

EROSION CONTROL NARRATIVE

1.1 PROJECT DESCRIPTION

THE PROPOSED IMPROVEMENTS FOR VT 125 IN CORNWALL WILL INCLUDE THE REPLACEMENT OF THE EXISTING TWO-SPAN BRIDGE OVER THE LEMON FAIR RIVER IN ADDITION TO HORIZONTAL AND VERTICAL ALIGNMENT IMPROVEMENTS TO VT 125 AND TH 33. THE PROPOSED BRIDGE WILL BE LOCATED IN THE SAME LOCATION AS THE EXISTING BRIDGE. IN ADDITION TO THE BRIDGE REPLACEMENT AND ROADWAY RE-ALIGNMENT IMPROVEMENTS, THE INTERSECTION WITH TOWN HIGHWAY (TH) 33 WILL BE IMPROVED.

THE PROPOSED VT 125 WILL GENERALLY FOLLOW THE EXISTING ROADWAY ALIGNMENT NORTH OF THE LEMON FAIR RIVER; HOWEVER, THE PROPOSED HORIZONTAL ALIGNMENT SOUTH OF THE RIVER WILL BE IMPROVED TO ACCOMMODATE A HIGHER DESIGN SPEED. THE IMPROVEMENTS TO THE HORIZONTAL ALIGNMENT WILL CARRY THE PROPOSED ROADWAY FURTHER SOUTH TO ACCOMMODATE A LARGER CURVE. THE END OF TH 33 WILL BE REALIGNED TO INTERSECT THE NEW VT125 AT A PERPENDICULAR ANGLE AND TO MINIMIZE IMPACTS TO AN ARCHAEOLOGICALLY SENSITIVE AREA.

A TWO-WAY TEMPORARY DETOUR AND TEMPORARY BRIDGE IS ALSO PROPOSED TO ALLOW FOR THE CONSTRUCTION OF THE PROPOSED BRIDGE AND APPROACHES. TO LIMIT TEMPORARY WETLAND IMPACTS, THE TEMPORARY BRIDGE WILL BE LOCATED IMMEDIATELY UPSTREAM OF THE PROPOSED BRIDGE. THE TEMPORARY DETOUR BEGINS NORTH OF THE LEMON FAIR RIVER AT THE BEGINNING OF THE PROPOSED ROADWAY AND CONTINUES OVER THE RIVER AND MERGES BACK INTO THE EXISTING ROADWAY BEFORE TH 33. IT IS ANTICIPATED THAT THE TEMPORARY BRIDGE AND APPROACHES WILL BE IN PLACE FOR APPROXIMATELY ONE YEAR. THE TEMPORARY BRIDGE AND APPROACHES WILL BE REMOVED ONCE THE NEW BRIDGE AND APPROACHES ARE CONSTRUCTED. THIS PROJECT IS ESTIMATED TO LAST FOR TWO CONSTRUCTION SEASONS.

TOTAL AREA OF SITE DISTURBANCE (INCLUDING TEMPORARY IMPACTS) IS APPROXIMATELY 1.42 HECTARE (3.50 ACRES).

1.2 SITE INVENTORY

1.2.1 OFF SITE DRAINAGE CHARACTERISTICS (UP AND DOWN-GRADIENT)

THE PROPOSED PROJECT SITE IS APPROXIMATELY 1.42 HECTARES (3.5 ACRES) AND IS PREDOMINANTLY BORDERED BY PASTURE LAND, CLASS II WETLANDS, AND THE LEMON FAIR RIVER. THE EXISTING SITE TOPOGRAPHY IS DEFINED BY THE LEMON FAIR RIVER VALLEY. VALLEY SLOPES WITHIN THE PROJECT SITE ARE GENERALLY IN THE RANGE OF 15% TO 30% WITH FLAT AREAS LOCATED AT HIGHER ELEVATIONS AND AT THE RIVER WHERE CLASS II WETLANDS HAVE FORMED WITHIN THE 100-YEAR FLOOD PLAIN.

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

EXISTING STORMWATER RUNOFF FROM THE PROJECT SITE IS INITIALLY COLLECTED BY THE BORDERING CLASS II WETLANDS, WHICH ALSO BORDERS THE LEMON FAIR RIVER; THE RUNOFF WILL EVENTUALLY PASS THROUGH THE WETLANDS AND INTO THE LEMON FAIR RIVER; THEREFORE THE LEMON FAIR RIVER IS CONSIDERED AS THE RECEIVING WATER FOR THE PROJECT. THE LEMON FAIR RIVER IS NOT AN OUTSTANDING RESOURCE WATER ACCORDING TO THE WATER RESOURCES PANEL AND IT IS ALSO NOT A CLASS A WATER, OR AN IMPAIRED WATER IN NEED OF TMDL ACCORDING TO THE 303(d) LIST PART A, 2004. THE PROJECT SITE IS IN CLOSE PROXIMITY TO CLASS II WETLANDS; TEMPORARY AND PERMANENT IMPACTS TO THE CLASS II WETLANDS ARE ANTICIPATED. THERE ARE ALSO TWO EXISTING CULVERTS UNDER VT 125 WITHIN THE PROJECT SITE WHICH COLLECTS RUNOFFS FROM THE CLASS II WETLANDS LOCATED SOUTH OF VT125 AND DISCHARGES TO THE LEMON FAIR RIVER. NEW CULVERTS ARE PROPOSED TO REPLACE THE EXISTING CULVERTS TO ACCOMMODATE THE ROADWAY ALIGNMENT IMPROVEMENTS WHILE MAINTAINING THE EXISTING DRAINAGE PATTERNS.

1.2.3 TOPOGRAPHY, EXISTING ROADS, BUILDINGS, UTILITIES

FROM THE PROJECT BEGINNING, THE EXISTING VT 125 DESCENDS SOUTH TOWARDS THE RIVER AT A SLOPE OF APPROXIMATELY 7%. IN THIS AREA THE EXISTING EMBANKMENT SLOPES ARE GENERALLY 3H:1V BUT ARE AS STEEP AS 2H:1V AT THE RIVER. THE EXISTING PROFILE GRADE OF VT 125 FOR THE PORTION SOUTH OF THE RIVER IS MUCH MORE FLAT WITH PROFILE GRADES LESS THAN 1%. ROADSIDE DITCHES ARE GENERALLY SUBSTANDARD AND FOLLOW THE EXISTING PROFILE GRADE OF THE ROADWAY. THE ROADWAY EMBANKMENTS ON THE NORTH SIDE OF VT 125 ARE GENERALLY SHALLOW. THE EXISTING HILLSIDE (SOUTH SIDE OF VT 125) SLOPES TOWARDS VT 125 AND IS MARKED WITH TWO TO THREE STREAMLETS WHICH CONVEY STORMWATER RUNOFF TO THE EXISTING CULVERTS UNDER VT 125. TH 33 DESCENDS TO THE EXISTING INTERSECTION WITH VT 125 AT A SLOPE OF APPROXIMATELY 10%. SUBSTANDARD ROADSIDE DITCHES GENERALLY PARALLEL BOTH SIDES OF TH 33 AS IT APPROACHES VT 125. THERE ARE NO EXISTING BUILDINGS LOCATED WITHIN THE PROJECT SITE. THERE ARE EXISTING AERIAL AND UNDERGROUND UTILITY CABLES LOCATED WITHIN THE PROJECT SITE AND UTILITY RELOCATION BY THE UTILITY OWNER IS ANTICIPATED.

1.2.4 VEGETATION

THE EXISTING EMBANKMENTS ALONG VT 125 ARE GENERALLY WELL VEGETATED WITH GRASSES, SHRUBS, AND TREES AND SHOW NO SIGNIFICANT SIGNS OF EROSION. THE EXISTING ROADSIDE GRASS DITCHES ARE ERODED IN SOME AREAS BECAUSE THEY ARE NOT HYDRAULICALLY ADEQUATE. THE WEST SIDE OF TH 33 IS MAINLY OPEN PASTURELAND WHILE THE EAST SIDE IS GENERALLY WHAT APPEARS TO BE OVERGROWN PASTURELAND WITH TREES, SHRUBS, AND GRASSES. THE ROADSIDE GRASS DITCHES SHOW NO SIGNIFICANT SIGNS OF EROSION. ALL VEGETATION WITHIN THE PROPOSED DISTURBANCE AREAS SHALL BE REMOVED. SEED AND MULCH SHALL BE USED TO RE-ESTABLISH THE DISTURBED AREAS. SEEDING SHALL CONFORM TO THE VTRANS STANDARD RURAL SEEDING FORMULA.

1.2.5 SOILS

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. SOIL SURVEY GIS DATA FROM THE VERMONT CENTER FOR GEOGRAPHIC INFORMATION (VCGI) WAS DOWNLOADED AND OVERLAID ONTO THE DESIGN PLANS TO DETERMINE THE EXTENTS OF THE SOILS. THE ENTIRE PROJECT SITE IS UNDERLAIN WITH SOILS CHARACTERIZED AS HAVING HIGH SOIL ERODABILITY COEFFICIENTS ('K' VALUE). ALL OF THE SOILS HAVE A 'K' VALUE OF 0.49. IN ADDITION, THE COVINGTON AND LIVINGTON CLAYS ARE POORLY DRAINED WHILE VERGENNES CLAYS ARE MODERATELY WELL DRAINED. TABLE 1 OUTLINES THE SOILS THAT WERE DETERMINED TO BE LOCATED WITHIN THE PROPOSED PROJECT LIMITS.

TABLE 1 - SOIL TYPES

Sta - Sta	Designation (musym)	Name (compname)	Hyd. Group	Drainage
1+040-1+115.5	VgD	Vergennes Clay 12-25% Slope	C	Moderately Well Drained
1+161.5-1+200	Lk	Livingston Clay, Flooded	D	Very Poorly Drained
1+200-1+240	VgD	Vergennes Clay, 12-25% Slope	C	Moderately Well Drained
1+240-1+440	VgC	Vergennes Clay, 6-12% Slope	C	Moderately Well Drained
TH33 2+000-2+035	VgC	Vergennes Clay, 6-12% Slope	C	Moderately Well Drained
TH33 2+035-2+120	VgB	Vergennes Clay, 2-6% Slope	C	Moderately Well Drained

THE COVINGTON AND LIVINGSTON CLAYS ARE EACH FOUND NEAR THE RIVER IN THE LOWER FLOODED REGIONS THAT ARE CLASS II WETLANDS. THE MAJORITY OF THE DISTURBED SITE WILL BE OVER VERGENNES CLAYS.

NOTE: K-VALUES GENERALLY INDICATE THE FOLLOWING: K<0.22 = LOW EROSION POTENTIAL; 0.22<K<0.37 = MODERATE EROSION POTENTIAL; K>0.37 = HIGH EROSION POTENTIAL.

1.2.6 SENSITIVE RESOURCE AREAS

A CATEGORICAL EXCLUSION ENVIRONMENTAL ANALYSIS SHEET WAS COMPLETED FOR THIS PROJECT.
CRITICAL HABITATS: NO
HISTORICAL OR ARCHEOLOGICAL AREAS: YES
PRIME AGRICULTURAL LAND: YES
THREATENED AND ENDANGERED SPECIES: YES
WATER RESOURCE: LEMON FAIR RIVER
WETLANDS: CLASS II WETLANDS

1.3 CONSTRUCTION SEQUENCE

THE CONTRACTOR SHALL FOLLOW THE PROJECT SEQUENCE PROVIDED ON SHEET 86 AS SUMMERIZED BELOW OR DEVELOP ONE THAT MUST BE APPROVED BY THE ENGINEER.

PHASE 1:

- CLEAN AND GRUB AREAS OF PROPOSED DETOUR EMBANKMENT.
- CONSTRUCT SOUTHERN DETOUR EMBANKMENT.
- CONSTRUCT NORTHERN DETOUR EMBANKMENT AND TEMPORARY BRIDGE.
- DIVERT MAINLINE TRAFFIC TO DETOUR ALIGNMENT.

PHASE 2:

- DEMOLISH EXISTING BRIDGE AND ABUTMENTS
- CONSTRUCT PROPOSED BRIDGE ABUTMENTS, WINGWALLS, SUPERSTRUCTURE, AND MAINLINE APPROACHES.
- DIVERT DETOUR TRAFFIC TO MAINLINE ALIGNMENT.
- REMOVE TEMPORARY BRIDGE AND RECONSTRUCT DETOUR EMBANKMENTS TO FINAL CONDITIONS.

1.4 RISK EVALUATION

THE PROJECT IMPACT AREA IS GREATER THAN ONE ACRE; THEREFORE, THIS PROJECT FALLS UNDER THE JURISDICTION OF CONSTRUCTION GENERAL PERMIT 3-9020 (2006). THE PROJECT RISK WAS EVALUATED UTILIZING APPENDIX A OF THE GENERAL PERMIT 3-9020 (2006). UNDER PART I - BASIC RISK EVALUATION, THE PROJECT OBTAINED A SCORE OF 2 DUE TO THE FOLLOWING FACTORS: THE PROJECT WILL DISTURB MORE THAN 2 ACRES OF LAND AND THE PROJECT WILL HAVE STORMWATER DISCHARGES FROM THE CONSTRUCTION SITE TO THE RECEIVING WATER THAT DO NOT FIRST PASS THROUGH A 50 FT VEGETATED BUFFER AREA. UNDER PART II - DETAILED RISK EVALUATION, THE PROJECT OBTAINED A SCORE OF 2 DUE TO THE PROJECT HAVING MORE THAN ONE ACRE OF DISTURBANCE ON BOTH THE SOILS THAT ARE GREATER THAN 15% SLOPE AND THE SOILS WITH A HIGH (K<0.36) ERODIBILITY RATING. UNDER THE DETAILED RISK MITIGATION FACTOR EVALUATION, THE PROJECT OBTAINED A SCORE OF 2 BY LIMITING THE CONCURRENT EARTH DISTURBANCE TO 2 ACRES OR LESS AND BY SPECIFYING A MAXIMUM OF 7 CONSECUTIVE DAYS BEFORE TEMPORARY OR FINAL STABILIZATION OF DISTURBED EARTH. THE OVERALL RISK SCORE ACHIEVED IS 2, WHICH CLASSIFIES THE PROJECT AS A MODERATE RISK PROJECT.

ANY MODIFICATIONS TO THE PROJECT SHALL RESULT IN A RE-EVALUATION OF THE RISK AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR RE-FILING SHOULD THE RISK CHANGE.

1.5 EROSION PREVENTION AND SEDIMENT CONTROL

THE EROSION PREVENTION AND SEDIMENT CONTROL PLANS AND PROJECT SPECIFICATIONS DEPICT THE PROPOSED EROSION CONTROL MEASURES TO BE EMPLOYED AS PART OF THE PROJECT. THESE MEASURES ARE UTILIZED TO LIMIT SEDIMENT TRANSPORT DURING CONSTRUCTION AND TO PREVENT EROSION UNDER FINAL CONDITIONS. IT IS CRITICAL THAT THESE MEASURES ARE IMPLEMENTED AND MAINTAINED FOR THE DURATION OF THE PROJECT IN ORDER TO SUSTAIN THE DESIGNATED RISK EVALUATION. 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.

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 AND THE VERMONT AGENCY OF NATURAL RESOURCES (VANR) REQUIREMENTS. WHEREVER POSSIBLE, EXCAVATED SOIL MATERIAL SHALL BE RE-USED WHEN APPROVED BY AND AT THE DISCRETION OF THE ENGINEER TO FORM EMBANKMENTS AND AS OTHER BORROW MATERIALS. EXCESS MATERIALS SHALL BE DISPOSED OF IN WASTE SITES APPROVED BY THE AGENCY TO RECEIVE THESE MATERIALS. THE CONTRACTOR SHALL SUBMIT TO THE AGENCY, FOR REVIEW AND APPROVAL, A "WASTE BORROW STAGING REVIEW SHEET" FOR EACH DISPOSAL SITE(S) HE/SHE WISHES TO USE FOR THIS PROJECT. ANY ADDITIONAL PERMITTING REQUIRED FOR THE DISPOSAL SITES OR PROOF OF COMPLIANCE FOR THESE WASTE SITES MUST BE FURNISHED BY THE CONTRACTOR PRIOR TO USE. TEMPORARY AND PERMANENT STABILIZATION OF ALL STAGING

AREAS AND WASTE DISPOSAL AREAS SHALL BE IN ACCORDANCE WITH SECTION 105 OF THE STANDARD SPECIFICATIONS AND IN ACCORDANCE WITH THE CGP-9020 AND VANR REQUIREMENTS.

1.5.1 MARK SITE BOUNDARIES

PROJECT DEMARCATION FENCING, DENOTED -PDF- ON THE PLANS IS USED TO DELINEATE A PHYSICAL BOUNDARY TO WHICH THE CONTRACTOR MUST NOT DISTURB BEYOND. THE PDF MUST BE INSTALLED PRIOR TO THE START OF CONSTRUCTION. WHENEVER DAMAGED, THE CONTRACTOR MUST IMMEDIATELY REPAIR THE PDF.

1.5.2 LIMIT DISTURBANCE AREA

THE CONTRACTOR SHALL LIMIT CONCURRENT EARTH DISTURBANCE TO 2 ACRES OR LESS AT ANY ONE TIME.

1.5.3 STABILIZED CONSTRUCTION EXIT

STABILIZED CONSTRUCTION ENTRANCES (VEHICLE TRACKING PAD) SHALL BE INSTALLED AS SHOWN ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.

1.5.4 INSTALL SILT FENCE

SILT FENCE SHALL BE INSTALLED PRIOR TO ANY UP SLOPE WORK AS SHOWN ON THE PLANS, OR AS DIRECTED BY THE ENGINEER. WOVEN WIRE REINFORCED SILT FENCE SHALL BE REQUIRED WITHIN 30 000 UPSLOPE OF RECEIVING WATERS.

1.5.5 DIVERT UPLAND RUNOFF

DUE TO EXISTING SITE TOPOGRAPHY AND DRAINAGE PATTERNS, SIGNIFICANT UPLAND RUNOFF IS NOT ANTICIPATED TO FLOW OVER DISTURBED SURFACES. IN ADDITION, TEMPORARY STONE CHECK DAMS SHALL BE INSTALLED AS SHOWN ON THE PLANS TO DIVERT UPLAND RUNOFF.

1.5.6 SLOW DOWN CHANNELIZED RUNOFF

STONE CHECK DAMS SHALL BE INSTALLED AS SHOWN ON THE PLANS. STONE LINED DITCHES SHALL BE INSTALLED WHERE INDICATED ON THE PLANS.

1.5.7 CONSTRUCT PERMANENT CONTROLS

TYPE I AND II STONE FOR SLOPE LINING AND CHANNEL PROTECTION
SEED AND MULCH
PERMANENT EROSION MATTING FOR GRASS CHANNEL LINING
TEMPORARY EROSION MATTING FOR SLOPE STABILIZATION
PERMANENT STONE CHECK DAMS
HEADWALLS AND DRAINAGE PIPE ENDS
STREAM BANK VEGETATION WILL BE INTRODUCED IN THE GRUBBING MATERIAL THAT IS TO BE PLACED OVER THE STREAM BANK STONE FILL AND AT CULVERT INLETS.

1.5.8 STABILIZE EXPOSED SOILS

THE CONTRACTOR SHALL IMMEDIATELY ROUGHEN ALL DISTURBED SOIL SURFACES TO THE SATISFACTION OF THE ENGINEER BY THE USE OF TRACK DRIVEN BULLDOZERS, SHEEPSFOOT ROLLERS OR OTHER APPROVED METHODS. THE CONTRACTOR SHALL APPLY DUST CONTROL MEASURES OVER EXPOSED SURFACES NOT INTENDED TO BE VEGETATED.

SEED AND MULCH (TEMPORARY SEEDING SHALL BE WINTER RYE; PERMANENT SEEDING SHALL CONFORM TO THE VTRANS STANDARD RURAL SEEDING FORMULA; SEEDING AND MULCHING SHALL CONFORM TO THE VTRANS STANDARD APPLICATION RATES AND PROCEDURES AS STIPULATED UNDER THE GENERAL NOTES ON SHEET 3.)

TEMPORARY EROSION MATTING SHALL BE PLACED ON ALL SLOPES EQUAL TO OR GREATER THAN 3H:1V.

ALL AREAS OF DISTURBANCE MUST HAVE TEMPORARY OR FINAL 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. THE FOLLOWING EXCEPTIONS APPLY:

- STABILIZATION IS NOT REQUIRED IF WORK IS TO CONTINUE IN THE AREA WITHIN THE NEXT 24 HOURS AND THERE IS NO PRECIPITATION FORECAST FOR THE NEXT 24 HOURS.
- STABILIZATION IS NOT REQUIRED IF THE WORK IS OCCURRING IN A SELF-CONTAINED EXCAVATION WITH A DEPTH OF 600 OR GREATER.

1.5.9 WINTER STABILIZATION

THE CONTRACTOR SHALL BE REQUIRED TO SUBMIT A WINTER EPSC PLAN TO VANR AND THE ENGINEER FOR APPROVAL IF THE CONTRACTOR PROPOSES LAND DISTURBANCE BETWEEN OCTOBER 15 AND APRIL 15. TO ASSURE A VIGOROUS CATCH OF VEGETATIVE COVER, SEEDING AND MULCHING SHALL BE COMPLETED BY SEPTEMBER 15TH TO THE EXTENT POSSIBLE, OR AS DIRECTED BY THE ENGINEER.

1.5.10 STABILIZE SOIL AT FINAL GRADE

SEED AND MULCH (TEMPORARY SEEDING SHALL BE WINTER RYE; PERMANENT SEEDING SHALL CONFORM TO THE VTRANS STANDARD RURAL SEEDING FORMULA).

TEMPORARY EROSION MATTING SHALL BE USED TO STABILIZE ALL SLOPES EQUAL TO OR GREATER THAN 3H:1V OR WITH STONE FILL FOR SLOPE STABILIZATION WHERE INDICATED ON THE PLANS.

1.5.11 DE-WATERING ACTIVITIES

FILTER BAGS OR ENGINEER APPROVED EQUAL METHOD SHALL BE REQUIRED FOR ALL DEWATERING OPERATIONS. THEIR PLACEMENT, MAINTENANCE AND USE SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND AS DIRECTED BY THE ENGINEER.

1.5.12 INSPECT AND MAINTAIN YOUR SITE

THE ON-SITE PLAN COORDINATOR SHALL INSPECT ALL EROSION AND SEDIMENT CONTROL STRUCTURES AND MEASURES AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND AS SOON AS POSSIBLE BUT NOT MORE THAN 24 HOURS AFTER ANY STORM EVENT. INSPECTION FREQUENCY MAY BE REDUCED TO LESS THAN ONE (1) PER MONTH IF THE ENTIRE SITE IS TEMPORARILY STABILIZED. ALL EROSION AND SEDIMENT CONTROL STRUCTURES AND MEASURES SHALL BE CLEANED AND REPAIRED AS NEEDED FOR THE DURATION OF THE PROJECT. ACCUMULATED SEDIMENT SHALL BE DISPOSED OF AT AN APPROVED WASTE SITE.

DATUM	
VERTICAL	NAVD88
HORIZONTAL	NAD83(92)

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DESIGN FILE NAME: z85e042ecnarr.dgn	
IPARM FILE NAME:	PLOT DATE: 2/11/2010
SURVEYED BY: VTRANS & VT SURVEY	SURVEY DATE: 1996&1999
SQUAD LEADER: MARTHA EVANS-MONGEON	DRAWN BY: W. WONG
EPSC NARRATIVE	SHEET: 35 OF 144