



**Public Works
Canada**

Western Region

**Travaux publics
Canada**

Région de l'Ouest

Trans-Canada Highway Twinning

TRANS-CANADA HIGHWAY OVERPASS STRUCTURE

km 13.05

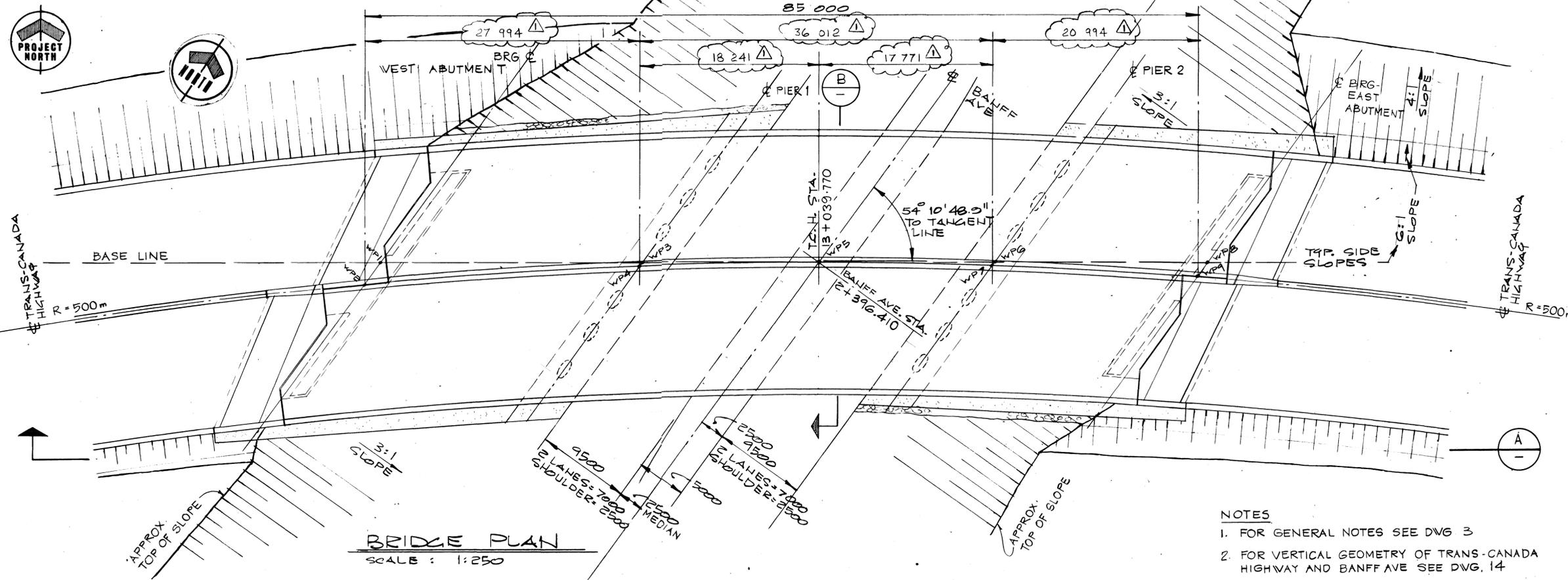
BANFF NATIONAL PARK

STAGE II MINNEWANKA INTERSECTION

Western Region

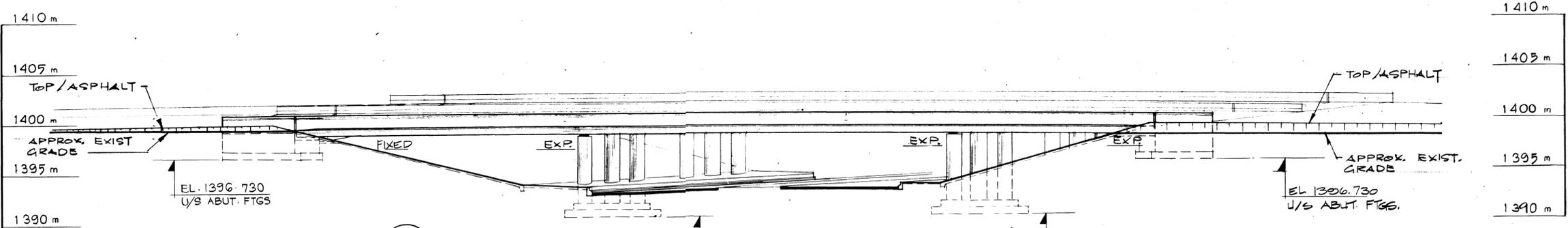
Project: TRANS-CANADA HIGHWAY TWINNING
 BANFF NATIONAL PARK, ALBERTA
 MINNEWANKA INTERCHANGE

Project No.: 003876

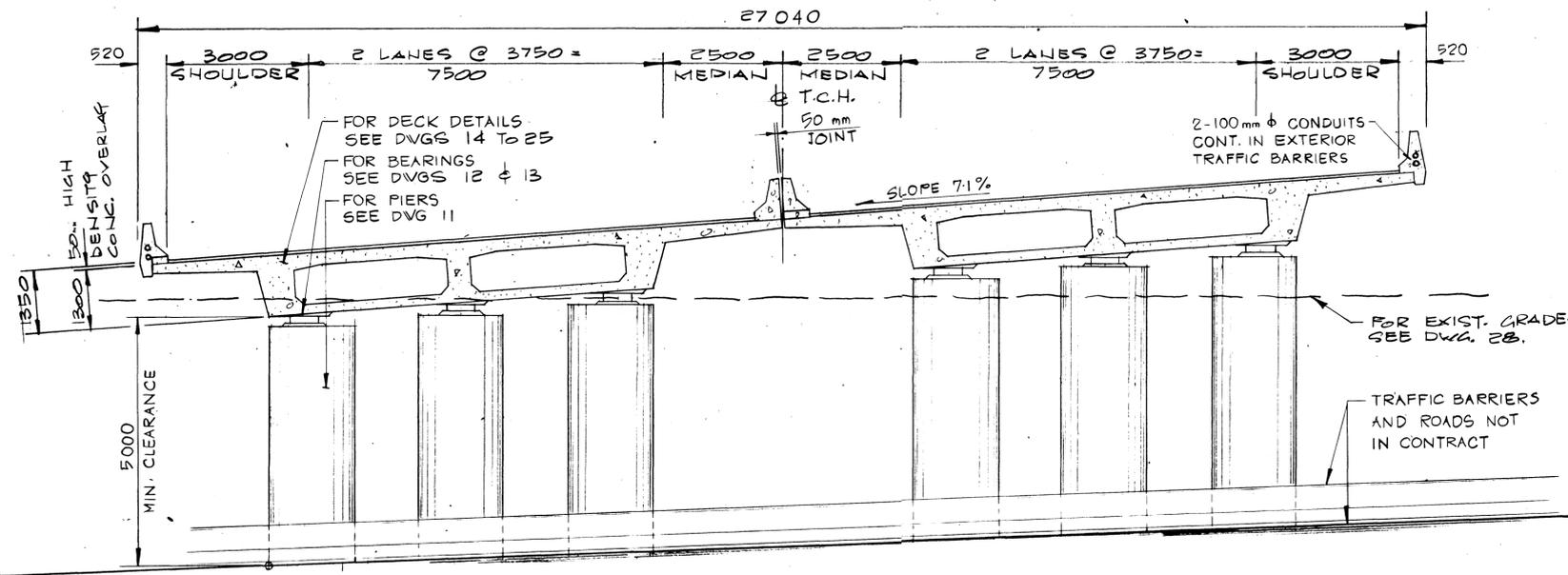


BRIDGE PLAN
 SCALE: 1:250

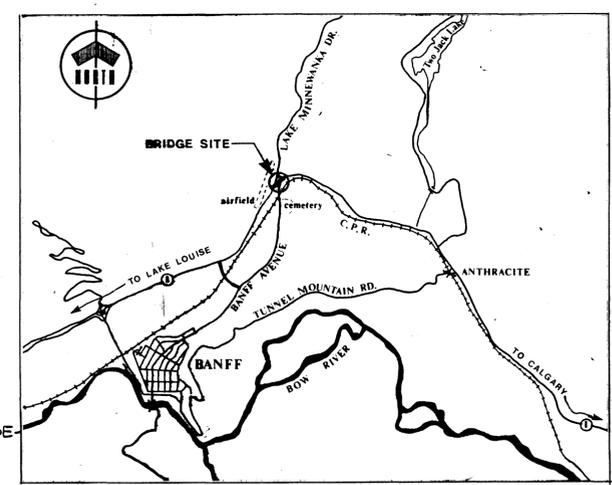
- NOTES**
- FOR GENERAL NOTES SEE DWG 3
 - FOR VERTICAL GEOMETRY OF TRANS-CANADA HIGHWAY AND BANFF AVE SEE DWG. 14



ELEVATION
 SCALE: 1:250



SECTION
 SCALE: 1:75

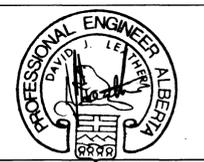


SITE PLAN

1	18	4	8A	DIMENSIONS - PLAN	J.H.	G.W.	G.W.	D.L.
REV	D	M	Y	REVISION DESCRIPTION	DRN	DES	CHK	APP

Horizontal Scale Echelle horizontale	N.A.	Contour Interval Eclaircissement	N.A.
Compilation Photos Photos de compilation	N.A.	Photo Scale Echelle photographique	N.A.

Drawn by Dessiné par	J. HALEY
Date	JAN. 28. 84
Checked by Vérifié par	D. LEATHER
Date	JAN. 28. 84
Approved by Approuvé par	D. LEATHER
Date	JAN. 28. 84



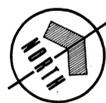
THE ASSOCIATION OF PROFESSIONAL ENGINEERS, GEOLOGISTS AND GEOPHYSICISTS OF ALBERTA
 PERMIT NUMBER P 2375
 UNDERWOOD McLELLAN LTD.

Underwood McLellan Ltd.
 Consulting Engineers and Planners
 Calgary, Alberta

T.C.H. BRIDGE OVER BANFF AVENUE
 km 13-050

GENERAL ARRANGEMENT

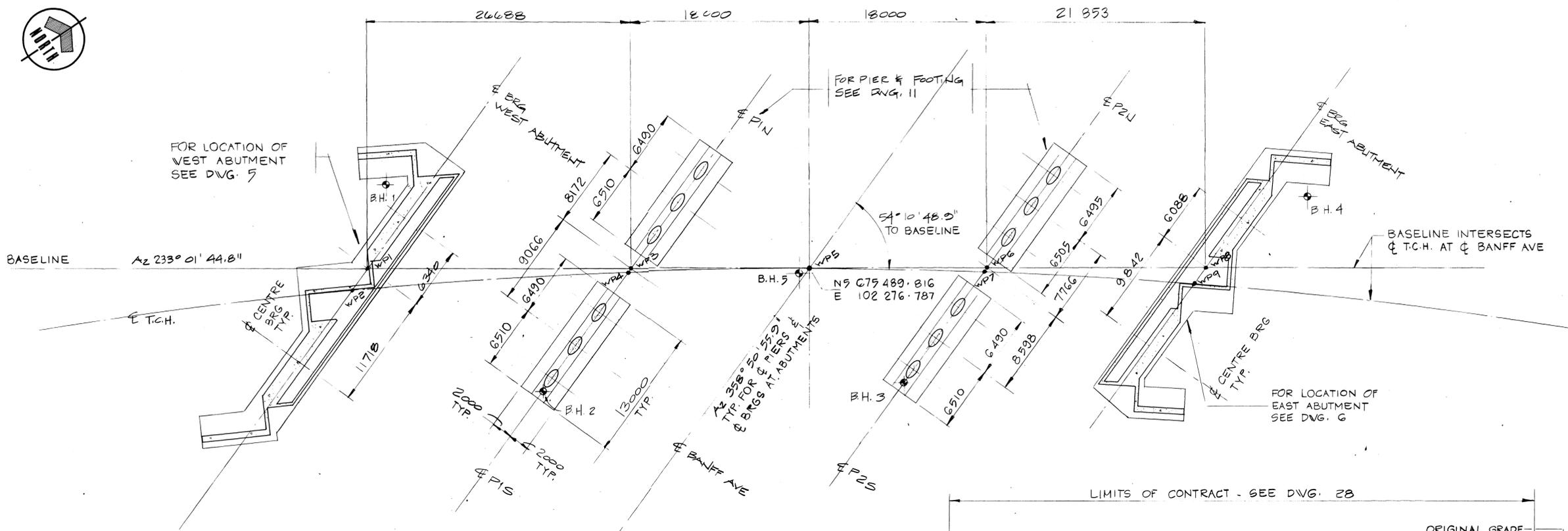
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NTS. No. STN. No.	Drwg. No. Dessin No.	Sheet Feuille	1 of 28
N.A.	2977-022		



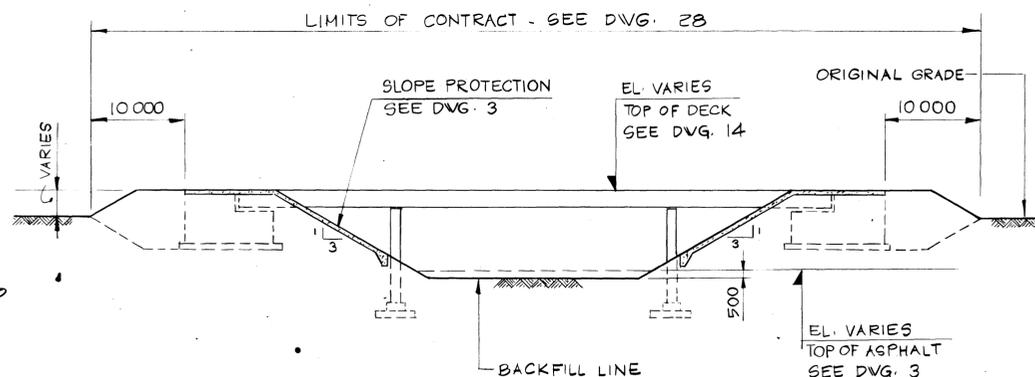
Western Region

Project: TRANS-CANADA HIGHWAY TWINNING
 BANFF NATIONAL PARK, ALBERTA
 MINNEWANKA INTERCHANGE

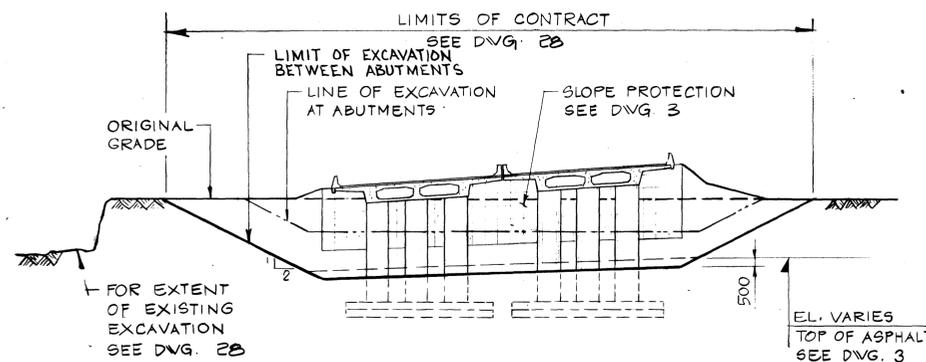
Project No. 003876



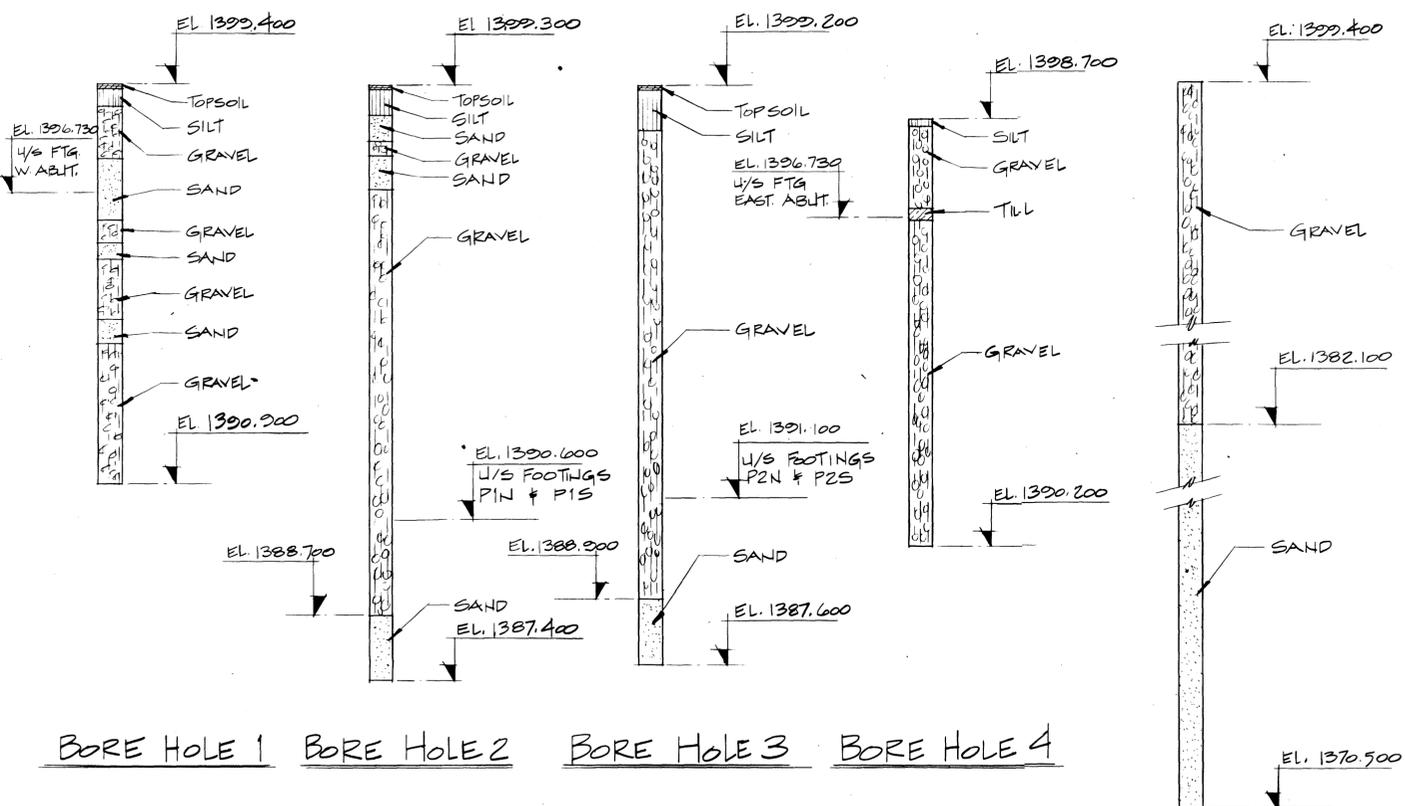
FOUNDATION LAYOUT
 SCALE 1:250



CROSS-SECTION OF BANFF AVENUE



EXCAVATION / BACKFILL & CONTRACT LIMITS
 N.T.S.



BORE HOLE LOG DATA
 SCALE 1:75

FOUNDATION NOTES

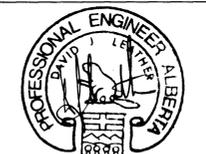
- DESIGN GROUND PRESSURES UNDER THE SPREAD FOOTINGS FOR THIS BRIDGE ARE:
 ABUTMENTS 300 kN/m² UNDER DL+LL
 PIERS 500 kN/m² UNDER DL+LL
- THE FOUNDATION SOIL IS TO BE PROTECTED AGAINST FREEZING IN EXCAVATIONS CARRIED OUT DURING THE WINTER MONTHS.
- DISTURBANCE OF THE FOUNDATION SOILS DURING EXCAVATION IS TO BE REPAIRED BY COMPACTING THE DISTURBED LAYER WITH SUITABLE EQUIPMENT.
- FOR MORE INFORMATION REGARDING THE BOREHOLE LOGS REFERENCE IS TO BE MADE TO THE SOILS INVESTIGATION REPORT.

REV	D	M	Y	REVISION DESCRIPTION	DRN	DES	CHK	APP

Completed by: [Blank]
 Checked by: [Blank]

Horizontal Scale Echelle horizontale	N.A.	Contour Interval Eauidistance	N.A.
Compilation Photos Photos de compilation	N.A.	Photo Scale Echelle photographique	N.A.

Drawn by: D. WIDDIFIELD
 Date: JAN. 28. 84
 Checked by: J. HALEY
 Date: JAN. 28. 84
 Approved by: D. LEATHER
 Date: JAN. 28. 84



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 Calgary, Alberta

T.C.H. BRIDGE OVER
 BANFF AVENUE
 km 13+050



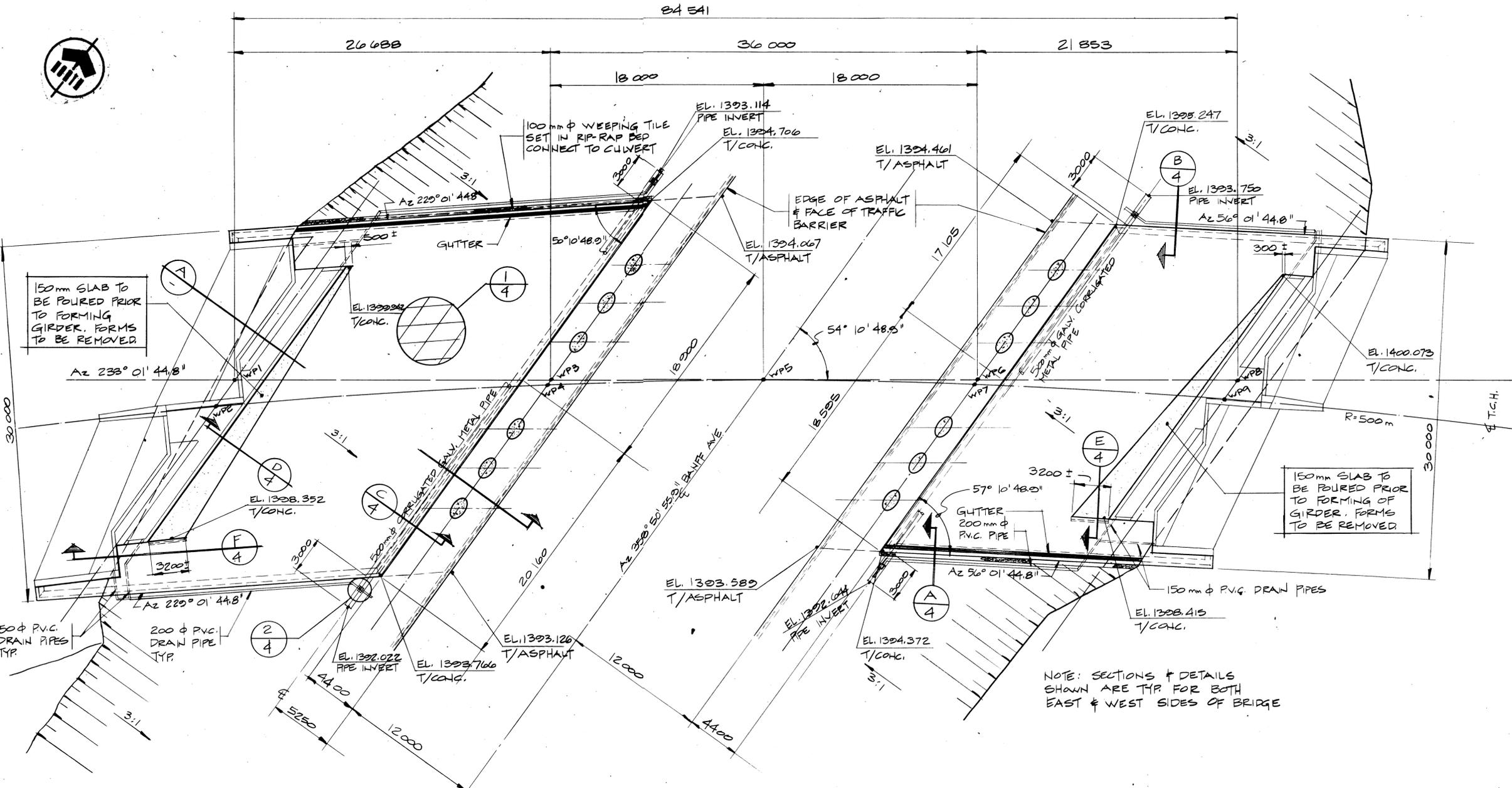
FOUNDATION LAYOUT

Horizontal Scale Echelle horizontale	AS NOTED	Vertical Scale Echelle verticale	AS NOTED
N.T.S. No. / STN. No.	2977-022	Sheet / Feuille	2 of 28

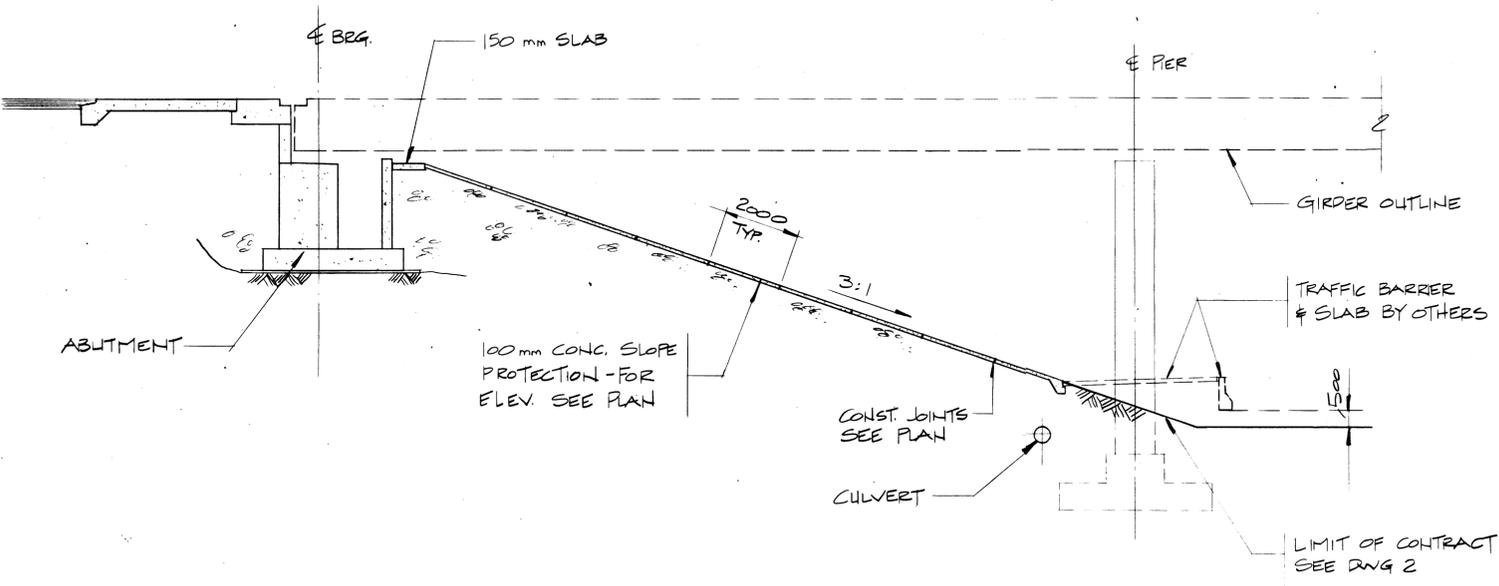
Western Region

Project: TRANS-CANADA HIGHWAY TWINNING
 Project: BANFF NATIONAL PARK, ALBERTA
 Project: MINNEWANKA INTERCHANGE

Project No.: 003876



PLAN
SCALE 1:200



A SECTION
SCALE 1:100

NOTE: SECTIONS & DETAILS SHOWN ARE TYP FOR BOTH EAST & WEST SIDES OF BRIDGE

BRIDGE NOTES

GENERAL ARRANGEMENT NOTES

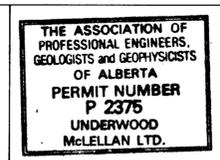
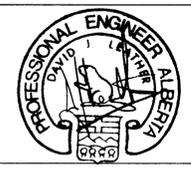
1. DRAWINGS FOR THIS BRIDGE ARE NOS. 2977-022/1 TO 28.
2. BEFORE PROCEEDING WITH ANY CONSTRUCTION WORK, THE SETTING OUT IS TO BE CHECKED IN RELATION TO THE EXISTING ROAD AND FEATURES. THE ENGINEER IS TO BE IMMEDIATELY NOTIFIED OF ANY DISCREPANCIES SO THAT ANY NECESSARY ADJUSTMENTS MAY BE MADE.
3. DESIGN LIVE LOAD IS MS250 TO CAN3-S6-M78.
4. DECK VOID FORMS TO BE REMOVED.
5. A BREATHING PIGMENTED ACRYLIC SEALER IS TO BE APPLIED TO CONCRETE PARAPETS, GIRDERS, PIERS AND MEDIAN BARRIERS. SEE SPECIFICATIONS AND DRAWINGS 8, 11 AND 17.
6. FACES OF CONCRETE BELOW FINAL GROUND LEVEL IN CONTACT WITH EARTH ARE TO BE COATED WITH BITUMEN PAINT.
7. FOR CONTRACT LIMITS, ACCESS AND STORAGE AREAS REFER TO SPECIFICATIONS AND DRAWING 28, GENERAL SITE PLAN.

REV	D	M	Y	REVISION DESCRIPTION	DRN	DES	CHK	APP

Completed by:
 Computed par:
 Horizontal Scale: N.A.
 Contour Interval: N.A.
 Elevation: N.A.
 Vertical Scale: N.A.
 Photo Scale: N.A.
 Elevation: N.A.

Drawn by: D. WIDFIELD
 Checked by: J. HALEY
 Approved by: D. LEATHER

Date: JAN. 28. 84
 Date: JAN. 28. 84
 Date: JAN. 28. 84



Underwood McLellan Ltd.
 Consulting Engineers and Planners
 Calgary, Alberta

T.C.H. BRIDGE OVER BANFF AVENUE
 km 13+050

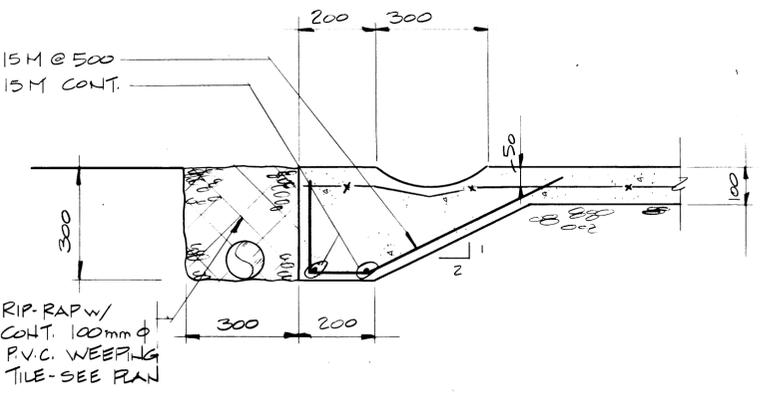
SLOPE PROTECTION SHEET 1

AS NOTED	AS NOTED
N.A.	2977-022

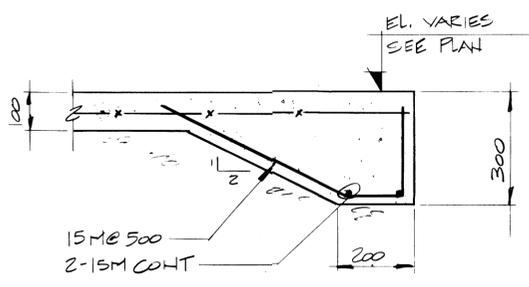
Western Region

TRANS-CANADA HIGHWAY TWINNING
BANFF NATIONAL PARK, ALBERTA
MINNEWANKA INTERCHANGE

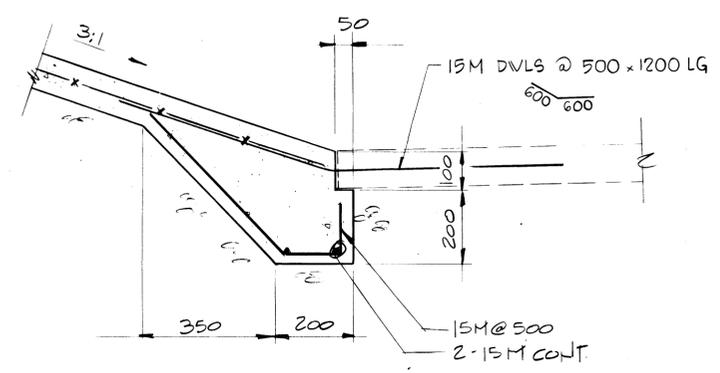
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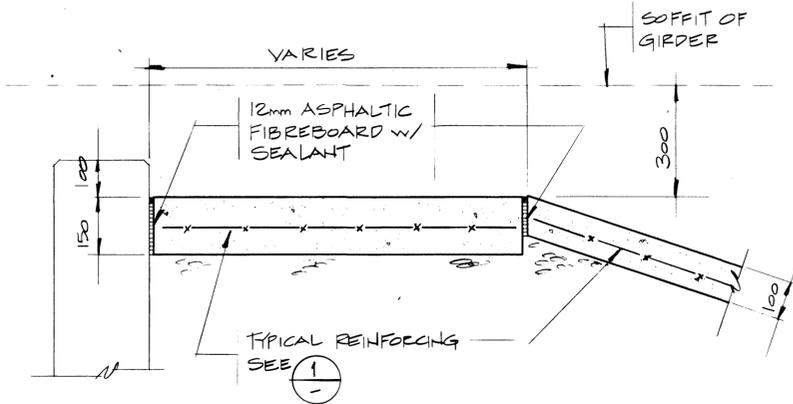
A SECTION
3 SCALE 1:10



B SECTION
3 SCALE 1:10

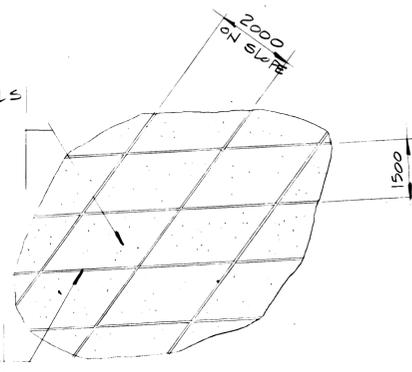


C SECTION
3 SCALE 1:10



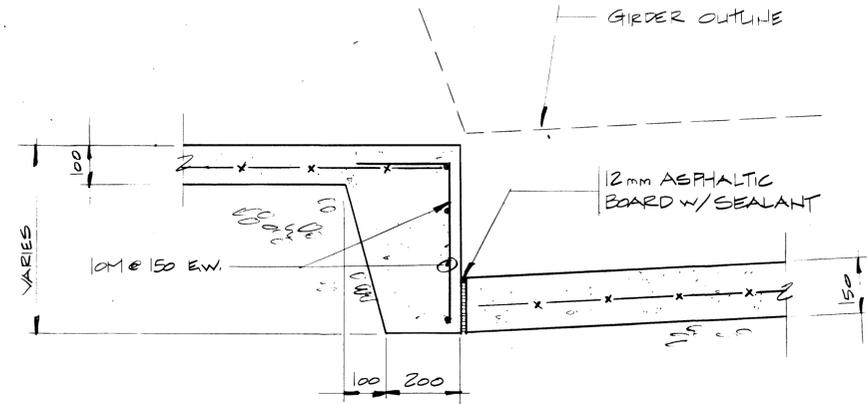
D SECTION
3 SCALE 1:10

2000 x 1500 PANELS REINFORCED w/ W.W.F. 152 x 152 x MW 18.7 x MW 18.7 @ MID-HEIGHT

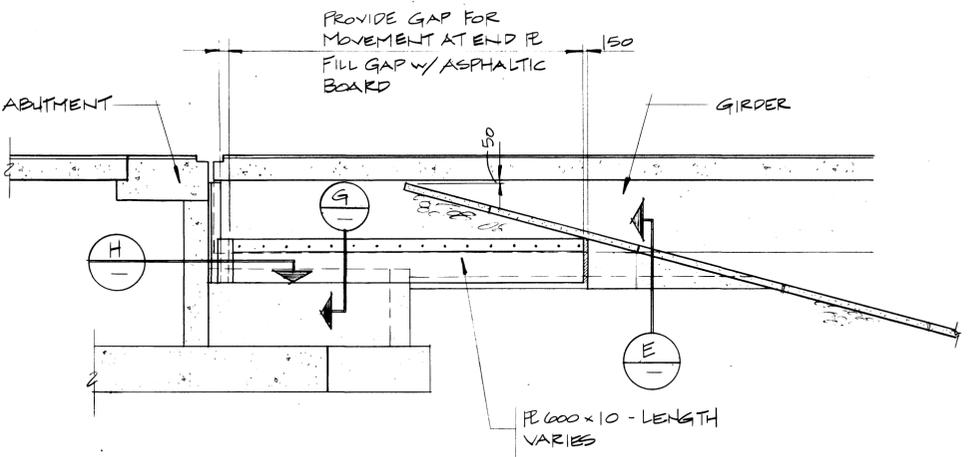


SLOPE PROTECTION PLAN

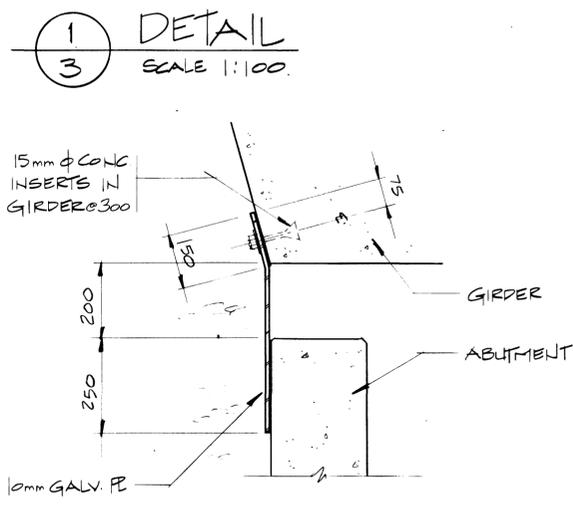
JOINT PATTERN TO BE LAYED OUT & APPROVED BY ENGINEER PRIOR TO PLACEMENT OF ALTERNATE PANELS



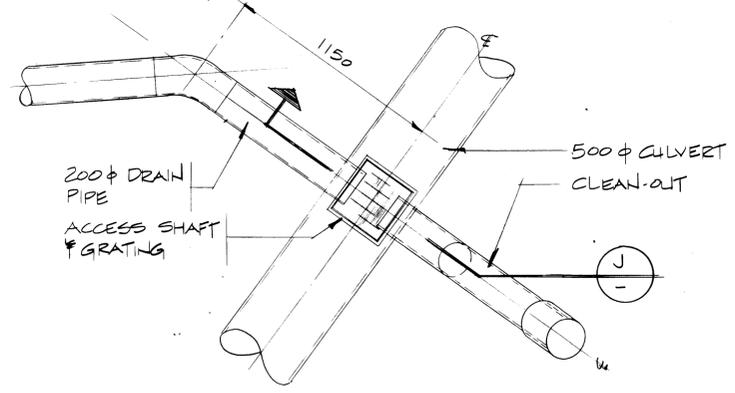
E SECTION
- SCALE 1:10



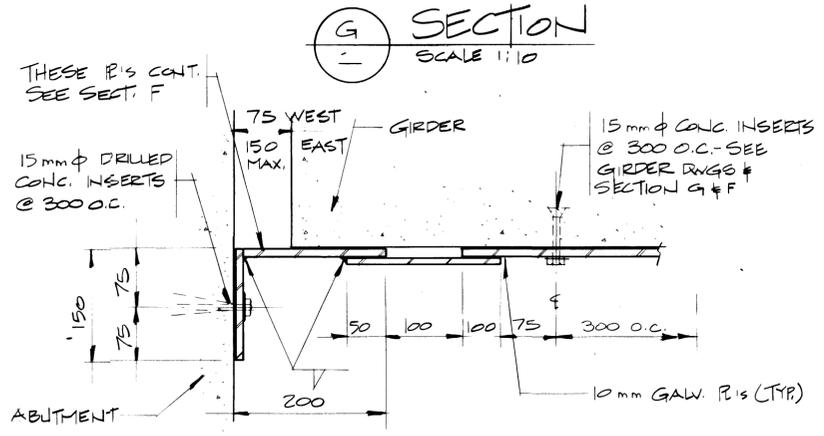
F SECTION
3 SCALE 1:50



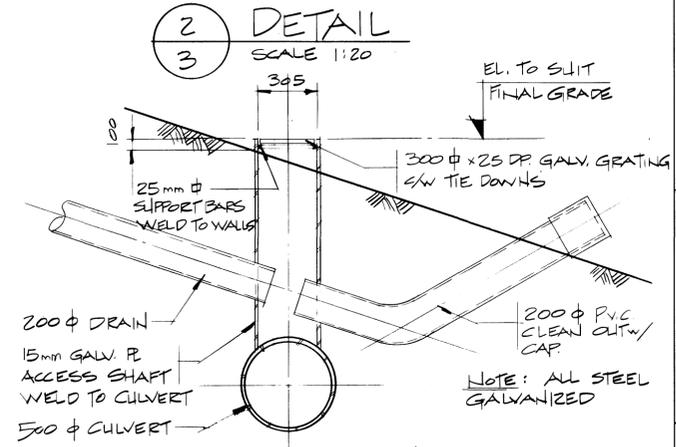
G SECTION
1 SCALE 1:100



H SECTION
- SCALE 1:20



I SECTION
- SCALE 1:10



J SECTION
- SCALE 1:20

NOTE: SLIDING PL DETAILS ARE TYPICAL IN FOUR LOCATIONS - LENGTHS WILL VARY TO SUIT EAST & WEST ABUT.

H SECTION
- SCALE 1:5

REV	D	M	Y	REVISION DESCRIPTION	DRN	DES	CHK	APP

	N.A.	N.A.
	N.A.	N.A.
	D. WIDDIFIELD	JAN. 28.84
	J. HALEY	JAN. 28.84
	D. LEATHER	JAN. 28.84



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Calgary, Alberta

T.C.H. BRIDGE OVER BANFF AVENUE
km 13+050

SLOPE PROTECTION SHEET 2

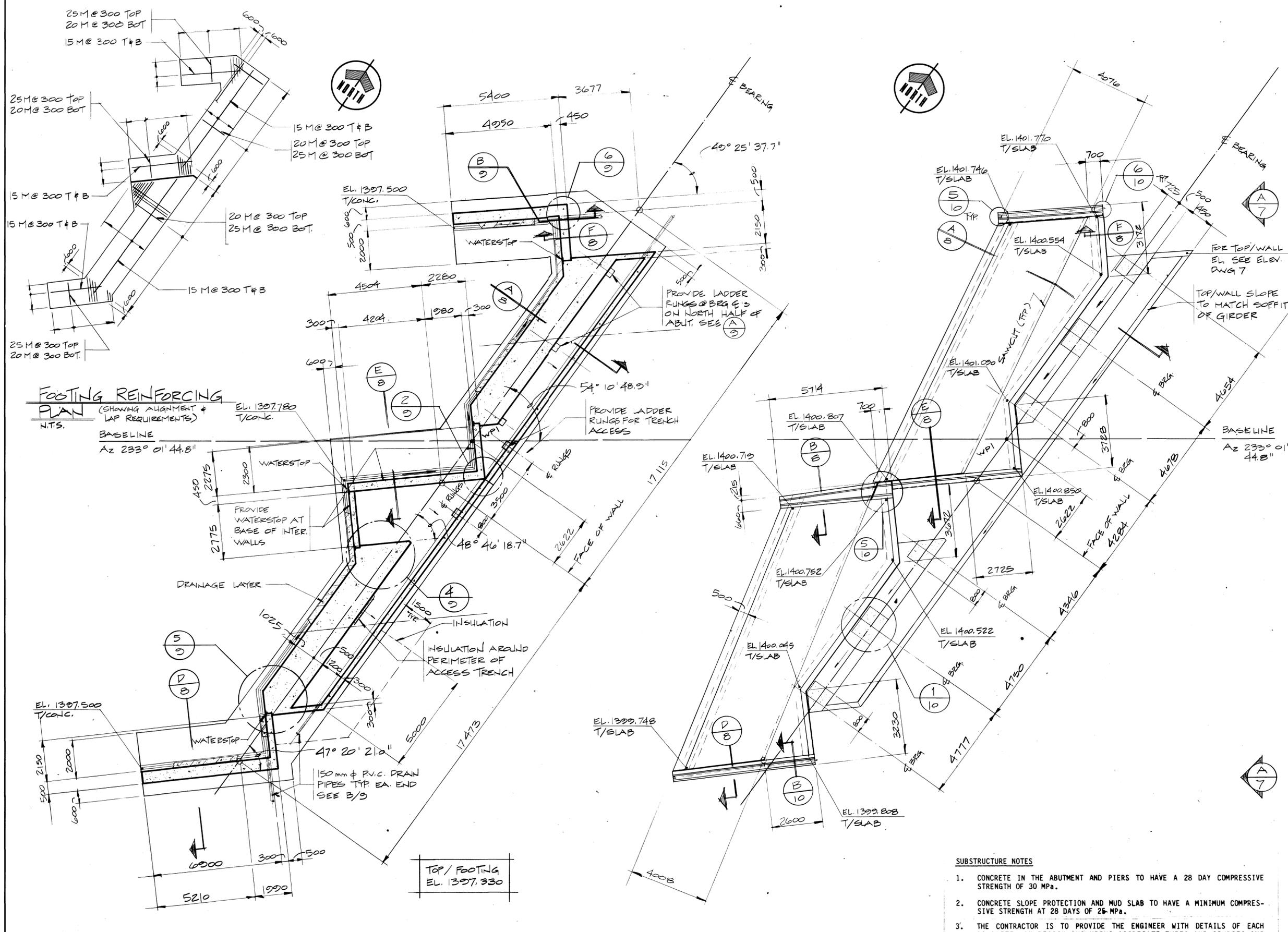
AS NOTED	AS NOTED
N.A.	2977-022
4	28



Western Region

Project: TRANS-CANADA HIGHWAY TWINNING
BANFF NATIONAL PARK, ALBERTA
MINNEWANKA INTERCHANGE

Project No. 003876



FOUNDATION PLAN
- WEST ABUTMENT
SCALE 1:100

PLAN - WEST ABUTMENT
SCALE 1:100

SUBSTRUCTURE NOTES

1. CONCRETE IN THE ABUTMENT AND PIERS TO HAVE A 28 DAY COMPRESSIVE STRENGTH OF 30 MPa.
2. CONCRETE SLOPE PROTECTION AND MUD SLAB TO HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 25 MPa.
3. THE CONTRACTOR IS TO PROVIDE THE ENGINEER WITH DETAILS OF EACH CONCRETE MIX DESIGN INCLUDING AGGREGATE TYPES AND SOURCES AND PREVIOUS 28 DAY STRENGTH RESULTS FOR EACH MIX PRIOR TO ANY CONCRETE BEING PLACED. ANY UNTRIED CONCRETE MIXES ARE TO BE PROVEN WITH TRIAL MIXES AT NO ADDITIONAL COST TO THE ENGINEER. THE CONTRACTOR SHALL NOT AMEND ANY ACCEPTED MIX DESIGNS WITHOUT PRIOR APPROVAL OF THE ENGINEER.
4. ALL REINFORCEMENT SHALL CONFORM WITH CSA G30.12 GRADE 400.
5. ALL LAPS SHALL BE TENSION LAP SLICES CLASS C UNLESS OTHERWISE SHOWN.
6. CONCRETE COVER TO REINFORCEMENT TO BE 50 mm UNLESS OTHERWISE SHOWN.
7. CHAMFERS TO BE PROVIDED ON ALL EDGES MINIMUM 20 X 20 UNLESS OTHERWISE SHOWN.
8. FOR CONCRETE FINISHES SEE SPECIFICATIONS.

REV	D	M	Y	REVISION DESCRIPTION	DRN	DES	CHK	APP

Compiled by: Complete par

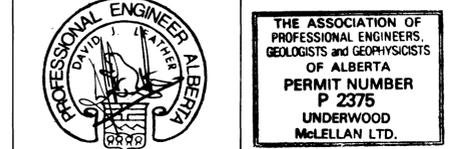
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Compilation Photos Photos de compilation	N.A.	Photo Scale Echelle photographique	N.A.
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Drawn by: D. WIDDIFIELD
Date: JAN. 28. 84

Checked by: T. HASSENRUECK
Date: JAN. 28. 84

Approved by: D. LEATHER
Date: JAN. 28. 84



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T.C.H. BRIDGE OVER BANFF AVENUE
km 13+050

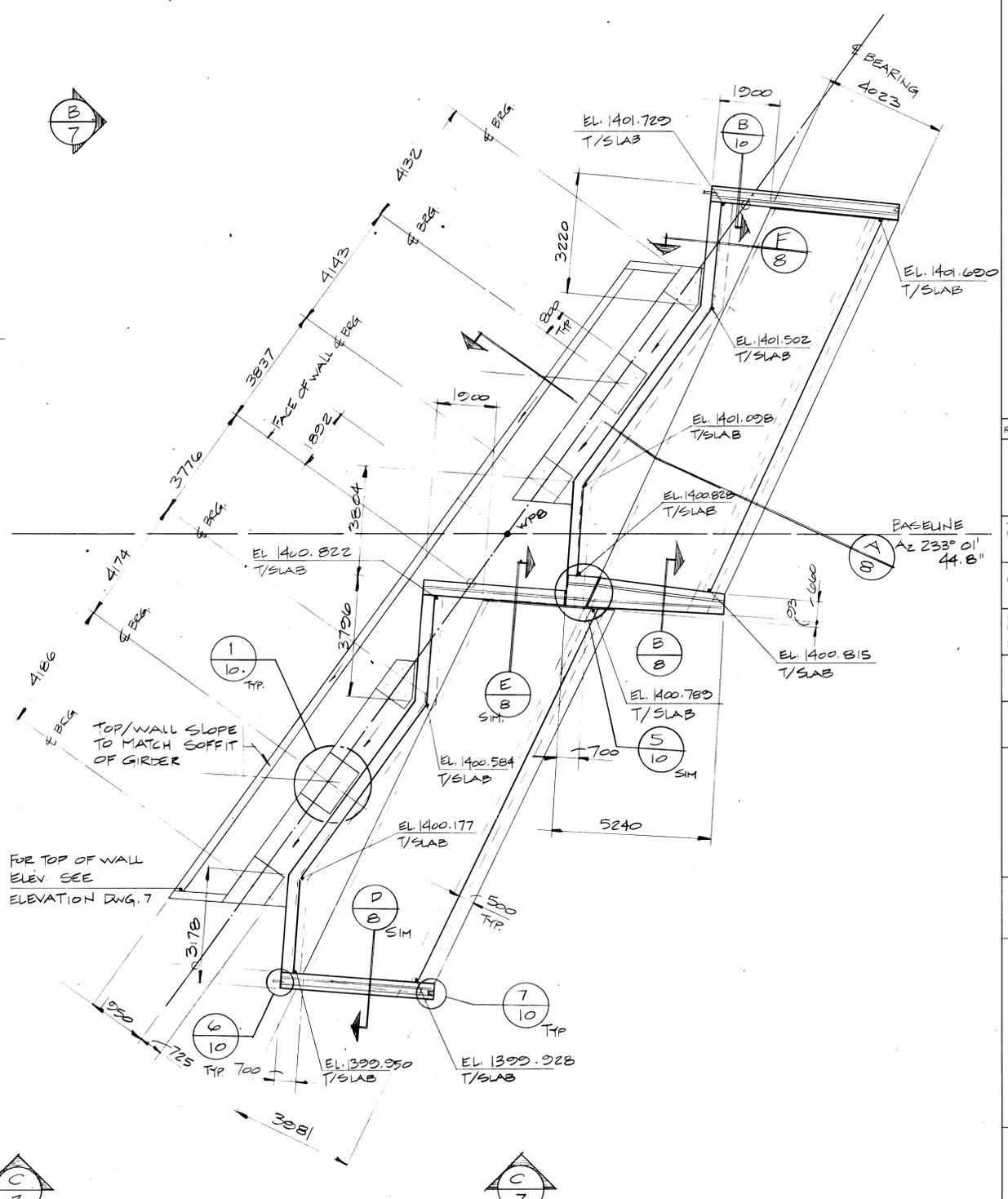
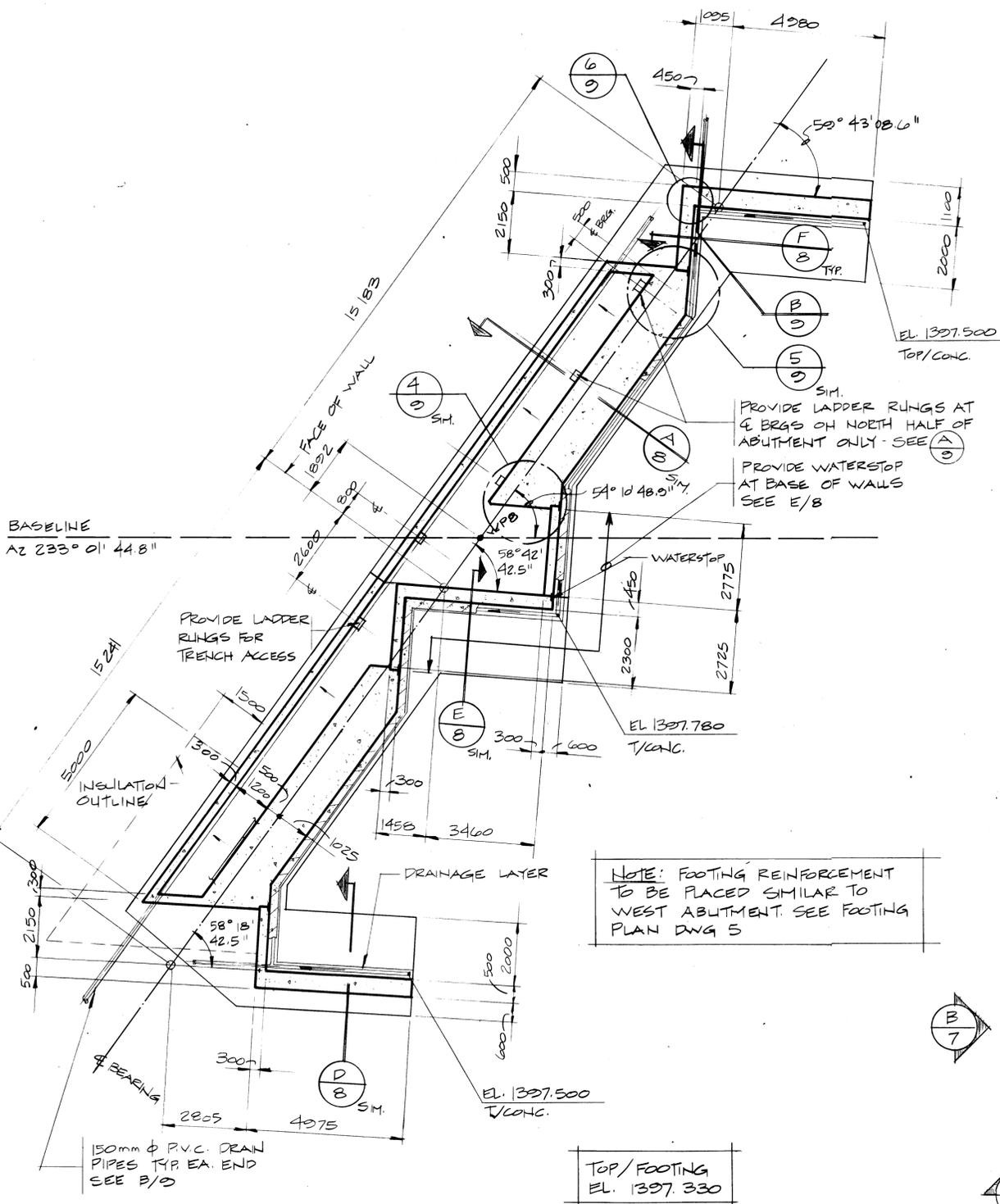
WEST ABUTMENT PLANS

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N.T.S. No. S.T.N. No.	N.A.	Drawn No. Dessin No.	2977-022
		Sheet Feuille	5 of 28

Western Region

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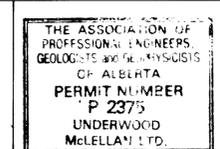
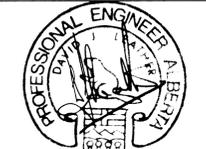
FOUNDATION PLAN
- EAST ABUTMENT
 SCALE 1:100

PLAN - EAST ABUTMENT
 SCALE 1:100

REV	D	M	Y	REVISION DESCRIPTION	DRN	DES	CHK	APP

Horizontal Scale Échelle horizontale	N.A.	Vertical Scale Échelle verticale	N.A.
Compilation Photos Photos de compilation	N.A.	Photo Scale Échelle photo	N.A.

Drawn by Dessiné par	D. WIDDIFIELD
Date	JAN. 28. 84
Checked by Vérifié par	T. HASSEN RUECK
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Approved by Approuvé par	D. LEATHER
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 km 13+050

EAST ABUTMENT PLANS

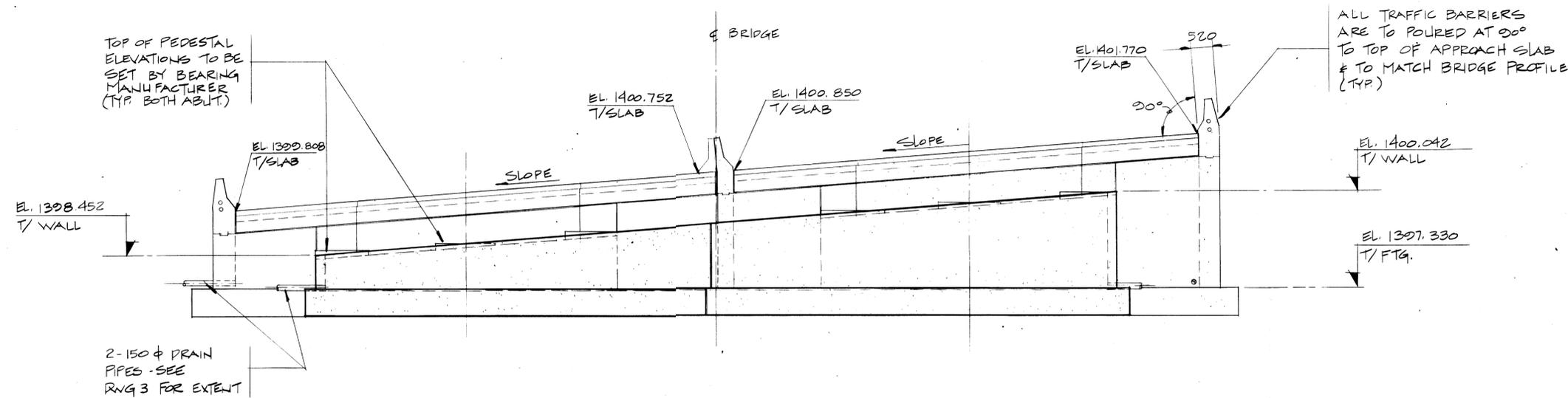


Horizontal Scale Échelle horizontale	AS NOTED	Vertical Scale Échelle verticale	AS NOTED
Project No.	N.A.	Sheet No.	6 of 28
Project No.	2977-022	Sheet No.	6 of 28

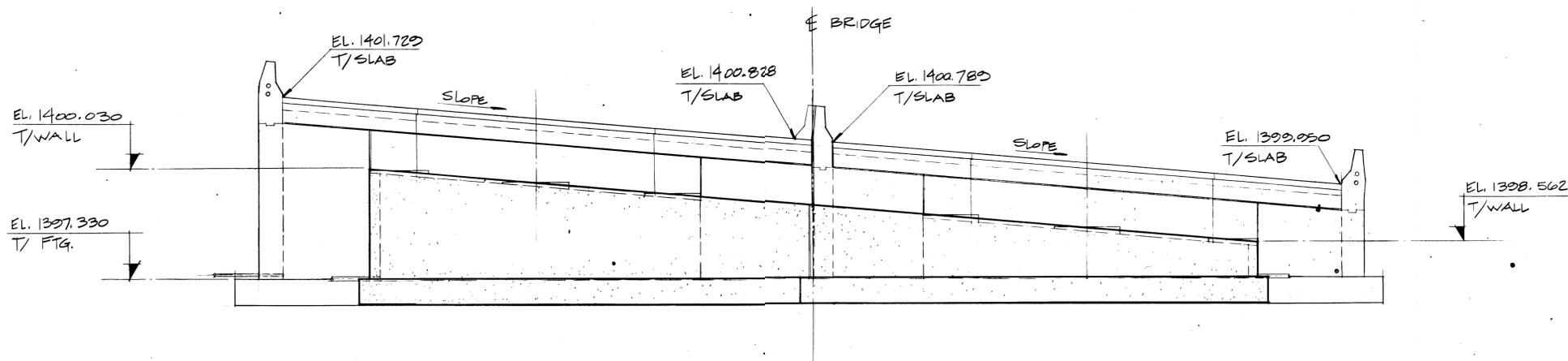
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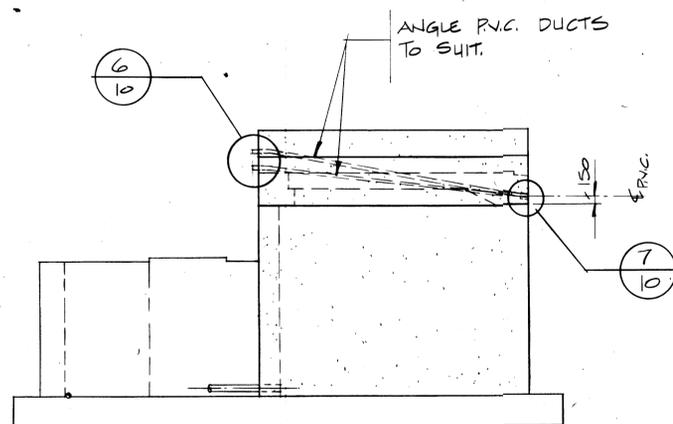
Project No: 003876



(A)
5
 ELEVATION - WEST ABUTMENT
 SCALE 1:75



(B)
6
 ELEVATION - EAST ABUTMENT
 SCALE 1:75



(C)
6
 ELEVATION (TYP. SIDE ELEV.)
 SCALE 1:75

REV	D	M	Y	REVISION DESCRIPTION	DRN	DES	CHK	APP

Compiled by: [Blank]
 Drawn by: **D. WIDDIFIELD**
 Date: **JAN. 28. 84**

Horizontal Scale: N.A.
 Vertical Scale: N.A.

Checked by: **T. HASSEN RUECK**
 Date: **JAN. 28. 84**

Approved by: **D. LEATHER**
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Professional Engineer Alberta
 The Association of Professional Engineers, Geologists and Geophysicists of Alberta
 Permit Number P 2376
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T.C.H. BRIDGE OVER BANFF AVENUE
 km 13+050

AA006015

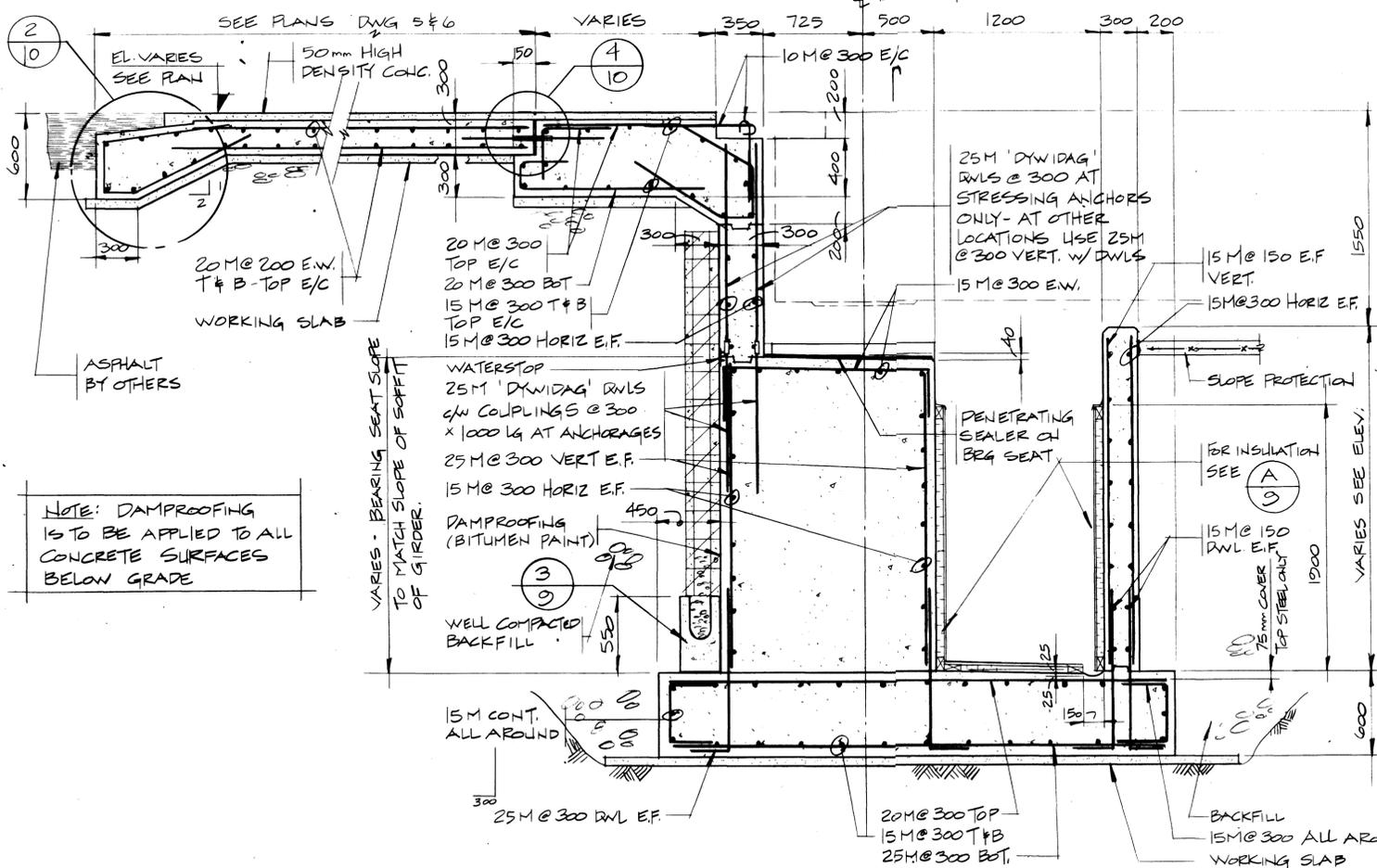
ABUTMENT ELEVATIONS

Horizontal Scale: AS NOTED	Vertical Scale: AS NOTED
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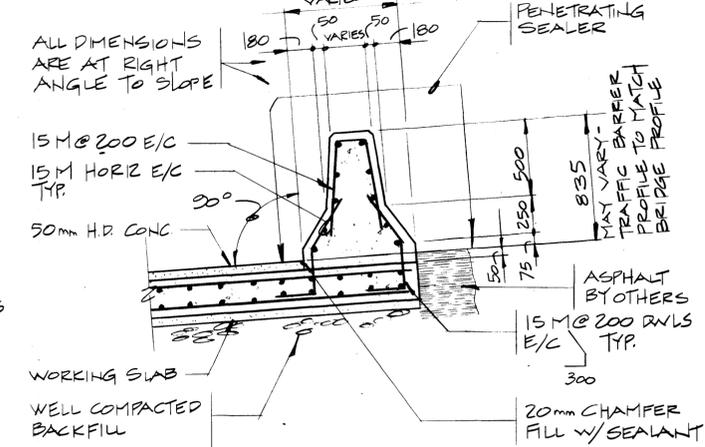
Western Region

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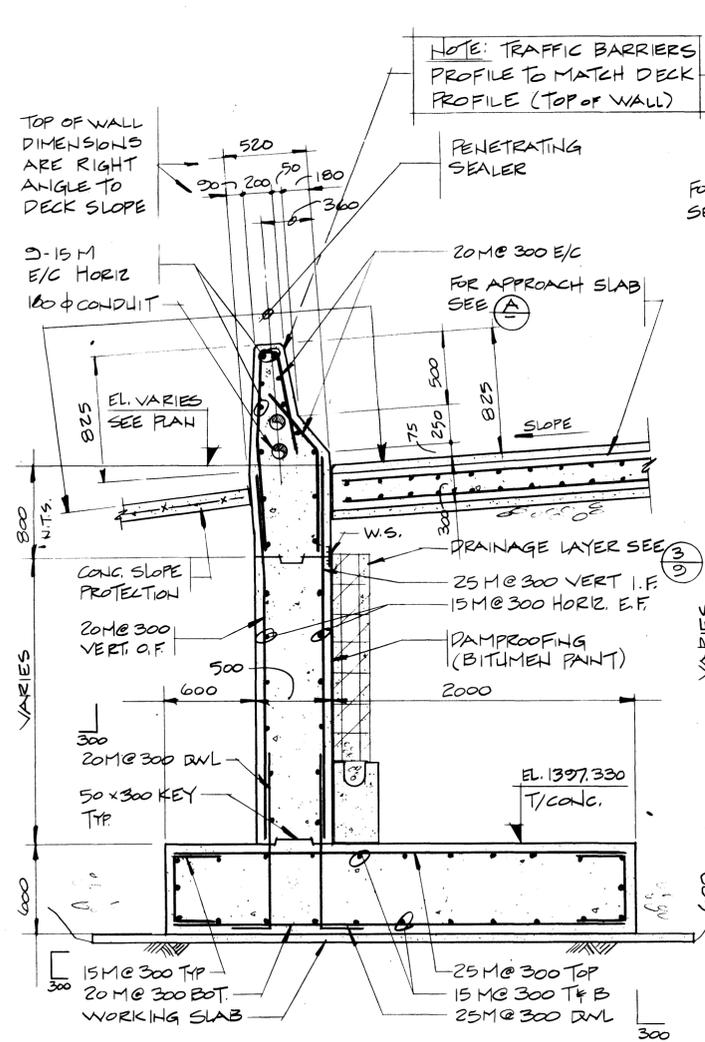
NOTE: DAMPROOFING IS TO BE APPLIED TO ALL CONCRETE SURFACES BELOW GRADE



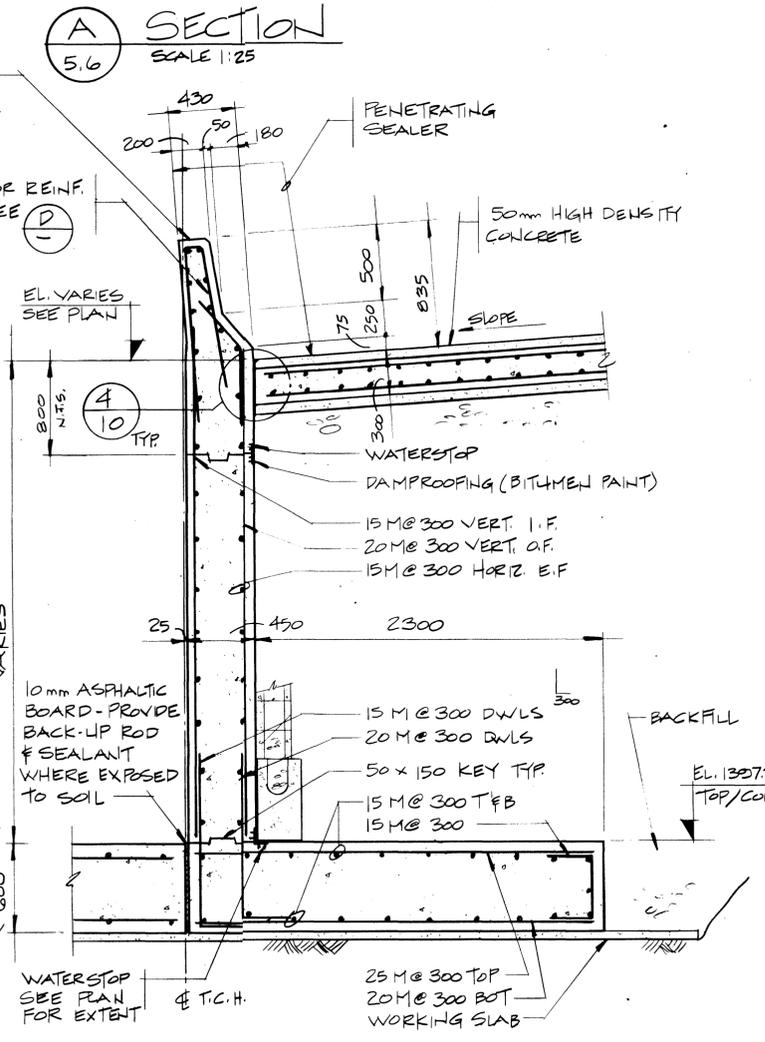
(B) SECTION
5.6 SCALE 1:25

NOTE: ALL SPLICES ARE TO BE BASIC TENSION LAP SPLICES CLASS 'C'

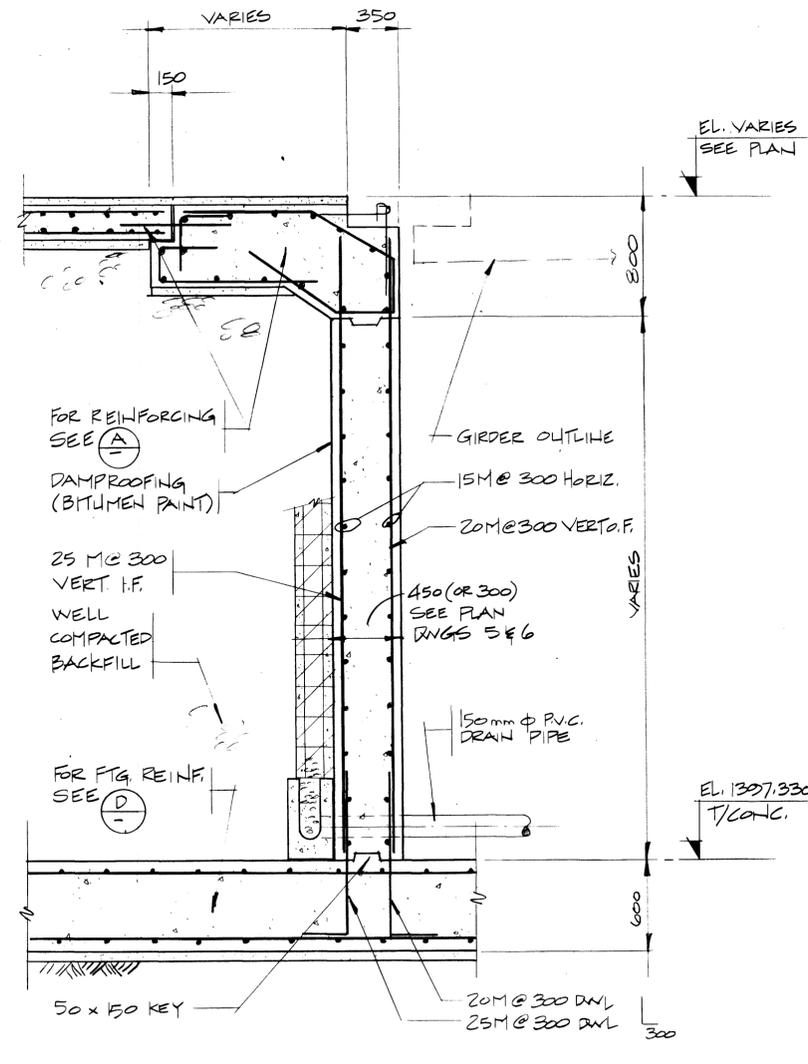
NOTE: REFER TO REINFORCING PLAN ON DNG 5 FOR ORIENTATION OF REINFORCING



(D) SECTION
5.6 SCALE 1:25



(E) SECTION
5.6 SCALE 1:25



(F) SECTION
5.6 SCALE 1:25

REV	D	M	Y	REVISION DESCRIPTION	DRN	DES	CHK	APP
Compiled by: Compile par								

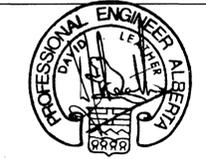
Horizontal Scale Echelle horizontale	Contour Interval Eau-distance
N.A.	N.A.

Compilation Photos Photos de compilation	Photo Scale Echelle photographique
N.A.	N.A.

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ABUTMENT DETAILS SHEET 1

AS NOTED	AS NOTED
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REV	D	M	Y	REVISION DESCRIPTION	DRN	DES	CHK	APP

Compiled by: [Blank]
Compile par: [Blank]

Horizontal Scale: N.A.
Echelle horizontale: N.A.

Compilation Photos: N.A.
Photos de compilation: N.A.

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T.C.H. BRIDGE OVER BANFF AVENUE
km 13+050



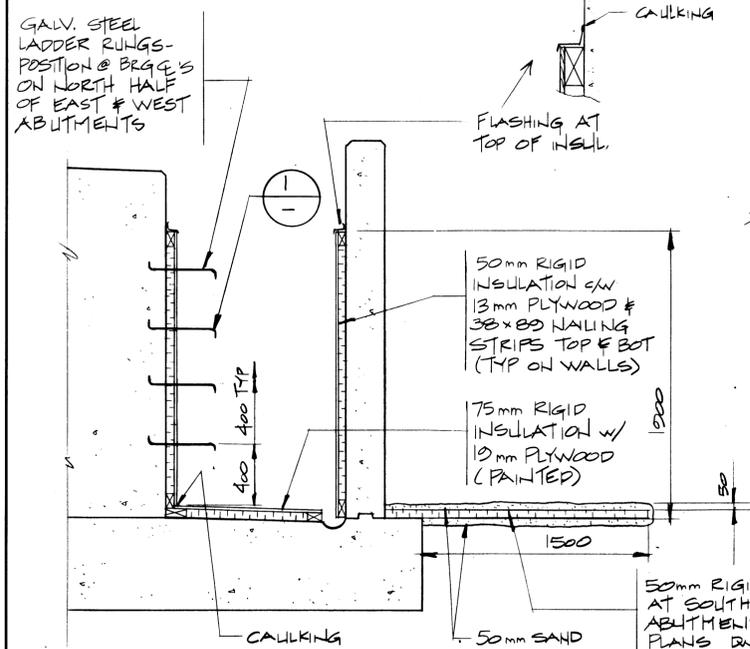
ABUTMENT

DETAILS

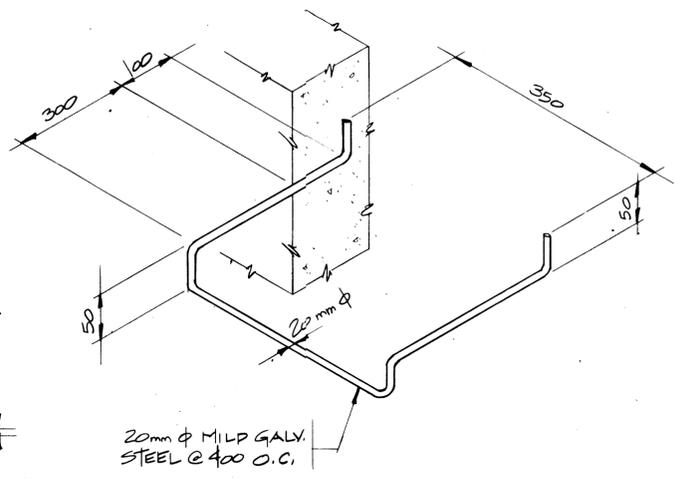
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AS NOTED	AS NOTED

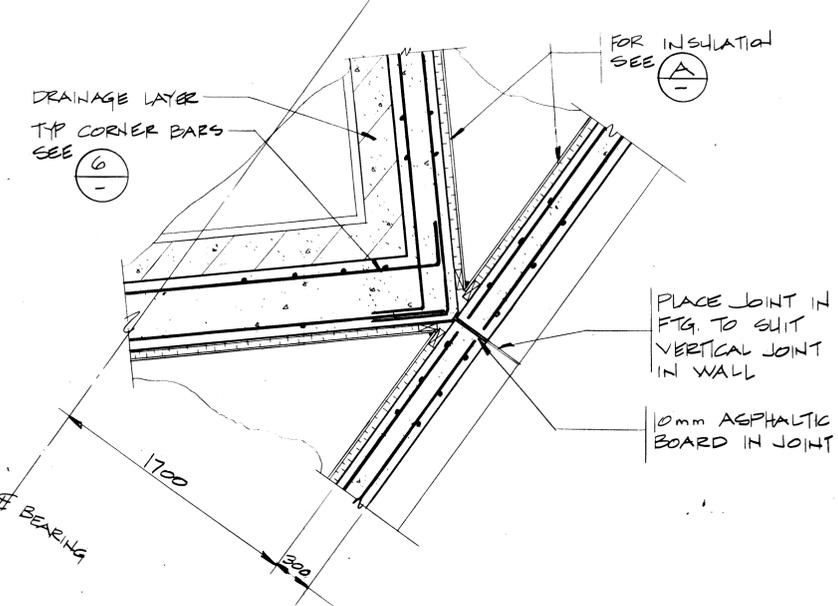
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Draw. No. Dessain No. 2977-022
Sheet Feuille 9 of 28



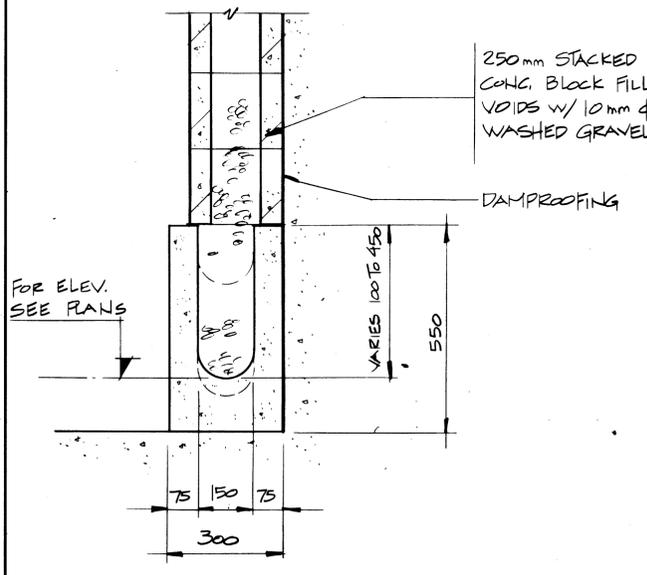
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5/6 SCALE 1:25



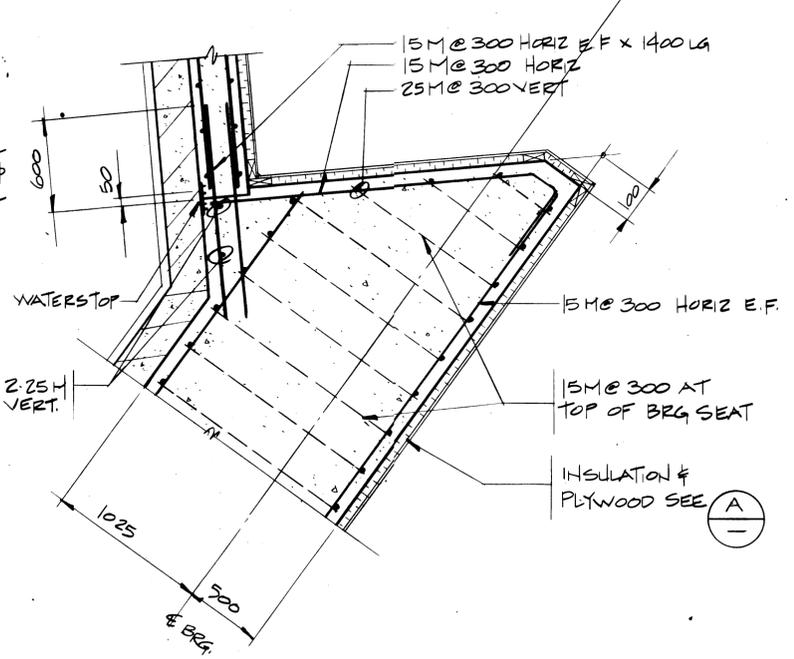
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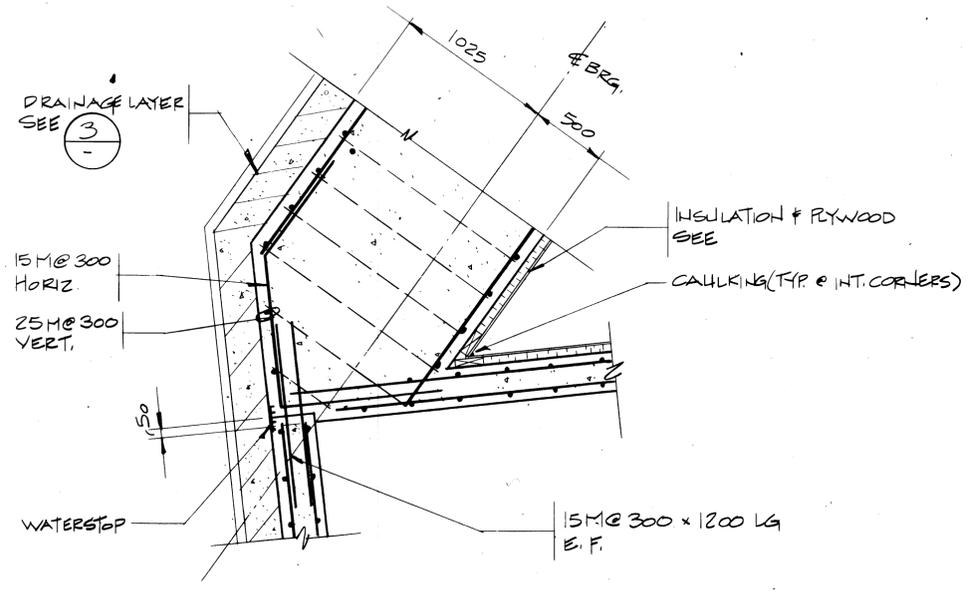
2 DETAIL
5 SCALE 1:25



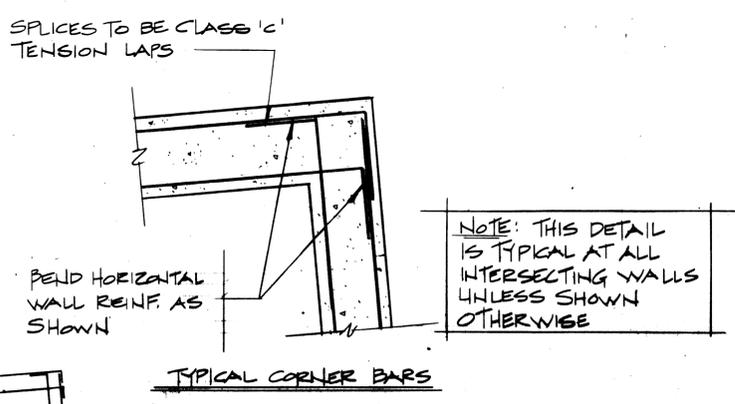
3 DETAIL
8 SCALE 1:10



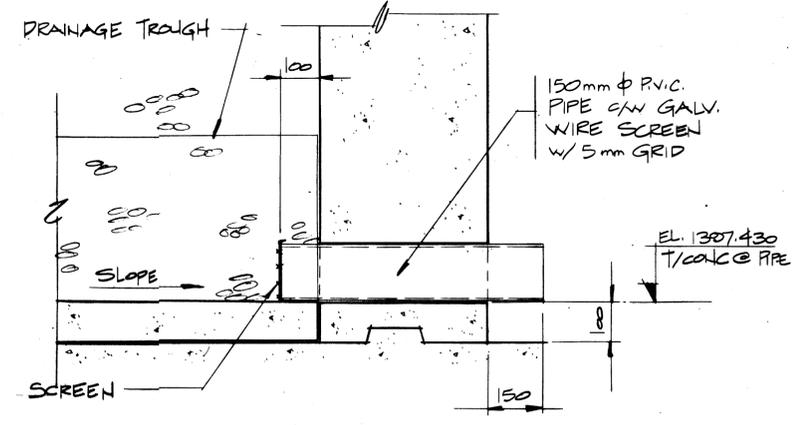
4 DETAIL
5 SCALE 1:25



5 DETAIL
5 SCALE 1:25



6 DETAIL
5/6 N.T.S.

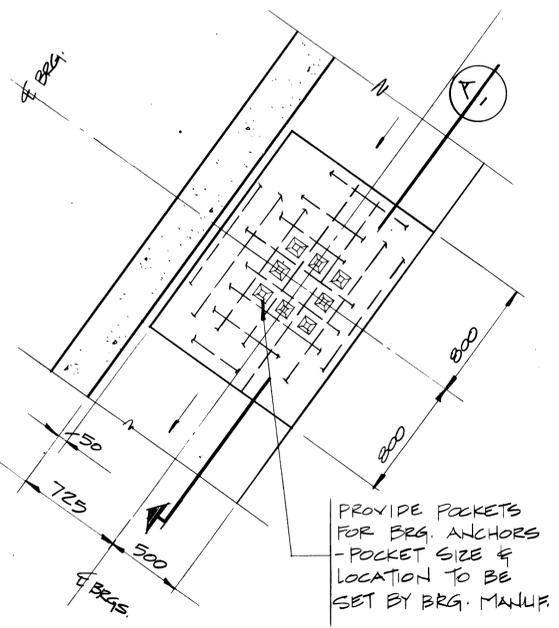


B SECTION
5/6 SCALE 1:10

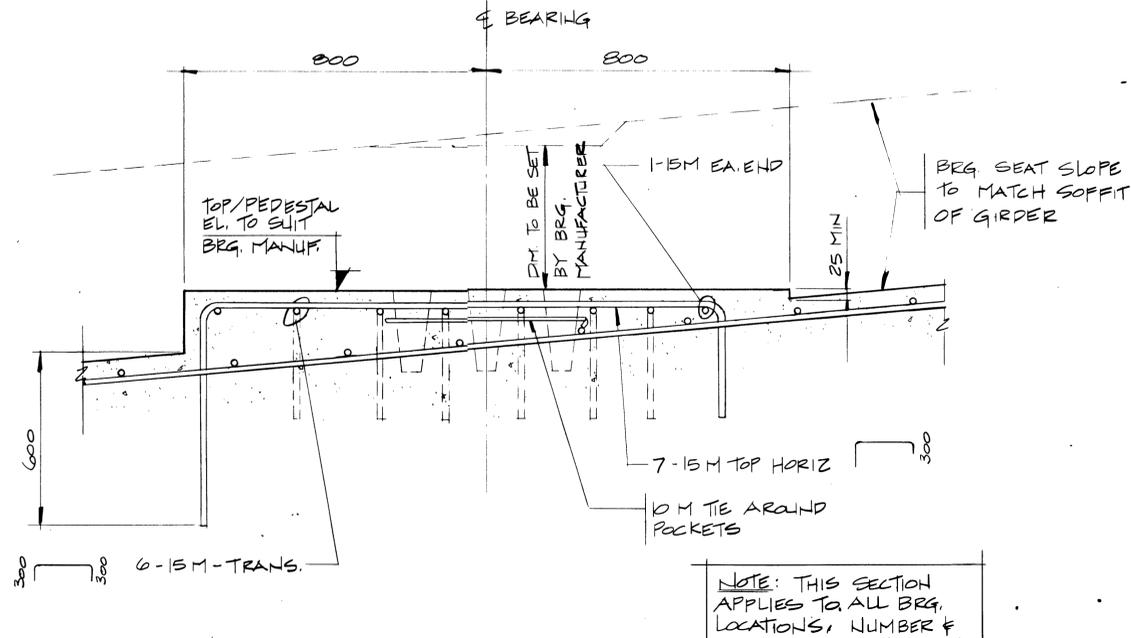
Western Region

Project: TRANS-CANADA HIGHWAY TWINNING
BANFF NATIONAL PARK, ALBERTA
MINNEWANKA INTERCHANGE

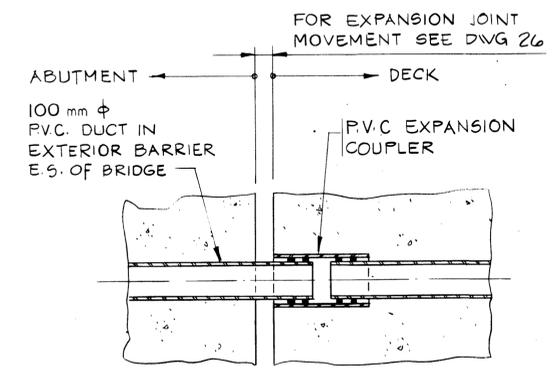
Project No. 003876



1 DETAIL
5,6 SCALE 1:25

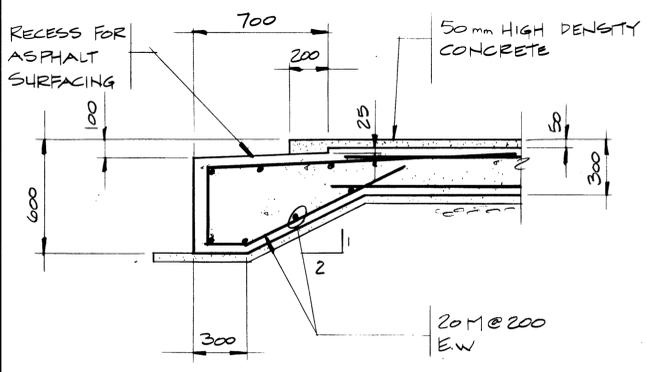


A SECTION
SCALE 1:10

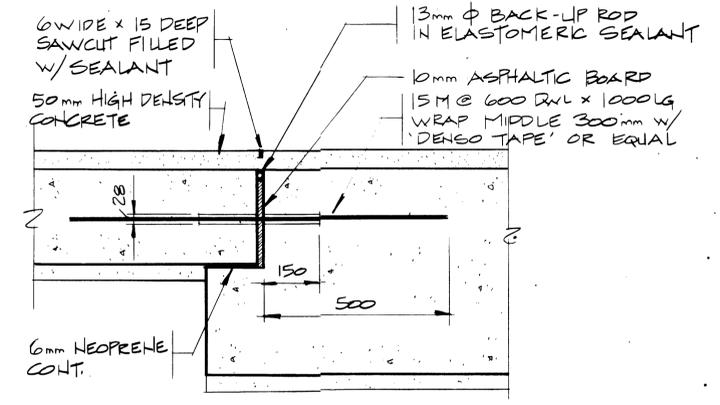


EXPANSION JOINT COUPLER

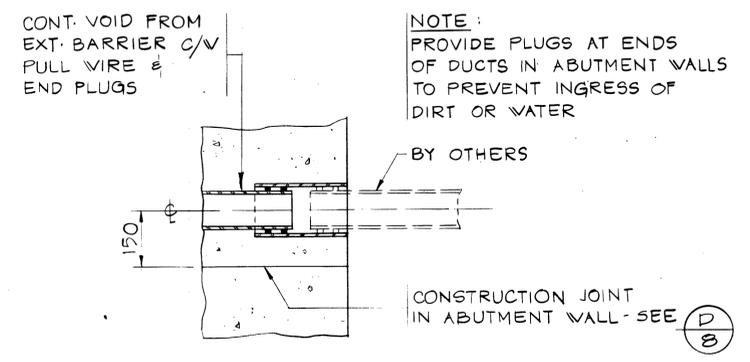
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5,6 SCALE 1:10



2 DETAIL
8 SCALE 1:20

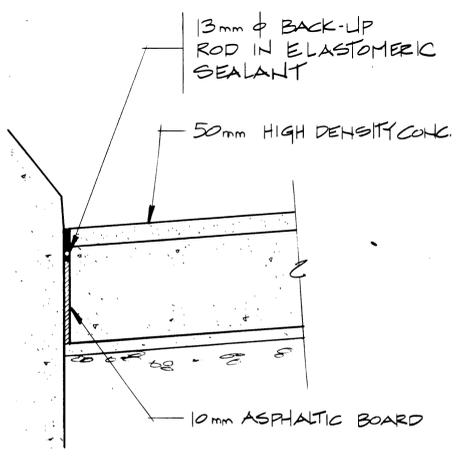


3 DETAIL
8 SCALE 1:10

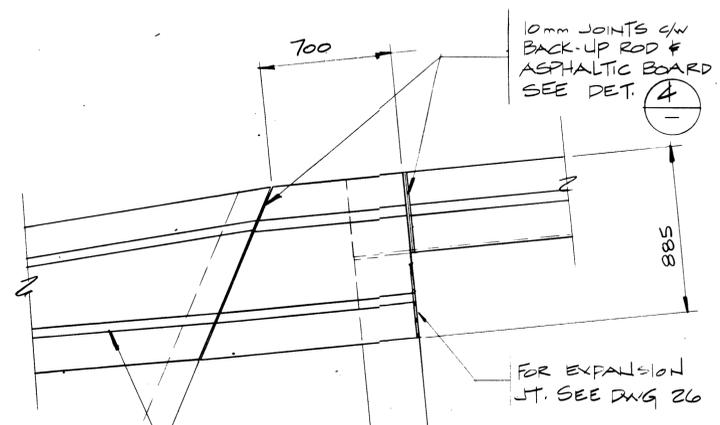


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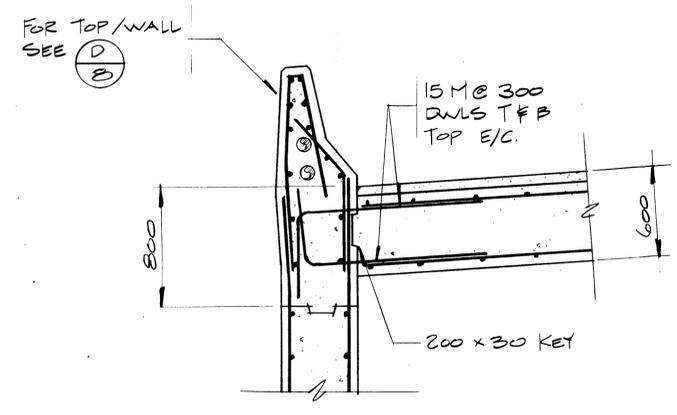
7 DETAIL
5,6 SCALE 1:10



4 DETAIL
8 SCALE 1:10



5 DETAIL
5,6 SCALE 1:10



B SECTION
5,6 SCALE 1:25

REV	D	M	Y	REVISION DESCRIPTION	DRN	DES	CHK	APP

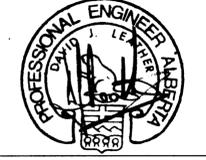
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Compile par: [Blank]

Horizontal Scale Echelle horizontale	N.A.	Contour Interval Equisistance	N.A.
Compilation Photos Photos de compilation	N.A.	Photo Scale Echelle photographique	N.A.

Drawn by: D. WIDDIFIELD
Dessine par: JAN. 28. 84

Checked by: T. HASSENRUECK
Verifie par: JAN. 28. 84

Approved by: D. LEATHER
Approuve par: JAN. 28. 84



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PERMIT NUMBER P 2375
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Calgary Alberta

T.C.H. BRIDGE OVER BANFF AVENUE
km 13+050

ABUTMENT DETAILS SHEET 3

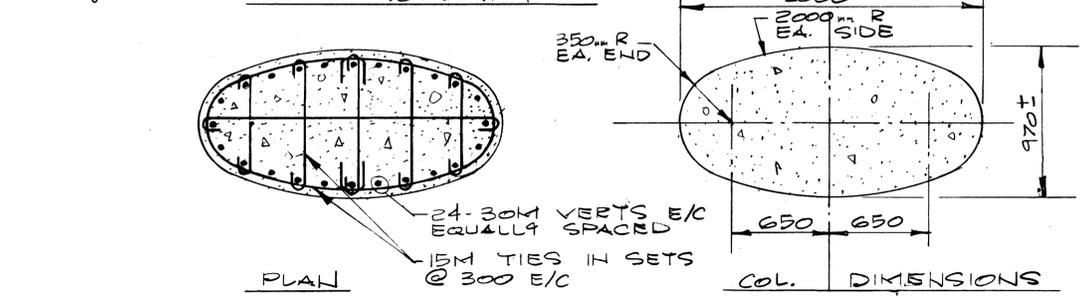
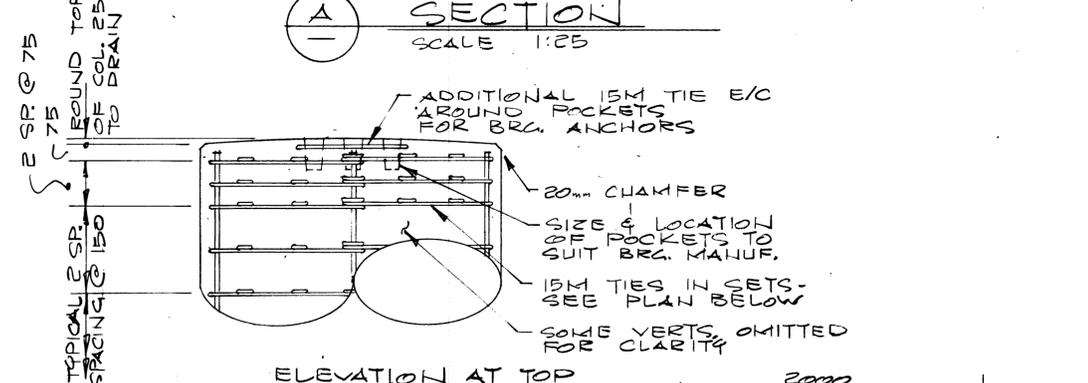
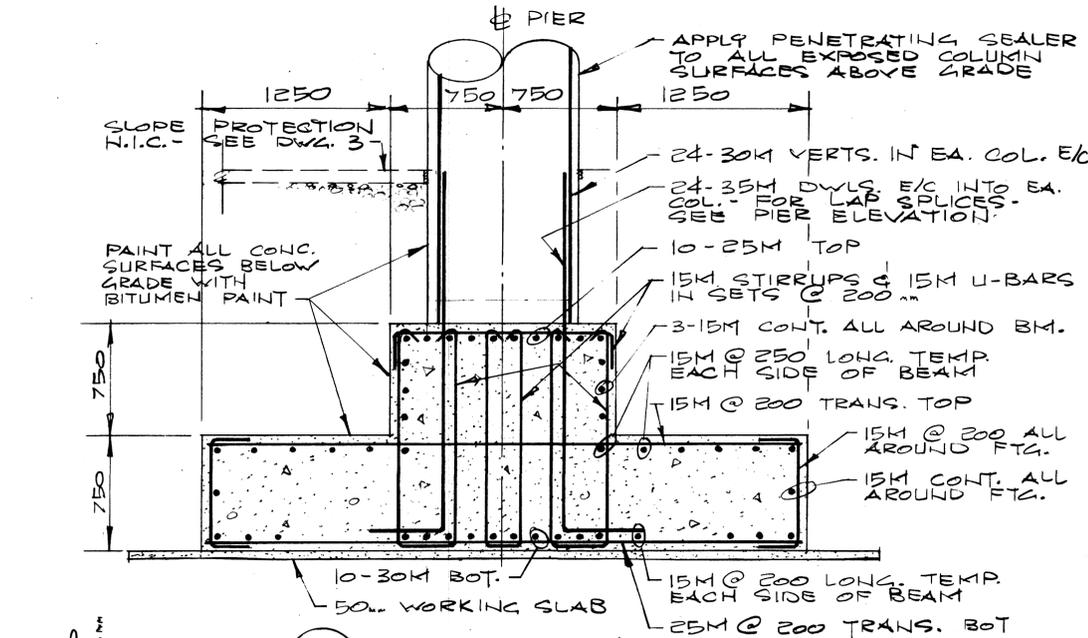
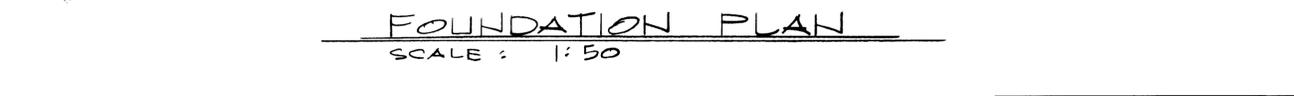
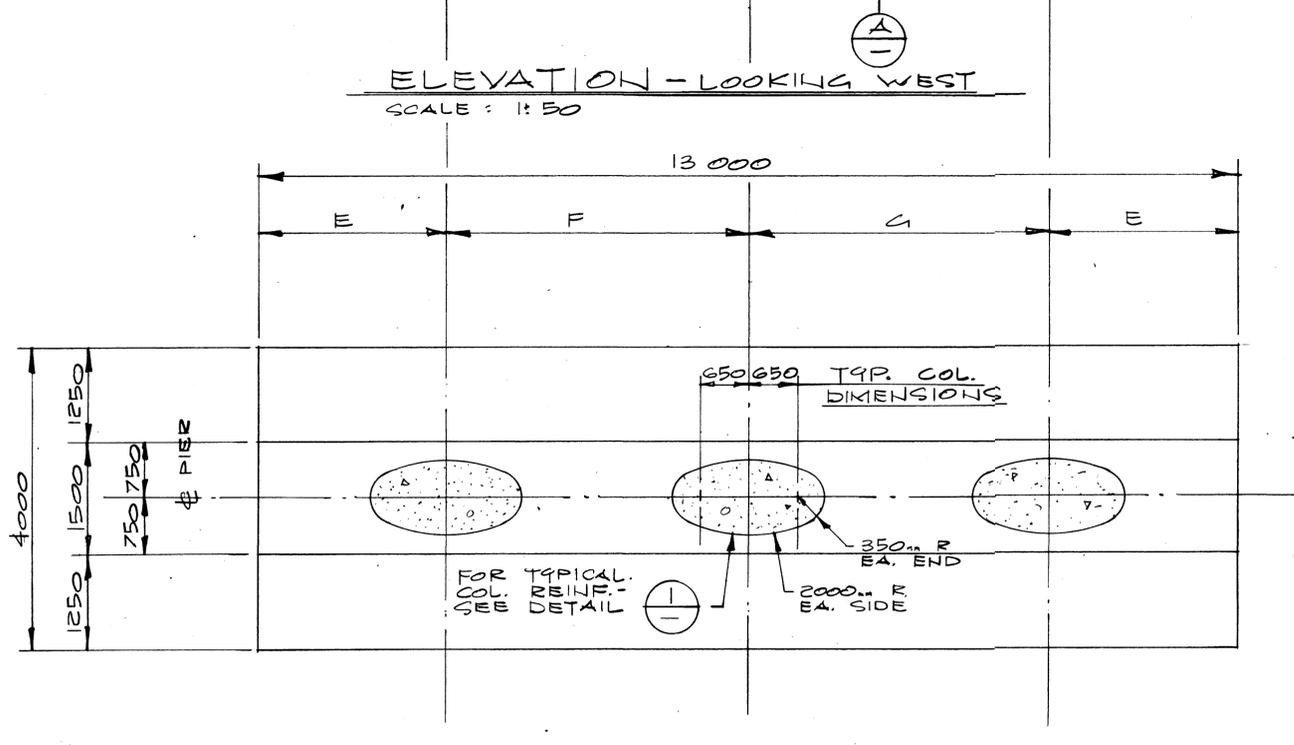
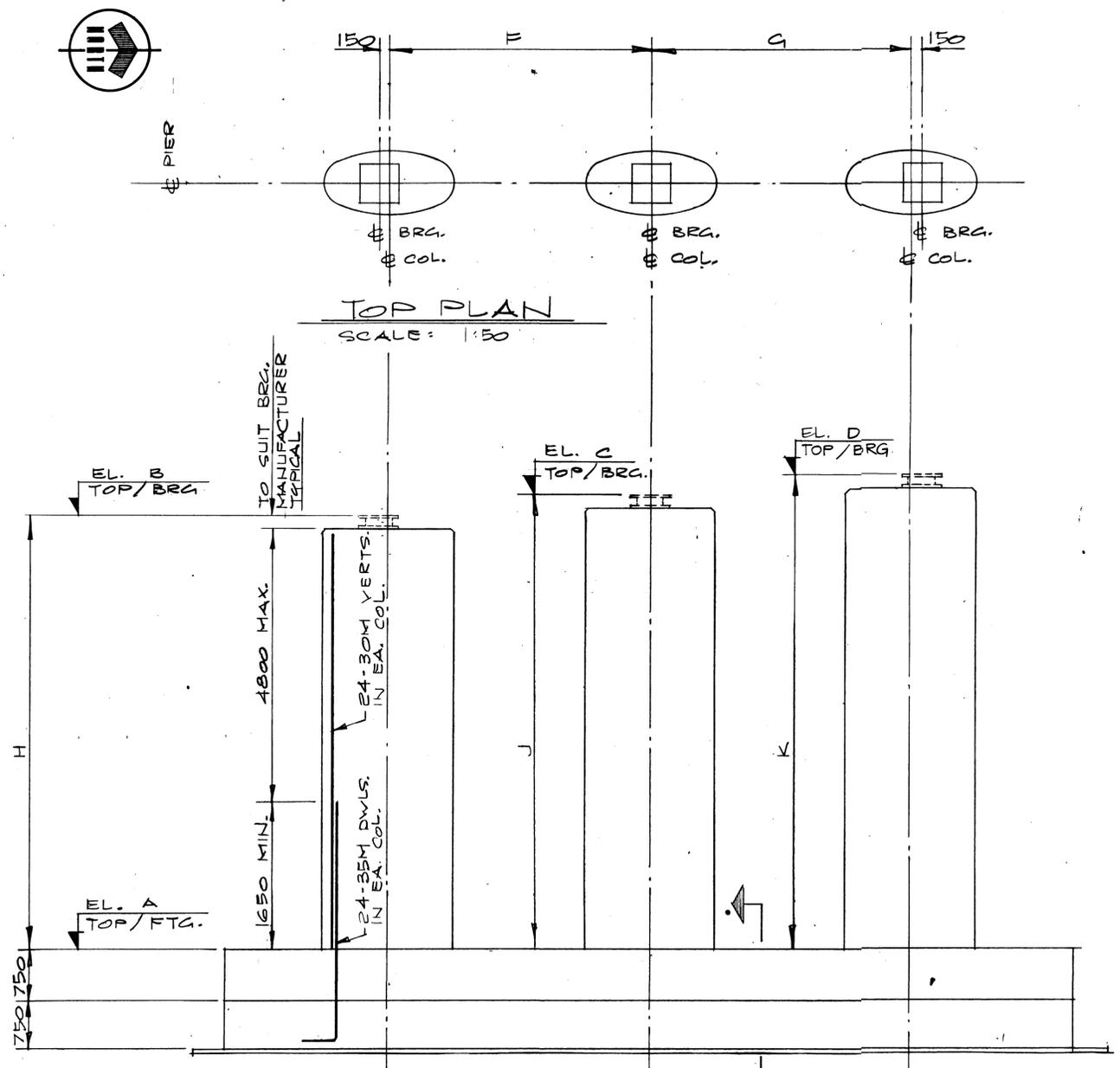
Horizontal Scale Echelle horizontale	AS NOTED	Vertical Scale Echelle verticale	AS NOTED
N.T.S. No. E.T.N. No.	Draw. No. Dessain No.	Sheet No. Feuille No.	10 of 28
N.A.	2977-022		

Western Region

Project: TRANS-CANADA HIGHWAY TWINNING
BANFF NATIONAL PARK, ALBERTA
MINNEWANKA INTERCHANGE

Project No.: 003876

	MARK NUMBER (SEE DWG. 2)			
	PIS	PIN	P2S	P2N
ELEVATIONS				
A	1392.100	1392.100	1392.600	1392.600
B	1398.810	1399.810	1398.850	1399.800
C	1399.055	1400.050	1399.080	1400.025
D	1399.300	1400.285	1399.310	1400.250
DIMENSIONS				
E	2420	2500	2670	2725
F	4090	4010	3840	3780
G	4070	3990	3820	3770
H	6710	7710	6250	7200
I	6955	7950	6480	7425
K	7200	8185	6710	7650



REV	D	M	Y	REVISION DESCRIPTION	DRN	DES	CHK	APP

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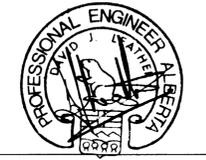
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Compilation Photos: N.A. Photo Scale: N.A.

Drawn by: J. HALEY Date: JAN. 28. 84

Checked by: D. LEATHER Date: JAN. 28. 84

Approved by: D. LEATHER Date: JAN. 28. 84



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PIERS

Horizontal Scale	Vertical Scale
AS NOTED	AS NOTED

Western Region

Project: TRANS-CANADA HIGHWAY TWINNING
BANFF NATIONAL PARK, ALBERTA
MINNEWANKA INTERCHANGE

Project No. 003876

BEARING DESIGN SCHEDULE

BRG MARK No.	ANGLE θ	ELEVATION	QTY	TYPE ^A	VERTICAL LOADS (kN) (-ve REF. TO UPLIFT)							HORIZ. LOADS (kN)		MOVEMENT (mm)		LONGITUDINAL ROTATIONS (RADIAN)					
					DL	SDL	PRE	LL	WIND	MAX.	MIN.	LONGITUD.	TRANSV.	LONGIT.	TRANSV.	ϕ DL	ϕ PRE	ϕ SDL	ϕ CREEP	ϕ LL	TOTAL MAX.
B1N	128° 14' 30"	1399.685	1	U/G	488	137	198	405/-50	-72 +12	1330	701	-	-	± 30	± 10	-0.0014	+ 0.0016	- 0.0003	- 0.0001	- 0.0009	- 0.0011
B1S	129° 30' 50"	1398.630	1																		
B2N	128° 4' 10"	1399.949	1	FIXED	781	89	573	197/-133	-13	1640	1297	750	83	0	0	-0.0013	+ 0.0014	- 0.0002	- 0.0001	- 0.0009	- 0.0011
B2S	129° 19' 40"	1398.900	1																		
B3N	127° 54' 00"	1400.220	1	U/G	854	33	-448	983/-344	-38 +12	1434	57	-	-	± 30	± 10	-0.0012	+ 0.0014	- 0.0002	0	- 0.0009	- 0.0009
B3S	129° 8' 40"	1399.185	1																		
B4N	126° 38' 10"	1399.810	1	U/G	2665	591	-1113	1165/-147	-297 +47	3355	1699	-	-	± 70	± 10	-0.00001	- 0.00033	- 0.00001	- 0.00035	- 0.0007	- 0.0014
B4S	127° 50' 00"	1398.810	1																		
B5N	126° 30' 00"	1400.050	1	G	1418	75	1420	484/-116	-47	3397	2750	-	384	± 70	± 15 ^{*C}	-0.00035	+ 0.00002	- 0.00007	- 0.0004	- 0.0007	- 0.0015
B5S	127° 41' 00"	1399.055	1																		
B6N	126° 21' 40"	1400.285	1	U/G	2638	513	-688	1092/-155	-289 +47	3602	2019	-	-	± 70	± 10	-0.0001	+ 0.0003	- 0.0004	- 0.0003	- 0.0008	- 0.0014
B6S	127° 32' 10"	1399.300	1																		
B7N	124° 35' 40"	1399.800	1	U/G	2508	527	-811	1132/-232	-159 +41	3397	1833	-	-	± 120	± 10	+ 0.0009	- 0.0009	+ 0.00015	+ 0.00015	+ 0.00075	+ 0.0010
B7S	125° 42' 10"	1398.850	1																		
B8N	124° 28' 30"	1400.025	1	G	1566	78	963	600/-218	-42	3207	2347	-	384	± 120	± 2 ^{*C}	+ 0.00066	- 0.00069	+ 0.00011	+ 0.00003	+ 0.0006	+ 0.0007
B8S	125° 34' 30"	1399.080	1																		
B9N	124° 21' 30"	1400.250	1	U/G	1978	538	-422	991/-23	-368 +41	3126	1703	-	-	± 120	± 10	+ 0.00045	- 0.00054	+ 0.00009	0	+ 0.0005	+ 0.0005
B9S	125° 27' 00"	1399.310	1																		
B10N	123° 24' 50"	1399.700	1	U/G	255	34	72	697/-419	-24 +44	1102	-82 ^{*B}	-	-	± 160	± 10	+ 0.0003	- 0.00008	+ 0.00007	+ 0.0003	+ 0.0005	+ 0.0011
B10S	124° 28' 30"	1398.775	1																		
B11N	123° 17' 40"	1399.940	1	G	699	-3	393	378/-13	-14	1467	1062	-	182	± 160	± 3 ^{*C}	+ 0.0004	- 0.0002	+ 0.00009	+ 0.0003	+ 0.0005	+ 0.0011
B11S	124° 20' 50"	1399.020	1																		
B12N	123° 10' 30"	1400.175	1	U/G	453	204	-116	290/-41	-35 +44	875	465	-	-	± 160	± 10	+ 0.0005	- 0.00033	+ 0.00014	+ 0.0003	+ 0.0006	+ 0.0012
B12S	124° 13' 10"	1399.260	1																		

ALLOWABLE BEARING PRESSURES : UNDERSIDE OF DECK = 14 MPa
ON CONCRETE TOP OF PIER = 12 MPa

*A - G - GUIDED (UNIDIRECTIONAL)
U/G - UNGUIDED (MULTIDIRECTIONAL)

*B - UPLIFT ON BEARING

*C - TOLERANCE REQUIRED ON GUIDED BEARINGS FOR CURVATURE OF BRIDGE

DESIGN SCHEDULE LEGEND

DL - DEAD LOAD
SDL - SUPERIMPOSED DEAD LOAD
PRE - PRESTRESS
LL - LIVE LOAD

BEARING NOTES

- BEARING TYPES AND DIMENSIONS HAVE BEEN BASED ON WABO FYFE HIGH LOAD STRUCTURAL BEARINGS SUPPLIED BY ELASTOMETAL. GLACIER DUALIGN K BEARINGS SUPPLIED BY W.G. BEARING ARE AN ACCEPTED ALTERNATE.
- THE BEARING MANUFACTURER WILL BE RESPONSIBLE FOR THE CORRECT FUNCTIONING OF EACH BEARING INCLUDING ALL ADDITIONAL MASONRY AND SPREADER PLATES WHICH ARE TO BE DESIGNED TO SUIT EACH BEARING TYPE.
- ALL BEARING CALCULATIONS AND SHOP DRAWINGS ARE TO BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO MANUFACTURE.
- ALL STEEL MATERIAL TO BE IN ACCORDANCE WITH CSA STANDARD G40.21M GRADE 300W EXCEPT WHERE SHOWN OTHERWISE.
- STAINLESS STEEL SHALL BE TYPE 304 2B FINISH WITH A BRIGHT ANNEALED POLISHED SLIDING SURFACE CONFORMING WITH ASTM A167-77 AND A480-75.
- THE ELASTOMERIC DISC AND LEVELLING PAD SHALL BE OZONE TREATED, 50 DURO NATURAL RUBBER CONFORMING TO AASHTO SPECIFICATIONS. LONG TERM DEFLECTION OF THE DISC SHALL BE LESS THAN 8% OF THE ELEMENT THICKNESS.
- THE POLYTETRAFLUOROETHYLENE (PTFE) SHALL BE 100% VIRGIN POLYMER, DIMPLED, LUBRICATED, RECESSED INTO THE BEARING PLATE AND SHALL CONFORM TO ASTM D-1706-59T, D-638 AND D-792.
- ALL METAL TO METAL CONTACT SURFACES WITHIN THE BEARING SHALL BE PREPARED EITHER BY MACHINING OR FINE GRINDING.
- THE TOLERANCE FIT BETWEEN THE PISTON AND POT TO BE +0.75 mm TO 1.25 mm MAXIMUM.
- ALL WELDING SHALL CONFORM TO CSA W59.1 AND SHALL BE DONE BEFORE MACHINING WHEREVER POSSIBLE.
- ALL STEEL EXPOSED TO THE ATMOSPHERE SHALL BE COATED WITH COLTRUIET ZINC EPOXY.
- AFTER FINAL INSPECTION AND ACCEPTANCE OF THE VARIOUS PARTS OF THE FINISHED BEARING THEY SHALL BE ASSEMBLED AND CLAMPED TOGETHER.
- COMPLETED BEARINGS SHALL HAVE THE SUPPLIERS NAME OR TRADEMARK AND A SERIAL NUMBER INDELIBLY MARKED UPON IT.
- BEARING SHALL BE DESIGNED SO THAT THEY MAY BE REMOVED WITHOUT LIFTING THE BRIDGE MORE THAN 3 mm.
- ROTATIONAL CAPACITY OF THE BEARING SHALL BE A MINIMUM OF 0.01 RADIAN. MAXIMUM COEFFICIENT OF FRICTION SHALL NOT EXCEED 0.03.

REV	D	M	Y	REVISION DESCRIPTION	DRN	DES	CHK	APP
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Computed by
Compile par

Horizontal Scale
Echelle horizontale

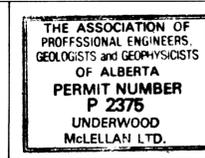
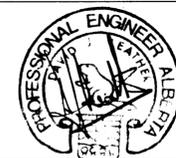
Contour Interval
Ecartance

Completion Photos
Photos de complation

Drawn by
Dessiné par

Checked by
Vérifié par

Approved by
Approuvé par



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T.C.H. BRIDGE OVER
BANFF AVENUE
km 13+050

BEARINGS
SHEET 2



AS NOTED

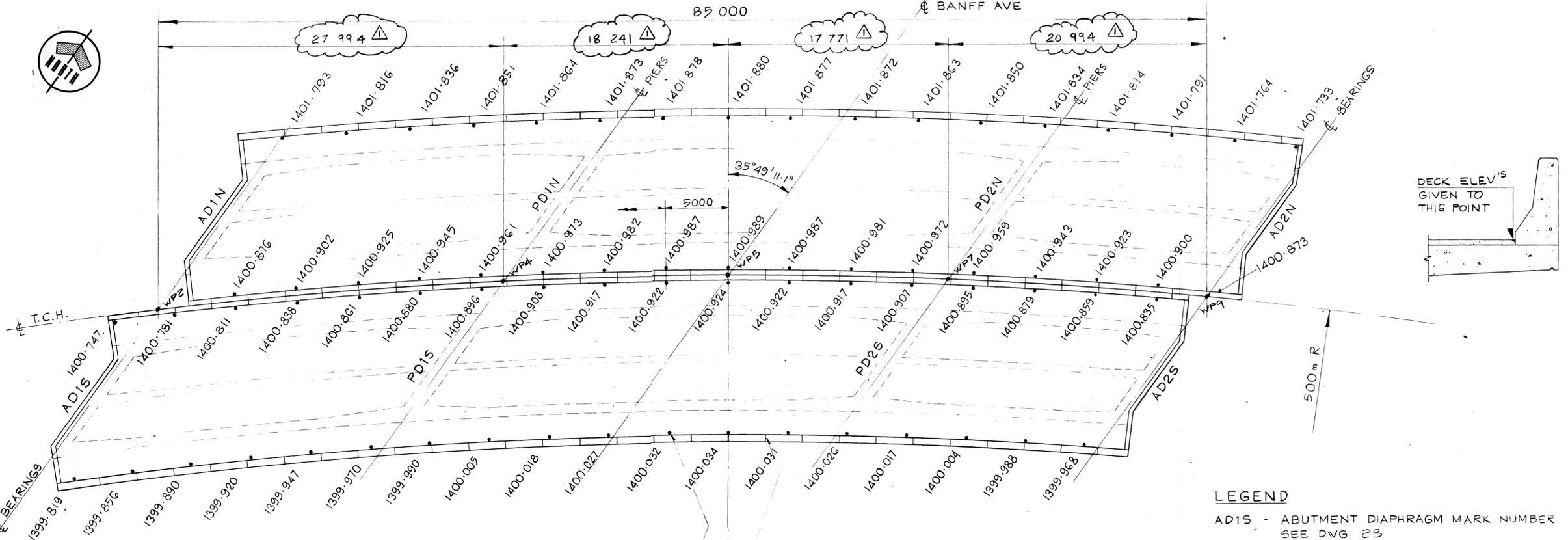
AS NOTED

13 28

Western Region

Project: TRANS-CANADA HIGHWAY TWINNING
Banff National Park, Alberta
Minnewanka Interchange

Project No. 003876



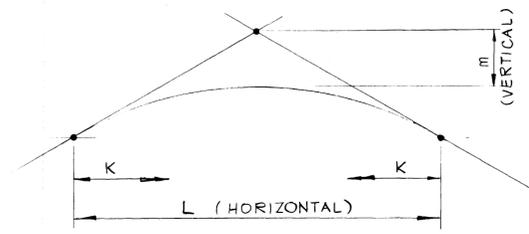
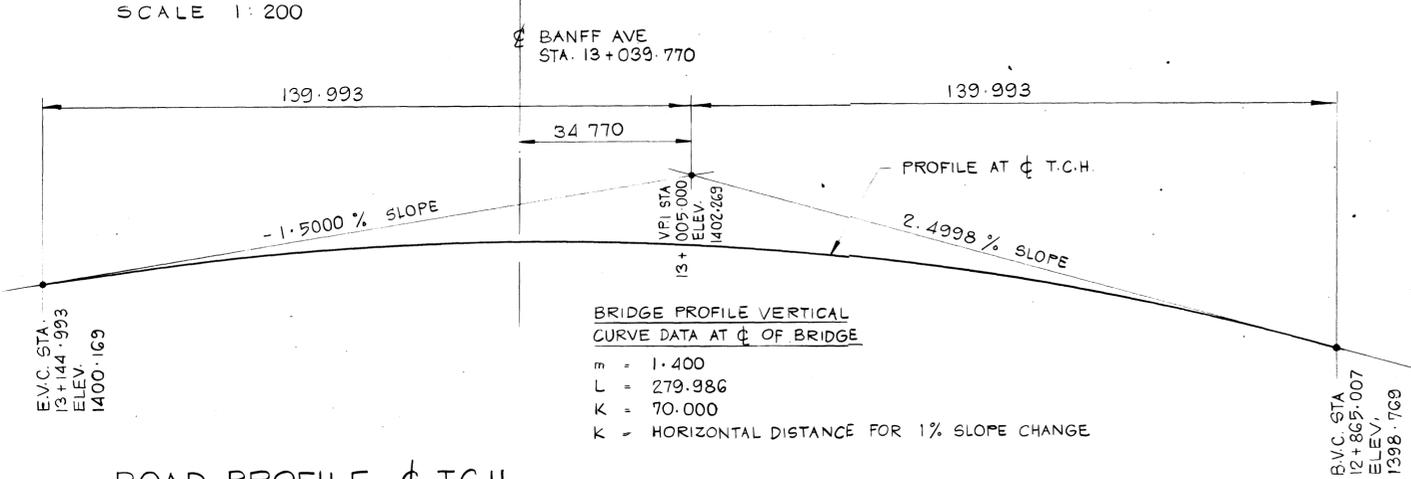
TOP OF DECK ELEVATIONS ARE GIVEN @ 5000 %/C FROM V.P.5 ALONG C.T.C.H. EXTERIOR DECK ELEVATIONS ARE LOCATED RADIALLY FROM THESE POSITIONS.

TRAFFIC BARRIER CONTROL JOINTS @ 3000 % TYPICAL

DECK PLAN
SCALE 1:200

LEGEND
ADIS - ABUTMENT DIAPHRAGM MARK NUMBER SEE DVG. 23
PDIS - PIER DIAPHRAGM MARK NUMBER SEE DVG. 21

1	18	4	84	DIMENSIONS-PLAN	J.H.	G.W.	G.W.	D.L.
REV	D	M	Y	REVISION DESCRIPTION	DRN	DES	CHK	APP

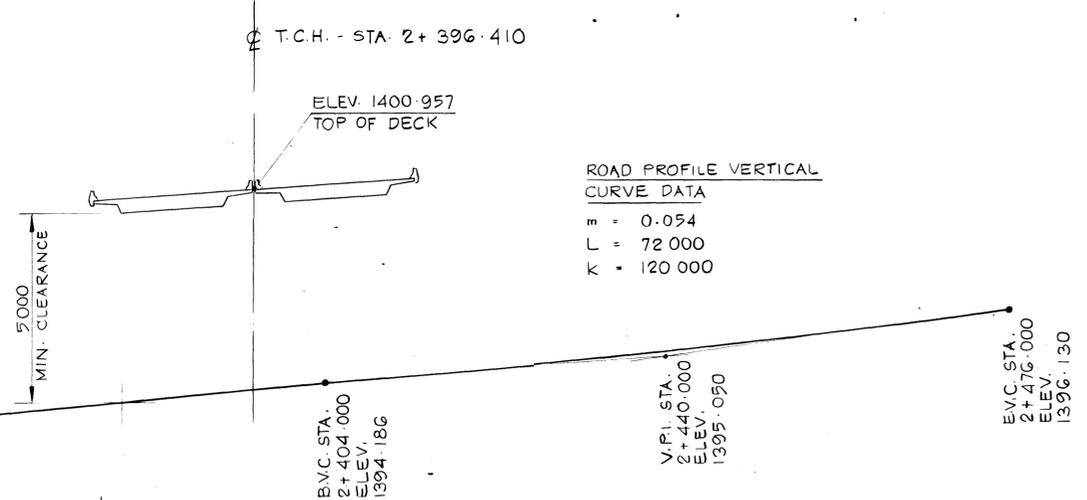


VERTICAL CURVE DIAGRAM

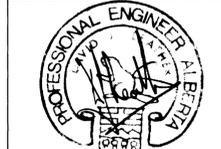
NOTE:
ALL DECK ELEVATIONS AND T.C.H. PROFILE DATA HAVE BEEN SET 50mm HIGH TO ALLOW FOR FUTURE ADDITIONAL SURFACING OF T.C.H. ADJACENT TO BRIDGE.

ROAD PROFILE C.T.C.H.
N.T.S.

ROAD PROFILE VERTICAL CURVE DATA
 $B = 2.187$
 $L = 324.000$
 $K = 60.000$



ROAD PROFILE C.BANFF AVE
N.T.S.



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km 13+050

DECK PLAN

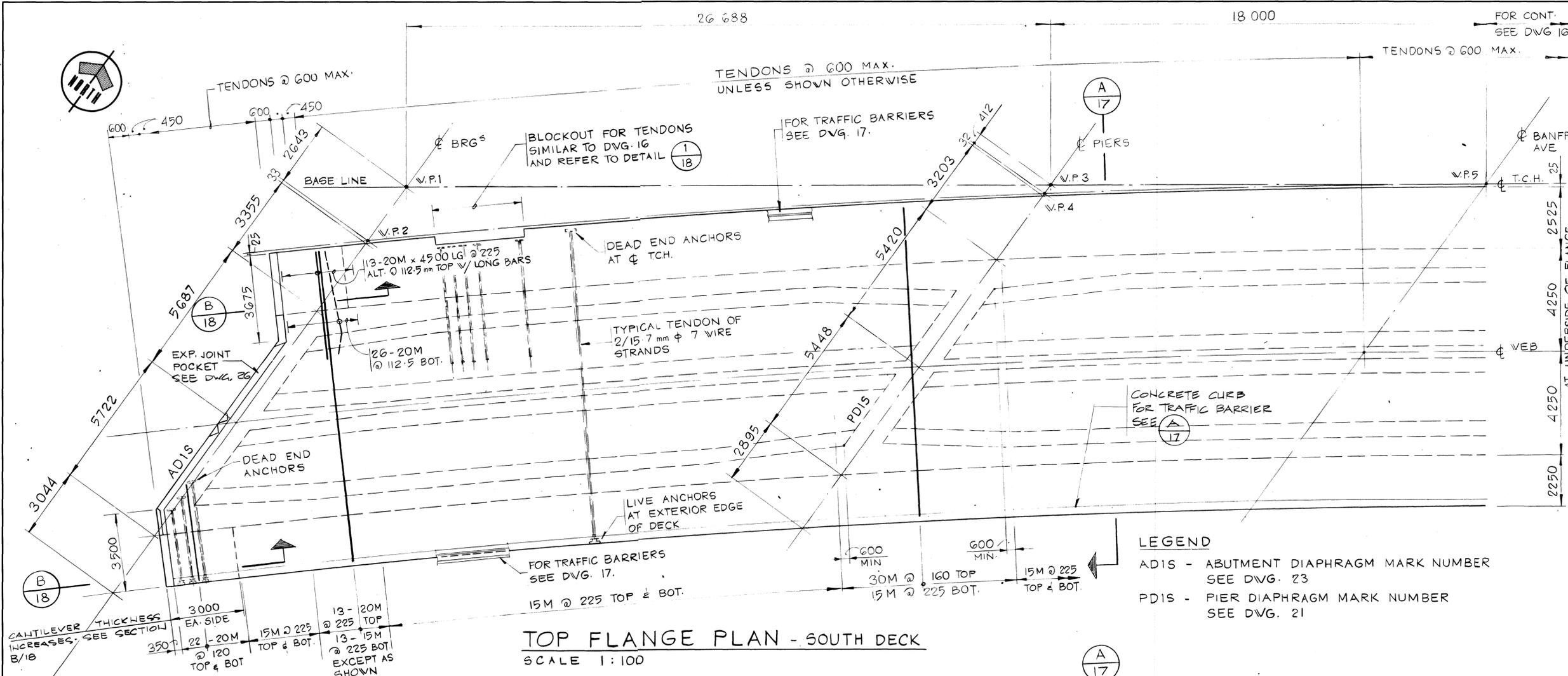


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AS NOTED	AS NOTED
NTS No. STA. N.A.	Draw. No. 2977-02 Sheet 14 of 28

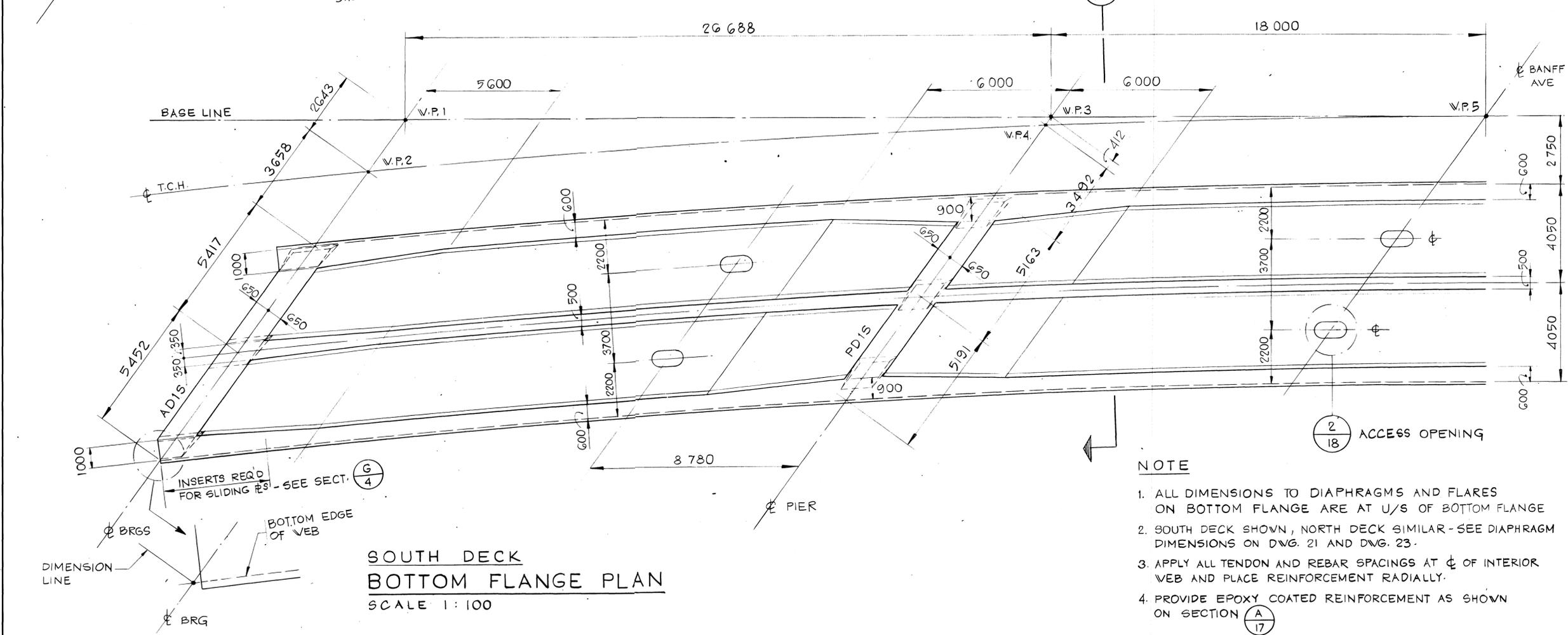
Western Region

TRANS-CANADA HIGHWAY TWINNING
BANFF NATIONAL PARK, ALBERTA
MINNEWANKA INTERCHANGE

003876



TOP FLANGE PLAN - SOUTH DECK
SCALE 1:100



**SOUTH DECK
BOTTOM FLANGE PLAN**
SCALE 1:100

LEGEND
ADIS - ABUTMENT DIAPHRAGM MARK NUMBER
SEE DVG. 23
PDIS - PIER DIAPHRAGM MARK NUMBER
SEE DVG. 21

- NOTE**
1. ALL DIMENSIONS TO DIAPHRAGMS AND FLARES ON BOTTOM FLANGE ARE AT U/S OF BOTTOM FLANGE
 2. SOUTH DECK SHOWN, NORTH DECK SIMILAR - SEE DIAPHRAGM DIMENSIONS ON DVG. 21 AND DVG. 23.
 3. APPLY ALL TENDON AND REBAR SPACINGS AT ϕ OF INTERIOR VEB AND PLACE REINFORCEMENT RADIALLY.
 4. PROVIDE EPOXY COATED REINFORCEMENT AS SHOWN ON SECTION $\frac{A}{17}$

REV	D	M	Y	REVISION DESCRIPTION	DRN	DES	CHK	APP

Horizontal Scale Echelle horizontale	N.A.	Vertical Scale Echelle verticale	N.A.
Computer Aided Système de calcul	N.A.	Computer Aided Système de calcul	N.A.
Drawn by Dessiné par	D. MZIK	Date	JAN. 28. 84
Checked by Vérifié par	H. DANIEL	Date	JAN. 28. 84
Approved by Approuvé par	D. LEATHER	Date	JAN. 28. 84

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AA006023

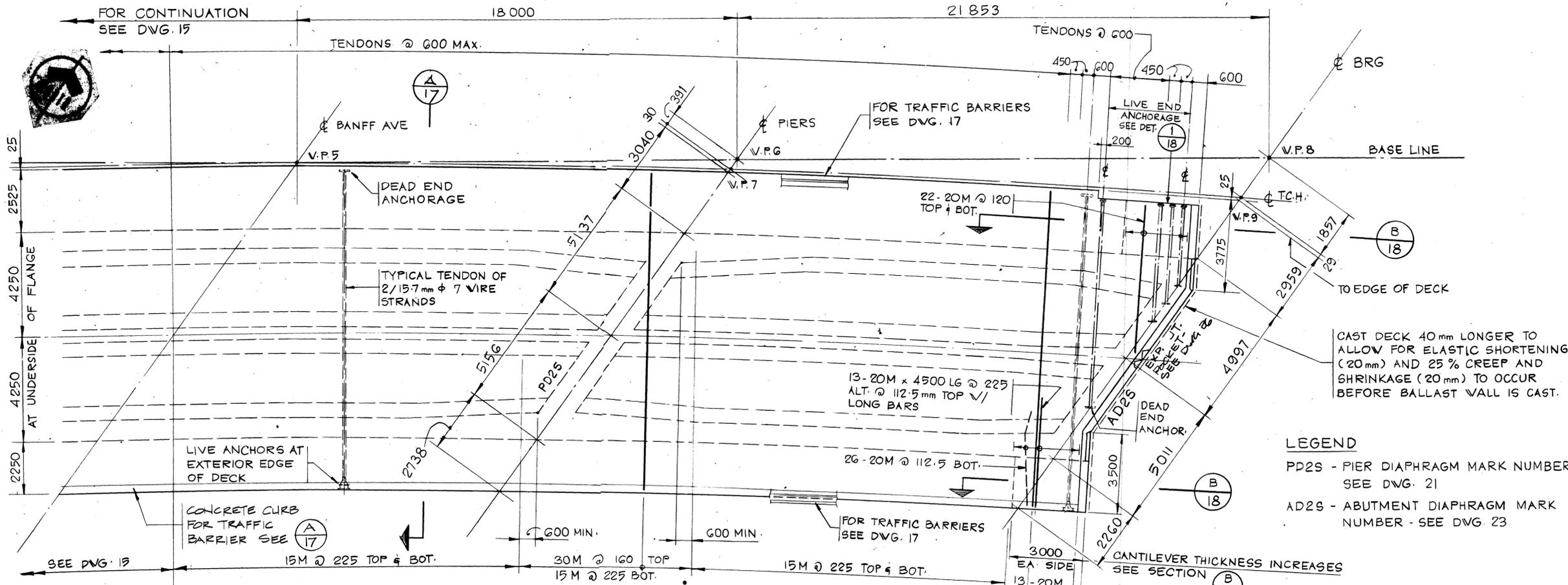
**SOUTH DECK
FLANGE PLANS
WEST END**

Horizontal Scale Echelle horizontale	AS NOTED	Vertical Scale Echelle verticale	AS NOTED
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Sheet No. Feuille No.	15	Total Sheets Total Feuilles	28

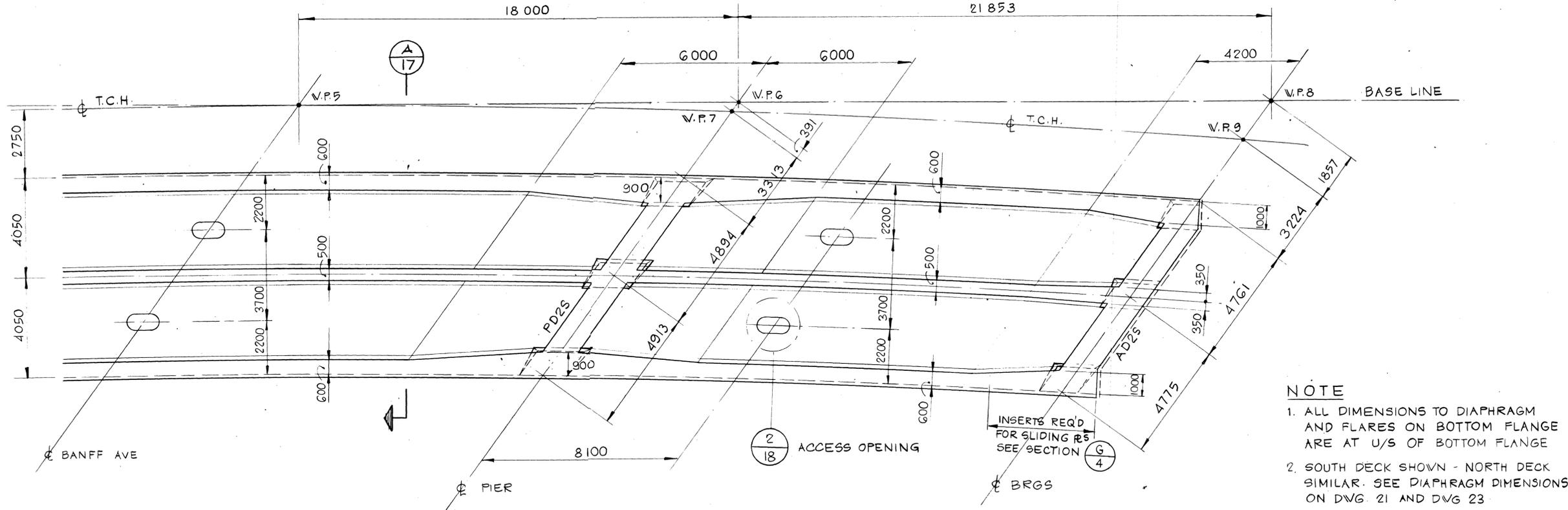
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 BANFF NATIONAL PARK, ALBERTA
 MINNEWANKA INTERCHANGE

Project No. 003876



**SOUTH DECK
 TOP FLANGE PLAN**
 SCALE 1:100



**SOUTH DECK
 BOTTOM FLANGE PLAN**
 SCALE 1:100

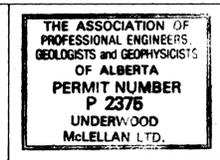
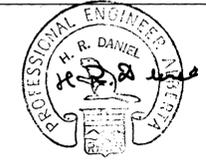
LEGEND
 PD25 - PIER DIAPHRAGM MARK NUMBER
 SEE DWG. 21
 AD25 - ABUTMENT DIAPHRAGM MARK
 NUMBER - SEE DWG. 23

- NOTE**
1. ALL DIMENSIONS TO DIAPHRAGM AND FLARES ON BOTTOM FLANGE ARE AT U/S OF BOTTOM FLANGE
 2. SOUTH DECK SHOWN - NORTH DECK SIMILAR. SEE DIAPHRAGM DIMENSIONS ON DWG. 21 AND DWG. 23
 3. APPLY ALL TENDON & REBAR SPACINGS AT CL OF INTERIOR WEB AND PLACE REINFORCEMENT RADIALLY.
 4. PROVIDE EPOXY COATED REINFORCEMENT AS SHOWN ON SECTION (A/17)

REV	D	M	Y	REVISION DESCRIPTION	DRN	DES	CHK	APP

Horizontal Scale Echelle horizontale	N.A.	Contour Interval Equisistance	N.A.
Compilation Photos Photos de compilation	N.A.	Photo Scale Echelle photographique	N.A.

Drawn by Dessine par	D. MZIK
Date	JAN. 28. 84
Checked by Verifie par	H. DANIEL
Date	JAN. 28. 84
Approved by Approuve par	D. LEATHER
Date	JAN. 28. 84



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**SOUTH DECK
 FLANGE PLANS
 EAST END**

Horizontal Scale Echelle horizontale	AS NOTED	Contour Interval Equisistance	AS NOTED
Revision	N.A.	Sheet No.	16 28
Project No.	2977-022	Scale	

Western Region

Project: TRANS-CANADA HIGHWAY TWINNING
BANFF NATIONAL PARK, ALBERTA
MINNEWANKA INTERCHANGE

Project No. 003876

Project No. 003876
Project No. 003876

REV	D	M	Y	REVISION DESCRIPTION	DRN	DES	CHK	APP

Compiled by: [blank]

Author	Author Initials	Author Name	Scale	Scale
N.A.	N.A.	N.A.	N.A.	N.A.
N.A.	N.A.	N.A.	N.A.	N.A.

Drawn by: D. MZIK	Date: JAN. 28. 84
Checked by: H. DANIEL	Date: JAN. 28. 84
Approved by: D. LEATHER	Date: JAN. 28. 84

Professional Engineer Seal: H. R. DANIEL, P. Eng. No. 2392

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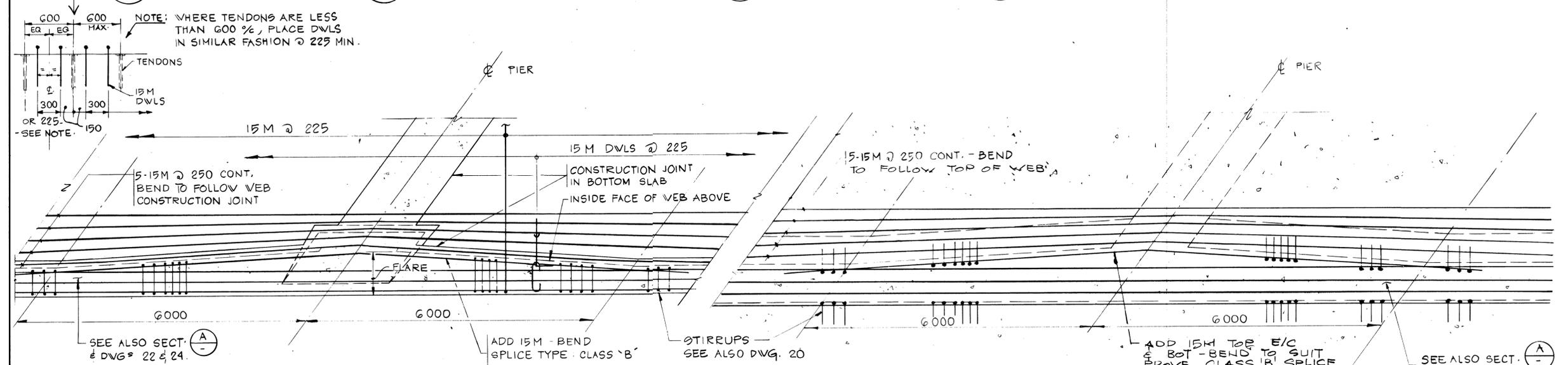
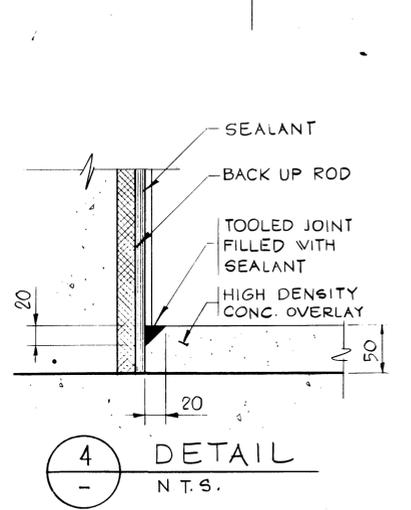
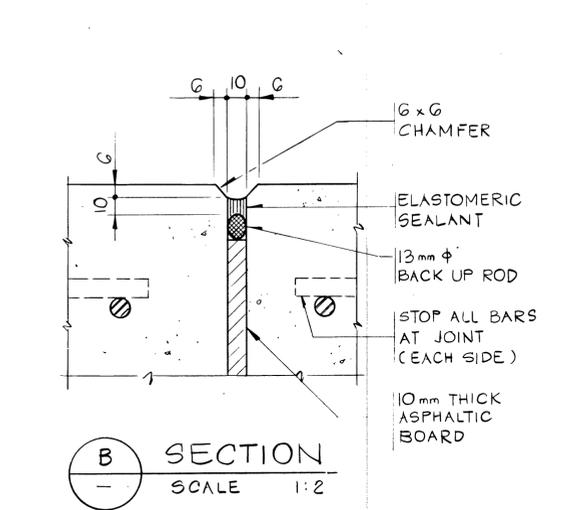
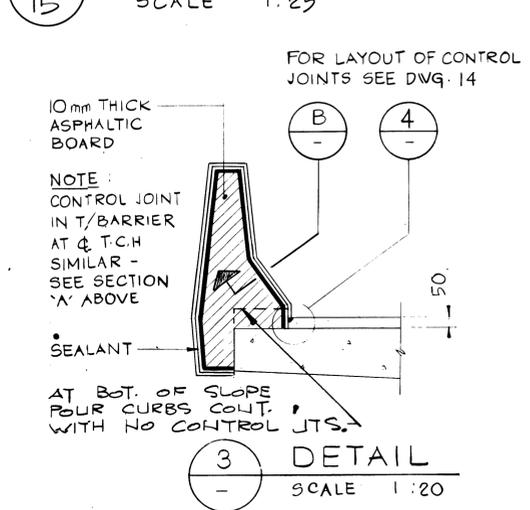
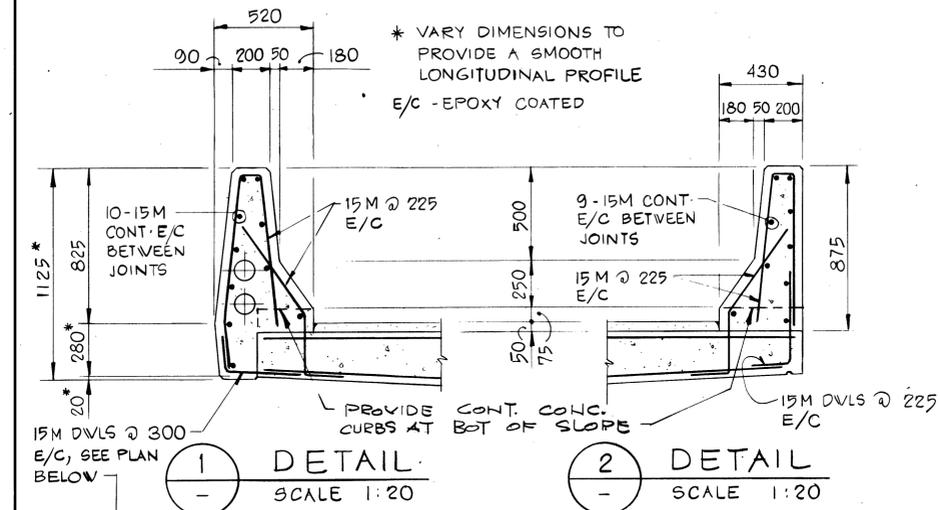
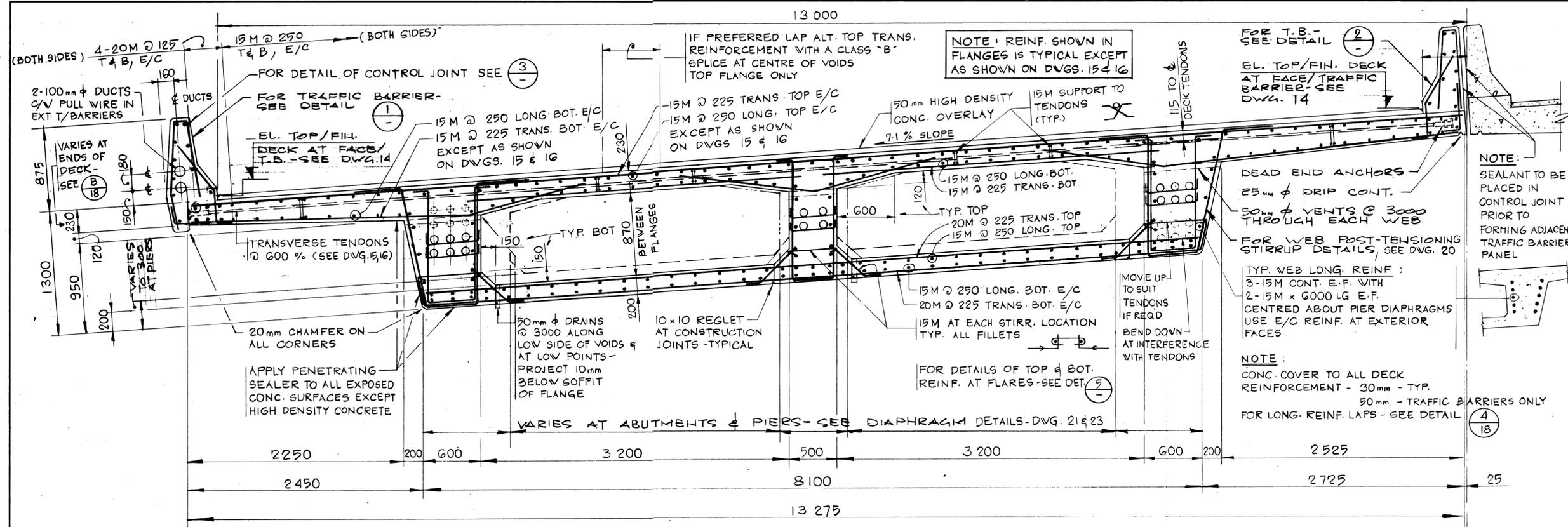
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km 13+050

DECK DETAILS SHEET 1

AA006025

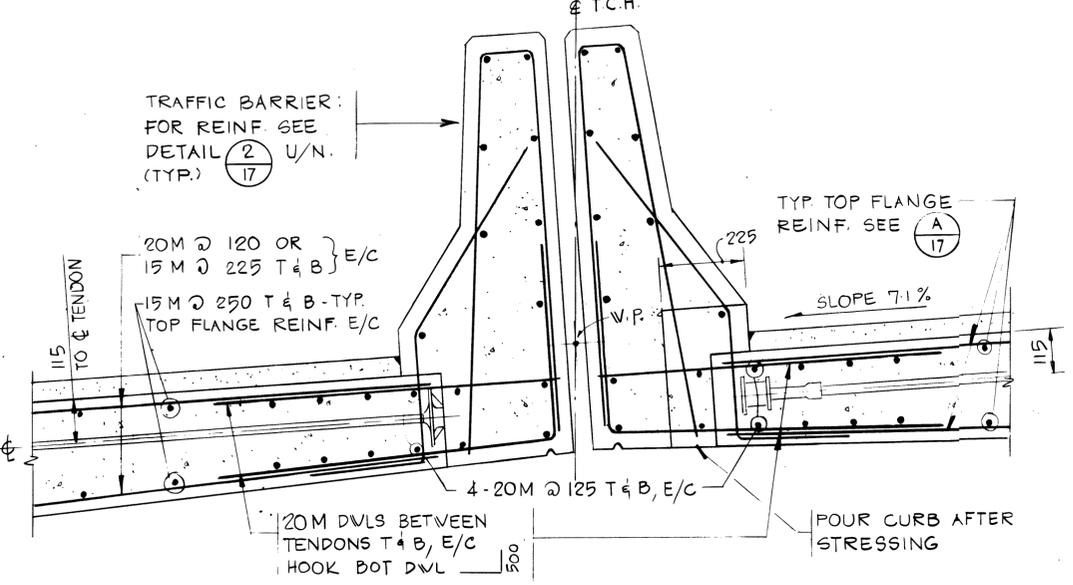
AS NOTED	AS NOTED
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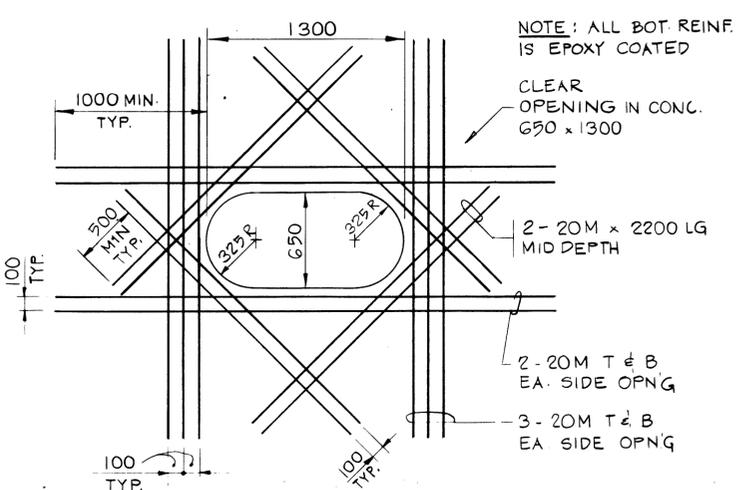
Western Region

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BANFF NATIONAL PARK, ALBERTA
MINNEWANKA INTERCHANGE

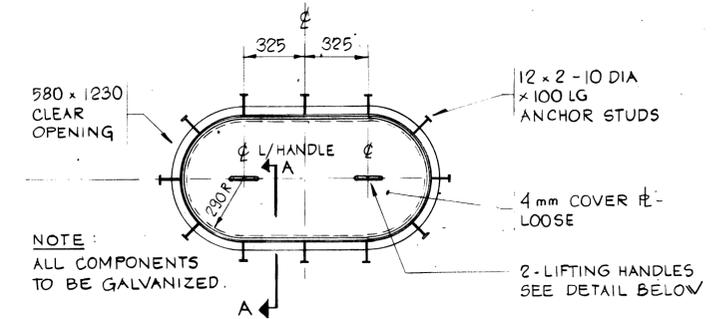
003876



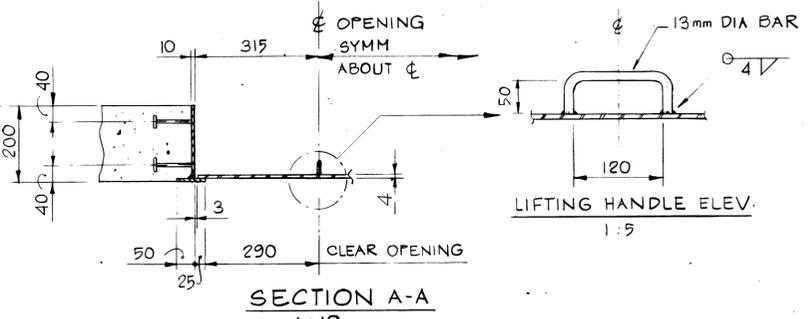
A SECTION
SCALE 1:10



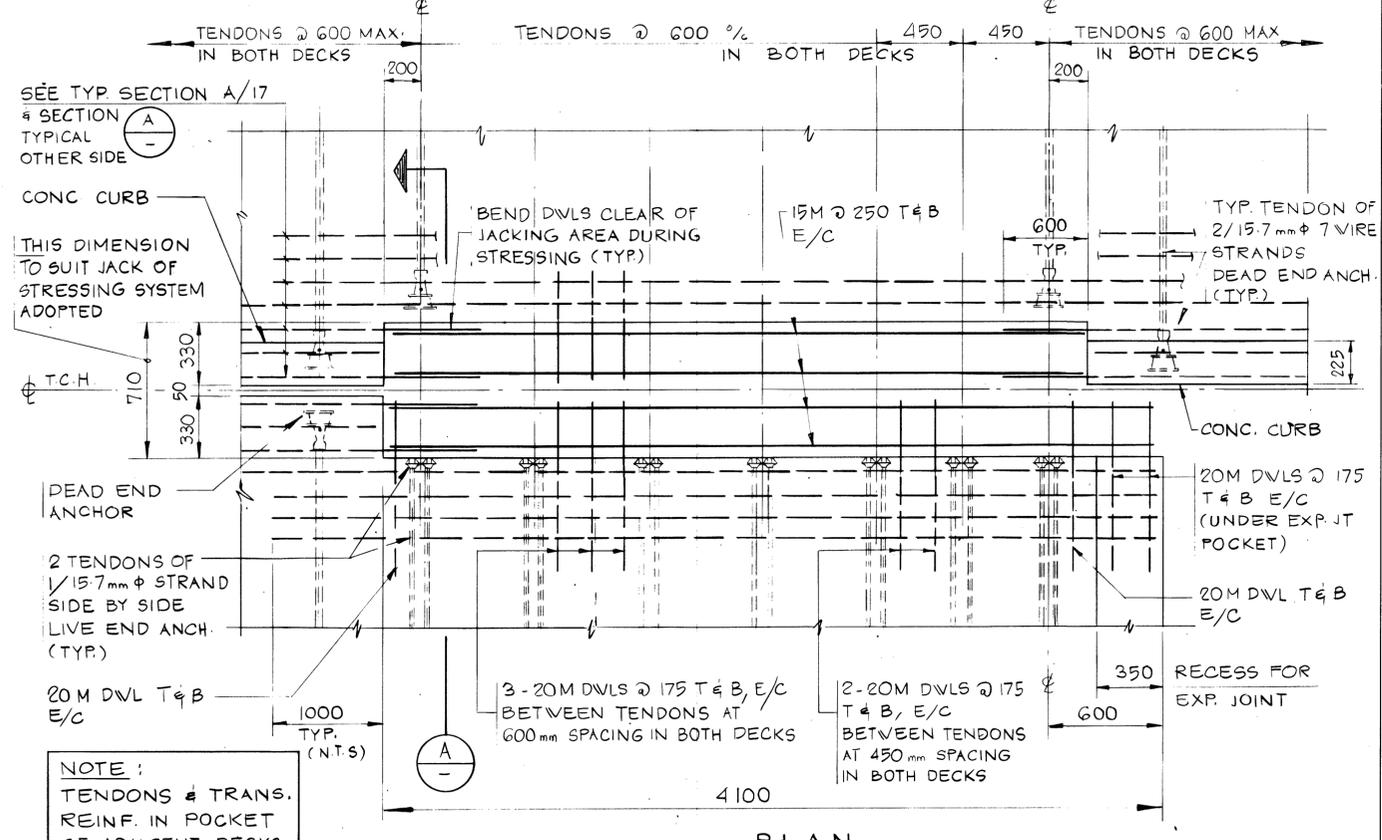
TYP. REINF. AROUND ACCESS OPENING - PLAN
SCALE 1:25



ACCESS HATCH - PLAN
SCALE 1:20

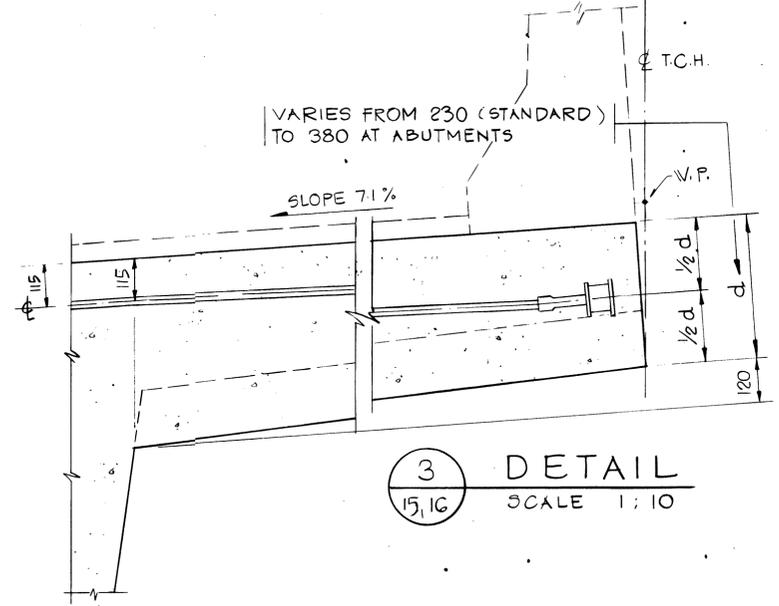


2 DETAIL - ACCESS HATCH - 12 REQ'D
SCALE AS SHOWN

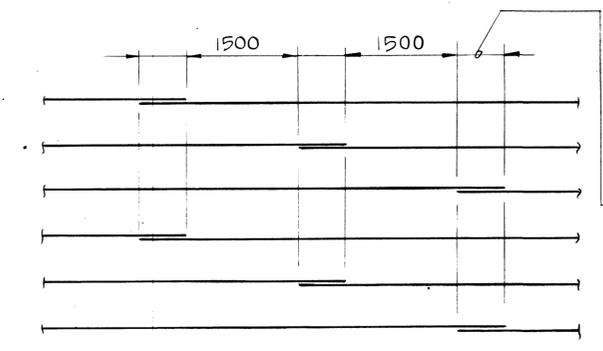


1 ANCHORAGE LAYOUT DETAIL
SCALE 1:20

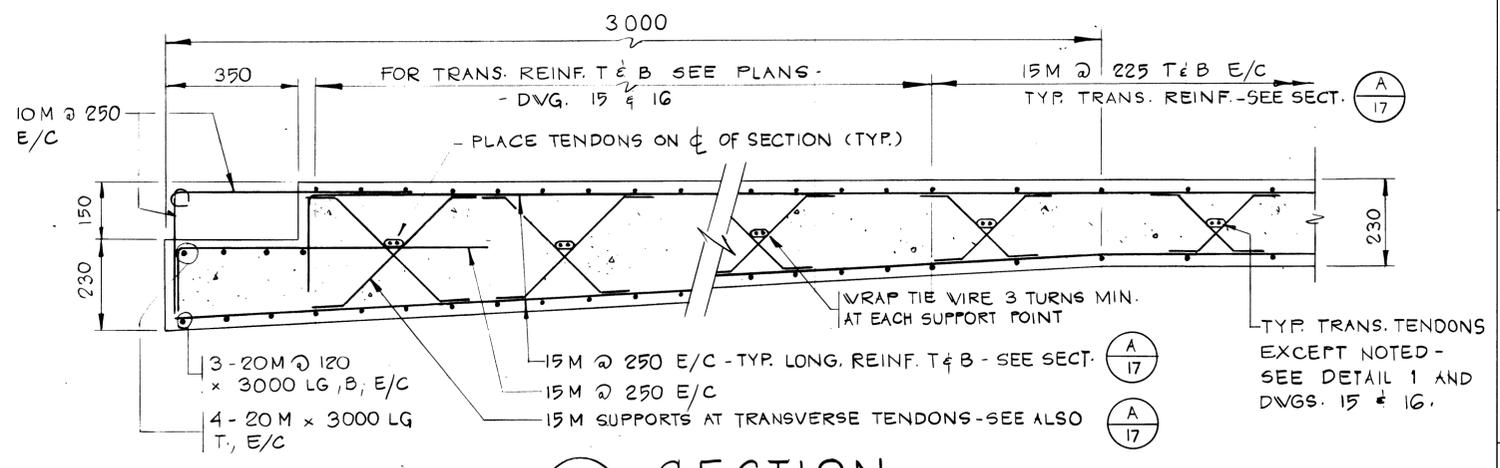
NOTE: TENDONS & TRANS. REINF. IN POCKET OF ADJACENT DECKS MUST BE ALIGNED FOR JACK ACCESS.



3 DETAIL
SCALE 1:10



4 DETAIL
N.T.S.



B SECTION
SCALE 1:10

TYP. TRANS. TENDONS EXCEPT NOTED - SEE DETAIL 1 AND DWGS. 15 & 16.

REV	D	M	Y	REVISION DESCRIPTION	DRN	DES	CHK	APP

Horizontal Scale: N.A. Vertical Scale: N.A.
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 Checked by: H. DANIEL, Date: JAN. 28. 84
 Approved by: D. LEATHER, Date: JAN. 28. 84

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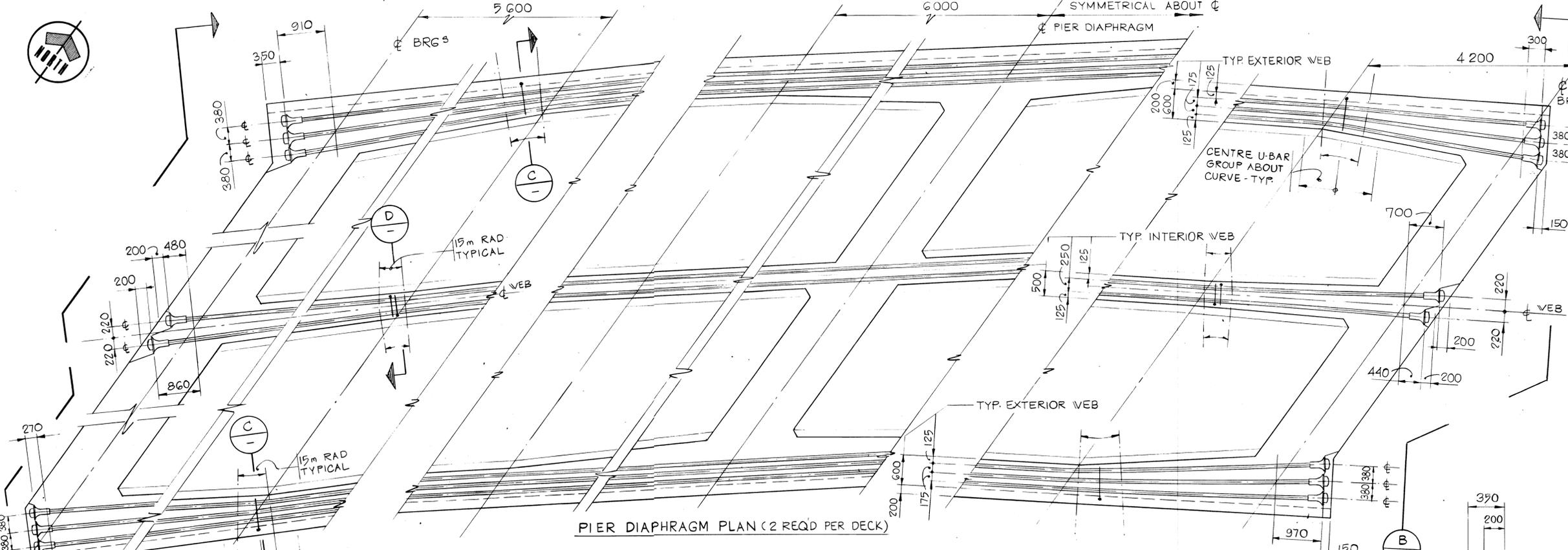
DECK DETAILS SHEET 2

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Drawn No. 2977-022	Sheet 18 of 28

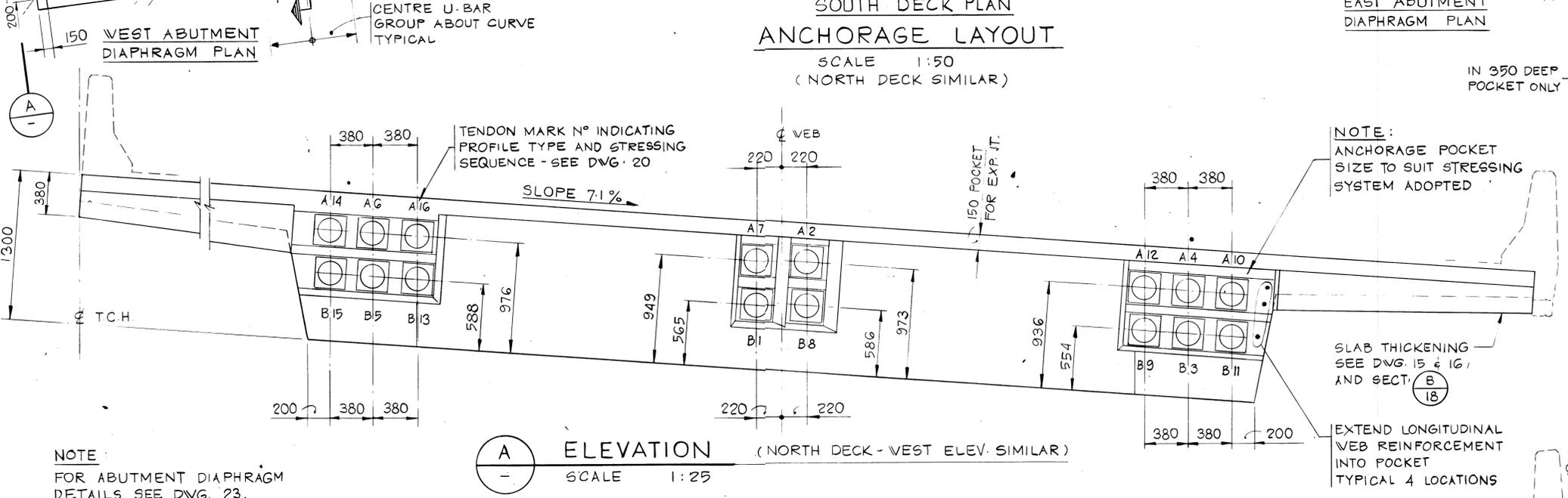
Western Region

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BANFF NATIONAL PARK, ALBERTA
MINNEWANKA INTERCHANGE

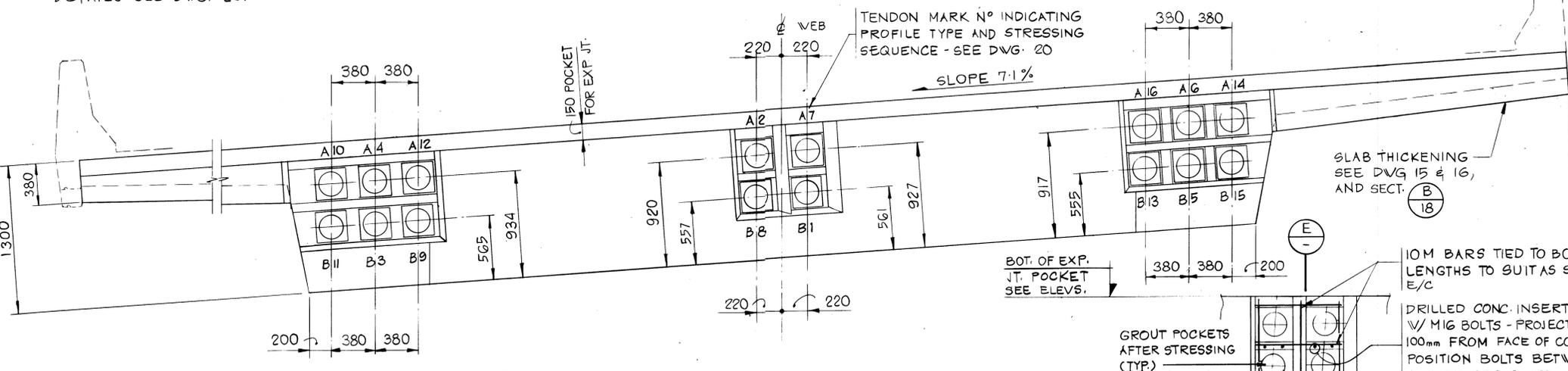
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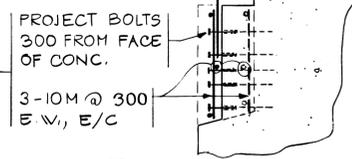
SOUTH DECK PLAN ANCHORAGE LAYOUT
SCALE 1:50
(NORTH DECK SIMILAR)



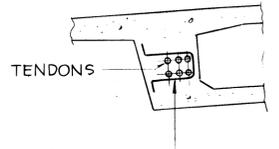
A ELEVATION (NORTH DECK - WEST ELEV. SIMILAR)
SCALE 1:25



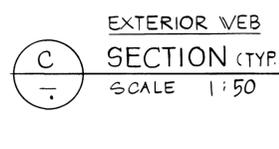
B ELEVATION (NORTH DECK - EAST ELEV. SIMILAR)
SCALE 1:25



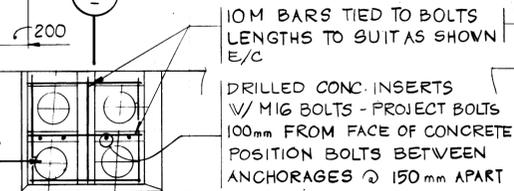
E SECTION
SCALE 1:25



C SECTION (TYP.)
SCALE 1:50



D SECTION (TYP.)
SCALE 1:50



1 TYPICAL DETAIL
SCALE 1:25

REV	D	M	Y	REVISION DESCRIPTION	DRN	DES	CHK	APP

Horizontal Scale Echelle horizontale	N.A.	Contour Interval Ecartement	N.A.
Compilation Photos Photos de compilation	N.A.	Photo Scale Echelle photographique	N.A.

Drawn by Dessiné par	D. MZIK
Date	JAN. 28. 84
Checked by Vérifié par	H. DANIEL
Date	JAN. 28. 84
Approved by Approuvé par	D. LEATHER
Date	JAN. 28. 84

Professional Engineer
H. R. DANIEL
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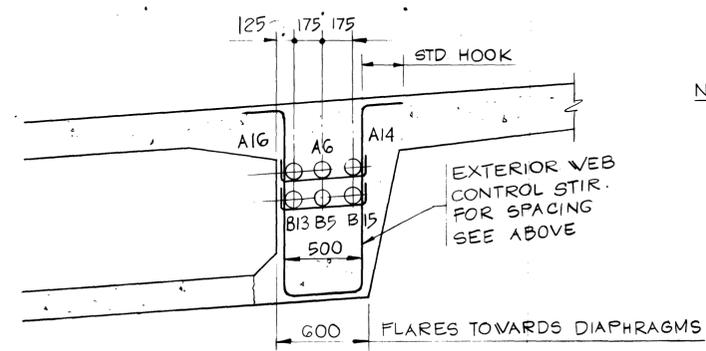
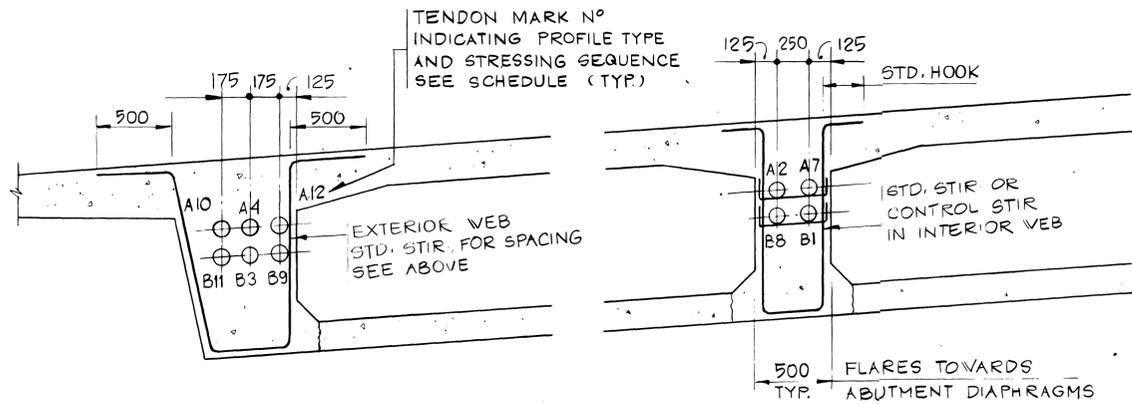
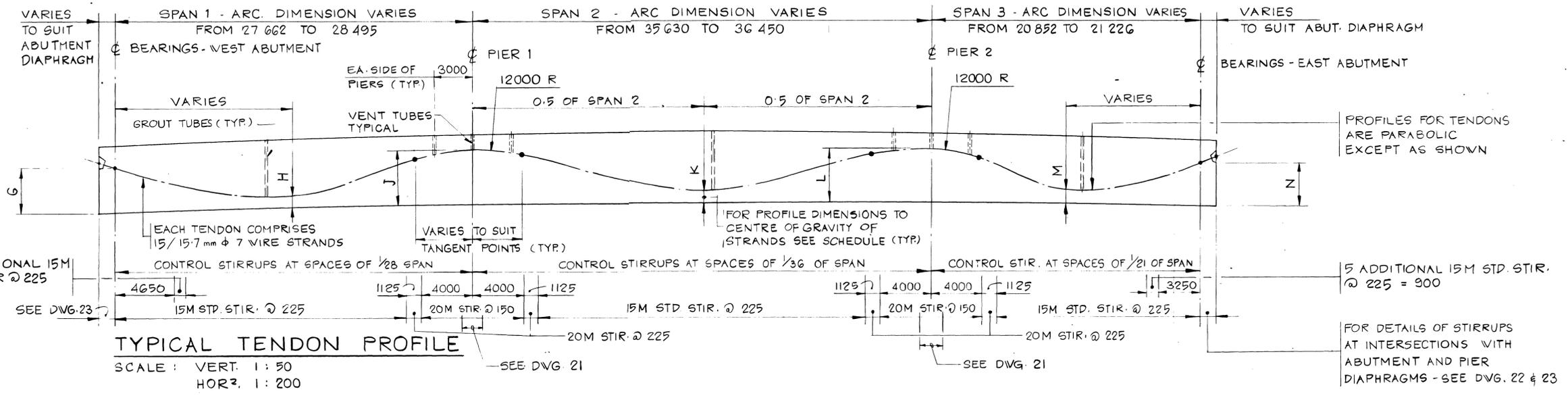
WEB POST-TENSIONING SHEET 1

Horizontal Scale Echelle horizontale	AS NOTED	Vertical Scale Echelle verticale	AS NOTED
N.T.S. No.		Sheet No.	19 of 28
STN. No.	N.A.	Dessin No.	2977-022
		Feuille	de

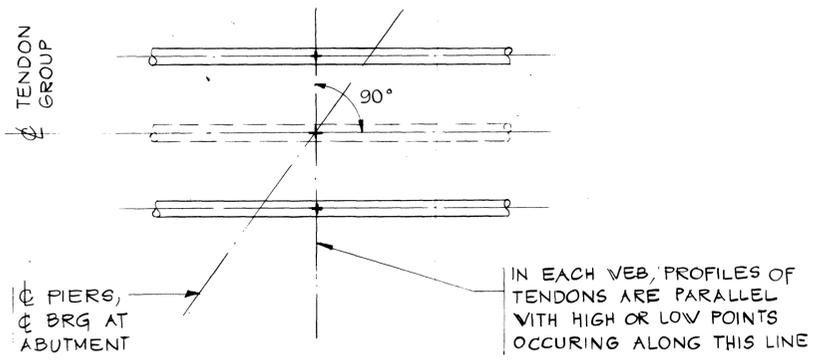
Western Region

TRANS-CANADA HIGHWAY TWINNING
BANFF NATIONAL PARK, ALBERTA
MINNEWANKA INTERCHANGE

003876



NOTE: ALL DECK REINF./TRANS. TENDONS SPACINGS APPLY AT ϕ OF CENTRE WEB WITH REINF. PLACED RADIALLY
ALL STIRRUPS ARE EPOXY COATED.



TENDON PROFILE SCHEDULE (SEE NOTE 6)

TENDON	DIMENSION						
	G	H	J	K	L	M	N
PROFILE A	919	520	1053	357	1053	804	919
PROFILE B	539	240	913	217	913	514	539

POST TENSIONING NOTES

- THE CONTRACTOR SHALL VERIFY ALL POST TENSIONING DETAILS AND INFORM THE ENGINEER OF ANY DISCREPANCIES WHICH MAY ARISE FOR A PARTICULAR SYSTEM.
- TENDON DATA:
DECK (TRANS) - 2/15.7 @ 600 TENDONS STRESSED INITIALLY TO 78% UTS
INTERNAL WEB (LONG) - 4 NO. 15/15.7 TENDONS STRESSED INITIALLY TO 78% UTS
EXTERNAL WEB (LONG) - 6 NO. 15/15.7 TENDONS STRESSED INITIALLY TO 78% UTS
- ALL STRANDS SHALL BE 7 WIRE LOW RELAXATION WITH A NOMINAL DIAMETER OF 15.7 mm. THE MINIMUM SPECIFIED BREAKING TENSILE STRENGTH (UTS) IS TO BE 261 kN.
- DESIGN PRESTRESS FORCES HAVE BEEN BASED ON THE FOLLOWING CRITERIA:
 $k = 0.0016/m \curvearrowright = 0.15/RAD$ ANCHOR SET = 7 mm
- THE CONTRACTOR IS TO LIAISE WITH THE ENGINEER REGARDING THE PARTICULAR STRESSING SYSTEM ADOPTED AND DESIGN FORCES REQUIRED AND IS TO INCLUDE ALL NECESSARY CALCULATIONS FOR DESIGN FORCES AND ELONGATIONS.
- THE PROFILE, EQUATION, CURVATURE AND CENTRE LINE ELEVATIONS OF EACH TENDON AS DESIGNED WILL BE SUPPLIED AT 1 m INTERVALS AND CRITICAL LOCATIONS.
- THE CONTRACTOR IS RESPONSIBLE FOR ALL END BLOCK REINFORCEMENT AND OTHER REINFORCEMENT WHICH MAY BE REQUIRED FOR THE SATISFACTORY PERFORMANCE OF A PARTICULAR STRESSING SYSTEM. ANY ADDITIONAL FEATURES ARE TO BE INCLUDED ON SHOP DRAWINGS AND SUBMITTED TO THE ENGINEER FOR INFORMATION.
- THE TENDON PROFILES SHOWN REFER TO THE CENTRE OF GRAVITY OF THE STRANDS AND THE DUCT POSITIONS MAY REQUIRE AMENDING TO ALLOW FOR ECCENTRICITY OF STRANDS IN THE DUCT.
- THE MINIMUM COMPRESSIVE STRENGTH OF THE CONCRETE AT TRANSFER IS TO BE 28 MPa. THE MINIMUM 28 DAY COMPRESSIVE STRENGTH OF THE CONCRETE IS TO BE 35 MPa. THE MINIMUM 28 DAY COMPRESSIVE STRENGTH OF THE GROUT TO BE 35 MPa.

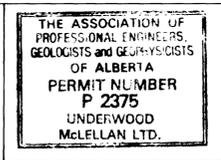
- THE PRESTRESSING FORCE MAY VARY +5% FROM THE THEORETICAL FORCE IN ANY TENDON, BUT NOT MORE THAN 2% IN ANY WEB, AND NOT MORE THAN 1% FOR ALL THREE WEBS AND ALL TRANSVERSE TENDONS.
- ENDS OF ANCHORS ARE TO BE CLEANED AND DEGREASED AND AN EPOXY BONDING AGENT APPLIED TO THE ANCHOR AND POCKET PRIOR TO PLACING CONCRETE.

STRESSING SEQUENCE

- STRESS TRANSVERSE DECK TENDONS AS FOLLOWS:
WORKING FROM THE CENTRE OF THE DECK TO EACH ABUTMENT STRESS EVERY 4TH TENDON, THEN EVERY SECOND TENDON, THEN THE REMAINING TENDON.
- STRESS LONGITUDINAL TENDONS IN WEBS FROM THE WEST ABUTMENT END OF THE DECK TO THE SEQUENCE SHOWN ON THE DRAWINGS, i.e. B1, A2, B3, A4 ... ETC., ETC., AND THEN REPEAT THE PROCEDURE FROM THE EAST ABUTMENT.
- GROUT TENDONS AS REQUIRED: THE WEB GROUT TUBES 3.0 m EITHER SIDE OF THE PIER CENTRE LINES ARE TO BE RE-INJECTED WITH GROUT 3 TO 4 HOURS AFTER ORIGINAL GROUTING OPERATION TO ELIMINATE AIR ENTRAPMENT IN THE DUCTS.

REV	D	M	Y	REVISION DESCRIPTION	DRN	DES	CHK	APP

DESIGNED BY	N.A.	CHECKED BY	N.A.
DRAWN BY	N.A.	APPROVED BY	N.A.
DATE		DATE	
DESIGNED BY	D. MZIK	DATE	JAN. 28. 84
DRAWN BY	H. DANIEL	DATE	JAN. 28. 84
APPROVED BY	D. LEATHER	DATE	JAN. 28. 84



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WEB POST-TENSIONING SHEET 2

AA006028

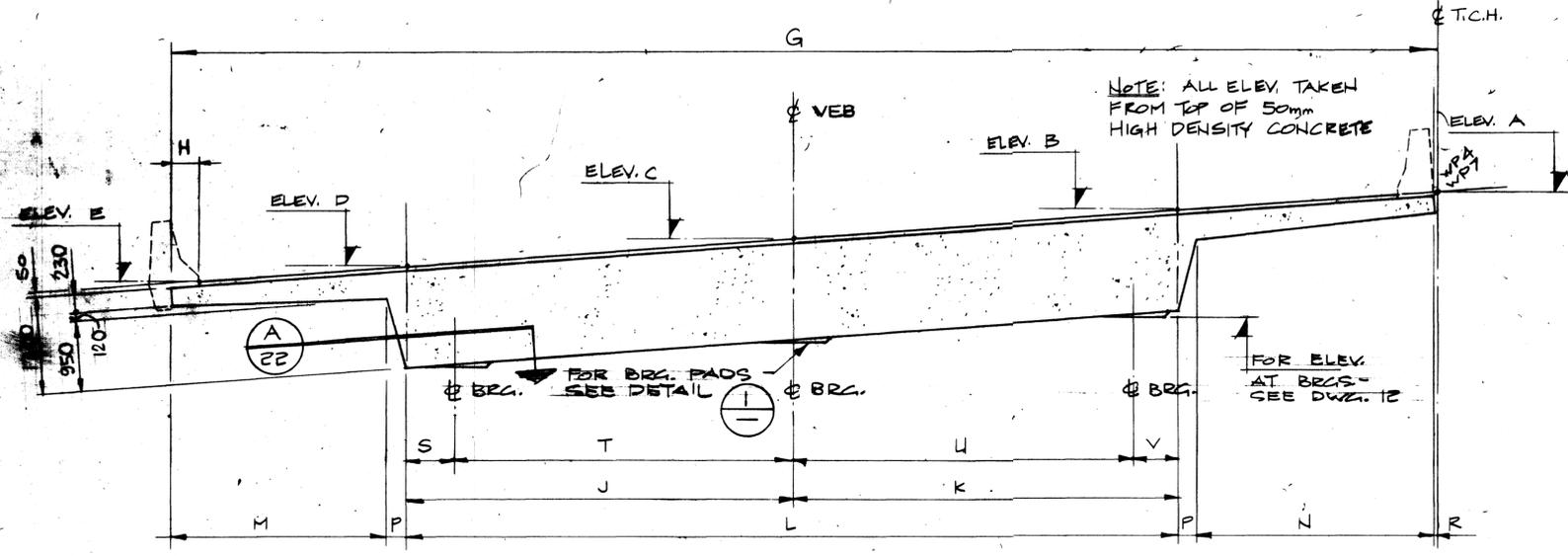
AS NOTED	AS NOTED
N.A.	2977-022
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Western Region

Project: TRANS-CANADA HIGHWAY TWINNING
 BANFF NATIONAL PARK, ALBERTA
 MINNEWANKA INTERCHANGE

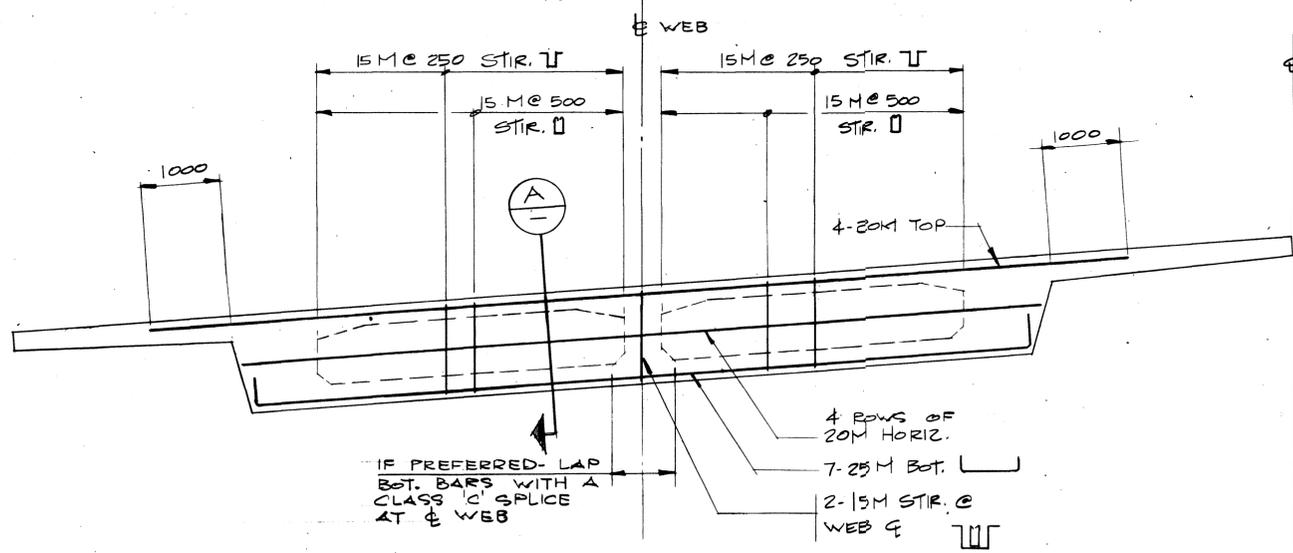
Project No. 003876

PIER DIAPHRAGM SCHEDULE				
ELEVATIONS	MARK NUMBER (SEE DWGS. 14, 15 & 16)			
	PD1S	PD1N	PD2S	PD2N
A	400.933	400.933	400.933	400.933
B	400.732	401.133	400.743	401.123
C	400.434	401.428	400.461	401.403
D	400.135	401.720	400.178	401.681
E	1399.975	401.875	400.028	401.829
DIMENSIONS				
G	16.997	16.726	16.101	15.910
H	386	375	365	357
J	5.191	5.080	4.913	4.836
K	5.163	5.104	4.894	4.852
L	10.354	10.184	9.807	9.688
M	2.895	2.812	2.738	2.679
N	3.203	3.198	3.040	3.037
P	257	250	243	238
R	32	32	30	30
S	951	940	923	916
T	4.240	4.140	3.990	3.920
U	4.220	4.160	3.970	3.930
V	943	944	924	922

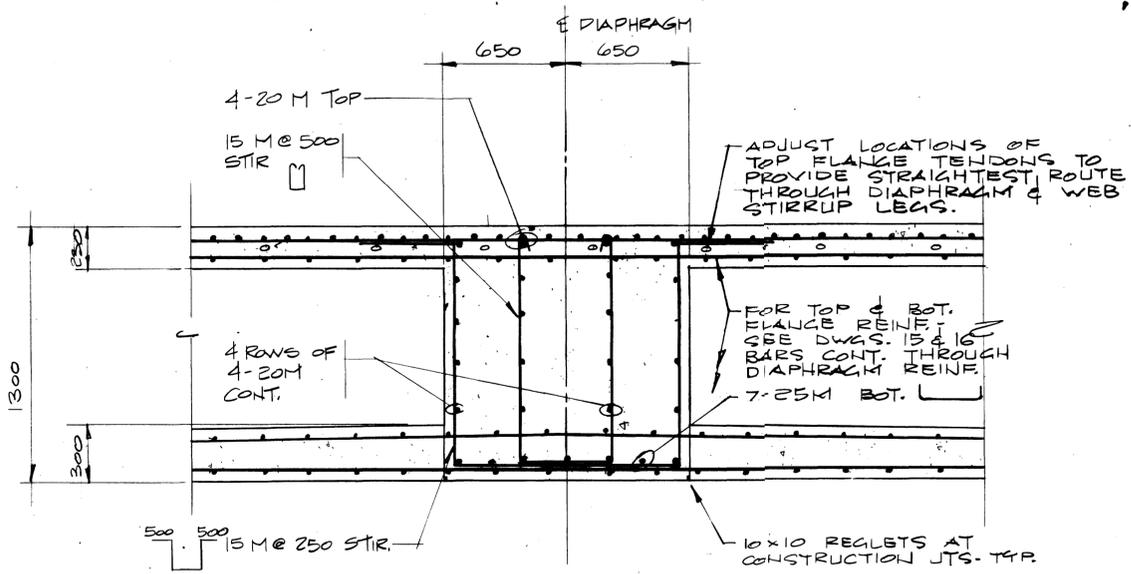


VIEWED ALONG ϕ DIAPHRAGM (SKEWED)
PIER DIAPHRAGM SECTION
 SCALE 1:50

NOTE: LOOK WEST FOR PD1S & PD2S, LOOK EAST FOR PD1N & PD2N & REVERSE SLOPE.

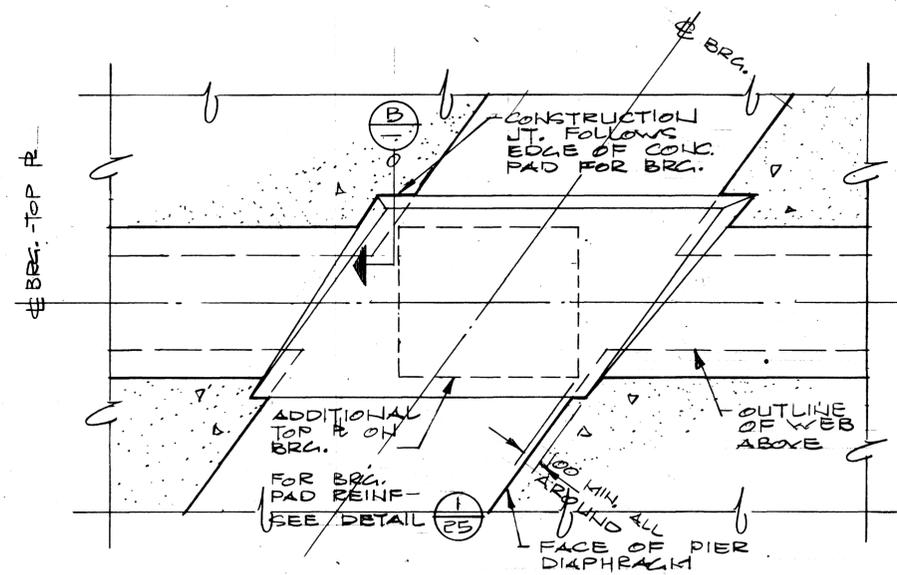


PIER DIAPHRAGM ELEVATION
 SCALE 1:50

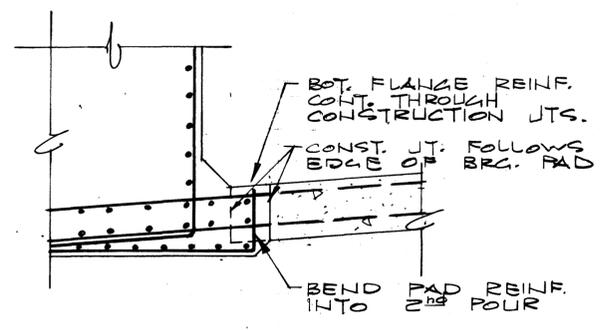


NOTE: FOR ORIENTATION OF REINFORCING SEE

SECTION A
 SCALE 1:20



DETAIL 1
 SCALE 1:20



SECTION B
 SCALE 1:20

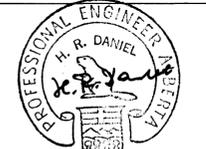
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Horizontal Scale Echelle horizontale	N.A.	Contour Interval Eau-distance	N.A.
Compilation Photos Photos de compilation	N.A.	Photo Scale Echelle photographique	N.A.

Drawn by: D. WIDDIFIELD
 Date: JAN. 28.84

Checked by: H. DANIEL
 Date: JAN. 28.84

Approved by: D. LEATHER
 Date: JAN. 28.84



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PIER DIAPHRAGM SHEET 1

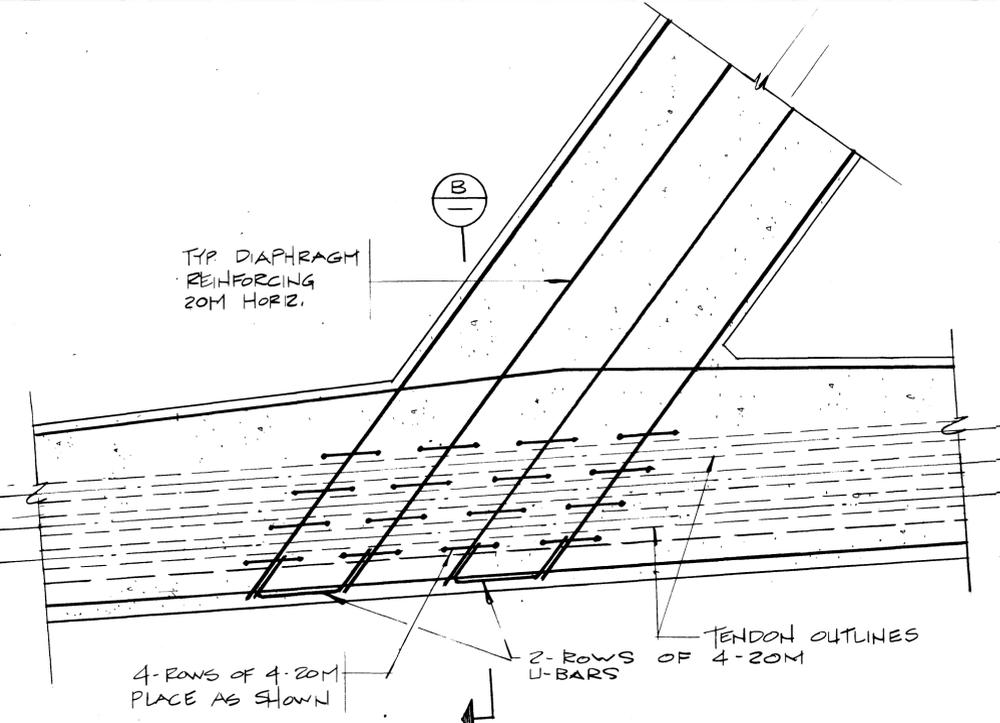
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AA006029

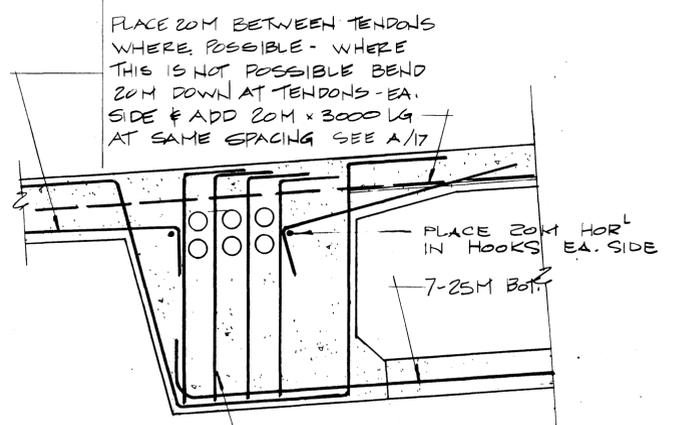
Western Region

Project: TRANS-CANADA HIGHWAY TWINNING
 BANFF NATIONAL PARK, ALBERTA
 MINNEWANKA INTERCHANGE

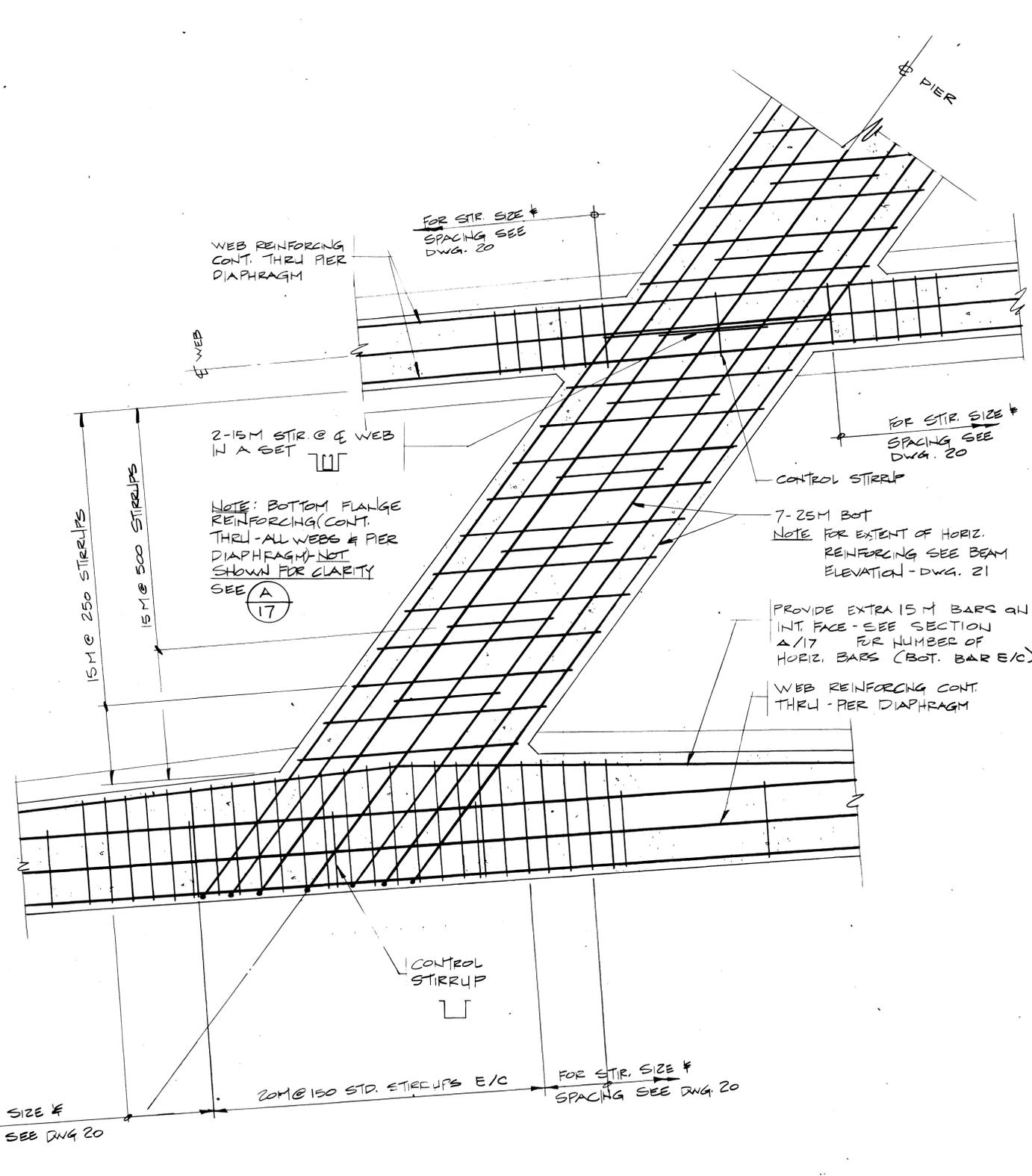
Project No. 003876



A PLAN-SECTION
 SCALE 1:20



B SECTION
 SCALE 1:20



PIER DIAPHRAGM PLAN SECTION AT BOTTOM
 SCALE 1:20

REV	D	M	Y	REVISION DESCRIPTION	DRN	DES	CHK	APP

Compiled by: [Blank]
 Compté par: [Blank]

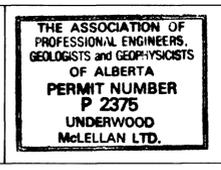
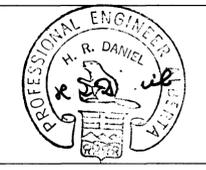
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Completion Photos: N.A.
 Photos de complation: N.A.

Drawn by: D. WIDDIFIELD
 Date: JAN. 28.84

Checked by: H. DANIEL
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Approved by: D. LEATHER
 Date: JAN. 28.84



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PIER DIAPHRAGM SHEET 2

Horizontal Scale: AS NOTED
 Echelle horizontale: AS NOTED

N.T.S. No. N.A.
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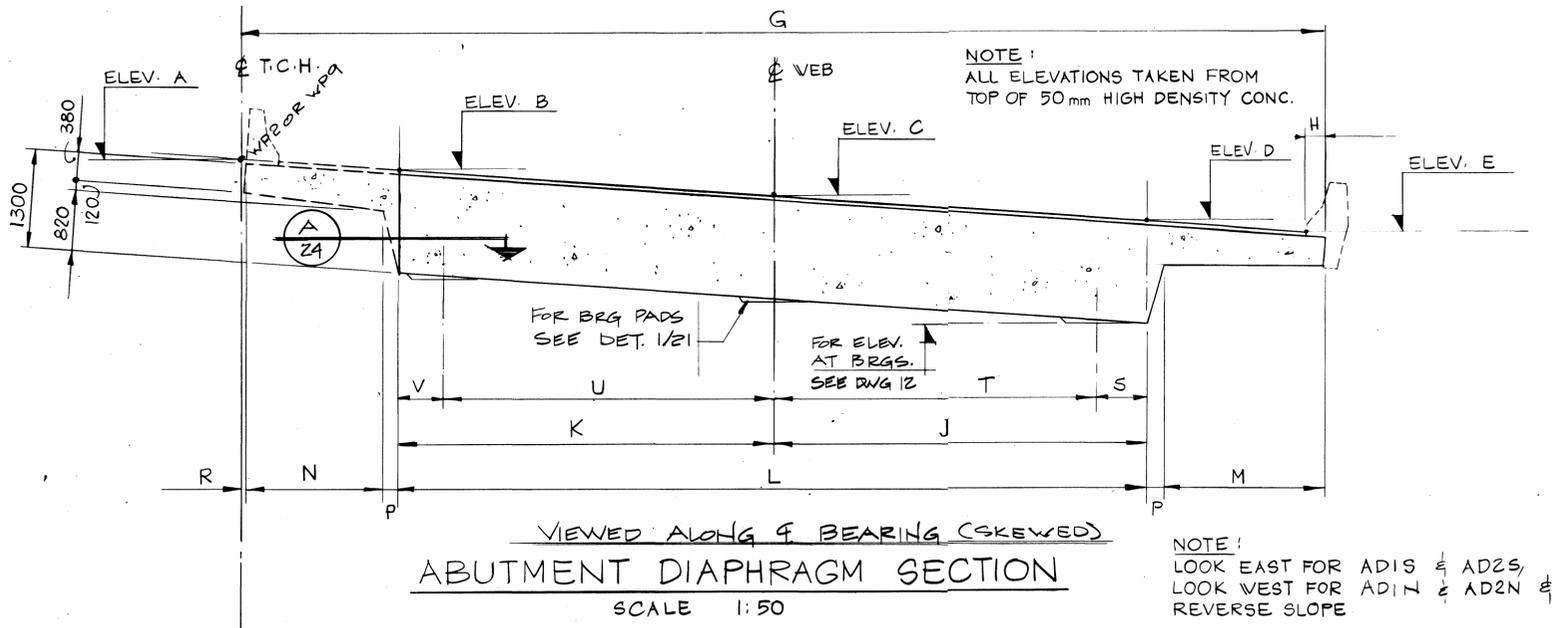
Drawg. No. 2977-022

Sheet 22 of 28
 Feuille 22 de 28

Western Region

Project: TRANS-CANADA HIGHWAY TWINNING
 BANFF NATIONAL PARK, ALBERTA
 MINNEWANKA INTERCHANGE

Project No. 003876



ELEVATIONS:	MARK NUMBER SEE DWGS. 1, 15 & 16			
	AD15	AD1N	AD2S	AD2N
A	1400.805	1400.805	1400.848	1400.848
B	1400.593	1401.015	1400.662	1401.033
C	1400.279	1401.324	1400.387	1401.307
D	1399.964	1401.592	1400.112	1401.579
E	1399.794	1401.791	1399.965	1401.723

DIMENSIONS:	MARK NUMBER SEE DWGS. 1, 15 & 16			
	AD15	AD1N	AD2S	AD2N
G	17 841	17 485	15 656	15 503
H	405	391	355	348
J	5 452	5 308	4 775	4 714
K	5 417	5 338	4 761	4 727
L	10 869	10 646	9 536	9 441
M	3 044	2 935	2 660	2 612
N	3 355	3 349	2 959	2 957
P	270	261	236	232
R	33	33	29	29
S	675	654	589	582
T	4 777	4 654	4 186	4 132
U	4 750	4 678	4 174	4 143
V	667	660	587	584

REV	D	M	Y	REVISION DESCRIPTION	DRN	DES	CHK	APP

Completed by: [Blank]

Horizontal Scale: N.A. Contour Interval: N.A.

Compilation Photos: N.A. Photo Scale: N.A.

Drawn by: D. MZIK
 Date: JAN. 28. 84

Checked by: H. DANIEL
 Date: JAN. 28. 84

Approved by: D. LEATHER
 Date: JAN. 28. 84



THE ASSOCIATION OF PROFESSIONAL ENGINEERS, GEOLOGISTS AND GEOPHYSICISTS OF ALBERTA
 PERMIT NUMBER P 2375
 UNDERWOOD McLELLAN LTD.

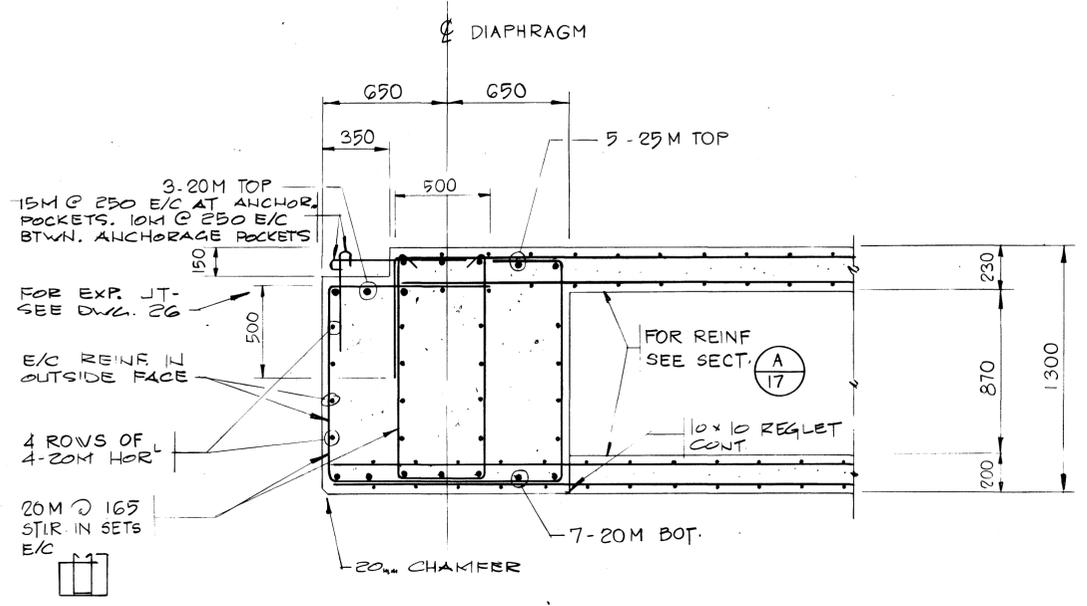
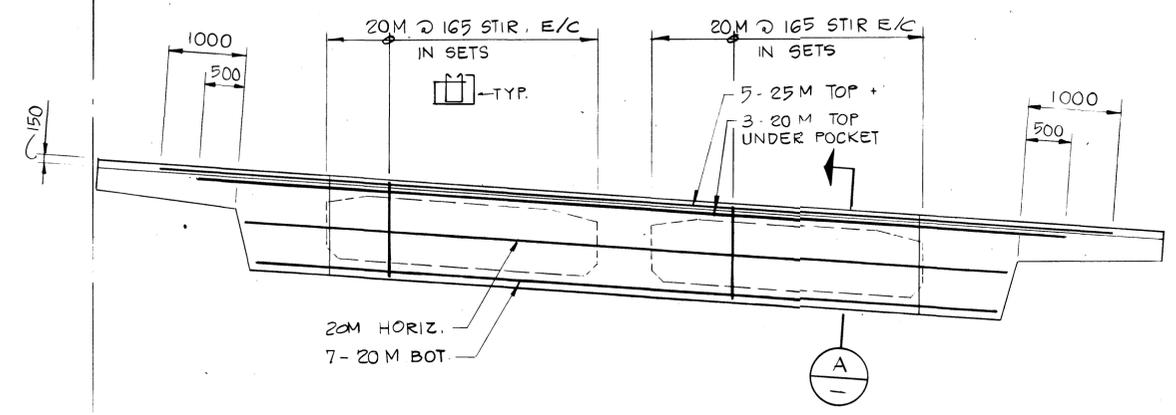
Underwood McLellan Ltd. Consulting Engineers and Planners
 Calgary, Alberta

T.C.H. BRIDGE OVER BANFF AVENUE
 km 13+050

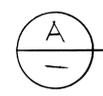
ABUTMENT DIAPHRAGM SHEET 1

Horizontal Scale: AS NOTED Vertical Scale: AS NOTED

NTS. No. N.A. Drwg. No. 2977-022 Sheet 23 of 28



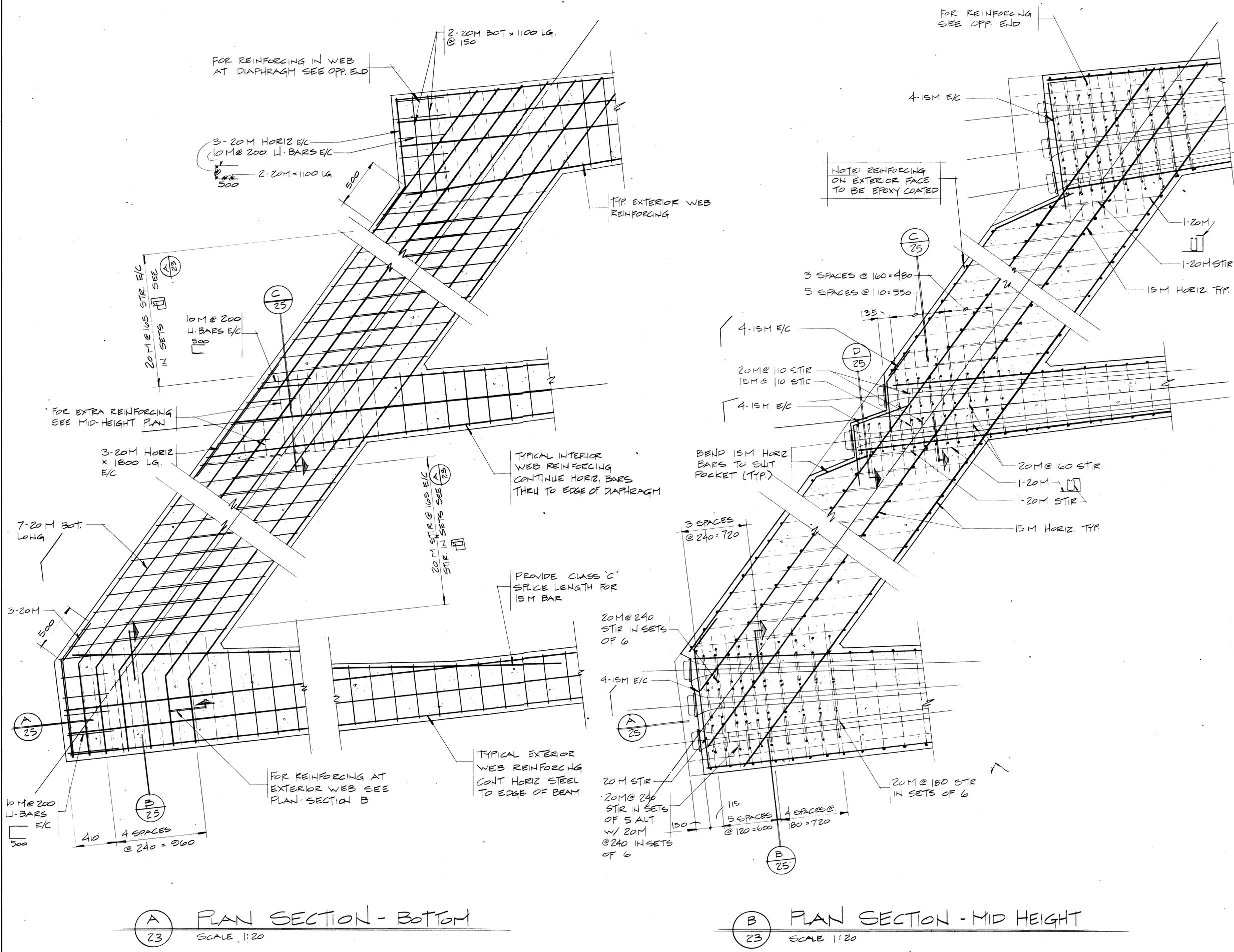
NOTE:
 FOR ORIENTATION OF REINFORCING SEE SECTION 24



Western Region

TRANS-CANADA HIGHWAY TWINNING
BANFF NATIONAL PARK, ALBERTA
MINNEWANKA INTERCHANGE

003876



REV	D	M	Y	REVISION DESCRIPTION	DRN	DES	CHK	APP

Compiled by: _____
 Checked by: _____
 Date: _____

Horizontal Scale: N.A.
 Vertical Scale: N.A.

Photograph Scale: N.A.

Drawn by: D. WIDDIFIELD
 Date: JAN. 28. 84

Checked by: H. DANIEL
 Date: JAN. 28. 84

Approved by: D. LEATHER
 Date: JAN. 28. 84

PROFESSIONAL ENGINEER
ALBERTA
H. R. DANIEL

THE ASSOCIATION OF PROFESSIONAL ENGINEERS, GEOLOGISTS AND GEOPHYSICISTS OF ALBERTA
PERMIT NUMBER P 2375
 UNDERWOOD McLELLAN LTD.

Underwood McLellan Ltd.
 Consulting Engineers and Planners
 Calgary, Alberta

T.C.H. BRIDGE OVER BANFF AVENUE
 km 13+050

ABUTMENT DIAPHRAGM SHEET 2

Horizontal Scale	Vertical Scale
AS NOTED	AS NOTED

Western Region

TRANS-CANADA HIGHWAY TWINNING
BANFF NATIONAL PARK, ALBERTA
MINNEWANKA INTERCHANGE

003876

EXPANSION JOINT SCHEDULE

	HORIZONTAL DIMENSIONS			ANGLE °	
	A	B	C	D	E
NORTH DECK					
WEST JOINT	3 245	8 029	3 200	41° 13' 41"	40° 40' 26"
EAST JOINT	3 345	6 957	3 200	31° 17' 18"	30° 13' 4"
SOUTH DECK					
WEST JOINT	3 245	8 198	3 200	41° 13' 41"	42° 39' 21"
EAST JOINT	3 345	7 057	3 200	31° 17' 18"	31° 33' 18"

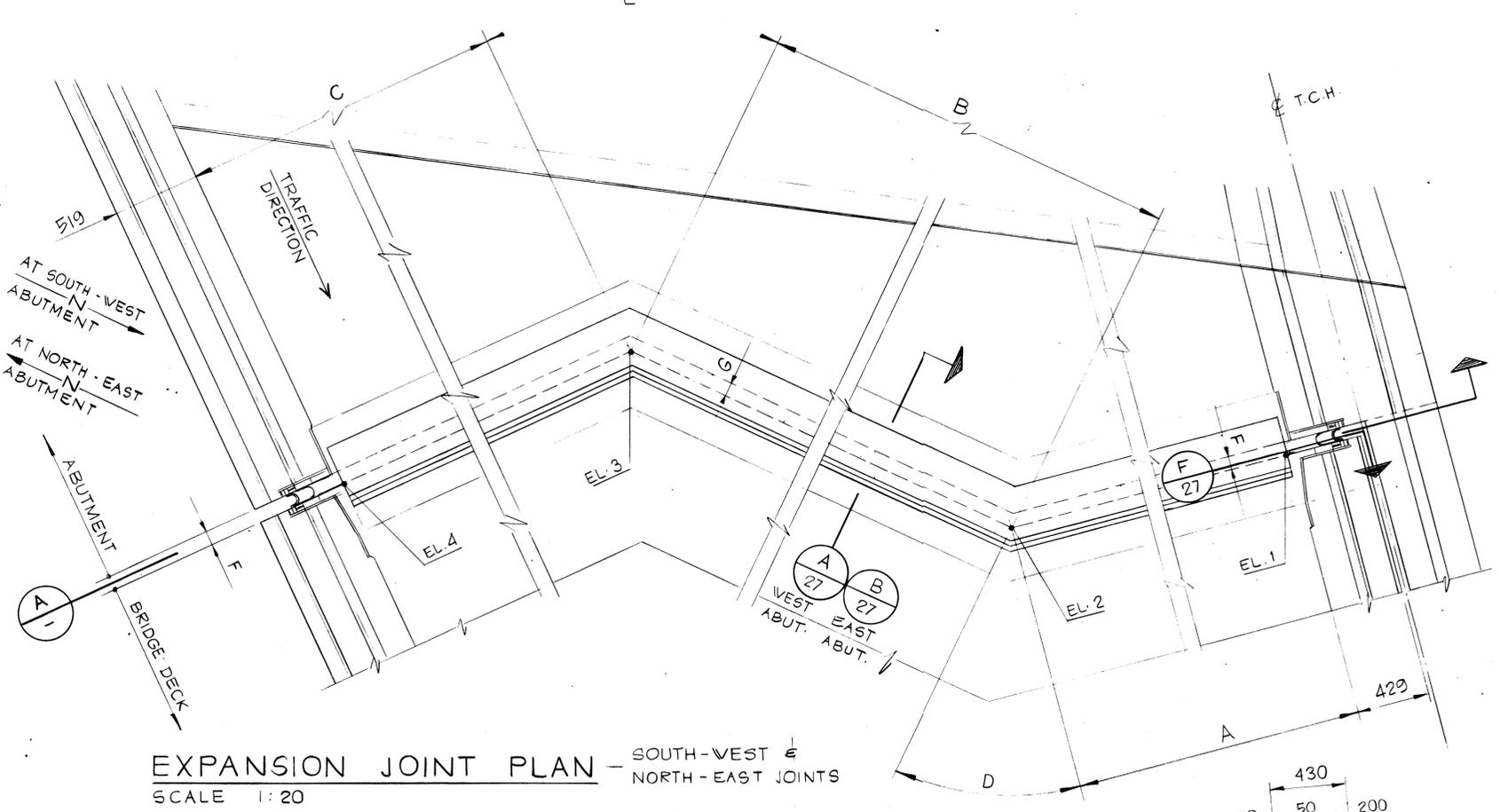
SETTING SCHEDULE

EAST EXP. JT. ONLY

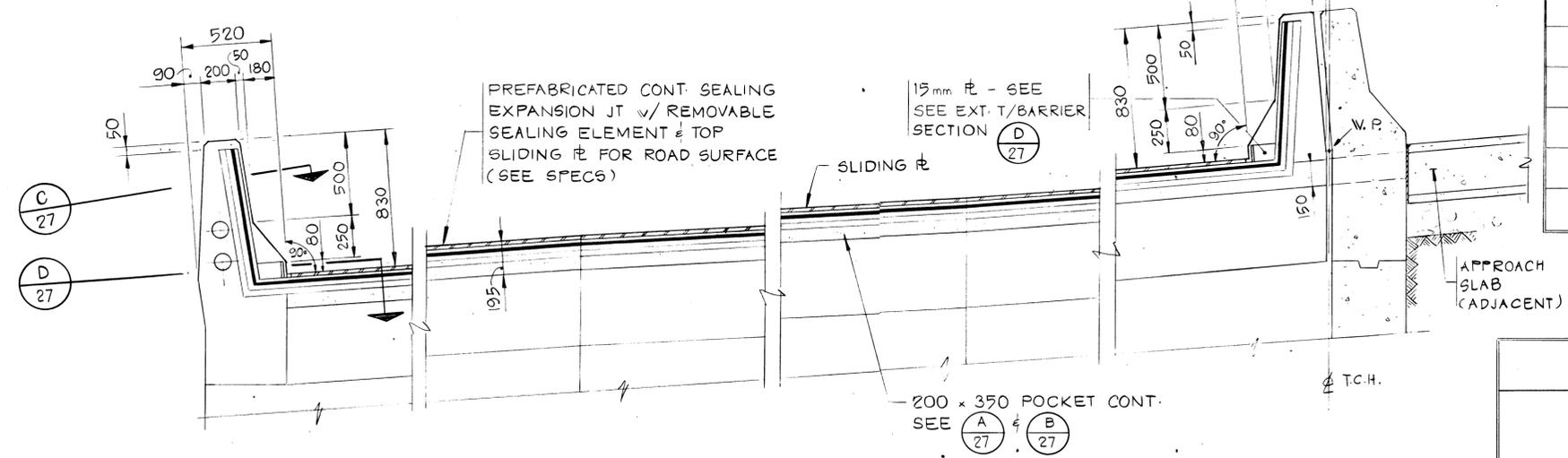
DAILY MEAN TEMPER. °C	EFFECTIVE BRIDGE TEMPER. °C	JOINT CASTING WIDTH (mm)	
		F	G
-38	-37	98	97
-31	-30	90	90
-22	-20	80	81
-13	-10	70	73
-4	0	60	64
+6	+10	50	55
+15	+20	40	47
+24	+30	30	38
+28	+34	25	34

ELEVATION SCHEDULE

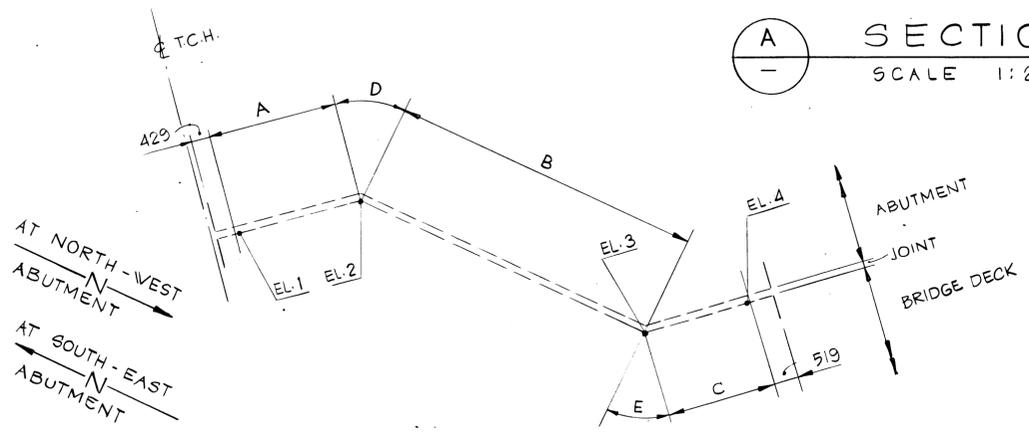
	TOP OF PLATE ELEVATIONS			
	EL. 1	EL. 2	EL. 3	EL. 4
NORTH DECK				
WEST JOINT	1400.846	1401.078	1401.541	1401.768
EAST JOINT	1400.856	1401.095	1401.499	1401.726
SOUTH DECK				
WEST JOINT	1400.740	1400.508	1400.033	1399.806
EAST JOINT	1400.820	1400.581	1400.174	1399.947



EXPANSION JOINT PLAN - SOUTH-WEST & NORTH-EAST JOINTS
SCALE 1:20



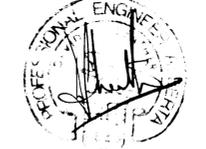
SECTION A
SCALE 1:20



ORIENTATION PLAN - NORTH-WEST & SOUTH-EAST JOINTS
SCALE 1:10

EXPANSION JOINTS
1. APPROVED EXPANSION JOINTS FOR THIS BRIDGE ARE THE HONEL 151 SYSTEMS. ALTERNATIVE JOINT TYPES ARE TO BE SUBMITTED TO THE ENGINEER FOR REVIEW.

REV	D	M	Y	REVISION DESCRIPTION	DRN	DES	CHK	APP



THE ASSOCIATION OF PROFESSIONAL ENGINEERS, GEOLOGISTS AND GEOPHYSICISTS OF ALBERTA
PERMIT NUMBER P 2375
UNDERWOOD McLELLAN LTD.

Underwood McLellan Ltd. Consulting Engineers and Planners
the Uma group

T.C.H. BRIDGE OVER BANFF AVENUE
km 13+050

EXPANSION JOINTS SHEET 1

AS NOTED	AS NOTED
N.A.	2977-022
26	28

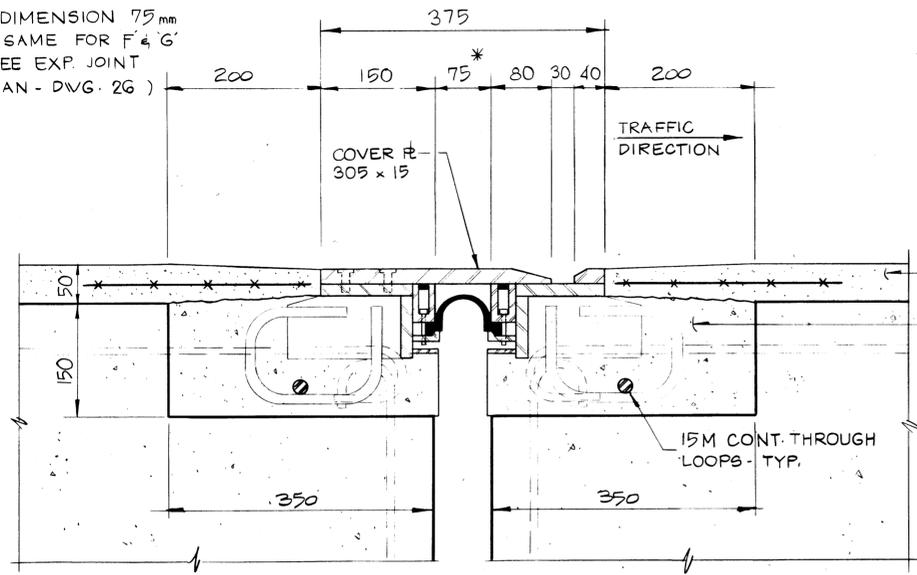


Western Region

Project: TRANS-CANADA HIGHWAY TWINNING
Banff National Park, Alberta
Minnewanka Interchange

Project No.: 003876

* DIMENSION 75 mm IS SAME FOR 'F' & 'G' (SEE EXP. JOINT PLAN - DWG. 26)



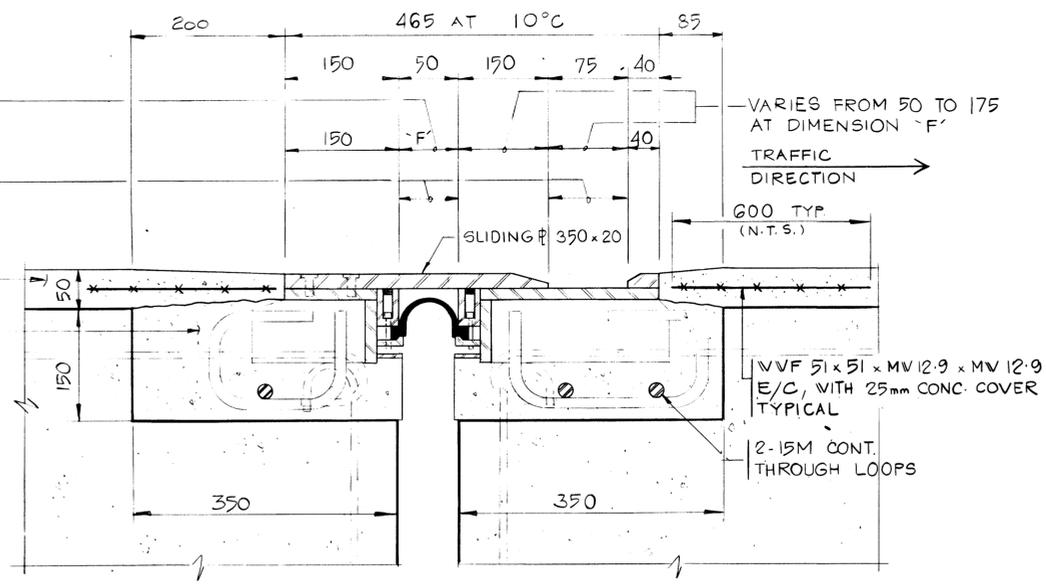
A SECTION
SCALE 1:5

DIMENSION 'F' VARIES FROM 25 TO 150

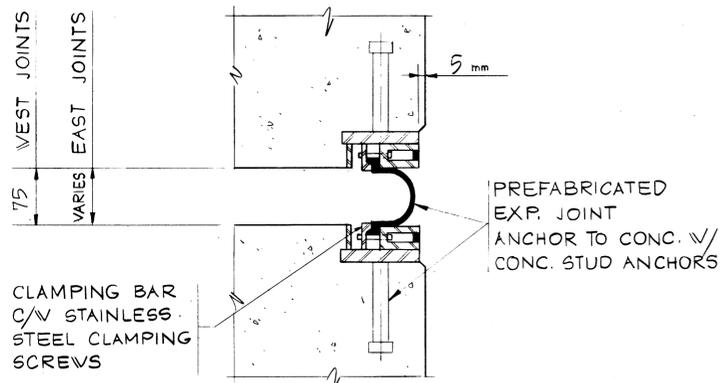
DIMENSION 'F' & 'G' VARIES SEE EXP. JOINT PLAN & SETTING TABLE ON DWG. 28

HIGH DENSITY CONCRETE
30 MPa CONCRETE w/ 10mm Ø AGGREGATE

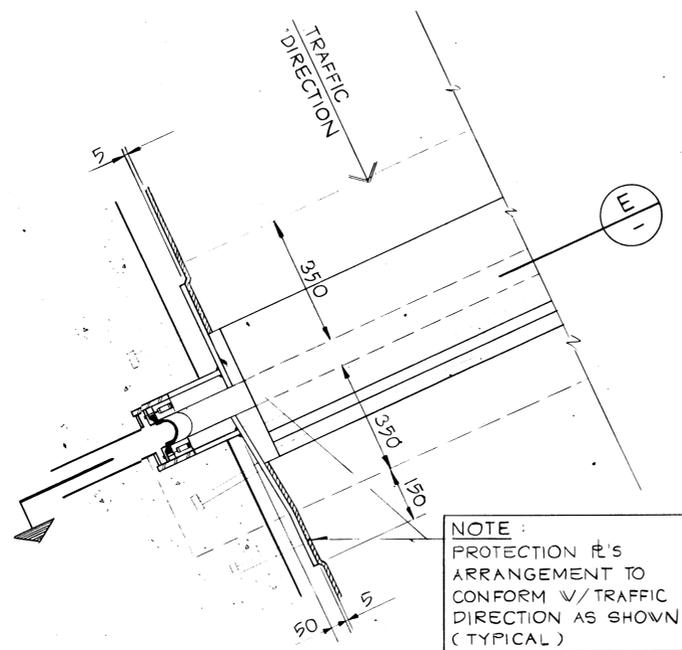
NOTE: MANUFACTURER TO SUPPLY EXP. JOINT C/W #S, ANCHORS & BREATHER HOLES TO SUIT MOVEMENTS & SLIDING #S.



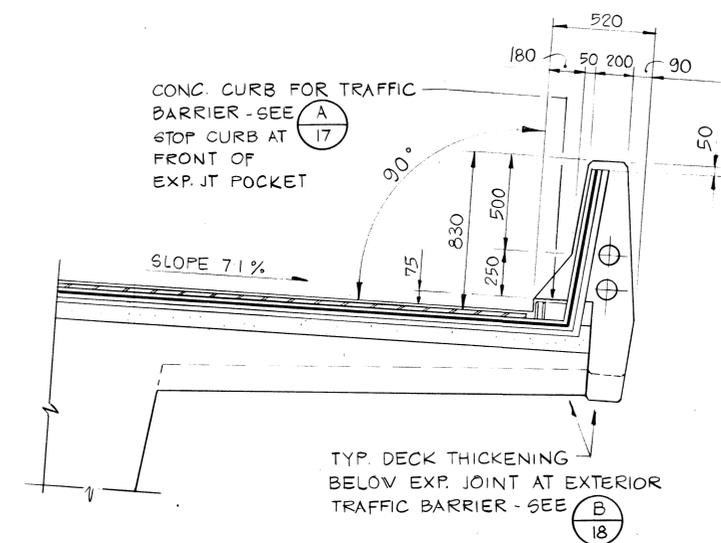
B SECTION
SCALE 1:5



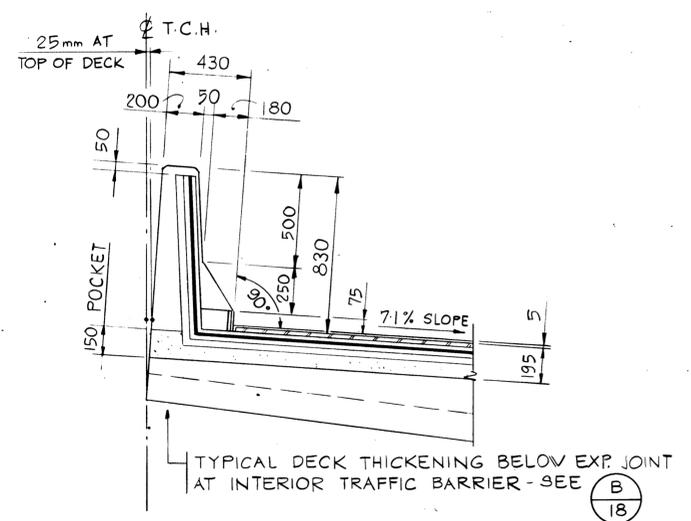
C SECTION
SCALE 1:5



D SECTION
SCALE 1:10



E SECTION
SCALE 1:10



F SECTION
SCALE 1:20

REV	D	M	Y	REVISION DESCRIPTION	DRN	DES	CHK	APP
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Compiled by: [Blank]
Compte par: [Blank]

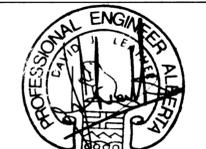
Horizontal Scale Echelle horizontale	N.A.	Contour Interval Echelle verticale	N.A.
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Compilation Photos Photos de compilation	N.A.	Photo Scale Echelle photographique	N.A.
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Drawn by: D. MZIK
Date: JAN. 28. 84

Checked by: J. HALEY
Date: JAN. 28. 84

Approved by: D. LEATHER
Date: JAN. 28. 84



THE ASSOCIATION OF PROFESSIONAL ENGINEERS, GEOLOGISTS and GEOPHYSICISTS OF ALBERTA
PERMIT NUMBER P 2375
UNDERWOOD McLELLAN LTD.

Underwood McLellan Ltd.
Consulting Engineers and Planners
Calgary, Alberta

T.C.H. BRIDGE OVER BANFF AVENUE
km 13+050

EXPANSION JOINTS SHEET 2

Horizontal Scale Echelle horizontale	AS NOTED	Vertical Scale Echelle verticale	AS NOTED
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N.T.S. No.: N.A.
S.N. No.: N.A.
Drawg. No.: 2977-022
Dessin No.:
Sheet 27 of 28
Feuille 27 de 28



Western Region

Project: TRANS-CANADA HIGHWAY TWINNING
 BANFF NATIONAL PARK, ALBERTA
 MINNEWANKA INTERCHANGE

Project No. 003876

REV	D	M	Y	REVISION DESCRIPTION	DRN	DES	CHK	APP

Compiled by: [blank]
 Date: [blank]

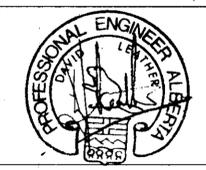
Horizontal Scale: N.A.
 Contour Interval: N.A.

Photogrammetric Scale: N.A.

Drawn by: D. WIDDIFIELD
 Date: JAN. 28. 84

Checked by: J. HALEY
 Date: JAN. 28. 84

Approved by: D. LEATHER
 Date: JAN. 28. 84



THE ASSOCIATION OF PROFESSIONAL ENGINEERS, GEOLOGISTS and GEOPHYSICISTS OF ALBERTA
 PERMIT NUMBER P 2375
 UNDERWOOD MCELLELLAN LTD.

Underwood McLellan Ltd.
 Consulting Engineers and Planners
 Calgary Alberta



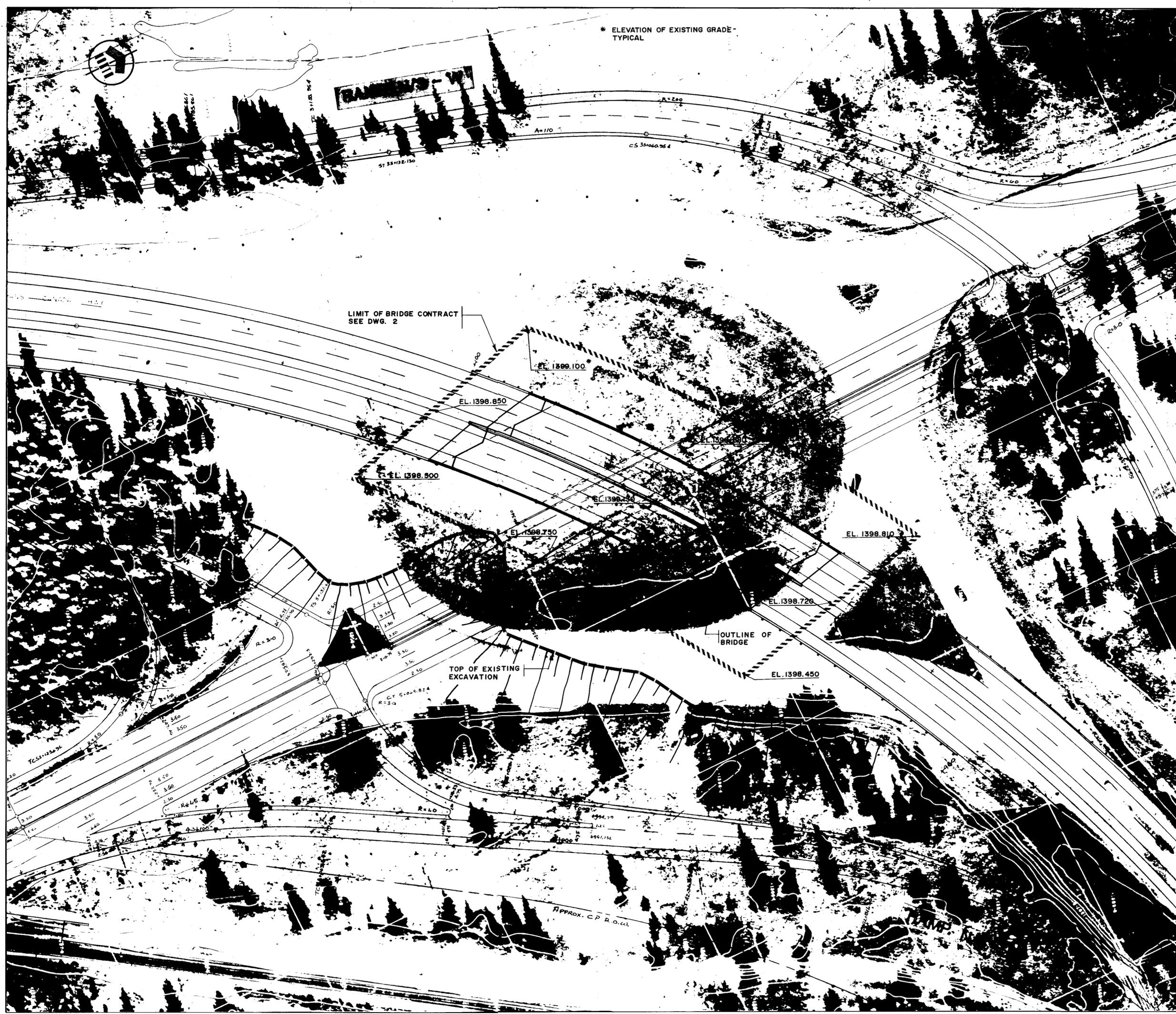
T.C.H. BRIDGE OVER BANFF AVENUE
 km 13+050



GENERAL SITE PLAN

Horizontal Scale: 1:500
 Vertical Scale: N.A.

Draw No. 2977-022
 Sheet No. 28 of 28



* ELEVATION OF EXISTING GRADE - TYPICAL

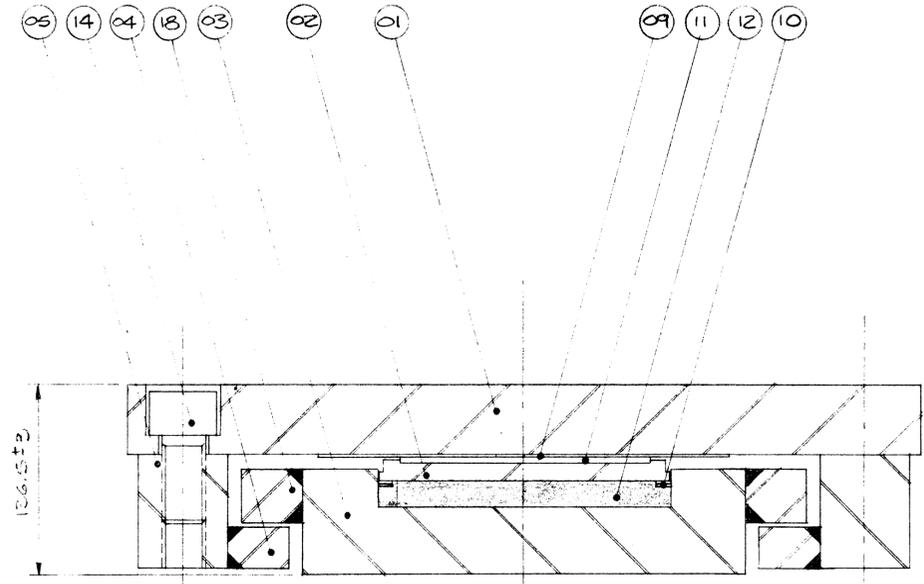
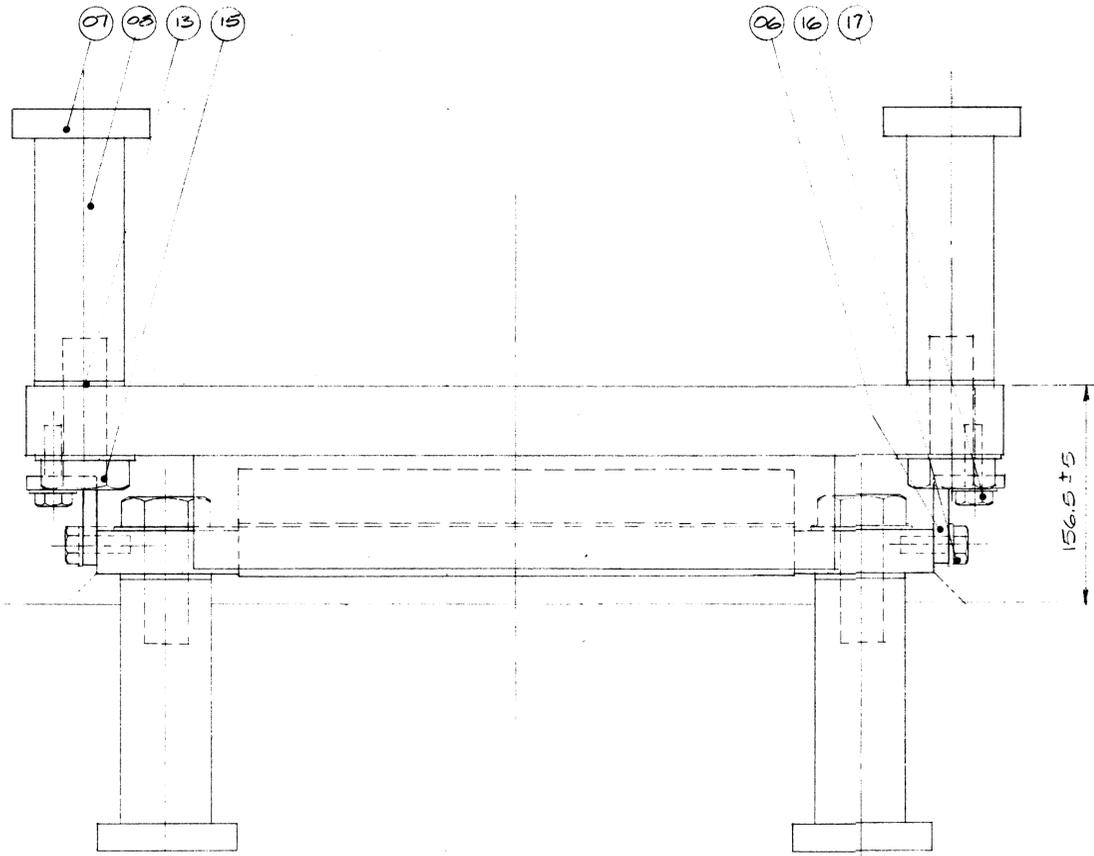
BANFF AVENUE

LIMIT OF BRIDGE CONTRACT
 SEE DWG. 2

OUTLINE OF BRIDGE

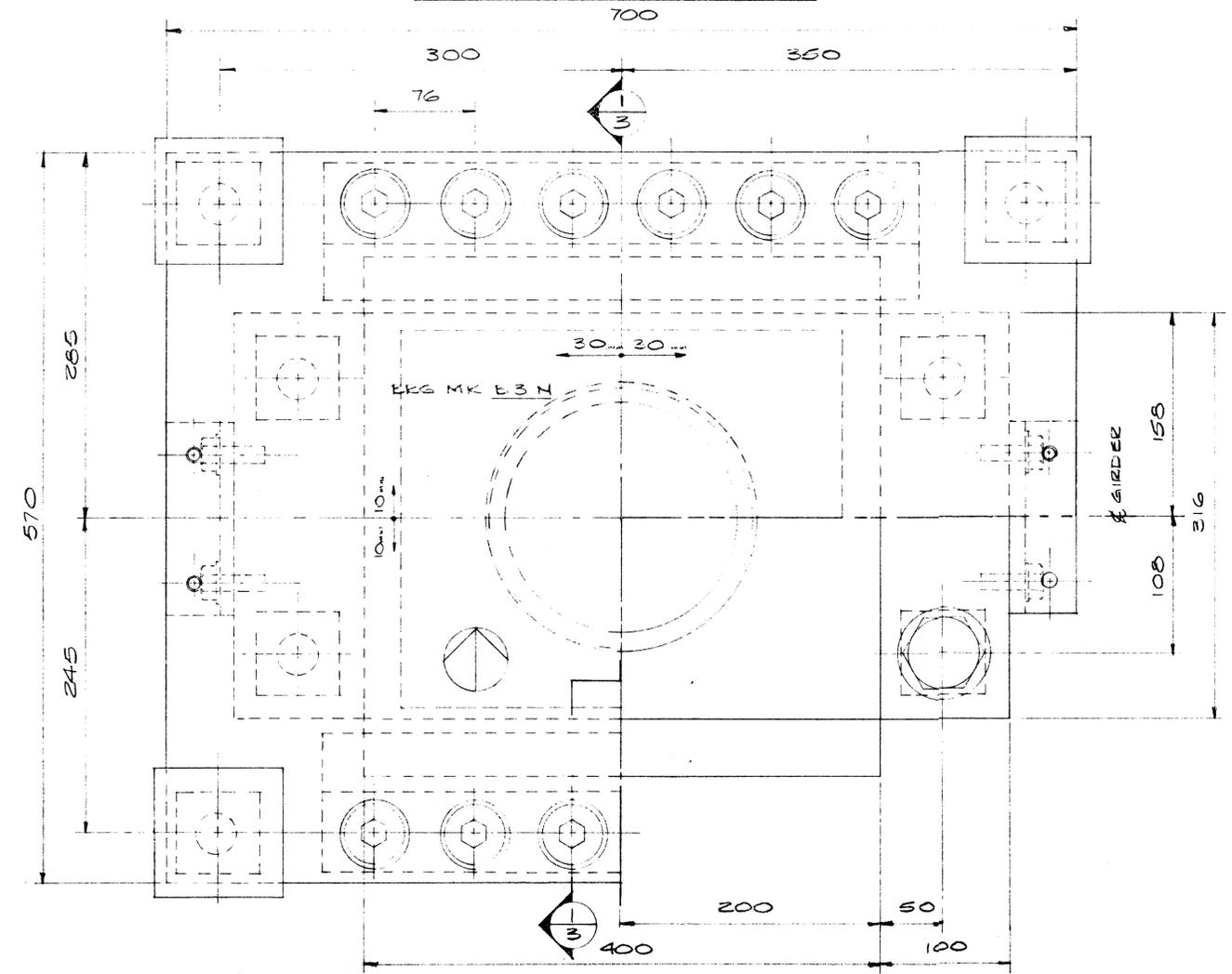
TOP OF EXISTING EXCAVATION

Approx. CP R.O.



SECTION 1/3

LONGITUDINAL ELEVATION



BEARING DATA

BEARING TYPE — 12 K'C'130 (UPLIFT)
 QUANTITY — 2
 MAX. V. LOAD — 1434 KN
 MAX. D. LOAD — 439 KN
 MAX. UPLIFT LOAD — -358 KN
 COEF. OF FRICTION — 0.03
 MAX. ROTATION — 0.0009
 LONG MOV'T. — ±30
 TRANS. MOV'T. — ±10

NOTE: FOR COMMENTS & NOTES
 SEE SHEET No. 1/1.

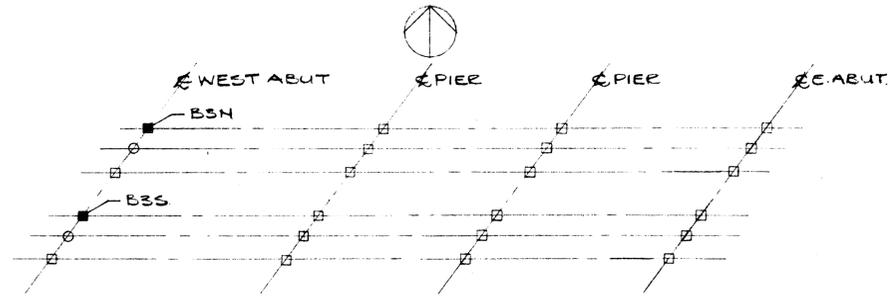
SHOP DRAWING REVIEW
 The review of this drawing does not in any way relieve the contractor of responsibility as detailed in the contract documents

Reviewed	Submission No. 1
Reviewed as noted	Job No. 2977-022
Revise & resubmit	Date JUNE 6/84
Dwg. review by	V. HALEY

UNDERWOOD McLELLAN LTD. 80

THIS DRAWING HAS BEEN CHECKED AND IS SUBMITTED IN ACCORDANCE WITH THE PROVISIONS OF THE GENERAL CONDITIONS OF THE CONTRACT, AND IS SUBJECT TO FURTHER REVIEW BY CLIENTS HAVING JURISDICTION OVER THE WORK.

THE RESPONSIBILITY FOR ACCURACY, DIMENSIONS AND CONFORMANCE TO THE CONTRACT DOCUMENTS REMAINS WITH THE SUB CONTRACTOR.
 ELLISON MANAGEMENT SERVICES LTD.
 DATE SUBMITTED MAY 2 1984
 DATE RETURNED



PLOTPLAN

ITEM	QTY.	DESCRIPTION
19	2 PCS	STEEL ANCHOR LUG 4" x 12 1/2" x 1 1/4"
18	2 PCS	STEEL BAR 1/2" x 1 3/4" x 15 3/4"
17	4 PCS	HEX HEAD SCREWS 1/2" x 2" LG 9W WASH
16	4 PCS	HEX HEAD SCREWS 1/2" x 1 1/2" LG 9W WASH
15	8 PCS	HEX HD. A325 SCREWS 1 1/4" x 3 1/2" LG GALV.
14	12 PCS	CAP SCREWS 1/4" x 2 1/2" LG GR. 8.
13	8 PCS	RUBBER WASHERS 2 1/2" x 2 1/2" x 1/8"
12	1 PC.	RUBBER DISC FOR K130
11	1 PC.	PTFE DISC FOR 12K130
10	2 PCS	BRASS RINGS FOR K130
09	1 PC	S/S SHEET FOR 12K100 W/L x 13 1/2" LG.
08	8 PCS	STEEL ANCHOR BARS 2 1/2" x 2 1/2" x 7 1/4" LG.
07	8 PCS	STEEL ANCHOR CAPS 4" x 4" x 3/4"
06	2 PCS	STEEL TRANSIT ANGLE 2 x 2 1/2" x 3/8 x 6" LG.
05	2 PCS	STEEL BAR 2 1/2" x 3/4" x 18 1/8" LG.
04	2 PCS	STEEL BAR 1/4" x 1 3/4" x 18 1/8" LG.
03	1 PC	STEEL BASE POT 12 1/2" x 3" x 15 3/4"
02	1 PC	STEEL PISTON FOR 12K130
01	1 PC	STEEL TOP PLATE 22 1/2" x 2" x 27 1/2"

LIST OF MATERIALS PER BRG.

GLACIER **W.G. BEARINGS INC.**
 BURLINGTON, ONTARIO

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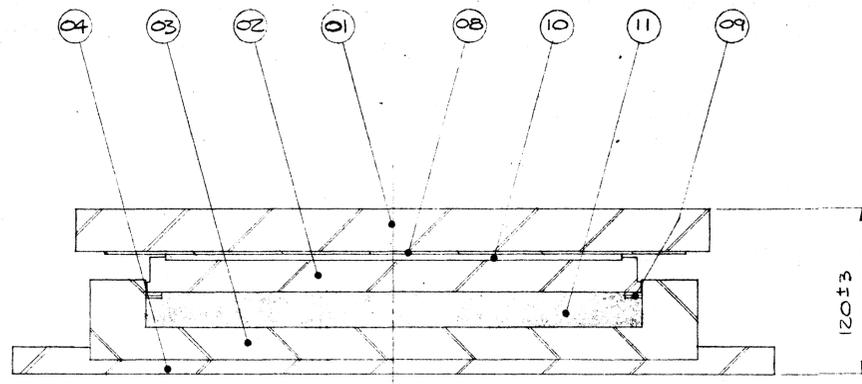
JOB TITLE: T.C.H. BRIDGE OVER BANFF AVE.

SYSTEM: GLACIER 12 K'C'130 UPLIFT DESIGN

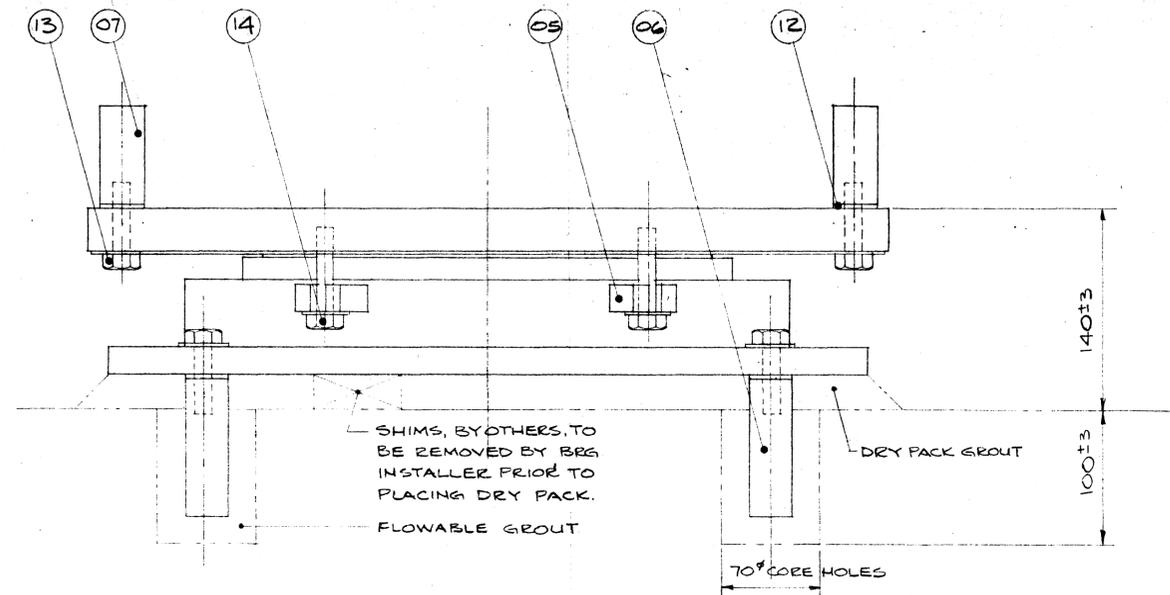
DRAWN BY: BONNOE	PROJECT NO: PG40-84	DRAWING NO.:	REV.	SHT.
CHECKED BY:	DATE: MAY 1984	W255-84	1	3 OF 10



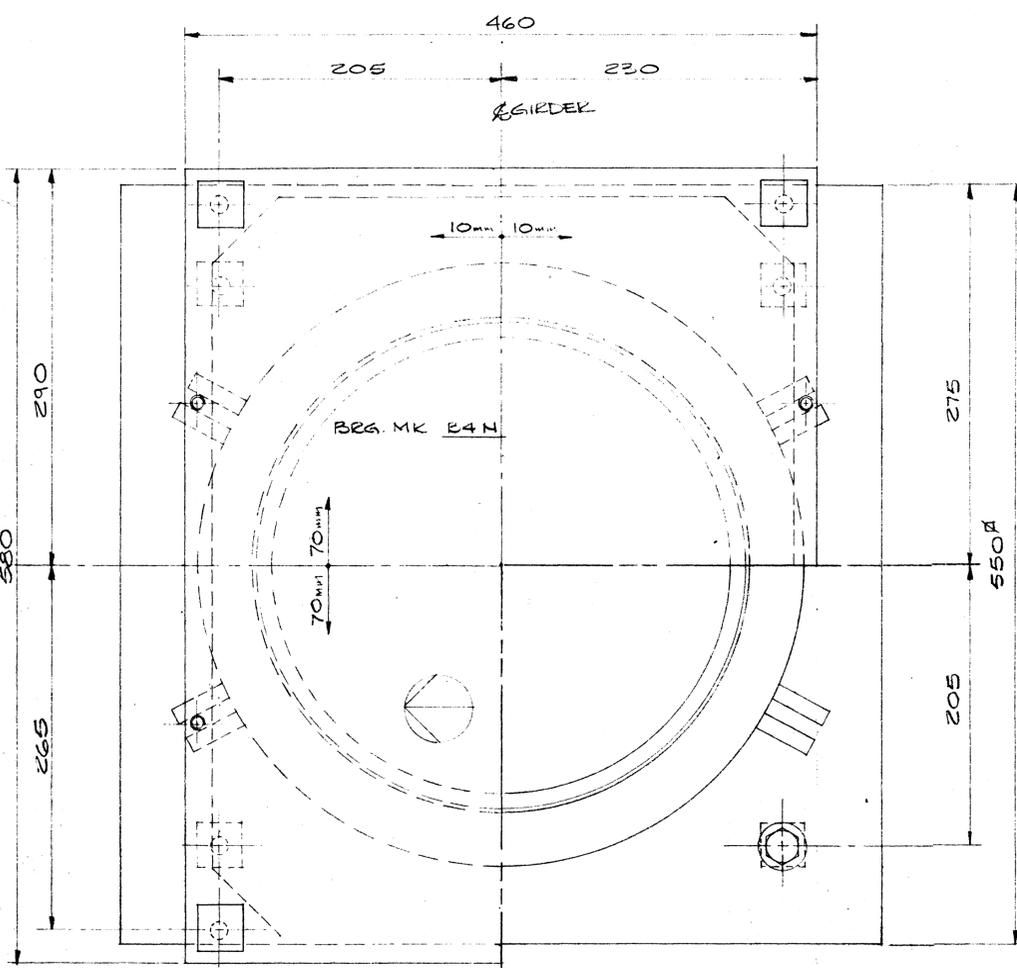
ADD ITEM # 19 MAY 18/84



SECTION 1-4



LONGITUDINAL ELEVATION



PLAN

BEARING DATA	B4N'S	B6N'S
BEARING TYPE	12 K'C'300	12 K'C'300
QUANTITY	2	2
MAX. V. LOAD	3355 KN	3602 KN
MAX. D. LOAD	2143 KN	2463 KN
COEF. OF FRICTION	0.03	0.03
MAX. ROTATION	0.0014	0.0014
LONG. MOV'T.	±70	±70
TRANS. MOV'T.	±10	±10

NOTE:
FOR COMMENTS & NOTES
SEE SHEET No. 1.

SHOP DRAWING REVIEW

The review of this drawing does not in any way relieve the contractor of responsibility as detailed in the contract documents.

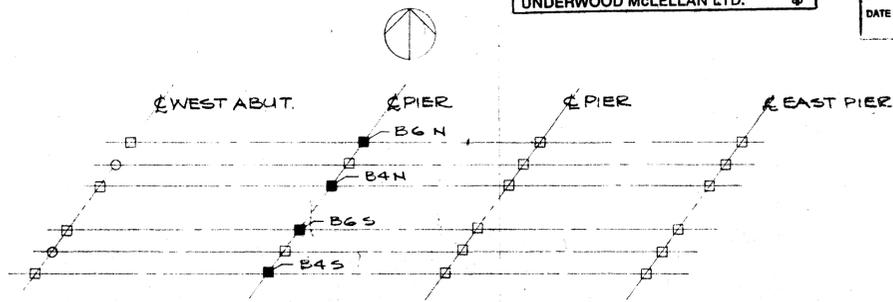
Reviewed	Submission No. 1
Reviewed as noted	Job No. 2977-022
Revise & resubmit	Date JUNE 6/84
Dwg. review by	J. HALEY

UNDERWOOD McLELLAN LTD.

THE DRAWING HAS BEEN CHECKED AND IS SUBMITTED IN ACCORDANCE WITH PROVISIONS OF THE GENERAL CONDITIONS OF THE CONTRACT AND IS SUBJECT TO FURTHER REVIEW BY ENGINEERS HAVING JURISDICTION OVER THE WORK.

THE RESPONSIBILITY FOR ACCURACY, DIMENSIONS AND CONFORMING TO THE CONTRACT DOCUMENTS REMAINS WITH THE SUB CONTRACTOR.

ELLIS DON MANAGEMENT SERVICES LTD.
DATE SUBMITTED MAY 23 1984
DATE RETURNED



PLOT PLAN

ITEM	QTY.	DESCRIPTION
14	4PCS	HEX HEAD SCREW 1/2" x 2 1/2" LG 9W WASHER
13	8PCS	HEX. HEAD A325 SCREW 1/2" x 2" LG 9W WASH (GALV.)
12	8PCS	RUBBER WASHER 1/4" x 1 1/4" x 1/8"
11	1PC	RUBBER DISC FOR K 300
10	1PC	P.T.F.E. DISC FOR 12K 300
09	2PCS	BRASS RINGS FOR 12K 300
08	1PC	S/S SHEET FOR 12K 300 WD x 2 1/2" LG.
07	4PCS	STEEL ANCHOR BARS 1 1/4" x 1 1/4" x 3" LG
06	4PCS	STEEL ANCHOR BARS 1 1/4" x 1 1/4" x 4" LG
05	8PCS	STEEL TRANSIT LUGS 1/2" x 3/4" x 1 1/2"
04	1PC	STEEL BASE PL. 2 1/8" x 2 1/8" x 3/4"
03	1PC	STEEL BASE POT 1 7/8" x 2 1/2"
02	1PC	STEEL PISTON 1 1/8" x 1"
01	1PC	STEEL TOP PL. 1 1/8" x 1 1/4" x 22 7/8" LG.

LIST OF MATERIALS PER BEG.

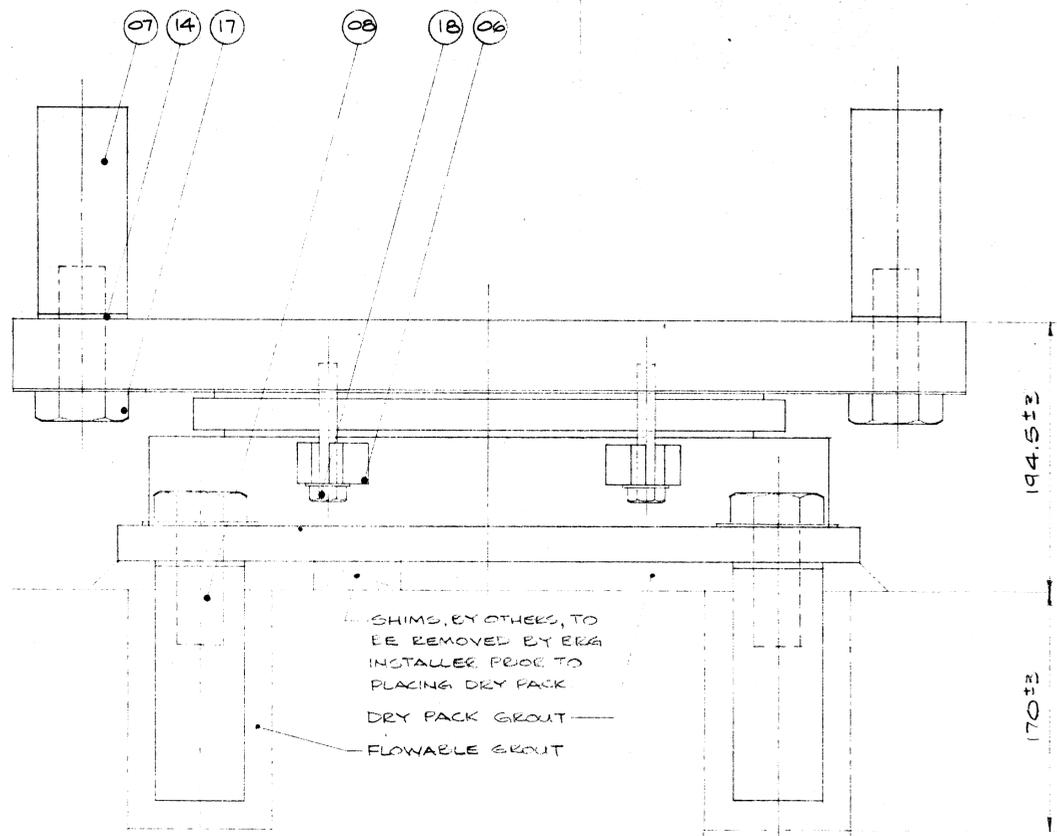
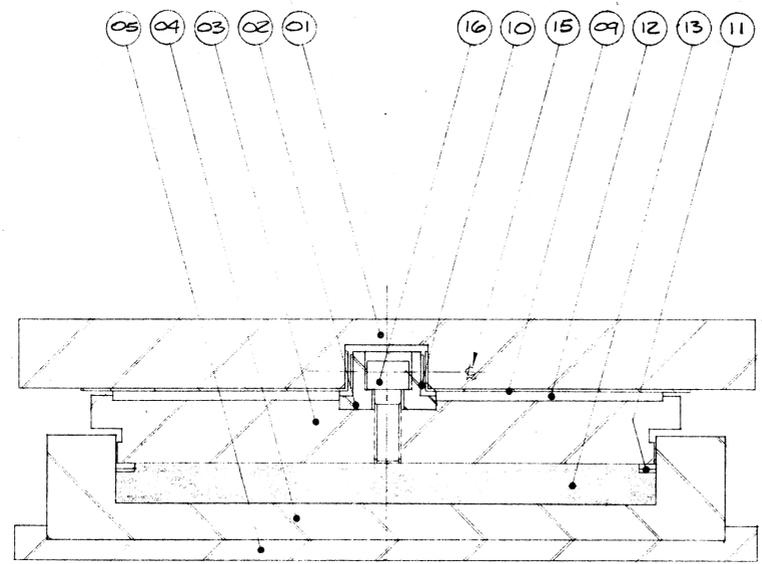
GLACIER **W.G. BEARINGS INC.**
BURLINGTON, ONTARIO

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JOB TITLE: T.C.H. BRIDGE OVER BANFF AVE
SYSTEM: GLACIER 12 K'C'300 POT BEARING

DRAWN BY: ECONNOR	PROJECT NO: P640-84	DRAWING NO: W84-255	REV: 4
CHECKED BY:	DATE: APRIL 1984		



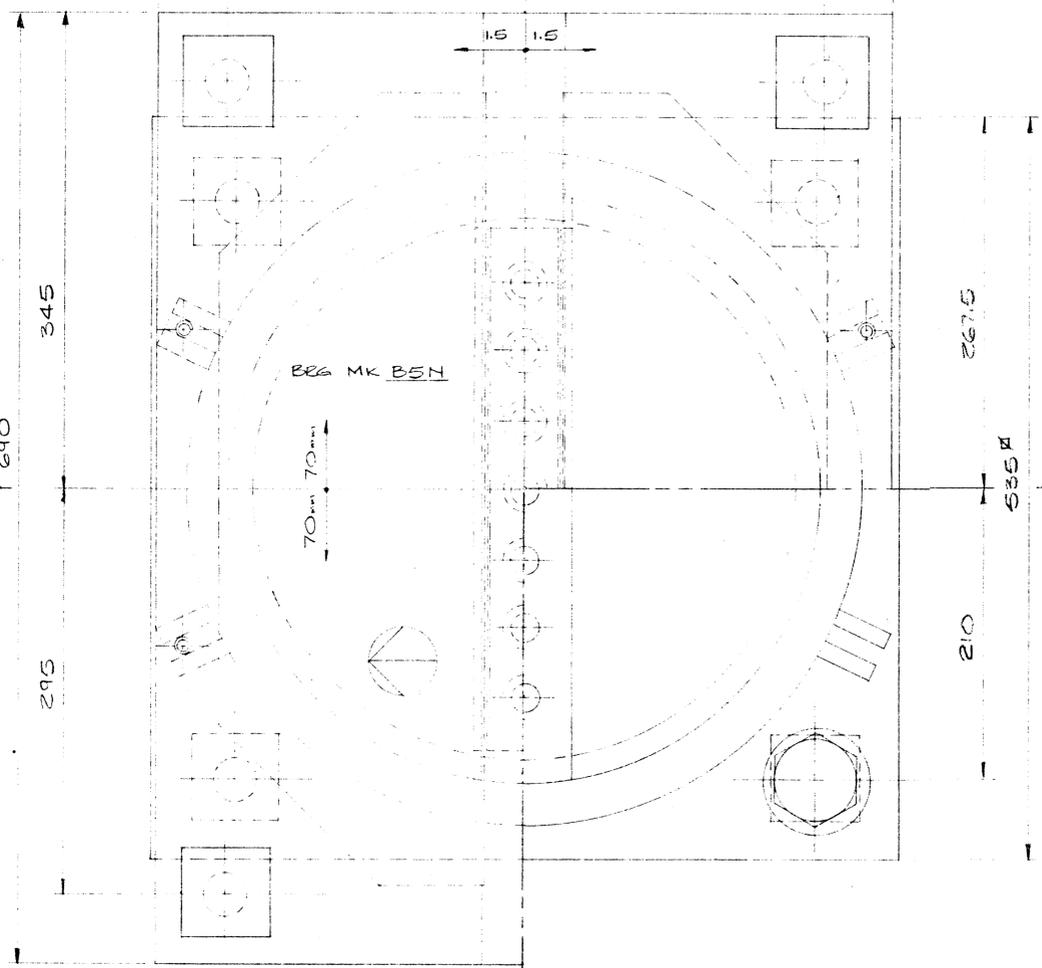


SHIMS, EY OTHERS, TO BE REMOVED BY ERS INSTALLER PRIOR TO PLACING DRY PACK
 DRY PACK GROUT
 FLOWABLE GROUT

LONGITUDINAL ELEVATION

SECTION 1/5

530
 215 265
 GIRDER



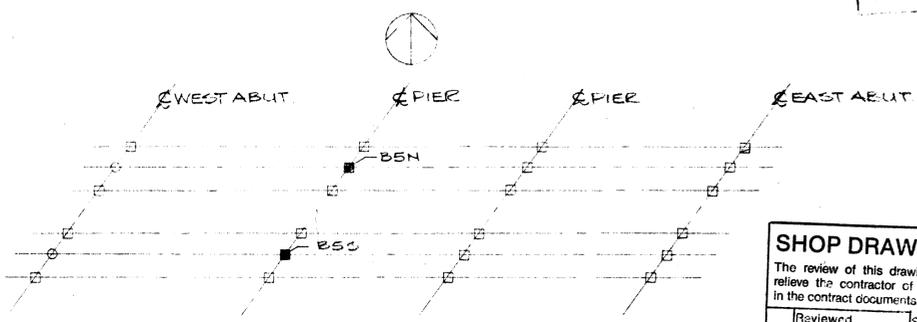
PLAN

BEARING DATA

BEARING TYPE	11K'C'350
QUANTITY	2
MAX V. LOAD	3297 KN
MAX D. LOAD	2913 KN
MAX H. LOAD	384 KN
COEF OF FRICTION	0.03
MAX. ROTATION	0.0015
LONG. MOV'NT.	±70
TRANS. MOV'NT.	±1.5

NOTE:
 FOR COMMENTS & NOTES
 SEE SHEET No. 1.

THIS DRAWING HAS BEEN CHECKED AND IS SUBMITTED IN ACCORDANCE WITH PROVISIONS OF THE GENERAL CONDITIONS OF THE CONTRACT, AND IS SUBJECT TO FURTHER REVIEW BY FORCES HAVING JURISDICTION OVER THE WORK.
 DATE SUBMITTED: MAY 23 1984
 DATE RETURNED:



PLOT PLAN

ITEM	QTY.	DESCRIPTION
18	4 PCS	HEX HEAD SCREWS 1/2" x 3/2" LG 9W WASH
17	8 PCS	HEX HEAD SCREWS 1/2" x 3/2" LG 9W WASH (CALV)
16	7 PCS	CAP SCREWS 7/8" x 2" LG GR B.
15	4 PCS	BRASS FLAT HEAD SCREWS 1/4" x 3/4" LG.
14	8 PCS	RUBBER WASHER 2 1/2" x 2 1/2" x 1/8"
13	1 PC	RUBBER DISC FOR K 350
12	2 PCS	PTFE 1/2 DISCS 15.55" x 3/16" (11K350)
11	2 PCS	BRASS RINGS FOR K 350
10	2 PCS	GLACIER D.U. 3/4" x 3/32" x 14 3/4"
09	2 PCS	S/S SHEET TO SUIT 11K350 WD X 22 3/8" LONG
08	4 PCS	STEEL ANCHOR BAR 2 1/2" x 2 1/2" x 6 3/4" LG
07	4 PCS	STEEL ANCHOR BAR 2 1/2" x 2 1/2" x 6" LG
06	8 PCS	STEEL TRANSIT LUGS 1/2" x 1 1/4" x 1 1/2" LG
05	1 PC	STEEL BASE PL. 21" x 21" x 1"
04	1 PC	STEEL BASE POT 19 3/8" x 3"
03	1 PC	STEEL PISTON 16 3/4" x 2"
02	1 PC	STEEL GUIDE BAR 2 3/4" x 1 3/4" x 15"
01	1 PC	STEEL TOP PL. 20 7/8" x 2" x 27 1/8" LG

LIST OF MATERIALS PER BEG.

GLACIER
 W.G. BEARINGS INC.
 BURLINGTON, ONTARIO

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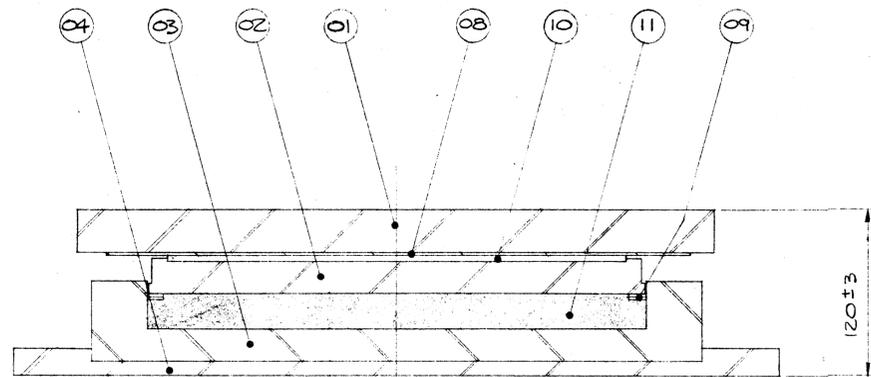
JOB TITLE: T.C.H. BRIDGE OVER BANFF AVE.
 SYSTEM: GLACIER 11K'C'350 POT BEARING

DRAWN BY: ECONNOR	PROJECT NO: P640-84	DRAWING NO.: W84-255
CHECKED BY:	DATE: APRIL 1984	

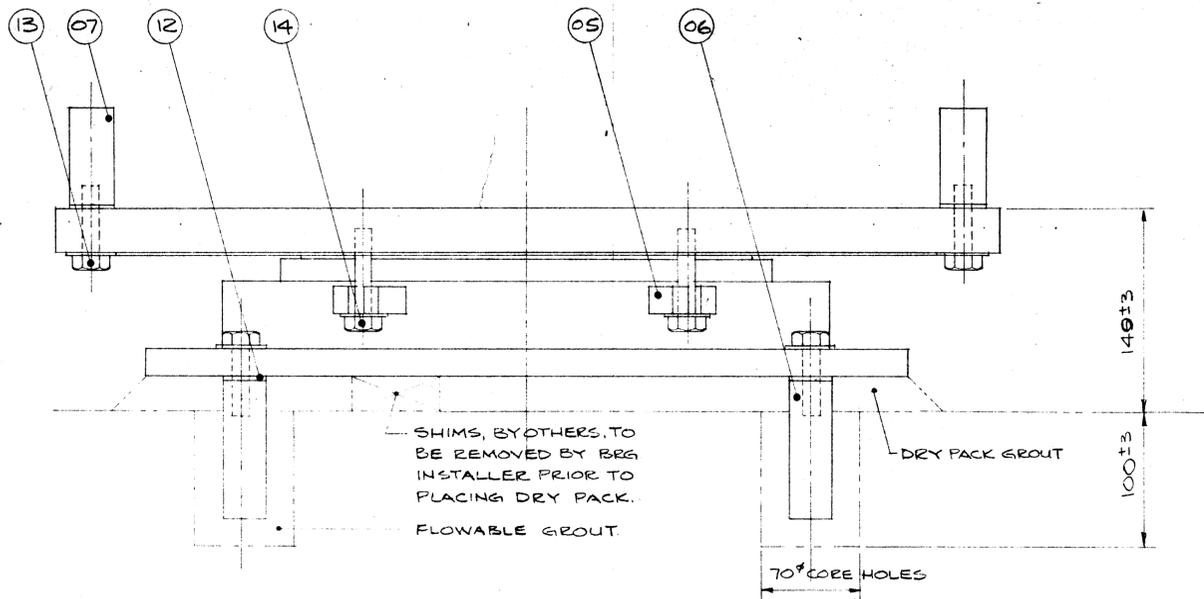
SHOP DRAWING REVIEW
 The review of this drawing does not in any way relieve the contractor of responsibility as detailed in the contract documents.

Reviewed	Submission No. 1
Reviewed as noted	Job No. 2977-322
Revise & resubmit	Date JUN 6 1984

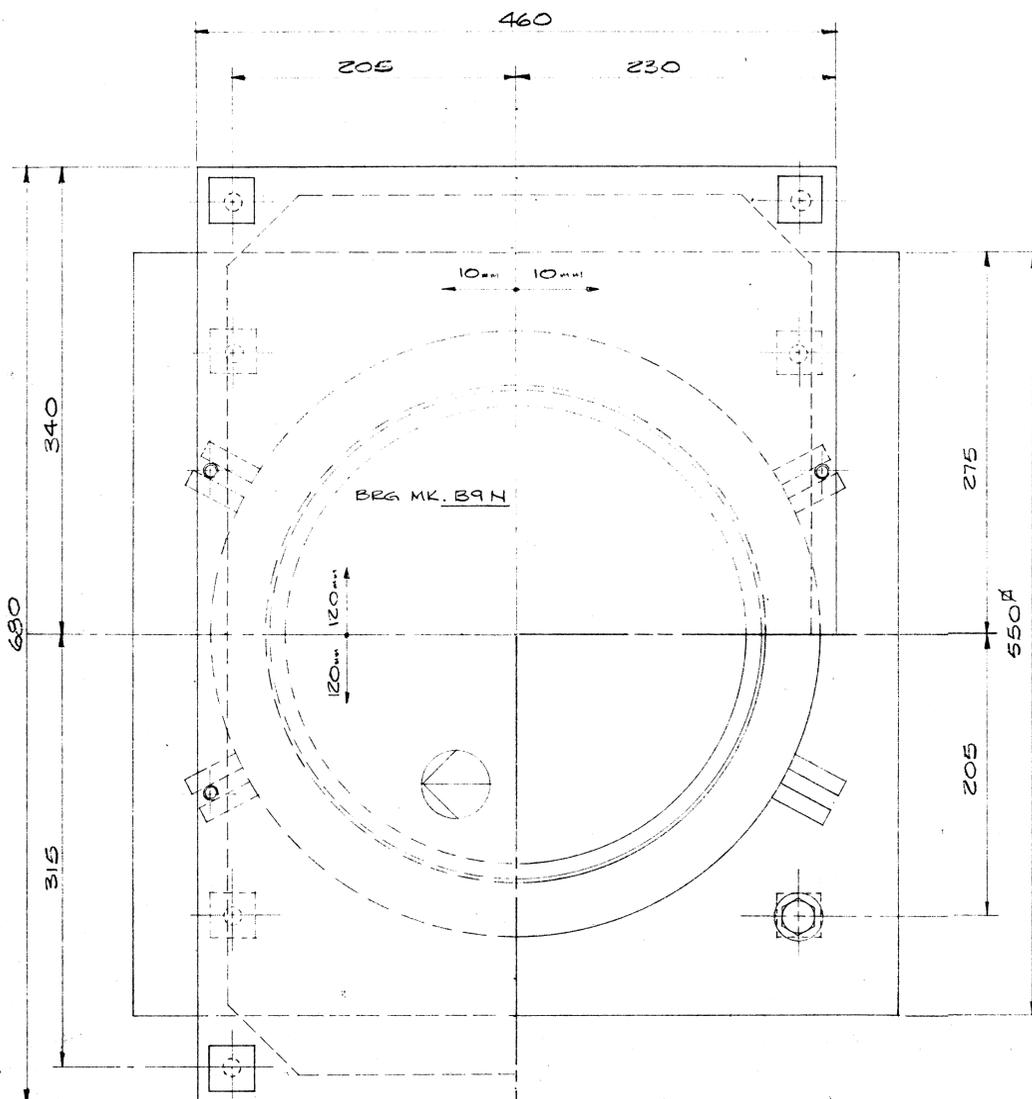
Dwg. review by: J. HALEY
 UNDERWOOD McLELLAN LTD.



SECTION 1



LONGITUDINAL ELEVATION



PLAN

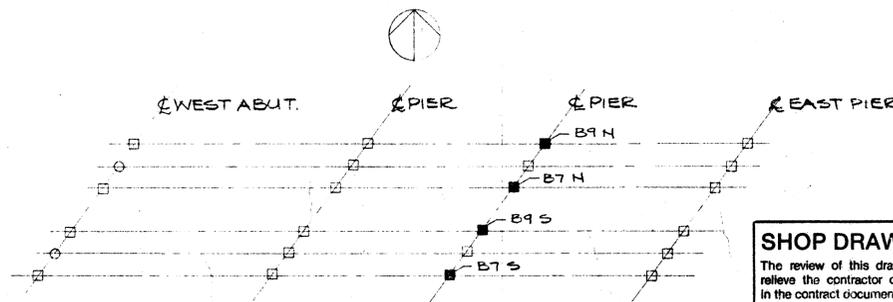
BEARING DATA B7 N&S		B9 N&S	
BEARING TYPE	12 K'C'300	12 K'C'300	
QUANTITY	2	2	
MAX. V. LOAD	3397 KN	3126 KN	
MAX. D. LOAD	2224 KN	2094 KN	
COEF OF FRICTION	0.03	0.03	
MAX ROTATION	0.0010	0.0005	
LONG MOV'NT.	±120	±120	
TRANS MOV'NT.	±10	±10	

THIS DRAWING HAS BEEN CHECKED AND IS SUBMITTED IN ACCORDANCE WITH PROVISIONS OF THE GENERAL CONDITIONS OF THE CONTRACT, AND IS SUBJECT TO FURTHER REVIEW BY BODIES HAVING JURISDICTION OVER THE WORK.

THE RESPONSIBILITY FOR ACCURACY, DIMENSIONS AND CONFORMING TO THE CONTRACT DOCUMENTS REMAINS WITH THE SUB CONTRACTOR.

ELLIS-DON MANAGEMENT SERVICES LTD.
DATE SUBMITTED
DATE RETURNED MAY 23 1984

NOTE:
FOR COMMENTS & NOTES
SEE SHEET No. 1.



PLOT PLAN

SHOP DRAWING REVIEW

The review of this drawing does not in any way relieve the contractor of responsibility as detailed in the contract documents.

Reviewed	Submission No. 1
Reviewed as not	Job No. 2177-022
Revise & resubmit	Date June 6/84
Dwg. review by	J. HALEY

UNDERWOOD McLELLAN LTD. 80

ITEM	QTY.	DESCRIPTION
14	4PCS	HEX HEAD SCREW 1/2" x 2 1/2" LG 9W WASHER
13	8PCS	HEX HEAD A325 SCREW 1/2" x 2" LG 9W WASH (GALV.)
12	8PCS	RUBBER WASHER 1/4" x 1/4" x 1/8"
11	1PC.	RUBBER DISC FOR K 300
10	1PC.	P.T.F.E. DISC FOR 12K 300
09	2PCS	BRASS RINGS FOR 12K 300
08	1PC	S/S SHEET FOR 12K300 WD x 25 1/8" LG.
07	4PCS	STEEL ANCHOR BARS 1/4" x 1/4" x 3" LG
06	4PCS	STEEL ANCHOR BARS 1/4" x 1/4" x 4" LG
05	8PCS	STEEL TRANSIT LUGS 1/2" x 3/4" x 1 1/2"
04	1PC.	STEEL BASE PL. 21 5/8" x 21 5/8" x 3/4"
03	1PC	STEEL BASE PL. 17 7/8" x 2 1/2"
02	1PC	STEEL PISTON 14 1/8" x 1"
01	1PC	STEEL TOP PL. 18 1/8" x 1 1/4" x 26 3/4" LG.

LIST OF MATERIALS PER BRG.

GLACIER **W.G. BEARINGS INC.**
BURLINGTON, ONTARIO

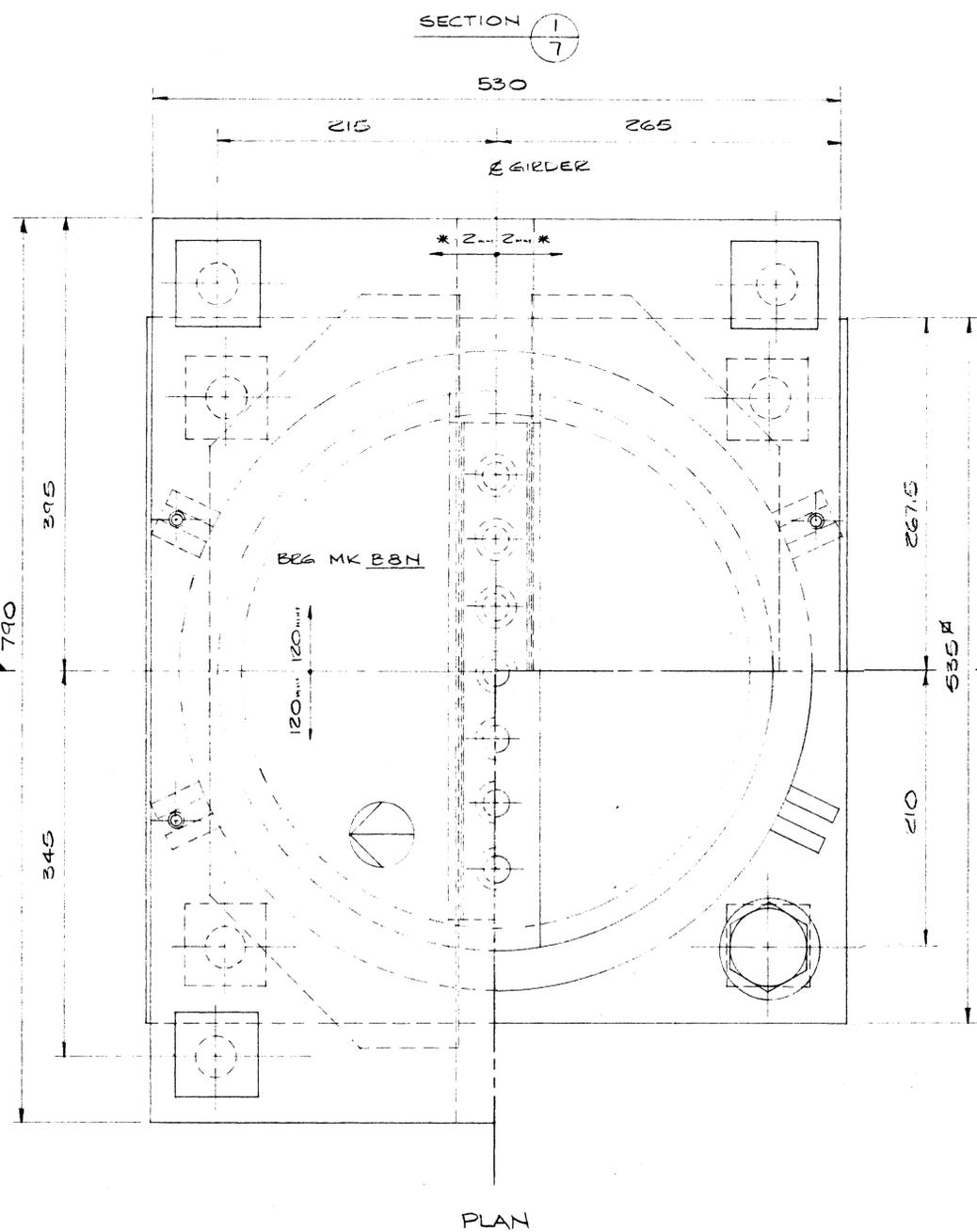
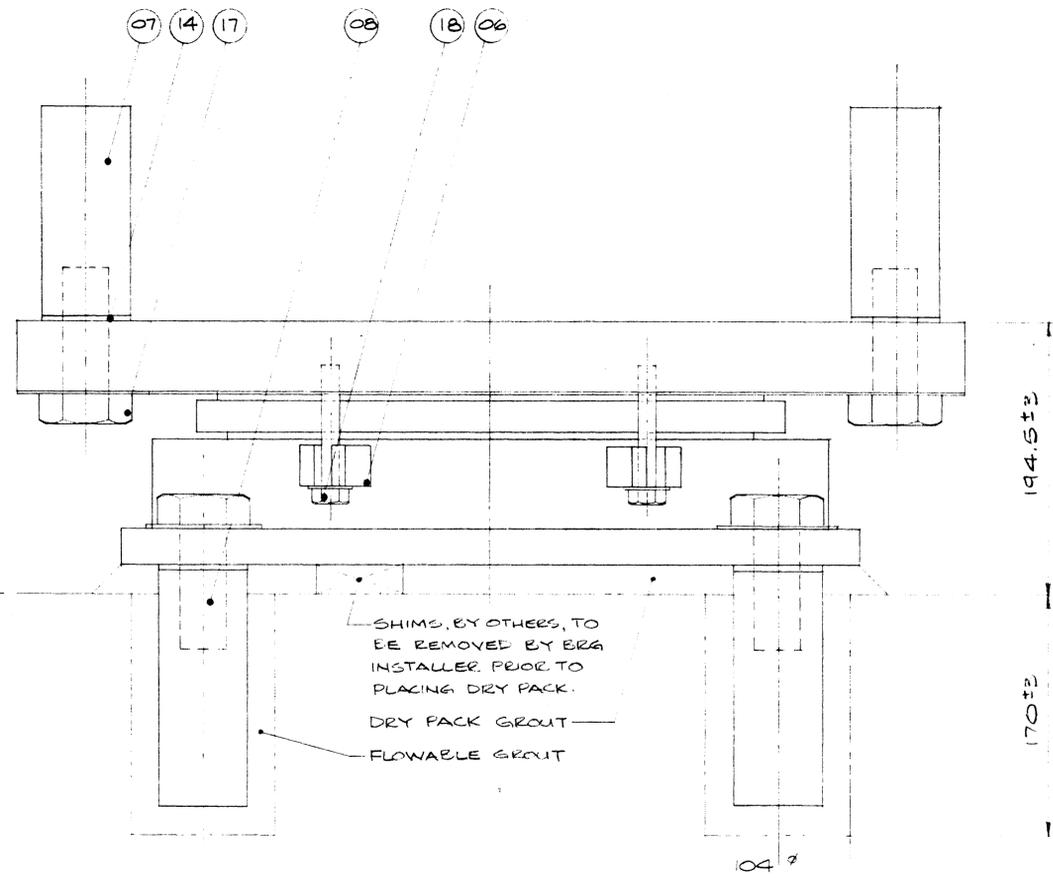
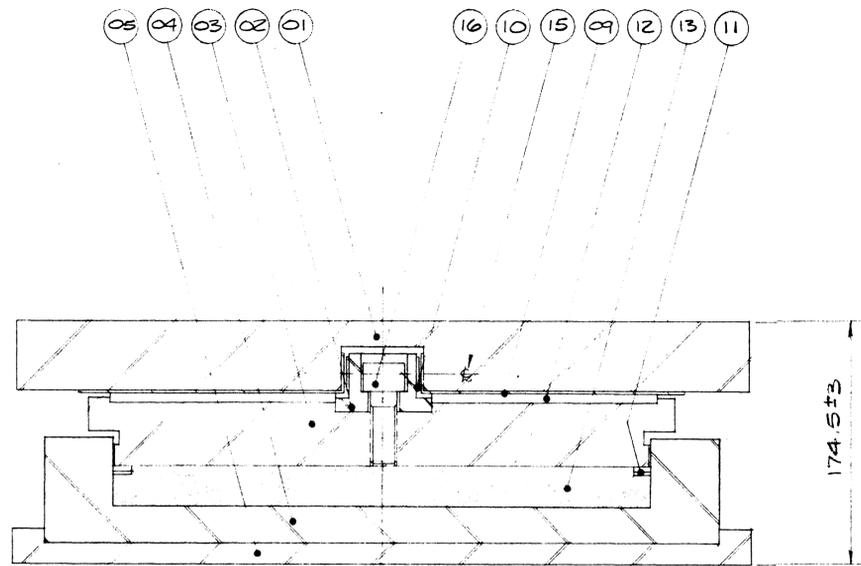
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JOB TITLE: T.C.H. BRIDGE OVER BANFF AVE

SYSTEM: GLACIER 12 K'C'300 POT BEARING

DRAWN BY: ECONNOR	PROJECT NO: PG40-84	DRAWING NO: W84-255
CHECKED BY: [Signature]	DATE: APRIL 1984	



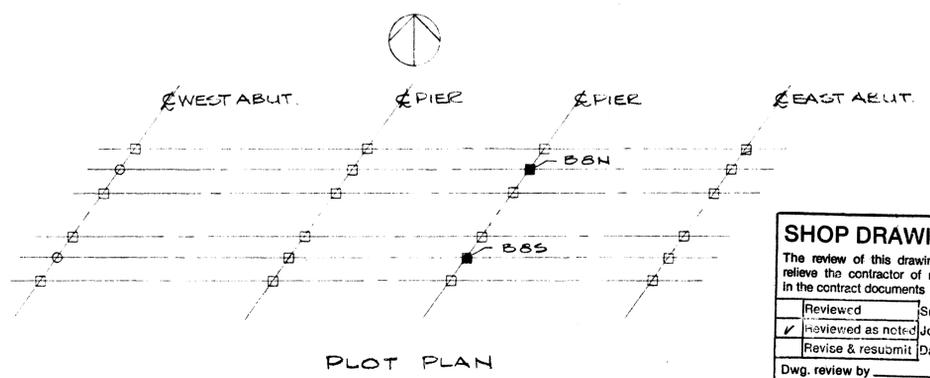


BEARING DATA

BEARING TYPE	11K'C'350
QUANTITY	2
MAX V LOAD	3207 kN
MAX D LOAD	2607 kN
MAX H LOAD	384 kN
COEF OF FRICTION	0.03
MAX. ROTATION	0.0007
LONG. MOV'T	± 120 mm
* TRANS. MOV'T	± 2 mm

* EXTRA MOVEMENT REQUIRED FOR CURVATURE OF BRIDGE.

NOTE:
 FOR COMMENTS & NOTES SEE SHEET No. 1.



SHOP DRAWING REVIEW

The review of this drawing does not in any way relieve the contractor of responsibility as detailed in the contract documents.

Reviewed	Submission No. 1
✓ Reviewed as noted	Job No. 2977-022
Revise & resubmit	Date JUN 6/84
Dwg. review by	J. HALEY

UNDERWOOD McLELLAN LTD. 80

THIS DRAWING HAS BEEN CHECKED AND IS SUBMITTED IN ACCORDANCE WITH PROVISIONS OF THE GENERAL CONDITIONS OF THE CONTRACT AND IS SUBJECT TO FURTHER REVIEW BY BODIES HAVING JURISDICTION OVER THE WORK.

THIS RESPONSIBILITY FOR ACCURACY OF DIMENSIONS AND CONFORMING CONTRACT DOCUMENTS REMAINS THE RESPONSIBILITY OF THE SUBCONTRACTOR.

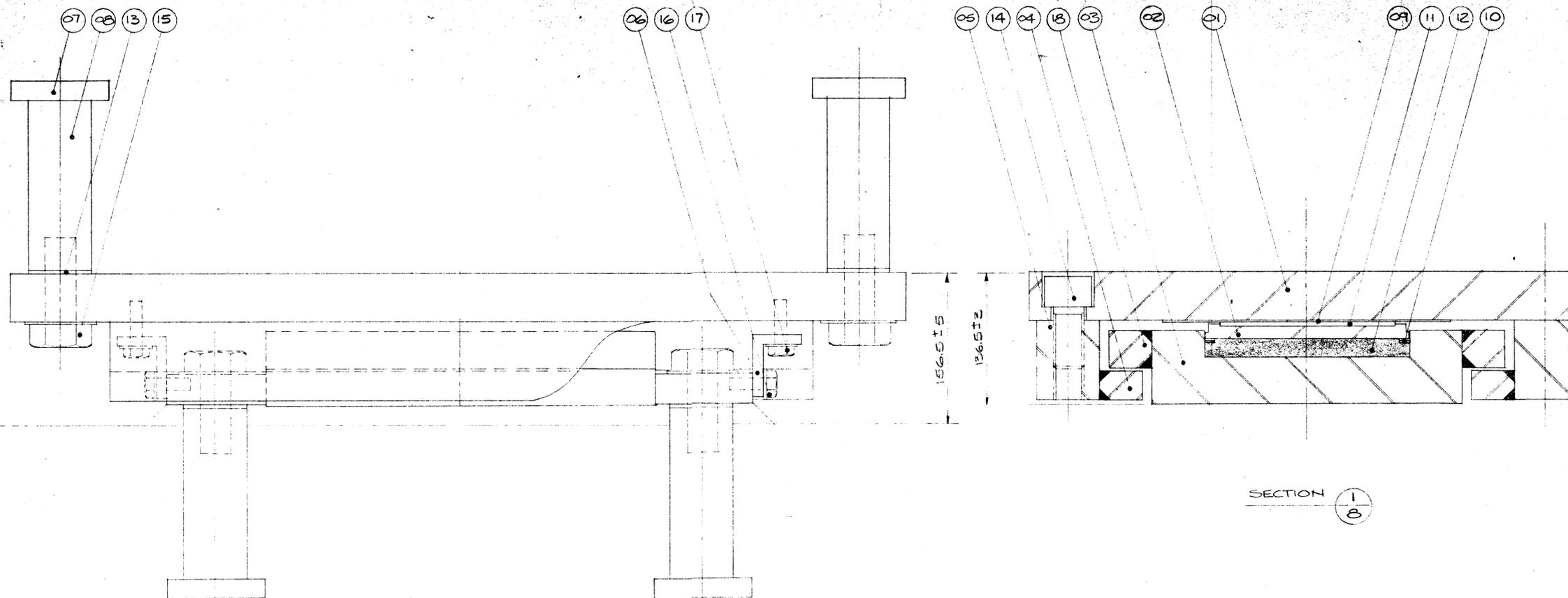
ELLISDON MANAGEMENT SERVICES LTD.
 DATE SUBMITTED MAY 23 1984
 DATE RETURNED

ITEM	QTY	DESCRIPTION
18	4 PCS	HEX HEAD SCREWS 1/2" x 3 1/2" LG 9.0 WASH
17	8 PCS	HEX HEAD SCREWS 1/2" x 3 1/2" LG 9.0 WASH (GALV.)
16	7 PCS	CAP SCREWS 7/8" x 2" LG GR B.
15	4 PCS	BRASS FLAT HEAD SCREWS 1/4" x 3/4" LG
14	8 PCS	RUBBER WASHER 2 1/2" x 2 1/2" x 1/8"
13	1 PC	RUBBER DISC FOR K 350
12	2 PCS	PTFE 1/2 DISCS 15.55" x 3 1/16" (11K350 MOD)
11	2 PCS	BRASS RINGS FOR K 350
10	2 PCS	GLACIER D.U. 3/4" x 3/32" x 14 3/4"
09	2 PCS	S/S SHEET TO SUIT 11K350 WD x 26 7/8" LONG
08	4 PCS	STEEL ANCHOR BAR 2 1/2" x 2 1/2" x 6 3/4" LG
07	4 PCS	STEEL ANCHOR BAR 2 1/2" x 2 1/2" x 6" LG
06	8 PCS	STEEL TRANSIT LUGS 1/2" x 1 1/4" x 1 1/2" LG
05	1 PC	STEEL BASE PL. 21" x 21" x 1"
04	1 PC	STEEL BASE POT 19 3/8" x 3"
03	1 PC	STEEL PISTON 16 3/4" x 2"
02	1 PC	STEEL GUIDE BAR 2 3/4" x 1 3/4" x 15"
01	1 PC	STEEL TOP PL 20 7/8" x 2" x 3 1/8" LG

LIST OF MATERIALS PER BRG

	W.G. BEARINGS INC. BURLINGTON, ONTARIO	
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JOB TITLE: T.C.H. BRIDGE OVER BANFF AVE.		
SYSTEM: GLACIER 11K'C'350 POT BEARING		
DRAWN BY: ECONNOR CHECKED BY:	PROJECT NO: P640-84 DATE: APRIL 1984	DRAWING NO: W84-255 REV. 7 OF 10

AA006043



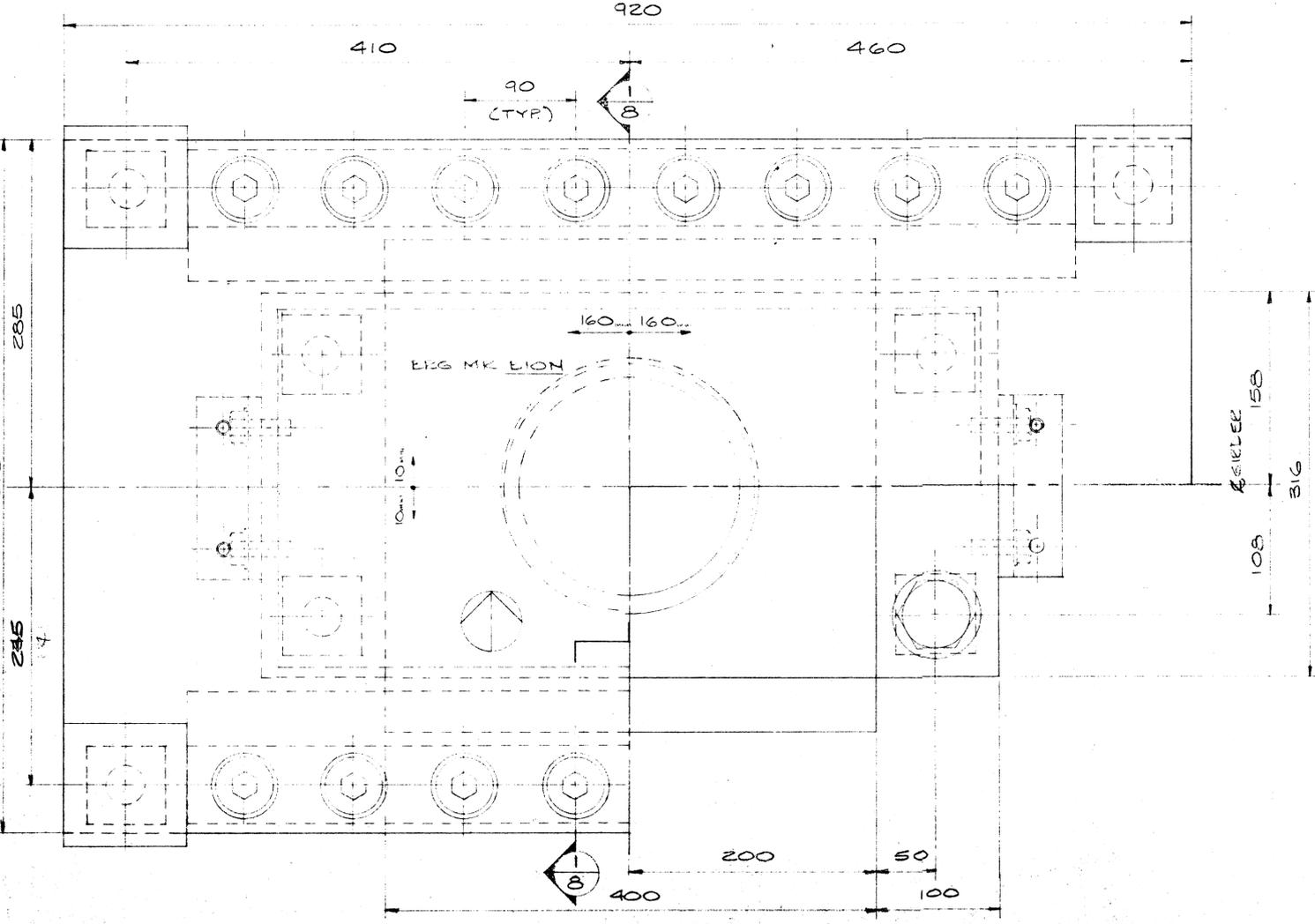
LONGITUDINAL ELEVATION

SECTION 1/8

THIS DRAWING HAS BEEN CHECKED AND IS SUBMITTED IN ACCORDANCE WITH PROVISIONS OF THE GENERAL CONDITIONS OF THE CONTRACT AND IS SUBJECT TO FURTHER REVIEW BY BODIES HAVING JURISDICTION OVER THE WORK.

THE RESPONSIBILITY FOR ACCURATE DIMENSIONS AND CONFORMING TO CONTRACT DOCUMENTS REMAINS WITH THE SUB CONTRACTOR.

ELLISON MANAGEMENT SERVICES LTD
DATE SUBMITTED MAY 23 1984
DATE RETURNED



BEARING DATA

BEARING TYPE	12K'C100 (UPLIFT)
QUANTITY	2
MAX. V. LOAD	1102 KN
MAX. D. LOAD	361 KN
MAX. UPLIFT LOAD	-565 KN
COEF. OF FRICTION	0.03
MAX. ROTATION	0.0011
LONG. MOV'T.	±160
TRANS. MOV'T.	±10

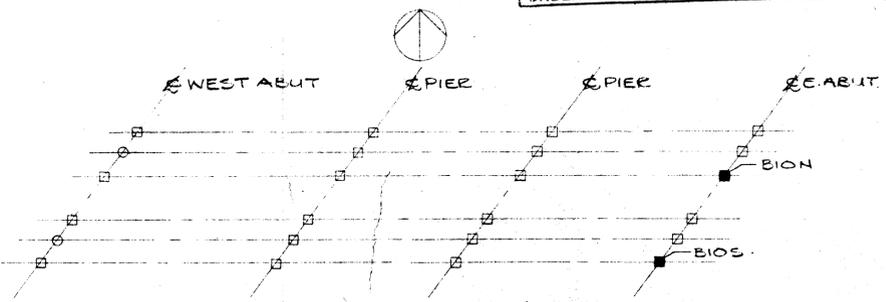
NOTE:
FOR COMMENTS & NOTES
SEE SHEET No. 1.

SHOP DRAWING REVIEW

The review of this drawing does not in any way relieve the contractor of responsibility as detailed in the contract documents.

Reviewed	Submission No. 1
Reviewed as noted	Job No. 1777-022
Revise & resubmit	Date JUNE 21/84
Dwg. review by	H. HALEY

UNDERWOOD McLELLAN LTD.



PLOT PLAN

ITEM	QTY.	DESCRIPTION
19	2RS	STEEL ANCHOR LUG 4" x 12 1/2" x 1 1/4"
18	2RS	STEEL BAR 1 1/2" x 3/4" x 15 3/4" LG
17	4 PCS	HEX HEAD SCREWS 1/2" x 2" LG 9/W WASH
16	4 PCS	HEX HEAD SCREWS 1/2" x 1 1/2" LG 9/W WASH
15	8PCS	HEX HD A25 SCREWS 1/4" x 3 1/2" LG GALV.
14	16PCS	CAP SCREWS 1/4" x 2 1/2" LG GR. 8.
13	8PCS	RUBBER WASHER 2 1/2" x 2 1/2" x 1/8"
12	1PC	RUBBER DISC FOR K100.
11	1PC	PTFE DISC FOR 12K100.
10	2PCS	BRASS RINGS FOR K100
09	1PC	S/S SHEET FOR 12K100 W/2 x 22 1/2" LG.
08	8PCS	STEEL ANCHOR BARS 2 1/2" x 2 1/2" x 7 1/4" LG.
07	8PCS	STEEL ANCHOR CAPS 4" x 4" x 3/4"
06	2PCS	STEEL TRANSIT ANGLE 2 x 2 1/2 x 3/8 x 6" LG.
05	2PCS	STEEL BAR 2 1/2" x 3/4" x 28 3/8" LG.
04	2PCS	STEEL BAR 1 1/4" x 1 3/4" x 28 3/8" LG.
03	1PC	STEEL BASE POT 12 1/2" x 3" x 15 3/4"
02	1PC	STEEL PISTON FOR 12K100.
01	1PC	STEEL TAP @ 22 1/2" x 2" x 36 1/4"

LIST OF MATERIALS PER BRG.

GLACIER

W.G. BEARINGS INC.
BURLINGTON, ONTARIO

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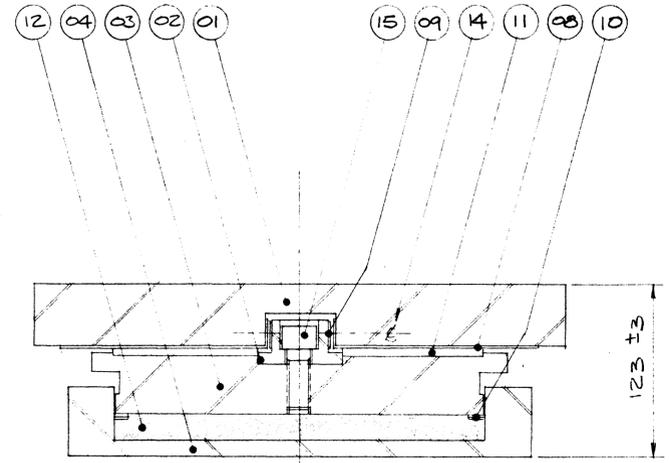
Glacier is the Registered Trademark of the Glacier Metal Company Limited. Registered Trademark of Warcholor Associates Ltd.

JOB TITLE: T.C.H. BRIDGE OVER BANFF AVE
SYSTEM: GLACIER 12K'C100 UPLIFT DESIGN

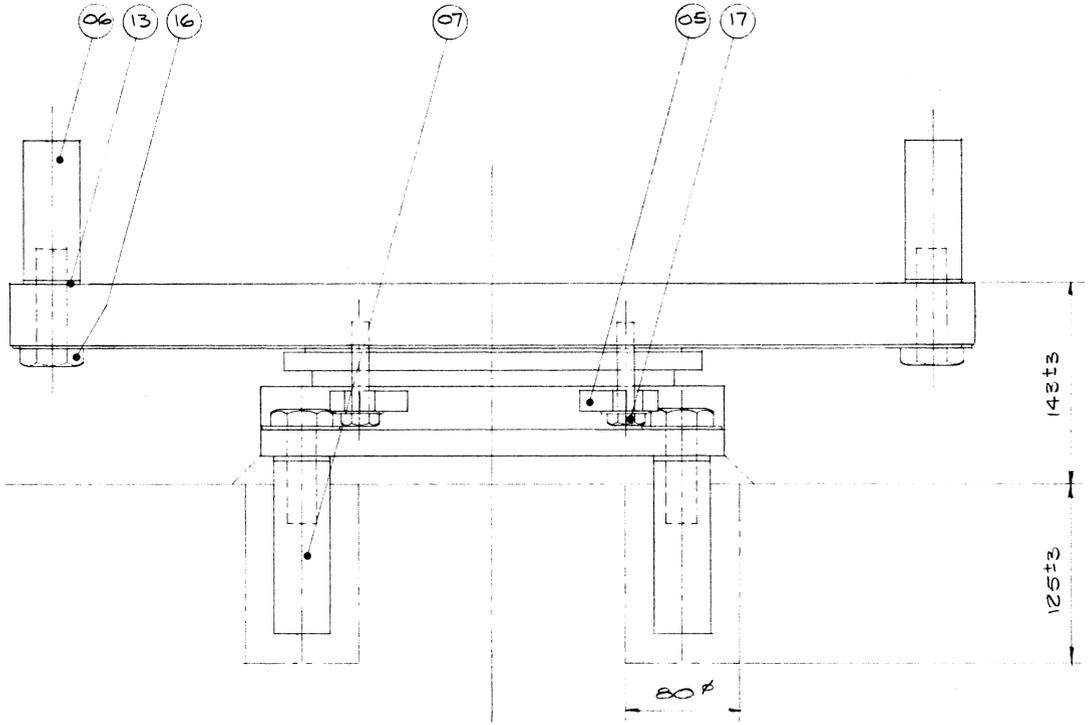
DRAWN BY: BEANOR	PROJECT NO: P640-84	DRAWING NO.: W255-84	REV: 0
CHECKED BY: [Signature]	DATE: MAY 1984		



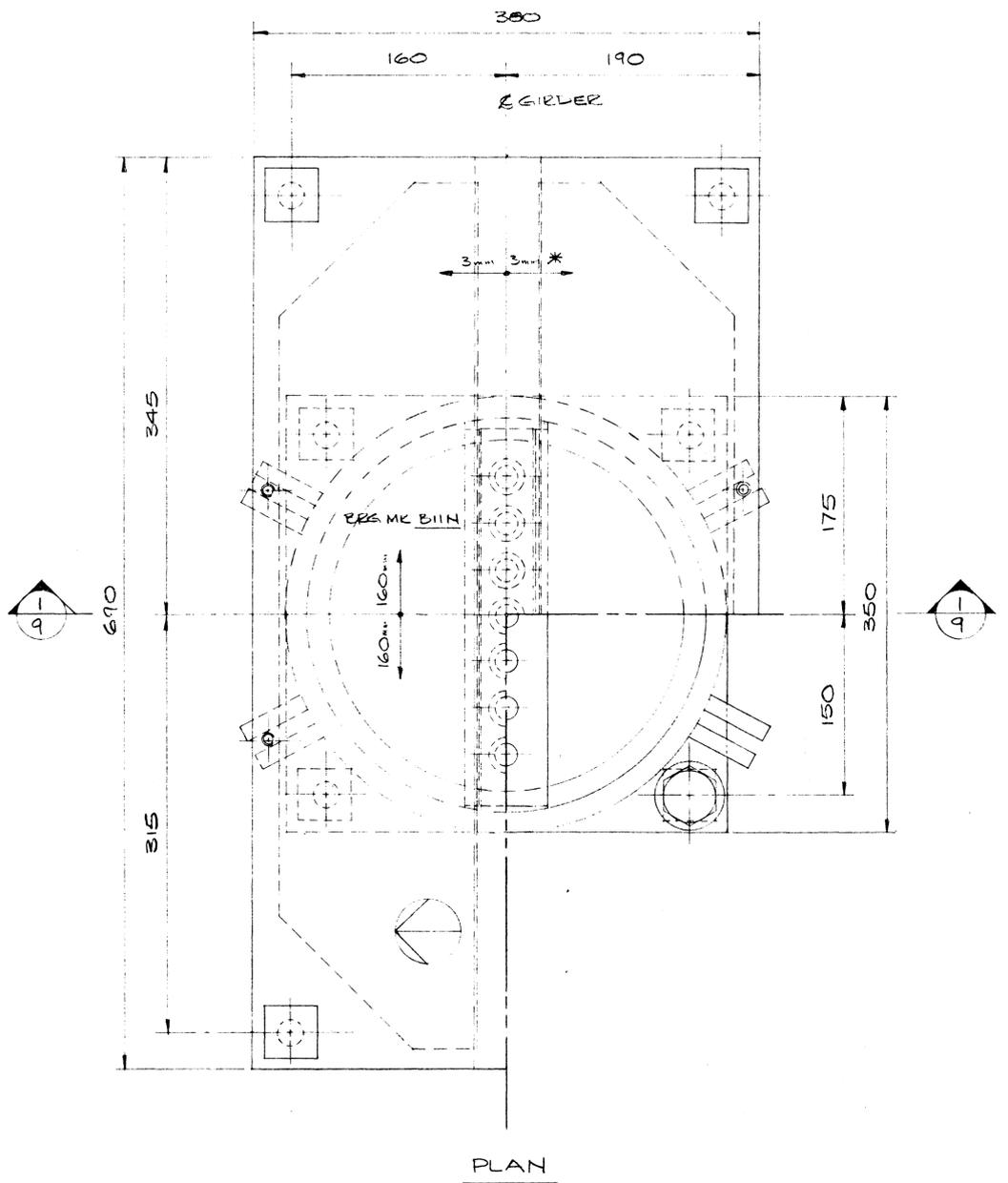
ADD ITEM #19 MAY 18/84



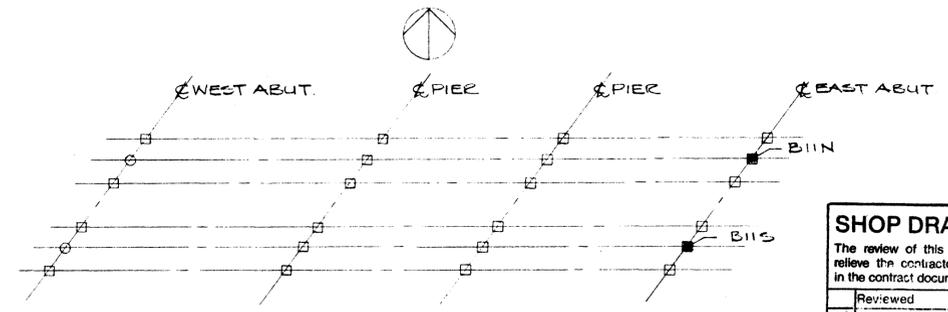
SECTION 1-9



LONGITUDINAL ELEVATION



PLAN



PLOT PLAN

BEARING DATA

BEARING TYPE	11K'C'160
QUANTITY	2
MAX. V. LOAD	1467 KN
MAX. D. LOAD	1089 KN
MAX. H. LOAD	182 KN
COEF OF FRICTION	0.03
MAX. ROTATION	0.0011
LONG. MOV'T.	±160
* TRANS. MOV'T.	±3

* EXTRA MOVEMENT REQUIRED FOR CURVATURE OF BRIDGE.

NOTE:
FOR COMMENTS & NOTES
SEE SHEET No. 1.

THIS DRAWING HAS BEEN CHECKED AND IS SUBMITTED IN ACCORDANCE WITH PROVISIONS OF THE GENERAL CONDITIONS OF THE CONTRACT AND IS SUBJECT TO FURTHER REVIEW BY ENGINEERS HAVING JURISDICTION OVER THE WORK.

THE RESPONSIBILITY FOR ACCURACY OF THE DRAWING AND CONFORMING TO CONTRACT DOCUMENTS REMAINS WITH THE SUB CONTRACTOR.

ELLIBSON MANAGEMENT SERVICES LTD.
DATE SUBMITTED: MAY 23 1984
DATE RETURNED:

ITEM	QTY	DESCRIPTION
17	4 PCS	HEX HEAD SCREW 1/2" x 2 1/2" LG 9W WASHER
16	8 PCS	HEX HD A325 SCREW 3/4" x 2 3/4" LG 9W WASH (GALV)
15	7 PCS	CAP SCREW 5/8" x 1 3/4" LG GR 8
14	4 PCS	BRASS FLAT HEAD SCREWS 1/4" x 3/4" LG
13	8 PCS	RUBBER WASHERS 1 1/2" x 1 1/2" x 1/8"
12	1 PC	RUBBER DISC TO SUIT K160
11	2 PCS	P.T.F.E. 1/2 DISC TO SUIT 11K160
10	2 PCS	BRASS RINGS FOR K160
09	2 PCS	GLACIER D.U. TO SUIT 11K160
08	2 PCS	S/S SHEET TO SUIT 11K160 WD x 26 1/8" LG
07	4 PCS	STEEL ANCHOR BAR 1 1/2" x 1 1/2" x 5" LG
06	4 PCS	STEEL ANCHOR BAR 1 1/2" x 1 1/2" x 4" LG
05	8 PCS	STEEL TRANSIT LUG 1/2" x 5/8" x 2" LG
04	1 PC	STEEL BASE POT 13 3/8" x 13 3/8" x 2
03	1 PC	STEEL PISTON FOR 11K160
02	1 PC	STEEL GUIDE BAR FOR 11K160
01	1 PC	STEEL TOP PLATE 15" x 13 3/4" x 27 1/8" LG

LIST OF MATERIALS PER BRG.

		W.G. BEARINGS INC.	
		BURLINGTON, ONTARIO	
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JOB TITLE: T.C.H. BRIDGE OVER BANFF AVE			
SYSTEM: GLACIER 11K'C'160 POT BEARING			
DRAWN BY: ECONNOR	PROJECT NO.: P640-84	DRAWING NO.: W84-255	REV.: 9 OF 10
CHECKED BY: [Signature]	DATE: APRIL 1984		

SHOP DRAWING REVIEW

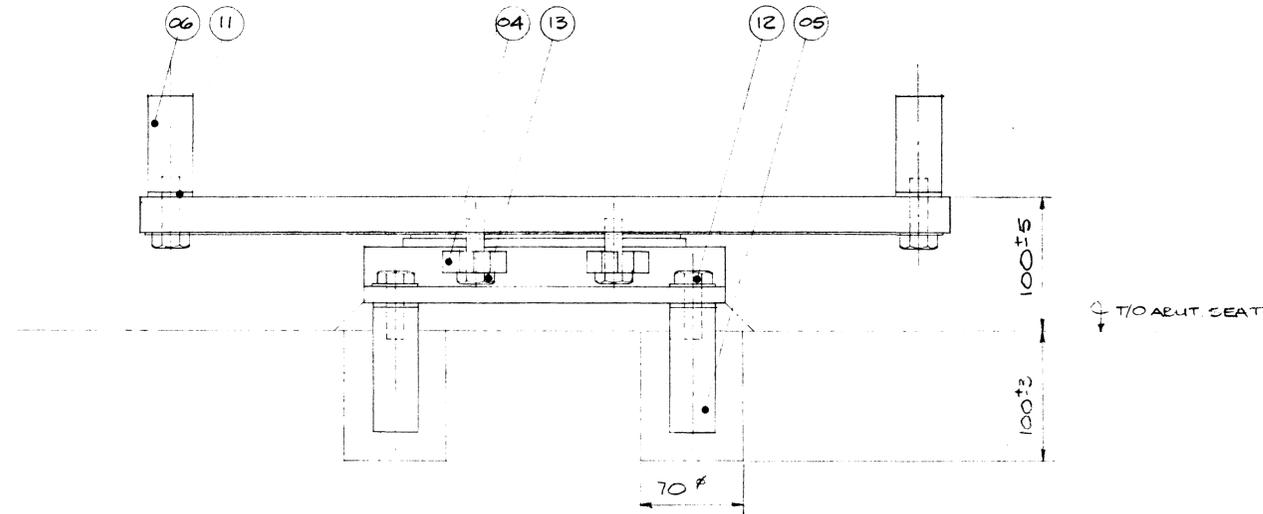
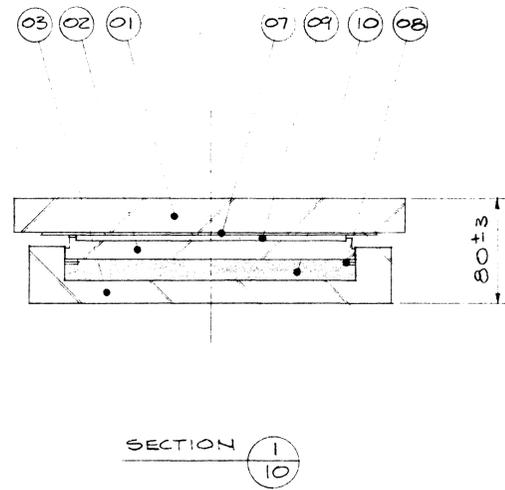
The review of this drawing does not in any way relieve the contractor of responsibility as detailed in the contract documents.

Reviewed	Submission No. 1
✓ Reviewed as noted	Job No. 2977-022
Revise & resubmit	Date JUNE 6/84

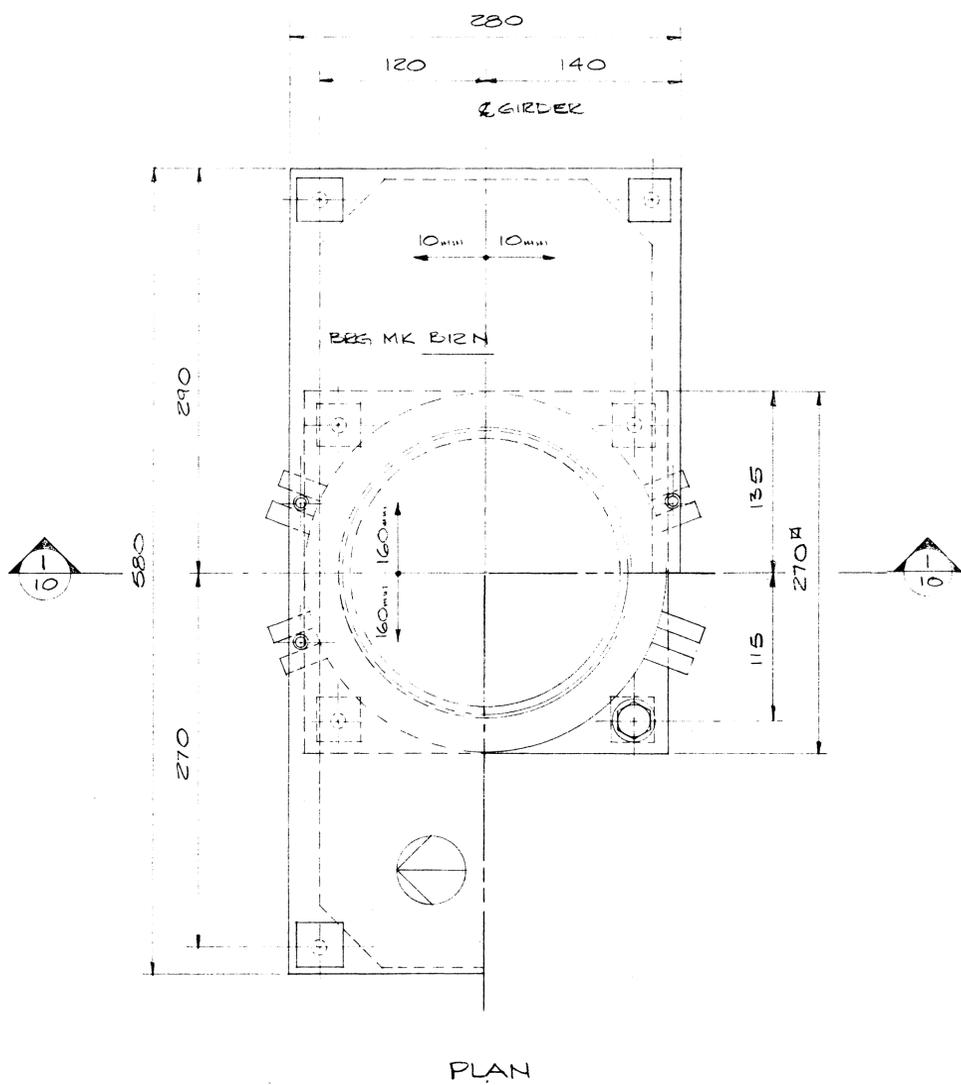
Dwg. review by: J. HALEY

UNDERWOOD McLELLAN LTD. 80





LONGITUDINAL ELEVATION

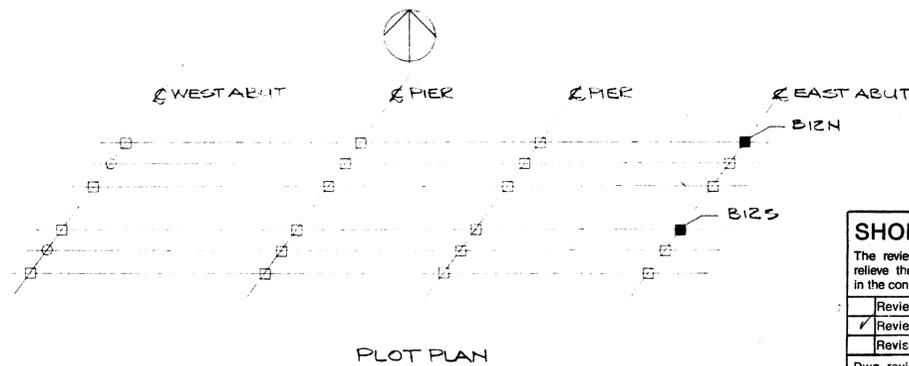


PLAN

BEARING DATA

BEARING TYPE	12 K'C'100
QUANTITY	2 (SEE PLOT PLAN)
MAX V. LOAD	875 KN
MAX D. LOAD	541 KN
COEF. OF FRICTION	0.03
MAX ROTATION	0.0012
LONG. MOV'NT.	± 160
TRANS. MOV'NT.	± 10

NOTE:
FOR COMMENTS
& NOTES SEE
SHEET No. 1.



PLOT PLAN

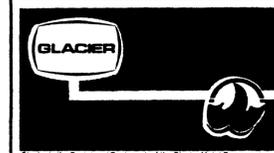
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ELLISON MANAGEMENT SERVICES LTD.
DATE SUBMITTED MAY 23 1984
DATE RETURNED

ITEM	QTY	DESCRIPTION
13	4PCS	HEX HEAD SCREW 1/2" x 1 1/2" LG
12	8PCS	HEX HEAD SCREW 1/2" x 2" LG 9/16" WASH (GALV.) 325
11	8PCS	RUBBER WASHERS 1 1/4" x 1 1/4" x 1/8"
10	1PC	RUBBER DISC FOR K100
09	1PC	P.T.F.E DISC FOR 12K100
08	2PCS	BRASS RINGS FOR K100
07	1PC	C/S SHEET FOR 12K100 WD x 22 1/2" LG
06	4PCS	STEEL ANCHOR BAR 1/4" x 1/4" x 3" LG.
05	4PCS	STEEL ANCHOR BAR 1/4" x 1/4" x 4" LG.
04	8PCS	STEEL TRANSIT BRACKETS 1/2" x 5/8" x 1 1/4"
03	1PC	STEEL BASE POT 10 5/8" x 10 5/8" x 1 3/4"
02	1PCS	STEEL PISTON R 3/4" x 3/4"
01	1PCS	STEEL TOP R 11" x 1" x 22 7/8"

LIST OF MATERIALS PER B26



W.G. BEARINGS INC.

BURLINGTON, ONTARIO

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JOB TITLE: T.C.H. BRIDGE OVER BANFF AVE

SYSTEM: GLACIER 12K'C'100 POT BEARING

DRAWN BY: BEONNOR PROJECT NO: P640-84 DRAWING NO.: W84-255 REV. 10 OF 10

CHECKED BY: DATE: APRIL 1984

SHOP DRAWING REVIEW

The review of this drawing does not in any way relieve the contractor of responsibility as detailed in the contract documents

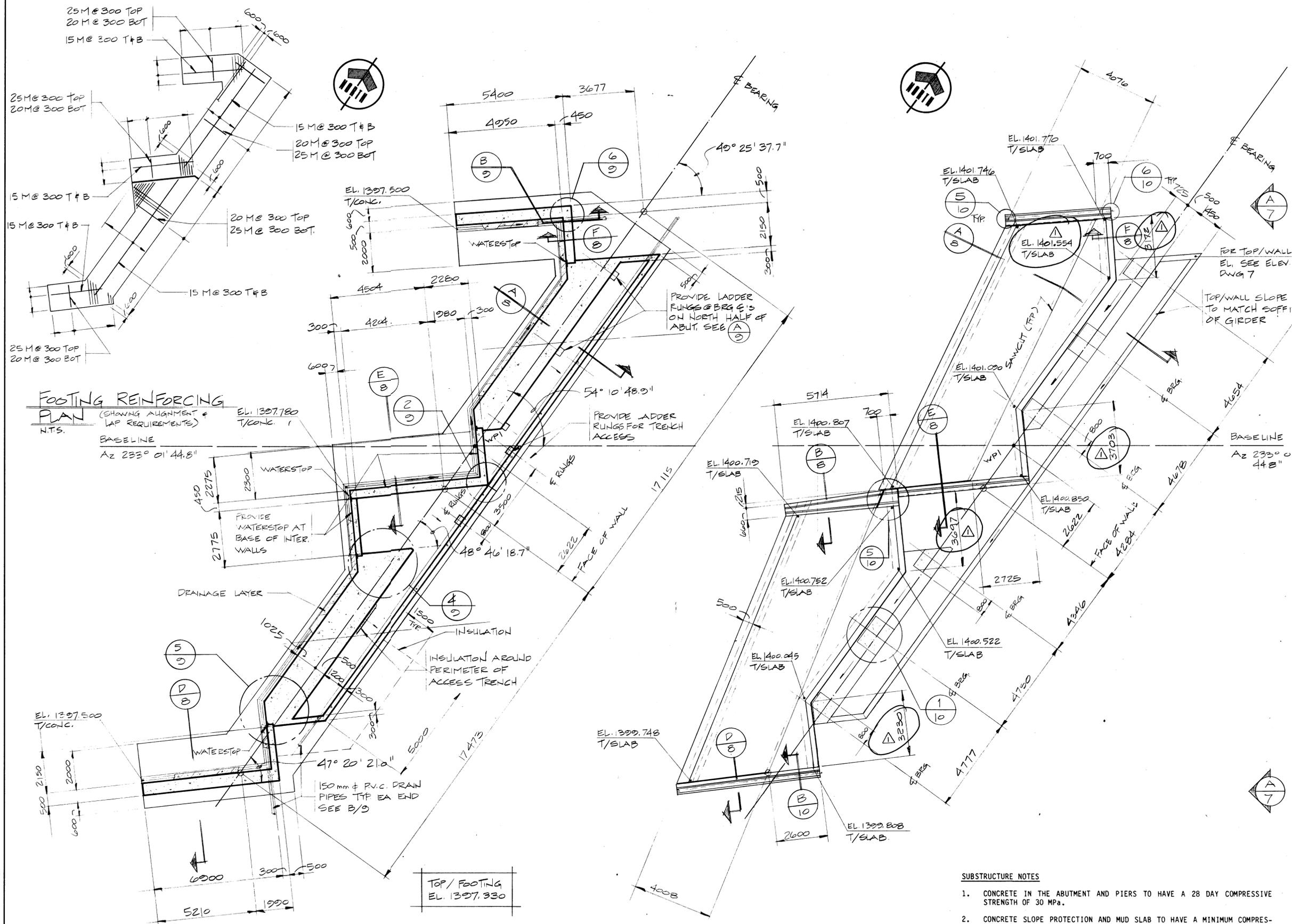
Reviewed	Submission No. 1
Reviewed as noted	Job No. 8977-212
Revise & resubmit	Date JUNE 6/84
Dwg. review by	J. HALEY
UNDERWOOD McLELLAN LTD. 80	

AA006046

Western Region

Project: TRANS-CANADA HIGHWAY TWINNING
 BANFF NATIONAL PARK, ALBERTA
 MINNEWANKA INTERCHANGE

Project No. _____
 Project No. _____



FOOTING REINFORCING PLAN
 (SHOWING ALIGNMENT & LAP REQUIREMENTS)
 N.T.S.
 BASELINE
 Az 233° 01' 44.8"

FOUNDATION PLAN
 - WEST ABUTMENT
 SCALE 1:100

PLAN - WEST ABUTMENT
 SCALE 1:100

SUBSTRUCTURE NOTES

- CONCRETE IN THE ABUTMENT AND PIERS TO HAVE A 28 DAY COMPRESSIVE STRENGTH OF 30 MPa.
- CONCRETE SLOPE PROTECTION AND MUD SLAB TO HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 25 MPa.
- THE CONTRACTOR IS TO PROVIDE THE ENGINEER WITH DETAILS OF EACH CONCRETE MIX DESIGN INCLUDING AGGREGATE TYPES AND SOURCES AND PREVIOUS 28 DAY STRENGTH RESULTS FOR EACH MIX PRIOR TO ANY CONCRETE BEING PLACED. ANY UNTRIED CONCRETE MIXES ARE TO BE PROVEN WITH TRIAL MIXES AT NO ADDITIONAL COST TO THE ENGINEER. THE CONTRACTOR SHALL NOT AMEND ANY ACCEPTED MIX DESIGNS WITHOUT PRIOR APPROVAL OF THE ENGINEER.
- ALL REINFORCEMENT SHALL CONFORM WITH CSA G30.12 GRADE 400.
- ALL LAPS SHALL BE TENSION LAP SLICES CLASS C UNLESS OTHERWISE SHOWN.
- CONCRETE COVER TO REINFORCEMENT TO BE 50 mm UNLESS OTHERWISE SHOWN.
- CHAMFERS TO BE PROVIDED ON ALL EDGES MINIMUM 20 X 20 UNLESS OTHERWISE SHOWN.
- FOR CONCRETE FINISHES SEE SPECIFICATIONS.

REV	D	M	Y	REVISION DESCRIPTION	DRN	DES	CHK	APP
1	24	5	84	DIMENSIONS REVISED	JAH	DL	DL	DL

Compiled by: _____
 Date: _____

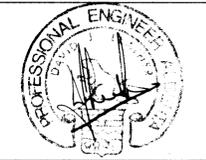
Horizontal Scale: N.A.
 Contour Interval: N.A.

Compilation Photos: N.A.
 Photo Scale: N.A.

Drawn by: D. WIDDIFIELD
 Date: JAN. 28. 84

Checked by: T. HASSENRUECK
 Date: JAN. 28. 84

Approved by: D. LEATHER
 Date: JAN. 28. 84



THE ASSOCIATION OF PROFESSIONAL ENGINEERS, GEODETISTS AND PLANNERS OF ALBERTA
 PERMIT NUMBER P 1375
 UNDERWOOD MCELLEAN LTD.

Underwood McLellan Ltd.
 Consulting Engineers and Planners
 Calgary, Alberta

T.C.H. BRIDGE OVER BANFF AVENUE
 km 13+050



WEST ABUTMENT PLANS



Horizontal Scale		Vertical Scale	
Echelle horizontale		Echelle verticale	
AS NOTED		AS NOTED	
NTS. No. N.A.	Draw. No. 2977-022	Sheet 5	of 28

Western Region

Project: TRANS-CANADA HIGHWAY TWINNING
 BANFF NATIONAL PARK, ALBERTA
 MINNEWANKA INTERCHANGE

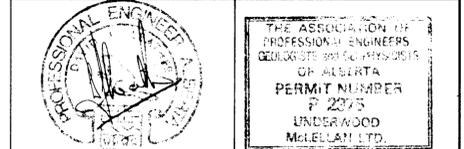
Project No.
 Project No.

REV	D	M	Y	REVISION DESCRIPTION	DRN	DES	CHK	APP
1	24	5	84	DIMENSIONS REVERSED	JH	DL	DL	DL

Compiled by
 Complete par

Horizontal Scale Echelle horizontale	N.A.	Contour Interval Eau distance	N.A.
Photomonitor Photos Photos de compilation	N.A.	Photo Scale Echelle photographique	N.A.

Drawn by: **D. WIDDIFIELD**
 Date: **JAN. 28. 84**
 Checked by: **T. HASSENRUECK**
 Date: **JAN. 28. 84**
 Approved by: **D. LEATHER**
 Date: **JAN. 28. 84**



Underwood McLellan Ltd.
 Consulting Engineers and Planners
 Calgary, Alberta

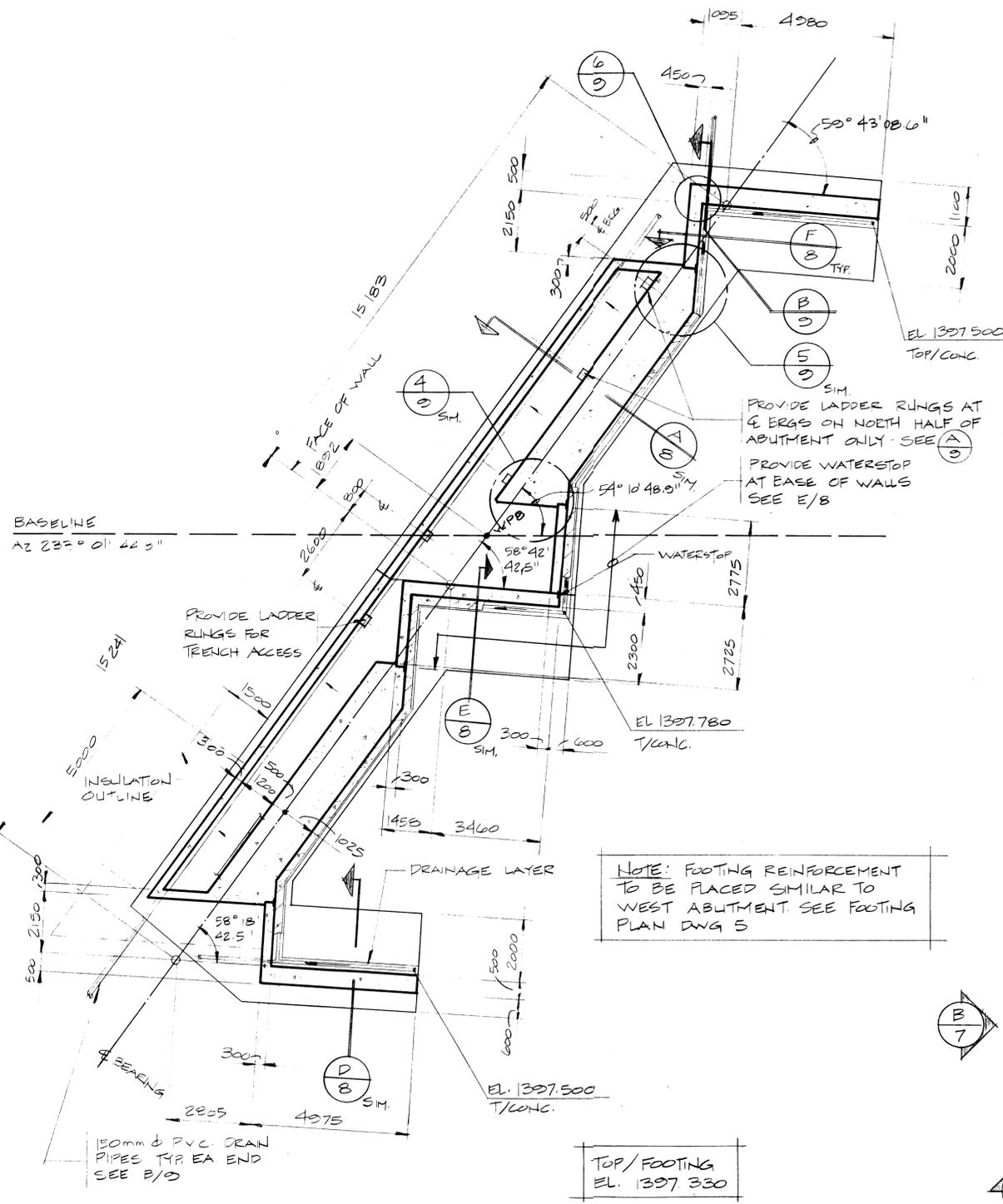
T.C.H. BRIDGE OVER BANFF AVENUE
 km 13+050

AA006048

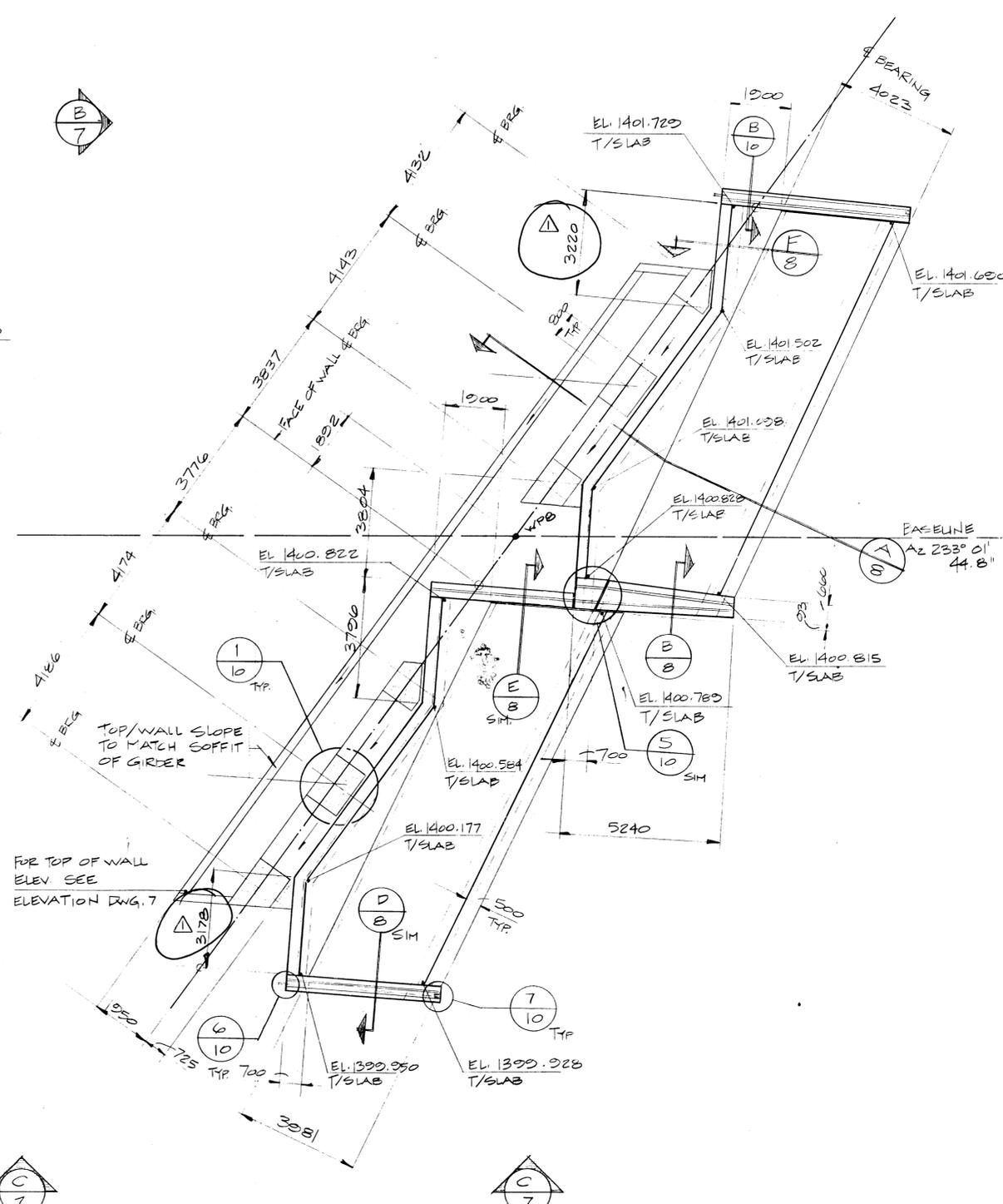
EAST ABUTMENT PLANS

MAY 24 1984
 UMA

Horizontal Scale Echelle horizontale	AS NOTED	Vertical Scale Echelle verticale	AS NOTED
NTS. No. STN. No.	Drawg. No. Dessin No.	Sheet Feuille	6 of 28
N.A.	2977-022		



FOUNDATION PLAN
 - EAST ABUTMENT
 SCALE 1:100



PLAN - EAST ABUTMENT
 SCALE 1:100

Western Region

Project: TRANS-CANADA HIGHWAY TWINNING
BANFF NATIONAL PARK, ALBERTA
MINNEWANKA INTERCHANGE

Project No. / Project No.

BRG MARK No.	ANGLE θ	ELEVATION	QTY	TYPE ^A	VERTICAL LOADS (kN) (-ve REF. TO UPLIFT)							HORIZ. LOADS (kN)		MOVEMENT (mm)		LONGITUDINAL ROTATIONS (RADIAN)									
					DL	SDL	PRE	LL	WIND	MAX.	MIN.	LONGITUD.	TRANSV.	LONGIT.	TRANSV.	ϕ DL	ϕ PRE	ϕ SDL	ϕ CREEP	ϕ LL	TOTAL MAX.				
B1N	128° 14' 30"	1399.685	1	U/G	488	137	198	495/-50	-72 +12	1330	701	-	-	± 30	± 10	-0.0014	+ 0.0016	- 0.0003	- 0.0001	- 0.0009	- 0.0011				
B1S	129° 30' 50"	1398.630	1		B2N	128° 4' 10"	1399.945	1	FIXED	781	89	573	197/-133	-13	1640	1297	750	83	0	0	-0.0013	+ 0.0014	- 0.0002	- 0.0001	- 0.0009
B2S	129° 19' 40"	1398.900	1	B3N	127° 54' 00"	1400.220	1	U/G		854	33	-448	983/-344	-38 +12	1434	1699	-	-	± 30	± 10	-0.0012	+ 0.0014	- 0.0002	0	- 0.0009
B3S	129° 8' 40"	1399.185	1	B4N	126° 38' 10"	1399.810	1		U/G	2665	591	-1113	1165/-147	-297 +47	3355	1699	-	-	± 70	± 10	-0.00001	- 0.00033	- 0.00001	- 0.00035	- 0.0007
B4S	127° 50' 00"	1398.810	1	B5N	126° 30' 00"	1400.050	1	G		1418	75	1420	484/-116	-47	3397	2750	-	384	± 70	± 15 ^{*C}	-0.00035	+ 0.00002	- 0.00007	- 0.0004	- 0.0007
B5S	127° 41' 00"	1399.055	1	B6N	126° 21' 40"	1400.285	1		U/G	2638	513	-688	1092/-155	-289 +47	3602	2019	-	-	± 70	± 10	-0.0001	+ 0.0003	- 0.0004	- 0.0003	- 0.0008
B6S	127° 32' 10"	1399.300	1	B7N	124° 35' 40"	1399.800	1	U/G		2508	527	-811	1132/-232	-159 +41	3397	1833	-	-	± 120	± 10	+ 0.0009	- 0.0009	+ 0.00015	+ 0.00015	+ 0.00075
B7S	125° 42' 10"	1398.850	1	B8N	124° 28' 30"	1400.025	1		G	1566	78	963	600/-218	-42	3207	2347	-	384	± 120	± 2 ^{*C}	+ 0.00066	- 0.00069	+ 0.00011	+ 0.00003	+ 0.0006
B8S	125° 34' 30"	1399.080	1	B9N	124° 21' 30"	1400.250	1	U/G		1978	538	-422	991/-23	-368 +41	3126	1703	-	-	± 120	± 10	+ 0.00045	- 0.00054	+ 0.00009	0	+ 0.0005
B9S	125° 27' 00"	1399.310	1	B10N	123° 24' 50"	1399.700	1		U/G	255	34	72	697/-419	-24 +44	1102	1703	-	-	± 160	± 10	+ 0.0003	- 0.00008	+ 0.00007	+ 0.0003	+ 0.0005
B10S	124° 28' 30"	1398.775	1	B11N	123° 17' 40"	1399.940	1	G		699	-3	393	378/-13	-14	1467	1062	-	182	± 160	± 3 ^{*C}	+ 0.0004	- 0.0002	+ 0.00009	+ 0.0003	+ 0.0005
B11S	124° 20' 50"	1399.020	1	B12N	123° 10' 30"	1400.175	1		U/G	453	204	-116	290/-41	-35 +44	875	465	-	-	± 160	± 10	+ 0.0005	- 0.00033	+ 0.00014	+ 0.0003	+ 0.0006
B12S	124° 13' 10"	1399.260	1																						

ALLOWABLE BEARING PRESSURES : UNDERSIDE OF DECK = 14 MPa
ON CONCRETE TOP OF PIER = 12 MPa

*^A - G - GUIDED (UNIDIRECTIONAL)
U/G - UNGUIDED (MULTIDIRECTIONAL)

*^B - UPLIFT ON BEARING IN ACCORDANCE WITH CL 5.1.6 OF CAN3-S6-178

*^C - TOLERANCE REQUIRED ON GUIDED BEARINGS FOR CURVATURE OF BRIDGE

DESIGN SCHEDULE LEGEND

DL - DEAD LOAD
SDL - SUPERIMPOSED DEAD LOAD
PRE - PRESTRESS
LL - LIVE LOAD

BEARING NOTES

- BEARING TYPES AND DIMENSIONS HAVE BEEN BASED ON WABO FYFE HIGH LOAD STRUCTURAL BEARINGS SUPPLIED BY ELASTOMETAL. GLACIER DUALIGN K BEARINGS SUPPLIED BY W.G. BEARING ARE AN ACCEPTED ALTERNATE.
- THE BEARING MANUFACTURER WILL BE RESPONSIBLE FOR THE CORRECT FUNCTIONING OF EACH BEARING INCLUDING ALL ADDITIONAL MASONRY AND SPREADER PLATES WHICH ARE TO BE DESIGNED TO SUIT EACH BEARING TYPE.
- ALL BEARING CALCULATIONS AND SHOP DRAWINGS ARE TO BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO MANUFACTURE.
- ALL STEEL MATERIAL TO BE IN ACCORDANCE WITH CSA STANDARD G40.21M GRADE 300W EXCEPT WHERE SHOWN OTHERWISE.
- STAINLESS STEEL SHALL BE TYPE 304 2B FINISH WITH A BRIGHT ANNEALED POLISHED SLIDING SURFACE CONFORMING WITH ASTM A167-77 AND A480-75.
- THE ELASTOMERIC DISC AND LEVELLING PAD SHALL BE OZONE TREATED, 50 DURO NATURAL RUBBER CONFORMING TO AASHTO SPECIFICATIONS. LONG TERM DEFLECTION OF THE DISC SHALL BE LESS THAN 8% OF THE ELEMENT THICKNESS.
- THE POLYTETRAFLUOROETHYLENE (PTFE) SHALL BE 100% VIRGIN POLYMER, DIMPLED, LUBRICATED, RECESSED INTO THE BEARING PLATE AND SHALL CONFORM TO ASTM D-1706-59T, D-638 AND D-792.
- ALL METAL TO METAL CONTACT SURFACES WITHIN THE BEARING SHALL BE PREPARED EITHER BY MACHINING OR FINE GRINDING.
- THE TOLERANCE FIT BETWEEN THE PISTON AND POT TO BE +0.75 mm TO 1.25 mm MAXIMUM.
- ALL WELDING SHALL CONFORM TO CSA W59.1 AND SHALL BE DONE BEFORE MACHINING WHEREVER POSSIBLE.
- ALL STEEL EXPOSED TO THE ATMOSPHERE SHALL BE COATED WITH COLTRUIET ZINC EPOXY.
- AFTER FINAL INSPECTION AND ACCEPTANCE OF THE VARIOUS PARTS OF THE FINISHED BEARING THEY SHALL BE ASSEMBLED AND CLAMPED TOGETHER.
- COMPLETED BEARINGS SHALL HAVE THE SUPPLIERS NAME OR TRADEMARK AND A SERIAL NUMBER INDELIBLY MARKED UPON IT.
- BEARING SHALL BE DESIGNED SO THAT THEY MAY BE REMOVED WITHOUT LIFTING THE BRIDGE MORE THAN 3 mm.
- ROTATIONAL CAPACITY OF THE BEARING SHALL BE A MINIMUM OF 0.01 RADIAN. MAXIMUM COEFFICIENT OF FRICTION SHALL NOT EXCEED 0.03.

REV	D	M	Y	LOADS REVISED	JGH	DL	DL	DL
1	24	5	84					

Complied by / Complete par

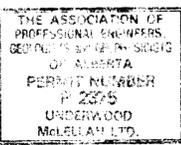
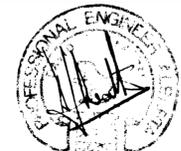
Horizontal Scale / Echelle horizontale: N.A.
Vertical Scale / Echelle verticale: N.A.

Imprintation Photos / Photos de compliation: N.A.

Drawn by / Dessine par: D. MZIK
Date: JAN. 28. 84

Checked by / Verifie par: J. HALEY
Date: JAN. 28. 84

Approved by / Approuve par: D. LEATHER
Date: JAN. 28. 84



Underwood McLellan Ltd. Consulting Engineers and Planners
the UMA group

T.C.H. BRIDGE OVER BANFF AVENUE

km 13+050

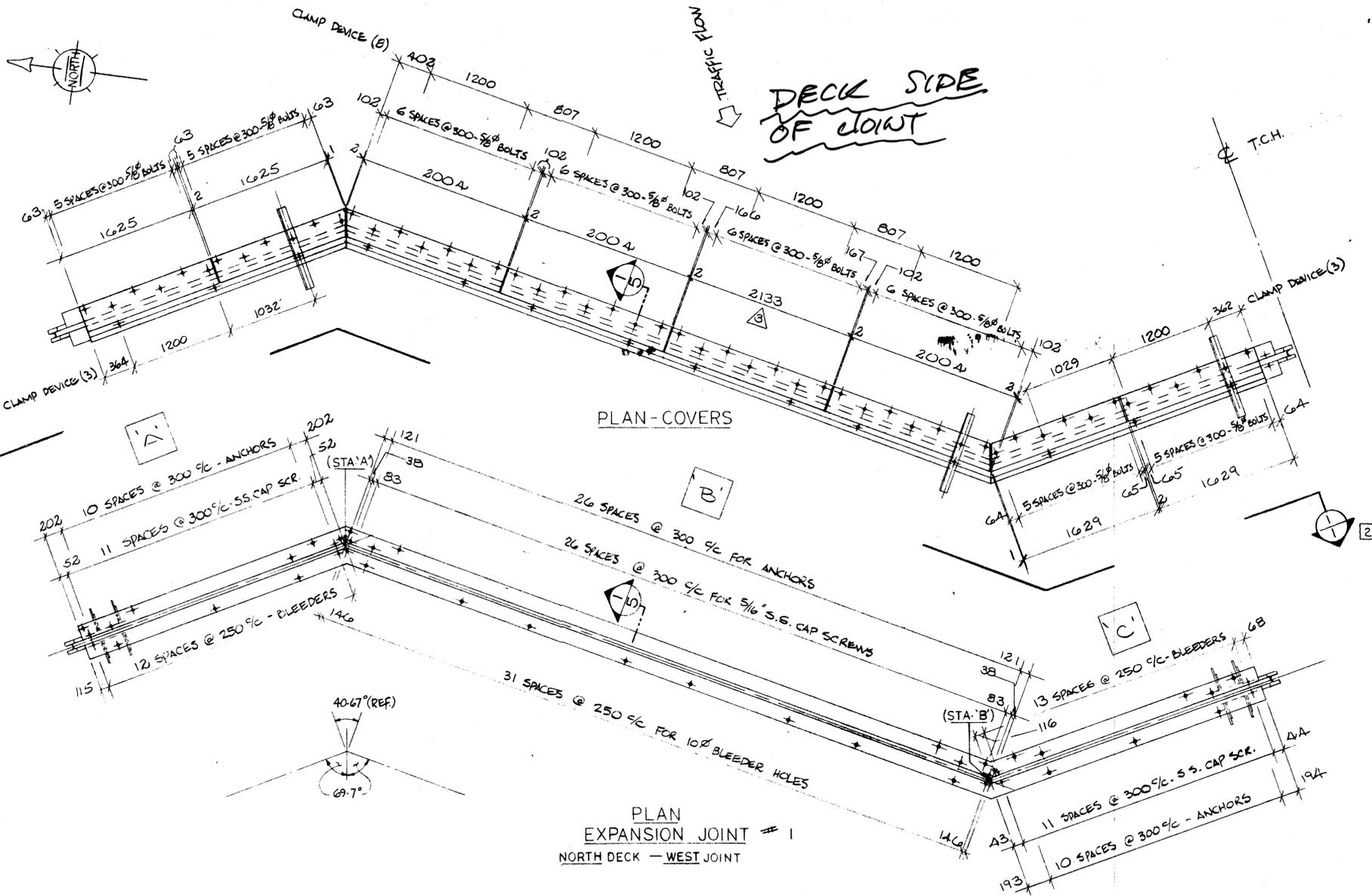


BEARINGS SHEET 2



Horizontal Scale / Echelle horizontale: AS NOTED
Vertical Scale / Echelle verticale: AS NOTED

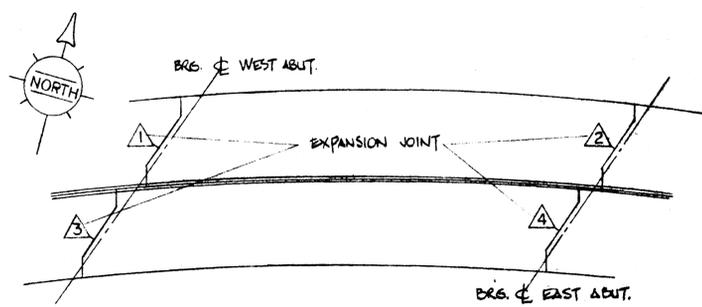
NTS. No. / STN. No.: N.A.
Draw. No. / Dessin No.: 2977-022
Sheet / Feuille: 13 of 28



DECK SIDE OF JOINT

GENERAL NOTES

- SEAL SHALL BE PERFORMED NEOPRENE IN ACCORDANCE WITH ASTM D2000 MODIFIED AND INSTALLED IN ONE CONTINUOUS PIECE PER JOINT.
- STEEL SHALL BE IN ACCORDANCE WITH C.S.A. STANDARD CAN 3 G40.21-M81 GRADE 300W.
- SEAL WILL BE INSTALLED IN FIELD BY W.H.S.I. AFTER COMPLETE INSTALLATION OF STEEL SECTIONS BY CONTRACTOR.
- STUDS SHALL BE NELSON, K.S.M. OR ERICO JONES USING FUSION WELD PROCESS.
- WELDING SHALL BE OF A LOW HYDROGEN CLASSIFICATION AND IN ACCORDANCE WITH CSA STANDARD W59.
- STEEL COVER PLATES SHALL BE HOT DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH C.S.A. STANDARD G104 M. ALL OTHER STEEL SURFACES TO BE HOT DIP GALVANIZED OR ZINC METALLIZED AFTER FABRICATION IN ACCORDANCE WITH C.S.A. STANDARD G189.
- JOINT ASSEMBLY SHALL BE COMPLETELY SHOP ASSEMBLED (EXCEPT FOR SEAL) AND PRESET TO DIMENSION 'F' FOR 15°C
- CONTRACTOR TO INSTALL JOINT ASSEMBLIES 5mm BELOW ELEVATION AND GRADE OF CONCRETE END DAMS.
- CONTRACTOR TO MAKE FINAL WIDTH ADJUSTMENT (DIMIN. 'W') AND TIGHTEN CLAMPING ANGLES JUST PRIOR TO PLACING CONCRETE IN BLOCKOUT.
- INSTALLATION TEMPERATURE SHALL BE TAKEN AS THE MEAN SHADE AIR TEMPERATURE PRIOR TO JOINT INSTALLATION, AT THE STRUCTURE AS FOLLOWS:
 - CONCRETE STRUCTURES : 48 HOURS
 - STEEL STRUCTURES : 24 HOURS
- CLAMPING ANGLES SHALL BE RELEASED BY CONTRACTOR NOT LATER THAN 4 HOURS AFTER PLACING OF CONCRETE IN BLOCKOUT.
- AFTER REMOVAL OF CLAMPING ANGLES (ITEMS PAINTED RED), CONTRACTOR TO FILL ALL BOLT AND BLEEDER HOLES WITH AN EPOXY GROUT.



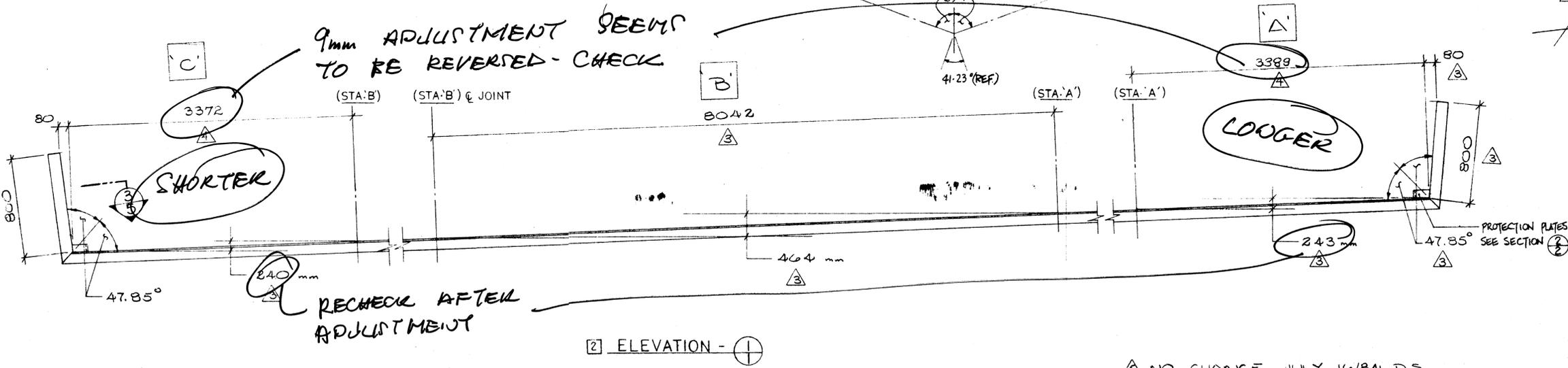
BRIDGE PLOT PLAN

DRAWING REVIEW

The review of this drawing does not in any way relieve the contractor of responsibility for its accuracy or for compliance with the contract documents.

No Comment	Substitution No. 3
Amend, Proceed & Resubmit	Job No. 297/822
Amend & Resubmit	By: [Signature]
Rejected See Remarks	Date: 25.7.84

UNDERWOOD McLELLAN LTD.



ELEVATION -

- △ NO CHANGE JULY 16/84 D.S.
- △ REVISED JULY 11/84 RJ.
- △ REVISED JULY 6/84 D.S.
- ② REVISED - WHERE NOTED - JUN 21/84 JP.

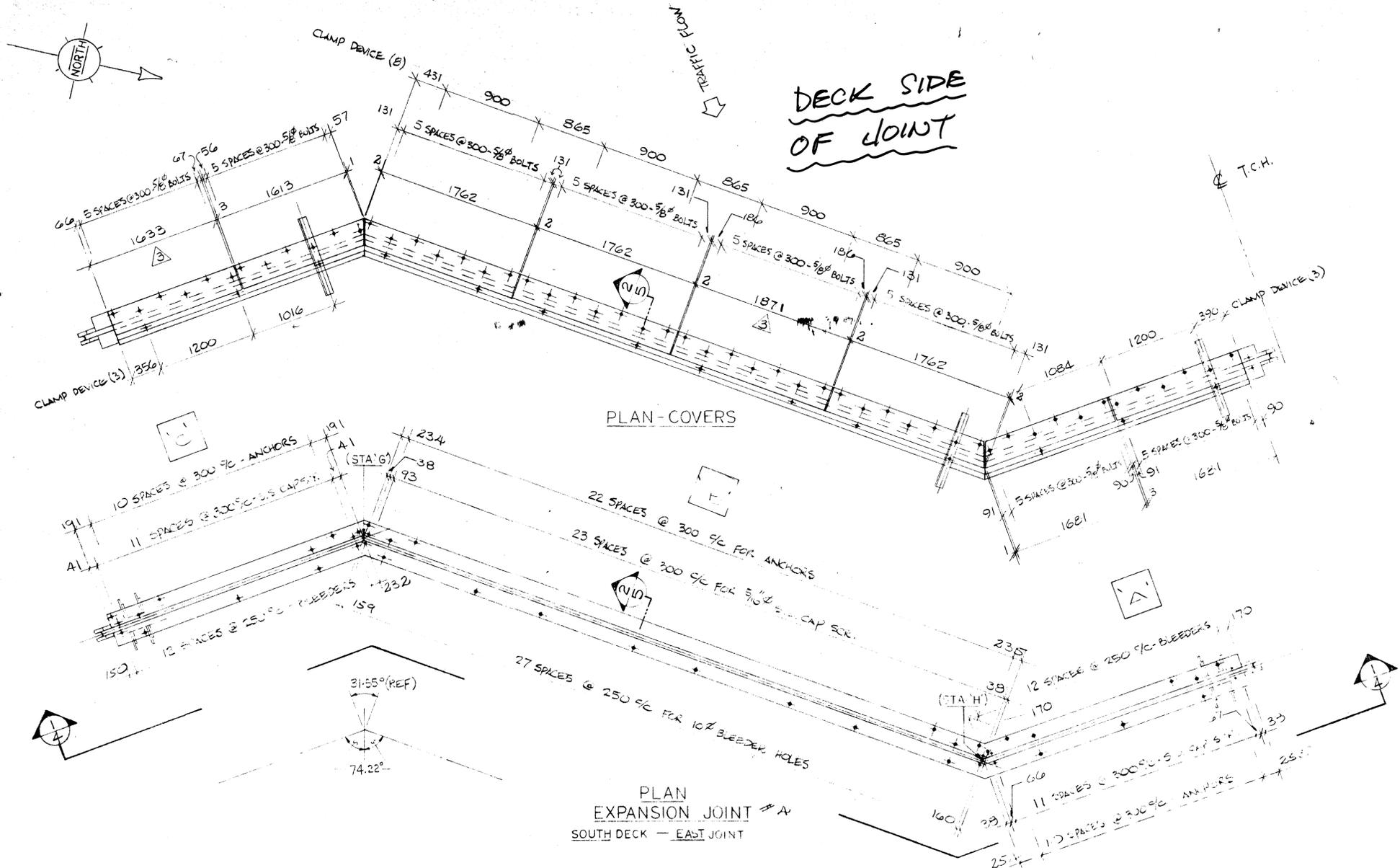
WERCHOLZ-HONEL SYSTEMS INC.
 BURLINGTON, JUL 18 1984 ONTARIO

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JOB TITLE: T.C.H. BRIDGE OVER BANFF AVE. AA006051

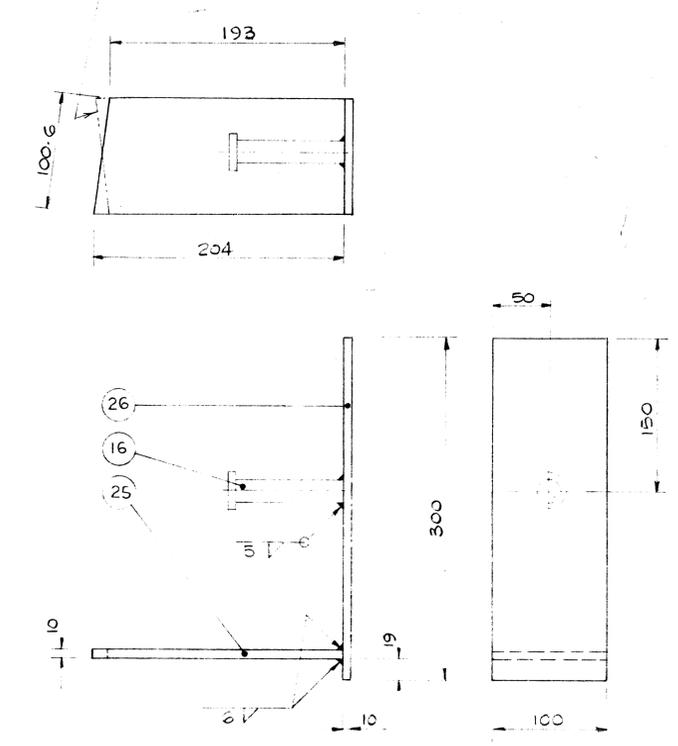
SYSTEM: HONEL EXPANSION JOINT

DRAWN BY: J. Dorey	PROJECT NO.: P640-84	DRAWING NO.: W84-264	REV.: 5	SMT.: 1 OF 5
CHECKED BY: [Signature]	DATE: MAY, 1984			

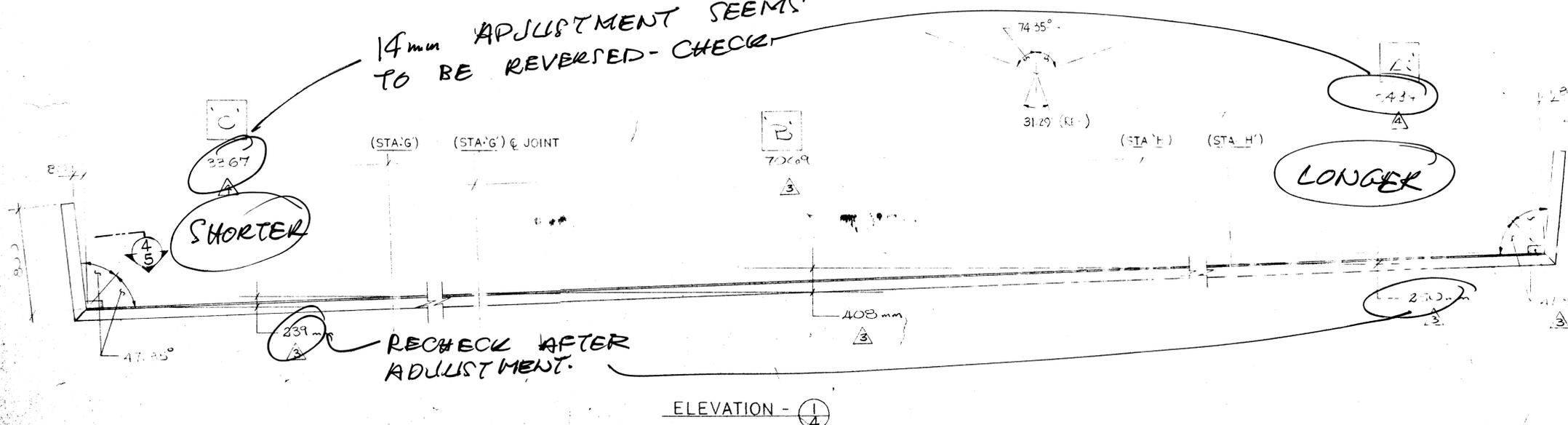


DECK SIDE OF JOINT

NOTE:



14mm ADJUSTMENT SEEMS TO BE REVERSED - CHECK



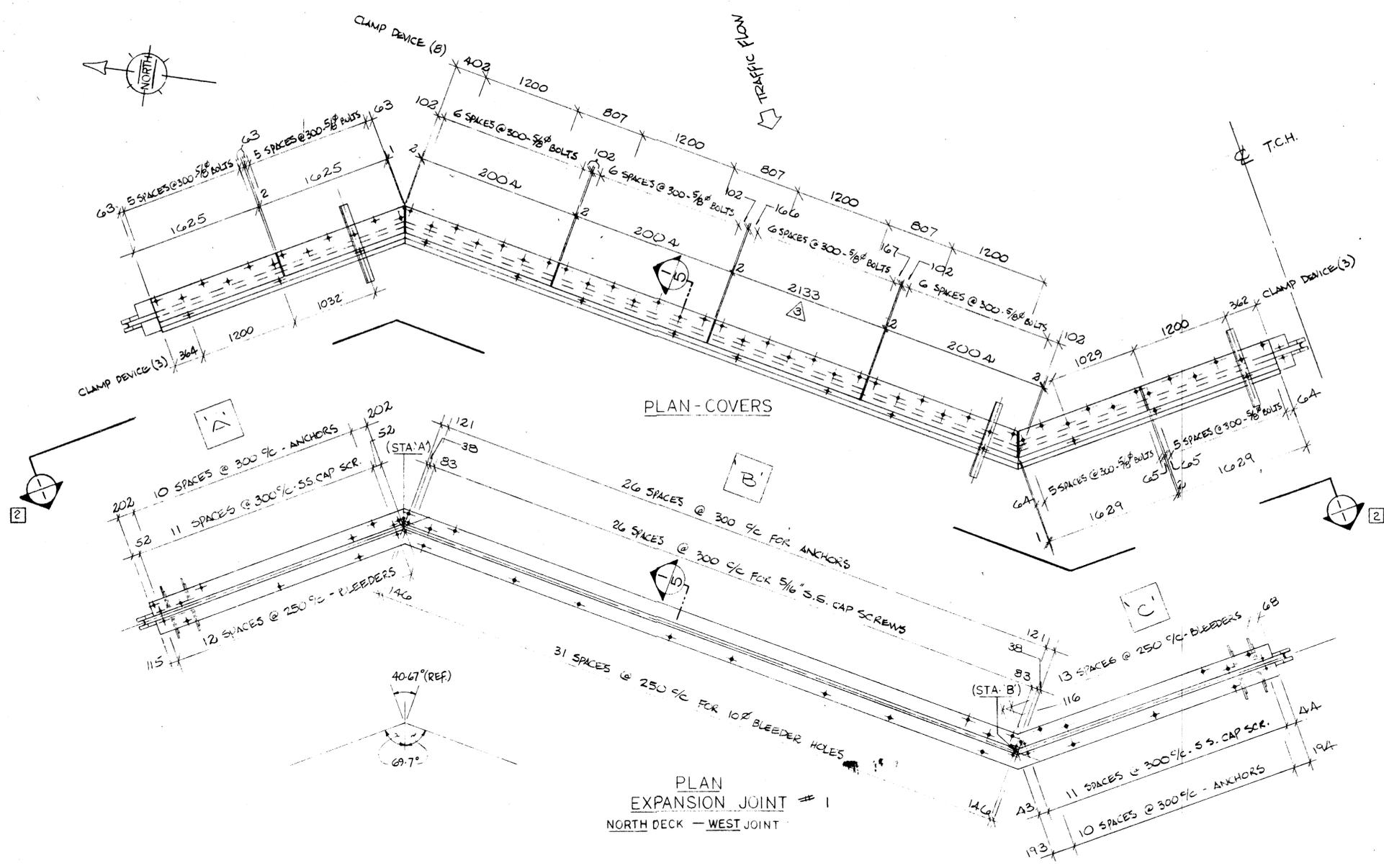
DRAWING REVIEW	
The review of this drawing does not in any way relieve the controller of responsibility for its accuracy or for compliance with the contract documents.	
No Comments	Submission No. 3
<input checked="" type="checkbox"/> Approved, Proceed with Fabrication	Job No. 2877/022
Amend & Re-submit	By: <i>Calder</i>
Rejected (See Remarks)	Date: 25/7/84
UNDERWOOD McLELLAN LTD.	

WERCHOLOZ-HONEL SYSTEMS INC.
 BURLINGTON, ONTARIO
 JUL 18 1984

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JOB TITLE: T.C.H. BRIDGE OVER BANFF AVE. AA006054			
SYSTEM: HONEL EXPANSION JOINT			
DRAWN BY: J. DERBY	PROJECT NO: P640-84	DRAWING NO.: W84-264	REV. 4
CHECKED BY: <i>BC</i>	DATE: MAY, 1984		5

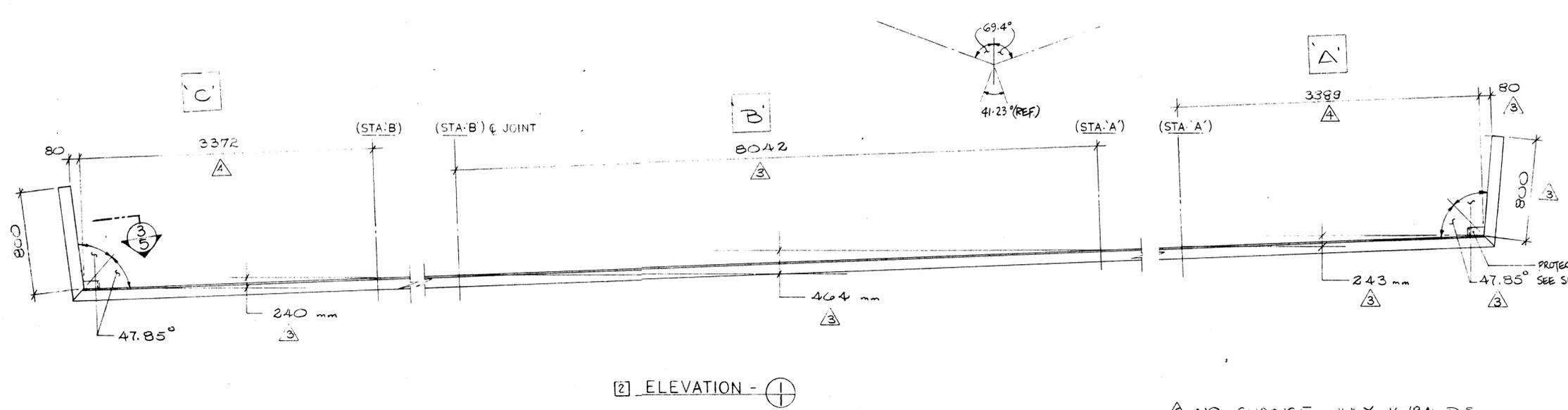
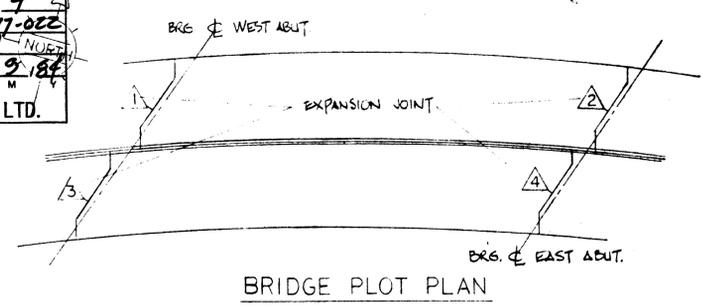
NO CHANGE JULY 16/84 D.S.
 REVISED JULY 11/84 R.S.
 REVISED JULY 6/84 D.S.
 REVISED WHERE NOTED JUN 21/84 J.D.



SEE COMMENTS ON SUB.# 3

DRAWING REVIEW	
The review of this drawing does not in any way relieve the contractor of responsibility for its accuracy or for compliance with the contract documents.	
No Comment	Submission No: 4
Amend, Proceed & Resubmit	Job No: 2977-022
Amend & Resubmit	By: [Signature]
Rejected See Remarks	Date: 6/9/84
UNDERWOOD McLELLAN LTD.	

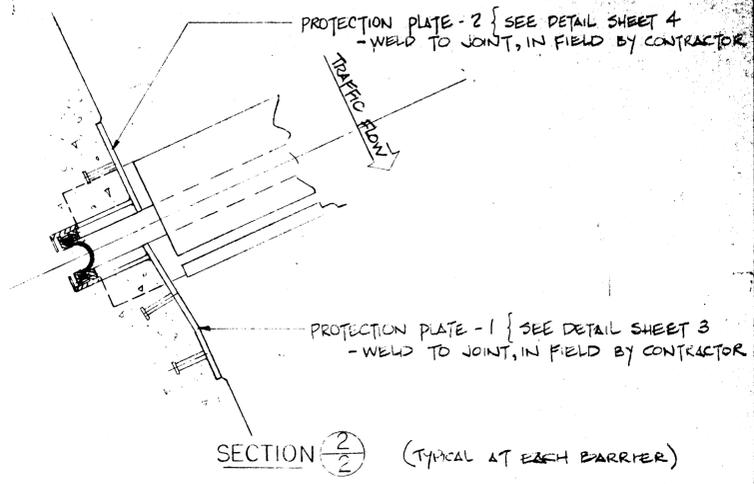
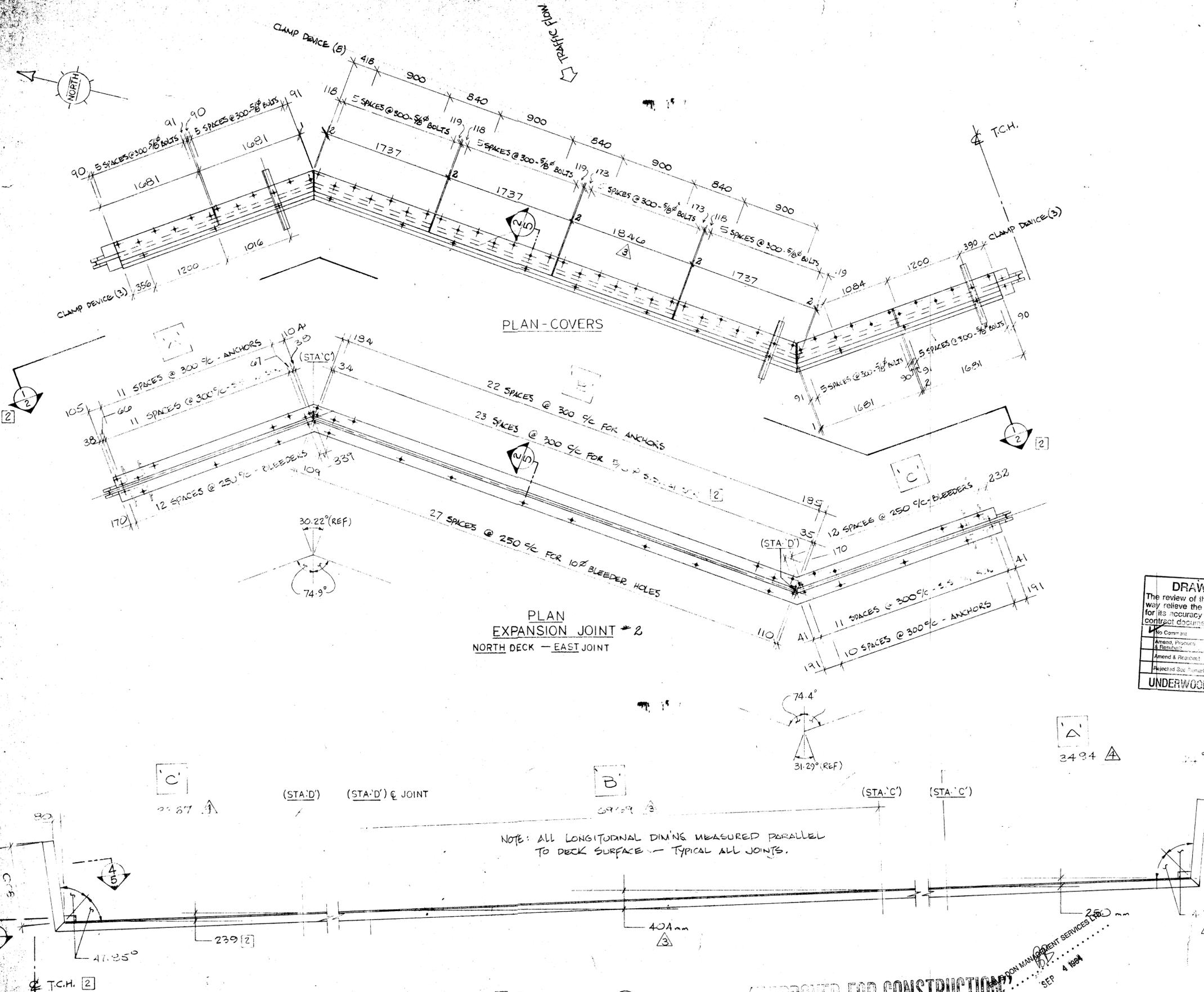
- ### GENERAL NOTES
- SEAL SHALL BE PERFORMED NEOPRENE IN ACCORDANCE WITH ASTM D2000 MODIFIED AND INSTALLED IN ONE CONTINUOUS PIECE PER JOINT.
 - STEEL SHALL BE IN ACCORDANCE WITH C.S.A. STANDARD CAN 3 G40-21-MB1 GRADE 300W.
 - SEAL WILL BE INSTALLED IN FIELD BY W.H.S.I. AFTER COMPLETE INSTALLATION OF STEEL SECTIONS BY CONTRACTOR.
 - STUDS SHALL BE NELSON, K.S.M. OR ERICO JONES USING FUSION WELD PROCESS.
 - WELDING SHALL BE OF A LOW HYDROGEN CLASSIFICATION AND IN ACCORDANCE WITH CSA STANDARD W59.
 - STEEL COVER PLATES SHALL BE HOT DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH C.S.A. STANDARD G164 M.
 - ALL OTHER STEEL SURFACES TO BE HOT DIP GALVANIZED OR ZINC METALLIZED AFTER FABRICATION IN ACCORDANCE WITH C.S.A. STANDARD S189.
 - JOINT ASSEMBLY SHALL BE COMPLETELY SHOP ASSEMBLED (EXCEPT FOR SEAL) AND PRESET TO DIMENSION 'F' FOR 15°C
 - CONTRACTOR TO INSTALL JOINT ASSEMBLIES 5mm BELOW ELEVATION AND GRADE OF CONCRETE END DAMS.
 - CONTRACTOR TO MAKE FINAL WIDTH ADJUSTMENT (DIMN.'W) AND TIGHTEN CLAMPING ANGLES JUST PRIOR TO PLACING CONCRETE IN BLOCKOUT.
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 - AFTER REMOVAL OF CLAMPING ANGLES (ITEMS PAINTED RED), CONTRACTOR TO FILL ALL BOLT AND BLEEDER HOLES WITH AN EPOXY GROUT.



- NO CHANGE JULY 16/84 D.S.
- REVISED JULY 11/84 R.J.
- REVISED JULY 6/84 D.S.
- REVISED - WHERE NOTED - JUN 21/84 J.P.

"APPROVED FOR CONSTRUCTION"
 WERCHOLZ-HONEL SYSTEMS INC.
 SEP 4 1984
 DATE: AUG 29 1984

WERCHOLZ-HONEL SYSTEMS INC. BURLINGTON, ONTARIO	
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JOB TITLE: T.C.H. BRIDGE OVER BANFF AVE.	AA006056
SYSTEM: HONEL 151 EXPANSION JOINT	
DRAWN BY: J. DERBY	PROJECT NO: P640-84
CHECKED BY: [Signature]	DATE: MAY, 1984
DRAWING NO.:	REV.:
W84-264	5
	1 of 5



30	50 PCS.	ANCHOR STUD - 3/4" φ x 4" LG.
29	220 PCS.	FLAT SOCKET HEAD 5/8" BOLT - 5/8" φ x 1 3/4" LG.
28	8 PCS.	STEEL PLATE - 3/8" x 4" x 19 3/4"
27	8 PCS.	STEEL PLATE - 3/8" x 4" x 6 1/2"
26	8 PCS.	STEEL PLATE - 3/8" x 4" x 11 3/4"
25	8 PCS.	STEEL PLATE - 3/8" x 4" x 8"
24	500 PCS.	5/8" CAP SCREW - 5/16" φ x 1 3/4" LG.
23	500 PCS.	HONEL V.F. PLASTIC CAPS
22	112 PCS.	HEX. HD. B.L.T. - 5/8" φ x 1 3/4" LG. 5/W WASHER
21	56 PCS.	HEX NUT TO SUIT 5/8" BOLT
20	220 PCS.	RICHMOND INSERT TYPE 1PF FOR 5/8" BOLT
19	125 PCS.	STEEL PLATE - 3/8" x 3 1/2" x 20 FT. LG.
18	500 PCS.	STEEL PLATE - 1/4" x 1/2" x 1" LG.
17	7.5 PCS.	STEEL ANGLE - 3" x 3" x 20 FT. LG.
16	380 PCS.	STEEL ROUND BAR - 5/8" φ x 12 1/4" LG.
15	380 PCS.	STEEL PLATE - 3/8" x 2 1/2" x 4" LG.
14	10.5 PCS.	STEEL PLATE - 3/8" x 4 1/2" x 20 FT. LG.
13	125 PCS.	STEEL PLATE - 3/8" x 3" x 20 FT. LG.
12	5 PCS.	STEEL PLATE - 3/8" x 10 1/2" x 20 FT. LG.
11	5 PCS.	STEEL PLATE - 3/4" x 15 3/8" x 20 FT. LG.
10	5 PCS.	STEEL PLATE - 3/4" x 13 3/4" x 20 FT. LG.
09	5 PCS.	STEEL PLATE - 5/8" x 15 3/8" x 20 FT. LG.
08	5 PCS.	STEEL PLATE - 5/8" x 12" x 20 FT. LG.
07	17 PCS.	STEEL PLATE - 3/8" x 5" x 20 FT. LG.
06	22 PCS.	STEEL FORM BAR - 1/8" x 1 1/2" x 20 FT. LG.
05	22 PCS.	HONEL CLAMPING BAR (1 1/4" WIDE) x 20 FT. LG.
04	11 PCS.	EDGE BEAM 1" x 3" x 20 FT. LG.
03	11 PCS.	EDGE BEAM 1" x 1 1/2" x 20 FT. LG.
02	1	HONEL 151-125 SEAL x 100 FT. (2 @ 50')
01	1	HONEL 151-100 SEAL x 107 FT. (1 @ 53')

DRAWING REVIEW
 The review of this drawing does not in any way relieve the contractor of responsibility for its accuracy or for compliance with the contract documents.

No Comment
 Amend, Promote & Resubmit
 Amend & Resubmit
 Rejected (See Remarks)

Submission No: 4
 Job No: 2077-022
 By: Dew
 Date: 6.9.84
 M

UNDERWOOD McLELLAN LTD.

LIST OF MATERIAL

WERCHOLOZ-HONEL SYSTEMS INC.
 BURLINGTON, ONTARIO

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JOB TITLE: T.C.H. BRIDGE OVER BANFF AVE. AA006057

SYSTEM: HONEL 151 EXPANSION JOINT

DRAWN BY: J DERBY	PROJECT NO: P640-84	DRAWING NO: W84-264	REV. 5/84
CHECKED BY: [Signature]	DATE: MAY, 1984		

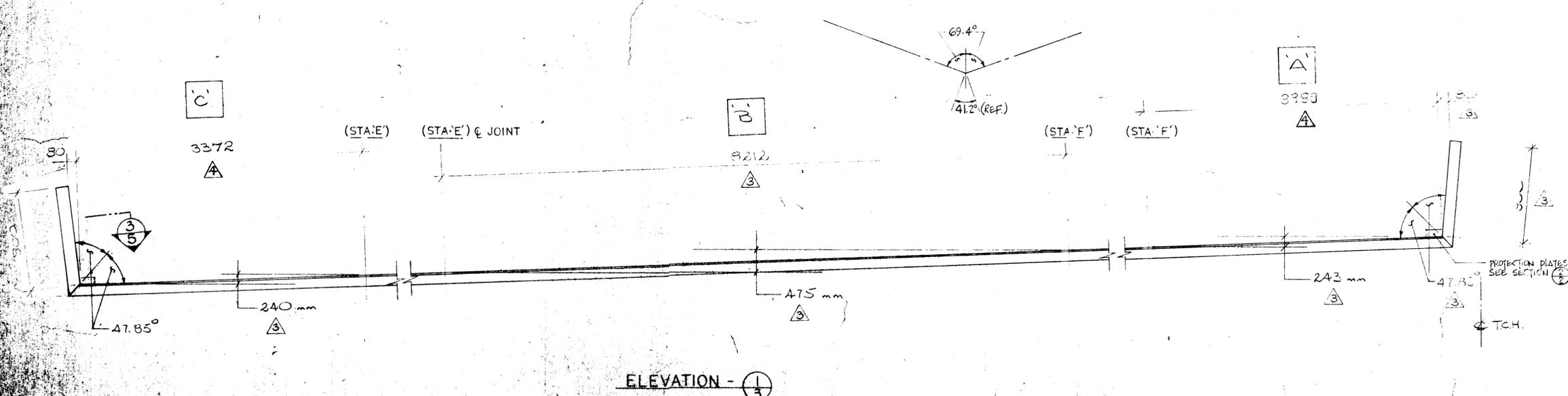
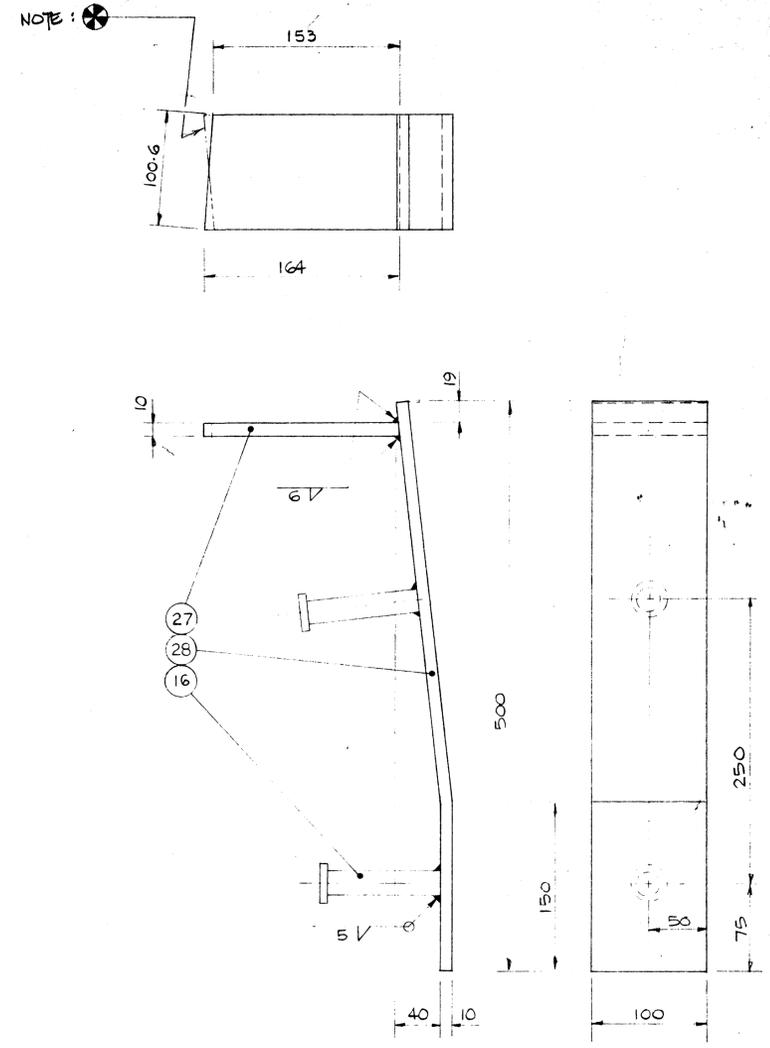
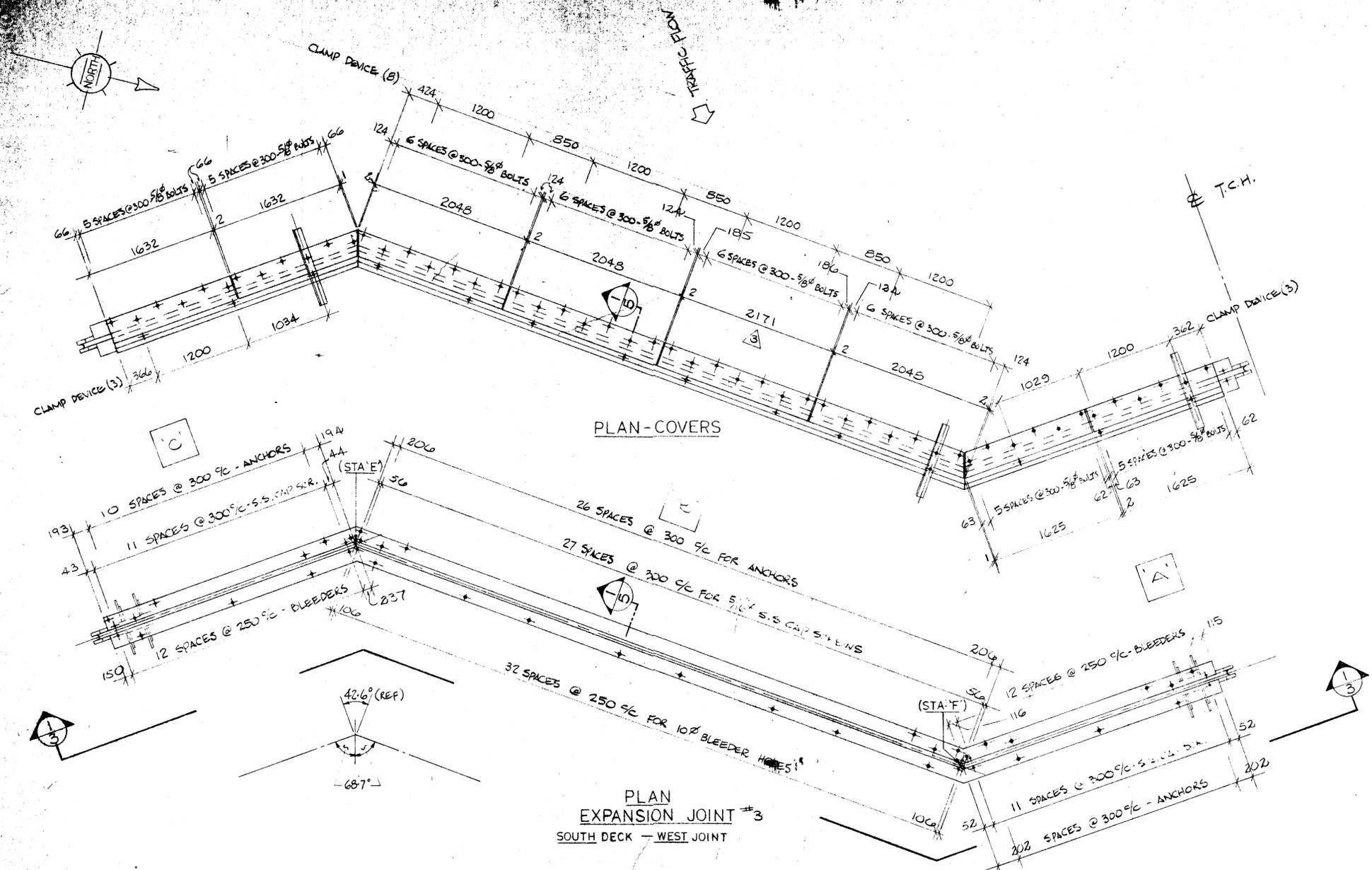
NOTE: ALL LONGITUDINAL DIM'S MEASURED PARALLEL TO DECK SURFACE - TYPICAL ALL JOINTS.

APPROVED FOR CONSTRUCTION

WERCHOLOZ-HONEL SYSTEMS INC.
 DATE: AUG 29 1984

- △ NO CHANGE JULY 16/84 D.S.
- ▲ REVISED JULY 11/84 R.J.
- ⊠ REVISED JULY 6/84 D.S.
- Ⓜ REVISED WHERE NOTED JUN. 21/84 - J.P.

2 ELEVATION - 1



DRAWING REVIEW
 The review of this drawing does not in any way relieve the contractor of responsibility for its accuracy or for compliance with the contract documents.

Submission No:	4
Project No:	2977-022
By:	DRW
Date:	6/2/84
Rejected See Remarks:	

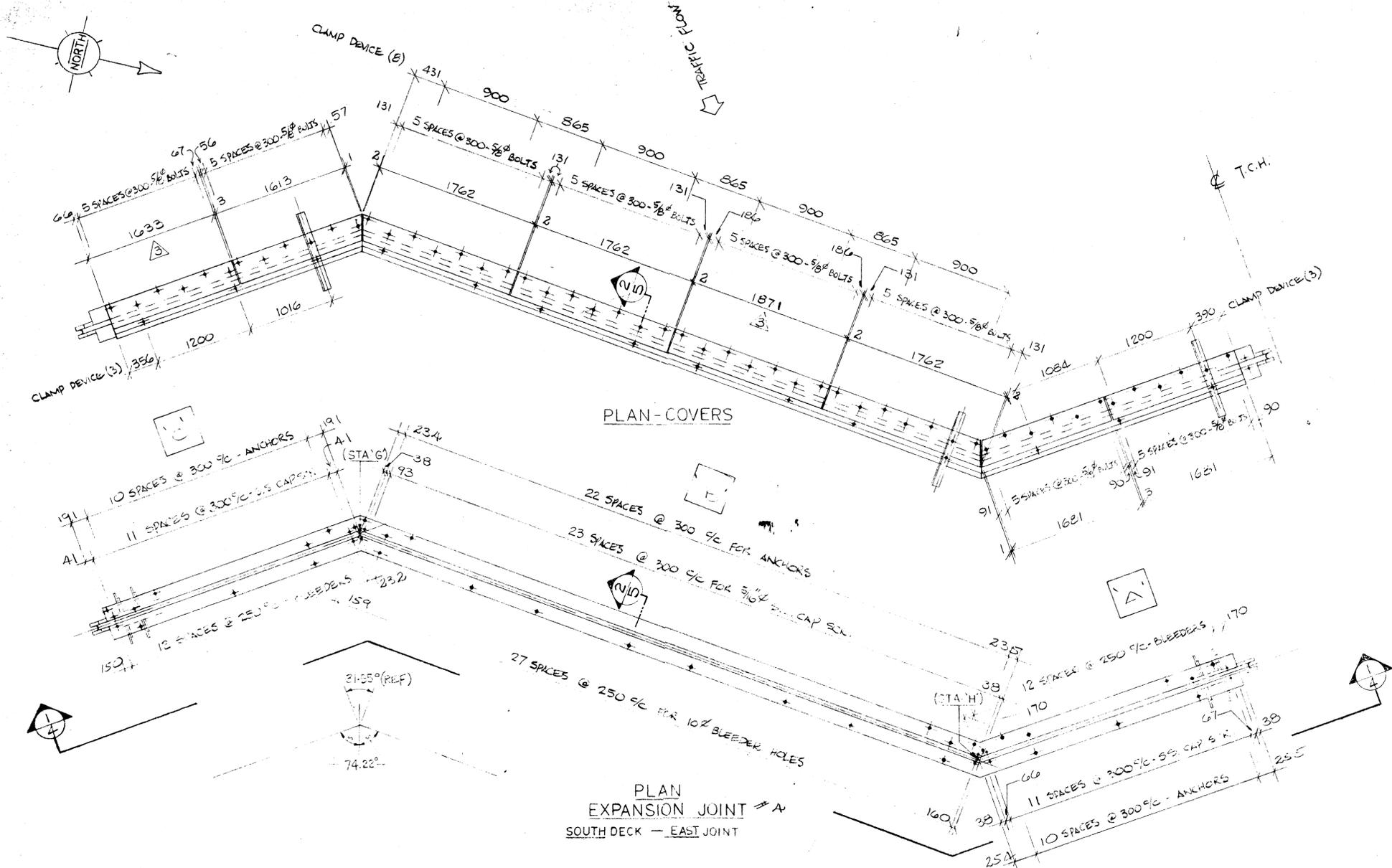
UNDERWOOD, McLELLAN LTD.
APPROVED FOR CONSTRUCTION
 WERCHOLZ-HONEL SYSTEMS INC. PER: [Signature] DATE: AUG 29 1984

WERCHOLZ-HONEL SYSTEMS INC.
 BURLINGTON, ONTARIO

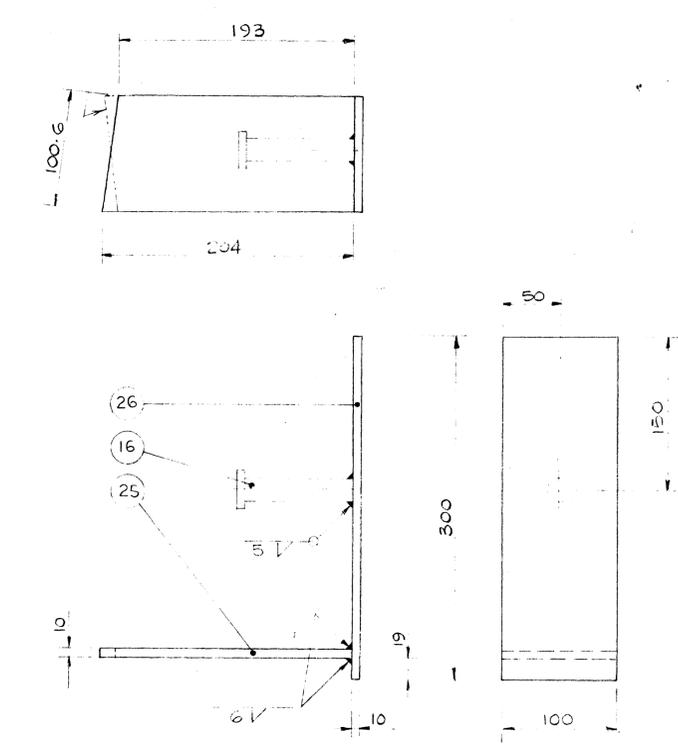
THESE DRAWINGS AND THE DATA CONTAINED THEREIN ARE THE EXCLUSIVE PROPERTY OF WERCHOLZ-HONEL SYSTEMS INC. ISSUED IN STRICT CONFIDENCE AND SHALL NOT BE REPRODUCED, COPIED OR USED FOR ANY PURPOSE WHATSOEVER, WITHOUT PRIOR WRITTEN PERMISSION OF WERCHOLZ-HONEL SYSTEMS INC.

JOB TITLE: T.C.H. BRIDGE OVER BANFF AVE. AA006058
 SYSTEM: HONEL 151 EXPANSION JOINT
 DRAWN BY: J. DERBY PROJECT NO: P640-84 DRAWING NO.: W84-264
 CHECKED BY: R. GUNNOR DATE: MAY, 1984
 REV: 3 OF 5

- △ NO CHANGE JULY 16/84 D.S.
- ▲ REVISED JULY 17/84 R.T.
- △ REVISED JULY 6/84 D.S.
- [2] REVISED WHERE NOTED - JUN 21/84 J.D.



NOTE:



PROTECTION PLATE-2 (9 req'd)
NOTE: MAKE 4 AS SHOWN AND 4 WITH PLATE OPPOSITE AS INDICATED BY REFERENCE LINE

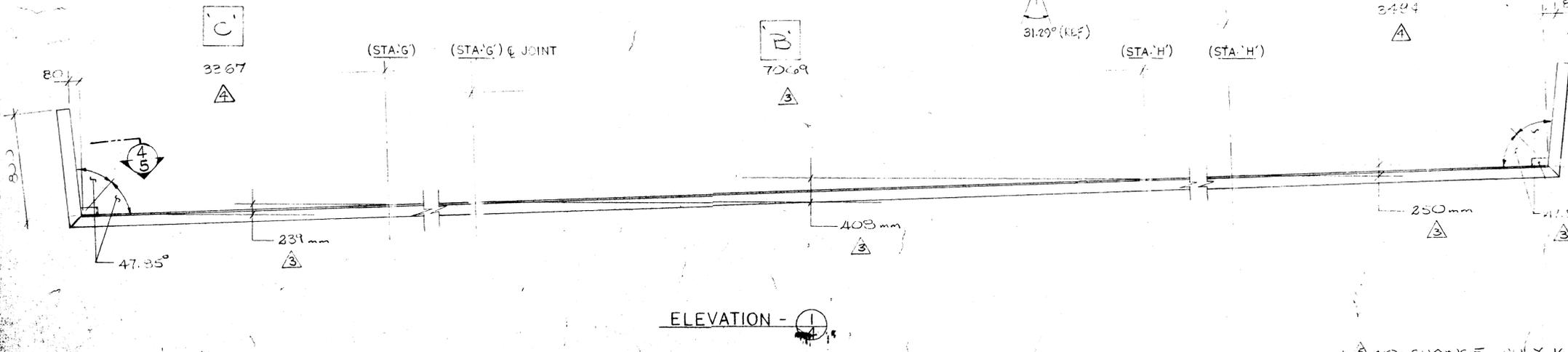
SEE COMMENTS ON SUB. # 3

DRAWING REVIEW
The review of this drawing does not in any way relieve the contractor of responsibility for its accuracy or for compliance with the contract documents.

Project No.	2977-022
By	DEW
Date	6/5/84

UNDERWOOD McLELLAN LTD.

ELLIS-DON MANAGEMENT SERVICES LTD.
"APPROVED FOR CONSTRUCTION" SEP 4 1984
WERCHOLOZ-HONEL SYSTEMS INC.
PER: DATE: **AUG 29 1984**



ELEVATION -

- NO CHANGE JULY 16/84 D.S.
- REVISED JULY 11/84 R.J.
- REVISED JULY 6/84 D.S.
- REVISED WHERE NOTED JUN 21/84 J.D.

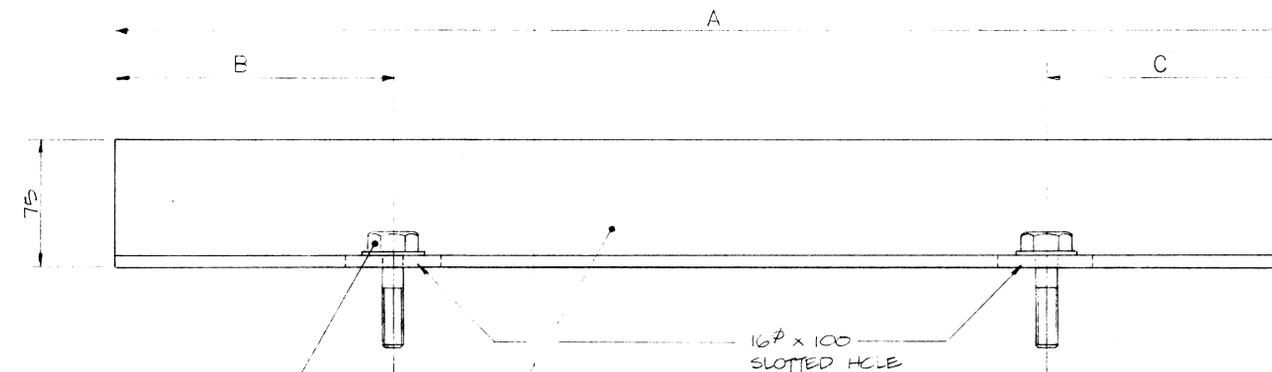
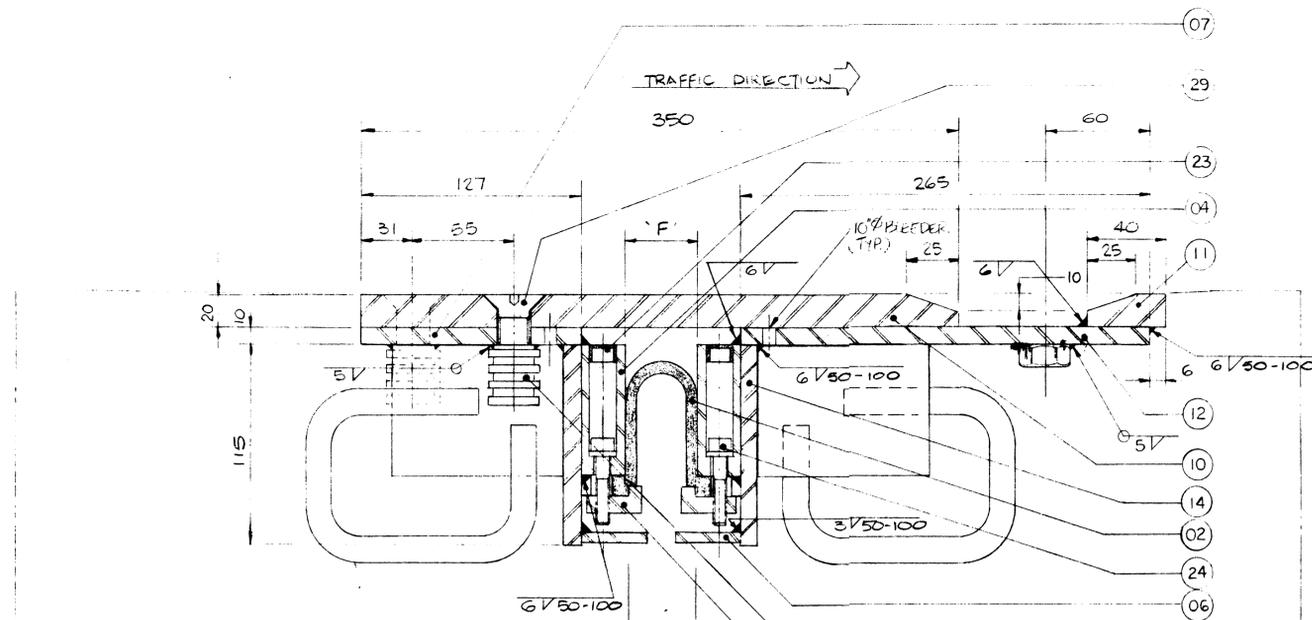
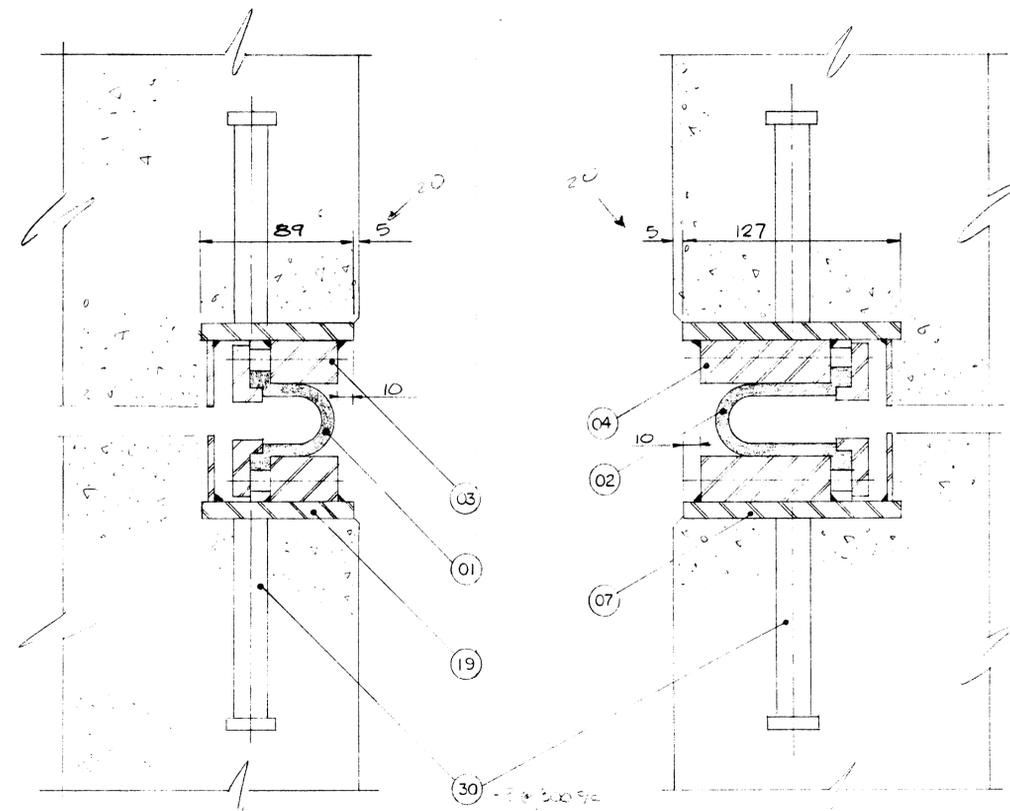
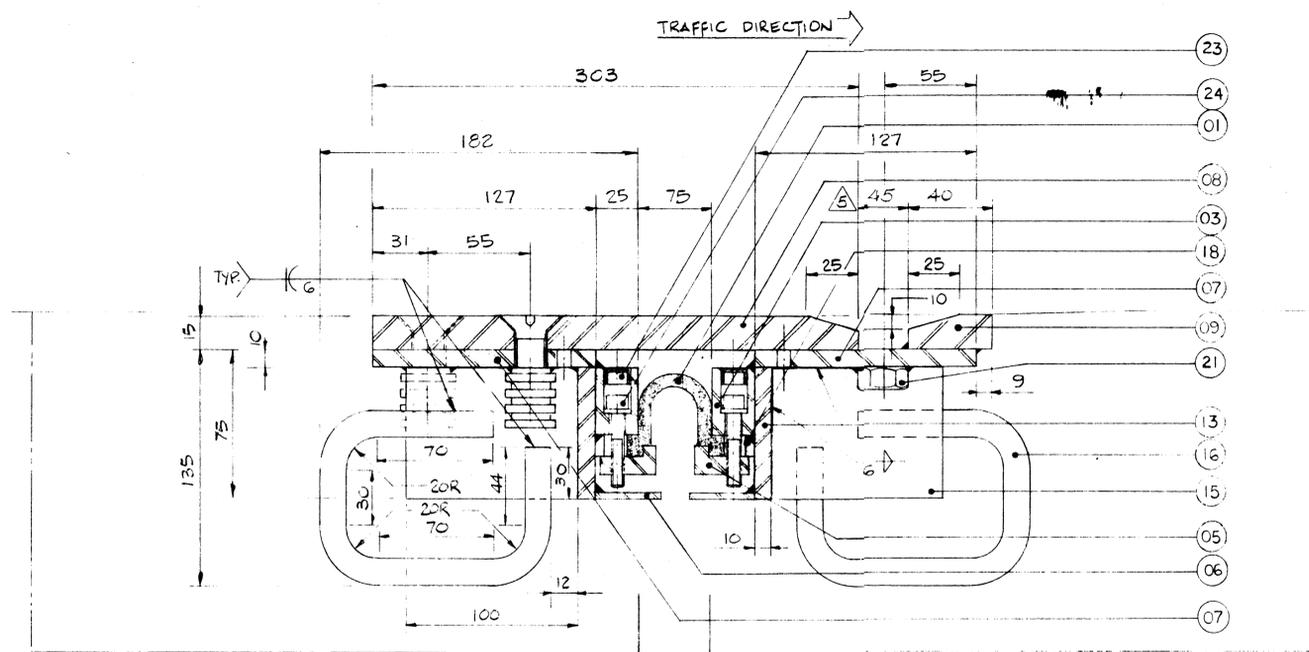
WERCHOLOZ-HONEL SYSTEMS INC.
BURLINGTON, ONTARIO

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JOB TITLE: T.C.H. BRIDGE OVER BANFF AVE. *AA006059*

SYSTEM: HONEL 151 EXPANSION JOINT

DRAWN BY: J DERBY	PROJECT NO: P640-84	DRAWING NO: W84-264	REV. 4	SHT. 4
CHECKED BY:	DATE: MAY, 1984		5	5



	A	B	C	QTY.
WEST JOINTS	730	257	235	28
EAST JOINTS	840	250	230	28

DRAWING REVIEW

The review of this drawing does not in any way relieve the contractor of responsibility for its accuracy or for compliance with the contract documents.

Submission No. 4

By: *DEW*

Date: 6.9.84

UNDERWOOD McLELLAN LTD.

EXPANSION SETTING

TEMPERATURE °C	-38	-31	-22	-13	-4	+6	+15	+24	+28
'F' mm	122	114	104	94	84	74	64	54	49

'APPROVED FOR CONSTRUCTION'

ELLIS DON MANAGEMENT SERVICES LTD.

Per: *ED* SEP 4 1984

PER: *B* DATE: **AUG 29 1984**

- ③ REVISED JULY 16/84 D.S.
- ④ NO CHANGE JULY 11/84 R.J.
- ⑤ NO CHANGE JULY 6/84 D.S.
- ② REVISION - WHERE NOTED - J.D. JUN. 21/84
- ① REVISION - ADD CLAMP SIZE - J.D. JUN 6/84

WERCHOLOZ-HONEL SYSTEMS INC.

BURLINGTON, ONTARIO

THESE DRAWINGS AND THE DATA CONTAINED THEREIN ARE THE EXCLUSIVE PROPERTY OF WERCHOLOZ-HONEL SYSTEMS INC. ISSUED IN STRICT CONFIDENCE AND SHALL NOT BE REPRODUCED, COPIED OR USED FOR ANY PURPOSE WHATSOEVER, WITHOUT PRIOR WRITTEN PERMISSION OF WERCHOLOZ-HONEL SYSTEMS INC.

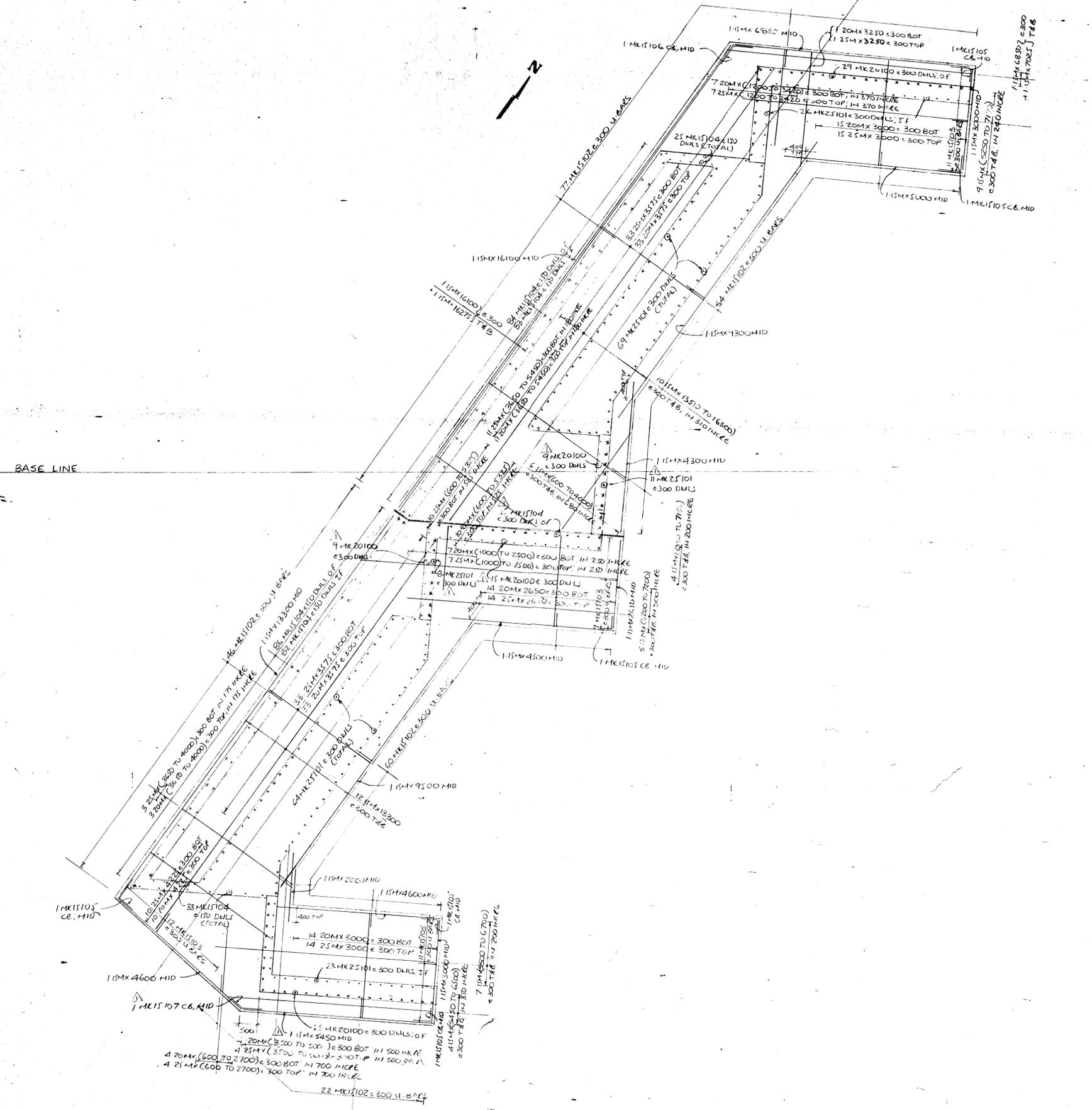
JOB TITLE: T.CH. BRIDGE OVER BANFF AVE. AA006060

SYSTEM: HONEL 151 EXPANSION JOINT

DRAWN BY: *J. Dery* PROJECT NO: P640-84 DRAWING NO.: W84-264 REV. 5 OF 5

CHECKED BY: *B. Conner* DATE: MAY, 1984

C BEARING



EAST ABUTMENT FOOTING PLAN

ELLIS - DON
MANAGEMENT SERVICES LTD.
JUL 6 1984

ISSUED FOR CONSTRUCTION

AA006063

Contractor shall verify all dimensions and measurements to ensure compliance with contract drawings.
All changes from the contract drawing should be clearly marked on the drawings.
Any changes in construction sequence from the one detailed should be clearly marked.
Contractor to ensure that dimensions on this drawing comply with his form work dimension.



DATE	SK NO	DESCRIPTION

DATE	REVISIONS	NO	BY
11/4/84	REVISED AS APP'D	1	MLK
4/7/84	ISSUED FOR CON'T	2	NKL

DRAWING REVIEW
The review of this drawing does not in any way relieve the contractor of responsibility for its accuracy or for compliance with the contract documents.

No Comment
 General Provisions & Particulars
 Amend & Resubmit
 Rejected See Remarks

Submission No: 2
 Date: 12/07/84
 By: L. H. G. E. J.
 Date: 12/07/84

UNDERWOOD McLELLAN LTD.

	MK15107	MK15108	600 370 600	600 520
		MK15105		600 600
		MK15104		1140 300
		MK15103		300 455 300
		MK15102		300 500 300
		MK25101	1690	300
		MK20100		1280 300

ACI DETAILING LTD.
CALGARY 3208-52 STR S.E. 272-8801
LEUC 6613-44 ST. 986-7055

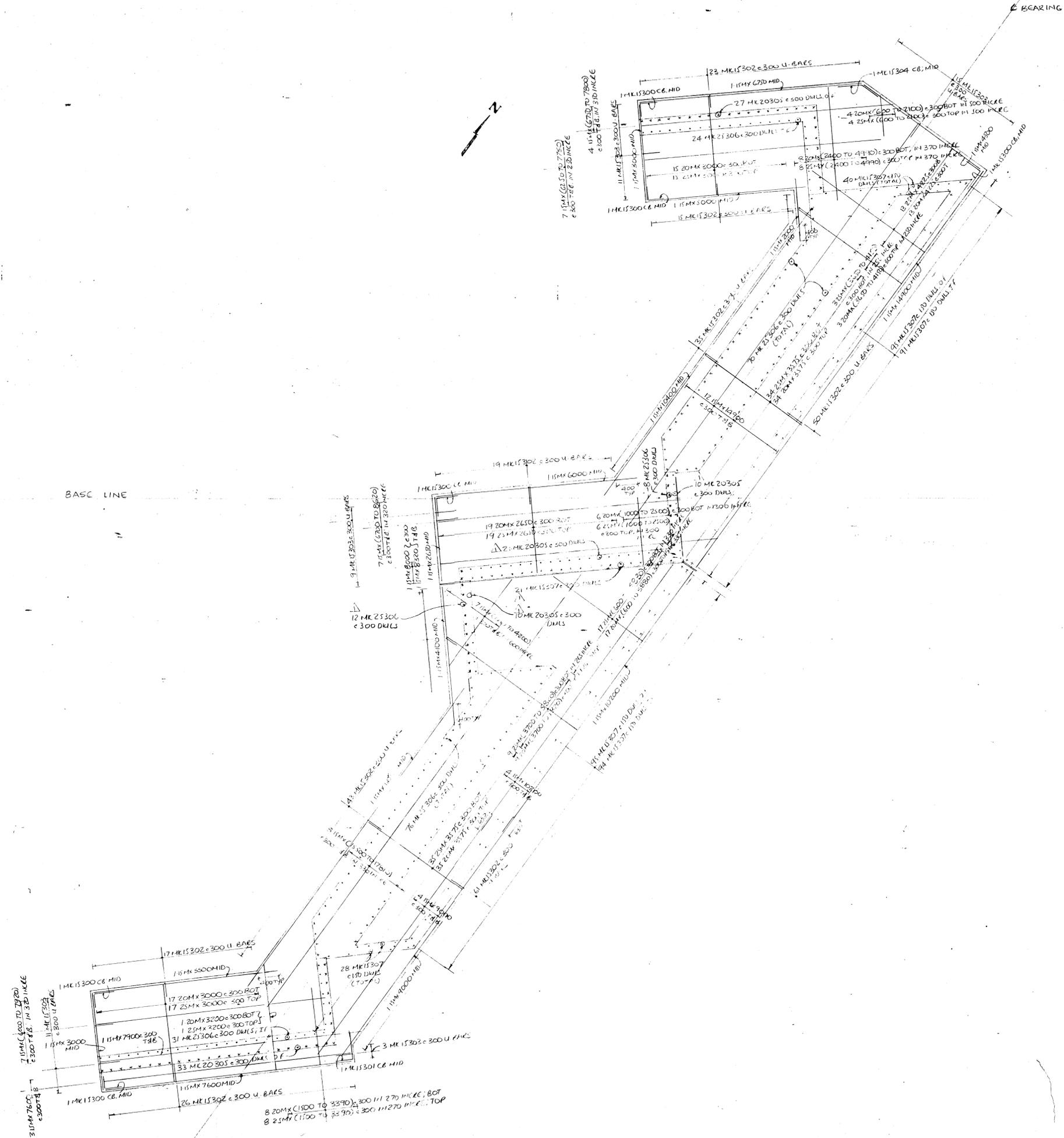
PROJECT
TRANS CANADA HIGHWAY BRIDGE OVER BANFF AVENUE

DWG TITLE
CAST ABUTMENT FOOTINGS

CONTRACTOR
ELLIS - DON

BY NIZAK JOB 396 SCALE NTS

GRADE	DATE	DWG	REV
400MB	16/4/84	R-1	2



ACI DETAILING LTD.
JUL 6 1984

ISSUED FOR CONSTRUCTION

MK 25306	MK 15307
1640 300	1140 300
MK 20305	MK 15304
1280 300	600 390 600
MK 15302	MK 15303
500 300	455 300 500
MK 15301	MK 15300
1000 600	600 600

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Any changes in construction sequence from the one detailed should be clearly marked.
Contractor to ensure that dimensions on this drawing comply with his form work dimension.

ACI DETAILING

DATE	SK NO	DESCRIPTION

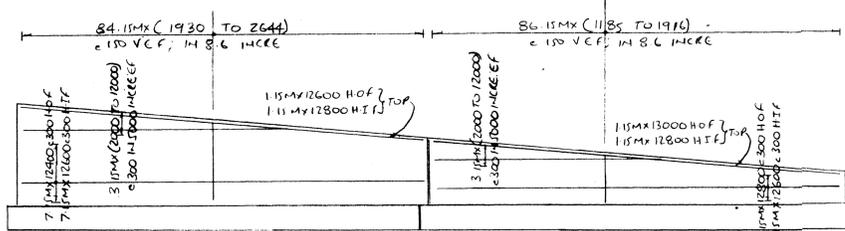
DATE	REVISIONS	NO.	BY
2/4/84	REVISED AS APP'D	1	MKL
4/2/84	ISSUED FOR CONSTR	2	MKL

DRAWING REVIEW
The review of this drawing does not in any way relieve the contractor of responsibility for its accuracy or for compliance with the contract documents.
Submission No: 2
Job No: 2077/022
By: J. Hainy
Date: 19/07/84
UNDERWOOD McLELLAN LTD.

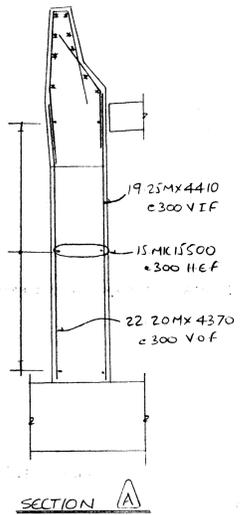
ACI DETAILING LTD.
CALGARY 3208-52 STR S.E. 272-8801
272-7223
LEDUC 6613-44 ST. 986-7095
PROJECT
TRANS CANADA HIGHWAY BRIDGE
OVER BANFF AVENUE
DWG TITLE
WEST ABUTMENT
FOOTINGS
CONTRACTOR
ELLIS-DON
BY: NIZAR JOB: 396 SCALE: DWS
NTS

GRADE	DATE	DWG	REV
400 MA	16/4/84	R-3	E

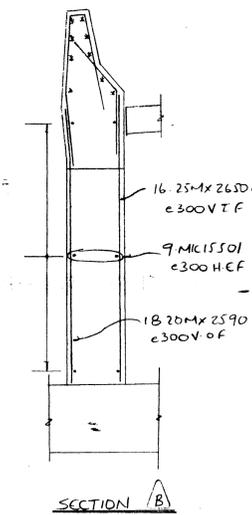
AA006064



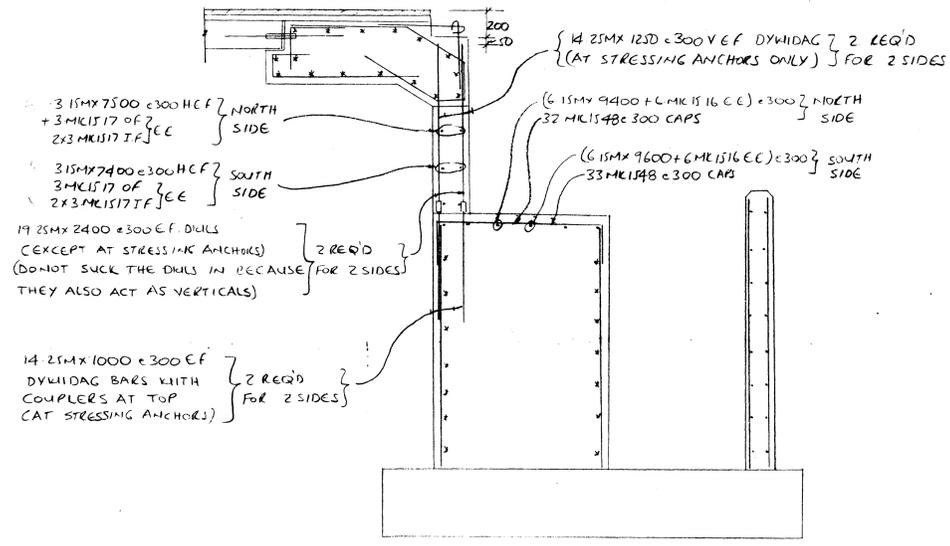
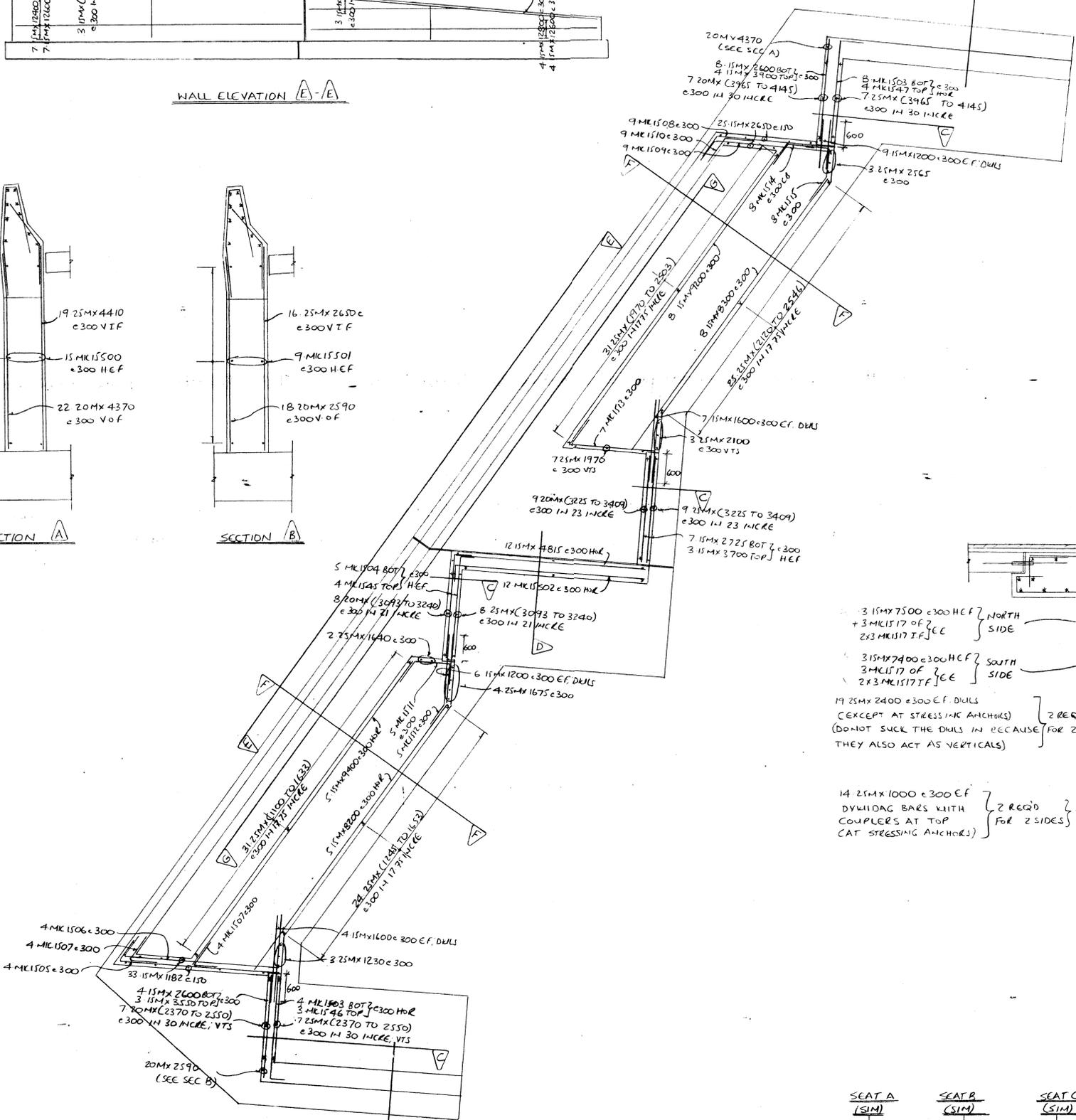
WALL ELEVATION A-A



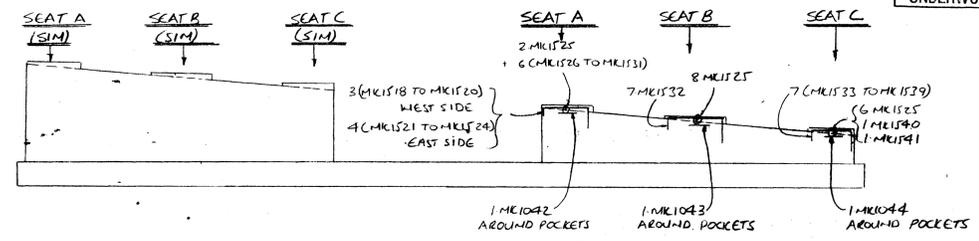
SECTION A



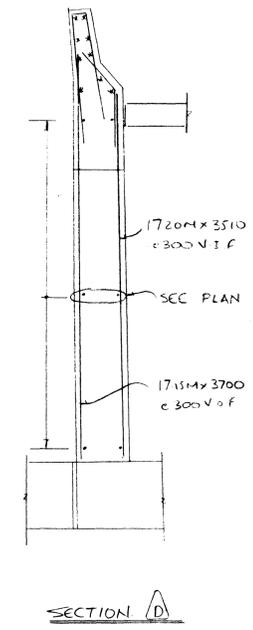
SECTION B



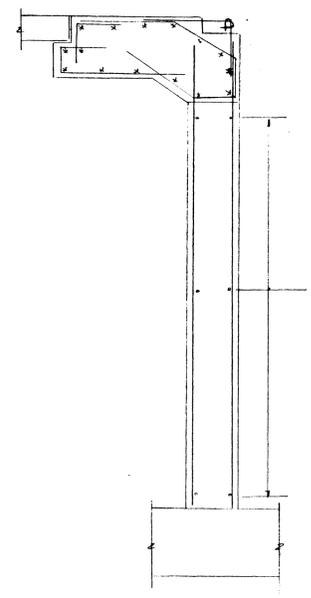
SECTION D



ABUTMENT SEAT ELEVATION E-G

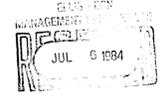


SECTION C



SECTION A (FOR REINF. SEE PLAN)

ISSUED FOR CONSTRUCTION



DRAWING REVIEW

The review of this drawing does not in any way relieve the contractor of responsibility for its accuracy or for compliance with the contract documents.

Submission No: 2

Issued, Proposed & Deleted: 29/7/022

By: J. HAWK

Approved & Released: Date: 19/07/84

Revised: See Remarks

UNDERWOOD McLELLAN LTD.

MK1548	1425 300 300	
MK1547	3550 7650	3850 7650
MK1044	660 100 370	3800 7650
MK1043	460 100 960	380 100 380
MK1540	500 300 300	800 300 300
MK1533 TO MK1539	950 TO 1550 IN 100 INCKE 300 800	1500 300 800

Contractor shall verify all dimensions and measurements to ensure compliance with contract drawings.

All changes from the contract drawing should be clearly marked on the drawings.

Any changes in construction sequence from the one detailed should be clearly marked.

Contractor to ensure that dimensions on this drawing comply with his form work dimension.



DATE	SK NO	DESCRIPTION

DATE	REVISIONS	NO. BY
27/7/84	ISSUED FOR CONST	1 NLS

ACI DETAILING LTD.
CALGARY 3208-52 STR S.E. 272-8801
272-7223
LEDUC 6813-44 ST. 986-7085

PROJECT
TRANS-CANADA HIGHWAY BRIDGE
OVER BANFF AVENUE

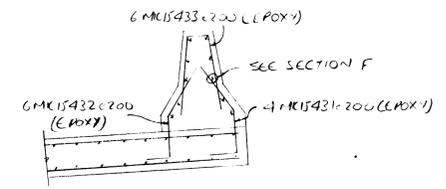
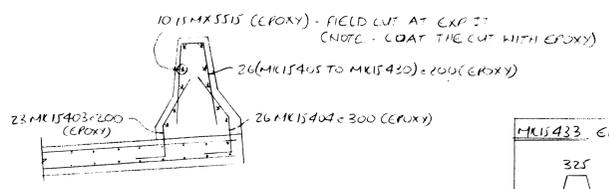
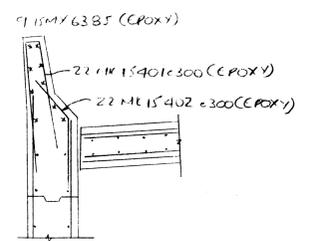
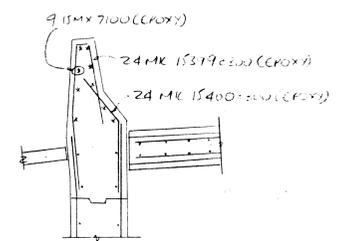
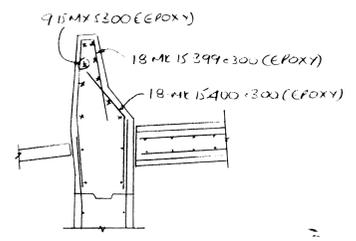
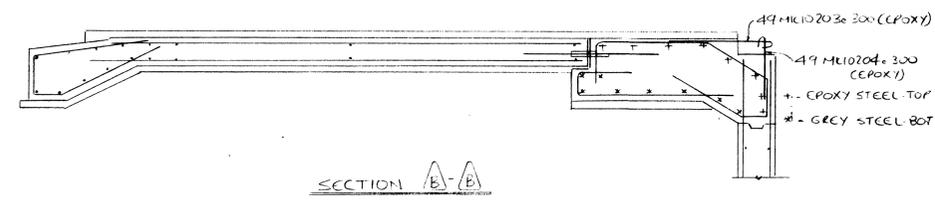
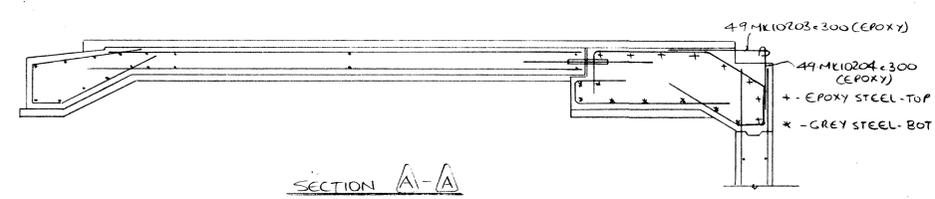
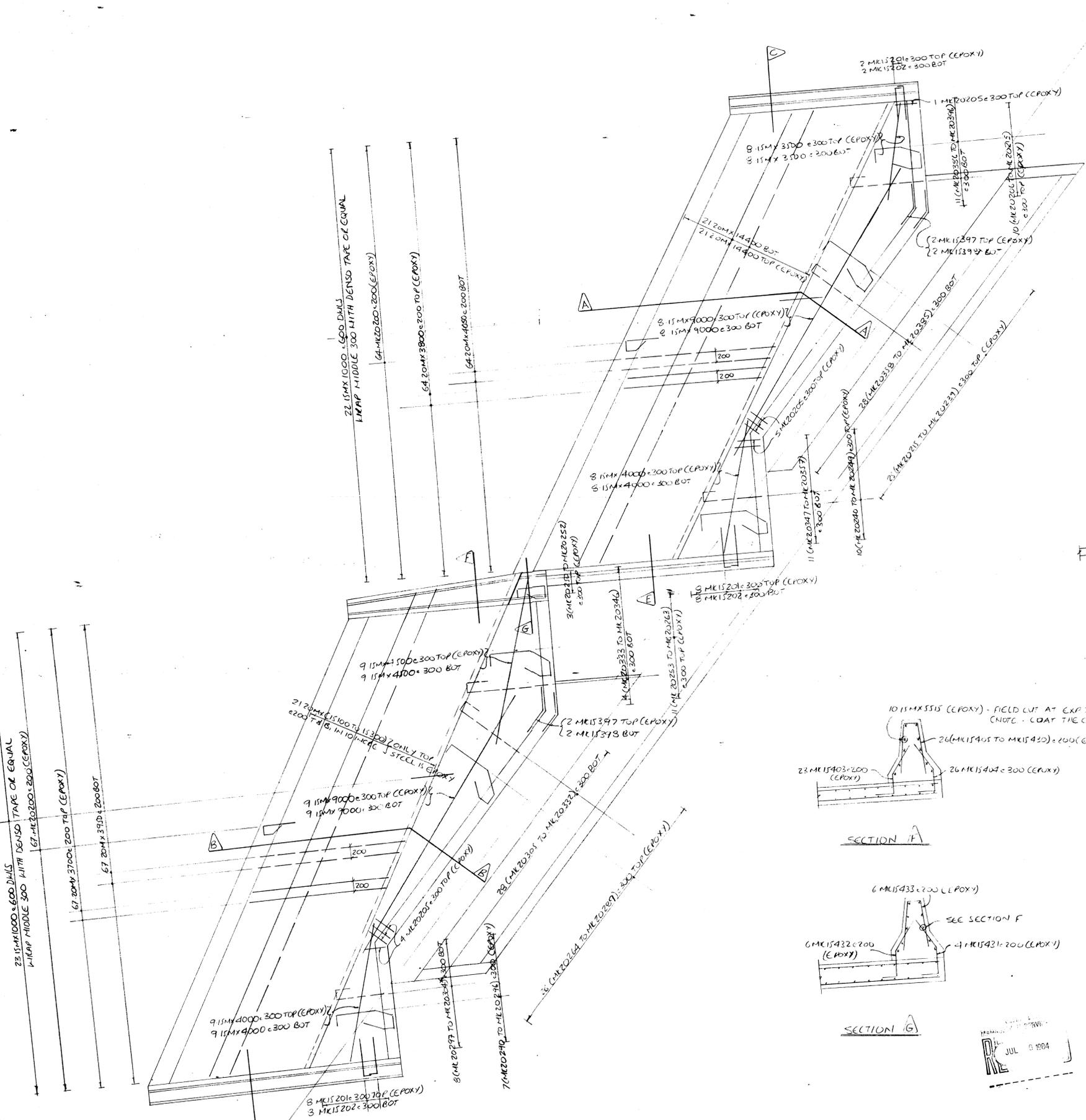
DWG TITLE
EAST ABUTMENT
WALLS

CONTRACTOR
ELLIS-DON

BY NIZAR JOB SCALE
396 N.T.S.

GRADE	DATE	DWG	REV
400 M	10/5/84	R-5	1





DRAWING REVIEW

The review of this drawing does not in any way relieve the contractor of responsibility for its accuracy or for compliance with the contract documents.

No Comment	Submission No. 2
Amend Proposed	Rev No. 277/2024
Amend & Reissue	By: J. Kelly
Reissue / Add Remarks	Date: 19.1.2024

UNDERWOOD McLELLAN LTD.

Contractor shall verify all dimensions and measurements to ensure compliance with contract drawings. All changes from the contract drawing should be clearly marked on the drawings. Any changes in construction sequence from the one detailed should be clearly marked. Contractor to ensure that dimensions on this drawing comply with his form work dimension.



DATE	SK NO	DESCRIPTION

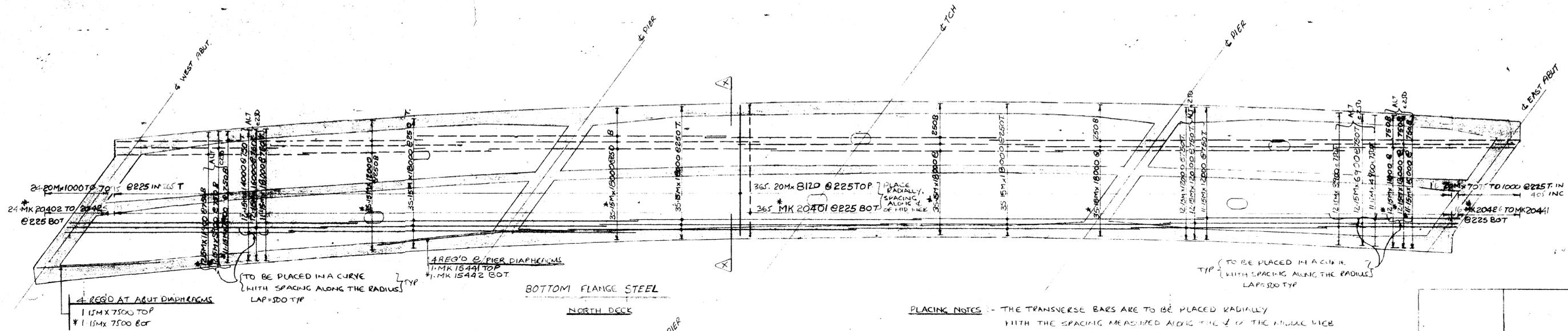
DATE	REVISIONS	NO. BY
4/7/84	ISSUED FOR COST	1 NCL

ACI DETAILING LTD.
 CALGARY 3208-52 STR S.E. 272-8801
 Leduc 6813-44 ST. 986-7055

PROJECT: TRANS-CANADA HIGHWAY BRIDGE OVER BANFF AVE
 DWG TITLE: WEST ABUTMENT SLABS & BARRIERS
 CONTRACTOR: ELLIS-DON
 BY: H2AK JOB: 396 SCALE: N.T.S.

GRADE	DATE	DWG	REV
400M ⁹	25/1/84	R-7	1

ISSUED FOR CONSTRUCTION



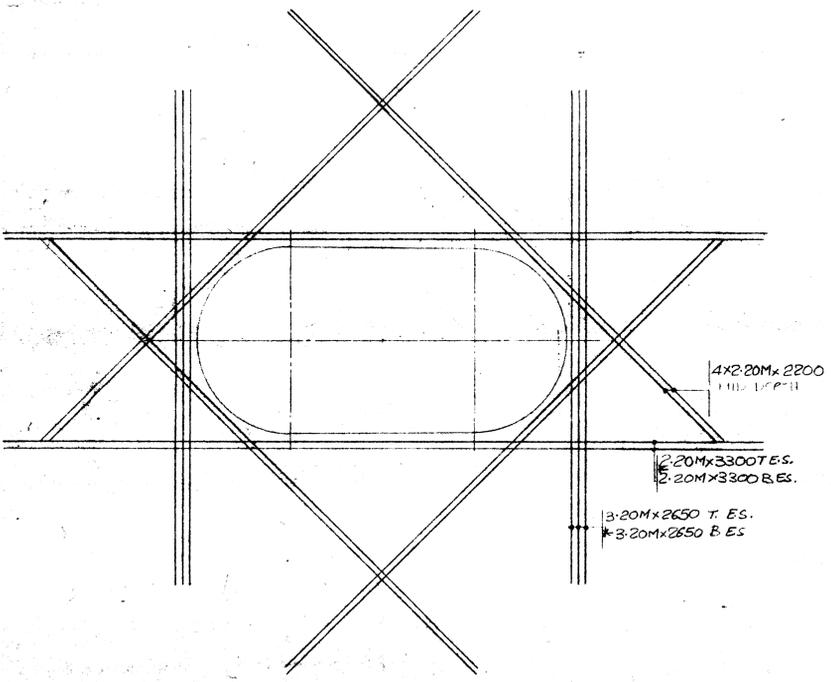
BOTTOM FLANGE STEEL
NORTH DECK

PLACING NOTES - THE TRANSVERSE BARS ARE TO BE PLACED RADIIALLY WITH THE SPACING MEASURED ALONG THE ϕ OF THE PIER OR VICE VERSA. THE LONGITUDINAL BARS ARE TO BE PLACED IN A CURVE PARALLEL TO THE ϕ OF PIER OR VICE VERSA WITH THE SPACING MEASURED RADIIALLY.

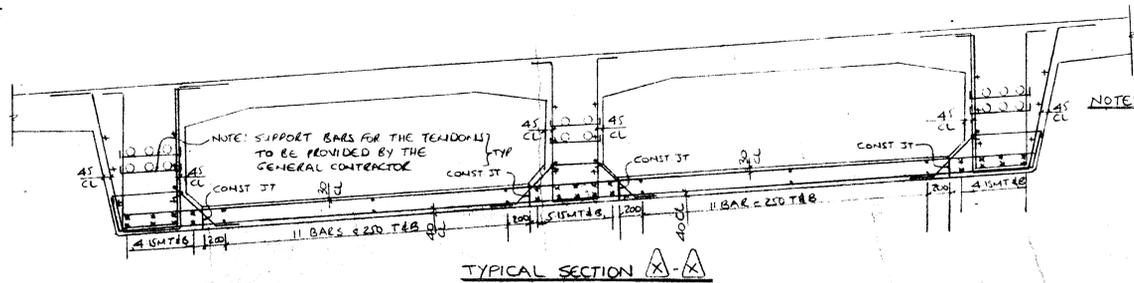


TYPICAL BAR ARRANGEMENT AT PIER DIAPHRAGMS
(BAR ARRANGEMENT AT ABUT. DIAPHRAGMS SIMILAR)

ALL BARS MARKED WITH * ARE EPOXY COATED.
ALL LONG STEEL LAPPED MIN 500



ACCESS OPENING (G.R.R.D.)
PAINT THE CUTS WITH EPOXY



TYPICAL SECTION A-A

DRAWING REVIEW	
The review of this drawing does not in any way relieve the contractor of responsibility for its accuracy or for compliance with the contract documents.	
Submission No. 2	Job No. 2977/022
By: J. Hally	Date: 19/07/94
Approved & Resubm.	
Checked Site Returns	
UNDERWOOD McLELLAN LTD.	

MK15442 EPOXY	6800 6800	3/3
MK15441	6800 6800	3/3
MK2042 TO 441		
70 TO 1000 IN 405 INC EPOXY		
MK 20402 TO 425		
1000 TO 700 IN 705 INC EPOXY		
MK 20401 EPOXY		

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DATE	SK NO.	DESCRIPTION

DATE	REVISIONS	NO.	BY
4/7/94	ISSUED FOR CONST	1	NLD

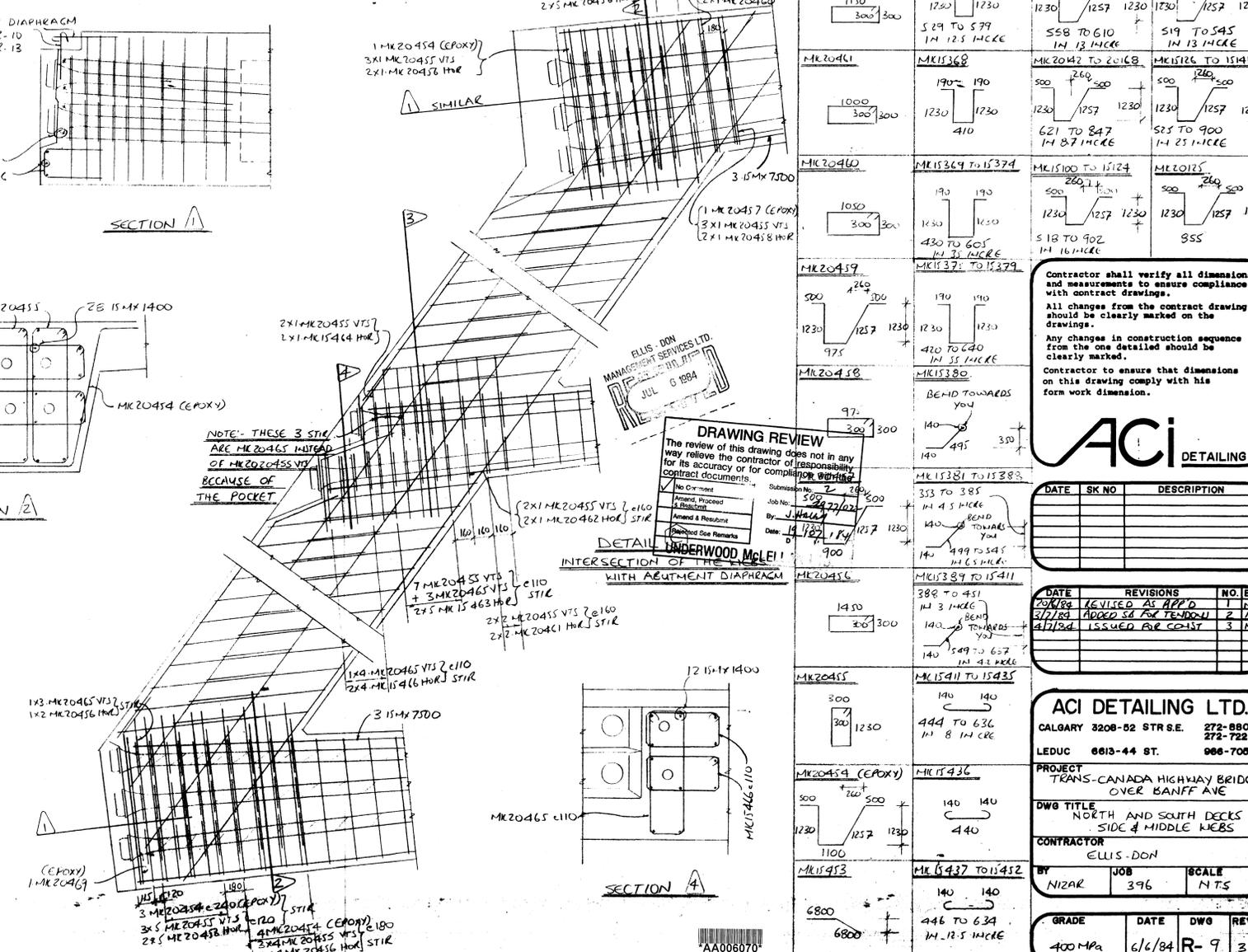
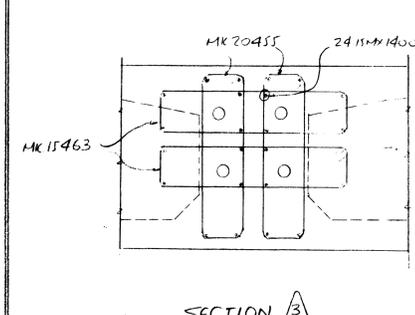
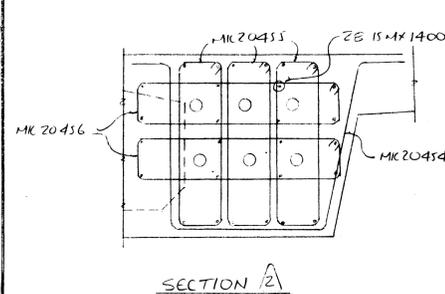
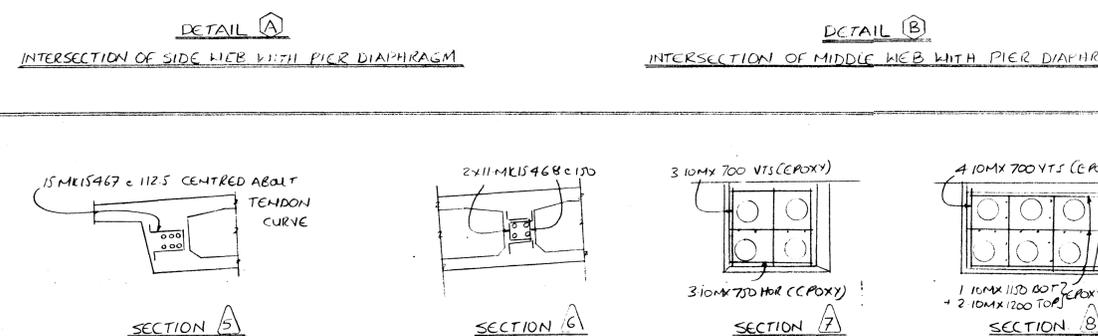
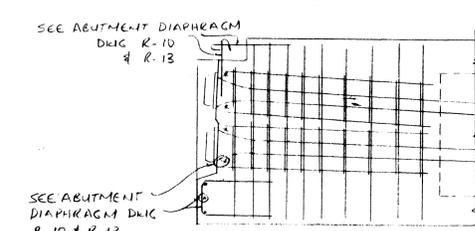
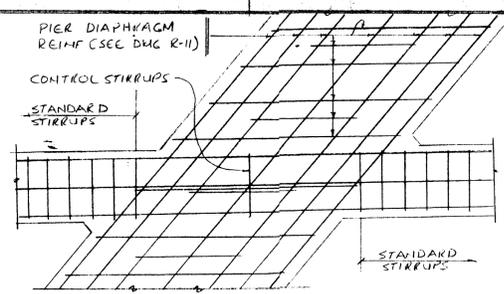
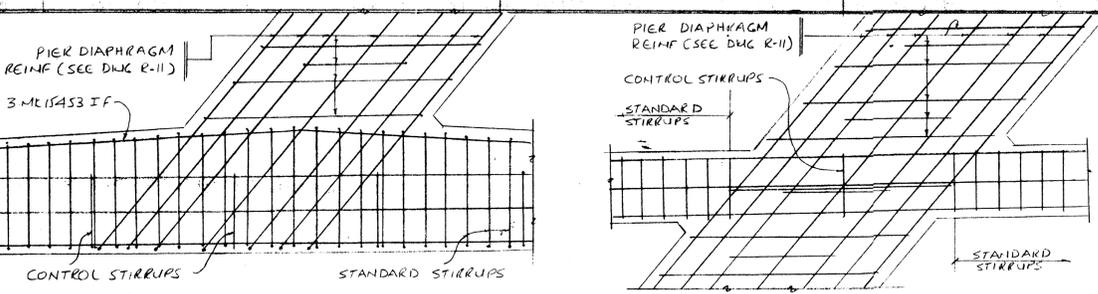
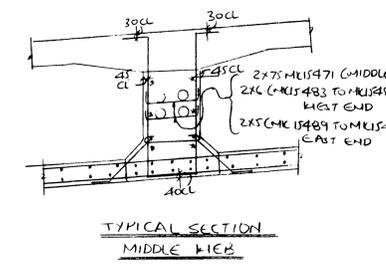
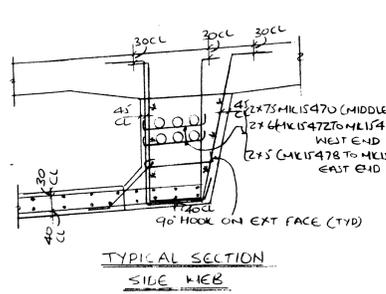
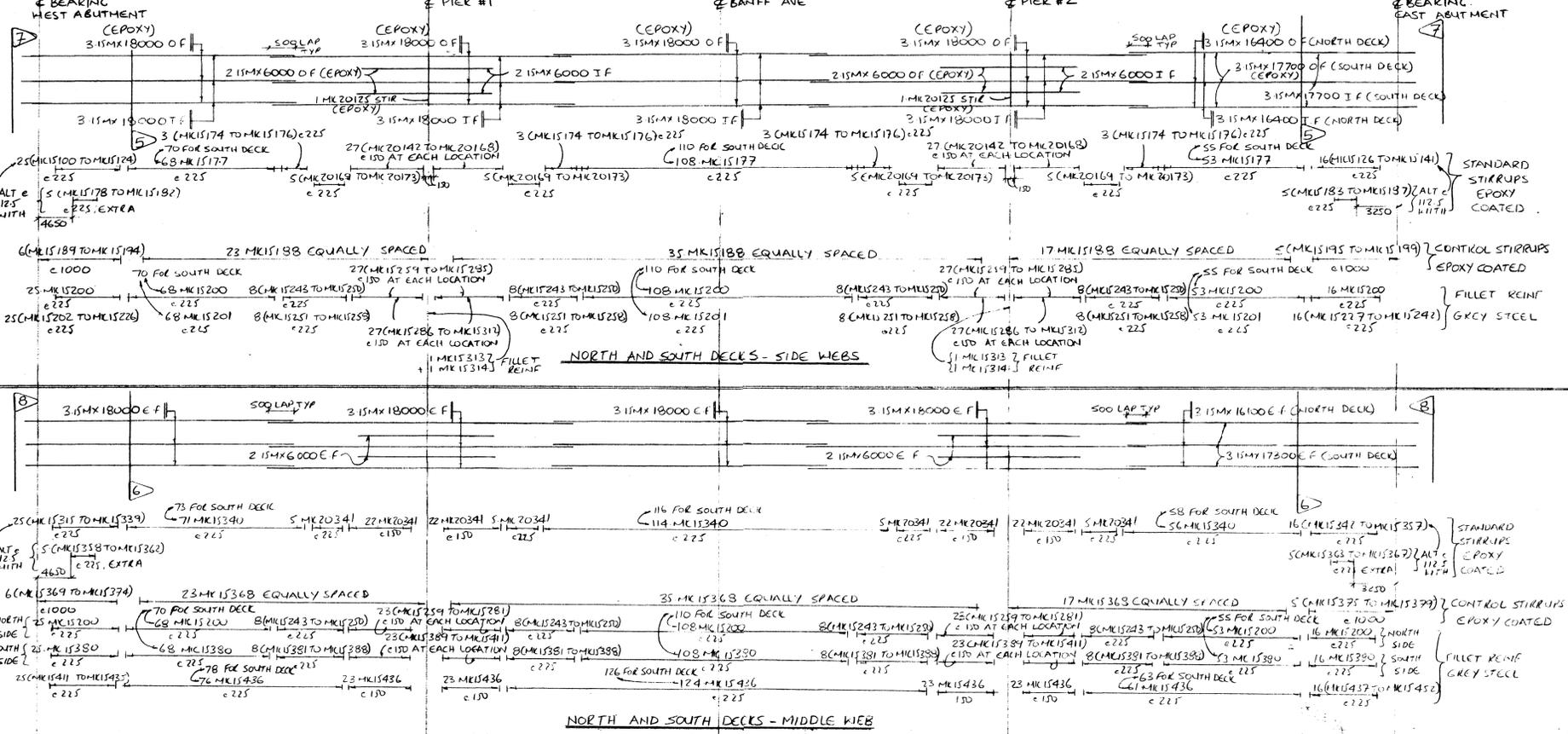
ACI DETAILING LTD.
CALGARY 3208-52 STR.E.E. 272-8801
272-7223
LEDUC 6615-44 ST. 966-7066

PROJECT
TCH OVER BANFF AV. BRIDGE
DWO TITLE
BOTTOM FLANGE STEEL
NORTH DECK
CONTRACTOR
ELLIS-DON MANAGEMENT
BY
NYS
JOB
306
SCALE
1:25

GRADE	DATE	DWO	REV
100	23/04	R-S	

ISSUED FOR CONSTRUCTION





MARKING	REVISIONS	NO.	BY
MK15467	228	1	ELI
MK15468	228	2	ELI
MK15469	228	3	ELI
MK15470	228	4	ELI
MK15471	228	5	ELI
MK15472	228	6	ELI
MK15473	228	7	ELI
MK15474	228	8	ELI
MK15475	228	9	ELI
MK15476	228	10	ELI
MK15477	228	11	ELI
MK15478	228	12	ELI
MK15479	228	13	ELI
MK15480	228	14	ELI
MK15481	228	15	ELI
MK15482	228	16	ELI
MK15483	228	17	ELI
MK15484	228	18	ELI
MK15485	228	19	ELI
MK15486	228	20	ELI
MK15487	228	21	ELI
MK15488	228	22	ELI
MK15489	228	23	ELI
MK15490	228	24	ELI
MK15491	228	25	ELI
MK15492	228	26	ELI
MK15493	228	27	ELI
MK15494	228	28	ELI
MK15495	228	29	ELI
MK15496	228	30	ELI
MK15497	228	31	ELI
MK15498	228	32	ELI
MK15499	228	33	ELI
MK15500	228	34	ELI

Contractor shall verify all dimensions and measurements to ensure compliance with contract drawings. All changes from the contract drawing should be clearly marked on the drawings. Any changes in construction sequence from the one detailed should be clearly marked. Contractor to ensure that dimensions on this drawing comply with his form work dimension.

ACI DETAILING

DATE	SK NO	DESCRIPTION
19/08/2014	1	ISSUED FOR CONSTRUCTION

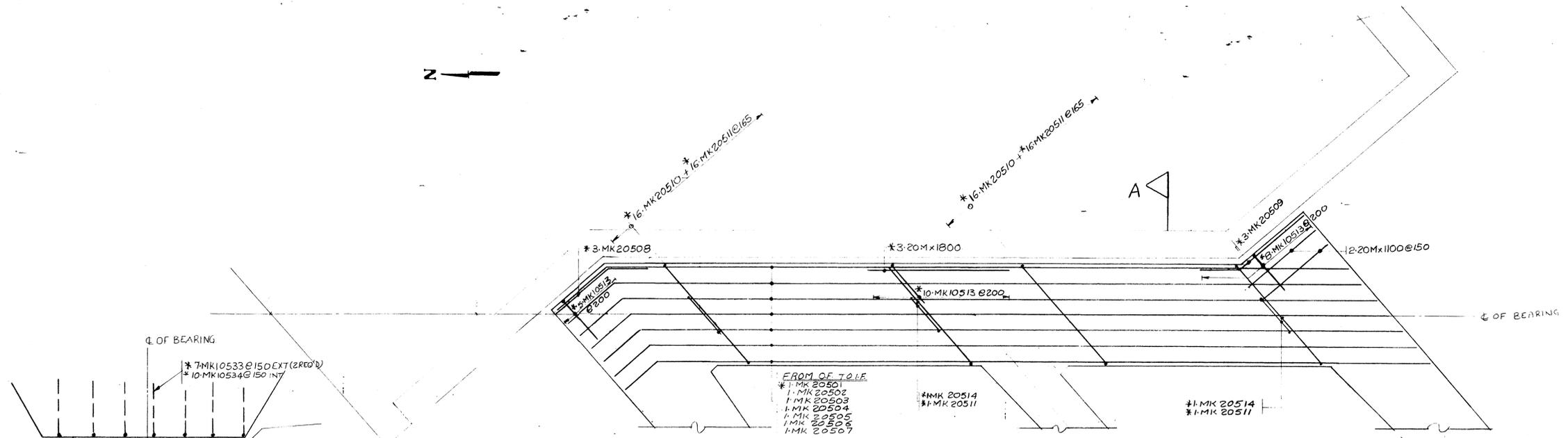
ACI DETAILING LTD.
 CALGARY 3208-52 STR. S.E. 272-8901
 272-7223
 Leduc 6813-44 ST. 986-7005

PROJECT: TRANS-CANADA HIGHWAY BRIDGE OVER BANFF AVE
 DWG TITLE: NORTH AND SOUTH DECK SIDE & MIDDLE WEBS
 CONTRACTOR: ELIUS-DON

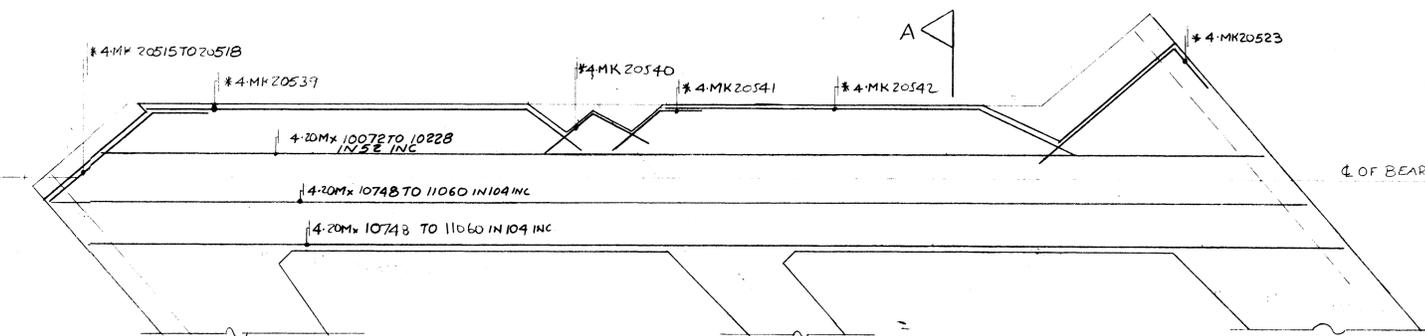
BY: NIZAR JOB: 396 SCALE: N.T.S.
 GRADE: 400 MPa DATE: 6/6/84 DWG: R-9 REV: 3

ISSUED FOR CONSTRUCTION

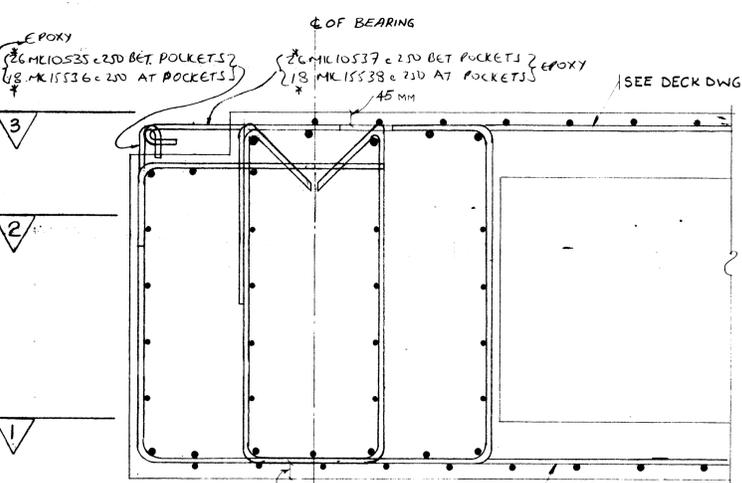
AA006070



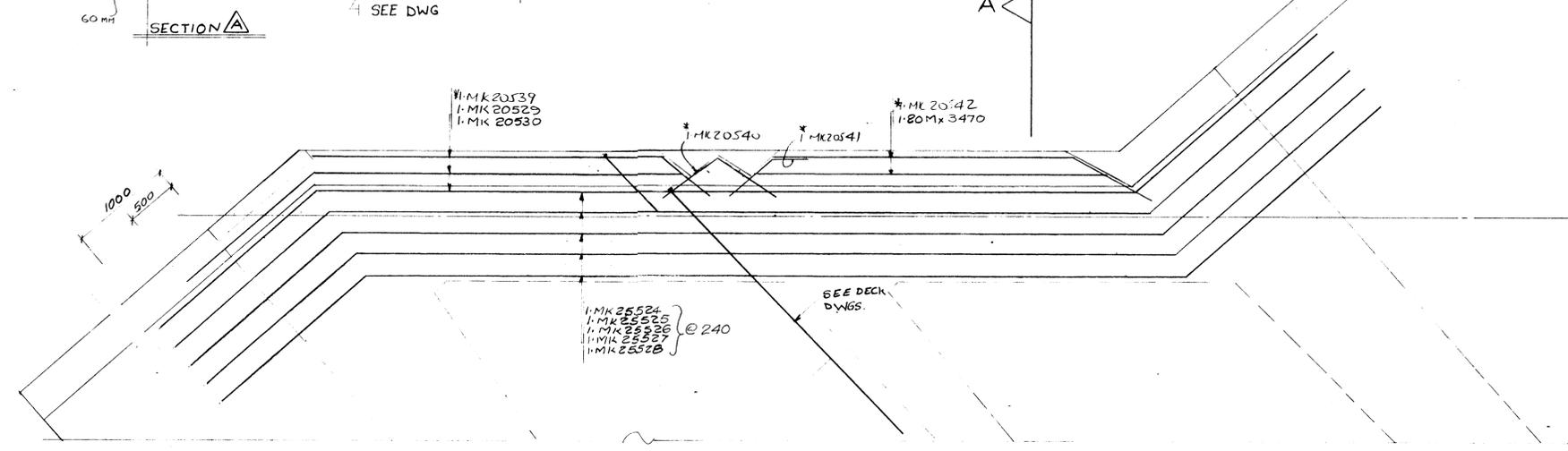
SECTION A



SECTION B



SECTION C



SECTION D

	MK20542 2830 1200	MK20523 EPOXY 1700 500	MK15522 EPOXY 2810 440
MK20540	MK20541 1000 175	MK15521 EPOXY 506 800	MK15520 EPOXY 808 320
MK20539	MK15538 3370 1000	MK20519 EPOXY 3370 506	MK20515 TO 20518 EPOXY 1070 TO 1230 IN 40 INC 700 410
MK15536	MK10537 500 200	MK20514 310 1195	MK10513 500 500
MK10535	MK10534 EPOXY 500 210	MK10512 500 500	MK20511 1195 300
MK10533 EPOXY 1100 400	MK10532 EPOXY 940 400	MK20510 1120 310	MK20509 800 1050
MK10531 EPOXY 640 400	MK20530 1271 1271	MK20508 500 850	MK20507 530 3630
MK20529 1008 1870	MK25528 1250 1250	MK20506 500 9750	MK20505 600 9700
MK25527 1276 1276	MK25526 1573 1573	MK20504 670 3650	MK20503 720 9600
MK25525 1328 2040	MK25524 1355 2040	MK20502 720 9530	MK20501 EPOXY 490 850

ALL BARS MARKED WITH * ARE EPOXY COATED
THIS DWG. TO BE READ IN CONJUNCTION WITH
RB- BOTTOM FLANGE
R3- WEBS
R13- TOP FLANGE (TO BE ISSUED)
FOR POST TENSIONING POCKET FILLER
SEE DWG L-9

CONTRACTOR NOTE:
CONFIRM DIMENSION ON MK10533 AND
MK10534

DRAWING REVIEW
The review of this drawing does not in any way relieve the contractor of responsibility for its accuracy or for compliance with the contract documents.

Submission No. 2
Job No. 2477/022
By: J. BAILEY
Date: 19 10 2 187
D M Y

UNDERWOOD McLELLAN LTD.



Contractor shall verify all dimensions and measurements to ensure compliance with contract drawings.
All changes from the contract drawing should be clearly marked on the drawings.
Any changes in construction sequence from the one detailed should be clearly marked.
Contractor to ensure that dimensions on this drawing comply with his form work dimension.



DATE	SK NO	DESCRIPTION

DATE	REVISIONS	NO. BY
23/1/84	REVISED AS APPD	1274
3/7/84	ISSUED FOR CONJAT	2 874

ACI DETAILING LTD.
CALGARY 3208-52 STR S.E. 272-8801
LEUDC 6613-44 ST. 272-7223
988-7085

PROJECT
TCH BRIDGE O'ER BANFF AVE

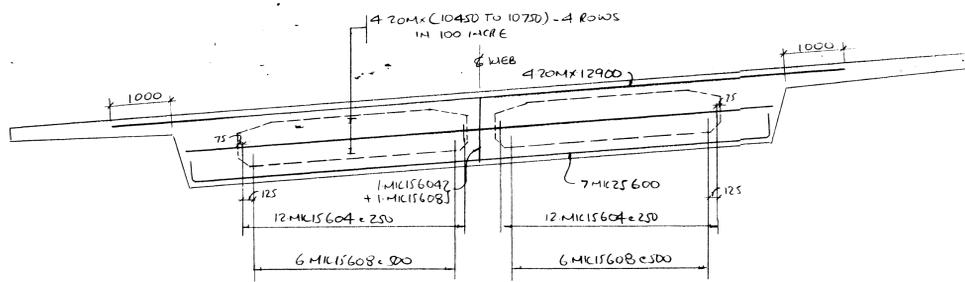
DWG TITLE
NORTH DECK
WEST ABUTMENT DIAPHRAGM

CONTRACTOR
ELLIS DON MANAGEMENT

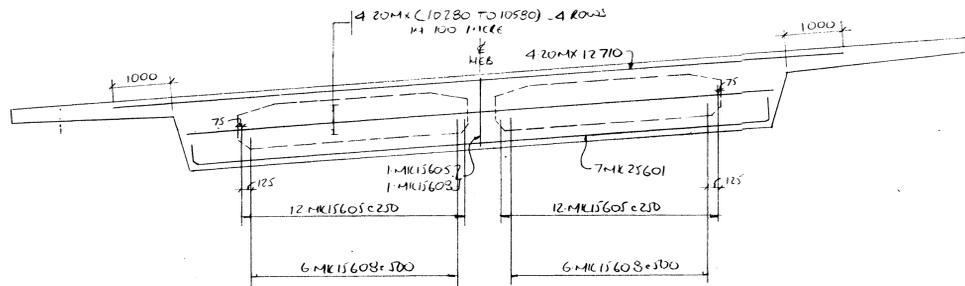
BY: NYS JOB: 396 SCALE: N.T.S.

ISSUED FOR CONSTRUCTION

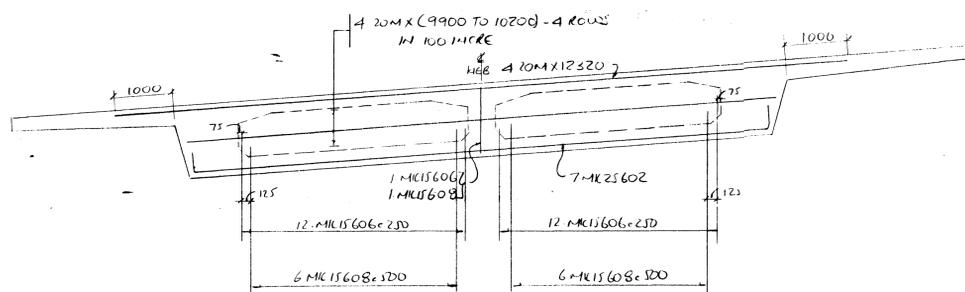
GRADE	DATE	DWG	REV
400		R-10	2



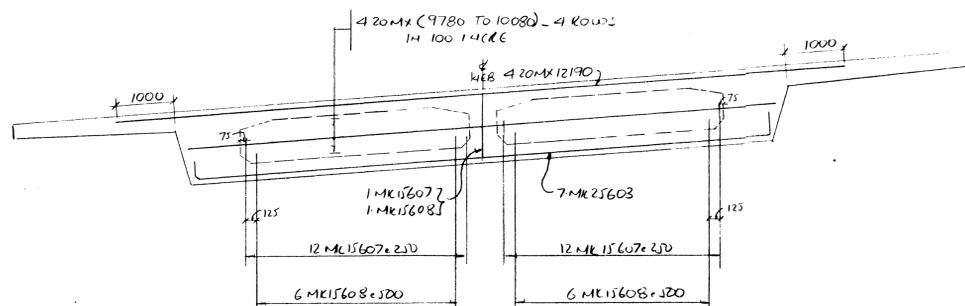
PIER DIAPHRAGM PD1S
(PIER #1 - SOUTH DECK)



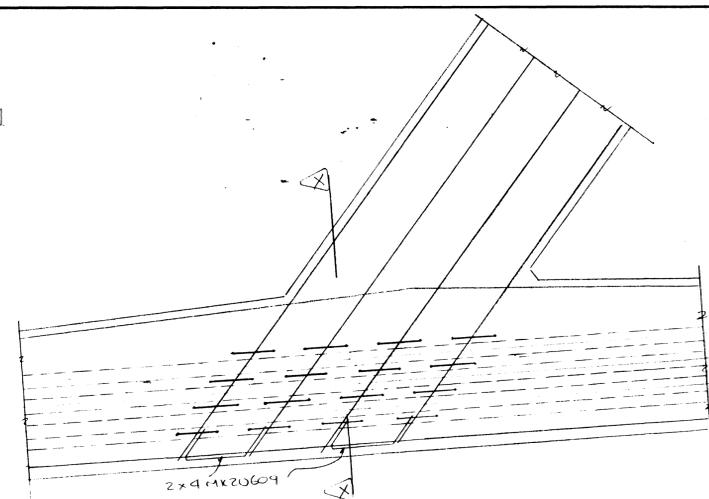
PIER DIAPHRAGM PD1N
(PIER #1 - NORTH DECK)



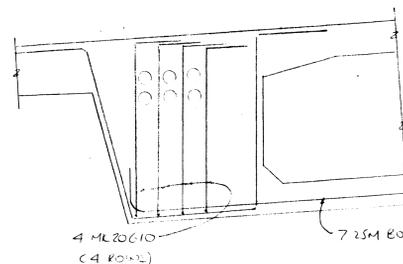
PIER DIAPHRAGM PD2S
(PIER #2 - SOUTH DECK)



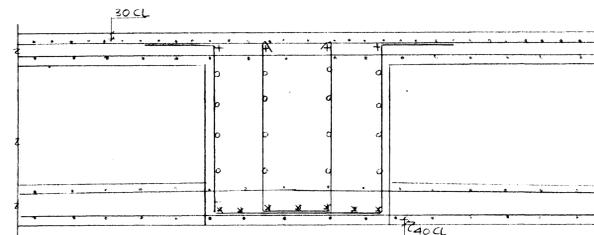
PIER DIAPHRAGM PD2N
(PIER #2 - NORTH DECK)



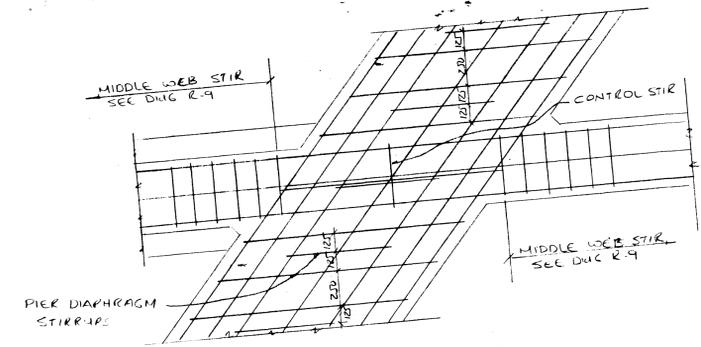
DETAIL A
INTERSECTION OF MIDDLE WEB & PIER DIAPHRAGM



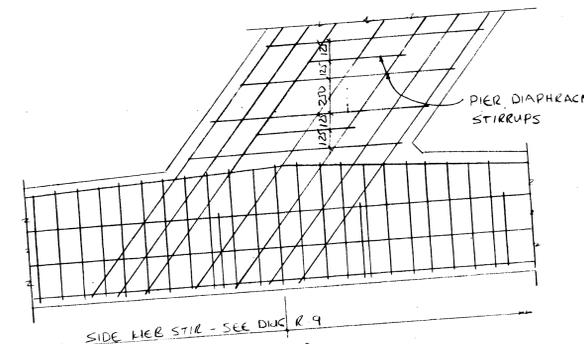
SECTION A-A



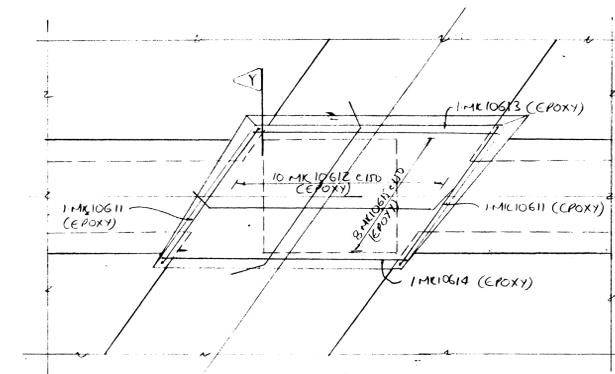
TYPICAL PIER DIAPHRAGM SECTION



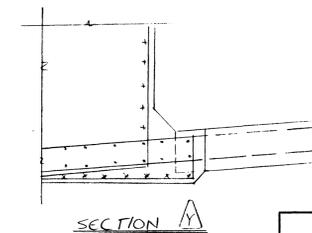
DETAIL B
INTERSECTION OF MIDDLE WEB & PIER DIAPHRAGM



DETAIL C
INTERSECTION OF SIDE WEB & PIER DIAPHRAGM



DETAIL D
EXTRA REIN IN PIER DIAPHRAGMS AT BEARING PADS



SECTION A-A

DRAWING REVIEW	
The review of this drawing does not in any way relieve the contractor of responsibility for its accuracy or for compliance with the contract documents.	
Submittal No. 2	Job No. 2377/1222
By: J. Hally	Date: 12/18/84
Approved: [Signature]	Project: See Remarks
UNDERWOOD McLELLAN LTD.	

ELLIS - DON
MANAGEMENT SERVICES LTD
JUL 6 1984

ML10615 EPOXY	ML10614 EPOXY
ML10612 EPOXY	ML10613 EPOXY
ML10611 EPOXY	ML20610
ML15608	ML20609
ML15607	ML15606
ML15604	ML15605
ML25603	ML25602
ML15600	ML25601

Contractor shall verify all dimensions and measurements to ensure compliance with contract drawings.
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Any changes in construction sequence from the one detailed should be clearly marked.
Contractor to ensure that dimensions on this drawing comply with his form work dimension.

ACI DETAILING

DATE	SK NO	DESCRIPTION

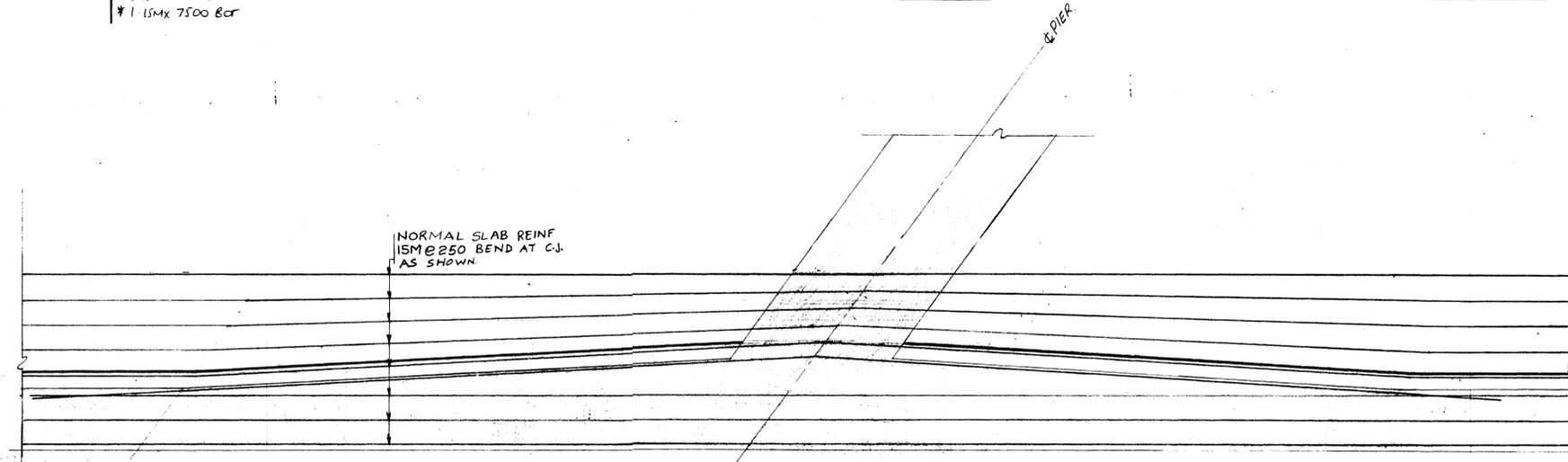
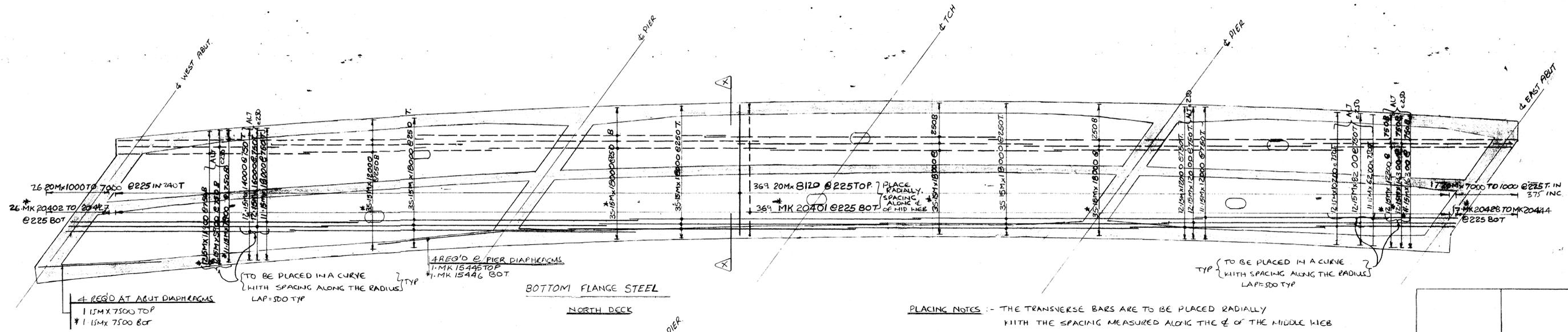
DATE	REVISIONS	NO. BY
7/7/84	ISSUED FOR COST	1 NIZ

ACI DETAILING LTD.		
CALGARY 3208-52 STR. S.E.	272-8801	272-7223
LEDUC 6613-44 ST.	986-7055	
PROJECT TRANS-CANADA HIGHWAY BRIDGE OVER BANFF AVENUE		
DWG TITLE NORTH & SOUTH DECKS, PIER DIAPHRAGMS		
CONTRACTOR ELLIS - DON		
BY NIZAR	JOB 396	SCALE N.T.S.

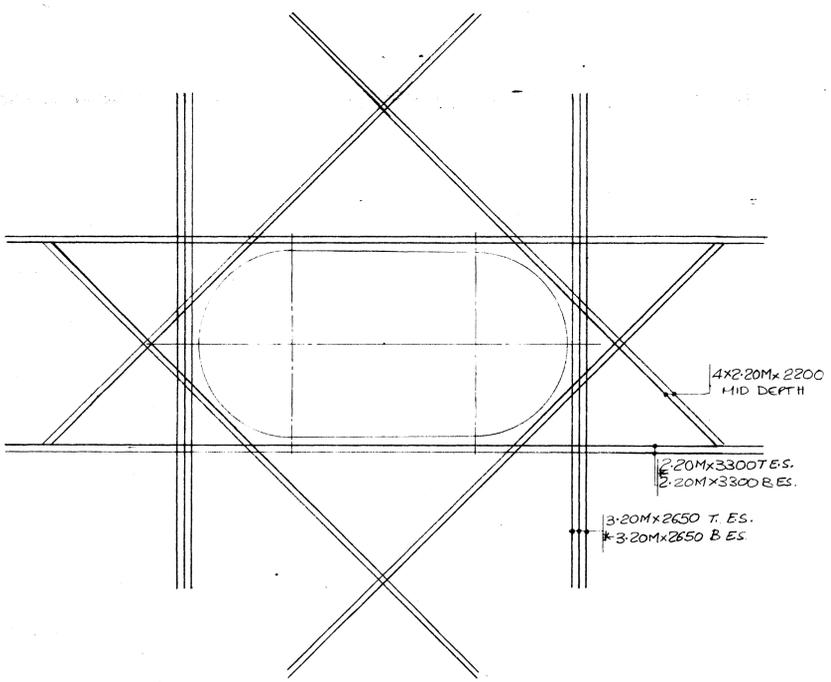
ISSUED FOR CONSTRUCTION

AA006072

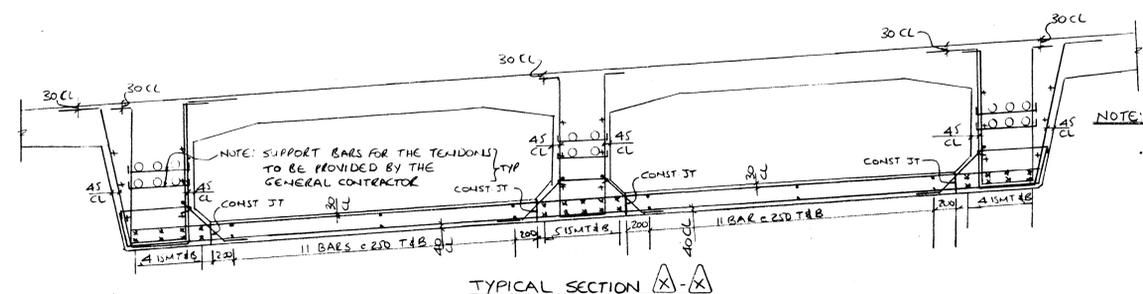
GRADE	DATE	DWG	REV
400MA	12/1/84	R-11	1



TYPICAL BAR ARRANGEMENT AT PIER DIAPHRAGMS
(BAR ARRANGEMENT AT ABUT. DIAPHRAGMS SIMILAR)



ACCESS OPENING
(6 REQ'D)
(FIELD CUT BARS AS REQ'D) PAINT THE CUTS WITH EPOXY



TYPICAL SECTION X-X

DRAWING REVIEW			
The review of this drawing does not in any way relieve the contractor of responsibility for its accuracy or for compliance with the contract documents.			
Submission No.:	2	Revised No.:	2977/022
By:	J. Hally	Checked & Approved:	
Date:	19 / 07 / 84	Released Site Remarks:	
UNDERWOOD McLELLAN LTD.			

	MK15446 EPOXY 6800 @ 500
	MK15445 6800 @ 500
	MK20428 TO 444 7000 TO 1000 IN 375 INC EPOXY MK 20402 TO 427 1000 TO 7000 IN 245 INC EPOXY MK 20401 EPOXY 300 @ 500

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ACI DETAILING

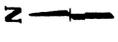
DATE	SK NO	DESCRIPTION

DATE	REVISIONS	NO. BY
17/84	ISSUED FOR CONSTRUCTION	1 MKL

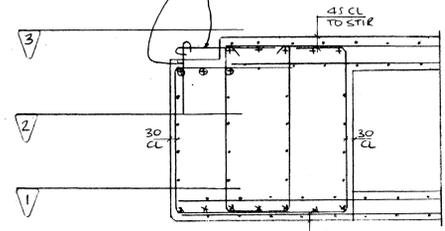
ACI DETAILING LTD.
CALGARY 3208-52 STR S.E. 272-8801
LELUC 6613-44 ST. 986-7055
PROJECT
TCH OVER BANFF AV BRIDG6E
DWG TITLE
BOTTOM FLANGE STEEL SOUTH DECK
CONTRACTOR
ELLIS-DON MANAGEMENT
BY NYS JOB 396 SCALE N.T.S.

ISSUED FOR CONSTRUCTION

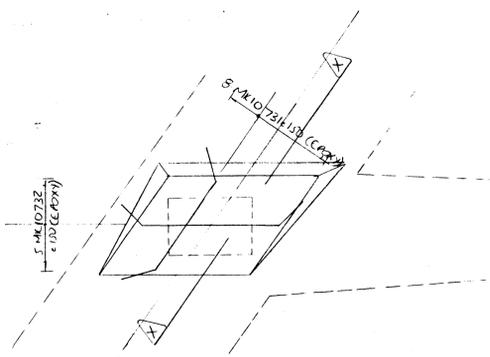
GRADE	DATE	DWG	REV
400	13/6/84	R-12	



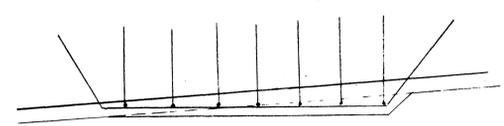
EPoxy { 21 MK10741 c2SD BET POCKETS }
 { 19 MK15742 c2SD AT POCKETS }
 { 21 MK10743 c2SD ECT POCKETS }
 { 19 MK15744 c2SD AT POCKETS } EPoxy



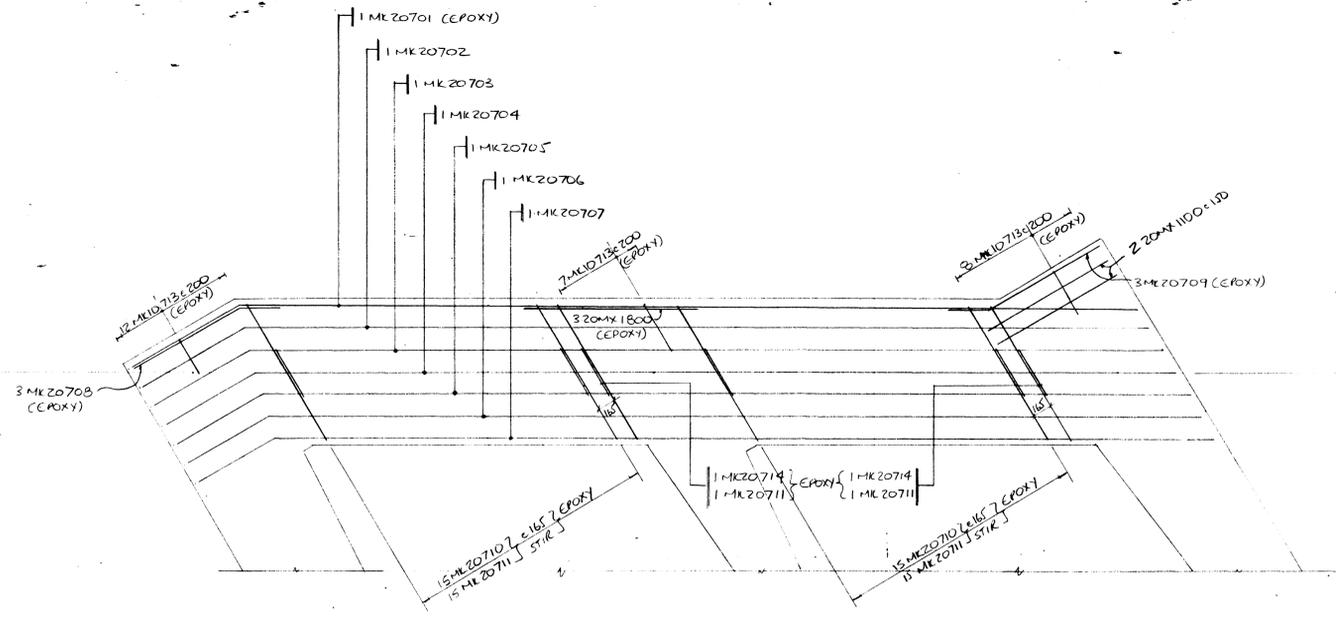
TYPICAL SECTION
 ABUTMENT DIAPHRAGM



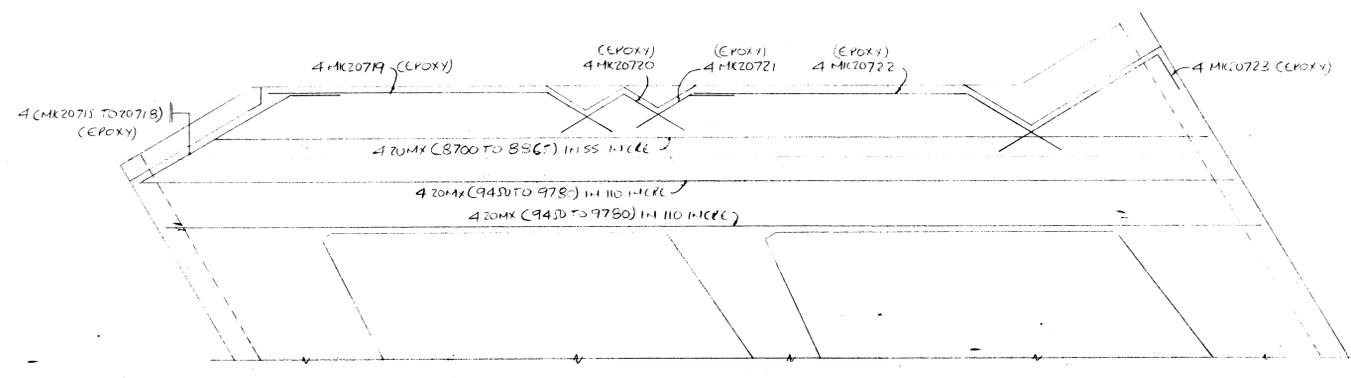
TYPICAL DETAIL AT BEARING PLATES



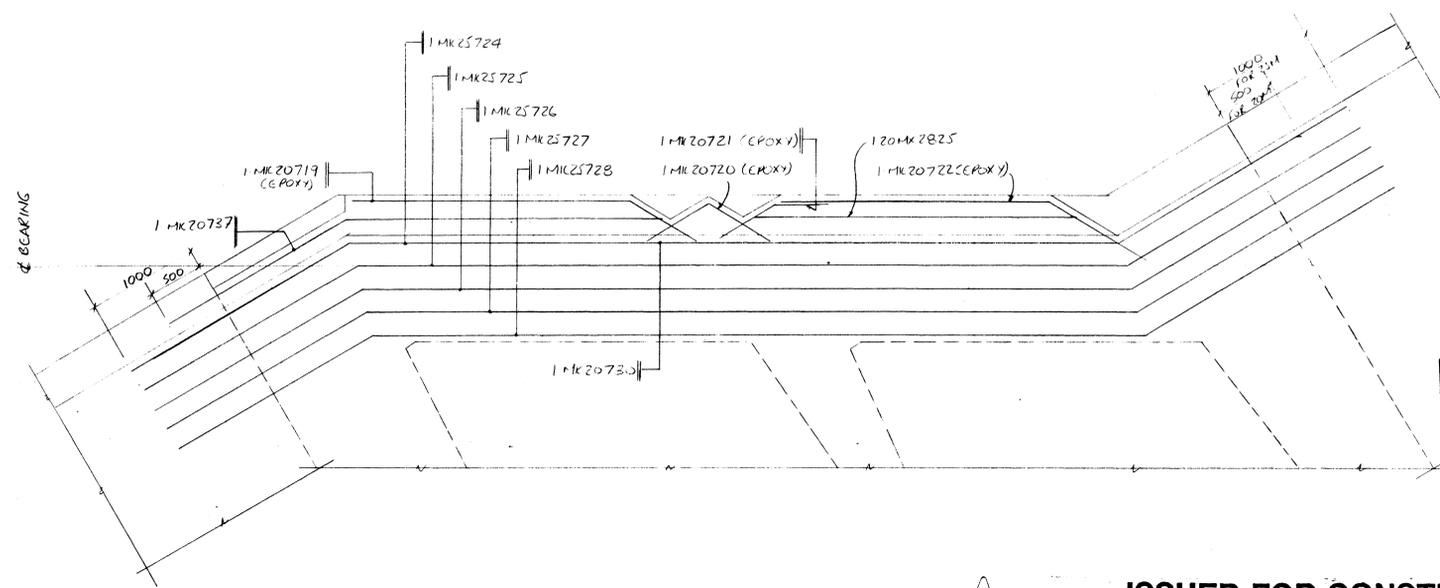
SECTION A-A



PLAN SECTION 1 - BOTTOM - SECTION 1



PLAN SECTION - MID-HEIGHT - SECTION 2



PLAN - TOP - SECTION 3

ISSUED FOR CONSTRUCTION

DRAWING REVIEW
 The review of this drawing does not in any way relieve the contractor of responsibility for its accuracy or for compliance with the contract documents.

No Comment	Approved, Proceed	Approved & Reconfirm	Reconfirm See Remarks
Submission No. 2	Job No. 2977/022	By J. Bailey	Date 19/07/84

UNDERWOOD McLELLAN LTD.

MK25728	MK25727	MK20710 (EPoxy)	MK20709 (EPoxy)
MK20729	MK25726	MK20711 (EPoxy)	MK20708 (EPoxy)
MK20720	MK25725	MK10712	MK20707
MK10731 (EPoxy)	MK25724	MK10713 (EPoxy)	MK20706
MK10732 (EPoxy)		MK20714 (EPoxy)	MK20705
		MK20715 TO 20718 (EPoxy)	MK20704
		MK20719 (EPoxy)	MK20703
		MK20723 (EPoxy)	MK20702
MK20736 (EPoxy)	MK20722 (EPoxy)	MK20721 (EPoxy)	MK20701 (EPoxy)
MK20727	MK20740 (EPoxy)		
MK20738 (EPoxy)	MK10741 (EPoxy)		
MK20739 (EPoxy)	MK15742 (EPoxy)		
	MK10743 (EPoxy)		
	MK15744 (EPoxy)		

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DATE	SK NO	DESCRIPTION

DATE	REVISIONS	NO. BY
10/1/84	REVISED AS APPD	1 NIK
4/5/84	ISSUED FOR CON-STR	2 NIK

ACI DETAILING LTD.
 CALGARY 3208-52 STR S.E. 272-8801
 272-7223
 LEDUC 6613-44 ST. 986-7085

PROJECT
 TRANS CANADA HIGHWAY BRIDGE
 OVER BANK AVE

DWG TITLE
 NORTH DECK
 EAST ABUTMENT DIAPHRAGM

CONTRACTOR
 ELLIS - DON

BY NIZAK JOB 396 SCALE NTS

GRADE	DATE	DWG	REV
400 MPa	14/6/84	R-13	

