

2 lanes - heavy traffic.
 → Flagman req'd

9 spans - simply supported,
 - original 1927 8" deck overlaid w/
 2" normal concrete in 1983,
 = total 10" (250mm),

9 spans @ 22.13 m each
 - total = 199.14 m,
 - Deck width = 7.01 m traffic
 + 2 x 1.98 m SW.

→ Total paved deck Area
 = 1396 m².

Assume 1st Time Survey
 → total cores = 15 min.

27 cores
 → 18, i.e. 2 per span.
 + 9 cores for half-cell concrete
 = total SAs = 10 min.

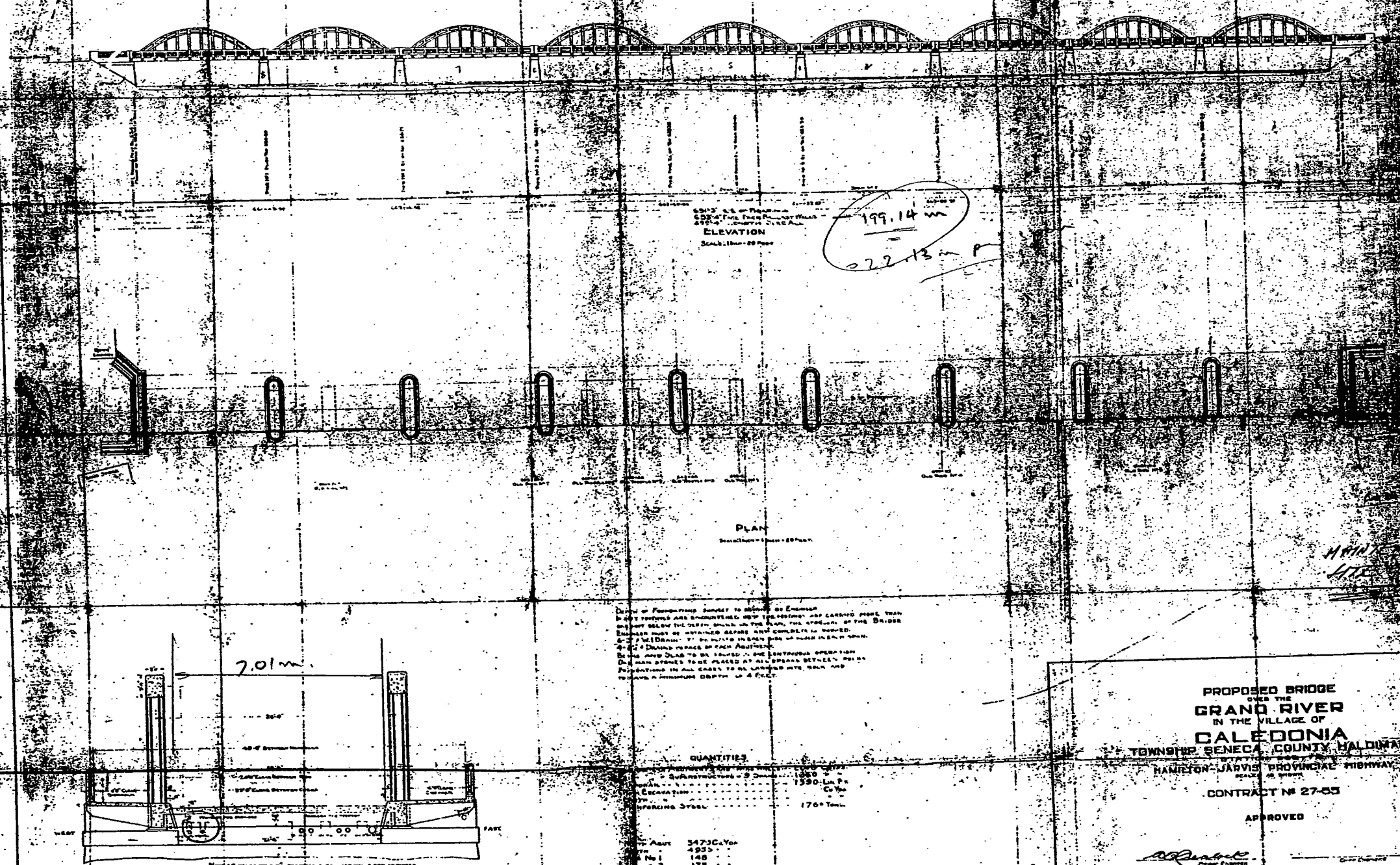
→ Half-cell @ 1.5 x 1.5 m grid

- Lab test.

$f_c' = 2 \text{ mm} / 4 \text{ max.}$

$\alpha = 2 \text{ mm} / 3 \text{ max.}$

Air = 0. - built in 1927



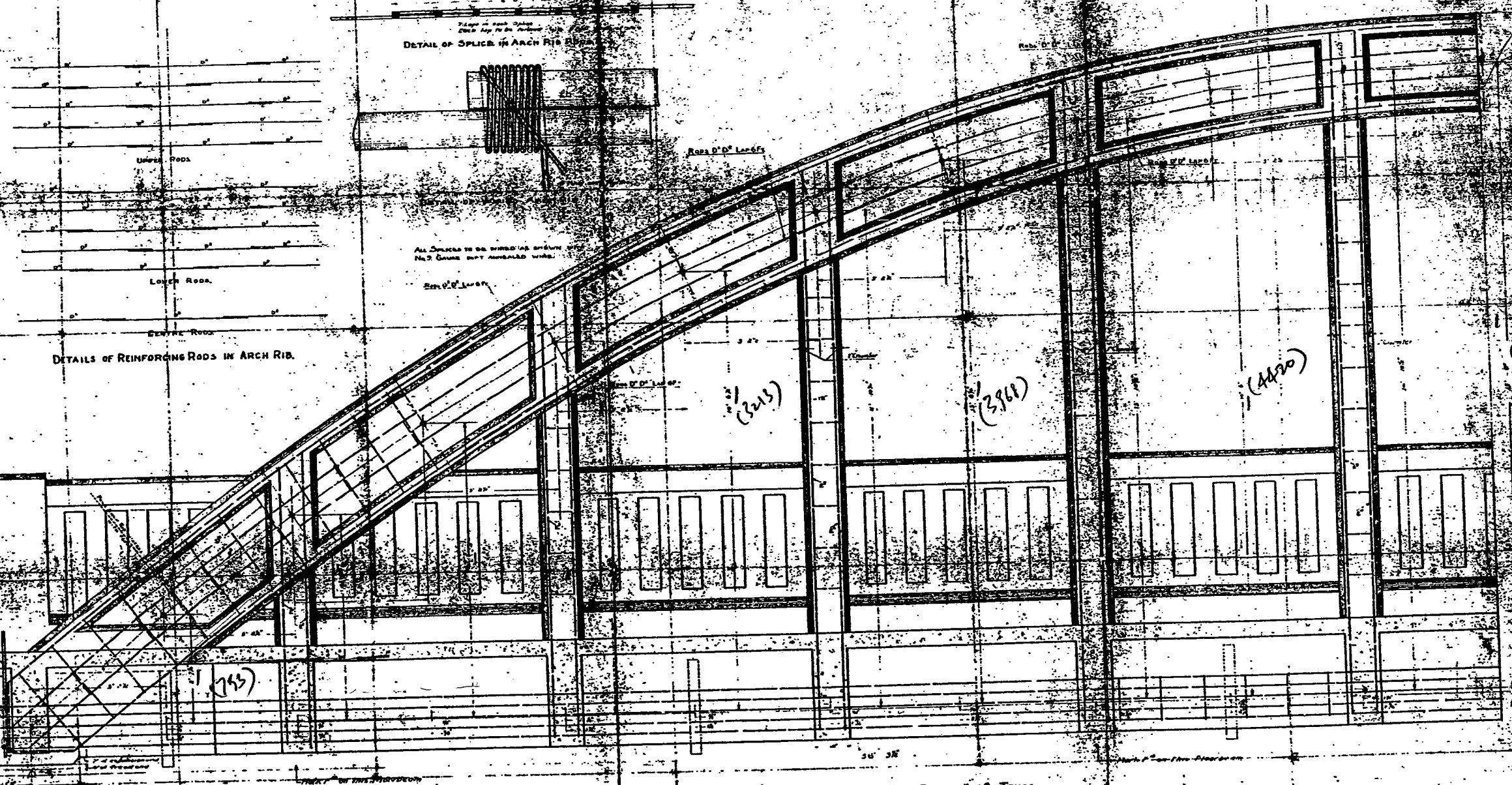
QUANTITIES

Excavation	1390 cu yd
Concrete	176 cu yd
Reinforcing Steel	176 cu yd
Asphalt	3473 cu yd
Gravel	4955 cu yd
Crushed Stone	148 cu yd
Gravel	173 cu yd
Crushed Stone	153 cu yd
Gravel	153 cu yd
Crushed Stone	153 cu yd
Gravel	151 cu yd
Crushed Stone	148 cu yd
Total	2079

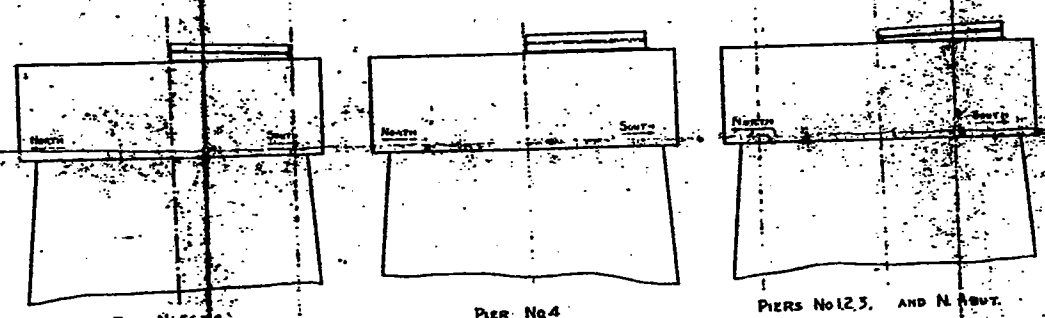
PROPOSED BRIDGE
 OVER THE
 GRAND RIVER
 IN THE VILLAGE OF
 CALEDONIA
 TOWNSHIP SENECA COUNTY WARDEN
 HAMILTON-JARVIS PROVINCIAL HIGHWAY
 CONTRACT NO 27-85
 APPROVED
 DEPARTMENT OF PUBLIC HIGHWAYS - ONTARIO
 TORONTO, APRIL 1927.
 DRAWING NO. 87

EXIST. STR. DUES
 CONTR. # 83-79
 3/11/9-2

(1936)



PLAN OF LOWER CHORD AT END OF SPAN.

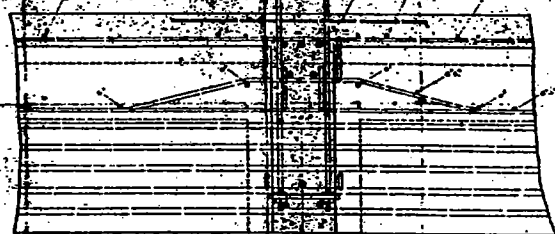


DETAIL SHOWING POSITION OF PLATES ON PIERS AND NORTH ABUTMENT.

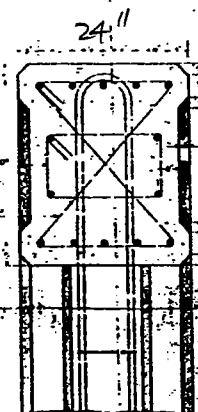
PROPOSED BRIDGE
OVER THE
GRAND RIVER
AT
CALEDONIA
CONTRACT NO. 2755
APPROVED
R. C. Beal
ENGINEER
R. C. Beal
DEPARTMENT OF PUBLIC HIGHWAYS - ONTARIO
TORONTO, APRIL 11th 1923



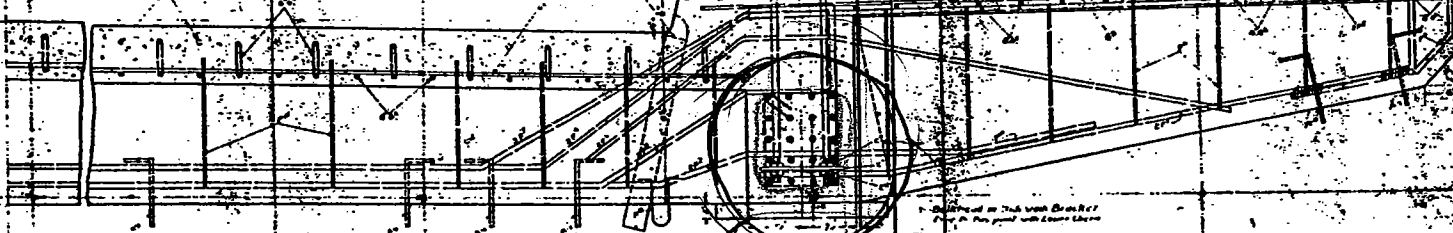
SECTION THROUGH END SIDEWALK BRACKET AT DD



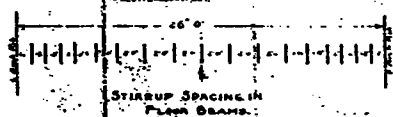
SECTION THROUGH INTERMEDIATE SIDEWALK BRACKET AT AA



SECTION OF FLOORBEAM
AT E OF ROADWAY



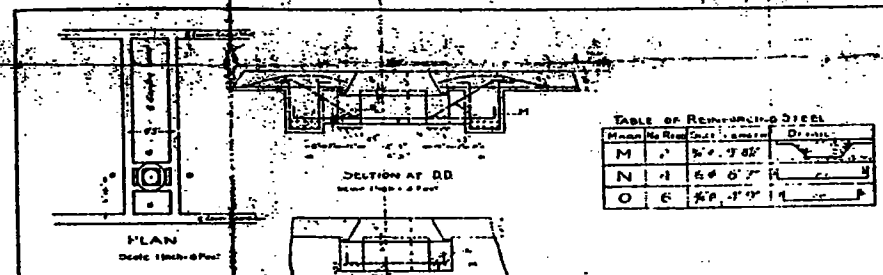
CROSS SECTION OF SUPERSTRUCTURE



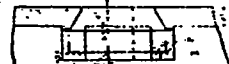
STIRRUP SPACING IN
PLAIN BEAMS



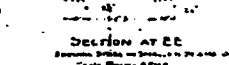
DETAIL OF SIDEWALK FINISH
SCALE 1/4" = 1'-0"



PLAN
SCALE 1/8" = 1'-0"



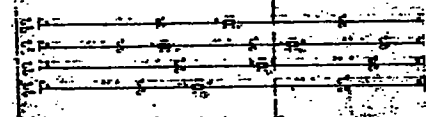
SECTION AT DD



SECTION AT EE

Beam No.	Reinforcement	Quantity	Notes
M	1/2" x 12'	1	
N	1/2" x 12'	1	
O	1/2" x 12'	1	

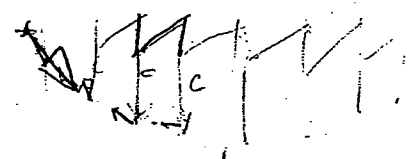
DETAILS OF BEAMS FOR
MANHOLE FRAME AND
COVER



DETAIL OF ROD IN LOWER CHORD

PROPOSED BRIDGE
OVER THE
GRAND RIVER
AT
GALEDONIA
CONTRACT NO. 27-35
APPROVED

DEPARTMENT OF PUBLIC HIGHWAYS
TORONTO, APRIL 11, 1927



Span	Span Length	Span Description	Span Diagram	Material	Quantity	Notes	Diagram	Material	Quantity	Notes	Diagram
A	10	15' 6"	Arch Rib	80	1/8"	Hexagonal Nuts	5 in field to ribs	E ⁶	4	7/8" x 27' 9"	Verticals in Hangers
A	10	15' 6"	Arch Rib	50	1/8"	Hexagonal Nuts	5 in field to ribs	E ⁷	4	7/8" x 31' 1 1/2"	
A	8	12' 6"	Arch Rib	4	1/8" Thick	Plates of steel	7 Holes	E ⁸	4	7/8" x 31' 5 1/4"	
B	12	18' 6"	Arch Rib	40	1/8"	Ties in Lower Chord	Bend in Field	E ⁹	4	7/8" x 33' 1"	
B	12	18' 6"	Arch Rib	12.4	1/8"	Ties in Lower Chord	Bend in Field	E ¹⁰	4	7/8" x 33' 2"	
F	360	1 1/2' x 1' 1"	Flat	16	1/8"	Ties in Lower Chord	Bend in Place	E ¹¹	20	1/8" Thick 12" x 12"	Plates of bottom of Hangers
L	24	3' 1" x 10' 0"	Lighting Cords	10	1/8"	In Arch Rib	5 Straight	E ¹²	80	7/8"	Hexagonal Nuts below plate E ¹¹
C	8	12' 55-10%	In Lower Chord	28	1/8"			E ¹³	80	7/8"	Lock Nuts above plate E ¹¹
C	8	12' 55-10%		10	1/8"			E ¹⁴	140	1/8" x 3' 2 1/2"	Links in Hangers of 10' 6"
C	8	12' 55-10%		10	1/8"			F ¹	12	7/8" x 53' 2 1/2"	1 in each floor beam
C	8	12' 55-10%		10	1/8"			F ²	24	7/8" x 27' 1 1/2"	2
C	10	15' 55-10%		16	1/8"			F ³	24	7/8" x 28' 5"	2
C	10	15' 55-10%		156	1/8"			F ⁴	524	7/8" x 29' 0"	2
C	10	15' 55-10%		78	1/8"			F ⁵	36	7/8" x 43' 7 1/2"	3
C	4	6' 55-10%		4	7/8"	Verticals in Hangers					
C	4	6' 55-10%		4	7/8"						
C	4	6' 55-10%		4	7/8"						
C	4	6' 55-10%		4	7/8"						
C	4	6' 55-10%		4	7/8"						
C	4	6' 55-10%		4	7/8"						

PROPOSED BRIDGE
OVER THE
GRAND RIVER
AT
CALEDONIA
CONTRACT NO. 7-33

DEPARTMENT OF PUBLIC WORKS
TORONTO, APRIL 11, 1911

MARK	NUMBER OF RODS REQUIRED	SIZE AND GRADE	LENGTH	REMARKS	DETAILS	MARK	NUMBER OF RODS REQUIRED	SIZE AND GRADE	LENGTH	REMARKS	DETAILS
F ⁶	48	3/4" H	8'-1"	2 in each floor beam and sidewalk bracket		H ²	88	3/4" S	2'-4"	Links in handrail 4 in each panel	Bend in place
F ⁷	48	3/4" H	12'-9"	2 in each sidewalk bracket and H.R. post		H ³	60	3/4" S	2'-9"	3/4" in each intermediate post	
F ⁸	48	3/4" H	6'-8 1/2"	2 in each sidewalk bracket and handrail post. Lapped with F ⁷		H ⁴	8	3/4" H	4'-0"	2 in each end post	Straight
F ⁹	170	5/8" H	5'-1 1/2"	17 in each intermediate floor beam		H ⁵	12	3/4" S	4'-1"		Bend in place
F ¹⁰	34	3/4" S	1'-6"	17 in each end floor beam		H ⁶	12	3/4" S	1'-8"		Straight
F ¹¹	168	3/4" S	7'-0"	1 in each S.W. slab	Bend in place	H ⁷	264	3/4" S	3'-6"	2 in each wall	Straight
F ¹²	24	3/4" H	2'-6"	Hangers for Conduit 2 in each Floor Beam		NOTE: QUANTITIES SHOWN BELOW ARE TOTAL QUANTITIES REQUIRED for Wing Walls					
G ¹	56	3/4" H	20'-10"	Longitudinal rods in R.W. Slab at ends of span. Lapped 1' with G ²	Straight	J ¹	40	3/4" H	6'-0"	Vertical in H.R. posts on Wing Walls	Straight
G ²	28	3/4" H	33'-7"	In Roadway Slab at centre of span. Lapped 1' with G ¹	Straight	J ²	43	3/4" S	5'-7"	In bottom H.R. Slab 1' 6" c.c. except in posts	Bend in place
G ³	54	3/4" H	28'-6"	In Roadway Slab at ends of span. Lapped 2' with G ²		J ³	30	3/4" H	23'-9"	Handrail in Wingwall	Straight
G ⁴	27	3/4" H	22'-10"	In Roadway Slab at centre of span. Lapped 1' with G ³		J ⁴	10	3/4" H	15'-6"		G.H.E.
G ⁵	46	3/4" H	25'-0"	Transverse Rods in R.W. Slab	Straight	J ⁵	12	3/4" S	4'-4 1/2"	Links in posts of Expansion Joints	Bend in place
G ⁶	56	3/4" H	3'-0 1/2"	At ends of R.W. Slab alternate with G ⁵ at 5' c.c.		J ⁶	12	3/4" S	10'-0"	Links in end post	
G ⁷	164	3/4" H	20'-10"	Longitudinal rods in S.W. Slab at ends of span. Lapped 1' with G ⁸	Straight	H ⁸	12	3/4" S	1'-8"		
G ⁸	52	3/4" H	33'-7"	Longitudinal rods in S.W. Slab at centre of span. Lapped 1' with G ⁷	Straight	H ⁹	43	3/4" S	2'-4"	Links in handrail 1' 6" c.c. except in posts	
G ⁹	72	3/4" H	6'-10"	Transverse Rods in S.W. Slab at 2' 0" c.c.	Straight	H ¹⁰	156	3/4" S	5'-6"	2 in each wall	Straight
G ¹⁰	220	3/4" H	5'-0"	Over intermediate S.W. brackets at 2' 0" c.c.	Straight	H.R.E.	60			3 at each expansion joint in handrail	See Drawing No. 2053
G ¹¹	44	3/4" H	2'-4"	Over end S.W. brackets		K ¹	16	See Detail		Plates at North Abut. and Floor Slab 2, 3, 5, 6, 7, 8	
H ¹	88	3/4" S	3'-6"	Links in bottom H.R. except in posts 4 in each panel spaced at 1' 6"	Bend in place	K ²	2			Plates at Wing Wall	

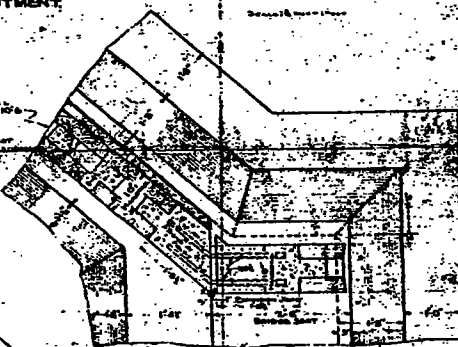
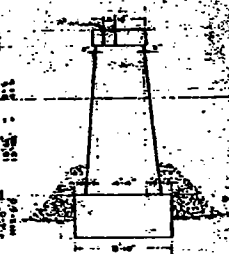
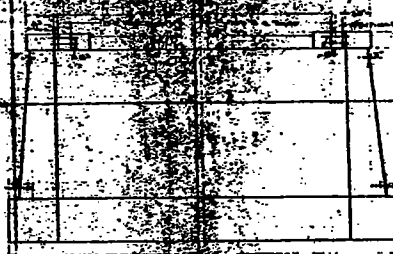
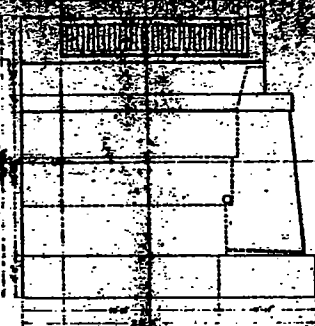
MARK	TOTAL NUMBER REQUIRED	SIZE	LENGTH	REMARKS	DETAILS
	6	3/4" S	5'-0"	2 in each end post on wing walls	
	1800	1/2"		Lapping wire for use in arch ribs	No. 3 Gauge soft annealed wire 200 lbs. per 1000 ft. with each shipment

PROPOSED BRIDGE
OVER THE
GRAND RIVER
AT
CALEDONIA
CONTRACT NO. 2733

W. B. Smith
Engineer

DEPARTMENT OF PUBLIC WORKS
TORONTO, CAN. OCT. 1927

DRAWING NO. 2733-1



PROPOSED BRIDGE
OVER THE
GRAND RIVER
AT
CALEDONIA
CONTRACT NO. 2735
APPROVED

Robert
DEPUTY CHIEF ENGINEER

Robert
CHIEF ENGINEER

DEPARTMENT OF PUBLIC HIGHWAYS - TORONTO
TORONTO, APRIL 11TH 1927