



City of Kingston Third Crossing of the Cataraqui River



Volume 3 - Preliminary Design Summary Report



Final Drawing Set: June 2017

JLR File No.: 27143

PARSONS

dtah

JLR
J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

**Golder
Associates**

CSW

THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



INDEX

Mark Van Buren, P.Eng. Director of Engineering and Deputy Commissioner
Dan Franco, P.Eng. Project Engineer



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Dwn:	LM/AM	Chk'd:	SS/LJ
Scale:			
Utility Circ. No.			
Code:			
Load:			

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No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	S.S.	03/05/17

DWG. NO.	DESCRIPTION
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DWG. NO.	DESCRIPTION
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THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



OVERALL ALIGNMENT
MONTREAL ST. TO HIGHWAY No. 15

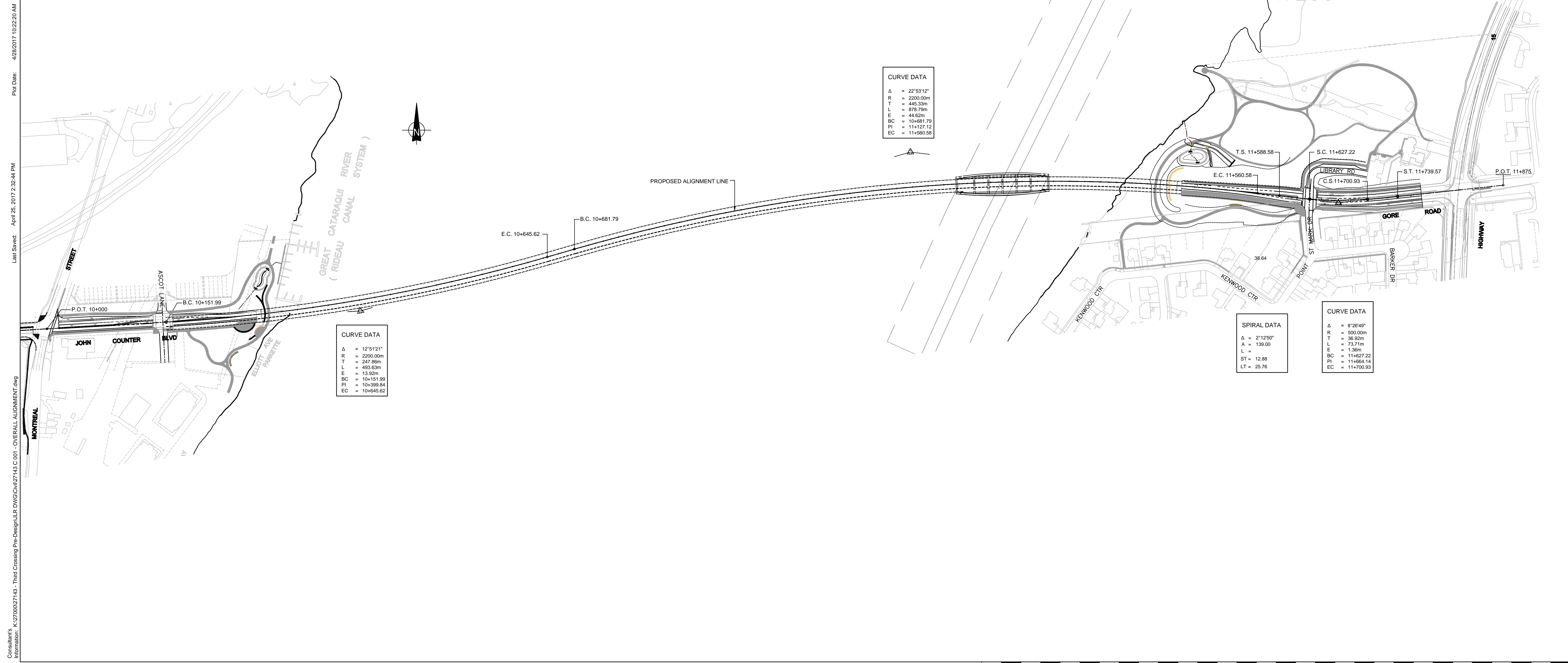
Mark Van Buren, P.Eng. Director of Engineering and Deputy Commissioner
Dan Franco, P.Eng. Project Engineer



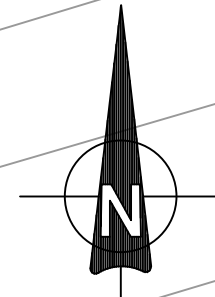
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THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN
EXISTING CONDITIONS
JOHN COUNTER BLVD WEST OF MONTREAL STREET



Mark Van Buren, P.Eng.
Director of Engineering and Deputy Commissioner

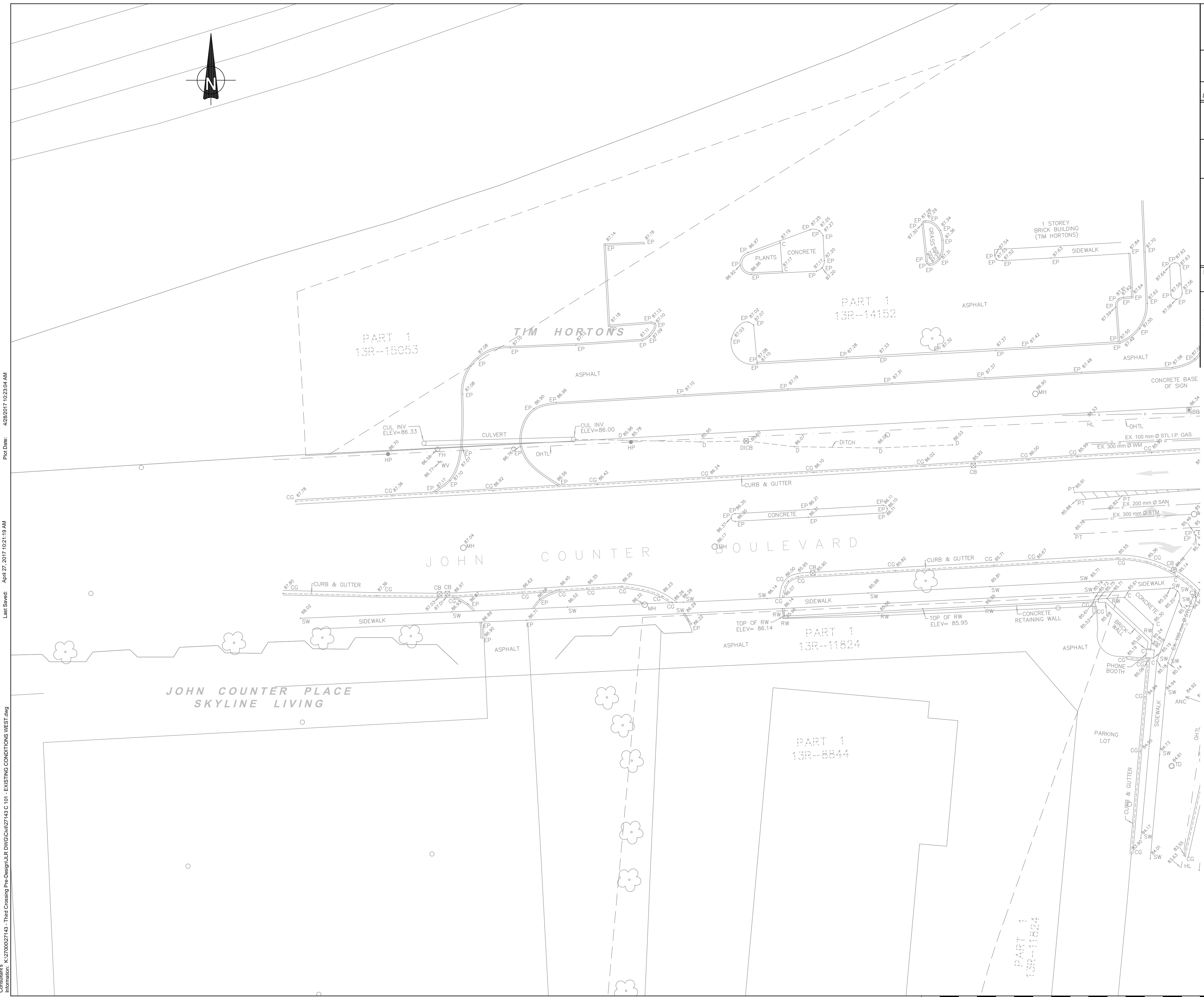
Dan Franco, P.Eng.
Project Engineer



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LEGEND

ANC	ANCHOR
BB	BELL BOX
BF	BOARD FENCE
BD	BOLLARD
BS	BOTTOM OF SLOPE
CG	CURB & GUTTER
CB	CATCH BASIN
DICB	DITCH INLET CATCH BASIN
CL	CENTRE LINE
CLF	CHAIN LINK FENCE
B	BUILDING
D	DITCH
EG	EDGE OF GRAVEL
EP	EDGE OF PAVEMENT
ET	EDGE OF TREES
FH	FIRE HYDRANT
FP	FENCE POST
G	GROUND
C	CONCRETE
GR	GRAVEL
GV	GAS VALVE
HL	HYDRO LINE
HP	HYDRO POLE
LP	LIGHT POLE
MH	MANHOLE
MW	MONITORING WELL
OHTL	OVERHEAD TRANSMISSION LINE
P	PAVEMENT
PT	PAINT
RW	RETAINING WALL
SW	SIDEWALK
TC	CONIFEROUS TREE
TD	DECIDUOUS TREE
TS	TOP OF SLOPE
UGH	UNDERGROUND HYDRO
UGW	UNDERGROUND WATER
UGG	UNDERGROUND GAS
WE	WATER'S EDGE
WF	WIRE FENCE
WV	WATER VALVE
GV	GAS VALVE
GM	GAS METER
CUL	CULVERT
INV	INVERT
---	SANITARY SEWER
---	UNDERGROUND WATER
---	UNDERGROUND GAS
---	UNDERGROUND HYDRO
---	WATERMAIN
---	GAS

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**THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN**

EXISTING CONDITIONS
MONTREAL STREET TO STA. 10+140

Mark Van Buren, P.Eng.
Director of Engineering and Deputy Commissioner

Dan Franco, P.Eng.
Project Engineer

J.L. Richards
ENGINEERS-ARCHITECTS-PLANNERS

PARSONS

Project No.: 27143
Drawing No.: C102
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Des: LM/AM Chk'd: SSL/J
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Code:
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No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	S.S.	03/05/17

REVISIONS

LEGEND

- ANC ANCHOR
- BB BELL BOX
- BF BOARD FENCE
- BD BOLLARD
- BS BOTTOM OF SLOPE
- CG CURB & GUTTER
- CB CATCH BASIN
- DICB DITCH INLET CATCH BASIN
- CL CENTRE LINE
- CLF CHAIN LINK FENCE
- B BUILDING
- D DITCH
- EG EDGE OF GRAVEL
- EP EDGE OF PAVEMENT
- ET EDGE OF TREES
- FH FIRE HYDRANT
- FP FENCE POST
- G GROUND
- C CONCRETE
- GR GRAVEL
- GV GAS VALVE
- HL HYDRO LINE
- HP HYDRO POLE
- LP LIGHT POLE
- MH MANHOLE
- MW MONITORING WELL
- OHTL OVERHEAD TRANSMISSION LINE
- P PAVEMENT
- PT PAINT
- RW RETAINING WALL
- SW SIDEWALK
- TC CONIFEROUS TREE
- TD DECIDUOUS TREE
- TS TOP OF SLOPE
- UGH UNDERGROUND HYDRO
- UGW UNDERGROUND WATER
- UGG UNDERGROUND GAS
- WE WATER'S EDGE
- WF WIRE FENCE
- WV WATER VALVE
- GV GAS VALVE
- GM GAS METER
- CUL CULVERT
- INV INVERT
- SS SANITARY SEWER
- SH UNDERGROUND HYDRO
- WM WATERMAIN
- G GAS

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THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



EXISTING CONDITIONS
STA. 10+140 TO 10+300

Mark Van Buren, P.Eng.
Director of Engineering and Deputy Commissioner

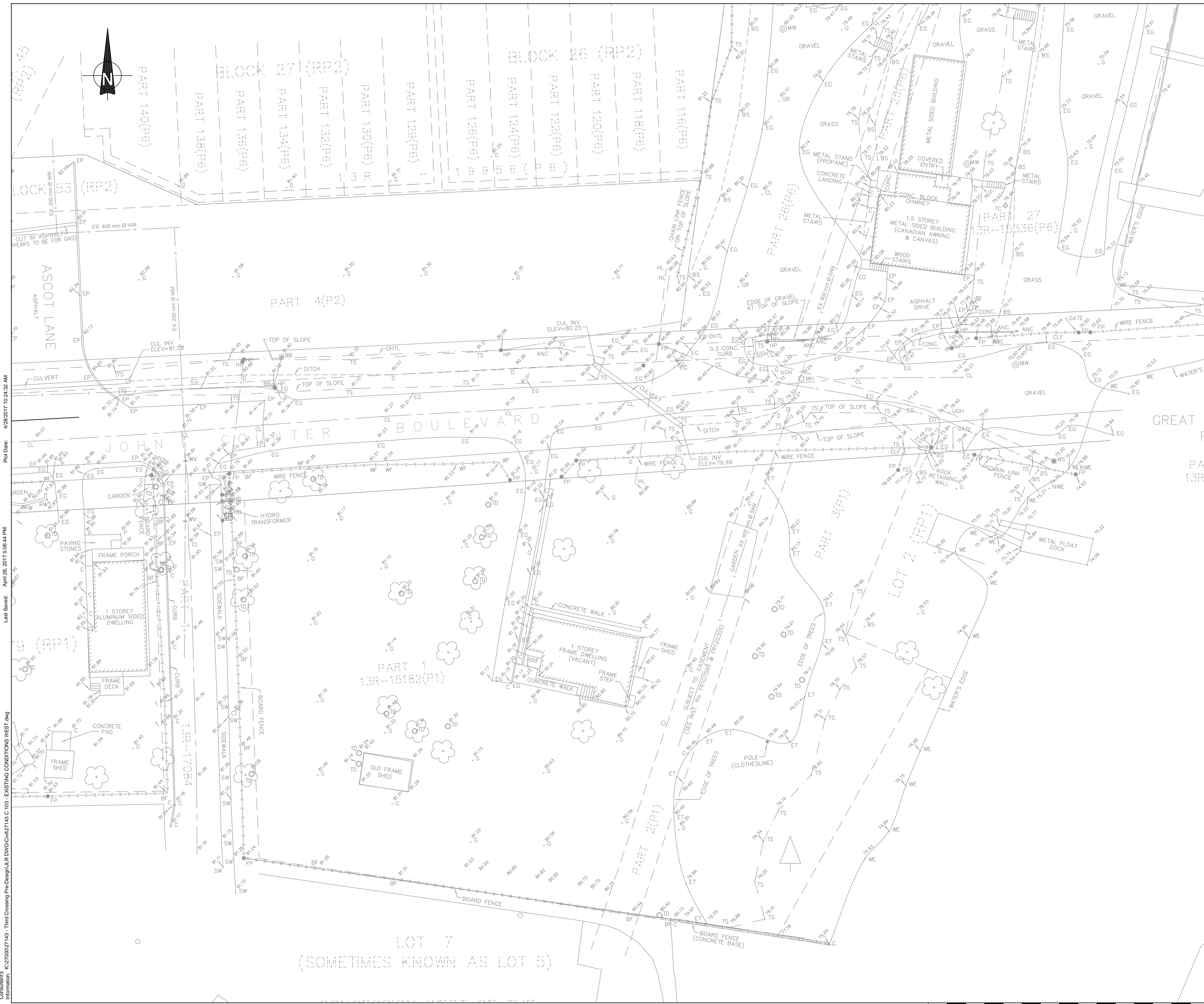
Dan Franco, P.Eng.
Project Engineer



Project No.:	27143
Drawing No.:	C103
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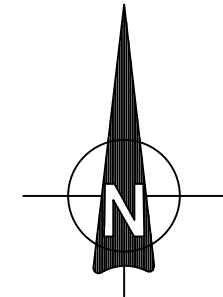
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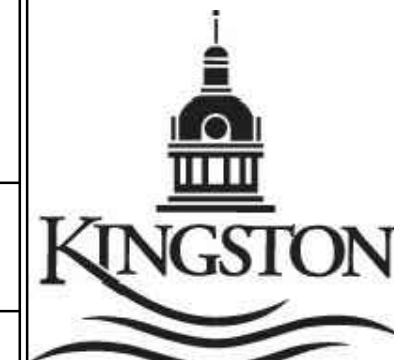
LEGEND

ANC	ANCHOR
BB	BELL BOX
BF	BOARD FENCE
BD	BOLLARD
BS	BOTTOM OF SLOPE
CG	CURB & GUTTER
CB	CATCH BASIN
DICB	DITCH INLET CATCH BASIN
CL	CENTRE LINE
CLF	CHAIN LINK FENCE
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GV	GAS VALVE
GM	GAS METER
CUL	CULVERT
INV	INVERT
	SANITARY SEWER
	STORM SEWER
	UNDERGROUND HYDRO
	UNDERGROUND WATER
	WATERMAIN
	GAS

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THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



EXISTING CONDITIONS
STA. 11+440 TO 11+590

Mark Van Buren, P.Eng.
Director of Engineering and Deputy Commissioner

Dan Franco, P.Eng.
Project Engineer



Project No.:	27143		
Drawing No.:	C104		
Sheet No.:	4 of 7		
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LEGEND

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- BD BOLLARD
- BS BOTTOM OF SLOPE
- CG CURB & GUTTER
- CB CATCH BASIN
- DICB DITCH INLET CATCH BASIN
- CL CENTRE LINE
- CLF CHAIN LINK FENCE
- B BUILDING
- D DITCH
- EG EDGE OF GRAVEL
- EP EDGE OF PAVEMENT
- ET EDGE OF TREES
- FH FIRE HYDRANT
- FP FENCE POST
- G GROUND
- C CONCRETE
- GR GRAVEL
- GV GAS VALVE
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- HP HYDRO POLE
- LP LIGHT POLE
- MH MANHOLE
- MW MONITORING WELL
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- GM GAS METER
- CULV CULVERT
- INV INVERT
- SS SANITARY SEWER
- SH UNDERGROUND WATER
- WM WATERMAIN
- G GAS

THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



EXISTING CONDITIONS
STA. 11+590 TO 11+680

Mark Van Buren, P.Eng.
Director of Engineering and Deputy Commissioner

Dan Franco, P.Eng.
Project Engineer



Project No.:	27143		
Drawing No.:	C105		
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LEGEND

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CUL	CULVERT
INV	INVERT
	SANITARY SEWER
	UNDERGROUND WATER
	UNDERGROUND HYDRO
	WATERMAIN
	GAS

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THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



EXISTING CONDITIONS
STA. 11+680 TO HIGHWAY 15

Mark Van Buren, P.Eng.
Director of Engineering and Deputy Commissioner

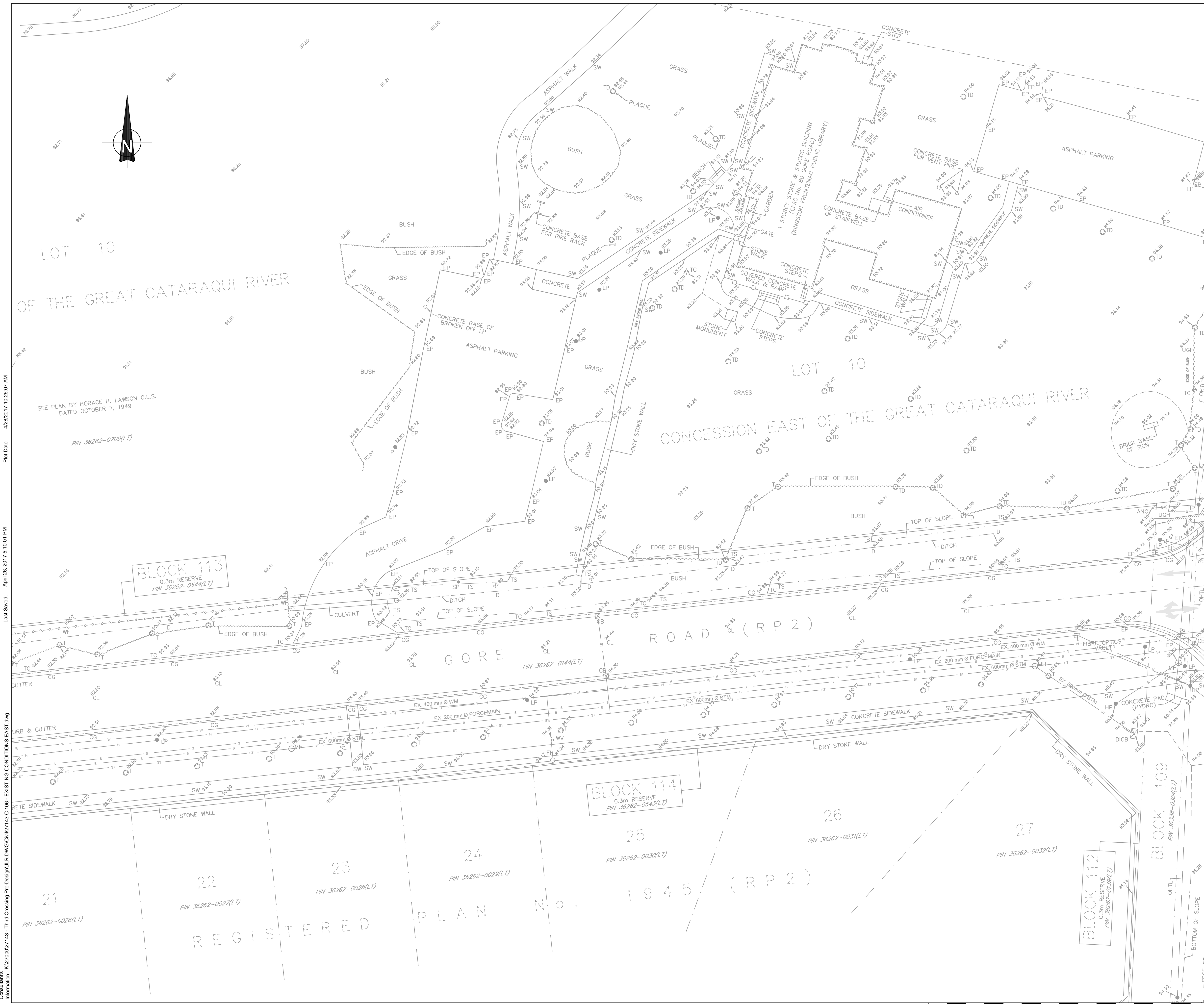
Dan Franco, P.Eng.
Project Engineer

Project No.: 27143
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WF	WIRE FENCE
WV	WATER VALVE
GV	GAS VALVE
GM	GAS METER
CUL	CULVERT
INV	INVERT
---	SANITARY SEWER
---	STORM SEWER
---	UNDERGROUND HYDRO
---	WATERMAIN
---	GAS

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THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



EXISTING CONDITIONS
GORE ROAD EAST OF HIGHWAY 15

Mark Van Buren, P.Eng.
Director of Engineering and Deputy Commissioner

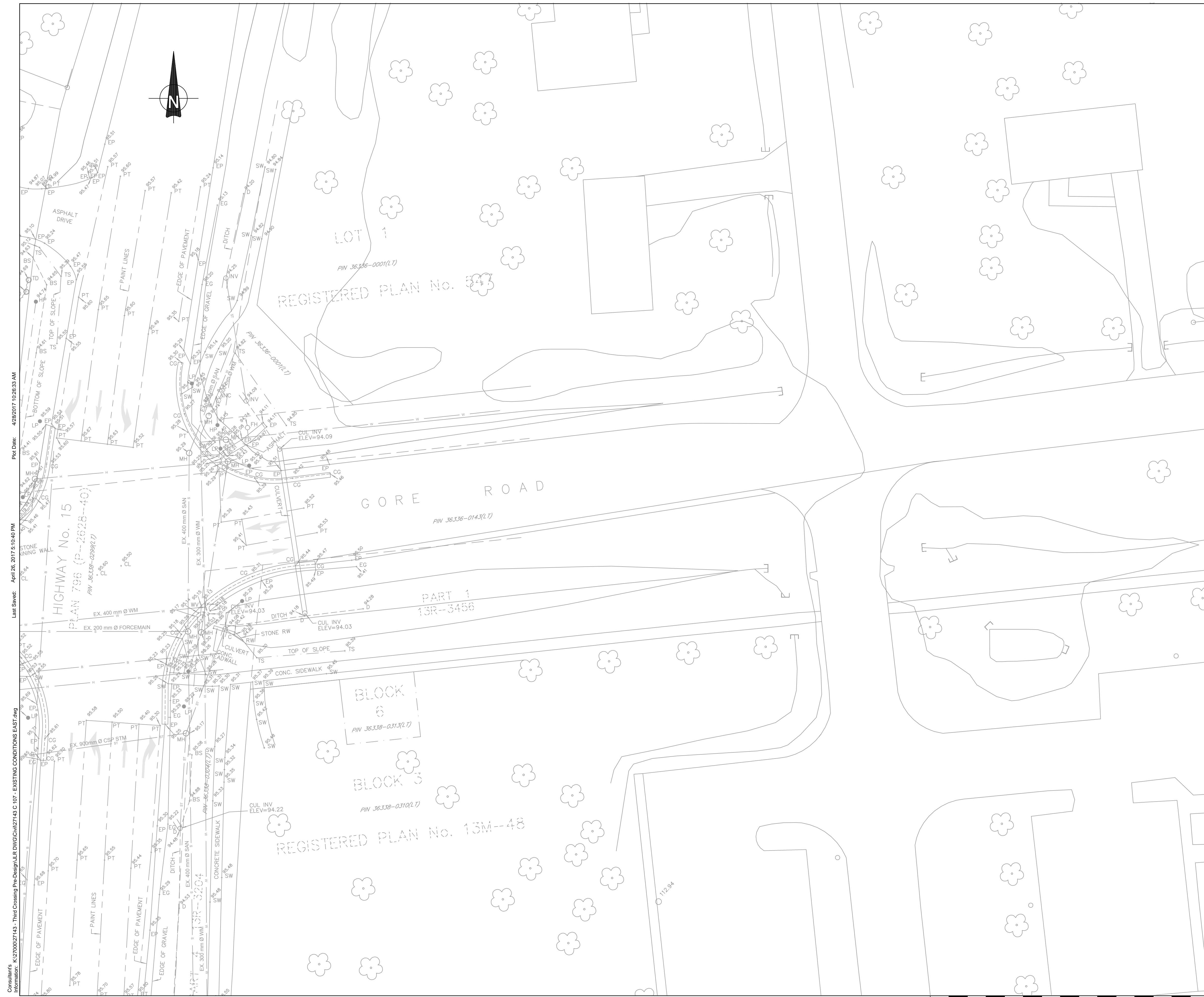
Dan Franco, P.Eng.
Project Engineer



Project No.:	27143
Drawing No.:	C107
Sheet No.:	7 of 7
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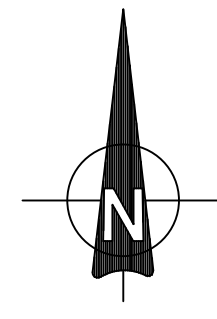
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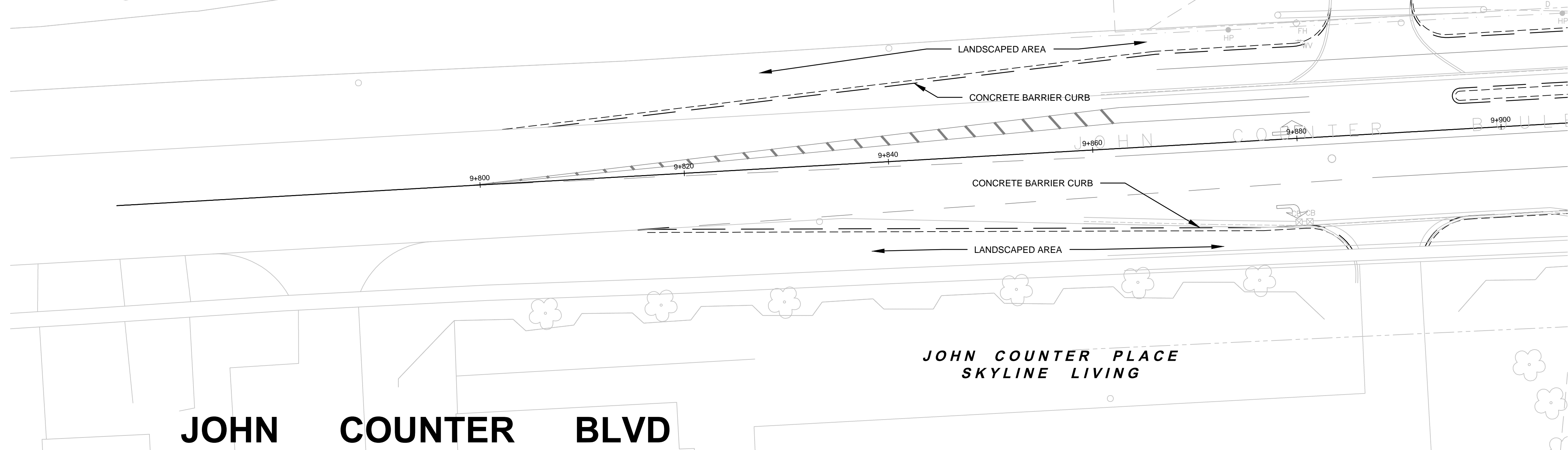
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- BO BOLLARD
- BS BOTTOM OF SLOPE
- CB CURB & GUTTER
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- MH MANHOLE
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- RW RETAINING WALL
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- UGW UNDERGROUND WATER
- UGG UNDERGROUND GAS
- WE WATER'S EDGE
- WF WIRE FENCE
- WV WATER VALVE
- GV GAS VALVE
- GM GAS METER
- CUL CULVERT
- INV INVERT
- SS SANITARY SEWER
- SSW STORM SEWER
- UW UNDERGROUND HYDRO
- WM WATERMAIN
- G GAS



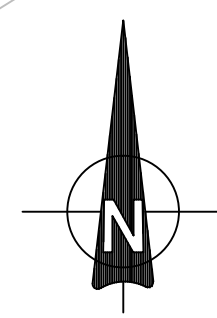
FUTURE ROADWAY DESIGN
WEST OF MONTREAL STREET
BY OTHERS
DURING DETAIL DESIGN

PART 1
13R-15053

TIM HORTONS



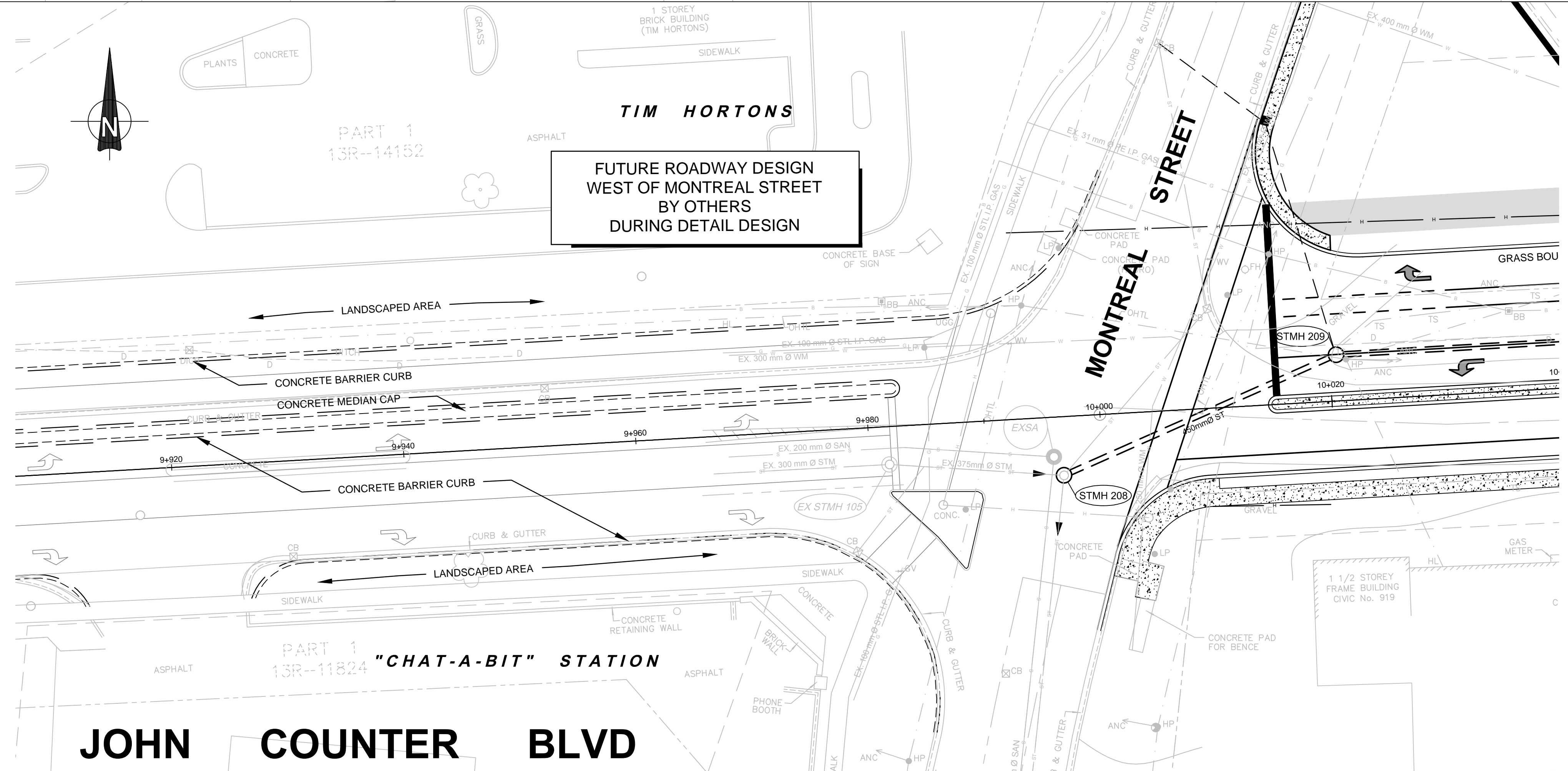
JOHN COUNTER BLVD



FUTURE ROADWAY DESIGN
WEST OF MONTREAL STREET
BY OTHERS
DURING DETAIL DESIGN

PART 1
13R-14152

TIM HORTONS



JOHN COUNTER BLVD

THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN

PLAN AND PROFILE
JOHN COUNTER BLVD WEST OF
MONTREAL STREET

Mark Van Buren, P.Eng. Dan Franco, P.Eng.
Director of Engineering and Deputy Commissioner Project Engineer



Project No.:	27143		
Drawing No.:	C 201		
Sheet No.:	1 of 6		
Des:	LM/AM	Chkd:	SSL/LJ
Dwn:	LM/AM	Chkd:	SSL/LJ
Scale:	1:250		
Utility Circ. No.:			
Code:			
Load:			

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	S.S.	03/05/17

Plot Date: 4/26/2017 10:28:32 AM

Last Saved: April 26, 2017 5:13:28 PM

Consultant's Information: K:\27000\27143 - Third Crossing Pre-Design\JLR DWG\Civil\27143 C 201 - P&P - WEST.dwg

THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



PLAN & PROFILE
MONTREAL STREET TO STA 10+140

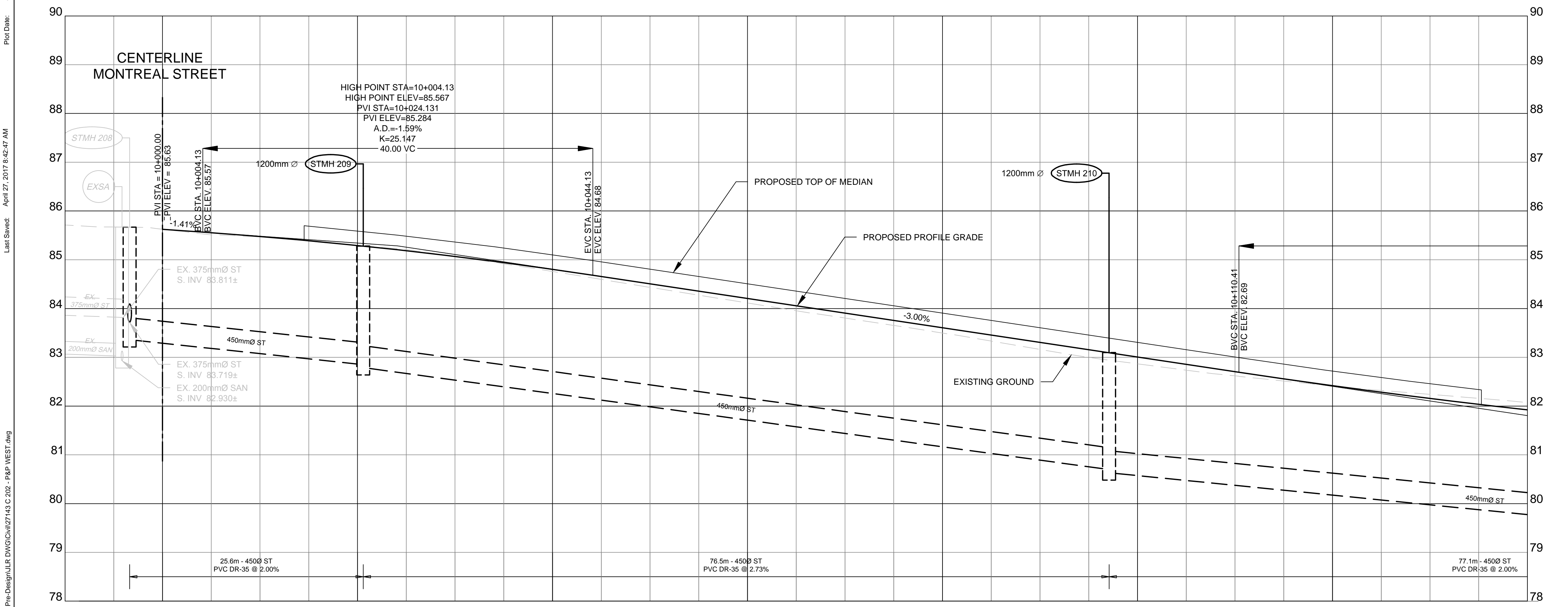
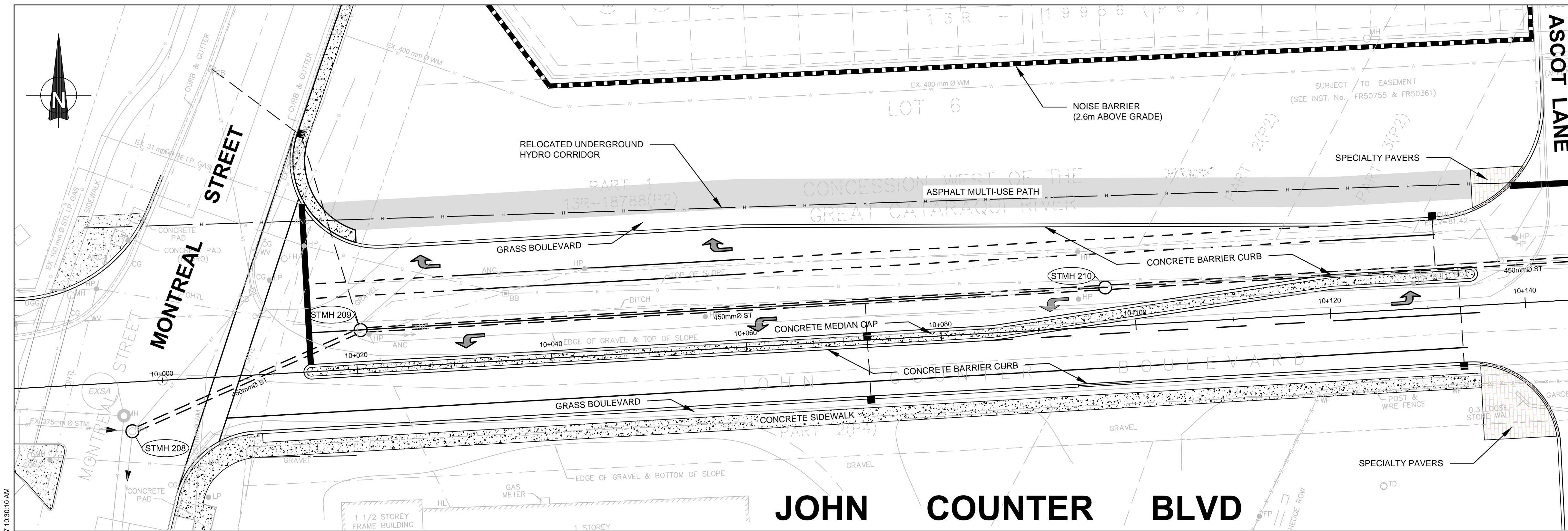
Mark Van Buren, P.Eng. Director of Engineering and Deputy Commissioner
Dan Franco, P.Eng. Project Engineer



Project No.:	27143		
Drawing No.:	C202		
Sheet No.:	2 of 6		
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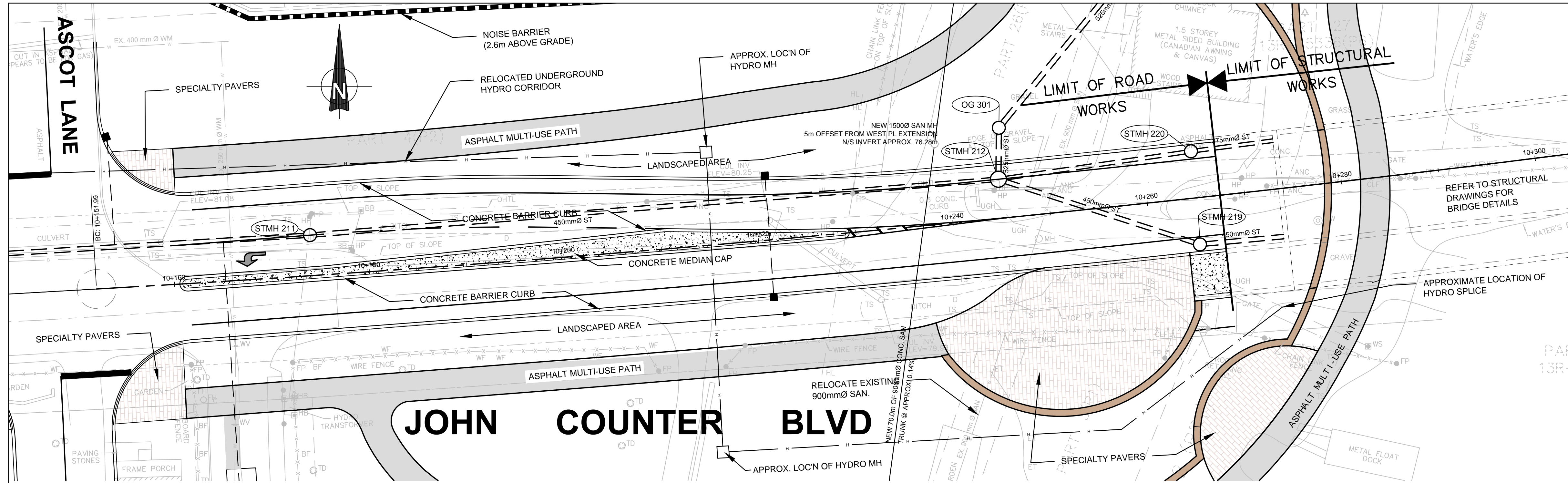
NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	S.S.	03/05/17



DESIGN PROFILE ELEVATIONS	DESIGN PROFILE ELEVATIONS
85.811 83.361	81.922
82.849 82.769	81.392
84.804	80.632
84.207	80.006
83.606	82.417
83.006	81.922
80.697 80.632	
80.000	
82.417	
81.922	
81.392	
80.632	
80.000	
78.361	
78.769	
79.207	
79.606	
80.006	
80.417	
80.811	
81.211	
81.611	
82.011	
82.411	
82.811	
83.211	
83.611	
84.011	
84.411	
84.811	
85.211	
85.611	
86.011	
86.411	
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88.011	
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89.611	
90.011	

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 Last Saved: April 27, 2017 8:42:47 AM
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THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN

PLAN AND PROFILE
STA. 10+140 TO 10+300

Mark Van Buren, P.Eng. Dan Franco, P.Eng.
Director of Engineering and Deputy Commissioner *Project Engineer*

J.L. Richards
ENGINEERS-ARCHITECTS-PLANNERS

PARSONS

Project No.: 27143
Drawing No.: C203
Sheet No.: 3 of 6

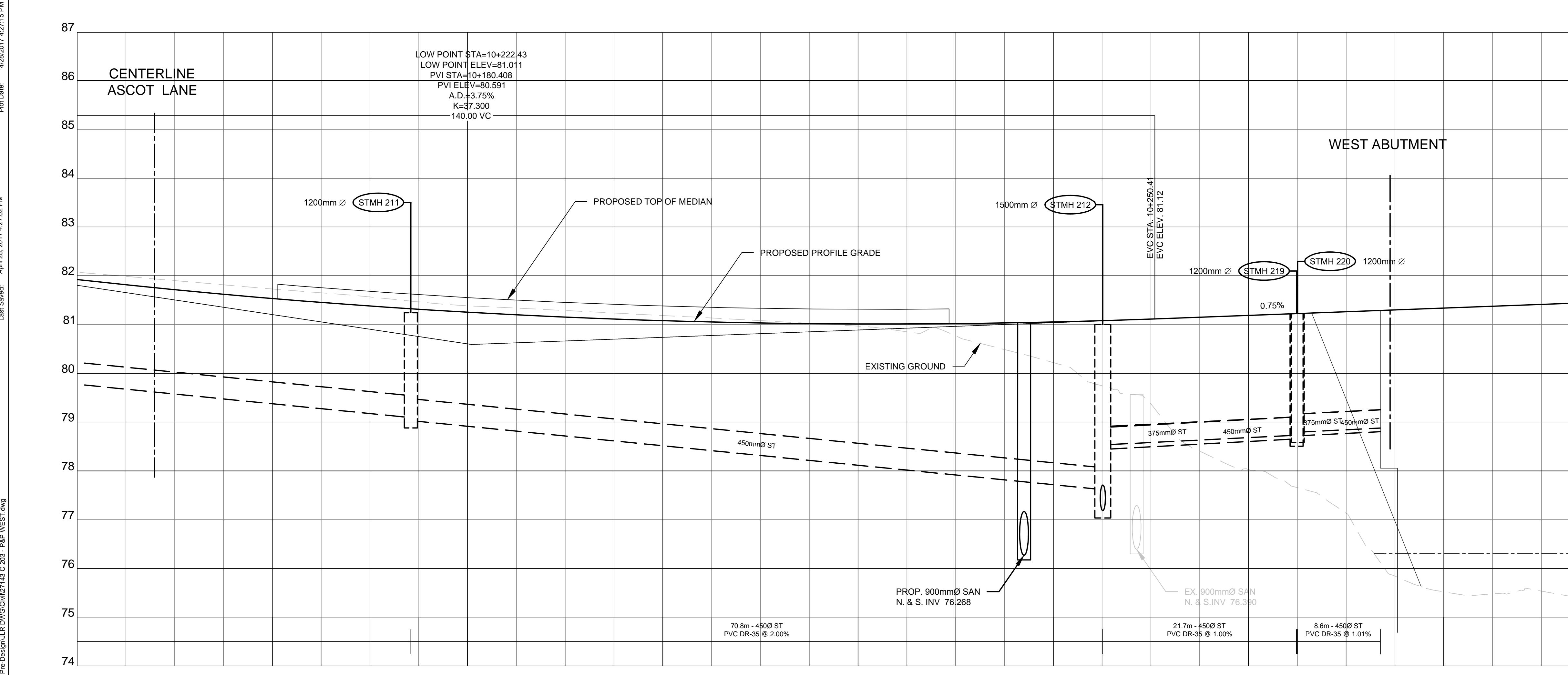
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Scale: HORIZ. 1:250
VERT. 1:50

Utility Circ. No.
Code:
Load:

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	S.S.	03/05/17



DESIGN PROFILE ELEVATIONS	STORM SEWER INV. ELEVATION	C.L. ROADWAY STATION
81.922	79.091	10+140.00
81.533	79.030	10+160.00
81.262	79.000	10+180.00
81.078	78.954	10+200.00
81.011	78.896	10+220.00
81.052	78.820	10+240.00
81.187	78.802	10+260.00
81.327	78.802	10+280.00
81.467	78.802	10+300.00

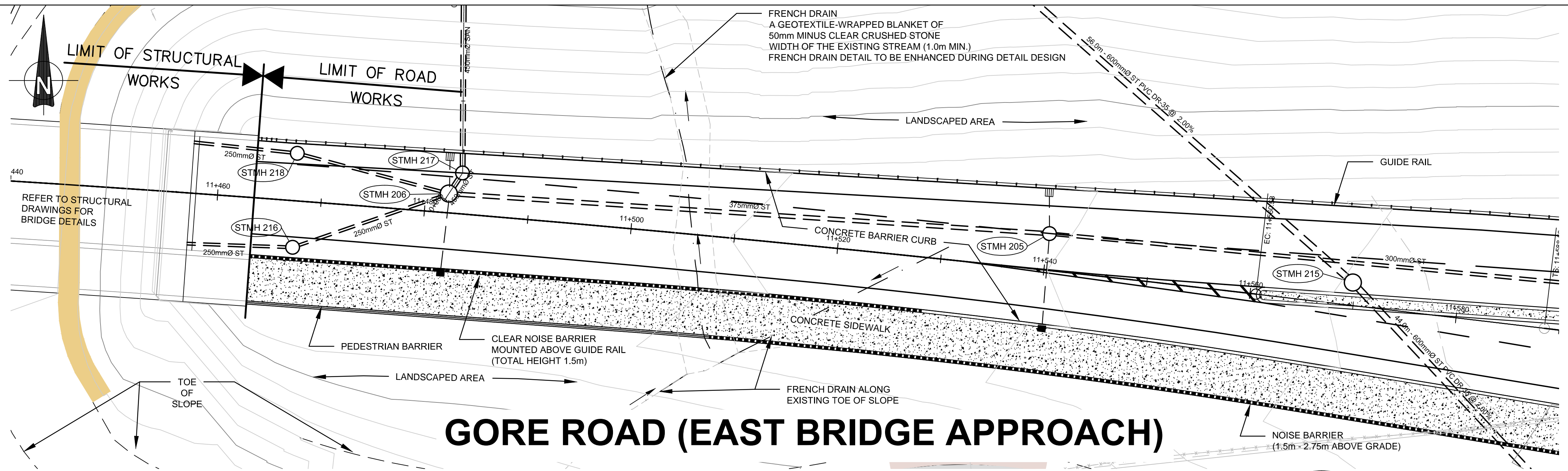
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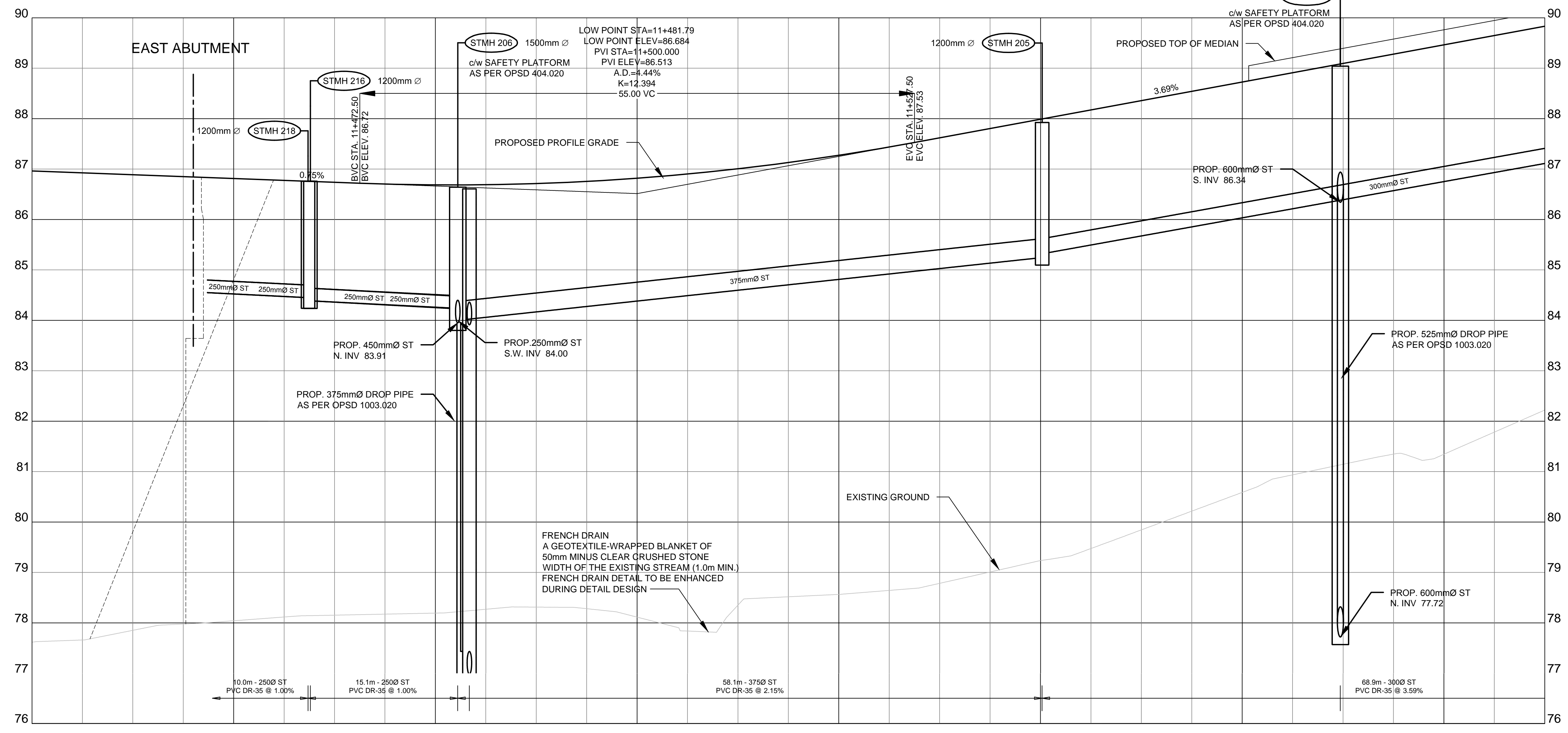
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Drawing No.:	C204
Sheet No.:	4 of 6
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Dwn:	LM/IAM
Chk'd:	SS/LJ
Scale:	HORIZ. 1:250 VERT. 1:50
Utility Circ. No.:	
Code:	
Load:	

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No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	S.S.	03/05/17

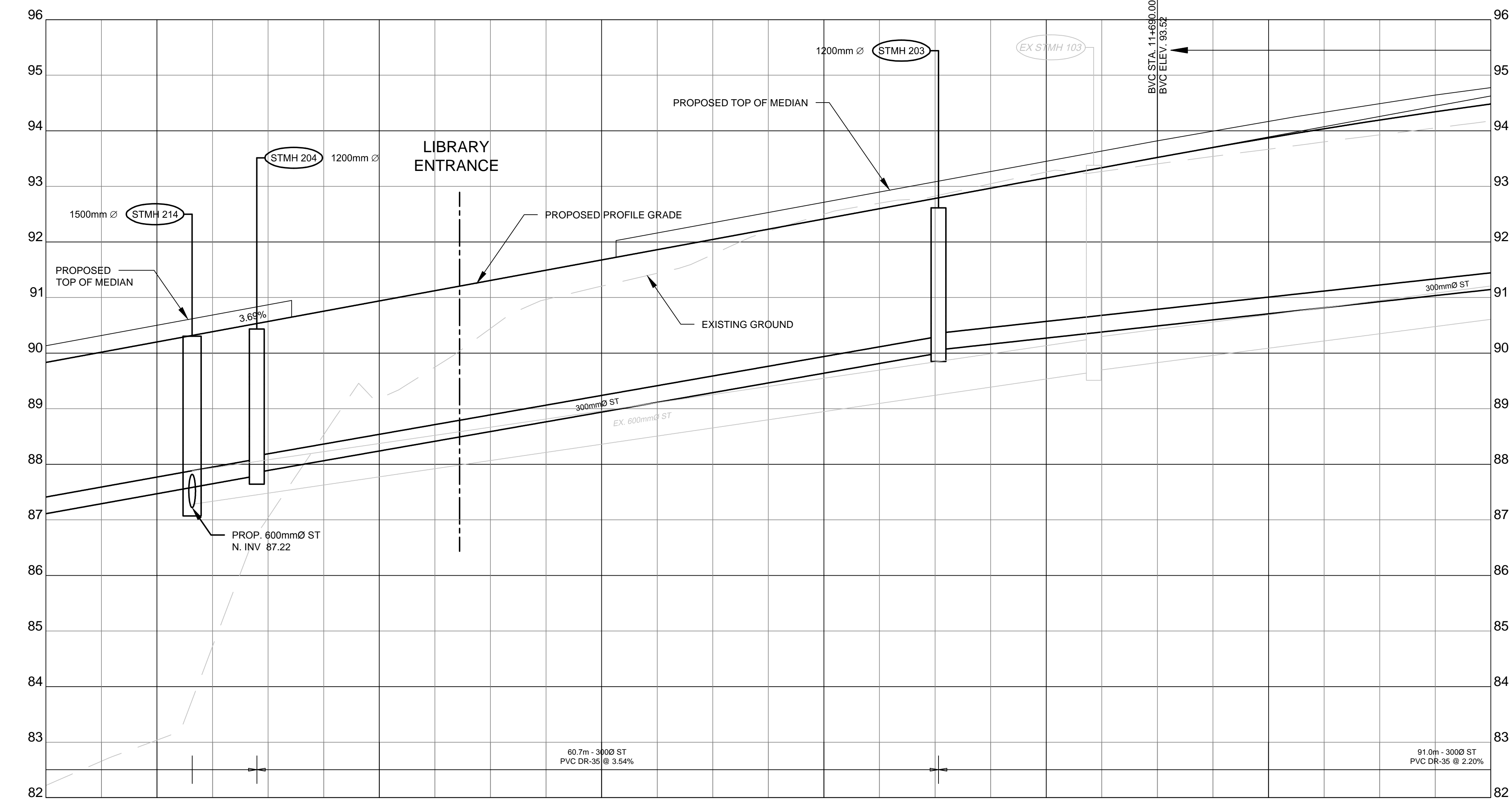
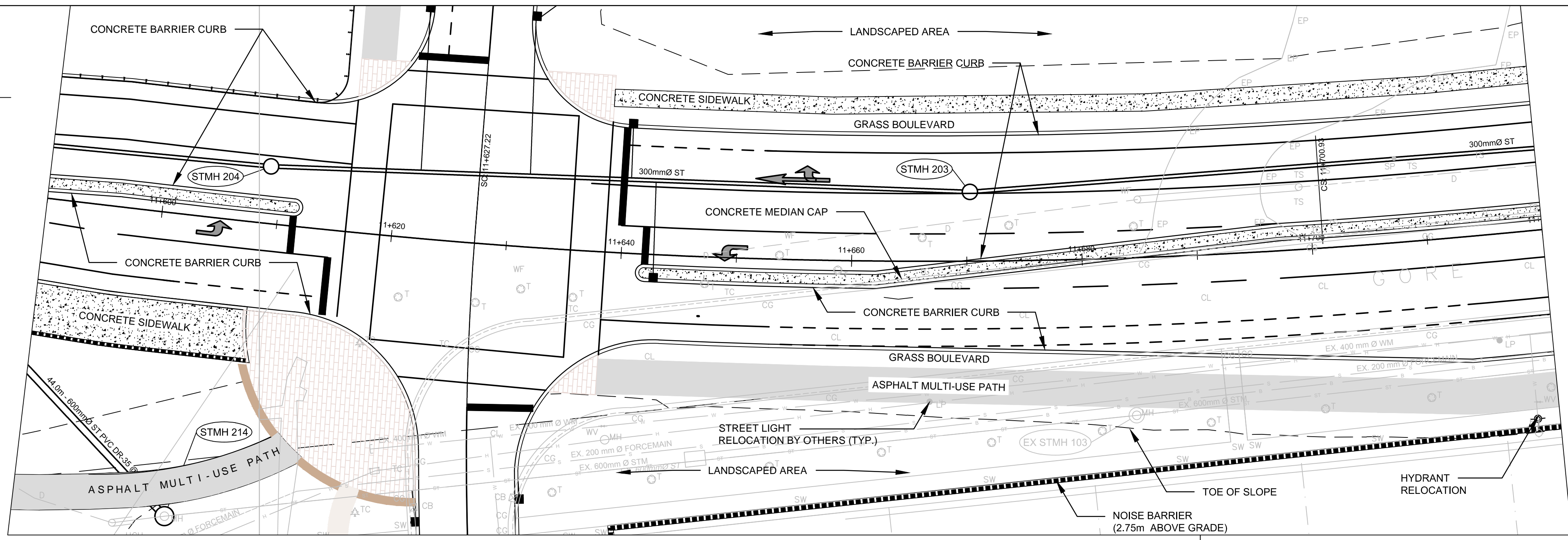
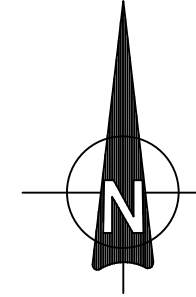


GORE ROAD (EAST BRIDGE APPROACH)



Consultant's Information: K:\27000\27143 - Third Crossing Pre-Design\JLR DWG\Civil\27143 C 204 - P&P - EAST.dwg
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 Plot Date: 4/28/2017 10:34:35 AM

DESIGN PROFILE ELEVATIONS	STORM SEWER INV. ELEVATION	C.L. ROADWAY STATION	DESIGN PROFILE ELEVATIONS	STORM SEWER INV. ELEVATION	C.L. ROADWAY STATION
86.963		11+440.00	86.963		
86.813	84.549	11+460.00	86.813	84.449	
86.686	84.387	11+480.00	86.686	84.288	
86.818	84.000	11+500.00	86.818	84.000	
87.273		11+520.00	87.273		
87.988	85.245	11+540.00	87.988	85.320	
88.726		11+560.00	88.726		
89.463		11+580.00	89.463		



DESIGN PROFILE ELEVATIONS	92.035	92.201	92.658	92.958	93.156	93.414	93.656	93.873	94.483
STORM SEWER INV. ELEVATION		87.793 87.853					89.999 90.059		
C.L. ROADWAY STATION	11+600.00		11+650.00		11+680.00		11+700.00		11+720.00

**THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN**

PLAN & PROFILE
STA 11+590 TO 11+680

Mark Van Buren, P.Eng. Director of Engineering and Deputy Commissioner
Dan Franco, P.Eng. Project Engineer

J.L. Richards
ENGINEERS-ARCHITECTS-PLANNERS

PARSONS

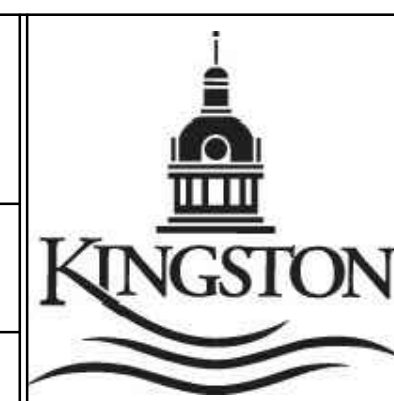
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Drawing No.: C205
Sheet No.: 5 of 6

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Dwn: LM/AM Chk'd: SS/LJ
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VERT. 1:50
Utility Circ. No.
Code:
Load:

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	S.S.	03/05/17

Consultant's Information: K:\27000\27143 - Third Crossing Pre-Design\JLR\DWG\Civil\27143 C 205 - P&P - EAST.dwg
 Last Saved: April 27, 2017 8:37:07 AM
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THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



PLAN & PROFILE
STA 11+680 TO HIGHWAY 15

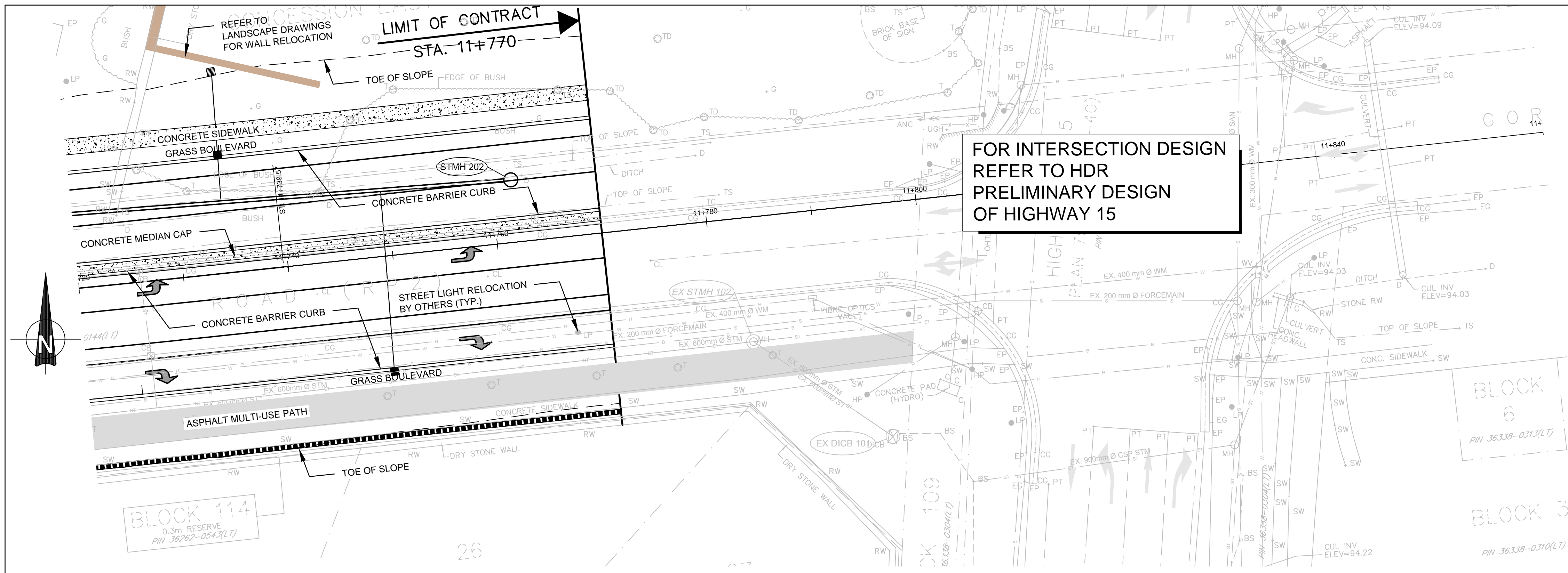
Mark Van Buren, P.Eng. Director of Engineering and Deputy Commissioner
Dan Franco, P.Eng. Project Engineer



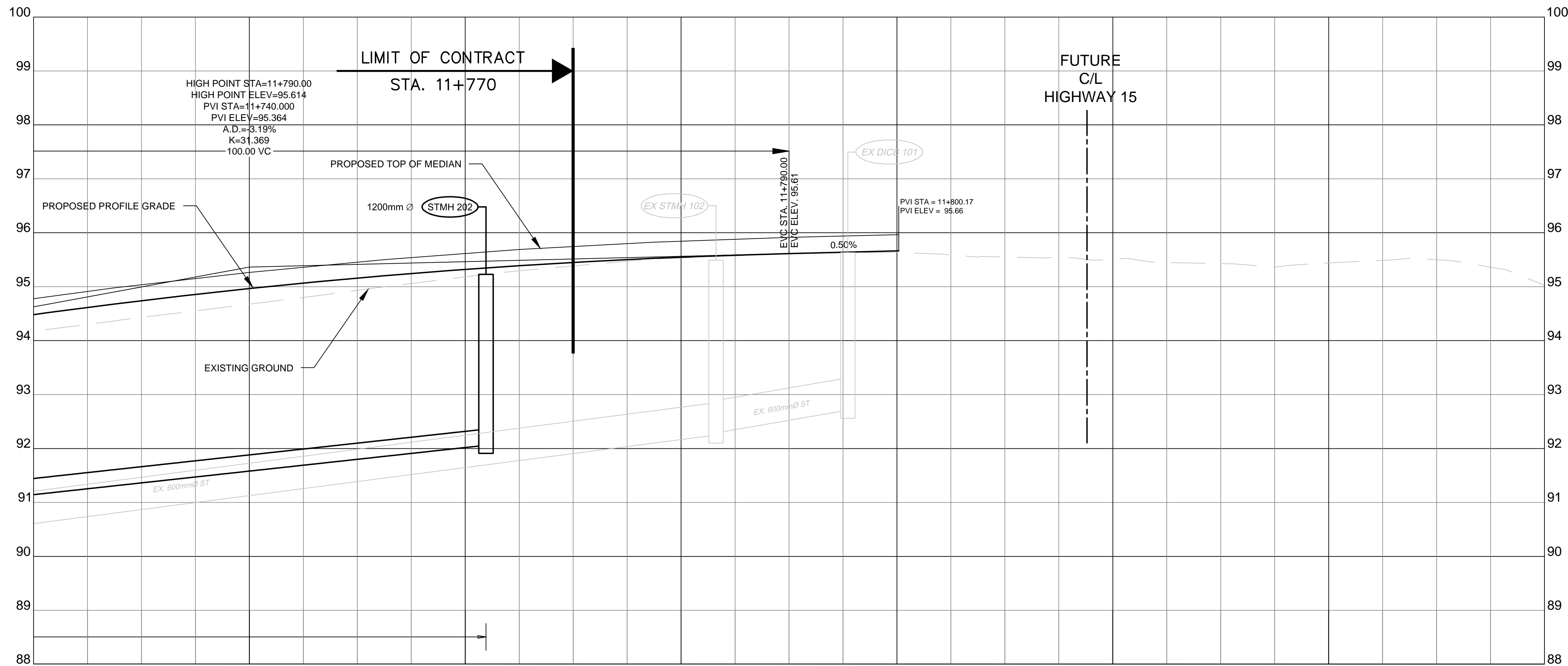
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Drawing No.:	C206
Sheet No.:	6 of 6
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Dwn:	LM/AM
Chk'd:	SS/LJ
Scale:	HORIZ. 1:250 VERT. 1:50
Utility Circ. No.:	
Code:	
Load:	

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	S.S.	03/05/17

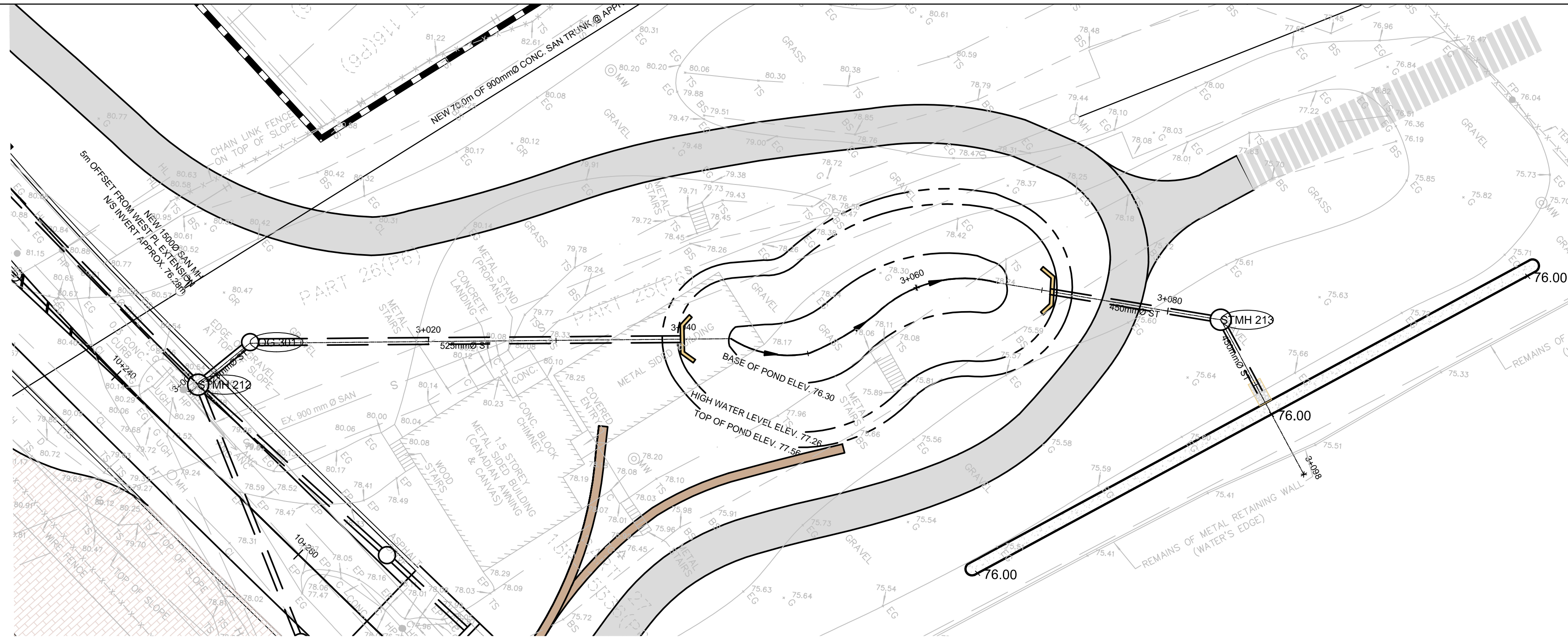
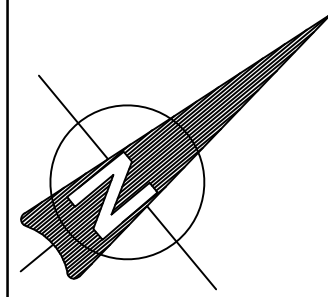


FOR INTERSECTION DESIGN
REFER TO HDR
PRELIMINARY DESIGN
OF HIGHWAY 15



DESIGN PROFILE ELEVATIONS	94.483	94.676	94.965	95.080	95.032	95.548	95.637	95.664	95.510	95.440	95.028
STORM SEWER INV. ELEVATION				92.080							
C.L. ROADWAY STATION	11+720.00	11+740.00	11+760.00	11+780.00	11+800.00	11+820.00	11+840.00	11+860.00	11+880.00	11+900.00	11+920.00
DESIGN PROFILE ELEVATIONS											
STORM SEWER INV. ELEVATION											
C.L. ROADWAY STATION											

Consultant's Information: K:\27000\27143 - Third Crossing Pre-Design\JLR DWG\Civil\27143 C 206 - P&P - EAST.dwg
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 Plot Date: 4/28/2017 10:38:02 AM



**THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN
WEST STORMWATER
MANAGEMENT POND
PLAN & PROFILE**



Mark Van Buren, P.Eng.
Director of Engineering and Deputy Commissioner

Dan Franco, P.Eng.
Project Engineer

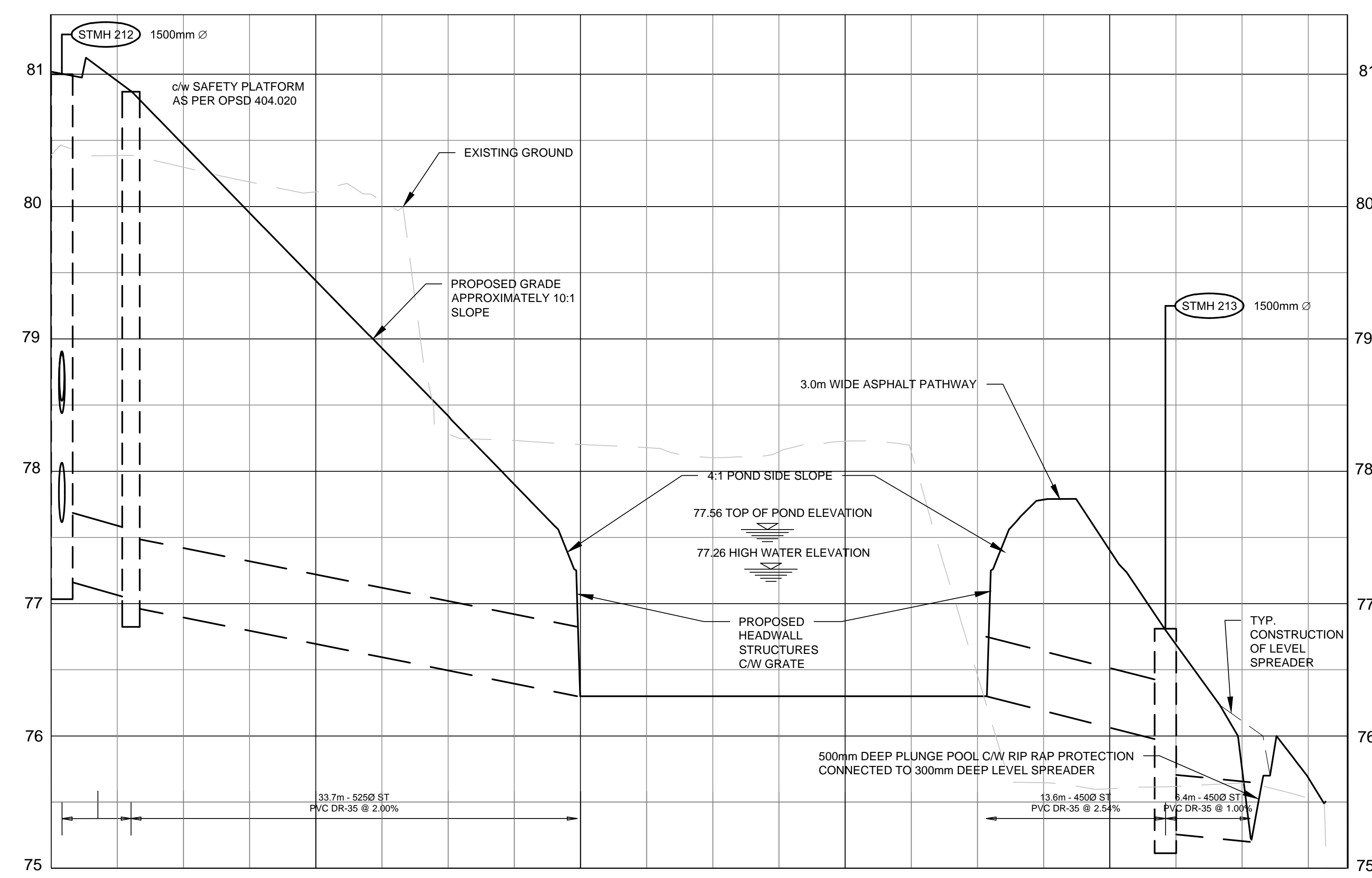


Project No.:	27143		
Drawing No.:	C301		
Sheet No.:	1 of 2		
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Dwn:	LM/AM	Chk'd:	SS/LJ/BP
Scale:	HORIZ. 1:250 VERT. 1:50		
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Code:			
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No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	S.S.	03/05/17

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 Last Saved: April 28, 2017 10:11:54 AM
 Plot Date: 4/28/2017 10:40:27 AM



DESIGN PROFILE ELEVATIONS	80.388	81.020	79.440	78.300	76.300	75.601	77.403	74.019	DESIGN PROFILE ELEVATIONS
STORM SEWER INV. ELEVATION	77.184	77.034	76.974	76.300	76.300	75.956	75.864	75.200	STORM SEWER INV. ELEVATION
C.L. ROADWAY STATION	3+000.00	3+000.81	3+006.04	3+020.00	3+040.00	3+060.00	3+080.00	3+084.21	3+097.06

THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN

LANE ARRANGEMENT
MONTREAL ST. TO STA 10+300

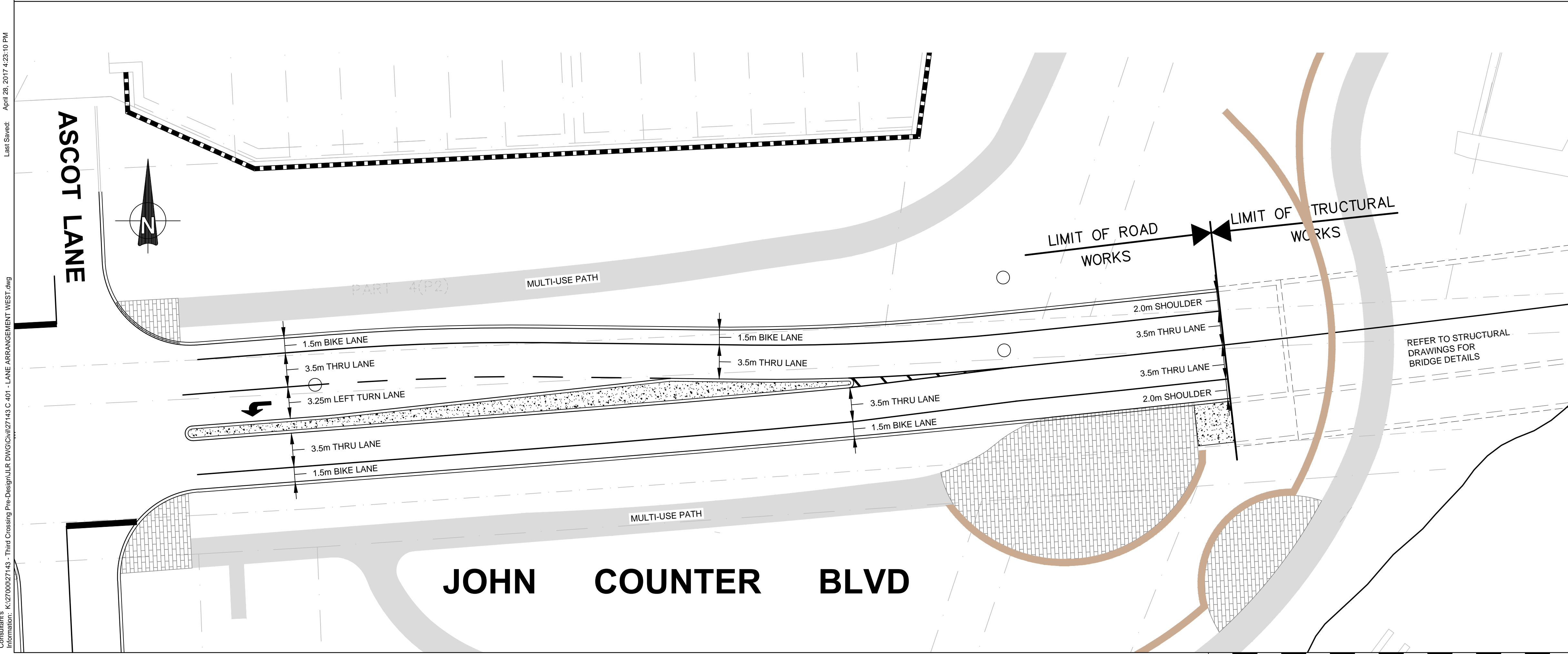
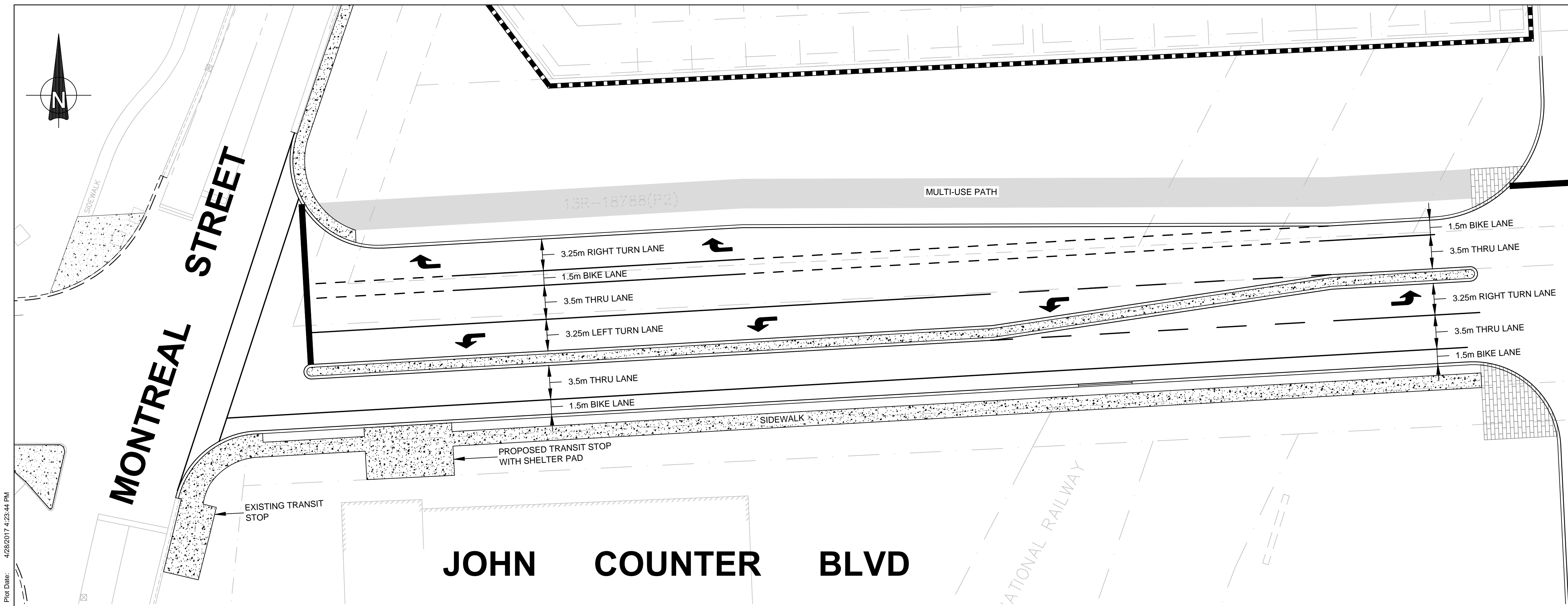
Mark Van Buren, P.Eng. Director of Engineering and Deputy Commissioner
Dan Franco, P.Eng. Project Engineer



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Dwn:	AM
Chk'd:	SSLJ
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Code:	
Load:	

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No.	Description	By	Date (dd/mm/yy)
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Last Saved: April 28, 2017 2:25:10 PM

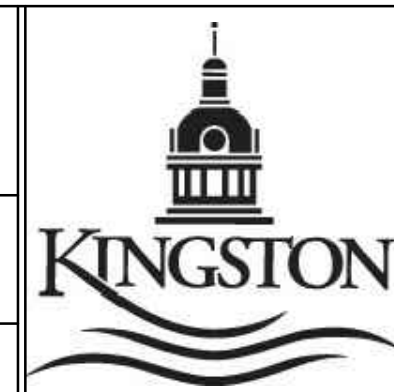
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THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN

LANE ARRANGEMENT
STA 11+440 TO STA 11+720

Mark Van Buren, P.Eng.
Director of Engineering and Deputy Commissioner

Dan Franco, P.Eng.
Project Engineer

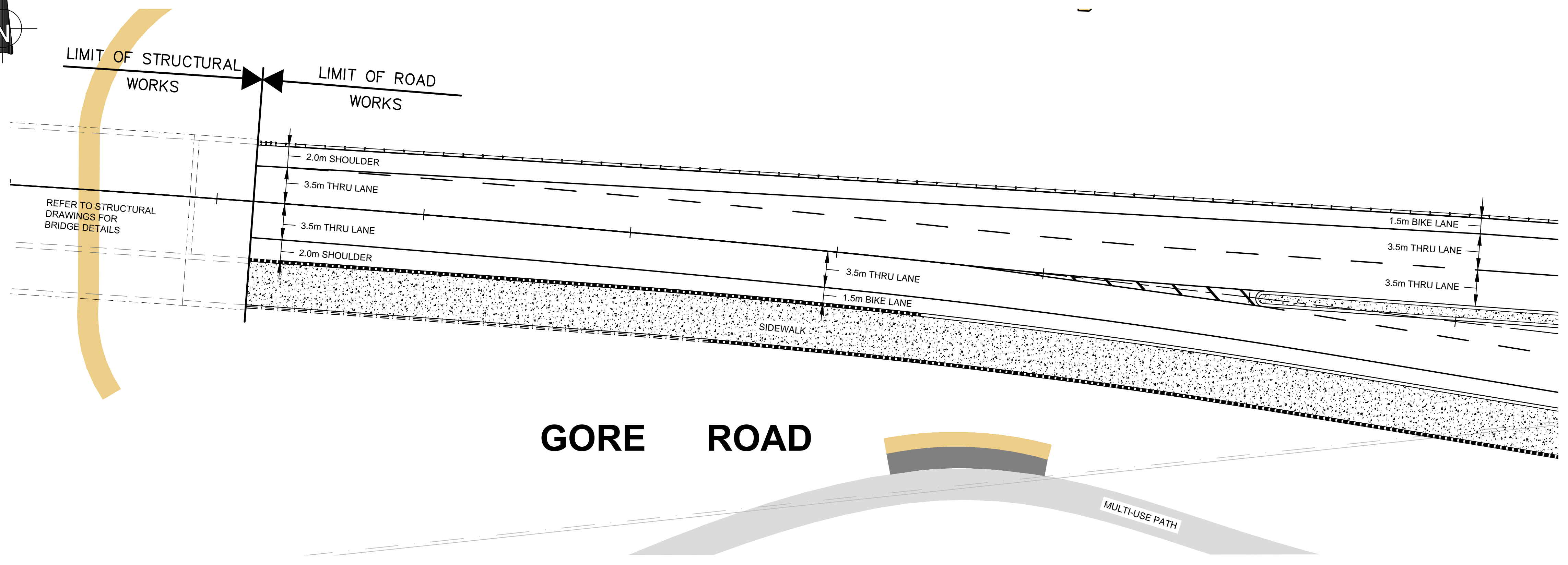
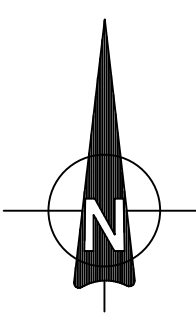


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NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

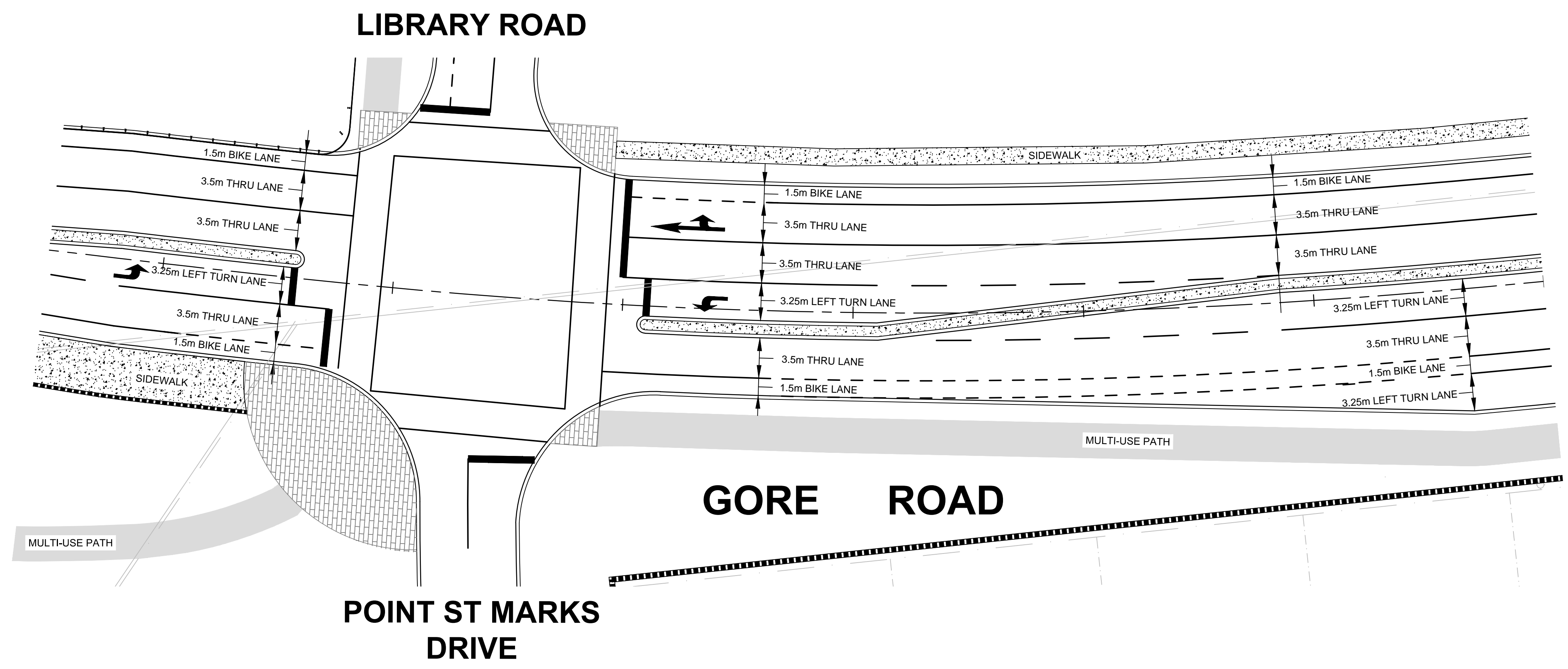
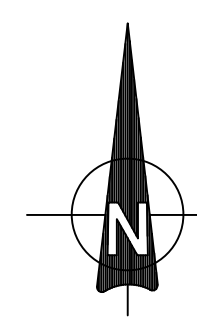
No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	S.S.	03/05/17

REVISIONS



GORE ROAD

MULTI-USE PATH



LIBRARY ROAD

GORE ROAD

POINT ST MARKS DRIVE

MULTI-USE PATH

Plot Date: 4/28/2017 10:46:30 AM

Last Saved: April 27, 2017 9:06:56 AM

Consultant's Information: K:\27000\27143 - Third Crossing Pre-Design\JLR DWG\Civil\27143 C 402 - LANE ARRANGEMENT.dwg

HIGHWAY 15

THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



LANE ARRANGEMENT
STA 11+720 TO HIGHWAY No. 15

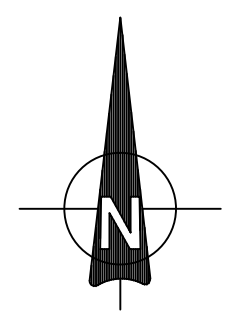
Mark Van Buren, P.Eng. Director of Engineering and Deputy Commissioner
Dan Franco, P.Eng. Project Engineer



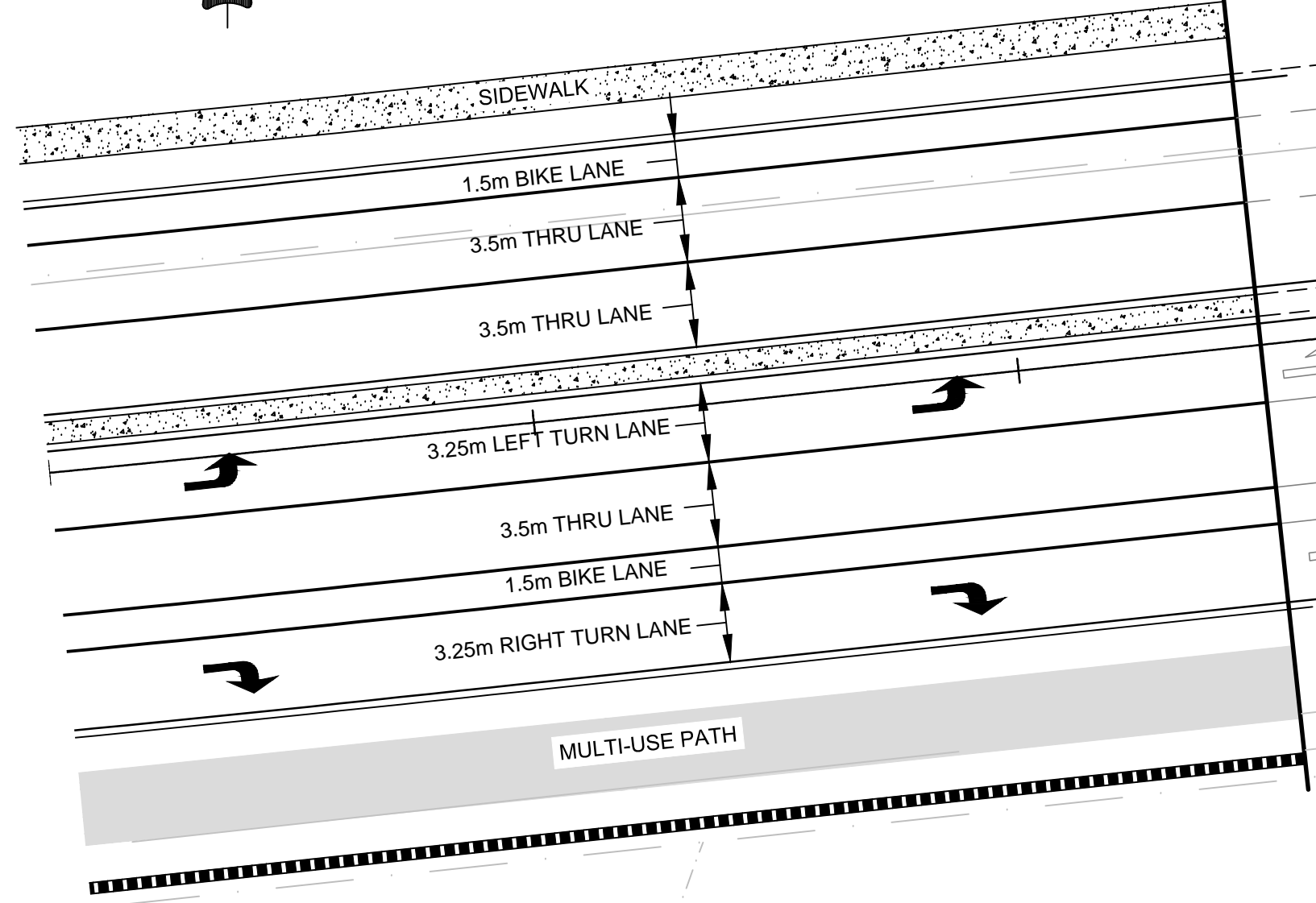
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Drawing No.:	C403		
Sheet No.:	3 of 3		
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Code:			
Load:			

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No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	S.S.	03/05/17



LIMIT OF CONTRACT
STA. 11+770

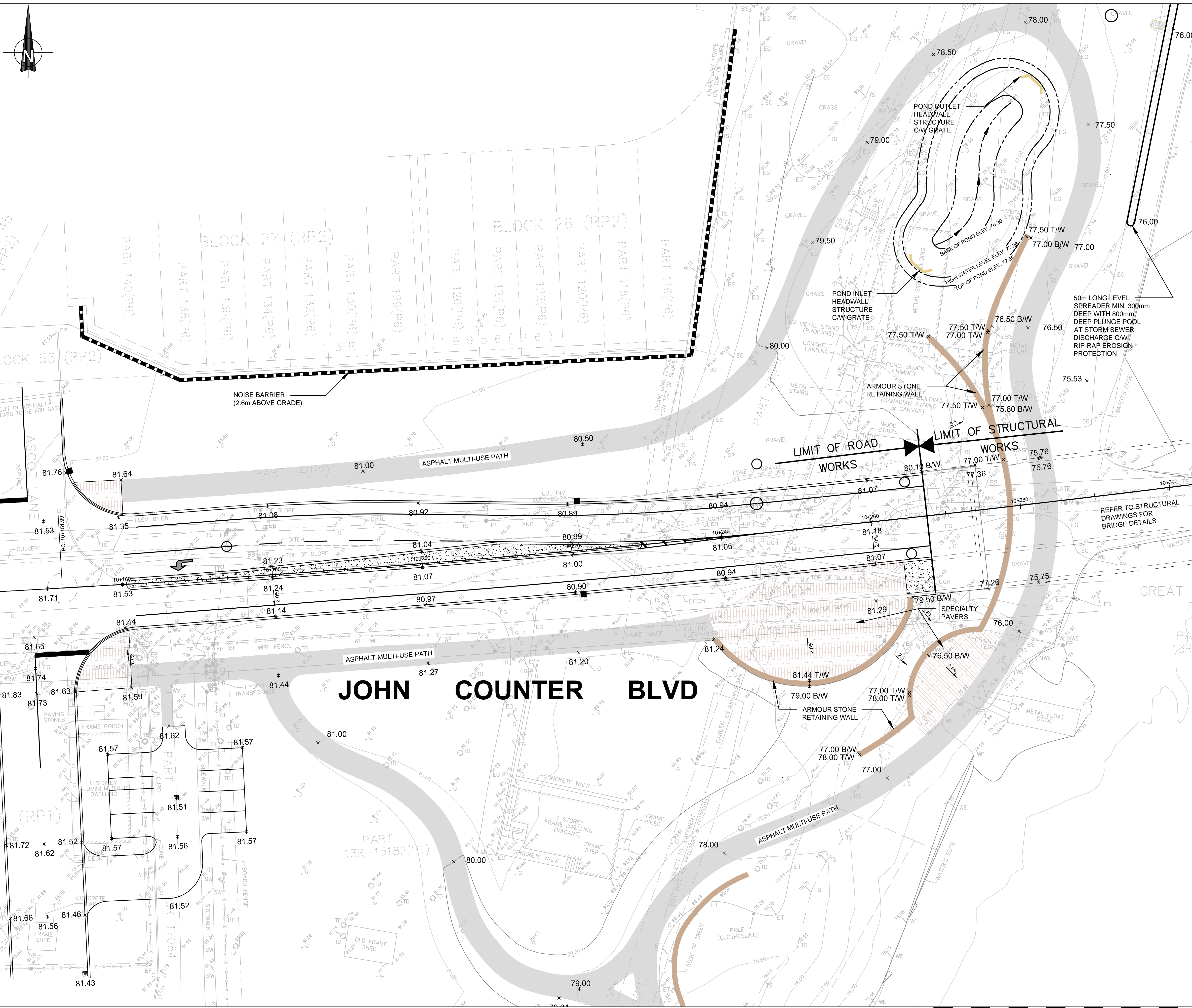


FOR INTERSECTION DESIGN
REFER TO HDR
PRELIMINARY DESIGN
OF HIGHWAY 15

GORE ROAD

HIGHWAY 15

Consultant's Information: K:\27000\27143 - Third Crossing Pre-Design\JLR DWG\Civil\27143 C 403 - LANE ARRANGEMENT EAST.dwg
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 Plot Date: 4/28/2017 10:46:52 AM



THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN

GRADING PLAN
STA. 10+140 TO 10+300

Mark Van Buren, P.Eng.
Director of Engineering and Deputy Commissioner

Dan Franco, P.Eng.
Project Engineer

J.L. Richards
ENGINEERS-ARCHITECTS-PLANNERS

PARSONS

Project No.: 27143
Drawing No.: C502
Sheet No.: 2 of 5

Des: LM/AM Chk'd: SSL/LJ
Dwn: LM/AM Chk'd: SSL/LJ
Scale: 1:250
Utility Circ. No.:
Code:
Load:

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

No.	Description	By	Date (dd/mm/yy)
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THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



GRADING PLAN
STA. 11+400 TO STA. 11+560

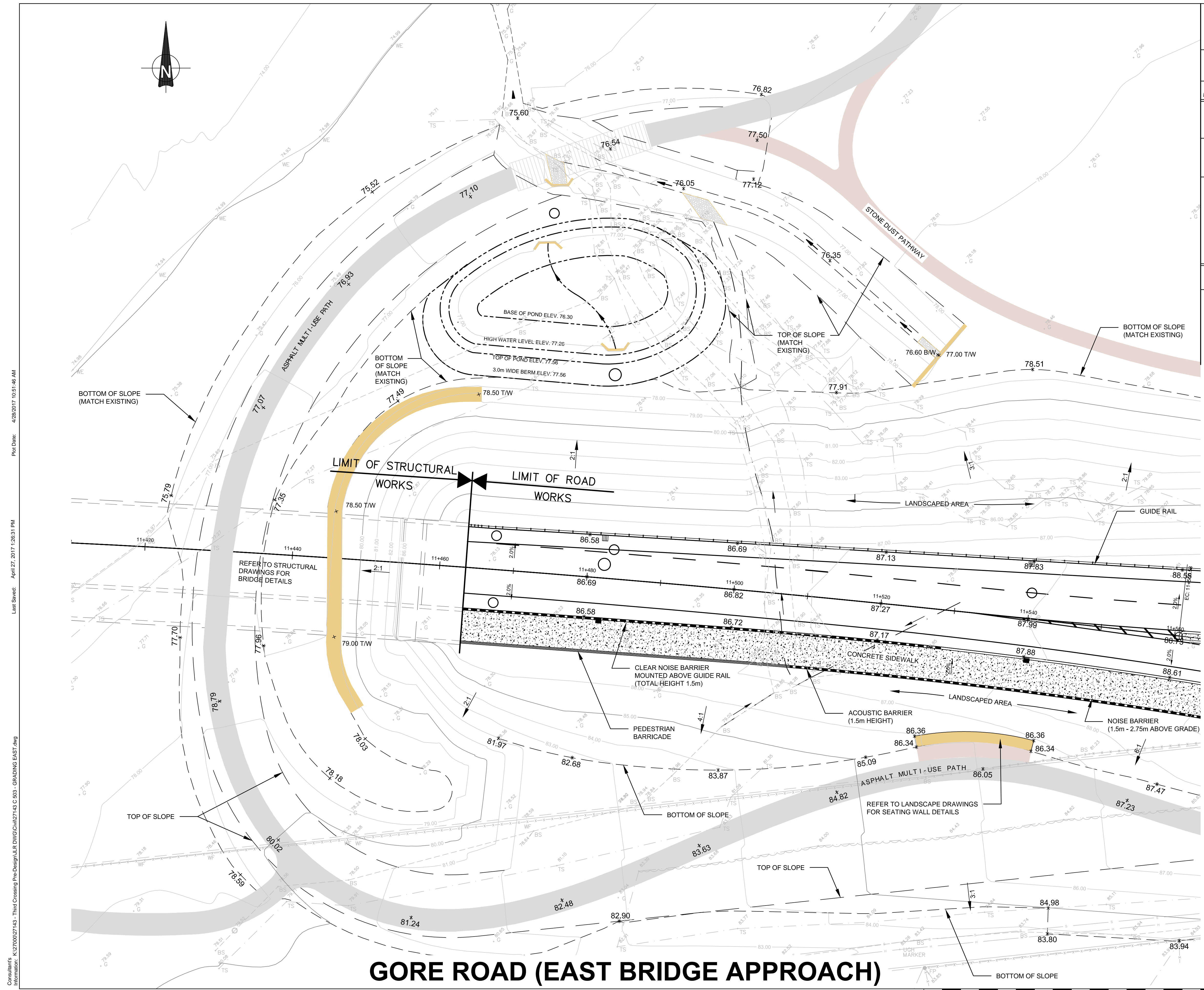
Mark Van Buren, P.Eng. Director of Engineering and Deputy Commissioner
Dan Franco, P.Eng. Project Engineer



Project No.:	27143
Drawing No.:	C503
Sheet No.:	3 of 5
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Dwn:	LM/AM Chk'd: SS/LJ
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Load:	

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	S.S.	03/05/17



GORE ROAD (EAST BRIDGE APPROACH)

Consultant's Information: K:\27000\27143 - Third Crossing Pre-Design\JLR DWG\Civil\27143 C 503 - GRADING EAST.dwg
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 Plot Date: 4/28/2017 10:51:46 AM

THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



GRADING PLAN
STA. 11+560 TO STA. 11+720

Mark Van Buren, P.Eng.
Director of Engineering and Deputy Commissioner

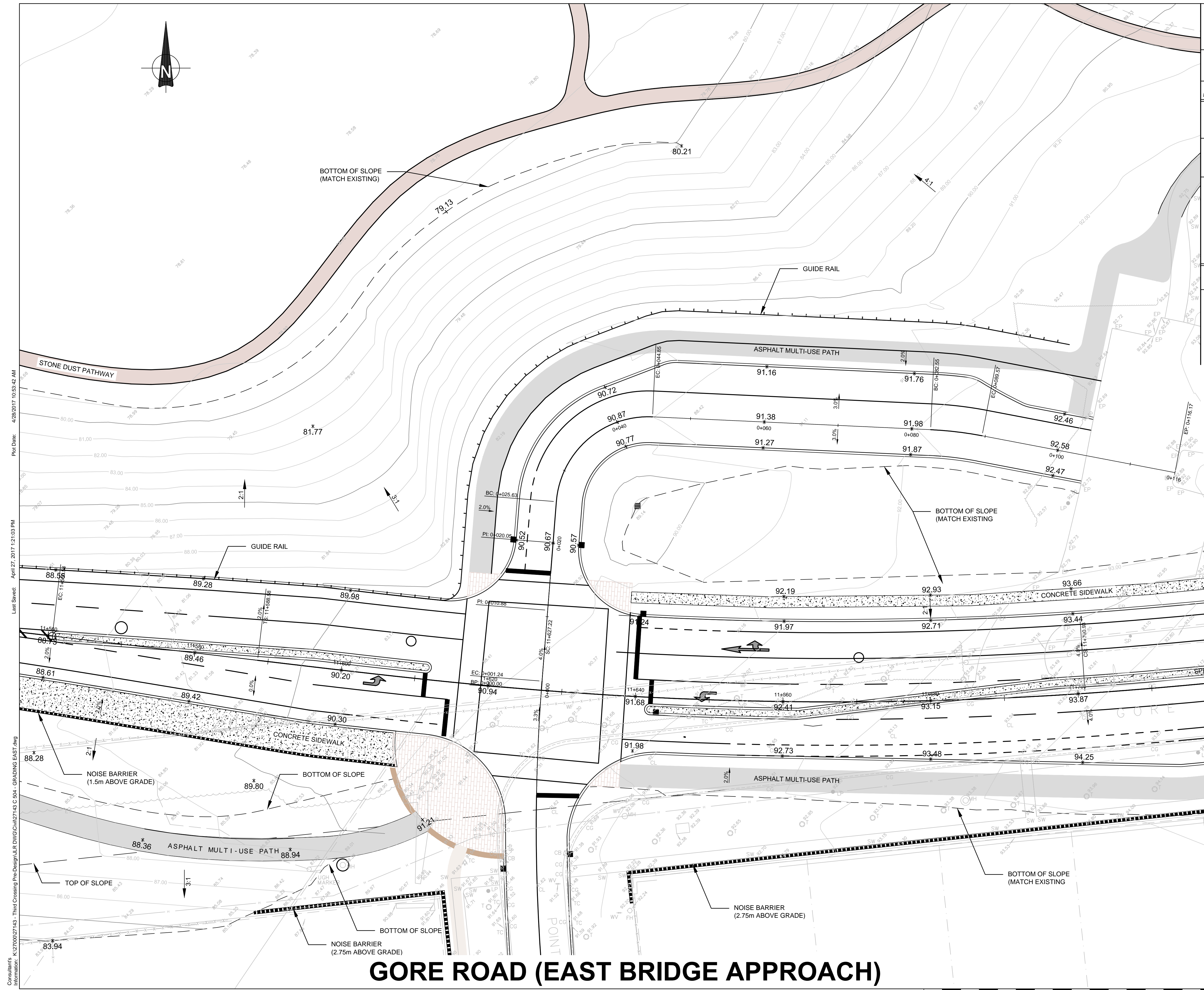
Dan Franco, P.Eng.
Project Engineer



Project No.:	27143
Drawing No.:	C504
Sheet No.:	4 of 5
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Chkd:	SS/LJ
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Code:	
Load:	

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No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	S.S.	03/05/17



GORE ROAD (EAST BRIDGE APPROACH)

Consultant's Information: K:\27000\27143 - Third Crossing Pre-Design\JLR.DWG\Civil\27143 C 504 - GRADING EAST.dwg
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THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



GRADING PLAN
STA. 11+720 TO HIGHWAY 15

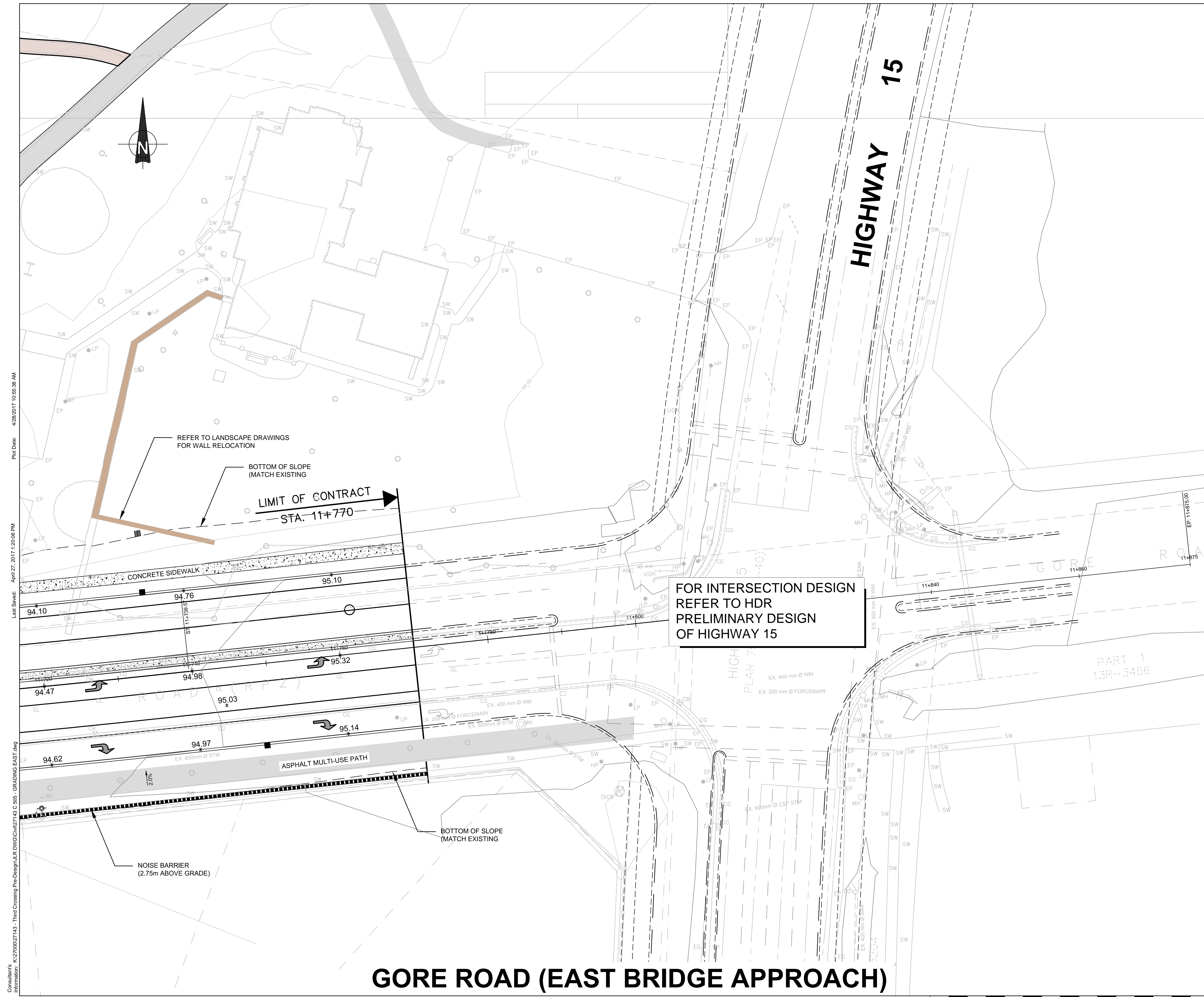
Mark Van Buren, P.Eng. Director of Engineering and Deputy Commissioner
Dan Franco, P.Eng. Project Engineer



Project No.:	27143		
Drawing No.:	C505		
Sheet No.:	5 of 5		
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Dwn:	LM/AM	Chkd:	SS/LJ
Scale:	1:250		
Utility Circ. No.:			
Code:			
Load:			

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	S.S.	03/05/17



FOR INTERSECTION DESIGN
REFER TO HDR
PRELIMINARY DESIGN
OF HIGHWAY 15

GORE ROAD (EAST BRIDGE APPROACH)

Consultant's Information: K:\27000\27143 - Third Crossing Pre-Design\JLR DWG\Civil\27143 C 605 - GRADING EAST.dwg
 Last Saved: April 27, 2017 1:20:08 PM
 Plot Date: 4/28/2017 10:55:38 AM

THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



SECTION VIEWS
STA. 10+190, 10+250 & 11+480

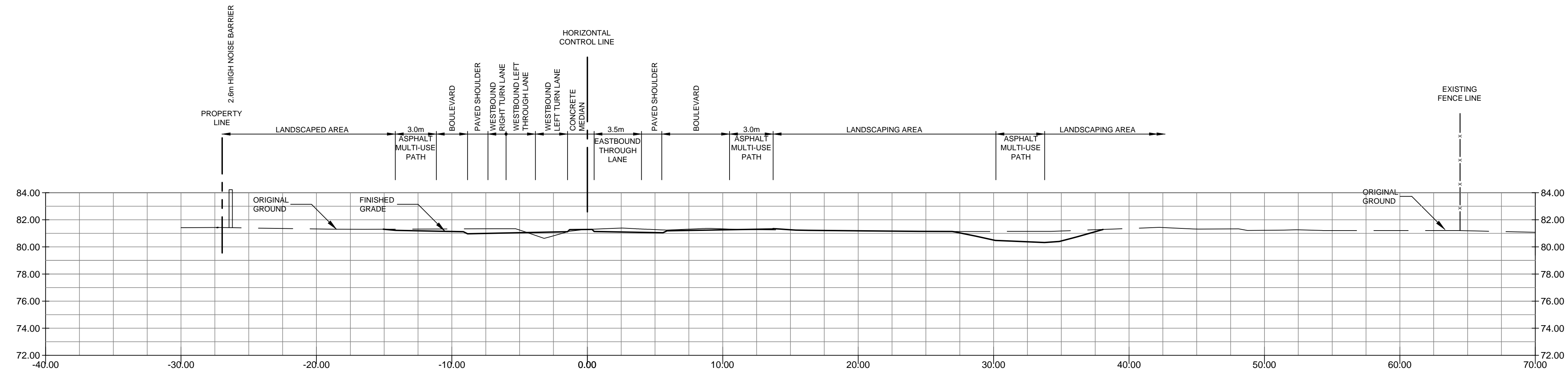
Mark Van Buren, P.Eng. Director of Engineering and Deputy Commissioner
Dan Franco, P.Eng. Project Engineer



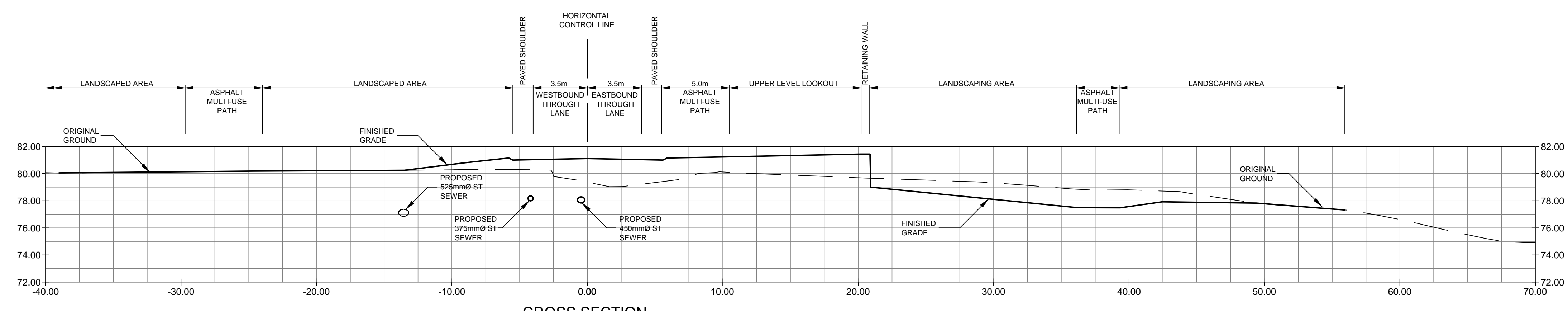
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Drawing No.:	C 601
Sheet No.:	1 of 2
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Utility Circ. No.:	
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NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

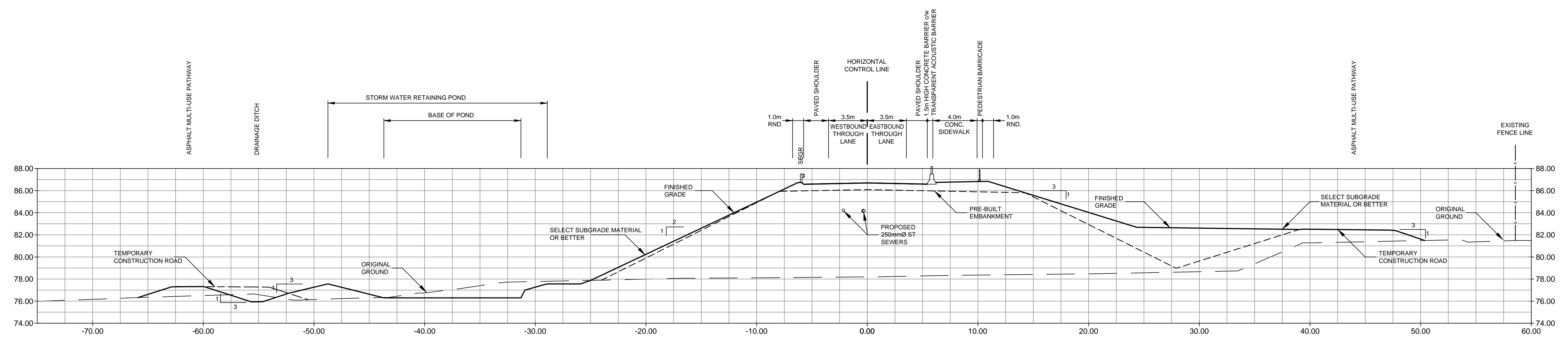
No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	S.S.	03/05/17



CROSS SECTION
10+190
SCALE: 1:200 (H)
1:20 (V)



CROSS SECTION
10+250
SCALE: 1:200 (H)
1:20 (V)



CROSS SECTION
11+480
SCALE: 1:200 (H)
1:20 (V)

Plot Date: 4/28/2017 10:56:11 AM
 Last Saved: April 28, 2017 8:31:09 AM
 Consultant's Information: K:\27000\27143 - Third Crossing Pre-Design\JLR DWG\Civil\27143 C 601 - Sections.dwg

THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



SECTION VIEWS
STA. 11+560, 11+600 & 11+740

Mark Van Buren, P.Eng.
Director of Engineering and Deputy Commissioner

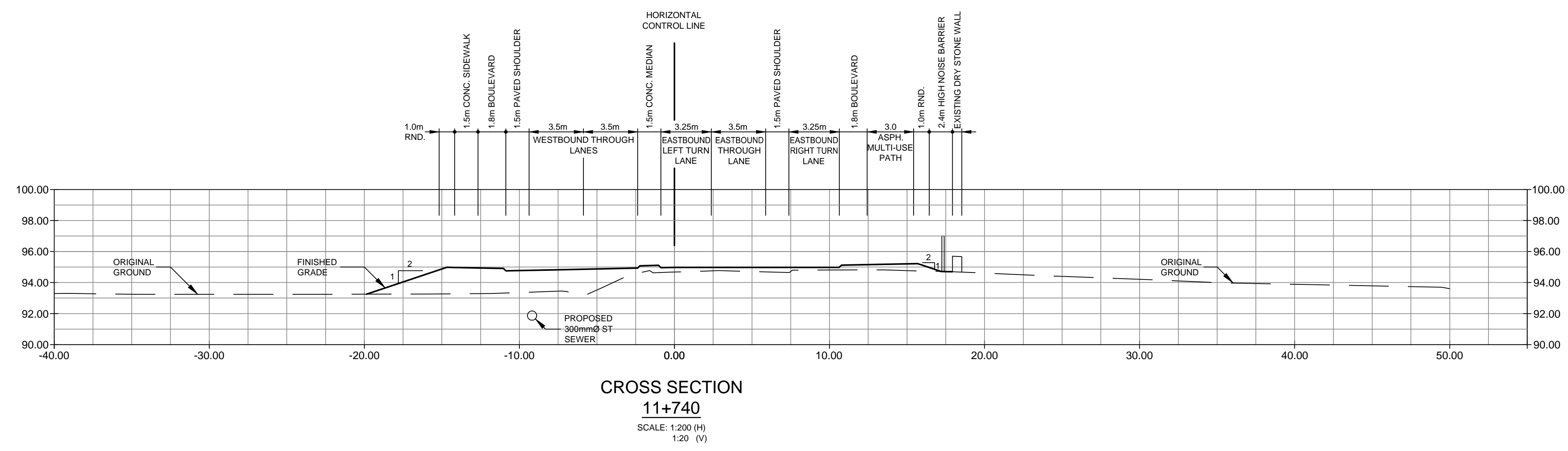
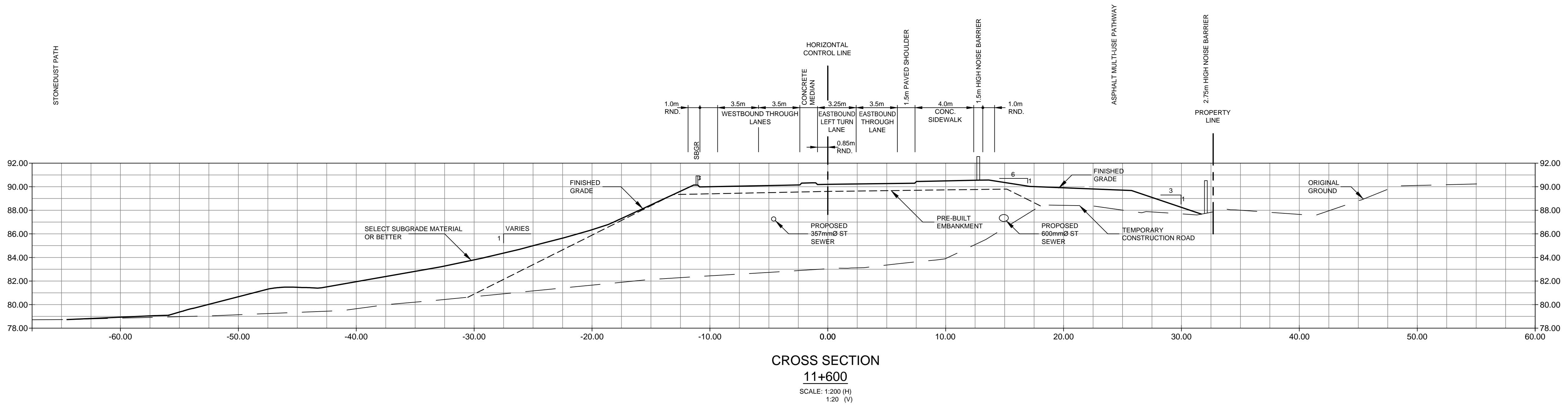
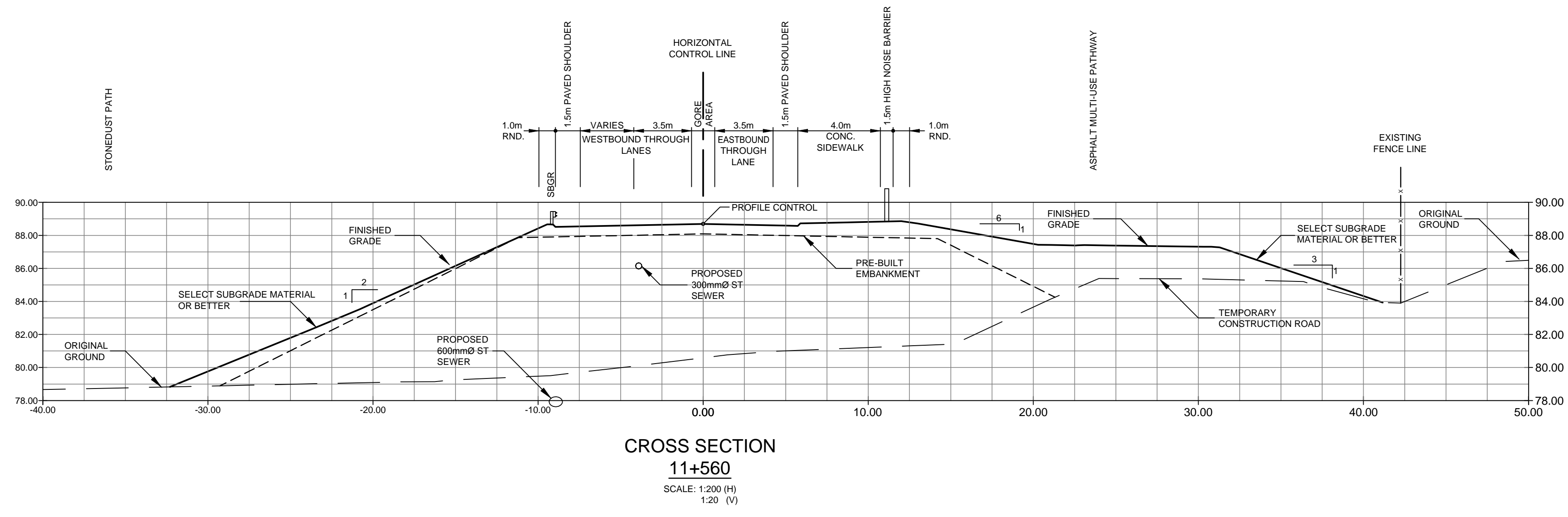
Dan Franco, P.Eng.
Project Engineer



Project No.: 27143
Drawing No.: C 602
Sheet No.: 2 of 2
Des: Chkd:
Dwn: AM Chkd:
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Utility Circ. No.
Code:
Load:

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	S.S.	03/05/17



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THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN
STAGING AND LAYDOWN
ACCESS / EGRESS
WEST



Mark Van Buren, P.Eng.
Director of Engineering and Deputy Commissioner

Dan Franco, P.Eng.
Project Engineer

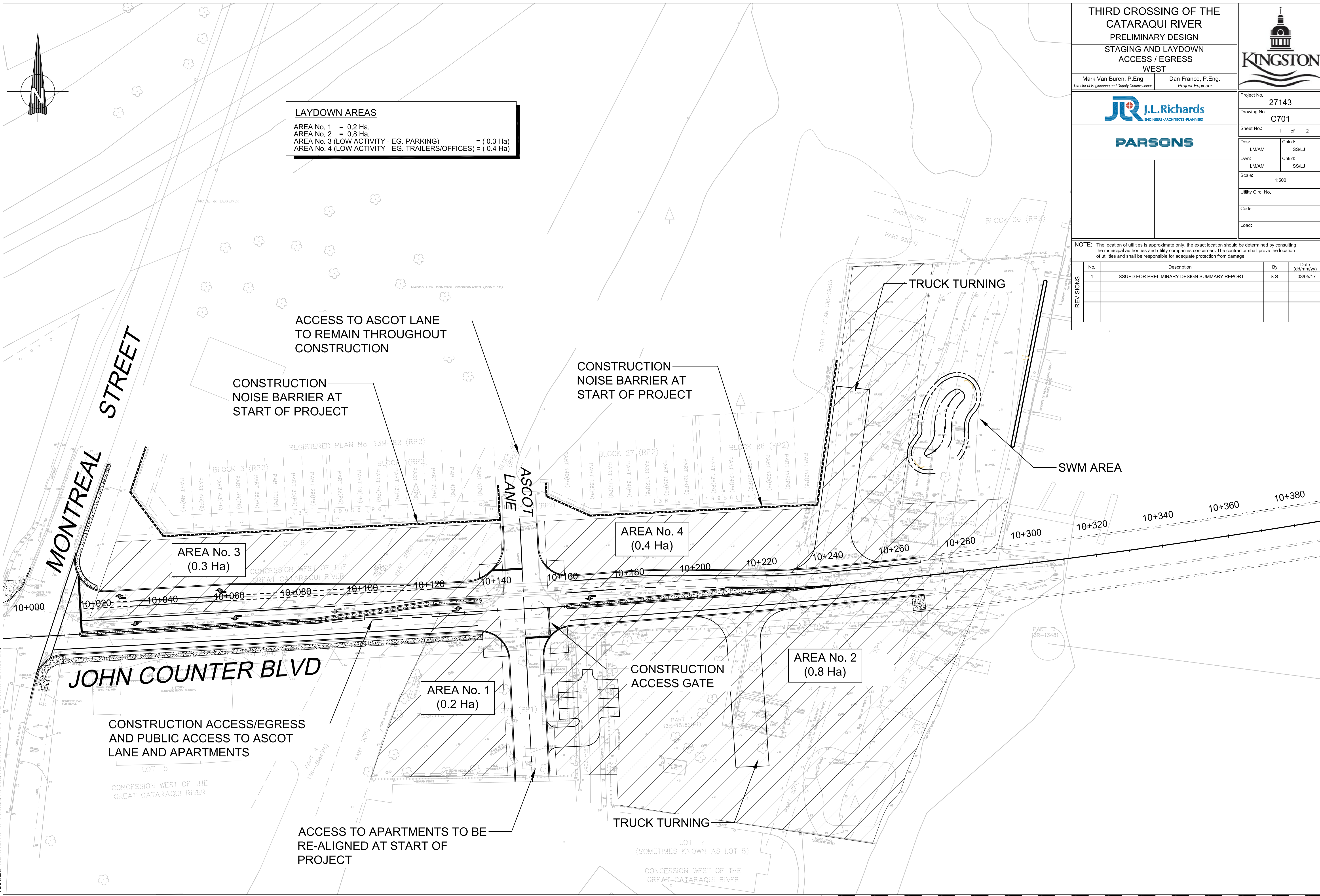


Project No.:	27143
Drawing No.:	C701
Sheet No.:	1 of 2
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Chk'd:	SS/LJ
Dwn:	LM/AM
Chk'd:	SS/LJ
Scale:	1:500
Utility Circ. No.:	
Code:	
Load:	

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	S.S.	03/05/17

LAYDOWN AREAS
 AREA No. 1 = 0.2 Ha.
 AREA No. 2 = 0.8 Ha.
 AREA No. 3 (LOW ACTIVITY - EG. PARKING) = (0.3 Ha)
 AREA No. 4 (LOW ACTIVITY - EG. TRAILERS/OFFICES) = (0.4 Ha)



Plot Date: 4/25/2017 4:35:40 PM
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THIRD CROSSING OF THE CATARAQUI RIVER
 PRELIMINARY DESIGN AND EIA REPORT
 STAGING AND LAYDOWN
 ACCESS / EGRESS
 EAST



Mark Van Buren, P.Eng.
 Director of Engineering and Deputy Commissioner

Dan Franco, P.Eng.
 Project Engineer



Project No.: 27143

Drawing No.: C702

Sheet No.: 2 of 2



Des: LM/AM Chk'd: SSI/LJ

Dwn: LM/AM Chk'd: SSI/LJ

Scale: 1:1000

Utility Circ. No.

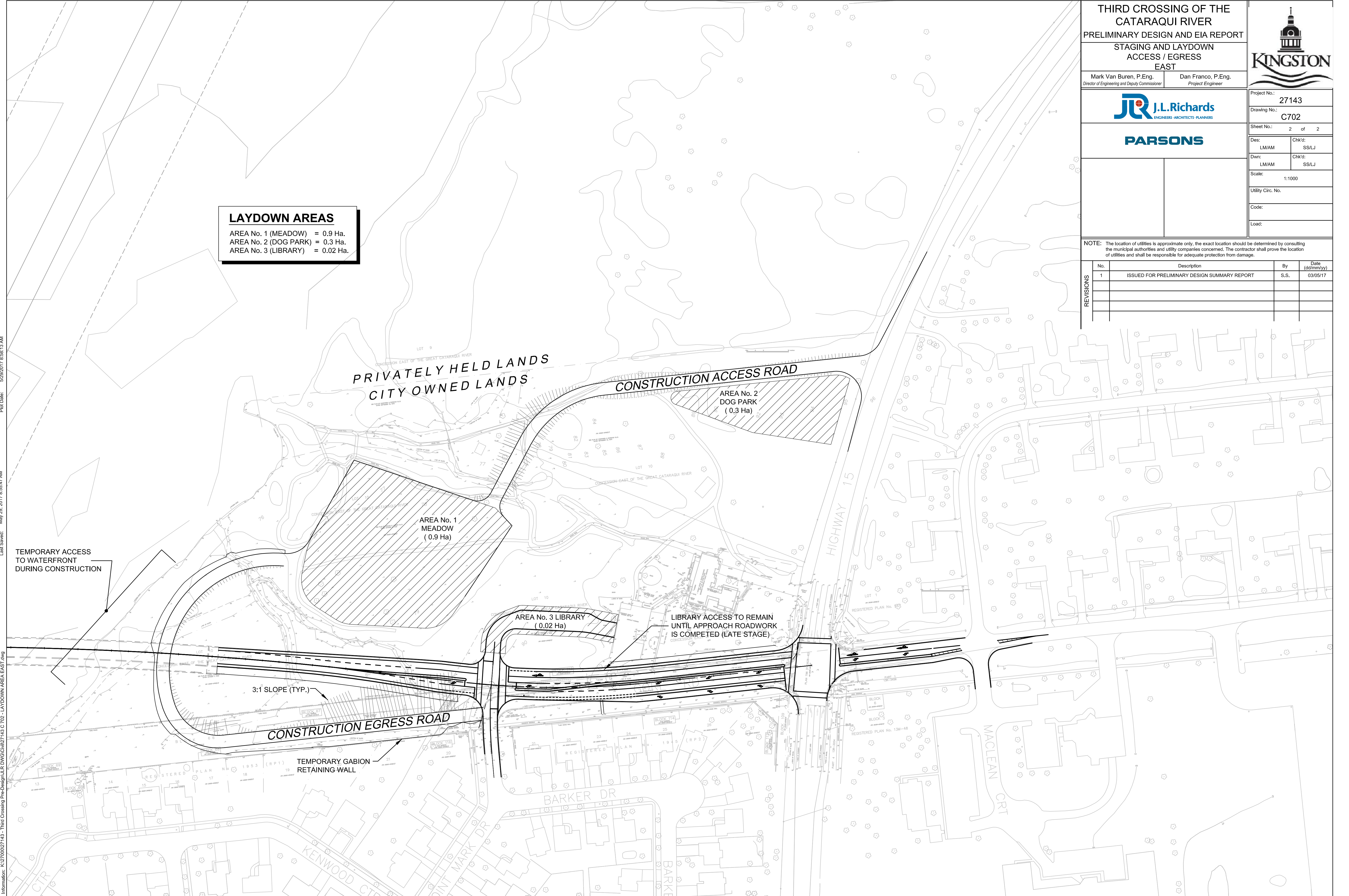
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Load:

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

REVISIONS	No.	Description	By	Date (dd/mm/yy)
	1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	S.S.	03/05/17

LAYDOWN AREAS
 AREA No. 1 (MEADOW) = 0.9 Ha.
 AREA No. 2 (DOG PARK) = 0.3 Ha.
 AREA No. 3 (LIBRARY) = 0.02 Ha.



Plot Date: 5/29/2017 8:58:13 AM

Last Saved: May 29, 2017 8:58:47 AM

Consultant's Information: C:\3700027143 - Third Crossing Pre-Design\J.L.R. DWG\Civil\27143 C 702 - LAYDOWN AREA EAST.dwg

THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



EROSION AND SEDIMENT CONTROL WEST

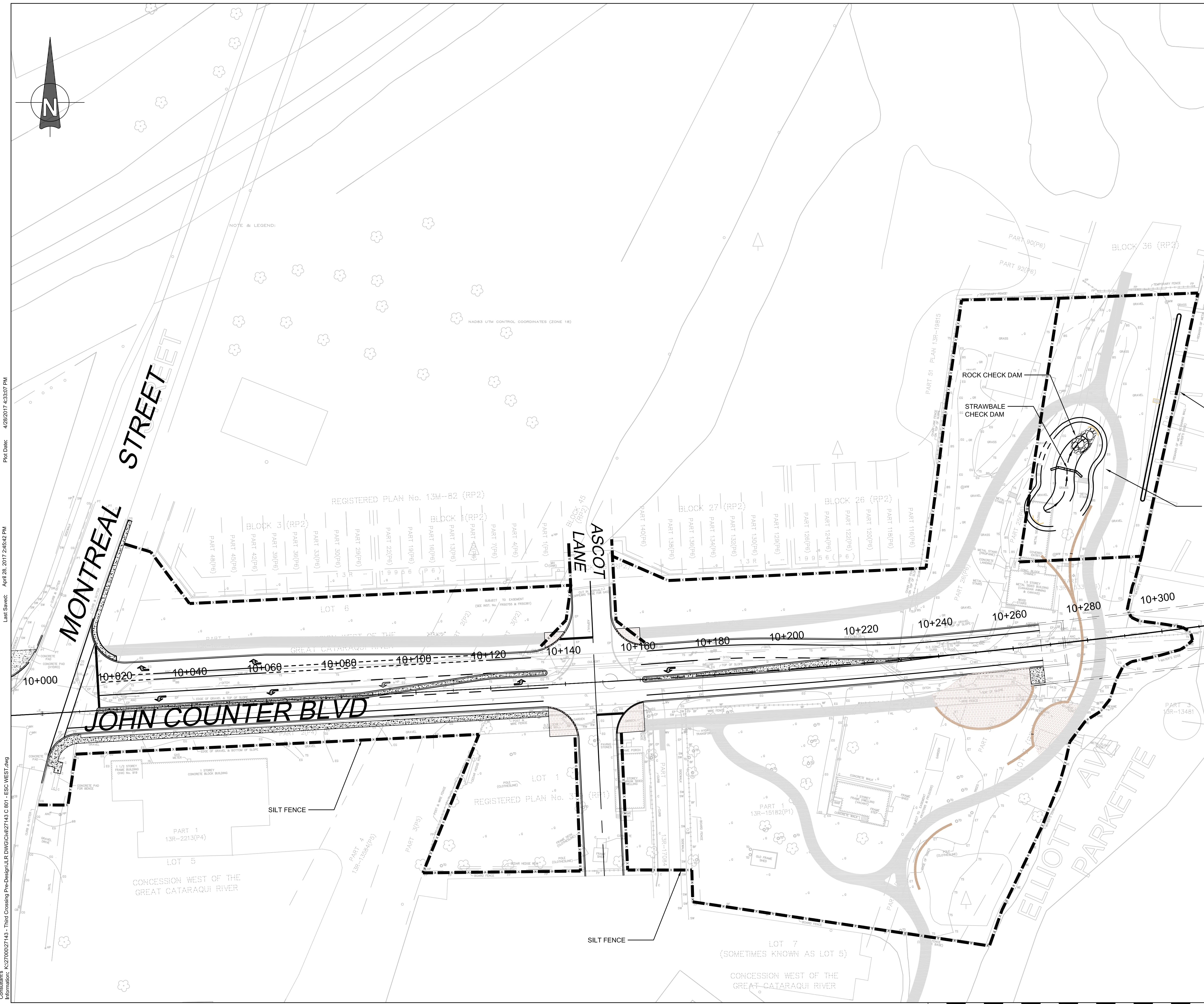
Mark Van Buren, P.Eng. Director of Engineering and Deputy Commissioner
Dan Franco, P.Eng. Project Engineer



Project No.:	27143		
Drawing No.:	C801		
Sheet No.:	1 of 2		
Des:	LM/AM	Chk'd:	SS/LJ
Dwn:	LM/AM	Chk'd:	SS/LJ
Scale:	1:500		
Utility Circ. No.:			
Code:			
Load:			

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	S.S.	03/05/17



ROCK CHECK DAM
STRAWBALE CHECK DAM
SILT FENCE
CONSTRUCT STORMWATER MANAGEMENT FACILITIES AT ONSET OF PROJECT

NOTE:
1) EROSION AND SEDIMENT CONTROL PLAN TO BE PROVIDED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION TO THE SATISFACTION OF THE CITY OF KINGSTON AND CRCA
2) TEMPORARY PIPING OF STORMWATER MAY BE REQUIRED DURING CONSTRUCTION

Consultants: K27000027143 - Third Crossing Pre-Design/JLR.DWG/C801/27143.C801 - ESC WEST.dwg
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 Last Saved: April 28, 2017 2:45:42 PM
 Plot Date: 4/28/2017 4:35:07 PM

THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN

EROSION AND SEDIMENT CONTROL
EAST

Mark Van Buren, P.Eng.
Director of Engineering and Deputy Commissioner

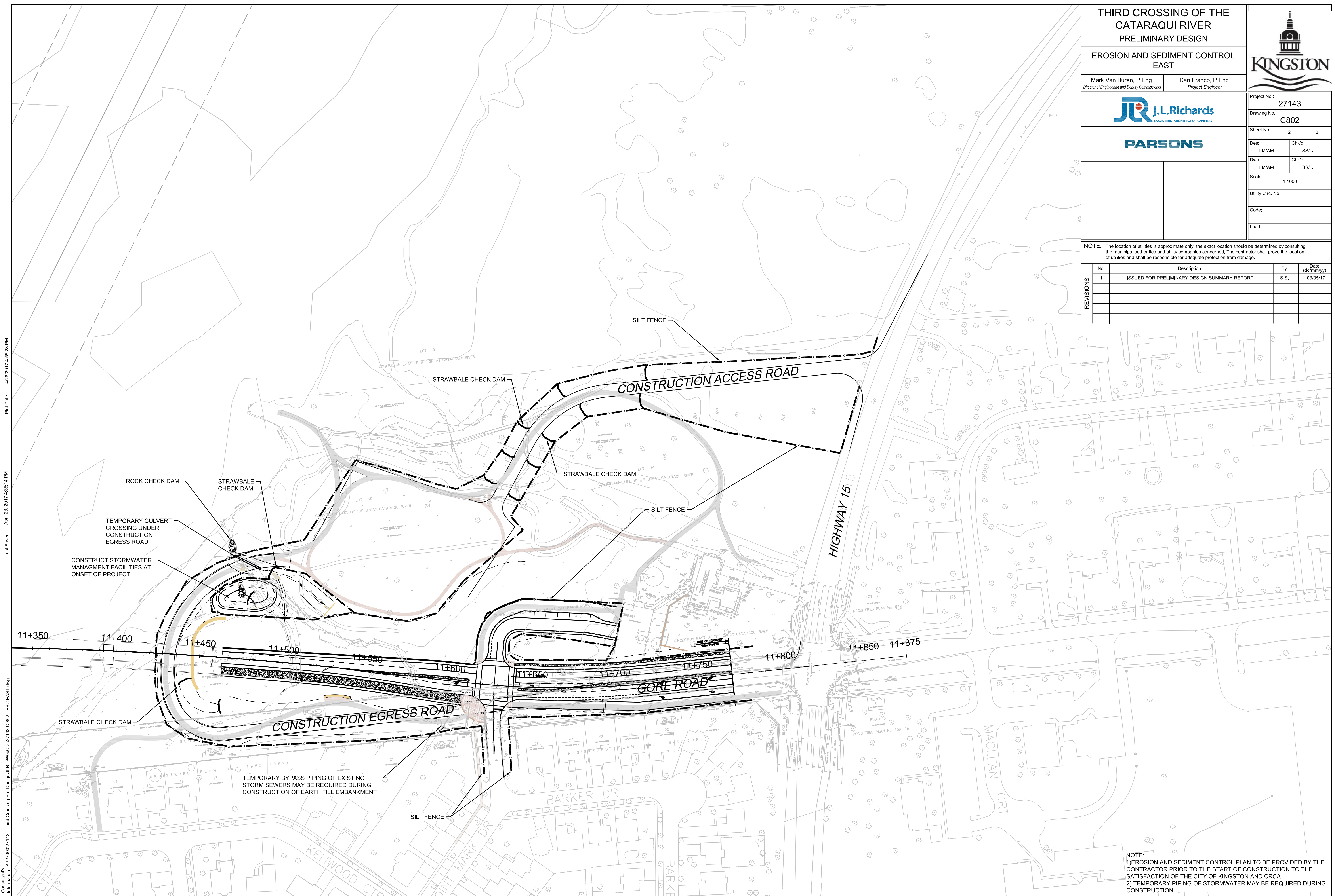
Dan Franco, P.Eng.
Project Engineer



Project No.:	27143
Drawing No.:	C802
Sheet No.:	2 of 2
Des:	LM/AM
Chk'd:	SSLJ
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Chk'g:	SSLJ
Scale:	1:1000
Utility Circ. No.:	
Code:	
Load:	

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	S.S.	03/05/17



TEMPORARY BYPASS PIPING OF EXISTING STORM SEWERS MAY BE REQUIRED DURING CONSTRUCTION OF EARTH FILL EMBANKMENT

NOTE:
1) EROSION AND SEDIMENT CONTROL PLAN TO BE PROVIDED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION TO THE SATISFACTION OF THE CITY OF KINGSTON AND CRCA
2) TEMPORARY PIPING OF STORMWATER MAY BE REQUIRED DURING CONSTRUCTION

Plot Date: 4/28/2017 4:55:28 PM

Last Saved: April 28, 2017 4:35:14 PM

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THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



PRELIMINARY
GENERAL ARRANGEMENT

Mark Van Buren, P.Eng. Director of Engineering & Deputy Commissioner
Dan Franco, P.Eng. Project Engineer



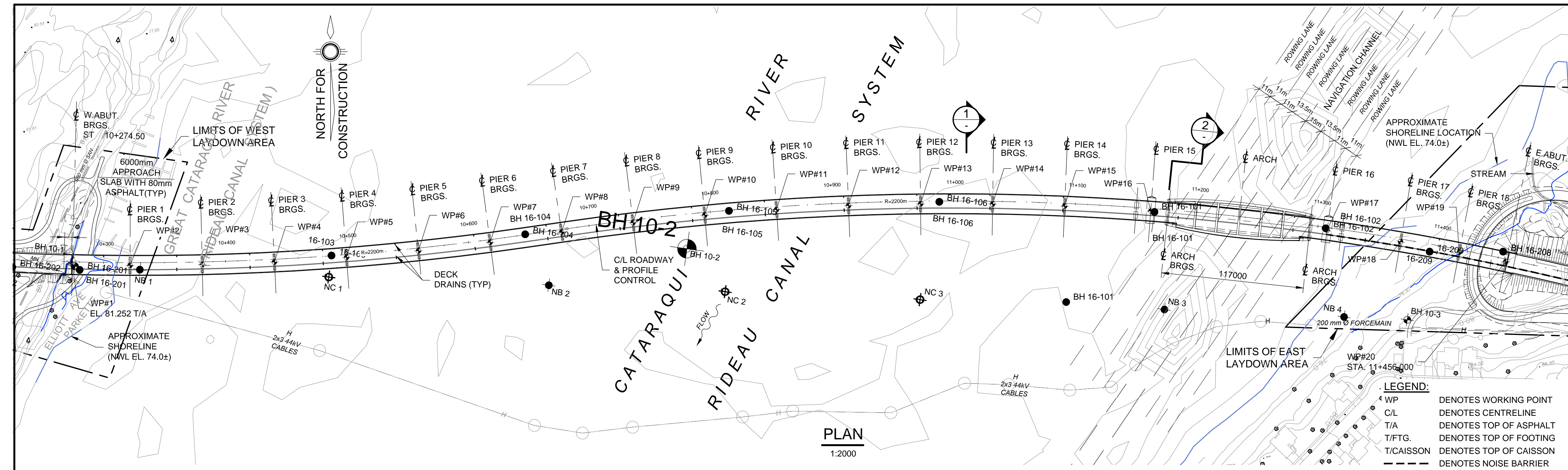
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Dwn:	KRS Chk'd: JJA
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NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

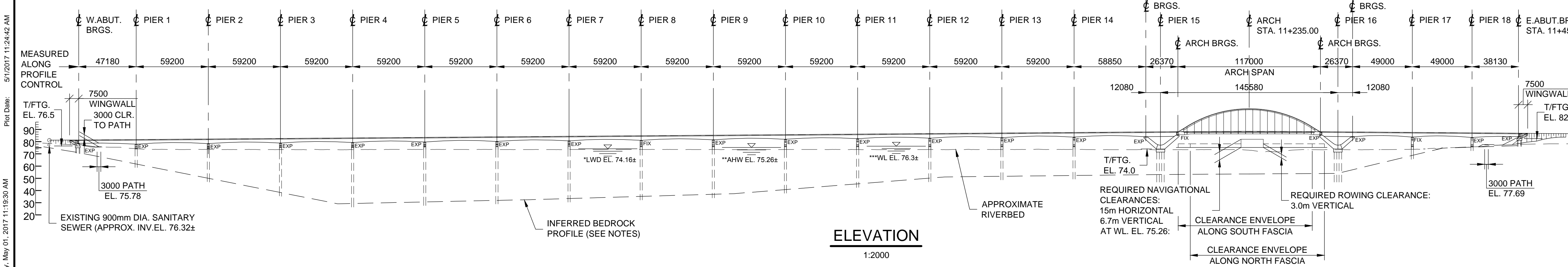
No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	JJA	03/05/2017

GENERAL NOTES:

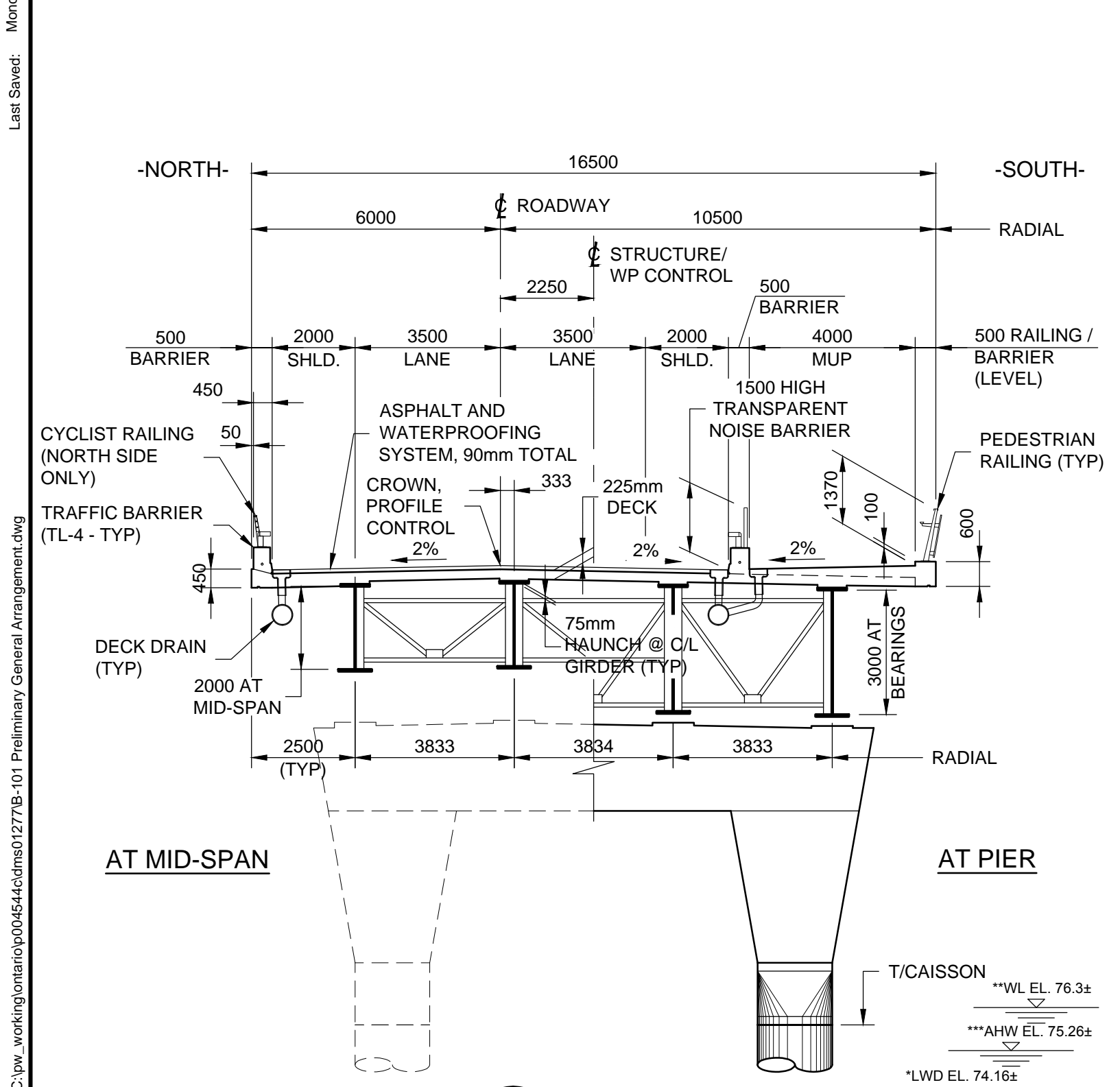
- DESIGN LOADS**
BRIDGE: CL-625-ONT TRUCK LOAD, CL-625-ONT LANE LOAD OF CHBDC.
SIDEWALK: PEDESTRIAN LOADS AND MAINTENANCE VEHICLE OF CHBDC S6-14.
- CONSTRUCTION NOTES**
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE. CHAINAGES AND ELEVATIONS ARE IN METRES.
 - MAINTAIN FULL NAVIGATIONAL CLEARANCE THROUGHOUT CONSTRUCTION.
 - INFERRED BEDROCK PROFILE IS BASED ON BOREHOLE LOGS FROM GOLDER ASSOCIATES REPORT ENTITLED "PRELIMINARY GEOTECHNICAL INVESTIGATION - THIRD CROSSING OF CATARAQUI RIVER - JOHN COUNTER BOULEVARD TO GORE ROAD, KINGSTON, ONTARIO", DATED MARCH 2017, REPORT NO. 1541774/2000/003.



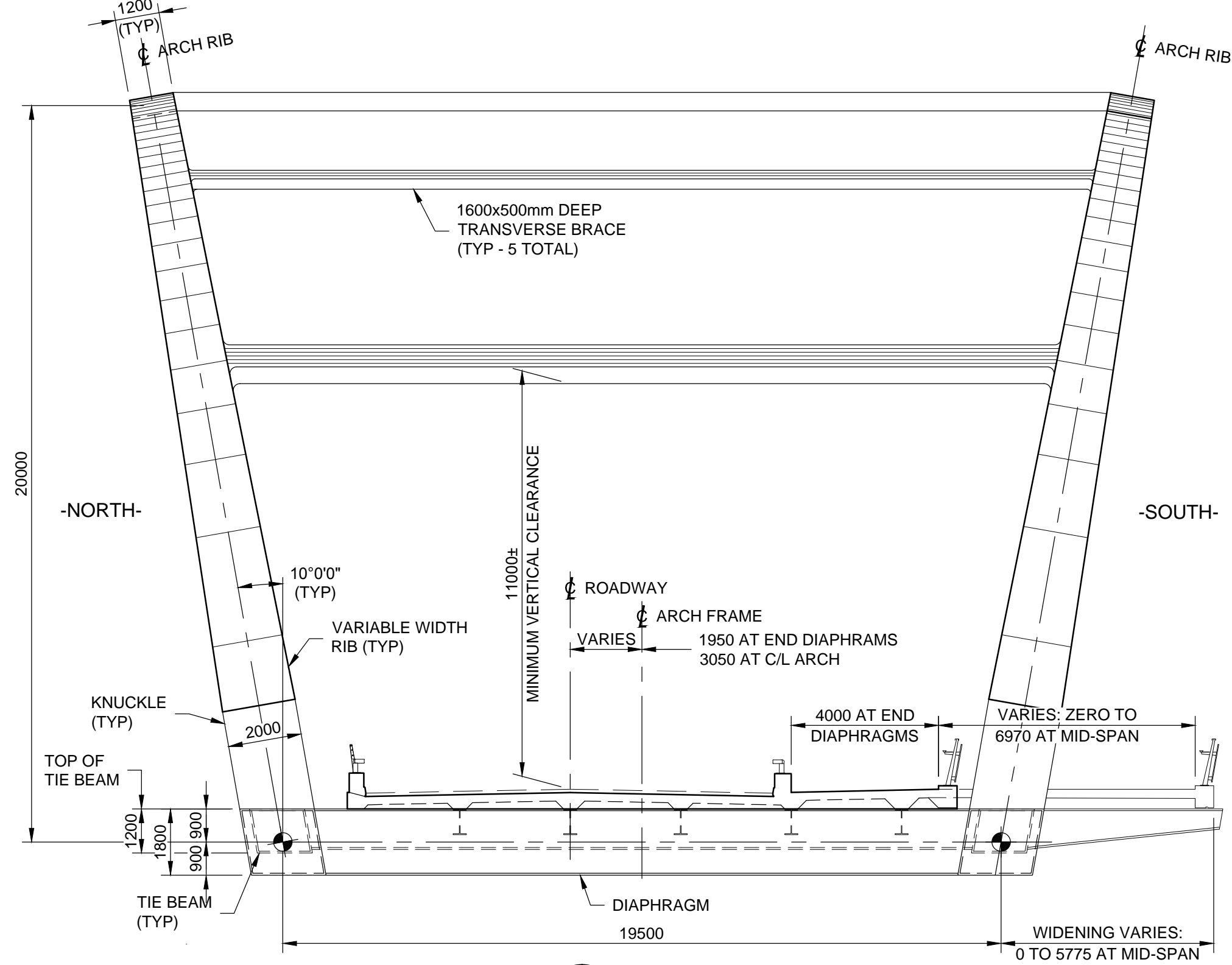
PLAN
1:2000



ELEVATION
1:2000



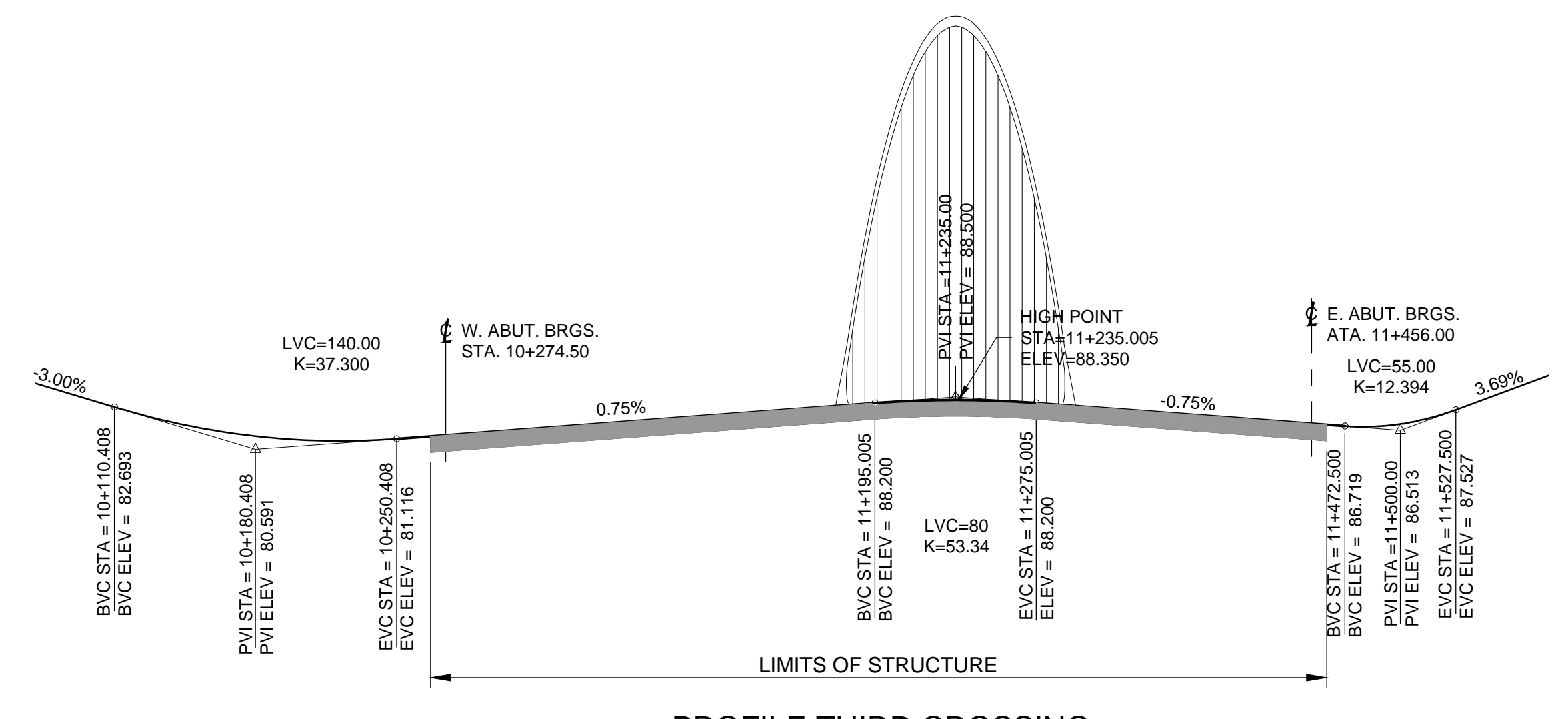
SECTION 1 APPROACH SPANS
1:125



SECTION 2 ARCH SPAN
1:125

NOTE:

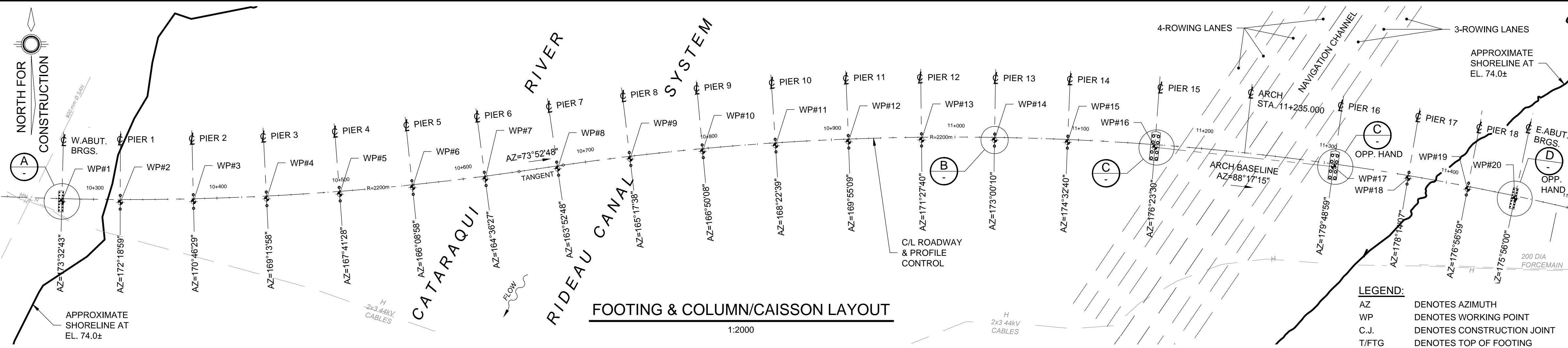
* LOW WATER DATUM	EL. 74.16	CANADIAN HYDROGRAPHIC SERVICE (LAKE ONTARIO)
** AVERAGE HIGH WATER	EL. 75.26	MINISTRY OF NATURAL RESOURCES (LAKE ONTARIO)
*** REGULATORY WATER LEVEL	EL. 76.3	CATARAQUI REGION CONSERVATION AUTHORITY 'REGULATORY LIMIT WITHIN THE STUDY AREA'



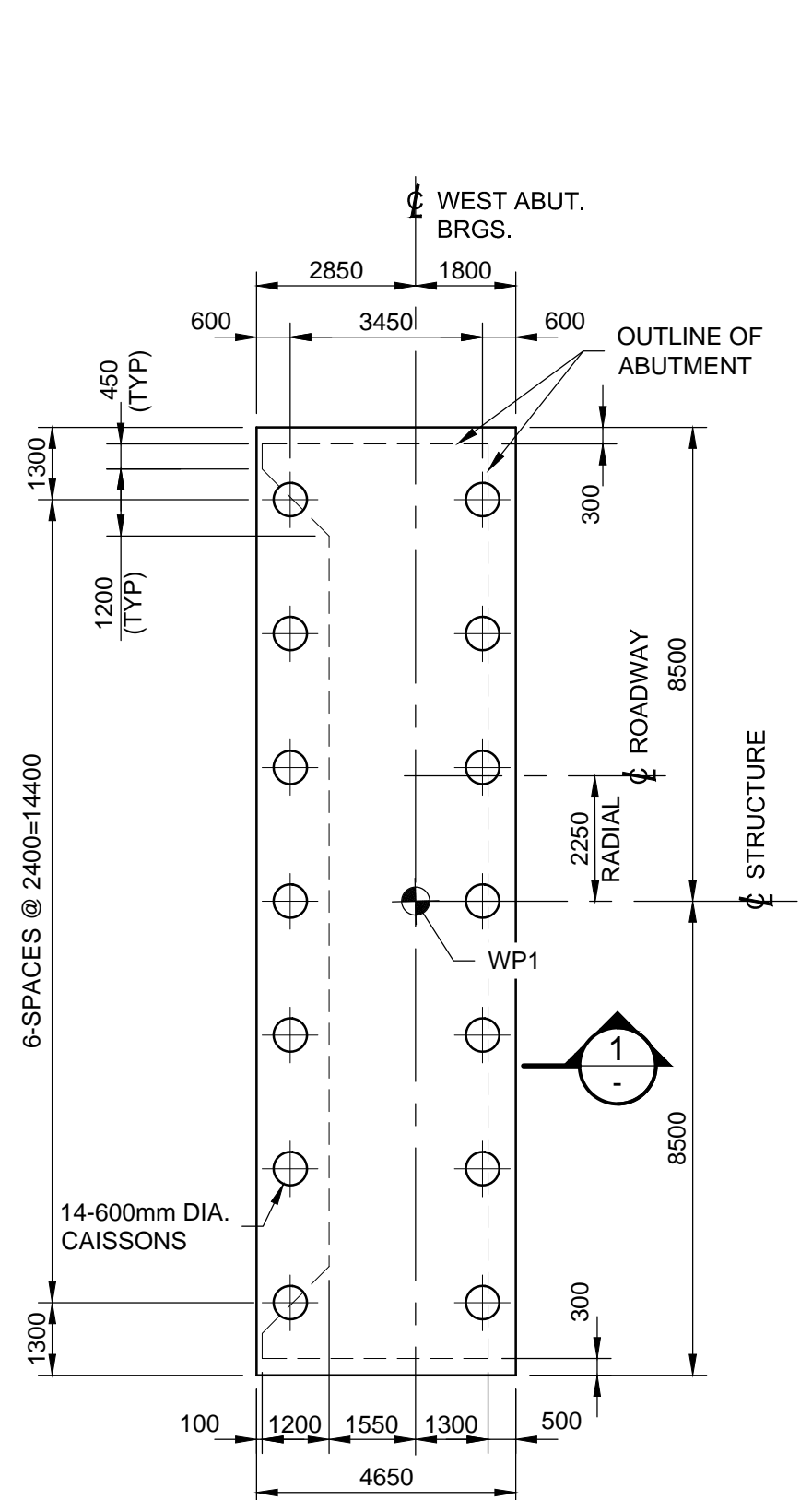
PROFILE THIRD CROSSING

N.T.S.

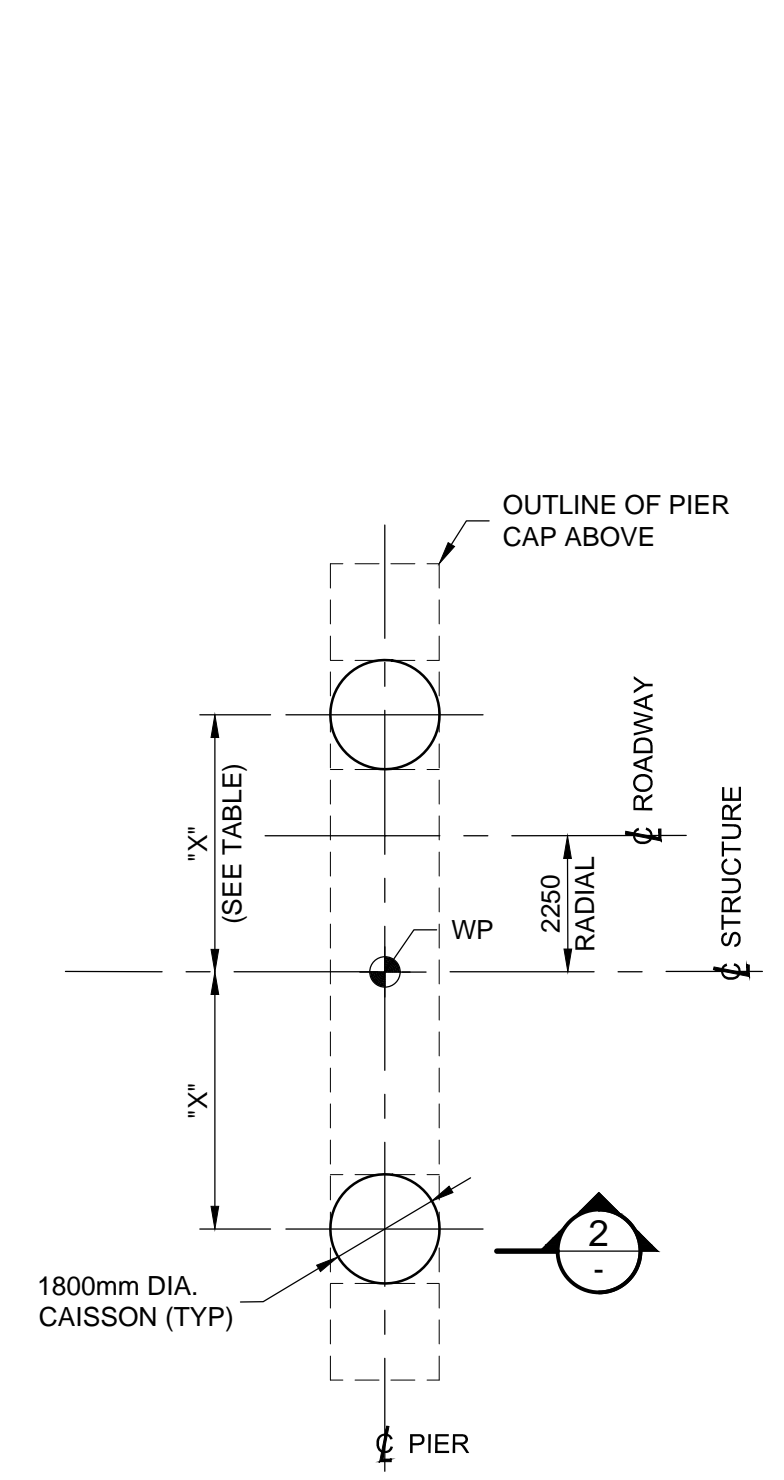
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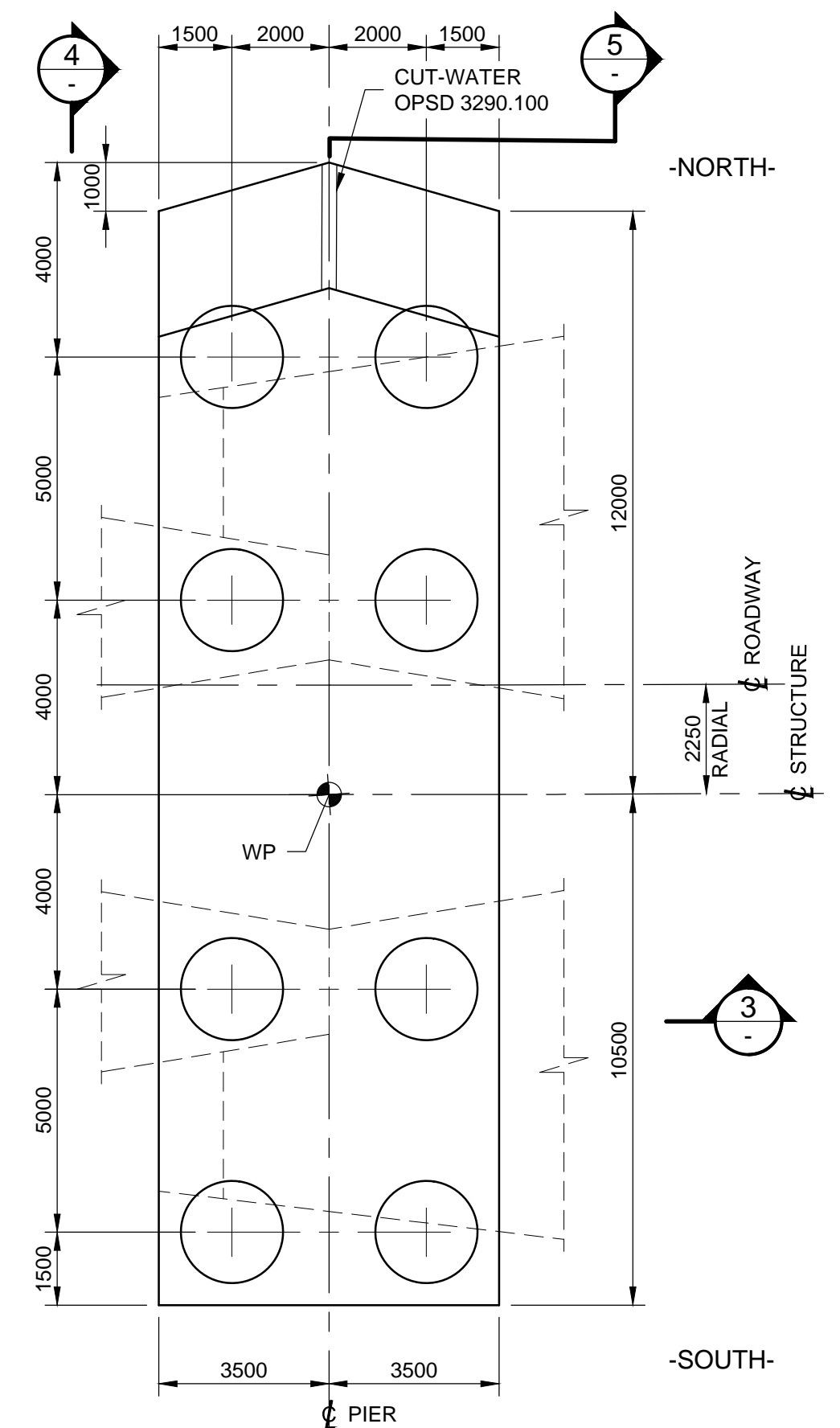
FOOTING & COLUMN/CAISSON LAYOUT



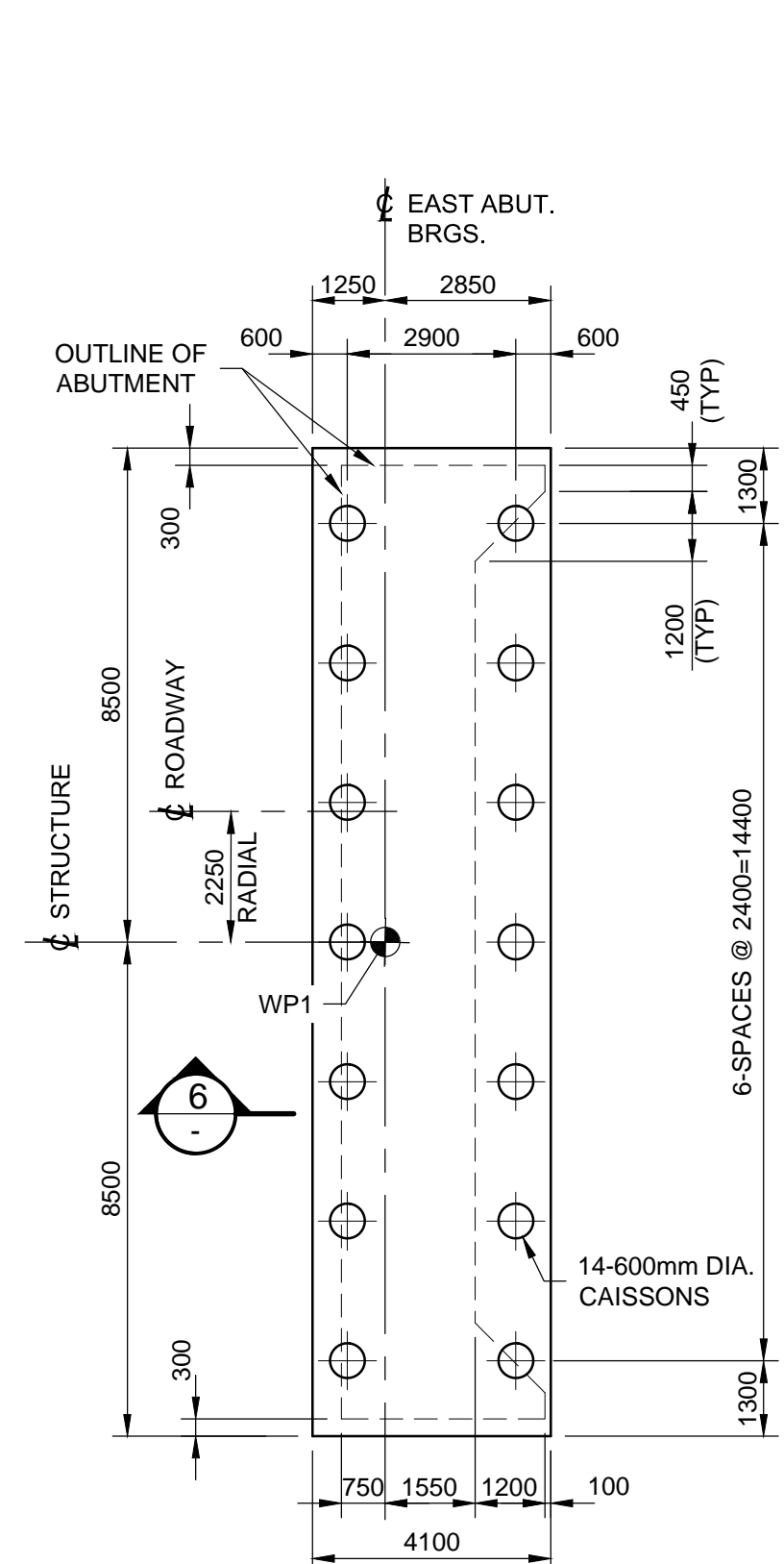
DETAIL A WEST ABUTMENT FOOTING
1:125



DETAIL B PIER CAISSONS
1:125 (PIERS 1 TO 14, 17 AND 18)



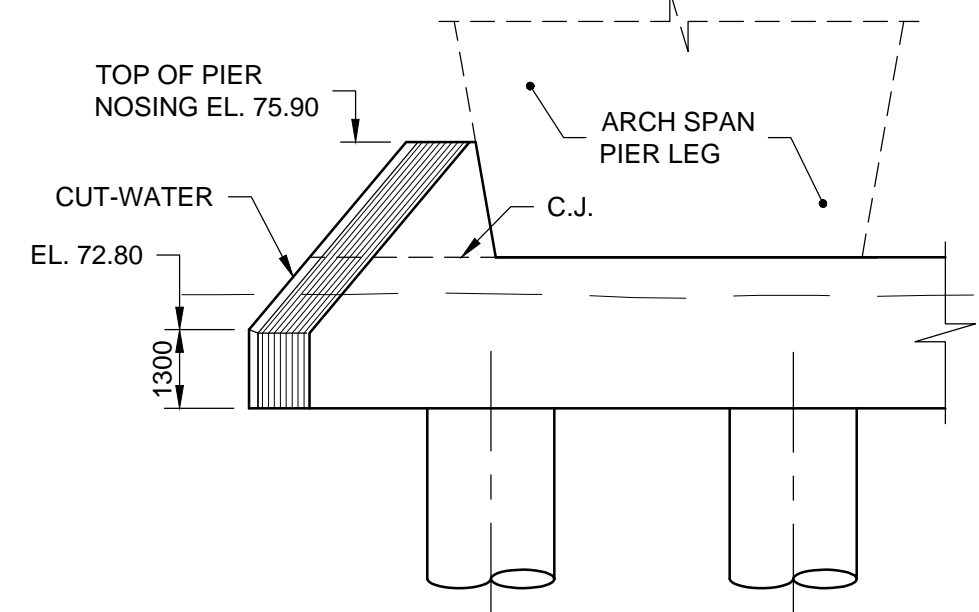
DETAIL C ARCH PIER CAISSONS
1:125 (PIER 15 SHOWN PIER 16 SIMILAR)



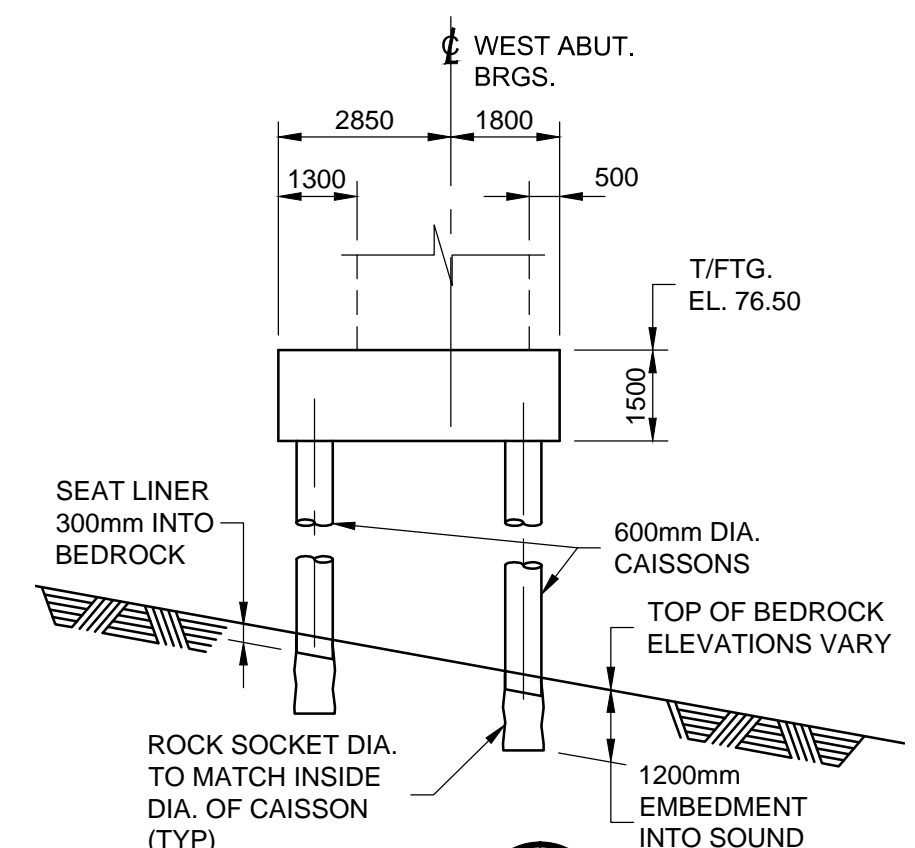
DETAIL D EAST ABUTMENT FOOTING
1:125

1800mm DIA. CAISSON LOCATIONS

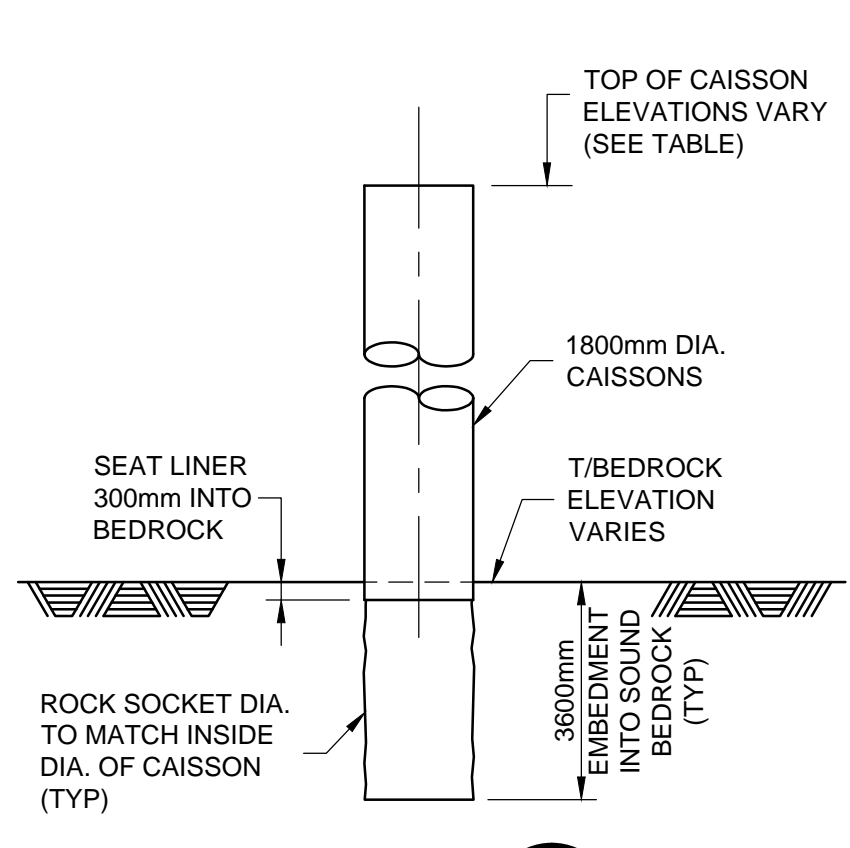
PIER NO.	TOP OF CAISSON ELEVATION (m±)	DIMENSION X (mm)
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2	74.68	5478
3	75.12	5478
4	75.65	5478
5	75.90	5479
6	75.90	5400
7	75.90	5322
8	75.90	5251
9	75.90	5167
10	75.90	5087
11	75.90	5009
12	75.90	4931
13	75.90	4652
14	75.90	4773
17	75.90	4776
18	75.90	4825



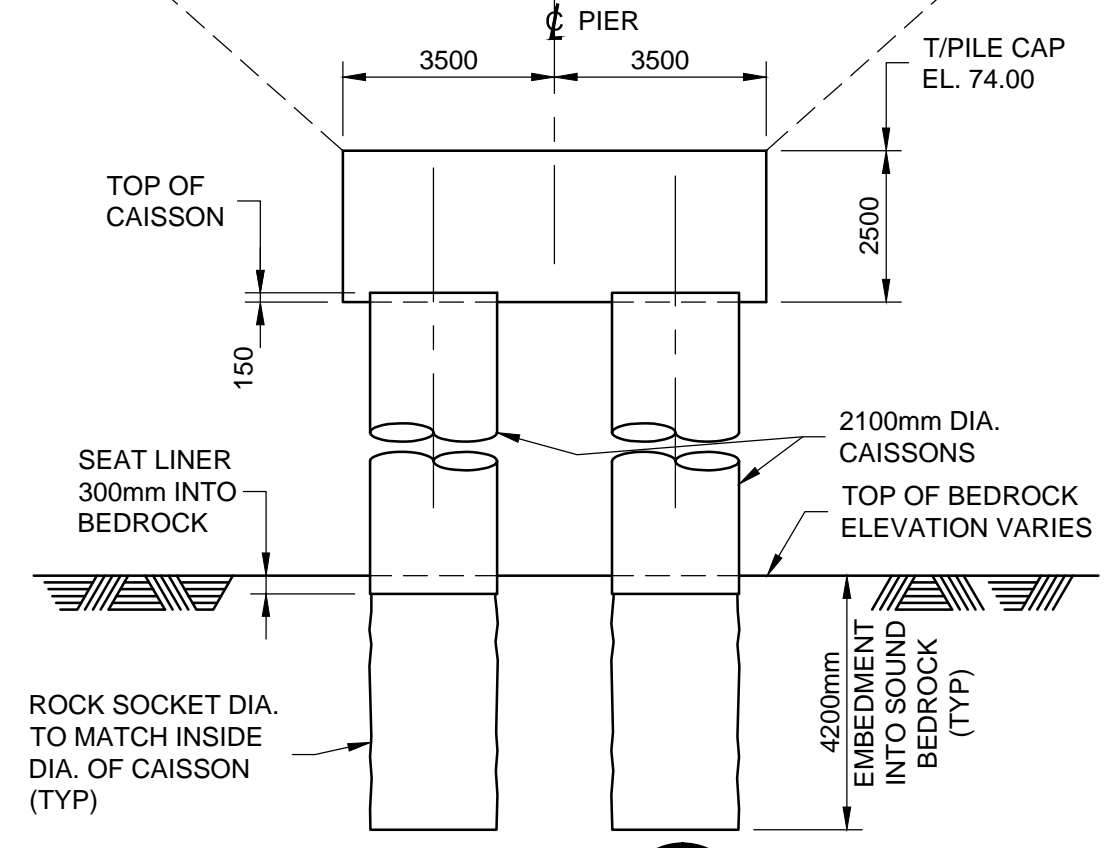
SECTION 5
1:125



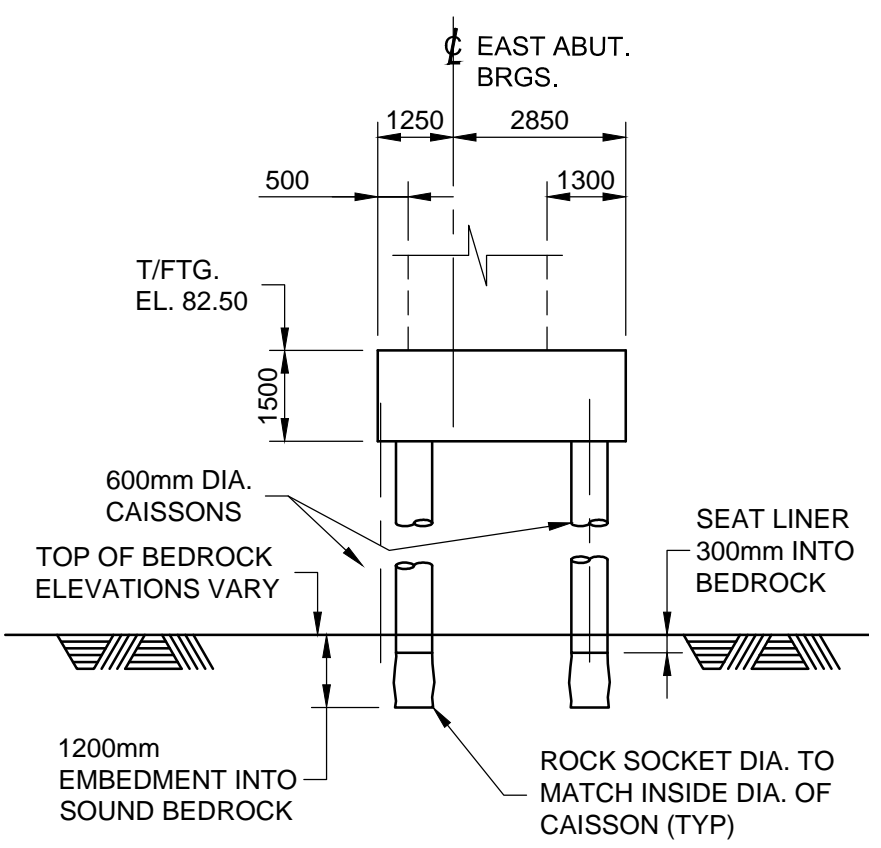
SECTION 1
1:125



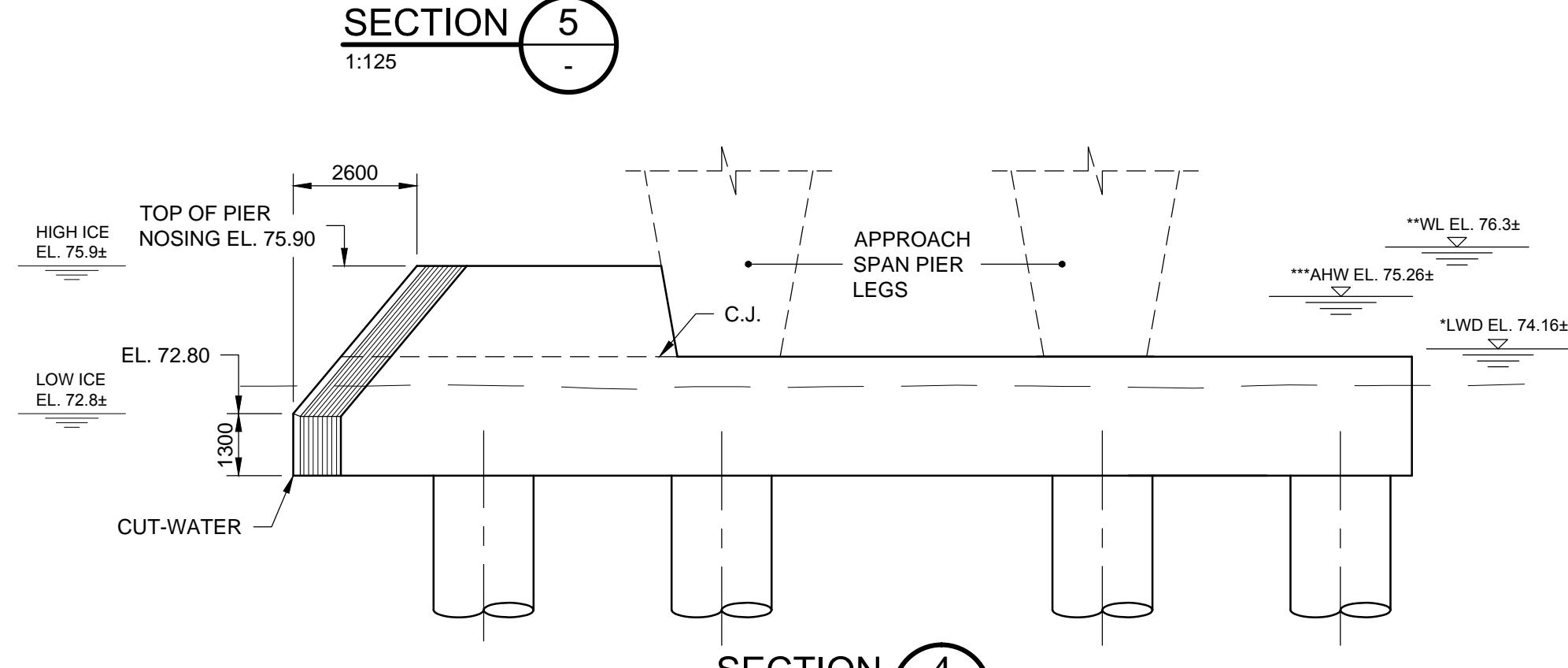
SECTION 2
1:125



SECTION 3
1:125



SECTION 6
1:125



SECTION 4
1:125

REVISIONS

No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	JJA	03/05/2017

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

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THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



WEST ABUTMENT

Mark Van Buren, P.Eng. Director of Engineering & Deputy Commissioner
Dan Franco, P.Eng. Project Engineer

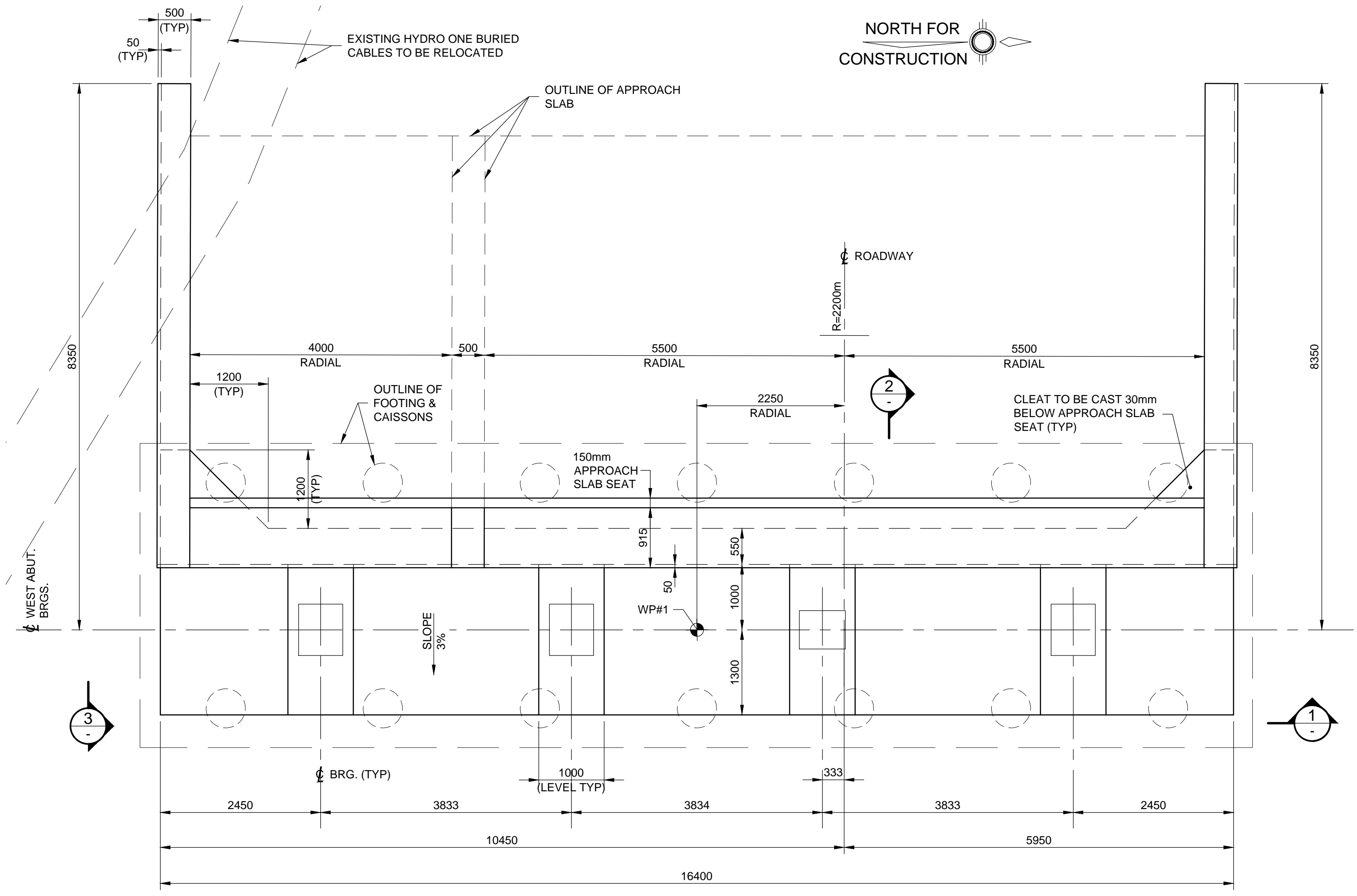


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Dwn:	KRS JJA
Scale:	AS NOTED
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Code:	CAN/CSA-S6-14
Load:	CL625ONT

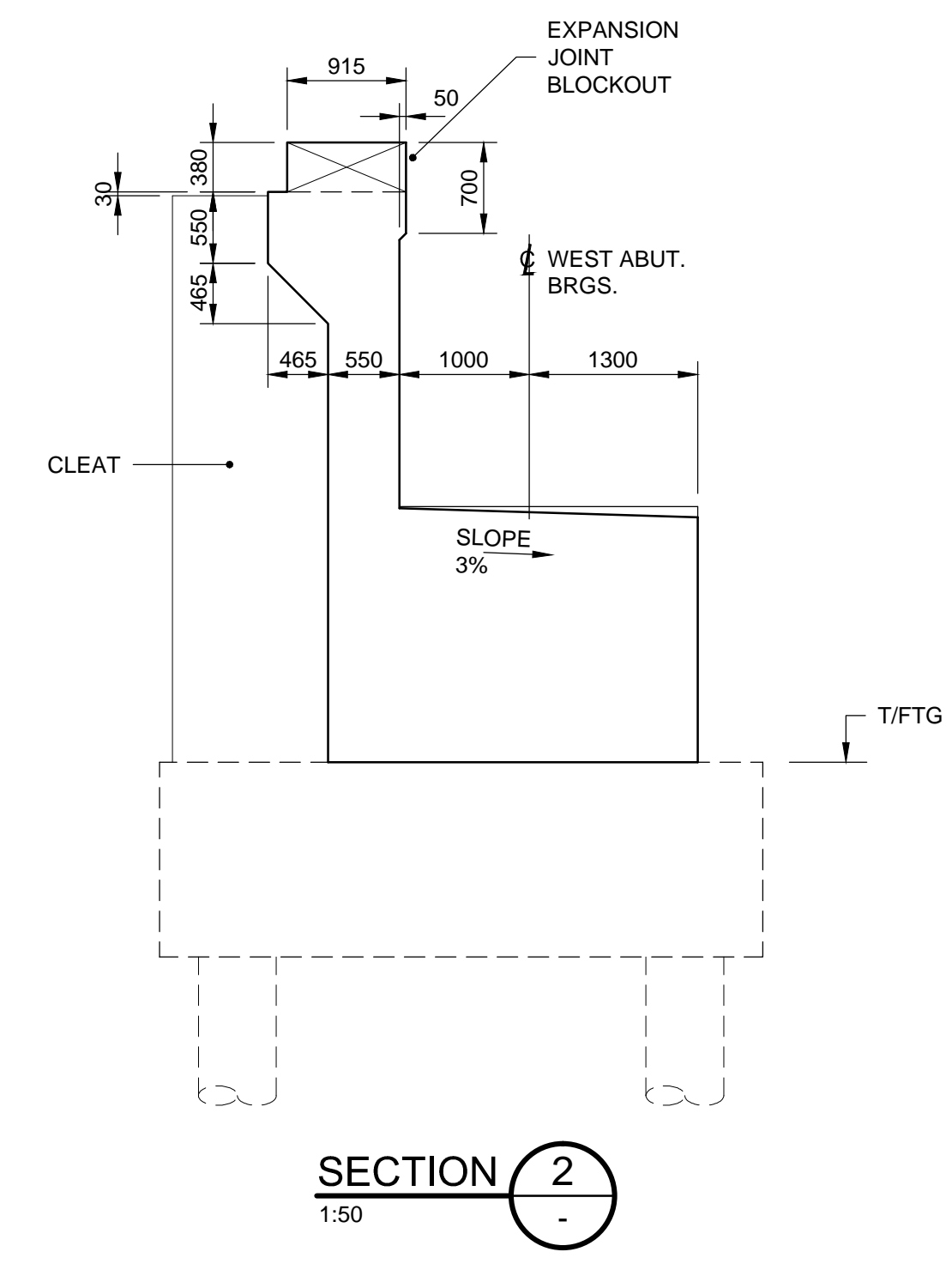
NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	JJA	03/05/2017

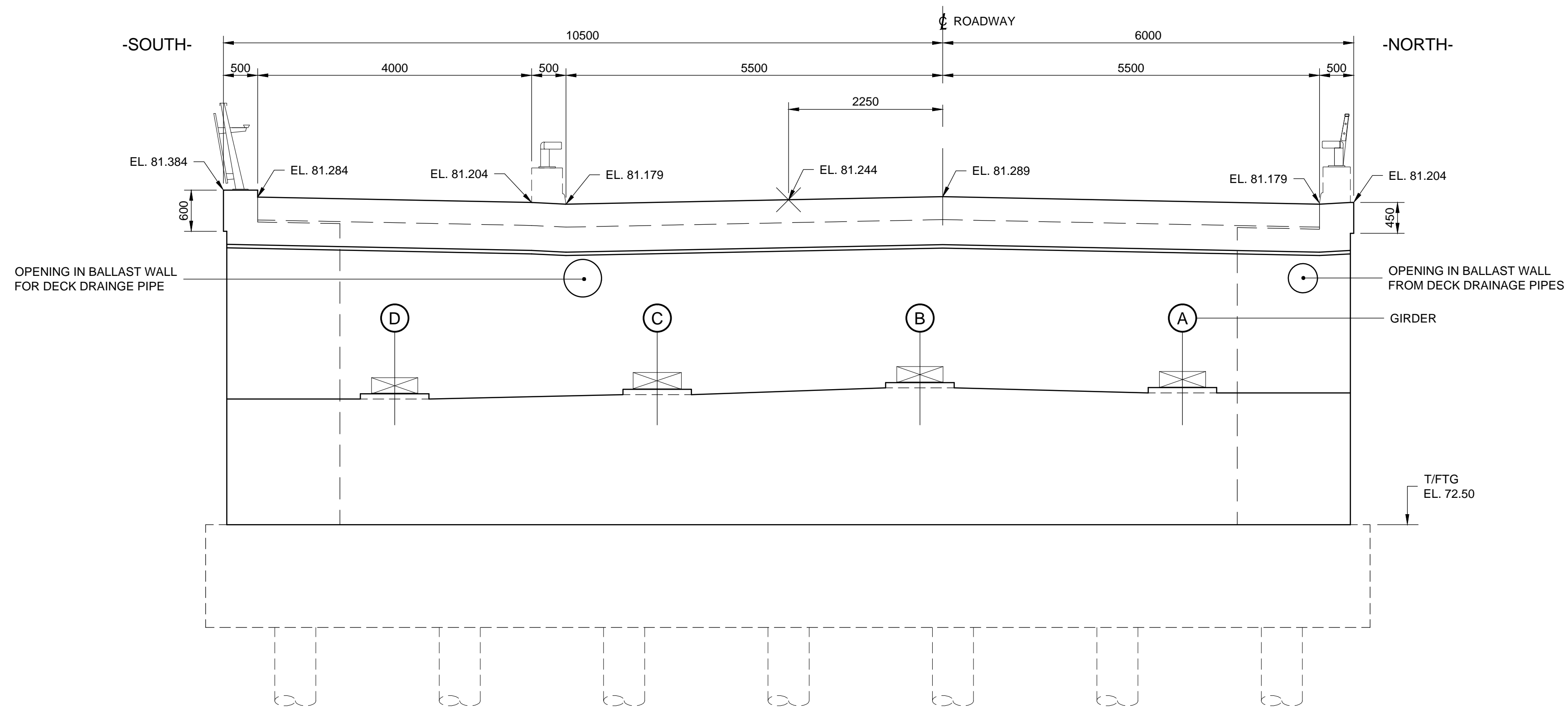
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T/FTG DENOTES TOP OF FOOTING



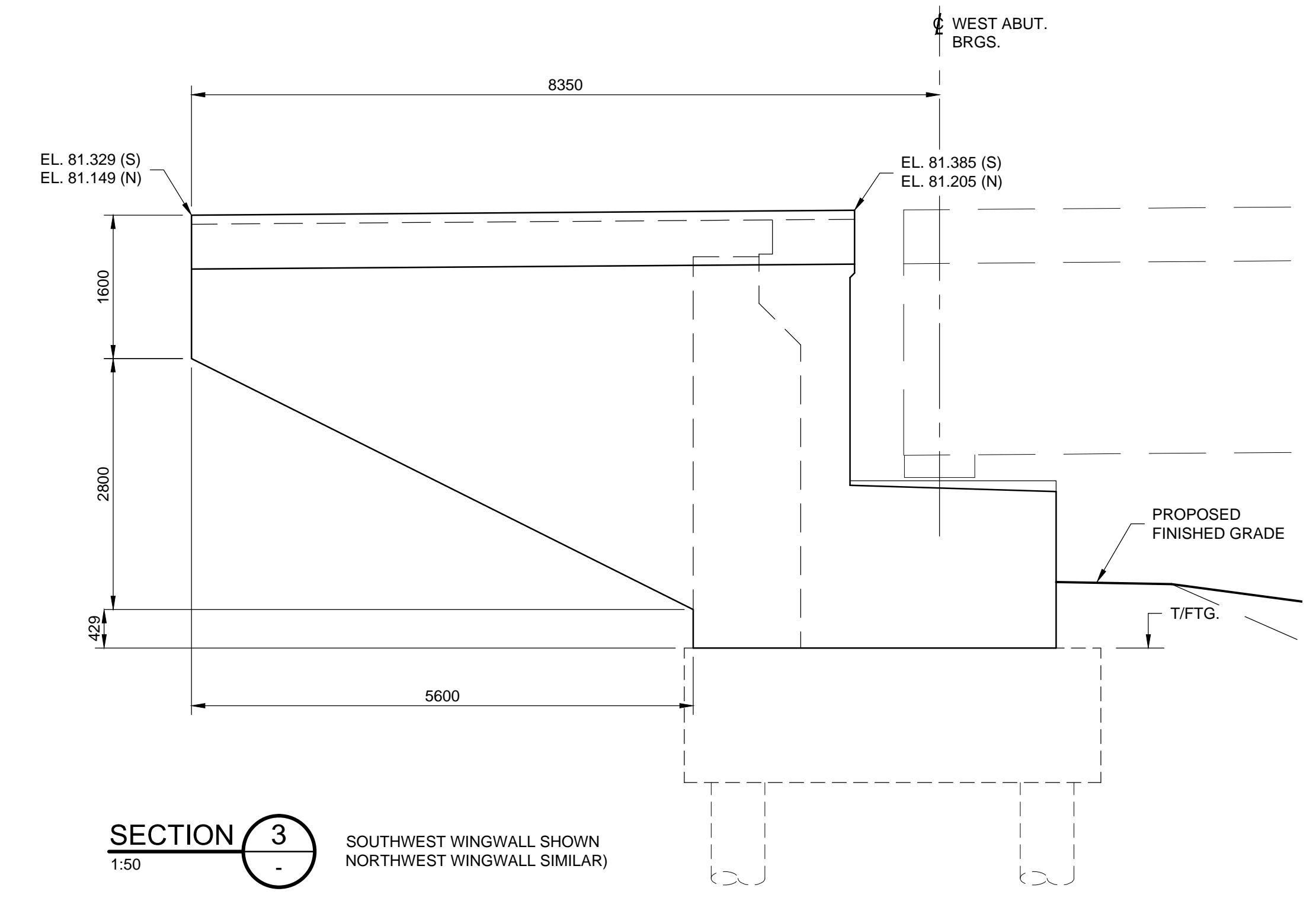
PLAN - WEST ABUTMENT
1:50



SECTION 2
1:50

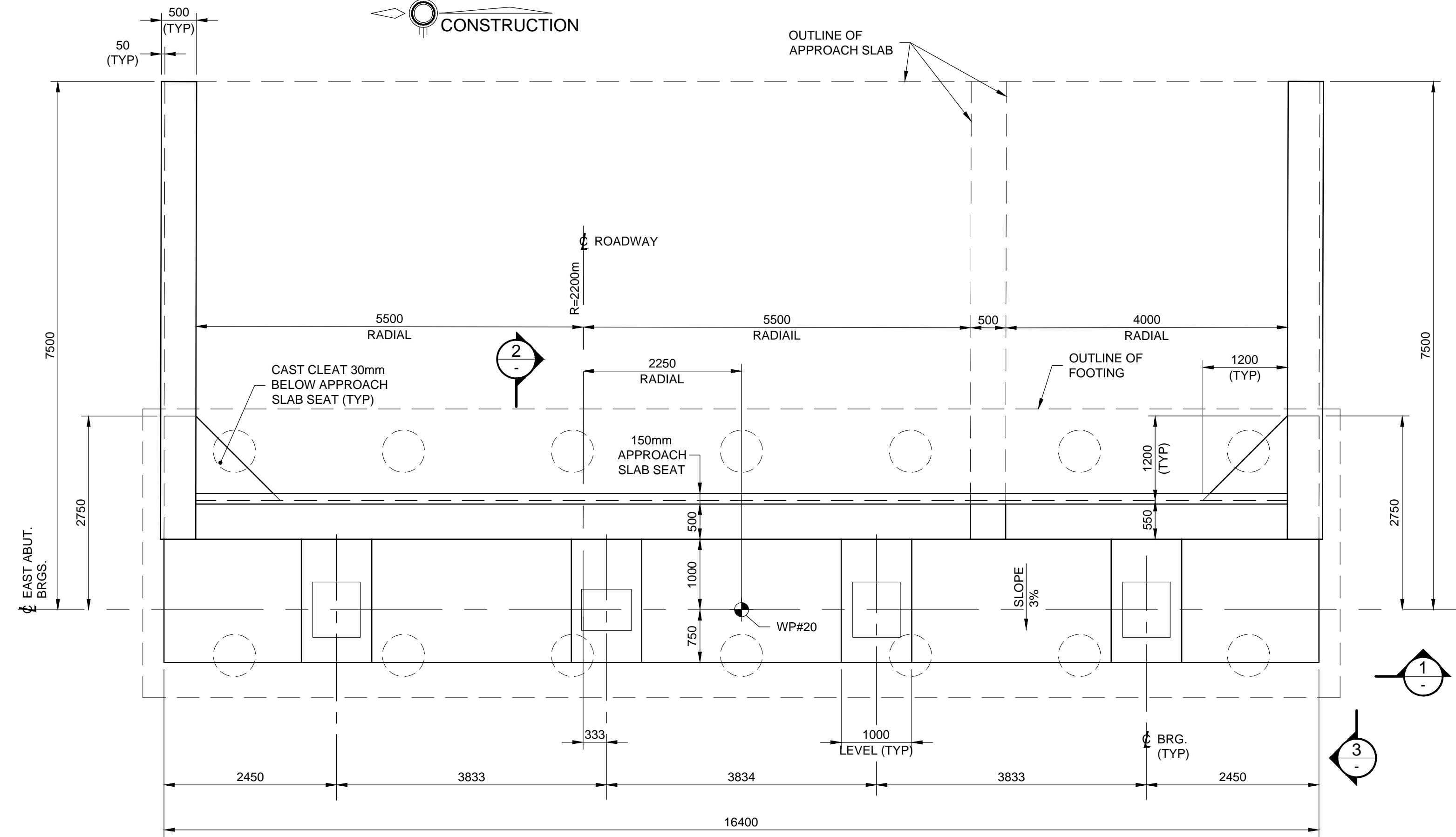
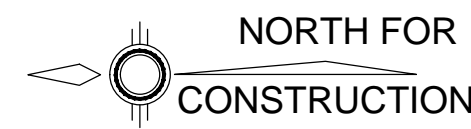


ELEVATION 1
1:50



SECTION 3
1:50
SOUTHWEST WINGWALL SHOWN
NORTHWEST WINGWALL SIMILAR

Consultant's Information: C:\pw_working\onlinet\0604544\dm012779-B-103 West Abutment.dwg
 Last Saved: Monday, May 01, 2017 11:03:41 AM
 Plot Date: 01/2017 11:42:47 AM



PLAN - EAST ABUTMENT
1:50

LEGEND:
WP DENOTES WORKING POINT
T/FTG DENOTES TOP OF FOOTING

THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



EAST ABUTMENT

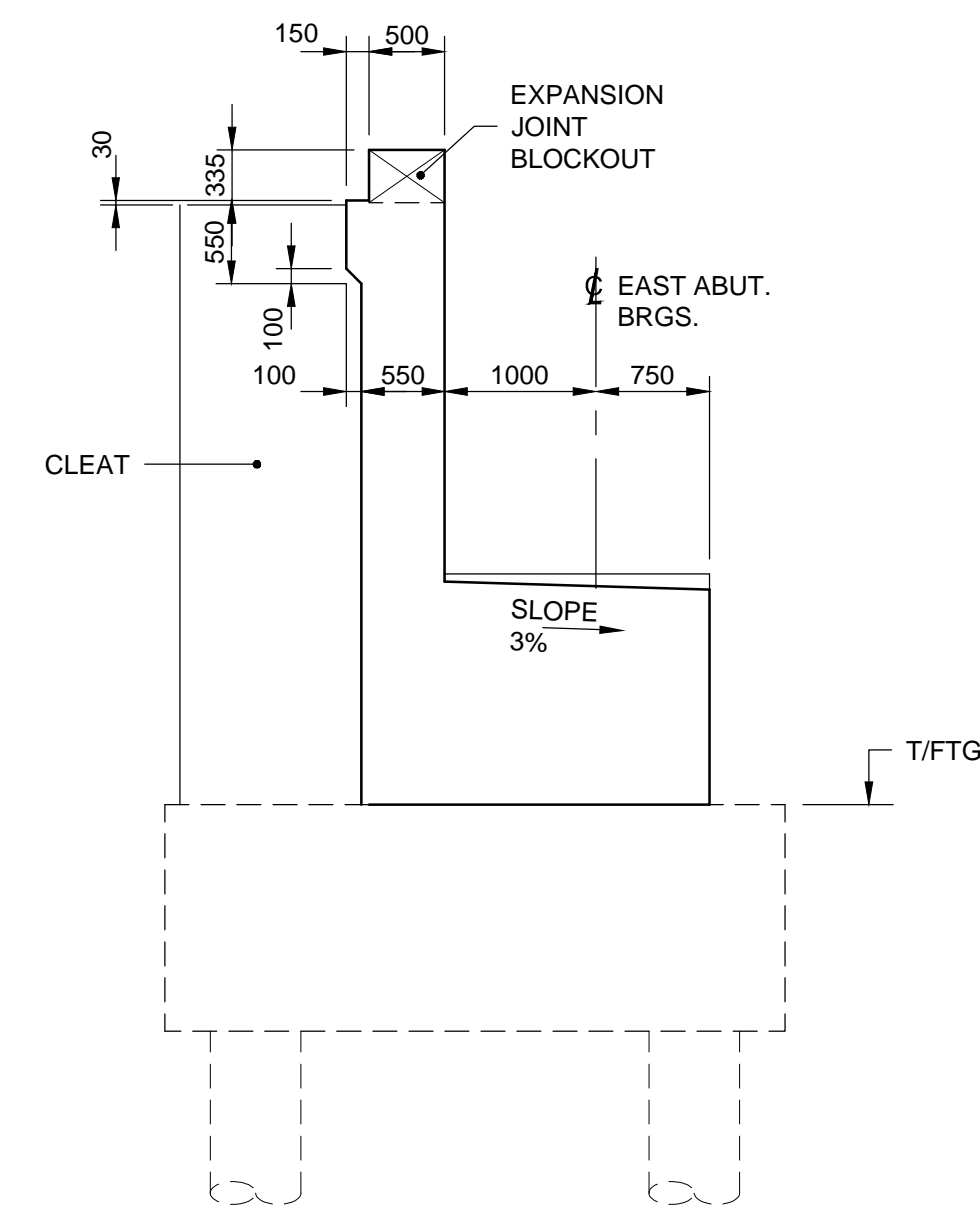
Mark Van Buren, P.Eng. Director of Engineering & Deputy Commissioner
Dan Franco, P.Eng. Project Engineer

J.L. Richards ENGINEERS-ARCHITECTS-PLANNERS
PARSONS

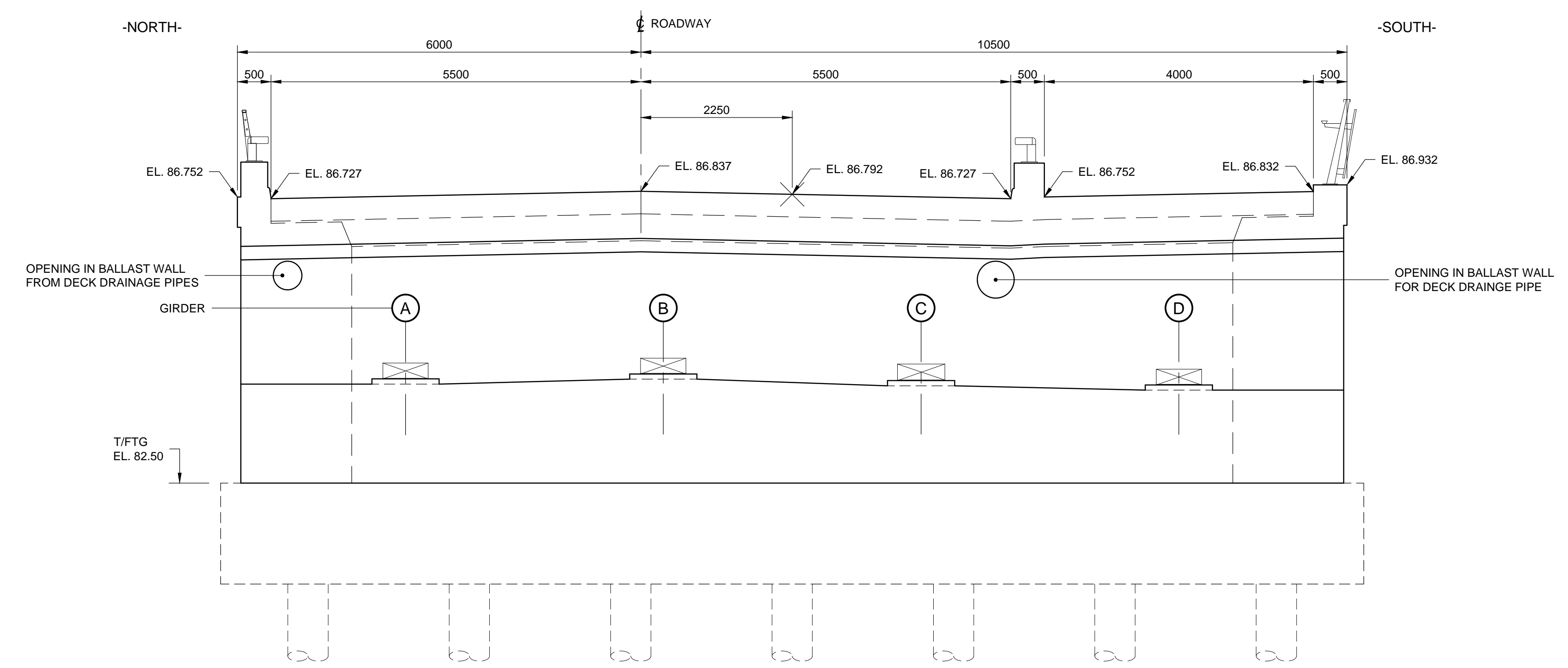
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Dwn:	KRS	Chk'd:	JJA
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Utility Circ. No.:	-----		
Code:	CAN/CSA-S6-14		
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NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

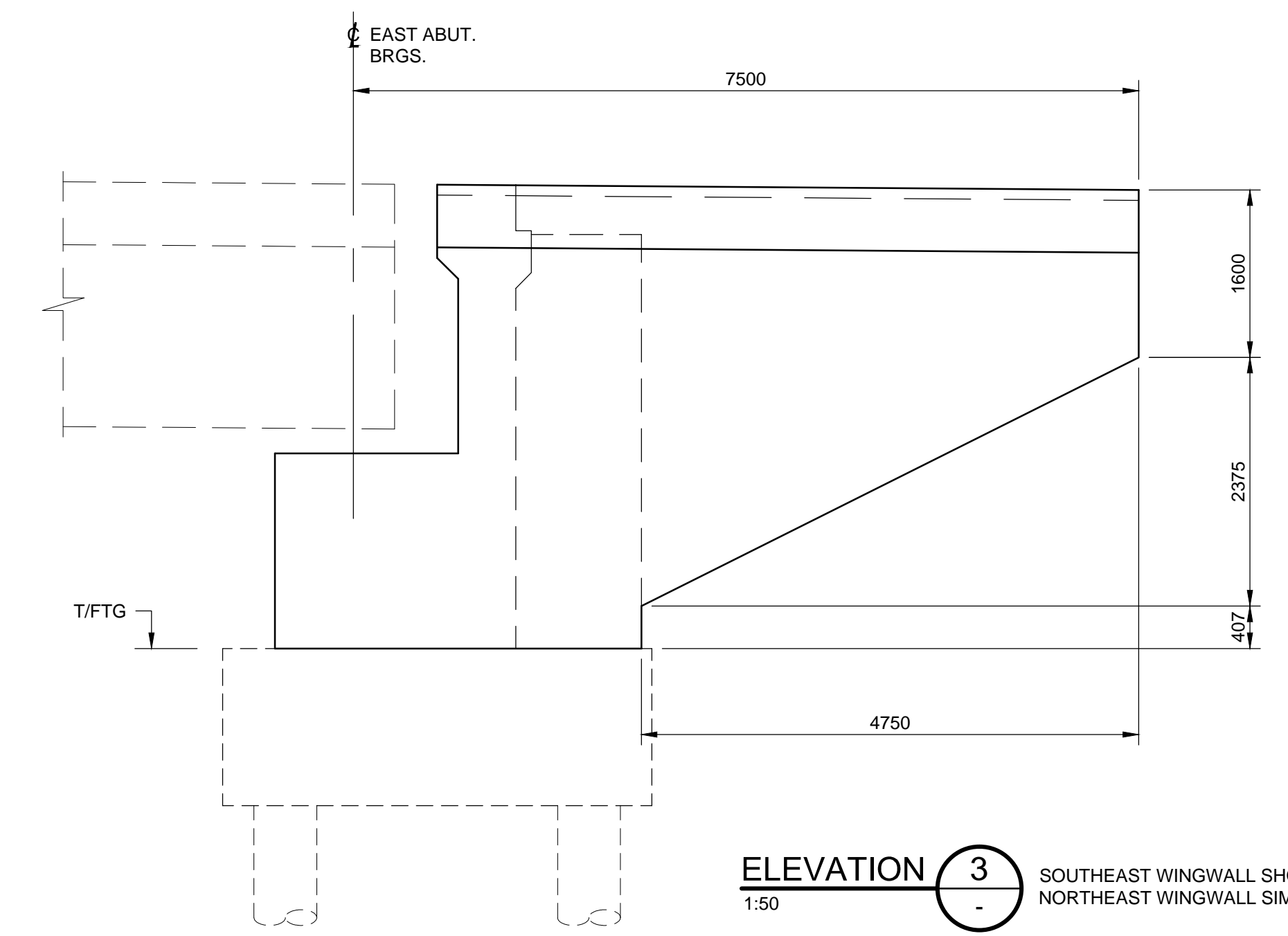
No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	JJA	03/05/2017



SECTION 2
1:50



ELEVATION 1
1:50



ELEVATION 3
1:50
SOUTHEAST WINGWALL SHOWN
NORTHEAST WINGWALL SIMILAR

Plot Date: 5/2/2017 10:56:32 AM
 Last Saved: Monday, May 01, 2017 11:43:37 AM
 Consultant's Information: C:\pwworking\kingston\10100544\dwg\012779-B-104-East Abutment.dwg

THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



APPROACH SPANS
PIER

Mark Van Buren, P.Eng. Director of Engineering & Deputy Commissioner
Dan Franco, P.Eng. Project Engineer

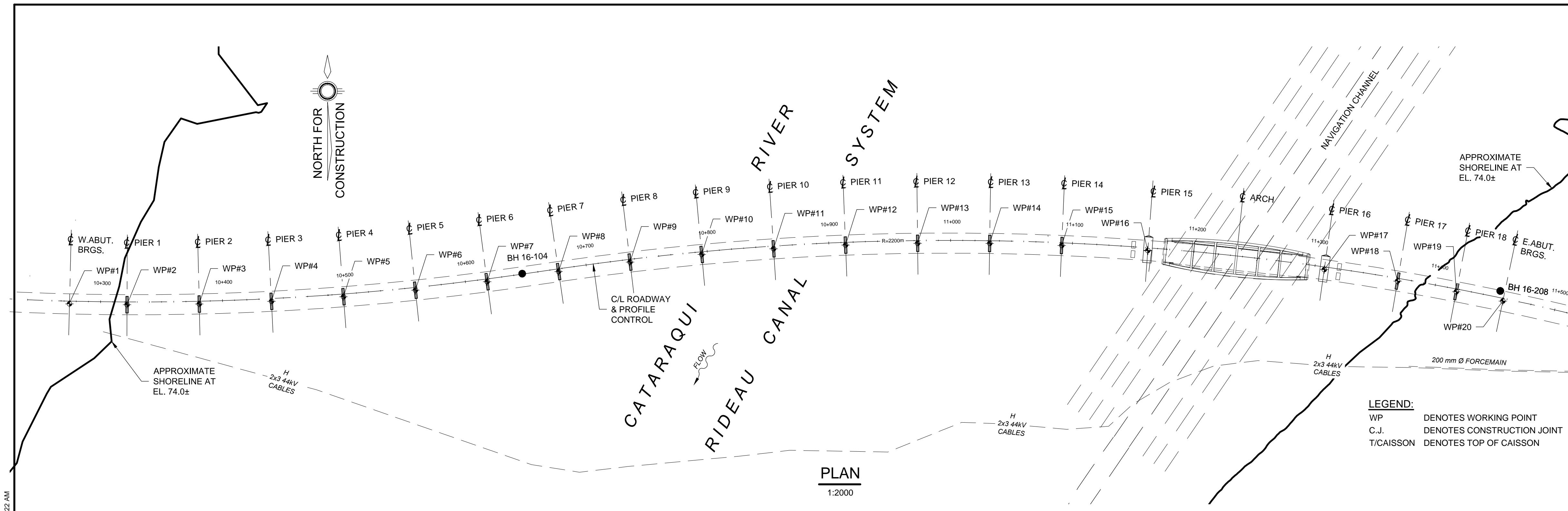


Project No.:	27143
Drawing No.:	B-105
Sheet No.:	of
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Dwn:	KRS JJA
Scale:	AS NOTED
Utility Circ. No.:	
Code:	CAN/CSA-S6-14
Load:	CL625ONT

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	JJA	03/05/2017

NOTES:
1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DWG. NO. B-102.



PLAN
1:2000

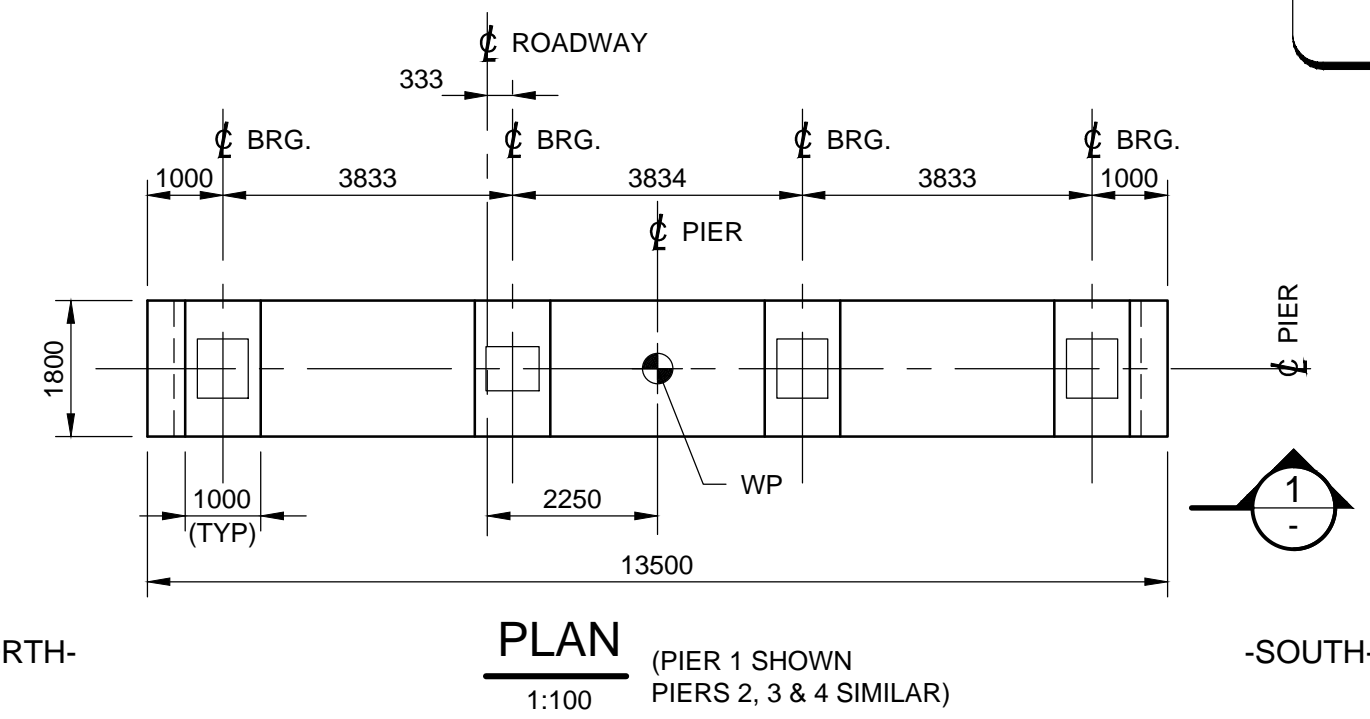
LEGEND:
WP DENOTES WORKING POINT
C.J. DENOTES CONSTRUCTION JOINT
T/CAISSON DENOTES TOP OF CAISSON

NOTE:

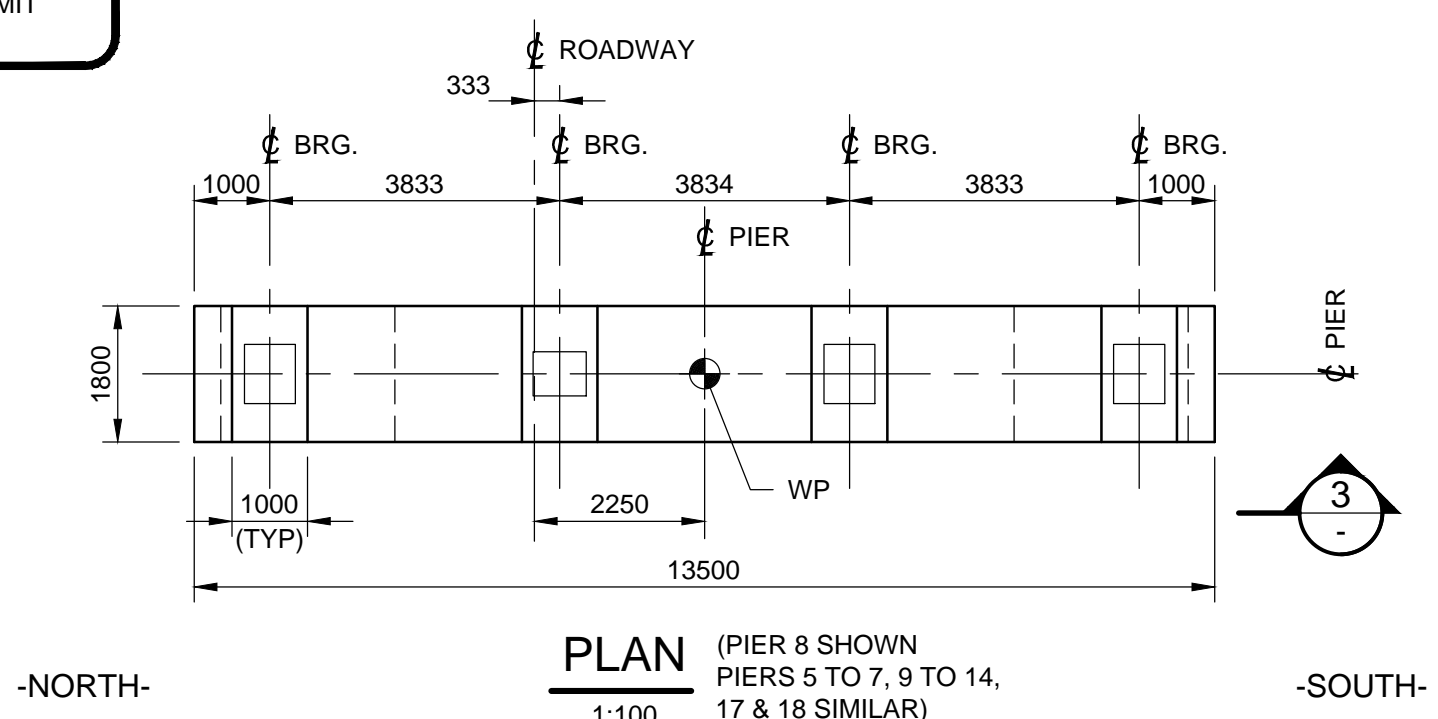
LOW WATER DATUM	EL. 74.16	CANADIAN HYDROGRAPHIC SERVICE (LAKE ONTARIO)
AVERAGE HIGH WATER	EL. 75.26	MINISTRY OF NATURAL RESOURCES (LAKE ONTARIO)
REGULATORY WATER LEVEL	EL. 76.3	CATARAQUI REGION CONSERVATION AUTHORITY "REGULATORY LIMIT WITHIN THE STUDY AREA"

PIERS 5 TO 14, 17 AND 18

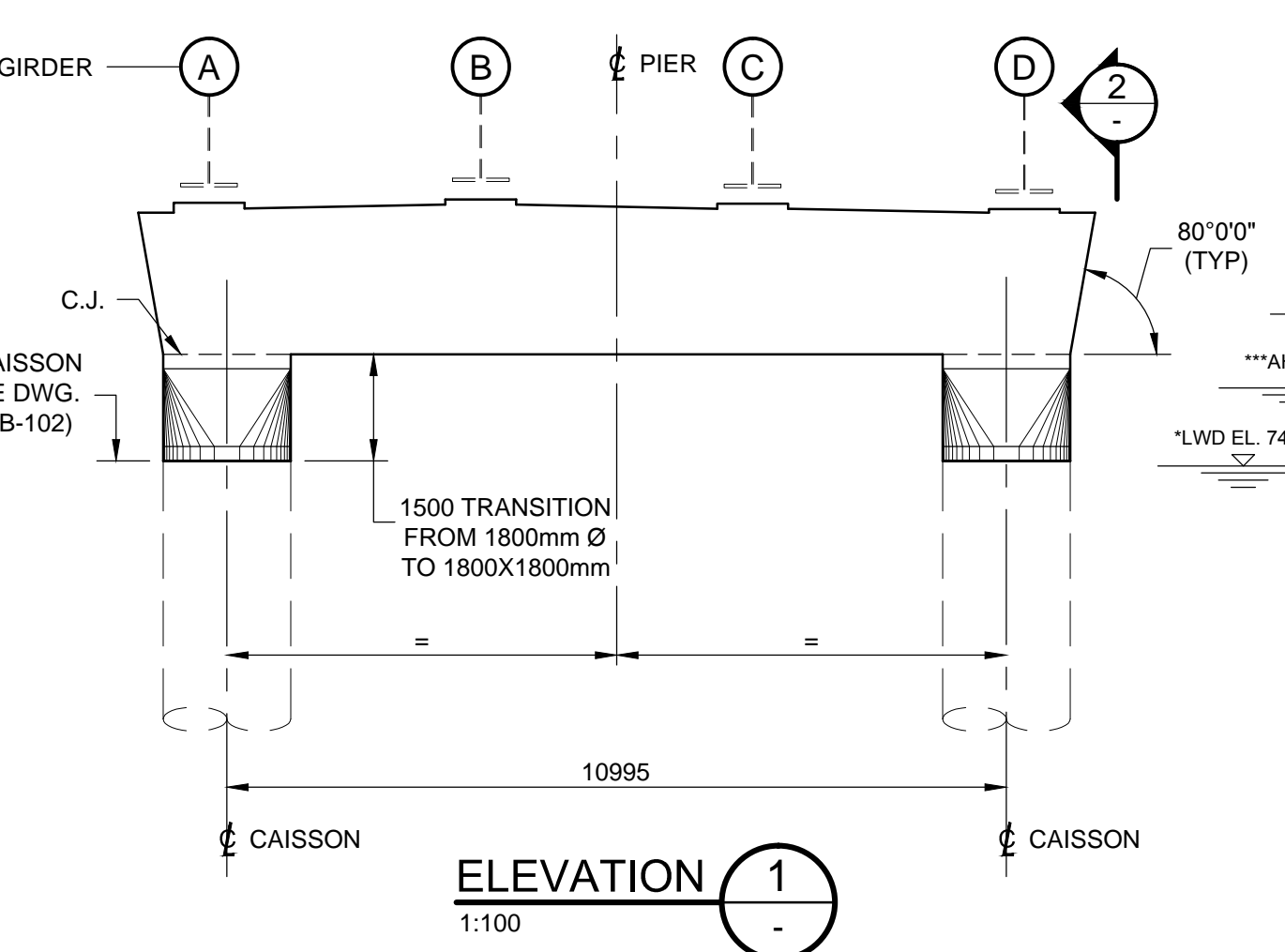
PIER NO.	DIMENSION "Y" (mm)	PIER NO.	DIMENSION "Y" (mm)
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7	996	13	3660
8	1440	14	4104
9	1884	17	4181
10	2328	18	3813



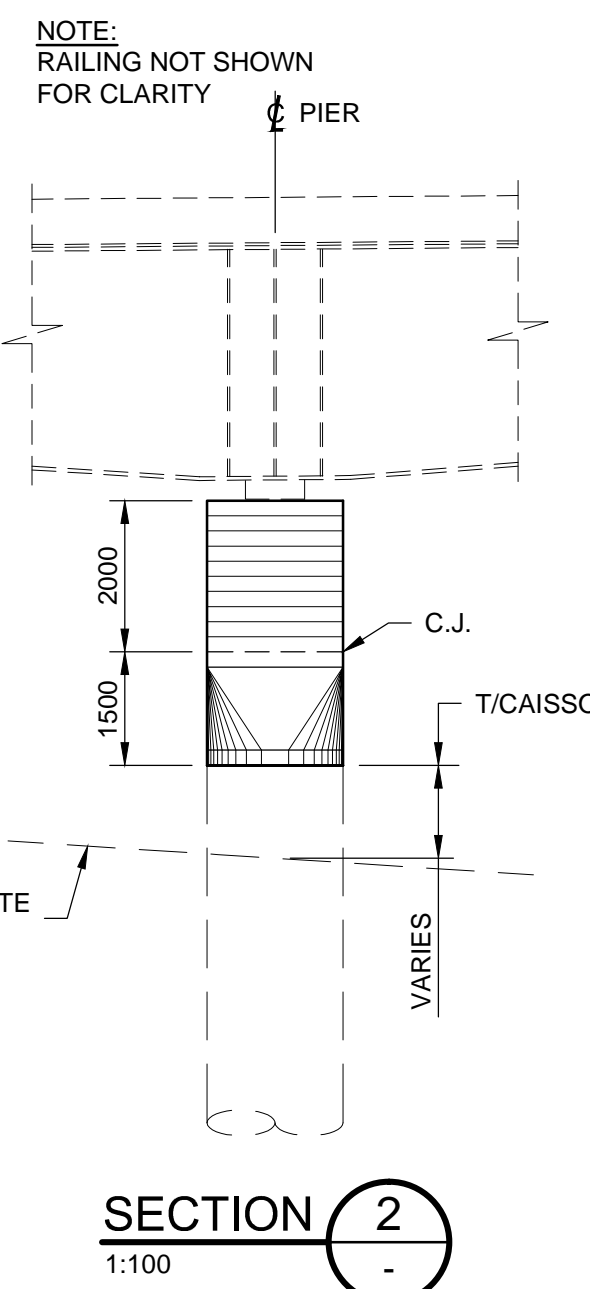
PLAN (PIER 1 SHOWN PIER 2, 3 & 4 SIMILAR)
1:100



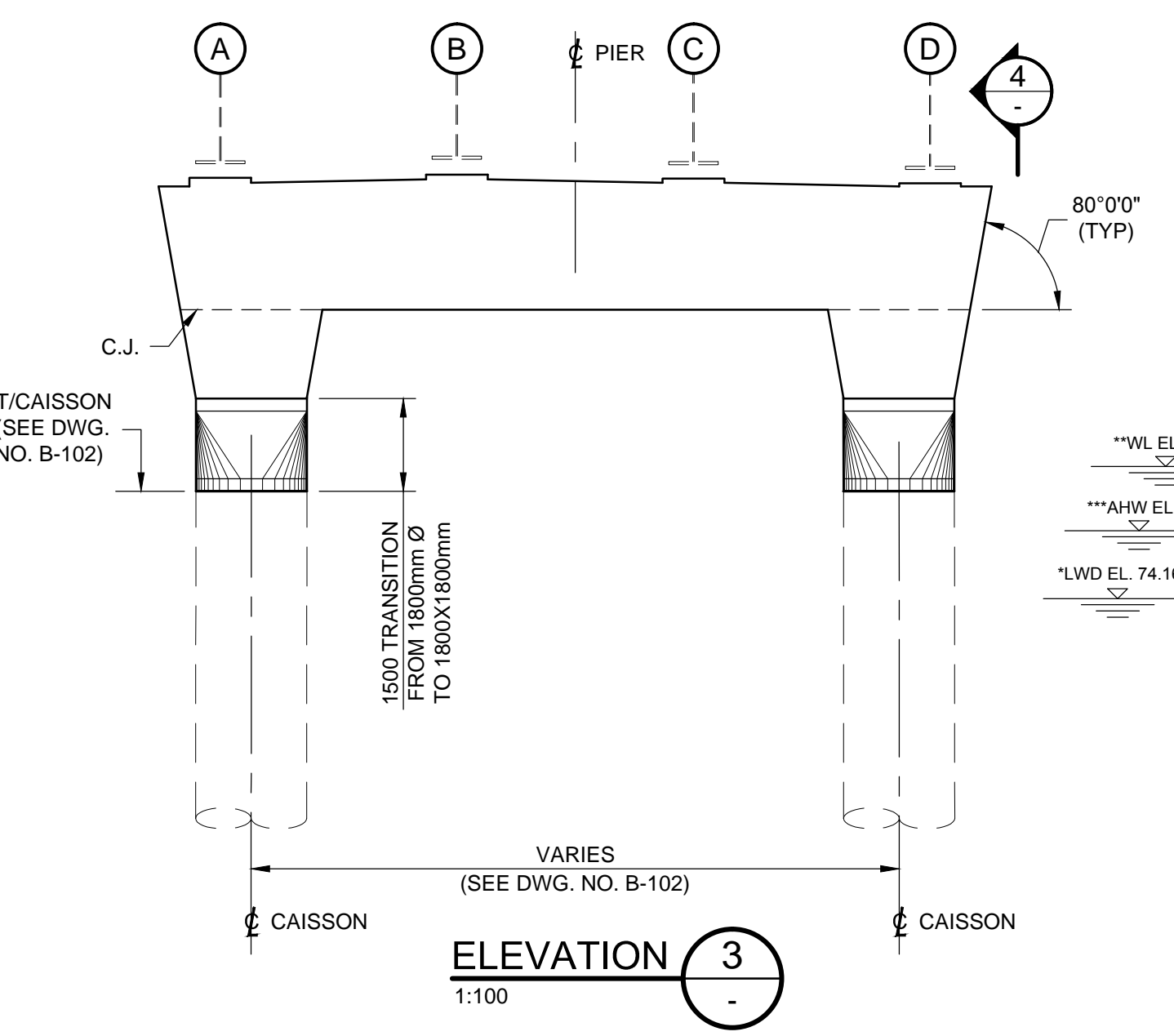
PLAN (PIER 8 SHOWN PIER 5 TO 7, 9 TO 14, 17 & 18 SIMILAR)
1:100



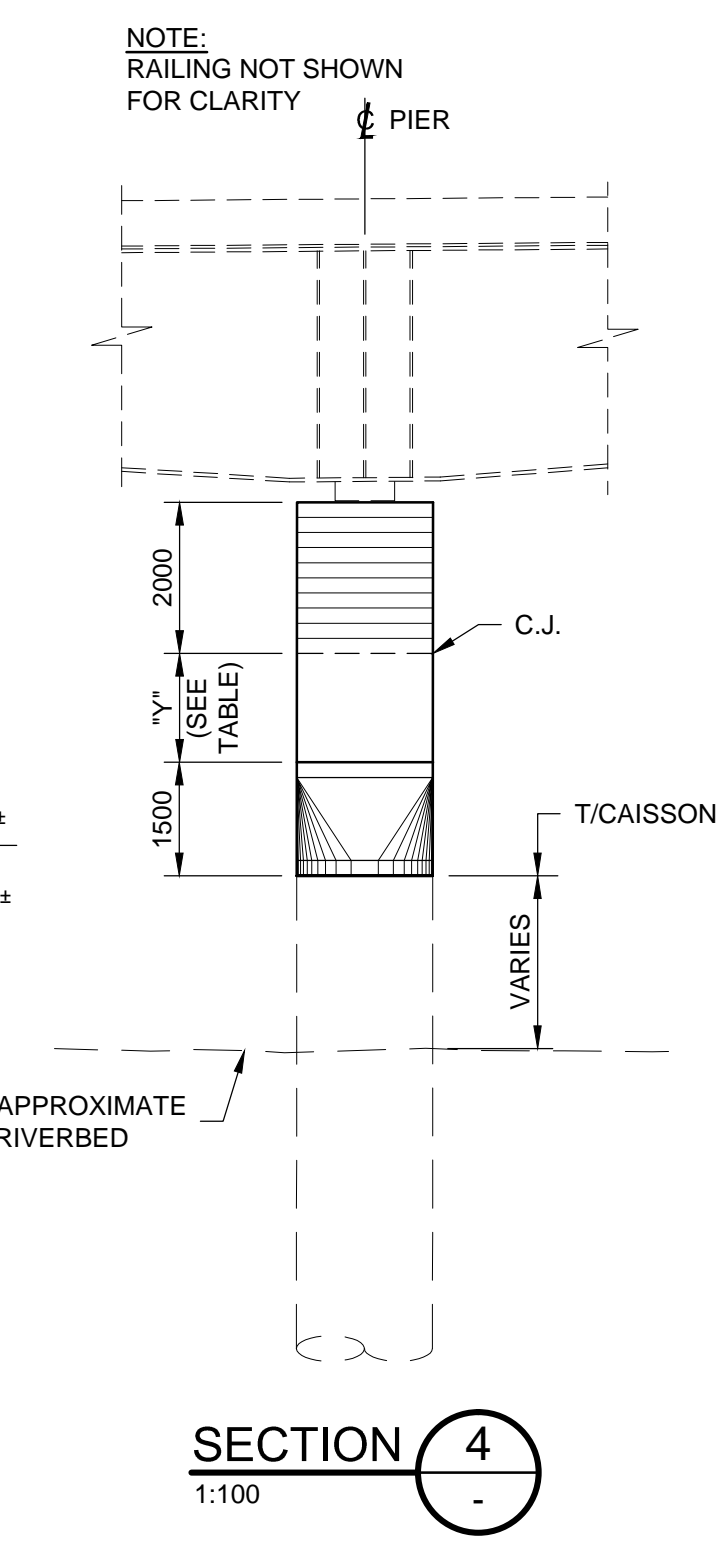
ELEVATION 1
1:100



SECTION 2
1:100



ELEVATION 3
1:100



SECTION 4
1:100

Consultant's Information: C:\pwworking\on\1090544\dwg\12779-105 Approach Spans - Piers.dwg
 Last Saved: Monday, May 01, 2017 11:46:54 AM
 Plot Date: 5/1/2017 11:50:22 AM

LEGEND:
T/FTG DENOTES TOP OF FOOTING

**THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN**



ARCH PIERS

Mark Van Buren, P.Eng. Director of Engineering & Deputy Commissioner
Dan Franco, P.Eng. Project Engineer

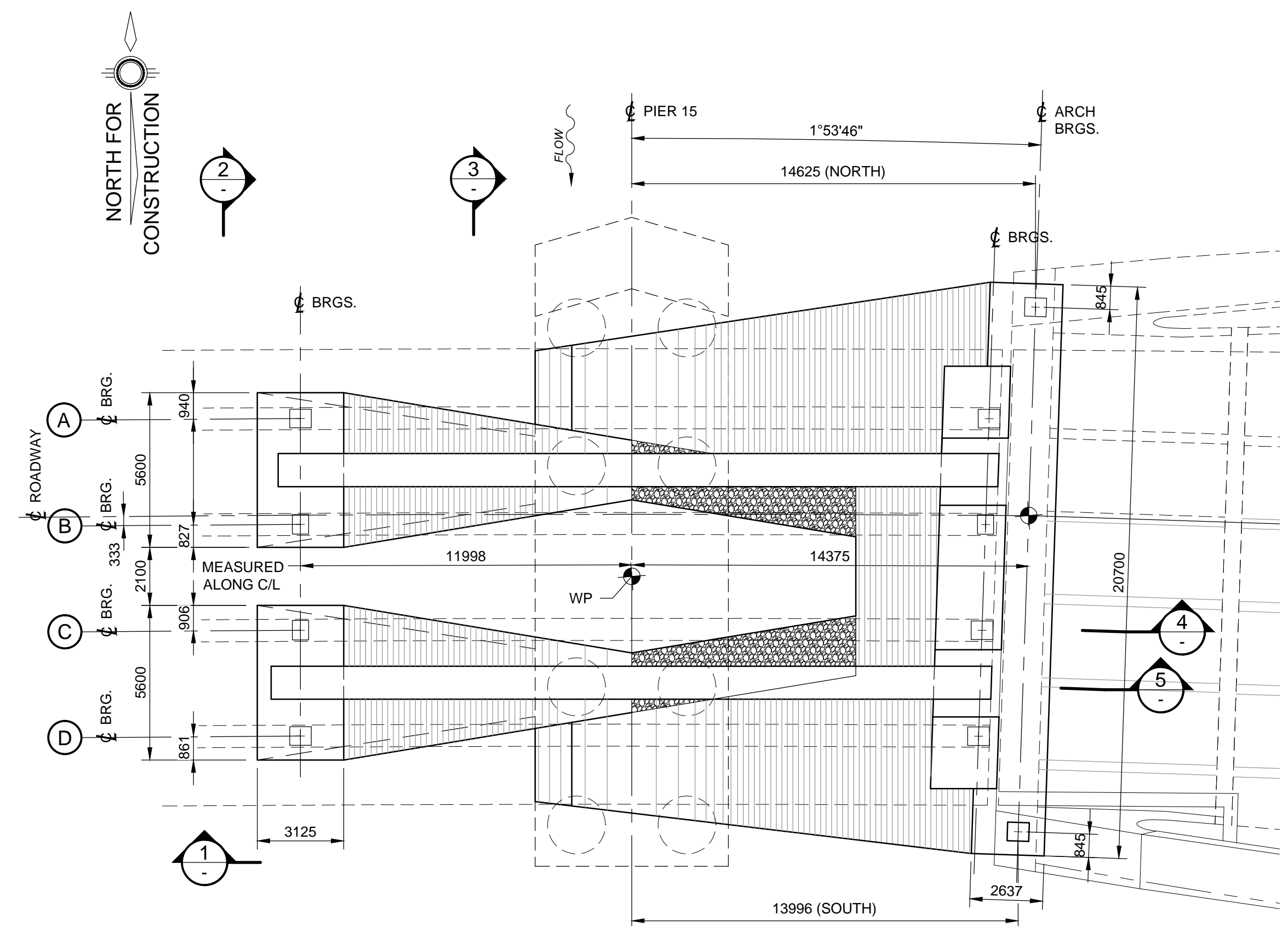


Project No.:	27143
Drawing No.:	B-106
Sheet No.:	-- of --
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Chk'd:	RO
Dwn:	KRS
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Scale:	AS NOTED
Utility Circ. No.:	----
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Load:	CL825ONT

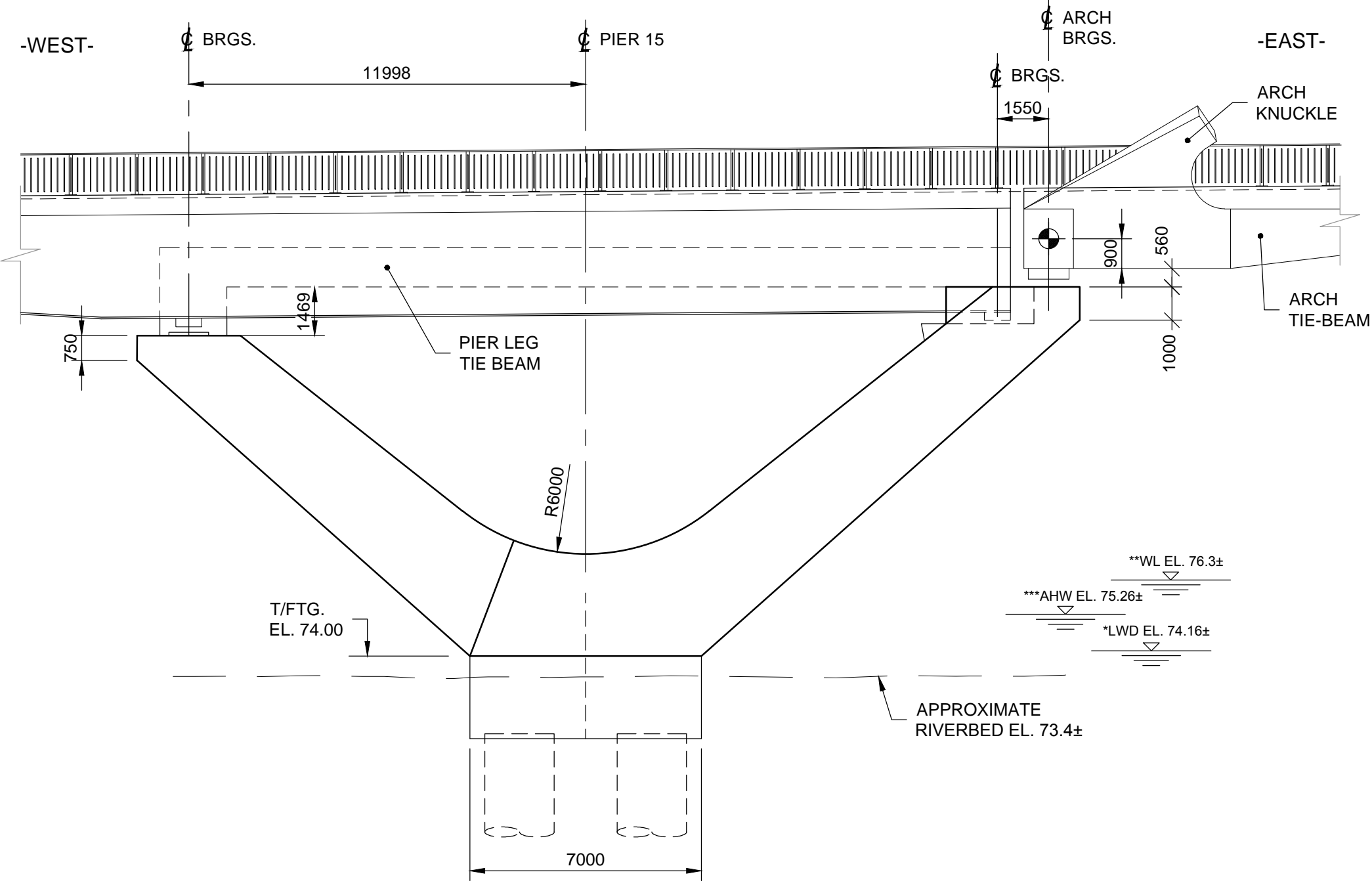
NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

No.	Description	By	Date (dd/mm/yyyy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	JJA	03/05/2017

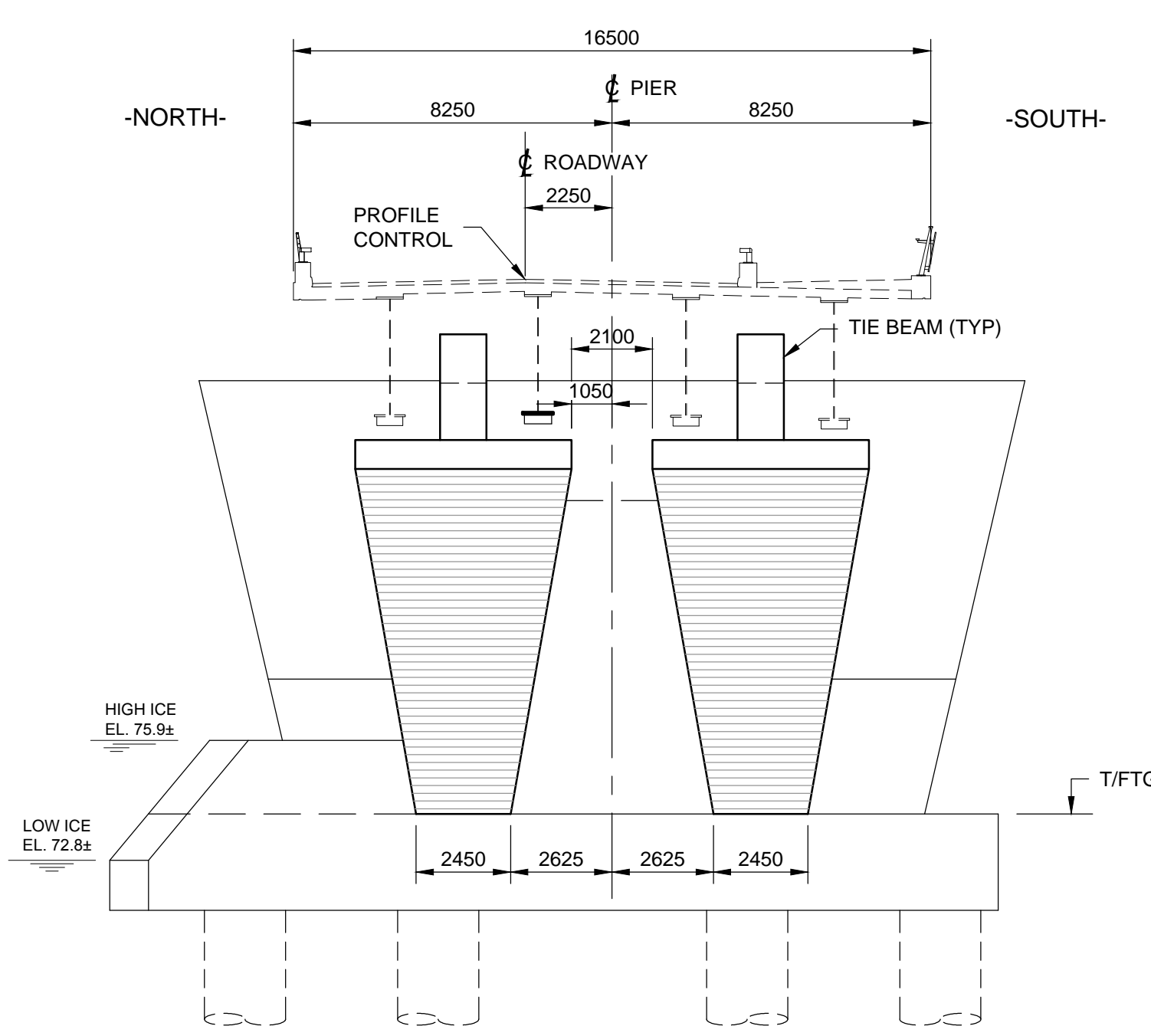
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1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DWG. NO. B-102.



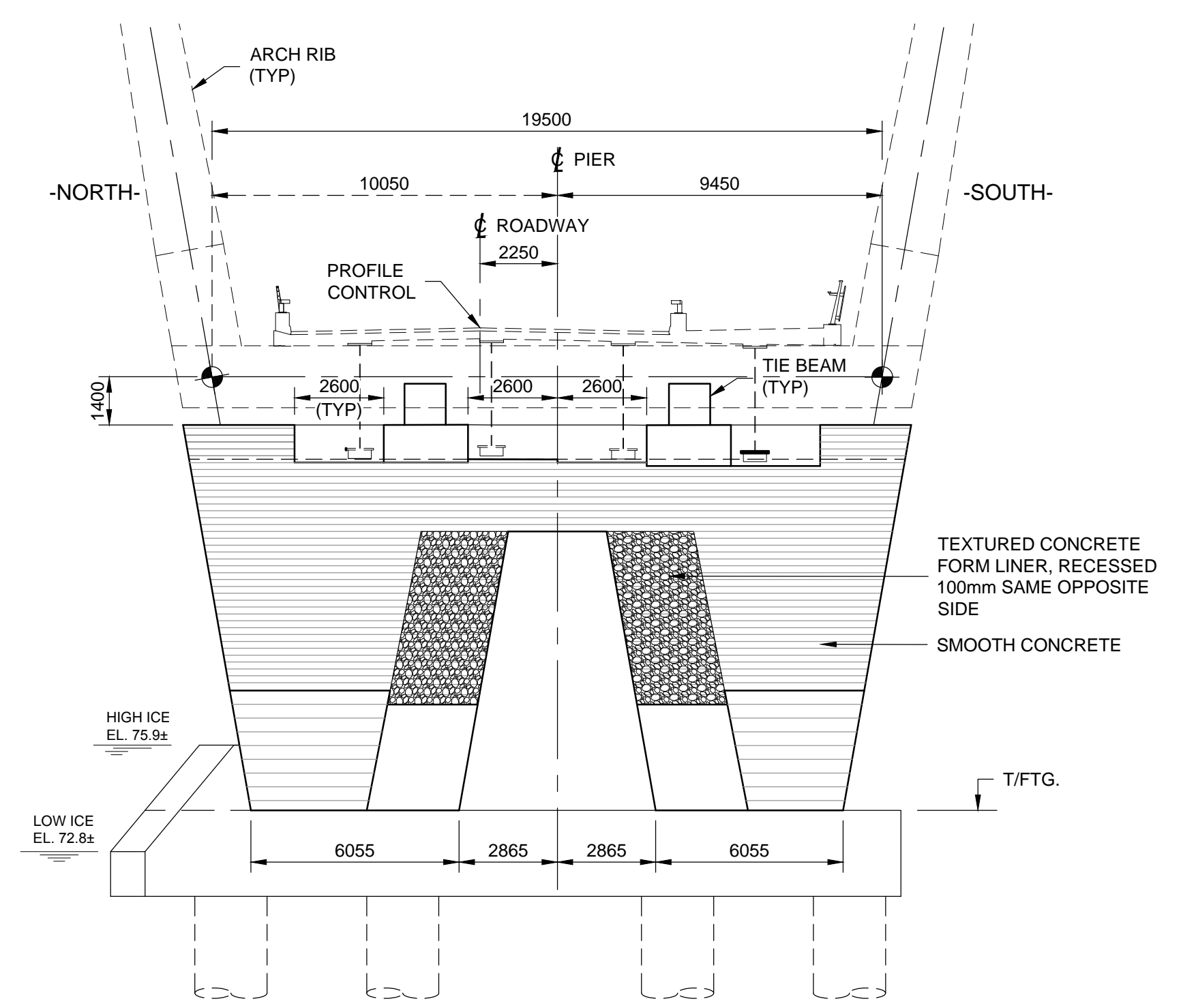
PLAN - ARCH PIER
1:150 (WEST ARCH PIER 15 SHOWN
EAST ARCH PIER 16 OPP. HAND)



ELEVATION 1
1:150 (PIER 15 SHOWN
PIER 16 OPPOSITE HAND)



SECTION 2
1:150



SECTION 3
1:150

Plot Date: 5/1/2017 11:52:41 AM
 Last Saved: Friday, April 28, 2017 2:25:35 PM
 Consultant's Information: C:\pw_working\010004544\dwg\01277B-106 Arch Piers.dwg

THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



BEARING AND GIRDER LAYOUT

Mark Van Buren, P.Eng. Director of Engineering & Deputy Commissioner
Dan Franco, P.Eng. Project Engineer

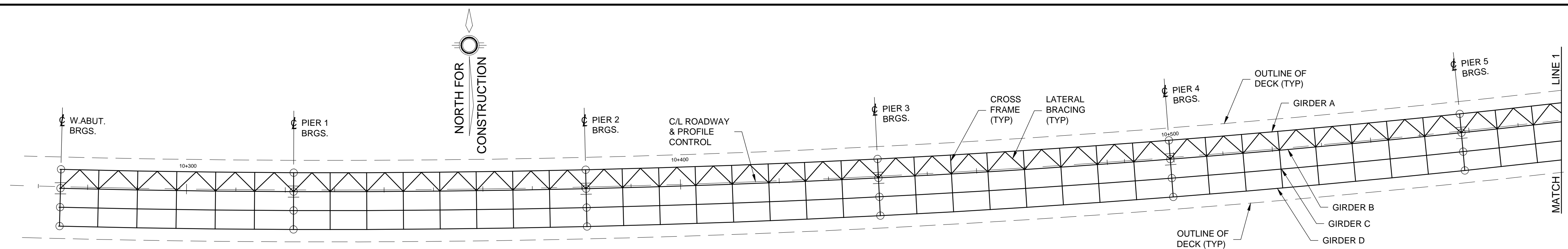


Project No.:	27143
Drawing No.:	B-107
Sheet No.:	.. of ..
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Dwn:	KRS JJA
Scale:	AS NOTED
Utility Circ. No.:
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Load:	CL625ONT

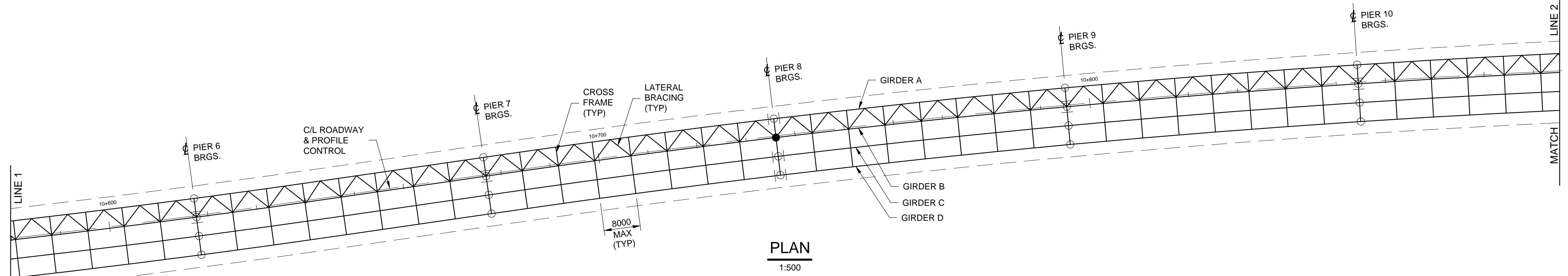
NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

No.	Description	By	Date (dd/mm/yy)
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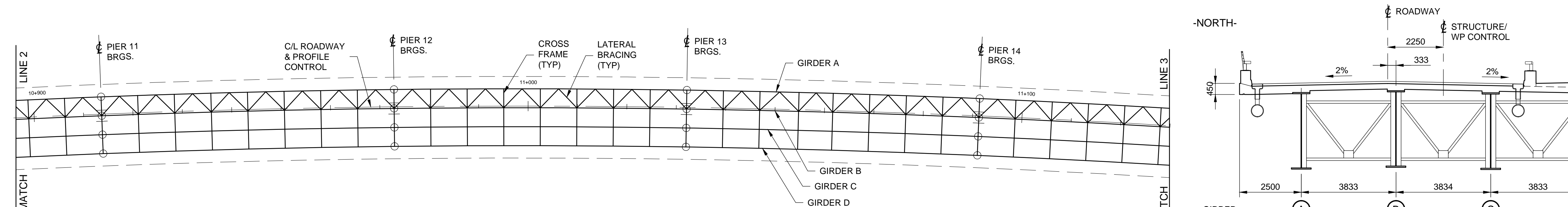
- LEGEND:**
- DENOTES FIXED BEARING
 - DENOTES LONGITUDINALLY FIXED BEARING
 - DENOTES TRANSVERSELY FIXED BEARING
 - DENOTES MULTI-DIRECTIONAL BEARING
 - ⊗ DENOTES TRANSVERSELY FIXED BEARING WITH UPLIFT RESTRAINT
 - ⊗ DENOTES MULTI-DIRECTIONAL BEARING WITH UPLIFT RESTRAINT



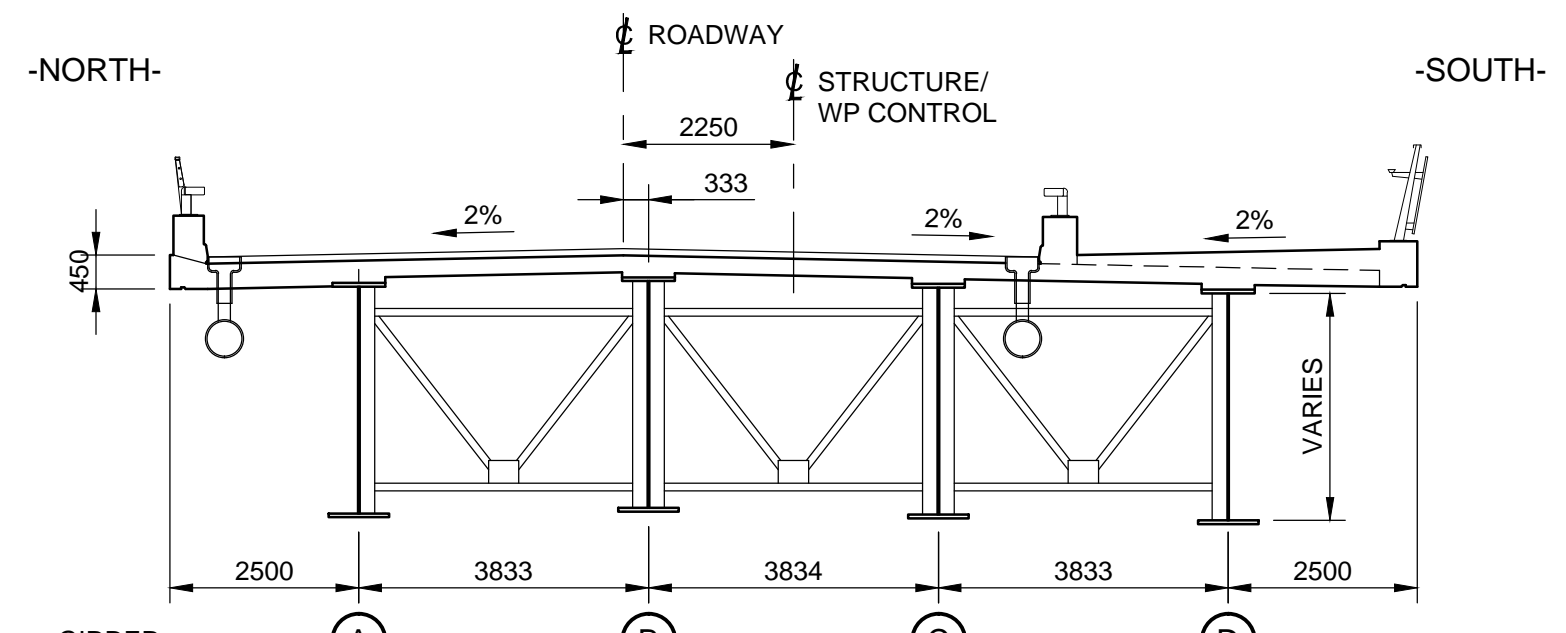
PLAN



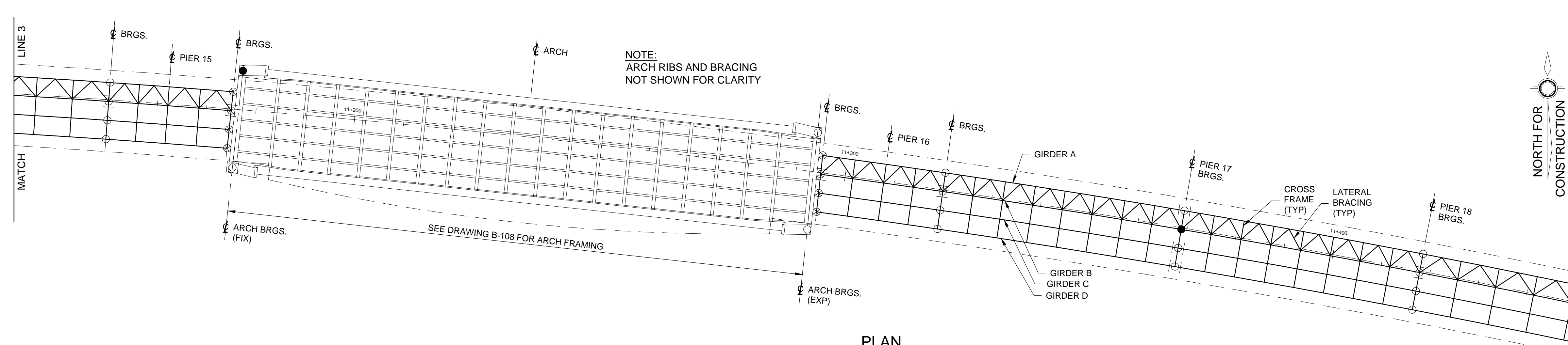
PLAN
1:500



PLAN
1:500



TYPICAL SECTION - APPROACH SPANS
1:100



PLAN
1:500

Plot Date: 5/1/2017 11:54:37 AM
 Last Saved: Friday, April 28, 2017 2:34:45 PM
 Consultant's Information: C:\pw_working\1090544\04\04\01\27718-107 Bearing & Girder Layout.dwg

THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN

ARCH SPAN
FRAMING PLAN

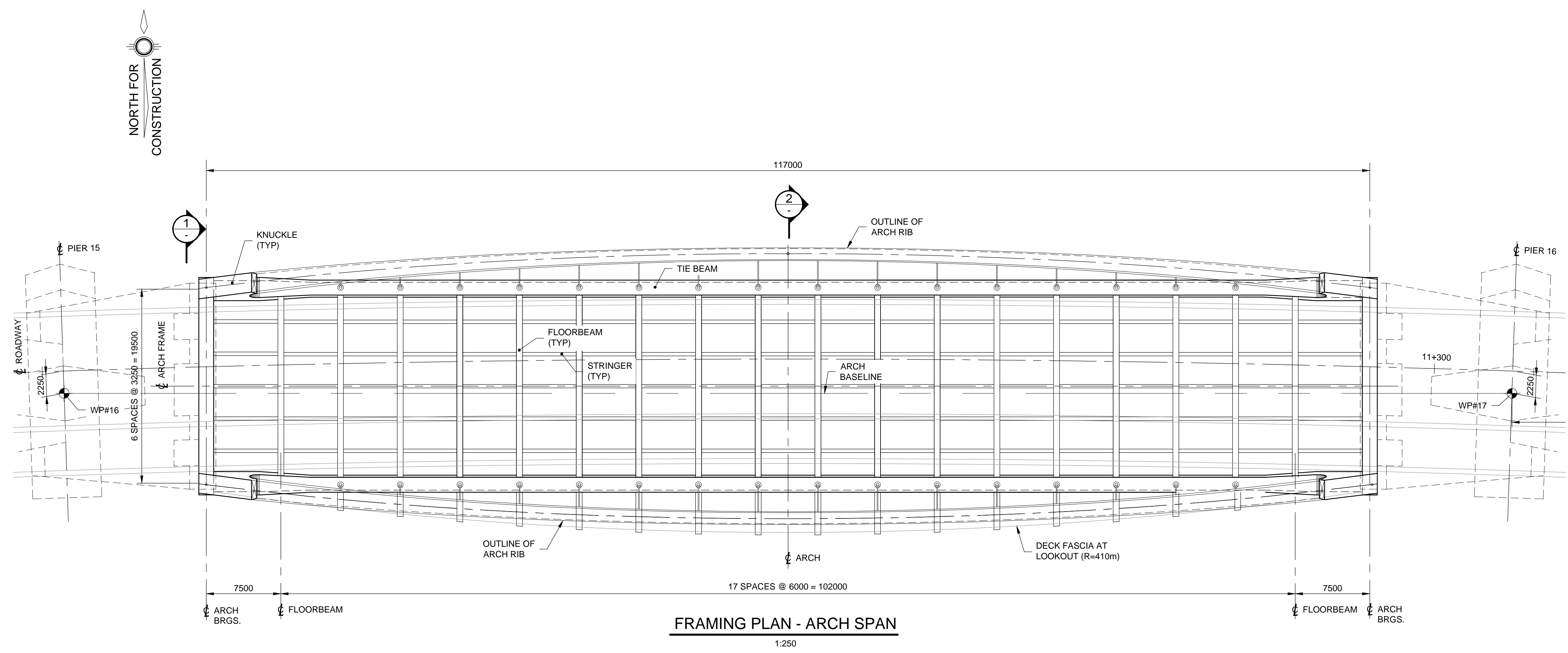
Mark Van Buren, P.Eng. Director of Engineering & Deputy Commissioner
Dan Franco, P.Eng. Project Engineer



Project No.: 27143
Drawing No.: B-108
Sheet No.: -- of --
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Dwn: KRS Chk'd: JJA
Scale: AS NOTED
Utility Circ. No.: ----
Code: CAN/CSA-S6-14
Load: CL625ONT

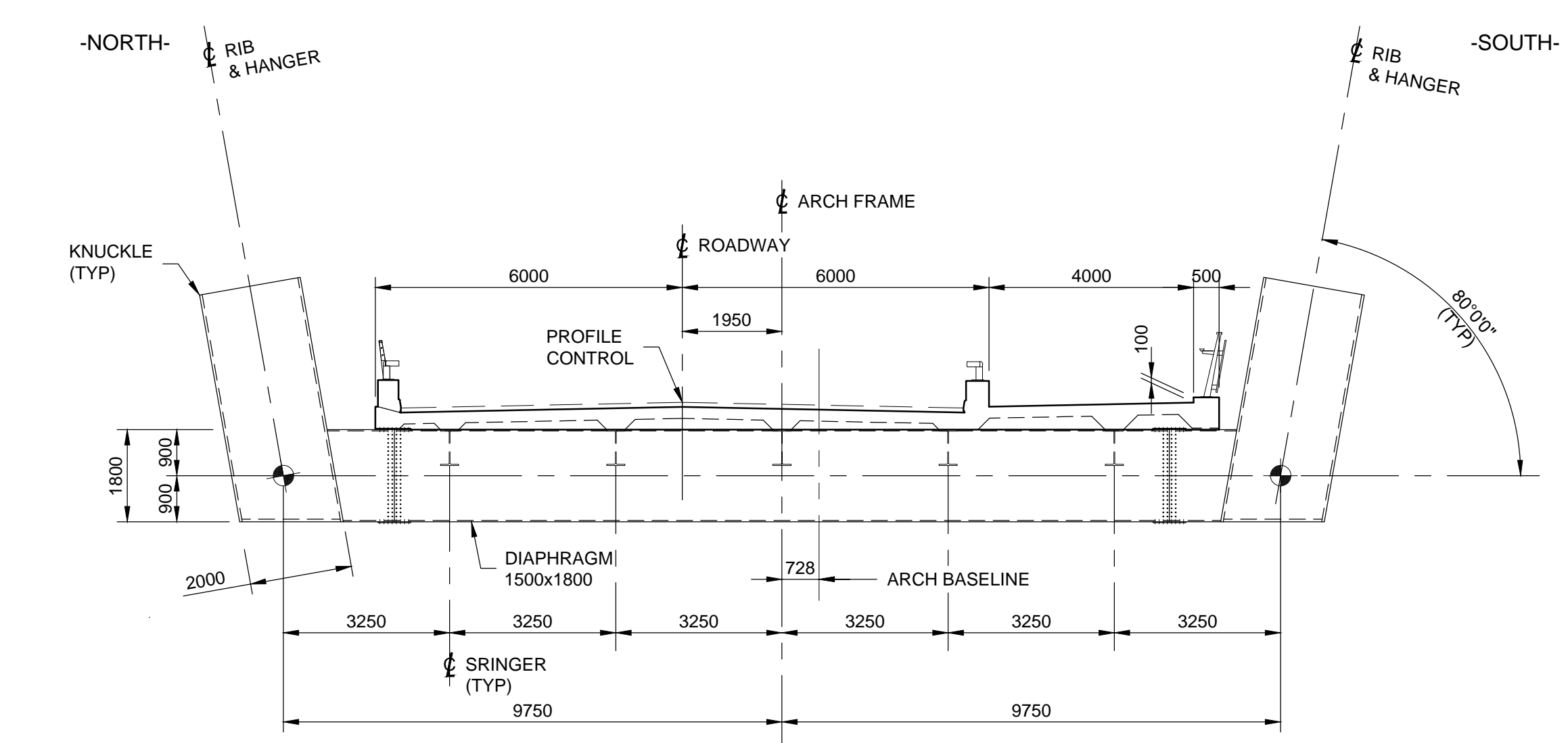
NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

No.	Description	By	Date (dd/mm/yyyy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	JJA	03/05/2017



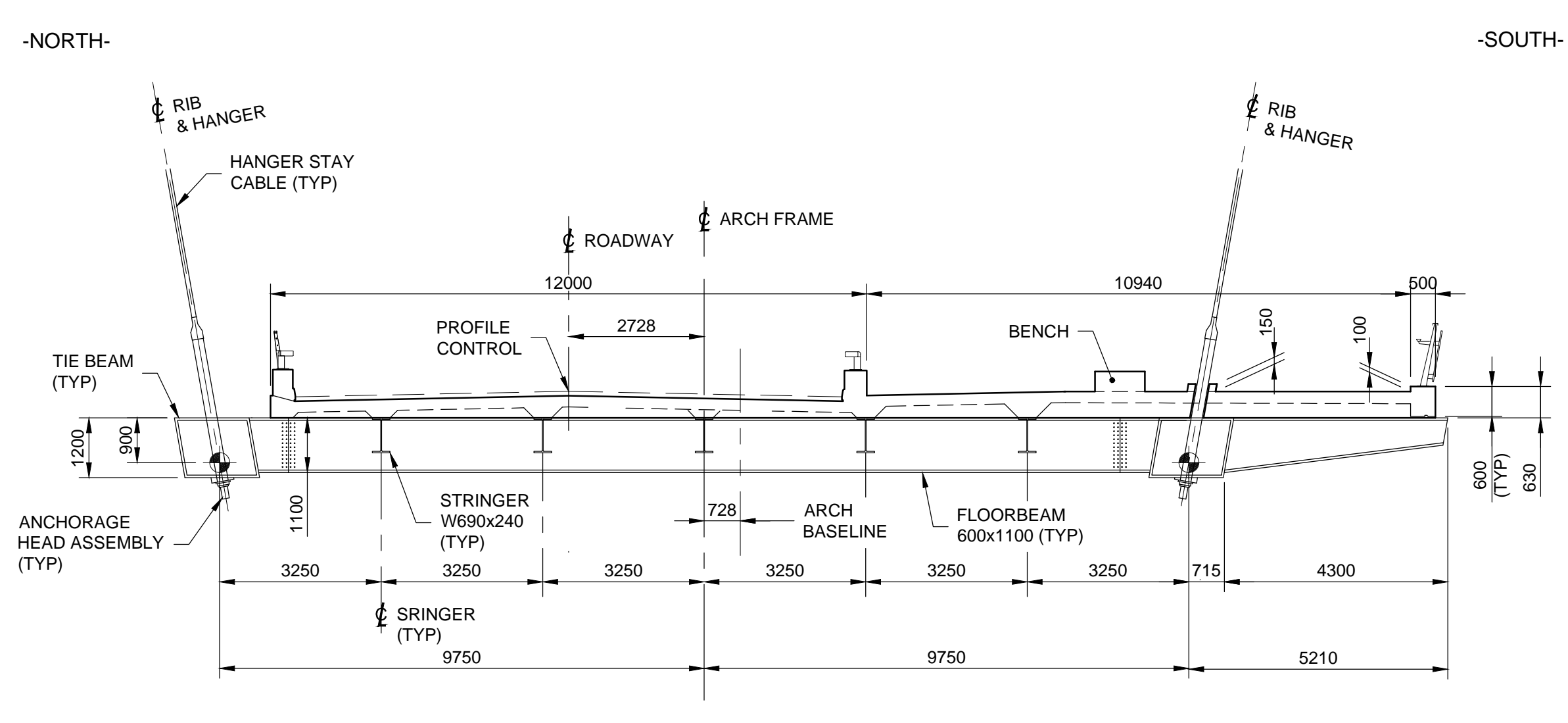
FRAMING PLAN - ARCH SPAN

1:250



SECTION 1 AT DIAPHRAGM

1:100



SECTION 2 AT MID-SPAN

1:100

Plot Date: 01/2017 11:56:34 AM
Last Saved: Friday, April 28, 2017 2:42:11 PM
Consultant's Information: C:\pw_working\on10\054\4\04\05\012779-108 Arch Span Framing Plan.dwg



ARCH DETAILS I

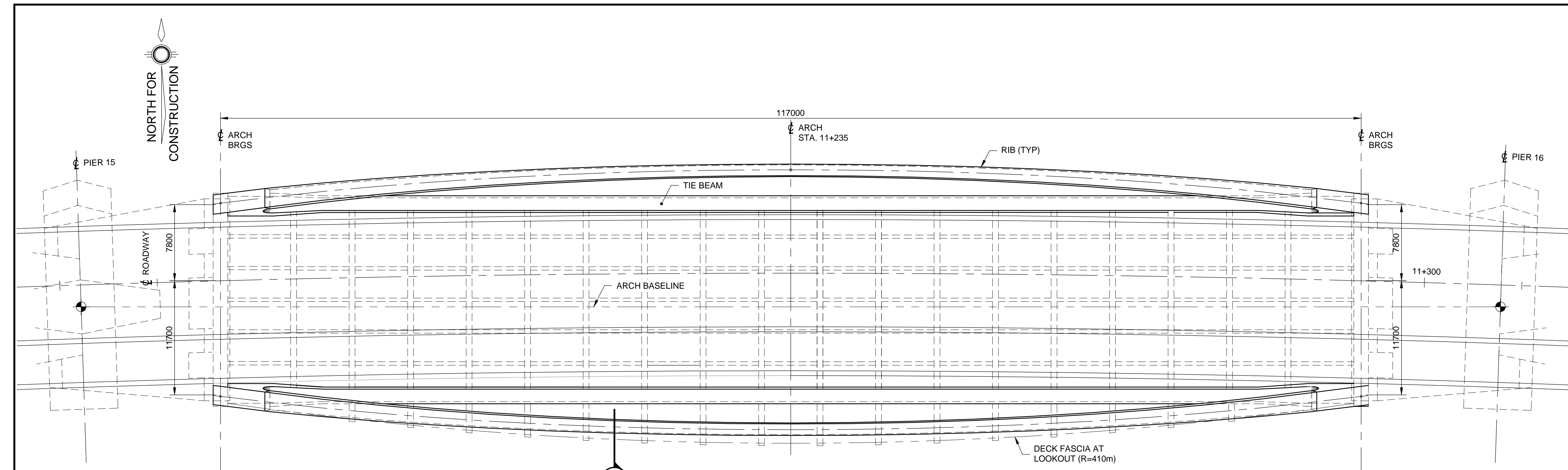
Mark Van Buren, P.Eng. Director of Engineering & Deputy Commissioner
Dan Franco, P.Eng. Project Engineer



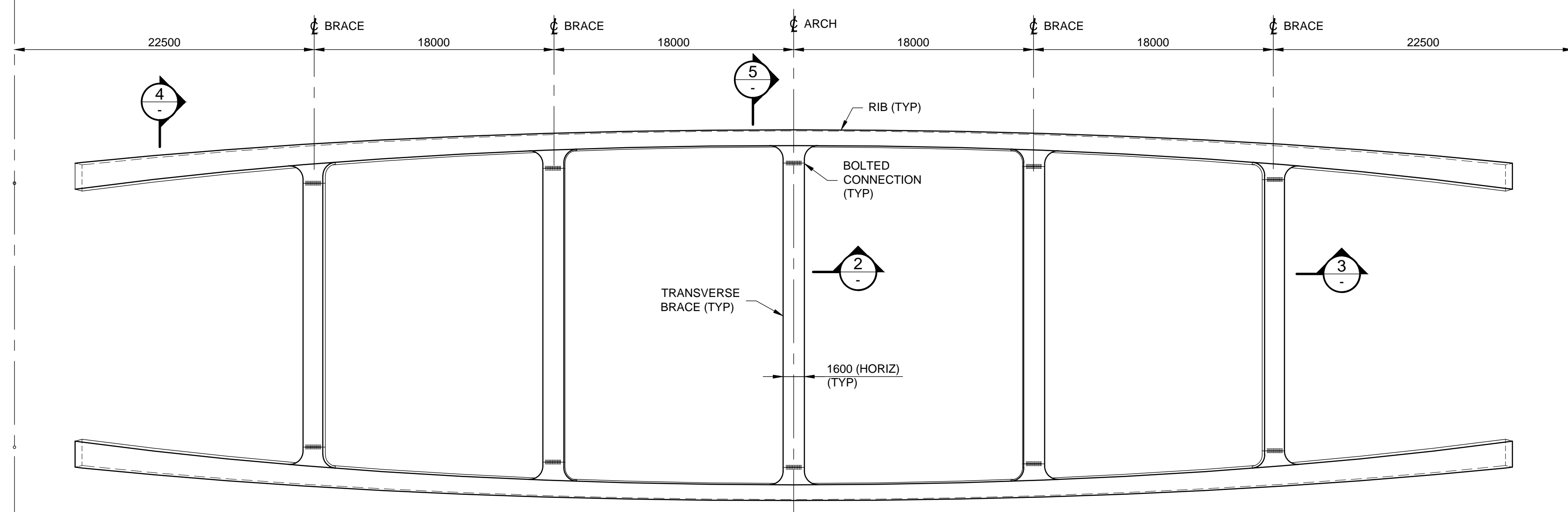
Project No.:	27143
Drawing No.:	B-109
Sheet No.:	-- of --
Des:	JJA
Chkd:	RO
Dwn:	KRS
Chkd:	JJA
Scale:	AS NOTED
Utility Circ. No.:	----
Code:	CAN/CSA-S6-14
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NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

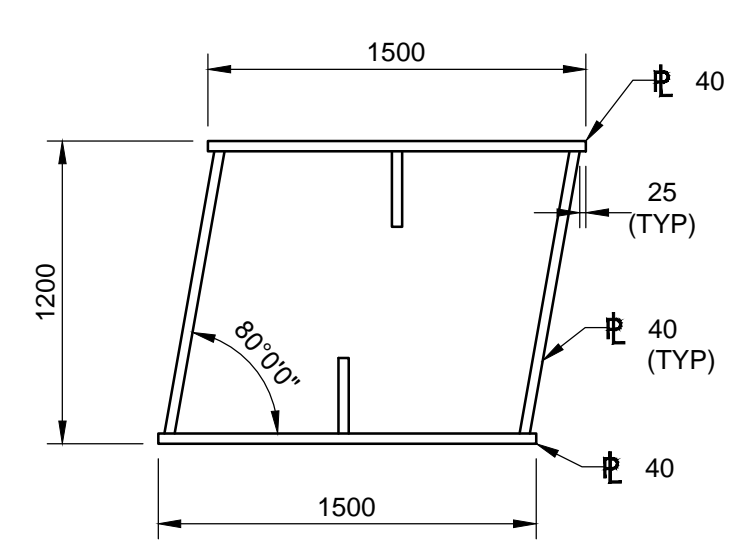
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1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	JJA	03/05/2017



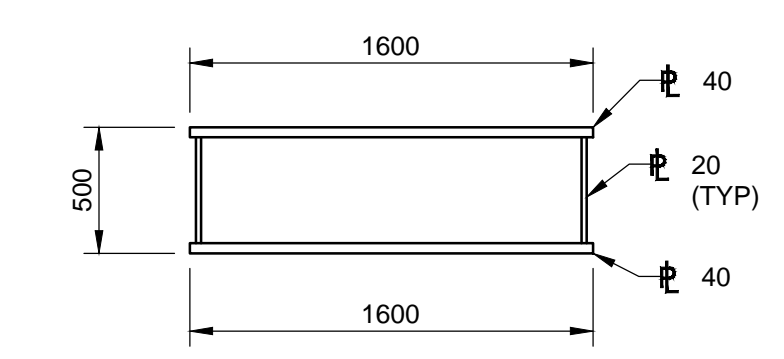
PLAN - ARCH RIBS AND TIE BEAMS
1:250



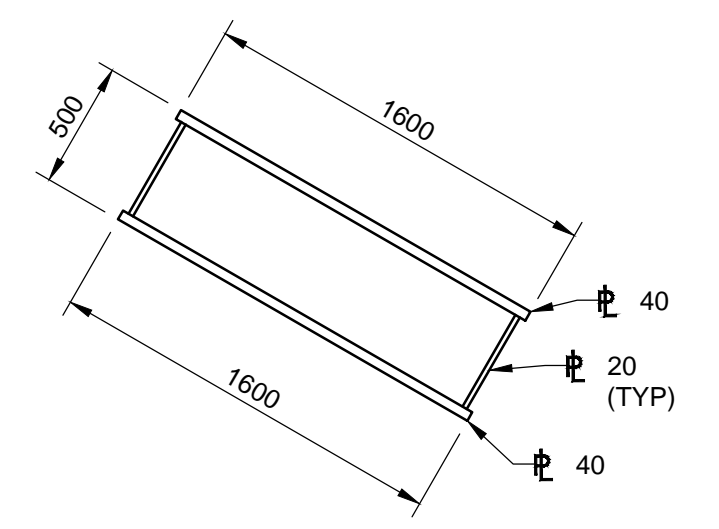
PLAN - ARCH RIBS AND TRANSVERSE BRACING
1:250



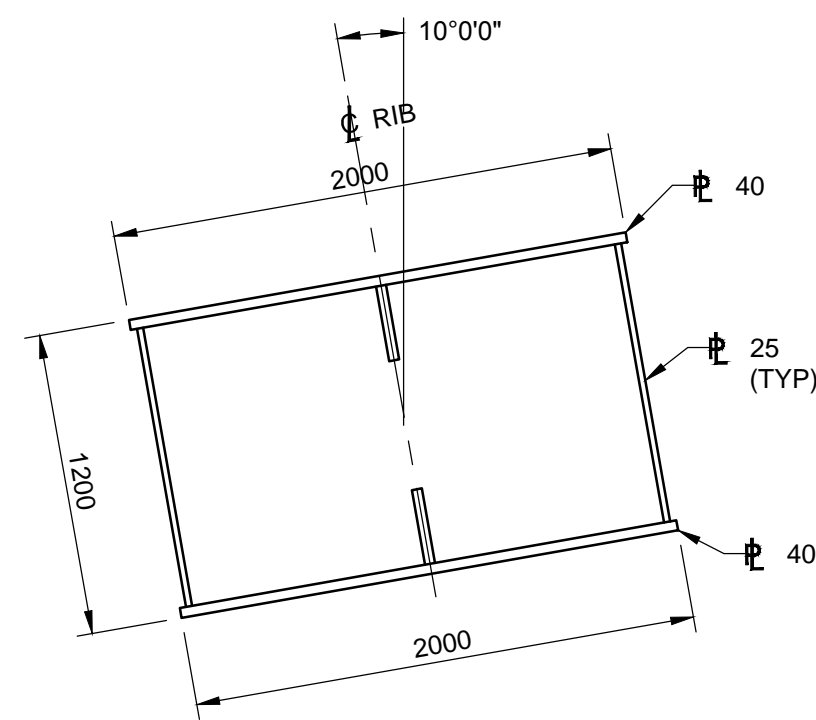
SECTION 1 TIE BEAM
1:30



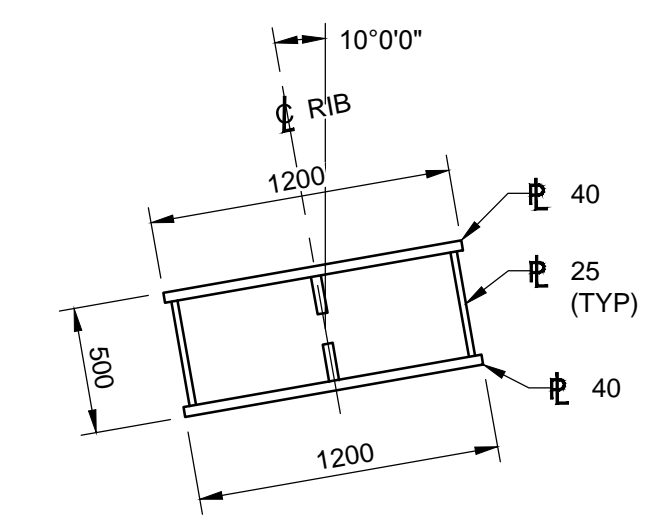
SECTION 2 TRANSVERSE BRACE
1:30



SECTION 3 TRANSVERSE BRACE
1:30



SECTION 4 ARCH RIB
1:30



SECTION 5 ARCH RIB AT MID-SPAN
1:30

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 Last Saved: Friday, April 28, 2017 2:52:28 PM
 Plot Date: 5/1/2017 11:56:25 AM

THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



ARCH DETAILS II

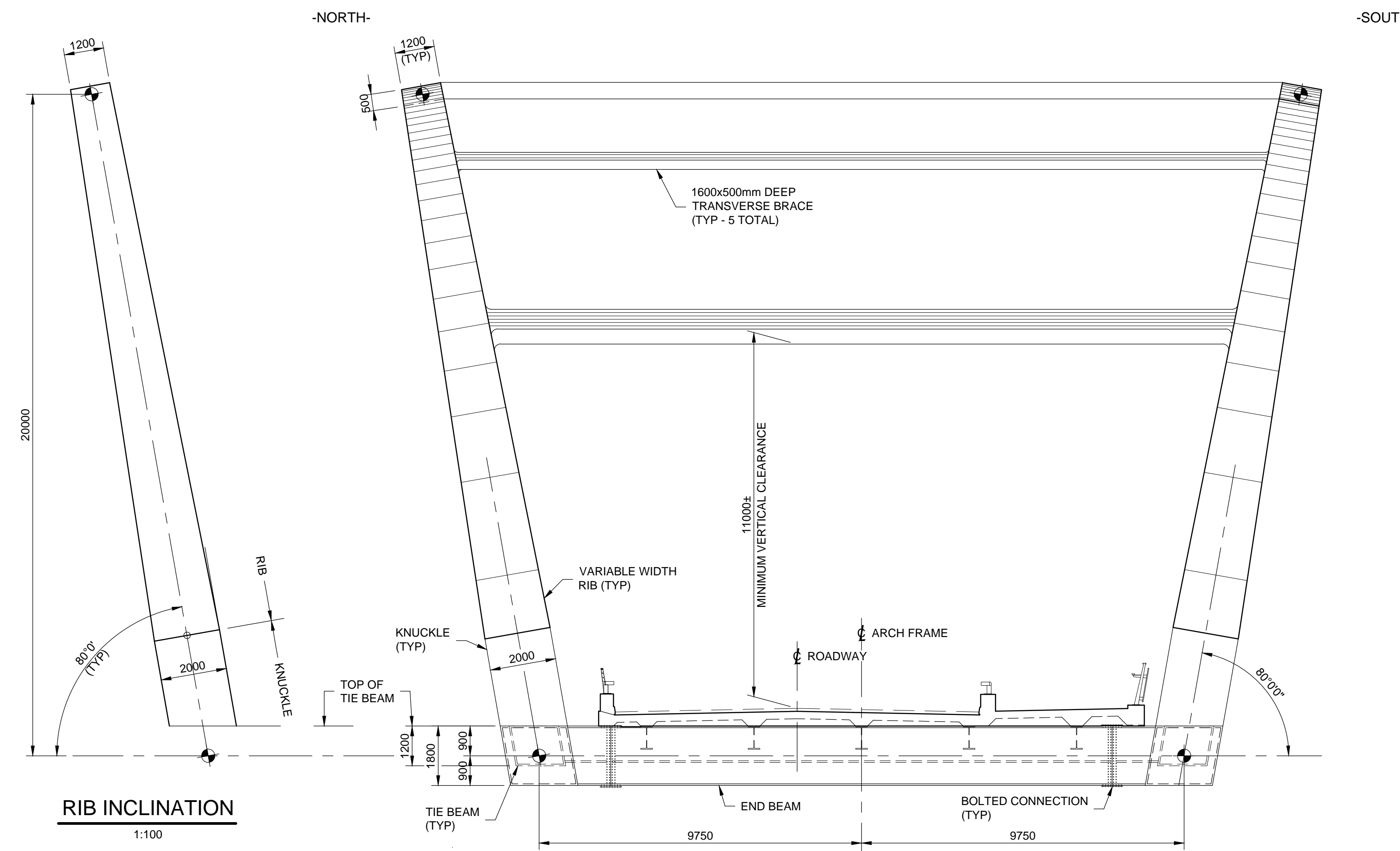
Mark Van Buren, P.Eng. Director of Engineering & Deputy Commissioner
Dan Franco, P.Eng. Project Engineer



Project No.: 27143
Drawing No.: B-110
Sheet No.: -- of --
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Dwn: KRS Chk'd: JJA
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Code: CAN/CSA-S6-14
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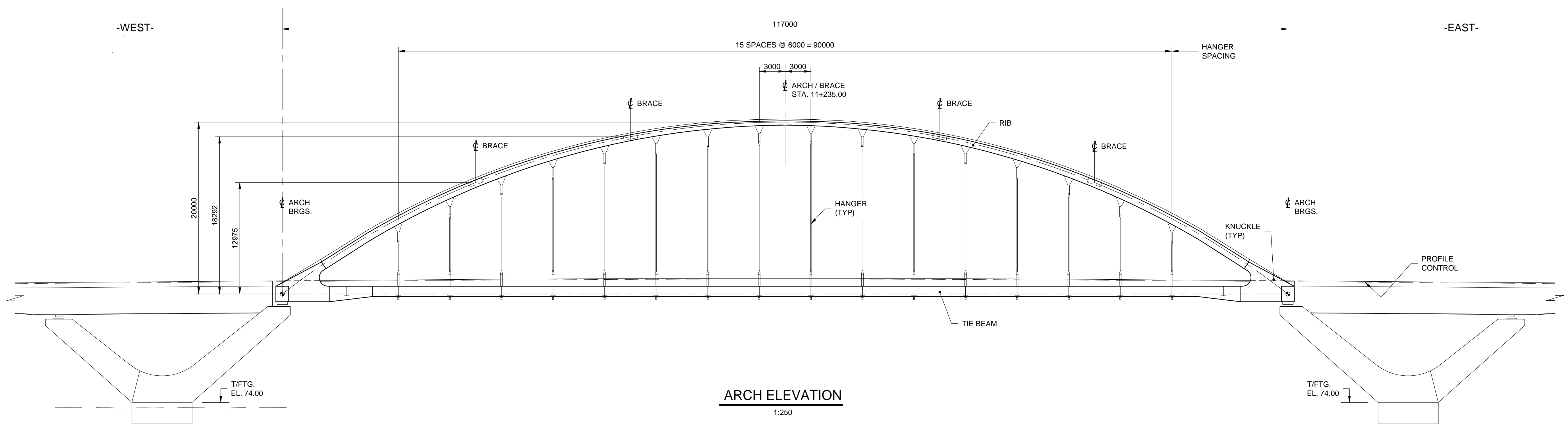
NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	JJA	03/05/2017



RIB INCLINATION
1:100

SECTION AT DIAPHRAGM
1:100



ARCH ELEVATION
1:250

Plot Date: 5/1/2017 12:06:49 PM

Last Saved: Friday, April 28, 2017 3:07:11 PM

Consultant's Information: C:\pwworking\kingstoninfo\0604544\dwg\110 Arch Details II.dwg

THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



DECK DETAILS

Mark Van Buren, P.Eng. Director of Engineering & Deputy Commissioner
Dan Franco, P.Eng. Project Engineer



Project No.: 27143

Drawing No.: B-111

Sheet No.: -- of --

Des: JJA Chk'd: RO

Dwn: KRS Chk'd: JJA

Scale: AS NOTED

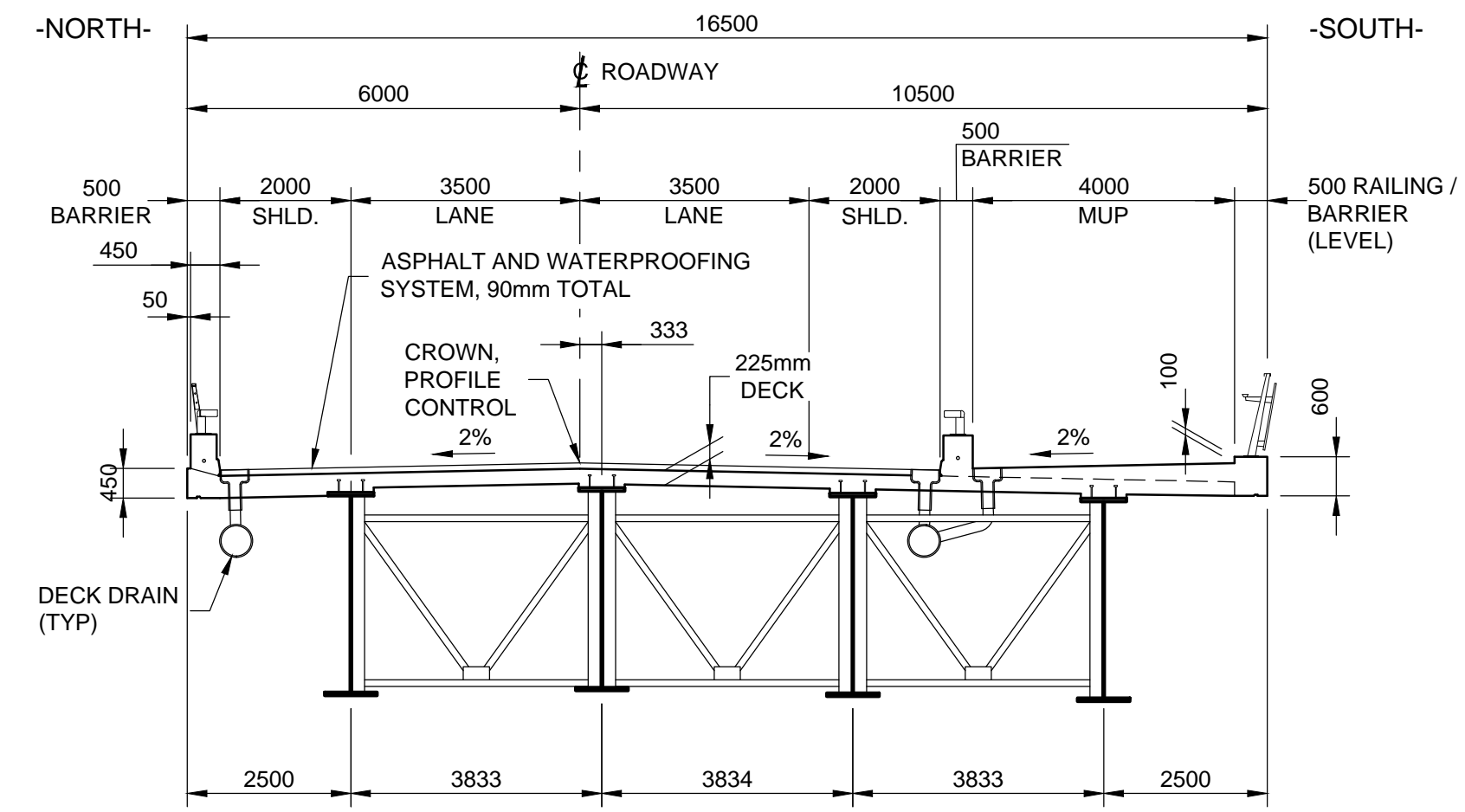
Utility Circ. No.

Code: CAN/CSA-S6-14

Load: CL625ONT

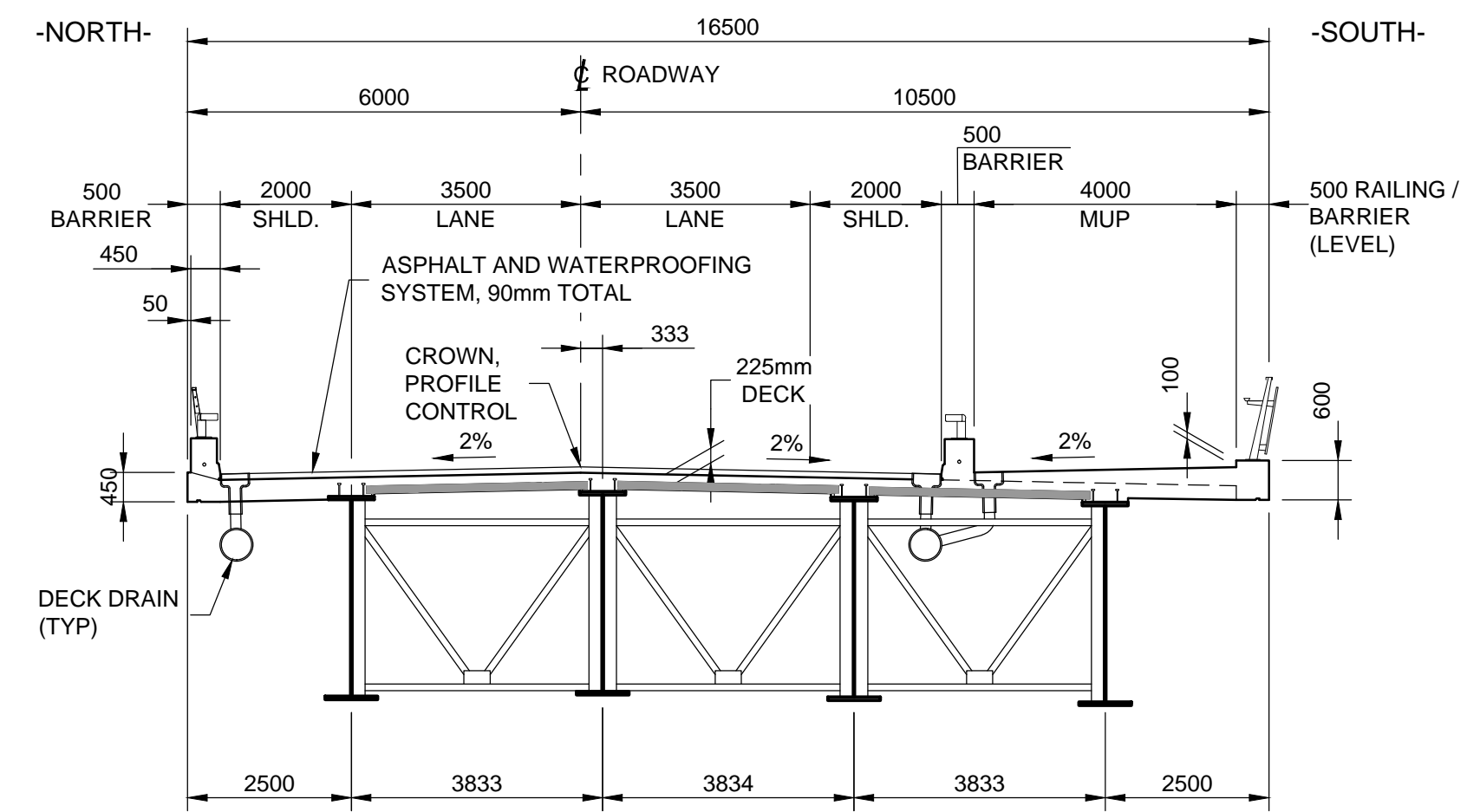
NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	JJA	03/05/2017



TYPICAL SECTION - CAST-IN-PLACE DECK

1:100



TYPICAL SECTION - PARTIAL DEPTH PRECAST PANELS

1:100

Plot Date: 5/1/2017 12:05:05 PM

Last Saved: Friday, April 28, 2017 3:13:37 PM

Consultant's Information: C:\pw_working\on100\04544\dwg\01277B-111 Deck Details.dwg

LEGEND:
 AREA OF RIVERBED IMPACTED BY CONSTRUCTION

**THIRD CROSSING OF THE CATARAQUI RIVER
 PRELIMINARY DESIGN**



TEMPORARY WORK BRIDGE AND CONSTRUCTION IMPACT ON RIVERBED

Mark Van Buren, P.Eng. Director of Engineering & Deputy Commissioner
 Dan Franco, P.Eng. Project Engineer

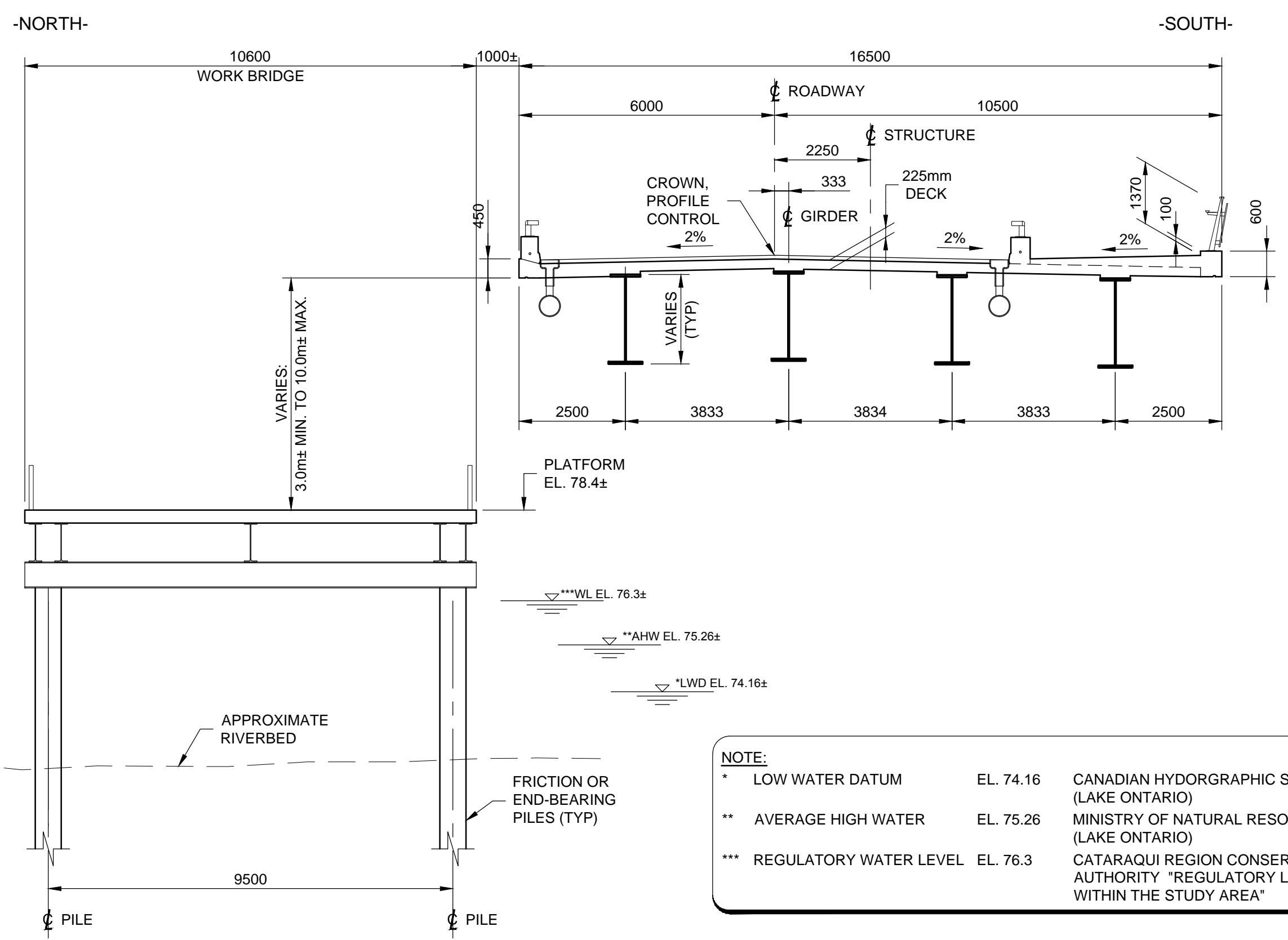
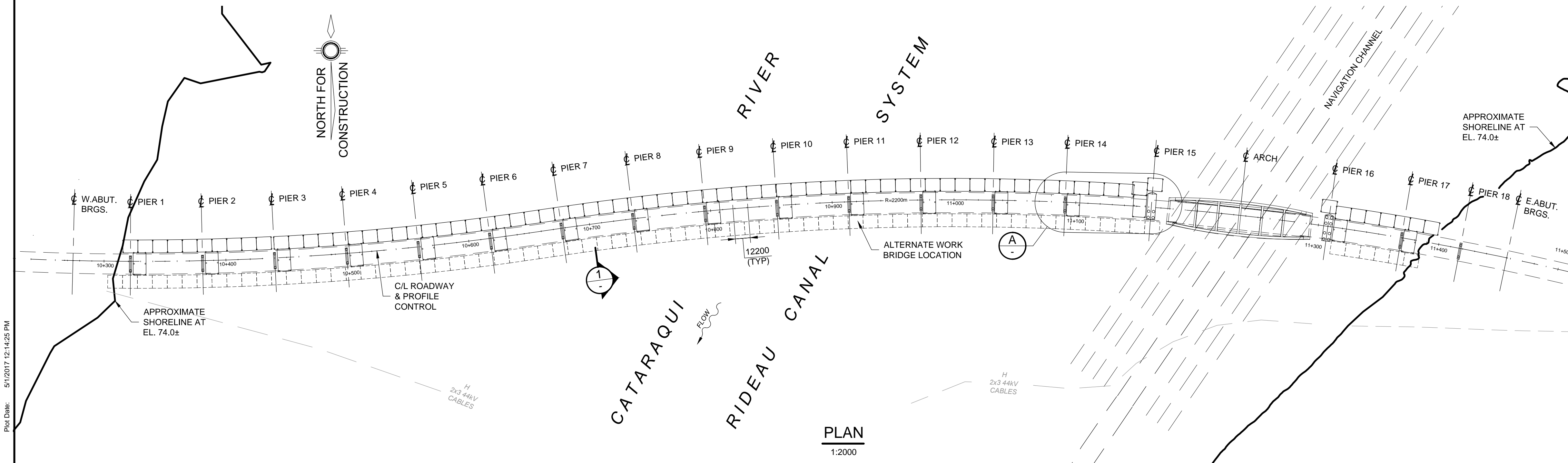


Project No.:	27143
Drawing No.:	B-112
Sheet No.:	-- of --
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Dwn:	KRS Chkd: JJA
Scale:	AS NOTED
Utility Circ. No.:	----
Code:	CAN/CSA-S6-14
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NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

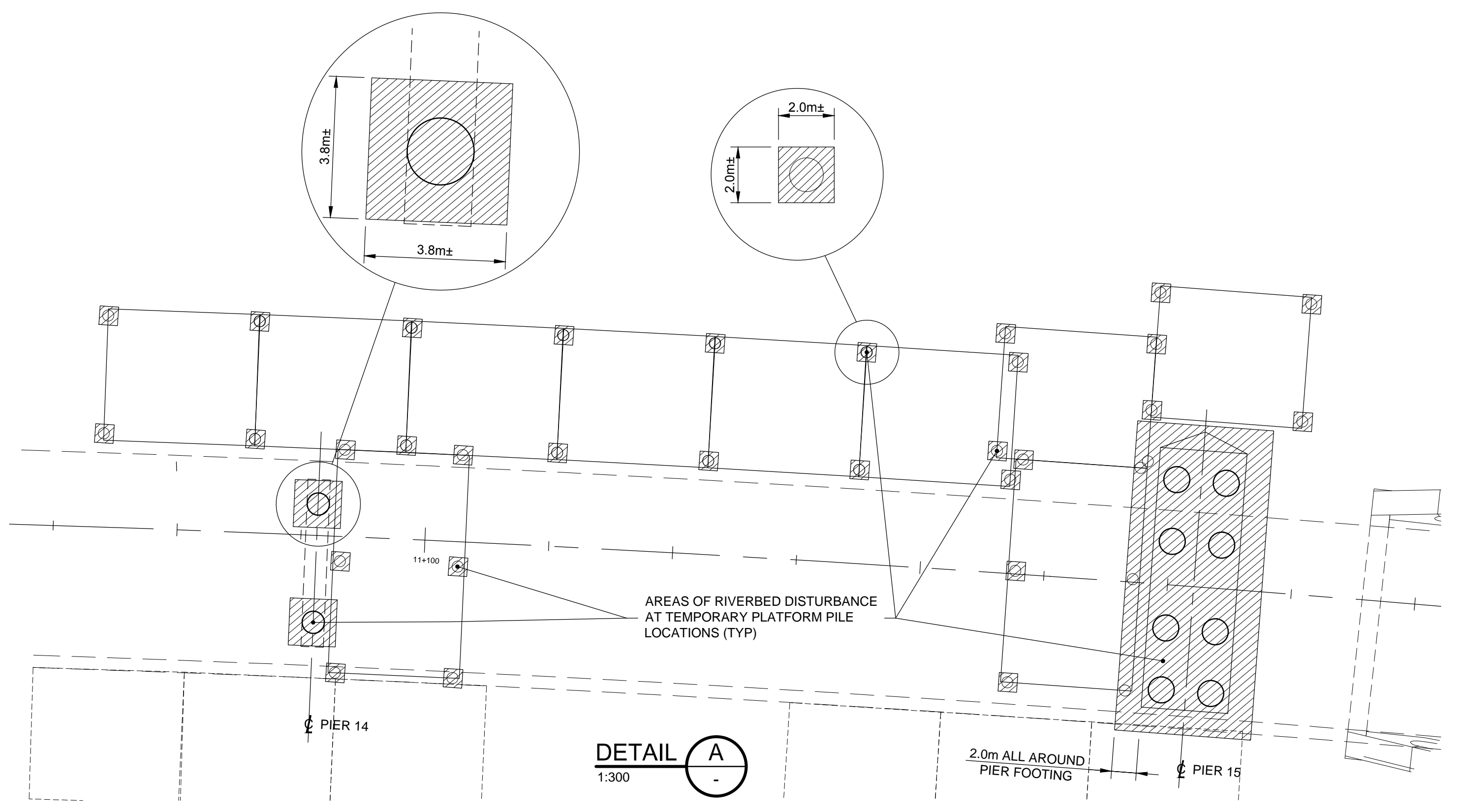
No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	JJA	03/05/2017

NOTES:
 1. THIS DRAWING TO BE READ IN CONJUNCTION WITH SUGGESTED CONSTRUCTION SEQUENCE DRAWINGS.



NOTE:

* LOW WATER DATUM	EL. 74.16	CANADIAN HYDROGRAPHIC SERVICE (LAKE ONTARIO)
** AVERAGE HIGH WATER	EL. 75.26	MINISTRY OF NATURAL RESOURCES (LAKE ONTARIO)
*** REGULATORY WATER LEVEL	EL. 76.3	CATARAQUI REGION CONSERVATION AUTHORITY "REGULATORY LIMIT WITHIN THE STUDY AREA"



Plot Date: 01/2017 12:14:25 PM
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THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



ARCH CONSTRUCTION SEQUENCE

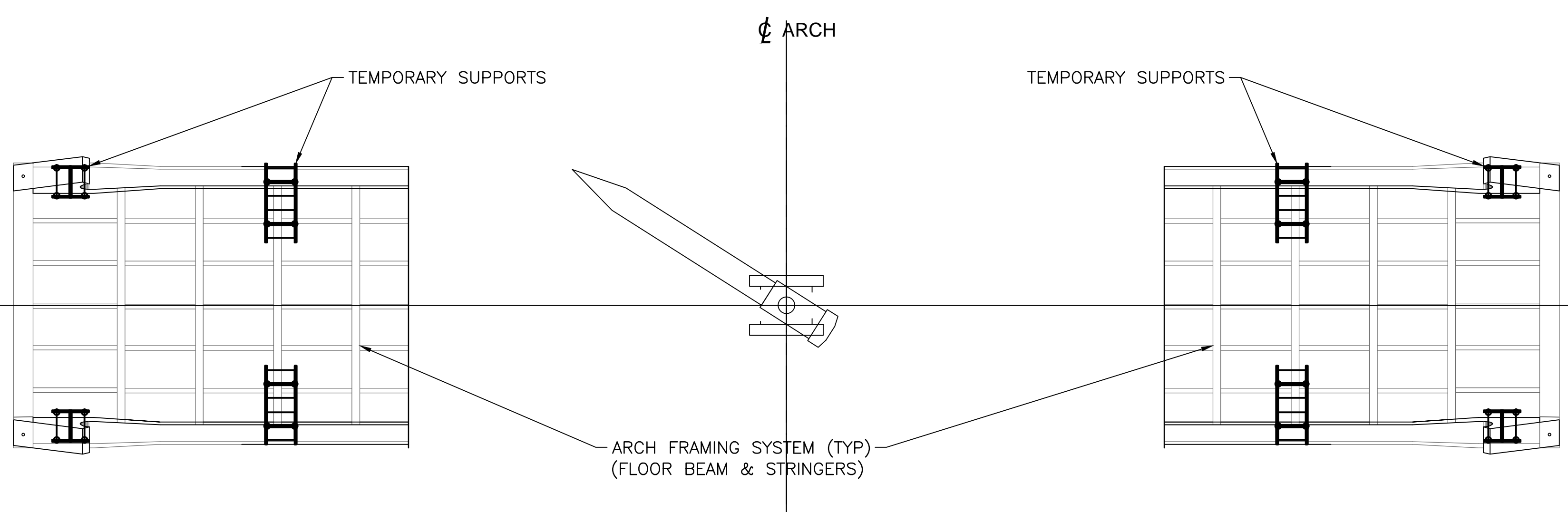
Mark Van Buren, P.Eng. Director of Engineering & Deputy Commissioner
Dan Franco, P.Eng. Project Engineer



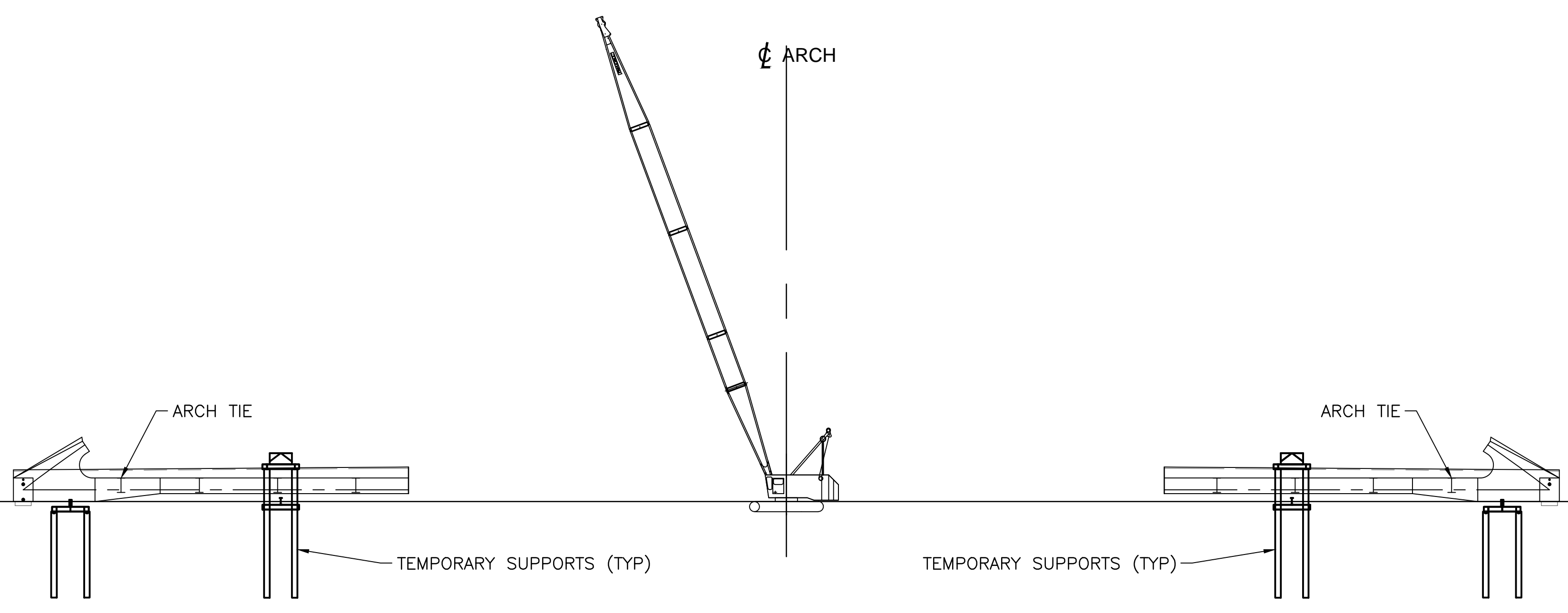
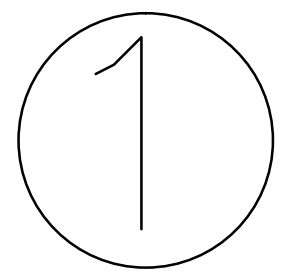
Project No.: 27143
Drawing No.: SEQ-101
Sheet No.: 1 of 20
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Dwn: TT Chk'd: MLC
Scale: AS NOTED
Utility Circ. No.:
Code: CAN/CSA-S6-14
Load: CL625ONT

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	JJA	03/05/2017



PLAN



ARCH TIE BEAMS AND FLOOR BEAMS ARE SUPPORTED ON TEMPORARY PILES

ELEVATION

SUGGESTED
CONSTRUCTION
SEQUENCE

Consultant's Information: C:\pwworking\ontario\0604544\dms01343\Construction Sequence.dwg
 Last Saved: Monday, May 01, 2017 12:56:40 PM
 Plot Date: 5/1/2017 1:59:10 PM

THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



ARCH CONSTRUCTION SEQUENCE

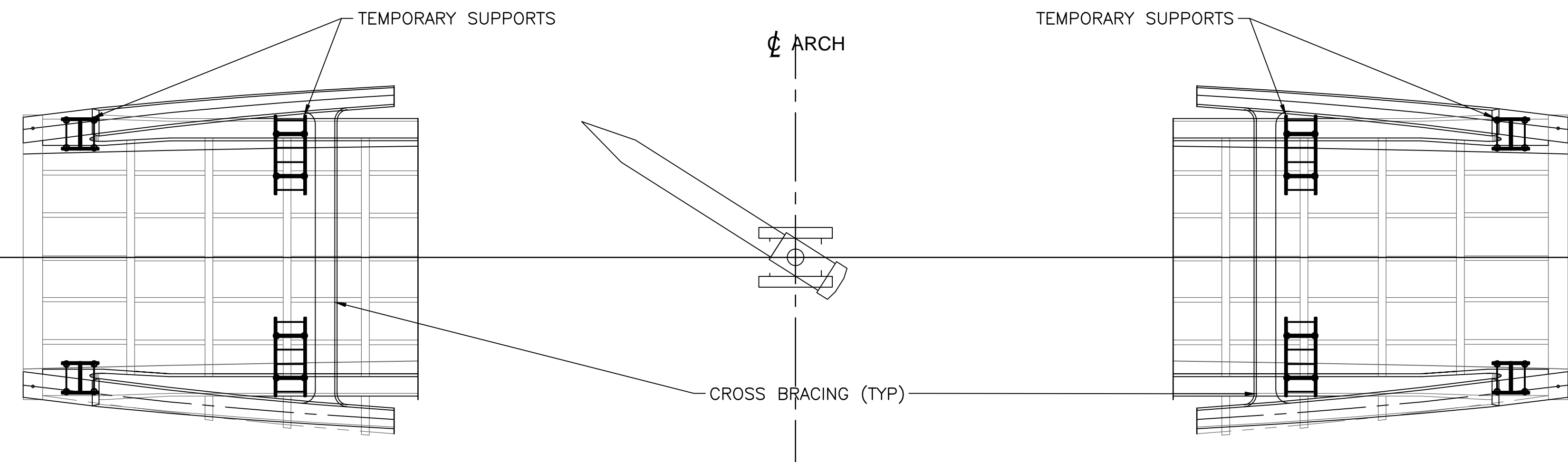
Mark Van Buren, P.Eng. Director of Engineering & Deputy Commissioner
Dan Franco, P.Eng. Project Engineer



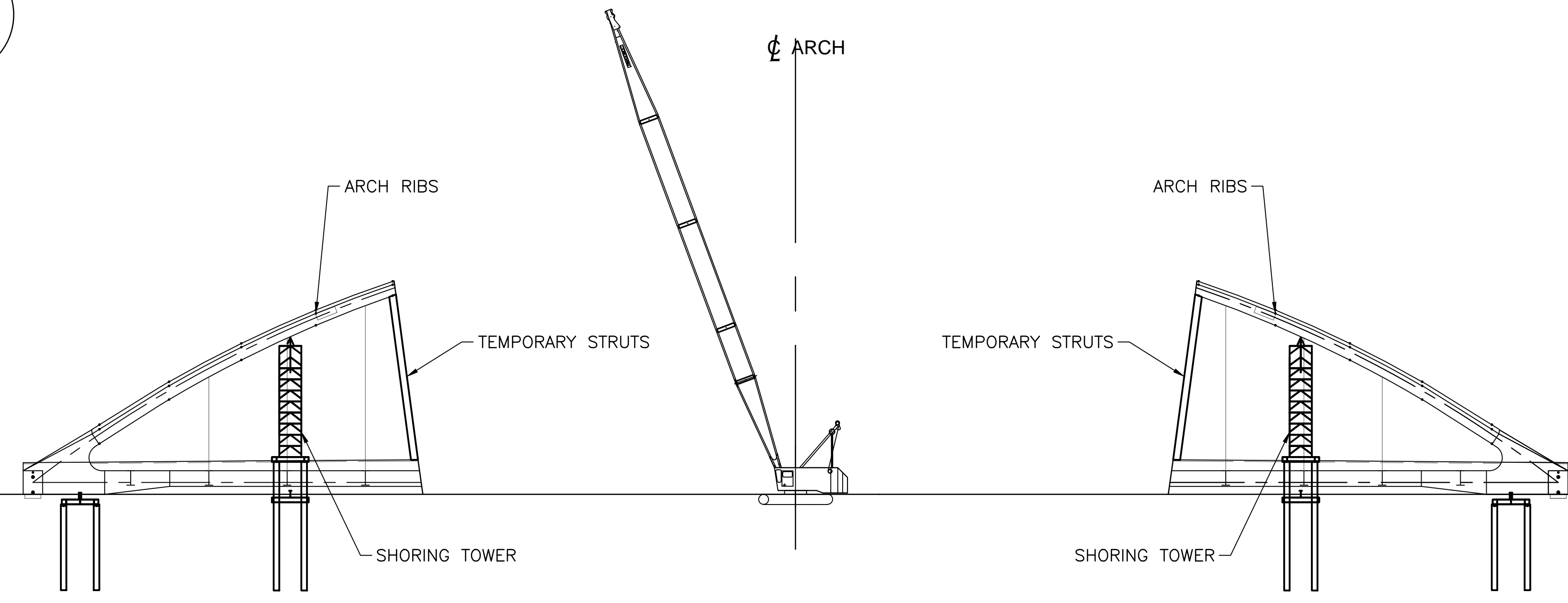
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Drawing No.:	SEQ-102
Sheet No.:	2 of 20
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Chk'd:	MLC
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Scale:	AS NOTED
Utility Circ. No.:
Code:	CAN/CSA-S6-14
Load:	CL625ONT

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No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	JJA	03/05/2017



2



ARCH RIB SUPPORTED BY SHORING TOWERS, BRACING, AND TEMPORARY STRUT

SUGGESTED
CONSTRUCTION
SEQUENCE

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 Last Saved: Monday, May 01, 2017 12:56:40 PM
 Plot Date: 5/1/2017 2:00:27 PM

THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



ARCH CONSTRUCTION SEQUENCE

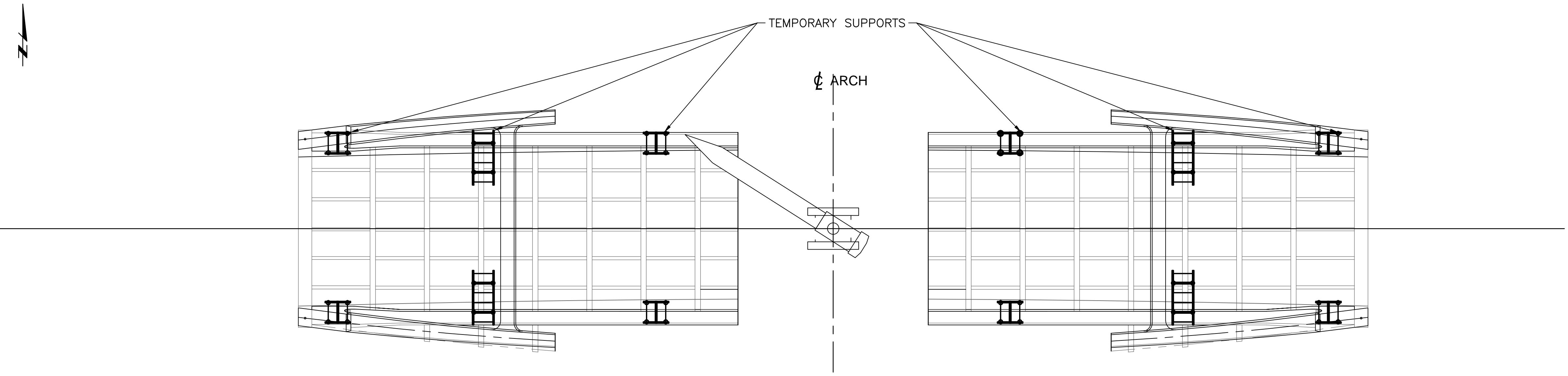
Mark Van Buren, P.Eng. Director of Engineering & Deputy Commissioner
Dan Franco, P.Eng. Project Engineer



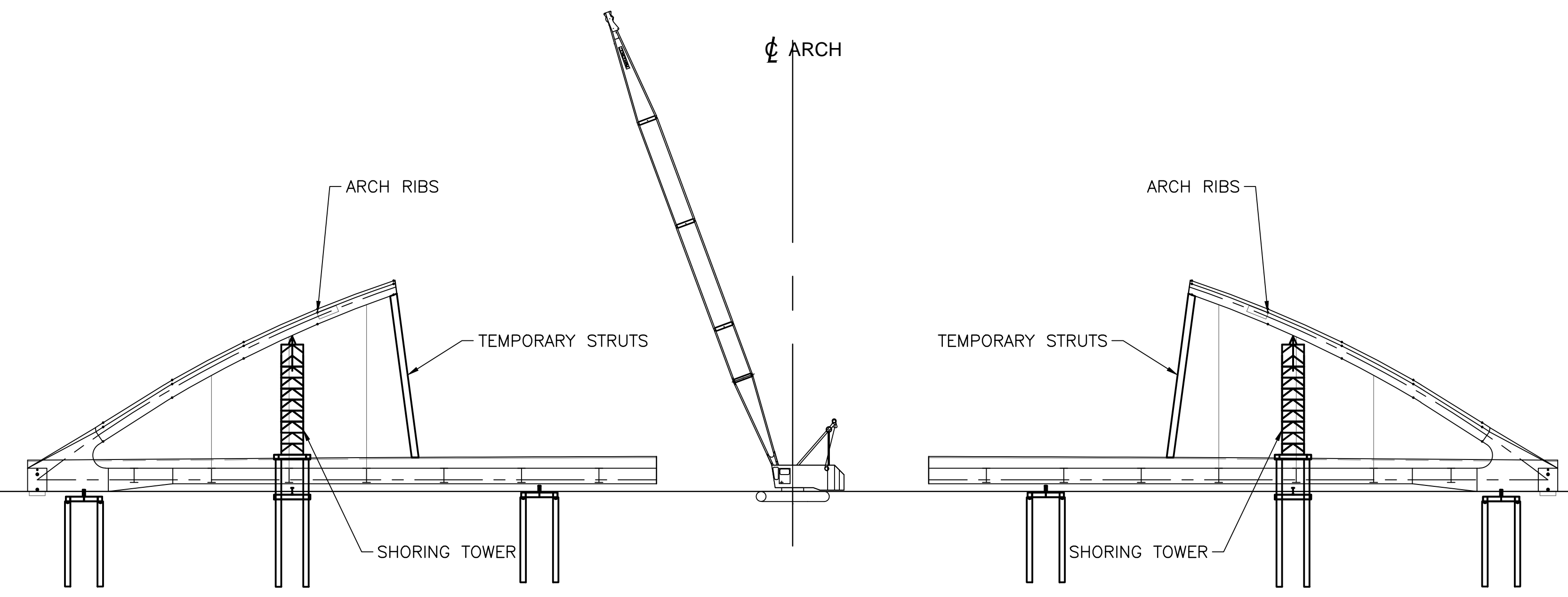
Project No.: 27143
Drawing No.: SEQ-103
Sheet No.: 3 of 20
Des: MLC Chk'd: MLC
Dwn: TT Chk'd: MLC
Scale: AS NOTED
Utility Circ. No.:
Code: CAN/CSA-S6-14
Load: CL625ONT

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No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	JJA	03/05/2017



3



TIE SECTION ADDED

SUGGESTED CONSTRUCTION SEQUENCE

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 Last Saved: Monday, May 01, 2017 12:56:40 PM
 Plot Date: 5/1/2017 2:03:10 PM

THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



ARCH CONSTRUCTION SEQUENCE

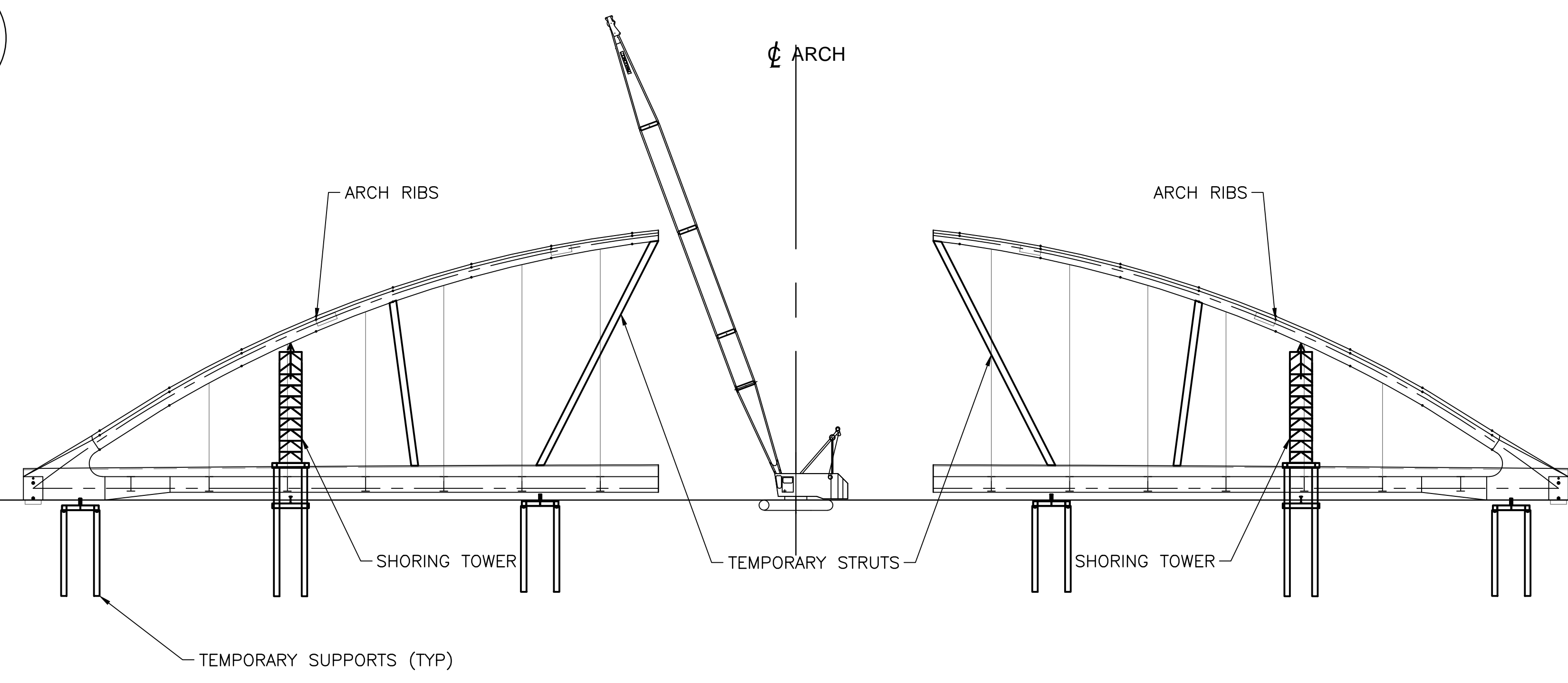
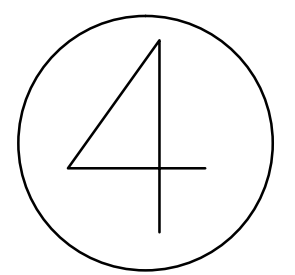
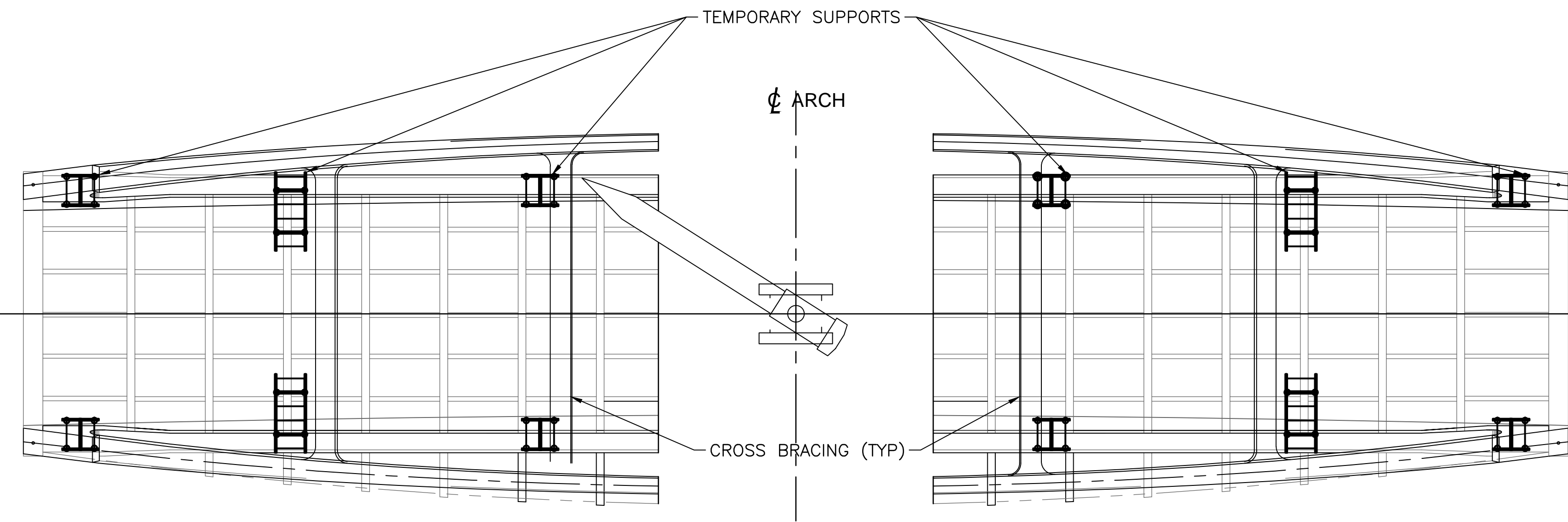
Mark Van Buren, P.Eng. Director of Engineering & Deputy Commissioner
Dan Franco, P.Eng. Project Engineer



Project No.: 27143
Drawing No.: SEQ-104
Sheet No.: 4 of 20
Des: MLC Chk'd: MLC
Dwn: TT Chk'd: MLC
Scale: AS NOTED
Utility Circ. No.:
Code: CAN/CSA-S6-14
Load: CL625ONT

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No.	Description	By	Date (dd/mm/yy)



RIB SECTION AND TEMPORARY STRUTS ADDED

SUGGESTED
CONSTRUCTION
SEQUENCE

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 Last Saved: Monday, May 01, 2017 12:56:40 PM
 Plot Date: 5/1/2017 2:05:08 PM

THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



ARCH CONSTRUCTION SEQUENCE

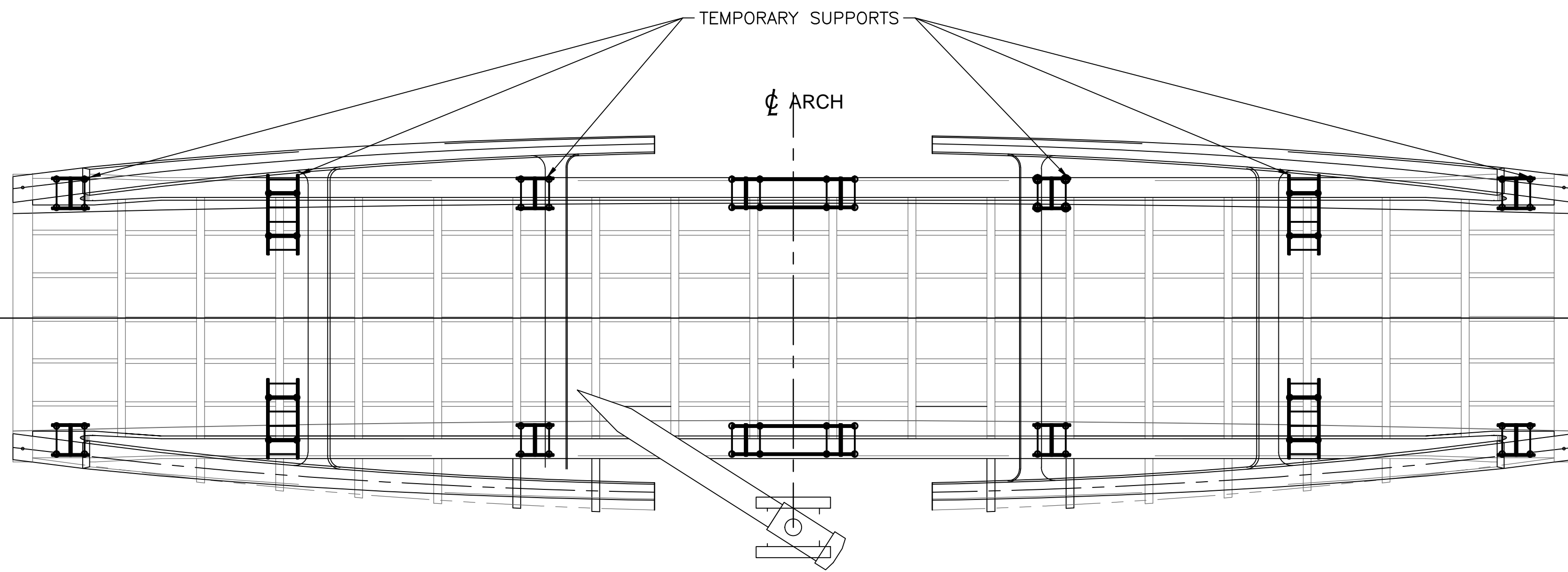
Mark Van Buren, P.Eng. Director of Engineering & Deputy Commissioner
Dan Franco, P.Eng. Project Engineer



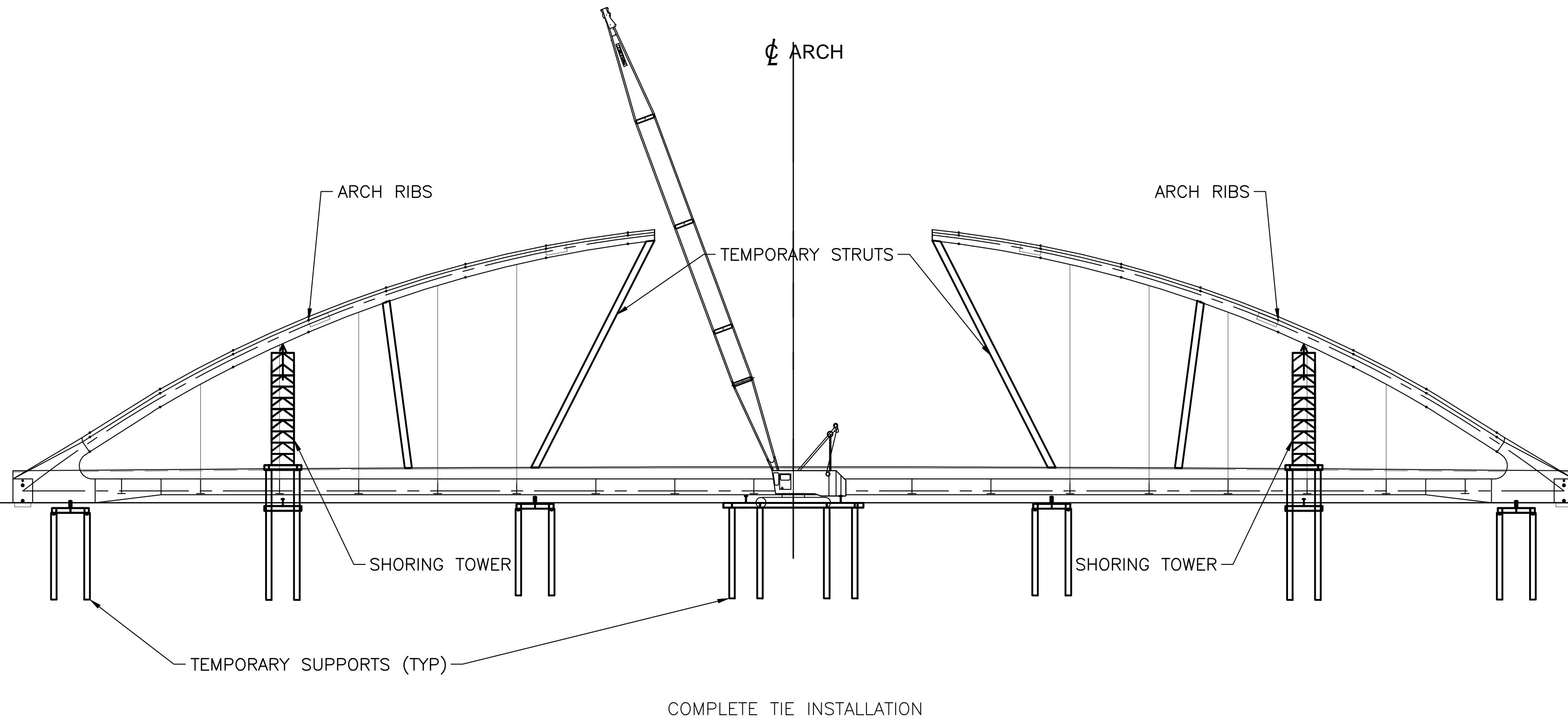
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Sheet No.: 5 of 20
Des: MLC Chkd: MLC
Dwn: TT Chkd: MLC
Scale: AS NOTED
Utility Circ. No.:
Code: CAN/CSA-S6-14
Load: CL625ONT

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	JJA	03/05/2017



5



SUGGESTED
CONSTRUCTION
SEQUENCE

THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



ARCH CONSTRUCTION SEQUENCE

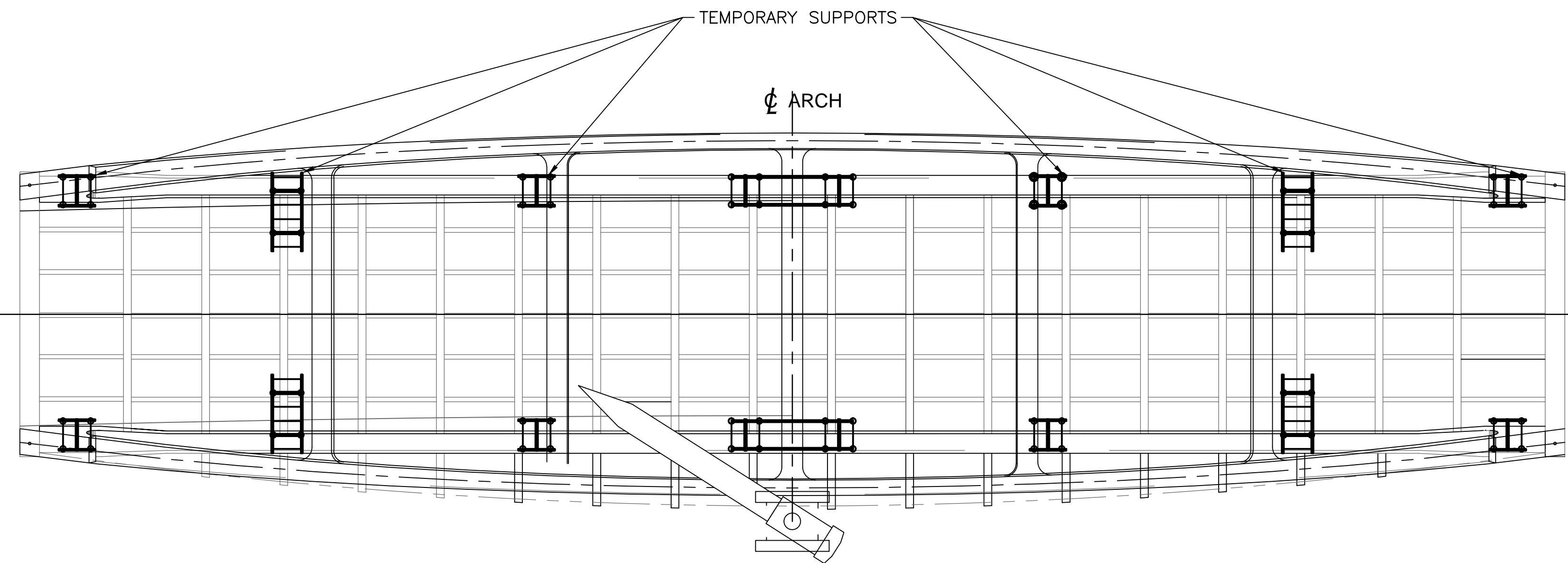
Mark Van Buren, P.Eng. Director of Engineering & Deputy Commissioner
Dan Franco, P.Eng. Project Engineer



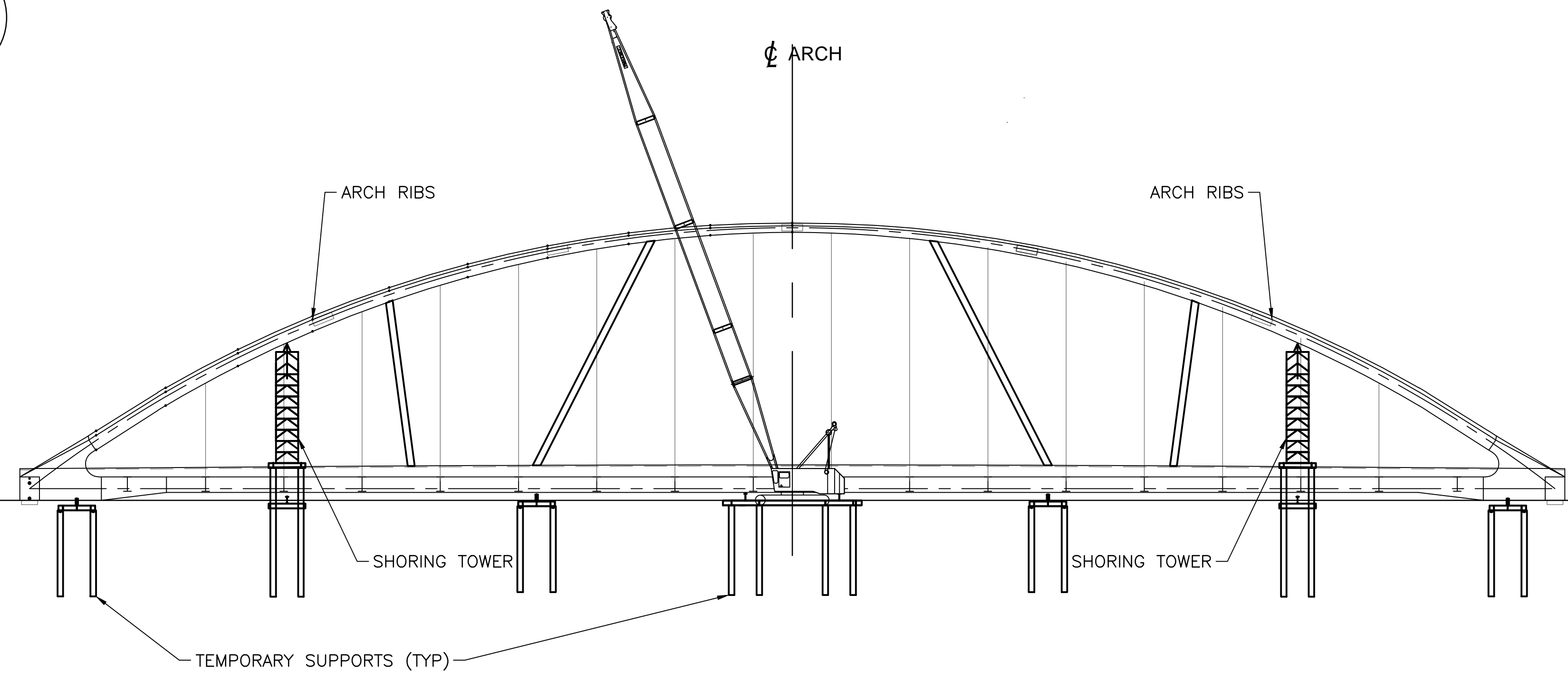
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Utility Circ. No.:
Code: CAN/CSA-S6-14
Load: CL625ONT

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No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	JJA	03/05/2017



6



INSTALL SECONDARY MULTI-STRAND TIE WITH STEEL TIE AND COMPLETE THE ARCH INCLUDING TENSIONING THE MULTI-STRAND HANGERS

SUGGESTED
CONSTRUCTION
SEQUENCE

Consultant's Information: C:\pwworking\ontario\0604544\dwg\01543\Construction Sequence.dwg
 Last Saved: Monday, May 01, 2017 2:08:12 PM
 Plot Date: 5/1/2017 2:21:46 PM

THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



ARCH CONSTRUCTION SEQUENCE

Mark Van Buren, P.Eng.
Director of Engineering & Deputy Commissioner

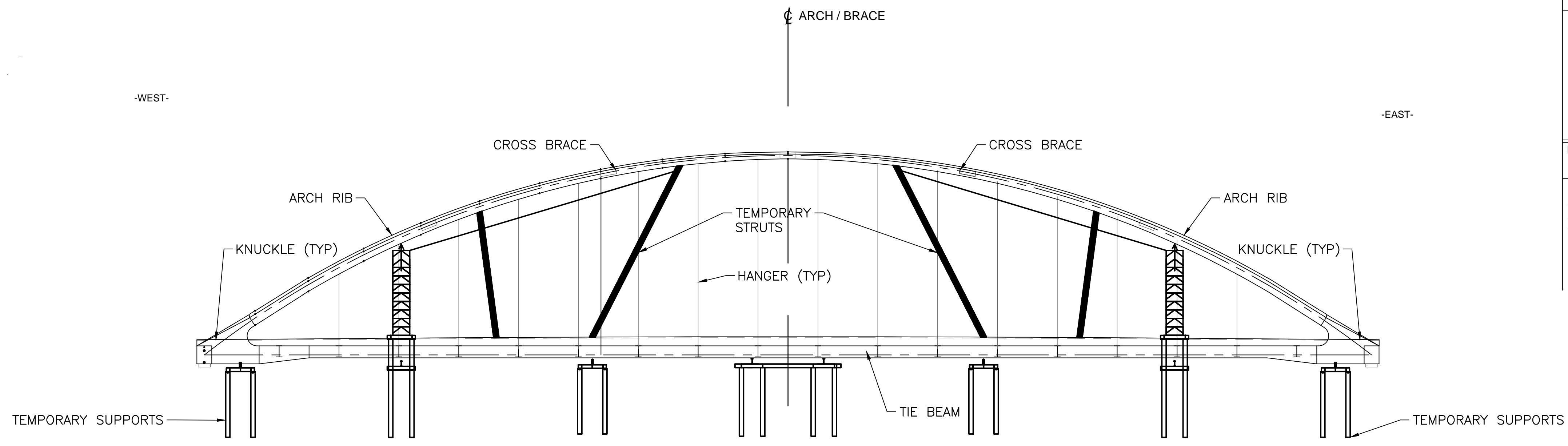
Dan Franco, P.Eng.
Project Engineer



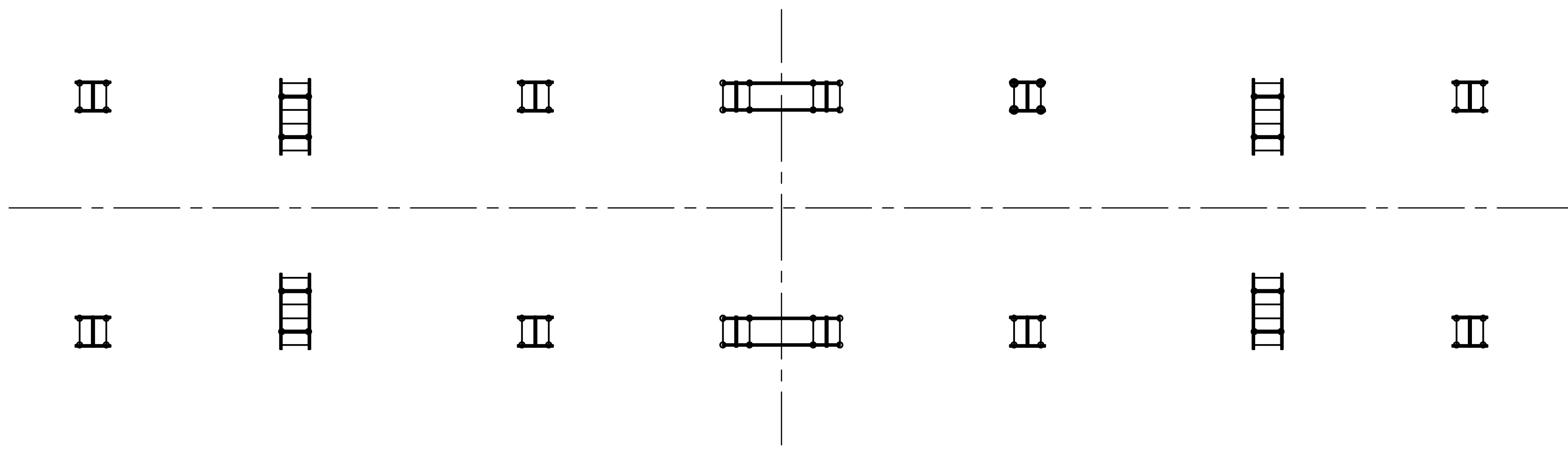
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Load: CL625ONT

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

No.	Description	By	Date (dd/mm/yyyy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	JJA	03/05/2017



ELEVATION



ARCH TIE BEAMS AND FLOOR BEAMS ARE SUPPORTED ON TEMPORARY PILES

PLAN

SUGGESTED
CONSTRUCTION
SEQUENCE

Consultant's Information: C:\pw_working\ontario\064544\dwg\01343\Construction Sequence.dwg
 Last Saved: Monday, May 01, 2017 2:08:12 PM
 Plot Date: 5/1/2017 2:23:11 PM

THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



ARCH CONSTRUCTION SEQUENCE

Mark Van Buren, P.Eng. Director of Engineering & Deputy Commissioner
Dan Franco, P.Eng. Project Engineer



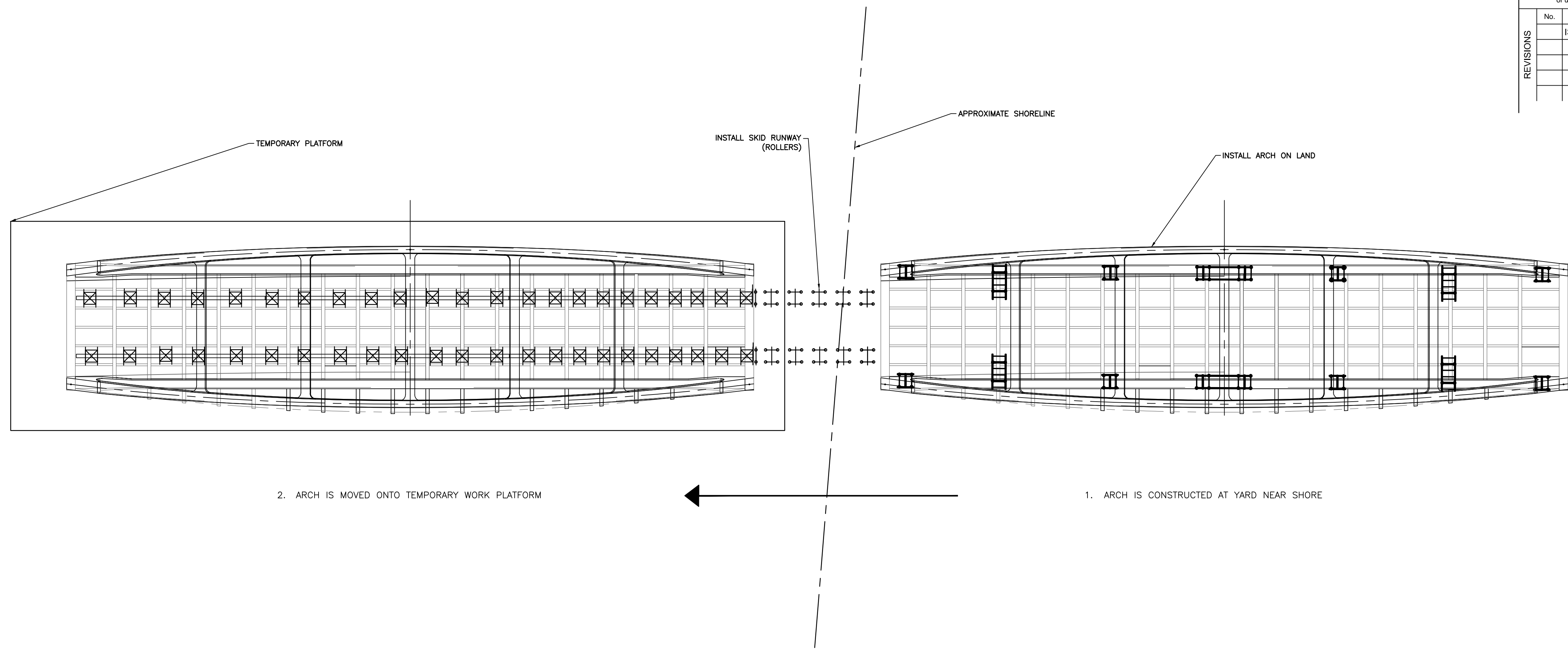
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Code: CAN/CSA-S6-14
Load: CL625ONT

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No.	Description	By	Date (dd/mm/yy)
	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	JJA	03/05/2017



7



2. ARCH IS MOVED ONTO TEMPORARY WORK PLATFORM

1. ARCH IS CONSTRUCTED AT YARD NEAR SHORE

ARCH MOVED ONTO TEMPORARY WORK PLATFORM

SUGGESTED
CONSTRUCTION
SEQUENCE

THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



ARCH CONSTRUCTION SEQUENCE

Mark Van Buren, P.Eng.
Director of Engineering & Deputy Commissioner

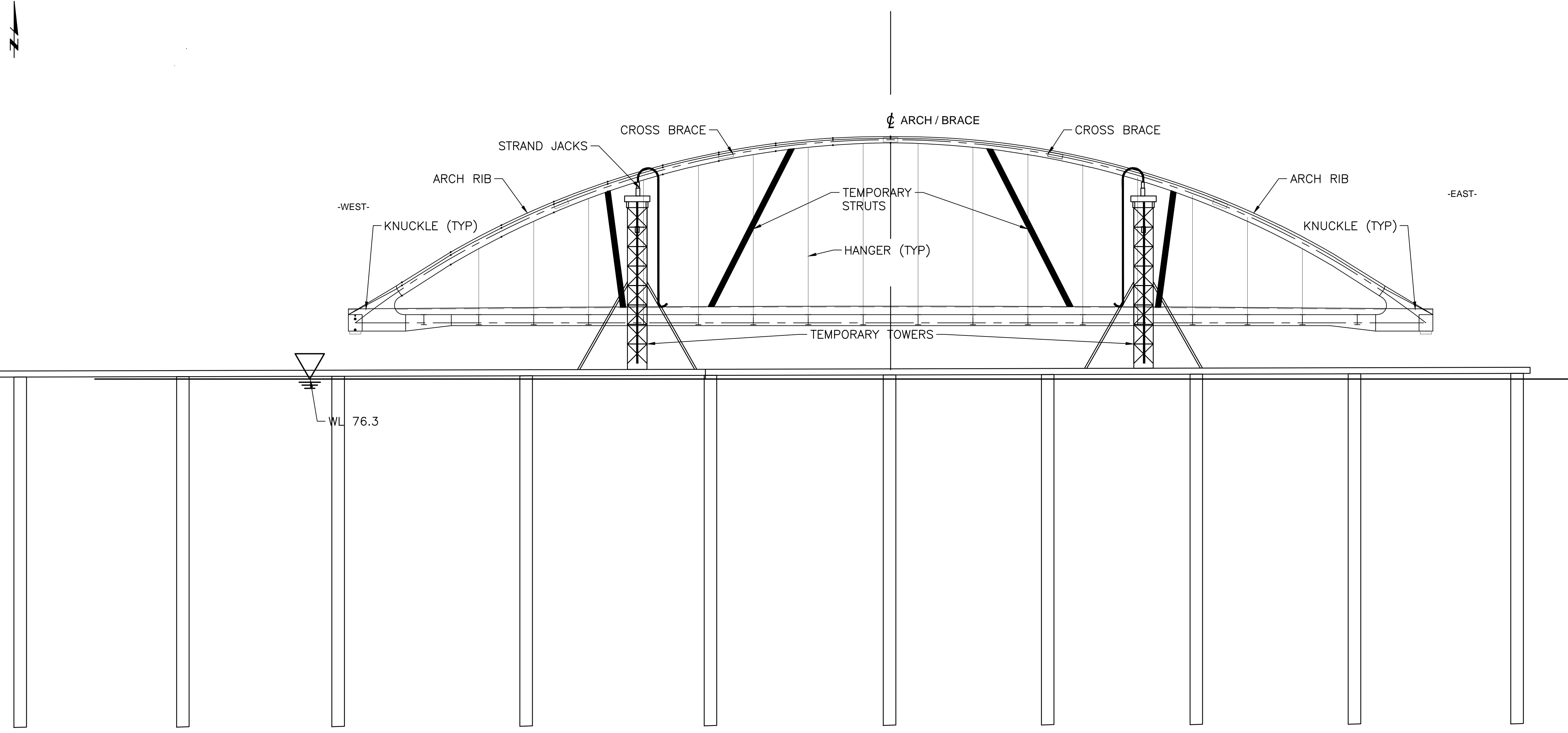
Dan Franco, P.Eng.
Project Engineer



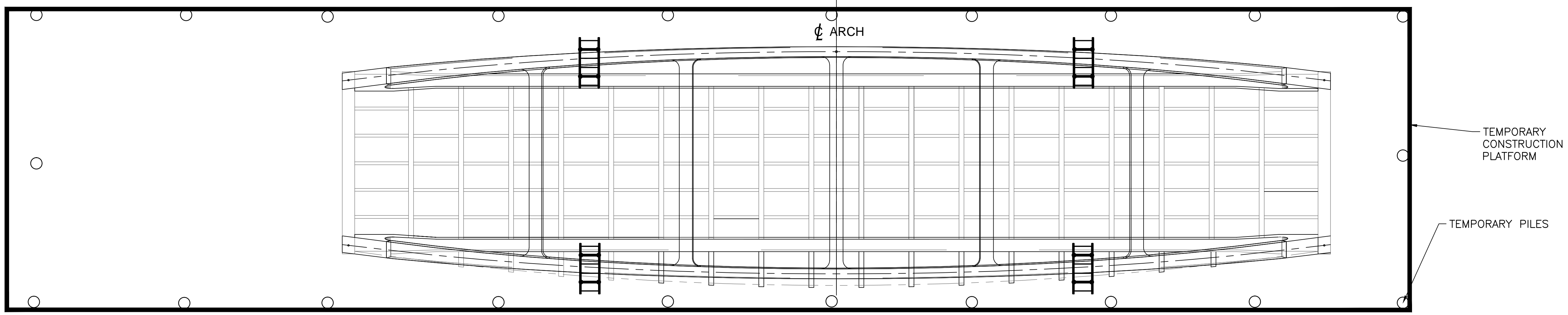
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Code: CAN/CSA-S6-14
Load: CL625ONT

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No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	JJA	03/05/2017



ELEVATION



PLAN

**SUGGESTED
CONSTRUCTION
SEQUENCE**

Consultant's Information: C:\pwworking\ontario\064544\dwg\01543\Construction Sequence.dwg
 Last Saved: Monday, May 01, 2017 2:08:12 PM
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THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



ARCH CONSTRUCTION SEQUENCE

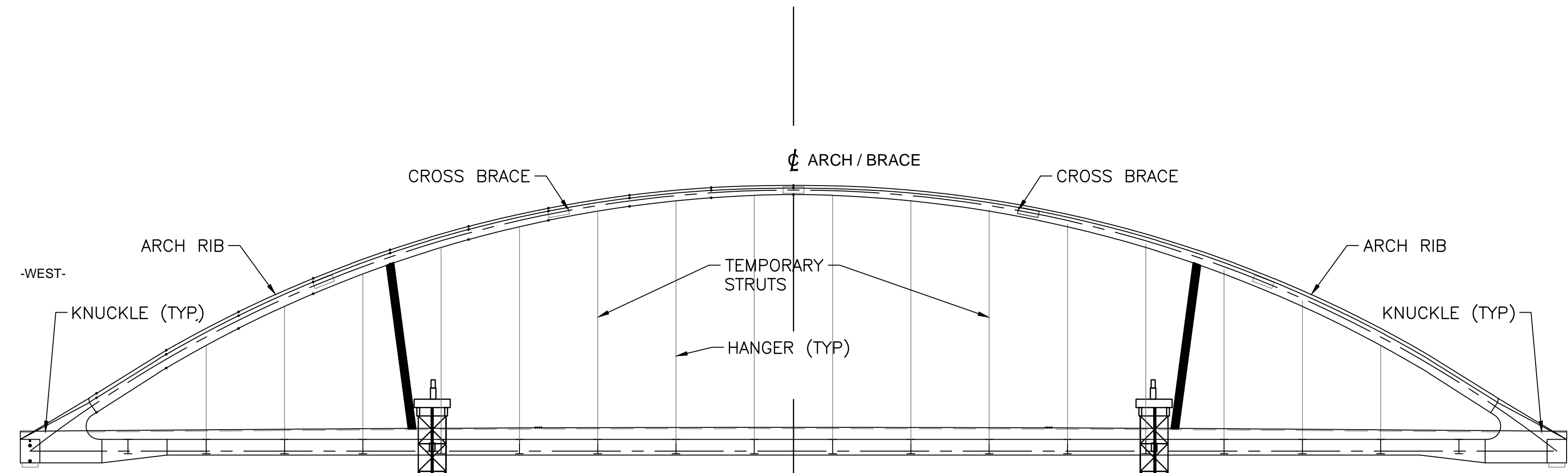
Mark Van Buren, P.Eng. Director of Engineering & Deputy Commissioner
Dan Franco, P.Eng. Project Engineer



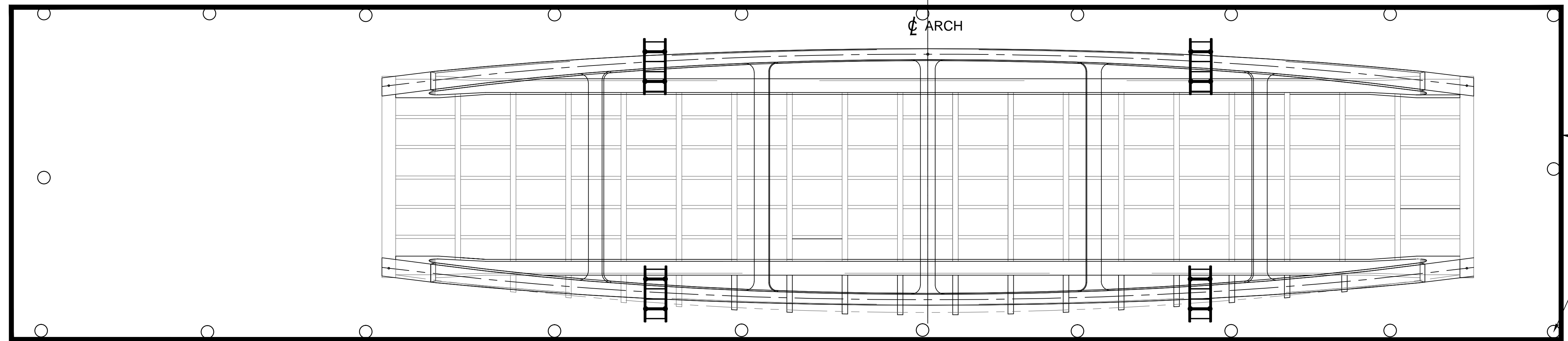
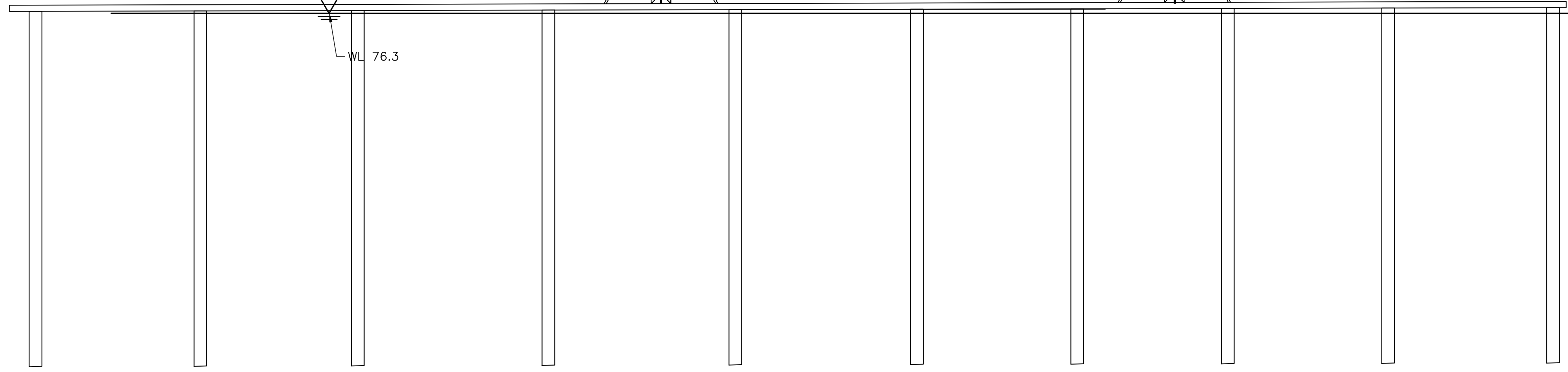
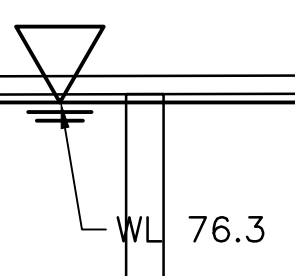
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Utility Circ. No.:	----
Code:	CAN/CSA-S6-14
Load:	CL625ONT

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No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	JJA	03/05/2017



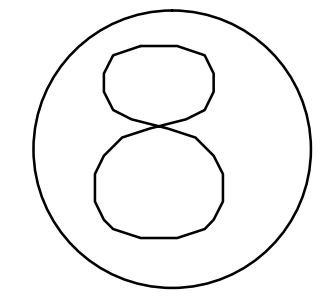
DIRECTION OF TRAVEL ↑



RAISE THE ARCH UPWARDS IN THE PREPARATION FOR LONGITUDINAL SLIDE TOWARDS NAVIGATION CHANNEL

PLAN

**SUGGESTED
CONSTRUCTION
SEQUENCE**



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THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



ARCH MOVEMENT SEQUENCE

Mark Van Buren, P.Eng. Director of Engineering & Deputy Commissioner
Dan Franco, P.Eng. Project Engineer

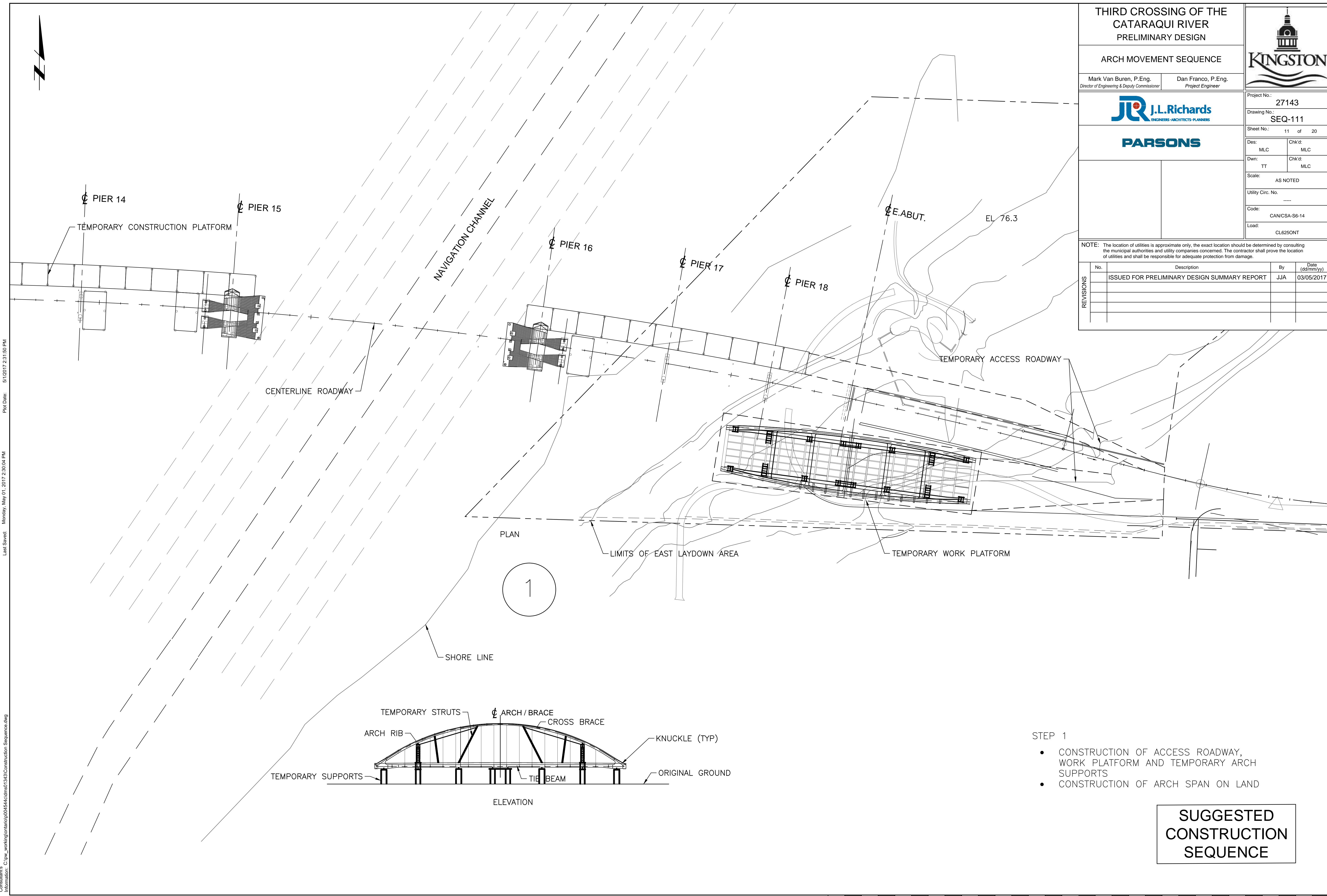
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Drawing No.: SEQ-111
Sheet No.: 11 of 20

J.L. Richards ENGINEERS-ARCHITECTS-PLANNERS
PARSONS

Des: MLC Chkd: MLC
Dwn: TT Chkd: MLC
Scale: AS NOTED
Utility Circ. No.:
Code: CAN/CSA-S6-14
Load: CL625ONT

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No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	JJA	03/05/2017



- STEP 1
- CONSTRUCTION OF ACCESS ROADWAY, WORK PLATFORM AND TEMPORARY ARCH SUPPORTS
 - CONSTRUCTION OF ARCH SPAN ON LAND

**SUGGESTED
CONSTRUCTION
SEQUENCE**

Consultant's Information: C:\pwworking\ontario\064544\dwg\01943\Construction Sequence.dwg
 Last Saved: Monday, May 01, 2017 2:30:04 PM
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THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



ARCH MOVEMENT SEQUENCE

Mark Van Buren, P.Eng. Director of Engineering & Deputy Commissioner
Dan Franco, P.Eng. Project Engineer

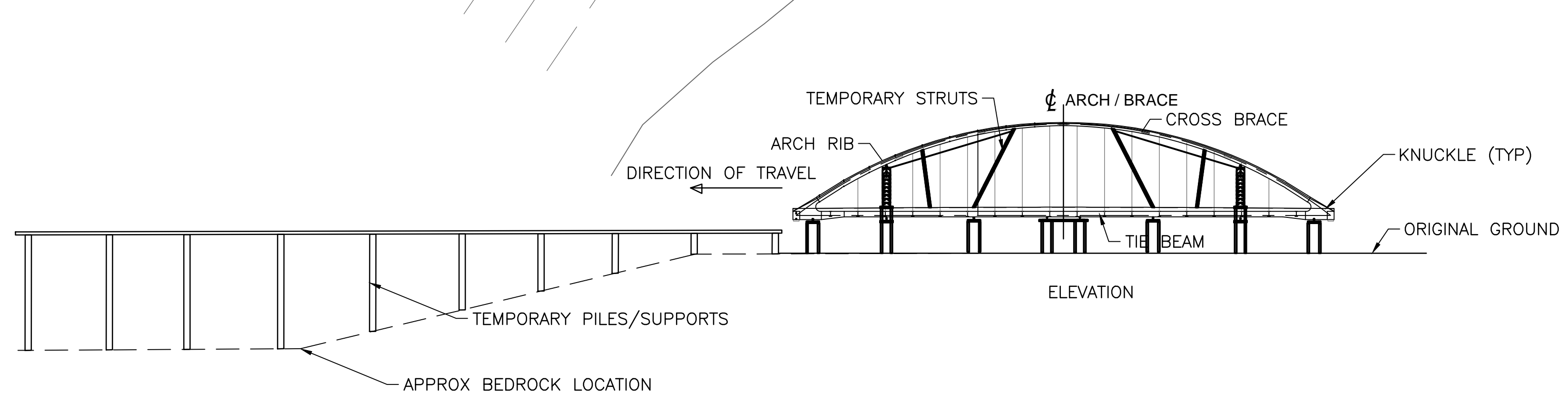
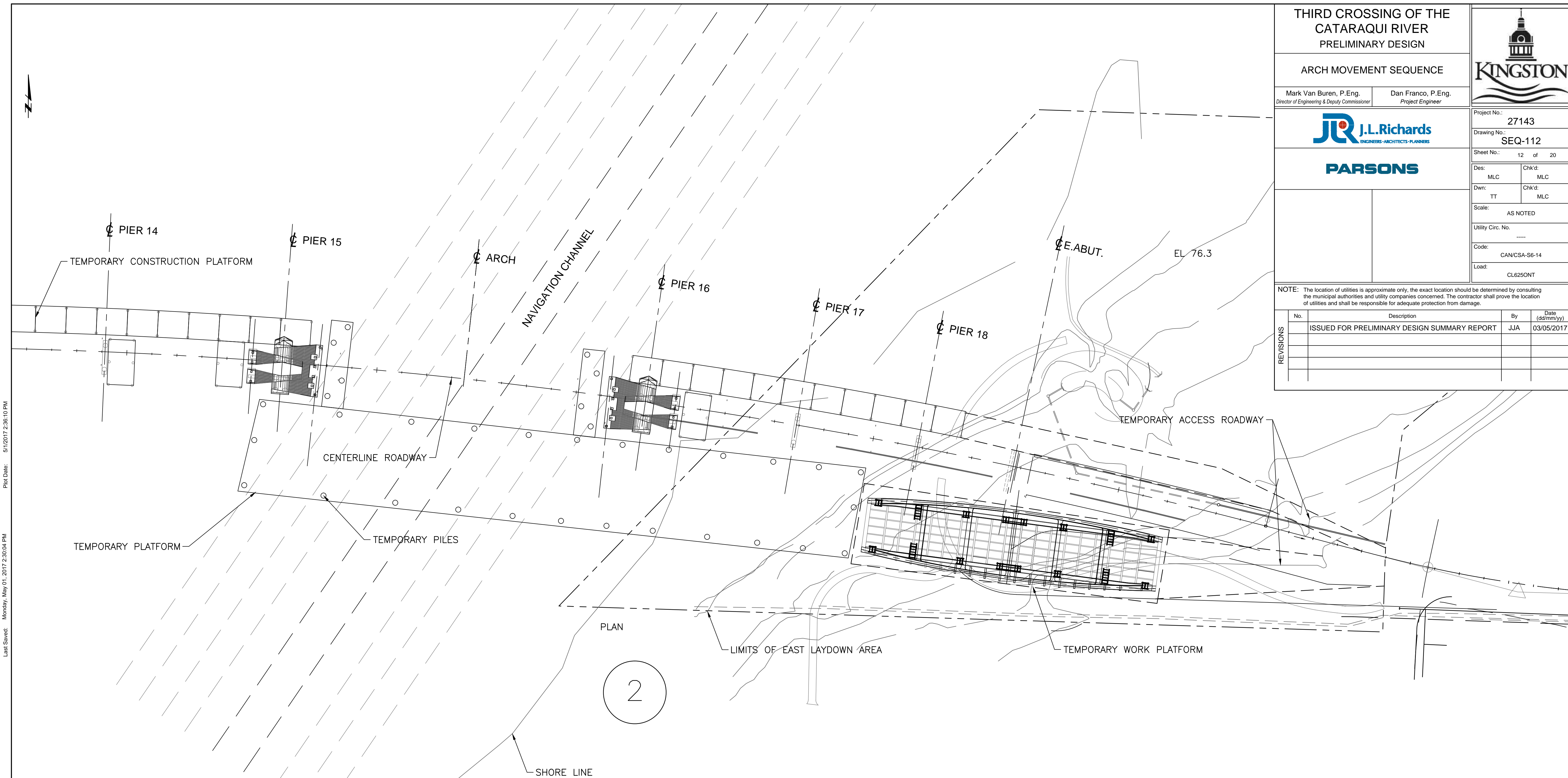
J.L. Richards
ENGINEERS-ARCHITECTS-PLANNERS

PARSONS

Project No.:	27143
Drawing No.:	SEQ-112
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Code:	CAN/CSA-S6-14
Load:	CL625ONT

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	JJA	03/05/2017



- STEP 2
- BUILD THE TRESTLE FOR THE MOVEMENT OF THE ARCH
 - TRESTLE CAN BE BUILT SIMULTANEOUSLY WITH THE ARCH

SUGGESTED CONSTRUCTION SEQUENCE

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THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



ARCH MOVEMENT SEQUENCE

Mark Van Buren, P.Eng.
Director of Engineering & Deputy Commissioner

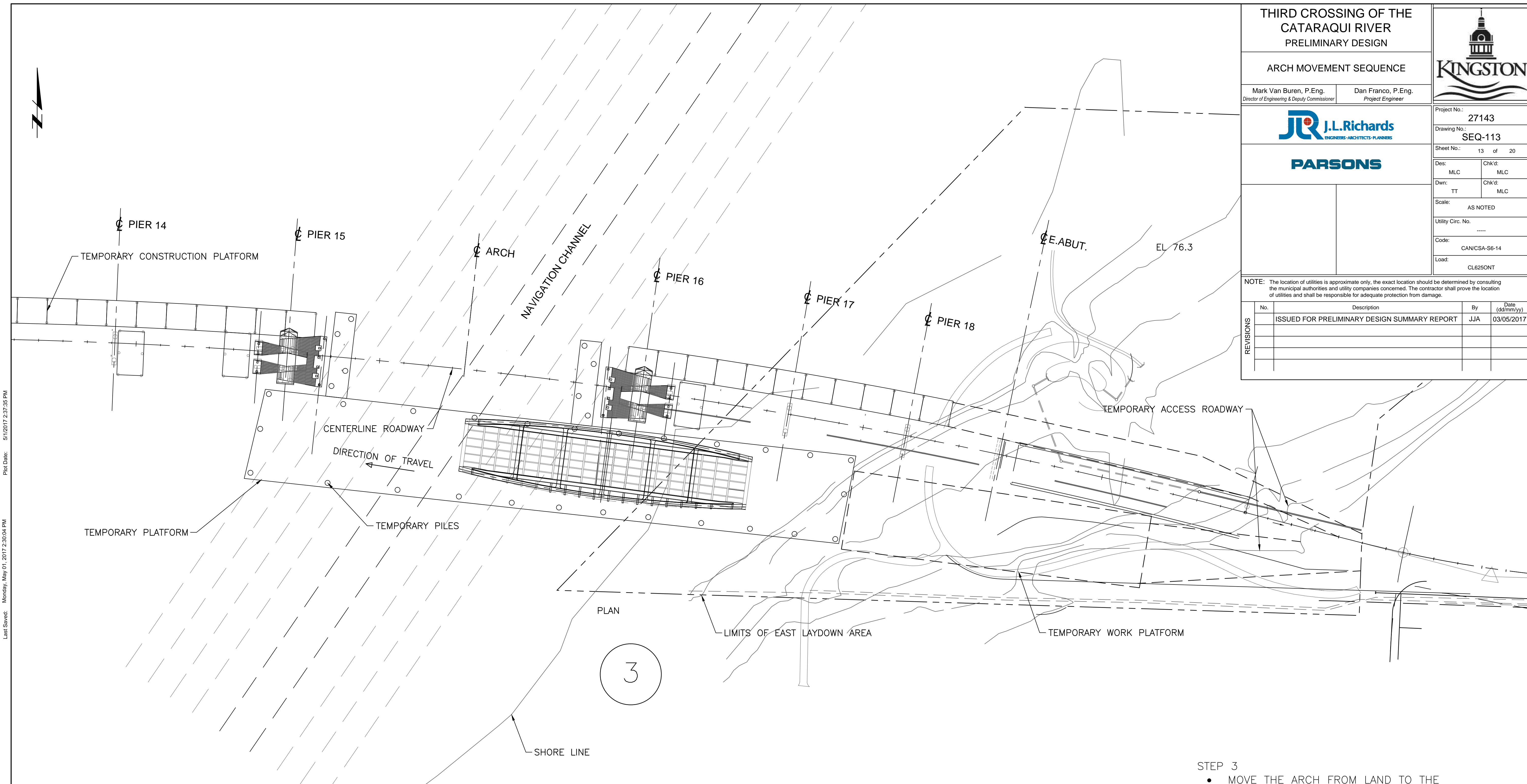
Dan Franco, P.Eng.
Project Engineer



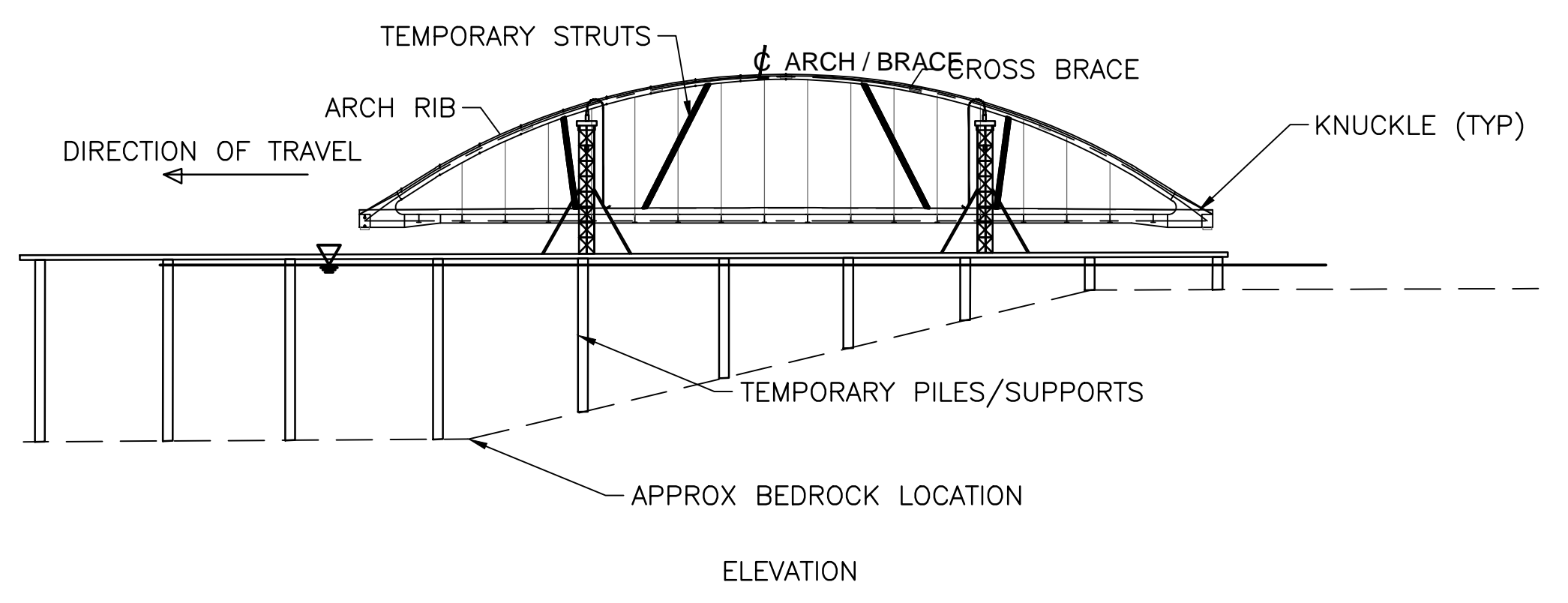
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Code:	CAN/CSA-S6-14
Load:	CL625ONT

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

No.	Description	By	Date (dd/mm/yyyy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	JJA	03/05/2017



- STEP 3
- MOVE THE ARCH FROM LAND TO THE TEMPORARY CONSTRUCTION PLATFORM



**SUGGESTED
CONSTRUCTION
SEQUENCE**

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THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



ARCH MOVEMENT SEQUENCE

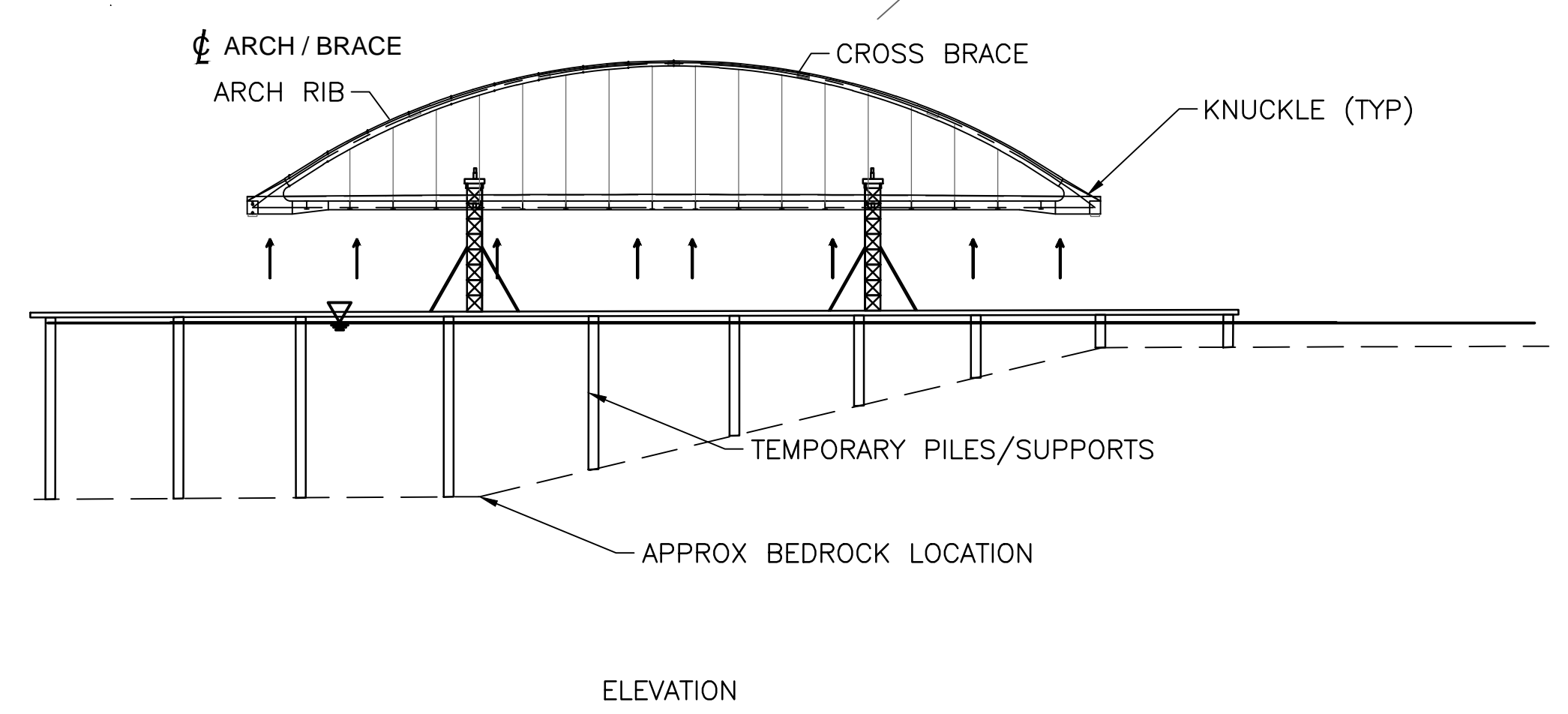
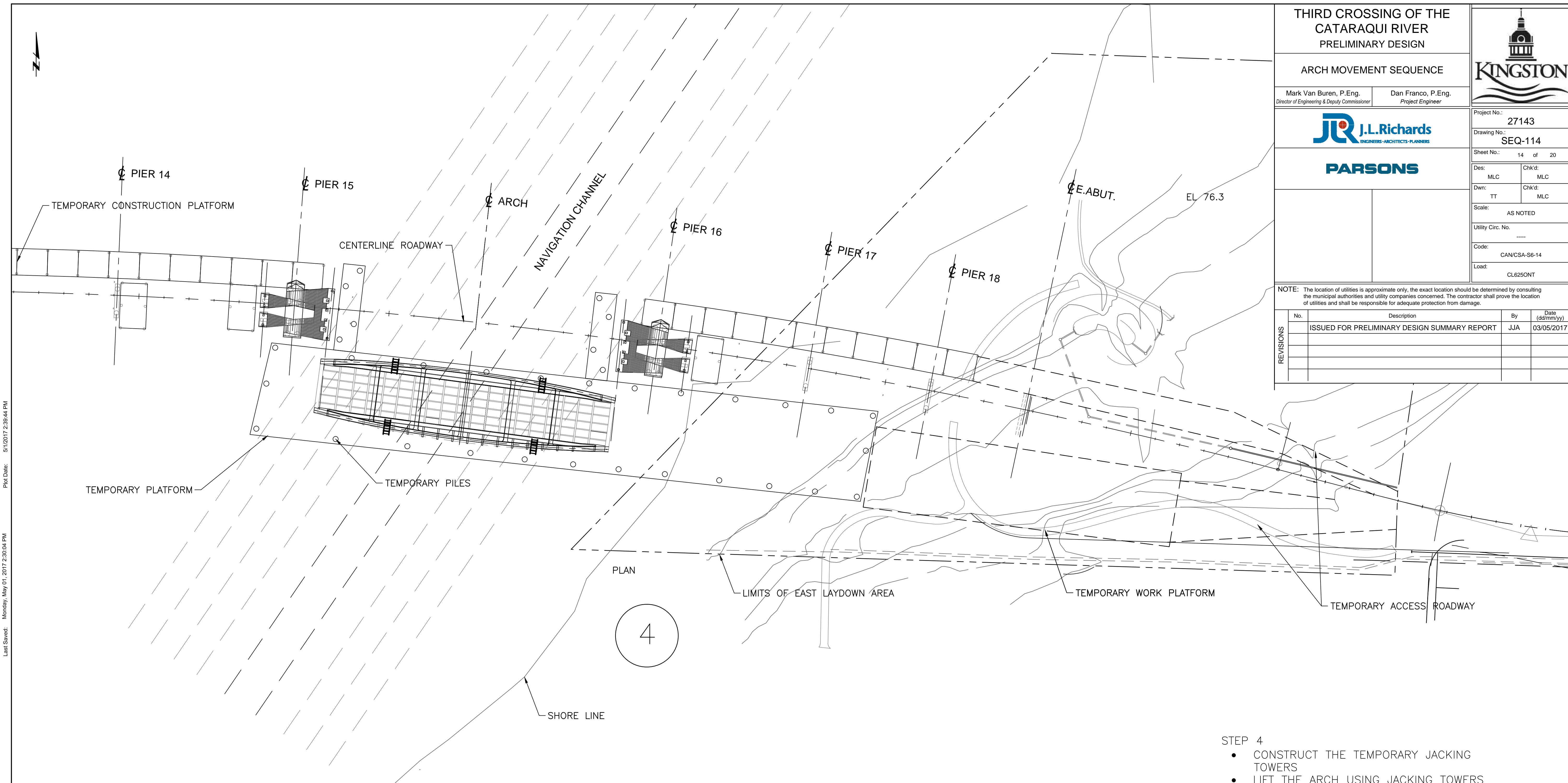
Mark Van Buren, P.Eng. Director of Engineering & Deputy Commissioner
Dan Franco, P.Eng. Project Engineer



Project No.:	27143
Drawing No.:	SEQ-114
Sheet No.:	14 of 20
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No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	JJA	03/05/2017



- STEP 4
- CONSTRUCT THE TEMPORARY JACKING TOWERS
 - LIFT THE ARCH USING JACKING TOWERS

**SUGGESTED
CONSTRUCTION
SEQUENCE**

Consultant's Information: C:\pwworking\ontario\064544\dwg\011943\Construction Sequence.dwg
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THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



ARCH MOVEMENT SEQUENCE

Mark Van Buren, P.Eng. Director of Engineering & Deputy Commissioner
Dan Franco, P.Eng. Project Engineer

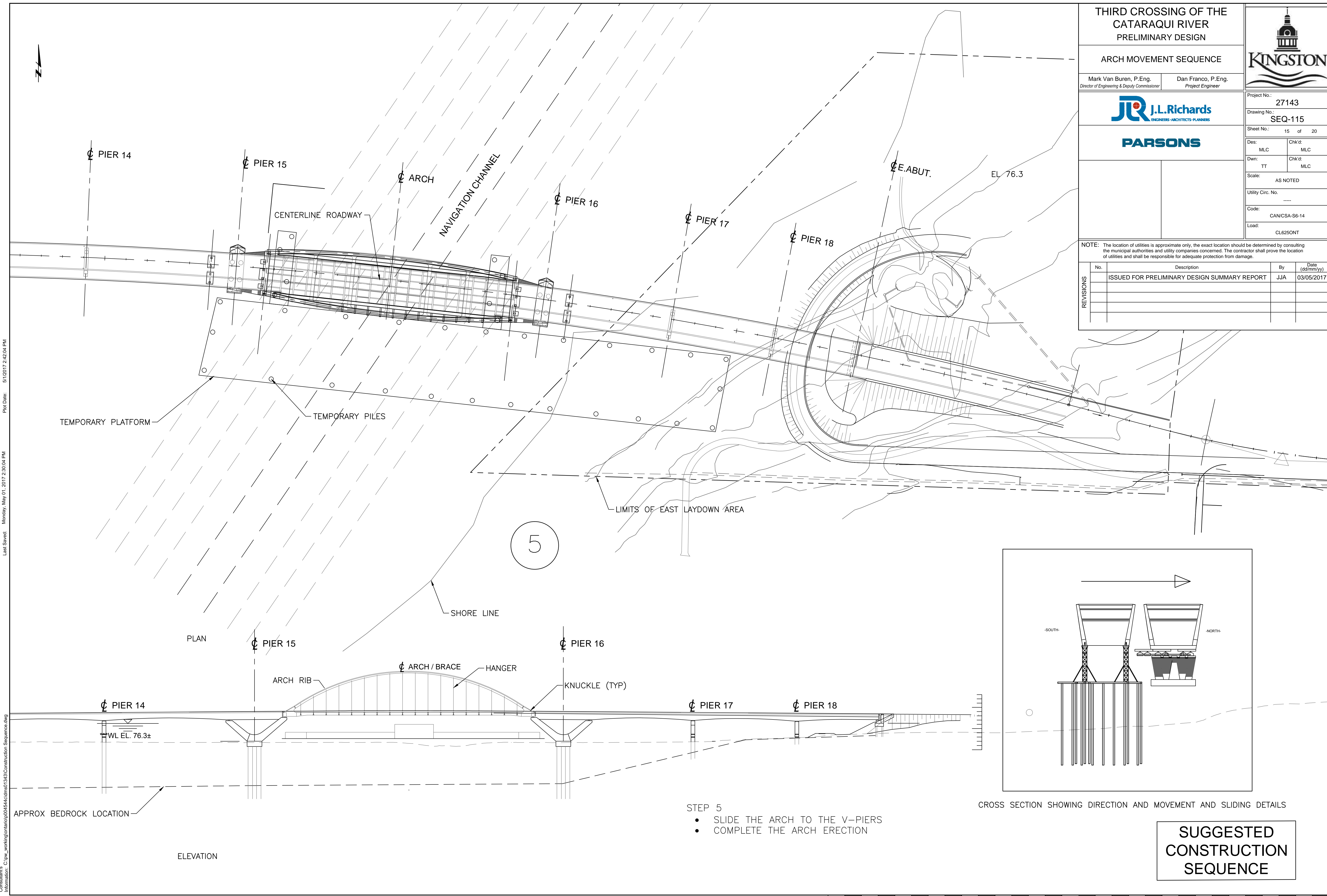
J.L. Richards
ENGINEERS-ARCHITECTS-PLANNERS

PARSONS

Project No.:	27143
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Utility Circ. No.:	----
Code:	CAN/CSA-S6-14
Load:	CL625ONT

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No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	JJA	03/05/2017



5

- STEP 5
- SLIDE THE ARCH TO THE V-PIERS
 - COMPLETE THE ARCH ERECTION

CROSS SECTION SHOWING DIRECTION AND MOVEMENT AND SLIDING DETAILS

**SUGGESTED
CONSTRUCTION
SEQUENCE**

Consultant's Information: C:\pwworking\ontario\004544\dwg\01543\Construction Sequence.dwg
 Last Saved: Monday, May 01, 2017 2:30:04 PM
 Plot Date: 5/1/2017 2:42:04 PM

THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



ARCH MOVEMENT SEQUENCE

Mark Van Buren, P.Eng. Director of Engineering & Deputy Commissioner
Dan Franco, P.Eng. Project Engineer

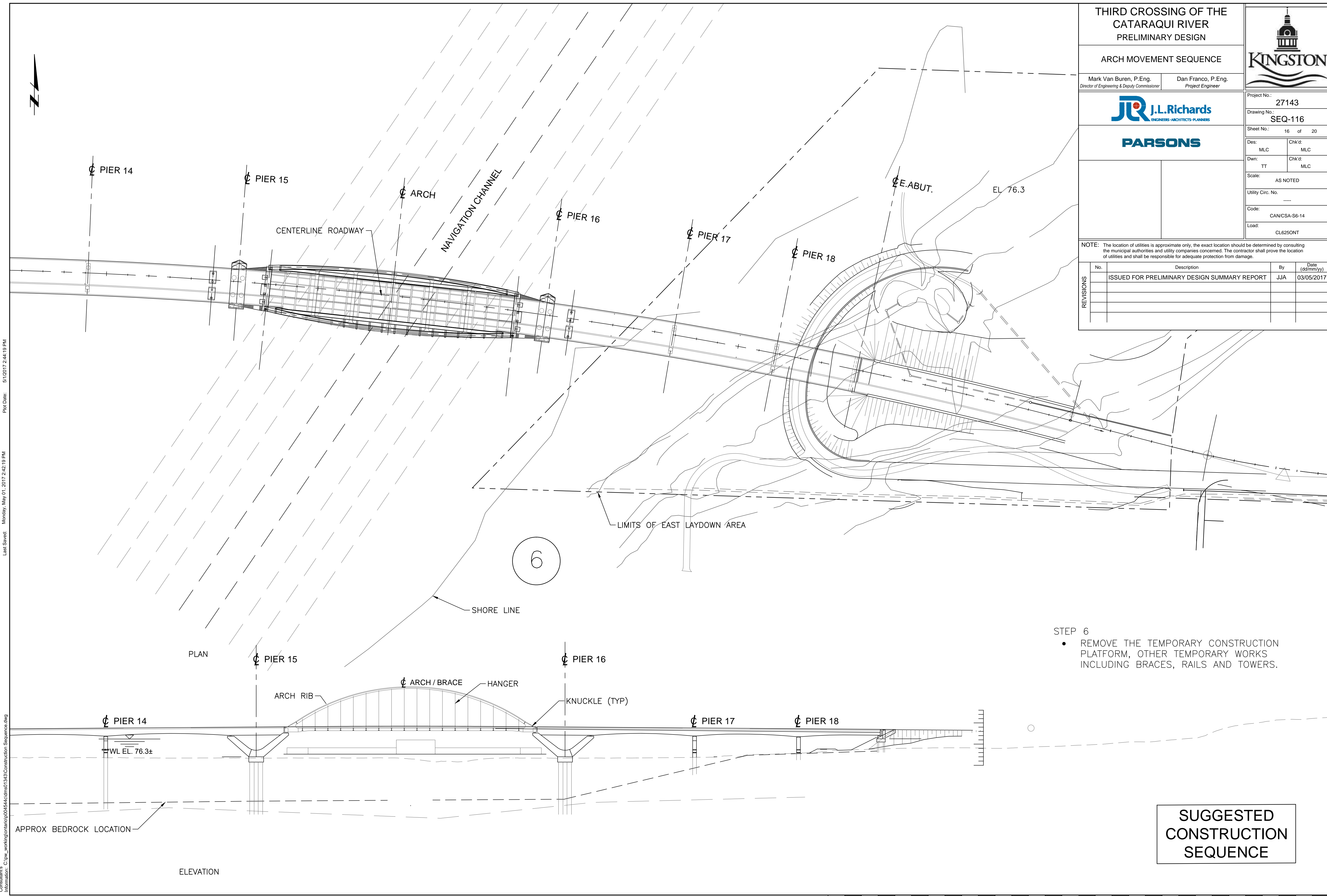
J.L. Richards
ENGINEERS-ARCHITECTS-PLANNERS

PARSONS

Project No.:	27143
Drawing No.:	SEQ-116
Sheet No.:	16 of 20
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Utility Circ. No.:	----
Code:	CAN/CSA-S6-14
Load:	CL625ONT

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No.	Description	By	Date (dd/mm/yyyy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	JJA	03/05/2017



- STEP 6
- REMOVE THE TEMPORARY CONSTRUCTION PLATFORM, OTHER TEMPORARY WORKS INCLUDING BRACES, RAILS AND TOWERS.

**SUGGESTED
CONSTRUCTION
SEQUENCE**

Consultant's Information: C:\pwworking\ontario\004544\dwg\011943\Construction Sequence.dwg
 Last Saved: Monday, May 01, 2017 2:42:19 PM
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THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



SPAN CONSTRUCTION SEQUENCE

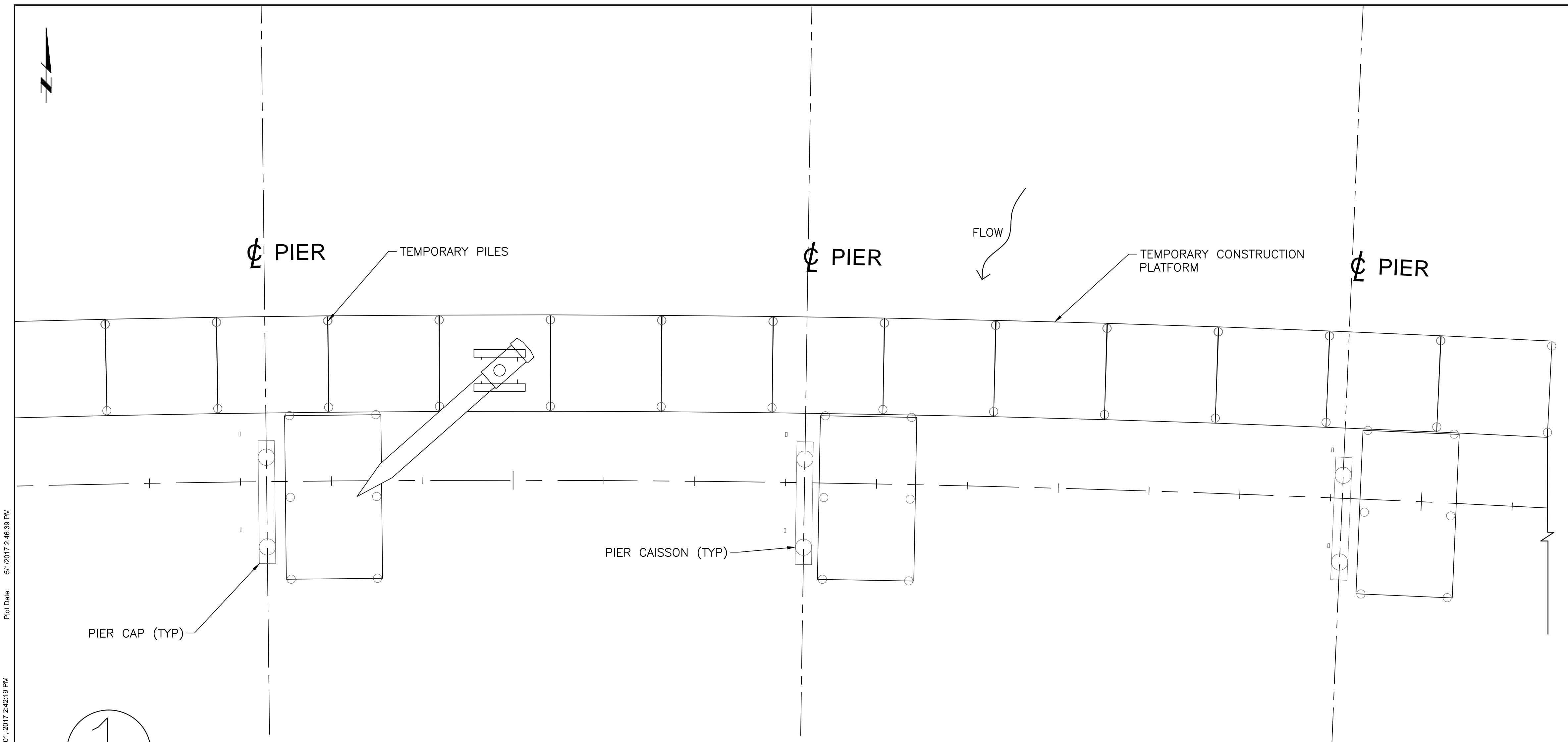
Mark Van Buren, P.Eng. Director of Engineering & Deputy Commissioner
Dan Franco, P.Eng. Project Engineer



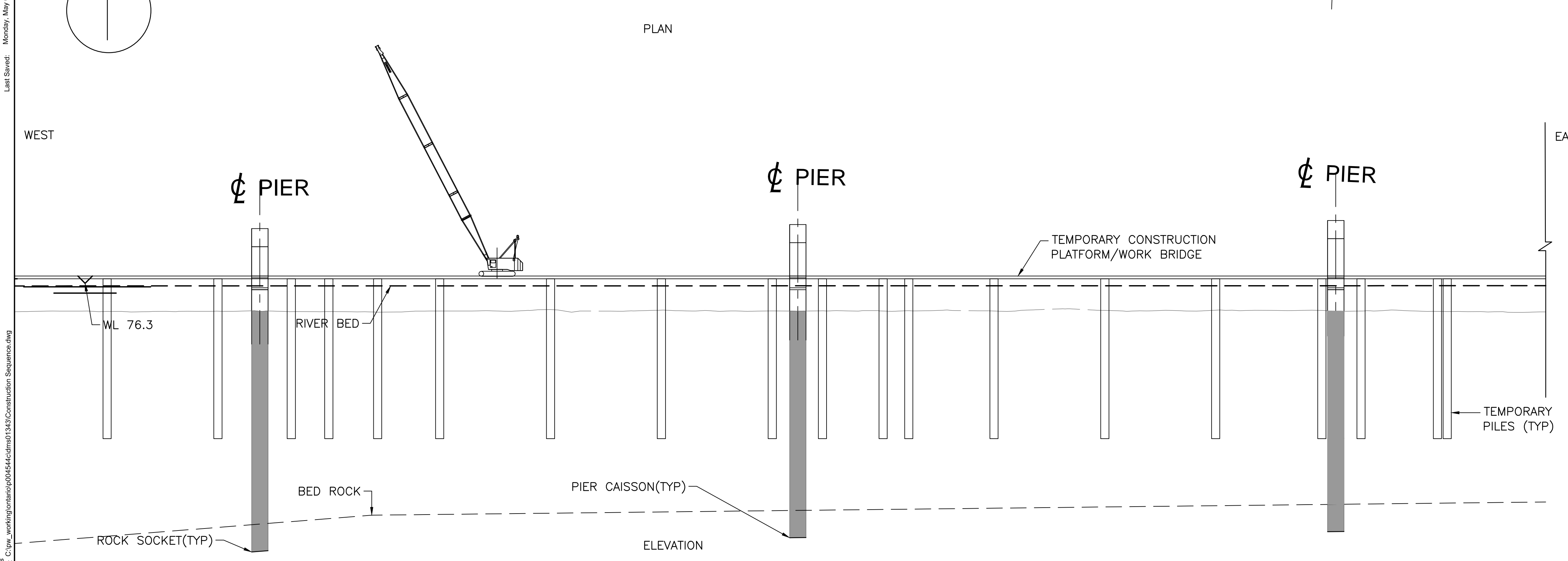
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Code: CAN/CSA-S6-14
Load: CL625ONT

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

No.	Description	By	Date (dd/mm/yyyy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	JJA	03/05/2017



PLAN



ELEVATION

STEP 1

- TRESTLE AND SUBSTRUCTURE WORK IS COMPLETED

**SUGGESTED
CONSTRUCTION
SEQUENCE**

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 Last Saved: Monday, May 01, 2017 2:42:19 PM
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THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



SPAN CONSTRUCTION SEQUENCE

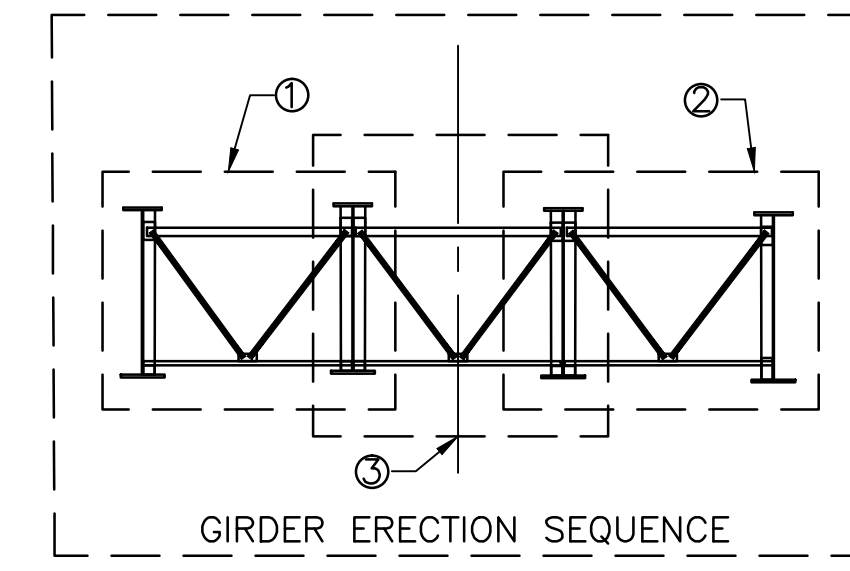
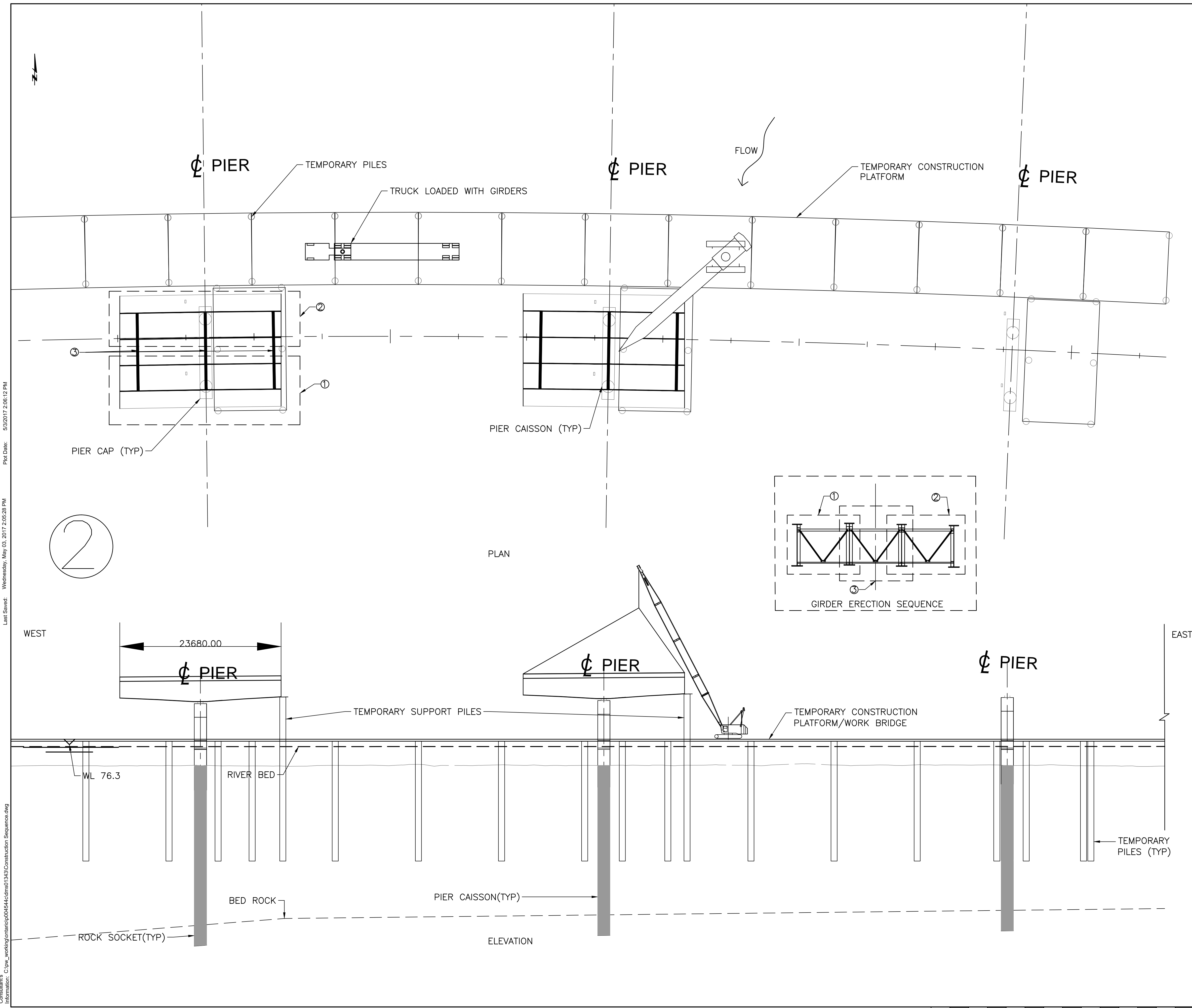
Mark Van Buren, P.Eng. Director of Engineering & Deputy Commissioner
Dan Franco, P.Eng. Project Engineer



Project No.: 27143
Drawing No.: SEQ-118
Sheet No.: 18 of 20
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Dwn: TT Chkd: MLC
Scale: AS NOTED
Utility Circ. No.:
Code: CAN/CSA-S6-14
Load: CL625ONT

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

No.	Description	By	Date (dd/mm/yyyy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	JJA	03/05/2017



STEP 2

- ERECT PIER GIRDERS AT TWO ADJACENT PIERS
- PROVIDE SUPPORT FOR GIRDER SEGMENTS UTILIZING TRESTLE PILES

SUGGESTED CONSTRUCTION SEQUENCE

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THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



SPAN CONSTRUCTION SEQUENCE

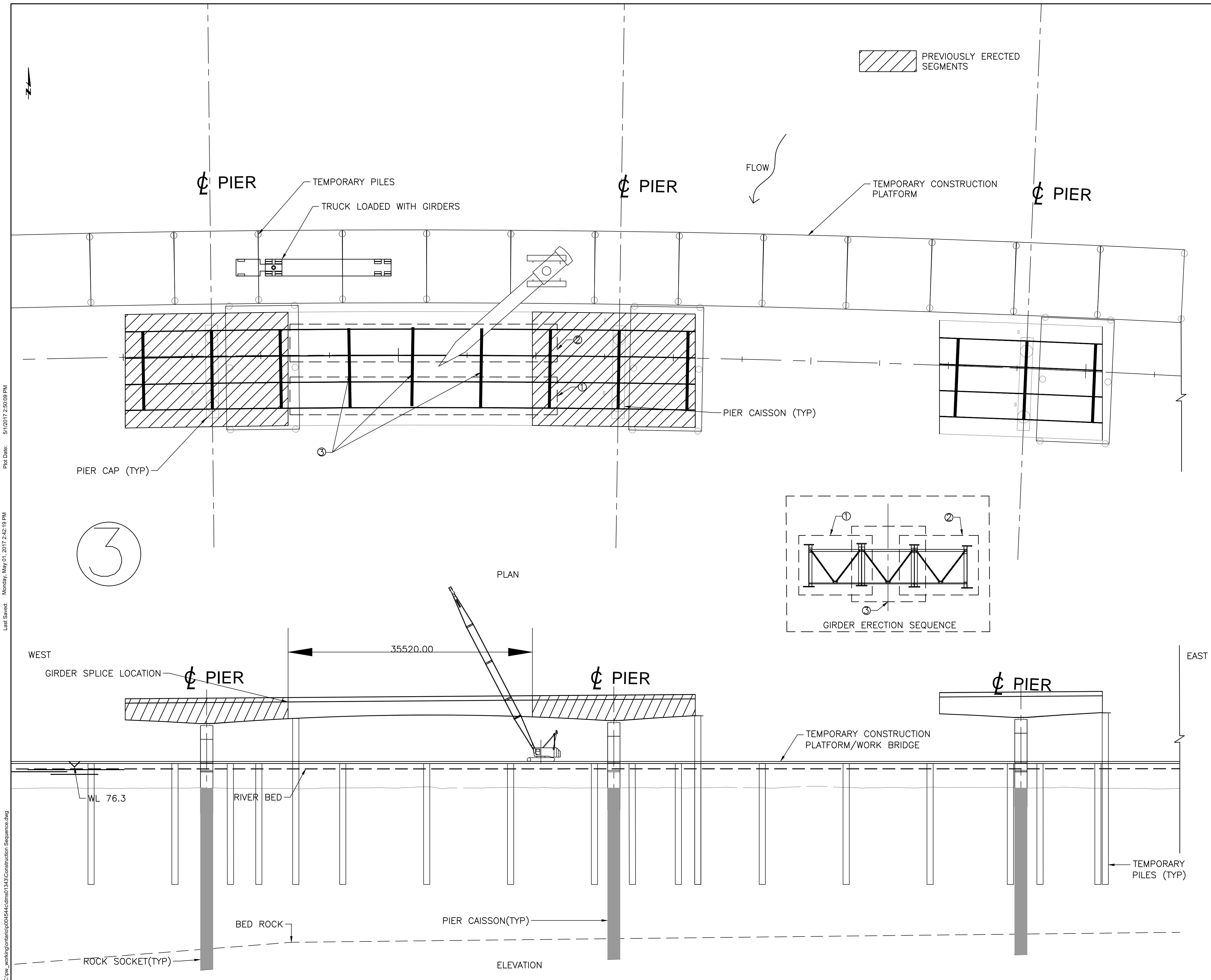
Mark Van Buren, P.Eng. Director of Engineering & Deputy Commissioner
Dan Franco, P.Eng. Project Engineer



Project No.: 27143
Drawing No.: SEQ-119
Sheet No.: 19 of 20
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Code: CAN/CSA-S6-14
Load: CL625ONT

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	JJA	03/05/2017



STEP 3

- ERECT DROP IN GIRDERS MID-SPAN
- ERECT THE NEXT PIER GIRDER

**SUGGESTED
CONSTRUCTION
SEQUENCE**

Consultant's Information: C:\pwworking\ontario\0604544\dwg\01543\Construction Sequence.dwg
 Last Saved: Monday, May 01, 2017 2:42:19 PM
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THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



SPAN CONSTRUCTION SEQUENCE

Mark Van Buren, P.Eng.
Director of Engineering & Deputy Commissioner

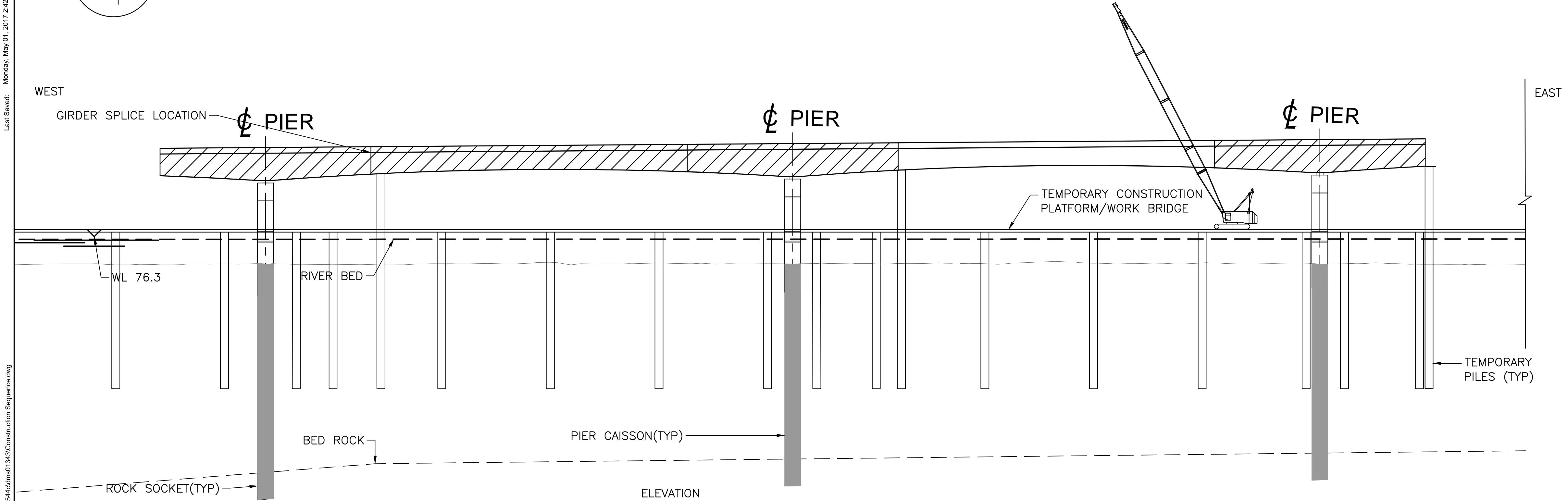
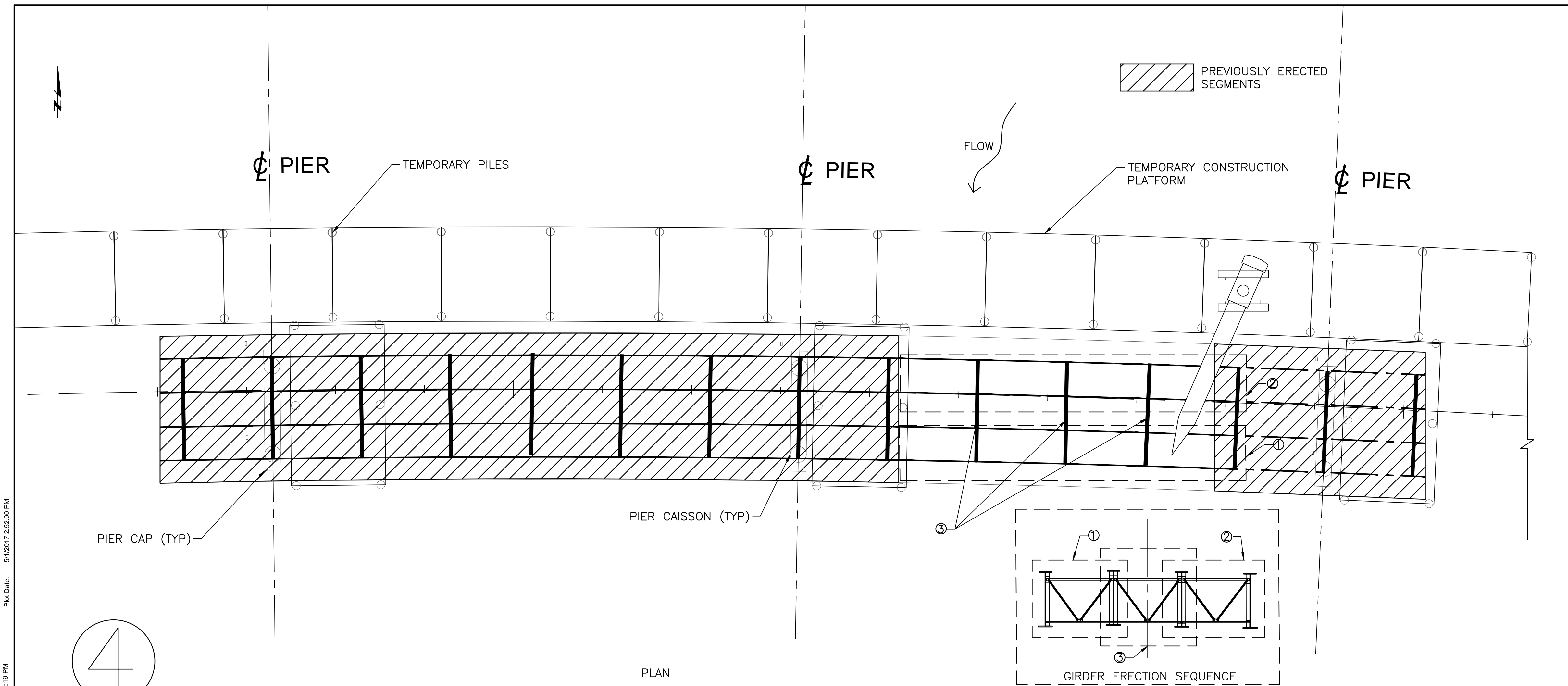
Dan Franco, P.Eng.
Project Engineer



Project No.: 27143
Drawing No.: SEQ-120
Sheet No.: 20 of 20
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Scale: AS NOTED
Utility Circ. No.:
Code: CAN/CSA-S6-14
Load: CL625ONT

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	JJA	03/05/2017



STEP 4

- ERECT THE MID-SPAN DROP IN GIRDERS

**SUGGESTED
CONSTRUCTION
SEQUENCE**

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 Plot Date: 5/1/2017 2:52:00 PM

THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN
PRELIMINARY GENERAL ARRANGEMENT
V-PIER OPTION



Mark Van Buren, P.Eng. Director of Engineering & Deputy Commissioner
Dan Franco, P.Eng. Project Engineer



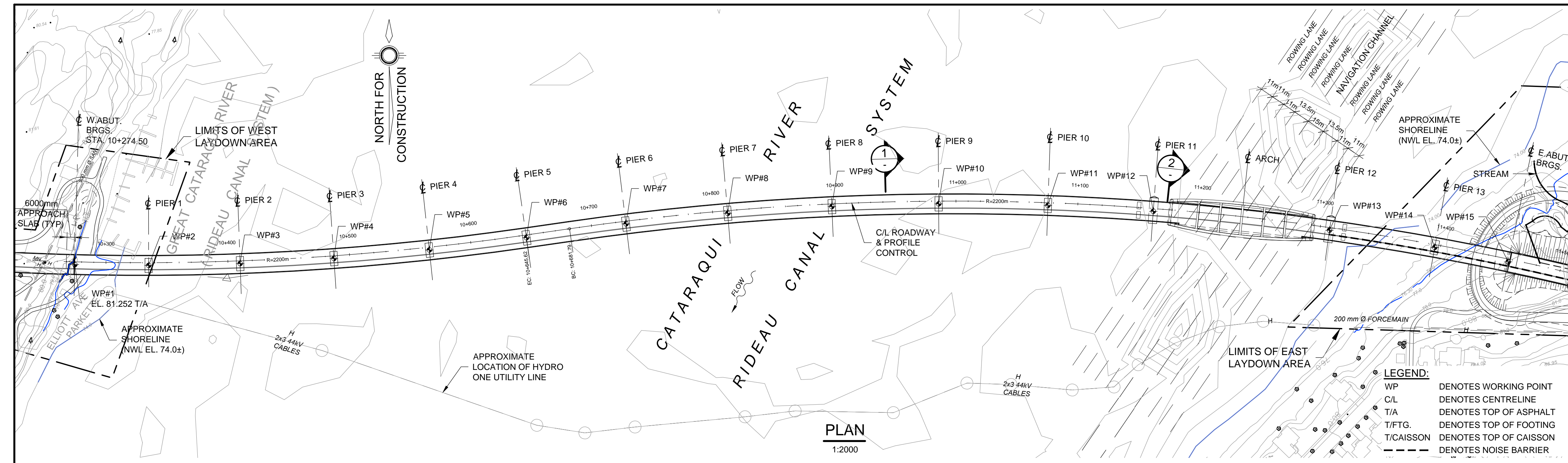
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Drawing No.:	V-101
Sheet No.:	of
Des:	JJA RO
Dwn:	KRS Chk'd: JJA
Scale:	AS NOTED
Utility Circ. No.:	----
Code:	CAN/CSA-S6-14
Load:	CL825ONT

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

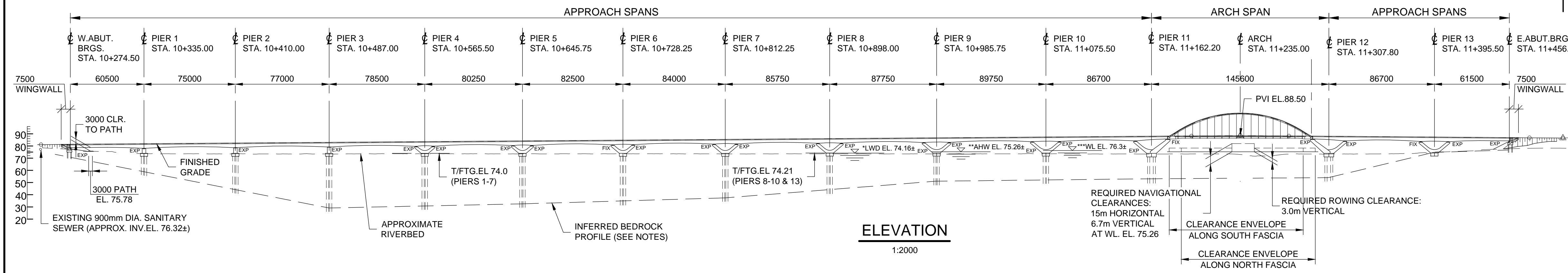
No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	JJA	03/05/2017

GENERAL NOTES:

- DESIGN LOADS**
BRIDGE: CL-625-ONT TRUCK LOAD, CL-625-ONT LANE LOAD OF CHBDC.
SIDEWALK: PEDESTRIAN LOADS AND MAINTENANCE VEHICLE OF CHBDC S6-14.
- CONSTRUCTION NOTES**
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE. CHAINAGES AND ELEVATIONS ARE IN METRES.
 - MAINTAIN FULL NAVIGATIONAL CLEARANCE THROUGHOUT CONSTRUCTION.
 - INFERRED BEDROCK PROFILE IS BASED ON BOREHOLE LOGS FROM GOLDER ASSOCIATES REPORT ENTITLED "PRELIMINARY GEOTECHNICAL INVESTIGATION - THIRD CROSSING OF CATARAQUI RIVER - JOHN COUNTER BOULEVARD TO GORE ROAD, KINGSTON, ONTARIO", DATED MARCH 2017, REPORT NO. 1541774/2000/003.



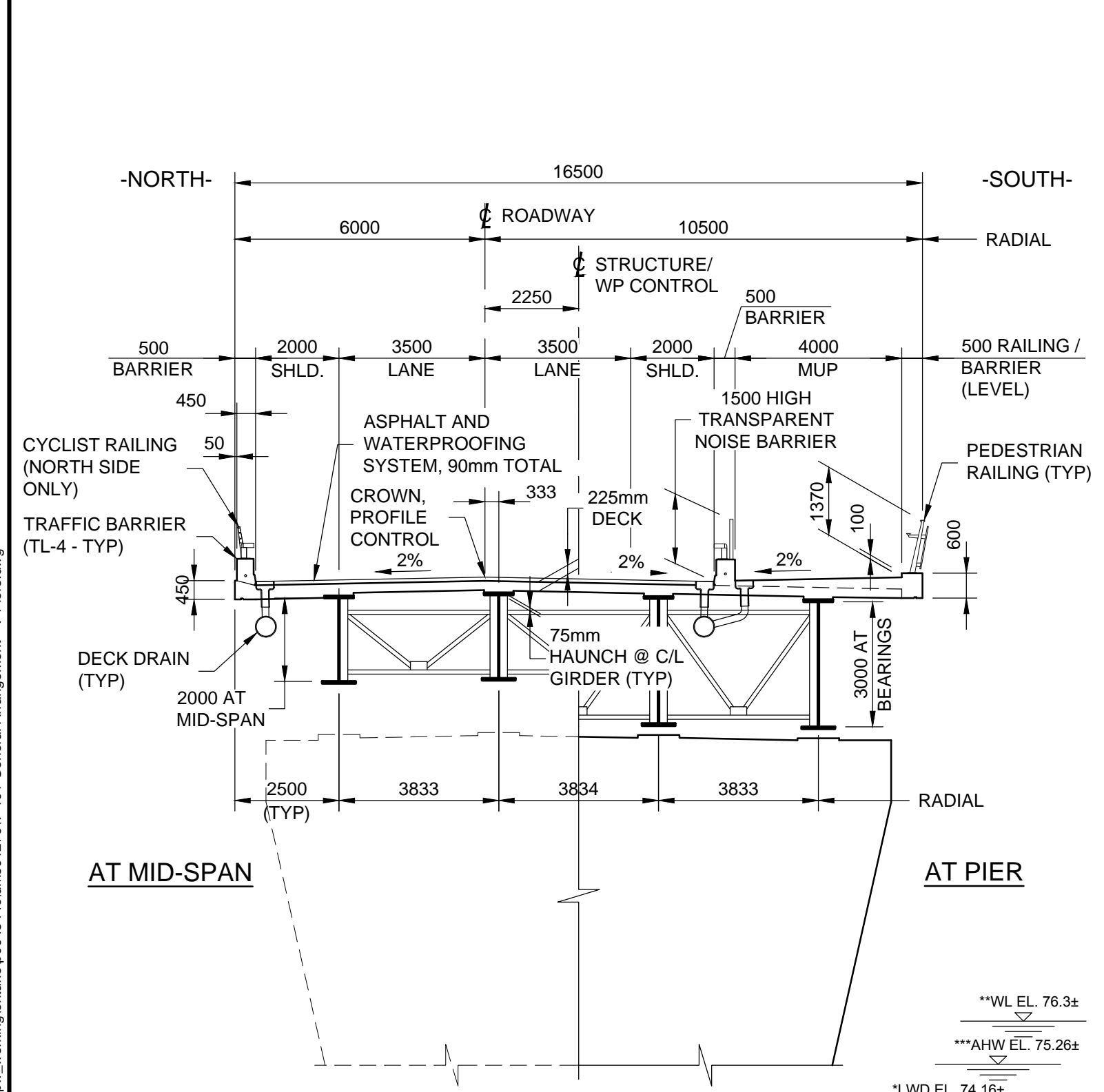
PLAN
1:2000



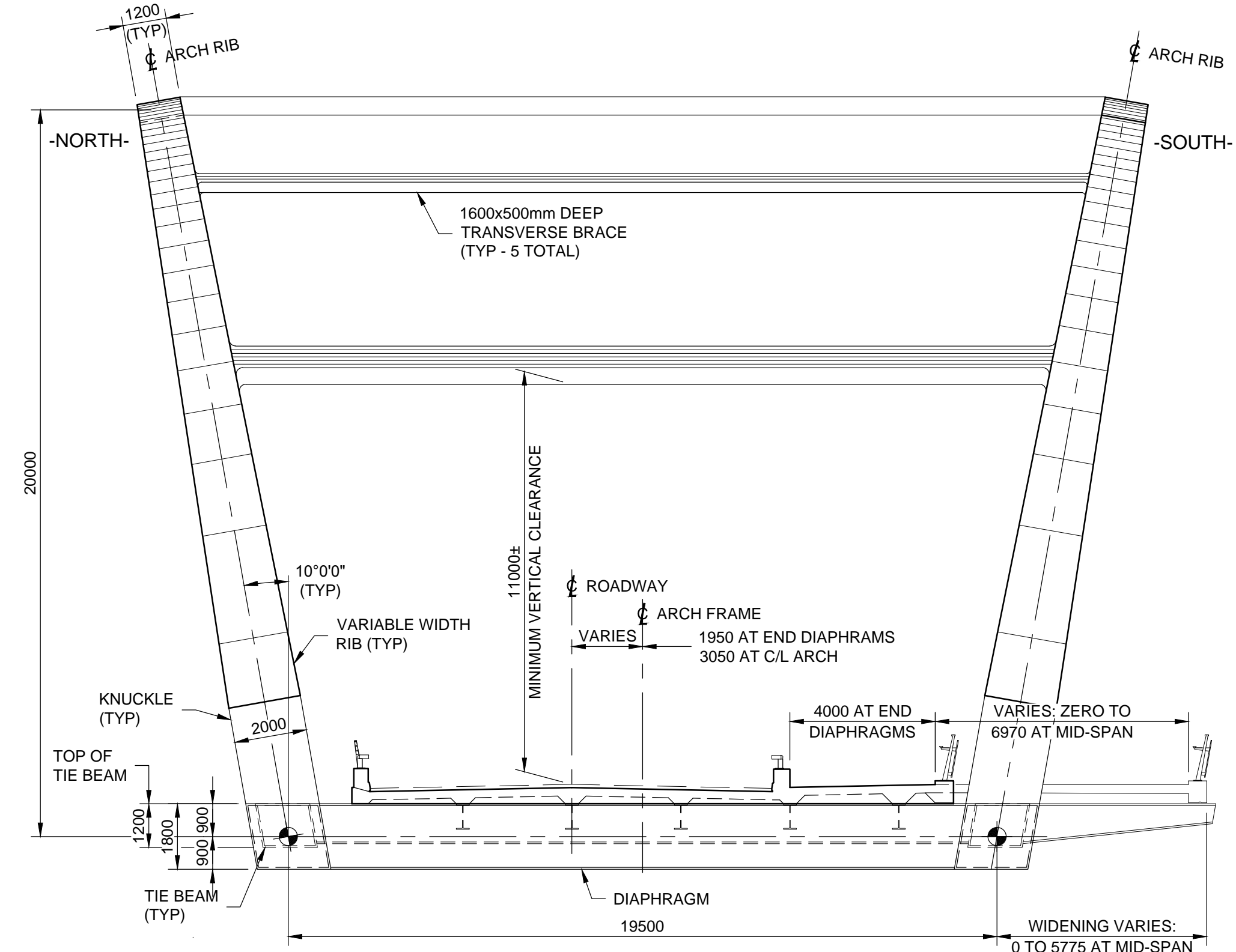
ELEVATION
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NOTE:

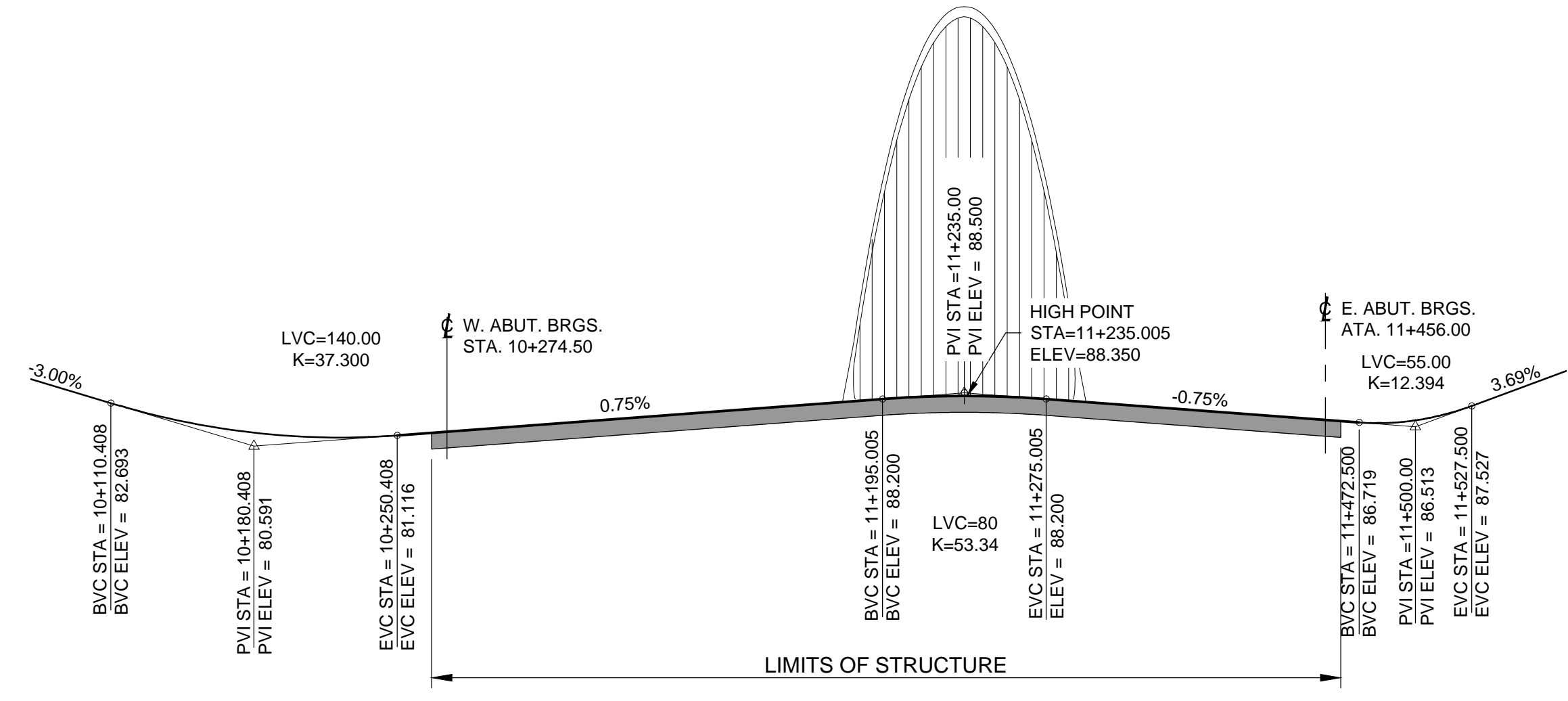
* LOW WATER DATUM	EL. 74.16	CANADIAN HYDROGRAPHIC SERVICE (LAKE ONTARIO)
** AVERAGE HIGH WATER	EL. 75.26	MINISTRY OF NATURAL RESOURCES (LAKE ONTARIO)
*** REGULATORY WATER LEVEL	EL. 76.3	CATARAQUI REGION CONSERVATION AUTHORITY 'REGULATORY LIMIT WITHIN THE STUDY AREA'



SECTION 1 APPROACH SPANS
1:125



SECTION 2 ARCH SPAN
1:125



PROFILE THIRD CROSSING
N.T.S.

Plot Date: 5/1/2017 10:00:22 AM
 Last Saved: Friday, April 28, 2017 5:43:37 PM
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 Consultants Information:

THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



FOOTING LAYOUT AND DETAILS

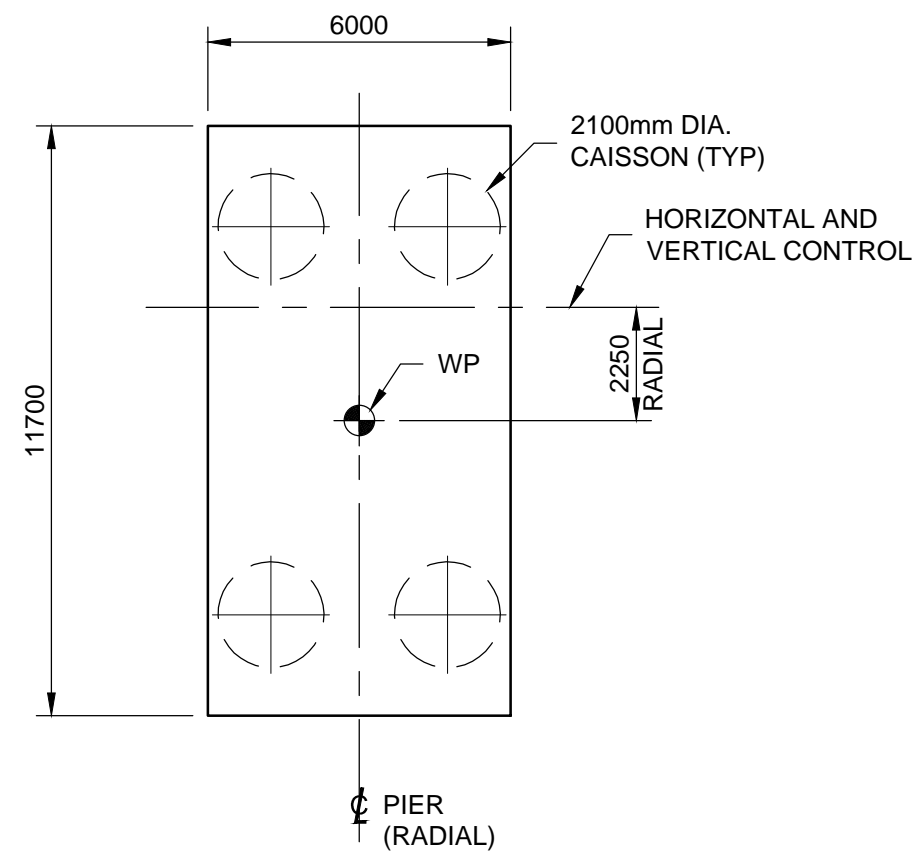
Mark Van Buren, P.Eng. Director of Engineering & Deputy Commissioner
Dan Franco, P.Eng. Project Engineer



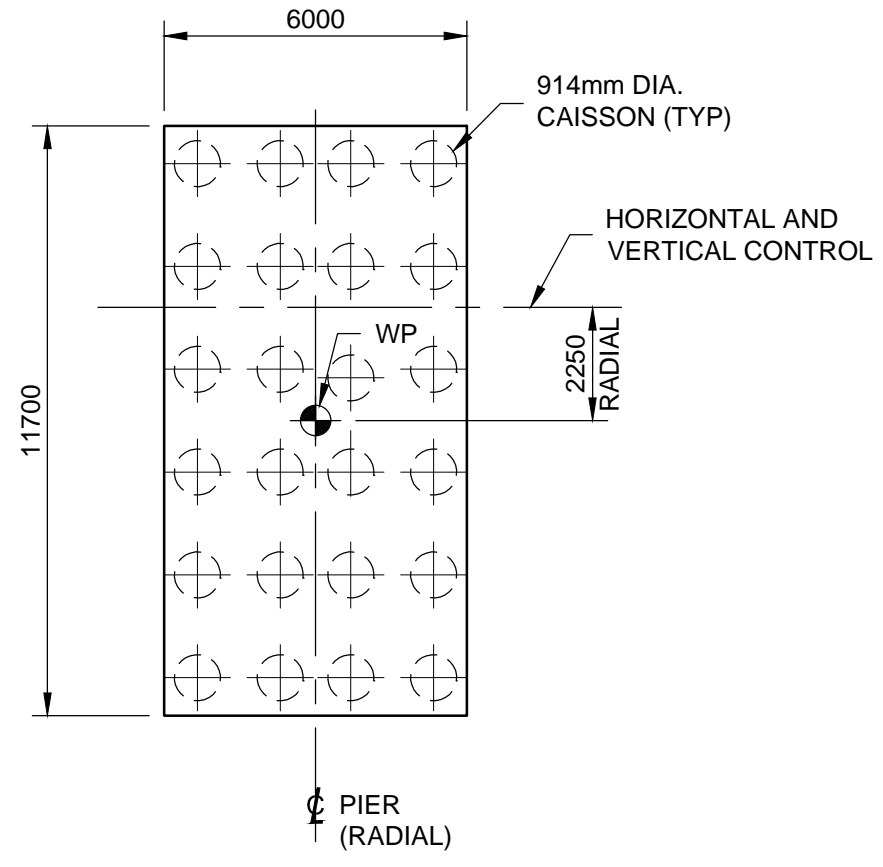
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Drawing No.: V-102
Sheet No.: -- of --
Des: JJA Chk'd: RO
Dwn: KRS Chk'd: JJA
Scale: AS NOTED
Utility Circ. No.: ----
Code: CAN/CSA-S6-14
Load: CL625ONT

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

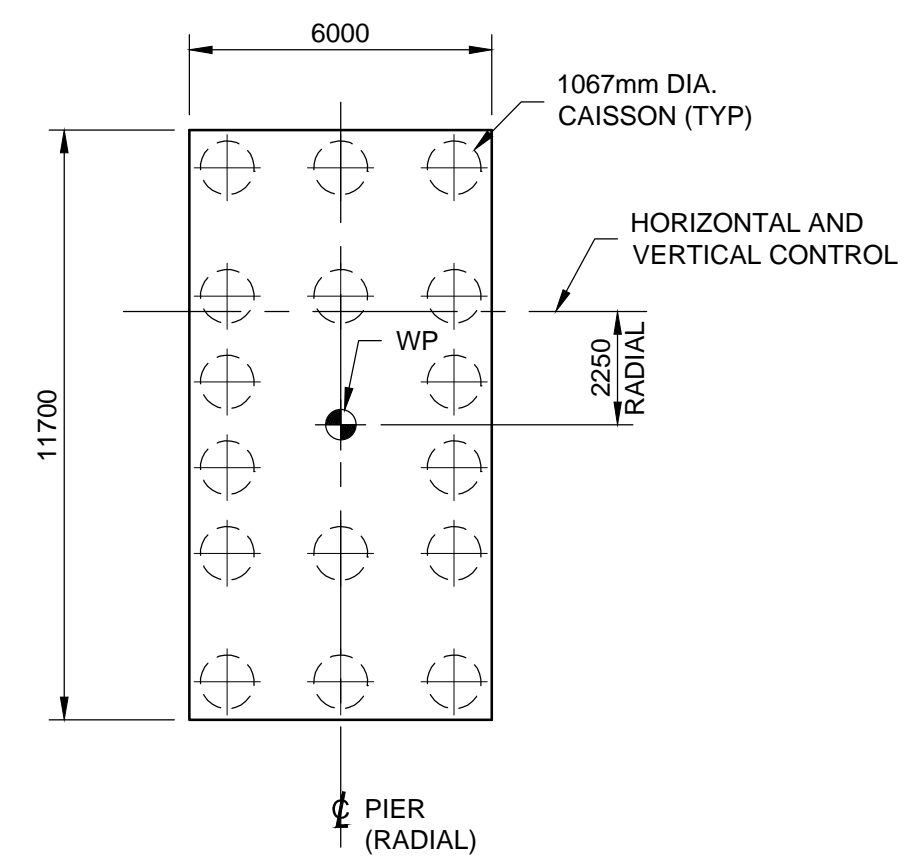
No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	JJA	03/05/2017



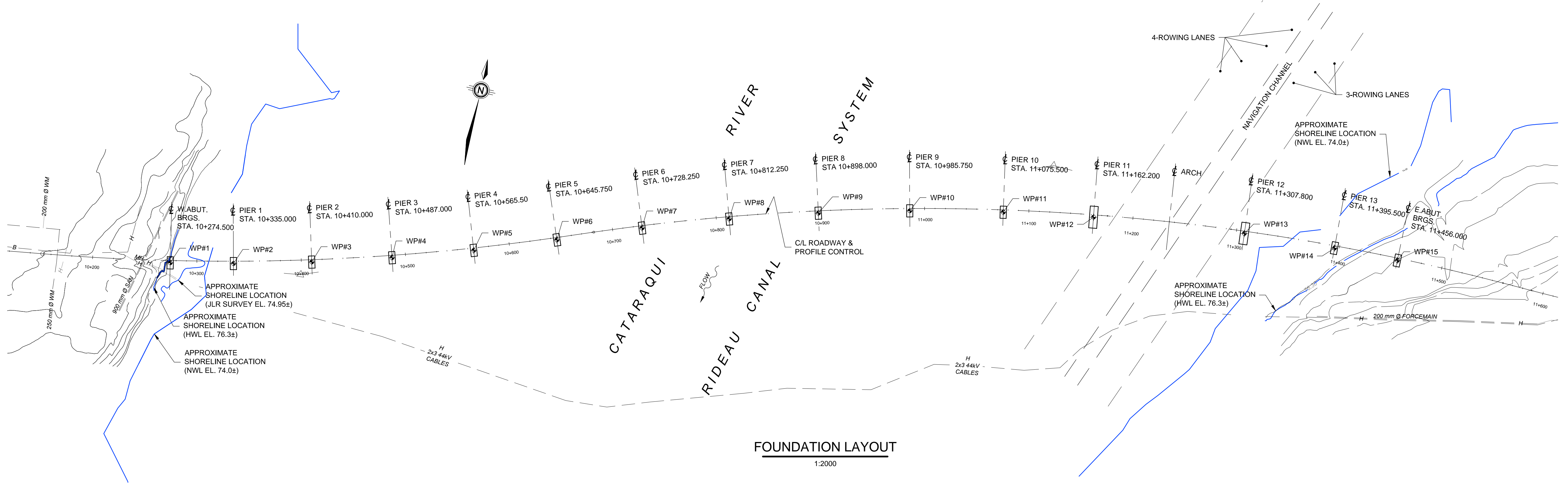
PIER FOUNDATION OPTION 1
1:150



PIER FOUNDATION OPTION 2
1:150



PIER FOUNDATION OPTION 3
1:150



FOUNDATION LAYOUT
1:2000

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THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



PIERS

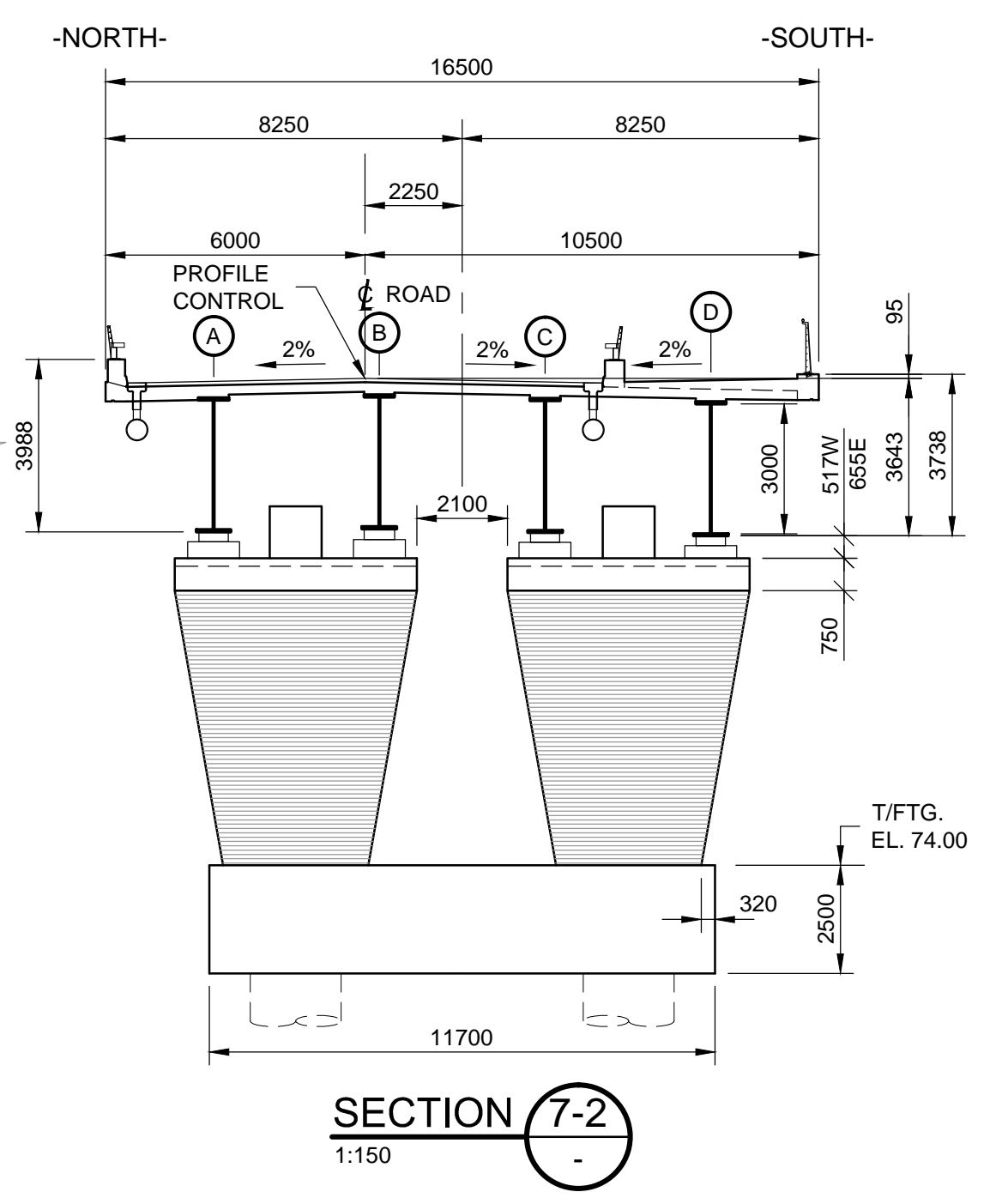
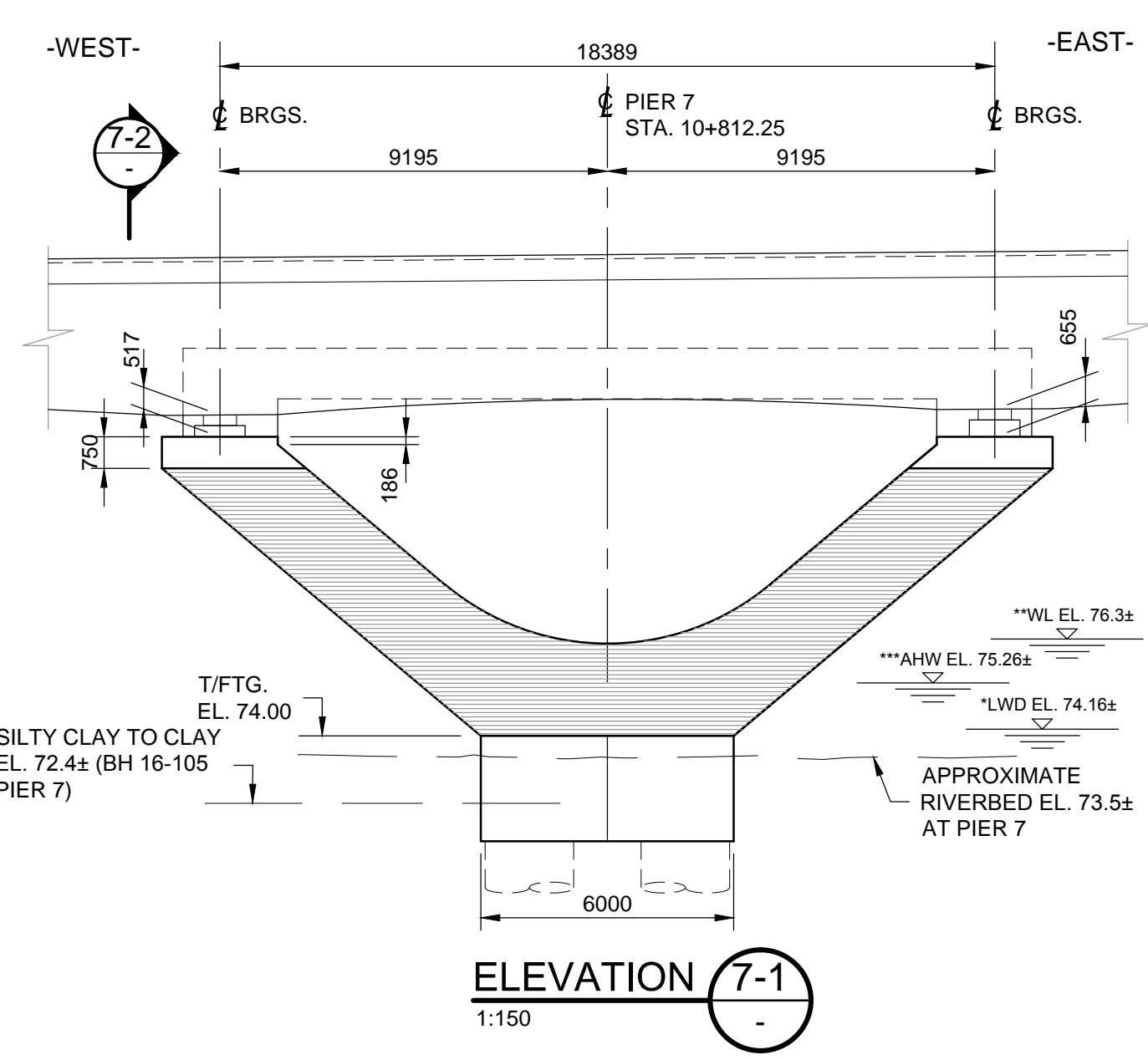
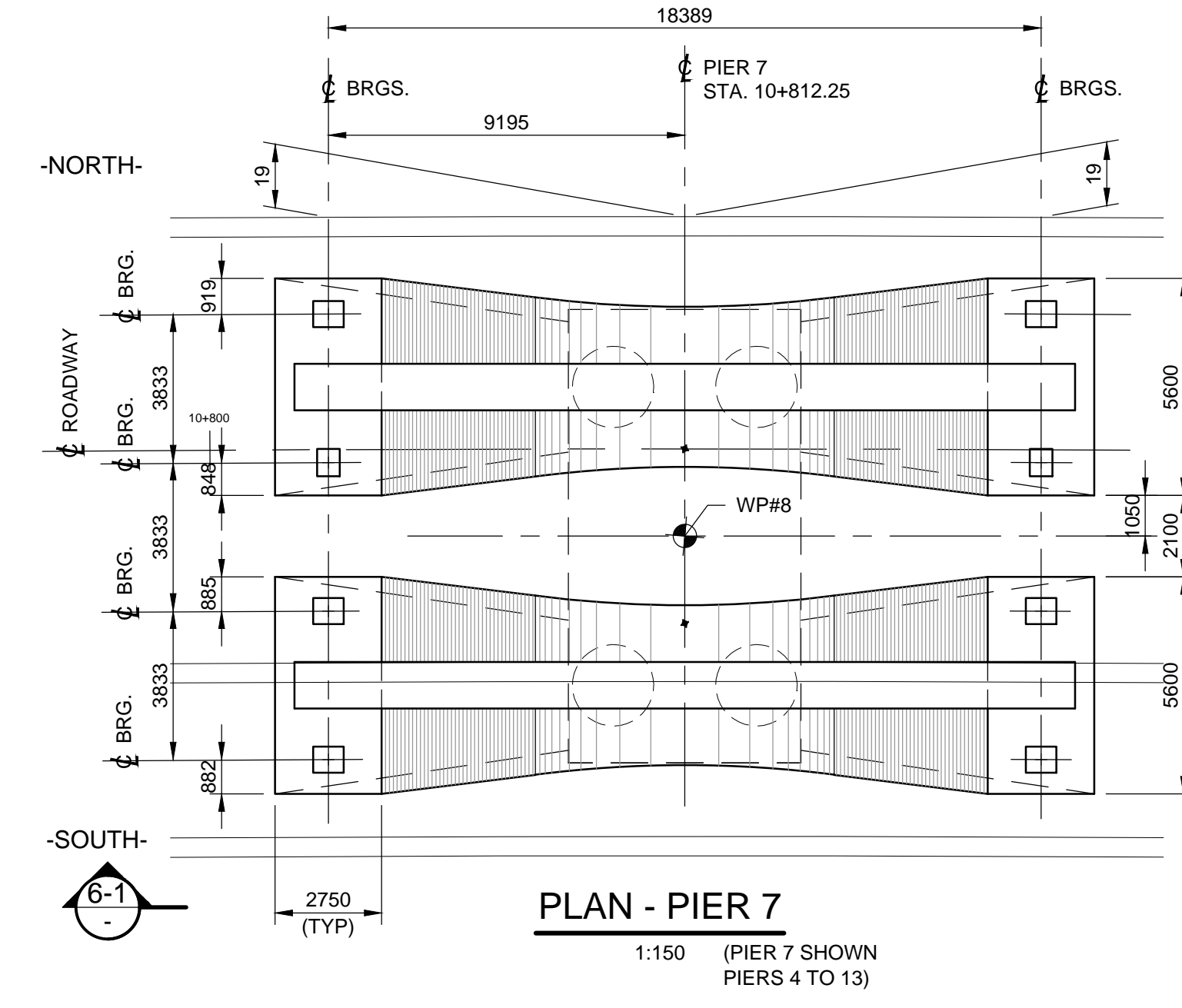
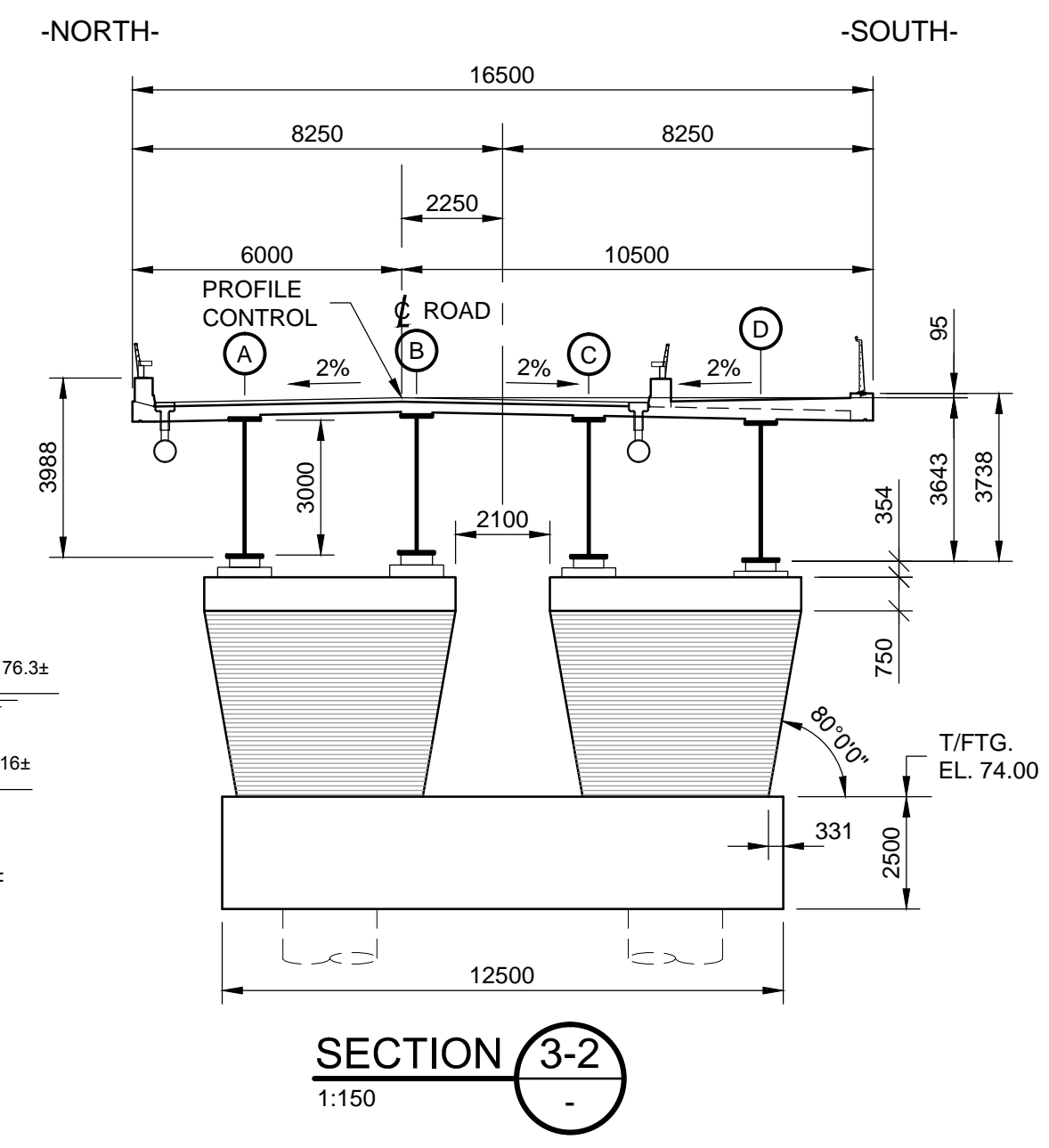
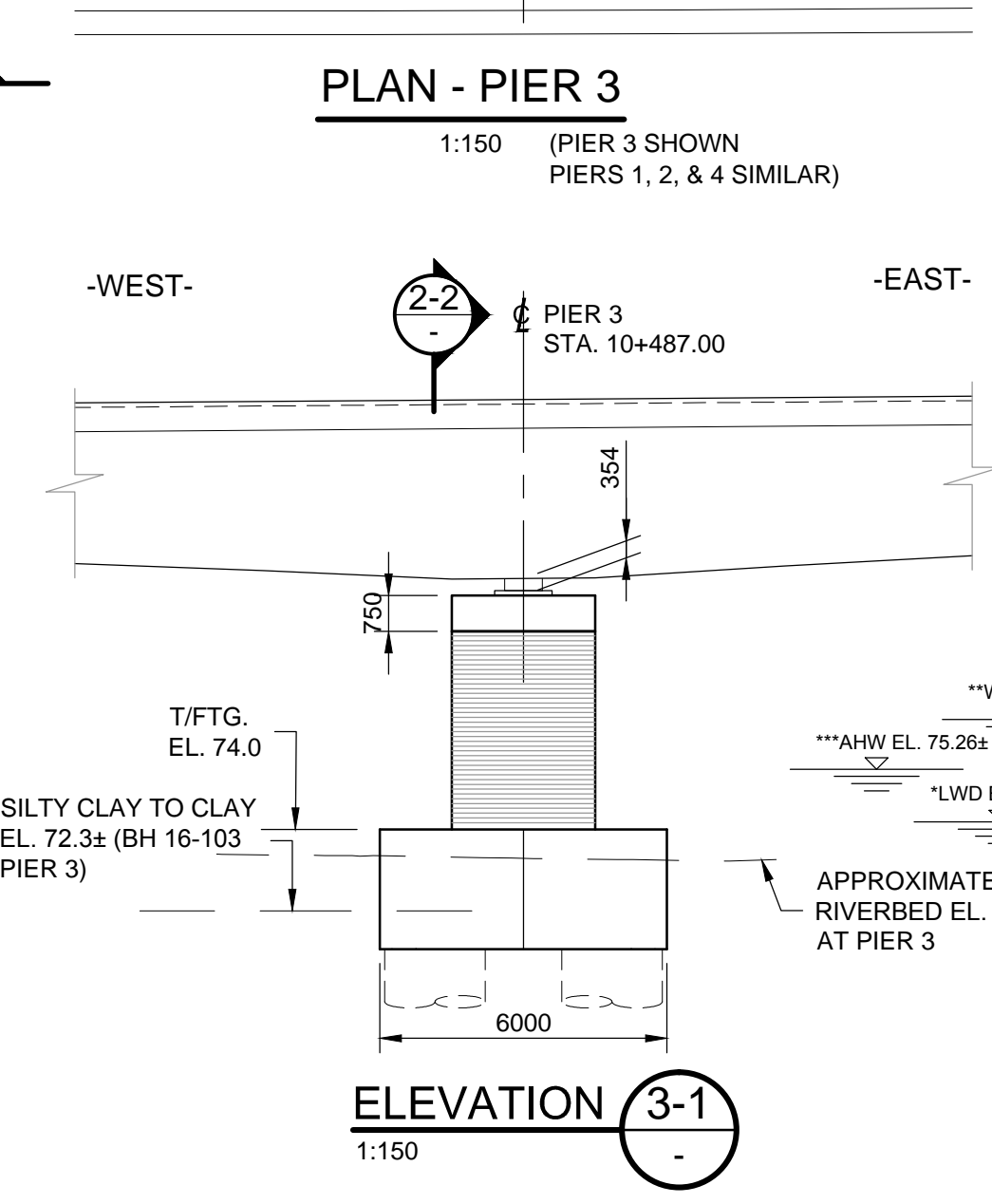
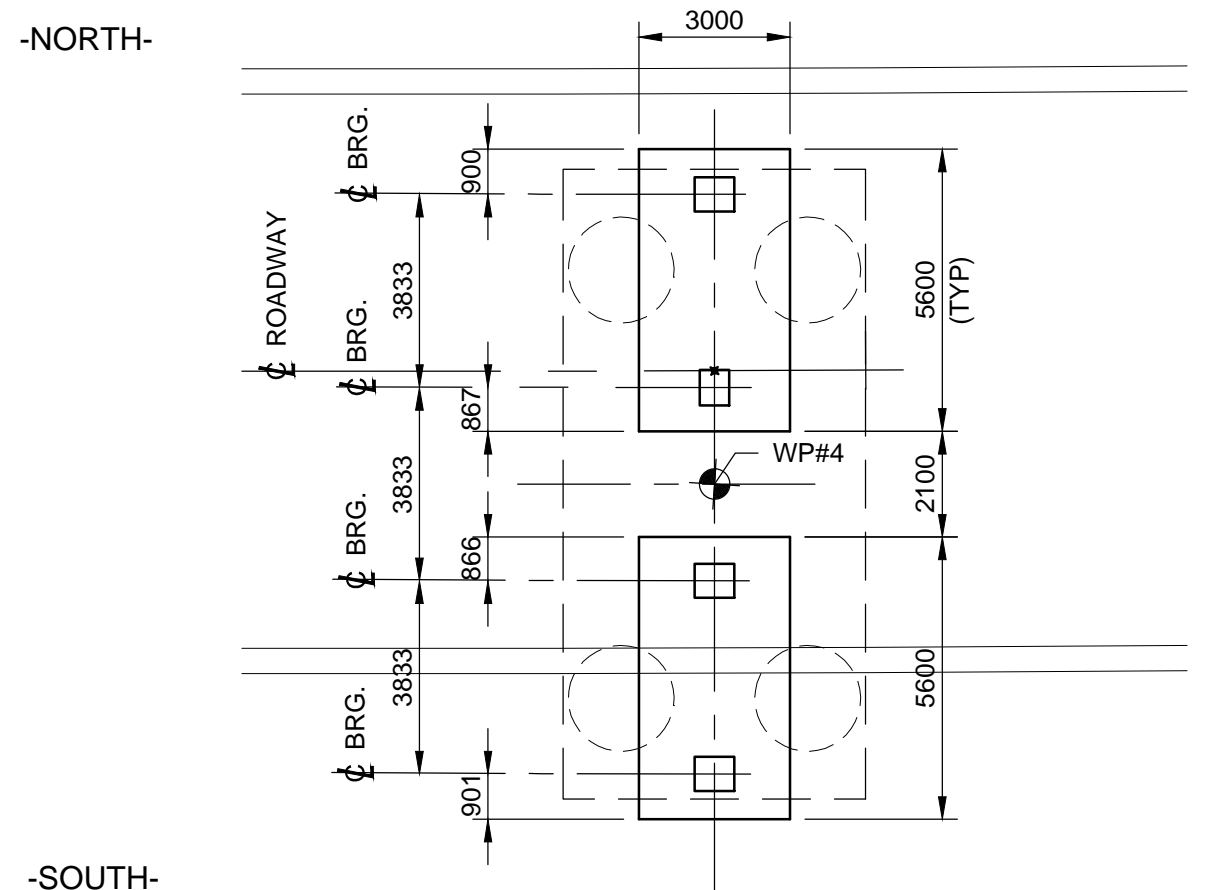
Mark Van Buren, P.Eng. Director of Engineering & Deputy Commissioner
Dan Franco, P.Eng. Project Engineer



Project No.:	27143
Drawing No.:	V-103
Sheet No.:	-- of --
Des:	JJA RO
Dwn:	KRS JJA
Scale:	AS NOTED
Utility Circ. No.:	----
Code:	CAN/CSA-S6-14
Load:	CL625ONT

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY DESIGN SUMMARY REPORT	JJA	03/05/2017

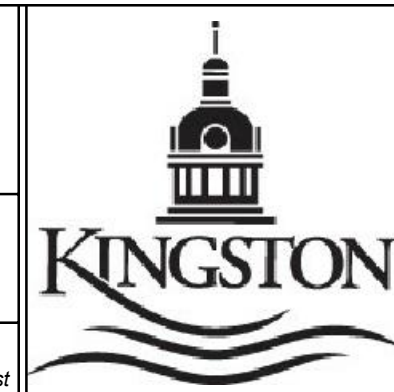


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THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN

ELECTRICAL AND COMMUNICATIONS
SINGLE LINE DIAGRAM AND DETAILS

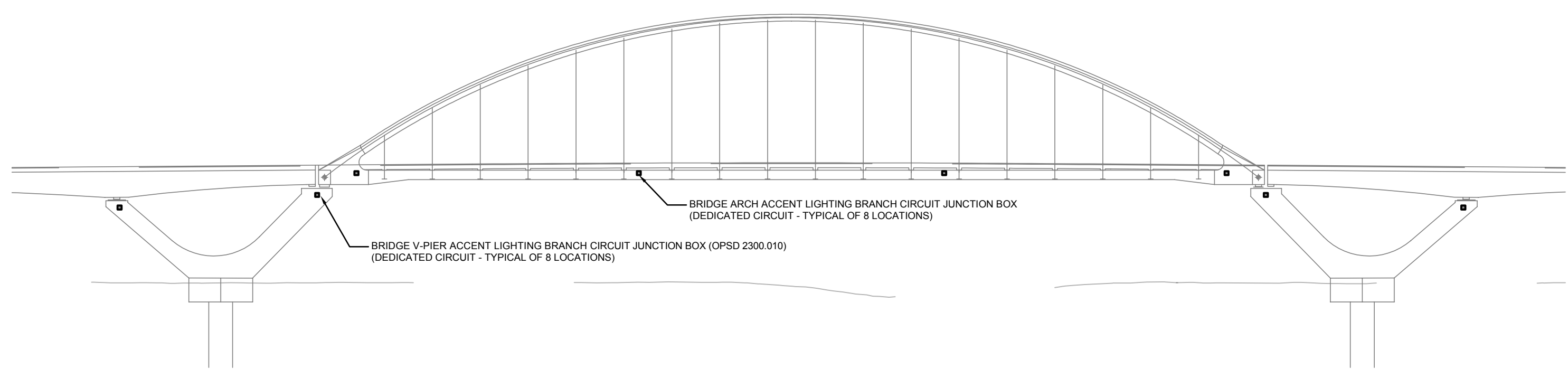
Mark Van Buren, P.Eng. Director, Infrastructure Services
Dan Franco, P.Eng. Manager, Construction Services - West



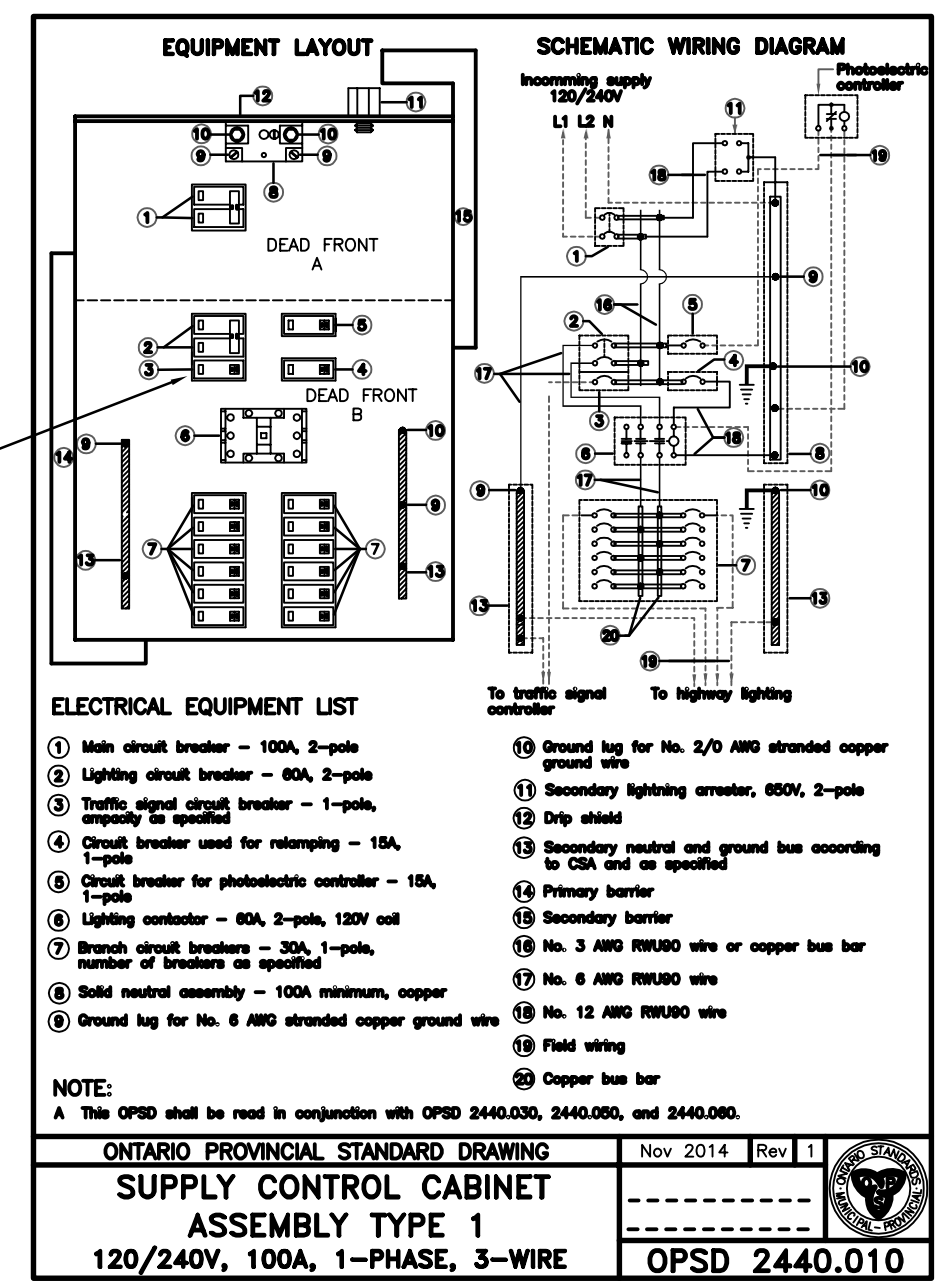
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Drawing No.:	E101
Sheet No.:	1 of 1
Des:	Chkd:
Dwn:	Chkd:
Scale:	AS NOTED
Utility Circ. No.:	
Code:	
Load:	

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

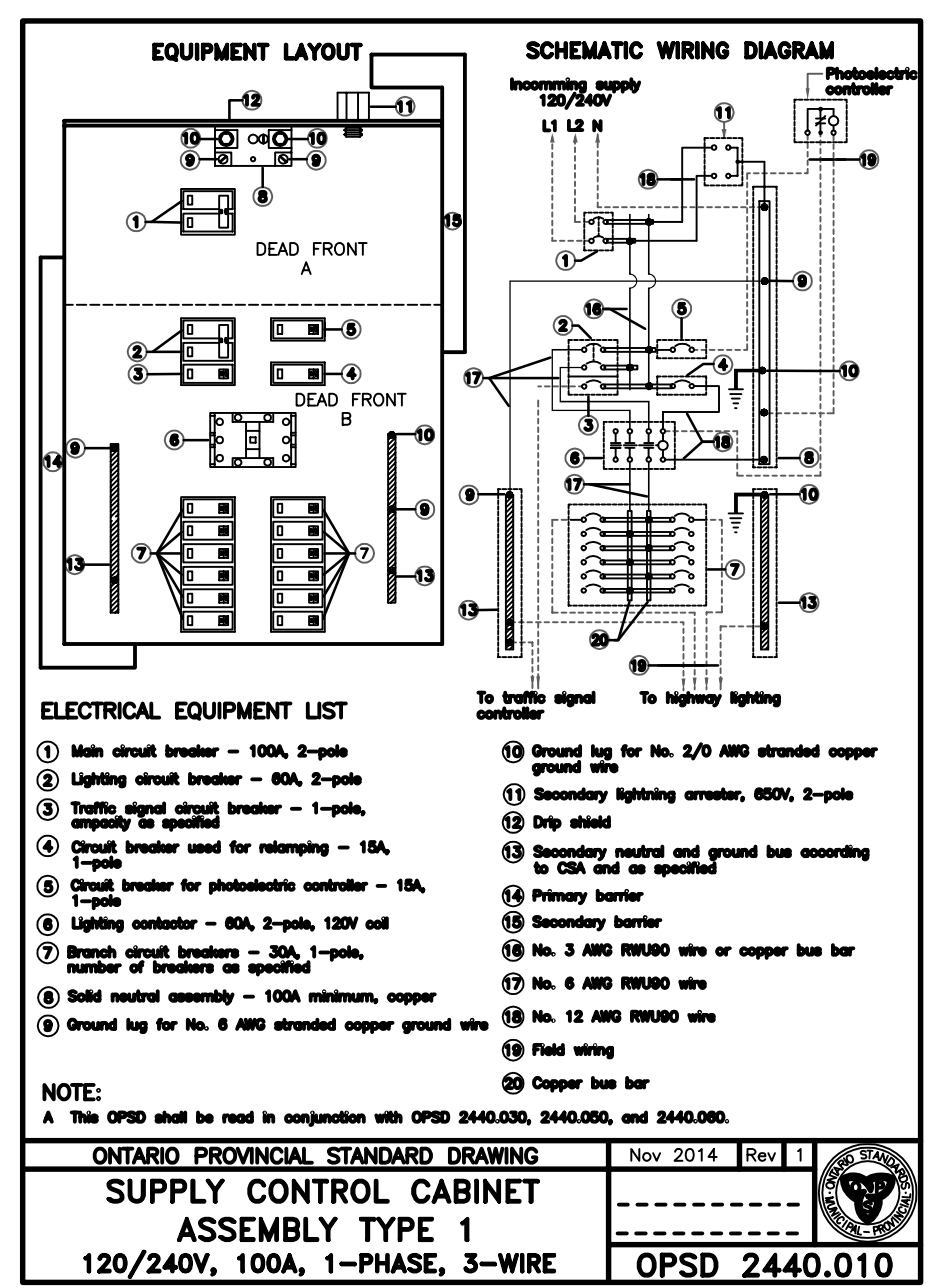
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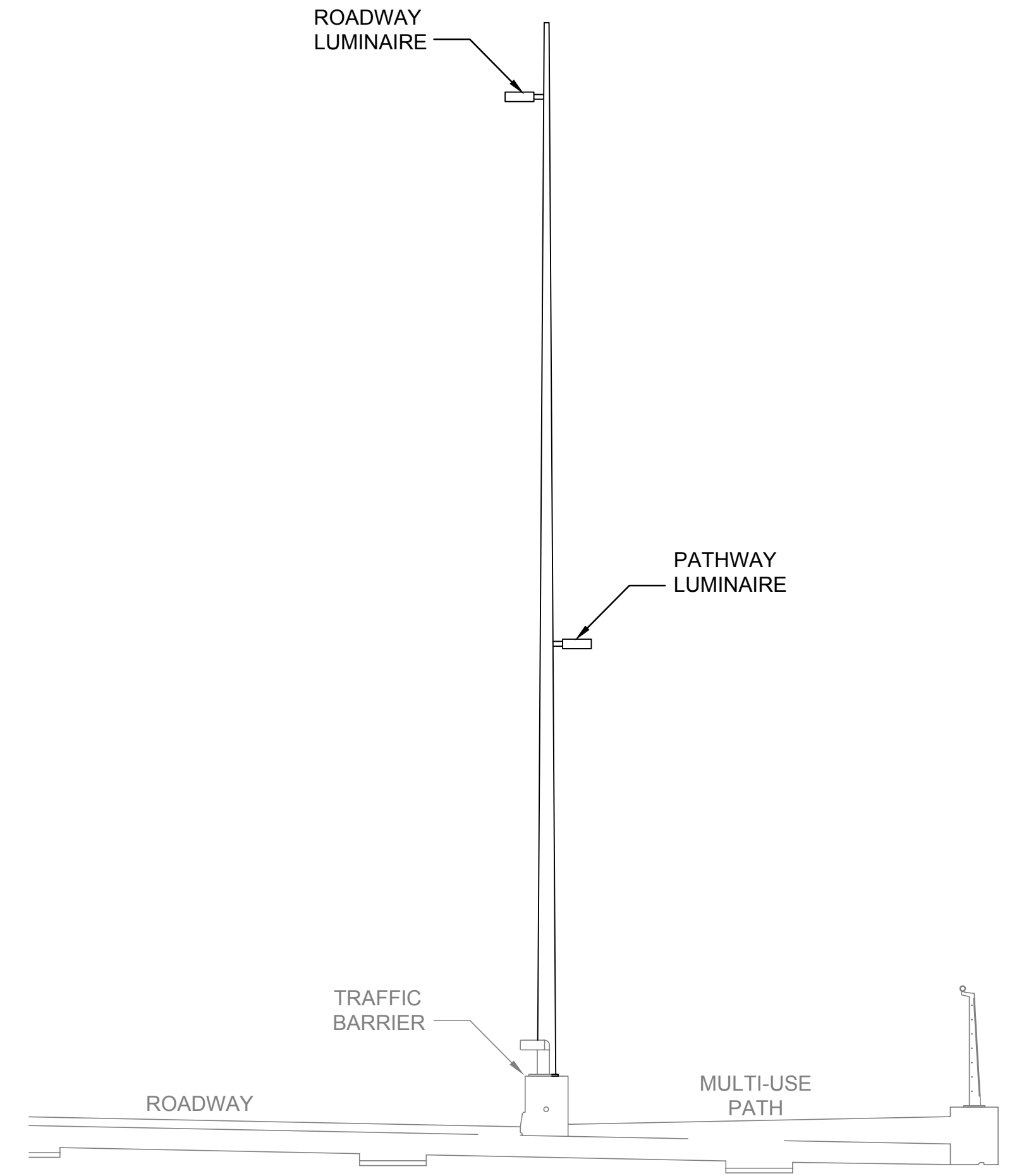
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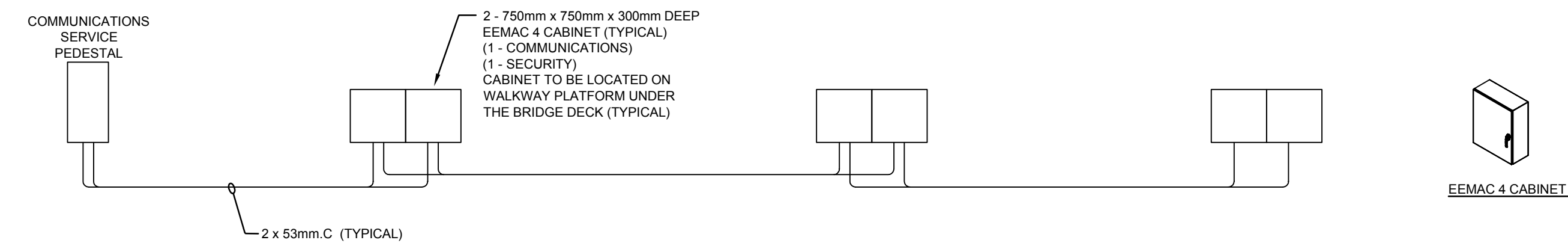
3 PANELBOARD "P2", "P3", "P4"
ESK-01 SCALE: N/A



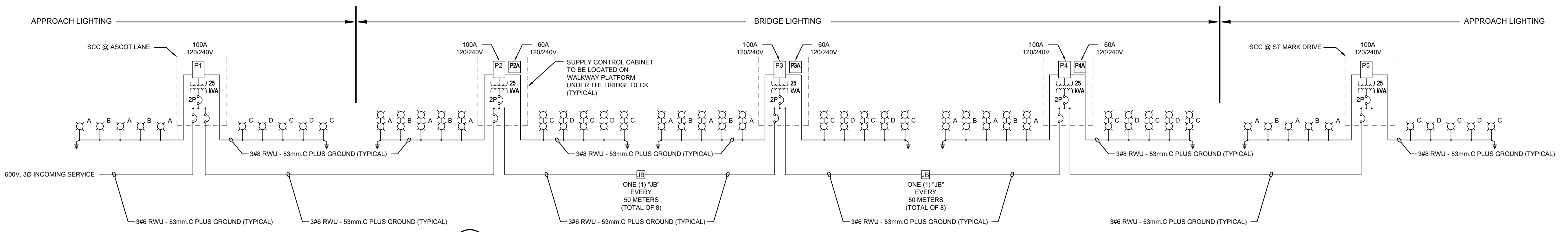
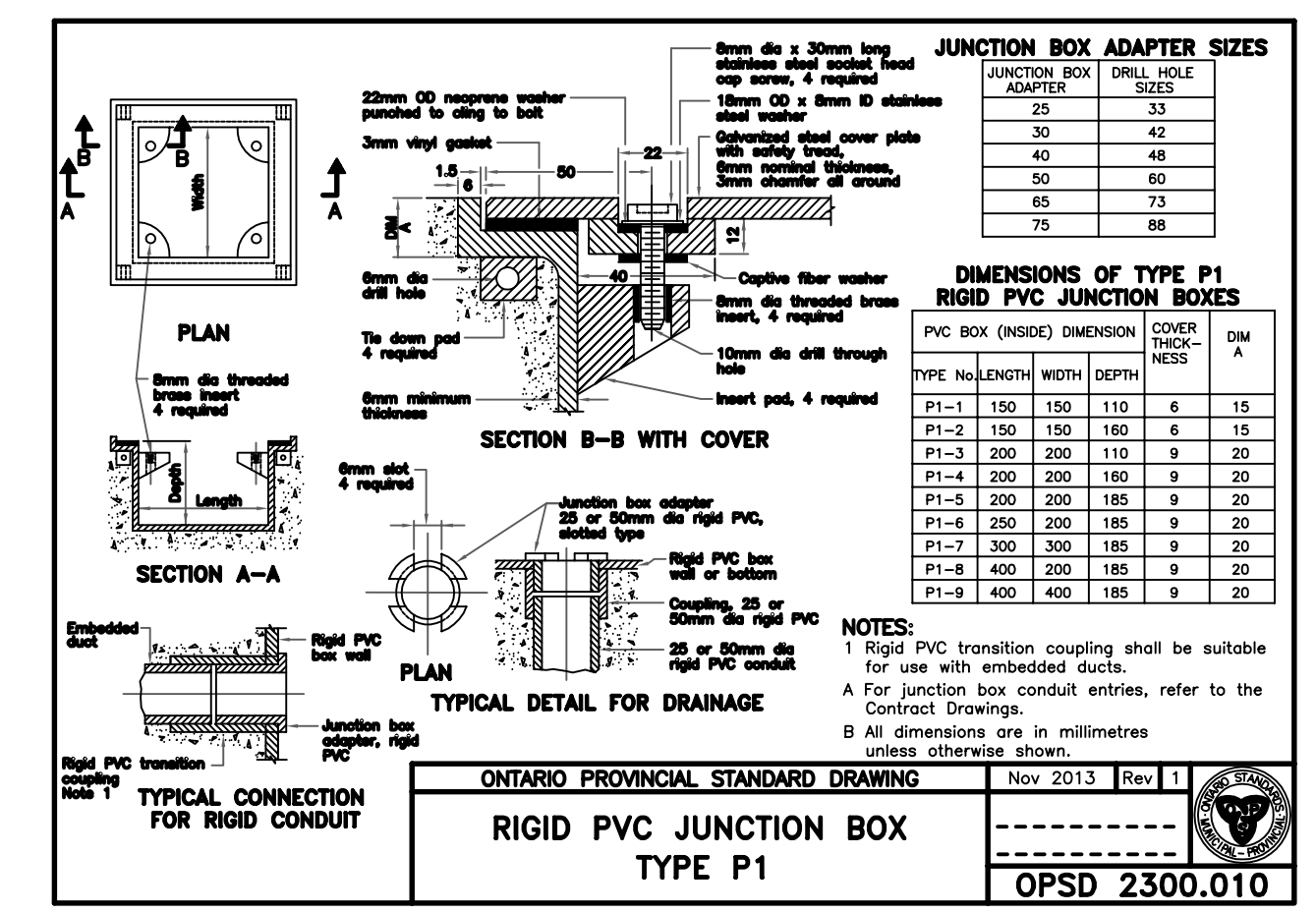
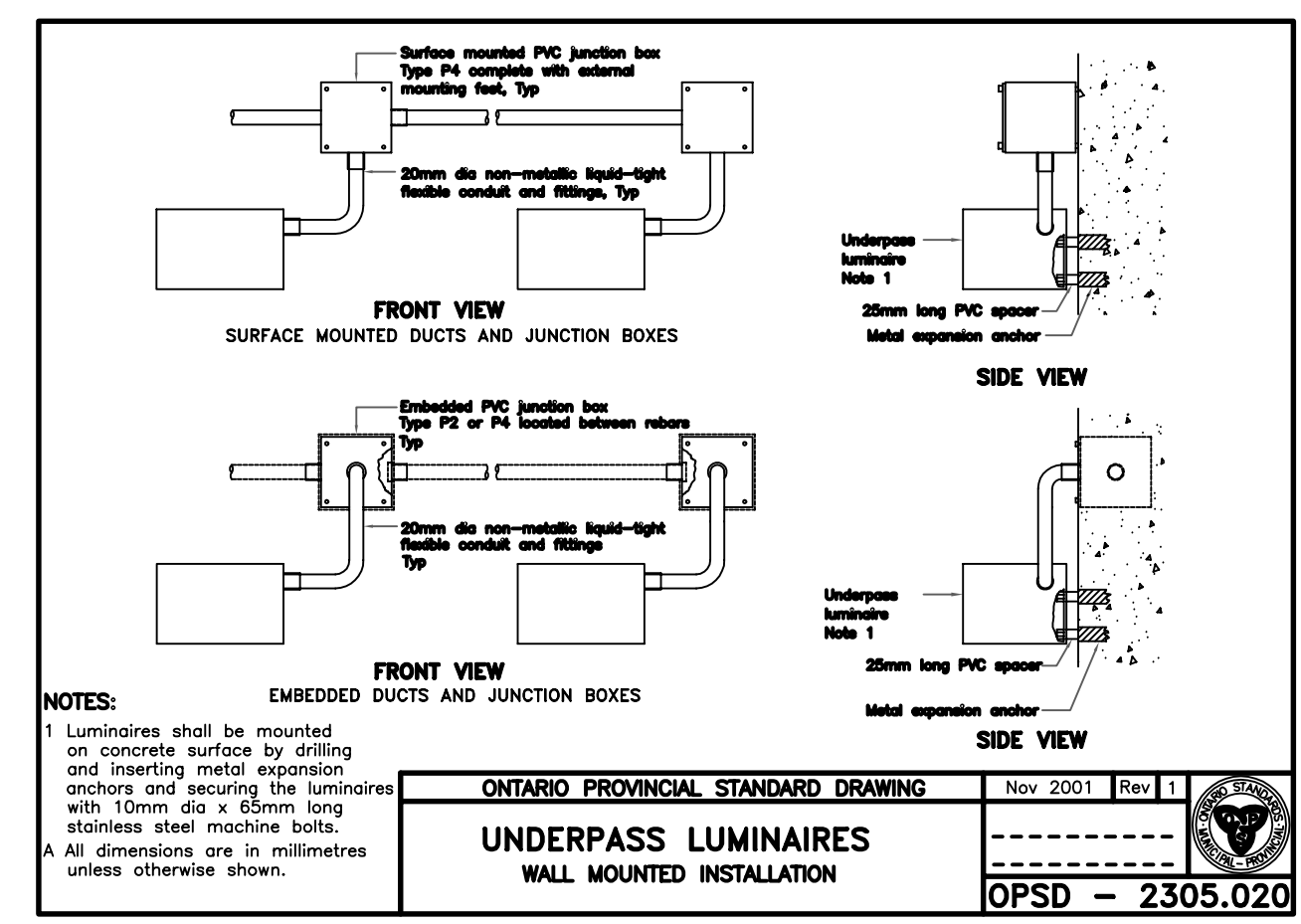
4 PANELBOARD "P1", "P5"
ESK-01 SCALE: N/A



2 ROADWAY / MUP LUMINAIRE ASSEMBLY
ESK-01 SCALE: N/A



4 COMMUNICATIONS RACEWAY SYSTEM
ESK-01 SCALE: N/A



5 SINGLE LINE DIAGRAM
ESK-01 SCALE: N/A

Plot Date: 4/24/2017 1:34:11 PM

Last Saved: April 20, 2017 11:25:55 AM

Consultant's Information: R:\27000\27143 - Kingston Third Crossing\JLR_DWG\Elect\E101 - E101_SLD & Details.dwg

COLLISION DIAGRAM NUMBER OF ANGLE COLLISIONS

Year	Nº
---	---
---	---
---	---
TOTAL	---
AVERAGE PER YEAR	---

MINIMUM REQUIREMENTS FOR INSTALLATION OF TRAFFIC SIGNALS (WARRANT ANALYSIS FORMS SHOULD BE ATTACHED)

LOCATION: JOHN COUNTER BLVD AT MONTREAL STREET
 MUNICIPALITY: KINGSTON, ONTARIO DATE OF SURVEY: _____

WARRANT	DESCRIPTION	MINIMUM REQUIREMENT FOR TWO-LANE ROADWAYS		COMPLIANCE	
		FREE FLOW OPERATING SPEED GREATER THAN OR EQUAL TO 70 km/h	RESTRICTED FLOW OPERATING SPEED LESS THAN 70 km/h	SECTIONAL %	ENTIRE %
1. MINIMUM VEHICULAR VOLUME	A Vehicle Volume, All Approaches for Each of the Heaviest 8 hours of an Average Day, and	480	720		
	B Vehicle Volume, Along Minor Streets for Each of the Same 8 hours	120	170		
2. DELAY TO CROSS TRAFFIC	A Vehicle Volume, Along Major Street for Each of the Heaviest 8 Hours of an Average Day, and	480	720		
	B Combined Vehicle and Pedestrian Volume Crossing the Major Street for Each of the Same 8 hours	50	75		
3. ACCIDENT HAZARD	A Total Reported Accidents of Types Susceptible to Correction by a Traffic Signal, per 12 Month Period Averaged Over a 36 Month Period, and	5			
	B Adequate Trial of Less Restrictive Remedies, Where Satisfactory Observance and Enforcement Have Failed to Reduce the Number of Accidents, and	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
	C Fulfilment of Either of the Above Warrants (Minimum Vehicular Volume or Delay to Cross Traffic) to the Extent of 80% or More.	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
4. COMBINATION WARRANT	Two or More of the Above Warrants (1, 2, or 3) Satisfied to the Extent of 80% or More.	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
5. MINIMUM PEDESTRIAN VOLUME	A Pedestrian Volume Crossing the Major Street Average per Hour for the Heaviest 8 Hours of an Average Day, and	120	240		
	B Vehicle Volume Along Major Street Average Per Hour for the Same 8 Hours.	290	575		

NOTES: ① Vehicle Volume Warrants (1A), (2A) and (5B) for Roadways Having Two or More Moving Lanes in one Direction Should Be 25% Higher Than Values Given Above.
 ② For Definition of Crossing Volume Refer to Note ④ on the Signal Warrant Analysis Form B2.03.08
 ③ The Lowest Sectional Percentage Governs the Entire Warrant.
 ④ For 'T' Intersections the Values for Warrant (1B) Should Be Increased by 50%
 ⑤ Pedestrian Mid Block Signals may also be warranted based on a Pedestrian cross over warrant

LEGEND

	HIGHWAY SIGNAL HEAD (30 cm. Red) WITH BACKBOARD AND MAST ARM		VEHICLE PASSAGE LOOP DETECTOR
	HIGHWAY SIGNAL HEAD (30 cm. Red) WITH BACKBOARD AND OVERHEAD CABLE		VEHICLE LOOP DETECTOR
	HIGHWAY SIGNAL HEAD WITH BACKBOARD AND MAST ARM (ALL 30 cm. LENSES)		DUPLEX LOOP DETECTOR
	SPECIAL HEAD WITH ARROW INDICATION AND BACKBOARD (Example shows Type ② Head)		DIAMOND LOOP DETECTOR
	SPECIAL HEAD WITH BACKBOARD AND ONE OR MORE PROGRAMMABLE LENSES (Example shows Type ② Head)		MICRO-LOOP DETECTOR
	STANDARD SIGNAL HEAD WITH BACKBOARD AND MAST ARM (ALL 20 cm. LENSES)		EMERGENCY VEHICLE PRE-EMPTION DETECTOR
	STANDARD SIGNAL HEAD WITH MAST ARM, WITHOUT BACKBOARD		MICRO-WAVE DETECTOR
	PEDESTRIAN SIGNAL HEAD		MAGNETIC VEHICLE DETECTOR
	PEDESTRIAN PUSH BUTTON		TRAFFIC CONTROLLER
			TRAFFIC SIGN
			TRAFFIC SIGN WITH FLASHING BEACON
			ILLUMINATED TRAFFIC SIGN

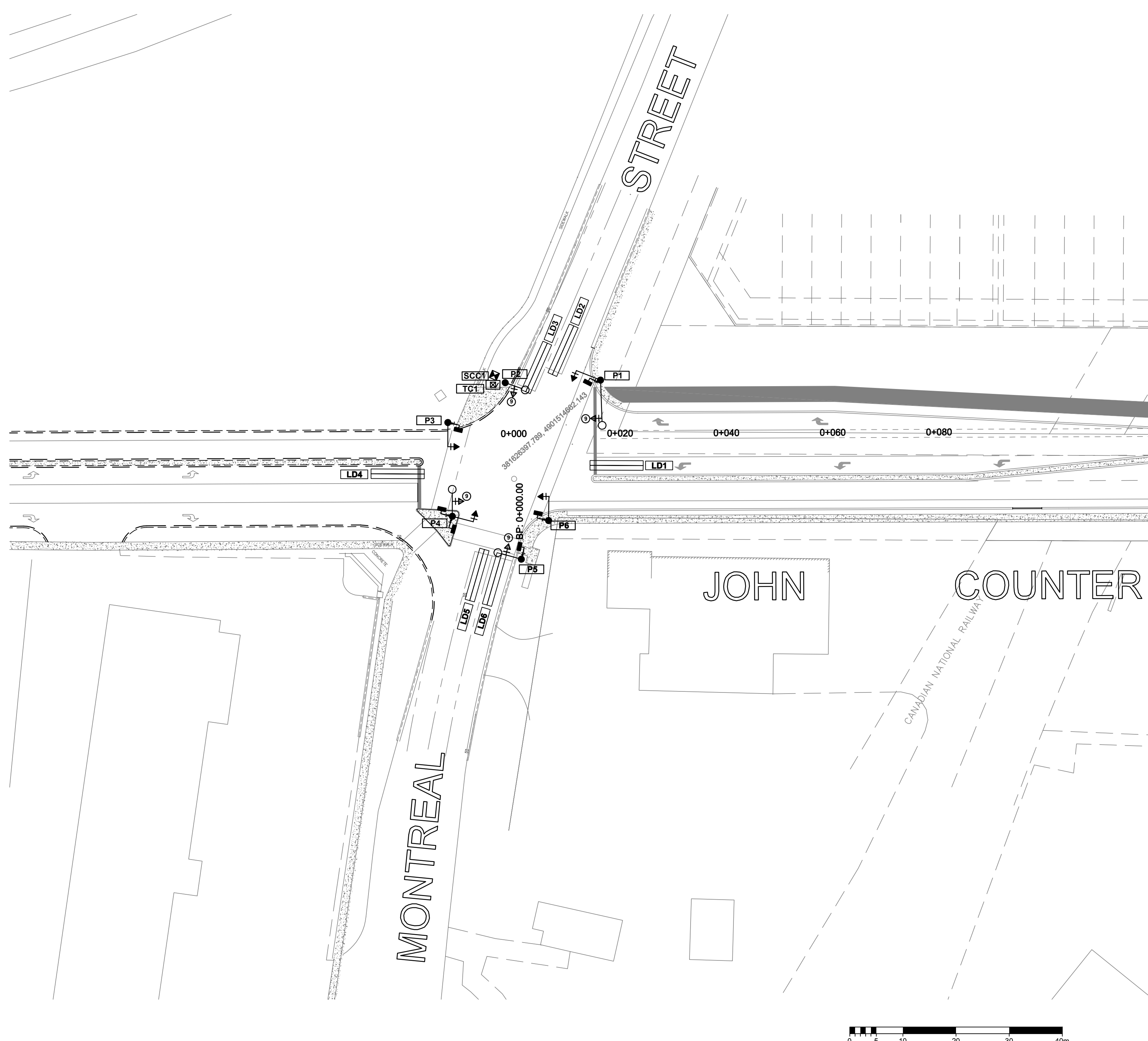
CLASSIFICATION OF ROADWAY	TRAFFIC SIGNAL HEADS			LOCATION	
	TYPE	SIZE	BACKBOARD	MOUNTING HT.	OFFSET FROM POLE
ROADWAY: JOHN COUNTER BLVD	PRIMARY	HIGHWAY	YES	5.0m	TBD
	SECONDARY	HIGHWAY	YES	5.0m	TBD
	AUXILIARY				
MULTILANE <input type="checkbox"/>	SEPARATE LT/TURN ARROWS	PRIMARY			
TWO-LANE <input checked="" type="checkbox"/>		SECONDARY			
ROADWAY: MONTREAL STREET	PRIMARY	HIGHWAY	YES	5.0m	TBD
	SECONDARY	HIGHWAY	YES	5.0m	TBD
	AUXILIARY				
MULTILANE <input type="checkbox"/>	SEPARATE LT/TURN ARROWS	PRIMARY			
TWO-LANE <input checked="" type="checkbox"/>		SECONDARY			

TYPES OF SPECIAL ARROW HEADS WITH BACKBOARD ALL 30 cm LENSES, EXCEPT AS NOTED

①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪

⑧ ⑨ AMBER ARROW MUST BE USED IN A PROTECTED/PERMISSIVE SIMULTANEOUS LEFT TURN OPERATION.

NOTE: FOR SPECIAL ARROW HEADS ⑧, ⑨, ⑩ AND ⑪, 20 cm AMBER BALL AND 20 cm GREEN BALL LENSES SHOULD BE USED



REVISIONS	DATE	ANALYST	DESCRIPTION OF REVISIONS	RECOMMENDED BY

TRAFFIC DRAWING: E102

MUNICIPALITY: KINGSTON, ONTARIO	MINISTRY OF TRANSPORTATION, ONTARIO
INTERSECTION: JOHN COUNTER BLVD & MONTREAL STREET	SIGNALS WARRANTED: REPLACING EXISTING
DATE: APRIL 2017	SIGNAL DESIGN RECOMMENDED FOR APPROVAL:
SCALE: 1:500	SIGNAL INSTALLATION APPROVED AS PER SECTION 144 (31.1) H.T.A.:
RECOMMENDED BY: _____	APPROVAL DATE: _____
MUNICIPAL OFFICIAL (MUNICIPAL INSTALLATION)	REGIONAL TRAFFIC REPRESENTATIVE (MINISTRY INSTALLATION)

COLLISION DIAGRAM NUMBER OF ANGLE COLLISIONS

Year	Nº
---	---
---	---
---	---
TOTAL	---
AVERAGE PER YEAR	---

MINIMUM REQUIREMENTS FOR INSTALLATION OF TRAFFIC SIGNALS (WARRANT ANALYSIS FORMS SHOULD BE ATTACHED)

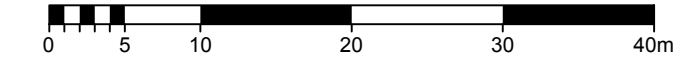
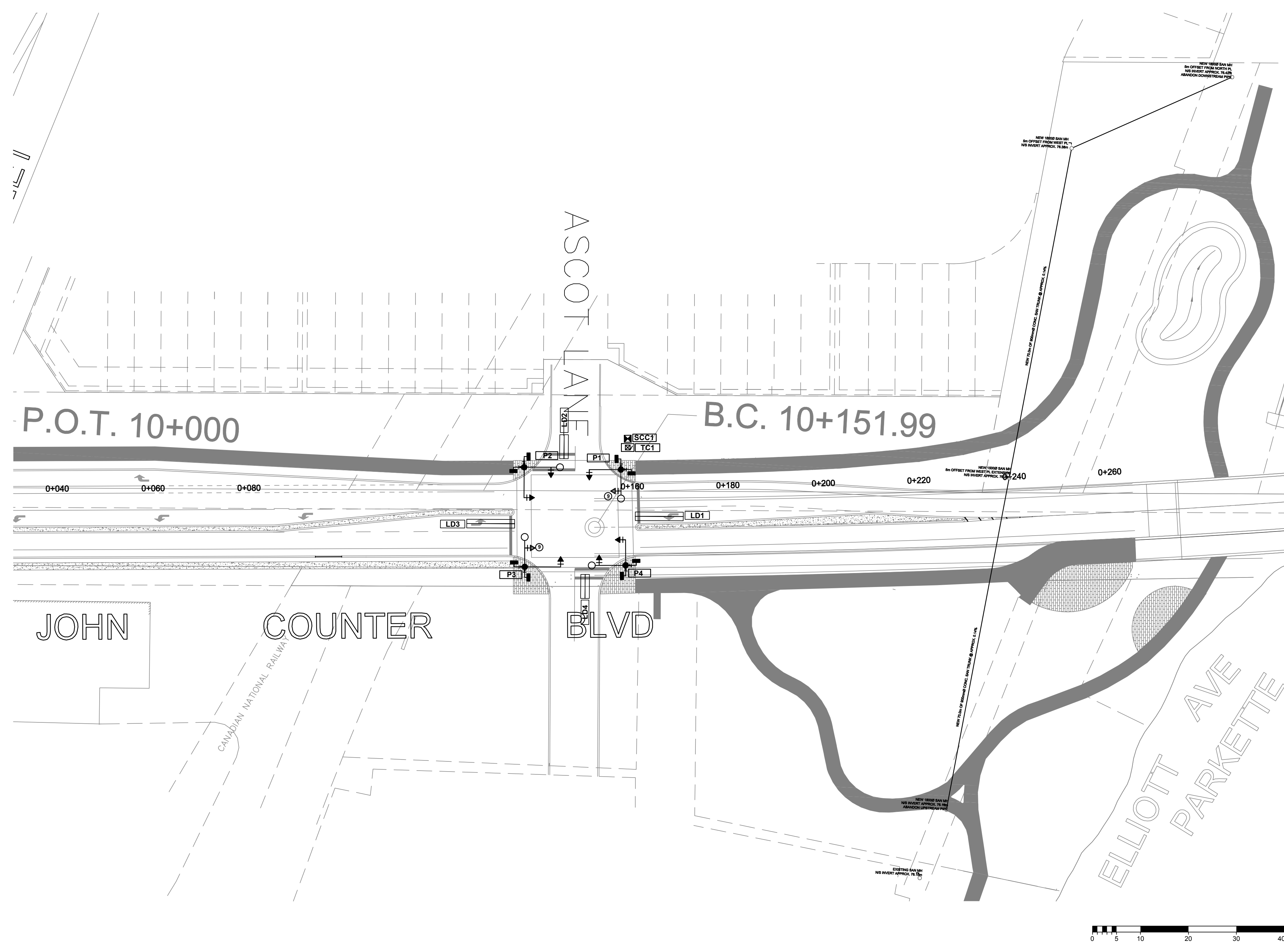
LOCATION: JOHN COUNTER BLVD AT ASCOT LANE
 MUNICIPALITY: KINGSTON, ONTARIO DATE OF SURVEY: _____

WARRANT	DESCRIPTION	MINIMUM REQUIREMENT FOR TWO-LANE ROADWAYS		COMPLIANCE		
		FREE FLOW OPERATING SPEED GREATER THAN OR EQUAL TO 70 km/h	RESTRICTED FLOW OPERATING SPEED LESS THAN 70 km/h	SECTIONAL %	ENTIRE %	
1. MINIMUM VEHICULAR VOLUME	A Vehicle Volume, All Approaches for Each of the Heaviest 8 hours of an Average Day, and	480	720			
	B Vehicle Volume, Along Minor Streets for Each of the Same 8 hours	120	170			
	2. DELAY TO CROSS TRAFFIC	A Vehicle Volume, Along Major Street for Each of the Heaviest 8 Hours of an Average Day, and	480	720		
	B Combined Vehicle and Pedestrian Volume Crossing the Major Street for Each of the Same 8 hours	50	75			
3. ACCIDENT HAZARD	A Total Reported Accidents of Types Susceptible to Correction by a Traffic Signal, per 12 Month Period Averaged Over a 36 Month Period, and	5				
	B Adequate Trial of Less Restrictive Remedies, Where Satisfactory Observance and Enforcement Have Failed to Reduce the Number of Accidents, and	Yes <input type="checkbox"/>	No <input type="checkbox"/>			
	C Fulfilment of Either of the Above Warrants (Minimum Vehicular Volume or Delay to Cross Traffic) to the Extent of 80% or More.	Yes <input type="checkbox"/>	No <input type="checkbox"/>			
4. COMBINATION WARRANT	Two or More of the Above Warrants (1, 2, or 3) Satisfied to the Extent of 80% or More.	Yes <input type="checkbox"/>	No <input type="checkbox"/>			
5. MID-BLOCK PEDESTRIAN VOLUME	A Pedestrian Volume Crossing the Major Street Average per Hour for the Heaviest 8 Hours of an Average Day, and	120	240			
	B Vehicle Volume Along Major Street Average Per Hour for the Same 8 Hours.	290	575			

- NOTES:
- Vehicle Volume Warrants (1A), (2A) and (5B) for Roadways Having Two or More Moving Lanes in one Direction Should Be 25% Higher Than Values Given Above.
 - For Definition of Crossing Volume Refer to Note ④ on the Signal Warrant Analysis Form B2.03.08
 - The Lowest Sectional Percentage Governs the Entire Warrant.
 - For 'T' Intersections the Values for Warrant (1B) Should Be Increased by 50%
 - Pedestrian Mid Block Signals may also be warranted based on a Pedestrian cross over warrant

LEGEND

	HIGHWAY SIGNAL HEAD (30 cm. Red) WITH BACKBOARD AND MAST ARM		VEHICLE PASSAGE LOOP DETECTOR
	HIGHWAY SIGNAL HEAD (30 cm. Red) WITH BACKBOARD AND OVERHEAD CABLE		VEHICLE LOOP DETECTOR
	HIGHWAY SIGNAL HEAD WITH BACKBOARD AND MAST ARM (ALL 30 cm. LENSES)		DUPLEX LOOP DETECTOR
	SPECIAL HEAD WITH ARROW INDICATION AND BACKBOARD (Example shows Type ② Head)		DIAMOND LOOP DETECTOR
	SPECIAL HEAD WITH BACKBOARD AND ONE OR MORE PROGRAMMABLE LENSES (Example shows Type ② Head)		MICRO-LOOP DETECTOR
	STANDARD SIGNAL HEAD WITH BACKBOARD AND MAST ARM (ALL 20 cm. LENSES)		EMERGENCY VEHICLE PRE-EMPTION DETECTOR
	STANDARD SIGNAL HEAD WITH MAST ARM, WITHOUT BACKBOARD		MICRO-WAVE DETECTOR
	PEDESTRIAN SIGNAL HEAD		MAGNETIC VEHICLE DETECTOR
	PEDESTRIAN PUSH BUTTON		TRAFFIC CONTROLLER
			TRAFFIC SIGN
			TRAFFIC SIGN WITH FLASHING BEACON
			ILLUMINATED TRAFFIC SIGN



CLASSIFICATION OF ROADWAY	TRAFFIC SIGNAL HEADS			LOCATION	
	TYPE	SIZE	BACKBOARD	MOUNTING HT.	OFFSET FROM POLE
ROADWAY: JOHN COUNTER BLVD	PRIMARY	HIGHWAY	YES	5.0m	TBD
	SECONDARY	HIGHWAY	YES	5.0m	TBD
	AUXILIARY				
MULTILANE <input type="checkbox"/>	SEPARATE LT/TURN ARROWS	PRIMARY			
TWO-LANE <input checked="" type="checkbox"/>		SECONDARY			
ROADWAY: ASCOT LANE	PRIMARY	HIGHWAY	YES	5.0m	TBD
	SECONDARY	HIGHWAY	YES	5.0m	TBD
	AUXILIARY				
MULTILANE <input type="checkbox"/>	SEPARATE LT/TURN ARROWS	PRIMARY			
TWO-LANE <input checked="" type="checkbox"/>		SECONDARY			

TYPES OF SPECIAL ARROW HEADS WITH BACKBOARD ALL 30 cm LENSES, EXCEPT AS NOTED

⑧ ⑨ AMBER ARROW MUST BE USED IN A PROTECTED/PERMISSIVE SIMULTANEOUS LEFT TURN OPERATION.

NOTE: FOR SPECIAL ARROW HEADS ⑧, ⑨, ⑩ AND ⑪, 20 cm AMBER BALL AND 20 cm GREEN BALL LENSES SHOULD BE USED

REVISIONS	DATE	ANALYST	DESCRIPTION OF REVISIONS	RECOMMENDED BY

TRAFFIC DRAWING: E103

MUNICIPALITY: KINGSTON, ONTARIO	MINISTRY OF TRANSPORTATION, ONTARIO
INTERSECTION: JOHN COUNTER BLVD & ASCOT LANE	SIGNALS WARRANTED: NEW INTERSECTION
DATE: APRIL 2017	SIGNAL DESIGN RECOMMENDED FOR APPROVAL:
SCALE: 1:500	SIGNAL INSTALLATION APPROVED AS PER SECTION 144 (31.1) H.T.A.:
RECOMMENDED BY: MUNICIPAL OFFICIAL (MUNICIPAL INSTALLATION) REGIONAL TRAFFIC REPRESENTATIVE (MINISTRY INSTALLATION)	APPROVAL DATE:

COLLISION DIAGRAM NUMBER OF ANGLE COLLISIONS

Year	Nº
---	---
---	---
---	---
TOTAL	---
AVERAGE PER YEAR	---

MINIMUM REQUIREMENTS FOR INSTALLATION OF TRAFFIC SIGNALS (WARRANT ANALYSIS FORMS SHOULD BE ATTACHED)

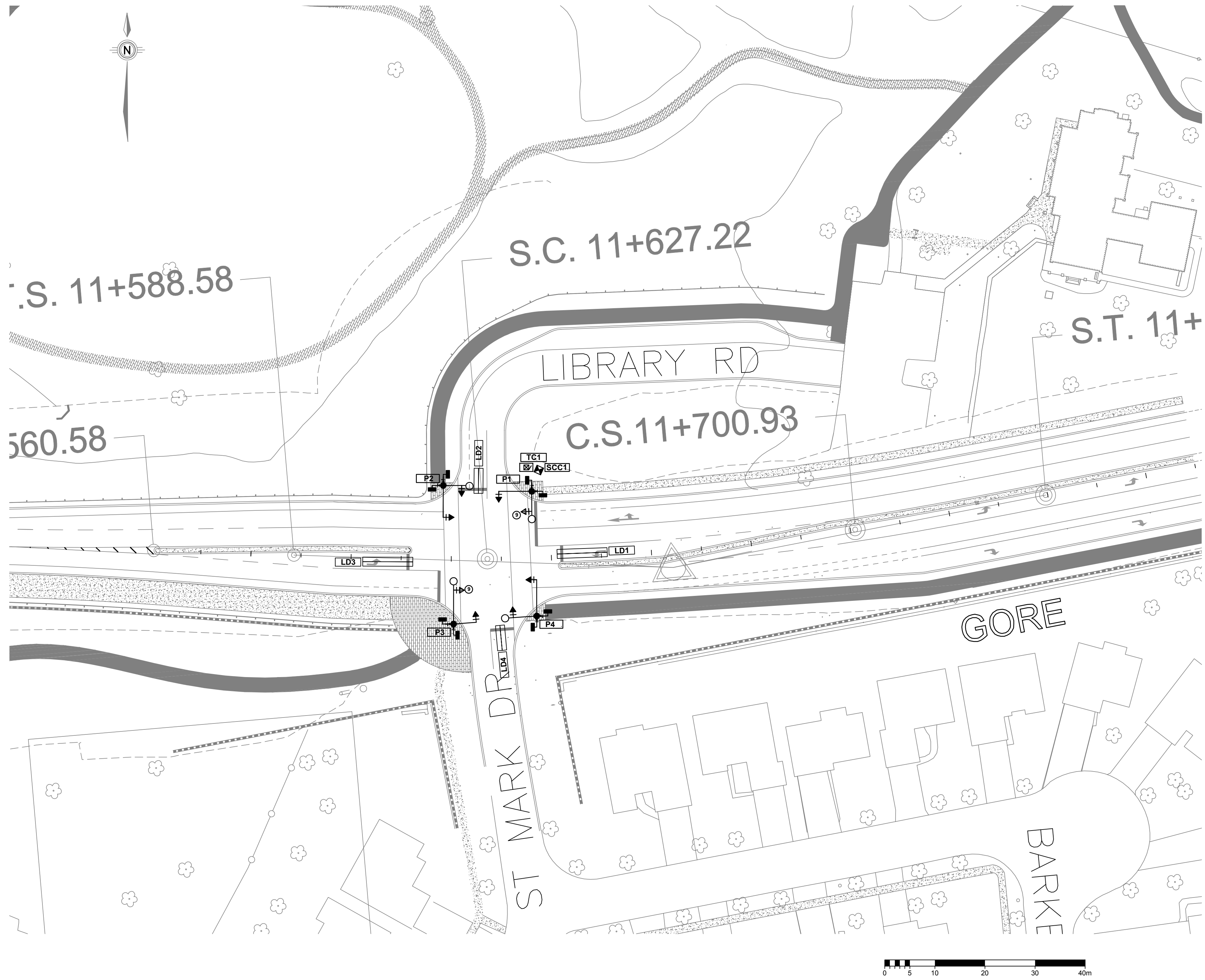
LOCATION: GORE ROAD AT ST MARK DRIVE
 MUNICIPALITY: KINGSTON, ONTARIO DATE OF SURVEY: _____

WARRANT	DESCRIPTION	MINIMUM REQUIREMENT FOR TWO-LANE ROADWAYS		COMPLIANCE	
		FREE FLOW OPERATING SPEED GREATER THAN OR EQUAL TO 70 km/h	RESTRICTED FLOW OPERATING SPEED LESS THAN 70 km/h	SECTIONAL %	ENTIRE %
1. MINIMUM VEHICULAR VOLUME	A Vehicle Volume, All Approaches for Each of the Heaviest 8 hours of an Average Day, and	480	720		
	B Vehicle Volume, Along Minor Streets for Each of the Same 8 hours	120	170		
	C Combined Vehicle and Pedestrian Volume Crossing the Major Street for Each of the Same 8 hours	50	75		
2. DELAY TO CROSS TRAFFIC	A Vehicle Volume, Along Major Street for Each of the Heaviest 8 Hours of an Average Day, and	480	720		
	B Combined Vehicle and Pedestrian Volume Crossing the Major Street for Each of the Same 8 hours	50	75		
	C Total Reported Accidents of Types Susceptible to Correction by a Traffic Signal, per 12 Month Period Averaged Over a 36 Month Period, and	5			
3. ACCIDENT HAZARD	A Adequate Trial of Less Restrictive Remedies, Where Satisfactory Observance and Enforcement Have Failed to Reduce the Number of Accidents, and	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
	B Fulfillment of Either of the Above Warrants (Minimum Vehicular Volume or Delay to Cross Traffic) to the Extent of 80% or More.	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
	C Two or More of the Above Warrants (1, 2, or 3) Satisfied to the Extent of 80% or More.	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
4. COMBINATION WARRANT	Two or More of the Above Warrants (1, 2, or 3) Satisfied to the Extent of 80% or More.	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
5. MINIMUM PEDESTRIAN VOLUME	A Pedestrian Volume Crossing the Major Street Average per Hour for the Heaviest 8 Hours of an Average Day, and	120	240		
	B Vehicle Volume Along Major Street Average Per Hour for the Same 8 Hours.	290	575		

- NOTES:
- Vehicle Volume Warrants (1A), (2A) and (5B) for Roadways Having Two or More Moving Lanes in one Direction Should Be 25% Higher Than Values Given Above.
 - For Definition of Crossing Volume Refer to Note ④ on the Signal Warrant Analysis Form B2.03.08
 - The Lowest Sectional Percentage Governs the Entire Warrant.
 - For 'T' Intersections the Values for Warrant (1B) Should Be Increased by 50%
 - Pedestrian Mid Block Signals may also be warranted based on a Pedestrian cross over warrant

LEGEND

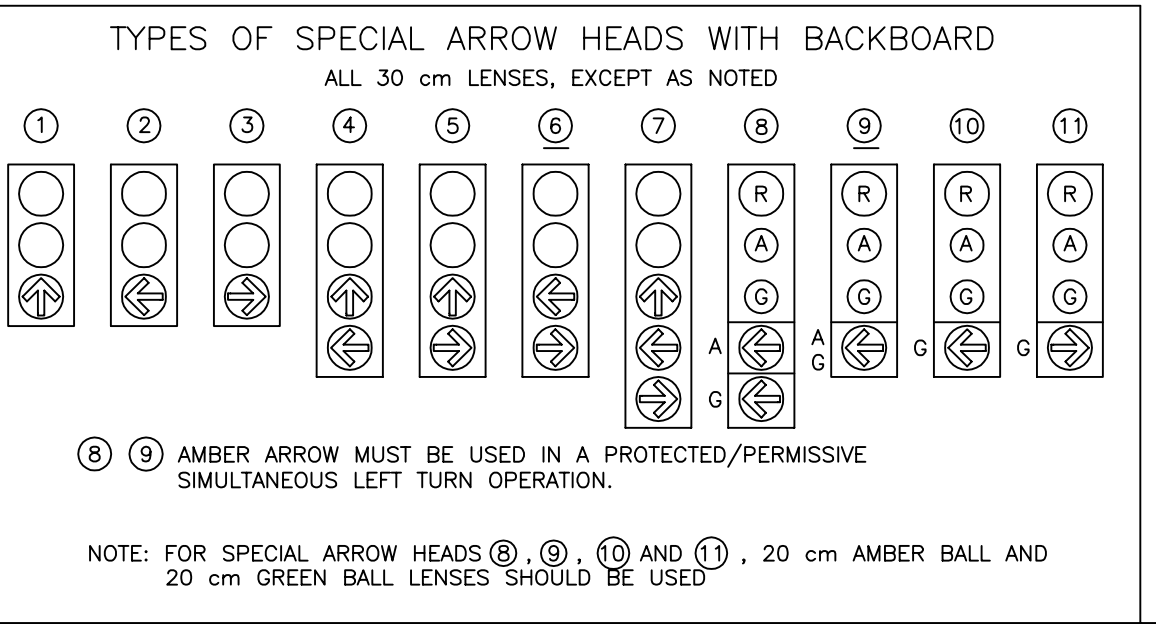
	HIGHWAY SIGNAL HEAD (30 cm. Red) WITH BACKBOARD AND MAST ARM		VEHICLE PASSAGE LOOP DETECTOR
	HIGHWAY SIGNAL HEAD (30 cm. Red) WITH BACKBOARD AND OVERHEAD CABLE		VEHICLE LOOP DETECTOR
	HIGHWAY SIGNAL HEAD WITH BACKBOARD AND MAST ARM (ALL 30 cm. LENSES)		DUPLEX LOOP DETECTOR
	SPECIAL HEAD WITH ARROW INDICATION AND BACKBOARD (Example shows Type ② Head)		DIAMOND LOOP DETECTOR
	SPECIAL HEAD WITH BACKBOARD AND ONE OR MORE PROGRAMMABLE LENSES (Example shows Type ② Head)		MICRO-LOOP DETECTOR
	STANDARD SIGNAL HEAD WITH BACKBOARD AND MAST ARM (ALL 20 cm. LENSES)		MICRO-WAVE DETECTOR
	STANDARD SIGNAL HEAD WITH MAST ARM, WITHOUT BACKBOARD		MAGNETIC VEHICLE DETECTOR
	PEDESTRIAN SIGNAL HEAD		TRAFFIC CONTROLLER
	PEDESTRIAN PUSH BUTTON		TRAFFIC SIGN
			TRAFFIC SIGN WITH FLASHING BEACON
			ILLUMINATED TRAFFIC SIGN



REVISIONS	DATE	ANALYST	DESCRIPTION OF REVISIONS	RECOMMENDED BY



CLASSIFICATION OF ROADWAY	TRAFFIC SIGNAL HEADS			LOCATION	
	TYPE	SIZE	BACKBOARD	MOUNTING HT.	OFFSET FROM POLE
ROADWAY: <u>GORE ROAD</u>	PRIMARY	HIGHWAY	YES	5.0m	TBD
	SECONDARY	HIGHWAY	YES	5.0m	TBD
	AUXILIARY				
MULTILANE <input type="checkbox"/>	SEPARATE LT/TURN ARROWS	PRIMARY			
TWO-LANE <input checked="" type="checkbox"/>		SECONDARY			
ROADWAY: <u>ST MARK DRIVE</u>	PRIMARY	HIGHWAY	YES	5.0m	TBD
	SECONDARY	HIGHWAY	YES	5.0m	TBD
	AUXILIARY				
MULTILANE <input type="checkbox"/>	SEPARATE LT/TURN ARROWS	PRIMARY			
TWO-LANE <input checked="" type="checkbox"/>		SECONDARY			



TRAFFIC DRAWING: E104	
MUNICIPALITY: <u>KINGSTON, ONTARIO</u>	MINISTRY OF TRANSPORTATION, ONTARIO
INTERSECTION: <u>GORE ROAD & ST. MARK DRIVE</u>	SIGNALS WARRANTED: <u>NEW INTERSECTION</u>
DATE: <u>APRIL 2017</u> SCALE: <u>1:500</u>	SIGNAL DESIGN RECOMMENDED FOR APPROVAL:
RECOMMENDED BY: _____	SIGNAL INSTALLATION APPROVED AS PER SECTION 144 (31.1) H.T.A.:
MUNICIPAL OFFICIAL (MUNICIPAL INSTALLATION) REGIONAL TRAFFIC REPRESENTATIVE (MINISTRY INSTALLATION)	APPROVAL DATE: _____

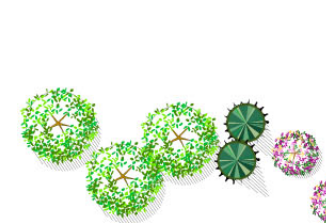
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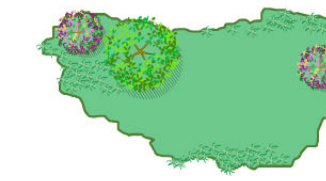


EXISTING TREES



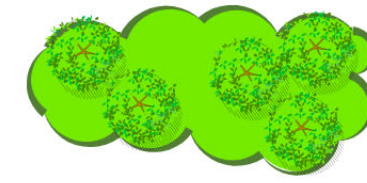
PROPOSED TREES

Specimen tree planting at 3m to 4.5m height (2m conifers).
Typical native tree species:
Shagbark Hickory, Red Oak, Pin Oak, Red Maple, Sugar Maple, Hackberry, Serviceberry, White Pine, White Spruce, Blue Spruce



SHRUB PLANTING

Native shrub species appropriate to each location.
Typical species: Fragrant Sumac, Staghorn Sumac, Elderberry, Bush Honeysuckle, Serviceberry, Dogwood, Chokecherry, Ninebark, Witch Hazel, Juniper



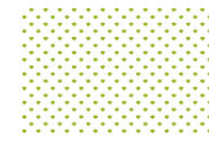
REFORESTATION PLANTING

Mixed deciduous woodland planting, native tree and shrub mix with species as above.



RIPARIAN PLANTING

Mix of riparian shrubs, native grasses and forbs such as Speckled Alder, Black Cherry Chokeberry, Dogwood, Elderberry, Nannyberry, Bebb's Willow, Pussy Willow, Soft Rush, Cattail, and Sedges.



WILDFLOWER MEADOW

Mix of native grasses and perennials such as Big Bluestem, Canada Wild Rye, Switch Grass, Indian Grass, Little Bluestem, Prairie Dropseed, Azure Aster, Butterfly Weed, Common Mountain Mint, Golden Alexander, Giant Hyssop, Pearly Everlasting, Wild Columbine, Swamp Milkweed, Purple Coneflower, Joe Pye Weed, Yellow Coneflower, Black Eyed Susan



NOISE ATTENUATION BARRIER



LIMESTONE BLOCK WALL



SPECIALITY PAVING



GENERAL LOCATION FOR WILDLIFE MICRO-HABITAT

THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN

LANDSCAPE LAYOUT - WEST

Mark Van Buren, P.Eng.
Director of Engineering and Deputy Commissioner

Dan Franco, P.Eng.
Project Engineer



Project No.: 27143

Drawing No.: L101



Sheet No.: of

Des: SE Chk'd: ML

Dwn: SE Chk'd: ML

Scale: 1:750

Utility Circ. No. 111222333

Code: CAN/CSA-S6-06

Load: CL625ONT

NOTE: The location of utilities is approximate only. The exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

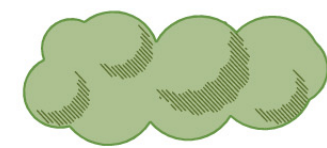
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 Plot Date: 4/28/2017 12:10:16 PM





LEGEND:



EXISTING WOODLOT

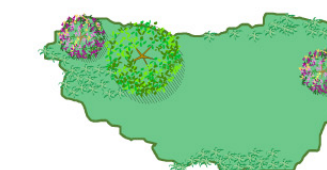


EXISTING TREES



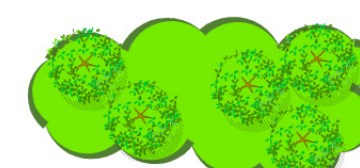
PROPOSED TREES

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Typical native tree species:
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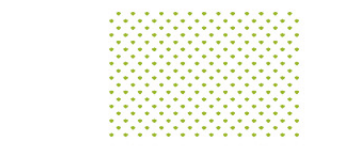
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NOISE ATTENUATION BARRIER



LIMESTONE BLOCK WALL



SPECIALITY PAVING



GENERAL LOCATION FOR WILDLIFE MICRO-HABITAT

THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN

LANDSCAPE LAYOUT - EAST

Mark Van Buren, P.Eng. Director of Engineering and Deputy Commissioner
Dan Franco, P.Eng. Project Engineer



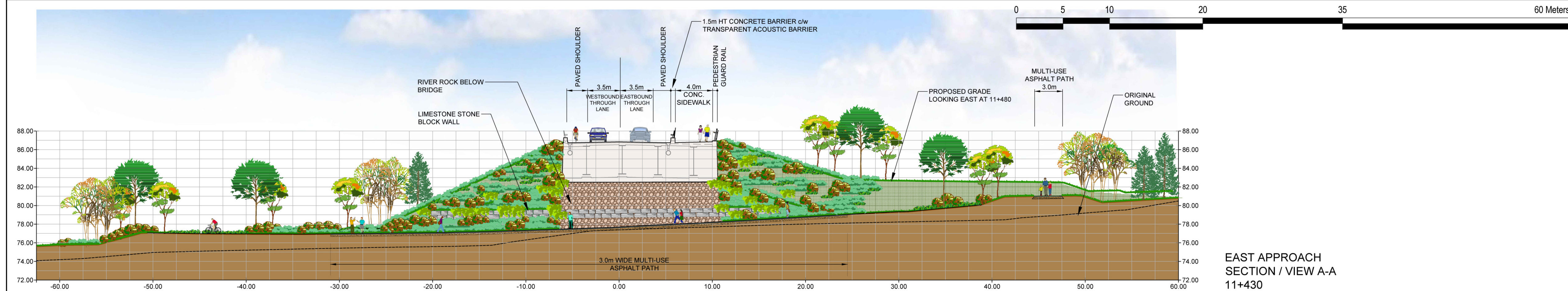

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Drawing No.:	L100		
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Scale:	AS NOTED		
Utility Circ. No.:	11222333		
Code:	CAN/CSA-S6-06		
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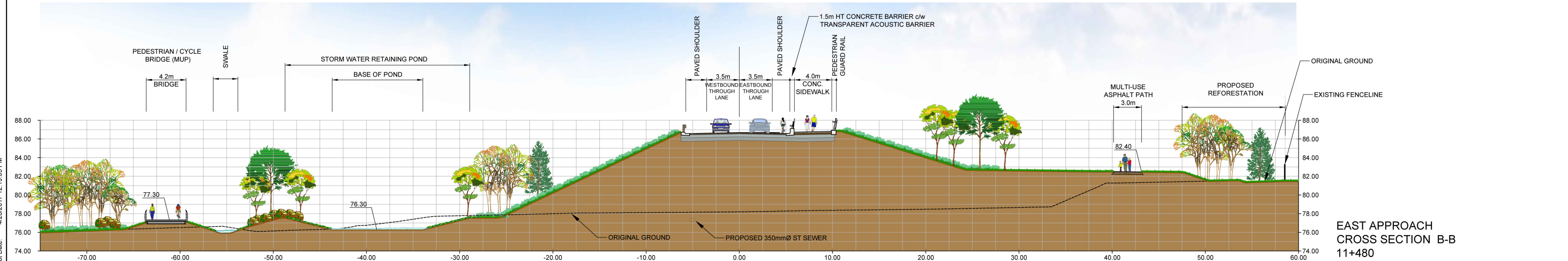
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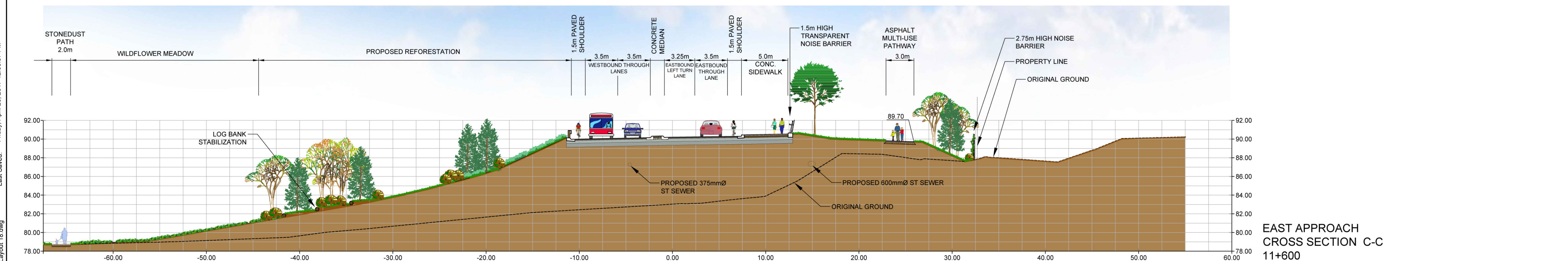
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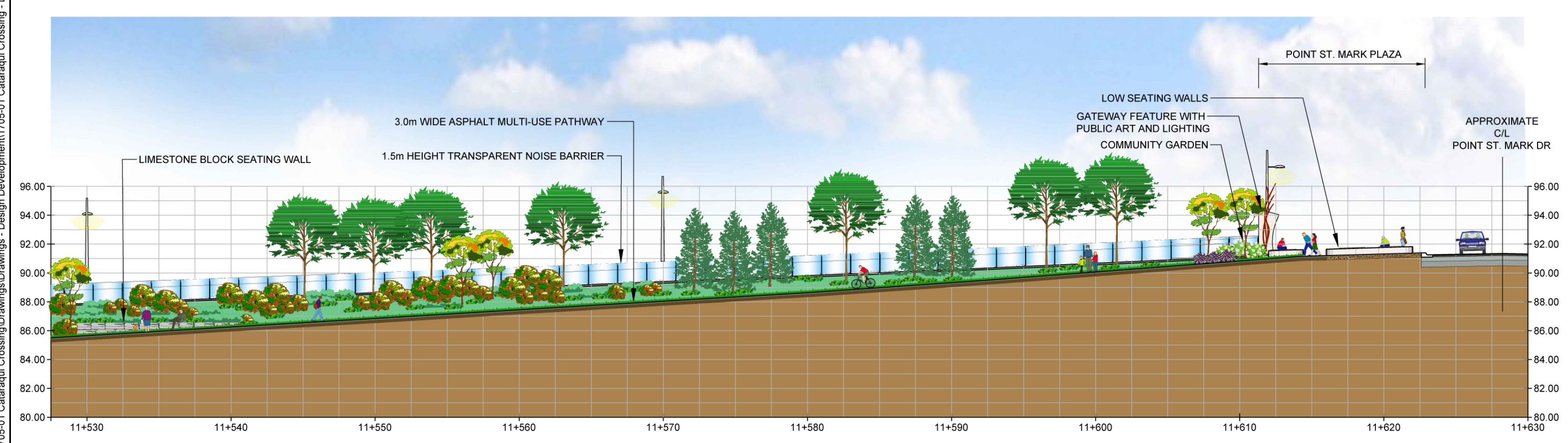
EAST APPROACH SECTION / VIEW A-A 11+430



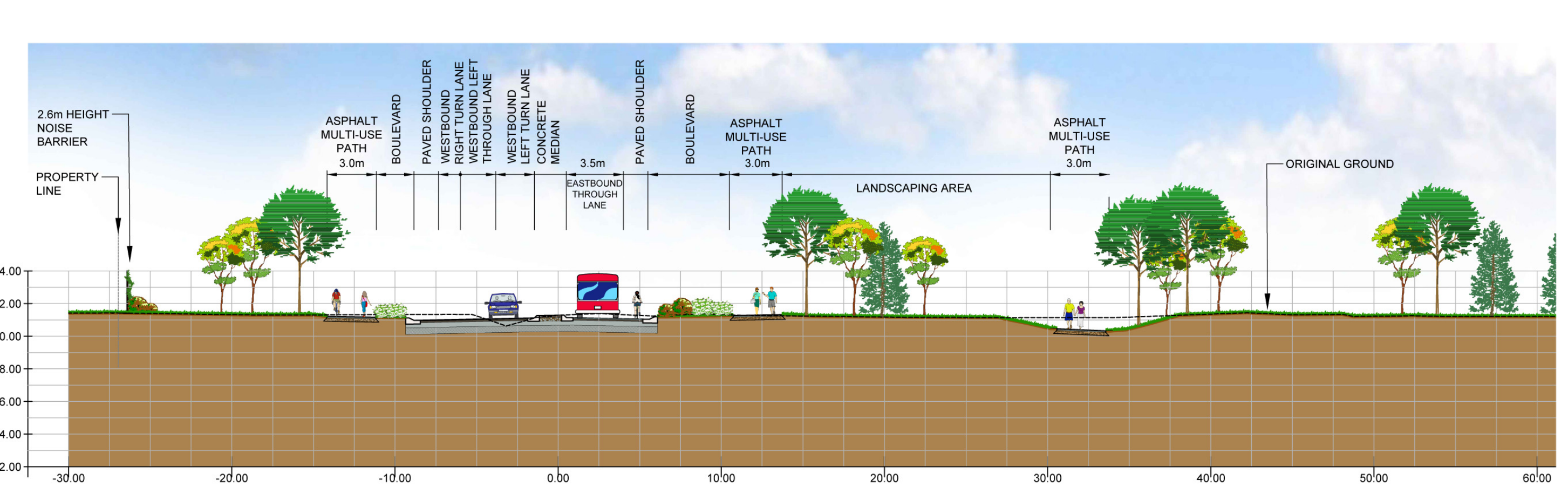
EAST APPROACH CROSS SECTION B-B 11+480



EAST APPROACH CROSS SECTION C-C 11+600



EAST APPROACH - POINT ST. MARK PLAZA - ELEVATION D-D



WEST APPROACH CROSS SECTION A-A 10+190

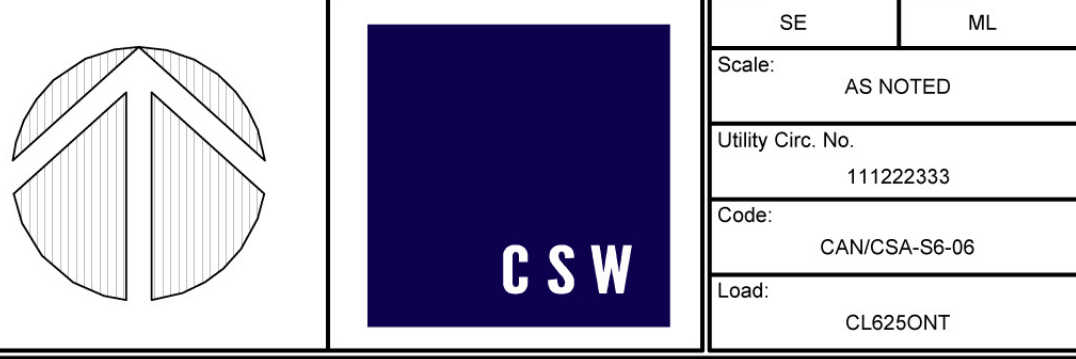
THIRD CROSSING OF THE CATARAQUI RIVER
PRELIMINARY DESIGN



LANDSCAPE CROSS SECTIONS

Mark Van Buren, P.Eng. Director of Engineering and Deputy Commissioner
Dan Franco, P.Eng. Project Engineer

Project No.: 27143
Drawing No.: L200



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