

# EROSION CONTROL NARRATIVE

## PROJECT DESCRIPTION

THE PROPOSED SAFETY IMPROVEMENTS FOR THE INTERSTATE 89 SOUTHBOUND EXIT 14W RAMP "C" PROJECT WILL INCLUDE THE WIDENING OF THE EXISTING RAMP "C"; WIDENING OF US ROUTE 2 BETWEEN RAMPS "C" AND "D" AND; MINOR ALIGNMENT MODIFICATION TO RAMP "D" TO REDUCE TRAFFIC CONGESTION ON RAMP "C" DURING PEAK TRAFFIC CONDITIONS. AS PART OF THE PROPOSED PROJECT, MODIFICATIONS TO OR REPLACEMENT OF EXISTING DRAIN INLETS AND OUTFALLS ARE PROPOSED TO FACILITATE STORMWATER MITIGATION IN THE AREA BETWEEN RAMPS "C" AND "D".

THE TOTAL PROJECT AREA IS 4.70 ACRES. THE DISTURBED AREA WITHIN THE PROJECT AREA IS 3.89 ACRES AND INCLUDES THE EXPANDED PORTIONS OF US ROUTE 2 AND RAMP "C", AREAS THAT WILL HAVE FULL DEPTH RECONSTRUCTION AND EARTHWORK FOR SLOPE GRADING. COLD PLANNING AND OVERLAY OF APPROACHES AND AREAS OF US ROUTE 2 WITHIN THE PROJECT LIMITS TOTALS 0.81 ACRES. IT IS ANTICIPATED THAT CONSTRUCTION STAGING CAN BE ACCOMPLISHED WITHIN THE EXISTING LIMITS OF WORK. ALL MATERIAL HANDLING AND DISPOSAL WORK SHALL BE IN ACCORDANCE WITH SECTION 105 OF THE STANDARD SPECIFICATIONS. WHEREVER POSSIBLE, EXCAVATED SOIL MATERIAL SHALL BE RE-USED WHEN APPROVED BY AND AT THE DISCRETION OF THE RESIDENT ENGINEER TO FORM EMBANKMENTS AND AS OTHER BORROW MATERIALS. IT IS ANTICIPATED THAT THERE WILL BE APPROXIMATELY 13,416 CUBIC YARDS (CY) OF SURPLUS SOIL WASTE AND THIS MATERIAL SHALL BE DISPOSED OF LEGALLY AND IN ACCORDANCE WITH SECTION 105 OF THE STANDARD SPECIFICATIONS SUCH THAT THE AREA DISTURBED BY THE SOILS WASTE (1.1 ACRES) PLUS THE EARTH DISTURBANCE FROM PROJECT ACTIVITIES (3.89 ACRES) DOES NOT EXCEED 5.0 ACRES. THE REQUIRED DEPTH OF THE SOIL WASTE DISPOSAL SUCH THAT IT WOULD NOT EXCEED 1.1 ACRES OF DISTURBANCE IS 7'-6" DEEP.

EROSION PREVENTION AND SEDIMENT CONTROL PRACTICES AND STORMWATER MANAGEMENT TECHNIQUES WERE INCORPORATED INTO THE DESIGN OF THIS PROJECT TO MINIMIZE IMPACTS TO THE CENTENNIAL BROOK WATERSHED AND THE SURROUNDING RESOURCE AREAS. THE "DESIGNER EROSION PREVENTION AND SEDIMENT CONTROL CHECKLIST" AND THE DRAFT "VERMONT HANDBOOK FOR SOIL EROSION AND SEDIMENT CONTROL ON CONSTRUCTION SITES" WERE USED TO DEVELOP THE EROSION PREVENTION AND SEDIMENT CONTROL PLANS. ALTHOUGH IT WAS DETERMINED THAT THIS PROJECT IS EXEMPT FROM REQUIRING AN INDIVIDUAL STORMWATER PERMIT, STORMWATER MITIGATION WAS PROPOSED IN COMPLIANCE WITH THE "VERMONT STORMWATER MANAGEMENT MANUALS". THE PROJECT WILL MEET APPLICABLE STORMWATER TREATMENT STANDARDS BY IMPLEMENTING STORMWATER TREATMENT PRACTICES (STP'S) SIZED IN ACCORDANCE WITH THE "VERMONT STORMWATER MANAGEMENT MANUALS".

## SITE INVENTORY AND ANALYSIS

A SITE INVENTORY AND ANALYSIS WAS PERFORMED TO DETERMINE EXISTING SITE CHARACTERISTICS RELEVANT TO EACH AND THE FINDINGS ARE DISCUSSED BELOW. THE PROPOSED PROJECT SITE AREA IS APPROXIMATELY 4.7 ACRES AND IS BORDERED BY INTERSTATE 89 TO THE EAST AND NORTH, THE SHERATON HOTEL PROPERTY TO THE WEST AND US ROUTE 2 TO THE SOUTH, A SITE INVENTORY AND ANALYSIS WAS PERFORMED ON THE PROJECT SITE AREA TO IDENTIFY THE KEY SITE CHARACTERISTICS RELEVANT TO THE EROSION PREVENTION AND SEDIMENT CONTROL PLAN. THE FOLLOWING SITE CHARACTERISTICS ARE IDENTIFIED ON THE EXISTING CONDITIONS PLANS IN THE CONTRACT PLANS IN ACCORDANCE WITH THE VERMONT HANDBOOK FOR SOIL AND EROSION CONTROL ON CONSTRUCTION SITES AND ARE DISCUSSED IN THIS NARRATIVE: SITE TOPOGRAPHY; SOIL TYPES; VEGETATIVE COVER; PROXIMITY OF THE SITE TO EXISTING WATER BODIES; AND SITE DRAINAGE CHARACTERISTICS.

THE EXISTING SITE TOPOGRAPHY IS DEFINED BY THE INTERSTATE 89 CORRIDOR AND US ROUTE 2. THE TOPOGRAPHY TRENDS DOWNWARD FROM US ROUTE 2 TOWARDS INTERSTATE 89 ALONG RAMP "C" AND "D" AT SLOPES OF 4% TO 5%. THE EXISTING CONDITIONS CONTOURING HAVE BEEN SHOWN ON THE EXISTING CONDITIONS PLANS.

FROM THE PROJECT BEGINNING, THE EXISTING RAMP "C" DESCENDS NORTHWARD FROM US ROUTE 2 TOWARDS INTERSTATE 89 AT A 4% TO 5% SLOPE. IN THIS AREA, THE EXISTING CUT AND EMBANKMENT SLOPES ARE GENERALLY 3:1 BUT SOME CUT SLOPES ARE AS STEEP AS 2:1 WHERE RAMP "C" RUNS PARALLEL TO THE SHERATON HOTEL PROPERTY. THE EXISTING CUT AND EMBANKMENT SLOPES ARE WELL VEGETATED WITH GRASSES AND BRUSH AND SHOW NO SIGNIFICANT SIGNS OF EROSION. THE EXISTING PROFILE GRADE OF RAMP "C" FLATTENS TO APPROXIMATELY 1% AS IT APPROACHES INTERSTATE 89. ROADSIDE DITCHES ARE GENERALLY GRASS LINED AND FOLLOW THE EXISTING PROFILE GRADE OF THE ROADWAY.

THE PROJECT LIES NEAR THE SOUTHERN EDGE OF THE CENTENNIAL BROOK WATERSHED WHICH HAS BEEN CLASSIFIED AS A STORMWATER AND EROSION IMPAIRED WATERSHED. STORMWATER RUNOFF WITHIN THE PROJECT AREA IS COLLECTED BY DRAIN INLETS ALONG US ROUTE 2 AND RAMP "C" AND IS PRESENTLY DISCHARGED AT VARIOUS AT-GRADE LOCATIONS WHERE IT THEN FLOWS OVERLAND TO ADJACENT WETLANDS DESCRIBED LATER IN THIS NARRATIVE. VARIOUS WETLANDS WITHIN AND OUTSIDE OF THE PROJECT AREA COLLECT THE STORMWATER RUNOFF BEFORE IT REACHES CENTENNIAL BROOK OR ITS TRIBUTARIES.

A REVIEW OF THE NATIONAL RESOURCES CONSERVATION SERVICE (NRCS) SOIL SURVEY MAPS WAS CONDUCTED TO DETERMINE THE TYPES AND LOCATIONS OF THE SOILS UNDERLYING THE PROJECT AREA. THE TABLE BELOW OUTLINES THE SOILS THAT WERE DETERMINED TO BE LOCATED WITHIN OR ADJACENT TO THE PROPOSED PROJECT LIMITS. SOIL SURVEY GIS DATA FROM THE VERMONT CENTER FOR GEOGRAPHIC INFORMATION (VCGI) WAS DOWNLOADED AND OVERLAID ONTO THE DESIGN PLANS TO DETERMINE THE EXTENT OF THE SOILS. (REFER TO THE EXISTING CONDITIONS PLAN SHEETS) NEARLY THE ENTIRE PROJECT SITE IS UNDERLAIN WITH FILL LAND SOILS WHICH HAVE NOT HAD A SOIL ERODABILITY COEFFICIENT ('K' VALUE) DETERMINED. THE REMAINING SOILS HAVE A 'K' VALUE OF 0.49 OR 0.17. IT IS ASSUMED THAT THE UNDERLYING SOILS ARE SIMILAR TO THE SURROUNDING SOILS WHICH HAVE LOW AND HIGH ERODABILITY FACTORS. THEREFORE, ALL AREAS WILL REQUIRE IMMEDIATE SOIL ROUGHENING, HAY MULCHING AND PROMPT SEEDING AFTER BEING DISTURBED.

SOIL DESIGNATION	HYDROLOGIC SOIL GROUP CLASSIFICATION	SOIL ERODABILITY COEFFICIENTS
ADA ADAMS AND WINDSOR LOAMY SANDS, 0% TO 5% SLOPES	A	0.17 LOW ERODABILITY POTENTIAL
FU FILL LAND	NOT RATED	NOT RATED
HLB HARTLAND VERY FINE SANDY LOAM, 2% TO 6% SLOPES	B	0.49 HIGH ERODABILITY POTENTIAL
HLD HARTLAND VERY FINE SANDY LOAM, 12% TO 25% SLOPES	B	0.49 HIGH ERODABILITY POTENTIAL
VEB VERGENNES CLAY, 2% TO 6% SLOPES	D	0.49 HIGH ERODABILITY POTENTIAL

THERE ARE FOUR SMALL CLASS III WETLANDS LOCATED ADJACENT TO OR WITHIN THE PROJECT AREA (SEE THE EXISTING CONDITIONS PLAN AND FIGURE 2 TAKEN FROM THE DRAFT SCOPING REPORT FOR THIS PROJECT). EACH WETLAND WAS DESCRIBED AS FOLLOWS BY DUBOIS & KING, INC. IN APPENDIX D OF THE I-89 URBAN TRANSPORTATION IMPROVEMENTS (D&K STATUS REPORT):

- WETLAND 70, 69, AND 68: THESE WETLANDS SHARE THE SAME FEATURES. CLASS III. THE COVER TYPE IS EMERGENT. THE DOMINANT VEGETATION IS CATTAILS. THE PRINCIPAL VALUABLE FUNCTION IS SEDIMENT, TOXICANT AND/OR PATHOGEN RETENTION/TRANSFORMATION.
- WETLAND 66: CLASS III. ITS COVER TYPE IS EMERGENT. THE DOMINANT VEGETATION IS REED CANARY GRASS AND CATTAILS. THE PRINCIPAL VALUABLE FUNCTION IS SEDIMENT, TOXICANT AND/OR PATHOGEN RETENTION/TRANSFORMATION.

ACCORDING TO 2001 WETLANDS MAPPING PERFORMED BY THE CITY OF SOUTH BURLINGTON, THERE ARE FOUR WETLAND AREAS LOCATED OUTSIDE OF THE PROJECT TO THE NORTH AND NORTHWEST, OUTSIDE OF THE I-89 RIGHT-OF-WAY. THE FOLLOWING AREAS ARE IDENTIFIED ON THE ATTACHED FIGURE 2 FROM THE DRAFT SCOPING REPORT FOR THIS PROJECT.

- WETLAND A: THE COVER TYPE IS EMERGENT. THIS IS AN ISOLATED WETLAND NOT ASSOCIATED WITH ANY OTHER WATER RESOURCE.
- WETLAND B: THE COVER TYPE IS EMERGENT. THIS IS AN ISOLATED WETLAND THAT IS ASSOCIATED WITH A TRIBUTARY OF CENTENNIAL BROOK (A TRIBUTARY OF WINOOSKI RIVER).
- WETLAND C: THE COVER TYPE IS EMERGENT. THIS WETLAND IS PART OF A LARGER WETLAND SYSTEM THAT IS ASSOCIATED WITH A TRIBUTARY OF CENTENNIAL BROOK AND WITH WETLAND B,

-WETLAND D: THE COVER TYPE IS EMERGENT. THIS WETLAND IS PART OF A LARGER WETLAND SYSTEM THAT IS ASSOCIATED WITH ANOTHER TRIBUTARY OF CENTENNIAL BROOK. THIS SYSTEM IS ALSO BISECTED BY CARRIGAN DRIVE.

## EROSION CONTROL AND GRADING LAYOUT PLANS AND TIMETABLE

### PROPOSED GRADING

THE EROSION CONTROL AND GRADING LAYOUT SHEETS DEPICT THE PROPOSED GRADING AND EROSION CONTROL MEASURES TO BE EMPLOYED AS PART OF THE PROJECT. THE PROPOSED WORK WILL INCLUDE THE CONSTRUCTION OF NEW EMBANKMENTS AND ROADSIDE DITCHES TO IMPROVE SAFETY AND ROADWAY DRAINAGE WHILE ALSO DESIGNED TO LIMIT EROSION AND SEDIMENT TRANSPORT. ROADSIDE EMBANKMENTS WILL BE 3:1 OR LESS WHERE PRACTICAL. ALONG RAMP "D" 1.5:1 EMBANKMENT SLOPES ARE REQUIRED TO LIMIT DISTURBANCES AND FILL HEIGHTS.

THE PROPOSED GRADING MAINTAINS THE EXISTING DRAINAGE PATTERNS OVER THE SITE. RELOCATED AND NEW DRAIN INLETS WILL COLLECT THE RUNOFF AND DISCHARGE IT TO THE PROPOSED STORMWATER MITIGATION DETENTION POND FOR THE DRAINAGE NEAREST US ROUTE 2 OR WILL DISCHARGE TO THE EXISTING OUTFALLS FURTHER DOWN GRADIENT ALONG RAMP "C". STORMWATER DETENTION AND STONE TREATMENTS AT THE INLETS AND OUTFALLS OF DITCHES AND PIPES WILL HELP TO REDUCE WATER VELOCITIES AND THE SUBSEQUENT EROSION AND SEDIMENT TRANSPORT. THE PROPOSED RAMP PROFILE AND ALIGNMENT WILL FOLLOW THE EXISTING RAMP ALIGNMENT AND PROFILE WHERE PRACTICAL AND WHERE THE PROPOSED RAMP IS LENGTHENED THE FILL HEIGHTS AND CUT DEPTHS WERE MINIMIZED TO REDUCE OVERALL SOIL DISTURBANCES AND LIMIT THE AMOUNT OF CLEARING AND GRUBBING REQUIRED FOR THIS PROJECT.

THE EROSION CONTROL AND GRADING LAYOUT SHEETS IN THE CONTRACT PLANS SPECIFY THAT ALL MAJOR GRADING AND EARTHWORK OPERATIONS SHALL BE CONDUCTED IN DRY-WEATHER CONDITIONS BETWEEN MAY 1ST AND OCTOBER 15TH WHENEVER PRACTICAL. THE CONTRACT PLANS ALSO SPECIFY THAT THE CONTRACTOR SHALL SCHEDULE THE TIME OF SOIL DISTURBANCES SO THAT AS LITTLE DISRUPTION OCCURS AS POSSIBLE AND SO THAT ANY DISTURBANCE CAN BE TEMPORARILY OR PERMANENTLY STABILIZED WITHIN 48 HOURS. IN ADDITION, TEMPORARY MULCHING SHALL BE DONE FOR ALL AREAS THAT WON'T BE WORKED ON FOR 5 DAYS OR MORE. NO MAJOR GRADING WORK SHALL BE PERFORMED BY THE CONTRACTOR IN THE WINTER BETWEEN OCTOBER 15TH AND MAY 1ST WHEN SOILS ARE TYPICALLY SATURATED WITH WATER OR FROZEN IN THE COLDER MONTHS.

### PROPOSED EROSION PREVENTION AND SEDIMENT CONTROL MEASURES

IN ADDITION TO THE REQUIREMENTS OUTLINED ABOVE, THE CONTRACTOR, PRIOR TO THE START OF WORK, SHALL WRAP NON-WOVEN GEOTEXTILE FABRIC FOR FILTERS OVER ALL EXISTING AND PROPOSED DRAIN INLET GRATES WITHIN AREAS SUBJECT TO VEHICULAR TRAFFIC WITHIN THE LIMIT OF WORK AND MAINTAIN THEM UNTIL SUCH TIME AS THE PROJECT IS COMPLETED OR THE DRAIN INLET IS REMOVED. THE CONTRACTOR SHALL PROVIDE ENOUGH OVERLAP IN THE FABRIC TO ALLOW THE MATERIAL TO SET BETWEEN THE GRATE AND THE FRAME, USING THE WEIGHT OF THE GRATE TO HOLD THE FABRIC IN PLACE. DRAIN INLETS IN DITCHES SHALL BE PROTECTED WITH THE INLET PROTECTION DETAIL SHOWN IN THE CONTRACT PLANS. PERIODICALLY THE CONTRACTOR SHALL REMOVE ANY COLLECTED DEBRIS OR REPAIR OR REPLACE THE INLET PROTECTION MEASURE AS REQUIRED TO PROMOTE PROPER DRAINAGE.

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FILE NAME: z03a178e0narr.dgn	PLOT DATE: 5/5/2006
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