

EROSION PREVENTION AND SEDIMENT CONTROL NARRATIVE

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1.1 PROJECT DESCRIPTION

THE SOUTH BURLINGTON INTERSTATE 89 CULVERT REHABILITATION PROJECT INCLUDES WORK TO BE PERFORMED AT EIGHT ISOLATED LOCATIONS. AT MILE MARKERS 87.300, 88.736, 88.787, 88.838, 88.867, 88.877, 88.880 AND 88.896 ON INTERSTATE 89 IN THE TOWN OF SOUTH BURLINGTON, COUNTY OF CHITTENDEN.

THE PROJECT WILL CONSIST OF ONE INSTALLATION OF A CURED-IN-PLACE-PIPE LINER, INSTALLATION OF CONCRETE HEADWALLS, REPLACEMENT OF CULVERTS USING THE METHOD OF PIPE RAMMING, STONE LINING AN UNNAMED TRIBUTARY AND THE CONSTRUCTION OF ACCESS ROADS. RESULTING ABANDONED CULVERTS AND DROP INLETS SHALL BE CAPPED AND FILLED IN PLACE USING CONTROLLED DENSITY FILL. TOP SOIL, SEED, MULCH OR STONE-FILL SHALL BE APPLIED TO ALL DISTURBED AREAS. TYPE II AND TYPE III STONE FILL WILL BE PLACED AT EACH CULVERT INLET AND OUTLET RESPECTIVELY.

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 AT I-89 EXIT 13 IS APPROXIMATELY 0.09 ACRES, AND APPROXIMATELY 1.04 ACRES AT I-89 EXIT 14. TOTAL AREA OF DISTURBANCE IS APPROXIMATELY 1.13 ACRES, EXCLUDING WASTE BORROW AND STAGING AREAS NOT WITHIN OR ADJACENT TO THE PROJECT LIMITS.

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

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY

THE ROADWAY EMBANKMENT PRIMARILY INCLUDES 1:2 SIDE SLOPES. THE CULVERT INLETS AND OUTLETS ARE GENERALLY EXPOSED TO EITHER MODERATE SIDE SLOPES OR SWALES. THE MAJORITY OF THE PROJECT IS LOCATED IN A GRASSED AREA. WOODED AREAS ARE LOCATED EAST OF THE NORTHBOUND EXIT 14 ON-RAMP AND AT THE CULVERT INLET AT MILE MARKER 87.300. PAVED AREAS INCLUDE THE EXISTING INTERSTATE AND ON/OFF RAMPS.

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

THE CULVERT LOCATED AT MILE MARKER 87.300 CARRIES WATER FROM A SMALL UNNAMED STREAM BENEATH THE NORTHBOUND AND SOUTHBOUND LANES. THE STREAM COLLECTS RUNOFF FROM AREAS NORTH OF DORSET STREET AND WEST OF THE INTERSTATE AND DISCHARGES INTO POTASH BROOK, A STORMWATER IMPAIRED WATERWAY.

THE CULVERTS AND DROP INLETS LOCATED BETWEEN MILE MARKERS 88.736 AND 88.896 CONVEY WATER TO A SMALL TRIBUTARY THAT IS LOCATED ON THE EAST SIDE OF THE INTERSTATE AND RUNS PARALLEL TO THE EXIT 14 NORTHBOUND ON RAMP. THIS TRIBUTARY WILL BE WIDENED AND LINED WITH TYPE II STONE DUE TO EXCESSIVE EROSION AND SCOURING. SMALL AREAS OF CLASS III WETLANDS ARE LOCATED WITHIN THE PROJECT LIMITS. ONSITE RUN-OFF WILL CONSIST OF RUNOFF PRODUCED BY TEMPORARY ACCESS ROADS AND STAGING AREAS, AND WILL BE DISCHARGED INTO AN UNNAMED TRIBUTARY OF CENTENIAL BROOK, A STORMWATER IMPAIRED WATERWAY.

1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREAS CONSIST OF HARDWOOD TREES, SOFTWOOD TREES, AND UNDERGROWTH. VEGETATION IMPACTS RESULTING FROM THIS PROJECT INCLUDE LOCALIZED CLEARING OF VEGETATION ON EMBANKMENT SIDE-SLOPES BETWEEN THE EXISTING EDGES OF PAVEMENT AND TOES OF SLOPE; ALONG WITH THE CLEARING OF VEGETATION TO ACCOMMODATE THE CONSTRUCTION OF PROPOSED ACCESS ROADS, AND THE CLEARING OF A 0.2 ACRE AREA WITHIN A DRAINAGE SWALE. DISTURBED VEGETATION WILL BE REPLACED WITH USING STANDARD TOPSOIL SEED AND MULCH PRACTICES.

1.2.4 SOILS

ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF NATURAL RESOURCES CONSERVATION SERVICE FOR THE COUNTY OF CHITTENDEN, VERMONT. THE CONSTRUCTION ACTIVITIES BETWEEN MILE MARKERS 87.300 AND 88.896 ARE IN THE EXISTING STATE R.O.W. THE SOILS AT THESE LOCATIONS ARE FILL MATERIAL PLACED DURING THE CONSTRUCTION OF THE INTERSTATE AND THERE IS NO LISTED CORRESPONDING K-FACTORS. SOIL LOCATED AT MILE MARKER 87.300 IS LIMERICK SILT LOAM WITH A K-FACTOR OF 0.49.

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: UNNAMED STREAMS TO POTASH AND CENTENIAL BROOKS
WETLANDS: SMALL AREAS OF CLASS III WETLANDS

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 WILL 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.

PREVENTING INITIAL SOIL EROSION IS MUCH MORE EFFECTIVE THAN TREATING ERODED SEDIMENT. 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.

SOILS WILL BE REMOVED FROM RAMMED STEEL PIPES USING EITHER WATER, AUGURING, JET-CUTTING, OR COMPRESSED AIR. ALL SOILS EXCAVATED FROM WITHIN RAMMED PIPES SHALL BE COLLECTED AND DISPOSED OF APPROPRIATELY.

(REFER TO THE LOW RISK SITE HANDBOOK AND APPROPRIATE DETAIL SHEETS FOR EACH PRACTICE REQUIRED ON THE PROJECT TO INCLUDE BUT NOT LIMITED TO THE FOLLOWING.) THIS BOOK CAN BE DOWNLOADED AT THE FOLLOWING WEB ADDRESS:
[HTTP://WWW.VTWATERQUALITY.ORG/STORMWATER/HTM/SW_CGP.HTM](http://www.vtwaterquality.org/stormwater/htm/sw_cgp.htm)

1.4.1 MARK SITE BOUNDARIES

SITE BOUNDARIES AND AREAS CONSTRUCTION EQUIPMENT CAN ACCESS SHALL BE DELINEATED.

PROJECT DEMARCATION FENCING, DENOTED -PDF- ON THE PLANS IS 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.

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.

EMPLOY TEMPORARY STABILIZATION PRACTICES IN INCREMENTAL STAGES (PHASING) AS CONSTRUCTION PROCEEDS. ADDITIONAL MEASURES MAY BE NEEDED DUE TO THE PHASING OF THE PROJECT AND AS DIRECTED BY THE ENGINEER.

1.4.3 STABILIZE CONSTRUCTION EXIT

TRACKING OF SEDIMENT ONTO PUBLIC HIGHWAYS SHALL BE MINIMIZED TO REDUCE THE POTENTIAL FOR RUNOFF ENTERING RECEIVING WATERS. INSTALLATION SHALL COINCIDE WITH THE CONTRACTORS PROGRESS SCHEDULE.

STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AS PROPOSED ON THE EPSC PLAN AND ANYWHERE VEHICLES WILL BE TRAVELING FROM EXPOSED SOILS TO PAVED SURFACES.

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 SHALL BE INSTALLED PRIOR TO ANY UP SLOPE WORK AS SHOWN ON THE PLANS OR AS NECESSARY. INLET PROTECTION SHALL BE INSTALLED AT CULVERTS WHERE FLOW IS TO BE MAINTAINED.

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.

NO DIVERSION OF UPLAND RUNOFF IS ANTICIPATED.

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.

DURING CONSTRUCTION FLOW WILL BE MAINTAINED USING BYPASS PUMPING OR APPROVED ALTERNATIVE.

1.4.7 CONSTRUCT PERMANENT CONTROLS

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

TYPE II AND TYPE III STONE FILL
SEED AND MULCH
DRAINAGE INLETS AND PIPING

1.4.8 STABILIZE EXPOSED SOILS

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.

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.

NECESSARY DE-WATERING OF PIPES TO BE REPAIRED WILL BE ACCOMPLISHED USING BYPASS PUMPING.

1.4.12 INSPECT YOUR SITE

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

ALL FLOWS MUST BE MAINTAINED BY EITHER BYPASS PUMPING OR THE USE OF A PIPE.

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 SPECIFICATION 105.25- 105.29 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

1.5.3 UPDATES

PROJECT NAME: SOUTH BURLINGTON

PROJECT NUMBER: IM SCRP(3)

FILE NAME: d07a104erod.dgn

PLOT DATE: 13-JAN-2010

PROJECT LEADER: K. UPMAL

DRAWN BY: B. KIPP

DESIGNED BY: B. KIPP/B. McADAMS

CHECKED BY: B. KIPP

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