

START

A horizontal number line is shown, labeled "inches" below it. The line has tick marks at intervals of 1 unit, labeled 0, 1, 2, 3, 4, and 5. The line starts at 0 and ends at 5.

CONT. 61-64

[illegible]

THE QUEENSWAY

LIMITED-ACCESS HIGHWAY

OTTAWA, ONTARIO

939-59
940-59
941-59
W. P. No. 936-59 CONTRACT No. 61-64

WORK OF GRADING, DRAINAGE, CONCRETE BASE,
HOT MIX PAVING, STRUCTURES &
CRIB WALLS
DISTRICT No. 9 OTTAWA

LOCATION: LORETTA ST. TO
BRONSON AVE. INCLUDING
STRUCTURES AT
PRESTON ST, ROCHESTER ST.
AND BOOTH ST.

CHAINAGE: STA. 329+00 TO STA. 357+00

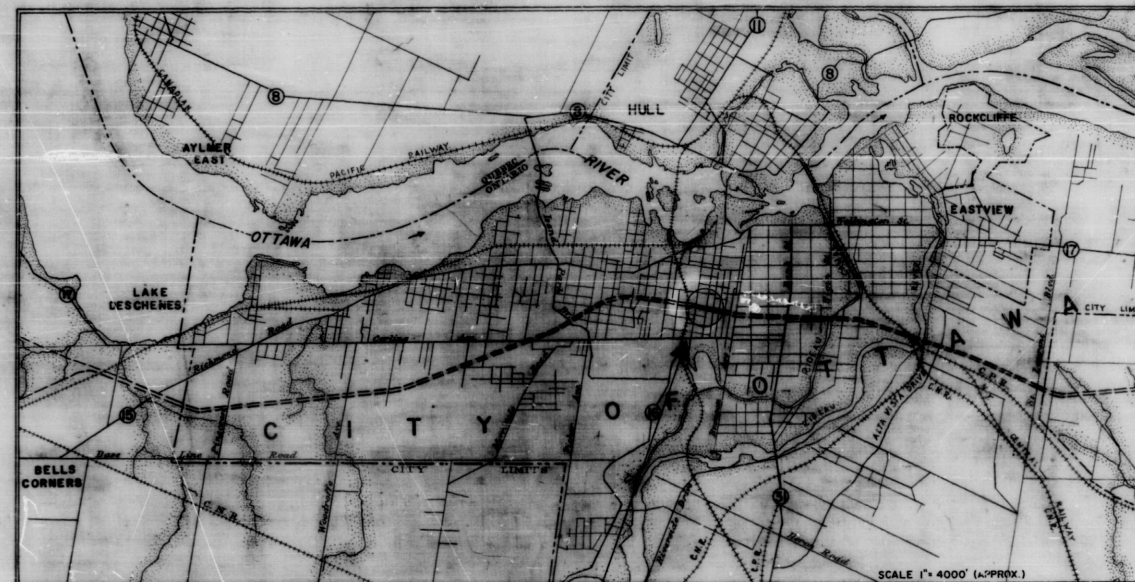
BRIDGE DRAWINGS

D-4445-1-10 INCL.
D-4709-1-10 INCL.
D-4523-1-10 INCL.

DEPARTMENT OF HIGHWAYS OF ONTARIO

Date Senior Office Project Design Engineer

May 11/61 Charles E. Juice
Date for Road Design Engineer



NEAREST RAILWAY SIDING: C.P.R. OTTAWA WEST.

LORETTA ST. TO BRONSON AVE.

(LIMIT OF CONTRACT 61-64)

CITY OF OTTAWA
COUNTY OF CARLETON

PROVINCE OF ONTARIO
DEPARTMENT OF HIGHWAYS

HON. F. M. CASS
MINISTER

DE LEUW CATHER & CO. OF CANADA LTD.

29/3/61 Leon J. Marshall
Date

DE LEUW CATHER & CO. OF CANADA LTD. CONSULTING ENGINEERS

ITEM No.	SPEC. N ^o	ITEM	UNIT	QUANTITIES
1	200 REV.	CLEARING	ACRE	3.0
2	200 REV.S.P	GRUBBING	ACRE	5.0
3	200 REV. 408,421-C.S.P	EARTH EXCAVATION (GRADING INCL. GRADING FOR SIDEWALKS, AND SUB-EXCAVATION.	C.Y.	189,000
4	200 REV.SUPP.S.P	ROCK EXCAVATION (GRADING)	C.Y.	9,200
5	314, 318 S.P	SELECTED GRAN. BASE COURSE CLASS 'A'	TON	3,050
6	9,316,318,408,S.P	SAND CUSHION (INCL.GRANULAR BACKFILL TO STRUCTURES & FOR SIDEWALKS)	TON	139,000
7	316, 318 406, 407 S.P	SAND CUSHION (GRANULAR BACKFILL TO UTILITIES, SEWERS, M.H.& C.B.)	TON	6,450
8	405, S.P	CRUSHED ROCK (BACKFILL TO SUB DRAINS)	C.Y.	92
9	431	GRADER RENTAL (100 H.P. TANDEM DRIVE)	HOURL	100
10	S.P.	COMPACTION EQUIPMENT RENTAL (SHEEPSFOOT ROLLER AND TRACTOR)	HOURL	760
11	S.P.	COMPACTION EQUIPMENT RENTAL (PNEUMATIC TIRED WOBBLE-WHEEL ROLLER AND TRACTOR)	HOURL	760
12	200 REV.314,316	APPLICATION OF WATER	M.GAL	3,350
13	314	APPLICATION OF CALCIUM CHLORIDE	TON	10
14	9,407	CONCRETE IN MANHOLES AND CATCH BASINS	C.Y.	310
15	S.P.	PLACING 30" PRE-CAST CONC. PIPE SECT. IN M.H. & C.B.	L.F.	937
16	S.P.	BREAKING INTO EXIST. CATCH BASINS AND MANHOLES	EACH	9
17	407,S.P	ADJUST CATCH BASINS AND MANHOLES	EACH	28
18	S.P.	REMOVING EXIST'G CATCH BASINS & MANHOLES	EACH	14
19	406,407,S.P.	EARTH EXCAVATION FOR CATCH BASINS & MANHOLES	C.Y.	590
20	406,407,S.P.	ROCK EXCAVATION FOR CATCH BASINS & MANHOLES	C.Y.	260
21	406 ,S.P	PLACING 9" CONC. SEWER PIPE C14 SS	L.F.	50
22	406 ,S.P	PLACING 18" CONC. SEWER PIPE C14 SS	L.F.	550
23	406 ,S.P	PLACING 18" CONC. SEWER PIPE C 76 IX	L.F.	406
24	406 ,S.P	PLACING 30" CONC. SEWER PIPE C 76 IX	L.F.	294
25	406 ,S.P	PLACING 36" CONC. SEWER PIPE C 76 IX	L.F.	378
26	406 ,S.P	PLACING 54" CONC. SEWER PIPE C 76 IX	L.F.	344
27	406	PLACING 9" CONC. SEWER PIPE C14 SS	L.F.	2,468
28	406	PLACING 9" CONC. SEWER PIPE C14 ES	L.F.	1,240
29	406	PLACING 12" CONC. SEWER PIPE C14 SS	L.F.	706
30	406	PLACING 12" CONC. SEWER PIPE C14 ES	L.F.	812
31	406	PLACING 12" CONC. SEWER PIPE C 76 IX	L.F.	184
32	406	PLACING 15" CONC. SEWER PIPE C14 ES	L.F.	130
33	406	PLACING 18" CONC. SEWER PIPE C14 ES	L.F.	498
34	406	PLACING 6" CORR. IRON PIPE SEWERS 18GA. A.C.A.A.	L.F.	152
35	405	PLACING 6" PERF CORR. IRON PIPE SUBDRAIN 18GA. A.C.A.A.	L.F.	964
36	406, S.P	EARTH EXCAVATION FOR SEWERS & UTILITIES	C.Y.	3,850
37	406,S.P.	ROCK EXCAVATION FOR SEWERS & UTILITIES	C.Y.	2,550
38	S.P.	HAND EXCAVATION FOR UTILITIES	C.Y.	120
39	9 S.P.	CONC. ENCASEING OF PIPE SEWERS AND WATERMAINS	C.Y.	320
40	406,S.P.	SALVAGING CONC. SEWER PIPE	L.F.	260
41	S.P.	EXCAVATE & DEMOLISH EXIST. CONC. PIPE SEWERS	C.Y.	330
42	313	REINFORCED CONC. BASE 8" DEPTH	S.Y.	9,752
43	S.P.	APPLICATION OF R.S. EMUL. ASPHALT (TACK COAT)	S.Y.	9,800
44	310, 318,S.P	HOT MIX H.L. I	TON	860
45	310, 318,S.P	HOT MIX H.L. 8	TON	830
46	S.P.	REMOVAL OF OLD CONC. BASE WITH BITUM. SURFACE	S.Y.	1,644
47	S.P.	REMOVAL OF OLD BITUMINOUS PAVEMENT	S.Y.	4,850
48	9 ,409	CONCRETE CURB TYPE 'L' (STRAIGHT)	L.F.	630
49	SP, 9 ,409	CONCRETE CURB TYPE 'M' (STRAIGHT)	L.F.	3,370
50	SP, 9 ,409	CONCRETE CURB TYPE 'M' (CIRCULAR)	L.F.	520
51	9 ,408	CONCRETE SIDEWALK	S.F.	22,000
52	408	REMOVAL OF OLD SIDEWALK	C.Y.	210
53	422	REMOVING FENCE	ROD	150
54	411, S.P	SODDING (STAKED)	S.Y.	18,500
55	411, S.P	SODDING (UNSTAKED)	S.Y.	5,200
56	411	PLACING WIRE MESH	S.Y.	21,500
57	430	PLACING TOPSOIL (IMPORTED)	C.Y.	2,000
58	S.P.	REMOVAL OF EXISTING CONCRETE STRUCTURES	C.Y.	4,450
59	S.P.	PLACING ASBESTOS CEMENT CONDUIT (4")	L.F.	1,420
60	S.P.	PRE-CAST CONCRETE VALVE CHAMBERS	EACH	15
61	S.P.	EARTH EXCAVATION FOR CRIBWALL FOUNDATIONS	C.Y.	1,300
62	9 S.P	CONCRETE IN CRIBWALL FOOTINGS	C.Y.	142
63	S.P	ERECT CONCRETE CRIBWALL	S.F.	14,000
64	S.P.	REMOVAL OF OLD RAILWAY TRACK	L.F.	1,260
65	S.P.	TRAFFIC CONTROL JUNCTION M.H.	EACH	13

* - MATERIAL AVAILABLE, AS INDICATED, HAS BEEN ASSUMED FOR PRE-ENGINEER PURPOSES ONLY, ALL ACCEPTED MATERIAL IS TO BE USED (IF POSSIBLE) AS DIRECTED BY ENGINEER

SCHEDULE OF QUANTITIES				
ITEM No.	SPEC. N°	ITEM	UNIT	QUANTITIES
		BRIDGE #15 (W.P. 939-59)		
66	9 S.P.	EARTH EXCAVATION FOR STRUCTURE FOUNDATIONS AND WINGWALLS.	C.Y.	1250
67	9 S.P.	ROCK EXCAVATION FOR STRUCTURE FOUNDATIONS.	C.Y.	300
68	9 S.P.	PLACE CONCRETE IN STRUCTURE FOUNDATIONS.	C.Y.	610
69	9 S.P.	PLACE CONCRETE IN STRUCTURE.	C.Y.	2415
70	9	PLACE CONCRETE ABOVE TOP OF CURBS.	C.Y.	7
71	9 S.P.	PLACE REINFORCING STEEL.	TON	211
72	9 S.P.	ERECT AND PAINT STEEL HANDRAIL INCLUDING STEEL POSTS.	L. F.	311
73	S.P.	SUPPLY MATERIAL FOR LIGHTING SYSTEM.	L. S.	
74	S.P.	INSTALL MATERIAL FOR LIGHTING SYSTEM.	L. S.	
75	S.P.	SUPPLY SILICONE SOLUTION.	S. F.	19000
76	S.P.	APPLY SILICONE SOLUTION.	S. F.	19000

No.	Revisions	By	Date
<p>DEPARTMENT OF HIGHWAYS</p> <p>OF ONTARIO</p> <p>OTTAWA QUEENSWAY</p> <p>LIMITED-ACCESS HIGHWAY</p> <p>OTTAWA CANADA</p>			
<p>QUANTITY SHEET</p>			
<p>DE LEUW, CATHÉ & CO. OF CANADA, LIMITED Consulting Engineers</p>		<p>DEPT. OF HIGHWAYS OF ONTARIO</p>	
<p><i>Leon Marshall</i></p>		<p>Director of Planning and Design</p>	
Designed by:	Date:	DWG. No.	
Drawn by:	APRIL 1 / 1961		
H.T.H.			
Checked by:	Scale:	Sheet of	
G.S.S.		1	

INDEX	
SHEET	DESCRIPTION

SCHEDULE OF QUANTITIES

BREAKDOWN OF MAIN ITEMS

* - MATERIAL AVAILABLE, AS INDICATED, HAS BEEN ASSUMED FOR PRE-ENGINEER PURPOSES ONLY, ALL ACCEPTED MATERIAL IS TO BE USED (IF POSSIBLE) AS DIRECTED BY ENGINEER

HIGHWAY STANDARDS

SCHEDULE OF QUANTITIES

DEPARTMENT OF HIGHWAYS
OF ONTARIO

OTTAWA QUEENSWAY
LIMITED-ACCESS HIGHWAY
OTTAWA CANADA

QUANTITY SHEET

DE LEUW CATHER & CO
OF CANADA LIMITED
Consulting Engineers

DEPT. OF HIGHWAYS
OF ONTARIO

Director of
Planning & Design

Designed by

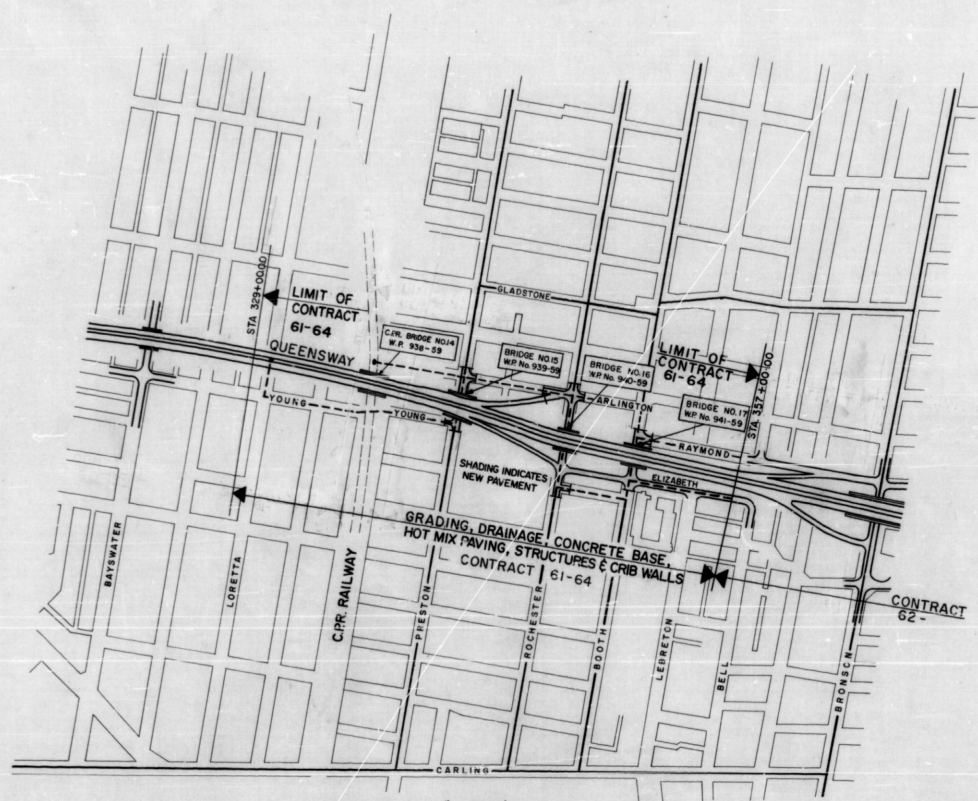
Date: _____

Drawings: None.

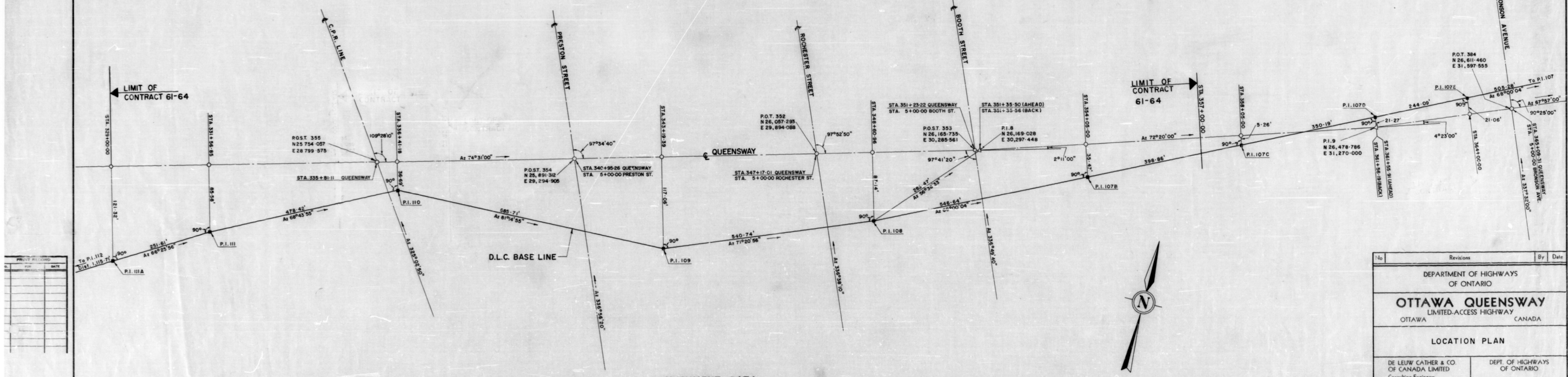
APRIL 1/19

Scale:

Sheet

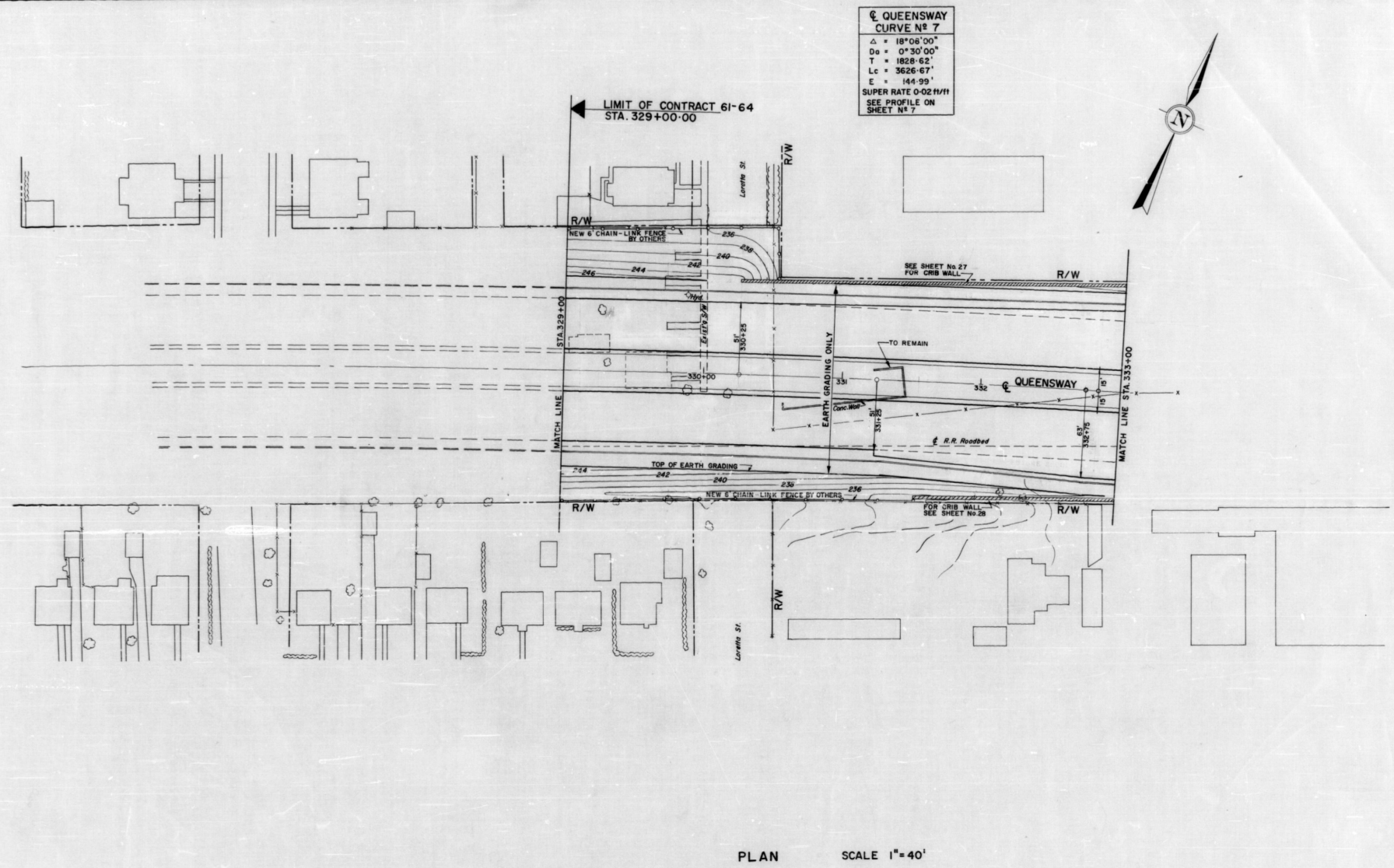


- NOTE**
- BRIDGE No. 15 @ PRESTON ST. TO BE CONSTRUCTED WHILE MAINTAINING TWO LANES OF THROUGH TRAFFIC AT ALL TIMES.
 - BRIDGE No. 17 @ BOOTH ST. TO BE STARTED UNDER CONSTRUCTION & COMPLETED FOR RE-OPENING TO TRAFFIC BEFORE BRIDGE No. 16 @ ROCHESTER ST. IS STARTED. TRAFFIC WILL BE DETOURD FROM BOOTH ON TO EXISTING ROCHESTER ST. FOR RECONSTRUCTION OF BOOTH ST. FROM ROCHESTER ST. ON TO NEW BOOTH ST. FOR RECONSTRUCTION OF ROCHESTER ST.
- LEGEND**
- ESTABLISHED TRUCK ROUTE —————
- APPROVED TRUCK ROUTES FOR THIS CONTRACT ONLY - - - - -

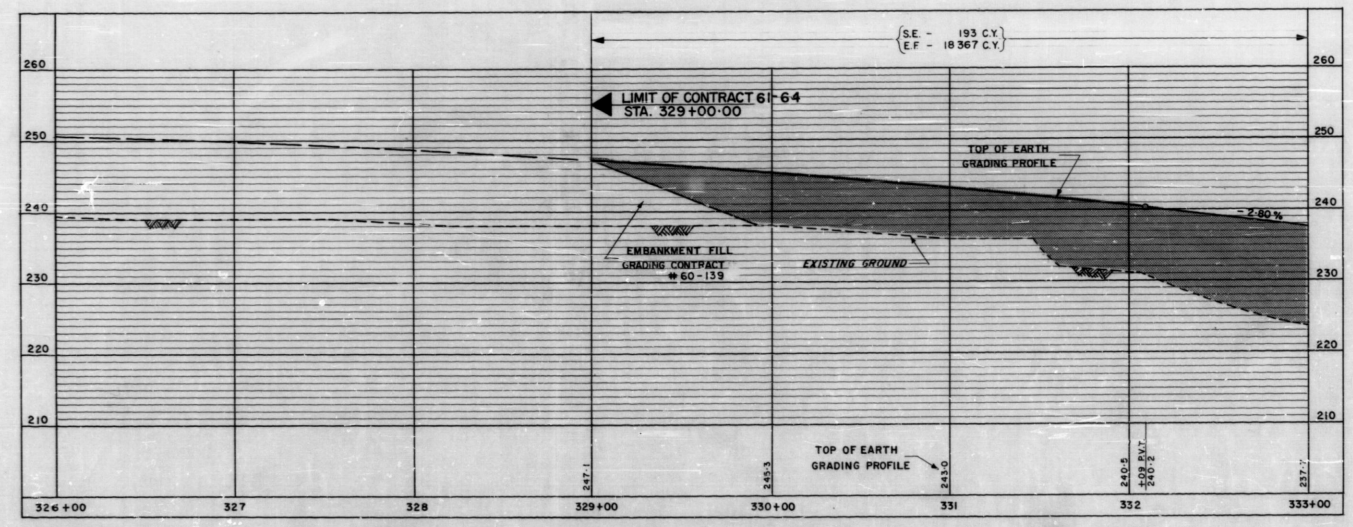


ALIGNMENT DATA
NOT TO SCALE

No.	Revisions	By	Date
DEPARTMENT OF HIGHWAYS OF ONTARIO			
OTTAWA QUEENSWAY LIMITED-ACCESS HIGHWAY			
OTTAWA CANADA			
LOCATION PLAN			
DE LEUW CATHIER & CO. OF CANADA LIMITED Consulting Engineers		DEPT. OF HIGHWAYS OF ONTARIO Director of Planning & Design	
Designed by G.E.T.	Date APRIL 1 / 1961	DWG. No.	
Drawn by D.A.K.	Scale AS SHOWN	Sheet 3 of	
Checked by G.G.S.			



PLAN SCALE 1" = 40'



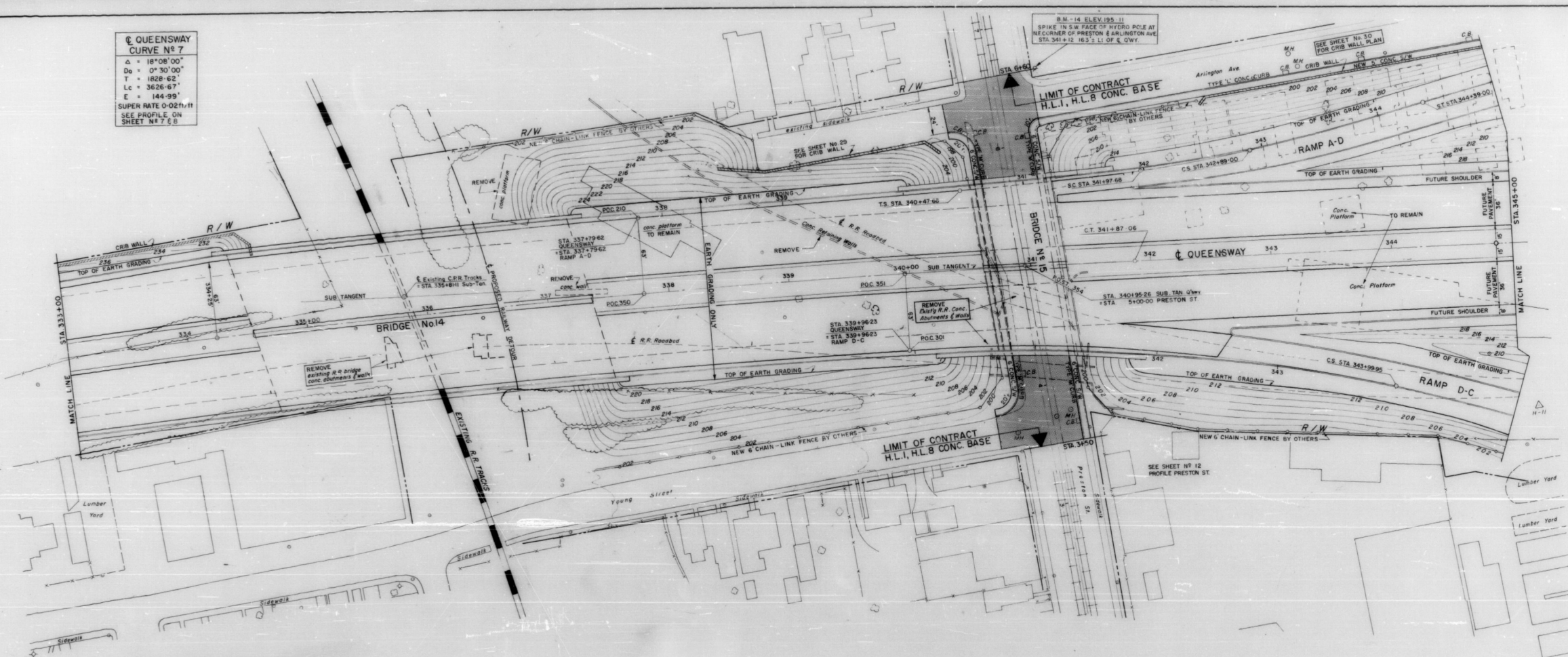
PROFILE SCALE VERTICAL 1" = 10' HORIZONTAL 1" = 40'

QUEENSWAY
CURVE NO. 7
Δ = 18°08'00"
Da = 0°30'00"
T = 1828-62'
Lc = 3626-67'
E = 144-99'
SUPER RATE 0-0211/1
SEE PROFILE ON
SHEET NO. 7

PRINT RECORD		
NO.	REV.	DATE

No.	Revisions	By	Date
DEPARTMENT OF HIGHWAYS OF ONTARIO			
OTTAWA QUEENSWAY LIMITED-ACCESS HIGHWAY OTTAWA CANADA			
PLAN & PROFILE STA. 329+00 TO STA. 333+00			
DESIGNED BY: D. A. V. OF CANADA LIMITED Consulting Engineers		DEPT. OF HIGHWAYS OF ONTARIO Director of Planning & Design	
Drawn by: R. N. H.	Date: APRIL 1 / 1961	DWG. No.	
Checked by: C. K. C.	Scale: 1" = 40'	Sheet 4 of	

QUEENSWAY
 CURVE No 7
 Δ = 18°08'00"
 D = 0°30'00"
 T = 1828.62'
 Lc = 3626.67'
 E = 144.99'
 SUPER RATE 0.0211/1
 SEE PROFILE ON
 SHEET No 7 & 8

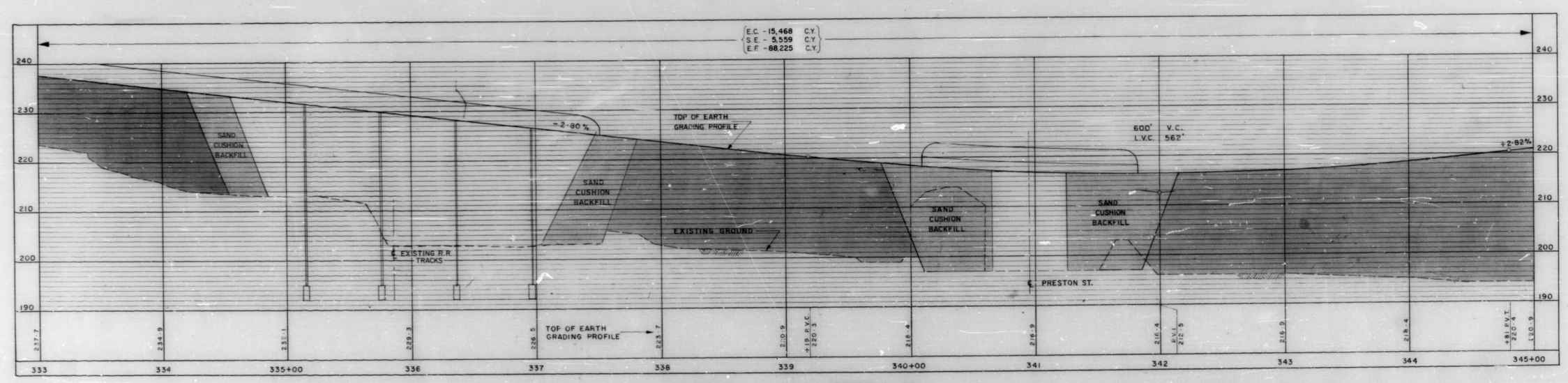


NOTE:
 C.P.R. STRUCTURE No 14
 IS NOT PART OF THIS CONTRACT

LEGEND
 [Symbol] REMOVE EXISTING SIDEWALK
 [Symbol] REMOVE EXISTING PAVEMENT
 NOTE: REMOVE ALL EXISTING FENCE WITHIN R/W LIMITS

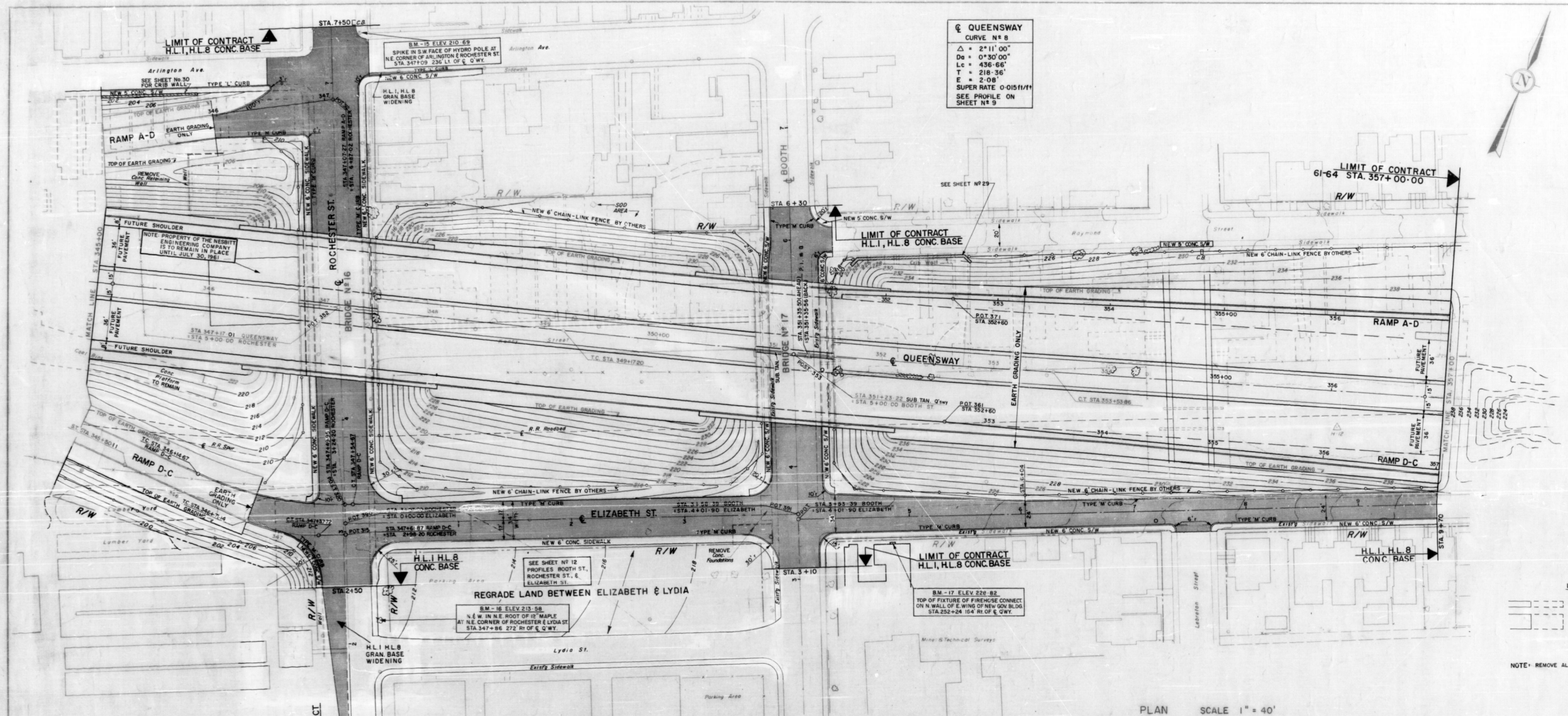
FOR DRAINAGE & UTILITIES
 SEE SHEET No 14

PLAN SCALE 1" = 40'



PROFILE SCALE: VERTICAL 1" = 10'
 HORIZONTAL 1" = 40'

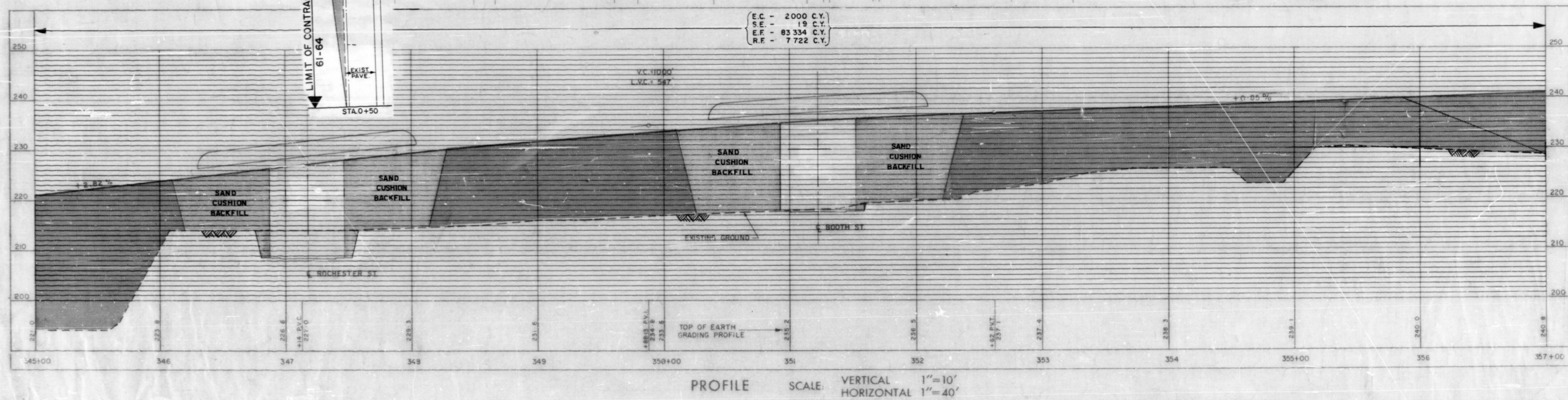
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DEPARTMENT OF HIGHWAYS OF ONTARIO OTTAWA QUEENSWAY LIMITED-ACCESS HIGHWAY OTTAWA CANADA			
PLAN & PROFILE STA. 333+00 TO STA. 345+00			
DE LEUW, CATHY & CO. OF CANADA, LIMITED Consulting Engineers		DEPT. OF HIGHWAYS OF ONTARIO Director of Planning & Design	
Drawn by: C.K.C. R.N.M. G.G.S.		Date: APRIL 1/1981 Scale: 1" = 40'	
		DWG. No. Sheet 5 of	



QUEENSWAY
CURVE N° 8
Δ = 2° 11' 00"
D = 0° 30' 00"
L = 436-66'
T = 218-36'
E = 2-08'
SUPER RATE 0-0151/11
SEE PROFILE ON
SHEET N° 9

LEGEND
 --- REMOVE EXISTING SIDEWALK
 --- REMOVE EXISTING PAVEMENT
 --- REMOVE ALL EXISTING FENCE WITHIN R/W LIMITS

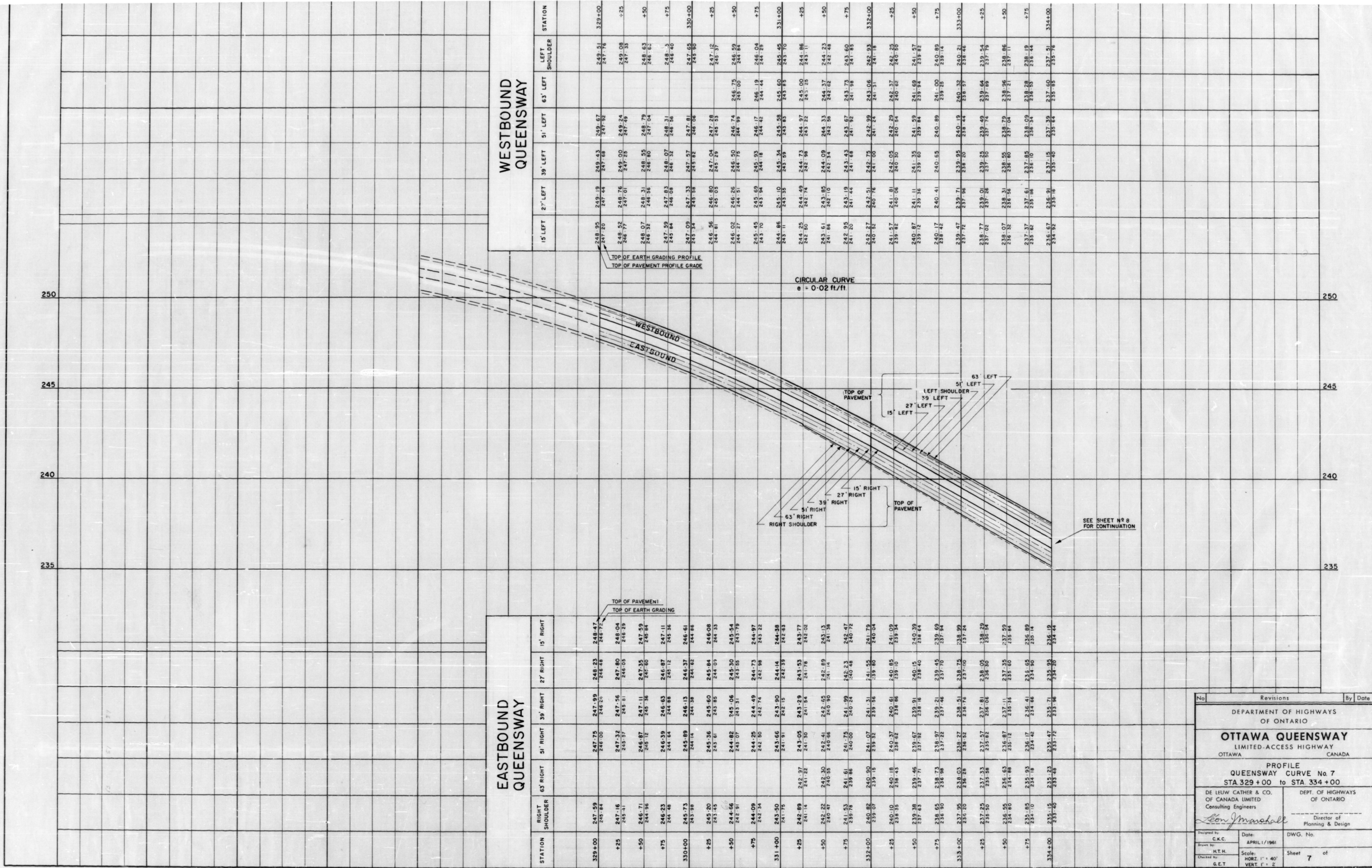
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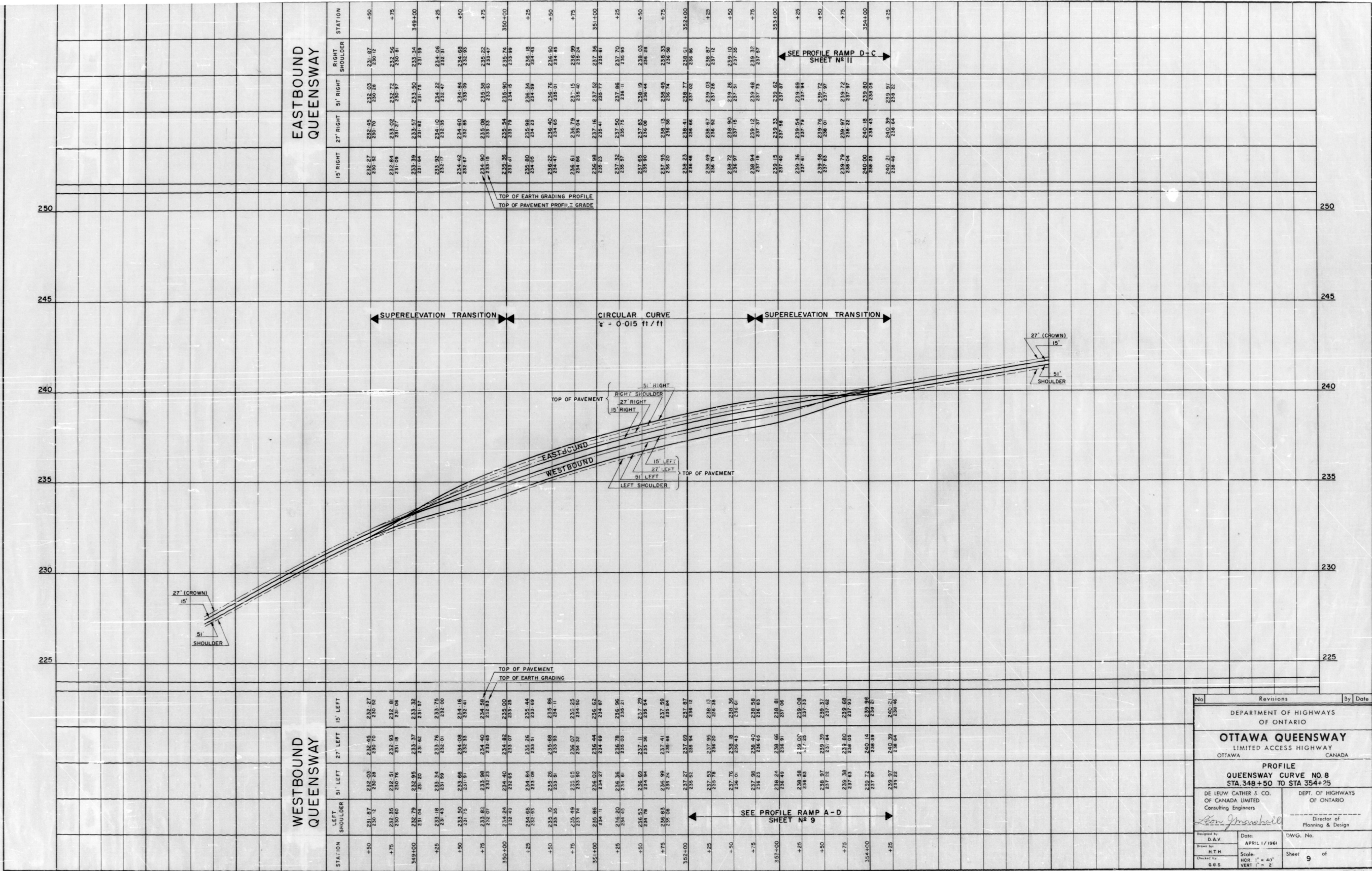
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HORIZONTAL 1" = 40'

FOR DRAINAGE & UTILITIES
SEE SHEET N° 15

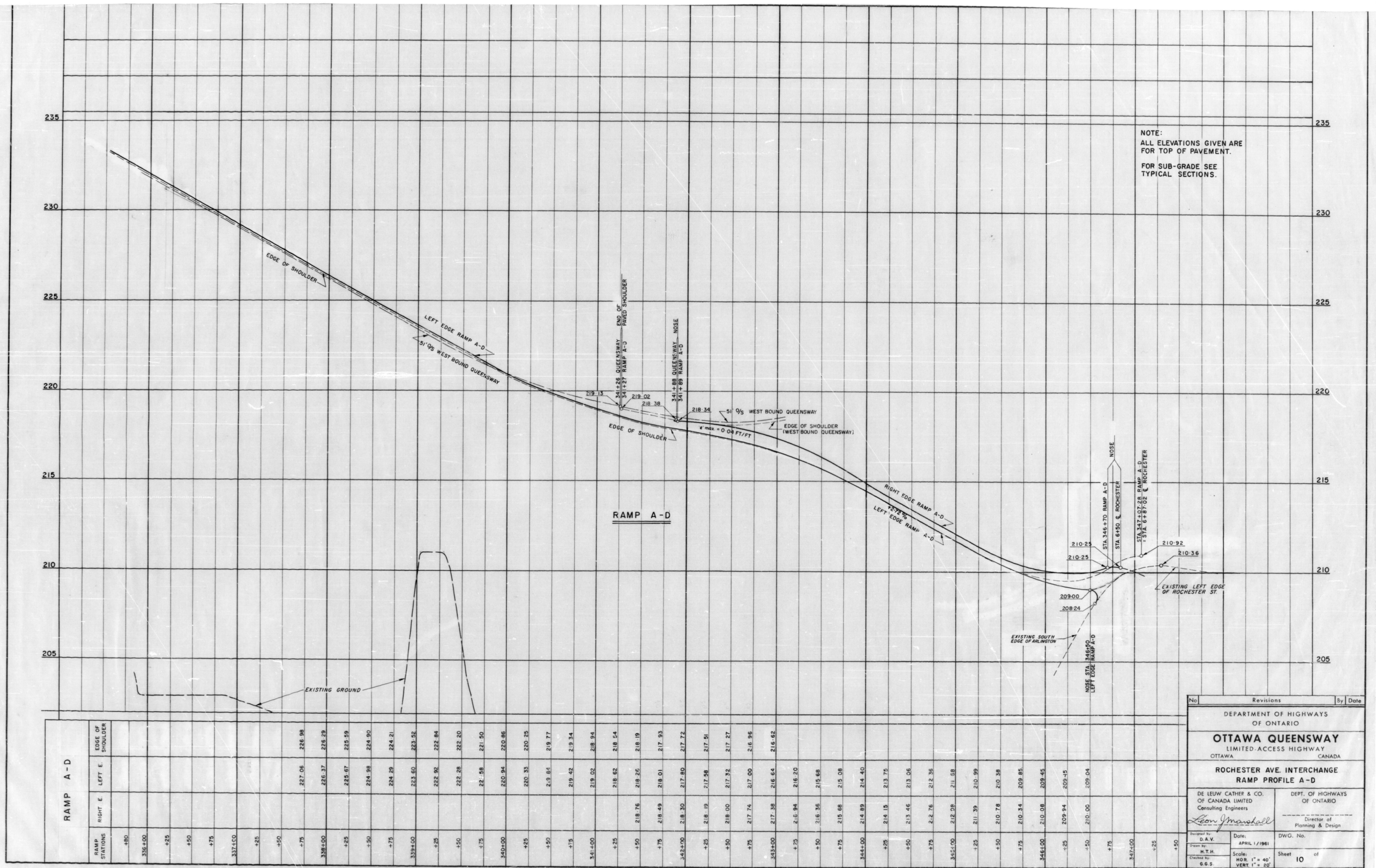
No.	Revisions	By	Date
DEPARTMENT OF HIGHWAYS OF ONTARIO OTTAWA QUEENSWAY LIMITED-ACCESS HIGHWAY OTTAWA CANADA			
PLAN & PROFILE STA. 345+00 TO STA. 357+00			
DE LEUW CATHIER & CO. OF CANADA LIMITED Consulting Engineers <i>Leon Marshall</i>		DEPT. OF HIGHWAYS OF ONTARIO Director of Planning & Design	
Designed by G.S.S. Drawn by R.N.H. Checked by G.E.T.	Date APRIL 1 / 1961 Scale 1" = 40'	DWG. No. Sheet 6 of 6	

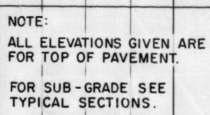


No. _____		Revisions _____		By _____		Date _____	
DEPARTMENT OF HIGHWAYS OF ONTARIO							
OTTAWA QUEENSWAY LIMITED-ACCESS HIGHWAY OTTAWA CANADA							
PROFILE QUEENSWAY CURVE No. 7 STA 329+00 to STA 334+00							
DE LEUW CATHER & CO. OF CANADA LIMITED Consulting Engineers				DEPT. OF HIGHWAYS OF ONTARIO Director of Planning & Design			
Designed by: C.K.C. Drawn by: H.T.H. Checked by: G.E.T.				Date: APRIL 1/1961 Scale: HORIZ 1" = 40' VERT 1" = 2'			
DWG. No. _____				Sheet 7 of _____			

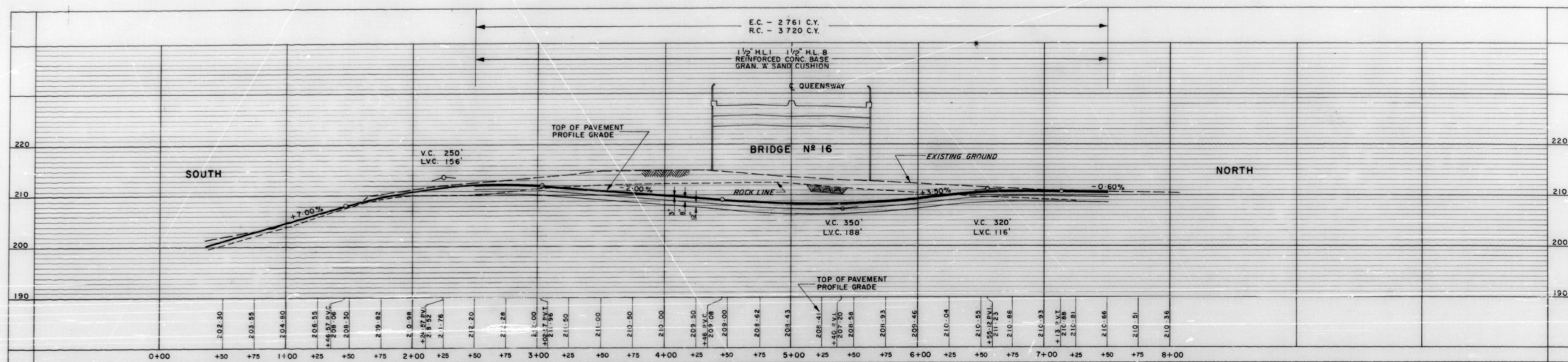


No.	Revisions	By	Date
DEPARTMENT OF HIGHWAYS OF ONTARIO			
OTTAWA QUEENSWAY LIMITED ACCESS HIGHWAY OTTAWA CANADA			
PROFILE QUEENSWAY CURVE NO. 8 STA. 348+50 TO STA 354+25			
DESIGNED BY D.A.V.		DEPT. OF HIGHWAYS OF ONTARIO	
DRAWN BY H.T.H.		Director of Planning & Design	
CHECKED BY G.B.S.		DWG. No.	
Date: APRIL 1 / 1961		Sheet 9 of	
Scale: H.C.R. 1" = 40'			
VERT. 1" = 2'			

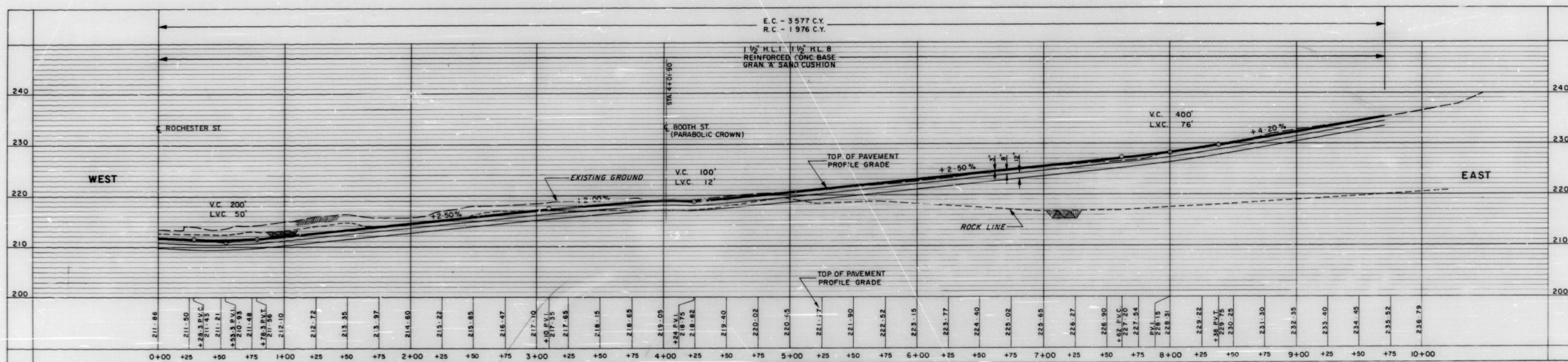




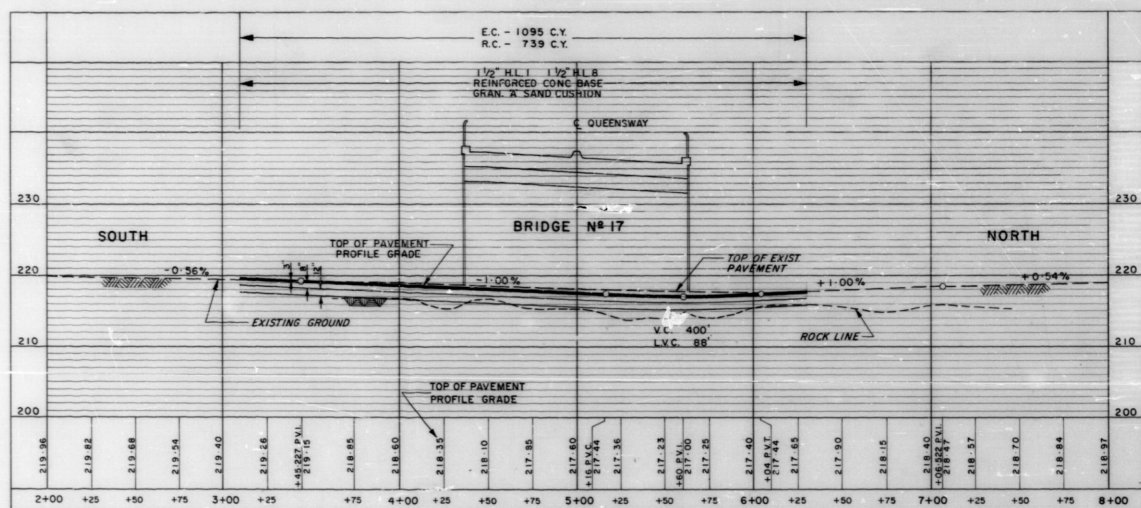
No	Revisions	By	Date
DEPARTMENT OF HIGHWAYS OF ONTARIO			
OTTAWA QUEENSWAY LIMITED ACCESS HIGHWAY			
OTTAWA		CANADA	
ROCHESTER AVE. INTERCHANGE RAMP PROFILE D-C			
DE LEUW CATHER & CO. OF CANADA LIMITED Consulting Engineers		DEPT. OF HIGHWAYS OF ONTARIO	
<i>Leon Marshall</i> _____ Director of Planning & Design			
Designed by D.A.V. Drawn by H.T.H.	Date: APRIL 1 / 1961	DWG. No.	
Checked by	Scale NOR 1" = 40'	Sheet 11 of	



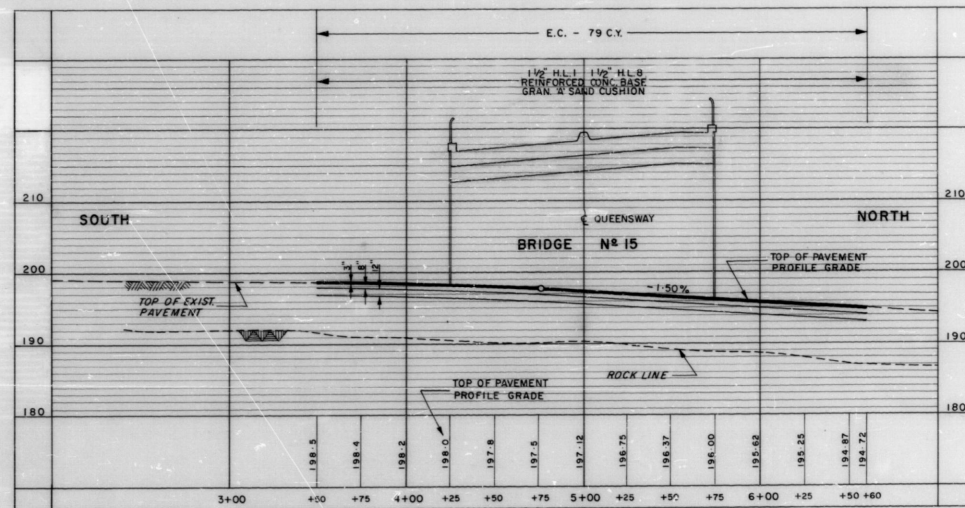
PROFILE ROCHESTER STREET



PROFILE ELIZABETH STREET

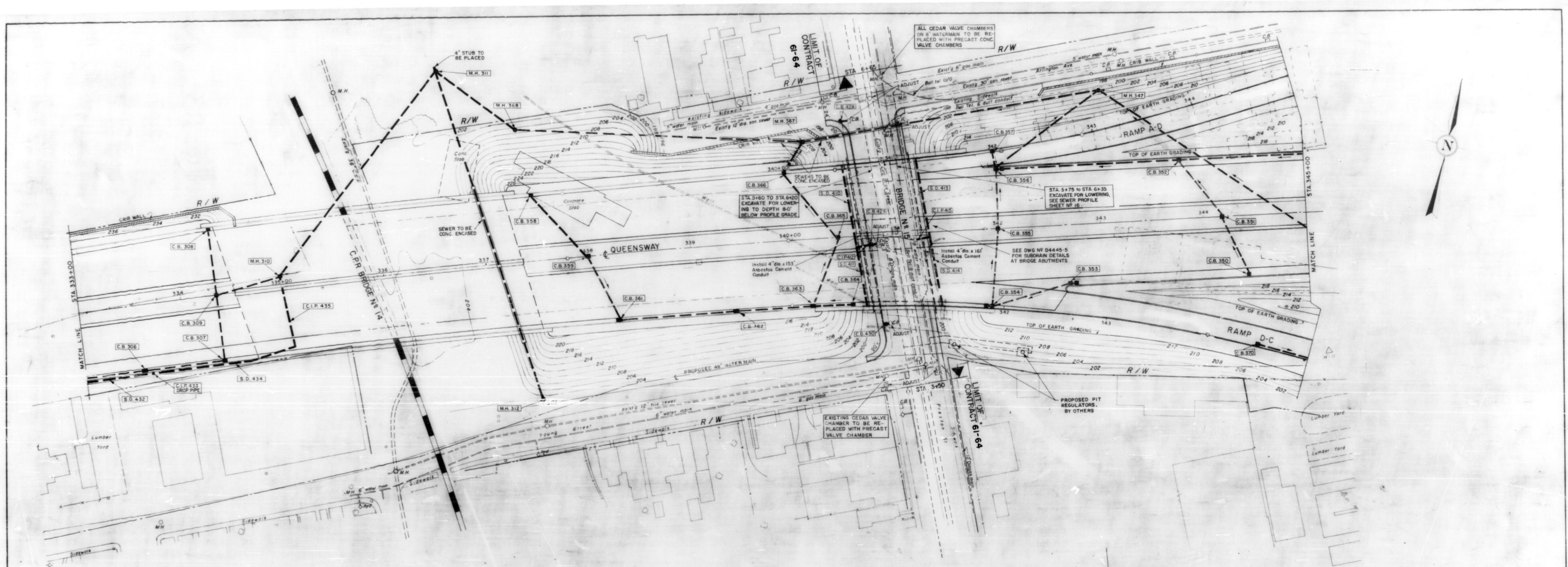


PROFILE BOOTH STREET



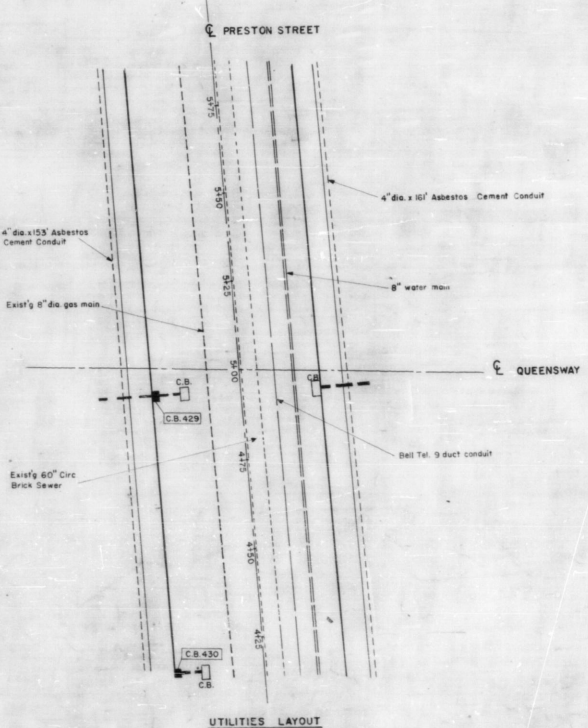
PROFILE PRESTON STREET

No.	Revisions	By	Date
DEPARTMENT OF HIGHWAYS OF ONTARIO			
OTTAWA QUEENSWAY LIMITED-ACCESS HIGHWAY CANADA			
PROFILES OF CITY STREETS ROCHESTER, ELIZABETH BOOTH & PRESTON			
DE LEUW CATHAR & CO OF CANADA LIMITED Consulting Engineers		DEPT. OF HIGHWAYS OF ONTARIO Director of Planning & Design	
Designed by G.E.T.	Date APRIL 1/1961	DWG. No.	
Drawn by H.T.H.	Scale VERT. 1" = 10' HORIZ. 1" = 40'	Sheet 12 of	
Checked by G.G.S.			



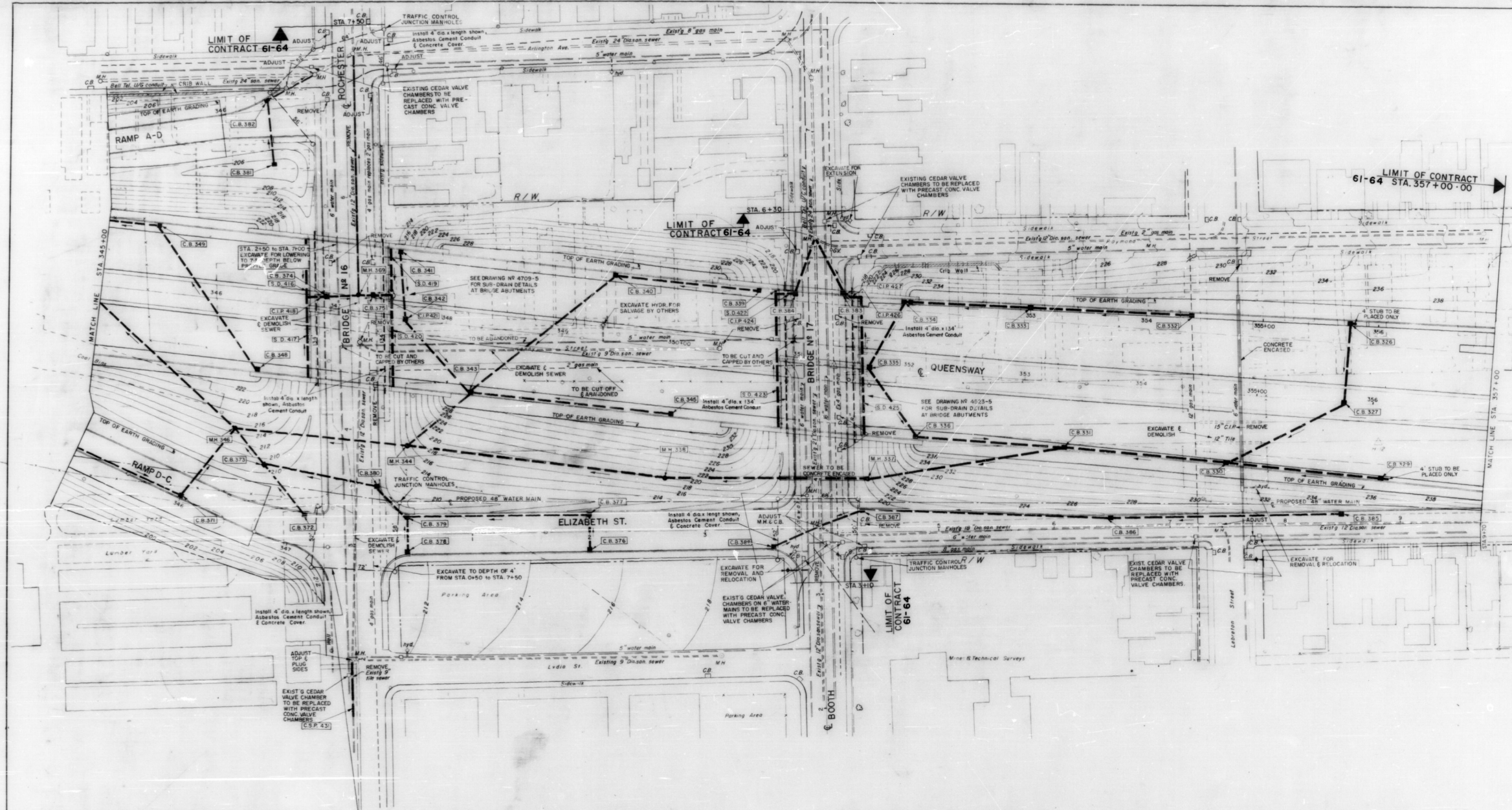
NUMBER	LOCATION	TYPE	COVER	ELEVATION
	STATION & POSITION			TOP OF GRADE LOW INVERT
306	333+55 - 66' rt. Gswy	G	A	236.41 228.66
307	334+35 - 66' rt. Gswy	G	A	234.17 226.65
308	334+35 - 66' rt. Gswy	A	A	236.57 229.07
309	334+35 - 66' rt. Gswy	G	A	232.94 223.44
310	335+00 - 10' rt. Gswy	G	M.H.-C	241.00 199.50
311	336+68 - 180' rt. Gswy	H	M.H.-C	200.00 186.50
347	343+05 - 130' rt. Gswy	G	M.H.-B	202.00 190.83
350	344+45 - 58' rt. Gswy	A	A	220.85 214.65
351	344+20 - 6' Gswy	G	A	217.91 213.95
352	343+80 - 58' rt. Gswy	G	A	219.45 212.90
353	342+70 - 58' rt. Gswy	K	A(2)	217.98 212.00
354	341+90 - Ramp D-C (Rock) rt.	J	A(2)	216.25 211.12
355	342+00 - 6' Gswy	G	A	215.47 209.52
356	342+00 - 58' rt. Gswy	J	A(2)	218.30 208.94
357	342+00 - Ramp A-D (Rock) rt.	A	A	217.72 212.00
358	337+50 - 66' rt. Gswy	A	A	227.75 220.12
359	338+00 - 6' Gswy	G	A	222.72 218.48
312	337+45 - 156' rt. Gswy	F	M.H.-C	203.06 186.06
361	338+25 - 66' rt. Gswy	G	A	223.25 217.08
362	339+40 - 66' rt. Gswy	G	A	220.00 213.52
363	340+15 - Ramp D-C (Rock) rt.	G	A	218.24 211.22
364	340+55 - Ramp D-C (Rock) rt.	A	A	217.44 212.40
365	340+45 - 6' Gswy	G	A	216.46 209.74
366	339+95 - Ramp A-D (Rock) rt.	G	A	220.97 207.22
367	340+15 - 96' rt. Gswy	H	M.H.-C	208.00 188.39
368	337+40 - 130' rt. Gswy	G	A	205.00 186.99
370	344+50 - Ramp D-C (Rock) rt.	G	A	214.11 208.35
428	6+20 - PRESTON ST. H.	A	A	195.02 191.02
429	4+95 - PRESTON ST. H.	A	A	197.20 193.20
430	4+15 - PRESTON ST. H.	A	A	198.10 194.10

C.B. to C.B.	DIA	SPEC N°	TYPE	CLASS MARK	LENGTH	INVERT ELEVATIONS
						IN OUT
306-307	12"	406B	C.S.P.	C14 ES	96'	231.13 228.73
307-308	12"	406B	C.S.P.	C14 ES	80'	228.66 226.66
308-309	12"	406B	C.S.P.	C14 ES	66'	226.65 223.00
309-310	12"	406B	C.S.P.	C14 ES	66'	223.07 225.77
310-311	12"	406B	C.S.P.	C14 ES	250'	223.44 204.24
368-311	36"	406A	C.S.P.	C76 IX	98'	186.99 186.50
346-347	18"	406A	C.S.P.	C76 IX	406'	202.00 191.95
349-352	9"	406B	C.S.P.	C14 ES	166'	216.88 213.56
350-351	9"	406B	C.S.P.	C14 ES	62'	214.65 214.03
351-352	2"	406C	C.S.P.	C14 ES	70'	213.95 212.90
353-354	9"	406B	C.S.P.	C14 ES	80'	212.00 211.20
354-355	9"	406B	C.S.P.	C14 ES	76'	211.12 209.60
355-356	12"	406B	C.S.P.	C14 ES	58'	209.52 208.94
356-357	12"	406B	C.S.P.	C14 ES	18'	212.00 211.64
357-358	12"	406B	C.S.P.	C14 ES	180'	212.90 208.94
358-359	12"	406B	C.S.P.	C14 ES	126'	208.94 196.34
359-360	30"	406A	C.S.P.	C76 IX	294'	190.83 189.36
360-361	9"	406B	C.S.P.	C14 ES	82'	220.12 218.48
361-362	9"	406B	C.S.P.	C14 ES	70'	218.48 217.08
362-363	9"	406B	C.S.P.	C14 ES	340'	186.06 186.50
363-364	9"	406B	C.S.P.	C14 ES	116'	217.08 213.60
364-365	9"	406B	C.S.P.	C14 ES	74'	213.52 211.30
365-366	9"	406B	C.S.P.	C14 ES	40'	212.40 212.00
366-367	12"	406B	C.S.P.	C14 ES	70'	211.22 209.82
367-368	12"	406B	C.S.P.	C76 IX	84'	209.74 207.22
368-369	12"	406B	C.S.P.	C76 IX	36'	207.22 200.02
369-370	36"	406A	C.S.P.	C76 IX	280'	188.39 186.99
370-371	9"	406B	C.S.P.	C14 ES	150'	208.35 206.10
S.D. 430	6"	405	PERF	AC-AA	78'	193.23 193.00
S.D. 411	6"	405	PERF	AC-AA	60'	193.18 193.00
C.I.P. 412	6"	406B	C.I.P.	AC-AA	12'	193.00 192.20
S.D. 413	6"	405	PERF	AC-AA	76'	192.23 192.00
S.D. 414	6"	405	PERF	AC-AA	70'	192.00 192.00
C.I.P. 415	6"	406B	C.I.P.	AC-AA	12'	192.00 191.20
428-EX-C.B.	9"	406B	C.S.P.	C14 ES	6'	191.02 190.84
429-EX-C.B.	9"	406B	C.S.P.	C14 ES	4'	193.20 193.08
430-EX-C.B.	9"	406B	C.S.P.	C14 ES	4'	194.10 193.98
S.D. 432	6"	405	PERF	AC-AA	64'	220.40 214.00
C.I.P. 433	6"	406B	C.I.P.	AC-AA	10'	DROP PIPE
S.D. 434	6"	405	PERF	AC-AA	142'	204.70 204.00
C.I.P. 435	6"	406B	C.I.P.	AC-AA	66'	204.00 201.96
311-NORTH	54"	406A	C.S.P.	C76 IX	4'	185.50 186.48



SEE SHEET No. 16 & 17 FOR
SEWER PROFILES.

No.	Revisions	By	Date
DEPARTMENT OF HIGHWAYS OF ONTARIO OTTAWA QUEENSWAY LIMITED ACCESS HIGHWAY OTTAWA CANADA DRAINAGE & UTILITIES STA. 333 +00 TO STA. 345+00			
DE LEEUW, CATHIER & CO. OF CANADA LIMITED Consulting Engineers <i>Leon Marshall</i>		DEPT. OF HIGHWAYS OF ONTARIO Director of Planning & Design	
Designed by G.E.T.	Date APRIL 17/1961	DWG. No.	
Drawn by R.N.H.	Scale 1" = 40'	Sheet 14 of	
Checked by G.G.S.			



SEE SHEET NO. 16 & 17
FOR SEWER PROFILES

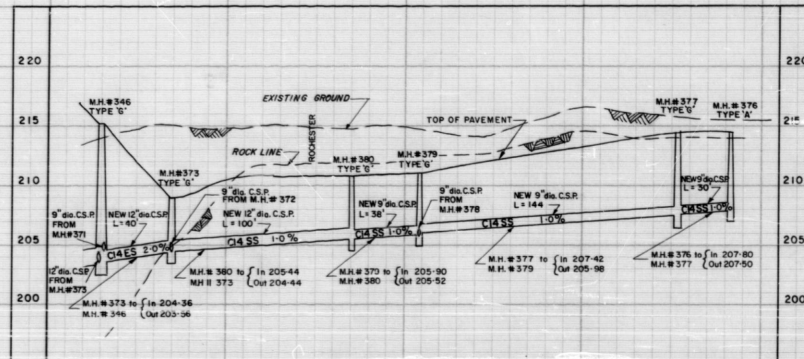
NUMBER	LOCATION	TYPE	COVER TYPE	ELEVATION
	STATION & POSITION			TOP OF GRADE LOW INVERT
337	351+72 37' H. Q'way	G	M.H.-C	220.00 215.44
338	350+00 113' H. C'way	G	M.H.-C	220.00 211.92
339	350+65 58' H. Q'way	G	A	235.33 228.92
340	349+40 58' H. Q'way	G	A	235.37 227.60
341	347+55 55' H. Q'way	G	A	229.49 223.00
342	347+05 6' Q'way	G	A	227.40 222.34
343	348+30 58' H. Q'way	G	A	231.39 218.45
344	347+80 105' H. Q'way	G	M.H.-B	215.00 205.00
345	350+00 58' H. Q'way	G	A	235.74 229.54
346	346+30 110' H. Q'way	G	M.H.-C	215.00 202.00
326	355+75 RAMP A-D (BRONSON) II	G	A	240.86 232.11
327	355+75 6' Q'way	G	A	238.74 231.42
329	356+15 RAMP D-C (BRONSON) II	G	A	241.30 235.66
330	354+80 RAMP D-C (BRONSON) II	G	A	240.23 235.00
331	353+40 RAMP D-C (BRONSON) II	G	A	239.52 236.79
332	354+40 RAMP A-D (BRONSON) II	G	A	239.78 234.04
333	353+00 RAMP A-D (BRONSON) II	G	A	237.99 232.70
334	351+90 RAMP A-D (BRONSON) II	G	A(2)	236.97 231.63
335	351+65 C'way	G	A	235.08 230.91
336	352+10 58' H. Q'way	G	A	238.71 229.35

NUMBER	LOCATION	TYPE	COVER TYPE	ELEVATION
	STATION & POSITION			TOP OF GRADE LOW INVERT
348	346+45 - 58' H. Q'way	G	A	224.42 220.00
349	345+45 - 58' H. Q'way	G	A	223.60 216.88
349	345+45 - 58' H. Q'way	G	M.H.	208.38 202.64
371	346+00 - RAMP D-C (ROCK) - rt.	G	A	212.36 206.00
372	347+05 - RAMP D-C (ROCK) - H.	A	A	211.08 205.56
373	346+55 - 57' H. RAMP D-C (ROCK)	G	A	209.00 204.36
374	345+15 - ROCHESTER ST. - H.	A	A	208.12 203.00
375	345+15 - ROCHESTER ST. - H.	A	A	208.12 202.84
376	2+00 - ELIZABETH ST. - H.	A	A	214.40 207.80
377	2+00 - ELIZABETH ST. - H.	G	A	214.40 207.42
378	0+45 - ELIZABETH ST. - H.	A	A	211.05 206.22
379	0+45 - ELIZABETH ST. - H.	G	A	211.05 205.90
380	3+50 - ROCHESTER ST. - rt.	G	A	210.70 205.44
381	6+30 - ROCHESTER ST. - 63' H.	A	A	205.00 200.50
382	346+40 - RAMP A-D (ROCK) II	G	A	209.47 209.04
383	5+60 - BOOTH ST. - H.	A	A	216.92 210.92
384	5+60 - BOOTH ST. - H.	A	A	216.92 210.92
385	8+50 - ELIZABETH ST. - H.	G	A	230.00 222.60
386	8+50 - ELIZABETH ST. - H.	G	A	224.16 217.60
387	4+34 - ELIZABETH ST. - H.	G	A	218.65 212.20
388	3+60 - ELIZABETH ST. - H.	A	A	218.15 211.96

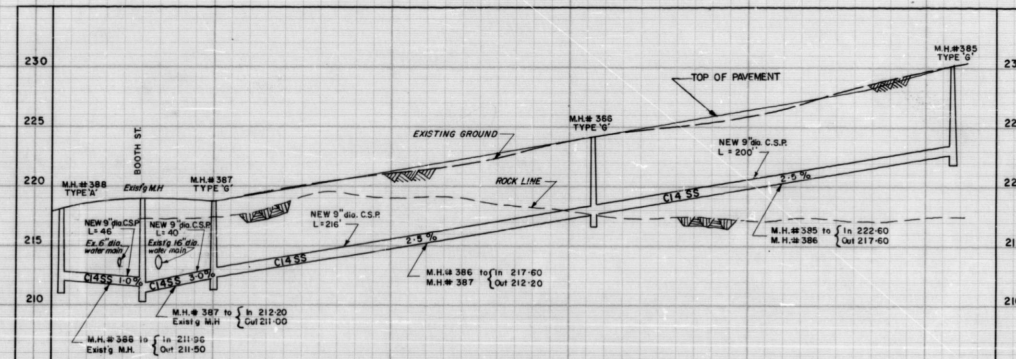
C.B. to C.B.	DIA.	SPEC. N°	TYPE	CLASS MARK	LENGTH	INVERT ELEVATIONS
						IN OUT
337-338	18"	406 A	C.S.P.	C14 SS	176'	215.44 211.92
338-344	18"	406 A	C.S.P.	C14 SS	224'	211.92 207.44
339-340	9"	406 B	C.S.P.	C14 SS	124'	228.92 227.68
340-343	9"	406 B	C.S.P.	C14 SS	158'	227.60 224.44
341-342	9"	406 B	C.S.P.	C14 SS	58'	223.00 222.42
342-343	9"	406 B	C.S.P.	C14 SS	86'	222.34 220.62
343-344	12"	406 B	C.S.P.	C14 SS	72'	218.45 211.25
345-348	9"	406 B	C.S.P.	C14 SS	170'	229.54 224.44
344-346	18"	406 A	C.S.P.	C14 SS	150'	209.00 207.80
C.S.P. 421	9"	406 A	C.S.P.	C14 SS	50'	209.80 204.80
370-371	9"	406 B	C.S.P.	C14 SS	150'	208.35 206.10
S.D. 416	6"	405	PERF.	AC-AA	48'	207.64 207.50
S.D. 417	6"	405	PERF.	AC-AA	70'	207.71 207.50
C.I.P. 418	6"	406 B	C.I.P.	AC-AA	12'	207.50 207.00
S.D. 419	6"	405	PERF.	AC-AA	40'	207.62 207.50
S.D. 420	6"	405	PERF.	AC-AA	79'	207.73 207.50
C.I.P. 421	6"	406 B	C.I.P.	AC-AA	12'	207.50 207.00
S.D. 422	6"	405	PERF.	AC-AA	6'	216.02 216.00
S.D. 423	6"	405	PERF.	AC-AA	114'	216.34 216.00
C.I.P. 424	6"	406 B	C.I.P.	AC-AA	12'	216.00 215.50
S.D. 425	6"	405	PERF.	AC-AA	118'	216.35 216.00
C.I.P. 426	6"	406 B	C.I.P.	AC-AA	6'	216.00 215.78
C.I.P. 427	6"	406 B	C.I.P.	AC-AA	8'	215.78 215.50
332-333	9"	406 B	C.S.P.	C14 SS	140'	232.78 231.71
333-334	9"	406 B	C.S.P.	C14 SS	110'	232.70 231.71
334-335	9"	406 B	C.S.P.	C14 SS	64'	231.63 230.99
335-336	12"	406 B	C.S.P.	C14 SS	74'	230.91 229.43
336-337	18"	406 B	C.S.P.	C14 SS	130'	229.35 226.75

C.B. to C.B.	DIA.	SPEC. N°	TYPE	CLASS MARK	LENGTH	INVERT ELEVATIONS
						IN OUT
346-347	18"	406 A	C.S.P.	C16 W	406'	202.00 191.85
348-349	9"	406 B	C.S.P.	C14 ES	152'	220.00 216.96
349-352	9"	406 B	C.S.P.	C14 ES	166'	216.88 213.56
371-346	9"	406 B	C.S.P.	C14 ES	74'	206.00 204.52
372-373	9"	406 B	C.S.P.	C14 SS	56'	205.56 204.44
373-346	12"	406 B	C.S.P.	C14 ES	40'	204.36 203.56
376-377	9"	406 B	C.S.P.	C14 SS	30'	207.80 207.50
377-379	9"	406 B	C.S.P.	C14 SS	144'	207.42 205.98
378-379	9"	406 B	C.S.P.	C14 SS	30'	206.22 205.98
379-380	9"	406 B	C.S.P.	C14 SS	38'	205.90 205.52
380-373	12"	406 B	C.S.P.	C14 SS	100'	205.44 204.44
374-369	9"	406 B	C.S.P.	C14 SS	28'	203.00 202.72
375-369	9"	406 B	C.S.P.	C14 SS	12'	202.84 202.72
369-EX.M.H.	12"	406 B	C.S.P.	C14 SS	210'	202.64 200.54
381-382	9"	406 B	C.S.P.	C14 SS	54'	200.50 199.96
382-EX.M.H.	9"	406 B	C.S.P.	C14 ES	48'	199.96 199.00
383-EX.M.H.	9"	406 B	C.S.P.	C14 ES	52'	209.04 208.00
384-EX.M.H.	9"	406 B	C.S.P.	C14 SS	52'	210.92 209.86
385-386	9"	406 B	C.S.P.	C14 SS	200'	212.60 217.60
386-387	9"	406 B	C.S.P.	C14 SS	216'	217.60 212.20
387-EX.M.H.	9"	406 B	C.S.P.	C14 SS	40'	212.20 211.00
388-EX.M.H.	9"	406 B	C.S.P.	C14 SS	46'	211.86 211.80
325-326	18"	406 B	C.S.P.	C14 ES	140'	233.38 232.19
326-327	18"	406 B	C.S.P.	C14 ES	68'	232.11 231.50
327-330	18"	406 B	C.S.P.	C14 ES	112'	231.42 230.08
328-329	9"	406 B	C.S.P.	C14 SS	126'	237.00 235.74
329-330	9"	406 B	C.S.P.	C14 SS	136'	235.66 232.94
330-331	18"	406 B	C.S.P.	C14 ES	140'	230.00 228.04
331-337	18"	406 B	C.S.P.	C14 ES	174'	226.75 215.44

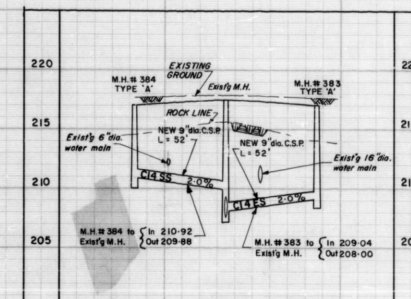
No.	Revisions	By	Date
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DE LEUW CATHY & CO. OF CANADA LIMITED Consulting Engineers		DEPT. OF HIGHWAYS OF ONTARIO Director of Planning & Design	
Designer G.E.T. Drawn by R.N.H. Checked by G.G.S.	Date: APRIL 1/1961 Scale: 1" = 40'	DWG. No. Sheet 15 of	



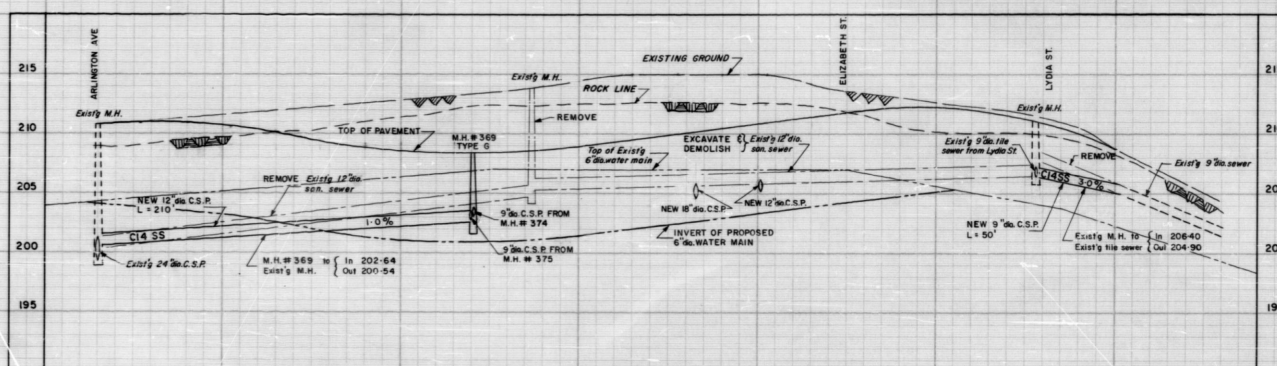
ELIZABETH ST.



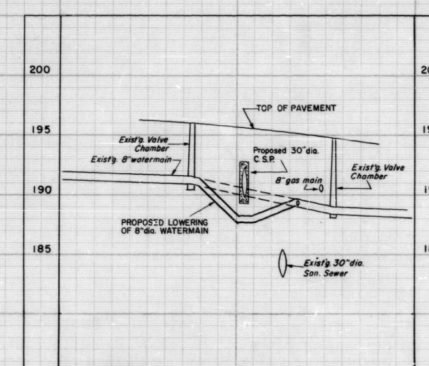
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BOOTH ST.

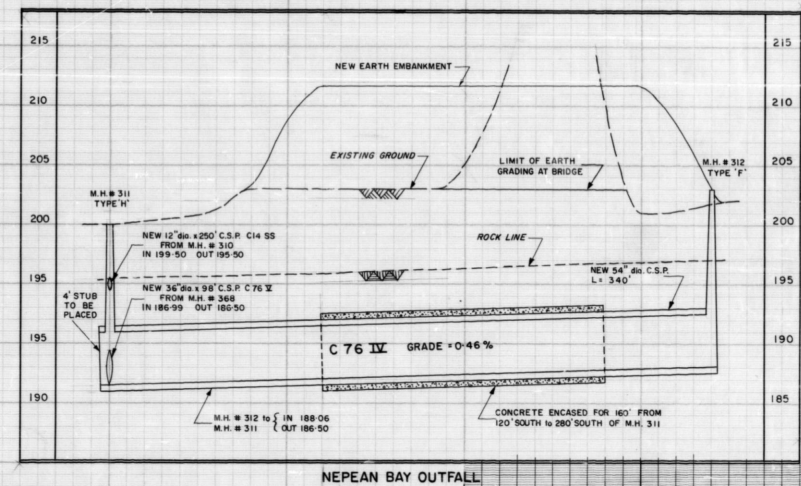
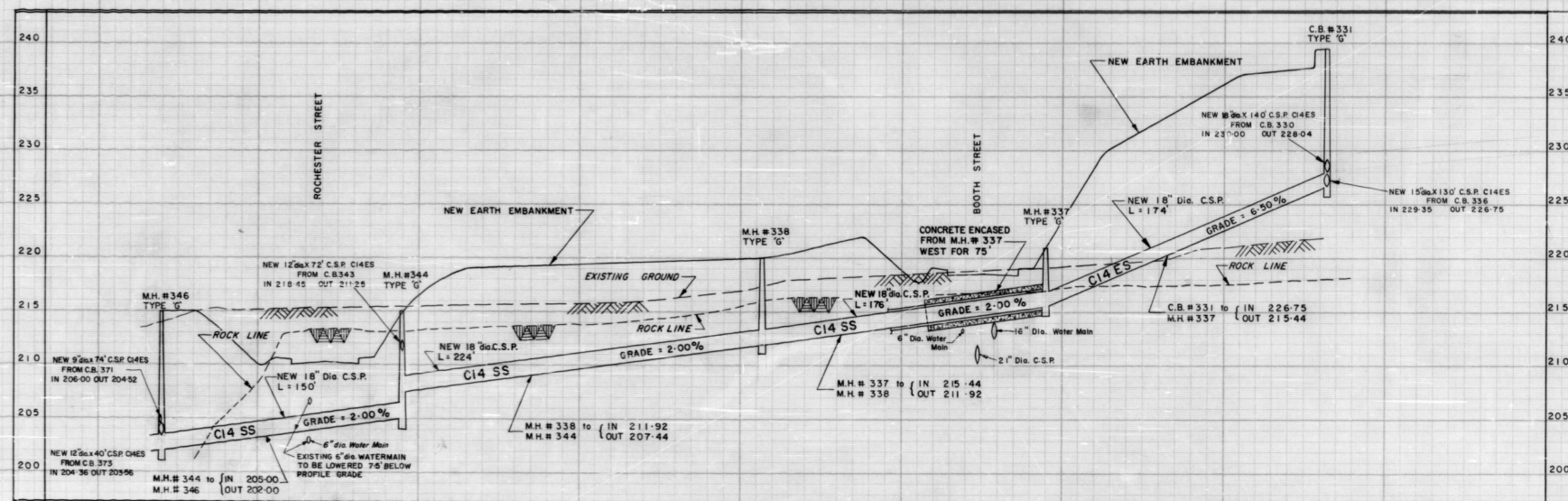
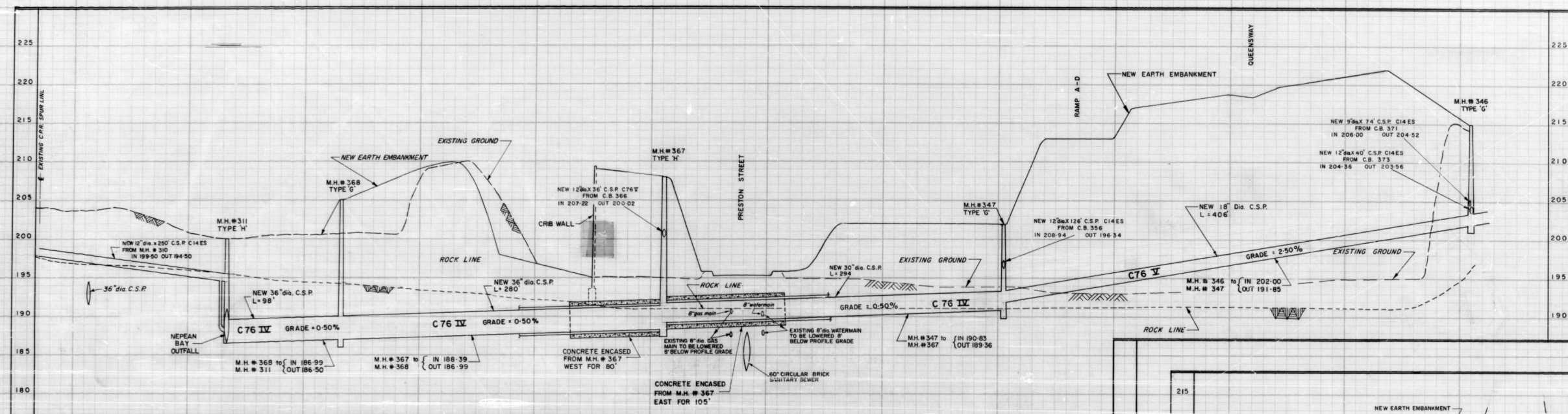


ROCHESTER ST.

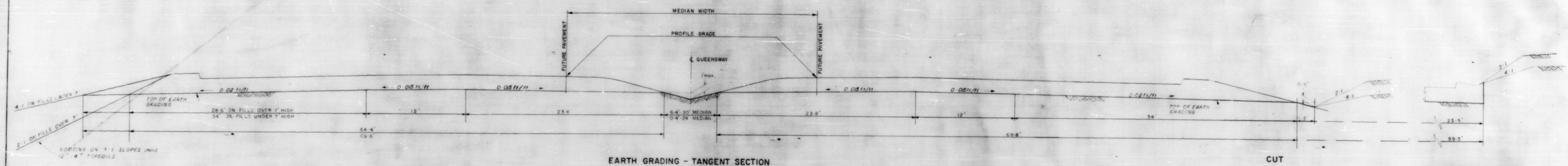


PRESTON ST.

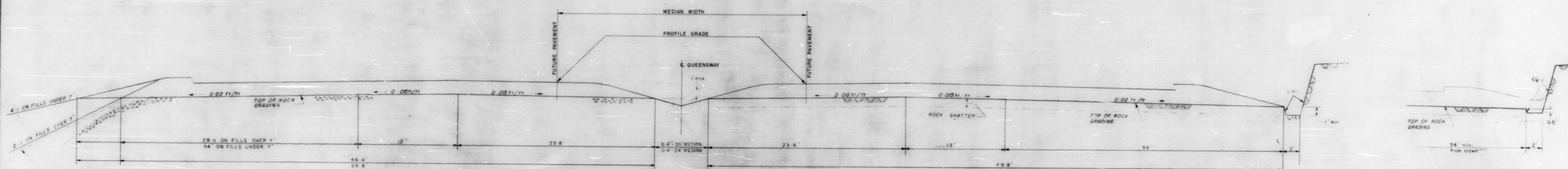
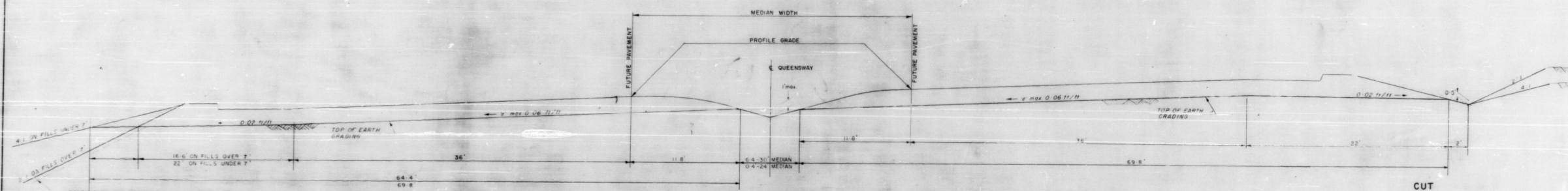
No.	Revisions	By	Date
DEPARTMENT OF HIGHWAYS OF ONTARIO.			
OTTAWA QUEENSWAY LIMITED ACCESS HIGHWAY CANADA			
SEWER PROFILES CITY STREETS			
DE LEUW, CATHAR & CO. OF CANADA LIMITED Consulting Engineers.		DEPT. OF HIGHWAYS OF ONTARIO. Director of Planning & Design.	
Designed by: G.E.T.	Date: APRIL 1 / 1961	DWG. No.	
Drawn by: R.N.H.	Scale: HOR 1" = 40'	Sheet 16 of	
Checked by:			



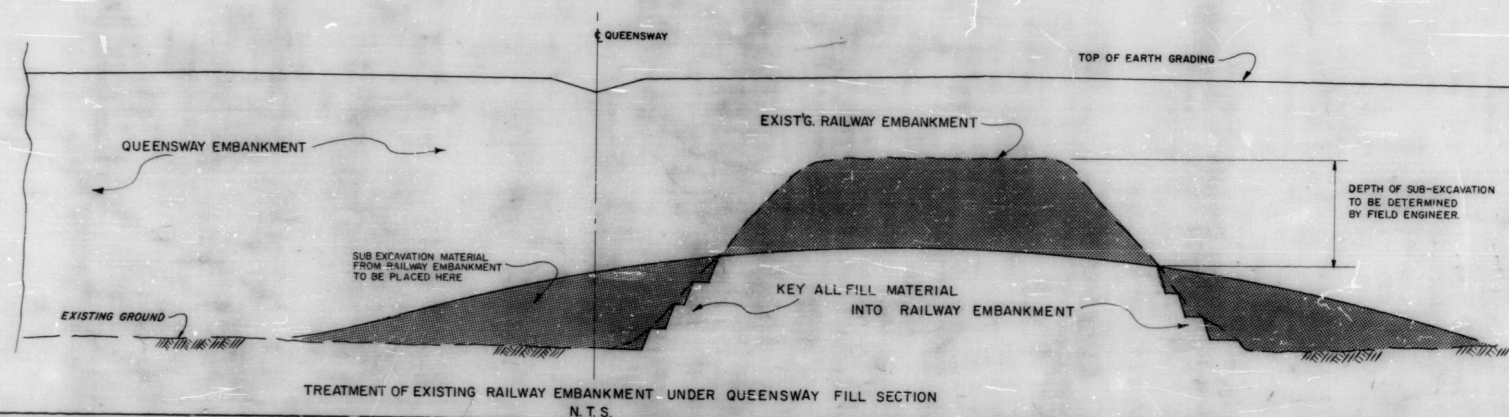
DEPARTMENT OF HIGHWAYS OF ONTARIO			
OTTAWA QUEENSWAY LIMITED ACCESS HIGHWAY CANADA			
SEWER PROFILES QUEENSWAY			
DE LEUW CATHIER & CO. OF CANADA LIMITED Consulting Engineers		DEPT. OF HIGHWAYS OF ONTARIO Director of Planning & Design	
Designed by: G. E. T.	Date: APRIL 1/1961	DWG. No.	
Drawn by: B. K. J.	Scale: HORIZ. 1"=40'	Sheet 17 of	
Checked by: G. E. S.	VER. 1"=4'		



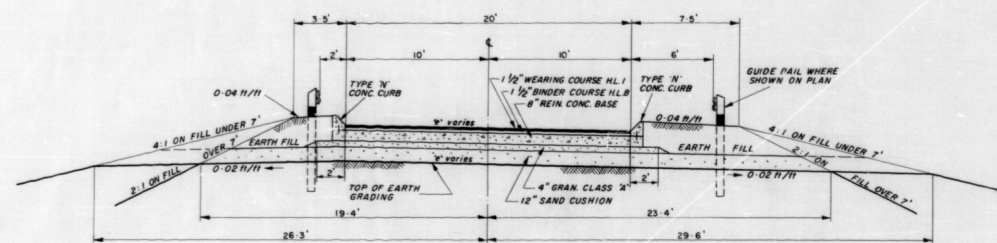
CUT SECTION IN EARTH
WITHOUT FULL DITCH
(SEE GRADING PLANS)



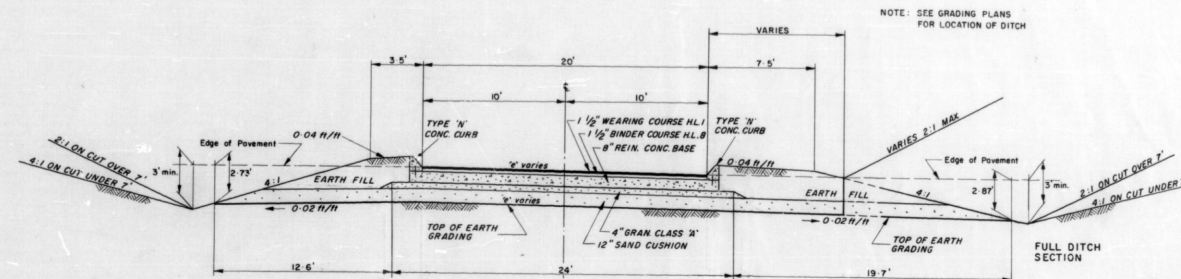
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(SEE GRADING PLANS)



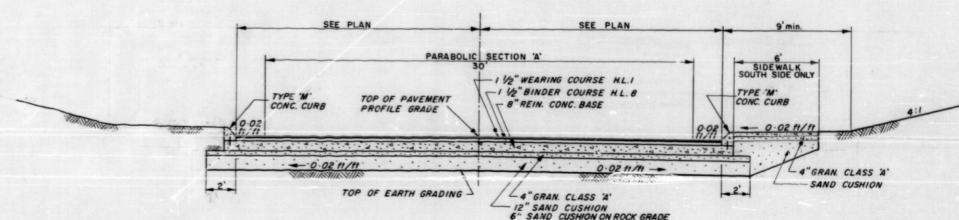
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DEPARTMENT OF HIGHWAYS OF ONTARIO OTTAWA QUEENSWAY LIMITED-ACCESS HIGHWAY OTTAWA CANADA			
TYPICAL SECTIONS QUEENSWAY			
DE LEUW CATHÉ & CO. OF CANADA LIMITED Consulting Engineers		DEPT. OF HIGHWAYS OF ONTARIO Director of Planning & Design	
Drawn by C.B.S. Checked by J.B.H.	Date APRIL 1 / 1961 Scale 1" = 40'	DWG. No. Sheet 18 of	



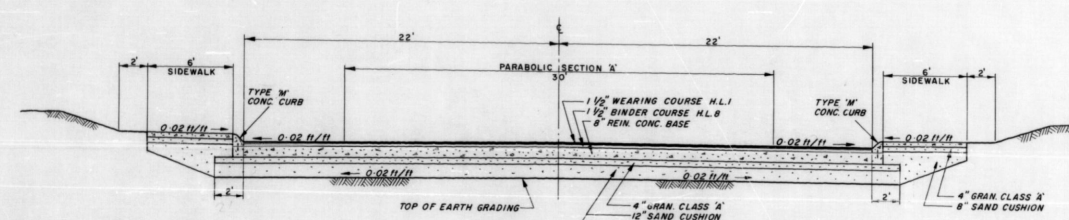
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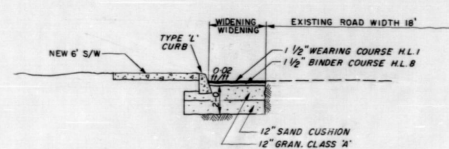
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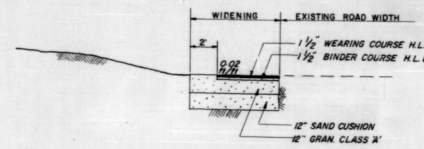
TYPICAL SECTION
ELIZABETH STREET



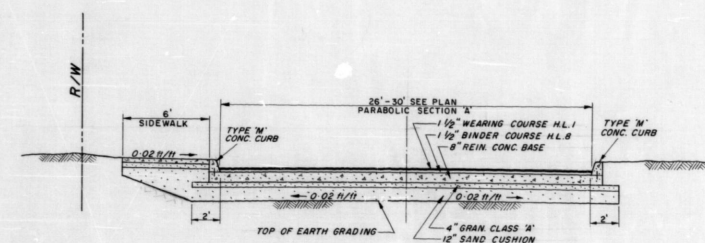
TYPICAL SECTION
PRESTON, ROCHESTER AND BOOTH STREET



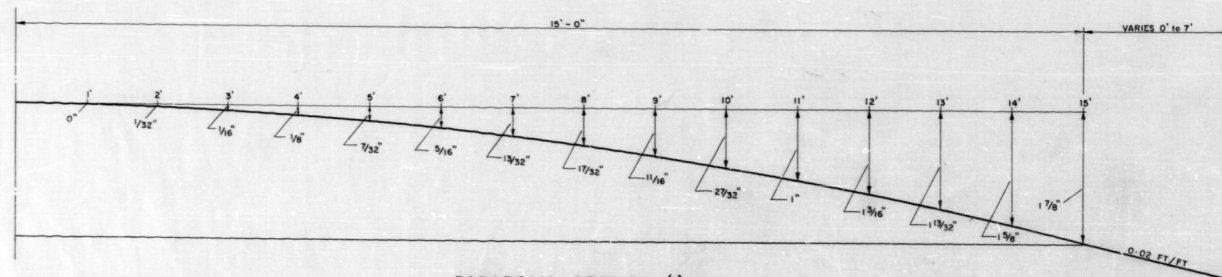
TYPICAL SECTION
FOR ARLINGTON AVE. WIDENING



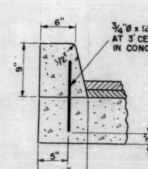
TYPICAL SECTION
FOR ROCHESTER ST. WIDENING



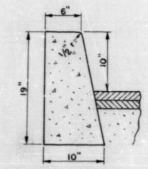
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RAYMOND STREET
(NOT PART OF THIS CONTRACT)



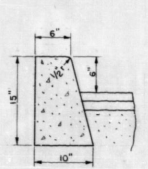
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SCALE: 1" = 1'-0"



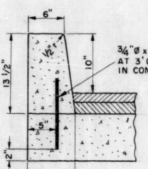
TYPE 'M' CURB



TYPE 'K' CURB



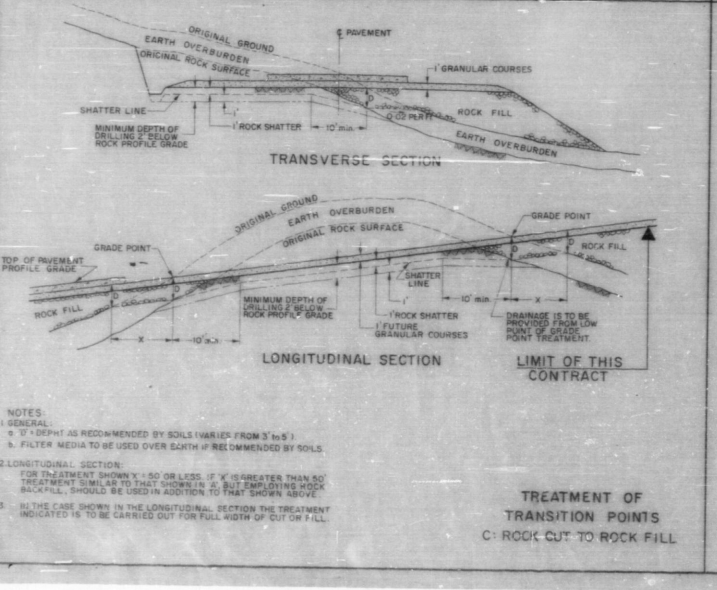
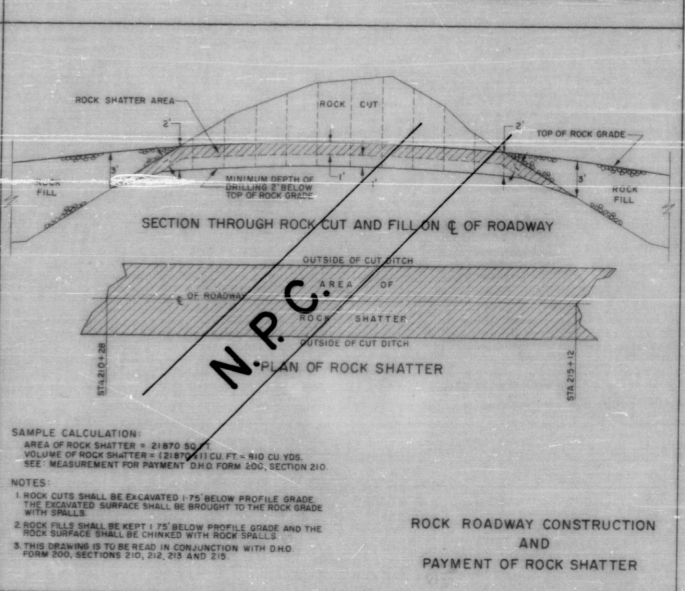
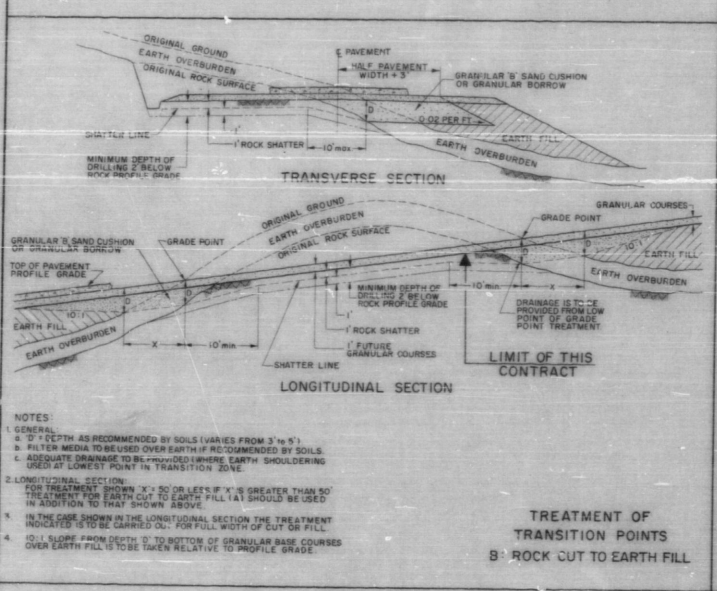
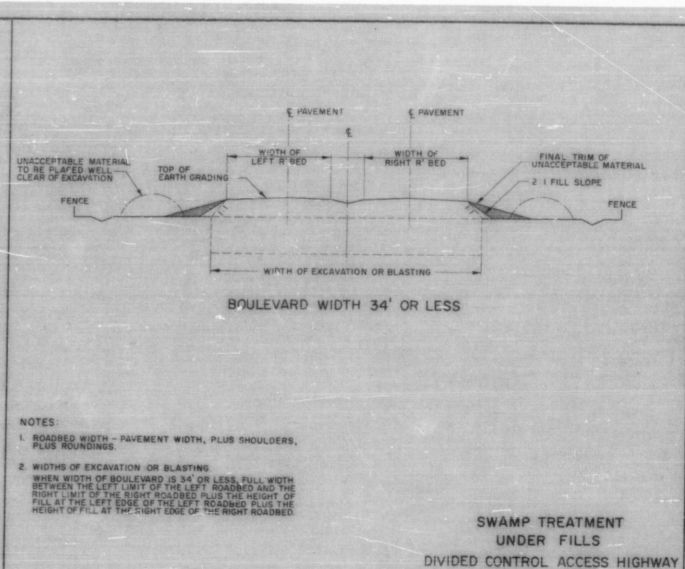
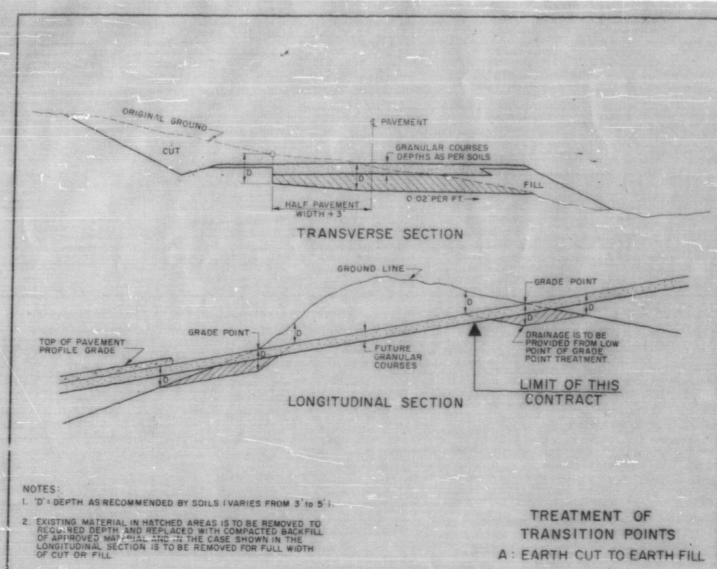
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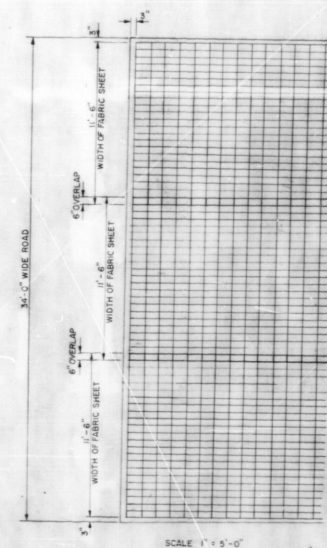
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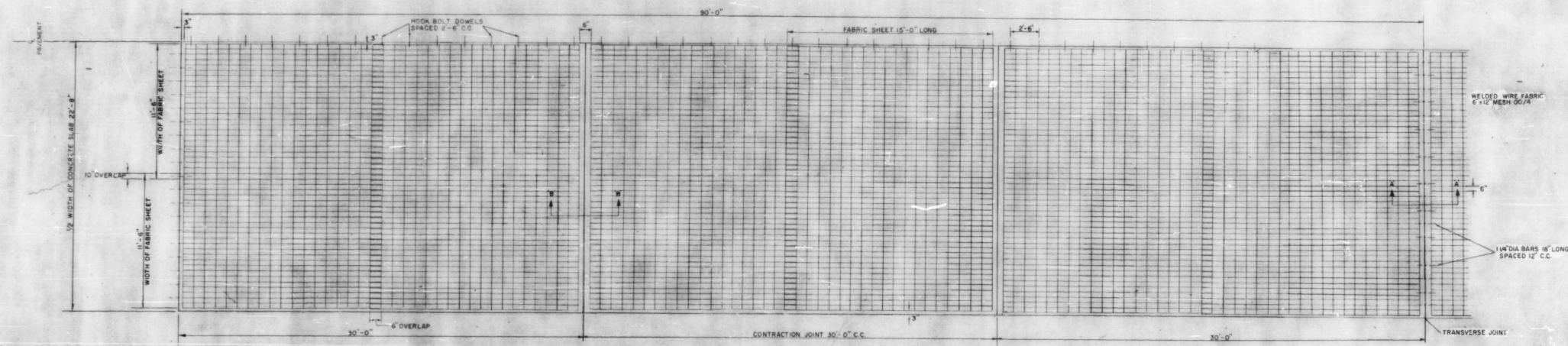
No.	Revisions	By	Date
DEPARTMENT OF HIGHWAYS OF ONTARIO			
OTTAWA QUEENSWAY LIMITED-ACCESS HIGHWAY CANADA			
TYPICAL SECTIONS RAMPS & ROADWAYS			
DE LEUW CATHIER & CO. OF CANADA LIMITED Consulting Engineers		DEPT. OF HIGHWAYS OF ONTARIO Director of Planning & Design	
Designed by G. G. S.	Date MARCH 1 / 1961	DWG. No.	
Drawn by M. T. H.	Scale 1" = 5'-0"	Sheet 19 of	
Checked by C. K. C.			



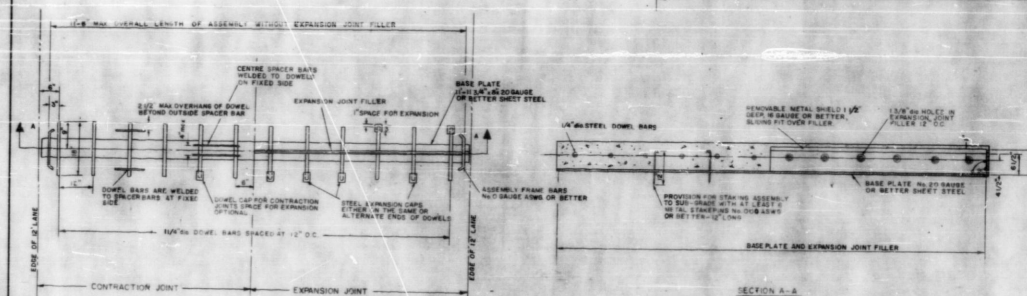
No.	Revisions	By	Date
DEPARTMENT OF HIGHWAYS OF ONTARIO			
OTTAWA QUEENSWAY LIMITED-ACCESS HIGHWAY OTTAWA CANADA			
TYPICAL EARTH & ROCK GRADING DETAILS			
DE LEUW CATHAR & CO. OF CANADA LIMITED Consulting Engineers		DEPT. OF HIGHWAYS OF ONTARIO Director of Planning & Design	
Designed by G.S.S.	Date APRIL 1/1961	DWG. No.	
Drawn by H.T.H.	Scale N.T.S.	Sheet 20	of
Checked by G.E.T.			



SCALE 1" = 5'-0"

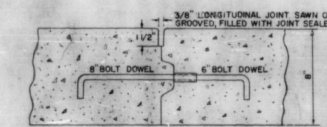


PLAN SHOWING ARRANGEMENT OF REINFORCEMENT IN CONCRETE BASE



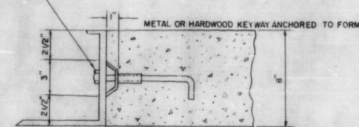
CONCRETE PAVEMENT JOINTS USING LOAD TRANSFER DEVICES
SCALE 1" = 2'-0"

NOT TO SCALE



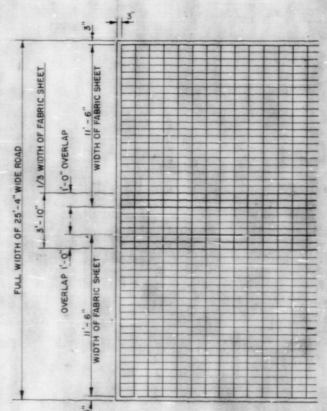
DETAIL OF LONGITUDINAL JOINT
SCALE 2" = 1'-0"

5/8" x 2" TAP BOLT TO BE SUPPLIED BY CONTRACTOR

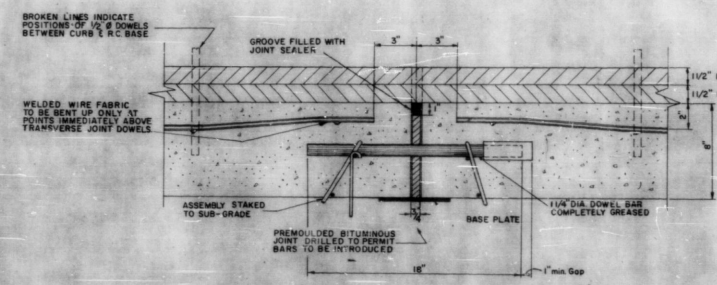


DETAIL OF HOOK BOLT DOWEL
SCALE 2" = 1'-0"

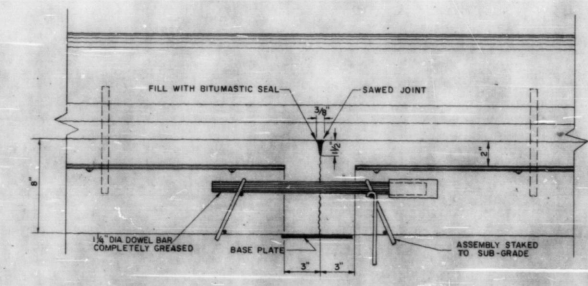
NOTE
EXPANSION JOINTS SHALL BE PLACED EVERY 90' WHERE CONCRETE IS LAID BEFORE MAY 15 OR AFTER SEPT 15 IN LANE WHERE CONCRETE IS LAID FROM MAY 15 TO SEPT 15 IN LANE WHICH WILL BE LAID AFTER SEPT 15 BUT BEFORE MAY 15 OF THE FOLLOWING YEAR EXPANSION JOINTS SHALL BE PROVIDED IN THE FIRST LANE LAID AT THE TIME OF CONSTRUCTION



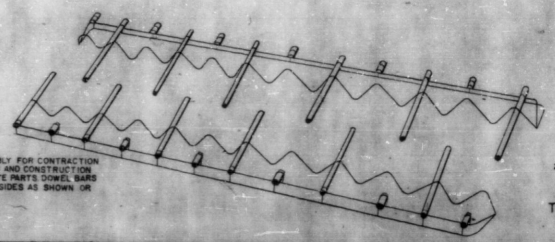
SCALE 1" = 5'-0"



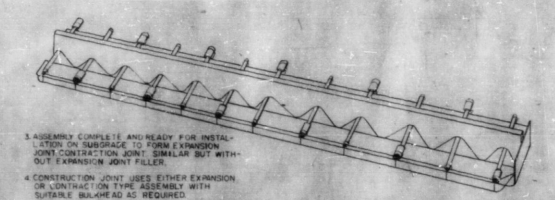
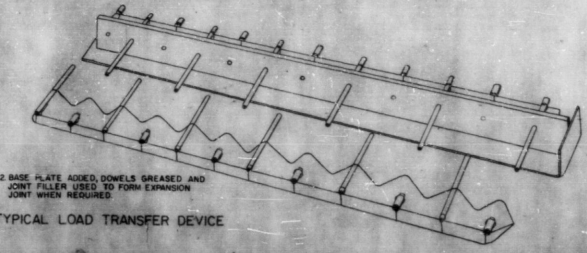
SECTION A-A SHOWING TRANSVERSE EXPANSION JOINT
SCALE 2" = 1'-0"



SECTION B-B SHOWING TRANSVERSE CONTRACTION JOINT
SCALE 2" = 1'-0"

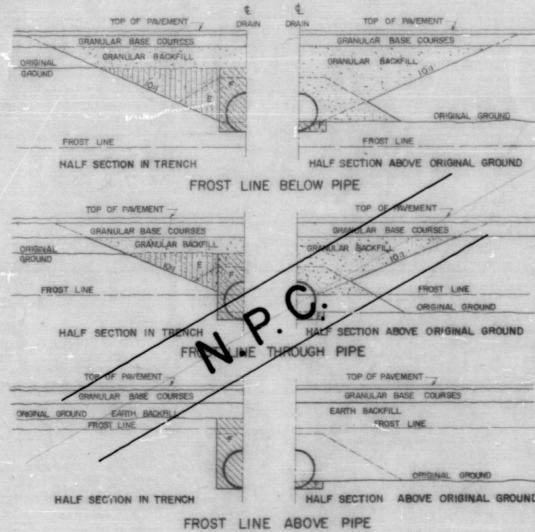


TYPICAL LOAD TRANSFER DEVICE



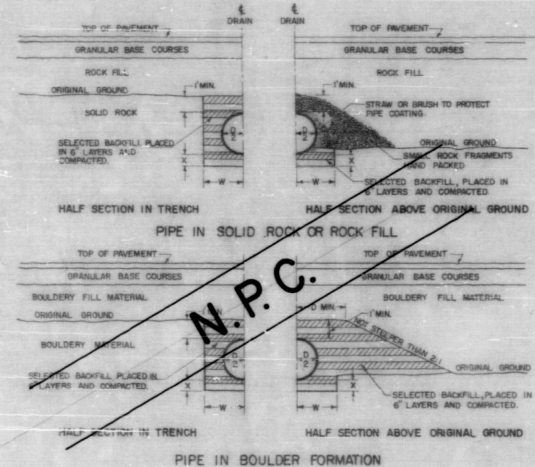
1. ASSEMBLY COMPLETE AND READY FOR INSTALLATION ON SUBGRADE TO FORM EXPANSION JOINT CONTRACTION JOINT SIMILAR BUT WITHOUT EXPANSION JOINT FILLER
2. BASE PLATE ADDED, DOWELS GREASED AND JOINT FILLER USED TO FORM EXPANSION JOINT WHEN REQUIRED
3. CONSTRUCTION JOINT USED EITHER EXPANSION OR CONTRACTION TYPE ASSEMBLY WITH SUITABLE BULKHEAD AS REQUIRED

No.	Revisions	By	Date
DEPARTMENT OF HIGHWAYS OF ONTARIO			
OTTAWA QUEENSWAY LIMITED ACCESS HIGHWAY			
OTTAWA CANADA			
8" CONCRETE BASE REINFORCING DETAILS			
DE LEUW CATHY & CO. OF CANADA LIMITED Consulting Engineers		DEPT. OF HIGHWAYS OF ONTARIO Director of Planning & Design	
Designed by G.G.S.	Date APRIL 17/1961	DWG. No.	
Drawn by H.T.H.	Scale AS SHOWN	Sheet 21 of	
Checked by G.E.T.			



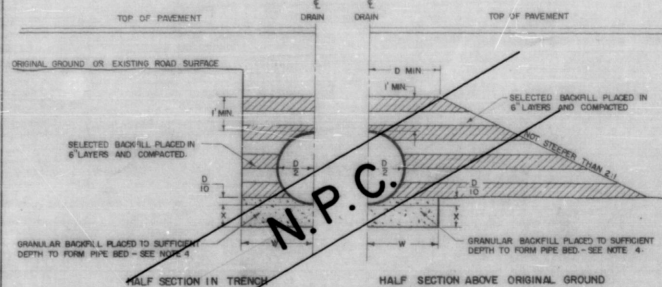
- NOTES:
1. QUANTITIES 'Y' (DIAGONALLY HATCHED) TO BE PAID FOR AS CULVERT EXCAVATION WITH DEPTH AND LENGTH OF EXCAVATION WILL BE AS SPECIFIED IN D.H.G. FORMS 401-A AND B.
 2. QUANTITIES 'E' TO BE PAID FOR 2:1 EXCAVATION UNDER GRADING.
 3. GRANULAR BACKFILL, WHERE APPLICABLE TO EXTEND ACROSS ENTIRE ROAD SECTION.
 4. DEPTH OF FROST PENETRATION IS ASSUMED TO BE 5 FT.

GRANULAR BACKFILL FOR C.I. PIPE AND PIPE-ARCH TO MINIMIZE FROST ACTION



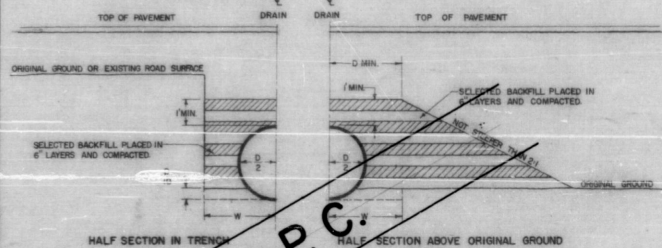
- NOTES:
1. D-INCH DIAMETER OF PIPE, WHERE PIPE-ARCH IS USED SUBSTITUTE SPAN FOR D.
 2. W-AS DIRECTED BY THE ENGINEER, BUT $\frac{1}{2}$ + 1 FT. MINIMUM.
 3. 8-IN. FOR EACH FOOT OF FILL TO BE PLACED ABOVE PIPE BUT 6" MAXIMUM.
 4. THE PIPE-BED IS TO BE CAREFULLY SHAPED TO RECEIVE THE LOWEST SEGMENT OF THE PIPE OR PIPE-ARCH, TO A DEPTH EQUAL TO 10% OF ITS DIAMETER.
 5. SELECTED BACKFILL MUST BE FREE FROM SOGS, LARGE OR FROZEN LUMPS, STONE OR FRAGMENTARY ROCK.
 6. WHEN PIPE IS UNDER EARTH FILL OR FROST CONSTRUCTION IS REQUIRED IN TOLERANT FILL, SEE BACKFILLING DETAILS.
 7. BACKFILL MUST BE BROUGHT UP SIMULTANEOUSLY AND EVENLY ON BOTH SIDES OF CULVERT.

BEDDING AND BACKFILLING FOR C.I. PIPE AND PIPE-ARCH IN ROCK OR BOULDER FORMATION



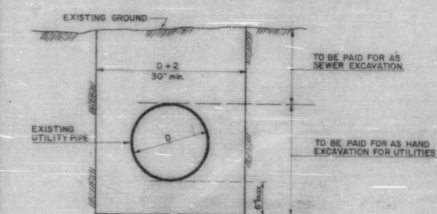
- NOTES:
1. D-INCH DIAMETER OF PIPE, WHERE PIPE-ARCH IS USED SUBSTITUTE SPAN FOR D.
 2. W-TO FIRM (SPONGE) OR 1.5 TIMES THE DIAMETER OF 12" PIPE OR SPAN OF THE PIPE-ARCH, WHICHEVER IS THE LARGER, OR AS ORDERED BY THE ENGINEER.
 3. X-AS DIRECTED BY THE ENGINEER BUT 8 IN. MINIMUM.
 4. THE PIPE-BED IS TO BE CAREFULLY SHAPED TO RECEIVE THE LOWEST SEGMENT OF THE PIPE OR PIPE-ARCH, TO A DEPTH EQUAL TO 10% OF ITS DIAMETER.
 5. SELECTED BACKFILL MUST BE FREE FROM SOGS, LARGE OR FROZEN LUMPS, STONE OR FRAGMENTARY ROCK.
 6. BACKFILL MUST BE BROUGHT UP SIMULTANEOUSLY AND EVENLY ON BOTH SIDES OF CULVERT.
 7. WHEN GRANULAR MATERIAL IS USED AS BACKFILL AROUND PIPE, THE UPSTREAM END OF THE PIPE OR PIPE-ARCH MUST BE BEDDED IN CLAY, PROPERLY COMPACTED TO PREVENT SEEPAGE.
 8. IF PIPE IS TO BE UNDER ROCK FILL SEE TREATMENT DETAIL.
 9. THIS STANDARD TO BE USED IN CONJUNCTION WITH DETAIL OF GRANULAR BACKFILL TO MINIMIZE FROST ACTION.

BEDDING AND BACKFILLING FOR C.I. PIPE AND PIPE-ARCH IN UNSTABLE GROUND

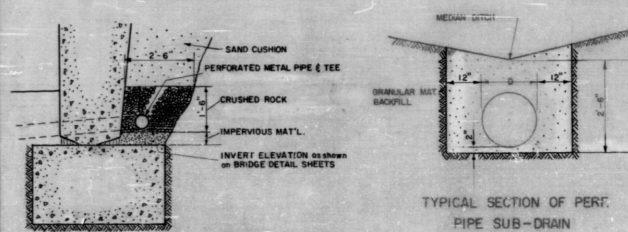


- NOTES:
1. D-INCH DIAMETER OF PIPE, WHERE PIPE-ARCH IS USED SUBSTITUTE SPAN FOR D.
 2. W-AS DIRECTED BY THE ENGINEER, BUT $\frac{1}{2}$ + 1 FT. MINIMUM.
 3. THE PIPE-BED IS TO BE CAREFULLY SHAPED TO RECEIVE THE LOWEST SEGMENT OF THE PIPE-ARCH, TO A DEPTH EQUAL TO 10% OF ITS DIAMETER.
 4. SELECTED BACKFILL MUST BE FREE FROM SOGS, LARGE OR FROZEN LUMPS, STONE OR FRAGMENTARY ROCK.
 5. BACKFILL MUST BE BROUGHT UP SIMULTANEOUSLY AND EVENLY ON BOTH SIDES OF CULVERT.
 6. WHEN GRANULAR MATERIAL IS USED AS BACKFILL AROUND PIPE, THE UPSTREAM END OF THE PIPE OR PIPE-ARCH MUST BE BEDDED IN CLAY, PROPERLY COMPACTED TO PREVENT SEEPAGE.
 7. IF PIPE IS TO BE UNDER ROCK FILL SEE TREATMENT DETAIL.
 8. THIS STANDARD TO BE USED IN CONJUNCTION WITH DETAIL OF GRANULAR BACKFILL TO MINIMIZE FROST ACTION.

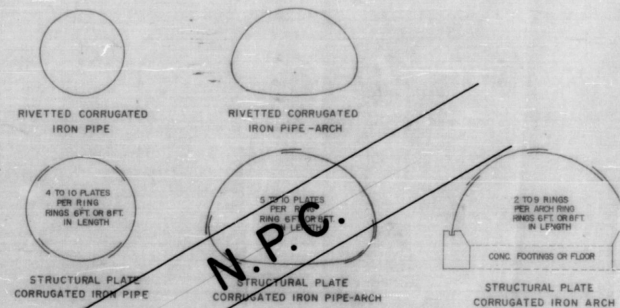
BEDDING AND BACKFILLING FOR C.I. PIPE AND PIPE-ARCH IN EARTH EXCAVATION



HAND EXCAVATION FOR UTILITIES

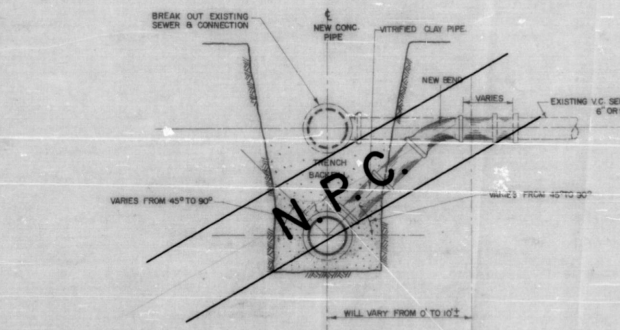


BACKFILL DRAINAGE DETAIL AT BRIDGE ABUTMENT



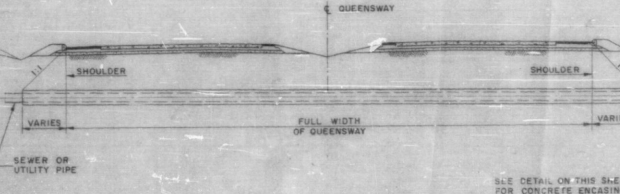
1. RIVETTED CORRUGATED IRON PIPE AND PIPE-ARCH:
2. STRUCTURAL PLATE CORRUGATED IRON PIPE, PIPE-ARCH AND ARCH:

TYPES OF CORRUGATED IRON PIPES, PIPE ARCHES AND ARCHES FOR SEWERS AND CULVERTS

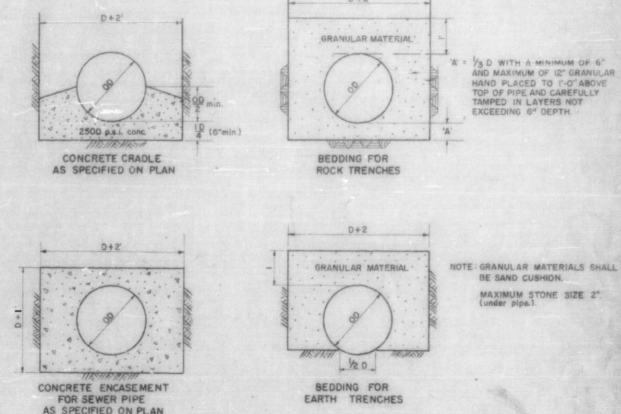


DETAIL OF TYPICAL HOUSE SERVICE RELOCATION & CONNECTION TO NEW SANITARY SEWER

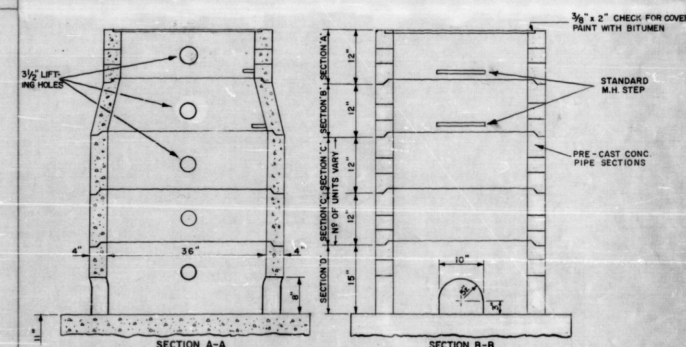
- NOTE:
1. CONCRETE ENCASING OR CRADLES FOR SEWER AND UTILITY PIPES TO EXTEND BEYOND SHOULDERS TO A POINT DETERMINED BY A 1:1 SLOPE FROM THE EDGE OF SHOULDER.



CONCRETE ENCASING OF PIPES



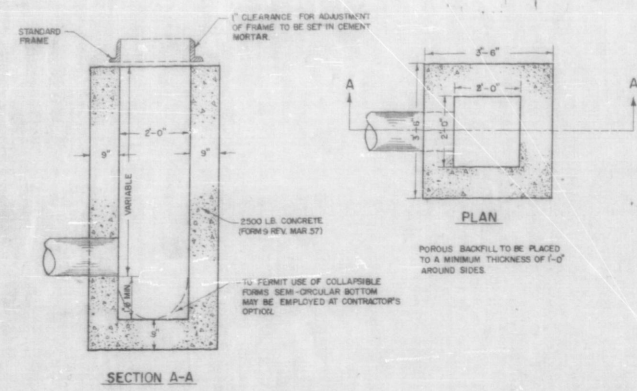
BEDDING FOR CONCRETE SEWER PIPE



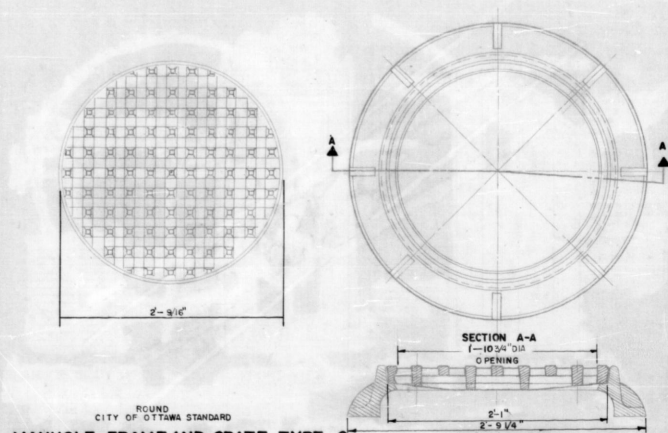
CITY OF OTTAWA STANDARD VALVE-CHAMBER

LEGEND
N.P.C. = Not part of contract

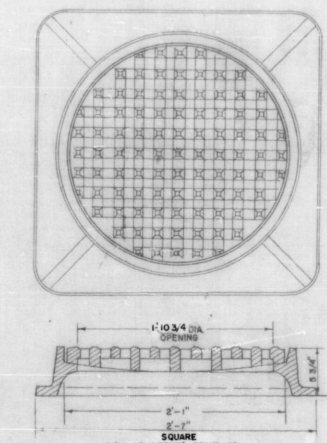
No.	Revisions	By	Date
DEPARTMENT OF HIGHWAYS OF ONTARIO			
OTTAWA QUEENSWAY LIMITED-ACCESS HIGHWAY			
OTTAWA CANADA			
DRAINAGE DETAILS			
DE LEUW CATHER & CO. OF CANADA LIMITED Consulting Engineers		DEPT. OF HIGHWAYS OF ONTARIO Director of Planning & Design	
Designed by: D.H.G.	Date: APRIL 1 / 1961	DWG. No.	
Drawn by: A.S.K.	Scale:	Sheet	22 of
Checked by: B.S.S.	N.T.S.		



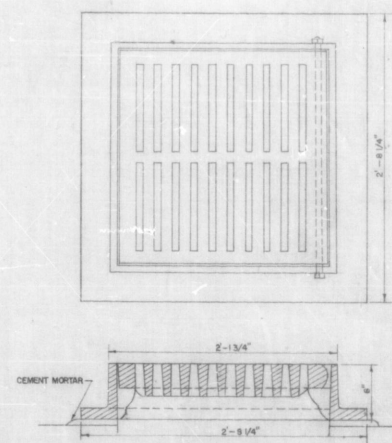
DD-702
CATCH BASIN TYPE-A
SCALE: 1" = 2'-0"



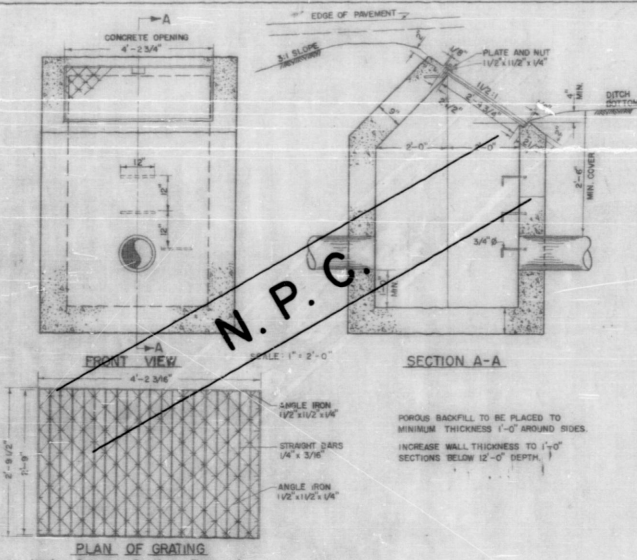
ROUND
CITY OF OTTAWA STANDARD
MANHOLE FRAME AND GRATE TYPE-C
SCALE: 1 1/2" = 1'-0"



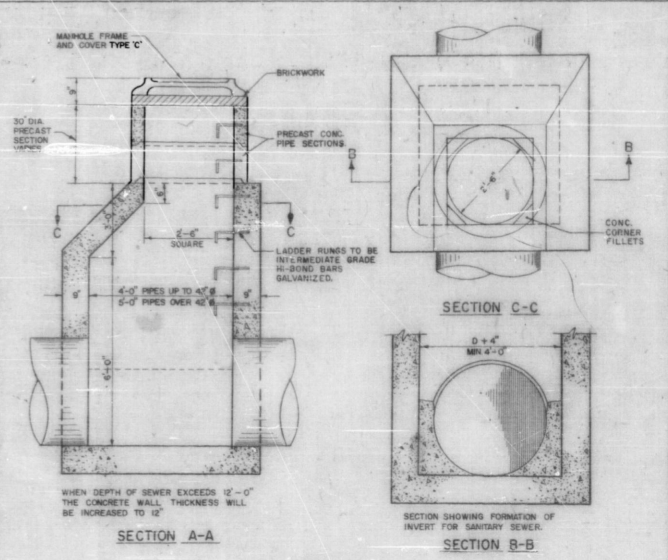
SQUARE
CITY OF OTTAWA STANDARD
MANHOLE FRAME AND GRATE TYPE-B
SCALE: 1 1/2" = 1'-0"



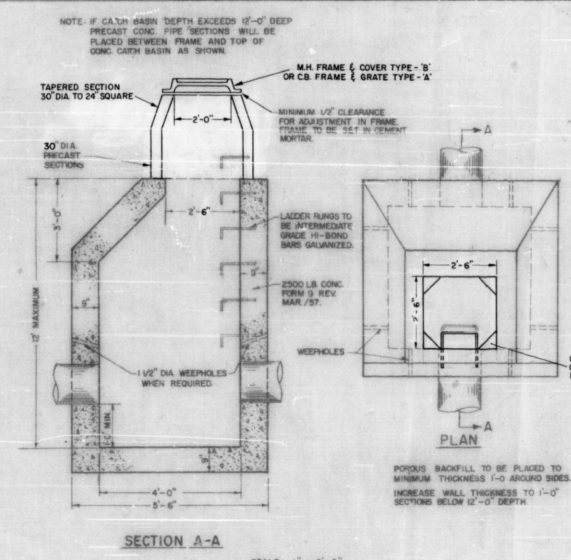
DD-706
CATCH BASIN FRAME AND GRATE TYPE-A
APPROX. WT. 500 LBS.
SCALE: 1 1/2" = 1'-0"



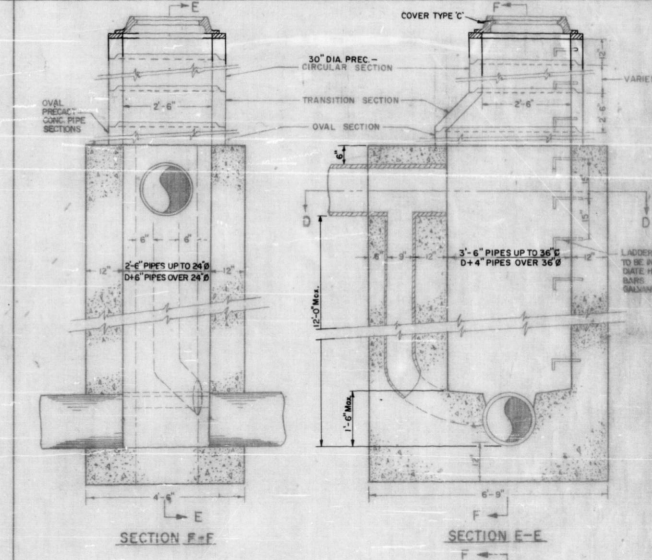
DD-707-B
CONCRETE CATCH BASIN MANHOLE TYPE-D
SCALE: 1" = 2'-0"



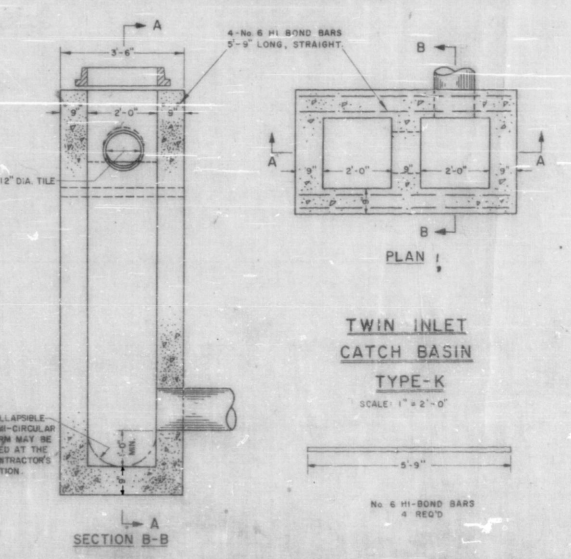
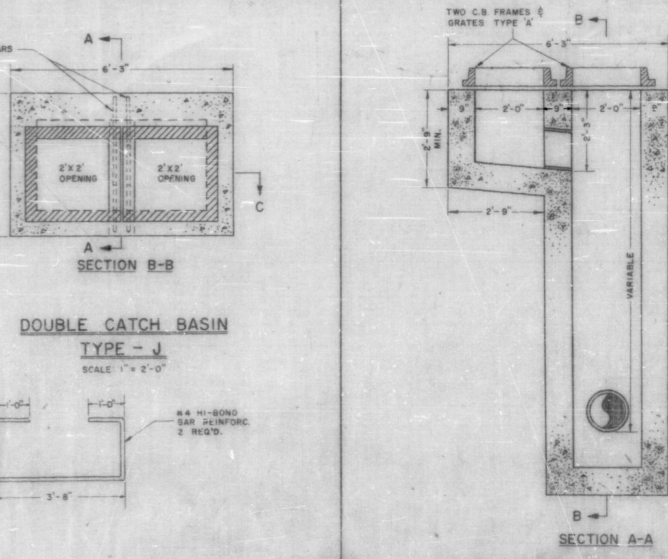
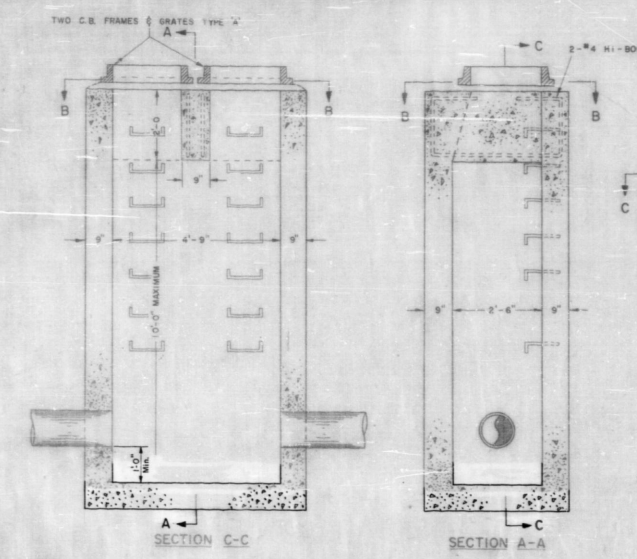
SCALE: 1" = 2'-0"
MANHOLE TYPE-F



SCALE: 1" = 2'-0"
MANHOLE-CATCH BASIN TYPE-G



MANHOLE TYPE-H
DROP MANHOLE
SCALE: 1" = 2'-0"



TWIN INLET
CATCH BASIN
TYPE-K
SCALE: 1" = 2'-0"

LEGEND
N.P.C. = Not part of contract

DEPARTMENT OF HIGHWAYS
OF ONTARIO

OTTAWA QUEENSWAY
LIMITED-ACCESS HIGHWAY
OTTAWA CANADA

TYPICAL CATCH-BASINS AND MANHOLES

DE LEUW CATHY & CO.
OF CANADA LIMITED
Consulting Engineers

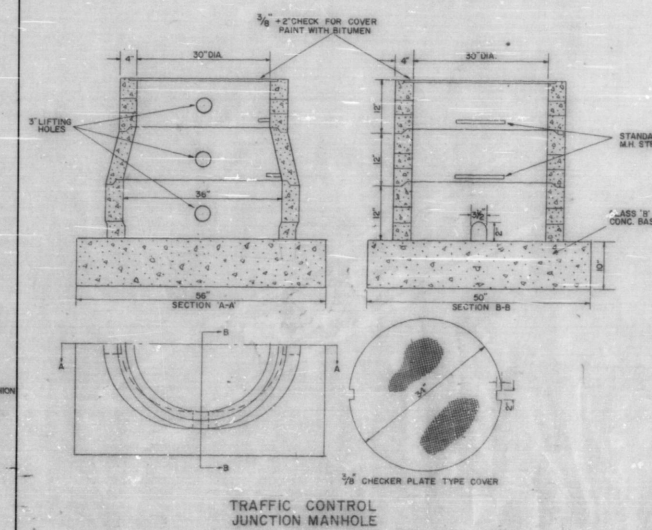
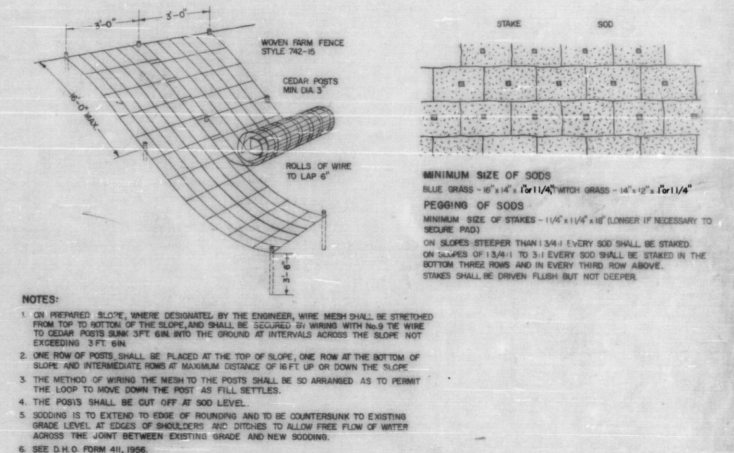
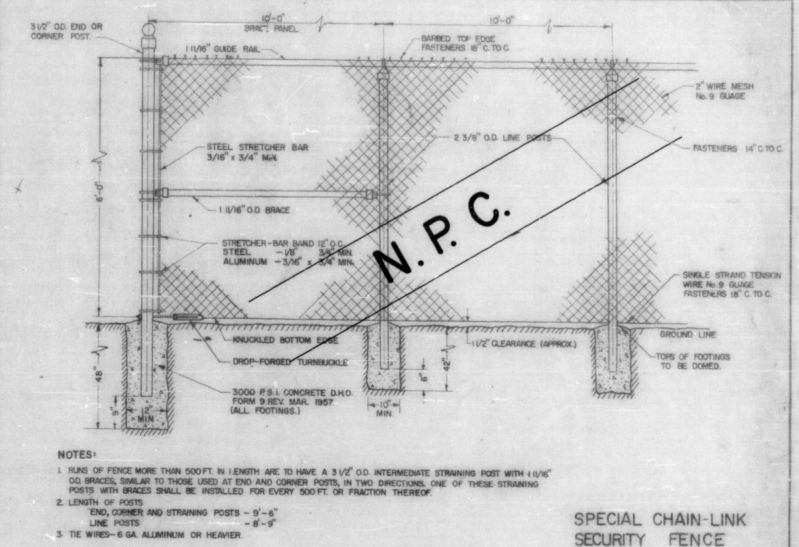
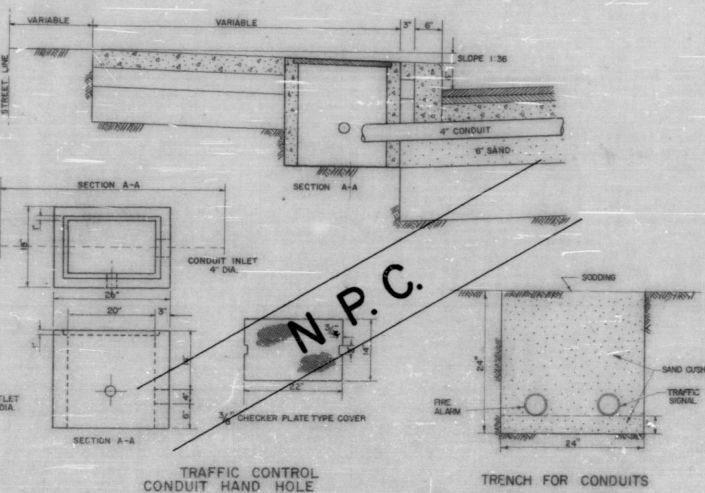
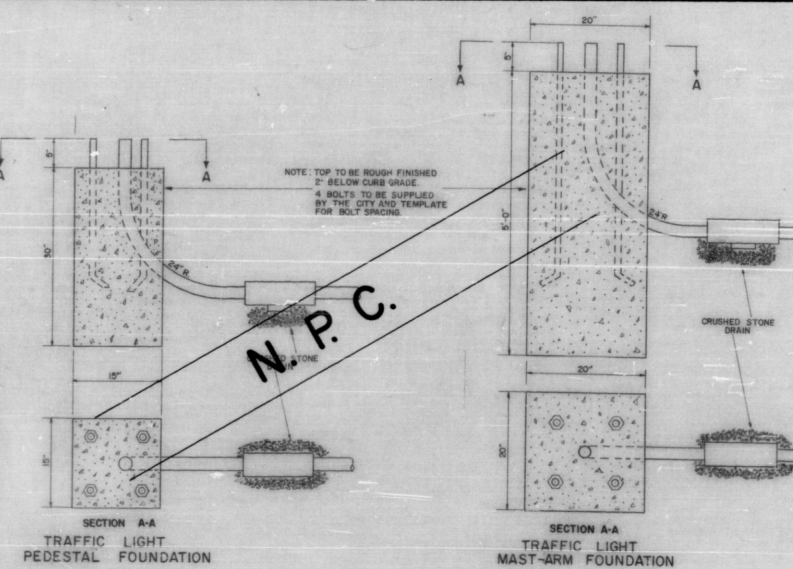
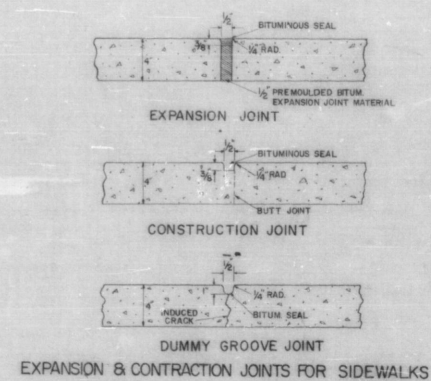
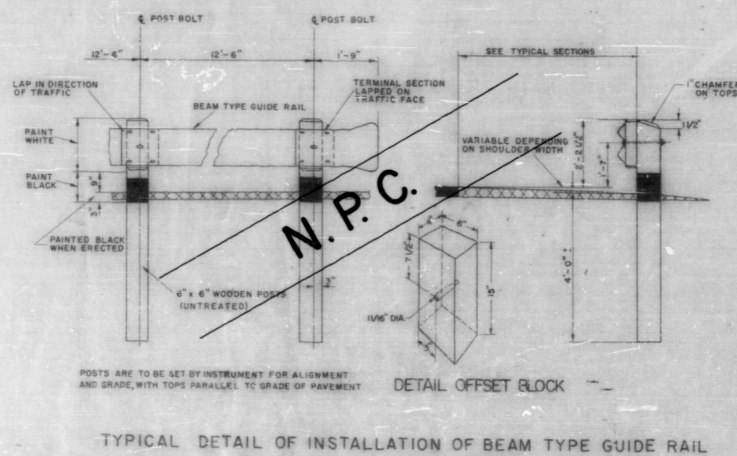
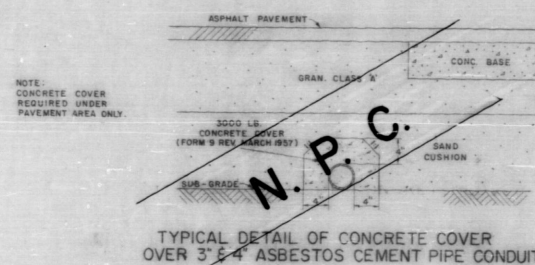
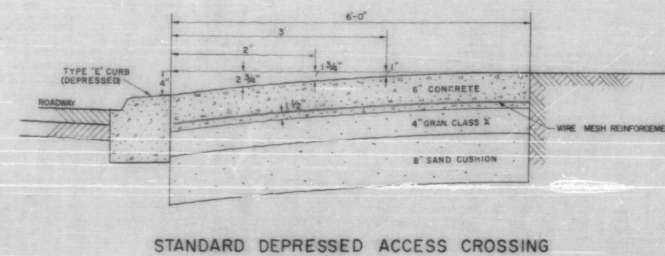
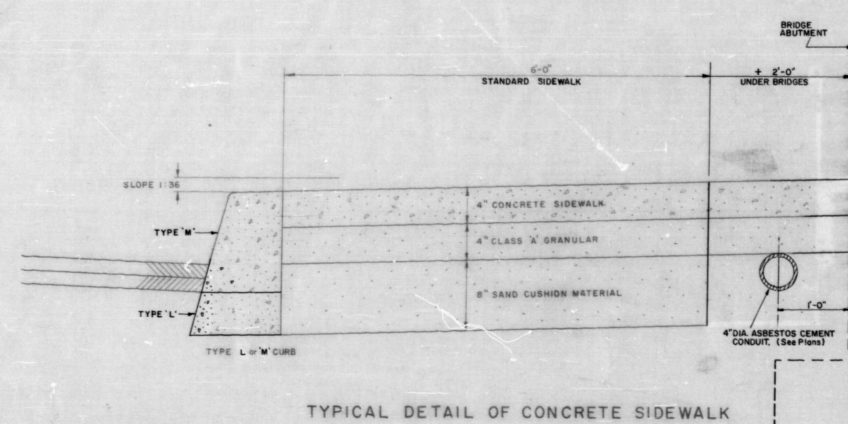
DEPT. OF HIGHWAYS
OF ONTARIO
Director of
Planning & Design

Designed by: G.S.
Drawn by: A.G.Y.
Checked by: S.A.V.

Date: APRIL 1 / 1981
Scale: AS SHOWN

DWG. No.:
Sheet 23 of

No.	REVISIONS	BY	DATE



LEGEND
N.P.C. = Not part of contract

No.	Revisions	By	Date
DEPARTMENT OF HIGHWAYS OF ONTARIO			
OTTAWA QUEENSWAY LIMITED-ACCESS HIGHWAY			
OTTAWA		CANADA	
MISCELLANEOUS DETAILS			
DE LEUV CATHÉ & CO. OF CANADA LIMITED, Consulting Engineers		DEPT. OF HIGHWAYS OF ONTARIO	
<i>Leon Marshall</i>		Director of Planning & Design	
Designed by G.S.S.	Date APRIL 1 / 1961	DWG. No.	
Checked by H.T.H.	Scale:	Sheet	of
W.J.H.	N.T.S.	24	

CURVE DATA

S.W. QUAD N.W. QUAD

RAMP D-C RAMP A-D

CURVE NO. 302 CURVE NO. 311

Δ = 19°05'55"
D = 45'00"
L = 150'
Q = 37'00'00"
L = 403'72"
Δ = 16°08'55"
T = 316'72"
LT = 100'01"
ST = 50'01"

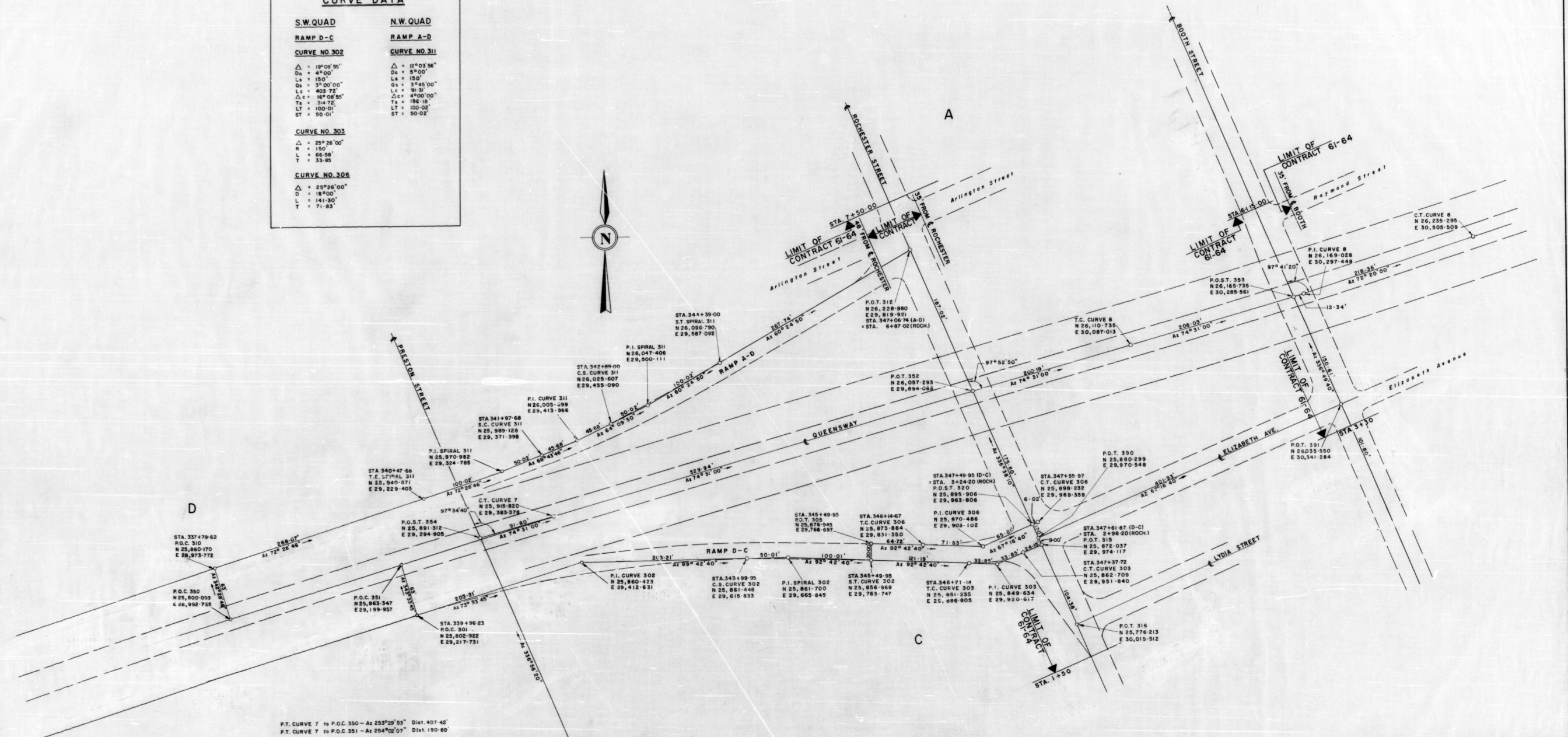
Δ = 12°03'56"
D = 5'00"
L = 150'
Q = 37'45'00"
L = 91'31"
Δ = 47'00'00"
T = 196'18"
LT = 100'02"
ST = 50'02"

CURVE NO. 303

Δ = 25°36'00"
D = 150'
L = 66'58"
T = 33'85"

CURVE NO. 306

Δ = 25°26'00"
D = 18'00"
L = 141'30"
T = 71'83"



P.T. CURVE 7 to P.O.C. 350 - Az 253°29'53" Dist. 407'42"
P.T. CURVE 7 to P.O.C. 351 - Az 254°02'07" Dist. 190'80"

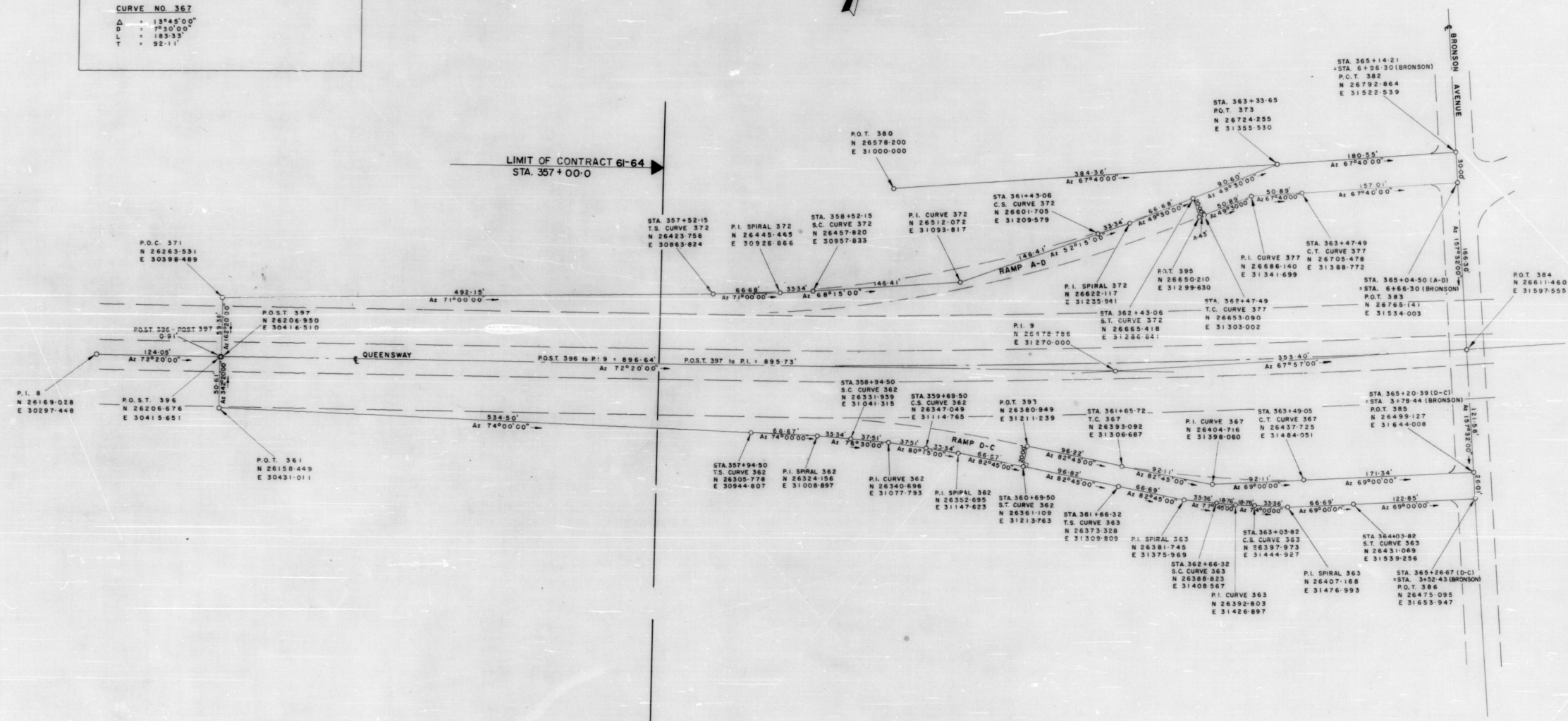
PRINT RECORD		
NO.	FOR	DATE

No.	Revisions	By	Date
DEPARTMENT OF HIGHWAYS OF ONTARIO			
OTTAWA QUEENSWAY LIMITED-ACCESS HIGHWAY			
OTTAWA CANADA			
ROCHESTER STREET INTERCHANGE ALIGNMENT PLAN			
DE LEUW CATHY & CO. OF CANADA LIMITED Consulting Engineers		DEPT. OF HIGHWAYS OF ONTARIO Director of Planning & Design	
Designed by: D.A.V.	Date: APRIL 1 / 1961	DWG. No.	
Drawn by: D.A.K.	Scale: 1" = 50'	Sheet	25 of
Checked by: C.K.C.			

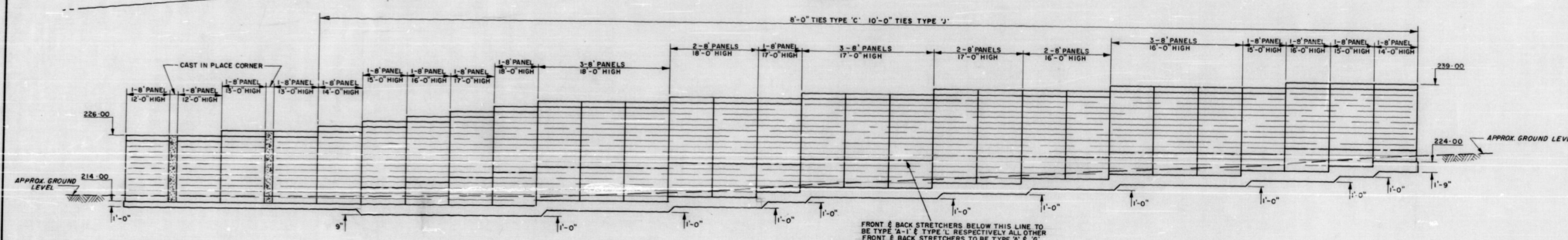
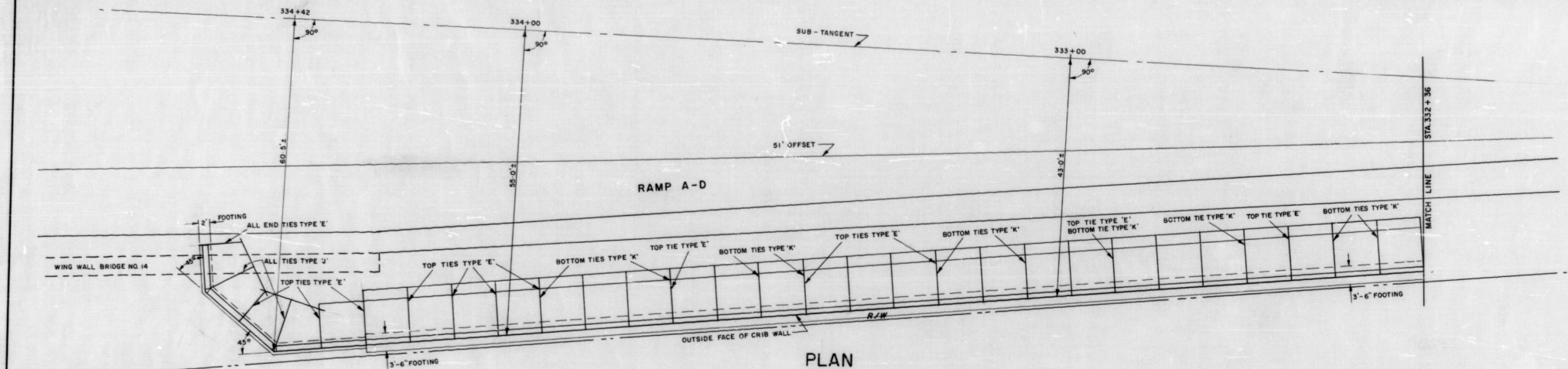
S. W. QUAD	N. W. QUAD
RAMP D-C	RAMP A-D
CURVE NO 362	CURVE NO 372
Δ = 8°45'00"	Δ = 2°13'0"
Ds = 5°00'00"	Ds = 5°30'00"
Ls = 100'	Ls = 100'
Da = 23°30'0"	Da = 2°45'00"
Δs = 3°45'00"	Δs = 16°00'00"
LT = 66.67'	LT = 250.91'
Ts = 137.70'	Ts = 247.85'
LC = 66.67'	LC = 66.68'
ST = 33.34'	ST = 33.34'

CURVE NO 363	CURVE NO 377
Δ = 13°45'00"	Δ = 18°10'00"
Ds = 5°00'00"	Ds = 18°00'00"
Ls = 100'	L = 100.00'
Da = 0°	D = 50.89'
Δs = 3°45'00"	
LT = 37.50'	
LC = 119.85'	
LT = 66.69'	
ST = 33.36'	

CURVE NO 367
Δ = 13°45'00"
Ds = 7°30'00"
L = 183.33'
L = 92.17'



No.	Revisions	By	Date
DEPARTMENT OF HIGHWAYS OF ONTARIO			
OTTAWA QUEENSWAY LIMITED ACCESS HIGHWAY OTTAWA CANADA			
BRONSON AVENUE INTERCHANGE ALIGNMENT PLAN.			
DE LEUW CATHER & CO. OF CANADA LIMITED Consulting Engineers		DEPT OF HIGHWAYS OF ONTARIO ----- District Planning & Design	
Drawn by D. A. V. Checked by B. K. J. C. K. C.		DWG. No. Sheet 26 of	
Scale: 1" = 50'			

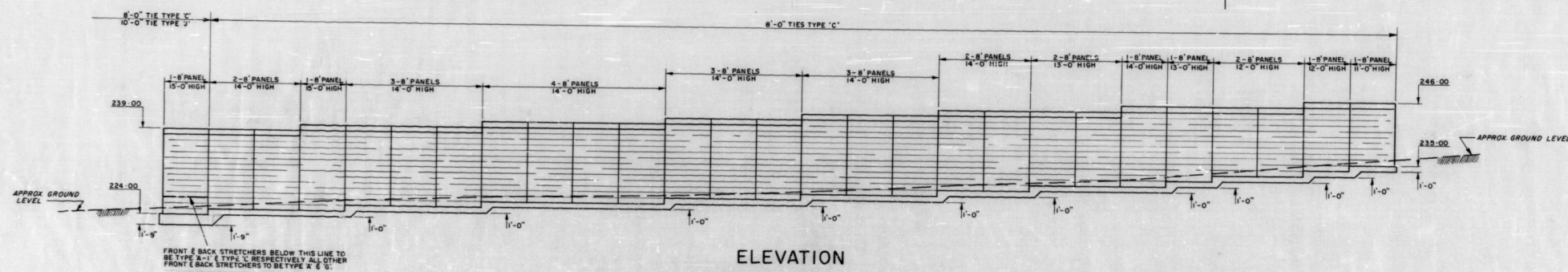
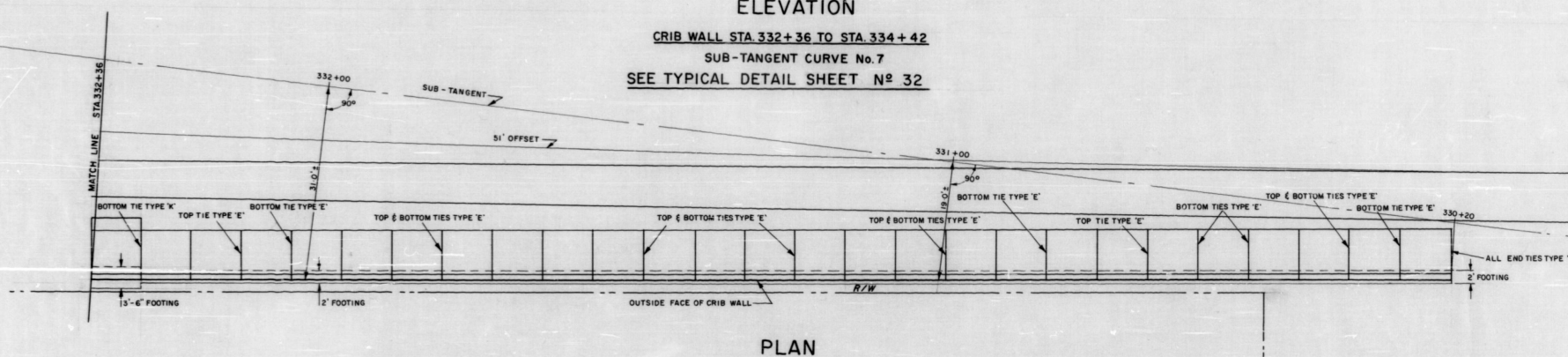


ELEVATION

CRIB WALL STA. 332+36 TO STA. 334+42

SUB-TANGENT CURVE No. 7

SEE TYPICAL DETAIL SHEET No. 32



ELEVATION

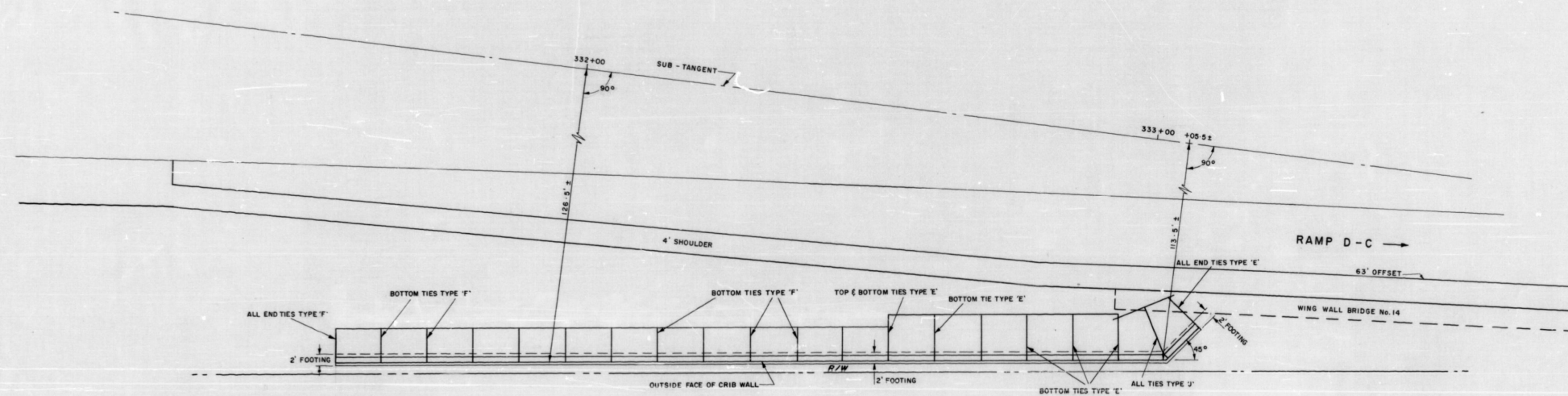
CRIB WALL STA. 330+20 TO STA. 332+36

SUB-TANGENT CURVE No. 7

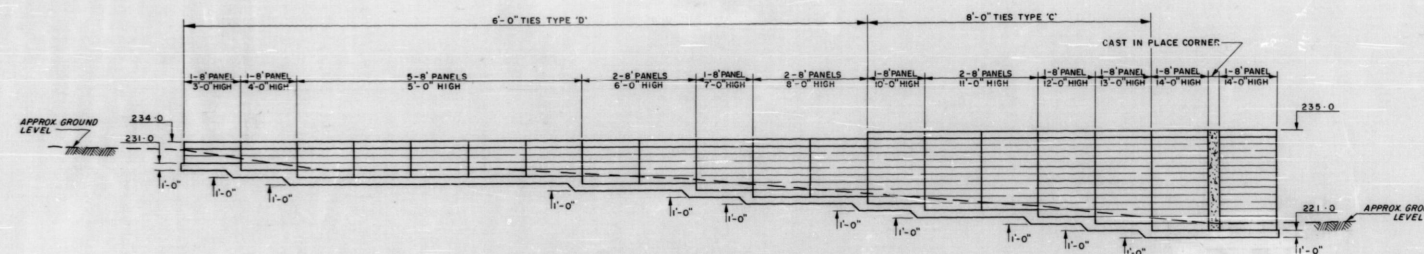
SEE TYPICAL DETAIL SHEET N^o 31

UNIT TYPE	Nº REQUIRED
'A'	661
'A-I'	113
'B'	56
'C'	617
'E'	50
'G'	615
'H'	46
'J'	111
'K'	11
'L'	88
CONC. BLOCKS	93

No.	Revisions	By	Date
<p>DEPARTMENT OF HIGHWAYS OF ONTARIO</p> <p>OTTAWA QUEENSWAY LIMITED-ACCESS HIGHWAY</p> <p>OTTAWA CANADA</p>			
<p>CRIB WALL PLAN & PROFILE STA.330+20 TO STA.334+42</p>		<p>DEPT. OF HIGHWAYS OF ONTARIO</p> <p>Director Planning & Design</p>	
<p>DE LEUW CATHER & CO. OF CANADA LIMITED Consulting Engineers</p> <p><i>Leon J. Marshall</i></p>		<p>DWG. No.</p>	
<p>Designed by C.K.C.</p> <p>Drawn by R.T.H.</p> <p>Checked by G.S.S.</p>	<p>Date: APRIL 1/1961</p> <p>Scale: 1" = 10' - 0"</p>	<p>Sheet 27 of</p>	



PLAN



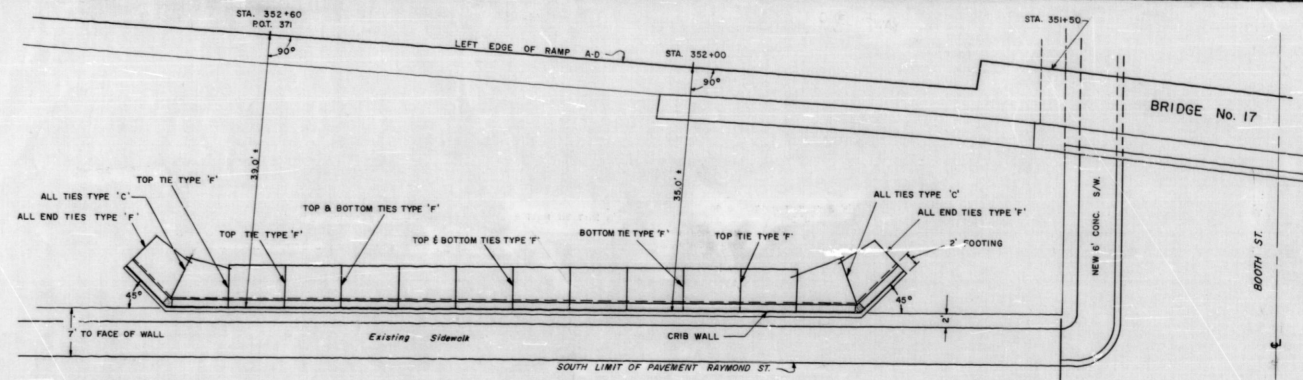
ELEVATION

CRIB WALL STA. 331+62.5 TO STA. 333+05.5
SUB-TANGENT CURVE No. 7
SEE TYPICAL DETAIL SHEET No. 31

SCHEDULE OF PRE-CAST SECTIONS	
UNIT TYPE	Nº REQUIRED
'A'	131
'B'	19
'C'	59
'D'	48
'E'	19
'F'	7
'G'	52
'H'	54
'J'	13

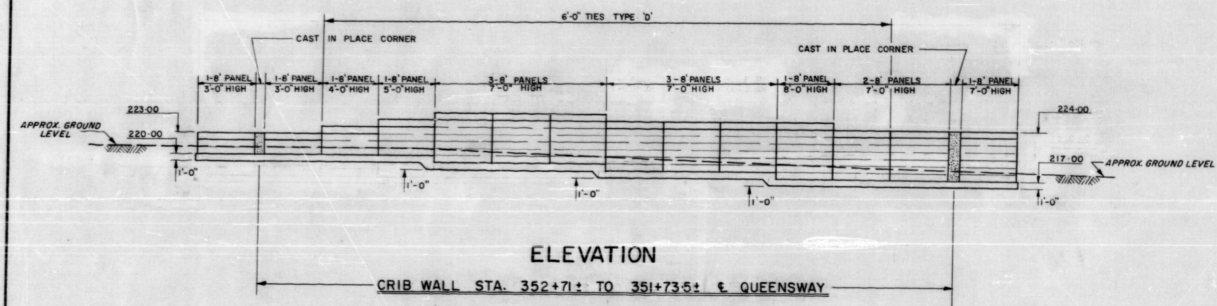
PRINT RECORD		
NO.	FOR	DATE

No.	Revisions	By	Date
DEPARTMENT OF HIGHWAYS OF ONTARIO			
OTTAWA QUEENSWAY LIMITED-ACCESS HIGHWAY OTTAWA CANADA			
CRIB WALL PLAN & PROFILE STA 331+62.5 TO STA 333+05.5			
DESIGNED BY: C.K.C. OF CANADA LIMITED Consulting Engineers		DEPT. OF HIGHWAYS OF ONTARIO Director of Planning & Design	
Drawn by: N.T.H.	Date: APRIL 17/1961	DWG. No.	
Checked by: G.G.S.	Scale: 1" = 10'-0"	Sheet	28 of

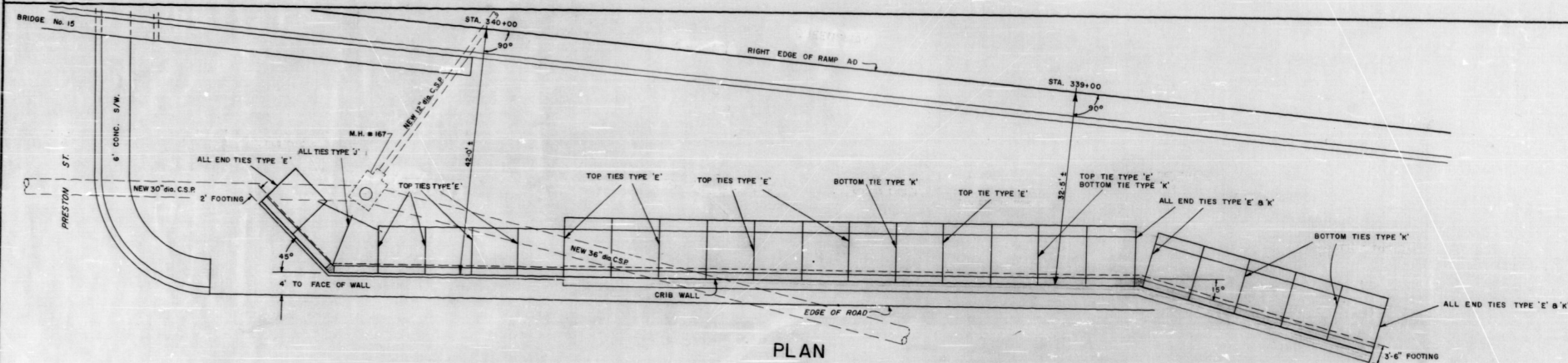


SCHEDULE OF PRE-CAST SECTIONS	
UNIT TYPE	Nº REQUIRED
'A'	72
'B'	14
'C'	8
'D'	56
'F'	16
'G'	56
'H'	16

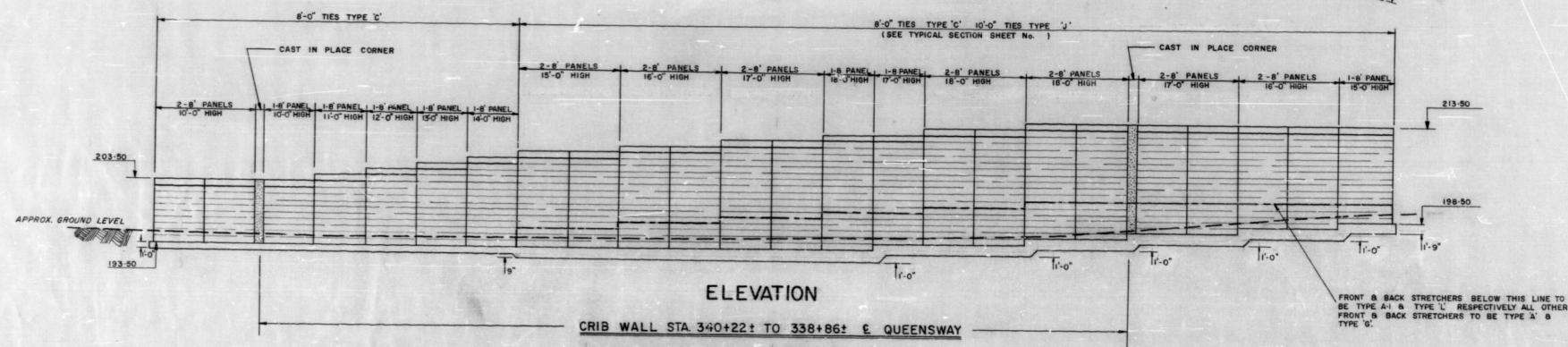
PLAN



ELEVATION
SEE TYPICAL DETAIL SHEET Nº 31



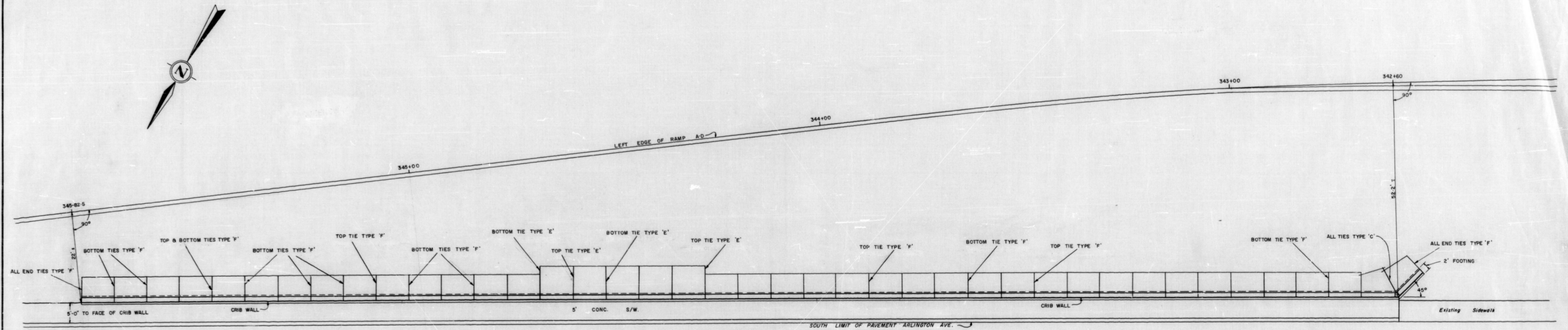
PLAN



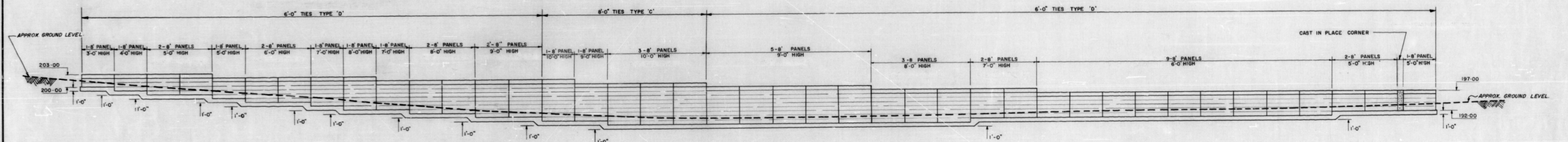
ELEVATION
SEE TYPICAL DETAIL SHEETS Nº 31 & 32

SCHEDULE OF PRE-CAST SECTIONS	
UNIT TYPE	Nº REQUIRED
'A'	260
'A-1'	80
'B'	24
'C'	237
'E'	55
'G'	259
'H'	18
'J'	68
'K'	14
'L'	63
CONC. BLOCKS	73

No.	Revisions	By	Date
DEPARTMENT OF HIGHWAYS OF ONTARIO OTTAWA QUEENSWAY LIMITED-ACCESS HIGHWAY OTTAWA CANADA CRIB WALLS PLAN & PROFILE STA 338+86 TO STA 340+22 STA 351+73.50 TO STA 352+71			
DE LEUW CATHIER & CO. OF CANADA LIMITED Consulting Engineers		DEPT. OF HIGHWAYS OF ONTARIO Director of Planning & Design	
Designed by C.K.C. Drawn by S.C.H. Checked by G.S.S.	Date APRIL 1/1981 Scale 1" = 10'	DWG. No. Sheet 29 of	



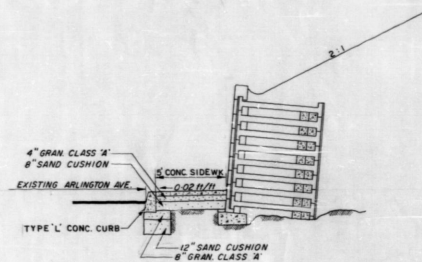
PLAN



ELEVATION

CRIB WALL STA. 345+82.5± TO 342+60± QUEENSWAY

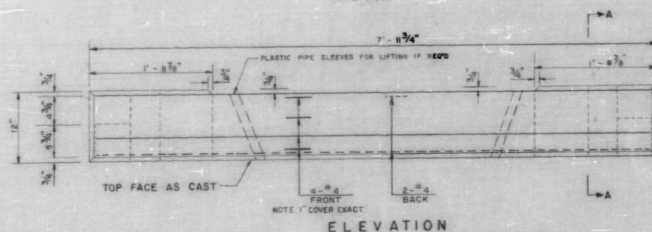
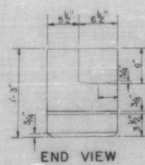
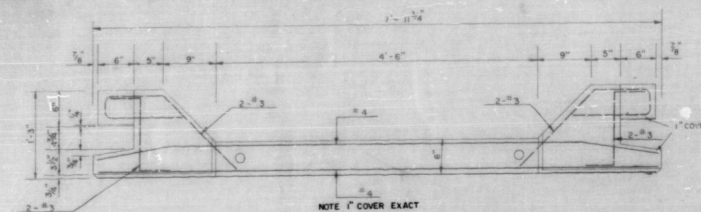
SEE TYPICAL DETAIL SHEET N° 31



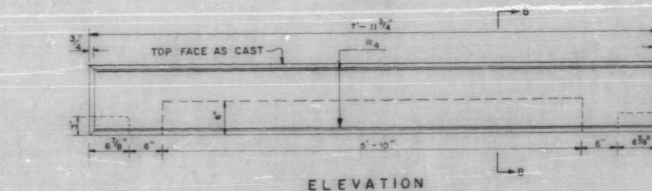
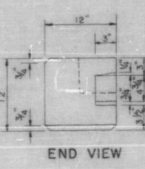
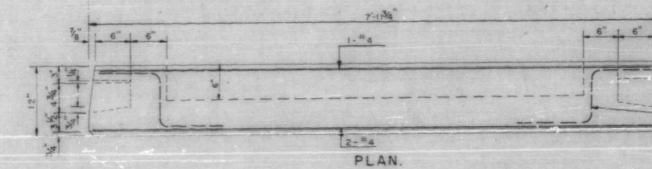
TYPICAL DETAIL OF CRIB WALL & 5' SIDEWALK ON ARLINGTON AVE.

SCHEDULE OF PRE-CAST SECTIONS	
UNIT TYPE	N° REQUIRED
A'	250
B'	41
C'	54
D'	184
E'	4
F'	20
G'	242
H'	8

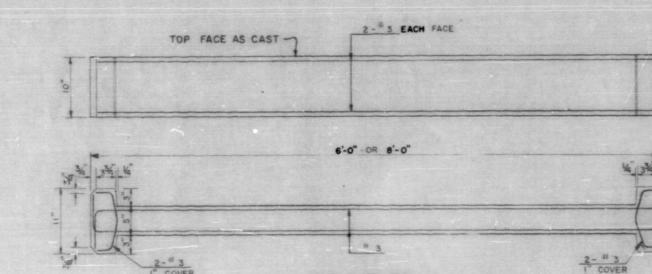
No.	Revisions	B.	Date
DEPARTMENT OF HIGHWAYS OF ONTARIO			
OTTAWA QUEENSWAY LIMITED-ACCESS HIGHWAY CANADA			
CRIB WALL PLAN & PROFILE STA. 342+60 TO STA. 345+82.50			
DE LEUW CATHER & CO. OF CANADA LIMITED Consulting Engineers		DEPT. OF HIGHWAYS OF ONTARIO Director of Planning & Design	
Designed by: C.K.C.	Date: APRIL 1/1961	DWG. No.	
Drawn by: S.C.H.	Scale: 1"=10'	Sheet	30 of
Checked by: S.G.S.			



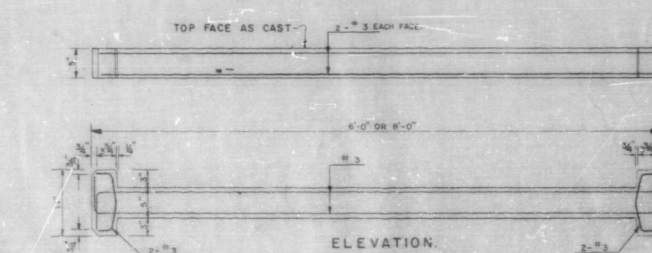
FRONT STRETCHER UNIT 'A' 1374 REQUIRED.



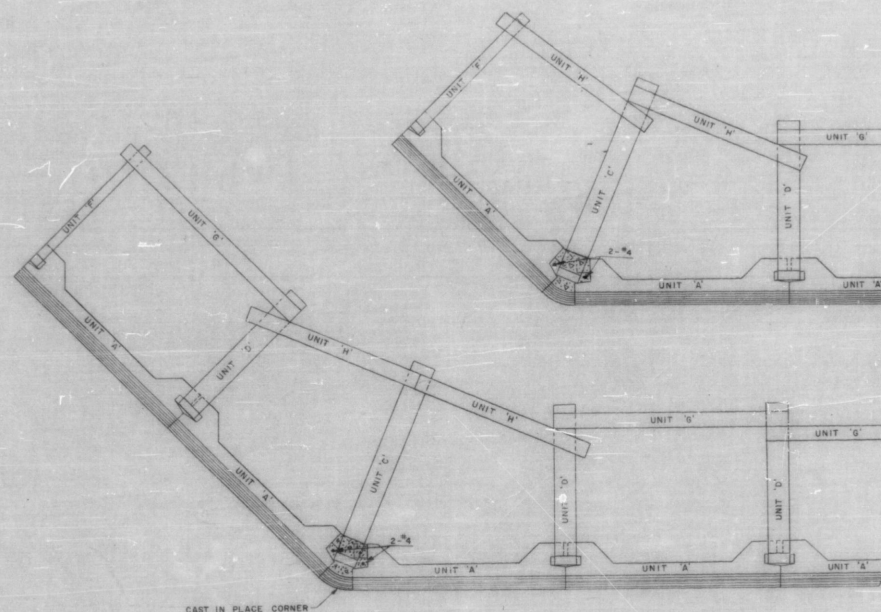
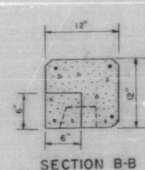
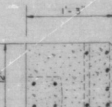
CAP UNIT 'B' 154 REQUIRED.



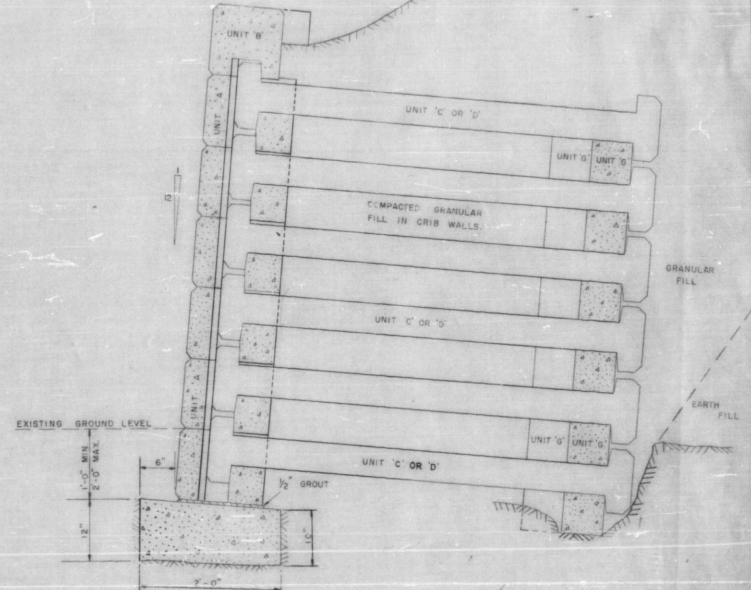
TIE UNIT 'C' 8'-0" LONG 975 REQUIRED.
UNIT 'D' 6'-0" LONG 288 REQUIRED.



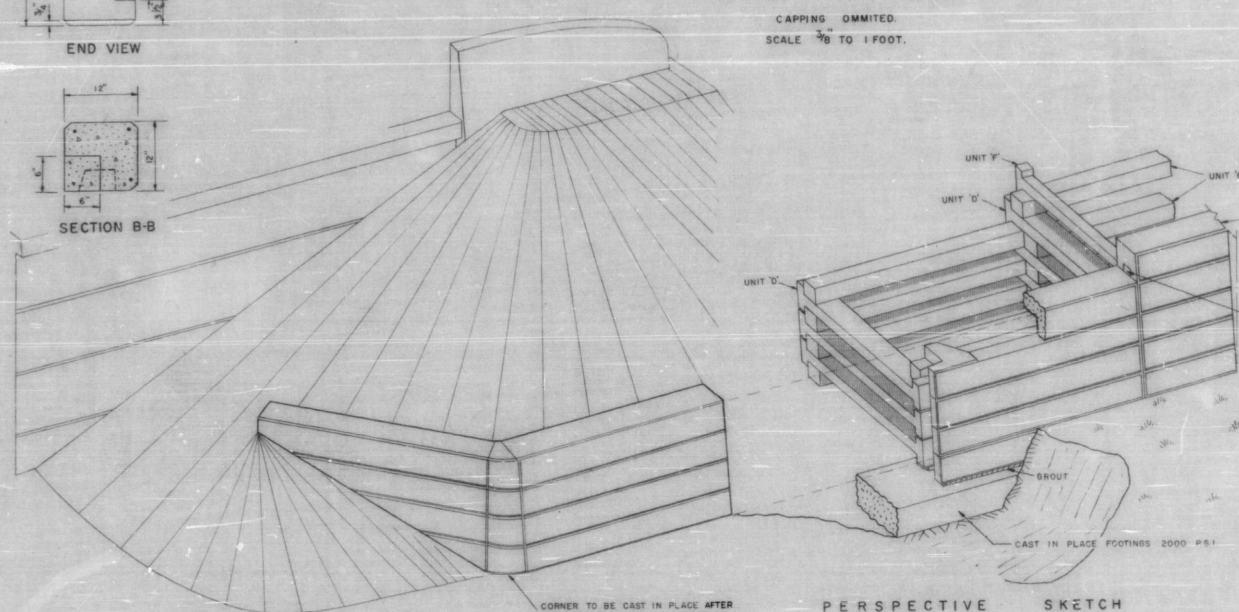
HALF TIE. UNIT 'E' 8'-0" LONG 128 REQUIRED.
UNIT 'F' 6'-0" LONG 43 REQUIRED.



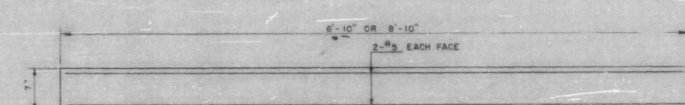
CAPPING OMITTED
SCALE 7/8" TO 1 FOOT.



SCALE 1" TO 1 FOOT



- NOTES:
1. ALL REINFORCEMENT TO BE HIGH BOND BARS OF INTERMEDIATE OR HARD GRADE STEEL.
 2. COVER TO ALL REINFORCEMENT TO BE 1 1/2" UNLESS NOTED.
 3. REINFORCEMENT TO BE HELD IN PLACE BY 1/8" DIA WIRE TIES.
 4. ALL CONCRETE IN PRE-CAST UNITS TO BE OF 4000 P.S.I. QUALITY WITH 3/4" MAX. AGGREGATE.
 5. ALL PRE-CAST UNITS TO BE CAST IN METAL MouldS TO GIVE A CLASS 'A' FINISH ON ALL EXPOSED SURFACES.
 6. ALL CONCRETE TO BE VIBRATED IN ACCORDANCE WITH THE SPECIFICATIONS.

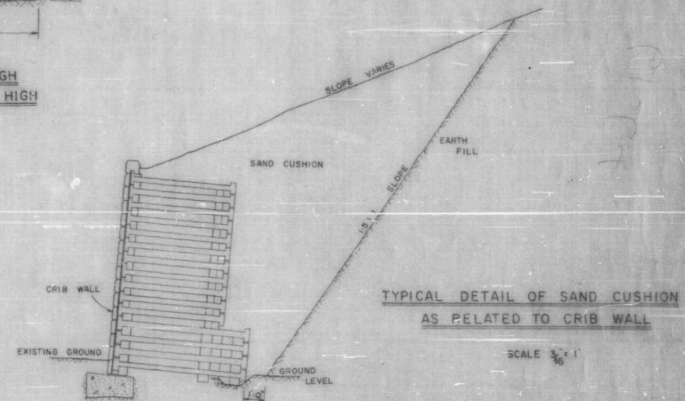
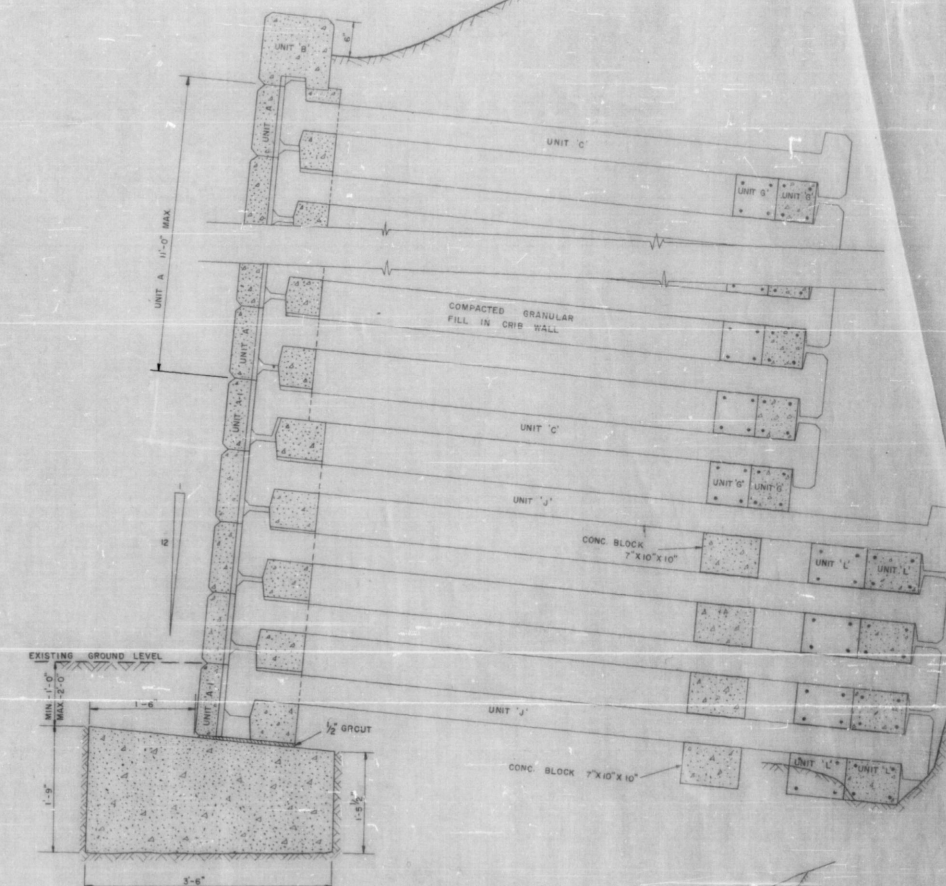
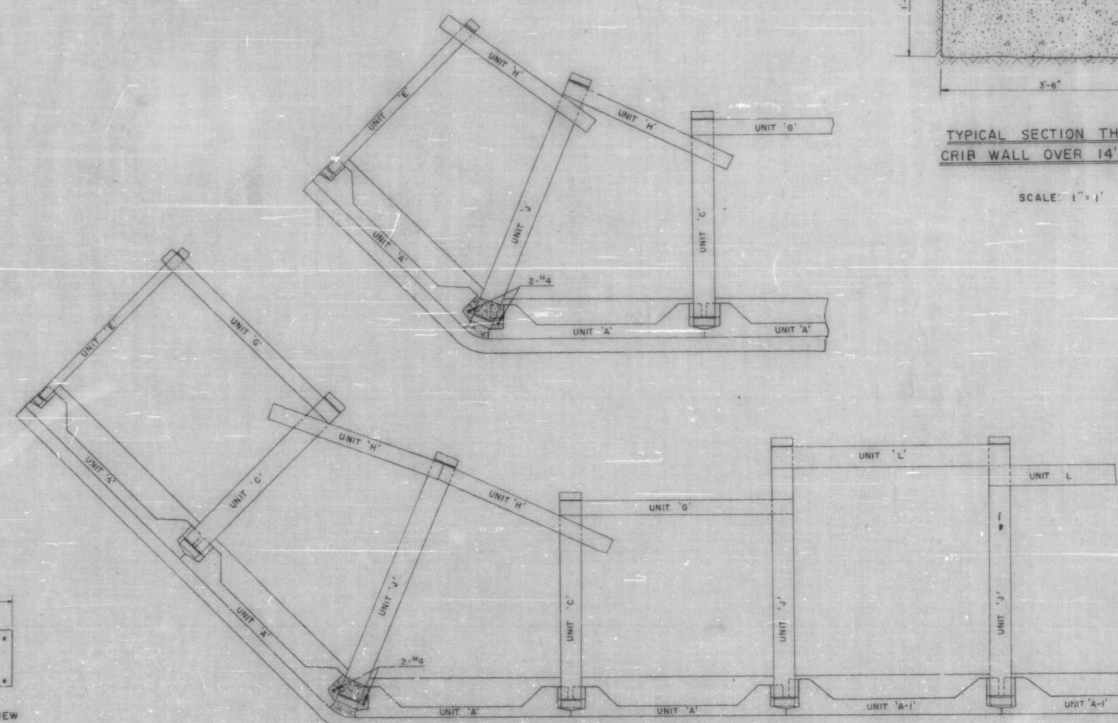
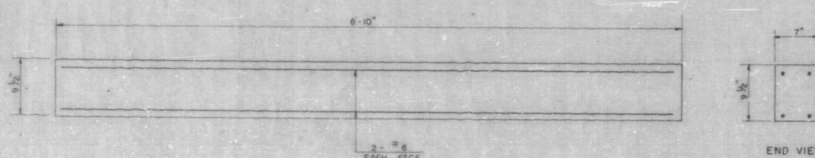
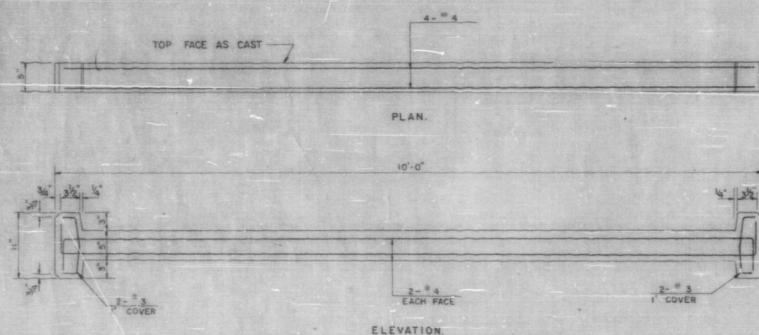
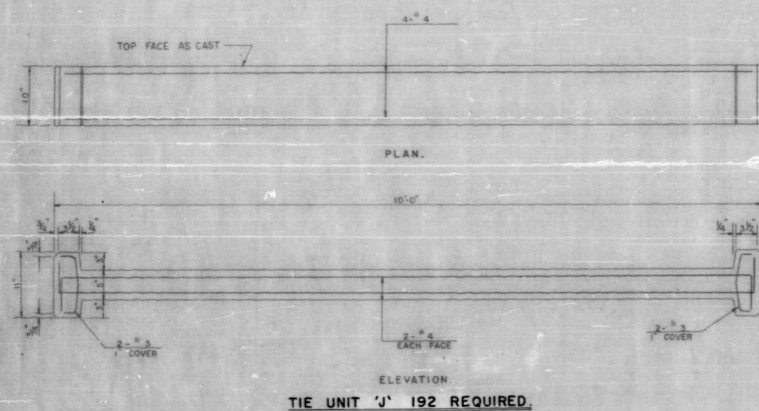
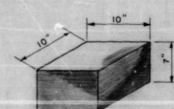
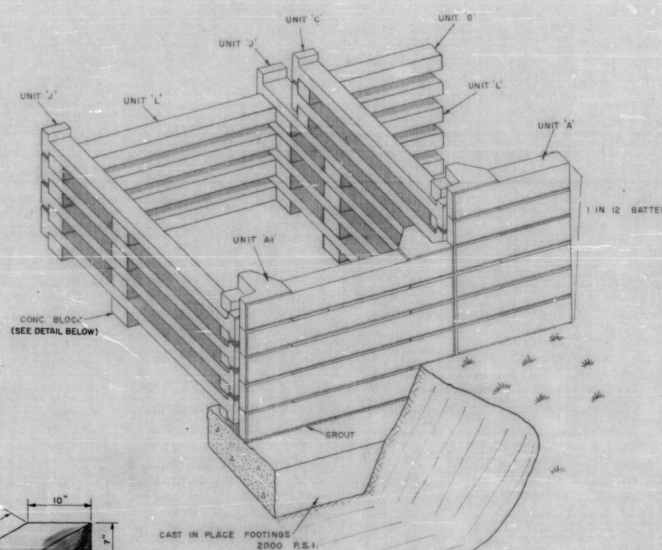
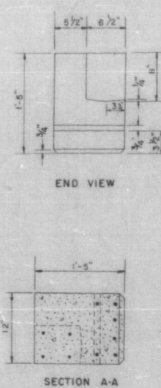
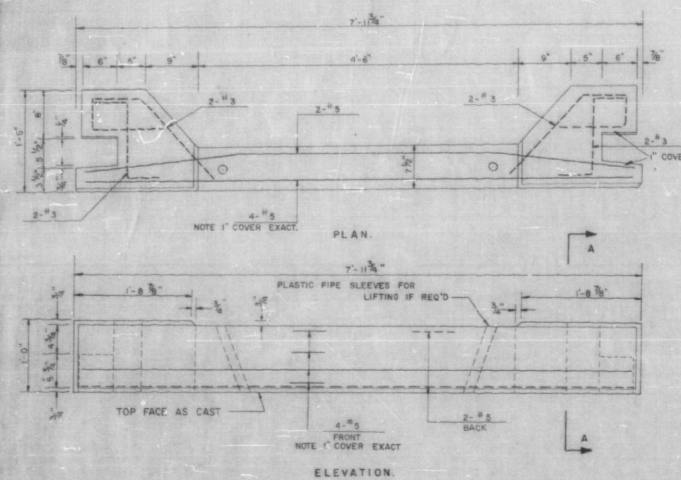


UNIT 'G' 8'-10" LONG 1224 REQUIRED.
UNIT 'H' 6'-10" LONG 142 REQUIRED.



1	CLEARANCE DIMENSIONS REVISED	By	DATE
No.	Revisions	By	DATE
DEPARTMENT OF HIGHWAYS OF ONTARIO			
OTTAWA QUEENSWAY LIMITED-ACCESS HIGHWAY			
OTTAWA CANADA			
CRIB WALL			
TYPICAL DETAILS I			
DE LEUW, CATHY & CO. OF CANADA LIMITED Consulting Engineers		DPPT. OF HIGHWAYS OF ONTARIO	
Designed by: D. N.		Date: APRIL 1 / 1961	
Checked by: S. S.		DWG. No.	
Drawn by: J. M.		Scale: AS SHOWN	
		Sheet 31 of	

SUPPLY COST 61-115



- NOTES:
1. ALL REINFORCEMENT TO BE HIGH BOND BARS OF INTERMEDIATE OR HARD GRADE STEEL.
 2. COVER TO ALL REINFORCEMENT TO BE 1/2" UNLESS NOTED OTHERWISE.
 3. REINFORCEMENT TO BE HELD IN PLACE BY 3/4" WIRE TIES.
 4. ALL CONCRETE IN PRE-CAST UNIT TO BE OF 4000 P.S.I. QUALITY WITH 3/4" MAX. AGGREGATE.
 5. ALL PRE-CAST UNITS TO BE CAST IN METAL MOULD TO GIVE A CLASS 'A' FINISH ON ALL EXPOSED SURFACES.
 6. ALL CONCRETE TO BE VIBRATED IN ACCORDANCE WITH THE SPECIFICATIONS.

File	Signature	Dr.	Date
DEPARTMENT OF HIGHWAYS OF ONTARIO			
OTTAWA QUEENSWAY LIMITED ACCESS HIGHWAY			
OTTAWA		CANADA	
CRIB WALL TYPICAL DESIGN II			
DE LEUW CATHY & CO OF CANADA LIMITED Consulting Engineers		DEPT. OF HIGHWAYS OF ONTARIO District of Frontenac & Hastings	
<i>Leon Marshall</i> Designer		DWG. No.	
Checked by D.M.	Date APRIL 17 1981	Scale	
Drawn by S.C.H.	Date	Sheet 32	
Checked by L.M.	AS SHOWN		

CONT. 61-64

