

EROSION CONTROL NARRATIVE

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1.1 PROJECT DESCRIPTION

This project involves the replacement of a truss bridge over the White River. The project is on VT 107 (River Street) a paved, minor arterial in the Town of Bethel. A temporary two lane bridge will be erected downstream of the existing structure. This temporary bridge will be a continuous span with a temporary pier at mid point by the south river edge. The approach work to the temporary bridge will come close to two property owners. Extra caution will be exercised to prevent erosion from the project to cause damage or adversely affect these property owners. Once the temporary bridge is in place; the existing truss, abutments approach spans, and piers can be removed. Upon the completion of the new structure the temporary bridge will be removed. Work including both approaches, is approximately 762.00 feet. The limits of construction approach buildings and other structures. Historic Resources have been identified in the project area. The existing structure has been cleared for removal as it has been photo-documented for Historical purposes. The site is located, based upon NAD 83/92 at 258776.257 N, 491595.522 E.

Total area of disturbance including waste, borrow, and staging areas is 1.02 ac., as shown on the attached EPSC plan. It is anticipated that this project will last three construction seasons.

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY

The topography of the project site is relatively flat. Before the bridge at around STA. 122+90 there is a gravel access road that goes underneath the bridge to a gravel parking lot. After the bridge at approximately STA.129+80 TH 5 runs parallel with the train tracks before coming to a bridge. Development along VT 107 consists of permanent residences two of which exist near the project limits. Underground utilities run throughout the entire project on both sides of VT 107. There is also a sewage pumping station after the bridge at STA. 128+25

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

The property surrounding the project site consists of well established vegetation, moderate to steeply sloping, mixed softwood and hardwood forest with well defined drainage ways. Due to the nature of the surrounding terrain, runoff water entering the project site will be primarily limited to that which is conveyed along roadway ditches, and that which follows River Street along the 14% grade at the end of the project limits. The current roadway ditches are not well defined and are not lined with stone.

White River is located in the project area. There are no other water bodies or wetlands within the project area. The White River is classified as perennial, sinuous, not braided and equiwidth containing a streambed of some ledge with some boulders, cobbles and gravel. The contributing drainage area at the bridge crossing is 408 sq. mi.

Disturbance of soils near natural or man-made waterways consists of that which is necessary to construct two new concrete bridge abutments, a pier and applicable roadway approaches as well as the removal of the existing crossing. Stabilization of disturbances to stream banks will be accomplished with Stone Fill, Type IV.

1.2.3 VEGETATION:

A mix of hardwood and softwood trees of all sizes exist along VT 107. The residences near the bridge site have small areas of lawn and stone walls with plantings. One field exists near the project. Impacts to vegetation will be limited to that which are effected by the construction of the new bridge.

Following construction of the temporary bridge, the existing bridge and roadway approaches will be removed, the slopes stabilized with stone fill and vegetation reestablished with standard seed & mulch practices.

1.2.4 SOILS:

The Soil Conservation Service has mapped the soils throughout Windsor County. One of the soil type identified for this project site is Urban Land-Windsor-Agawam complex. This soil type is described as '...Moderately steep and hilly, shallow, somewhat excessively drained and excessively drained soils and rock outcrop in irregularly shaped areas on bedrock ridges... they have a surface layer of very dark grayish brown fine sandy loam 2 inches thick. The subsoil is friable, brown to dark brown gravelly fine sandy loam 10 inches thick. Hard, massive schist bedrock is at a depth of 12 inches....Permeability is moderately rapid..The potential for erosion is low. Runoff is rapid on the rock outcrop part of this complex.

Another soil type identified on this project is Ondawa fine sandy loam, this soil type is described as '...Moderately sloped with slopes ranging from 0 to 3 percent. The soil is considered to be not erodible and is occasionally flooded. It is identified as not a hydric soil. It's in hydraulic group B and its soil depth will be moderately deep to very deep/ bedrock that is either sandy/sandy-skeletal to loamy/loamy-skeletal.

NOTE: K-values generally indicate the following:
0.0-0.23 = Low erosion potential
0.24-0.36 = Moderate erosion potential
0.37 and Higher = High erosion potential

1.2.5 SENSITIVE RESOURCE AREAS:

Critical Habitats: No
Historical or Archeological Areas: No
Prime Agricultural Land: No
Threatened and Endangered Species: No
Water Resource: White River
Wetlands: No

1.3 RISK EVALUATION

This project falls under the jurisdiction of General Permit 3-9020 for stormwater runoff from construction sites for low risk projects. Any modifications to the project that increase the risk to environmental resources shall be evaluated in accordance with the permit requirements. The contractor shall be responsible for any additional permitting.

1.4 EROSION PREVENTION AND SEDIMENT CONTROL

The erosion control plans are meant as a guideline for preventing erosion and controlling sediment transport. The principles outlined in this narrative consist of applying measures throughout construction of the project in order to minimize sediment transport to the receiving waters. The measures include stabilization and structural practices, storm water controls and other pollution prevention practices. They have been proposed by the designer as a basis for protecting resources and will need to be built upon based on the specific means and methods of the contractor. Refer to the low risk site handbook and appropriate detail sheets for specific guidance and construction detailing.

All measures shall be regularly maintained and shall be checked for sediment build-up. Sediment shall be disposed of at an approved site where it will not be subject to erosion.

1.4.1 MARK SITE BOUNDARIES

Site boundaries and areas construction equipment can access shall be delineated. See EPSC Construction Conditions Sheet 1-3 for proposed locations of PDF and Barrier Fence.

Project Demarcation Fencing (denoted -PDF- on plans) shall be used to physically mark site boundaries. Because this project falls under the CGP 3-9020, barrier fence shall be used instead of project demarcation fence within 100 feet of the White River.

1.4.2 LIMIT DISTURBANCE AREA

Preventing initial soil erosion by minimizing the exposed area is much more effective than treating eroded sediment. Earth disturbance can be minimized through construction phasing by only opening up earth as necessary. This can limit the area that will be disturbed and exposed to erosion. Employ temporary construction stabilization practices in incremental stages as phases change. Because this project falls under the Construction General Permit, only the acreage listed on the permit authorization may be exposed at any given time.

Filter curtain shall be used when work is being done for the pier. Additional measures may be needed due to the phasing of the project and as directed by the engineer.

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

1.4.3 SITE ENTRANCE/EXIT STABILIZATION

Tracking of sediment onto public highways shall be minimized to reduce the potential for runoff entering receiving water. Installation shall coincide with the contractor's progress schedule.

Stabilized construction entrances shall be installed as proposed on the EPSC plan and anywhere equipment will be going from areas of exposed soils to paved surfaces and as directed by the engineer. The current proposal includes installing two such entrances at each end of the project site.

1.4.4 INSTALL SEDIMENT BARRIERS

Sediment barriers shall be utilized to intercept runoff and allow suspended sediment to settle out. They shall be installed prior to any up slope work.

Silt fence will be installed as proposed on the EPSC plan. Because this project falls under the CGP 3-9020, woven wire reinforced silt fence shall be used instead of silt fence within 100 feet upslope of the White River, as shown on plan sheets.

1.4.5 DIVERT UPLAND RUNOFF

Diversionary measures shall be used to intercept runoff from above the construction and direct it around the disturbed area so that clean water does not become muddied while traveling over exposed soils on the construction site. The project area is relatively flat, as such, the only diversionary methods being utilized are the drop inlet protection devices as shown on the construction condition EPSC sheets.

1.4.6 SLOW DOWN CHANNELIZED RUNOFF

Check structures shall be utilized to reduce the velocity, and thus the erosive potential, of concentrated flow in channels. Stone check dams will be installed as deemed necessary and as directed by the engineer. None are shown on the EPSC plan sheets. Check dams shall be constructed in accordance with Section 653. Payment will be made using the appropriate quantity of Item 613.10 Stone Fill, Type 1.

1.4.7 CONSTRUCT PERMANENT CONTROLS

Permanent stormwater treatment devices shall be installed as shown on the plans and in accordance with permit conditions. Will include the following:

Type IV stone for slope lining and channel protection
Seed and mulch applied where indicated on EPSC Final Condition as 'Disturbed areas requiring re-vegetation'
Drainage inlets and piping installed as shown on plans to control stormwater
Soil retention walls constructed as indicated on plans to retain soils

Stream bank vegetation will be introduced in the grubbing material that is to be placed over the stream bank stone fill, as indicated by the shaded areas of Stone Fill Type IV shown on the EPSC Final Condition sheets.

1.4.8 STABILIZE EXPOSED SOILS DURING CONSTRUCTION

All areas of disturbance must have temporary stabilization in place within 48 hours of disturbance or in accordance with the construction general permit 3-9020 authorization. Surface roughening of all exposed slopes, combined with temporary mulching, shall be utilized on a regular basis. Biodegradable erosion control matting or an equivalent shall be used to stabilize all slopes steeper than 1:3. The forecast of rainfall events shall trigger immediate protection of exposed soils.

1.4.9 WINTER STABILIZATION

Various measures specific to winter may be necessary should the project extend into winter (October 15 through April 15). Refer to the low risk site handbook for guidance.

1.4.10 STABILIZE SOIL AT FINAL GRADE

Exposed soil must be stabilized within 48 hours of reaching final grade. Seed, mulch, fertilizer and lime shall be used to establish permanent vegetation. For slopes steeper than 1:3, biodegradable erosion control matting or an equivalent shall be used instead of mulch.

Apply seed and mulch where indicated on EPSC Final Condition plan as 'Disturbed areas requiring re-vegetation'. Erosion control matting to be used as shown on EPSC Final Condition plan.

1.4.11 DE-WATERING ACTIVITIES

Discharge from de-watering activities that flows off of the construction site must not cause or contribute to a violation of the Vermont water quality standards.

Treatment of de-watering cofferdam(s) is anticipated. Locations for treatment have been proposed and are shown on the plans. However the specific means for treatment of discharge shall be provided by the contractor.

1.4.12 INSPECT YOUR SITE

Inspect the project site based on special provision requirements or the construction general permit authorization stipulations. Item 652.20 'Monitoring of EPSC Plan' has been included in the project quantities for the purpose of satisfying this requirement.

1.5 SEQUENCE AND STAGING

This section will be developed by the contractor using the guidance outlined in the Vtrans EPSC Plan contractor checklist.

1.5.1 CONSTRUCTION SEQUENCE

1.5.2 OFF-SITE ACTIVITIES

In addition to the contractor checklist any activities outside the construction limits shall follow Subsections 105.25-105.29 of the Standard Specifications for Construction.

1.5.3 UPDATES

PROJECT NAME:	BETHEL	PLOT DATE:	1/18/2011
PROJECT NUMBER:	BRF 022-1(14)	DRAWN BY:	G. Rokes
FILE NAME:	sf161forms.dgn	CHECKED BY:	S. Scribner
PROJECT LEADER:	M. Evans-Mongeon	SHEET	33
DESIGNED BY:	G. Colgrove	OF	148
EROSION CONTROL NARRATIVE SHEET			