

# PRELIMINARY INFORMATION SHEET (BRIDGE)

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FINAL HYDRAULIC REPORT

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STANDARDS LIST

D-20	HIGHWAY CROSSING FOR UNDERGROUND UTILITIES	03-03-2003
E-121	STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD	08-08-1995
E-154	WARNING SIGN DETAILS	05-01-2004
E-193	PAVEMENT MARKING DETAILS	08-18-1995
G-4	PLANK RAIL, GUIDE POSTS, MARKER POSTS	06-01-1994
J-3	MAIL BOX SUPPORT DETAILS	08-07-1995
S-352B	BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION	08-22-2012
S-352C	BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION	08-22-2012
T-1	TRAFFIC CONTROL GENERAL NOTES	08-06-2012
T-10	CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING	08-06-2012
T-17	TRAFFIC CONTROL MISCELLANEOUS DETAILS	08-06-2012
T-24	TRAFFIC CONTROL FOR MAINTENANCE PAVEMENT MARKING OPERATION	08-06-2012
T-28	CONSTRUCTION SIGN DETAILS	08-06-2012
T-29	CONSTRUCTION SIGN DETAILS	08-06-2012
T-30	CONSTRUCTION SIGN DETAILS	08-06-2012
T-31	CONSTRUCTION SIGN DETAILS	08-06-2012
T-40	DELINEATORS AND MILEPOSTS	01-02-2013
T-42	BRIDGE NUMBER PLAQUE	04-09-2014
T-45	SQUARE TUBE SIGN POST AND ANCHOR	01-02-2013

STRUCTURES DETAIL SHEETS

SD-501.00	CONCRETE DETAILS AND NOTES	5/7/2010
SD-502.00	CONCRETE DETAILS AND NOTES	5/7/2010
SD-516.10	BRIDGE JOINT ASPHALTIC PLUG	5/7/2010
SD-601.00	STRUCTURAL STEEL DETAILS AND NOTES	5/7/2010
SD-602.00	STRUCTURAL STEEL PLATE GIRDER DETAILS AND NOTES	5/7/2010

AS BUILT "REBAR" DETAIL

LEVEL I	LEVEL II	LEVEL III
TYPE:	TYPE:	TYPE:
GRADE:	GRADE:	GRADE:

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2015	700	100	54	5.3	40
2035	750	110	54	6.1	50

20 year ESAL for flexible pavement from 2015 to 2035 : 188000
40 year ESAL for flexible pavement from 2015 to 2055 : 407000
Design Speed : 35 mph

HYDROLOGIC DATA

Date: December 2013

DRAINAGE AREA : 25.0 sq. mi.  
CHARACTER OF TERRAIN : Mountainous, mostly forested  
STREAM CHARACTERISTICS : Sinuous and alluvial  
NATURE OF STREAMBED : Sand and gravel

PEAK FLOW DATA

Q 2.33 =	680 cfs	Q 50 =	2135 cfs
Q 10 =	1315 cfs	Q 100 =	2750 cfs
Q 25 =	1735 cfs	Q 500 =	3850 cfs

DATE OF FLOOD OF RECORD : Unknown  
ESTIMATED DISCHARGE : Unknown  
WATER SURFACE ELEV. : Unknown  
NATURAL STREAM VELOCITY : @ Q25 = 7.6 fps  
ICE CONDITIONS : Moderate  
DEBRIS : Light to moderate  
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? No  
IS ORDINARY RISE RAPID? No  
IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? No  
IF YES, DESCRIBE:

WATERSHED STORAGE : <6% HEADWATERS :  
UNIFORM : X  
IMMEDIATELY ABOVE SITE :

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE : Single span concrete T-beam  
YEAR BUILT : 1927  
CLEAR SPAN(NORMAL TO STREAM) : 26'  
VERTICAL CLEARANCE ABOVE STREAMBED : -9'  
WATERWAY OF FULL OPENING : 190 sq. ft.  
DISPOSITION OF STRUCTURE : Remove and replace  
TYPE OF MATERIAL UNDER SUBSTRUCTURE : See borings

WATER SURFACE ELEVATIONS AT:

Q2.33 =	641.1'	VELOCITY =	8.8 fps
Q10 =	643.6'	"	11.8 fps
Q25 =	645.3'	"	7.6 fps
Q50 =	645.7'	"	7.8 fps
Q100 =	646.2'	"	8.8 fps

LONG TERM STREAMBED CHANGES : None noted except scour through bridge

IS THE ROADWAY OVERTOPPED BELOW Q100 : Yes  
FREQUENCY : Below Q10  
RELIEF ELEVATION : 643.0'  
DISCHARGE OVER ROAD @Q100 : 1085 cfs

UPSTREAM STRUCTURE

TOWN : Clarendon DISTANCE : 2330'  
HIGHWAY # : TH 16 STRUCTURE # : 24  
CLEAR SPAN : 60' CLEAR HEIGHT : 10'  
YEAR BUILT : 2006 FULL WATERWAY :  
STRUCTURE TYPE : Prestress concrete slab

DOWNSTREAM STRUCTURE

TOWN : Clarendon DISTANCE : 3540'  
HIGHWAY # : TH 3 STRUCTURE # : 10  
CLEAR SPAN : 76' CLEAR HEIGHT : 9'  
YEAR BUILT : 1957 FULL WATERWAY :  
STRUCTURE TYPE : Rolled beam

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A STR.	4A STR.	5A SEM
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY	2.26	1.13					
POSTING							
OPERATING	2.95	1.46	2.36	1.57	2.08	1.86	2.0
COMMENTS:	FOR NEXT BEAM SUPERSTRUCTURE						

LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A STR.	4A STR.	5A SEM
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY	2.40	1.19					
POSTING							
OPERATING	3.11	1.54	2.45	1.61	2.19	1.96	2.10
COMMENTS:	FOR PBU SUPERSTRUCTURE						

PROPOSED STRUCTURE

STRUCTURE TYPE : Single span prefabricated units

CLEAR SPAN(NORMAL TO STREAM) : 70'  
VERTICAL CLEARANCE ABOVE STREAMBED : ~8'  
WATERWAY OF FULL OPENING : 380 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	640.2'	VELOCITY=	6.3 fps
Q10 =	641.8'	"	7.0 fps
Q25 =	642.8'	"	7.6 fps
Q50 =	643.7'	"	7.9 fps
Q100 =	643.9'	"	10.1 fps

IS THE ROADWAY OVERTOPPED BELOW Q100 : Yes  
FREQUENCY : Below Q25  
RELIEF ELEVATION : 643.0'  
DISCHARGE OVER ROAD @Q100 : 65 cfs

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE : 642.9'  
VERTICAL CLEARANCE : @ Q25 = 0.1'

SCOUR : Contraction scour = 1.5' at Q500

REQUIRED CHANNEL PROTECTION : Stone Fill, Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW : 50 cfs DEPTH OR ELEVATION :  
ORDINARY LOW WATER : 25 cfs ~0.5'  
ORDINARY HIGH WATER : 300 cfs ~2.0'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE : None required. Detour will be used.  
CLEAR SPAN (NORMAL TO STREAM) :  
VERTICAL CLEARANCE ABOVE STREAMBED :  
WATERWAY AREA OF FULL OPENING :

ADDITIONAL INFORMATION

TRAFFIC MAINTENANCE NOTES

1. MAINTAIN TRAFFIC ON AN OFF SITE DETOUR.
2. TRAFFIC SIGNALS ARE NOT NECESSARY.
3. SIDEWALKS ARE NOT NECESSARY

DESIGN VALUES

1. DESIGN LIVE LOAD	HL-93
2. FUTURE PAVEMENT	d <sub>p</sub> : 0.0 INCH
3. DESIGN SPAN	L: 74.00 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ: 1.63 INCH
5. PRESTRESSING STRAND (0.60 INCH DIAMETER - LOW RELAX)	f <sub>y</sub> : 270 KSI
6. PRESTRESSED CONCRETE STRENGTH	f'c: 10.0 KSI
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f'ci: 8.0 KSI
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f'c: ---
9. CONCRETE, HIGH PERFORMANCE CLASS A	f'c: 4.0 KSI
10. CONCRETE, HIGH PERFORMANCE CLASS B	f'c: ---
11. CONCRETE, CLASS C	f'c: ---
12. REINFORCING STEEL	f <sub>y</sub> : 80 KSI
13. STRUCTURAL STEEL AASHTO M270 (GALVANIZED OR METALLIZED)	f <sub>y</sub> : 50 KSI
14. NOMINAL BEARING RESISTANCE OF SOIL	q <sub>n</sub> : 4.0 KSF
15. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: ---
16. NOMINAL BEARING RESISTANCE OF ROCK	q <sub>n</sub> : 10.0 KSF
17. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: ---
18. PILE RESISTANCE FACTOR	φ: 0.65
19. LATERAL PILE DEFLECTION	Δ: ---
20. BASIC WIND SPEED	V <sub>3s</sub> : ---
21. MINIMUM GROUND SNOW LOAD	p <sub>g</sub> : ---
22. SEISMIC DATA	PGA: 0.65 S <sub>s</sub> : --- S <sub>1</sub> : ---
23.	---
24.	---
25.	---
26.	---

PROJECT NAME : CLARENDON

PROJECT NUMBER : BRO 1443(48)

FILE NAME : s12j160 PI Sheet Builder NEXT PLOT DATE : 3/10/2015  
PROJECT LEADER : K. HIGGINS DRAWN BY : T. MATTHEWS  
DESIGNED BY : J. GRIGAS CHECKED BY : G. LAROCHE  
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