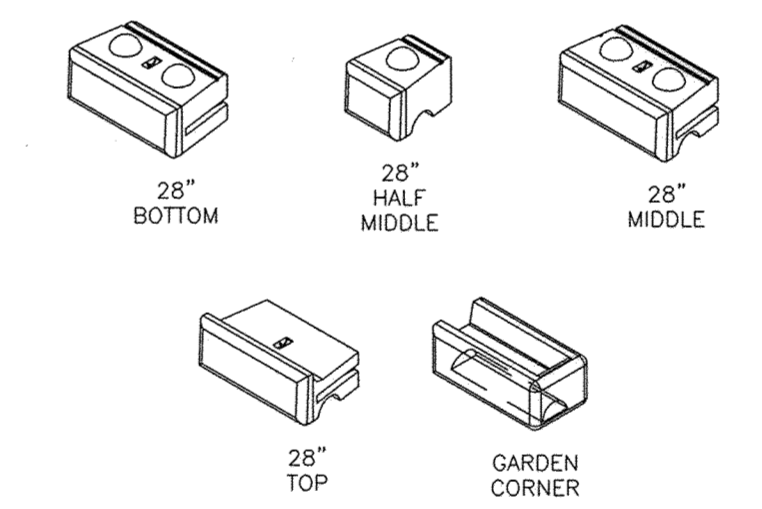
REDI-ROCK RETAINING WALL NOTES:

1. CONCRETE USED FOR WALL UNITS SHALL HAVE A 28-DAY COMPRESSIVE STRENGTH OF 4,000 P.S.I. WALL UNITS SHALL COMPLY WITH REDI-ROCK INTERNATIONAL'S SPECIFICATIONS, ASTM C-94 AND ACI-301-99, HAVE 4 1/2% - 7 1/2% ENTRAINED AIR, 4" - 6" SLUMP, AND MUST BE PLACED AT A MINIMUM OF 50'.
2. WALL CONSTRUCTION SHALL FULLY COMPLY WITH REDI-ROCK INTERNATIONAL'S STANDARD SPECIFICATIONS.
3. RETAINED SOIL SHALL BE SAND OR GRAVEL WITH NOT MORE THAN 20% PASSING THE #200 SEIVE. SOILS NOT MEETING THESE REQUIREMENTS SHALL BE EXCAVATED AND REPLACED WITH ACCEPTABLE SOILS.
4. LEVELING PAD MATERIAL SHALL MEET THE REQUIREMENTS OF NHDOT SECTION 508, PARAGRAPH 2.1.3.1.
5. DRAINAGE MATERIAL SHALL BE 3/4" CRUSHED STONE PLACED DIRECTLY BEHIND WALL FOR THE DEPTHS SPECIFIED ON PLANS (1'-0" MIN) AND SHALL EXTEND VERTICALLY FROM LEVELING PAD TO 4" BELOW TOP OF WALL. MIRAFL 140N OR APPROVED EQUAL FILTER FABRIC SHALL BE PLACED BETWEEN ALL INTERFACES OF DRAINAGE MATERIAL AND VIRGIN AND/OR SILTY MATERIALS. EXPOSED DRAINAGE STONE SHALL BE PROTECTED FROM FINE SOIL MIGRATION THROUGHOUT CONSTRUCTION.
6. BACKFILL SOIL BEYOND DRAINAGE ZONE SHALL BE WELL GRADED SAND/GRAVEL AND SHALL MEET THE REQUIREMENTS OF NHDOT SECTION 209.201.
7. ALL BACKFILL SHALL BE COMPACTED TO 95% OF STANDARD PROCTOR (ASTM D698). ONLY HAND-OPERATED COMPACTION EQUIPMENT SHALL BE ALLOWED WITHIN 3 FEET OF THE BACK OF THE WALL BLOCKS. BACKFILL AND COMPACT THE FILL MATERIAL BEHIND THE WALL AS THE WALL IS INSTALLED. SPREAD BACKFILL IN UNIFORM LIFTS NOT EXCEEDING 9 INCHES. CONTRACTOR SHALL ENSURE THAT FOUNDATION SOIL IS CAPABLE OF SUPPORTING 4,000 P.S.F.
8. ENSURE THAT THE FIRST COURSE OF WALL UNITS IS IN FULL CONTACT WITH FOUNDATION. INSTALL NEXT COURSE OF UNITS SUCH THAT THE VERTICAL GAPS ARE STAGGERED BETWEEN ADJACENT COURSES. GAPS SHALL BE FILLED WITH DRAINAGE STONE PRIOR TO STARTING THE NEXT COURSE.
9. CONTRACTOR AND ENGINEER-OF-RECORD SHALL APPROVE/PROVIDE ALL ELEVATIONS AND INVERTS IN THESE PLANS PRIOR TO ORDERING MATERIAL.
10. BASE BLOCKS SHALL BE SET BACK 1-1/2" WHEN STEPPING UP AND SET FORWARD 1-1/2" WHEN STEPPING DOWN. WALL ANGLES SHALL BE SLIGHTLY ADJUSTED TO ACCOMMODATE PROPERTY LINES AND OBSTRUCTIONS.
11. CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT EXCAVATIONS ARE STABLE AND MEET OSHA REQUIREMENTS.
12. WALL DESIGN IS BASED ON SHEETS 18 & 24 OF PLAN TITLED NHDOT PROJECT NO. 20242, PREPARED BY HOYLE TANNER & ASSOCIATES, INC., LAST REVISED JULY, 2014.
13. BOTTOM BLOCK MUST BE BACKFILLED IN FRONT OF BLOCK PRIOR TO CONSTRUCTING SLOPE AT TOP OF WALL.
14. BLOCKS TO HAVE A COBBLESTONE OR LIMESTONE FACE TEXTURE TO MATCH AS CLOSE AS PRACTICABLE THE FACE TEXTURE OF THE WINGWALL.

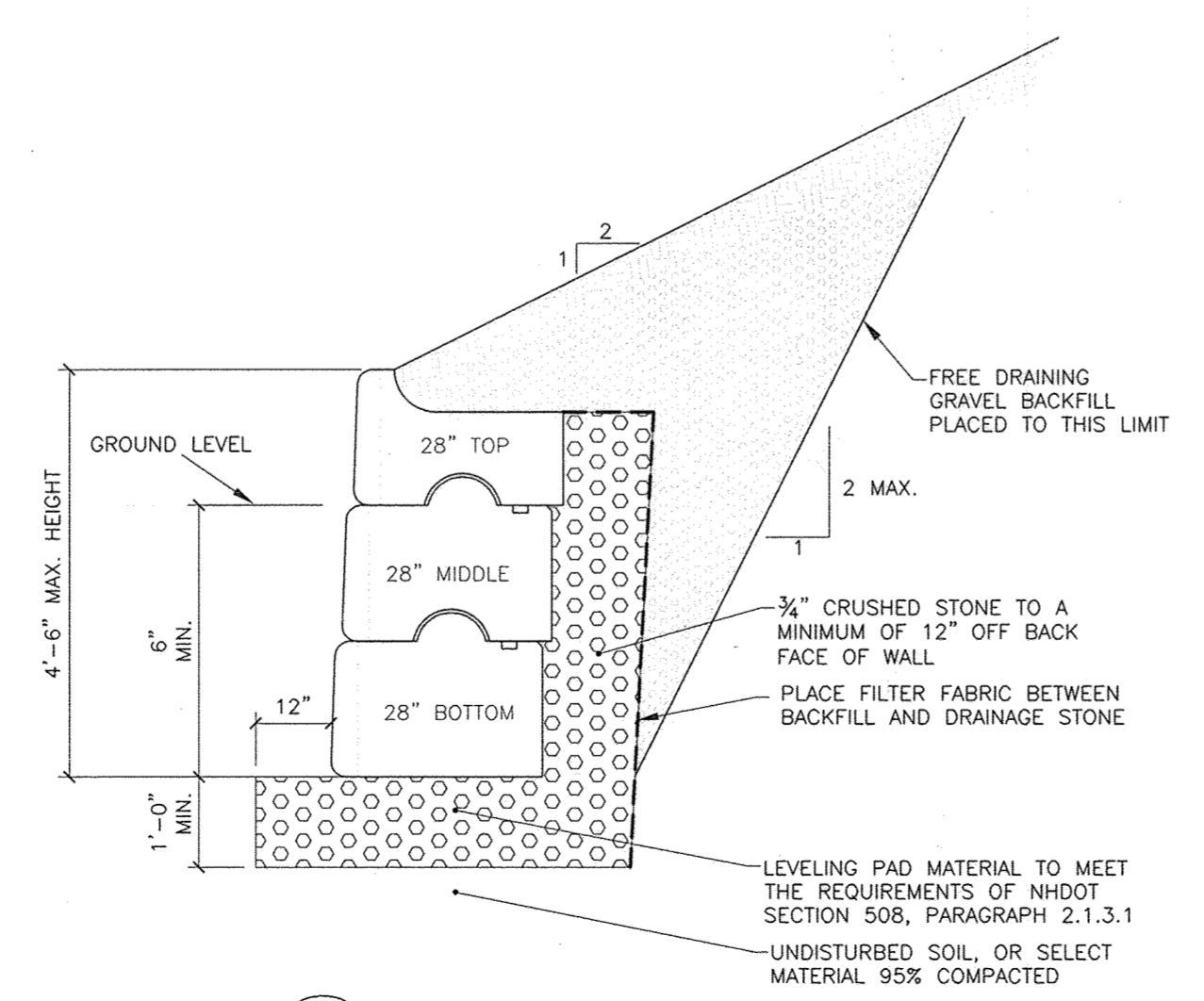
1 BLOCK PLAN
S1.0
1" = 5'



2 WALL ELEVATION
S1.0
3/16" = 1'

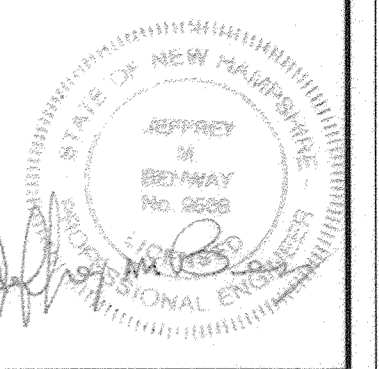


Block Count	
Name	Count
28B	4
28HM	2
28M	3
28T	3
GC	1
Total	13
Area	69 SF



3 TYPICAL GRAVITY WALL
S1.0
1/2" = 1'

No.	Date	Revision
1	4/23/2015	Revise per comments from reviewer

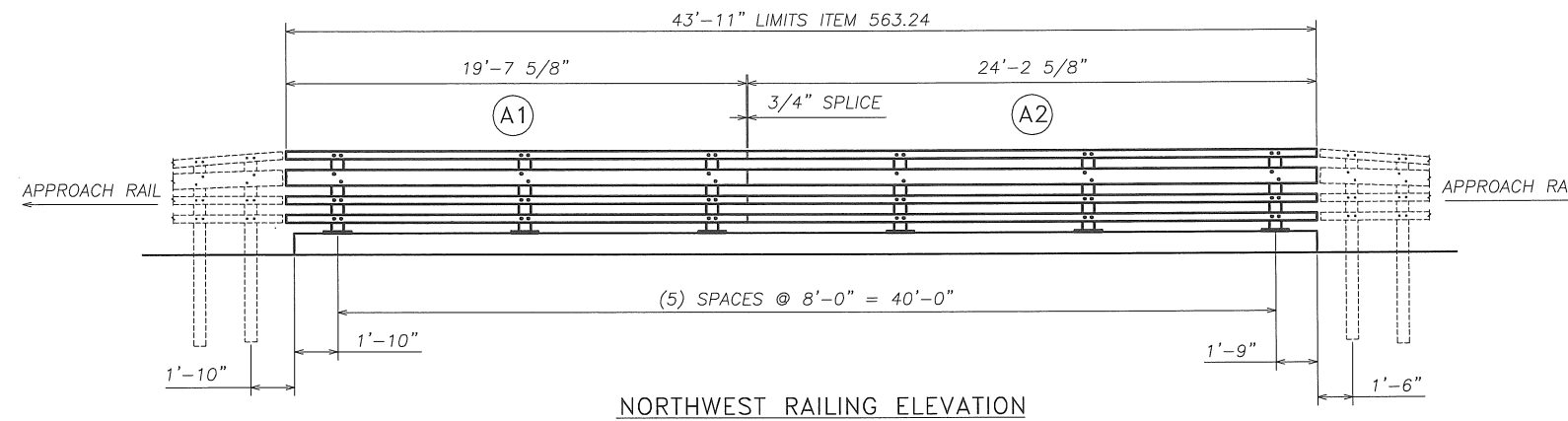
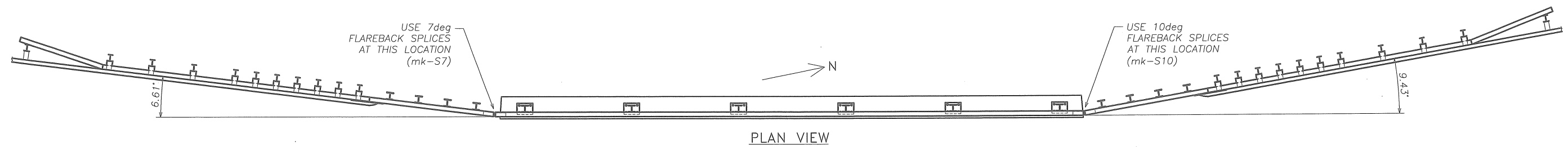


SFC ENGINEERING PARTNERSHIP INC.
66 GOLD LEDGE AVENUE
AUBURN, NH 03032
TEL: 603-643-8700
FAX: 603-643-8711
www.sfceng.com

MICHIE CORPORATION, INC.
173 BUXTON INDUSTRIAL DRIVE-PO BOX 870
HENRIKER, NH 03242
TEL: 603-428-7428
FAX: 603-428-7429

NHDOT Project No. 20242
Manchester Road
Amherst, NH
Redi-Rock Wall Design Drawings
Project No. 395620
Date: 03/31/15
Designed by: JMB
Drawn by: JFR
Checked by:
Scale: AS SHOWN

DWG NO.
S1.0



LOOKING AT TRAFFIC FACE OF RAILING
FACING NORTHWEST FROM CENTERLINE OF ROAD

Dimensions measured at face of rail

BILL OF MATERIAL

4-BAR RAILING (BOTH SIDES COMBINED)

Qty	mk	Description	Spec.
13		BRIDGE RAIL PED POST W6x25 (10-hole) 3'-5.375" OAH w/ 1 x 10 x 14 B.P.	A572 gr 50
2		SPLICE TUBE FOR 8x4 RAIL TS 7x3x3/8 1'-8" LG w/ 2 WELDED NUTS	A500 gr B
6		SPLICE TUBE FOR 4x4 RAIL TS 3x3x5/16 1'-8" LG w/ 2 WELDED NUTS	A500 gr B
1	A1	rail tube HSS 8 x 4 x 5/16 x 19'-7.625" OAL	A500 gr B
1	A2	rail tube HSS 8 x 4 x 5/16 x 24'-2.625" OAL	A500 gr B
1	A3	rail tube HSS 8 x 4 x 3/8 x 17'-4.250" OAL (partial 30' radius)	A500 gr B
1	A4	rail tube HSS 8 x 4 x 5/16 x 26'-8.375" OAL	A500 gr B
3	A1	rail tube HSS 4 x 4 x 1/4 x 19'-7.625" OAL	A500 gr B
3	A2	rail tube HSS 4 x 4 x 1/4 x 24'-2.625" OAL	A500 gr B
3	A3	rail tube HSS 4 x 4 x 3/8 x 17'-4.250" OAL (partial 30' radius)	A500 gr B
3	A4	rail tube HSS 4 x 4 x 1/4 x 26'-8.375" OAL	A500 gr B
13		BR NEOPRENE PAD 0.125 x 10.00 x 14.00 NETC 50 NH	neoprene
104		3/4" SLOTTED HEAD BOLT (GALV.) 0.750" DIA. X 6.000" LG. NO SHLDR	A325
104		(3/4") HEAVY HEX NUT (GALV) 0.750" dia	A563 gr DH
104		(3/4") PLAIN ROUND WASHER TYPE A (GALV) 0.750" DIA USS LARGE (HI-CARBON)	F844
32		(5/8") HEX HEAD BOLT (GALV) 0.625" DIA x 1.750" LG.	A325
32		(5/8") PLAIN ROUND WASHER (GALV) 0.625" USS LARGE	F844
16		3/4" SPACER PIPE 0.750" DIA. (SCH 40) x 1/2" LG.	A53 gr B
13		ANCHOR PLATE (GALV) PL .375 x 9.375 x 13.000 w/ 6.250 dia CTR HOLE	A36
52		(1") THD. ANCHOR STUD (GALV) 1.000" DIA x 12" LONG full thread	A449
156		(1") HEAVY HEX NUT (GALV) 1.000" DIA (hi-str)	A563 DH
52		(1") PLAIN ROUND WASHER (GALV) 1.000" DIA SAE (SMALL) HI-STR.	F436

All steel bridge rail material to be Galvanized & Powder Coated by Duncan Galvanizing per NHDOT section 708
Top Coat Color = Dark Brown Fed Std #20062

Reviewed By:
Matt Belden
Daniels Construction
3/30/2015

No.	Remarks	Date
0	Initial submittal	3/23/15
REVISIONS		

Approved
 Approved as Noted (Resubmission not required)
 Revise and Resubmit
 Rejected (See accompanying letter)
 No Action Required
 Submittal Not Requested/ Returned Without Review.

(Check mark designates action taken)
Hoyle, Tanner & Associates, Inc. Project No. **919101**

Approval is only for general conformance with the design concept of the Project and the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at the job site; information that pertains solely to the fabrication process or to the means and methods of construction; coordination of the work of all trades; and performing all work in a safe and satisfactory manner. This approval does not modify Contractor's duty to comply with Contract Documents.

Reviewed by **JCR** Date **4/9/2015**
 Checked by **EGW** Date **4/9/2015**

HIGHWAY SAFETY CORP
GLASTONBURY, CT
860-633-9445

ITEM 563.24 T4 BRIDGE RAILING
ITEM 565.242 T4 BRIDGE RAILING APPROACH

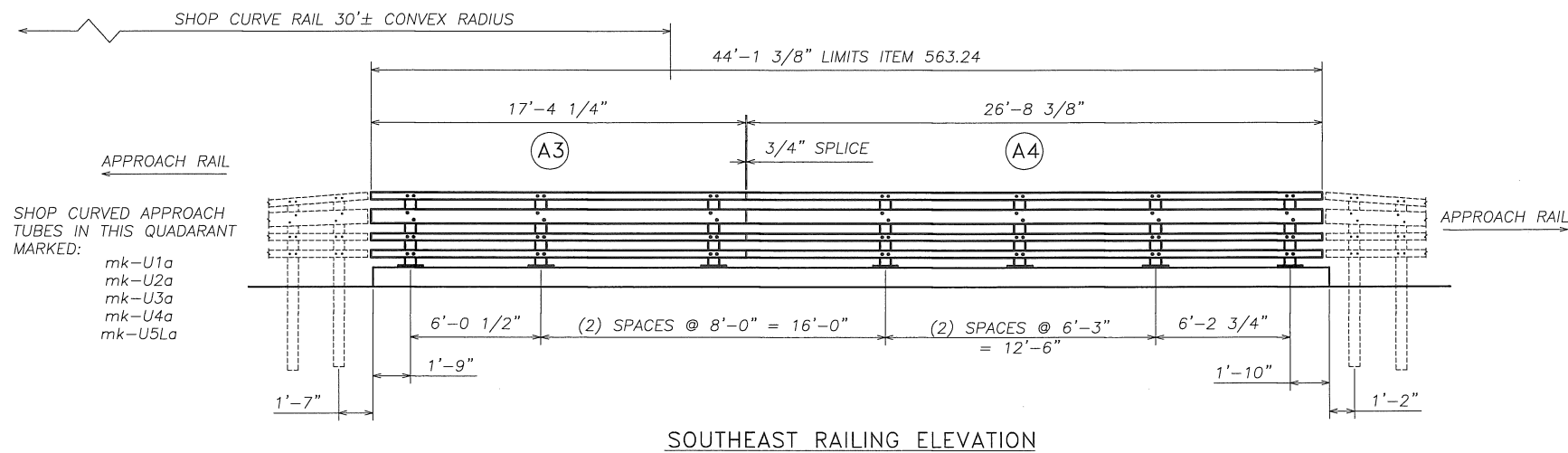
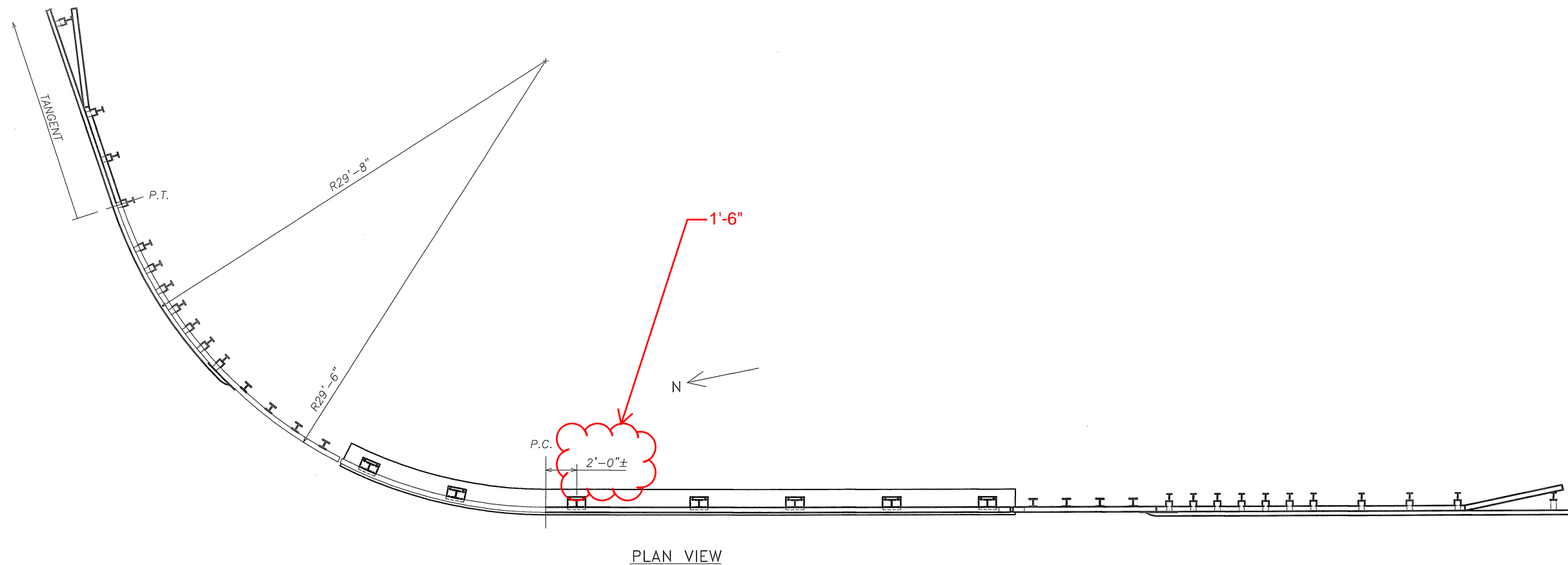
MANCHESTER ROAD OVER BEAVER BROOK
TOWN OF AMHERST, NEW HAMPSHIRE

CERTIFIED FABRICATOR

HSC JOB NO. **2034**
SHEET NO. **1 of 4**

GENERAL CONTRACTOR
SUB CONTRACTOR **CWS FENCE**

DRAWN **PAR** CHECKED **[Signature]** DATE **03-20-15** SCALE **NONE** SIZE **D**



LOOKING AT TRAFFIC FACE OF RAILING
FACING SOUTHEAST FROM CENTERLINE OF ROAD

Dimensions measured at face of rail

All steel bridge rail material to be Galvanized & Powder Coated by
Duncan Galvanizing per NHDOT section 708
Top Coat Color = Dark Brown Fed Std #20062

<input type="checkbox"/> Approved	<input type="checkbox"/> Rejected (See accompanying letter)
<input checked="" type="checkbox"/> Approved as Noted (Resubmission not required)	<input type="checkbox"/> No Action Required
<input type="checkbox"/> Revise and Resubmit	<input type="checkbox"/> Submittal Not Requested/ Returned Without Review

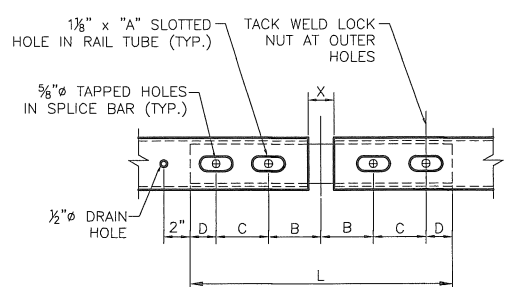
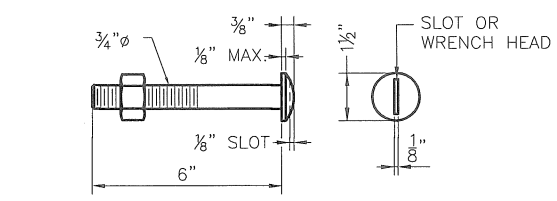
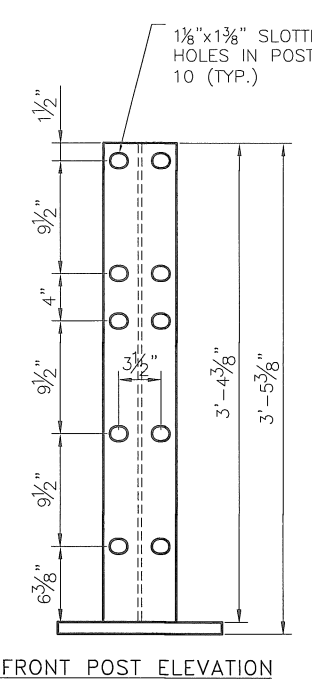
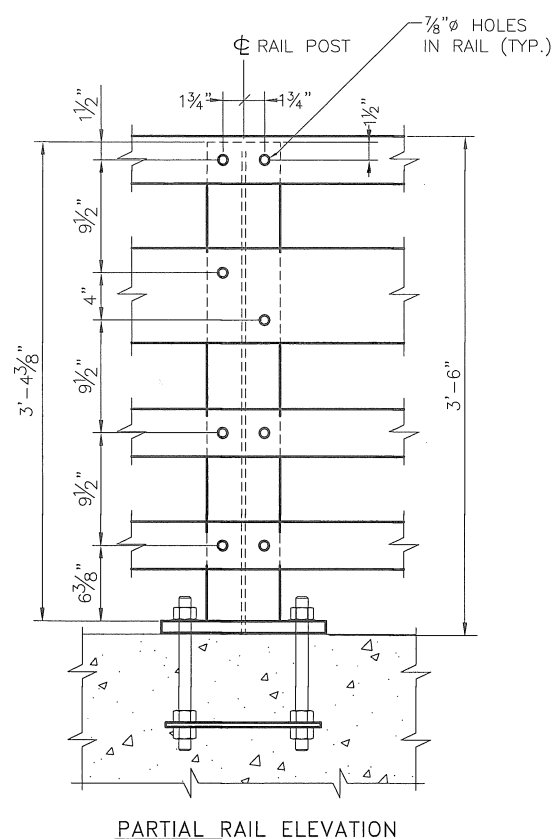
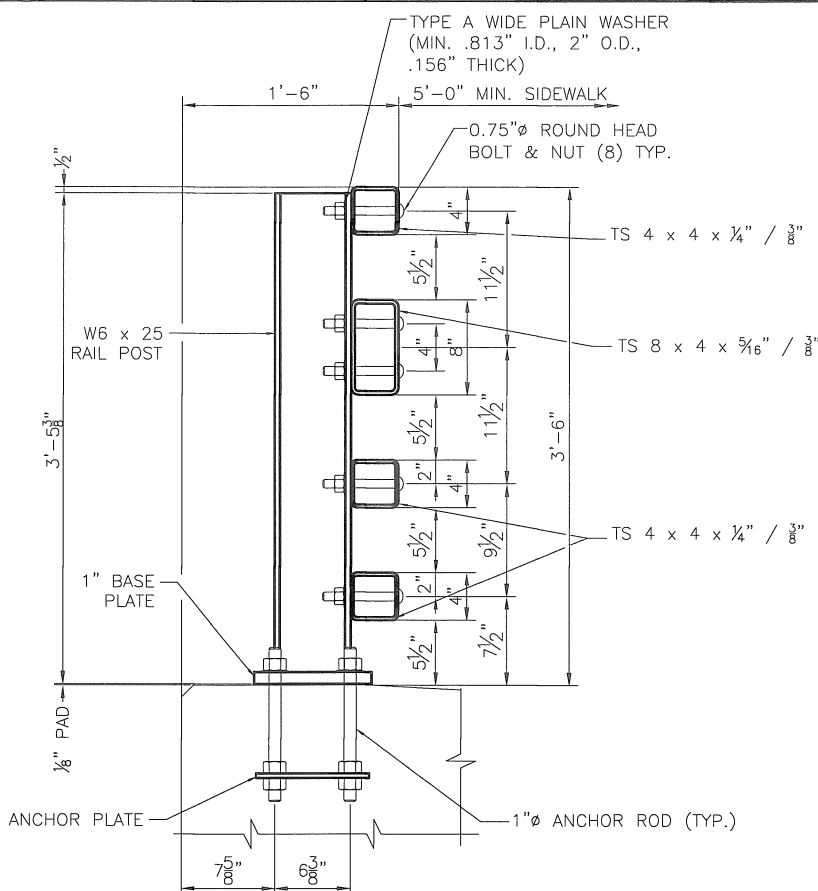
(Check mark designates action taken)

Hoyle, Tanner & Associates, Inc. Project No. 919101

Approval is only for general conformance with the design concept of the Project and the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at the job site; information that pertains solely to the fabrication process or to the means and methods of construction; coordination of the work of all trades; and performing all work in a safe and satisfactory manner. This approval does not modify Contractor's duty to comply with Contract Documents.

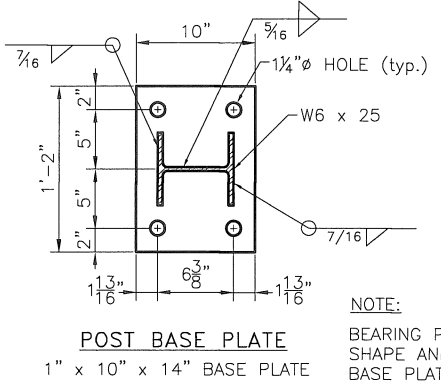
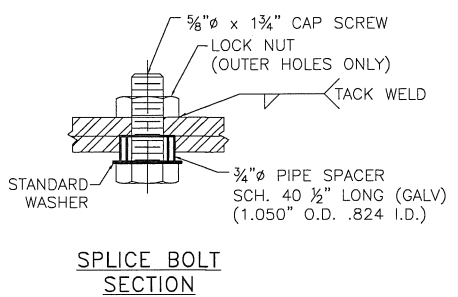
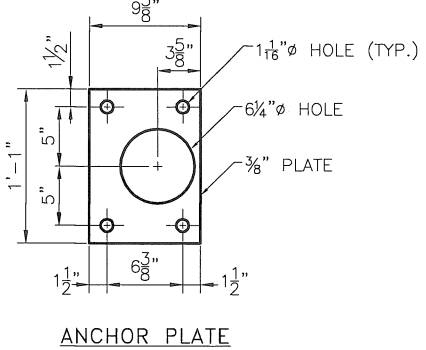
Reviewed by JCR Date 4/9/2015
Checked by EGW Date 4/9/2015

HIGHWAY SAFETY CORP	
GLASTONBURY, CT 860-633-9445	
ITEM 563.24 T4 BRIDGE RAILING	CERTIFIED FABRICATOR
ITEM 565.242 T4 BRIDGE RAILING APPROACH	
MANCHESTER ROAD OVER BEAVER BROOK TOWN OF AMHERST, NEW HAMPSHIRE	
GENERAL CONTRACTOR	HSC JOB NO. 2034
SUB CONTRACTOR CWS FENCE	SHEET NO. 2 of 4
DRAWN PAR	CHECKED DATE 03-20-15 SCALE NONE SIZE D



"T"	"A"	"B"	"C"	"D"	"X"	"L"
INTERIOR	2 1/2"	4"	4"	2"	3/4"	1'-8"
* ≤ 3 1/4"	2 1/2"	4"	4"	2"	2"	1'-8"
* 3 1/4" < T ≤ 1/4"	3 1/2"	5"	5"	2 1/2"	3"	2'-1"

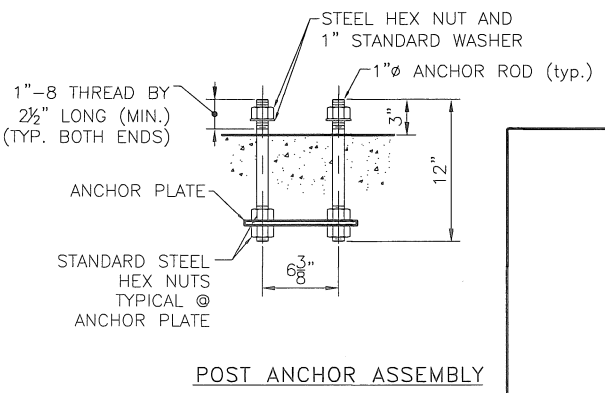
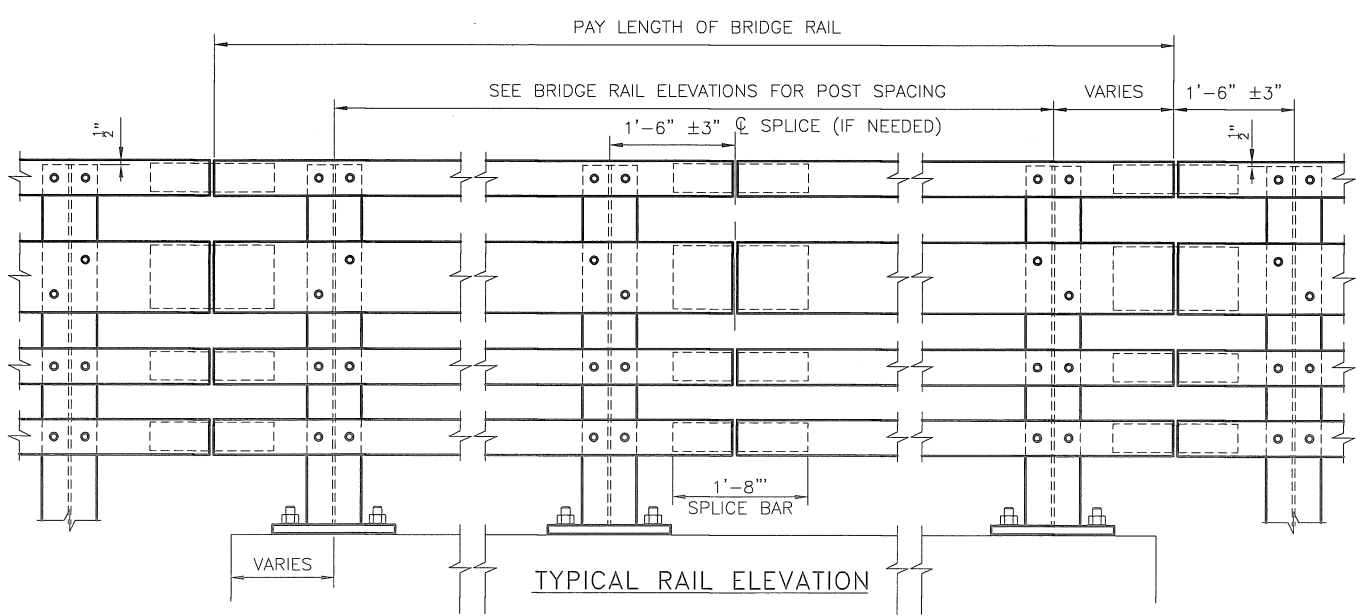
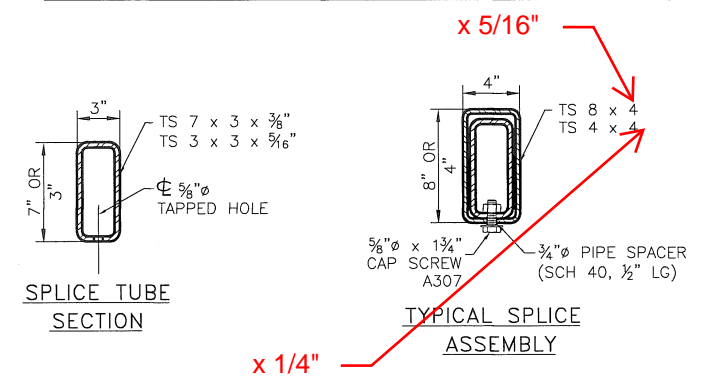
"T" = TOTAL REQUIRED MOVEMENT
 * = END SPLICE BAR



NOTE:
 BEARING PAD TO HAVE SAME SHAPE AND DIMENSIONS AS BASE PLATE.

- RAIL NOTES:**
- ITEMS 563.24 BRIDGE RAIL, SHALL INCLUDE POSTS, BASE PLATES, ANCHOR RODS, PREFORMED PADS, RAIL ASSEMBLY BOLTS, NUTS, WASHERS, STUDS, STRUCTURAL TUBING, SPLICE BARS, PIPE SPACERS, ALL APPURTENANCES, AND GALVANIZING. IF PAINTING IS REQUIRED SEE SPECIAL PROVISIONS SEC 708
 - BRIDGE RAIL POSTS SHALL BE SET NORMAL (90 DEGREES) TO THE PROFILE GRADE, EXCEPT ON GRADES OVER 5% WHERE POSTS SHALL BE SET VERTICAL.
 - 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.
 - EACH PIECE OF RAIL TUBING SHALL BE ATTACHED TO A MINIMUM OF THREE (3) POSTS.
 - BOLT HOLES SHALL BE DRILLED OR PUNCHED. FLAME CUTTING MAY BE USED TO FINISH SLOTTED HOLES IF MECHANICALLY GUIDED
 - AT INTERIOR SPLICES, PIPE SPACERS SHALL BE USED ON ONLY ONE SIDE OF THE SPLICE TO ALLOW MOVEMENT ON THAT SIDE, THE TOP AND BOTTOM RAIL SHALL RECEIVE THE SAME TREATMENT, AT END SPLICES PIPE SPACERS SHALL BE USED ON BOTH SIDE OF THE SPLICE TO ALLOW MOVEMENT ON EACH SIDE.
 - MILL OR SHOP TRANSVERSE WELDS SHALL NOT BE PERMITTED ON ANY RAIL ELEMENT. RAIL ELEMENTS USED ON CURVES SHALL USE 3/8" WALL TUBES AND SHALL BE SHOP FORMED TO THE REQUIRED CURVATURE.
 - NO PUNCHING, DRILLING, CUTTING OR WELDING SHALL BE PERMITTED AFTER GALVANIZING. DAMAGED AREAS OF GALVANIZING SHALL BE THOROUGHLY CLEANED, PRETREATED, AND PAINTED WITH TWO COATS OF ORGANIC ZINC-RICH GALVANIZING REPAIR PAINT. HAVING MIN. 94% ZINC BY WEIGHT. TO A THICKNESS EQUAL TO THE ORIGINAL COATING ACCORDING TO THE STANDARD SPECIFICATIONS AND ASTM A780.
 - NUTS FOR 1" THREADED ANCHOR RODS CONNECTING THE BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8 TURN.
 - THREADS FOR ANCHOR RODS MAY BE ROLLED OR CUT. IF CUT THREADS ARE USED, BOLT DIA. SHALL NOT BE LESS THAN NOMINAL DIAMETER. IF ROLLED THREADS ARE USED, ROD DIA. SHALL NOT BE LESS THAN ROOT DIA. OF THREADS.
- MATERIAL NOTES:**
- STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500, GRADE B, STRUCTURAL STEEL TUBING, RAIL TUBING SHALL MEET THE LONGITUDINAL CHARPY V-NOTCH REQUIREMENTS OF 15 FT/LBS AT 0° F. FOR ASTM A500, GRADE B, THE TEST SAMPLES SHALL BE TAKEN AFTER FORMING THE TUBES. CHARPY V-NOTCH IS NOT REQUIRED FOR SPLICE TUBES.
 - RAIL POSTS AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A572 GR 50, EXCEPT ANCHOR PLATES MAY BE ASTM A36.
 - 3/4" ROUND HEAD BOLTS SHALL BE ASTM A325 OR A449. ALL OTHER BOLTS AND NUTS SHALL CONFORM TO ASTM A307 AND ASTM 563 GRADE A RESPECTIVELY OR BETTER. EXCEPT THAT ASTM A307 NUTS MAY BE USED ON THE BOTTOM OF ANCHOR ASSEMBLY. WASHERS SHALL BE HARDENED STEEL COMMERCIAL TYPE A PLAIN WIDE WASHERS AND SHALL MEET THE DIMENSIONAL REQUIREMENTS OF A.N.S.I. B18.22. ANCHOR RODS SHALL CONFORM TO ASTM A449.
 - ALL STEEL COMPONENTS SHALL BE GALVANIZED AFTER FABRICATION IN CONFORMANCE TO AASHTO M232 (ASTM A153) AND AASHTO M111 (ASTM A123). THE GALVANIZING KETTLE SHALL HAVE 0.05 TO 0.09 PERCENT NICKEL. GALVANIZED SURFACES SHALL HAVE A UNIFORM APPEARANCE AND GALVANIZED MATERIAL SHALL BE PROPERLY STORED.
 - PREFORMED BEARING PADS (1/8" THICK) SHALL CONFORM TO AASHTO M251.

All steel bridge rail material to be Galvanized & Powder Coated by Duncan Galvanizing per NHDOT section 708
 Top Coat Color = Dark Brown Fed Std #20062



Approved
 Approved as Noted (Resubmission not required)
 Revise and Resubmit
 Rejected (See accompanying letter)
 No Action Required
 Submittal Not Requested/Returned Without Review

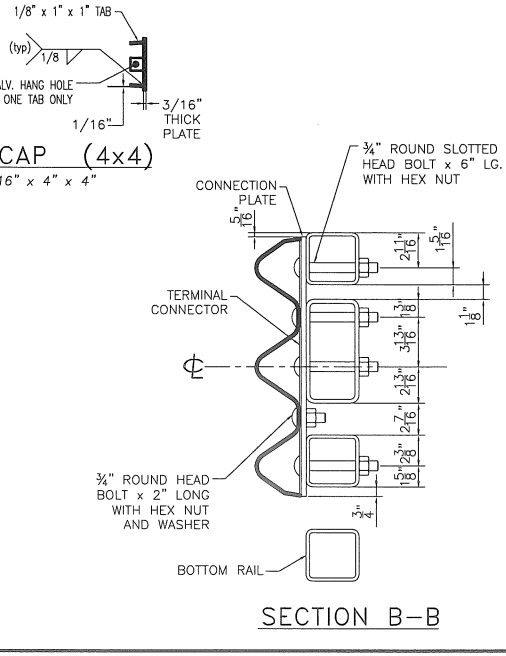
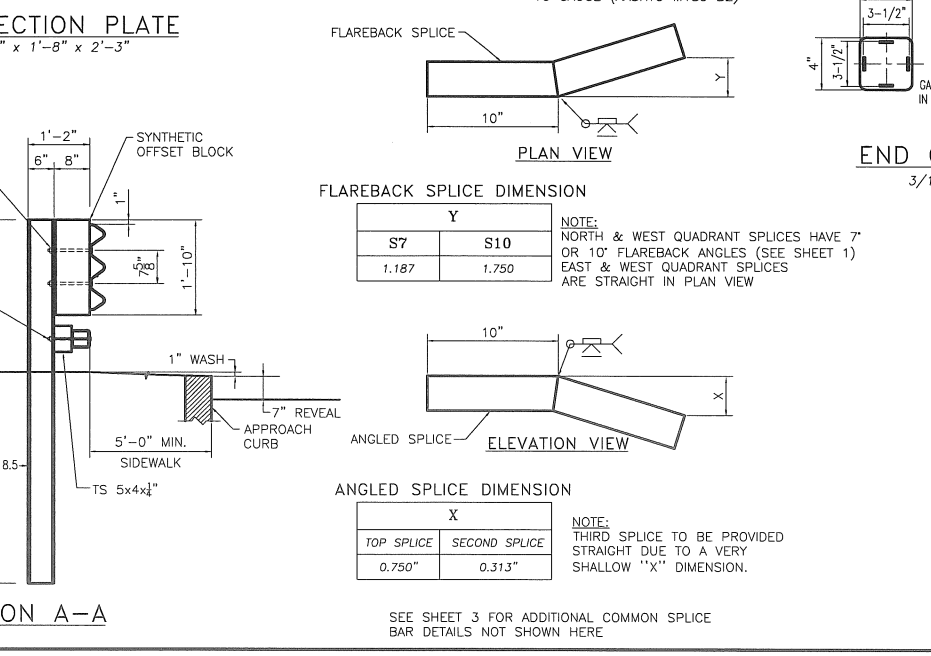
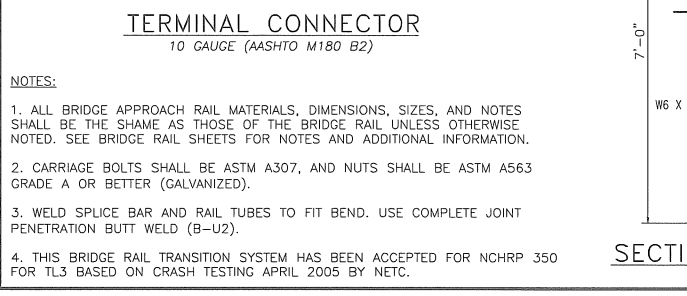
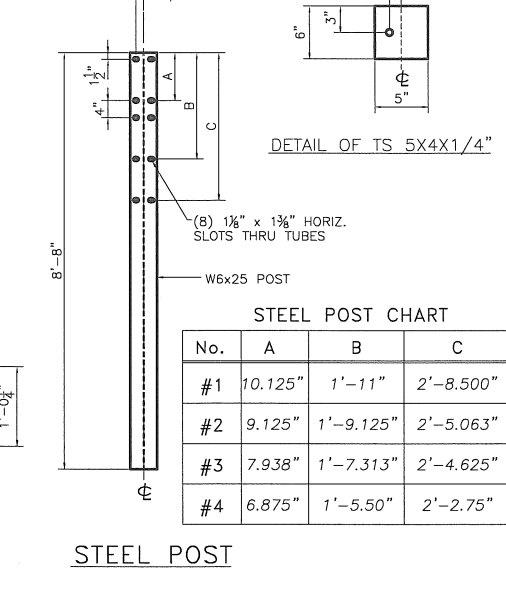
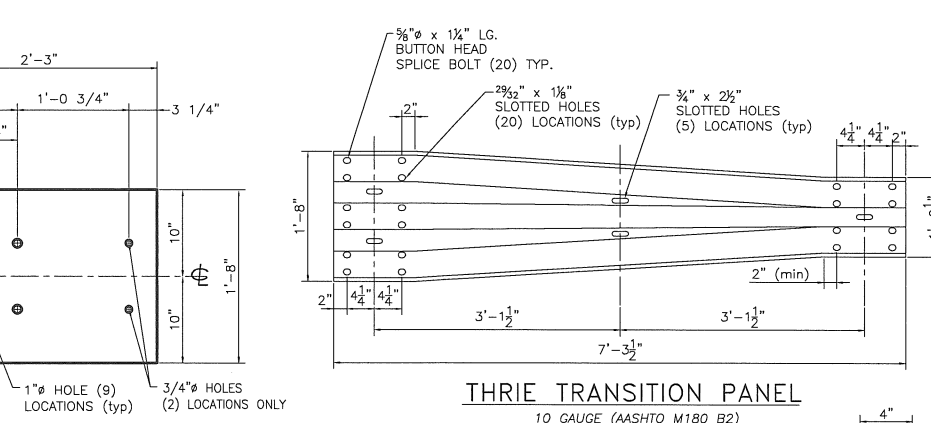
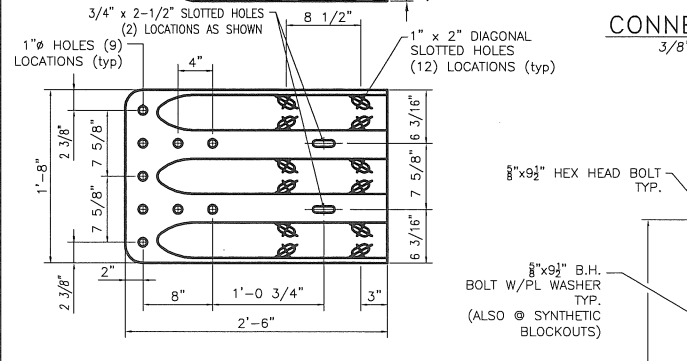
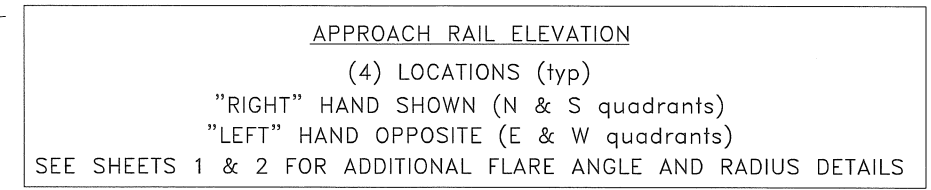
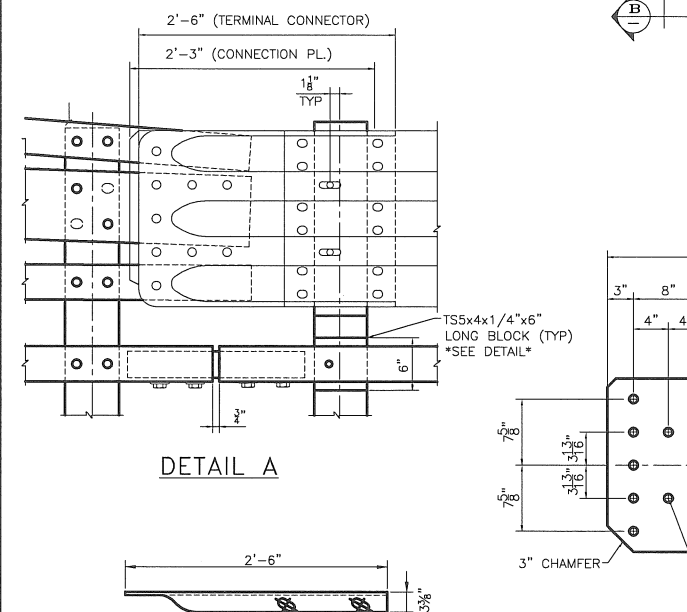
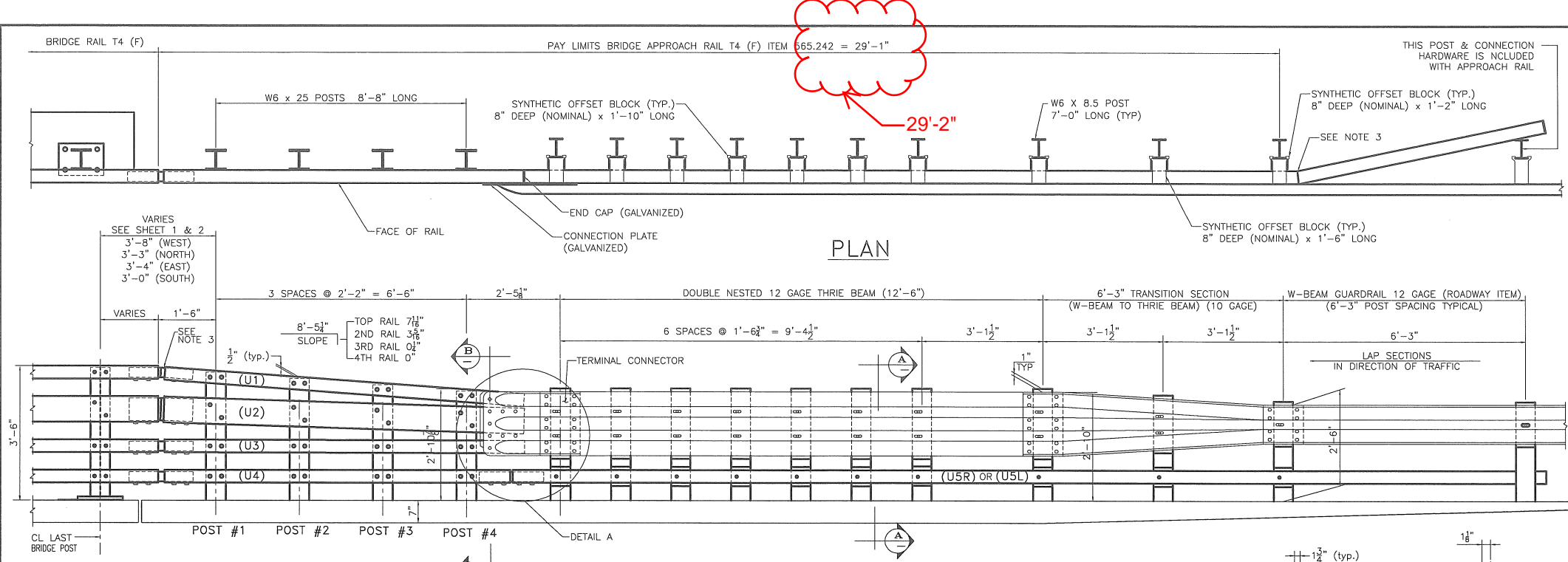
(Check mark designates action taken)
Hoyle Tanner
 Associates, Inc.
 Project No. **919101**
 Approval is only for general conformance with the design concept of the Project and the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at the job site; information that pertains solely to the fabrication process or to the means and methods of construction; coordination of the work of all trades; and performing all work in a safe and satisfactory manner. This approval does not modify Contractor's duty to comply with Contract Documents.
 Reviewed by **JCR** Date **4/9/2015**
 Checked by **EGW** Date **4/9/2015**

HIGHWAY SAFETY CORP
 GLASTONBURY, CT
 860-633-9445

ITEM 563.24 T4 BRIDGE RAILING
 ITEM 565.242 T4 BRIDGE RAILING APPROACH
 MANCHESTER ROAD OVER BEAVER BROOK
 TOWN OF AMHERST, NEW HAMPSHIRE

GENERAL CONTRACTOR
 SUB CONTRACTOR
 DRAWN PAR CHECKED DATE 03-20-15 SCALE NONE SIZE D

CERTIFIED FABRICATOR
 HSC JOB NO. **2034**
 SHEET NO. **3 of 4**



BILL OF MATERIAL

Qty	mk	Description	Spec
4	4R1	DRIVEN POST #1 (10-hole) W6 x 25 (8'-8" OAH)	A572 gr 50
4	4R2	DRIVEN POST #2 (10-hole) W6 x 25 (8'-8" OAH)	A572 gr 50
4	4R3	DRIVEN POST #3 (10-hole) W6 x 25 (8'-8" OAH)	A572 gr 50
4	4R4	DRIVEN POST #4 (10-hole) W6 x 25 (8'-8" OAH)	A572 gr 50
2		SPUCE TUBE UPPER RAIL angled down TS 3 x 3 x 5/16" - 20.000" LG. w/ 2 WELDED NUTS	A500 gr B
2		SPUCE TUBE FOR 8x4 RAIL angled down TS 7x3x3/8 1'-8" LG w/ 2 WELDED NUTS	A500 gr B
8		SPUCE TUBE FOR 4x4 RAIL TS 3x3x5/16 1'-8" LG w/ 2 WELDED NUTS	A500 gr B
1	S7	SPUCE TUBE UPPER RAIL angled down TS 3 x 3 x 5/16" - 20.000" LG. w/ 2 WELDED NUTS (7deg FLAREBACK)	A500 gr B
1	S7	SPUCE TUBE FOR 8x4 RAIL angled down TS 7x3x3/8 1'-8" LG w/ 2 WELDED NUTS (7deg FLAREBACK)	A500 gr B
2	S7	SPUCE TUBE FOR 4x4 RAIL TS 3x3x5/16 1'-8" LG w/ 2 WELDED NUTS (7deg FLAREBACK)	A500 gr B
1	S10	SPUCE TUBE UPPER RAIL angled down TS 3 x 3 x 5/16" - 20.000" LG. w/ 2 WELDED NUTS (10deg FLAREBACK)	A500 gr B
1	S10	SPUCE TUBE FOR 8x4 RAIL angled down TS 7x3x3/8 1'-8" LG w/ 2 WELDED NUTS (10deg FLAREBACK)	A500 gr B
2	S10	SPUCE TUBE FOR 4x4 RAIL TS 3x3x5/16 1'-8" LG w/ 2 WELDED NUTS (10deg FLAREBACK)	A500 gr B
3	U1	UPPER RAIL TUBE TS 4 x 4 x 1/4" x 9'-4.000" OAL	A500 Gr. B
3	U2	TRAFFIC RAIL TUBE TS 8 x 4 x 5/16" x 9'-4.000" OAL	A500 Gr. B
3	U3	THIRD RAIL TUBE TS 4 x 4 x 1/4" x 9'-4.000" OAL	A500 Gr. B
3	U4	LOWER RAIL TUBE TS 4 x 4 x 1/4" x 8'-11.625" OAL	A500 Gr. B
2	U5R	RIGHT HAND FLAREBACK TS 4 x 4 x 1/4" x 27'-0.4375" OAL	A500 Gr. B
1	U5L	LEFT HAND FLAREBACK TS 4 x 4 x 1/4" x 27'-0.4375" OAL	A500 Gr. B
1	U1a	UPPER RAIL TUBE TS 4 x 4 x 3/8" x 9'-4.000" OAL (SHOP CURVE 30°R)	A500 Gr. B
1	U2a	TRAFFIC RAIL TUBE TS 8 x 4 x 3/8" x 9'-4.000" OAL (SHOP CURVE 30°R)	A500 Gr. B
1	U3a	THIRD RAIL TUBE TS 4 x 4 x 3/8" x 9'-4.000" OAL (SHOP CURVE 30°R)	A500 Gr. B
1	U4a	LOWER RAIL TUBE TS 4 x 4 x 3/8" x 8'-11.625" OAL (SHOP CURVE 30°R)	A500 Gr. B
1	U5La	LEFT HAND FLAREBACK TS 4 x 4 x 3/8" x 27'-0.4375" OAL (SHOP CURVE 30°R)	A500 Gr. B
4		CONNECTION PLATE 3/8" x 1'-8" x 2'-3" OAL w/ bottom clipped 3"	A36
4		END CAP 3/16" x 4" x 8"	A36
12		END CAP 3/16" x 4" x 4"	A36
40		TUBE OFFSET BLOCK TS 5 x 4 x 1/4 x 6"	A500 Gr. B
32		THRIE POST W06 x 008.5# x 0700" 2 Hls @ 7' / 2 Hls @ 14.625' / 2 Hls @ 27.313"	A36
4		TRANSITION POST W06 x 008.5# x 0700" 2 Hls @ 6.875' / 2 Hls @ 11.375' / 2 Hls @ 25.875"	A36
8		DRIVEN POST W06 x 008.5# x 0700" 2 Hls @ 7.000' / 2 Hls @ 23.500"	A36
32		POLYETHYLENE BLOCK 4.0' x 8.0' x 21.5' ROUTED	POLY
4		POLYETHYLENE BLOCK THRIE 4" x 8" x 18" ROUTED FOR TRANSITION POST	POLY
8		POLYETHYLENE BLOCK 4.0' x 8.0' x 14.0' ROUTED	POLY
4		TERMINAL CONNECTOR 10 Ga. (with slotted holes)	M180 B2
6		THRIE PANEL 12GA x 1206.00" x 0106.75" HDG	M180 A2
2		THRIE PANEL 12GA x 1206.00" x 0106.75" HDG (SHOP CURVE 30°R CONVEX)	M180 A2
4		THRIE TRANSITION PANEL 10 Ga.	M180 B2
152		3/4" SLOTTED HEAD BOLT (GALV.) 0.750" DIA. X 6.000" LG. NO SHLDR	A325
80		5/8" HEX HEAD BOLT (GALV.) 0.625" DIA. X 1.750" LG.	A325
128		5/8" SPUCE BOLT (GALV.) 0.625" DIA. X 1.250" LG.	A307
80		3/4" SPACER PIPE 0.750" DIA. (SCH 40) x 1/2" LG.	A53 gr B
164		3/4" HEAVY HEX NUT (GALV.) 0.750" DIA.	A563 DH
176		TYPE A WIDE WASHER 0.813" I.D., 2.000" O.D., 5/32" THK	F436
262		5/8" DBL RECESSED NUT (GALV.) 0.625" DIA.	A563 Gr. A
92		(5/8") PLAIN ROUND WASHER (GALV.) 0.625" USS LARGE	F844
130		PLATE WASHER (GALV.) 0.188" x 1.750" x 3.000" OAL	A36
130		BOLT POST 0.625-11 x 09.500 HDG (5/8) A307	A307
12		3/4" ROUND HEAD BOLT (GALV.) 0.750" DIA. X 2.000" LG.	A307
4		BOLT POST 0.625-11 x 06.000 GALV (5/8) A307	A307

All steel bridge rail material to be Galvanized & Powder Coated by Duncan Galvanizing per NHDOT section 708
Top Coat Color = Dark Brown Fed Std #20062

Hoyle, Tanner & Associates, Inc. Project No. 919101

Approved as Noted (Resubmission not required) / Rejected (See accompanying letter) / No Action Required / Submittal Not Requested / Returned Without Review

Reviewed by JCR Date 4/9/2015
Checked by EGW Date 4/9/2015

HIGHWAY SAFETY CORP
GLASTONBURY, CT
860-633-9445

ITEM 563.24 T4 BRIDGE RAILING
ITEM 565.242 T4 BRIDGE RAILING APPROACH

MANCHESTER ROAD OVER BEAVER BROOK
TOWN OF AMHERST, NEW HAMPSHIRE

CERTIFIED FABRICATOR
2034
4 of 4

- NOTES:
- ALL BRIDGE APPROACH RAIL MATERIALS, DIMENSIONS, SIZES, AND NOTES SHALL BE THE SHAME AS THOSE OF THE BRIDGE RAIL UNLESS OTHERWISE NOTED. SEE BRIDGE RAIL SHEETS FOR NOTES AND ADDITIONAL INFORMATION.
 - CARRIAGE BOLTS SHALL BE ASTM A307, AND NUTS SHALL BE ASTM A563 GRADE A OR BETTER (GALVANIZED).
 - WELD SPlice BAR AND RAIL TUBES TO FIT BEND. USE COMPLETE JOINT PENETRATION BUTT WELD (B-U2).
 - THIS BRIDGE RAIL TRANSITION SYSTEM HAS BEEN ACCEPTED FOR NCHRP 350 FOR TL3 BASED ON CRASH TESTING APRIL 2005 BY NETC.

SEE SHEET 3 FOR ADDITIONAL COMMON SPlice BAR DETAILS NOT SHOWN HERE