

## CONSTRUCTION AND PHASING NOTES FOR EROSION PREVENTION AND SEDIMENT CONTROL AT FURNACE BROOK

1. LOCATE BOUNDARIES OF RIPARIAN BUFFER ZONES, WETLANDS, ARCHEOLOGICAL SITES AND OTHER AREAS WHICH MUST REMAIN UNDISTURBED DURING CONSTRUCTION, AND DELINEATE THOSE BOUNDARIES USING BARRIER FENCE.
2. CONSTRUCT VEHICLE TRACKING PADS AT ENTRANCES TO THE CONSTRUCTION SITE AS SHOWN ON EROSION PREVENTION AND SEDIMENT CONTROL DETAILS, OR AS DIRECTED BY THE ON SITE COORDINATOR. NOTE: TRACKING PAD LOCATIONS ARE NOT SHOWN AS CONSTRUCTION ENTRANCE LOCATIONS ARE TO BE DETERMINED.
3. FOR LOCATIONS OUTSIDE TEMPORARY STONE PAD LIMITS, ESTABLISH AND DELINEATE LOCATIONS OF TOPSOIL STOCKPILES, STAGING AREAS, EQUIPMENT STORAGE AREAS, AND REFUELING AND MAINTENANCE AREAS USING ORANGE SNOW FENCE, CONTROL SEDIMENT FROM THESE AREAS USING SILT FENCE. DELINEATE LIMITS OF WORK USING BARRIER FENCE.
4. CLEAR THE SITE AS REQUIRED, AND AS SHOWN ON THE EROSION CONTROL PLANS (THIS DOES NOT INCLUDE CLEARING OF WEST ABUTMENT SLOPE). WOODY VEGETATION TO BE CUT TO GROUND LEVEL, AND NOT GRUBBED, AT THIS TIME.
5. INSTALL TEMPORARY EROSION PREVENTION AND SEDIMENT CONTROL MEASURES AS SHOWN, AS REQUIRED, OR AS DIRECTED BY THE ON SITE COORDINATOR, IN THE FOLLOWING ORDER:
  - A. DIVERSION STRUCTURES (DIVERSION DIKES OR CHANNELS).
  - B. FILTER BARRIERS (SILT FENCE OR GEOSYNTHETIC BARRIERS).
  - C. TEMPORARY SETTLING BASINS.
  - D. PAYMENT FOR NOTED MEASURES WILL BE INCIDENTAL TO OTHER ITEMS OF WORK.
6. GRUB THE SITE AS REQUIRED. STUMPS, EXCESS SOILS AND OTHER WASTE MATERIALS SHALL BE DISPOSED OF IN A LOCATION APPROVED BY THE ON SITE COORDINATOR AND THE AGENCY OF NATURAL RESOURCES. NOTE: GRUBBING IS ONLY TO OCCUR IN EXCAVATION AREAS.
7. COMMENCE CONSTRUCTION AS SHOWN ON THE BRIDGE CONSTRUCTION IMPACTS PLAN.
  - A. CONTRACTOR MAY CONSTRUCT ONE TEMPORARY BRIDGE OVER THE MAIN CHANNEL. THE LOW STEEL OF THE BRIDGE SHALL BE AT "010" MINIMUM. TEMPORARY BRIDGES SHALL BE REMOVED DURING THE NON-CONSTRUCTION SEASON, AND WHEN RISING WATER PREDICTIONS INDICATE THE BRIDGES TO BE IMPACTED.
  - B. CONTRACTOR MAY CONSTRUCT ONE TEMPORARY BRIDGE OVER THE UNNAMED CHANNEL (WITHIN THE "010" LIMITS) WITH A MINIMUM 0.5 m CLEARANCE OVER CHANNEL INVERT. A CULVERT WILL ALSO BE REQUIRED ABOVE "0100" FOR THE HAUL ROAD. STABILIZE OUTLET OF CULVERT WITH A HEADWALL.
  - C. AS CONSTRUCTION PROGRESSES, IMPLEMENT ADDITIONAL TEMPORARY EROSION CONTROLS AS SHOWN, AS REQUIRED, OR AS DIRECTED BY THE ON SITE COORDINATOR, INCLUDING TEMPORARY BERMS AND FLEXIBLE SLOPE DRAINS, STONE CHECK DAMS, SEEDING AND MULCHING, SEDIMENT SETTLING STRUCTURES, ROCK BARRIER INLET PROTECTION AND ROCK BARRIER CULVERT INLET PROTECTION. INSPECT AND MAINTAIN EROSION PREVENTION AND SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH THE SPECIFICATIONS AND SPECIAL PROVISIONS. DISPOSE OF COLLECTED SEDIMENT AND OTHER POLLUTANTS IN A MANNER APPROVED BY THE ON SITE COORDINATOR THAT WILL RESULT IN NO SEDIMENTS AND POLLUTANTS ENTERING WATERS OF THE STATE.
  - D. CONSTRUCT TEMPORARY PADS TO "010" ELEVATION FOR THE PURPOSE OF:
    - GENERAL STAGING AND ACCESS
    - COFFERDAM CONSTRUCTION
    - PIER EXCAVATION AND BACKFILL
    - SUPERSTRUCTURE ERECTION (CRANE AND SHORING)
    - SUPERSTRUCTURE ACCESS (DECK FORMING AND FORM REMOVAL)
  - E. CONSTRUCTION OF TEMPORARY STONE PADS WILL REQUIRE SOME EXCAVATION OF EXISTING MATERIAL TO BRING ELEVATION OF STAGING AREAS DOWN TO TEMPORARY "010" ELEVATION. ALL TEMPORARY STONE PADS TO BE BEDDED ON A LAYER OF GEOTEXTILE. WORK ADJACENT TO THE STREAM MUST BE ABOVE THE LEVEL OF THE STREAM WHILE THE STONE PADS ARE BEING PLACED AND REMOVED. THIS WORK SHALL BE PAID INCIDENTAL TO THE CONSTRUCTION OF THE FURNACE BROOK BRIDGE.
  - F. DEWATER AS REQUIRED. FILTER DISCHARGE USING TEMPORARY SETTLING STRUCTURES AS SHOWN.
  - G. STONE PADS SHALL BE LEFT IN PLACE OVER THE WINTER, AND REMOVED UPON COMPLETION OF THE PROJECT.
  - H. WORK WITHIN THE 100 YEAR FLOOD PLAIN IS LIMITED BETWEEN THE DATES OF MAY 1 AND NOVEMBER 1. ADDITIONALLY, CONSTRUCTION SHALL NOT COMMENCE UNTIL THE STREAM IS BELOW Q2.33. CONSTRUCTION IN THE CHANNEL (BELOW OHW) IS LIMITED TO BETWEEN THE DATES OF JUNE 1 AND AUGUST 31.
  - I. THROUGHOUT CONSTRUCTION, DURING WHICH THE TEMPORARY STONE PADS ARE IN PLACE, THE CONTRACTOR SHALL MONITOR THE STREAM CHANNEL IN THE IMMEDIATE VICINITY OF THE STONE PADS FOR ANY CHANGES IN GEOMETRY DUE TO SCOUR. THE MONITORING PROGRAM SHALL CONSIST OF AN INITIAL SURVEY TO ESTABLISH THE PRE-CONSTRUCTION STREAM CHANNEL GEOMETRY; AND ADDITIONAL SURVEYS FOLLOWING: ANNUAL SPRING HIGH WATER, RAINFALL EVENTS OF TWO (2) INCHES OR MORE, TO COMPARE TO THE PRE-CONSTRUCTION GEOMETRY. THE SURVEYS SHALL CONSIST OF CHANNEL CROSS-SECTIONS, TAKEN AT THE FOLLOWING MINIMUM FOUR LOCATIONS: ONE SOUTH OF THE WESTERN HAUL ROAD; ONE NEAR THE DOWNSTREAM END OF THE CONSTRUCTION AREA; ONE JUST UPSTREAM OF THE PIER; AND ONE AT THE UPSTREAM END OF THE CONSTRUCTION AREA. THE FREQUENCY OF SHOTS FOR EACH CROSS-SECTION SHALL BE SUFFICIENT TO DETERMINE ANY CHANGES IN CHANNEL GEOMETRY, AS DETERMINED BY THE ON SITE COORDINATOR. ADDITIONALLY, WATER QUALITY MONITORING WILL BE REQUIRED AT THE FOLLOWING FOUR LOCATIONS: (1) INLET TO STORMWATER BASIN, (2) OUTLET OF STORMWATER BASIN, (3) IN STREAM UPSTREAM OF PROJECT, AND (4) IN STREAM DOWNSTREAM OF PROJECT. IT WILL INVOLVE TAKING A  $\frac{1}{2}$  NEPHELMETRIC TURBIDITY UNIT  $\frac{1}{2}$  TO EACH LOCATION TO GRAB SAMPLES, AT A FREQUENCY TO BE DETERMINED BY THE ON SITE COORDINATOR. THE CONTRACTOR SHALL SUBMIT AN EROSION AND WATER QUALITY MONITORING PLAN TO THE ON SITE COORDINATOR, WHICH INCLUDES METHODS AND EQUIPMENT TO BE UTILIZED IN THE MONITORING PROGRAM. THE PLAN SHALL BE APPROVED BY THE ON SITE COORDINATOR PRIOR TO BEGINNING CONSTRUCTION OF THE TEMPORARY STONE PADS.

- J. THE FOLLOWING REPRESENTS A GENERAL SEQUENCE FOR CONSTRUCTION OF THE WEST ABUTMENT SLOPE. THE CONTRACTOR SHALL PROVIDE A DETAILED EROSION AND SEDIMENT CONTROL PLAN FOR THE ON SITE COORDINATOR'S APPROVAL PRIOR TO CONSTRUCTION. WORK BELOW OHW MUST BE PERFORMED DURING PERIODS OF LOW FLOW, AND BETWEEN JUNE 1 AND AUGUST 31.
 

PHASE I: CONSTRUCT THE WEST ABUTMENT TOE

  - i. WORK UNDER THIS PHASE, BELOW OHW, (I.E., STEPS 7.J.II.-7.J.V. BELOW) IS LIMITED TO TWO WEEKS DURATION, MAXIMUM.
  - ii. CONSTRUCT DIVERSION DAM IN BROOK 40 m (MIN.) UPSTREAM OF THE PROPOSED CENTERLINE OF BRIDGE, AND CONVEY WATER (VIA CULVERT, FLUME, OR OTHER ADEQUATE MEANS) DOWNSTREAM OF THE TOE. DIVERSION CONDUIT SHALL BE MADE OF 900 mm CORRUGATED METAL PIPE OR OTHER ADEQUATE MEANS CAPABLE OF CONVEYING 2.27 CMS (80 CFS). CONSTRUCT CHECK DAM AT DOWNSTREAM END OF DIVERSION CONDUIT. CONTRACTOR SHALL RECEIVE APPROVAL FROM THE ONSITE COORDINATOR OF ALTERNATE DIVERSION TECHNIQUES.
  - iii. EXCAVATE AND CONSTRUCT THE WEST ABUTMENT SLOPE TOE, WITH KEY OF STONE FILL, TYPE IV IN ACCORDANCE WITH THE PLANS. ANY SECTION OF THE TOE WHICH IS BEGUN MUST BE COMPLETED WITH ALL STONE FILL IN PLACE BY THE END OF THE SAME DAY.
  - iv. FOLLOWING COMPLETION OF TOE CONSTRUCTION, CONSTRUCT TEMPORARY DAM ALONG ENTIRE TOE OF WEST ABUTMENT SLOPE AS ILLUSTRATED IN THE ACCOMPANYING PLAN AND DETAIL. THIS SYSTEM SHALL ACT AS A SEDIMENT TRAP FOR ANY UNAVOIDABLE RUNOFF FROM THE WEST ABUTMENT SLOPE, DISCHARGE TURBID WATER VIA PUMPING TO THE TEMPORARY SEDIMENT BASIN ON THE EAST SIDE OF FURNACE BROOK.
  - v. DISMANTLE TEMPORARY DIVERSION SYSTEM, BEGINNING AT THE OUTLET END AND WORKING UPSTREAM.

PHASE II: CONSTRUCT THE WEST ABUTMENT SLOPE

  - vi. STARTING AT THE TOP OF THE WEST SLOPE, CLEAR TREES WITHIN THE LIMITS OF PROPOSED SLOPE WORK.
  - vii. STARTING AT THE TOP OF THE WEST SLOPE, EXCAVATE IN ORDER TO LAY BACK THE SLOPE DOWN TO GRADE (I.E., BOTTOM OF PROPOSED TYPE II STONE FILL) SHOWN ON THE PLANS. NO MORE THAN 9m OF SLOPE, MEASURING PARALLEL TO CENTERLINE OF CONSTRUCTION, MAY BE EXPOSED AT ANY GIVEN TIME (REFER TO DETAIL). EXPOSED SLOPE MUST BE COVERED WITH A POLYETHYLENE LINER, OR OTHER IMPERVIOUS SHEETING APPROVED BY THE ONSITE COORDINATOR. UNTIL STONE FILL IS PLACED, INSTALL TEMPORARY TRIANGULAR DIKE ALONG TOE OF EACH EXPOSED SECTION, AS SHOWN IN DETAIL, AND PIPE WATER TO COFFERDAM AT THE TOE OF THE WEST ABUTMENT SLOPE, AS WORK PROGRESSES DOWN THE SLOPE, THE POLYETHYLENE LINER MUST BE EXTENDED TO THE TOE OF THE EXPOSED SLOPE AT THE END OF EACH WORK DAY.
  - viii. WORK ON THE SLOPE WILL NOT BE ALLOWED DURING ANY RAINFALL EVENT THAT PRODUCES RUNOFF. IF THIS OCCURS, THE CONTRACTOR SHALL SHUT DOWN CONSTRUCTION ACTIVITY IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, AND ENSURE SLOPE IS STABILIZED.
  - ix. REPLACE POLYETHYLENE LINER WITH GEOTEXTILE, INCREMENTALLY AS THE SLOPE IS PREPARED TO ACCEPT STONE FILL. PLACE TYPE II STONE FILL ON THE WEST ABUTMENT SLOPE IN ACCORDANCE WITH THE PLANS, STARTING AT THE TOE OF SLOPE, AND MOVING UPWARD. CONTRACTOR SHALL REMOVE ONLY AS MUCH POLYETHYLENE LINER AS CAN BE REPLACED WITH THE STONE FILL IN ANY GIVEN DAY.
  - x. UPON STABILIZATION OF THE SLOPE AS APPROVED BY THE ONSITE COORDINATOR, REMOVE TEMPORARY DAM.
8. UPON COMPLETION OF EARTHWORK (FINAL GRADING)
  - A. ANY ACCESS ROADS, PARKING AREAS OR TRAILS USED FOR CONSTRUCTION ACCESS, MATERIAL STOCKPILING, WORKING AREAS OR OTHER CONSTRUCTION RELATED ACTIVITIES SHALL BE REMOVED TO REVERSE COMPACTION AND TO RETURN THE SOIL TO ORIGINAL OR BETTER CONDITION. THE SOIL UNDER THESE AREAS SHALL BE LOOSENEED BY ROTOTILLING OR EQUIVALENT MEANS, OR BY HAND AS REQUIRED.
  - B. COMPLETE FINAL STABILIZATION OF THE SITE, INCLUDING CHANNEL LININGS, SEEDING AND MULCHING (PERMANENT TURF ESTABLISHMENT), CHECK DAMS AND OUTLET PROTECTION.
  - C. PLANTINGS OF ALL DISTURBED AREAS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH A STREAM CORRIDOR RESTORATION PLAN, TO BE APPROVED BY THE CORPS OF ENGINEERS AND VERMONT AGENCY OF NATURAL RESOURCES.
9. REMOVE ALL TEMPORARY EROSION PREVENTION AND SEDIMENT CONTROL MEASURES UPON PROJECT COMPLETION OR FINAL SITE STABILIZATION AS APPROVED BY THE ONSITE COORDINATOR, WHICHEVER OCCURS LAST, AND STABILIZE ANY AREAS DISTURBED BY THE REMOVAL OF THE TEMPORARY MEASURES.

### STATE OF VERMONT AGENCY OF TRANSPORTATION

Town Of	BENNINGTON	Bridge No.
Highway No.		Log Sta.
		Surv. Sta.
VT ROUTE 279 OVER FURNACE BROOK		
<b>CONSTRUCTION IMPACTS NOTES</b>		
Designed By	D.R. GOODISON	Drawn By
Checked By	Date	Bridge Design Supervisor
	D.R. GOODISON	K. M. WJTKOWSKI Date
PROJECT	BENNINGTON	PROJECT NO.
		AC NH 019-1(53)
Drawing No.	... \plot_files\zd307c3tvg2.pif	Date
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