

STATE OF VERMONT AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT BRIDGE PROJECT

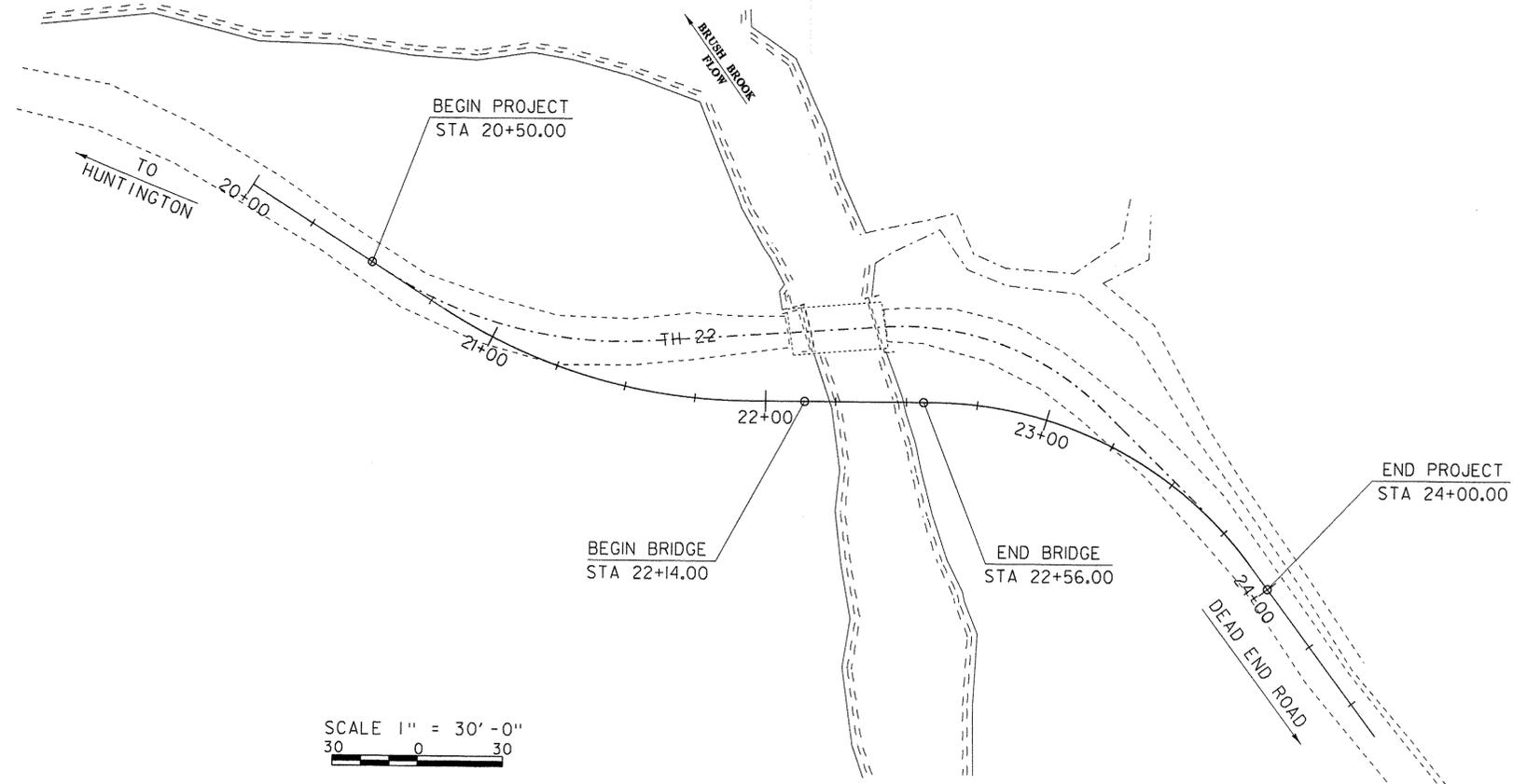
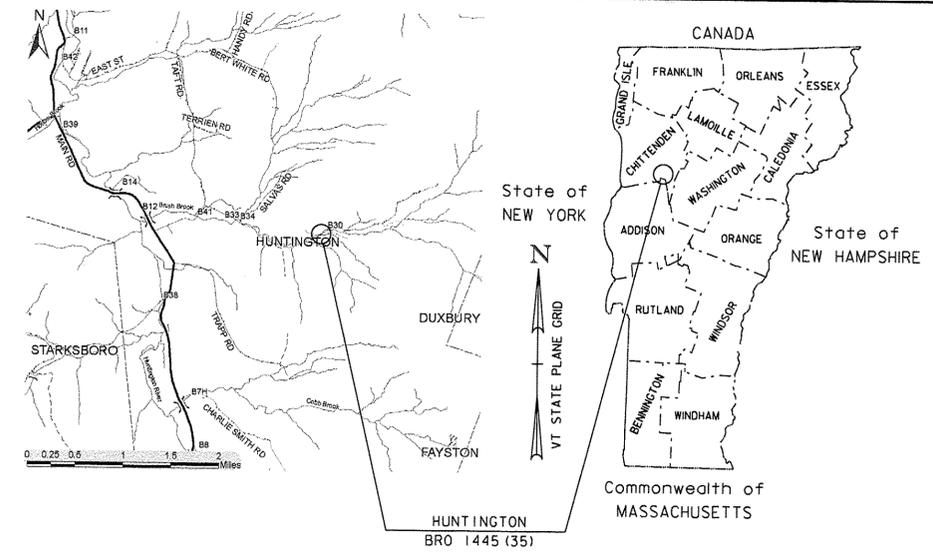
TOWN OF HUNTINGTON
COUNTY OF CHITTENDEN

ROUTE NO : TOWN HIGHWAY 22 , CLASS 3 (CAMELS HUMP ROAD) BRIDGE NO : 30

PROJECT LOCATION: 1.4 MILES EAST OF JUNCTION WITH TOWN HIGHWAY 4 (TAFT ROAD) (CLASS 3)

PROJECT DESCRIPTION: REPLACEMENT OF EXISTING BRIDGE WITH A NEW BRIDGE ON A NEW ALIGNMENT,
WITH RELATED CHANNEL AND ROADWAY WORK.

LENGTH OF STRUCTURE: 42.00 FEET
LENGTH OF ROADWAY: 308.00 FEET
LENGTH OF PROJECT: 350.00 FEET



CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JULY 20, 2011 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

| | |
|-------------------------------------|------------|
| QUALITY ASSURANCE PROGRAM : LEVEL 2 | |
| SURVEYED BY : | R. GILMAN |
| SURVEYED DATE : | 03-20-2012 |
| DATUM | |
| VERTICAL | NAVD88 |
| HORIZONTAL | NAD83 (92) |

SCALE 1" = 30'-0"
30 0 30

| | |
|--|-----------------|
| DIRECTOR OF PROJECT DELIVERY | |
| APPROVED: <i>[Signature]</i> | DATE 10/19/2015 |
| PROJECT MANAGER : CAROLYN CARLSON, P. E. | |
| PROJECT NAME : | HUNTINGTON |
| PROJECT NUMBER : | BRO 1445 (35) |
| SHEET 1 OF 44 SHEETS | |

PRELIMINARY INFORMATION SHEET (BRIDGE)

INDEX OF SHEETS

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STRUCTURES DETAIL SHEETS

| | | |
|-----------|----------------------------|------------|
| SD-501.00 | CONCRETE DETAILS AND NOTES | 2/6/2012 |
| SD-502.00 | CONCRETE DETAILS AND NOTES | 10/10/2012 |

HIGHWAY SAFETY & DESIGN DETAIL

| | | |
|------------|---------------------------------|-----------|
| HSD-621.06 | GUARDRAIL TERMINAL LABEL DETAIL | 11/3/2015 |
|------------|---------------------------------|-----------|

STANDARDS LIST

| | | |
|--------|---|------------|
| G-1 | STEEL BEAM GUARDRAIL WITH STEEL POSTS | 11-10-2015 |
| G-1D | STEEL BEAM GUARDRAIL WITH WOOD POSTS | |
| G-1D | STEEL BEAM GUARDRAIL DETAILS (END TERMINAL, ANCHOR, MEDIUM) | 02-10-2014 |
| S-367A | BRIDGE RAILING, GALVANIZED HDSB/FASCIA MOUNTED/STEEL TUBING | 05-24-2012 |
| S-367B | GUARDRAIL APPROACH SECTION, GALVANIZED HD STEEL BEAM | 05-24-2012 |
| T-1 | TRAFFIC CONTROL GENERAL NOTES | 08-06-2012 |
| T-10 | CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING | 08-06-2012 |
| T-28 | CONSTRUCTION SIGN DETAILS | 08-06-2012 |

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: June 2014

DRAINAGE AREA : 5.1 sq. mi.
 CHARACTER OF TERRAIN : Hilly to mountainous, mostly forested
 STREAM CHARACTERISTICS : Steep, sinuous, semi-alluvial, incised, narrow valley setting
 NATURE OF STREAMBED : Gravel, cobbles and boulders

PEAK FLOW DATA

| | | | |
|----------|----------|---------|----------|
| Q 2.33 = | 365 cfs | Q 50 = | 1350 cfs |
| Q 10 = | 810 cfs | Q 100 = | 1550 cfs |
| Q 25 = | 1125 cfs | Q 500 = | 2050 cfs |

DATE OF FLOOD OF RECORD : unknown
 ESTIMATED DISCHARGE : unknown
 WATER SURFACE ELEV. : unknown
 NATURAL STREAM VELOCITY : @ Q25 = 11.0 fps
 ICE CONDITIONS : Slight to moderate
 DEBRIS : moderate
 DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? Yes
 IS ORDINARY RISE RAPID? Yes
 IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? No
 IF YES, DESCRIBE:

WATERSHED STORAGE: <1% HEADWATERS:
 UNIFORM: X
 IMMEDIATELY ABOVE SITE:

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Single span steel beam bridge with timber deck
 YEAR BUILT: 1925
 CLEAR SPAN(NORMAL TO STREAM): 25'
 VERTICAL CLEARANCE ABOVE STREAMBED: 10'
 WATERWAY OF FULL OPENING: 230 sq. ft.
 DISPOSITION OF STRUCTURE: Remove and replace with new bridge
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: See boring logs

WATER SURFACE ELEVATIONS AT:

| | | | |
|---------|-----------|------------|----------|
| Q2.33 = | 1081.3' * | VELOCITY = | 7.3 fps |
| Q10 = | 1082.4' | " | 9.3 fps |
| Q25 = | 1083.1' | " | 10.1 fps |
| Q50 = | 1083.5' | " | 10.6 fps |
| Q100 = | 1083.8' | " | 11.1 fps |

LONG TERM STREAMBED CHANGES: Some local scour along the abutments and through the bridge area.

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: Above Q100
 RELIEF ELEVATION: 1086'
 DISCHARGE OVER ROAD @Q100: N.A.

UPSTREAM STRUCTURE

TOWN: NA - Stream divides DISTANCE:
 HIGHWAY #: STRUCTURE #:
 CLEAR SPAN: CLEAR HEIGHT:
 YEAR BUILT: FULL WATERWAY:
 STRUCTURE TYPE:

DOWNSTREAM STRUCTURE

TOWN: Huntington DISTANCE: 1,000'
 HIGHWAY #: TH 22 STRUCTURE #: 31
 CLEAR SPAN: 31' CLEAR HEIGHT: 9'
 YEAR BUILT: 2001 FULL WATERWAY: 275 sq. ft.
 STRUCTURE TYPE: Concrete slab bridge

LRFR LOAD RATING FACTORS

| LOADING LEVELS | TRUCK | | | | | | |
|----------------|-------|-------|-----|--------|---------|---------|--------|
| | H-20 | HL-93 | 3S2 | 6 AXLE | 3A STR. | 4A STR. | 5A SEM |
| TONNAGE | 20 | 36 | 36 | 66 | 30 | 34.5 | 38 |
| INVENTORY | 1.96 | 1.19 | | | | | |
| POSTING | | | | | | | |
| OPERATING | 2.54 | 1.54 | 2.7 | 1.4 | 1.89 | 1.73 | 2.33 |
| COMMENTS: | | | | | | | |

AS BUILT "REBAR" DETAIL

| LEVEL I | | | LEVEL II | | | LEVEL III | | |
|---------|--|--|----------|--|--|-----------|--|--|
| TYPE: | | | TYPE: | | | TYPE: | | |
| GRADE: | | | GRADE: | | | GRADE: | | |

TRAFFIC DATA

| YEAR | ADT | DHV | % D | % T | ADTT | |
|------|-----|-----|-----|-----|------|--|
| 2015 | 270 | 55 | 55 | 4.7 | 10 | 20 year ESAL for flexible pavement from 2015 to 2035 : 39000 |
| 2035 | 290 | 60 | 55 | 5.3 | 15 | 40 year ESAL for flexible pavement from 2015 to 2055 : 74000 |
| | | | | | | Design Speed : 20 mph |

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span concrete slab bridge
 CLEAR SPAN(NORMAL TO STREAM): 36'
 VERTICAL CLEARANCE ABOVE STREAMBED: 12'
 WATERWAY OF FULL OPENING: 380 sq. ft.

WATER SURFACE ELEVATIONS AT:

| | | | |
|---------|-----------|-----------|----------|
| Q2.33 = | 1081.3' * | VELOCITY= | 8.1 fps |
| Q10 = | 1082.4' | " | 9.9 fps |
| Q25 = | 1083.2' | " | 10.7 fps |
| Q50 = | 1083.7' | " | 11.4 fps |
| Q100 = | 1084.1' | " | 11.8 fps |

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: Above Q100
 RELIEF ELEVATION: 1088'
 DISCHARGE OVER ROAD @Q100: N.A.

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 1088.1'
 VERTICAL CLEARANCE: @ Q25 = 5.1'

SCOUR: Contraction scour is 1' up to Q500.

REQUIRED CHANNEL PROTECTION: Stone Fill, Type IV

PERMIT INFORMATION

AVERAGE DAILY FLOW: 10 cfs DEPTH OR ELEVATION:
 ORDINARY LOW WATER: 5 cfs Depth = 0.5'
 ORDINARY HIGH WATER: 160 cfs Depth = 3'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: No temporary bridge required.
 CLEAR SPAN (NORMAL TO STREAM):
 VERTICAL CLEARANCE ABOVE STREAMBED:
 WATERWAY AREA OF FULL OPENING:

ADDITIONAL INFORMATION

* Proposed bridge reported water surface elevations are higher than those for the existing bridge, because the proposed bridge is located upstream of the existing bridge.

TRAFFIC MAINTENANCE NOTES

1. MAINTAIN TWO-WAY TRAFFIC ON THE EXISTING STRUCTURE.
2. TRAFFIC SIGNALS ARE NOT NECESSARY.
3. SIDEWALKS ARE NOT NECESSARY

DESIGN VALUES

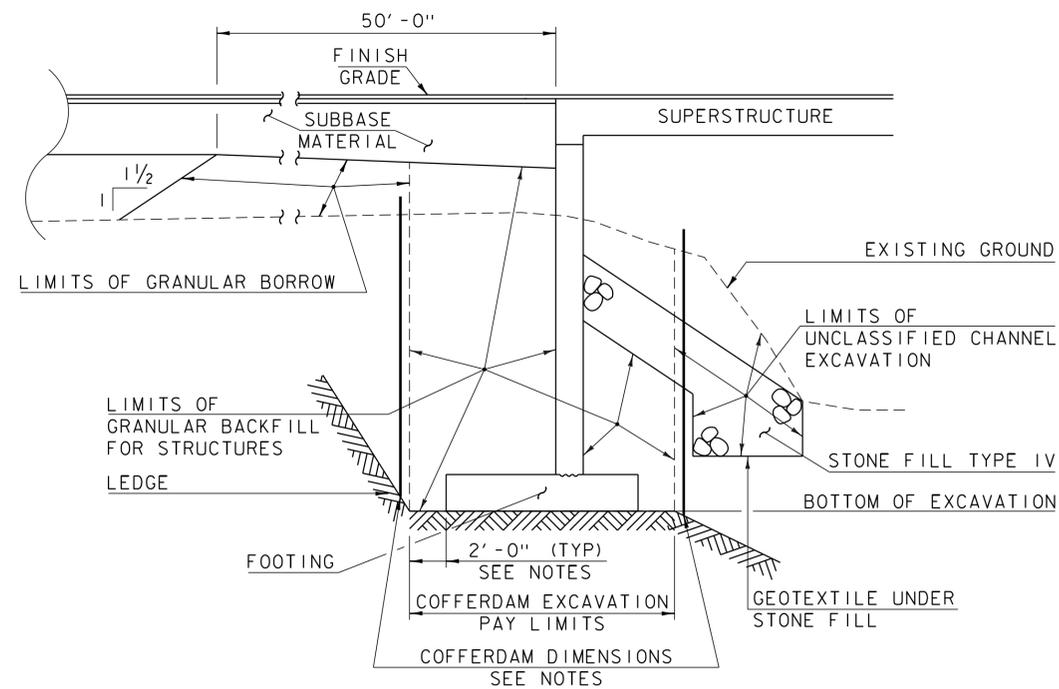
| | |
|--|--------------|
| 1. DESIGN LIVE LOAD | HL-93 |
| 2. FUTURE PAVEMENT | dp: 2.5 INCH |
| 3. DESIGN SPAN | L: 42.00 FT |
| 4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS) | Δ: --- |
| 5. PRESTRESSING STRAND | fy: --- |
| 6. PRESTRESSED CONCRETE STRENGTH | f'c: --- |
| 7. PRESTRESSED CONCRETE RELEASE STRENGTH | f'cr: --- |
| 8. CONCRETE, HIGH PERFORMANCE CLASS AA | f'c: --- |
| 9. CONCRETE, HIGH PERFORMANCE CLASS A | f'c: --- |
| 10. CONCRETE, HIGH PERFORMANCE CLASS B | f'c: 3.5 KSI |
| 11. CONCRETE, CLASS C | f'c: 3.0 KSI |
| 12. REINFORCING STEEL | fy: 60 KSI |
| 13. STRUCTURAL STEEL AASHTO M270 | fy: --- |
| 14. NOMINAL BEARING RESISTANCE OF SOIL | qn: 6.5 KSF |
| 15. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD) | φ: 0.45 KSF |
| 16. NOMINAL BEARING RESISTANCE OF ROCK | qn: 20.0 KSF |
| 17. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD) | φ: 0.45 |

| | |
|------------------------------|-----------------------|
| 18. PILE RESISTANCE FACTOR | φ: --- |
| 19. LATERAL PILE DEFLECTION | Δ: --- |
| 20. BASIC WIND SPEED | V3s: --- |
| 21. MINIMUM GROUND SNOW LOAD | pg: --- |
| 22. SEISMIC DATA | PGA: 0 S: --- Sf: --- |

PROJECT NAME: **HUNTINGTON**

PROJECT NUMBER: **BRO 1445(35)**

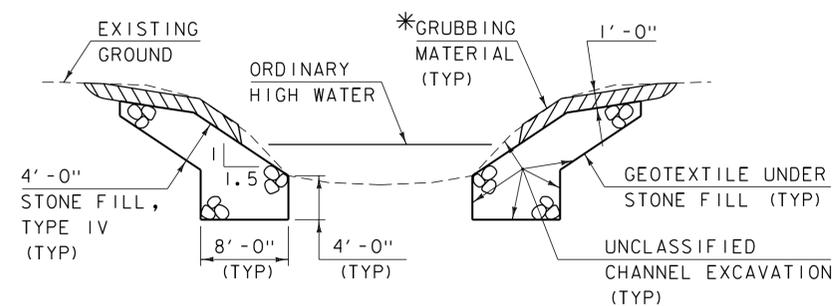
FILE NAME: s12j162pi.xls PLOT DATE: 12/3/2015
 PROJECT LEADER: C. CARLSON DRAWN BY: R. PELLETT
 DESIGNED BY: D. PETERSON CHECKED BY: C. MOONEY
PRELIMINARY INFORMATION SHEET 2 OF 44



COFFERDAM AND EARTHWORK SECTION
(NOT TO SCALE)

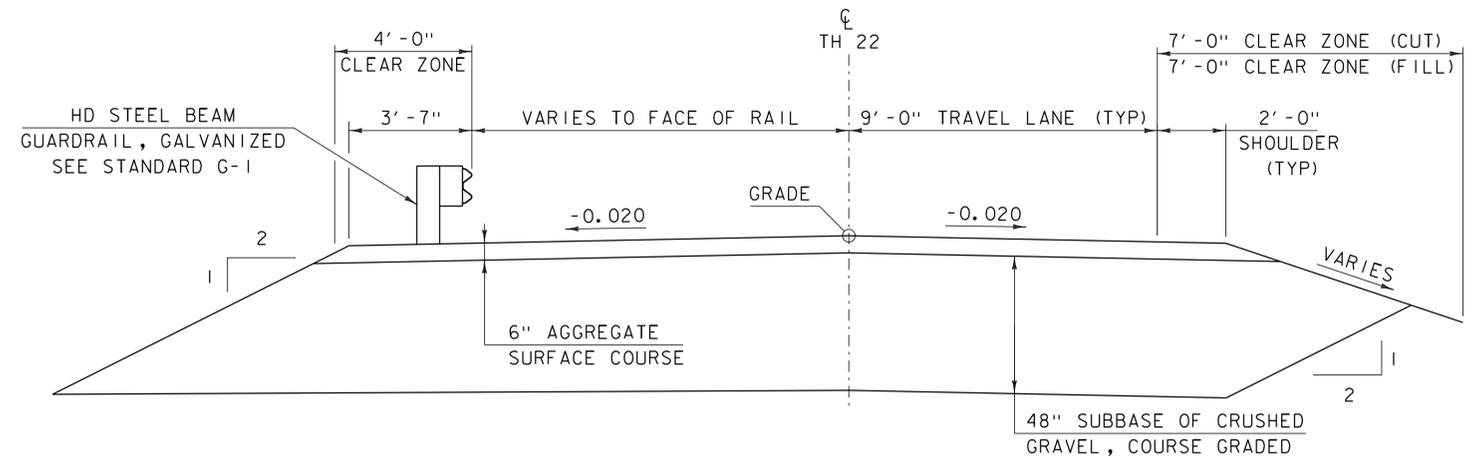
COFFERDAM NOTES

1. COFFERDAM DIMENSIONS TO BE DETERMINED BY THE CONTRACTOR.
2. THE PAY LIMITS OF "COFFERDAM EXCAVATION, EARTH" AND "COFFERDAM EXCAVATION, ROCK" SHALL BE 2'-0" OUTSIDE THE PERIMETER OF THE FOOTING AND FROM BOTTOM OF EXCAVATION UP TO THE EXISTING GROUND OR BOTTOM OF SUBBASE, WHICHEVER IS LOWER.
3. IF A COFFERDAM IS CONSTRUCTED WHICH IS LARGER THAN THE INDICATED COFFERDAM EXCAVATION PAY LIMITS, PAYMENT FOR ALL UNCLASSIFIED CHANNEL EXCAVATION, INCLUDING THAT PORTION WHICH IS INSIDE THE COFFERDAM BUT OUTSIDE THE COFFERDAM PAY LIMITS, WILL BE MADE AT THE CONTRACT UNIT PRICE FOR UNCLASSIFIED CHANNEL EXCAVATION. NO MEASUREMENT AND PAYMENT WILL BE MADE FOR COFFERDAM EXCAVATION AND GRANULAR BACKFILL FOR STRUCTURES OUTSIDE THE PAY LIMITS DEFINED IN NOTE 2.



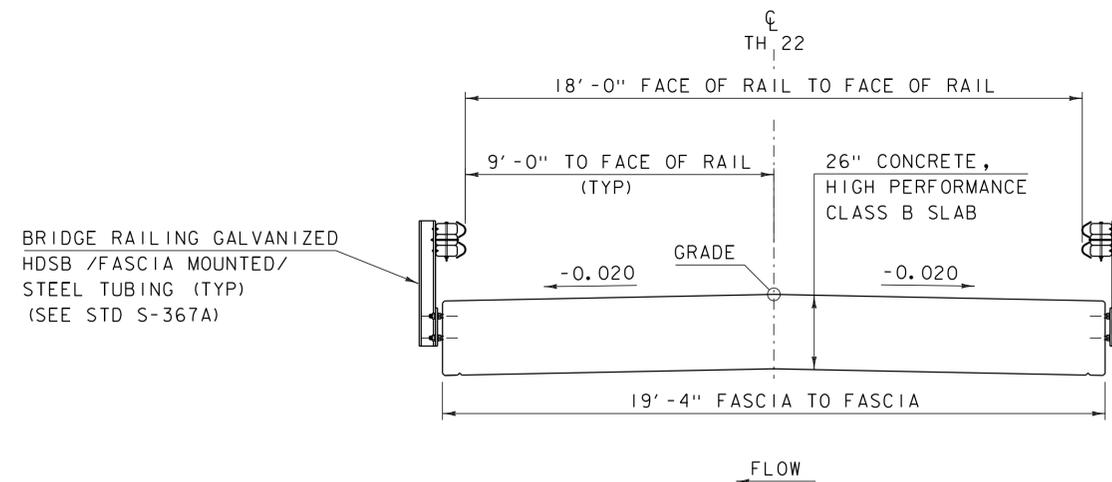
TYPICAL CHANNEL SECTION
(NOT TO SCALE)

* WHENEVER CHANNEL SLOPE INTERSECTS ROADWAY SUBBASE, GRUBBING MATERIAL SHALL BEGIN AT THE BOTTOM OF SUBBASE.



PROPOSED TH 22 TYPICAL SECTION

SCALE 3/8" = 1'-0"



PROPOSED BRIDGE TYPICAL SECTION

SCALE 3/8" = 1'-0"

| MATERIAL TOLERANCES (IF USED ON PROJECT) | |
|---|----------|
| SURFACE | |
| - PAVEMENT (TOTAL THICKNESS) | +/- 1/4" |
| - AGGREGATE SURFACE COURSE | +/- 1/2" |
| SUBBASE | |
| - SAND BORROW | +/- 1" |

PROJECT NAME: HUNTINGTON
PROJECT NUMBER: BRO 1445(35)

FILE NAME: sl2j162typ.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
TYPICAL SECTIONS

PLOT DATE: 15-OCT-2015
DRAWN BY: R. PELLETT
CHECKED BY: D. PETERSON
SHEET 3 OF 44

GENERAL

- 1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011, AND ITS LATEST REVISIONS, AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, DATED 2012, AND ITS LATEST REVISIONS.
- 2. DURING CONSTRUCTION, TRAFFIC SHALL BE MAINTAINED ON THE EXISTING BRIDGE DOWNSTREAM OF THE NEW STRUCTURE. PAYMENT FOR MAINTENANCE OF THE EXISTING STRUCTURE WILL BE PAID FOR UNDER ITEM 527.10 "MAINTENANCE OF STRUCTURES AND APPROACHES".
- 3. ALL DIMENSIONS SHOWN IN THE PLANS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68 DEGREES FAHRENHEIT, UNLESS NOTED OTHERWISE.

EARTHWORK AND RELATED ITEMS

- 4. REMOVAL OF THE EXISTING SUPERSTRUCTURE AND THOSE PORTIONS OF THE EXISTING SUBSTRUCTURES NOT REMOVED UNDER ITEM 203.27, "UNCLASSIFIED CHANNEL EXCAVATION" WILL BE PAID FOR UNDER ITEM 529.15 "REMOVAL OF STRUCTURE" (400 SF - EST).
- 5. THE "STONE FILL, TYPE IV" UNDER THE BRIDGE AS SHOWN IN THE PLANS SHALL BE PLACED BEFORE THE SLAB IS POURED.
- 6. THE BACKFILL BEHIND THE ABUTMENTS SHALL NOT BE PLACED HIGHER THAN THE BRIDGE SEATS UNTIL THE ABUTMENTS AND SLAB CONSTRUCTION IS COMPLETED.
- 7. IF BEDROCK IS ENCOUNTERED IN THE SLOPE FROM APPROXIMATELY STA. 20+75 RT TO STA. 22+00 RT. PAYMENT FOR ANY BEDROCK REMOVAL IN THE SLOPE WILL BE PAID FOR UNDER ITEM 203.16, "SOLID ROCK EXCAVATION". ANY BEDROCK ENCOUNTERED IN A LOCATION WHERE SUBBASE MATERIAL TO BE PLACED, WILL BE PAID FOR UNDER ITEM 205.20 "DRILLING AND BLASTING OF SOLID ROCK SUBGRADE".

STRUCTURAL STEEL

- 8. THE EXISTING STRUCTURAL STEEL IS PAINTED WITH A MATERIAL THAT MAY CONTAIN LEAD. THE CONTRACTOR SHALL FOLLOW ALL APPLICABLE REGULATIONS WHEN HANDLING AND WORKING WITH THIS STEEL. THE REMOVED STRUCTURAL STEEL IS THE PROPERTY OF THE CONTRACTOR. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE STATE, ITS OFFICERS, AND EMPLOYEES HARMLESS CONCERNING THE CONTRACTOR'S USE OR DISPOSITION OF THE REMOVED EXISTING STRUCTURAL STEEL.

CONCRETE

- 9. ALL CONCRETE FOR THE SUPERSTRUCTURE AND SUBSTRUCTURE, EXCLUDING THE SUBFOOTINGS, WILL BE PAID FOR UNDER ITEM 501.34 "CONCRETE, HIGH PERFORMANCE CLASS B".
- 10. THE CONCRETE SLAB SHALL BE TURF DRAGGED per 501.16(d) (2).
- 11. CONCRETE FOR SUBFOOTING WILL BE PAID FOR UNDER ITEM 541.30, "CONCRETE, CLASS C". PAYMENT FOR SUBFOOTING CONCRETE WILL BE MADE ONLY FOR CONCRETE WITHIN THE LIMITS FOR SUBFOOTING SHOWN ON THE PLANS.
- 12. THE TOP SURFACE OF SUBFOOTING POURS SHALL BE ROUGHENED TO A RAKE FINISH TO HELP PREVENT SLIDING AT THE SUBFOOTING/FOOTING INTERFACE.
- 13. THE SLAB SHALL BE POURED IN ONE CONTINUOUS POUR WITH A MAXIMUM DURATION OF EIGHT HOURS. IF CIRCUMSTANCES BEYOND THE CONTRACTOR'S CONTROL PREVENT THIS FROM BEING ACCOMPLISHED, A TRANSVERSE CONSTRUCTION JOINT SHALL BE USED BETWEEN ADJACENT POURS. A MINIMUM 96 HOUR DELAY BETWEEN ADJACENT POURS SHALL BE OBSERVED.
- 14. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1 INCH X 1 INCH.
- 15. ITEM 514.10 "WATER REPELLENT, SILANE" SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES, EXCEPT THE UNDERSIDE OF THE SLAB BETWEEN DRIP NOTCHES. PAYMENT FOR WATER REPELLENT, SILANE WILL BE MADE UNDER ITEM 514.10, WATER REPELLENT, SILANE.
- 16. JOINTS AND SCORE MARKS IN CONCRETE SHALL BE CONSTRUCTED AS SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER.
- 17. ALL REINFORCING STEEL IN THE CONCRETE SLAB SHALL BE ITEM 507.11 REINFORCING STEEL, LEVEL I (EPOXY COATED). ALL OTHER STEEL SHALL BE LEVEL I.

- 18. REINFORCING STEEL PLACEMENT TOLERANCES SHALL BE:
SPACING: +/- 1 INCH
CLEARANCE: +/- 1/4 INCH

SUBSTRUCTURES ON BEDROCK

- 19. THE SUBFOOTING FOR THE ABUTMENTS AND WINGWALLS WILL BE FOUNDED ON BEDROCK AND SHALL BE PLACED ON CLEAN COMPETENT ROCK. ALL LOOSE ROCK AND DEBRIS SHALL BE REMOVED.
- 20. ONCE THE CONTRACTOR HAS EXCAVATED FOR THE SUBFOOTINGS; THE RESIDENT ENGINEER WILL CONTACT THE PROJECT MANAGER AND AGENCY GEOLOGIST TO DETERMINE IF THE BEDROCK IS COMPETENT. FIVE (5) WORKING DAYS FROM NOTIFICATION WILL BE ALLOWED TO MAKE THE INSPECTION AND THE DETERMINATION FOR THE COMPETENCY OF THE BEDROCK.
- 21. ANY BEDROCK THAT NEEDS TO BE REMOVED WILL BE PAID FOR WITH THE APPROPRIATE EXCAVATION ITEM. INCLUDED IN THE CONTRACT. OVERBREAKAGE BEYOND THE AVERAGE MAXIMUM ALLOWANCE SPECIFIED IN SUBSECTION 204.09(B) (1) WILL BE AT THE CONTRACTOR'S EXPENSE.
- 22. DOWELS SHALL BE DRILLED AND GROUTED INTO BEDROCK AS SHOWN ON THE PLANS OR AS ORDERED BY THE ENGINEER. THE DOWELS SHALL HAVE A 2'-0" MINIMUM EMBEDMENT IN THE BEDROCK AND SHALL EXTEND THROUGH THE SUBFOOTING INTO THE FOOTING A MINIMUM OF 1'-6", UNLESS NOTED OTHERWISE.
- 23. THE SUBSTRUCTURES HAVE BEEN DESIGNED FOR THE FOOTING ELEVATIONS SHOWN ON THE PLANS. THE INTENTION IS TO USE SUBFOOTINGS OF CONCRETE, CLASS "C" IN AREAS WHERE THE BEDROCK IS MORE THAN 6 INCHES BELOW THE DESIGN BOTTOM OF FOOTING ELEVATIONS. AFTER THE BEDROCK HAS BEEN EXPOSED, ADJUSTMENTS TO THE BOTTOM OF FOOTING ELEVATIONS MAY BE NECESSARY TO MINIMIZE THE BEDROCK REMOVAL AND/OR REDUCE THE AMOUNT OF SUBFOOTING CONCRETE. CONTACT THE PROJECT MANAGER FOR POSSIBLE REDESIGN IF THE BEDROCK PROFILES DIFFER FROM THOSE SHOWN ON THE PLANS. NO FURTHER WORK SHALL BE DONE ON THE FOOTINGS UNTIL A REPLY IS RECEIVED FROM THE STRUCTURES SECTION. A TURN-AROUND TIME OF UP TO FIVE BUSINESS DAYS MAY BE EXPECTED.

TRAFFIC CONTROL

- 24. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND INSTALLATION OF A SITE SPECIFIC TRAFFIC CONTROL PLAN. THE CONTRACTOR SHALL SUBMIT FOR APPROVAL A DETAILED TRAFFIC CONTROL PLAN TO THE ENGINEER FOR ALL STAGES OF CONSTRUCTION. NO CONSTRUCTION OPERATIONS WILL BEGIN UNTIL THE TRAFFIC CONTROL PLAN HAS BEEN APPROVED. SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS, ALL COSTS WILL BE INCLUDED IN ITEM 900.645 "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE).
- 25. THE CONTRACTOR SHALL NOTE THE PROXIMITY OF THE EXISTING BRIDGE TO WINGWALL #1. ANY WORK OUTSIDE OF THE COFFERDAM LIMITS TO MAINTAIN THE EXISTING STRUCTURE WILL BE PAID FOR UNDER ITEM 527.10 "MAINTENANCE OF STRUCTURES AND APPROACHES".

PROJECT NAME: HUNTINGTON
PROJECT NUMBER: BRO 1445(35)

FILE NAME: sl2j162pnotes.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
PROJECT NOTES

PLOT DATE: 03-DEC-2015
DRAWN BY: R. PELLETT
CHECKED BY: D. PETERSON
SHEET 4 OF 44

QUANTITY SHEET 1

| SUMMARY OF ESTIMATED QUANTITIES | | | | | | | | | | TOTALS | | DESCRIPTIONS | | | | DETAILED SUMMARY OF QUANTITIES | | | | |
|---------------------------------|--|--|--|--|--|--|---------|-----------------|--------|-----------------|-------------|--------------|------|--|-------------|--------------------------------|------------|-------------|---------------------------|--|
| | | | | | | | ROADWAY | EROSION CONTROL | BRIDGE | FULL C.E. ITEMS | GRAND TOTAL | FINAL | UNIT | ITEMS | ITEM NUMBER | ROUND | QUANTITIES | UNIT | ITEMS | |
| | | | | | | | 1 | | | | 1 | | LS | CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS | 201.10 | | | | EARTHWORKS SUMMARY | |
| | | | | | | | 2100 | | | | 2100 | | CY | COMMON EXCAVATION | 203.15 | | | | FILL AVAILABLE | |
| | | | | | | | 20 | | | | 20 | | CY | SOLID ROCK EXCAVATION | 203.16 | | | | | |
| | | | | | | | 550 | | | | 550 | | CY | UNCLASSIFIED CHANNEL EXCAVATION | 203.27 | | | 1470 | CY | COMMON EXCAVATION (0.70 x 2100 CY) |
| | | | | | | | 1 | | | | 1 | | CY | TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.) | 204.22 | | | 165 | CY | UNCLASSIFIED CHANNEL EXCAVATION (0.30 x 550) |
| | | | | | | | | | 280 | | 280 | | CY | GRANULAR BACKFILL FOR STRUCTURES | 204.30 | | | 156 | CY | COFFERDAM EXCAVATION (0.30 x 520) |
| | | | | | | | 30 | | | | 30 | | SY | DRILLING AND BLASTING OF SOLID ROCK SUBGRADE | 205.20 | | | 4 | CY | ROUNDING |
| | | | | | | | | | 520 | | 520 | | CY | COFFERDAM EXCAVATION, EARTH | 208.30 | | | 1795 | CY | TOTAL FILL AVAILABLE |
| | | | | | | | | | 50 | | 50 | | CY | COFFERDAM EXCAVATION, ROCK | 208.35 | | | | | FILL REQUIRED |
| | | | | | | | | | 1 | | 1 | | LS | COFFERDAM (ABUTMENT #1) | 208.40 | | | 125 | CY | FACTORED FILL (109 x 1.15) |
| | | | | | | | | | 1 | | 1 | | LS | COFFERDAM (ABUTMENT #2) | 208.40 | | | 5 | CY | ROUNDING |
| | | | | | | | 1500 | | | | 1500 | | CY | SUBBASE OF CRUSHED GRAVEL, COARSE GRADED | 301.25 | | | 130 | CY | TOTAL FILL REQUIRED |
| | | | | | | | 140 | | | | 140 | | CY | AGGREGATE SURFACE COURSE | 401.10 | | | | | |
| | | | | | | | | | 222 | | 222 | | CY | CONCRETE, HIGH PERFORMANCE CLASS B | 501.34 | | | | | |
| | | | | | | | | | 28550 | | 28550 | | LB | REINFORCING STEEL, LEVEL I | 507.11 | | | | | |
| | | | | | | | | | 92 | | 92 | | LF | DRILLING AND GROUTING DOWELS | 507.16 | | | | | |
| | | | | | | | | | 20 | | 20 | | GAL | WATER REPELLENT, SILANE | 514.10 | | | | | |
| | | | | | | | | | 88 | | 88 | | LF | BRIDGE RAILING, GALVANIZED HDSB/FASCIA MOUNTED/STEEL TUBING | 525.44 | | | | | |
| | | | | | | | 1 | | | | 1 | | LS | MAINTENANCE OF STRUCTURES AND APPROACHES | 527.10 | | | | | |
| | | | | | | | 1 | | | | 1 | | EACH | REMOVAL OF STRUCTURE (400 SF - EST) | 529.15 | | | | | |
| | | | | | | | | | 75 | | 75 | | CY | CONCRETE, CLASS C | 541.30 | | | | | |
| | | | | | | | 1 | | | | 1 | | MGAL | DUST CONTROL WITH WATER | 609.10 | | | | | |
| | | | | | | | 0.5 | | | | 0.5 | | TON | DUST AND ICE CONTROL WITH CALCIUM CHLORIDE | 609.15 | | | | | |
| | | | | | | | 190 | | | | 190 | | CY | STONE FILL, TYPE II | 613.11 | | | | | |
| | | | | | | | | | 490 | | 490 | | CY | STONE FILL, TYPE IV | 613.13 | | | | | |
| | | | | | | | 137.5 | | | | 137.5 | | LF | HD STEEL BEAM GUARDRAIL, GALVANIZED | 621.21 | | | | | |
| | | | | | | | 4 | | | | 4 | | EACH | ANCHOR FOR STEEL BEAM RAIL | 621.60 | | | | | |
| | | | | | | | 4 | | | | 4 | | EACH | GUARDRAIL APPROACH SECTION, GALV HD STEEL BEAM | 621.737 | | | | | |
| | | | | | | | 39 | | | | 39 | | LF | REMOVAL AND DISPOSAL OF GUARDRAIL | 621.80 | | | | | |
| | | | | | | | 400 | | | | 400 | | HR | FLAGGERS | 630.15 | | | | | |
| | | | | | | | | | | 1 | 1 | | LS | FIELD OFFICE, ENGINEERS | 631.10 | | | | | |
| | | | | | | | | | | 1 | 1 | | LS | TESTING EQUIPMENT, CONCRETE | 631.16 | | | | | |
| | | | | | | | | | | 3000 | 3000 | | DL | FIELD OFFICE TELEPHONE (N.A.B.I.) | 631.26 | | | | | |
| | | | | | | | 1 | | | | 1 | | LS | MOBILIZATION/DEMobilIZATION | 635.11 | | | | | N.A.B.I. = NOT A BID ITEM |
| | | | | | | | 400 | | 570 | | 970 | | SY | GEOTEXTILE UNDER STONE FILL | 649.31 | | | | | |
| | | | | | | | | 65 | | | 65 | | SY | GEOTEXTILE FOR SILT FENCE | 649.51 | | | | | |
| | | | | | | | | 79 | | | 79 | | SY | GEOTEXTILE FOR FILTER CURTAIN | 649.61 | | | | | |
| | | | | | | | | 14 | | | 14 | | LB | SEED | 651.15 | | | | | |
| | | | | | | | | 11 | | | 11 | | LB | SEED, WINTER RYE | 651.17 | | | | | |
| | | | | | | | | 100 | | | 100 | | LB | FERTILIZER | 651.18 | | | | | |

PROJECT NAME: HUNTINGTON
PROJECT NUMBER: BRO 1445(35)

FILE NAME: sl2j162qs.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
QUANTITY SHEET 1

PLOT DATE: 15-OCT-2015
DRAWN BY: R. PELLETT
CHECKED BY: D. PETERSON
SHEET 5 OF 44

QUANTITY SHEET 2

| SUMMARY OF ESTIMATED QUANTITIES | | | | | | | | | | TOTALS | | DESCRIPTIONS | | | | DETAILED SUMMARY OF QUANTITIES | | | |
|---------------------------------|--|--|--|--|--|--|---------|-----------------|--------|-----------------|-------------|--------------|------|--|-------------|--------------------------------|------------|------|---------------------------|
| | | | | | | | ROADWAY | EROSION CONTROL | BRIDGE | FULL C.E. ITEMS | GRAND TOTAL | FINAL | UNIT | ITEMS | ITEM NUMBER | ROUND | QUANTITIES | UNIT | ITEMS |
| | | | | | | | | 0.35 | | | 0.35 | | TON | AGRICULTURAL LIMESTONE | 651.20 | | | | |
| | | | | | | | | 0.35 | | | 0.35 | | TON | HAY MULCH | 651.25 | | | | |
| | | | | | | | | 110 | | | 110 | | CY | TOPSOIL | 651.35 | | | | |
| | | | | | | | | 680 | | | 680 | | SY | GRUBBING MATERIAL | 651.40 | | | | |
| | | | | | | | | 1 | | | 1 | | LS | EPSC PLAN | 652.10 | | | | |
| | | | | | | | | 50 | | | 50 | | HR | MONITORING EPSC PLAN | 652.20 | | | | |
| | | | | | | | | 1 | | | 1 | | LU | MAINTENANCE OF EPSC PLAN (N.A.B.I.) | 652.30 | | | | |
| | | | | | | | | 80 | | | 80 | | SY | TEMPORARY EROSION MATTING | 653.20 | | | | |
| | | | | | | | | 50 | | | 50 | | CY | TEMPORARY STONE CHECK DAM, TYPE I | 653.25 | | | | N.A.B.I. = NOT A BID ITEM |
| | | | | | | | | 30 | | | 30 | | CY | VEHICLE TRACKING PAD | 653.35 | | | | |
| | | | | | | | | 880 | | | 880 | | LF | PROJECT DEMARCATION FENCE | 653.55 | | | | |
| | | | | | | | 2 | | | | 2 | | EACH | REMOVING SIGNS | 675.50 | | | | |
| | | | | | | | 1 | | | | 1 | | LS | SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE) | 900.645 | | | | |

PROJECT NAME: HUNTINGTON
 PROJECT NUMBER: BRO 1445(35)
 FILE NAME: sl2j162qs.dgn
 PROJECT LEADER: C. CARLSON
 DESIGNED BY: D. PETERSON
 QUANTITY SHEET 2
 PLOT DATE: 19-OCT-2015
 DRAWN BY: R. PELLETT
 CHECKED BY: D. PETERSON
 SHEET 6 OF 44

BRIDGE QUANTITY SHEET 1

| SUMMARY OF BRIDGE QUANTITIES | | | | | | | | | | TOTALS | | DESCRIPTIONS | | | DETAILED SUMMARY OF QUANTITIES | | | | |
|------------------------------|--|--|--|--|--|--|---------|-------|--------|--------|--------------|--------------|------|---|--------------------------------|--|------------|------|-------|
| | | | | | | | CHANNEL | DECK | ABUT 1 | ABUT 2 | BRIDGE TOTAL | | UNIT | ITEMS | ITEM NUMBER | | QUANTITIES | UNIT | ITEMS |
| | | | | | | | | | 100 | 180 | 280 | | CY | GRANULAR BACKFILL FOR STRUCTURES | 204.30 | | | | |
| | | | | | | | | | 167 | 353 | 520 | | CY | COFFERDAM EXCAVATION, EARTH | 208.30 | | | | |
| | | | | | | | | | | 50 | 50 | | CY | COFFERDAM EXCAVATION, ROCK | 208.35 | | | | |
| | | | | | | | | | 1 | | 1 | | LS | COFFERDAM (ABUTMENT #1) | 208.40 | | | | |
| | | | | | | | | | | 1 | 1 | | LS | COFFERDAM (ABUTMENT #2) | 208.40 | | | | |
| | | | | | | | | 65 | 50 | 107 | 222 | | CY | CONCRETE, HIGH PERFORMANCE CLASS B | 501.34 | | | | |
| | | | | | | | | 12050 | 5330 | 11170 | 28550 | | LB | REINFORCING STEEL, LEVEL I | 507.11 | | | | |
| | | | | | | | | | 42 | 50 | 92 | | LF | DRILLING AND GROUTING DOWELS | 507.16 | | | | |
| | | | | | | | | 8 | 4 | 8 | 20 | | GAL | WATER REPELLENT, SILANE | 514.10 | | | | |
| | | | | | | | | 88 | | | 88 | | LF | BRIDGE RAILING, GALVANIZED HDSB/FASCIA MOUNTED/STEEL TUBING | 525.44 | | | | |
| | | | | | | | | | 31 | 44 | 75 | | CY | CONCRETE, CLASS C | 541.30 | | | | |
| | | | | | | | 490 | | | | 490 | | CY | STONE FILL, TYPE IV | 613.13 | | | | |
| | | | | | | | 570 | | | | 570 | | SY | GEOTEXTILE UNDER STONE FILL | 649.31 | | | | |

| | | | |
|-----------------|---------------|-------------------------|---------------|
| PROJECT NAME: | HUNTINGTON | PLOT DATE: | 15-OCT-2015 |
| PROJECT NUMBER: | BRO 1445(35) | DRAWN BY: | R. PELLETT |
| FILE NAME: | sl2j162qs.dgn | CHECKED BY: | D. PETERSON |
| PROJECT LEADER: | C. CARLSON | BRIDGE QUANTITY SHEET 1 | SHEET 7 OF 44 |

GENERAL INFORMATION

SYMBOLGY LEGEND NOTE

THE SYMBOLGY ON THIS SHEET IS INTENDED TO COVER STANDARD CONVENTIONAL SYMBOLGY. THE SYMBOLGY IS USED FOR EXISTING & PROPOSED FEATURES WITH HEAVIER LINEWEIGHT, IN COMBINATION WITH PROJECT ANNOTATION, AS NOTED ON PROJECT PLAN SHEETS. THIS LEGEND SHEET COVERS THE BASICS. SYMBOLGY ON PLANS MAY VARY, PLAN ANNOTATIONS AND NOTES SHOULD BE USED TO CLARIFY AS NEEDED.

R. O. W. ABBREVIATIONS (CODES) & SYMBOLS

| POINT CODE | DESCRIPTION |
|------------|------------------------------|
| CH | CHANNEL EASEMENT |
| CONST | CONSTRUCTION EASEMENT |
| CUL | CULVERT EASEMENT |
| D&C | DISCONNECT & CONNECT |
| DIT | DITCH EASEMENT |
| DR | DRAINAGE EASEMENT |
| DRIVE | DRIVEWAY EASEMENT |
| EC | EROSION CONTROL |
| HWY | HIGHWAY EASEMENT |
| I&M | INSTALL & MAINTAIN EASEMENT |
| LAND | LANDSCAPE EASEMENT |
| R&RES | REMOVE & RESET |
| R&REP | REMOVE & REPLACE |
| SR | SLOPE RIGHT |
| UE | UTILITY EASEMENT |
| (P) | PERMANENT EASEMENT |
| (T) | TEMPORARY EASEMENT |
| ■ | BNDNS BOUND SET |
| □ | BNDNS BOUND TO BE SET |
| ● | IPNS IRON PIN SET |
| ⊙ | IPNS IRON PIN TO BE SET |
| ⊠ | CALC EXISTING ROW POINT |
| ○ | PROW PROPOSED ROW POINT |
| [LENGTH] | LENGTH CARRIED ON NEXT SHEET |

COMMON TOPOGRAPHIC POINT SYMBOLS

| POINT CODE | DESCRIPTION |
|------------|----------------------------------|
| ⊕ | APL BOUND APPARENT LOCATION |
| ◻ | BM BENCHMARK |
| ◻ | BND BOUND |
| ⊞ | CB CATCH BASIN |
| ⊞ | COMB COMBINATION POLE |
| ⊞ | DITHR DROP INLET THROATED DNC |
| ⊞ | EL ELECTRIC POWER POLE |
| ⊙ | FPOLE FLAGPOLE |
| ○ | GASFIL GAS FILLER |
| ○ | GP GUIDE POST |
| × | GSO GAS SHUT OFF |
| ○ | GUY GUY POLE |
| ○ | GUYW GUY WIRE |
| × | GV GATE VALUE |
| ⊞ | H TREE HARDWOOD |
| △ | HCTRL CONTROL HORIZONTAL |
| △ | HVCTRL CONTROL HORIZ. & VERTICAL |
| ◇ | HYD HYDRANT |
| ⊙ | IP IRON PIN |
| ⊙ | IPIPE IRON PIPE |
| ⊞ | LI LIGHT - STREET OR YARD |
| ⊞ | MB MAILBOX |
| ○ | MH MANHOLE (MH) |
| ⊞ | MM MILE MARKER |
| ⊞ | PM PARKING METER |
| ⊞ | PMK PROJECT MARKER |
| ⊙ | POST POST STONE/WOOD |
| ⊞ | RRSIG RAILROAD SIGNAL |
| ⊞ | RRSL RAILROAD SWITCH LEVER |
| ⊞ | S TREE SOFTWOOD |
| ⊞ | SAT SATELLITE DISH |
| ⊞ | SHRUB SHRUB |
| ⊞ | SIGN SIGN |
| ⊞ | STUMP STUMP |
| ⊞ | TEL TELEPHONE POLE |
| ○ | TIE TIE |
| ⊞ | TSIGN SIGN W/DOUBLE POST |
| ⊞ | VCTRL CONTROL VERTICAL |
| ○ | WELL WELL |
| × | WSO WATER SHUT OFF |

THESE ARE COMMON VAOT SURVEY POINT SYMBOLS FOR EXISTING FEATURES, ALSO USED FOR PROPOSED FEATURES WITH HEAVIER LINEWEIGHT, IN COMBINATION WITH PROPOSED ANNOTATION.

PROPOSED GEOMETRY CODES

| CODE | DESCRIPTION |
|------|-------------------------|
| PC | POINT OF CURVATURE |
| PI | POINT OF INTERSECTION |
| CC | CENTER OF CURVE |
| PT | POINT OF TANGENCY |
| PCC | POINT OF COMPOUND CURVE |
| PRC | POINT OF REVERSE CURVE |
| POB | POINT OF BEGINNING |
| POE | POINT OF ENDING |
| STA | STATION PREFIX |
| AH | AHEAD STATION SUFFIX |
| BK | BACK STATION SUFFIX |
| D | CURVE DEGREE OF (100FT) |
| R | CURVE RADUIS OF |
| T | CURVE TANGENT LENGTH |
| L | CURVE LENGTH OF |
| E | CURVE EXTERNAL DISTANCE |

UTILITY SYMBOLGY

UNDERGROUND UTILITIES

| | |
|----------|---------------------------|
| — UGU — | UTILITY (GENERIC-UNKNOWN) |
| — UT — | TELEPHONE |
| — UE — | ELECTRIC |
| — UC — | CABLE (TV) |
| — UEC — | ELECTRIC+CABLE |
| — UET — | ELECTRIC+TELEPHONE |
| — UCT — | CABLE+TELEPHONE |
| — UECT — | ELECTRIC+CABLE+TELEP. |
| — G — | GAS LINE |
| — W — | WATER LINE |
| — S — | SANITARY SEWER (SEPTIC) |

ABOVE GROUND UTILITIES (AERIAL)

| | |
|-------------|---------------------------|
| — AGU — | UTILITY (GENERIC-UNKNOWN) |
| — T — | TELEPHONE |
| — E — | ELECTRIC |
| — C — | CABLE (TV) |
| — EC — | ELECTRIC+CABLE |
| — ET — | ELECTRIC+TELEPHONE |
| — AER E&T — | ELECTRIC+TELEPHONE |
| — CT — | CABLE+TELEPHONE |
| — ECT — | ELECTRIC+CABLE+TELEP. |
| — | UTILITY POLE GUY WIRE |

PROJECT CONSTRUCTION SYMBOLGY

PROJECT DESIGN & LAYOUT SYMBOLGY

| | |
|----------------|-----------------------|
| — — — CZ — — — | CLEAR ZONE |
| ————— | PLAN LAYOUT MATCHLINE |

PROJECT CONSTRUCTION FEATURES

| | |
|----------------------|----------------------------|
| ▲ —▲ —▲ —▲ | TOP OF CUT SLOPE |
| ○ —○ —○ —○ | TOE OF FILL SLOPE |
| ⊞ ⊞ ⊞ ⊞ ⊞ | STONE FILL |
| ----- | BOTTOM OF DITCH |
| ----- | CULVERT PROPOSED |
| ----- | STRUCTURE SUBSURFACE |
| PDF — PDF — | PROJECT DEMARCATION FENCE |
| BF — BF — | BARRIER FENCE |
| XXXXXXXXXXXXXXXXXXXX | TREE PROTECTION ZONE (TPZ) |
| //// //// //// //// | STRIPING LINE REMOVAL |
| ~~~~~ | SHEET PILES |

CONVENTIONAL BOUNDARY SYMBOLGY

BOUNDARY LINES

| | |
|--------------------|--|
| ————— | TOWN BOUNDARY LINE |
| ————— | COUNTY BOUNDARY LINE |
| ————— | STATE BOUNDARY LINE |
| ——— | PROPOSED STATE R.O.W. (LIMITED ACCESS) |
| ——— | PROPOSED STATE R.O.W. |
| ——— | STATE ROW (LIMITED ACCESS) |
| ——— | STATE ROW |
| ——— | TOWN ROW |
| ----- | PERMANENT EASEMENT LINE (P) |
| ----- | TEMPORARY EASEMENT LINE (T) |
| ----- | SURVEY LINE |
| — P — P — | PROPERTY LINE (P/L) |
| — L — L — | PROPERTY LINE (P/L) |
| ▲ — SR — SR — SR — | SLOPE RIGHTS |
| 6f — 6f — | 6F PROPERTY BOUNDARY |
| 4f — 4f — | 4F PROPERTY BOUNDARY |
| HAZ — HAZ — | HAZARDOUS WASTE |

EPSC LAYOUT PLAN SYMBOLGY

EPSC MEASURES

| | |
|-------------------|---|
| ONNOONNOONNO | FILTER CURTAIN |
| — — — — — | SILT FENCE |
| — X — X — X — X — | SILT FENCE WOVEN WIRE |
| — — — — — | CHECK DAM |
| ▬ | DISTURBED AREAS REQUIRING RE-VEGETATION |
| ⊞ | EROSION MATTING |

SEE EPSC DETAIL SHEETS FOR ADDITIONAL SYMBOLGY

ENVIRONMENTAL RESOURCES

| | |
|-----------------|---------------------------------|
| — — — — — | WETLAND BOUNDARY |
| ----- | RIPARIAN BUFFER ZONE |
| ----- | WETLAND BUFFER ZONE |
| ----- | SOIL TYPE BOUNDARY |
| — T&E — | THREATENED & ENDANGERED SPECIES |
| HAZ — HAZ — | HAZARDOUS WASTE AREA |
| — AG — | AGRICULTURAL LAND |
| — HABITAT — | FISH & WILDLIFE HABITAT |
| — FLOOD PLAIN — | FLOOD PLAIN |
| — OHW — | ORDINARY HIGH WATER (OHW) |
| — — — — — | STORM WATER |
| — — — — — | USDA FOREST SERVICE LANDS |
| — — — — — | WILDLIFE HABITAT SUIT/CONN |

ARCHEOLOGICAL & HISTORIC

| | |
|-------------------|----------------------------|
| — ARCH — | ARCHEOLOGICAL BOUNDARY |
| — HISTORIC DIST — | HISTORIC DISTRICT BOUNDARY |
| — HISTORIC — | HISTORIC AREA |
| Ⓜ | HISTORIC STRUCTURE |

CONVENTIONAL TOPOGRAPHIC SYMBOLGY

EXISTING FEATURES

| | |
|-------------------|--------------------|
| ----- | ROAD EDGE PAVEMENT |
| ----- | ROAD EDGE GRAVEL |
| ----- | DRIVEWAY EDGE |
| ----- | DITCH |
| ----- | FOUNDATION |
| — X — X — X — X — | FENCE (EXISTING) |
| □ — □ — □ — □ — | FENCE WOOD POST |
| ○ — ○ — ○ — ○ — | FENCE STEEL POST |
| ~~~~~ | GARDEN |
| ○ — ○ — ○ — ○ — | ROAD GUARDRAIL |
| | RAILROAD TRACKS |
| ----- | CULVERT (EXISTING) |
| ----- | STONE WALL |
| ----- | WALL |
| ~~~~~ | WOOD LINE |
| ~~~~~ | BRUSH LINE |
| ~~~~~ | HEDGE |
| ----- | BODY OF WATER EDGE |
| ----- | LEDGE EXPOSED |

PROJECT NAME: HUNTINGTON
PROJECT NUMBER: BRO 1445(35)

FILE NAME: sl2j62legend.dgn PLOT DATE: 15-OCT-2015
PROJECT LEADER: C. CARLSON DRAWN BY: R. PELLETT
DESIGNED BY: D. PETERSON CHECKED BY: D. PETERSON
CONVENTIONAL SYMBOLGY LEGEND SHEET 8 OF 44

THUMPER

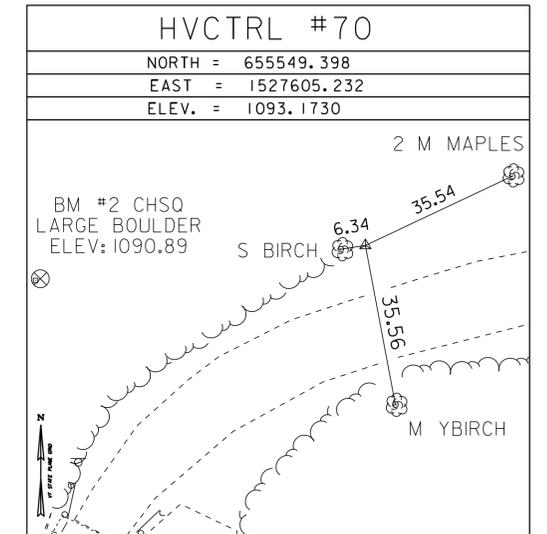
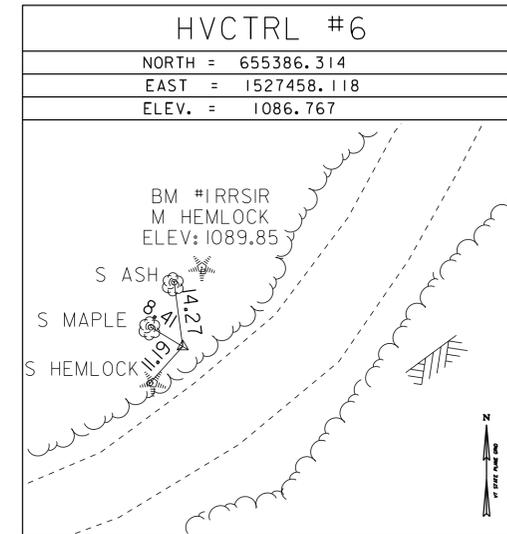
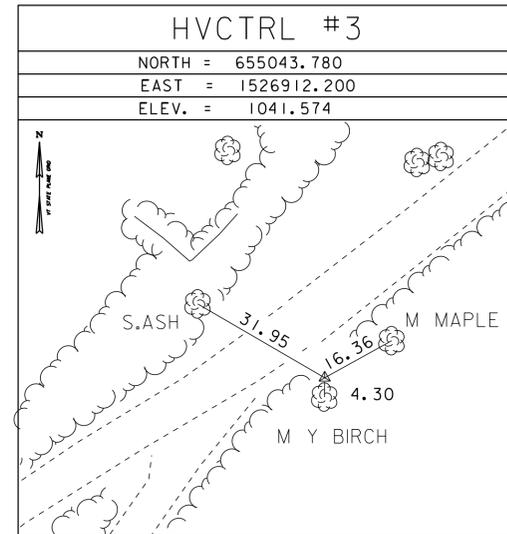
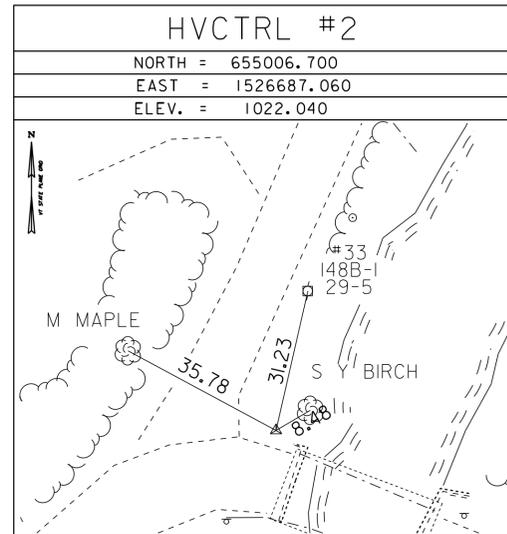
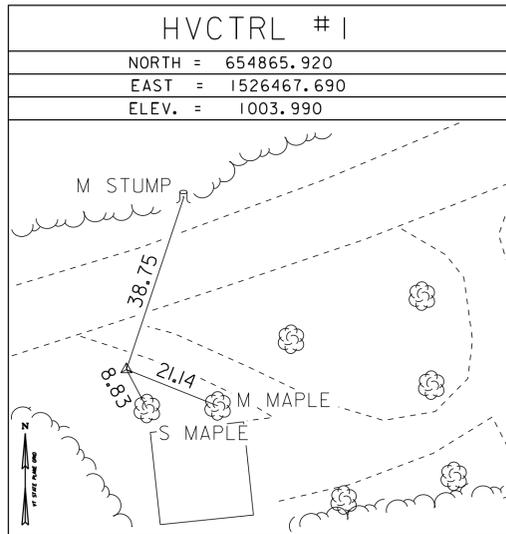
NORTH = 655889.449
 EAST = 1517698.644
 ELEV. =

GENERAL LOCATION - THE STATION IS LOCATED IN HUNTINGTON CENTER, VT, 2.1 MI (3.4 KM) SOUTH OF HUNTINGTON VILLAGE, 7.4 MI (11.9 KM) SOUTH OF RICHMOND, AND 10.8 MI (17.4 KM) WEST OF WATERBURY. TO REACH FROM THE JUNCTION OF THE MAIN ROAD (TH1) AND CAMELS HUMP ROAD (TH4), PROCEED NORTHWESTERLY ALONG TH1 FOR 0.1 MI (0.2 KM) TO A BRIDGE OVER BRUSH BROOK AND THE MARK SET IN THE SOUTHEAST CORNER OF THE BRIDGE. ALSO 2.45 MI (3.94 KM) SOUTHEASTERLY ALONG TH1 FROM ITS INTERSECTION WITH EAST STREET IN HUNTINGTON VILLAGE TO THE MARK ON THE LEFT. IT IS LOCATED 64 FT (19.5 M) NORTHEAST OF POLE 86/122, 17 FT (5.2 M) EAST OF THE CENTERLINE OF TH1, AND 1.5 FT (0.5 M) EAST OF A STEEL GUARDRAIL. OWNERSHIP IS THE TOWN OF HUNTINGTON.

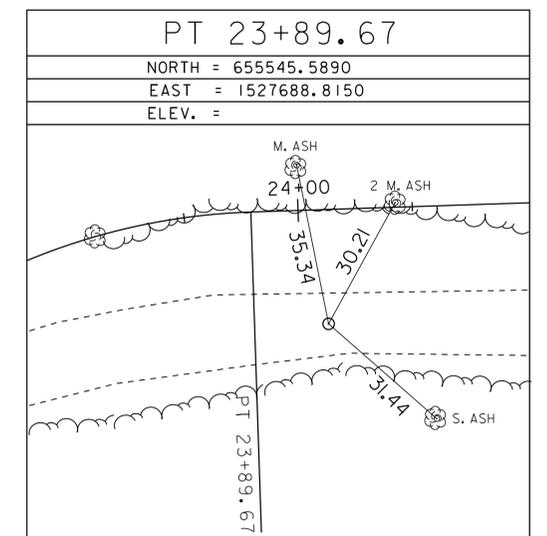
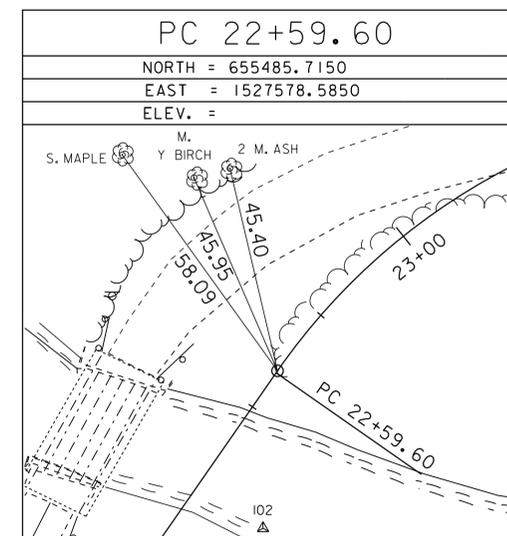
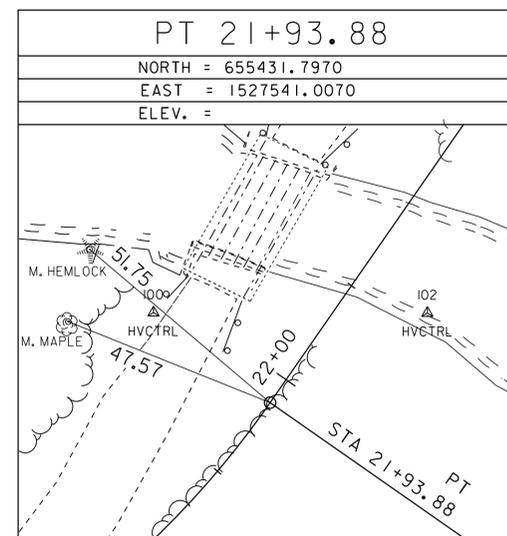
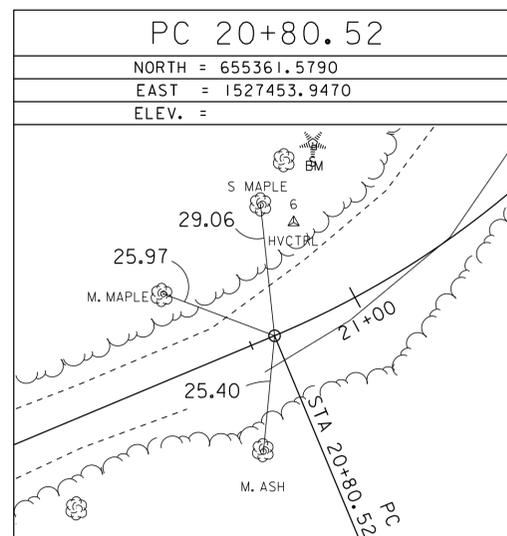
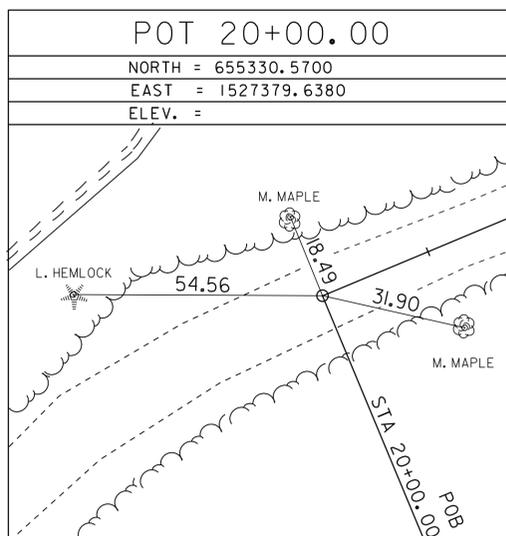
BAMBI

NORTH = 657332.336
 EAST = 1515932.398
 ELEV. =

GENERAL LOCATION - THE STATION IS LOCATED IN HUNTINGTON CENTER, VT, 1.7 MI (2.7 KM) SOUTH OF HUNTINGTON VILLAGE, 7.1 MI (11.4 KM) SOUTH OF RICHMOND, AND 11 MI (17.7 KM) WEST OF WATERBURY. TO REACH FROM THE JUNCTION OF THE MAIN ROAD (TH1) AND CAMELS HUMP ROAD (TH4), PROCEED 0.6 MI (1.0 KM) TO A BRIDGE OVER THE HUNTINGTON RIVER AND THE MARK ON THE RIGHT. THE MARK IS A STATE OF VERMONT DISK SET IN THE NORTHEAST BRIDGE ABUTMENT. ALSO 2.45 MI (3.94 KM) SOUTHEASTERLY ALONG TH1 FROM ITS INTERSECTION WITH EAST STREET IN IT IS LOCATED 15.5 FT (4.7 M) NORTH OF THE CENTERLINE OF TH1 AND 2 FT (0.6 M) NORTH OF A BOX BEAM GUARDRAIL. OWNERSHIP TOWN OF HUNTINGTON.



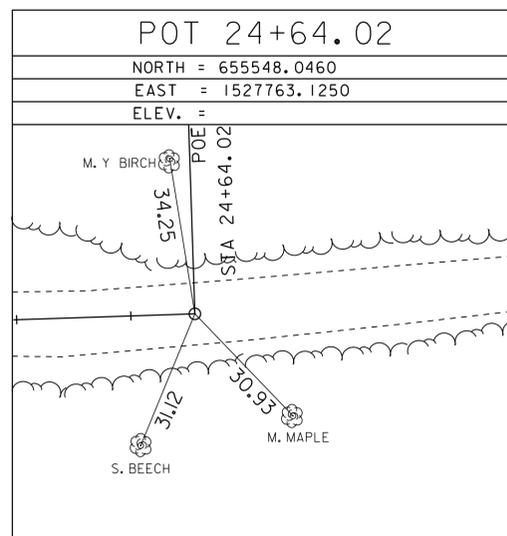
* MAIN TRAVERSE COMPLETED 12/22/1993 BY R. GILMAN [93J030] SECONDARY TRAVERSE COMPLETED 3/20/2012 BY R. GILMAN P.C. & P. WINTERS



| | |
|------------|-------------|
| DATUM | |
| VERTICAL | NAVD 88 |
| HORIZONTAL | NAD 83 (92) |
| ADJUSTMENT | COMPASS |

| | |
|------------------------------|------------------------|
| PROJECT NAME: HUNTINGTON | |
| PROJECT NUMBER: BRO 1445(35) | |
| FILE NAME: sl2j162tie.dgn | PLOT DATE: 15-OCT-2015 |
| PROJECT LEADER: C. CARLSON | DRAWN BY: C. CYR |
| DESIGNED BY: D. PETERSON | CHECKED BY: P. BEYOR |
| TIE SHEET 1 | SHEET 9 OF 44 |

ALIGNMENT TIES



| | |
|------------|-------------|
| DATUM | |
| VERTICAL | NAVD 88 |
| HORIZONTAL | NAD 83 (92) |
| ADJUSTMENT | COMPASS |

TH 22

| STATION | NORTHING | EASTING |
|--------------|-------------|--------------|
| POB 20+00.00 | 655330.5699 | 1527379.6375 |
| PC 20+80.52 | 655361.5795 | 1527453.9488 |
| PI 21+38.77 | 655384.0117 | 1527507.7055 |

| | |
|----------------------------|-------------------|
| Radius: | 200.00 |
| Delta: | 32°28'33.86" Left |
| Degree of Curvature (Arc): | 28°38'52.40" |
| Length: | 113.36 |
| Tangent: | 58.25 |
| Chord: | 111.85 |
| Middle Ordinate: | 7.98 |
| External: | 8.31 |

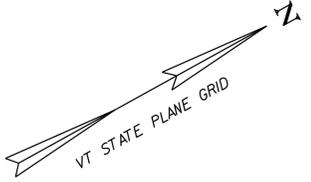
| | | |
|-------------|-------------|--------------|
| PT 21+93.88 | 655431.8004 | 1527541.0106 |
| PC 22+59.60 | 655485.7104 | 1527578.5817 |
| PC 22+59.60 | 655485.7104 | 1527578.5817 |
| PI 23+29.75 | 655543.2686 | 1527618.6953 |

| | |
|----------------------------|--------------------|
| Radius: | 140.00 |
| Delta: | 53°13'59.19" Right |
| Degree of Curvature (Arc): | 40°55'32.00" |
| Length: | 130.07 |
| Tangent: | 70.16 |
| Chord: | 125.44 |
| Middle Ordinate: | 14.84 |
| External: | 16.60 |

| | | |
|--------------|-------------|--------------|
| PT 23+89.67 | 655545.5866 | 1527688.8144 |
| POE 24+64.02 | 655548.0431 | 1527763.1262 |

PROJECT NAME: HUNTINGTON
 PROJECT NUMBER: BRO 1445(35)

| | |
|----------------------------|------------------------|
| FILE NAME: sl2j62tie.dgn | PLOT DATE: 15-OCT-2015 |
| PROJECT LEADER: C. CARLSON | DRAWN BY: C. CYR |
| DESIGNED BY: D. PETERSON | CHECKED BY: P. BEYOR |
| TIE SHEET 2 | SHEET 10 OF 44 |



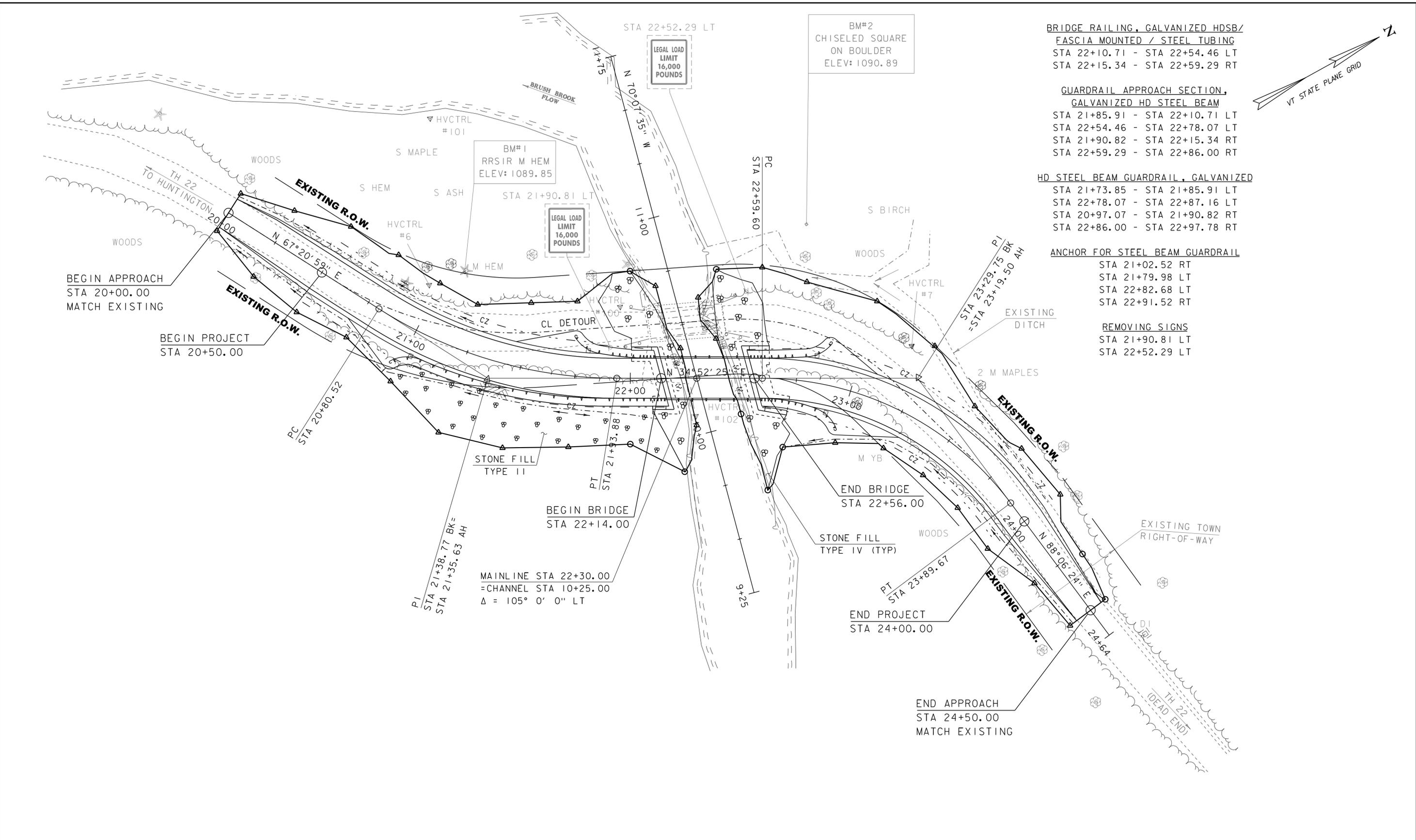
BRIDGE RAILING, GALVANIZED HDSB/
FASCIA MOUNTED / STEEL TUBING
STA 22+10.71 - STA 22+54.46 LT
STA 22+15.34 - STA 22+59.29 RT

GUARDRAIL APPROACH SECTION,
GALVANIZED HD STEEL BEAM
STA 21+85.91 - STA 22+10.71 LT
STA 22+54.46 - STA 22+78.07 LT
STA 21+90.82 - STA 22+15.34 RT
STA 22+59.29 - STA 22+86.00 RT

HD STEEL BEAM GUARDRAIL, GALVANIZED
STA 21+73.85 - STA 21+85.91 LT
STA 22+78.07 - STA 22+87.16 LT
STA 20+97.07 - STA 21+90.82 RT
STA 22+86.00 - STA 22+97.78 RT

ANCHOR FOR STEEL BEAM GUARDRAIL
STA 21+02.52 RT
STA 21+79.98 LT
STA 22+82.68 LT
STA 22+91.52 RT

REMOVING SIGNS
STA 21+90.81 LT
STA 22+52.29 LT



BEGIN APPROACH
STA 20+00.00
MATCH EXISTING

BEGIN PROJECT
STA 20+50.00

STONE FILL
TYPE II

BEGIN BRIDGE
STA 22+14.00

MAINLINE STA 22+30.00
= CHANNEL STA 10+25.00
 $\Delta = 105^\circ 0' 0''$ LT

END BRIDGE
STA 22+56.00

STONE FILL
TYPE IV (TYP)

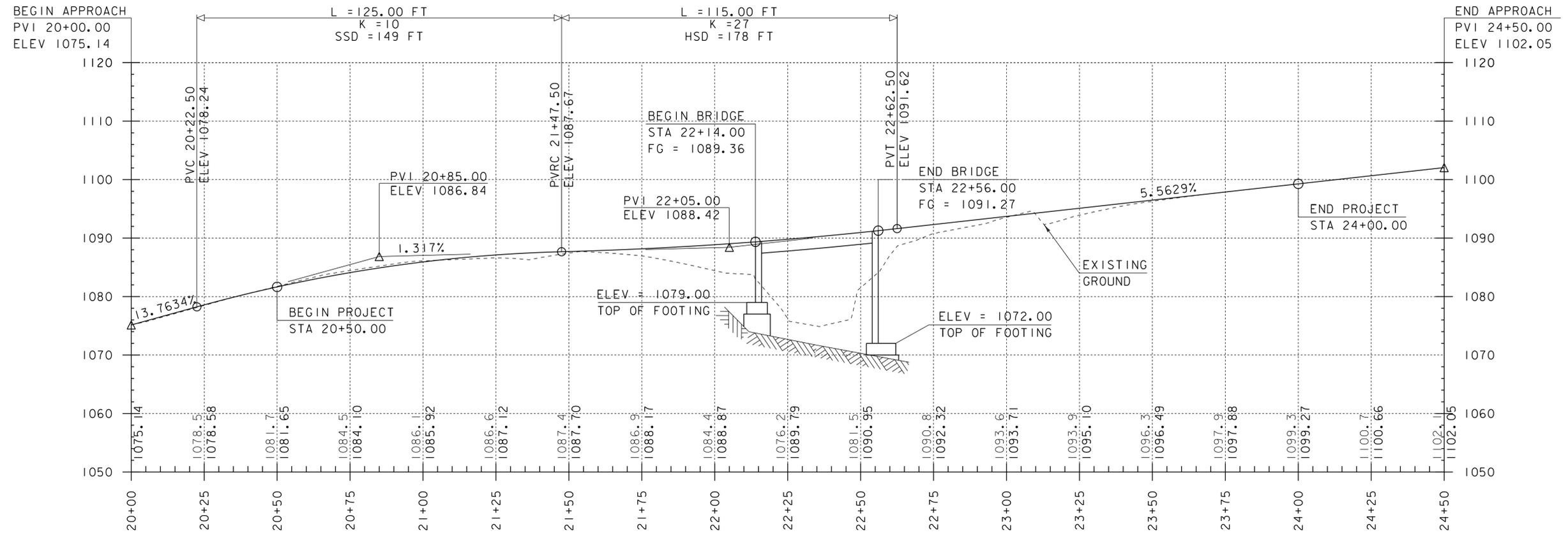
END PROJECT
STA 24+00.00

END APPROACH
STA 24+50.00
MATCH EXISTING

EXISTING BRIDGE INFO
34' LONG ROLLED BEAM
WITH TIMBER DECK BRIDGE
BUILT 1925, RECONSTRUCTED 2004
16' WIDE DECK

LAYOUT
SCALE 1" = 20'-0"
20 0 20

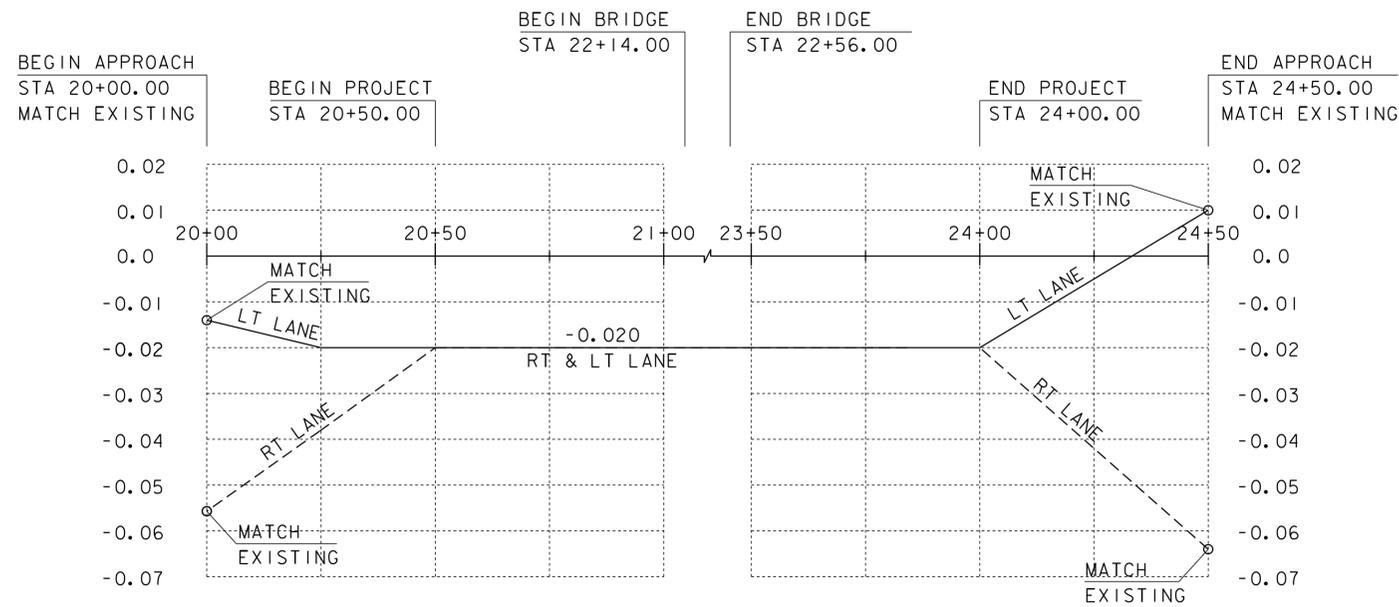
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|-----------------|----------------|-------------|-------------|
| PROJECT NAME: | HUNTINGTON | PLOT DATE: | 15-OCT-2015 |
| PROJECT NUMBER: | BRO 1445(35) | DRAWN BY: | R. PELLETT |
| FILE NAME: | sl2j162bdr.dgn | CHECKED BY: | C. MOONEY |
| PROJECT LEADER: | C. CARLSON | SHEET | II OF 44 |
| DESIGNED BY: | D. PETERSON | | |
| LAYOUT SHEET | | | |



TH 22 PROPOSED PROFILE

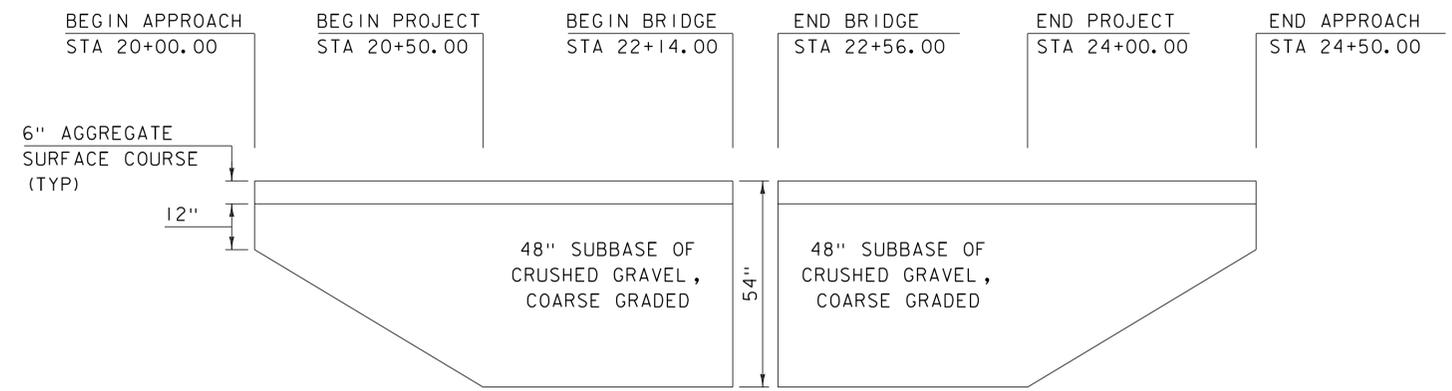
SCALE: HORIZONTAL 1"=20'-0"
VERTICAL 1"=10'-0"

THE GRADES SHOWN TO THE NEAREST TENTH ARE THE OLD GROUND ALONG THE CENTERLINE. THE GRADES SHOWN TO THE NEAREST HUNDREDTH ARE THE PROPOSED FINISHED GRADE ALONG THE CENTERLINE.



BANKING DIAGRAM

SCALE: HORIZONTAL 1" = 20' - 0"
VERTICAL 1" = 0.02' /'



SUBBASE TRANSITION DETAIL

N. T. S.

| | |
|-----------------|----------------|
| PROJECT NAME: | HUNTINGTON |
| PROJECT NUMBER: | BRO 1445(35) |
| FILE NAME: | sl2j162pro.dgn |
| PROJECT LEADER: | C. CARLSON |
| DESIGNED BY: | D. PETERSON |
| TH 22 PROFILE | |
| PLOT DATE: | 15-OCT-2015 |
| DRAWN BY: | R. PELLETT |
| CHECKED BY: | D. PETERSON |
| SHEET | 12 OF 44 |

SOIL CLASSIFICATION

AASHTO

- A1 Gravel and Sand
- A3 Fine Sand
- A2 Silty or Clayey Gravel and Sand
- A4 Silty Soil - Low Compressibility
- A5 Silty Soil - Highly Compressible
- A6 Clayey Soil - Low Compressibility
- A7 Clayey Soil - Highly Compressible

ROCK QUALITY DESIGNATION

| R.Q.D. (%) | ROCK DESCRIPTION |
|------------|------------------|
| <25 | Very Poor |
| 25 to 50 | Poor |
| 51 to 75 | Fair |
| 76 to 90 | Good |
| >90 | Excellent |

SHEAR STRENGTH

| UNDRAINED SHEAR STRENGTH IN P.S.F. | CONSISTENCY |
|------------------------------------|-------------|
| <250 | Very Soft |
| 250-500 | Soft |
| 500-1000 | Med. Stiff |
| 1000-2000 | Stiff |
| 2000-4000 | Very Stiff |
| >4000 | Hard |

CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

| DENSITY (GRANULAR SOILS) | | CONSISTENCY (COHESIVE SOILS) | |
|--------------------------|------------------|------------------------------|------------------|
| N | DESCRIPTIVE TERM | N | DESCRIPTIVE TERM |
| <5 | Very Loose | <2 | Very Soft |
| 5-10 | Loose | 2-4 | Soft |
| 11-24 | Med. Dense | 5-8 | Med. Stiff |
| 25-50 | Dense | 9-15 | Stiff |
| >50 | Very Dense | 16-30 | Very Stiff |
| | | 31-60 | Hard |
| | | >60 | Very Hard |

COMMONLY USED SYMBOLS

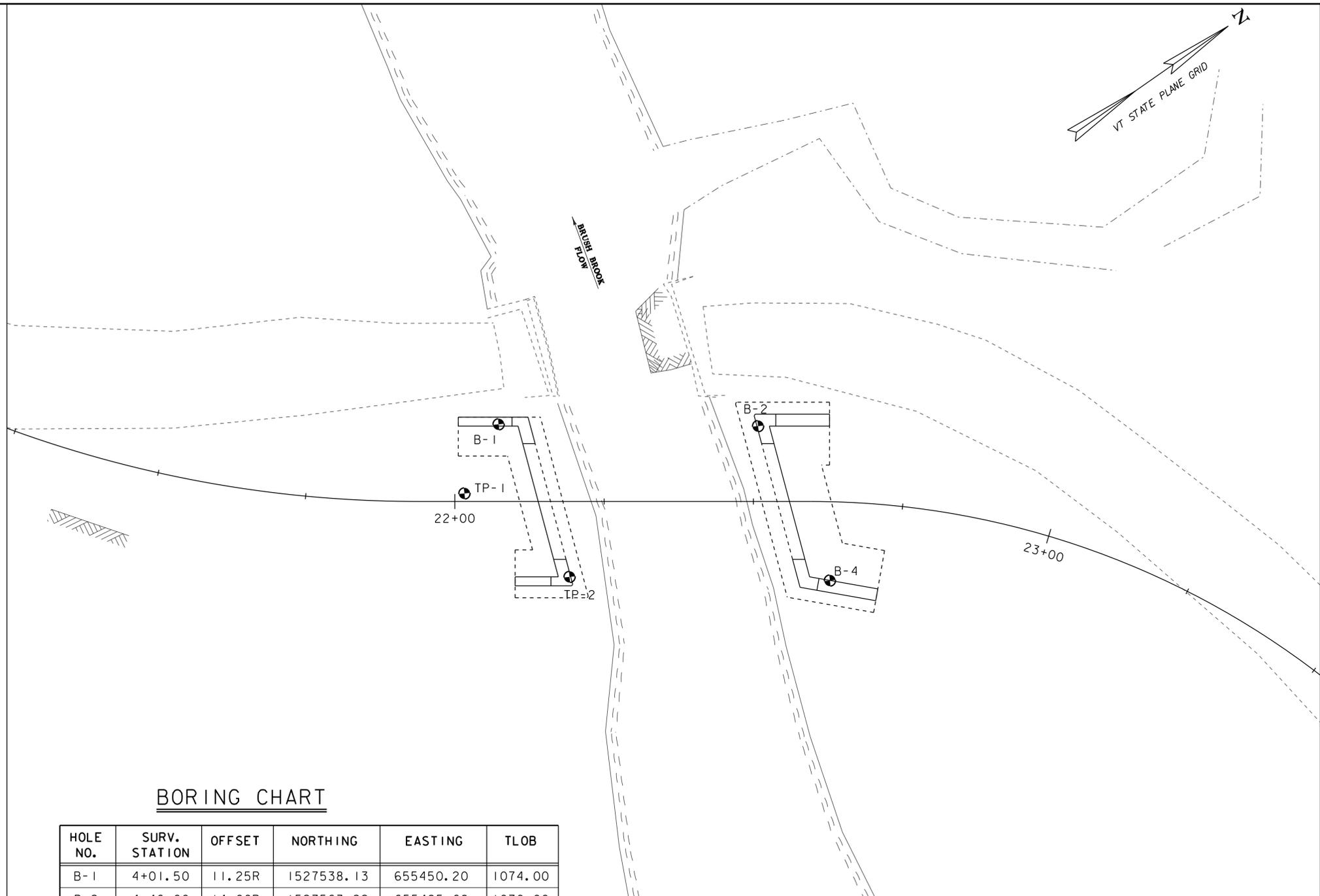
- ▼ Water Elevation
- ⊕ Standard Penetration Boring
- ⊕ Auger Boring
- ⊙ Rod Sounding
- S Sample
- N Standard Penetration Test Blow Count Per Foot For: 2" O. D. Sampler 1 3/8" I. D. Sampler Hammer Weight Of 140 Lbs. Hammer Fall Of 30"
- VS Field Vane Shear Test
- US Undisturbed Soil Sample
- B Blast
- DC Diamond Core
- MD Mud Drill
- WA Wash Ahead
- HSA Hollow Stem Auger
- AX Core Size 1 1/8"
- BX Core Size 1 3/8"
- NX Core Size 2 1/8"
- M Double Tube Core Barrel Used
- LL Liquid Limit
- PL Plastic Limit
- PI Plasticity Index
- NP Non Plastic
- w Moisture Content (Dry Wgt. Basis)
- D Dry
- M Moist
- MTW Moist To Wet
- W Wet
- Sat Saturated
- Bo Boulder
- Gr Gravel
- Sa Sand
- Si Silt
- Cl Clay
- HP Hardpan
- Le Ledge
- NLTD No Ledge To Depth
- CNPF Can Not Penetrate Further
- TLOB Top of Ledge Or Boulder
- NR No Recovery
- Rec. Recovery
- 1/2 Rec. Percent Recovery
- ROD Rock Quality Designation
- CBR California Bearing Ratio
- < Less Than
- > Greater Than
- R Refusal (N > 100)
- VTSPG NAD83 - See Note 7

COLOR

- blk Black
- bl Blue
- brn Brown
- dk Dark
- gr-y Gray
- gn Green
- lt Light
- or Orange
- pnk Pink
- pu Purple
- rd Red
- tn Tan
- wh White
- yel Yellow
- mltc Multicolored

DEFINITIONS (AASHTO)

- BEDROCK (LEDGE) - Rock in its native location of indefinite thickness.
- BOULDER - A rock fragment with an average dimension > 12 inches.
- COBBLE - Rock fragments with an average dimension between 3 and 12 inches.
- GRAVEL - Rounded particles of rock < 3" and > 0.0787" (#10 sieve).
- SAND - Particles of rock < 0.0787" (#10 sieve) and > 0.0029" (#200 sieve).
- SLT - Soil < 0.0029" (#200 sieve), non or slightly plastic and exhibits no strength when air-dried.
- CLAY - Fine grained soil, exhibits plasticity when moist and considerable strength when air-dried.
- VARVED - Alternate layers of silt and clay.
- HARDPAN - Extremely dense soil, cemented layer, not softened when wet.
- MUCK - Soft organic soil (containing > 10% organic material).
- MOISTURE CONTENT - Weight of water divided by dry weight of soil.
- FLOWING SAND - Granular soil so saturated (loose) that it flows into drill casing during extraction of wash rod.
- STRIKE - Angle from magnetic north to line of intersection of bed with a horizontal plane.
- DIP - Inclination of bed with a horizontal plane.



BORING CHART

| HOLE NO. | SURV. STATION | OFFSET | NORTHING | EASTING | TLOB |
|----------|---------------|--------|------------|-----------|---------|
| B-1 | 4+01.50 | 11.25R | 1527538.13 | 655450.20 | 1074.00 |
| B-2 | 4+46.00 | 14.00R | 1527563.22 | 655485.68 | 1070.00 |
| B-4 | 4+66.50 | 38.40R | 1527591.25 | 655480.80 | 1068.00 |
| TP-1 | 3+95.00 | 22.40R | 1527544.33 | 655438.91 | 1077.1 |
| TP-2 | 4+11.50 | 37.40R | 1527565.83 | 655455.38 | 1076.50 |

BORING LAYOUT

SCALE 1" = 10' - 0"

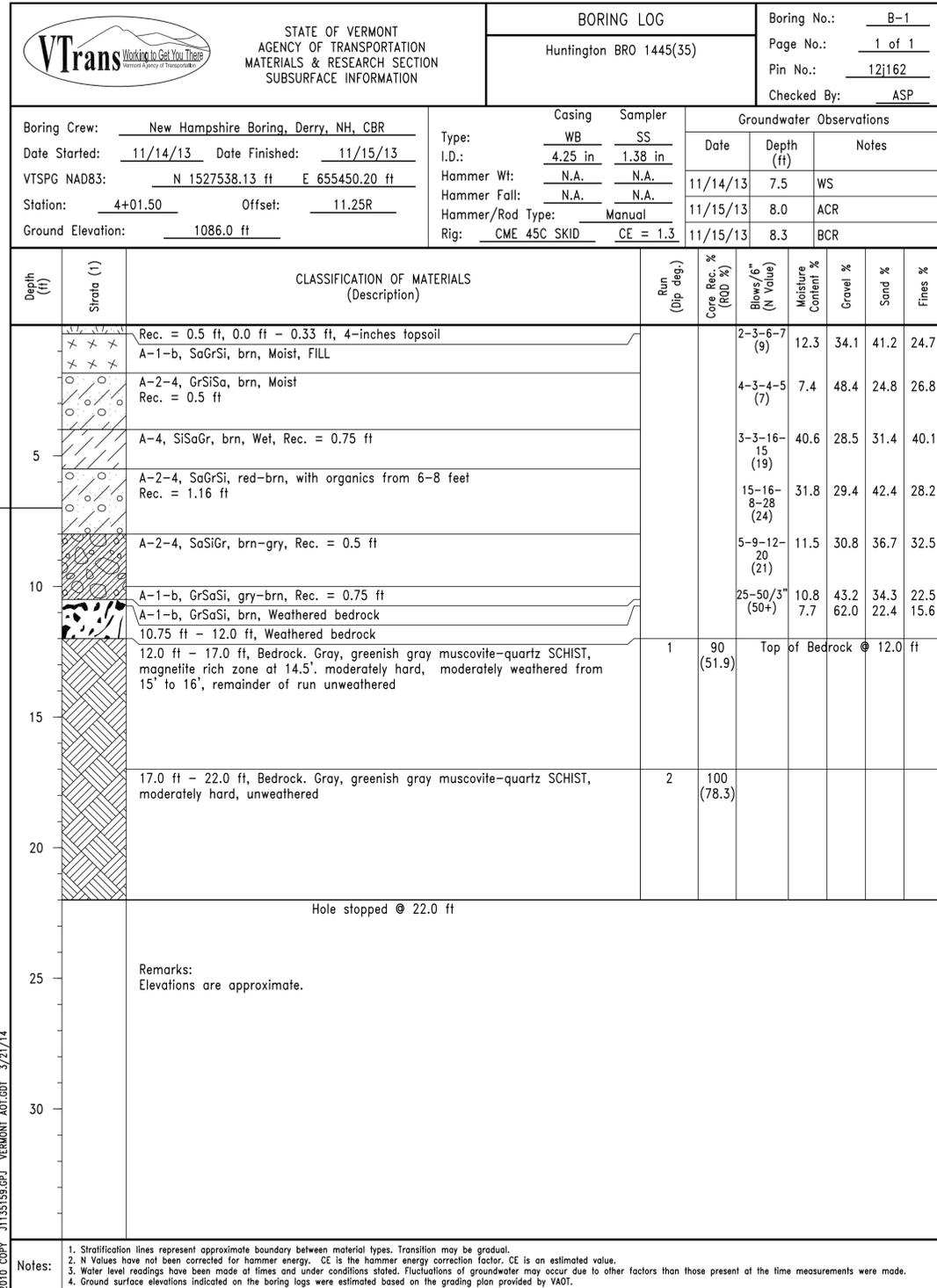
GENERAL NOTES

- The subsurface explorations shown herein were made between 11/11/13 and 12/06/13 Terracon Consultants, Inc.
- Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by the Agency and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.
- Observed water levels and/or conditions indicated are as recorded at the time of exploration and may vary according to the prevailing rainfall, methods of exploration and other factors.
- Engineering judgment was exercised in preparing the subsurface information presented herein. Analysis and interpretation of subsurface data was performed and interpreted for Agency design and estimating purposes. Presentation of the information in the Contract is intended to provide the Contractor access to the same data available to the Agency. The subsurface information is presented in good faith and is not intended as a substitute for personal investigation, independent interpretation, independent analysis or judgment by the Contractor.
- Pictorial structure details shown on the boring plan layout or soils profile are for illustrative purposes only and may not accurately portray final contract details.
- Terminology used on boring logs to describe the hardness, degree of weathering, and spacing of fractures, joints and other discontinuities in the bedrock is defined in the AASHTO Manual on Subsurface Investigations, 1988.
- Northing and Easting coordinates are shown in Vermont State Plane Grid North American Datum 1983 in survey feet.

PROJECT NAME: HUNTINGTON
PROJECT NUMBER: BRO 1445(35)

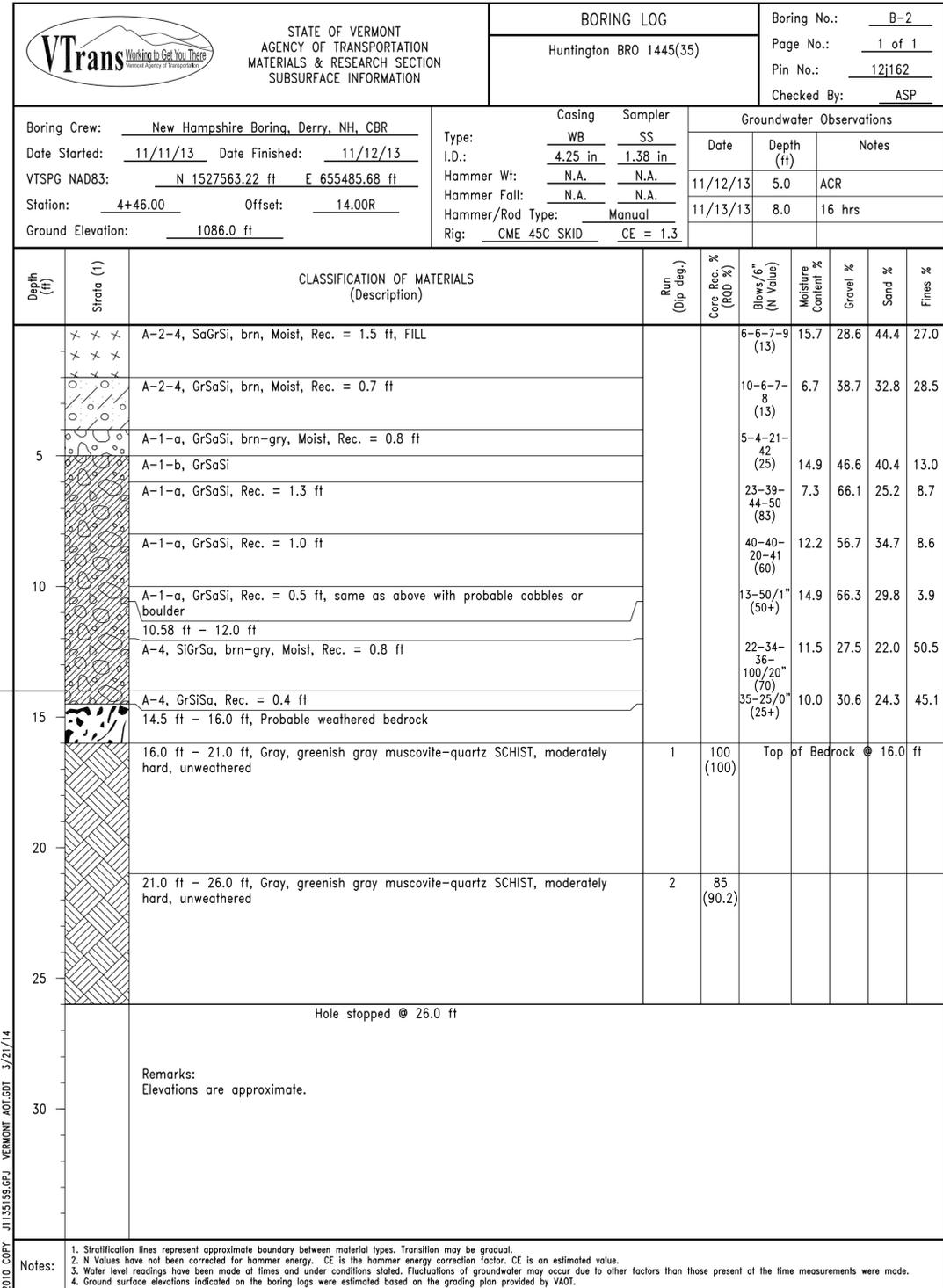
FILE NAME: sl2j162boring.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
BORING INFORMATION SHEET

PLOT DATE: 15-OCT-2015
DRAWN BY: R. PELLETT
CHECKED BY: D. PETERSON
SHEET 13 OF 44



ABUTMENT #1
 TOP OF FOOTING
 ELEV 1079.00

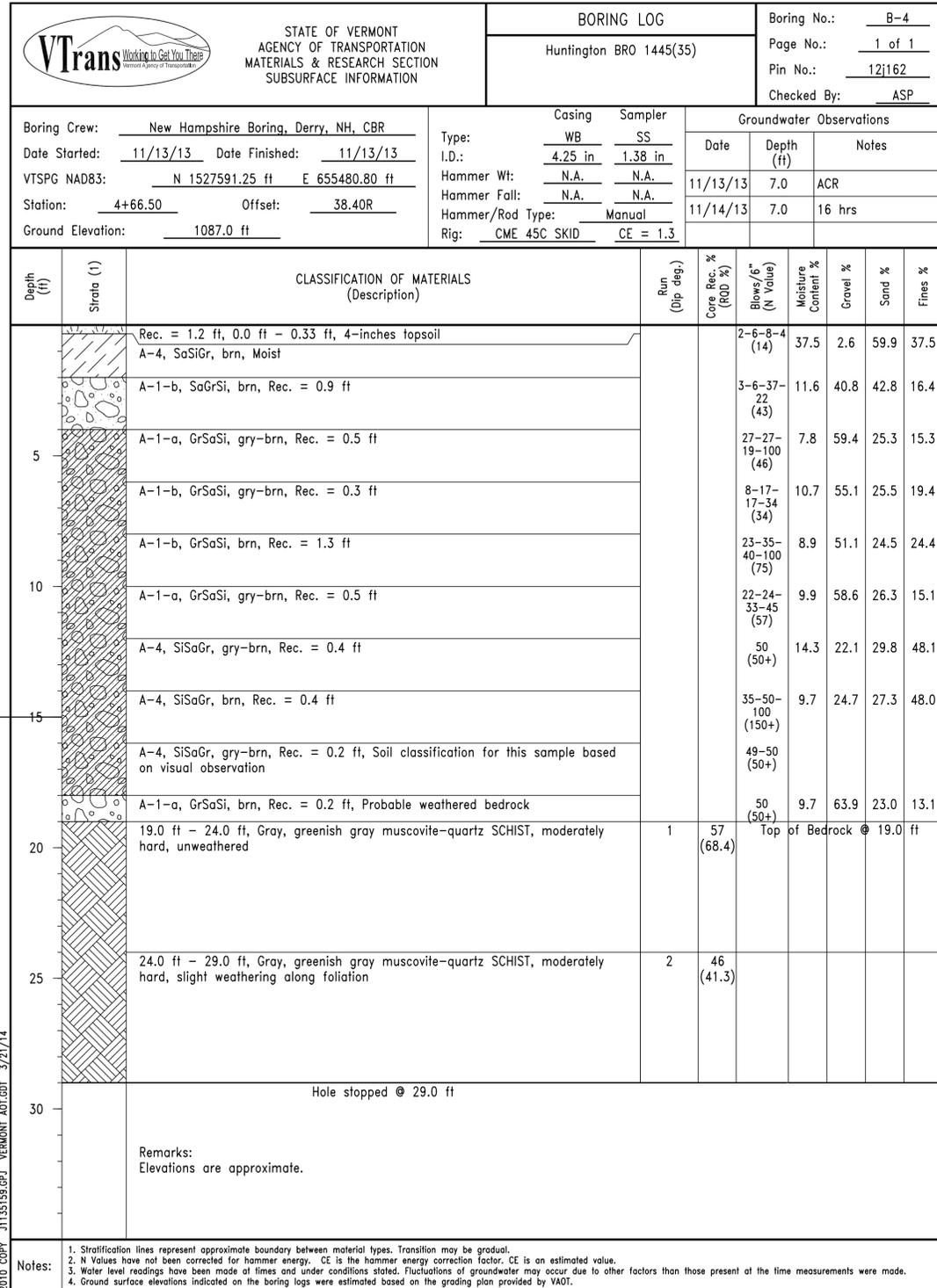
2010 COPY J1135159.GPJ VERMONT AOT.GDT 3/21/14



ABUTMENT #2
 TOP OF FOOTING
 ELEV 1072.00

2010 COPY J1135159.GPJ VERMONT AOT.GDT 3/21/14

| | |
|------------------------------|-------------------------|
| PROJECT NAME: HUNTINGTON | |
| PROJECT NUMBER: BRO 1445(35) | |
| FILE NAME: si2j162boring.dgn | PLOT DATE: 15-OCT-2015 |
| PROJECT LEADER: C. CARLSON | DRAWN BY: R. PELLETT |
| DESIGNED BY: M & R | CHECKED BY: D. PETERSON |
| BORING LOGS SHEET 1 | SHEET 14 OF 44 |

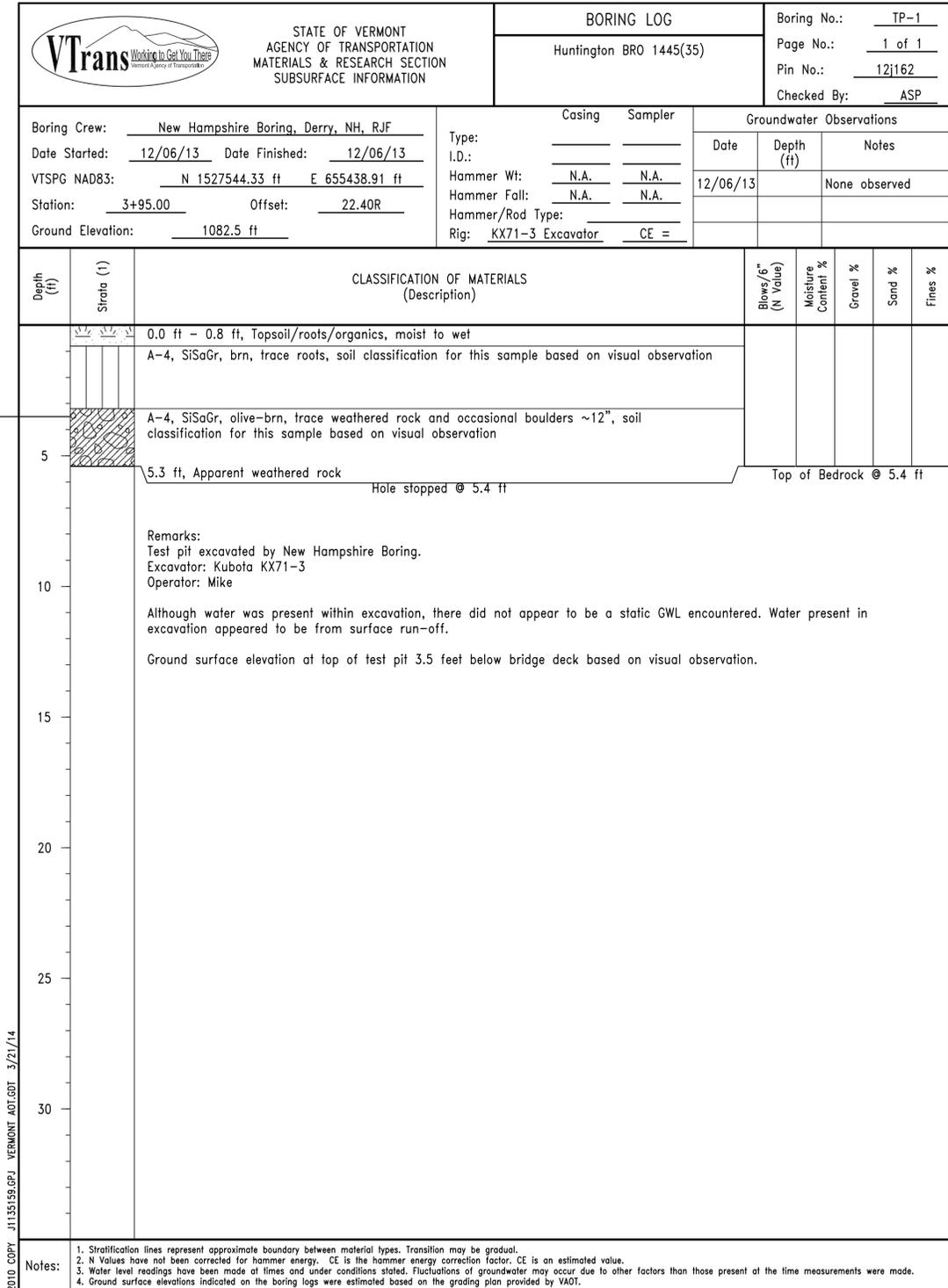


ABUTMENT #2
TOP OF FOOTING
ELEV 1072.00

2010 COPY J1135159.GPJ VERMONT AOT.GDT 3/21/14

ABUTMENT #1
TOP OF FOOTING
ELEV 1079.00

2010 COPY J1135159.GPJ VERMONT AOT.GDT 3/21/14



PROJECT NAME: HUNTINGTON
PROJECT NUMBER: BRO 1445(35)

FILE NAME: si2j162boring.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: M & R
BORING LOGS SHEET 2

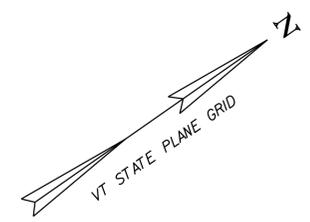
PLOT DATE: 15-OCT-2015
DRAWN BY: R. PELLETT
CHECKED BY: D. PETERSON
SHEET 15 OF 44

| | | | | | |
|---|------------|---|--------------------------|------------------|-------------------------|
| STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION | | BORING LOG | | Boring No.: TP-2 | |
| | | Huntington BRO 1445(35) | | Page No.: 1 of 1 | |
| | | | | Pin No.: 121162 | |
| | | | | Checked By: ASP | |
| Boring Crew: New Hampshire Boring, Derry, NH, CBR Date Started: 11/15/13 Date Finished: 11/15/13 VTSPG NAD83: N 1527565.83 ft E 655455.38 ft Station: 4+11.50 Offset: 37.40R Ground Elevation: 1080.5 ft | | Casing: _____ Sampler: _____ Type: _____ I.D.: _____ Hammer Wt: N.A. N.A. Hammer Fall: N.A. N.A. Hammer/Rod Type: _____ Rig: Hand dug CE = _____ | Groundwater Observations | | |
| | | | | Date | Depth (ft) |
| | | | | 11/15/13 | None observed |
| Depth (ft) | Strata (1) | CLASSIFICATION OF MATERIALS (Description) | | | Blows/6" (N Value) |
| 0 | | 0.0 ft - 0.5 ft, 6-inches topsoil, organics, moist, brown | | | |
| 0 | | A-4, SiSaGr, brn | | | |
| 0 | | A-4, SiSaGr, gray, Moist, weathered bedrock | | | |
| 5 | | Hole stopped @ 4.0 ft | | | Top of Bedrock @ 4.0 ft |
| 10 | | Remarks: Hand dug by New Hampshire Boring. Metal rod probed throughout approximate 10-foot radius around TP-2, rod hit probable bedrock at approximately 4 feet. Elevations are approximate. | | | |
| 15 | | | | | |
| 20 | | | | | |
| 25 | | | | | |
| 30 | | | | | |
| 35 | | | | | |
| Notes: <ol style="list-style-type: none"> 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. N Values have not been corrected for hammer energy. CE is the hammer energy correction factor. CE is an estimated value. 3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made. 4. Ground surface elevations indicated on the boring logs were estimated based on the grading plan provided by VAOT. | | | | | |

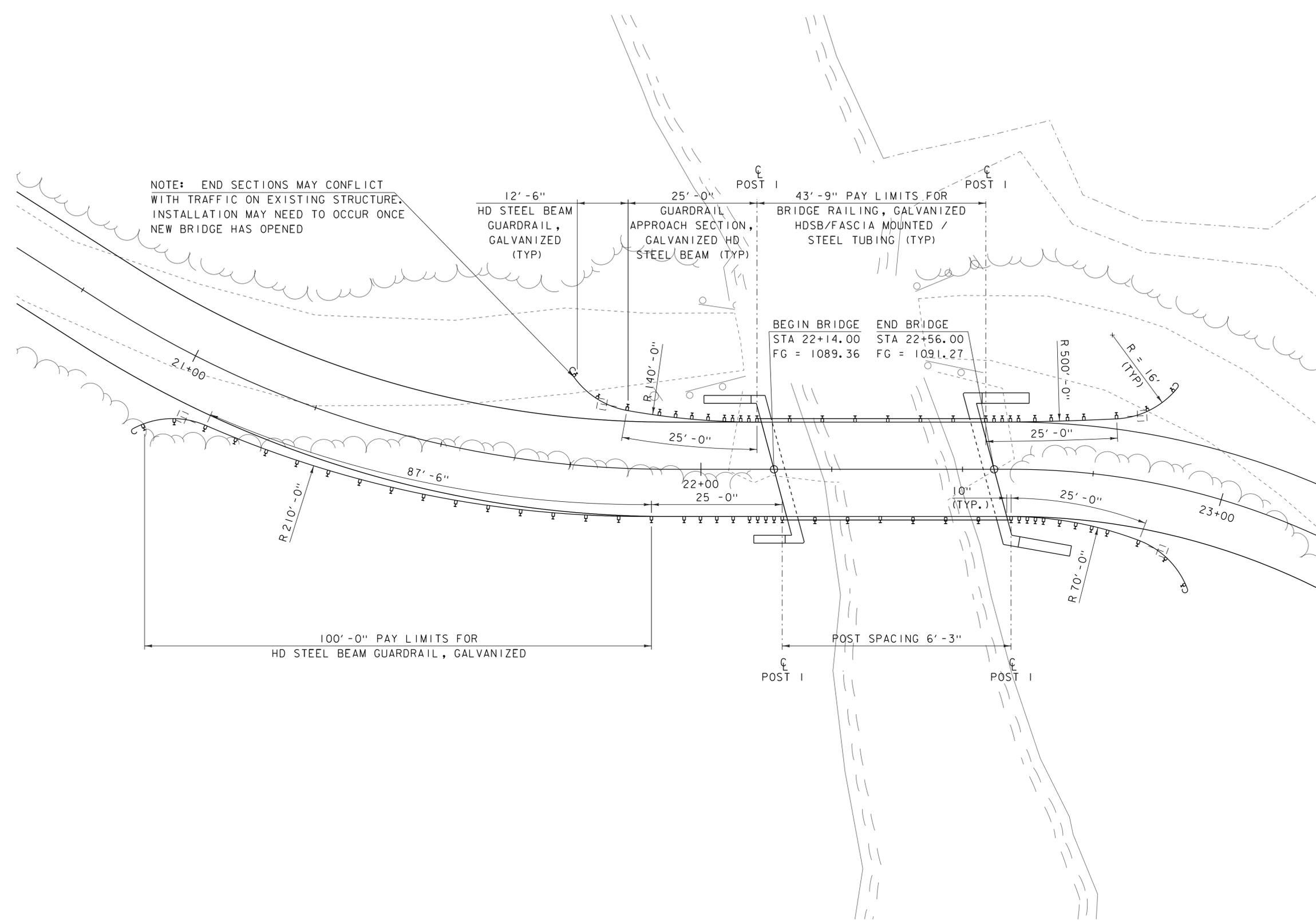
ABUTMENT #1
 TOP OF FOOTING
 ELEV 1079.00

2010 COPY J1135159.GPJ VERMONT AOT.GDT 3/21/14

| | |
|------------------------------|-------------------------|
| PROJECT NAME: HUNTINGTON | |
| PROJECT NUMBER: BRO 1445(35) | |
| FILE NAME: si2j162boring.dgn | PLOT DATE: 15-OCT-2015 |
| PROJECT LEADER: C. CARLSON | DRAWN BY: R. PELLETT |
| DESIGNED BY: M & R | CHECKED BY: D. PETERSON |
| BORING LOGS SHEET 3 | SHEET 16 OF 44 |

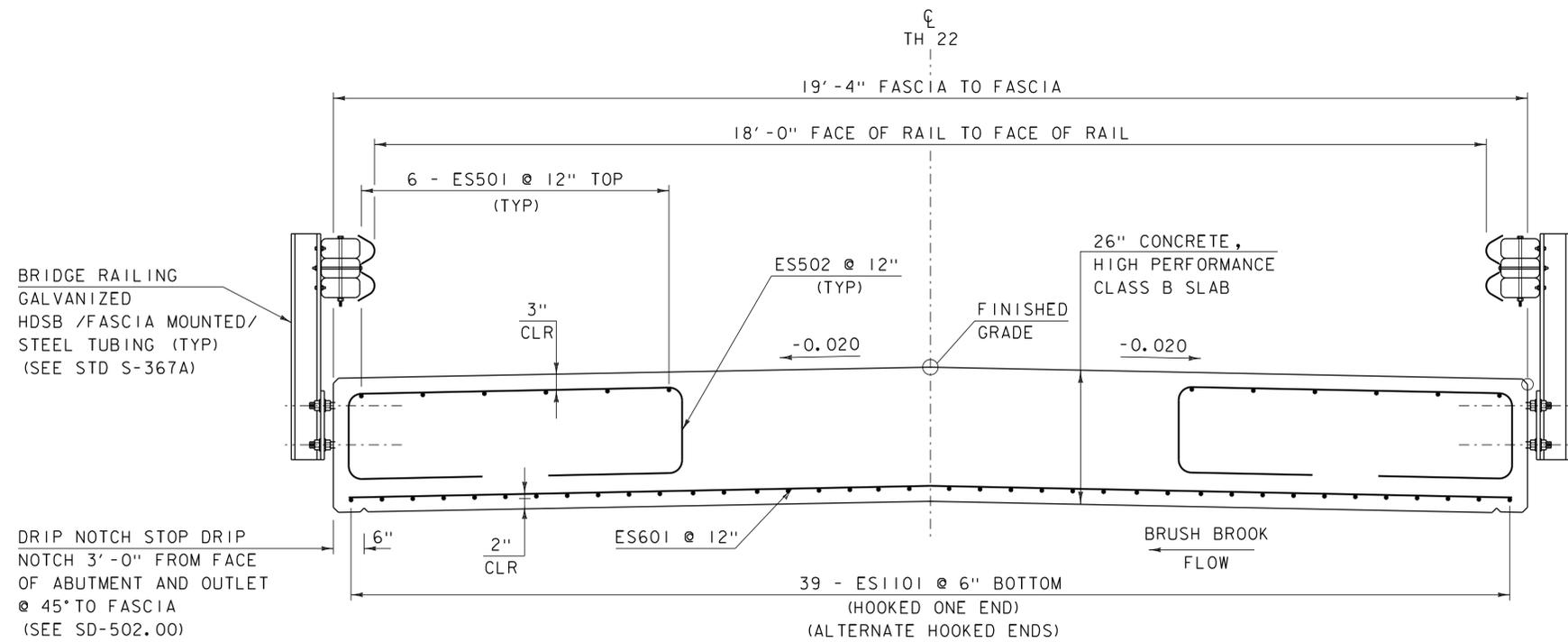


NOTE: END SECTIONS MAY CONFLICT WITH TRAFFIC ON EXISTING STRUCTURE. INSTALLATION MAY NEED TO OCCUR ONCE NEW BRIDGE HAS OPENED



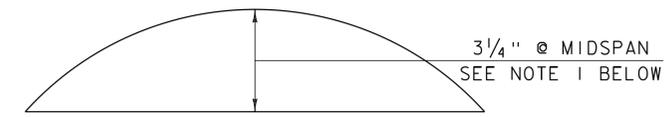
SCALE 1" = 10'-0"
 10 0 10

| | |
|------------------------------|-------------------------|
| PROJECT NAME: HUNTINGTON | PLOT DATE: 15-OCT-2015 |
| PROJECT NUMBER: BRO 1445(35) | DRAWN BY: R. PELLETT |
| FILE NAME: sl2j162rail.dgn | CHECKED BY: D. PETERSON |
| PROJECT LEADER: C. CARLSON | SHEET 18 OF 44 |
| DESIGNED BY: D. PETERSON | |
| RAIL LAYOUT SHEET | |



BRIDGE DECK TYPICAL SECTION

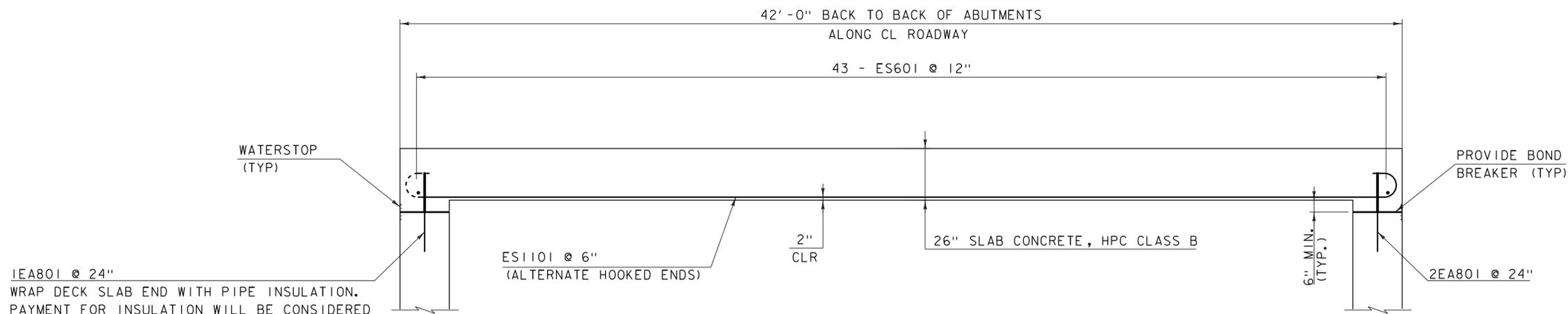
SCALE: 3/4" = 1'-0"



CAMBER DIAGRAM

NOT TO SCALE

NOTE 1:
THE SLAB SHALL BE CAMBERED A TOTAL OF 3/4" AT MIDSPAN.
THIS INITIAL CAMBER SHALL APPROXIMATE A CIRCULAR CURVE.



ELEVATION ALONG CENTERLINE

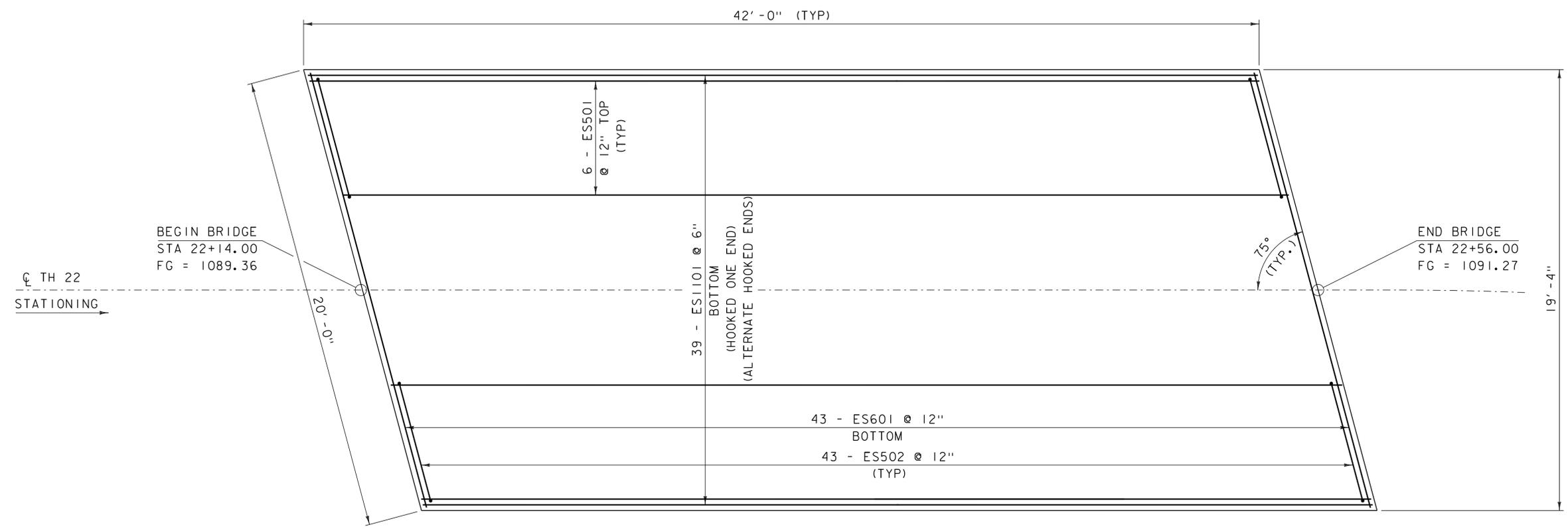
SCALE: 3/8" = 1'-0"

1EA801 @ 24"
WRAP DECK SLAB END WITH PIPE INSULATION.
PAYMENT FOR INSULATION WILL BE CONSIDERED
INCIDENTAL TO ITEM 501.34 "CONCRETE, HIGH
PERFORMANCE CLASS B".
(TYPICAL EACH ABUTMENT)

NOTE:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE
SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE
SPECIFIED ON THE PLANS.

| | |
|------------------------------|-------------------------|
| PROJECT NAME: HUNTINGTON | PLOT DATE: 15-OCT-2015 |
| PROJECT NUMBER: BRO 1445(35) | DRAWN BY: R. PELLETT |
| FILE NAME: sl2j162sup.dgn | CHECKED BY: D. PETERSON |
| PROJECT LEADER: C. CARLSON | SHEET 19 OF 44 |
| DESIGNED BY: D. PETERSON | |
| DECK TYPICAL | |



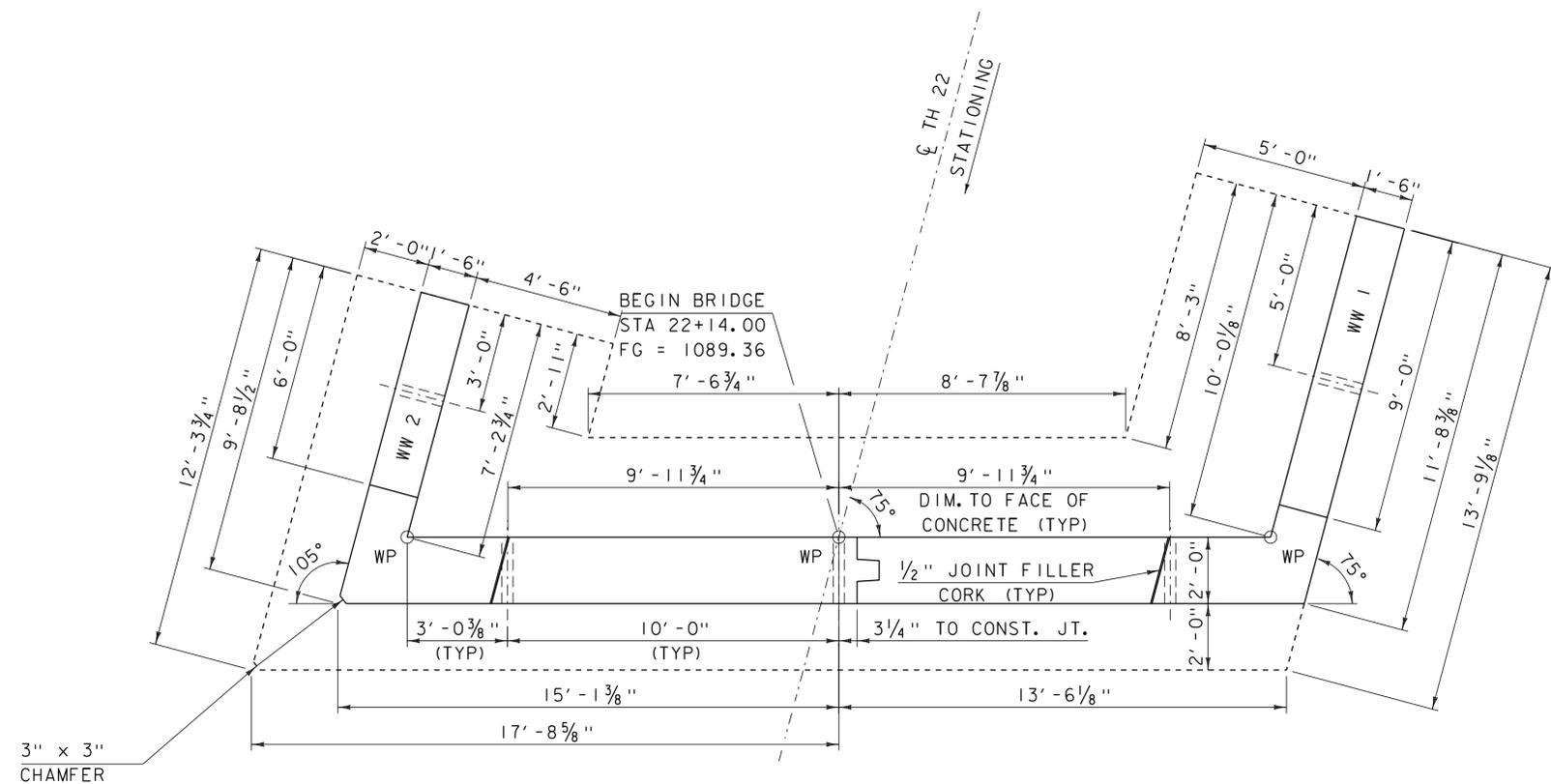
BRIDGE DECK PLAN

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

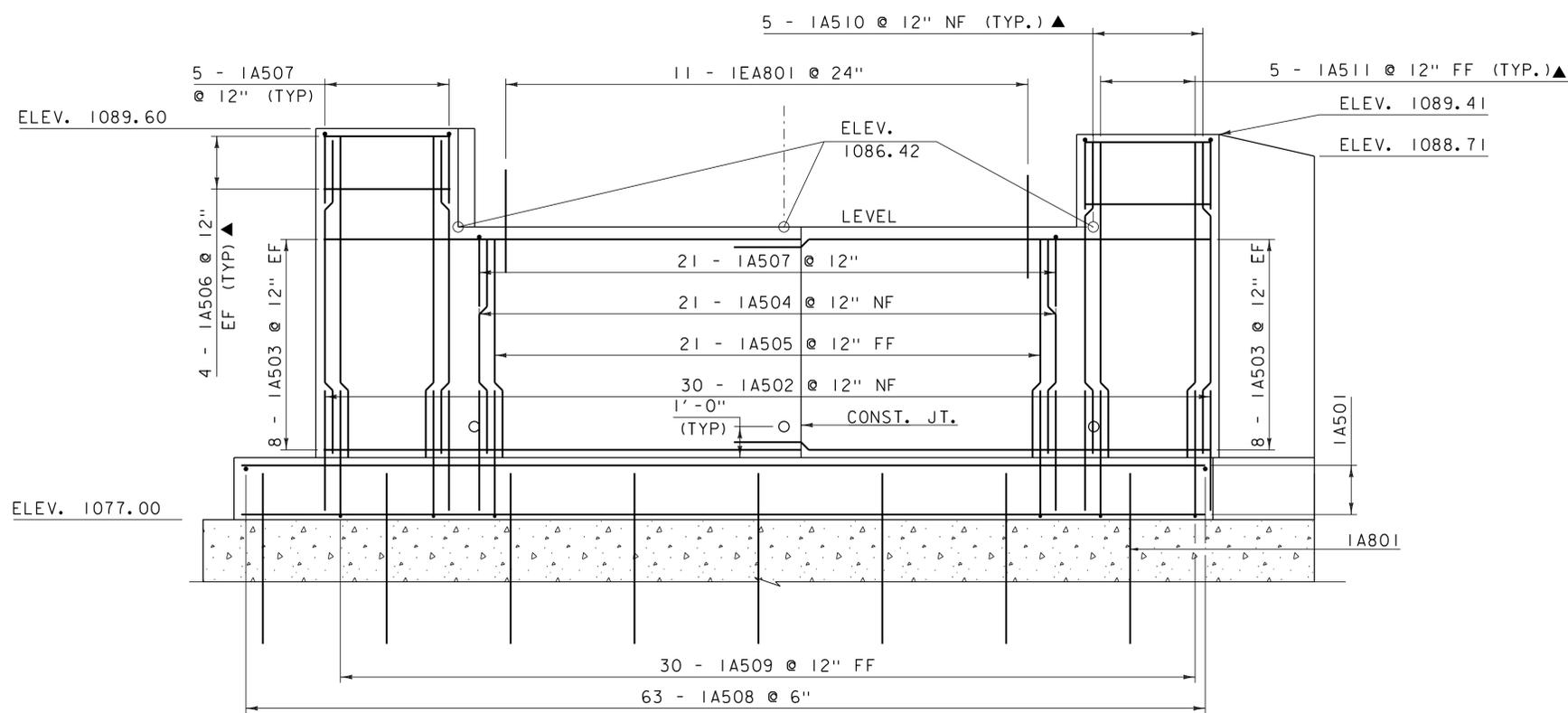
NOTE:

- NF = NEAR FACE
- FF = FAR FACE
- EF = EACH FACE
- ▲ = CUT TO FIT IN FIELD
- 3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
- 2' - 2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

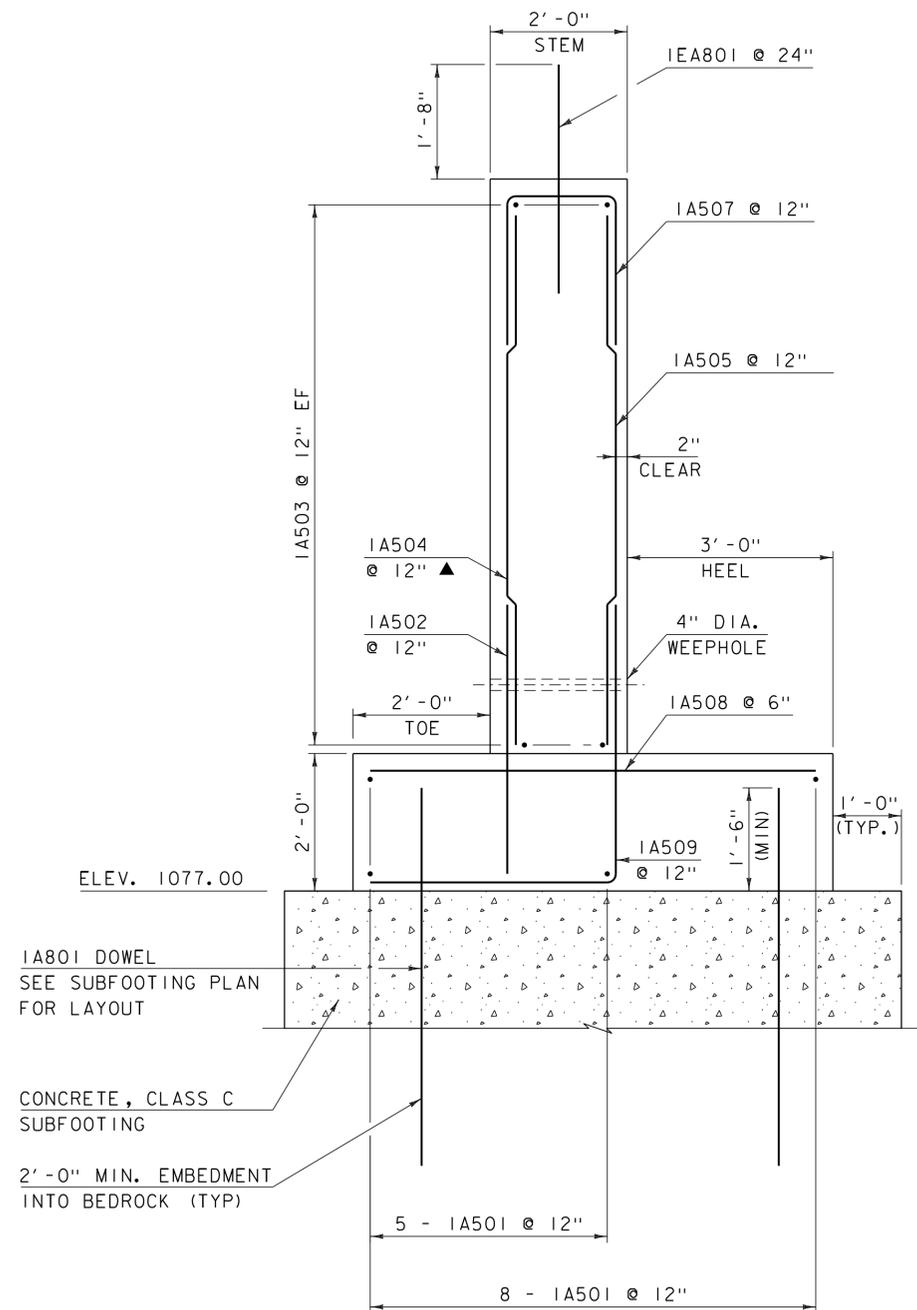
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|------------------------------|-------------------------|
| PROJECT NAME: HUNTINGTON | |
| PROJECT NUMBER: BRO 1445(35) | |
| FILE NAME: sl2j162sup.dgn | PLOT DATE: 15-OCT-2015 |
| PROJECT LEADER: C. CARLSON | DRAWN BY: R. PELLETT |
| DESIGNED BY: D. PETERSON | CHECKED BY: D. PETERSON |
| DECK REINFORCING PLAN | SHEET 20 OF 44 |



ABUTMENT I PLAN
SCALE 3/8" = 1'-0"



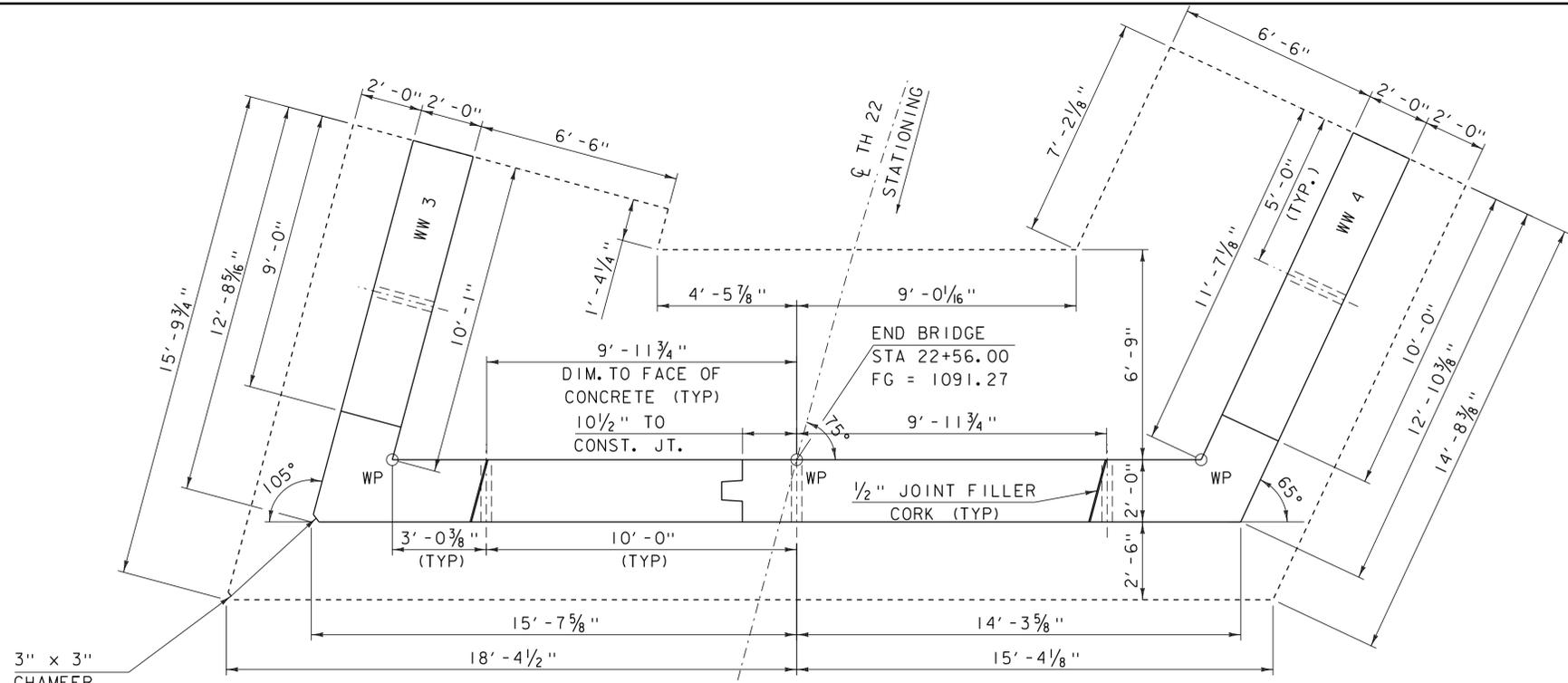
ABUTMENT I ELEVATION
SCALE 3/8" = 1'-0"



ABUTMENT I TYPICAL SECTION
SCALE 3/4" = 1'-0"

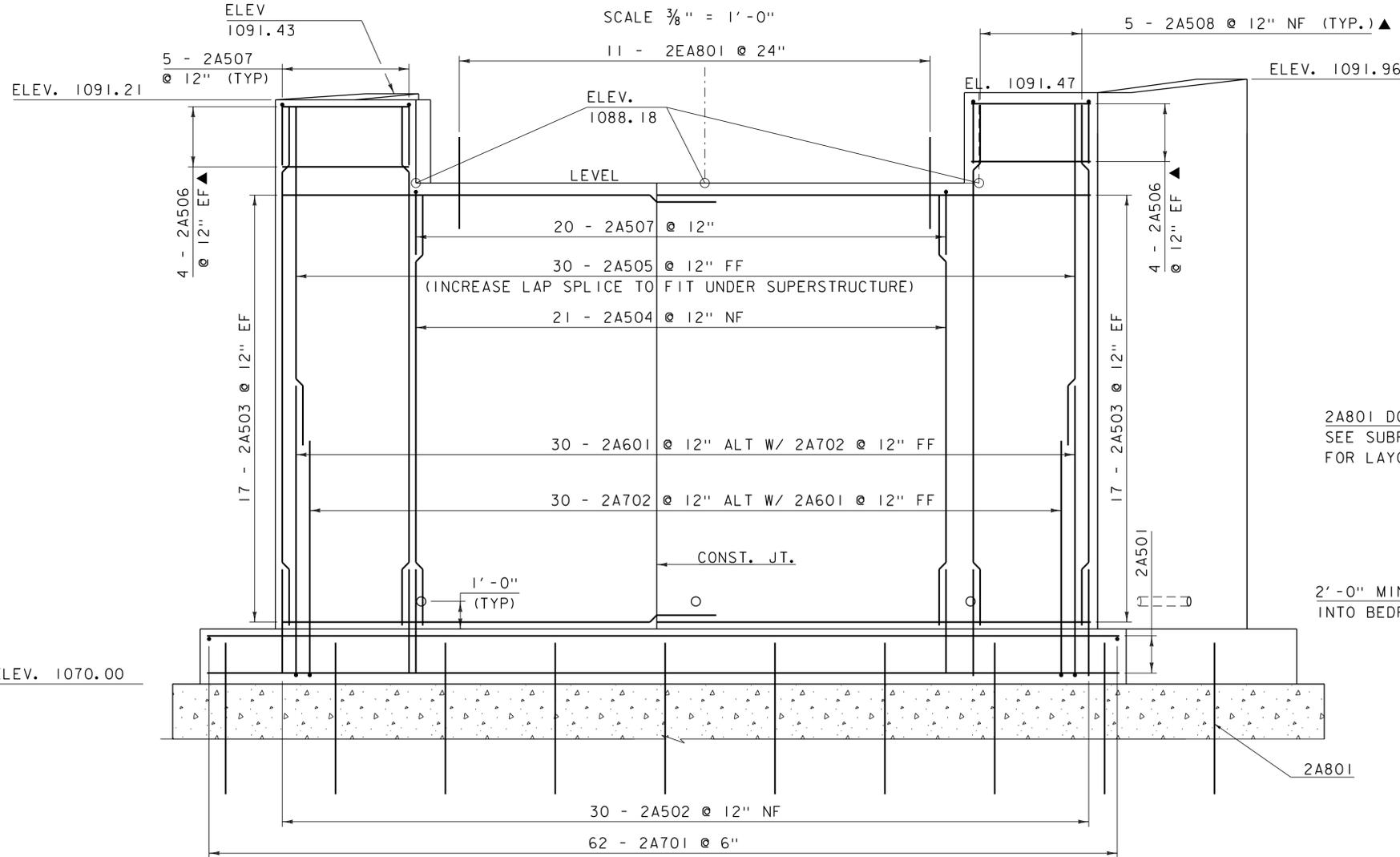
NOTE:
 NF = NEAR FACE
 FF = FAR FACE
 EF = EACH FACE
 ▲ = CUT TO FIT IN FIELD
 3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
 2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

| | | | |
|-----------------------------|----------------|--------------|-------------|
| PROJECT NAME: | HUNTINGTON | PLOT DATE: | 15-OCT-2015 |
| PROJECT NUMBER: | BRO 1445(35) | DRAWN BY: | R. PELLETT |
| FILE NAME: | sl2j162sub.dgn | DESIGNED BY: | D. PETERSON |
| PROJECT LEADER: | C. CARLSON | CHECKED BY: | D. PETERSON |
| ABUTMENT I PLAN & ELEVATION | | SHEET | 21 OF 44 |



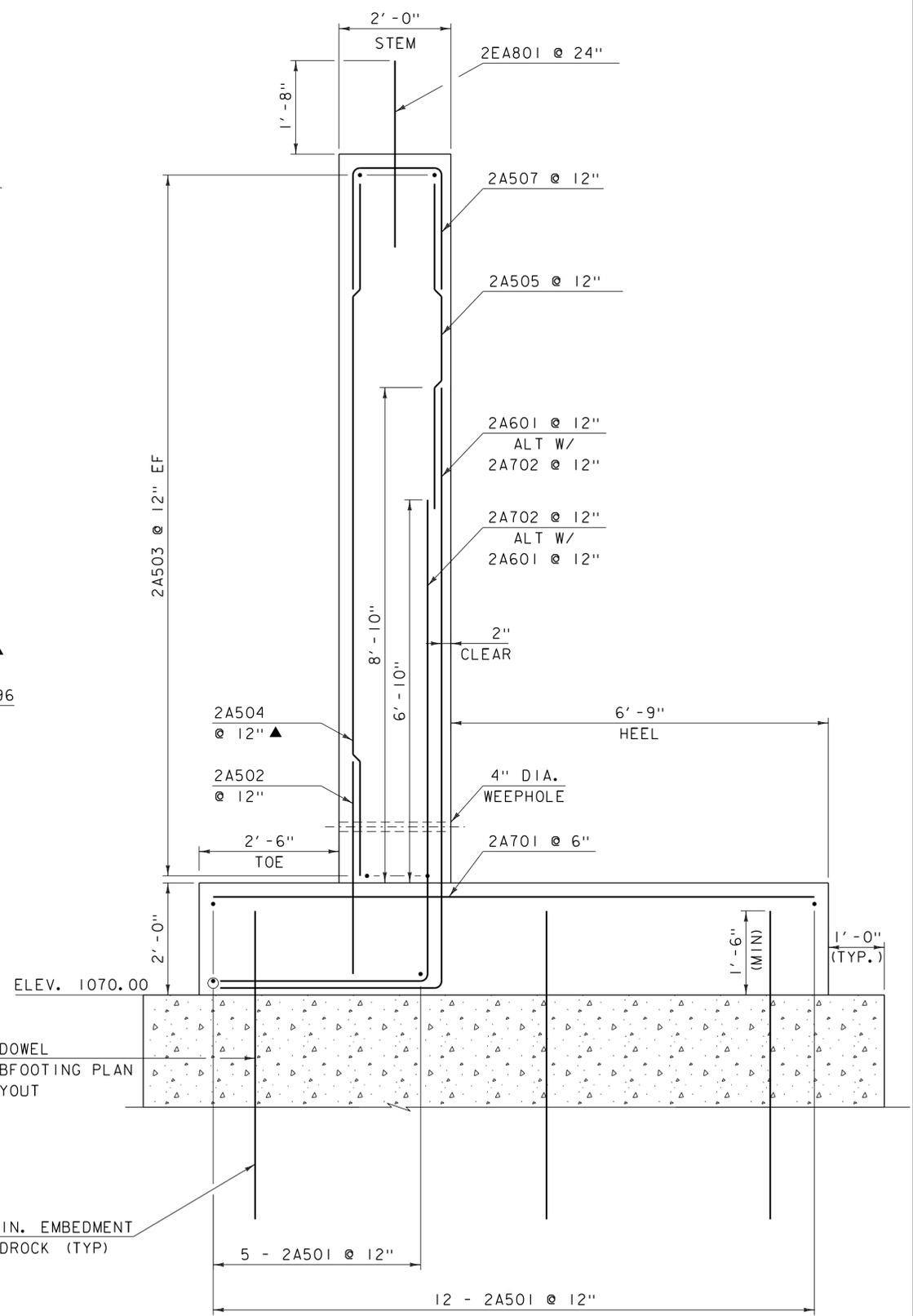
ABUTMENT 2 PLAN

SCALE 3/8" = 1'-0"



ABUTMENT 2 ELEVATION

SCALE 3/8" = 1'-0"

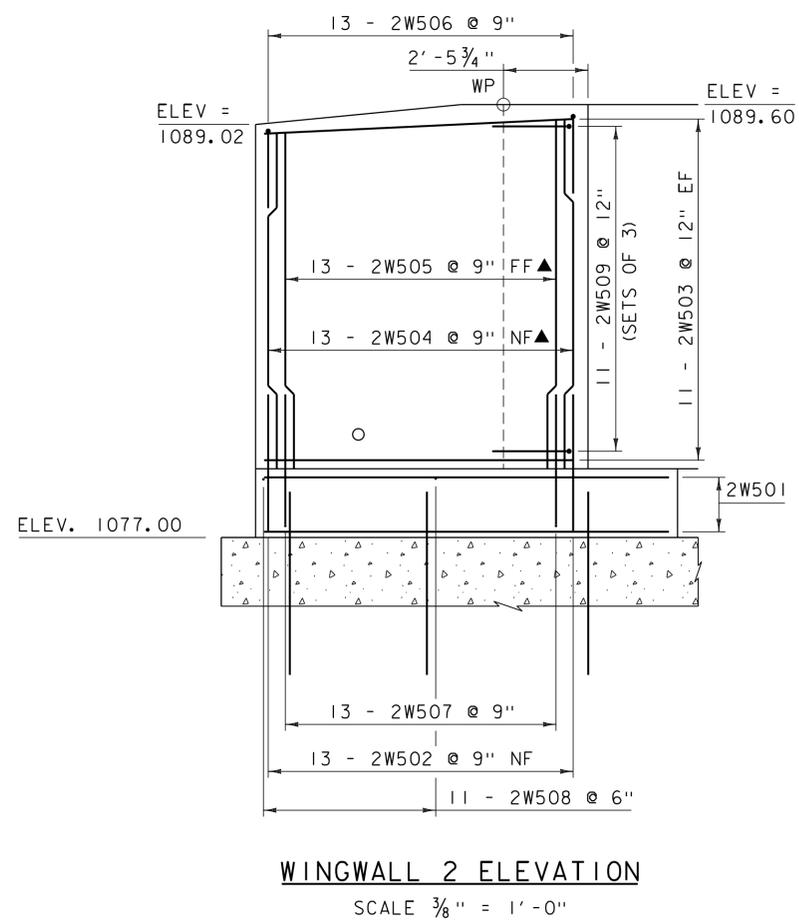
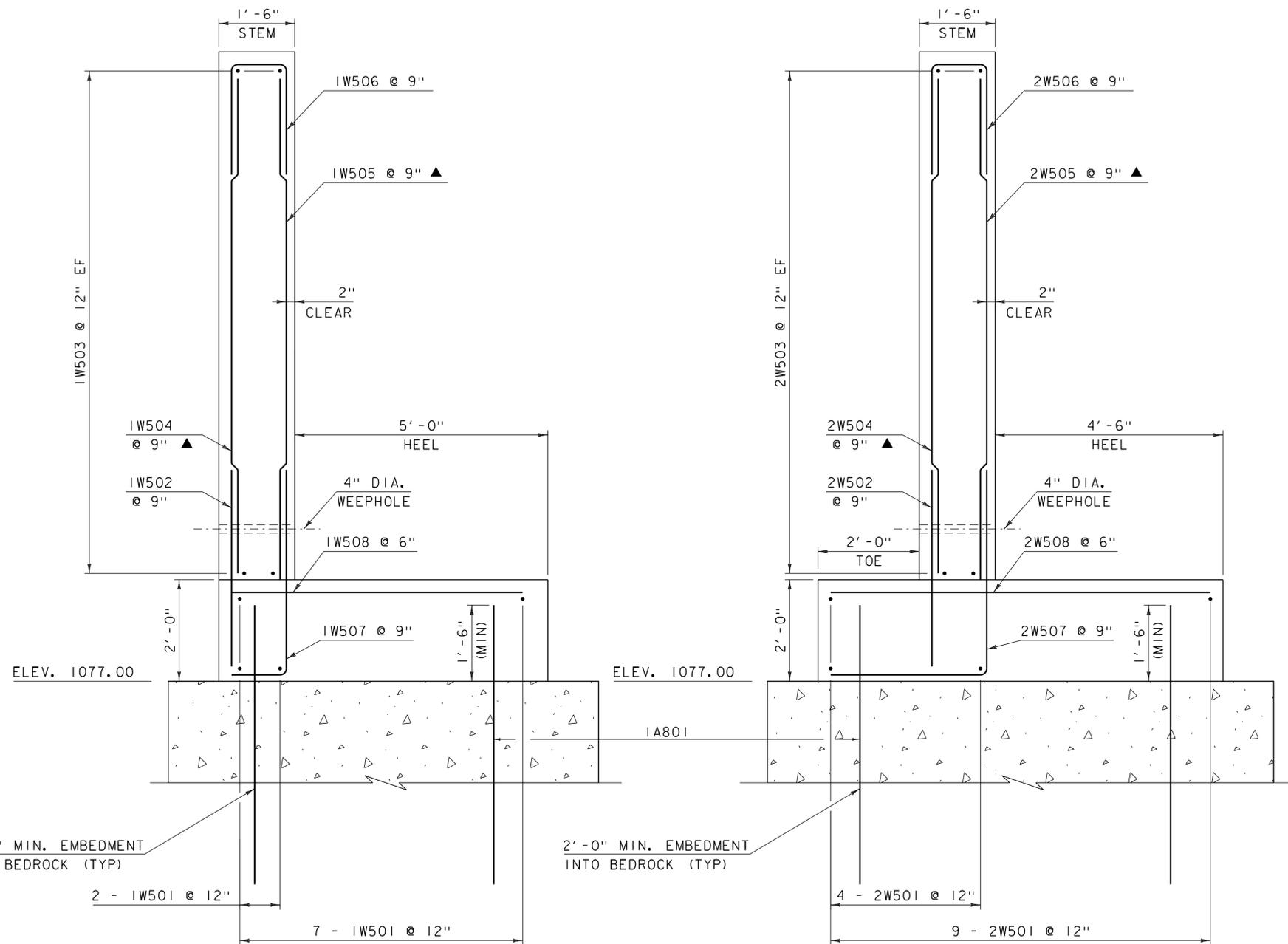
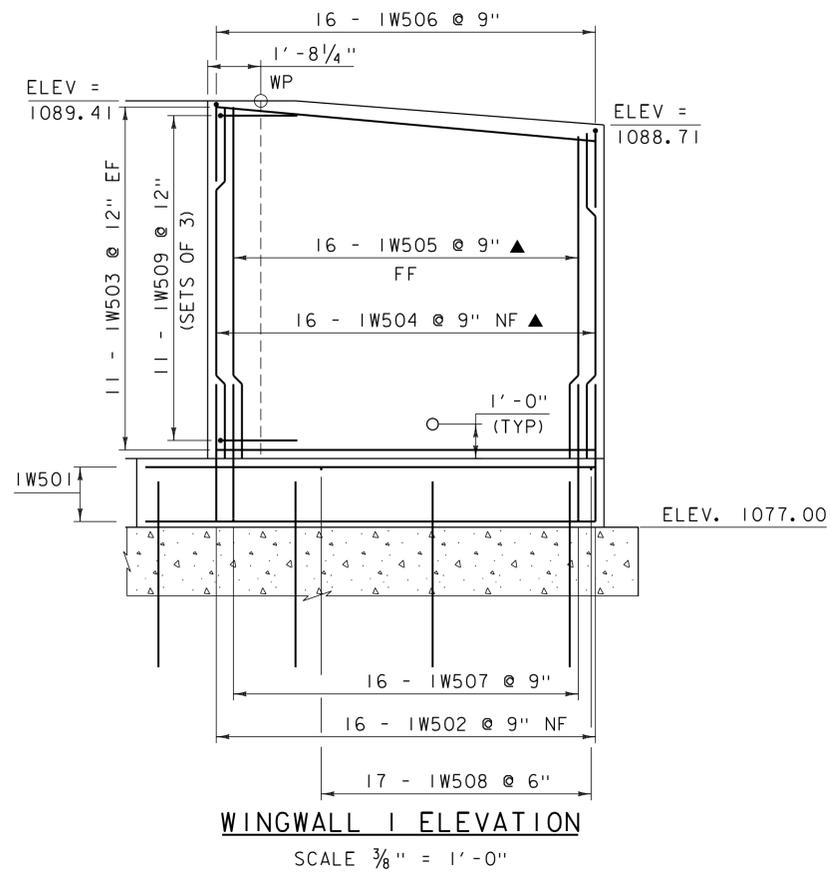


ABUTMENT 2 TYPICAL SECTION

SCALE 3/4" = 1'-0"

NOTE:
 NF = NEAR FACE
 FF = FAR FACE
 EF = EACH FACE
 ▲ = CUT TO FIT IN FIELD
 3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
 2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

| | | | |
|-----------------------------|----------------|--------------|-------------|
| PROJECT NAME: | HUNTINGTON | PLOT DATE: | 15-OCT-2015 |
| PROJECT NUMBER: | BRO 1445(35) | DRAWN BY: | R. PELLETT |
| FILE NAME: | sl2j162sub.dgn | DESIGNED BY: | D. PETERSON |
| PROJECT LEADER: | C. CARLSON | CHECKED BY: | D. PETERSON |
| ABUTMENT 2 PLAN & ELEVATION | | SHEET | 22 OF 44 |



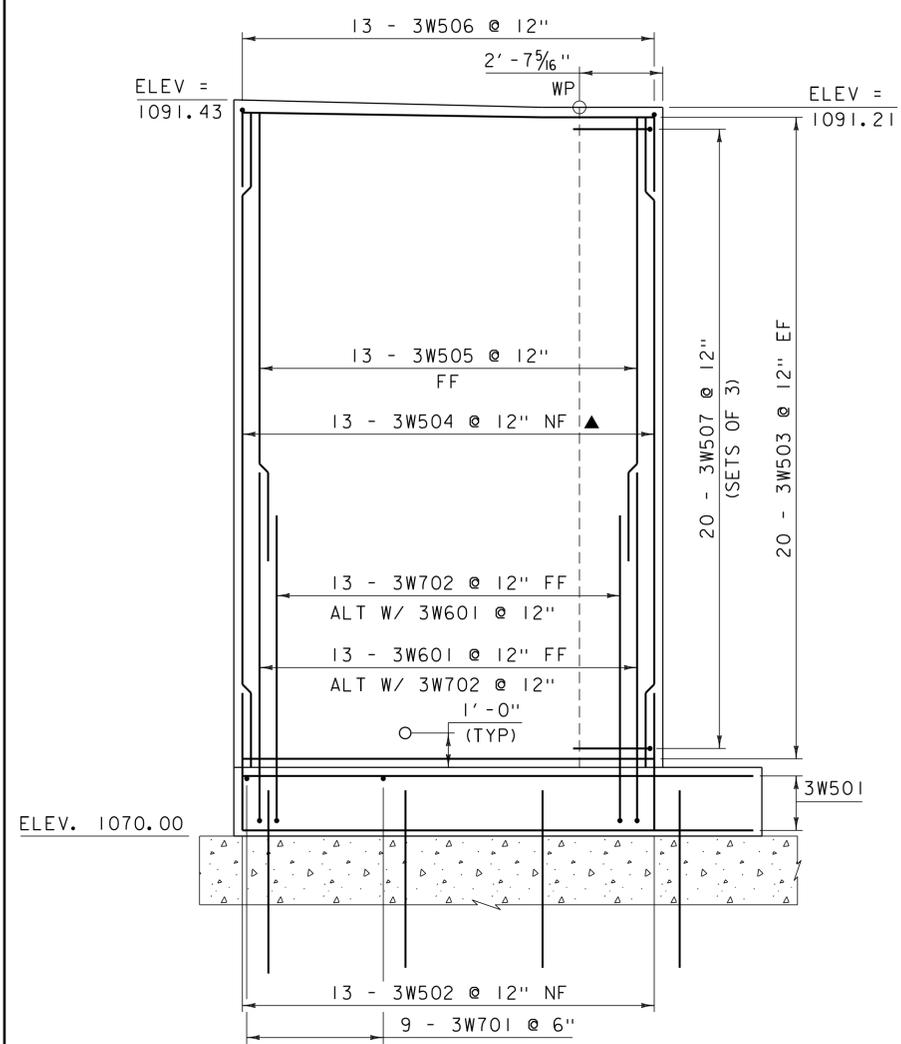
NOTE:

NF = NEAR FACE
 FF = FAR FACE
 EF = EACH FACE
 ▲ = CUT TO FIT IN FIELD
 3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
 2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

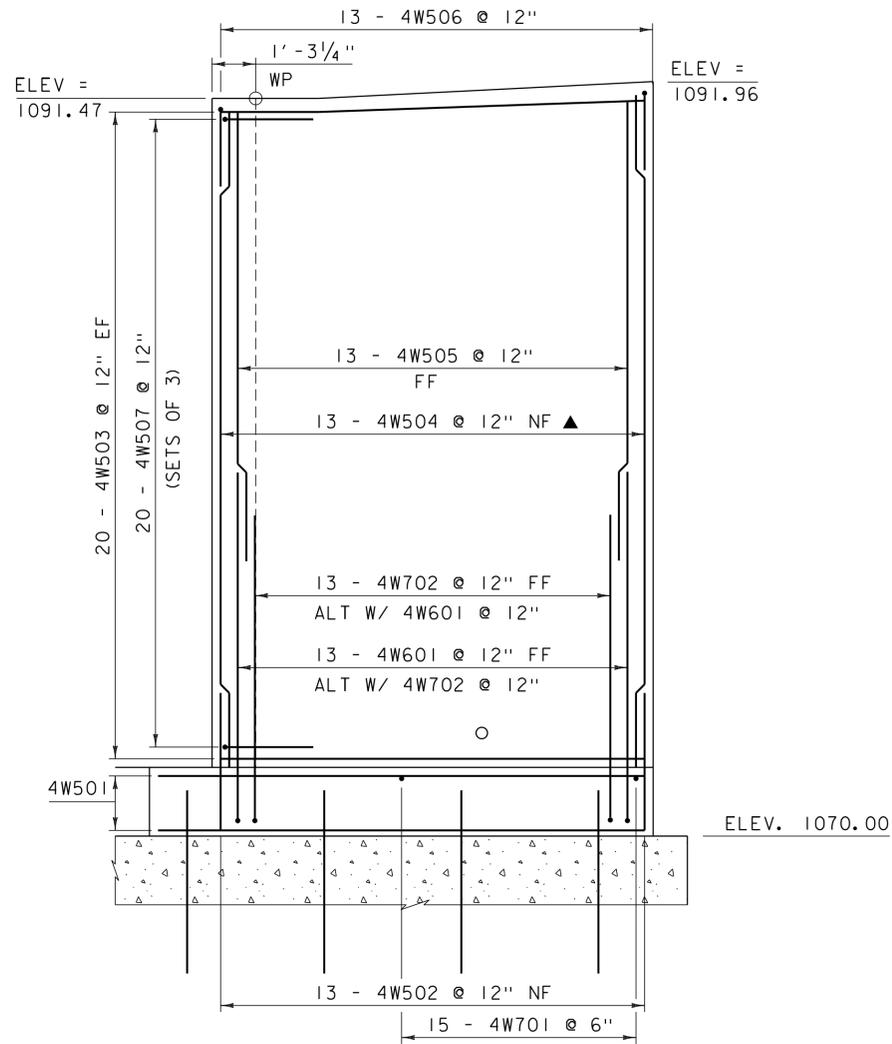
PROJECT NAME: HUNTINGTON
 PROJECT NUMBER: BRO 1445(35)

FILE NAME: sl2j162sub.dgn
 PROJECT LEADER: C. CARLSON
 DESIGNED BY: D. PETERSON
 WINGWALL 1 & 2 ELEVATIONS

PLOT DATE: 15-OCT-2015
 DRAWN BY: R. PELLETT
 CHECKED BY: D. PETERSON
 SHEET 23 OF 44

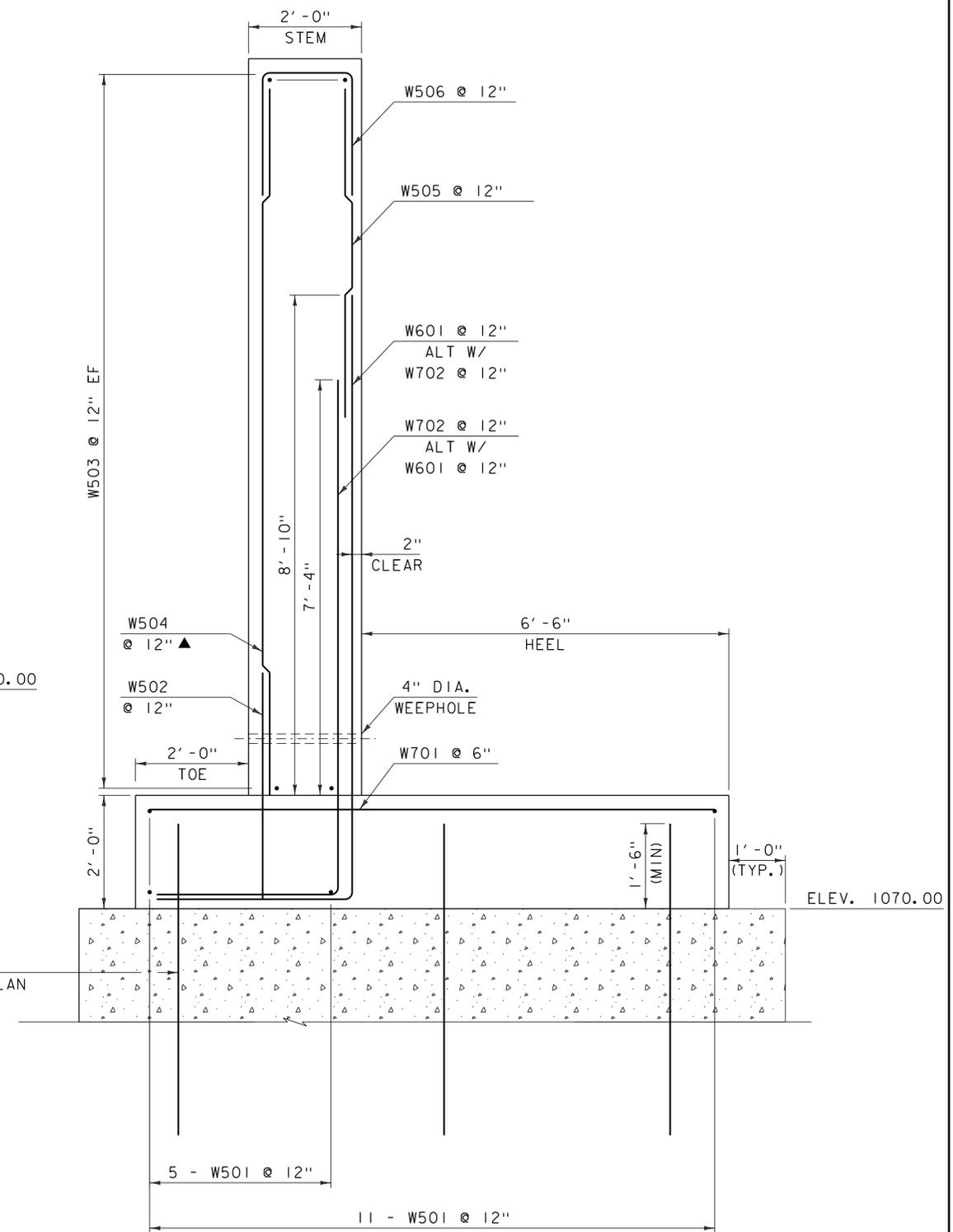


WINGWALL 3 ELEVATION
SCALE 3/8" = 1'-0"



WINGWALL 4 ELEVATION
SCALE 3/8" = 1'-0"

2A801 DOWEL
SEE SUBFOOTING PLAN
FOR LAYOUT



WINGWALL 3 & 4 TYPICAL SECTION
SCALE 3/4" = 1'-0"

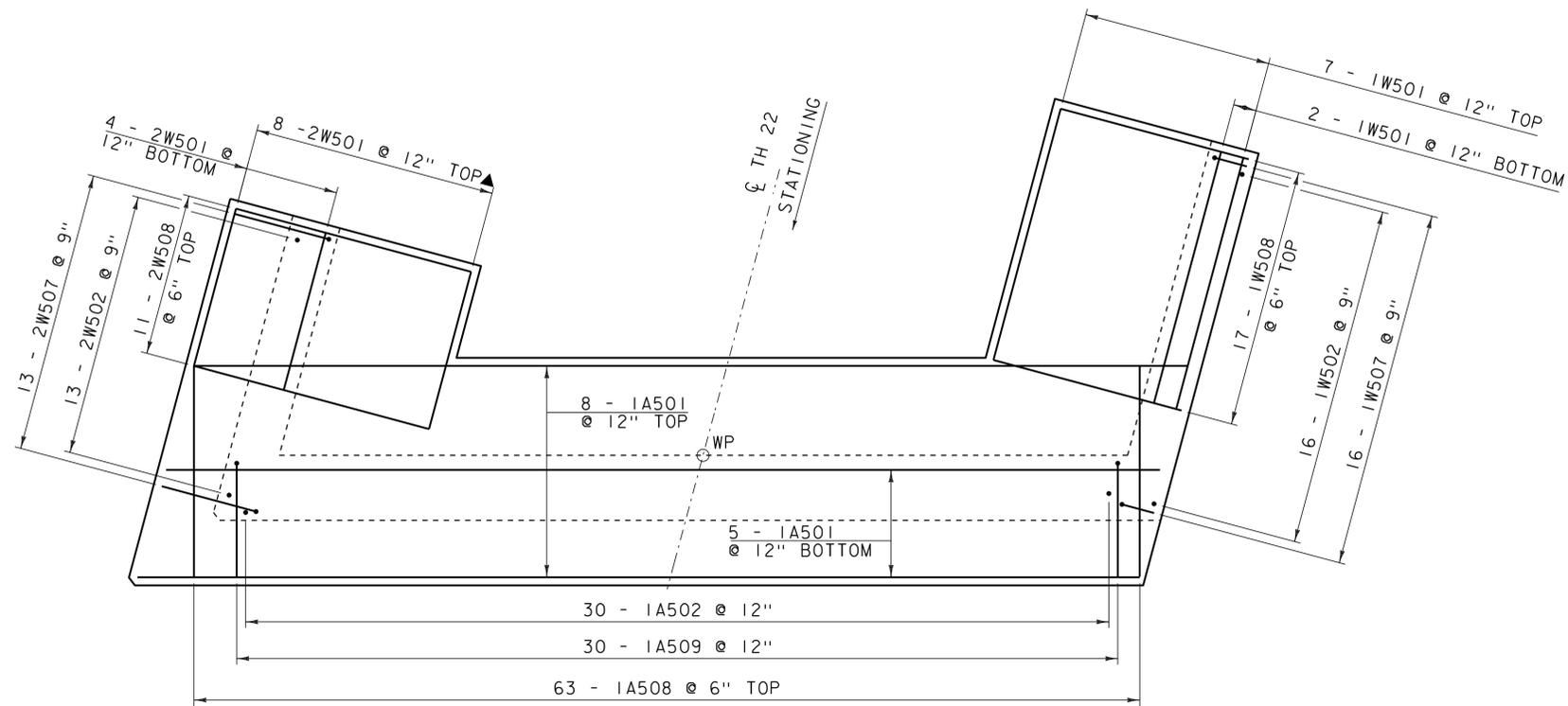
NOTE:

- NF = NEAR FACE
- FF = FAR FACE
- EF = EACH FACE
- ▲ = CUT TO FIT IN FIELD
- 3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
- 2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME: HUNTINGTON
PROJECT NUMBER: BRO 1445(35)

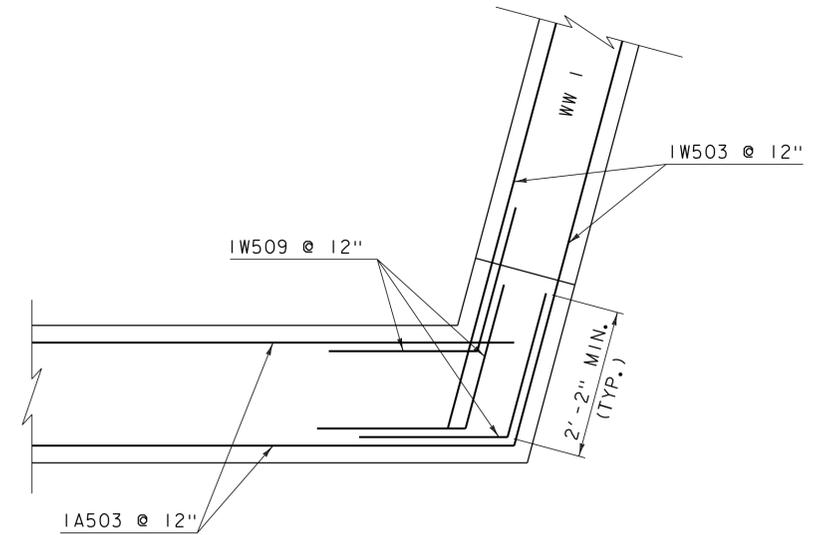
FILE NAME: sl2j162sub.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
WINGWALL 3 & 4 ELEVATIONS

PLOT DATE: 15-OCT-2015
DRAWN BY: R. PELLETT
CHECKED BY: D. PETERSON
SHEET 24 OF 44



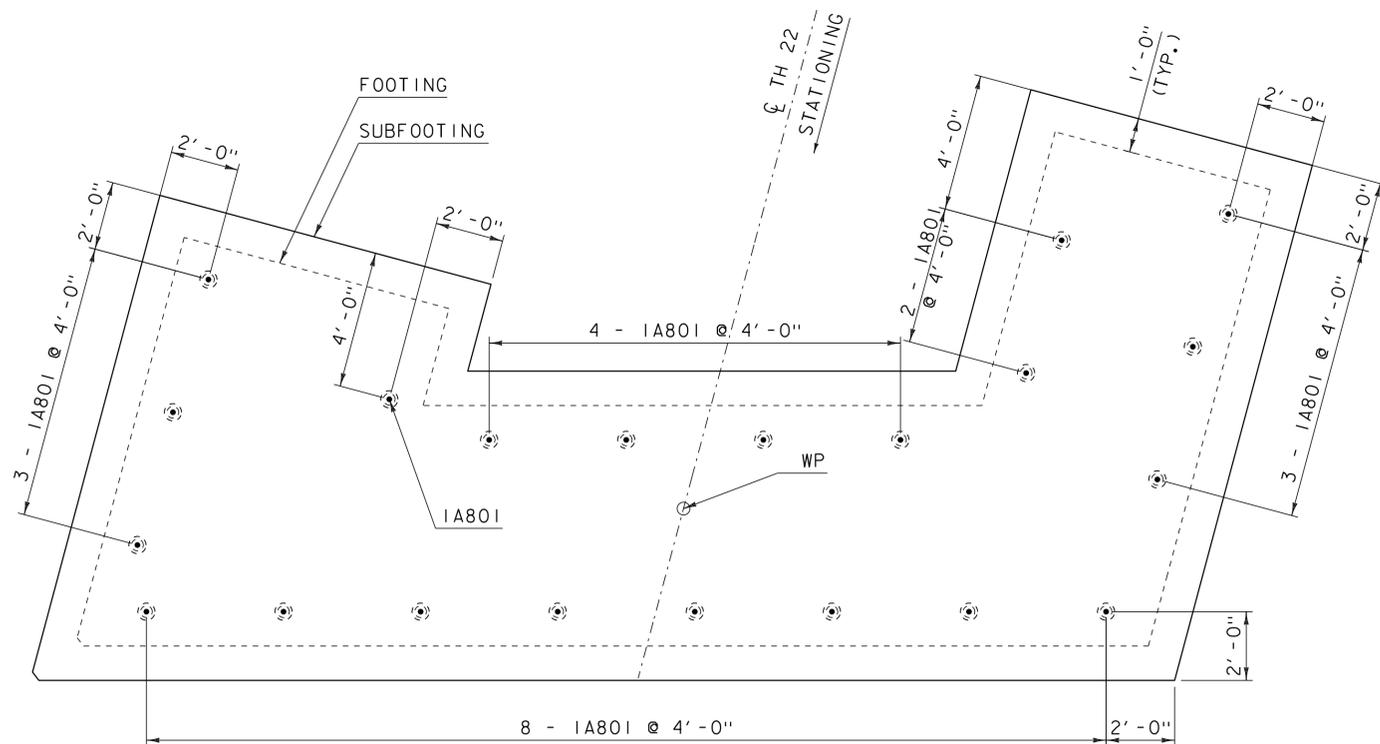
ABUTMENT 1 FOOTING REINFORCING PLAN

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



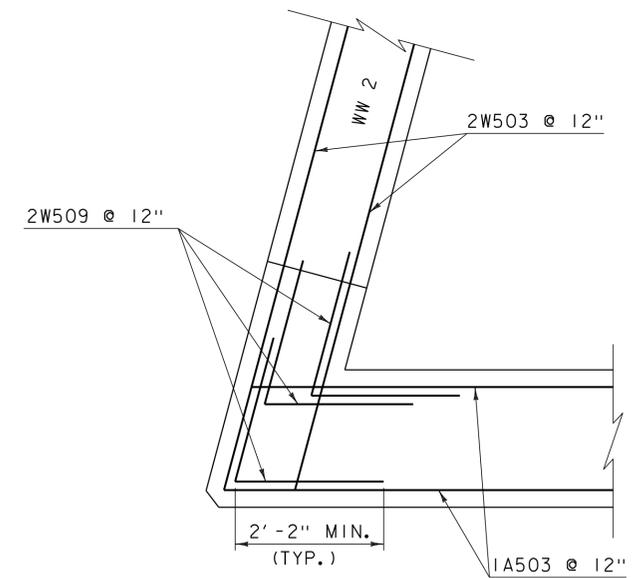
WINGWALL 1 CORNER REINFORCING

SCALE $\frac{3}{4}$ " = 1'-0"



ABUTMENT 1 SUBFOOTING REINFORCING PLAN

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



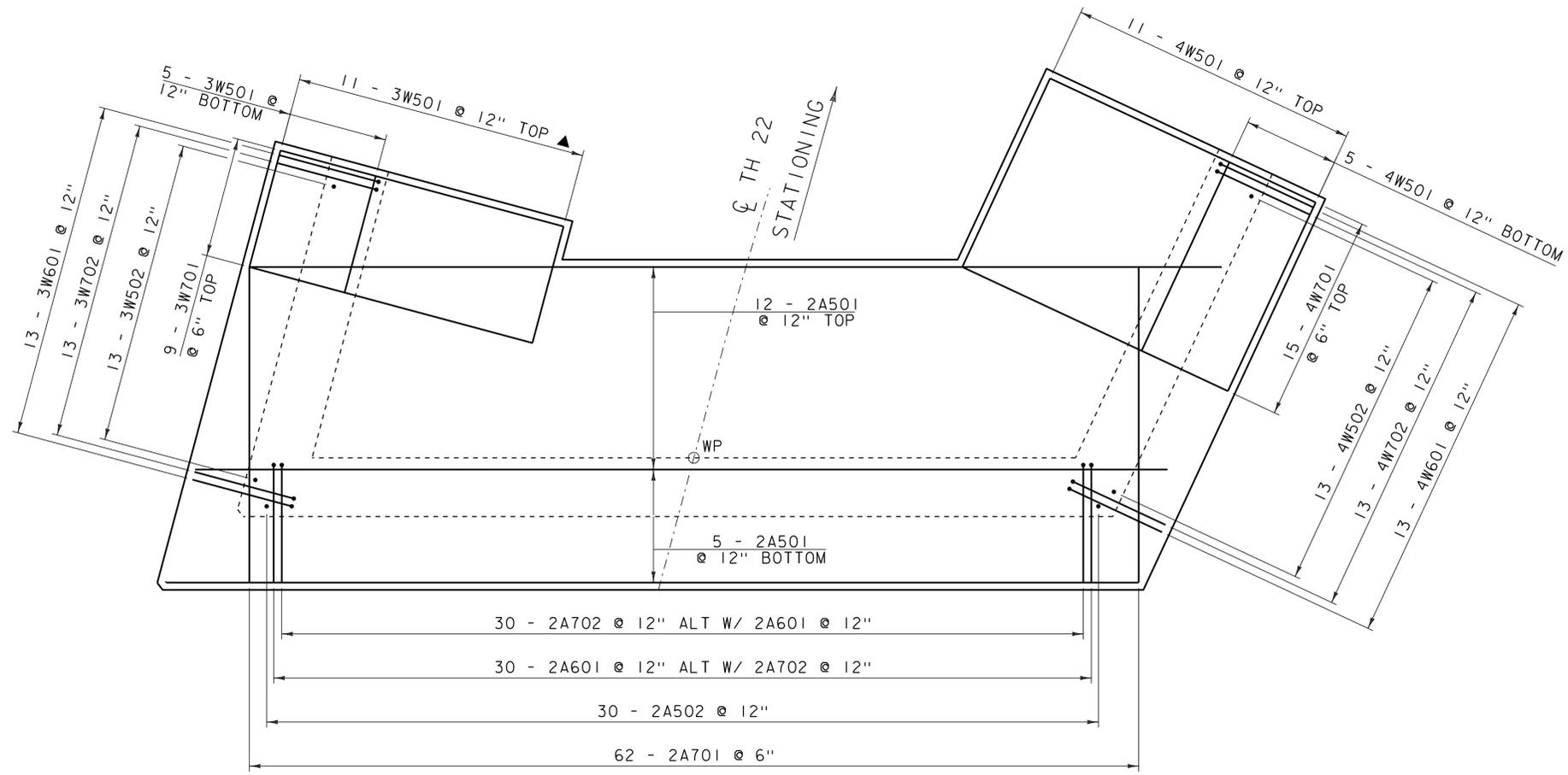
WINGWALL 2 CORNER REINFORCING

SCALE $\frac{3}{4}$ " = 1'-0"

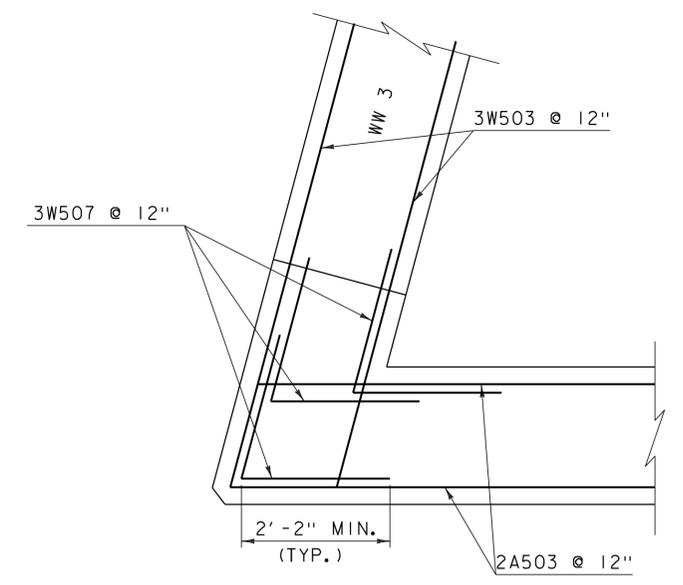
PROJECT NAME: HUNTINGTON
PROJECT NUMBER: BRO 1445(35)

FILE NAME: sl2j162sub.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
ABUTMENT 1 FOOTING PLAN

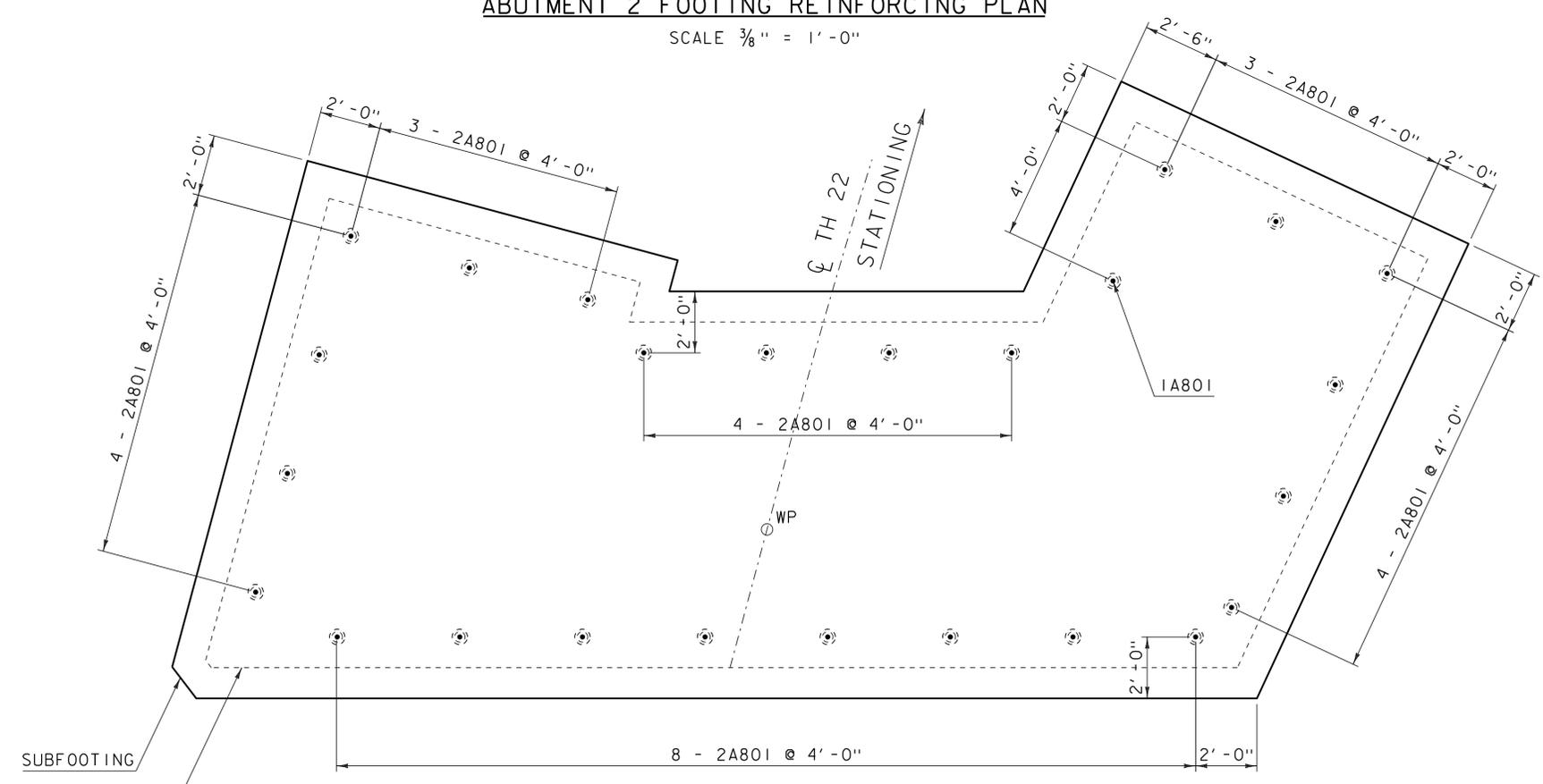
PLOT DATE: 15-OCT-2015
DRAWN BY: R. PELLETT
CHECKED BY: D. PETERSON
SHEET 25 OF 44



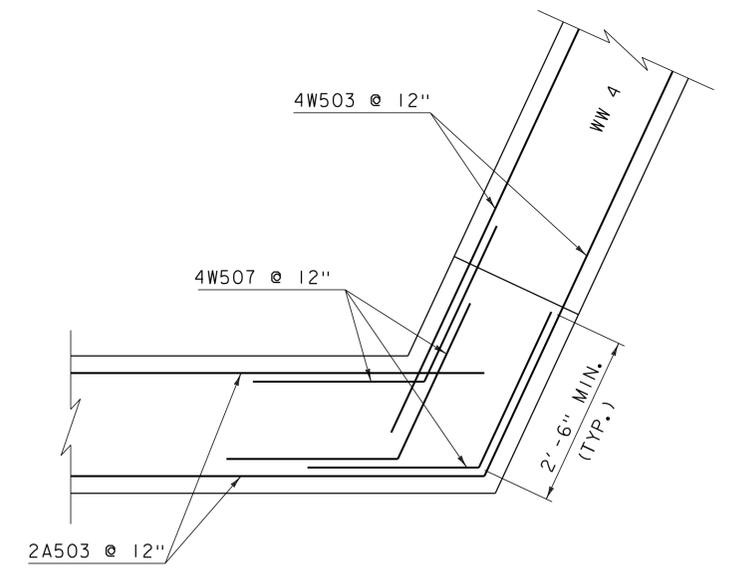
ABUTMENT 2 FOOTING REINFORCING PLAN
SCALE 3/8" = 1'-0"



WINGWALL 3 CORNER REINFORCING
SCALE 3/4" = 1'-0"



ABUTMENT 2 SUBFOOTING REINFORCING PLAN
SCALE 3/8" = 1'-0"



WINGWALL 4 CORNER REINFORCING
SCALE 3/4" = 1'-0"

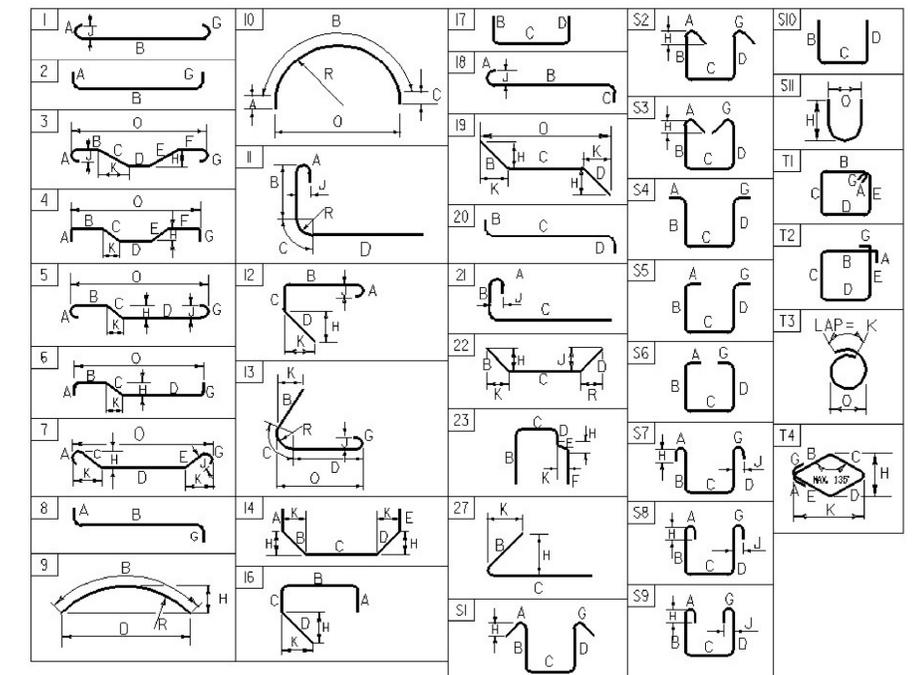
| | | | |
|-------------------------|----------------|--------------|-------------|
| PROJECT NAME: | HUNTINGTON | PLOT DATE: | 15-OCT-2015 |
| PROJECT NUMBER: | BRO 1445(35) | DRAWN BY: | R. PELLETT |
| FILE NAME: | sl2j162sub.dgn | DESIGNED BY: | D. PETERSON |
| PROJECT LEADER: | C. CARLSON | CHECKED BY: | D. PETERSON |
| ABUTMENT 2 FOOTING PLAN | | SHEET | 26 OF 44 |

REINFORCING STEEL SCHEDULE

| ITEM | EACH | SIZE | LENGTH | MARK | TYPE | A | B | C | D | E | F | G | H | J | K | R | O | ITEM | EACH | SIZE | LENGTH | MARK | TYPE | A | B | C | D | E | F | G | H | J | K | R | O |
|-----------------------|------|------|----------|--------|-------|---------|---------|---------|--------|---|---|--------|--------|--------|--------|-----|---|-----------------------|------|----------|----------|--------|----------|----------|---------|--------|---|--------|-----|--------|---|---|---|---|---|
| DECK | | | | | | | | | | | | | | | | | | WINGWALL NO. 3 | | | | | | | | | | | | | | | | | |
| * | 13 | 5 | 41'- 6" | ES501 | STR | 41'- 6" | | | | | | | | | | | | 16 | 5 | 4'- 1" | 3W501 | STR | 4'- 1" | | | | | | | | | | | | |
| | 86 | 5 | 12'- 10" | ES502 | S6 | 2'- 2" | 1'- 9" | 5'- 0" | 1'- 9" | | | 2'- 2" | | | | | | 13 | 5 | 3'- 11" | 3W502 | STR | 3'- 11" | | | | | | | | | | | | |
| * | 44 | 6 | 19'- 6" | ES601 | STR | 19'- 6" | | | | | | | | | | | | 40 | 5 | 12'- 0" | 3W503 | STR | 12'- 0" | | | | | | | | | | | | |
| * | 40 | 11 | 42'- 6" | ES1101 | 1 | 1'- 7" | 41'- 0" | | | | | | | 1'- 9" | | | | 13 | 5 | 18'- 11" | 3W504 | STR | 18'- 11" | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | 13 | 5 | 12'- 11" | 3W505 | STR | 12'- 11" | | | | | | | | | | | | |
| ABUTMENT NO. 1 | | | | | | | | | | | | | | | | | | WINGWALL NO. 4 | | | | | | | | | | | | | | | | | |
| * | 14 | 5 | 30'- 8" | 1A501 | STR | 30'- 8" | | | | | | | | | | | | 13 | 5 | 5'- 11" | 3W506 | S10 | | 2'- 2" | 1'- 7" | 2'- 2" | | | | | | | | | |
| | 30 | 5 | 3'- 11" | 1A502 | STR | 3'- 11" | | | | | | | | | | | | 60 | 5 | 4'- 4" | 3W507 | 27 | | 2'- 2" | 2'- 2" | --- | | 2'- 1" | --- | 0'- 7" | | | | | |
| | 32 | 5 | 15'- 5" | 1A503 | STR | 15'- 5" | | | | | | | | | | | | 13 | 6 | 14'- 2" | 3W601 | 17 | | 3'- 7" | 10'- 7" | --- | | | | | | | | | |
| | 21 | 5 | 6'- 11" | 1A504 | STR | 6'- 11" | | | | | | | | | | | | 9 | 7 | 10'- 0" | 3W701 | STR | 10'- 0" | | | | | | | | | | | | |
| | 21 | 5 | 6'- 11" | 1A505 | STR | 6'- 11" | | | | | | | | | | | | 13 | 7 | 12'- 8" | 3W702 | 17 | | 3'- 7" | 9'- 1" | --- | | | | | | | | | |
| ▲ | 16 | 5 | 4'- 1" | 1A506 | STR | 4'- 1" | | | | | | | | | | | | WINGWALL NO. 4 | | | | | | | | | | | | | | | | | |
| | 63 | 5 | 6'- 6" | 1A508 | STR | 6'- 6" | | | | | | | | | | | | 16 | 5 | 7'- 1" | 4W501 | STR | 7'- 1" | | | | | | | | | | | | |
| ▲ | 10 | 5 | 10'- 1" | 1A510 | STR | 10'- 1" | | | | | | | | | | | | 13 | 5 | 3'- 11" | 4W502 | STR | 3'- 11" | | | | | | | | | | | | |
| ▲ | 10 | 5 | 10'- 1" | 1A511 | STR | 10'- 1" | | | | | | | | | | | | 40 | 5 | 12'- 4" | 4W503 | STR | 12'- 4" | | | | | | | | | | | | |
| | 31 | 5 | 5'- 11" | 1A507 | S10 | | 2'- 2" | 1'- 7" | 2'- 2" | | | | | | | | | ▲ | 13 | 5 | 19'- 5" | 4W504 | STR | 19'- 5" | | | | | | | | | | | |
| | 30 | 5 | 7'- 6" | 1A509 | 17 | | 3'- 7" | 3'- 11" | | | | | | | | | | 13 | 5 | 13'- 5" | 4W505 | STR | 13'- 5" | | | | | | | | | | | | |
| * | ▲ | 22 | 8 | 9'- 0" | 1A801 | STR | 9'- 0" | | | | | | | | | | | 13 | 5 | 5'- 11" | 4W506 | S10 | | 2'- 2" | 1'- 7" | 2'- 2" | | | | | | | | | |
| △ | 13 | 8 | 3'- 4" | 1EA801 | STR | 3'- 4" | | | | | | | | | | | | 60 | 5 | 5'- 0" | 4W507 | 27 | | 2'- 6" | 2'- 6" | --- | | 2'- 3" | --- | 1'- 1" | | | | | |
| WINGWALL NO. 1 | | | | | | | | | | | | | | | | | | WINGWALL NO. 2 | | | | | | | | | | | | | | | | | |
| | 9 | 5 | 8'- 0" | 1W501 | STR | 8'- 0" | | | | | | | | | | | | 13 | 5 | 5'- 0" | 2W501 | STR | 5'- 0" | | | | | | | | | | | | |
| | 16 | 5 | 3'- 11" | 1W502 | STR | 3'- 11" | | | | | | | | | | | | 13 | 5 | 3'- 11" | 2W502 | STR | 3'- 11" | | | | | | | | | | | | |
| | 22 | 5 | 11'- 0" | 1W503 | STR | 11'- 0" | | | | | | | | | | | | 22 | 5 | 9'- 2" | 2W503 | STR | 9'- 2" | | | | | | | | | | | | |
| ▲ | 16 | 5 | 9'- 11" | 1W504 | STR | 9'- 11" | | | | | | | | | | | | ▲ | 13 | 5 | 10'- 1" | 2W504 | STR | 10'- 1" | | | | | | | | | | | |
| ▲ | 16 | 5 | 9'- 11" | 1W505 | STR | 9'- 11" | | | | | | | | | | | | ▲ | 13 | 5 | 10'- 1" | 2W505 | STR | 10'- 1" | | | | | | | | | | | |
| | 17 | 5 | 6'- 0" | 1W508 | STR | 6'- 0" | | | | | | | | | | | | 11 | 5 | 7'- 6" | 2W508 | STR | 7'- 6" | | | | | | | | | | | | |
| | 16 | 5 | 5'- 5" | 1W506 | S10 | | 2'- 2" | 1'- 1" | 2'- 2" | | | | | | | | | 13 | 5 | 5'- 5" | 2W506 | 17 | | 2'- 2" | 1'- 1" | 2'- 2" | | | | | | | | | |
| | 16 | 5 | 5'- 0" | 1W507 | 17 | | 1'- 1" | 3'- 11" | | | | | | | | | | 13 | 5 | 7'- 0" | 2W507 | 17 | | 3'- 1" | 3'- 11" | | | | | | | | | | |
| | 33 | 5 | 4'- 4" | 1W509 | 22 | | 2'- 2" | 2'- 2" | --- | | | | 2'- 1" | --- | 0'- 7" | --- | | 33 | 5 | 4'- 4" | 2W509 | 27 | | 2'- 2" | 2'- 2" | --- | | 2'- 1" | --- | 0'- 7" | | | | | |
| WINGWALL NO. 2 | | | | | | | | | | | | | | | | | | ABUTMENT NO. 2 | | | | | | | | | | | | | | | | | |
| | 13 | 5 | 5'- 0" | 2W501 | STR | 5'- 0" | | | | | | | | | | | | * | 18 | 5 | 33'- 2" | 2A501 | STR | 33'- 2" | | | | | | | | | | | |
| | 13 | 5 | 3'- 11" | 2W502 | STR | 3'- 11" | | | | | | | | | | | | 30 | 5 | 3'- 11" | 2A502 | STR | 3'- 11" | | | | | | | | | | | | |
| | 22 | 5 | 9'- 2" | 2W503 | STR | 9'- 2" | | | | | | | | | | | | 68 | 5 | 15'- 9" | 2A503 | STR | 15'- 9" | | | | | | | | | | | | |
| ▲ | 13 | 5 | 10'- 1" | 2W504 | STR | 10'- 1" | | | | | | | | | | | | 21 | 5 | 15'- 8" | 2A504 | STR | 15'- 8" | | | | | | | | | | | | |
| ▲ | 13 | 5 | 10'- 1" | 2W505 | STR | 10'- 1" | | | | | | | | | | | | 30 | 5 | 12'- 3" | 2A505 | STR | 12'- 3" | | | | | | | | | | | | |
| | 11 | 5 | 7'- 6" | 2W508 | STR | 7'- 6" | | | | | | | | | | | | * ▲ | 17 | 5 | 4'- 7" | 2A506 | STR | 4'- 7" | | | | | | | | | | | |
| | 13 | 5 | 5'- 5" | 2W506 | 17 | | 2'- 2" | 1'- 1" | 2'- 2" | | | | | | | | | ▲ | 10 | 5 | 18'- 11" | 2A508 | STR | 18'- 11" | | | | | | | | | | | |
| | 13 | 5 | 7'- 0" | 2W507 | 17 | | 3'- 1" | 3'- 11" | | | | | | | | | | 30 | 5 | 5'- 11" | 2A507 | 17 | | 2'- 2" | 1'- 7" | 2'- 2" | | | | | | | | | |
| | 33 | 5 | 4'- 4" | 2W509 | 27 | | 2'- 2" | 2'- 2" | --- | | | | 2'- 1" | --- | 0'- 7" | --- | | 30 | 6 | 14'- 8" | 2A601 | 17 | | 4'- 1" | 10'- 7" | --- | | | | | | | | | |
| ABUTMENT NO. 2 | | | | | | | | | | | | | | | | | | ABUTMENT NO. 2 | | | | | | | | | | | | | | | | | |
| | 13 | 5 | 5'- 5" | 2W506 | 17 | | 2'- 2" | 1'- 1" | 2'- 2" | | | | | | | | | 62 | 7 | 10'- 9" | 2A701 | STR | 10'- 9" | | | | | | | | | | | | |
| | 13 | 5 | 7'- 0" | 2W507 | 17 | | 3'- 1" | 3'- 11" | | | | | | | | | | 30 | 7 | 12'- 8" | 2A702 | 17 | | 4'- 1" | 8'- 7" | --- | | | | | | | | | |
| | 33 | 5 | 4'- 4" | 2W509 | 27 | | 2'- 2" | 2'- 2" | --- | | | | 2'- 1" | --- | 0'- 7" | --- | | * ▲ | 26 | 8 | 8'- 0" | 2A801 | STR | 8'- 0" | | | | | | | | | | | |
| | 13 | 8 | 3'- 4" | 2EA801 | STR | 3'- 4" | | | | | | | | | | | | △ | 13 | 8 | 3'- 4" | 2EA801 | STR | 3'- 4" | | | | | | | | | | | |

~ NOTES ~

- UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING NO. 18 SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", AASHTO M 31 (ASTM A 615-S1). ALL BARS SHALL BE GRADE 60, UNLESS OTHERWISE DESIGNATED.
- FOR TYPICAL BENDING DETAILS, RECOMMENDED PIN DIAMETER "D" OF BENDS AND HOOKS, AND OTHER STANDARD PRACTICE, SEE CURRENT CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE".
- BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
- ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS.
- "J" DIMENSION ON 180 DEGREE HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
- "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
- WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS "H" AND "K" MUST BE SHOWN.
- ▲ DENOTES BARS TO BE CUT IN FIELD.
- * DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
- △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
- E IN BAR MARK PREFIX DENOTES EPOXY COATED REINFORCING STEEL.



ASTM STANDARD REINFORCING BARS

| BAR SIZE | DIAMETER (IN) | CROSS SECTIONAL AREA (SQ IN) | UNIT WEIGHT (LBS/FT) | YIELD STRENGTH (MIN) (KSI) | TENSILE STRENGTH (MIN) (KSI) |
|----------|---------------|------------------------------|----------------------|----------------------------|------------------------------|
| #3 | 0.375 | 0.11 | 1.178 | 60 | 75 |
| #4 | 0.500 | 0.20 | 1.571 | 60 | 75 |
| #5 | 0.625 | 0.31 | 1.963 | 60 | 75 |
| #6 | 0.750 | 0.44 | 2.356 | 60 | 75 |
| #7 | 0.875 | 0.60 | 2.749 | 60 | 75 |
| #8 | 1.000 | 0.79 | 3.14 | 60 | 75 |
| #9 | 1.13 | 1.00 | 3.54 | 60 | 75 |
| #10 | 1.270 | 1.27 | 3.990 | 60 | 75 |
| #11 | 1.410 | 1.56 | 4.430 | 60 | 75 |
| #14 | 1.69 | 2.25 | 5.32 | 60 | 75 |
| #18 | 2.26 | 4.00 | 7.09 | 60 | 75 |

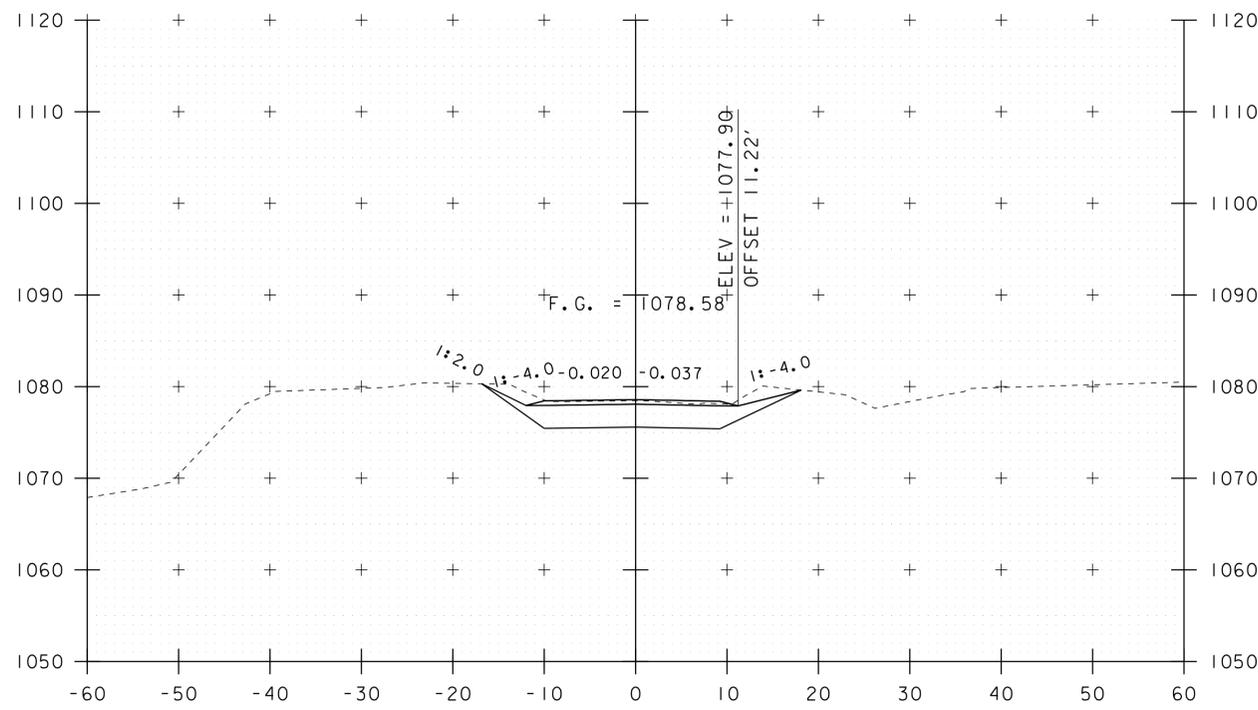
~ REINFORCING STEEL CORROSION RESISTANCE LEVEL ~

THE REINFORCING STEEL MARKS IN THIS SCHEDULE INDICATE THE REQUIRED BAR CORROSION RESISTANCE LEVEL. CORROSION RESISTANCE LEVEL IS DENOTED WITH A .2 FOR LEVEL TWO SUFFIX OR .3 FOR LEVEL THREE SUFFIX. .1 FOR LEVEL ONE IS TO BE OMITTED. THE BAR MATERIAL TYPE AND BAR STEEL GRADE PROVIDED FOR EACH CORROSION LEVEL WILL BE RECORDED ON THE PLAN SET P1 SHEET FOR AS-BUILT RECORD PLAN ARCHIVES.

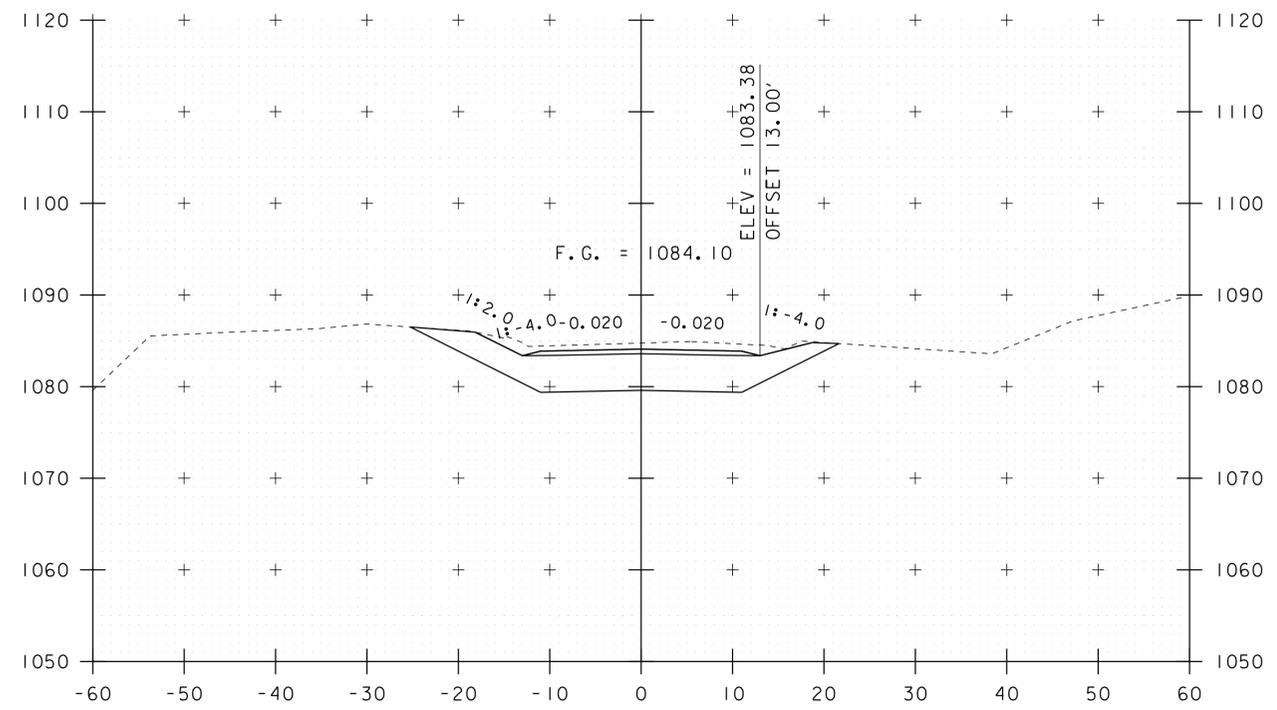
PROJECT NAME: HUNTINGTON
PROJECT NUMBER: BRO 1445(35)

FILE NAME: sl2jlg2r ss.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
REINFORCING STEEL SCHEDULE

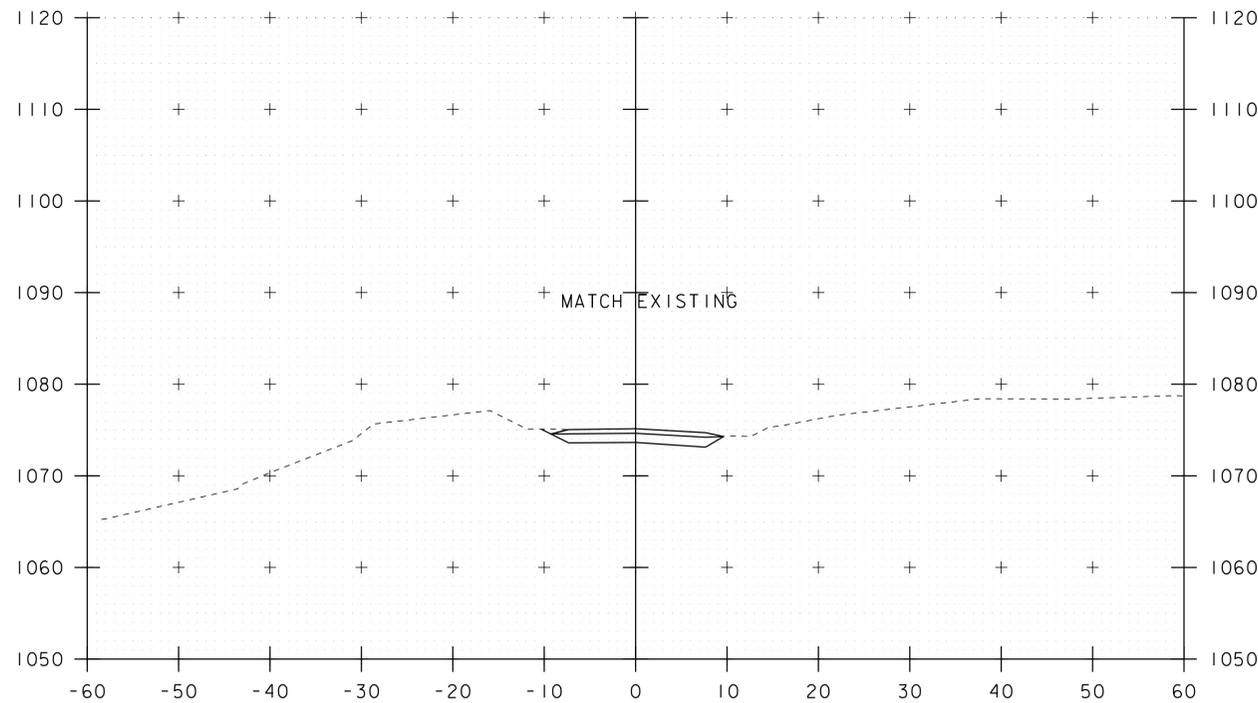
PLOT DATE: 15-OCT-2015
DRAWN BY: R. PELLETT
CHECKED BY: D. PETERSON
SHEET 27 OF 44



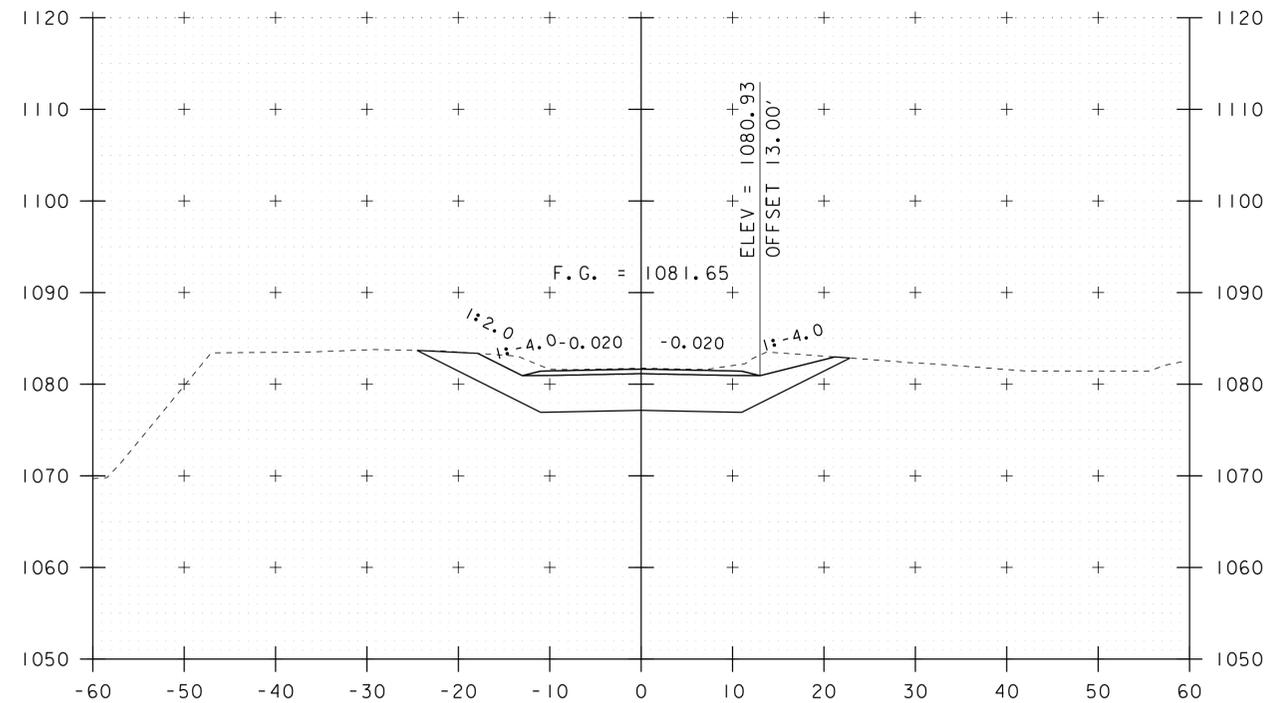
20+25



20+75



20+00
BEGIN APPROACH



20+50
BEGIN PROJECT

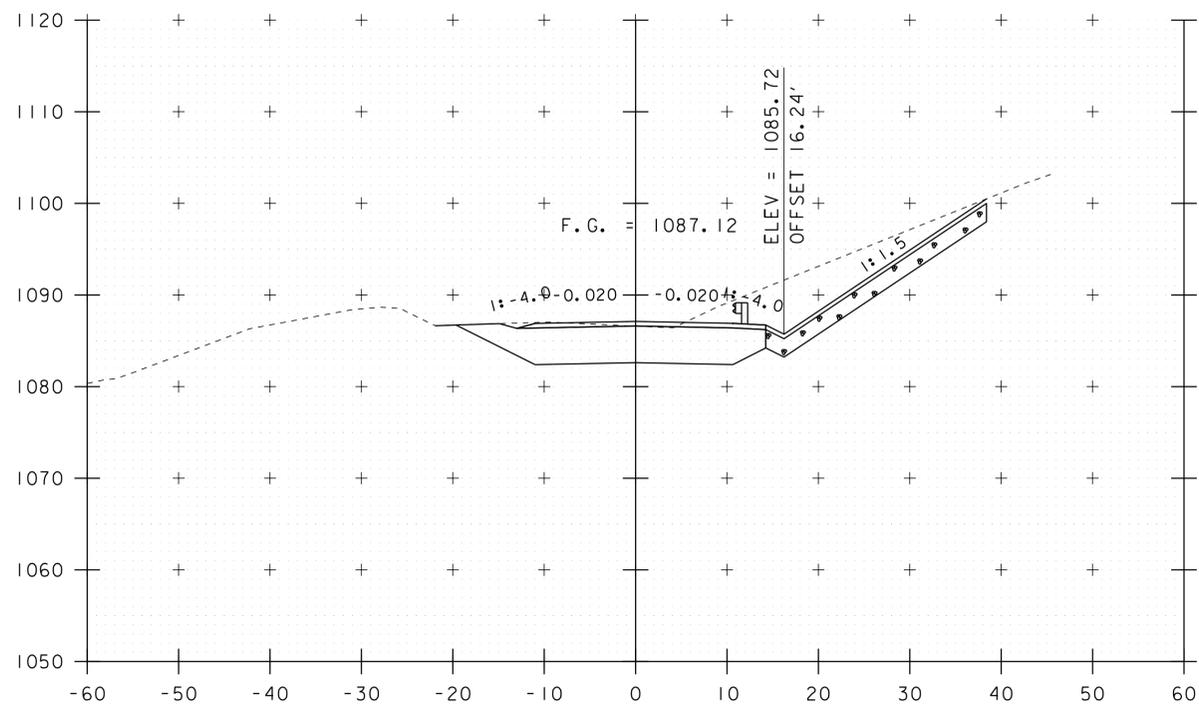
SCALE 1" = 10' - 0"
10 0 10

STA. 20+00 TO STA. 20+75

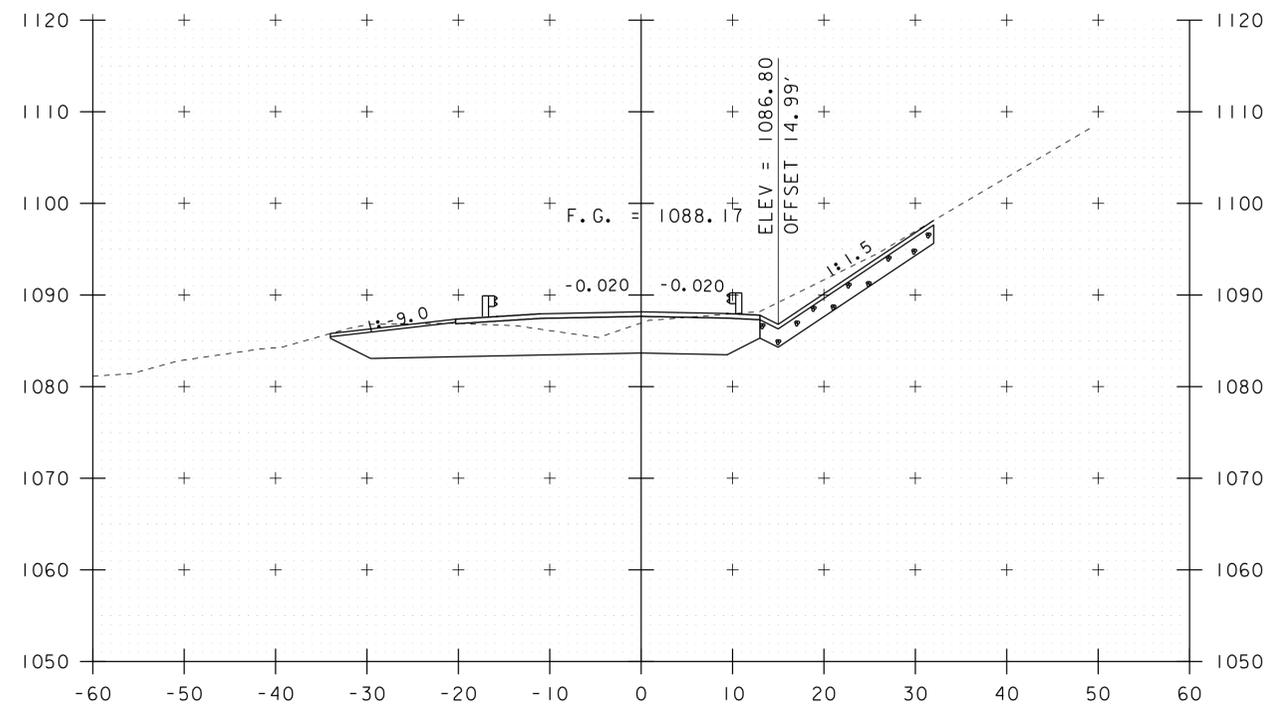
PROJECT NAME: HUNTINGTON
PROJECT NUMBER: BRO 1445(35)

FILE NAME: sl2j162xs.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
MAINLINE CROSS SECTIONS 1

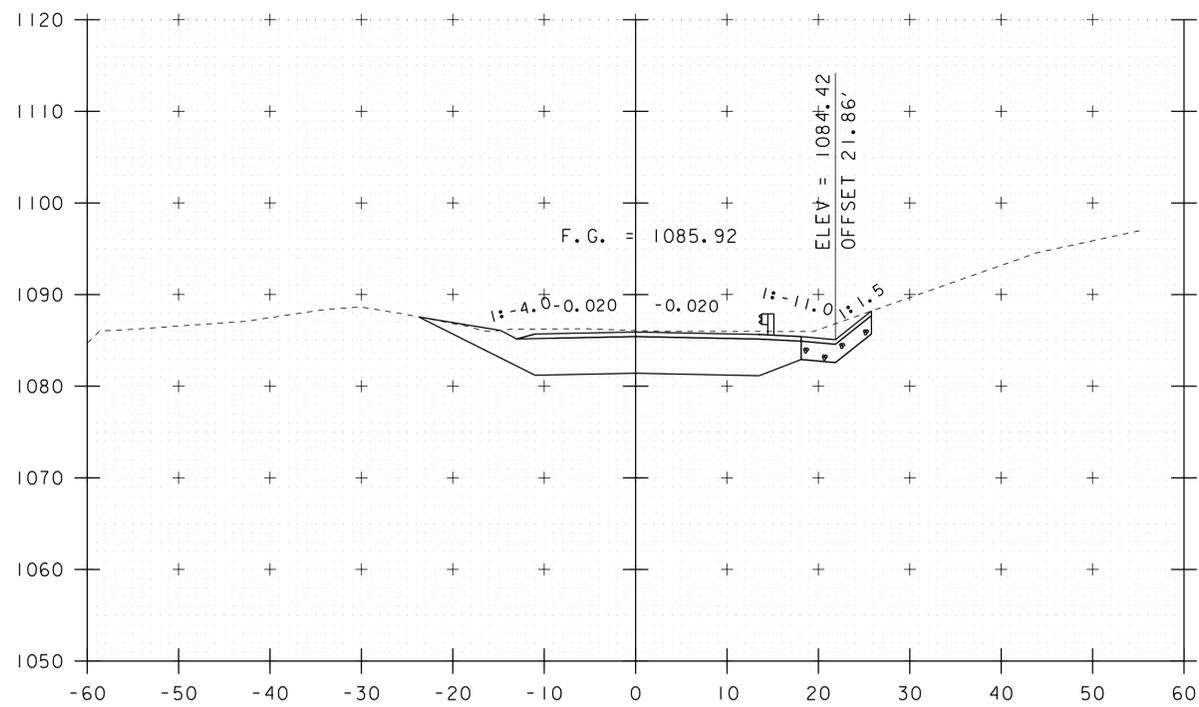
PLOT DATE: 15-OCT-2015
DRAWN BY: R. PELLETT
CHECKED BY: D. PETERSON
SHEET 28 OF 44



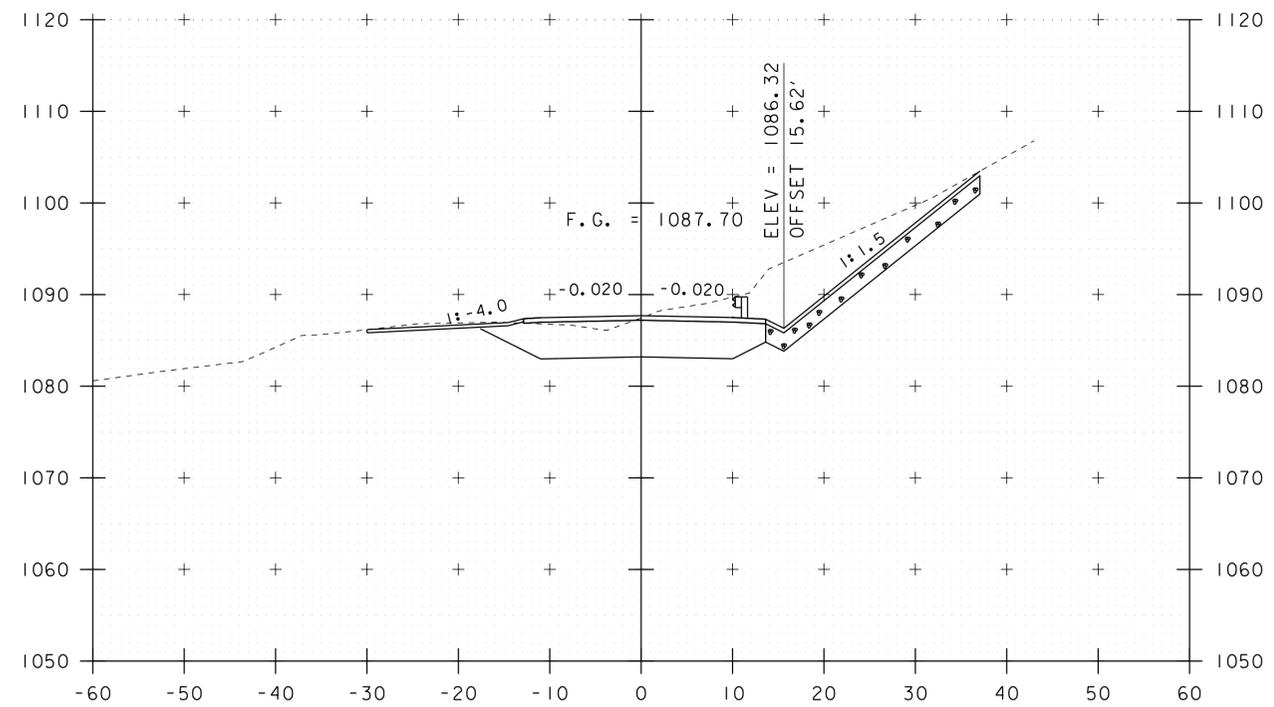
21+25



21+75



21+00

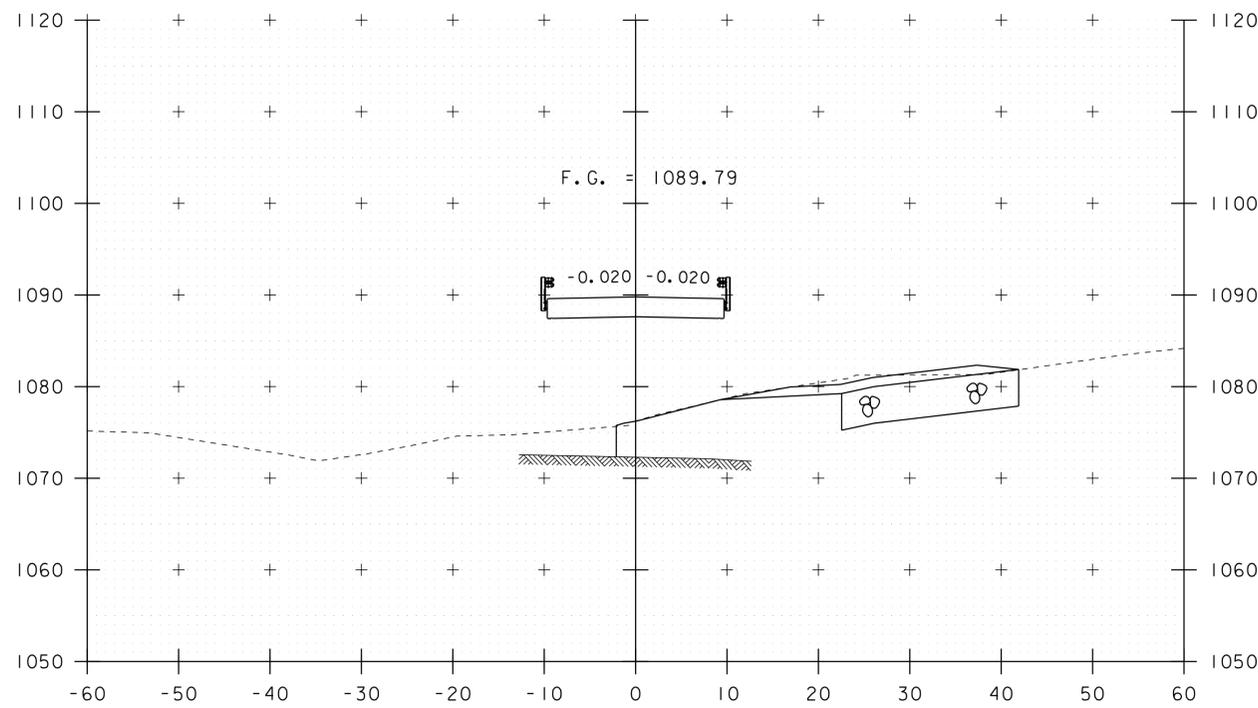


21+50

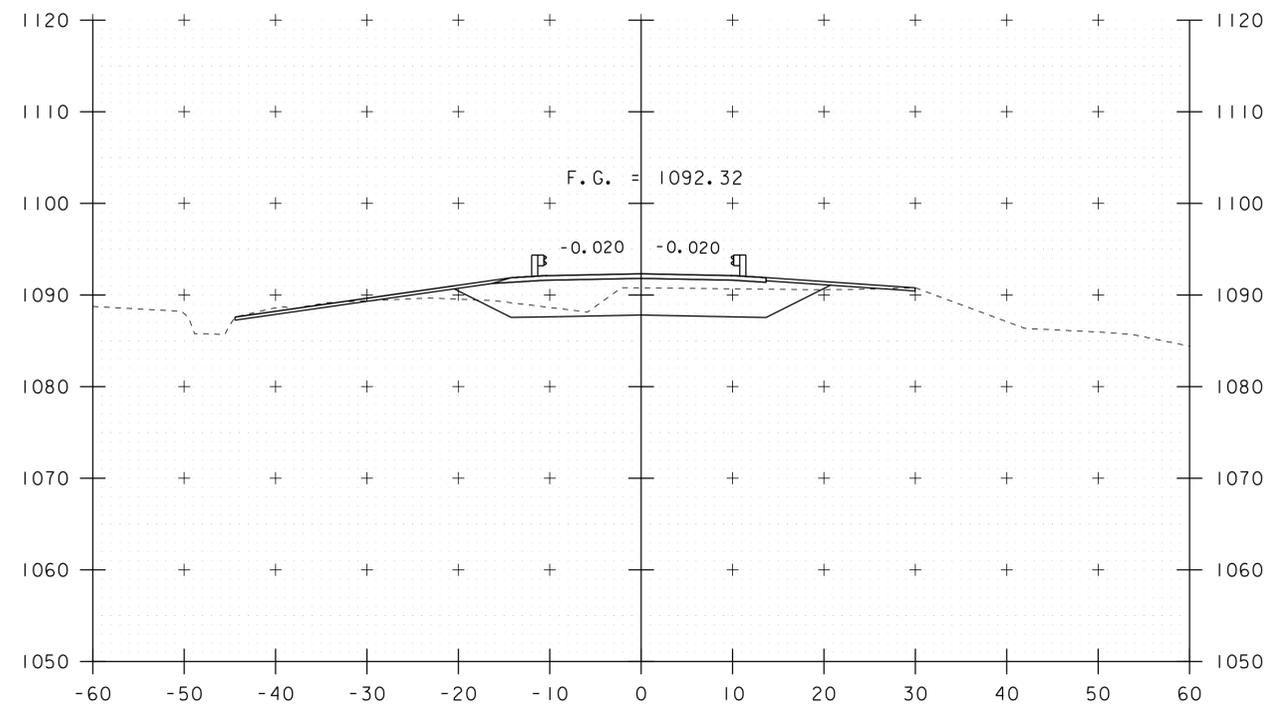
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 10 0 10

STA. 21+00 TO STA. 21+75

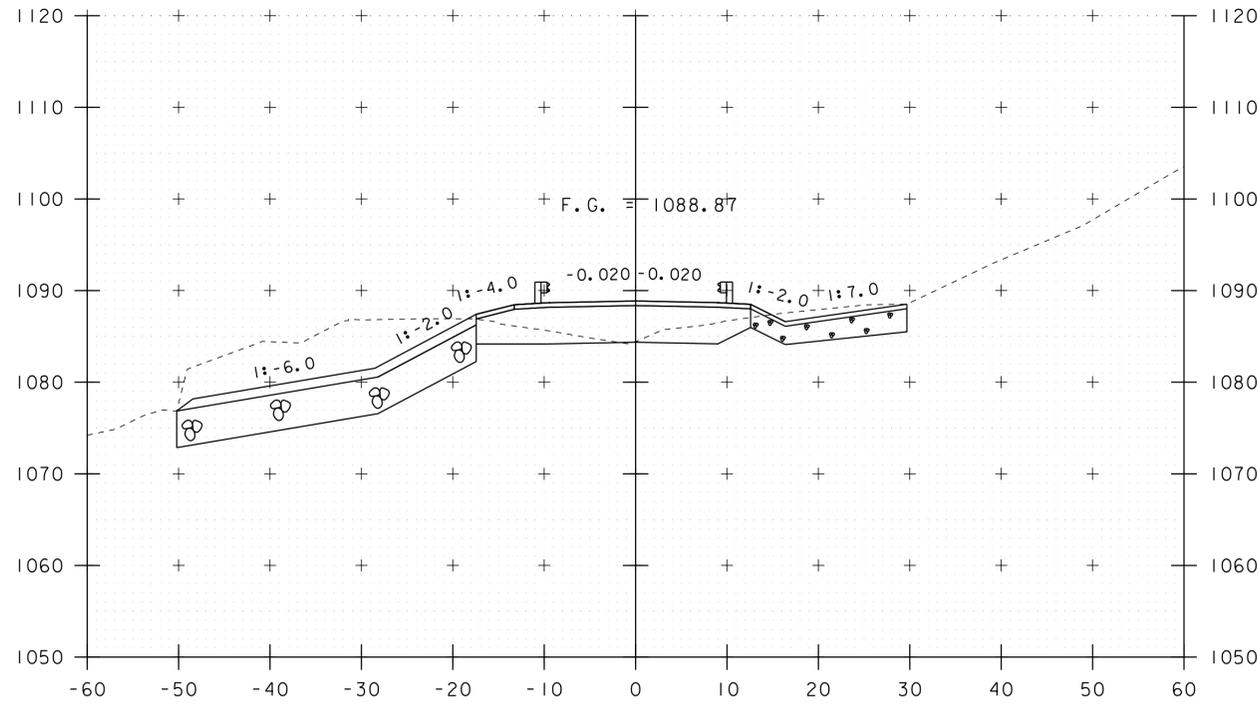
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| PROJECT NAME: | HUNTINGTON | PLOT DATE: | 15-OCT-2015 |
| PROJECT NUMBER: | BRO 1445(35) | DRAWN BY: | R. PELLETT |
| FILE NAME: | sl2j162xs.dgn | DESIGNED BY: | D. PETERSON |
| PROJECT LEADER: | C. CARLSON | CHECKED BY: | D. PETERSON |
| DESIGNED BY: | D. PETERSON | MAINLINE CROSS SECTIONS 2 | SHEET 29 OF 44 |



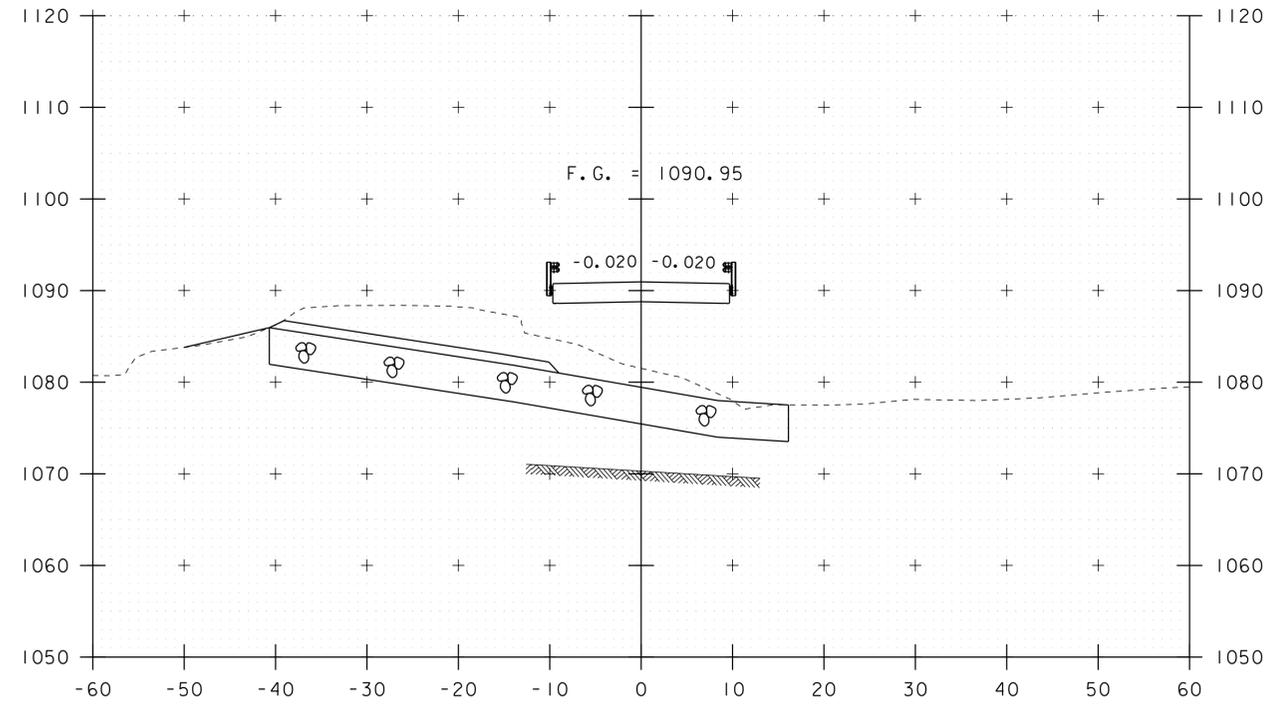
22+25
BEGIN BRIDGE 22+14.00



22+75



22+00

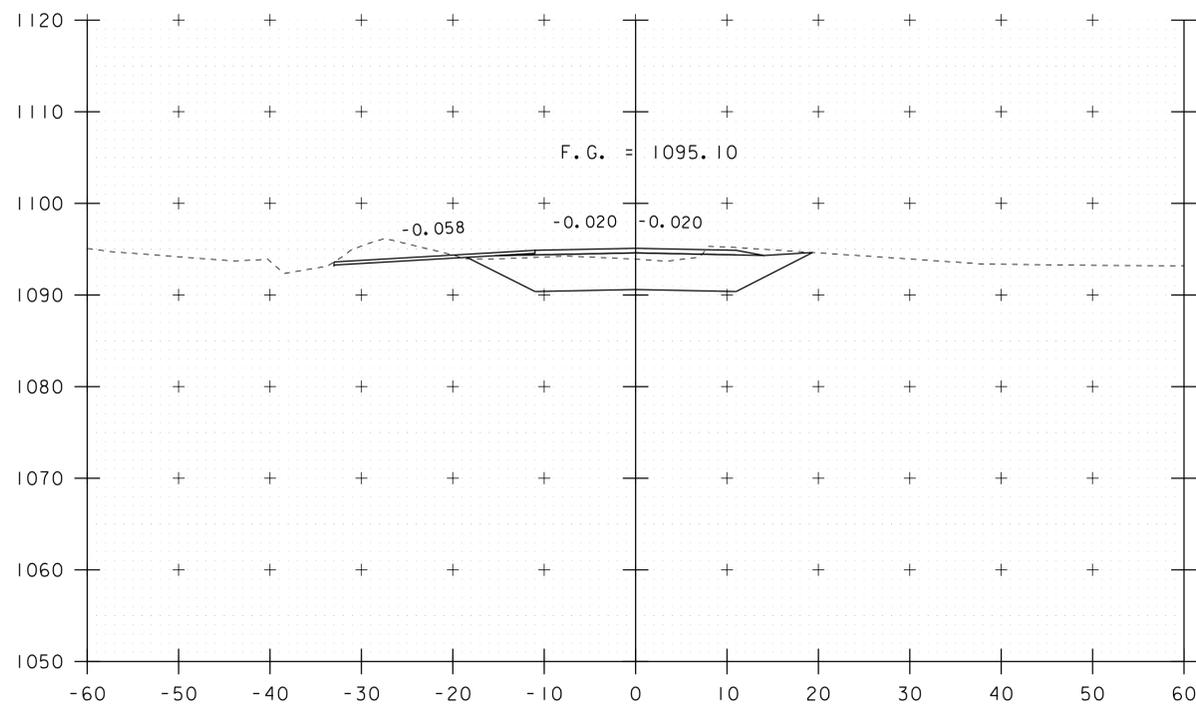


22+50
END BRIDGE 22+56.00

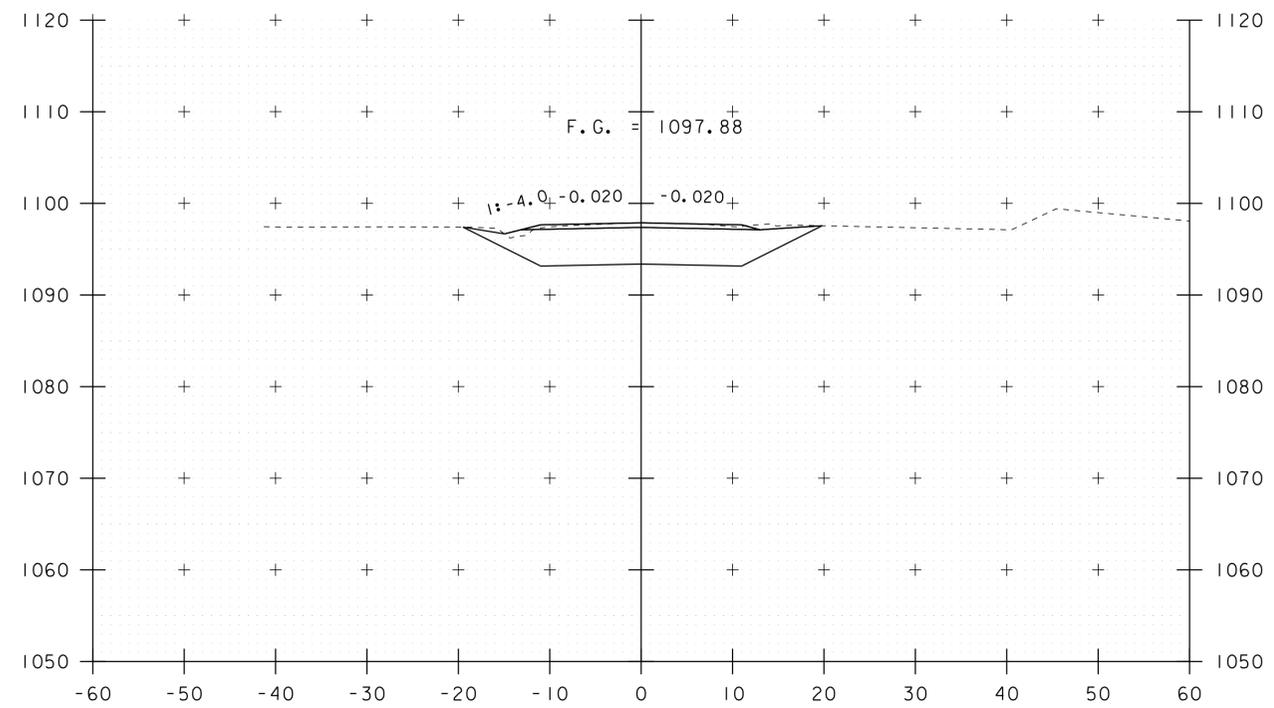
SCALE 1" = 10' - 0"
10 0 10

STA. 22+00 TO STA. 22+75

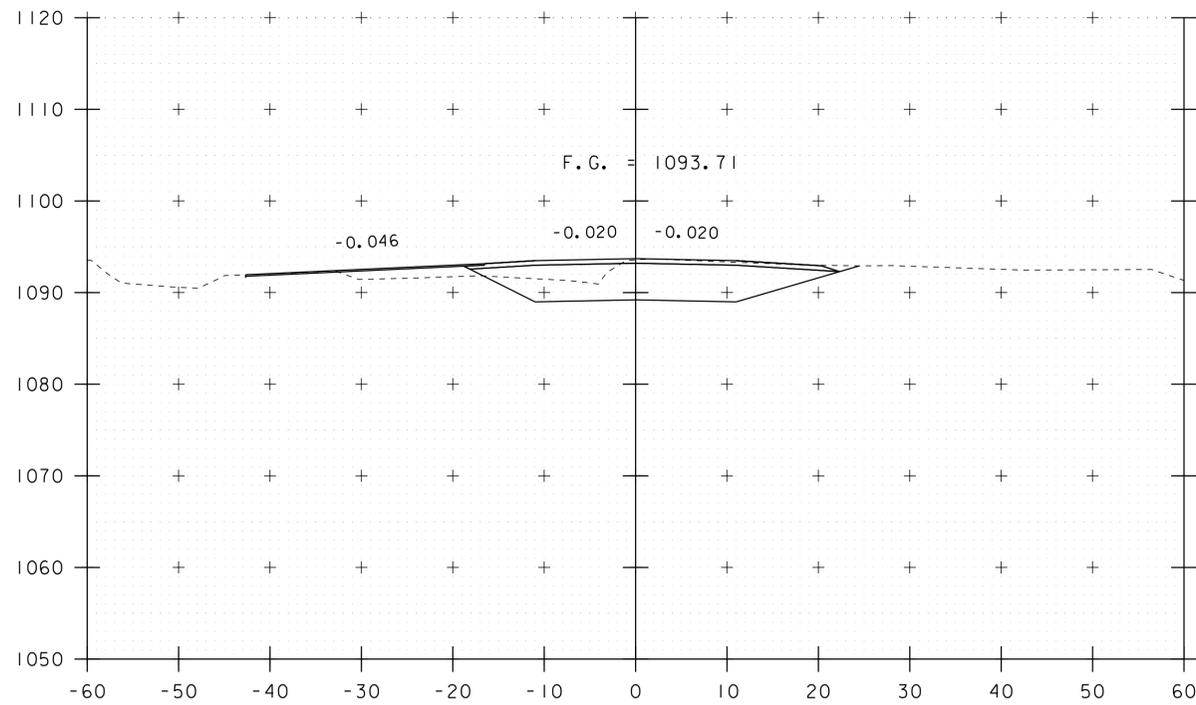
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|------------------------------|-------------------------|
| PROJECT NAME: HUNTINGTON | PLOT DATE: 15-OCT-2015 |
| PROJECT NUMBER: BRO 1445(35) | DRAWN BY: R. PELLETT |
| FILE NAME: sl2j162xs.dgn | CHECKED BY: D. PETERSON |
| PROJECT LEADER: C. CARLSON | SHEET 30 OF 44 |
| DESIGNED BY: D. PETERSON | |
| MAINLINE CROSS SECTIONS 3 | |



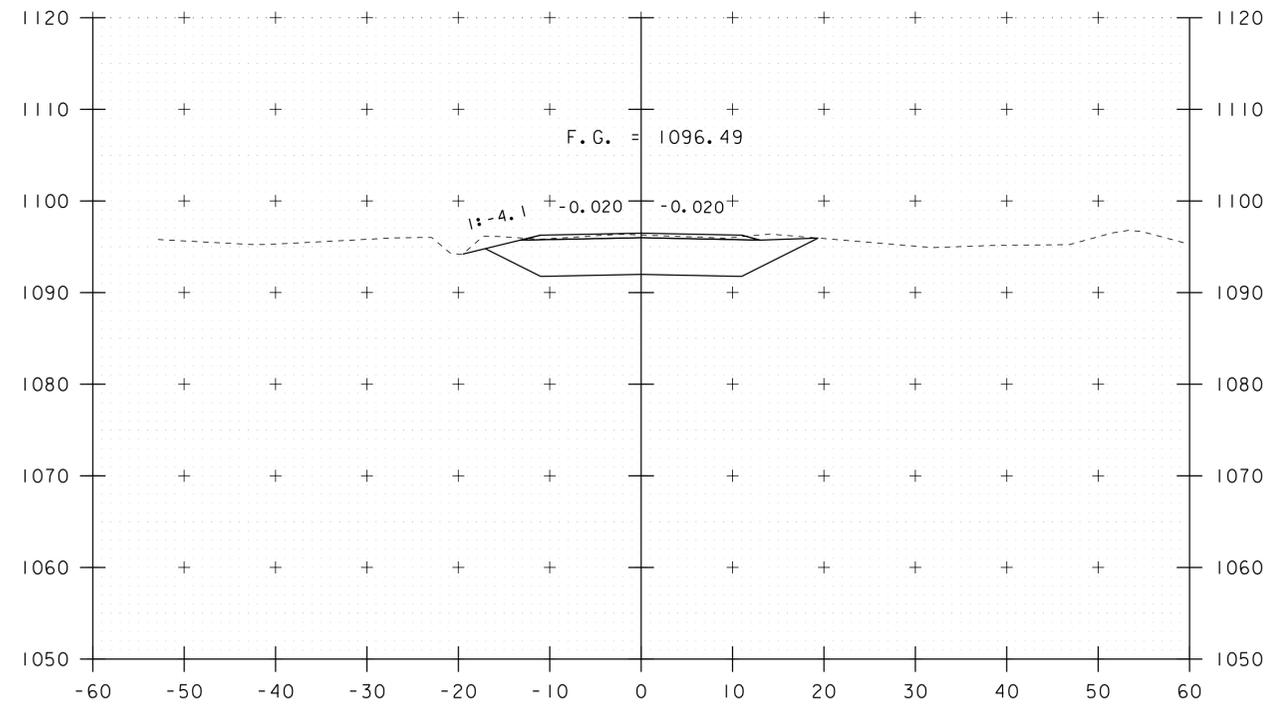
23+25



23+75



23+00



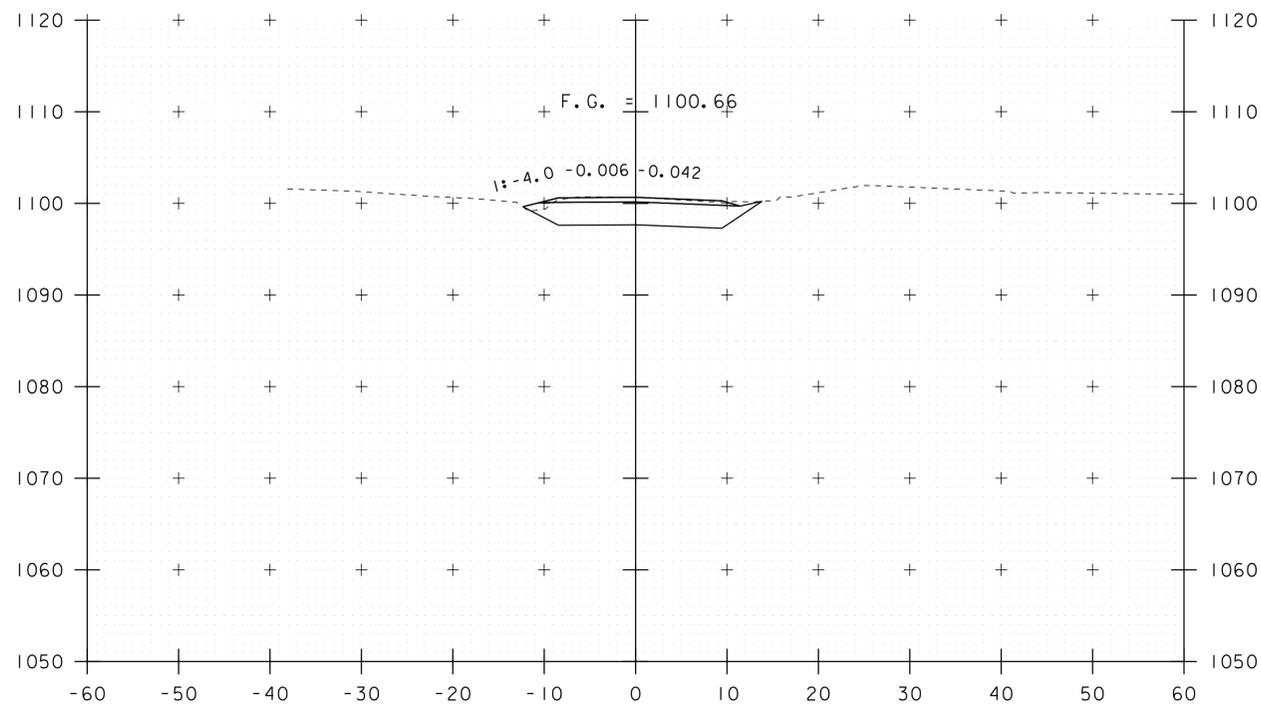
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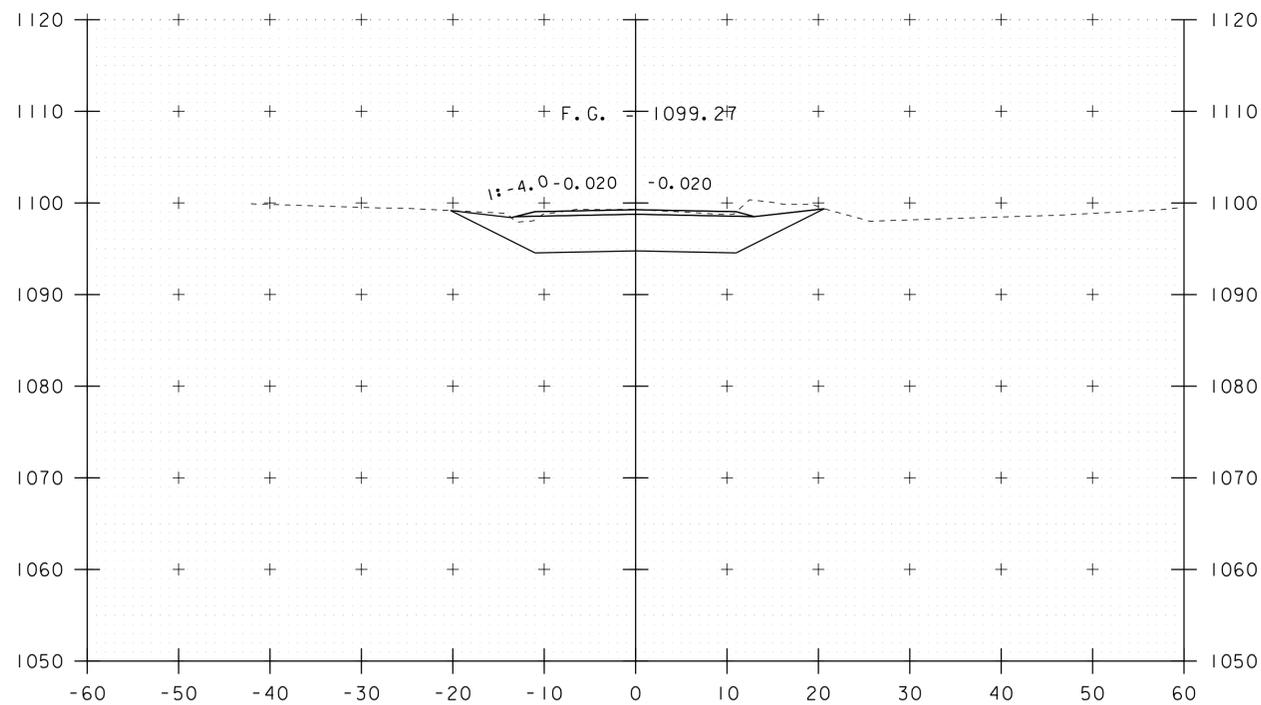
STA. 23+00 TO STA. 23+75

PROJECT NAME: HUNTINGTON
 PROJECT NUMBER: BRO 1445(35)
 FILE NAME: sl2j162xs.dgn
 PROJECT LEADER: C. CARLSON
 DESIGNED BY: D. PETERSON
 MAINLINE CROSS SECTIONS 4

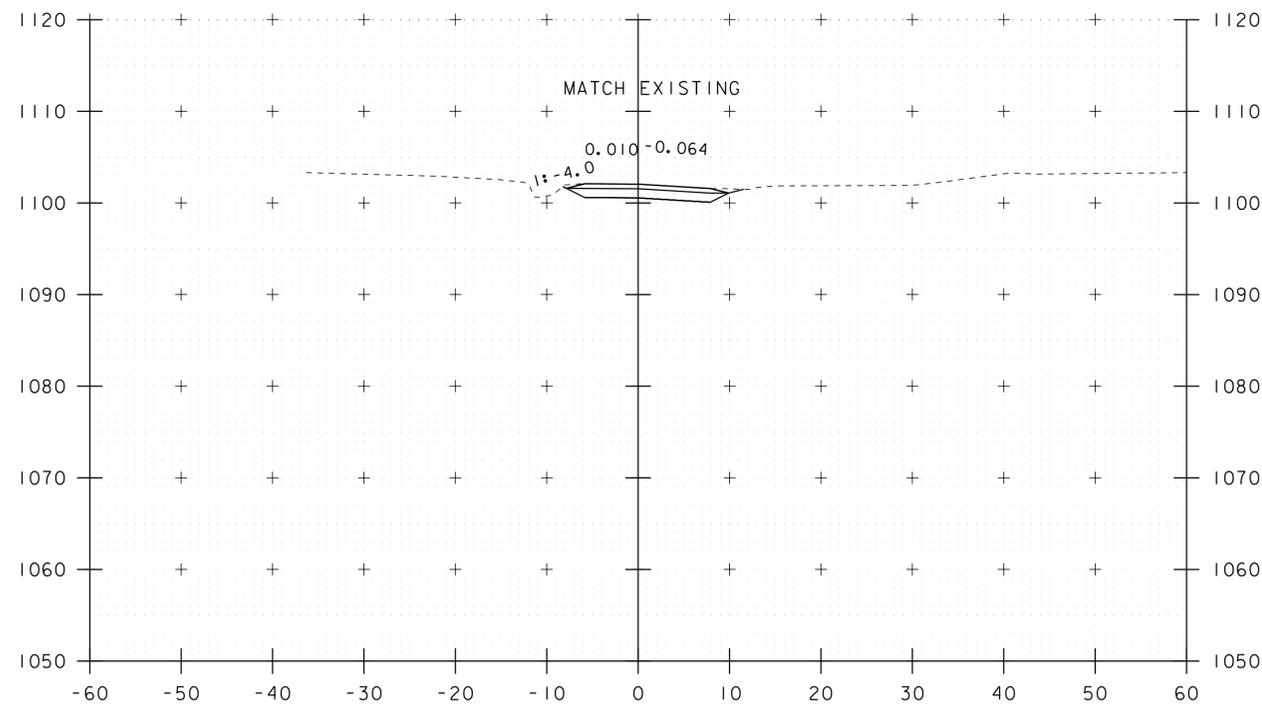
PLOT DATE: 15-OCT-2015
 DRAWN BY: R. PELLETT
 CHECKED BY: D. PETERSON
 SHEET 31 OF 44



24+25



24+00
END PROJECT



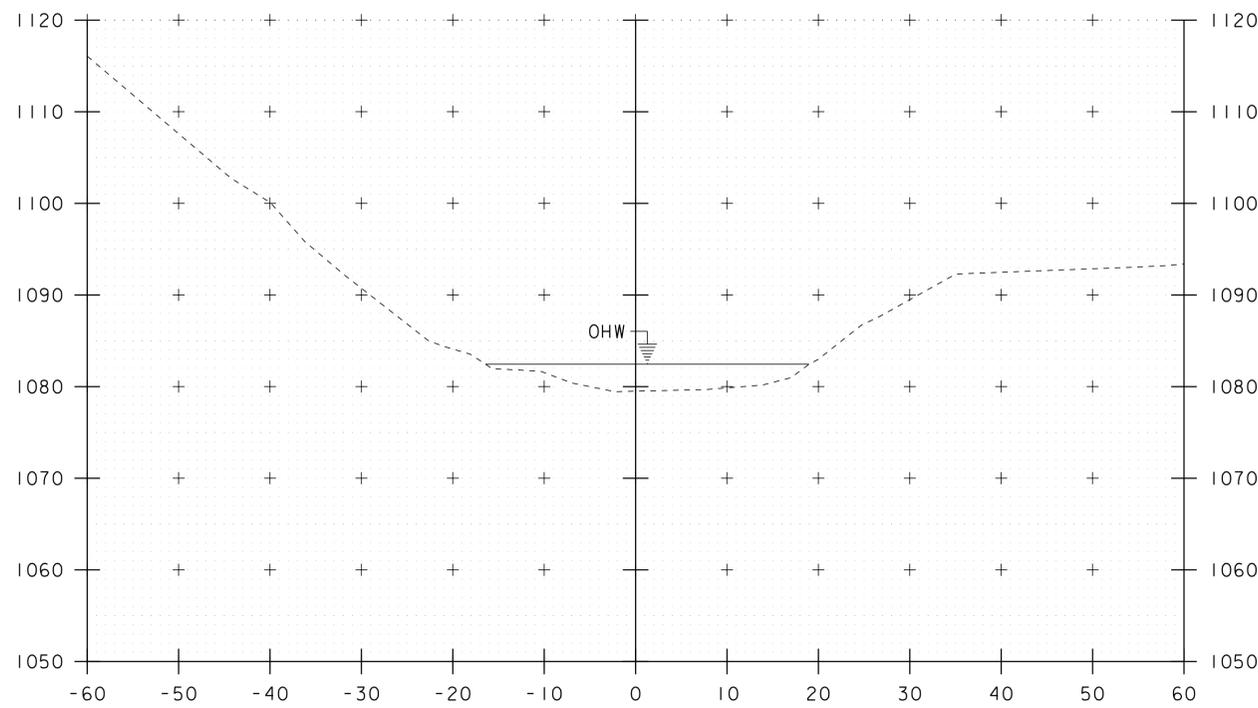
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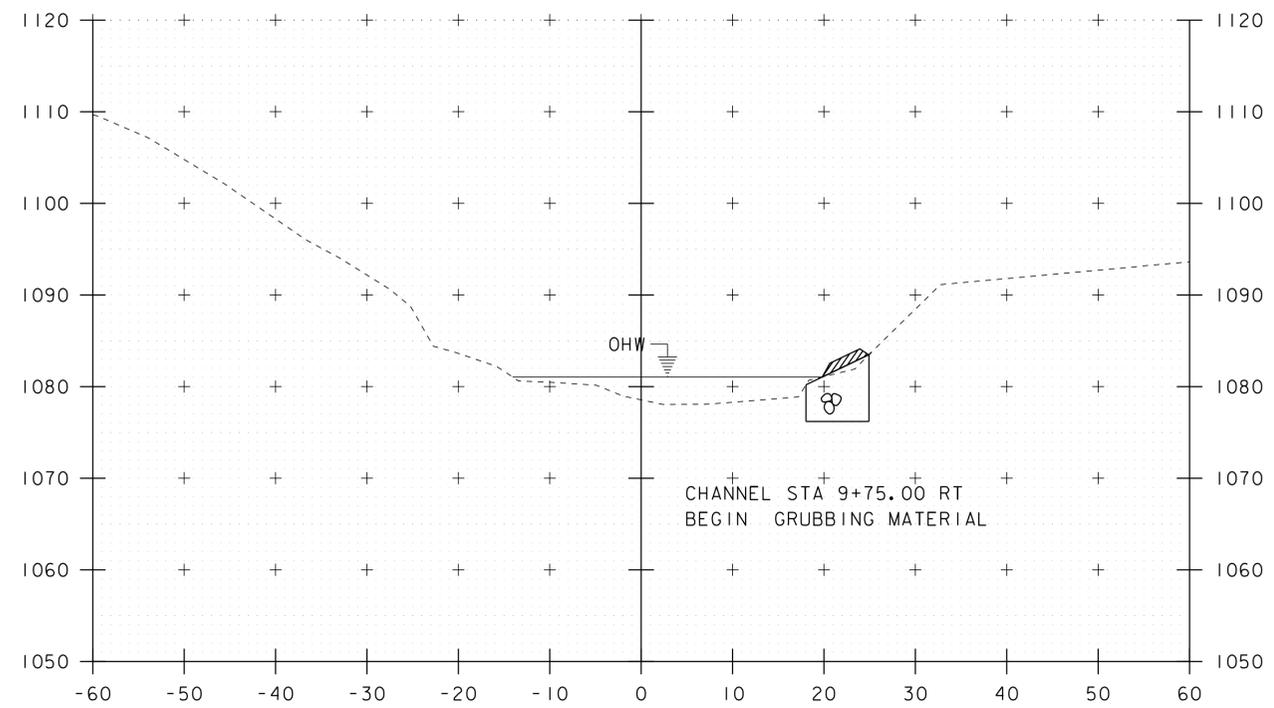
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PROJECT NAME: HUNTINGTON
PROJECT NUMBER: BRO 1445(35)
FILE NAME: sl2j162xs.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
MAINLINE CROSS SECTIONS 5

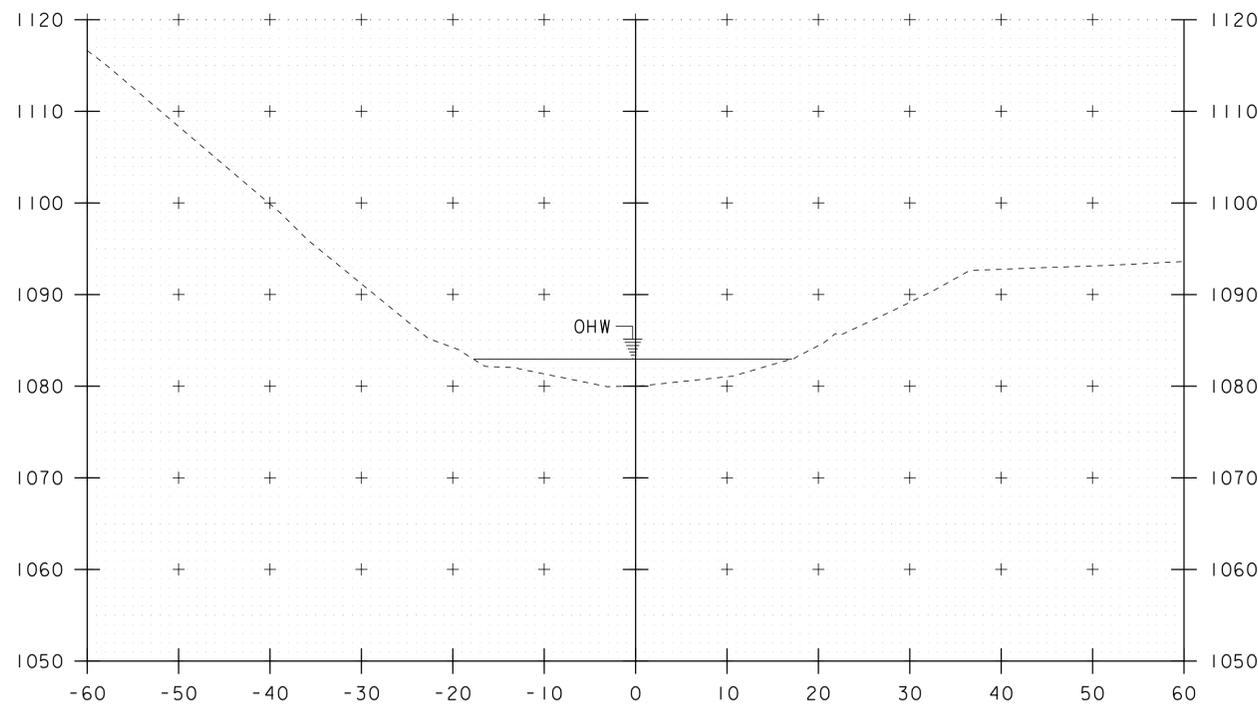
PLOT DATE: 15-OCT-2015
DRAWN BY: R. PELLETT
CHECKED BY: D. PETERSON
SHEET 32 OF 44



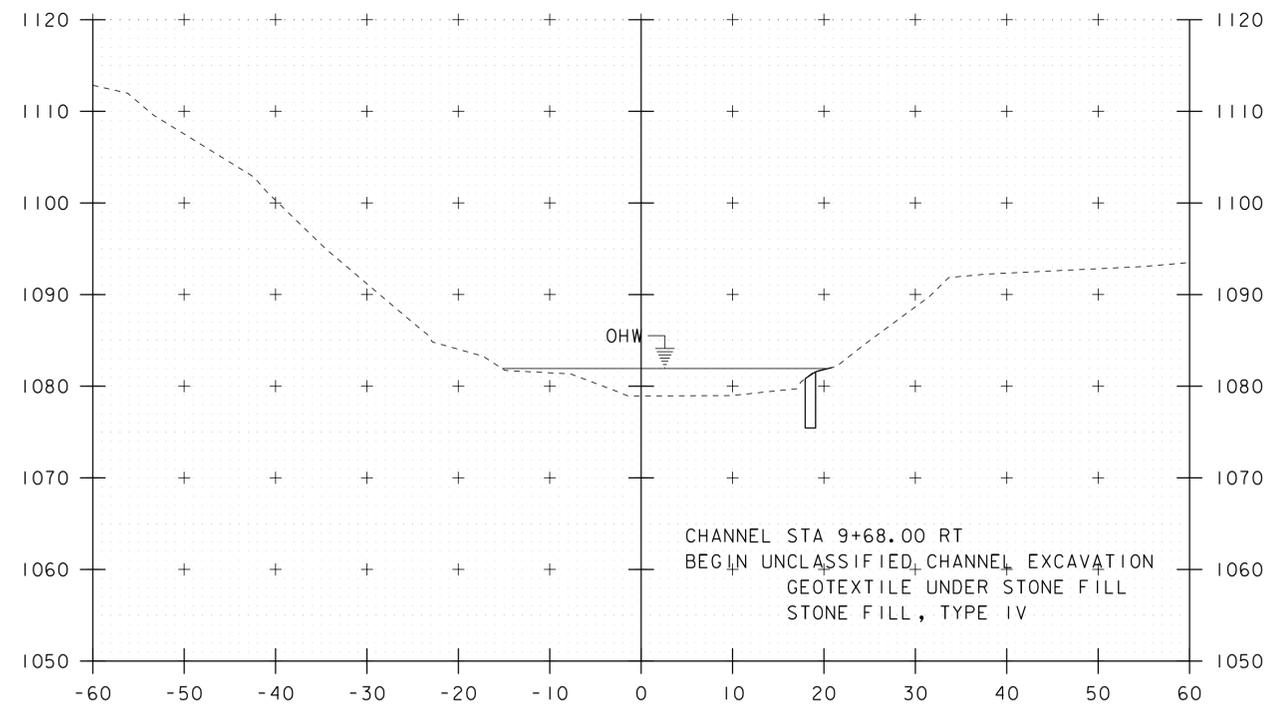
9+60



9+80



9+50

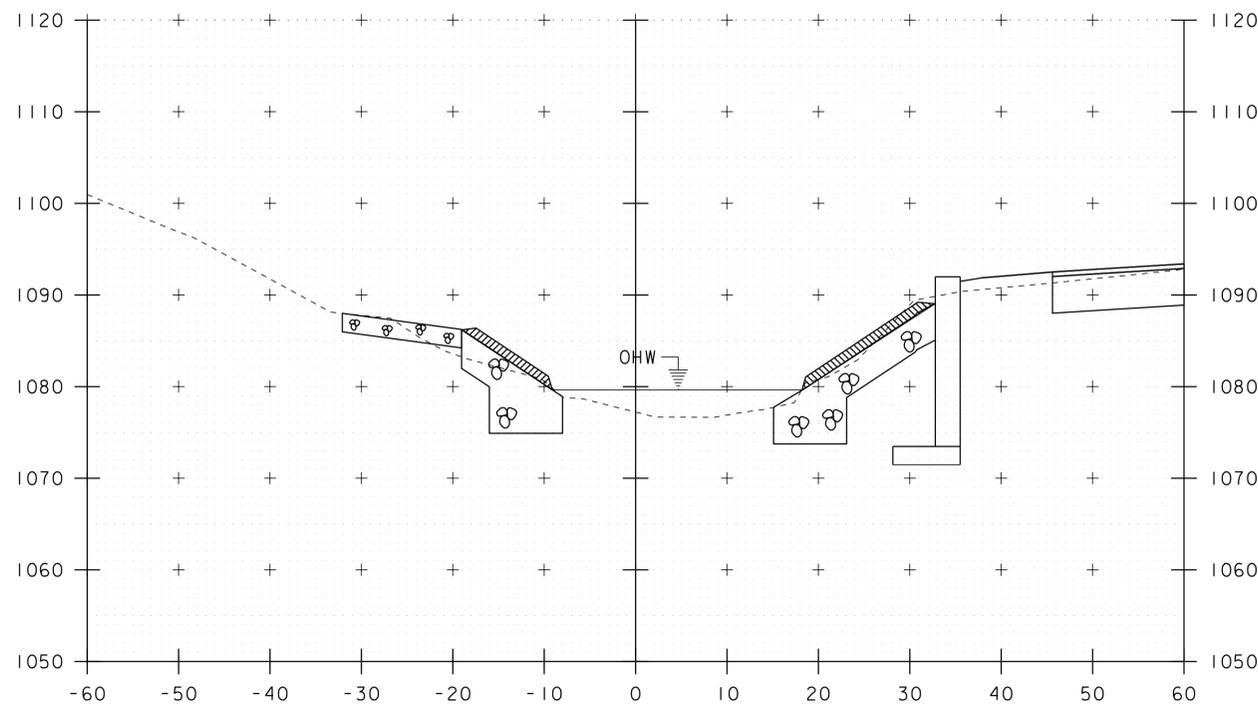


9+70

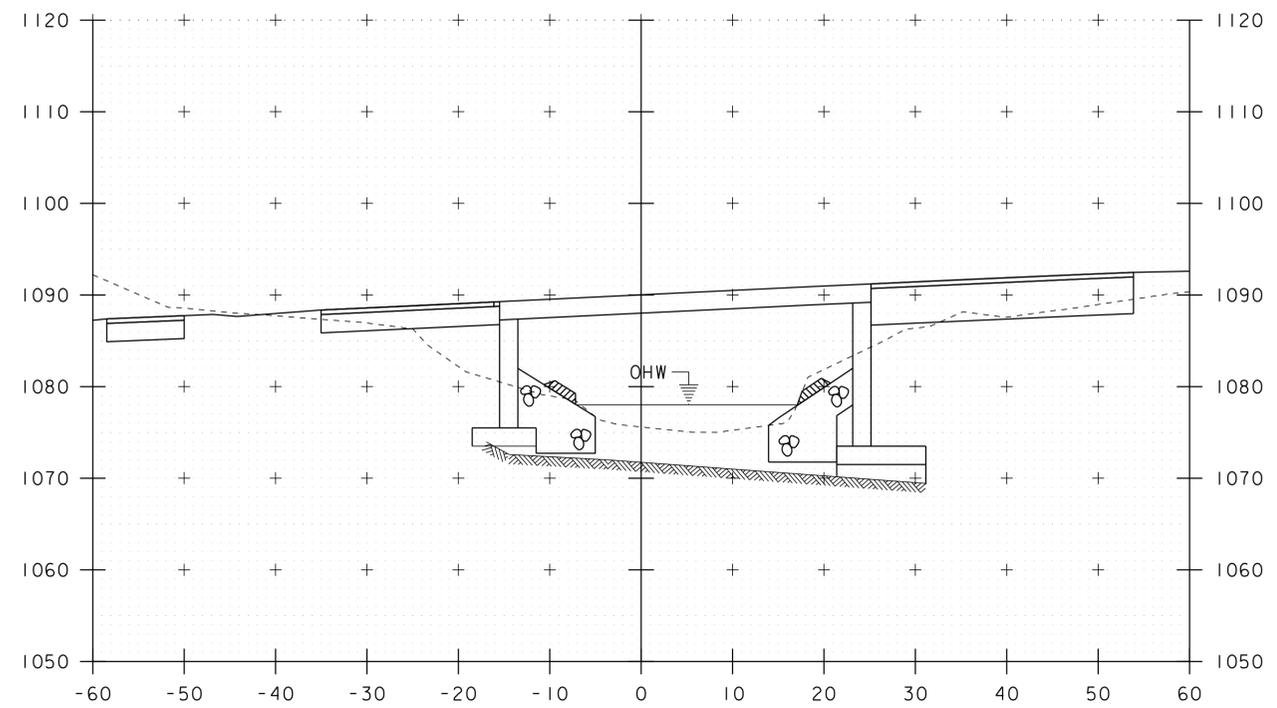
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STA. 9+50 TO STA. 9+80

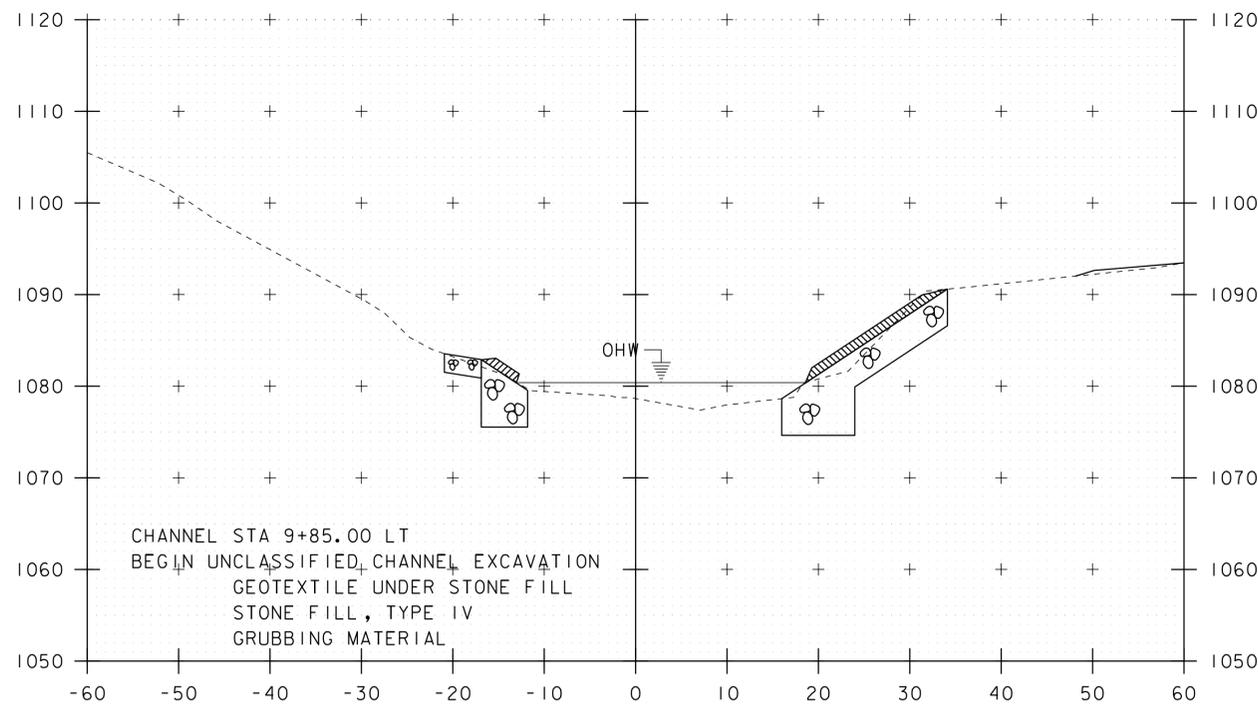
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| PROJECT NAME: HUNTINGTON | PLOT DATE: 15-OCT-2015 |
| PROJECT NUMBER: BRO 1445(35) | DRAWN BY: R. PELLETT |
| FILE NAME: sl2j162xs.dgn | CHECKED BY: D. PETERSON |
| PROJECT LEADER: C. CARLSON | SHEET 33 OF 44 |
| DESIGNED BY: D. PETERSON | |
| CHANNEL CROSS SECTIONS 1 | |



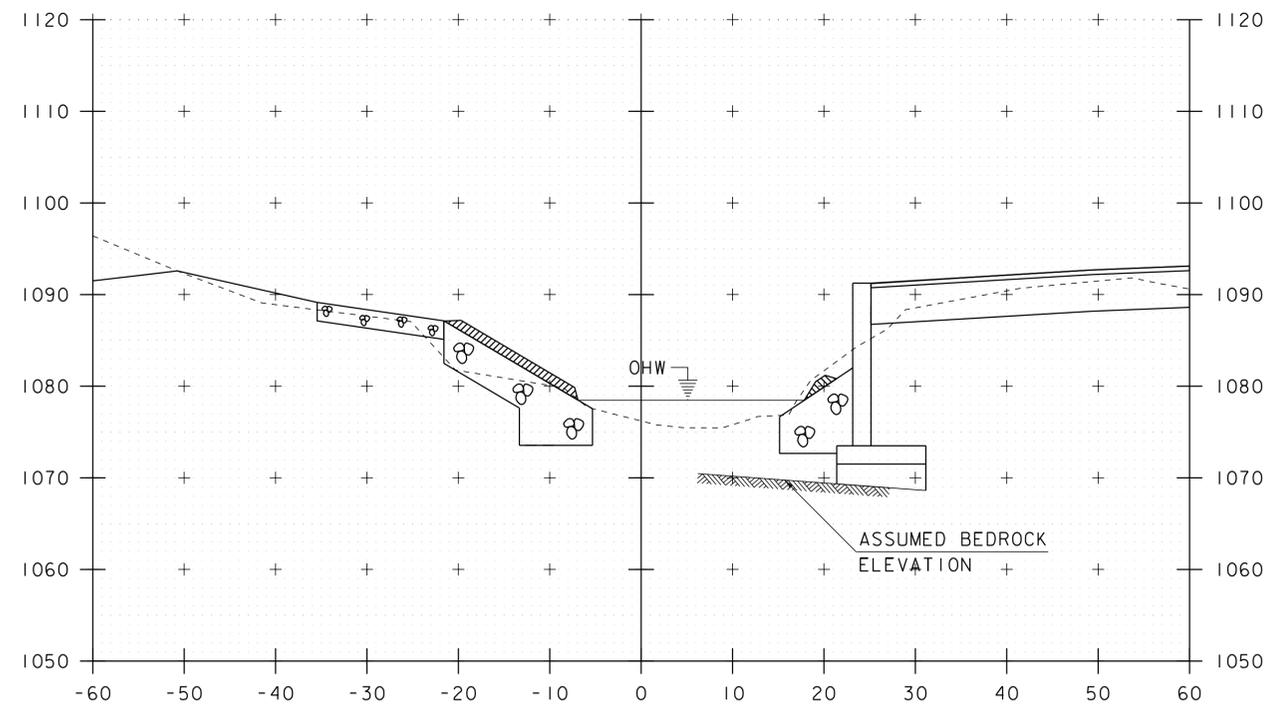
10+00



10+20



9+90



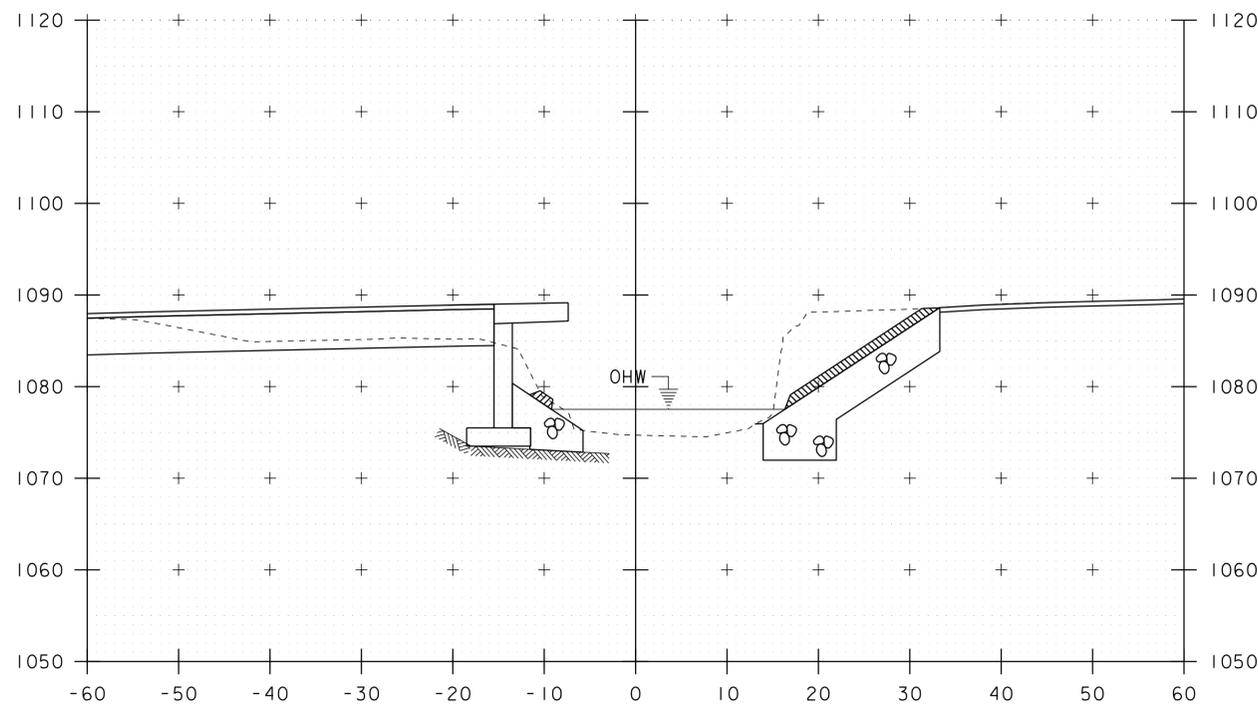
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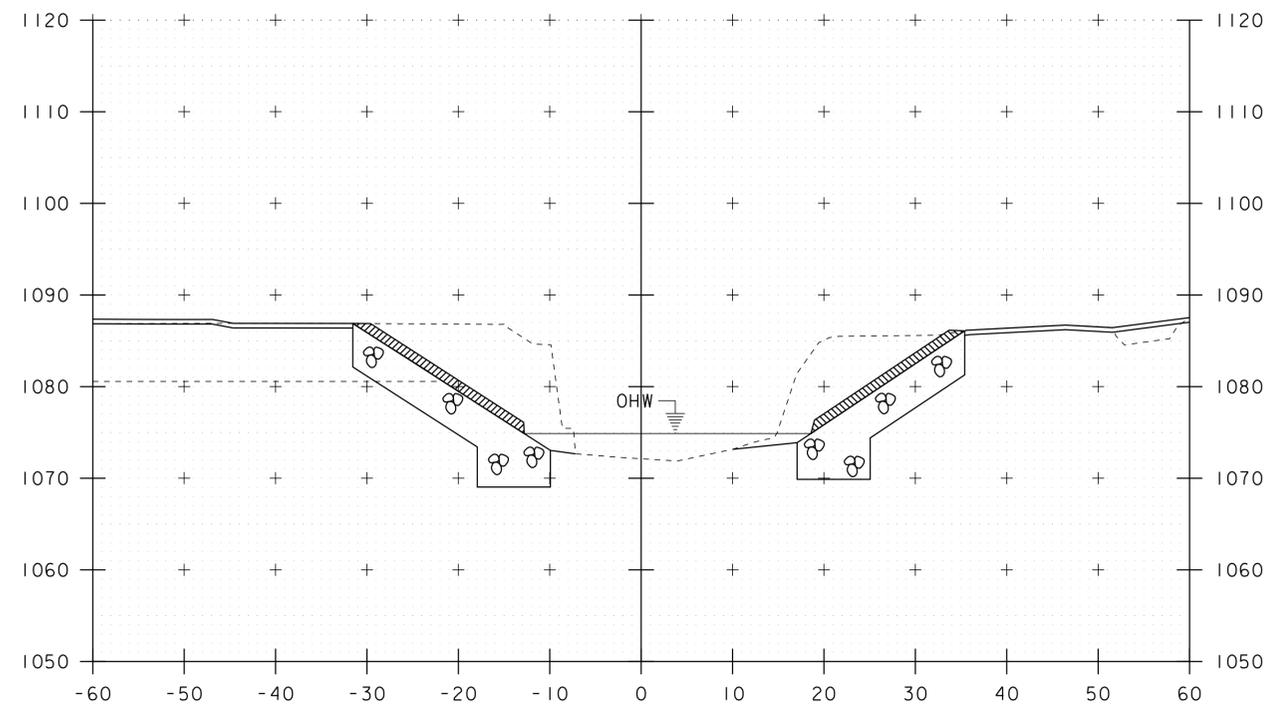
STA. 9+90 TO STA. 10+20

PROJECT NAME: HUNTINGTON
 PROJECT NUMBER: BRO 1445(35)
 FILE NAME: sl2j162xs.dgn
 PROJECT LEADER: C. CARLSON
 DESIGNED BY: D. PETERSON
 CHANNEL CROSS SECTIONS 2

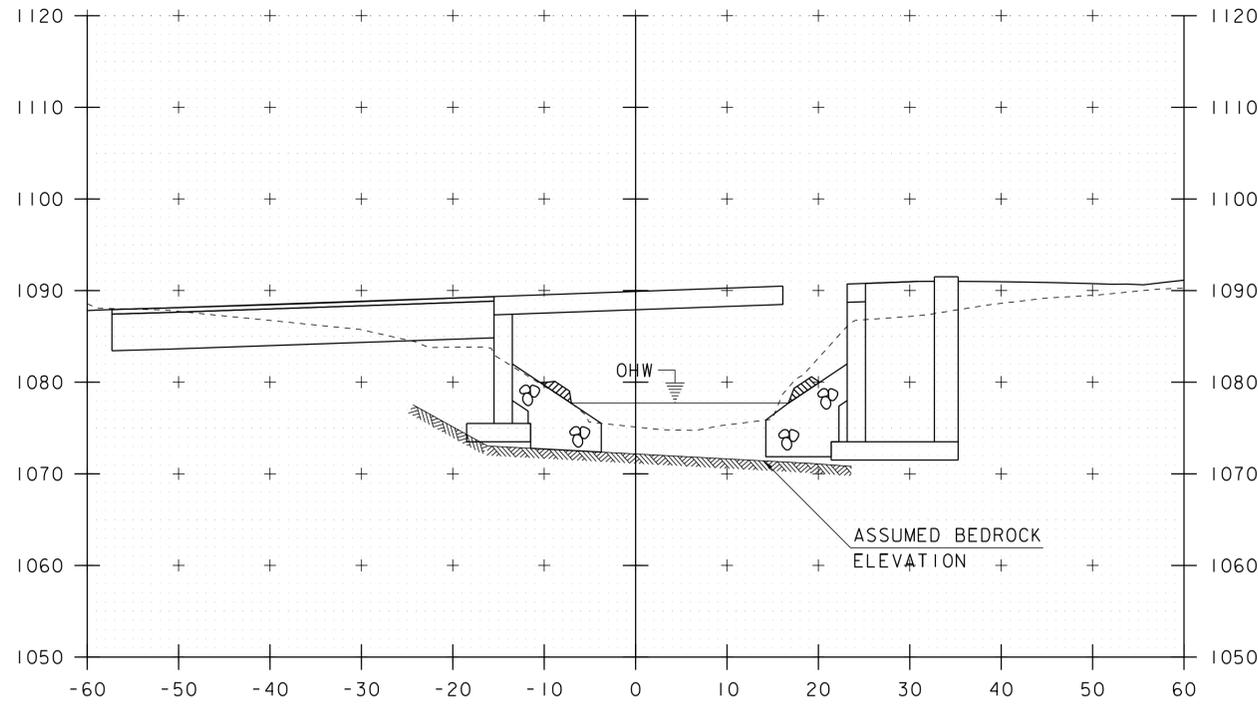
PLOT DATE: 15-OCT-2015
 DRAWN BY: R. PELLETT
 CHECKED BY: D. PETERSON
 SHEET 34 OF 44



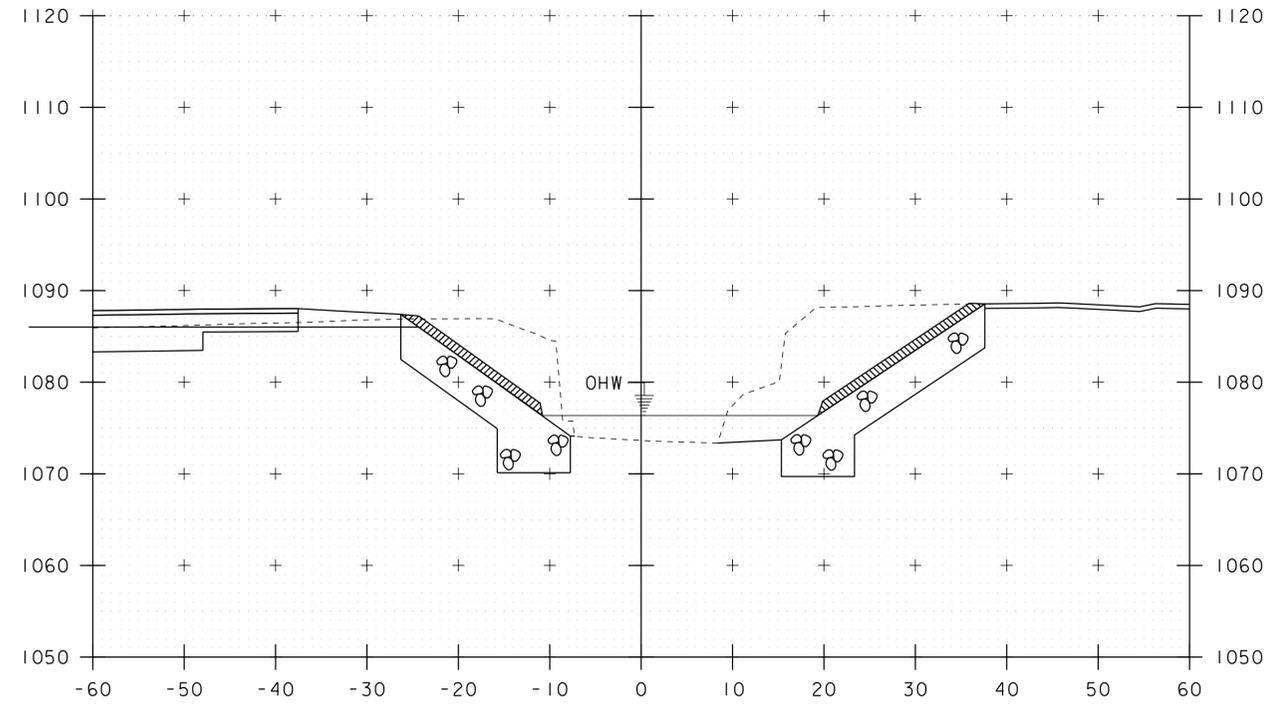
10+40



10+60



10+30

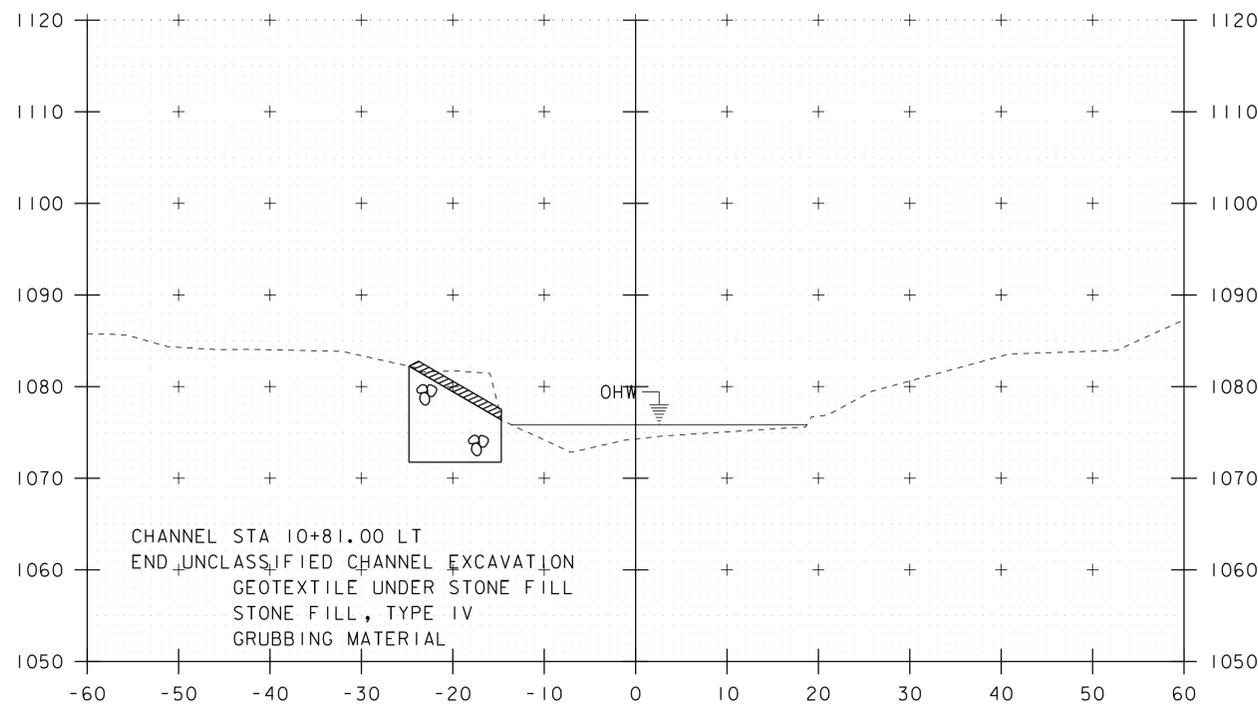


10+50

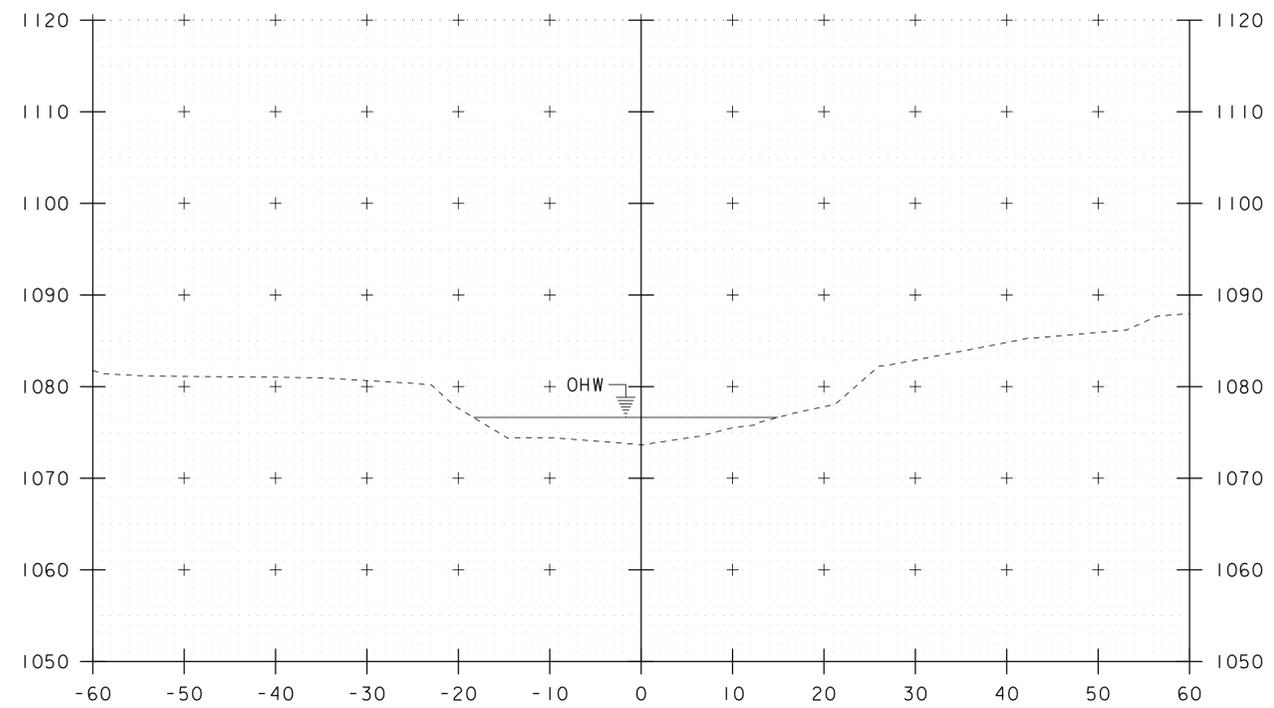
SCALE 1" = 10' - 0"
 10 0 10

STA. 10+30 TO STA. 10+60

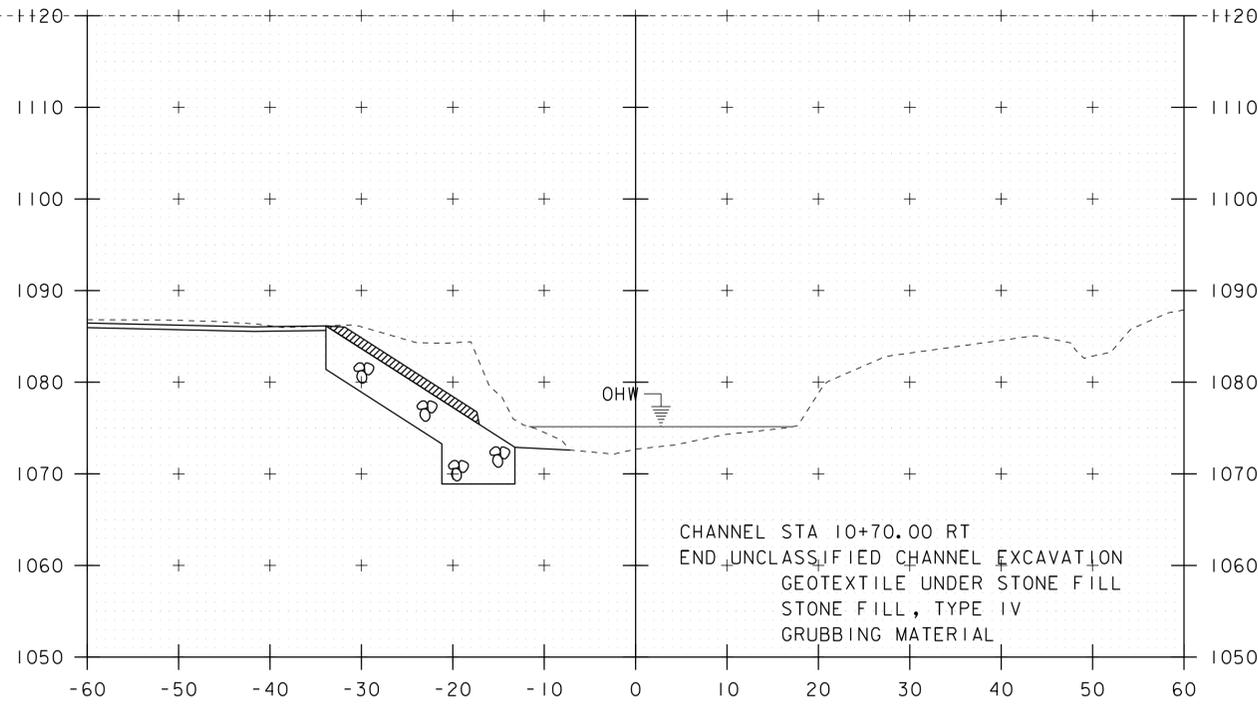
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| PROJECT NAME: | HUNTINGTON | PLOT DATE: | 15-OCT-2015 |
| PROJECT NUMBER: | BRO 1445(35) | DRAWN BY: | R. PELLETT |
| FILE NAME: | sl2j162xs.dgn | DESIGNED BY: | D. PETERSON |
| PROJECT LEADER: | C. CARLSON | CHECKED BY: | D. PETERSON |
| CHANNEL CROSS SECTIONS 3 | | SHEET | 35 OF 44 |



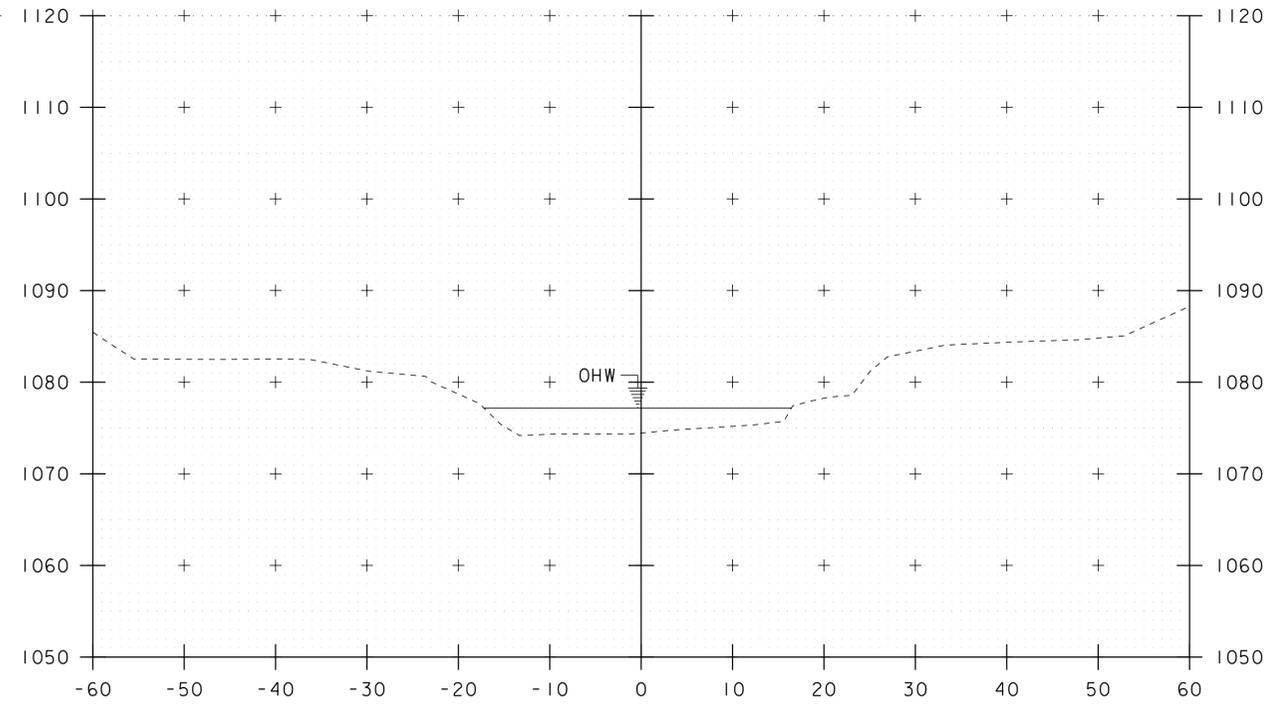
10+80



11+00



10+70



10+90

SCALE 1" = 10'-0"

STA. 10+70 TO STA. 11+00

| | |
|------------------------------|-------------------------|
| PROJECT NAME: HUNTINGTON | PLOT DATE: 15-OCT-2015 |
| PROJECT NUMBER: BRO 1445(35) | DRAWN BY: R. PELLETT |
| FILE NAME: sl2j162xs.dgn | CHECKED BY: D. PETERSON |
| PROJECT LEADER: C. CARLSON | SHEET 36 OF 44 |
| DESIGNED BY: D. PETERSON | |
| CHANNEL CROSS SECTIONS 4 | |

EPSC PLAN NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REMOVAL OF EXISTING BRIDGE 30 THAT WILL BE REPLACED WITH A NEW CAST-IN-PLACE CONCRETE SLAB BRIDGE, SPANNING 40' OVER BRUSH BROOK, ON NEW ALIGNMENT. BRIDGE 30 IS LOCATED IN THE TOWN OF HUNTINGTON, ON TOWN HIGHWAY 22 (CAMELS HUMP ROAD), APPROXIMATELY 1.2 MILES OF JUNCTION WITH TOWN HIGHWAY 4 (TAFT ROAD).

NOTE: AREA OF DISTURBANCE INCLUDES LIMITS OF EARTH DISTURBANCE WITHIN THE PROJECT AREA, AS WELL AS WASTE, BORROW AND STAGING AREAS, AND OTHER EARTH DISTURBING ACTIVITIES WITHIN OR DIRECTLY ADJACENT TO THE PROJECT LIMITS AS SHOWN ON THE ATTACHED EPSC PLAN.

TOTAL AREA OF DISTURBANCE AS SHOWN ON THE ATTACHED EPSC PLAN IS APPROXIMATELY 0.48 ACRES.

IT IS ANTICIPATED THAT THIS PROJECT WILL LAST ONE CONSTRUCTION SEASON.

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY

THE TOPOGRAPHY OF THE AREA IS A SADDLE THAT IS MOSTLY WELL ESTABLISHED FOREST WITH OCCASIONAL OPEN AREAS. TOWN HIGHWAY 22 (CAMELS HUMP ROAD) IS WITHIN THE PROJECT SITE.

1.2.2 DRAINAGE, WATERWAYS, BODIES OF WATER, AND PROXIMITY TO NATURAL OR MAN-MADE WATER FEATURES

THE BRUSH BROOK IS THE ONLY WATER SOURCE ON THE PROJECT SITE. THE BROOK IS CLASSIFIED AS STEEP, SINUOUS, NARROW, WITH A CONFINED AND ARMORED CHANNEL AT THE SITE. THE STREAM BED CONSISTS OF GRAVEL, COBBLES AND BOULDERS. THE TRIBUTARY AREA AT THE BRIDGE CROSSING IS 4.6 MILES². DUE TO THE NATURE OF THE SURROUNDING TERRAIN THE PROJECT SITE COULD RECEIVE RUNOFF WATER FROM A FEW NEARBY SLOPES.

1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF HARDWOOD TREES AND UNDERGROWTH. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS DIRECTLY AFFECTED BY REPLACEMENT OF THE EXISTING BRIDGE ON NEW ALIGNMENT. UPON PROJECT COMPLETION, THE CHANNEL WILL BE ARMORED WITH STONE FILL TYPE IV AS SPECIFIED ON THE PLANS. DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES.

1.2.4 SOILS

ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR THE COUNTY OF CHITTENDEN, VERMONT. SOILS ON THE PROJECT SITE ARE MARLOW LOW EXTREMELY STONY LOAM , 20% TO 60% SLOPES, "K FACTOR" = 0.24. THE SOIL IS CONSIDERED HIGHLY ERODIBLE DUE TO SIGNIFICANT SLOPES.

NOTE: K-VALUES GENERALLY INDICATE THE FOLLOWING:
0.0-0.23 = LOW EROSION POTENTIAL
0.24-0.36 = MODERATE EROSION POTENTIAL
0.37 AND HIGHER = HIGH EROSION POTENTIAL

1.2.5 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS: YES, WILDLIFE HABITAT
HISTORICAL OR ARCHEOLOGICAL AREAS: NO
PRIME AGRICULTURAL LAND: NO
THREATENED AND ENDANGERED SPECIES: NEWLY LISTED STATEWIDE THREATENED BAT SPECIES, NOT SUITABLE HABITAT WITHIN PROJECT LIMITS ALTHOUGH IT IS PRESENT SURROUNDING PROJECT.
WATER RESOURCE: BRUSH BROOK
WETLANDS: YES

1.3 RISK EVALUATION

THIS PROJECT DOES NOT FALL UNDER THE JURISDICTION OF GENERAL PERMIT 3-9020 FOR STORMWATER RUNOFF FROM CONSTRUCTION SITES. SHOULD CHANGES PRIOR TO OR DURING CONSTRUCTION RESULT IN ONE OR MORE ACRES OF EARTH DISTURBANCE OR SHOULD THE PROJECT BECOME PART OF A LARGER PLAN OF DEVELOPMENT, THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY ADDITIONAL PERMITTING.

1.4 EROSION PREVENTION AND SEDIMENT CONTROL (EPSC)

THE EPSC PLANS ARE MEANT AS A GUIDELINE FOR PREVENTING EROSION AND CONTROLLING SEDIMENT TRANSPORT. THE PRINCIPLES OUTLINED IN THIS NARRATIVE CONSIST OF APPLYING MEASURES THROUGHOUT CONSTRUCTION OF THE PROJECT IN ORDER TO MINIMIZE SEDIMENT TRANSPORT TO THE RECEIVING WATERS. THE MEASURES INCLUDE STABILIZATION AND STRUCTURAL PRACTICES, STORM WATER CONTROLS AND OTHER POLLUTION PREVENTION PRACTICES. THEY HAVE BEEN PROPOSED BY THE DESIGNER AS A BASIS FOR PROTECTING RESOURCES AND WILL NEED TO BE BUILT UPON BASED ON THE SPECIFIC MEANS AND METHODS OF THE CONTRACTOR. REFER TO THE LOW RISK SITE HANDBOOK AND APPROPRIATE DETAIL SHEETS FOR SPECIFIC GUIDANCE AND CONSTRUCTION DETAILING.

ALL MEASURES SHALL BE REGULARLY MAINTAINED AND SHALL BE CHECKED FOR SEDIMENT BUILD-UP. SEDIMENT SHALL BE DISPOSED OF AT AN APPROVED SITE WHERE IT WILL NOT BE SUBJECT TO EROSION.

1.4.1 MARK SITE BOUNDARIES

SITE BOUNDARIES AND AREAS CONSTRUCTION EQUIPMENT CAN ACCESS SHALL BE DELINEATED.

PROJECT DEMARCATION FENCING (PDF) SHALL BE USED TO PHYSICALLY MARK SITE BOUNDARIES.

1.4.2 LIMIT DISTURBANCE AREA

PREVENTING INITIAL SOIL EROSION BY MINIMIZING THE EXPOSED AREA IS MUCH MORE EFFECTIVE THAN TREATING ERODED SEDIMENT. EARTH DISTURBANCE CAN BE MINIMIZED THROUGH CONSTRUCTION PHASING BY ONLY OPENING UP EARTH AS NECESSARY. THIS CAN LIMIT THE AREA THAT WILL BE DISTURBED AND EXPOSED TO EROSION. EMPLOY TEMPORARY CONSTRUCTION STABILIZATION PRACTICES IN INCREMENTAL STAGES AS PHASES CHANGE. FOR PROJECTS WHICH FALL UNDER THE CONSTRUCTION GENERAL PERMIT, ONLY THE ACREAGE LISTED ON THE PERMIT AUTHORIZATION MAY BE EXPOSED AT ANY GIVEN TIME.

MAINTAINING VEGETATED BUFFERS ALONG STREAM BANKS, WETLANDS OR OTHER SENSITIVE AREAS IS A CRUCIAL EROSION AND SEDIMENT CONTROL MEASURE THAT SHOULD BE ESTABLISHED WHEREVER POSSIBLE.

1.4.3 SITE ENTRANCE/EXIT STABILIZATION

TRACKING OF SEDIMENT ONTO PUBLIC HIGHWAYS SHALL BE MINIMIZED TO REDUCE THE POTENTIAL FOR RUNOFF ENTERING RECEIVING WATERS. INSTALLATION SHALL COINCIDE WITH THE CONTRACTORS PROGRESS SCHEDULE.

STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AS PROPOSED ON THE EPSC PLAN.

1.4.4 INSTALL SEDIMENT BARRIERS

SEDIMENT BARRIERS SHALL BE UTILIZED TO INTERCEPT RUNOFF AND ALLOW SUSPENDED SEDIMENT TO SETTLE OUT. THEY SHALL BE INSTALLED PRIOR TO ANY UP SLOPE WORK.

SILT FENCE WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN.

1.4.5 DIVERT UPLAND RUNOFF

DIVERSIONARY MEASURES SHALL BE USED TO INTERCEPT RUNOFF FROM ABOVE THE CONSTRUCTION AND DIRECT IT AROUND THE DISTURBED AREA SO THAT CLEAN WATER DOES NOT BECOME MUDDIED WHILE TRAVELING OVER EXPOSED SOILS ON THE CONSTRUCTION SITE.

THE PROJECT AREA IS RELATIVELY FLAT. THEREFORE IT IS NOT ANTICIPATED THAT DIVERSION MEASURES WILL BE NECESSARY.

1.4.6 SLOW DOWN CHANNELIZED RUNOFF

CHECK STRUCTURES SHALL BE UTILIZED TO REDUCE THE VELOCITY, AND THUS THE EROSION POTENTIAL, OF CONCENTRATED FLOW IN CHANNELS.

STONE CHECK DAMS WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN, AT A MINIMUM.

1.4.7 CONSTRUCT PERMANENT CONTROLS

PERMANENT STORMWATER TREATMENT DEVICES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND IN ACCORDANCE WITH PERMIT CONDITIONS.

1.4.8 STABILIZE EXPOSED SOILS DURING CONSTRUCTION

ALL AREAS OF DISTURBANCE MUST HAVE TEMPORARY STABILIZATION IN PLACE WITHIN 48 HOURS OF DISTURBANCE OR IN ACCORDANCE WITH THE CONSTRUCTION GENERAL PERMIT 3-9020 AUTHORIZATION.

BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED TO STABILIZE ALL SLOPES STEEPER THAN 1:3.

THE FORECAST OF RAINFALL EVENTS SHALL TRIGGER IMMEDIATE PROTECTION OF EXPOSED SOILS.

1.4.9 WINTER STABILIZATION

VARIOUS MEASURES SPECIFIC TO WINTER MAY BE NECESSARY SHOULD THE PROJECT EXTEND INTO WINTER (OCTOBER 15 THROUGH APRIL 15). REFER TO THE LOW RISK SITE HANDBOOK FOR GUIDANCE.

1.4.10 STABILIZE SOIL AT FINAL GRADE

EXPOSED SOIL MUST BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE.

SEED, MULCH, FERTILIZER AND LIME SHALL BE USED TO ESTABLISH PERMANENT VEGETATION. FOR SLOPES STEEPER THAN 1:3, BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED INSTEAD OF MULCH.

1.4.11 DE-WATERING ACTIVITIES

DISCHARGE FROM DEWATERING ACTIVITIES THAT FLOWS OFF OF THE CONSTRUCTION SITE MUST NOT CAUSE OR CONTRIBUTE TO A VIOLATION OF THE VERMONT WATER QUALITY STANDARDS.

TREATMENT OF DEWATERING COFFERDAM IS ANTICIPATED. A LOCATION FOR TREATMENT HAS BEEN PROPOSED AND IS SHOWN ON THE PLANS. HOWEVER THE SPECIFIC MEANS FOR TREATMENT OF DISCHARGE SHALL BE PROVIDED BY THE CONTRACTOR.

1.4.12 INSPECT YOUR SITE

INSPECT THE PROJECT SITE BASED ON SPECIAL PROVISION REQUIREMENTS OR CONSTRUCTION GENERAL PERMIT AUTHORIZATION STIPULATIONS.

1.5 SEQUENCE AND STAGING

THIS SECTION WILL BE DEVELOPED BY THE CONTRACTOR USING THE GUIDANCE OUTLINED IN THE VTRANS EPSC PLAN CONTRACTOR CHECKLIST.

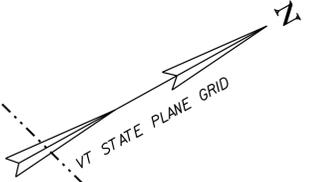
1.5.1 OFF SITE ACTIVITIES

IN ADDITION TO THE CONTRACTOR CHECKLIST AND ACTIVITIES OUTSIDE THE CONSTRUCTION LIMITS SHALL FOLLOW SUBSECTIONS 105.25- 105.29 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

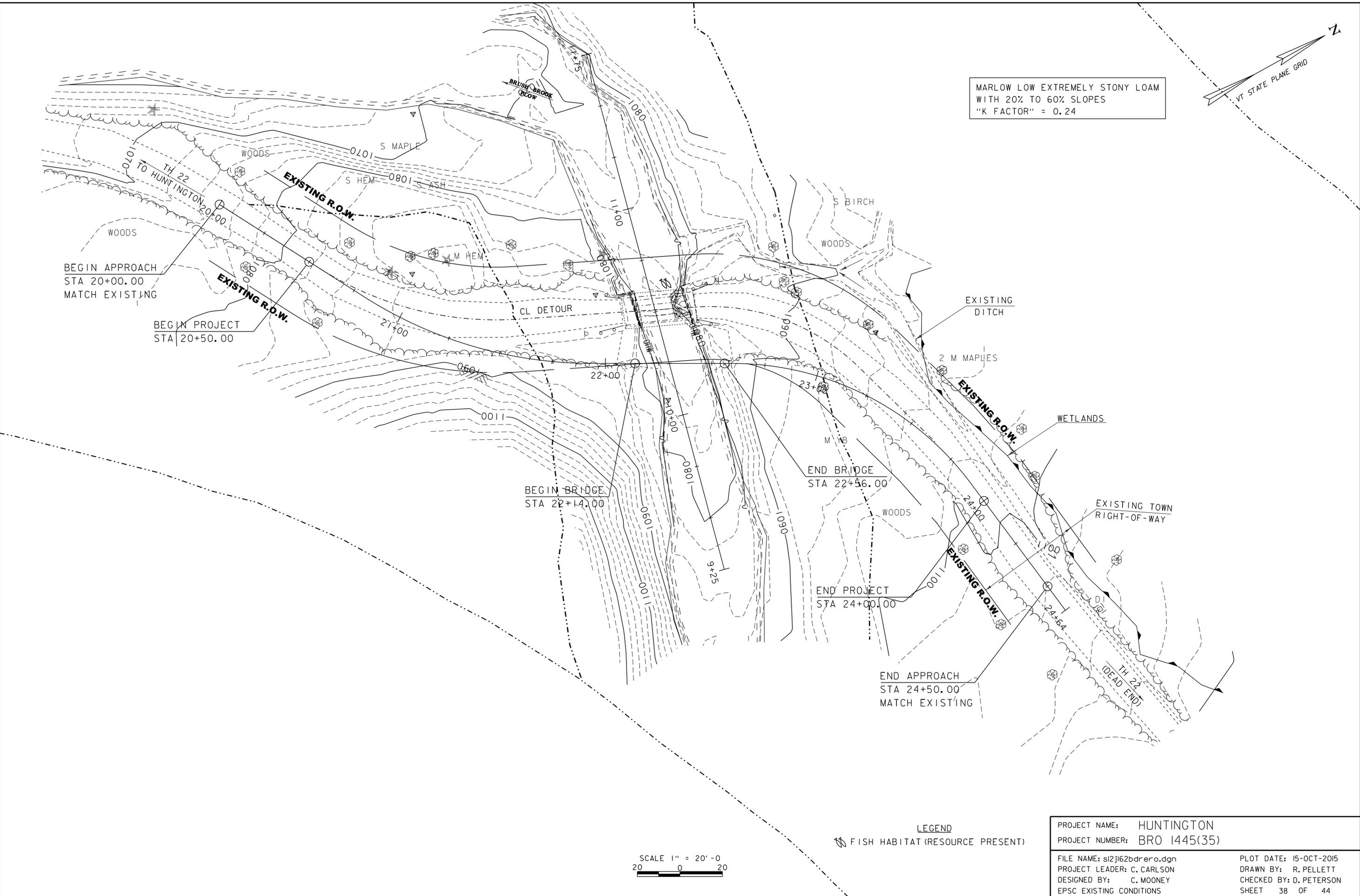
PROJECT NAME: HUNTINGTON
PROJECT NUMBER: BRO 1445(35)

FILE NAME: sl2j162erode+.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
EPSC NARRATIVE

PLOT DATE: 15-OCT-2015
DRAWN BY: R. PELLETT
CHECKED BY: D. PETERSON
SHEET 37 OF 44



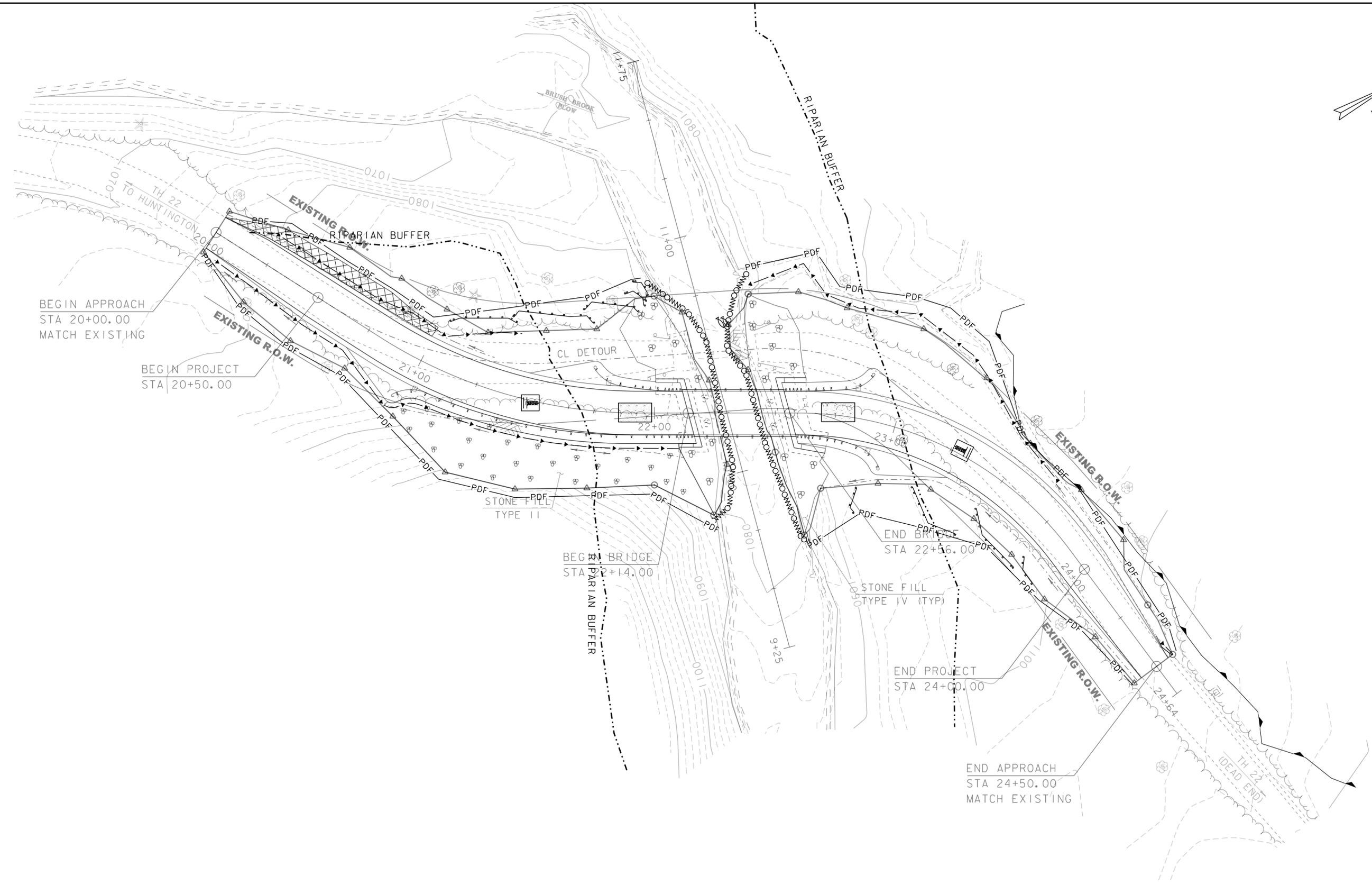
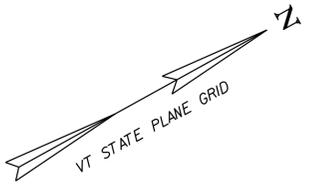
MARLOW LOW EXTREMELY STONY LOAM
 WITH 20% TO 60% SLOPES
 "K FACTOR" = 0.24



LEGEND
 FISH HABITAT (RESOURCE PRESENT)

SCALE 1" = 20'-0"
 0 20

| | | | |
|--------------------------|-------------------|-------------|-------------|
| PROJECT NAME: | HUNTINGTON | PLOT DATE: | 15-OCT-2015 |
| PROJECT NUMBER: | BRO 1445(35) | DRAWN BY: | R. PELLETT |
| FILE NAME: | sl2j162bdrero.dgn | CHECKED BY: | D. PETERSON |
| PROJECT LEADER: | C. CARLSON | SHEET | 38 OF 44 |
| DESIGNED BY: | C. MOONEY | | |
| EPSC EXISTING CONDITIONS | | | |



BEGIN APPROACH
STA 20+00.00
MATCH EXISTING

BEGIN PROJECT
STA 20+50.00

STONE FILL
TYPE II

BEGIN BRIDGE
STA 22+14.00

END BRIDGE
STA 22+56.00

STONE FILL
TYPE IV (TYP)

END PROJECT
STA 24+00.00

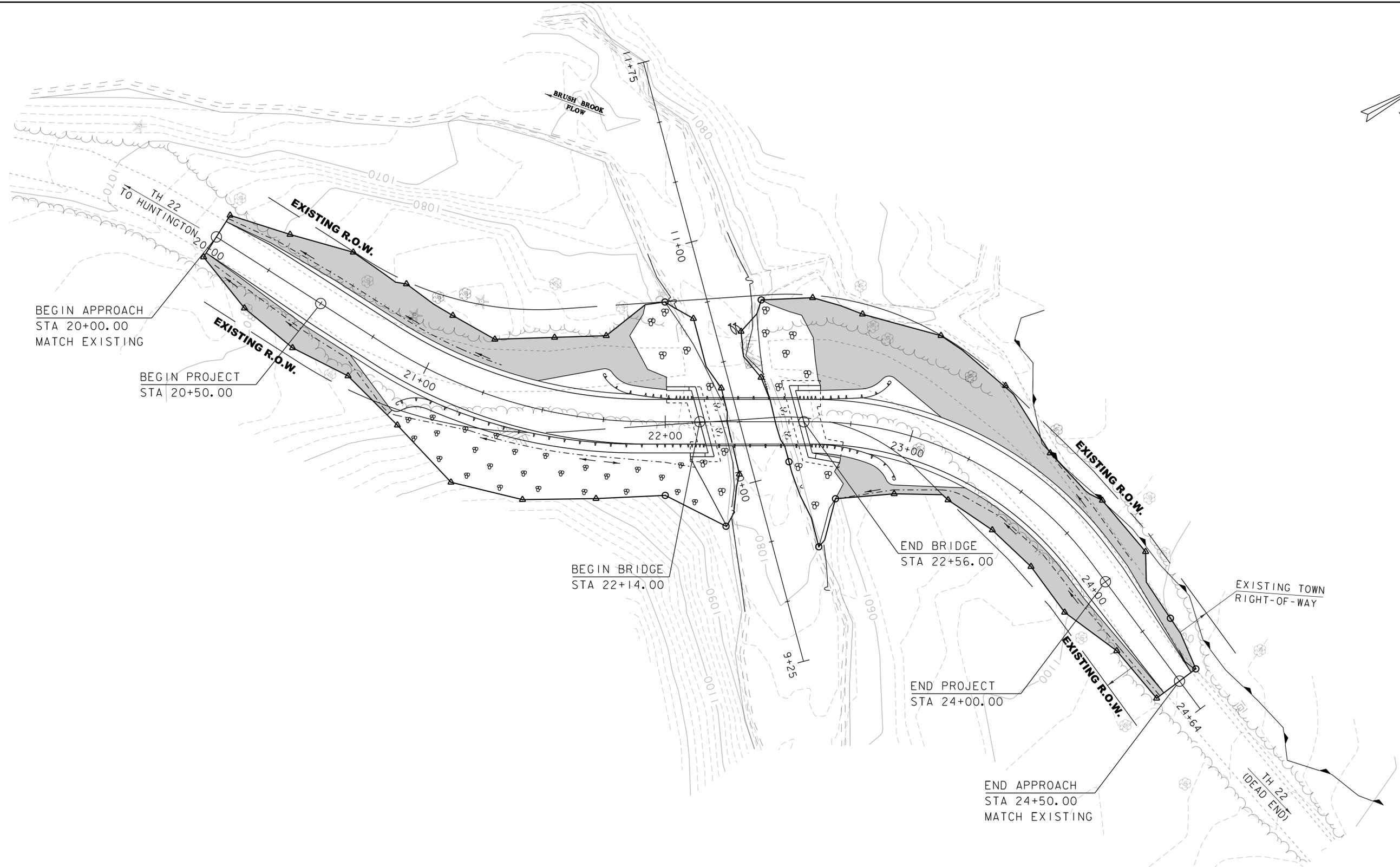
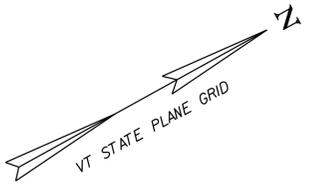
END APPROACH
STA 24+50.00
MATCH EXISTING

LEGEND

- FISH HABITAT (RESOURCE PRESENT)
- PROPOSED DEWATERING AREA
- STABILIZED CONSTRUCTION ENTRANCE

SCALE 1" = 20'-0"
20 0 20

| | | | |
|------------------------------|------------------------|-------------------------|----------------|
| PROJECT NAME: HUNTINGTON | | PLOT DATE: 15-OCT-2015 | |
| PROJECT NUMBER: BRO 1445(35) | | DRAWN BY: R. PELLETT | |
| FILE NAME: sl2j62bdrero.dgn | DESIGNED BY: C. MOONEY | CHECKED BY: D. PETERSON | SHEET 39 OF 44 |
| EPSC CONSTRUCTION CONDITIONS | | | |



BEGIN APPROACH
STA 20+00.00
MATCH EXISTING

BEGIN PROJECT
STA 20+50.00

BEGIN BRIDGE
STA 22+14.00

END BRIDGE
STA 22+56.00

END PROJECT
STA 24+00.00

END APPROACH
STA 24+50.00
MATCH EXISTING

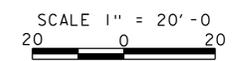
EXISTING TOWN
RIGHT-OF-WAY

NOTE:
REFER TO CROSS SECTIONS FOR FINAL GROUND CONTOURS

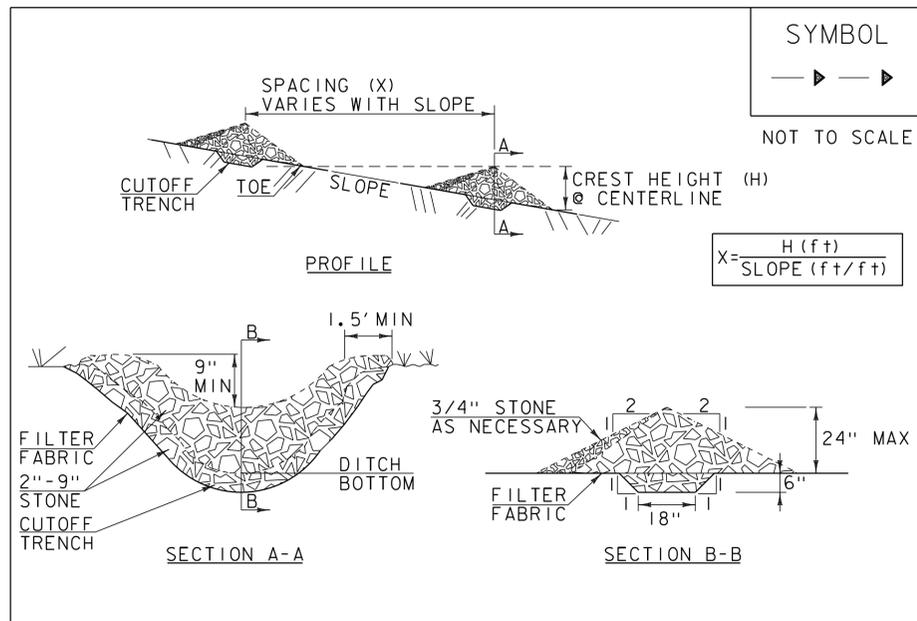
SEE "CONVENTIONAL SYMBOLOGY LEGEND" SHEET FOR LEGEND

LEGEND

FISH HABITAT (RESOURCE PRESENT)



| | | | |
|-----------------------|-------------------|-------------|-------------|
| PROJECT NAME: | HUNTINGTON | PLOT DATE: | 15-OCT-2015 |
| PROJECT NUMBER: | BRO 1445(35) | DRAWN BY: | R. PELLETT |
| FILE NAME: | sl2j162bdrero.dgn | CHECKED BY: | D. PETERSON |
| PROJECT LEADER: | C. CARLSON | SHEET | 40 OF 44 |
| DESIGNED BY: | C. MOONEY | | |
| EPSC FINAL CONDITIONS | | | |



CONSTRUCTION SPECIFICATIONS

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION.
2. CHECK DAMS SHALL BE SPACED SO THAT THE ELEVATION OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION AS THE TOE OF THE UPSTREAM DAM.
3. 3/4" FILTERING STONE MAY BE ADDED TO THE FACE OF THE CHECK DAM AS NECESSARY.
4. EXTEND THE STONE A MINIMUM OF 1.5' BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
5. PROTECT CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
6. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.
7. MAXIMUM DRAINAGE AREA 2 ACRES.

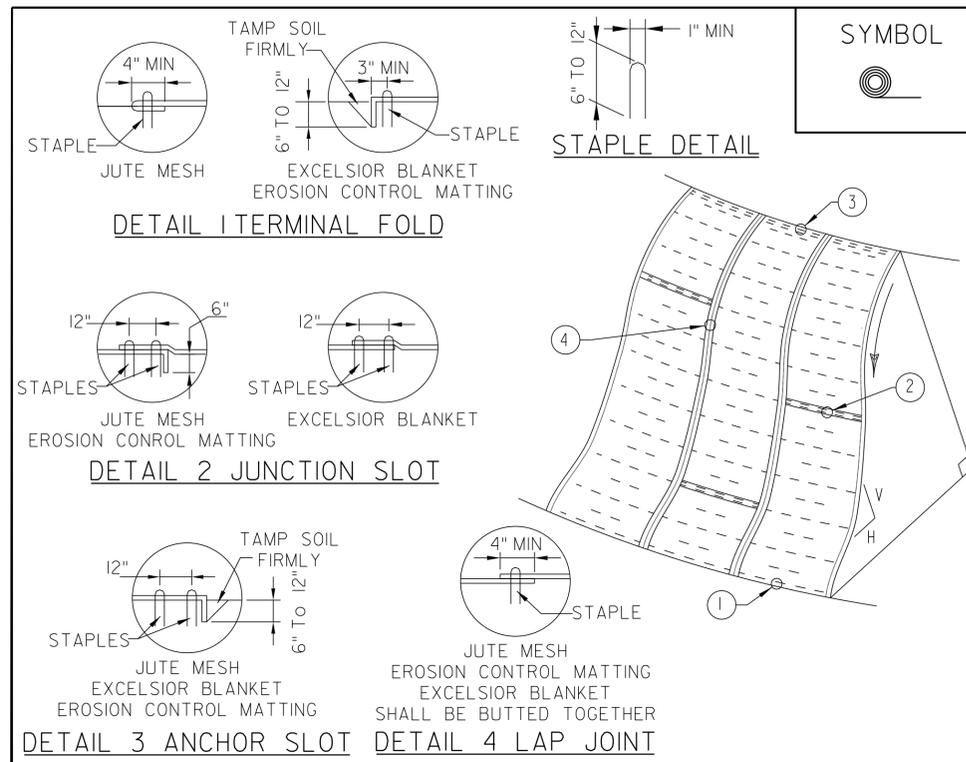
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

CHECK DAM

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR TEMPORARY STONE CHECK DAM, TYPE 1(PAY ITEM 653.25)

| REVISIONS | |
|-----------------|-----|
| MARCH 21, 2008 | WHF |
| JANUARY 8, 2009 | WHF |



CONSTRUCTION SPECIFICATIONS

1. APPLY TO SLOPES GREATER THAN 3H:1V OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.
2. APPLY FERTILIZER, LIME AND SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER 4'X225' ROLL OF MATERIAL AND 125 STAPLES ARE REQUIRED PER 4'X150' ROLL OF MATERIAL.
4. DISTURBED AREAS SHALL BE SMOOTHLY GRADED. EROSION CONTROL MATERIAL SHALL BE PLACED LOOSELY OVER GROUND SURFACE. DO NOT STRETCH.
5. ALL TERMINAL ENDS AND TRANSVERSE LAPS SHALL BE STAPLED AT APPROXIMATELY 12" INTERVALS.

ADAPTED FROM DETAILS PROVIDED BY: ILLINOIS USDA-NRCS
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

ROLLED EROSION CONTROL PRODUCT (RECP) SIDE SLOPE

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS ITEM SHALL BE PAID FOR UNDER ITEM 653.20 TEMPORARY EROSION MATTING OR 653.21 PERMANENT EROSION MATTING

| NEW | |
|----------------|-----|
| APRIL 16, 2007 | WHF |
| REVISIONS | |

| VAOT LOW GROW/FINE FESCUE MIX | | | | | | |
|-------------------------------|-----------|-----------|---------------------|------------------------------|------|--------|
| WEIGHT | LBS/AC | | NAME | LATIN NAME | GERM | PURITY |
| | BROADCAST | HYDROSEED | | | | |
| 38% | 57 | 95 | CREeping RED FESCUE | FESTUCA RUBRA VAR. RUBRA | 90% | 98% |
| 29% | 43.5 | 72.5 | HARD FESCUE | FESTUCA LONGIFOLIA | 85% | 95% |
| 15% | 22.5 | 37.5 | CHEWINGS FESCUE | FESTUCA RUBRA VAR. COMMUTATA | 87% | 95% |
| 15% | 22.5 | 37.5 | ANNUAL RYEGRASS | LOLIUM MULTIFLORUM | 90% | 95% |
| 3% | 4.5 | 7.5 | INERTS | | | |
| 100% | 150 | 250 | | | | |

| VAOT RURAL AREA MIX | | | | | | |
|---------------------|-----------|-----------|---------------------|--------------------------|------|--------|
| WEIGHT | LBS/AC | | NAME | LATIN NAME | GERM | PURITY |
| | BROADCAST | HYDROSEED | | | | |
| 37.5% | 22.5 | 45 | CREeping RED FESCUE | FESTUCA RUBRA VAR. RUBRA | 85% | 98% |
| 37.5% | 22.5 | 45 | TALL FESCUE | FESTUCA ARUNDINACEA | 90% | 95% |
| 5.0% | 3 | 6 | RED TOP | AGROSTIS GIGANTEA | 90% | 95% |
| 15.0% | 9 | 18 | WHITE FIELD CLOVER | TRIFOLIUM REPENS | 85% | 98% |
| 5.0% | 3 | 6 | ANNUAL RYE GRASS | LOLIUM MULTIFLORUM | 85% | 95% |
| 100% | 60 | 120 | | | | |

| GENERAL AMENDMENT GUIDANCE | | |
|----------------------------|-----------|------------|
| FERTILIZER | LIME | |
| 10/20/10 | AG LIME | PELLITIZED |
| 500 LBS/AC | 2 TONS/AC | 1 TONS/AC |

CONSTRUCTION GUIDANCE

1. SEED MIX: THE CONTRACTOR SHALL COORDINATE WITH THE RESIDENT ENGINEER ON WHICH SEED MIX TO USE.
2. SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED UPLAND (NON WETLAND) AREAS DISTURBED BY THE CONTRACTOR.
3. ALL SEED MIXTURES: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.
4. FERTILIZER AND LIMESTONE: SHALL FOLLOW RATES SHOWN ON PLAN OR AS DIRECTED BY THE ENGINEER.
5. HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, ACHIEVE 90% GROUND COVER OR AS DIRECTED BY THE ENGINEER.
6. HYDROSEEDING: ALTHOUGH GUIDANCE IS GIVEN ABOVE THE SITE CONDITIONS AND THE TYPE OF HYDROSEED PROPOSED FOR USE WILL ULTIMATELY DICTATE THE AMOUNTS AND TYPES OF SOIL AMENDMENTS TO BE APPLIED.
7. TURF ESTABLISHMENT: PLACING SEED, FERTILIZER, LIME AND MULCH PRIOR TO SEPTEMBER 15 AND AFTER APRIL 15 CAN BETTER ENSURE A VIGOROUS GROWTH OF GRASS.

ADAPTED FROM VTRANS TECHNICAL LANDSCAPE MANUAL FOR ROADWAYS AND TRANSPORTATION FACILITIES

TURF ESTABLISHMENT

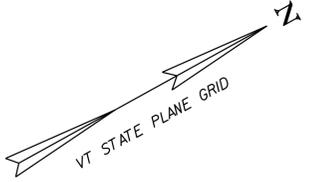
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 651 FOR SEED (PAY ITEM 651.15)

| REVISIONS | |
|------------------|-----|
| JANUARY 12, 2015 | WHF |

PROJECT NAME: HUNTINGTON
PROJECT NUMBER: BRO 1445(35)

FILE NAME: sl2j162erode+.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: D. PETERSON
EPSC DETAILS 2

PLOT DATE: 15-OCT-2015
DRAWN BY: R. PELLETT
CHECKED BY: D. PETERSON
SHEET 42 OF 44



BRIDGE RAILING, GALVANIZED HDSB/
FASCIA MOUNTED / STEEL TUBING
STA 22+10.71 - STA 22+54.46 LT
STA 22+15.34 - STA 22+59.29 RT

GUARDRAIL APPROACH SECTION,
GALVANIZED HD STEEL BEAM
STA 21+85.91 - STA 22+10.71 LT
STA 22+54.46 - STA 22+78.07 LT
STA 21+90.82 - STA 22+15.34 RT
STA 22+59.29 - STA 22+86.00 RT

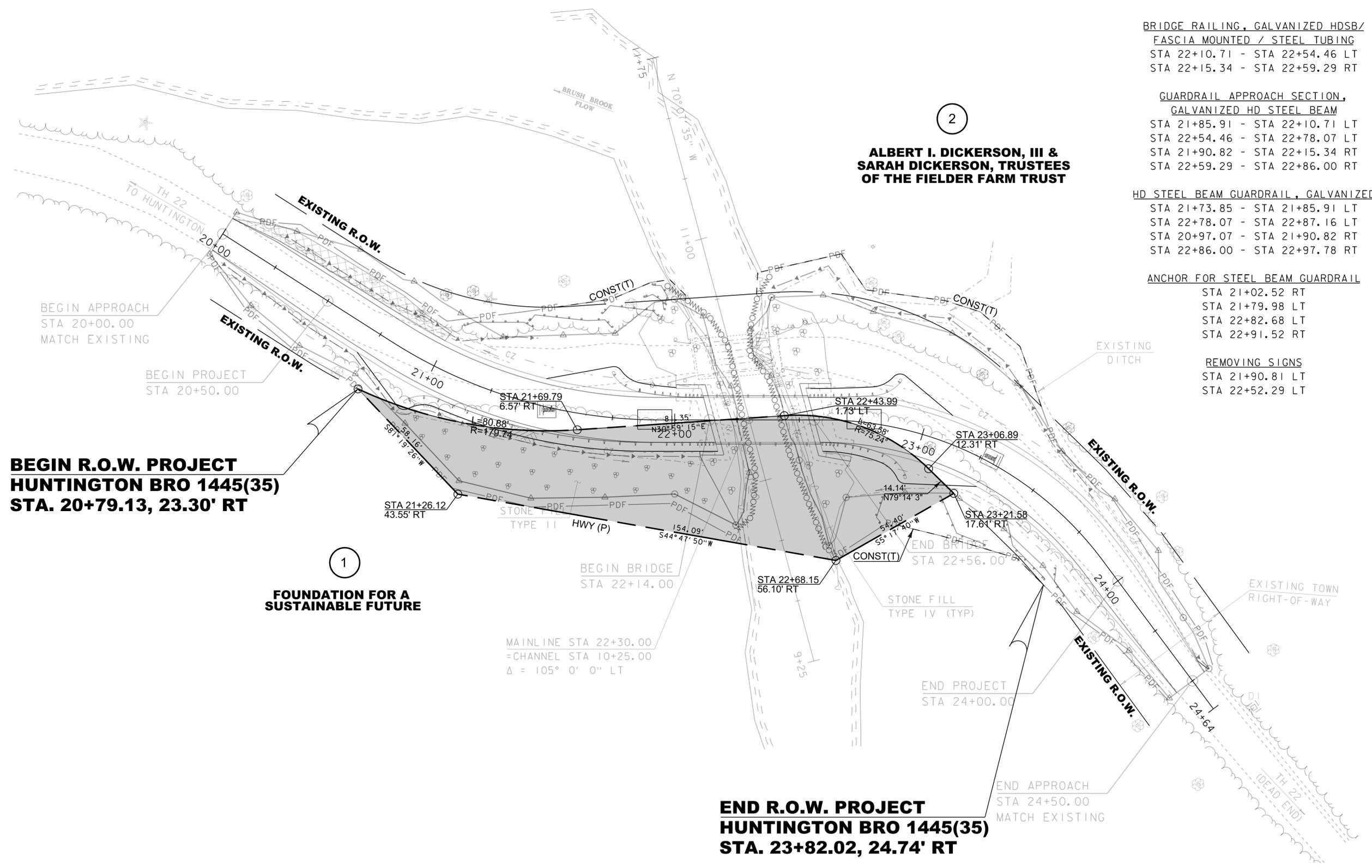
HD STEEL BEAM GUARDRAIL, GALVANIZED
STA 21+73.85 - STA 21+85.91 LT
STA 22+78.07 - STA 22+87.16 LT
STA 20+97.07 - STA 21+90.82 RT
STA 22+86.00 - STA 22+97.78 RT

ANCHOR FOR STEEL BEAM GUARDRAIL
STA 21+02.52 RT
STA 21+79.98 LT
STA 22+82.68 LT
STA 22+91.52 RT

REMOVING SIGNS
STA 21+90.81 LT
STA 22+52.29 LT

2

**ALBERT I. DICKERSON, III &
SARAH DICKERSON, TRUSTEES
OF THE FIELDER FARM TRUST**



**BEGIN R.O.W. PROJECT
HUNTINGTON BRO 1445(35)
STA. 20+79.13, 23.30' RT**

1
**FOUNDATION FOR A
SUSTAINABLE FUTURE**

**END R.O.W. PROJECT
HUNTINGTON BRO 1445(35)
STA. 23+82.02, 24.74' RT**

LINES SHOWN ON THIS PLAN AS EXISTING
PROPERTY LINES P/L ARE BELIEVED TO
BE ACCURATE BUT SHOULD NOT BE RELIED
UPON FOR PURPOSES UNRELATED TO THE
TOWN OF HUNTINGTON'S ACQUISITION OF
LAND AND RIGHTS FOR THIS PROJECT.

**FOR R.O.W.
USE ONLY**

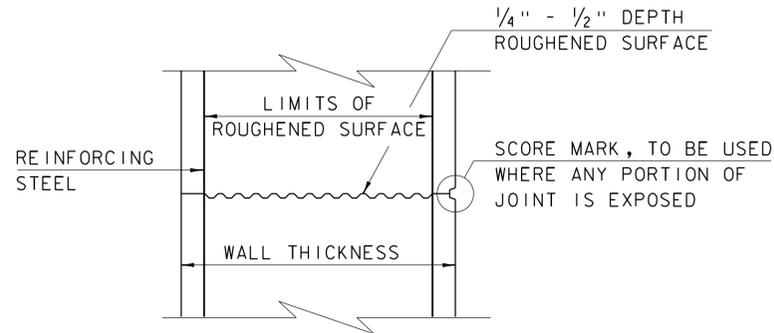
EXISTING BRIDGE INFO
34' LONG ROLLED BEAM
WITH TIMBER DECK BRIDGE
BUILT 1925, RECONSTRUCTED 2004
16' WIDE DECK

LAYOUT
SCALE 1" = 20'-0"
20 0 20

| | |
|------------------------------|-------------------------|
| PROJECT NAME: HUNTINGTON | PLOT DATE: 15-OCT-2015 |
| PROJECT NUMBER: BRO 1445(35) | DRAWN BY: A. PROULX |
| FILE NAME: r12j162lay.dgn | CHECKED BY: R. CLOUTIER |
| PROJECT LEADER: C. CARLSON | SHEET 44 OF 44 |
| DESIGNED BY: D. PETERSON | |
| R.O.W. LAYOUT SHEET 1 OF 1 | |

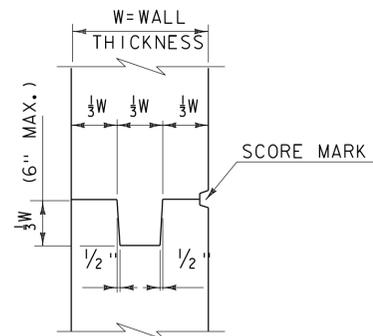
CONCRETE GENERAL NOTES

1. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1" x 1"
2. REINFORCING STEEL SIZE AND SPACING SHOWN IN THE PLANS IS BASED ON 60 KSI STEEL, UNLESS NOTED OTHERWISE. WITH THE ENGINEER'S PERMISSION, BAR SIZE AND SPACING MAY BE MODIFIED ACCORDING TO THE LATEST AASHTO LRFD BRIDGE DESIGN SPECIFICATION AND STRUCTURES DESIGN MANUAL WHEN USING HIGHER STRENGTH STEEL.

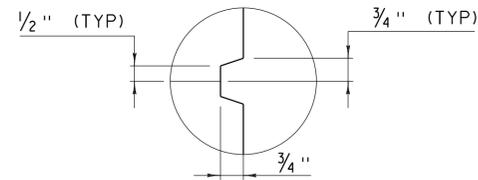


TYPICAL HORIZONTAL CONSTRUCTION JOINT
(NOT TO SCALE)

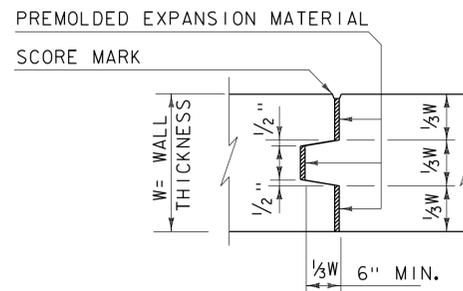
1. THE SURFACE OF THE CONCRETE CONSTRUCTION JOINTS SHALL BE CLEANED AND FREE OF LAITANCE.
2. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, ALL CONSTRUCTION JOINTS SHALL BE WETTED AND STANDING WATER REMOVED.



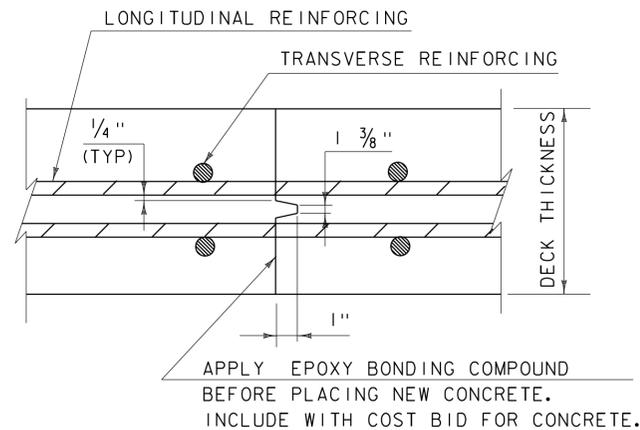
TYPICAL CONCRETE CONSTRUCTION JOINT
(NOT TO SCALE)



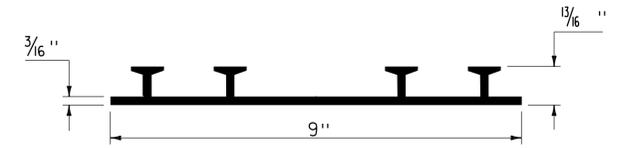
SCORE MARK DETAIL
(NOT TO SCALE)



TYPICAL CONCRETE EXPANSION JOINT
(NOT TO SCALE)



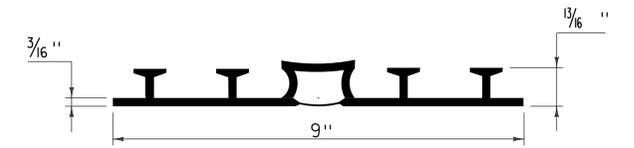
TRANSVERSE BRIDGE SLAB CONSTRUCTION JOINT DETAILS
(NOT TO SCALE)



P.V.C. WATERSTOP FOR CONSTRUCTION JOINTS
(NOT TO SCALE)

PAYMENT FOR THE P.V.C. WATERSTOP SHALL BE INCIDENTAL TO THE UNIT BID PRICE FOR THE ADJACENT CONCRETE.

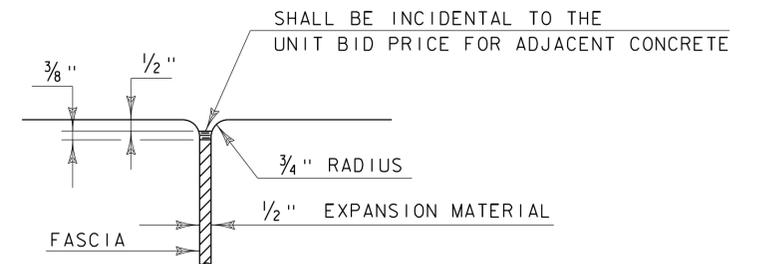
OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



P.V.C. WATERSTOP FOR EXPANSION JOINTS
(NOT TO SCALE)

PAYMENT FOR THE P.V.C. WATERSTOP SHALL BE INCIDENTAL TO THE UNIT BID PRICE FOR THE ADJACENT CONCRETE.

OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



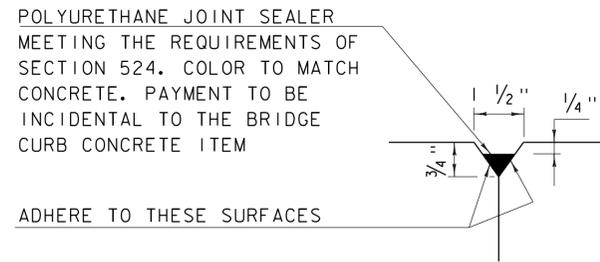
JOINT BETWEEN FASCIA AND WINGWALL
(NOT TO SCALE)

| REVISIONS | |
|------------------|---|
| MAY 7, 2010 | APPROVED FOR USE BY VAOT STRUCTURES SECTION |
| FEBRUARY 9, 2012 | REBAR SUBSTITUTION ALLOWANCE ADDED TO CONCRETE GENERAL NOTES. |
| | |
| | |
| | |
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| | |

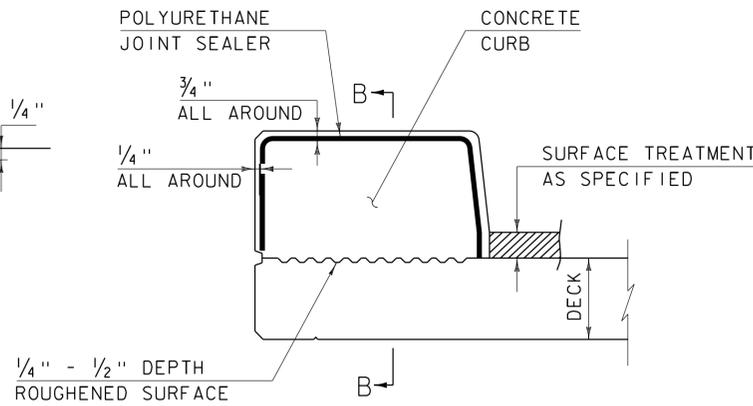
**CONCRETE
DETAILS AND NOTES**



**STRUCTURES
DETAIL
SD-501.00**

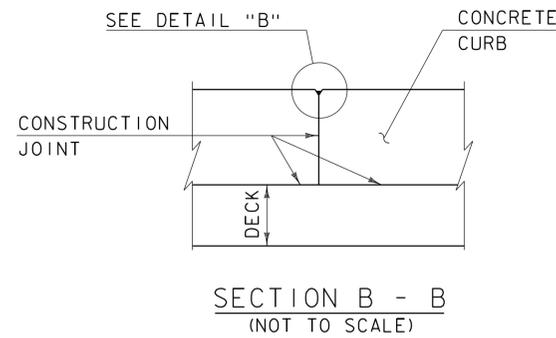


DETAIL "B"
(NOT TO SCALE)

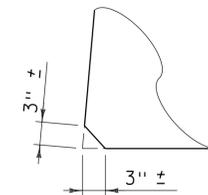


CONCRETE CURB JOINT SECTION
(NOT TO SCALE)

1. SEE TYPICAL HORIZONTAL CONSTRUCTION JOINT DETAIL FOR ADDITIONAL INFORMATION



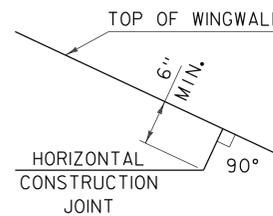
SECTION B - B
(NOT TO SCALE)



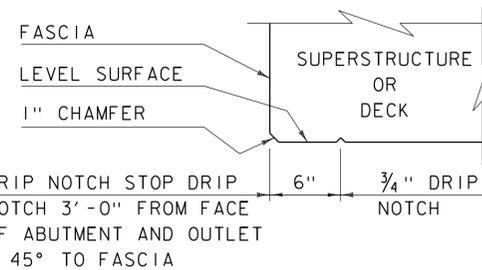
ACUTE ANGLE
CLIP DETAIL
(NOT TO SCALE)

CONCRETE CURB JOINT NOTES

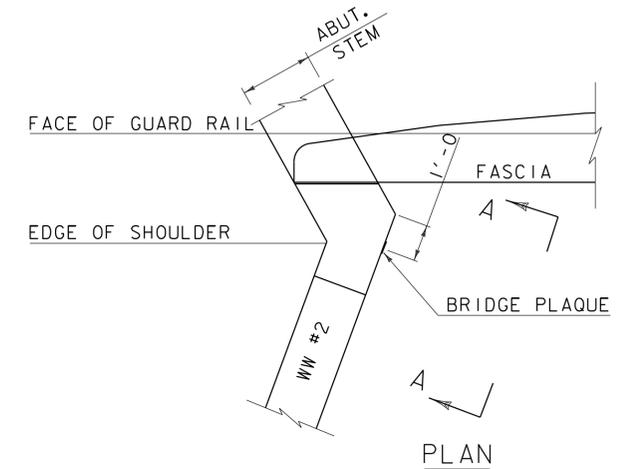
1. CONCRETE CURBS MAY BE PLACED IN ONE CONTINUOUS OPERATION IF AN APPROVED SHRINKAGE REDUCING ADMIXTURE LISTED IN THE SPECIAL PROVISIONS IS USED WITH THE CONCRETE MIX DESIGN. PAYMENT FOR THE SHRINKAGE REDUCING ADMIXTURE WILL BE INCIDENTAL TO THE BRIDGE CURB CONCRETE ITEM.
2. IF THE CONTRACTOR CHOOSES NOT TO USE AN APPROVED SHRINKAGE REDUCING ADMIXTURE, THE CURBS SHALL BE CONSTRUCTED WITH CONSTRUCTION JOINTS SPACED AT A MAXIMUM OF 15'-0" CENTER TO CENTER AND 2'-0" MINIMUM FROM THE CENTER OF NEAREST BRIDGE RAILING POST.
3. ON MULTI-SPAN CONTINUOUS SUPERSTRUCTURES, REGARDLESS OF WHETHER APPROVED SHRINKAGE REDUCING ADMIXTURE IS USED, CURB JOINTS SHALL BE LOCATED OVER THE CENTERLINE OF PIERS AND 7'-0" EACH SIDE OF THE CENTERLINE OF EACH PIER.
4. WHEN CURB JOINTS ARE USED THE CURBS SHALL BE PLACED IN ALTERNATE SECTIONS WITH A MINIMUM OF 48 HOUR DELAY BETWEEN ADJACENT PLACEMENTS.
5. LONGITUDINAL REINFORCING SHALL BE CONTINUOUS THROUGH CURB CONSTRUCTION JOINTS. CURB STIRRUP BARS SHALL BE TURNED AS NECESSARY TO MAINTAIN COVER IN THE FLARED CURB ENDS.
6. THE JOINT SPACING AND DETAILS SHOWN SHALL APPLY TO SIDEWALKS WHEN SHOWN IN THE PLANS.



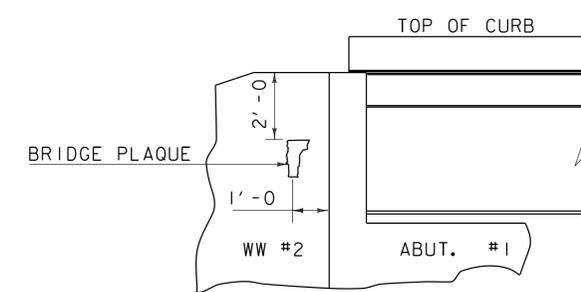
HORIZONTAL WINGWALL
CONSTRUCTION JOINT
(NOT TO SCALE)



DRIP NOTCH DETAIL
(NOT TO SCALE)



PLAN



VIEW "A - A"

BRIDGE PLAQUE
(NOT TO SCALE)

THE BRIDGE PLAQUE WILL BE SUPPLIED BY THE AGENCY OF TRANSPORTATION AND SHALL BE INSTALLED BY THE CONTRACTOR AT ABUTMENT #1 ON THE RIGHT SIDE AS SHOWN OR AS DIRECTED BY THE ENGINEER.

PAYMENT FOR INSTALLATION OF THE BRIDGE PLAQUE SHALL BE INCIDENTAL TO THE ADJACENT CONCRETE.

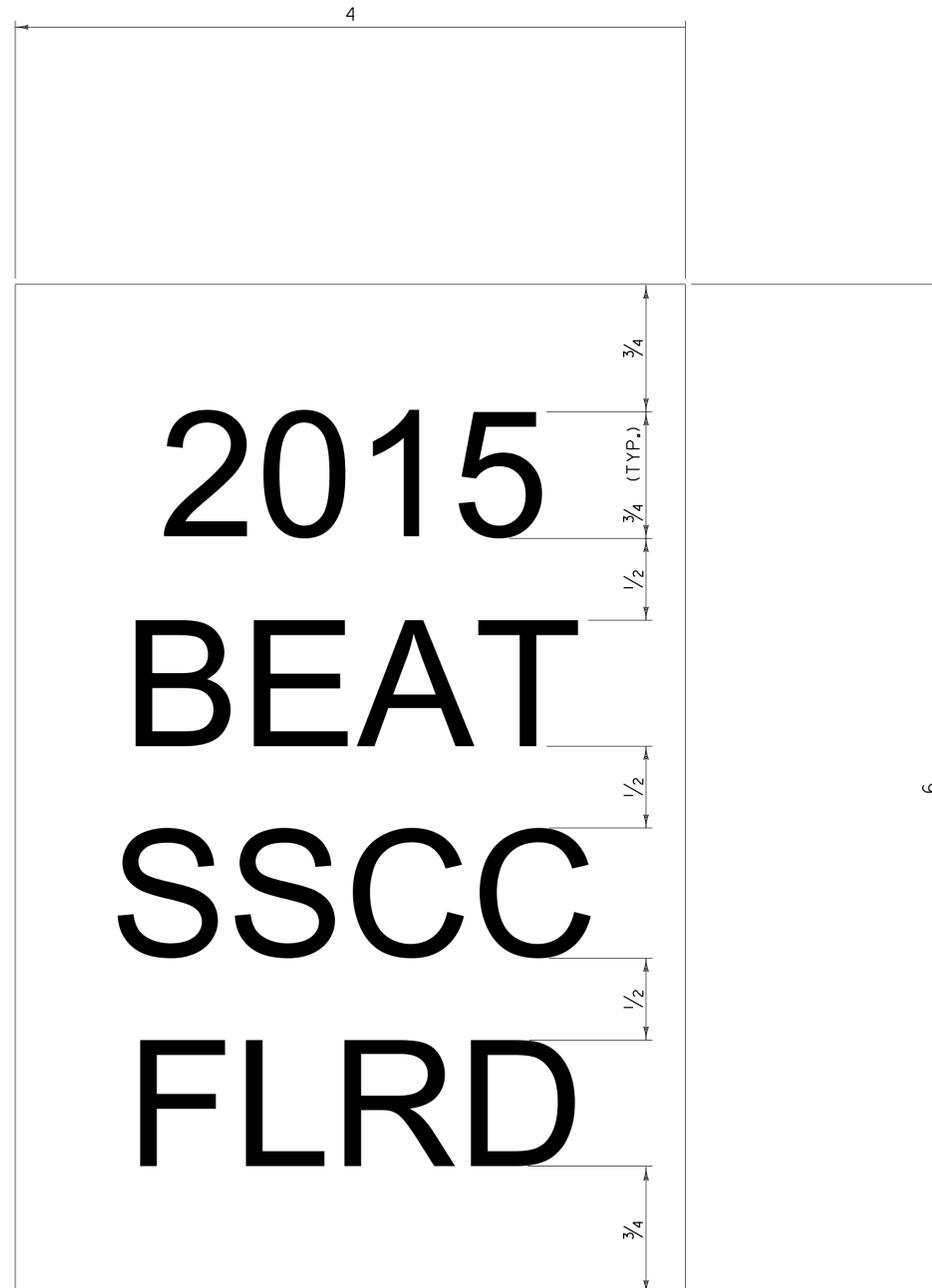
REVISIONS

| | |
|------------------|---|
| MAY 7, 2010 | APPROVED FOR USE BY VAOT STRUCTURES SECTION |
| JUNE 4, 2010 | MODIFIED AND ADDED TWO DETAILS |
| OCTOBER 10, 2012 | MODIFIED HORZ. JOINT WINGWALL ADD 6" MIN. DIMENSION |
| | |
| | |
| | |
| | |

CONCRETE
DETAILS AND NOTES



STRUCTURES
DETAIL
SD-502.00



GENERAL NOTES:

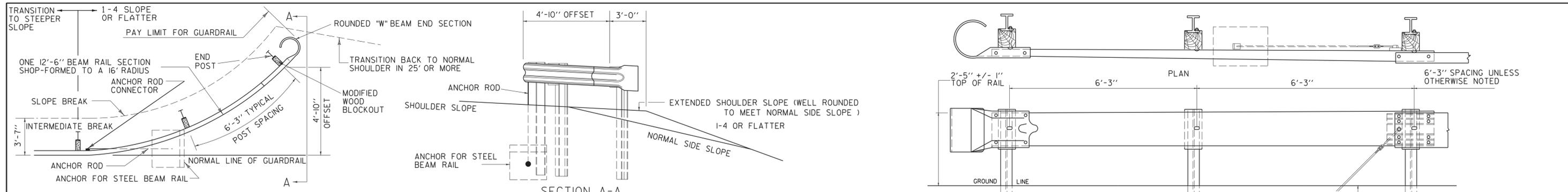
1. LINE ONE SHALL INDICATE THE INSTALLATION YEAR (YYYY).
2. LINE TWO SHALL INDICATE THE MODEL AS IDENTIFIED ON THE APPROVED PRODUCTS LIST. FOR GENERIC INSTALLATIONS THE STANDARD DRAWING DESIGNATION OR NAME AS IDENTIFIED IN THE FHWA ELIGIBILITY LETTER SHALL BE USED.
3. LINE THREE SHALL INDICATE ADDITIONAL MODEL INFORMATION IF NECESSARY.
4. LINE FOUR SHALL INDICATE FLARED (FLRD) OR TANGENT (TANG).
5. LEGEND SHALL BE ONE ARIEL FONT.
6. LEGEND SHALL BE BLACK ON A WHITE BACKGROUND, LEGEND AND BACKGROUND SHALL NOT BE REFLECTIVE.
7. SUITABLE MATERIAL SHALL BE USED SO AS TO NOT DETERIORATE DURING EXPOSURE TO WEATHER.
8. LABELS SHALL BE APPLIED IN SUCH A WAY THAT THEY REMAIN INTACT DURING THE LIFE OF THE TERMINAL.
9. FOR W-BEAM GUARDRAIL, LABEL SHALL BE PLACED ON THE TOP OF POST ONE FACING AWAY FROM TRAFFIC.
10. FOR BOX BEAM GUARDRAIL, LABEL SHALL BE PLACED ON THE BOX BEAM ADJACENT TO POST ONE FACING AWAY FROM TRAFFIC.
11. PAYMENT SHALL BE INCIDENTAL TO OTHER TRAFFIC BARRIER ITEMS.
12. ALL DIMENSIONS IN INCHES.

| REV. | DATE | DESCRIPTION |
|---|--------------|-------------------|
| 0 | NOV. 3, 2015 | ORIGINAL APPROVAL |
| | | |
| | | |
| | | |
| OTHER DETAILS REQUIRED: NONE | | |
| DETAILS APPROVED FOR USE BY HIGHWAY SAFETY & DESIGN | | |

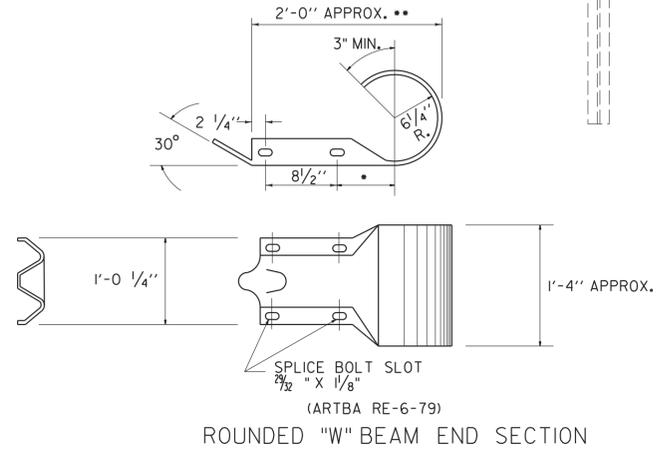
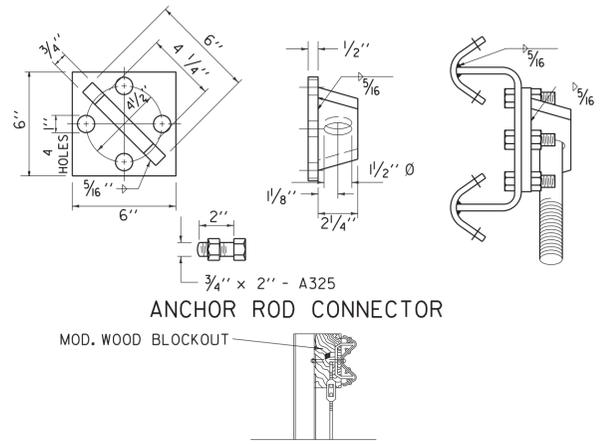
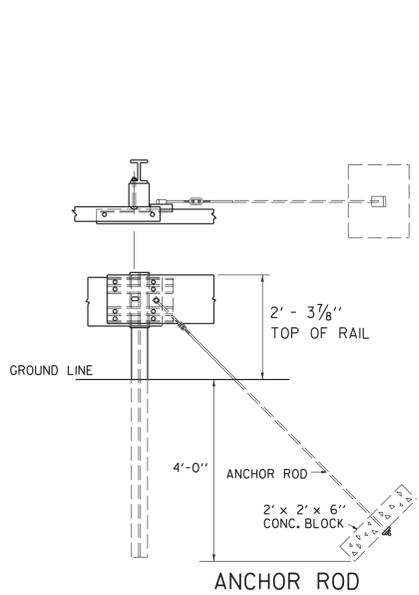
GUARDRAIL TERMINAL LABEL DETAIL



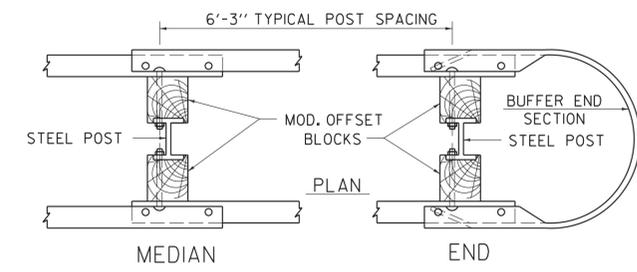
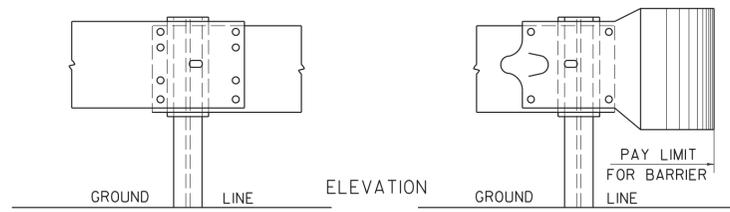
HIGHWAY SAFETY
& DESIGN DETAIL
HSD - 621.06



APPROACH END DETAIL
 NHS APPROVED FOR USE WHERE DESIGN SPEED IS 40 OR LESS MPH
 NON-NHS APPROVED FOR USE WHERE DESIGN SPEED IS 50 OR LESS MPH



ROUNDED "W" BEAM END SECTION
 • THIS DIMENSION IS 7 1/2" IN RE-7-79. IF THE DIMENSION IS USED IN THIS PART, IT WILL GIVE AN ACCEPTABLE OVERALL LENGTH (**) OF APPROXIMATELY 2'- 11/2."

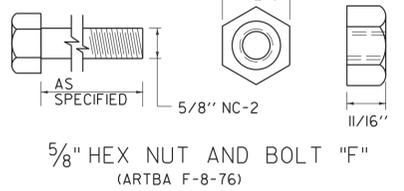
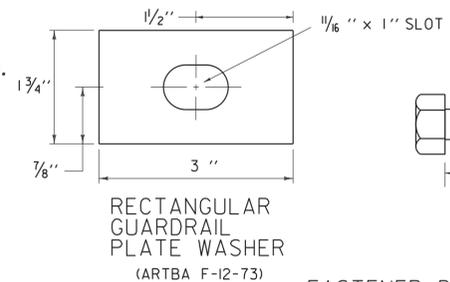
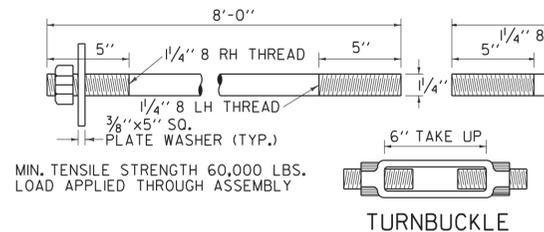


ASSEMBLY ELEVATION

TRAILING END TERMINAL FOR USE ON ONE-WAY HIGHWAYS

GENERAL NOTES:

1. ALL METAL PARTS SHALL BE GALVANIZED
2. ALL WOOD POSTS SHALL BE GIVEN A PRESERVATIVE TREATMENT
3. DETAILS PERTINENT TO THE STANDARD INSTALLATION OF "W" BEAM SECTIONS WILL BE FOUND ON STANDARD DRAWING G-1.
4. FOR DESCRIPTION AND SPECIFICATIONS OF PARTS IDENTIFIED BY "ARTBA..." AND OTHER DETAILS OF POSTS, POST ACCESSORIES, FASTENERS AND RAIL ELEMENTS, SEE AASHTO-ACC-ARTBA JOINT TASK FORCE NO. 13, TITLED "A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE", LATEST EDITION.
5. THE TRANSITION FROM THE APPROACH END TO THE STANDARD STEEL BEAM GUARDRAIL SHALL BE 25'-0" UNLESS OTHERWISE SPECIFIED.
6. WHEN STANDARD STEEL BEAM CONNECTS TO BRIDGE APPROACH RAIL OF A DIFFERENT HEIGHT THE LENGTH NEEDED TO TRANSITION THE HEIGHT OF STANDARD STEEL BEAM TO MATCH THE BRIDGE APPROACH RAIL SHALL BE 25'-0" UNLESS OTHERWISE SPECIFIED.
7. WHEN STANDARD STEEL BEAM CONNECTS TO A MANUFACTURED TERMINAL SECTION OF A DIFFERENT HEIGHT THE LENGTH NEEDED TO TRANSITION THE HEIGHT OF STANDARD STEEL BEAM TO MATCH THE MANUFACTURED TERMINAL SECTION SHALL BE 25'-0" UNLESS OTHERWISE SPECIFIED.



FASTENER DETAILS

STEEL BEAM MEDIAN BARRIER
 NOTE: TO BE USED OUTSIDE CLEAR-ZONE ONLY.

OTHER STANDARD REQUIRED: G-1

REVISIONS AND CORRECTIONS
 JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.
 JAN. 3, 2000 - UPDATED TO REFLECT METRIC STD. CHANGES
 FEB. 10, 2014 - UPDATED TO REFLECT GUARDRAIL HEIGHT OF 29"; AS NOTED IN FHWA LETTER DATED MAY 17, 2010

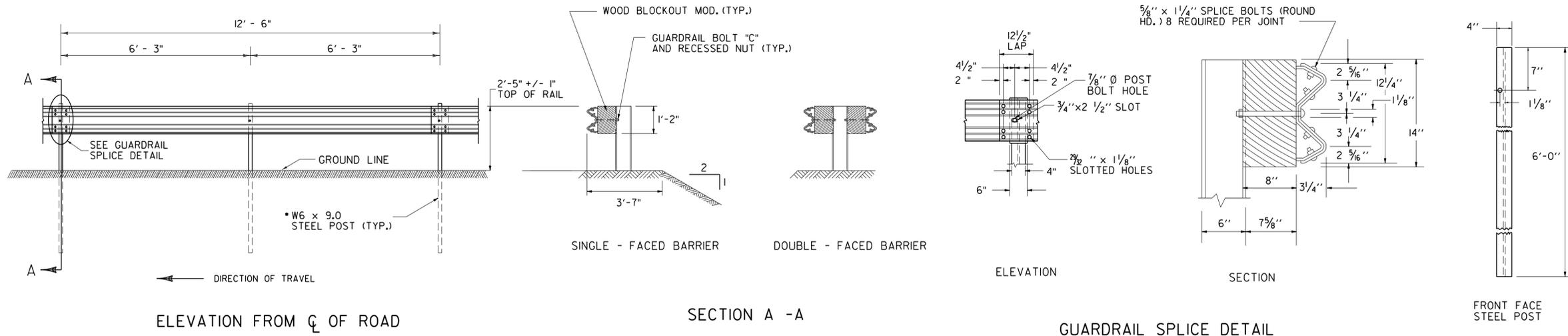
APPROVED
[Signature]
 HIGHWAY SAFETY & DESIGN ENGINEER
[Signature]
 DIRECTOR OF PROGRAM DEVELOPMENT
[Signature]
 FEDERAL HIGHWAY ADMINISTRATION

STEEL BEAM GUARDRAIL APPROACH END TERMINAL
STEEL BEAM GUARDRAIL TRAILING END TERMINAL
ANCHOR FOR STEEL BEAM GUARDRAIL
STEEL BEAM MEDIAN BARRIER



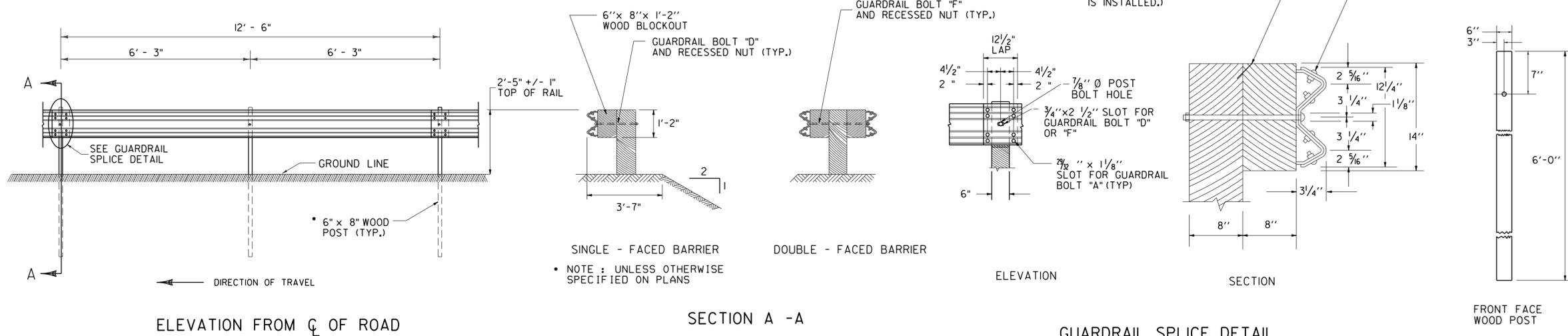
STANDARD
G-1d

"W" BEAM GUARDRAIL WITH STEEL POSTS



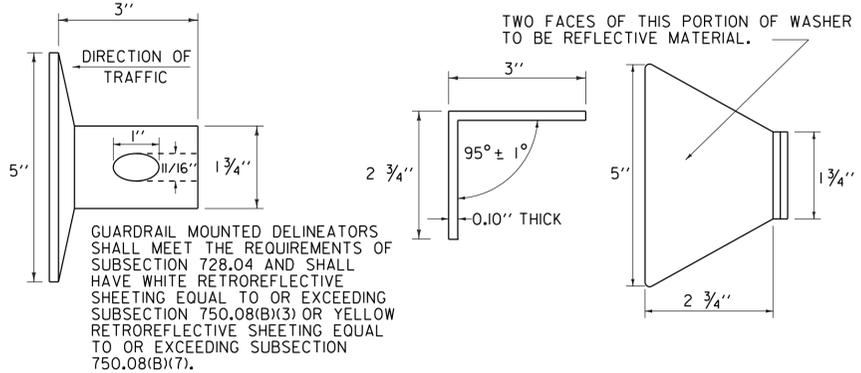
- NOTES:
- BLOCKS SHALL BE MADE OF TIMBER WITH A STRESS GRADE OF 1200 PSI OR MORE. TESTING SHALL BE IN ACCORDANCE WITH WEST COAST LUMBER INSPECTION BUREAU, SOUTHERN PINE INSPECTION BUREAU OR OTHER APPROPRIATE ASSOCIATION. TIMBER FOR BLOCKS SHALL BE ROUGH SAWN (UNPLANED) WITH DIMENSIONS INDICATED. THE SIZE TOLERANCE OF ROUGH SAWN BLOCKS IN THE DIRECTION OF THE BOLT HOLES SHALL BE NOT MORE THAN +/- 1/4".
 - SUPPLY WOOD BLOCKS PER AASHTO M 168.
 - TREAT WITH PRESERVATIVE PER AASHTO M 133.
 - BLOCKOUTS MAY ALSO BE MADE OF APPROVED ALTERNATIVE MATERIAL.

"W" BEAM GUARDRAIL WITH WOOD POSTS



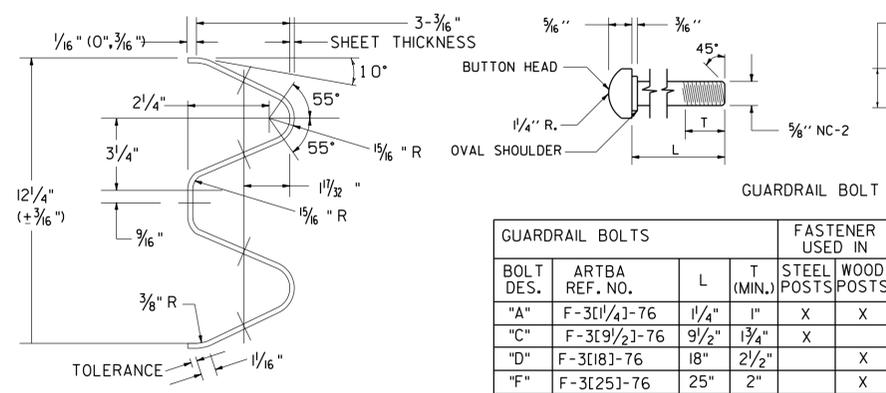
- NOTES:
- BLOCKS SHALL BE MADE OF TIMBER WITH A STRESS GRADE OF 1200 PSI OR MORE. TESTING SHALL BE IN ACCORDANCE WITH WEST COAST LUMBER INSPECTION BUREAU, SOUTHERN PINE INSPECTION BUREAU OR OTHER APPROPRIATE ASSOCIATION. TIMBER FOR BLOCKS SHALL BE ROUGH SAWN (UNPLANED) WITH DIMENSIONS INDICATED. THE SIZE TOLERANCE OF ROUGH SAWN BLOCKS IN THE DIRECTION OF THE BOLT HOLES SHALL BE NOT MORE THAN +/- 1/4".
 - SUPPLY WOOD BLOCKS PER AASHTO M 168.
 - TREAT WITH PRESERVATIVE PER AASHTO M 133.
 - BLOCKOUTS MAY ALSO BE MADE OF APPROVED ALTERNATIVE MATERIAL.

GUARDRAIL DELINEATOR



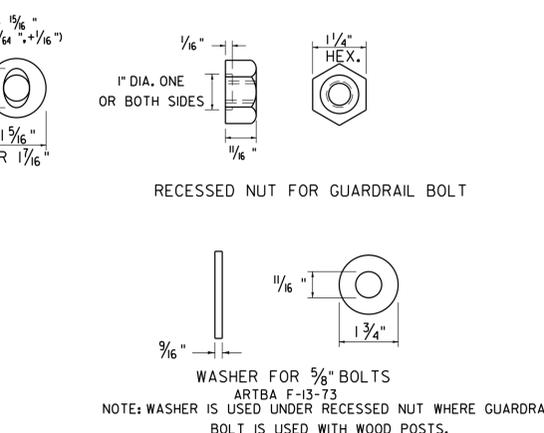
GUARDRAIL MOUNTED DELINEATORS SHALL MEET THE REQUIREMENTS OF SUBSECTION 728.04 AND SHALL HAVE WHITE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING SUBSECTION 750.08(B)(3) OR YELLOW RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING SUBSECTION 750.08(B)(7).

THIS REFLECTORIZED ALUMINUM WASHER IS TO BE PLACED IN VALLEY OF BEAM WHEN MOUNTING BEAM ONTO EACH FIFTH POST. WASHER SHALL MEET SPECIFICATION REQUIREMENTS FOR A.S.T.M. B-209 ALLOY 5052-H32.



ARTBA RE-3[206]-3"-12'-6" CLASS A, TYPE 1]-73 TYPICAL GUARDRAIL SECTION

| GUARDRAIL BOLTS | | FASTENER USED IN | |
|-----------------|----------------|------------------|------------|
| BOLT DES. | ARTBA REF. NO. | STEEL POSTS | WOOD POSTS |
| "A" | F-3[1/4]-76 | X | X |
| "C" | F-3[9/2]-76 | X | |
| "D" | F-3[18]-76 | | X |
| "F" | F-3[25]-76 | | X |



NOTE: WASHER IS USED UNDER RECESSED NUT WHERE GUARDRAIL BOLT IS USED WITH WOOD POSTS.

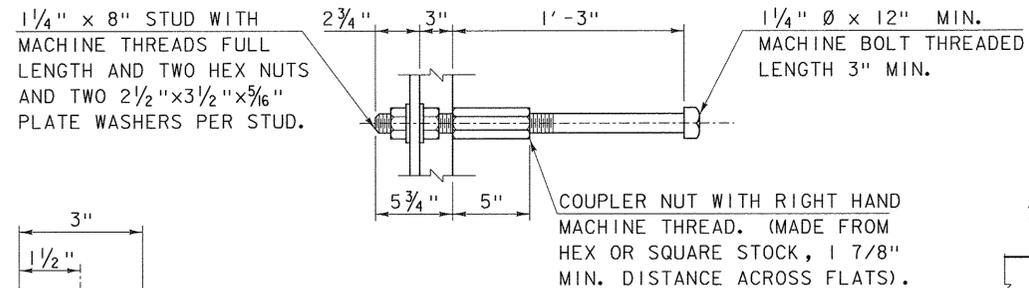
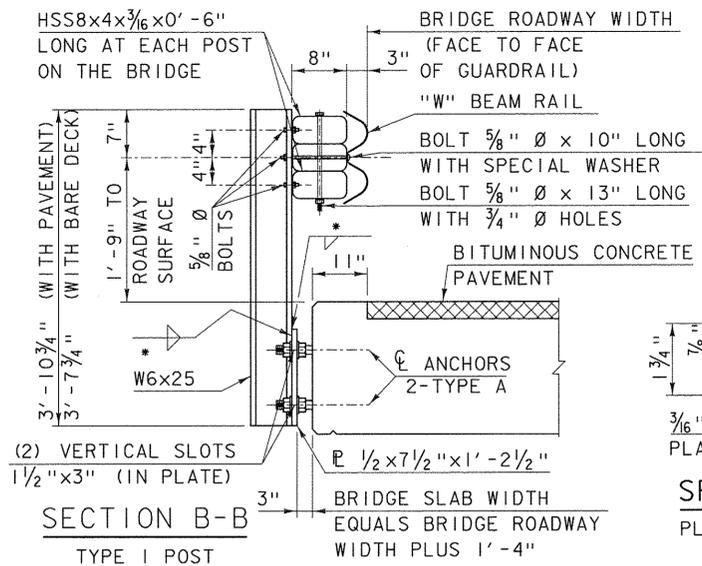
- GENERAL NOTES:
- GUARDRAIL SHALL MEET THE REQUIREMENTS OF AASHTO M 180, CLASS A, TYPE 1, UNLESS OTHERWISE DESIGNATED.
 - GUARDRAIL SHALL BE SINGLE FACED UNLESS OTHERWISE DESIGNATED.
 - GUARDRAIL SECTIONS SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC FLOW FOR THE LANE NEAREST THE GUARDRAIL.
 - FOR DESCRIPTION AND SPECIFICATION OF PARTS IDENTIFIED BY (ARTBA ...) AND OTHER DETAILS OF BOLTS, POST ACCESSORIES, FASTENERS & RAIL ELEMENTS, SEE AASHTO-ACC-ARTBA JOINT TASK FORCE NO. 13, TITLED "A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE", LATEST EDITION.
 - STANDARD STEEL BEAM TO BE 1/8" AND THE HEAVY DUTY TO BE 3/4" THICK.

| REV. | DATE | DESCRIPTION |
|------|---------------|--|
| -- | JAN. 3, 2000 | UPDATED TO REFLECT METRIC STD. CHANGES |
| -- | FEB. 10, 2014 | UPDATED TO REFLECT GUARDRAIL HEIGHT OF 29"; FHWA LETTER (MAY 17, 2010) |
| -- | NOV. 10, 2015 | UPDATED DELINEATOR RETROREFLECTIVE SHEETING NOTES |

OTHER STANDARDS REQUIRED: G-ID
VTRANS AND FHWA APPROVAL ON FILE WITH CONTRACT ADMINISTRATION

STEEL BEAM GUARDRAIL WITH STEEL POSTS
STEEL BEAM GUARDRAIL WITH WOOD POSTS

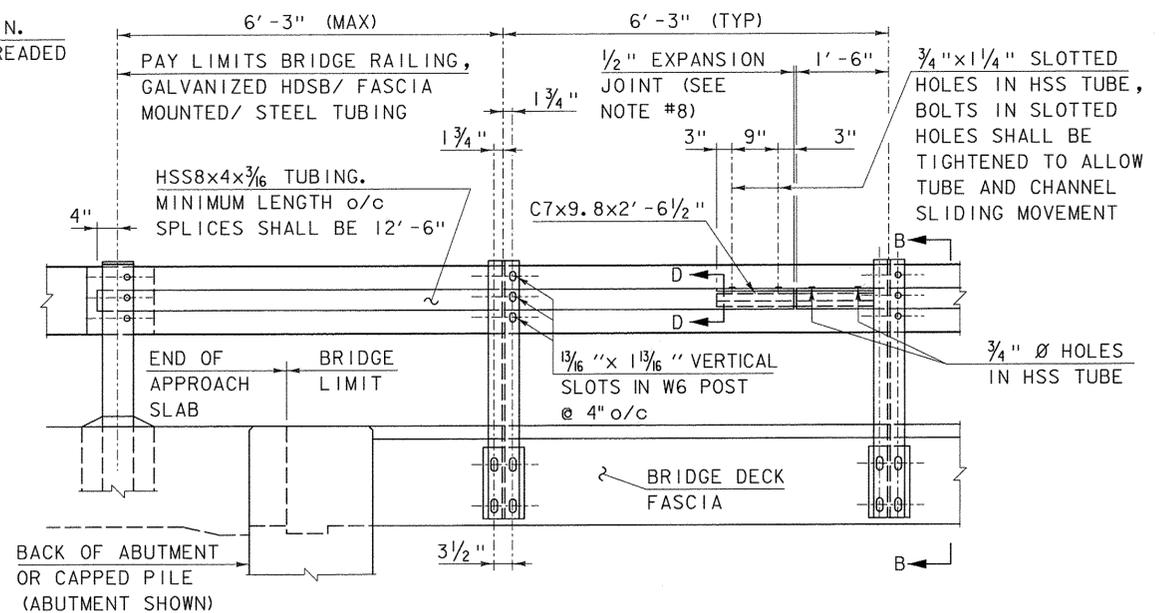




TYPE A ANCHOR DETAIL

DIMENSION ① IS 6" OR 8" DEPENDING ON BOX BEAM DEPTH. SEE PROJECT PLANS AND POST ANCHORAGE DETAILS. DIMENSION ② DETAILED BY FABRICATOR, SEE PROFILE AND CAMBER DETAILS. MINIMUM POST LENGTH IS 3'-6 1/2" AND MAXIMUM POST LENGTH IS 4'-1 1/4".

(FOR USE WITH PRESTRESSED CONCRETE BOX BEAMS)

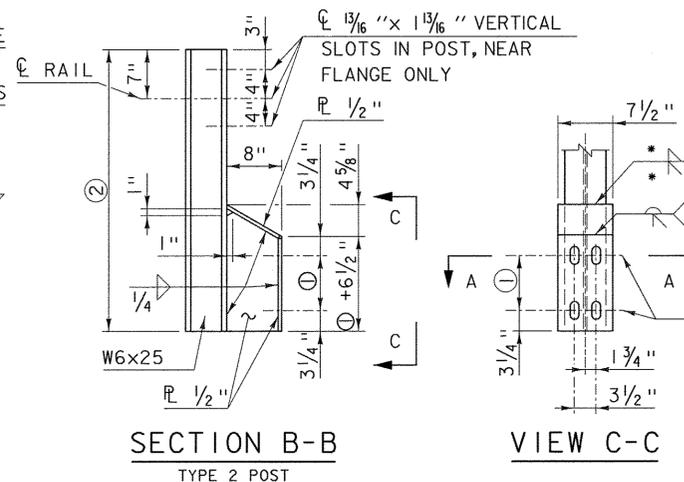
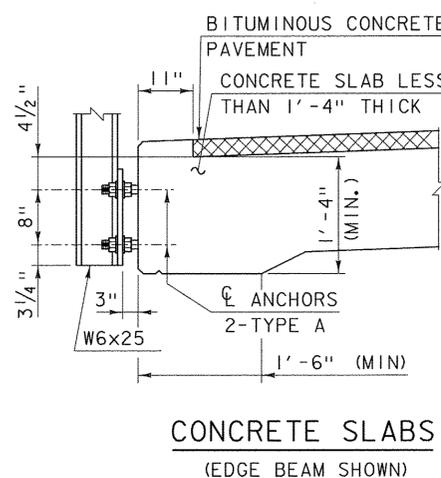
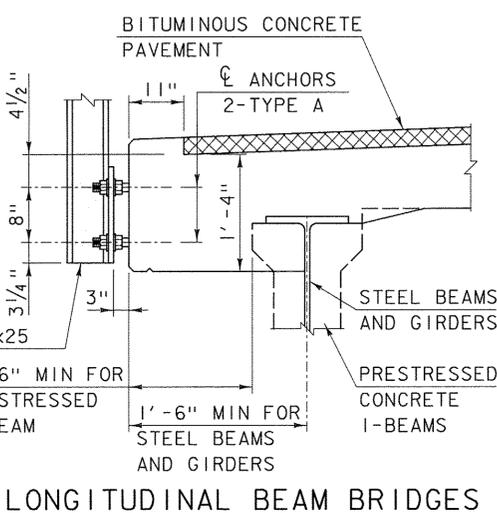


RAILING ELEVATION

(TYPE I POSTS SHOWN)

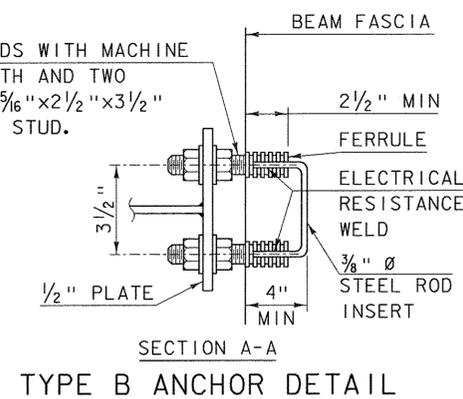
NOTES:

1. ALL WORK AND MATERIALS SHALL CONFORM TO SECTION 525.
2. TYPE B ANCHOR INSERTS OF A DIFFERENT TYPE MAY BE PROVIDED, IF APPROVED BY THE ENGINEER.
3. PRIOR TO GALVANIZING THE ASSEMBLED POST, GRIND ALL EDGES TO A MINIMUM RADIUS OF 1/16".
4. ALL POSTS SHALL BE SET NORMAL TO GRADE.
5. SPLICES FOR THE STEEL BEAM GUARDRAIL SHALL LAP IN THE DIRECTION OF TRAFFIC.
6. A RAILING JOINT SPLICE SHALL BE PROVIDED IN ANY RAIL BAY SPANNING THE END OF AN INTEGRAL ABUTMENT BRIDGE AND AT ALL SUPERSTRUCTURE EXPANSION JOINTS.
7. SEE STANDARD DRAWING G-1 FOR DETAILS OF DELINEATORS. A DELINEATOR SHALL BE INSTALLED AT 30 FOOT SPACING OR THE NEAREST POST. WHITE IS TO BE INSTALLED ON THE DRIVER'S RIGHT. FOR ONE WAY BRIDGES, YELLOW IS TO BE INSTALLED ON THE DRIVER'S LEFT.
8. THE 1/2" EXPANSION JOINT SHOWN IN THE RAILING ELEVATION IS DESIGNED FOR BRIDGE LENGTHS UP TO 80 FEET, ANY LONGER SPANS WILL HAVE TO BE MODIFIED TO ACCOUNT FOR THEIR MOVEMENT.
9. FOR RADIUS LESS THAN 950 FEET, HSS8x4 TUBES SHALL BE SHOP BENT TO FIT THE APPLICABLE CURVE.
10. THE MINIMUM DISTANCE FROM THE LAST POST TO THE END OF SLAB IS 1'-6".
11. FERRULES SHALL BE 12L14 COLD DRAWN CARBON STEEL.
12. HOLES IN RAIL FOR RAIL TUBE ATTACHMENT MAY BE FIELD DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO INSTALLATION.
13. THIS RAILING MEETS THE REQUIREMENTS FOR A TL-2 SERVICE LEVEL.



VIEW C-C

TWO 1/4" x 8" STUDS WITH MACHINE THREADS FULL LENGTH AND TWO HEX NUTS AND TWO 5/16" x 2 1/2" x 3 1/2" PLATE WASHERS PER STUD.



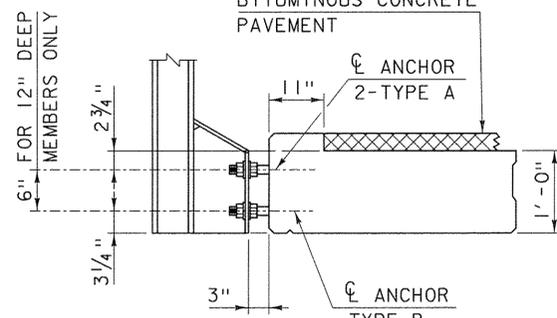
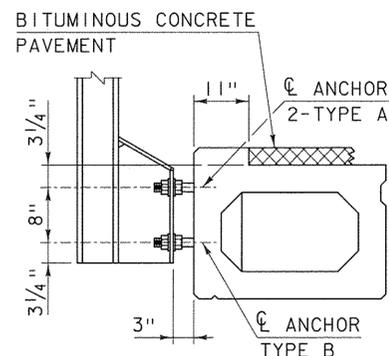
TYPE B ANCHOR DETAIL

1" Ø DRAIN HOLE (ONLY IN HSS AT LOWEST POINT WHEN SAG VERTICAL CURVES ARE ENCOUNTERED). SEE PROFILE SHEET FOR VERTICAL CURVE INFORMATION.

SECTION D-D

POST ANCHORAGE DETAILS

(NOT FOR USE WITH PRESTRESSED BOX BEAMS)



POST ANCHORAGE DETAILS (PRECAST CONCRETE)

REVISIONS AND CORRECTIONS
MAY 24, 2012 - ORIGINAL APPROVAL

APPROVED

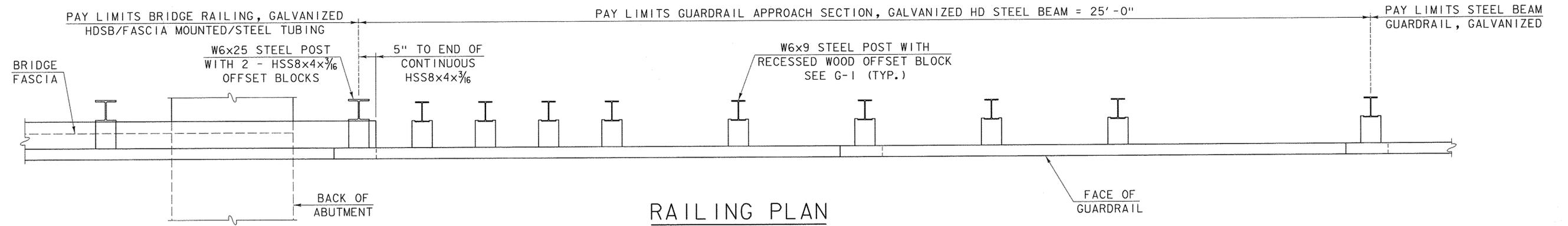
Wm. Michael Hedys
STRUCTURES ENGINEER
Rick Johnson 6/5/12
DIRECTOR OF PROGRAM DEVELOPMENT
Mark D. Richter 6-11-2012
FEDERAL HIGHWAY ADMINISTRATION

BRIDGE RAILING, GALVANIZED
HDSB/FASCIA MOUNTED/
STEEL TUBING

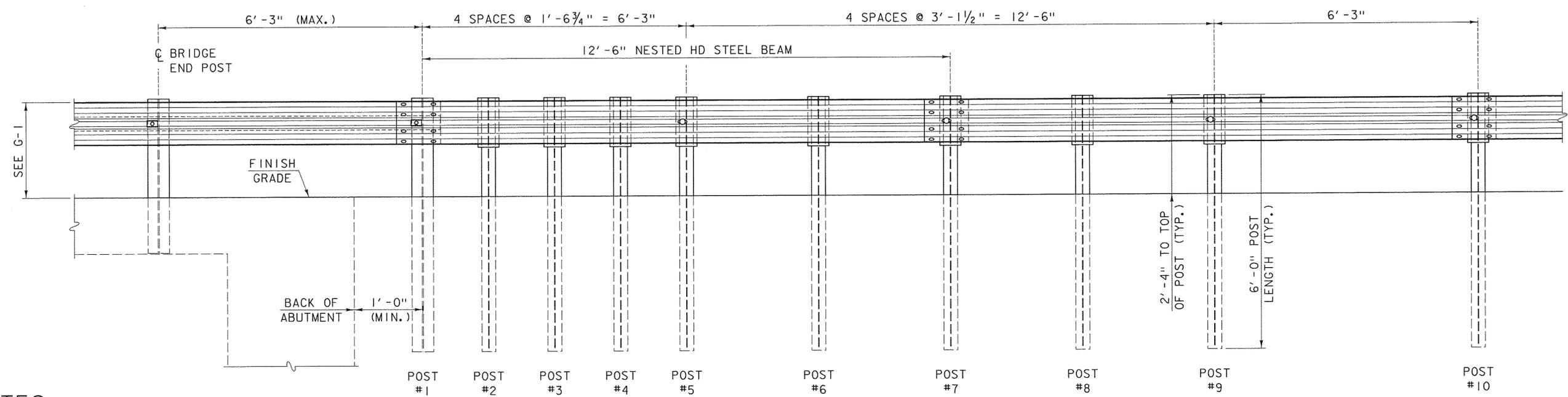
OTHER STDS. REQUIRED: G-1



STANDARD
S-367A



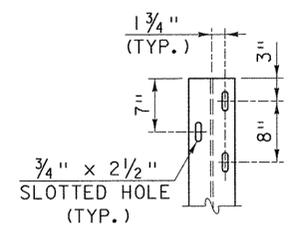
RAILING PLAN



RAILING ELEVATION

NOTES

1. PAYMENT FOR POST #1, HSS8x4x3/16 OFFSET BLOCKS AND TUBULAR BACKUP RAIL EXTENDING TO POST #1 OFF THE BRIDGE SHALL BE MADE UNDER BRIDGE RAILING, GALVANIZED HDSB/FASCIA MOUNTED/STEEL TUBING.
2. BLOCKOUTS SHALL BE RECESSED WOOD ONLY. STEEL OR PLASTIC BLOCKOUTS ARE NOT PERMITTED.
3. GUARDRAIL IS NOT ATTACHED TO POST NUMBERS 2-4, 6 AND 8. THERE SHALL BE NO GAP BETWEEN THE POSTS THAT ARE NOT ATTACHED AND THE RAIL. OFFSET BLOCKS SHALL BE ATTACHED TO POST WITH STANDARD POST BOLT.
4. POSTS MAY BE SET IN DRILLED HOLES OR DRIVEN TO GRADE.
5. THIS RAILING MEETS THE REQUIREMENTS FOR A NCHRP REPORT 350 TL-3 SERVICE LEVEL.



POST #1 HOLE DETAIL

OTHER STDS. REQUIRED: **G-1**

REVISIONS AND CORRECTIONS
MAY 24, 2012 - ORIGINAL APPROVAL

APPROVED
Don Michael Hedys
STRUCTURES ENGINEER
Richard Fehrn 6-5-12
DIRECTOR OF PROGRAM DEVELOPMENT
Mark D. Richter 6-11-2012
FEDERAL HIGHWAY ADMINISTRATION

GUARDRAIL APPROACH SECTION,
GALVANIZED HD STEEL BEAM



STANDARD
S-367B

1. TRAFFIC CONTROL DEVICES NOT DETAILED IN THE VERMONT AGENCY OF TRANSPORTATION (VAOT) "STANDARD DRAWINGS" OR THE PROJECT PLANS SHALL BE IN ACCORDANCE WITH THE "MANUAL ON TRAFFIC CONTROL DEVICES" (MUTCD) AND THE "STANDARD HIGHWAY SIGNS AND MARKINGS" BOOK (SHSM) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION (FHWA).
2. CONSTRUCTION SIGNS SHALL BE ERECTED BEFORE THE START OF ANY WORK AND SHALL BE COVERED UNTIL WORK COMMENCES, DURING PERIODS OF INACTIVITY OR UPON COMPLETION OF THE WORK. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER.
3. CONSTRUCTION SIGN COVERS SHALL CONSIST OF A PANEL, PAINTED FLAT BLACK, THE SAME SIZE AS THE SIGN IT COVERS. THE PANEL SHALL BE OF WOOD, PLYWOOD, HARDBOARD OR ANY MATERIAL SATISFACTORY TO THE ENGINEER. NO MATERIAL WILL BE APPROVED THAT WILL DETERIORATE BY EXPOSURE TO THE WEATHER DURING THE PROJECT. MOUNTING OF THE PANEL SHALL BE DONE IN SUCH A WAY AS NOT TO DAMAGE THE SIGN FACE MATERIAL.
4. SIGNS SHALL BE MAINTAINED IN A CLEAN AND LEGIBLE CONDITION SATISFACTORY TO THE ENGINEER. THEY SHALL BE KEPT PLUMB AND LEVEL, AND ALWAYS PRESENT A NEAT APPEARANCE. DAMAGED, DEFACED OR DIRTY SIGNS SHALL BE REPAIRED, CLEANED OR REPLACED AS ORDERED BY THE ENGINEER.
5. NO CROSS-BRACING OR BACK-BRACING TO KEEP POSTS PLUMB WILL BE ALLOWED. CONCRETE FOUNDATIONS, COLLARS OR SOIL BEARING PLATES ARE NOT PERMITTED. CONSTRUCTION SIGNS SHALL BE PLACED ON TWO POSTS.
6. CONSTRUCTION SIGNS INSTALLED ON POSTS SHALL BE SET SECURELY IN THE GROUND. THE BOTTOM OF A SIGN SHALL BE AT LEAST FIVE FEET ABOVE THE EDGE OF PAVEMENT AND THE NEAREST EDGE OF A SIGN SHALL BE AT LEAST SIX FEET OUTSIDE THE SHOULDER POINT, FOUR FEET OUTSIDE GUARDRAIL, OR TWO FEET OUTSIDE CURBING OR SIDEWALK. THE INSTALLATION OF SIGNS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER. IN URBAN AREAS, THE BOTTOM OF THE SIGN SHALL BE AT LEAST SEVEN FEET ABOVE THE SIDEWALK OR EDGE OF PAVEMENT, WHICHEVER IS HIGHER.
7. PORTABLE SIGNS SHALL BE PLACED ON THE EDGE OF ROADWAY AND A MINIMUM OF ONE FOOT ABOVE THE TRAVELED WAY. ALL VEGETATION THAT INTERFERES WITH VISIBILITY OF THE SIGNS SHALL BE REMOVED. WHEN PLACED BEHIND GUARDRAIL, THE BOTTOM OF THE SIGN FACE SHALL BE ABOVE THE TOP OF THE GUARDRAIL.
8. SIGNS SHALL BE REMOVED UPON COMPLETION OF THE WORK AT THE DISCRETION OF THE ENGINEER.
9. ROLL UP CONSTRUCTION SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING THE "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) M 268 ["AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) D 4956] TYPE VI AND TYPE VII UNLESS OTHERWISE NOTED.
10. SOLID SUBSTRATE CONSTRUCTION SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING THE "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) M 268 ["AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) D 4956] TYPE VIII OR IX REQUIREMENTS UNLESS OTHERWISE NOTED.
11. WHERE CONSTRUCTION SIGN INSTALLATIONS ARE NOT PROTECTED BY GUARDRAIL OR OTHER APPROVED TRAFFIC BARRIERS, ALL SIGN STANDS AND POST INSTALLATIONS SHALL MEET "NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM" (NCHRP) REPORT 350 OR THE AASHTO "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH). THE APPROPRIATE RESOURCE SHALL BE DETERMINED AS DESCRIBED IN THE MASH PUBLICATION. NO SIGN POSTS SHALL EXTEND OVER THE TOP OF THE SIGN INSTALLED ON SAID POSTS. WHEN ANCHORS ARE INSTALLED, STUBS SHALL NOT BE GREATER THAN FOUR INCHES ABOVE EXISTING GROUND.
12. ROADWAY AND SHOULDER WIDTHS DEPICTED ON THE STANDARD DRAWINGS MAY VARY.
13. THESE STANDARD DRAWINGS ARE INTENDED TO SERVE AS VTRANS STANDARD OPERATING PROCEDURE. IT IS NOTED THAT COMPONENT PARTS OF A TEMPORARY TRAFFIC CONTROL WORK ZONE MAY BE MODIFIED DUE TO FIELD CONDITIONS, AT THE DISCRETION OF THE ENGINEER.

OTHER STDS. REQUIRED: **NONE**

REVISIONS AND CORRECTIONS
AUG. 6, 2012 - ORIGINAL APPROVAL DATE

APPROVED
W.A.P.
HIGHWAY SAFETY & DESIGN ENGINEER
Rubén J. Huante
DIRECTOR OF PROGRAM DEVELOPMENT
Mark D. Richter
FEDERAL HIGHWAY ADMINISTRATION

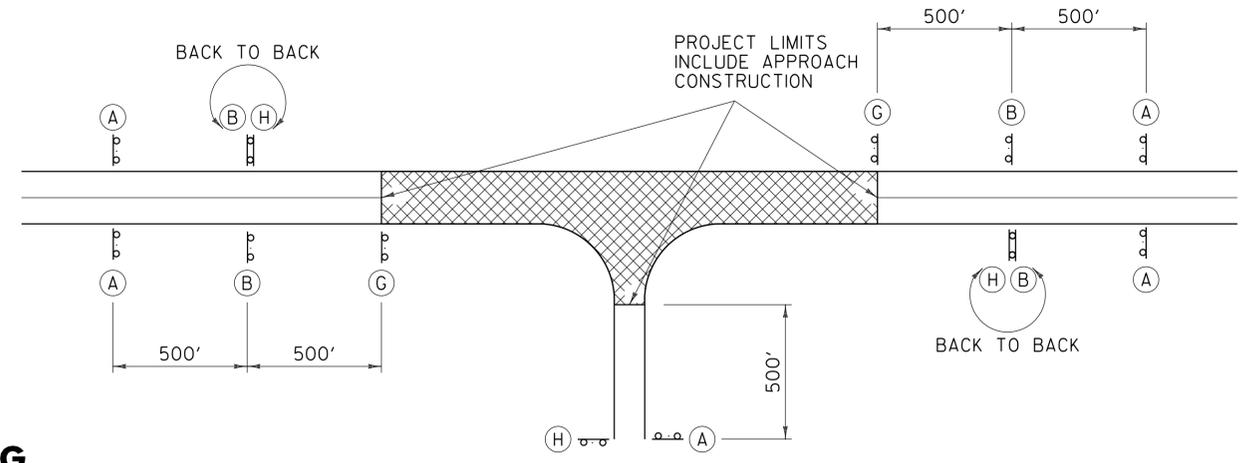
TRAFFIC CONTROL GENERAL NOTES



STANDARD
T-1

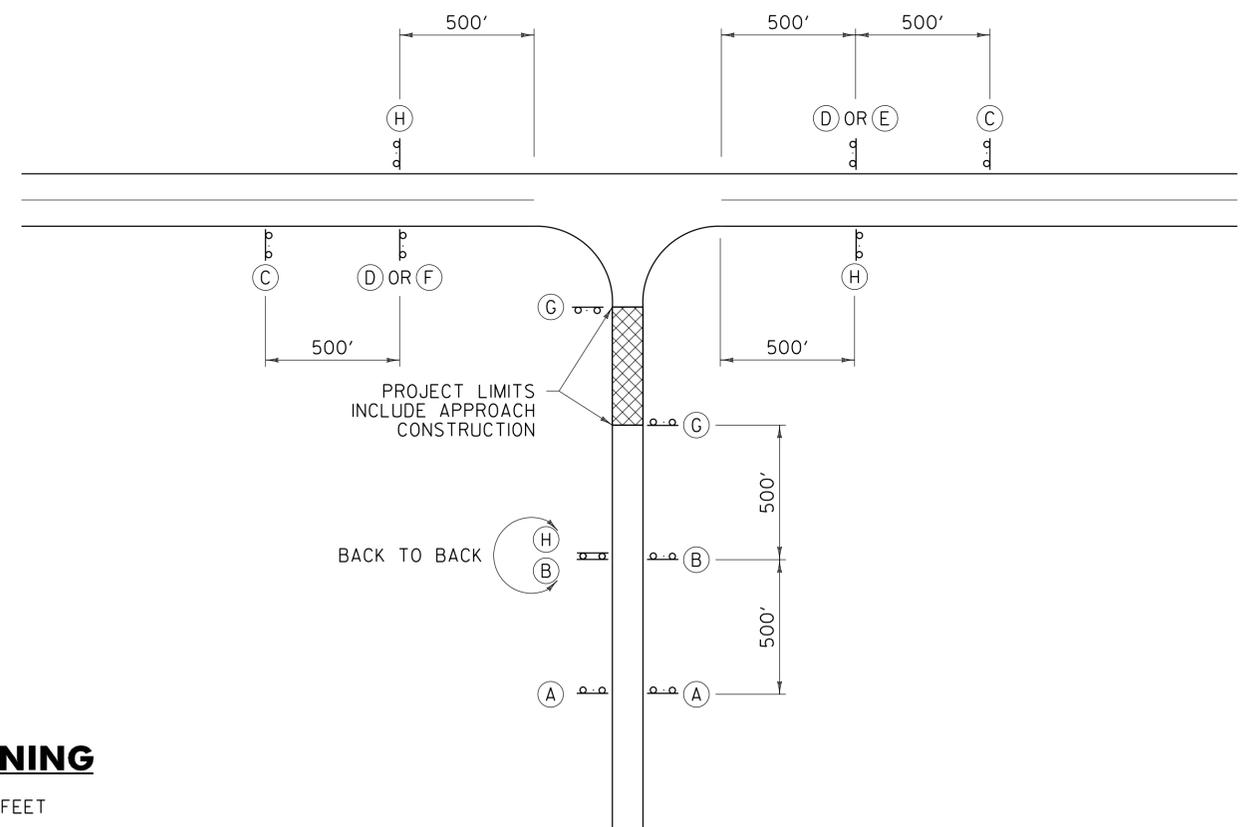
LEGEND

- (A)  ROAD WORK AHEAD
W20-1
- (B)  ROAD WORK 500 FT
W20-1
- (C)  SIDE ROAD WORK AHEAD
VC-869
- (D)  SIDE ROAD WORK 500 FT
VC-869
- (E)  SIDE ROAD WORK LEFT
VC-869
- (F)  SIDE ROAD WORK RIGHT
VC-869
- (G)  ROAD WORK NEXT XX MILES
G20-1
- (H)  END ROAD WORK
G20-2



TYPICAL APPROACH SIGNING

FIELD CONDITIONS MAY DICTATE THE ACTUAL PLACEMENT.



SIDE ROAD APPROACH SIGNING

TO BE USED WHEN CONSTRUCTION IS UP TO 1000 FEET FROM THE INTERSECTION. FIELD CONDITIONS MAY DICTATE THE ACTUAL PLACEMENT.

GENERAL NOTES:

1. SIGNS SHOWN ON THIS SHEET ARE INTENDED FOR USE IN PROVIDING ADVANCE WARNING AND INFORMATION ON CONSTRUCTION PROJECTS OVER WHICH TRAFFIC WILL BE MAINTAINED. WHEN ADDITIONAL APPROACH SIGNS OR OTHER TYPES OF ADVANCE SIGNING OR CONTROL ARE NECESSARY, THE PLANS AND/OR THE SPECIFICATIONS FOR THAT PROJECT WILL GIVE THE DETAILS OF THE SIGNS AND DEVICES REQUIRED. FOR ON-PROJECT CONSTRUCTION SIGNS, REFER TO APPROPRIATE STANDARD SHEETS.
2. THE "ROAD WORK NEXT XX MILES" SIGN (G20-1) SHALL BE INSTALLED IN ADVANCE OF TEMPORARY TRAFFIC CONTROL ZONES THAT ARE MORE THAN TWO MILES IN LENGTH OR AS DIRECTED BY THE ENGINEER. DISTANCES SHALL BE STATED TO THE NEAREST WHOLE MILE.
3. SIGNS SHALL BE LOCATED AS DETAILED ON THIS SHEET OR AS OTHERWISE SHOWN ON THE PLANS. THEY SHALL APPEAR AT EACH END OF THE HIGHWAY UNDER CONSTRUCTION AND ON ALL INTERSECTING PUBLIC HIGHWAYS. THE ENGINEER SHALL DETERMINE THE EXACT LOCATIONS.

OTHER STDS. REQUIRED: T-1, T-28

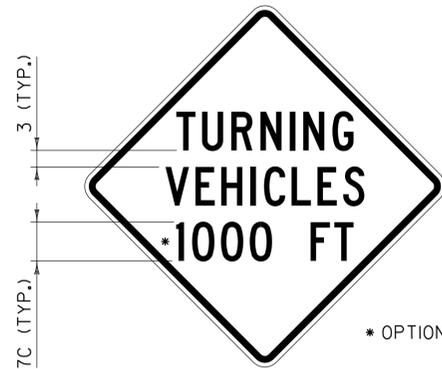
REVISIONS AND CORRECTIONS
AUG. 6, 2012 - ORIGINAL APPROVAL DATE

APPROVED
[Signature]
HIGHWAY SAFETY & DESIGN ENGINEER
[Signature]
DIRECTOR OF PROGRAM DEVELOPMENT
[Signature]
MARK D. RICHTER
FEDERAL HIGHWAY ADMINISTRATION

**CONVENTIONAL ROADS
CONSTRUCTION APPROACH
SIGNING**

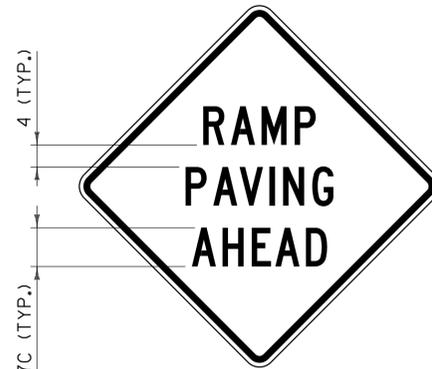


STANDARD
T-10

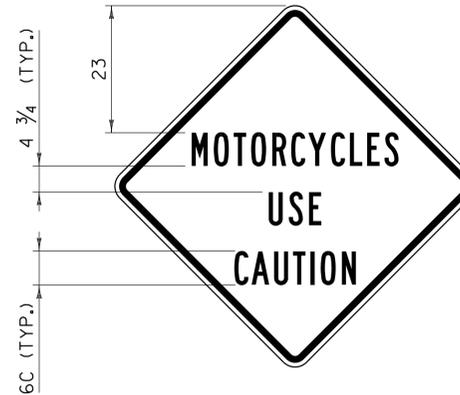


VC-001

* OPTIONS { 500
1500



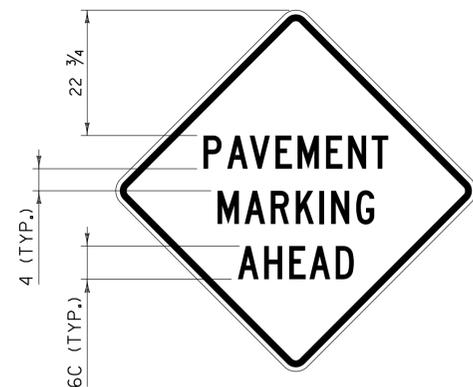
VC-003



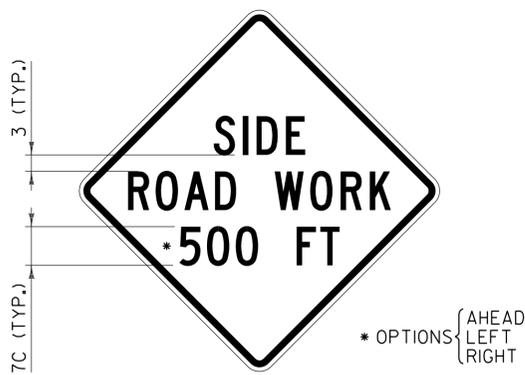
VC-004



VC-008



VC-813



VC-869

* OPTIONS { AHEAD
LEFT
RIGHT



VC-874

GENERAL NOTES:

1. COLORS FOR SIGNS SHALL BE BLACK LEGEND AND BORDER ON FLUORESCENT ORANGE BACKGROUND.
2. CONSTRUCTION SIGNS SHALL BE 48 INCH BY 48 INCH. IF SOLID SUBSTRATE SIGNS ARE USED, SIGNS SHALL HAVE CORNERS ROUNDED TO A THREE INCH RADIUS.
3. SIGNS SHALL HAVE 1 1/4 INCH WIDE BORDERS THAT ARE INDENTED 3/4 INCH FROM THE EDGE OF THE SIGN.
4. SIGNS SHALL HAVE THE LEGEND CENTERED HORIZONTALLY AND VERTICALLY ON THE SIGN UNLESS OTHERWISE INDICATED.
5. ALL DIMENSIONS SHOWN IN INCHES.

OTHER STDS. REQUIRED: T-1

REVISIONS AND CORRECTIONS
AUG. 6, 2012 - ORIGINAL APPROVAL DATE

APPROVED
W.A.C.
HIGHWAY SAFETY & DESIGN ENGINEER
Rickard
DIRECTOR OF PROGRAM DEVELOPMENT
Mark D. Richter
FEDERAL HIGHWAY ADMINISTRATION

CONSTRUCTION SIGN
DETAILS



STANDARD
T-28