

PROJECT NOTES

GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2001, AND ITS LATEST REVISIONS, AND THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, DATED 2002, AND ITS LATEST REVISIONS.
2. THE FOLLOWING TABLE OF ALLOWABLE STRESSES AND WEIGHTS APPLY TO THESE PLANS FOR DESIGN PURPOSES:
 

|                                     |                         |                        |
|-------------------------------------|-------------------------|------------------------|
| CONCRETE, HIGH PERFORMANCE CLASS A: | $f'c = 30 \text{ MPa}$  | $f_c = 12 \text{ MPa}$ |
| CONCRETE, HIGH PERFORMANCE CLASS B: | $f'c = 25 \text{ MPa}$  | $f_c = 10 \text{ MPa}$ |
| REINFORCING STEEL:                  | $f_y = 420 \text{ MPa}$ | GRADE 420              |
3. BRIDGE IS DESIGNED FOR MS 22.5 LIVE LOAD WITH NO ALLOWANCE FOR FUTURE PAVEMENT.
4. NO TRAFFIC SHALL BE ALLOWED ON THE NEW DECK UNTIL THE CURE PERIOD IS UP AND THE 28 DAY DESIGN STRENGTH IS ATTAINED, AS EVIDENCED BY TEST CYLINDERS CURED UNDER FIELD CONDITIONS.
5. ALL DIMENSIONS SHOWN IN THE PLANS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 20 DEGREES CELSIUS, UNLESS OTHERWISE NOTED.
6. REGRADING OF PARKING LOT AT PARCEL No. 207 SHALL BE PAID FOR UNDER ITEM 808J5 POWER GRADER RENTAL.

EARTHWORK AND RELATED ITEMS

7. BACKFILLING BEHIND FRAME LEGS ABOVE THE LEVEL OF THE FILL IN FRONT OF THE LEGS SHALL NOT BEGIN UNTIL THE DECK IS CONSTRUCTED AND THE DECK CONCRETE HAS REACHED ITS 28 DAY DESIGN STRENGTH. BACKFILL SHALL BE PLACED AND COMPACTED IN ACCORDANCE WITH THE SPECIFICATIONS FOR MSE WALLS. THE DIFFERENCE IN ELEVATION OF FILL BEHIND FRAME LEG 1 AND FRAME LEG 2 AT ANY TIME DURING BACKFILLING OPERATIONS SHALL NOT EXCEED 600 MILLIMETERS.

STEEL PILES

8. PILES SHALL BE HP310x79 AASHTO M270/M270M, GRADE 250 (GRADE 36), THE ESTIMATED LENGTH OF EACH PILE AT FRAME LEG NO. 1 IS 28 METERS, AT FRAME LEG NO. 2 IS 31 METERS, INCLUDING THE 300 MILLIMETERS EMBEDMENT IN THE CONCRETE PILE CAP. NO SUBSTITUTIONS FOR THE NUMBER, SIZE AND GRADE OF THE PILES WILL BE ALLOWED.
9. THE DRIVING POINT OF ALL PILES SHALL BE REINFORCED. POINT REINFORCEMENT SHALL BE CAST STEEL AND SHALL CONFORM TO SUBSECTIONS 505.04 (E) AND 730.01 OF THE STANDARD SPECIFICATIONS.
10. THE PILES SHALL BE DRIVEN TO REFUSAL WITH AN ULTIMATE AXIAL CAPACITY OF 1860 KILONEWTONS AS DIRECTED BY THE RESIDENT ENGINEER.
11. TO ENSURE THAT THE ULTIMATE AXIAL CAPACITY HAS BEEN ATTAINED AND TO PREVENT THE OVERSTRESSING OF THE PILES DURING DRIVING OPERATIONS, DYNAMIC MONITORING SHALL BE PERFORMED FOR THE FIRST PILE AT EACH FRAME LEG. THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SUBSECTION 505.04 (C)-2 OF THE STANDARD SPECIFICATIONS. PAYMENT FOR PILE TESTING SHALL BE MADE UNDER ITEM 505.45, "DYNAMIC PILE LOADING TEST".
12. PILE HEAD CUT-OFF ELEVATION SHALL BE WITHIN 60 MILLIMETERS OF THE ELEVATION DETAILED IN THE PLANS. AT THE CUT-OFF ELEVATION, THE PILE SHALL BE FREE FROM DRIVING DAMAGE AS DETERMINED BY THE RESIDENT ENGINEER.

CONCRETE AND REINFORCING STEEL

13. ALL CONCRETE IN THE RIGID FRAME DECK, APPROACH SLABS, AND SIDEWALKS, SHALL BE HIGH PERFORMANCE CONCRETE, CLASS A, AND SHALL BE PAID FOR UNDER ITEM 501.33, "CONCRETE, HIGH PERFORMANCE CLASS A". ALL CONCRETE IN THE FRAME LEGS, WINGWALL COPINGS, AND FOOTINGS SHALL BE HIGH PERFORMANCE CONCRETE, CLASS B, AND SHALL BE PAID FOR UNDER ITEM 501.34, "CONCRETE, HIGH PERFORMANCE CLASS B".
14. FALSEWORK SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF VERMONT. DESIGN CALCULATIONS AND FABRICATION DRAWINGS FOR THE FALSEWORK SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL IN ACCORDANCE WITH SECTION 105.03 OF THE STANDARD SPECIFICATIONS PRIOR TO CONSTRUCTION (COST SUBSIDIARY TO CONCRETE, HIGH PERFORMANCE CLASS A). ALL FORM WORK AND CONSTRUCTION ACTIVITIES MUST BE OUTSIDE THE CLEARANCE BOX SHOWN ON SHEET 38.
15. THE DECK SHALL BE PLACED IN ONE CONTINUOUS POUR WITH A MAXIMUM DURATION OF EIGHT HOURS.
16. WATER REPELLENT SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES EXCEPT THE UNDERSIDE OF DECK BETWEEN DRIP NOTCHES.
17. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 25 mm x 25 mm.
18. JOINTS AND SCORE MARKS IN CONCRETE SHALL BE CONSTRUCTED AS INDICATED ON THE PLANS OR AS DIRECTED BY THE RESIDENT ENGINEER.
19. THE KEY IN CONCRETE CONSTRUCTION JOINTS SHALL BE MONOLITHIC AND CONTINUOUS FOR THE FULL LENGTH OF THE JOINT. ANY UPWARD KEY SHALL BE PLACED INTEGRALLY WITH THE CONCRETE BELOW THE JOINT.
20. ALL REINFORCING STEEL SHALL BE EPOXY COATED AND PAID FOR UNDER ITEM 507.J7, "EPOXY COATED REINFORCING STEEL". WHEN EPOXY COATED REINFORCING STEEL IS TO BE CUT, THE UNCOATED ENDS SHALL BE REPAIRED WITH MATERIALS AND PROCEDURES APPROVED BY THE COATING MANUFACTURER. FLAME CUTTING OF EPOXY COATED REINFORCING STEEL WILL NOT BE PERMITTED.
21. MINIMUM COVER FOR REINFORCING STEEL SHALL BE AS INDICATED ON THE PLANS.
22. ALL REINFORCING STEEL SHALL BE DETAILED AND FABRICATED USING PROCEDURES AND TOLERANCES IN ACCORDANCE WITH APPLICABLE PUBLICATIONS OF THE CONCRETE REINFORCING STEEL INSTITUTE (CRSI).

REINFORCING PLACEMENT TOLERANCES SHALL BE:  
 SPACING    +- 25 mm  
 CLEARANCE +- 6 mm

TRAFFIC CONTROL

23. ACCESS TO ALL DRIVES SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.
24. RAILROAD IS TO REMAIN OPEN AND ACTIVE THROUGHOUT CONSTRUCTION.
25. TOWN HIGHWAY 2 (STONE ST.) IS TO BE CLOSED TO THRU TRAFFIC DURING CONSTRUCTION.
26. THE CONTRACTOR SHALL NOTIFY THE TOWN A MINIMUM OF TWO (2) WEEKS PRIOR TO CLOSING THE ROAD.
27. THE REMOVAL AND/OR RESETTING OF TEMPORARY TRAFFIC SIGNS, AS DEEMED NECESSARY BY THE RESIDENT ENGINEER, WILL BE CONSIDERED SUBSIDIARY TO 64J0, TRAFFIC CONTROL.

MECHANICALLY STABILIZED EARTH (MSE) WALLS

28. 450 mm WIDE STRIPS OF FILTER FABRIC, MEETING VAOT STANDARD SPECIFICATION T20 FOR GEOTEXTILE UNDER FOR UNDERGROUND TRENCH LINING, SHALL BE PLACED ON BACK FACE OF PANEL OVER PANEL JOINTS. FILTER CLOTH SHALL BE ADHERED TO BACK FACE OF PANELS USING AN ADHESIVE COMPOUND SUPPLIED BY THE MANUFACTURER AND APPROVED BY THE PROJECT MANAGER. THE CONTRACTOR SHALL PROVIDE THE RESIDENT ENGINEER WITH THE MANUFACTURER'S TECHNICAL DATA SHEET AND APPLICATION INSTRUCTIONS FOR THE ADHESIVE COMPOUND.
29. WALL DESIGN  
 FINAL DRAWINGS SHOWING PROPOSED PANEL SIZE, THE REQUIRED NUMBER OF REINFORCEMENT ELEMENTS PER PANEL, THE REINFORCEMENT ELEMENT LENGTHS, REINFORCEMENT ELEMENT LAYOUT, CONCRETE PANEL REINFORCEMENT DETAILS, PANEL TIE-IN DETAILS WITH COPING AND LEVELING PAD SHALL ALL BE PREPARED BY THE CONTRACTOR AND SUBMITTED TO THE PROJECT MANAGER FOR APPROVAL. ALL MATERIALS WITHIN THE MECHANICALLY STABILIZED EARTH (MSE) VOLUME, METHODS OF CONSTRUCTION, AND THE QUALITY OF PREFABRICATED MATERIALS SHALL MEET THE REQUIREMENTS OF THE SPECIAL PROVISIONS FOR THIS PROJECT.

30. DESIGN CRITERIA:

Foundation Soil

Allowable Bearing Capacity: 180 kPa  
 Density: 17.3 KN/m<sup>3</sup>  
 Friction angle,  $\phi = 30^\circ$   
 Cohesion,  $c = 0$

Retained Soil

Density: 20 KN/m<sup>3</sup>  
 Friction angle,  $\phi = 32^\circ$   
 Cohesion,  $c = 0$

Select Backfill (Backfill used in the reinforced zone)

Density: 22 KN/m<sup>3</sup>  
 Friction angle,  $\phi = 34^\circ$   
 Cohesion,  $c = 0$

MSE WALL LOADS:

HORIZONTAL BRIDGE RAILING LOADS: 45 KN/m @ 850 ABOVE PAVEMENT SURFACE

VERTICAL LIVE LOAD SURCHARGE: 13.4 kPa

31. ANY UNSUITABLE FOUNDATION MATERIAL BELOW THE MSE VOLUME, AS DETERMINED BY THE ENGINEER, SHALL BE EXCAVATED AND REPLACED WITH GRANULAR BORROW OR OTHERWISE STABILIZED AS DIRECTED BY THE ENGINEER.

WALL CONSTRUCTION

32. BACKFILL MATERIAL SHALL BE COMPACTED IN ACCORDANCE WITH THE SPECIFICATIONS FOR MSE WALLS TO A LEVEL OF THE CENTER OF REINFORCEMENT ELEMENT CONNECTIONS +/- 50. INSTALLATION OF REINFORCING ELEMENTS SHALL BE PERMITTED ONLY AFTER PLACEMENT AND COMPACTION OF THE BACKFILL MATERIAL HAS REACHED THE REQUIRED LEVEL.
  33. BACKFILL COMPACTION AND EQUIPMENT OPERATION SHALL BE KEPT TO A MINIMUM FOR A DISTANCE OF 1 METER FROM THE BACK FACE OF THE MSE PANELS. COMPACTION WITHIN 1 METER OF THE PANELS SHALL BE ACHIEVED WITH A MINIMUM OF THREE PASSES OF A LIGHTWEIGHT MECHANICAL TAMPER, ROLLER OR VIBRATORY SYSTEM.
  34. THE CONTRACTOR SHALL ACCOMMODATE ANY PIPES, GEOMEMBRANE LINER, DRAINAGE STRUCTURES, FOUNDATIONS AND ANY OTHER SUCH APPURTENANCES THAT ARE WITHIN THE DESIGNED MSE VOLUME.
  35. THE CONTRACTOR IS RESPONSIBLE FOR GRADUALLY DEFLECTING UPPER REINFORCING ELEMENTS DOWNWARD TO AVOID CONFLICTS WITH APPROACH SLABS AND/OR BASE SLAB SUBGRADE PREPARATION.
  36. THE CONTRACTOR IS RESPONSIBLE FOR CONTROLLING THE STORM WATER DRAINAGE IN THE VICINITY OF THE WALL DURING CONSTRUCTION. STORM WATER RUNOFF IS TO BE COLLECTED AND DISCHARGED AWAY FROM THE WALL AND THE REINFORCED BACKFILL.
  37. THE REQUIRED HORIZONTAL LIMIT OF SELECT GRANULAR BACKFILL SHALL EXCEED THE NOMINAL REINFORCEMENT ELEMENT LENGTH BY 300.
- MATERIAL NOTES
38. SELECT GRANULAR BACKFILL QUANTITY SHALL BE CALCULATED FOR BIDDING AND PAYMENT PURPOSES BY MULTIPLYING THE NOMINAL REINFORCEMENT LENGTH (PLUS 300) BY THE TRIBUTARY WALL SURFACE AREA AND CONVERTING THE RESULT TO A NEARLINE CUBIC METER QUANTITY.
  39. THE PRECAST PANELS FOR THIS PROJECT SHALL HAVE AN ASHLAR STONE PATTERN APPROVED BY THE PROJECT MANAGER.
  40. CONCRETE FOR BOTH THE CAST-IN-PLACE COPING AND THE LEVELING PAD SHALL BE CONCRETE, HIGH PERFORMANCE CLASS B. CONCRETE FOR THE COPING SHALL BE PAID FOR UNDER THE ITEM 501.34 "CONCRETE, HIGH PERFORMANCE CLASS B". REINFORCEMENT IN THE COPING SHALL BE PAID FOR UNDER THE ITEM 507.J7 "EPOXY COATED REINFORCING STEEL". THE COST OF MATERIALS AND INSTALLATION OF THE LEVELING PADS SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 526.30, "MECHANICALLY STABILIZED EARTH (MSE) WALL".

**STATE OF VERMONT  
AGENCY OF TRANSPORTATION**

|  |              |                          |              |
|--|--------------|--------------------------|--------------|
| Town Of  | WATERBURY    | Bridge No.               | 35           |
| Highway No.                                    |              | Log Sta.                 |              |
|  |              | Surv. Sta.               |              |
| STOWE ST. BRIDGE OVER CENTRAL VERMONT RAILROAD |              |                          |              |
| <b>PROJECT NOTES</b>                           |              |                          |              |
| Designed By                                    | R. GINGRAS   | Drawn By                 | A. THIBAUT   |
| Checked By                                     | G. BOGUE     | Date                     | 3/03         |
|  |              | Bridge Design Supervisor |              |
| PROJECT  | STOWE STREET | PROJECT NO.              | BRO 1446(26) |
| DH CAD Filename: ... \37_SSB_ProjNotes.dgn     |              | Plot Date:               | 01/27/2004   |
| Bridge Sheet No.                               | BRI01        | Sheet                    | 37 of 63     |