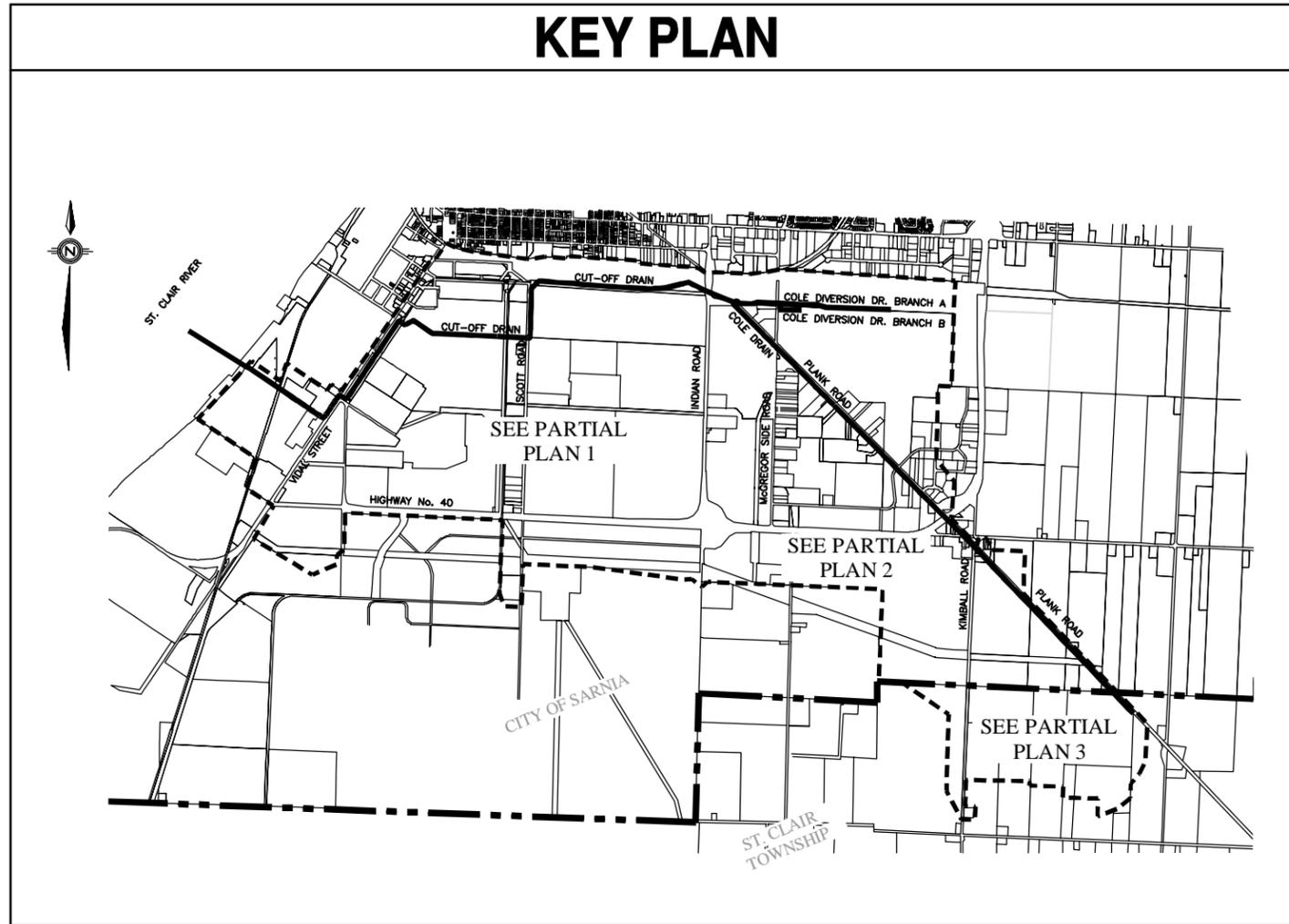


KEY PLAN



COLE DRAIN, CUT-OFF DRAIN & COLE DIVERSION DRAIN Branches 'A' & 'B'

CITY OF SARNIA

PROJECT No. 08-8845

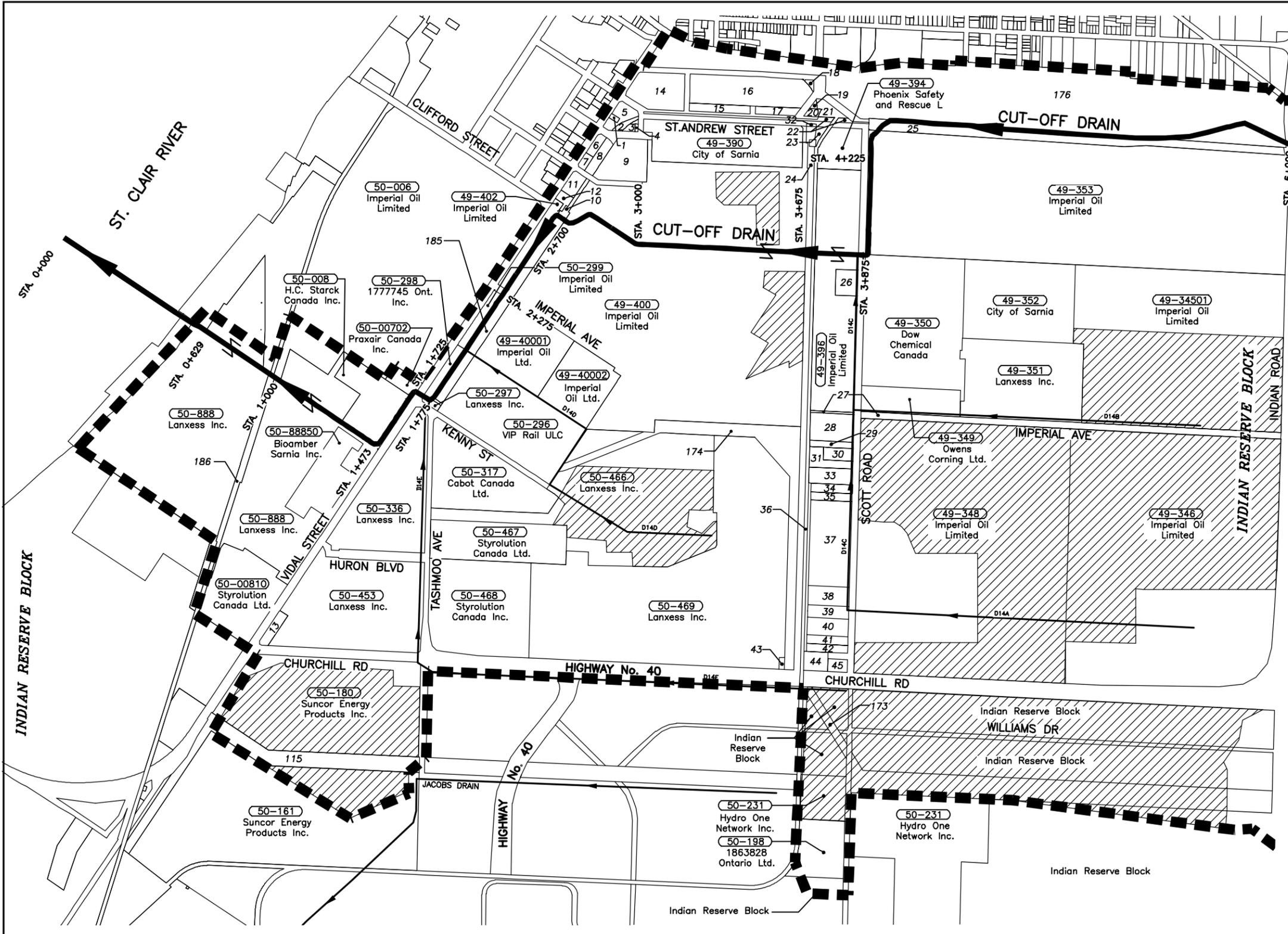
JUNE 2019

SHEET INDEX

SHEET	DESCRIPTION
	KEY PLAN, SHEET INDEX
01	WATERSHED PARTIAL PLAN 1
02	WATERSHED PARTIAL PLAN 2
03	WATERSHED PARTIAL PLAN 3
04	CUT-OFF DRAIN PLAN AND PROFILE FROM STA. 0+546 TO STA. 0+735
05	CUT-OFF DRAIN PLAN AND PROFILE FROM STA. 0+735 TO STA. 0+960
06	CUT-OFF DRAIN PLAN AND PROFILE FROM STA. 0+960 TO STA. 1+350
07	CUT-OFF DRAIN PLAN AND PROFILE FROM STA. 1+350 TO STA. 1+700
08	CUT-OFF DRAIN PLAN AND PROFILE FROM STA. 1+700 TO STA. 2+050
09	CUT-OFF DRAIN PLAN AND PROFILE FROM STA. 2+050 TO STA. 2+400
10	CUT-OFF DRAIN PLAN AND PROFILE FROM STA. 2+400 TO STA. 2+750
11	CUT-OFF DRAIN PLAN AND PROFILE FROM STA. 2+750 TO STA. 3+100
12	CUT-OFF DRAIN PLAN AND PROFILE FROM STA. 3+100 TO STA. 3+450
13	CUT-OFF DRAIN PLAN AND PROFILE FROM STA. 3+450 TO STA. 3+800
14	CUT-OFF DRAIN PLAN AND PROFILE FROM STA. 3+800 TO STA. 4+150
15	CUT-OFF DRAIN PLAN AND PROFILE FROM STA. 4+150 TO STA. 4+500
16	CUT-OFF DRAIN PLAN AND PROFILE FROM STA. 4+500 TO STA. 4+850
17	CUT-OFF DRAIN PLAN AND PROFILE FROM STA. 4+850 TO STA. 5+200
18	CUT-OFF DRAIN PLAN AND PROFILE FROM STA. 5+200 TO STA. 5+550
19	CUT-OFF DRAIN PLAN AND PROFILE FROM STA. 5+550 TO STA. 5+900
20	CUT-OFF DRAIN PLAN AND PROFILE FROM STA. 5+900 TO STA. 6+200
21	CUT-OFF DRAIN/COLE DRAIN PLAN AND PROFILE FROM STA. 6+200 TO STA. 6+550
22	COLE DRAIN PLAN AND PROFILE FROM STA. 6+550 TO STA. 6+900
23	COLE DRAIN PLAN AND PROFILE FROM STA. 6+900 TO STA. 7+250
24	COLE DRAIN PLAN AND PROFILE FROM STA. 7+250 TO STA. 7+600
25	COLE DRAIN PLAN AND PROFILE FROM STA. 7+600 TO STA. 7+950
26	COLE DRAIN PLAN AND PROFILE FROM STA. 7+950 TO STA. 8+300
27	COLE DRAIN PLAN AND PROFILE FROM STA. 8+300 TO STA. 8+650
28	COLE DRAIN PLAN AND PROFILE FROM STA. 8+650 TO STA. 9+000
29	COLE DRAIN PLAN AND PROFILE FROM STA. 9+000 TO STA. 9+350
30	COLE DRAIN PLAN AND PROFILE FROM STA. 9+350 TO STA. 9+700
31	COLE DRAIN PLAN AND PROFILE FROM STA. 9+700 TO STA. 10+050
32	COLE DRAIN PLAN AND PROFILE FROM STA. 10+050 TO STA. 10+400
33	COLE DRAIN PLAN AND PROFILE FROM STA. 10+400 TO STA. 10+750
34	COLE DRAIN PLAN AND PROFILE FROM STA. 10+750 TO STA. 11+100
35	COLE DRAIN PLAN AND PROFILE FROM STA. 11+100 TO STA. 11+225
36	COLE DIVERSION DRAIN BRANCH A PLAN AND PROFILE FROM STA. 0+000A TO STA. 0+340A
37	COLE DIVERSION DRAIN BRANCH A PLAN AND PROFILE FROM STA. 0+340A TO STA. 0+690A
38	COLE DIVERSION DRAIN BRANCH A PLAN AND PROFILE FROM STA. 0+690A TO STA. 1+040A
39	COLE DIVERSION DRAIN BRANCH A PLAN AND PROFILE FROM STA. 1+040A TO STA. 1+390A
40	COLE DIVERSION DRAIN BRANCH A PLAN AND PROFILE FROM STA. 1+390A TO STA. 1+450A
41	COLE DIVERSION DRAIN BRANCH B PLAN AND PROFILE FROM STA. 0+000B TO STA. 0+170B
42	COLE DIVERSION DRAIN BRANCH A AND B BRIDGE DETAILS
43	CUT-OFF DRAIN TYPICAL CROSS SECTIONS
44	CUT-OFF/COLE DRAIN TYPICAL CROSS SECTIONS
45	BRIDGE LOCATION PLAN 1
46	BRIDGE LOCATION PLAN 2
47	BRIDGE LOCATION PLAN 3
48	ACCESS BRIDGE REPLACEMENTS & FUTURE ACCESS REPLACEMENT DETAILS
49	CUT-OFF DRAIN ACCESS BRIDGE DETAILS
50	CABLE CONCRETE DETAILS

'SCHEDULE G'

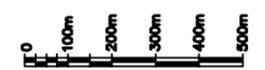
DILLON CONSULTING
 Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B'
 City of Sarnia
 Project No. 08-8845
 June 2019



ADDITIONAL OWNERS		
REF. #	ROLL #	OWNER NAMES
1	382940004937900	UNION GAS LIMITED
2	RAILWAY	CANADIAN NATIONAL RAILWAY CORP.
3	382940004937500	MATTHEWS EQUIPMENT LIMITED
4	382940004937400	ALUMA SYSTEMS INC.
5	382940004938000	MATTHEWS EQUIPMENT LIMITED
6	382940004940700	McINTOSH MECHANICAL INC.
7	382940004940600	829814 ONTARIO INC./829815 ONT. INC.
8	RAILWAY	CANADIAN NATIONAL RAILWAY CORP.
9	382940004940800	ALUMA SYSTEMS INC.
10	RAILWAY	CANADIAN NATIONAL RAILWAY CORP.
11	382940004940400	IMPERIAL OIL LIMITED
12	382940004940300	ALUMA SYSTEMS INC.
13	382940005042700	UNITED RENTALS OF CANADA INC.
14	382940004932100	HYDRO ONE NETWORKS INC.
15	PUBLIC UTILITY	HYDRO ONE NETWORKS INC.
16	382940004933200	ST. MARYS CEMENT INC.
17	PUBLIC UTILITY	HYDRO ONE NETWORKS INC.
18	PUBLIC UTILITY	HYDRO ONE NETWORKS INC.
19	382940004933200	ST. MARYS CEMENT INC.
20	PUBLIC UTILITY	HYDRO ONE NETWORKS INC.
21	RAILWAY	CANADIAN NATIONAL RAILWAY CORP.
22	PUBLIC UTILITY	HYDRO ONE NETWORKS INC.
23	382940004939200	PHOENIX SAFETY & RESCUE L
24	PUBLIC UTILITY	HYDRO ONE NETWORKS INC.
25	PUBLIC UTILITY	HYDRO ONE NETWORKS INC.
26	382940004939501	IMPERIAL OIL LIMITED
27	382940004939502	IMPERIAL OIL LIMITED
28	382940004939600	IMPERIAL OIL LIMITED
29	382940005024400	1974362 ONTARIO LTD.
30	382940005024401	ISTVAN S. FEHER
31	382940005024500	MATRIX SERVICE INC.
32	PUBLIC UTILITY	HYDRO ONE NETWORKS INC.
33	382940005024600	LANXESS INC.
34	382940005024700	ACIER GENDRON LTEE
35	382940005024701	WHM ENTERPRISES (SARNIA) LTD.
36	RAILWAY	CANADIAN NATIONAL RAILWAY CORP.
37	382940005024800	1919443 ONTARIO LTD.
38	382940005024804	VEOLIA ES CANADA INDUSTRIES
39	382940005024805	TOTAL SUPPORT SERVICES LTD.
40	382940005024806	ZBR INVESTMENTS (SARNIA) LTD.
41	382940005024807	1272054 ONTARIO LIMITED
42	382940005024900	1684616 ONTARIO LIMITED
43	382940005025500	BLUEWATER POWER DISTRIBUTION CORPORATION
44	382940005025300	7794703 CANADA INC.
45	382940005025100	CITY OF SARNIA
185	RAILWAY	CANADIAN NATIONAL RAILWAY CORP.
186	RAILWAY	CHESAPEAKE AND OHIO RAILWAY

LEGEND

- COLE DRAIN, CUT-OFF DRAIN & COLE DIVERSION DRAINS
- ▨ DRAINAGE AREA
- ➔ COLE DRAIN, CUT-OFF DRAIN & COLE DIVERSION DRAINS
- - - SUBWATERSHED AREA
- ▨ WOODLOT AREAS



NOTE: PROPERTY ROLL NUMBERS IDENTIFIED ON THIS PLAN HAVE BEEN TRUNCATED FOR DISPLAY PURPOSES.

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NO.	DESCRIPTION	DATE	DESIGN	REVIEWED BY
5	FINAL REPORT RESUBMISSION	27 JUN 19	TRO	JJT
4	REVISED FINAL REPORT CLIENT REVIEW	1 MAY 19	TRO	JJT
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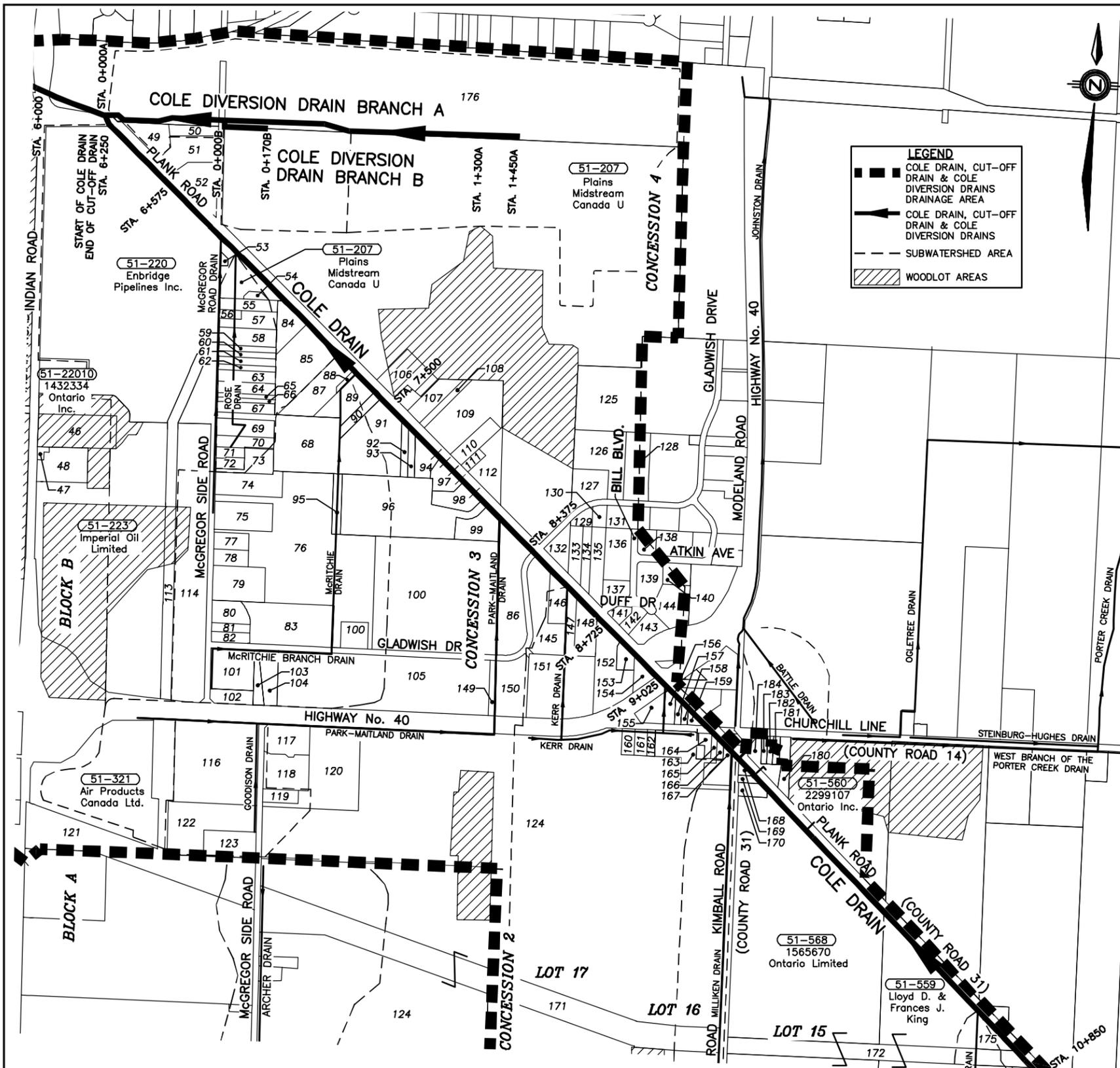
DATE: June 27, 2019
 SCALE: 1:16,500

Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B'
 City of Sarnia

PROJECT NO. 08-8845

SHEET NO. 01 of 50

WATERSHED PARTIAL PLAN 1

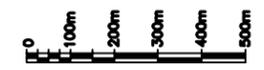


LEGEND

- COLE DRAIN, CUT-OFF DRAIN & COLE DIVERSION DRAINS
- DRAINAGE AREA
- COLE DRAIN, CUT-OFF DRAIN & COLE DIVERSION DRAINS
- SUBWATERSHED AREA
- ▨ WOODLOT AREAS

NOTE: PROPERTY ROLL NUMBERS IDENTIFIED ON THIS PLAN HAVE BEEN TRUNCATED FOR DISPLAY PURPOSES.

ADDITIONAL PROPERTY OWNERS			REF. #	ROLL #	OWNER NAMES
46	382940005122600	ENVIRONMENT & ENERGY MINISTRY	110	382940005120350	TEK HOLDINGS LIMITED
47	382940005122500	IMPERIAL OIL LIMITED	111	382940005120200	AT-TEC HEAVY EQUIPMENT LTD.
48	382940005122400	MARCUS TERMINALS INC.	112	382940005120100	DOROTHY A. Mc ELHONE
49	382940005121300	LAMBTON HOT MIX LTD.	113	382940005122300	HYDRO ONE NETWORKS INC.
50	382940005121200	SANDERCOCK CONSTRUCTION LTD.	114	382940005122300	IMPERIAL OIL LIMITED
51	382940005121100	CMM PROPERTIES INC.	115	382940005132300	TRANSCO RECYCLING INC.
52	382940005121000	LENIE N. SEVERIN	116	382940005134000	876652 ONTARIO LTD.
53	382940005120701	UNION GAS LIMITED	117	382940005134050	121 DUFF DRIVE INC.
54	382940005127700	DEAN R. WILLIAMS	118	382940005134101	2506612 ONTARIO LTD.
55	382940005127800	LAMSAR INC.	119	382940005134100	MAC PUMP DEVELOPMENTS LTD.
56	382940005127700	DEAN R. WILLIAMS	120	382940005134100	HYDRO ONE NETWORKS INC.
57	382940005127600	JEFFERY P. WILLIAMS	121	382940005132400	408980 ONTARIO LTD.
58	382940005127500	DEAN R. WILLIAMS	122	382940005132500	852129 ONTARIO LIMITED
59	382940005127400	JEFFERY P. WILLIAMS	123	382940005137600	DST FARMS INC. AND LMH FARMS INC.
60	382940005127300	DEAN R. WILLIAMS	124	382940005117100	PLAINES MIDSTREAM CANADA U
61	382940005127200	JOHN HEALY CARE TRUSTEE	125	382940005117650	CAPUCHE MANAGEMENT LIMIT
62	382940005127100	2274916 ONTARIO INC.	126	382940005119300	GREGMILL INVESTMENTS LTD.
63	382940005127000	2448514 ONTARIO INC.	127	382940005117600	10173169 CANADA LTD.
64	382940005126900	469135 ONTARIO LIMITED	128	382940005117715	MODIG PROPERTIES INC.
65	382940005126800	469135 ONTARIO LIMITED	129	382940005117714	JENRON HOLDINGS LTD.
66	382940005126700	DUO RAY LTD.	130	382940005117630	2654583 ONTARIO LTD.
67	382940005126600	629260 ONTARIO LIMITED/1777705 ONTARIO INC.	131	382940005119200	LINDROSS HOLDINGS (SARNIA) LTD.
68	382940005126500	1109662 ONTARIO LTD.	132	382940005119100	MARCOTTE DISPOSAL INC.
69	382940005126400	PD PROPERTIES & RENTALS INC.	133	382940005119000	KEL-GOR LIMITED
70	382940005126300	RICHARD R. LAROCHELLE	134	382940005118900	KEL-GOR LIMITED
71	382940005126200	EDWARD A. YOUNG	135	382940005118810	JENRON HOLDINGS LTD.
72	382940005126100	SUSANE LEVESQUE	136	382940005118801	HELMUT SAUERBECK
73	382940005126000	GUY J. & SUSANE LEVESQUE	137	382940005118800	JHARC HOLDINGS INC.
74	382940005125800	748104 ONTARIO LTD.	138	382940005118825	1016746 ONTARIO LIMITED
75	382940005125500	DUO RAY LTD.	139	382940005118825	1016746 ONTARIO LIMITED
76	382940005125700	1109606 ONTARIO LTD.	140	382940005118800	876652 ONTARIO LIMITED
77	382940005125400	DUO RAY LTD.	141	382940005118702	876652 ONTARIO LIMITED
78	382940005125310	DUO RAY LTD.	142	382940005118700	9056297 CANADA INC.
79	382940005125300	SEVEN STAR INVESTMENTS INC.	143	382940005118815	BLATTNER INVESTMENTS INC.
80	382940005125200	LAMBTON WOODWORKS DIVISION OF LAMBTON	144	382940005129500	BRUCE A. BOND PETROLEUM LTD.
81	382940005125101	LAMBTON CONSTRUCTION COMPANY LTD.	145	382940005129500	DELCOR SEAWAY INC.
82	382940005125100	451547 ONTARIO LIMITED	146	382940005129600	KEL-GOR LIMITED
83	382940005125000	MARIO & ANTONIO B. DeCAROLIS	147	382940005129800	KEL-GOR LIMITED
84	382940005123500	SARNIA AUTO WRECKERS LTD.	148	382940005129200	IMPERIAL ROOFING (SARNIA) LTD.
85	382940005123600	LAMSAR INC.	149	382940005129300	CALANIT INC.
86	382940005124800	FRANCO VOZZA	150	382940005130200	JENRON HOLDINGS LTD.
87	382940005123800	612031 ONTARIO LTD.	151	382940005129900	KEL-GOR LIMITED
88	382940005123900	37694 ONTARIO LTD./612031 ONTARIO LTD.	152	382940005130000	D S ASHMAN INDUSTRIES INC.
89	382940005124000	3769694 ONTARIO LIMITED	153	382940005130900	TRANSPORTATION MINISTRY
90	382940005124100	RICHARD C. PERDEAUX	154	382940005131000	RANDY G. & PATRICIA J. VARSAVA
91	382940005124200	PLANK ROAD AUTO WRECKERS LTD.	155	382940005131100	GERALD M. MCAULEY
92	382940005124201	JOHN R. BERNHARDT	156	382940005131200	GERALD M. MCAULEY
93	382940005124400	PAUL J. BABCOCK	157	382940005131300	TRANSPORTATION MINISTRY
94	382940005124500	1230868 ONTARIO LIMITED	158	382940005134400	RANDOLPH A. ELVIAGE
95	382940005125600	CITY OF SARNIA	159	382940005134500	SARNIA PLUMBING AND MECHA
96	382940005124700	PLANK ROAD TRANSFER LTD.	160	382940005134600	AUKE & DENISE ZYLSTRA
97	382940005124600	GORDON BOUMA	161	382940005135300	VANDENHEUVEL AUTO SALES LTD.
98	382940005124701	ACKLANDS-GRAINGER INC.	162	382940005135400	KUKURA CONSTRUCTION LTD.
99	382940005124715	BARNIM PROPERTY HOLDINGS	163	382940005135500	VANDENHEUVEL AUTO SALES LTD.
100	382940005124900	1109606 ONTARIO LIMITED	164	382940005135600	MICHAEL W. KIDD
101	382940005128700	HAROLD MARCUS LIMITED	165	382940005135700	1600850 ONTARIO LIMITED
102	382940005128600	1565685 ONTARIO LIMITED	166	382940005160800	MARGARET J. NYP
103	382940005128800	TRANSPORTATION MINISTRY	167	382940005160700	VINK NETWORK CABLES INC.
104	382940005128900	1830370 ONTARIO INC.	168	382940005160600	MILLS LAND FARMS INC.
105	382940005129000	CURRAN & HERRIDGE CONSTRUCTION COMPANY LTD.	169	382940005160700	HYDRO ONE NETWORKS INC.
106	382940005120600	HURON ALLOYS INCORPORATED	170	382940005160700	HYDRO ONE NETWORKS INC.
107	382940005120500	1863960 ONTARIO INC.	171	382940005160700	HYDRO ONE NETWORKS INC.
108	382940005120400	1863960 ONTARIO INC.	172	382940005157000	DONALD A. & CATHERINE R. CRESSMAN
109	382940005120300	SUPERIOR TIRE SERVICES SARNIA INC.	173	382940005157000	CANADIAN NATIONAL RAILWAY CORP.
			174		
			175		
			176		



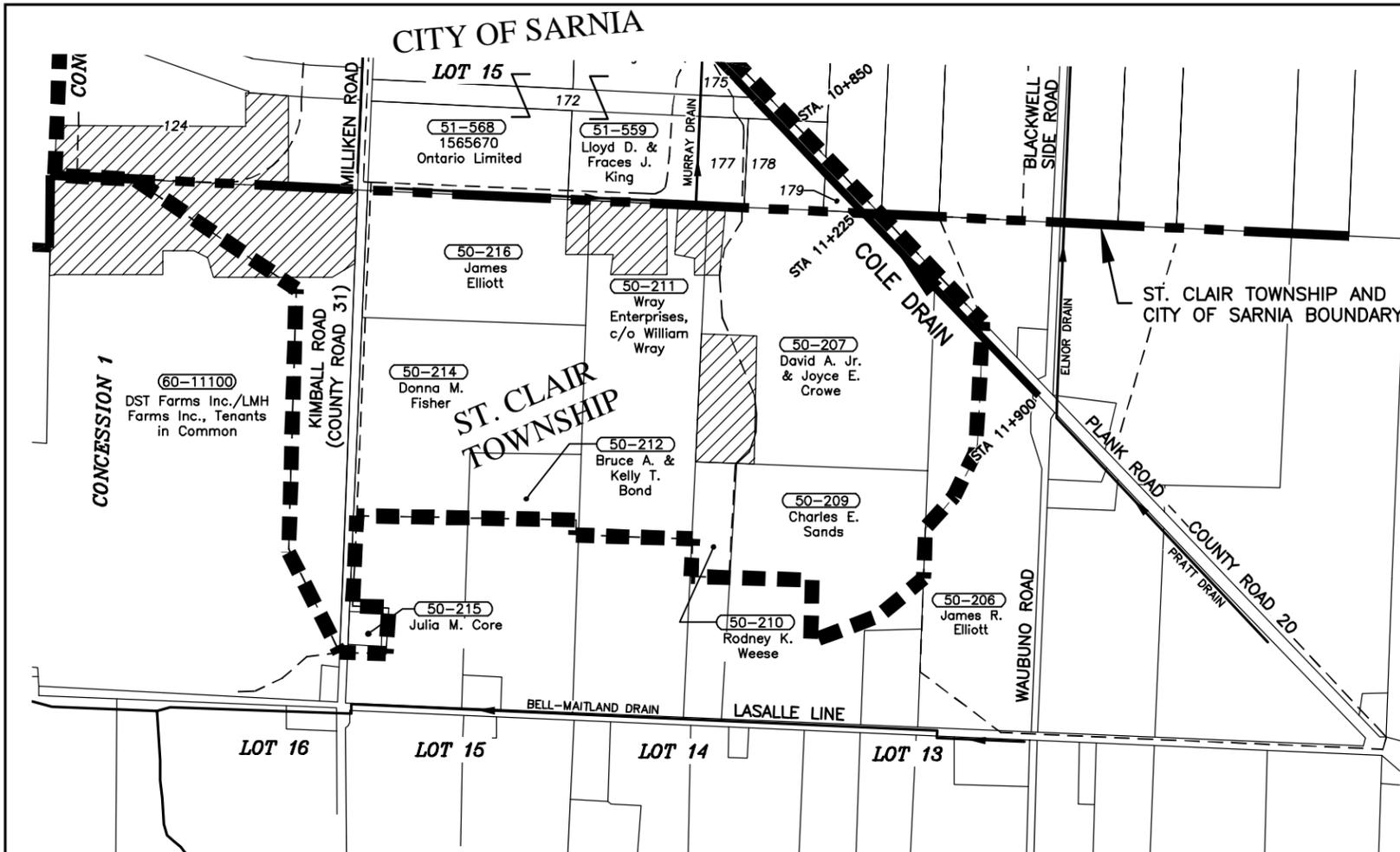
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NO.	DESCRIPTION	DATE	BY	FOR
5	FINAL REPORT RESUBMISSION	27 JUN 19	TRO	
4	REVISED FINAL REPORT CLIENT REVIEW	1 MAY 19	TRO	
3	FINAL REPORT CLIENT REVIEW	11 JAN 16	JJT	
2	PRELIMINARY REPORT SUBMISSION	06 DEC 12	JJT	
1	PRELIMINARY REPORT-CLIENT REVIEW	30 MAR 12	JJT	

DESIGN: TRO
 REVISION BY: JJT
 DRAWN: JMM, TKS
 CHECKED BY: FRF
 DATE: June 27, 2019
 SCALE: 1:16,500

Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B'
 City of Sarnia
WATERSHED PARTIAL PLAN 2
 PROJECT NO: 08-8845
 SHEET NO: 02 of 50

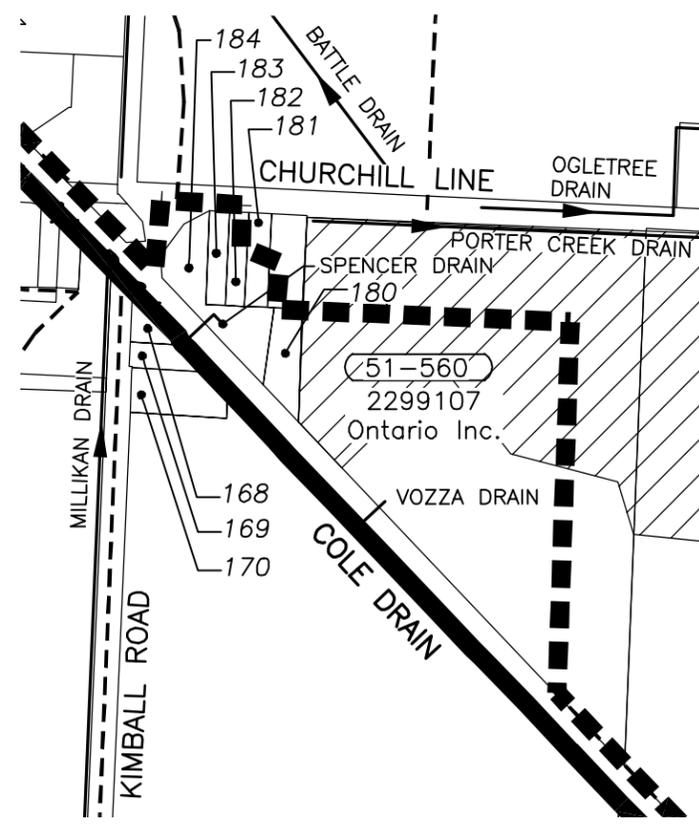


ADDITIONAL PROPERTY OWNERS		
REF. #	ROLL #	OWNER NAMES
177	382940005157000	DONALD A. & CATHERINE R. CRESSMAN
178	382940005157300	DAVID H. PAYNE & ELIZABETH J. PARKINS
179	382940005154600	DAVID A. & JOYCE E. CROWE

NOTE: PROPERTY ROLL NUMBERS IDENTIFIED ON THIS PLAN HAVE BEEN TRUNCATED FOR DISPLAY PURPOSES.

LEGEND

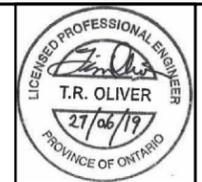
- COLE DRAIN, CUT-OFF DRAIN & COLE DIVERSION DRAINS DRAINAGE AREA
- COLE DRAIN, CUT-OFF DRAIN & COLE DIVERSION DRAINS
- - - SUBWATERSHED AREA
- ▨ WOODLOT AREAS



ADDITIONAL PROPERTY OWNERS		
REF. #	ROLL #	OWNER NAMES
180	382940005156100	2551030 ONTARIO, INC.
181	382940005151400	CAROL A. O'REILLY
182	382940005151300	WILLIAM K. & DIANNE J. SPENCER
183	382940005151200	RENALD I. JOSEPH & BRENDA L. BLYTH
184	382940005151100	COUNTY OF LAMBTON

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NO.	DESCRIPTION	DATE	BY
1	PRELIMINARY REPORT-CLEINT REVIEW	30 MAR 12	JJT
2	PRELIMINARY REPORT SUBMISSION	06 DEC 12	JJT
3	FINAL REPORT CLIENT REVIEW	11 JAN 16	JJT
4	REVISED FINAL REPORT CLIENT REVIEW	1 MAY 19	TRO
5	FINAL REPORT RESUBMISSION	27 JUNE 19	TRO

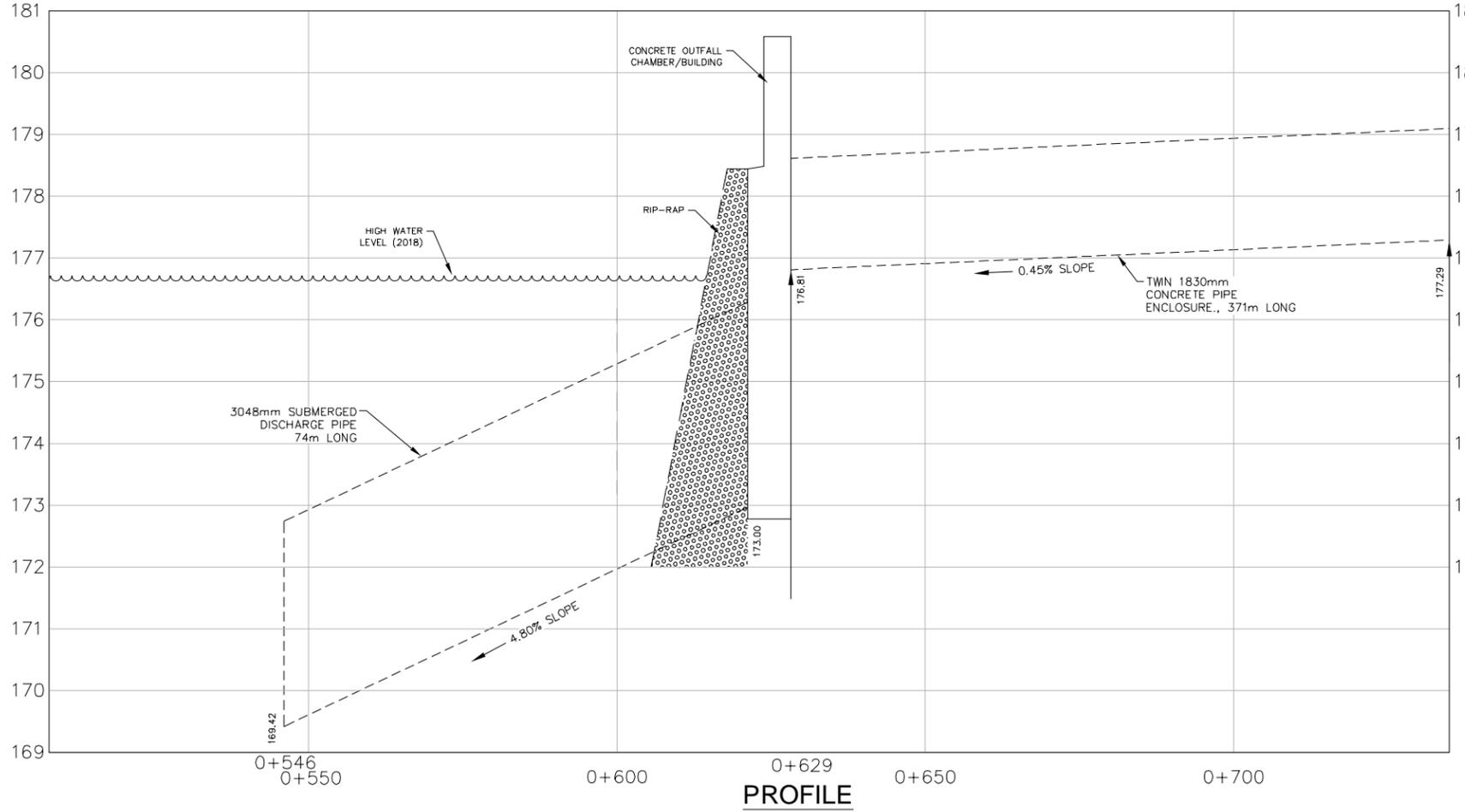
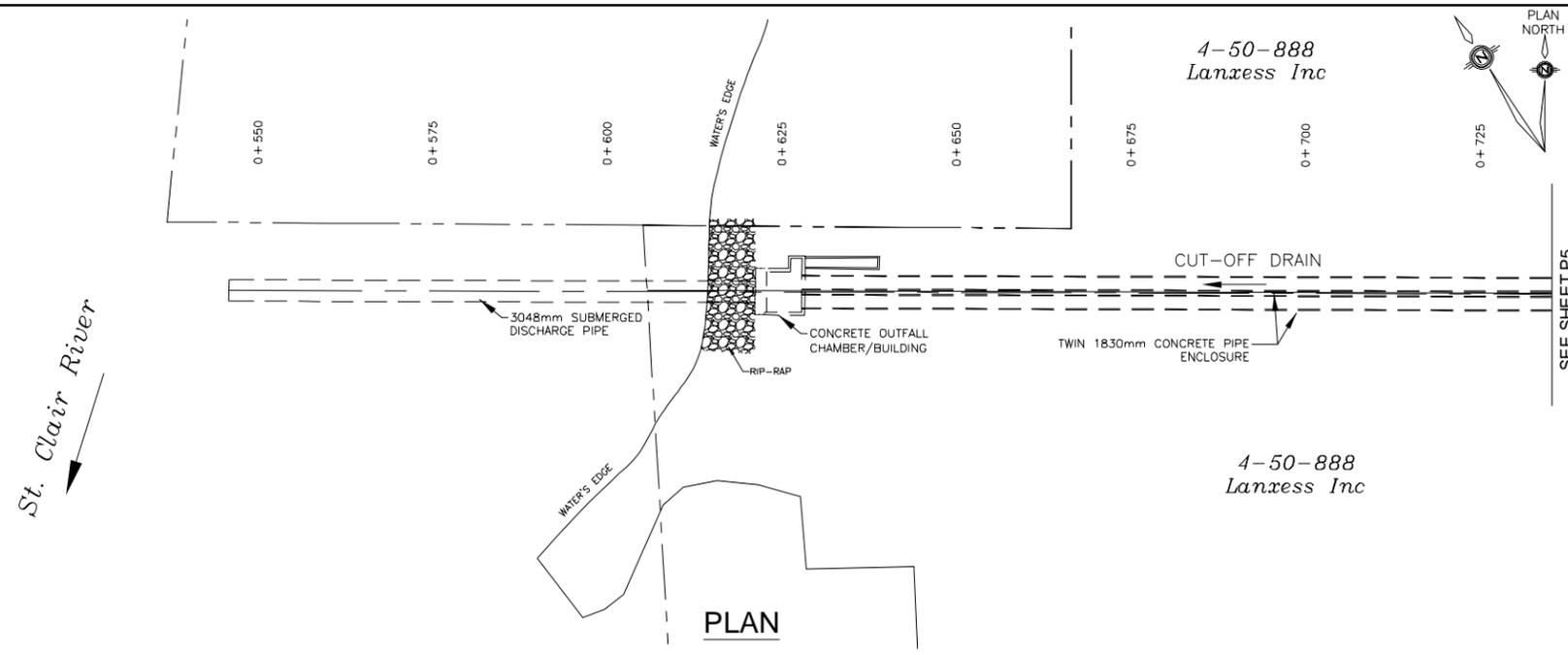
DESIGN: TRO
 REVIEWED BY: JJT
 DRAWN: JMM, TKS
 CHECKED BY: FRF
 DATE: June 27, 2019
 SCALE: 1:16,500

Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B'
 City of Sarnia

WATERSHED PARTIAL PLAN 3

PROJECT NO: 08-8845
 SHEET NO: 03 of 50

DILLON CONSULTING LIMITED, 10 FIFTH STREET SOUTH, CHATHAM, ONTARIO, N7M 4V4, PHONE (519) 354-7800, FAX (519) 354-2050



SITE BENCHMARKS (BM)

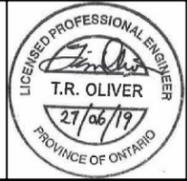
1. TOP SOUTH CORNER OF CONCRETE HEADWALL. STATION 1+000. ELEVATION 181.20m	12. TOP OF CONCRETE HEADWALL. STATION 6+250. ELEVATION 186.84m
2. NORTH CORNER OF CONCRETE PAD STATION 1+425. ELEVATION 183.06m	13. TOP OF CONCRETE HEADWALL. STATION 6+475. ELEVATION 186.97m
3. TOP SOUTH CORNER OF CONCRETE HEADWALL. STATION 1+750. ELEVATION 183.62m	14. TOP WEST SIDE OF CONCRETE HEADWALL. STATION 6+825. ELEVATION 187.43m
4. TOP EAST CORNER OF CONCRETE HEADWALL. STATION 2+360. ELEVATION 184.40m	15. TOP OF FIRE HYDRANT. STATION 7+465. ELEVATION 188.70m
5. TOP CENTER OF CONCRETE HEADWALL. STATION 2+715. ELEVATION 184.36m	16. TOP EAST SIDE OF STEEL HEADWALL. STATION 7+800. ELEVATION 188.10m
6. TOP CENTER OF CONCRETE HEADWALL. STATION 2+985. ELEVATION 183.61m	17. TOP OF FIRE HYDRANT. STATION 8+185. ELEVATION 189.70m
7. TOP CENTER OF CONCRETE HEADWALL. STATION 3+260. ELEVATION 185.92m	18. TOP OF FIRE HYDRANT. STATION 8+490. ELEVATION 190.23m
8. TOP SOUTH CORNER OF CONCRETE HEADWALL. STATION 3+860. ELEVATION 186.95m	19. GEODETIC BENCHMARK: 69U714. STATION 9+050. ELEVATION 189.93m
9. TOP OF CONCRETE HEADWALL. STATION 4+225. ELEVATION 184.76m	20. TOP NORTH SIDE OF CONCRETE HEADWALL. STATION 9+510. ELEVATION 190.80m
10. CORNER OF CONCRETE PAD. STATION 4+520. ELEVATION 186.35m	21. TOP OF FIRE HYDRANT. STATION 9+870. ELEVATION 192.12m
11. TOP OF CSP ARCH CULVERT EAST END. STATION 5+980. ELEVATION 187.00m	22. TOP OF FIRE HYDRANT. STATION 10+470. ELEVATION 193.32m
	23. TOP OF FIRE HYDRANT. STATION 11+040. ELEVATION 194.08m
	24. SIB SOUTH OF COLE DIVERSION DRAIN BR. A. STATION 0+425A. ELEVATION 186.22m
	25. TOP OF UPSTREAM END OF 600mm CSP CULVERT. STATION 1+075A. ELEVATION 186.02m

LEGEND
 - mm CUT FROM EXISTING BOTTOM

SCALES

0	10m	0	1m
HORIZONTAL		VERTICAL	
1:500 (22x34)	1:50 (22x34)	1:1000 (11x17)	1:100 (11x17)

Conditions of Use
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NO.	ISSUE/DESCRIPTION	DATE	BY	SCALE
5	FINAL REPORT RESUBMISSION	27 JUNE 19	TRO	
4	REVISED FINAL REPORT CLIENT REVIEW	1 MAY 19	TRO	
3	FINAL REPORT CLIENT REVIEW	11 JAN 16	JJT	
2	PRELIMINARY REPORT SUBMISSION	06 DEC 12	JJT	
1	PRELIMINARY REPORT CLIENT REVIEW	30 MAR 12	JJT	

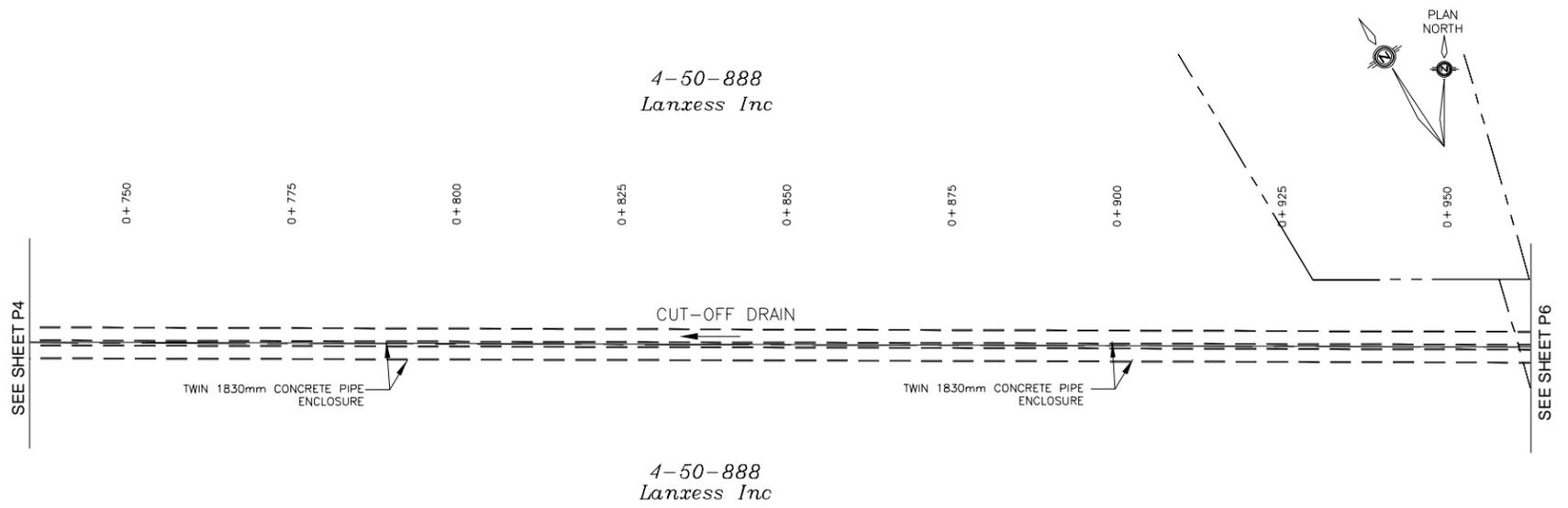
DESIGN: TRO
 REVIEWED BY: JJT
 DRAWN: JMM, TKS
 CHECKED BY: FRF
 DATE: June 27, 2019
 SCALE: AS SHOWN

Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B'
 City of Sarnia

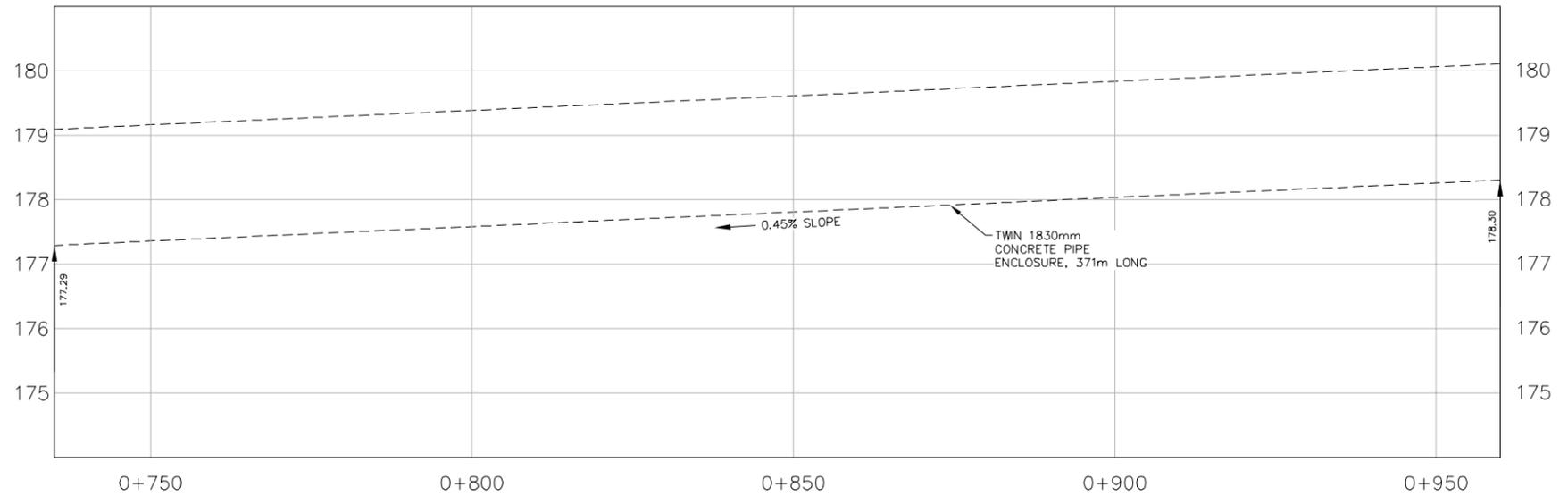
**CUT-OFF DRAIN
 PLAN AND PROFILE
 FROM STA. 0+546 TO STA. 0+735**

PROJ. CT NO. 08-8845
 SHEET NO. 04 of 50

DILLON CONSULTING LIMITED, 10 FIFTH STREET SOUTH, CHATHAM, ONTARIO, N7M 4V4, PHONE (519) 354-7800, FAX (519) 354-2050



PLAN



PROFILE

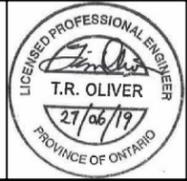
LEGEND

--- mm CUT FROM EXISTING BOTTOM

SCALES

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 HORIZONTAL VERTICAL
 1:500 (22x34) 1:50 (22x34)
 1:1000 (11x17) 1:100 (11x17)

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2	PRELIMINARY REPORT SUBMISSION	06 DEC 12	JJT	
1	PRELIMINARY REPORT-CLIENT REVIEW	30 MAR 12	JJT	

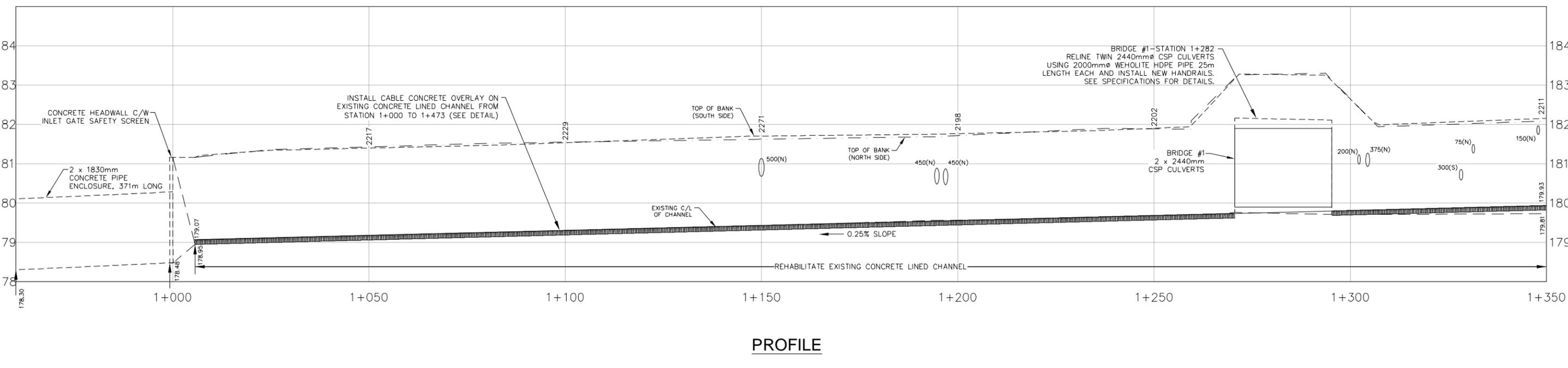
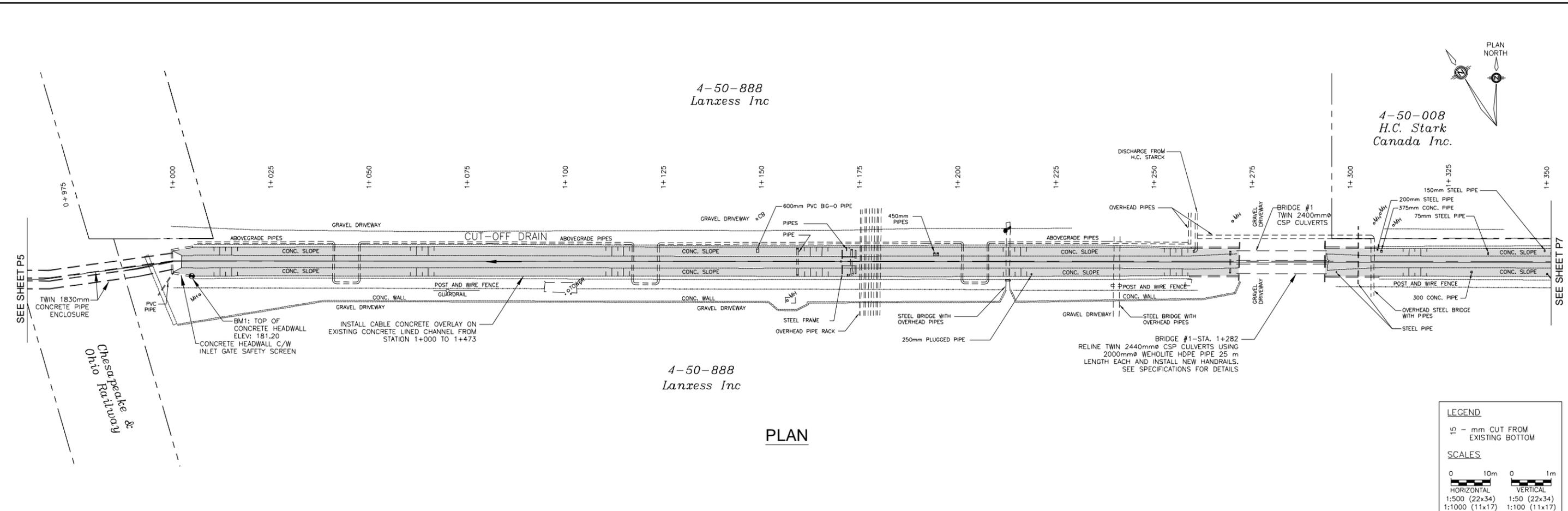
Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B'
 City of Sarnia

**CUT-OFF DRAIN
 PLAN AND PROFILE
 FROM STA. 0+735 TO STA. 0+960**

PROJECT NO. 08-8845
 SHEET NO. 05 of 50

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DILLON CONSULTING LIMITED, 10 FIFTH STREET SOUTH, CHATHAM, ONTARIO, N7M 4V1, PHONE (519) 354-7800, FAX (519) 354-2050



LEGEND

∅ - mm CUT FROM EXISTING BOTTOM

SCALES

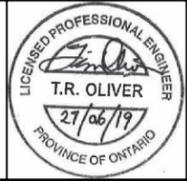
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 1:1000 (11x17) 1:100 (11x17)

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1	PRELIMINARY REPORT CLIENT REVIEW	30 MAR 12	JJT	

Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B'
 City of Sarnia

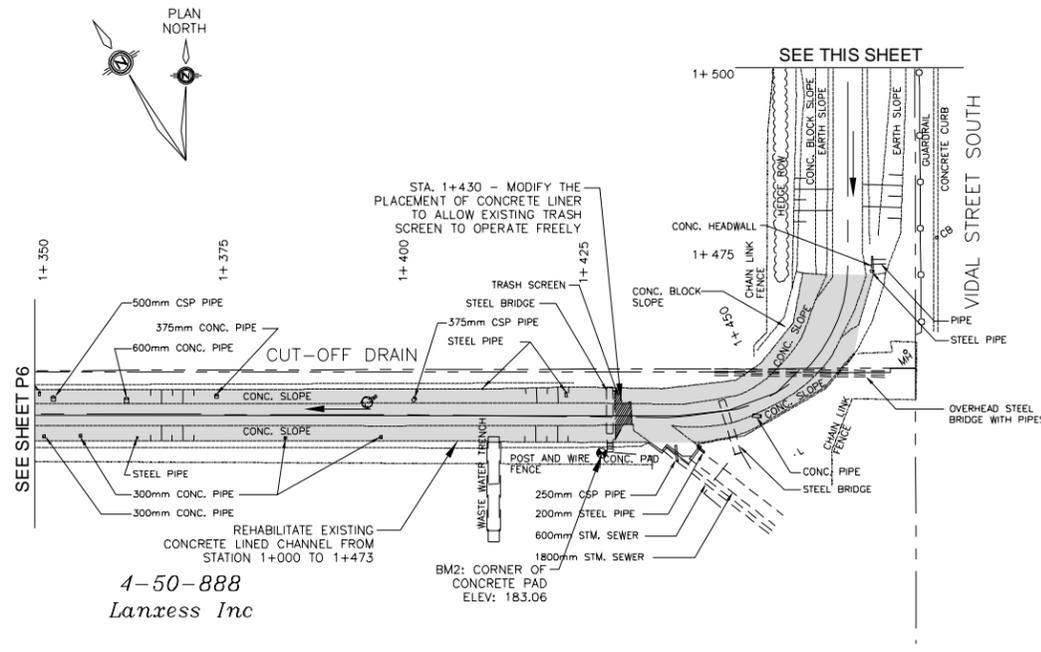
**CUT-OFF DRAIN
 PLAN AND PROFILE
 FROM STA. 0+960 TO STA. 1+350**

PROJECT NO.
08-8845

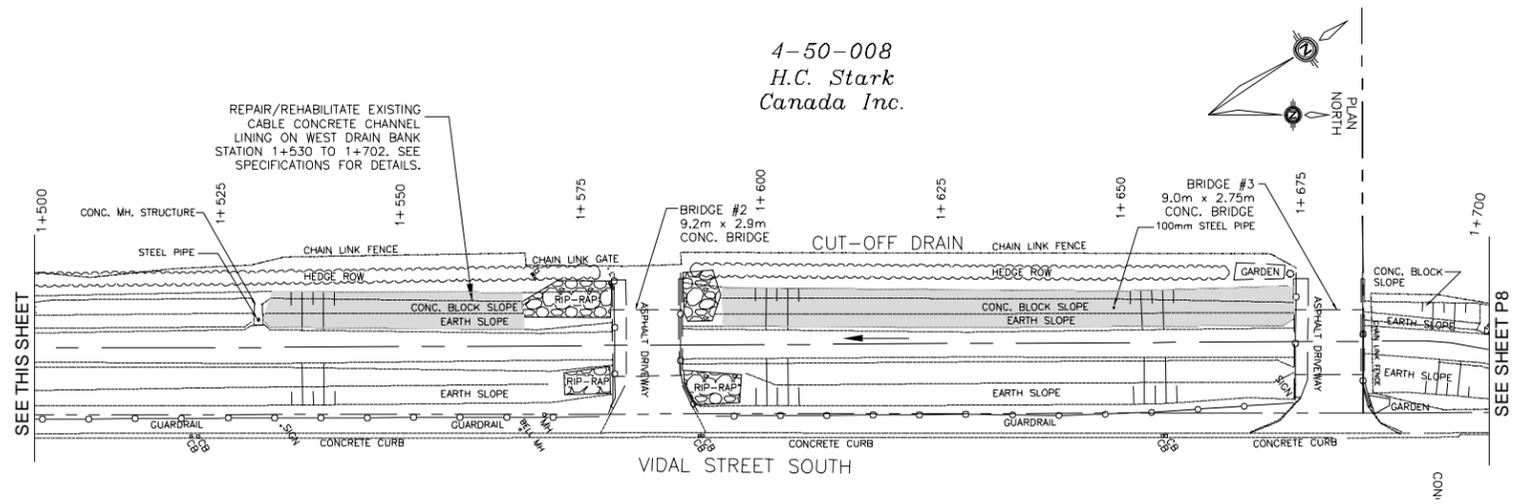
SHEET NO.
06 of 50

DILLON CONSULTING LIMITED, 10 FIFTH STREET SOUTH, CHATHAM, ONTARIO, CANADA INC. PHONE (519) 354-7800, FAX (519) 354-2050

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PLAN

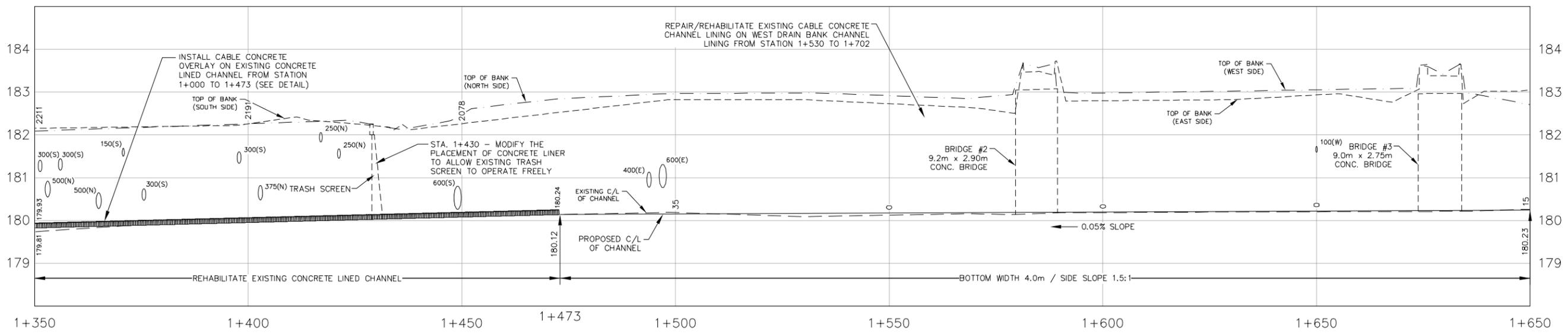


PLAN

LEGEND
 12 - mm CUT FROM EXISTING BOTTOM

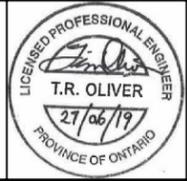
SCALES

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 1:1000 (11x17) 1:100 (11x17)



PROFILE

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1	PRELIMINARY REPORT CLIENT REVIEW	30 MAR 12	JJT	

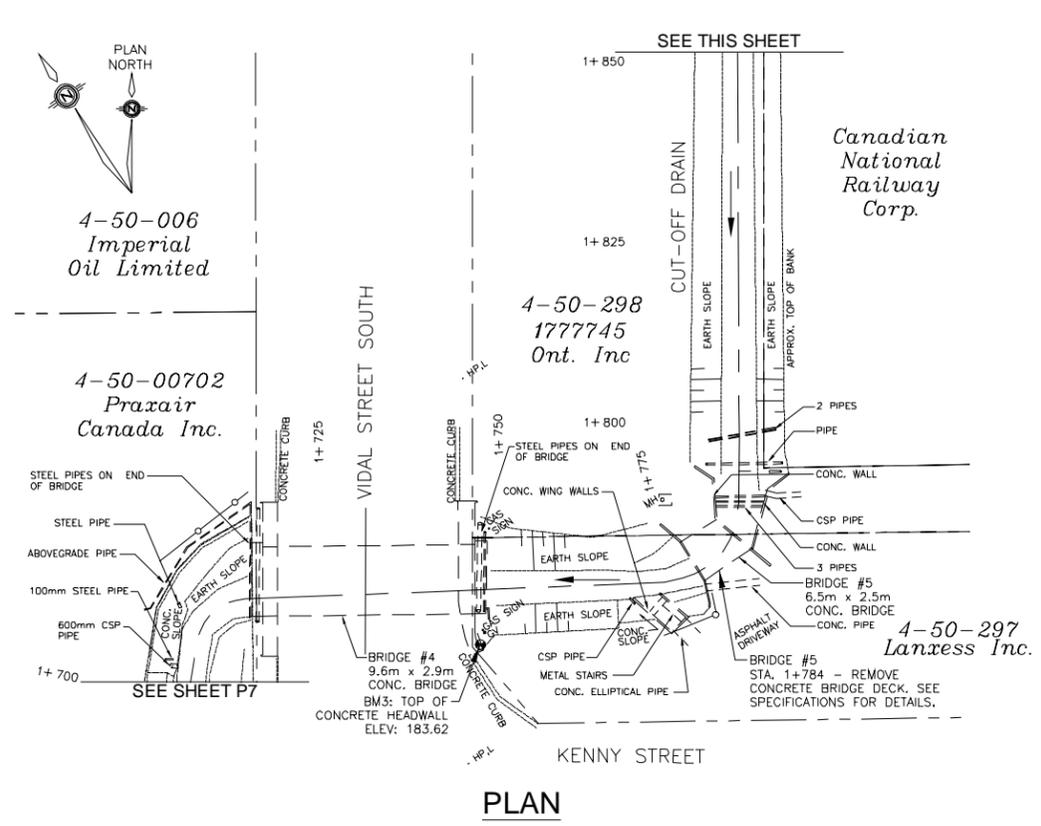
Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B'
 City of Sarnia

**CUT-OFF DRAIN
 PLAN AND PROFILE
 FROM STA. 1+350 TO STA. 1+700**

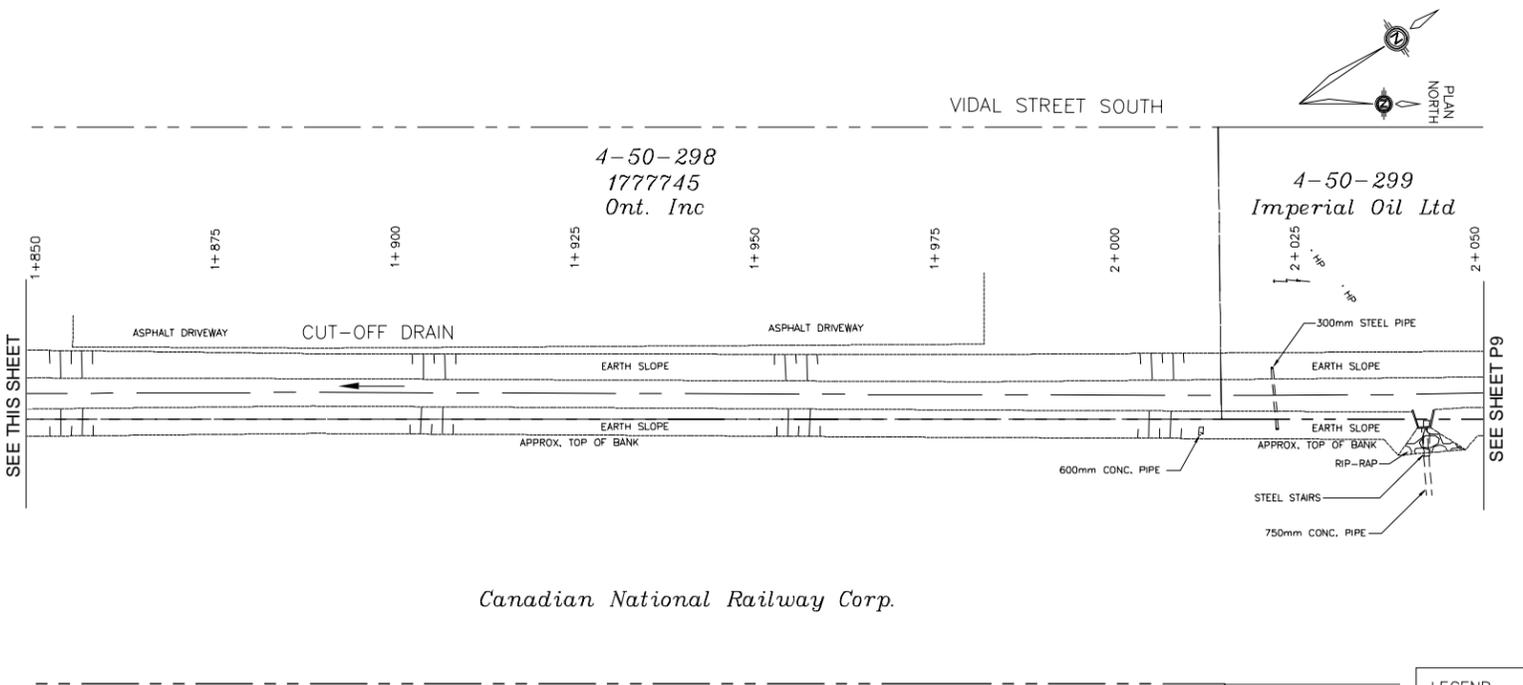
PROJECT NO. 08-8845
 SHEET NO. 07 of 50

DILLON CONSULTING LIMITED, 10 FIFTH STREET SOUTH, CHATHAM, ONTARIO, N7M 4V1, PHONE (519) 354-7800, FAX (519) 354-2050

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PLAN

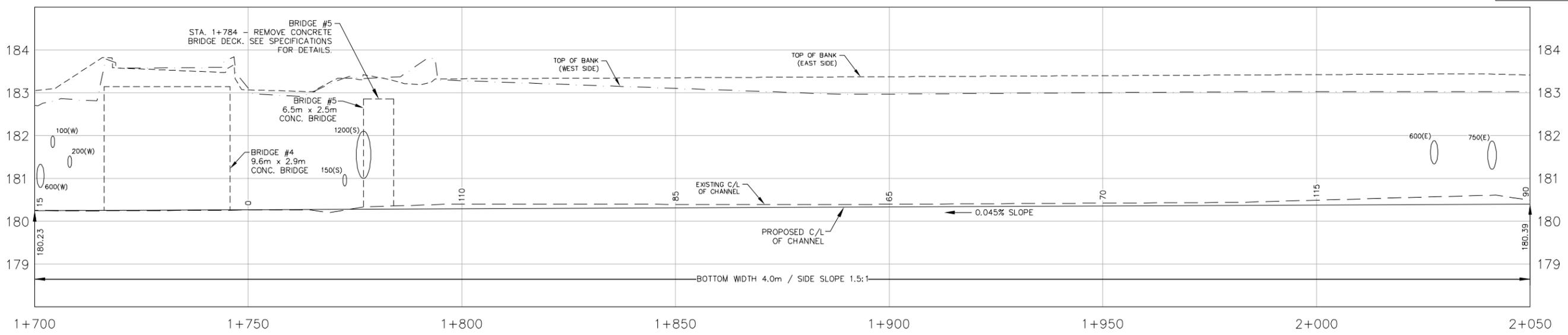


PLAN

LEGEND
 15 - mm CUT FROM EXISTING BOTTOM

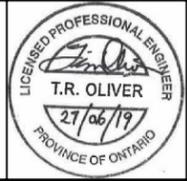
SCALES

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HORIZONTAL	VERTICAL
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1:1000 (11x17)	1:100 (11x17)



PROFILE

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1	PRELIMINARY REPORT CLIENT REVIEW	30 MAR 12	JJT	

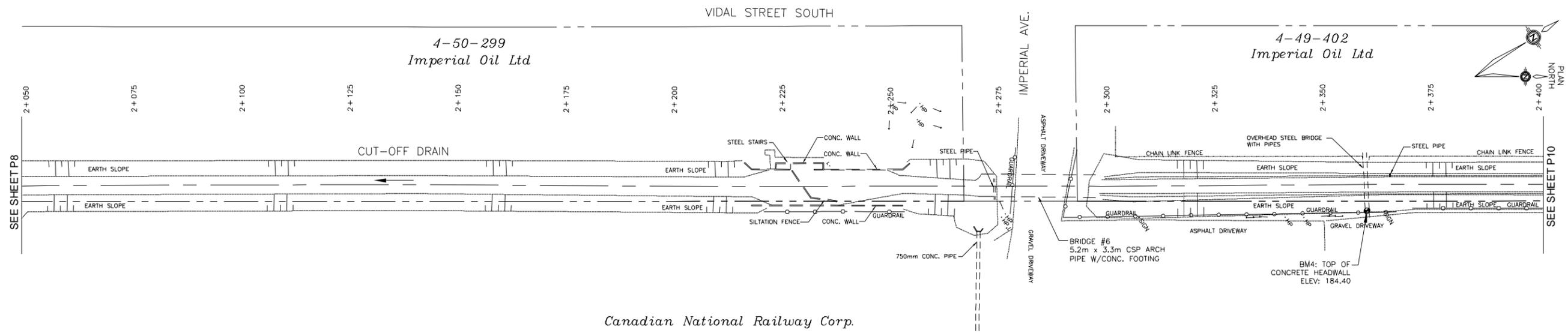
Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B'
 City of Sarnia

**CUT-OFF DRAIN
 PLAN AND PROFILE
 FROM STA. 1+700 TO STA. 2+050**

PROJ. CT NO. 08-8845
 SHEET NO. 08 of 50

DILLON CONSULTING LIMITED, 10 FIFTH STREET SOUTH, CHATHAM, ONTARIO, N7M 4V4, PHONE (519) 354-7800, FAX (519) 354-2050

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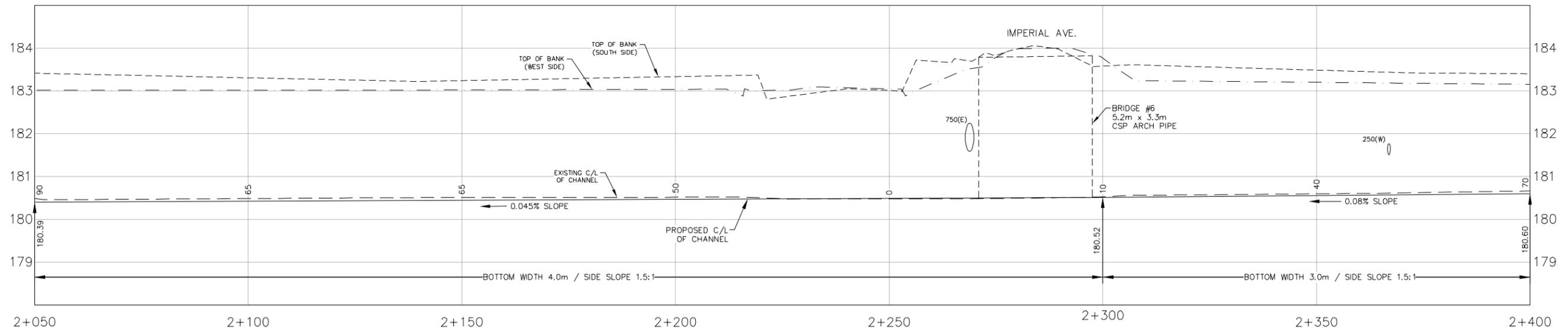


PLAN

LEGEND
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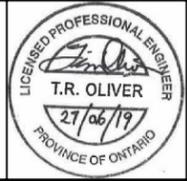
SCALES

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 HORIZONTAL VERTICAL
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PROFILE

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1	PRELIMINARY REPORT CLIENT REVIEW	30 MAR 12	JJT	

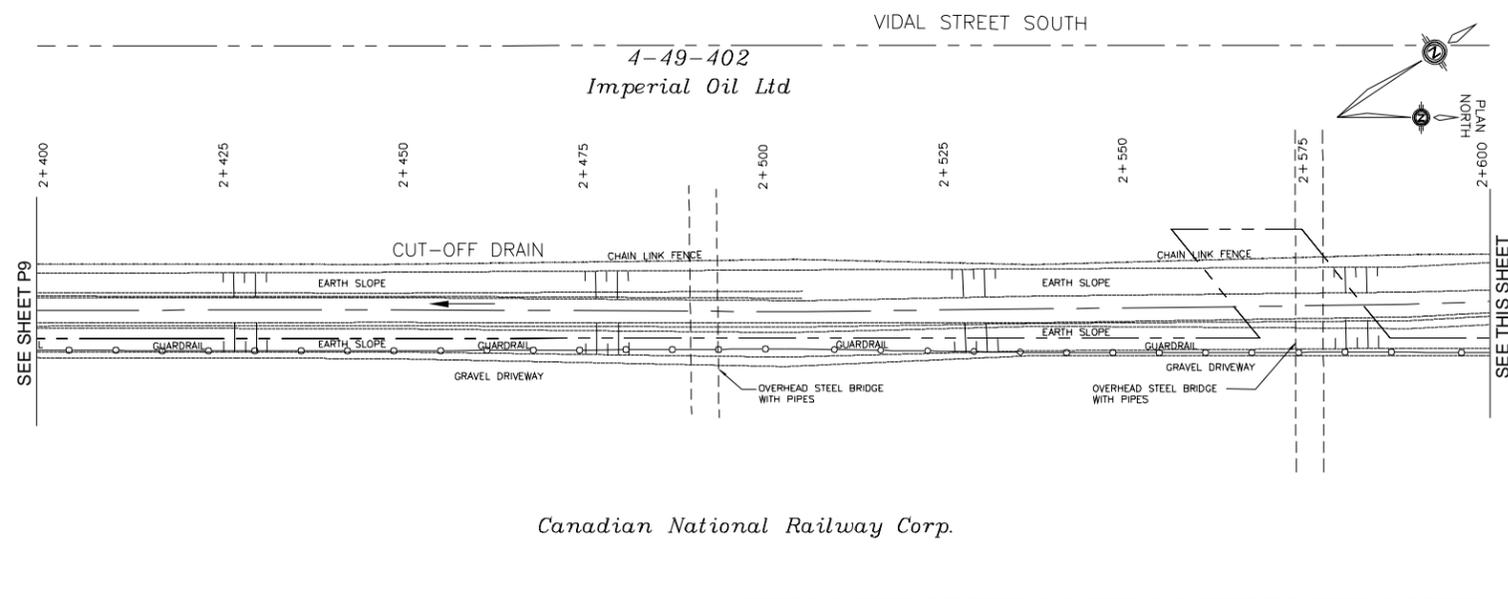
Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B'
 City of Sarnia

**CUT-OFF DRAIN
 PLAN AND PROFILE
 FROM STA. 2+050 TO STA. 2+400**

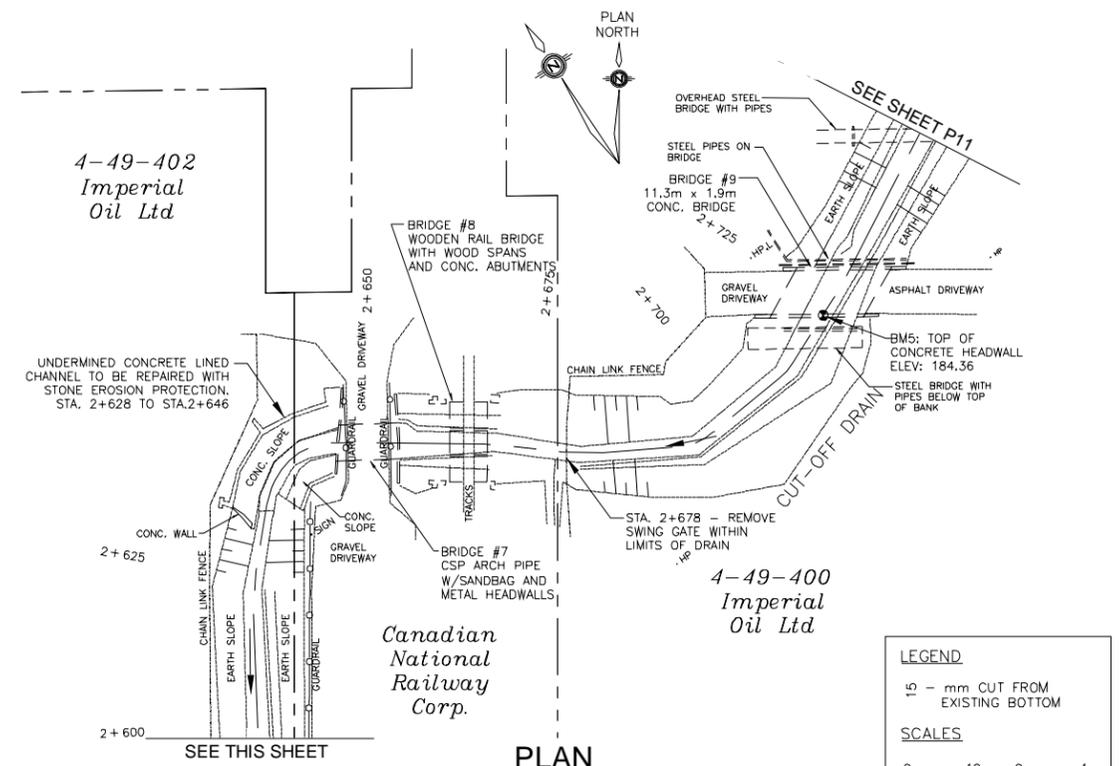
PROJECT NO. 08-8845
 SHEET NO. 09 of 50

DILLON CONSULTING LIMITED, 10 FIFTH STREET SOUTH, CHATHAM, ONTARIO, N7M 4V4, PHONE (519) 354-7800, FAX (519) 354-2050

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PLAN

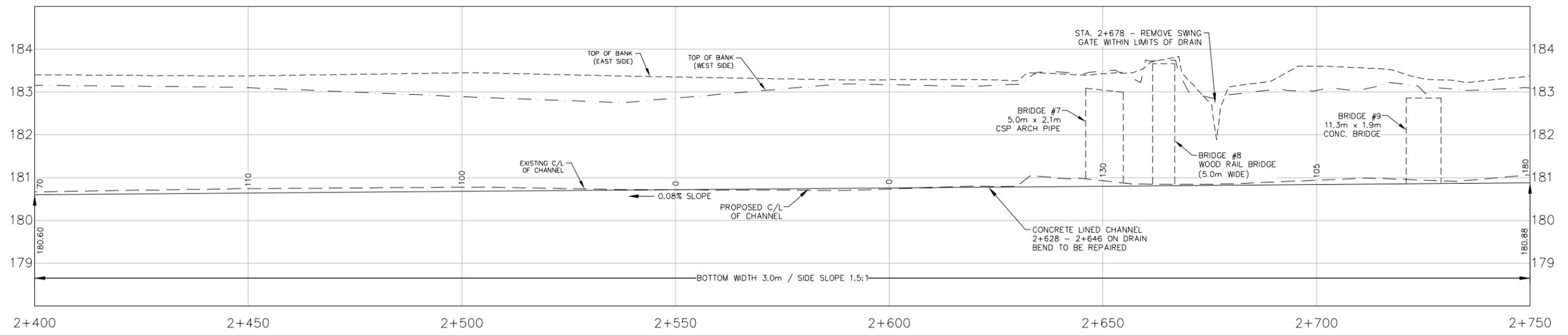


PLAN

LEGEND
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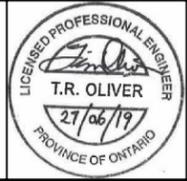
SCALES

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 1:500 (22x34) 1:50 (22x34)
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PROFILE

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1	PRELIMINARY REPORT CLIENT REVIEW	30 MAR 12	JJT	

Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B'
 City of Sarnia

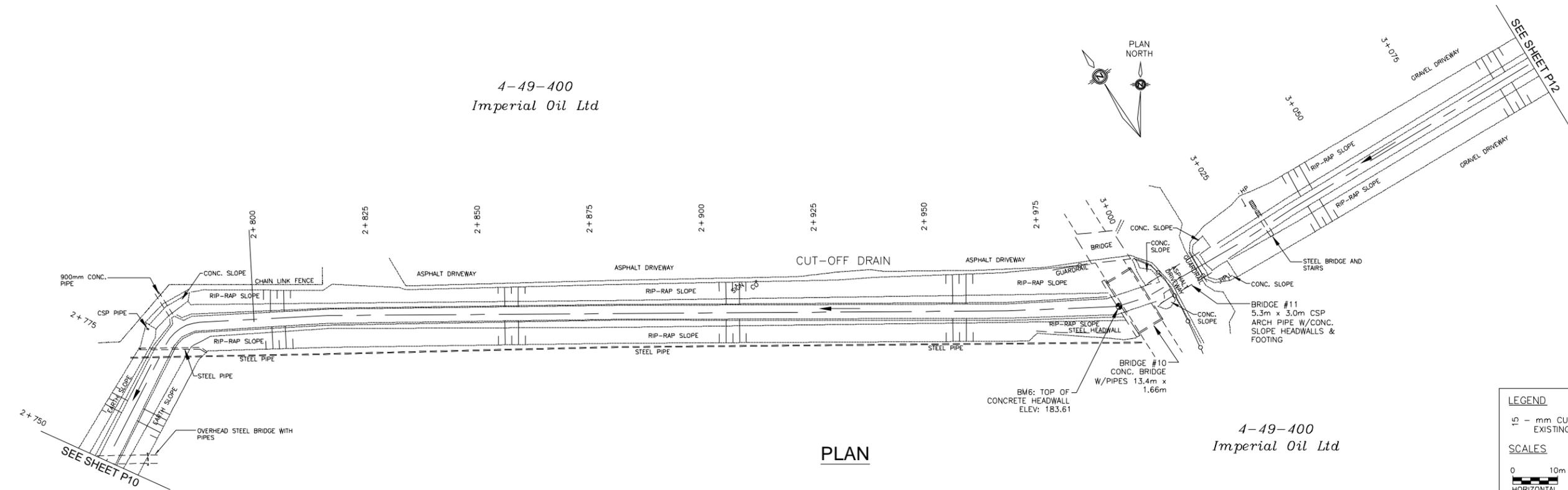
**CUT-OFF DRAIN
 PLAN AND PROFILE
 FROM STA. 2+400 TO STA. 2+750**

PROJECT NO. 08-8845
 SHEET NO. 10 of 50

DILLON CONSULTING LIMITED, 10 FIFTH STREET SOUTH, CHATHAM, ONTARIO, N7M 4V4, PHONE (519) 354-7800, FAX (519) 354-2050

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Imperial Oil Ltd

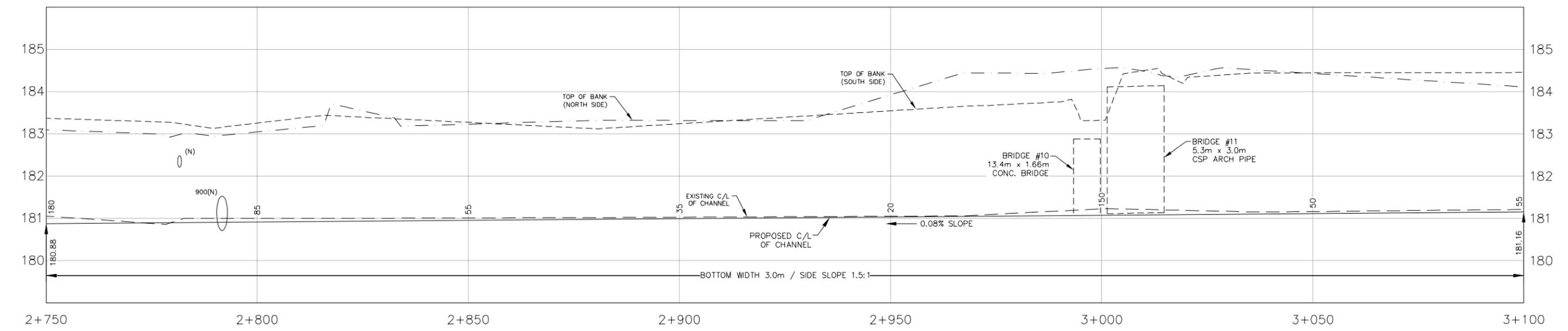


4-49-400
Imperial Oil Ltd

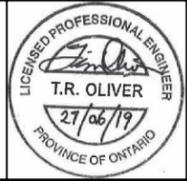
LEGEND
 15 - mm CUT FROM EXISTING BOTTOM

SCALES

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HORIZONTAL	VERTICAL
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1:1000 (11x17)	1:100 (11x17)



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1	PRELIMINARY REPORT CLIENT REVIEW	30 MAR 12	JJT	AS SHOWN

Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B'
 City of Sarnia

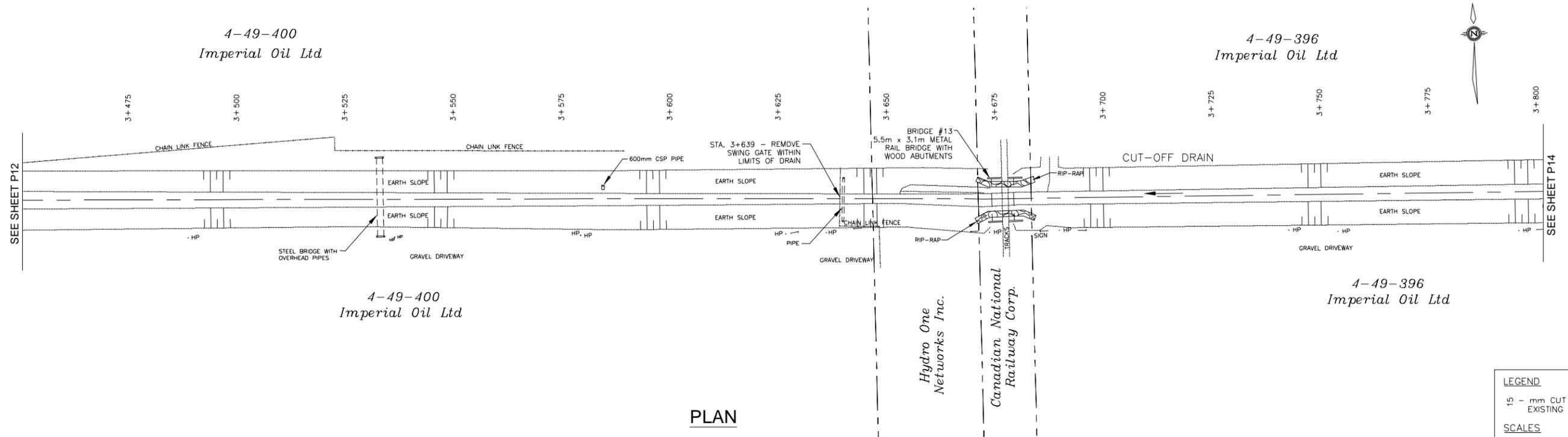
**CUT-OFF DRAIN
 PLAN AND PROFILE
 FROM STA. 2+750 TO STA. 3+100**

PROJECT NO.
08-8845

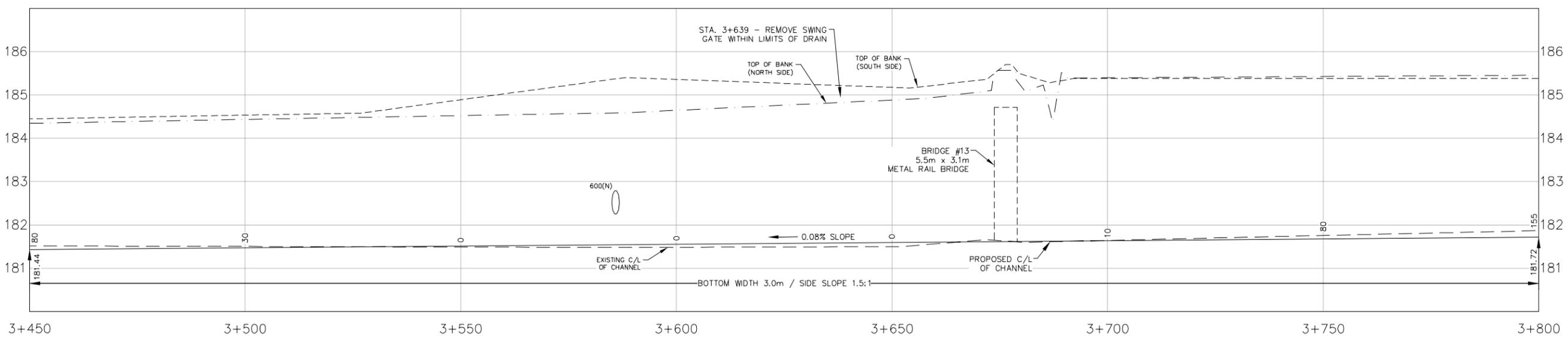
SHEET NO.
11 of 50

DILLON CONSULTING LIMITED, 10 FIFTH STREET SOUTH, CHATHAM, ONTARIO, N7M 4V4, PHONE (519) 354-7800, FAX (519) 354-2050

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PLAN



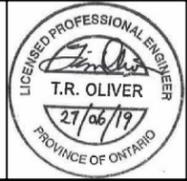
PROFILE

LEGEND
 15 - mm CUT FROM EXISTING BOTTOM

SCALES

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 HORIZONTAL VERTICAL
 1:500 (22x34) 1:50 (22x34)
 1:1000 (11x17) 1:100 (11x17)

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1	PRELIMINARY REPORT CLIENT REVIEW	30 MAR 12	JJT

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TRO	JJT
DRAWN	CHECKED BY
JMM, TKS	FRF
DATE June 27, 2019	
SCALE AS SHOWN	

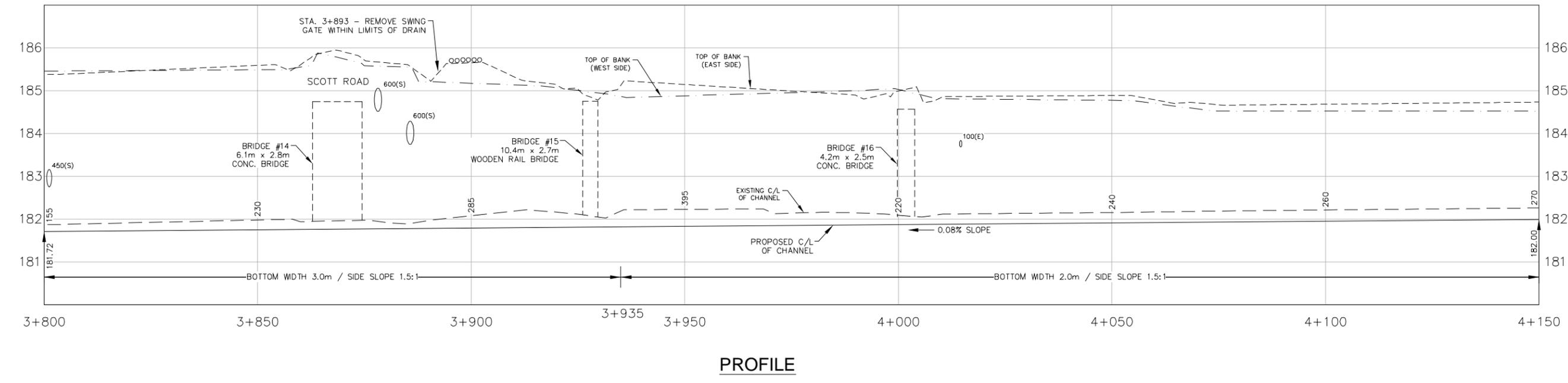
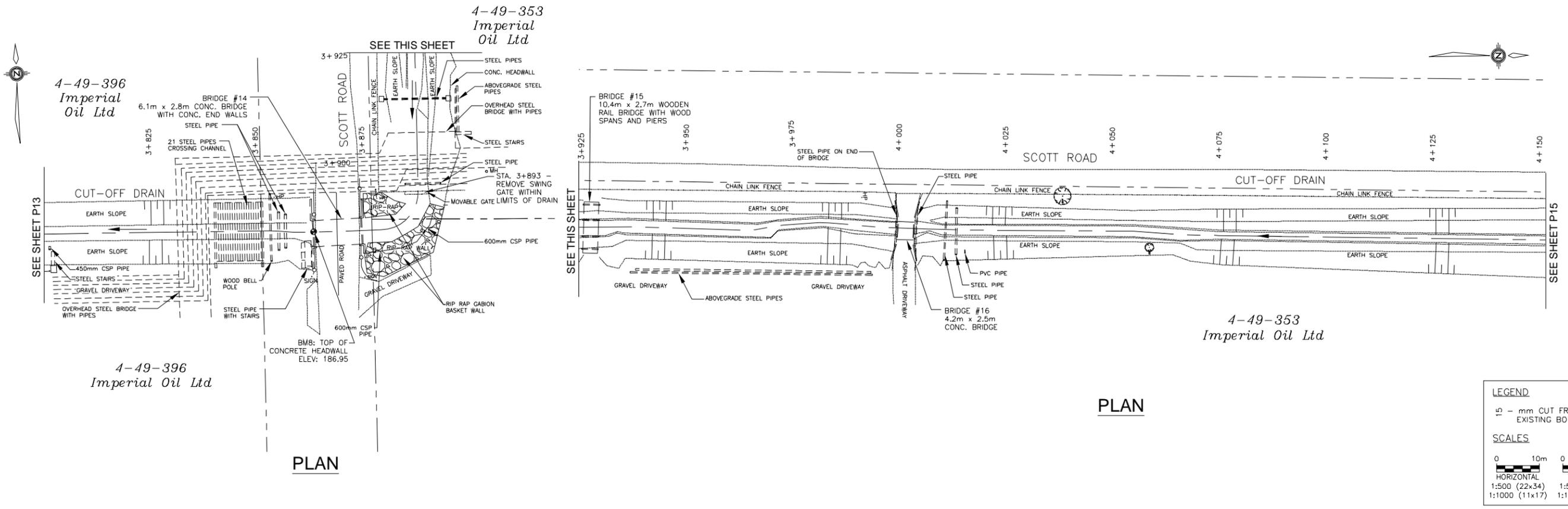
Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B'
 City of Sarnia

**CUT-OFF DRAIN
 PLAN AND PROFILE
 FROM STA. 3+450 TO STA. 3+800**

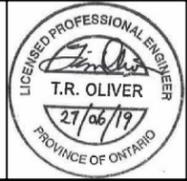
PROJECT NO.
08-8845

SHEET NO.
13 of 50

DILLON CONSULTING LIMITED, 10 FIFTH STREET SOUTH, CHATHAM, ONTARIO, N7M 4V4, PHONE (519) 354-7800, FAX (519) 354-2050



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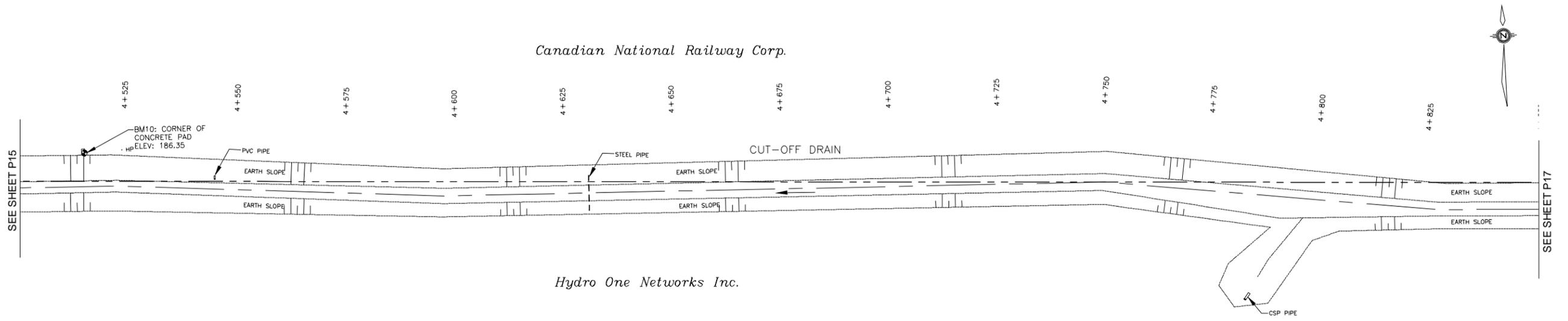
Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B'
 City of Sarnia

**CUT-OFF DRAIN
 PLAN AND PROFILE
 FROM STA. 3+800 TO STA. 4+150**

PROJ. CT NO. 08-8845
 SHEET NO. 14 of 50

DILLON CONSULTING LIMITED, 10 FIFTH STREET SOUTH, CHATHAM, ONTARIO, N7M 4V4, PHONE (519) 354-7800, FAX (519) 354-0500

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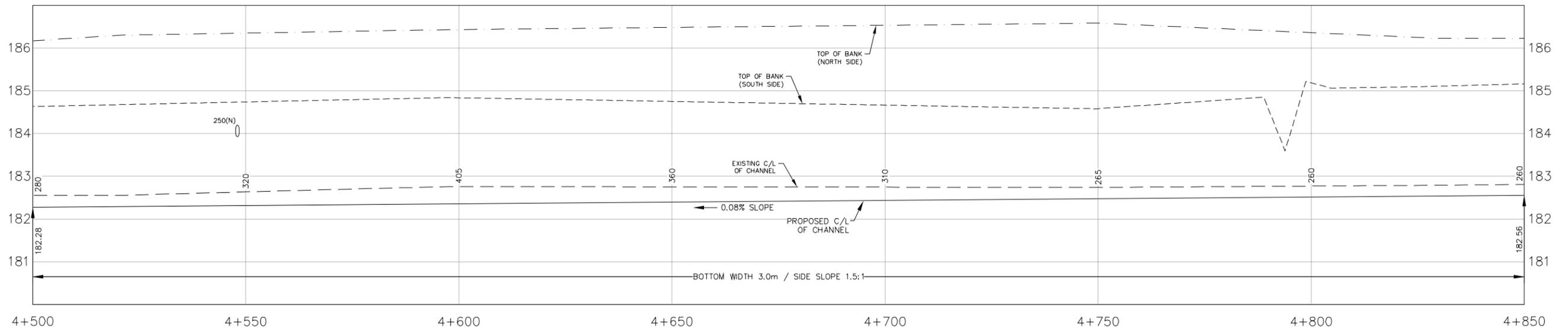
PLAN

LEGEND
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SCALES

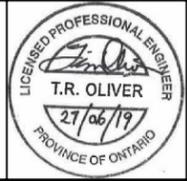
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VERTICAL: 1:50 (22x34)
 1:100 (11x17)



PROFILE

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1	PRELIMINARY REPORT CLIENT REVIEW	30 MAR 12	JJT	

DESIGN: TRO
 REVIEWED BY: JJT
 DRAWN: JMM, TKS
 CHECKED BY: FRF
 DATE: June 27, 2019
 SCALE: AS SHOWN

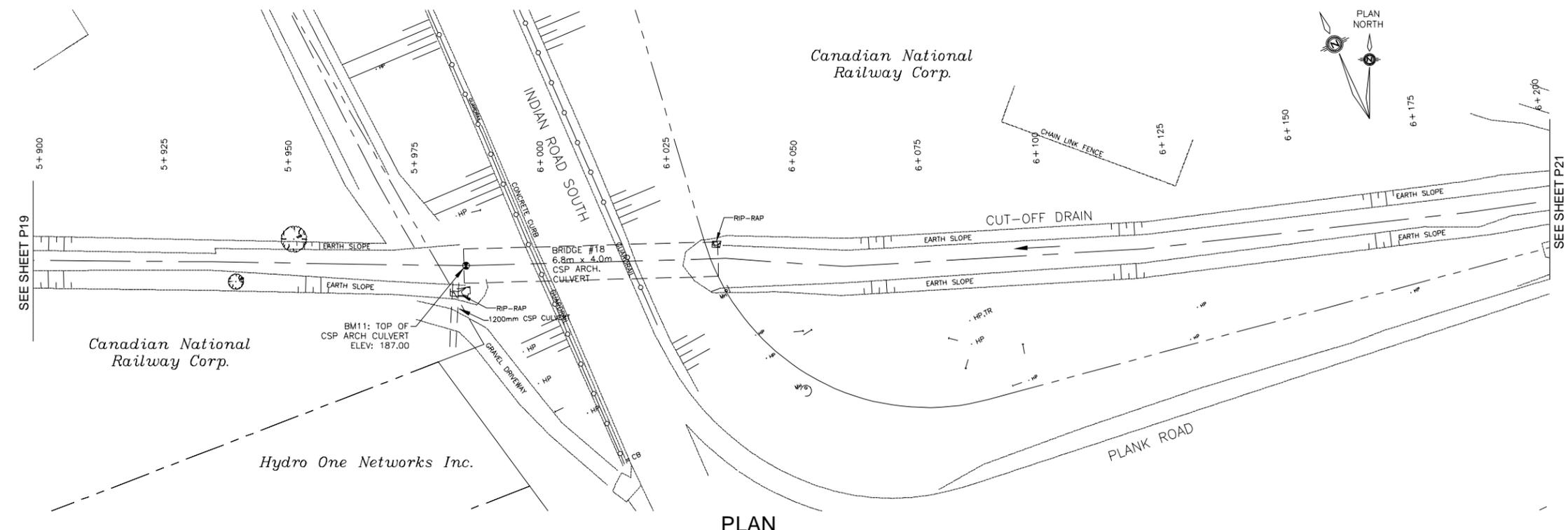
Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B'
 City of Sarnia

**CUT-OFF DRAIN
 PLAN AND PROFILE
 FROM STA. 4+500 TO STA. 4+850**

PROJECT NO. 08-8845
 SHEET NO. 16 of 50

DILLON CONSULTING LIMITED, 10 FIFTH STREET SOUTH, CHATHAM, ONTARIO, N7M 4V4, PHONE (519) 354-7800, FAX (519) 354-2050

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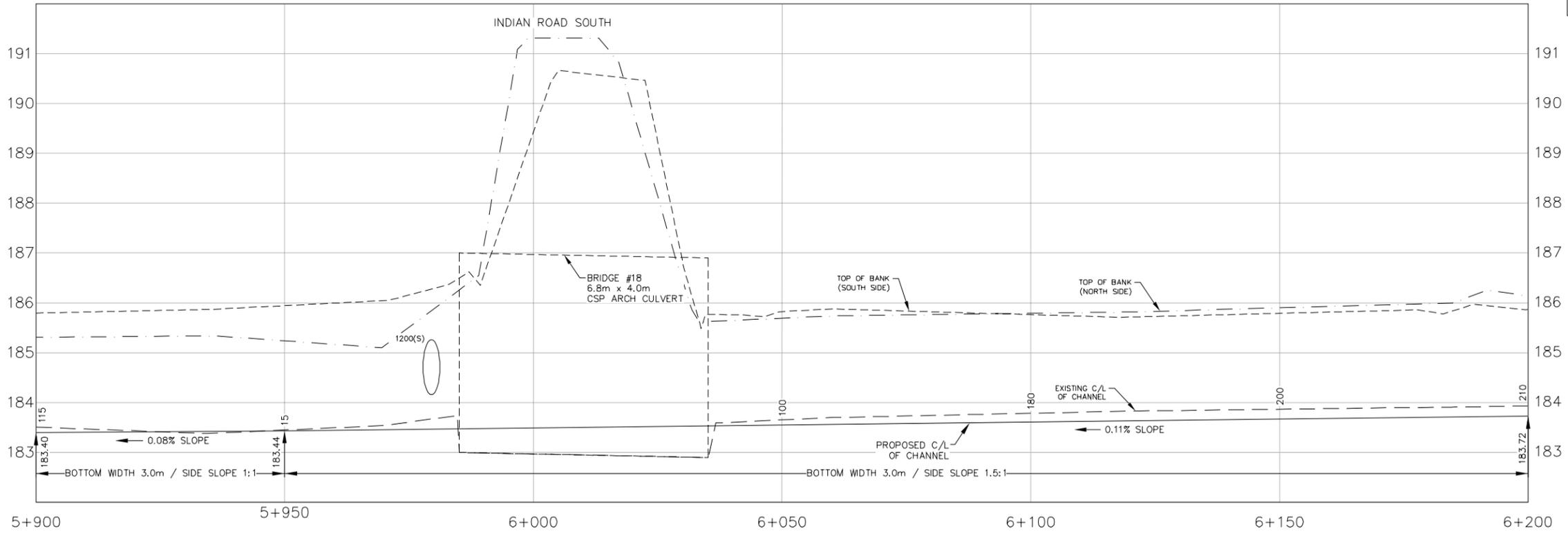


PLAN

LEGEND
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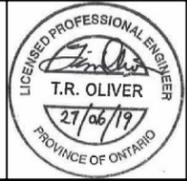
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1:1000 (11x17)		1:100 (11x17)	



PROFILE

Conditions of Use
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No.	ISSUE FOR	DATE	BY	SCALE
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4	REVISED FINAL REPORT CLIENT REVIEW	1 MAY 19	TRO	
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1	PRELIMINARY REPORT CLIENT REVIEW	30 MAR 12	JJT	

Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B'
 City of Sarnia

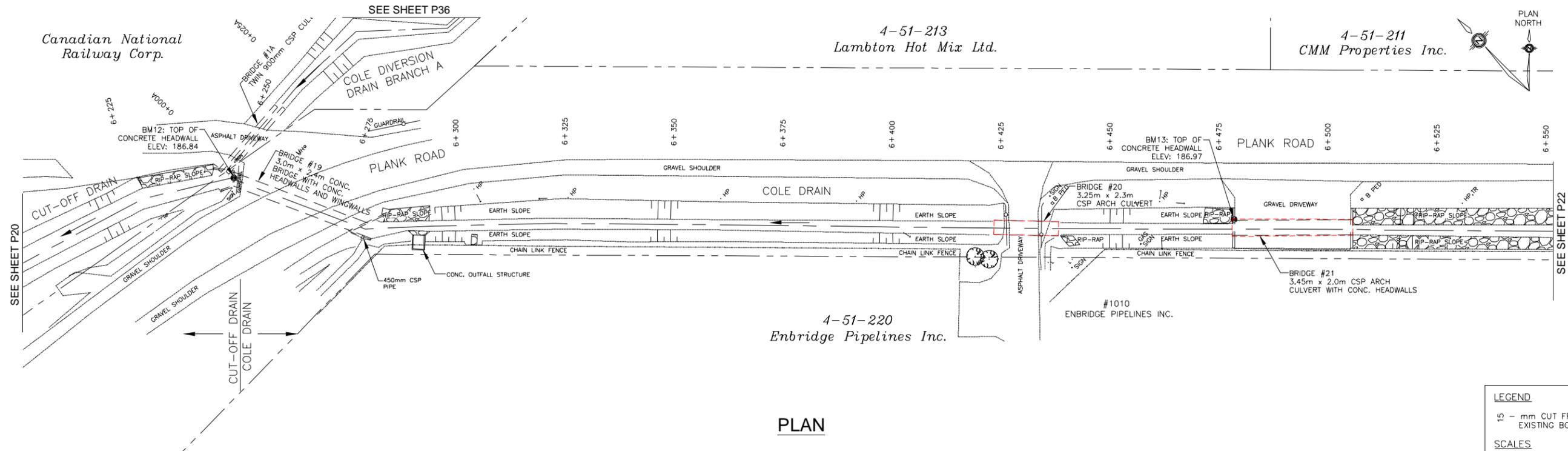
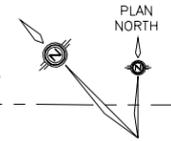
**CUT-OFF DRAIN
 PLAN AND PROFILE
 FROM STA. 5+900 TO STA. 6+200**

PROJECT NO. 08-8845
 SHEET NO. 20 of 50

Canadian National
Railway Corp.

4-51-213
Lambton Hot Mix Ltd.

4-51-211
CMM Properties Inc.

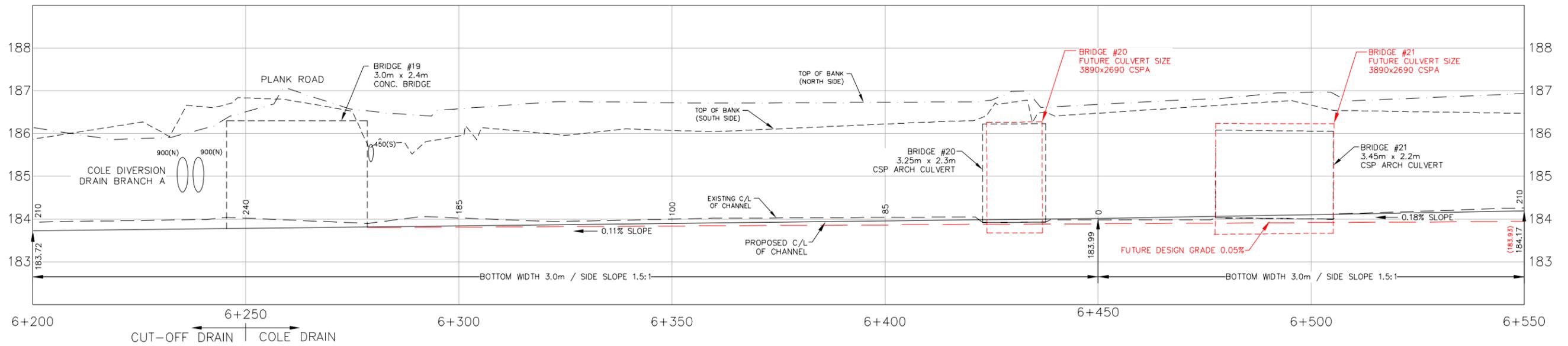


PLAN

LEGEND
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SCALES

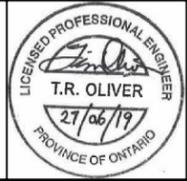
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PROFILE

DILLON CONSULTING LIMITED, 10 FIFTH STREET SOUTH, CHATHAM, ONTARIO, N7M 4V4, PHONE (519) 354-7800, FAX (519) 354-2050

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1	PRELIMINARY REPORT CLIENT REVIEW	30 MAR 12	JJT	

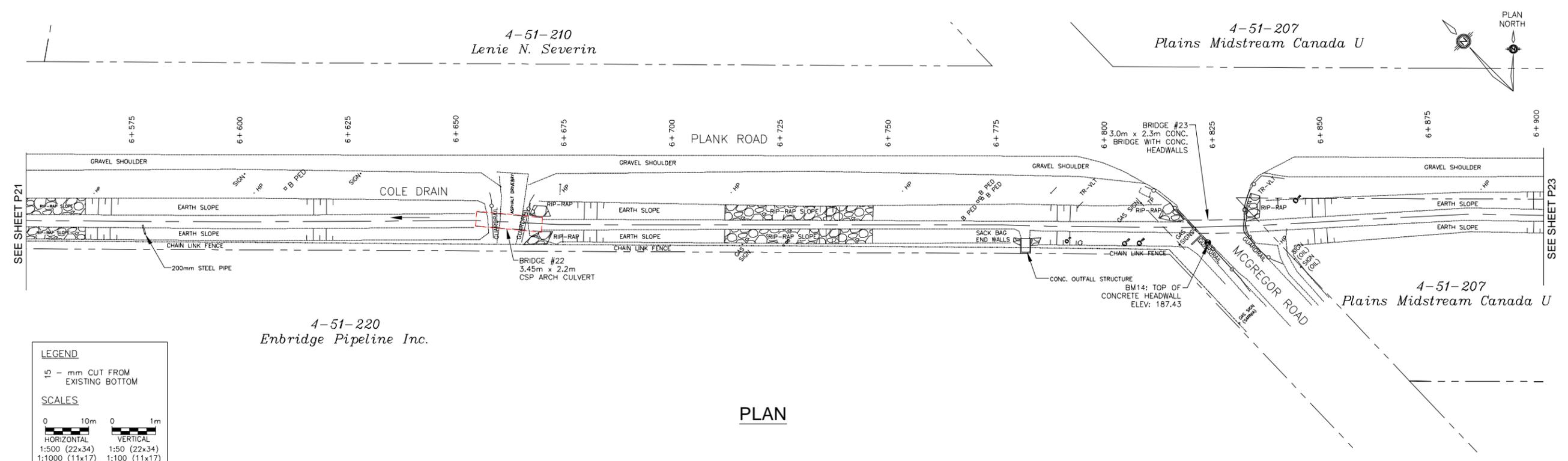
Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B'
City of Sarnia

**CUT-OFF DRAIN / COLE DRAIN
PLAN AND PROFILE
FROM STA. 6+200 TO STA. 6+550**

PROJECT NO. 08-8845
SHEET NO. 21 of 50

DILLON CONSULTING LIMITED, 10 FIFTH STREET SOUTH, CHATHAM, ONTARIO, N7M 4V4, PHONE (519) 354-7800, FAX (519) 354-2050

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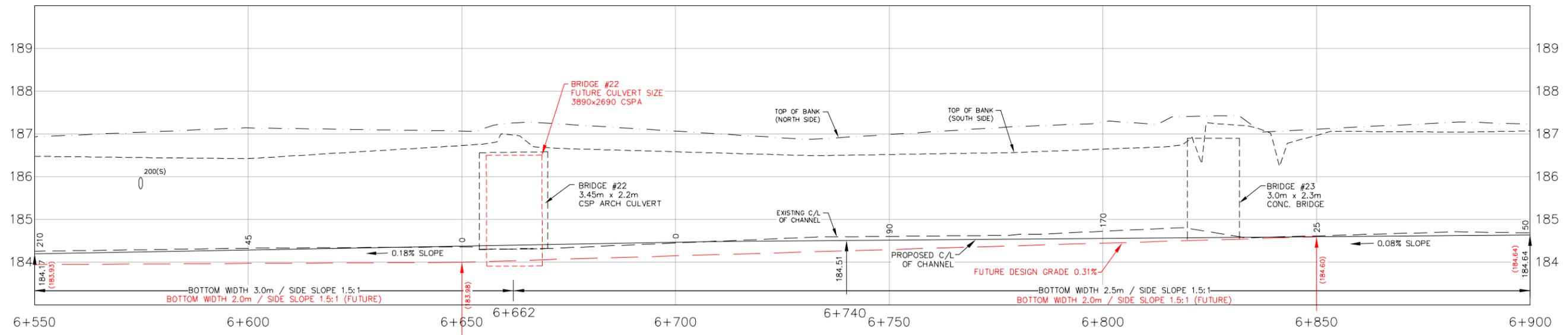


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SCALES

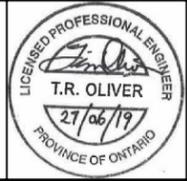
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HORIZONTAL	VERTICAL
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1:1000 (11x17)	1:100 (11x17)

PLAN



PROFILE

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1	PRELIMINARY REPORT CLIENT REVIEW	30 MAR 12	JJT	

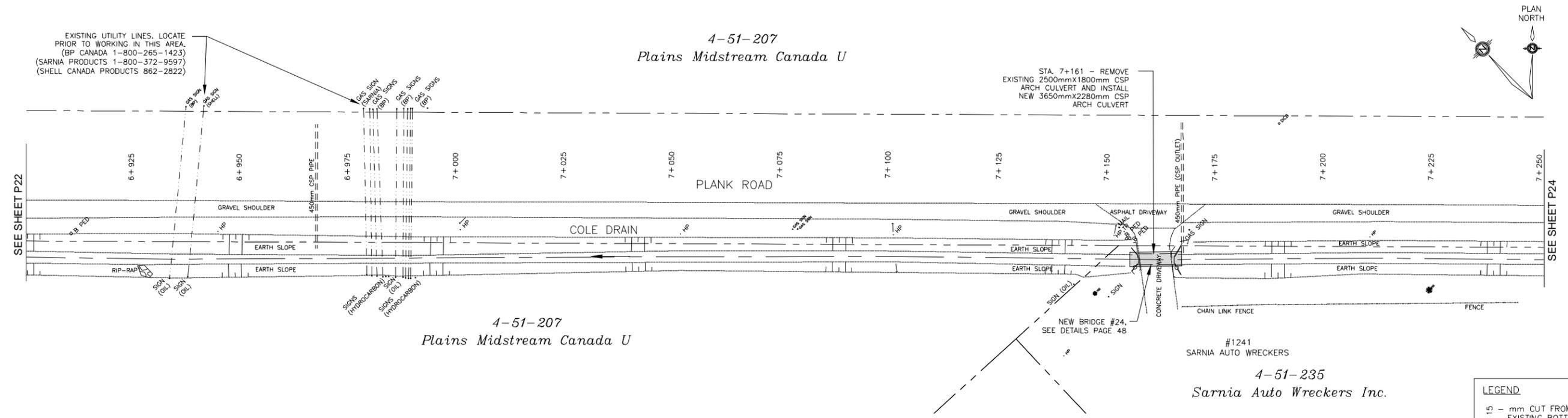
Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B'
 City of Sarnia

**COLE DRAIN
 PLAN AND PROFILE
 FROM STA. 6+550 TO STA. 6+900**

PROJECT NO. 08-8845
 SHEET NO. 22 of 50

DILLON CONSULTING LIMITED, 10 FIFTH STREET SOUTH, CHATHAM, ONTARIO, N7M 4V4, PHONE (519) 354-7800, FAX (519) 354-2050

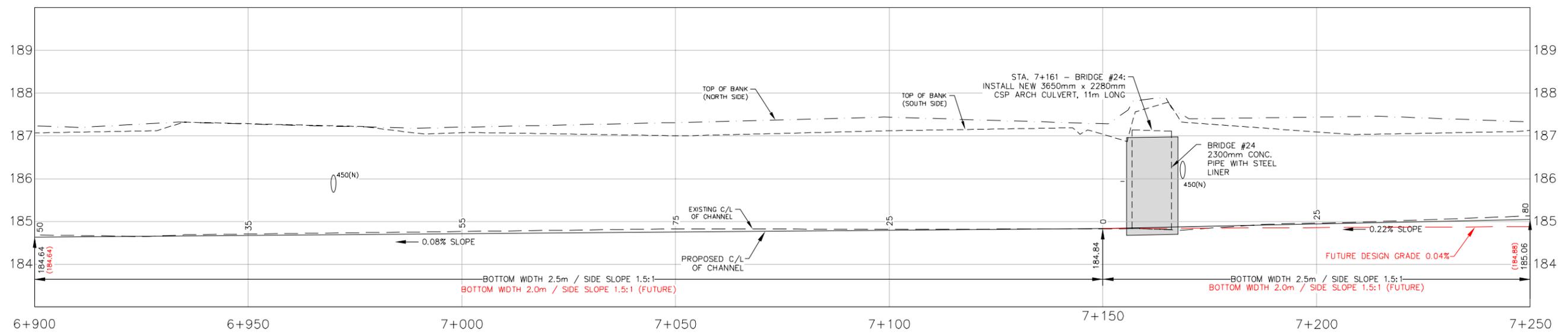
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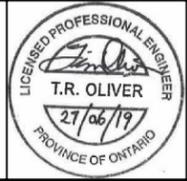
LEGEND
 □ - mm CUT FROM EXISTING BOTTOM

SCALES

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1:1000 (11x17)	1:100 (11x17)



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Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B'
 City of Sarnia

**COLE DRAIN
 PLAN AND PROFILE
 FROM STA. 6+900 TO STA. 7+250**

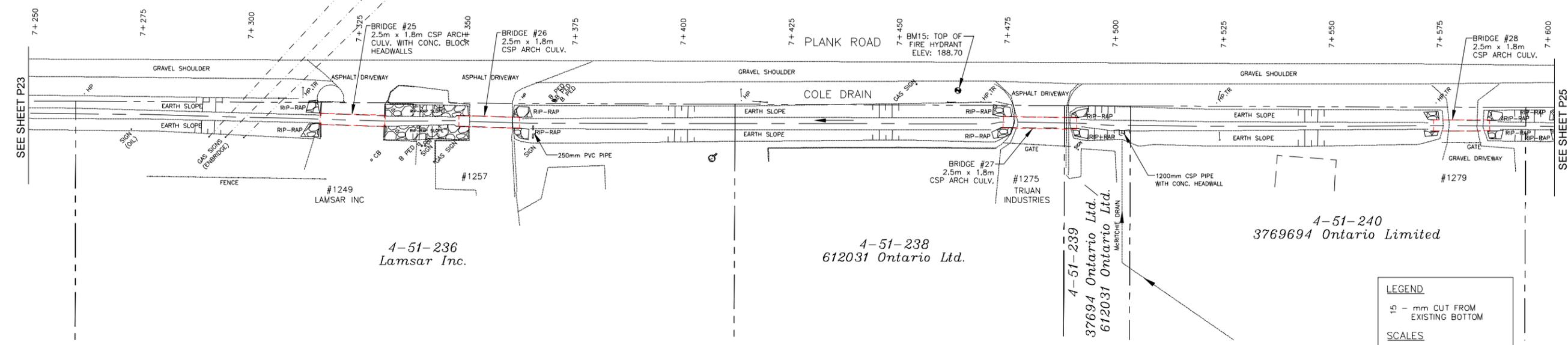
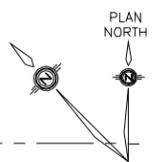
PROJECT NO.
08-8845

SHEET NO.
23 of 50

DILLON CONSULTING LIMITED, 10 FIFTH STREET SOUTH, CHATHAM, ONTARIO, N7M 4V4, PHONE (519) 354-7800, FAX (519) 354-2050

EXISTING UTILITY LINES, LOCATE PRIOR TO WORKING IN THIS AREA.
(SARNIA PRODUCTS 1-800-372-9597)
(ENBRIDGE 1-800-400-2255)

4-51-207
Plains Midstream Canada U

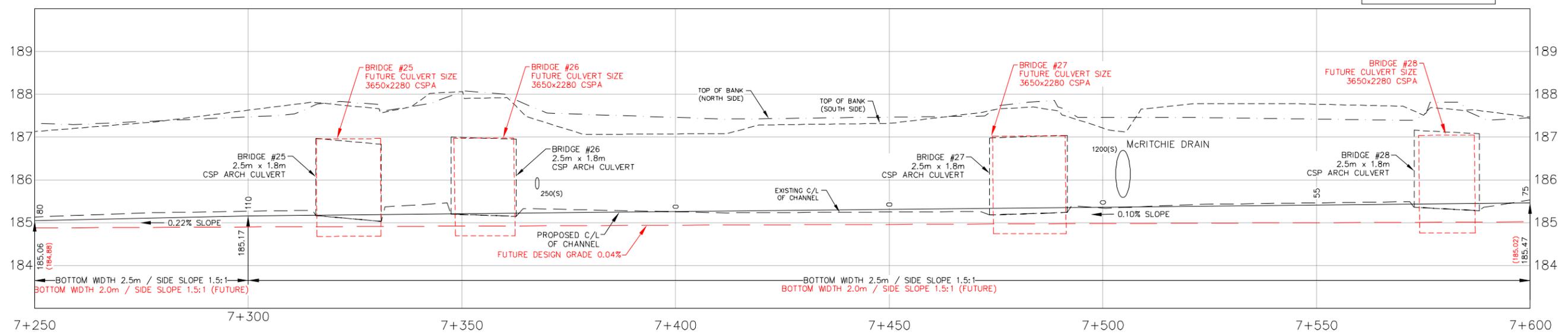


PLAN

LEGEND
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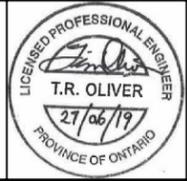
SCALES

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1:1000 (11x17)	1:100 (11x17)



PROFILE

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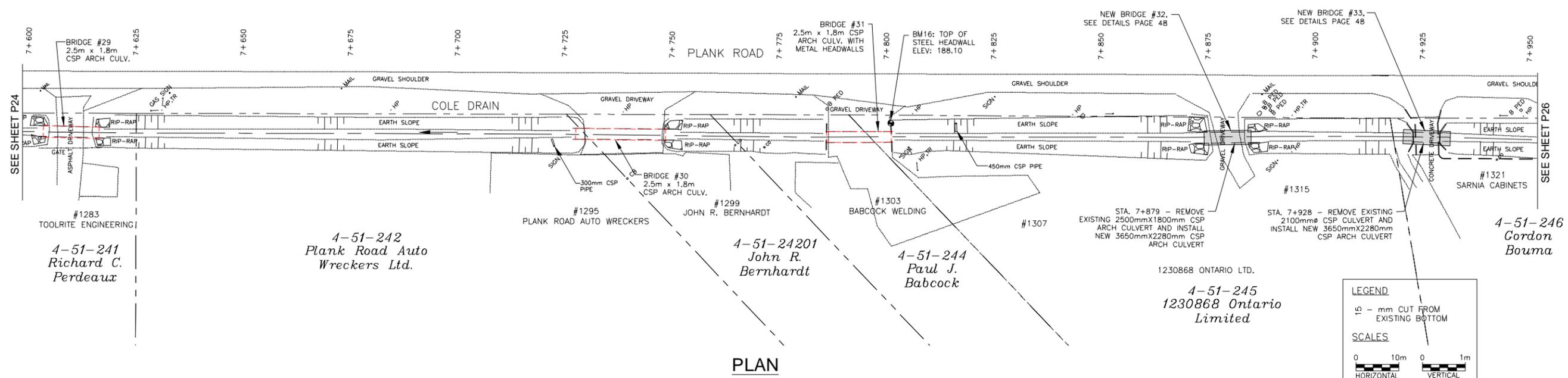


NO.	ISSUE FOR	DATE	BY	SCALE
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1	PRELIMINARY REPORT CLIENT REVIEW	30 MAR 12	JJT	

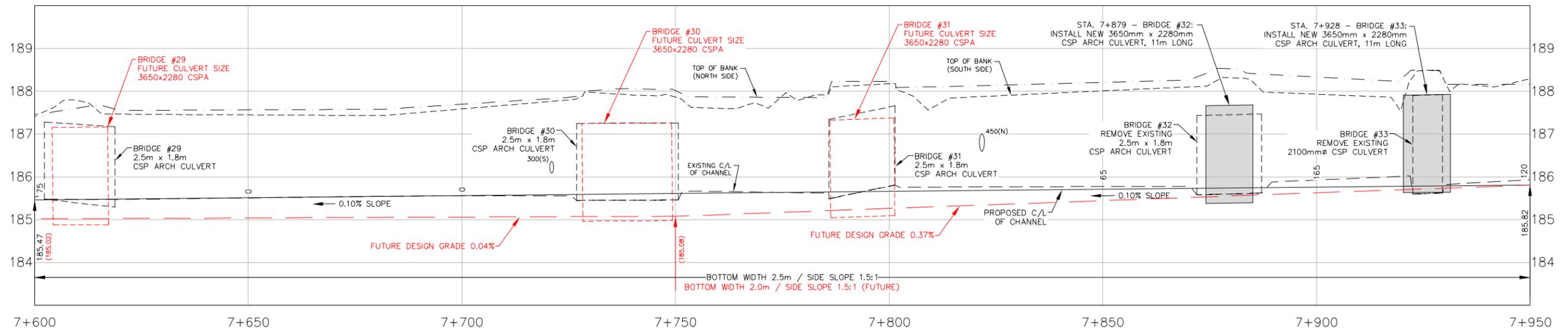
Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B'
City of Sarnia

**COLE DRAIN
PLAN AND PROFILE
FROM STA. 7+250 TO STA. 7+600**

PROJECT NO. 08-8845
SHEET NO. 24 of 50



PLAN

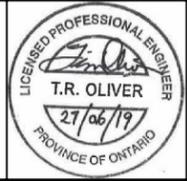


PROFILE

DILLON CONSULTING LIMITED, 10 FIFTH STREET SOUTH, CHATHAM, ONTARIO, N7M 4V4, PHONE (519) 354-7800, FAX (519) 354-0500

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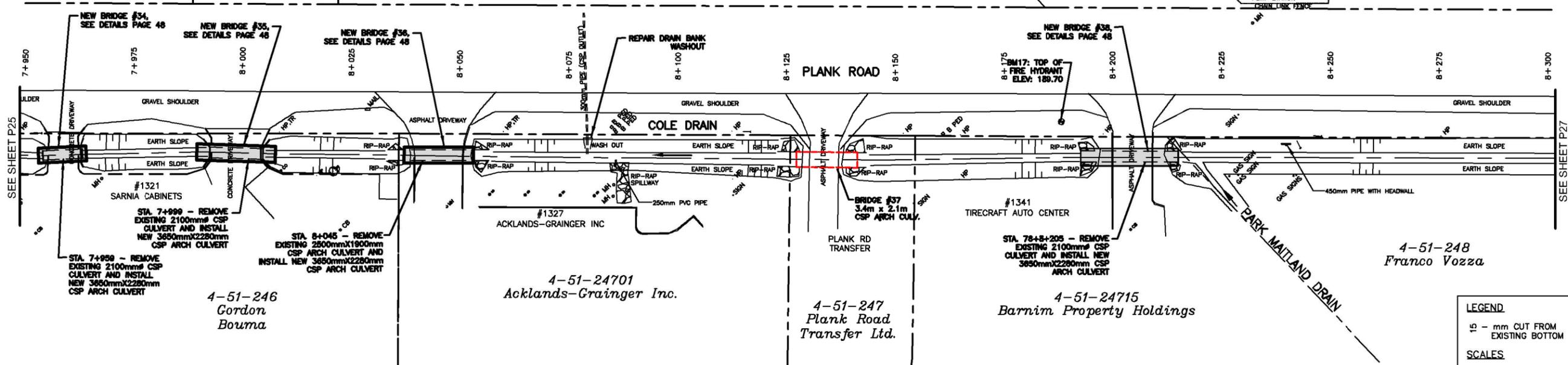
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1	PRELIMINARY REPORT CLIENT REVIEW	30 MAR 12	JJT	

DESIGN: TRO	REVIEWED BY: JJT	Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B' City of Sarnia	PROJECT NO.: 08-8845
DRAWN: JMM, TKS	CHECKED BY: FRF		SHEET NO.: 25 of 50
COLE DRAIN PLAN AND PROFILE FROM STA. 7+600 TO STA. 7+950			

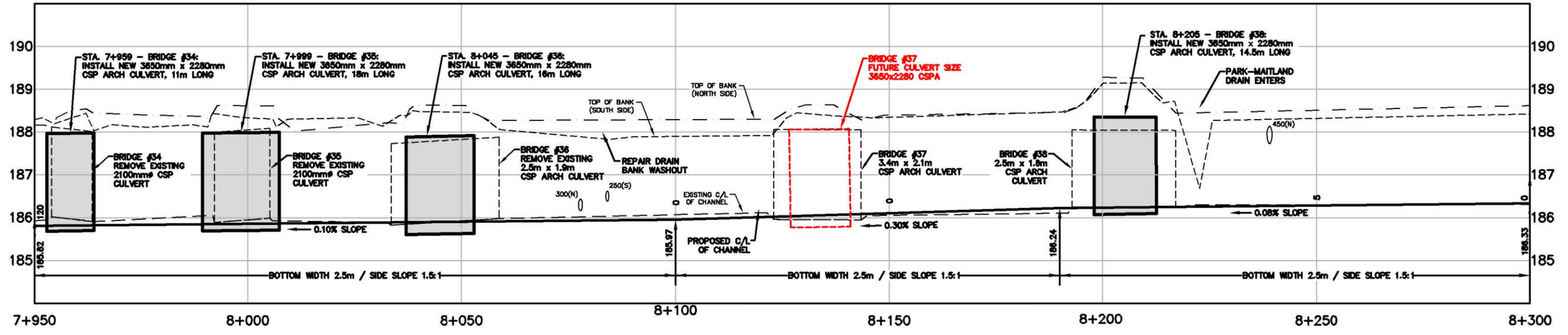
DILLON CONSULTING LIMITED, 10 FIFTH STREET SOUTH, CHATHAM, ONTARIO, N7M 4V4, PHONE (519) 354-7800, FAX (519) 354-0050

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4-51-207
Plains Midstream Canada U



PLAN



PROFILE

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2	PRELIMINARY REPORT SUBMISSION	06 DEC 12	JIT	
1	PRELIMINARY REPORT CLIENT REVIEW	30 MAR 12	JIT	

DESIGN	REVIEWED BY
TRO	JIT
DRAWN	CHECKED BY
JMM, TKS	FRF

DATE: June 27, 2019

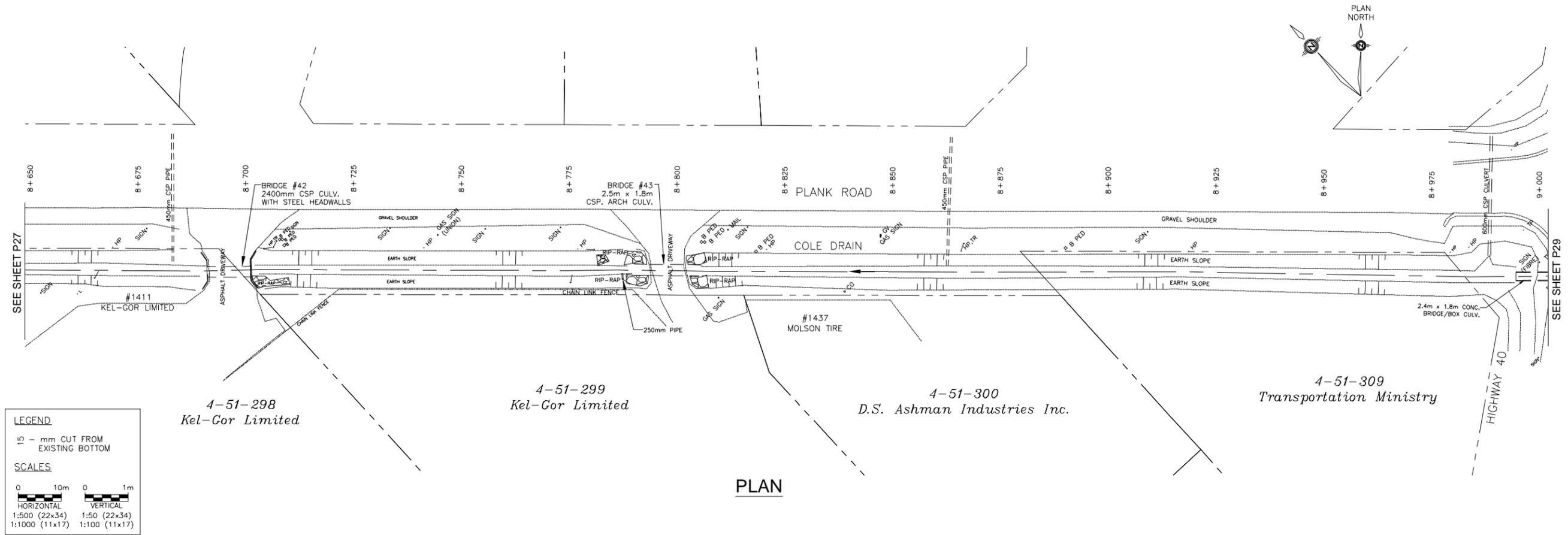
Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B'
City of Sarnia

**COLE DRAIN
PLAN AND PROFILE
FROM STA. 7+950 TO STA. 8+300**

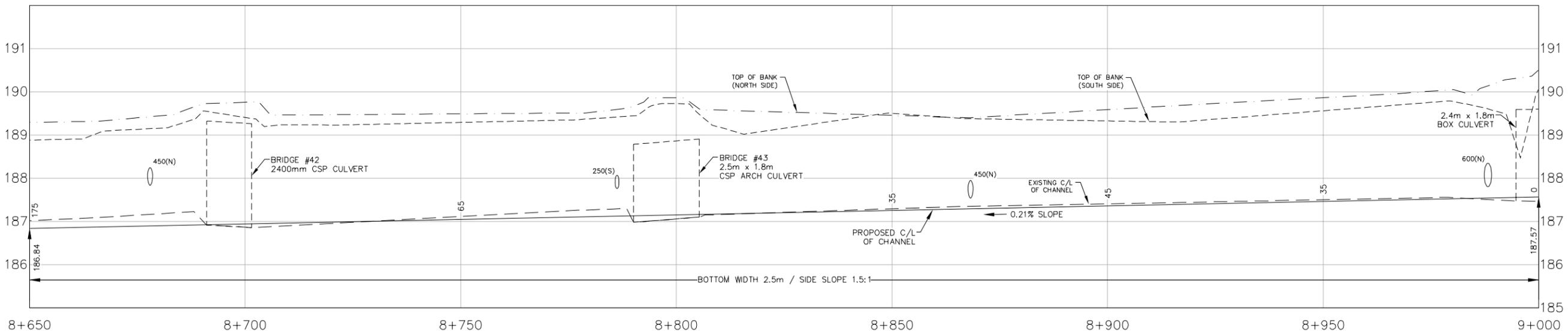
PROJECT NO. 08-8845
SHEET NO. 26 of 50

DILLON CONSULTING LIMITED, 10 FIFTH STREET SOUTH, CHATHAM, ONTARIO, N7M 4V4, PHONE (519) 354-7800, FAX (519) 354-2050

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PLAN



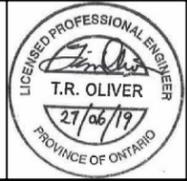
PROFILE

LEGEND
 15 - mm CUT FROM EXISTING BOTTOM

SCALES

HORIZONTAL 1:500 (22x34) 1:1000 (11x17)	VERTICAL 1:50 (22x34) 1:100 (11x17)
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1	PRELIMINARY REPORT CLIENT REVIEW	30 MAR 12	JJT	

DESIGN: TRO
 REVIEWED BY: JJT
 DRAWN: JMM, TKS
 CHECKED BY: FRF
 DATE: June 27, 2019
 SCALE: AS SHOWN

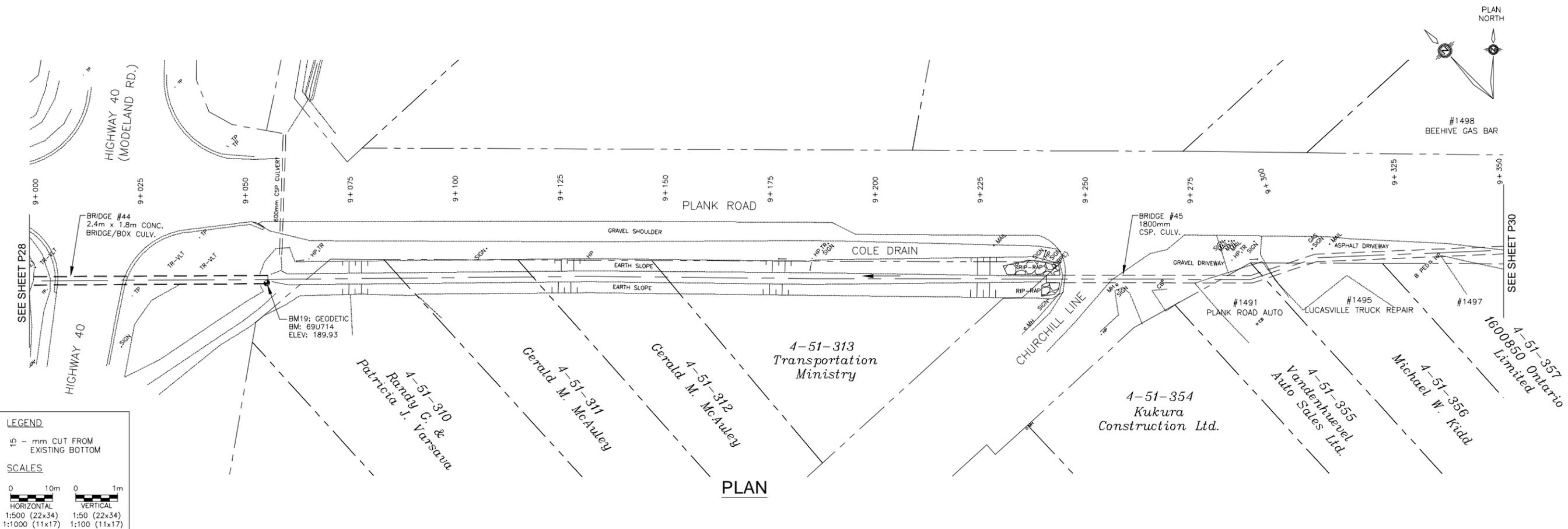
Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B'
 City of Sarnia

**COLE DRAIN
 PLAN AND PROFILE
 FROM STA. 8+650 TO STA. 9+000**

PROJECT NO. 08-8845
 SHEET NO. 28 of 50

DILLON CONSULTING LIMITED, 10 FIFTH STREET SOUTH, CHATHAM, ONTARIO, N7M 4V4, PHONE (519) 354-7800, FAX (519) 354-0500

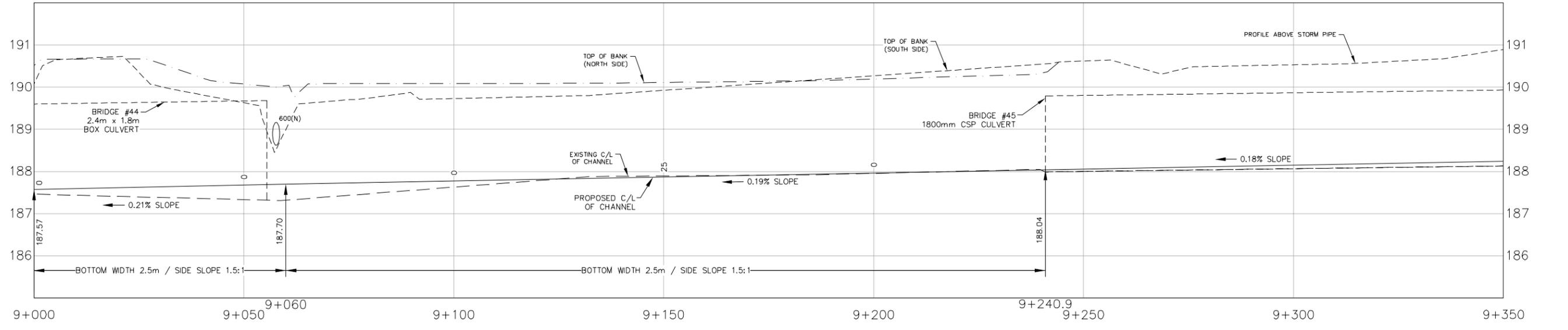
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LEGEND
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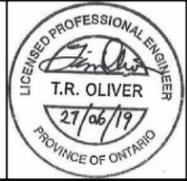
SCALES

HORIZONTAL 1:500 (22x34)	VERTICAL 1:50 (22x34)
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PROFILE

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1	PRELIMINARY REPORT CLIENT REVIEW	30 MAR 12	JJT	

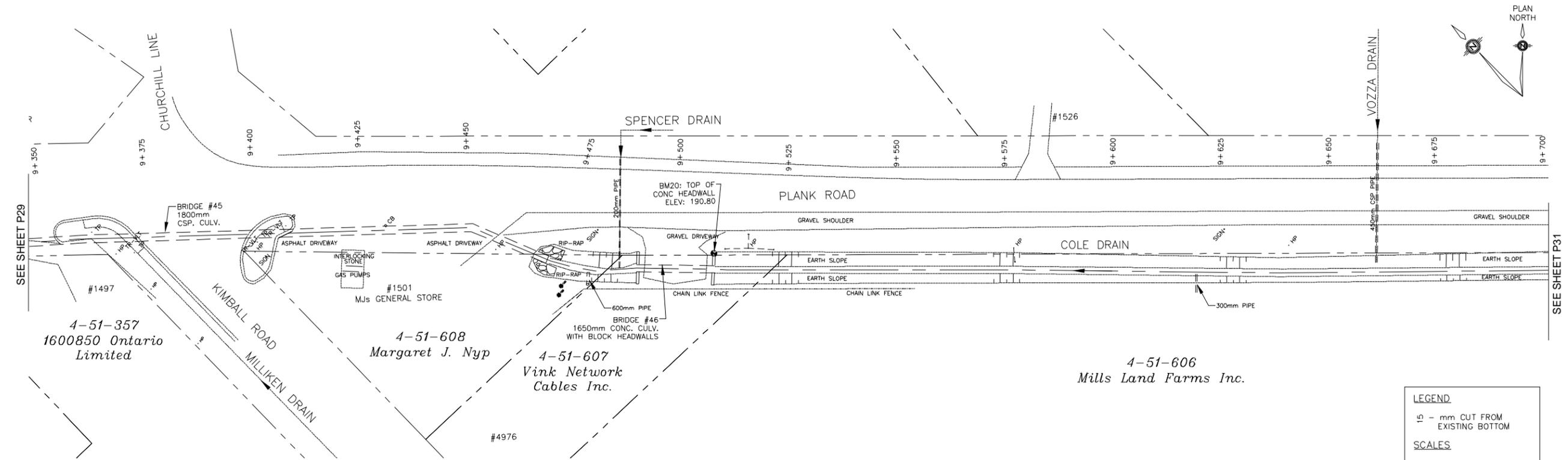
Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B'
 City of Sarnia

**COLE DRAIN
 PLAN AND PROFILE
 FROM STA. 9+000 TO STA. 9+350**

PROJECT NO. 08-8845
 SHEET NO. 29 of 50

DILLON CONSULTING LIMITED, 10 FIFTH STREET SOUTH, CHATHAM, ONTARIO, N7M 4V4, PHONE (519) 354-7800, FAX (519) 354-2050

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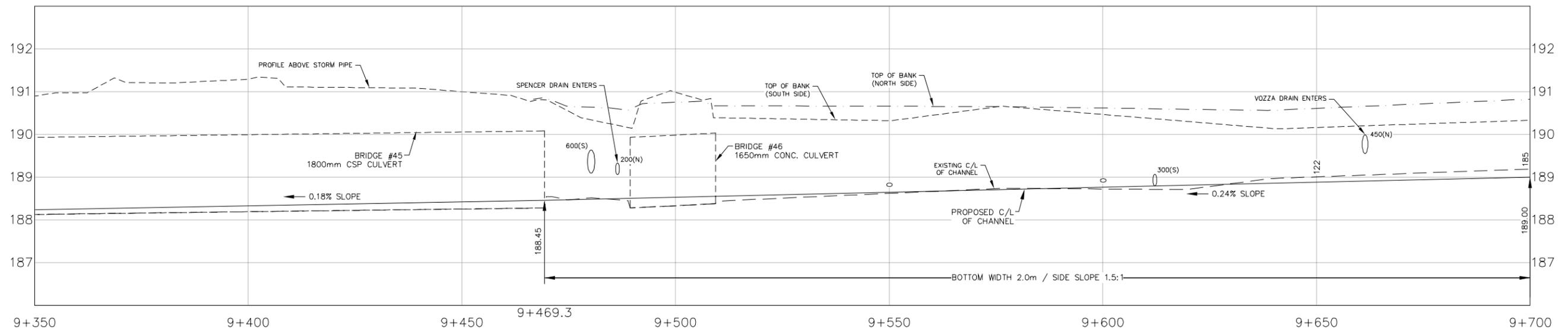


PLAN

LEGEND
 □ - mm CUT FROM EXISTING BOTTOM

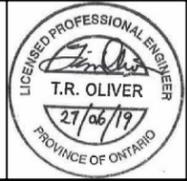
SCALES

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HORIZONTAL	VERTICAL
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PROFILE

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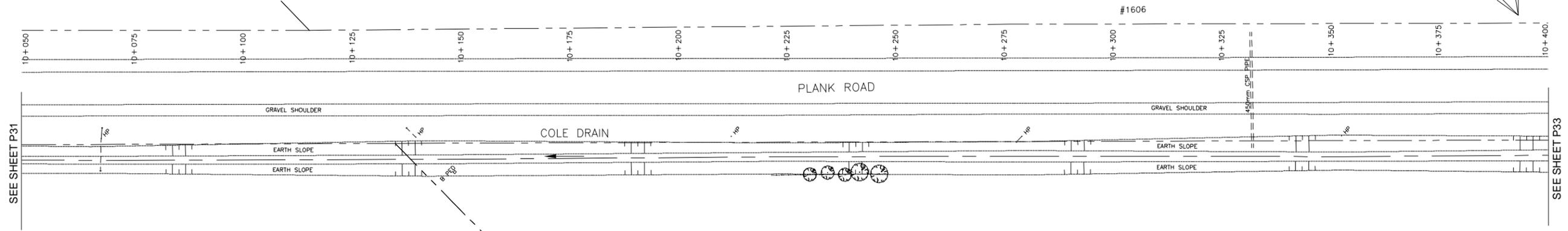
Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B'
 City of Sarnia

**COLE DRAIN
 PLAN AND PROFILE
 FROM STA. 9+350 TO STA. 9+700**

PROJECT NO. 08-8845
 SHEET NO. 30 of 50

DILLON CONSULTING LIMITED, 10 FIFTH STREET SOUTH, CHATHAM, ONTARIO, N7M 4V4, PHONE (519) 354-7800, FAX (519) 354-2050

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4-51-568
1565670 Ontario Limited

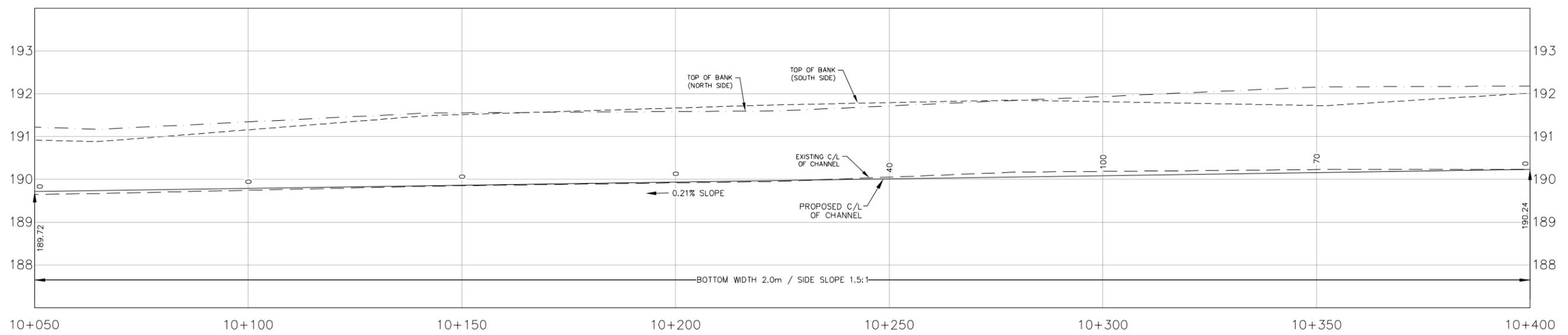
4-51-559
Floyd D. & Frances J. King

PLAN

LEGEND
 15 - mm CUT FROM EXISTING BOTTOM

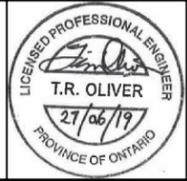
SCALES

0 10m	0 1m
HORIZONTAL	VERTICAL
1:500 (22x34)	1:50 (22x34)
1:1000 (11x17)	1:100 (11x17)



PROFILE

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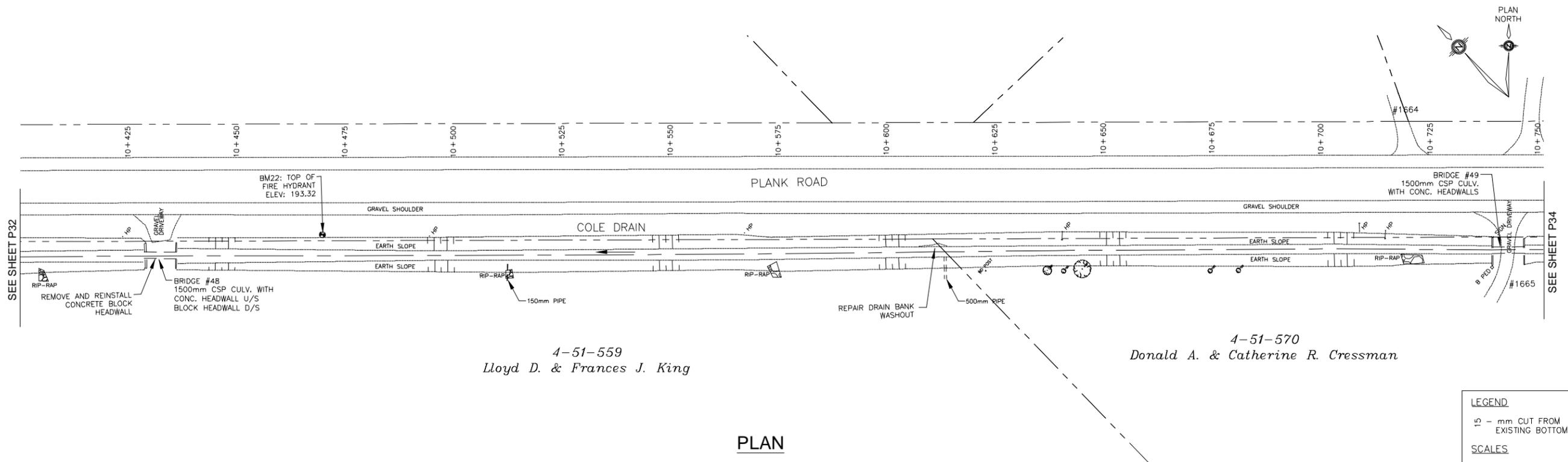
Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B'
 City of Sarnia

**COLE DRAIN
 PLAN AND PROFILE
 FROM STA. 10+050 TO STA. 10+400**

PROJECT NO. 08-8845
 SHEET NO. 32 of 50

DILLON CONSULTING LIMITED, 10 FIFTH STREET SOUTH, CHATHAM, ONTARIO, N7M 4V4, PHONE (519) 354-7800, FAX (519) 354-2050

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4-51-559
Lloyd D. & Frances J. King

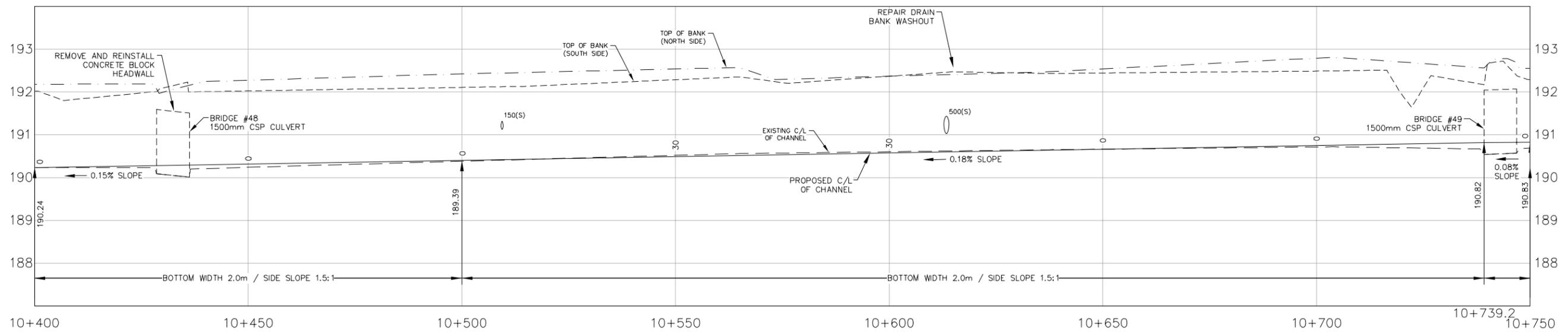
4-51-570
Donald A. & Catherine R. Cressman

PLAN

LEGEND
 150 - mm CUT FROM EXISTING BOTTOM

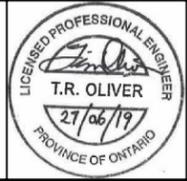
SCALES

0 10m 0 1m
 HORIZONTAL VERTICAL
 1:500 (22x34) 1:50 (22x34)
 1:1000 (11x17) 1:100 (11x17)



PROFILE

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4	REVISED FINAL REPORT CLIENT REVIEW	1 MAY 19	TRO	
3	FINAL REPORT CLIENT REVIEW	11 JAN 16	JJT	DATE
2	PRELIMINARY REPORT SUBMISSION	06 DEC 12	JJT	DESIGN
1	PRELIMINARY REPORT CLIENT REVIEW	30 MAR 12	JJT	REVIEWED BY

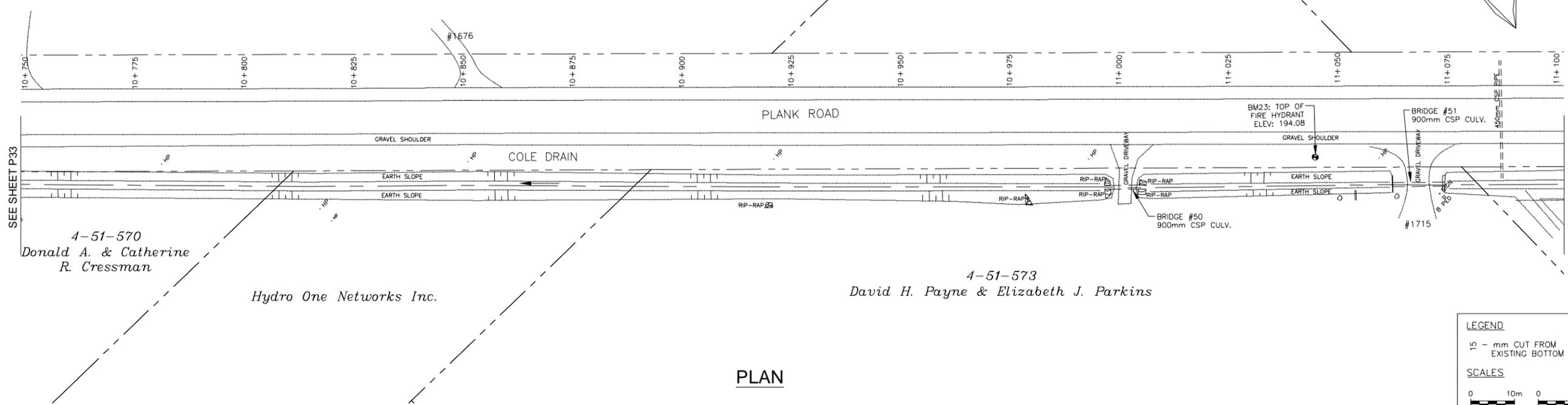
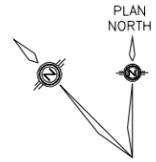
Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B'
 City of Sarnia

**COLE DRAIN
 PLAN AND PROFILE
 FROM STA. 10+400 TO STA. 10+750**

PROJECT NO. 08-8845
 SHEET NO. 33 of 50

DILLON CONSULTING LIMITED, 10 FIFTH STREET SOUTH, CHATHAM, ONTARIO, N7M 4V4, PHONE (519) 354-7800, FAX (519) 354-0550

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4-51-570
Donald A. & Catherine
R. Cressman

Hydro One Networks Inc.

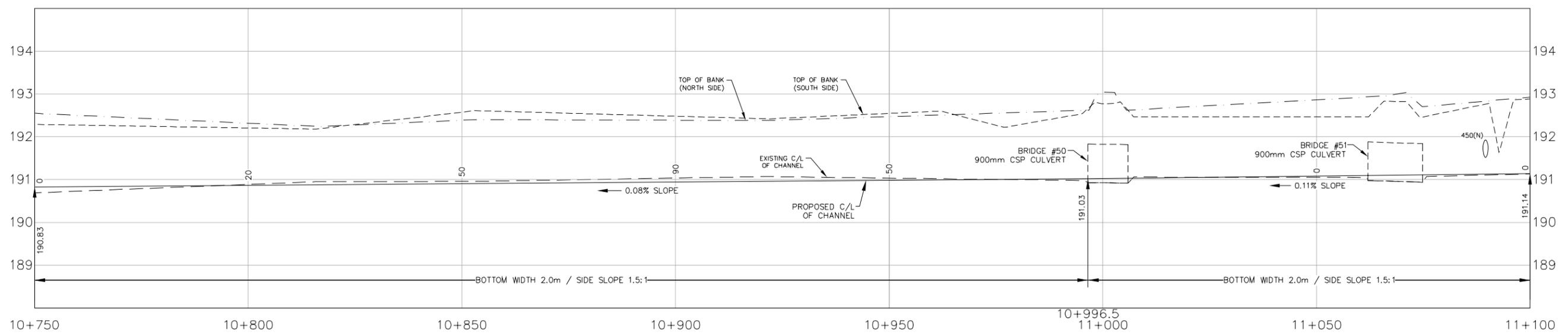
4-51-573
David H. Payne & Elizabeth J. Parkins

PLAN

LEGEND
 ◻ - mm CUT FROM EXISTING BOTTOM

SCALES

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1:1000 (11x17)	1:100 (11x17)



PROFILE

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DESIGN	TRO	REVIEWED BY	JJT
DRAWN	JMM, TKS	CHECKED BY	FRF
DATE June 27, 2019			
SCALE AS SHOWN			

Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B'
 City of Sarnia

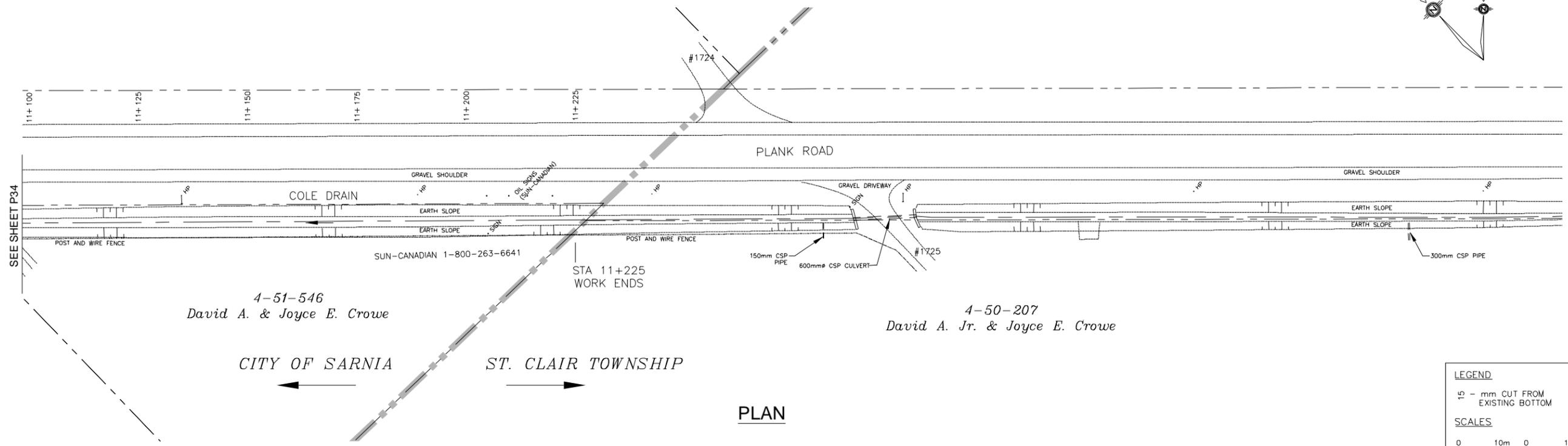
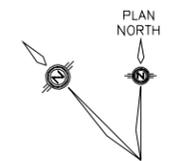
**COLE DRAIN
 PLAN AND PROFILE
 FROM STA. 10+750 TO STA. 11+100**

PROJECT NO.
08-8845

SHEET NO.
34 of 50

DILLON CONSULTING LIMITED, 10 FIFTH STREET SOUTH, CHATHAM, ONTARIO, N7M 4V4, PHONE (519) 354-7800, FAX (519) 354-2050

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PLAN

LEGEND

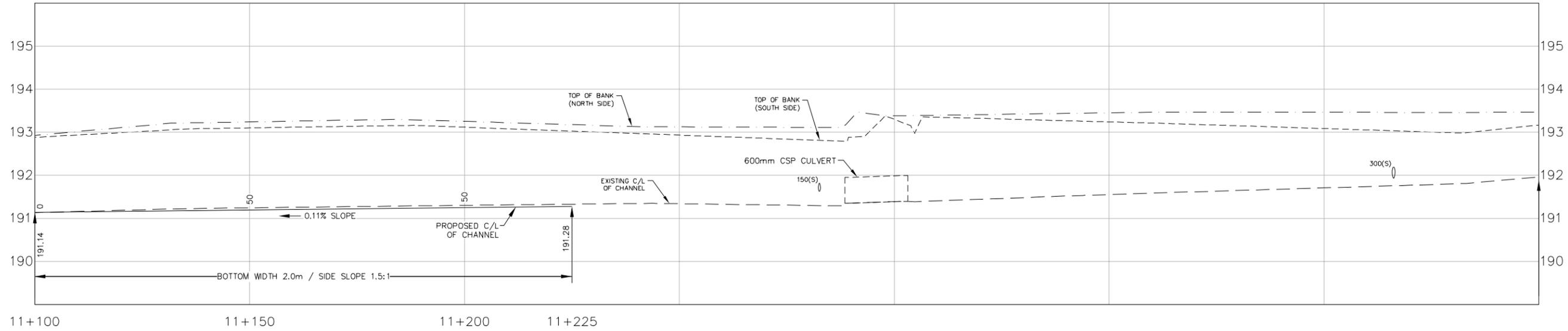
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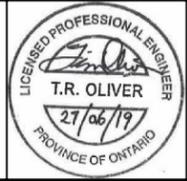
PROFILE

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1	PRELIMINARY REPORT CLIENT REVIEW	30 MAR 12	JJT		

DATE: June 27, 2019

SCALE: AS SHOWN

Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B'

City of Sarnia

COLE DRAIN

PLAN AND PROFILE

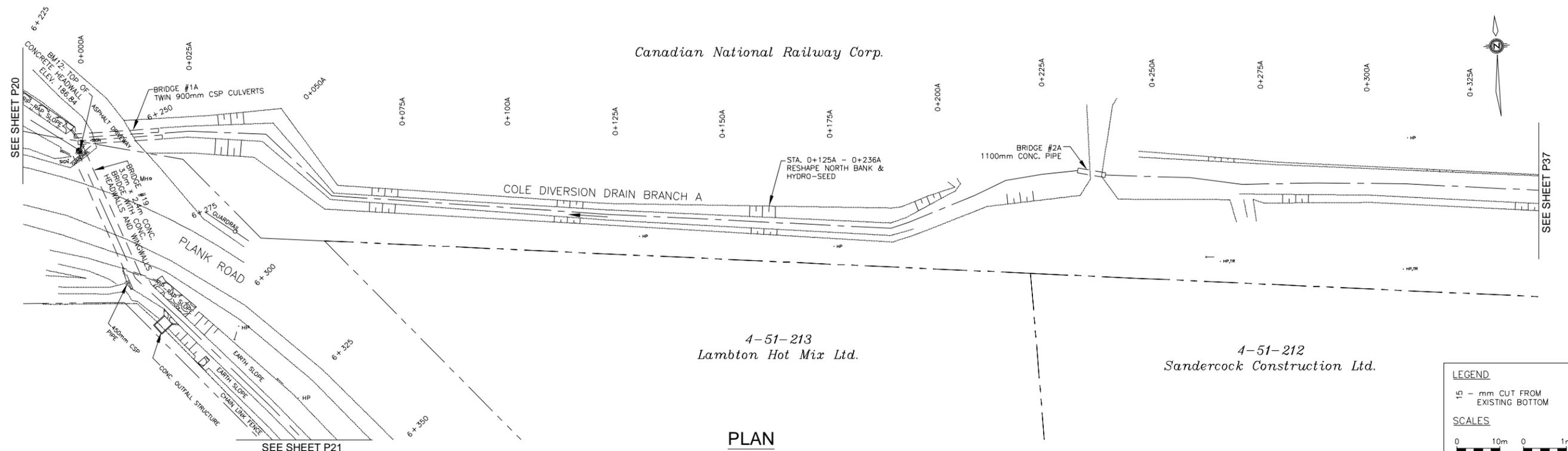
FROM STA. 11+100 TO STA. 11+225

PROJECT NO. 08-8845

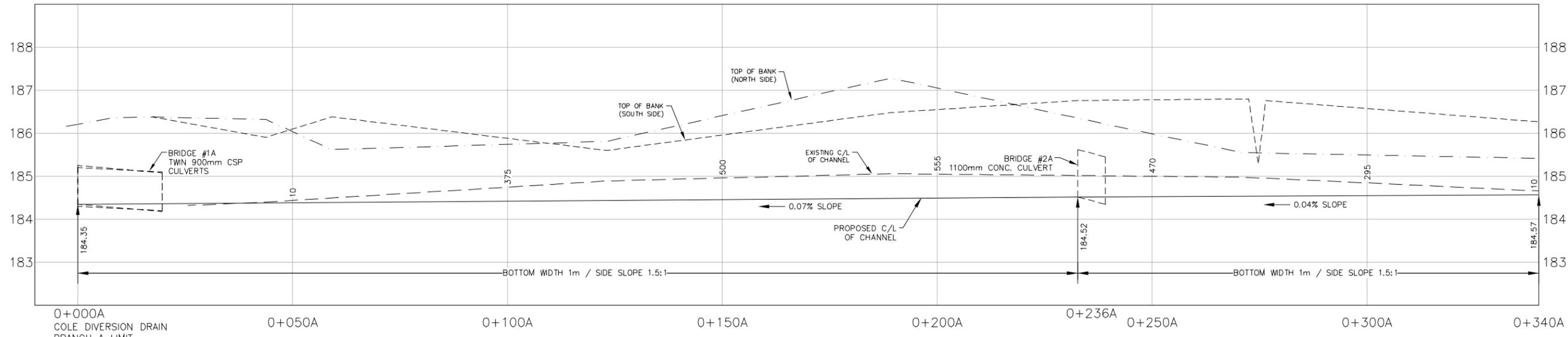
SHEET NO. 35 of 50

DILLON CONSULTING LIMITED, 10 FIFTH STREET SOUTH, CHATHAM, ONTARIO, N7M 4V4, PHONE (519) 354-7800, FAX (519) 354-2050

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PLAN



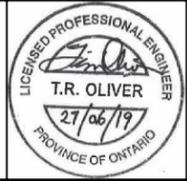
PROFILE

LEGEND
 □ - mm CUT FROM EXISTING BOTTOM

SCALES

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HORIZONTAL		VERTICAL	
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1:1000 (11x17)		1:100 (11x17)	

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DESIGN	TRO	REVIEWED BY	JJT
DRAWN	JMM, TKS	CHECKED BY	FRF
DATE: June 27, 2019			
SCALE: AS SHOWN			

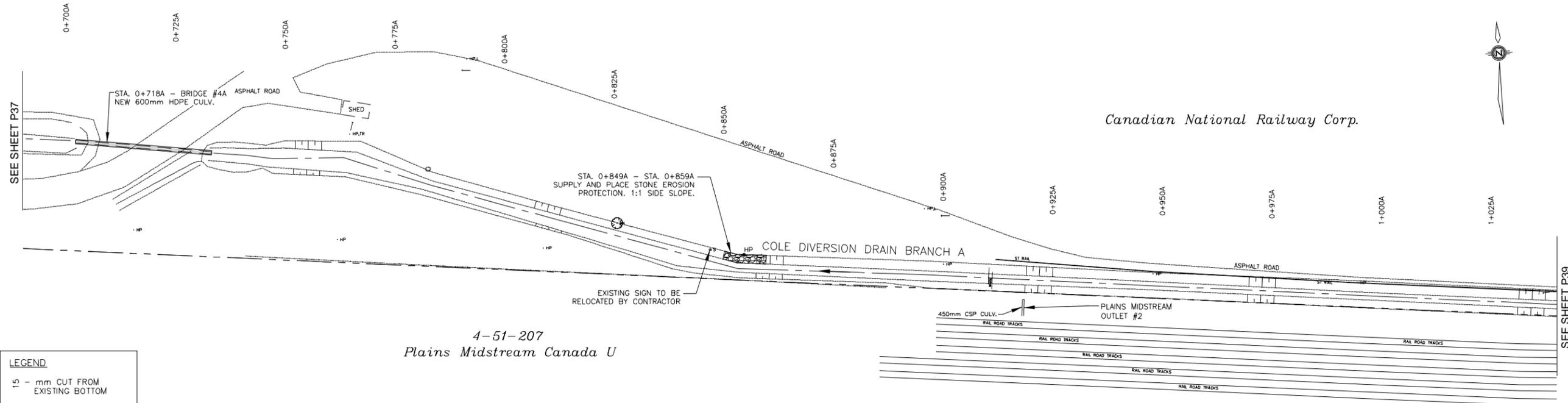
Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B'
 City of Sarnia

COLE DIVERSION DRAIN BRANCH 'A'
PLAN AND PROFILE
 FROM STA. 0+000A TO STA. 0+340A

PROJECT NO. 08-8845
 SHEET NO. 36 of 50

DILLON CONSULTING LIMITED, 10 FIFTH STREET SOUTH, CHATHAM, ONTARIO, N7M 4V4, PHONE (519) 354-7800, FAX (519) 354-0500

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Canadian National Railway Corp.

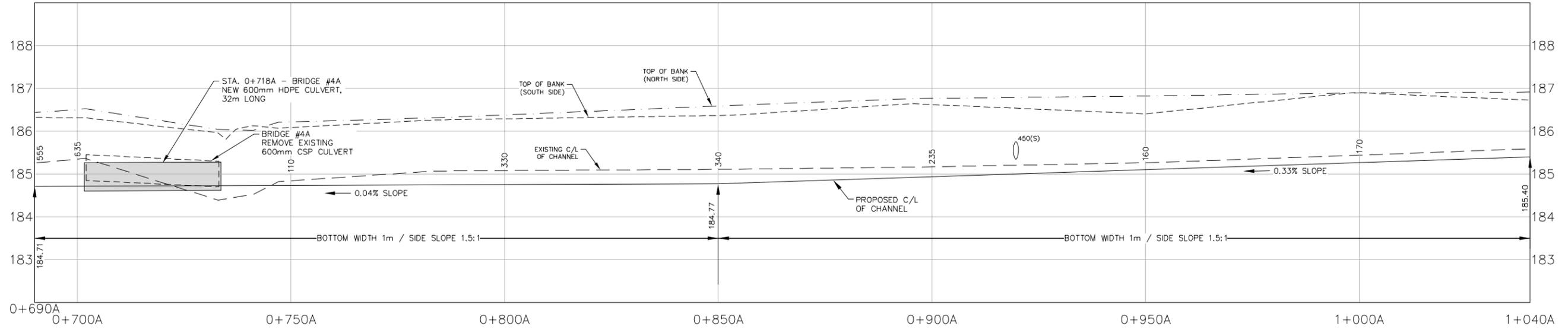
4-51-207
Plains Midstream Canada U

LEGEND
15 - mm CUT FROM EXISTING BOTTOM

SCALES

0	10m	0	1m
HORIZONTAL		VERTICAL	
1:500 (22x34)	1:50 (22x34)	1:1000 (11x17)	1:100 (11x17)

PLAN



PROFILE

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Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B'
City of Sarnia

COLE DIVERSION DRAIN BRANCH 'A'
PLAN AND PROFILE
FROM STA. 0+690A TO STA. 1+040A

PROJECT NO. 08-8845
SHEET NO. 38 of 50

DILLON CONSULTING LIMITED, 10 FIFTH STREET SOUTH, CHATHAM, ONTARIO, N7M 4V4, PHONE (519) 354-7800, FAX (519) 354-2050

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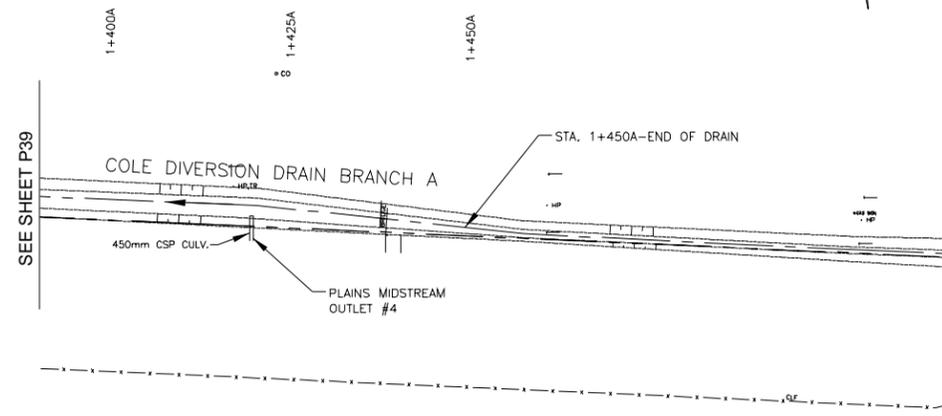
Canadian National Railway Corp.



LEGEND
 15 - mm CUT FROM EXISTING BOTTOM

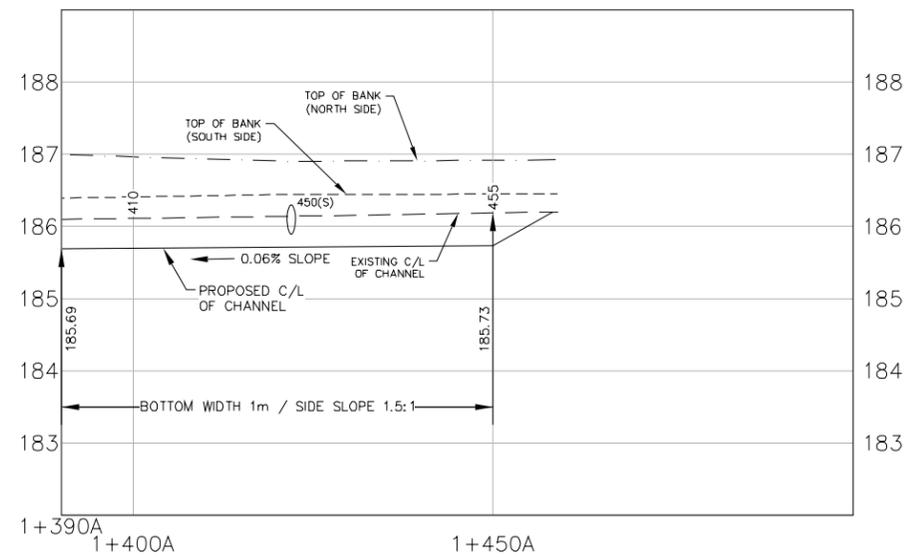
SCALES

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HORIZONTAL		VERTICAL	
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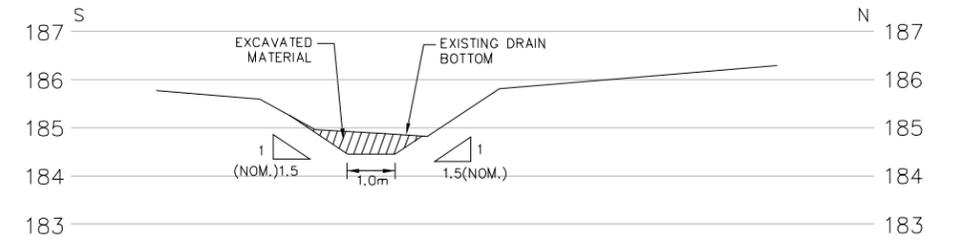


4-51-207
 Plains Midstream Canada U

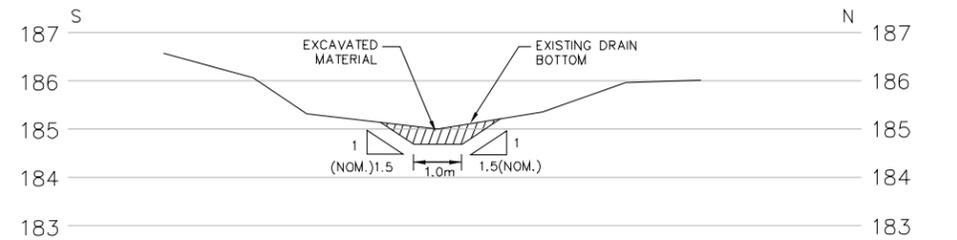
PLAN



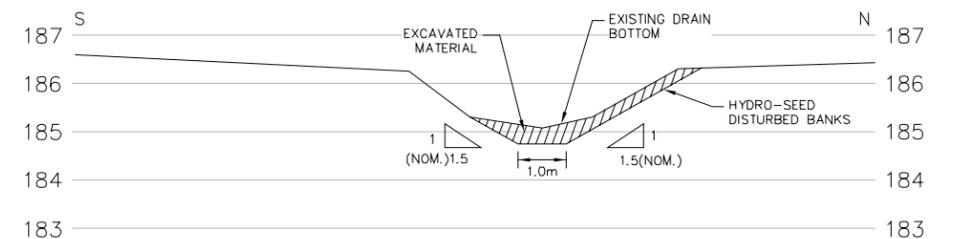
PROFILE



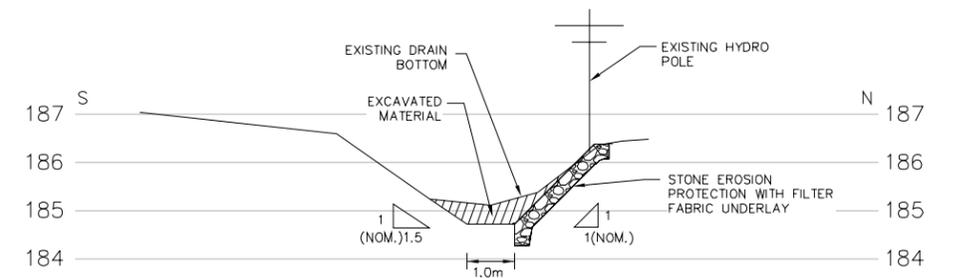
CROSS SECTION @ 0+125A LOOKING DOWNSTREAM



CROSS SECTION @ 0+675A LOOKING DOWNSTREAM



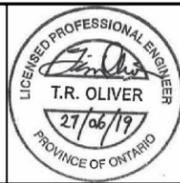
CROSS SECTION @ 0+785A LOOKING DOWNSTREAM



CROSS SECTION @ 0+850A LOOKING DOWNSTREAM

**TYPICAL SECTIONS FOR
 COLE DIVERSION DRAIN BRANCH A**

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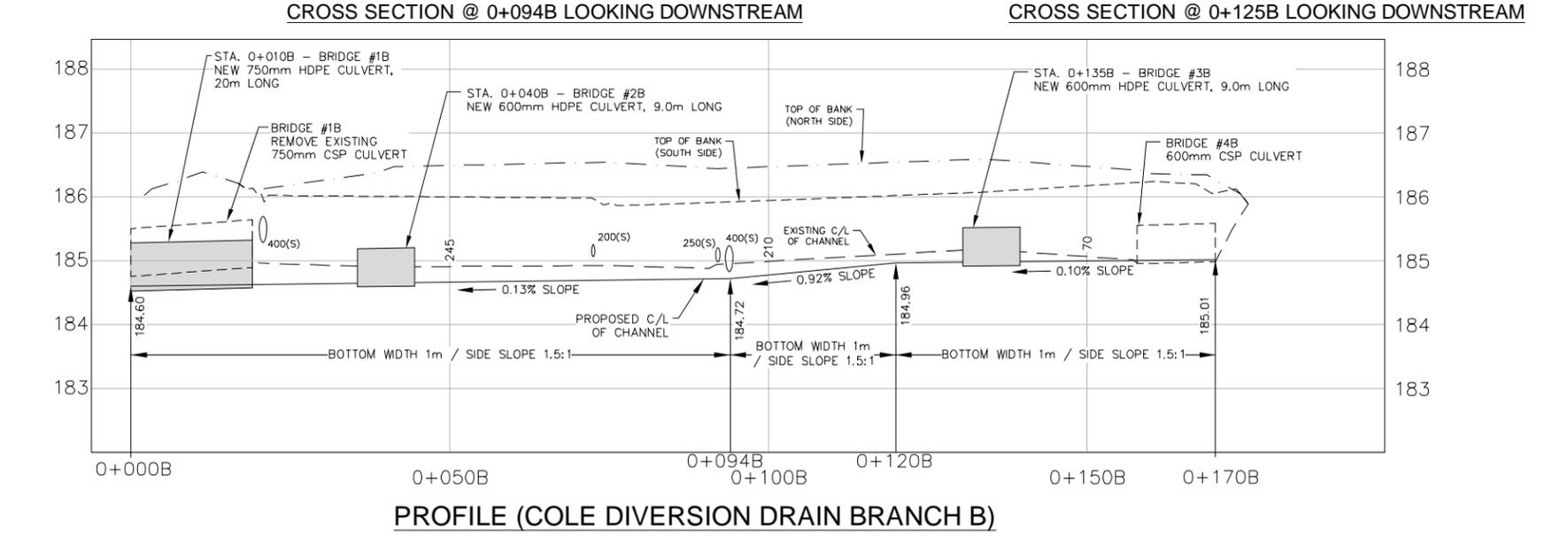
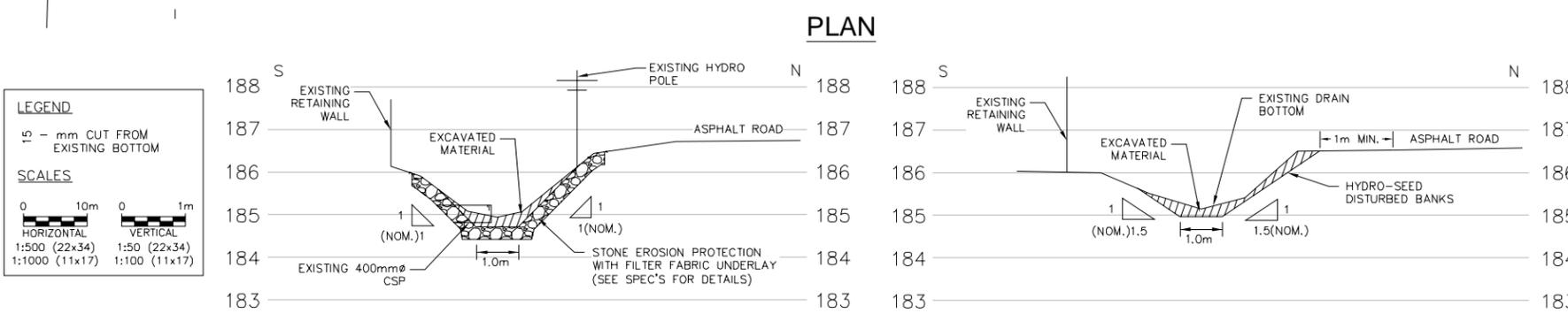
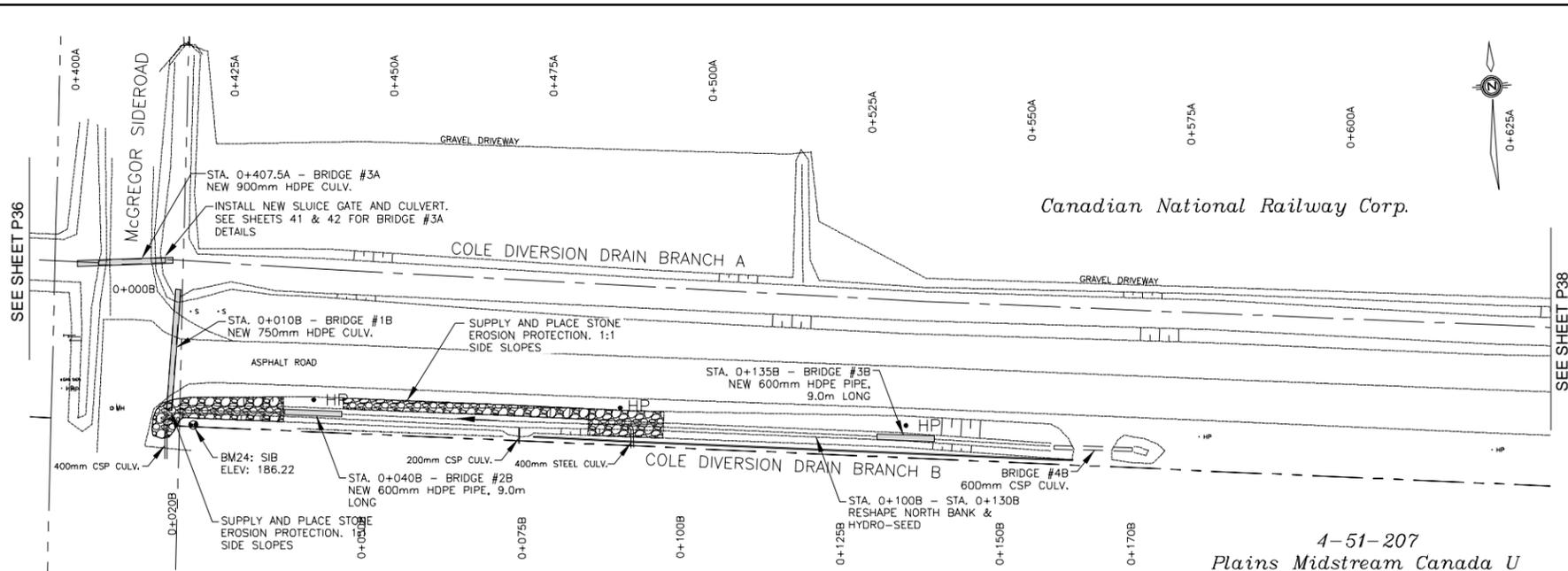
Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B'
 City of Sarnia

**COLE DIVERSION DRAIN BRANCH 'A'
 PLAN AND PROFILE
 FROM STA. 1+390A TO STA. 1+450A**

PROJECT NO.
 08-8845

SHEET NO.
 40 of 50

DILLON CONSULTING LIMITED, 10 FIFTH STREET SOUTH, CHATHAM, ONTARIO, N7M 4V4, PHONE (519) 354-7800, FAX (519) 354-2050



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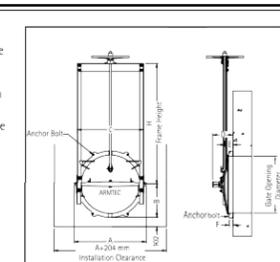
DESIGN	TRO	REVIEWED BY	JJT
DRAWN	JMM, TKS	CHECKED BY	FRF
DATE	June 27, 2019		
SCALE	AS SHOWN		

Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B'
 City of Sarnia
COLE DIVERSION DRAIN BRANCH 'B'
 PLAN AND PROFILE
 FROM STA. 0+000B TO STA. 0+170B

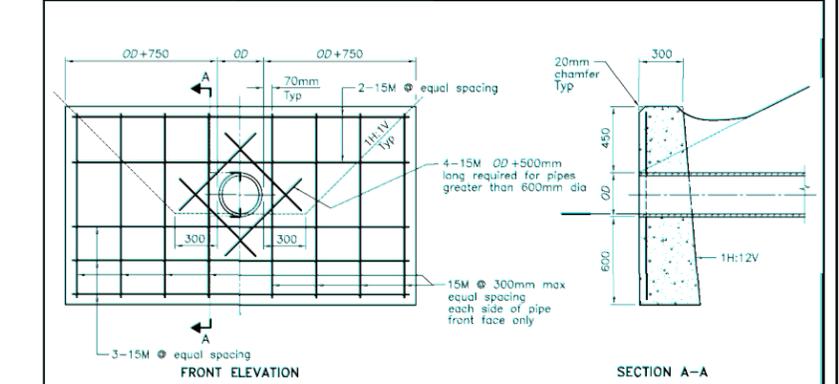
PROJECT NO.
08-8845
 SHEET NO.
41 of 50

Standard Configurations and Sizes
 The Engineering Table below summarizes the available gate diameters and dimensional data for each size of gate. These gates are stocked in standard frame heights as listed, but custom fabricated configuration options are available.
 Various lift extensions are available, as shown on Page 5. Contact an Armtec Sales Representative for more information.

Gate Diameter mm	A mm	B mm	C mm	D mm	E mm	F mm	Stem Diameter mm	Lift Type	Stock Frame Height mm	Anchor Bolt Diameter mm	Bolt Circle Diameter mm
203	324	146	289	124	73	14	22.2	LW-14	914	12.7	292
254	387	171	340	130	73	16	22.2	LW-14	1000	12.7	356
305	483	241	390	137	73	18	22.2	LW-14	1000	12.7	413
406	565	262	492	165	73	18	22.2	LW-14	1000	12.7	533
457	622	279	581	190	95	19	28.6	LW-14	1500	15.9	584
508	686	311	632	203	98	19	28.6	LW-14	1500	15.9	648
610	800	368	733	244	102	21	28.6	LW-14	1500	15.9	762
762	997	460	911	283	117	22	38.1	LW-24	1500	19.1	952
914	1149	537	1064	324	124	25	38.1	LW-24	2000	19.1	1105
1067	1346	673	1216	368	141	30	38.1	LW-24	2000	19.1	1257



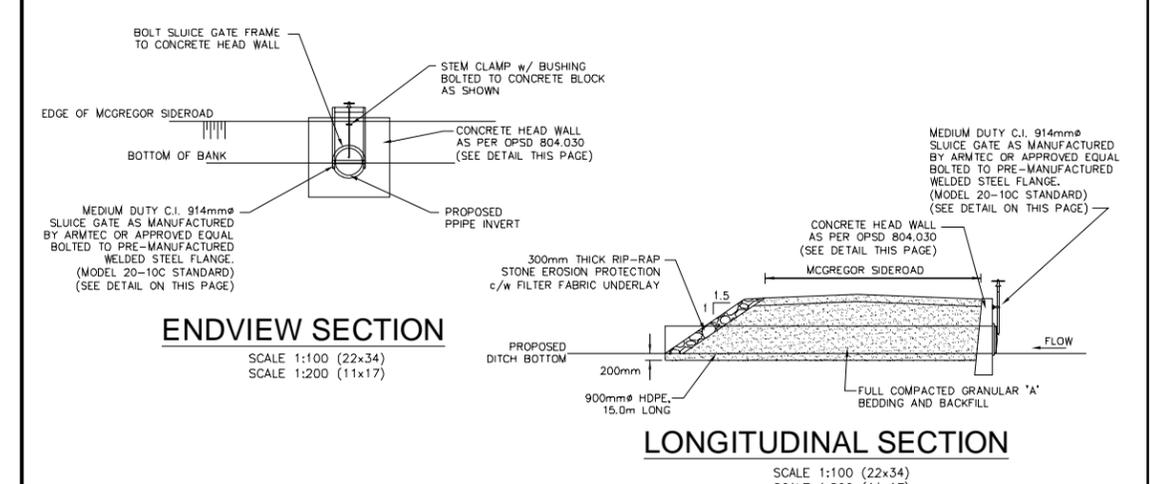
**SLUICE GATE CONTROL
 INLET SIDE
 (STA. 0+045A)**



LEGEND:
 OD - Outside diameter of pipe

NOTES:
 A This OPSD to be read in conjunction with OPSD 3940.150.
 B If a steel grate is required, refer to OPSD 804.05.
 C Class of concrete: 30MPa.
 D Cover to reinforcing bars: 75mm ± 20mm.
 E All dimensions are in millimetres unless otherwise shown.

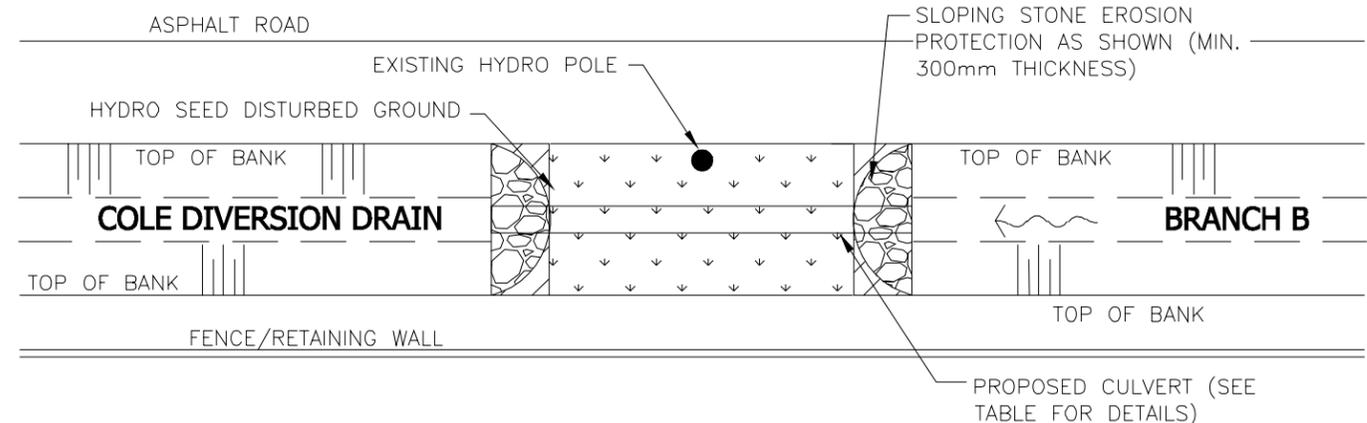
ONTARIO PROVINCIAL STANDARD DRAWING
 Nov 2006 Rev 1
CONCRETE HEADWALL
 FOR PIPE LESS THAN 900mm DIAMETER
OPSD 804.030



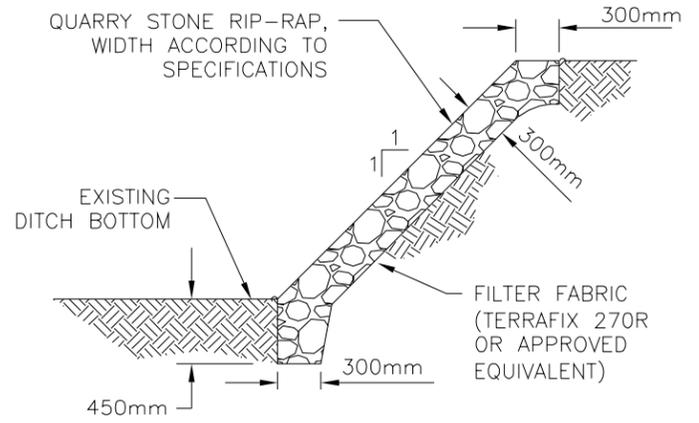
ENDVIEW SECTION
 SCALE 1:100 (22x34)
 SCALE 1:200 (11x17)

LONGITUDINAL SECTION
 SCALE 1:100 (22x34)
 SCALE 1:200 (11x17)

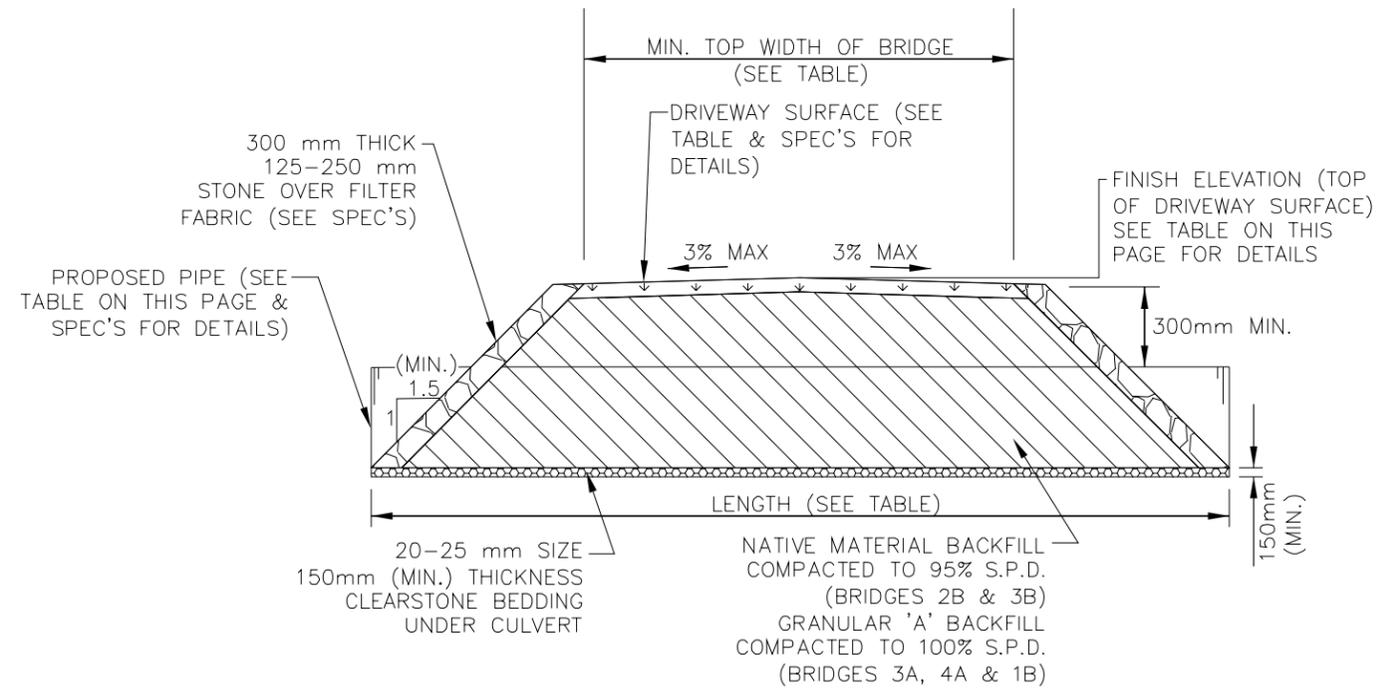
DILLON CONSULTING LIMITED, 10 FIFTH STREET SOUTH, CHATHAM, ONTARIO, N7M 4V4, PHONE (519) 354-7800, FAX (519) 354-2050



BRIDGE PLAN (BRIDGES 2B & 3B)
N.T.S.



TYPICAL STONE EROSION PROTECTION DETAIL
N.T.S.

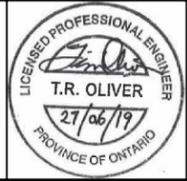


LONGITUDINAL SECTION
N.T.S.

COLE DIVERSION DRAIN BRANCH A & B ACCESS BRIDGES DESIGN INFORMATION TABLE					
DESCRIPTION	BRIDGE No. 3A	BRIDGE No. 4A	BRIDGE No. 1B	BRIDGE No. 2B	BRIDGE No. 3B
BRIDGE LOCATION (STA.)	0+407.5A	0+718A	0+010B	0+040B	0+135B
PIPE INVERT ELEV. U/S SIDE(m)	184.51	184.67	184.54	184.68	184.92
PIPE INVERT ELEV. D/S SIDE(m)	184.50	184.65	184.52	184.67	184.91
TOP OF CENTERLINE DRIVEWAY SURFACE ELEVATION (m)	186.10	186.72	186.40	186.24	186.23
DRAIN BOTTOM (m) (DESIGN) (AT CENTERLINE OF CULVERT)	184.59	184.72	184.60	184.72	184.98
MIN. TOP WIDTH OF DRIVEWAY(m)	8.0	22.0	13.0	3.0	3.0
DRIVEWAY SURFACE MATERIAL	GRAVEL	ASPH.	ASPH.	GRASS	GRASS
MIN. CULVERT GRADE (%)	0.10	0.10	0.10	0.10	0.10
CULVERT TYPE	BOSS 2000				
PIPE SIZE (mm)	900	600	750	600	600
CULVERT LENGTH (m)	15.0	32.0	20.0	9.0	9.0
CULVERT MATERIAL	H.D.P.E.	H.D.P.E.	H.D.P.E.	H.D.P.E.	H.D.P.E.
CULVERT ENDWALL TYPE	SLOPING/BLOCK	SLOPING	SLOPING	SLOPING	SLOPING

NOTE: BRIDGES 4A & 1B HAVE ASPHALT ROADWAY SURFACES TO BE RESTORED WITH TWO LIFTS OF HOT MIX ASPHALT. 50mm THICKNESS HL4 BASE COURSE. 50mm THICKNESS HL3 SURFACE COURSE.

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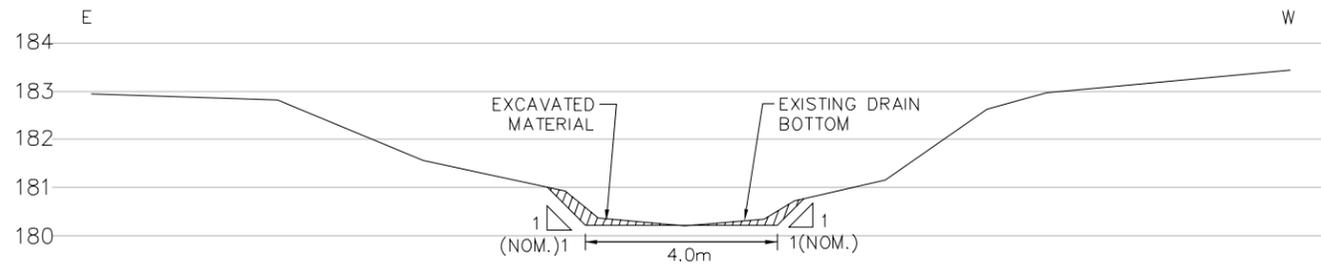
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Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B'
City of Sarnia
COLE DIVERSION DRAIN BRANCH 'A' AND 'B'
BRIDGE DETAILS

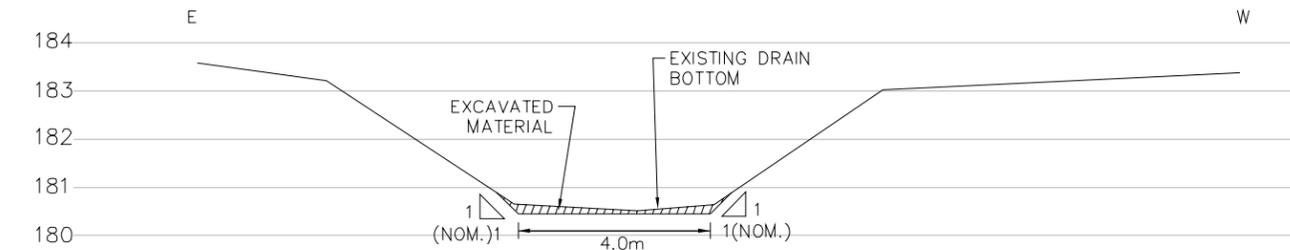
PROJECT NO.
08-8845
SHEET NO.
42 of 50

DILLON CONSULTING LIMITED, 10 FIFTH STREET SOUTH, CHATHAM, ONTARIO, N7M 4V4, PHONE (519) 354-7800, FAX (519) 354-2050

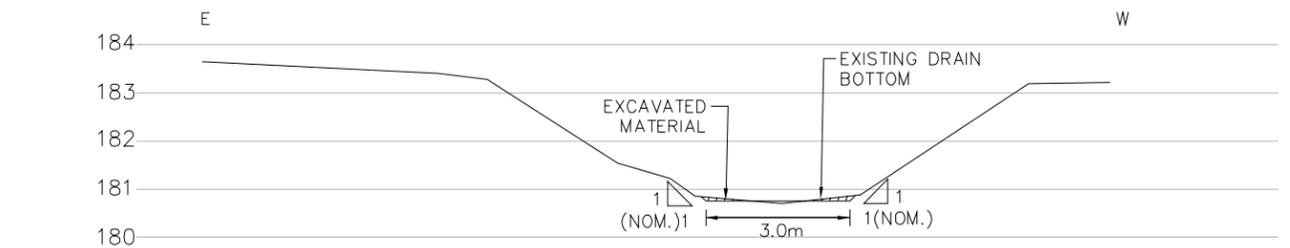
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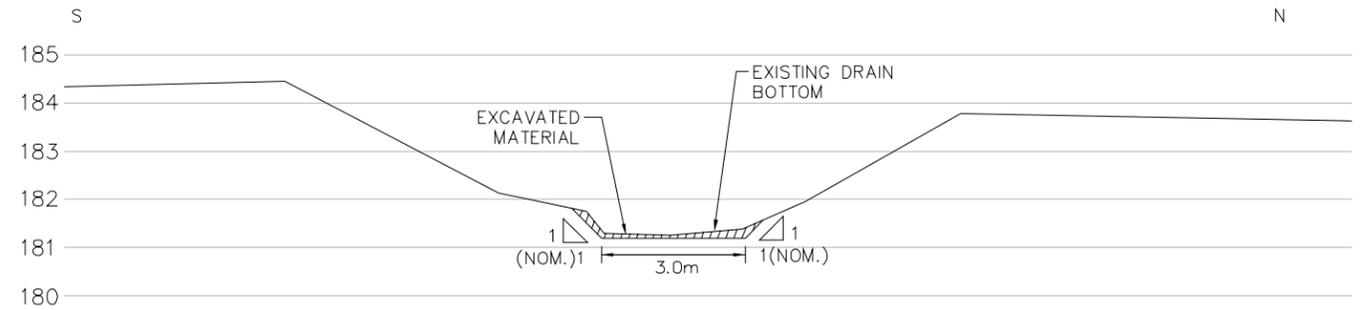
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(CUT-OFF DRAIN)**



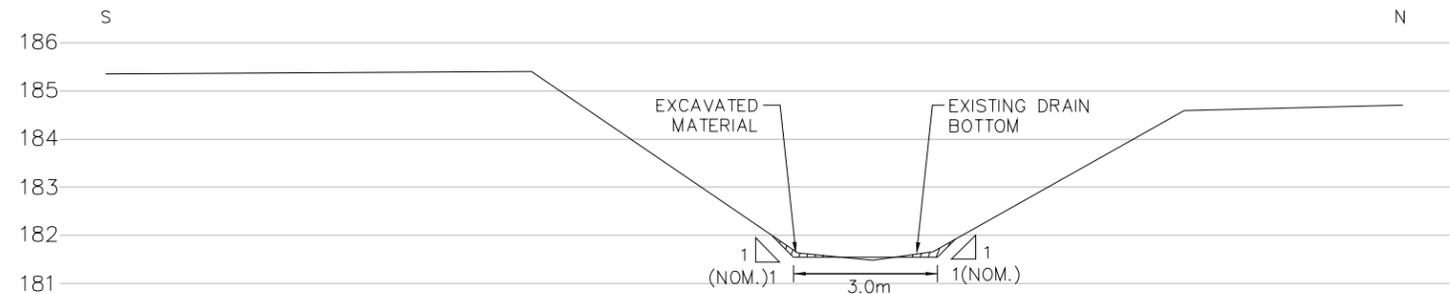
**CROSS SECTION @ 2+140 LOOKING DOWNSTREAM
(CUT-OFF DRAIN)**



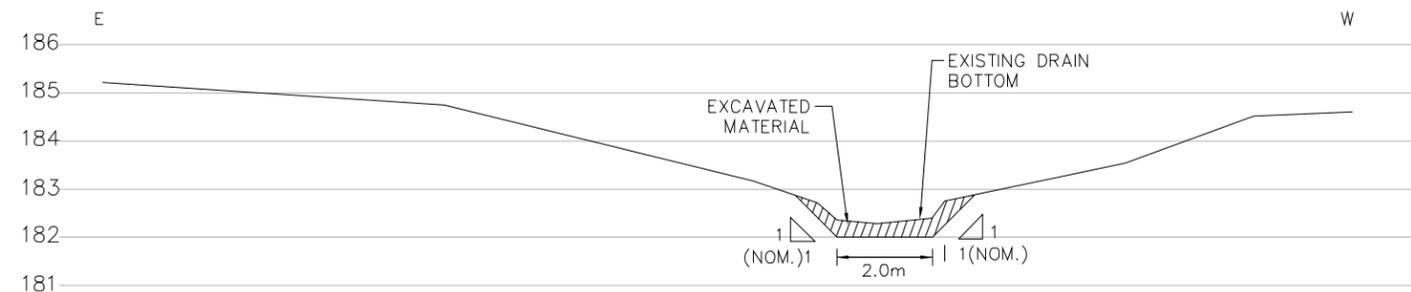
**CROSS SECTION @ 2+590 LOOKING DOWNSTREAM
(CUT-OFF DRAIN)**



**CROSS SECTION @ 3+150 LOOKING DOWNSTREAM
(CUT-OFF DRAIN)**

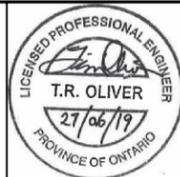


**CROSS SECTION @ 3+588 LOOKING DOWNSTREAM
(CUT-OFF DRAIN)**



**CROSS SECTION @ 4+167 LOOKING DOWNSTREAM
(CUT-OFF DRAIN)**

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1	PRELIMINARY REPORT CLIENT REVIEW	30 MAR 12	JJT

DESIGN	TRO	REVIEWED BY	JJT
DRAWN	JMM, TKS	CHECKED BY	FRF
DATE	June 27, 2019		
SCALE	N.T.S.		

Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B'
City of Sarnia

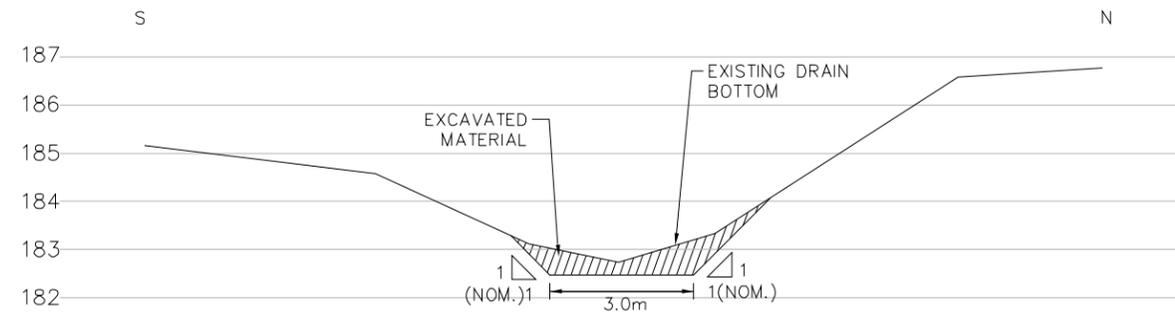
PROJECT NO.
08-8845

**CUT-OFF DRAIN
TYPICAL CROSS SECTIONS**

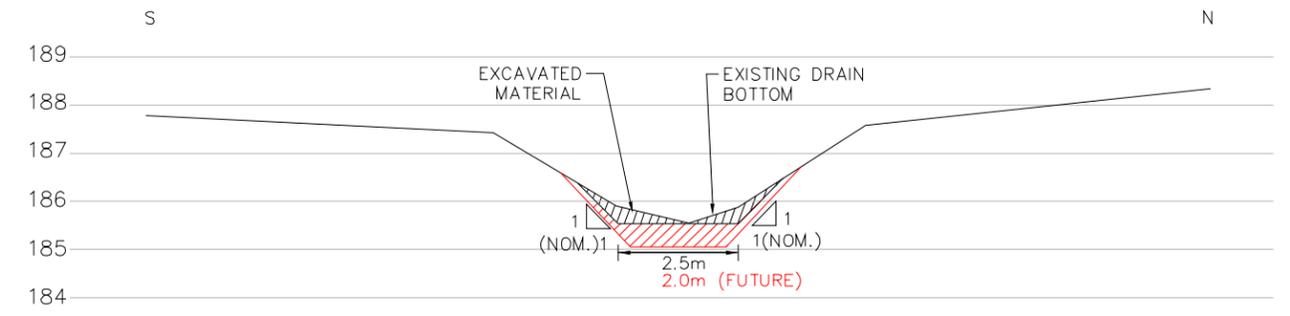
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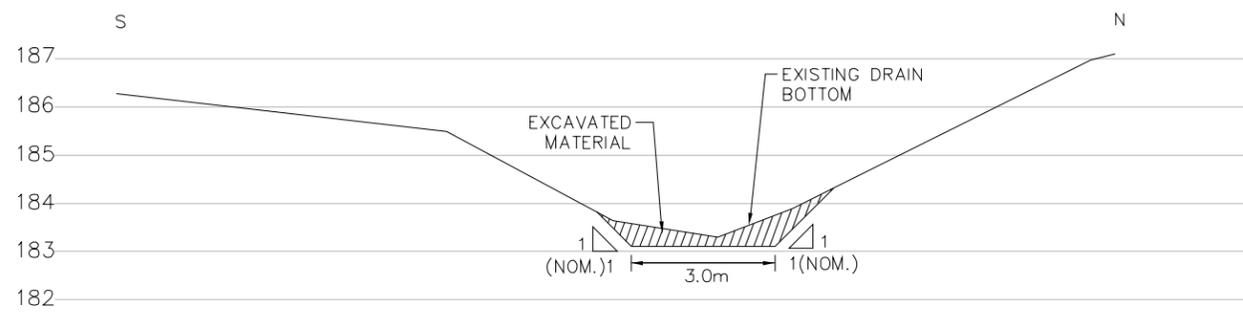
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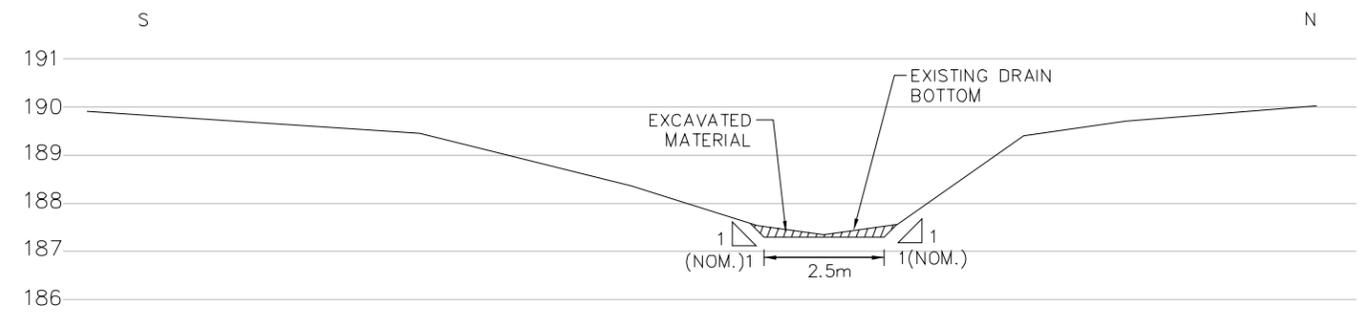
**CROSS SECTION @ 4+750 LOOKING DOWNSTREAM
(CUT-OFF DRAIN)**



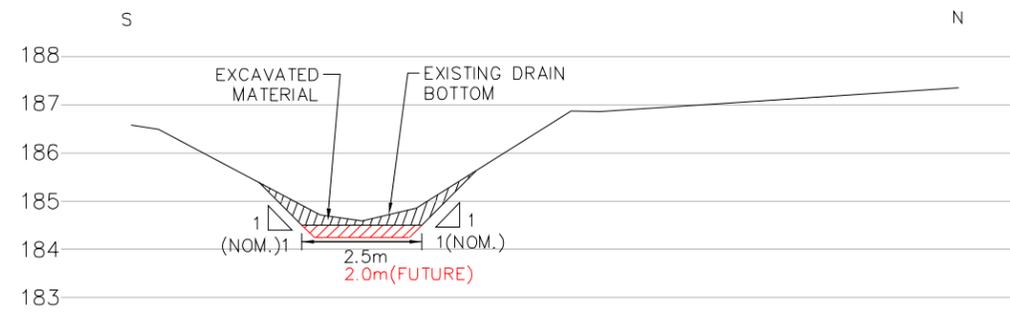
**CROSS SECTION @ 7+682 LOOKING DOWNSTREAM
(COLE DRAIN)**



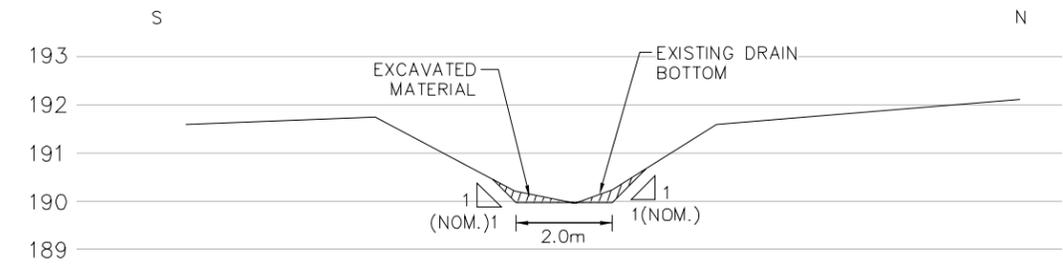
**CROSS SECTION @ 5+534 LOOKING DOWNSTREAM
(CUT-OFF DRAIN)**



**CROSS SECTION @ 8+867 LOOKING DOWNSTREAM
(COLE DRAIN)**



**CROSS SECTION @ 6+733 LOOKING DOWNSTREAM
(COLE DRAIN)**



**CROSS SECTION @ 10+225 LOOKING DOWNSTREAM
(COLE DRAIN)**

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DESIGN TRO	REVIEWED BY JJT
DRAWN JMM, TKS	CHECKED BY FRF
DATE June 27, 2019	
SCALE N.T.S.	

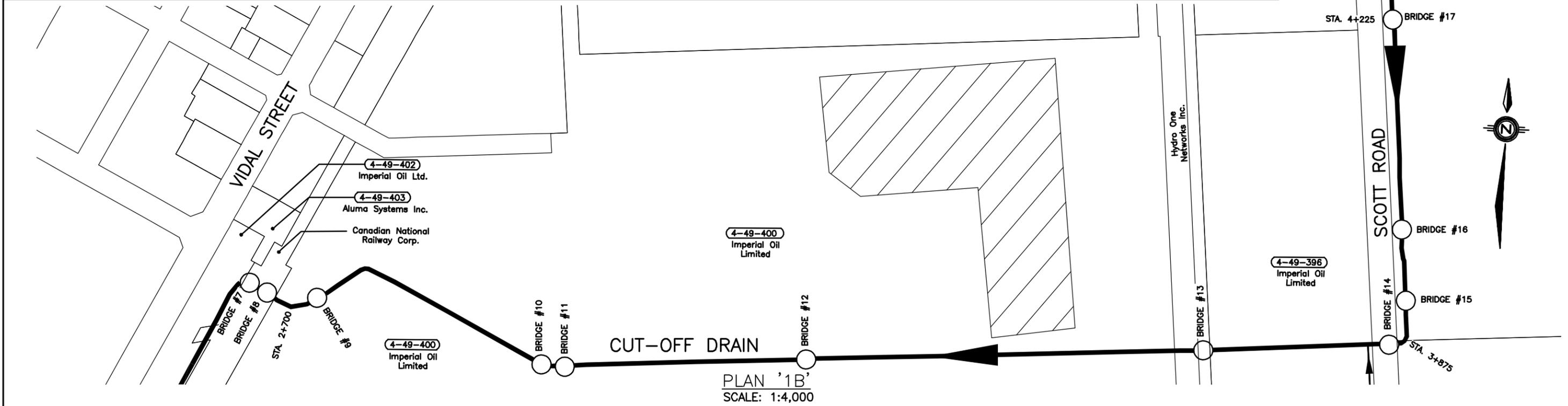
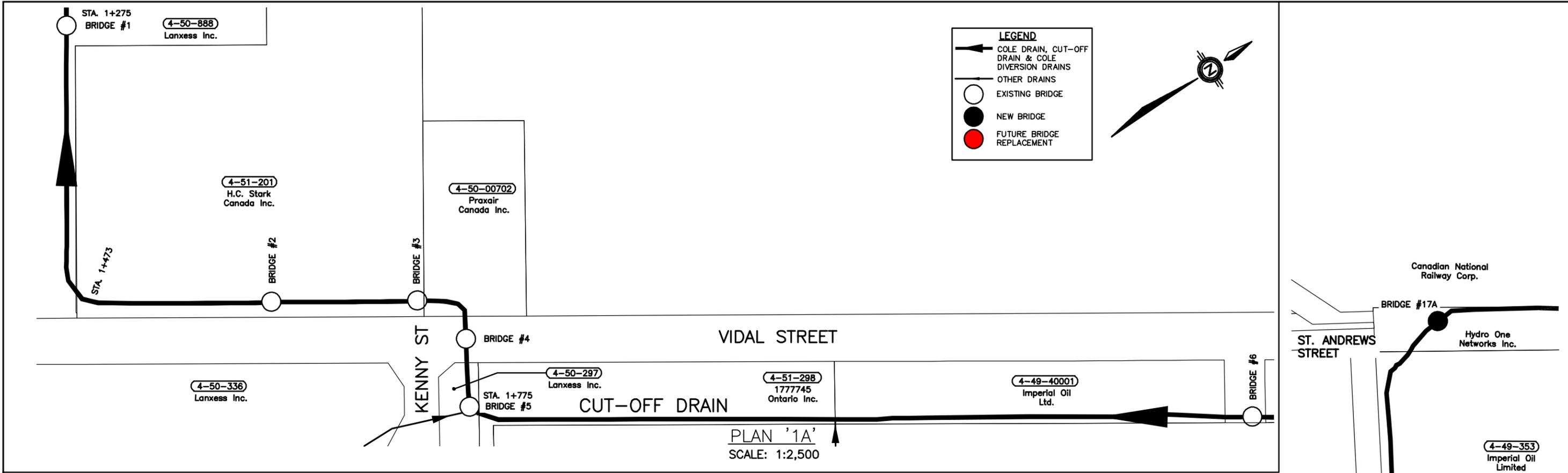
Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B'
City of Sarnia

PROJECT NO.
08-8845

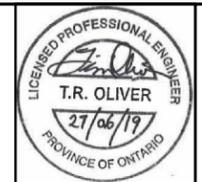
SHEET NO.

**CUT-OFF / COLE DRAIN
TYPICAL CROSS SECTIONS**

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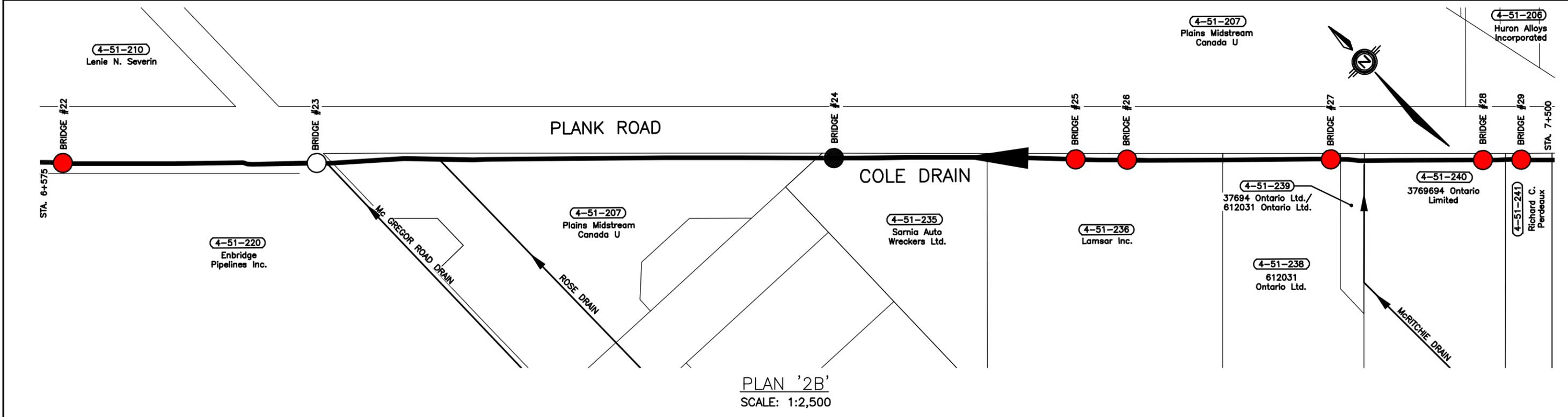
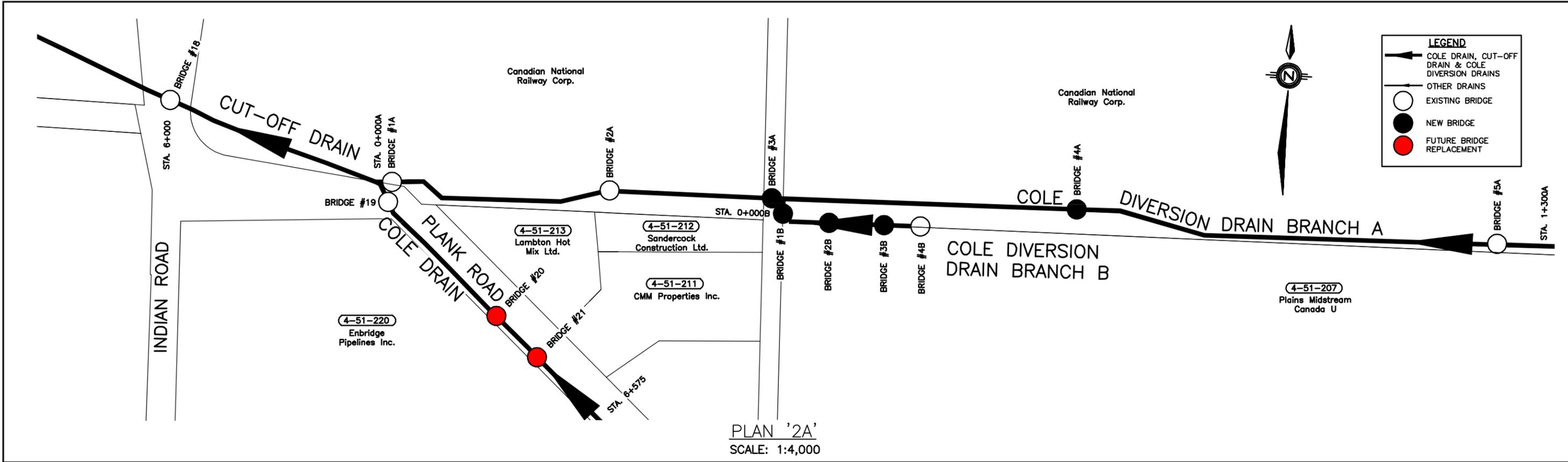
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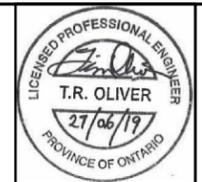
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DESIGN	REVIEWED BY
TRO	JJT
DRAWN	CHECKED BY
JMM, TKS	FRF
DATE	June 27, 2019
SCALE	AS SHOWN

Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B' City of Sarnia		PROJECT NO. 08-8845
BRIDGE LOCATION PLAN 1		SHEET NO. 45 of 50

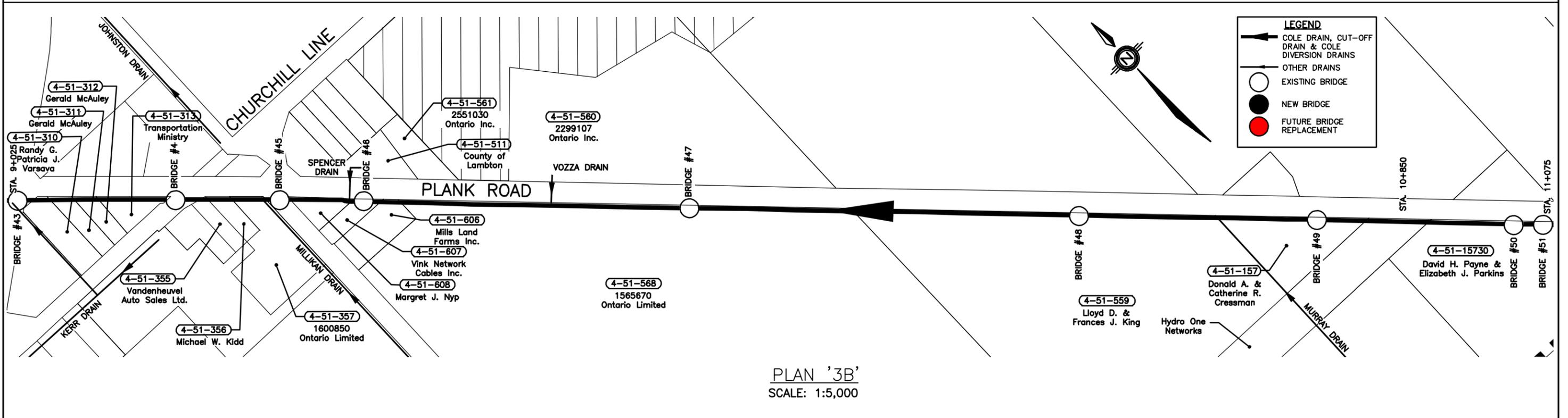
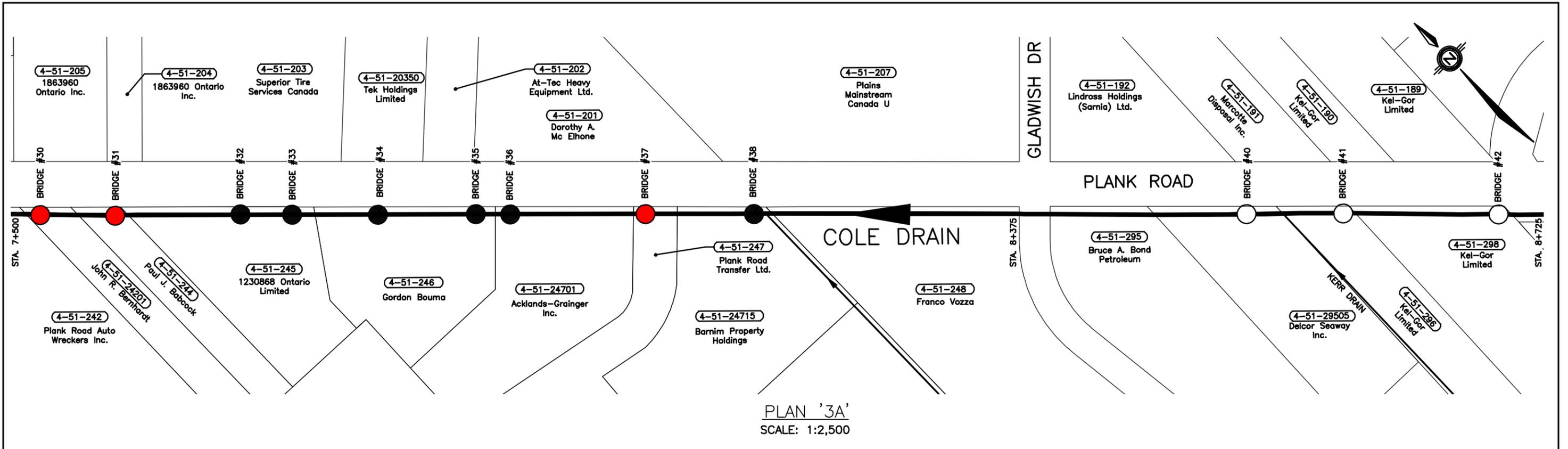


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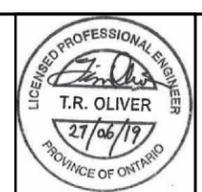


NO.	DESCRIPTION	DATE	BY	FOR
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DESIGN: TRO	REVIEWED BY: JJT	Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B' City of Sarnia	PROJECT NO: 08-8845
DRAWN: JMM, TKS	CHECKED BY: FRF		SHEET NO: 46 of 50
DATE: June 27, 2019		BRIDGE LOCATION PLAN 2	
SCALE: AS SHOWN			



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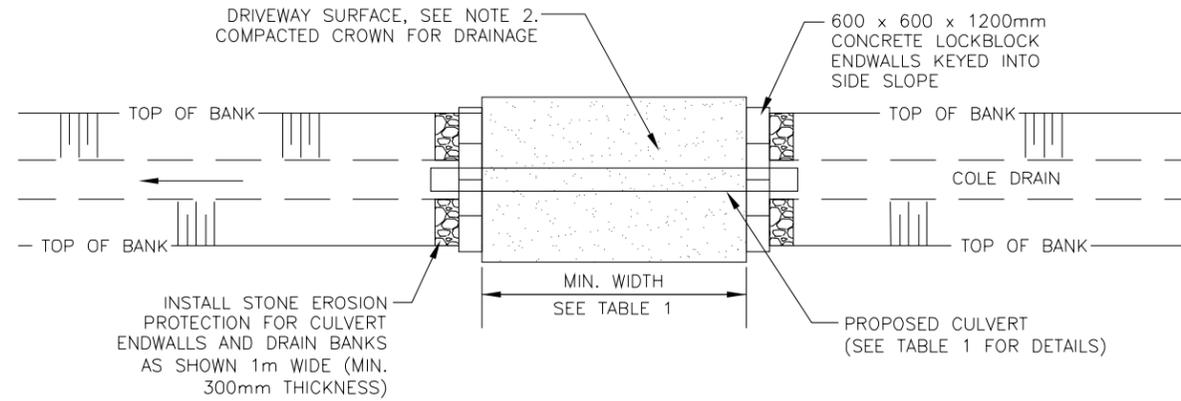


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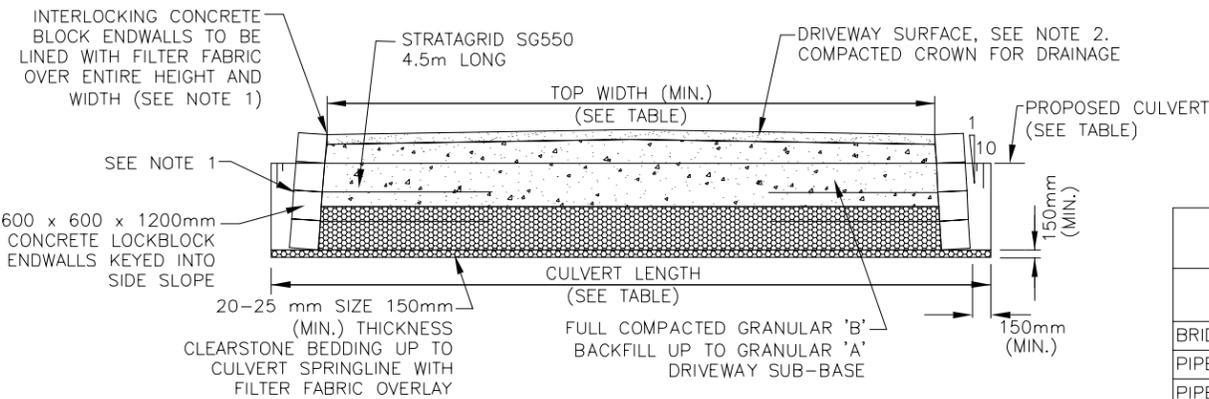
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Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B'		PROJECT NO.	08-8845
City of Sarnia		SHEET NO.	47 of 50
BRIDGE LOCATION PLAN 3			

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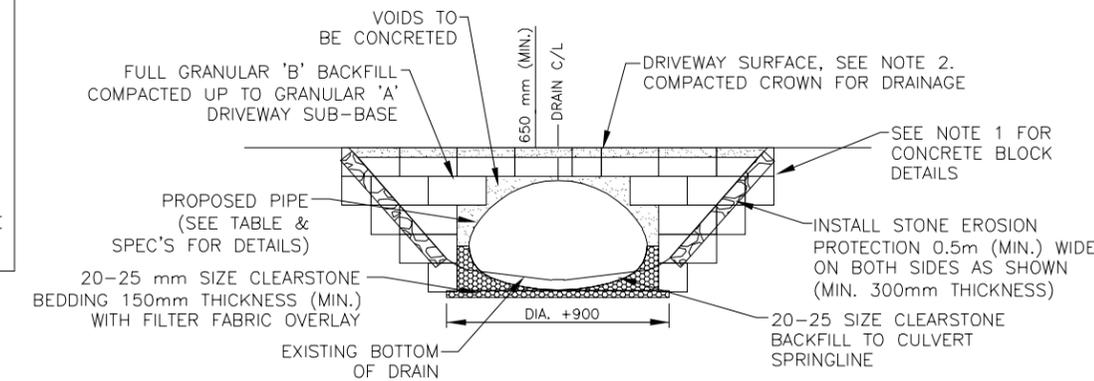
BLOCK ENDWALL - PLAN VIEW



BLOCK ENDWALL - SECTION VIEW

NOTE 1:
 INTERLOCKING 600mm x 600mm x 1200mm CONCRETE BLOCKS TO BE ON A 10:1 BATTER. THE PIPE CULVERT TO PROTRUDE A MINIMUM 150 mm BEYOND THE LOWEST BLOCK ROW.

NOTE 2:
GRAVEL DRIVEWAY:
 300 mm (MIN.) GRANULAR 'A' (CRUSHED LIMESTONE)
ASPHALT DRIVEWAY:
 300 mm GRANULAR 'A' SUB-BASE
 50 mm HL4 BASE COURSE
 50 mm HL3 SURFACE COURSE
CONCRETE DRIVEWAY:
 200 mm GRANULAR 'A' - SUB-BASE
 200 mm - 30 MPA CONCRETE

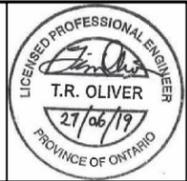


BLOCK ENDWALL - END VIEW

DESCRIPTION	BRIDGE No. 24	BRIDGE No. 32	BRIDGE No. 33	BRIDGE No. 34	BRIDGE No. 35	BRIDGE No. 36	BRIDGE No. 38
BRIDGE LOCATION (STA.)	7+161	7+879	7+928	7+959	7+999	8+045	8+205
PIPE INVERT ELEV. U/S SIDE(m)	184.70	185.40	185.64	185.70	185.71	185.63	186.10
PIPE INVERT ELEV. D/S SIDE(m)	184.68	185.38	185.63	185.69	185.70	185.61	186.07
TOP OF CENTERLINE DRIVEWAY SURFACE ELEVATION (m)	187.70	188.32	188.56	188.62	188.63	188.55	189.12
DRAIN BOTTOM (m) (DESIGN) (AT CENTERLINE OF CULVERT)	185.75	185.75	185.80	186.83	185.87	185.92	186.25
MIN. TOP WIDTH OF DRIVEWAY(m)	9.0	9.0	9.0	9.0	16.0	14.0	9.5
DRIVEWAY SURFACE MATERIAL	GRAVEL	GRAVEL	CONC.	CONC.	CONC.	ASPH.	ASPH.
MIN. CULVERT GRADE (%)	0.10	0.10	0.10	0.10	0.10	0.10	0.10
CULVERT TYPE	C.S.P. ARCH						
PIPE SIZE (mm)	3650 x 2280						
CULVERT LENGTH (m)	11.0	11.0	11.0	11.0	18.0	16.0	14.5
CULVERT THICKNESS (mm)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
CULVERT CORRUGATIONS (mm)	125x25						
CULVERT MATERIAL	ALUM.						
CULVERT ENDWALL TYPE	BLOCK						

DESCRIPTION	BRIDGE No. 20	BRIDGE No. 21	BRIDGE No. 22	BRIDGE No. 25	BRIDGE No. 26	BRIDGE No. 27	BRIDGE No. 28	BRIDGE No. 29	BRIDGE No. 30	BRIDGE No. 31	BRIDGE No. 37
BRIDGE LOCATION (STA.)	6+431	6+492	6+662	7+324	7+355	7+483	7+581	7+610	7+739	7+794	8+133
PIPE INVERT ELEV. U/S SIDE(m)	183.66	183.66	183.88	184.72	184.73	184.73	184.73	184.87	184.97	185.09	185.81
PIPE INVERT ELEV. D/S SIDE(m)	183.65	183.65	183.83	185.71	184.72	184.72	184.72	184.85	184.95	185.02	185.77
TOP OF CENTERLINE DRIVEWAY SURFACE ELEVATION (m)	186.96	186.90	187.14	187.84	187.95	187.80	187.66	187.80	188.04	188.10	188.74
DRAIN BOTTOM (m) (DESIGN) (AT CENTERLINE OF CULVERT)	183.87	183.90	183.98	184.87	184.88	184.93	185.01	185.02	185.12	185.24	186.07
MIN. TOP WIDTH OF DRIVEWAY(m)	9.0	26.0	9.0	11.0	10.0	13.0	9.0	9.0	17.0	9.5	9.0
DRIVEWAY SURFACE MATERIAL	ASPH.	GRAVEL	GRAVEL	ASPH.	ASPH.	ASPH.	GRAVEL	ASPH.	GRAVEL	GRAVEL	ASPH.
MIN. CULVERT GRADE (%)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
CULVERT TYPE	C.S.P. ARCH										
PIPE SIZE (mm)	3890 x 2690	3890 x 2690	3890 x 2690	3650 x 2280							
CULVERT LENGTH (m)	13.0	28.0	13.0	15.0	14.0	17.0	13.0	13.0	21.0	15.0	14.0
CULVERT THICKNESS (mm)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
CULVERT CORRUGATIONS (mm)	125x25										
CULVERT MATERIAL	ALUM.										
CULVERT ENDWALL TYPE	BLOCK										

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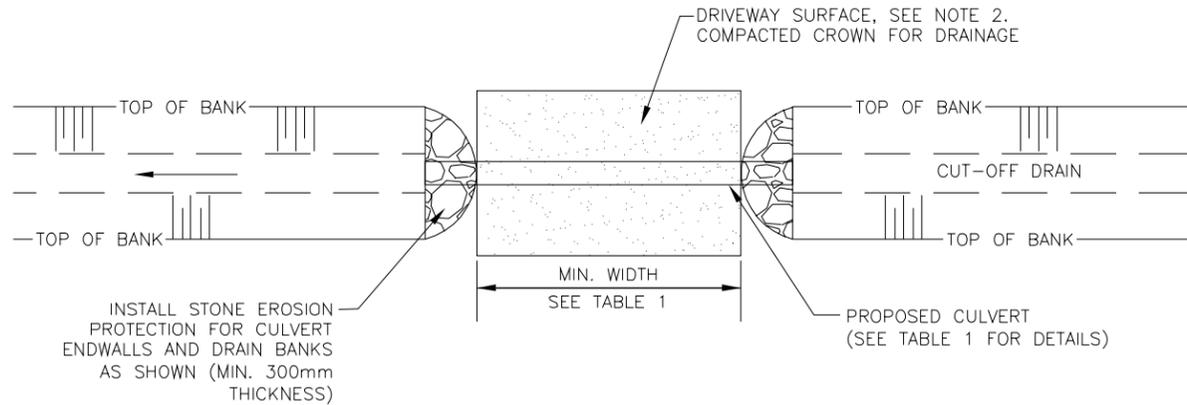
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 DRAWN: JMM, TKS
 CHECKED BY: FRF
 DATE: June 27, 2019
 SCALE: N.T.S.

Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B'
 City of Sarnia
COLE DRAIN ACCESS BRIDGE REPLACEMENT & FUTURE ACCESS REPLACEMENT DETAILS

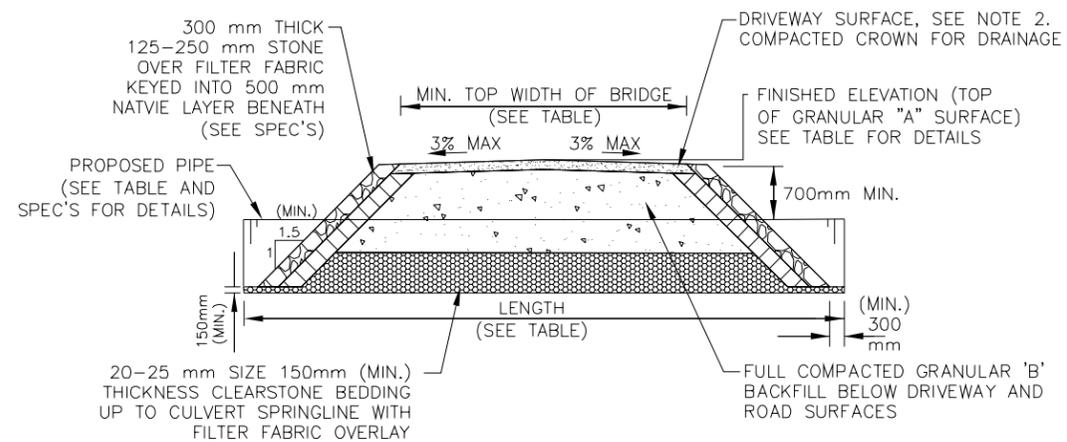
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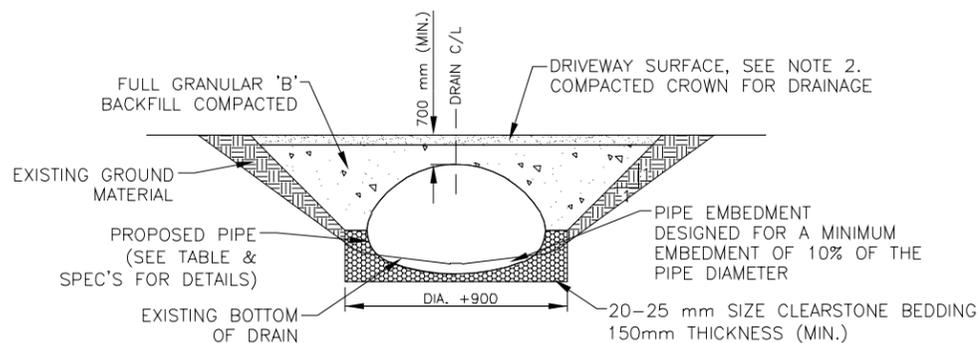
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RIPRAP ENDWALL - PLAN VIEW



RIPRAP ENDWALL - SECTION VIEW



RIPRAP ENDWALL - END VIEW

TABLE 3 - CUT-OFF DRAIN ACCESS BRIDGE DESIGN INFORMATION	
DESCRIPTION	BRIDGE No. 17A
BRIDGE LOCATION (STA.)	4+415
PIPE INVERT ELEV. U/S SIDE(m)	181.92
PIPE INVERT ELEV. D/S SIDE(m)	181.90
TOP OF CENTERLINE DRIVEWAY SURFACE ELEVATION (m)	185.55
DRAIN BOTTOM (m) (DESIGN) (AT CENTERLINE OF CULVERT)	182.21
MIN. TOP WIDTH OF DRIVEWAY(m)	6.0
DRIVEWAY SURFACE MATERIAL	GRAVEL
MIN. CULVERT GRADE (%)	0.10
CULVERT TYPE	C.S.P. ARCH
PIPE SIZE (mm)	4370 x 2890
CULVERT LENGTH (m)	18.0
CULVERT THICKNESS (mm)	3.5
CULVERT CORRUGATIONS (mm)	125x25
CULVERT MATERIAL	ALUM.
CULVERT ENDWALL TYPE	SLOPING

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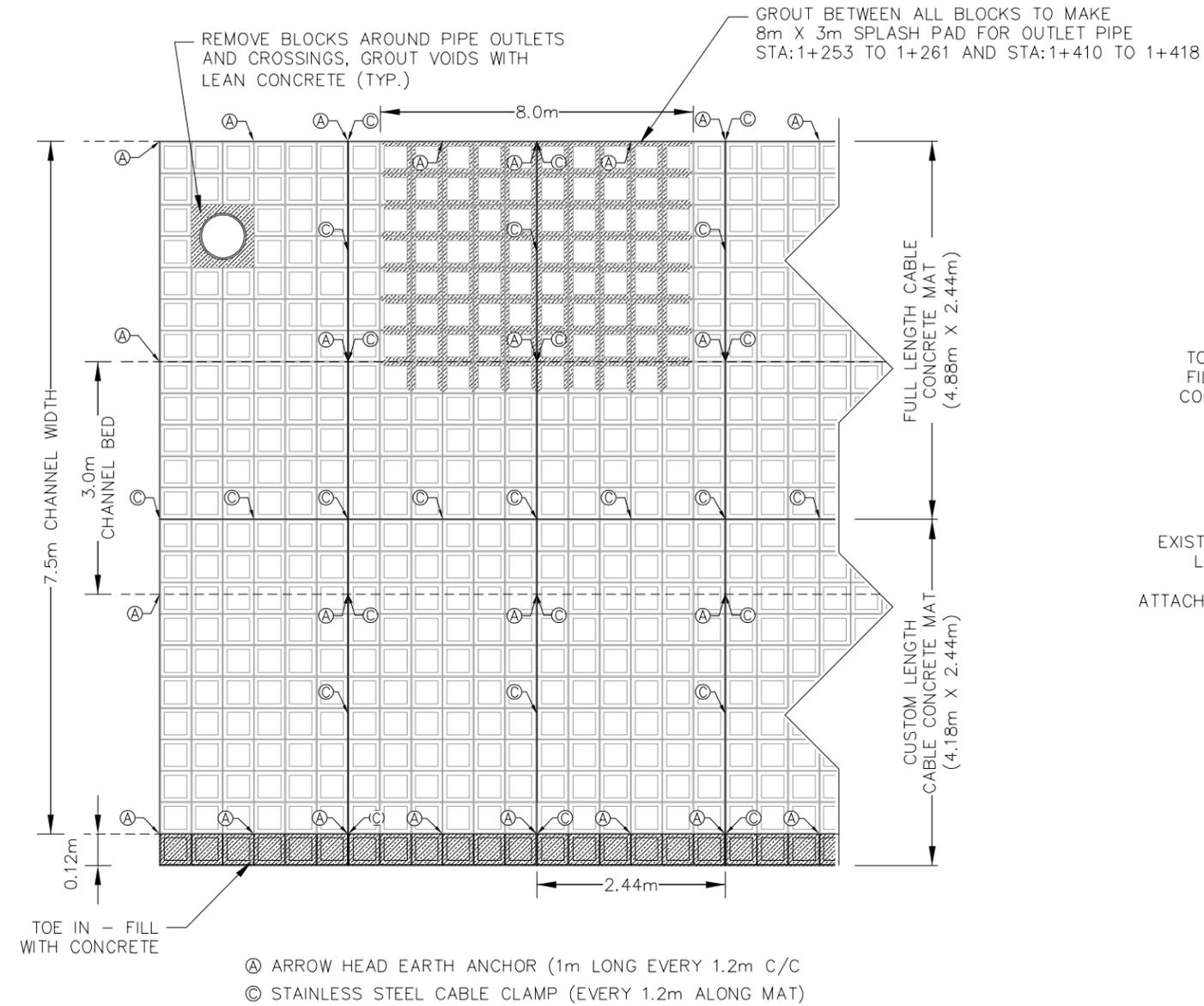
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 City of Sarnia

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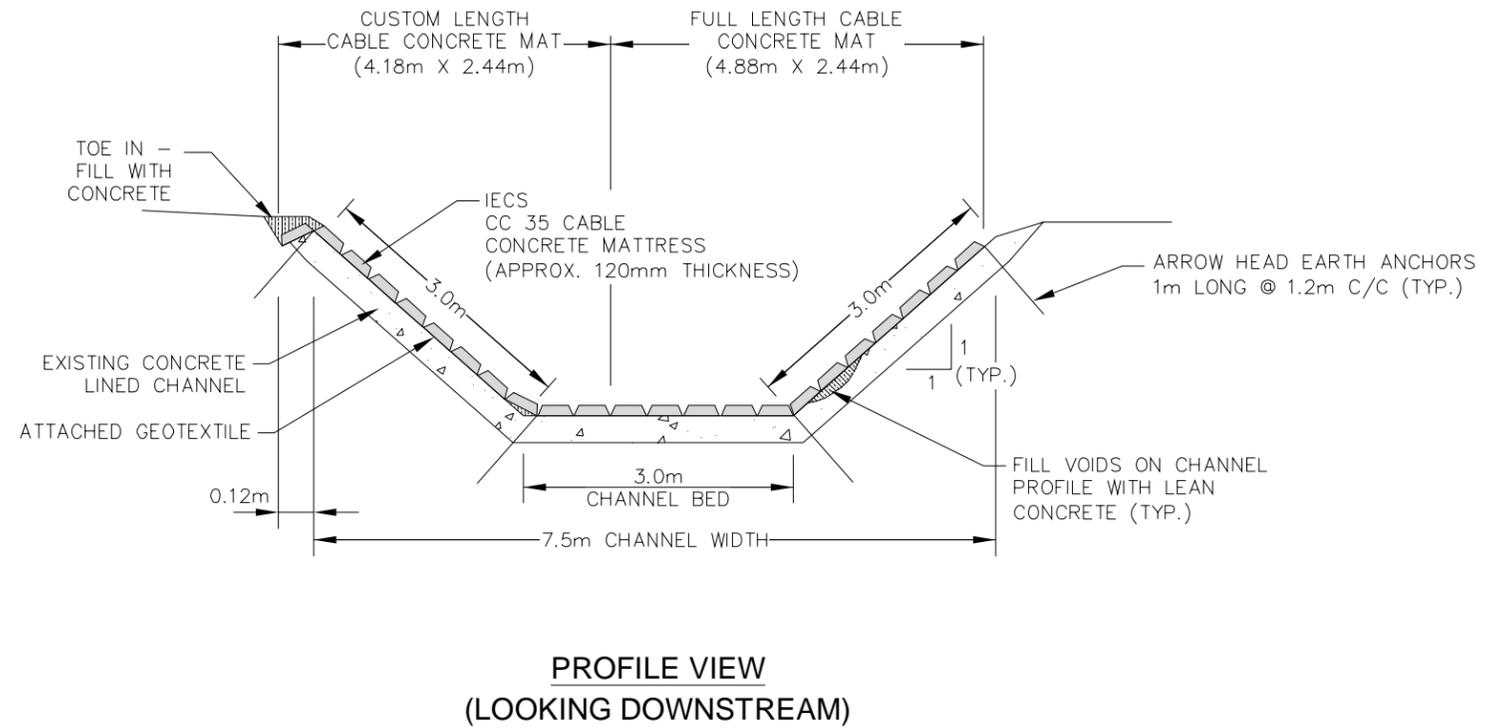
CUT-OFF DRAIN ACCESS BRIDGE DETAILS

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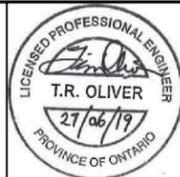


PLAN VIEW



**PROFILE VIEW
(LOOKING DOWNSTREAM)**

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TRO	JJT
DRAWN	CHECKED BY
JMM, TKS	FRF
DATE	June 27, 2019
SCALE	N.T.S.

Cole Drain, Cut-Off Drain & Cole Diversion Drain Branches 'A' & 'B'
City of Sarnia

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**CABLE CONCRETE
DETAILS**

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