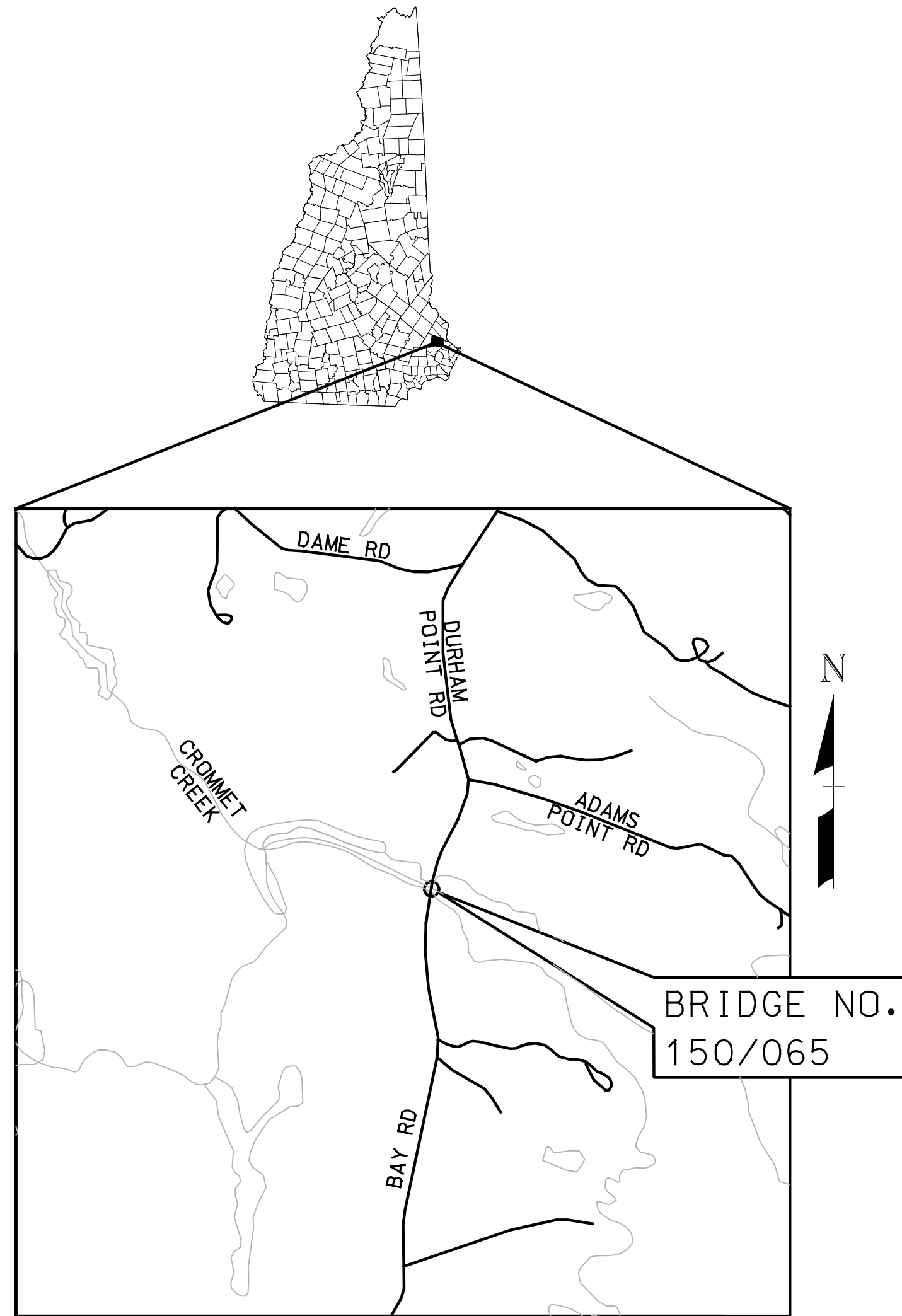


TOWN OF DURHAM DURHAM, NEW HAMPSHIRE STRAFFORD COUNTY



LOCATION MAP
SCALE: 1" = 1000'



PLANS OF REPAIRS TO THE DURHAM POINT ROAD BRIDGE OVER CROMMET CREEK (BR. NO. 150/065) MARCH 2016

GENERAL NOTES

- (1) GENERAL NOTES SHALL APPLY TO ALL DRAWINGS PREPARED BY HOYLE, TANNER & ASSOCIATES, INC. (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 AS-BUILT CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY, BEFORE PROCEEDING WITH THE WORK.
- (7) IN THE PREPARATION OF THESE DRAWINGS, HOYLE, TANNER HAS RELIED UPON INFORMATION OBTAINED FROM THE FOLLOWING PLANS:
 - TOWN OF DURHAM, N.H., DURHAM POINT ROAD, BRIDGE REPAIR, DATED OCTOBER 1992, PREPARED BY UNDERWOOD ENGINEERS, INC., 2 SHEETS.

THIS INFORMATION IS AVAILABLE FOR REVIEW DURING NORMAL BUSINESS HOURS AT THE OFFICE OF HOYLE, TANNER AND ASSOCIATES, INC., 150 DOW STREET, MANCHESTER, NH 03101.
- (8) 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 UNDERGROUND UTILITY TYPES AND LOCATIONS SHALL BE SUBSIDIARY TO THE CONTRACT.
- (9) 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.
 - * 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) 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.
- (11) THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SHORING AND BRACING REQUIRED DURING CONSTRUCTION.
- (12) 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.
- (13) THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING 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.

LEGEND

| | | | |
|---------|----------------------|-----------|---------------------------|
| ⊕ | UTILITY POLE | — GAS — | GAS LINE |
| ⊙ | GUY WIRE ANCHOR | — S — | SEWER |
| ☆ | UTILITY POLE W/LIGHT | — W — | WATER |
| □ | MAILBOX | — OE — | OVERHEAD UTILITY WIRES |
| ⊕ | CATCH BASIN | — o — | WOOD FENCE |
| ⊕ | WATER VALVE | — o — | STONE WALL |
| ⊕ | WATER SHUTOFF | --- | EXISTING EDGE OF PAVEMENT |
| ⊕ | HYDRANT | — — — — — | EDGE OF TRAVEL WAY |
| ⊕ | FLOODLIGHT | — d w — | DELINEATED WETLANDS |
| ⊕ | ELECTRIC METER | — — — — — | TREELINE |
| ⊕ | CON. SHRUB | — — — — — | APPROX. PROPERTY LINE |
| ⊕ | DEC. SHRUB | — — — — — | EDGE OF STREAM |
| ⊕ | SIGNS | — — — — — | CUT SLOPE |
| ⊕ | MANHOLE (SEWER, TEL) | — — — — — | FILL SLOPE |
| — TOB — | TOP OF BANK | ⊕ ⊕ ⊕ | TREES |

FINAL PLANS
NOT FOR CONSTRUCTION

DRAWING SIZES HAVE BEEN REDUCED.
DO NOT SCALE, USE DIMENSIONS GIVEN.

INDEX OF SHEETS

| SHEET NO. | DESCRIPTION |
|-----------|--|
| 1 OF 11 | TITLE SHEET |
| 2 OF 11 | CONSTRUCTION NOTES AND SUMMARY OF QUANTITIES |
| 3 OF 11 | ROADWAY TYPICAL SECTION AND DETAILS |
| 4 OF 11 | ROADWAY PLAN |
| 5 OF 11 | DETOUR PLAN |
| 6 OF 11 | GENERAL PLAN AND ELEVATION |
| 7 OF 11 | REPAIR DETAILS (1 OF 2) |
| 8 OF 11 | REPAIR DETAILS (2 OF 2) |
| 9 OF 11 | RAIL LAYOUT PLAN |
| 10 OF 11 | RAIL DETAILS (1 OF 2) |
| 11 OF 11 | RAIL DETAILS (2 OF 2) |

| REV | DESCRIPTION | DATE |
|-----|-------------|------|
| | | |
| | | |
| | | |
| | | |

| | | | | |
|------------|----------------|----------------|--------------|-----------------|
| MARCH 2016 | DESIGN BY: JAS | DRAWN BY: JFMS | CHKD. BY: JB | SCALE: AS SHOWN |
|------------|----------------|----------------|--------------|-----------------|

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

TOWN OF DURHAM
DURHAM, NEW HAMPSHIRE
DURHAM POINT ROAD OVER CROMMET CREEK
TITLE SHEET

PROJECT NO.: 902705
FILE NAME: 902705Fsc
MODEL NAME: 902705FSC

SHEET NO.
1
SHEET 1 OF 11

GENERAL CONSTRUCTION NOTES

- (1) THE BRIDGE WILL BE CLOSED DURING CONSTRUCTION AND TRAFFIC WILL BE DETOURED AROUND THE SITE (ITEM 619.1).
- (2) THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLYING, ERECTING, AND MAINTAINING PERMANENT CONSTRUCTION FENCING, SIGNS, AND/OR WARNING DEVICES AS APPROVED OR DIRECTED BY THE ENGINEER. ALL DEVICES SHALL CONFORM TO SECTION 619 OF THE NHDOT STANDARD SPECIFICATIONS AND THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). WORK ON THE PROJECT OR ANY SEPARATE ACTIVITY THEREIN SHALL NOT START UNTIL ALL REQUIRED SIGNS AND WARNING DEVICES ARE INSTALLED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. ALL COSTS SHALL BE INCLUDED IN ITEM 619.1.
- (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) ITEM 1002.1, REPAIRS OR REPLACEMENTS AS NEEDED - BRIDGE STRUCTURES SHALL INCLUDE ALL UNANTICIPATED WORK IN CONNECTION WITH THE SCOPE OF THIS PROJECT.
- (6) THE CONTRACTOR SHALL TAKE SPECIAL CARE TO ENSURE THAT NO DEBRIS FALLS INTO CROMMET CREEK DURING CONSTRUCTION OPERATIONS. THE ERECTION, MAINTENANCE AND REMOVAL OF TEMPORARY STRUCTURES OR OTHER METHODS TO PREVENT DEBRIS FROM FALLING INTO CROMMET CREEK, AND THE CONTRACTOR'S METHOD OF REMOVAL SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL. ALL COSTS SHALL BE INCLUDED IN ITEM 692.

TOPOGRAPHIC SURVEY NOTES

- (1) THE SURVEY FOR THIS PROJECT WAS COMPLETED BY:
SANFORD SURVEY AND ENGINEERING
597 NEW BOSTON ROAD BEDFORD, NH 03110
PHONE: (603) 472-2265
EARL J. SANFORD, LICENSED LAND SURVEYOR NO. 700
- (2) THE SURVEY CONSISTED OF 1 SHEET TITLED:
EXISTING CONDITIONS PLAN DURHAM POINT ROAD OVER CROMMET CREEK
DATED JANUARY 6, 2015
- (3) DATUMS SHOWN ON THESE DRAWINGS:
VERTICAL - NGVD 1929
HORIZONTAL - NAD83/86
- (4) WETLAND RESOURCES WITHIN THE SURVEY AREA WERE DELINEATED BY PETER SCHAUER (C.W.S. NO. 48) ON DECEMBER 22, 2014.

HYDRAULIC NOTE

- (1) THE PROPOSED CONSTRUCTION MAINTAINS THE EXISTING HYDRAULIC OPENING OF THE BRIDGE.

MOBILIZATION AREA NOTES

- (1) PRIOR TO COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR SHALL LAYOUT LIMITS OF TOWN'S RIGHT-OF-WAY WITHIN THE PROJECT LIMITS. COST IS INCLUDED UNDER ITEM 692, MOBILIZATION.
- (2) THE CONTRACTOR SHALL BE LIMITED TO MOBILIZATION WITHIN THE TOWN'S RIGHT-OF-WAY SHOWN IN THESE PLANS, UNLESS NOTED OTHERWISE. ADDITIONAL MOBILIZATION AREAS REQUIRED BY THE CONTRACTOR SHALL BE COORDINATED BY THE CONTRACTOR WITH THE AFFECTED PROPERTY OWNERS AND SHALL BE AT NO COST TO THE OWNER.

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-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 PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- (4) THE GRADE OF ASPHALT CEMENT SHALL BE PG 64-28.

STRUCTURAL STEEL NOTES

- (1) NO STRUCTURAL STEEL REPAIRS ARE REQUIRED.
- (2) THE TWO EXISTING EXTERIOR BEAMS SHALL BE PAINTED WITHIN THE LIMITS SHOWN ON THESE PLANS.
- (3) THE CONTRACTOR IS ADVISED THAT THE EXISTING PAINT SYSTEM ON THE EXISTING BRIDGE MAY BE LEAD-BEARING PAINT AND CONTAIN HAZARDOUS CONCENTRATIONS OF LEAD.
- (4) THE CONTRACTOR SHALL IMPLEMENT SPECIAL CONTROLS FOR THE PROTECTION OF CONTRACTOR WORKERS, THE PUBLIC AND THE ENVIRONMENT, AND FOR THE HANDLING AND DISPOSAL OF WASTE.
- (5) INSPECT AND PREPARE EXPOSED SURFACES OF EXTERIOR BEAMS PRIOR TO APPLICATION OF PAINT BY REMOVING ALL CONTAMINANTS INCLUDING; DUST, RUST, GREASE, OIL, MILDEW, LOOSE PAINT, LOOSE RUST, OR ANY OTHER SURFACE CONTAMINANT WHICH MAY AFFECT ADHESION.
- (6) PAINT SYSTEM SHALL INCLUDE AN ACRYLIC RUST INHIBITING PRIMER, LEAD ENCAPSULATING/SEALING COMPOUND AND A TOP COAT FINAL COLOR. APPLICATION OF PRIMER AND COMPOUND SHALL BE PER MANUFACTURER'S RECOMMENDATION. THE OWNER SHALL SELECT THE TOP COAT FINAL COLOR.
- (7) CLEANING AND PAINTING EXISTING STRUCTURAL STEEL SHALL BE PAID FOR UNDER ITEM 556.101, PAINTING EXISTING STRUCTURAL STEEL.
- (8) THE EIGHT EXISTING BRIDGE RAIL POSTS (FOUR EACH SIDE OF BRIDGE) AND POST BRACING SHALL BE PAINTED ON ALL EXPOSED SURFACES WITH THE TOP COAT FINAL COLOR.

SUBSTRUCTURE REHABILITATION NOTES

- (1) EXISTING ABUTMENT CONCRETE CAPS SHALL BE INSPECTED FOR DETERIORATED CONCRETE JOINTLY BY THE RESIDENT ENGINEER AND CONTRACTOR. ALL DETERIORATED CONCRETE SHALL BE REMOVED TO SOUND CONCRETE. SAWCUT THE CONCRETE 1" DEEP, UNLESS NOTED OTHERWISE, ON ALL EXPOSED CONCRETE SURFACES TO PROVIDE CLEAN REMOVAL LINES. COST OF INSPECTION, REMOVAL, AND CLEANING SHALL BE PAID FOR UNDER ITEM 512.99, CONCRETE REPAIR.
- (2) CONCRETE SHALL BE REMOVED IN A MANNER WHICH AVOIDS DAMAGE TO EXISTING REINFORCING STEEL AND CONCRETE TO REMAIN. EXISTING REINFORCING STEEL OR CONCRETE DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED OR REPLACED AS DIRECTED BY THE RESIDENT ENGINEER AT THE CONTRACTOR'S EXPENSE. REINFORCING STEEL TO BE RETAINED SHALL BE WIRE BRUSHED CLEAN OF ALL FOREIGN MATERIAL. ALL COSTS SHALL BE INCLUDED IN ITEM 512.99, CONCRETE REPAIR.
- (3) USE OF CHIPPING HAMMERS HEAVIER THAN NOMINAL 15 POUND CLASS ARE NOT PERMITTED.
- (4) PRIOR TO PLACING NEW CONCRETE, THE REMOVAL SURFACES OF THE EXISTING CONCRETE SHALL BE BLAST CLEANED AND PREPARED TO A SATURATED SURFACE-DRY CONDITION. ALL COSTS SHALL BE INCLUDED IN ITEM 512.99, CONCRETE REPAIR.
- (5) REPAIR MATERIAL USED TO RECONSTRUCT THE SOUTH ABUTMENT CONCRETE CAP, AS SHOWN ON THESE PLANS, AND PLACED IN DETERIORATED AREAS SHALL BE PAID FOR UNDER ITEM 512.99, CONCRETE REPAIR.
- (6) HOLES DRILLED IN EXISTING CONCRETE SHALL BE DRILLED 1/2" LARGER THAN THE BAR DIAMETER AND GROUTED WITH AN APPROVED HIGH STRENGTH, NON-SHRINK GROUT LISTED UNDER SECTION 528 OF THE NHDOT QUALIFIED PRODUCTS LIST. REINFORCING STEEL SHALL HAVE A MINIMUM EMBEDMENT LENGTH OF 1'-0" UNLESS OTHERWISE NOTED. ALL COSTS FOR DRILLING AND GROUTING SHALL BE SUBSIDIARY TO ITEM 512.99, UNLESS OTHERWISE NOTED.
- (7) ALL NEW REINFORCING STEEL SHALL HAVE A 2 1/2" MINIMUM CLEAR COVER.
- (8) ALL NEW REINFORCING STEEL ON THIS PROJECT SHALL BE EPOXY COATED.
- (9) REINFORCING STEEL SHALL BE PAID UNDER ITEM 512.99, CONCRETE REPAIR.

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, SHIELDING NECESSARY FOR EQUIPMENT MOBILIZATION 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 692, MOBILIZATION

OVERHEAD UTILITY OWNER INFORMATION:
EVERSOURCE ENERGY
PHONE: 1-800-362-7764

FAIRPOINT COMMUNICATIONS
PHONE: (866) 984-3001

COMCAST
PHONE: (800) 266-2278

- (2) THE CONTRACTOR SHALL COORDINATE THE LOCATION AND SCHEDULE FOR TEMPORARY RELOCATION OF THE OVERHEAD UTILITY, IF REQUIRED, WITH THE ABOVE UTILITY COMPANIES.

ROADWAY DESIGN NOTES

- (1) DESIGN SPEED: 30 MPH
- (2) THE DESIGN SPEED IS THE POSTED SPEED. ALL ATTEMPTS WERE MADE TO MEET AASHTO GUIDELINES FOR 30 MPH. HOWEVER DUE TO THE TYPE OF PROJECT, BRIDGE MAINTENANCE, MANY ROADWAY DESIGN ELEMENTS DO NOT MEET THE GUIDELINE.

SUMMARY OF QUANTITIES

| ITEM NO. | ITEM DESCRIPTION | Quantity | |
|----------|---|----------|--------|
| | | Unit | Amount |
| 202.7 | REMOVAL OF GUARDRAIL | LF | 615 |
| 203.1 | COMMON EXCAVATION | CY | 200 |
| 203.6 | EMBANKMENT-IN-PLACE (F) | CY | 50 |
| 214 | FINE GRADING | U | 1 |
| 304.31 | CRUSHED GRAVEL FOR SHIMMING | CY | 55 |
| 304.32 | CRUSHED GRAVEL FOR SHOULDER LEVELING | TON | 60 |
| 403.11 | HOT BITUMINOUS PAVEMENT, MACHINE METHOD | TON | 170 |
| 403.12 | HOT BITUMINOUS PAVEMENT, HAND METHOD | TON | 10 |
| 403.6 | PAVEMENT JOINT ADHESIVE | LF | 750 |
| 417 | COLD PLANING BITUMINOUS SURFACES | SY | 125 |
| 512.99 | CONCRETE REPAIR | U | 1 |
| 538.5 | BARRIER MEMBRANE, HEAT WELDED (F) | SY | 55 |
| 550.1 | STRUCTURAL STEEL (F) | LB | 600 |
| 556.101 | PAINTING EXISTING STRUCTURAL STEEL | U | 1 |
| 571.1 | CHINKING STONE MASONRY | U | 1 |
| 585.2 | STONE FILL, CLASS B | CY | 25 |
| 606.417 | PORTABLE CONCRETE BARRIER FOR TRAFFIC CONTROL | LF | 40 |
| 606.5266 | TIMBER APPROACH RAIL (2-RAIL) | LF | 606 |
| 615.03 | TRAFFIC SIGN TYPE C (F) | SF | 17 |
| 619.1 | MAINTENANCE OF TRAFFIC | U | 1 |
| 621.31 | SINGLE DELINEATOR WITH POST | EA | 2 |
| 621.32 | DOUBLE DELINEATOR WITH POST | EA | 2 |
| 628.2 | SAWED BITUMINOUS PAVEMENT | LF | 85 |
| 632.0104 | RETROREFLECTIVE PAINT PAVE. MARKING, 4" LINE | LF | 1600 |
| 646.51 | TURF ESTABLISHMENT WITH MULCH, TACKIFIERS AND LOAM | SY | 180 |
| 645.512 | COMPOST SOCK FOR PERIMETER BERM | LF | 1100 |
| 645.531 | SILT FENCE | LF | 1100 |
| 645.7 | STORM WATER POLLUTION PREVENTION PLAN | U | 1 |
| 645.71 | MONITORING SWPPP AND EROSION AND SEDIMENT CONTROLS | HR | 8 |
| 692 | MOBILIZATION | U | 1 |
| 699 | MISCELLANEOUS TEMPORARY EROSION AND SEDIMENT CONTROL | \$ | 1 |
| 1002.1 | REPAIRS OR REPLACEMENTS AS NEEDED - BRIDGE STRUCTURES | \$ | 1 |

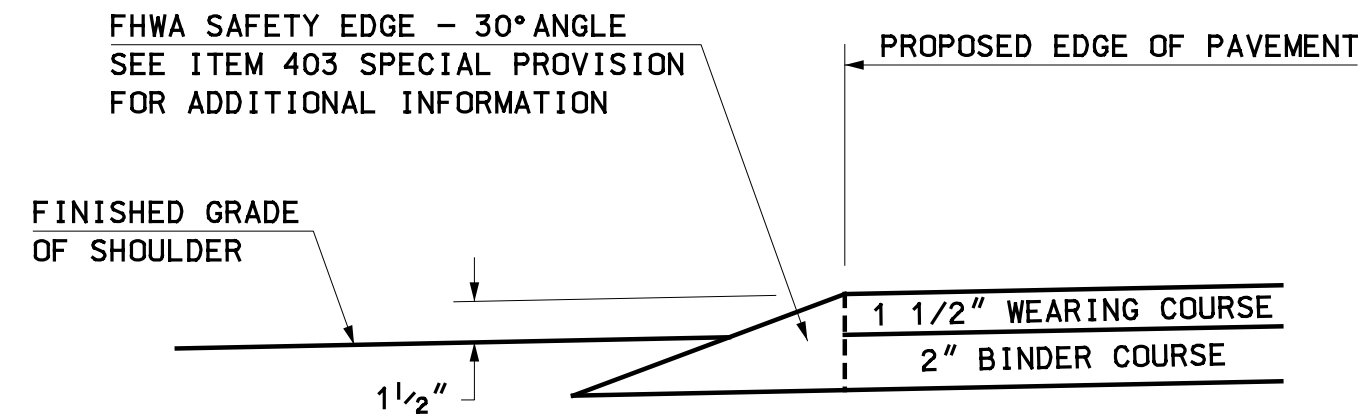
| REV | DESCRIPTION | DATE |
|-----|-------------|------|
| | | |
| | | |
| | | |

MARCH 2016
DESIGN BY: JAS
DRAWN BY: JFMS
CHKD. BY: JB
SCALE: AS SHOWN

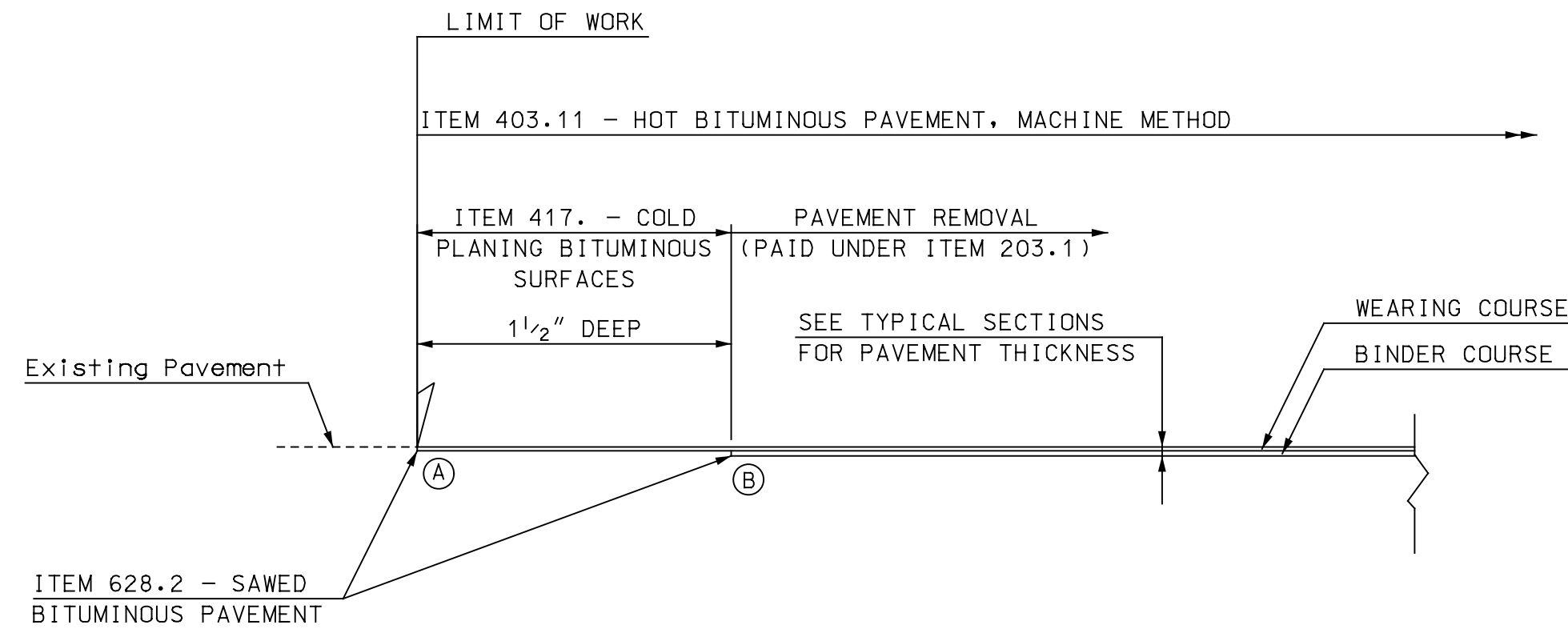
Hoyle, Tanner & Associates, Inc.
150 Dow Street, Manchester, NH 03101-1227
Tel (603) 669-5555 - Fax (603) 669-4168
www.foyletanner.com

TOWN OF DURHAM
DURHAM, NEW HAMPSHIRE
DURHAM POINT ROAD OVER CROMMET CREEK
CONSTRUCTION NOTES AND SUMMARY OF QUANTITIES

3/28/2016 3:22:06 PM K:\902705\2-CADD\BRC-Detail\902705NTS1.dgn

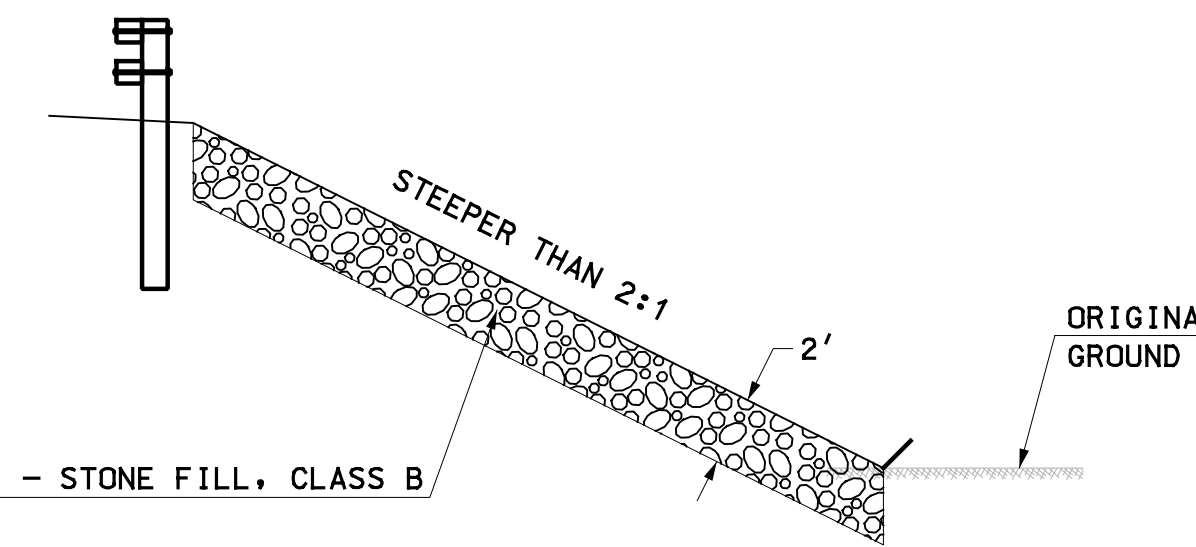
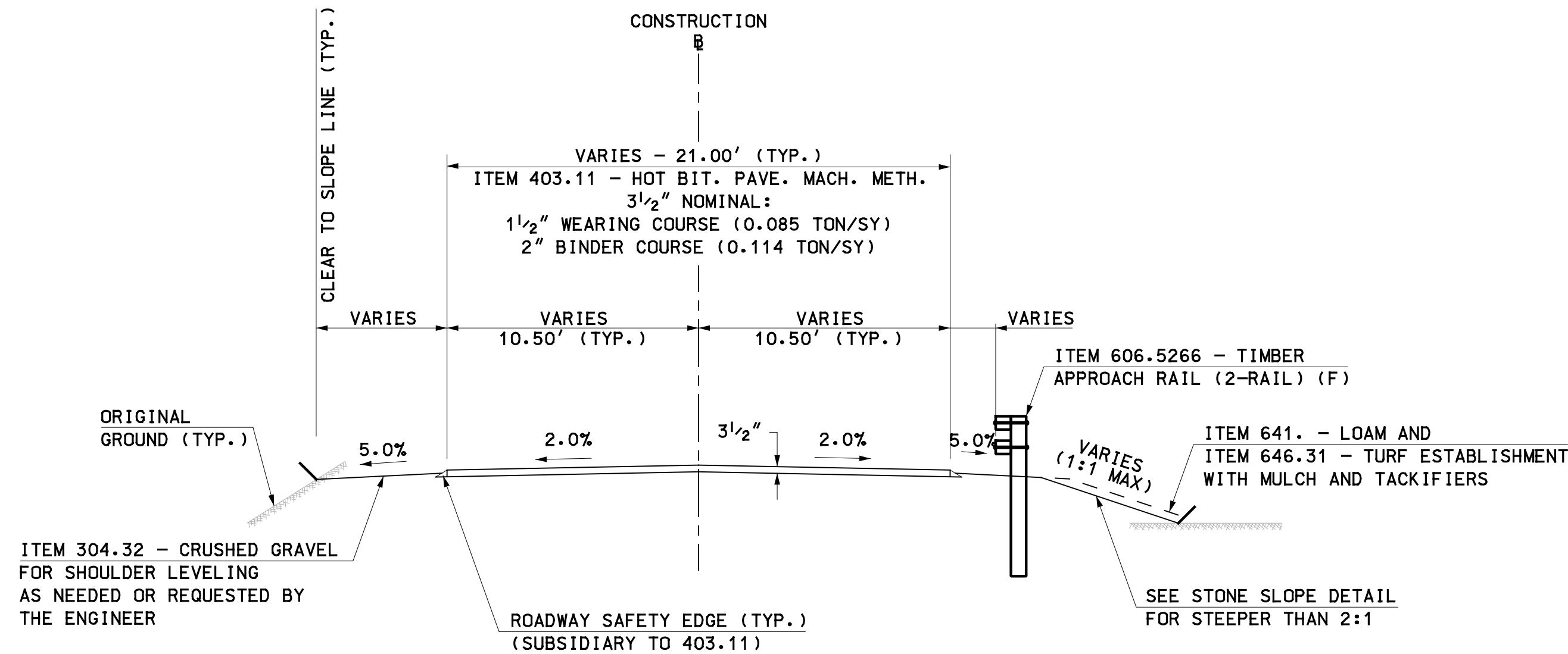


ROADWAY SAFETY EDGE DETAIL
NOT TO SCALE



| STATION | |
|------------|------------|
| WEARING | BINDER |
| (A) 101+50 | (B) 101+75 |
| 105+50 | 105+25 |

PAVEMENT MATCH DETAIL
NOT TO SCALE



STONE SLOPE DETAIL
102+70 TO 103+00 RT.
103+60 TO 104+00 LT.
NOT TO SCALE

GENERAL NOTES:

1. THE REMOVAL OF EXISTING PAVEMENT FROM STATION 101+75 TO 105+25 WILL BE PAID AS ITEM 203.1 - COMMON EXCAVATION.
2. MATCH EXISTING ELEVATIONS AT CONSTRUCTION B AS CLOSELY AS POSSIBLE WHILE INTRODUCING A NORMAL CROWN (2.0% CROSS SLOPES) SECTION, UNLESS NOTED ON THE PLANS (GRADING TABLE ON ROADWAY PLAN). ITEM 214. - FINE GRADING IS PAID FOR SHAPING ROADWAY SELECT MATERIALS AFTER PAVEMENT REMOVAL. ITEM 304.31 - CRUSHED GRAVEL FOR SHIMMING, SHALL BE USED AS APPROVED BY THE ENGINEER TO OBTAIN NORMAL CROWN.
3. ITEM 403.6 - PAVEMENT JOINT ADHESIVE SHALL BE APPLIED TO ALL LONGITUDINAL JOINTS ON ALL PAVEMENT COURSES.

PAVEMENT LAYOUT INFORMATION

| DESCRIPTION | STATION | |
|--------------------------|------------------|------------------|
| | LEFT | RIGHT |
| MATCH EXISTING | 101+50 TO 101+75 | 101+50 TO 101+75 |
| MATCH EXISTING TO 10.50' | 101+75 TO 102+00 | 101+75 TO 102+00 |
| 10.50' CONSTANT | 102+00 TO 102+95 | 102+00 TO 103+00 |
| 10.50' TO BRIDGE | 102+95 TO 103+02 | 103+00 TO 103+11 |
| MATCH BRIDGE | 103+02 TO 103+53 | 103+11 TO 103+61 |
| BRIDGE TO 10.50' | 103+53 TO 103+60 | 103+61 TO 103+70 |
| 10.50' CONSTANT | 103+60 TO 105+00 | 103+70 TO 105+00 |
| 10.50' TO MATCH EXISTING | 105+00 TO 105+25 | 105+00 TO 105+25 |
| MATCH EXISTING | 105+25 TO 105+50 | 105+25 TO 105+50 |

DURHAM POINT ROAD
(STA. 101+75 TO STA. 105+25)
NOT TO SCALE

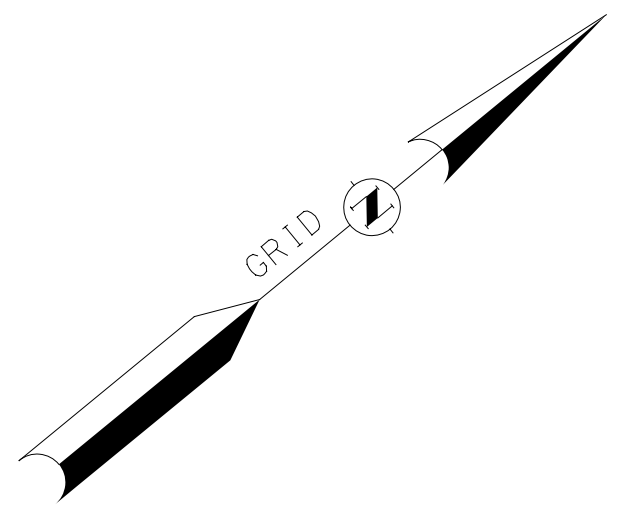
| REV | DESCRIPTION | DRW | CHKD | BY | DATE |
|------------|-----------------|-----|------|----|------|
| MARCH 2016 | DESIGN BY: JFMS | | | | |
| | DRAWN BY: JCC | | | | |
| | CHKD. BY: SBH | | | | |
| | SCALE: AS SHOWN | | | | |

Hoyle, Tanner & Associates, Inc.
150 Dow Street, Manchester, NH 03101-1227
Tel (603) 669-5555 - Fax (603) 669-4188
www.hoyletanner.com

TOWN OF DURHAM
DURHAM, NEW HAMPSHIRE
DURHAM POINT ROAD OVER CROMMET CREEK
ROADWAY TYPICAL SECTION AND DETAILS

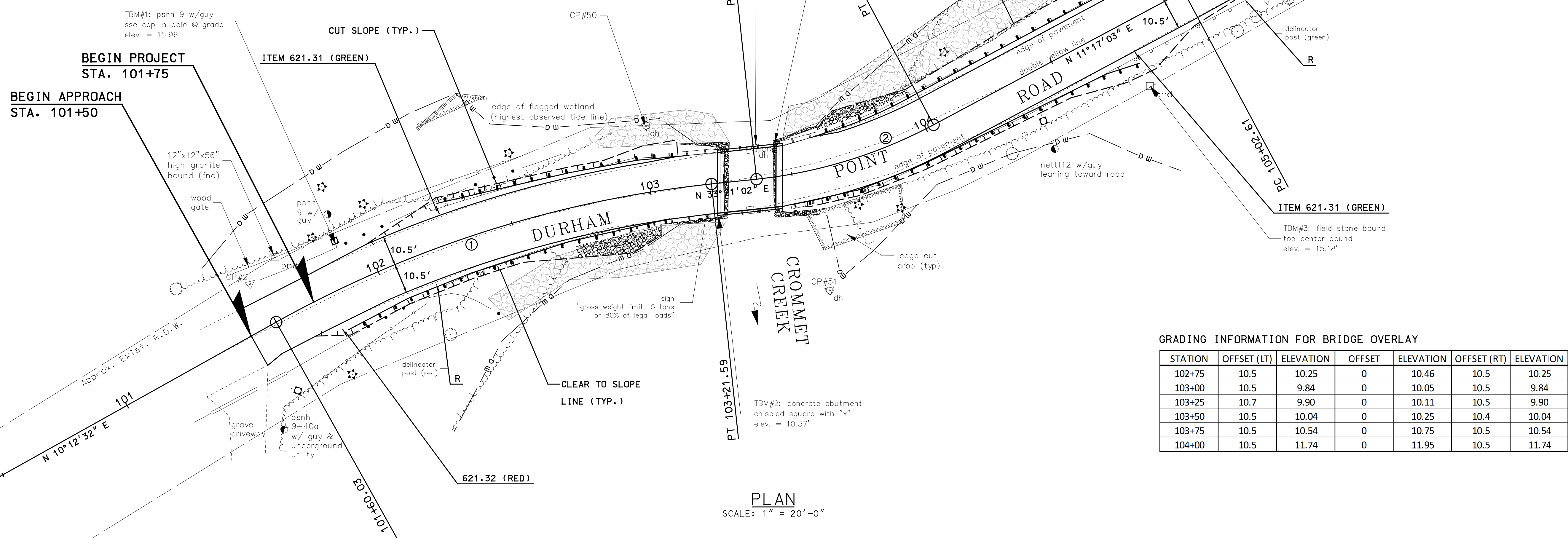
PROJECT NO.: 902705
FILE NAME: 902705TYP00
MODEL NAME: 902705TYP01
SHEET NO.

3



ALIGNMENT DATA:

| CURVE No. 1 | CURVE No. 2 | CURVE No. 3 |
|-------------------|-------------------|-------------------|
| PI = 102+41.93 | PI = 103+70.64 | PI = 105+42.35 |
| N = 218873.79722 | N = 218983.18320 | N = 219152.37172 |
| E = 1193384.71066 | E = 1193456.70224 | E = 1193490.46072 |
| Δ = 23°08'30.65" | Δ = 22°03'59.35" | Δ = 3°02'06.06" |
| T = 81.90' | T = 33.15' | T = 39.74' |
| R = 400.00' | R = 170.00' | R = 1500.00' |
| L = 161.56' | L = 65.47' | L = 79.46' |
| E = 8.30' | E = 3.20' | E = 0.53' |



GRADING INFORMATION FOR BRIDGE OVERLAY

| STATION | OFFSET (LT) | ELEVATION | OFFSET | ELEVATION | OFFSET (RT) | ELEVATION |
|---------|-------------|-----------|--------|-----------|-------------|-----------|
| 102+75 | 10.5 | 10.25 | 0 | 10.46 | 10.5 | 10.25 |
| 103+00 | 10.5 | 9.84 | 0 | 10.05 | 10.5 | 9.84 |
| 103+25 | 10.7 | 9.90 | 0 | 10.11 | 10.5 | 9.90 |
| 103+50 | 10.5 | 10.04 | 0 | 10.25 | 10.4 | 10.04 |
| 103+75 | 10.5 | 10.54 | 0 | 10.75 | 10.5 | 10.54 |
| 104+00 | 10.5 | 11.74 | 0 | 11.95 | 10.5 | 11.74 |

PLAN
SCALE: 1" = 20'-0"

VERTICAL CONTROL TABLE

| NUMBER | ELEVATION | STATION | OFFSET | DESCRIPTION |
|--------|-----------|-----------|------------|--------------------------|
| TBM#1 | 15.96 | 101+90.52 | LT. 14.86' | SSE CAP IN POLE AT GRADE |
| TBM#2 | 10.57 | 103+22.87 | RT. 11.74' | CHISELED SQUARE WITH "X" |
| TBM#3 | 15.18 | 104+76.47 | RT. 23.79' | TOP CENTER BOUND |

HORIZONTAL CONTROL TABLE

| NUMBER | NORTHING | EASTING | ELEVATION | STATION & OFFSET* | DESCRIPTION |
|--------|-------------|--------------|-----------|---------------------|--------------------------|
| CP#1 | 218578.6248 | 1193320.8990 | 43.08 | N/A | HUB & TACK SET/NOT SHOWN |
| CP#2 | 218794.5626 | 1193354.0782 | 17.67 | 101+58.5, RT. 16.1' | HUB & TACK SET |
| CP#4 | 219134.1688 | 1193503.5409 | 23.34 | 105+27.3, RT. 16.2' | HUB & TACK SET |
| CP#5 | 219295.3895 | 1193527.1902 | 46.52 | N/A | HUB & TACK SET/NOT SHOWN |
| CP#50 | 218937.4318 | 1193399.3942 | 6.25 | 103+02.0, LT. 23.3' | GPS PNT DRILL HOLE SET |
| CP#51 | 218950.5830 | 1193485.0280 | 6.71 | 103+54.7, RT. 42.7' | GPS PNT DRILL HOLE SET |

*FOR INFORMATIONAL PURPOSES ONLY, TO LOCATE POINT

SIGN SUMMARY - ITEM 615.03

| MUTCD SIGN DESIGNATION | LOCATION | DESCRIPTION | SIZE | SQ. FT. | NO. REQ. | TOTAL AREA | POST | COLOR |
|------------------------|--|-------------|-----------|---------|----------|------------|-----------------------------|-------|
| W1-3R | 101+50, RT. 13.0' 105+05, LT. 13.0' | | 30" X 30" | 6.25 | 2 | 12.5 | STEEL U-CHANNEL | B/Y |
| W13-1P | N/A | | 18" X 18" | 2.25 | 2 | 4.5 | MOUNT ON SAME POST AS W1-3R | B/Y |

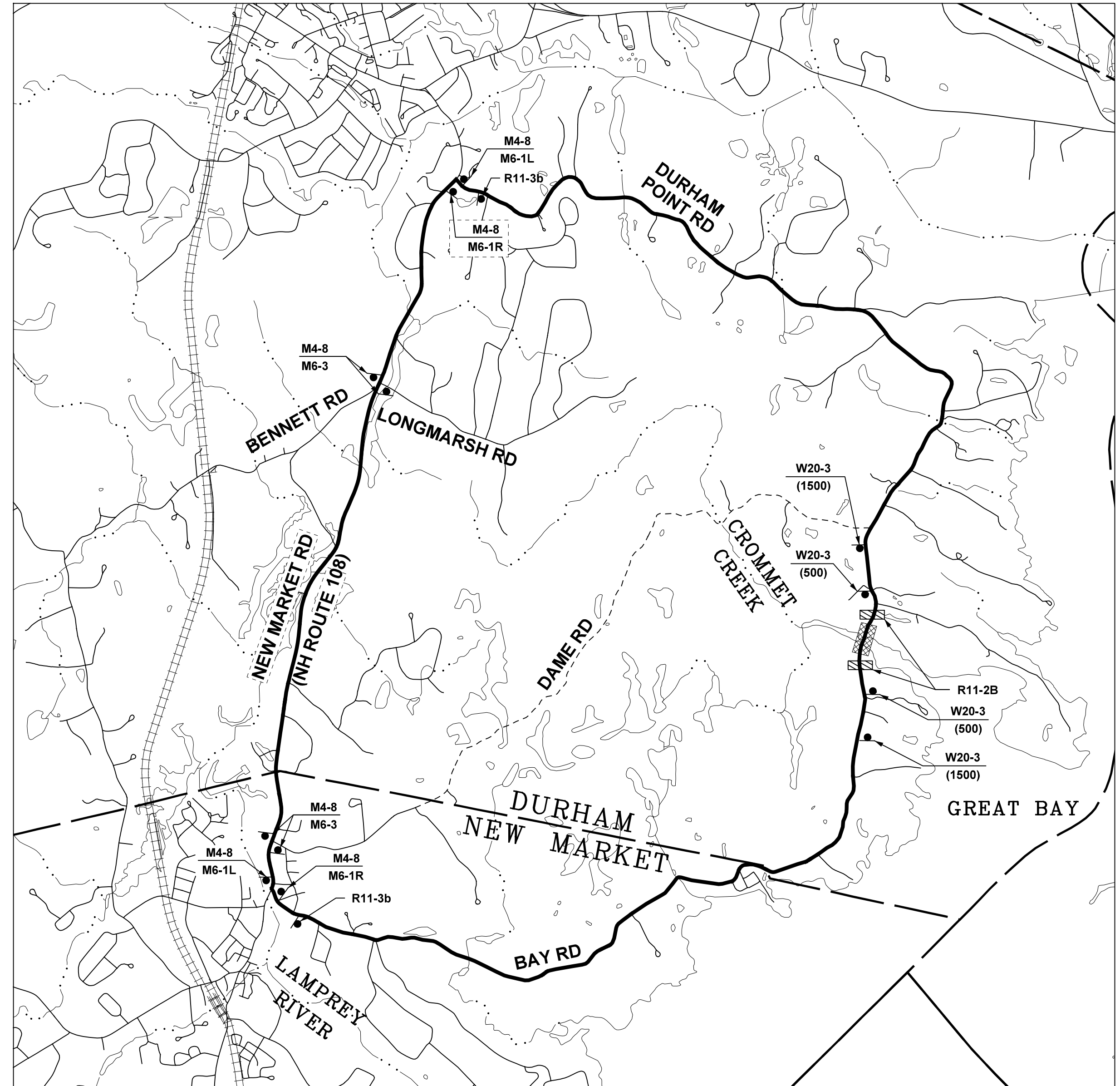
- NOTES:**
- THE TWO EXISTING "GROSS WEIGHT LIMIT 15 TONS OR 80% OF LEGAL LOADS" SIGNS ARE TO BE REMOVED AND RESET, SUBSIDIARY TO ITEM 692.
 - REMOVE EXISTING GUARDRAIL AND BRIDGE RAIL FROM STATION 102+20 TO 105+20 RT. AND STATION 102+25 TO 105+40 LT., PAID AS ITEM 202.7 - REMOVAL OF GUARDRAIL.
 - REMOVAL OF EXISTING DELINEATORS SHALL BE SUBSIDIARY TO ITEM 202.7 - GUARDRAIL REMOVAL AND SHALL BE SALVAGED TO THE TOWN.
 - INSTALL DOUBLE SOLID LINE (YELLOW) ALONG ALIGNMENT FROM STATION 101+50 TO 105+50, PAID AS ITEM 632.0104 - RETROREFLECTIVE PAINT PAVE. MARKING, 4" LINE.
 - SEE RAIL LAYOUT PLAN FOR GUARDRAIL LAYOUT INFORMATION.
 - STATION 102+25 LT., POTENTIAL CONFLICT BETWEEN GUARDRAIL POST AND DITCH FLOW LINE. REGRADE DITCH TO AVOID GUARDRAIL POST BEING PLACED IN MIDDLE OF FLOWLINE, PAID FOR SUBSIDIARY TO 606.5266.
 - PAVEMENT LAYOUT INFORMATION IS ON THE ROADWAY TYPICAL SECTION AND DETAILS SHEET.

| REV | DESCRIPTION | DATE |
|---|-------------------------------|----------|
| MARCH 2016 <td>DESIGN BY: JFMS <td>JCC </td></td> | DESIGN BY: JFMS <td>JCC </td> | JCC |
| | DRAWN BY: SBH | AS SHOWN |

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

TOWN OF DURHAM
DURHAM, NEW HAMPSHIRE
DURHAM POINT ROAD OVER CROMMET CREEK
ROADWAY PLAN
PROJECT NO.: 902705
FILE NAME: 902705G00
MODEL NAME: 902705G01
SHEET NO.
4
SHEET 4 OF 11

3/28/2016 3:22:08 PM K:\902705-2-CADD\DWG\CutSheet\902705G00.dgn



DETOUR ROUTE LENGTH = 10.8 MILES ±
DETOUR ROUTE PLAN

SCALE: 1" = 2000'

| LEGEND | | | |
|--------|-----------------------------|----|-------------------------------|
| — | PAVED ROAD | * | MOUNTED ON TYPE III BARRICADE |
| - - - | UNPAVED ROAD | ** | MOUNTED ON POST WITH M4-8 |
| ● | TEMPORARY CONSTRUCTION SIGN | B | BLACK |
| ▨ | TYPE III BARRICADE | W | WHITE |
| ▩ | APPROX. PROJECT LOCATION | O | ORANGE |
| — | DETOUR ROUTE | | |

| CONSTRUCTION SIGNS AND WARNING DEVICES | | | | | | | |
|--|-------------|-----------|---------|---------|------------|-----------------|-------|
| TYPE | DESCRIPTION | SIZE WxH | SO. FT. | NO REQ. | TOTAL AREA | POST | COLOR |
| M4-8 | | 24" x 12" | 2.0 | 8 | 16 | 1 POST PER SIGN | B/O |
| M6-1L | | 21" x 15" | 2.19 | 2 | 4.38 | ** | B/W |
| M6-1R | | 21" x 15" | 2.19 | 2 | 4.38 | ** | B/W |
| M6-3 | | 21" x 15" | 2.19 | 4 | 8.75 | ** | B/W |
| R11-2B | | 48" x 30" | 10 | 2 | 20 | * | B/W |
| R11-3b | | 60" x 30" | 12.5 | 2 | 25 | 2 POST PER SIGN | B/W |
| W20-3 (500) | | 30" x 30" | 6.25 | 2 | 12.5 | 1 POST PER SIGN | B/O |
| W20-3 (1500) | | 30" x 30" | 6.25 | 2 | 12.5 | 1 POST PER SIGN | B/O |

TRAFFIC CONTROL NOTES

- TRAFFIC CONTROL DEVICES SHALL CONFORM TO SECTION 619 OF THE NHDOT STANDARD SPECIFICATIONS, AND THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), AS PUBLISHED BY THE U.S. DEPARTMENT OF TRANSPORTATION 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 HIS PLANNED METHODS OF OPERATION IN CONFORMANCE WITH THE MUTCD.
- 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.
- THE CONTRACTOR SHALL COORDINATE THEIR EFFORTS WITH ANY AND ALL ADJACENT CONSTRUCTION PROJECTS.

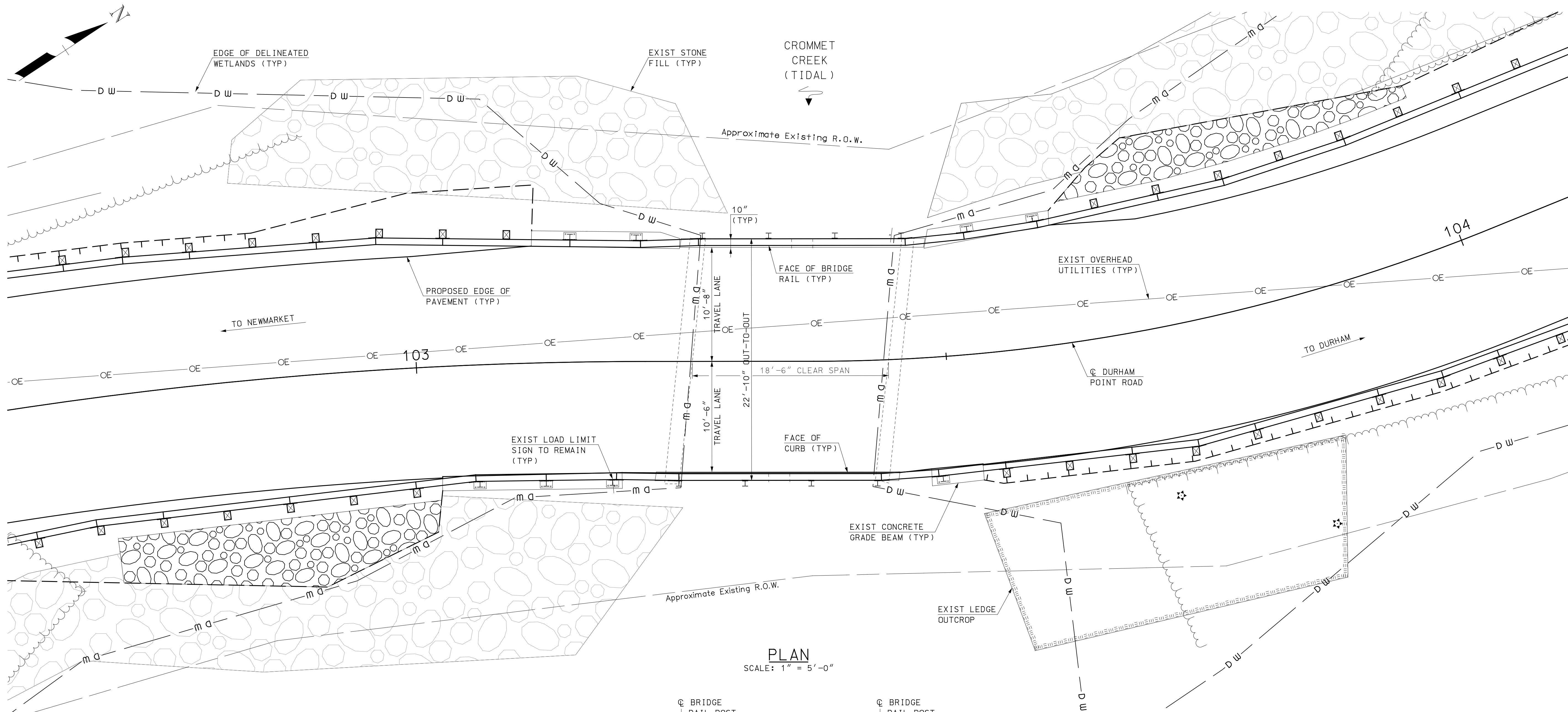
| REV | DESCRIPTION | DATE |
|-----|-------------|------|
| | | |
| | | |
| | | |

MARCH 2016
 DESIGN BY: JFMS
 DRAWN BY: JCC
 CHKD. BY: SBH
 SCALE: AS SHOWN

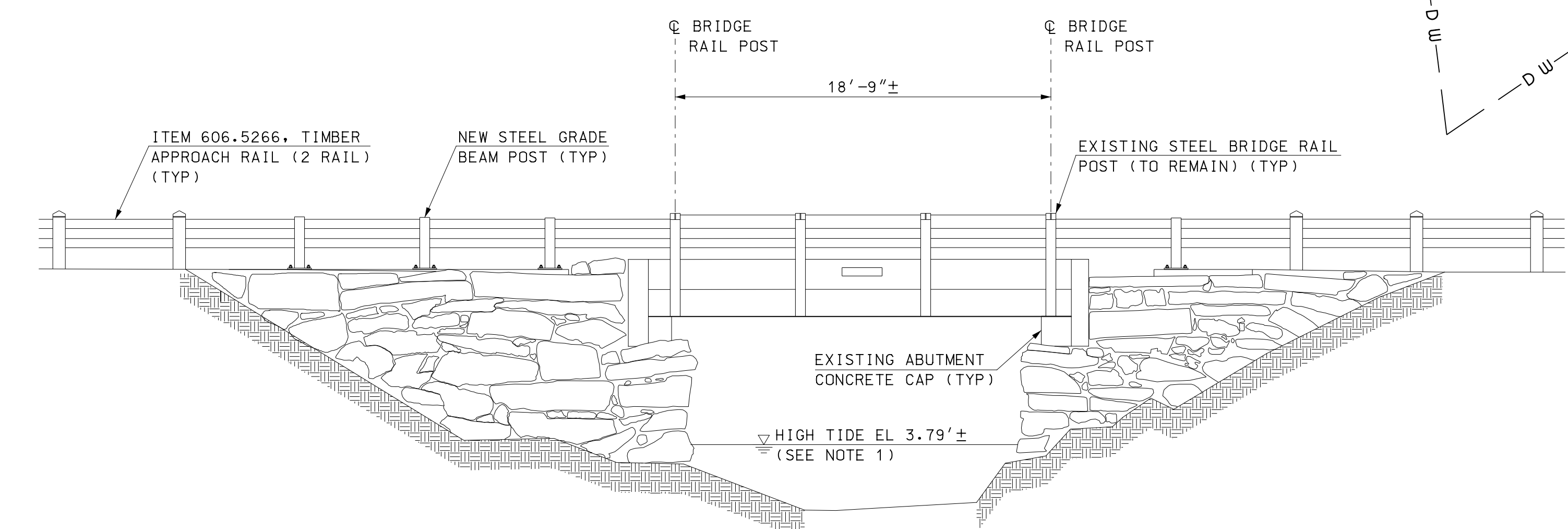
Hoyle, Tanner & Associates, Inc.
 150 Dow Street, Manchester, NH 03101-1227
 Tel (603) 669-5555 - Fax (603) 669-4168
 www.hoyletanner.com

TOWN OF DURHAM
 DURHAM, NEW HAMPSHIRE
 DURHAM POINT ROAD OVER CROMMET CREEK
 DETOUR PLAN

PROJECT NO.: 902705
 FILE NAME: 902705detplans
 MODEL NAME: DET01
 SHEET NO.
5
 SHEET 5 OF 11



PLAN
SCALE: 1" = 5'-0"



ELEVATION
SCALE: 1" = 5'-0"

NOTE
1. OBSERVED HIGH WATER ELEVATION WAS SURVEYED ON JANUARY 2015 BY SANFORD SURVEYING AND ENGINEERING AND MAY VARY FROM THAT SHOWN.

3/28/2016 3:22:11 PM K:\9027052-CADD\IP\CutSheet\902705GP.E.dgn

| REV | DESCRIPTION | DATE | CHKD BY | DATE |
|------------|-----------------|------|---------|------|
| MARCH 2016 | DESIGN BY: JAS | | | |
| | DRAWN BY: JFMS | | | |
| | CHKD BY: JB | | | |
| | SCALE: AS SHOWN | | | |

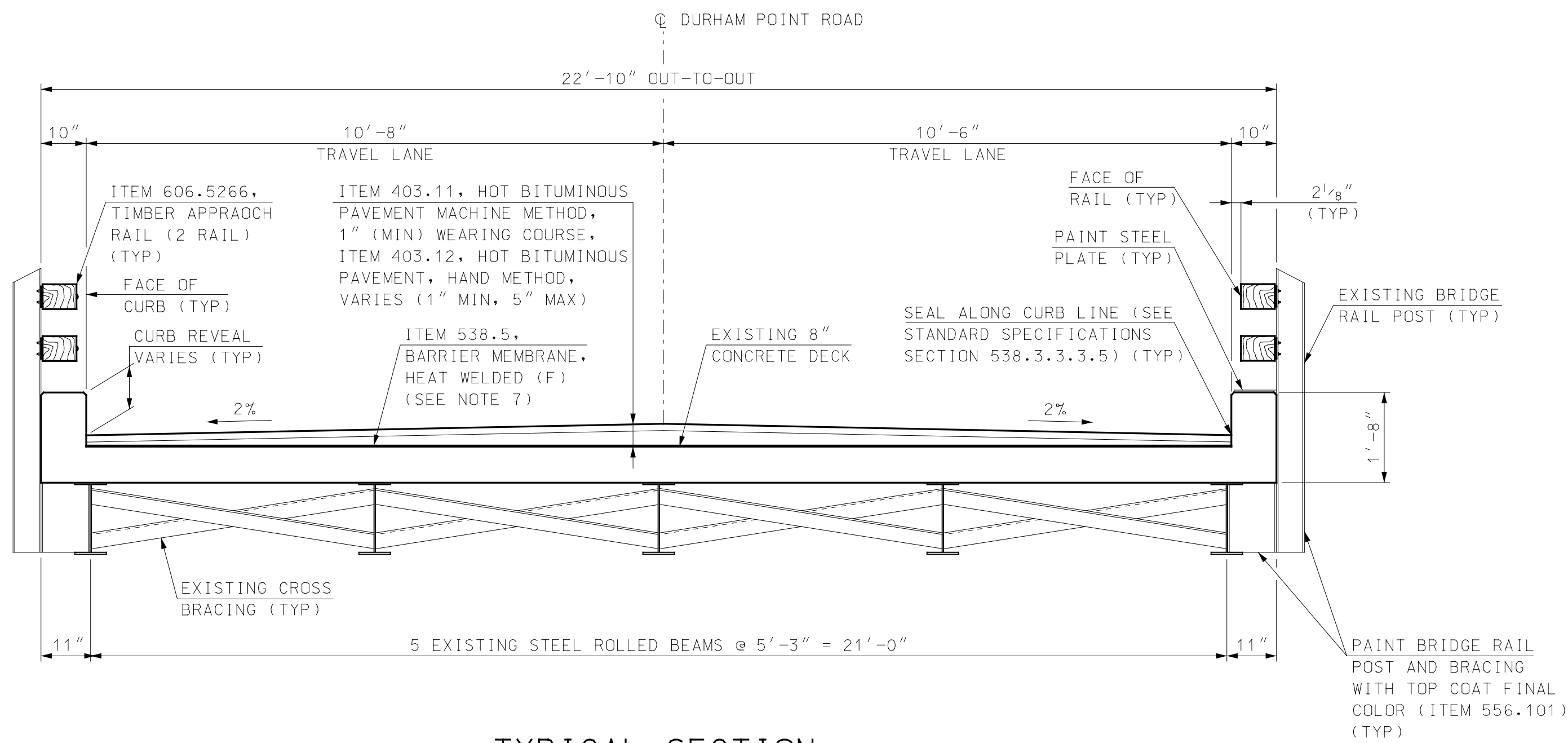
Hoyle, Tanner & Associates, Inc.
 150 Dow Street, Manchester, NH 03101-1227
 Tel (603) 669-5555 - Fax (603) 669-4168
 www.hoyletanner.com

TOWN OF DURHAM
DURHAM, NEW HAMPSHIRE
 DURHAM POINT ROAD OVER CROMMET CREEK
 GENERAL PLAN AND ELEVATION

| | |
|--------------|------------|
| PROJECT NO.: | 902705 |
| FILE NAME: | 902705GP.E |
| MODEL NAME: | 902705GP.E |

SHEET NO.
6
SHEET 6 OF 11

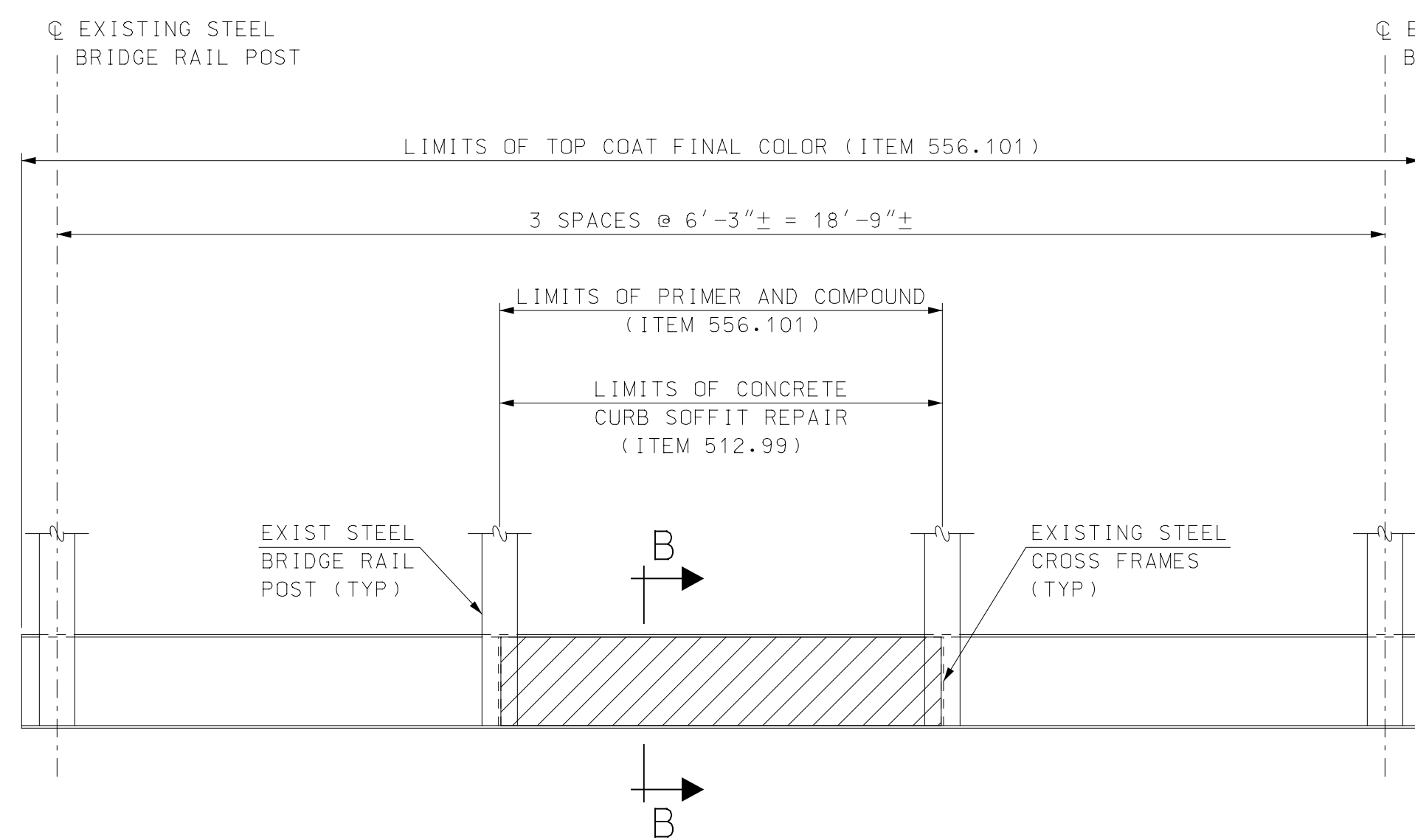
This document is prepared as an instrument of service and shall remain the property of Hoyle, Tanner, Inc. It may not be used, reproduced, disseminated or transmitted in any manner, including electronically, for any other purpose than the project, without the written permission of Hoyle, Tanner, Inc.



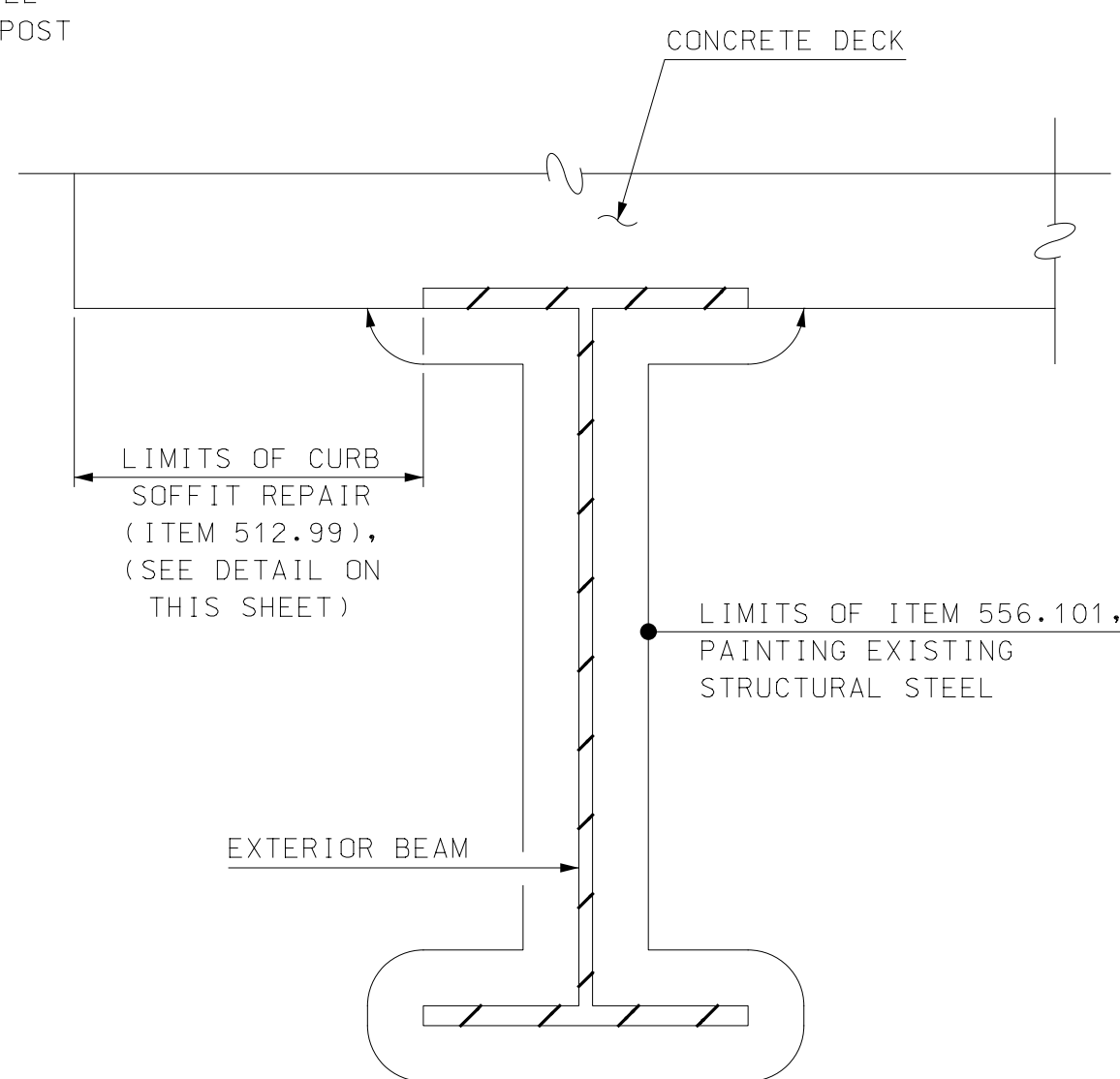
TYPICAL SECTION
SCALE: 1/2" = 1'-0"

NOTES

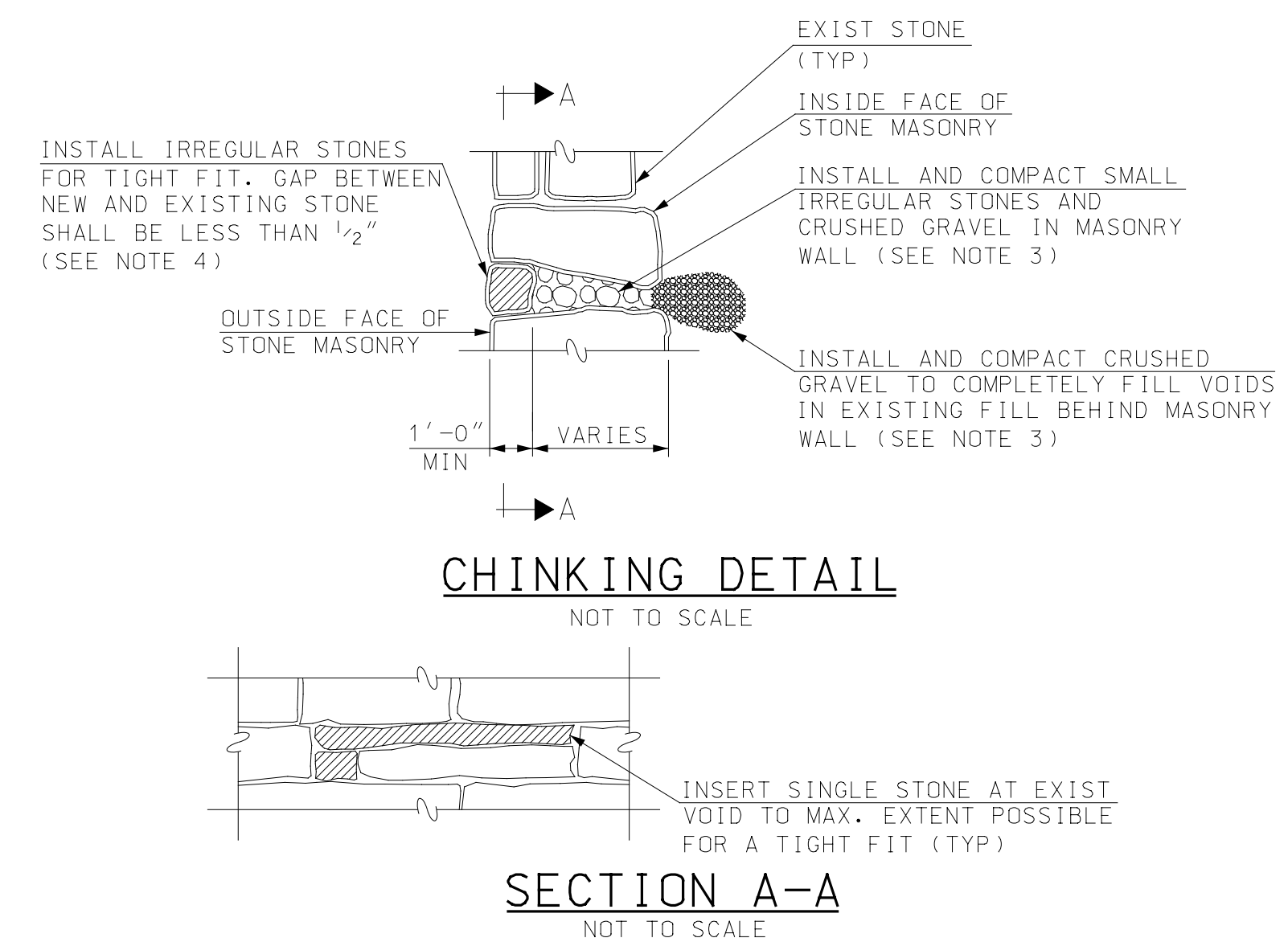
- EXISTING STEEL SECTION OF ROLLED BEAMS ARE UNKNOWN. BASED ON FIELD MEASUREMENTS TAKEN BY HOYLE, TANNER THE SECTIONS ARE MOST SIMILAR TO WF16x36.
- REMOVAL OF EXISTING PAVEMENT AND BARRIER MEMBRANE SHALL BE PAID FOR UNDER ITEM 203.1.
- AFTER REMOVAL OF EXISTING PAVEMENT, CONTRACTOR SHALL SURVEY THE TOP OF EXISTING CONCRETE DECK AND PROVIDE SURVEY INFORMATION TO THE ENGINEER FOR REVIEW. A MINIMUM OF NINE SURVEY SHOTS WILL BE TAKEN: ONE AT EACH END OF THE BRIDGE AND ONE AT MIDSPAN, ALONG EACH CURB AND AT CENTERLINE OF ROAD.
- THE FINAL HOT BITUMINOUS PAVEMENT, HAND METHOD THICKNESS SHALL BE ADJUSTED BASED ON THE SURVEY.
- FIELD SURVEY SHALL BE PAID UNDER ITEM 403.12.
- SEE SHEET 4 FOR GRADING INFORMATION FOR PAVEMENT ACROSS BRIDGE.
- EXISTING BACKWALL AND END OF DECK CONFIGURATION IS UNKNOWN. ITEM 538.5, BARRIER MEMBRANE, HEAT WELDED (F) SHALL EXTEND DOWN BACKWALL A MINIMUM OF 2', EXCAVATION SHALL BE PAID FOR UNDER ITEM 203.1, COMMON EXCAVATION AND GRAVEL SHALL BE PAID FOR UNDER ITEM 304.31, CRUSHED GRAVEL FOR SHIMMING.
- EXISTING 5" X 2" SCUPPERS SHALL BE FILLED IN WITH CONCRETE CLASS AA. ALL COSTS FOR FILLING IN EXISTING SCUPPERS SHALL BE PAID FOR UPPER ITEM 512.99, CONCRETE REPAIR.



EXISTING EXTERIOR BEAM ELEVATION
SCALE: 1/2" = 1'-0"

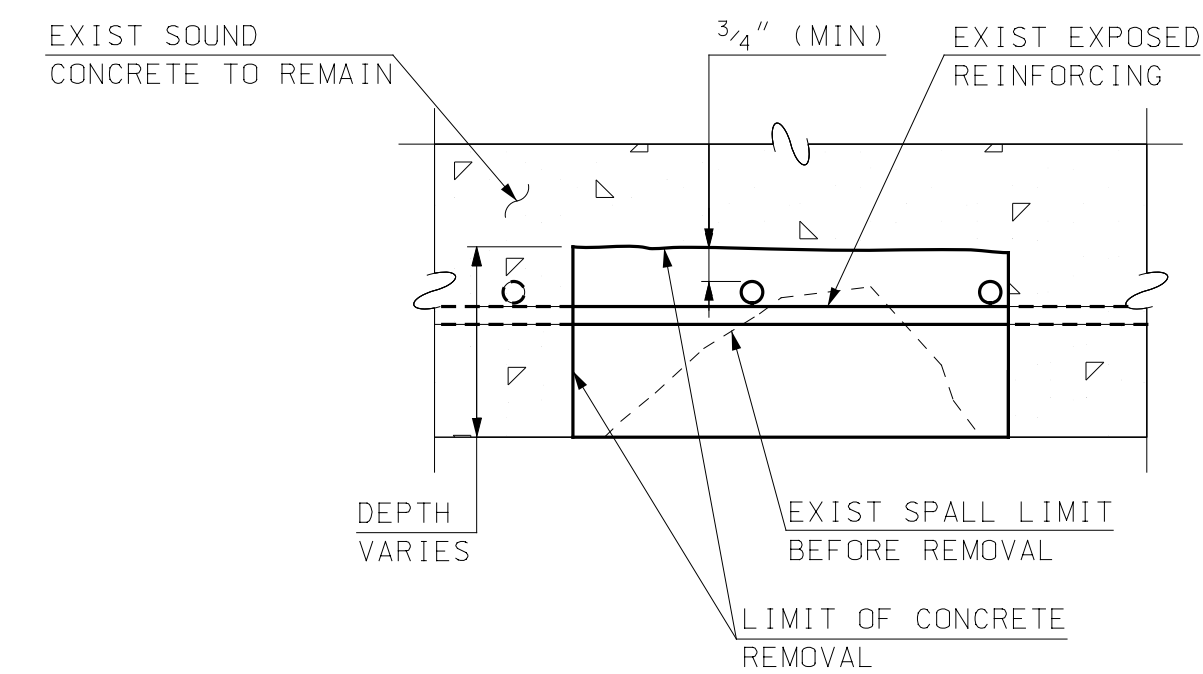


SECTION B-B
SCALE: 3/8" = 1'-0"



NOTES

- CHINK STONE FACE OF ABUTMENTS AND WINGWALLS TO THE MUDLINE.
- PAYMENT UNDER ITEM 571.1, CHINKING STONE MASONRY SHALL INCLUDE COMPACTION OF LOOSE FILL BEHIND WALL STONES, RESETTING OF STONES AND THE ADDITION OF SIMILAR STONES AS REQUIRED.
- COMPACT MATERIAL BEHIND AND INTO MASONRY WALL BY USING TAMPING RODS OR OTHER METHODS ACCEPTABLE TO THE RESIDENT ENGINEER (PAID UNDER ITEM 571.1).
- NEW STONES SHALL CLOSELY MATCH THE COLOR, TEXTURE AND PATTERN OF EXISTING STONES. STONES SHALL BE APPROVED BY THE RESIDENT ENGINEER PRIOR TO USE.
- NEW STONES SHALL HAVE A MINIMUM OF 75% OF TOP AND BOTTOM SURFACES IN BEARING WITH EXISTING STONES.



CONCRETE CURB SOFFIT REPAIR
NOT TO SCALE

NOTES

- PREPARE SPALLED AREA BY REMOVING ALL DETERIORATED CONCRETE TO A MINIMUM DEPTH OF 1" SQUARE BY CUTTING REPAIR AREA. FEATHERED REMOVAL EDGES WILL NOT BE PERMITTED. MINIMUM REPAIR AREA SHALL BE 1'x1'.
- IF REINFORCING STEEL IS EXPOSED, REMOVE ALL DETERIORATED CONCRETE TO A MINIMUM DEPTH OF 3/4" BEHIND THE REAR FACE OF THE FIRST MAT OF REINFORCING STEEL AND TO SOUND CONCRETE BY SQUARE CUTTING REPAIR AREA.
- AFTER CONCRETE REMOVAL, THE REPAIR SURFACE AND EXISTING REINFORCING BARS SHALL BE THOROUGHLY CLEANED OF INJURIOUS RUST, CONCRETE, DIRT, GREASE, OR ANY OTHER BOND-INHIBITING MATERIALS. APPLY ONE COAT OF CONPROCO CORPORATION ECB (ELECTRO-CHEMICAL BARRIER), FERROSEAL BY ISOMAT, MAPEFER BY MAPEI OR APPROVED EQUAL TO ANY EXPOSED REINFORCING.
- COAT ALL REPAIR SURFACES WITH AN APPROVED BONDING AGENT PRIOR TO PLACING REPAIR MATERIAL.
- PATCH REPAIR AREA WITH AN APPROVED REPAIR MATERIAL. THE CONCRETE REPAIR MATERIAL SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDED PROCEDURES.
- REPAIR MATERIAL SHALL BE A FAST-SETTING CEMENT REPAIR MORTAR LISTED BELOW OR AN APPROVED EQUAL WITH A MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI IN 28 DAYS:
 - SIKA CORPORATION PRODUCT: SIKATOP 123 PLUS
 - FOSROC, INC PRODUCT: RENDEROC HB2
 - MASTER BUILDING TECHNOLOGIES PRODUCT: MASTER EMACO T545
- APPLY A PENETRATING, CORROSION-INHIBITING IMPREGNATION COATING, SIKA FERROGARD 903, CORTEC CORPORATION MC1-2020 V/O, GRACE CONSTRUCTION PRODUCTS POSTRITE OR APPROVED EQUAL FOR A DISTANCE OF 3' BEYOND THE EDGE OF THE CONCRETE REPAIR 7 DAYS AFTER APPLYING REPAIR MATERIAL.
- ALL COSTS FOR THE WORK DESCRIBED AND SHOWN ABOVE SHALL BE PAID UNDER ITEM 512.99, CONCRETE REPAIR.

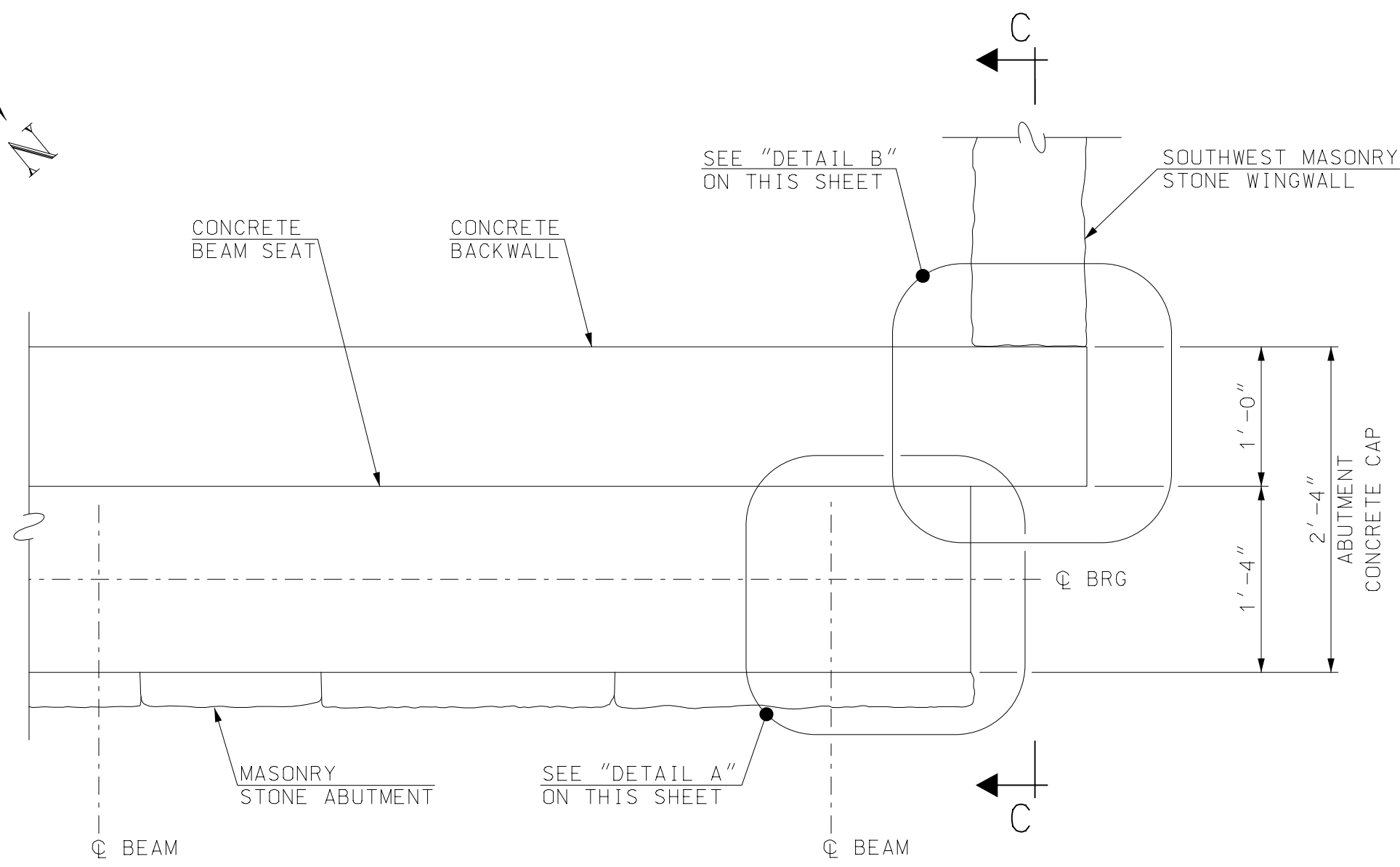
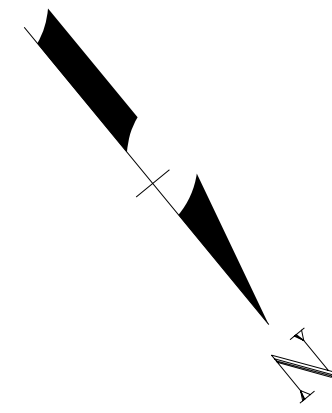
| REV | DESCRIPTION | DATE | BY | CHKD |
|------------|-----------------|------|----|------|
| MARCH 2016 | DESIGN BY: JAS | | | |
| | DRAWN BY: JFMS | | | |
| | CHKD BY: JB | | | |
| | SCALE: AS SHOWN | | | |

Hoyle, Tanner & Associates, Inc.
 150 Dow Street, Manchester, NH 03101-1227
 Tel (603) 669-5655 - Fax (603) 669-4168
 www.hoyletanner.com

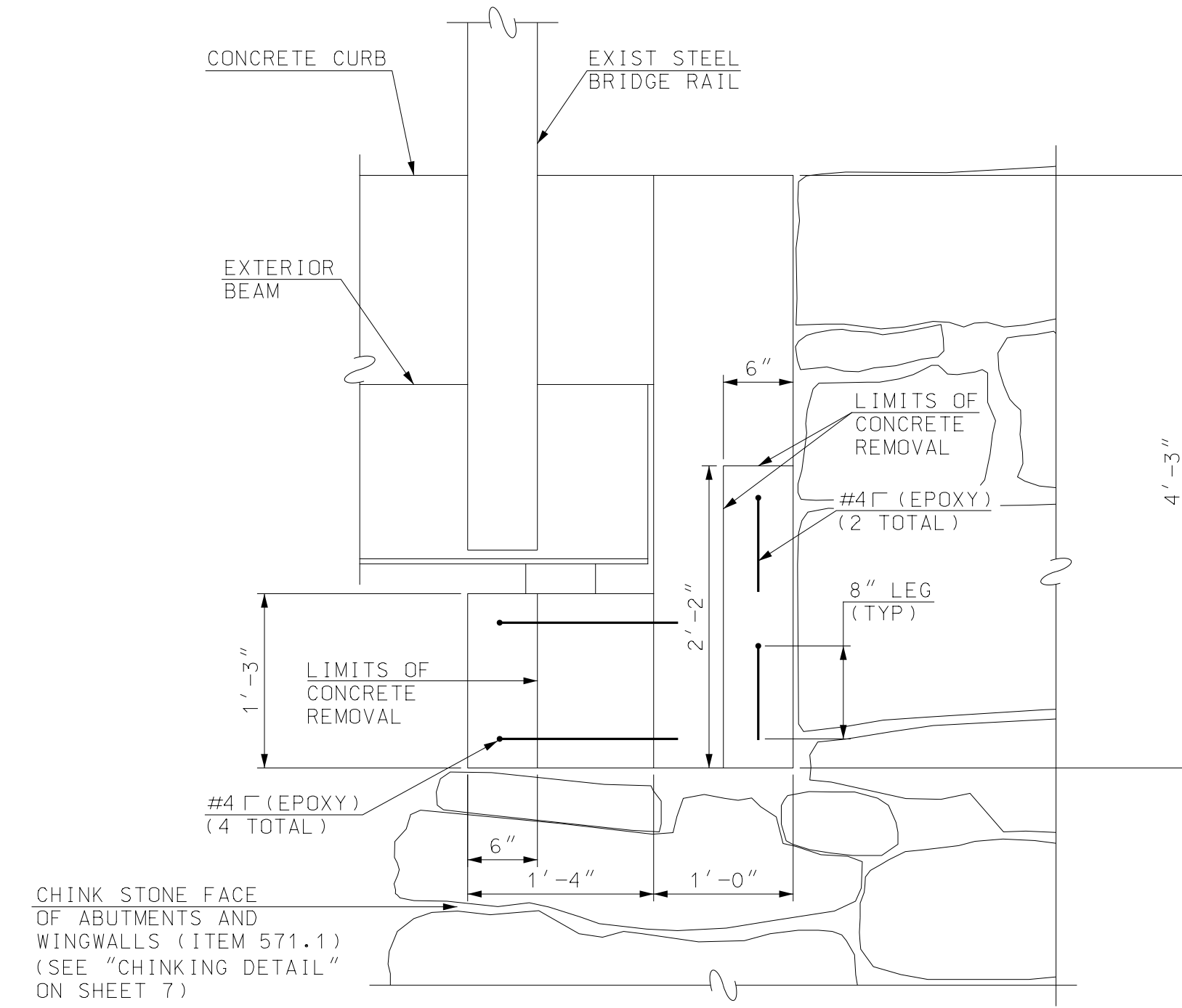
TOWN OF DURHAM
DURHAM, NEW HAMPSHIRE
 DURHAM POINT ROAD OVER CROMMET CREEK
 REPAIR DETAILS 1 OF 2

| | |
|--------------|------------|
| PROJECT NO.: | 902705 |
| FILE NAME: | 902705DTL1 |
| MODEL NAME: | 902705DTL1 |

3/28/2016 3:22:12 PM K:\902705\2-CADD\BRC-Detail\902705DTL1.dgn



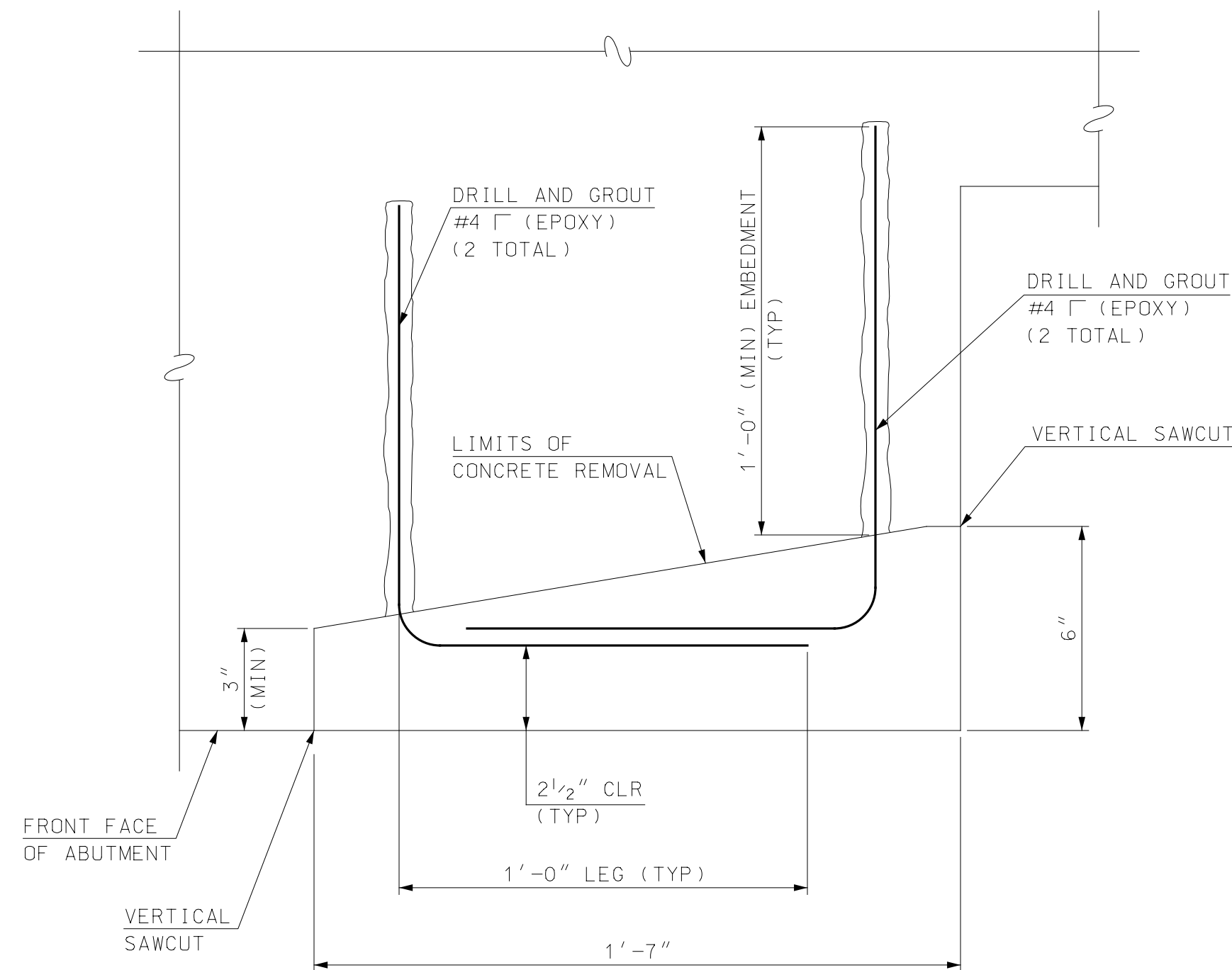
SOUTH ABUTMENT - PARTIAL PLAN
SCALE: 1" = 1'-0"



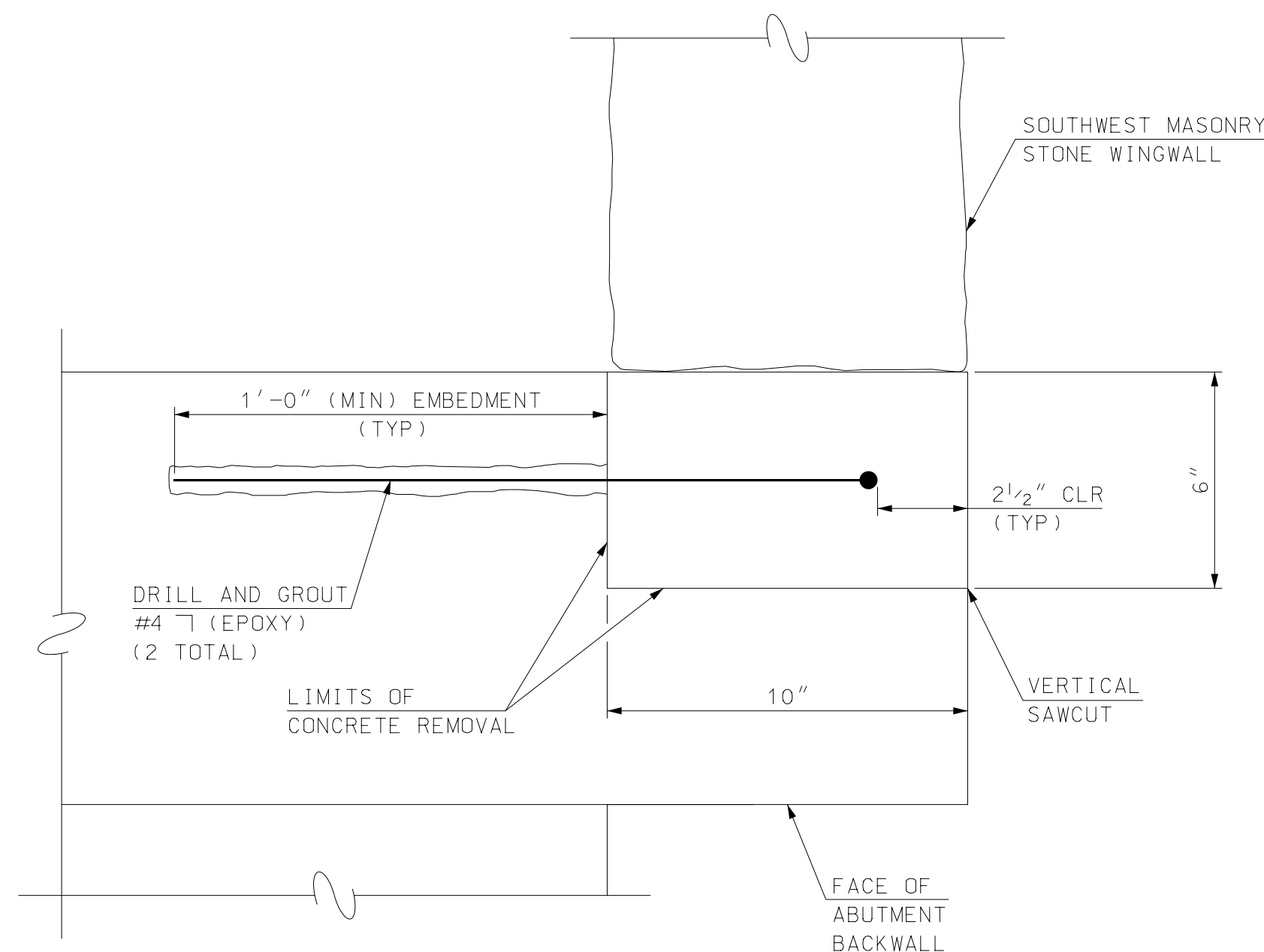
SECTION C-C
SCALE: 1" = 1'-0"

NOTES

- TEMPORARY SHORING IS REQUIRED TO SUPPORT THE WEST EXTERIOR GIRDER DURING CONCRETE REPAIRS TO THE SOUTH ABUTMENT. THE CONTRACTOR SHALL SUBMIT PLANS AND CALCULATIONS TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO THE START OF CONCRETE REPAIRS TO THE SOUTH ABUTMENT. THE TEMPORARY SHORING SHALL BE INSTALLED WITHIN 5 FEET PRIOR TO ANY CONCRETE REMOVAL OPERATIONS AND SHALL BE DESIGNED FOR 16,000 POUNDS.
- PREPARE SPALLED AREA BY REMOVING ALL DETERIORATED CONCRETE TO A MINIMUM DEPTH OF 1" SQUARE, UNLESS OTHERWISE NOTED, BY CUTTING REPAIR AREA. FEATHERED REMOVAL EDGES WILL NOT BE PERMITTED. MINIMUM REPAIR AREA SHALL BE 1'X1'.
- IF REINFORCING STEEL IS EXPOSED, REMOVE ALL DETERIORATED CONCRETE TO A MINIMUM DEPTH OF 3/4" BEHIND THE REAR FACE OF THE FIRST MAT OF REINFORCING STEEL AND TO SOUND CONCRETE BY SQUARE CUTTING REPAIR AREA.
- USE OF CHIPPING HAMMERS HEAVIER THAN NORMAL 15 POUND ARE NOT PERMITTED.
- CONTRACTOR SHALL NOTIFY RESIDENT ENGINEER AFTER REMOVAL OF DETERIORATED CONCRETE WITH CHIPPING HAMMERS TO ASSESS REPAIR AREA.
- AFTER CONCRETE REMOVAL, THE REPAIR SURFACE AND EXISTING REINFORCING BARS SHALL BE THOROUGHLY CLEANED OF INJURIOUS RUST, CONCRETE, DIRT, GREASE, OR ANY OTHER BOND-INHIBITING MATERIALS. APPLY ONE COAT OF CONPROCO CORPORATION ECB (ELECTROCHEMICAL BARRIER), FERROSEAL BY ISOMAT, MAPEFER BY MAPEI OR APPROVED EQUAL TO ANY EXPOSED REINFORCING.
- DRILL AND GROUT #4 BARS, AS SHOWN IN DETAIL A AND DETAIL B ON THIS SHEET.
- PATCH REPAIR AREA WITH AN APPROVED REPAIR MATERIAL. THE CONCRETE REPAIR MATERIAL SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDED PROCEDURES.
- REPAIR MATERIAL FOR THE CONCRETE BEARING SEAT (DETAIL A) SHALL BE A FAST-SETTING CEMENT REPAIR MORTAR LISTED BELOW OR AN APPROVED EQUAL WITH A MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI IN 28 DAYS.
SIKA CORPORATION PRODUCT: SIKATOP 123 PLUS
FOSROC, INC. PRODUCT: RENDERBROC HB2
MASTER BUILDING TECHNOLOGIES PRODUCT: MASTER EMACO T545
- REPAIR MATERIAL FOR THE CONCRETE BACKWALL (DETAIL B) SHALL BE CONCRETE CLASS AA, CONFORMING TO ITEM 520.01.
- APPLY A PENETRATING, CORROSION-INHIBITING IMPREGNATION COATING, SIKA FERROGARD 903, CORTEC CORPORATION MCI-2020 V/O, GRACE CONSTRUCTION PRODUCTS POSTRITE OR APPROVED EQUAL FOR A DISTANCE OF 3' BEYOND THE EDGE OF THE CONCRETE REPAIR 7 DAYS AFTER APPLYING REPAIR MATERIAL.
- CLEAN JOINT BETWEEN THE WEST CONCRETE BACKWALL AND SOUTHWEST MASONRY STONE WINGWALL WITH COMPRESSED AIR TO REMOVE ALL LOOSE MATERIAL TO A MINIMUM DEPTH OF 2". INSTALL CLOSED CELL JOINT SEAL, 1"X1", INTO EXISTING GAP FROM 6" ABOVE EXISTING GROUND TO THE BOTTOM OF THE CONCRETE BACKWALL. RECESS CLOSED CELL JOINT 1/2" INTO EXISTING GAP.
- ALL COSTS FOR THE WORK DESCRIBED AND SHOWN ABOVE SHALL BE PAID UNDER ITEM 512.99, CONCRETE REPAIR.



DETAIL A
SCALE: 3" = 1'-0"



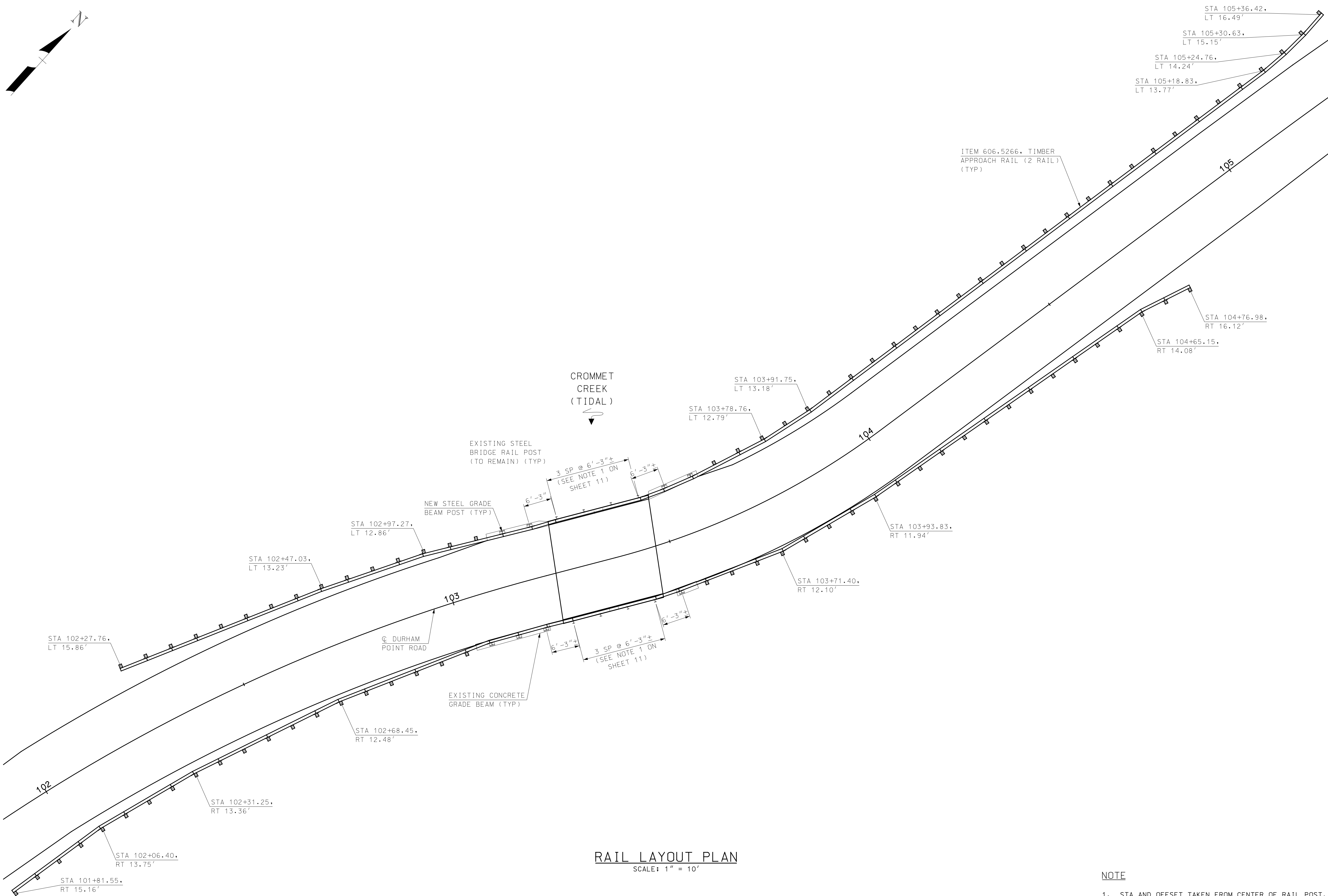
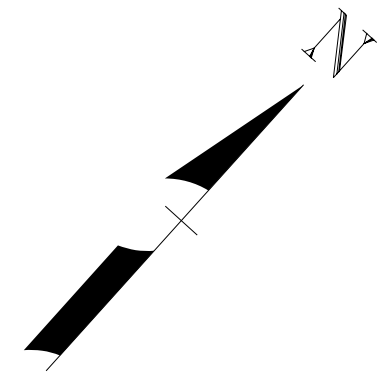
DETAIL B
SCALE: 3" = 1'-0"

| REV | DESCRIPTION | DRW | CHKD | BY | DATE |
|------------|-----------------|-----|------|----|------|
| MARCH 2016 | DESIGN BY: JAS | | | | |
| | DRAWN BY: JFMS | | | | |
| | CHKD. BY: JB | | | | |
| | SCALE: AS SHOWN | | | | |

Hoyle, Tanner & Associates, Inc.
150 Dow Street, Manchester, NH 03101-1227
Tel (603) 669-5655 - Fax (603) 669-4168
www.hoyletanner.com

TOWN OF DURHAM
DURHAM, NEW HAMPSHIRE
DURHAM POINT ROAD OVER CROMMET CREEK
REPAIR DETAILS 2 OF 2

| | |
|--------------|------------|
| PROJECT NO.: | 902705 |
| FILE NAME: | 902705DTL2 |
| MODEL NAME: | 902705DTL2 |



RAIL LAYOUT PLAN
SCALE: 1" = 10'

NOTE

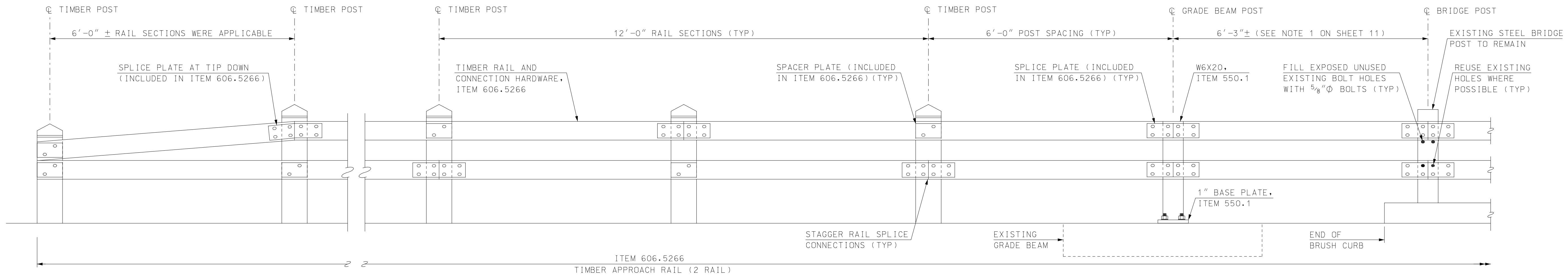
1. STA AND OFFSET TAKEN FROM CENTER OF RAIL POST.

| REV | DESCRIPTION | DRW | CHKD | BY | DATE |
|------------|-----------------|-----|------|----|------|
| MARCH 2016 | DESIGN BY: JAS | | | | |
| | DRAWN BY: JFMS | | | | |
| | CHKD. BY: JB | | | | |
| | SCALE: AS SHOWN | | | | |

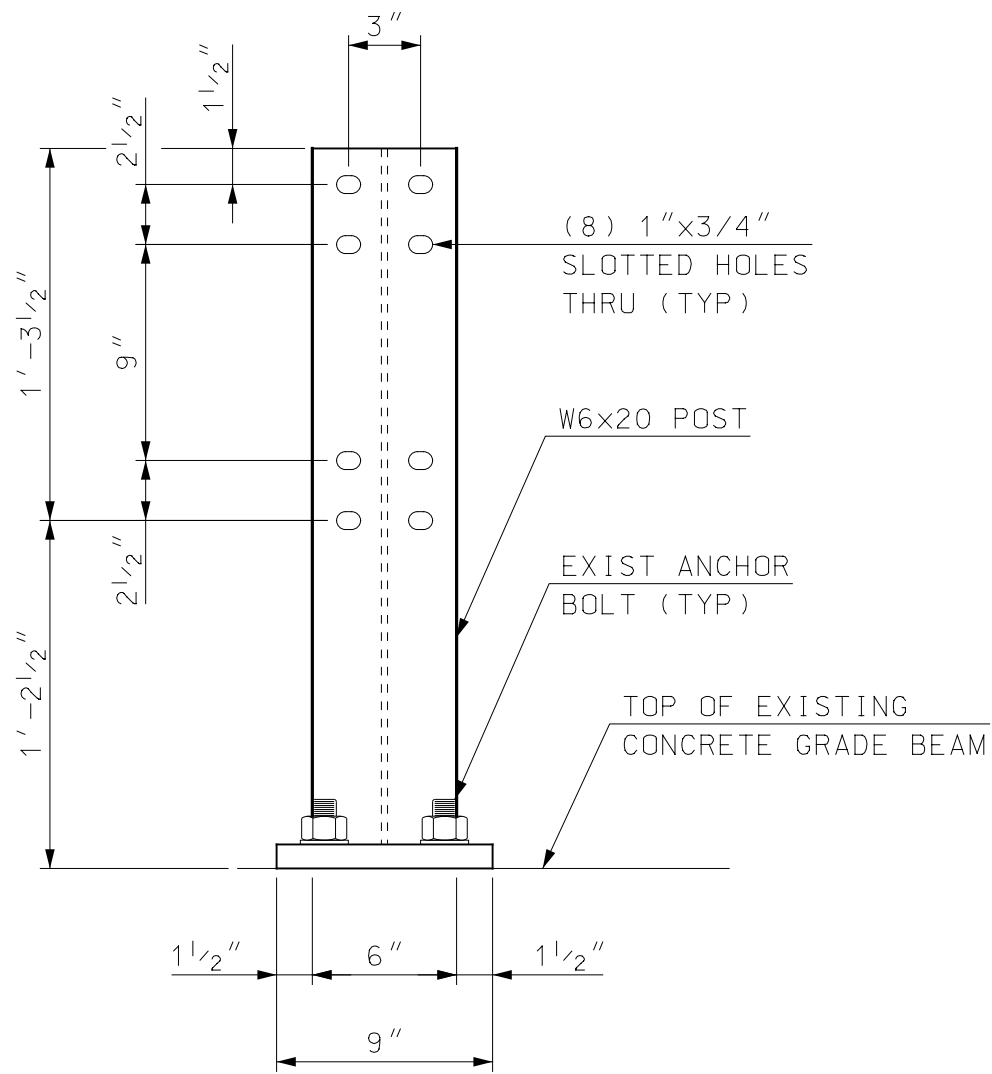
Hoyle, Tanner & Associates, Inc.
 150 Dow Street, Manchester, NH 03101-1227
 Tel (603) 669-5555 - Fax (603) 669-4188
 www.hoyletanner.com

| | |
|--------------|------------|
| PROJECT NO.: | 902705 |
| FILE NAME: | 902705RPLP |
| MODEL NAME: | 902705RPLP |
| SHEET NO. | 9 |

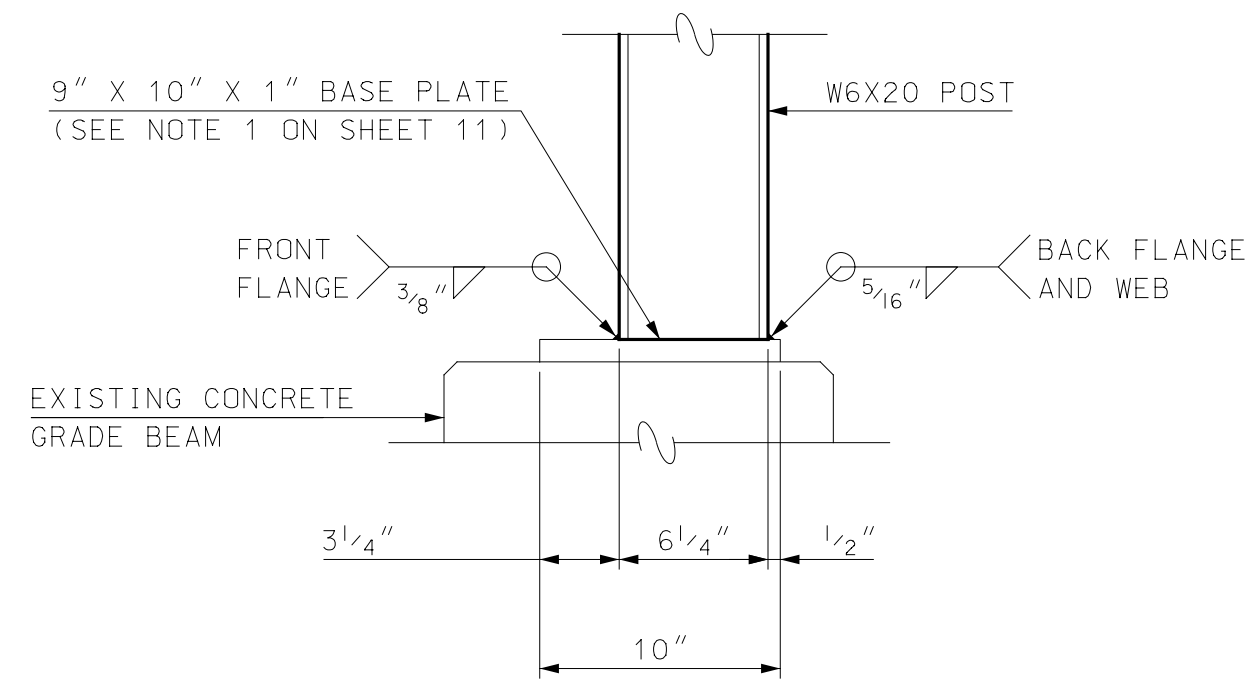
3/28/2016 3:22:14 PM K:\902705-2-CADD\PLP\CutSheet\902705RPLP.dgn



TYPICAL TIMBER RAIL ASSEMBLY ELEVATION
SCALE: 3/4" = 1'-0"

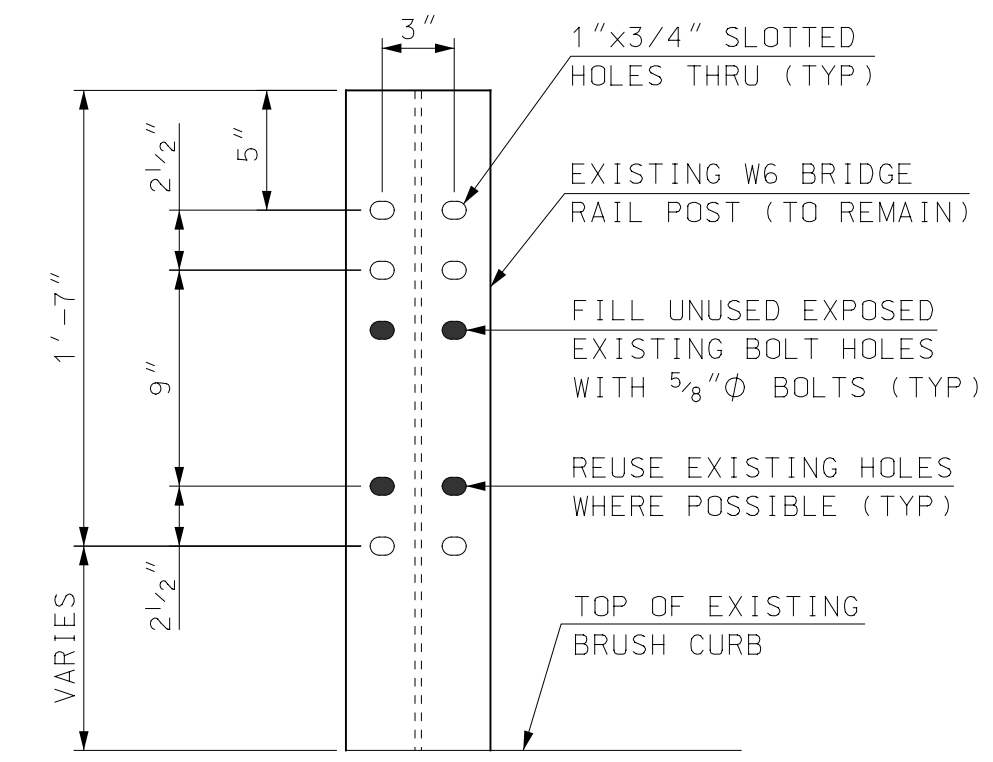


GRADE BEAM RAIL POST DETAILS
SCALE: 1 1/2" = 1'-0"

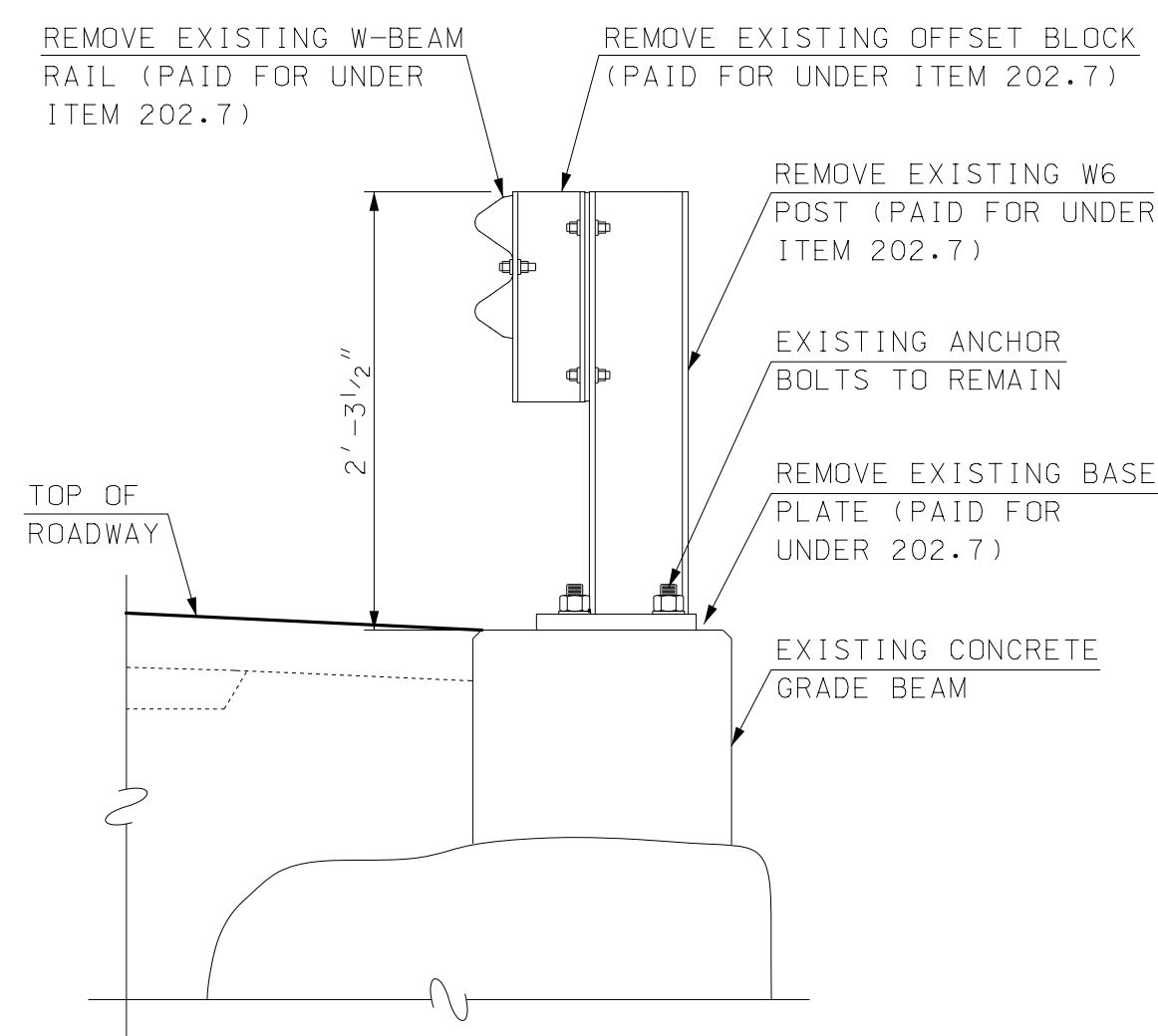


GRADE BEAM WELD DETAIL
SCALE: 1 1/2" = 1'-0"

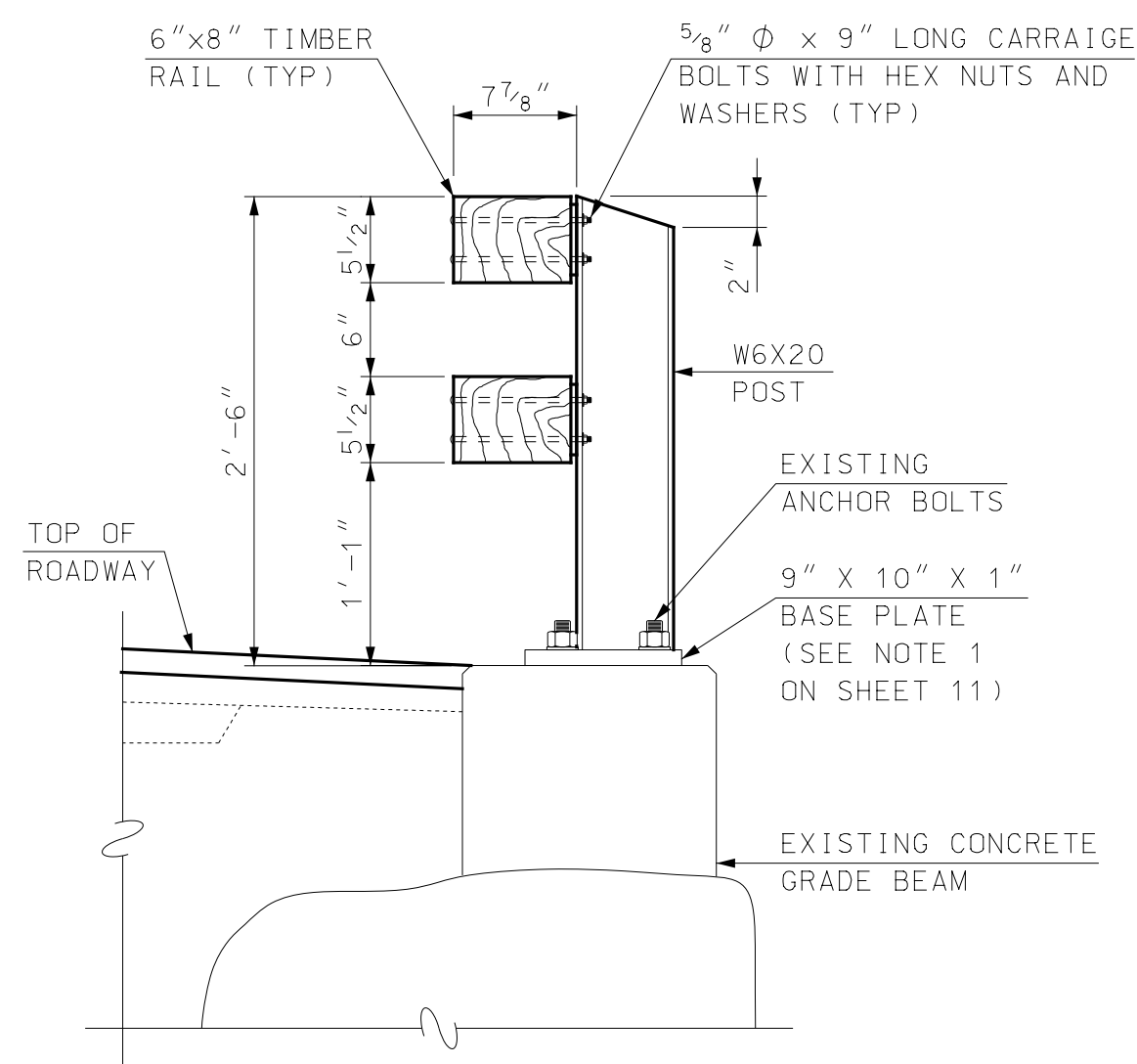
NOTE
1. GRADE BEAM ANCHOR BOLTS NOT SHOWN FOR WELD CLARITY.



MODIFIED BRIDGE RAIL POST DETAILS
SCALE: 1 1/2" = 1'-0"

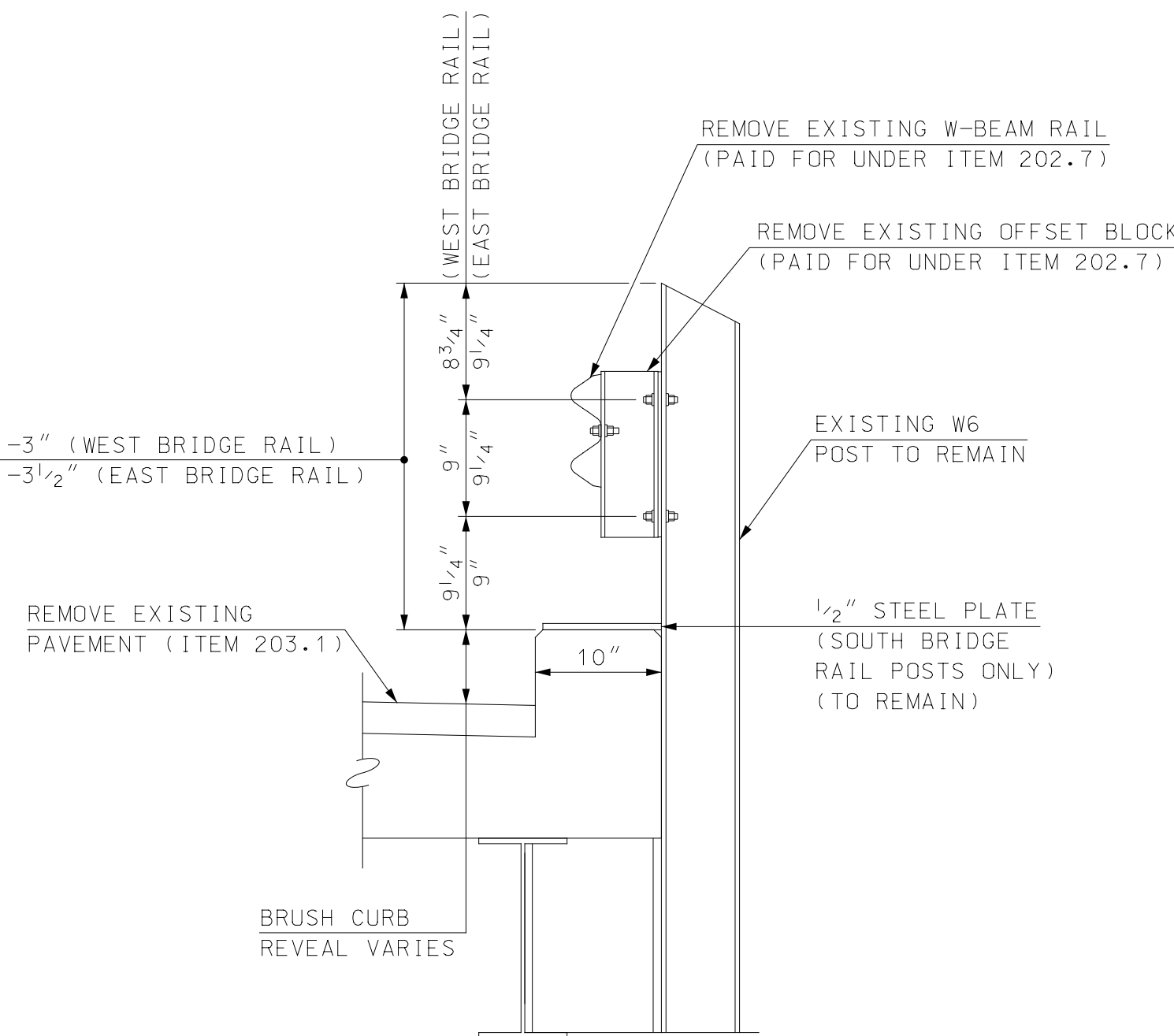


EXISTING RAIL SECTION ON GRADE BEAM
SCALE: 1" = 1'-0"

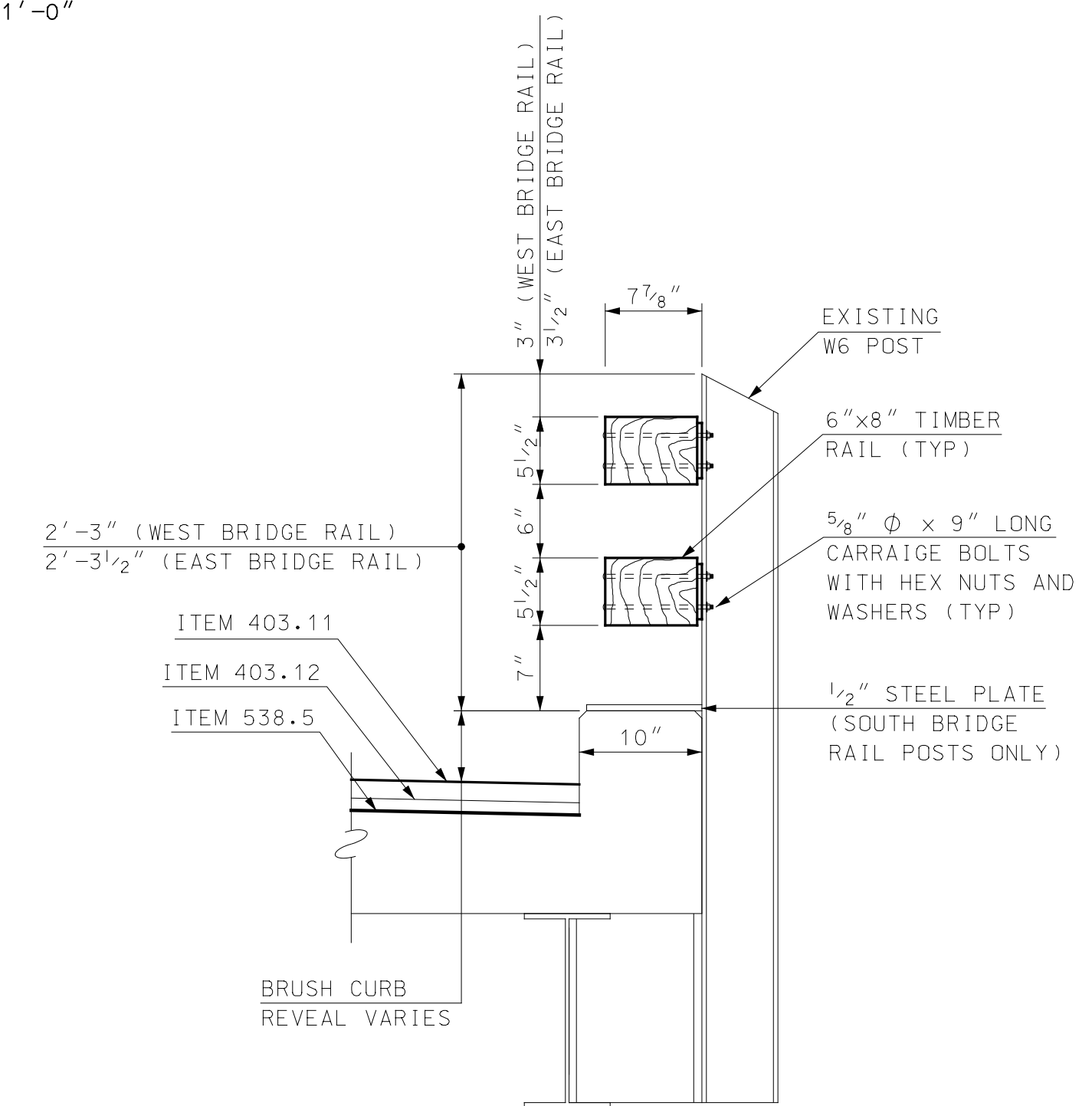


RAIL SECTION ASSEMBLY ON GRADE BEAM
SCALE: 1" = 1'-0"

NOTE
SEE "GRADE BEAM WELD DETAIL" ON THIS SHEET.



EXISTING BRIDGE RAIL SECTION
SCALE: 1" = 1'-0"



BRIDGE RAIL ASSEMBLY SECTION
SCALE: 1" = 1'-0"

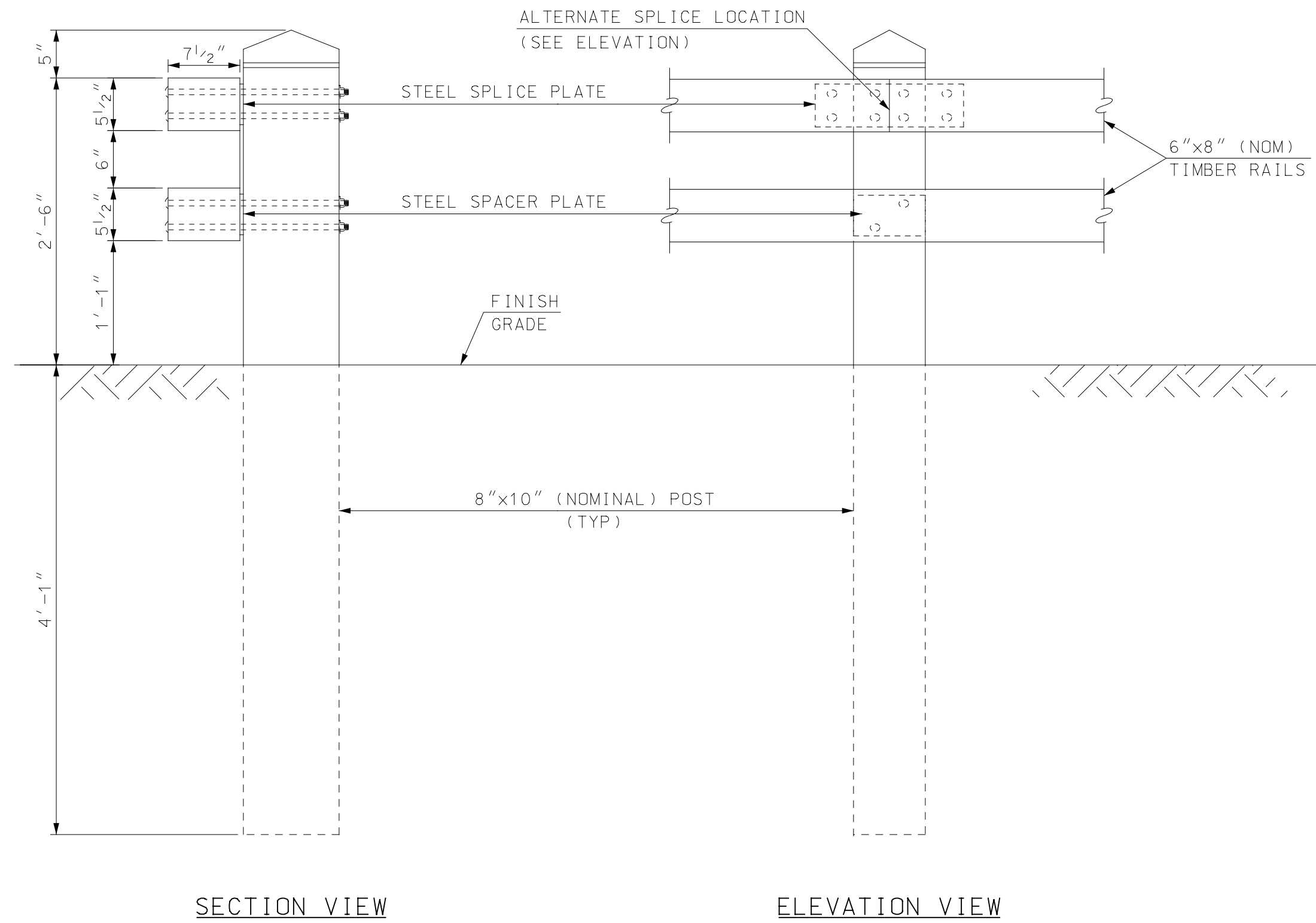
| REV | DESCRIPTION | DATE |
|------------|-----------------|------|
| MARCH 2016 | DESIGN BY: JAS | |
| | DRAWN BY: JFMS | |
| | CHKD. BY: JB | |
| | SCALE: AS SHOWN | |

Hoyle, Tanner & Associates, Inc.
150 Dow Street, Manchester, NH 03101-1227
Tel (603) 669-5655 - Fax (603) 669-4168
www.hoyletanner.com

TOWN OF DURHAM
DURHAM, NEW HAMPSHIRE
DURHAM POINT ROAD OVER CROMMET CREEK
RAIL DETAILS (1 OF 2)

| | |
|--------------|----------------|
| PROJECT NO.: | 902705 |
| FILE NAME: | 902705RAIL1 |
| MODEL NAME: | 902705RailDtl1 |

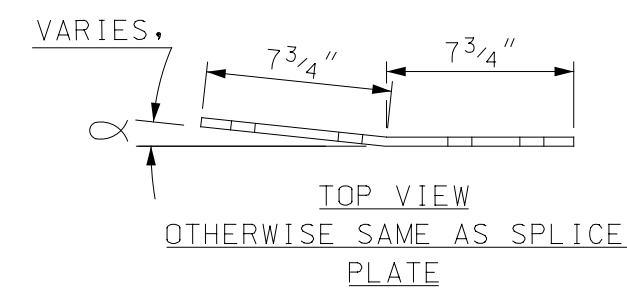
3/28/2016 3:22:15 PM K:\902705-2-CADD\BRC-Details\902705RAIL1.dgn



SECTION VIEW

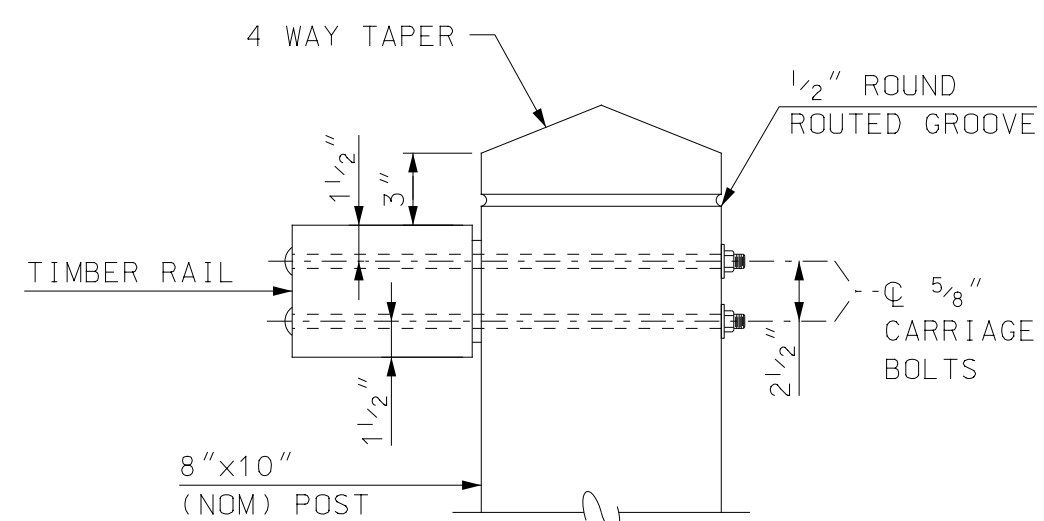
ELEVATION VIEW

TIMBER APPROACH RAIL
SCALE: 1" = 1'-0"

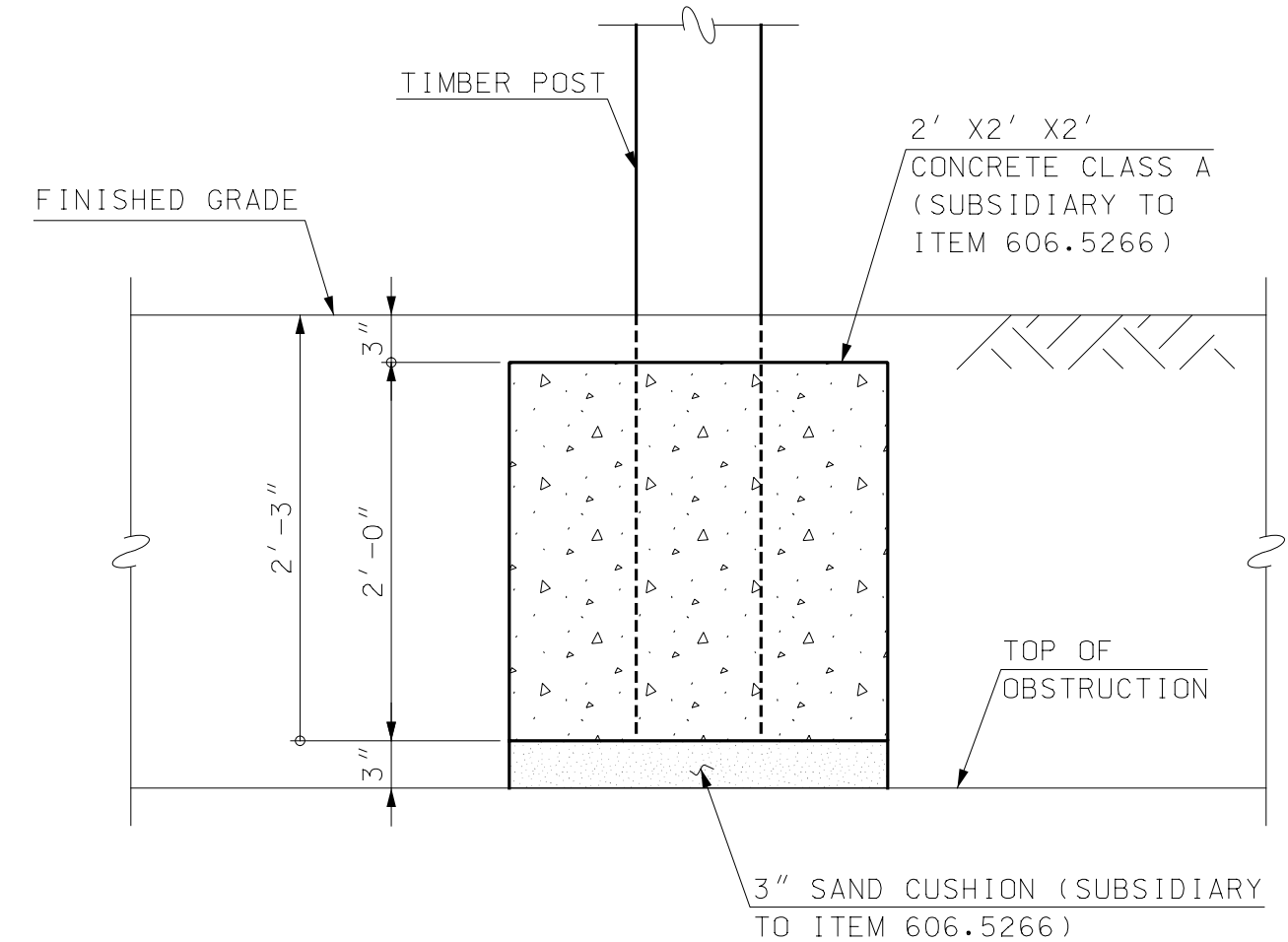


BENT SPLICE DETAIL
SCALE: 1 1/2" = 1'-0"

NOTE
FOR OTHER SPLICE PLATE DIMENSIONS, SEE
"SPLICE PLATE DETAIL", THIS SHEET



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



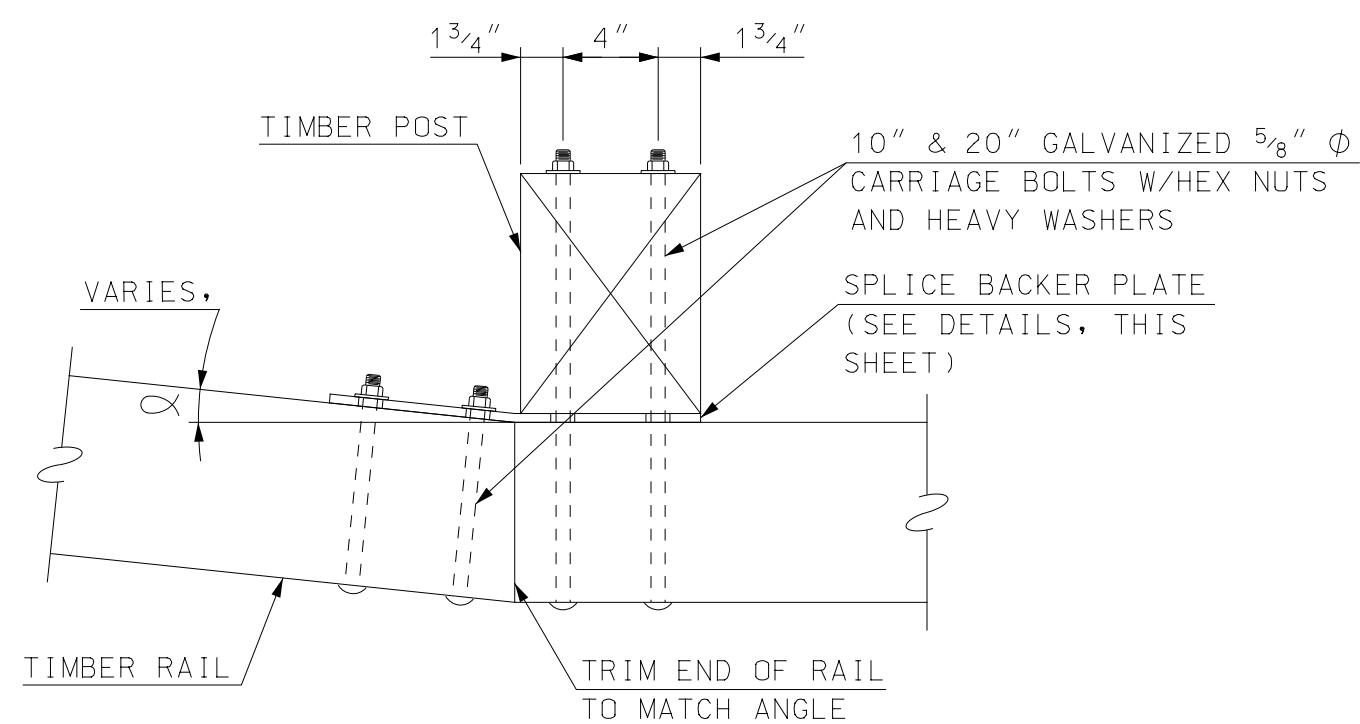
MODIFIED TIMBER RAIL POST INSTALLATION
SCALE: 1" = 1'-0"

NOTES

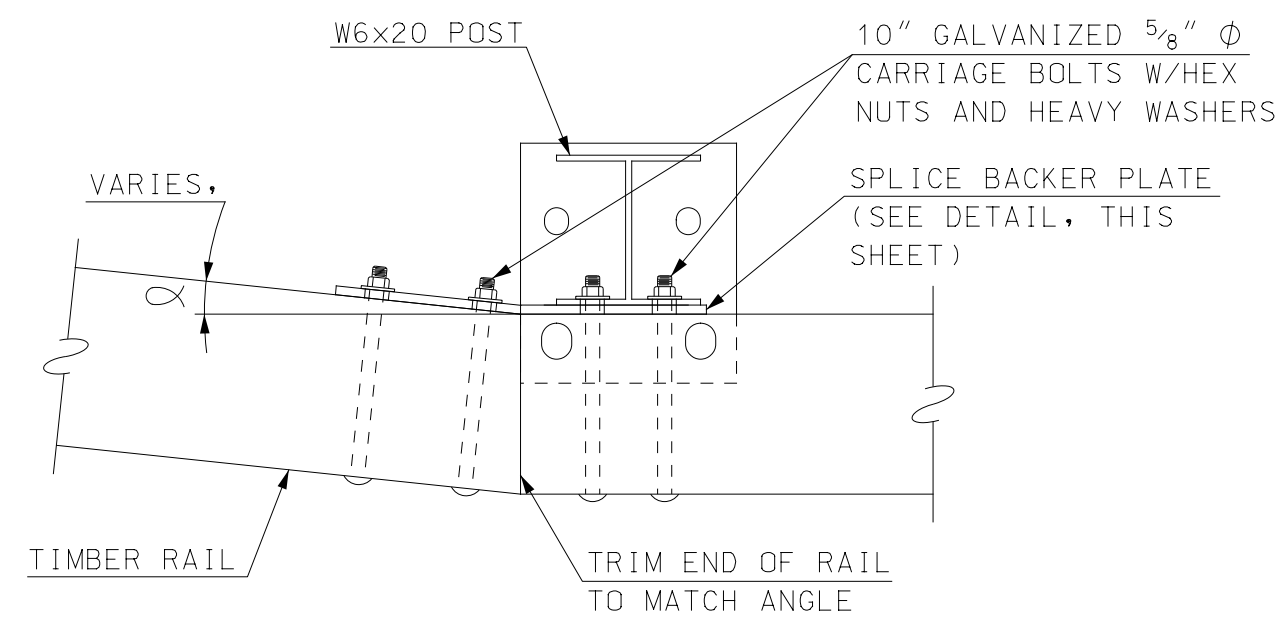
1. THIS DETAIL IS TO BE USED WHERE AN IMPENETRABLE HOLE IS ENCOUNTERED WHILE PLACING GUARDRAIL POSTS.
2. STONE REMOVAL MAYBE REQUIRED AND SHALL BE SUBSIDIARY TO ITEM 606.5266. REMOVE AS DIRECTED BY THE RESIDENT ENGINEER.
3. ALL WORK ASSOCIATED WITH THE MODIFICATION OF THE TIMBER RAIL POST INSTALLATION SHALL BE SUBSIDIARY TO ITEM 606.5266.

TIMBER RAIL NOTES

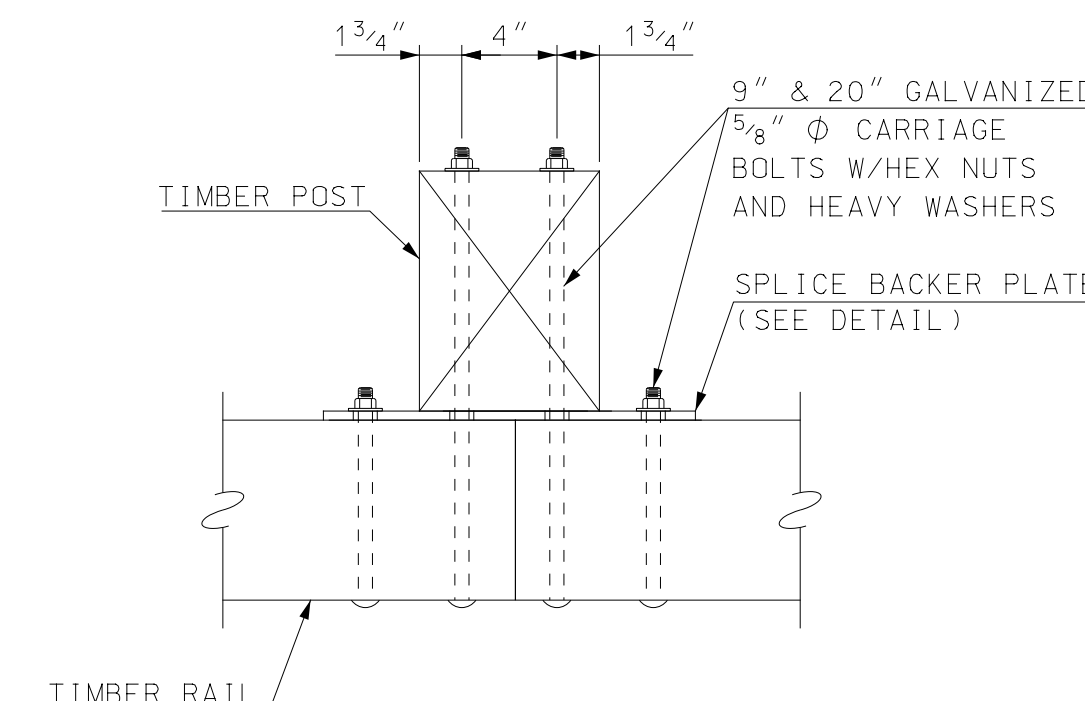
1. CONTRACTOR SHALL FIELD VERIFY SPACING OF EXISTING BRIDGE RAIL POSTS TO REMAIN AND LOCATION OF EXISTING BOLT HOLES IN THE POSTS PRIOR TO FABRICATION OF THE TIMBER RAILS. CONTRACTOR SHALL ALSO FIELD VERIFY EXISTING ANCHOR BOLT SPACING AT GRADE BEAMS PRIOR TO FABRICATION OF STEEL POSTS AND BASE PLATES.
2. MODIFY SPACER PLATES AND BACKER PLATES DETAILS AS SHOWN FOR EXISTING BOLT LOCATIONS ON EXISTING STEEL POSTS TO REMAIN.
3. ITEM 606.5266 SHALL INCLUDE SPACER PLATES, SPLICE PLATES, RAIL ASSEMBLY BOLTS, NUTS AND WASHERS, AS APPROPRIATE.
 - ASTM A36: SPACER PLATES AND SPLICE PLATES
 - A307: RAIL BOLTS
 - ASTM F844: WASHERS
 - ASTM A563: NUTS
4. ITEM 550.1 SHALL INCLUDE GRADE BEAM STEEL RAIL POSTS AND BASE PLATES CONFORMING TO A572 GRADE 50.
5. ALL STEEL COMPONENTS SHALL HAVE TWO COATS OF AN APPROVED COAL TAR EPOXY COATING APPLIED. ACCEPTABLE PRODUCTS INCLUDING A-H COAL TAR EPOXY 210 BY ANTI-HYDRO COMPANY, BITUMASTIC 300-M BY CARBOLINE, DURAL 306 BY TAMMS INDUSTRIES OR OTHER EQUIVALENT APPROVED EQUAL COAL TAR EPOXY. ALL COSTS FOR THIS WORK IS INCLUDED IN ITEM 606.5266.
6. STRUCTURAL TIMBER POSTS SHALL BE 8"x10" (NOM.) SOUTHERN YELLOW PINE NO. 1 OR BETTER HAVING A MINIMUM ALLOWABLE BENDING STRESS OF 1350 PSI. (COST INCLUDED IN ITEM 606.5266).
7. STRUCTURAL TIMBER-RAILS SHALL BE 6"x8" (NOM.) SOUTHERN YELLOW PINE NO. 1 OR BETTER HAVING A MINIMUM ALLOWABLE BENDING STRESS OF 1350 PSI. RAIL SYSTEM WILL BE MEASURED AND PAID FOR BY THE LINEAR FOOT INSTALLED.
8. ALL TIMBER RAILS AND POSTS SHALL BE TREATED IN ACCORDANCE WITH NHDOT STANDARD SPECIFICATION SECTION 568 USING A PENTACHLOROPHENOL TYPE C PRESERVATIVE TREATMENT. PRESERVATIVE, PRESSURE TREATMENT PROCESSES, MATERIALS AND MINIMUM NET RETENTION OF PRESERVATIVE SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 133. EXCESSIVE RESIDUAL PRESERVATIVE MATERIAL WILL BE REJECTED.
9. ALL WOOD CONSTRUCTION SHALL COMPLY WITH THE LATEST AASHTO SPECIFICATIONS, THE NATIONAL DESIGN SPECIFICATION (NDS) AND SUPPLEMENT FOR WOOD CONSTRUCTION SPECIFICATIONS.
10. EACH PIECE OF WOOD OR TIMBER SHALL BE GRADED, BY A RECOGNIZED LUMBER GRADING AGENCY. A CERTIFICATE OF COMPLIANCE SHALL BE SUBMITTED FOR ALL WOOD.
11. ALL JOB SITE FABRICATION CUTS AND BORINGS OF WOOD TO BE TREATED SHALL HAVE TWO COATS OF COPPER NAPHTHENATE SOLUTION LIBERALLY APPLIED. THE FIELD TREATMENT APPLICATIONS OF PRESERVATIVE SPECIFIED SHALL BE IN ACCORDANCE WITH ANPA STANDARD M4.
12. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF TWO (2) POSTS, UNLESS OTHERWISE NOTED/DETAILED.



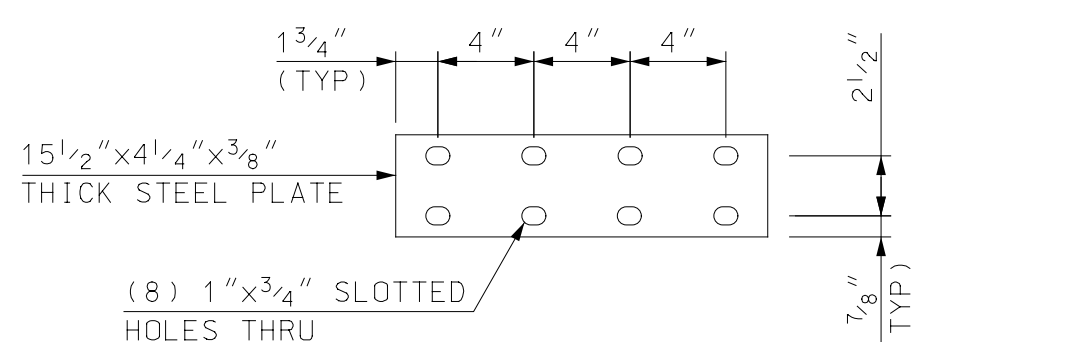
BENT SPLICE CONNECTION AT TIMBER POST
SCALE: 1 1/2" = 1'-0"



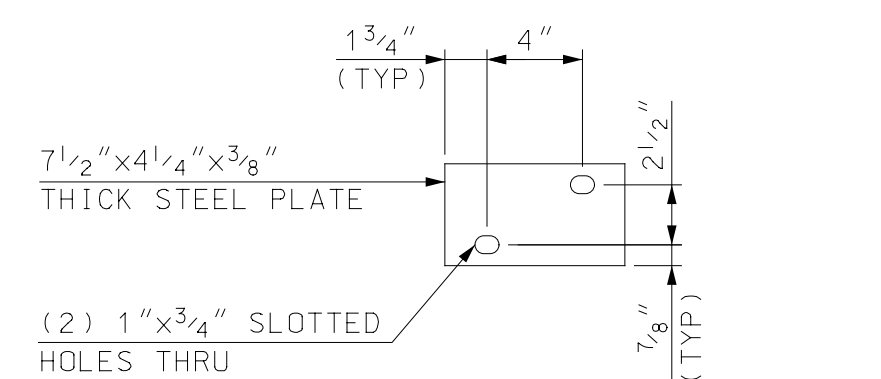
BENT SPLICE CONNECTION AT STEEL POST
SCALE: 1 1/2" = 1'-0"



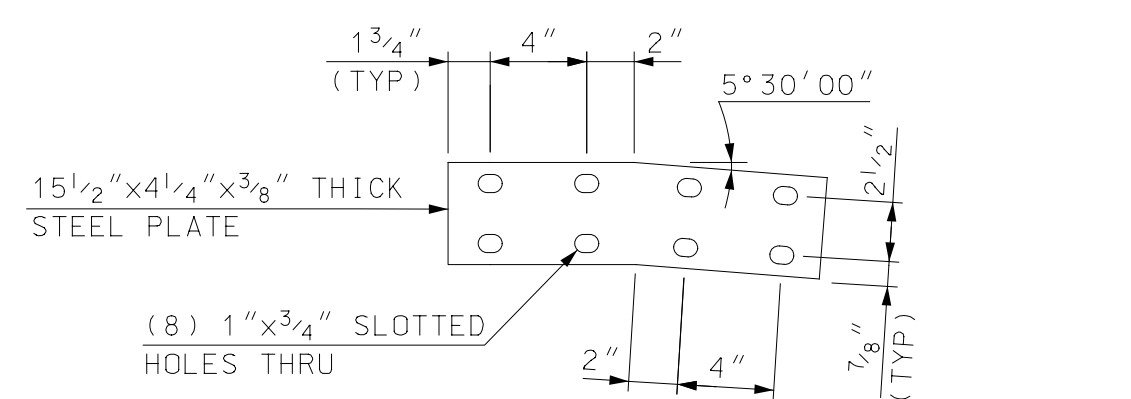
TYPICAL SPLICE CONNECTION
SCALE: 1 1/2" = 1'-0"



SPLICE BACKER PLATE DETAIL
SCALE: 1 1/2" = 1'-0"



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



SPLICE BACKER PLATE DETAIL AT TIP DOWN
SCALE: 1 1/2" = 1'-0"

| REV | DESCRIPTION | DATE |
|------------|-----------------|------|
| MARCH 2016 | DESIGN BY: JAS | |
| | DRAWN BY: JFMS | |
| | CHKD. BY: JB | |
| | SCALE: AS SHOWN | |

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

TOWN OF DURHAM
DURHAM, NEW HAMPSHIRE
DURHAM POINT ROAD OVER CROMMET CREEK
RAIL DETAILS (2 OF 2)

| | |
|--------------|----------------|
| PROJECT NO.: | 902705 |
| FILE NAME: | 902705RAIL2 |
| MODEL NAME: | 902705RailDtl2 |

3/28/2016 3:22:16 PM K:\9027052-CADD\BRC\Details\902705RAIL2.dgn