

DESCRIPTION OF PROJECT

This project involves the reconstruction of a bridge over the Pacific Brook. The project is on Nutting Road, an unpaved, Class III town highway, in the Town of Montgomery. A new single lane, single span, steel girder bridge will be constructed downstream of the existing bridge while traffic is maintained on the existing bridge during construction. Following completion of the new bridge, the existing bridge and abutments will be removed. In addition, a portion of the southern approach will also be removed to accommodate the larger waterway opening of the new bridge. Total roadway approach work, including both approaches, is approximately 133 meters. The limits of construction do not approach any buildings or other structures but do encroach upon a leach field area. No 'Threatened & Endangered Species,' Wetlands, or Historic Resources have been identified in the project area. The existing bridge 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 256776.257 N, 491595.522 E.

In addition to the bridge replacement, a retaining wall constructed of gabion baskets will be constructed along the western approach to the bridge. The wall will be 34 meters long and serve to reduce the limits of impact as the roadway is raised in the approach to the new bridge.

It is anticipated that this project will last one construction season.

Total disturbed area (excluding waste, borrow and staging areas):
0.25 ha (0.62 ac.)

SITE INVENTORY & ANALYSIS

OFF SITE DRAINAGE CHARACTERISTICS:

The property surrounding the project site consists of well established vegetation, moderate to steeply sloping, mixed softwood and hardwood forest with well defined drainageways. 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 Nutting Road 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.

DRAINAGE, WATERWAYS, BODIES OF WATER:

Pacific Brook is located in the project area. There are no other waterbodies or wetlands within the project area. The Pacific Brook is classified as flashy and steep with mountainous, forested surroundings and containing a streambed of mostly ledge with some boulders, cobbles and gravel. The contributing drainage area at the bridge crossing is 8.6 sq. km.

TOPOGRAPHY, EXISTING ROADS, BUILDINGS, UTILITIES:

The topography of the project site is mountainous and wooded with Nutting road following parallel to Pacific Brook which is contained by steep river banks along each side. Development along Nutting road consists of a mix of permanent and seasonal residences, two of which exist near the project limits. Overhead utility service follows along Nutting Road with the need for relocation of the utility poles unlikely.

VEGETATION:

A mix of hardwood and softwood trees of all sizes exist along Nutting Road. The two residences near the bridge site have small areas of lawn and landscape plantings. No fields or other agricultural crops exist near the project. Impacts to vegetation will be limited to that which are effected by the construction of the new bridge along a new alignment. Some mature 300 - 500 (12" - 20") trees, both softwood and hardwood, will be removed, however, a gabion retaining wall along the western approach to the bridge will reduce these impacts along the stream bank by allowing a steeper transition from the road grade to native ground.

Following construction of the new bridge, the existing bridge and roadway approaches will be removed, the slopes stabilized with stone fill and vegetation reestablished with standard seed & mulch practices. Included are three 80 mm caliper maple trees to be planted to help restore the site.

SOILS:

The Soil Conservation Service has mapped the soils throughout Franklin County. The soil type identified for this project site is WRD (Woodstock-Rock outcrop 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 hazard of erosion is severe. Runoff is rapid on the rock outcrop part of this complex.'

The listed Soil Erodibility Coefficient (K-value) for this soil type is 0.20. Generally, K-values indicate the following: 0.0 - 0.23 = low erodibility; 0.24 - 0.36 = moderate erodibility; 0.37 and higher = higher erodibility.

SENSITIVE RESOURCE AREAS:

No 'Threatened & Endangered Species' have been identified within the project limits and there will be no adverse effect to Historic or Archaeological features. Pacific Brook is the only identified resource and being a steep, high gradient stream, there are no wetlands within the vicinity of the project.

RIPARIAN BUFFER:

A 15 meter (50') riparian conservation buffer boundary will be maintained. Earth disturbances within this buffer zone shall be minimized.

PROXIMITY TO NATURAL OR MAN-MADE WATER FEATURES:

Disturbance of soils near natural or man-made waterways consists of that which is necessary to construct two new concrete bridge abutments 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 II.

TEMPORARY EROSION PREVENTION & 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.

Seeding, mulching and biodegradable erosion control matting, or an equivalent product, will be utilized on all slopes steeper than 3H:1V that are not lined with stone fill. Areas at stations 1+125 - 1+135 RT and 1+147 - 1+160 LT will require this technique. These slopes shall be stabilized within 48 hours of reaching final grade or during intermittent phases of construction activity.

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. The forecast of rainfall events shall also trigger protection of exposed slopes.

Temporary stone check dams will be placed in ditches to reduce flow velocities and thus reduce the potential for erosion. Check dams will be placed along the ditches such that the elevation of the top of each check dam corresponds with the elevation of the toe of the preceding upslope check dam. See 'Erosion Controls Details' sheet. The check dams may be removed once the stone lining of the ditches is complete and the surrounding area stabilized.

Temporary measures to control sediment transport include:

Silt fence will be installed a distance of 1500 - 3000 (5'-10') from the toe of slopes to prevent sediment transport to down gradient areas. Each line of silt fence will be placed along the contour with ends turned slightly uphill 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 is 30 000 (100'). Silt fence shall be installed prior to any upslope earthwork.

Sand bags filled with clean, small diameter stone, or an equivalent barrier, will be utilized around the drop inlet to create a temporary ponding area for particles to settle out as water drains through the barrier. Inlet protection shall be installed as soon as there is the possibility of water flowing to the structure. The height of the barrier shall be limited such that the ponding area does not present a hazard to the traveling public. Alternative inlet control measures shall be approved by the Engineer prior to implementation.

Measures such as temporary stone check dams, silt fence, and sand bags shall be checked regularly for accumulation of sediment. Sediment build-up shall be removed when the level of sediment reaches one-half the height of the control measure. Sediments shall be disposed of in an approved area such that they 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 15 000 (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.

PERMANENT EROSION CONTROL MEASURES

Several permanent erosion control measures will be utilized:

Stone lining of roadway ditches with clean, angular Stone Fill, Type I will be used to prevent erosion during storm events. See 'Erosion Control Details' sheet for typical ditch section.

Stone lining of the stream banks with Stone Fill, Type II as specified by VTrans Hydraulics personnel is specified. This stone will protect from stream bank erosion during design storm events.

Stone Fill, Type I will be utilized at culvert outlets to dissipate water velocities and reduce erosion potential.

Grass, or other suitable ground cover will be established outside of the roadway limits where stone lining has not been specified. Specifically, stations 1+020 - 1+050 RT, the 3H on 1V slope shall be seeded and mulched promptly upon achieving final grade.

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, stormwater 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. 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. Do not modify the type, size or location of any control or practice without approval of the Engineer. 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 measures promptly once damage is discovered.

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 downslope side of perimeter control measures.

PROJECT NAME:	MONTGOMERY		
PROJECT NUMBER:	BRO 1448(20)		
FILE NAME:	/PW/94j124/sj124ecn.xls	PLOT DATE:	9/29/2005
PROJECT LEADER:	R. WHITCOMB	DRAWN BY:	J. GILMORE
DESIGNED BY:	D. BONNEAU	CHECKED BY:	D. BONNEAU
EROSION CONTROL NARRATIVE		SHEET	18 OF 50