

EROSION CONTROL NARRATIVE

1.1 PROJECT DESCRIPTION

THE PROJECT IS LOCATED IN EAST MONTPELIER ON VT RT. 14 OVER THE KINGSBURY BRANCH. THE PROJECT INCLUDES THE REPLACEMENT OF BRIDGE #71, THE ABUTMENTS AND SOME MINOR APPROACH WORK. THE HORIZONTAL ALIGNMENT IS ON THE EXISTING CENTERLINE OF RT. 14 AND THE VERTICAL ALIGNMENT IS NEARLY THE SAME AS EXISTING CONDITIONS.

THE BRIDGE WILL BE CLOSED TO TRAFFIC DURING CONSTRUCTION AND ALL TRAFFIC WILL BE DETOURED AROUND THE SITE AS SHOWN ON THE PLANS.

NOTE: AREA OF DISTURBANCE INCLUDES LIMITS OF EARTH DISTURBANCE WITHIN THE PROJECT AREA, AS WELL AS WASTE, BORROW, AND STAGING AREAS WITHIN OR DIRECTLY ADJACENT TO THE PROJECT LIMITS AS SHOWN ON THE ATTACHED EPSC PLAN.

TOTAL AREA OF EARTH DISTURBANCE IS APPROXIMATELY 0.223 HA (0.55 ACRES).

IT IS ANTICIPATED THAT THIS PROJECT WILL LAST ONE CONSTRUCTION SEASON.

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY

THE TOPOGRAPHY OF THE PROJECT SITE IS ROLLING HILLS WITH GRASS AND BUILDINGS NEAR THE SITE. THERE ARE TWO BUILDINGS AT THE NORTH END OF THE BRIDGE, AN OLD FOUNDATION TO THE WEST OF THE BRIDGE, AN OLD COAL STORAGE BUILDING AT THE SOUTH END OF THE BRIDGE WITH A NATURAL COVERED ROOF (GRASS) THAT CANNOT BE DRIVEN ON, AND A 1600MM DIAMETER PENSTOCK NEAR THE SOUTHERN ABUTMENT THAT CANNOT BE DISTURBED.

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

KINGSBURY BRANCH IS LOCATED IN THE PROJECT AREA. THERE ARE NO OTHER WATER BODIES OR WETLANDS WITHIN THE PROJECT AREA. THE KINGSBURY BRANCH IS CLASSIFIED AS ROLLING TO MOUNTAINOUS, PERENNIAL, AND STRAIGHT AT SITE BUT SINUOUS UPSTREAM AND DOWNSTREAM CONTAINING A STREAMBED OF MOSTLY LEDGE. THE CONTRIBUTING DRAINAGE AREA AT THE BRIDGE CROSSING IS 131.1 SQ. KM. THERE IS ALSO A DAM LOCATED UPSTREAM FROM THE BRIDGE. THERE IS AN UNDERGROUND WATER PIPE AT THE NORTHERN END OF THE BRIDGE, AND A DROP INLET WITH A PIPE OUTLET THROUGH THE EXISTING WINGWALL. RUNOFF WATER ENTERING THE PROJECT SITE WILL BE PRIMARILY LIMITED TO WHAT IS CONVEYED ALONG ROADWAY DITCHES AND A BOX CULVERT LOCATED BETWEEN STATIONS 1+070 AND 1+105 LT.

1.2.3 VEGETATION

THERE ARE A FEW TREES ON SITE RANGING FROM SAPLINGS TO ONE LARGE TREE. THERE ARE TWO RESIDENCES NEAR THE BRIDGE SITE; EACH HAS A SMALL PARKING AREA AND ONE HAS A SMALL GRASSY AREA. IMPACT TO VEGETATION WILL BE LIMITED TO THE DISTURBANCE CAUSED BY CONSTRUCTION OF NEW ABUTMENTS. MOST IF NOT ALL OF THE TREES WILL BE REMOVED. THE SLOPES ARE STABILIZED WITH STONE FILL AND VEGETATION. THE SLOPE ON THE NORTHEAST SIDE OF THE BRIDGE IS APPROACHING 1:1 AND IS UNSTABLE. THE NEW WINGWALL WILL BE LONGER AND THE SLOPE WILL BE 1:1.5 AND STABILIZED WITH STONE.

1.2.4 SOILS

ACCORDING TO A SOIL SURVEY COMPLETED BY THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE THERE IS ONLY ONE TYPE OF SOIL AT THIS LOCATION. THE SOIL IS CLASSIFIED AS LAMOINE SILTY LOAM, WITH A K-VALUE EQUAL TO 0.32, SLOPES OF 3-8% AND PART OF HYDROLOGIC GROUP D. DUE TO THE STEEP SLOPES FOUND ON SITE THE SOIL HAS THE POTENTIAL OF BECOMING HIGHLY ERODIBLE.

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: THE PROJECT LIES WITHIN THE NORTH MONTPELIER HISTORICAL DISTRICT. NO SIGNIFICANT ARCHEOLOGICAL RESOURCES ARE TO BE IMPACTED.
PRIME AGRICULTURAL LAND: NO
THREATENED AND ENDANGERED SPECIES: NO
WATER RESOURCE: KINGSBURY BRANCH
WETLANDS: NO

1.3 RISK EVALUATION

THIS PROJECT DOES NOT FALL UNDER THE JURISDICTION OF CONSTRUCTION GENERAL PERMIT 3-9020 BASED ON THE PROJECT IMPACT AREA. SHOULD CHANGES PRIOR TO OR DURING CONSTRUCTION RESULT IN ONE OR MORE ACRES OF EARTH DISTURBANCE OR SHOULD THE PROJECT BECOME PART OF A LARGER PLAN OF DEVELOPMENT, THEN THE CONTRACTOR WILL BE RESPONSIBLE FOR 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 CONCEPTS 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.

PROJECT DEMARCATION FENCING (PDF) SHALL 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 EFFECTS.

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. FOR PROJECTS WHICH FALL UNDER THE CONSTRUCTION GENERAL PERMIT, ONLY THE ACREAGE LISTED ON THE PERMIT AUTHORIZATION MAY BE EXPOSED AT ANY GIVEN TIME.

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 WATERS. INSTALLATION SHALL COINCIDE WITH THE CONTRACTOR'S PROGRESS SCHEDULE.

STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED ANYWHERE EQUIPMENT WILL BE GOING FROM AREAS OF EXPOSED SOILS TO PAVED SURFACES. LOCATIONS OF STABILIZED CONSTRUCTION ENTRANCES SHALL BE DETERMINED BY THE CONTRACTOR, SUBJECT TO APPROVAL BY THE ENVIRONMENTAL CONSTRUCTION ENGINEER.

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 AND EPSC DETAIL SHEET.

FILTER CURTAIN WILL BE INSTALLED AND MAINTAINED AS PROPOSED ON THE EPSC PLAN AND EPSC DETAIL SHEET.

INLET PROTECTION SHALL BE INSTALLED AS SHOWN ON THE EPSC PLAN AND EPSC DETAIL SHEET. THE HEIGHT OF THE BARRIER SHALL BE LIMITED SUCH THAT THE PONDING AREA DOES NOT PRESENT A HAZARD TO THE TRAVELING PUBLIC.

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. IT IS ANTICIPATED THAT DIVERSION MEASURES WILL NOT BE NECESSARY.

1.4.6 SLOW DOWN CHANNELIZED RUNOFF

CHECK STRUCTURES SHALL BE UTILIZED TO REDUCE THE VELOCITY, AND THUS THE EROSION POTENTIAL, OF CONCENTRATED FLOW IN CHANNELS.

STONE CHECK DAMS SHALL BE INSTALLED AND MAINTAINED AS PROPOSED ON THE EPSC PLAN, AND EPSC DETAIL SHEET, AND WHEREVER THERE IS A CONCENTRATED FLOW OF STORMWATER ON THE PROJECT SITE.

1.4.7 CONSTRUCT PERMANENT CONTROLS

PERMANENT STORMWATER TREATMENT DEVICES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND IN ACCORDANCE WITH PERMIT CONDITIONS.

THE CHANNEL SHALL BE ARMORED WITH STONE FILL TYPE IV AS SHOWN ON THE PLANS. AREAS INSIDE THE WINGWALLS SHALL BE ARMORED WITH STONE FILL TYPE I AS SHOWN ON THE PLANS.

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.

1.4.11 DE-WATERING ACTIVITIES

DISCHARGE FROM DEWATERING ACTIVITIES THAT FLOWS OFF OF THE CONSTRUCTION SITE MUST NOT CAUSE OR CONTRIBUTE TO A VIOLATION OF THE VERMONT WATER QUALITY STANDARDS.

WATER FROM DEWATERING ACTIVITIES THAT FLOWS OFF OF THE CONSTRUCTION SITE MUST BE CLEAR. WATER MUST NOT BE PUMPED INTO STORM SEWERS, LAKES, OR WETLANDS UNLESS THE WATER IS CLEAR. FILTER BAGS SHALL BE INSTALLED AS PROPOSED ON THE EPSC PLAN OR IN OTHER SUITABLE LOCATIONS BY THE CONTRACTOR, SUBJECT TO APPROVAL BY THE ENVIRONMENTAL CONSTRUCTION ENGINEER.

1.4.12 INSPECT YOUR SITE

INSPECT THE PROJECT SITE BASED ON SPECIAL PROVISION REQUIREMENTS OR CONSTRUCTION GENERAL PERMIT AUTHORIZATION STIPULATIONS.

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

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