

PRELIMINARY INFORMATION SHEET



- 1. TITLE SHEET
- 2. PRELIMINARY INFORMATION SHEET
- 3. TYPICAL SHEET
- 4-5. QUANTITY SHEETS
- 6-10. BLANK (R.O.W. SHEETS)
- 11. TIE SHEET
- 12-14. LAYOUT SHEETS
- 15-16. PROFILE SHEETS
- 17. DETOUR LAYOUT
- 18. DETOUR PROFILE
- 19. BORING LAYOUT
- 20. BORING LOGS
- 21. PLANS & ELEVATION
- 22-24. EROSION CONTROL NARRATIVE
- 25-33. EROSION CONTROL PLANS
- 34-38. EROSION CONTROL DETAILS
- 39. GENERAL NOTES
- 40-56. BLANK (SUPERSTRUCTURE, SUBSTRUCTURE, MSC DETAILS)
- 57. REINFORCING SCHEDULE SHEET
- 58. SUPERELEVATION DIAGRAM & MATERIAL TRANSITION DIAGRAM
- 59-66. ROADWAY CROSS SECTION
- 67-70. CHANNEL CROSS SECTIONS
- 71. DETOUR SUPERELEVATION DIAGRAM
- 72-75. DETOUR CROSS SECTIONS

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA Date: 2/2004

DRAINAGE AREA: 25.4 sq. km
 CHARACTER OF TERRAIN: Mixed open and forested areas with some wetlands
 STREAM CHARACTERISTICS: Small, low relief, alluvial, meandering and equiwidth
 NATURE OF STREAMBED: Sand, gravel and cobble

PEAK FLOW DATA

Q 2.33 = 10.0 cms	Q 50 = 37.0 cms
Q 10 = 22.5 cms	Q 100 = 43.5 cms
Q 25 = 30.0 cms	Q 500 = 60.0 cms

DATE OF FLOOD OF RECORD: November 1927
 ESTIMATED DISCHARGE: unknown
 WATER SURFACE ELEV.: unknown
 NATURAL STREAM VELOCITY: @ Q50 = 3.2 mps
 ICE CONDITIONS: moderate
 DEBRIS: moderate
 DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? Yes
 IS ORDINARY RISE RAPID? Yes
 IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? No
 IF YES, DESCRIBE:

WATERSHED STORAGE: 4% HEADWATERS:
 UNIFORM: X
 IMMEDIATELY ABOVE SITE:

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Single span concrete slab bridge
 YEAR BUILT: 1924
 CLEAR SPAN(NORMAL TO STREAM): 5.2 m
 VERTICAL CLEARANCE ABOVE STREAMBED: 2.0 m
 WATERWAY OF FULL OPENING: 9.6 sq. m
 DISPOSITION OF STRUCTURE: Remove
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: Refer to boring logs

WATER SURFACE ELEVATIONS AT:
 Q2.33 = 205.7 m VELOCITY = 1.8 mps
 Q10 = 206.3 m " 3.5 mps
 Q25 = 207.4 m " 3.9 mps
 Q50 = 207.7 m " 2.8 mps
 Q100 = 207.8 m " 2.4 mps

LONG TERM STREAMBED CHANGES: Bridge inspection files note some local scour along the existing abutments.

IS THE ROADWAY OVERTOPPED BELOW Q100: Yes
 FREQUENCY: Q35
 RELIEF ELEVATION: 207.5 m
 DISCHARGE OVER ROAD @Q100: 10.1 cms

UPSTREAM STRUCTURE

TOWN: East Montpelier DISTANCE: 0.85 km
 HIGHWAY #: TH-39 STRUCTURE #: 8
 CLEAR SPAN: 3.0 m CLEAR HEIGHT: 2.4 m
 YEAR BUILT: Unknown FULL WATERWAY: unknown
 STRUCTURE TYPE: Single span slab bridge

DOWNSTREAM STRUCTURE

TOWN: East Montpelier DISTANCE: 0.79 km
 HIGHWAY #: US 2 STRUCTURE #: 73
 CLEAR SPAN: 4.6 m CLEAR HEIGHT: 3.1 m
 YEAR BUILT: 1974 FULL WATERWAY: 11 sq. m
 STRUCTURE TYPE: Structural Plate Pipe Arch

LOAD FACTOR - LOAD RATING (METRIC TONS)

LOADING LEVELS	TRUCK						
	M	MS	3S2	6 AXLE	3A STR	4A STR	5A SEM
INVENTORY	30	45					
POSTED	41	63	84		49	51	82
OPERATING		75	100	92	56	61	

COMMENTS:

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2005	4500	620	66	3	230
2025	6000	790	66	3	290

20 year ESAL for flexible pavement from 2005 to 2025 : 3,129,000
 40 year ESAL for flexible pavement from 2005 to 2045 : 7,672,000
 Design Speed : 80 km/h

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span concrete slab bridge
 CLEAR SPAN(NORMAL TO STREAM): 8.46 m
 VERTICAL CLEARANCE ABOVE STREAMBED: 2.8 m
 WATERWAY OF FULL OPENING: 21.4 sq. m

WATER SURFACE ELEVATIONS AT:
 Q2.33 = 205.6 m VELOCITY = 1.3 mps
 Q10 = 206.1 m " 2.3 mps
 Q25 = 206.4 m " 3.0 mps
 Q50 = 206.7 m " 3.5 mps
 Q100 = 206.9 m " 3.7 mps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: Above Q100
 RELIEF ELEVATION: 207.9 m
 DISCHARGE OVER ROAD @Q100: None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 207.1 m
 VERTICAL CLEARANCE: @ Q50 = 0.4 m

SCOUR: 1.0 m of contraction scour at Q500
 REQUIRED CHANNEL PROTECTION: Type III stone fill

PERMIT INFORMATION

AVERAGE DAILY FLOW: 0.6 cms DEPTH OR ELEVATION:
 ORDINARY LOW WATER: 0.3 cms 0.1 m (204.4 m)
 ORDINARY HIGH WATER: 4.3 cms 0.5 m (204.8 m)

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: Single span bridge
 CLEAR SPAN (NORMAL TO STREAM): 6.3 m
 VERTICAL CLEARANCE ABOVE STREAMBED: 2.0 m (206.3 m)
 WATERWAY AREA OF FULL OPENING: 10.9 sq. m minimum

ADDITIONAL INFORMATION

Note: Any new stone fill should not constrict the proposed waterway and should match upstream and downstream channel banks.

DESIGN CRITERIA

- DESIGN LIVE LOAD AASHTO HS-25 (MS 22.5)
- DESIGN SPAN: 10.0 m
- ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL: 380 kPa
- ON LEDGE: NA
- ALLOWABLE LOAD FOR PILING: NA
- TYPE: NA
- ESTIMATED LENGTH: NA
- STRUCTURAL STEEL AASHTO M270MM270 GRADE: 345
- REINFORCING STEEL GRADE: 420
- CONCRETE, HIGH PERFORMANCE CLASS A fc: 30 Mpa
- CONCRETE, HIGH PERFORMANCE CLASS B fc: 25 Mpa
- DESIGN SOIL UNIT WEIGHT: 22 Kn
- DESIGN LOAD FOR SPREAD FOOTINGS ON SOIL: 285 kPa

TRAFFIC MAINTENANCE

- IS TRAFFIC TO BE MAINTAINED? YES
- IF YES, ON EXISTING STRUCTURE? YES
- OR ON TEMPORARY BRIDGE? TEMPORARY BRIDGE
- ONE OR TWO-WAY TRAVEL? TWO-WAY TRAVEL
- TRAFFIC CONTROL SIGNALS REQUIRED? NO
- ARE SIDEWALKS REQUIRED? NO
- IF SO, ON WHAT SIDE?

THIS PROJECT IS A/K/A EAST MONTPELIER STP 037-2(9)

PROJECT NAME: EAST MONTPELIER
 PROJECT NUMBER: STP EGC FECC F 037-2(4)S

FILE NAME: 781200pi PLOT DATE: 9/23/2004
 PROJECT MANAGER: C. KELLER DRAWN BY: G. SHANGRAW
 DESIGNED BY: K. RUTTER CHECKED BY: T. SUMNER
 PRELIMINARY INFORMATION SHEET R.O.W. SHEET 4 OF 17