Public Works Canada

Western Region

Travaux publics Canada

Région de l'Ouest

Trans-Canada Highway Twinning

AS-BUILT

STRUCTURE OVER BOW RIVER,

C.P.R. MAINLINE AND BOW VALLEY PARKWAY

T.C.H. km 23

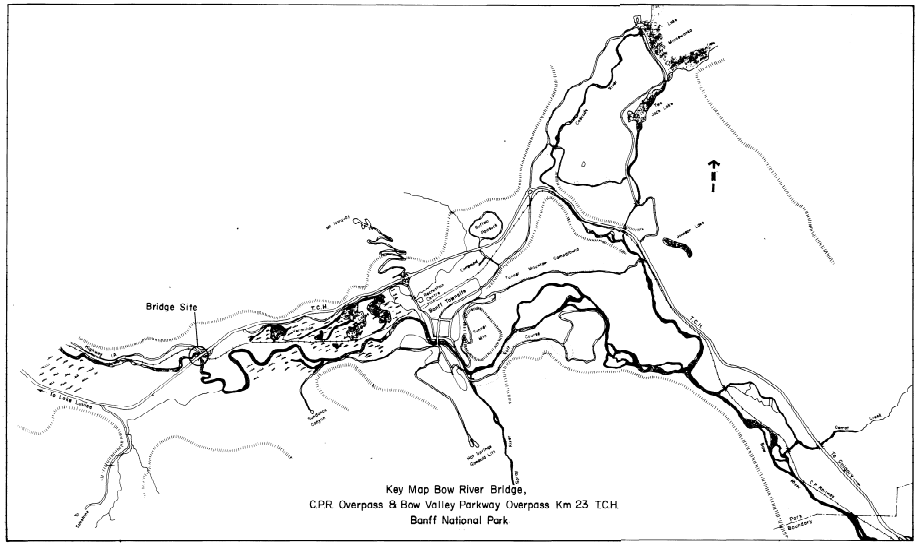
BANFF NATIONAL PARK

TCB-83-16

NOVEMBER 1984

PROJECT No. 003875

LOCATION PLAN
N.T.S.



GENERAL NOTES

1. SPECIFICATIONS = PROJECT SPECIFICATIONS, AASHTO SPECIFICATIONS 1977 AND CSA STANDARDS NOTED
2. DESIGN CODE = CSA CAN 3-S6-M78 WITH SUPPLEMENTS
3. DESIGN LOADS = MS250
   MS200 FOR SLAB DECK
   MS300 FOR SHEAR IN GIRDERS
4. UNITS
   CHAINAGE AND ELEVATIONS IN METRES
   ALL OTHER DIMENSIONS IN mm UNLESS OTHERWISE NOTED
5. PILES
   TIMBER PILES TO MEET PROJECT SPECIFICATIONS AND CAN3-056-M79
   MINIMUM BUTT DIAMETER-330mm, MINIMUM TIP DIAMETER-150mm

   STEEL PIPE PILES TO MEET ASTM A252, GRADE 2
   273mm O.D., 9.27mm WALL THICKNESS

   PILE LENGTHS:

   STEEL PIPE PILES:
   EAST ABUTMENT - 14m
   WEST ABUTMENT = 17m

   TIMBER PILES:
   PIERS 1,2 AND 3 - 12m
   PIERS 4,5 AND 6 - 15m

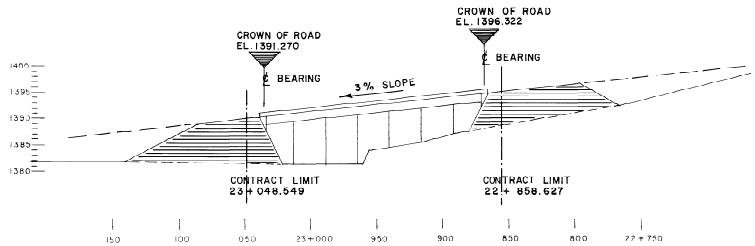
   PILE LOADING = 200KN/PILE SERVICE LOAD @ 100% ALLOWABLE STRESS
6. CONCRETE:
   MINIMUM 28 DAY COMPRESSIVE STRENGTH OF CONCRETE

ABUTMENTS AND PIER FOOTINGS	= 25 MPa
PIER WALLS, COLUMNS, PIER CAP BEAMS, N.J. BARRIERS, DECK SLAB AND APPROACH SLABS	= 30 MPa
PRESTRESSED CONCRETE GIRDERS	= 40 MPa
CONCRETE FILL AT EXPANSION JOINTS	= 35 MPa

7. PROVIDE 20mm CHAMFER ON ALL EXPOSED CORNERS OF CONCRETE, UNLESS SHOWN OTHERWISE
8. REINFORCING STEEL TO CSA STANDARD G 30.12 - GRADE 400
9. STRUCTURAL STEEL FOR DECK DRAINS TO CSA G40.21 M1981 GRADE 300W, GALVANIZED
10. INFORMATION ON BENCHMARKS, BRIDGE LOCATION AND ORIENTATION, WATER ELEVATIONS AND SOILS DATA MAY BE OBTAINED FROM PUBLIC WORKS CANADA, WESTERN REGION, 9925-109TH STREET, EDMONTON, ALBERTA, T5K 2J8

DRAWING INDEX

DRAWING N°	TITLE
1.	LOCATION PLAN, DRAWING INDEX & GENERAL NOTES
2	GENERAL LAYOUT
3.	PIER FOUNDATION & PIER BEAM - PLANS, SECTIONS & DETAILS
4.	PIER ELEVATIONS, SECTIONS & WALL DETAILS
5.	ABUTMENTS FORMING PLANS & SECTIONS.
6.	ABUTMENTS REINFORCING PLANS & SECTIONS
7.	PARTIAL DECK PLAN & SECTION.
8.	DIAPHRAGM SECTIONS & DETAILS.
9.	PRESTRESSED GIRDER DETAILS.
10.	EXPANSION JOINT & BEARING DETAILS
11.	REINFORCING SCHEDULE - SHEET 1
12.	REINFORCING SCHEDULE - SHEET 2
13.	PILE FOUNDATION PLAN
14.	APPROACH EMBANKMENT PROFILES & TYP. CROSS SECTION



FOR EXISTING EMBANKMENTS
SEE P.W.C. INFORMATION DRAWING N° 14

ROAD PROFILE
1:2000 HORIZONTAL
1:500 VERTICAL

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Western Region

Project / Projet: STRUCTURE OVER BOW RIVER & C.P.R. MAINLINE, TRANS CANADA HIGHWAY km 23 BANFF NATIONAL PARK

Project No. / Projet No.: 003875

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LOCATION PLAN, DRAWING INDEX & GENERAL NOTES

AA005543

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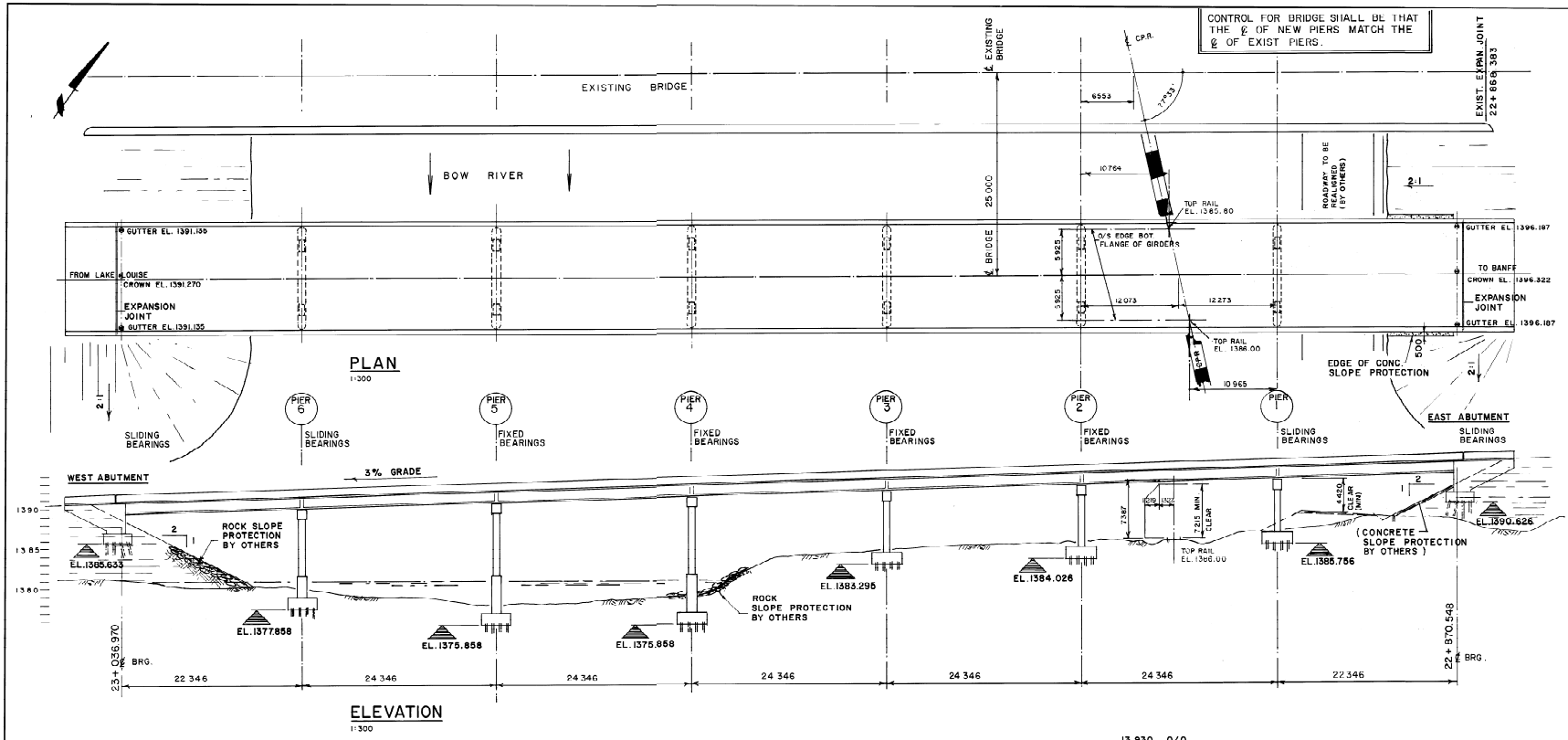
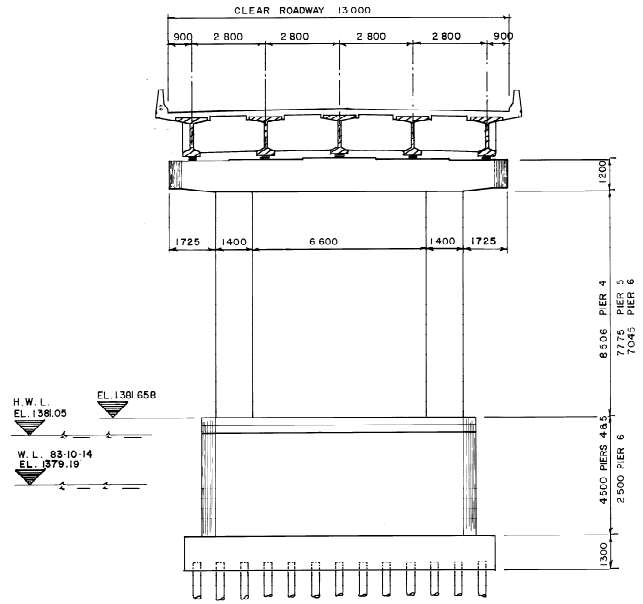
NTS, No. / STN. No.

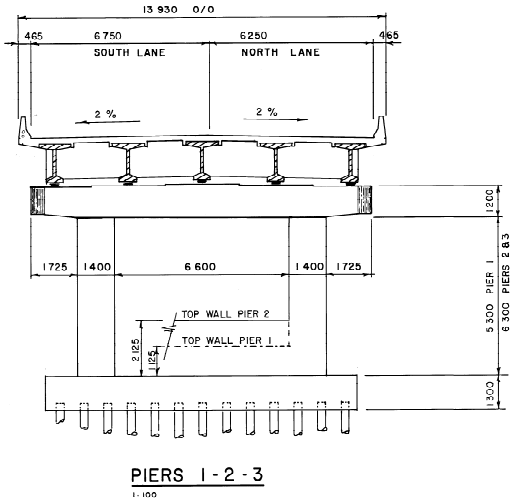
Dwg. No. / Dessin No.

Sheet / Feuille 1 of / de 14

CONTROL FOR BRIDGE SHALL BE THAT THE ℄ OF NEW PIERS MATCH THE ℄ OF EXIST PIERS.







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Western Region

Project: STRUCTURE OVER BOW RIVER & C.P.R. MAINLINE, TRANS CANADA HIGHWAY Km 23 BANFF NATIONAL PARK.

Project No. 003875

REV	DATE	DWN	ENG	REVISION DESCRIPTION
1	84 06 23	JB	SB	WALLS PIERS 1 & 2, PVC DUCTS ADDED

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GENERAL LAYOUT

AA005544

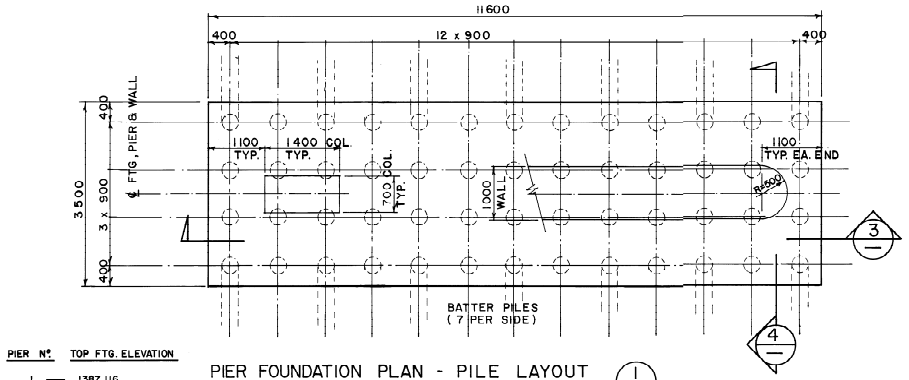
Horizontal Scale / Echelle horizontale

Vertical Scale / Echelle verticale

NTS. No. / STN. No.

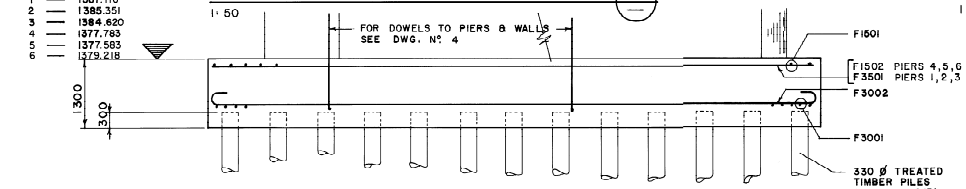
Dwg. No. / Dessin No.

Sheet / Feuille 2 of / de 14

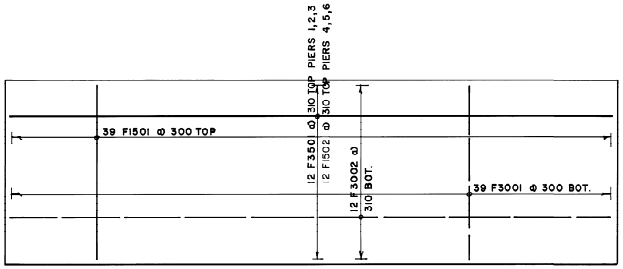


PIER FOUNDATION PLAN - PILE LAYOUT (1)
1:50

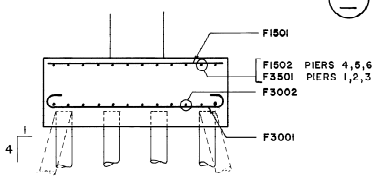
PIER Nº.	TOP FTG. ELEVATION
1	1387.116
2	1385.351
3	1384.620
4	1377.783
5	1377.583
6	1379.218



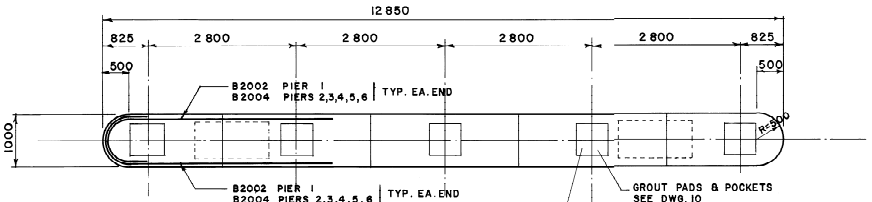
PIER FOUNDATION SECTION (3)
1:50



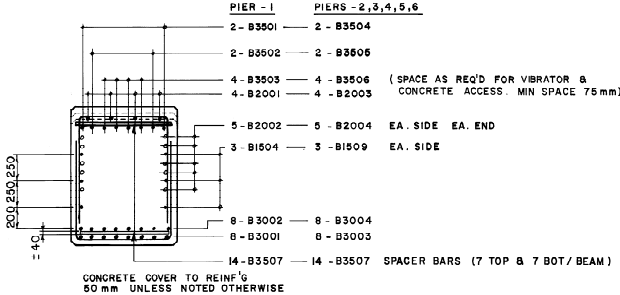
PIER FOUNDATION PLAN - REINFORCING (2)
1:50



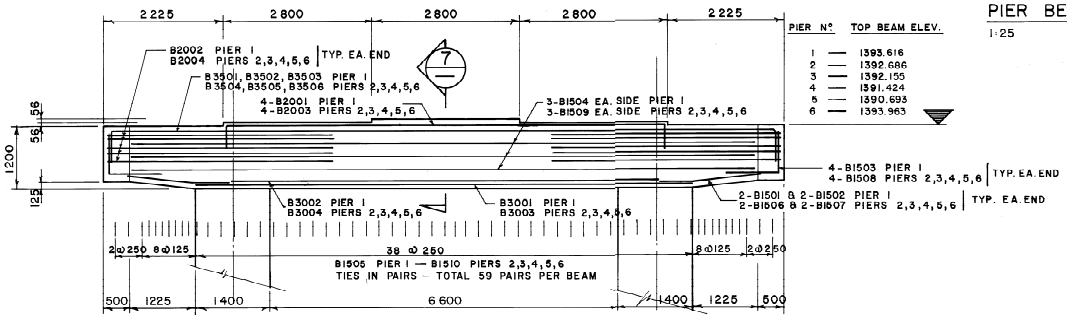
PIER FOUNDATION SECTION (4)
1:50



PIER BEAM PLAN (5)
1:50

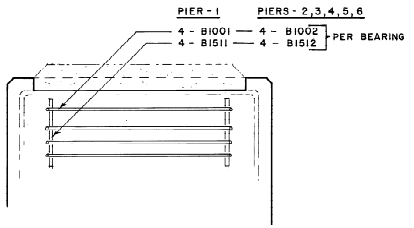


PIER BEAM SECTION (7)
1:25



PIER Nº.	TOP BEAM ELEV.
1	1393.616
2	1392.686
3	1392.155
4	1391.424
5	1390.693
6	1393.963

PIER BEAM ELEVATION (6)
1:50



REINFORCING AT BEARING LOCATIONS DETAIL (8)
1:10

NOTE EPOXY COATED REINFORCING BARS ARE IDENTIFIED BY SYMBOL 'E' IN BAR SCHEDULE SHEETS 11 & 12.

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Western Region

Project / Projet: STRUCTURE OVER BOW RIVER & C.P.R. MAINLINE, TRANS CANADA HIGHWAY Km 23 BANFF NATIONAL PARK.

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PIER FOUNDATION & PIER BEAM PLANS, SECTIONS & DETAILS

AA005545

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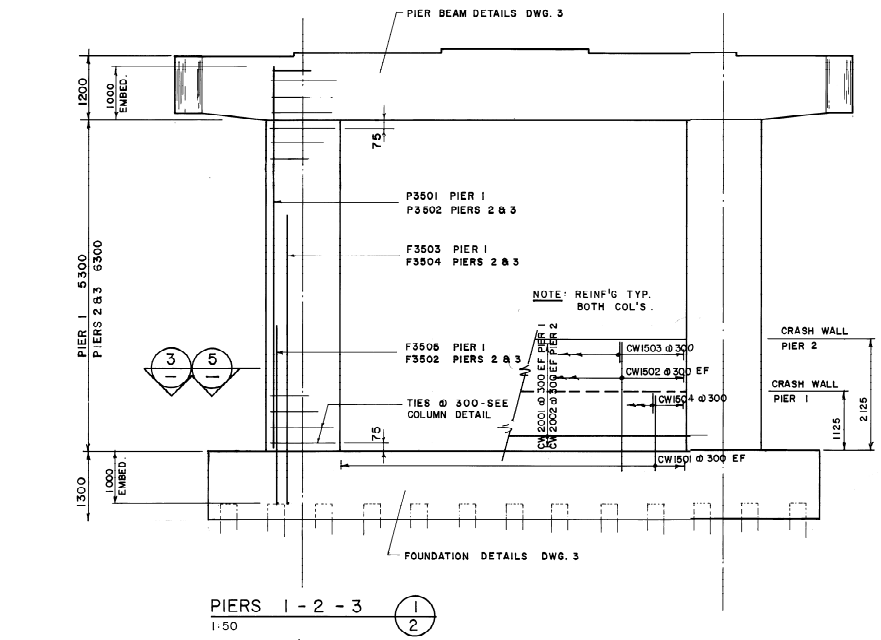
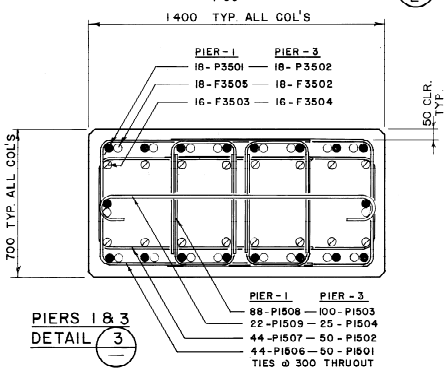
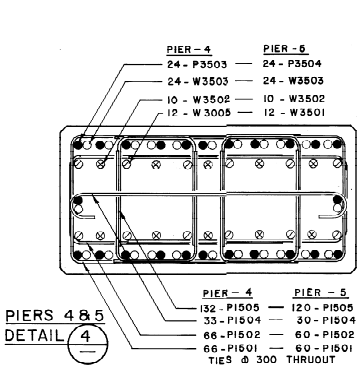
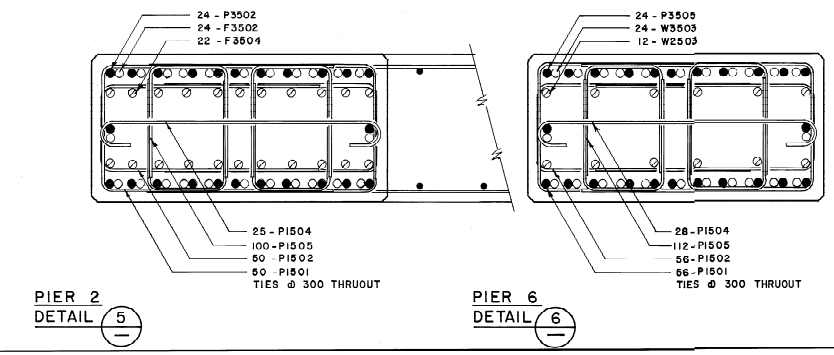
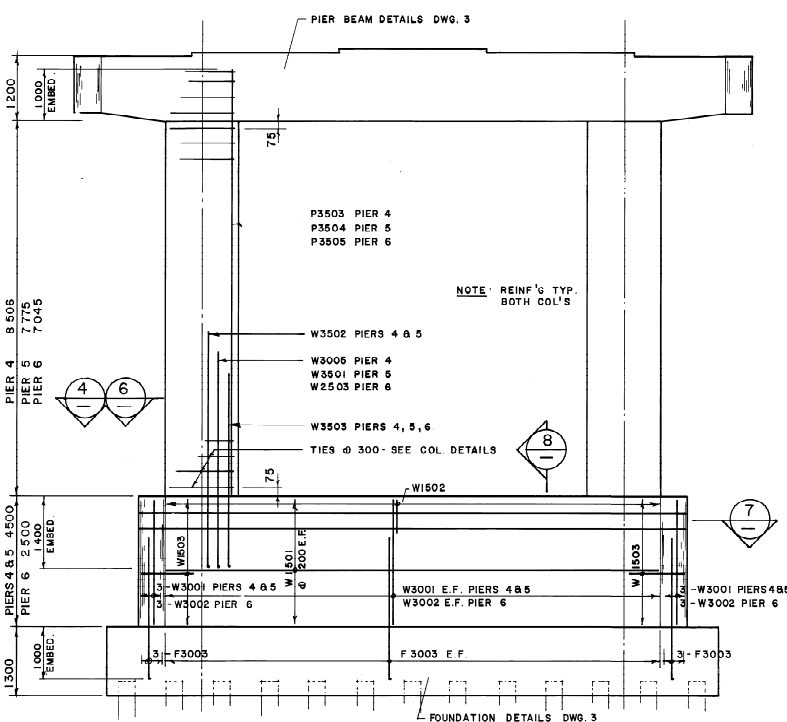
Sheet / Feuille 3 of / de 14

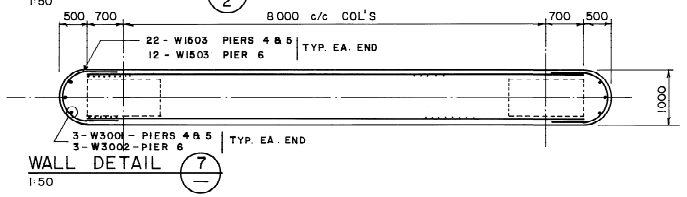


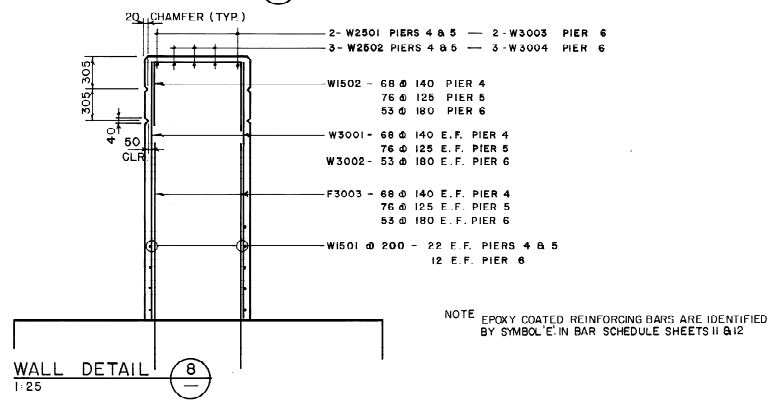












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Western Region

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Project No. / Projet No.: 003875

REV	DATE	DWN	ENG	REVISION DESCRIPTION
1	84 06 28	JB	SB	CRASH WALLS ADDED PIERS 1 & 2

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ASSOCIATED ENGINEERING SERVICES LTD

PIER ELEVATIONS, SECTIONS AND WALL DETAILS

AA005546

THE ASSOCIATION OF PROFESSIONAL ENGINEERS OF ALBERTA PERMIT NUMBER P 104 ASSOCIATED ENGINEERING SERVICES LTD

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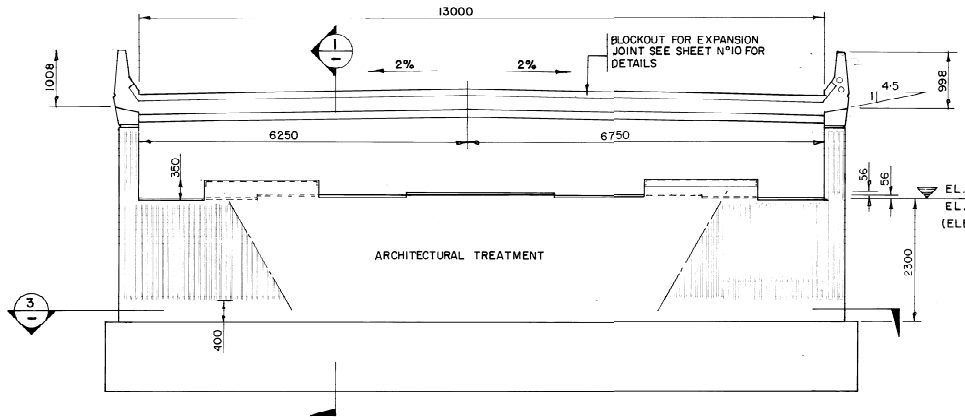
Vertical Scale / Echelle verticale

NTS. No. / STN. No.

Drwg. No. / Dessein No.

Sheet / Feuille 4 of / de 14



FRONT ELEVATION.
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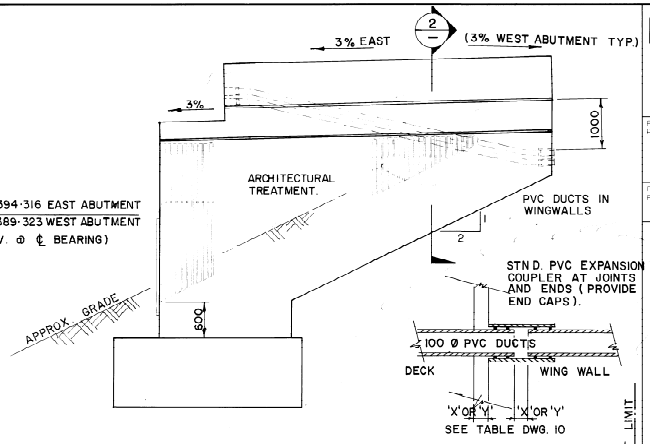
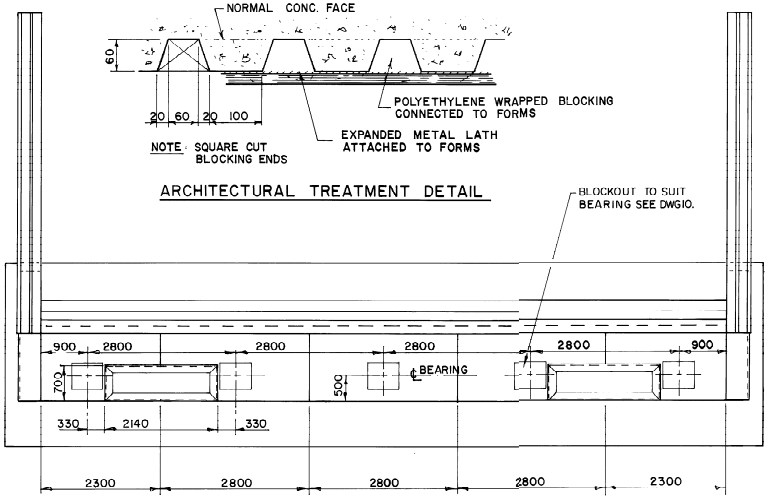
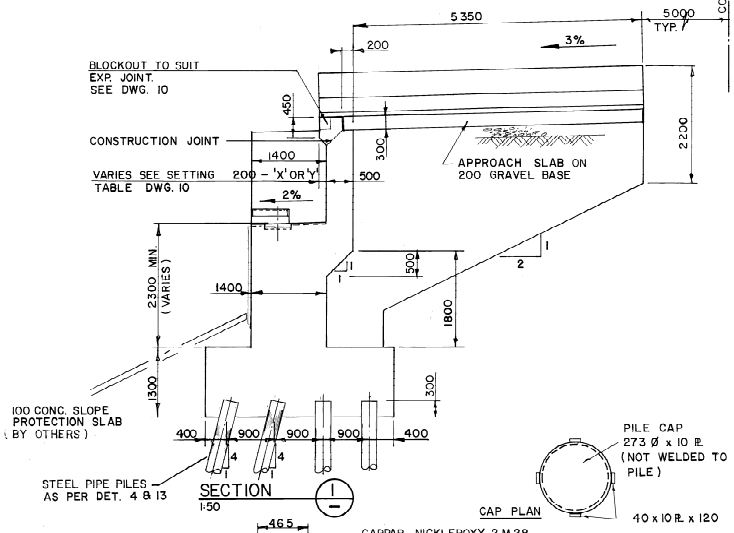


SIDE ELEVATION
1:50

PVC DUCT JOINT DETAIL
1:10



PLAN.
1:50



SECTION 1
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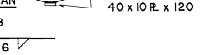

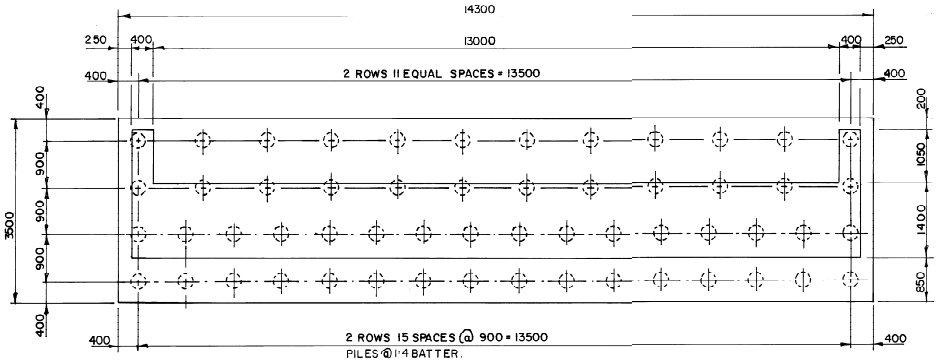

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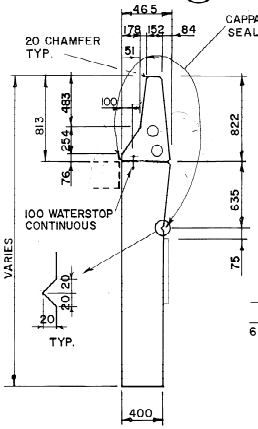

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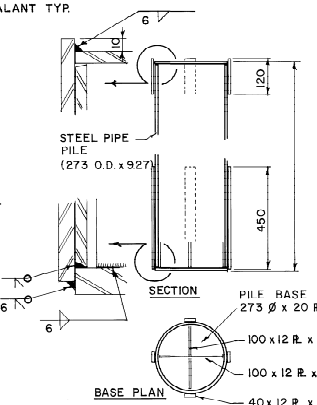

STEEL PIPE PILE DETAILS 4

CONTRACT LIMIT

REV	DATE	DWN	ENG	REVISION DESCRIPTION
1	84 06 23	JB	SB	PVC DUCTS & DET'S ADDED

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Western Region

Project / Projet: STRUCTURE OVER BOW RIVER & C.P.R. MAINLINE, TRANS CANADA HIGHWAY Km 23 BANFF NATIONAL PARK.

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ABUTMENTS FORMING PLANS AND SECTIONS

"AA005547"

REGISTERED PROFESSIONAL ENGINEERS OF ALBERTA

REGISTRATION OF DRAWINGS BY ENGINEER PERMIT NUMBER P 104

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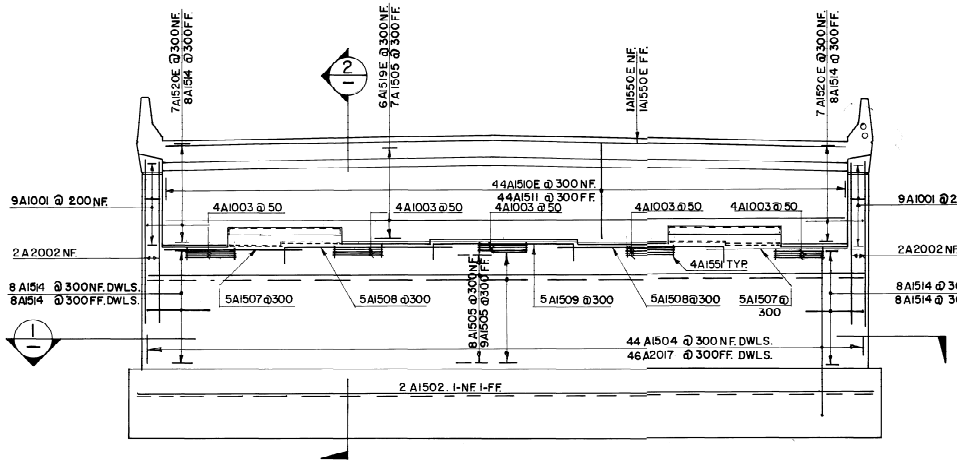
Dwg. No. / Dessin No.

Sheet / Feuille 5 of / de 14



FRONT ELEVATION
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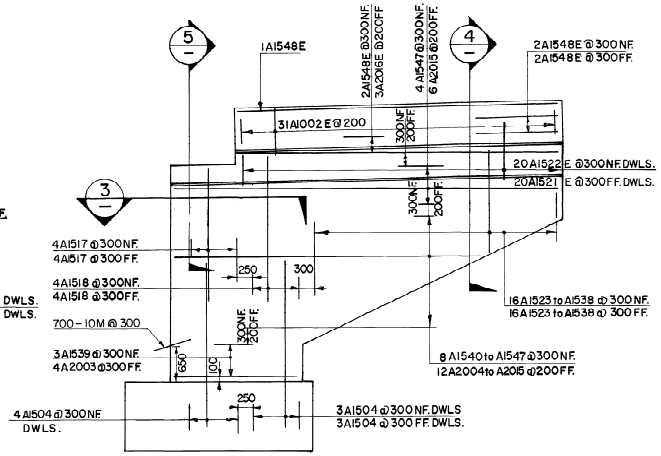

SIDE ELEVATION (EAST ABUTMENT)
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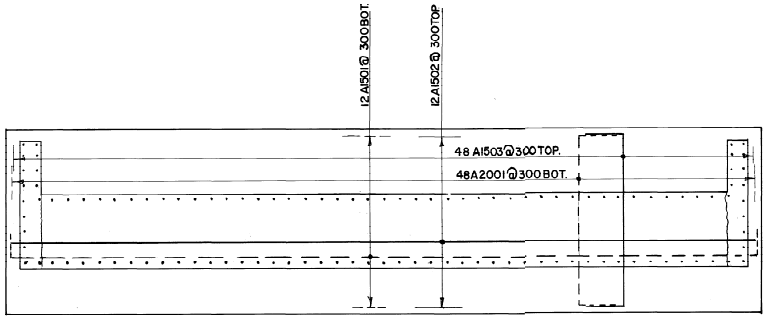

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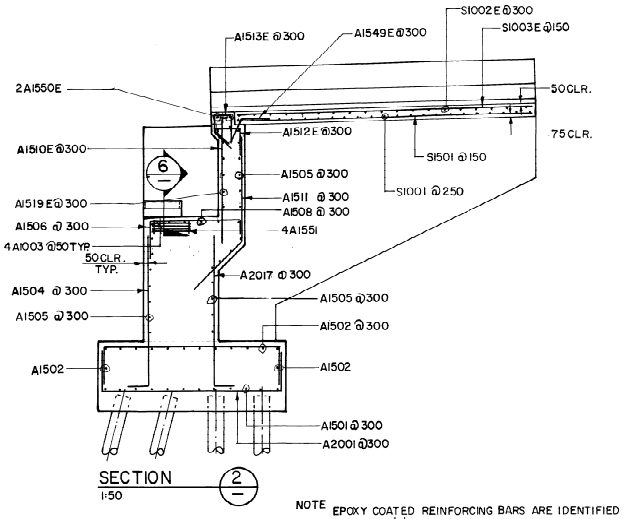

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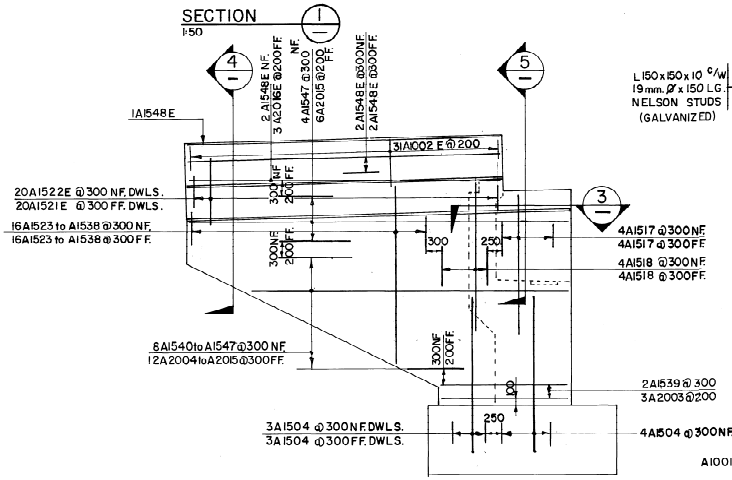

SIDE ELEVATION (WEST ABUTMENT)
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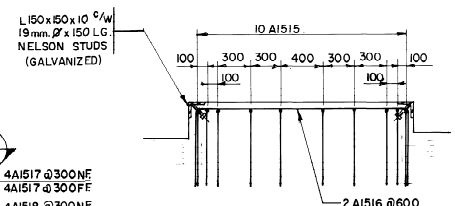

SECTION 6
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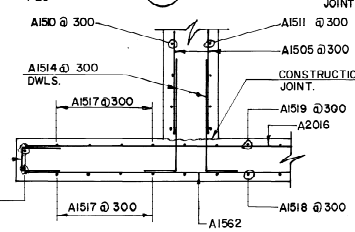

SECTION 3
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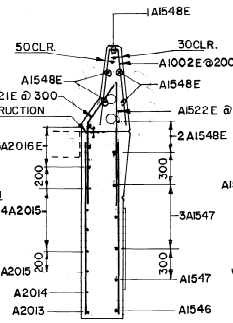

SECTION 4
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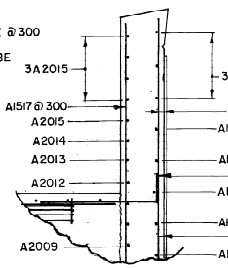

SECTION 5
1:25

NOTE EPOXY COATED REINFORCING BARS ARE IDENTIFIED BY SYMBOL 'E' IN BAR SCHEDULE SHEETS 11 & 12

Public Works Canada / Travaux publics Canada

Western Region

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1	84 05 23	JB	SB	PVC DUCTS ADDED

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Drawn by / Dessiné par: B. M.
Date: NOV. 83
Checked by / Vérifié par
Date
Approved by / Approuvé par
Date

ASSOCIATED ENGINEERING SERVICES LTD. AESL

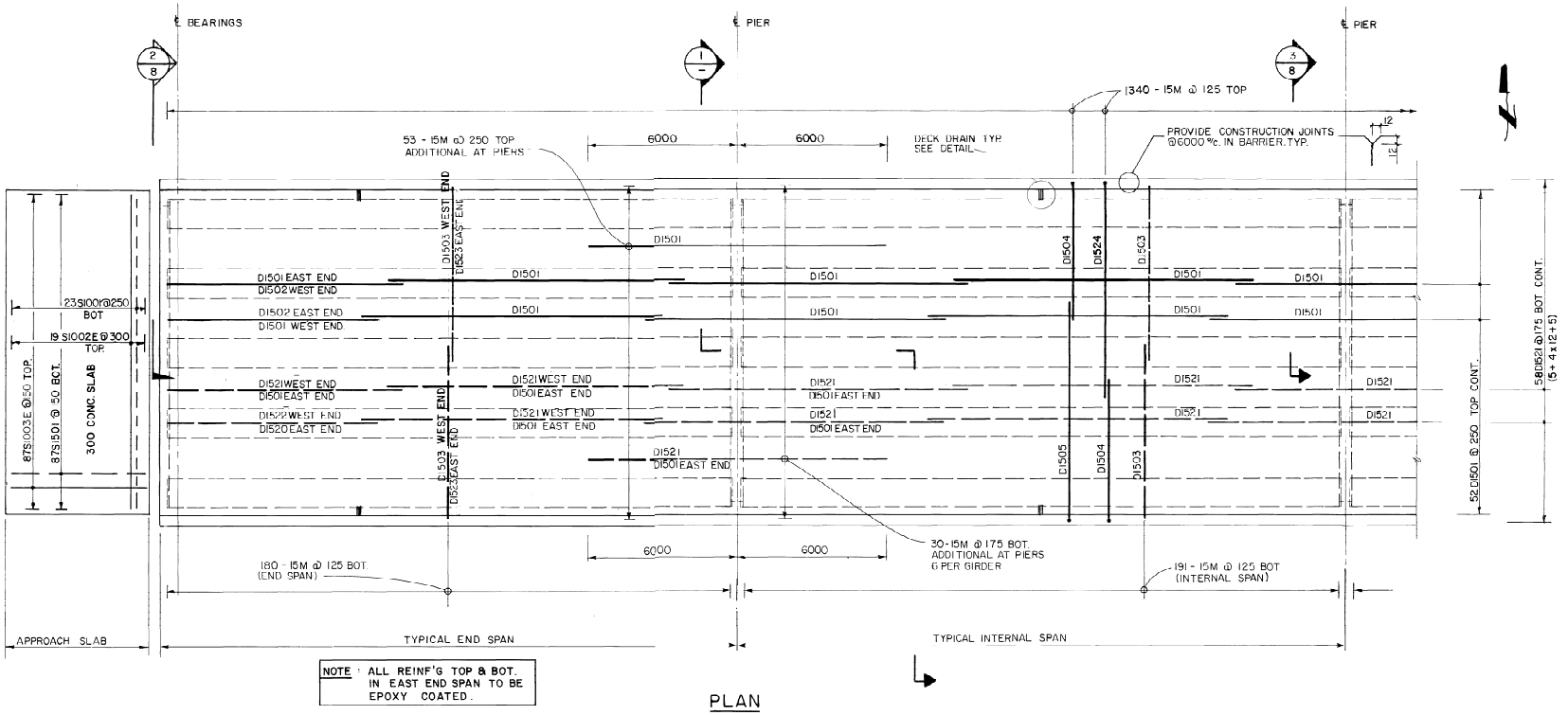
ABUTMENTS REINFORCING PLANS AND SECTIONS

"AA005548"

PROFESSIONAL ENGINEER

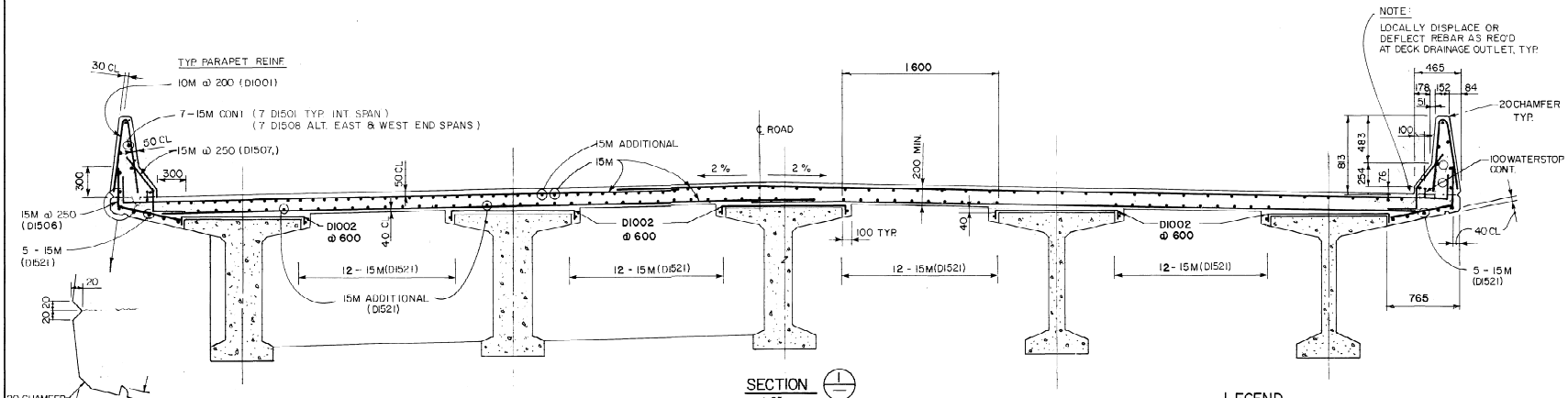
DATA ENTERED P 14 ASSOCIATED ENGINEERING

Horizontal Scale / Echelle horizontale
Vertical Scale / Echelle verticale
NTS. No. / STN. No.
Drwg. No. / Dessin No.
Sheet / Feuille 6 of / de 14



NOTE : ALL REINF'G TOP & BOT. IN EAST END SPAN TO BE EPOXY COATED.

PLAN
1:100



SECTION
1:25

(A) PLACE FIRST, EITHER SIMULTANEOUSLY OR SEQUENTIALLY.

(B) PLACED FOLLOWING (A), EITHER SIMULTANEOUSLY OR SEQUENTIALLY. (SEE NOTE 6 DWG 9)

DECK CONCRETING SEQUENCE

LEGEND

——— TOP FACE REBAR

— — — BOTTOM FACE REBAR.

NOTES:

1. ALL LAPS TO BE ALTERNATELY STAGGERED BY 1000 MIN. UNLESS NOTED OTHERWISE.
2. SPLICE LENGTH TO BE 650 UNLESS NOTED OTHERWISE
3. EPOXY COATED REINFORCING BARS ARE IDENTIFIED BY SYMBOL 'E' IN BAR SCHEDULE SHEETS 11 & 12.

Public Works Canada / Travaux publics Canada

Western Region

Project / Projet: STRUCTURE OVER BOW RIVER & C.P.R. MAINLINE, TRANS CANADA HIGHWAY km 23 BANFF NATIONAL PARK.

Project No. / Projet No.: 003875

REV	DATE	DWN	ENG	REVISION DESCRIPTION
1	84 05 23	JB	SB	PVC DUCTS ADDED

Compiled by / Compilé par

Horizontal Scale / Echelle horizontale: AS SHOWN

Contour Interval / Equidistance

Compilation Photos / Photos de compilation

Photo Scale / Echelle photographique

Drawn by / Dessiné par: C.C.

Date: NOV. 83

Checked by / Verifié par

Date

Approved by / Approuvé par

Date

ASSOCIATED ENGINEERING SERVICES LTD AESL

PARTIAL DECK PLAN & SECTION

AA005549

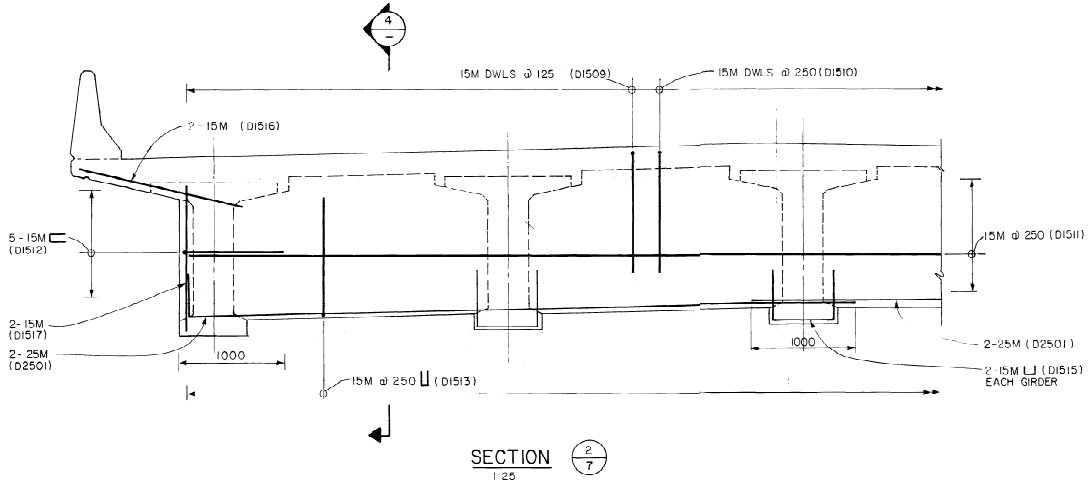
Horizontal Scale / Echelle horizontale

Vertical Scale / Echelle verticale

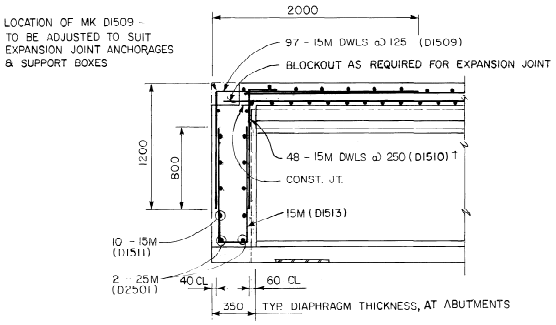
NTS. No. / STN. No.

Dwg. No. / Dessin No.

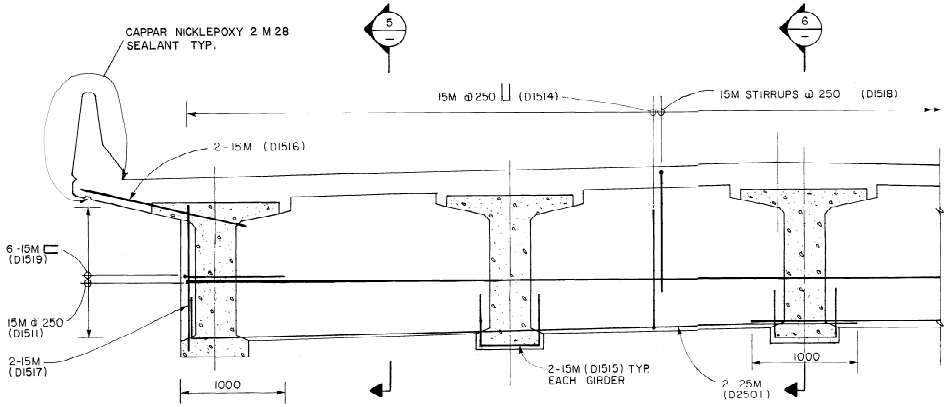
Sheet / Feuille 7 of / de 14



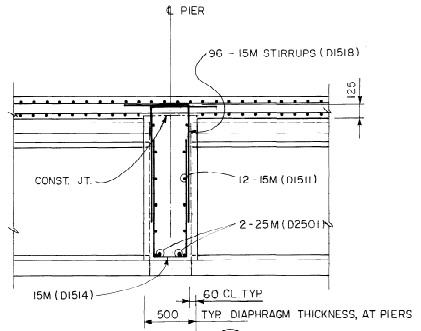
SECTION 2/7
1:25



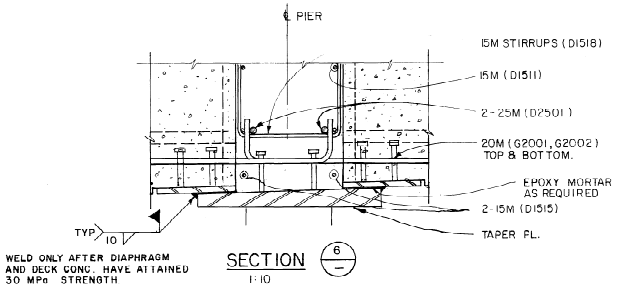
SECTION 4/-
1:25



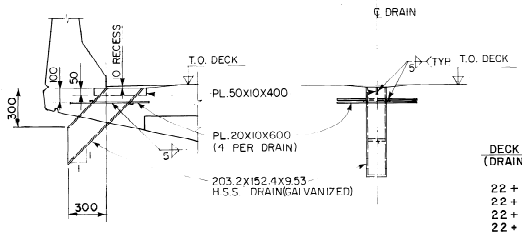
SECTION 3/7
1:25



SECTION 5/-
1:25



SECTION 6/-
1:10



SECTION AT PARAPET

END VIEW

DECK DRAIN DETAILS
1:20

DECK DRAIN LOCATION CHAINAGE
(DRAIN EACH SIDE OF ROADWAY)

22 + 874.377
22 + 896.723
22 + 929.242
22 + 953.588
22 + 977.934
23 + 002.280
23 + 032.799

Public Works Canada / Travaux publics Canada

Western Region

Project: STRUCTURE OVER BOW RIVER & C.P.R. MAINLINE, TRANS CANADA HIGHWAY km 23 BANFF NATIONAL PARK.

Project No.: 003875

Compiled by:

Horizontal Scale: AS SHOWN

Contour Interval: Equidistance

Completion Photos:

Photo Scale:

Drawn by: C.C.

Date: NOV. 83

Checked by:

Date:

Approved by:

Date:

ASSOCIATED ENGINEERING SERVICES LTD. AESL

DIAPHRAGM SECTIONS & DETAILS

AA005550

PROFESSIONAL ENGINEERS PROVINCE OF ALBERTA

THE ASSOCIATION OF PROFESSIONAL ENGINEERS OF ALBERTA PERMIT NUMBER P 104 ASSOCIATED ENGINEERING SERVICES LTD.

Horizontal Scale:

Vertical Scale:

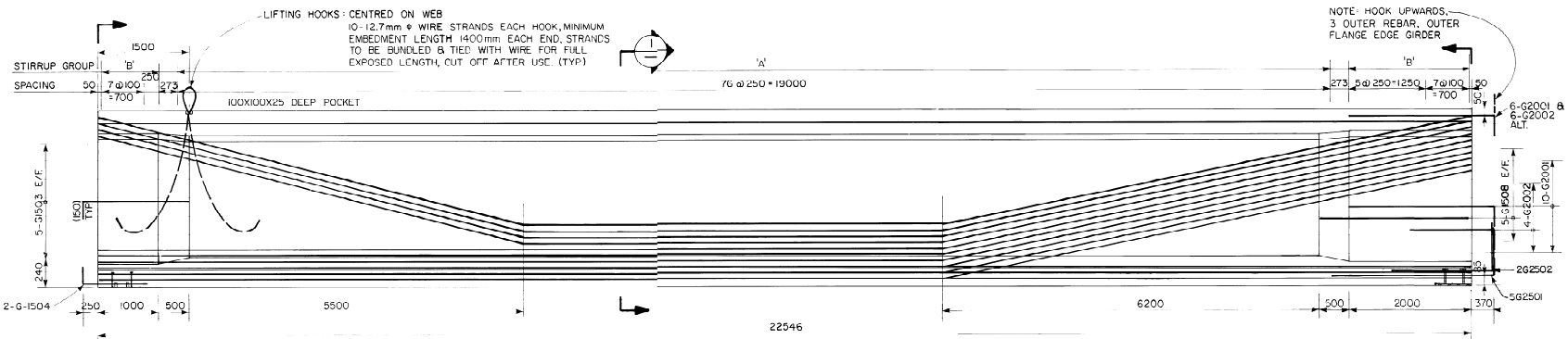
NTS. No.:

STN. No.:

Drwg. No.:

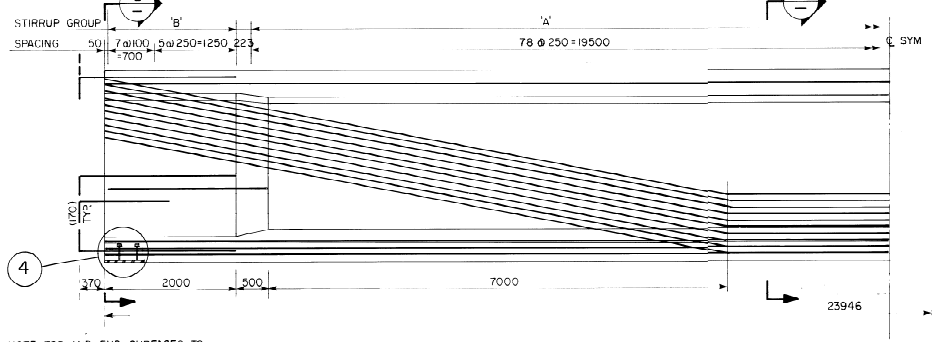
Dessein No.:

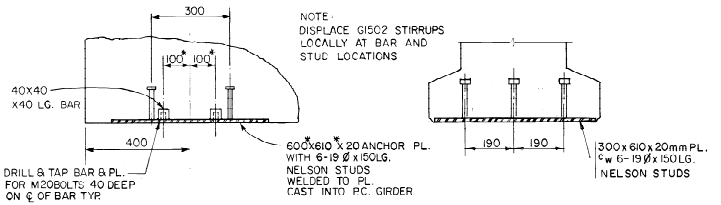
Sheet: 8 of 14



END SPAN GIRDER (10 NO. REQUIRED)

VERTICAL 1:20, HORIZONTAL 1:40





BEARING PLATE (1:10)

END SPAN GIRDER ABUTMENT END

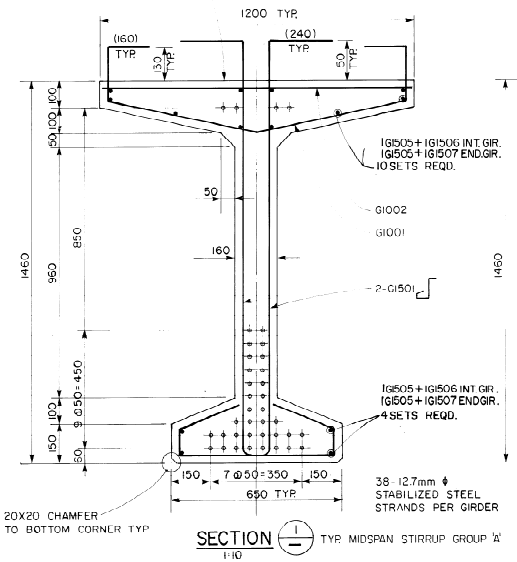
NOTE: * CHECK THESE DIMENSIONS WITH BEARING SUPPLIER PRIOR TO MANUFACTURE, ADJUST ACCORDINGLY.

DETAIL 1 / 1:10

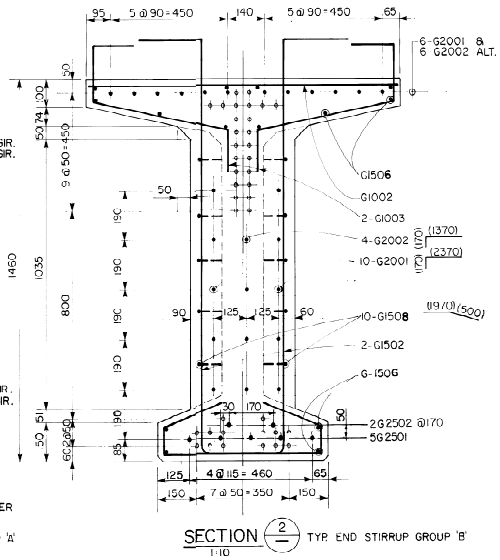
NOTE: TOP AND END SURFACES TO BE ROUGHENED WITH AVERAGE AMPLITUDE OF 5mm

INTERIOR GIRDER (25 NO. REQUIRED)

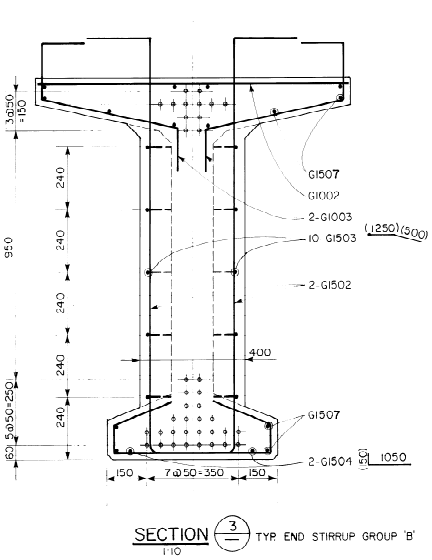
VERTICAL 1:20, HORIZONTAL 1:40



SECTION 1 / 1:10 TYP. MIDSPAN STIRRUP GROUP 'A'



SECTION 2 / 1:10 TYP. END STIRRUP GROUP 'B'



SECTION 3 / 1:10 TYP. END STIRRUP GROUP 'B'

NOTE: 1. SPLICE LENGTH 600 MIN.
2. COVER 25 MIN. UNLESS NOTED

NOTES:

1. ALL PRESTRESSING STRANDS SHALL BE LOW RELAXATION 7-WIRE, UNCOATED, 12.7mm, DIAMETER STABILIZED STEEL STRANDS WITH A SPECIFIED MINIMUM TENSILE STRENGTH OF 1862 MPa
2. ALL REINFORCING STEEL SHALL BE DEFORMED BARS MEETING THE REQUIREMENTS OF CSA STANDARD G.30.12.M. GRADE 400 MPa
3. THE MINIMUM CONCRETE COVER TO ALL REINFORCING BARS SHALL BE 25mm. UNLESS NOTED
4. PRESTRESSING STRANDS SHALL PROVIDE A PRESTRESSING FORCE OF 148 KN PER STRAND, AT RELEASE.
5. THE CONCRETE SHALL ATTAIN THE FOLLOWING MINIMUM COMPRESSIVE STRENGTHS:
   (a) 30 MPa AT TRANSFER.
   (b) 40 MPa AT 28 DAYS.
6. FINAL ESTIMATED PRESTRESSING FORCE AFTER LOSSES = 108 kN/STRAND
7. EXPECTED NET CAMBER AT RELEASE = 14mm (INT.), 13mm (END). EXPECTED NET GIRDER CAMBER AT ERECTION = 6mm (INT.), 4mm (END). (AFTER DECK PLACEMENT)
8. TACK WELDING OF REINFORCEMENT IS NOT PERMITTED.

Public Works Canada / Travaux publics Canada

Western Region

Project: STRUCTURE OVER BOW RIVER & C.P.R. MAINLINE, TRANS CANADA HIGHWAY Km 23 BANFF NATIONAL PARK.

Project No. 003875

Horizontal Scale: AS SHOWN

Drawn by: C.C.

Date: NOV. 83

ASSOCIATED ENGINEERING SERVICES LTD. AESL

PRESTRESSED GIRDER DETAILS

AA005551

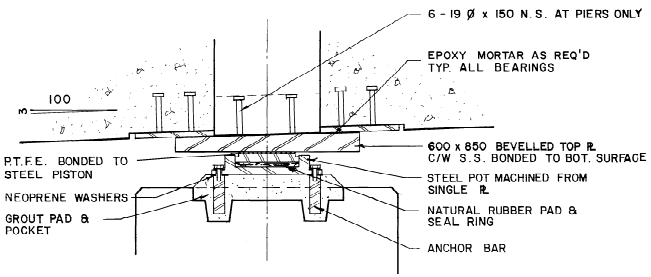
PROFESSIONAL ENGINEER S. BALAKRISHNAN

PROVINCE OF ALBERTA PERMIT NUMBER P 104

Sheet 9 of 14

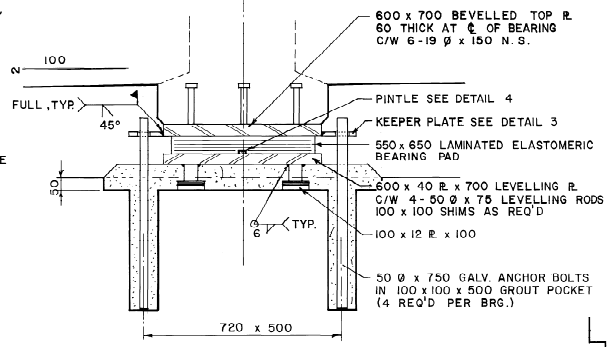
1 of 1

DESIGN SERVICE LOADS FOR BEARINGS , PER BEARING	
VERTICAL DEAD LOAD + LIVE LOAD AT PIERS	1300 kN
VERTICAL DEAD LOAD + LIVE LOAD AT ABUTMENTS	860 kN
LATERAL OR LONGITUDINAL LOAD AT FIXED PIERS	200 kN

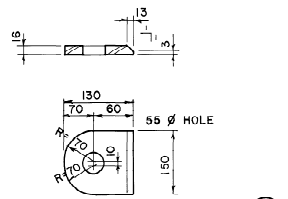


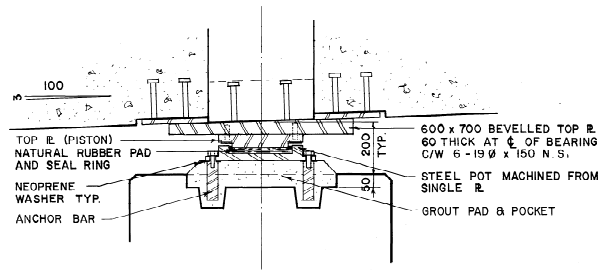
NOTE: ABUTMENT BEARING SIMILAR EXCEPT CONNECT. OF BEVELLED PL. TO SOLE PL. IN GIRDERS.

SLIDING POT BEARING SECTION 1/2

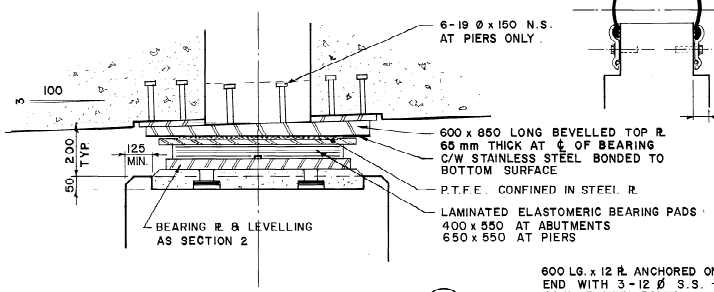


FIXED ELASTOMERIC BEARING SECTION 2/2

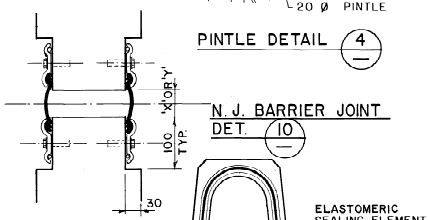


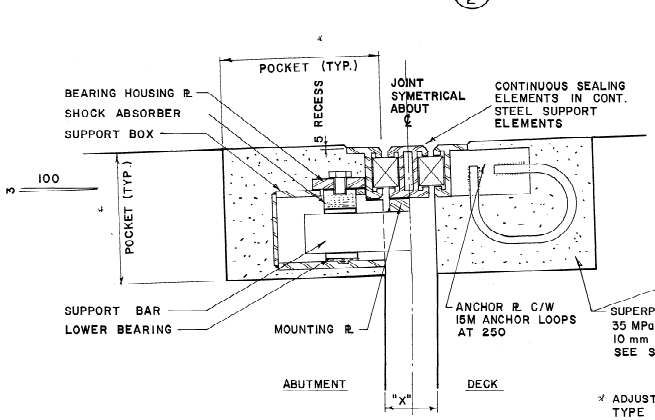


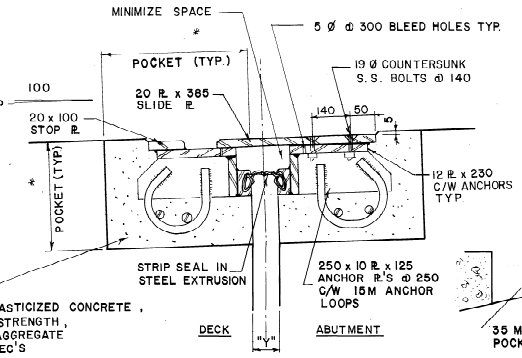
FIXED POT BEARING SECTION 5/2



SLIDING ELASTOMERIC BEARING SECTION 6/2







* ADJUST TO SUIT JOINT TYPE USED.

GAP SETTING TABLE — WEST ABUTMENT							
TEMPERATURE °C	-30	-20	-10	0	10	20	30
GAP DIMENSION "X"	135	120	105	90	75	60	45

WEST ABUTMENT EXPANSION JOINT SECTION 7/—

GAP SETTING TABLE — EAST ABUTMENT							
TEMPERATURE °C	-30	-20	-10	0	10	20	30
GAP DIMENSION "Y"	94	86	78	70	62	54	46

EAST ABUTMENT EXPANSION JOINT SECTION 8/—

EXPANSION JOINT AT N.J. BARRIER SECTION 9/—

Public Works Canada / Travaux publics Canada

Western Region

Project / Projet: STRUCTURE OVER BOW RIVER & C.P.R. MAINLINE, TRANS CANADA HIGHWAY km 23 BANFF NATIONAL PARK.

Project No. / Projet No.: 003875

NOTE:
FOR EXPANSION JOINT & BEARING DETAILS:
SEE SHOP DRAWINGS NO.
W84-246 (3 sheets) — W.G. BEARINGS
E 3524 (8 sheets) — ELASTOMETAL LTD.

REV.	DATE	DWN	ENG	REVISION DESCRIPTION
1	89 06 22	J.B	S.B	PVC DUCTS ADDED

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Horizontal Scale / Échelle horizontale: AS SHOWN
Contour Interval / Équidistance
Compilation Photos / Photos de compilation
Photo Scale / Échelle photographique

Drawn by / Dessiné par: J.B.
Date: NOV. 83
Checked by / Vérifié par
Date
Approved by / Approuvé par
Date

ASSOCIATED ENGINEERING SERVICES LTD AESL

EXPANSION JOINT & BEARING DETAILS

"AA005552"

THE ASSOCIATION OF PROFESSIONAL ENGINEERS OF ALBERTA PERMIT NUMBER P 156 ASSOCIATED ENGINEERING SERVICES LTD

Horizontal Scale / Échelle horizontale
Vertical Scale / Échelle verticale
NTS. No. / STN. No.
Drwg. No. / Dessin No.
Sheet / Feuille 10 of / de 14

MARK	SIZE	COAT	NO	LENGTH	SHAPE	LOCATION
F1501	15M	-	234	3400	STRAIGHT.	PIERS 1,2 & 3 TOP FOOTING.
F1502	15M	-	36	11500	"	PIERS 4,5 & 6 10M. FOOTING
F3001	30M	-	234	4180	390 / 3400 / 390	PIERS 1 TO 6 INC. BOTTOM FOOTING
F3002	30M	-	72	12280	390 / 11500 / 390	"
F3003	30M	-	412	327[illegible]	310 / 2700	PIERS 4,5 & 6 DWL'S.
F3501	35M	-	36	11500	STRAIGHT.	PIERS 1,2 & 3. TOP FOOTING.
F3502	35M	-	84	3850	550 / 3400	PIERS 2 & 3. DWL'S.
F3503	35M	E	32	55[illegible]	550 / 500	PIER 1 INNER DWL'S.
F3504	35M	-	76	6010	550 / 5500	PIERS 2 & 3 INNER DWL'S.
F3505	35M	E	36	3850	550 / 3400	PIER 1 DWL'S.
W1501	15M	-	112	9400	STRAIGHT.	PIERS 4,5 & 6 HORIZ.
W1502	15M	-	197	2100	600 / 900 / 600	PIERS 4,5 & 6 TOP HORIZ.
W1503	15M	-	112	2710	R= 420 / 650 / 900	PIERS 4,5 & 6 HORIZ.
W2501	25M	-	4	9400	STRAIGHT.	PIERS 4 & 5 TOP HORIZ.
W2502	25M	-	6	10000	"	"
W2503	25M	-	24	4500	400 / 4100	PIER 6 INNER DWL'S.
W3001	30M	-	300	4450	STRAIGHT.	PIERS 4 & 5 VERT.
W3002	30M	-	112	2450	"	PIER 6 VERT.
W3003	30M	-	2	9400	"	PIER 6 TOP HORIZ.
W3004	30M	-	3	10000	"	"
W3005	30M	-	24	7410	510 / 6900	PIER 4 INNER DWL'S.
W3501	35M	-	24	7010	510 / 6500	PIER 5 INNER DWL'S.
W3502	35M	-	40	5[illegible]0	510 / 4500	PIERS 4 & 5 INNER DWL'S
W3503	35M	-	144	4[illegible]0	510 / 3600	PIERS 4,5 & 6 MAIN DWL'S.
P1501	15M	-	564	2550	975 / 600 / 975	PIERS 2 TO 6 INC. TIES IN PAIRS
P1502	15M	-	564	2340	975 / 390 / 975	"
P1503	15M	-	200	1400	550 / 300 / 550	PIER 3. TIES IN PAIRS.

MARK	SIZE	COAT	NO	LENGTH	SHAPE	LOCATION
P1504	15M	-	282	1630	1270 / 180 / 180	PIERS 2 TO 6 INC. TIES.
P1505	15M	-	928	1470	550 / 370 / 550	PIERS 2 TO 6 INC. TIES IN PAIRS.
P1506	15M	E	88	2550	975 / 600 / 975	PIER 1 TIES IN PAIRS.
P1507	15M	E	88	2340	975 / 390 / 975	"
P1508	15M	E	176	1400	550 / 300 / 550	"
P1509	15M	E	44	1630	1270 / 180 / 180	"
P3501	35M	E	36	6300	STRAIGHT.	PIER 1 VERTICAL.
P3502	35M	-	84	7300	"	PIERS 2 & 3 VERTICAL.
P3503	35M	-	48	9500	"	PIER 4. VERTICAL.
P3504	35M	-	48	8770	"	PIER 5. VERTICAL.
P3505	35M	-	48	8050	"	PIER 6 VERTICAL.
B1001	10M	E	20	3500	700 / 900	PIER 1. TIES @ BEARINGS.
B1002	10M	-	125	3500	700 / 900	PIERS 2 TO 6 INC. TIES @ BEARINGS.
B1501	15M	E	4	1800	600 / 1650 / 120	PIER 1 BOT. HORZ. 2 EA. END.
B1502	15M	E	4	2100	600 / 1800 / 150	PIER 1 BOT. HORZ. 2 EA. END
B1503	15M	E	8	1800	900 / 900	PIER 1 BOT. 4 EA. END
B1504	15M	E	6	11850	STRAIGHT.	PIER 1 3 - EA SIDE.
B1505	15M	E	118	2770	900 / 935 / 935	PIER 1 TIES IN PAIRS.
B1506	15M	-	20	1800	600 / 1650 / 120	PIERS 2 TO 6 INC. BOT. HORZ. 2 EA. END
B1507	15M	-	20	2100	600 / 1800 / 150	"
B1508	15M	-	40	1800	900 / 900	PIERS 2 TO 6 INC. BOT. 4 EA. END
B1509	15M	-	30	11850	STRAIGHT.	PIERS 2 TO 6 INC. 3 EA SIDE.
B1510	15M	-	590	2770	900 / 935 / 935	PIERS 2 TO 6 INC. TIES IN PAIRS.
B1511	15M	E	20	250	STRAIGHT.	PIER 1. @ BEARINGS
B1512	15M		140	1450	"	PIERS 2 TO 6 INC. @ BEARINGS
B2001	20M	E	4	9100	400 / 8300 / 400	PIER 1 TOP.
B2002	20M	E	20	5460	R= 420 / 3850 / 200 / 900	PIER 1 HORZ. TIES 10 EA. END
B2003	20M	-	20	9100	400 / 8300 / 400	PIER 2 TO 6 INC. TOP
B2004	20M	-	100	5460	R= 420 / 3850 / 200 / 900	PIER 2 TO 6 INC. HORZ. TIES 10 EA. END
B3001	30M	E	8	9400	STRAIGHT.	PIER 1 BOT. LOWER LAYER
B3002	30M	E	8	8100	"	PIER 1 BOT. UPPER LAYER
B3003	30M		40	9400	"	PIERS 2 TO 6 INC. BOT LOWER LAYER
B3004	30M		40	8100	"	PIERS 2 TO 6 INC. BOT UPPER LAYER

MARK	SIZE	COAT	NO	LENGTH	SHAPE	LOCATION
B3501	35M	E	2	13050	600 / 11850 / 600	PIER 1 TOP
B3502	35M	E	2	13650	600 / 12350 / 600	PIER 1 TOP.
B3503	35M	E	4	13750	600 / 12550 / 600	PIER 1 TOP.
B3504	35M	-	10	13050	600 / 11850 / 600	PIERS 2 TO 6 INC. TOP
B3505	35M	-	10	13550	600 / 12350 / 600	"
B3506	35M	-	20	13750	600 / 12550 / 600	"
B3507	35M	-	84	900	STRAIGHT.	PIERS 1 TO 6 INC. SPACERS.
D1001	10M	E	1680	1575.	226 / 230 / 430 / 72	DECK. PARAPET.
D1002	10M	-	1400	1450	150 / 1300 / 75	DECK. TOP OF GIRDERS.
D1501	15M	E	1465	12000	STRAIGHT.	DECK & PARAPET.
D1502	15M	E	52	8430	"	DECK.
D1503	15M	-	2270	6830	"	DECK.
D1504	15M	E	1343	6110	5850 / 260	DECK.
D1505	15M	E	672.	8910	62 / 1500 / 7100 / 260	DECK.
D1506	15M	E	1344	1120	710 / 410 / 150	DWL'S @ PARAPET
D1507	15M	E	1344	970	300 / 423 / 360	" "
D1508	15M	E	16	8830	STRAIGHT.	PARAPET.
D1509	15M	E	210	3130	2000 / 1130	END DIAPHRAGM.
D1510	15M	E	96	1390	1130 / 260	"
D1511	15M	-	92	11700	STRAIGHT.	DIAPHRAGM.
D1512	15M	-	20	2220	1000 / 250	END DIAPHRAGM.
D1513	15M	-	96	2490	1120 / 350	"
D1514	15M	-	288	2620	1120 / 350	INTERIOR DIAPHRAGM.
D1515	15M	-	80	1550	500 / 350	DIAPHRAGM.
D1516	15M	E	32	1600	STRAIGHT	"
D1517	15M	-	32	1400	"	"
D1518	15M	E	576	1780	650 / 1130	INTERIOR DIAPHRAGM.
D1519	15M	-	72	2350	1000 / 350	"
D1520	15M	E	29	8630	STRAIGHT.	DECK.
D1521	15M	-	820	12000	"	"
D1522	15M	-	29	8630	"	"
D1523	15M	E	360	6830	"	"
D1524	15M	E	672	8910	260 / 6600 / 250 / 82	"
D2501	25M	-	32	6780	6380 / 400	DIAPHRAGMS.

Public Works Canada / Travaux publics Canada

Western Region

Project / Projet: STRUCTURE OVER BOW RIVER & C.P.R. MAINLINE, TRANS CANADA HIGHWAY Km 23 BANFF NATIONAL PARK.

Project No. / Projet No.: 003875

Compiled by / Compilé par

Horizontal Scale / Echelle horizontale: NONE

Contour Interval / Equidistance

Compilation Photos / Photos de compilation

Photo Scale / Echelle photographique

Drawn by / Dessiné par: B. M.

Date: NOV. 83

Checked by / Verifié par

Date

Approved by / Approuvé par

Date

ASSOCIATED ENGINEERING SERVICES LTD AESL

REINFORCING SCHEDULE
SHEET - 1

AA005553

Horizontal Scale / Echelle horizontale

Vertical Scale / Echelle verticale

NTS. No. / STN. No.

Drwg. No. / Dessin No.

Sheet / Feuille 11 of / de 14

MARK	SIZE	COAT	NO.	LENGTH	SHAPE	LOCATION
A1501	15M	-	24	14800	300 / 14200 / 300	EAST & WEST ABUTMENT FOOTINGS
A1502	15M	-	28	14200	STRAIGHT	"
A1503	15M	-	96	4900	750 / 3400 / 750	"
A1504	15M	-	34	3300	3000 / 300	"
A1505	15M	-	48	12900	STRAIGHT	"
A1506	15M	-	88	2600	350 / 1800 / 250	EAST & WEST ABUTMENT WALL
A1507	15M	-	20	2750	STRAIGHT.	"
A1508	15M	-	20	3500	3200 / 300	"
A1509	15M	-	10	3300	300 / 2700 / 300	"
A1510	15M	E	88	2400	STRAIGHT.	"
A1511	15M	-	88	3450	2150 / 1300 / 920.	"
A1512	15M	-	88	1930	410 / 100 / 140 / 700 * TO SUIT SKEWED SHEET.	"
A1513	15M	E	88	1700	184 / 350 / 750 * TO SUIT SKEWED SHEET.	"
A1514	15M	-	96	1450	1150 / 300	E & W. ABUTMENT WING WALL DWLS
A1515	15M	-	40	2100	750 / 600 / 750	E & W. ABUTMENT SHEAR BLOCKS.
A1516	15M	-	8	3540	750 / 2040 / 750	"
A1517	15M	-	32	2500	STRAIGHT.	E & W ABUTMENT WING WALLS.
A1518	15M	-	32	2800	"	"
A1519	15M	E	12	12900	"	"
A1520	15M	E	28	1450	1150 / 300	"
A1521	15M	E	80	1200	750 / 480 / 258.	"
A1522	15M	E	80	1250	STRAIGHT	"
A1523	15M	-	8	3450	"	"
A1524	15M	-	8	3310	"	"
A1525	15M	-	8	3170	"	"
A1526	15M	-	8	3030	"	"
A1527	15M	-	8	2890	"	"
A1528	15M	-	8	2750	"	"
A1529	15M	-	8	2610	"	"
A1530	15M	-	8	2470	"	"
A1531	15M	-	8	2330	"	"
A1532	15M	-	8	2190	"	"
A1533	15M	-	8	2050	"	"
A1534	15M	-	8	1910	"	"
A1535	15M	-	8	1770	"	"
A1536	15M	-	8	1630	"	"
A1537	15M	-	8	1490	"	"
A1538	15M	-	8	1350	"	"

MARK	SIZE	COAT	NO	LENGTH	SHAPE	LOCATION
A1539	15M	-	10	2350	STRAIGHT.	E&W ABUTMENT WING WALLS.
A1540	15M	-	4	2950	"	"
A1541	15M	-	4	3550	"	"
A1542	15M	-	4	4150	"	"
A1543	15M	-	4	4750	"	"
A1544	15M	-	4	5350	"	"
A1545	15M	-	4	5950	"	"
A1546	15M	-	4	6550	"	"
A1547	15M	-	20	7150	"	"
A1548	15M	E	28	5875	"	"
A1549	15M	E	88	1000	500 / 300 / 250	E&W ABUTMENT TOP OF WALL.
A1550	15M	E	4	13000	34 / 12850 / 12700 / 34	E&W ABUTMENT TOP OF WALL
A1551	15M	-	40	250	STRAIGHT.	E&W. ABUTMENT @ BEARINGS
A1001	10M	-	36	900	300 / 300	E&W. ABUTMENT WALL
A1002	10M	E	124	1572.	226 / 750 / 450 / 72	E&W ABUTMENT WING WALLS
A1003	10M	-	40	3500	700 / 200	E&W. ABUTMENT @ BEARINGS.
A2001	20M	-	96	4900	750 / 3400 / 750	E&W ABUTMENT FOOTINGS.
A2002	20M	-	8	3000	STRAIGHT.	E&W ABUTMENT WING WALLS.
A2003	20M	-	14	2350	"	"
A2004	20M	-	4	2750	"	"
A2005	20M	-	4	3150	"	"
A2006	20M	-	4	3550	"	"
A2007	20M	-	4	3950	"	"
A2008	20M	-	4	4350	"	"
A2009	20M	-	4	4750	"	"
A2010	20M	-	4	5150	"	"
A2011	20M	-	4	5550	"	"
A2012	20M	-	4	5950	"	"
A2013	20M	-	4	6350	"	"
A2014	20M	-	4	6750	"	"
A2015	20M	-	28	7150	"	"
A2016	20M	-	12	5900	"	"
A2017	20M	-	98	3300	300 / 3000	EAST & WEST ABUTMENT WALLS.

MARK	SIZE	COAT	NO	LENGTH	SHAPE	LOCATION
S1001	10M	-	46	12900	STRAIGHT.	EAST & WEST APPROACH SLABS.
S1002	10M	E	38	12900	"	"
S1003	10M	E	174	5450	"	"
S1501	15M	-	174	5450	STRAIGHT.	EAST & WEST APPROACH SLABS.
CW1501	15M	E	44	1475	STRAIGHT.	CRASH WALL PIER 1
CW1502	15M	-	44	2475	"	CRASH WALL PIER 2.
CW1503	15M	E	22	1370	400 / 570 / 400	CRASH WALL PIER 1
CW1504	15M	-	22	1370	400 / 570 / 400	CRASH WALL PIER 2.
CW201	20M	E	8	7400	STRAIGHT.	CRASH WALL PIER 1
CW202	20M	-	14	7400	"	CRASH WALL PIER 2.
G1001	10M	E	2745	1904	122 / 205 / 160 / 582 / 160 / 687 / 205	GIRDERS.
G1002	10M	-	3625	1180	STRAIGHT	"
G1003	10M	E	1760	1155	0 / 260 / 160 / 530 / 205	"
G1501	15M	E	5480	2530	94 / 250 / 385 / 345 / 240	GIRDERS.
G1502	15M	E	1760	2635	94 / 250 / 460 / 345 / 240	"
G1503	15M	-	100	1900	1250 / 300 / 120 / 150 / PLAN VIEW.	"
G1504	15M	-	20	1200	150 / 1050	"
G1505	15M	-	490	12000	STRAIGHT.	12000 + 11100 @ END GIRDER.
G1506	15M	-	350	12500	"	12000 + 12500 @ INTERIOR GIRDER.
G1507	15M	-	140	11100	"	
G1508	15M	-	600	2470	1370 / 600 / 120	"
G2001	20M	-	960	2540	2370	GIRDERS.
G2002	20M	-	600	1540	1370	"
G2501	25M	-	300	3010	2670	
G2502	25M	-	120	1060	1170	

Public Works Canada / Travaux publics Canada

Western Region

Project / Projet: STRUCTURE OVER BOW RIVER & C.P.R. MAINLINE, TRANS CANADA HIGHWAY km 23 BANFF NATIONAL PARK.

Project No. / Projet No.: 003875

REV	DATE	DWN	ENG	REVISION DESCRIPTION
1	04 05 23	JD	SB	CRASH WALL REINF'G ADDED

Compiled by / Compilé par

Horizontal Scale / Echelle horizontale: NONE

Contour Interval / Equidistance

Compilation Photos / Photos de compilation

Photo Scale / Echelle photographique

Drawn by / Dessiné par: B. M.

Date: NOV. 83

Checked by / Verifié par

Date

Approved by / Approuvé par

Date

ASSOCIATED ENGINEERING SERVICES LTD AESL

REINFORCING SCHEDULE
SHEET - 2

AA005554

PROFESSIONAL ENGINEER

PROVINCE OF ALBERTA
PERMIT NUMBER
P 104
ASSOCIATION OF PROFESSIONAL ENGINEERS, GEOLOGISTS AND GEOPHYSICISTS OF ALBERTA

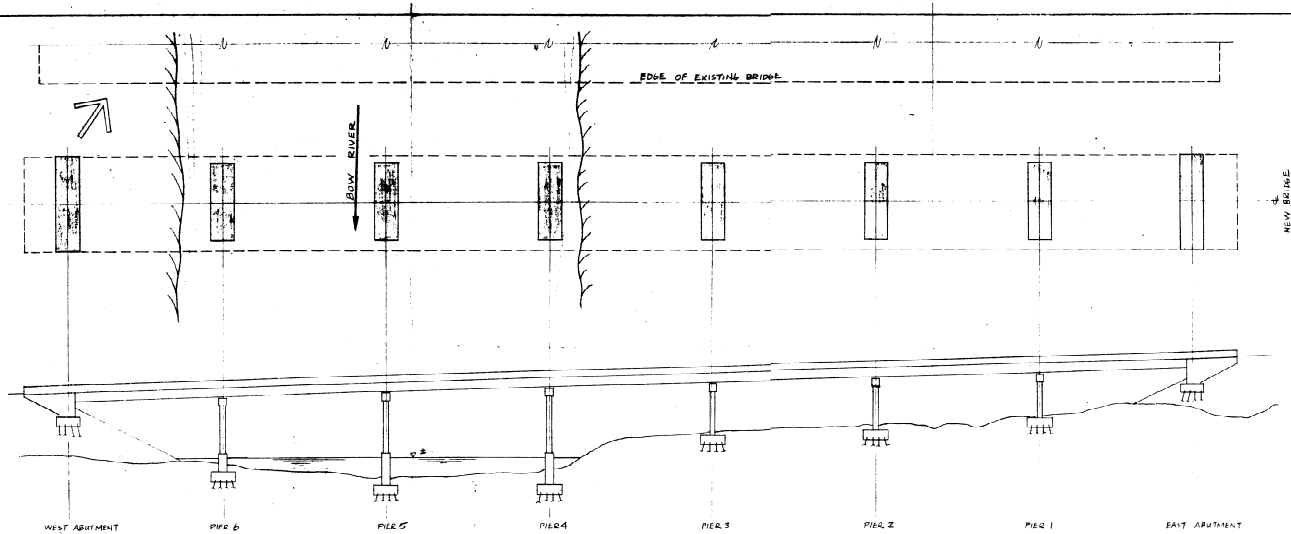
Horizontal Scale / Echelle horizontale

Vertical Scale / Echelle verticale

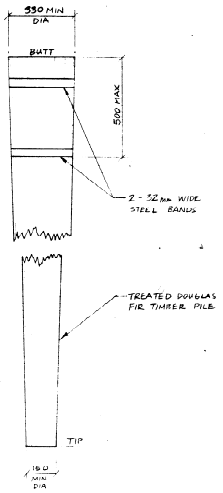
NTS. No. / SNT. No.

Drwg. No. / Dessin No.

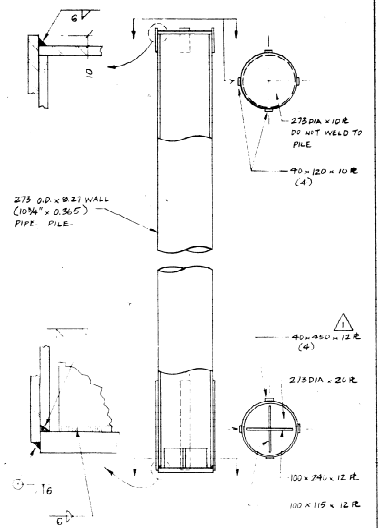
Sheet / Feuille 12 of / de 14



BRIDGE PLAN & ELEVATION
1:300



TIMBER PILE DETAILS
1:10

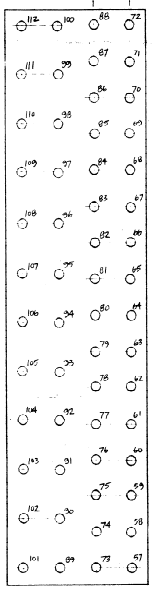


PIPE PILE DETAILS
1:10

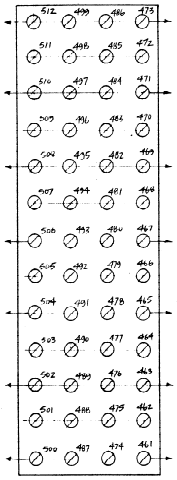
RATTER ALL PILES IN FRONT TWO ROWS 1:4

1:4 RATTERED PILE (TYP)

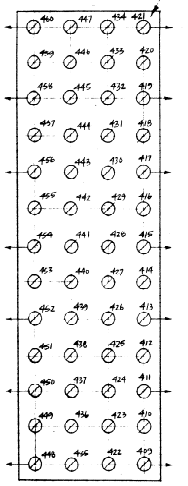
PIPE PILES NUMBERED 1 - 112. ; TOTAL PIPE PILES = 112.
TIMBER PILES NUMBERED 201 - 512 ; TOTAL TIMBER PILES = 312
424



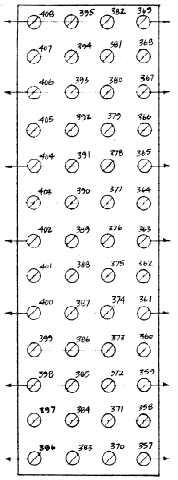
WEST ABUTMENT
PILE COE = 1385.933
PILE LENGTH = 17m



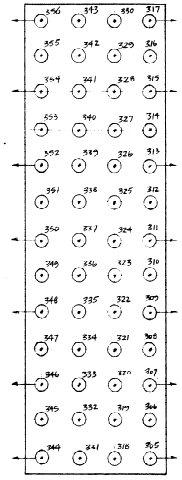
PIER 6
PILE COE = 1378.158
PILE LENGTH = 15m



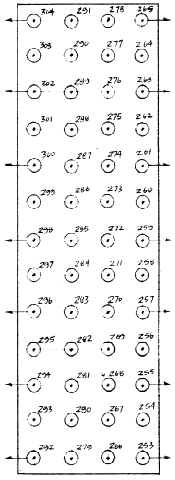
PIER 5
PILE COE = 1376.158
PILE LENGTH = 15m



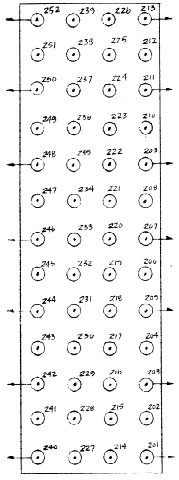
PIER 4
PILE COE = 1376.158
PILE LENGTH = 15m



PIER 3
PILE COE = 1383.933
PILE LENGTH = 12m

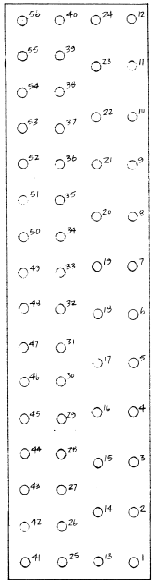


PIER 2
PILE COE = 1384.326
PILE LENGTH = 12m



PIER 1
PILE COE = 1386.056
PILE LENGTH = 12m

RATTER ALL PILES IN FRONT TWO ROWS 1:4



EAST ABUTMENT
PILE COE = 1390.926
PILE LENGTH = 19m ⚠1

⊙ - 273 O.D. x 9.27 WALL STEEL PIPE PILE
WEST ABUTMENT - 17m LONG
EAST ABUTMENT - 14m LONG

⌀ - 330 DIA TREATED TIMBER PILE
PIERS 4, 5, 6 - 15m LONG

⊙ - 330 DIA TREATED TIMBER PILES
PIERS 1, 2, 3 - 12m LONG

PILE FOUNDATION PLAN
1:50

NOTES -

1. REFER TO PUBLIC WORKS CANADA DRAWINGS & SPECIFICATIONS FOR COMPREHENSIVE NOTES & DETAILS
2. MATERIAL SPECIFICATION -

PIPE PILES: 273mm O.D. x 9.27mm WALL TO ASTM A252, GRADE 2 (B2)

TIMBER PILES: 330 DIA BUTT MIN, 180 DIA TIP MIN, DOUGLAS FIR TO CAN 3 - 056 - M79 & TREATED TO CSA 080 - 1974 + APPLICABLE SUPPLEMENTS.

APPROVED J. Williamson
DATE 18/3/94

NO	REVISION	DATE
2	ADE REVIEW	94.3.15
⚠1	PIPE PILE BOT. ℓ & E. ABUT. PILE LENGTH	94.3.15

BOW RIVER BRIDGE II
KM 23 - TRANS-CANADA HIGHWAY
BANFF NATIONAL PARK

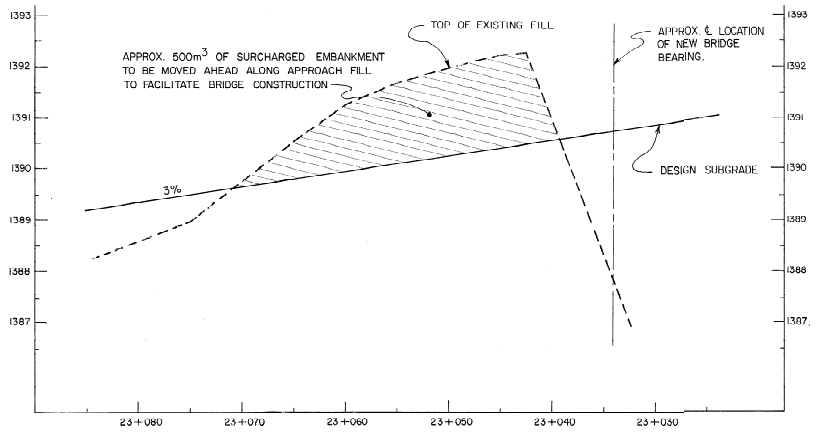
PILE FOUNDATION PLAN

PEIKIFOND FOUNDATION MIDWEST LIMITED
CALGARY EDMONTON

SCALE	DATE	DRAWN	PROJECT	DRWG NO.
AS SHOWN	MARCH 94	AT	AC-175	SF-1

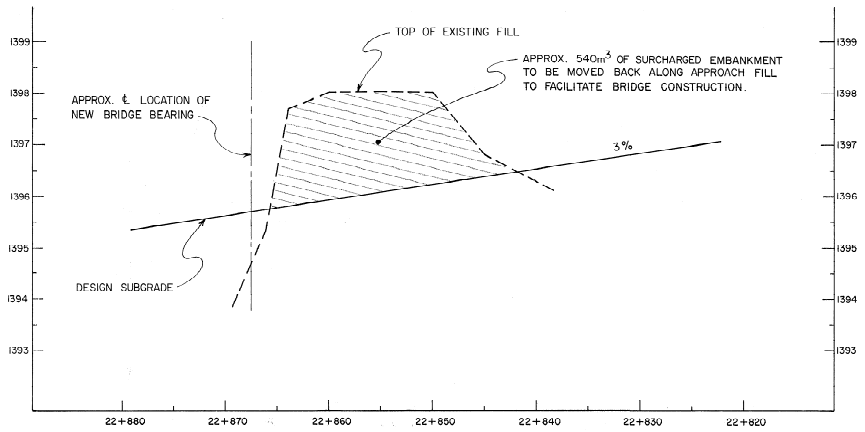
AA005555

sheet no. 13 of 14



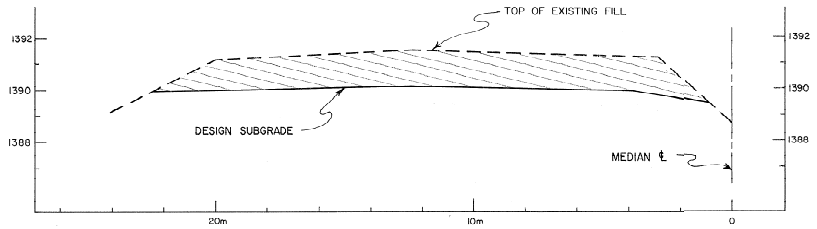
℄ PROFILE, WEST APPROACH

(SCALES, HORZ. 1:250 / VERT. 1:50)

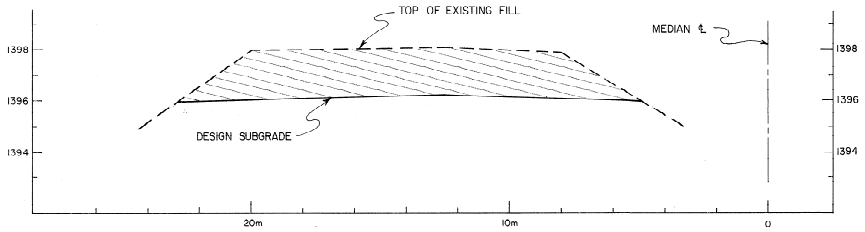


℄ PROFILE, EAST APPROACH

(SCALES, HORZ. 1:250 / VERT. 1:50)



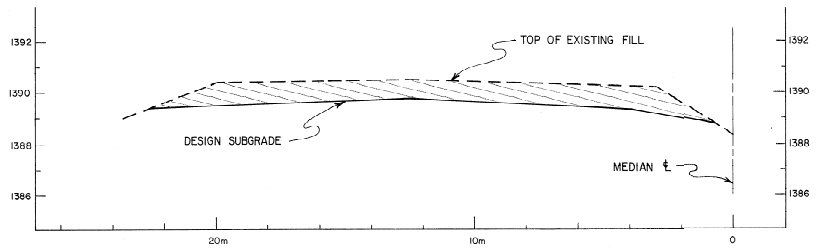
km 23+055



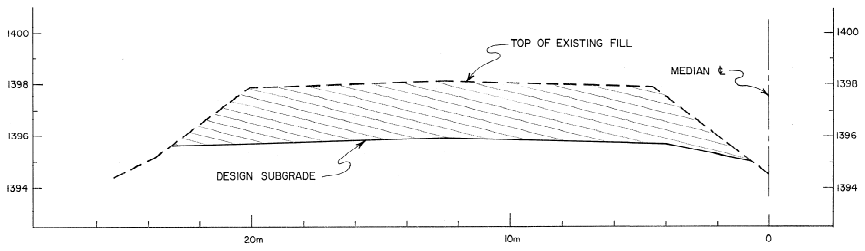
km 22+850

TYPICAL CROSS-SECTIONS

(SCALES, HORZ. & VERT. 1:100)



km 23+065



km 22+860

Public Works Canada / Travaux publics Canada

revisions | date

A detail no. no. du détail
B location drawing no. son dessin no
C drawing no. dessin no

project / projet

STRUCTURE OVER BOW RIVER & C.P.R. MAINLINE, TRANS CANADA HWY. km 23 BANFF NATIONAL PARK

AA005556

drawing / dessin

APPROACH EMBANKMENT PROFILES & TYPICAL CROSS-SECTIONS

designed / conçu	R. THOMSON	
date		
drawn / dessiné	J. McCRONE	
date	JAN. 20/84	
reviewed / examiné		
date		
approved / approuvé		
date		
tender / soumission		
PWC Project Manager	Administrateur de projets TPC	
project number / no. du projet	003875	
drawing no / no. du dessin	14 of 14	

PWC A1