

GENERAL NOTES SHEET



1. GENERAL ITEMS

- a. All materials and construction shall conform to the State of Vermont Agency of Transportation's Standard Specifications for Construction, dated 2001, and its latest revisions, and the AASHTO LRFD Bridge Design Specifications, Third Edition, with the 2005 interims.
- b. Bridge #16 is designed for the HL93 live load with no allowance for future pavement.
- c. In-stream construction shall be restricted to June 1 to October 1, unless the Contractor obtains written permission from the Stream Alteration Engineer to do work outside of that time frame.
- d. All work for this project must be in compliance with the Vermont General Permit (GP-58) from the United States of America Army Corps of Engineering.
- e. The Contractor shall take all precautions necessary to prevent siltation or pollution, especially the discharge of raw concrete, into any brook, stream or river.
- f. The Contractor is required to clearly delineate the construction limits with the Project Demarcation Fence (PDF) as shown in these plans.
- g. The cost of signs and barricades required shall be incidental to the item 641.10 "Traffic Control".
- h. The term "Town" shall refer to the "Town of Charleston"

2. CHANNEL WORK

- a. The Stone fill, Type III shall be placed in front of the abutments before the prestressed concrete beams are erected.

3. CONCRETE

- a. No traffic shall be allowed on the new deck until the pavement has been placed.
- b. 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.
- c. All exposed edges of concrete shall be chamfered 25mm by 25mm or as otherwise indicated on the plans.
- d. Joints and score marks in concrete shall be constructed as indicated on the plans or as directed by the engineer.
- e. All reinforcing steel shall be detailed and fabricated using procedures and tolerances in accordance with applicable publications of the Concrete Reinforcing Steel Institute (CRSI).
- f. Reinforcing placement tolerances shall be:
Spacing +/- 25 mm
Clearance +/- 5 mm
- g. Minimum cover for reinforcing steel shall be 50 mm along the back faces of walls against earth, 65 mm along the top surface of the deck and 75 mm elsewhere, unless otherwise noted.
- h. Water repellent (MOD.-Silane) shall be applied to all exposed concrete surfaces except the underside of the deck between the drip beads.
- i. All dimensions are horizontal or vertical and are given at 20°C unless otherwise noted.
- j. The abutments and wingwalls shall be constructed with High Performance Concrete, Class B.

4. PRESTRESSED MEMBERS

- a. Prestressed Members Shall:
 - Conform with section 510A "Prestressed Concrete."
 - Be 690 mm x 1220 mm x 16700 mm (Nominal) with skewed ends. (Exterior Units will have curved fascias.)
 - Have positive midspan camber of 17 mm at erection with only beam dead load.
 - Have the ends of the strands recessed and grouted as per standard practice.
 - Have voids terminating 1263 mm from ends of beam and being continuous between lateral posttensioning strands as shown in these plans.
 - Have drain holes provided at the ends of each void.
 - Have concrete with $f'c = 45$ MPa, and $f_c = 40$ MPa
 - The concrete mix must include a corrosion inhibitor admixture.

4. PRESTRESSED MEMBERS (Continued)

- Be designed to comply with the following unfactored loads:

Moments (kN-m)	EXT	INT
Member	342.0	363.2
SDL (Midspan)	4.2	4.9
SDL (Ends)	0.0	0.0
Pavement (Midspan)	44.0	60.0
Pavement (End)	0.0	0.0
LL+I (Midspan)	483.0	468.0
LL+I (Ends)	0.0	0.0

Shear (kN)		
Member	94.0	100.6
SDL	1.1	1.3
Pavement	11.0	15.0
Live Load + I	241.0	200.0

- b. The fabricator may alter the design as detailed in these plans to accommodate their specific operation. This alteration must be designed by a Professional Engineer and meet the above criteria. Any alterations must be approved by the Structures Engineer.
- c. The price per unit shall include all materials cast into the units and all of the costs associated with the transverse post-tensioning strands. Materials include, but not limited to the following:
 - Oakum Backer-Rod for the longitudinal shear keys.
 - Grout used to fill post-tensioning and bolt pockets or for any other purpose that is not specified in the Item 510.24 "Grouting Shear Keys"
- d. The construction sequence found on this Sheet may be used for installing the prestressed units. The Contractor may submit an alternative sequence to the Structures Section for their information. If not otherwise specified in these plans or in the specifications, all work and materials required in setting the beams shall be paid for by item 510.21 "Prestressed Concrete Box Beams (1220x690)".

5. TEMPORARY BRIDGE DETOUR

- a. The Contractor may use the existing Modular-type bridge at the project site as the temporary bridge. All work associated with the installation of the temporary bridge, including moving the existing bridge shall be incidental to item 528.10 "One-Way Temporary Bridge (MOD.-Existing Modular)".
- b. The Contractor may use any means available to move the bridge including but not limited to dismantling and reassembling or lifting by crane to the temporary location. The Contractor also has the option of installing an alternate temporary bridge. The method used must be accomplished between 8:00am and 3:00pm in a single day and shall be approved by the Resident Engineer. This work shall be referred to as "moving" the bridge. The Contractor must notify the town two weeks prior to moving the existing bridge.
- c. This note applies only if the Contractor uses the existing modular bridge as the temporary. The Contractor shall inspect the existing bridge, prior to moving it. The Contractor shall provide replacements for any part that is damaged prior to construction. All replacement parts shall be ordered and delivered to the project site prior to moving the existing bridge. The Contractor is responsible for ensuring that the existing modular type bridge will carry all construction loads that they intend to place on it. Payment for the work and parts shall be included with item 528.10 "One Way Temporary Bridge (MOD.-Existing Modular)".
- d. The Contractor shall use care in moving or dismantling the existing Modular-Type Bridge. The Contractor will replace any part damaged while they are moving or dismantling the bridge, at no additional cost to the State. The Contractor will not be responsible for any damage caused by normal use prior to moving or dismantling it.
- e. Once traffic is switched over to the new Bridge, the Contractor shall package the existing bridge parts as specified by the Resident Engineer. The Contractor shall notify the Town two weeks prior to transporting the parts to the Town shed. This work shall be incidental to item 528.10 "One-Way Temporary Bridge (MOD.-Existing Modular)".

6. BEARING NOTES

- a. The wood bearings shall be paid for under the item 531.10 "Bearing Device Assembly (Timber)". This project requires a total of 24 bearing assemblies. A bearing device assembly consists of 6 25 mm high-grade "AC" plywood layers bonded together as shown in these plans and wrapped tightly with a self adhesive waterproof wrap.
- b. The Contractor shall provide two extra Bearing Assemblies for purposes of inspection. Upon delivery the Resident Engineer will select two Bearing Assemblies at random and remove the waterproof membrane wrap to insure the proper procedure was used in their construction.

7. PROJECT CONSTRUCTION SEQUENCE

The Contractor shall follow the project sequence provided below or develop one that must be approved by the Engineer. If the Contractor wishes to develop a construction sequence, a copy must be sent to the Structures Section for reference only.

7. PROJECT CONSTRUCTION SEQUENCE

- a. Move existing Modular-Type Bridge to temporary location.
 - b. Excavate the ground for the abutments and wingwalls 300mm below the respective elevation as shown in these plans.
 - c. Drive the piling as shown in these plans. Place 300mm of Granular Backfill for Structures as shown in these plans, then compact to specifications.
 - d. The Contractor may place a "Mud" slab, with 75 mm min. thickness, using 20 MPa (min.) concrete. This will aid in forming the pile cap. The top of the "Mud" slab shall be troweled smooth, level, and set at the pile cap base elevation. A bond breaker, such as sand, shall be used prior to the placement of the pile cap. Payment for this work will be incidental to item 204.25 "Structure Excavation".
 - e. Form and place the concrete for the abutments and wingwalls to the construction joint as shown in these plans.
 - f. The Contractor may drill and set the anchor bolts before or after the beams are set.
 - g. Upon receiving the box beams, place two bearing assemblies at each abutment for each beam, where the beam will be set, as shown in these plans.
 - h. Starting with beams 3 and 4, set the box beams on the bearings (fitting over the anchor bolts if necessary.) If not done already, the Contractor may drill and set the anchor bolts. When the grout used in setting the anchor bolts has cured, apply the plate washer and nut as shown in these plans. Tighten the nut. Prior to placing the concrete, the anchor bolts shall be loosened by 3 mm to allow for free play while the concrete cures.
 - i. Form the backwall and the remainder of the wingwalls. Place concrete to fill the space under the beams. Bleeder holes shall be used to ensure the void under the beams is filled. Once the void under the beams is filled, the remainder of the concrete for the backwall and wingwalls shall be placed.
 - j. Backfill with Granular Backfill for Structures and apply the roadway subbase to the subgrade elevation of the pavement.
 - k. The prestressed units shall be overlaid first with Sheet Membrane Waterproofing (MOD-Torch Applied) and then Bituminous concrete pavement.
- ## 8. PILES
- a. This project requires 310 x 110 AASHTO M 223 Grade 345 Piles. The Contractor may not substitute an alternate size or grade of the pile nor change the number of piles.
 - b. The piles require pile shoes. The Contractor shall select cast steel pile shoes which conform to the VAOT Standard Specifications 505.04 and 730.01. The cost of the pile shoes shall be included with the item 505.16 "Steel Piling (HP 310 X 110)."
 - c. The Contractor will prevent splicing a pile within a length of 6 m below the bottom of the pile cap.
 - d. To aid in the proper pile placement or alignment, the Contractor has the option to place each pile in a pre-excavated hole as specified in VAOT Standard Specifications 503. In the case of pre-excavation, the Contractor shall use corrugated PVC culvert pipe as a permanent sleeve in place of the smooth lined temporary casing. The Contractor will not be responsible for removing the sleeve after the piles have been driven and the peastone backfill applied. For piles pre-excavated, the costs of this work shall be included with the item 503.20 "Pre-Excavation of Integral Abutment Piles."
 - e. The Contractor shall cut the Pile head within 60 mm of the elevation detailed on the contract plans. The pile at the cutoff elevation shall be free from driving damage as determined by the resident engineer. Piles shall have a minimum of 150 mm concrete cover. Piles shall be within 5 degrees from vertical in its final position. The Resident Engineer may stop the pile driving to check the pile alignment. The Contractor is not permitted to apply lateral loads on the pile to correct misalignment, or splicing a properly aligned section on a misaligned section. The Contractor shall bear all costs, including delays, associated with necessary corrective action to bring misaligned piles into the tolerances described above.
 - f. The Contractor shall drive the piles to ledge with a maximum ultimate axial pile capacity of 2730 kN as determined by the resident engineer.
 - g. For estimating purposes, the pile lengths have been assumed to be 10.0 m. Actual in place lengths may vary.

GENERAL NOTES SHEET

PROJECT NAME:	Charleston		
PROJECT NUMBER:	BRO 1449 (22)		
FILE NAME: .../93J051/sj051gen.dgn	PLOT DATE:	13-APR-2006	
PROJECT MANAGER: M. Evans-Mongeon	DRAWN BY:	G. Colgrove	
DESIGNED BY:	G. Colgrove	CHECKED BY:	M. Evans-Mongeon
		SHEET	27 OF 50