

STATE OF VERMONT
AGENCY OF TRANSPORTATION

EROSION CONTROL NARRATIVE

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I.1 PROJECT DESCRIPTION

THE PROJECT INVOLVES THE ADAPTIVE RE-USE OF FORMER MILTON BRIDGE NO. 18, AN HISTORIC TWO-SPAN PENNSYLVANIA THROUGH TRUSS, AT A NEW LOCATION OVER THE MISSISSQUOIRIVER. THE WORK IS BEING UNDERTAKEN IN CONNECTICUT WITH THE CONSTRUCTION OF A NEW SHARED USE PATH ALONG A FORMER LAMOILLE VALLEY RAILLINE IN THE TOWN OF SWANTON.

THE ORIGINAL BRIDGE AT THE SWANTON SITE WAS A WOODEN COVERED RAILROAD BRIDGE CONSTRUCTED IN 1898. IT WAS DESTROYED BY FIRE IN 1987. THE OLD BRIDGE WAS A THREE-SPAN STRUCTURE SUPPORTED ON TWO RIVER PIERS AND FULL HEIGHT ABUTMENTS LOCATED AT THE EDGES OF THE RIVER.

MILTON BRIDGE NO. 18 ORIGINALLY SERVED TO CARRY TOWN HIGHWAY 40 OVER THE LAMOILLE RIVER UNTIL IT WAS REPLACED WITH A NEW BRIDGE IN 1997. BRIDGE NO. 18 STOOD UNUSED IN ITS ORIGINAL LOCATION UNTIL THE DISMANTLING AND STORAGE OF IT IN 2003. THE DISMANTLED TRUSSES ARE CURRENTLY LOCATED AT A STORAGE SITE APPROXIMATELY 1500 FEET EAST OF THE PROPOSED CROSSING IN SWANTON.

THE WORK TO BE PERFORMED INCLUDES RE-ERECTION/REHABILITATION OF THE HISTORIC TRUSSES AS THE END SPANS AND INSTALLATION OF A NEW PREFABRICATED BOWSTRING TRUSS AS THE CENTER SPAN OF THE BRIDGE. THE TRUSSES WILL SIT ON NEW ABUTMENTS AND REHABILITATED PIERS. WORK TO THE EXISTING PIERS SHALL CONSIST OF CONSTRUCTING NEW CONCRETE PEDESTALS, REPOINTING STONE MASONRY OF STEMS, AND SHORING UP OF MASONRY FOUNDATION WITH GROUT BAGS. NO DEWATERING IS ANTICIPATED. THE LENGTH OF THE BRIDGE WILL BE 458 FT. THE PROJECT ALSO INCLUDES 148 FT OF APPROACH PATHWAY.

THE TOTAL AREA OF DISTURBANCE WILL BE APPROXIMATELY 0.25 AC. IT IS ANTICIPATED THAT THE PROJECT WILL LAST ONE CONSTRUCTION SEASON.

I.2 SITE INVENTORY

I.2.1 OFF SITE DRAINAGE CHARACTERISTICS (UP AND DOWN-GRADIENT)

AT THE BEGINNING OF THE RAIL TRAIL, SOUTH RIVER STREET IS AT A HIGH POINT IN ITS ROAD PROFILE. WATER DRAINS NORTH AND SOUTH AWAY FROM THE PROJECT. RUNOFF ALONG THE EAST SIDE OF SOUTH RIVER STREET DRAINS AS SHEET FLOW DIRECTLY INTO THE RIVER. RUNOFF ALONG THE WEST OF THE SOUTH RIVER STREET IS COLLECTED BY A STORM SEWER SYSTEM THAT OUTLETS AT THE EAST CHANNEL BANK NEAR THE BRIDGE.

THE EAST APPROACH PATHWAY FOR THE PROPOSED BRIDGE WILL UTILIZE AN EXISTING RAILROAD EMBANKMENT FILL THAT RUNS THROUGH A FLOODPLAIN ON THE EAST CHANNEL OVERBANK. RUNOFF FROM THE RAIL TRAIL WILL SHEET FLOW DOWN THE EMBANKMENT TO THE RIVER.

I.2.2 DRAINAGE, WATERWAYS, BODIES OF WATER, AND PROXIMITY TO NATURAL OR MANMADE WATER FEATURES

THE PROJECT IS LOCATED IN THE MISSISSQUOI/PIKE BASIN. THE DRAINAGE AREA UPSTREAM OF THE BRIDGE IS 851 SQUARE MILES IN SIZE. THE EASTERN PORTION OF THE WATERSHED RUNS THROUGH THE GREEN MOUNTAINS AND THE WESTERN PORTION IS CHARACTERIZED BY GENTLY ROLLING HILLS. ELEVATIONS RANGE FROM 100 FT TO 3800 FT. OVER 50 PERCENT OF THE WATERSHED IS COVERED BY FORESTED LAND AND INCLUDES THE WESTERN EDGE OF THE NORTHERN FOREST. LAND USE IS PRIMARILY AGRICULTURAL. THE WATERSHED CAN BE DESCRIBED AS DENSELY SETTLED TOWNS SURROUNDED BY SPARSELY POPULATED FARM AND FOREST PARCELS. THE ONLY URBAN AREA IS THE CITY OF ST. ALBANS.

THE MISSISSQUOIRIVER ORIGINATES IN THE TOWN OF LOWELL APPROXIMATELY 55 MILES UPSTREAM OF THE BRIDGE. IT BEGINS BY FLOWING NORTH INTO QUEBEC WHERE IT LOOPS AROUND BACK INTO VERMONT AND FLOWS WESTERLY, EVENTUALLY EMPTYING INTO THE MISSISSQUOIBAY OF LAKE CHAMPLAIN. AT MISSISSQUOIBAY, THERE IS A NATIONAL WILDLIFE REFUGE. SEVERAL TRIBUTARIES INCLUDING HUNGERFORD BROOK, BLACK CREEK, AND TROUT RIVER JOIN THE MISSISSQUOIRIVER ALONG ITS COURSE. THE RIVER IS NAVIGABLE. IN THE PAST, THE RIVER WAS USED BY PADDLE BOATS SUCH AS THE "MISS QUEEN". TODAY THE RIVER IS USED RECREATIONALLY FOR CANOEING AND FISHING. IN THE AREA OF THE BRIDGE, THE AGENCY OF ENVIRONMENTAL CONSERVATION WATER RESOURCES BOARD LISTS THE RIVER AS A TYPE III WATER QUALITY CLASSIFICATION.

THE STREAM BED IS STABLE AND CONSISTS OF LOOSE, GRAY, FINE TO COARSE SAND WITH A D50 OF 1.2 MM. THE AVERAGE SLOPE OF THE RIVER IS LESS THAN 0.5%. THE DEPTH OF FLOW OF THE MISSISSQUOIRIVER AT THE PROJECT SITE VARIES DEPENDING ON THE SEASON AND WEATHER CONDITIONS. UNDER NORMAL FLOW CONDITIONS THE AVERAGE DEPTH IS APPROXIMATELY 10 FT.

I.2.3 TOPOGRAPHY, EXISTING ROADS, BUILDINGS, UTILITIES

NEAR THE PROJECT SITE, THE MISSISSQUOIRIVER HAS A WELL DEFINED UNIFORM CHANNEL WITH A TRAPAZOIDAL SHAPE. THE CHANNEL BANKS HAVE 1:3 SIDE SLOPES THAT STEEPEN TO 1:2 NEAR THE ABUTMENTS. THE TOP OF THE WEST BANK IS APPROXIMATELY 14 FT HIGHER THAN THE EAST SIDE.

ALONG THE WEST CHANNEL OVERBANK, SOUTH RIVER STREET (TH 2) RUNS PARALLEL WITH THE RIVER. DEVELOPMENT ALONG SOUTH RIVER STREET IS A MIXTURE OF RESIDENTIAL AND COMMERCIAL. THE RAILROAD DEPOT MUSEUM IS LOCATED DIRECTLY ACROSS THE STREET FROM THE BEGINNING OF THE PROPOSED RAIL TRAIL. OVERHEAD UTILITIES RUN ALONG THE EAST SIDE OF SOUTH RIVER STREET. THE EAST CHANNEL OVERBANK IS RELATIVELY FLAT AND ACTS AS A FLOODPLAIN DURING PERIODS OF HIGH WATER. THE AREA IS UNDEVELOPED AND THERE ARE NO UTILITIES PRESENT.

THE USGS HAS A GAGING STATION LOCATED NEAR THE WEST END OF THE BRIDGE THAT HAS BEEN RECORDING STREAMFLOW DATA CONCERNING THE MISSISSQUOIRIVER SINCE 1990.

THE SWANTON VILLAGE DAM IS LOCATED APPROXIMATELY 0.3 MILES DOWNSTREAM OF THE BRIDGE. IT IS USED FOR ELECTRIC POWER GENERATION. LOW FLOWS ARE REGULATED BY THE POWER PLANT BUT THE DAM HAS NO SIGNIFICANT FLOOD CONTROL CAPACITY. IT DOES ACT TO CONTROL THE OCCURRENCE OF ICE JAMS UPSTREAM OF THE DAM.

I.2.4 VEGETATION

THE CHANNEL BANKS OF THE MISSISSQUOIRIVER ARE VEGETATED WITH MATURE TREES AND BRUSH. ALONG THE WEST CHANNEL OVERBANK, THE PROPERTIES ALONG SOUTH RIVER STREET HAVE GRASS LAWNS WITH SOME TREES. THE FLOODPLAIN ON THE EAST CHANNEL OVERBANK IS VEGETATED WITH TREES, BRUSH AND CLASS II WETLANDS.

IMPACTS TO VEGETATION WILL BE LIMITED TO THAT WHICH IS NECESSARY FOR CONSTRUCTION OF THE NEW BRIDGE. APPROXIMATELY 2000 SF OF SMALL TREES & SHRUBS WILL BE CLEARED ALONG THE SIDE SLOPES OF THE RAILROAD BED ON THE EAST APPROACH. THESE SIDE SLOPES WILL BE SEEDED & MULCHED TO PREVENT EROSION AND WILL EVENTUALLY GROW BACK WITH NATURAL VEGETATION.

I.2.5 SOILS

THE UNITED STATES DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE HAS MAPPED THE SOIL THROUGHOUT FRANKLIN COUNTY, VT. THE SOIL TYPES IDENTIFIED FOR THIS PROJECT ALONG THE EASTERN AND WESTERN SIDES OF THE MISSISSQUOIRIVER ARE AS FOLLOWS:

THE SOIL TYPE FOR THE WESTERN SIDE IS DEB (DEERFIELD LOAMY FINE SAND, 0 TO 8 PERCENT SLOPES). THE SOIL TYPE IS DESCRIBED AS FOLLOWS: "TYPICALLY THE SURFACE LAYER IS VERY DARK GRAYISH BROWN LOAMY FINE SAND 8 INCHES THICK. THE SUBSOIL IS 10 INCHES THICK. IT IS LOOSE, MOTTLED, YELLOWISH-BROWN SAND IN THE UPPER PART AND MOTTLED, LIGHT OLIVE BROWN SAND IN THE LOWER PART. THE SUBSTRATUM EXTENDS TO A DEPTH OF 60 INCHES. IT IS OLIVE FINE SAND IN THE UPPER PART AND OLIVE SAND IN THE LOWER PART." IT IS CLASSIFIED AS HAVING SLIGHT EROSION POTENTIAL, WITH RAPID TO VERY RAPID PERMEABILITY. THE LISTED SOIL EROSION FACTOR (K) FOR THIS SOIL TYPE IS 0.15 TO 0.17.

THE SOIL TYPE FOR THE EASTERN SIDE IS LE (LIMERICK SILT LOAM). THIS SOIL TYPE IS DESCRIBED AS FOLLOWS: "TYPICALLY THE SURFACE LAYER IS DARK GRAYISH BROWN SILT LOAM. BETWEEN DEPTHS OF 11 TO 60 INCHES, IT IS MOTTLED, GRAYISH BROWN SILT LOAM." IT IS CLASSIFIED AS HAVING SLIGHT EROSION POTENTIAL, WITH MODERATE PERMEABILITY. THE LISTED SOIL EROSION FACTOR (K) FOR THIS SOIL TYPE IS 0.20.

I.2.6 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS: NO

HISTORICAL OR ARCHEOLOGICAL AREAS: NO

PRIME AGRICULTURAL LAND: NO

THREATENED (T) AND ENDANGERED (E) SPECIES: THERE ARE STATE THREATENED AND ENDANGERED MUSSELS KNOWN TO BE IN THE VICINITY OF THE PIERS. THE AGENCY OF TRANSPORTATION WILL BE ARRANGING TO HAVE SUCH MUSSELS RELOCATED PRIOR TO THE CONTRACTOR PERFORMING ANY WORK AT OR AROUND THE PIERS OR BELOW WATER SURFACE ELEVATION PER THE DIRECTION OF THE VERMONT DEPARTMENT OF FISH AND WILDLIFE NON-GAME AND NATURAL HERITAGE PROGRAM. COORDINATION ON TIMING FOR THIS EFFORT WILL BE NEEDED AND WILL BE DISCUSSED AT THE PRE-CONSTRUCTION CONFERENCE.

WATER RESOURCES: MISSISSQUOIRIVER, WHICH IS LISTED AS A "RIVER OF CONCERN" UNDER THE ACOE GENERAL PERMIT. A STREAM ALTERATION PERMIT IS IN PLACE WITH IN-STREAM WORK RESTRICTED TO THE PERIOD OF 7/15 - 10/1. IN-STREAM WORK CONSISTS OF "PLACEMENT OF GROUT BAGS IN PIER VOIDS AND AS PROTECTION AGAINST PIER SCOUR". NO OTHER WORK IN THE RIVER HAS BEEN AUTHORIZED.

WETLANDS: THE MISSISSQUOIRIVER AND WETLANDS ALONG THE EAST CHANNEL OVERBANK ARE IDENTIFIED RESOURCES THAT WILL REQUIRE PROTECTION FROM SEDIMENT POLLUTION. CLASS II WETLANDS HAVE BEEN IDENTIFIED ON THE EASTERN SHORE AND CLASS II WETLANDS HAVE BEEN IDENTIFIED ON THE WESTERN SHORE. PLEASE NOTE THE "ALLOWED USE DETERMINATION" FOR IMPACTS COVERED UNDER THE "ALLOWED USE DETERMINATION" ISSUED BY THE VERMONT AGENCY OF NATURAL RESOURCES WETLANDS OFFICE WHICH STATES THAT NO WORK, INCLUDING ANY STAGING AND MOBILIZATION, IS TO TAKE PLACE WITHIN THE LIMITS OF THE CLASS II WETLANDS ON THE EAST SIDE.

I.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 LARGE PLAN OF DEVELOPMENT, THEN THE SELECTED CONTRACTOR WILL BE RESPONSIBLE FOR ADDITIONAL PERMITTING WITH VANR VIA FILING OF THE APPROPRIATE NOTICE OF INTENT UNDER THE CONSTRUCTION GENERAL PERMIT PROCESS.

I.4 EROSION PREVENTATION AND SEDIMENT CONTROL

THE EROSION CONTROL PLANS ARE MEANT AS A GUIDELINE FOR PREVENTING EROSION AND CONTROLLING SEDIMENT TRANSPORT. THE WORK OUTLINED IN THIS NARRATIVE CONSISTS OF APPLYING MEASURES THROUGHOUT THE LIFE OF THE PROJECT MINIMIZING SEDIMENT TRANSPORT TO THE RECEIVING WATERS. THE MEASURES INCLUDE STABILIZATION AND STRUCTURAL PRACTICES, STORM WATER CONTROLS AND OTHER POLLUTION PREVENTION CONTROLS.

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. THEREFORE, STABILIZE ALL DISTURBED AREAS AS SOON AS PRACTICAL BUT NO MORE THAN TWO DAYS AFTER CONSTRUCTION ACTIVITY HAS BEEN TEMPORARILY OR PERMANENTLY CEASED.

THE CONTRACTOR SHALL COORDINATE THE INSTALLATION, USE AND REMOVAL OF EROSION PREVENTION AND SEDIMENT CONTROL MEASURES WITH CONSTRUCTION ACTIVITIES TO ASSURE ECOLOGICAL, EFFECTIVE AND CONTINUOUS EROSION PREVENTION AND SEDIMENT CONTROL. THE CONTRACTOR SHALL EMPLOY TEMPORARY STABILIZATION PRACTICES IN INCREMENTAL STAGES AS CONSTRUCTION PROCEEDS.

THE CONTRACTOR SHALL INSTALL ALL EROSION CONTROL PREVENTION AND SEDIMENT CONTROL MEASURES AS SHOWN IN THE ESPC PLANS OR AS DIRECTED BY THE ON-SITE PLAN COORDINATOR. DO NOT MODIFY THE TYPE, SIZE OR LOCATION OF ANY CONTROL OR PRACTICE WITHOUT APPROVAL OF THE ON-SITE PLAN COORDINATOR.

ALL MEASURES SHALL BE REGULARLY MAINTAINED AND SHALL BE CHECKED FOR SEDIMENT BUILD-UP. SEDIMENT SHALL BE DISPOSED AT AN APPROVED SITE WHERE IT WILL NOT BE SUBJECT TO EROSION.

CONSTRUCTIONS OPERATIONS SHALL BE CONDUCTED IN SUCH A MANNER AS TO PREVENT ANY DAMAGE TO THE WATERS OF THE UNITED STATES FROM POLLUTION BY ANY DEBRIS, SEDIMENT OR ANY FOREIGN MATERIAL, OR FROM MANIPULATION OF EQUIPMENT AND/OR MATERIALS IN OR NEAR THE WATERS OF THE UNITED STATES. THE CONTRACTOR SHALL NOT RETURN DIRECTLY TO THE WATERS OF THE UNITED STATES ANY WATER THAT HAS BEEN USED FOR WASH PURPOSES OR OTHER SIMILAR OPERATION WHICH WOULD CAUSE THE WATER TO BECOME POLLUTED WITH SAND, SILT, CEMENT, OIL OR OTHER IMPURITIES. IF THE CONTRACTOR USES WATER FROM THE WATERS OF THE UNITED STATES, THE CONTRACTOR SHALL CONSTRUCT AN INTAKE OR TEMPORARY DAM TO PROTECT AND MAINTAIN STREAM WATER QUALITY. DURING CONSTRUCTION, NO WET OR FRESH CONCRETE OR LEACHATE SHALL BE ALLOWED TO ESCAPE INTO THE WATERS OF THE UNITED STATES, NOR SHALL WASHING FROM CONCRETE TRUCKS, MIXERS OR OTHER DEVICES BE ALLOWED TO ENTER ANY WETLANDS OR WATERS OF THE UNITED STATES.

(REFER TO THE LOW RISK SITE HANDBOOK AND APPROPRIATE DETAIL SHEETS FOR EACH PRACTICE REQUIRED ON THE PROJECT TO INCLUDE BUT NOT LIMIT TO THE FOLLOWING.)

I.4.1 MARK SITE BOUNDARIES


PROJECT DEMARCATION FENCING, DENOTED -PDF- ON THE PLANS, WILL BE USED TO DELINEATE THE LIMITS THE CONTRACTOR CAN ACCESS WITH CONSTRUCTION EQUIPMENT AND PERSONNEL. THESE MEASURES LIMIT THE AREA THAT CAN BE DISTURBED AND EXPOSED TO EROSION. THE CONTRACTOR SHALL INSTALL THE PERIMETER CONTROLS PRIOR TO STARTING ANY WORK WITHIN THE PROJECT AREA. THE CONTRACTOR SHALL NOT ALLOW ANY CONSTRUCTION EQUIPMENT TO OPERATE OR ACCESS ON THE DOWN SLOPE SIDE OF ANY PERIMETER CONTROL MEASURE. THE CONTRACTOR SHALL NOT ALLOW ANY CROSSING OF A FLOWING STREAM OR DISTURBANCE TO THE EXISTING STREAM BANKS BY CONSTRUCTION EQUIPMENT EXCEPT AS AUTHORIZED BY THE ENGINEER.

I.4.2 LIMIT DISTURBANCE AREA

EMPLOY TEMPORARY STABILIZATION PRACTICES IN INCREMENTAL STAGES (PHASING) AS CONSTRUCTION ACTIVITIES PROCEED. ADDITIONAL MEASURES MAY BE NEEDED DUE TO THE PHASING OF THE PROJECT AND AS DIRECTED BY THE ENGINEER. IN GENERAL, PRESERVE EXISTING VEGETATION, TREES AND SHRUBS WHEN POSSIBLE, AS DIRECTED BY THE ENGINEER.

I.4.3 STABILIZE CONSTRUCTION EXIT

STABILIZED CONSTRUCTION ENTRANCE SHALL BE UTILIZED AS NECESSARY. THE CONTRACTOR SHALL NOT ALLOW CONSTRUCTION VEHICLES TO TRACK SEDIMENT OFF-SITE OF THE PROJECT LIMITS.

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