

EROSION CONTROL NARRATIVE

PROJECT DESCRIPTION

This project is located on VT Route 12 (Main St) in Randolph beginning at a point approximately 420 feet north of the intersection of School St and extending northerly along VT Route 12 for 400 feet. The purpose of the project is to replace Bridge 42 on VT Route 12 on same alignment over Prince St and the Third Branch of the White River with a new two-span curved steel girder and concrete deck bridge. A two-way temporary bridge will be utilized to carry traffic during construction.

This project includes the removal of the old bridge and railing, removal and replacement of the concrete sidewalk, construction of three retaining walls, grading, drainage, sub-base, pavement, installation of guardrails, landscaping, signage, striping and necessary approach work on Main St, Park St and Prince St.

The total disturbed area, excluding waste, borrow and staging areas, is 2.13 acres.

SITE INVENTORY AND ANALYSIS

OFF SITE DRAINAGE CHARACTERISTICS

The area surrounding this project is classified, in the context of Vermont, as urban and residential. The vegetation consists of individual trees and grass within the small residential lawns. The existing traveled ways and parking areas utilize drop inlets and subsurface pipes to convey runoff to the Third Branch of the White River. The surrounding area is classified as hilly but the project area is fairly flat except for the steep manmade fill slopes near the river.

DRAINAGE, WATERWAYS, BODIES OF WATER

The Third Branch of the White River flows under the existing bridge. The Third Branch of the White River is characterized as a straight, semi-alluvial, not braided, and not anabranching, with a drainage area of 62.3 square miles at the bridge. There are several drop inlets in the project area that carry runoff from the road to the river, but there are no known wetlands, ephemeral streams or ponds within the project site.

TOPOGRAPHY, EXISTING ROADS, BUILDINGS, UTILITIES

The terrain is hilly surrounding the project site. Main St, Park St, Central St and Prince St are within the project area; all are paved roads. A gas station and convenience store and realtor business are located on the north side of the project and they contain paved parking areas. There are numerous commercial and residential buildings, with drives, along Main St on the south end of the project. The utilities within the project consist of overhead lines owned by Vermont Public Service and Verizon, which will be relocated by their respective owners. The underground sewer and waterlines within the project are owned by the town. The waterline will be relocated to the new bridge by the town. The sewerline will not be affected.

VEGETATION

The vegetation on the project site is primarily limited to residential lawns and landscaped town and commercial property. There are scattered trees consisting of some Ash, Box Elder, Cherry, Elm, Maple and Locust. There are also some hedges, shrubs and grassy lawns.

The realignment of Prince St will necessitate the removal of some grass, shrubs, and trees. Several trees at the beginning of the Prince St. alignment are marked to be saved. By realigning Prince St., a fair sized stormwater treatment basin can be located within the new alignment. Various grasses will be planted within this region.

SOILS

The soils in the project area consist mainly of different slopes of Merrimac. There is a small amount of Winooski soil in the project and the project is bordered by some Hadley soils.

The Merrimac series consists of a fine sandy loam on level to steep, deep, somewhat excessively drained soils on terraces. These soils formed in stratified outwash and sand and gravel derived from granite, schist, quartzite, gneiss and phyllite. Slopes for the classifications on this project range from 0 to 50 percent. Permeability is rapid. The erosion K factor ranges from 0.17 to 0.24.

The Winooski series consists of level, deep, moderately well drained soils on flood plains of major streams and their tributaries. These soils formed in very fine sandy loam and silt loam alluvium. Permeability is moderate. The hazard of water erosion is slight.

The Hadley series consists of deep, well drained level soils on the flood plains of the major streams and their tributaries. These soils formed in very fine sandy loam and silt loam alluvium. Permeability is moderate. The erosion K factor is 0.49. (USDA Soil Conservation Service, 1967)

SENSITIVE RESOURCE AREAS

No 'Threatened & Endangered Species', prime agricultural land, wetlands, or critical habitats have been identified within the project area. The only sensitive area within the project site is the Third Branch of the White River.

PROXIMITY TO NATURAL OR MAN-MADE WATER FEATURES

The removal of the existing structure, construction and removal of the temporary bridge, and construction of the new bridge will take place on the banks and over the Third Branch of the White River.

TEMPORARY EROSION PREVENTION AND SEDIMENT CONTROL

CHECK DAM

A check dam is a small dam made of concrete, masonry, rock, metal, wood, staked hay bales, sandbags, or other erosion-resistant materials placed in small erosion control waterways or around storm drain inlets. The purpose of a check dam is to reduce or prevent erosion and sedimentation by reducing velocities, by promoting deposition of sediment, and by stabilizing channel grades. Check dams can be damaged by heavy runoff or high water velocities, so be sure to inspect them often and repair or replace them when necessary.

PROJECT DEMARCATION FENCE

Install PDF along the perimeters of areas of disturbed soils. This fencing provides a physical reminder of the limit of allowable soil and vegetation disturbance.

INLET PROTECTION

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 and on-site coordinator prior to implementation.

SILT FENCE

A silt fence is a temporary sediment barrier installed at the toe of a slope, or adjacent waterway. The purpose of the silt fence is to intercept and detain small amounts of sediment from unprotected areas of limited extent, and to reduce water velocity on the construction site. A silt fence is constructed of synthetic sedimentation control fabric fastened to a support structure such as a lightweight stock fence. The fence is built parallel to contours. The lower edge of the filter fabric must be buried approximately 6 inches below ground surface to prevent underflow, and the ends of the fence should be curved uphill to prevent flow around the ends.

SEDIMENT BASIN

A suggested sediment basin location has been shown on the Erosion Control Plans. However, the Contractor will ultimately select the final location of the basin(s).

EROSION MATTING

Seeding, mulching and biodegradable erosion control matting, or an equivalent product, will be utilized on all slopes steeper than 3:1 that are not lined with stone fill. The purpose of Erosion Matting is to help bind soil particles together so that they can better resist the shear stresses built up by water flowing down the slope. These slopes shall be stabilized within 48 hours of reaching final grade or during intermittent phases of construction activity.

SEEDING AND MULCHING

Hay mulch should be applied to exposed soil at the end of each work day. This will require careful planning of the phasing of earth moving. Seed and hay mulch should be applied as soon as no more soil disturbance is expected to occur, or if the area is to be without construction activity for a period of 14 days. Seed and hay mulch should be applied to topsoil stockpiles as well as to areas of disturbed soil. All exposed areas shall be appropriately stabilized prior to a significant rain event.

SURFACE ROUGHENING

If surfaces of slopes are left rough, this can help to reduce water velocity and increase infiltration rates. Rough slopes hold water, seed, and mulch better than smooth slopes. Slope surfaces can be roughened by running wheeled construction equipment across the slope or driving tracked equipment up and down the slope. The grooves created by the construction equipment should run across the slope horizontally and not up and down the slope. Slopes can also be scarified to produce the desired surface roughness. Surface roughening should occur after hay mulch has been applied.

STABILIZED CONSTRUCTION ENTRANCE

A stabilized pad of crushed stone located at any point where traffic will be entering or leaving a construction site to or from a public right-of-way, street, sidewalk or parking area. The purpose of a stabilized construction entrance is to reduce or eliminate the tracking of sediment onto public rights-of-way.

PERMANENT EROSION CONTROL MEASURES

STONE FILL

Stone fill, Type III, will be placed along Prince St at STA 202+92 - 204.25 LT and surrounding the Pier at STA 16+36. This stone fill will help prevent scour from undermining Prince St and the pier, respectively.

Stone fill, Type III, will be placed front of and on the sides of Abutment #2 at STA 17+38 to help prevent runoff from eroding the steep banks leading down to the river from the road surface.

Stone fill, Types I & II are being used to line a water retention structure on the inside of the Prince Street curve. This permanent structure will collect stormwater from an off-project closed drainage system. The closed system collects stormwater from the village area.

STONE LINED CHANNELS

Stone lined channels will be constructed down the embankment at STA 202+50 LT and 204+00 LT on Prince Street to convey surface runoff safely down the slope without causing erosion.

SEED AND MULCH

Seeding and mulching is one of the most effective means of controlling erosion. Therefore, all exposed surfaces outside of the roadway limits, which are not specified to be covered by stones or some other suitable cover, will be seeded and mulched. Specifically, make sure the traffic island at STA 18+80 - 19+07 LT and the stormwater treatment basin at STA 200+25 - 203+00 RT are appropriately covered.

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PROJECT NAME:	RANDOLPH
PROJECT NUMBER:	BRF 0241 (29)
FILE NAME: s+r5/88j096/s88j096xc1.dgn	PLOT DATE: 29-AUG-2006
PROJECT LEADER: W. SYMONDS	DRAWN BY: G. SHANGRAW
DESIGNED BY: T. SUMNER	CHECKED BY: T. FILLBACH
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