

PRELIMINARY INFORMATION SHEET



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INDEX OF STANDARDS

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|-----------|----------|
| B-5 | 06/01/94 |
| E-100 | 01/02/04 |
| E-100A | 01/02/04 |
| E-101 | 05/30/03 |
| E-102 | 06/30/03 |
| E-102A | 05/01/04 |
| E-106 | 03/01/04 |
| E-107 | 06/30/03 |
| E-107A | 08/08/95 |
| E-121 | 08/08/95 |
| E-142 | 09/20/95 |
| E-150 | 05/01/04 |
| E-152 | 05/01/04 |
| E-153 | 05/01/04 |
| E-160 | 05/20/99 |
| G-1 | 01/03/00 |
| G-1D | 01/03/00 |
| G-18 | 06/01/84 |
| G-19 | 11/15/02 |
| SB-R6-82M | 07/10/97 |

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA Date: December 1999

DRAINAGE AREA: 59 sq km

CHARACTER OF TERRAIN: Rolling, rural, forested basin

STREAM CHARACTERISTICS: Stable, straight reach, probably incised

NATURE OF STREAMBED: Cobbles and Boulders

PEAK FLOW DATA

Q 2.33 =	25 cms	Q 50 =	82 cms
Q 10 =	50 cms	Q 100 =	110 cms
Q 25 =	67 cms	Q 500 =	142 cms

DATE OF FLOOD RECORD: Unknown

ESTIMATED DISCHARGE: Unknown

WATER SURFACE ELEV.: Unknown

NATURAL STREAM VELOCITY: @ Q25 = 2.9 m/sec

ICE CONDITIONS: Low - there is a falls at a dam 75m upstream

DEBRIS: Low Potential

DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? Yes

IS ORDINARY RISE RAPID? Yes

IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? Yes

IF YES, DESCRIBE: There is a dam located +/- 75m Upstream

WATERSHED STORAGE: 2% HEADWATERS:

UNIFORM: X

IMMEDIATELY ABOVE SITE:

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Single span steel I beam w/ wooden deck

YEAR BUILT: 1930

CLEAR SPAN(NORMAL TO STREAM): 8m

VERTICAL CLEARANCE ABOVE STREAMBED: 3.2m

WATERWAY OF FULL OPENING: 25.2 sq m

DISPOSITION OF STRUCTURE: Remove

TYPE OF MATERIAL UNDER SUBSTRUCTURE: Unknown

WATER SURFACE ELEVATIONS AT:

Q2.33 =	278.6m	VELOCITY =	2.9 m/sec
Q10 =	279.5m	"	4.0 m/sec
Q25 =	280.0m	"	4.4 m/sec
Q50 =	280.6m	"	2.9 m/sec
Q100 =	280.9m	"	3.3 m/sec

LONG TERM STREAMBED CHANGES: Stable channel

IS THE ROADWAY OVERTOPPED BELOW Q100: yes

FREQUENCY: Approximately the Q 30

RELIEF ELEVATION: 280.4 m

DISCHARGE OVER ROAD @Q100: 28cms

UPSTREAM STRUCTURE

TOWN: Cabot DISTANCE: 1.2km

HIGHWAY #: TH 1 STRUCTURE #: BR 7 (FAS-249)

CLEAR SPAN: 33' CLEAR HEIGHT: Unknown

YEAR BUILT: 1942 FULL WATERWAY: Unknown

STRUCTURE TYPE: Concrete T - Beam

DOWNSTREAM STRUCTURE

TOWN: Marshfield DISTANCE: 4.7km

HIGHWAY #: US 2 STRUCTURE #: BR 81

CLEAR SPAN: 13.7m CLEAR HEIGHT: 4m

YEAR BUILT: 1927 FULL WATERWAY: Unknown

STRUCTURE TYPE: Concrete T Beam

LFD LOAD RATING (METRIC TONS)

LOADING LEVELS	TRUCK						
	M	MS	3S2	6 AXLE	3A. STR.	4A. STR.	SA. SEMI
INVENTORY	35	47					
POSTED	49	66	92		54	57	82
OPERATING		79	110	106	65	68	

COMMENTS: $RF = \phi M_N - 1.3 M_{DL} / A \times M_{LL+1}$

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2003	60	10	---	<1	5
2023	60	10	---	<1	5

20 year ESAL for flexible pavement from 2003 to 2023 : <50000

20 year ESAL for flexible pavement from 2003 to 2043 : 92000

Design Speed : 30 km/h

PROPOSED STRUCTURE

STRUCTURE TYPE: Single Span Concrete Slab

CLEAR SPAN(NORMAL TO STREAM): 12m

VERTICAL CLEARANCE ABOVE STREAMBED: 3.2m

WATERWAY OF FULL OPENING: 36 sq m

WATER SURFACE ELEVATIONS AT:

Q2.33 =	278.2m	VELOCITY=	2.5 m/sec
Q10 =	278.7m	"	2.7 m/sec
Q25 =	279.0m	"	3.1 m/sec
Q50 =	279.4m	"	3.5 m/sec
Q100 =	279.9m	"	4.2 m/sec

IS THE ROADWAY OVERTOPPED BELOW Q100: No

FREQUENCY: > Q100

RELIEF ELEVATION: 280.4

DISCHARGE OVER ROAD @Q100: 0.0

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 279.9m

VERTICAL CLEARANCE: @ Q25 = 0.9m

SCOUR: 0.5m Contraction scour @ Q 100 through Q 500

REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW: 1.3cms DEPTH OR ELEVATION:

ORDINARY LOW WATER: 0.6cms 0.1m

ORDINARY HIGH WATER: 10.7cms 0.7m

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: Single Span Bridge to be removed before winter

CLEAR SPAN (NORMAL TO STREAM): 8m

VERTICAL CLEARANCE ABOVE STREAMBED: 2m

WATERWAY AREA OF FULL OPENING: 16 sq m

ADDITIONAL INFORMATION

The Streambed elevation at the Approach Section is 277.4 m

The Streambed Elevation at the Bridge Section is 276.7 m

Water Surface Elevations are listed at a Location +/- 12 m upstream of the upstream bridge face

Velocities are Listed in the Area of the Bridge and Roadway

DESIGN CRITERIA

1. DESIGN LIVE LOAD AASHTO MS-22.5
2. DESIGN SPAN 12.500m
3. ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL N/A
- ON LEDGE 500 kpa
4. ALLOWABLE LOAD FOR PILING N/A
- TYPE N/A
- ESTIMATED LENGTH N/A
5. STRUCTURAL STEEL AASHTO GRADE N/A
6. REINFORCING STEEL GRADE 420
7. CONCRETE CLASS A(HPC-A) f'c : 30 Mpa
- CONCRETE CLASS B(HPC-A) f'c : 25 Mpa

8. SOIL UNIT WEIGHT 22.00 kn/m3
9. DESIGN LOAD FOR SPREAD FOOTINGS ON SOIL N/A

TRAFFIC MAINTENANCE

1. IS TRAFFIC TO BE MAINTAINED? YES
- IF YES, ON EXISTING STRUCTURE NO
- OR ON TEMPORARY BRIDGE YES
2. TEMPORARY BRIDGE REQUIREMENTS: ONE OR TWO WAY ONE WAY
- TRAFFIC CONTROL SIGNALS REQUIRED NO
- MINIMUM CLEAR SPAN (NORMAL TO STREAM): 8m
- WATERWAY OF FULL OPENING: 16 sq. m
- VERTICAL CLEARANCE ABOVE STREAMBED: 2m
- ARE SIDEWALKS REQUIRED? No
- IF SO, ON WHAT SIDE?
- STRUCTURE TYPE:

PROJECT NAME: CABOT

PROJECT NUMBER: BRO 1446(27)

FILE NAME: 96j270pi.xls PLOT DATE: 9/13/2007

PROJECT LEADER: C.P. WILLIAMS DRAWN BY: D.G. BASSETT

DESIGNED BY: K.M. HIGGINS CHECKED BY: K.M. HIGGINS

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