

SECTION 2 - GUIDELINES FOR BRIDGE PROJECTS

2.1 BRIDGE GENERAL INFORMATION

2.1.1 INTRODUCTION

- The purpose of these drafting standards and standard details is to provide a guideline for maintaining a consistent standard of drawing presentation and standard details on drawings produced with the accompanying CAD files.
- The term “Graphics” refers to Microstation, Computer Aided Drafting (CAD) software.
- Standard drawings depicted in this document are for guidance only. For current version see web site: www.trans.gov.ab.ca.
- This document supersedes the “Drafting Guidelines” Section of the “Bridge Size Culverts Design and Drafting Guidelines” Manual. Refer to the Manual for additional standard and sample drawings.




2.1.2 GENERAL DRAWING ARRANGEMENTS




- See [Section 1.1](#).
- The use of “Cover Sheets” is discouraged.
- Drawing indexes are to be placed on the “General Layout”.
- All dimensions shown on General Layout, Information and Soils Information Sheets are given in meters. All other drawings are dimensioned in millimeters except for stations and elevations which are expressed in meters.
- All details shall be drawn to a scale listed in [Section 2.1.4](#). When modifying dimensions to existing details, note them as not to scale (NTS) as applicable.
- Site plans shall generally be arranged so that north is orientated toward either the top or the left side of the drawing and such that a bridge elevation or a culvert section is a natural orthographic projection down the sheet. Abutment and pier plan views, etc., shall be arranged so that roadway chainage increases towards the top of the drawing.
- Use of colored ink is not allowed, including company logos, as colored areas do not reproduce well.

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2.1.3 BRIDGE DRAWING SHEET SURROUNDS




- The Consultant shall contact the Bridge Standards Technologist to obtain the Sheet Surround in CAD format.
- Leading zeros are not required for bridge file numbers or legal land description.
- No alteration to the Title's work area is allowed.

		PERMIT TO PRACTICE THE XYZ ENGINEERING LIMITED Signature _____ Date _____ PERMIT NUMBER: P 123 <small>The Association of Professional Engineers, Architects and Surveyors of Alberta.</small>				COUNTY OF RED DEER Albarta TRANSPORTATION RED DEER RIVER BRIDGE ON HWY 2, 5 km NW OF RED DEER GENERAL LAYOUT			
2002-03-02 GENERAL NOTES REVISED RE-DRAWN FROM 51634-99	WS REVISIONS	DEPARTMENT BAR CODE	DATE 2002-03-02	STREAM LITTLE PADDLE RIVER	LOCATION SSW 24-24-9-5	HIGHWAY SH567.08	FILE # 98765NSR	SHEET 30 of 35	DRAWING 23456-P

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Consultant Title Block for Department Funded Rural Municipal Projects

		PERMIT TO PRACTICE THE XYZ ENGINEERING LIMITED Signature _____ Date _____ PERMIT NUMBER: P 123 <small>The Association of Professional Engineers, Architects and Surveyors of Alberta.</small>				Albarta TRANSPORTATION RED DEER RIVER BRIDGE ON HWY 2, 5 km NW OF RED DEER GENERAL LAYOUT			
2002-03-02 GENERAL NOTES REVISED RE-DRAWN FROM 51634-99	WS REVISIONS	DEPARTMENT BAR CODE	DATE 2002-03-02	STREAM LITTLE PADDLE RIVER	LOCATION SSW 24-24-9-5	HIGHWAY SH567.08	FILE # 98765NSR	SHEET 30 of 35	DRAWING 23456-P

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Consultant Title Block for Department Funded Projects

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2.1.4 SCALES

- Scales to be used for Bridge plans are as follows. If the drawing becomes over crowded at the preferred scale, the use of a second sheet is recommended.

METRIC SCALES	<i>APPLICATION</i>
1: 500 1: 400 1: 300 1: 250 1: 200 1: 150 1: 100	For DD Drawings General Layouts and Information Sheets
1: 100 1: 75 1: 50 1: 25 1: 20 1: 15 1: 10 1: 5 1: 2 1: 1	For Detail Drawings

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2.1.5 LINE THICKNESS AND PEN TABLES

- The use of line weights contributes to the readability and understanding of the drawings. There should be a clear distinction between object lines, dimensions, and notes.

The following table illustrates the use of various line weights.

THICKNESS (mm)	GRAPHIC WEIGHT	SUGGESTED USE FOR LINE WORK
0.18	0	Cross Section Symbols, Shading, Cross Hatching
0.30	1	Dimension Lines and Leaders
0.35	2	3mm Text
0.50	3	Object Lines and Reinforcing
0.60	4	Secondary Titles
0.80	5	Main Titles
1.20	6	Sheet Surround

Following is the current Bridge pen table. This pen table has been designed for use with the current department plotters, HP 800, HP 2500 and HP 5000 series.

Blackfill.pen
<pre>ENDCAP = CIRCLE MIDLINE_JOINT = CIRCLE IF (COLOR .IN. 0-255) THEN COLOR = 'black' ELSE IF (TYPE .IN. 6,15,33) THEN COLOR = 'black' ENDIF IF (LEVEL .EQ. 50) THEN AREA_FILL = .TRUE. FILL_COLOR = 'black' ENDIF IF (WEIGHT .EQ. 0) THEN THICKNESS = .018 ELSE IF (WEIGHT .EQ. 1) THEN THICKNESS = .030 ELSE IF (WEIGHT .EQ. 2) THEN THICKNESS = .035 ELSE IF (WEIGHT .EQ. 3) THEN THICKNESS = .050 ELSE IF (WEIGHT .EQ. 4) THEN THICKNESS = .060 ELSE IF (WEIGHT .EQ. 5) THEN THICKNESS = .080 ELSE IF (WEIGHT .EQ. 6) THEN THICKNESS = .120 ELSE IF (WEIGHT .EQ. 7) THEN THICKNESS = .140 ELSE IF (WEIGHT .EQ. 8) THEN THICKNESS = .200 ENDIF</pre>

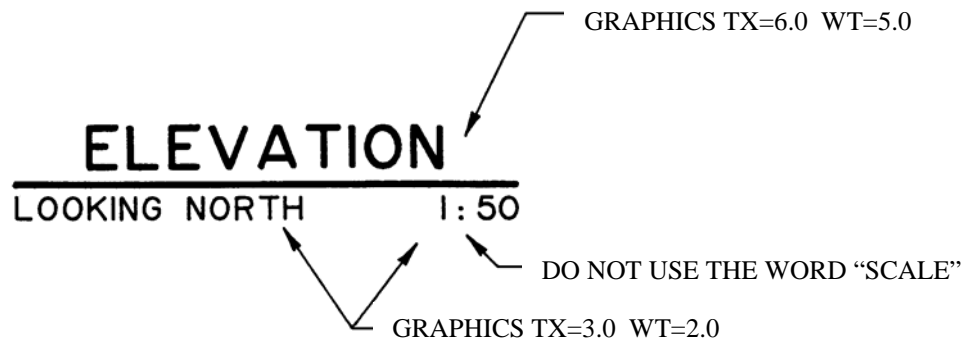
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2.1.6 GENERAL LETTERING AND TEXT

- Graphics files shall utilize a 3 mm font compatible to Leroy font. General text and dimensioning shall be created at TX=3.0. To achieve proper visual spacing, some fonts require two spaces following the punctuation characters and four spaces following a period at the end of a sentence.
- Generally, the use of punctuation symbols other than periods and commas shall not be used. Do not use periods with abbreviations.
 - e.g. CLASS I FINISH, not CLASS "I" FINISH, or CLASS # I FINISH
 - e.g. CSA, not C.S.A.

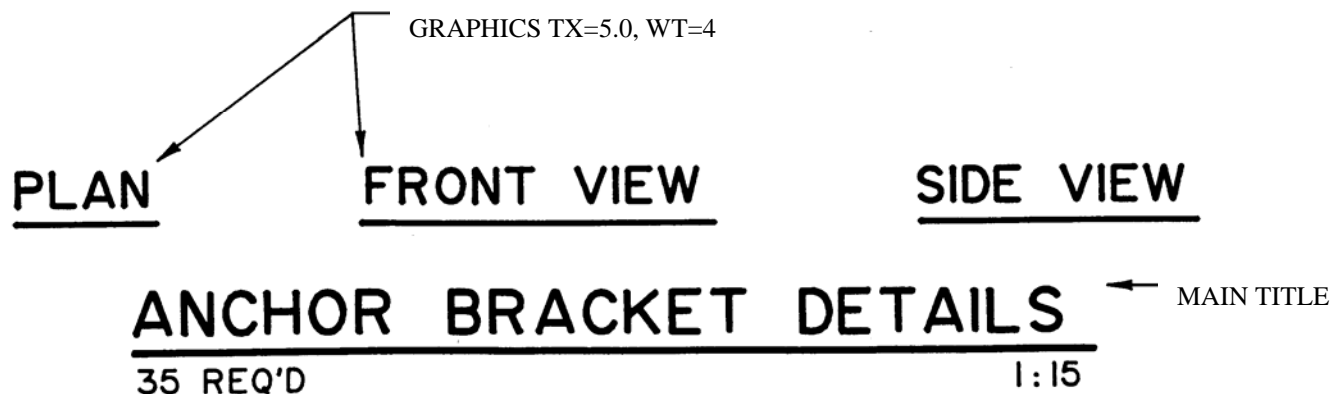
MAIN TITLES

- Used to describe most views, sections, or details.



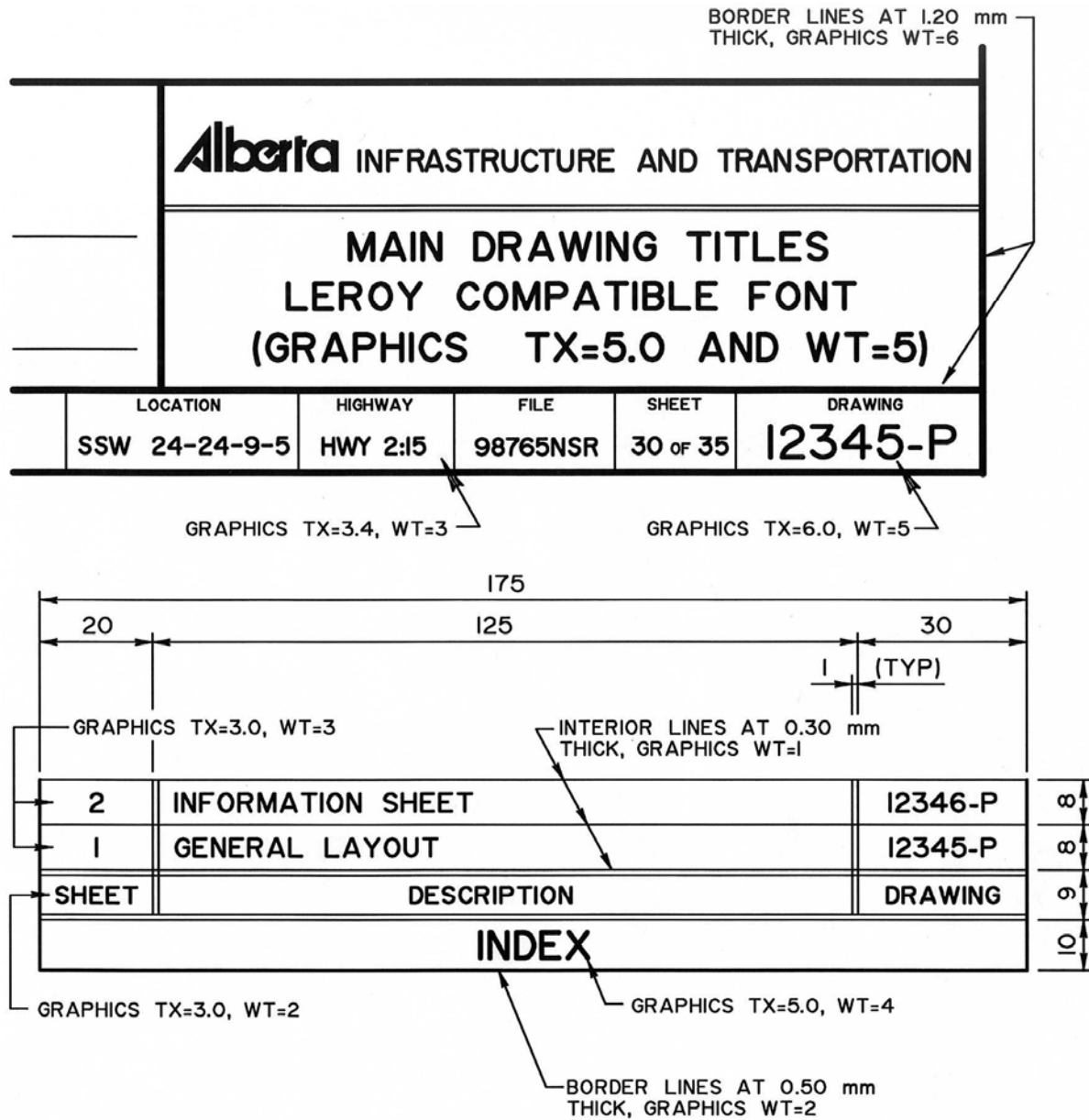
SECONDARY TITLES

- Used to describe individual views where a cluster of views make one detail. A main title is required to describe the overall detail.



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2.1.7 LETTERING FOR TITLE BLOCKS AND INDEXES



- OTHER TABLES (QUANTITY ESTIMATES, ETC) SHALL BE CREATED UTILIZING THE SAME LINE, TEXT AND VERTICAL SPACING AS SHOWN FOR THE INDEX.

2.1.8 TITLE BLOCK FORMAT AND CONTENT

• **STREAM CROSSINGS**¹

$$\left\{ \begin{array}{l} \text{streamname} \\ \text{rivername} \\ \text{creekname} \\ \text{canalname} \\ \text{WATERCOURSE} \end{array} \right\} \left\{ \begin{array}{l} \text{BRIDGE} \\ \text{CULVERT} \end{array} \right\}^2 \text{ ON } \left\{ \begin{array}{l} \text{roadname} \\ \text{HWY nn} \\ \text{LOCAL RD} \end{array} \right\}^3 \left(\begin{array}{l} \text{location} \\ \text{direction} \\ \text{spec} \end{array} \right)^4 (\text{townname})^5 (\text{sheet title})$$

WABASH CREEK BRIDGE
ON HWY 597, 5 km W OF WESTLOCK
GENERAL LAYOUT

• **GRADE SEPARATIONS AND FLYOVERS**

$$\left\{ \begin{array}{l} \text{roadname} \\ \text{HWY nn} \\ \text{LOCAL RD} \end{array} \right\}^3 \text{ OVER } \left\{ \begin{array}{l} \text{roadname} \\ \text{HWY nn} \\ \text{LOCAL RD} \end{array} \right\}^3 \text{ GRADE SEPARATION }^2 \left(\begin{array}{l} \text{location} \\ \text{direction} \\ \text{spec} \end{array} \right)^4 (\text{townname})^5 (\text{sheet title})$$

HWY 41 OVER HWY 16
GRADE SEPARATION AT VERMILION
GENERAL LAYOUT

• **RAILWAY OVERPASSES AND UNDERPASSES**

$$\left\{ \begin{array}{l} \text{railwayname} \\ \text{CNR} \\ \text{CPR} \\ \text{ARR} \end{array} \right\}^3 \& \left\{ \begin{array}{l} \text{roadname} \\ \text{HWY nn} \\ \text{LOCAL RD} \end{array} \right\}^{3,6} \left\{ \begin{array}{l} \text{OVERPASS} \\ \text{UNDERPASS} \end{array} \right\}^2 \text{ ON } \left\{ \begin{array}{l} \text{roadname} \\ \text{HWY nn} \\ \text{LOCAL RD} \end{array} \right\} \left(\begin{array}{l} \text{location} \\ \text{direction} \\ \text{spec} \end{array} \right)^4 (\text{townname})^5 (\text{sheet title})$$

CNR OVERPASS
ON HWY 47, 10 km SW OF EDSON
GENERAL LAYOUT

• **SIGN STRUCTURES LAYOUTS**

$$\left\{ \begin{array}{l} \text{prime roadname} \\ \text{HWY nn} \\ \text{LOCAL RD} \end{array} \right\}^3 \& \left\{ \begin{array}{l} \text{lesser roadname} \\ \text{HWY nn} \\ \text{LOCAL RD} \end{array} \right\}^3 \left\{ \begin{array}{l} \text{INTERCHANGE} \\ \text{interchangename} \\ \text{cornername} \end{array} \right\} \left(\begin{array}{l} \text{location} \\ \text{direction} \\ \text{spec} \end{array} \right)^4 (\text{townname})^5 (\text{sheet title})$$

(Sheet 1) HWY 22X OVER HWY 2
INTERCHANGE IN CALGARY
SIGN STRUCTURE LAYOUT

(Sheet 2) HWY 22X OVER HWY 2
INTERCHANGE IN CALGARY
SIGN STRUCTURE 6

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• PEDESTRIAN STRUCTURES

{ roadname
railwayname
streamname }³ PEDESTRIAN { OVERPASS
SUBWAY
BRIDGE }² (location
direction
spec)⁴ (townname)⁵ (sheet
title)

LITTLE ELBOW RIVER
PEDESTRIAN BRIDGE
AT FORD CREEK CAMPGROUND
GENERAL LAYOUT

FOOTNOTES

1. Generally, use the format items strictly in the order given on three or four title block lines. The last title block line is reserved for the sheet title. Brackets indicated a choice (or in some cases an omission): lower case “names” shall be replaced with proper names. Use appropriate abbreviations wherever possible for commonly used words, without periods. Avoid redundant symbols such as “*” or “No”.
2. Qualify the structure type with “REPAIR”, “UPGRADE”, “RENOVATION” or “STRENGTHENING” when necessary.
3. Qualify the roadname with a directional specification “EBL”, “WBL”, “NBL”, or “SBL” when necessary.
Qualify the railway name with “SPUR” or “MAINLINE” when required.
4. Location direction spec: { n km* } { N, S, E, W } { BOUNDARY } { OF } * Avoid fractional values
{ AT } { NW, SW, NE, SE } { (BDY) } { IN }
5. Reference town name, to a name that appears on the Alberta Roadmap. Avoid use of redundant words such as “CITY OF”, “TOWN OF”, etc.
6. Refers to cases where a roadway parallels the railway and is under the overpass.
7. Round distance to nearest kilometer (km).
8. In some circumstances a distance calculation may be referenced from the junction of two roadways, only when there is no locale on the road map.

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2.1.9 DRAWING TITLES AND CAD FILE DESIGNATIONS

- The following table is to be used when naming cad files before submission to the department. The intent is to create a simple, recognizable system for organizing files. The table represents cad files for non-directional and non-ramp bridges at the tender stages. For directional or ramp naming conventions see [Section 2.1.9.1](#). For as-constructed cad file naming conventions see [Section 2.1.9.2](#).
- Drawing titles and the order they appear are significant. These are the recommended drawing titles and the order of which they should appear in the index.
- Please be aware that some drawings listed may overlap for bridge drawings and for culvert drawings.

SHEET TITLE	FILE DESIGNATION	SHEET TITLE	FILE DESIGNATION
BRIDGE/CULVERT PLANNING and WATER RELATED DRAWINGS			
Design Data Sheet	b12345ds.dgn	Cross Sections	b12345xs.dgn
Site Plan	b12345sp.dgn	Gabion Assembly Details	b12345ga.dgn
Alignment Plan	b12345ap.dgn	Hydrometric Sheet	b12345hy.dgn
Contour Plan	b12345cp.dgn	Navigable Waters Submission	b12345nw.dgn
Bank Protection Details	b12345bp.dgn	Mosaic Profile	b12345mp.dgn
Guide Bank Details	b12345gb.dgn	Culvert Alternative	b12345ds_ca.dgn
Diversion Details	b12345dd.dgn	Bridge Alternative	b12345ds_ba.dgn
BRIDGE DRAWINGS			
Title Sheet (Perspective)	b12345in.dgn	Girder Layout or Girder - Sheet 1	b12345g1.dgn
General Layout	b12345gl.dgn	Girders - Sheet 2	b12345g2.dgn
Information Sheet or Sheet 1	b12345n1.dgn	Camber Diagram	b12345c1.dgn
Information Sheet – Sheet 2	b12345n2.dgn	Deck or Deck - Sheet 1	b12345d1.dgn
Soils Information Sheet	b12345n3.dgn	Deck – Sheet 2	b12345d2.dgn
Construction Stages	b12345cs.dgn	Diaphragms	b12345d3.dgn
Abutments or Sheet 1	b12345a1.dgn	Deck Joints	b12345e1.dgn
Abutments - Sheet 2	b12345a2.dgn	Miscellaneous Details	b12345m1.dgn
Piers or Sheet 1	b12345p1.dgn	Bar List (Reinforcing)	b12345r1.dgn
Piers – Sheet 2	b12345p2.dgn	Truss (Repairs or Strengthening)	b12345t1.dgn
Bearings	b12345b1.dgn		
CULVERT DRAWINGS			
General Layout	b12345gl.dgn	Concrete Headwalls, Collars, and Slab Reinforcing Details	b12345hc.dgn
Information Sheet	b12345n1.dgn	Miscellaneous Details	b12345m1.dgn
Concrete End Treatment	b12345et.dgn	Low Level Crossing Details	b12345ll.dgn
Concrete Transition Details	b12345td.dgn	Concrete (Steel) Fish Baffle Details	b12345fb.dgn
SPCSP (CSP) Materials and Geometry	b12345mg.dgn	Retaining Wall Details	b12345w1.dgn
Assembly, Backfill and Slab Pour Details	b12345ab.dgn		
MISCELLANEOUS DRAWINGS (Currently Under Review)			
Rehabilitation / Repairs	b12345s1.dgn	Sign Structure Details	b12345z1.dgn

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2.1.9.1 CAD FILE DESIGNATIONS FOR DIRECTIONAL AND RAMP BRIDGES

- When naming files with directional bridges or ramp bridges, they are to be named using the following convention:

Tender Version File Name

b(file number)(graphic file designation)_(bridge direction).dgn

- e.g. b12345gl_wbl.dgn
- e.g. b12345gl_ser.dgn

Examples of bridge directions and ramps:

- wbl – west bound lane
- ebl – east bound lane
- nbl – north bound lane
- sbl – south bound lane
- ser – south east ramp
- nwr – north west ramp

2.1.9.2 AS-CONSTRUCTED VERSION FILE NAME

b(file number)(graphic file designation)_(bridge direction)_built.dgn

- e.g. b12345gl_wbl_C.dgn
- e.g. b12345gl_C.dgn

2.1.9.3 VALUE ENGINEERING DESIGNS

b(file number)(graphic file designation)_(bridge direction)_built.dgn

- e.g. b12345_ve_.dgn
- e.g. b12345_ve_C.dgn

2.1.10 SAMPLE GENERAL NOTES – BRIDGES

BENCH MARKS

- BM 1, F I P 75, LOCATED 30.480 m LEFT OF (CENTER LINE) HIGHWAY ALIGNMENT AT STA 55+080.872, EL 474.674 (GEODETIC)
- BM 8, IRON BAR, LOCATED 5.80 m RIGHT OF (CENTER LINE) ROAD ALIGNMENT AT STA 1+294.550, EL 499.550 (ASSUMED)

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- BM 1 0, NAIL IN POWER POLE, LOCATED 16.0 m LEFT OF (CENTER LINE) ROAD ALIGNMENT AT STA 1+292.300, EL 500.213 (ASSUMED)

GENERAL NOTES

- ROADWAY ELEVATIONS ARE GIVEN TO TOP OF FINISHED CENTRELINE CROWN.
- ALL DIMENSIONS SHOWN ON THE GENERAL LAYOUT, INFORMATION AND SOILS INFORMATION SHEETS ARE GIVEN IN METERS. ALL OTHER DRAWINGS ARE DIMENSIONED IN MILLIMETERS EXCEPT FOR STATIONS AND ELEVATIONS WHICH ARE EXPRESSED IN METERS.

DESIGN:

- CAN/CSA-S6-88 SPECIFICATIONS
- LIVE LOAD: CSA CS750, _____ CYCLES
- WIND LOAD:
 - OR OTHER DESIGN CONSIDERATION IF REQUIRED
- DYNAMIC ICE LOAD
 - ICE THICKNESS = _____ M
 - CONDITION A, PRESSURE = _____ KPA @ EL _____
 - CONDITION B, PRESSURE = _____ KPA @ EL _____
- ABUTMENT PILE LOADS (FACTORED)
 - DL = _____ KN
 - EXTREME = _____ KN – COMBINATION # _____
- PIER PILE LOADS (FACTORED)
 - DL = _____ KN
 - EXTREME = _____ KN – COMBINATION # _____

COLOUR SCHEDULE:

- AS REQUIRED.

GEOTECHNICAL:

- ALL GEOTECHNICAL INFORMATION PROVIDED FOR THIS PROJECT HAS BEEN COMPILED FOR DESIGN PURPOSES ONLY. WHILE IT IS BELIEVED TO CORRECTLY REPRODUCE OR SUMMARIZE OBSERVATIONS MADE DURING TESTING, IT IS VALID ONLY FOR THE PRECISE LOCATION(S) SHOWN, AND IS NOT TO BE CONSTRUED AS GUARANTEEING THE ACTUAL MATERIALS AND CONDITIONS EXISTING THROUGHOUT THE SITE. THE TESTING METHODS USED MAY NOT HAVE DETERMINED THE PRESENCE, ABSENCE OR EXTENT OF BOULDERS, HARD OR SOFT FORMATIONS, WATER TABLES, ARTESIAN CONDITIONS AND OTHER VARIABLES. IT IS THE RESPONSIBILITY OF

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OTHERS USING THIS INFORMATION TO ENSURE THAT IT IS ADEQUATE FOR THEIR PURPOSES, OR TO SUPPLEMENT IT WITH ADDITIONAL INFORMATION.

Note:

- The general design notes shown above shall be placed on the information sheet, except for the Geotechnical note which shall appear where the soils information data is shown.
- These notes may be amended, added to, or deleted as required for each project, but the general arrangement shall be followed.

2.1.10.1 SAMPLE GENERAL NOTES – CULVERTS

Survey Information

Survey information should include:

- Name of the survey company.
- Name of the person under whose direction the survey was done.
- Date the survey was done (Month/Year).

e.g. **SURVEY BY**

- SMITH ENGINEERING LTD., CALGARY, ALBERTA, UNDER THE DIRECTION OF JOHN BROWN, NOVEMBER 1993

Bench Mark Information should include:

- Bench Mark number.
- Type of Bench Mark in meters left or right of road (highway) centerline as related to a station on the alignment.
- Bench Mark elevation.

e.g. See [Section 2.1.10](#).

Or Survey information should include:

- Electronic Survey Data including the Control Point number, Location, and Elevation.

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e.g. **BENCH MARKS**

CONTROL POINTS			
CPT 1	854.254 N	1029.822 E	EL 88.403
CPT 2	862.025 N	1080.526 E	EL 96.820
CPT 3	883.002 N	1083.425 E	EL 98.468
CPT 4	898.900 N	1099.664 E	EL 86.985

Hydrotechnical Data

Hydrotechnical Data should include:

- Drainage Area of watercourse to the nearest km².
- Design Discharge to the nearest m³/s (Estimated Maximum Instantaneous Discharge 1:25 Year for Local Roads, 1:50 Year for Secondary Highways or 1:100 Year for Primary Highways).
- Average Surveyed Slope of Streambed to the nearest 0.001 m/m.
- Mean Outlet Velocity to the nearest 0.1 m/s.

e.g. **HYDROTECHNICAL DATA**

- FLOW DATA PROVIDED BY LETHBRIDGE NORTHERN IRRIGATION DISTRICT:
 - DESIGN DISCHARGE = 9.5 m³/s
 - DESIGN DEPTH = 1.25 m
 - DESIGN VELOCITY = 0.7 m/s
- CANAL BOTTOM WIDTH = 8.0 m
- CANAL SLOPE = 0.0003 m/m
- CANAL SIDESLOPES = 2 : 1

Proposed Structure

Proposed Structure information should include:

- Number of pipes to be installed (1, 2, etc).
- Diameter of pipe in millimeters (inside dimensions for Concrete Box Culverts, horizontal and vertical dimensions for Horizontally Ellipsed (HE) SPCSP's and ABC's).
- Type of structure (CSP, SPCSP, Horizontally Ellipsed SPCSP, ABC, Cast In Place or Precast Concrete Box Culvert, etc.).
- Invert length of pipe in meters (to 3 decimal places).
- On square or on skewed angle in relationship to road (highway) alignment.
- Plate thickness in millimeters for SPCSP's (wall thickness for CSP's).

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e.g. **PROPOSED STRUCTURE**

- 1 – 3 990 mm DIA SPCSP, 33.530 m INVERT LENGTH ON 27° RHF SKEW TO HIGHWAY (CENTER LINE), LOCATED AT STA 10+000.000, PLATE THICKNESS IS 3 mm
- 1 – 2 400 mm x 3 000 mm PRECAST CONCRETE BOX CULVERT, 34.150 m INVERT LENGTH ON 33° LHF SKEW TO HIGHWAY (CENTER LINE), LOCATED AT STA 1+250.000

General Notes

General Note information should include:

- The metric unit of measurement dimensions are shown as. Roadway Design Standard as shown on Table 1 of the “Design Standards For Rural Highways” on page 37.
- Longitudinal seam bolt installation note (note not required for CSP’s, or Concrete Box Culverts).
- Stagger of longitudinal seams in N-values (note not required for CSP’s, HESPCSP’s, ABC’s or Concrete Box Culverts).
- Culvert assembly note (note not required for CSP’s, ABC’s or Concrete Box Culverts).
- Heavy rock riprap note.
- Note regarding additional right-of-way required if needed for road (highway) embankments and/or diversion channels. Additional right-of-way for local roads and highways to be obtained by the Local Road Authority and/or the Regional Property Agent.

e.g. **GENERAL NOTES**

- DIMENSIONS ARE GIVEN IN METERS UNLESS NOTED OTHERWISE
- ROADWAY DESIGN STANDARD RLU 208G-60
- IN LONGITUDINAL SEAMS BOLTS IN VALLEYS TO BE INSTALLED CLOSER TO VISIBLE EDGES OF PLATES THAN BOLTS ON CRESTS
- ALL LONGITUDINAL SEAMS TO BE STAGGERED 2N
- CULVERT ASSEMBLY TO BE IN ACCORDANCE WITH CURRENT VERSION OF S-1418

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- REFER TO THE CURRENT VERSION OF B354 “HEAVY ROCK RIPRAP” SECTION 10 OF THE BRIDGE CONSTRUCTION SPECIFICATIONS FOR ADDITIONAL DETAILS
- ROAD EMBANKMENTS AND DIVERSION CHANNEL EXTEND BEYOND BASIC RIGHT-OF-WAY. ADDITIONAL RIGHT-OF-WAY SHALL BE OBTAINED BY THE LOCAL ROAD AUTHORITY AS REQUIRED

2.1.10.2 SAMPLE GENERAL NOTES – DESIGN DATA DRAWINGS

SURVEY INFORMATION

- AMEC INFRASTRUCTURE LIMITED, SHERWOOD PARK OFFICE, 2002-07-02
- BENCH MARK 1, 25 MM X 52 MM WOODEN PLUG, STA 3+600.0, 15.3 RT (CENTER LINE) EL 100.000 (ASSUMED)
- ALBERTA ENVIRONMENT BENCH MARK A86-004, BRASS CAP, STA 0+635.6, 10.6 LT (CENTER LINE) EL 941.724 (GEODETIC)

HYDROTECHNICAL SUMMARY

- DRAINAGE AREA 428 KM²
- DESIGN DISCHARGE 88 M³/S, 79-03-30 FLOOD (IN THE ORDER OF 1:100 YR EVENT)
- MEAN VELOCITY FOR DESIGN DISCHARGE THROUGH THE PROPOSED OPENING 1.5 M/S

or,

- MEAN OUTLET VELOCITY FOR DESIGN DISCHARGE THROUGH THE PROPOSED CULVERT
- 1.5 M/S
- AVERAGE SURVEYED STREAM SLOPE 0.0037 M/M.
- FLOWING ICE CONDITIONS AS PER CAN/CSA-S6-88, SECTION 5.2.18.2.2 APPEAR TO MEET SITUATION “C” AT EL 925.1 WITH AN EFFECTIVE ICE THICKNESS OF 1.2 M

or,

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- FLOWING ICE CONDITIONS AS PER CAN/CSA-S6-88, SECTION 5.2.18.2.2 APPEAR TO MEET:
 - SITUATION 'A' AT EL 940.2 WITH AN EFFECTIVE ICE THICKNESS OF 0.6 M
 - SITUATION 'B' AT EL 938.1 WITH AN EFFECTIVE ICE THICKNESS OF 0.9 M
- ESTIMATED HIGHWATER EL 1138.7 INCLUDES 0.3 M BACKWATER

GENERAL NOTES

- ALL DIMENSIONS ARE IN METERS UNLESS NOTED OTHERWISE
 - ROAD DESIGN STANDARD RLU XXX-XX
- or,
- ROAD DESIGN TO RLU STANDARD, MODIFIED TO XXX-XX
- or,
- ROAD DESIGN STANDARD RLU XXX-X MODIFIED FOR RESOURCE ROAD LOG HAUL
(11.0 M FINISHED GRAVEL SURFACE, 110 KM/H DESIGN SPEED WHERE FEASIBLE)
- or,
- CONSTRUCT STANDARD APPROACH FILLS AS PER DESIGN ENGINEERING BRANCH DWG CB-6, 2.3M22 (WITH MODIFICATIONS AS SHOWN ON DD ____)
- or,
- CONSTRUCT BRIDGE APPROACH FILLS AS SHOWN
 - PLACE NON-WOVEN GEOTEXTILE FILTER FABRIC UNDER SLOPE PROTECTION AS SHOWN. USE APPROVED FILTER FABRIC OR APPROVED EQUIVALENT
- (APPROVED FOR CONCRETE SLOPE PROTECTION APPLICATIONS
APPROVED FOR CLASS 1M, 1 AND 2 RIPRAP APPLICATIONS
APPROVED FOR CLASS 3 RIPRAP APPLICATIONS)
- PLACE CONCRETE SLOPE PROTECTION IN ACCORDANCE WITH CURRENT BRIDGE ENGINEERING SPEC B353

SECTION 2 –GUIDELINES FOR BRIDGE PROJECTS

- PLACE CLASS 2 ROCK RIPRAP IN ACCORDANCE WITH CURRENT BRIDGE ENGINEERING BRANCH SPEC B354
- ESTIMATED SURFACE AREA COVERED BY FILTER FABRIC 1175 M²
- ESTIMATED SURFACE AREA COVERED BY CONCRETE SLOPE PROTECTION 770 M²
- ESTIMATED QUANTITY OF CLASS 2 ROCK RIPRAP 1375 M³
- TEST HOLE LOGS ARE PRELIMINARY AND SUBJECT TO LABORATORY VERIFICATION
- REFER TO BRIDGE CORRESPONDENCE FILE ____ FOR TEST HOLE ____ LOG, STA ____, OFFSET ____

2.1.10.3 STANDARD EXISTING BRIDGE DATA NOTE

EXISTING BRIDGE DATA

8.5-38.1-8.5 TH WITH TYPE 'G'
APP SPANS ON TT SUBSTRUCTURE
CONST 1926, STRENGTHENED 1972
TRUSS IDENT A-36-5
CLR RDWY 5.5 m
VERT CLEAR 4.6 m
RATED LOADING: H 15t; HS 17t; CS 23t

2.1.11 TEST HOLE LOGS

- Test hole log symbols must be in accordance with the Modified Unified Soil Classification System, see [Section 2.1.11.1](#).
- Location of test holes must be shown on the site plan as accurately as possible. Identification of test holes should be shown as “TH 1, TH 2, etc”.
- The elevation view should show the test hole number, station to the nearest 0.1 m elevation at least to the nearest 0.01 m and date of drilling.
 - e.g. Test Hole 5, Sta 3+598.4, 4.0m LT EL 101.14, 2002-07-16 (YY-MM-DD)
- Soil description should be in accordance with the following rules: Main soil component, followed by the minor components in descending order; density/consistency, and soil structure (e.g. laminated, weathered, friable,

SECTION 2 –GUIDELINES FOR BRIDGE PROJECTS

etc.). If space permits and drawing won't appear cluttered, add one or more of the following: Moisture, color, and odors.

e.g.: a) Sand, silty, dense, presence of boulders
 b) Sand, med dense, above opt, dk brown

- When a Rock Quality Designation (RQD) value is given, density is not required.
- All RQD values and associated depths must be shown, to the nearest 0.01 m.
- Water table elevation, when available, must be shown on the test hole logs. Also installation of slope indicators, piezometers, etc., should be noted.
- All Standard Penetration Tests (N-values) and associated depths must be shown, to the nearest 0.01 m. Where full penetration was not achieved, show N-value and associated penetration as well as the depth,
 - e.g. N 120/56 mm, 18.10.
- Show depth of bottom of the hole, to the nearest 0.1 m.
- The following abbreviations are permitted:

BLK	-	black	AMB	-	amber
BRN	-	brown	OPT	-	optimum
GRN	-	green	MED	-	medium
ORG	-	orange	DK	-	dark
WHT	-	white	LT	-	light
YEL	-	yellow			
- Keep N-values and RQD-values on one side of the logs and soil description on the other. In general, the presentation chosen should be consistent for all test holes.
- The depth of each stratigraph should be shown to the nearest 0.1 m
- If test holes overlap on the elevation view (e.g. same stations but different offset), consider lowering test hole logs, if possible.
- For projects with several test hole logs that may clutter the drawing, consider using a "Soils Information Sheet".

SECTION 2 –GUIDELINES FOR BRIDGE PROJECTS

2.1.11.1 UNIFIED SOIL CLASSIFICATION SYSTEM (MODIFIED BY PFRA)

SOILS LOGS LEGEND

THE RESULTS OF THE AUGER BORINGS MADE DURING THE PRELIMINARY SURVEY ARE SHOWN IN THE PICTORIAL FORM ON THE PROFILE. THE HOLES ARE PLOTTED TO THE SAME VERTICAL SCALE AS ALL OTHER PROFILE PLOTS. A STANDARD FORM OF SYMBOLIZED CROSS HATCHING AS SHOWN IS USED TO GRAPHICALLY DISPLAY THE VARIOUS SOIL TYPES. ALSO SHOWN WITH THE BORINGS, ARE THE RESULTS OF THE TESTS PERFORMED ON THE SAMPLE SUBMITTED AT THE TIME THE HOLES WERE DRILLED/DUG.

A STANDARD NUMERICAL ORDER IS USED TO RECORD THESE RESULTS AS FOLLOWS:
 1. PLASTICITY INDEX. 2. SOILS CLASSIFICATION. 3. FIELD MOISTURE CONTENT.
 4. ESTIMATED OPTIMUM MOISTURE CONTENT AND 5. ESTIMATED MAXIMUM DRY DENSITY.

WHERE THERE ARE NO TEST RESULTS SHOWN, THE DESCRIPTION OF SAMPLES IS BASED ON FIELD VISUAL IDENTIFICATION ONLY.

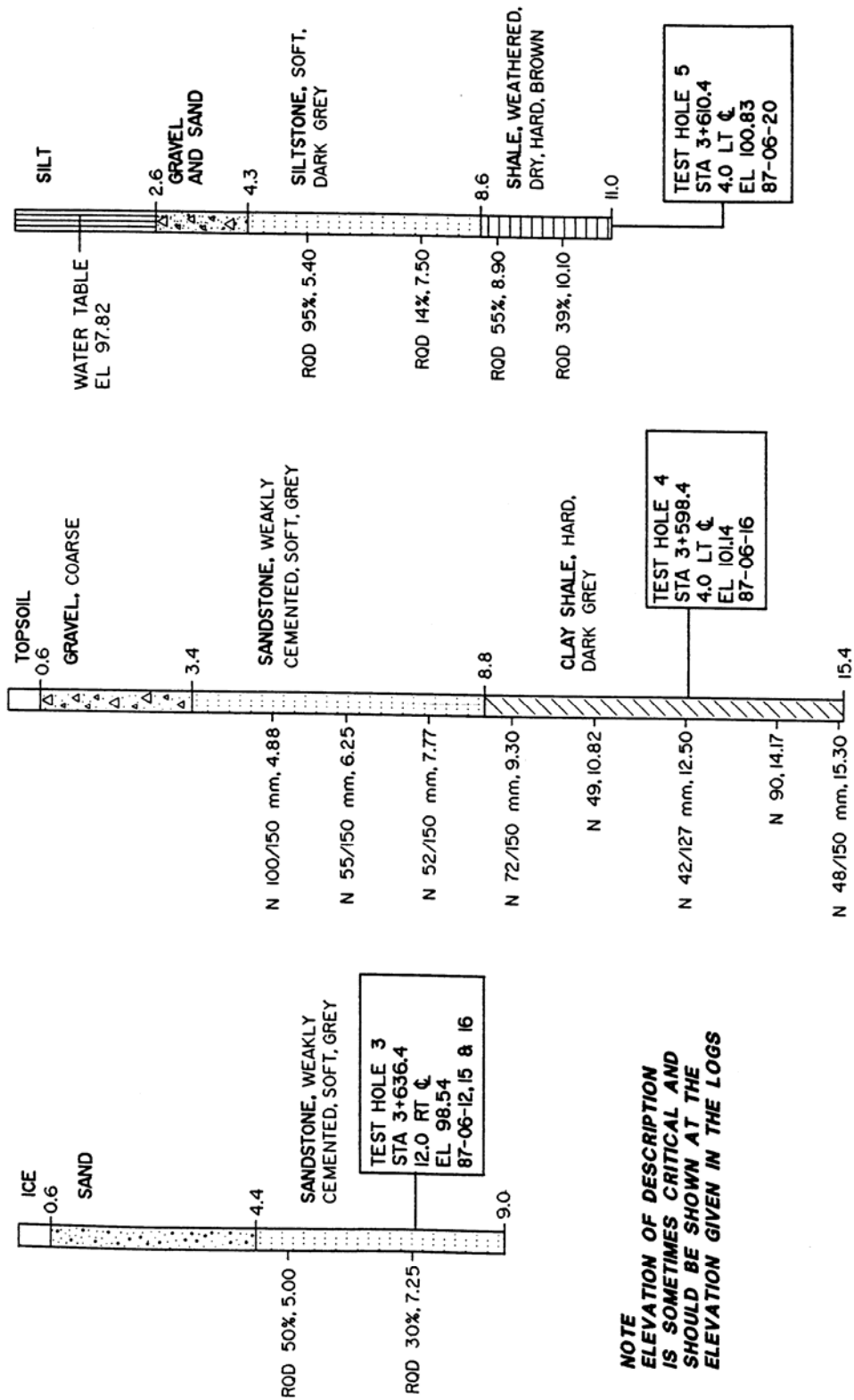
WHERE SUBSURFACE MATERIALS ARE IDENTIFIED IN THE FIELD AS ROCK (SANDSTONE OR SHALE) AND ALSO SHOWN AS ROCK ON THE TEST LOGS, THE SAMPLES ARE PULVERISED IN ACCORDANCE WITH STANDARD TESTING PROCEDURES FOR TEST PURPOSES AND THE BROAD SOIL CLASSIFICATION WILL THUS BE SHOWN AS SAND OR CLAY OR SILT.

UNIFIED SOIL CLASSIFICATION SYSTEM (MODIFIED BY PFRA)

COARSE GRAINED SOILS 50%+ RETAINED ON AN 80 MICRON SIEVE			FINE GRAINED SOILS 50%+ PASSING AN 80 MICRON SIEVE		
GROUP SYM.	LOG SYM.	TYPICAL NAMES	GROUP SYM.	LOG SYM.	TYPICAL NAMES
GW		WELL GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES	CL		INORGANIC CLAYS OF LOW PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
GP		POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES	CI		INORGANIC CLAYS OF MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS
GM	d u 	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES	CH		INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
GC		CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES	ML		INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
SW		WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	MH		INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS
SP		POORLY GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	OL		ORGANIC SILTS AND ORGANIC SILTY CLAYS OR LOW PLASTICITY
SM	d u 	SILTY SANDS: SAND-SILT MIXTURES	OH		ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
SC		CLAYEY SANDS, SAND-CLAY MIXTURES	PI		PEAT AND OTHER HIGHLY ORGANIC SOILS
OTHER SYMBOLS					
		BEDROCK (UNCLASSIFIED)			CONGLOMERATE
		SANDSTONE			COAL
		SHALE			OVERBURDEN
		LIMESTONE			TOPSOIL

SECTION 2 – GUIDELINES FOR BRIDGE PROJECTS

2.1.11.2 STANDARD TEST HOLES



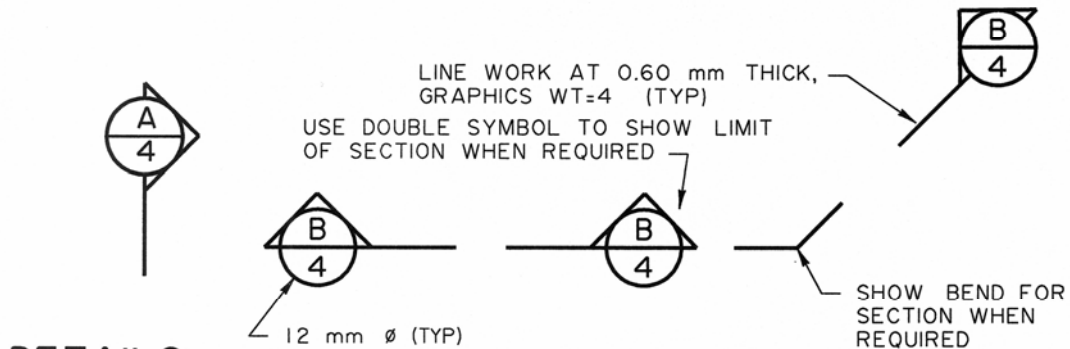
SECTION 2 –GUIDELINES FOR BRIDGE PROJECTS

2.1.12 SECTION AND DETAIL REFERENCES

- SECTIONS AND DETAILS SHALL BE LABELED USING THE FOLLOWING REFERENCE SYMBOLS:

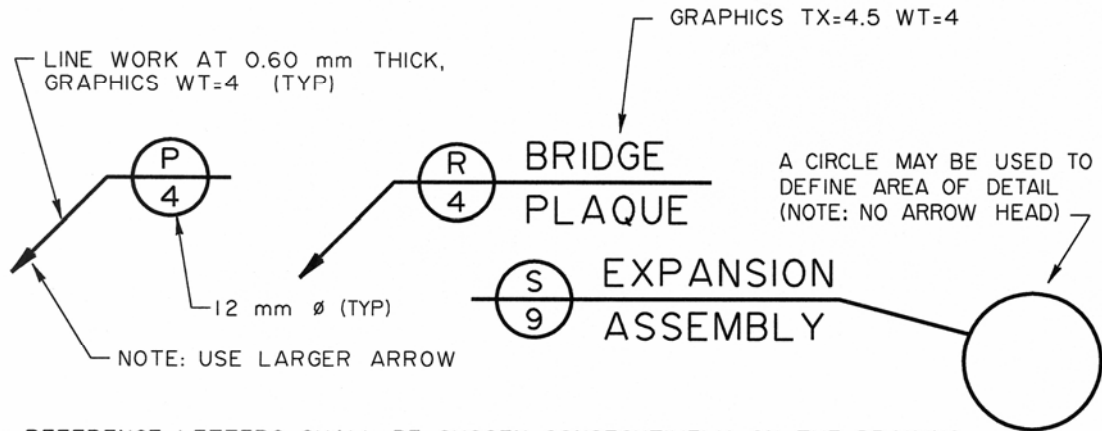
SECTIONS

- USE LETTERS A TO N (AVOID USING LETTERS I AND O)
GRAPHICS TX=3.4 WT=3



DETAILS

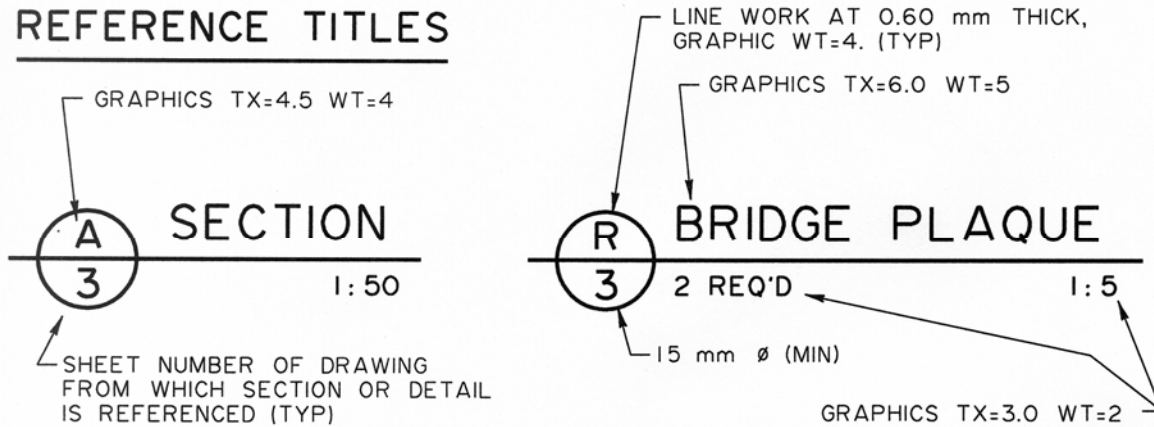
- USE LETTERS P TO Z
GRAPHICS TX=3.4 WT=3



- REFERENCE LETTERS SHALL BE CHOSEN CONSECUTIVELY ON THE DRAWING ON WHICH THE SECTIONS OR DETAILS ARE DRAWN.
- DO NOT REPEAT LETTERS ON DRAWINGS WHICH ARE CROSS REFERENCED.
- THE LOWER NUMBER REFERS TO THE SHEET NUMBER OF THE DRAWING ON WHICH THE ITEM IS DETAILED. THIS MAY BE THE SAME DRAWING, IN WHICH CASE THE NUMBER MAY BE OMITTED.

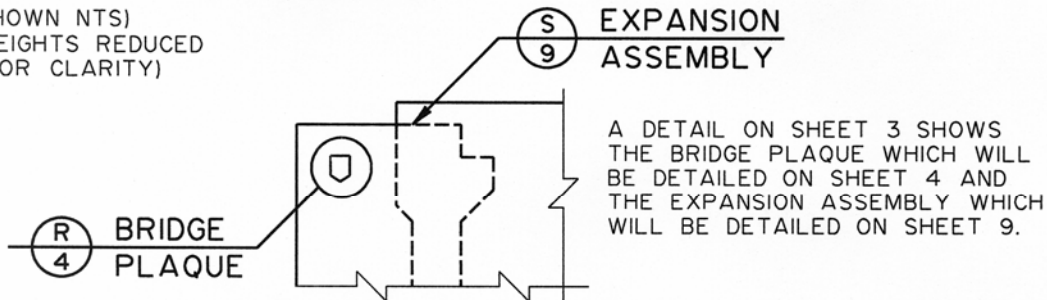
SECTION 2 – GUIDELINES FOR BRIDGE PROJECTS

REFERENCE TITLES



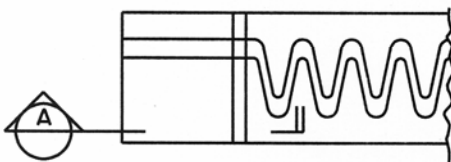
REFERENCE EXAMPLE

(SHOWN NTS)
(WEIGHTS REDUCED FOR CLARITY)



ON SHEET 4, WHERE THE BRIDGE PLAQUE IS DETAILED, THE DETAIL TITLE REFERENCES THE DETAIL FROM SHEET 3.

BRIDGE PLAQUE 3 2 REQ'D NTS



EXPANSION ASSEMBLY 3 NTS

ON SHEET 9, WHERE THE EXPANSION ASSEMBLY IS DETAILED, THE DETAIL TITLE ALSO REFERENCES THE DETAIL FROM SHEET 3.



SECTION A NTS

BECAUSE THE SECTION IS BOTH DETAILED AND REFERENCED ON SHEET 9, THE SHEET NUMBER IS NOT REQUIRED.

SECTION 2 –GUIDELINES FOR BRIDGE PROJECTS

2.1.13 EXPRESSION OF SLOPES AND BATTERS

EXPRESSION OF SLOPES AND BATTERS			
CATEGORY	APPLICATION	SQUARE EXPRESSION (THE LONGER COMPONENT IS ALWAYS 1.0 OR 1.00 FOR CATEGORIES A & B)	RATIO EXPRESSION (THE VERTICAL COMPONENT IS ALWAYS AT THE FRONT IN THE RATIO FOR CATEGORIES A & B)
A FLAT SLOPES	RDWY CROWN, ABUT & PIER SEATS, TOP OF CURBS	$\begin{array}{l} 1.00 \\ \hline \end{array} \quad \left. \begin{array}{l} \\ \\ \end{array} \right\} 0.02$	0.02 : 1.00
		$\begin{array}{l} 1.00 \\ \hline \end{array} \quad \left. \begin{array}{l} \\ \\ \end{array} \right\} 0.05$	0.05 : 1.00
B BATTERS	PILING	$\begin{array}{l} 0.2 \\ \hline \end{array} \quad \left. \begin{array}{l} \\ \\ \end{array} \right\} 1.0$	1.0 : 0.2
C EARTHWORK	FILLS, HEAD SLOPES, SIDE SLOPES	$\begin{array}{l} 3 \\ \hline \end{array} \quad \left. \begin{array}{l} \\ \\ \end{array} \right\} 1$	3 : 1
		$\begin{array}{l} 2.5 \\ \hline \end{array} \quad \left. \begin{array}{l} \\ \\ \end{array} \right\} 1.0$	2.5 : 1.0
		$\begin{array}{l} 2 \\ \hline \end{array} \quad \left. \begin{array}{l} \\ \\ \end{array} \right\} 1$	2 : 1

- Always maintain equal number of decimal spaces between horizontal and vertical components e.g. 2.5:1.0, not 2.5:1

SECTION 2 –GUIDELINES FOR BRIDGE PROJECTS

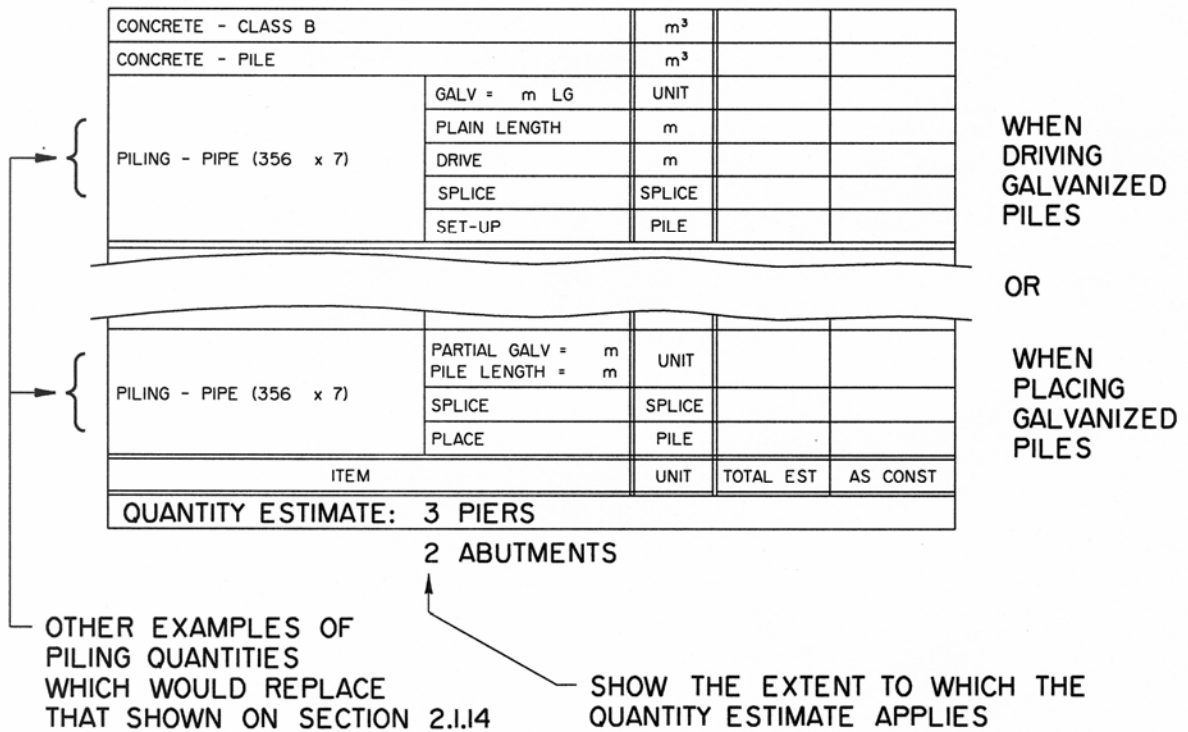
2.1.14 QUANTITY ESTIMATES

GUARDRAIL - DEEP BEAM (APPROACHES)		m	---				
TRUSS RAIL - TUBE TYPE		m	---				
HANDRAIL - CHAIN LINK		m	---				
HANDRAIL - 1150 mm STAGGERED VERTICAL BAR		m	---				
GUARDRAIL - DEEP BEAM, THRIEBEAM		m	---				
BRIDGERAIL - PL1, PL2		m	---				
WEARING SURFACE - HOT-MIX ACP		m ²	---				
WEARING SURFACE - TWO COURSE HOT-MIX ACP		m ²	---				
WEARING SURFACE - SILICA FUME		m ²	---				
BRIDGE DECK WATERPROOFING		m ²					
RIP-RAP - CLASS 1, 1M, 2, 3 HEAVY ROCK		m ³		---			
CONCRETE SLOPE PROTECTION		m ²		---			
GEOTEXTILE FILTER FABRIC		m ²		---			
BEDDING GRAVEL OR PIT-RUN GRAVEL		m ²		---			
POLYETHYLENE SHEETING (6 mil)		m ²		---			
TREATED TIMBER		FBM		---			
PLANKING - TREATED TIMBER (76 x 305)		m		---			
CONCRETE - 30 MPa		m ³	---				
CONCRETE - CLASS B, C, D, S, SF		m ³	---				
CONCRETE - PILE		m ³		---			
REINFORCING STEEL	EPOXY	kg					
	BLACK	kg					
PILING - TREATED TIMBER	DRIVE	m		---			
	SPLICE	SPLICE		---			
	SET-UP	PILE		---			
PILING - PIPE (760 ø x 10) (610 ø x 10) (406 ø x 7) (356 ø x 7)	DRIVE	m		---			
	SPLICE	SPLICE		---			
	SET-UP	PILE		---			
PILING - H PILE (HP 360 x 132) (HP 310 x 94) (HP 250 x 62)	DRIVE	m		---			
	SPLICE	SPLICE		---			
	SET-UP	PILE		---			
ITEM		UNIT	SUBSTR	SUPERSTR	TOTAL EST	AS CONST	
QUANTITY ESTIMATE							

NOTES:

- USE ONLY THOSE ITEMS REQUIRED FOR EACH PROJECT, BUT FOLLOW THE ORDER AND WORDING AS SHOWN. ITEMS NOT SHOWN SHALL BE INSERTED INTO THE ESTIMATE IN THE ORDER IN WHICH THEY ARE USED IN THE CONSTRUCTION OF THE BRIDGE.

SECTION 2 –GUIDELINES FOR BRIDGE PROJECTS



NOTES:

- THE QUANTITY ESTIMATE FORMAT FOR THE INFORMATION SHEET IS SHOWN IN SECTION 2.1.14. THE EXAMPLE SHOWN ABOVE SHOWS A FORMAT FOR A QUANTITY ESTIMATE FOR EACH BRIDGE COMPONENT.

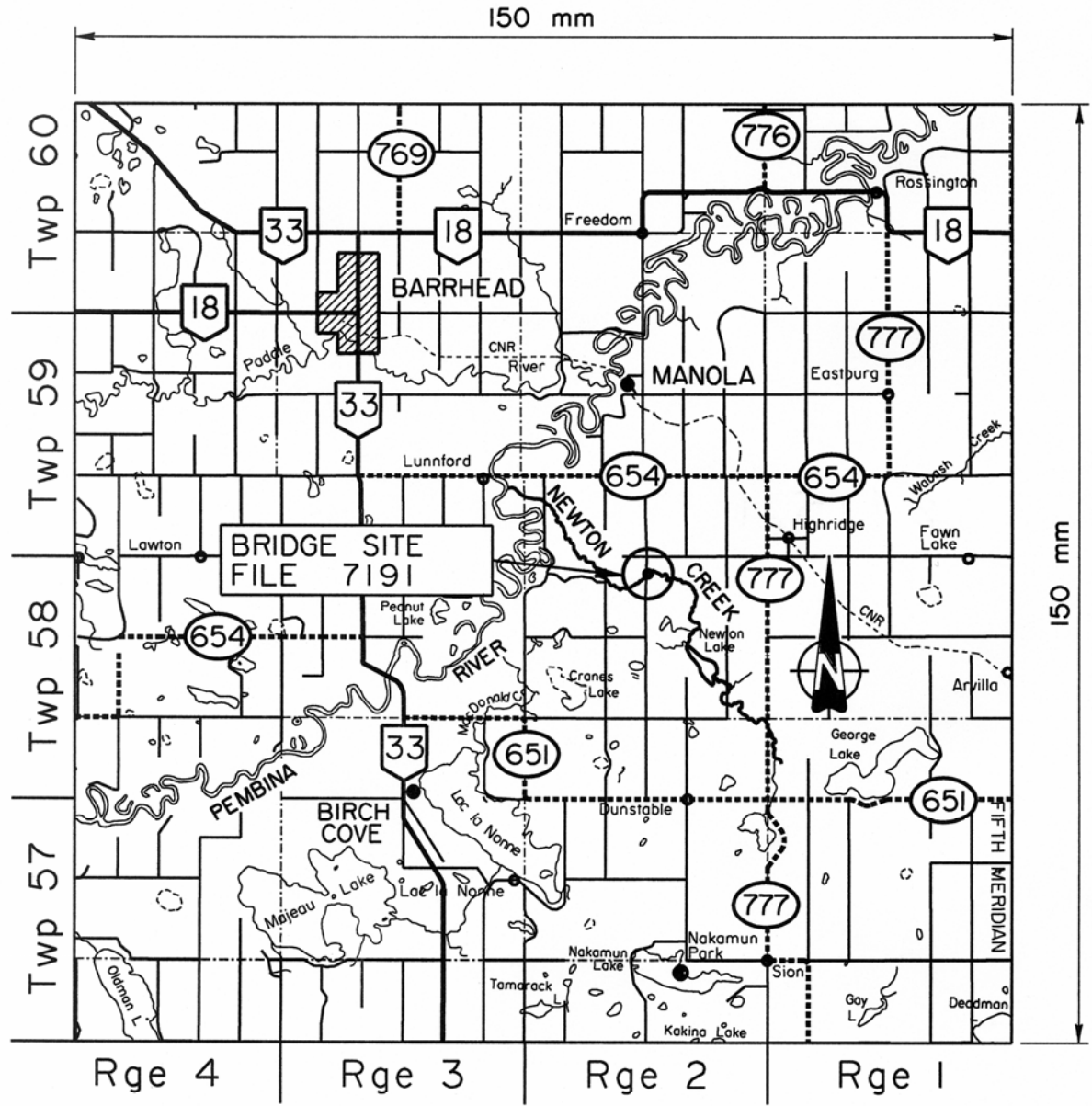
SECTION 2 –GUIDELINES FOR BRIDGE PROJECTS

2.1.15 SITE MAP

- Map scale 1:250 000
- The size of the Site Map should be 4 Ranges x 4 Townships (150m x 150m) and is located in the top right hand corner of the General Layout sheet for culvert drawings, and on the Information Sheet for bridge drawings.
- The bridge site should be located approximately in the centre of the Site Map.
- Use standard abbreviations and symbols for township, range, roads, etc.
- Town, village, city, etc. used to reference structure should be shown on the map in bold letters (e.g. “MARSH HEAD CREEK BRIDGE, ON LOCAL ROAD, 33 km S OF FOX CREEK”; the town “FOX CREEK” should appear on the map. In the few cases where this is not possible, place arrow in the direction of the town, using main highway or road, saying ___ km TO FOX CREEK).
- All names that appear on the Site Map must be complete (e.g. if the word “MARSH” is cut off, then it should be written in to indicate the creek name is “MARSH HEAD CREEK” and not “HEAD CREEK”).
- Boundaries of cities, reservations, etc, must be clearly shown and cross-hatched at 45°.
- The location of the bridge should be circled and noted as “BRIDGE SITE”. Noting of the file number is required.
- If possible, eliminate all straight lines not associated with highways, roads, townships, and ranges.
- Place “NORTH ARROW” on top half of map, either right or left corner. Locate arrow so as not to cover significant features.
- The Index for the road symbols should be placed below the Site Map title as shown on the sample Site Map in [Section 2.1.15.1](#).

SECTION 2 – GUIDELINES FOR BRIDGE PROJECTS

2.1.15.1 SITE MAP SAMPLE



SITE MAP

1 : 250 000

- HIGHWAY 1 - 216
- HIGHWAY 500 - 986
- LOCAL ROAD

SECTION 2 –GUIDELINES FOR BRIDGE PROJECTS

2.1.16 SYMBOLS

- Standard symbols should be used to maintain a consistent appearance to drawings. Certain symbols may be available in department cell libraries.

Description	Symbol	(Under Review)
North Arrow		Patterned from Cell called NORTHA
Roadway Edge - Proposed		LC 0, WT 3
Roadway Edge - Existing		LC 0, WT 1, CO 120
Roadway Centre Line, Plan View		Patterned from Cell called CENTRE (CO 120)
Right of Way, Proposed		Patterned from Cell called RTWAY (CO 150)
Right of Way, Existing		LC 0, WT 1, CO 150
Traffic Direction Arrow		LC 0, WT 1, 6mm ARROW (Cell AR)
Railway Centre Line		Patterned from Cell called RAILWY
Incorporated Boundary		LC 6, WT 4 (As per 1:250 000 Map)
Fence, Barbed		Patterned from Cell called BWF (CO 177)
Fence, Chain Link		Patterned from Cell called CHAINF
Bridge		
Benchmark Location		Patterned from Cell called BM (CO 150)
Found Legal Survey Control Monument		Patterned from Cell called LEGAL (CO 150)
Building, City, Town, Reservation		LC 0, WT 0, AA 45°, SPACE 1.5mm
Guardrail		Patterned from Cell called GRAIL (CO 240)
Telephone Cable, Existing, Buried		LC 0, WT 1, Cell called SECSYM, CO 20
Telephone Cable, Existing, Overhead		LC 0, WT 1, Cell called SECSYM, CO 20
Power Line, Existing, Buried		LC 0, WT 1, Cell called SECSYM, CO 10
Power Line, Existing, Overhead		LC 0, WT 1, Cell called SECSYM, CO 10
Power Pole/Pedestal		Patterned from Cell called PP (CO 10)
Light Pole		Patterned from Cell called LIGHT (CO 10)
Gas Line, Existing		Line Pattern Cell GASL, SECSYM Cell (CO 40)
Test Hole		Patterned from Cell called THOLE
Test Pit		Patterned from Cell called TPIT
Test Pile		Patterned from Cell called TPILE
Oil Line, Existing		Line Pattern Cell OILL, SECSYM Cell (CO 40)
Waterline, Existing		Line Pattern Cell WATERL, SECSYM Cell (CO 75)
Gas Well, Existing		Patterned from Cell called GASW (CO 40)
Oil Well, Existing		Patterned from Cell called OILW (CO 40)
Fire Hydrant, Existing		Patterned from Cell called HYDNT (CO 75)
Sewer, Sanitary(SA), Storm(ST), Existing		Line Pattern Cell SEWER, SECSYM Cell (CO 50)
Culvert, Existing		LC 0, WT 2
Culvert, Proposed		LC 0, WT 2
Flow Direction		Patterned from Cell called FLOW (CO 75)
Watercourse		Line Pattern Cell H2OCOUC (CO 75)
Drainage		Line Pattern Cell DRAIN (CO 75)
Centre Line, Original Ground		LC 3, WT 2, CO 120
Left Sod, Original Ground		Line Pattern Cell LTSOD (CO 11)
Right Sod, Original Ground		Line Pattern Cell RTSOD (CO 51)
Grade Line		LC 0, WT 3, CIRCLES- 1.5# WT 1 (CO 120)
PI		CIRCLE- 2.0# WT 1, CO 150
Original Ground		Line Pattern Cell GROUND (CO 195)
Top/Toe of Bank		LC 3, WT 1, CO 200
Edge of Water		LC 0, WT 2, CO 75
Retaining Wall, Existing		LC 0, WT 1
Median Centre Line		LC 7, WT 3
Primary Highway		LC 0, WT 7, Cell called HWYSYM
Secondary Highway		LC 2, WT 7, Cell called SECSYM
Local Road		LC 0, WT 3
Farm Entrance		
Dimension		

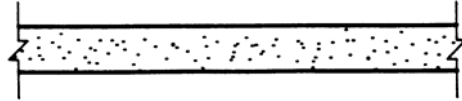
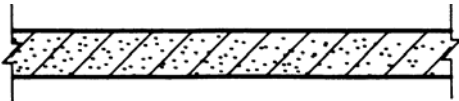
SECTION 2 –GUIDELINES FOR BRIDGE PROJECTS

2.1.17 CROSS SECTION SYMBOLS

- Scale of Cross Section Symbol to be appropriate to detail shown

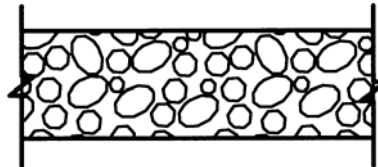
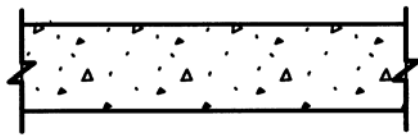


ASPHALTIC CONCRETE PAVEMENTS (ACP)



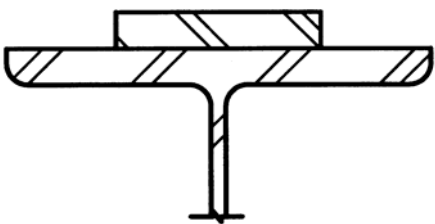
CONCRETE OVERLAY

GROUT



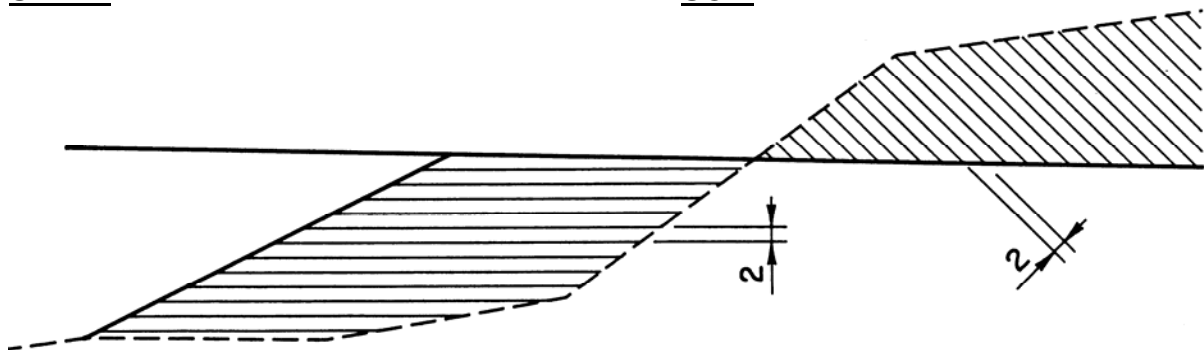
CONCRETE

GRANULAR BACKFILL



STEEL

SOIL



FILLS

CUTS

SECTION 2 –GUIDELINES FOR BRIDGE PROJECTS

2.1.18 ABBREVIATIONS FOR BRIDGE PROJECTS

RULES

1. The use of abbreviations should be avoided where possible.
2. Abbreviations should not be used within sentences.
3. Abbreviations are written without a full stop (period).
4. Abbreviations are written in upright 'Roman' upper case, unless otherwise shown in these guidelines.

A...

TERM	ABBREVIATION	TERM	ABBREVIATION
Abutment	ABUT	Approach	APP
Aggregate	AGGR	Approximately	APPROX
Alberta Resources Railway	ARR	Asphalt Impregnated Fiber Board	AIFB
Alberta Transportation	AT	Asphaltic Concrete Pavement	ACP
Alternate	ALT	Asphaltic Wearing Surface	AWS
And	&	Average	AVG

B...

TERM	ABBREVIATION	TERM	ABBREVIATION
Barbed Wire	BW	Bench Mark	BM
Bearing	BRG	Bottom	BTM
Beginning of Vertical Curve	BVC	Boundary	BDY

C...

TERM	ABBREVIATION	TERM	ABBREVIATION
Canadian National Railway	CNR	Concrete	CONC
Canadian Pacific Railway	CPR	Construction	CONST
Cast in Place	CIP	Construction Joint	CJ
Center	CTR	Continued	CONT
Center Line	☿	Control Point	CP
Center of Gravity	C/G	Corrugated Metal Pipe	CMP
Center to Center	C/C	Corrugated Steel Pipe	CSP
Classification	CLASS	Creek	CK
Clear or Clearance	CL	Culvert	CUL
Column	COL	Curve to Spiral	CS
Compacted	COMP	Curve to Tangent (Horizontal Curve)	CT
Complete With	C/W		

NOTE: Also see Appendix 4.2 for the listing of "Standard Abbreviations"

SECTION 2 –GUIDELINES FOR BRIDGE PROJECTS

D...

TERM	ABBREVIATION	TERM	ABBREVIATION
Dead Load	DL	Dimension	DIM
Department	DEPT	Ditto	(“)
Design Data	DD	Downstream	D/S
Diameter	DIA or θ	Drafting	DFT
Diaphragm	DIAPH	Drawing	DWG

E...

TERM	ABBREVIATION	TERM	ABBREVIATION
East	E	Equivalent	EQIV
East Bound Lane	EBL	Et Cetera	ETC
East Dead Center	EDC	Estimate	EST
Elevation (Above Datum)	EL	Excavation	EXC
Elevation (View)	ELEV	Existing	EXIT
Embankment	EMB	Expansion	EXP
End of Vertical Curve	EVC	Exterior	EXT
Engineer	ENG	Extreme High Water	EHW
Equal	EQ	Extreme Low Water	ELW
Equipment	EQIP		

F...

TERM	ABBREVIATION	TERM	ABBREVIATION
Fabricate	FAB	Foot or Feet	FT
Figure	FIG	Footing	FTG
Finish	FIN	For Example	EG:
Fixed	FXD	Foundation	FDN
Flange	FLG	Freeway	FWY

G...

TERM	ABBREVIATION	TERM	ABBREVIATION
Galvanized	GALV	Geotextile Filter Fabric	GFF
Gauge	GA	Grade Separation	G/S

H...

TERM	ABBREVIATION	TERM	ABBREVIATION
Headwater	HDW	High Water Line	HWL
Heavy	HVY	High Water Mark	HWM
Hexagon	HEX	Highway	HWY
High Density Concrete	HDC	Horizontal	HOR
Height of Instrument	HI	Hydraulic	HYD
High Water	HW		

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I...

TERM	ABBREVIATION	TERM	ABBREVIATION
Imperial	IMP	In South East	ISE
Increment	INCR	In South West	ISW
Information	INFO	Interior	INT
In North East	INE	Invert	INV
In North West	INW	Iron Pin	IP
Inside Diameter	ID		

J...

TERM	ABBREVIATION	TERM	ABBREVIATION
Joint	JT	Junction	JCT

K...

TERM	ABBREVIATION
Kilometre	km

L...

TERM	ABBREVIATION	TERM	ABBREVIATION
Lateral	LAT	Live Load	LL
Left	LT	Long	LG
Left Hand Forward	LHF	Low Water	LW
Length of Curve	LC	Low Water Line	LWL
Linear	LIN		

M...

TERM	ABBREVIATION	TERM	ABBREVIATION
Maintenance	MAINT	Medium	MED
Mark	MK	Memorandum	MEMO
Master Plan	MP	Meridian	MER
Material	MATL	Minimum	MIN
Maximum	MAX	Miscellaneous	MISC
Mechanically Stabilized Earth	MSE	Modification or Modified	MOD

N...

TERM	ABBREVIATION	TERM	ABBREVIATION
Nominal	NOM	Not To Scale	NTS
North	N	Number	NO
North Bound Lane	NBL		

SECTION 2 –GUIDELINES FOR BRIDGE PROJECTS

O...

TERM	ABBREVIATION	TERM	ABBREVIATION
On Center	O/C	Outside Diameter	OD
Opposite	OPP	Out To Out	O/O
Original	ORIG	Overhead	O/H

P...

TERM	ABBREVIATION	TERM	ABBREVIATION
Parallel	PAR or %	Power Pole	PP
Pavement	PVMT	Polyvinyl Chloride	PVC
Pedestrian	PED	Precast Concrete	P/C
Perpendicular	PERP or \perp	Prefabricated	PREFAB
Photograph	PHOTO	Preliminary	PRELIM
Plate	PL	Prestressed	PRESTR
Point	PT	Projection	PROJ
Point of Intersection	PI	Proposed	PROP
Positive	POS		

Q...

TERM	ABBREVIATION	TERM	ABBREVIATION
Quantity	QTY	Quarter	QTR

R...

TERM	ABBREVIATION	TERM	ABBREVIATION
Radius	R=	Revision	REV
Railroad	RR	Right	RT
Railway	RLY	Right Hand Forward	RHF
Range	RGE	Right Of Way	R/W
Reference	REF	River	R
Reference Line	REF/L	Road	RD
Reference Point	REF/P	Road Allowance	R/A
Reinforce (Reinforcing)	REINF	Roadway	RDWY
Reinforcing Steel	REBAR	Roof Slab	RS
Required	REQD		

S...

TERM	ABBREVIATION	TERM	ABBREVIATION
Section	SECT	Stainless Steel	S/STL or S/S
Skew	SK	Standard	STD
Slotted	SLOT	Station	STA
South	S	Stiffener	STIFF
South Bound Lane	SBL	Straight	STR
South Dead Center	SDC	Streambed	SB
Spaces (Spacing)	SP	Structural Plate Corrugated Metal Pipe	SPCMP
Specification	SPEC	Structural Plate	SPCSP

SECTION 2 –GUIDELINES FOR BRIDGE PROJECTS

TERM	ABBREVIATION	TERM	ABBREVIATION
		Corrugated Steel Pipe	
Spiral to Curve	SC	Substructure	SUBSTR
Spiral to Tangent	ST	Superstructure	SUPERSTR
Square	SQ or	Symmetrical	SYM

T...

TERM	ABBREVIATION	TERM	ABBREVIATION
Tailwater	TW	Theoretical	THEO
Tangent to Curve (Horizontal Curve)	TC	Tolerance	TOL
Tangent to Spiral	TS	Top and Bottom	T&B
Technical	TECH	Township	TWP
Temporary or Temperature	TEMP	Treated Timber	TT
Test Hole	TH	Typical	TYP
Test Pit/Test Pile/Turning Point	TP		

U...

TERM	ABBREVIATION	TERM	ABBREVIATION
Unless Noted Otherwise	UNO	Utilities	UTIL
Upstream	U/S		

V...

TERM	ABBREVIATION	TERM	ABBREVIATION
Vertical	VERT	Volume	VOL
Vertical Curve	VC		

W...

TERM	ABBREVIATION	TERM	ABBREVIATION
Water Level	WL	West	W
Weight	WT	West Bound Lane	WBL

X...

(none)

Y...

(none)

Z...

(none)

SECTION 2 –GUIDELINES FOR BRIDGE PROJECTS

Source:

C.G.S.B. STD 33-GP-2

Drafting and Plans Manual Apr 1974

Standard Parts, Sizes, Symbols and Abbreviations

SECTION 2 –GUIDELINES FOR BRIDGE PROJECTS

2.1.19 CAD FILE STANDARDS AND GUIDELINES

- CAD refers to Microstation software compatible with the Department's current version.
- For additional general CAD file guidelines see [Section 1](#).
- Title sheets supplied by the department are NOT to be altered. No extraneous information is to be added to the title block area. All consultant file information is to be placed outside of the title sheet border on the far left side using 3 mm text. This strict control on the title blocks is to facility the departments document management system.
- All cad files shall have no reference files attached.
- Levels are to be used as per [Section 1.13](#).
- All extraneous drawing information is to be deleted from the CAD file.
- Files are to be saved such that when opened the entire drawing is displayed, with the screen line weight display turned off and the file compressed.
- The file naming convention is to be used to label files on the CD. The CD including the case and spine are to be labeled with the CAD file name, bridge file number and drawing number, the bridge site is optional.
- Bridge font library and Microstation format available upon request.

SECTION 2 –GUIDELINES FOR BRIDGE PROJECTS

2.1.20 PROFESSIONAL STAMPS AND PERMIT TO PRACTICE

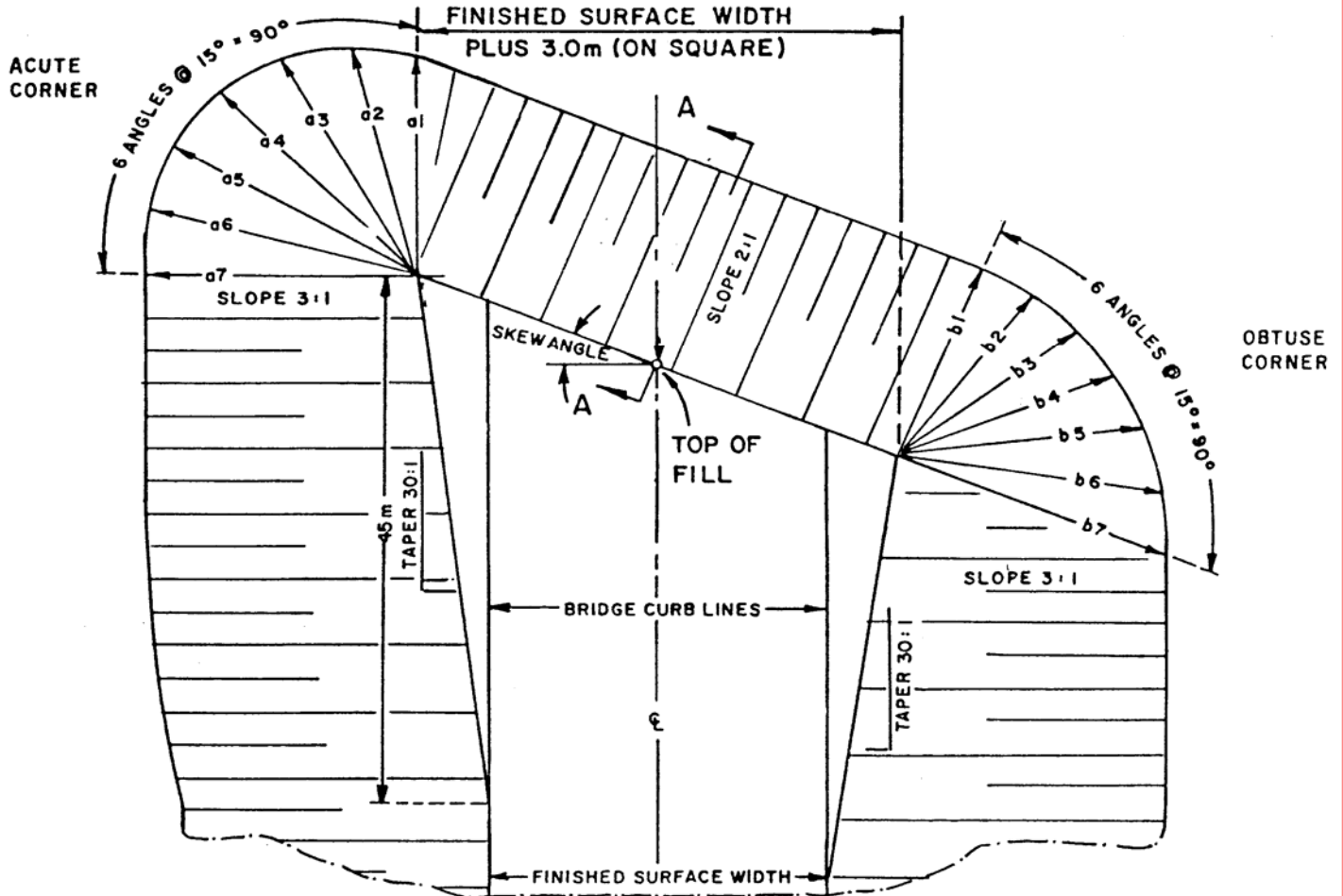
- At the submission stages, tender stage and as-built stage, the hard copy full size reproducible drawings require the “Professional” stamps to be signed and dated. It is preferable to have the “Professional” stamps as part of the CAD file as well, as this will show the viewer the names of the individuals responsible for the drawings. If a firm does not wish to display the stamps showing the individual involved in the drawing the follow format will be accepted, in the CAD file only.

<p>PERMIT TO PRACTICE UMA ENGINEERING LTD. PERMIT NUMBER: P 5778 ORIGINAL SIGNED AND STAMPED</p> <p>BY: <u>ART WASHUTA</u> ON: <u>NOVEMBER 21, 2000</u></p> <p>The Association of Professional Engineers, Geologists and Geophysicists of Alberta</p>	<p>DESIGNER</p> <p>PROFESSIONAL ENGINEER ALBERTA</p> <p>ORIGINAL STAMPED AND SIGNED</p> <p>BY: <u>R. J. RAMSAY</u> ON: <u>NOV 21, 2000</u></p> <p>DATE _____</p>	<p>CHECKER</p> <p>PROFESSIONAL ENGINEER ALBERTA</p> <p>ORIGINAL STAMPED AND SIGNED</p> <p>BY: <u>D. B. SERINK</u> ON: <u>NOV 21, 2000</u></p> <p>DATE _____</p>
---	--	---

SECTION 2 – GUIDELINES FOR BRIDGE PROJECTS

2.2 FILLS AND HEADSLOPES

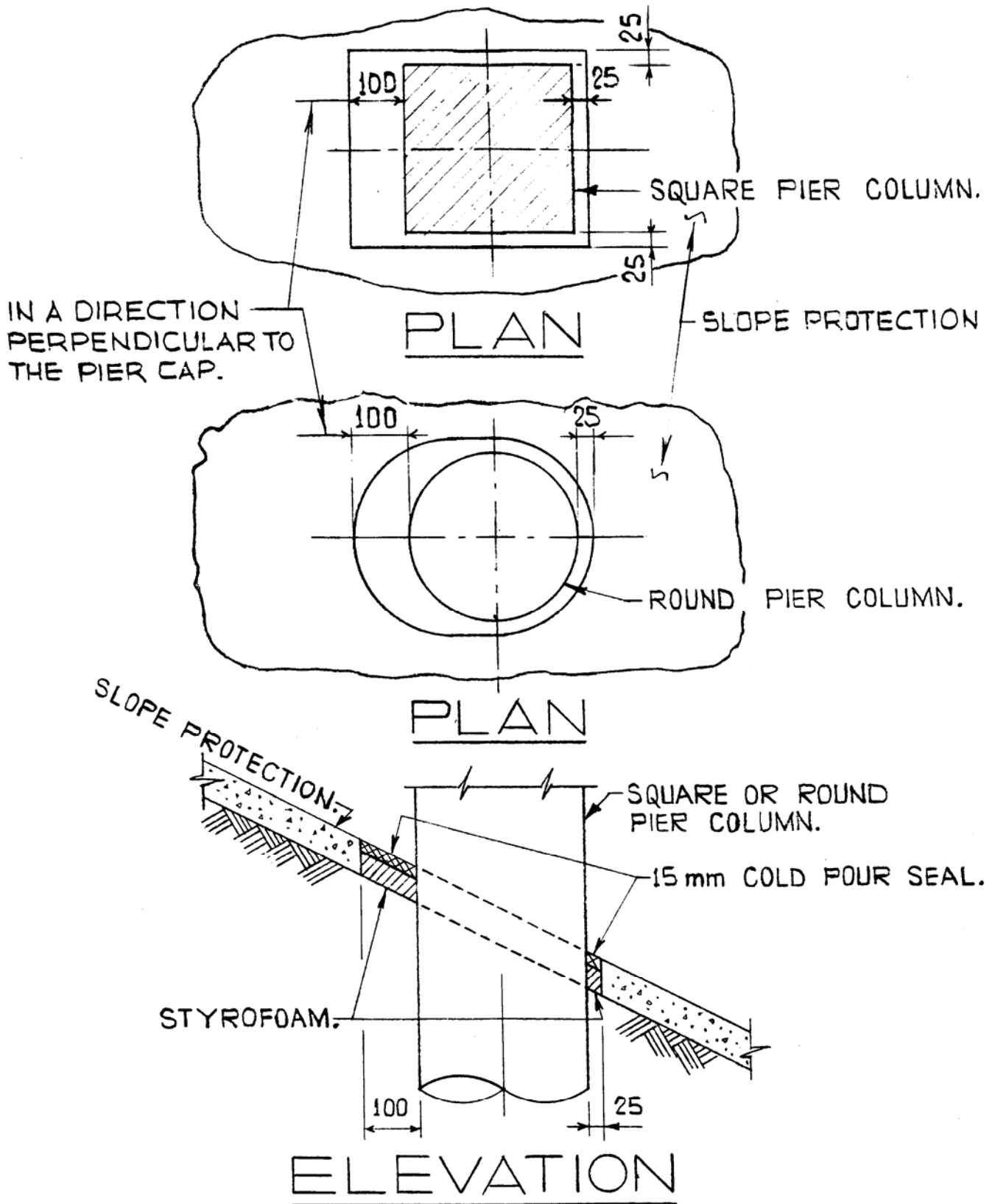
2.2.1 FILLS AT BRIDGE ENDS



SKEW ANGLE	SLOPES AT ACUTE CORNER							SLOPES AT OBTUSE CORNER						
	a1 0°	a2 15°	a3 30°	a4 45°	a5 60°	a6 75°	a7 90°	b1 0°	b2 15°	b3 30°	b4 45°	b5 60°	b6 75°	b7 90°
0° (square)	2.00	2.038	2.155	2.353	2.619	2.882	3.00	2.00	2.038	2.155	2.353	2.619	2.882	3.00
5°	2.008	2.128	2.382	2.828	2.825	2.955	3.00	2.00	2.071	2.283	2.520	2.735	2.906	3.011
10°	2.031	2.205	2.443	2.664	2.843	2.960	3.00	2.00	2.071	2.257	2.467	2.682	2.882	3.046
15°	2.071	2.273	2.493	2.695	2.858	2.963	3.00	2.00	2.070	2.228	2.421	2.643	2.877	3.106
20°	2.128	2.337	2.546	2.734	2.833	2.975	3.00	2.00	2.064	2.197	2.382	2.617	2.893	3.193
25°	2.207	2.474	2.716	2.905	3.020	3.045	3.00	2.00	2.051	2.168	2.351	2.605	2.928	3.310
30°	2.309	2.642	2.915	3.093	3.160	3.093	3.00	2.00	2.035	2.141	2.327	2.606	2.985	3.464
35°	2.442	2.850	3.147	3.296	3.281	3.106	3.00	2.00	2.037	2.153	2.358	2.669	3.101	3.662
40°	2.611	3.106	3.416	3.513	3.389	3.106	3.00	2.00	2.040	2.166	2.393	2.742	3.241	3.916
45°	2.828	3.423	3.729	3.741	3.457	3.106	3.00	2.00	2.044	2.181	2.432	2.828	3.410	4.243
50°	3.111	3.819	4.094	3.969	3.464	3.106	3.00	2.00	2.047	2.197	2.476	2.929	3.618	4.667
55°	3.487	4.321	4.522	4.170	3.464	3.106	3.00	2.00	2.051	2.215	2.525	3.046	3.876	5.230
60°	4.00	4.970	5.023	4.243	3.464	3.106	3.00	2.00	2.055	2.233	2.578	3.181	4.199	6.00

SECTION 2 – GUIDELINES FOR BRIDGE PROJECTS

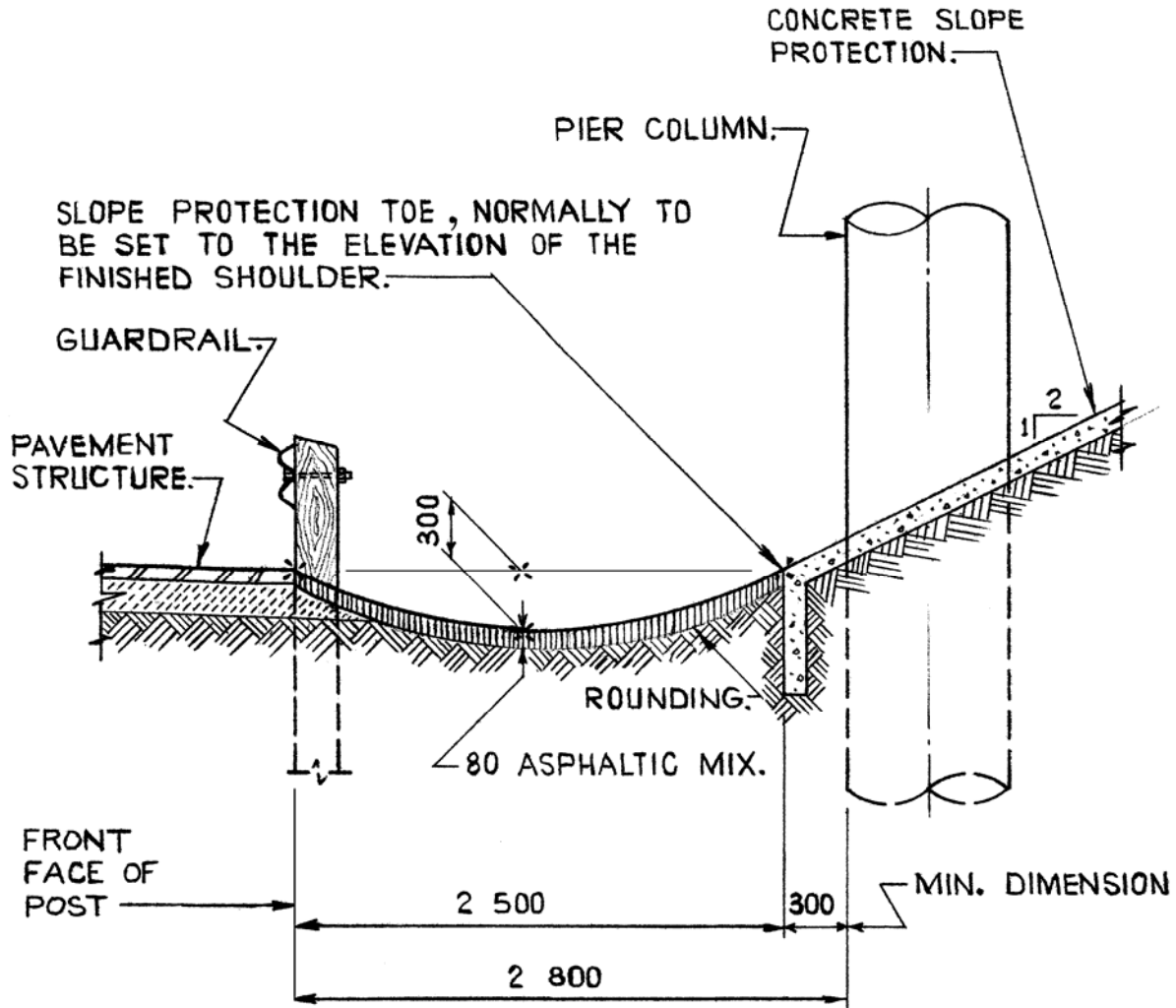
2.2.2 SLOPE PROTECTION – SQUARE AND ROUND COLUMN JOINT



SECTION 2 –GUIDELINES FOR BRIDGE PROJECTS

2.2.3 HEADSLOPE TOE DETAIL FOR GRADE SEPARATION WITH GUARDRAIL PROTECTION

DIMENSIONS ARE GIVEN IN mm.

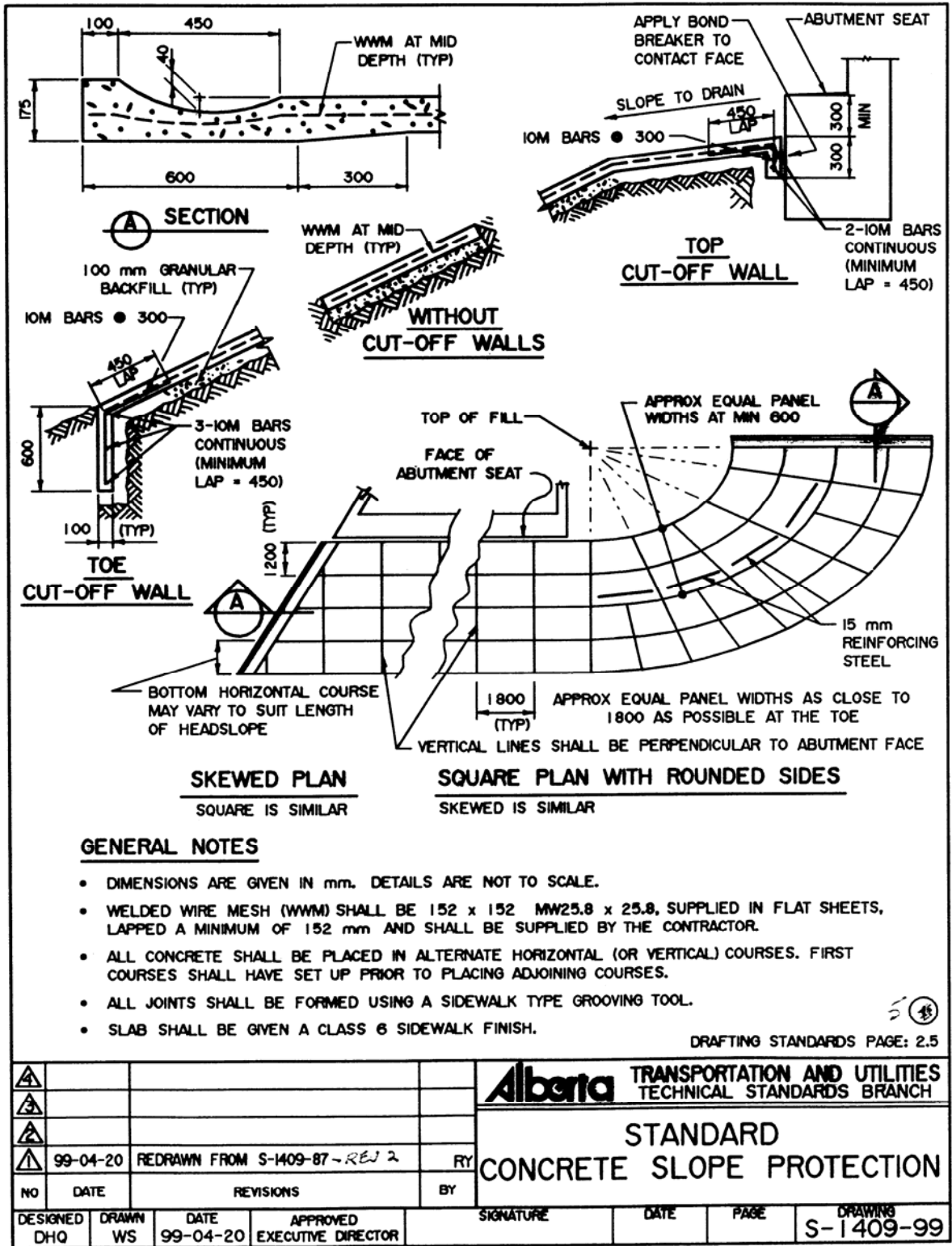


NOTE:

ROUNDING DEPTH AND RELATIVE ELEVATION OF SHOULDER AND TOE OF SLOPE PROTECTION MAY VARY APPROX 150.

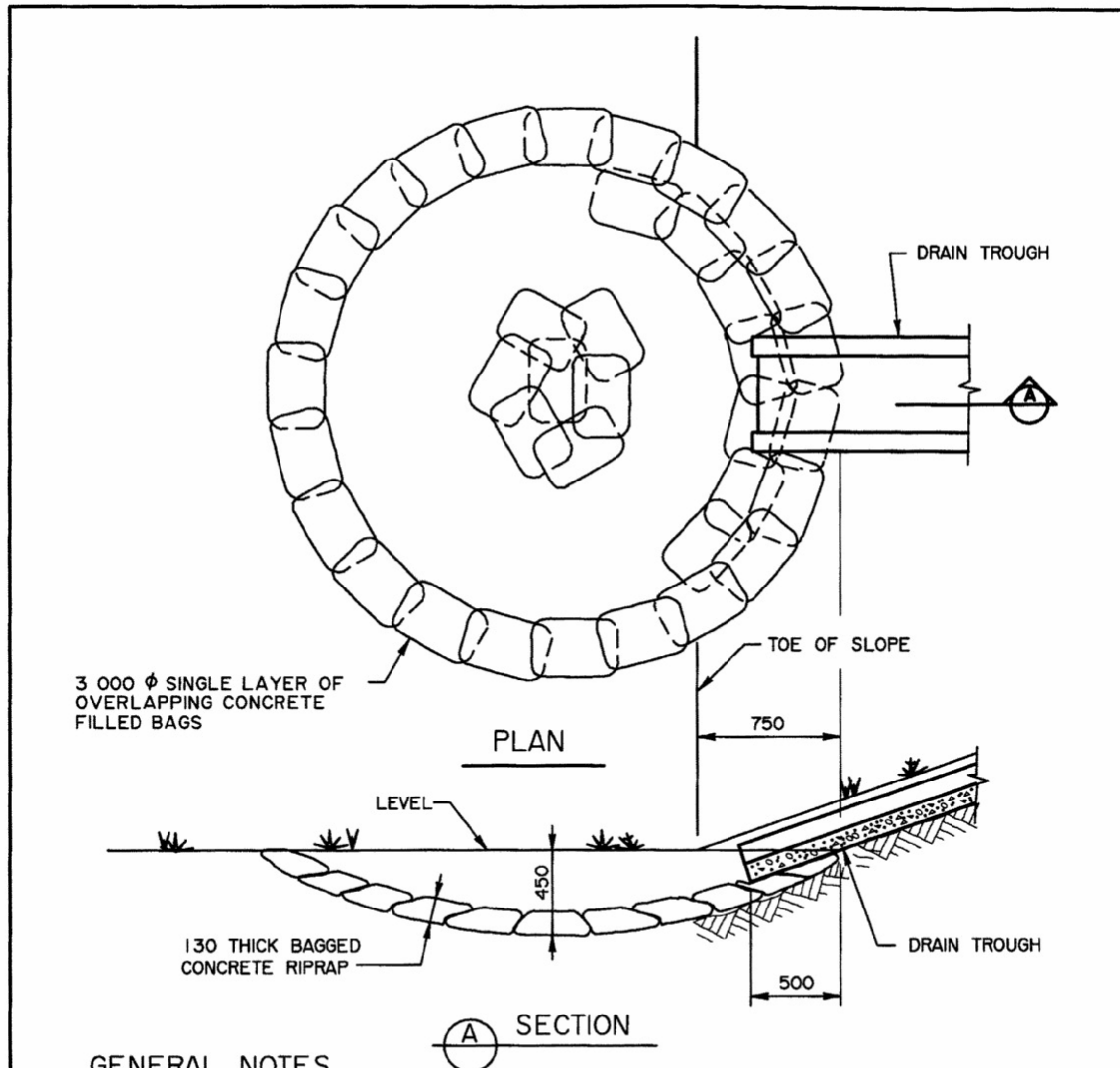
SECTION 2 – GUIDELINES FOR BRIDGE PROJECTS

2.2.4 STANDARD CONCRETE SLOPE PROTECTIONS



SECTION 2 –GUIDELINES FOR BRIDGE PROJECTS

2.2.5 STANDARD DRAIN TROUGH TERMINAL PROTECTION



GENERAL NOTES

- DIMENSIONS ARE GIVEN IN mm. DETAILS ARE NOT TO SCALE.
- PLACING OF BAGGED CONCRETE RIPRAP SHALL START AT THE BOTTOM CENTRE OF THE DISHED AREA AND SHALL PROCEED IN A CIRCULAR LAYERED FASHION UPWARD UNTIL THE ENTIRE DISH IS COVERED. EACH CONCRETE FILLED BAG SHALL LAP OVER THE EDGES OF THE PREVIOUSLY PLACED BAGS.

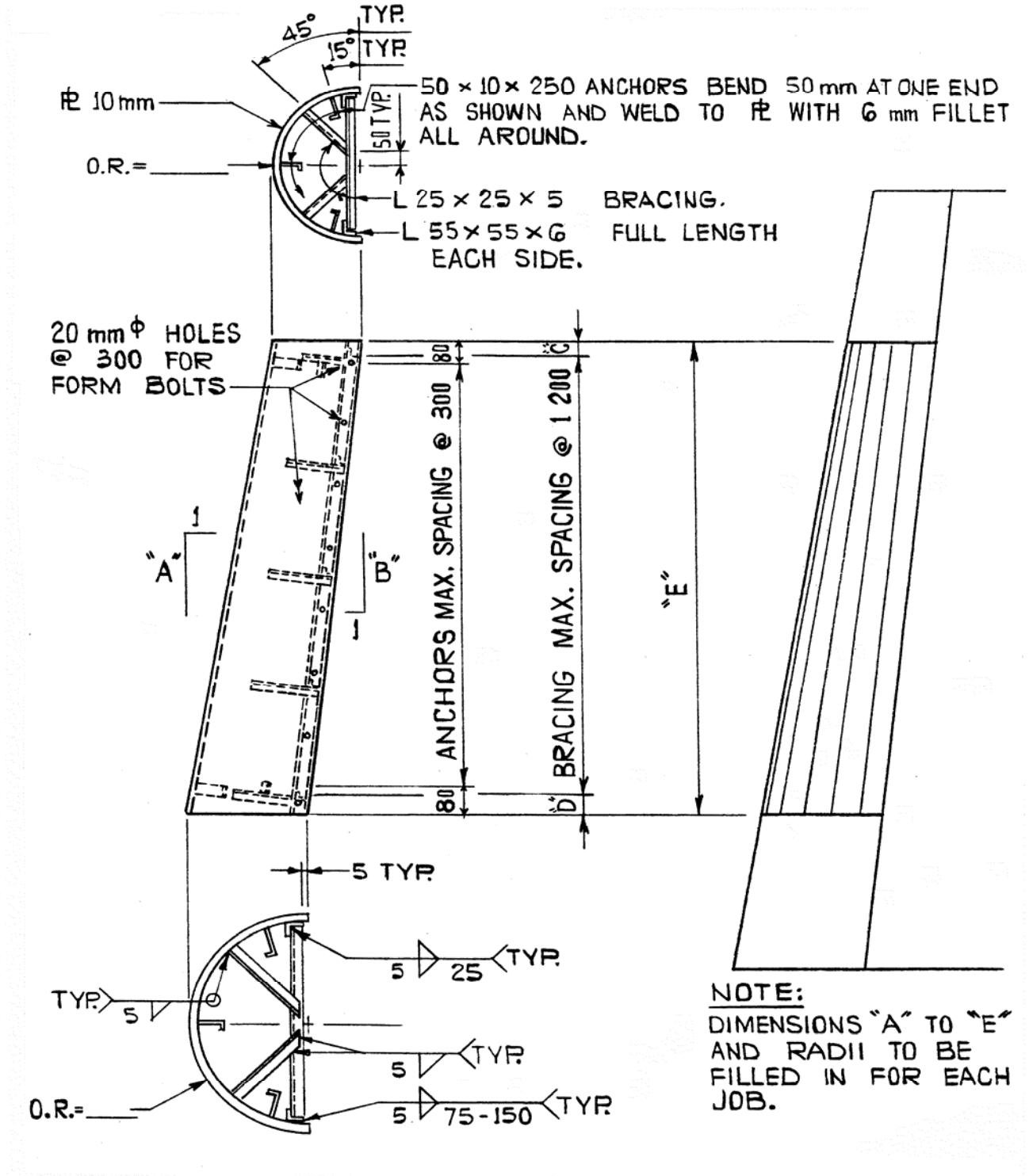
2003-03-21	GENERAL NOTES	JT	Alberta TRANSPORTATION AND UTILITIES TECHNICAL STANDARDS BRANCH				
99-03-29	BEB CHANGED TO TSB	RY					
94-11-30	GENERAL NOTES	RJR					
91-01-29	REDRAWN FROM S-1410-87	DHQ					
NO	DATE	REVISIONS	BY				
DESIGNED	DRAWN	DATE	APPROVED	SIGNATURE	DATE	PAGE	DRAWING
DHQ	MIK	91-01-29	EXECUTIVE DIRECTOR	<i>[Signature]</i>		9.3	S-1410-91

PLOTTED MAR 21, 2003 S1410X91.RV4

SECTION 2 – GUIDELINES FOR BRIDGE PROJECTS

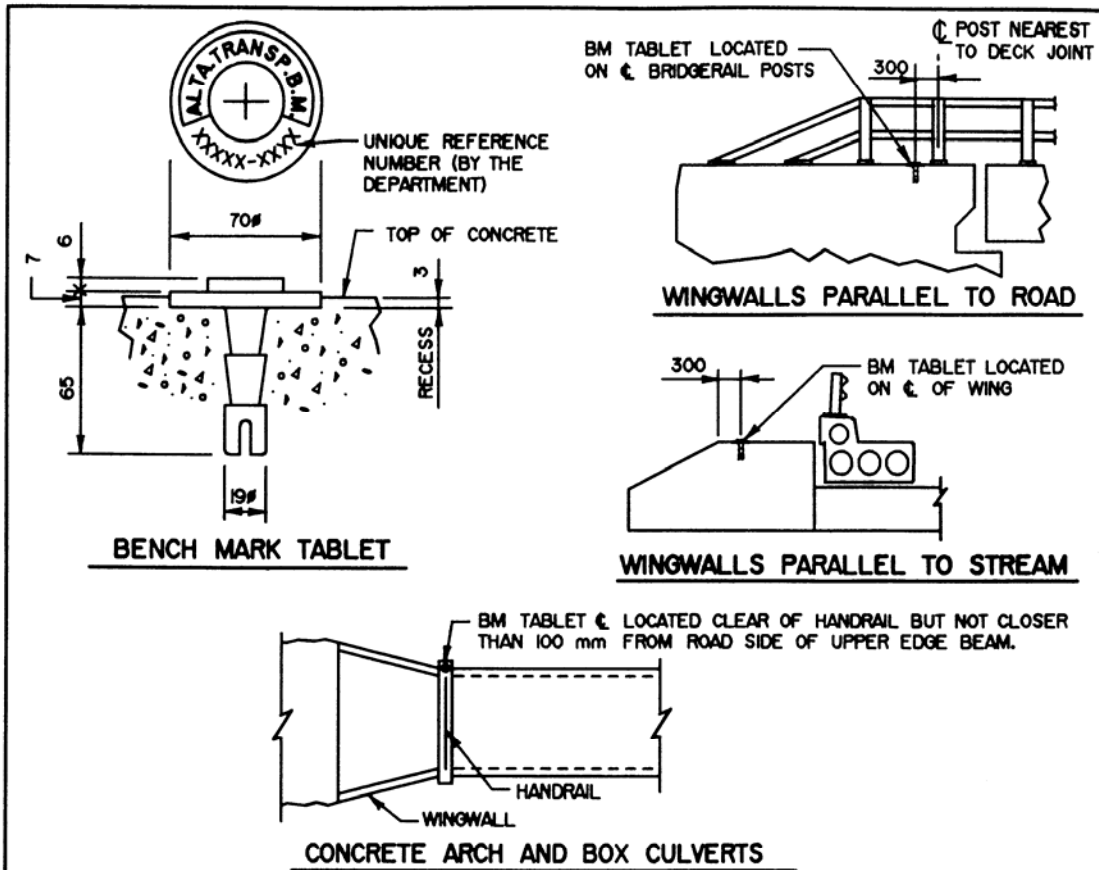
2.3 SUBSTRUCTURE

2.3.1 NOSE PLATE



SECTION 2 – GUIDELINES FOR BRIDGE PROJECTS

2.3.2 STANDARD BRIDGE BENCH MARK TABLE INSTALLATION



GENERAL NOTES

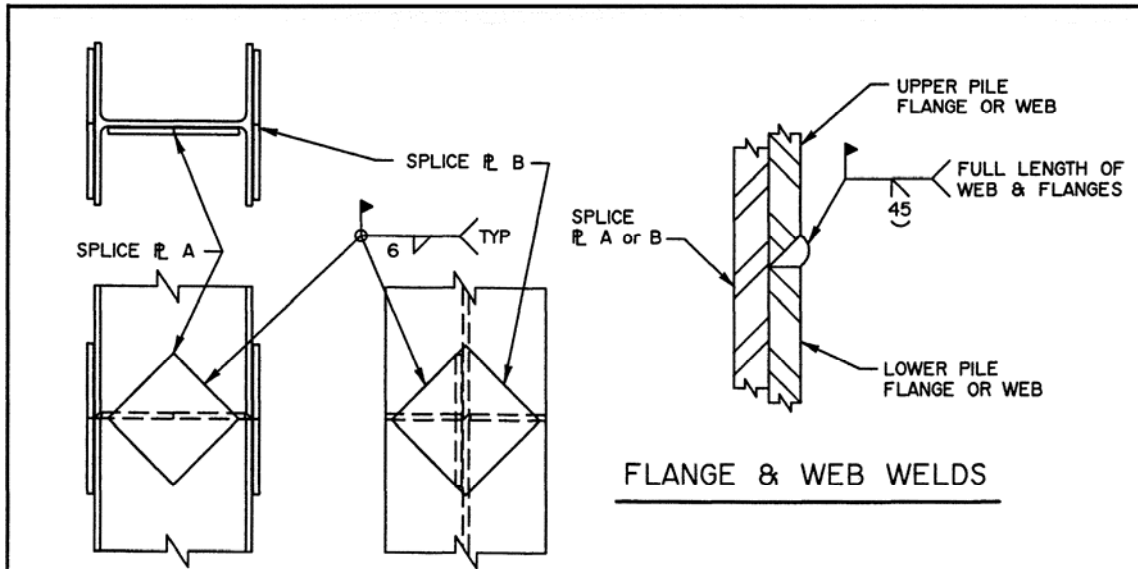
- DIMENSIONS ARE GIVEN IN mm. DETAILS ARE NOT TO SCALE.
- ③ ● ONE BRONZE BM TABLET WILL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR FOR EACH STRUCTURE AS PER SECTION 13 "MISCELLANEOUS IRON" OF THE BRIDGE CONSTRUCTION SPECIFICATIONS.
- BM TABLET SHALL GENERALLY BE PLACED ON THE NW CORNER OF THE BRIDGE AS PRESCRIBED ON THE BRIDGE DRAWINGS.
- BM TABLET SHALL BE PLACED ONLY IN SUBSTRUCTURE ELEMENTS NOT SUBJECT TO SETTLEMENT i.e. ABUTMENTS SUPPORTED ON PILES OR FIRM BEDROCK.
- ③ ● THE DEPARTMENT WILL ASSIGN A UNIQUE REFERENCE NUMBER FOR EACH BENCHMARK TABLET. THE NUMBER IS ISSUED BY THE SURVEY/IMAGERY COORDINATOR IN TECHNICAL STANDARDS BRANCH.
- ③ ● FINAL BM ELEVATION (TO NEAREST 0.001m) SHALL BE DETERMINED BY THE CONSULTANT AFTER INSTALLATION AND SHALL BE SHOWN ON THE "AS CONSTRUCTED" GENERAL LAYOUT DRAWING. THE FINAL ELEVATION, AS WELL AS WHICH GEODETIC BASED BENCHMARK IT WAS TIED TO, SHALL BE REPORTED TO THE SURVEY/IMAGERY COORDINATOR IN TECHNICAL STANDARDS BRANCH.

① DRAFTING STANDARDS PAGE: 3.5

①	99-03-29	BEB CHANGED TO TSB	RY	Alberta TRANSPORTATION AND UTILITIES TECHNICAL STANDARDS BRANCH STANDARD BRIDGE BENCH MARK TABLE INSTALLATION
①	98-04-20	TABLET SUPPLIER AND REPORTING NOTES	CTC	
①	94-11-30	SMALL CONTRACTS PAGE NO	RJR	
①	90-03-01	DRAFTING STANDARDS PAGE NO	YGB	
NO	DATE	REVISIONS	BY	
DESIGNED	DRAWN	DATE	APPROVED	SIGNATURE
DHQ	WS	87-09-02	EXECUTIVE DIRECTOR	<i>[Signature]</i>
				DATE
				17/08/07
				PAGE
				①
				DRAWING
				S-1478

PLOTTED MARCH 29, 1999 51478X87 .RV3

2.3.3 STANDARD H-PILE SPLICE



SPLICE DETAILS

PILE DESIGNATION	SPLICE PLATE DIMENSIONS	
	PLATE A (WEB)	PLATE B (FLANGE)
HP 250 x 62	140 x 10 x 140	170 x 10 x 170
HP 310 x 94	175 x 12 x 175	200 x 12 x 200
HP 360 x 132	200 x 16 x 200	250 x 16 x 250

GENERAL NOTES

- DIMENSIONS ARE GIVEN IN mm. DETAILS ARE NOT TO SCALE.
- ② • STEEL SHALL CONFORM TO ASTM A36 OR CSA G40.21M 300W.

REQUIREMENTS AND PROCEDURE FOR SPLICING H-PILES

- ④ 1. FIELD WELDING SHALL BE IN ACCORDANCE WITH SECTION 13.4
- 2. PILE ENDS TO BE SPLICED SHALL BE FLAME CUT USING A STEEL GUIDE TO OBTAIN A SQUARE AND EVEN CUT. BEVEL CUTS SHALL BE MADE AT 45°.
- 3. SPLICE PLATES A & B SHALL BE WELDED TO THE UPPER PILE BEFORE POSITIONING IT.
- 4. THE UPPER PILE SHALL BE POSITIONED ON AND THE SPLICE PLATES WELDED TO THE LOWER PILE; BUTT WELDS SHALL THEN BE MADE.

5

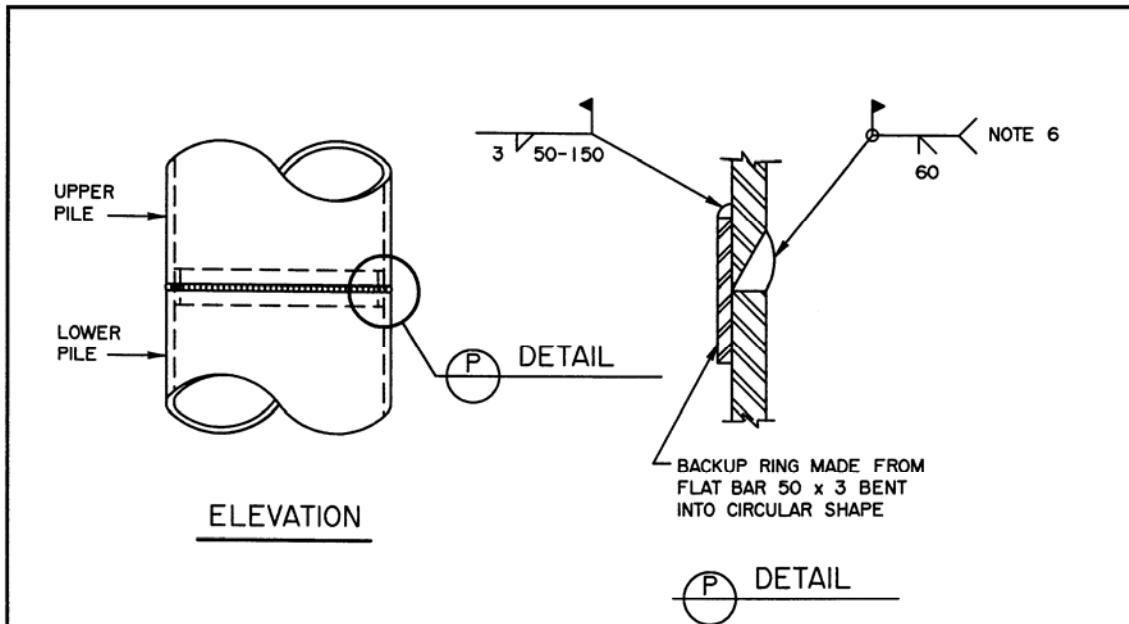
DRAFTING STANDARDS PAGE: 3.6

④	2001-06-19	GENERAL NOTES	AW	Alberta TRANSPORTATION AND UTILITIES TECHNICAL STANDARDS BRANCH STANDARD H-PILE SPLICE			
④	99-03-29	BEB CHANGED TO TSB	RY				
④	94-11-30	GENERAL NOTES	RJR				
④	87-03-11	REDRAWN FROM S-1415	DHQ				
NO	DATE	REVISIONS	BY				
DESIGNED DHQ	DRAWN MIK	DATE 87-03-11	APPROVED EXECUTIVE DIRECTOR	SIGNATURE <i>[Signature]</i>	DATE 11/9/87	PAGE	DRAWING S-1415-87

PLOTTED JUNE 19, 2002 S1415X87.RV4

SECTION 2 –GUIDELINES FOR BRIDGE PROJECTS

2.3.4 STANDARD PIPE PILE SPLICE



GENERAL NOTES

- DIMENSIONS ARE GIVEN IN mm. DETAILS ARE NOT TO SCALE

2

REQUIREMENTS AND PROCEDURE FOR SPLICING PIPE PILES

4

1. FIELD WELDING SHALL BE IN ACCORDANCE WITH SECTION 13.4
2. THE LOWER PILE SHALL BE TRIMMED TRUE AND SQUARE.
3. THE BEVEL ON THE UPPER PILE SHALL BE FLAME CUT USING A MECHANICAL PIPE BEVELLING MACHINE.
4. THE BACKUP PLATE SHALL BE WELDED TO THE UPPER PILE.
5. THE UPPER PILE SHALL BE POSITIONED WITH THE BACKUP RING FITTED INTO THE LOWER PILE.
6. SPLICE WELD SHALL PENETRATE BACKUP RING. TWO PASSES ARE REQUIRED IF THE PILE WALL IS GREATER THAN 8 mm. GRIND WELD SMOOTH IF THE SPLICE IS LOCATED ABOVE GROUND LEVEL.

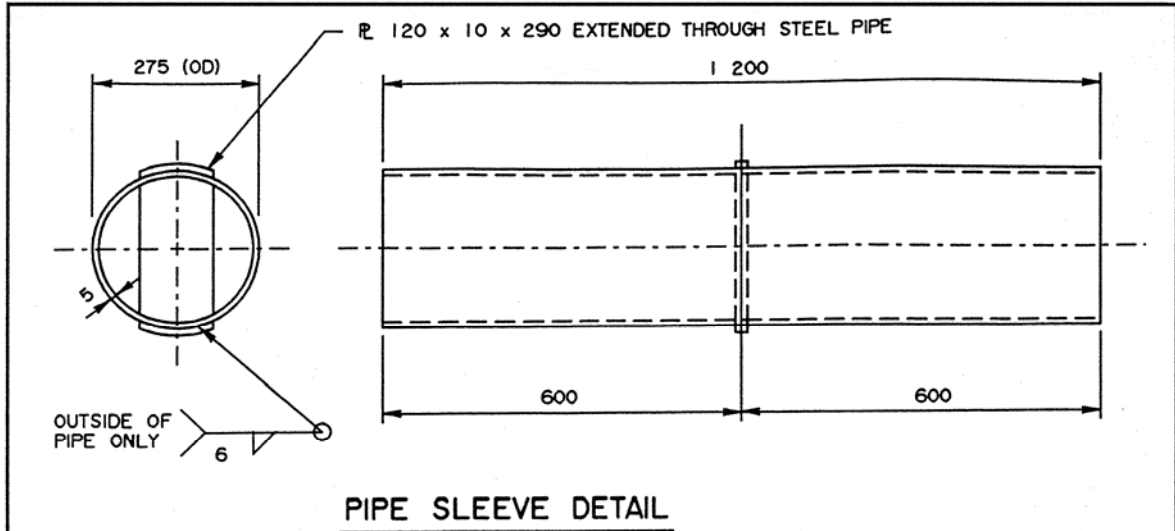
5

DRAFTING STANDARDS PAGE: 3.7

2001-06-19	GENERAL NOTES	AW	Alberta TRANSPORTATION AND UTILITIES TECHNICAL STANDARDS BRANCH STANDARD PIPE PILE SPLICE				
99-03-29	BEB CHANGED TO TSB	RY					
94-11-30	GENERAL NOTES	RJR					
87-03-09	REDRAWN FROM S-1414	DHQ					
NO	DATE	REVISIONS	BY				
DESIGNED DHQ	DRAWN MIK	DATE 87-03-09	APPROVED EXECUTIVE DIRECTOR	SIGNATURE <i>[Signature]</i>	DATE May 8/87	PAGE	DRAWING S-1414-87

PLOTTED JUNE 19, 2001 5:14:48 PM .RV4

2.3.5 STANDARD TIMBER PILE SPLICE



GENERAL NOTES

- DIMENSIONS ARE GIVEN IN mm. DETAILS ARE NOT TO SCALE.
- STEEL SHALL CONFORM TO ASTM A36 OR CSA G40.21M 300W.

REQUIREMENTS AND PROCEDURE FOR SPLICING TIMBER PILES

1. THE PILE ENDS BEING SPLICED SHALL HAVE DIAMETERS OF 280 mm OR GREATER.
2. DRIVING OF THE BOTTOM PILE SHALL BE STOPPED APPROXIMATELY 600 mm ABOVE GROUND OR WATER LINE.
3. DAMAGED PILE ENDS SHALL BE TOTALLY REMOVED BY MAKING SQUARE CUT-OFFS.
4. THE PIPE SLEEVE SHALL BE CENTRED, AND TAPPED PARALLEL, THE FULL 600 mm DISTANCE ONTO THE PILE.
5. THE UPPER PILE END SHALL BE SQUARED, CENTERED ON THE TOP OF THE PIPE SLEEVE, AND TAPPED DOWN INTO THE SLEEVE, KEEPING THE UPPER PILE ALIGNED WITH THE LOWER PILE.
6. THE TOP OF THE PILE SPLICE SHALL END UP NOT LESS THAN 2500 mm BELOW GROUND LINE.

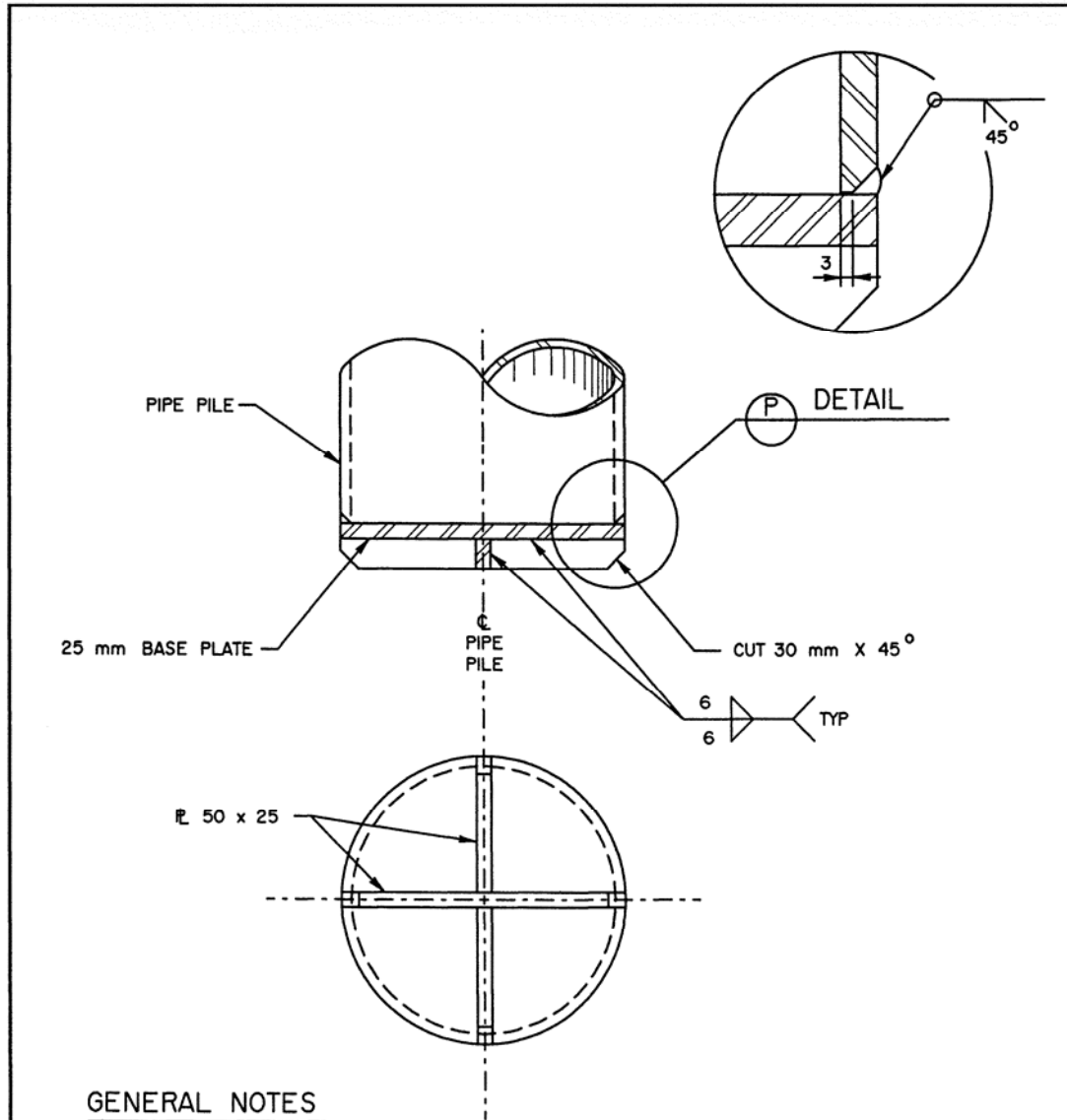
(5)
DRAFTING STANDARDS PAGE: 3.8

4				Alberta TRANSPORTATION AND UTILITIES TECHNICAL STANDARDS BRANCH
3	99-03-29	BEB CHANGED TO TSB	RY	STANDARD TIMBER PILE SPLICE
2	94-11-30	GENERAL NOTES AND PAGE NUMBER	RJR	
1	87-03-05	REDRAWN FROM S-1413	DHQ	
NO	DATE	REVISIONS	BY	
DESIGNED DHQ	DRAWN MIK	DATE 87-03-05	APPROVED EXECUTIVE DIRECTOR	SIGNATURE <i>[Signature]</i>
				DATE 11/7/87
				PAGE 3
				DRAWING S-1413-87

PLOTTED MAR 29, 1999 S1413X87.RV3

SECTION 2 –GUIDELINES FOR BRIDGE PROJECTS

2.3.6 STANDARD CLOSED PIPE PILE END PLATE



GENERAL NOTES

- ① • DIMENSIONS ARE GIVEN IN mm. DETAILS ARE NOT TO SCALE.
- ② • STEEL SHALL CONFORM TO ASTM A36 OR CSA G40.21M 300W.
- ③ • SHOP WELDING SHALL BE IN ACCORDANCE WITH SECTION 6

③

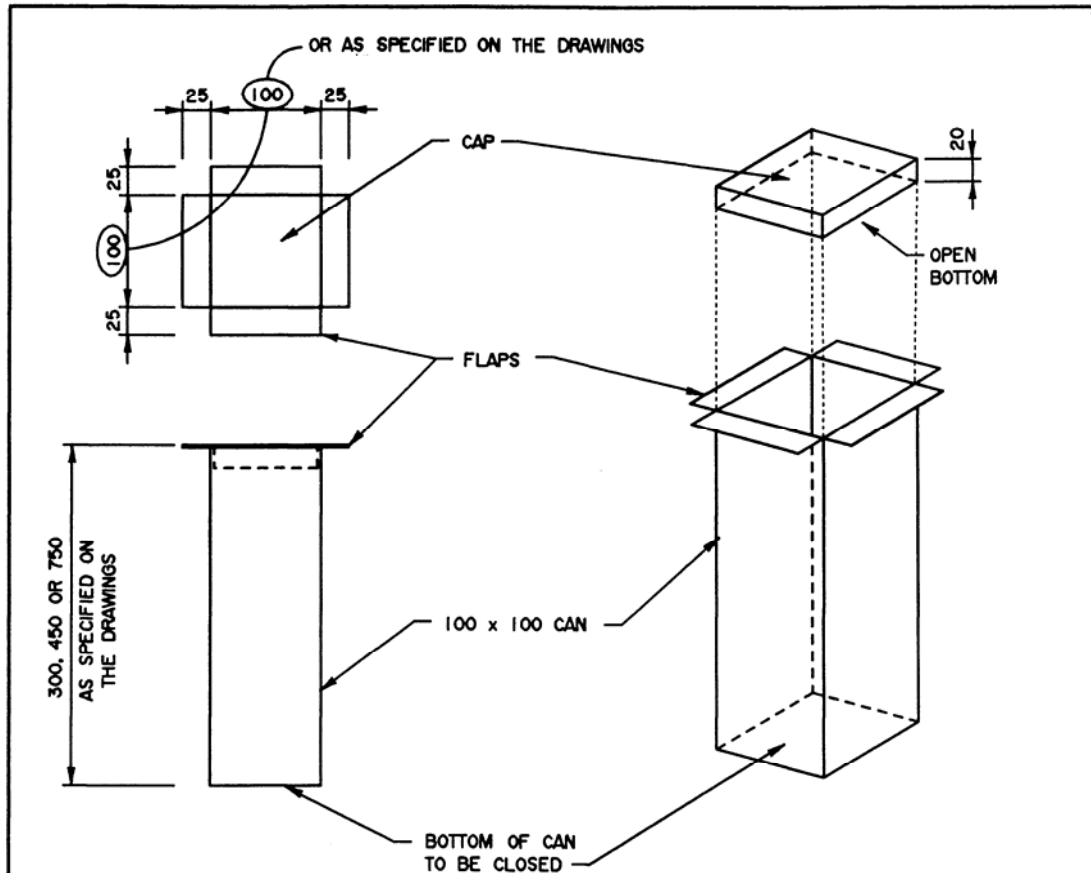
DRAFTING STANDARD PAGE: 3.9

				Alberta TRANSPORTATION AND UTILITIES TECHNICAL STANDARDS BRANCH			
	2001-06-19	GENERAL NOTES	AW	STANDARD CLOSED PIPE PILE END PLATE			
	99-03-29	BEB CHANGED TO TSB	RY				
	94-11-30	GENERAL NOTES AND PAGE NUMBER	RJR				
NO	DATE	REVISIONS	BY				
DESIGNED	DRAWN	DATE	APPROVED	SIGNATURE	DATE	PAGE	DRAWING
DHQ	MIK	87-03-30	EXECUTIVE DIRECTOR	<i>[Signature]</i>	11/4/87	3	S-1479

PLOTTED JUNE 19, 2001 5479X87 .RV3

SECTION 2 – GUIDELINES FOR BRIDGE PROJECTS

2.3.7 STANDARD ANCHOR BOLT GROUT CAN



GROUT CAN DETAILS

1 : 5

GENERAL NOTES

- DIMENSIONS ARE GIVEN IN mm.
- ALL SHEET MATERIAL SHALL BE 0.30 mm GALVANIZED STEEL.
- ALL JOINTS SHALL BE SOLDERED FULL LENGTH.
- THE GROUT CAN SHALL BE WATERPROOF.

5

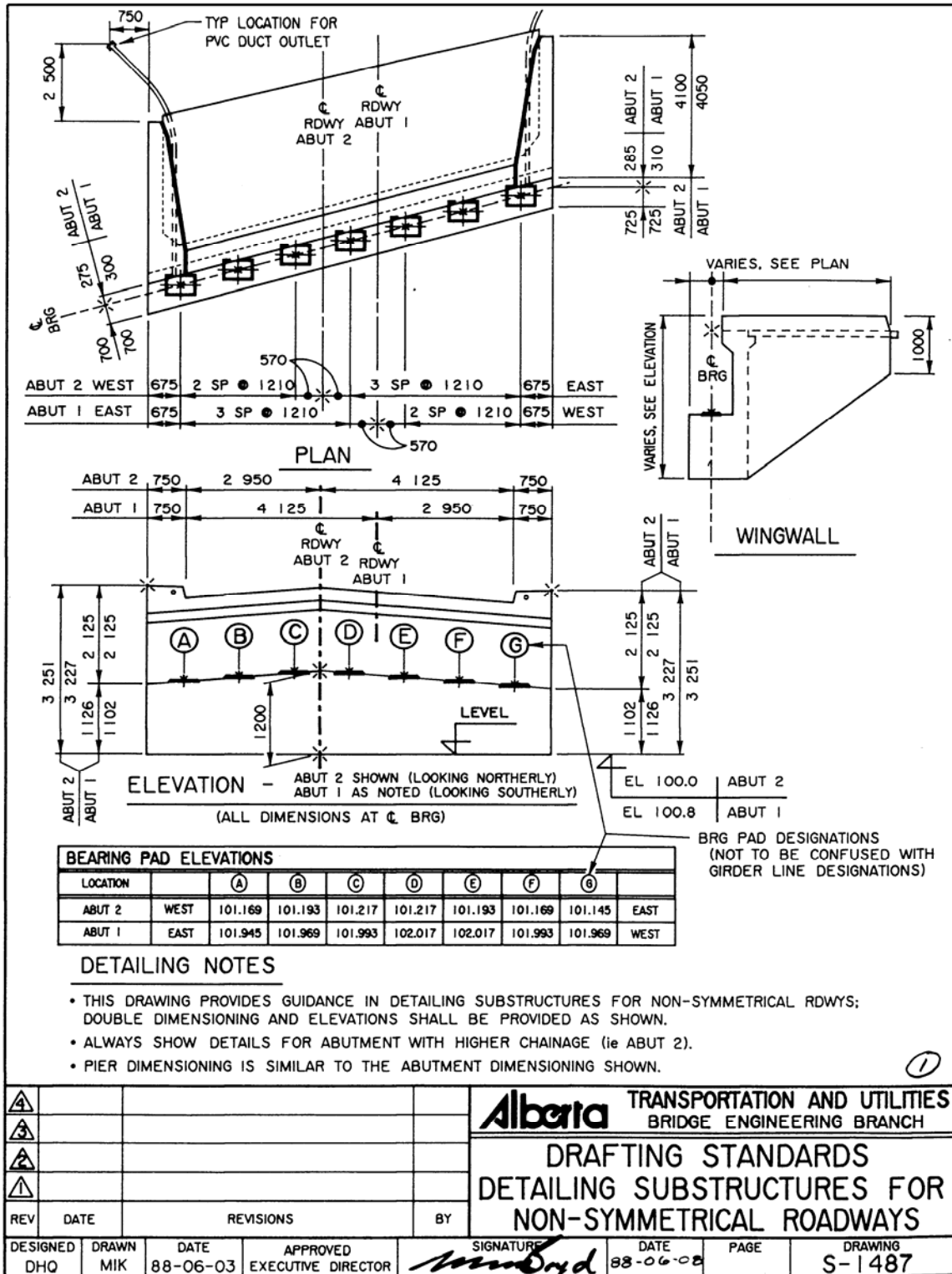
DRAFTING STANDARDS PAGE: 3.10

				TRANSPORTATION AND UTILITIES TECHNICAL STANDARDS BRANCH	
	99-03-29	BEB CHANGED TO TSB		RY	<p align="center">STANDARD ANCHOR BOLT GROUT CAN</p>
	94-11-30	PAGE NUMBER		RJR	
	87-03-13	REDRAWN FROM S-1416		DHQ	
NO	DATE	REVISIONS		BY	
DESIGNED DHQ	DRAWN MIK	DATE 87-03-13	APPROVED EXECUTIVE DIRECTOR	SIGNATURE <i>[Signature]</i>	DATE 11/9/07
				PAGE	DRAWING S-1416-87

PLOTTED MARCH 29, 1999 S1416X87.RM

SECTION 2 – GUIDELINES FOR BRIDGE PROJECTS

2.3.8 DRAFTING STANDARDS DETAILING SUBSTRUCTURES FOR NON-SYMMETRICAL ROADWAYS



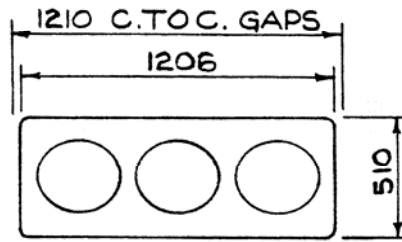
2.4 DECK AND GIRDERS

2.4.1 SM, FM AND RM GIRDER SPACING

SM (S-1301 TO S-1312)

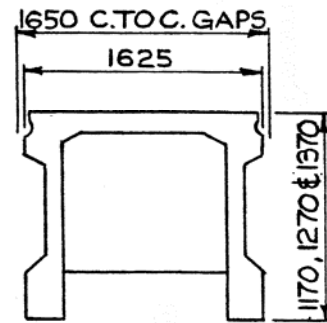
FM (S-1361 TO S-1377 AND S-1388 TO S-1390)

RM (S-1315 TO S1350)



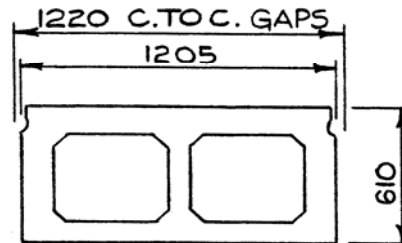
THEORETICAL GAP-5

SM-510



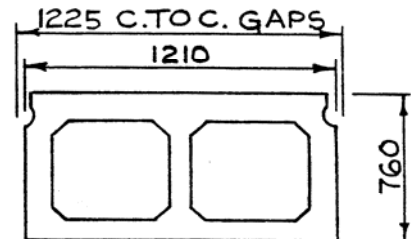
THEORETICAL GAP-25

FM-1170, 1270 & 1370



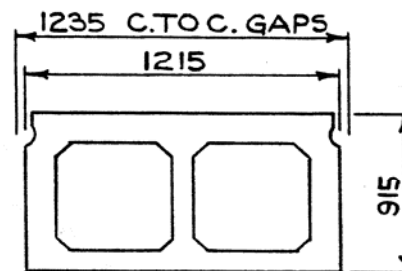
THEORETICAL GAP-15

RM-610



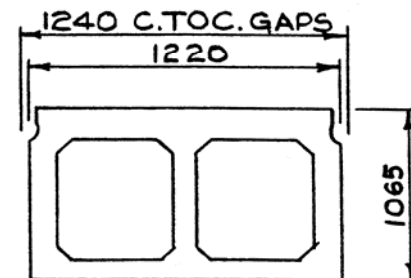
THEORETICAL GAP-15

RM-760



THEORETICAL GAP-20

RM-915

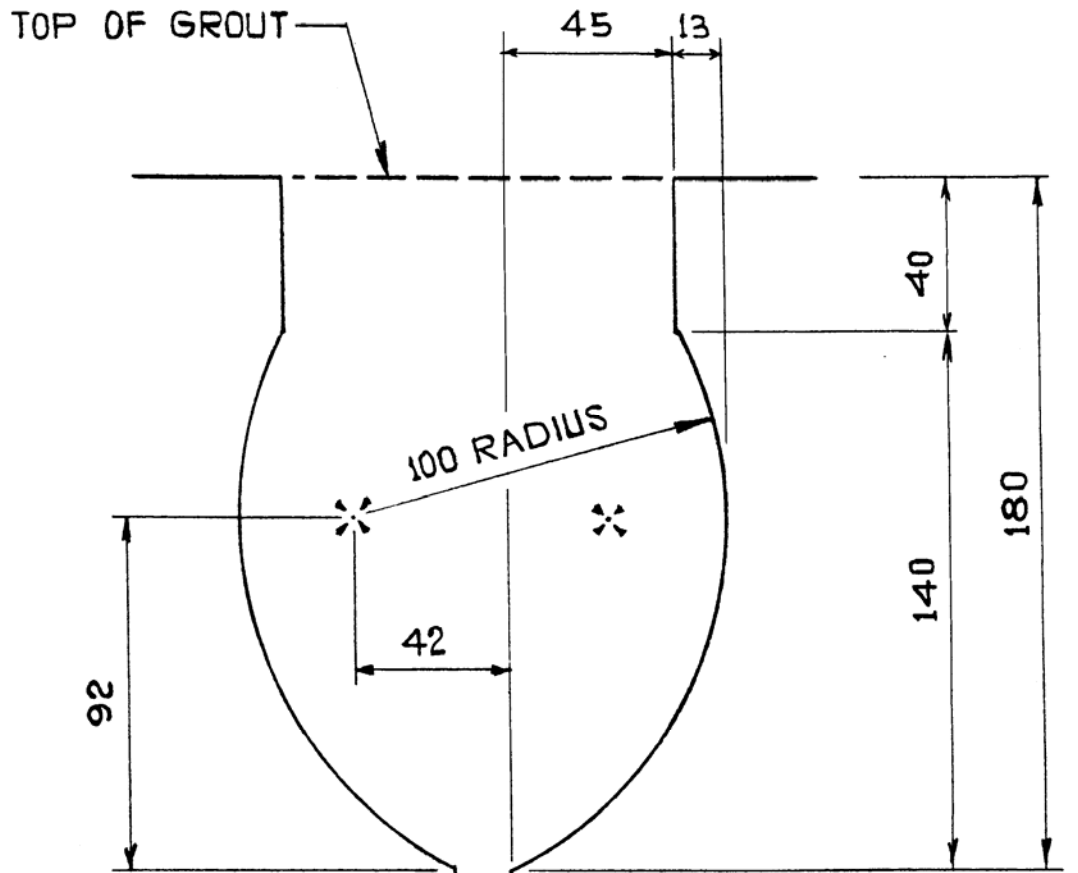


THEORETICAL GAP-20

RM-1065

SECTION 2 –GUIDELINES FOR BRIDGE PROJECTS

2.4.2 FM AND RM GROUT KEY DETAIL



	GAP		
{	15 mm	GAP	RM 610
	15 mm	GAP	RM 760
	20 mm	GAP	RM 915
	20 mm	GAP	RM 1 065
	25 mm	GAP	FM 1 170 - 1 370

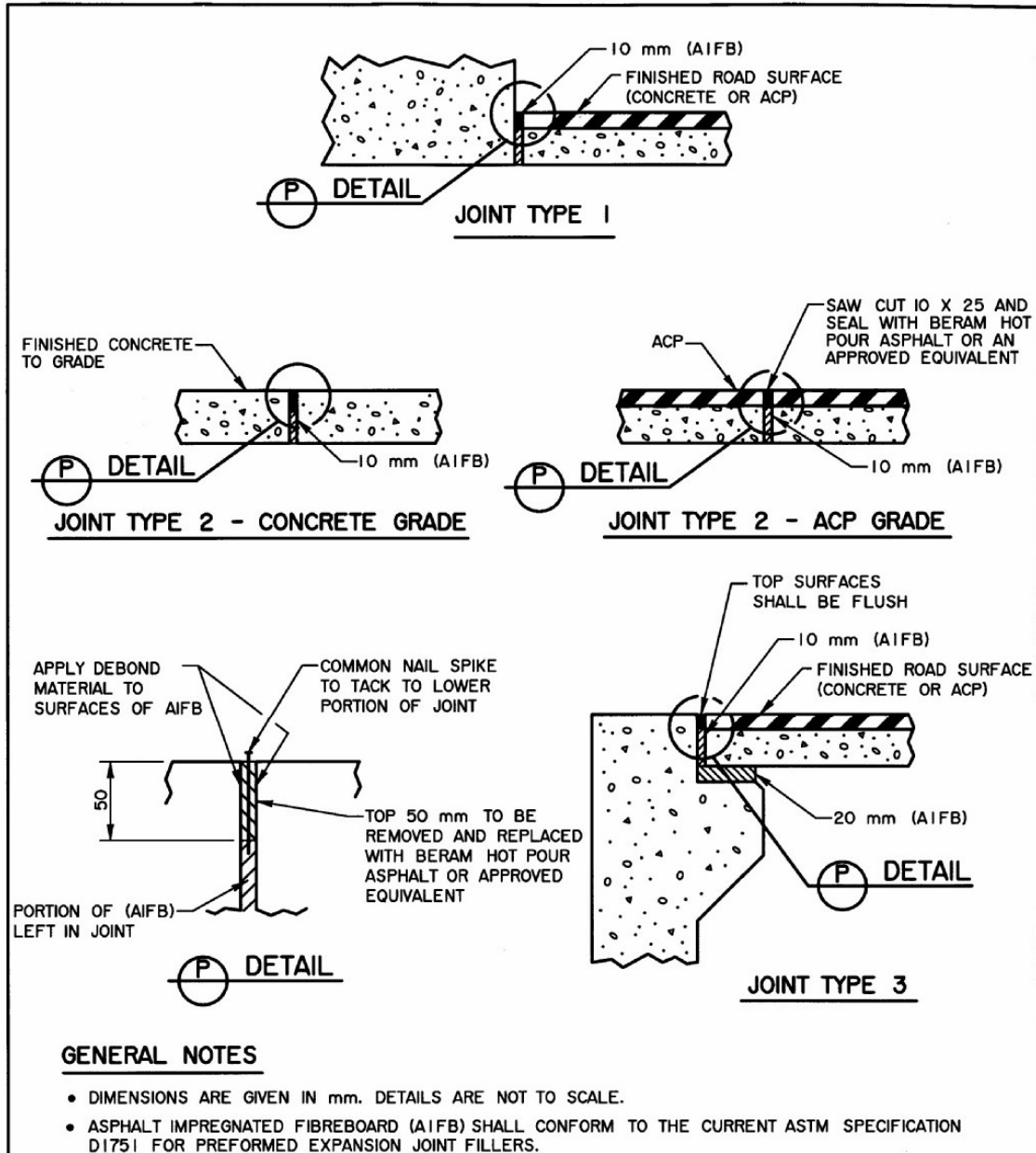
AREA (AV.) = 0.0205 m²

NOTE: NO CAMBER CORRECTIONS ARE INCLUDED IN KEY AREA.

SECTION 2 – GUIDELINES FOR BRIDGE PROJECTS

2.5 JOINTS

2.5.1 STANDARD CONCRETE JOINTS



2003-04-17	REVISED JOINTS TO INCLUDE ACP SURFACE	RY
99-04-14	REVISED JOINT 3	RY
99-03-29	BEB CHANGED TO TSB	RY
94-11-30	PAGE NUMBER	RJR
87-03-04	REDRAWN FROM S-1411	DHQ
NO	DATE	REVISIONS
		BY

Alberta TRANSPORTATION AND UTILITIES
TECHNICAL STANDARDS BRANCH

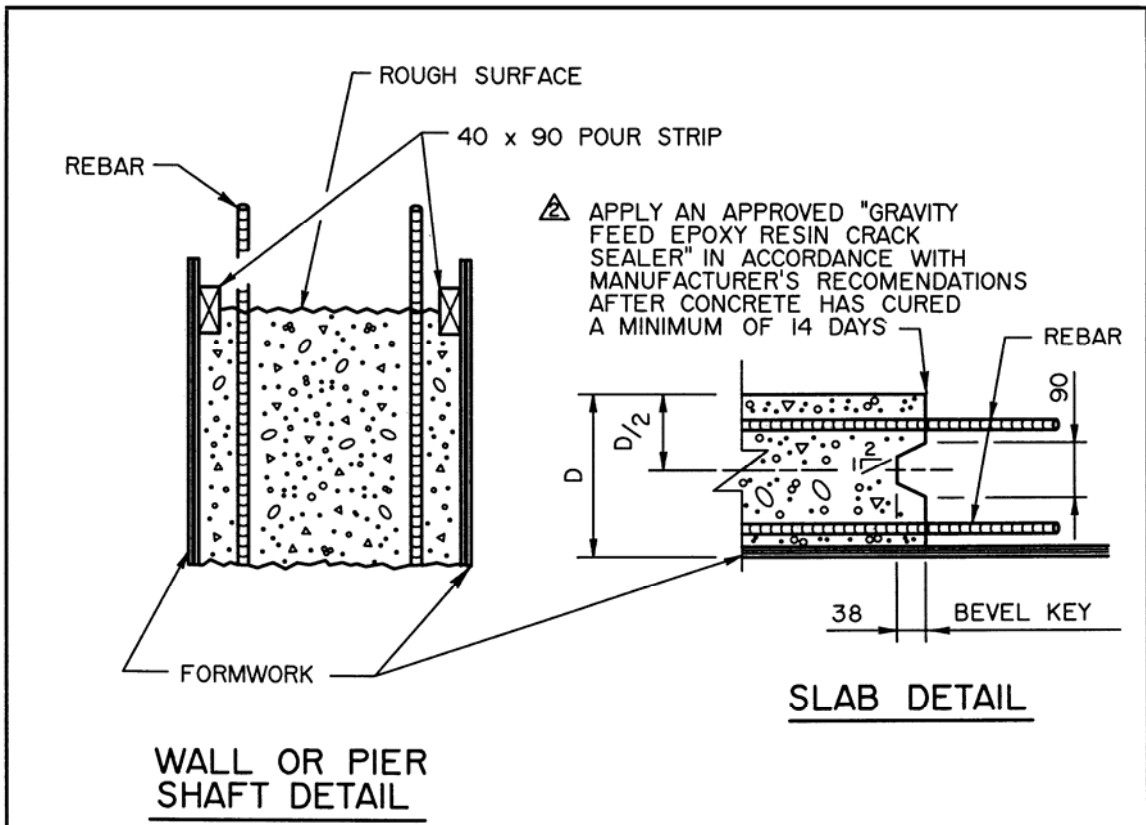
**STANDARD
CONCRETE JOINTS**

DESIGNED DHQ	DRAWN MIK	DATE 87-03-04	APPROVED EXECUTIVE DIRECTOR	SIGNATURE <i>[Signature]</i>	DATE 11/2/87	PAGE 4.33	DRAWING S-1411-87
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PLOTTED APR 17, 2003 S1411X87_RV5

SECTION 2 –GUIDELINES FOR BRIDGE PROJECTS

2.5.2 STANDARD CONSTRUCTION JOINTS



GENERAL NOTES

- DIMENSIONS ARE GIVEN IN mm. DETAILS ARE NOT TO SCALE.
- SURFACES OF HORIZONTAL JOINTS SHALL BE THOROUGHLY CONSOLIDATED AND INTENTIONALLY LEFT IN A ROUGHENED CONDITION.
- JOINTS SHALL BE CLEANED OF SURFACE LAITANCE AND OTHER FOREIGN MATERIALS PRIOR TO PLACING NEW CONCRETE.

⑧

DRAFTING STANDARDS PAGE: 6.3

				Alberta TRANSPORTATION AND UTILITIES TECHNICAL STANDARDS BRANCH			
01-06-06		SLAB DETAIL JOINT REVISED		RY		STANDARD CONSTRUCTION JOINTS	
99-04-12		REDRAWN FROM S-1412-98 REV		RY			
NO	DATE	REVISIONS		BY			
DESIGNED	DRAWN	DATE	APPROVED	SIGNATURE	DATE	PAGE	DRAWING
RY	WS	99-04-12	EXECUTIVE DIRECTOR				S-1412-99

PLOTTED JUNE 06, 2001 S1412X99.RM

SECTION 2 –GUIDELINES FOR BRIDGE PROJECTS

2.6 REINFORCING STEEL

- Reinforcing steel hooks, bends and lap splices shall be in accordance with “Canadian Highway Bridge Design Code CAN/CSA-S6-00”

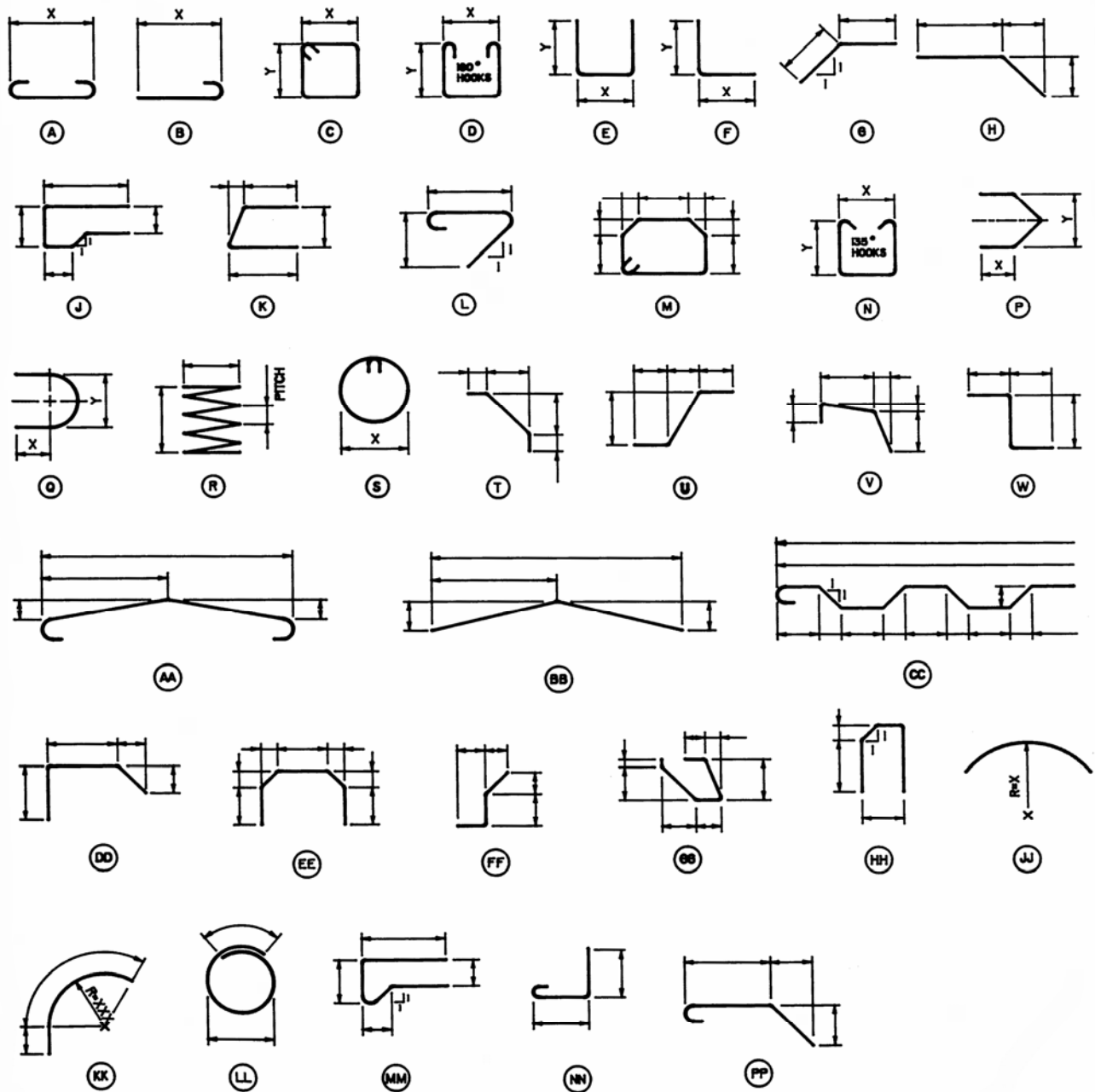
2.6.1 GUIDE FOR LETTERING REBAR

<p>ABUTMENT</p> <ul style="list-style-type: none"> - General A - Seat and Beam - Backwall G - Approach Slab - Roof Slab K - Curb or Parapet W - Wing Wall - End Post E - Drain Z - Dowels J - Spare 	<p>DECK</p> <ul style="list-style-type: none"> D - General - Deck Slab C - Curb or Parapet L - Lamp Base M - Spare N - Spare
<p>PIER</p> <ul style="list-style-type: none"> P - General - Pedestal B - Beam F - Footing H - Horizontal and Nose V - Vertical (Including Column) S - Stirrup T - Top - Tie Z - Dowels R - Spare U - Spare 	<p>NOT USED</p> <ul style="list-style-type: none"> X - Available Y - Available <p><u>Do Not Use:</u></p> <ul style="list-style-type: none"> I O Q
<p><u>Note:</u></p> <p>Epoxy coated bars to have postscript letter “C” e.g. D2004C</p> <p>Carbon fibre bars to have post script letters “CF” e.g. D2004CF</p> <p>Glass fibre bars to have post script letters “GF” e.g. D2004GF</p> <p>Galvanized bars to have post script letters “G” e.g. D2004G</p> <p>Stainless steel bars to have post script letters “SS” e.g. D2004SS</p> <p>Stainless steel claded bars to have post script letters “SC” e.g. D2004SC</p>	

SECTION 2 –GUIDELINES FOR BRIDGE PROJECTS

2.6.2 STANDARD REINFORCING BAR SAMPLES

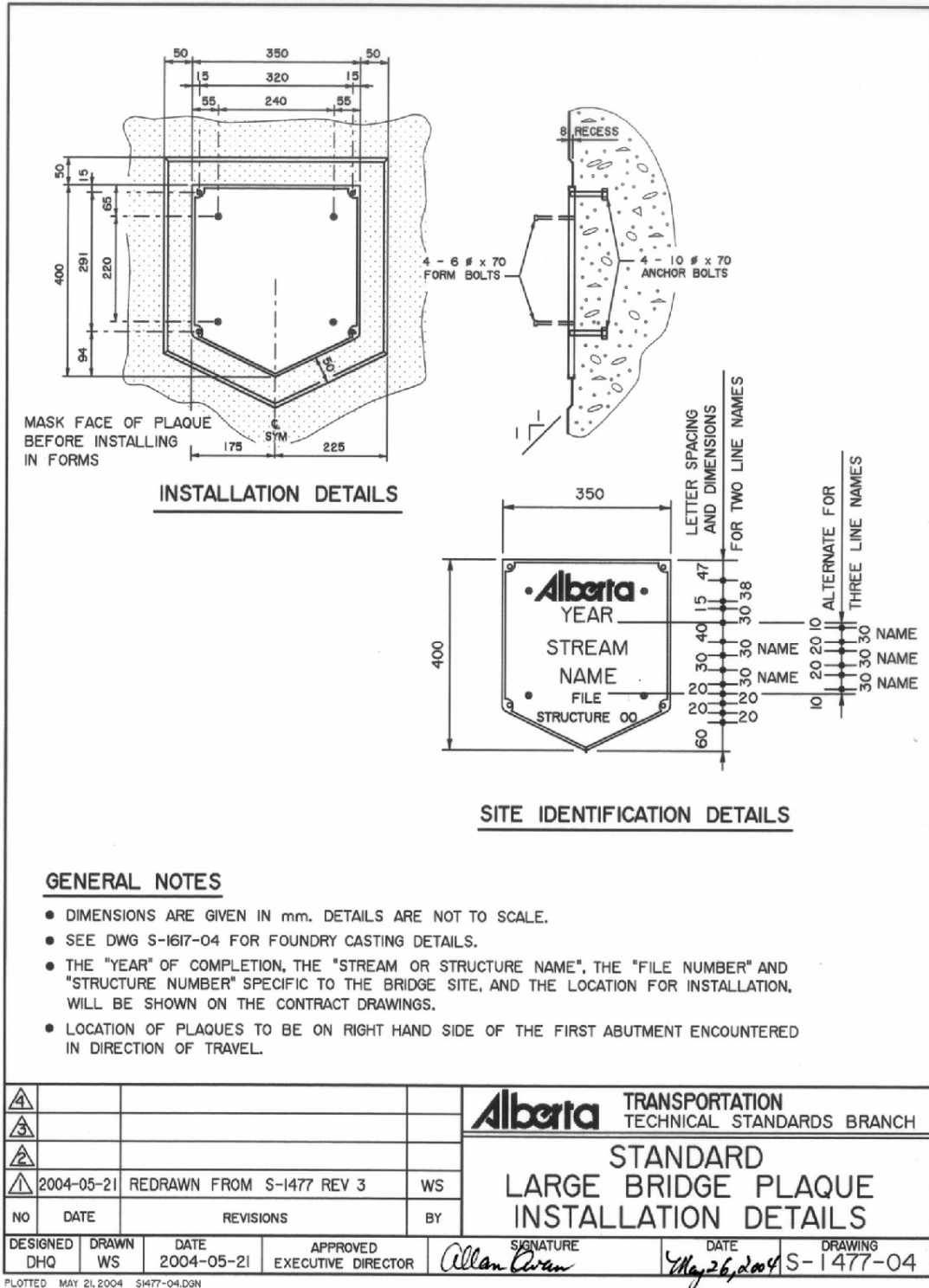
- Bar shapes on Bar List Drawings shall be lettered alphabetically and consecutively i.e. A, B, C, D, E,
- Revisions to Rebar are to be noted on the As-Built Plans.



SECTION 2 – GUIDELINES FOR BRIDGE PROJECTS

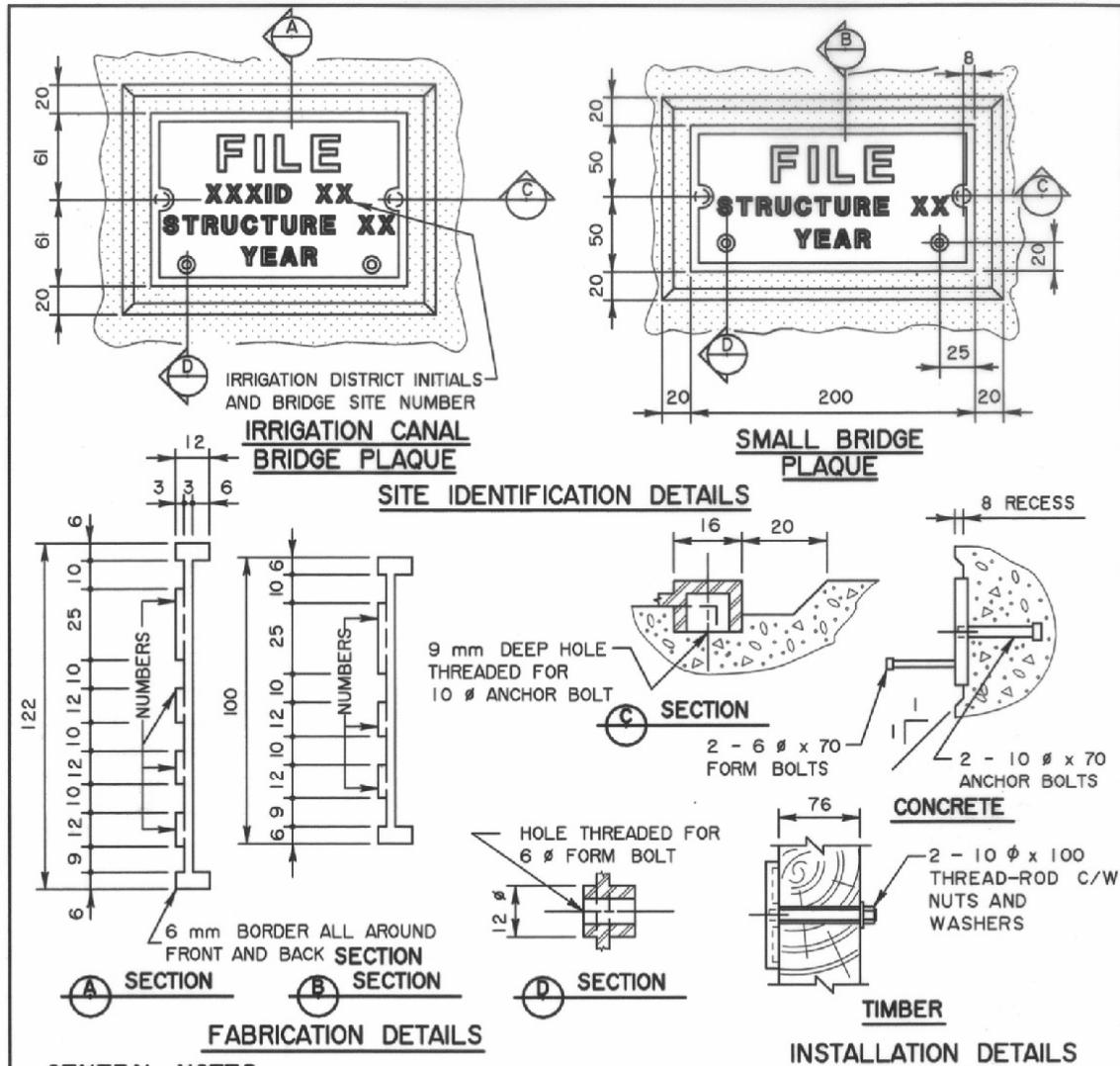
2.7 BRIDGE PLAQUE

2.7.1 STANDARD LARGE BRIDGE PLAQUE INSTALLATION DETAILS



SECTION 2 –GUIDELINES FOR BRIDGE PROJECTS

2.7.2 STANDARD IRRIGATION CANAL AND SMALL BRIDGE PLAQUES



GENERAL NOTES

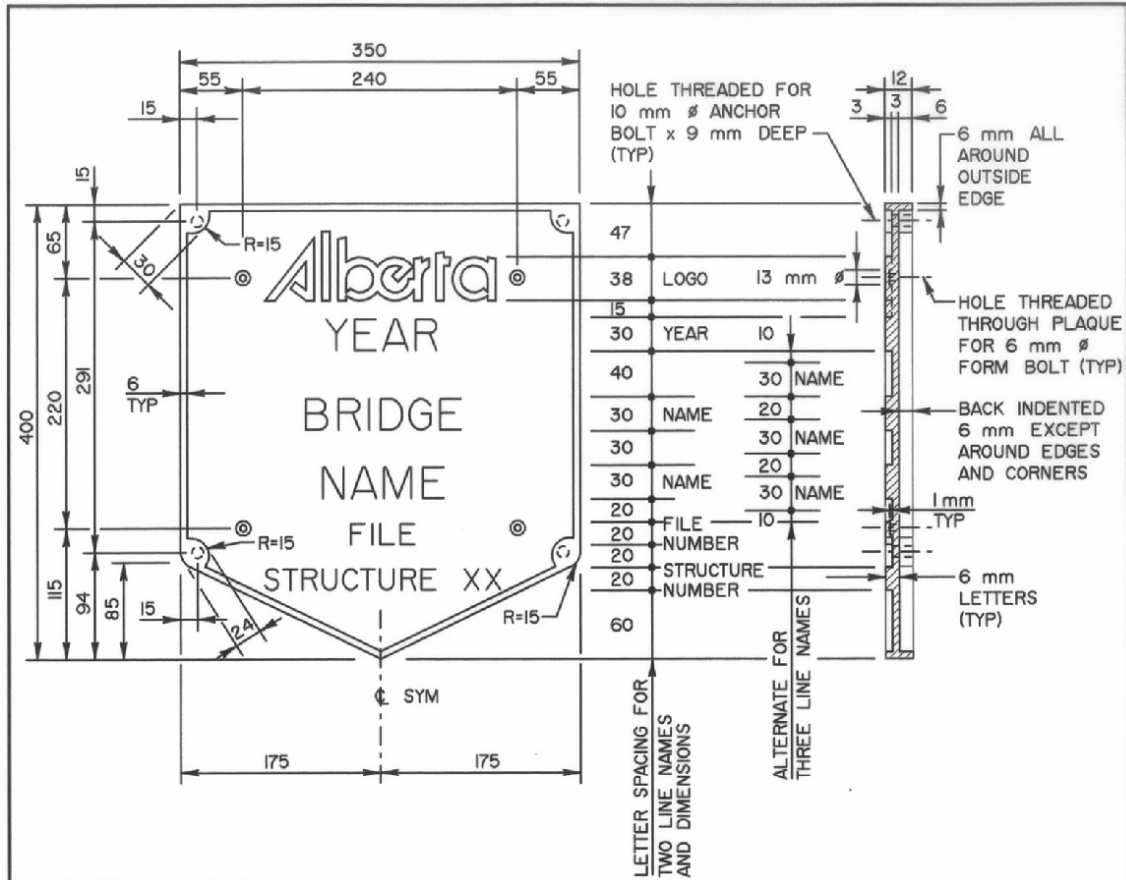
- DIMENSIONS ARE GIVEN IN mm. DETAILS ARE NOT TO SCALE. DIMENSIONS ARE TYPICAL UNLESS SHOWN OTHERWISE.
- THE "FILE NUMBER" AND "YEAR" OF CONSTRUCTION WILL BE SHOWN ON THE CONTRACT DRAWINGS. IRRIGATION "DISTRICT" INITIALS AND "SITE NUMBER" WILL BE INCLUDED WHERE APPLICABLE.
- THE "STRUCTURE NUMBER" IS TO BE OBTAINED FROM TECHNICAL STANDARDS BRANCH, BRIDGE ENGINEERING SECTION.
- PLAQUES SHALL BE CAST ALUMINUM. ALL SURFACES SHALL BE COVERED WITH BLACK BAKED ENAMEL
- LOCATION OF PLAQUES TO BE ON RIGHT HAND SIDE OF THE FIRST ABUTMENT ENCOUNTERED IN DIRECTION OF TRAVEL.

				Alberta TRANSPORTATION TECHNICAL STANDARDS BRANCH	
				STANDARD	
				IRRIGATION CANAL BRIDGE AND	
				SMALL BRIDGE PLAQUES	
NO	DATE	REVISIONS	BY		
DESIGNED	DRAWN	DATE	APPROVED	SIGNATURE	DRAWING
DHQ	WS	2004-05-21	EXECUTIVE DIRECTOR	<i>Allan Ewan</i>	S-1424-04
				DATE	
				May 26, 2004	

PLOTTED MAY 21, 2004 S1424x04.DGN

SECTION 2 –GUIDELINES FOR BRIDGE PROJECTS

2.7.3 STANDARD LARGE BRIDGE PLAQUE CASTING DETAILS



GENERAL NOTES

- DIMENSIONS ARE GIVEN IN mm. DETAILS ARE NOT TO SCALE.
- PLAQUE TO BE FABRICATED TO DIMENSIONS SHOWN.
- THE ALBERTA LOGO IS TO FOLLOW IN ABSOLUTE DETAIL, DEVIATIONS REQUIRED FOR CASTING PURPOSES MUST BE APPROVED BY THE ENGINEER.
- ALL LETTERS AND NUMBERS CAST ON THE PLAQUE, EXCEPT FOR THE ALBERTA LOGO, SHALL BE UPPER CASE UNIFORMS 65. DEVIATIONS MUST BE APPROVED BY THE ENGINEER.
- THE "YEAR" IS THAT OF THE PROJECT'S COMPLETION.
- THE "BRIDGE NAME" IS THE 'STREAM NAME' OR 'STRUCTURE NAME' AND IS PLACED ON 2 OR 3 LINES.
- THE "NAME", "FILE NUMBER" AND "STRUCTURE NUMBER" ARE SPECIFIC TO EVERY BRIDGE SITE AND ARE SHOWN ON THE CONTRACT DRAWINGS.
- THE "STRUCTURE NUMBER" IS TO BE OBTAINED FROM TECHNICAL STANDARDS BRANCH, BRIDGE ENGINEERING SECTION.
- PLAQUE SHALL BE SUPPLIED WITH BLACK BAKED ENAMEL EVERYWHERE, EXCEPT FOR FULL BORDERS AND ALL NUMERALS AND LETTERS, WHICH SHALL BE EXPOSED ALUMINUM.

4					TRANSPORTATION TECHNICAL STANDARDS BRANCH	
3					STANDARD LARGE BRIDGE PLAQUE CASTINGS DETAILS	
2						
1	2004-05-21	REDRAWN FROM S-1617 REV 2		WS		
NO	DATE	REVISIONS		BY		
DESIGNED LEA	DRAWN WS	DATE 2004-05-21	APPROVED EXECUTIVE DIRECTOR	SIGNATURE <i>Allan Curran</i>	DATE 4 May 26, 2004	DRAWING S-1617-04

PLOTTED MAY 21, 2004 S1617X04.DGN