EROSION CONTROL NARRATIVE

1. PROJECT DESCRIPTION

THE BRANDON NH 019-3(495) PROJECT CONSISTS OF THE FULL DEPTH RECONSTRUCTION OF 3.940 km AND THE COLD PLANE AND OVERLAY OF 0.378 km OF A TWO-LANE, PRINCIPAL ARTERIAL HIGHWAY IN BRANDON, VERMONT.

STA 16+460.000 AND EXTENDING NORTHERLY TO STA 18+856.000 AND STA 19+234.000 AND EXTENDING NORTHERLY TO STA 20+777.617, FULL DEPTH ROADWAY CONSTRUCTION WILL BE COMPLETED. WORK TO BE COMPLETED INCLUDES REMOVAL AND DISPOSAL OF THE EXISTING CONCRETE ROAD, THE WIDENING AND FULL DEPTH RECONSTRUCTION OF US ROUTE 7 (3.940 km), GRADING, DRAINAGE, PAVING, SIGNING AND NECESSARY APPROACH WORK. THE EXISTING ROADWAY IS APPROXIMATELY 28' WIDE (2'-12'-12'-2' TYPICAL). THE PROJECT WILL BE CONSTRUCTING A 40' WIDE ROADWAY (8'-12'-12'-8' TYPICAL).

STA 18+856.000 TO STA 19+234.000 WILL CONSIST OF COLD PLANING AND PAVEMENT OVERLAY WITH NO WIDENING (0.378 km), PAVEMENT MARKINGS, SIGNING AND OTHER INCIDENTAL ITEMS.

2. AREA OF DISTURBANCE

THE TOTAL DISTURBANCE ASSOCIATED WITH CONSTRUCTION OF THIS PROJECT IS APPROXIMATELY 30.34 Ac. OF THIS 30.34 Ac. APPROXIMATELY 11.7 Ac. IS EXISTING IMPERVIOUS AND WE ARE ADDING APPROXIMATELY 3.2 Ac. OF IMPERVIOUS AREA.

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. SEE BREAKDOWN OF DISTURBANCE PER DRAINAGE AREA IN SECTION 5 BELOW.

3. CONSTRUCTION SEQUENCE

THE CONTRACTOR SHALL SEQUENCE CONSTRUCTION ACTIVITIES TO MINIMIZE THE EXTENT OF DISTURBED SOILS LEFT OPEN TO A MAXIMUM OF 5 TOTAL DISTURBED Ac. WITHIN THE PROJECT LIMITS AT ANY GIVEN TIME. BETWEEN CROSSOVERS, THE CONTRACTOR MUST COMPLETE EACH PHASE OF CONSTRUCTION BEFORE COMMENCING THE FOLLOWING PHASE. RELOCATION OF UTILITIES MUST OCCUR PRIOR TO COMMENCING CONSTRUCTION IN AN AFFECTED AREA. A PROPOSED GENERAL SEQUENCE FOR EACH OF THE CONSTRUCTION ZONES IS AS FOLLOWS:

- SEQUENCE 1 - BEGIN PROJECT TO SOUTH OF MCCONNELL RD (STA 16+460 - STA 17+175)

1) ESTABLISH PERIMETER CONTROLS AND MARK BOUNDARIES FOR SENSITIVE RESOURCE AREAS, INCLUDING WETLANDS AND RIPARIAN BUFFER ZONES.
2) IT IS PREFERRED THAT CONSTRUCTION IN FRONT OF THE OTTER VALLEY UNION HIGH SCHOOL OCCUR DURING THE SUMMER WHILE SCHOOL IS NOT IN SESSION.
3) INSTALL SEDIMENT CONTROL MEASURES.
4) CLEAR AND GRUB.
5) CONSTRUCT TEMPORARY ROADWAY FOR PHASE 1 TRAFFIC, PAVE AND STABILIZE TEMPORARY SLOPES.
6) BEGIN CUT AND FILL OPERATIONS, LIMITING TOTAL DISTURBED AREA TO 5 Ac.
7) FORM, ROUGH GRADE AND STABILIZE DITCHES.
8) CONCURRENTLY INSTALL TEMPORARY STABILIZATION AND EPSC MEASURES AS WORK PROGRESSES.
9) INSTALL STORM DRAIN PIPES AND STRUCTURES.
10) PLACE SUBBASE MATERIAL FOR ROADWAY, FINAL GRADE AND STABILIZE ALL EARTH DISTURBANCE AS WORK PROGRESSES.
11) PAVE ROADWAY TO BOTTOM OF WEARING COURSE.
12) BEGIN PHASE 2 CONSTRUCTION, SHIFT TRAFFIC TO NEW ROADWAY PAVEMENT, REMOVE TEMPORARY ROADWAY, AND CONSTRUCT FINAL ROADWAY.
13) REPEAT STEPS 6 THROUGH 11 CONCURRENT WITH PHASE 2 CONSTRUCTION.
14) PLACE PAVEMENT WEARING COURSE AND PAVEMENT MARKINGS.

- SEQUENCE 2 - SOUTH OF MCCONNELL RD TO SOUTH OF JONES MILL POND (STA 17+175 - STA 18+265)

1) ESTABLISH PERIMETER CONTROLS AND MARK BOUNDARIES FOR SENSITIVE RESOURCE AREAS, INCLUDING WETLANDS AND RIPARIAN BUFFER ZONES.
2) MARKOWSKI EXCAVATING GRAVEL PIT MAY BE AVAILABLE FOR WASTE, BORROW & STAGING AREA.
3) INSTALL SEDIMENT CONTROL MEASURES.
4) CLEAR AND GRUB.
5) CONSTRUCT TEMPORARY ROADWAY FOR PHASE 1 TRAFFIC, PAVE AND STABILIZE TEMPORARY SLOPES.
6) BEGIN CUT AND FILL OPERATIONS, LIMITING TOTAL DISTURBED AREA TO 5 Ac.
7) FORM, ROUGH GRADE AND STABILIZE DITCHES.
8) CONCURRENTLY INSTALL TEMPORARY STABILIZATION AND EPSC MEASURES AS WORK PROGRESSES.
9) INSTALL STORM DRAIN PIPES AND STRUCTURES.
10) PLACE SUBBASE MATERIAL FOR ROADWAY, FINAL GRADE AND STABILIZE ALL EARTH DISTURBANCE AS WORK PROGRESSES.
11) PAVE ROADWAY TO BOTTOM OF WEARING COURSE.
12) BEGIN PHASE 2 CONSTRUCTION, SHIFT TRAFFIC TO NEW ROADWAY PAVEMENT, REMOVE TEMPORARY ROADWAY, AND CONSTRUCT FINAL ROADWAY.
13) REPEAT STEPS 5 THROUGH 11 CONCURRENT WITH PHASE 2 CONSTRUCTION.
14) PLACE PAVEMENT WEARING COURSE AND PAVEMENT MARKINGS.

- SEQUENCE 3 - JONES MILL POND AREA (STA 18+265 - STA 18+920)

1) ESTABLISH PERIMETER CONTROLS AND MARK BOUNDARIES FOR SENSITIVE RESOURCE AREAS, INCLUDING WETLANDS AND JONES MILL POND.
2) INSTALL SEDIMENT CONTROL MEASURES.
3) CLEAR AND GRUB.
4) PLACE TEMPORARY PAVEMENT FOR PHASE 1 TRAFFIC AND STABILIZE TEMPORARY SLOPES.
5) BEGIN CUT AND FILL OPERATIONS, LIMITING TOTAL DISTURBED AREA TO 3 Ac.
6) FORM, ROUGH GRADE AND STABILIZE DITCHES.
7) CONCURRENTLY INSTALL TEMPORARY STABILIZATION AND EPSC MEASURES AS WORK PROGRESSES.
8) INSTALL STORM DRAIN PIPES AND STRUCTURES.
9) INSTALL MECHANICALLY STABILIZED EARTH (MSE) WALL FROM STA 18+540 RT TO 18+770 RT WITH PHASE 1 ROADWAY CONSTRUCTION.
10) PLACE SUBBASE MATERIAL FOR ROADWAY, FINAL GRADE AND STABILIZE ALL EARTH DISTURBANCE AS WORK PROGRESSES.
11) PAVE ROADWAY TO BOTTOM OF WEARING COURSE.
12) BEGIN PHASE 2 CONSTRUCTION, SHIFT TRAFFIC TO NEW ROADWAY PAVEMENT, SPLIT TRAFFIC FLOW AND CONSTRUCT FINAL ROADWAY BETWEEN NORTHBOUND AND SOUTHBOUND TRAFFIC.
13) REPEAT STEPS 5 THROUGH 10 CONCURRENT WITH PHASE 2 CONSTRUCTION.
14) BEGIN PHASE 3 CONSTRUCTION, SHIFT TRAFFIC TO NEW ROADWAY PAVEMENT, REMOVE TEMPORARY ROADWAY, AND CONSTRUCT FINAL ROADWAY.
15) REPEAT STEPS 5 THROUGH 10 CONCURRENT WITH PHASE 3 CONSTRUCTION.
16) PLACE PAVEMENT WEARING COURSE AND PAVEMENT MARKINGS.

- SEQUENCE 4 - JONES MILL POND TO NICKERSON ROAD (STA 18+920 - STA 20+120)

1) ESTABLISH PERIMETER CONTROLS AND MARK BOUNDARIES FOR SENSITIVE RESOURCE AREAS, INCLUDING WETLANDS AND RIPARIAN BUFFER ZONES.
2) INSTALL SEDIMENT CONTROL MEASURES.
3) CLEAR AND GRUB.
4) CONSTRUCT ROADWAY IN ALTERNATING LIFTS TO BOTTOM OF WEARING COURSE BETWEEN STA 19+600 AND STA 19+800 TO MINIMIZE IMPACTS TO ADJACENT SENSITIVE RESOURCES.
5) PLACE TEMPORARY PAVEMENT AND STABILIZE TEMPORARY SLOPES.
6) BEGIN CUT AND FILL OPERATIONS, INCLUDING BLASTING OF LEDGE, LIMITING TOTAL DISTURBED AREA TO 5 Ac. (EXCLUDING BLASTING OF LEDGE).
7) FORM, ROUGH GRADE AND STABILIZE DITCHES.
8) CONCURRENTLY INSTALL TEMPORARY STABILIZATION AND EPSC MEASURES AS WORK PROGRESSES.
9) INSTALL TEMPORARY STABILIZATION AND EPSC MEASURES BEYOND 6-METER CLEARING OF OVERBURDEN.
10) INSTALL STORM DRAIN PIPES AND STRUCTURES INCLUDING THE STORMWATER TREATMENT STRUCTURE AT STA 19+760 RT.
11) PLACE SUBBASE MATERIAL FOR ROADWAY, FINAL GRADE AND STABILIZE ALL EARTH DISTURBANCE AS WORK PROGRESSES.
12) PAVE ROADWAY TO BOTTOM OF WEARING COURSE.
13) BEGIN PHASE 2 CONSTRUCTION, SHIFT TRAFFIC TO NEW ROADWAY PAVEMENT, REMOVE TEMPORARY ROADWAY, AND CONSTRUCT FINAL ROADWAY.
14) REPEAT STEPS 5 THROUGH 11 CONCURRENT WITH PHASE 2 CONSTRUCTION.
15) PLACE PAVEMENT WEARING COURSE AND PAVEMENT MARKINGS.

- SEQUENCE 5 - NICKERSON ROAD TO END PROJECT (STA 20+120 - STA 20+778)

1) ESTABLISH PERIMETER CONTROLS AND MARK BOUNDARIES FOR SENSITIVE RESOURCE AREAS, INCLUDING WETLANDS AND RIPARIAN BUFFER ZONES.
2) INSTALL SEDIMENT CONTROL MEASURES.
3) CLEAR AND GRUB.
4) PLACE TEMPORARY PAVEMENT AND STABILIZE TEMPORARY SLOPES.
5) BEGIN CUT AND FILL OPERATIONS, INCLUDING BLASTING OF LEDGE, LIMITING TOTAL DISTURBED AREA TO 5 Ac. (EXCLUDING BLASTING OF LEDGE).
6) FORM, ROUGH GRADE AND STABILIZE DITCHES.
7) CONCURRENTLY INSTALL TEMPORARY STABILIZATION AND EPSC MEASURES AS WORK PROGRESSES.
8) INSTALL TEMPORARY STABILIZATION AND EPSC MEASURES BEYOND 6-METER CLEARING OF OVERBURDEN.
9) INSTALL STORM DRAIN PIPES AND STRUCTURES.
10) PLACE SUBBASE MATERIAL FOR ROADWAY, FINAL GRADE AND STABILIZE ALL EARTH DISTURBANCE AS WORK PROGRESSES.
11) PAVE ROADWAY TO BOTTOM OF WEARING COURSE.
12) BEGIN PHASE 2 CONSTRUCTION, SHIFT TRAFFIC TO NEW ROADWAY PAVEMENT, REMOVE TEMPORARY ROADWAY, AND CONSTRUCT FINAL ROADWAY.
13) REPEAT STEPS 5 THROUGH 11 CONCURRENT WITH PHASE 2 CONSTRUCTION.
14) PLACE PAVEMENT WEARING COURSE AND PAVEMENT MARKINGS.

4. STABILIZATION OF EXPOSED SOILS

ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR THE COUNTY OF RUTLAND, VERMONT. SOILS ON THE PROJECT SITE ARE:

- KINGSBURY SILTY CLAY LOAM, 3-8% SLOPES, "K FACTOR" = 0.49. THE SOIL IS CONSIDERED POTENTIALLY HIGHLY ERODIBLE.
- NINIGRET FINE SANDY LOAM, 0-4% SLOPES, "K FACTOR" = 0.32. THE SOIL IS CONSIDERED NOT HIGHLY ERODIBLE.
- WINDSOR LOAMY SAND, 3-8% SLOPES, "K FACTOR" = 0.17, THE SOIL IS CONSIDERED NOT HIGHLY ERODIBLE.
- WINDSOR LOAMY SAND, 15-25% SLOPES, "K FACTOR" = 0.17, THE SOIL IS CONSIDERED POTENTIALLY HIGHLY ERODIBLE.
- VERGENNES CLAY, 8-15% SLOPES, "K FACTOR" = 0.49, THE SOIL IS CONSIDERED HIGHLY ERODIBLE.
- FARMINGTON-GALWAY-GALOO COMPLEX, 5-25% SLOPES, "K FACTOR" = 0.32. THE SOIL IS CONSIDERED POTENTIALLY HIGHLY ERODIBLE.
- FARMINGTON-GALWAY-GALOO COMPLEX, 25-50% SLOPES, "K FACTOR" = 0.32. THE SOIL IS CONSIDERED HIGHLY ERODIBLE.

NOTE: K-VALUES GENERALLY INDICATE THE FOLLOWING: 0.0-0.18 = LOW EROSION POTENTIAL; 0.18-0.36 = MODERATE EROSION POTENTIAL: 0.37 AND HIGHER = HIGH EROSION POTENTIAL.

- SEED AND MULCH WILL BE USED FOR BOTH TEMPORARY AND PERMANENT STABILIZATION MEASURES. ROLLED EROSION CONTROL PRODUCT (RECP) WILL BE USED IN PLACE OF MULCH FOR SLOPES GREATER THAN 1V:3H. MULCH IS TO BE APPLIED AT A MINIMUM APPLICATION RATE SHOWN ON THE EPSC DETAILS, UNLESS DIRECTED OTHERWISE BY THE ENGINEER.

- DISTURBED AREAS AND SOIL STOCKPILES THAT WILL NOT BE WORKED FOR MORE THAN 7 DAYS SHALL BE TEMPORARILY STABILIZED WITH MULCH/ROLLED EROSION CONTROL PRODUCT (RECP) WITHIN 48 HOURS.

- DISTURBED AREAS AND SOIL STOCKPILES THAT WILL NOT BE WORKED FOR MORE THAN 30 DAYS SHALL BE TEMPORARILY STABILIZED WITH SEED AND MULCH/ROLLED EROSION CONTROL PRODUCT (RECP) WITHIN 48 HOURS.

- ALL AREAS OF DISTURBANCE MUST HAVE TEMPORARY OR PERMANENT STABILIZATION WITHIN 7 DAYS OF THE INITIAL DISTURBANCE. AFTER THIS TIME, ANY DISTURBANCE IN THE AREA MUST BE STABILIZED AT THE END OF EACH WORK DAY UNLESS WORK IS TO CONTINUE WITHIN THE NEXT 24 HOURS AND THERE IS NO PRECIPITATION FORECAST.

- EXPOSED AREAS THAT HAVE ACHIEVED FINAL GRADE SHALL BE PERMANENTLY STABILIZED WITHIN 48 HOURS.

- IN AREAS WHERE VEGETATIVE COVER WILL PROVIDE PERMANENT STABILIZATION, SEEDING SHALL BE COMPLETED BETWEEN APRIL 15 AND SEPTEMBER 15.

- BEFORE NEWLY CONSTRUCTED STORMWATER CONVEYANCE CHANNELS OR PIPES ARE MADE OPERATIONAL, ADEQUATE OUTLET PROTECTION AND ANY REQUIRED TEMPORARY OR PERMANENT CHANNEL LINING SHALL BE INSTALLED IN BOTH THE CONVEYANCE CHANNEL AND THE RECEIVING CHANNEL.

5. DRAINAGE AREAS AND DISCHARGE POINTS

THIS PROJECT WILL BE CONSTRUCTED ON THE EXISTING ALIGNMENT OF US ROUTE 7 IN BRANDON. THE AREA SURROUNDING THIS PROJECT IS CLASSIFIED AS RURAL WITH ROLLING TERRAIN THAT HAS EQUAL WOODED AND OPEN AREAS WITH SOME LEDGE OUTCROPS. THE VEGETATION CONSISTS OF WELL ESTABLISHED FOREST, INDIVIDUAL TREES, LEDGE OUTCROPS, GRASS SLOPES AND LAWNS. DUE TO THE NATURE OF THE SURROUNDING TERRAIN THE PROJECT SITE WILL RECEIVE RUNOFF WATER FROM A FEW NEARBY SLOPES INCLUDING ACROSS FROM JONES MILL POND AND THE LEDGE CUT AREAS NORTH OF NICKERSON ROAD.

THE PROJECT WILL DISCHARGE STORMWATER TO SEVERAL WETLANDS, TWO UNNAMED STREAMS, AN UNNAMED POND AND JONES MILL POND. THE PROJECT HAS BEEN DIVIDED INTO 11 DRAINAGE AREAS AND A DISCHARGE HAS BEEN DETERMINED FOR EACH AREA.

- DRAINAGE AREA 1
  LOCATED ADJACENT TO AND SOUTH OF THE OTTER VALLEY UNION HIGH SCHOOL AND DISCHARGES TO A CLASS 2 WETLAND. THE TOTAL DISTURBANCE IS 2.09 Ac., THE AREA OF PAVED DETOUR IS 0.46 Ac. AND THE ASSOCIATED AREA OF DISTURBANCE IS 1.63 Ac. RUNOFF GENERALLY FLOWS FROM THE HILLS EAST OF US ROUTE 7 TO A CLOSED SYSTEM CONVEYING RUNOFF UNDER US ROUTE 7 TO A CHANNEL AND CULVERT UNDER THE SOUTHERN DRIVEWAY OF THE HIGH SCHOOL AT STA 16+495 LT AND TO A CLASS 2 WETLAND. THE TOTAL AREA OF DRAINAGE AREA 1 IS 79.8 Ac.

- DRAINAGE AREA 2
  LOCATED ADJACENT TO AND NORTH OF THE OTTER VALLEY UNION HIGH SCHOOL AND DISCHARGES TO AN UNNAMED STREAM AT STA 16+800 LT. THE TOTAL DISTURBANCE IS 1.27 Ac., THE AREA OF PAVED DETOUR IS 0.33 Ac. AND THE ASSOCIATED AREA OF DISTURBANCE IS 0.94 Ac. RUNOFF GENERALLY FLOWS FROM HILLS EAST OF US ROUTE 7 TO A PIPE CONVEYING RUNOFF UNDER US ROUTE 7 TO AN UNNAMED STREAM. THE TOTAL AREA OF DRAINAGE AREA 2 IS 48.0 Ac.

- DRAINAGE AREA 3
  LOCATED NORTH OF THE OTTER VALLEY UNION HIGH SCHOOL AND DISCHARGES TO A CLASS 2 WETLAND #9 (PF01C) AT STA 16+906 LT AND STA 17+008 LT. THE TOTAL DISTURBANCE IS 2.47 Ac., THE AREA OF PAVED DETOUR IS 0.48 Ac. AND THE ASSOCIATED AREA OF DISTURBANCE IS 1.99 Ac. RUNOFF GENERALLY FLOWS FROM HILLS EAST OF US ROUTE 7 TO PIPES CONVEYING RUNOFF UNDER US ROUTE 7 TO A CLASS 2 WETLAND. THE TOTAL AREA OF DRAINAGE AREA 3 IS 94.0 Ac.

EROSION CONTROL
GENERAL NOTES SHEET 1

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PROJECT NUMBER:	NH 019-3(495)

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