

EROSION PREVENTION AND SEDIMENT CONTROL NARRATIVE

PROJECT DESCRIPTION

The project is located on VT Route 11 over the Middle Branch of the Williams River in Chester Vermont. The project involves the replacement of Bridge #43 and abutments with minor approach work on VT Route 11. The horizontal and vertical alignments are nearly the same as what currently exists. Traffic will be maintained on a two-way temporary bridge located upstream from the existing structure.

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

Note: Area of disturbance shall include limits of earth disturbance within the project area including any waste, staging, and borrow areas within or directly adjacent to the project limits.

The area of disturbance is approximately 1.02 acres.

SITE INVENTORY AND ANALYSIS

OFF SITE DRAINAGE CHARACTERISTICS

The property surrounding the project site consists of well established vegetation, with moderate to steep sloping ground. The area north of the bridge is primarily woodlands with steep banks beyond the northern boundary of the project. Due to the nature of the surrounding terrain, runoff water entering the project site will be primarily limited to what is conveyed along roadway side slopes. The area south of the bridge is a Rod and Gun club and has drive culvert and a well established ditch conveying water to the river. The bridge project will not impact the culvert or ditch.

DRAINAGE, WATERWAYS, BODIES OF WATER:

The Middle Branch of the Williams River flows under the existing bridge. Limits of riparian buffer typically exist 50' from the edge of the river bank.

There are no other bodies of water or wetlands within the project area. The Middle Branch of the Williams River is classified as sinuous, laterally unstable with alluvial channel boundaries. The stream bed consists of boulders, cobbles, and gravel. The contributing drainage area at the bridge crossing is 13.7 sq. mi.

TOPOGRAPHY, EXISTING ROADS, BUILDINGS, UTILITIES:

The topography of the project site is mountainous and mostly forested. The Chester Rod and Gun Club is located on the south side of VT Rte. 11. The property is primarily lawn and shrubs with a structure used as a shelter with picnic tables. There are two septic systems located on this property that will not be affected by the project. The driveway to the facility is gravel with a small parking lot. A culvert runs under the drive to a ditch that conveys water to the river. There are overhead utilities located on the north side of VT Rte. 11. The plan is to leave the utilities in place and require the contractor to work around them. There are no permanent impacts to the utilities.

VEGETATION:

Other than the Rod and Gun club, the area surrounding the project is fairly wooded. Trees will be cut in the vicinity of the temporary bridge. However the majority of the trees located along the south side of the road will remain in place. The Rod and Gun club is mostly grass with a gravel parking area. Impact to vegetation will be limited to the disturbance caused by construction of new abutments and the construction of the temporary bridge. The slopes are currently stabilized with stone fill and vegetation.

SOILS:

According to a soil survey completed by the United States Department of Agricultural Soil Conservation there is only one type of soil at this location. The soil is classified as Podunk Fine Sandy Loam, with a K-value equal to 0.24, slopes of 0-3% and part of hydrologic group B. Due to the low slope and stabilized forest in the area, the soil is classified as not highly erodable.

Generally, K-values indicate the following: 0.00 – 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. The Middle Branch of the Williams River is the only identified resource and there are no other wetlands in the project area.

PROXIMITY TO NATURAL OR MAN-MADE FEATURES:

Disturbance of soils near natural or man-made waterways consists of the work necessary to construct two new concrete bridge abutments and applicable roadway approaches as well as the removal of the existing crossing. Disturbed stream banks will be stabilized with Stone Fill Type III, underlaid with geotextile fabric.

EROSION PREVENTION & SEDIMENT CONTROL

Refer to the low risk site handbook and appropriate detail sheets for each practice required on the project to include but not limited to:

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

Limit Disturbance Area by phasing earth disturbing activities through out the duration of the project.

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 12'X50' (3700X15, 000). All surface water flowing to or diverted toward a construction entrance shall be piped under the stone. Pipes shall be appropriately sized for the contributing area, however, no pipe smaller than 6" (150) diameter shall be used. See EPSC Detail Sheet for materials and construction method to be utilized when constructing a stabilized entrance.

Install silt fence per the Erosion Control Detail Sheet. Silt fence shall be installed prior to any upslope earthwork.

Divert upland runoff using temporary swales as required.

Reduce flow velocities in temporary or permanent swales and ditches using stone check dams. Check dams will be installed per Erosion Control Detail Sheet. The check dams may be removed once the stone lining of the ditch is complete and the surrounding area stabilized.

Permanent Erosion Control measures include:

Stone lining of the stream banks with Stone Fill, Type III as specified by VTrans Hydraulics personnel. This stone will protect the stream bank from erosion during design storm events. Grass or other suitable ground cover will be established outside of the roadway limits where stone lining has not been specified.

Stabilize exposed soils (temporary and final grade) by Seeding, mulching, and biodegradable erosion control matting or an equivalent product will be utilized on all slopes greater than 1:3 that are not lined with stone fill. Geotextile fabric is also required under all stone fill. These slopes shall be stabilized within 48 hours of reaching final grade or during intermittent phases of construction activity. Seeding and mulching shall also be applied immediately to all lawns disturbed beyond the work area delineated on these plans. Tracking of all exposed slopes, combined with temporary mulching, will also be utilized on a regular basis. Any slopes to be exposed for 48 hours prior to final grading shall be tracked and mulched. The forecast of rainfall events shall also trigger protection of exposed slopes. If rainfall is predicted the Contractor must stabilize the site accordingly prior to the forecasted event.

Winter Stabilization as required per Low Risk Handbook.

Temporary sediment settling basins may or may not be utilized on this project. If a sediment settling basin is to be used for dewatering a cofferdam, it should be sized based upon the following criteria: (See Sediment Settling Basin Sizing Criteria.)

Special consideration must be given to the first pump-down of the cofferdams. This will contain the greatest volume of water with a high sediment load. The contractor may provide additional sediment traps within the Right – Of – Way if required or control the rate of draw-down. Additional sediment traps must be approved by the resident engineer.

Site Inspection shall be based on Permit authorization requirements.

GENERAL EROSION & SEDIMENT CONTROL GUIDELINES

The Erosion Control Plans are meant as a guideline for preventing erosion and controlling sediment transportation. The work outlined in this narrative consists of applying measures throughout the life of the project to control erosion and minimize the sediment into receiving waters. The measures include stabilization and structural practices, storm water controls and other pollution prevention controls. This document serves as a guide for the Contractor to make an Erosion Prevention and Sediment Control Plan which shall be submitted to the Construction Environmental Engineer for approval.

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 be the engineer. See section 105.23 of the Vermont AOT Standard Specifications for Construction, dated 2006.

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. All changes shall be approved by the Construction Environmental Engineer and also 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 shall be taken as needed.

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. Also, attempt to time all grading to minimize soil exposure. Temporary vegetation shall be established as noted in the plans and approved by the Construction Environmental Engineer. 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. These perimeter controls shall be maintained until the site is permanently stabilized to the satisfaction of the Engineer and on-site coordinator.

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.

SEDIMENT SETTLING BASIN SIZING CRITERIA

PUMP FLOW RATE		REQUIRED SURFACE AREA		LENGTH WIDTH = 2:1			
Q (gpm)	Q (m ³ /s)	(ft ²)	(m ²)	L (ft)	W (ft)	L (m)	W (m)
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

PROJECT: CHESTER	PROJECT NO.: BRF 016- 1 (25)
DESIGN FILE NAME: 88b194\structures\88b194excel.dgn	PLOT DATE: 16-MAR-2011
IPARM FILE NAME: s88b194ecner.i	DRAWN BY: M. FESSEL
DESIGNED BY: E. L. RUSTAY	CHECKED BY: R. S. YOUNG
SQUAD LEADER: C. P. WILLIAMS	EROSION CONTROL NARRATIVE
SHEET: 35 OF 50	