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# STATE OF VERMONT
# AGENCY OF TRANSPORTATION

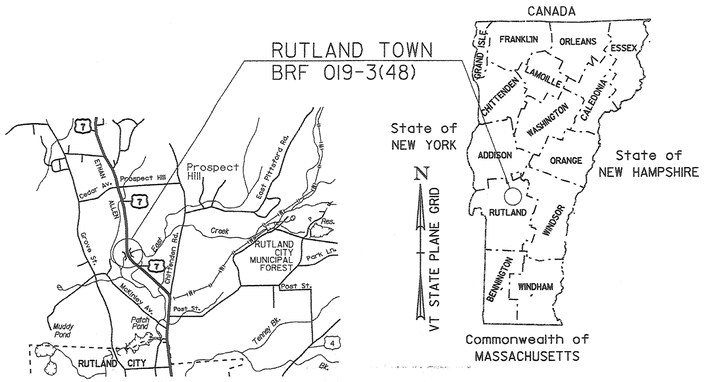
# PROPOSED IMPROVEMENT

# BRIDGE PROJECT
## TOWN OF RUTLAND
## COUNTY OF RUTLAND
### US 7 (PRINCIPAL ARTERIAL)
### BRIDGE #103 OVER EAST CREEK

BEGINNING ON US 7 IN THE TOWN OF RUTLAND APPROXIMATELY 1.869 KM (1.161 MILES) NORTH OF THE CITY OF RUTLAND AND EXTENDING NORTH 0.165 KM (0.103 MILES).

LENGTH OF BRIDGE = 34.506 M
LENGTH OF ROADWAY = 175.494 M
LENGTH OF PROJECT = 210.000 M

WORK TO BE PERFORMED UNDER THIS PROJECT CONSISTS OF REPLACEMENT OF BRIDGE #103 AT EXISTING LOCATION WITH ROADWAY APPROACH WORK.




BUILT AS DESIGNED

RECORD PLANS

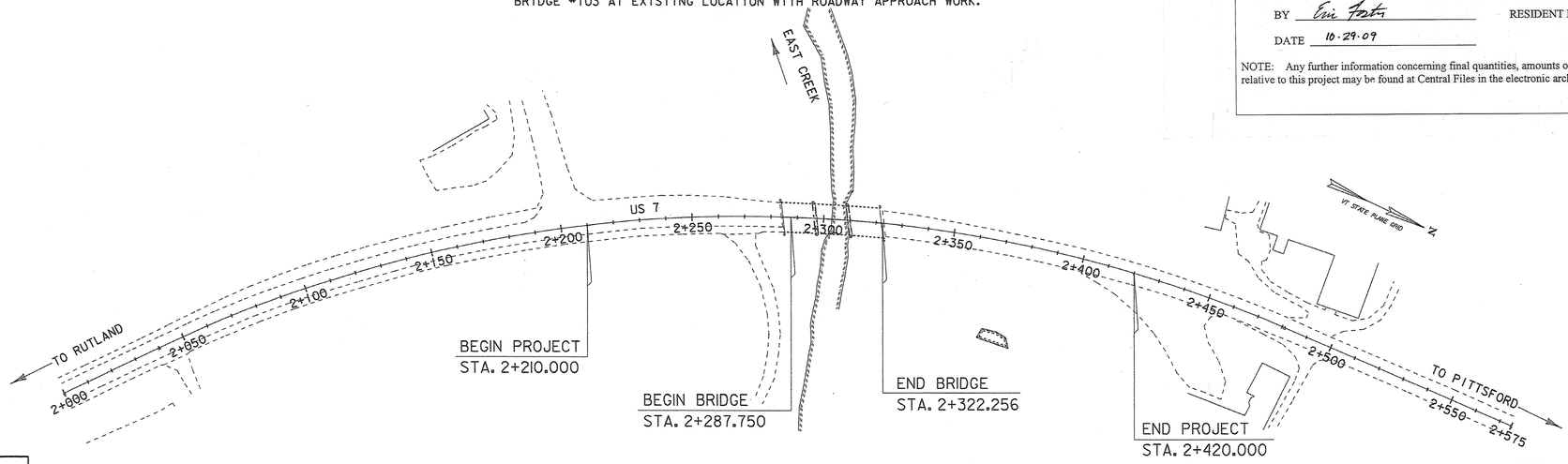
CONTRACTOR: MILLER CONSTRUCTION – WINDSOR, VT
RESIDENT ENGINEER: ERIC FOSTER
CONSTRUCTION BEGAN: JUNE 15, 2008
CONSTRUCTION COMPLETE: SEPTEMBER 9, 2009
RECORD PLANS BY: ERIC FOSTER

I HEREBY CERTIFY THAT ALL THE CONSTUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.

BY Eric Foster RESIDENT ENGINEER

DATE 10-29-09

NOTE: Any further information concerning final quantities, amounts or other details relative to this project may be found at Central Files in the electronic archives.




## CONVENTIONAL SYMBOLS

COUNTY LINE
TOWN LINE
LIMITS OF ACCESS
POINT OF ACCESS
FENCE LINE
STONE WALL
TRAVELED WAY
GUARD RAIL
RAILROAD
SURVEY LINE
CULVERT
POWER POLE
TELEPHONE POLE
TREES
CONTROL OF ACCESS
PROPERTY LINE
R.O.W. TAKING LINE
SLOPE RIGHTS
TOP OF CUT
TOE OF SLOPE

SURVEYED BY : L. ORVIS
SURVEYED DATE : 09/95

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83/92
LEAST SQUARE

0 20 40 60 80
SCALE IN METERS
SCALE 1:1000

THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE DIRECTOR OF PROGRAM DEVELOPMENT.

CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2006, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JUNE 15, 2006 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

22-FEB-2008

VAOT Metric

UNLESS NOTED OTHERWISE
STATIONS ARE IN KILOMETERS
ELEVATIONS ARE IN METERS
DIMENSIONS ARE IN MILLIMETERS

BUILT AS DESIGNED

DIRECTOR OF PROGRAM DEVELOPMENT
APPROVED Richard Peterson DATE 2-22-08

PROJECT MANAGER : R. WHITCOMB

PROJECT NAME : RUTLAND TOWN
PROJECT NUMBER : BRF 019-3(48)

SHEET 1 OF 75 SHEETS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

# PRELIMINARY INFORMATION SHEET

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STANDARDS

| | | |
|---|---|---|
| B-71 | RESIDENTIAL AND COMMERCIAL DRIVES | 7/8/2005 |
| C-1 | CURBS, BITUMINOUS CONCRETE SIDEWALKS<br>GRANITE SLOPE EDGING<br>VERTICAL GRANITE CURB<br>PRECAST REINFORCED CONCRETE CURB<br>CAST IN PLACE CONCRETE CURB<br>BITUMINOUS CONCRETE CURB<br>TREATED TIMBER CURB | 1/3/2000 |
| E-100 | CONSTRUCTION APPROACH SIGNS | 1/2/2004 |
| E-100A | SIDE ROAD CONSTRUCTION - APPROACH SIGNS | 1/2/2004 |
| E-101 | CONSTRUCTION SIGN DETAILS | 5/30/2003 |
| E-102 | CONSTRUCTION SIGN DETAILS | 6/30/2003 |
| E-102A | CONSTRUCTION SIGN DETAILS | 5/1/2004 |
| E-106 | TRAFFIC CONTROL - MISCELLANEOUS DETAILS | 3/1/2004 |
| E-107 | DELINEATION, BARRICADES AND DETOURS<br>UTURNS ON DIVIDED HIGHWAYS | 6/30/2003 |
| E-107A | BREAKAWAY BARRICADE DETAILS | 8/8/1995 |
| E-108 | CONSTRUCTION ZONE LONGITUDINAL DROP OFFS | 8/18/1995 |
| E-109 | TRAFFIC CONTROL DEVICES FOR TEMPORARY TERMINATION OF FREEWAY FACILITIES | 8/8/1995 |
| E-121 | STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD | 8/8/1995 |
| E-136A | U.S. ROUTE MARKER SIGN DETAILS | 8/8/1995 |
| G-1 | STEEL BEAM GUARDRAIL (50MPH & OVER)<br>HEAVY DUTY STEEL BEAM GUARDRAIL<br>TWISTED END TERMINAL<br>ANCHOR FOR STEEL BEAM RAIL | 1/3/2000 |
| G-1D | STEEL BEAM GUARDRAIL (40MPH & LESS)<br>HEAVY DUTY STEEL BEAM GUARDRAIL<br>STEEL BEAM MEDIAN BARRIER<br>ANCHOR FOR STEEL BEAM RAIL | 1/3/2000 |
| G-19 | GENERIC GRADING PLANS FOR GUARDRAIL END TERMINALS | 11/15/2002 |

## FINAL HYDRAULIC REPORT

### HYDROLOGIC DATA

Date: 1-30-08

DRAINAGE AREA : 129.5 sq km
CHARACTER OF TERRAIN : Mountainous and forested
STREAM CHARACTERISTICS : Incised, sinuous to meandering channel with eroded banks.
NATURE OF STREAMBED : Gravel, cobbles and boulders

PEAK FLOW DATA

| | | | |
|---|---|---|---|
| Q 2.33 = | 29.7 cms | Q 50 = | 107.6 cms |
| Q 10 = | 65.1 cms | Q 100 = | 124.6 cms |
| Q 25 = | 90.6 cms | Q 500 = | 165.7 cms |

DATE OF FLOOD RECORD : November 1927
ESTIMATED DISCHARGE: Unknown
WATER SURFACE ELEV.: Unknown
NATURAL STREAM VELOCITY : @ Q50 = 1.2 mps
ICE CONDITIONS : 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? Yes
IF YES, DESCRIBE: Several dams are within this watershed to include the Chittenden Reservoir, Glen Dam and the Rutland City Reservoir.

WATERSHED STORAGE: 3%
HEADWATERS:
UNIFORM: X
IMMEDIATELY ABOVE SITE:

### EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Three span concrete T-beam bridge
YEAR BUILT: 1931
CLEAR SPAN(NORMAL TO STREAM): 29.3 m
VERTICAL CLEARANCE ABOVE STREAMBED: 4.2 m
WATERWAY OF FULL OPENING: 87 sq m
DISPOSITION OF STRUCTURE: Remove
TYPE OF MATERIAL UNDER SUBSTRUCTURE: refer to boring logs

WATER SURFACE ELEVATIONS AT:

| | | | |
|---|---|---|---|
| Q2.33 = | 194.5 m | VELOCITY = | 1.4 mps |
| Q10 = | 195.0 m | " | 1.9 mps |
| Q25 = | 195.4 m | " | 2.2 mps |
| Q50 = | 195.6 m | " | 2.5 mps |
| Q100 = | 195.8 m | " | 2.7 mps |

LONG TERM STREAMBED CHANGES: None noted

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: Above Q100
RELIEF ELEVATION: 196.6 m
DISCHARGE OVER ROAD @Q100: None

### UPSTREAM STRUCTURE

TOWN: Rutland
HIGHWAY# : TH-1 FAS 165
CLEAR SPAN: 40 m
YEAR BUILT: 1995
STRUCTURE TYPE: Single span welded plate girder bridge
DISTANCE: 0.6 km
STRUCTURE #: 5
CLEAR HEIGHT: 3 m
FULL WATERWAY: unknown

### DOWNSTREAM STRUCTURE

TOWN: Rutland
HIGHWAY# : TH-19
CLEAR SPAN: 29 m
YEAR BUILT: 1950
STRUCTURE TYPE: Single span rolled beam bridge
DISTANCE: 1.6 km
STRUCTURE #: 9
CLEAR HEIGHT: 4 m
FULL WATERWAY: unknown

### LOAD FACTOR - LOAD RATING (METRIC TONS)

| LOADING LEVELS | TRUCK | | | | | | |
|---|---|---|---|---|---|---|---|
| | M | MS | 3S2 | 6 AXLE | 3A. STR. | 4A. STR. | 5A. SEMI |
| INVENTORY | 27 | 41 | | | 55 | 56 | |
| POSTED | 38 | 58 | 66 | | 55 | 56 | 62 |
| OPERATING | | 69 | 79 | 90 | 65 | 66 | |

COMMENTS:

### TRAFFIC DATA

| YEAR | ADT | DHV | % D | % T | ADTT |
|---|---|---|---|---|---|
| 2006 | 9400 | 1100 | 56 | 7 | 830 |
| 2026 | 12400 | 1200 | 56 | 8 | 1300 |

20 year ESAL for flexible pavement from 2006 to 2026 : 10464000
40 year ESAL for flexible pavement from 2006 to 2046 : 27425000
Design Speed : 80 km/h

### PROPOSED STRUCTURE

STRUCTURE TYPE: Single span integral abutment bridge

CLEAR SPAN(NORMAL TO STREAM): 33 m
VERTICAL CLEARANCE ABOVE STREAMBED: 3.7 m
WATERWAY OF FULL OPENING: 77 sq m

WATER SURFACE ELEVATIONS AT:

| | | | |
|---|---|---|---|
| Q2.33 = | 194.4 m | VELOCITY= | 1.4 mps |
| Q10 = | 194.9 m | " | 1.9 mps |
| Q25 = | 195.2 m | " | 2.2 mps |
| Q50 = | 195.4 m | " | 2.4 mps |
| Q100 = | 195.6 m | " | 2.7 mps |

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: Above Q100
RELIEF ELEVATION: 196.7 m
DISCHARGE OVER ROAD @Q100: None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 196.04 m
VERTICAL CLEARANCE: @ Q50 = 0.6 m

SCOUR: 1 meter of contraction scour at Q500

REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

### PERMIT INFORMATION

| | | DEPTH OR ELEVATION: |
|---|---|---|
| AVERAGE DAILY FLOW: | 3.0 cms | |
| ORDINARY LOW WATER: | 1.5 cms | 0.3 m |
| ORDINARY HIGH WATER: | 13.0 cms | 1.0 m |

### TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: Single span bridge
CLEAR SPAN (NORMAL TO STREAM): 22 m minimum (centered on the stream) *
VERTICAL CLEARANCE ABOVE STREAMBED: Low beam elev. 196.0 m minimum
WATERWAY AREA OF FULL OPENING: 59 sq m (minimum) *

### ADDITIONAL INFORMATION

Stone fill should not constrict channel, abutment stems should be set at or below elevation 194.5m (below the stone fill). Piles should be designed to withstand a freestanding load down to elevation 190.3m.
* No fill shall be placed within the 22 m minimum clear span that would reduce the waterway area.

### DESIGN CRITERIA

1. DESIGN LIVE LOAD AASHTO LRFD HL-93
2. DESIGN SPAN 34.000 m
3. ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL N/A
   ON LEDGE N/A
4. PILING LOADS See General Notes Sheet
   TYPE STEEL PILING, HP 360 X 132 (HP 14 X 89) Fy = 345 kPa (50 ksi)
   ESTIMATED LENGTH 14 TO 23 m
5. STRUCTURAL STEEL AASHTO M270M/M270 GRADE 345W
6. REINFORCING STEEL GRADE 420
7. CONCRETE, HIGH PERFORMANCE CLASS A f'c: 30 Mpa
   CONCRETE, HIGH PERFORMANCE CLASS B f'c: 25 Mpa
8. DESIGN SOIL UNIT WEIGHT 22.00 kN/m³
9. DESIGN LOAD FOR SPREAD FOOTINGS ON SOIL N/A

### TRAFFIC MAINTENANCE

1. IS TRAFFIC TO BE MAINTAINED? YES
   IF YES, ON EXISTING STRUCTURE?
   OR ON TEMPORARY BRIDGE? YES
   ONE OR TWO-WAY TRAVEL? TWO
2. TRAFFIC CONTROL SIGNALS REQUIRED? NO
3. ARE SIDEWALKS REQUIRED? NO
   IF SO, ON WHAT SIDE?

PROJECT NAME: **RUTLAND TOWN**
PROJECT NUMBER: **BRF 019-3(48)**

FILE NAME: **s95b172pi.dgn**
PROJECT MANAGER: **R. WHITCOMB**
DESIGNED BY: **T. LACKEY**
**PRELIMINARY INFORMATION SHEET**

PLOT DATE: **2/27/2008**
DRAWN BY: **T. LACKEY**
CHECKED BY: **R. WHITCOMB**
SHEET **2** OF **75**

Metric

## GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2006 STANDARD SPECIFICATIONS FOR CONSTRUCTION, AND ITS LATEST REVISIONS, AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 3RD EDITION, AND ITS LATEST REVISIONS.

2. ALL DIMENSIONS SHOWN IN THE PLANS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 20 DEGREES CELSIUS.

## CONSTRUCTION

1. WATER QUALITY. PREVENT POLLUTION, AND DISCHARGE OF SILT OR RAW CONCRETE INTO THE WATERWAY AS DIRECTED BY THE RESIDENT ENGINEER.

2. IN-STREAM CONSTRUCTION. PERMITS DESIGNATE AND LIMIT THE PERIOD FOR IN-STREAM CONSTRUCTION. THE AGENCY OF NATURAL RESOURCES MUST APPROVE ANY DEVIATION FROM THIS PERIOD IN WRITING.

3. ITEM 528.11 "TWO-WAY TEMPORARY BRIDGE".
MAINTAIN TRAFFIC DURING CONSTRUCTION ON A TWO-WAY TEMPORARY BRIDGE CONSTRUCTED UPSTREAM OF THE EXISTING STRUCTURE.
PAYMENT FOR THIS ITEM SHALL INCLUDE THE DESIGN AND DETAIL OF THE METHOD OF SEPARATING THE TRAVELING PUBLIC FROM THE NEW BRIDGE CONSTRUCTION. INCLUDE DESIGN AND METHOD IN THE TEMPORARY BRIDGE SUBMITTAL.

4. ITEM 641.10 "TRAFFIC CONTROL".
PAYMENT FOR THIS ITEM SHALL INCLUDE THE FOLLOWING WORK. THE CONTRACTOR SHALL ERECT AND MAINTAIN ALL TEMPORARY ON AND OFF-PROJECT SIGNS AND BARRICADES AS SHOWN IN THE PLANS AND AS DIRECTED BY THE RESIDENT ENGINEER. FULL ACCESS TO ALL SIDE ROADS AND DRIVES WITHIN THE PROJECT LIMITS SHALL BE MAINTAINED AT ALL TIMES.

## EARTHWORK

1. ITEM 301.35 "SUBBASE OF DENSE GRADED CRUSHED STONE".
SEE SUBSECTION 301.06 "COMPACTION" OF THE STANDARD SPECIFICATIONS FOR TESTING REQUIREMENTS.

2. ITEM 529.20 "PARTIAL REMOVAL OF STRUCTURE".
REMOVE ALL OF THE SUPERSTRUCTURE.
REMOVE THE SOUTH ABUTMENT TO ELEVATION 195.0.
REMOVE BOTH OF THE PIERS TO ELEVATION 192.5.
REMOVE ALL OF THE NORTH ABUTMENT INCLUDING TIMBER PILES THAT MAY INTERFERE WITH DRIVING NEW PILES.

3. UNDERGROUND FIBER OPTIC CABLES OWNED BY VERIZON COMMUNICATIONS ARE NEAR THE PROJECT ON THE WEST SIDE OF US 7. THE CABLES ARE NEAR THE TOE OF SLOPE OF THE STONE FILL FOR WING WALL 1 AT STA 2+284. SEE SPECIAL PROVISIONS FOR MORE UTILITES INFORMATION AND REQUIREMENTS.

## REINFORCED CONCRETE

1. ITEM 501.33 "CONCRETE, HIGH PERFORMANCE CLASS A". USE FOR THE DECK, CURBS, AND INTEGRAL ABUTMENT BACK WALL AND WING WALLS ABOVE THE PILE CAP CONSTRUCTION JOINT. PAYMENT FOR THIS ITEM SHALL INCLUDE INSTALLING THE BRIDGE PLAQUE PROVIDED BY THE AGENCY.

2. ITEM 501.34 "CONCRETE, HIGH PERFORMANCE CLASS B". USE FOR THE APPROACH SLABS, AND INTEGRAL ABUTMENT PILE CAPS AND WING WALLS BELOW THE PILE CAP CONSTRUCTION JOINT.

3. ITEM 507.17 "EPOXY COATED REINFORCING STEEL". ALL REINFORCING STEEL SHALL BE EPOXY COATED REINFORCING STEEL.

4. CONCRETE JOINTS. CONSTRUCT CONCRETE JOINTS AS INDICATED ON THE PLANS OR DIRECTED BY THE RESIDENT ENGINEER. CONSTRUCT SHEAR KEYS MONOLITHICALLY AND CONTINUOUSLY UNLESS OTHERWISE INDICATED. TERMINATE SHEAR KEYS 150 MM FROM ENDS OF JOINTS. IN HORIZONTAL JOINTS, PLACE SHEAR KEYS UPWARD.

5. CHAMFERS. CHAMFER ALL EXPOSED EDGES OF CONCRETE WITH 25 MM BY 25 MM CHAMFERS, UNLESS OTHERWISE NOTED. ROUND THE TOP INSIDE CORNER OF CURBS WITH A 15 MM RADIUS.

6. SCORE MARKS. CONSTRUCT SCORE MARKS AS INDICATED ON THE PLANS OR AS DIRECTED BY THE RESIDENT ENGINEER.

7. SUPPLEMENTAL SPECIFICATION 514.10 "WATER REPELLENT, SILANE". APPLY REPELLENT TO ALL EXPOSED SURFACES OF CONCRETE ON THE BRIDGE, EXCEPT THE BOTTOM OF THE DECK BETWEEN THE DRIP NOTCHES.

## STEEL

1. NEW STRUCTURAL STEEL SHALL BE AASHTO M 270M, GRADE 345W UNLESS OTHERWISE NOTED.

2. ALL STRUCTURAL STEEL WILL BE PAID FOR UNDER ITEM 506.55 "STRUCTURAL STEEL, PLATE GIRDER". (REV. 1)

3. ITEM 531.14 "BEARING DEVICE ASSEMBLY, INTEGRAL ABUTMENT". PAYMENT FOR THIS ITEM SHALL INCLUDE BOLTS, NUTS, WASHERS, AND PLATES. IT SHALL BE FULL COMPENSATION FOR ALL WORK REQUIRED FOR THE CONSTRUCTION INTEGRAL ABUTMENT BEARING DEVICE ASSEMBLY.

4. CHARPY V-NOTCH TEST. TEST STRUCTURAL STEEL MEMBERS DESIGNATED "CVN" IN THE PLANS IN ACCORDANCE WITH SUBSECTION 714.01 OF THE STANDARD SPECIFICATIONS.

5. BOLTS FOR ALL BOLTED FIELD CONNECTIONS SHALL BE 22 MM DIAMETER HIGH STRENGTH BOLTS IN 24 MM DIAMETER HOLES UNLESS OTHERWISE NOTED.

6. CONNECTIONS NOT SHOWN IN THE PLANS SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL.

7. ITEM 505.28 "STEEL PILING FOR INTEGRAL ABUTMENTS, HP 360 X 132". REINFORCE THE DRIVING TIP ACCORDING TO SUBSECTION 505.04(E) OF THE STANDARD SPECIFICATIONS. NO SUBSTITUTIONS FOR THE NUMBER, SIZE AND GRADE OF THE PILES WILL BE ALLOWED.

   PILE HEAD TOLERANCE. DRIVE OR CUT OFF THE PILE HEAD TO WITHIN 25 MM VERTICALLY OF THE POSITION SHOWN IN THE PLANS.

8. ITEM 505.45 "DYNAMIC PILE LOADING TEST". THE FACTORED AXIAL COMPRESSIVE LOAD FOR EACH PILE IS 2,133 kN. THE RESISTANCE FACTOR FOR DYNAMIC PILE LOADING TESTING IS 0.65. USING THIS RESISTANCE FACTOR, DRIVE PILES TO A REQUIRED NOMINAL PILE DRIVING RESISTANCE OF 3,282 kN.

9. GIRDER PROFILES. AFTER THE SUPERSTRUCTURE STEEL HAS BEEN SET ON THE ANCHOR BOLTS, TAKE ELEVATIONS ALONG THE TOP OF THE GIRDERS AS DIRECTED BY THE RESIDENT ENGINEER FOR DETERMINING HAUNCH DEPTHS.

10. FLEMING BRACKETS OR SIMILAR FALSEWORK. SPACE FLEMING BRACKETS OR SIMILAR FALSEWORK AS REQUIRED BY DESIGN WITH A MAXIMUM SPACING OF 1200 MILLIMETERS. THE DESIGN OF FALSEWORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

11. HOLES IN WEB. FILL ANY BOLT HOLES IN THE WEBS OF FASCIA GIRDERS NOT OTHERWISE FILLED WITH BUTTON HEAD OR HEX HEAD BOLTS MEETING AASHTO M164M TYPE 3. TIGHTEN THE BOLTS IN ACCORDANCE WITH SUBSECTION 506.19 OF THE STANDARD SPECIFICATIONS.

## ASPHALTIC PLUG BRIDGE JOINT

1. LOCATE THE JOINT CENTRALLY OVER THE DECK OVERLAY EXPANSION GAP OR FIXED JOINT MARKED OUT TO THE MANUFACTURER'S RECOMMENDED WIDTH.

2. EXCAVATE THE JOINT AS SHOWN ON THE PLANS WITH SAWS AND PNEUMATIC HAMMER OR A HAMMER AND CHISEL.

3. BLAST CLEAN THE JOINT AREA OF DEBRIS AND ASPHALT. THOROUGHLY DRY THE JOINT AREA WITH HOT COMPRESSED AIR PRIOR TO APPLYING BINDER MATERIAL.

4. REPAIR SPALLED AND DEFECTIVE CONCRETE WITH AN APPROVED MATERIAL AS AGREED UPON BY THE ENGINEER.

5. HEAT AND MIX THE BINDER MATERIAL AND AGGREGATE AS RECOMMENDED BY THE MANUFACTURER.

6. INSTALLATION OF MATERIAL, COMPACTION, AND TOP COATING SHALL BE AS RECOMMENDED BY THE MANUFACTURER.

7. IMMEDIATELY AFTER TOP COATING, CAST AN ANTI-SKID MATERIAL OVER THE JOINT TO REDUCE THE RISK OF TRACKING.

8. PROTECT JOINT FROM TRAFFIC UNTIL THE MATERIAL HAS COOLED TO 51 DEG C (125 DEG F) +/-.

9. WEATHER LIMITATIONS. APPLY BINDER MATERIAL ONLY WHEN THE FOLLOWING CONDITIONS PREVAIL:
THE AMBIENT AIR TEMPERATURE IS AT LEAST 10 DEG C (50 DEG F) AND RISING;
THE ROAD SURFACE IS SUFFICIENTLY DRY; AND
WEATHER CONDITIONS OR OTHER CONDITIONS ARE FAVORABLE AND ARE EXPECTED TO REMAIN SO FOR THE PERFORMANCE OF SATISFACTORY WORK.

## INTEGRAL ABUTMENT CONSTRUCTION SEQUENCE

1. DRIVE AND CUT OFF PILES AT THE ELEVATIONS SHOWN. BEWARE OF EXISTING WOODEN PILES AT THE NORTH ABUTMENT.

2. POUR CONCRETE ABUTMENT PILE CAPS.

3. BACKFILL ABUTMENT PILE CAPS TO 150 MM BELOW THE PILE CAP CONSTRUCTION JOINTS AND PLACE STONE FILL SLOPE PROTECTION AT THE SAME TIME.

4. INSTALL BEARING DEVICE ASSEMBLIES.

5. ERECT GIRDERS AND CROSS FRAMES.

6. PROFILE GIRDERS TO CALCULATE HAUNCHES.

7. POUR CONCRETE ABUTMENT BACKWALLS & DECK.

8. BACKFILL ABUTMENT BACKWALLS.

9. POUR CONCRETE CURBS & TOP OF WING WALLS.

10. POUR CONCRETE APPROACH SLABS.

## REVISIONS

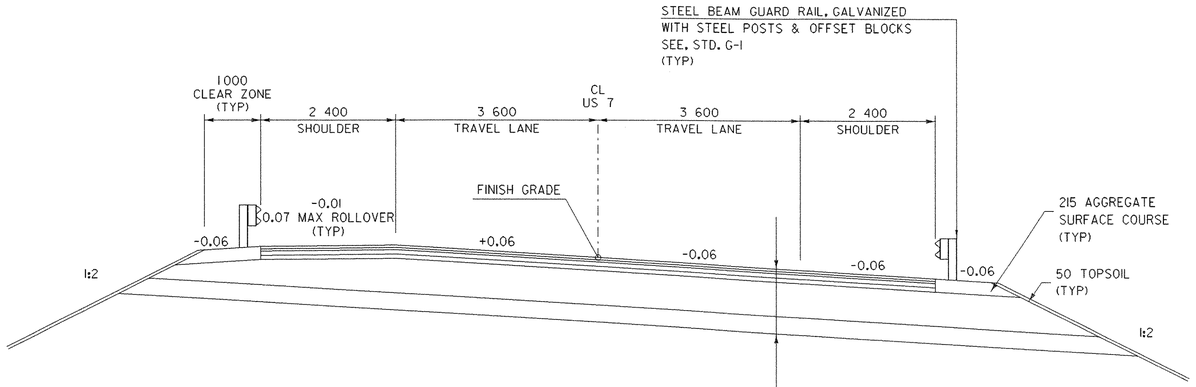
1. 04/03/08 REVISED NOTE STEEL 2.

# GENERAL NOTES

| | |
|---|---|
| PROJECT NAME: | RUTLAND TOWN |
| PROJECT NUMBER: | BRF 019-3(48) |

| | |
|---|---|
| FILE NAME: sbl72gen.i | PLOT DATE: 04-APR-2008 |
| PROJECT LEADER: R. WHITCOMB | DRAWN BY: T. LACKEY |
| DESIGNED BY: T. LACKEY | CHECKED BY: R. WHITCOMB |
| 95bl72/str/sbl72gen.dgn | SHEET 3 OF 75 |

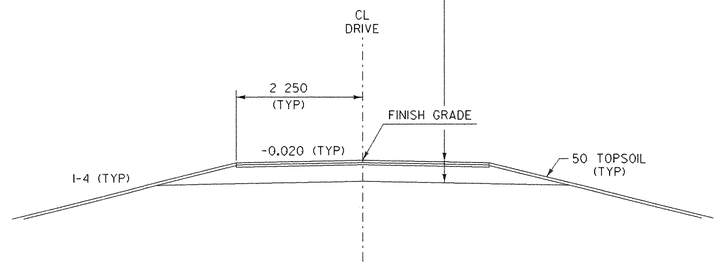
| MATERIAL ITEM | TOLERANCE |
|---|---|
| PAVEMENT | ±5 mm TOTAL THICKNESS |
| AGGREGATE SURFACE COURSE | ±10 mm |
| BASE COURSE | ±10 mm |
| SUBBASE | ±30 mm |
| SAND BORROW | ±30 mm |




BANKED SECTION IN FILL
WITH GUARDRAIL

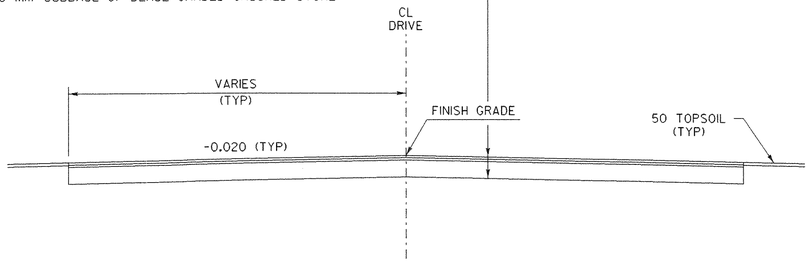
40 SUPERPAVE BITUMINOUS CONCRETE PAVEMENT, TYPE IV-S (PG 64-28)
40 SUPERPAVE BITUMINOUS CONCRETE PAVEMENT, TYPE IV-S (PG 64-28)
75 SUPERPAVE BITUMINOUS CONCRETE PAVEMENT, TYPE II S (PG 64-28)
75 SUPERPAVE BITUMINOUS CONCRETE PAVEMENT, TYPE II S (PG 64-28)
600 SUBBASE OF DENSE GRADED CRUSHED STONE
300 SAND BORROW (TYP)

40 mm SUPERPAVE BITUMINOUS CONCRETE PAVEMENT, TYPE IVS, (PG 64-28)
40 mm SUPERPAVE BITUMINOUS CONCRETE PAVEMENT, TYPE IVS, (PG 64-28)
300 mm SUBBASE OF DENSE GRADED CRUSHED STONE

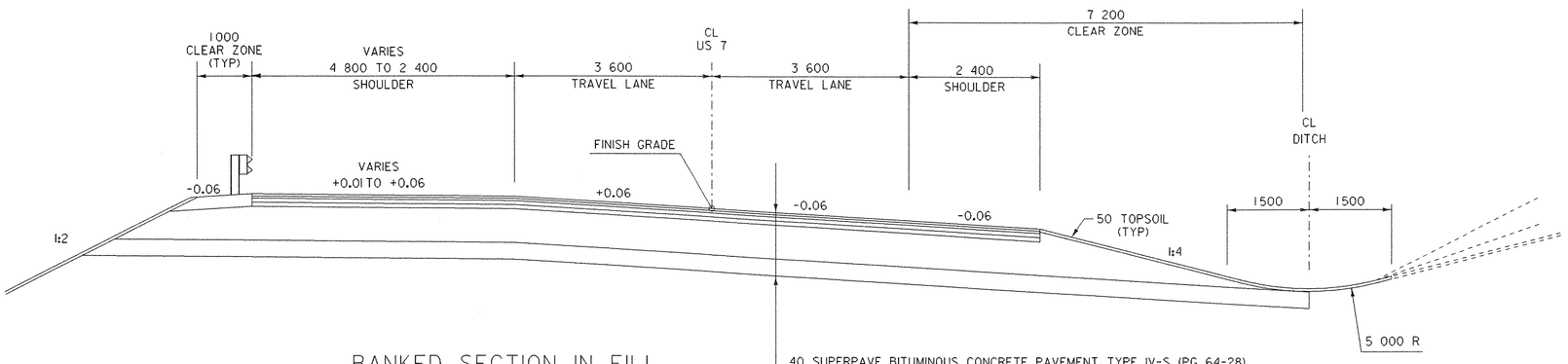



DRIVE
ML 2+263 RT.

40 mm SUPERPAVE BITUMINOUS CONCRETE PAVEMENT, TYPE IVS, (PG 64-28)
40 mm SUPERPAVE BITUMINOUS CONCRETE PAVEMENT, TYPE IVS, (PG 64-28)
300 mm SUBBASE OF DENSE GRADED CRUSHED STONE

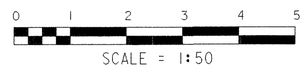



DRIVE
ML 2+200 LT.
ML 2+430 RT.




BANKED SECTION IN FILL
WITH DITCH

40 SUPERPAVE BITUMINOUS CONCRETE PAVEMENT, TYPE IV-S (PG 64-28)
40 SUPERPAVE BITUMINOUS CONCRETE PAVEMENT, TYPE IV-S (PG 64-28)
75 SUPERPAVE BITUMINOUS CONCRETE PAVEMENT, TYPE II S (PG 64-28)
75 SUPERPAVE BITUMINOUS CONCRETE PAVEMENT, TYPE II S (PG 64-28)
600 SUBBASE OF DENSE GRADED CRUSHED STONE
300 SAND BORROW (TYP)

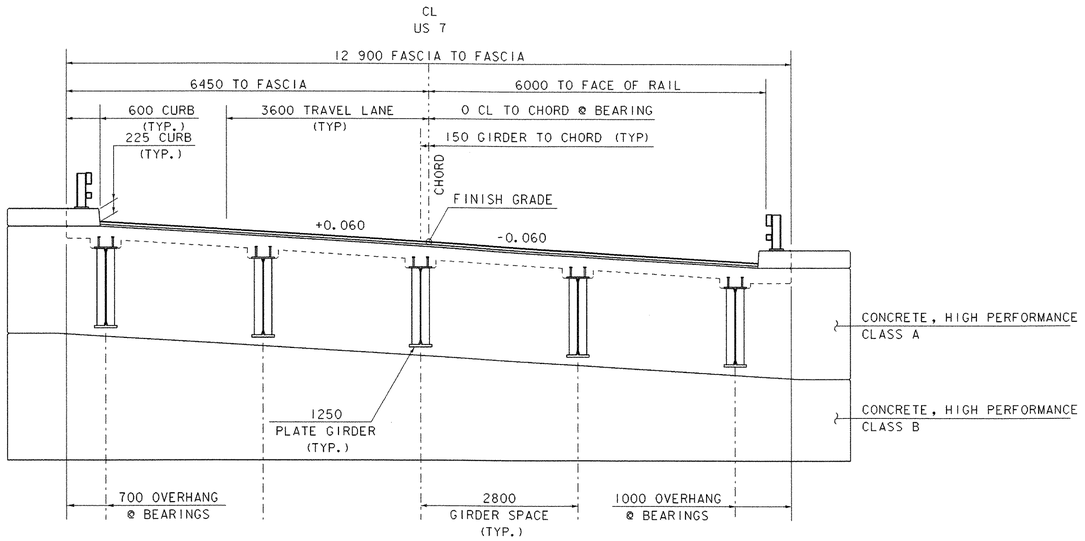



SCALE = 1:50

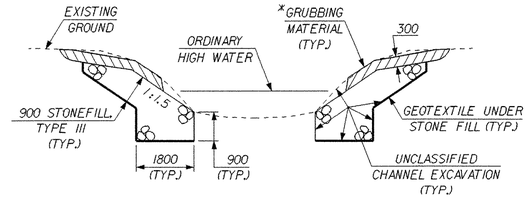
# TYPICAL SECTIONS
# ROADWAY

| | |
|---|---|
| PROJECT NAME: | RUTLAND TOWN |
| PROJECT NUMBER: | BRF 019-3(48) |

| | |
|---|---|
| FILE NAME: sbl72tyl.i | PLOT DATE: 11-MAR-2008 |
| PROJECT LEADER: R. WHITCOMB | DRAWN BY: T. LACKEY |
| DESIGNED BY: T. LACKEY | CHECKED BY: R. WHITCOMB |
| 95bl72/structures/sbl72typ.dgn | SHEET 4 OF 75 |



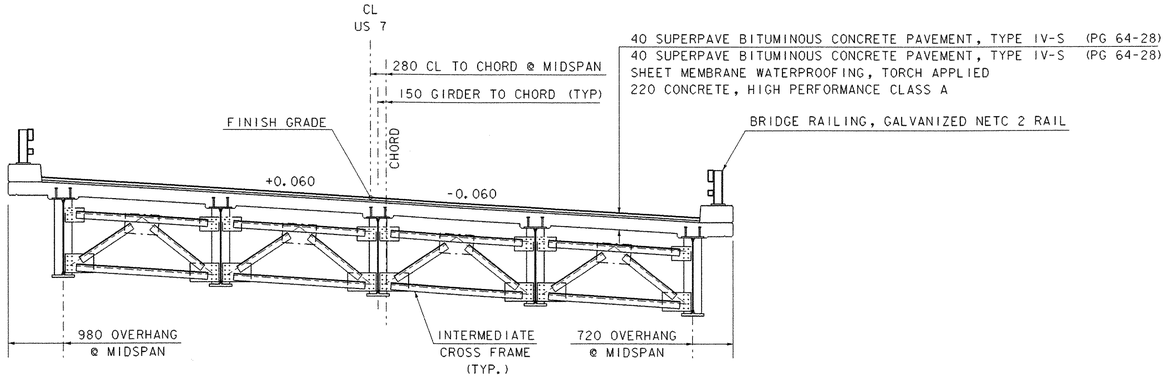

BRIDGE TYPICAL SECTION
AT THE ABUTMENT CENTERLINE




TYPICAL CHANNEL SECTION

(NOT TO SCALE)

*GRUBBING MATERIAL SHALL NOT BE PLACED ON THE STONE FILL IN THE AREA UNDER THE BRIDGE. WHENEVER CHANNEL SLOPE INTERSECTS ROADWAY SUBBASE, GRUBBING MATERIAL SHALL BEGIN AT THE BOTTOM OF SUBBASE.




BRIDGE TYPICAL SECTION
AT THE MIDSPAN

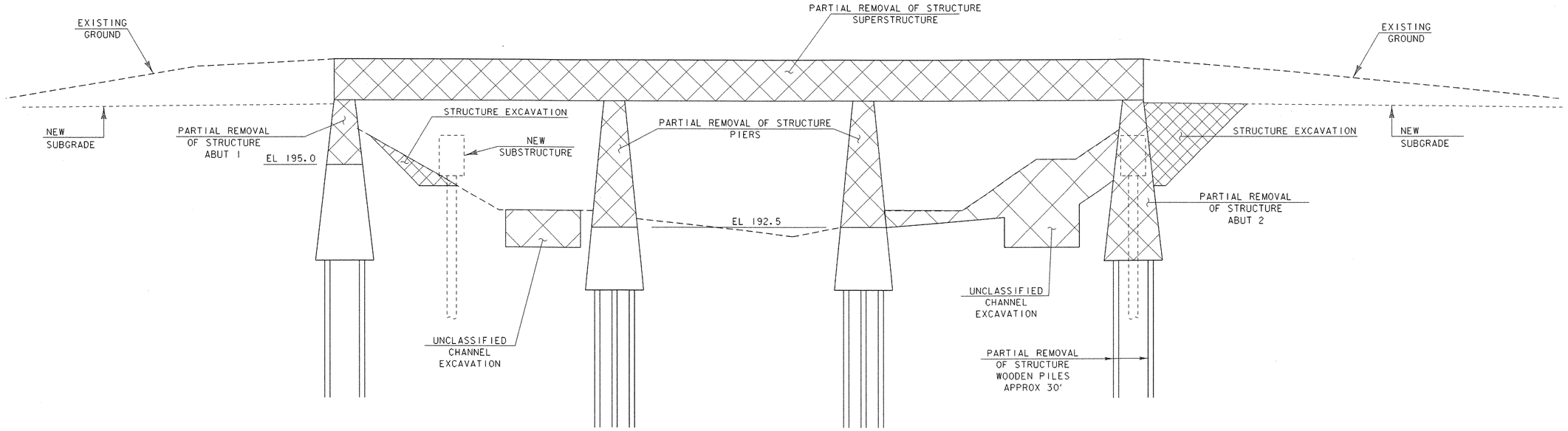
0 1 2 3 4 5

SCALE = 1:50

# TYPICAL SECTIONS
# STRUCTURE

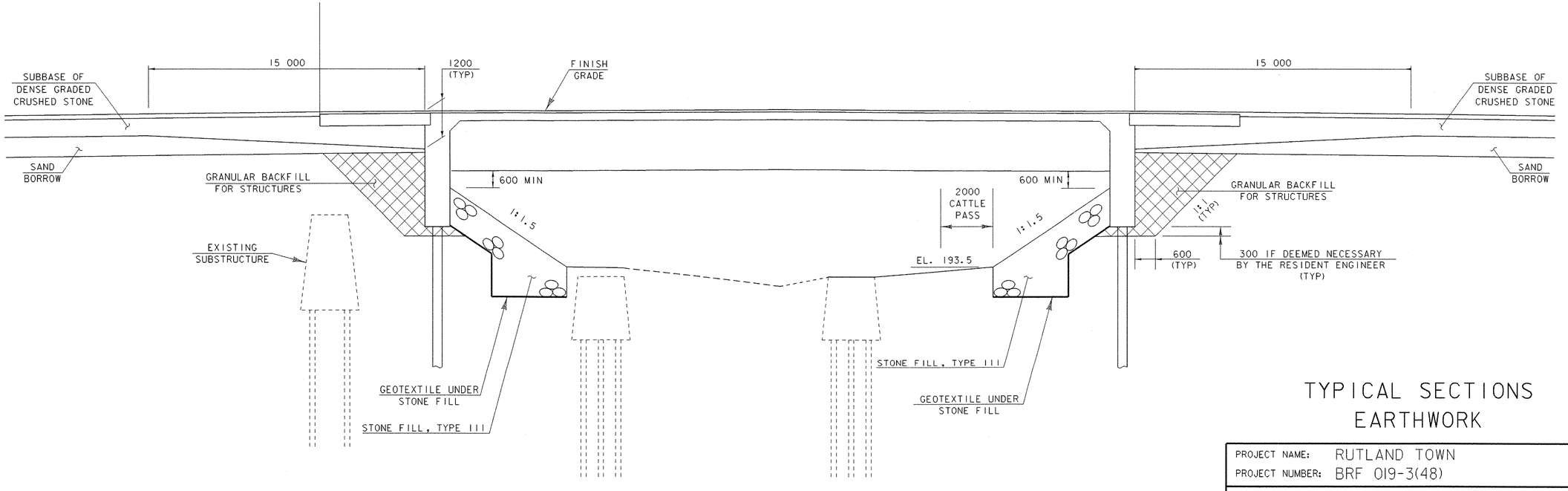
| | |
|---|---|
| PROJECT NAME: | RUTLAND TOWN |
| PROJECT NUMBER: | BRF 019-3(48) |

| | |
|---|---|
| FILE NAME: sbl72ty2.i | PLOT DATE: 11-MAR-2008 |
| PROJECT LEADER: R. WHITCOMB | DRAWN BY: T. LACKEY |
| DESIGNED BY: T. LACKEY | CHECKED BY: R. WHITCOMB |
| 95bl72/structures/sbl72typ.dgn | SHEET 5 OF 75 |




EXCAVATIONS & REMOVALS

(NOT TO SCALE)




FILLS

(NOT TO SCALE)

# TYPICAL SECTIONS EARTHWORK

| | |
|---|---|
| PROJECT NAME: | RUTLAND TOWN |
| PROJECT NUMBER: | BRF 019-3(48) |

| | |
|---|---|
| FILE NAME: sbl72ty3.i | PLOT DATE: 11-MAR-2008 |
| PROJECT LEADER: R. WHITCOMB | DRAWN BY: T. LACKEY |
| DESIGNED BY: T. LACKEY | CHECKED BY: R. WHITCOMB |
| 95bl72/structures/sbl72typ.dgn | SHEET 6 OF 75 |

STATE OF VERMONT
AGENCY OF TRANSPORTATION

# QUANTITY SHEET 1

Metric

## SUMMARY OF ESTIMATED QUANTITIES

| ROADWAY | TRAINING | EROSION CONTROL | BRIDGE | FULL E&C ITEMS | GRAND TOTAL | FINAL | UNIT | ITEMS | ITEM NUMBER | ROUND |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 1 | | LS | CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS | 201.10 | |
| 2970 | | | | | 2970 | | CM | COMMON EXCAVATION | 203.15 | |
| 10 | | | | | 10 | | CM | SOLID ROCK EXCAVATION | 203.16 | |
| | | | 370 | | 370 | | CM | UNCLASSIFIED CHANNEL EXCAVATION | 203.27 | |
| 20 | | | | | 20 | | CM | EARTH BORROW | 203.30 | |
| 980 | | | | | 980 | | CM | SAND BORROW | 203.31 | |
| | | 20 | | | 20 | | CM | TRENCH EXCAVATION OF EARTH | 204.20 | |
| 1 | | | | | 1 | | CM | TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.) | 204.22 | |
| | | | 250 | | 250 | | CM | STRUCTURE EXCAVATION | 204.25 | |
| | | | 200 | | 200 | | CM | GRANULAR BACKFILL FOR STRUCTURES | 204.30 | |
| 460 | | | | | 460 | | SM | COLD PLANING, BITUMINOUS PAVEMENT | 210.10 | |
| 2340 | | 60 | | | 2400 | | CM | SUBBASE OF DENSE GRADED CRUSHED STONE | 301.35 | |
| 140 | | | | | 140 | | CM | AGGREGATE SURFACE COURSE | 401.10 | |
| 890 | | | | | 890 | | KG | EMULSIFIED ASPHALT | 404.65 | |
| 1780 | | | | | 1780 | | T | SUPERPAVE BITUMINOUS CONCRETE PAVEMENT (PG 64-28) | 490.30 | |
| | | | 177 | | 177 | | CM | CONCRETE, HIGH PERFORMANCE CLASS A | 501.33 | |
| | | | 116 | | 116 | | CM | CONCRETE, HIGH PERFORMANCE CLASS B | 501.34 | |
| | | | 1 | | 1 | | LS | FURNISHING EQUIPMENT FOR DRIVING PILING | 504.10 | |
| | | | 170 | | 170 | | M | STEEL PILING FOR INTEGRAL ABUTMENTS, HP 360 X 132 | 505.28 | |
| | | | 2 | | 2 | | EACH | DYNAMIC PILE LOADING TEST | 505.45 | |
| | | | 64890 | | 64890 | | KG | STRUCTURAL STEEL, PLATE GIRDER | 506.55 | REV. 2 |
| | | | 42543 | | 42543 | | KG | EPOXY COATED REINFORCING STEEL | 507.17 | REV. 1 |
| | | | 1 | | 1 | | LS | SHEAR CONNECTORS (1700 - 22 X 180) | 508.15 | |
| | | | 83 | | 83 | | L | WATER REPELLENT, SILANE | 514.10 | |
| | | | 23 | | 23 | | M | BRIDGE EXPANSION JOINT, ASPHALTIC PLUG | 516.10 | |
| | | | 414 | | 414 | | SM | SHEET MEMBRANE WATERPROOFING, TORCH APPLIED | 519.20 | |
| | | | 24 | | 24 | | M | JOINT SEALER, HOT POURED | 524.11 | |
| | | | 70 | | 70 | | M | BRIDGE RAILING, GALVANIZED NETC 2 RAIL | 525.33 | |
| 1 | | | | | 1 | | LS | TWO-WAY TEMPORARY BRIDGE (176 SM - EST.) | 528.11 | |
| | | | 400 | | 400 | | SM | REMOVAL OF BRIDGE PAVEMENT | 529.10 | |
| | | | 1 | | 1 | | EACH | PARTIAL REMOVAL OF STRUCTURE | 529.20 | |
| | | | 10 | | 10 | | EACH | BEARING DEVICE ASSEMBLY, INTEGRAL ABUTMENT | 531.14 | |
| | | 2 | | | 2 | | HR | ALL PURPOSE EXCAVATOR RENTAL, TYPE I | 608.25 | |
| 1 | | | | | 1 | | CM | DUST CONTROL WITH WATER | 609.10 | |
| 1 | | | | | 1 | | T | DUST AND ICE CONTROL WITH CALCIUM CHLORIDE | 609.15 | |
| | | 10 | 50 | | 60 | | CM | STONE FILL, TYPE I | 613.10 | |
| | | | 280 | | 280 | | CM | STONE FILL, TYPE III | 613.12 | |
| 50 | | | | | 50 | | M | VERTICAL GRANITE CURB | 616.21 | |
| 2 | | | | | 2 | | EACH | RELOCATE MAILBOX, SINGLE SUPPORT | 617.10 | |
| | | 170 | | | 170 | | M | WOVEN WIRE FENCE WITH WOOD POSTS | 620.26 | |

## DETAILED SUMMARY OF QUANTITIES

| QUANTITIES | UNIT | ITEMS |
|---|---|---|
| | | EARTHWORKS SUMMARY |
| | | FILL REQUIRED |
| 219 | CM | COMMON FILL (1.15*190 CM) |
| | | FILL AVAILABLE |
| 297 | CM | 203.15 COMMON EXCAVATION (0.1*2970 CM) |
| 6 | CM | 204.20 TRENCH EXCAVATION OF EARTH (0.3*20 CM) |
| 75 | CM | 204.25 STRUCTURE EXCAVATION (0.3*250 CM) |
| 111 | CM | 203.27 UNCLASSIFIED CHANNEL EXCAVATION (0.3*370 CM) |
| --- | | |
| 489 | CM | TOTAL |
| 219 | CM | FILL REQUIRED |
| 489 | CM | FILL AVAILABLE |
| --- | | |
| 270 | CM | WASTE |
| 20 | CM | 203.20 EARTH BORROW |
| | | TEMPORARY EPSC ITEMS |
| 20 | CM | 204.20 TRENCH EXCAVATION OF EARTH |
| 60 | CM | 301.35 SUBBASE OF DENSE GRADED CRUSHED STONE |
| 2 | HR | 608.25 ALL PURPOSE EXCAVATOR RENTAL, TYPE I |
| 10 | CM | 613.10 STONE FILL, TYPE I |
| 170 | M | 620.26 WOVEN WIRE FENCE WITH WOOD POSTS |
| 490 | SM | 649.51 GEOTEXTILE FOR SILT FENCE |
| 110 | SM | 649.61 GEOTEXTILE FOR FILTER CURTAIN |
| 10 | KG | 651.17 SEED, WINTER RYE |
| 1 | LS | 652.10 EPSC PLAN |
| 100 | HR | 652.20 MONITORING EPSC PLAN |
| 1 | LU | 652.30 MAINTENANCE OF EPSC PLAN (N.A.B.I.) |
| 1640 | SM | 653.20 TEMPORARY EROSION MATTING |
| 20 | CM | 653.25 TEMPORARY STONE CHECK DAM, TYPE I |
| 50 | CM | 653.35 VEHICLE TRACKING PAD |
| 170 | M | 653.50 BARRIER FENCE |
| 300 | M | 653.55 PROJECT DEMARCATION FENCE |
| 190 | SM | 900.675 SPECIAL PROVISION (GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED) |

REVISIONS

| DATE | | REVISION |
|---|---|---|
| 4/3/2008 | | 1. REMOVE 506.60 "STRUCTURAL STEEL". |
| 4/3/2008 | | 2. INCREASE 506.55 "STRUCTURAL STEEL, PLATE GIRDER". |

PROJECT NAME: RUTLAND TOWN
PROJECT NUMBER: BRF 019-3(48)

FILE NAME: s95b172qty.dgn VAOT_quant.xls
PROJECT MANAGER: R. WHITCOMB
DESIGNED BY: T. LACKEY
QUANTITY SHEET #1

PLOT DATE: 04/03/2008
DRAWN BY: T. LACKEY
CHECKED BY: R. WHITCOMB
SHEET 7 OF 75

STATE OF VERMONT
AGENCY OF TRANSPORTATION

# QUANTITY SHEET 2

Metric

| SUMMARY OF ESTIMATED QUANTITIES | | | | | | | | | | TOTALS | | DESCRIPTIONS | | | | DETAILED SUMMARY OF QUANTITIES | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | ROADWAY | TRAINING | EROSION CONTROL | BRIDGE | FULL E&C ITEMS | GRAND TOTAL | FINAL | UNIT | ITEMS | ITEM NUMBER | ROUND | QUANTITIES | UNIT | ITEMS |
| | | | | | 39 | | | | | 39 | | M | REMOVING AND RESETTING FENCE | 620.50 | | | | |
| | | | | | 30 | | | | | 30 | | M | REMOVAL OF EXISTING FENCE | 620.55 | | | | |
| | | | | | 175 | | | | | 175 | | M | STEEL BEAM GUARDRAIL, GALVANIZED | 621.20 | | | | |
| | | | | | 4 | | | | | 4 | | EACH | MANUFACTURED TERMINAL SECTION, FLARED | 621.50 | | | | |
| | | | | | 1 | | | | | 1 | | EACH | MANUFACTURED TERMINAL SECTION, TANGENT | 621.51 | | | | |
| | | | | | 2 | | | | | 2 | | EACH | ENERGY ABSORPTION ATTENUATOR, SAND-FILLED PLASTIC BARREL | 621.57 | | | | |
| | | | | | 1 | | | | | 1 | | EACH | ANCHOR FOR STEEL BEAM RAIL | 621.60 | | | | |
| | | | | | 4 | | | | | 4 | | EACH | GUARDRAIL APPROACH SECTION, GALVANIZED NETC 2 RAIL | 621.72 | | | | |
| | | | | | 198 | | | | | 198 | | M | REMOVAL AND DISPOSAL OF GUARDRAIL | 621.80 | | | | |
| | | | | | 170 | | | | | 170 | | HR | UNIFORMED TRAFFIC OFFICERS | 630.10 | | | | |
| | | | | | 370 | | | | | 370 | | HR | FLAGGERS | 630.15 | | | | |
| | | | | | | | | | 1 | 1 | | LS | FIELD OFFICE, ENGINEERS | 631.10 | | | | |
| | | | | | | | | | 1 | 1 | | LS | TESTING EQUIPMENT, CONCRETE | 631.16 | | | | |
| | | | | | | | | | 1 | 1 | | LS | TESTING EQUIPMENT, BITUMINOUS | 631.17 | | | | |
| | | | | | | | | | 1 | 1 | | LU | FIELD OFFICE TELEPHONE (N.A.B.I.) | 631.25 | | | | |
| | | | | | | 520 | | | | 520 | | HR | EMPLOYEE TRAINEESHIP | 634.10 | | | | |
| | | | | | 1 | | | | | 1 | | LS | MOBILIZATION/DEMOBILIZATION | 635.11 | | | | |
| | | | | | 1 | | | | | 1 | | LS | TRAFFIC CONTROL | 641.10 | | | | |
| | | | | | 620 | | | | | 620 | | M | 100 MM WHITE LINE | 646.20 | | | | |
| | | | | | 620 | | | | | 620 | | M | 100 MM YELLOW LINE | 646.21 | | | | |
| | | | | | 620 | | | | | 620 | | M | TEMPORARY 100 MM WHITE LINE | 646.600 | | | | |
| | | | | | 620 | | | | | 620 | | M | TEMPORARY 100 MM YELLOW LINE | 646.610 | | | | |
| | | | | | 100 | | | | | 100 | | EACH | LINE STRIPING TARGETS | 646.76 | | | | |
| | | | | | | | | 580 | | 580 | | SM | GEOTEXTILE UNDER STONE FILL | 649.31 | | | | |
| | | | | | | | 490 | | | 490 | | SM | GEOTEXTILE FOR SILT FENCE | 649.51 | | | | |
| | | | | | | | 110 | | | 110 | | SM | GEOTEXTILE FOR FILTER CURTAIN | 649.61 | | | | |
| | | | | | | | 20 | | | 20 | | KG | SEED | 651.15 | | | | |
| | | | | | | | 10 | | | 10 | | KG | SEED, WINTER RYE | 651.17 | | | | |
| | | | | | | | 200 | | | 200 | | KG | FERTILIZER | 651.18 | | | | |
| | | | | | | | 1 | | | 1 | | T | AGRICULTURAL LIMESTONE | 651.20 | | | | |
| | | | | | | | 3 | | | 3 | | T | HAYMULCH | 651.25 | | | | |
| | | | | | | | 60 | | | 60 | | CM | TOPSOIL | 651.35 | | | | |
| | | | | | 270 | | | | | 270 | | SM | GRUBBING MATERIAL | 651.40 | | | | |
| | | | | | | | 1 | | | 1 | | LS | EPSC PLAN | 652.10 | | | | |
| | | | | | | | 100 | | | 100 | | HR | MONITORING EPSC PLAN | 652.20 | | | | |
| | | | | | | | 1 | | | 1 | | LU | MAINTENANCE OF EPSC PLAN (N.A.B.I.) | 652.30 | | | | |
| | | | | | | | 1640 | | | 1640 | | SM | TEMPORARY EROSION MATTING | 653.20 | | | | REVISIONS |
| | | | | | | | 20 | | | 20 | | CM | TEMPORARY STONE CHECK DAM, TYPE I | 653.25 | | DATE | | REVISION |
| | | | | | | | 50 | | | 50 | | CM | VEHICLE TRACKING PAD | 653.35 | | 4/3/2008 | | 1. REMOVE 506.60 "STRUCTURAL STEEL". |
| | | | | | | | 315 | | | 315 | | M | BARRIER FENCE | 653.50 | | 4/3/2008 | | 2. INCREASE 506.55 "STRUCTURAL STEEL, PLATE GIRDER". |

PROJECT NAME: RUTLAND TOWN
PROJECT NUMBER: BRF 019-3(48)

FILE NAME: s95b172qty.dgn VAOT_quant.xls
PROJECT MANAGER: R. WHITCOMB
DESIGNED BY: T. LACKEY
QUANTITY SHEET #2

PLOT DATE: 04/03/2008
DRAWN BY: T. LACKEY
CHECKED BY: R. WHITCOMB
SHEET 8 OF 75

STATE OF VERMONT
AGENCY OF TRANSPORTATION

# QUANTITY SHEET 3

Metric

| SUMMARY OF ESTIMATED QUANTITIES | | | | | | | | | | TOTALS | | DESCRIPTIONS | | | | DETAILED SUMMARY OF QUANTITIES | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | ROADWAY | TRAINING | EROSION CONTROL | BRIDGE | FULL E&C ITEMS | GRAND TOTAL | FINAL | UNIT | ITEMS | ITEM NUMBER | ROUND | QUANTITIES | UNIT | ITEMS |
| | | | | | | | | 160 | | | 160 | | M | PROJECT DEMARCATION FENCE | 653.55 | | | | |
| | | | | | | 0.6 | | | | | 0.6 | | SM | TRAFFIC SIGNS, TYPE A | 675.20 | | | | |
| | | | | | | | | | | | | | | BEGIN OPTION AA | | | | | |
| | | | | | | 6 | | | | | 6 | | M | FLANGED CHANNEL SIGN POST | 675.301 | | | | |
| | | | | | | 6 | | | | | 6 | | M | SQUARE TUBE SIGN POST AND ANCHOR | 675.341 | | | | |
| | | | | | | | | | | | | | | END OPTION AA | | | | | |
| | | | | | | 5 | | | | | 5 | | EACH | REMOVING SIGNS | 675.50 | | | | |
| | | | | | | 1 | | | | | 1 | | EACH | ERECTING SALVAGED SIGNS | 675.60 | | | | |
| | | | | | | 2 | | | | | 2 | | EACH | SETTING SALVAGED POSTS | 675.61 | | | | |
| | | | | | | | | 190 | | | 190 | | SM | SPECIAL PROVISION (GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED) | 900.675 | | | | |

| DATE | | REVISIONS |
|---|---|---|
| | | REVISION |
| 4/3/2008 | | 1. REMOVE 506.60 "STRUCTURAL STEEL". |
| 4/3/2008 | | 2. INCREASE 506.55 "STRUCTURAL STEEL, PLATE GIRDER". |

PROJECT NAME: RUTLAND TOWN
PROJECT NUMBER: BRF 019-3(48)

FILE NAME: s95b172qty.dgn VAOT_quant.xls
PROJECT MANAGER: R. WHITCOMB
DESIGNED BY: T. LACKEY
QUANTITY SHEET #3

PLOT DATE: 04/03/2008
DRAWN BY: T. LACKEY
CHECKED BY: R. WHITCOMB
SHEET 8 OF 75

STATE OF VERMONT
AGENCY OF TRANSPORTATION

# QUANTITY SHEET 4

Metric

| SUMMARY OF ESTIMATED QUANTITIES | | | | | | | | | | TOTALS | | DESCRIPTIONS | | | | DETAILED SUMMARY OF QUANTITIES | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | ROADWAY | TRAINING | EROSION CONTROL | BRIDGE | FULL E&C ITEMS | GRAND TOTAL | FINAL | UNIT | ITEMS | ITEM NUMBER | ROUND | QUANTITIES | UNIT | ITEMS |
| | | | | | | | 90 | 280 | | 370 | | CM | UNCLASSIFIED CHANNEL EXCAVATION | 203.27 | | | | |
| | | | | | | | 185 | 65 | | 250 | | CM | STRUCTURE EXCAVATION | 204.25 | | | | |
| | | | | | | | 100 | 100 | | 200 | | CM | GRANULAR BACKFILL FOR STRUCTURES | 204.30 | | | | |
| | | | | 103 | | | 37 | 37 | | 177 | | CM | CONCRETE, HIGH PERFORMANCE CLASS A | 501.33 | | | | |
| | | | | | 27 | 27 | 31 | 31 | | 116 | | CM | CONCRETE, HIGH PERFORMANCE CLASS B | 501.34 | | | | |
| | | | | | | | 1 | | | 1 | | LS | FURNISHING EQUIPMENT FOR DRIVING PILING | 504.10 | | | | |
| | | | | | | | 100 | 70 | | 170 | | M | STEEL PILING FOR INTEGRAL ABUTMENTS, HP 360 X 132 | 505.28 | | | | |
| | | | | | | | 1 | 1 | | 2 | | EACH | DYNAMIC PILE LOADING TEST | 505.45 | | | | |
| | | | | 64890 | | | | | | 64890 | | KG | STRUCTURAL STEEL, PLATE GIRDER | 506.55 | REV. 2<br>REV. 1 | | | |
| | | | | 17609 | 2782 | 2782 | 9664 | 9706 | | 42543 | | KG | EPOXY COATED REINFORCING STEEL | 507.17 | | | | |
| | | | | 1 | | | | | | 1 | | LS | SHEAR CONNECTORS (1700 - 22 X 180) | 508.15 | | | | |
| | | | | 83 | | | | | | 83 | | L | WATER REPELLENT, SILANE | 514.10 | | | | |
| | | | | | | | 12 | 11 | | 23 | | M | BRIDGE EXPANSION JOINT, ASPHALTIC PLUG | 516.10 | | | | |
| | | | | 414 | | | | | | 414 | | SM | SHEET MEMBRANE WATERPROOFING, TORCH APPLIED | 519.20 | | | | |
| | | | | | 12 | 12 | | | | 24 | | M | JOINT SEALER, HOT POURED | 524.11 | | | | |
| | | | | 70 | | | | | | 70 | | M | BRIDGE RAILING, GALVANIZED NETC 2 RAIL | 525.33 | | | | |
| | | | | 400 | | | | | | 400 | | SM | REMOVAL OF BRIDGE PAVEMENT | 529.10 | | | | |
| | | | | 1 | | | | | | 1 | | EACH | PARTIAL REMOVAL OF STRUCTURE | 529.20 | | | | |
| | | | | | | | 5 | 5 | | 10 | | EACH | BEARING DEVICE ASSEMBLY, INTEGRAL ABUTMENT | 531.14 | | | | |
| | | | | | | | | | 50 | 50 | | CM | STONE FILL, TYPE I | 613.10 | | | | |
| | | | | | | | | | 280 | 280 | | CM | STONE FILL, TYPE III | 613.12 | | | | |
| | | | | | | | | | 580 | 580 | | SM | GEOTEXTILE UNDER STONE FILL | 649.31 | | | | |

REVISIONS

| DATE | | REVISION |
|---|---|---|
| 4/3/2008 | | 1. REMOVE 506.60 "STRUCTURAL STEEL" |
| 4/3/2008 | | 2. INCREASE 506.55 "STRUCTURAL STEEL, PLATE GIRDER". |

PROJECT NAME: RUTLAND TOWN
PROJECT NUMBER: BRF 019-3(48)

FILE NAME: s95b172qty.dgn VAOT_quant.xls
PROJECT MANAGER: R. WHITCOMB
DESIGNED BY: T. LACKEY
QUANTITY SHEET #4

PLOT DATE: 04/03/2008
DRAWN BY: T. LACKEY
CHECKED BY: R. WHITCOMB
SHEET 10 OF 75

STATE OF VERMONT
AGENCY OF TRANSPORTATION

# RIGHT - OF - WAY DETAIL SHEET

Metric

## TABLE OF PROPERTY ACQUISITION

| PARCEL NO. | PROPERTY OWNER | SHEET NO. | BEGINNING STATION | ENDING STATION | TAKE | REMAINDER | RIGHT | | | RECORDING DATA | | | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AREA ± | AREA ± | TYPE | (T)/(P) | AREA ± | TITLE | DATE | TOWN / CITY | BOOK | PAGE | |
| 1A | MARGAR, LLC joined by | 18 | 2+200.8 LT. | | | | | | | WD | 8/7/2006 | RUTLAND | 144 | 42 | PAVED DRIVE 12.2M(40') WIDE MM0233 |
| | VERIZON NEW ENGLAND, INC. | | 2+271.9 LT. | 2+279.1 LT. | | | CONST. | T | 29 SM | | | | | | INCLUDES PDF, 312 SF± |
| | | | 2+274.8 LT. | | | | INSTALL | P | | | | | | | GUY WIRE & ANCHOR |
| 1B | | 17,18 | 2+156.93 LT. | 2+305.00 RT. | 0.11 HA | | ALL R. T. & I. | | | | | | | | US RTE. 7 HWY. EASE.; 0.27A± |
| 1C | | 17,18 | 2+249.11 LT. | 2+297.49 LT. | 165 SM | | ALL R. T. & I. | | | | | | | | US RTE. 7 HWY. EASE.; 1776 SF± |
| 2A | FAIGNANT, JOHN PAUL | 17,18 | 2+243.9 RT. | 2+304.4 RT. | | | DETOUR | T | 254 SM | WD | 3/16/2006 | RUTLAND | 142 | 65 | 2734 SF± |
| | | | 2+234.3± RT. | 2+278.0 RT. | | | CONST. | T | 80 SM | | | | | | INCLUDES PDF, 861 SF± |
| | | | 2+273.8 RT. | 2+281.4 RT. | | | DRIVE | T | 109 SM | | | | | | PAVED, 4.5M(15') WIDE, |
| | | | | | | | | | | | | | | | 1173 SF± MM0237(2+263.0 RT.) |
| | | | 2+285.3 RT. | 2+288.7 RT. | | | UTILITY | P | 52 SM | | | | | | 560 SF± |
| | | | 2+278.8 RT. | 2+303.4 RT. | | | CONST. | T | 135 SM | | | | | | INCLUDES PDF, 1453 SF± |
| | | | 2+289.2 RT. | | | | INSTALL | P | | | | | | | GUY WIRE & ANCHOR |
| 2B | | 17,18 | 2+156.93 RT. | 2+305.00 RT. | 0.11 HA | | ALL R. T. & I. | | | | | | | | US RTE. 7 HWY. EASE.; 0.27A± |
| 2C | | 17 | 2+156.93 RT. | 2+245.78 RT. | 490 SM | | ALL R. T. & I. | | | | | | | | US RTE. 7 HWY. EASE.; 0.12A± |
| 3A | WILLIAMS, SHERWIN L. | 18,19 | 2+303.0 RT. | 2+363.5 RT. | | | CONST. | T | 163 SM | WD | 2/1/2006 | RUTLAND | 141 | 345 | INCLUDES PDF, 1755 SF± |
| | | | 2+303.4 RT. | 2+357.3 RT. | | | DETOUR | T | 271 SM | | | | | | 2917 SF± |
| | | | 2+314.8 RT. | 2+315.0 RT. | | | REMOVE | T | | | | | | | FENCE |
| | | | 2+326.1 RT. | | | | REMOVE | T | | | | | | | POLE |
| | | | 2+414.2 RT. | 2+418.5 RT. | | | REMOVE & RESET | T | | | | | | | FENCE |
| | | | 2+386.2 RT. | | | | REMOVE | T | | | | | | | SIGN |
| | | | 2+405.7 RT. | 2+430.2 RT. | | | INSTALL | T | | | | | | | PDF |
| | | | 2+434.7 RT. | | | | DRIVE | T | | | | | | | GRAVEL 12M(39') WIDE MM0248 |
| 3B | | 19 | 2+415.2 LT. | 2+436.6 LT. | | | CONST. | T | 42 SM | | | | | | INCLUDES PDF, 452 SF± |
| | | | 2+424.1 LT. | 2+427.2 LT. | | | SLOPE | T | 1 SM | | | | | | 11 SF± |
| 3C | | 18,19 | 2+304.38 RT. | 2+464.08 RT. | 0.24 HA | | ALL R. T. & I. | | | | | | | | US RTE. 7 HWY. EASE.; 0.59A± |
| 3D | | 18,19 | 2+305.1 LT. | 2+464.06 LT. | 0.11 HA | | ALL R. T. & I. | | | | | | | | US RTE. 7 HWY. EASE.; 0.27A± |
| 4 | CENTRAL VERMONT PUBLIC SERVICE CORPORATION | 17,18,19 | 2+156.93 LT. | 2+464.08 RT. | 1.01 HA | | ALL R. T. & I. | | | QCD | 5/26/2006 | RUTLAND | 143 | 96 | "WATERS OF EAST CREEK" AND FLOWAGE RIGHTS, 2.50 AC.± - UTILITY |
| 5 | BAKER, JESSIE L. | 18 | 2+294.39 LT. | 2+305.04 LT. | 64 SM | | ALL R. T. & I. | | | WD | 4/14/2006 | RUTLAND | 142 | 221 | US RTE. 7 HWY. EASE.; 689 SF± |
| 6 | VERIZON NEW ENGLAND, INC. | | | | | | | | | | | | | | UTILITY |
| 7 | ADELPHIA CABLE COMMUNICATIONS | | | | | | | | | | | | | | UTILITY |

## TABLE OF REVISIONS

| REVISION NO. | SHEET NO. | DESCRIPTION | DATE |
|---|---|---|---|
| 1 | 16,17,18 | PARCEL NO. 2 FAIGNANT. REMOVE AMBER FAIGNANT | 2/17/2006 |
| | | FROM PLANS. PER C.O. 9448 | |
| | | MADE BY: JB APPROVED BY: RD | |
| | | ELECTRONIC FILES TO STRUCTURES 2-1-07 | |

PLAN LEGEND

- EXISTING RIGHT-OF-WAY
- TAKING WITH ACCESS
- TAKING WITHOUT ACCESS
- CZ — CLEAR ZONE
- P / L — PROPERTY LINE
- TOE OF SLOPE
- TOP OF CUT
- SR (P) — SLOPE RIGHT
- CONST. (T) — CONSTRUCTION RIGHT
- PDF ——— PDF — PROJECT DEMARCATION FENCE

(P) -PERMANENT
(T) -TEMPORARY
DR. -DRAINAGE RIGHT
DIT. -DITCHING RIGHT
CH. -CHANNEL RIGHT
DRIVE -DRIVE RIGHT
CUL. -CULVERT RIGHT
C&T -CLEARING & TRIMMING RIGHT
SR -SLOPE RIGHT
UE -UTILITY EASEMENT

APPROVED: ROGER P. DUMAS DATE: 03-07-05
CHIEF, PLANS & TITLES

PROJECT NAME: **RUTLAND TOWN**
PROJECT NUMBER: **BRF 019-3(48)**

FILE NAME: **95b172.xls**
PROJECT LEADER: **R. WHITCOMB**
DESIGNED BY: **T. LACKEY**
**R.O.W. SHEET 16 OF 19**

PLOT DATE: **09/14/04**
DRAWN BY: **G. FUNK**
CHECKED BY: **R. DUMAS**
SHEET **11** OF **75**

CONSTRUCT PAVED DRIVE APRON

2+200.8 LT.

COLD PLANING, BITUMINOUS PAVEMENT

2+160.0 - 2+180.0

UTILITIES

UTILITY WORK TO BE DONE BY OTHERS

REMOVAL AND DISPOSAL OF GUARDRAIL

2+241.6 LT. - 2+260.0 LT.

MANUFACTURED TERMINAL SECTION, FLARED

2+238.7 RT. - 2+250.1 RT.
2+250.1 RT. - 2+260.0 RT.

MANUFACTURED TERMINAL SECTION, TANGENT

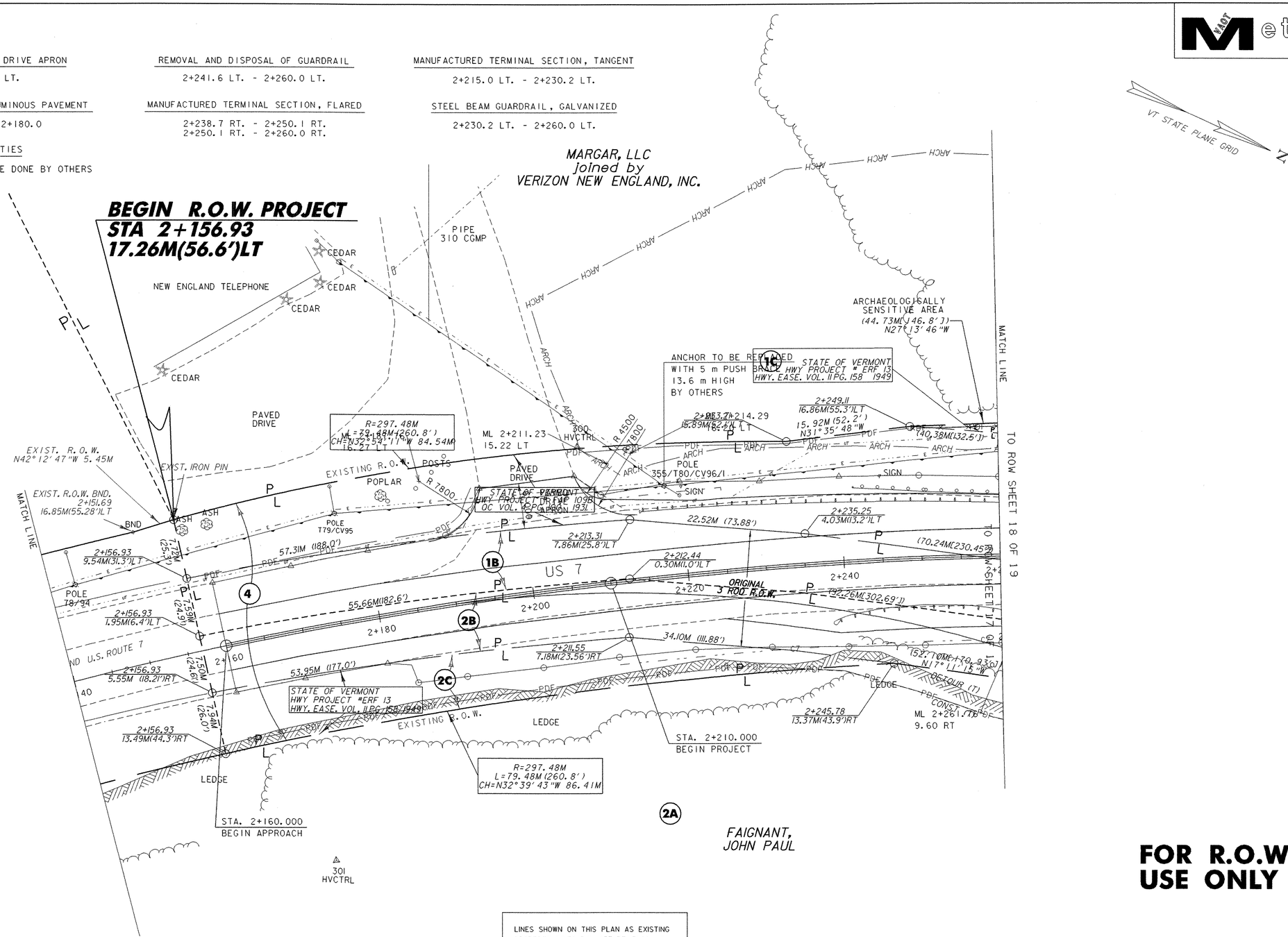
2+215.0 LT. - 2+230.2 LT.

STEEL BEAM GUARDRAIL, GALVANIZED

2+230.2 LT. - 2+260.0 LT.

VAOT Metric

VT STATE PLANE GRID N




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 STATE OF VERMONT'S ACQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

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

# R. O. W. LAYOUT PLAN 1

0 10 20 30

SCALE IN METERS

1:250

| | |
|---|---|
| PROJECT NAME: | RUTLAND TOWN |
| PROJECT NUMBER: | BRF 019-3(48) |
| FILE NAME: sb172pl1 | PLOT DATE: 11-MAR-2008 |
| PROJECT LEADER: R.WHITCOMB | DRAWN BY: T. LACKEY |
| DESIGNED BY: T. LACKEY | CHECKED BY: R.WHITCOMB |
| ROW SHEET 17 OF 19 | SHEET 12 OF 75 |

Metric

VT STATE PLANE GRID N

Class III Wetlands

MARGAR, LLC Joined by VERIZON NEW ENGLAND, INC.

BAKER, JESSIE L.

STATE OF VERMONT HWY PROJECT # ERF 13 HWY. EASE. VOL. II PG. 158 1949

WILLIAMS, SHERWIN L.

ARCHAEOLOGICALLY SENSITIVE AREA

MATCH LINE

TO ROW SHEET 17 OF 19

TO ROW SHEET 19 OF 19

STA. 2+287.750 BEGIN BRIDGE F.G. 198.156

ANCHOR TO BE REPLACED WITH 5 m ANCHOR 13.6 m HIGH BY OTHERS

ANCHOR TO BE REPLACED WITH PUSH BRACE 12.1 m HIGH BY OTHERS

STA. 2+322.256 END BRIDGE F.G. 198.198

UNDERGROUND FIBER OPTIC CABLE

STONE FILL

TYPE I

TYPE III

STATE OF VERMONT HWY PROJECT # FAP 109B OC VOL. 4 PG. 100 1932

STATE OF VERMONT HWY PROJECT # ERF 13 WDOE. VOL. II PG. 171 1949

STATE OF VERMONT HWY PROJECT # FAP 109B OC VOL. 8 PG. 220 1932

CENTRAL VERMONT PUBLIC SERVICE CORP. FLOWAGE RIGHTS

CATTLE PASS

ORIGINAL 3 ROD R.O.W.

EXISTING R.O.W.

EXISTING 50' WIDE UTILITY EASEMENT VOL.21 PG. 118 CONTINUES TO EXISTING POLE AT 2+278.9 71.8M RT (NOT SHOWN)

FAIGNANT, JOHN PAUL

NEW POLE 97-1X4513 STA 4+032.5 LT 5.0 DEFL 14° LT

POLE & ANCHOR TO BE REMOVED BY OTHERS

REMOVE(T) (COMM. SIGN) RESET FENCE

EAST CREEK

POND

Class III Wetlands

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 STATE OF VERMONT'S ACQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

0 10 20 30

SCALE IN METERS

1:250

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

# R.O.W. LAYOUT PLAN 2

| | |
|---|---|
| PROJECT NAME: | RUTLAND TOWN |
| PROJECT NUMBER: | BRF 019-3(48) |
| FILE NAME: sb172lp2.i | PLOT DATE: 11-MAR-2008 |
| PROJECT LEADER: R.WHITCOMB | DRAWN BY: T. LACKEY |
| DESIGNED BY: T. LACKEY | CHECKED BY: R.WHITCOMB |
| ROW SHEET 18 OF 19 | SHEET 13 OF 75 |

VAOT Metric

ARCHAEOLOGICALLY SENSITIVE AREA

3D
STATE OF VERMONT
HWY PROJECT # ERF 13
WDOE. VOL. 11 PG. 171 1949

MATCH LINE

TO ROW SHEET 18 OF 19

STA. 2+420.000
END PROJECT

3B
WILLIAMS, SHERWIN L.

STATE OF VERMONT
HWY PROJECT # FAP 109B
OC VOL. 8 PG. 220 1932

GRAVEL DRIVE

CONST (T)
SLOPE (T)
N06°14'47"W (110.00M(360.9'))
(100.36M(329.3'))
(80.55M(264.3'))
58.87M (193.1')
2+406.25
2.41M(7.9')RT
2+420
2+440
2+460
2+480
2+500
2+520
2+540
2+560
2+575
R 6600
REMOVE & RESET(T)
ML 2+416.68
12.60 RT
INSTALL(T)
2+408.25
17.37M(57.0')RT
55.51M (182.1')
N16°31'13"W
DRIVE (T)
(99.39M(326.1'))
N17°11'15"W
ML 2+449.39
12.61 RT
3A
WILLIAMS, SHERWIN L.
ORIGINAL 3 ROD R.O.W.
5.09M (16.7')
HVCTRL
MAIL BOX
SIGN
MAPLE
STA. 2+470.000
END APPROACH
ARCHAEOLOGICALLY SENSITIVE AREA
HISTORIC HOUSE
LILAC
APPLE
GRAVEL DRIVE
2+464.05
12.75M(41.8')LT
BW FENCE
5.41M(17.7')
N86°31'29"E
2+464.06
FENCE POST 7.34M(24.1')LT
BND
POLE 2/CV108/T84
FENCE POST
HISTORIC BARN
GRAVEL DRIVE
POLE 109/305/85
GARDEN
EXISTING R.O.W.
U.S. RTE. 7 TO PITTSFORD
100 HVCTRL
SIGN
PK IN PAVEMENT
POLE 109X/85½
11 HVCTRL
TO PITTSFORD

VT STATE PLANE GRID N

**END R.O.W. PROJECT**
**STA 2+464.08**
**7.74M(25.4')RT**

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

# R.O.W. LAYOUT PLAN 3

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 STATE OF VERMONT'S ACQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

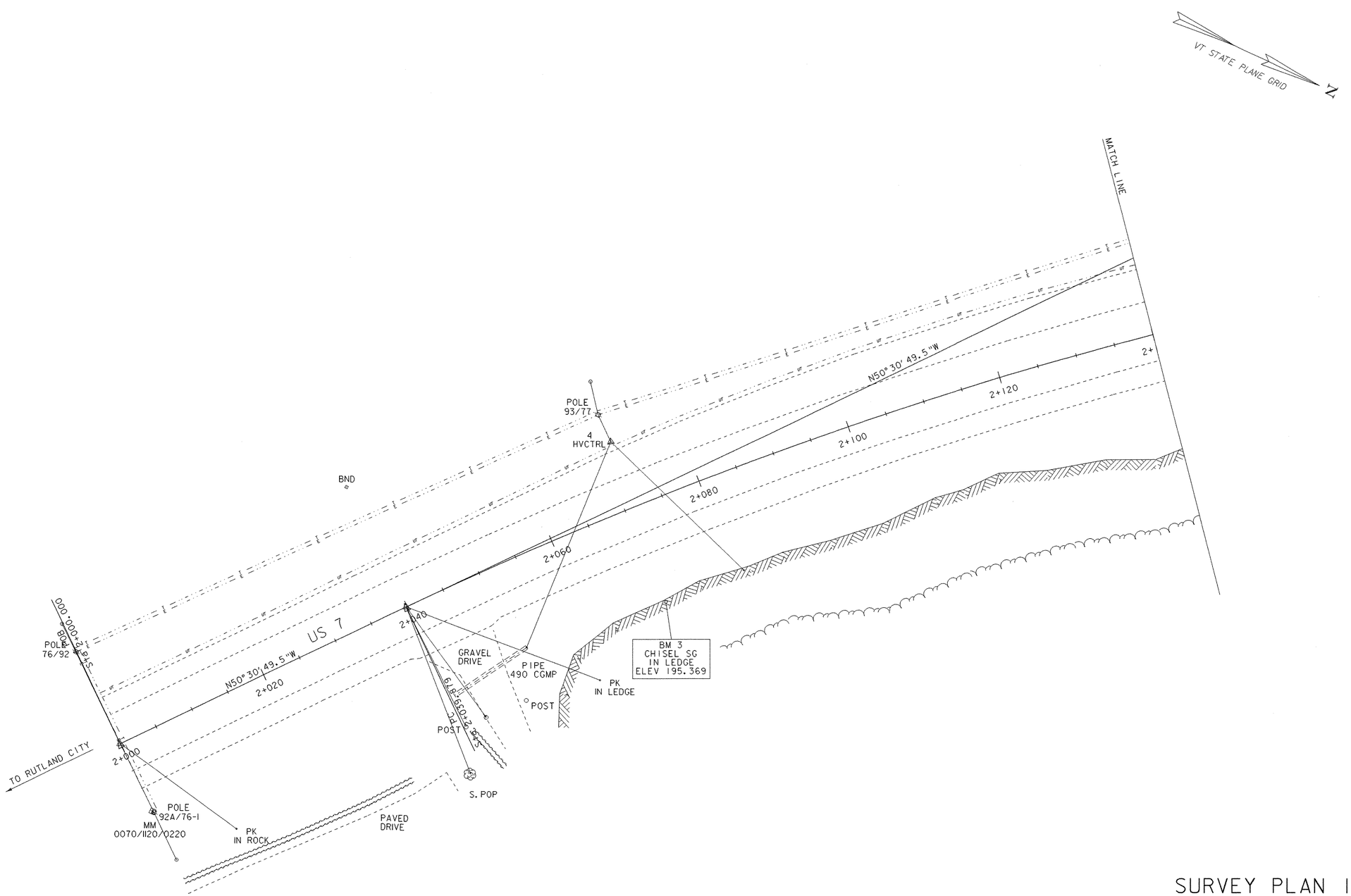
0 10 20 30
SCALE IN METERS
1:250

PROJECT NAME: RUTLAND TOWN
PROJECT NUMBER: BRF 019-3(48)

FILE NAME: sb172lp3.1
PROJECT LEADER: R.WHITCOMB
DESIGNED BY: T.LACKEY
ROW SHEET 19 OF 19

PLOT DATE: 11-MAR-2008
DRAWN BY: T.LACKEY
CHECKED BY: R.WHITCOMB

VAOT Metric




# SURVEY PLAN 1

| DATUM | |
|---|---|
| VERTICAL | NAVD 88 GPS |
| HORIZONTAL | NAD 83/92 GPS |

0 10 20 30

SCALE IN METERS

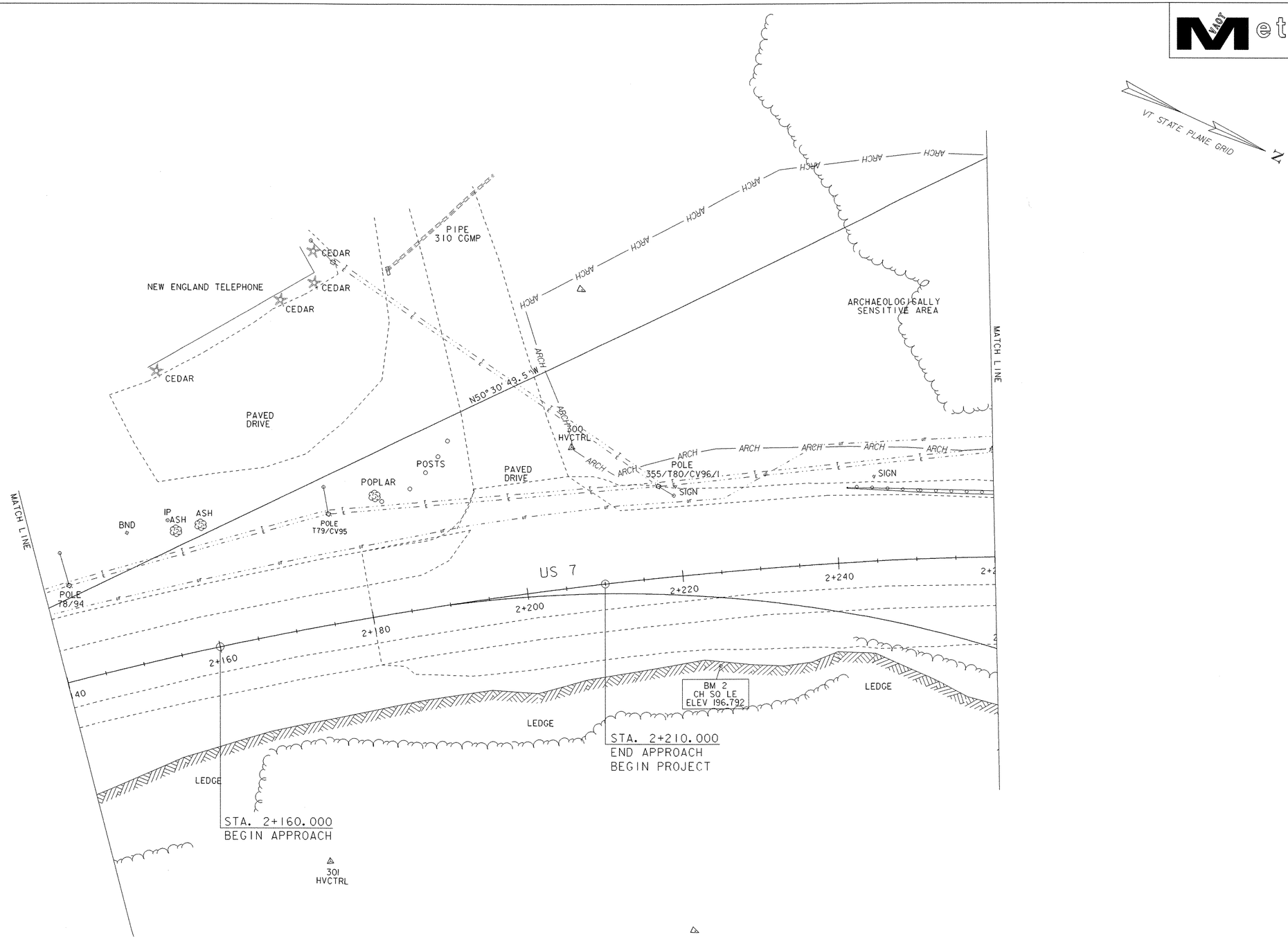
1:250

11-MAR-2008

| PROJECT: | PROJECT NO.: |
|---|---|
| RUTLAND TOWN | BRF 019-3(48) |

DESIGN FILE NAME: 95b172/structures/sb172sur.dgn
IPARM FILE NAME: sb197sul.i
SURVEYED BY: L. ORVIS
SQUAD LEADER: R. WHITCOMB
PLOT DATE: 11-MAR-2008
SURVEY DATE: 09/14/95
DRAWN BY: T. LACKEY
SHEET: 15 OF 75

VAOT Metric




# SURVEY PLAN 2

| DATUM | |
|---|---|
| VERTICAL | NAVD 88 GPS |
| HORIZONTAL | NAD 83/92 GPS |

0 10 20 30

SCALE IN METERS

1:250 11-MAR-2008

| PROJECT: | PROJECT NO.: |
|---|---|
| RUTLAND TOWN | BRF 019-3(48) |

DESIGN FILE NAME: 95b172/structures/sb172sur.dgn
IPARM FILE NAME: sb172su2.i
SURVEYED BY: L. ORVIS
SQUAD LEADER: R. WHITCOMB
PLOT DATE: 11-MAR-2008
SURVEY DATE: 09/14/95
DRAWN BY: T. LACKEY
SHEET: 16 OF 75

VAOT Metric

EXISTING BRIDGE
Concrete T-Beam
Built 1931
Channel 117' x 10'
Roadway 36'-4"
Overall Length 126'
3 Spans @ 39'
Design Load H-15
Waterway 900 sf

VT STATE PLANE GRID N

ARCHAEOLOGICALLY SENSITIVE AREA

PI Sta 2+274.911 Bk= 2+245.934 AH

Channel Curve 1
Delta 23°56'21.6" Lt
R 100.000 m
T 21.200 m
L 41.782 m
E 2.223 m

POE Sta 1+107.733

PT Sta 1+100.392

IRON PIN

1+080

1+100

M=0°00'00"E 54.5

1+060

PI Sta 1+079.810 BK = 1+079.192 AH

IP

201 HVCTRL

ARCH

HDGE

PC Sta 1+058.610

STA. 2+287.750
BEGIN BRIDGE
F.G. 198.156

MATCH LINE

POLE T81/CV97

UNDERGROUND FIBER OPTIC CABLE

PIPE IRRIGATION

STA. 2+322.256
END BRIDGE
F.G. 198.198

POLE 65T/2/CV106/8/182

BW FENCE

BND

N1°32'10.4"W

3 HVCTRL

ML Sta 2+305.000=
CHANNEL Sta 1+030.000
Delta 90°00'00" LT

ML POC 2+263.000=
Drive POT 4+000.000
Delta = 60°00'00" RT

POB Sta 4+000.000

200 HVCTRL

4+080

2+280

2+300

2+320

2+340

2+360

2+380

US 7

MATCH LINE

POLE CV107/183

5 HVCTRL

MH 0070/120/0238

SIGN

POLE 2/CV97-1/T81-1

MAIL BOXES

GUIDE POSTS

PAVED DRIVE

PT Sta 1+015.000

1+020

220 HVCTRL

APPROX. CL TWO WAY TEMPORARY BRIDGE

BW FENCE

STEEL DEL IN. POST

SIGN

BW FENCE

N34°15'40.5"E

4+020

POB Sta 4+019.501

PI Sta 4+029.793 BK= 4+029.620 AH

N52°54'01.6"E

4+040

51 HVCTRL

PT Sta 4+039.466

POB Sta 0+990.000

POE Sta 4+050.000 0+990

4+050

50 HVCTRL

52 HVCTRL

1+000

S75°00'03.5"W

1+040

S68°56'21.6"W

EAST CREEK

Drive Curve 1
Delta 18°38'21.0"
R 60.000 m
T 9.846 m
L 19.519 m
E 0.803 m
e -0.020

Main Line Curve 1
Delta 48°58'39.0" Rt
R 516.000 m
T 235.032 m
L 441.087 m
E 51.006 m
e +0.060

POND

0 10 20 30
SCALE IN METERS
1:250 11-MAR-2008

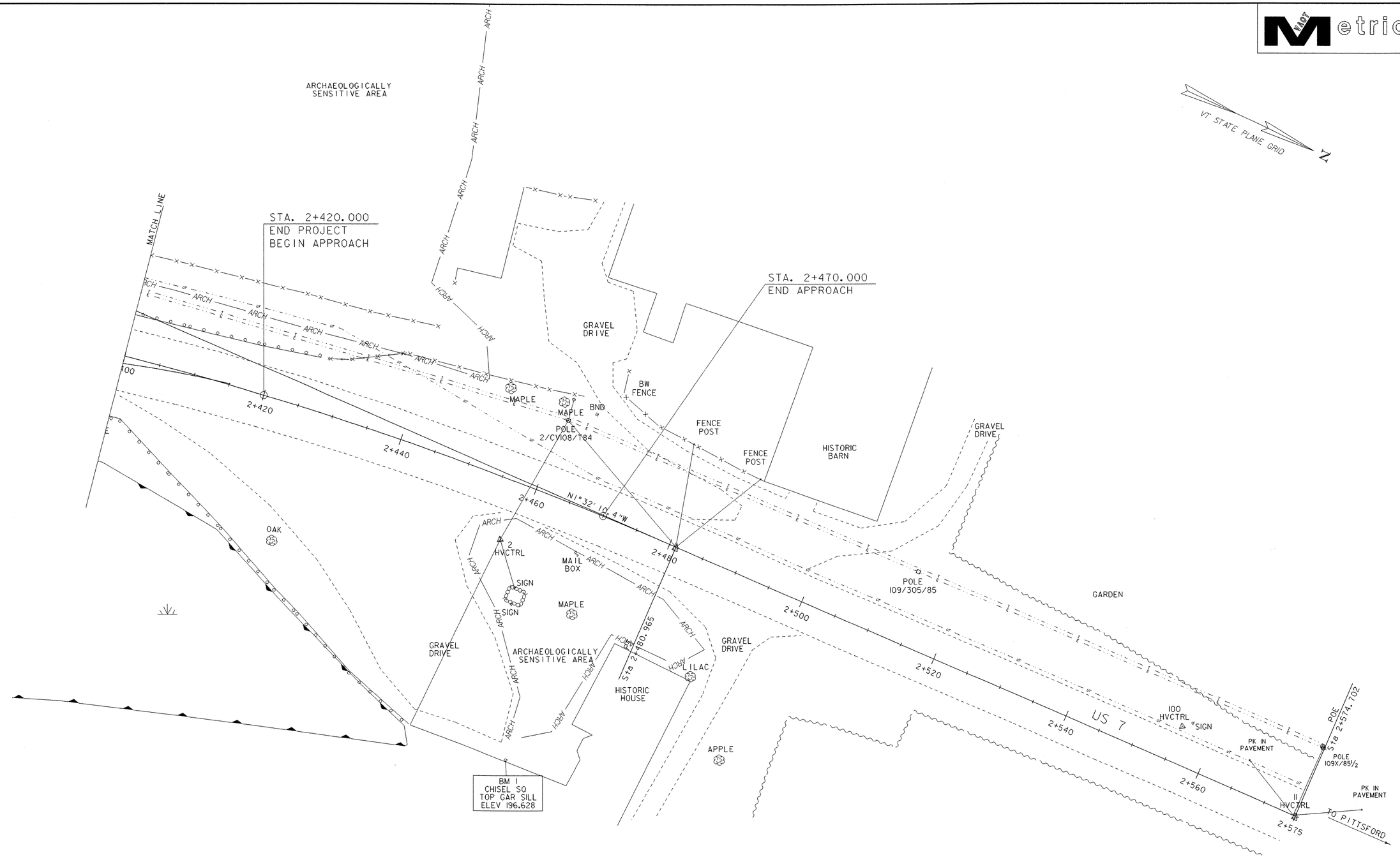
# SURVEY PLAN 3

DATUM
VERTICAL NAVD 88 GPS
HORIZONTAL NAD 83/92 GPS

| PROJECT: | PROJECT NO.: |
|---|---|
| RUTLAND TOWN | BRF 019-3(48) |

DESIGN FILE NAME: 95b172/structures/sb172sur.dgn
IPARM FILE NAME: sb172su3.i
SURVEYED BY: L. ORVIS
SQUAD LEADER: R. WHITCOMB
PLOT DATE: 11-MAR-2008
SURVEY DATE: 09/14/95
DRAWN BY: T. LACKEY
SHEET: 17 OF 75

VDOT Metric




# SURVEY PLAN 4

**DATUM**

| | |
|---|---|
| VERTICAL | NAVD 88 GPS |
| HORIZONTAL | NAD 83/92 GPS |

0 10 20 30

SCALE IN METERS

1:250 11-MAR-2008

| | |
|---|---|
| PROJECT: RUTLAND TOWN | PROJECT NO.: BRF 019-3(48) |
| DESIGN FILE NAME: 95bl72/structures/sbl72sur.dgn | |
| IPARM FILE NAME: sbl72su4.i | PLOT DATE: 11-MAR-2008 |
| SURVEYED BY: L. ORVIS | SURVEY DATE: 09/14/95 |
| SQUAD LEADER: R. WHITCOMB | DRAWN BY: T. LACKEY |
| | SHEET: 18 OF 75 |

Metric

## GPS CONTROL POINTS

# HVCTRL # 1

STANDARD DISK STAMPED

RP *

N = 128042.974
E = 460815.963
ELEV. = 200.345

To reach from the junction of US route 7 and US route 4 (Woodstock) in Rutland proceed north on route 7 for 3.1 mi (5.0 km) to a rock outcrop and the station on the right (east).

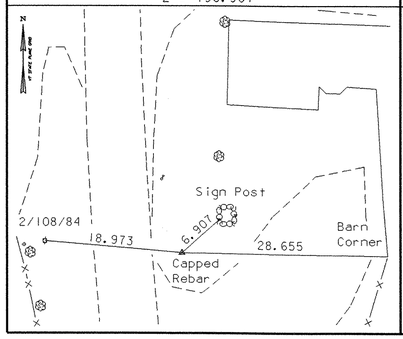
Station is 35.36m (116.01 ft) northwest of the northwest corner of a 2.5 story house, 15 m (49.2 ft) southwest of a utility pole # 114B/90B, 10 m (32.8 ft) northeast of utility pole # 114/90A and a fiberglass witness post, 6.8m (22.3 ft) east of and 1 m (3.3 ft) higher than the centerline of route 7.

* DESCRIPTION PROVIDED BY VERMONT AGENCY OF TRANSPORTATION GEODETIC SURVEY UNIT

## TRAVERSE TIES

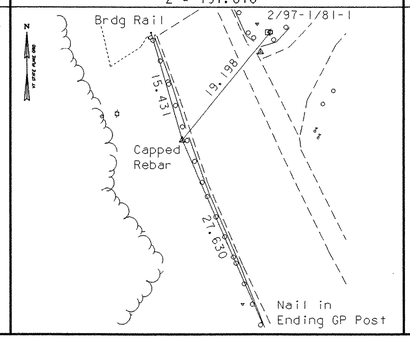
### Hvctrl #2

N = 127508.535
E = 460837.951
Z = 196.901



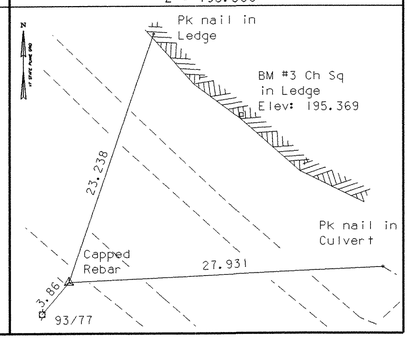

### Hvctrl #3

N = 127322.600
E = 460869.700
Z = 197.610




### Hvctrl #4

N = 127161.220
E = 460986.450
Z = 195.380

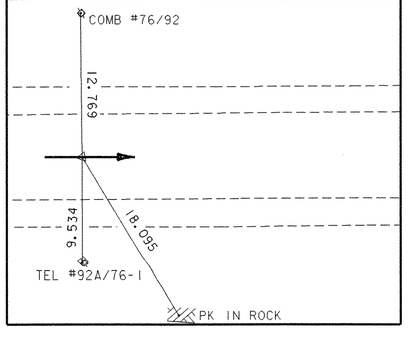



* MAIN TRAVERSE COMPLETED 7/28/95 by L. Orvis P.C. and R. Bullock

## ALIGNMENT TIES

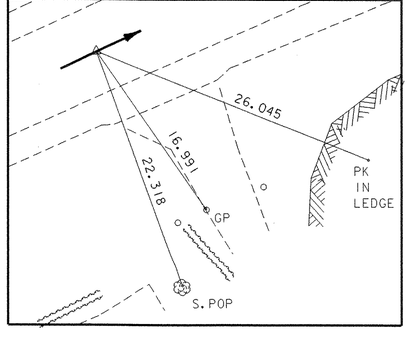
### POB 2+000.000

N = 127121.310
E = 461046.988



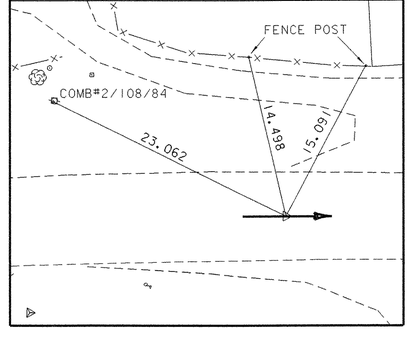

### PC 2+039.879

N = 127146.668
E = 461016.211



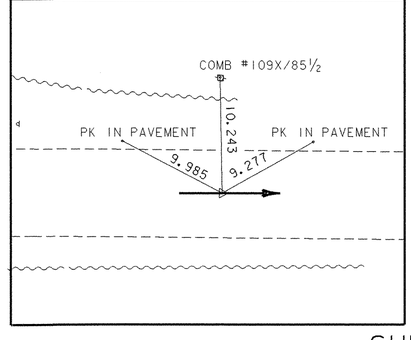

### PT 2+480.965

N = 127531.072
E = 460828.517




### POE 2+574.702

N = 127624.775
E = 460826.004




* ALIGNMENT COMPLETED: DECEMBER 18, 2002 BY: L.ORVIS PC. & J.HULETT

## SURVEY TIES

| DATUM | |
|---|---|
| VERTICAL | NAVD 88 |
| HORIZONTAL | NAD 83/92 |
| ADJUSTMENT | Least Sq |

PROJECT NAME: Rutland Town
PROJECT NUMBER: BRF 019-3(48)

FILE NAME: sb172su5.i
PROJECT LEADER: R. WHITCOMB
DESIGNED BY: T. LACKEY
95b172/str/sb172sur.dgn

PLOT DATE: 11-MAR-2008
DRAWN BY: R. Bullock
CHECKED BY: P.HODGE
SHEET 19 OF 75

VAOT Metric

CONSTRUCT PAVED DRIVE APRON

2+200.8 LT.

COLD PLANING, BITUMINOUS PAVEMENT

2+160.0 - 2+180.0

UTILITIES

UTILITY WORK TO BE DONE BY OTHERS

REMOVAL AND DISPOSAL OF GUARDRAIL

2+241.6 LT. - 2+260.0 LT.

MANUFACTURED TERMINAL SECTION, FLARED

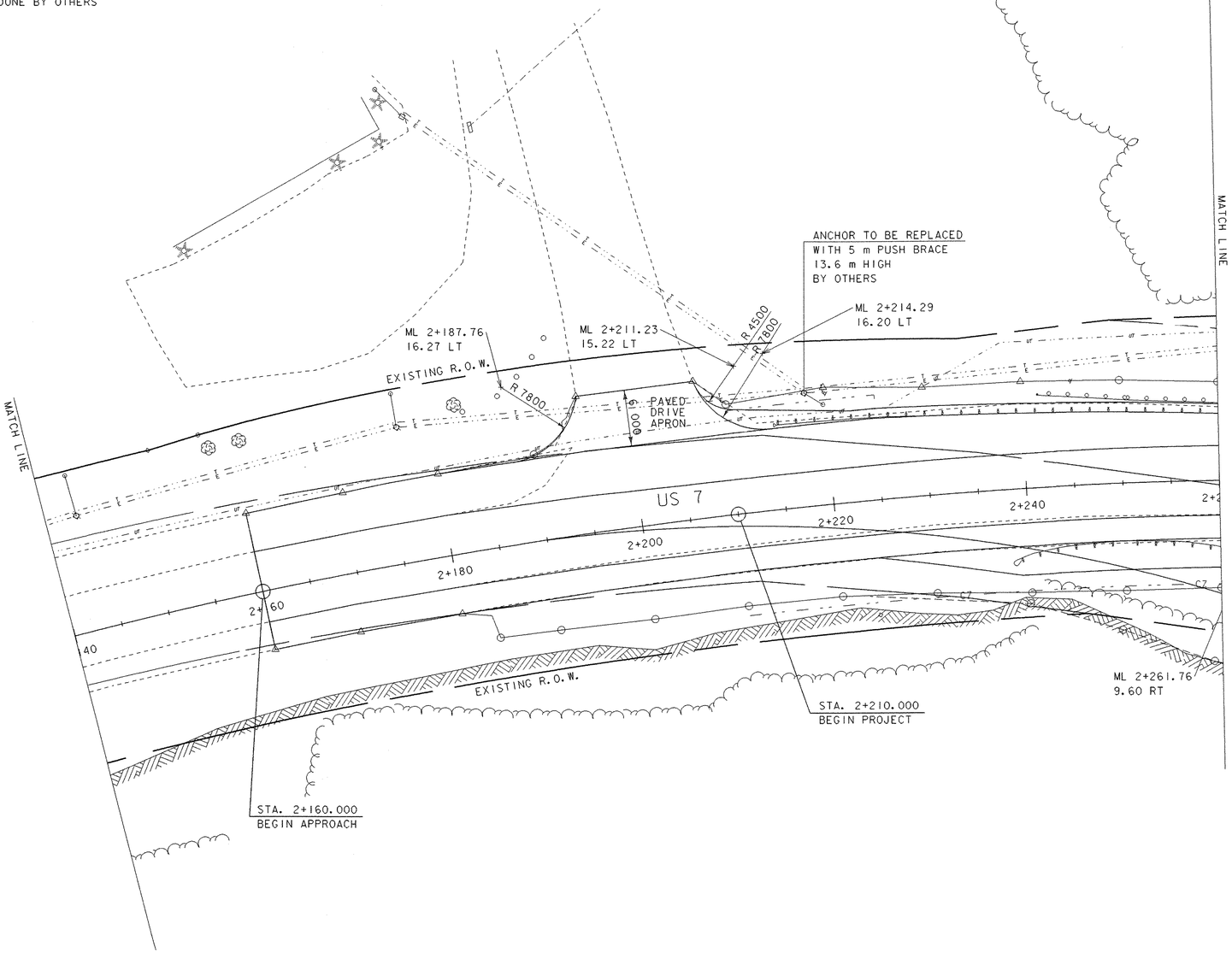
2+238.7 RT. - 2+250.1 RT.
2+250.1 RT. - 2+260.0 RT.

MANUFACTURED TERMINAL SECTION, TANGENT

2+215.0 LT. - 2+230.2 LT.

STEEL BEAM GUARDRAIL, GALVANIZED

2+230.2 LT. - 2+260.0 LT.




# LAYOUT PLAN 1

0 10 20 30

SCALE IN METERS

1:250

| | |
|---|---|
| PROJECT NAME: RUTLAND TOWN | |
| PROJECT NUMBER: BRF 019-3(48) | |
| FILE NAME: sbl72lpl.i | PLOT DATE: 11-MAR-2008 |
| PROJECT LEADER: R.WHITCOMB | DRAWN BY: T. LACKEY |
| DESIGNED BY: T. LACKEY | CHECKED BY: R.WHITCOMB |
| 95bl72/sbl72bdr.dgn | SHEET 20 OF 75 |

VAOT Metric

CONSTRUCT PAVED DRIVE

2+263.0 RT. - 4.5 M WIDE, PAVED

REMOVAL AND DISPOSAL OF GUARDRAIL

2+260.0 LT. - 2+283.1 LT.
2+275.6 RT. - 2+285.0 RT.
2+322.0 LT. - 2+400.0 LT.
2+324.4 RT. - 2+370.8 RT.

STEEL BEAM GUARDRAIL, GALVANIZED

2+260.0 LT. - 2+278.8 LT.
2+274.7 RT. - 2+278.3 RT.
2+331.3 LT. - 2+400.0 LT.
2+331.7 RT. - 2+358.6 RT.

MANUFACTURED TERMINAL SECTION, FLARED

2+260.0 RT. - 2+261.5 RT.
2+358.6 RT. - 2+370.0 RT.

REMOVING AND RESETTING FENCE

2+372.7 RT. - 2+418.5 RT.

REMOVAL OF EXISTING FENCE

2+314.2 RT. - 2+315.0 RT.
2+315.3 LT. - 2+316.9 LT.

ANCHOR FOR STEEL BEAM RAIL

DRIVE 4+014.8 LT. - ML 2+274.7 RT.

GUARDRAIL APPROACH SECTION, GALVANIZED NETC 2 RAIL

2+278.8 LT. - 2+287.7 LT.
2+278.3 RT. - 2+287.3 RT.
2+322.3 LT. - 2+331.3 LT.
2+322.7 RT. - 2+331.7 RT.

VERTICAL GRANITE CURB

2+275.6 LT. - 2+287.7 LT.
2+275.2 RT. - 2+287.3 RT.
2+322.3 LT. - 2+334.4 LT.
2+322.7 RT. - 2+335.1 RT.

BRIDGE RAILING, GALVANIZED NETC 2 RAIL

2+287.7 LT. - 2+322.3 LT.
2+287.3 RT. - 2+322.7 RT.

RELOCATE MAILBOX, SINGLE SUPPORT

2+261.2 RT.
2+262.2 RT.

REMOVING SIGNS

2+386 RT

ERECTING SALVAGED SIGNS

2+386 RT

SETTING SALVAGED POSTS

2+386 RT

UTILITIES

UTILITY WORK TO BE DONE BY OTHERS

VT STATE PLANE GRID

STA. 2+287.750
BEGIN BRIDGE
F.G. 198.156

ANCHOR TO BE REPLACED
WITH 5 m ANCHOR
13.6 m HIGH
BY OTHERS

ANCHOR TO BE REPLACED
WITH PUSH BRACE
12.1 m HIGH
BY OTHERS

STA. 2+322.256
END BRIDGE
F.G. 198.198

MATCH LINE

STONE FILL

TYPE I

TYPE II

ROW

EXISTING R.O.W.

MATCH LINE

CATTLE PASS

US 7

NEW LINES

ML 2+277.199
10.90 RT

APPROX.
CL DETOUR

STONE FILL

TYPE I

TYPE II

EXISTING R.O.W.

APPROX. TEMPORARY DETOUR LIMITS

RESET FENCE

POLE & ANCHOR
TO BE REMOVED
BY OTHERS

NEW POLE
97-1/4513
STA 4+032.5 LT 5.0
DEFL 14° LT
5 m ANCHOR
13.6 m HIGH
BY OTHERS

0 10 20 30
SCALE IN METERS
1:250

# LAYOUT PLAN 2

| | |
|---|---|
| PROJECT NAME: | RUTLAND TOWN |
| PROJECT NUMBER: | BRF 019-3(48) |
| FILE NAME: sbl72lp2.i | PLOT DATE: 11-MAR-2008 |
| PROJECT LEADER: R.WHITCOMB | DRAWN BY: T.LACKEY |
| DESIGNED BY: T.LACKEY | CHECKED BY: R.WHITCOMB |
| 95bl72/sbl72bdr.dgn | SHEET 21 OF 75 |

MDOT Metric

CONSTRUCT PAVED DRIVE APRON

2+434.7 RT. - 12 M WIDE, PAVED

REMOVAL OF EXISTING FENCE

2+426.9 LT. - 2+437.0 LT.

REMOVING AND RESETTING FENCE

2+400.0 RT. - 2+405.8 RT.

REMOVAL AND DISPOSAL OF GUARDRAIL

2+400.0 LT. - 2+426.0 LT.

COLD PLANING, BITUMINOUS PAVEMENT

2+450.0 - 2+470.0

STEEL BEAM GUARDRAIL, GALVANIZED

2+400.0 LT. - 2+425.4 LT.

MANUFACTURED TERMINAL SECTION, FLARED

2+425.4 LT. - 2+436.8 LT.

VT STATE PLANE GRID N

ARCHAEOLOGICALLY SENSITIVE AREA

MATCH LINE

STA. 2+420.000
END PROJECT

GRAVEL DRIVE

BW FENCE

FENCE POST

FENCE POST

HISTORIC BARN

GRAVEL DRIVE

MAPLE

MAPLE

BND

POLE 24/CVI08/T84

2+400

2+420

2+440

2+460

2+480

2+500

2+520

2+540

2+560

2+575

R 6600

10 980

PAVED DRIVE APRON

8 920

R 8400

ML 2+416.68
12.60 RT

OAK

2 HVCTRL

MAIL BOX

ML 2+449.39
12.61 RT

SIGN

SIGN

MAPLE

STA. 2+470.000
END APPROACH

ARCHAEOLOGICALLY SENSITIVE AREA

GRAVEL DRIVE

HISTORIC HOUSE

LILAC

APPLE

POLE 109/305/85

GARDEN

EXISTING R.O.W.

EXISTING R.O.W.

100 HVCTRL

SIGN

PK IN PAVEMENT

POLE 109X/85½

PK IN PAVEMENT

11 HVCTRL

TO PITTSFORD

US 7

# LAYOUT PLAN 3

0 10 20 30

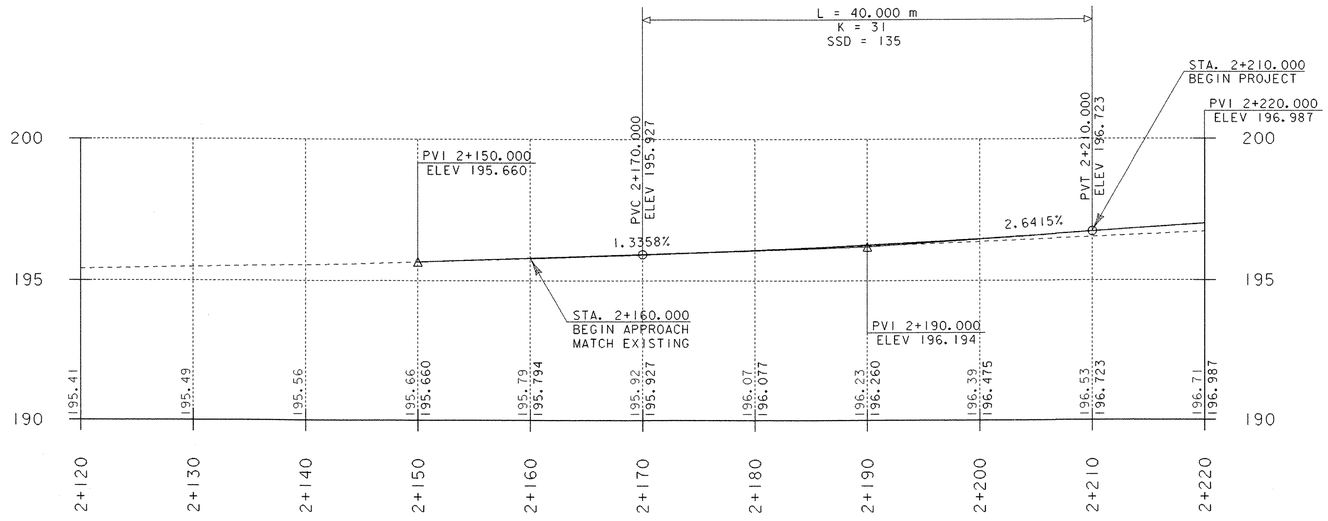
SCALE IN METERS

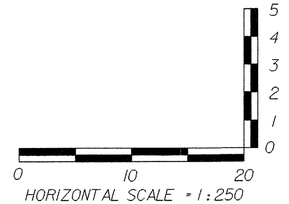
1:250

| | |
|---|---|
| PROJECT NAME: | RUTLAND TOWN |
| PROJECT NUMBER: | BRF 019-3(48) |

| | |
|---|---|
| FILE NAME: sbl72lp3.i | PLOT DATE: 11-MAR-2008 |
| PROJECT LEADER: R.WHITCOMB | DRAWN BY: T. LACKEY |
| DESIGNED BY: T. LACKEY | CHECKED BY: R.WHITCOMB |
| 95bl72/sbl72bdr.dgn | SHEET 22 OF 75 |

# MAINLINE



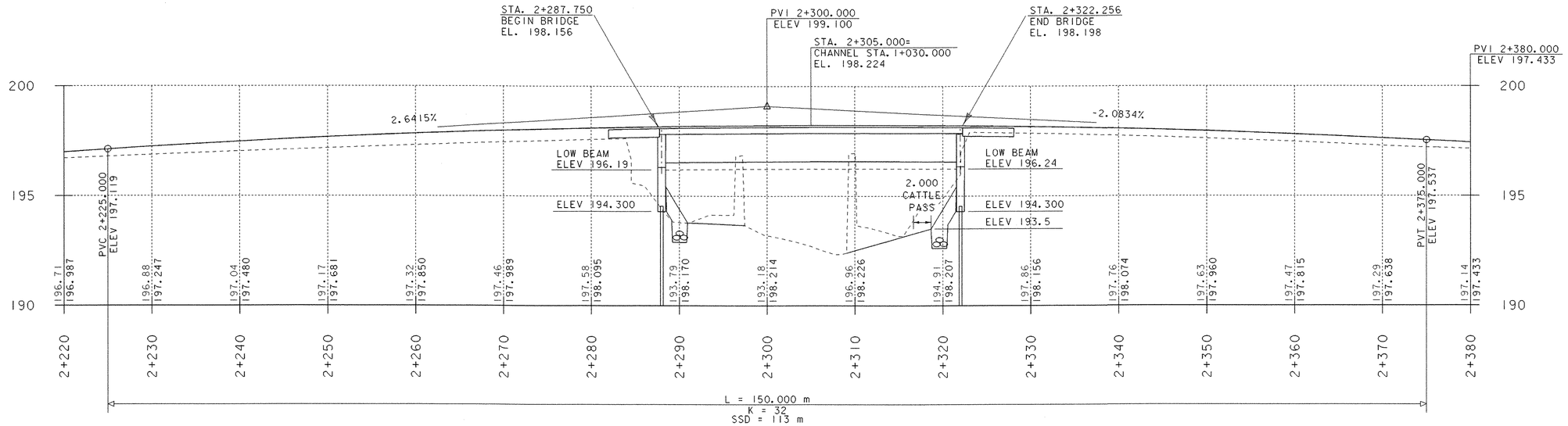



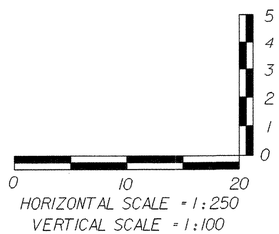

NOTE:
ELEVATIONS TO THE NEAREST HUNDREDTH ARE EXISTING GROUND ALONG PROPOSED CENTERLINE.
ELEVATIONS TO THE NEAREST THOUSANDTH ARE FINISH GRADE ALONG PROPOSED CENTERLINE.

MAINLINE
PROFILE 1

| | |
|---|---|
| PROJECT NAME: | RUTLAND TOWN |
| PROJECT NUMBER: | BRF 019-3(48) |
| FILE NAME: sbl72pfl.i | PLOT DATE: 11-MAR-2008 |
| PROJECT LEADER: R. WHITCOMB | DRAWN BY: L. BULLOCK |
| DESIGNED BY: T. LACKEY | CHECKED BY: R. WHITCOMB |
| 95bl72/str/sbl72xs2.dgn | SHEET 23 OF 75 |

# MAINLINE



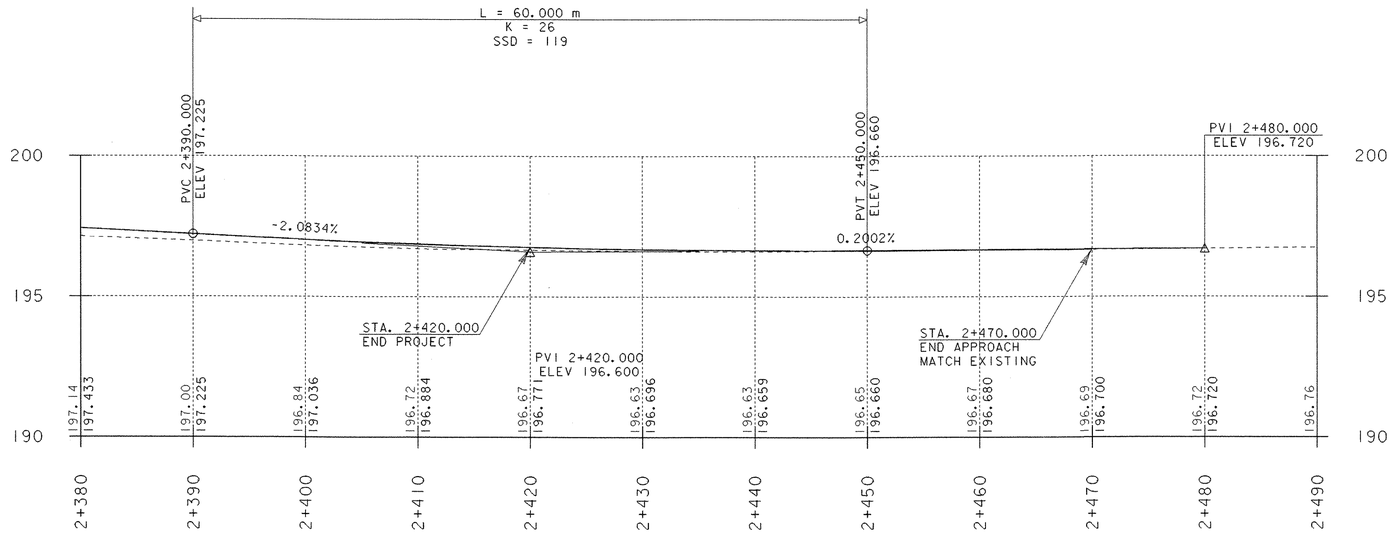



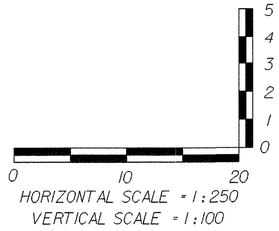

## MAINLINE
## PROFILE 2

NOTE:
ELEVATIONS TO THE NEAREST HUNDREDTH ARE EXISTING GROUND ALONG PROPOSED CENTERLINE.
ELEVATIONS TO THE NEAREST THOUSANDTH ARE FINISH GRADE ALONG PROPOSED CENTERLINE.

| | |
|---|---|
| PROJECT NAME: | RUTLAND TOWN |
| PROJECT NUMBER: | BRF 019-3(48) |
| FILE NAME: sbl72pf2.1 | PLOT DATE: 11-MAR-2008 |
| PROJECT LEADER: R. WHITCOMB | DRAWN BY: L. BULLOCK |
| DESIGNED BY: T. LACKEY | CHECKED BY: R. WHITCOMB |
| 95bl72/str/sbl72xs2.dgn | SHEET 24 OF 75 |

# MAINLINE



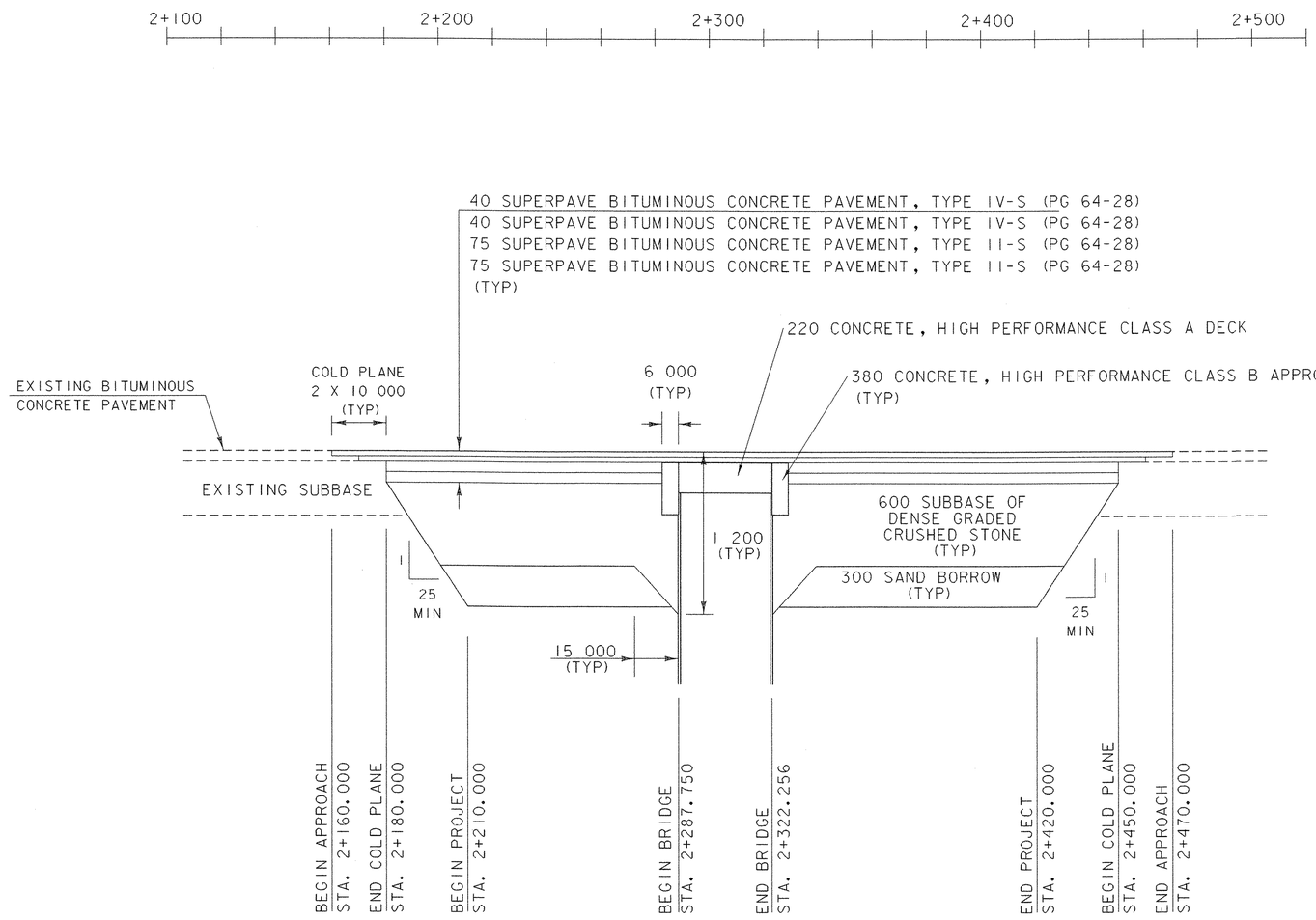

NOTE:
ELEVATIONS TO THE NEAREST HUNDREDTH ARE EXISTING GROUND ALONG PROPOSED CENTERLINE.
ELEVATIONS TO THE NEAREST THOUSANDTH ARE FINISH GRADE ALONG PROPOSED CENTERLINE.

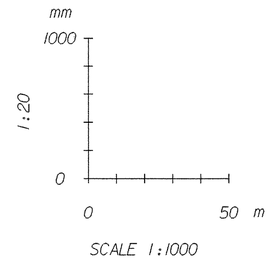
MAINLINE
PROFILE 3

| | |
|---|---|
| PROJECT NAME: | RUTLAND TOWN |
| PROJECT NUMBER: | BRF 019-3(48) |

| | |
|---|---|
| FILE NAME: sbl72pf3.i | PLOT DATE: 11-MAR-2008 |
| PROJECT LEADER: R. WHITCOMB | DRAWN BY: L. BULLOCK |
| DESIGNED BY: T. LACKEY | CHECKED BY: R. WHITCOMB |
| 95bl72/str/sbl72xs2.dgn | SHEET 25 OF 75 |

# MATERIAL TRANSITION DETAIL




SCALE 1:1000

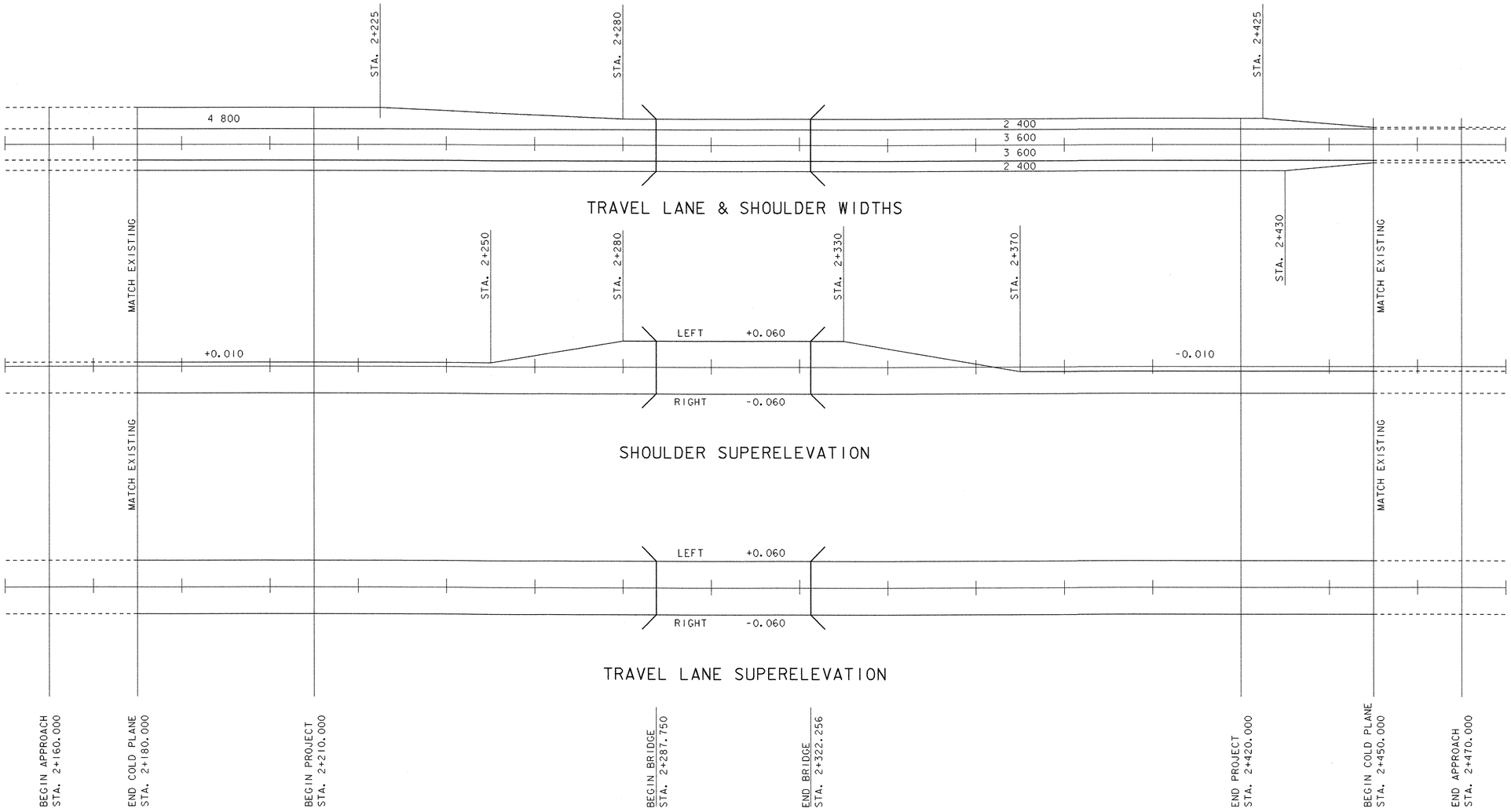
DIMENSIONS SHOWN IN MILLIMETERS

## MAINLINE
## MATERIAL TRANSITION DETAIL

| | |
|---|---|
| PROJECT NAME: | RUTLAND TOWN |
| PROJECT NUMBER: | BRF 019-3(48) |

| | |
|---|---|
| FILE NAME: sbl72pf4.1 | PLOT DATE: 11-MAR-2008 |
| PROJECT LEADER: R. WHITCOMB | DRAWN BY: L. BULLOCK |
| DESIGNED BY: T. LACKEY | CHECKED BY: R. WHITCOMB |
| 95bl72/str/sbl72xs2.dgn | SHEET 26 OF 75 |

Metric

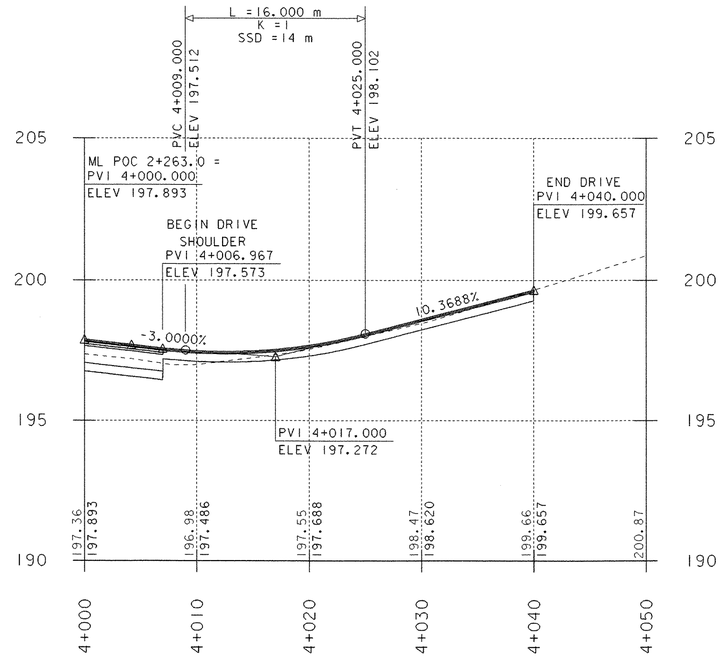


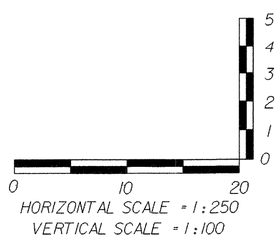

# MAINLINE
# WIDTHS & SUPERELEVATIONS

0 10 20 30 40 50
SCALE IN METERS
SCALE 1:500

| | |
|---|---|
| PROJECT NAME: | RUTLAND TOWN |
| PROJECT NUMBER: | BRF 019-3(48) |
| FILE NAME: sbl72pf5.i | PLOT DATE: 11-MAR-2008 |
| PROJECT LEADER: R. WHITCOMB | DRAWN BY: L. BULLOCK |
| DESIGNED BY: T. LACKEY | CHECKED BY: R. WHITCOMB |
| 95bl72/str/sbl72xs2.dgn | SHEET 27 OF 75 |

# DRIVE
# (ML 2+263 RT)




NOTE:
ELEVATIONS TO THE NEAREST HUNDREDTH ARE EXISTING GROUND ALONG PROPOSED CENTERLINE.
ELEVATIONS TO THE NEAREST THOUSANDTH ARE FINISH GRADE ALONG PROPOSED CENTERLINE.

## DRIVE
## PROFILE

| | |
|---|---|
| PROJECT NAME: | RUTLAND TOWN |
| PROJECT NUMBER: | BRF 019-3(48) |
| FILE NAME: sbl72pf6.i | PLOT DATE: 11-MAR-2008 |
| PROJECT LEADER: WHITCOMB | DRAWN BY: L. BULLOCK |
| DESIGNED BY: T. LACKEY | CHECKED BY: |
| 95bl72/str/sbl72xs2.dgn | SHEET 28 OF 75 |

Archaeologically Sensitive Area

Detour Limit of Disturbance

Ordinary High Water

Riparian Corridor

Soil Limit

Wetland Limit

VT STATE PLANE GRID N

RIPARIAN CORRIDOR

RIPARIAN CORRIDOR

59A
Deerfield loamy sand
0-4% slope
low erodability kw 0.17
good ag potential

28
Udifluvents & Fluvaquents
0% slope
low erodability

Class III Wetlands

96
Udipsamments
0% slope
low erodability

STA. 2+287.750
BEGIN BRIDGE
F.G. 198.156

STA. 2+322.256
END BRIDGE
F.G. 198.198

STA. 2+210.000
END APPROACH
BEGIN PROJECT

STA. 2+160.000
BEGIN APPROACH

POLE 18/0V97

59A
Deerfield loamy sand
0-4% slope
low erodability kw 0.17
good ag potential

STA. 2+420.000
END PROJECT
BEGIN APPROACH

STA. 2+470.000
END APPROACH

17 m2

11 m2

410 m2

23 m2

APPROX. TEMPORARY DETOUR LIMITS

96
Udipsamments
0% slope
low erodability

Class III Wetlands

OHW

OHW

East Creek

39B
Galway-Nellis-Farmington complex
3-8% slope
moderate erodability kw 0.32
high ag potential

| Impact Areas (m2) | | | |
|---|---|---|---|
| | Temporary | Permanent | Total |
| Project Area | 1031 | 6667 | 7698 |
| Agric. Soil | 0 | 0 | 0 |
| OHW Fill | 17 | 0 | 17 |
| Wetlands | 410 | 34 | 444 |

# RESOURCE PLAN

0 10 20 30 40 50

SCALE IN METERS

SCALE 1:400

| | |
|---|---|
| PROJECT NAME: | RUTLAND TOWN |
| PROJECT NUMBER: | BRF 019-3(48) |
| FILE NAME: sbl72rsc.i | PLOT DATE: 11-MAR-2008 |
| PROJECT LEADER: R WHITCOMB | DRAWN BY: T LACKEY |
| DESIGNED BY: T LACKEY | CHECKED BY: W. LAMMER |
| 95bl72/str/sbl72rsc.dgn | SHEET 29 OF 75 |

# 1. EROSION PREVENTION & SEDIMENT CONTROL NARRATIVE

## 1.1. PROJECT DESCRIPTION

1.1.1. This project "Rutland Town BRF 019-3(48)" will replace Bridge 103 on US 7 over the East Creek River in Rutland Town on existing alignment. The new bridge will be a two lane, single span, steel girder bridge. The project will maintain traffic on a temporary bridge upstream and east of the existing bridge during construction.

1.1.2. The total length of roadway work, including both approaches, drives and existing roadway is approximately 335 m.

1.1.3. The total disturbed area (excluding waste, borrow and staging areas) is approx 0.7681 hectares (1.90 ac.). The temporary bridge will disturb approx. 0.1114 hectares (0.275 ac.).

1.1.4. This project should last one construction season. This Erosion Prevention and Sediment Control Plan is intended for use during the construction season. A separate winter plan shall be submitted for approval if work is to occur from Oct 15th to April 15th, or if vegetation has not been sufficiently established after the completion of construction and by Oct 15th.

## 1.2. SITE INVENTORY & ANALYSIS

1.2.1. Off Site Drainage Characteristics (Up And Down Gradient). The land in the project area is mountainous and forested.

1.2.2. Drainage, Waterways, Bodies of Water. The bridge crosses the East Creek. The creek is incised, sinuous to meandering with eroded banks. The streambed is gravel, cobbles and boulders. The watershed area is 129.5 sq km.

1.2.3. Topography, Existing Roads, Buildings, Utilities.

1.2.3.1. Topography. The project site is mountainous and forested.

1.2.3.2. Existing Roads. US 7 is a Rural Principal Arterial Highway.

1.2.3.3. Buildings. A historic building is located to the northeast of the project area.

1.2.3.4. Utilities. Power and Utility poles run along the west side of VT 7 the entire length of the project. Power and Utility line cross the project area immediately to the south of the bridge and continue along the drive at 2+263.0 right.

1.2.4. Vegetation. The vegetation consists of fields on the north side, and woods south of the East Creek. Construction will replace some brush and trees. Stone Fill capped with grubbing material will stabilize slopes steeper than 66%. Seed & Mulch will stabilize slopes flatter than 66%.

1.2.5. Soils. The Soil Conservation Service "Soil Survey of Rutland County" identifies four soil types in the project site.

1.2.5.1. 28 Udifluvents & Fluvaquents, 0% slope. This soil is in the floodplain. Udiflevents are well drained to excessively drained, and frequently flooded. Fluvaquents are poorly drained to somewhat poorly drained. Its erodiblilty rating is low. Both soils are similar in use and management.

1.2.5.2. 39B Galway-Nellis-Farmington complex, 3 to 8% slopes. This soil is 40% moderately deep, well drained Galway soil; 40% very deep, well drained Nellis soil; 10% shallow well drained and somewhat excessively drained Farmington soils; and 10% other soils. The soil profile for Galways soil is typically: 0 to 8" very dark grayish brown silt loam; 8 to 20" dark yellowish brown fine sandy loam; 20 to 24" dark yellowish brown gravelly fine sandy loam; bedrock: 24 inches dolostone. The soil profile for Nellis soil is typically: 0 to 8" very dark grayish brown silt loam; 8 to 21" brown gravelly fine sandy loam; 21 to 60" dark grayish brown gravelly fine sandy loam. The soil profile for Farmington soil is typically: 0 to 8" very dark grayish brown silt loam; 8 to 12" dark yellowish brown silt loam; bedrock: 12 inches dolostone. Its erodiblilty rating is moderate (kw = 0.32). This soil has high agricultural potential.

1.2.5.3. 59A Deerfield loamy sand, 0 to 4% slopes. This soil is deep, moderately well drained, and nearly level and gently sloping. The soil profile is typically: 0 to 11' dark brown loamy sand; 11 to 19" yellowish brown sand; 19 to 24" mottled, light olive brown sand; 24 to 32" mottled, yellowish brown sand; 32 to 44" mottled olive brown sand; 44 to 60" mottled olive gray sand. Its erodiblilty rating is low (kw = 0.17).

1.2.5.4. 96 Udipsamments, 0% slope. This soil is nearly level, excessively drained to somewhat poorly drained in previously disturbed areas such as gravel pits and foundry fills. Its erodibility rating is low.

1.2.6. Sensitive Resource Areas

1.2.6.1. The East Creek runs through the project area. The project impacts it at the existing bridge and eastern detour. A Stream Alteration Permit (#HD-1-0359) dated 11/06/03 has been issued for this project.

1.2.6.2. Class III Wetlands are in the riparian corridor upstream, to the east, and downstream, to the west, of the project impacts. The temporary detour impacts the 50' wetland buffer.

1.2.6.3. Archaeologically Sensitive Areas are present within the project area to the west of US 7, and to the northeast of the End Project. BARRIER FENCE protects this area.

1.2.7. Non-Sensitive Resources

1.2.7.1. No Threatened & Endangered Species are present within the project area.

1.2.7.2. A Historic House is located to the northeast of the project area.

1.2.8. Proximity to Natural or Man-Made Water Features: East Creek at the bridge.

## 1.3. RISK EVALUATION

1.3.1. The project area is greater than 1 acre. Therefore the project falls under the jurisdiction of Construction General Permit 3-9020 (2006).

1.3.2. The project qualifies as a Low Risk project in the Detailed Risk Evaluation of Appendix A of Construction General Permit 3-9020 (2006). The project has storm water discharges from the construction site to receiving waters that do not first pass through a 50 ft vegetated buffer area.

1.3.2.1. To qualify as a Low Risk, the project must "have a maximum of 7 consecutive days of disturbed earth exposure in any location before temporary or final stabilization is implemented."

## 1.4. EROSION PREVENTION & SEDIMENT CONTROL

1.4.1. Mark Site Boundaries

1.4.1.1. PROJECT DEMARCATION FENCING will delineate the construction area for construction equipment. This measure limits the area that can be disturbed and exposed to erosion.

1.4.2. Limit Disturbance Area

1.4.2.1. PROJECT DEMARCATION FENCING and BARRIER FENCE will delineate the construction area for construction equipment. These measures limit the area that can be disturbed and exposed to erosion. Use BARRIER FENCE within 30 m upslope of receiving waters and to protect sensitive areas.

1.4.3. Stabilize Construction Entrance

1.4.3.1. VEHICLE TRACKING PAD will control tracking of sediment transport on to public roads. The entrance is a stabilized pad of crushed stone located wherever construction vehicles leave construction areas. The sites include: the project site; staging areas; and waste and borrow areas. The minimum area is 3700 x 15 000 (12' x 50'). Pipe all surface water flowing to or diverted towards a construction entrance under the stone. Size pipes for their watersheds. The minimum pipe diameter is 150 mm.

1.4.4. Install Silt Fence

1.4.4.1. SILT FENCE and SPECIAL PROVISION (GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED) placed level on slopes will control sheet flow sediment transport. Place silt fences level and 1500 to 3000 mm (5'-10') from the toe of slopes. Turn the ends of silt fence slightly uphill to stop concentrated water from flowing around the ends. The maximum slope length between separate runs of silt fence is 30 000 (100'). Place silt fence before beginning upslope earthwork. Use SPECIAL PROVISION (GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED) for silt fence within 30 m upslope of receiving waters.

1.4.5. Divert Upland Runoff

1.4.6. Slow Down Channelized Runoff

1.4.6.1. TEMPORARY STONE CHECK DAM, TYPE I placed in ditches will reduce flow velocities and prevent erosion. Place dams in ditches so that the elevation of the top of a check dam is level with the toe of the next upslope check dam. The check dams may be removed once the stone lining of the ditches is complete and the surrounding area stabilized.

1.4.6.2. TURBIDITY CURTAINS will control concentrated flow sediment transport around abutments and piers.

1.4.7. Construct Permanent Controls

1.4.7.1. Roadway Typical Section

1.4.7.1.1. SUPERPAVE BITUMINOUS CONCRETE PAVEMENT (PG 64-28) on the road surface will prevent erosion.

1.4.7.1.2. AGGREGATE SURFACE COURSE on the shoulder will allow runoff to infiltrate and prevent erosion.

1.4.7.2. Channel Typical Section

1.4.7.2.1. STONE FILL, TYPE I at the ends of the wing walls will prevent erosion and control sediment transport.

1.4.7.2.2. STONE FILL, TYPE III around the abutments on slopes greater than 66% will prevent erosion and control sediment transport.

1.4.7.2.3. GEOTEXTILE UNDER STONE FILL will prevent erosion and control sediment transport.

1.4.8. Stabilize Exposed Soils

1.4.8.1. TRACKING & MULCHING will temporarily stabilize slopes. Use tracking for short term (two weeks) exposed slopes. Drive heavy equipment up and down slopes to leave level tracks (small check dams) that will catch water flow. Stabilize slopes within 48 hours or sooner considering rain.

1.4.8.2. SEEDING & MULCHING will establish vegetation on side slopes less than 66% that will prevent erosion and control sediment transport. Add TEMPORARY EROSION MATTING (with 100% natural fibers) to slopes ranging from 33% to 66%.

1.4.8.2.1. ML 2+385 to 2+430 right

1.4.8.2.2. ML 2+440 to 2+460 right

1.4.8.2.3. ML 2+430 to 2+450 left

1.4.8.3. "Stone Check Dams" placed in ditches will reduce flow velocities and prevent erosion. Place dams in ditches so that the elevation of the top of a check dam is level with the toe of the next upslope check dam. The check dams may be removed once the stone lining of the ditches is complete and the surrounding area stabilized.

1.4.8.3.1. ML 2+320 to 2+345 right

1.4.9. Winter Stabilization

1.4.10. Stabilize Soil at Final Grade

1.4.10.1. SEEDING & MULCHING will stabilize slopes ranging from 0% to 66%. Add TEMPORARY EROSION MATTING (with 100% natural fibers) to slopes ranging from 33% to 66%. Use seeding for long term exposed slopes. Allow Grass 2 weeks to establish itself. Stabilize slopes within 48 hours or sooner considering rain.

1.4.10.2. STONE FILL, TYPE I in roadway ditches will prevent erosion and control sediment transport.

1.4.10.3. CULVERTS will convey concentrated flow under roads and prevent erosion.

1.4.10.4. STONE FILL, TYPE I at culvert outlets will dissipate water velocities and prevent erosion and control sediment transport.

1.4.11. Dewatering Activities

1.4.12. Inspect your Site

1.4.12.1. Inspect your site at least once every 7 calendar days and within 24 hours of the end of a storm event resulting in the discharge of stormwater from the construction site.

1.4.12.2. Check measures (e.g. stone check dams, silt fence, and sand bags) regularly for accumulation of sediment. Remove sediment build-up when the level of sediment reaches one-half the height of the control measure. Dispose of sediments in an approved area where they will not be subject to erosion.

1.4.12.3. If there is a discharge of visibly discolored stormwater from the construction site or from the construction site to waters of the state, the Permittee shall take immediate corrective action.

1.4.12.4. If there is a discharge of visibly discolored stormwater from the construction site to waters of the state, the On-Site Plan Coordinator shall, within 72 hours of first discovering the discharge, submit a written report about the discharge and the resulting corrective action to the Vermont Agency Of Natural Resources, Department Of Environmental Conservation (DEC).

Metric

EPSC
NOTES

| | |
|---|---|
| PROJECT NAME: | RUTLAND TOWN |
| PROJECT NUMBER: | BRF 019-3(48) |
| FILE NAME: sbl72e01.i | PLOT DATE: 11-MAR-2008 |
| PROJECT LEADER: R. WHITCOMB | DRAWN BY: W. LAMMER |
| DESIGNED BY: W. LAMMER | CHECKED BY: T. LACKEY |
| 95bl72\str\sbl72ero.dgn | SHEET 30 OF 75 |

Soil Limit

Ordinary High Water

50' Riparian Corridor

Wetland Limit

R.O.W. & Property Lines

Sensitive Area (SA)

VT STATE PLANE GRID

N

RIPARIAN CORRIDOR

RIPARIAN CORRIDOR

EAST CREEK

28

59A

96

59B

ARCHAEOLOGICALLY SENSITIVE AREA (SA)

DECIDUOUS WOODS

CONIFER WOODS

CLASS III WETLAND SENSITIVE AREA (SA)

POLE TBI/CV97

OHW

East Creek

SOIL

28
Udifluvents & Fluvaquents
0% slope
low erodability

39B
Galway-Nellis-Farmington complex
3-8% slope
moderate erodability kw 0.32
high ag potential

59A
Deerfield loamy sand
0-4% slope
low erodability kw 0.17
good ag potential

96
Udipsamments
0% slope
low erodability

0 10 20 30 40 50

SCALE IN METERS

SCALE 1:400

# EPSC EXISTING PLAN

| | |
|---|---|
| PROJECT NAME: | RUTLAND TOWN |
| PROJECT NUMBER: | BRF 019-3(48) |

| | |
|---|---|
| FILE NAME: sbl72e02.1 | PLOT DATE: 11-MAR-2008 |
| PROJECT LEADER: R WHITCOMB | DRAWN BY: W. LAMMER |
| DESIGNED BY: W. LAMMER | CHECKED BY: T LACKEY |
| 95bl72/structures/sbl72ero.dgn | SHEET 31 OF 75 |

Soil Limit

Ordinary High Water

50' Riparian Corridor

Wetland Limit

R.O.W. & Property Lines

Sensitive Area (SA)

VT STATE PLANE GRID

N

RIPARIAN CORRIDOR

RIPARIAN CORRIDOR

28

59A

96

59B

SA

ARCHAEOLOGICALLY SENSITIVE AREA

Approx. Earthwork Limit

STA. 2+287.500
BEGIN BRIDGE
F.G. 198.155

STA. 2+322.507
END BRIDGE
F.G. 198.197

STA. 2+210.000
END APPROACH
BEGIN PROJECT

STA. 2+160.000
BEGIN APPROACH

STA. 2+420.000
END PROJECT
BEGIN APPROACH

STA. 2+470.000
END APPROACH

EAST CREEK

East Creek

APPROX. TEMPORARY DETOUR LIMITS

CLASS III WETLAND SENSITIVE AREA

CONTROL MEASURES

Seeding & Mulching

PDF Fence

Barrier Fence

Temporary Check Dams

Silt Fence

Woven Wire Reinforced Fence

Stabilized Construction Entrance

Temporary Erosion Matting

Filter Curtain

SOIL

28
Udifluvents & Fluvaquents
0% slope
low erodability

39B
Galway-Nellis-Farmington complex
3-8% slope
moderate erodability kw 0.32
high ag potential

59A
Deerfield loamy sand
0-4% slope
low erodability kw 0.17
good ag potential

96
Udipsamments
0% slope
low erodability

0 10 20 30 40 50

SCALE IN METERS

SCALE 1:400

# EPSC CONSTRUCTION PLAN

PROJECT NAME: RUTLAND TOWN
PROJECT NUMBER: BRF 019-3(48)

FILE NAME: sbl72e03.1
PROJECT LEADER: R WHITCOMB
DESIGNED BY: W. LAMMER
95bl72/structures/sbl72ero.dgn

PLOT DATE: 11-MAR-2008
DRAWN BY: W. LAMMER
CHECKED BY: T LACKEY
SHEET 32 OF 75

MAY Metric

Soil Limit

Ordinary High Water

50' Riparian Corridor

Wetland Limit

R.O.W. & Property Lines

Sensitive Area (SA)

VT STATE PLANE GRID

N

RIPARIAN CORRIDOR

RIPARIAN CORRIDOR

EAST CREEK

28

59A

96

59B

Approx. Earthwork Limit

ARCHAEOLOGICALLY SENSITIVE AREA (SA)

Approx. Earthwork Limit

ARCHAEOLOGICALLY SENSITIVE AREA (SA)

CLASS III WETLAND SENSITIVE AREA (SA)

PAVED DRIVE APRON

10.980

8.920

OHW

East Creek

CONTROL MEASURES

Seeding & Mulching

Erosion Matting

SOIL

28
Udifluvents & Fluvaquents
0% slope
low erodability

39B
Galway-Nellis-Farmington complex
3-8% slope
moderate erodability kw 0.32
high ag potential

59A
Deerfield loamy sand
0-4% slope
low erodability kw 0.17
good ag potential

96
Udipsamments
0% slope
low erodability

0 10 20 30 40 50

SCALE IN METERS

SCALE 1:400

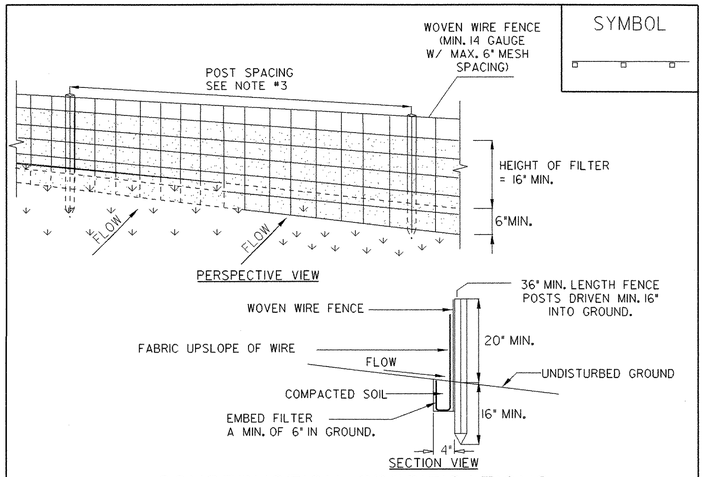
# EPSC FINAL PLAN

PROJECT NAME: RUTLAND TOWN
PROJECT NUMBER: BRF 019-3(48)

FILE NAME: sbl72e04.1
PROJECT LEADER: R WHITCOMB
DESIGNED BY: W. LAMMER
95bl72/structures/sbl72ero.dgn

PLOT DATE: 11-MAR-2008
DRAWN BY: W. LAMMER
CHECKED BY: T LACKEY
SHEET 33 OF 75

SYMBOL




## CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE FENCE REINFORCEMENT IS ONLY REQUIRED WITHIN 100 FT UPSLOPE OF RECEIVING WATERS.

2. WHERE REQUIRED FENCE SHALL BE WOVEN WIRE, MIN. 14 GAUGE WITH A 6" MAXIMUM MESH OPENING. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI100X, STABILINKA T140N OR APPROVED EQUIVALENT.

3. POST SPACING FOR WIRE-BACKED FENCE SHALL BE 10' MAXIMUM. FOR FILTER-CLOTH FENCE, WHEN ELONGATION IS >50%, POST SPACING SHALL NOT EXCEED 4'. FOR FILTER-CLOTH FENCE, WHEN ELONGATION IS <50%, POST SPACING SHALL NOT EXCEED 6'.

4. WOVEN WIRE FENCE IS TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES. FILTER CLOTH IS TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.

5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED.

6. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.

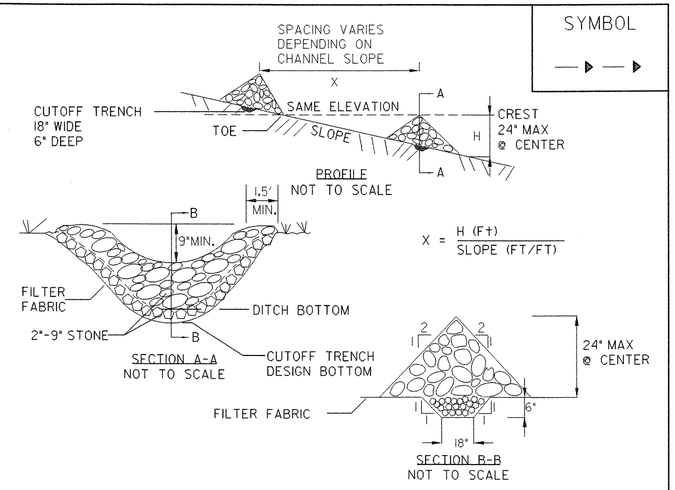
7. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN SEDIMENT REACHES HALF OF FABRIC HEIGHT.

| | |
|---|---|
| ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC<br>ORIGINALLY DEVELOPED BY USDA-NRCS<br>VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION | SILT FENCE |

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
STANDARD SPECIFICIATION 649.51 GEOTEXTILE FOR SILT FENCE OR
SPECIAL PROVISION 900.675 (GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED)

SYMBOL




## CONSTRUCTION SPECIFICATIONS

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION.

2. SET SPACING OF CHECK DAMS SO THAT THE ELEVATION OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION AS THE TOE OF THE UPSTREAM DAM.

3. EXTEND THE STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.

4. PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.

5. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.

MAXIMUM DRAINAGE AREA 2 ACRES.

| | |
|---|---|
| ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DECORIGINALLY DEVELOPED BY USDA-NRCSVERMONT 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 ITEM SHALL BE PAID FOR UNDER ITEM
653.25 TEMPORARY STONE CHECK DAM, TYPE I

| REVISIONS | |
|---|---|
| MARCH 8, 2007 | JMF |
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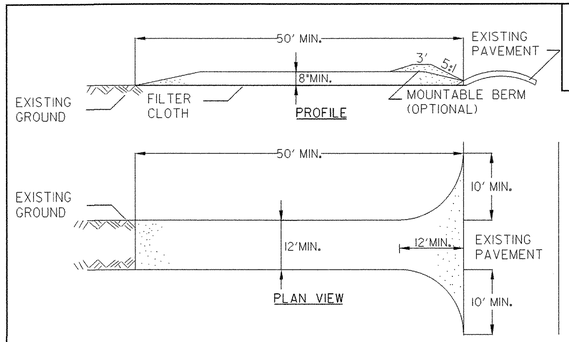
| | |

SYMBOL




## CONSTRUCTION SPECIFICATIONS

1. STONE SIZE - USE 1-4" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.

2. LENGTH - NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH APPLIES).

3. THICKNESS - NOT LESS THAN EIGHT (8) INCHES.

4. WIDTH - TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.

5. GEOTEXTILE MUST BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE.

6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.

7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.

8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED ACCORDING TO PERMIT REQUIREMENTS.

| | |
|---|---|
| ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC<br>ORIGINALLY DEVELOPED BY USDA-NRCS<br>VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION | STABILIZED<br>CONSTRUCTION<br>ENTRANCE |

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
653.35 VEHICLE TRACKING PAD

| REVISIONS | |
|---|---|
| FEBRUARY 9, 2007 | WHF |
| MARCH 8, 2007 | JMF |
| | |
| | |
| | |

### SEEDING FORMULA
### RURAL AREAS

| % WT. | kg/ha | NAME | PUR % | GERM % |
|---|---|---|---|---|
| 37.5 | 26.0 | CREEPING RED FESCUE | 98 | 85 |
| 37.5 | 26.0 | TALL FESCUE | 95 | 90 |
| 5.0 | 4.0 | RED TOP | 95 | 90 |
| 15.0 | 10.0 | BIRDSFOOT TREFOIL | 98 | 85 |
| 5.0 | 4.0 | ANNUAL RYE GRASS | 95 | 85 |
| 100.0 | 70.0 | | | |

**GENERAL NOTES**

SEED MIXTURE: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.

SEED: TO BE APPLIED PER SEEDING FORMULAS OR AS DIRECTED BY THE ENGINEER.

FERTILIZER: FORMULA 10-20-10, TO BE USED WITH SEED, APPLIED AT THE RATE OF 560 kg/ha. (HYDRO SEEDERS MAY USE 19-19-19 FORMULA).

AGRICULTURAL LIMESTONE: TO BE APPLIED AT THE RATE OF 4500 kg/ha, OR AS DIRECTED BY THE ENGINEER.

HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 4500 kg/ha, OR AS DIRECTED BY THE ENGINEER.

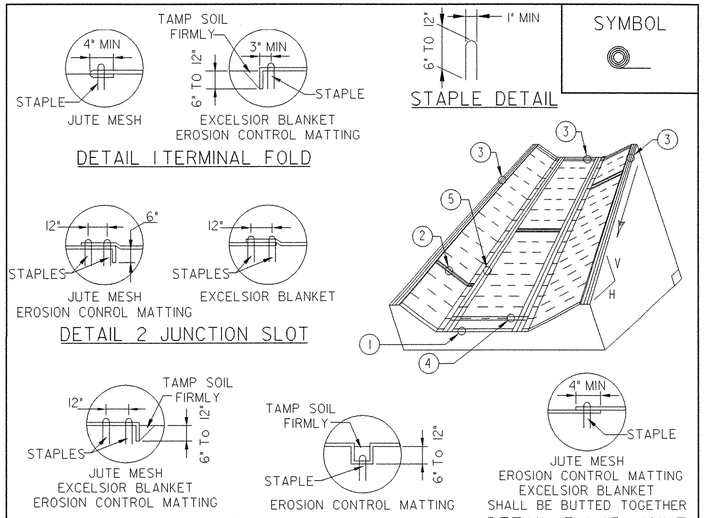
TOPSOIL: TO BE USED WITH SEED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.

# EPSC
# DETAILS 1

PROJECT NAME: RUTLAND TOWN
PROJECT NUMBER: BRF 019-3(48)

FILE NAME: sbl72e05.i
PROJECT LEADER: R. Whitcomb
DESIGNED BY: W. Lammer
95bl72/sbl72ero.dgn

PLOT DATE: 11-MAR-2008
DRAWN BY: str3
CHECKED BY: T. Lackey
SHEET 34 OF 75







SYMBOL

## CONSTRUCTION SPECIFICATIONS

1. EROSION MATTING, CHECK SLOTS, SHALL BE SPACED IN DITCH CHANNEL SO THAT ONE OCCURS WITHIN EACH 50' ON SLOPES OF MORE THAN 4% AND LESS THAN 6%. ON SLOPES OF 6% OR MORE, THEY SHALL BE SPACED SO THAT ONE OCCURS WITHIN EACH 25'.

2. APPLY FERTILIZER, LIME 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) DITCH

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

FOR ITEM 653.20 TEMPORARY EROSION MATTING
USE ONLY MATTING WITH 100% NATURAL FIBERS

| REVISIONS | |
|---|---|
| MARCH 8, 2007 | JMF |
| APRIL 16, 2007 | WHF |
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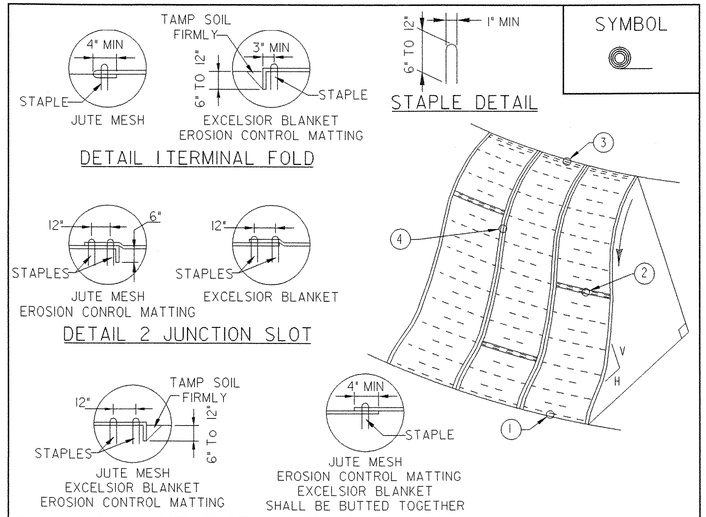





SYMBOL

## 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

FOR ITEM 653.20 TEMPORARY EROSION MATTING
USE ONLY MATTING WITH 100% NATURAL FIBERS

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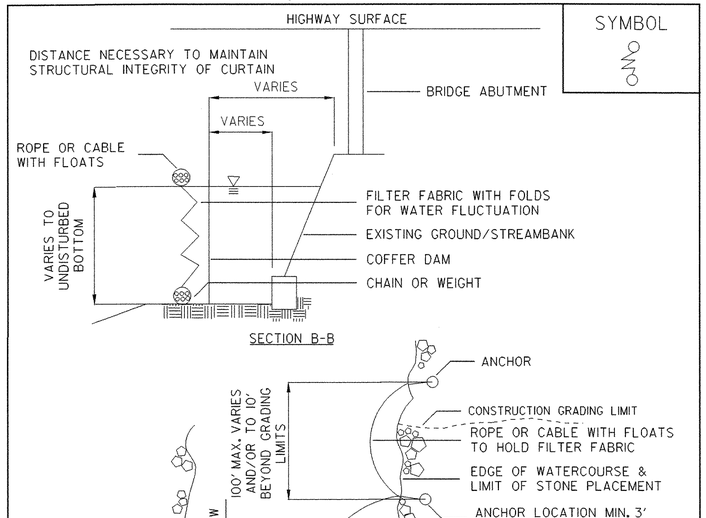
| | |




SYMBOL

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT AGENCY OF TRANSPORTATION

TURBIDITY CURTAIN

NOTES:

THIS ITEM SHALL BE PAID FOR UNDER ITEM
649.61 GEOTEXTILE FOR FILTER CURTAIN

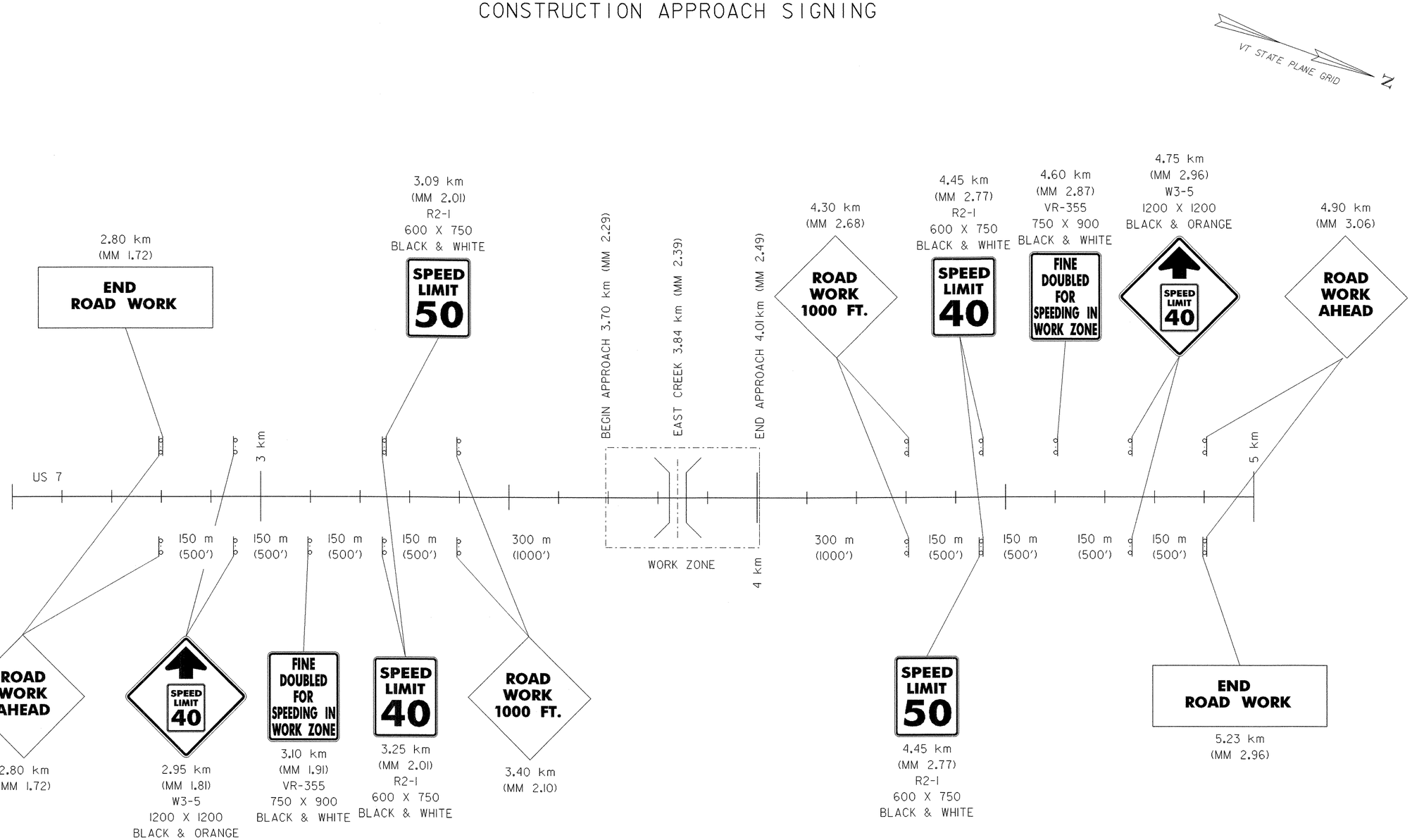
# EPSC DETAILS 2

| | |
|---|---|
| PROJECT NAME: | RUTLAND TOWN |
| PROJECT NUMBER: | BRF 019-3(48) |

| | |
|---|---|
| FILE NAME: sb172e06.i | PLOT DATE: 11-MAR-2008 |
| PROJECT LEADER: R. Whitcomb | DRAWN BY: str3 |
| DESIGNED BY: W. Lammer | CHECKED BY: T. Lackey |
| 95b172/sb172ero.dgn | SHEET 35 OF 75 |

VAOT Metric

# CONSTRUCTION APPROACH SIGNING




NOTES:

1. SEE STD E-100 "CONSTRUCTION APPROACH SIGNS".

2. INCLUDE PAYMENT FOR SPEED LIMIT REGULATORY AND WARNING SIGNS UNDER ITEM 641.10 "TRAFFIC CONTROL".

0 100 200 300
SCALE 1:4 000

## TRAFFIC
## CONSTRUCTION PLAN 1

PROJECT NAME: RUTLAND TOWN
PROJECT NUMBER: BRF 019-3(48)

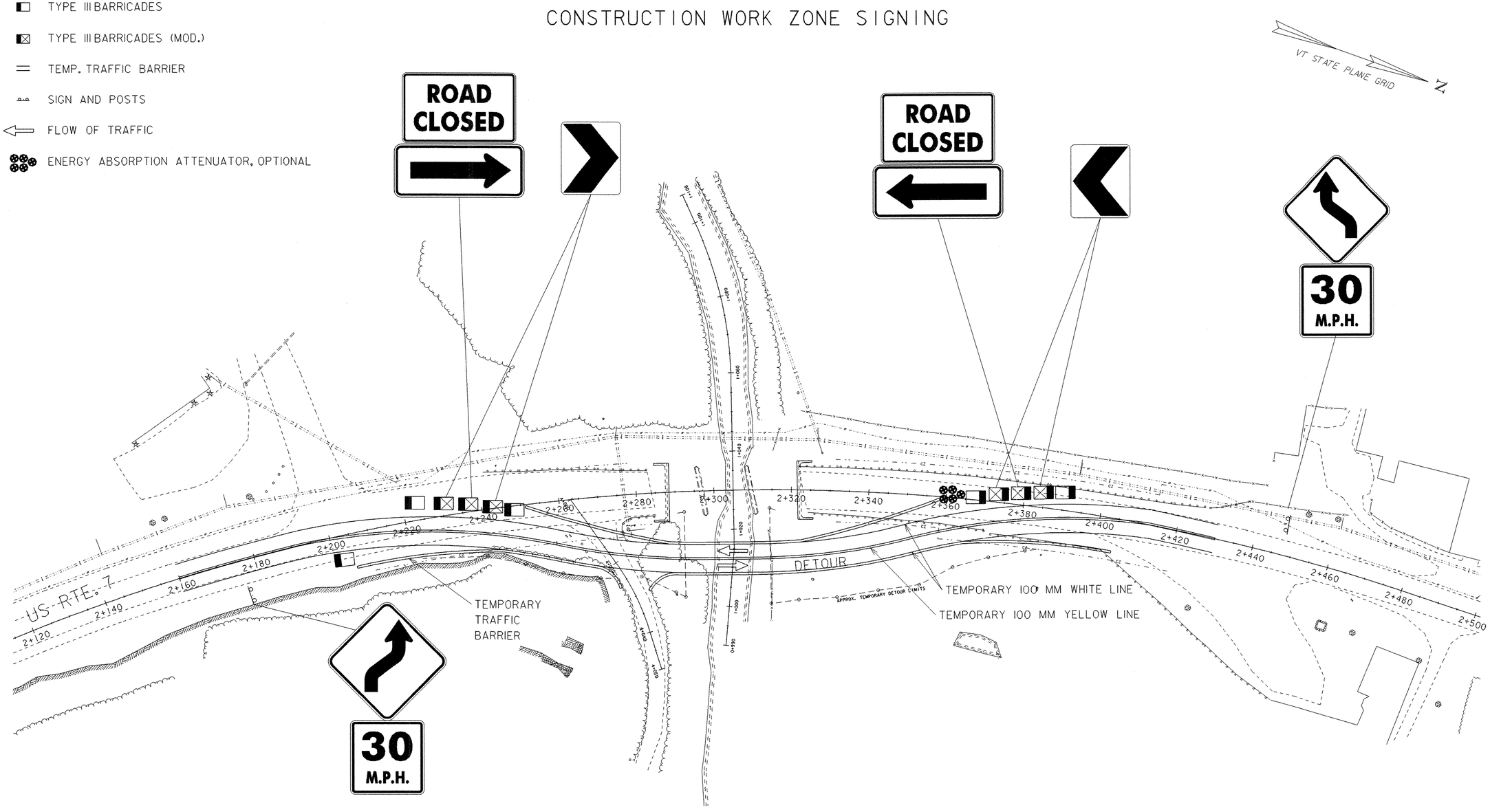
FILE NAME: sbl72tc1.1
PROJECT LEADER: R. WHITCOMB
DESIGNED BY: T. LACKEY
95bl72/str/sbl72tc.dgn

PLOT DATE: 11-MAR-2008
DRAWN BY: T. LACKEY
CHECKED BY: R. WHITCOMB
SHEET 36 OF 75

LEGEND

- TYPE III BARRICADES
- TYPE III BARRICADES (MOD.)
- TEMP. TRAFFIC BARRIER
- SIGN AND POSTS
- FLOW OF TRAFFIC
- ENERGY ABSORPTION ATTENUATOR, OPTIONAL

# CONSTRUCTION WORK ZONE SIGNING




NOTES:

1. THE MINIMUM CLEAR ZONE DISTANCE IS 4.25 m.

2. THE MINIMUM FLARE RATE FOR TEMPORARY TRAFFIC BARRIER IS 1:9 MINIMUM.

3. USE ITEM 621.57 "ENERGY ABSORPTION ATTENUATOR, SAND-FILLED PLASTIC BARREL" WHERE BARRIER TERMINALS END INSIDE THE CLEAR ZONE. DESIGN ATTENUATORS FOR AT LEAST THE POSTED SPEED, 40 MPH.

4. PAVE DETOUR ACCORDING TO SECTION 528.04 "TEMPORARY BRIDGE, DESIGN AND CONSTRUCTION DETAILS".

5. INCLUDE PAYMENT FOR ALL TEMPORARY TRAFFIC BARRIER UNDER ITEM 528.11 "TWO WAY TEMPORARY BRIDGE".

6. INCLUDE PAYMENT FOR WORK ZONE SIGNING AND BARRICADES UNDER ITEM 641.10 " TRAFFIC CONTROL".

7. SEE STD E-100 "CONSTRUCTION APPROACH SIGNS".

8. SEE STD E-107 "DELINEATION, BARRICADES & DETOURS FOR CONSTRUCTION AREAS".

0 10 20 30
SCALE 1:500

## TRAFFIC CONSTRUCTION PLAN 2

| | |
|---|---|
| PROJECT NAME: | RUTLAND TOWN |
| PROJECT NUMBER: | BRF 019-3(48) |

| | |
|---|---|
| FILE NAME: sb172tc2.i | PLOT DATE: 11-MAR-2008 |
| PROJECT LEADER: R. WHITCOMB | DRAWN BY: T. LACKEY |
| DESIGNED BY: T. LACKEY | CHECKED BY: R. WHITCOMB |
| 95b172/str/sb172tc.dgn | SHEET 37 OF 75 |

100 MM WHITE LINE

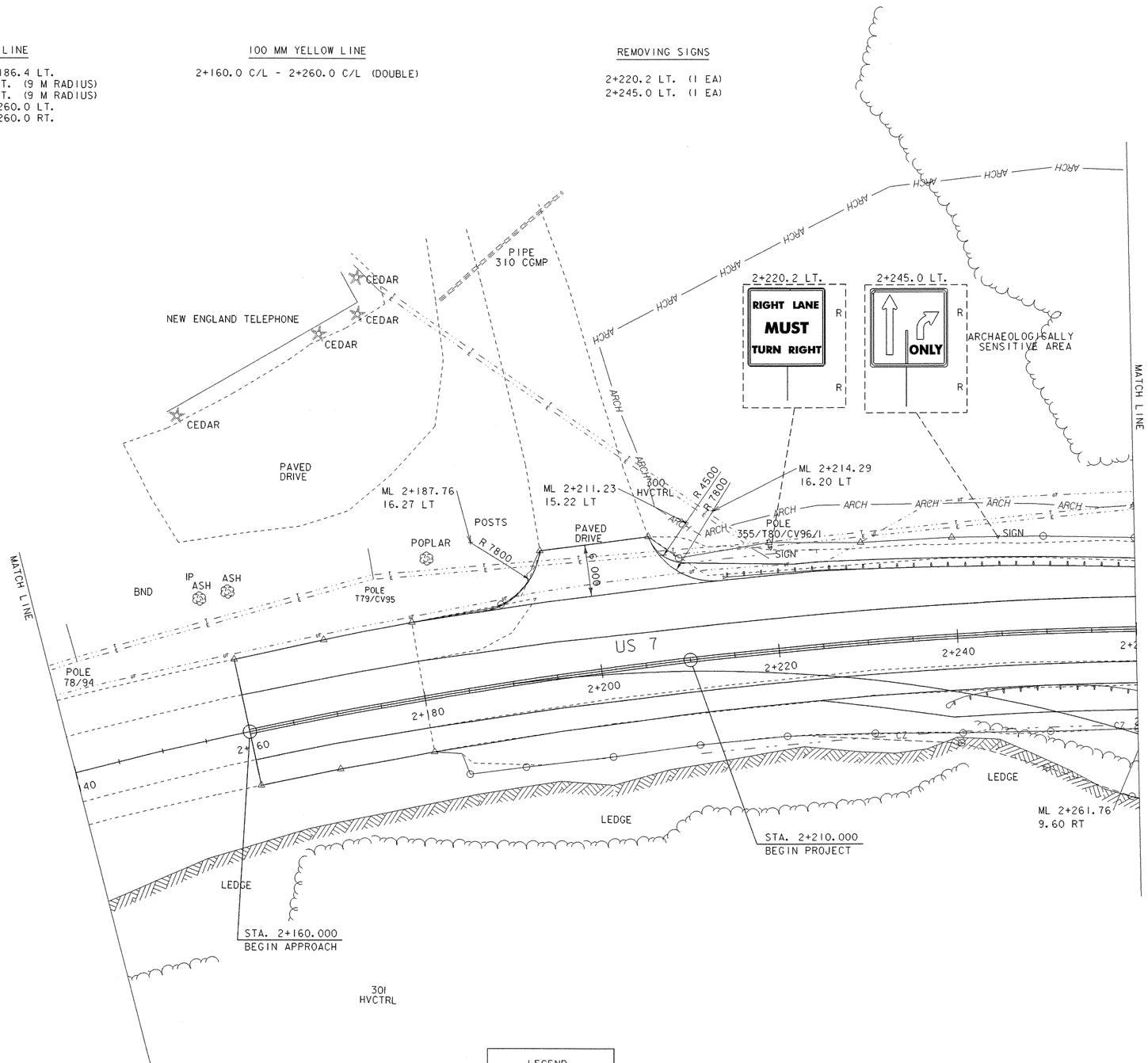
2+160.0 LT. - 2+186.4 LT.
2+186.4 LT. - 2+195.1 LT. (9 M RADIUS)
2+207.0 LT. - 2+216.4 LT. (9 M RADIUS)
2+216.4 LT. - 2+260.0 LT.
2+160.0 RT. - 2+260.0 RT.

100 MM YELLOW LINE

2+160.0 C/L - 2+260.0 C/L (DOUBLE)

REMOVING SIGNS

2+220.2 LT. (1 EA)
2+245.0 LT. (1 EA)




LEGEND

N = NEW
R = REMOVE

0 10 20 30

SCALE IN METERS

1:250

# TRAFFIC
# FINAL PLAN 1

| | |
|---|---|
| PROJECT NAME: | RUTLAND TOWN |
| PROJECT NUMBER: | BRF 019-3(48) |
| FILE NAME: sbl72tc3.1 | PLOT DATE: 11-MAR-2008 |
| PROJECT LEADER: R.WHITCOMB | DRAWN BY: L. BULLOCK |
| DESIGNED BY: L. BULLOCK | CHECKED BY: T. LACKEY |
| 95bl72/str/sbl72tc.dgn | SHEET 38 OF 75 |

VAOT Metric

REMOVING SIGNS

2+279 RT
2+386 RT

TRAFFIC SIGNS, TYPE A

2+279 RT

ERECTING SALVAGED SIGNS

2+386 RT

SETTING SALVAGED POSTS

2+386 RT

100 MM WHITE LINE

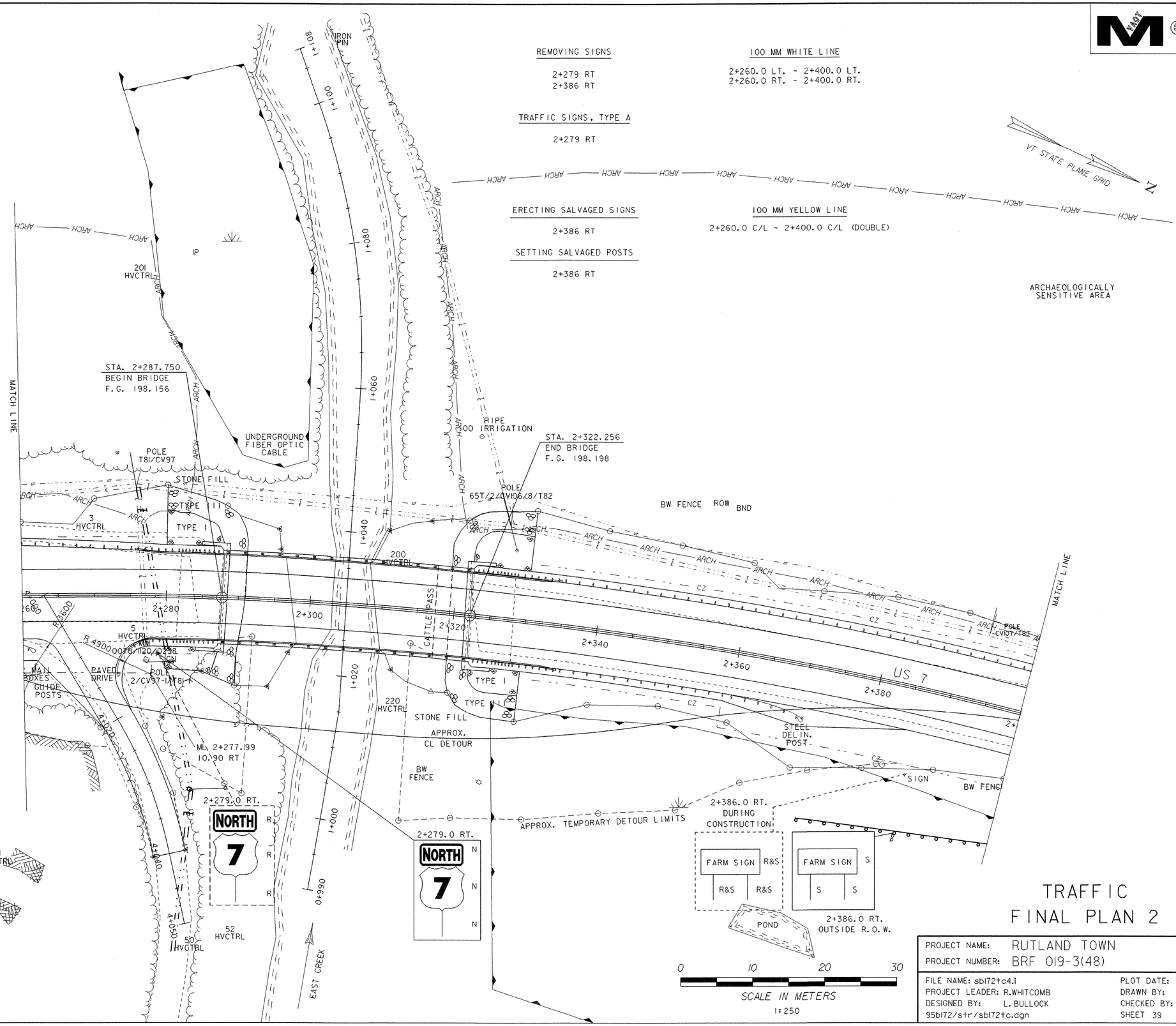
2+260.0 LT. - 2+400.0 LT.
2+260.0 RT. - 2+400.0 RT.

100 MM YELLOW LINE

2+260.0 C/L - 2+400.0 C/L (DOUBLE)

VT STATE PLANE GRID N

ARCHAEOLOGICALLY SENSITIVE AREA




LEGEND

N = NEW
R = REMOVE
S = SALVAGE
RET = RETAIN
EXISTING = -----
NEW = ———

# TRAFFIC FINAL PLAN 2

| | |
|---|---|
| PROJECT NAME: | RUTLAND TOWN |
| PROJECT NUMBER: | BRF 019-3(48) |
| FILE NAME: sbl72tc4.i | PLOT DATE: 11-MAR-2008 |
| PROJECT LEADER: R.WHITCOMB | DRAWN BY: L. BULLOCK |
| DESIGNED BY: L. BULLOCK | CHECKED BY: T. LACKEY |
| 95bl72/str/sbl72tc.dgn | SHEET 39 OF 75 |

NOT Metric

ARCHAEOLOGICALLY SENSITIVE AREA

100 MM WHITE LINE

2+400.0 LT. - 2+470.0 LT.
2+400.0 RT. - 2+470.0 RT.

100 MM YELLOW LINE

2+400.0 C/L - 2+430.0 C/L (DOUBLE)
2+439.0 C/L - 2+470.0 C/L (DOUBLE)

VT STATE PLANE GRID N

MATCH LINE

STA. 2+420.000
END PROJECT

ARCH
CZ
2+400
2+420
2+440
2+460
2+480
2+500
2+520
2+540
2+560
2+575
R 6600
R 8400
ML 2+416.68
12.60 RT
ML 2+449.39
12.61 RT
OAK
2
HVCTRL
MAIL BOX
SIGN
MAPLE
STA. 2+470.000
END APPROACH
ARCHAEOLOGICALLY SENSITIVE AREA
GRAVEL DRIVE
BW FENCE
FENCE POST
HISTORIC BARN
BND
POLE 2/CVI08/T84
POLE 109/305/85
GARDEN
HISTORIC HOUSE
LILAC
APPLE
100 HVCTRL
US 7
PK IN PAVEMENT
POLE 109X/85½
11 HVCTRL
TO PITTSFORD

0 10 20 30
SCALE IN METERS
1:250

# TRAFFIC
# FINAL PLAN 3

| | |
|---|---|
| PROJECT NAME: | RUTLAND TOWN |
| PROJECT NUMBER: | BRF 019-3(48) |

| | |
|---|---|
| FILE NAME: sbl72tc5.i | PLOT DATE: 11-MAR-2008 |
| PROJECT LEADER: R.WHITCOMB | DRAWN BY: L. BULLOCK |
| DESIGNED BY: L. BULLOCK | CHECKED BY: T. LACKEY |
| 95bl72/str/sbl72tc.dgn | SHEET 40 OF 75 |

**STATE OF VERMONT**
**AGENCY OF TRANSPORTATION**

# TRAFFIC SIGN SUMMARY SHEET

VAOT Metric

| KILOMETER MARKER, STATION, OR SIGN NUMBER | SIGN LEGEND | SIGN DIMENSIONS | | | NEW & SALVAGED SIGNS | | | | EXIST POST | | NEW SIGN POSTS | | | | | | | | | | | | | | | | | | REMARKS | SIGN DETAIL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | EA | WIDTH (mm) | HEIGHT (mm) | "A" | "B" | SALV SIGN | SALV TIS | RETAIN | SALVAGE | NO. OF POSTS | FLANGED CHANNEL kg/m | | | SQUARE STEEL (mm) kg/m | | | ANCHOR | SLEEVE | TUBULAR ALUMINUM Ø (mm) kg/m | | | FOUNDATION | TUBULAR STEEL Ø (mm) kg/m | | | | W-SHAPE STEEL FTG. SIZE | | WEIGHT | POST SIZE | SIGN FRAME REQUIRED | | DETAIL ON SHEET NUMBER | STD. SHEET NUMBER |
| | | | | | | | | | | | | 1.7 | 3.0 | 4.5 | 44 | 50 | 63 | | | 75 | 100 | 100 MOD | | 75 | 89 | 100 | 125 | 600 mm | 750 mm | | | | | | |
| | | | | | | | | | | | | | | | 3.4 | 3.9 | 5.0 | | | 1.9 | 2.5 | 2.5 | | 11.3 | 13.4 | 16.1 | 21.7 | | | | | | | | |
| | | | | | | | | | | | OPTION ITEMS | | | | | | | | | | | | | | | | | | | | | | | | |
| 2+279.0 RT. | NORTH | 1 | 600 | 300 | 0.18 | | | | | | 1 | | X | | | X | | | X | | | | | | | | | | | | | | | M3-1 | | E-136A |
| 2+279.0 RT. | 7 | 1 | 600 | 600 | 0.36 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | M1-4 | | E-136A |
| 2+386.0 RT. | FARM SIGN | 1 | | | | | 1 | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | REMOVE & ERECT OUTSIDE OF R.O.W. | | |
| **TOTALS** | | m² 0.54 | | | m² | | EA. 1 | m² | | | | m 6 | | | m 6 | | | | EA | kg | | | EA. | kg | | | | EA. | EA. | kg | | | | | |

FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE ROADWAY, TRAFFIC & SAFETY SECTION'S "SIGN POST DESIGN GUIDELINE."

| | |
|---|---|
| PROJECT NAME: | RUTLAND TOWN |
| PROJECT NUMBER: | BRF 019-3(48) |
| FILE NAME: sb172tc6.i | PLOT DATE: 11-MAR-2008 |
| PROJECT LEADER: R. WHITCOMB | DRAWN BY: L. BULLOCK |
| DESIGNED BY: L. BULLOCK | CHECKED BY: T. LACKEY |
| /95b172/str/sb172tc.dgn | SHEET 41 OF 75 |

## 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 kPa | CONSISTENCY |
|---|---|
| <12 | Very Soft |
| 12-24 | Soft |
| 24-48 | Med. Stiff |
| 48-96 | Stiff |
| 96-192 | Very Stiff |
| >192 | Hard |

## CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

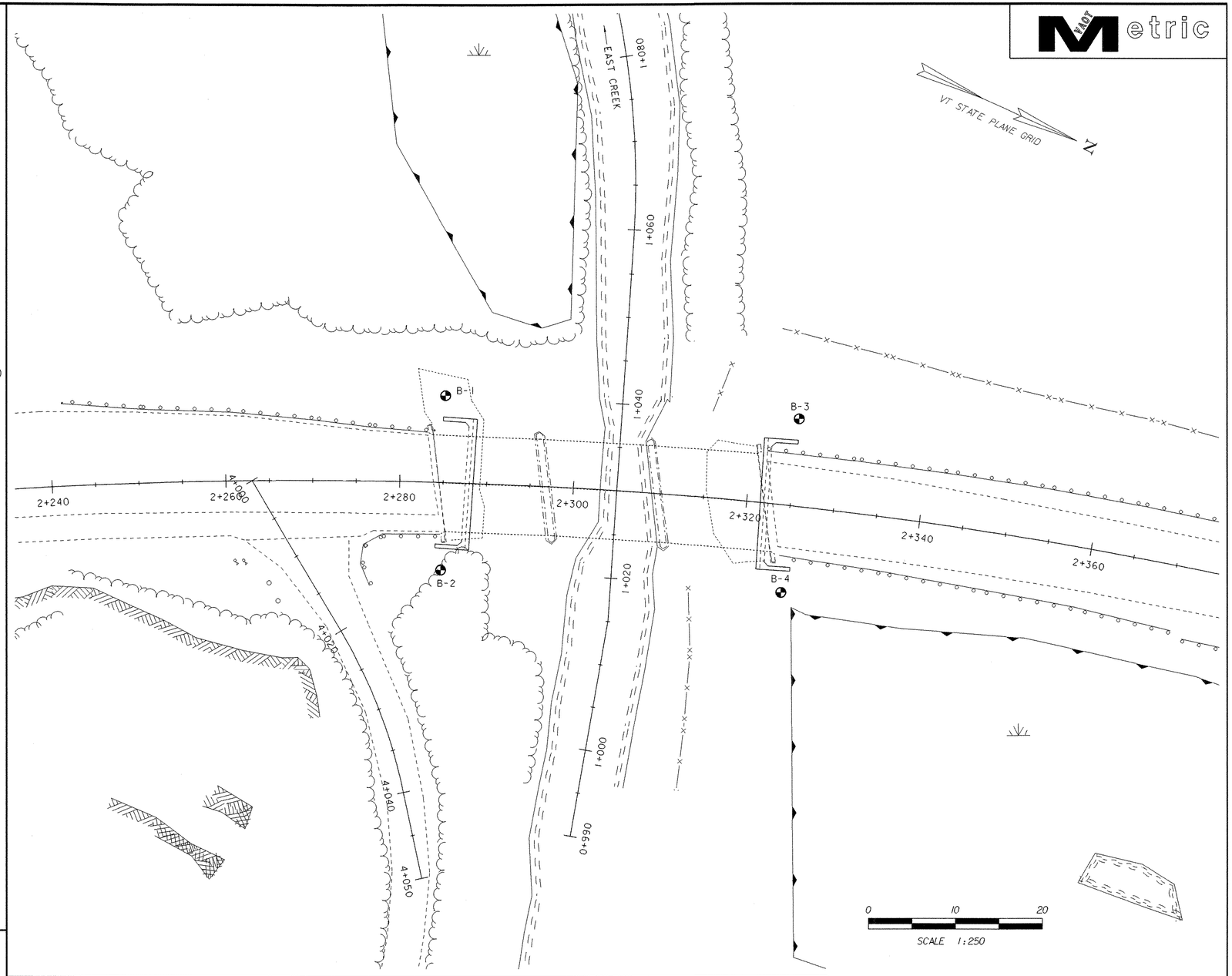
| DENSITY (GRANULAR SOILS) | | CONSISTENCY (COHESIVE SOILS) | |
|---|---|---|---|
| N | DESCRIPTIVE TERM | N | DESCRIPTIVE TERM |
| <5 | Very Loose | <2 | Very Soft |
| 5-10 | Loose | 2-4 | Soft |
| 11-24 | Med. Dense | 5-8 | Med. Stiff |
| 25-50 | Dense | 9-15 | Stiff |
| >50 | Very Dense | 16-30 | 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 300 mm For: 50.8 mm O.D. Sampler 35.0 mm I.D. Sampler Hammer Weight Of 63.5 kg. Hammer Fall Of 762 mm |
| 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 30.1mm |
| BX | Core Size 42.0 mm |
| NX | Core Size 54.7 mm |
| 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 | To Ledge Or Boulder |
| NR | No Recovery |
| Rec. | Recovery |
| %Rec. | Percent Recovery |
| ROD | Rock Quality Designation |
| CBR | California Bearing Ratio |
| < | Less Than |
| > | Greater Than |
| R | Refusal (N > 100) |

### COLOR

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




## DEFINITIONS (AASHTO)

**BEDROCK (LEDGE)** - Rock in its native location of indefinite thickness.

**BOULDER** - A rock fragment with an average dimension > 304.8 mm.

**COBBLE** - Rock fragments with an average dimension between 76.2 and 304.8 mm.

**GRAVEL** - Rounded particles of rock < 76.2 mm and > 2 mm (#10 sieve).

**SAND** - Particles of rock < 2 mm (#10 sieve) and > 75 μm (#200 sieve).

**SILT** - Soil < 75 μm (#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.

## GENERAL NOTES

1. The subsurface explorations shown herein were made between 09 JAN 03 and 25 MAR 03 by the Agency.
2. 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.
3. 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.
4. Engineering judgement 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 judgement by the Contractor.
5. 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.
6. 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.

## BORING CHART

| HOLE NO. | STATION | OFFSET (m) | GROUND ELEV. | BEDROCK ELEV. |
|---|---|---|---|---|
| B-1 | 2+287 | 10 LT | 194.34 | 165.84 |
| B-2 | 2+285 | 10 RT | 196.63 | 185.03 |
| B-3 | 2+325 | 7 LT | 197.75 | 177.33 |
| B-4 | 2+325 | 10 RT | 194.27 | 186.42 |

PROJECT: RUTLAND TOWN

PROJECT NO.: BRF 019-3(48)

DESIGN FILE NAME: 95b172/structures/sb172bor.dgn

IPARM FILE NAME: sb172bol.i

PLOT DATE: 11-MAR-2008

GEOTECHNICAL PLAN

SHEET: 42 OF 75

**STATE OF VERMONT**
**AGENCY OF TRANSPORTATION**
**MATERIALS & RESEARCH DIVISION**
**SUBSURFACE INFORMATION**

HOLE NO.: B- 1
SHEET 1 OF 2
DATE STARTED: 2/19/03
DATE COMPLETED: 03/17/03

PROJECT NAME: RUTLAND TOWN
SITE NAME: BR 103
STATION: 2+286.70
GROUND EL.: 194.338

PROJECT NUMBER: BRF 019-3 (48)
SITE NO.: US 7
OFFSET: -10.00
G.W. DEPTH: 1.52 3/18/03

BORING CREW
CREW CHIEF: TALLMAN
DRILLER: TALLMAN
LOGGER: RUSSELL
ADDITIONAL CREW: GARROW

BORING RIG: TRACTOR
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL

BOT WW 1 194.30

| DEPTH | SYMBOL | CLASSIFICATION OF MATERIALS (Description) | BLOWS PER 0.3 m | M.C. % | GRAVEL % | SAND % | FINES % | LL | PI |
|---|---|---|---|---|---|---|---|---|---|
| | | 0.00m-1.10m, Boulders | | | | | | | |
| | | 1.10m-1.40m, Concrete | | | | | | | |
| | | NXMDC, 1.15m-1.50m, Cleaned out | | | | | | | |
| | | A-3, Sa, Lt/gry, Moist, Rec. = 0.20m | 12 | 21 | 5.6 | 86.4 | 8 | | |
| | | NXGDC, 2.60m-3.00m, Cleaned out casing. | | | | | | | |
| | | NXGDC, 3.00m-3.50m, Boulder, Cored ahead. | | | | | | | |
| | | NXGDC, 4.40m-4.50m, Cleaned out | | | | | | | |
| 5 | | A-1-b, GrSa, gry, Moist, Rec. = 0.04m | 11 | 18.3 | 43.5 | 53.6 | 2.9 | | |
| | | A-4, Si, gry, Moist, Rec. = 0.40m | 8 | 31.5 | 2.2 | 19.2 | 78.6 | | |
| | | A-4, SaSi, gry, Moist, Rec. = 0.38m | 7 | 28.1 | 4.9 | 47.2 | 47.9 | | |
| | | A-4, SaSi, gry, Moist, Rec. = 0.50m | 10 | 27.6 | 8.4 | 41.6 | 50 | | |
| 10 | | A-4, Si, gry, Moist, Rec. = 0.28m | 11 | 27.8 | 14.7 | 16.7 | 68.6 | | |
| | | A-4, Si, gry, Moist, Rec. = 0.18m | 4 | 30.6 | 6.5 | 14.9 | 78.6 | | |
| | | A-4, Si, gry, Moist, Rec. = 0.32m | 7 | 26.7 | 17.6 | 17.7 | 64.7 | | |

APPROX PILE TIP

GEOLOGISTS REPORT:

**STATE OF VERMONT**
**AGENCY OF TRANSPORTATION**
**MATERIALS & RESEARCH DIVISION**
**SUBSURFACE INFORMATION**

HOLE NO.: B- 1
SHEET 2 OF 2
DATE STARTED: 2/19/03
DATE COMPLETED: 3/17/03

PROJECT NAME: RUTLAND TOWN
SITE NAME: BR 103
STATION: 2+286.70
GROUND EL.: 194.338

PROJECT NUMBER: BRF 019-3 (48)
SITE NO.: US 7
OFFSET: -10.00
G.W. DEPTH: 1.52 3/18/03

BORING CREW
CREW CHIEF: TALLMAN
DRILLER: TALLMAN
LOGGER: RUSSELL
ADDITIONAL CREW: GARROW

BORING RIG: TRACTOR
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL

| DEPTH | SYMBOL | CLASSIFICATION OF MATERIALS (Description) | BLOWS PER 0.3 m | M.C. % | GRAVEL % | SAND % | FINES % | LL | PI |
|---|---|---|---|---|---|---|---|---|---|
| | | A-4, SaSi, gry, Moist, Rec. = 0.20m | 10 | 31.1 | 0.2 | 31.6 | 68.2 | | |
| | | No Rec. | 21 | | | | | | |
| | | A-2-4, SiSaGr, gry, Moist, Rec. = 0.18m | 32 | 12.4 | 34.5 | 33.1 | 32.4 | | |
| | | NXGDC, 19.3m-19.5m, Cleaned out | | | | | | | |
| 20 | | A-1-b, GrSa, brn, Moist, Rec. = 0.40m | 43 | 18.9 | 22.4 | 67 | 10.6 | | |
| | | No Rec., Stone in end of sampler | 42 | | | | | | |
| | | NXMDC, 22.40m-23.30m, Boulder, No sample. | | | | | | | |
| | | A-2-4, SiGr, brn, Moist, Rec. = 0.15m | R | 13.1 | 56.1 | 13.9 | 30 | | |
| 25 | | A-2-4, GrSiSa, Lt/gry, Moist, Rec. = 0.15m | R | 12.8 | 22.6 | 50.5 | 26.9 | | |
| | | NXMDC, 26.40m-27.96m, No sample, Boulder | | | | | | | |

Top of bedrock @ 28.50 m

| | RUN | REC% | RQD% | Dip° |
|---|---|---|---|---|
| Run#1: NXMDC, 28.50m-29.87m, Rec. = 0.85m See Geologist's Report. | 1 | 62 | 0 | 30 |
| Run#2: NXMDC, 29.87m-30.80m, Rec. = 0.50m See Geologist's Report. | 2 | 54 | 0 | 30 |
| Run#3: NXMDC, 30.80m-32.32m, Rec. = 0.77m See Geologist's Report. | 3 | 51 | 0 | 30 |

30

32.5 Hole stopped @ 32.32m

APPROX PILE TIP

GEOLOGISTS REPORT:

Run#1: Light gray dolomite with some stained jointing, Hard, Moderately weathered, Poor RQD.

Run#2: Light gray dolomite with stained and weathered jointing, Hard, Moderately weathered, Poor RQD.

Run#3: Light gray dolomite with stained and weathered jointing, Hard, Moderately weathered, Poor RQD.

**STATE OF VERMONT**
**AGENCY OF TRANSPORTATION**
**MATERIALS & RESEARCH DIVISION**
**SUBSURFACE INFORMATION**

HOLE NO.: B-2
SHEET 1 OF 1
DATE STARTED: 1/09/03
DATE COMPLETED: 2/10/03

PROJECT NAME: RUTLAND TOWN
SITE NAME: BR 103
STATION: 2+285.00
GROUND EL.: 196.631

PROJECT NUMBER: BRF 019-3 (48)
SITE NO.: US 7
OFFSET: 10.00
G.W. DEPTH: Hole caved in at 2.45m

BORING CREW
CREW CHIEF: TALLMAN
DRILLER: TALLMAN
LOGGER: RUSSELL
ADDITIONAL CREW: GARROW

BORING RIG: TRACTOR
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL

196.63

BOT WW 2 194.30

| DEPTH | SYMBOL | CLASSIFICATION OF MATERIALS (Description) | BLOWS PER 0.3 m | M.C. % | GRAVEL % | SAND % | FINES % | LL | PI |
|---|---|---|---|---|---|---|---|---|---|
| | | NXGDC, 1.25m-1.50m, Cleaned out | | | | | | | |
| | | No Rec. | 9 | | | | | | |
| | | NXGDC, 2.80m-3.00m, Cleaned out | | | | | | | |
| | | A-3, GrSa, brn-gry, Moist, Rec. = 0.10m | 13 | 22.3 | 37.3 | 56.8 | 5.9 | | |
| | | NXGDC, 4.25m-4.50m, Cleaned out | | | | | | | |
| 5 | | A-1-a, SaGr, brn, Moist, Rec. = 0.20m | 14 | 14.9 | 59.4 | 35.8 | 4.8 | | |
| | | A-1-b, Sa, brn, Moist, Rec. = 0.30m | 15 | 20 | 15.2 | 79.7 | 5.1 | | |
| | | A-4, SaSi, brn, Moist, Rec. = 0.28m | 8 | 33.4 | 1.4 | 25.2 | 73.4 | | |
| | | A-2-4, SaSiGr, brn, Moist, Rec. = 0.25m | 26 | 12.3 | 44.8 | 24.7 | 30.5 | | |
| 10 | | NXMDC, 9.90m-11.30m, Boulders, No sample. | | | | | | | |

Top of bedrock @ 11.60 m

| | RUN | REC% | RQD% | Dip° |
|---|---|---|---|---|
| Run#1: NXMDC, 11.60m-13.12m, Rec. = 1.46m See Geologist's Report. | 1 | 96 | 66 | 30 |
| Run#2: NXMDC, 13.12m-14.64m, Rec. = 1.05m See Geologist's Report. | 2 | 69 | 0 | 30 |

Hole stopped @ 14.64m

APPROX PILE TIP

GEOLOGISTS REPORT:

Run#1: Light gray dolomite, Hard, Unweathered, Competent.

Run#2: Light gray dolomite with staind and weathered jointing, Hard, Moderately weathered, Poor RQD, Poor competency, Drilling break at 13.25m to 13.50m.

GEOTECHNICAL LOGS 1

| PROJECT: | PROJECT NO.: |
|---|---|
| RUTLAND TOWN | BRF 019-3 (48) |

DESIGN FILE NAME: /M&R/95b172/mb172bor.dgn
IPARM FILE NAME: sb172bo2.i
SURVEYED BY:
SQUAD LEADER: C.C. BENDA
DATE: 04/03
PLOT DATE: 11-MAR-2008
SURVEY DATE:
DRAWN BY: J.TOUCHETTE
SHEET: 43 OF 75

MAY NOT Metric

**STATE OF VERMONT**
**AGENCY OF TRANSPORTATION**
**MATERIALS & RESEARCH DIVISION**
**SUBSURFACE INFORMATION**

HOLE NO.: B-3
SHEET 1 OF 2
DATE STARTED: 3/25/03
DATE COMPLETED: 3/31/03

PROJECT NAME: RUTLAND TOWN
SITE NAME: BR 103
STATION: 2+325.00
GROUND EL.: 197.746

PROJECT NUMBER: BRF 019-3 (48)
SITE NO.: US 7
OFFSET: -6.70
G.W. DEPTH: Hole caved in @ 0.75m

BORING CREW
CREW CHIEF: TALLMAN
DRILLER: TALLMAN
LOGGER: RUSSELL
ADDITIONAL CREW: GARROW

BORING RIG: BIG SKID RIG
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL

197.75

BOT WW 3 194.30

| DEPTH | SYMBOL | CLASSIFICATION OF MATERIALS (Description) | BLOWS PER 0.3 m | M.C. % | GRAVEL % | SAND % | FINES % | LL | PI |
|---|---|---|---|---|---|---|---|---|---|
| | | No sample, Boulders | | | | | | | |
| | | A-1-a, SaGr, brn, Moist, Rec. = 0.05m | 12 | 5.6 | 75.1 | 20.3 | 4.6 | | |
| | | Cleaned out casing. | | | | | | | |
| 5 | | A-1-a, SaGr, brn, Moist, Rec. = 0.07m | R | 11.1 | 66.7 | 29.1 | 4.2 | | |
| | | 5.50m-6.25m, Boulder, Cleaned out casing. | | | | | | | |
| | | No sample, Into Boulder | | | | | | | |
| | | A-2-4, Sa, brn, Moist, Rec. = 0.60m | 7 | 22.8 | 1.2 | 87.5 | 11.3 | | |
| 10 | | A-3, Sa, brn, Moist, Rec. = 0.60m | 4 | 18.9 | 7.2 | 88 | 4.8 | | |
| | | A-3, Sa, brn, Moist, Rec. = 0.60m | 4 | 19.4 | 0.7 | 92.4 | 6.9 | | |
| | | A-1-b, Sa, gry, Moist, Rec. = 0.35m | 5 | 18.7 | 13.7 | 80.5 | 5.8 | | |

GEOLOGISTS REPORT:

**STATE OF VERMONT**
**AGENCY OF TRANSPORTATION**
**MATERIALS & RESEARCH DIVISION**
**SUBSURFACE INFORMATION**

HOLE NO.: B-3
SHEET 2 OF 2
DATE STARTED: 3/25/03
DATE COMPLETED: 3/31/03

PROJECT NAME: RUTLAND TOWN
SITE NAME: BR 103
STATION: 2+325.00
GROUND EL.: 197.746

PROJECT NUMBER: BRF 019-3 (48)
SITE NO.: US 7
OFFSET: -6.70
G.W. DEPTH: Hole caved in @ 0.75m

BORING CREW
CREW CHIEF: TALLMAN
DRILLER: TALLMAN
LOGGER: RUSSELL
ADDITIONAL CREW: GARROW

BORING RIG: BIG SKID RIG
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL

APPROX PILE TIP

| DEPTH | SYMBOL | CLASSIFICATION OF MATERIALS (Description) | BLOWS PER 0.3 m | M.C. % | GRAVEL % | SAND % | FINES % | LL | PI |
|---|---|---|---|---|---|---|---|---|---|
| | | A-2-4, SiSa, gry, Moist, Rec. = 0.10m | 8 | 33 | 0.3 | 67.8 | 31.9 | | |
| | | A-4, SiSa, gry, Moist, Rec. = 0.15m | 9 | 29.5 | | 54.4 | 45.6 | | |
| | | A-4, SaSi, gry, Moist, Rec. = 0.38m | 8 | 25.8 | 10.7 | 29.8 | 59.5 | | |
| 20 | | A-1-b, Gr, brn, Moist, Rec. = 0.15m | 33 | 4.9 | 69.8 | 12.6 | 17.6 | | |
| | | Top of bedrock @ 20.42 m | | | | | | | |
| | | Run#1: BXGDC, 20.42m-21.94m, Rec. = 1.52m See Geologist's Report. | RUN 1 | REC% 100 | RQD% 53 | Dip° — | | | |
| | | Run#2: BXGDC, 21.94m-23.46m, Rec. = 1.38m See Geologist's Report. | 2 | 91 | 40 | — | | | |
| | | Hole stopped @ 23.46m | | | | | | | |
| 25 | | | | | | | | | |

DRILLER'S NOTES:
1. Moved hole 3.30m to the right.

GEOLOGISTS REPORT:

Run#1: Dark gray dolomite with thin calcite veins, Hard, Unweathered, Competent.
Run#2: Dark gray dolomite with thin calcite veins, Hard, Unweathered, Competent.

**STATE OF VERMONT**
**AGENCY OF TRANSPORTATION**
**MATERIALS & RESEARCH DIVISION**
**SUBSURFACE INFORMATION**

HOLE NO.: B-4
SHEET 1 OF 1
DATE STARTED: 3/17/03
DATE COMPLETED: 3/24/03

PROJECT NAME: RUTLAND TOWN
SITE NAME: BR 103
STATION: 2+325.00
GROUND EL.: 194.272

PROJECT NUMBER: BRF 019-3 (48)
SITE NO.: US 7
OFFSET: 12.00
G.W. DEPTH: 1.38 3/24/03

BORING CREW
CREW CHIEF: TALLMAN
DRILLER: TALLMAN
LOGGER: RUSSELL
ADDITIONAL CREW: GARROW

BORING RIG: BIG SKID RIG
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL

BOT WW 4 194.30

APPROX PILE TIP

| DEPTH | SYMBOL | CLASSIFICATION OF MATERIALS (Description) | BLOWS PER 0.3 m | M.C. % | GRAVEL % | SAND % | FINES % | LL | PI |
|---|---|---|---|---|---|---|---|---|---|
| | | BXDC, 0.76m-1.21m, Boulders | | | | | | | |
| | | A-1-a, SaGr, brn, Moist, Rec. = 0.26m | 17 | 10.8 | 65.4 | 27.3 | 7.3 | | |
| | | BXDC, 2.20m-3.00m, Cleaned out casing and cored ahead. | | | | | | | |
| | | A-1-a, SaGr, gry, Moist, Rec. = 0.10m | 5 | 13.3 | 63.6 | 31.9 | 4.5 | | |
| 5 | | No Rec., Stone in sampler. | 2 | | | | | | |
| | | BXDC, 5.95m-6.05m, Boulder | | | | | | | |
| | | BXDC, 6.85m-7.31m Cored ahead. | | | | | | | |
| | | A-3, Sa, br-gy, M, Rec. = 0.15m | R | 31.1 | 0.2 | 93.2 | 6.6 | | |
| | | Top of bedrock @ 7.85 m | | | | | | | |
| | | Run#1: BXGDC, 7.85m-9.37m, Rec. = 1.35m See Geologist's Report. | RUN 1 | REC% 89 | RQD% 17 | Dip° 30 | | | |
| 10 | | Run#2: BXMDC, 9.37m-10.89m, Rec. = 1.52m See Geologist's Report. | 2 | 100 | 100 | 30 | | | |
| | | Hole stopped @ 10.89m | | | | | | | |

GEOLOGISTS REPORT:

Run#1: Light gray dolomite with closely spaced horizontal jointing, Hard, Unweathered, Fair to poor RQD.
Run#2: Light gray dolomite, Hard, Moderately weathered, Competent.

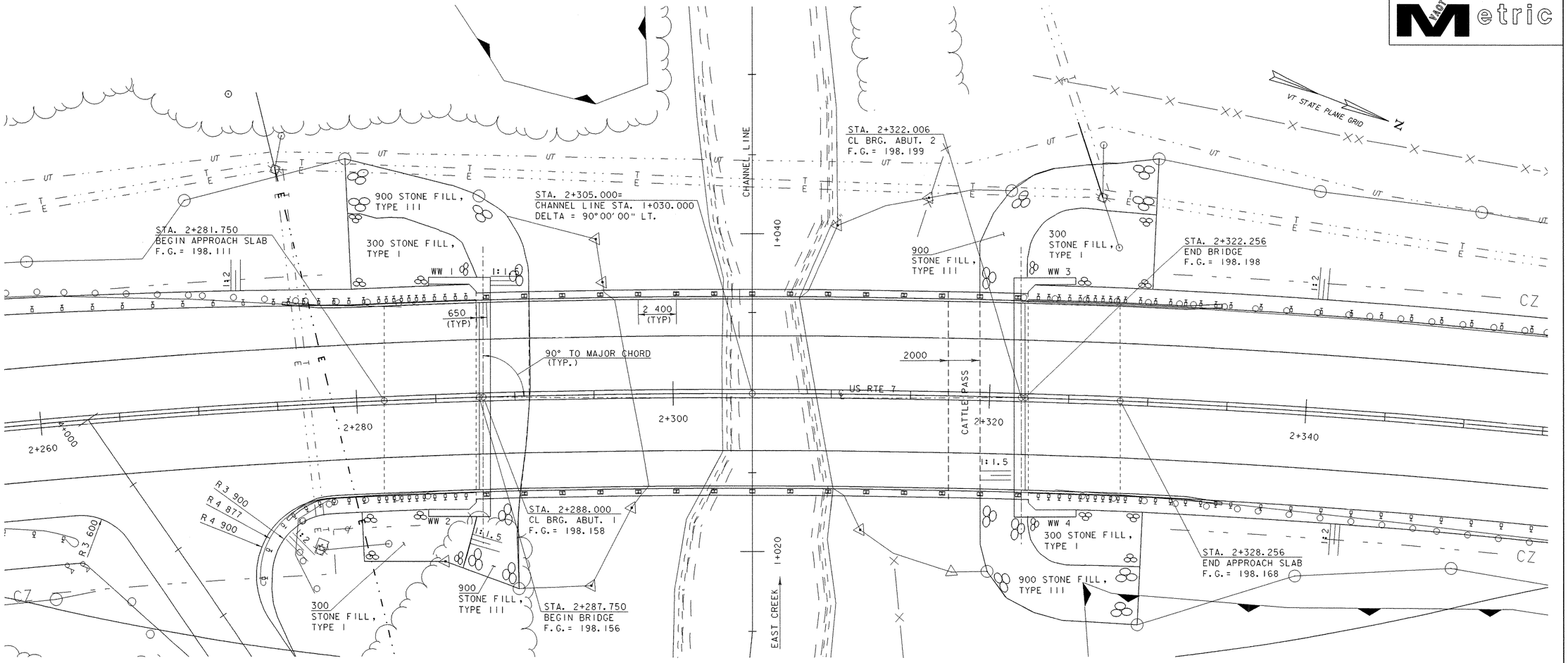
GEOTECHNICAL LOGS 2

| PROJECT: | PROJECT NO.: |
|---|---|
| RUTLAND TOWN | BRF 019-3 (48) |

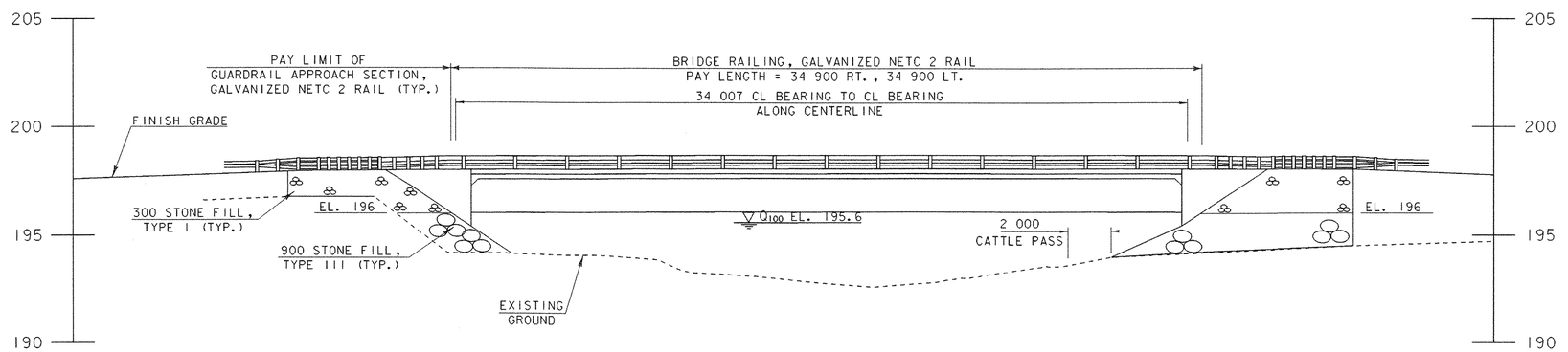
DESIGN FILE NAME: /M&R/95b172/mb172bor.dgn
IPARM FILE NAME: sb172bo3.i
PLOT DATE: 11-MAR-2008
SURVEYED BY:
SURVEY DATE:
SQUAD LEADER: C.C. BENDA
DRAWN BY: J. TOUCHETTE
DATE: 04/03
SHEET: 44 OF 75

VAOT Metric

Metric




PLAN



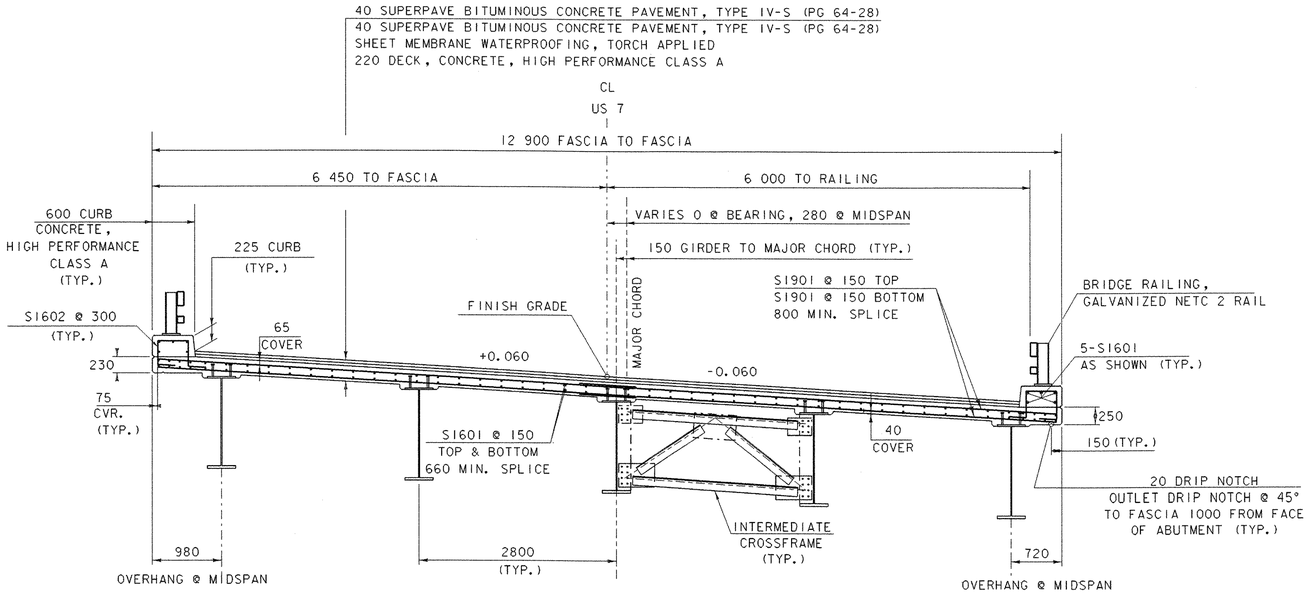

ELEVATION

0 1 2 4 6 8 10

SCALE = 1:125

PLAN & ELEVATION

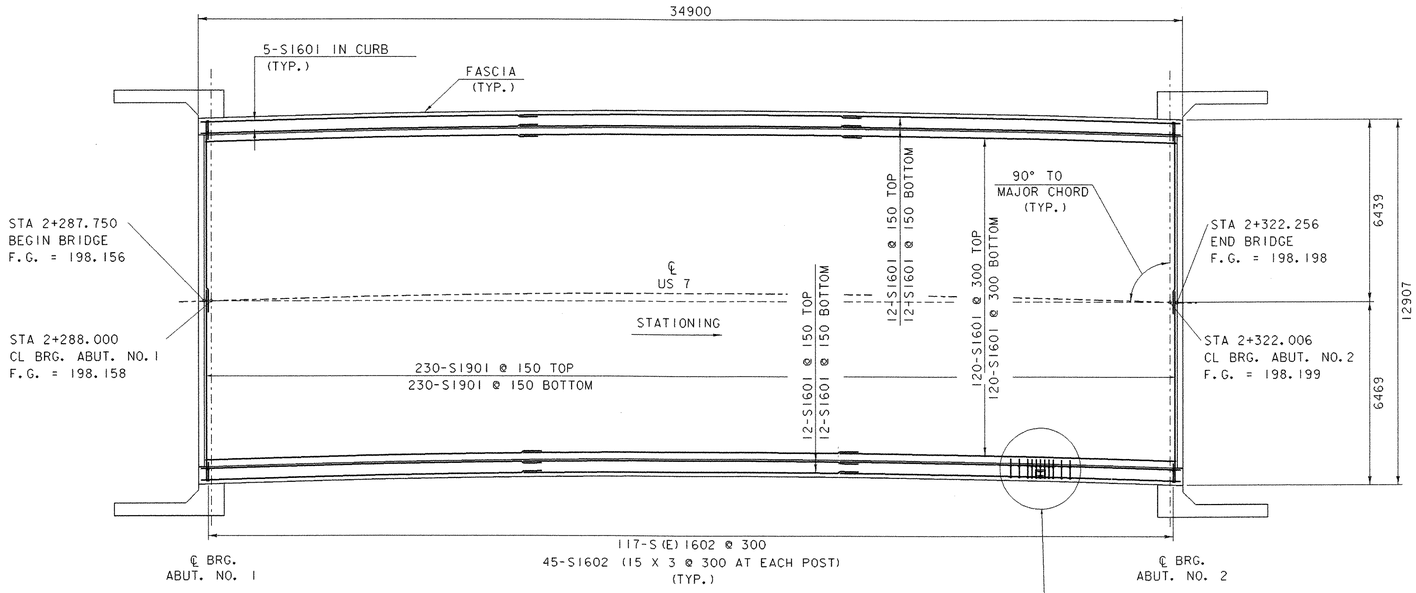
| | |
|---|---|
| PROJECT NAME: | RUTLAND TOWN |
| PROJECT NUMBER: | BRF 019-3(48) |
| FILE NAME: sbl72pe.i | PLOT DATE: 11-MAR-2008 |
| PROJECT LEADER: R. WHITCOMB | DRAWN BY: L. BULLOCK |
| DESIGNED BY: T. LACKEY | CHECKED BY: R. WHITCOMB |
| 95bl72/str/sbl72pe.dgn | SHEET 45 OF 75 |




## DECK TYPICAL SECTION @ MIDSPAN

0 2 4

SCALE = 1:40




## DECK REINFORCING PLAN

0 2 4 6 8 10

SCALE = 1:100

**NOTE:**

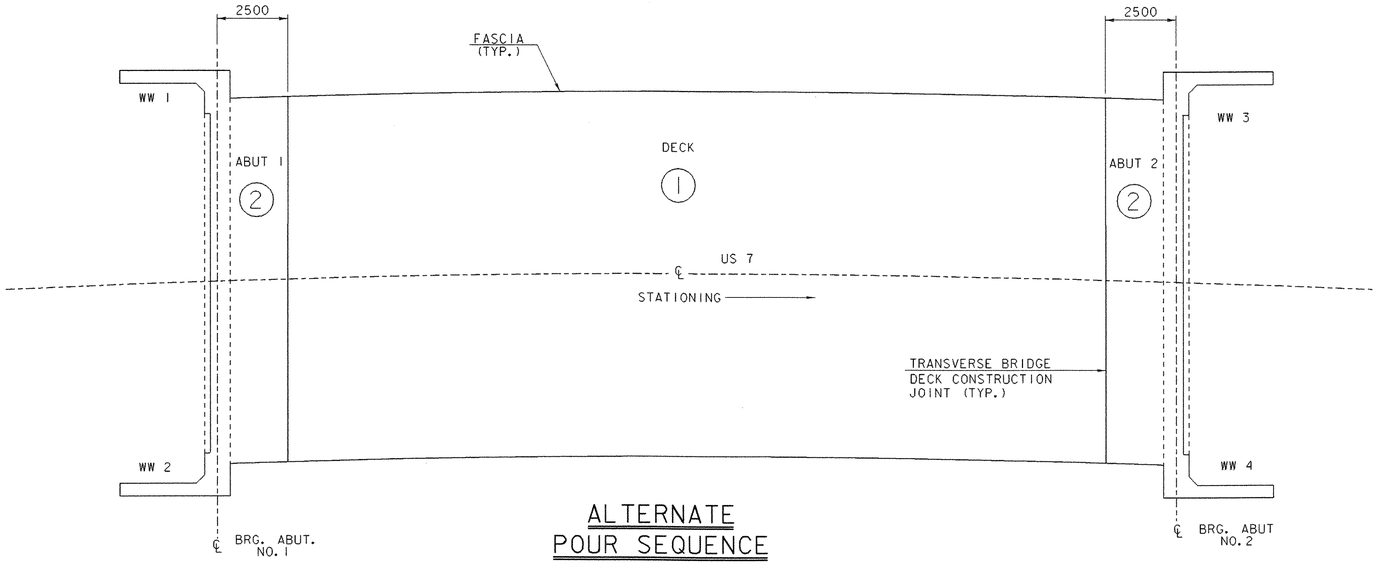
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
75 COVER UNLESS OTHERWISE SPECIFIED ON THE PLANS.
660 MIN. LAP LENGTH UNLESS OTHERWISE SPECIFIED ON THE PLANS

# SUPERSTRUCTURE
# DECK TYPICAL SECTION & PLAN

PROJECT NAME: RUTLAND TOWN
PROJECT NUMBER: BRF 019-3(48)

FILE NAME: sbl72spl.i
PROJECT LEADER: R.WHITCOMB
DESIGNED BY: T.LACKEY
95bl72/structures/sbl72sup.dgn

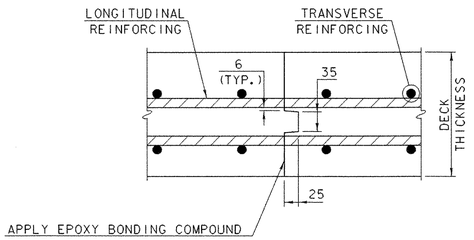
PLOT DATE: 11-MAR-2008
DRAWN BY: D.PETERSON
CHECKED BY: R.WHITCOMB
SHEET 46 OF 75




## ALTERNATE POUR SEQUENCE

0 2 4 6 8 10

SCALE = 1:100




APPLY EPOXY BONDING COMPOUND
BEFORE PLACING NEW CONCRETE.
(INCLUDE IN ITEM 501.33, "CONCRETE, HIGH PERFORMANCE CLASS A")

## TRANSVERSE BRIDGE DECK CONSTRUCTION JOINT DETAILS

0 0.25 0.5

SCALE = 1:5

NOTES:

1. PLACE ALL OF THE BACKWALL, WINGWALL, AND DECK CONCRETE ABOVE THE PILE CAP CONSTRUCTION JOINTS IN ONE CONTINUOUS POUR WITH A MAXIMUM DURATION OF EIGHT HOURS.

2. OTHERWISE THE ALTERNATE POUR SEQUENCE SHOWN ABOVE MUST BE FOLLOWED. A MINIMUM NINETY-SIX HOUR DELAY MUST BE OBSERVED BETWEEN ADJACENT POURS.

**NOTE:**

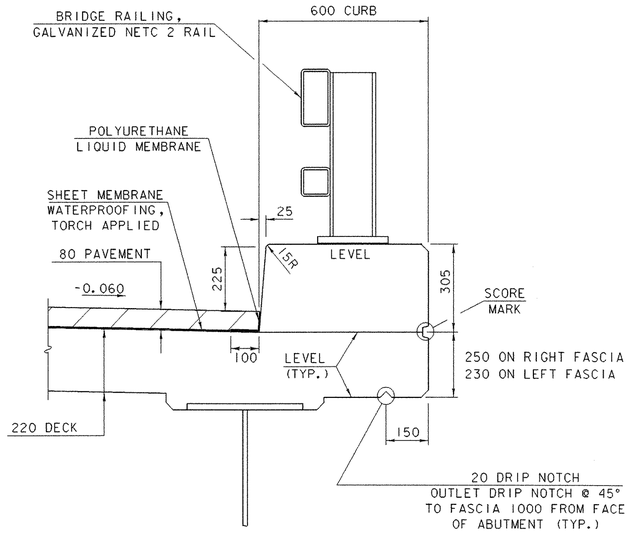
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
75 COVER UNLESS OTHERWISE SPECIFIED ON THE PLANS.
660 MIN. LAP LENGTH UNLESS OTHERWISE SPECIFIED ON THE PLANS

# SUPERSTRUCTURE POUR SEQUENCE

PROJECT NAME: RUTLAND TOWN
PROJECT NUMBER: BRF 019-3(48)

FILE NAME: sbl72sp2.i
PROJECT LEADER: R.WHITCOMB
DESIGNED BY: T.LACKEY
95bl72/structures/sbl72sup.dgn

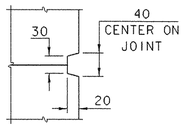
PLOT DATE: 11-MAR-2008
DRAWN BY: D.PETERSON
CHECKED BY: R.WHITCOMB
SHEET 47 OF 75




## BRIDGE CURB AND RAIL DETAIL

0 0.5 1

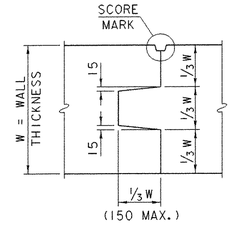
SCALE = 1:10




## SCORE MARK DETAIL

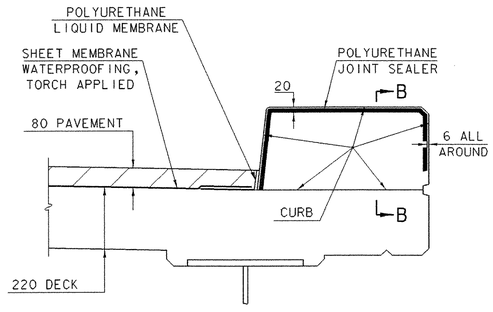
0 0.25 0.5

SCALE = 1:5



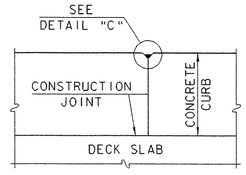

## TYPICAL CONCRETE CONSTRUCTION JOINT

NOT TO SCALE



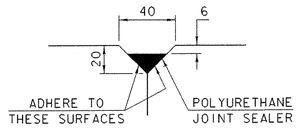

## TYPICAL SECTION THROUGH CONCRETE CURB CONSTRUCTION JOINT

NOT TO SCALE




## SECTION B-B

NOT TO SCALE




## DETAIL "C"

NOT TO SCALE

1. USE POLYURETHANE JOINT SEALER PER SUBSECTION 524.06(c).
2. MATCH COLOR TO CONCRETE.
3. INCLUDE COST IN ITEM 501.33 CONCRETE, HIGH PERFORMANCE CLASS A.

## CURB NOTES

1. CONTINUOUS CURB POUR OPTION.
CURBS MAY BE POURED IN ONE CONTINUOUS POUR.
IF SO, INCLUDE AN APPROVED SHRINKAGE REDUCING ADMIXTURE.
INCLUDE PAYMENT FOR THE ADMIXTURE
IN ITEM 501.33 "CONCRETE, HIGH PERFORMANCE, CLASS A".

2. CONSTRUCTION JOINT CURB POUR OPTION.
IF CONSTRUCTION JOINTS ARE USED, PLACE JOINTS A MINIMUM OF 560 MM
FROM THE CENTER OF THE NEAREST BRIDGE RAIL POST.
PLACE CONCRETE IN ALTERNATE SECTIONS WITH A MINIMUM OF 48 HOURS DELAY
BETWEEN ADJACENT POURS.
PASS LONGITUDINAL REINFORCING THROUGH THE CONSTRUCTION JOINTS.

3. TURN CURB REINFORCING STIRRUP BARS TO FIT IN FLARED ENDS.

## SHEET MEMBRANE NOTES

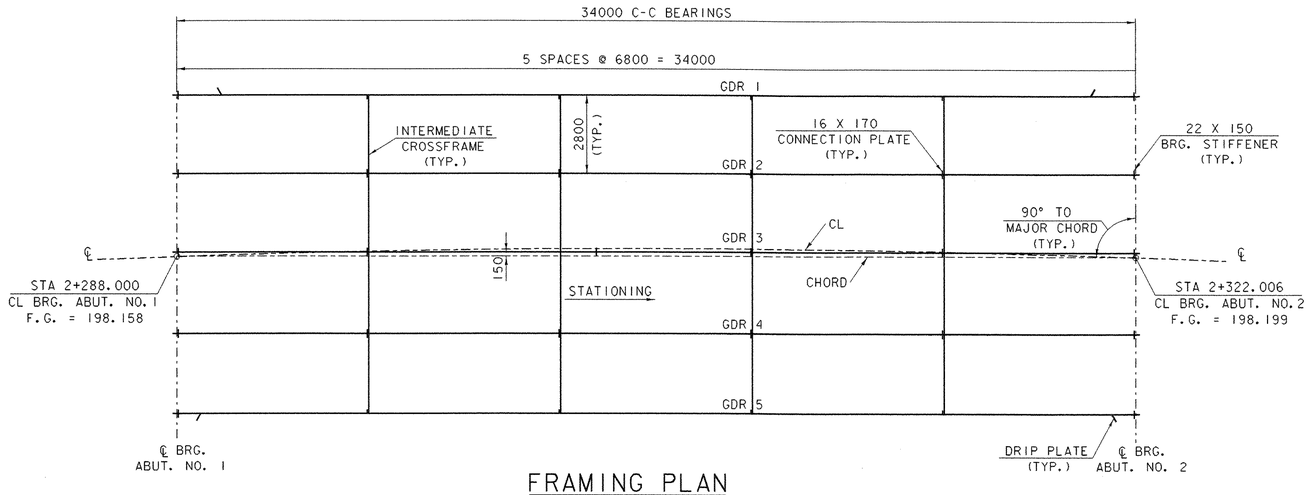
1. POLYURETHANE LIQUID MEMBRANE.
PAYMENT FOR ITEM 519.20 "SHEET MEMBRANE WATERPROOFING, TORCH APPLIED"
INCLUDES POLYURETHANE LIQUID MEMBRANE.

2. SHEET MEMBRANE WATERPROOFING, TORCH APPLIED.
EXTEND SHEET MEMBRANE WATERPROOFING TO FACE OF CURB.

# SUPERSTRUCTURE
# CURB & RAIL DETAILS

| | |
|---|---|
| PROJECT NAME: | RUTLAND TOWN |
| PROJECT NUMBER: | BRF 019-3(48) |

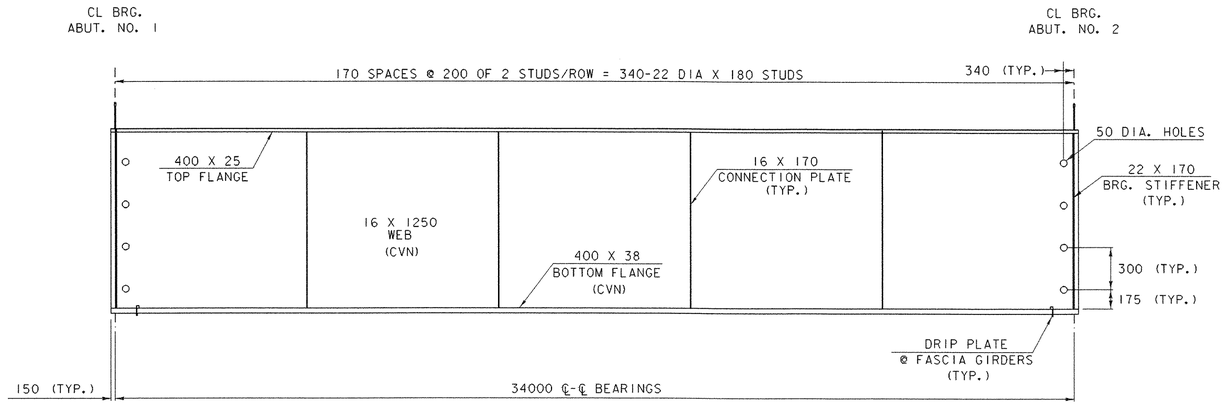
| | |
|---|---|
| FILE NAME: sbl72sp3.1 | PLOT DATE: 11-MAR-2008 |
| PROJECT LEADER: R.WHITCOMB | DRAWN BY: D. PETERSON |
| DESIGNED BY: T. LACKEY | CHECKED BY: R.WHITCOMB |
| 95bl72/structures/sbl72sup.dgn | SHEET 48 OF 75 |




## FRAMING PLAN

0 2 4 6 8 10

SCALE = 1:100



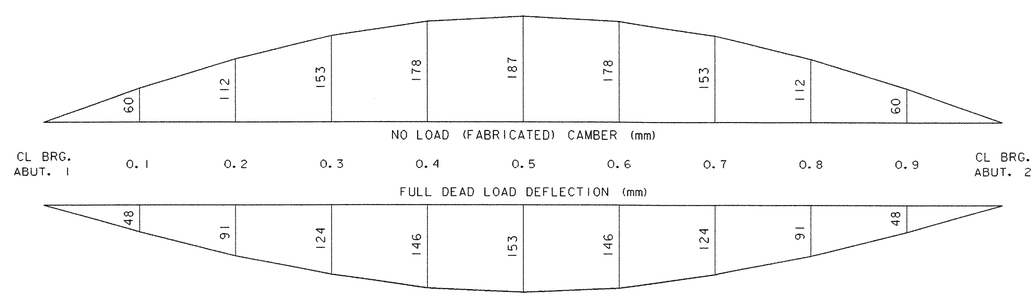

## GIRDER ELEVATION

0 2 4 6 8 10

HORIZONTAL SCALE = 1:100

0 1 2

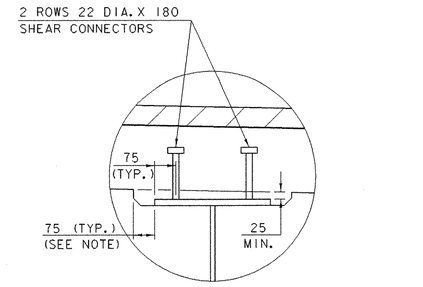
VERTICAL SCALE = 1:20




## CAMBER & DEAD LOAD DEFLECTION DIAGRAM

0 2 4 6 8 10

0 100 200 300 400 500

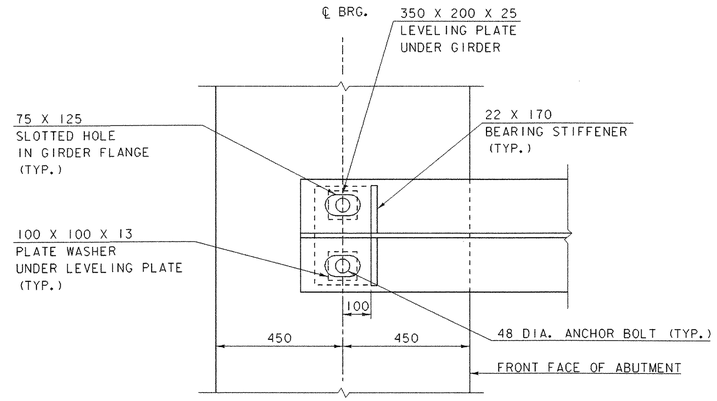



NOTE: THE 75mm HORIZONTAL SECTION MAY BE ELIMINATED FOR FORMING SYSTEMS DESIGNED FOR THE CONSTRUCTION OF VERTICAL HAUNCHES. SYSTEMS SHALL BE SUBMITTED FOR APPROVAL TO THE STRUCTURES ENGINEER. ALL VOIDS SHALL BE FILLED WITH MORTAR, TYPE IV OR AN EQUIVALENT PRODUCT FROM THE APPROVED PRODUCTS LIST.

## SHEAR CONNECTOR DETAIL

0 0.5 1

SCALE = 1:10




## PLAN OF GIRDER END

0 0.5 1

SCALE = 1:10

### NOTE:

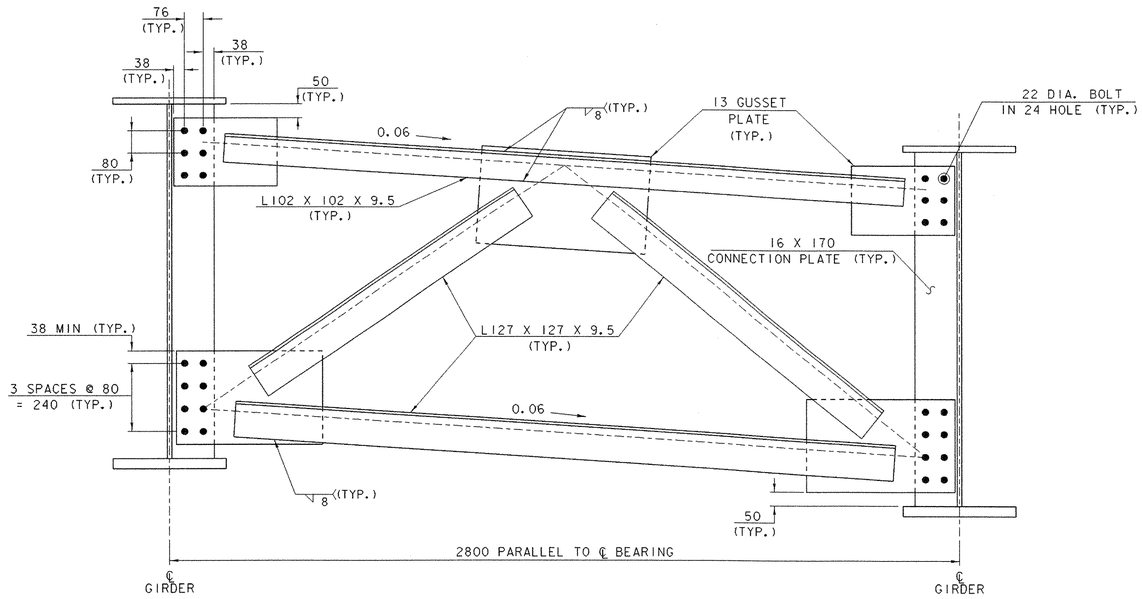
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
75 COVER UNLESS OTHERWISE SPECIFIED ON THE PLANS.
660 MIN. LAP LENGTH UNLESS OTHERWISE SPECIFIED ON THE PLANS

# SUPERSTRUCTURE GIRDER DETAILS

PROJECT NAME: RUTLAND TOWN
PROJECT NUMBER: BRF 019-3(48)

FILE NAME: sbl72sp4.i
PROJECT LEADER: R.WHITCOMB
DESIGNED BY: T.LACKEY
95bl72/structures/sbl72sup.dgn

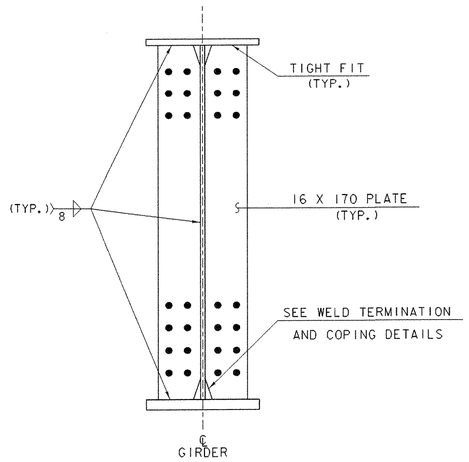
PLOT DATE: 11-MAR-2008
DRAWN BY: D.PETERSON
CHECKED BY: R.WHITCOMB
SHEET 49 OF 75




## INTERMEDIATE CROSS FRAME

0 0.5 1

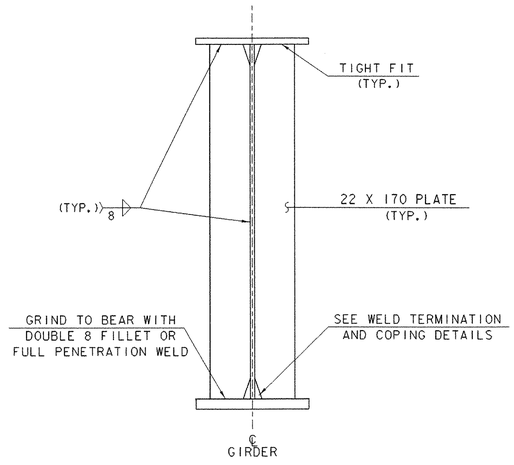
SCALE = 1:10




## INTERMEDIATE CROSS FRAME CONNECTION PLATE DETAIL

0 0.5 1

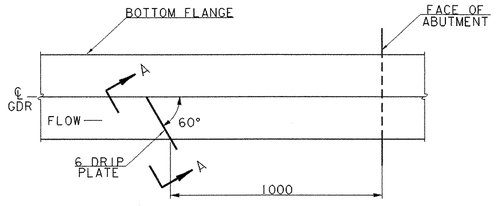
SCALE = 1:10



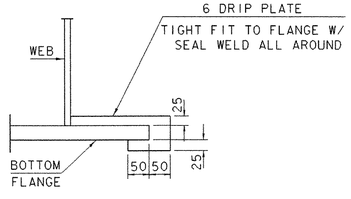

## ABUTMENT BEARING STIFFENER DETAIL

0 0.5 1

SCALE = 1:10



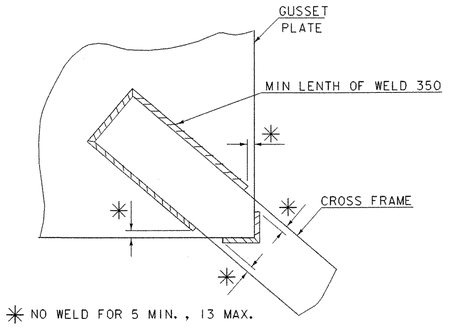

## DRIP PLATE PLAN



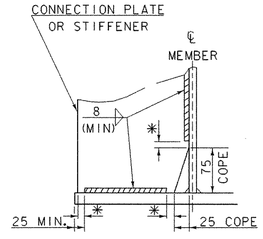

## SECTION A-A

**NOTES:**

DRIP PLATES SHALL BE PLACED ON OUTSIDE EDGE OF FASCIA GIRDERS ON THE HIGH SIDE OF BOTH ABUTMENTS OR AS INICATED ON THE PLANS




## WELD LOCATION DETAIL AT INTERMEDIATE CROSS FRAMES




✳ NO WELD FOR 10 MIN. 13 MAX.
(EXCEPT MUST MAINTAIN 25 MINIMUM FROM EDGE OF FLANGE.)

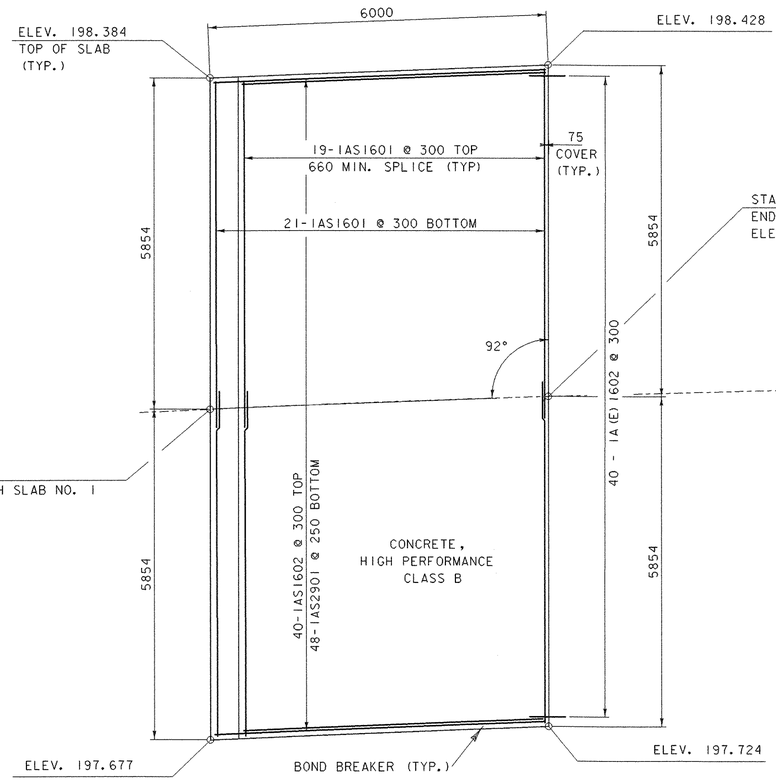
## WELD TERMINATION AND COPING DETAIL FOR WELDED PLATE GIRDERS

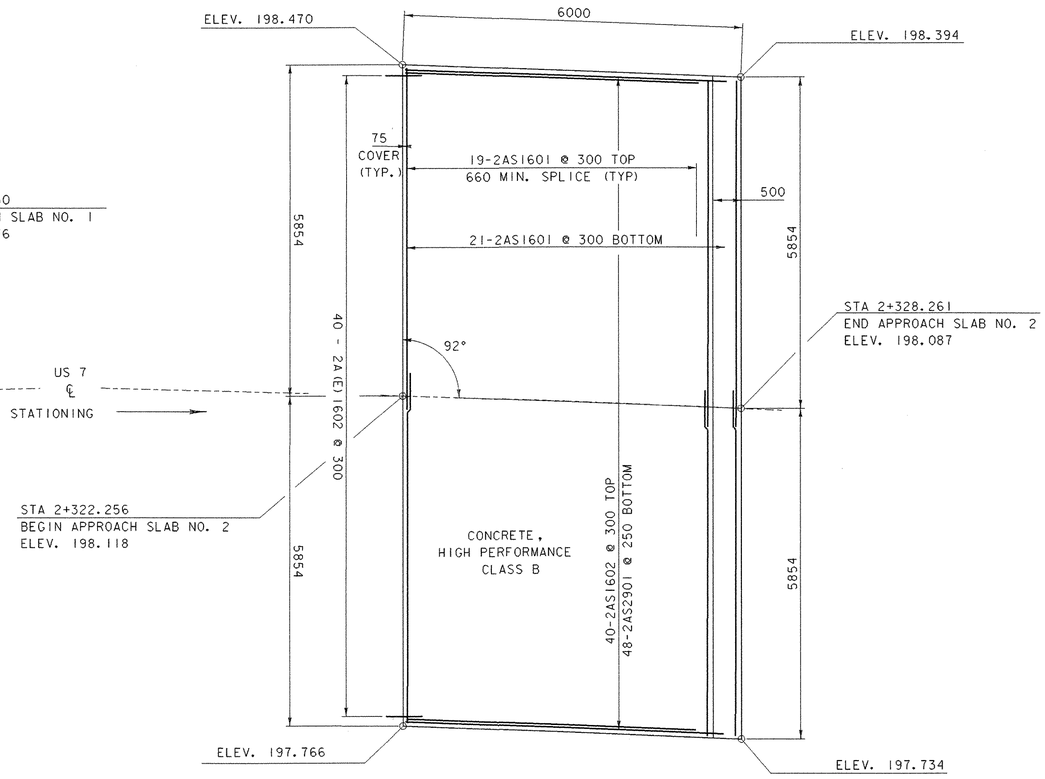
NTS

# SUPERSTRUCTURE CROSS FRAMES

| | |
|---|---|
| PROJECT NAME: | RUTLAND TOWN |
| PROJECT NUMBER: | BRF 019-3(48) |

| | |
|---|---|
| FILE NAME: sbl72sp5.1 | PLOT DATE: 11-MAR-2008 |
| PROJECT LEADER: R. WHITCOMB | DRAWN BY: D. PETERSON |
| DESIGNED BY: T. LACKEY | CHECKED BY: R. WHITCOMB |
| 95bl72/structures/sbl72sup.dgn | SHEET 50 OF 75 |




## APPROACH SLAB REINFORCING PLAN

0 1 2 3 4 5

SCALE = 1:50

NOTES:

1. PLACE HOOKED ENDS OF BOTTOM STEEL RUNNING PARALLEL TO CENTERLINE AT ABUTMENT END OF SLAB.

2. ALL ELEVATIONS ARE AT THE TOP OF APPROACH SLAB, NOT THE FINISH GRADE.

3. APPLY 2 COATS OF TAR EMULSION BOND BREAKER BETWEEN APPROACH SLAB AND CURB. INCLUDE IN ITEM 501.34 "CONCRETE, HIGH PERFORMANCE CLASS B".

**NOTE:**

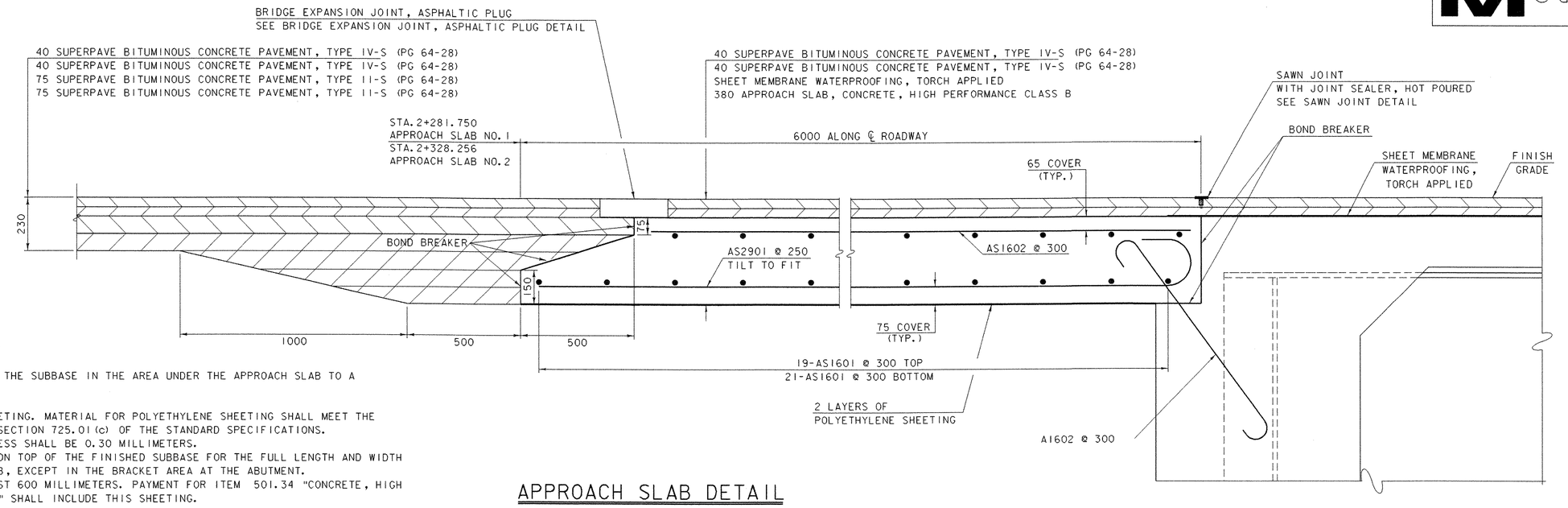
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
75 COVER UNLESS OTHERWISE SPECIFIED ON THE PLANS.
660 MIN. LAP LENGTH UNLESS OTHERWISE SPECIFIED ON THE PLANS

# SUPERSTRUCTURE
# APPROACH SLABS PLAN

PROJECT NAME: RUTLAND TOWN
PROJECT NUMBER: BRF 019-3(48)

FILE NAME: sbl72sp6.1
PROJECT LEADER: R.WHITCOMB
DESIGNED BY: T.LACKEY
95bl72/structures/sbl72sup.dgn

PLOT DATE: 11-MAR-2008
DRAWN BY: D.PETERSON
CHECKED BY: R.WHITCOMB
SHEET 51 OF 75




## APPROACH SLAB DETAIL

0 0.5 1

SCALE = 1:10

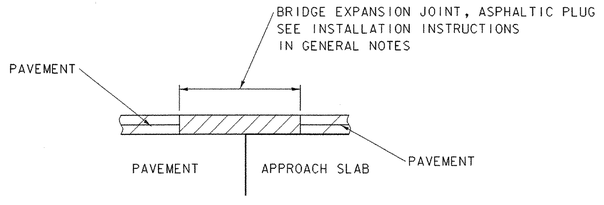
NOTES:

1. SUBBASE. COMPACT THE SUBBASE IN THE AREA UNDER THE APPROACH SLAB TO A SMOOTH SURFACE.

2. POLYETHYLENE SHEETING. MATERIAL FOR POLYETHYLENE SHEETING SHALL MEET THE REQUIREMENTS OF SUBSECTION 725.01(c) OF THE STANDARD SPECIFICATIONS. THE SHEETING THICKNESS SHALL BE 0.30 MILLIMETERS. PLACE THE SHEETING ON TOP OF THE FINISHED SUBBASE FOR THE FULL LENGTH AND WIDTH OF THE APPROACH SLAB, EXCEPT IN THE BRACKET AREA AT THE ABUTMENT. LAP SHEETING AT LEAST 600 MILLIMETERS. PAYMENT FOR ITEM 501.34 "CONCRETE, HIGH PERFORMANCE CLASS B" SHALL INCLUDE THIS SHEETING.

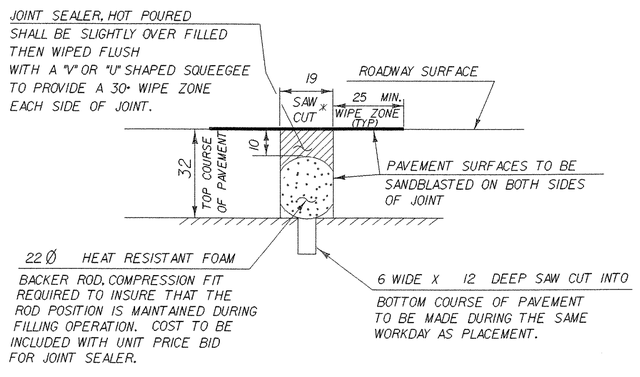
3. CONCRETE. POUR APPROACH SLAB CONCRETE IN THE EARLY MORNING BEFORE THE SUPERSTRUCTURE EXPANDS.

4. BOND BREAKER. APPLY 2 COATS TAR EMULSION. PAYMENT FOR ITEM 501.34 "CONCRETE, HIGH PERFORMANCE CLASS B" SHALL INCLUDE THIS BOND BREAKER.



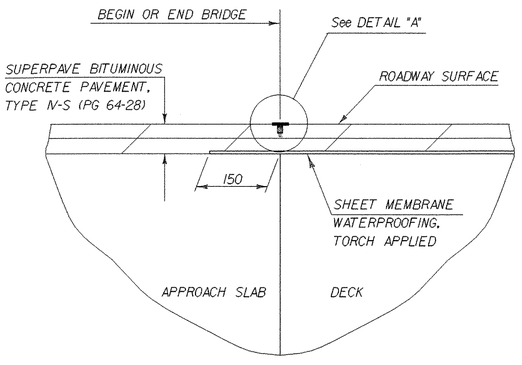

## BRIDGE EXPANSION JOINT, ASPHALTIC PLUG DETAIL

NTS




## DETAIL "A"

* JOINT IS TO BE LOCATED ACCURATELY BY STRING LINING, OR OTHER MEANS, PRIOR TO PAVING, SO THAT THE SAW CUTS WILL BE MADE DIRECTLY OVER THE END OF CONCRETE DECK. JOINT SHALL BE CUT DRY IN A SINGLE PASS AND BE SEALED WITHIN 24 HOURS OR PRIOR TO EXPOSURE TO TRAFFIC. JOINT SHALL BE CLEANED PRIOR TO APPLYING THE JOINT SEALER. SEE VT. SPECIFICATION 524.




## SAWN JOINT DETAIL

**NOTE:**

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
75 COVER UNLESS OTHERWISE SPECIFIED ON THE PLANS.
660 MIN. LAP LENGTH UNLESS OTHERWISE SPECIFIED ON THE PLANS

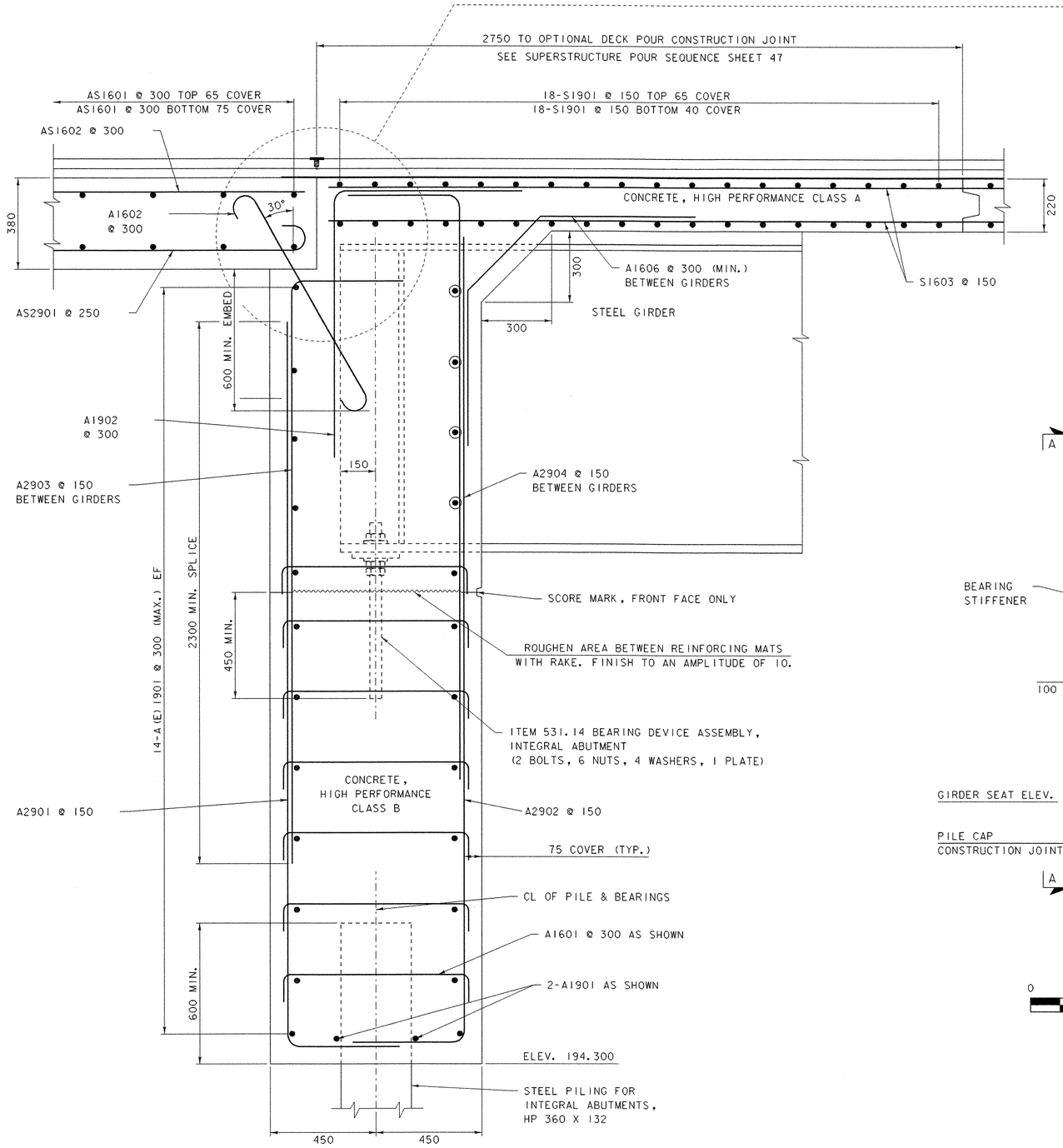
# SUPERSTRUCTURE APPROACH SLABS PROFILE

PROJECT NAME: RUTLAND TOWN
PROJECT NUMBER: BRF 019-3(48)

FILE NAME: sb172sp7.1
PROJECT LEADER: R.WHITCOMB
DESIGNED BY: T. LACKEY
95b172/structures/sb172sup.dgn

PLOT DATE: 11-MAR-2008
DRAWN BY: D. PETERSON
CHECKED BY: R.WHITCOMB
SHEET 52 OF 75

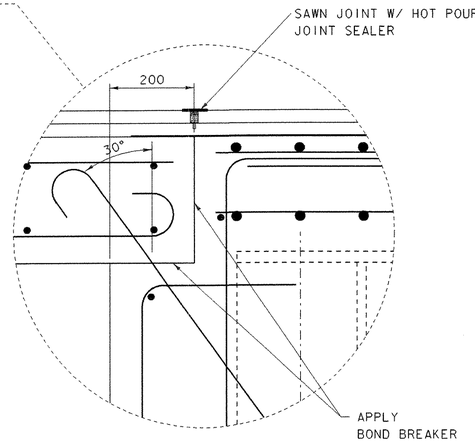
Metric

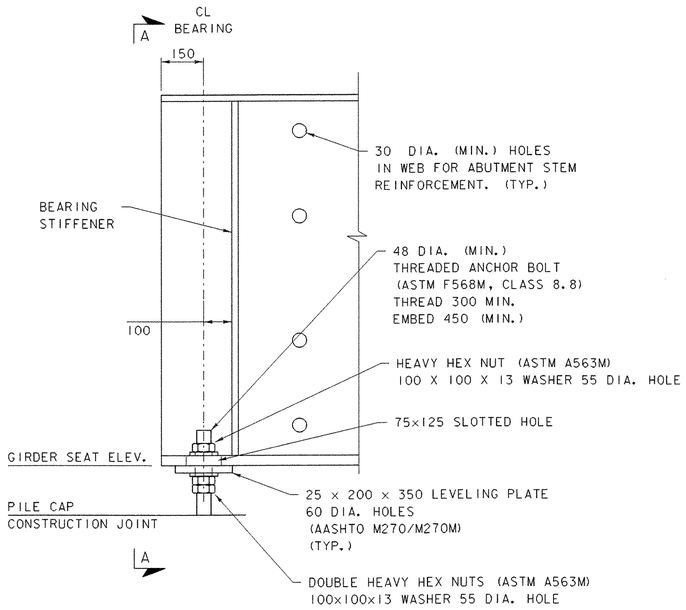



INTEGRAL ABUTMENT DETAIL

0 0.5 1

SCALE = 1:10

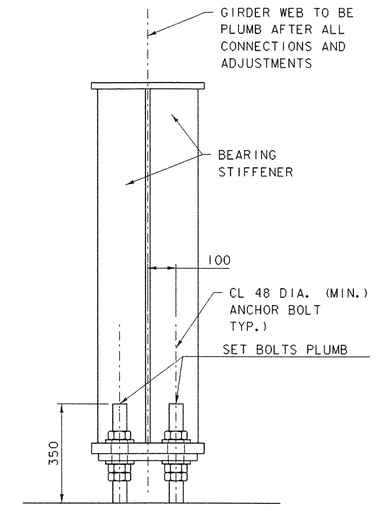



TYPICAL GIRDER ELEVATION

0 0.5 1

SCALE = 1:10




TYPICAL GIRDER VIEW A-A

0 0.5 1

SCALE = 1:10

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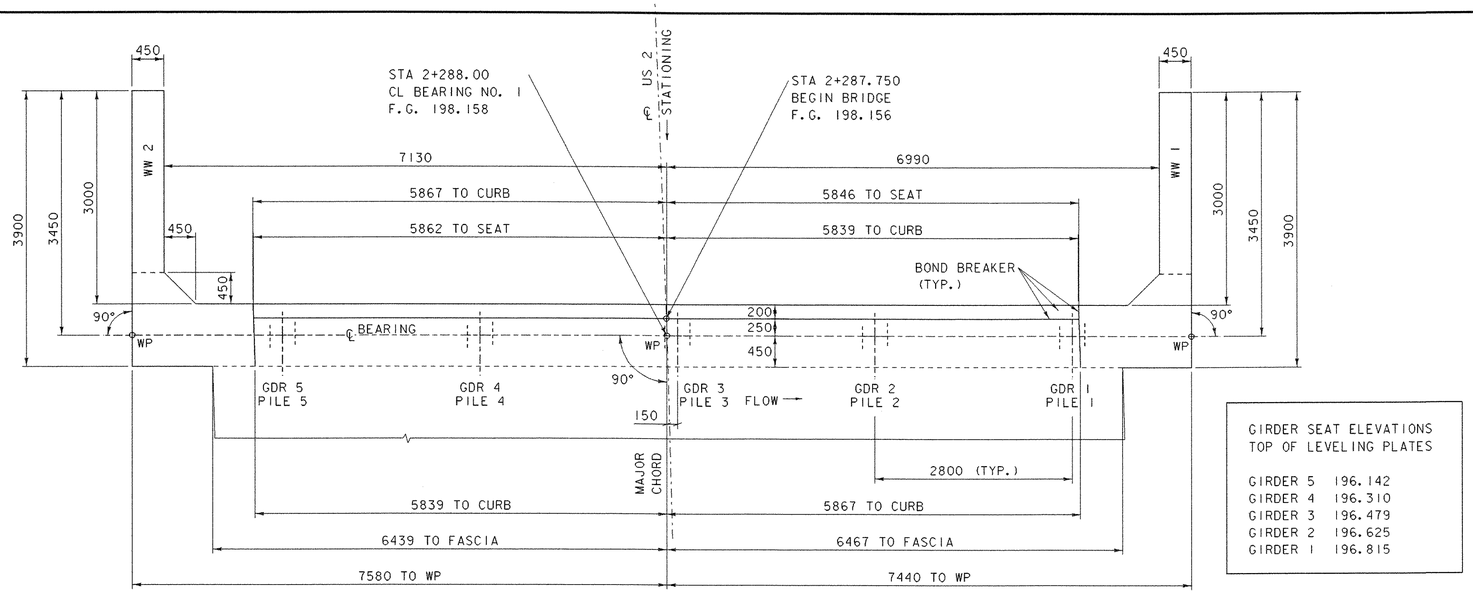
75 COVER UNLESS OTHERWISE SPECIFIED ON THE PLANS.
660 MIN. LAP LENGTH UNLESS OTHERWISE SPECIFIED ON THE PLANS

# SUPERSTRUCTURE BRIDGE END DETAILS

PROJECT NAME: RUTLAND TOWN
PROJECT NUMBER: BRF 019-3(48)

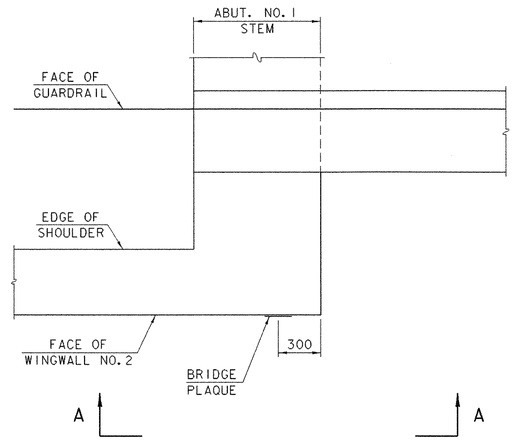
FILE NAME: sbl72sp8.1
PROJECT LEADER: R.WHITCOMB
DESIGNED BY: T.LACKEY
95bl72/structures/sbl72sup.dgn

PLOT DATE: 11-MAR-2008
DRAWN BY: D.PETERSON
CHECKED BY: R.WHITCOMB
SHEET 53 OF 75

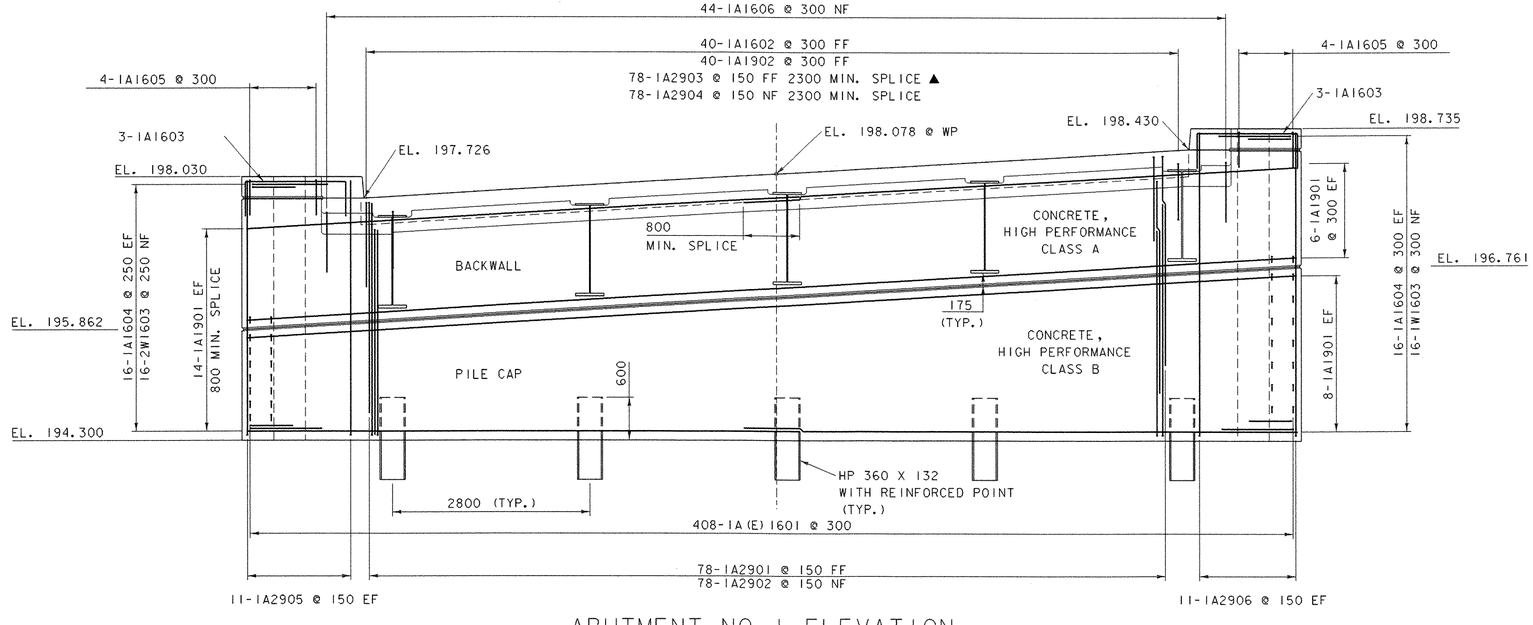



ABUTMENT NO. 1 PLAN

| GIRDER SEAT ELEVATIONS TOP OF LEVELING PLATES | |
|---|---|
| GIRDER 5 | 196.142 |
| GIRDER 4 | 196.310 |
| GIRDER 3 | 196.479 |
| GIRDER 2 | 196.625 |
| GIRDER 1 | 196.815 |



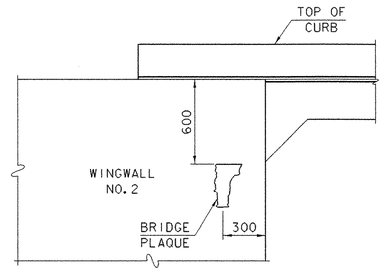

BRIDGE PLAQUE
PLAN
NOT TO SCALE




ABUTMENT NO. 1 ELEVATION

0 1 2 3 4

SCALE = 1:40




BRIDGE PLAQUE
VIEW "A-A"
NOT TO SCALE

BRIDGE PLAQUE NOTES

1. VTRANS WILL SUPPLY THE BRIDGE PLAQUE.
2. INSTALL THE PLAQUE AS SHOWN OR AS DIRECTED BY THE ENGINEER.
3. INCLUDE PAYMENT FOR INSTALLATION IN ITEM 501.33 "CONCRETE, HIGH PERFORMANCE CLASS A".

**NOTE:**

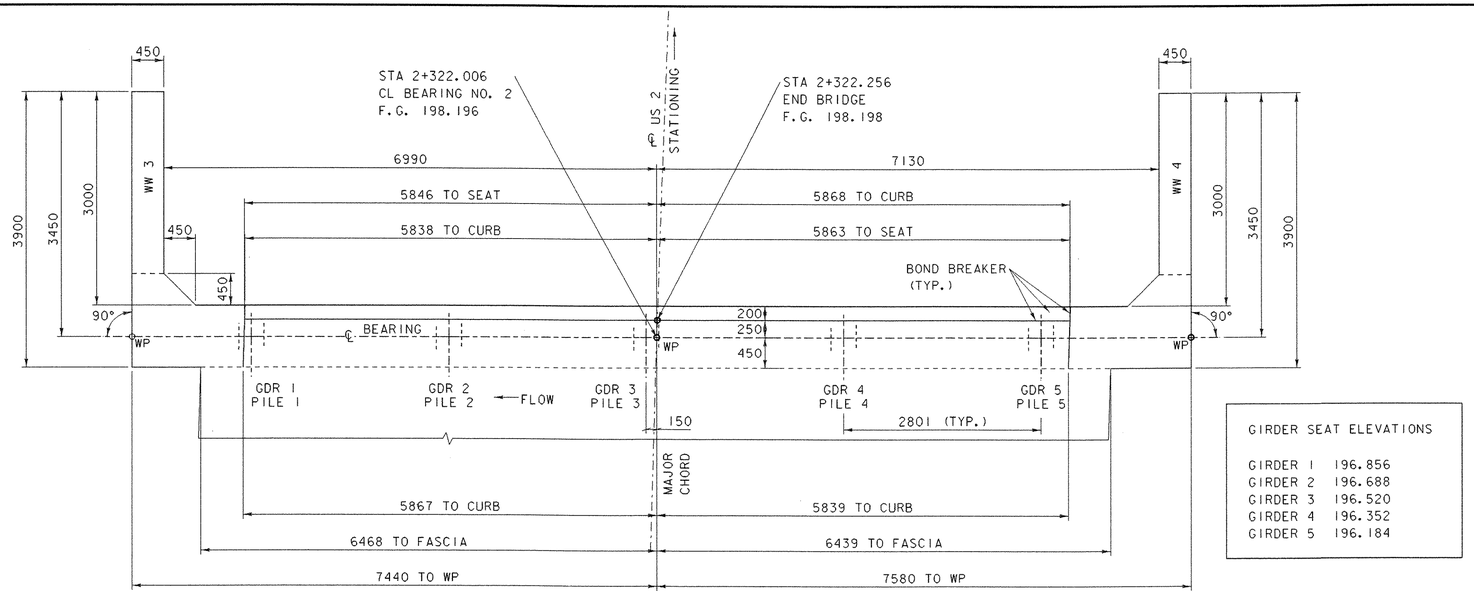
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
75 COVER UNLESS OTHERWISE SPECIFIED ON THE PLANS.
660 MIN. LAP LENGTH UNLESS OTHERWISE SPECIFIED ON THE PLANS

# SUBSTRUCTURE
# ABUTMENT 1

PROJECT NAME: RUTLAND TOWN
PROJECT NUMBER: BRF 019-3(48)

FILE NAME: sbl72sb1.i
PROJECT LEADER: R. WHITCOMB
DESIGNED BY: T. LACKEY
95bl72/str/sbl72sub.dgn

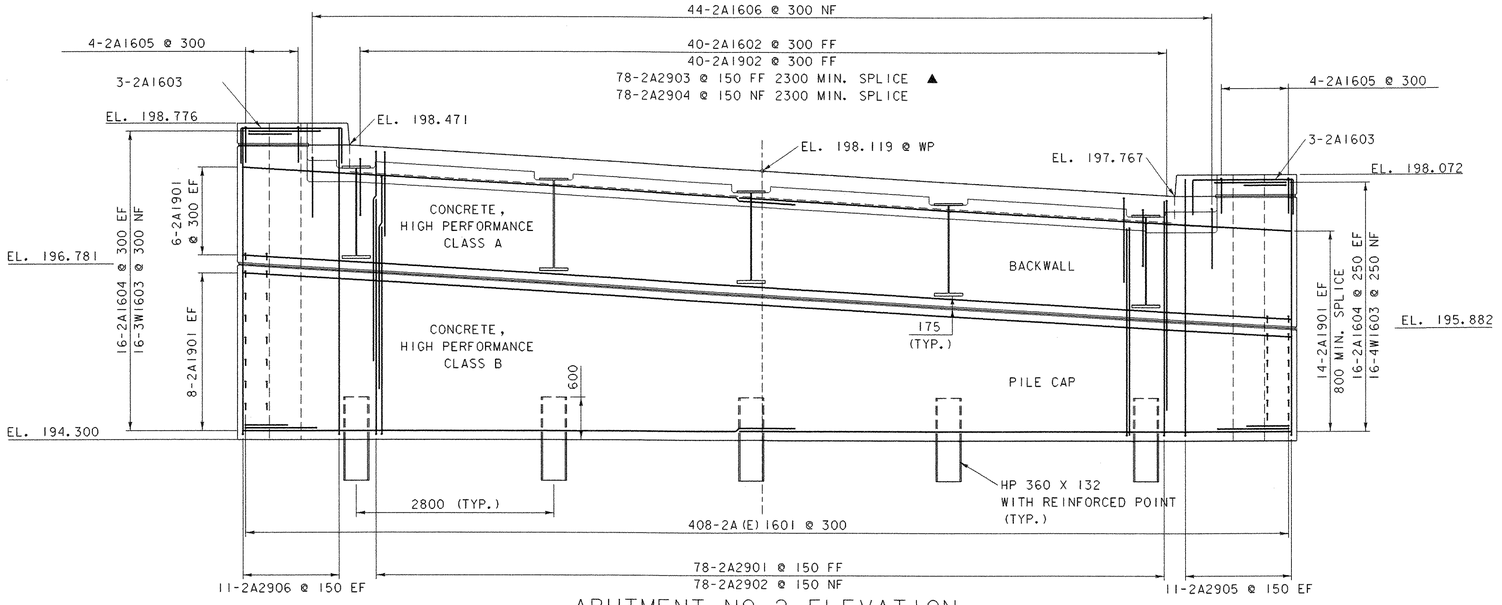
PLOT DATE: 11-MAR-2008
DRAWN BY: D. PETERSON
CHECKED BY:
SHEET 54 OF 75




GIRDER SEAT ELEVATIONS

| | |
|---|---|
| GIRDER 1 | 196.856 |
| GIRDER 2 | 196.688 |
| GIRDER 3 | 196.520 |
| GIRDER 4 | 196.352 |
| GIRDER 5 | 196.184 |

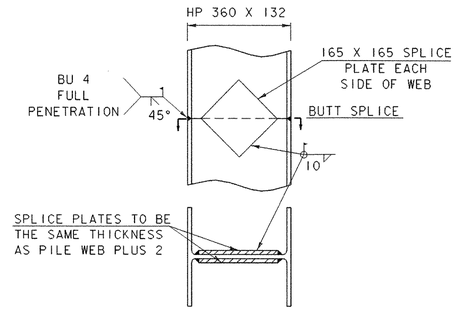
## ABUTMENT NO. 2 PLAN




## ABUTMENT NO. 2 ELEVATION

0 1 2 3 4

SCALE = 1:40




PREFABRICATED PILE SPLICE PLATES MAY BE USED WITH THE APPROVAL OF THE RESIDENT ENGINEER.

## PILE SPLICE DETAIL

NTS

## NOTES

1. H - INDICATES LOCATION OF A VERTICAL PILE.
2. PILE SIZE: HP 360 X 132 (HP 14 X 89)
3. PILE STEEL: ASTM 572/A572M GR 345
4. WELD PROCEDURES TO BE APPROVED BY THE STRUCTURES ENGINEER PRIOR TO WELDING.

## NOTE:

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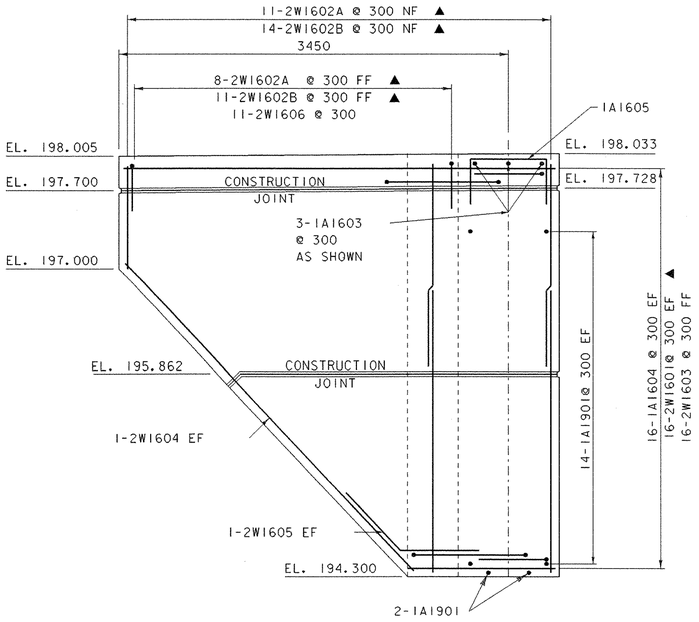
75 COVER UNLESS OTHERWISE SPECIFIED ON THE PLANS.
660 MIN. LAP LENGTH UNLESS OTHERWISE SPECIFIED ON THE PLANS

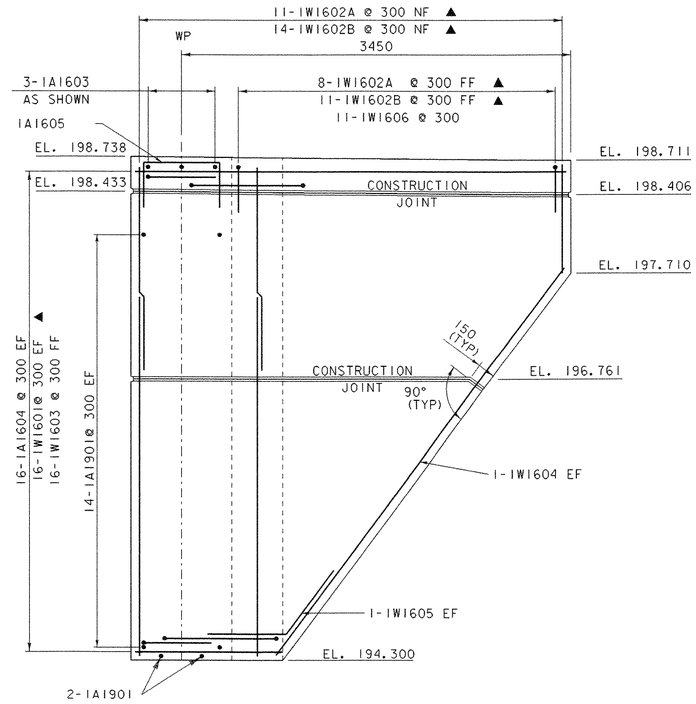
# SUBSTRUCTURE
# ABUTMENT 2

| | |
|---|---|
| PROJECT NAME: | RUTLAND TOWN |
| PROJECT NUMBER: | BRF 019-3(48) |

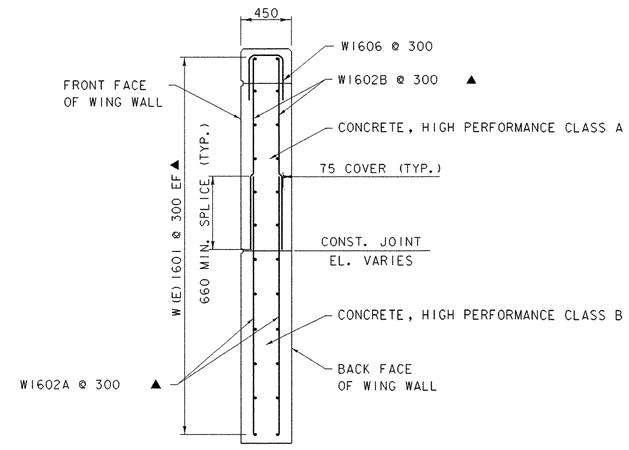
| | |
|---|---|
| FILE NAME: sbl72sb2.1 | PLOT DATE: 11-MAR-2008 |
| PROJECT LEADER: R. WHITCOMB | DRAWN BY: D. PETERSON |
| DESIGNED BY: T. LACKEY | CHECKED BY: |
| 95bl72/str/sbl72sub.dgn | SHEET 55 OF 75 |




WINGWALL NO. 2 ELEVATION



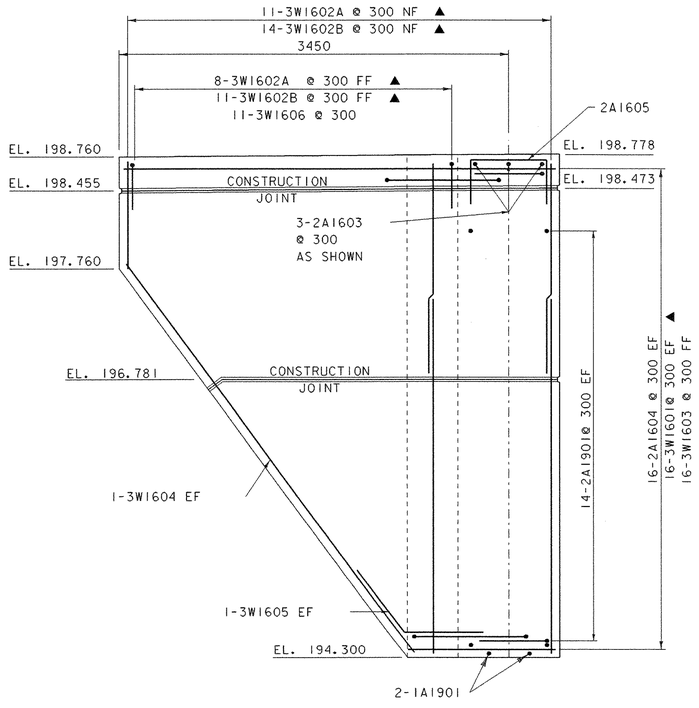

WINGWALL NO. 1 ELEVATION



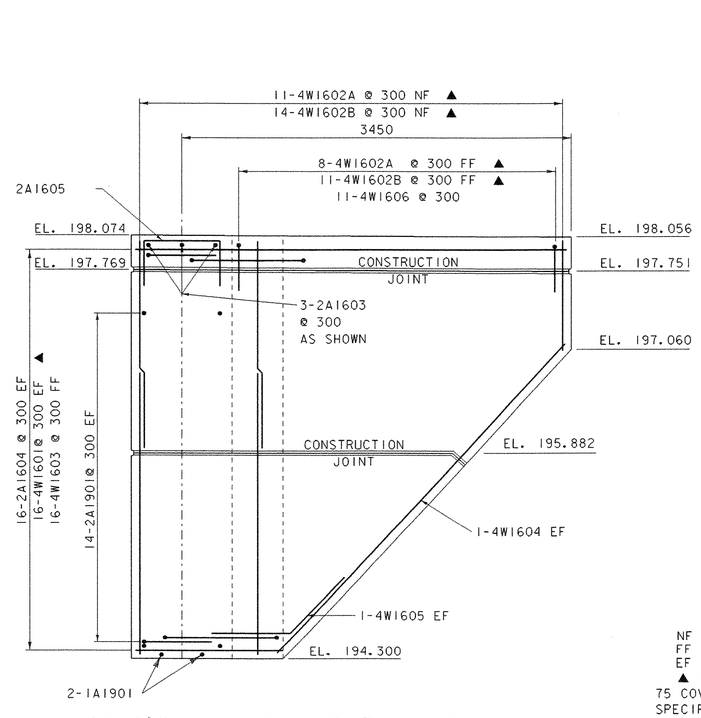

WINGWALL TYPICAL SECTION

0 1 2 3

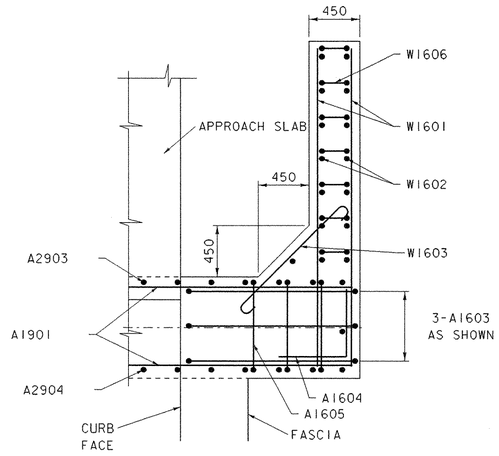
SCALE = 1:25




WINGWALL NO. 3 ELEVATION




WINGWALL NO. 4 ELEVATION




PLAN

INTEGRAL U-WINGWALLS

NOTE:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
75 COVER UNLESS OTHERWISE SPECIFIED ON THE PLANS.
660 MIN. LAP LENGTH UNLESS OTHERWISE SPECIFIED ON THE PLANS

# SUBSTRUCTURE WINGWALLS

PROJECT NAME: RUTLAND TOWN
PROJECT NUMBER: BRF 019-3(48)

FILE NAME: sbl72sb3.1
PROJECT LEADER: R. WHITCOMB
DESIGNED BY: T. LACKEY
95bl72/str/sbl72sub.dgn

PLOT DATE: 11-MAR-2008
DRAWN BY: D. PETERSON
CHECKED BY:
SHEET 56 OF 75

STATE OF VERMONT
AGENCY OF TRANSPORTATION

# REINFORCING STEEL SCHEDULE

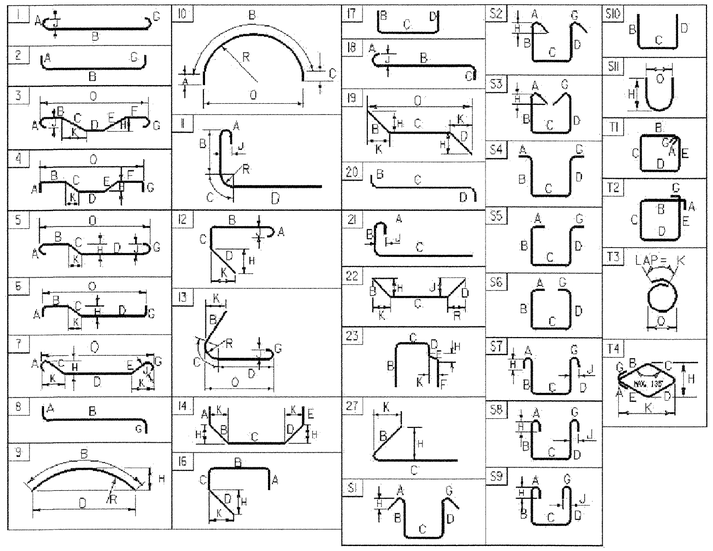
Metric

| ITEM | EACH | SIZE | LENGTH | MARK | TYPE | A | B | C | D | E | F | G | H | J | K | R | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **DECK** | | | | | | | | | | | | | | | | |
| △ | 146 | 16 | 12100 | S1601 | STR | | | | | | | | | | | | |
| | 324 | 16 | 1700 | S1602 | S5 | 250 | 375 | 450 | 375 | | | 250 | | | | | |
| △ | 922 | 19 | 6800 | S1901 | STR | | | | | | | | | | | | |
| | **APPROACH SLAB NO. 1** | | | | | | | | | | | | | | | | |
| ✳ | 81 | 16 | 6200 | 1AS1601 | STR | | | | | | | | | | | | |
| ✳ | 41 | 16 | 6125 | 1AS1602 | STR | | | | | | | | | | | | |
| △ | 50 | 29 | 6375 | 1AS2901 | 1 | 375 | 6000 | | | | | 0 | | 300 | | | |
| | **APPROACH SLAB NO. 2** | | | | | | | | | | | | | | | | |
| ✳ | 81 | 16 | 6200 | 2AS1601 | STR | | | | | | | | | | | | |
| ✳ | 41 | 16 | 6125 | 2AS1602 | STR | | | | | | | | | | | | |
| △ | 50 | 29 | 6375 | 2AS2901 | 1 | 375 | 6000 | | | | | 0 | | 300 | | | |
| | **ABUTMENT NO. 1** | | | | | | | | | | | | | | | | |
| | 408 | 16 | 1050 | 1A1601 | 17 | | 150 | 750 | 150 | | | | | | | | |
| △ | 42 | 16 | 1400 | 1A1602 | 1 | 175 | 1050 | | | | | 175 | | 130 | | | |
| | 6 | 16 | 2425 | 1A1603 | S10 | | 500 | 1425 | 500 | | | | | | | | |
| | 32 | 16 | 1200 | 1A1604 | 17 | | 600 | 600 | 0 | | | | | | | | |
| | 8 | 16 | 1750 | 1A1605 | S10 | | 500 | 750 | 500 | | | | | | | | |
| | 44 | 16 | 1450 | 1A1606 | 22 | | 500 | 450 | 500 | | | | 355 | 355 | 355 | 355 | |
| △ | 62 | 19 | 7900 | 1A1901 | STR | | | | | | | 0 | | | | | |
| | 40 | 19 | 2000 | 1A1902 | 2 | 800 | 1200 | | | | | 0 | | | | | |
| △ ▲ | 80 | 29 | 3375 | 1A2901 | 2 | 475 | 2900 | | | | | 0 | | | | | |
| | 78 | 29 | 3755 | 1A2902 | 2 | 475 | 3280 | | | | | 0 | | | | | |
| | 78 | 29 | 3475 | 1A2903 | 2 | 475 | 3000 | | | | | 0 | | | | | |
| | 78 | 29 | 3455 | 1A2904 | 2 | 475 | 2980 | | | | | 0 | | | | | |
| | 22 | 29 | 4075 | 1A2905 | 2 | 475 | 3600 | | | | | 0 | | | | | |
| | 22 | 29 | 4775 | 1A2906 | 2 | 475 | 4300 | | | | | 0 | | | | | |
| | **ABUTMENT NO. 2** | | | | | | | | | | | | | | | | |
| | 408 | 16 | 1050 | 2A1601 | 17 | | 150 | 750 | 150 | | | | | | | | |
| △ | 42 | 16 | 1400 | 2A1602 | 1 | 175 | 1050 | | | | | 175 | | 130 | | | |
| | 6 | 16 | 2425 | 2A1603 | S10 | | 500 | 1425 | 500 | | | | | | | | |
| | 32 | 16 | 1200 | 2A1604 | 17 | | 600 | 600 | 0 | | | | | | | | |
| | 8 | 16 | 1750 | 2A1605 | S10 | | 500 | 750 | 500 | | | | | | | | |
| | 44 | 16 | 1450 | 2A1606 | 22 | | 500 | 450 | 500 | | | | 355 | 355 | 355 | 355 | |
| △ | 62 | 19 | 7900 | 2A1901 | STR | | | | | | | 0 | | | | | |
| | 40 | 19 | 2000 | 2A1902 | 2 | 800 | 1200 | | | | | 0 | | | | | |
| △ ▲ | 80 | 29 | 3415 | 2A2901 | 2 | 475 | 2940 | | | | | 0 | | | | | |
| | 78 | 29 | 3795 | 2A2902 | 2 | 475 | 3320 | | | | | 0 | | | | | |
| | 78 | 29 | 3475 | 2A2903 | 2 | 475 | 3000 | | | | | 0 | | | | | |
| | 78 | 29 | 3455 | 2A2904 | 2 | 475 | 2980 | | | | | 0 | | | | | |
| | 22 | 29 | 4115 | 2A2905 | 2 | 475 | 3640 | | | | | 0 | | | | | |
| | 22 | 29 | 4815 | 2A2906 | 2 | 475 | 4340 | | | | | 0 | | | | | |

| ITEM | EACH | SIZE | LENGTH | MARK | TYPE | A | B | C | D | E | F | G | H | J | K | R | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **WINGWALL NO. 1** | | | | | | | | | | | | | | | | |
| △ ▲ | 34 | 16 | 3750 | 1W1601 | STR | | | | | | | | | | | | |
| ▲ | 19 | 16 | 3200 | 1W1602A | STR | | | | | | | | | | | | |
| ▲ | 25 | 16 | 1800 | 1W1602B | STR | | | | | | | | | | | | |
| | 16 | 16 | 1600 | 1W1603 | 1 | 175 | 1250 | | | | | 175 | | 130 | | | |
| | 2 | 16 | 4250 | 1W1604 | STR | | | | | | | | | | | | |
| | 2 | 16 | 1400 | 1W1605 | 22 | | 700 | 700 | 0 | | | | | 560 | 0 | 420 | 0 |
| | 11 | 16 | 1300 | 1W1606 | S10 | | 500 | 300 | 500 | | | | | | | | |
| | **WINGWALL NO. 2** | | | | | | | | | | | | | | | | |
| △ ▲ | 34 | 16 | 3750 | 2W1601 | STR | | | | | | | | | | | | |
| ▲ | 19 | 16 | 2300 | 2W1602A | STR | | | | | | | | | | | | |
| ▲ | 25 | 16 | 2000 | 2W1602B | STR | | | | | | | | | | | | |
| | 16 | 16 | 1600 | 2W1603 | 1 | 175 | 1250 | | | | | 175 | | 130 | | | |
| | 2 | 16 | 3700 | 2W1604 | STR | | | | | | | | | | | | |
| | 2 | 16 | 1400 | 2W1605 | 22 | | 700 | 700 | 0 | | | | | 510 | 0 | 480 | 0 |
| | 11 | 16 | 1300 | 2W1606 | S10 | | 500 | 300 | 500 | | | | | | | | |
| | **WINGWALL NO. 3** | | | | | | | | | | | | | | | | |
| △ ▲ | 34 | 16 | 3750 | 3W1601 | STR | | | | | | | | | | | | |
| ▲ | 19 | 16 | 3100 | 3W1602A | STR | | | | | | | | | | | | |
| ▲ | 25 | 16 | 1900 | 3W1602B | STR | | | | | | | | | | | | |
| | 16 | 16 | 1600 | 3W1603 | 1 | 175 | 1250 | | | | | 175 | | 130 | | | |
| | 2 | 16 | 4250 | 3W1604 | STR | | | | | | | | | | | | |
| | 2 | 16 | 1400 | 3W1605 | 22 | | 700 | 700 | 0 | | | | | 560 | 0 | 420 | 0 |
| | 11 | 16 | 1300 | 3W1606 | S10 | | 500 | 300 | 500 | | | | | | | | |
| | **WINGWALL NO. 4** | | | | | | | | | | | | | | | | |
| △ ▲ | 34 | 16 | 3750 | 4W1601 | STR | | | | | | | | | | | | |
| ▲ | 19 | 16 | 2200 | 4W1602A | STR | | | | | | | | | | | | |
| ▲ | 25 | 16 | 2100 | 4W1602B | STR | | | | | | | | | | | | |
| | 16 | 16 | 1600 | 4W1603 | 1 | 175 | 1250 | | | | | 175 | | 130 | | | |
| | 2 | 16 | 3700 | 4W1604 | STR | | | | | | | | | | | | |
| | 2 | 16 | 1400 | 4W1605 | 22 | | 700 | 700 | 0 | | | | | 510 | 0 | 480 | 0 |
| | 11 | 16 | 1300 | 4W1606 | S10 | | 500 | 300 | 500 | | | | | | | | |

## ~ NOTES ~

1. UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING 55M SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", AASHTO M 31M (ASTM A 615M-SI). ALL BARS SHALL BE GRADE 420, UNLESS OTHERWISE DESIGNATED.
2. 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".
3. BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
4. ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS.
5. "J" DIMENSION ON 180 DEGREE HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
6. "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
7. WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS "H" AND "K" MUST BE SHOWN.
8. ▲ DENOTES BARS TO BE CUT IN FIELD.
9. ✳ DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
10. △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
11. E IN BAR MARK PREFIX DENOTES EPOXY COATED REINFORCING STEEL.



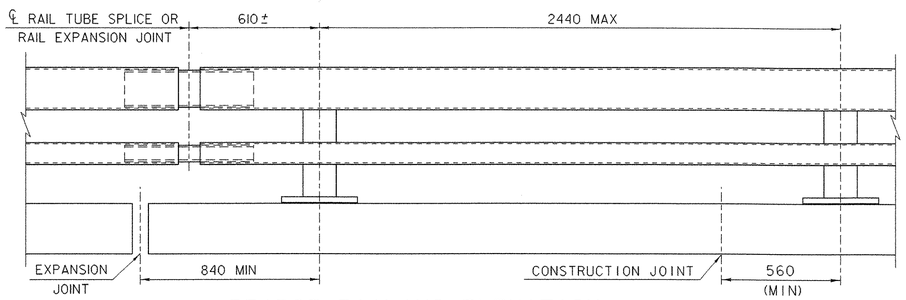

**ASTM STANDARD REINFORCING BARS**

| BAR SIZE | NOMINAL MASS (kg/m) | NOMINAL DIMENSIONS ROUND SECTION | | |
|---|---|---|---|---|
| | | DIAMETER (mm) | CROSS SECTIONAL AREA (mm²) | PERIMETER (mm) |
| #10 | 0.560 | 9.5 | 71 | 29.84 |
| #13 | 0.994 | 12.7 | 129 | 39.90 |
| #16 | 1.552 | 15.9 | 199 | 49.95 |
| #19 | 2.235 | 19.1 | 284 | 60.00 |
| #22 | 3.042 | 22.2 | 387 | 69.74 |
| #25 | 3.973 | 25.4 | 510 | 79.80 |
| #29 | 5.060 | 28.7 | 645 | 90.16 |
| #32 | 6.404 | 32.3 | 819 | 101.47 |
| #36 | 7.907 | 35.8 | 1006 | 112.47 |
| #43 | 11.380 | 43.0 | 1452 | 135.09 |
| #57 | 20.240 | 57.3 | 2581 | 180.01 |

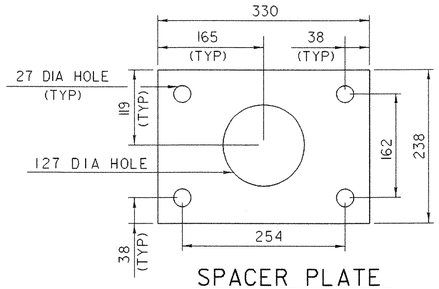
PROJECT NAME: **Rutland Town**
PROJECT NUMBER: **BRF 019-3(48)**

FILE NAME: **95B172/sb172rss.xls**
PROJECT MANAGER: **R. Whitcomb**
DESIGNED BY: **T. Lackey**
**REINFORCING STEEL SCHEDULE**

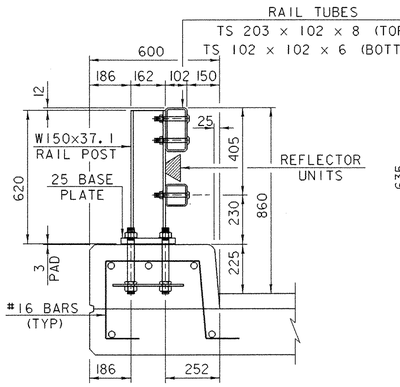
PLOT DATE: **2/21/2008**
DRAWN BY: **T. Lackey**
CHECKED BY:
SHEET **57** OF **75**



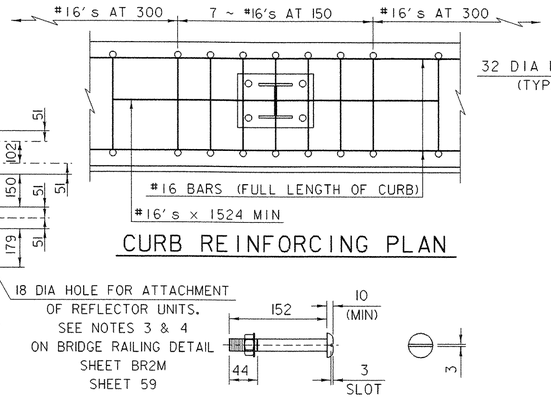

## BRIDGE RAILING ELEVATION




## SPACER PLATE



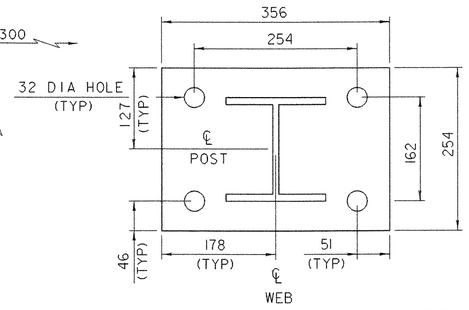

## TYPICAL SECTION



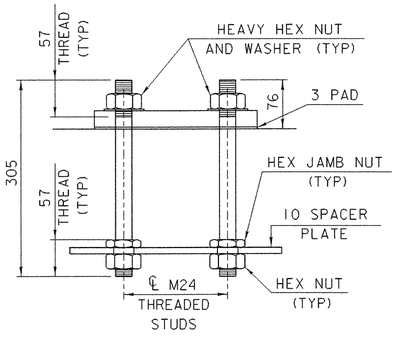

## ELEVATION




## CURB REINFORCING PLAN



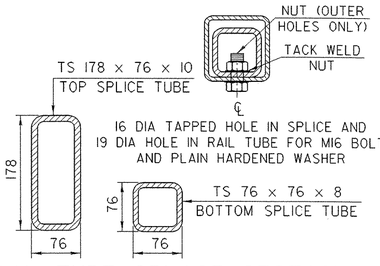

## POST AND BASE PLATE



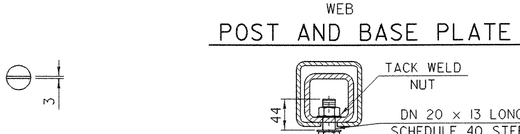

## RAIL POST ANCHORAGE

## M20 DIA M164M (TYPE I) ROUND HEAD BOLT

(WITH WASHER AND PREVAILING TORQUE TYPE LOCK NUT)
(SEE NOTE #9)
ONLY FULL DIAMETER BODY BOLTS WILL BE ALLOWED.



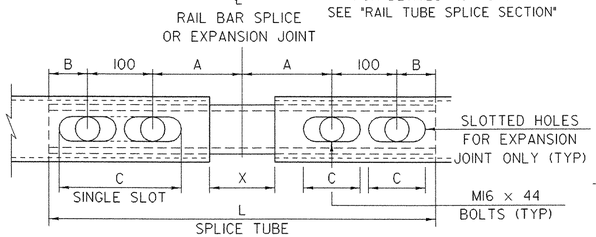

## RAIL TUBE SPLICE SECTION




16 DIA TAPPED HOLE IN SPLICE TUBE AND
29 x 'C' SLOT IN RAIL TUBE FOR M16
BOLT AND PLAIN HARDENED WASHER

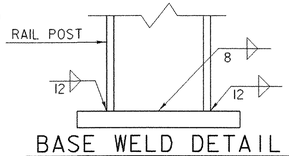
## EXPANSION JOINT SECTION

FOR DETAILS NOT SHOWN
SEE "RAIL TUBE SPLICE SECTION"




## RAIL TUBE SPLICE AND RAIL EXPANSION JOINT DETAIL

(BOTTOM VIEW)




## BASE WELD DETAIL

## NOTES

1. ALL WORK AND MATERIALS SHALL CONFORM TO THE PROVISIONS OF SECTION 525, "METAL RAILINGS" OF THE STANDARD SPECIFICATION FOR CONSTRUCTION.
2. TUBING SHALL MEET THE REQUIREMENTS OF SECTION 732, "RAILING MATERIALS" OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION, EXCEPT THAT THE DROP-WEIGHT TEAR TEST IN SECTION 732 SHALL NOT APPLY TO THE STRUCTURAL TUBING ON THIS PROJECT.
3. ALL EXPOSED CUT OR SHEARED EDGES SHALL BE ROUNDED TO A 2mm RADIUS AND BE FREE OF BURRS.
4. RAIL POSTS SHALL BE SET NORMAL TO GRADE.
5. SECTIONS OF RAIL TUBE SHALL BE ATTACHED TO A MINIMUM OF TWO (2) RAIL POSTS AND PREFERABLY TO AT LEAST FOUR (4) POSTS.
6. RAIL TUBE EXPANSION JOINTS SHALL BE PROVIDED IN ANY RAIL BAY SPANNING A SUPERSTRUCTURE EXPANSION JOINT. EXPANSION JOINT WIDTH SHALL BE "X" AT 7°C AND WILL BE ADJUSTED IN THE FIELD BY THE ENGINEER FOR OTHER TEMPERATURES.
7. ALL PARTS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH AASHTO M111, EXCEPT THAT HARDWARE SHALL MEET THE REQUIREMENTS OF AASHTO M232M.
8. RAIL POSTS ANCHORING NUTS SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ONE-EIGHTH TURN.
9. RAIL TUBES SHALL BE ATTACHED USING M20 FULL DIAMETER BODY AASHTO M164 (TYPE I) ROUND HEAD BOLTS INSERTED THROUGH THE FACE OF THE TUBE. HOLES IN POSTS SHALL BE 2mm LARGER THAN THE BOLT SIZE.
10. HOLES IN RAILS FOR RAIL TUBE ATTACHMENT MAY BE FIELD-DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO ERECTION.
11. IF THERE IS A CONFLICT BETWEEN THESE STANDARD DETAILS AND THE DESIGN, THE REQUIREMENTS OF THE DESIGN DRAWINGS SHALL BE FOLLOWED.
12. ANY BENDING OF RAIL SHALL BE BY SHOP PROCEDURE ONLY.
13. THE FABRICATOR SHALL SUBMIT SHOP DRAWINGS INCLUDING WELDING PROCEDURES TO THE STRUCTURES SECTION FOR APPROVAL IN ACCORDANCE WITH SUBSECTION 506.04 "DRAWINGS AND PROCEDURES. ALL WELDING SHALL CONFORM WITH SUBSECTION 506.10 "WELDING".
14. RAIL POST AND BASE PLATES SHALL BE TESTED FOR IMPACT PROPERTIES IN ACCORDANCE WITH ASTM A370 CHARPY IMPACT TESTING USING TYPE A SPECIMENS.

## MATERIALS

RAIL TUBES.....ASTM A500, GRADE B
RAIL POSTS AND BASE PLATE.....AASHTO M 270M/M 270, GRADE 345
ALL OTHER SHAPES AND PLATES.....AASHTO M 270M/M 270, GRADE 250
ANCHOR STUDS.....ASTM F568M CLASS 8.8
ALL OTHER BOLTS.....AASHTO M164M, TYPE I

NUTS FOR AASHTO M164M (ASTM A325M) BOLTS AND ANCHOR STUDS SHALL COMPLY WITH AASHTO M291M (ASTM A563M).

WASHERS SHALL COMPLY WITH AASHTO M293M (ASTM F436M) SPECIFICATIONS.

3mm PAD SHALL COMPLY WITH STANDARD SPECIFICATION SUBSECTION 731.02.

| SPLICE TABLE | | | | | |
|---|---|---|---|---|---|
| T | A | B | C | L | X |
| NA | 100 | 50 | -- | 510 | 20 |
| EXPANSION JOINT TABLE | | | | | |
| <100 | 100 | 50 | 65 | 510 | 65 |

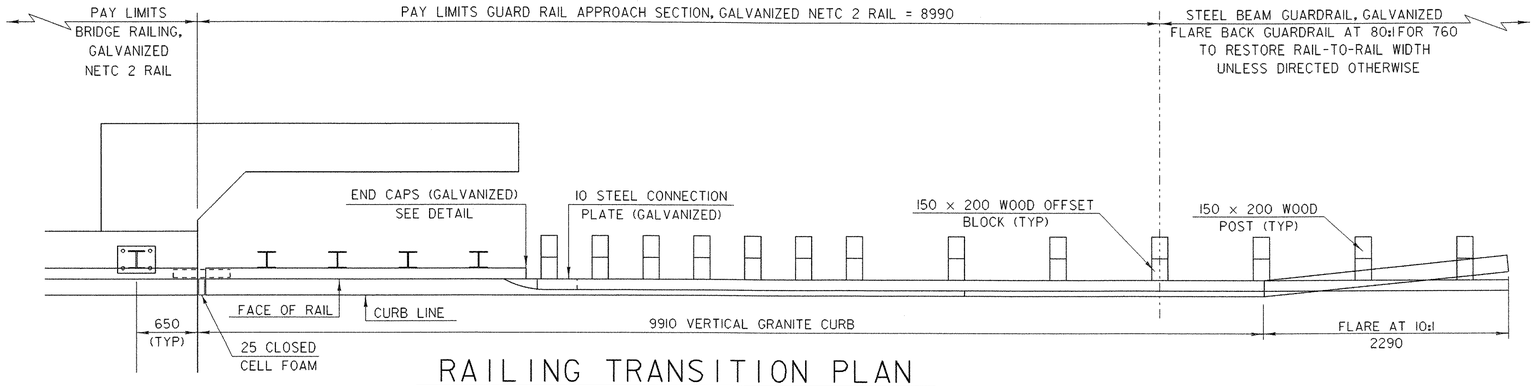
T = TOTAL MOVEMENT BETWEEN BRIDGE EXPANSION JOINTS. SEE NOTE 6
* = SINGLE SLOT

# BR1M
# BRIDGE RAILING, GALVANIZED N.E.T.C.2 RAIL

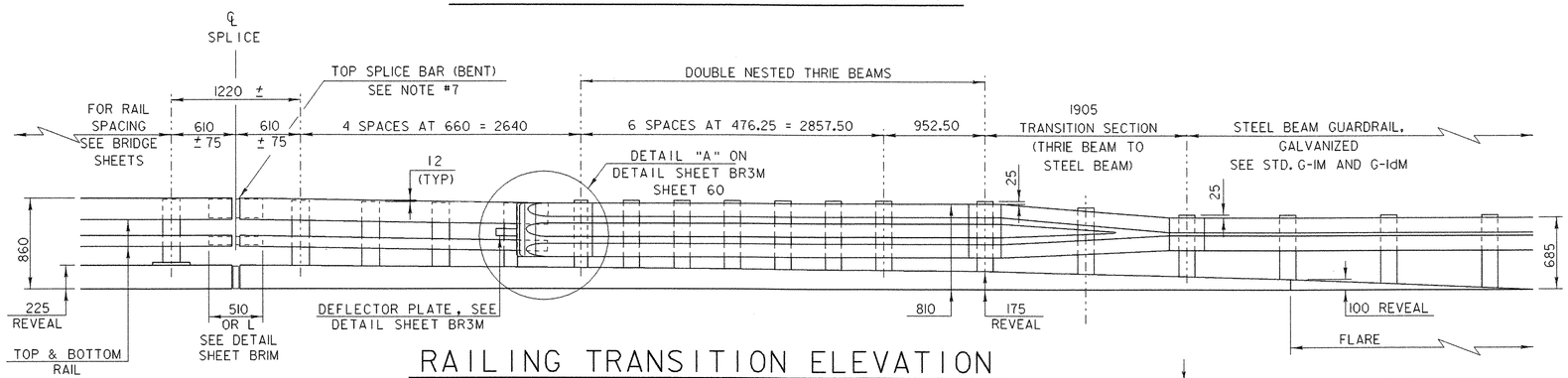
BRIDGE RAILING
DETAIL SHEET BR1M

PROJECT NAME: RUTLAND TOWN
PROJECT NUMBER: BRF 019-3(48)

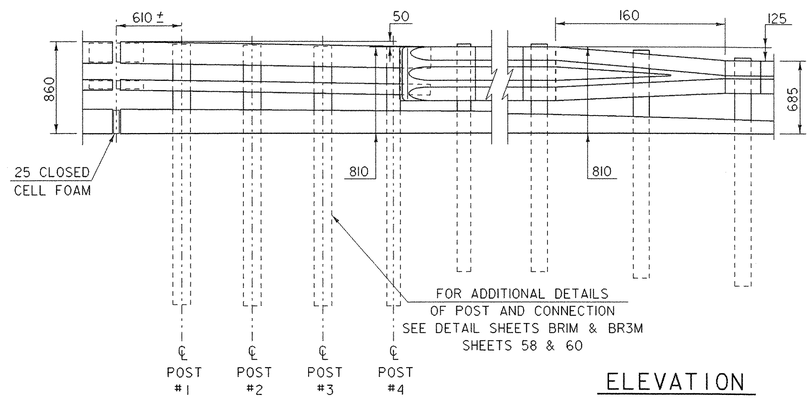
FILE NAME: sbl72br1.i
PROJECT LEADER: R. Whitcomb
DESIGNED BY: VTRANS
95bl72/str/sbl72br.dgn
PLOT DATE: 11-MAR-2008
DRAWN BY: VTRANS
CHECKED BY: T. Lackey
SHEET 58 OF 75



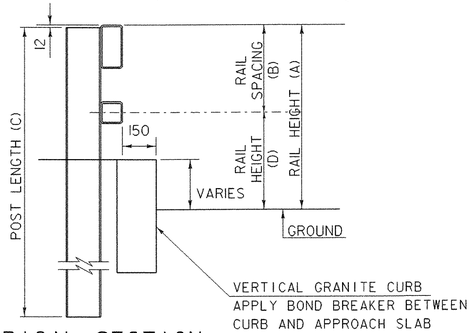

## RAILING TRANSITION PLAN




## RAILING TRANSITION ELEVATION

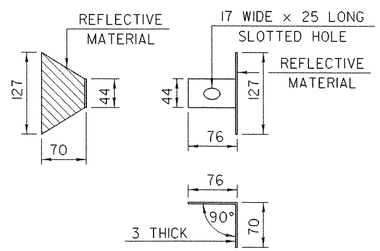



## ELEVATION




## TYPICAL SECTION

| POST NUMBER | RAIL HEIGHT (A) | RAIL SPACING (B) | POST LENGTH (C) | RAIL HEIGHT (D) |
|---|---|---|---|---|
| 1 | 850 | 400 | 2440 | 450 |
| 2 | 840 | 395 | 2440 | 445 |
| 3 | 825 | 385 | 2440 | 440 |
| 4 | 810 | 375 | 2440 | 435 |




## DELINEATION DEVICE DETAILS

## NOTES

1. REFER TO DETAIL SHEET BRIM FOR ADDITIONAL DETAILS, NOTES AND MATERIAL SPECIFICATIONS.
2. PAYMENT FOR "GUARD RAIL APPROACH SECTION, GALVANIZED NETC 2 RAIL SHALL INCLUDE THE TERMINAL CONNECTOR, THE CONNECTION PLATE, THE DEFLECTOR PLATE, RAIL, POSTS, BLOCKS AND ATTACHMENT HARDWARE.
3. THE REFLECTORIZED ALUMINUM DELINEATION IS TO BE ERECTED EVERY 9m (OR CLOSEST POST) WITH A M16 BOLT.
4. REFLECTIVE MATERIAL SHALL MEET REQUIREMENTS OF SUBSECTION 750.08 (b) (3), AND SHALL BE OF ENCAPSULATED LENS SILVER OR AMBER. INSTALL AMBER ON THE DRIVER'S LEFT AND SILVER ON THEIR RIGHT.
5. ALL APPROACH RAIL SPLICES SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC FLOW.
6. ALL BRIDGE APPROACH RAIL MATERIALS, DIMENSION SIZES AND NOTES SHALL BE THE SAME AS THOSE OF THE BRIDGE RAIL, UNLESS OTHERWISE NOTED.
7. WELD TOP SPLICE BAR TO FIT BEND. USE COMPLETE PENETRATION WELD (B-U2).
8. PAY ITEM 616.21 "VERTICAL GRANITE CURB" WILL INCLUDE THE GRANITE CURB, APPROACH SLAB BOND BREAKER, AND BRIDGE CURB CLOSED CELL FOAM.

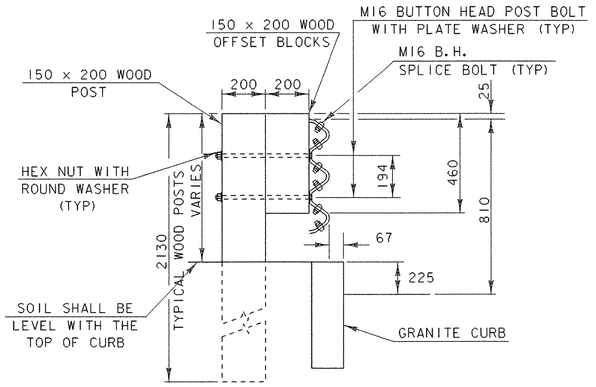
# BR2M
# BRIDGE RAILING, GALVANIZED N.E.T.C. 2 RAIL THRIE BEAM GUARDRAIL APPROACH RAIL

BRIDGE RAILING
DETAIL SHEET BR2M

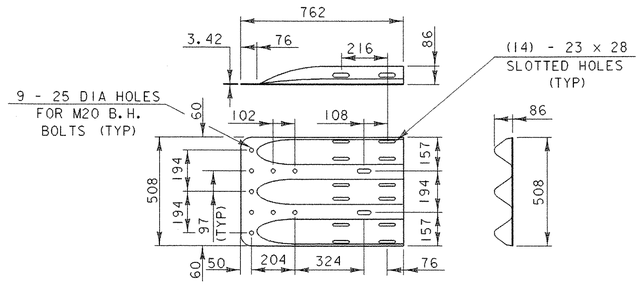
| | |
|---|---|
| PROJECT NAME: | RUTLAND TOWN |
| PROJECT NUMBER: | BRF 019-3(48) |

| | |
|---|---|
| FILE NAME: sbl72br2.i | PLOT DATE: 11-MAR-2008 |
| PROJECT LEADER: R. Whitcomb | DRAWN BY: VTRANS |
| DESIGNED BY: VTRANS | CHECKED BY: T. Lackey |
| 95bl72/str/sbl72br.dgn | SHEET 59 OF 75 |

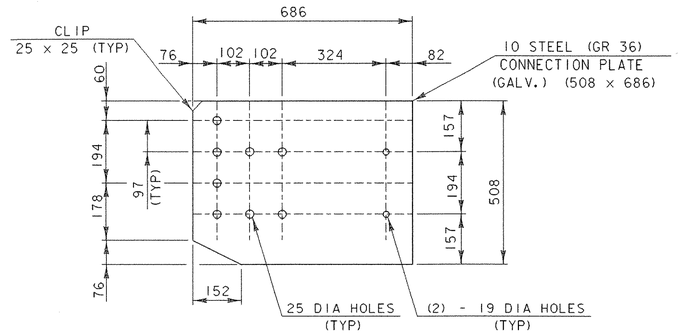
Metric



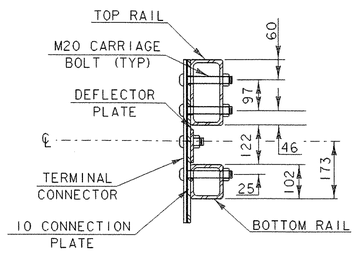

## WOOD POST-RAIL ASSEMBLY



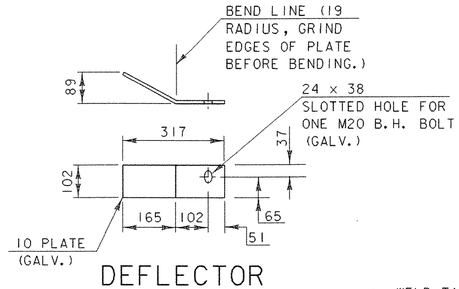

## THRIE-BEAM TERMINAL CONNECTOR (HM-TF-13/RE-67)



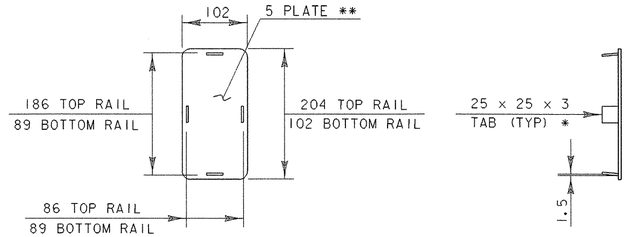

## CONNECTION PLATE




## SECTION C-C (CONNECTION PLATE)

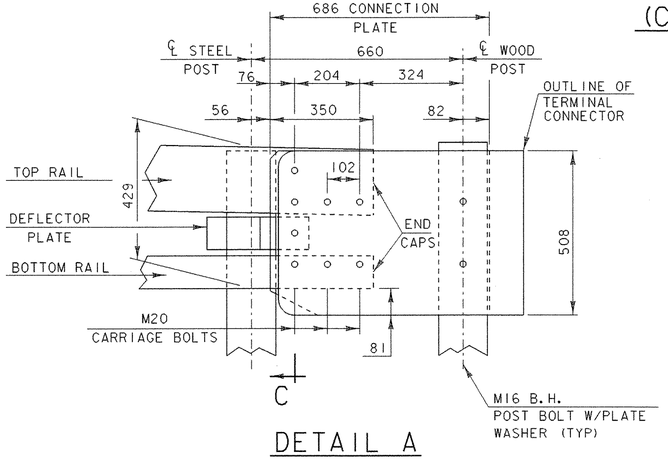



## DEFLECTOR PLATE DETAIL

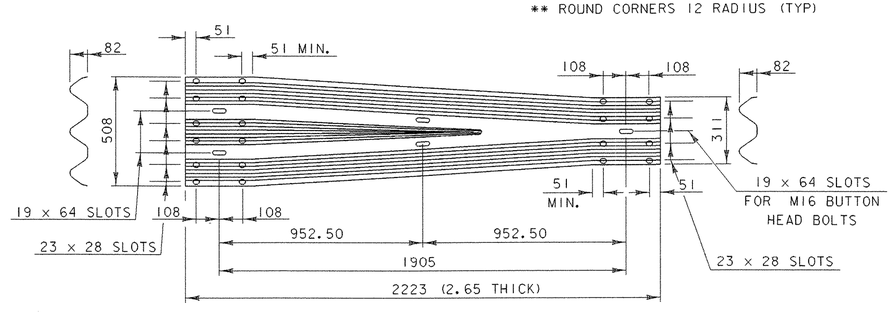



## END CAP DETAIL

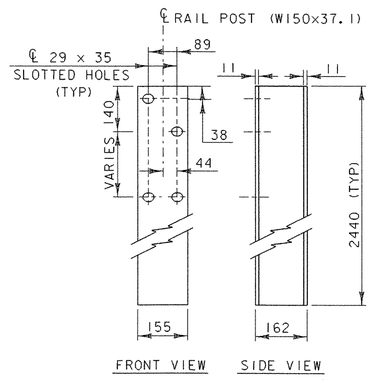
* WELD TABS TO END CAP PLATE IN TAPERED POSITION SO CAP CAN BE JAMMED INTO END OF RAIL TUBE.
** ROUND CORNERS 12 RADIUS (TYP)




## DETAIL A




## THRIE-BEAM TO STD SB TRANSITION SECTION (HM-TF-13/RE-69)

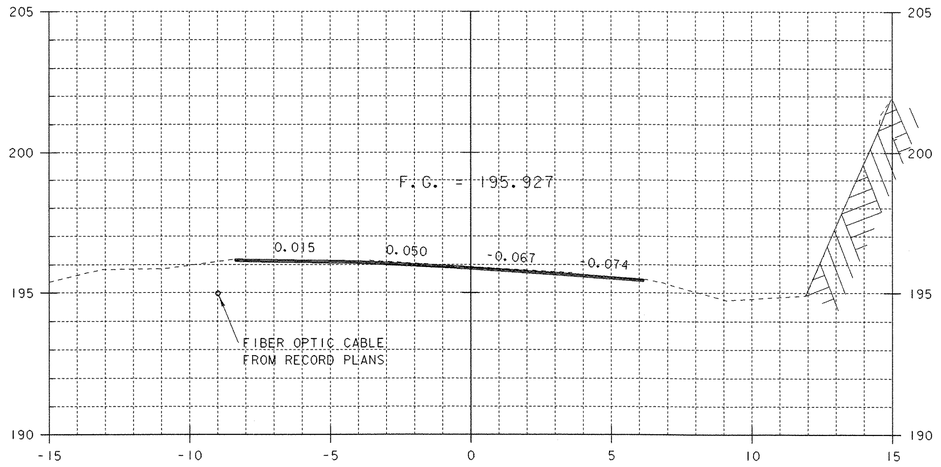



## RAIL POST

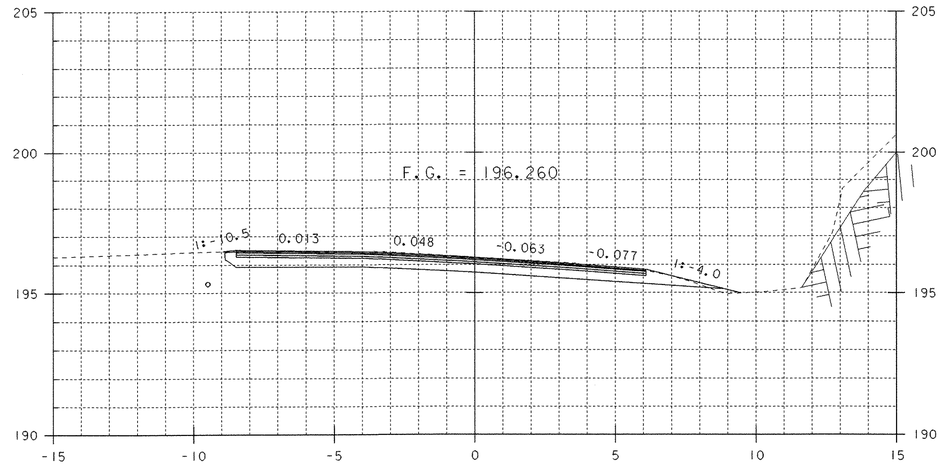
# BR3M
# BRIDGE RAILING, GALVANIZED N.E.T.C. 2 RAIL
# THRIE BEAM GUARDRAIL APPROACH RAIL

BRIDGE RAILING
DETAIL SHEET BR3M

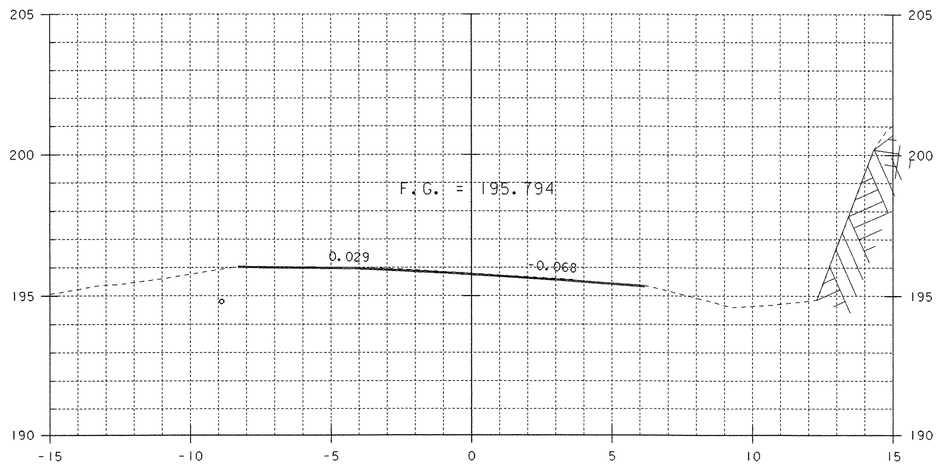
| | |
|---|---|
| PROJECT NAME: | RUTLAND TOWN |
| PROJECT NUMBER: | BRF 019-3(48) |
| FILE NAME: sbl72br3.1 | PLOT DATE: 11-MAR-2008 |
| PROJECT LEADER: R. Whitcomb | DRAWN BY: VTRANS |
| DESIGNED BY: VTRANS | CHECKED BY: T. Lackey |
| 95bl72/str/sbl72br.dgn | SHEET 60 OF 75 |




2+170.00

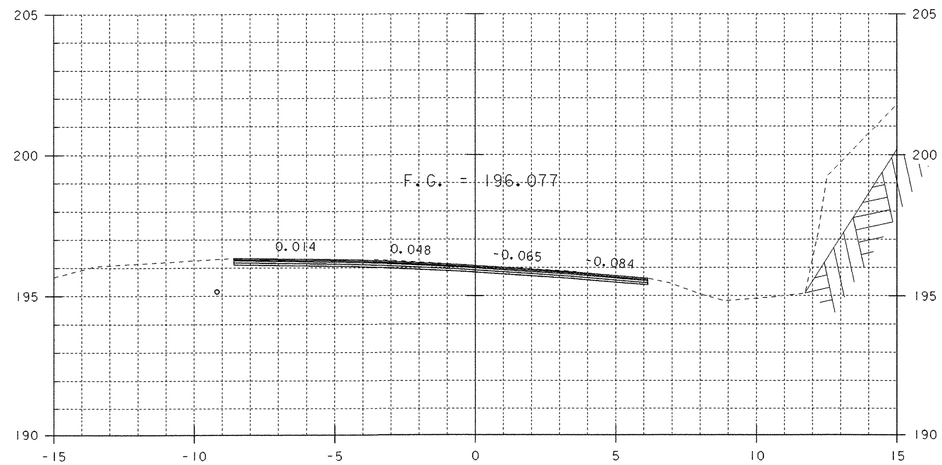



2+190.00




2+160.00

2+160.000 BEGIN APPROACH
MATCH EXISTING




2+180.00

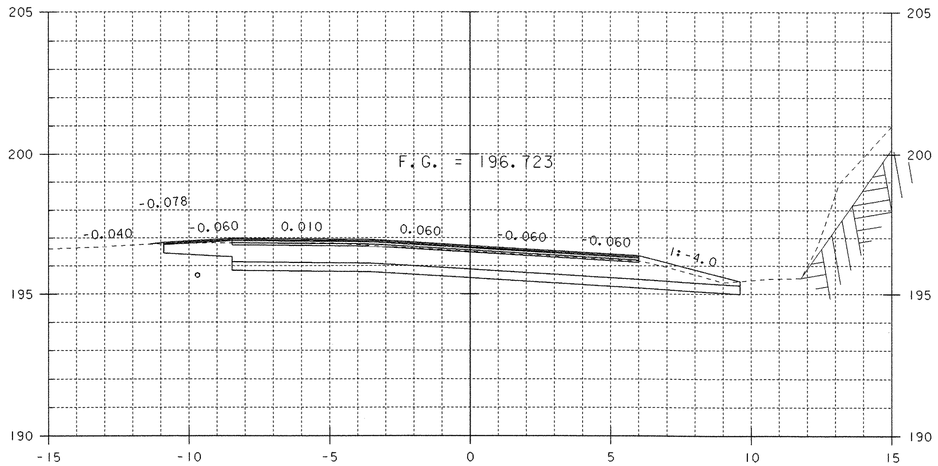
2+180.000 END COLD PLANING

0 2 4 6 8 10
SCALE 1:100

STA. 2+160 TO STA. 2+190

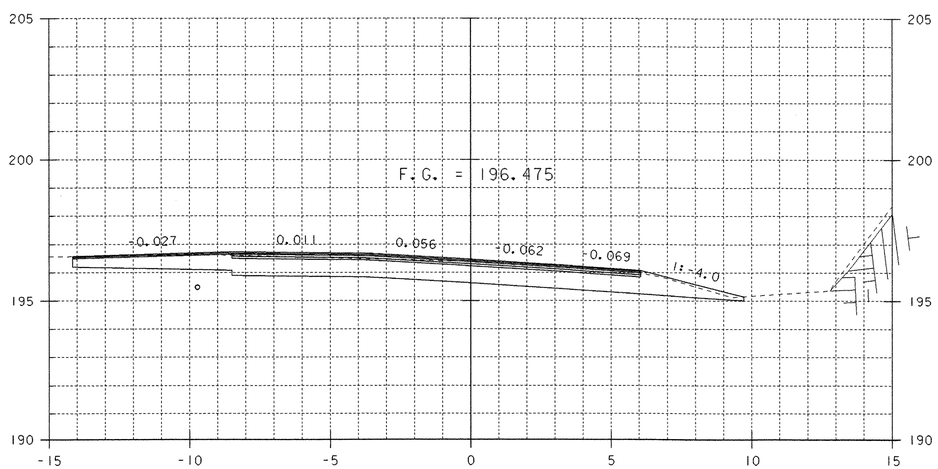
# MAINLINE SECTIONS 1

| | |
|---|---|
| PROJECT NAME: | RUTLAND TOWN |
| PROJECT NUMBER: | BRF 019-3(48) |
| FILE NAME: 95b172/str/sb172xs2.dgn | PLOT DATE: 11-MAR-2008 |
| PROJECT LEADER: R. WHITCOMB | DRAWN BY: L. BULLOCK |
| DESIGNED BY: L. BULLOCK | CHECKED BY: T. LACKEY |
| sb172m01.1 | SHEET 61 OF 75 |

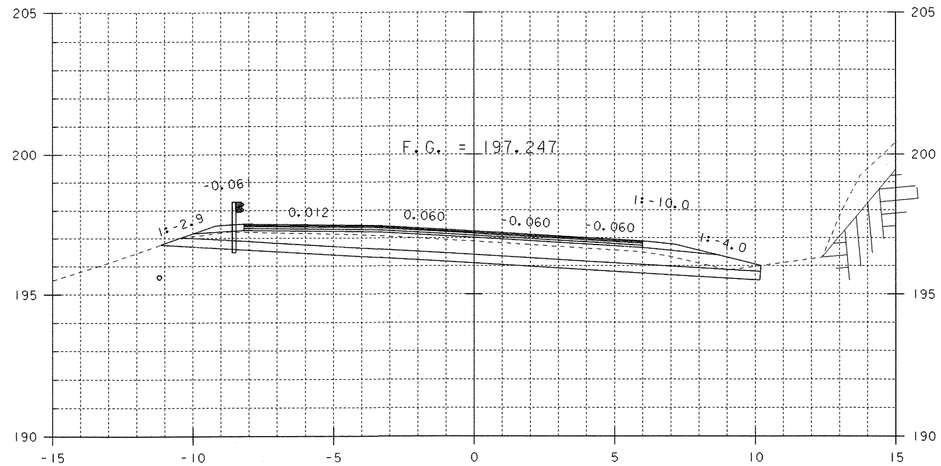



2+210.00

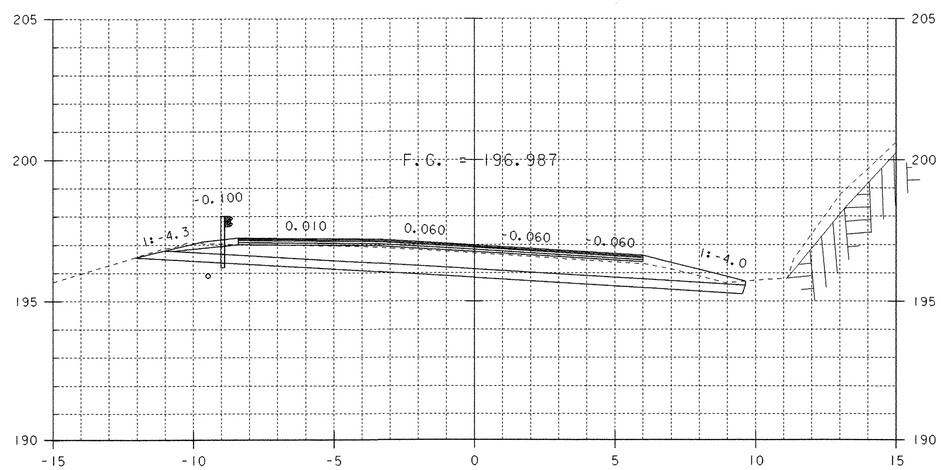
2+210.000 BEGIN PROJECT




2+200.00




2+230.00




2+220.00

# MAINLINE SECTIONS 2

0 2 4 6 8 10

SCALE 1:100

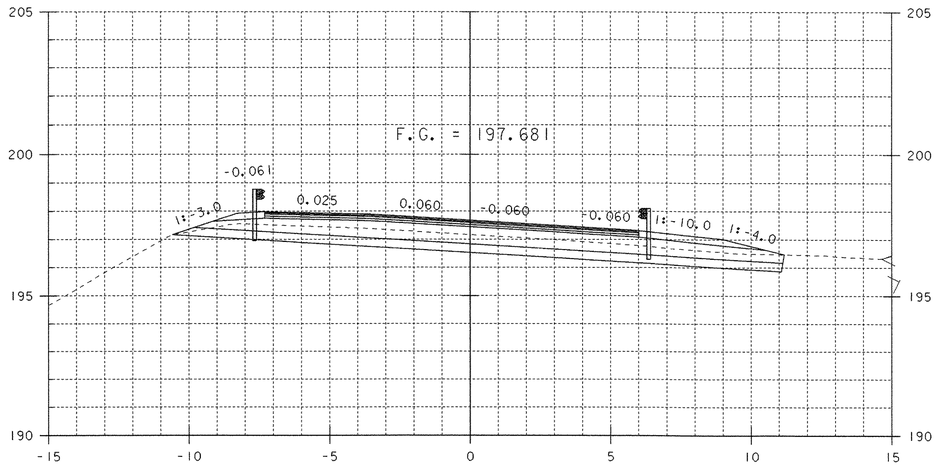
STA. 2+200 TO STA. 2+230

PROJECT NAME: RUTLAND TOWN

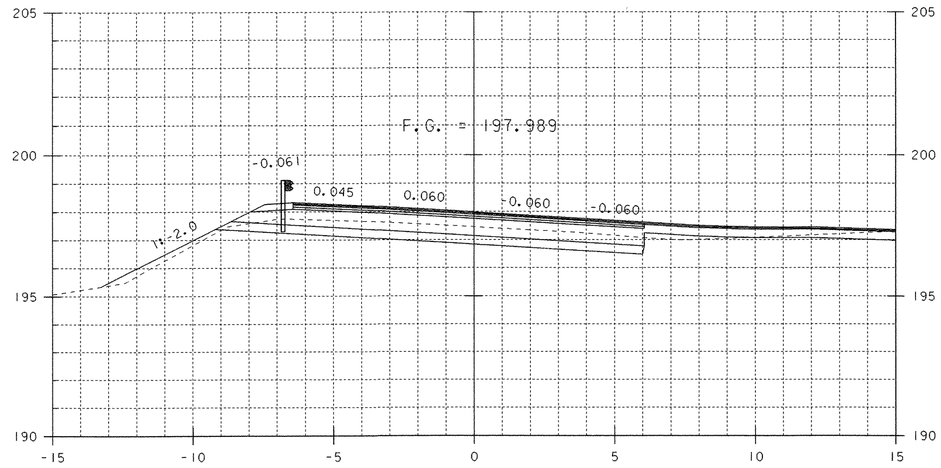
PROJECT NUMBER: BRF 019-3(48)

FILE NAME: 95bl72/str/sbl72xs2.dgn
PROJECT LEADER: R. WHITCOMB
DESIGNED BY: L. BULLOCK
sbl72m02.1

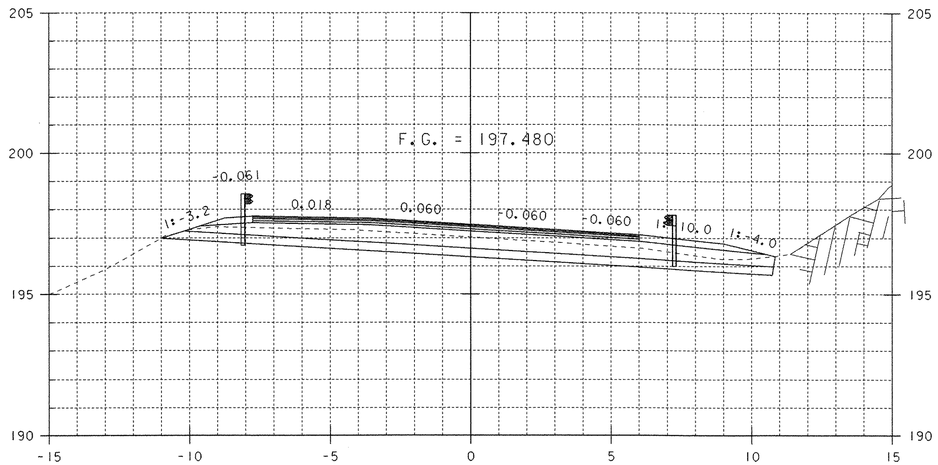
PLOT DATE: 11-MAR-2008
DRAWN BY: L. BULLOCK
CHECKED BY: T. LACKEY
SHEET 62 OF 75



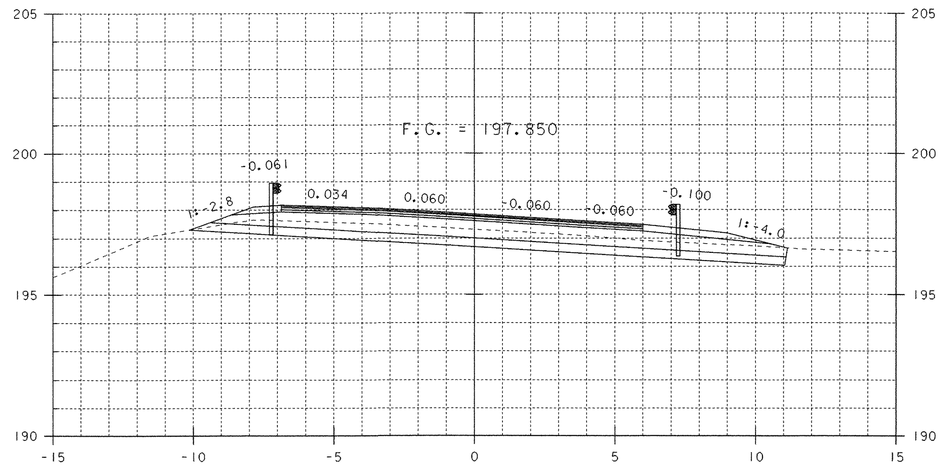

2+250.00




2+270.00




2+240.00




2+260.00

MAINLINE SECTIONS 3

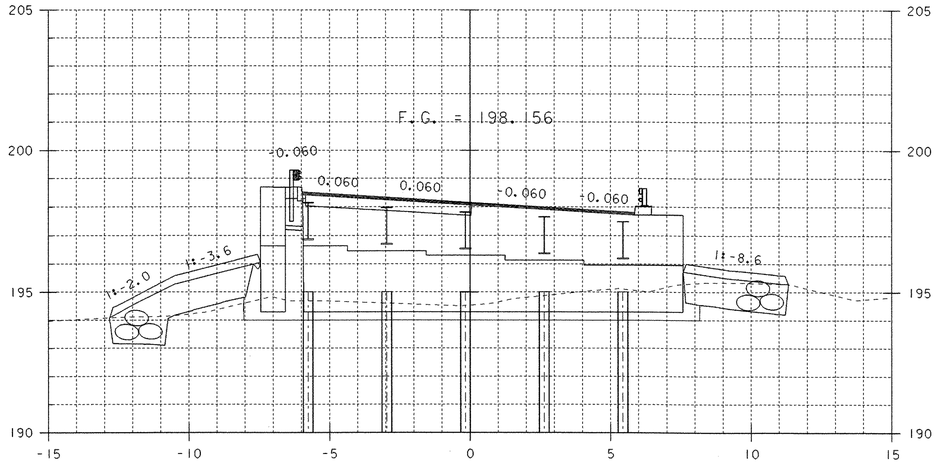
0 2 4 6 8 10
SCALE 1:100

STA. 2+240 TO STA. 2+270

PROJECT NAME: RUTLAND TOWN
PROJECT NUMBER: BRF 019-3(48)

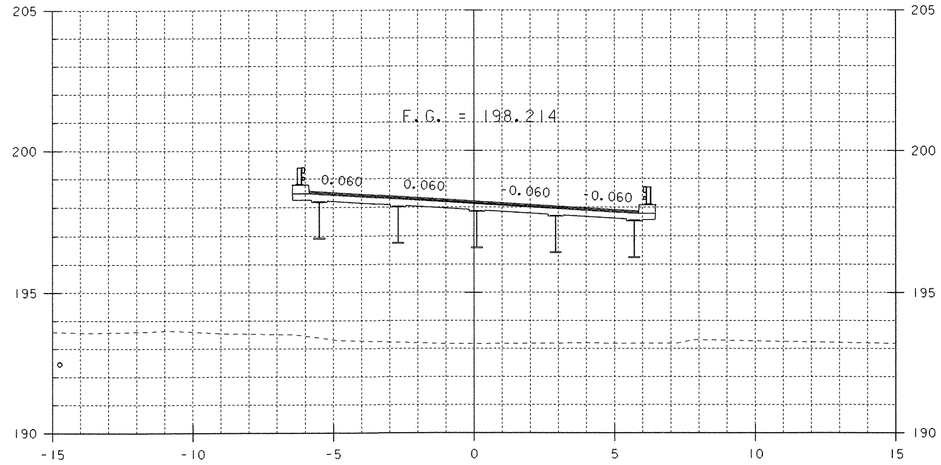
FILE NAME: 95bl72/str/sbl72xs2.dgn
PROJECT LEADER: R. WHITCOMB
DESIGNED BY: L. BULLOCK
sbl72m03.1

PLOT DATE: 11-MAR-2008
DRAWN BY: L. BULLOCK
CHECKED BY: T. LACKEY
SHEET 63 OF 75

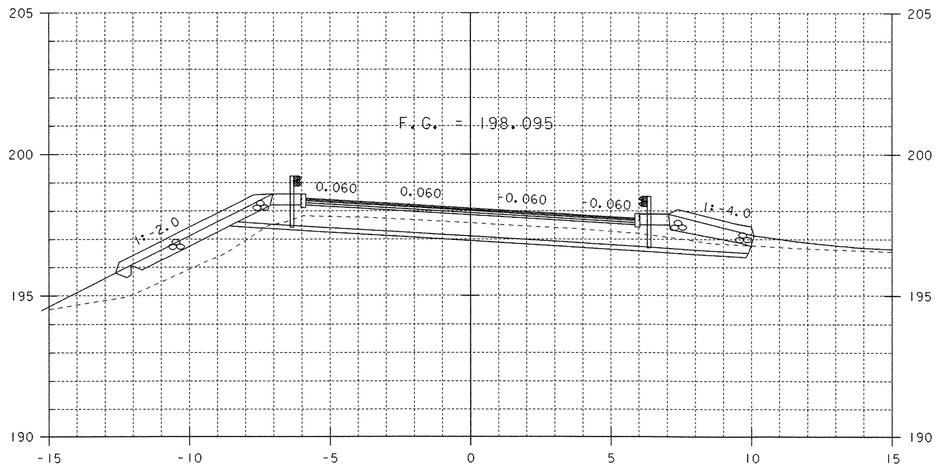



2+287.75

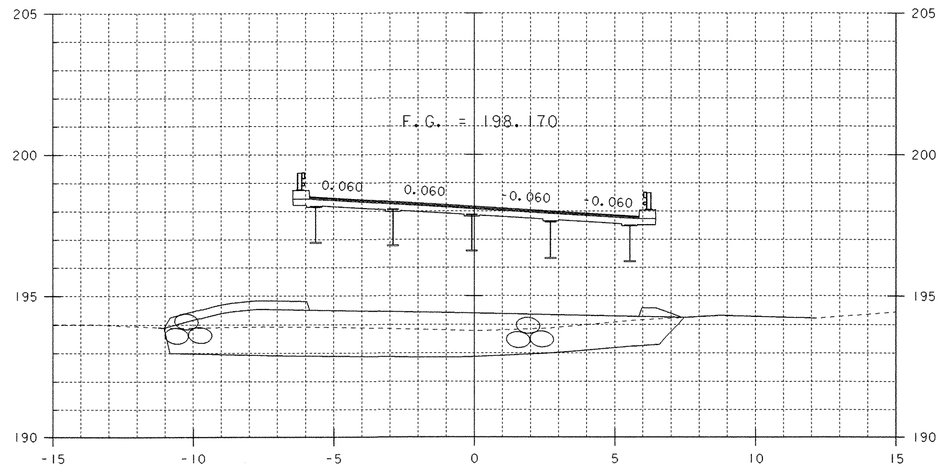
2+287.750 BEGIN BRIDGE




2+300.00




2+280.00




2+290.00

# MAINLINE SECTIONS 4

0 2 4 6 8 10

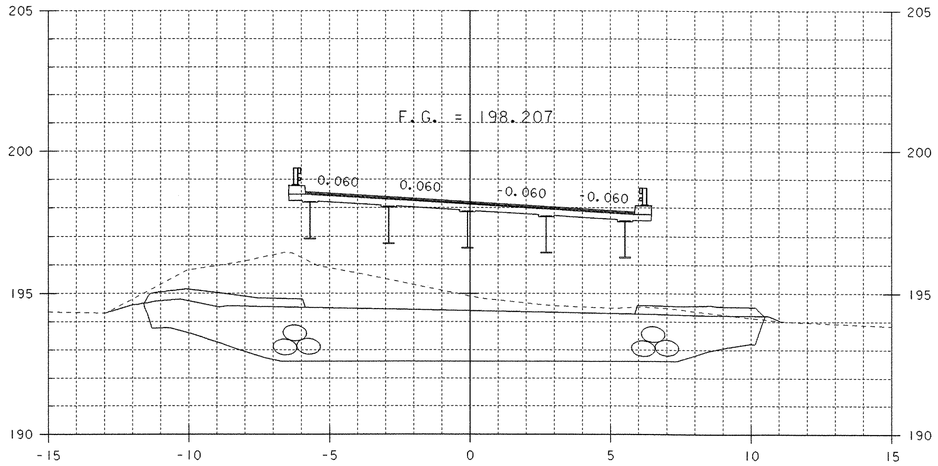
SCALE 1:100

STA. 2+280 TO STA. 2+300

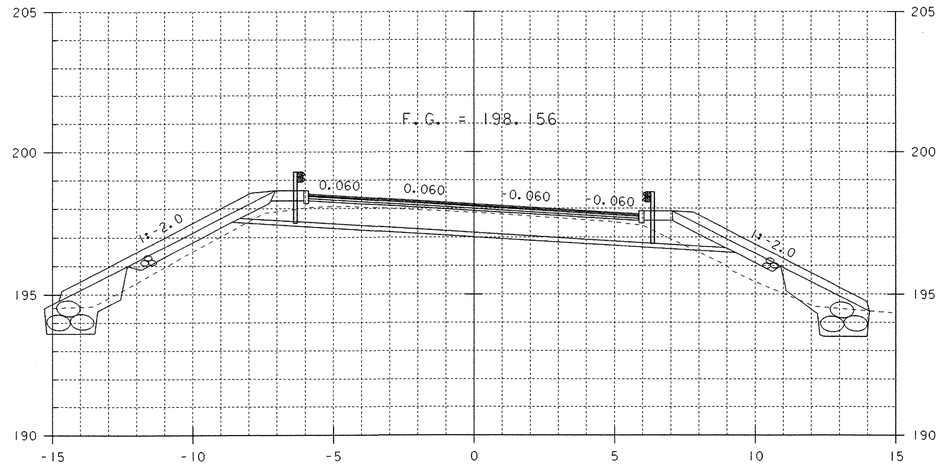
PROJECT NAME: RUTLAND TOWN
PROJECT NUMBER: BRF 019-3(48)

FILE NAME: 95bl72/str/sbl72xs2.dgn
PROJECT LEADER: R. WHITCOMB
DESIGNED BY: L. BULLOCK
sbl72m04.1

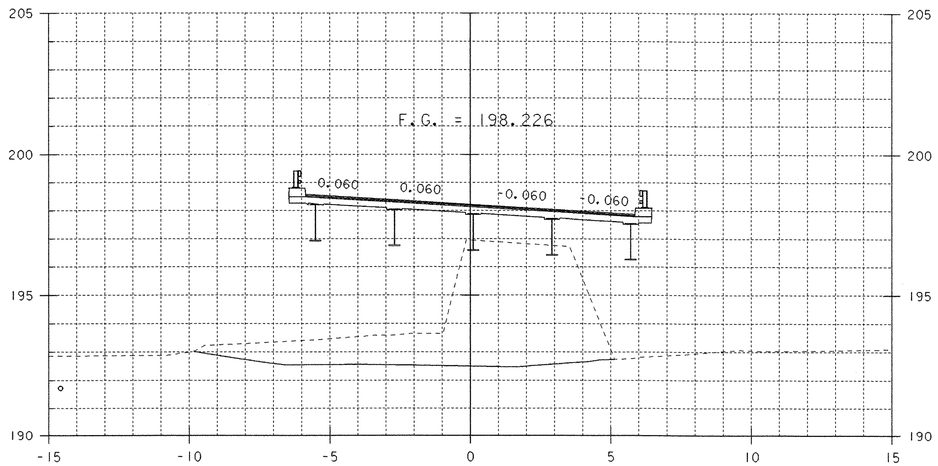
PLOT DATE: 11-MAR-2008
DRAWN BY: L. BULLOCK
CHECKED BY: T. LACKEY
SHEET 64 OF 75



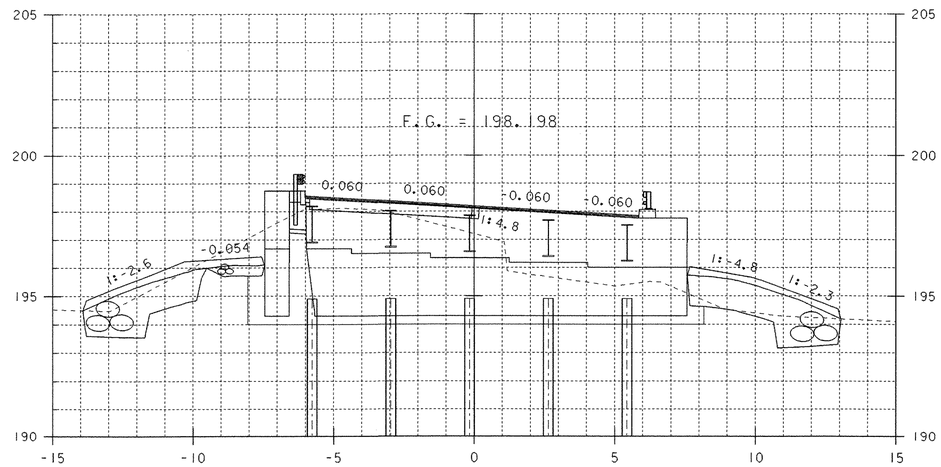

2+320.00




2+330.00




2+310.00




2+322.26

# MAINLINE SECTIONS 5

2+322.256 END BRIDGE

0 2 4 6 8 10

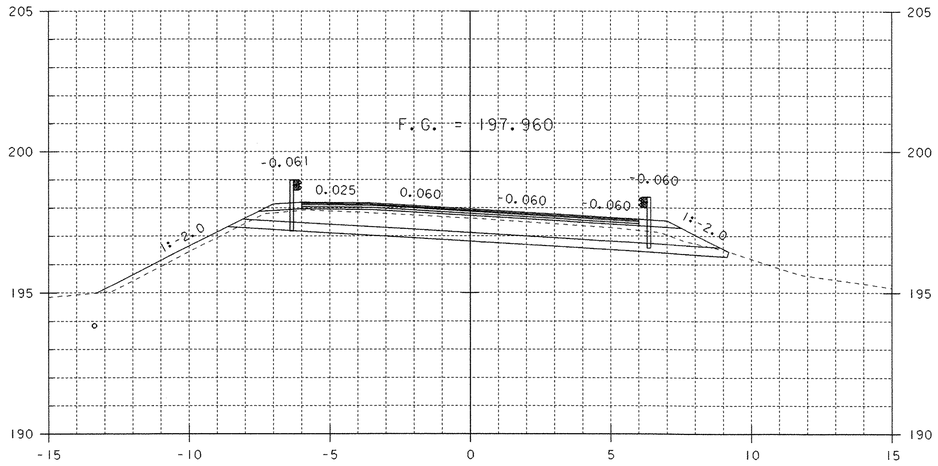
SCALE 1:100

STA. 2+310 TO STA. 2+330

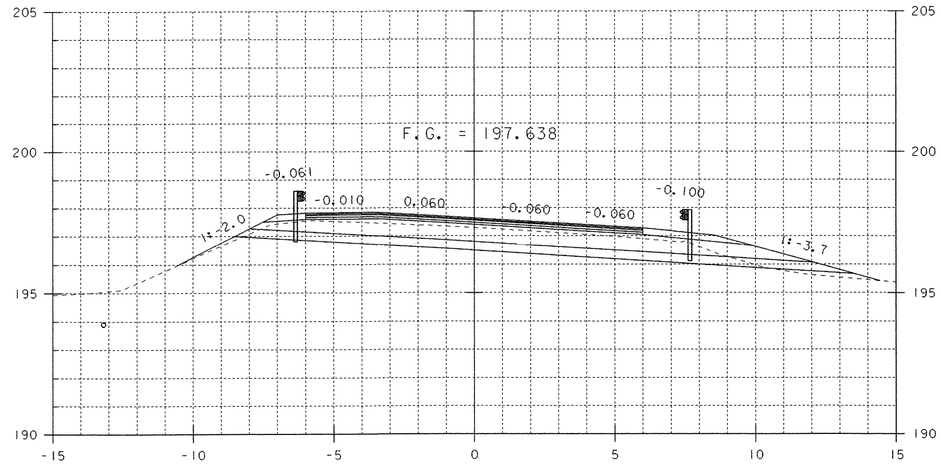
PROJECT NAME: RUTLAND TOWN
PROJECT NUMBER: BRF 019-3(48)

FILE NAME: 95bl72/str/sbl72xs2.dgn
PROJECT LEADER: R. WHITCOMB
DESIGNED BY: L. BULLOCK
sbl72m05.1

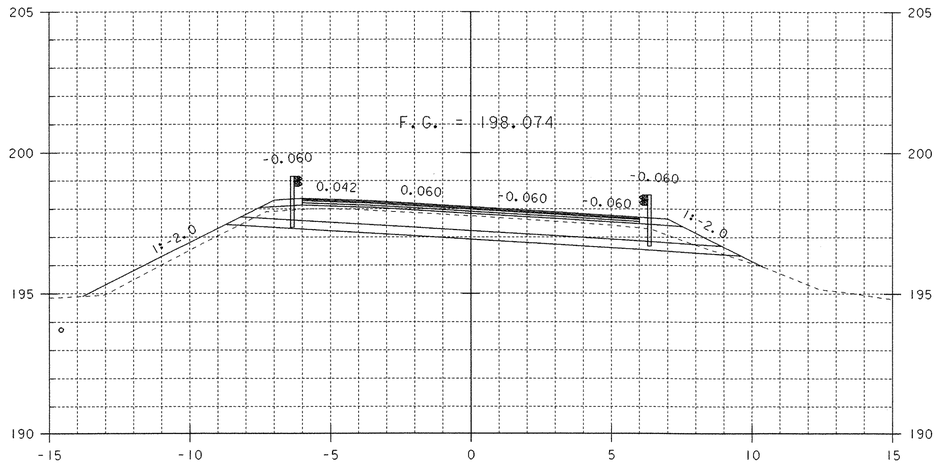
PLOT DATE: 11-MAR-2008
DRAWN BY: L. BULLOCK
CHECKED BY: T. LACKEY
SHEET 65 OF 75



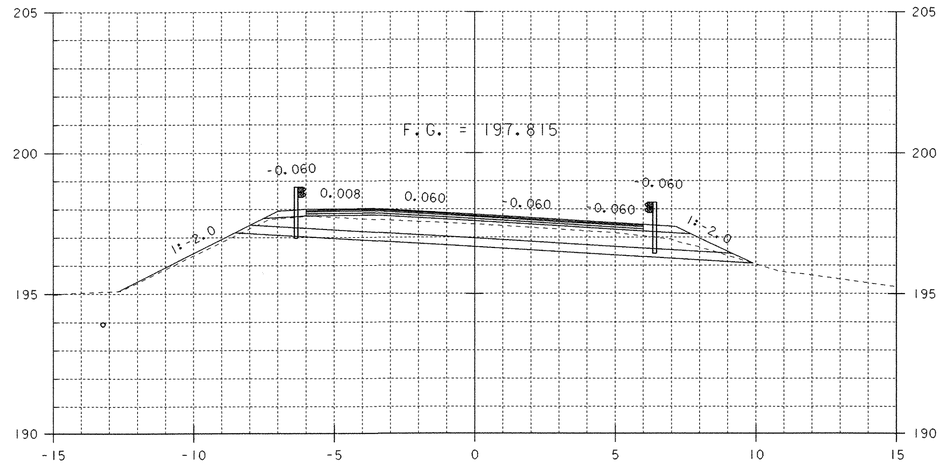

2+350.00




2+370.00




2+340.00




2+360.00

# MAINLINE SECTIONS 6

0 2 4 6 8 10

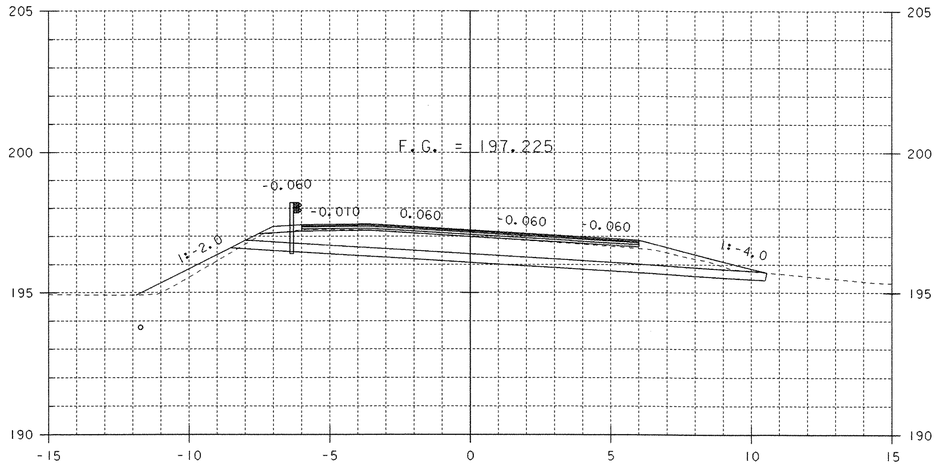
SCALE 1:100

STA. 2+340 TO STA. 2+370

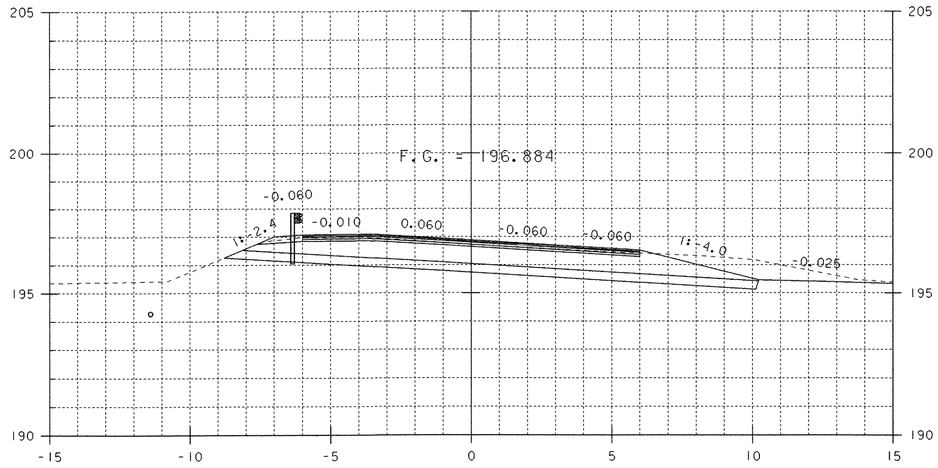
PROJECT NAME: RUTLAND TOWN
PROJECT NUMBER: BRF 019-3(48)

FILE NAME: 95bl72/str/sbl72xs2.dgn
PROJECT LEADER: R. WHITCOMB
DESIGNED BY: L. BULLOCK
sbl72m06.i

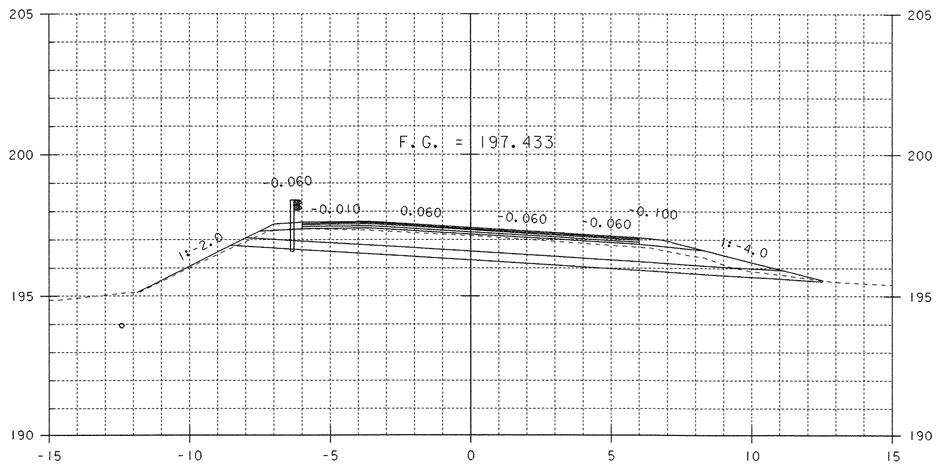
PLOT DATE: 11-MAR-2008
DRAWN BY: L. BULLOCK
CHECKED BY: T. LACKEY
SHEET 66 OF 75



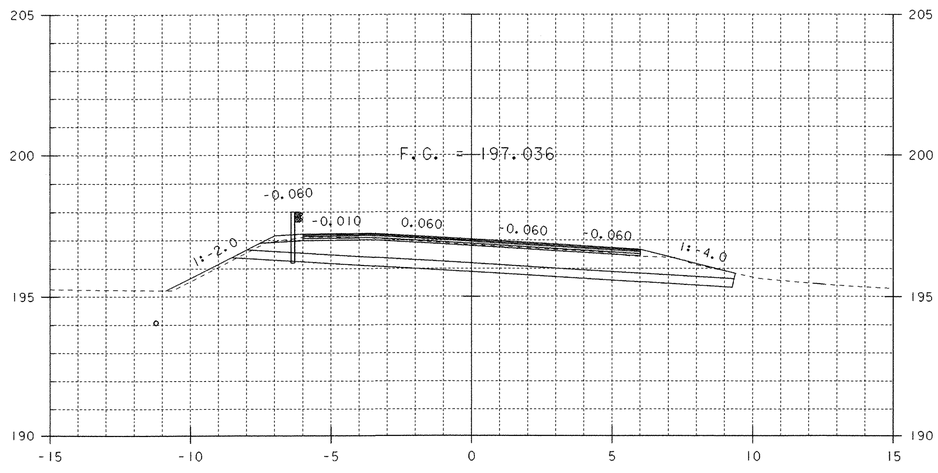

2+390.00




2+410.00




2+380.00




2+400.00

MAINLINE SECTIONS 7

0 2 4 6 8 10

SCALE 1:100

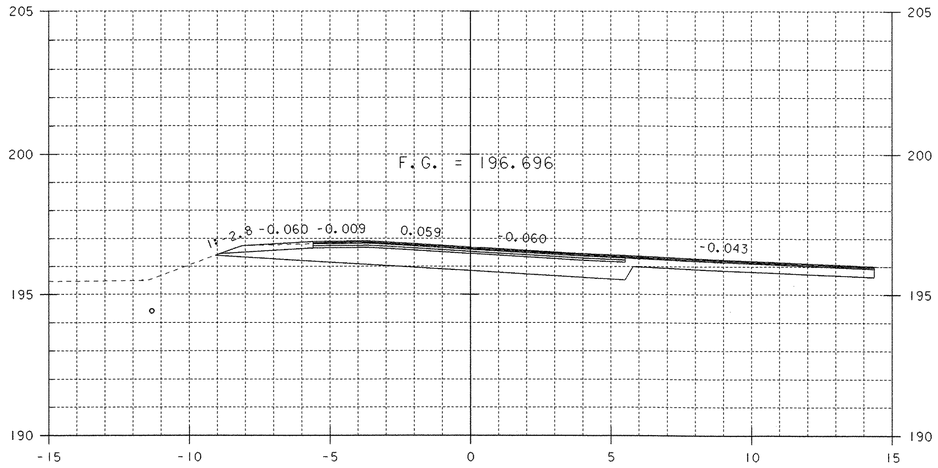
STA. 2+380 TO STA. 2+410

PROJECT NAME: RUTLAND TOWN

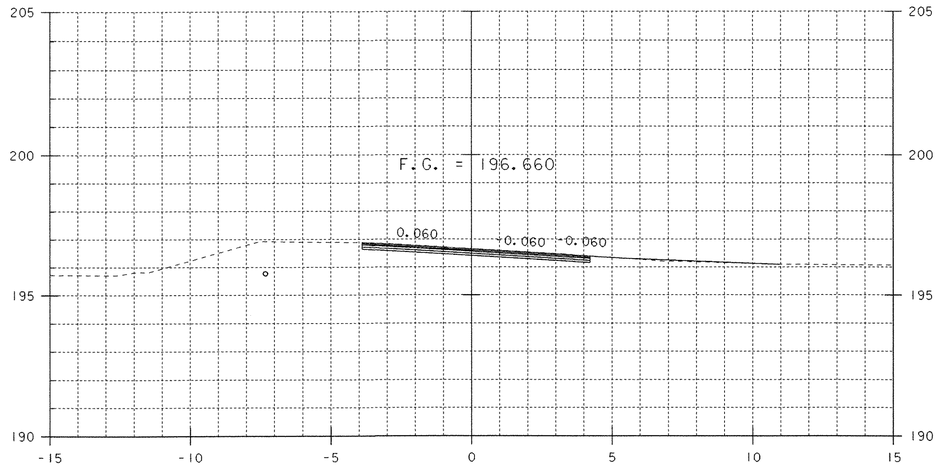
PROJECT NUMBER: BRF 019-3(48)

FILE NAME: 95bl72/str/sbl72xs2.dgn
PROJECT LEADER: R. WHITCOMB
DESIGNED BY: L. BULLOCK
sbl72m07.1

PLOT DATE: 11-MAR-2008
DRAWN BY: L. BULLOCK
CHECKED BY: T. LACKEY
SHEET 67 OF 75

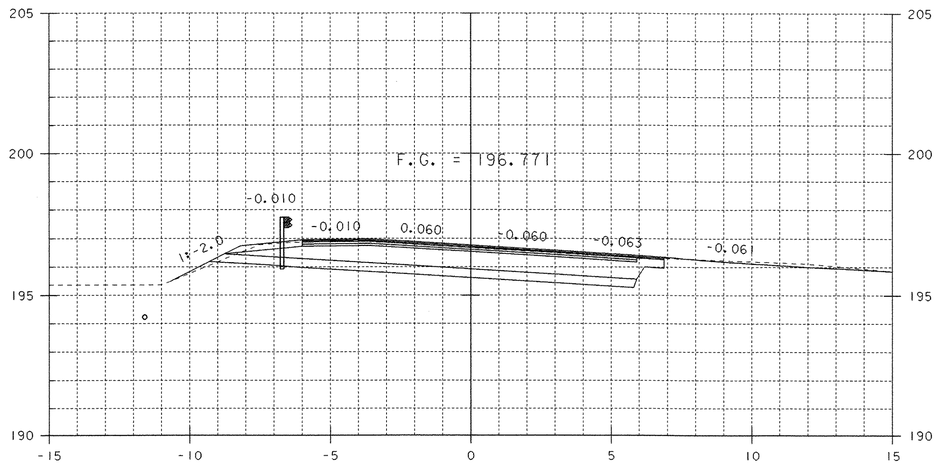



2+430.00



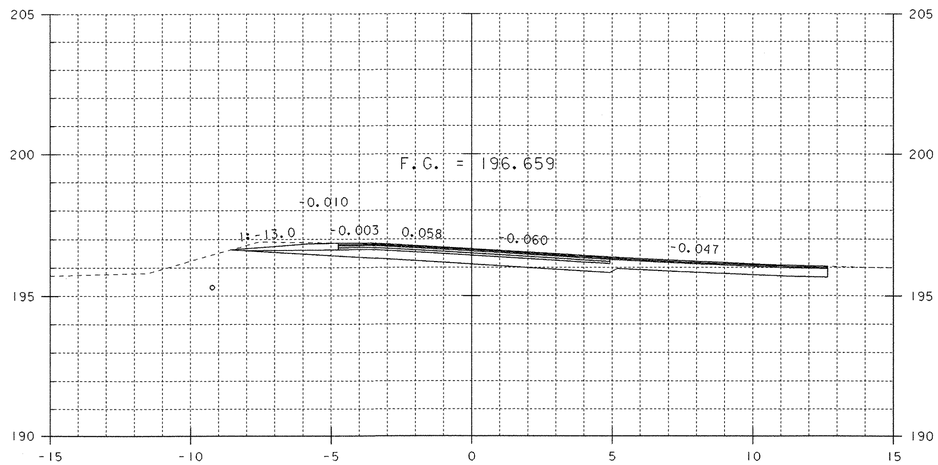

2+450.00

2+450.000 BEGIN COLD PLANING




2+420.00

2+420.000 END PROJECT




2+440.00

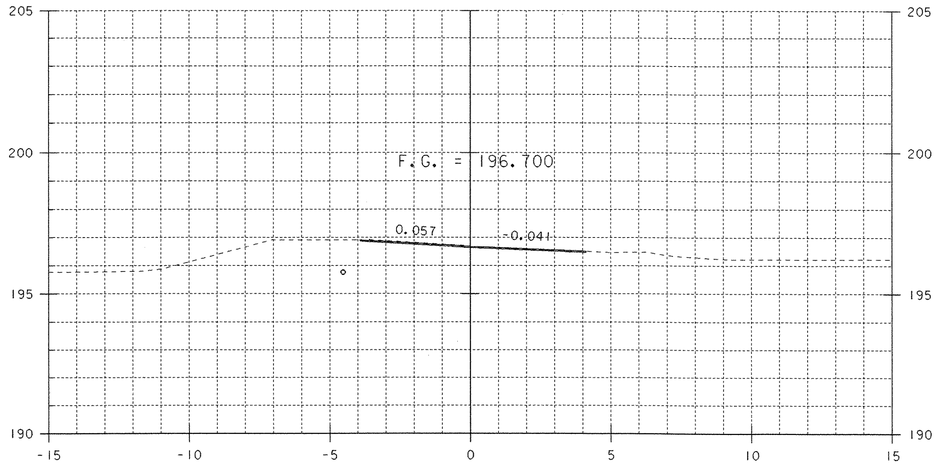
MAINLINE SECTIONS 8

0 2 4 6 8 10

SCALE 1:100

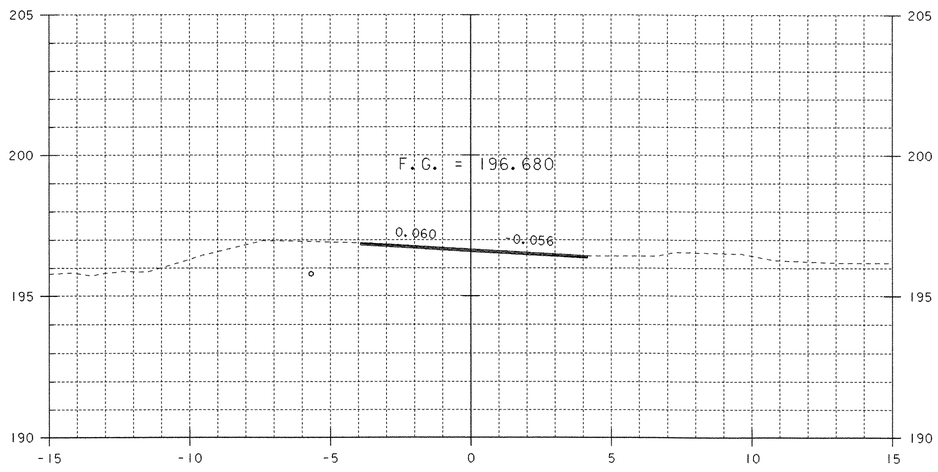
STA. 2+420 TO STA. 2+450

| | |
|---|---|
| PROJECT NAME: RUTLAND TOWN | |
| PROJECT NUMBER: BRF 019-3(48) | |
| FILE NAME: 95bl72/str/sbl72xs2.dgn | PLOT DATE: 11-MAR-2008 |
| PROJECT LEADER: R. WHITCOMB | DRAWN BY: L. BULLOCK |
| DESIGNED BY: L. BULLOCK | CHECKED BY: T. LACKEY |
| sbl72m08.1 | SHEET 68 OF 75 |




2+470.00

2+470.000 END APPROACH
MATCH EXISTING




2+460.00

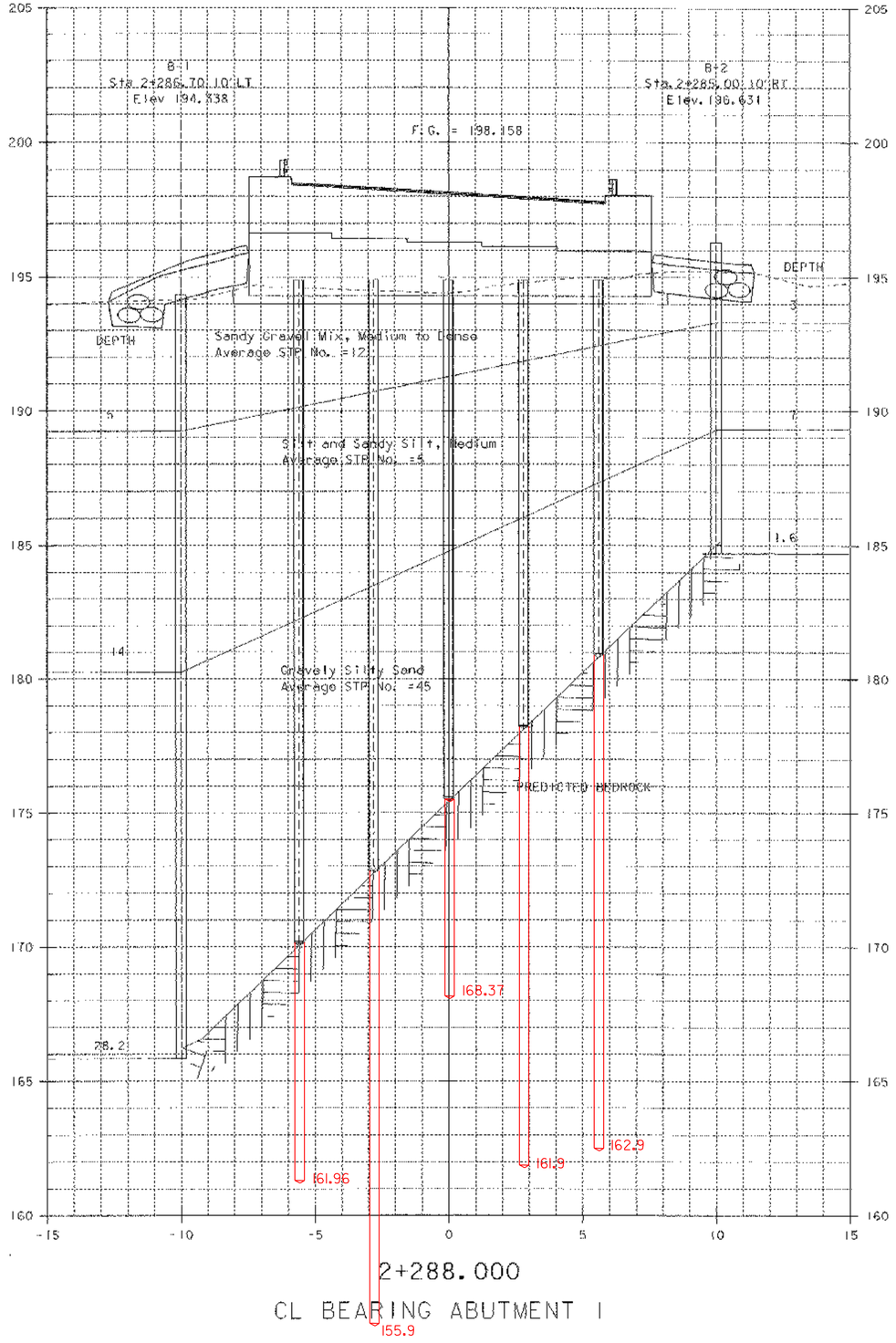
2+450.000 BEGIN COLD PLANING

0 2 4 6 8 10
SCALE 1:100

STA. 2+460 TO STA. 2+470

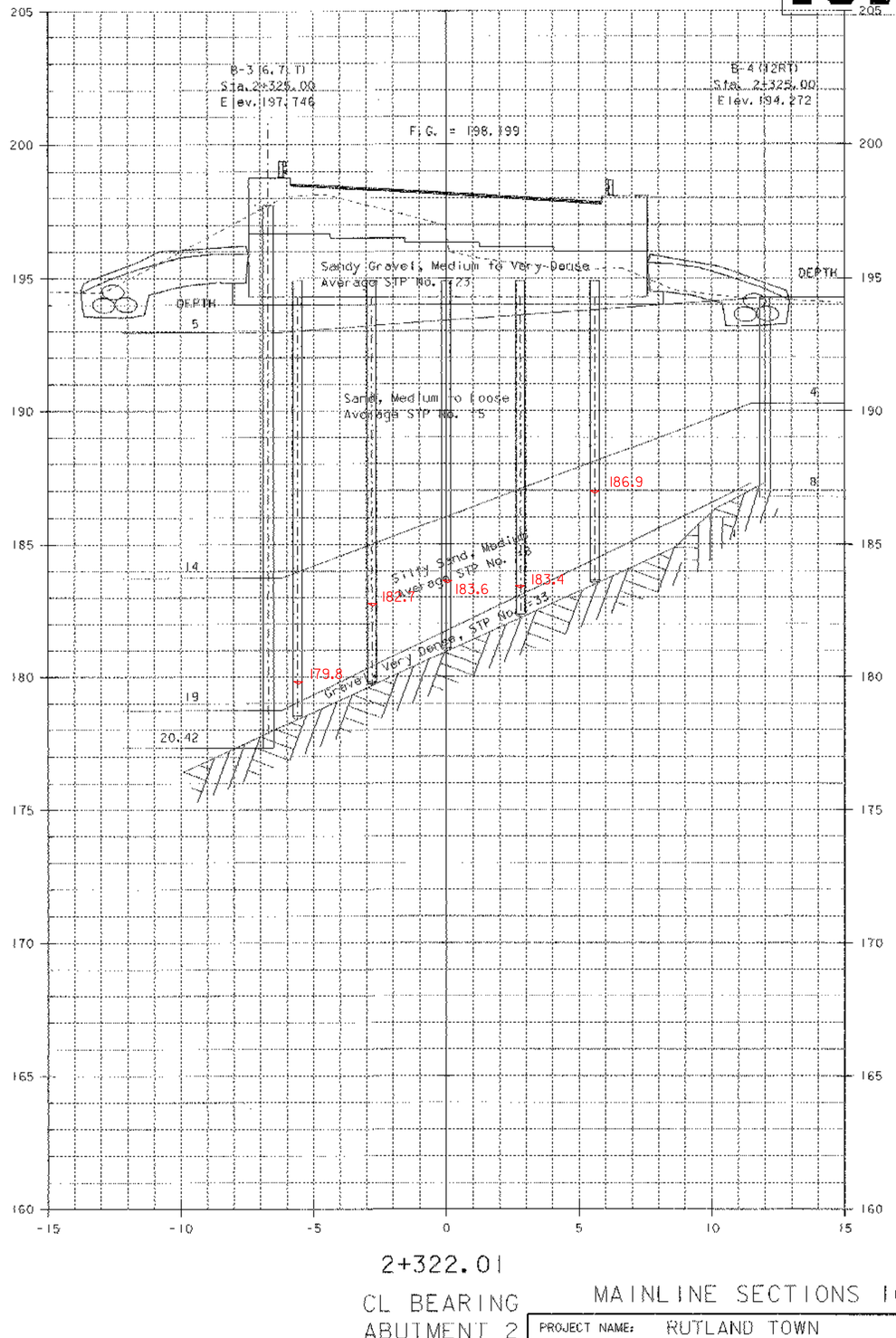
MAINLINE SECTIONS 9

| | |
|---|---|
| PROJECT NAME: | RUTLAND TOWN |
| PROJECT NUMBER: | BRF 019-3(48) |
| FILE NAME: 95bl72/str/sbl72xs2.dgn | PLOT DATE: 11-MAR-2008 |
| PROJECT LEADER: R. WHITCOMB | DRAWN BY: L. BULLOCK |
| DESIGNED BY: L. BULLOCK | CHECKED BY: T. LACKEY |
| sbl72m09.i | SHEET 69 OF 75 |




2+288.000

CL BEARING ABUTMENT 1




2+322.01

CL BEARING ABUTMENT 2

MAINLINE ABUTMENTS

MAINLINE SECTIONS 10

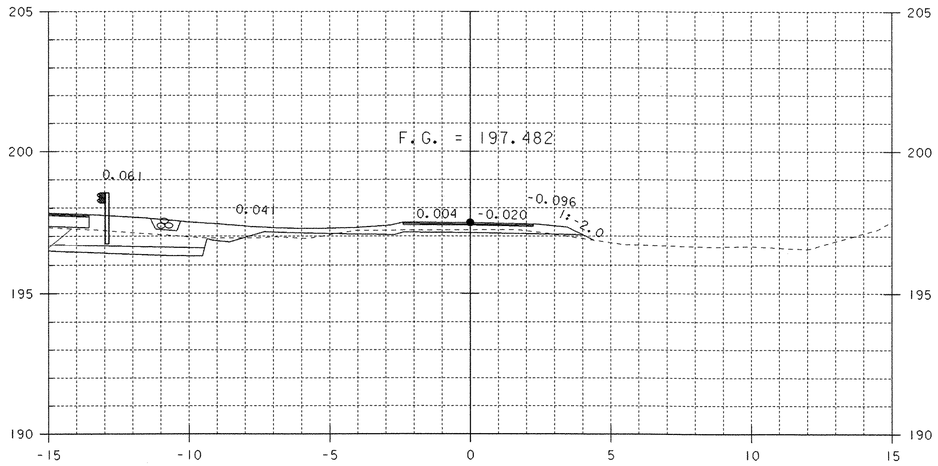
SCALE 1:100

THE GENERAL NOTES ON THE GEOTECHNICAL PLAN SHEET 41 APPLY TO THE GEOTECHNICAL INFORMATION SHOWN ON THIS SHEET.

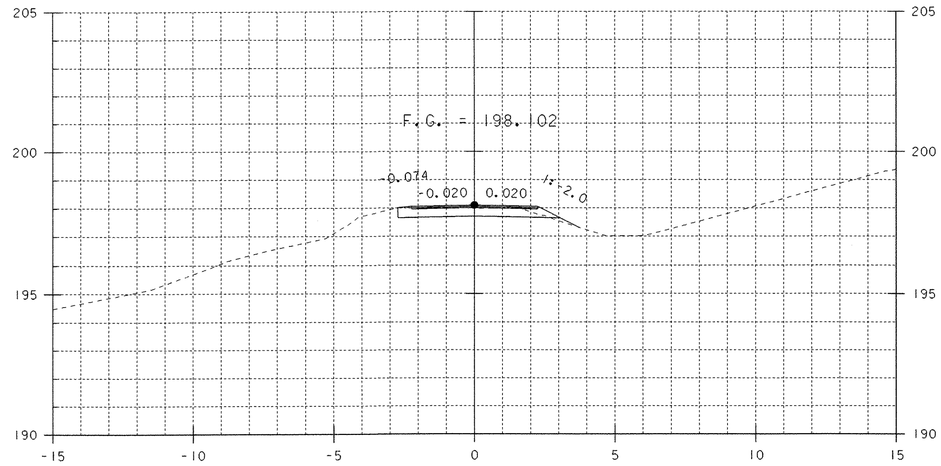
PROJECT NAME: RUTLAND TOWN
PROJECT NUMBER: BRF 019-3(48)

FILE NAME: 95bl72/str/sbl72xs2.dgn
PROJECT LEADER: R. WHITCOMB
DESIGNED BY: T. LACKEY
sbl72mi0.1

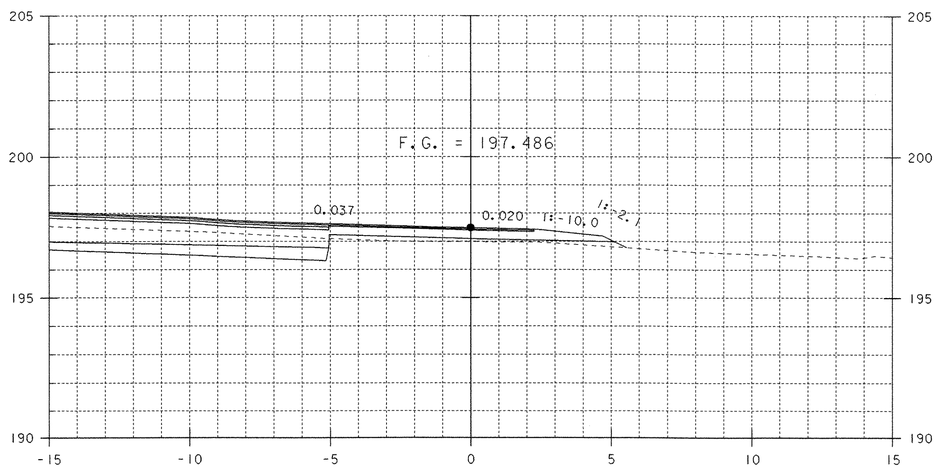
PLOT DATE: 11-MAR-2008
DRAWN BY: T. LACKEY
CHECKED BY:
SHEET 10 OF 75




4+015.00

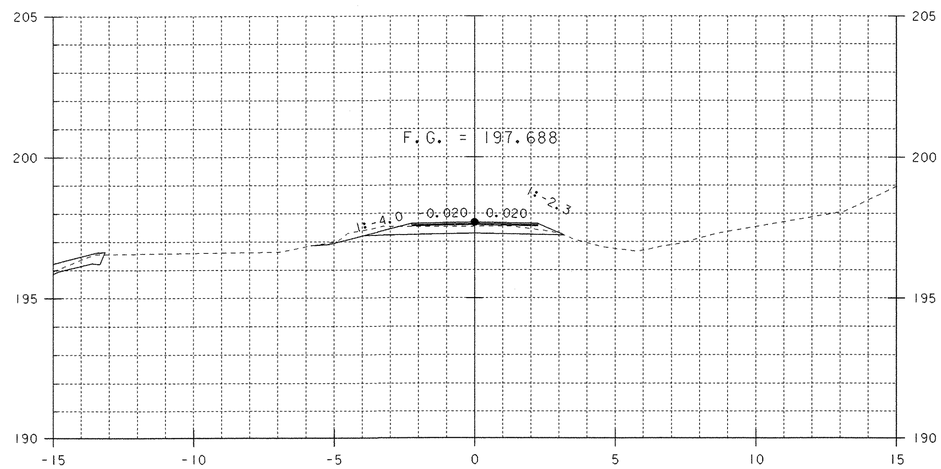



4+025.00




4+010.00

4+006.967 BEGIN DRIVE



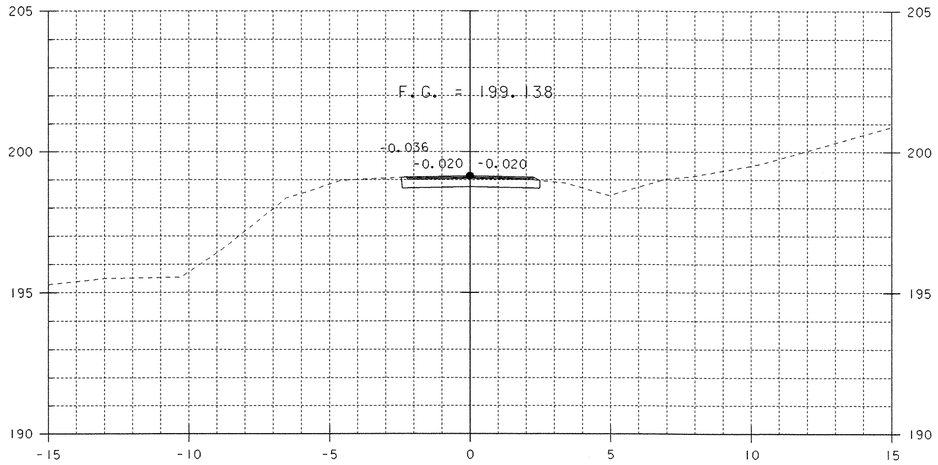

4+020.00

# DRIVE SECTIONS 1

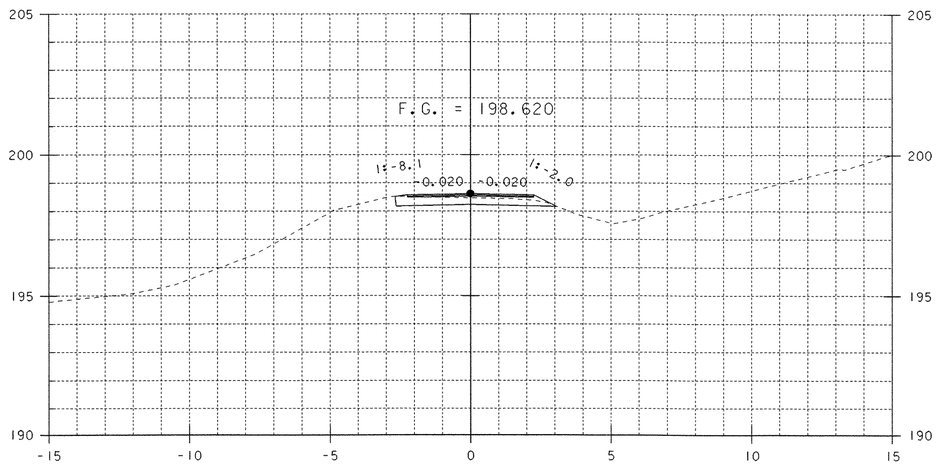
STA. 4+010 TO STA. 4+025

| | |
|---|---|
| PROJECT NAME: | RUTLAND TOWN |
| PROJECT NUMBER: | BRF 019-3(48) |

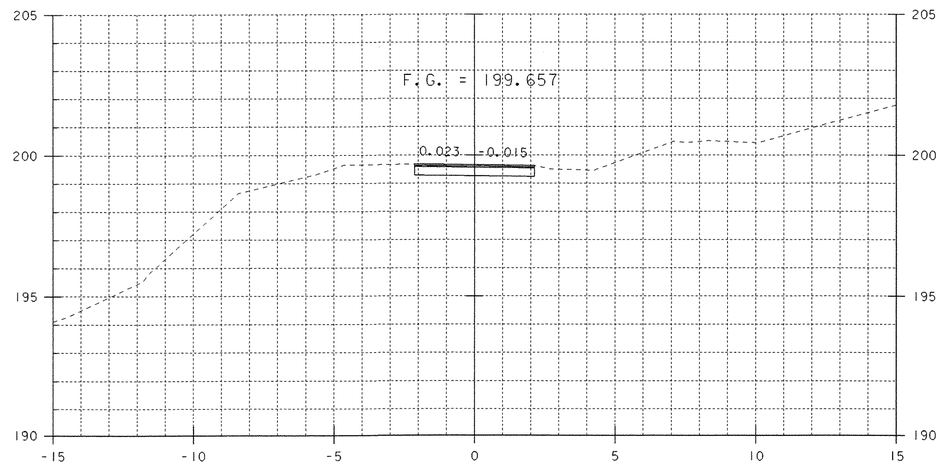
| | |
|---|---|
| FILE NAME: 95bl72/str/sbl72xs2.dgn | PLOT DATE: 11-MAR-2008 |
| PROJECT LEADER: R. WHITCOMB | DRAWN BY: L. BULLOCK |
| DESIGNED BY: L. BULLOCK | CHECKED BY: T. LACKEY |
| sbl72d01.1 | SHEET 71 OF 75 |




4+035.00




4+030.00




4+040.00

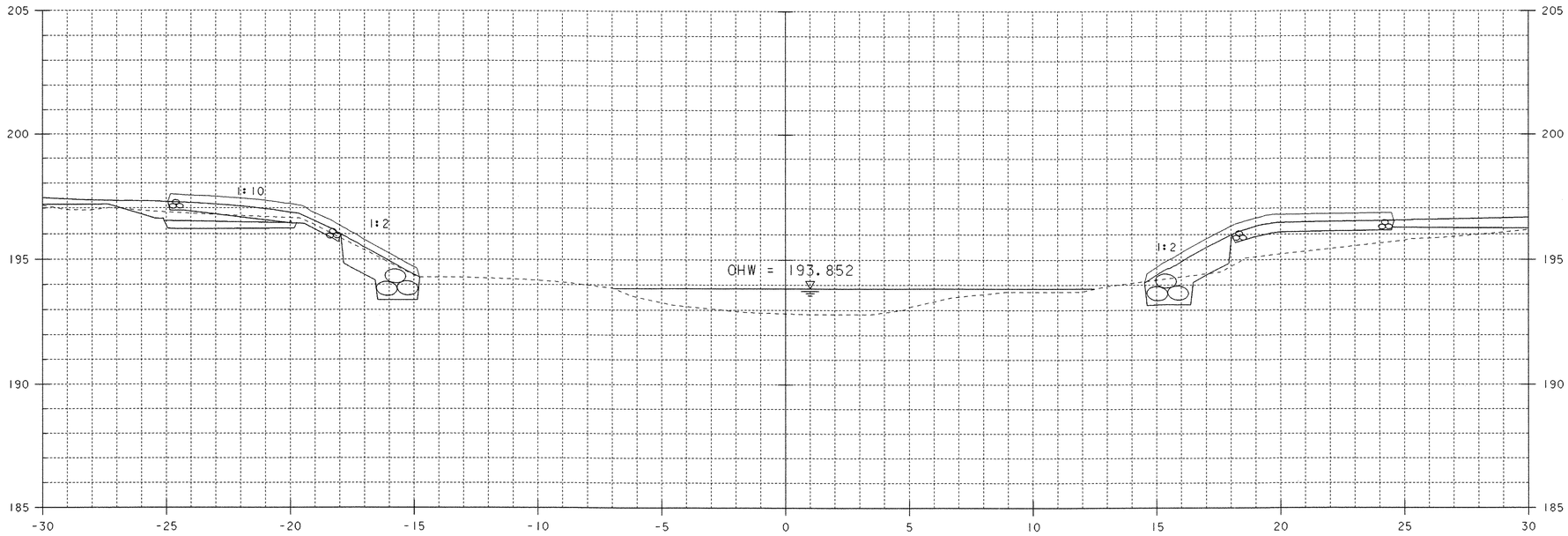
4+040.000 END DRIVE
MATCH EXISTING

STA. 4+030 TO STA. 4+040

# DRIVE SECTIONS 2

| | |
|---|---|
| PROJECT NAME: | RUTLAND TOWN |
| PROJECT NUMBER: | BRF 019-3(48) |

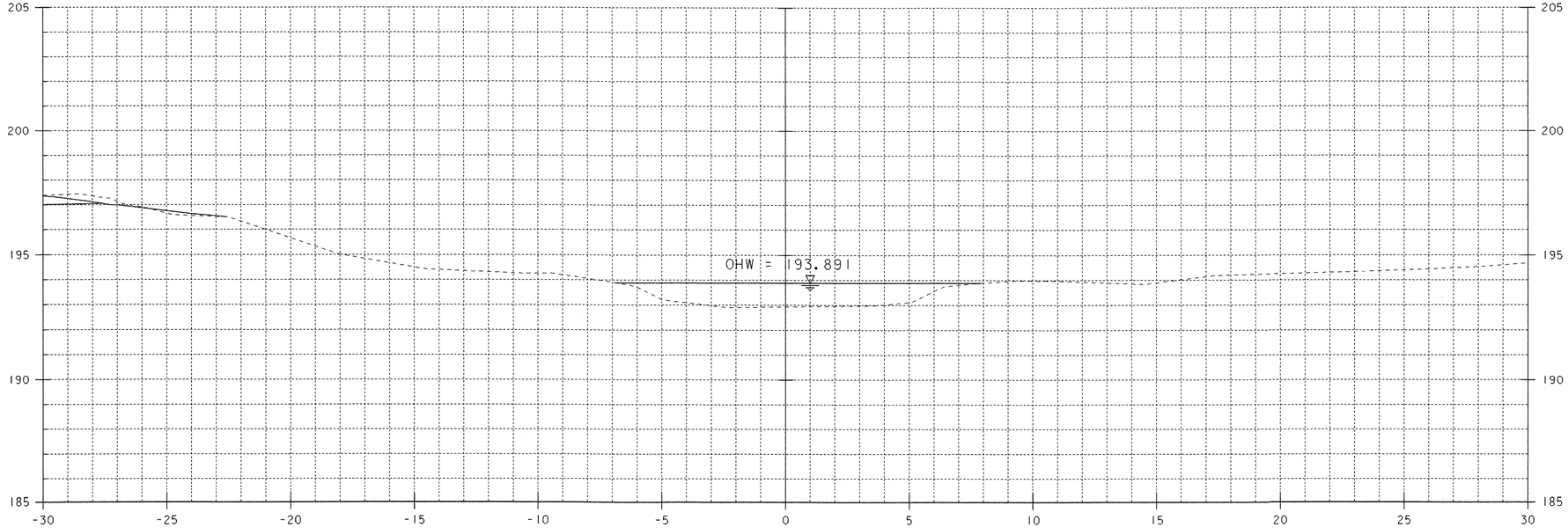
| | |
|---|---|
| FILE NAME: 95bl72/str/sbl72xs2.dgn | PLOT DATE: 11-MAR-2008 |
| PROJECT LEADER: R. WHITCOMB | DRAWN BY: L. BULLOCK |
| DESIGNED BY: L. BULLOCK | CHECKED BY: T. LACKEY |
| sbl72d02.i | SHEET 72 OF 75 |




1+020.00

STA. 1+017.60 LT.
BEGIN UNCLASSIFIED CHANNEL EXCAVATION
BEGIN GEOTEXTILE UNDER STONE FILL
BEGIN STONE FILL, TYPE III
BEGIN GRUBBING MATERIAL

STA. 1+015.68 RT.
BEGIN UNCLASSIFIED CHANNEL EXCAVATION
BEGIN GEOTEXTILE UNDER STONE FILL
BEGIN STONE FILL, TYPE III
BEGIN GRUBBING MATERIAL



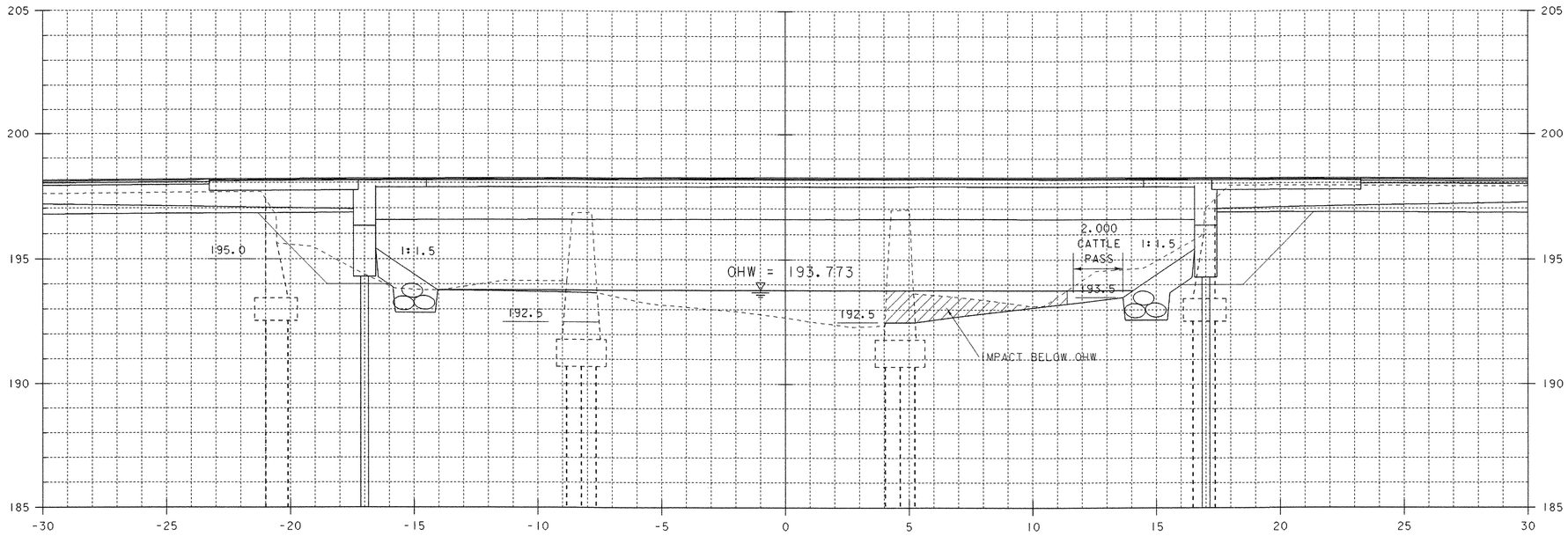

1+015.00

# CHANNEL SECTIONS 1

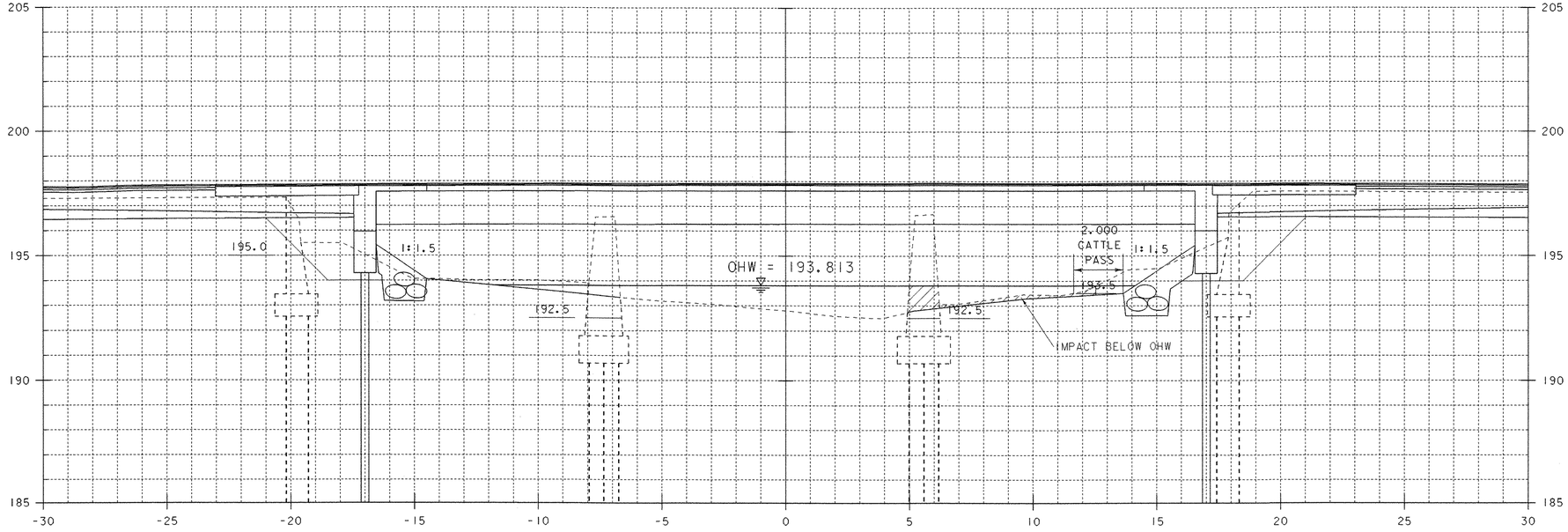
0 2 4 6 8 10
SCALE 1:100

STA. 1+015 TO STA. 1+020

| | |
|---|---|
| PROJECT NAME: | RUTLAND TOWN |
| PROJECT NUMBER: | BRF 019-3(48) |
| FILE NAME: sbl72c01.1 | PLOT DATE: 11-MAR-2008 |
| PROJECT LEADER: R. WHITCOMB | DRAWN BY: T. LACKEY |
| DESIGNED BY: T. LACKEY | CHECKED BY: |
| 95bl72/str/sbl72xs2.dgn | SHEET 73 OF 75 |




1+030.00




STA. 1+024 LT.
END GRUBBING MATERIAL

1+025.00

STA. 1+024 RT.
END GRUBBING MATERIAL

0 2 4 6 8 10
SCALE 1:100

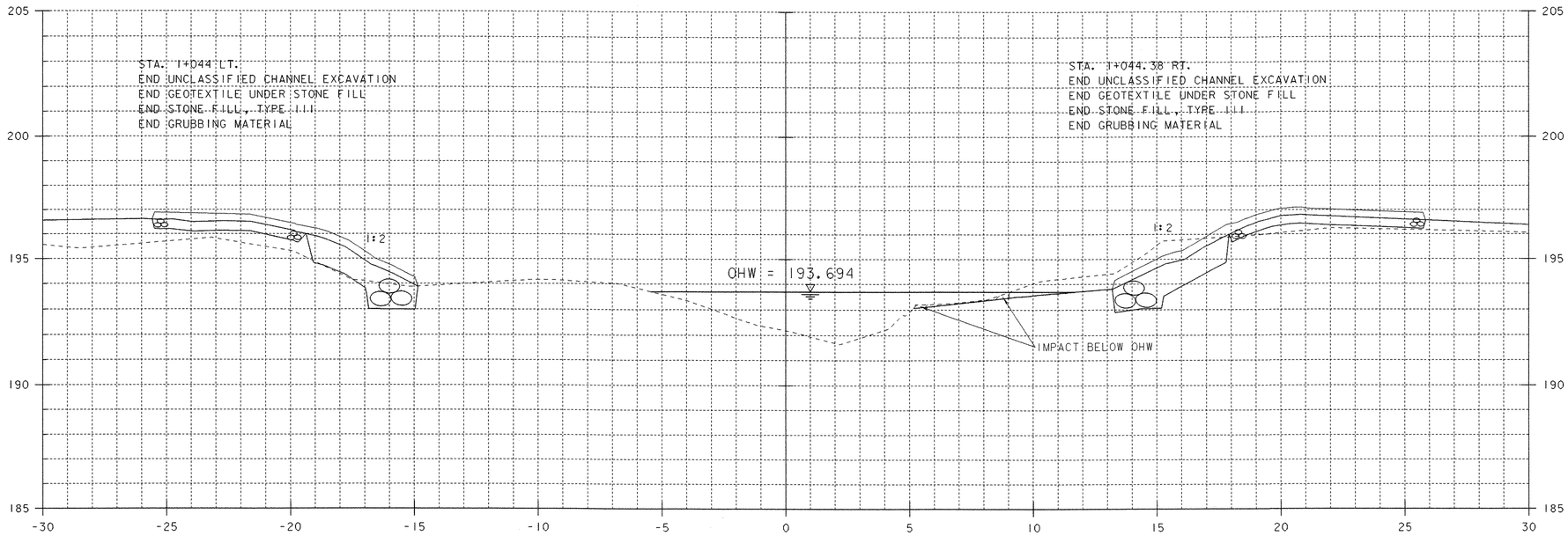
STA. 1+025 TO STA. 1+030

# CHANNEL SECTIONS 2

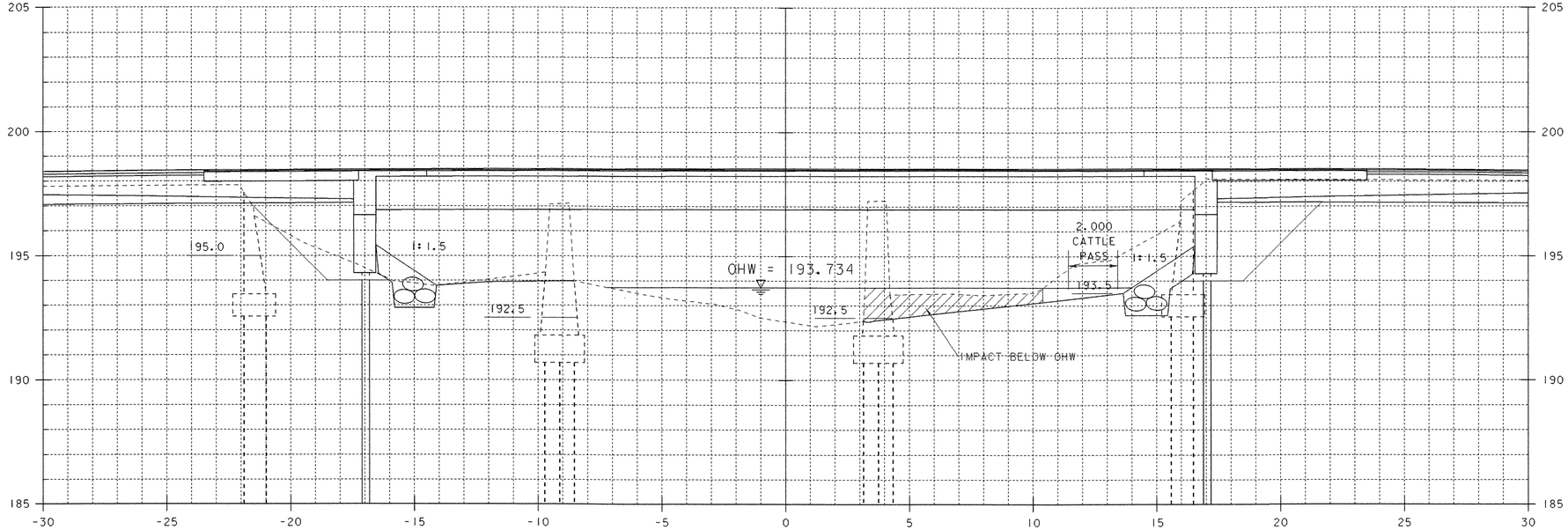
PROJECT NAME: RUTLAND TOWN
PROJECT NUMBER: BRF 019-3(48)

FILE NAME: sbl72c02.i
PROJECT LEADER: R. WHITCOMB
DESIGNED BY: T. LACKEY
95bl72/str/sbl72xs2.dgn

PLOT DATE: 11-MAR-2008
DRAWN BY: T. LACKEY
CHECKED BY:
SHEET 74 OF 75




1+040.00




STA. 1+036 LT.
BEGIN GRUBBING MATERIAL

1+035.00

STA. 1+036 RT.
BEGIN GRUBBING MATERIAL

0 2 4 6 8 10
SCALE 1:100

STA. 1+035 TO STA. 1+040

# CHANNEL SECTIONS 3

PROJECT NAME: RUTLAND TOWN
PROJECT NUMBER: BRF 019-3(48)

FILE NAME: sbl72c03.1
PROJECT LEADER: R. WHITCOMB
DESIGNED BY: T. LACKEY
95bl72/str/sbl72xs2.dgn

PLOT DATE: 11-MAR-2008
DRAWN BY: T. LACKEY
CHECKED BY:
SHEET 75 OF 75

# GENERAL NOTES

## CONSTRUCTION SPECIFICATIONS

1). ALL MATERIAL AND WORKMANSHIP TO BE IN ACCORDANCE WITH THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2006 WITH LATEST REVISIONS AND THE AASHTO ~~STANDARD SPECIFICATIONS~~ FOR HIGHWAY BRIDGES ~~DATED 2002~~ 3RD EDITION AND ITS LATEST REVISIONS. LRFD

## MATERIAL SPECIFICATIONS

1). UNLESS OTHERWISE NOTED, ALL STEEL TO BE AASHTO M270M (ASTM A709M) GRADE 345W.

2). MATERIAL NOTED "CVN" OR "H2-3" ON DETAIL DRAWINGS SHALL BE CHARPY V-NOTCH TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF VERMONT STANDARD SPECIFICATIONS SECTION 714.01.

3). HIGH STRENGTH BOLTS: $\frac{7}{8}$"ø ASTM A325 TYPE 3 IN $\frac{15}{16}$"ø HOLES.
NUTS SHALL BE A563 GRADE C3.
BOLTS & NUTS SHALL BE ROTATIONAL CAPACITY TESTED.
DO NOT MIX NUTS & BOLTS FROM DIFFERENT CONTAINERS UNLESS ALL BOLTS & NUTS HAVE THE SAME LOT NUMBER.

## FABRICATION

1). ALL HOLES SHALL BE PUNCHED OR DRILLED FULL SIZE (UN).

## WELDING

1). THE CONFIGURATION OF THE WELD JOINTS AND ALL WELDING PROCEEDURES SHALL BE IN ACCORDANCE WITH AASHTO/AWS D1.5-~~02~~ 08 BRIDGE WELDING CODE AND IN ADDITION TO SPECIFICATIONS SHOWN ABOVE. ALL WELDING WILL BE DETAILED TO PRE-QUALIFIED JOINTS, UNLESS PROHIBITED BY THE DESIGNER.

2). WELDING OF MAIN LOAD CARRYING MEMBERS AND ATTACHMENTS SHALL BE PERFORMED USING THE AUTOMATIC SUBMERGED ARC & SHIELDED METAL ARC PROCESSES. ALL WELDS ARE CONTINUOUS U.N.

3). NON DESTRUCTIVE TESTING OF WELDS SHALL BE IN ACCORDANCE WITH THE REFERENCED SPECIFICATION.

4). SEE DETAIL "WS1" ON THIS DRAWING FOR WELD TERMINATION DETAIL.

## CLEANING

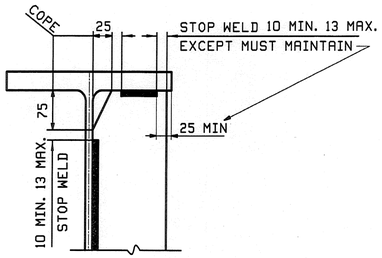
1. ALL STEEL SHALL BE BLAST CLEANED IN ACCORDANCE WITH SSPC SP-6.
2. STRUCTURAL STEEL SHALL NOT BE PAINTED.

## FIELD CONNECTIONS

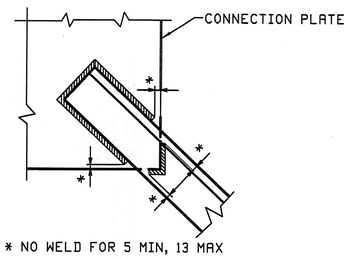
1). ALL FIELD CONNECTIONS SHALL BE MADE WITH 7/8" DIAMETER HIGH STRENGTH A-325 TYPE 3 BOLTS (UN), INSTALLED PER SECTION 506.19(c). SEE DWG E1 FOR FIELD BOLT SIZES.

2). BOLTS SHALL HAVE HEAVY HEX NUT, HEAVY HEX HEAD, AND AT LEAST ONE FLAT WASHER EACH. WASHER TO BE PLACED UNDER TURNED ELEMENT.

3). PIECE MARKS WILL BE LOCATED AS SHOWN ON ERECTION DRAWINGS.




DETAIL "WS1"




* NO WELD FOR 5 MIN, 13 MAX

TYP. WELD TERMINATION

RECEIVED
CK'D BY RKW CK'D BY _____
JUL 0 1 2008
RESUBMIT _____ APPROVED As Noted
BY DATE

NOTE TO ENGINEER:
THESE NOTES ARE NOT INTENDED TO BE ALL INCLUSIVE AND COMPLIANCE WITH RELEVANT SPECIFICATIONS REMAIN UNCHANGED.

| REV. | DATE | REMARKS | DWN | CHK | APVL | SHOP |
|---|---|---|---|---|---|---|
| 0 | | ~ | | | 5/20/08 | |

| MATERIAL: | SURFACE PREP. & PAINT: | HOLES: | SHOP BOLTS: |
|---|---|---|---|
| | | | |

DESCRIPTION: GENERAL NOTES

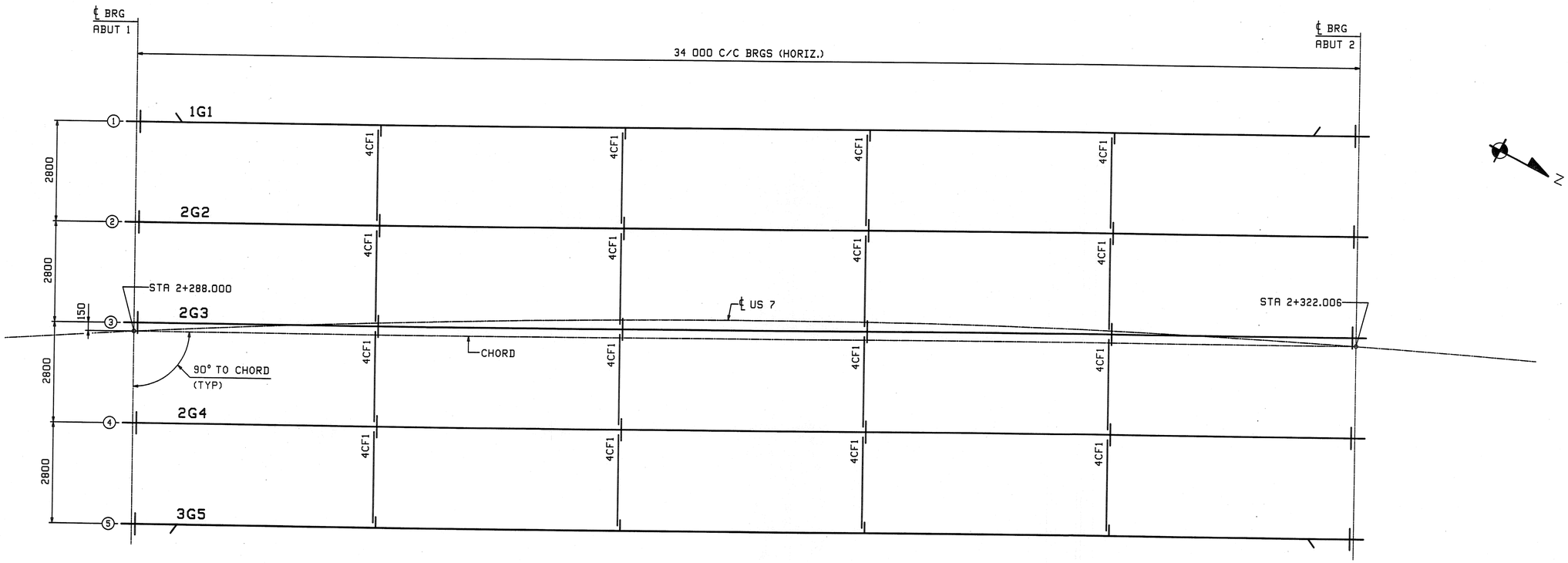

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 2788


| | | | |
|---|---|---|---|
| STRUCTURE: US 7 over EAST CREEK<br>BRIDGE NO 103<br>RUTLAND COUNTY, VERMONT | DRAWN: JTB | DATE: 04/19 | |
| | CHKD: JF | DATE: 05/16 | |
| LOCATION: TOWN OF RUTLAND | JOB NO. | DWG NO. | |
| PROJ NO. BRF 019-3(48) | 368 | GN1 | |
| CUSTOMER: VERMONT AOT | | REV. △ | |

Structures Copy

JTB Thu May 15 1353:49 EDT 2008 /users/jobs/2788/GN1.dgn v8

RevG




## FRAMING PLAN

| FIELD BOLT LIST | | | | | | | A325 Type 3 BOLTS | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LINE | NO REQ'D. | BOLT DIAM. | BOLT LEN. | BOLTS /CONN. | # OF CONN. | GRIP | THICKNESS OF PCS. CONNECTED | | | | | | WASH CODE | PIECES CONNECTED AND REMARKS |
| 1 | | | | | | | | | | | | | | **INT. CROSSFRAMES** |
| 2 | 192 | 7/8 | 2 1/2 | 6 | 32 | 29 | 13 | 16 | | | | | 1 | TOP GUSSET TO CONNECTION PLATE |
| 3 | 256 | 7/8 | 2 1/2 | 8 | 32 | 29 | 13 | 16 | | | | | 1 | BTM GUSSET TO CONNECTION PLATE |

WASHER CODES

1: 1 Hard Flat Washer

| FIELD BOLT SUMMARY | 2% + 2 ADDED, MIN. 2 EXTRA | | | | | |
|---|---|---|---|---|---|---|
| LINE | NO. OF BOLTS | BOLT DIAM. | TYPE | BOLT LEN | ACTURAL COUNT | REMARKS |
| 1 | 459 | 7/8 | A325 Type 3 | 2 1/2 | 448 | |
| 2 | | | | | | |
| 3 | 459 | | Hard Flat Washers for 7/8 ø BOLT | | F436-3 | |
| 4 | | | | | | |
| 5 | | | | | | |
| 6 | | | | | | |

RECEIVED
CK'D BY RW OK'D BY
JUL 0 1 2008
RESUBMIT APPROVED ✓
BY RW DATE

NOTE:
FOR GENERAL NOTES SEE DRAWING GN1.

| REV. | DATE | REMARKS | DWN | CHK | APVL | SHOP |
|---|---|---|---|---|---|---|
| 0 | | | | | 5/20/08 | |

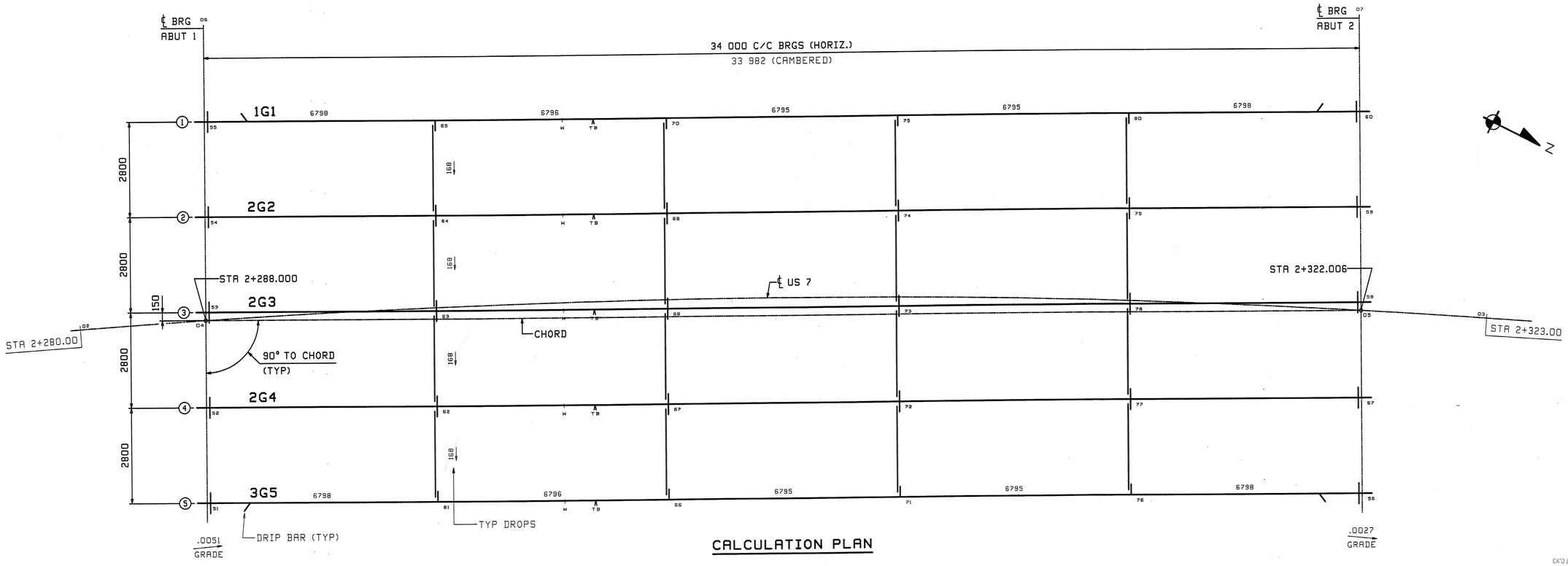
| MATERIAL: | SURFACE PREP. & PAINT: | HOLES: | SHOP BOLTS: |
|---|---|---|---|
| | | | |

DESCRIPTION: FRAMING PLAN & FIELD BOLTS

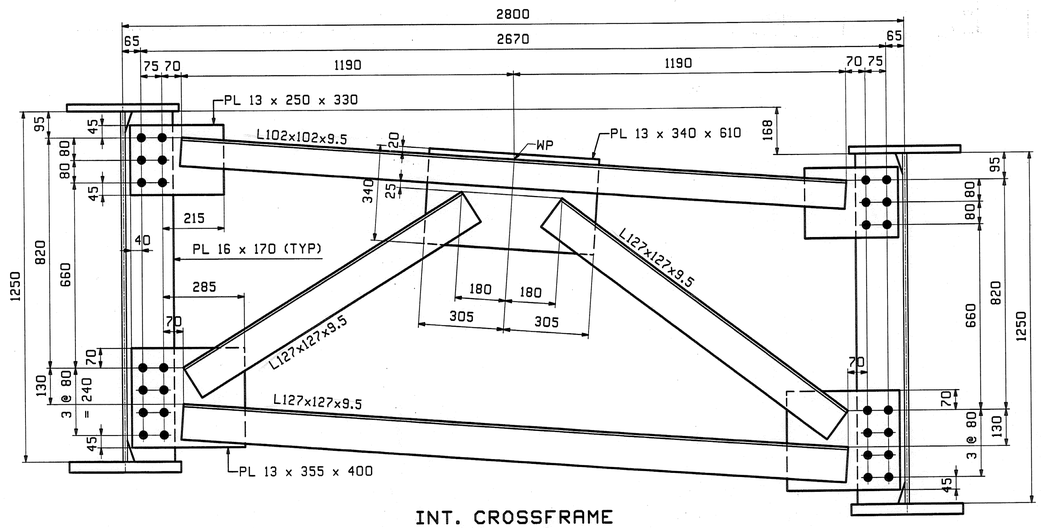

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 2788


| | | | |
|---|---|---|---|
| STRUCTURE: US 7 over EAST CREEK<br>BRIDGE NO 103<br>RUTLAND COUNTY, VERMONT | | DRAWN: JTB | DATE: 04/20 |
| | | CHK'D: JF | DATE: 05/16 |
| LOCATION: TOWN OF RUTLAND | | JOB NO. | DWG NO. |
| PROJ NO. BRF 019-3(48) | | 368 | E1 |
| CUSTOMER: VERMONT AOT | | | REV. △ |

JTB Thu May 15 152633 EDT 2008 /users/jobs/2788/E1.dwg




## CALCULATION PLAN




## INT. CROSSFRAME

LOOKING AHEAD-STATION

NOTES:

1. MATERIAL SHALL BE ASTM M270 GRADE 345W.
2. ALL BOLT HOLES SHALL BE $\frac{15}{16}$"ø FOR $\frac{7}{8}$"ø HSB (UN).

CALCULATION PLAN NOTES:

1. LONGITUDINAL DIMENSIONS ARE SLOPING ALONG BOTTOM OF WEBS WITH CORRECTIONS MADE FOR DL CAMBER, V.C. & GRADE (UN).
2. TRANSVERSE DIMENSIONS ARE IN A HORIZONTAL PLANE (UN).
3. ARROW POINTS TOWARD LOW END OF MEMBER.
4. ENDS OF GIRDERS AND BRG STIFFENERS ARE VERTICAL AFTER DL ROTATION.
5. CROSSFRAME STIFFENERS ARE NORMAL TO GRADE.
6. BOTTOM POINT NUMBERS = TOP POINT NUMBERS + 100
7. FOR LAYOUTS SEE "TD" SHEETS.

RECEIVED
CK'D BY RLW OK'D BY
JUL 0 1 2008
RESUBMIT APPROVED ✓
BY RLW DATE 7/3/08

| REV. | DATE | REMARKS | DWN | CHK | APVL | SHOP |
|---|---|---|---|---|---|---|
| 0 | | ~ | | | 5/20/08 | |

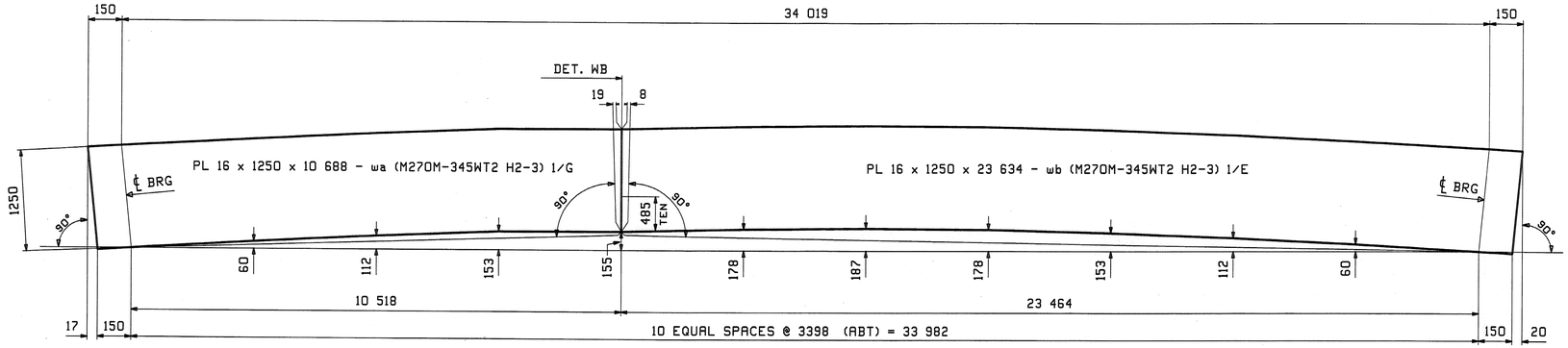
| MATERIAL: | SURFACE PREP. & PAINT: | HOLES: | SHOP BOLTS: |
|---|---|---|---|

DESCRIPTION: CALCULATION PLAN & CROSSFRAME LAYOUT

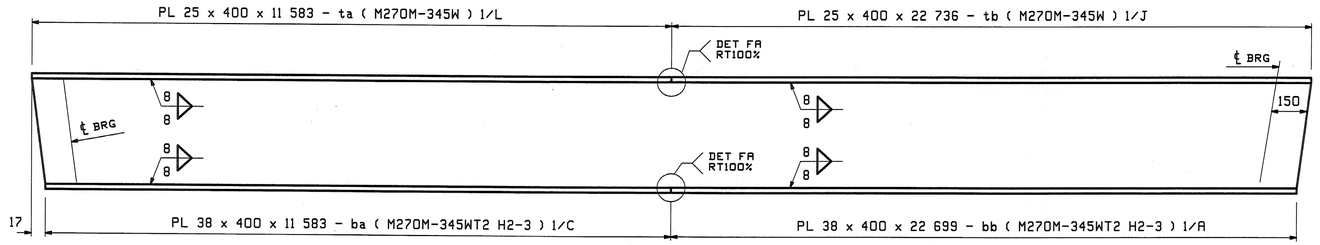

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 2788


| | | | |
|---|---|---|---|
| STRUCTURE: US 7 over EAST CREEK<br>BRIDGE NO 103<br>RUTLAND COUNTY, VERMONT | DRAWN: JTB | DATE: 04/17 |
| | CHK'D: JF | DATE: 05/16 |
| LOCATION: TOWN OF RUTLAND | JOB NO. 368 | DWG NO. WS1 |
| PROJ NO. BRF 019-3(48) | | REV. △ |
| CUSTOMER: VERMONT AOT | | |

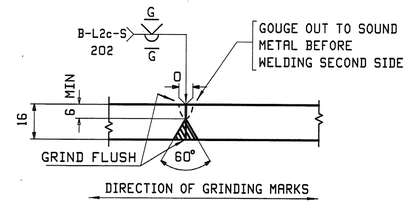

JTB Thu May 15 152855 EDT 2008 //users/jobs/2788/dgn: Rev0



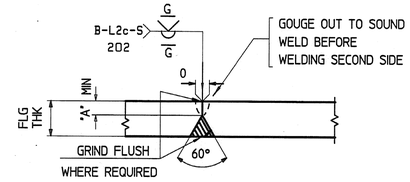

CAMBER DIAGRAM FOR 1G1 THRU 3G5




FLANGE DIAGRAM FOR 1G1 THRU 3G5




**WEB PLATE SPLICE DETAIL "WB"**




**FLANGE PLATE SPLICE DETAIL "FA"**

| FLG THK | "A" |
|---|---|
| 25 | 6 |
| 38 | 12 |

## NOTES:

1. FOR GENERAL NOTES SEE DWG GN1.
2. H2-3 DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TEST AT H FREQ. FOR ZONE 2

RECEIVED
CK'D BY RKW OK'D BY
JUL 0 1 2008
RESUBMIT APPROVED
BY RKW DATE 7/3/08

| REV. | DATE | REMARKS | DWN | CHK | APVL | SHOP |
|---|---|---|---|---|---|---|
| 0 | | | | | 5/20/08 | |

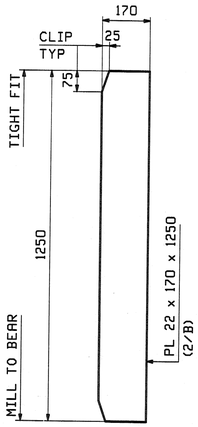
| MATERIAL: | SURFACE PREP. & PAINT: | HOLES: | SHOP BOLTS: |
|---|---|---|---|

DESCRIPTION: CAMBER AND FLANGE DIAGRAM


CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 2788

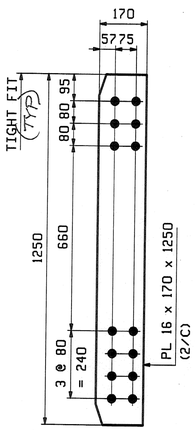

| | | | |
|---|---|---|---|
| STRUCTURE: US 7 over EAST CREEK<br>BRIDGE NO 103<br>RUTLAND COUNTY, VERMONT | DRAWN: JTB | DATE: 04/19 | |
| | CHK'D: JF | DATE: 05/16 | |
| LOCATION: TOWN OF RUTLAND | JOB NO. | DWG NO. | |
| PROJ NO. BRF 019-3(48) | 368 | C1 | |
| CUSTOMER: VERMONT AOT | | REV. △ | |


JTB Thu May 15 15:32:03 EDT 2008 /users/jobs/2788/C1.dwg



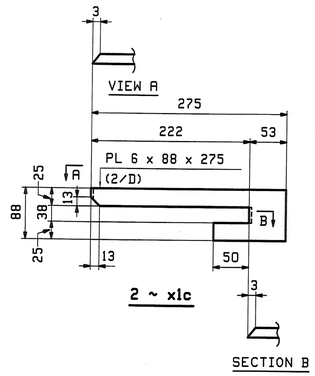

**20 ~ x1a**

BRG STIFF

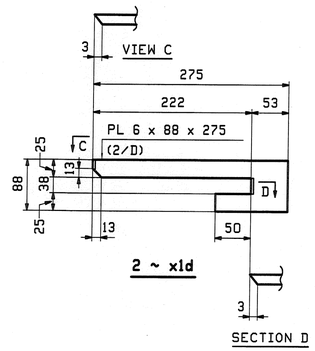



**32 ~ x1b**

INT. CF CONN.




**2 ~ x1c**




**2 ~ x1d**

RECEIVED
CK'D BY RRW OK'D BY _____
JUL 0 1 2008
RESUBMIT _____ APPROVED ✓
BY RRW DATE 7/3/08

NOTES:
ALL MATERIAL SHALL BE M270M-345W.
ALL BOLT HOLES SHALL BE $\frac{15}{16}$"Ø FOR $\frac{7}{8}$"Ø HSB.
FOR GENERAL NOTES SEE DRAWING GN1.

| REV. | DATE | REMARKS | DWN | CHK | APVL | SHOP |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| 0 | | ~ | | | 5/20/08 | |

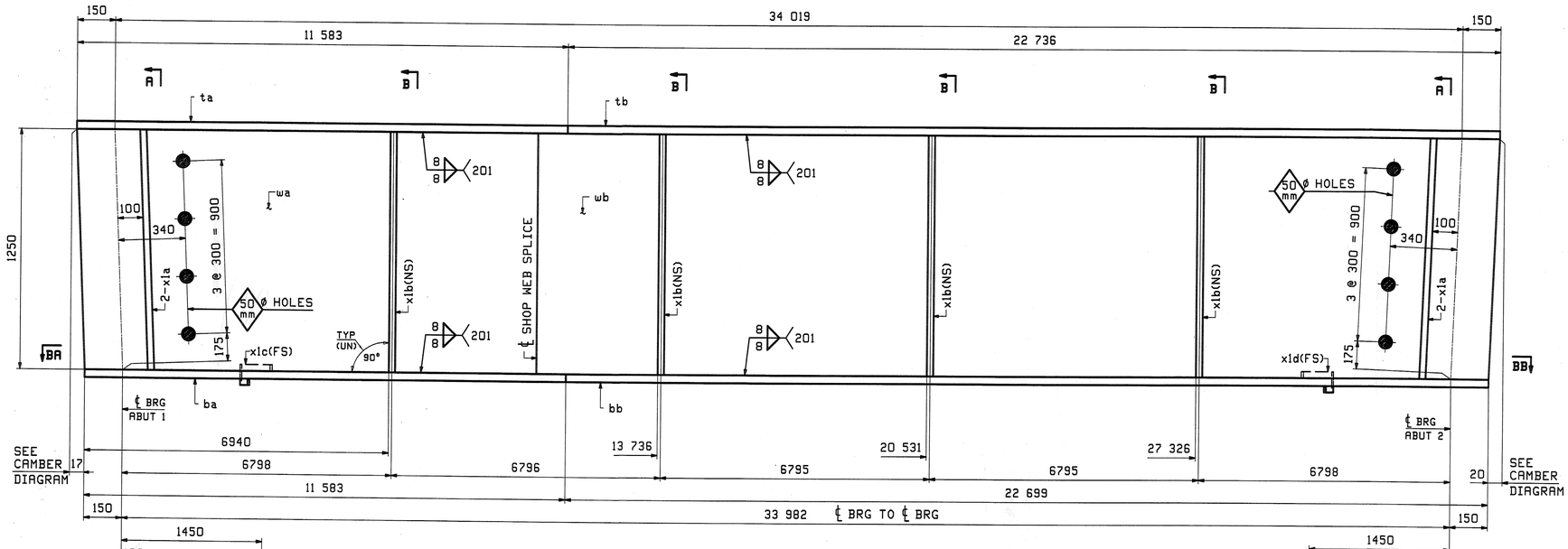
| MATERIAL: | SURFACE PREP. & PAINT: | HOLES: | SHOP BOLTS: |
|---|---|---|---|
| M270M-345W | AS NOTED ON GN1 | $\frac{15}{16}$Ø | NONE |

DESCRIPTION: GIRDER STANDARD DETAILS

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 2788

| | | | |
|---|---|---|---|
| STRUCTURE: US 7 over EAST CREEK<br>BRIDGE NO 103<br>RUTLAND COUNTY, VERMONT | DRAWN: JTB | DATE: 04/19 |
| | CHKD: JF | DATE: 05/16 |
| LOCATION: TOWN OF RUTLAND | JOB NO. | DWG NO. |
| PROJ NO. BRF 019-3(48) | 368 | X1 |
| CUSTOMER: VERMONT AOT | | REV. △ |

JTB Sun Apr 20 10:33:26 EDT 2008 /users/jobs/2788/X1.i Rev0

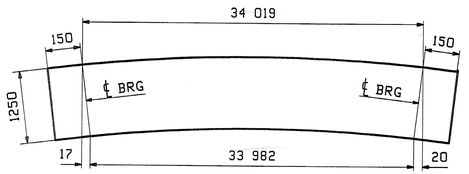



## ONE - GIRDER - 1G1

FOR GIRDER STANDARDS SEE DRAWINGS X1.
FOR CAMBER & FLANGE DIAGRAMS SEE DRAWING C1.
FOR GENERAL NOTES & WELD PROCEDURES SEE DRAWING GN1.
H2-3 DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING.

| ABM INFO | | SHIP | BILL OF MATERIAL | | | | | JOB NO. 368 | DRAWING NO. 1 | REV. |
|---|---|---|---|---|---|---|---|---|---|---|
| PAGE | LINE | MARK | QTY | MARK | MATERIAL | LENGTH m | LENGTH mm | REMARKS | WT | PROCUREMENT NOTES |
| | | 1G1 | 1 | | GIRDER | | | | 11429 kg 25201 lbs | |
| 1 | G | | 1 | wa | PL 16x1250 | 10 | 688 | (M270M-345WT2) | (H2-3) | |
| 1 | E | | 1 | wb | PL 16x1250 | 23 | 634 | (M270M-345WT2) | (H2-3) | |
| 1 | L | | 1 | ta | PL 25x400 | 11 | 583 | | | |
| 1 | J | | 1 | tb | PL 25x400 | 22 | 736 | | | |
| 1 | C | | 1 | ba | PL 38x400 | 11 | 583 | (M270M-345WT2) | (H2-3) | |
| 1 | A | | 1 | bb | PL 38x400 | 22 | 699 | (M270M-345WT2) | (H2-3) | |
| 2 | B | | 4 | x1a | PL 22x170 | 1 | 250 | MIF | | |
| 2 | C | | 4 | x1b | PL 16x170 | 1 | 250 | | | |
| 2 | D | | 1 | x1c | PL 6x88 | 0 | 275 | | | |
| 2 | D | | 1 | x1d | PL 6x88 | 0 | 275 | | | |

RECEIVED
CK'D BY RLW CK'D BY _____
JUL 0 1 2008
RESUBMIT _____ APPROVED As Noted
BY RLW DATE 7/3/08




ORIENTATION DIAGRAM
FOR CAMBER SEE DWG C1

| REV. | DATE | REMARKS | DWN | CHK | APVL | SHOP |
|---|---|---|---|---|---|---|
| 0 | | | | | 5/20/08 | |

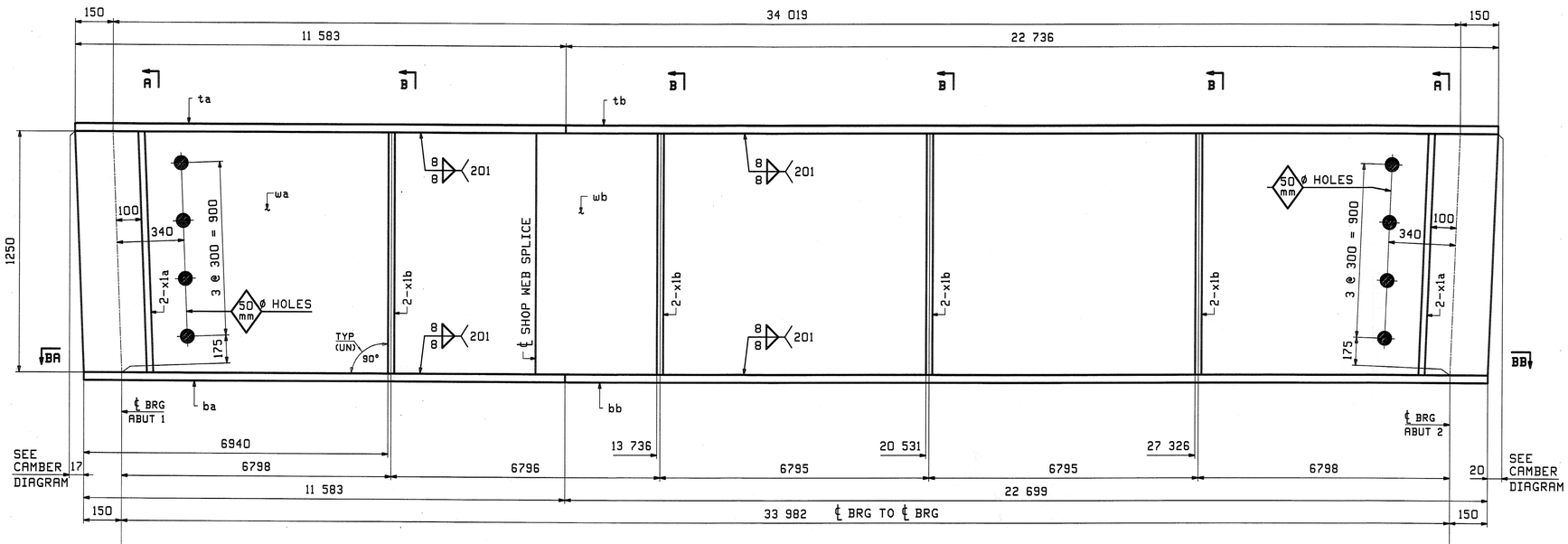
| MATERIAL: | SURFACE PREP. & PAINT: | HOLES: | SHOP BOLTS: |
|---|---|---|---|
| M270M-345W (UN) | AS NOTED ON GN1 | 15 16Ø | NONE |

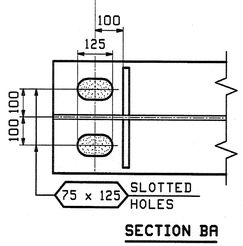
DESCRIPTION: GIRDER - 1G1


CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 2788


| | | | |
|---|---|---|---|
| STRUCTURE: US 7 over EAST CREEK BRIDGE NO 103 RUTLAND COUNTY, VERMONT | DRAWN: JTB | DATE: 04/19 | |
| | CHK'D: JF | DATE: 05/16 | |
| LOCATION: TOWN OF RUTLAND | JOB NO. | DWG NO. | |
| PROJ NO. BRF 019-3(48) | 368 | 1 | |
| CUSTOMER: VERMONT AOT | | REV. △ | |

JTB Thu May 15 13:36:31 EDT 2008 /users/jobs/2788/1.dwg



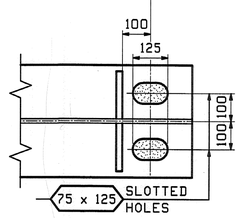




SECTION BA

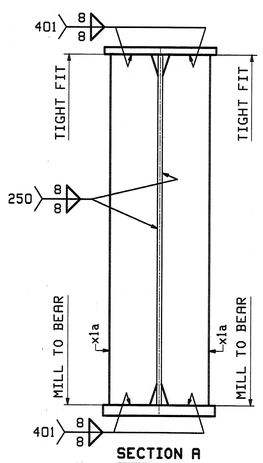
**ONE - GIRDER - 2G2**
**ONE - GIRDER - 2G3**
**ONE - GIRDER - 2G4**

} ALIKE EXCEPT FOR MARK

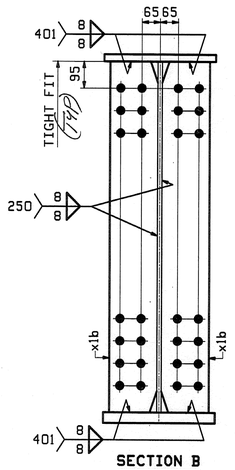
FOR GIRDER STANDARDS SEE DRAWINGS X1.
FOR CAMBER & FLANGE DIAGRAMS SEE DRAWING C1.
FOR GENERAL NOTES & WELD PROCEDURES SEE DRAWING GN1.
H2-3 DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING.



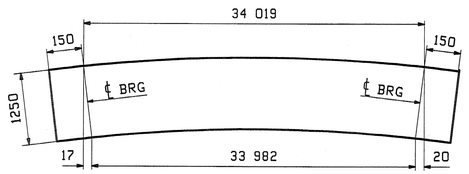

SECTION BB




SECTION A




SECTION B




ORIENTATION DIAGRAM
FOR CAMBER SEE DWG C1

| ABM INFO | | SHIP | BILL OF MATERIAL | | | | | JOB NO. | DRAWING NO. | REV. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 368 | 2 | |
| PAGE | LINE | MARK | QTY | MARK | MATERIAL | LENGTH m | LENGTH mm | REMARKS | WT | PROCUREMENT NOTES |
| | | 2G2 | 1 | | GIRDER | | | | 12533 kg 27630 lbs | |
| | | 2G3 | 1 | | GIRDER | | | | 12533 kg 27630 lbs | |
| | | 2G4 | 1 | | GIRDER | | | | 12533 kg 27630 lbs | |
| 1 | G | | 3 | wa | PL 16x1250 | 10 | 688 | (M270M-345WT2) | (H2-3) | |
| 1 | E | | 3 | wb | PL 16x1250 | 23 | 634 | (M270M-345WT2) | (H2-3) | |
| 1 | L | | 3 | ta | PL 25x400 | 11 | 583 | | | |
| 1 | J | | 3 | tb | PL 25x400 | 22 | 736 | | | |
| 1 | C | | 3 | ba | PL 38x400 | 11 | 583 | (M270M-345WT2) | (H2-3) | |
| 1 | A | | 3 | bb | PL 38x400 | 22 | 699 | (M270M-345WT2) | (H2-3) | |
| 2 | B | | 12 | x1a | PL 22x170 | 1 | 250 | MIE | | |
| 2 | C | | 24 | x1b | PL 16x170 | 1 | 250 | | | |

RECEIVED
CK'D BY RLW OK'D BY
JUL 0 1 2008
RESUBMIT APPROVED: As Noted
BY RLW DATE 7/3/08

| REV. | DATE | REMARKS | DWN | CHK | APVL | SHOP |
|---|---|---|---|---|---|---|
| 0 | | | | | 5/20/08 | |

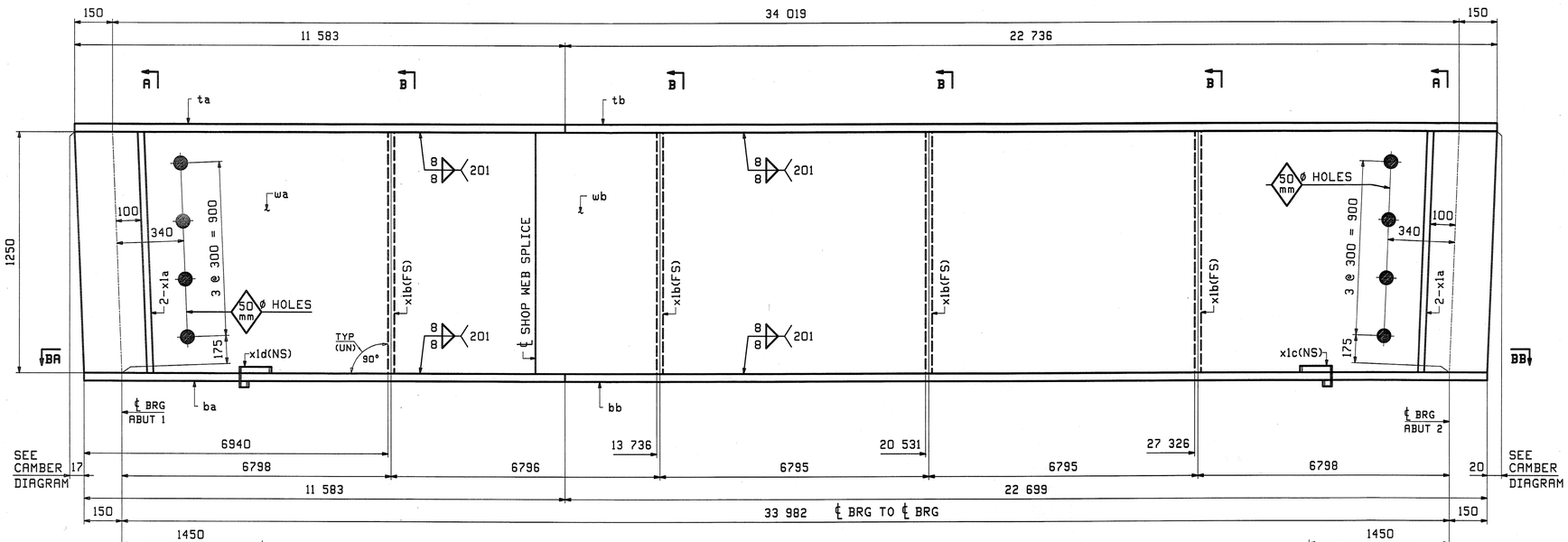
| MATERIAL: | SURFACE PREP. & PAINT: | HOLES: | SHOP BOLTS: |
|---|---|---|---|
| M270M-345W (UN) | AS NOTED ON GN1 | 15 16Ø | NONE |

DESCRIPTION: GIRDERS - 2G2, 2G3 & 2G4


CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 2788


| | | | |
|---|---|---|---|
| STRUCTURE: US 7 over EAST CREEK<br>BRIDGE NO 103<br>RUTLAND COUNTY, VERMONT | DRAWN: JTB | DATE: 04/19 |
| | CHK'D: JF | DATE: 05/16 |
| LOCATION: TOWN OF RUTLAND | JOB NO. | DWG NO. |
| PROJ NO. BRF 019-3(48) | 368 | 2 |
| CUSTOMER: VERMONT AOT | | REV. △ |

JTB Thu May 15 15:36:05 EDT 2008 c:\users\jtb\c2788\2 - Rev0

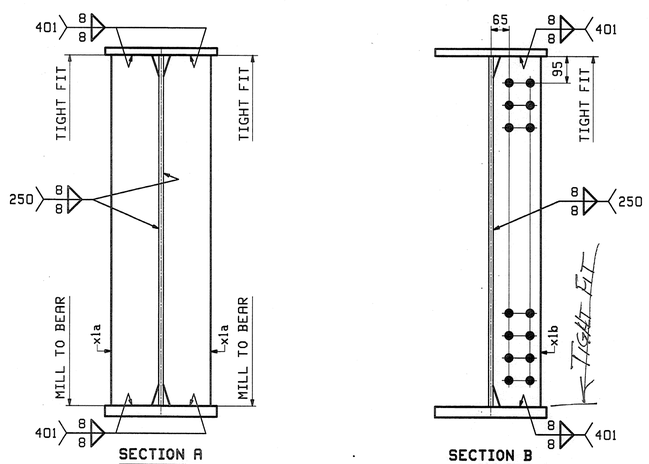



## ONE - GIRDER - 3G5

FOR GIRDER STANDARDS SEE DRAWINGS X1.
FOR CAMBER & FLANGE DIAGRAMS SEE DRAWING C1.
FOR GENERAL NOTES & WELD PROCEDURES SEE DRAWING GN1.
H2-3 DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING.

SECTION BA

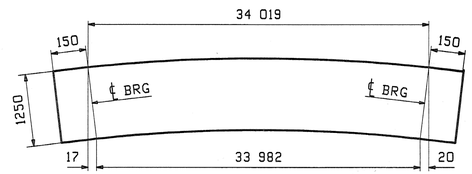
SECTION BB




SECTION A




SECTION B




ORIENTATION DIAGRAM
FOR CAMBER SEE DWG C1

| ABM INFO | | SHIP | BILL OF MATERIAL | | | | | JOB NO. | DRAWING NO. | REV. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 368 | 3 | |
| PAGE | LINE | MARK | QTY | MARK | MATERIAL | LENGTH m | LENGTH mm | REMARKS | WT | PROCUREMENT NOTES |
| | | | | | | | | | | |
| | | 3G5 | 1 | | GIRDER | | | | 12428 kg 27401 lbs | |
| | | | | | | | | | | |
| 1 | G | | 1 | wa | PL 16x1250 | 10 | 688 | (M270M-345WT2) | (H2-3) | |
| 1 | E | | 1 | wb | PL 16x1250 | 23 | 634 | (M270M-345WT2) | (H2-3) | |
| 1 | L | | 1 | ta | PL 25x400 | 11 | 583 | | | |
| 1 | J | | 1 | tb | PL 25x400 | 22 | 736 | | | |
| 1 | C | | 1 | ba | PL 38x400 | 11 | 583 | (M270M-345WT2) | (H2-3) | |
| 1 | A | | 1 | bb | PL 38x400 | 22 | 699 | (M270M-345WT2) | (H2-3) | |
| | | | | | | | | | | |
| 2 | B | | 4 | x1a | PL 22x170 | 1 | 250 | MIE | | |
| 2 | C | | 4 | x1b | PL 16x170 | 1 | 250 | | | |
| 2 | D | | 1 | x1c | PL 6x88 | 0 | 275 | | | |
| 2 | D | | 1 | x1d | PL 6x88 | 0 | 275 | | | |

RECEIVED
CK'D BY (RLW) OK'D BY
JUL 0 1 2008
RESUBMIT APPROVED As Noted
BY JRLW DATE 7/3/08

| REV. | DATE | REMARKS | DWN | CHK | APVL | SHOP |
|---|---|---|---|---|---|---|
| 0 | | | | | 5/20/08 | |

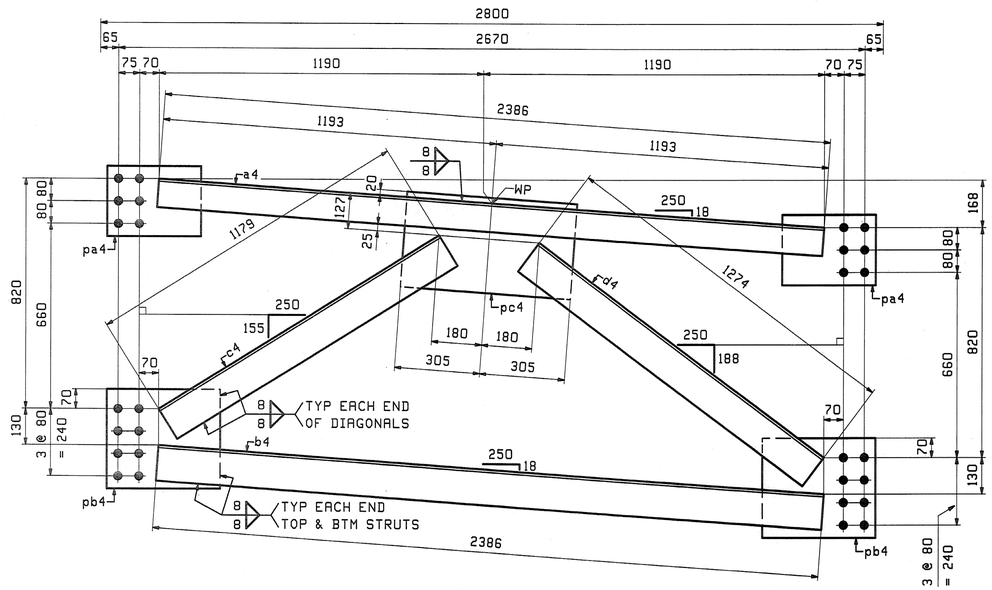
| MATERIAL: | SURFACE PREP. & PAINT: | HOLES: | SHOP BOLTS: |
|---|---|---|---|
| M270M-345W (UN) | AS NOTED ON GN1 | 15 16ø | NONE |

DESCRIPTION: GIRDER - 3G5

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 2788

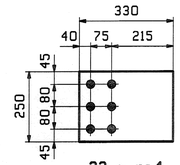
| | | | |
|---|---|---|---|
| STRUCTURE: US 7 over EAST CREEK BRIDGE NO 103 RUTLAND COUNTY, VERMONT | | DRAWN: JTB | DATE: 04/19 |
| | | CHK'D: JF | DATE: 05/16 |
| LOCATION: TOWN OF RUTLAND | | JOB NO. | DWG NO. |
| PROJ NO. BRF 019-3(48) | | 368 | 3 |
| CUSTOMER: VERMONT AOT | | | REV. △ |

JTB Thu May 15 13:38:22 EDT 2008 /users/jobs/2788/3.dwg Rev0



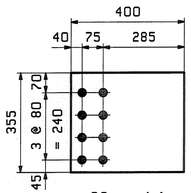

## 16 - INT. CROSSFRAMES ~ 4CF1

LOOKING AHEAD-STATION



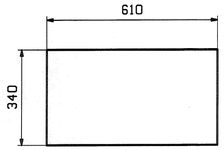

**32 ~ pa4**

TOP GUSSET




**32 ~ pb4**

BTM GUSSET




**16 ~ pc4**

CTR GUSSET

| ABM INFO | | SHIP | BILL OF MATERIAL | | | LENGTH | | JOB NO. 368 | DRAWING NO. 4 | REV. |
|---|---|---|---|---|---|---|---|---|---|---|
| PAGE | LINE | MARK | QTY | MARK | MATERIAL | m | mm | REMARKS | WT | PROCUREMENT NOTES |
| | | | | | | | | | | |
| | | 4CF1 | 16 | | INT. CROSSFRAMES | | | | 180 kg 418 lbs | |
| 2 | G | | 16 | a4 | L 102x102x9.5 | 2 | 386 | | | |
| 2 | H | | 16 | b4 | L 127x127x9.5 | 2 | 386 | | | |
| 2 | J | | 16 | c4 | L 127x127x9.5 | 1 | 179 | | | |
| 2 | J | | 16 | d4 | L 127x127x9.5 | 1 | 274 | | | |
| 2 | K | | 32 | pa4 | PL 13x250 | 0 | 330 | | | |
| 2 | L | | 32 | pb4 | PL 13x355 | 0 | 400 | | | |
| 2 | M | | 16 | pc4 | PL 13x340 | 0 | 610 | | | |

RECEIVED
CK'D BY RRW CK'D BY
JUL 0 1 2008
RESUBMIT APPROVED V
BY RRW DATE 7/3/08

NOTE:
FOR GENERAL NOTES SEE DRAWING GN1.

| REV. | DATE | REMARKS | DWN | CHK | APVL | SHOP |
|---|---|---|---|---|---|---|
| 0 | | | | | 5/20/08 | |

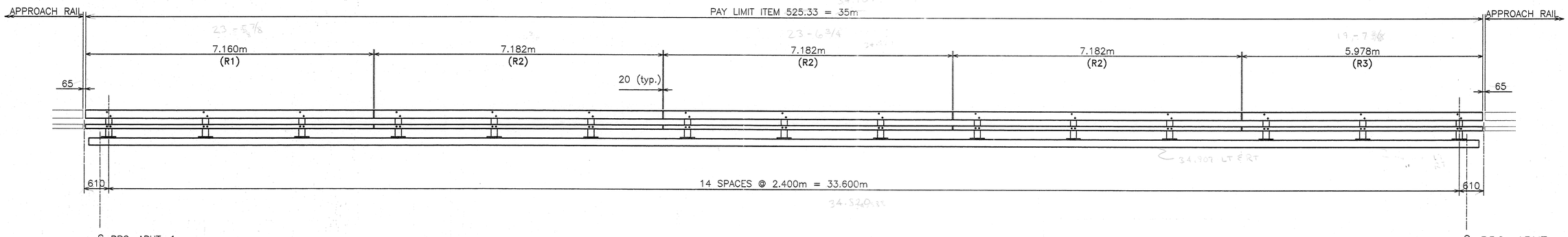
| MATERIAL: | SURFACE PREP. & PAINT: | HOLES: | SHOP BOLTS: |
|---|---|---|---|
| M270M-345W | AS NOTED ON GN1 | 15/16Ø | NONE |

DESCRIPTION: CROSSFRAMES

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 2788

| | | | |
|---|---|---|---|
| STRUCTURE: US 7 over EAST CREEK<br>BRIDGE NO 103<br>RUTLAND COUNTY, VERMONT | | DRAWN: JTB | DATE: 04/19 |
| | | CHK'D: JF | DATE: 05/16 |
| LOCATION: TOWN OF RUTLAND | | JOB NO. | DWG NO. |
| PROJ NO. BRF 019-3(48) | | 368 | 4 |
| CUSTOMER: VERMONT AOT | | | REV. △ |

JTB Mon May 19 09:23:02 EDT 2008 /users/jobs/2788/4.1 Rev0




ELEVATON – WEST BRIDGE RAIL
FACING WEST FROM ℄ ROAD
EAST BRIDGE RAIL SIMILAR

| BILL OF MATERIAL (BOTH SIDES) | | | | | |
|---|---|---|---|---|---|
| Mk. | Qty. | Description | Size/Shape | length/qty. per unit | Material |
| | 30 | BRIDGE RAIL PED POST 620 OAH W/ BASE PLATE | | | |
| | 30 | POST UPRIGHT | W150 x 37 | 595 | M270 Gr. 345 |
| | 30 | POST BASE PLATE | 25 x 254 | 356 | M270 Gr. 345 |
| | 8 | UPPER SPLICE TUBE FOR 203 x 102 RAIL | | | |
| | 8 | TUBE | TS 178x76x10 | 510 | A500 Gr. B |
| | 16 | WELDED LOCK NUT | 5/8" | --- | A563M |
| | 8 | LOWER SPLICE TUBE FOR 102 x 102 RAIL | | | |
| | 8 | TUBE | TS 76x76x8 | 510 | A500 Gr. B |
| | 16 | WELDED LOCK NUT | M16 | --- | A563 |
| R1 | 2 | UPPER RAIL | TS 203x102x8 | 7.160m | A500 Gr. B |
| | 2 | LOWER RAIL | TS 102x102x6 | 7.160m | A500 Gr. B |
| R2 | 6 | UPPER RAIL | TS 203x102x8 | 7.182m | A500 Gr. B |
| | 6 | LOWER RAIL | TS 102x102x6 | 7.182m | A500 Gr. B |
| R3 | 2 | UPPER RAIL | TS 203x102x8 | 5.978m | A500 Gr. B |
| | 2 | LOWER RAIL | TS 102x102x6 | 5.978m | A500 Gr. B |
| | 30 | ANCHOR PLATE | 10 x 238 | 330 | M270 Gr. 250 |
| | 120 | ANCHOR BOLTS | M24 | 305 | F568M Cl. 8.8 |
| | 240 | HEAVY HEX NUT | M24 | - - - | A563DH |
| | 120 | WASHER | M24 | - - - | F436M |
| | 120 | ROUND HEAD BOLT | M20 | 152 | A325M |
| | 120 | LOCK NUT | M20 | - - - | A563DH |
| | 120 | WASHER | M20 | - - - | F436M |
| | 64 | CAP SCREW | M16 | 44 | A307M |
| | 64 | WASHER | M16 | - - - | F436M |
| | 30 | BEARING PAD | 3x254 | 356 | M251 |

TOTAL PAY LIMIT ITEM 525.33 = 70 m

NOTE: ALL DIMENSIONS SHOWN ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

| REVISIONS | | |
|---|---|---|
| No. | Remarks | Date |
| 0 | Initial submittal | 9/19/08 |
| | | |
| | | |

RECEIVED
CK'D BY THL CK'D BY
SEP 30 2008
RESUBMIT APPROVED
BY RW DATE 10-6-08

RECEIVED
CK'D BY CK'D BY
OCT 22 2008
RESUBMIT APPROVED
BY DATE

HIGHWAY SAFETY CORP.
GLASTONBURY, CT

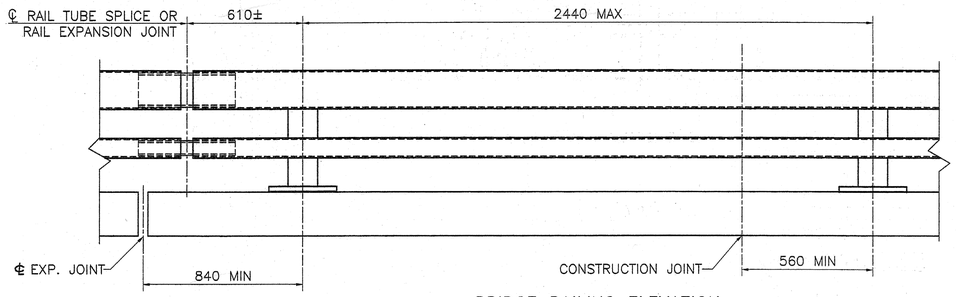
ITEM 525.33 – BRIDGE RAILING-NETC 2 RAIL
BRIDGE #103 OVER EAST CREEK
RUTLAND COUNTY, VT
PROJECT NUMBER BRF 019-3(48)

GENERAL CONTRACTOR

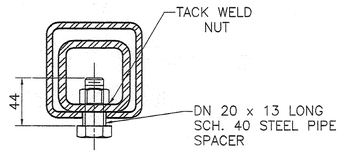
SUB CONTRACTOR F.R. LAFAYETTE, INC.

| | |
|---|---|
| DRAWN | M Mohamed |
| CHECKED | P Radice |
| DATE | 9/12/08 |
| SCALE | NONE |
| HSC REFERENCE NO. | 1672 |
| SIZE | D |
| REVISION | 0 |
| SHEET NO. | 1 of 3 |

THL Copy



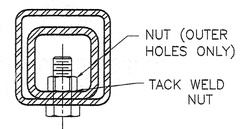

BRIDGE RAILING ELEVATION




16 ø TAPPED HOLE IN SPLICE TUBE AND 29 x 'C' SLOT IN RAIL TUBE FOR BOLT AND PLAIN HARDENED WASHER

EXPANSION JOINT SECTION

FOR DETAILS NOT SHOWN, SEE "RAIL TUBE SPLICE SECTION."




16 ø TAPPED HOLE IN SPLICE TUBE & 19 ø HOLE IN RAIL TUBE FOR BOLT & PLAIN HARDENED WASHER

NOTES:

1. ALL RAILINGS AND MATERIALS SHALL CONFORM TO THE PROVISION OF SECTION 525, "METAL RAILINGS OF THE STANDARD SPECIFICATION FOR CONSTRUCTION".

2. TUBING AND POSTS SHALL MEET THE REQUIREMENTS OF SECTION 732, "RAILINGS MATERIALS OF THE STANDARD SPECIFICATION OF CONSTRUCTION" EXCEPT THE DROP-WEIGHT TEAR TEST IN SECTION 732 SHALL NOT APPLY TO THE STRUCTURAL TUBING SHOWN ON THIS PROJECT.

3. PRIOR TO GALVANIZING, ALL EXPOSED CUT OR SHEARED EDGES SHALL BE ROUNDED TO A 2mm RADIUS AND BE FREE OF BURRS.

4. RAIL POSTS SHALL BE SET NORMAL TO GRADE.

5. SECTIONS OF RAIL TUBE SHALL BE ATTACHED TO A MINIMUM OF TWO (2) RAIL POSTS AND PREFERABLY TO AT LEAST FOUR (4) POSTS.

6. RAIL TUBE EXPANSION JOINT SHALL BE PROVIDED IN ANY RAIL BAY SPANNING A SUPERSTRUCTURE EXPANSION JOINT. EXPANSION JOINT WIDTH SHALL BE "X" AT 7°C AND WILL BE ADJUSTED IN THE FIELD BY THE ENGINEER FOR OTHER TEMPERATURES.

7. ALL PARTS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH AASHTO M111, EXCEPT HARDWARE, WHICH SHALL MEET THE REQUIREMENTS OF AASHTO M232M.

8. RAIL POST ANCHORING NUTS SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ONE-EIGHTH TURN.

9. RAIL TUBES SHALL BE ATTACHED USING M20 FULL DIAMETER BODY AASHTO M164 (TYPE 1) ROUND HEAD BOLT INSERTED THROUGH THE FACE OF THE TUBE. HOLES IN POSTS SHALL BE 2mm LARGER THAN THE BOLT SIZE.

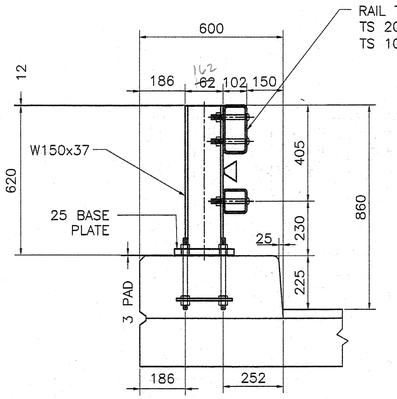
10. HOLES IN RAILS FOR RAIL TUBE ATTACHMENT MAY BE FIELD-DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO ERECTION.

11. IF THERE IS A CONFLICT BETWEEN THE DETAILS SHOWN ON THIS SHEET AND THE DESIGN, THE REQUIREMENTS OF THE DESIGN DRAWINGS SHALL BE FOLLOWED.

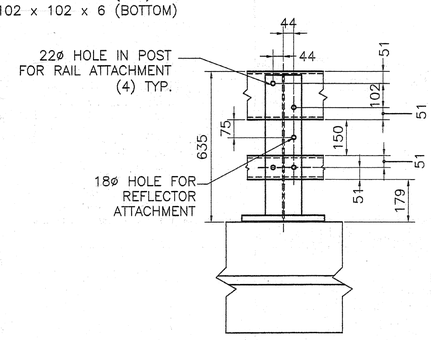
12. ANY BENDING OF RAIL SHALL BE BY SHOP PROCEDURE ONLY.

13. THE FABICATOR SHALL SUBMIT SHOP DRAWINGS, INCLUDING WELDING PROCEDURES TO THE STRUCTURES SECTION FOR APPROVAL IN ACCORDANCE WITH SUBSECTION 506.04 OF THE STANDARD SPECIFICATIONS. ALL WELDING SHALL CONFORM WITH SUBSECTION 506.10 "WELDING".

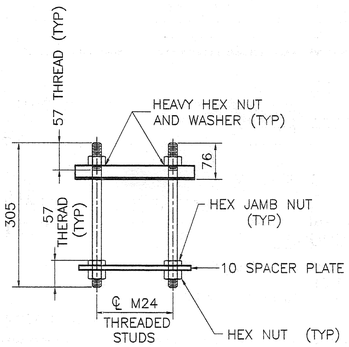
14. RAIL POSTS AND BASE PLATES SHALL BE TESTED FOR IMPACT PROPERTIES IN ACCORDANCE WITH ASTM A370 CHARPY IMPACT TESTING USING TYPE A SPECIMEN.



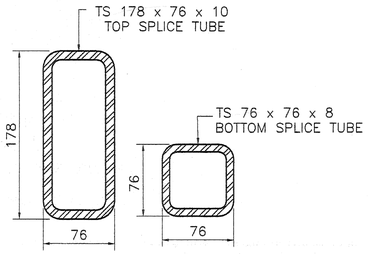

TYPICAL SECTION




ELEVATION




RAIL POST ANCHORAGE




RAIL TUBE SPLICE SECTION

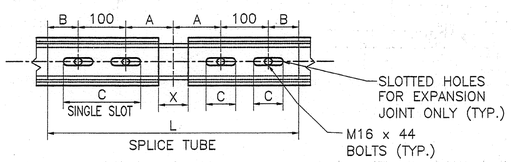
MATERIALS

RAIL TUBES.....ASTM A500, GRADE B
RAIL POSTS AND BASE PLATES.....AASHTO M 270M/M 270 GRADE 345
(AALL) OTHER SHAPRE AND PLATES.....AASHTO M 270M/M 270 GRADE 250
ANCHOR STUDS.....ASTM F568M CLASS 8.8
ALL OTHER BOLTS (UNLESS NOTED).....AASHTO M164M, TYPE1

NUTS FOR AASHTO M164M (ASTM A325M) BOLTS AND ANCHOR STUDS SHALL COMPLY WITH AASTHO M291M (ASTM A563M).

WASHERS SHALL COMPLY WITH AASHTO M293M (ASTM F436M) SPECIFCATIONS.

3mm PAD SHALL COMPLY WITH STANDARD SPECIFICATION SUBSECTION 731.02.

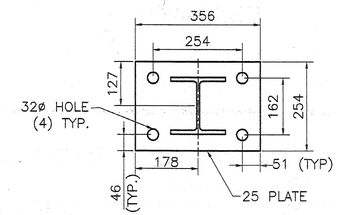



RAIL TUBE SPLICE AND RAIL EXPANSION JOINT DETAIL

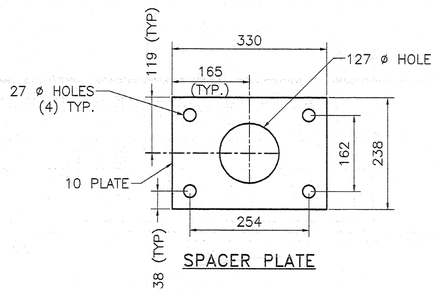
| SPLICE TABLE | | | | | |
|---|---|---|---|---|---|
| T | A | B | C | L | X |
| N/A | 100 | 50 | -- | 510 | 20 |
| EXPANSION JOINT TABLE | | | | | |
| <100 | 100 | 50 | 65 | 510 | 65 |

T = TOTAL MOVEMENT BETWEEN BRIDGE EXPANSION JOINTS. SEE NOTE 6

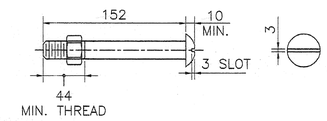
* = SINGLE SLOT




POST AND BASE PLATE



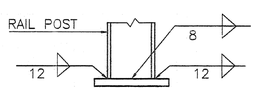

SPACER PLATE




M20 DIA. M164M (TYPE 1) ROUND HEAD BOLT

(WITH WASHER AND PREVAILING TORQUE TYPE LOCK NUT) (SEE NOTE #9)

ONLY FULL DIAMETER BODY BOLTS WILL BE ALLOWED.




BASE WELD DETAIL

| REVISIONS | | |
|---|---|---|
| No. | Remarks | Date |
| 0 | Initial submittal | |
| | | |
| | | |

RECEIVED
CK'D BY THL OK'D BY
SEP 30 2008
RESUBMIT APPROVED As Noted
BY RLW DATE 10-6-08

NOTE: ALL DIMENSIONS SHOWN ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

RECEIVED
CK'D BY THL OK'D BY
OCT 02 2008
RESUBMIT APPROVED
BY DATE

HIGHWAY SAFETY CORP.
GLASTONBURY, CT

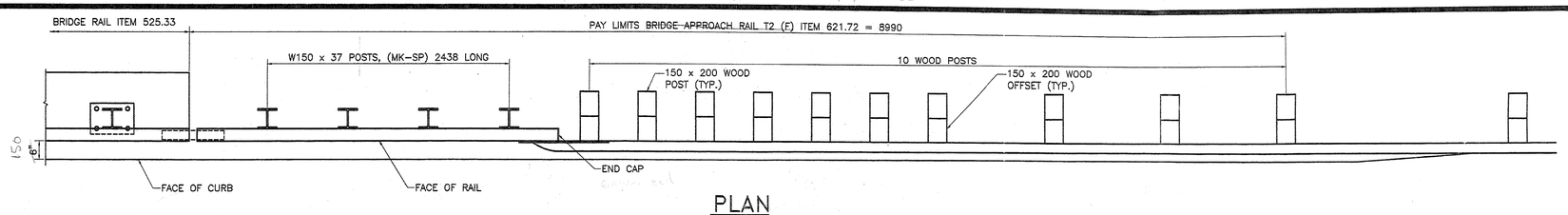
ITEM 525.33 - BRIDGE RAILING-NETC 2 RAIL
BRIDGE #103 OVER EAST CREEK
RUTLAND COUNTY, VT
PROJECT NUMBER BRF 019-3(48)

GENERAL CONTRACTOR

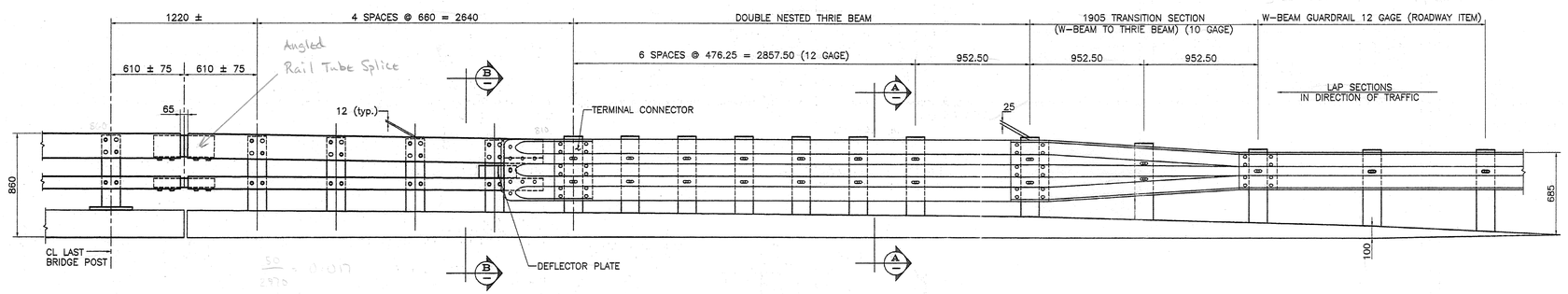
SUB CONTRACTOR F.R. LAFAYETTE, INC.

DRAWN M Mohamed
CHECKED P Radice
DATE 9/12/08
SCALE NONE
HSC REFERENCE NO. 1672
SIZE D REVISION 0
SHEET NO. 2 of 3

Guard Rail Approach Section, Galvanized NETC 2 Rail



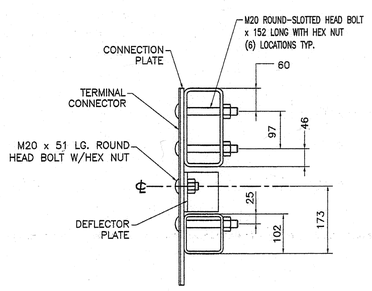

## PLAN



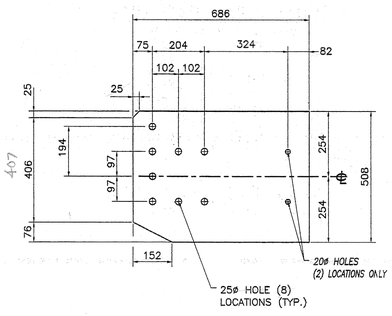

## ELEVATION – APPROACH RAIL
4 LOCATIONS
(2) typ. AS SHOWN
(2) typ. OPPOSITE HAND



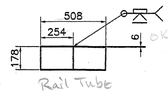

## DEFLECTOR PLATE
*10 x 102 PLATE (A709M Gr 250)*



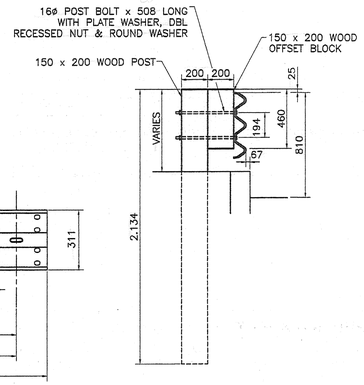

## SECTION B–B



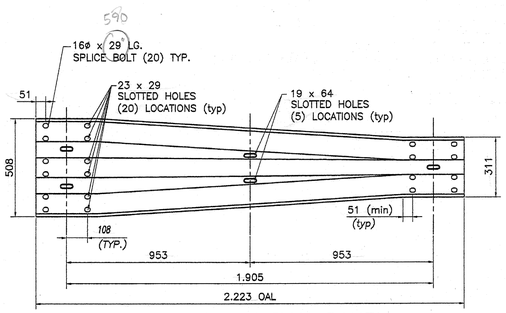

## CONNECTION PLATE
*10 x 508 x 686 (A709M gr 250)*



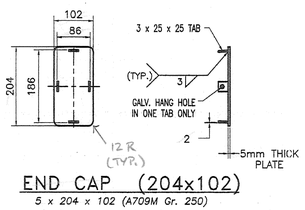

## ANGLED SPLICE DETAIL



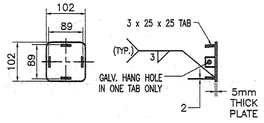

## SECTION A–A



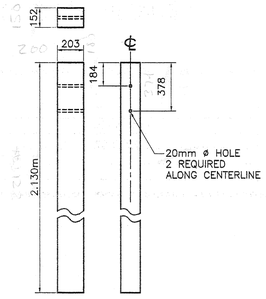

## THRIE TRANSITION PANEL
*12 GAUGE (AASHTO M180 A2)*



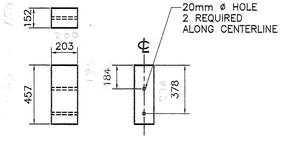

## END CAP (204x102)
*5 x 204 x 102 (A709M Gr. 250)*



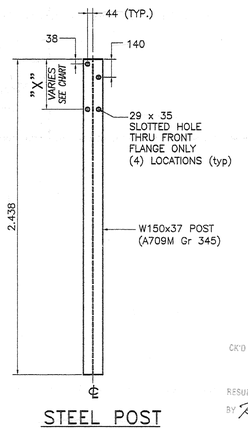

## END CAP (102x102)
*5 x 102 x 102 (A709M Gr. 250)*




## WOOD POST

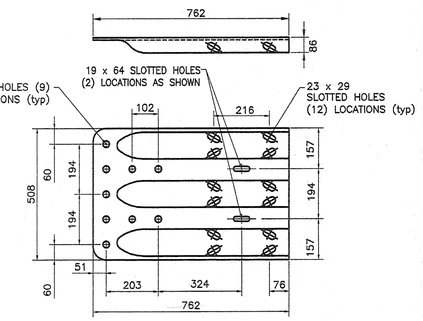



## WOOD BLOCK DETAILS




## STEEL POST

| STEEL POST CHART | |
|---|---|
| No. | " X " |
| #1 | 387 |
| #2 | 381 |
| #3 | 375 |
| #4 | 368 |




## TERMINAL CONNECTOR
*10 GAUGE (AASHTO M180 B2)*

| BILL OF MATERIAL (4 APPROACHES) | | | | | |
|---|---|---|---|---|---|
| MK. | Qty. | Description | Size/Shape | Length/Qty. Per Unit | Material |
| | 4 | APPROACH RAIL TUBE | TS 203x102x8 | 2.965m | A500 Gr. B |
| | 4 | APPROACH RAIL TUBE | TS 102x102x6 | 2.965m | A500 Gr. B |
| SP | 16 | STEEL POST | W150 x 37 | 2440 | M570 Gr. 345 |
| | 40 | WOOD POST | 152 x 203 | 2130 | TIMBER |
| | 40 | WOOD BLOCK | 150 x 200 | 457 | TIMBER |
| | 4 | ANGLED EXP. SPLICE TUBE FOR TS 203x102 | | | |
| | 4 | TUBE | TS 178x76x10 | 508 | A500 Gr. B |
| | 8 | WELDED LOCK NUTS | M16 | --- | A563M |
| | 4 | EXP. SPLICE TUBE FOR TS 102x102 | | | |
| | 4 | TUBE | TS 76x76x8 | 508 | A500 Gr. B |
| | 8 | WELDED LOCK NUTS | M16 | --- | A563M |
| | 4 | TERMINAL CONNECTOR | 10 Ga. | | M180 B2 |
| | 4 | CONNECTION PLATE | 10 x 508 | 686 | A709M Gr. 250 |
| | 4 | END CAP FOR TS 203x102 RAIL TUBE | | | |
| | 4 | PLATE | 5 x 102 | 204 | A709M Gr. 250 |
| | 4 | END CAP FOR TS 102x102 RAIL TUBE | | | |
| | 4 | PLATE | 5 x 102 | 102 | A709M Gr. 250 |
| | 2 | DEFLECTOR PLATE (LEFT) | 10x102 | 317 | A709M Gr. 250 |
| | 4 | DEFLECTOR PLATE (RIGHT) | 10x102 | 317 | A709M Gr. 250 |
| | 8 | M20 x 51 LG. ROUND HEAD BOLT W/NUT | | | A307 |
| | 4 | THRIE TRANSITION PANEL | 10 Ga. | 2.223m | M180 A2 |
| | 4 | THRIE BEAM | 12 Ga. | 3.810m | M180 A2 |
| | 92 | M20 x 152 ROUND HEAD BOLT W/NUT & ROUND WASHER | | | A325M |
| | 64 | M16 x 508 LG. POST BOLT W/DBL RECESSED NUT, PLATE & ROUND WASHER | | | A307M |
| | 16 | M16 x 457 LG. POST BOLT W/DBL RECESSED NUT, PLATE & ROUND WASHER | | | A307M |
| | 32 | M16 x 44 LG. CAP SCREW W/WASHER | | | A307M |
| | 128 | M16 x 32 LG. PANEL SPLICE BOLT W/DBL RECESSED NUT | | | A307M |
| | 32 | 20ø x 12 LG. (SCH 40) SPACER PIPE | | | A53M |

NOTES:
1. ALL APPROACH RAIL SPLICES SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC FLOW.

2. ALL BRIDGE APPROACH RAIL MATERIALS, DIMENSION SIZES AND NOTES SHALL BE THE SAME AS THOSE OF THE BRIDGE RAIL, UNLESS OTHERWISE NOTED.

3. WELD TOP SPLICE TUBE TO FIT BEND. USE COMPLETE PENETRATION WELD (B-U2).

4. THRIE BEAM TERMINAL CONNECTOR AND THRIE BEAM TO W-BEAM TRANSITION SECTION SHALL CONFORM TO AASHTO M180.

RECEIVED
CK'D BY THL CK'D BY
SEP 30 2008
RESUBMIT APPROVED As Noted
BY RLW DATE 10-6-08

NOTE: ALL DIMENSIONS SHOWN ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

| REVISIONS | | |
|---|---|---|
| No. | Remarks | Date |
| 0 | Initial submittal | |
| | | |
| | | |

RECEIVED
CK'D BY THL CK'D BY
OCT 02 2008
RESUBMIT APPROVED
BY DATE

HIGHWAY SAFETY CORP.
GLASTONBURY, CT

ITEM 621.72 – BRIDGE APPROACH RAIL
BRIDGE #103 OVER EAST CREEK
RUTLAND COUNTY, VT
PROJECT NUMBER BRF 019-3(48)

| | |
|---|---|
| DRAWN | M Mohamed |
| CHECKED | P Radice |
| DATE | 9/12/08 |
| SCALE | NONE |
| HSC REFERENCE NO. | 1672 |
| SIZE | D |
| REVISION | 0 |
| SHEET NO. | 3 of 3 |

GENERAL CONTRACTOR
SUB CONTRACTOR F.R. LAFAYETTE, INC.