

PRELIMINARY INFORMATION SHEET



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LIST OF STANDARDS

B-71	02/01/2004
D-2M	06/13/1997
D-4M	06/13/1997
D-6M	06/13/1997
D-11M	06/13/1997
E-100	01/02/2004
E-101	05/30/2003
E-102A	05/01/2004
E-102	06/30/2003
E-106	03/01/2004
E-107A	08/08/1995
E-107	06/30/2003
E-108	08/18/1995
E-109	08/08/1995
E-121	08/08/1995
F-4M	01/03/2000
G-1M	01/03/2000
G-1dM	01/03/2000
G-17aM	09/27/2002
G-17bM	09/27/2002
G-18M	06/13/1997
G-19M	11/15/2002

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA Date: Jan. 24 2005

DRAINAGE AREA : 200.00 sq. km
 CHARACTER OF TERRAIN : Hilly to Mountainous
 STREAM CHARACTERISTICS : Sinuous, Alluvial, probably incised
 NATURE OF STREAMBED : Gravel, Cobbles, and Boulders

PEAK FLOW DATA

Q 2.33 =	52.4 cms	Q 50 =	134.5 cms
Q 10 =	90.6 cms	Q 100 =	157.2 cms
Q 25 =	113.3 cms	Q 500 =	212.4 cms

DATE OF FLOOD OF RECORD : November 1927, per FEMA, FIS, Town of Lyndon, 1988
 ESTIMATED DISCHARGE : unknown
 WATER SURFACE ELEV. : unknown
 NATURAL STREAM VELOCITY : @ Q50 = 2.3 m/s
 ICE CONDITIONS : Moderate
 DEBRIS : Modest
 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: 1% HEADWATERS:
 UNIFORM: X
 IMMEDIATELY ABOVE SITE:

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Single span steel beam bridge
 YEAR BUILT: 1928
 CLEAR SPAN(NORMAL TO STREAM): 16.2 m
 VERTICAL CLEARANCE ABOVE STREAMBED: 4.7 m (low steel E.L. = 228.0 m)
 WATERWAY OF FULL OPENING: 62.4 sm
 DISPOSITION OF STRUCTURE: Removal of old structure
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: unknown

WATER SURFACE ELEVATIONS AT:

Q2.33 =	225.9 m	VELOCITY =	2.0 m/s
Q10 =	226.4 m	"	2.9 m/s
Q25 =	226.7 m	"	3.3 m/s
Q50 =	227.0 m	"	3.7 m/s
Q100 =	227.2 m	"	4.3 m/s

LONG TERM STREAMBED CHANGES: Large stream wide by 1m deep scour hole under bridge and downstream of bridge due to constriction of channel.

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: N/A
 RELIEF ELEVATION: 229.1
 DISCHARGE OVER ROAD @Q100: N/A

UPSTREAM STRUCTURE

TOWN: Burke DISTANCE: 3.7 km
 HIGHWAY #: T.H. # 2 STRUCTURE #: 19
 CLEAR SPAN: 17.0 m CLEAR HEIGHT: 4.0 m
 YEAR BUILT: 1940 FULL WATERWAY: unknown
 STRUCTURE TYPE: Single span steel beam bridge, concrete deck

DOWNSTREAM STRUCTURE

TOWN: Lyndon DISTANCE: 0.8 km
 HIGHWAY #: T.H. # 40 STRUCTURE #: 42
 CLEAR SPAN: 23.5 m CLEAR HEIGHT: 3.8 m
 YEAR BUILT: 1965 FULL WATERWAY: unknown
 STRUCTURE TYPE: Single span steel beam bridge, concrete deck

LOAD FACTOR - LOAD RATING (TONS)

LOADING LEVELS	TRUCK						
	M	MS	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SEMI
INVENTORY	36	51					
POSTED	50	71	85		67	68	77
OPERATING		85	101	116	80	81	

COMMENTS: SERVICEABILITY GOVERNS RATING FOR ALL ENTRIES

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2005	4300	540	61	7	320
2025	6100	770	61	10	620

20 year ESAL for flexible pavement from 2005 to 2025 : 2,786,000
 40 year ESAL for flexible pavement from 2005 to 2045 : 7,457,000
 Design Speed : 80 km/h

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span steel beam bridge, concrete deck

CLEAR SPAN(NORMAL TO STREAM): 25.9 m
 VERTICAL CLEARANCE ABOVE STREAMBED: 3.8 m
 WATERWAY OF FULL OPENING: 68.5 sm

WATER SURFACE ELEVATIONS AT:

Q2.33 =	225.9 m	VELOCITY =	1.6 m/s
Q10 =	226.4 m	"	2.1 m/s
Q25 =	226.6 m	"	2.4 m/s
Q50 =	226.8 m	"	2.6 m/s
Q100 =	227.0 m	"	2.9 m/s

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: N/A
 RELIEF ELEVATION: 229.0 m
 DISCHARGE OVER ROAD @Q100: N/A

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 227.4 m
 VERTICAL CLEARANCE: @ Q100 = 0.4 m

SCOUR: Contraction scour 0.7 m @ Q 500
 REQUIRED CHANNEL PROTECTION: Type IV Stone Fill

PERMIT INFORMATION

AVERAGE DAILY FLOW: 4.5 cms DEPTH OR ELEVATION:
 ORDINARY LOW WATER: 2.0 cms Elev. 224.5 m
 ORDINARY HIGH WATER: 14.6 cms Elev. 225.0 m

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: Single span bridge, remove before winter.
 CLEAR SPAN (NORMAL TO STREAM): 15 m minimum
 VERTICAL CLEARANCE ABOVE STREAMBED: Elevation 227.1m minimum
 WATERWAY AREA OF FULL OPENING: 46 sm minimum

ADDITIONAL INFORMATION

- DESIGN CRITERIA**
1. DESIGN LIVE LOAD AASHTO MS 22.5
 2. DESIGN SPAN 28.2 m
 3. ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL N/A
ON LEDGE 500 kPa
 4. ALLOWABLE LOAD FOR PILING N/A
TYPE N/A
 5. STRUCTURAL STEEL AASHTO M270/M270 GRADE 345W
 6. REINFORCING STEEL GRADE 420
 7. CONCRETE, HIGH PERFORMANCE CLASS A fc: 30 Mpa
CONCRETE, HIGH PERFORMANCE CLASS B fc: 25 Mpa
 8. DESIGN 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
 ONE OR TWO-WAY TRAVEL? TWO-WAY
 2. TRAFFIC CONTROL SIGNALS REQUIRED? NO
 3. ARE SIDEWALKS REQUIRED? NO
 IF SO, ON WHAT SIDE? N/A

PROJECT NAME: LYNDON
 PROJECT NUMBER: BRS 0269 (8) S

FILE NAME: \85e041\Structures\se041pi.xls PLOT DATE: 02/02/2005
 PROJECT MANAGER: R. R. WHITCOMB DRAWN BY: G. ROY
 DESIGNED BY: S. SCRIBNER CHECKED BY: J. PERRIGO
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