

PROJECT DESCRIPTION

This project involves reconstruction of a bridge over the Clarendon River, in a residential neighborhood, on a Class III town highway, in the town of Clarendon. A new single span, precast concrete bridge will be constructed on the existing alignment while traffic is maintained on a temporary bridge located downstream of the existing bridge.

Total disturbed area (excluding waste, borrow and staging areas): 0.12 ha (0.3 ac.)

SITE INVENTORY AND ANALYSIS

OFF SITE DRAINAGE CHARACTERISTICS:

There are no obvious drainage ways off-site of the project. The surrounding areas are relatively flat with the exception of the NE quadrant. This quadrant has an approximate slope of 33%. The runoff from this quadrant is expected to be parallel to the project flowing directly towards the Clarendon River.

DRAINAGE, WATERWAYS, BODIES OF WATER:

The Clarendon River flows through the project site. The river is described as alluvial, sinuous and probably incised, flat sloping with a wide flood plain. The streambed nature consists of gravel, cobbles and a few boulders. The drainage area at the bridge is approximately 61 square kilometers. There are wetlands indicated in the plans including a Class III wetland in the SE quadrant of the site.

TOPOGRAPHY, EXISTING ROADS, BUILDINGS, UTILITIES:

Existing topography near the bridge consists of a moderate (5%-20%) sloping river bank along the northern side of the river and a more gently sloping (0%-15%) bank along the southern side of the river. The river banks range in height along the southern side from negligible to 3 meters and from 2 meters to 4 meters along the northern bank.

Overhead utility lines will be relocated as indicated on the project plans.

There are no buildings located within the project limits.

VEGETATION:

Vegetation in the immediate vicinity of the bridge consists of a mixture of trees and shrubs including Red maples, Ash, Willow, Speckled Alder, Blue beech and Red Osier Dogwood. There are also grass lawns along the eastern side of the project.

SOILS:

The soils within the project area have been identified as Windsor loamy fine sand found on 8 to 15% slopes. This soil type is described as very deep, strongly sloping, excessively drained soil on terraces dissected by drainageways and the tops of knolls and ridges.

The k-factor for this soil is: 0.17. This is in the low erodibility range.

SENSITIVE RESOURCE AREAS:

There is a Class II wetland that has been identified as shown in the plans on the western half of the project. This area will be protected during construction. There is also a small Class III wetland in the SE quadrant. There is a dug well water supply at station 1+093.3 Left. Although the well is not within the project limits extra awareness should be used while working within the vicinity.

No 'Threatened & Endangered Species' have been identified within the Aproject limits and there will be no adverse effect to Historic or Archaeological features.

PROXIMITY TO NATURAL OR MAN MADE WATER FEATURES

As noted before the Clarendon River flows through the project. There are outlying wetlands that surround the project. There is a man made well within the vicinity of the site. All areas of specific concern will be protected during construction.

TEMPORARY EROSION PREVENTION AND SEDIMENT CONTROL:

Temporary erosion prevention measures to be utilized include:

Project Demarcation Fencing, denoted -PDF- on the plans, to delineate the limits the contractor can access with construction equipment. This measure limits the area that can be disturbed and exposed to erosion.

Tracking of all exposed slopes, combined with temporary mulching, will also be utilized on a regular basis. Any slopes to be exposed for several days prior to final grading shall be tracked and mulched. Slopes shall be stabilized within 48 hours of forecasted rain.

Seeding, mulching and biodegradable erosion control matting, or an equivalent, shall be used to stabilize all slopes greater than 1V:3H. These slopes shall be stabilized within 48 hours of reaching final grade or during intermittent phases of construction.

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Silt fence will be installed a distance of 1500 - 3000 (5'-10') from the toe of fill slopes to prevent sediment transport to down gradient areas. Each line of silt fence will be placed along the contour with the lower edge buried 150 (6") to prevent underflow and ends turned slightly up grade to create a ponding effect should water try to run along the fencing and around the ends. The maximum slope length between separate runs of silt fence shall be 30,000 (100'). Silt fence shall be installed prior to any upslope earthwork.

Filter curtain shall be used in the channel to prevent sediment flow downstream. The filter curtain shall be installed as shown in the Erosion Control Details.

Measures such as silt fence and filter curtain shall be regularly maintained and shall be checked for sediment build-up. Sediment build-up shall be removed when the level of sediment reaches one-half the height of the control measure. Sediment shall be disposed of at an approved site such that it will not be subject to erosion.

Stabilized construction entrances to the project site, staging areas, as well as to waste and borrow areas shall be established. The minimum size of a stabilized construction entrance is 3700 x 15000 (12'x 50'). All surface water flowing to or diverted towards a construction entrance shall be piped under the stone. Pipes shall be appropriately sized for the contributing area, however, no pipes smaller than 150mm diameter shall be used. See typical detail on 'Erosion & Sediment Control Plan' sheet for materials and construction method to be utilized when constructing a stabilized entrance.

Temporary sediment settling basins will be utilized on this project. It should be sized based upon the following criteria:

PUMP FLOW RATE	REQUIRED SURFACE AREA	LENGTH / WIDTH = 2:1					
		L (ft)	W (ft)	L (m)	W (m)		
Q (gpm)	Q (m ³ /s)						
50	0.0032	595	55	35.0	17.0	10.6	5.3
100	0.0063	1200	111	49.0	24.5	15.0	7.5
150	0.0095	1776	165	59.6	29.8	18.2	9.1
200	0.0126	2368	220	68.8	34.4	21.0	10.5
250	0.0158	2970	276	77.0	38.5	23.4	11.7
300	0.0189	3560	330	84.4	42.2	25.8	12.9
350	0.0221	4155	386	91.2	45.6	27.8	13.9

PERMANENT EROSION CONTROL MEASURES:

Several permanent erosion control measures will be utilized:

Stone lining of the stream banks with Stone Fill, Type III as specified by the VTrans Hydraulics unit. The stone lining will stabilize the existing bank in order to protect it from erosion during storm and high water events.

All disturbed areas will be seeded and mulched in order to promote growth of vegetation to prevent erosion in the future.

Stream bank vegetation will be introduced in the grubbing material that is to be placed over the stream bank rip rap.

GENERAL EROSION & SEDIMENT CONTROL GUIDELINES

The Erosion Control Plans are meant as a guideline for preventing erosion and controlling sediment transport. The work outlined in this narrative consists of applying measures throughout the life of the project to control erosion and minimize the sedimentation of receiving waters. The measures include stabilization and structural practices, storm water controls and other pollution prevention controls.

Coordinate the installation, use, and removal of erosion and sediment control measures with construction activities to ensure economical, effective and continuous erosion and sediment control. Employ temporary stabilization practices in incremental stages as construction proceeds. The contractor will use additional erosion control measures as necessitated by the sequence of construction and as directed by the Engineer and On-site Coordinator. See section 105.23 of the Vermont AOT Standard Specifications for Construction, dated 2001.

Install all erosion and sediment control measures as shown in the Erosion Control Plan or as directed by the Engineer and On-site Coordinator. Do not modify the type, size or location of any control or practice without approval of the Engineer and On-site Coordinator. Any changes shall be noted on the plans, in the weekly inspection report, and reported to the appropriate authority in a timely manner. Inspect all control measures weekly and after each rainfall event. Repair or replace any damaged measures.

Preventing initial soil erosion is much more effective than treating eroded sediment. Therefore, stabilize all disturbed areas promptly after construction activity has temporarily or permanently ceased. Temporary vegetation shall be established if the area is to be without construction activity for a period of 14 days. Perimeter control measures shall be installed following clearing, but prior to the start of any grubbing or grading activity, install other temporary controls in incremental stages as construction proceeds.

Maintaining vegetated buffers along stream banks, wetlands or other sensitive areas is a crucial erosion and sediment control measure that should be established wherever possible.

Control only sediment-laden runoff generated by the project site. Collect and route clean offsite runoff around or through the project site using diversion berms, diversion channels, culverts and/or temporary pipes.

Do not allow construction equipment to operate on the down slope side of perimeter control measures.

PROJECT NAME:	CLARENDON		
PROJECT NUMBER:	BRO 1443(34)		
FILE NAME:	PW/sj286c.dgn	PLOT DATE:	2/4/2005
PROJECT MANAGER:	R.R. WHITCOMB	DRAWN BY:	J. PERRIGO
DESIGNED BY:	C. CARLSON	CHECKED BY:	BONNEAU
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