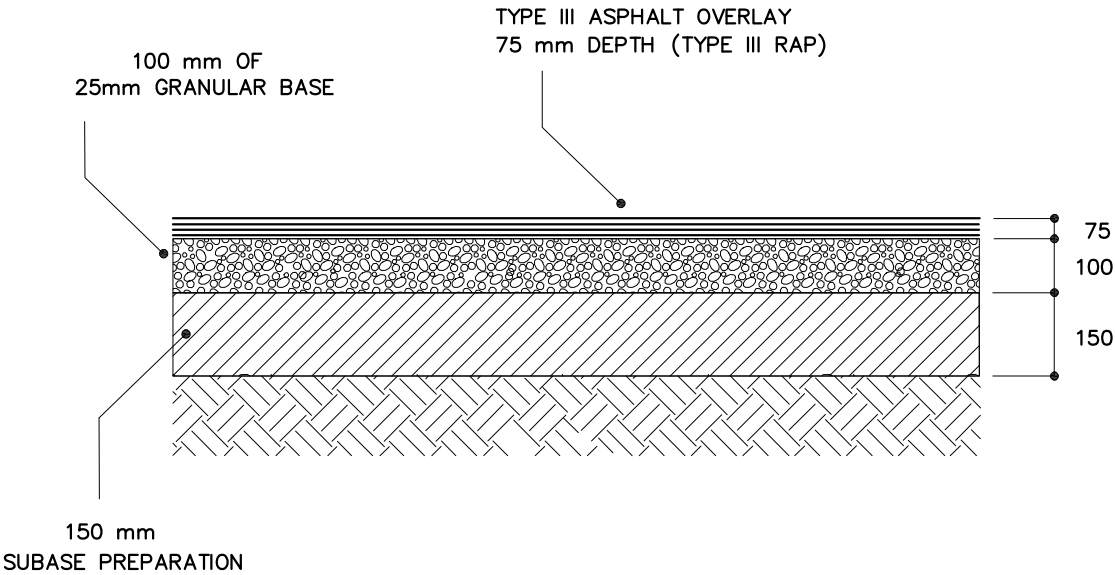


GENERAL NOTES

- PATHWAYS CONSTRUCTED ADJACENT TO CONCRETE CURBS WILL BE CONSTRUCTED TO TIE INTO THE TOP OF THE CURB & WILL BE CONSTRUCTED WITH 2% CROSS-SLOPE FROM THIS POINT
- TRAILS THAT INTERSECT ROADWAYS WILL BE CONSTRUCTED WITH DROPPED CURB CONCRETE CURB & GUTTER & 1.37M WIDE SIDEWALK WHEELCHAIR RAMPS TO BE CONSTRUCTED AS PER CURRENT CITY OF LETHBRIDGE INFRASTRUCTURE SERVICES ENGINEERING STANDARDS
- EXCAVATE TO A DEPTH OF 175mm APPROX & DISPOSE OFFSITE OR AS DIRECTED BY THE ENGINEER
- CONTRACTOR WILL REMOVE AN ADDITIONAL 1.0M OF TOPSOIL ON EACH SIDE OF THE TRAIL WHERE THE FINISHED ELEV OF THE PATHWAY VARIES MORE THAN 100mm FROM EXISTING TERRAIN
- RESTORE DISTURBED AREAS WITH A MIN DEPTH OF 100mm SALVAGED TOPSOIL
SUPPLY & PLACE SEED OR SOD



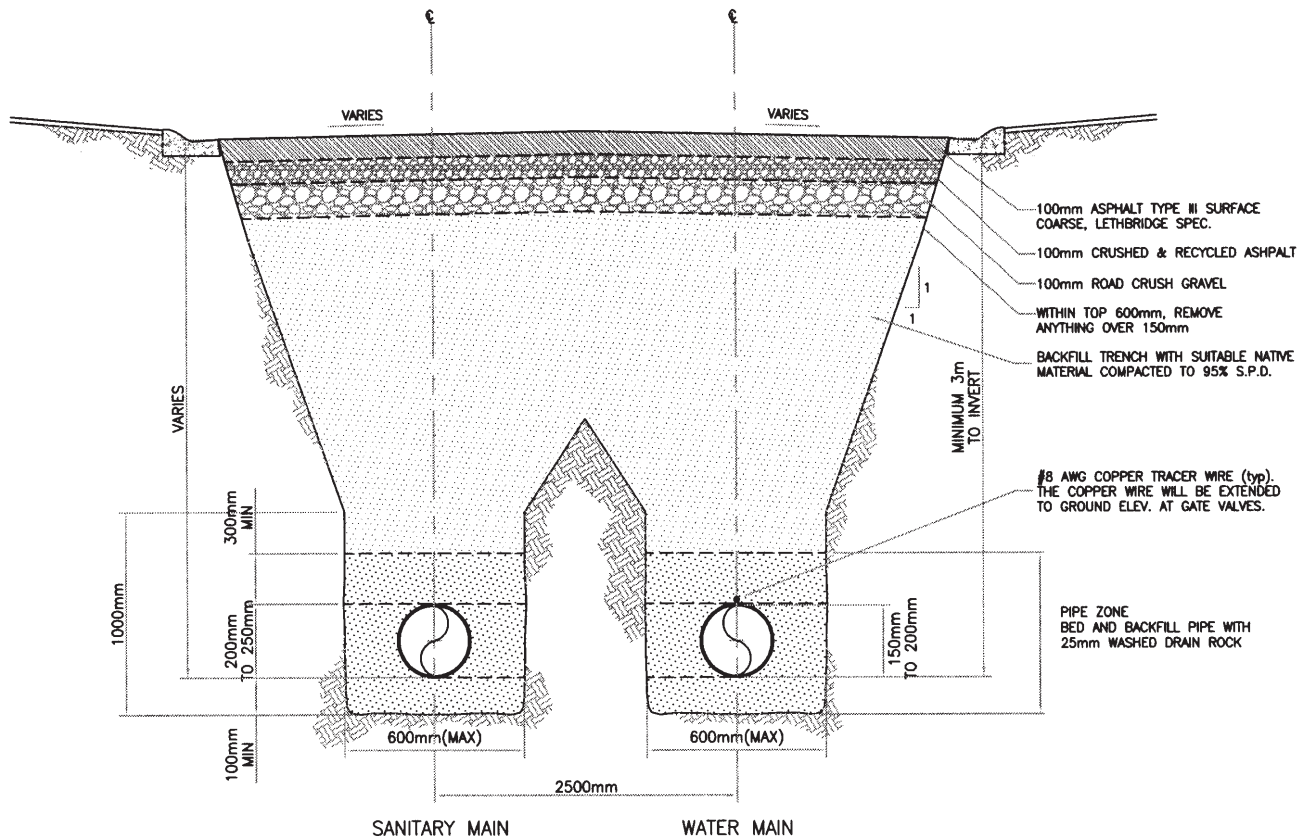
SECTION



CITY OF
Lethbridge

INFRASTRUCTURE SERVICES
REGIONAL TRAIL

REVISIONS	
1. 12-01-2004	SETBACK STANDARD 3.5m
DRAWN	GD
SCALE	NOT TO SCALE
DATE	10-15-2000
DWG NO	4.1



SANITARY AND WATERMAIN
SIDE-BY-SIDE TRENCH DETAIL



Public Works and
Government Services
Canada

Client Services Team
Southern Alberta
Operations Branch

Travaux publics et
Services gouvernementaux
Canada

Le Client Entretien l'Équipe
Alberta Méridional
Branche d'Opérations

Canada

Client/Client



Parks Canada
Agency

Western and
Northern Region

L'Agence Parcs
Canada

Ouest et Nord
du Canada

Surveyed by/Relevé par T. SITTER Date/Date MARCH, 2008

Designed by/Conçu par J. PRENGER

Reviewed by/Revisé par S. KING

Scale/Echelle N.T.S.

PMBC Project Manager/Admistrateur du Projet PMBC

Client Acceptance/Acceptation du client

Approved by/approuvé par

Project No./No. du projet 421276

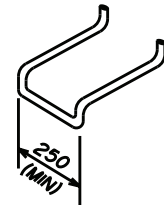
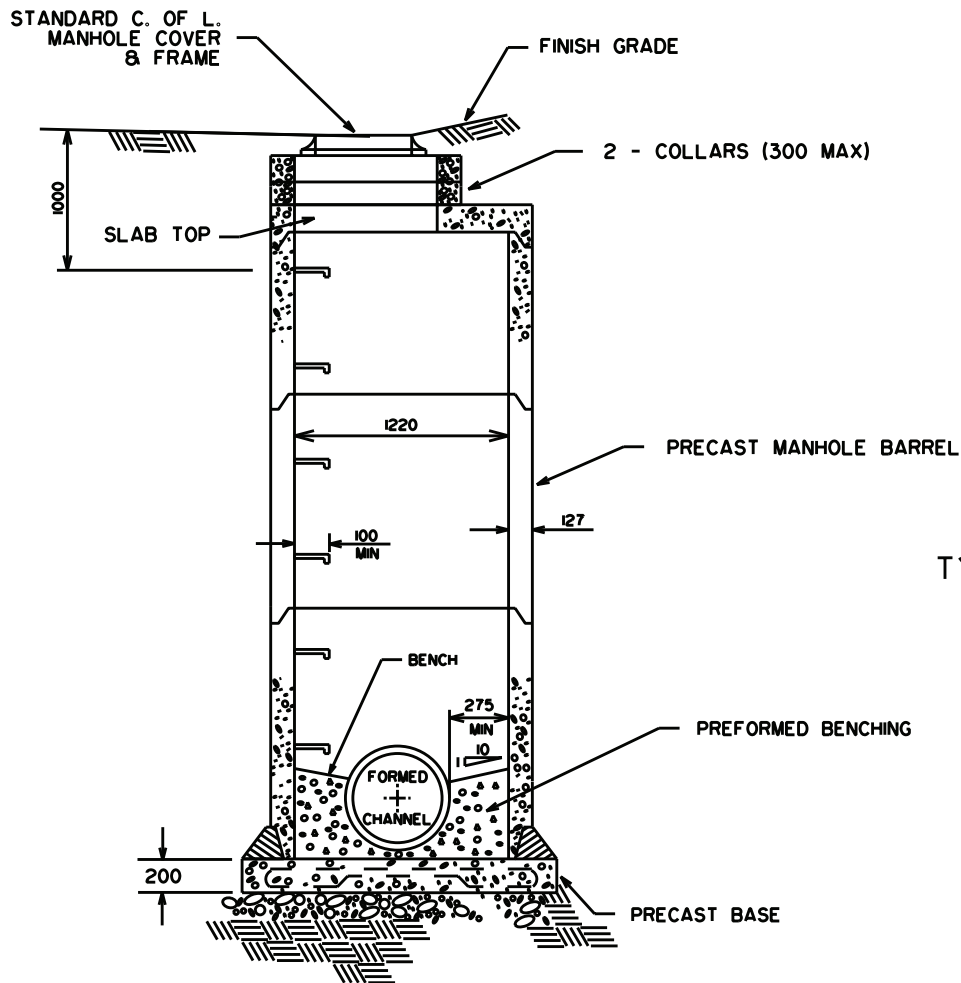
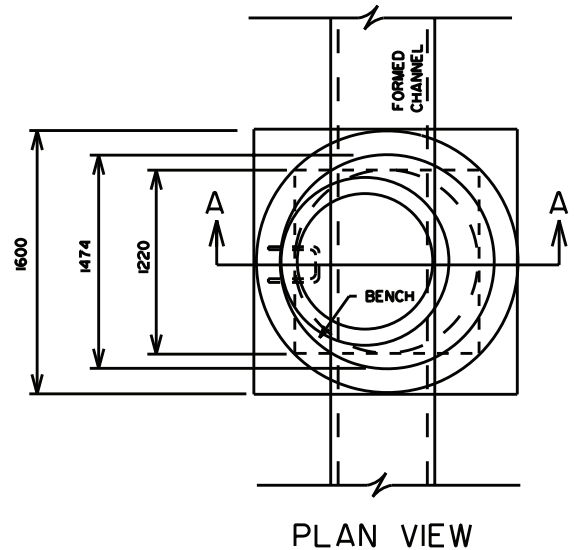
Sheet No./No. de la feuille

Drawing Reference No./No. de référence du dessin

P-01

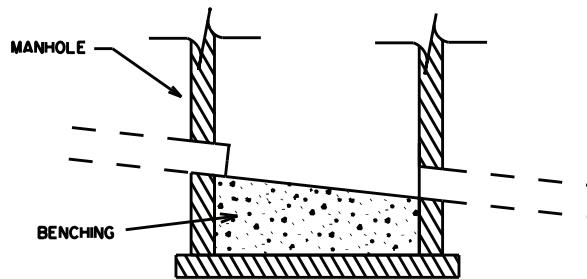
NOTE: - PRECAST MANHOLE SECTIONS TO CONFORM
TO A.S.T.M. DESIGNATION C478 (LATEST EDITION)

- ALL JOINTS TO BE SEALED WITH FLEXIBLE BUTYL RESIN SEALANT OR TYLOX SUPERSEAL GASKET
- ALL DIMENSIONS IN mm
- LADDER RUNGS SHALL BE CLEAR OF ALL LATERALS
- MANHOLE STEPS AT 400 o/c
- FOR BENCHING DETAIL SEE DRAWINGS S-07
- CEMENT TO BE TYPE 50 (SULPHATE RESISTANT)

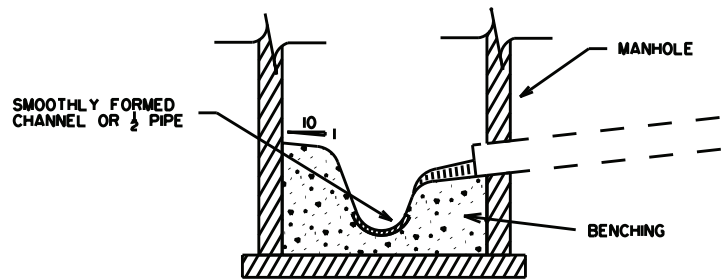


NOTE: TO BE USED ONLY WHEN CONNECTING TO EXISTING
MAINS 600 mm DIAMETER & SMALLER.

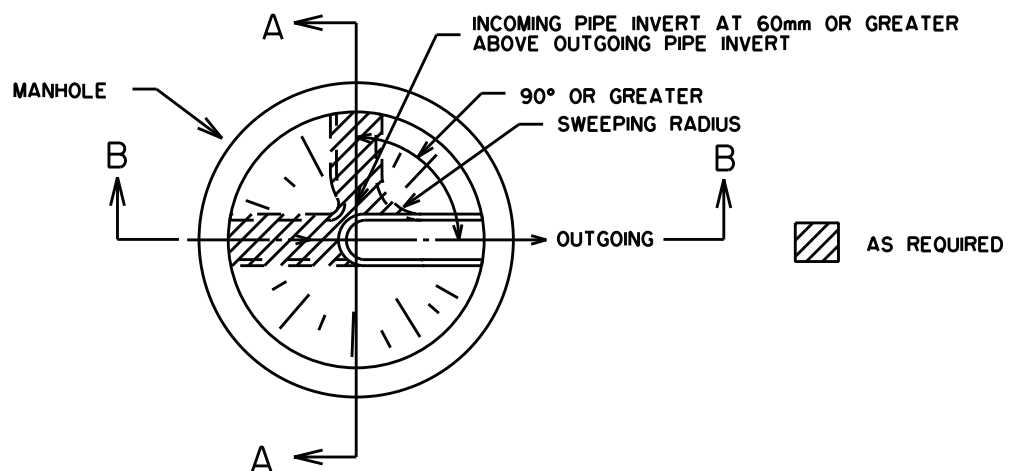
REVISED	 <p>CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</p>	DRAWN	P.R.A.
NOV 15, 2004		CHECKED	
DEC 14, 2005		APPROVED	
FEB 3, 2010		SCALE	N.T.S.
		DATE	97/03/08
	STANDARD MANHOLE TYPE I	DWG NO	S-01



SECTION B-B
TYPICAL BENCHING



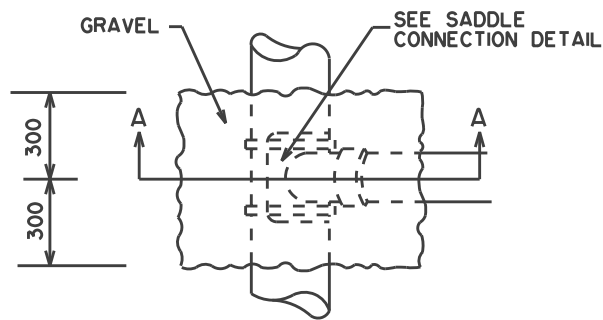
SECTION A-A
TYPICAL BENCHING



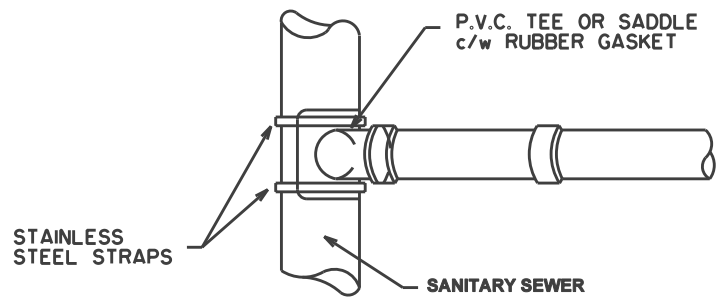
NOTE: - ALL DIMENSIONS IN MILLIMETERS.

- BENCHING SLOPE TO BE 10 : 1 FROM SPRING LINE OF PIPE (1/2 WAY UP)
- ON SANITARY SEWER USE EXTERIOR DROP MANHOLE WHEN INCOMING PIPE INVERT IS 600 OR GREATER ABOVE OUTGOING PIPE INVERT.
- NO SHARP CORNERS.
- BENCHING CONCRETE TO BE TYPE 50 SULPHATE RESISTANT CEMENT. MINIMUM COMPRESSIVE STRENGTH TO BE 30 MPa @ 28 DAYS.
- 30 mm DROP ACROSS M.H. BETWEEN INCOMING & OUTGOING INVERTS FOR PIPE GRADE UP TO 2%.
- 60 mm DROP ACROSS M.H. BETWEEN INCOMING & OUTGOING INVERTS FOR PIPE GRADES > 2%. AND < = 5%. ALSO FOR 90° TURNS.
- DROP ACROSS M.H. BETWEEN INCOMING & OUTGOING INVERTS TO BE @ GRADE OF PIPE FOR PIPE GRADES > 5%
- ALL INCOMING PIPE MUST BE GROUTED TO BE FLUSH WITH BENCHING IN MANHOLES.

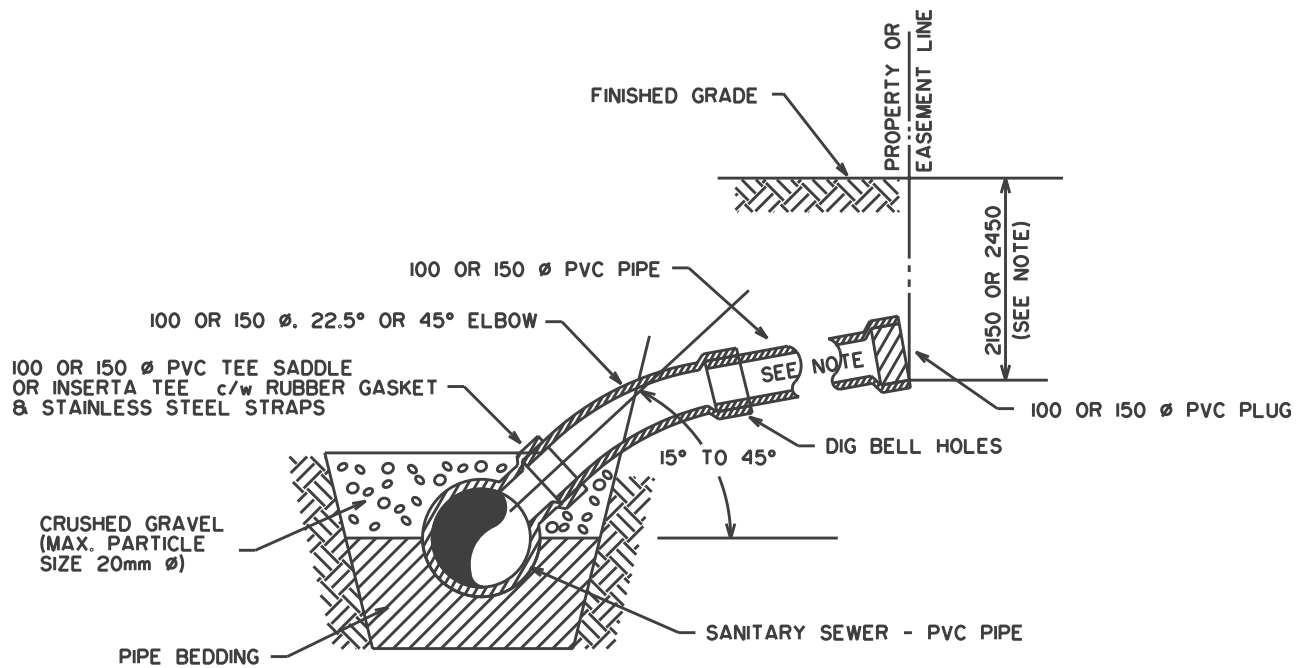
REVISED	 <div>CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</div>	DRAWN	P.R.A.
DEC 3/07		CHECKED	
FEB 5/10		APPROVED	
		SCALE	N.T.S.
	TYPICAL BENCHING IN MANHOLES	DATE	97/02/18
		DWG NO	S-07



PLAN



SADDLE CONNECTION DETAIL



SECTION A-A

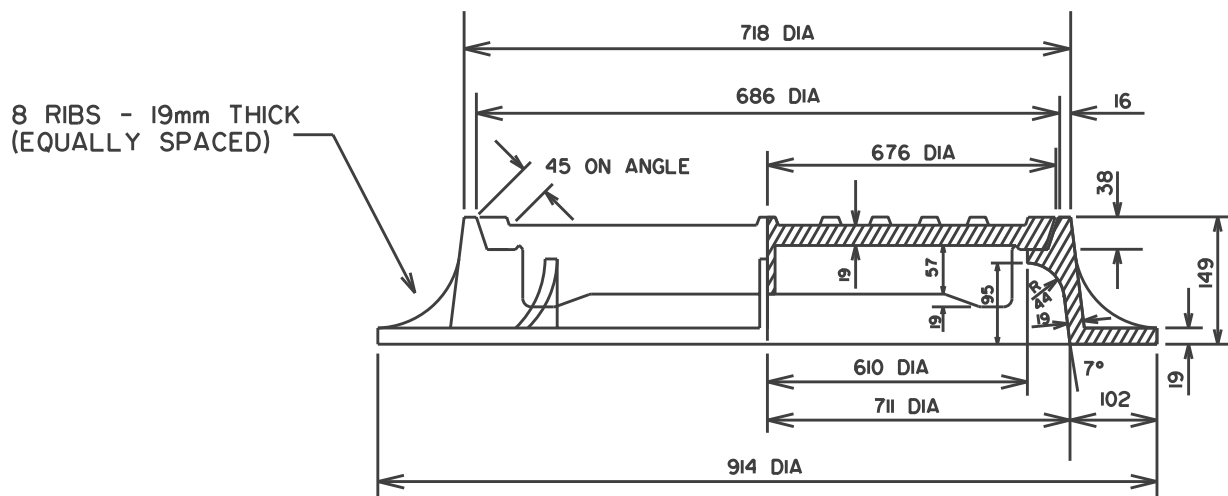
FOR SEWERS LESS THAN 3700 DEEP

- NOTE:
- 150 Ø SERVICES AT MIN 1%
 - 100 Ø SERVICES AT MINIMUM 2%
 - ALL P.V.C. PIPE TO BE MUNICIPAL STUB SEWER PIPE, A.S.T.M. D3034, DR 28
 - WHEN LOT SLOPES FROM BACK TO FRONT, THE DEPTH AT P/L TO BE 2150.
 - WHEN LOT SLOPED FRONT TO BACK, THE DEPTH AT P/L TO BE 2450.
 - SEWER SERVICES MUST TERMINATE WITH A BELL END
 - SADDLES TO BE 400mm APART MIN.
 - ALL DIMENSIONS ARE IN MILLIMETERS

REVISED	<div><div>CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</div></div>	DRAWN	P.R.A.
		CHECKED	
		APPROVED	
		SCALE	N.T.S.
		DATE	97/03/10
		DWG NO	S-08
		P.V.C. SEWER SERVICE CONNECTION FOR MAINS LESS THAN 3.7 DEEP	

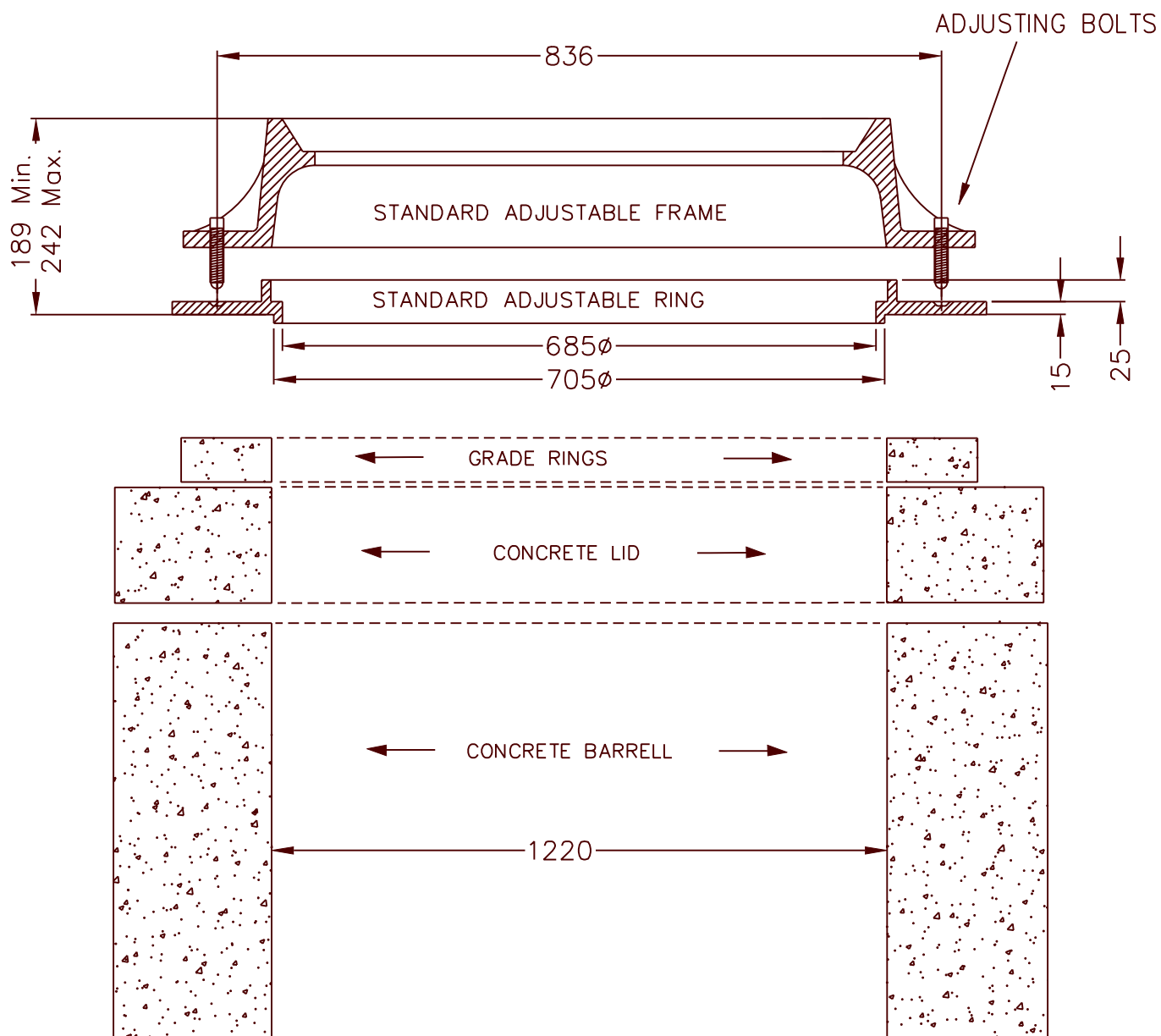
TOP VIEW

MATERIAL
CLASS 30 CAST IRON



SECTION A-A

REVISED	 <p>CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</p>	DRAWN	P.R.A.
		CHECKED	
		APPROVED	
		SCALE	N.T.S.
		DATE	97/03/11
	STANDARD MANHOLE FRAME AND COVER	DWG NO	S-10



RING – DUCTILE IRON 65–45–12.

BOLTS – 5/8" NC LOW ALLOY HIGH STRENGTH.

BOLTS – AVAILABLE IN 6" IF NEEDED.

REVISED



CITY OF
Lethbridge
 INFRASTRUCTURE SERVICES

ADJUSTABLE FRAME INSTALLATION

DRAWN

CHECKED

APPROVED

SCALE

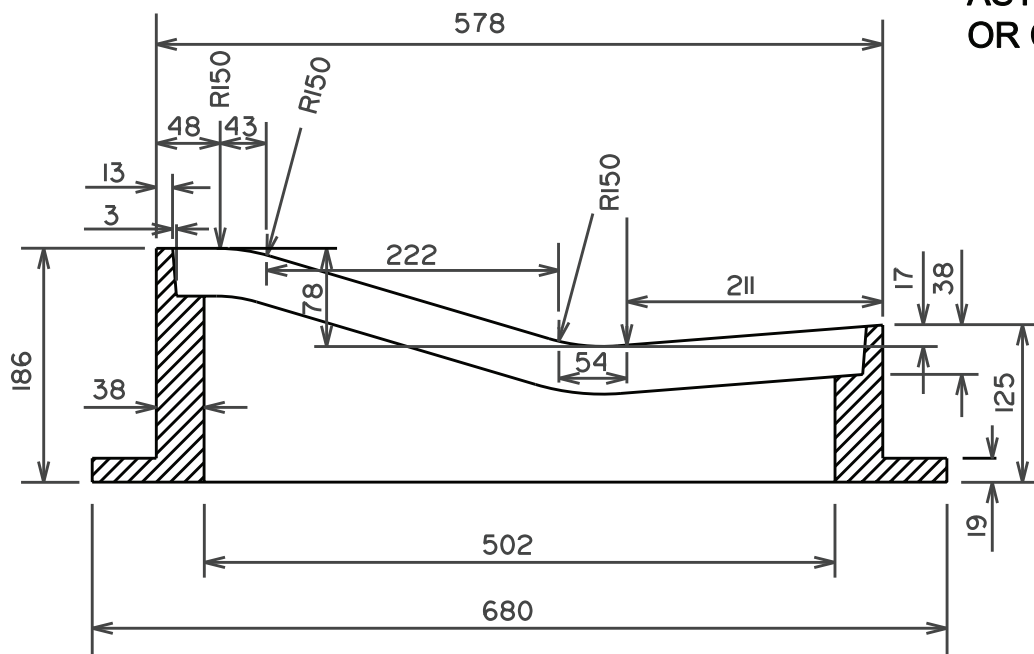
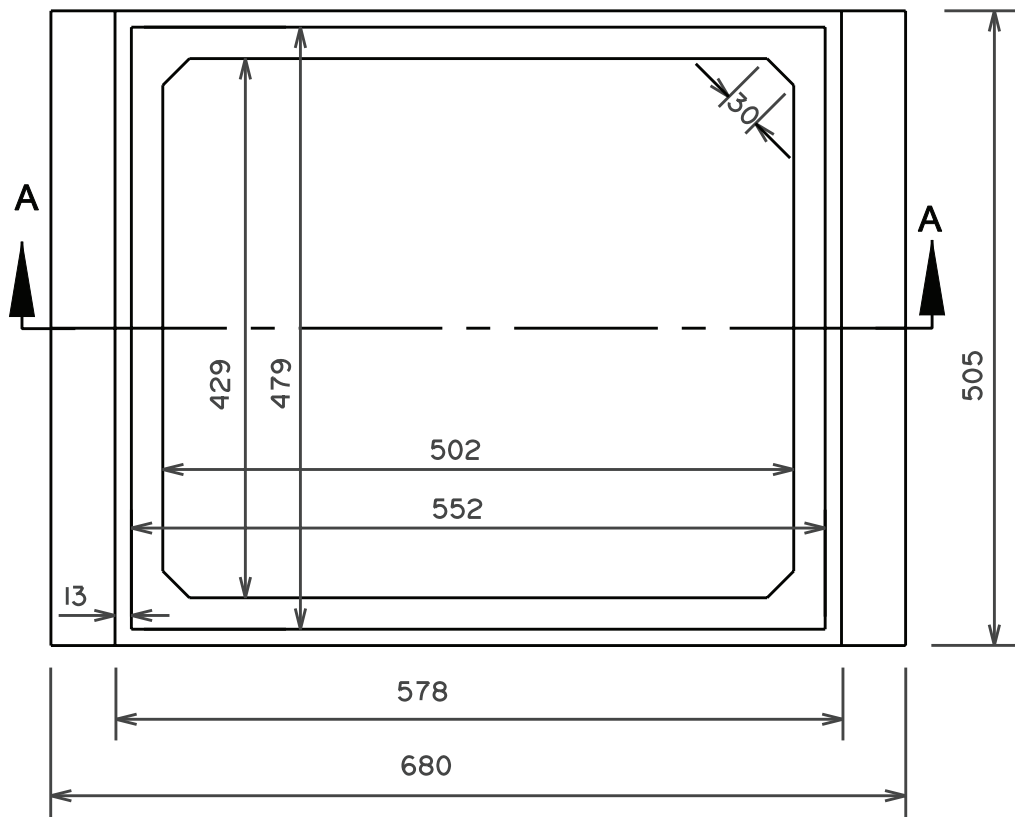
NTS

DATE

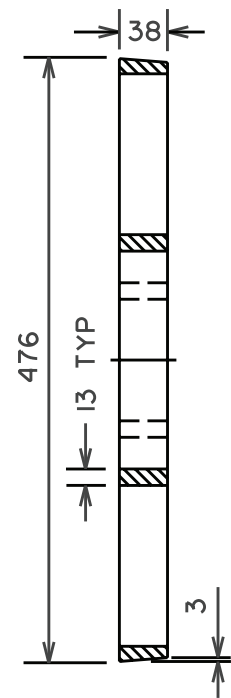
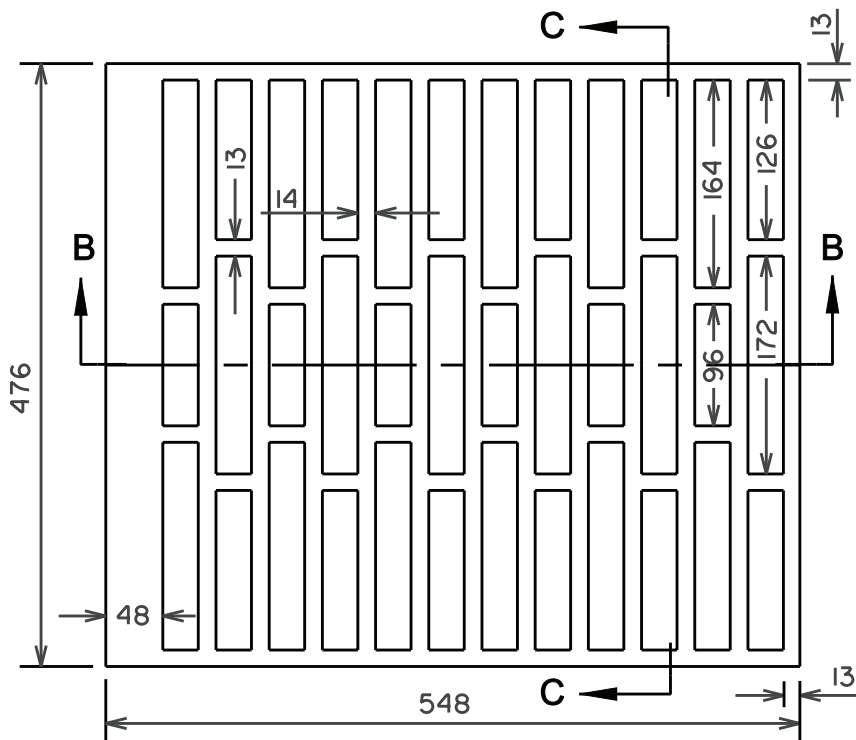
SEPT 10/2010

DWG NO

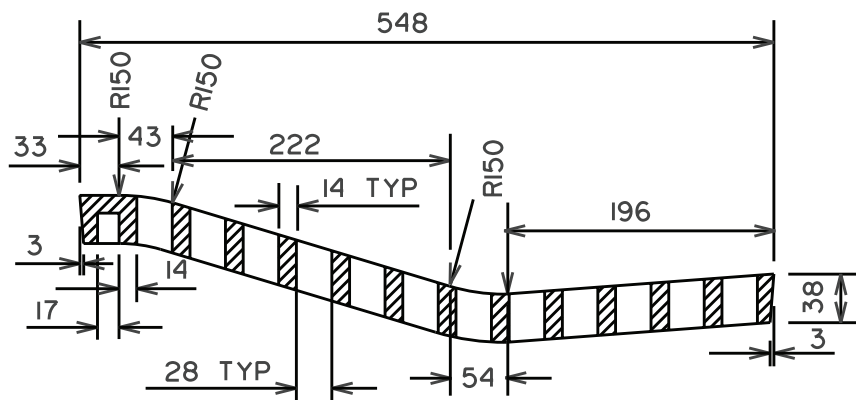
S-10-C



REVISED	 <p>CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</p>	DRAWN	D.F.
		CHECKED	
		APPROVED	
		SCALE	NTS
		DATE	NOV 25/2004
	SINGLE CATCH BASIN FRAME ROLLED CURB TYPE	DWG NO	S-II



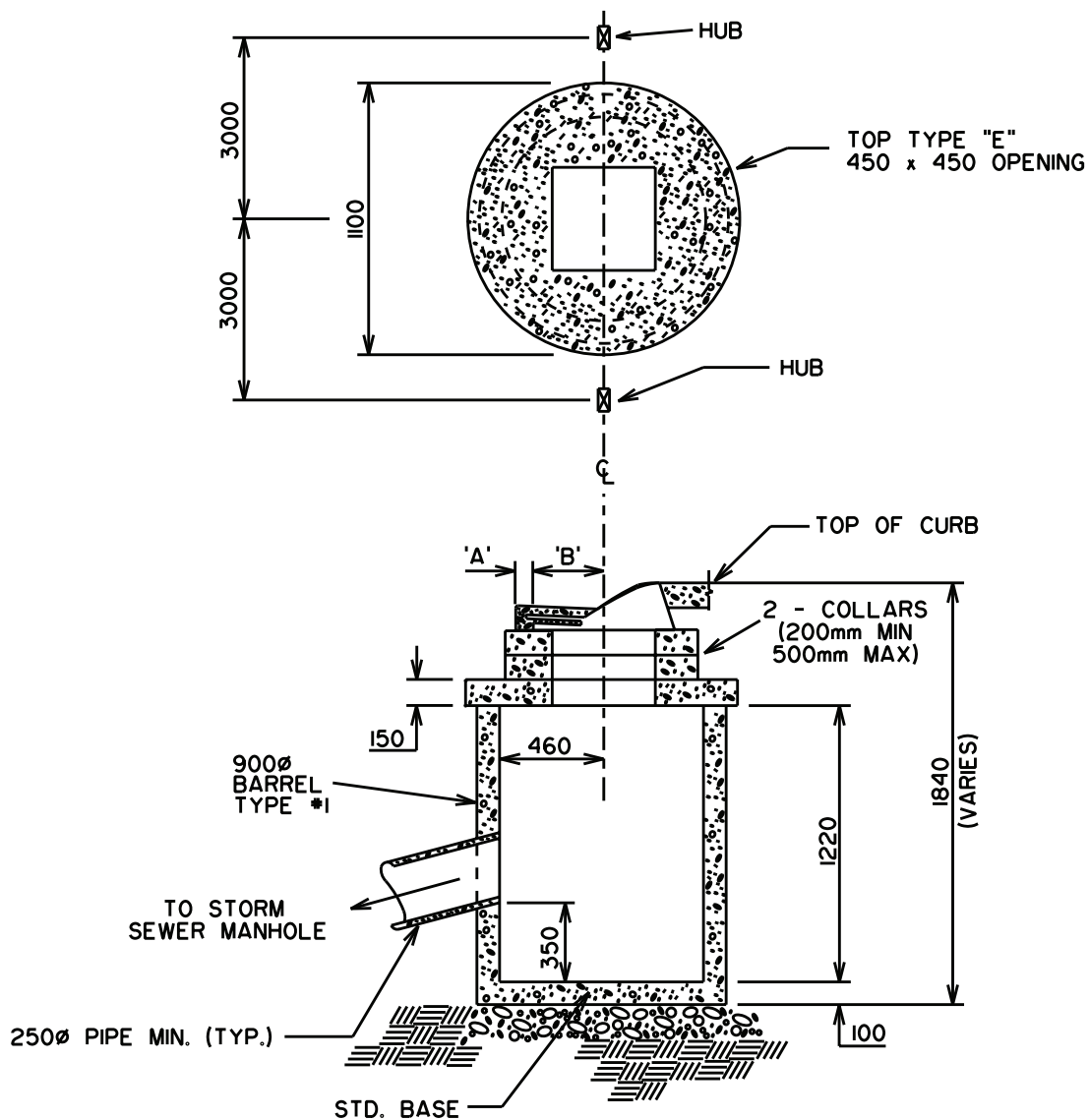
SECTION C-C



SECTION B-B

GRATE MATERIAL :
DUCTILE IRON
ASTM A536
GRADE 60-40-18

REVISED	 <p>CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</p>	DRAWN	D.F.
		CHECKED	
		APPROVED	
		SCALE	NTS
		DATE	NOV 25/2004
		DWG NO	S-IIB
	CATCH BASIN GRATE ROLLED CURB TYPE		

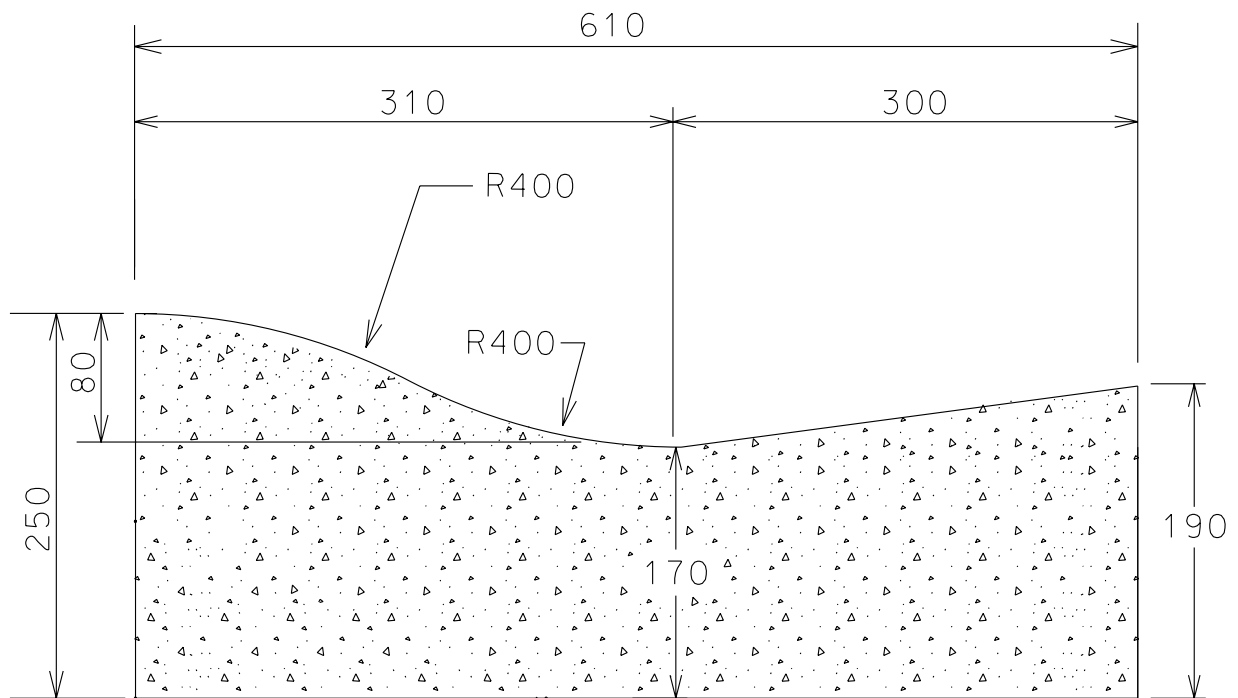



CURB & GUTTER WIDTH	DIMENSION	
	'A'	'B'
600mm	75mm	300mm
690mm	100mm	300mm

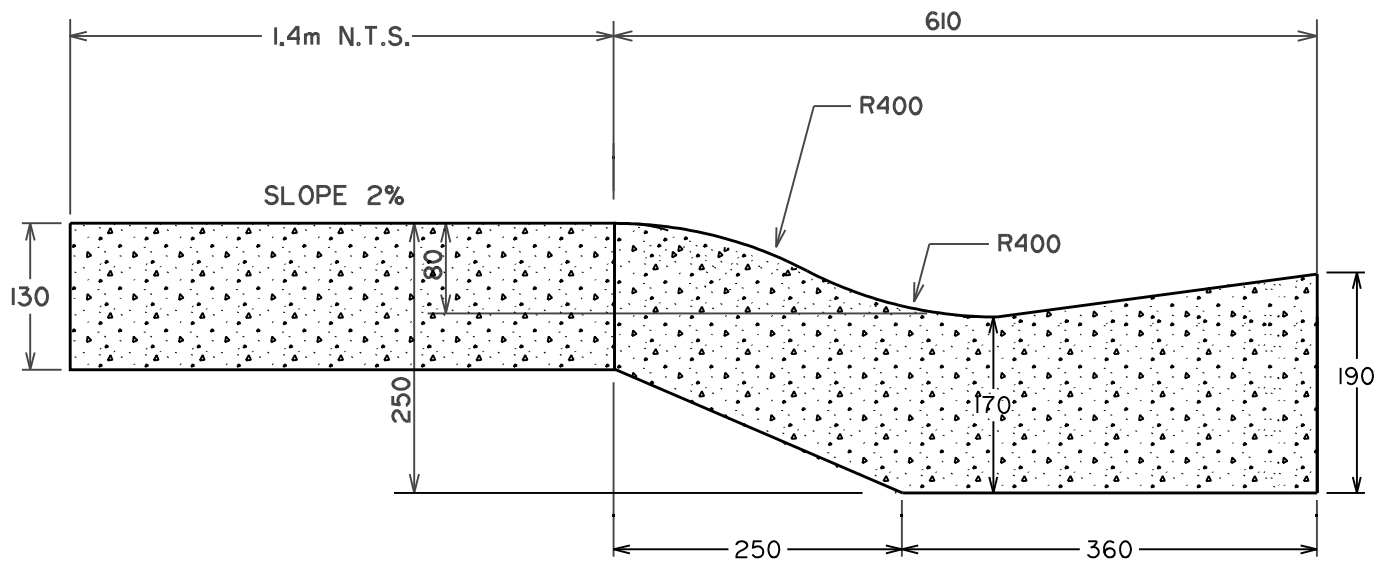
INSTALLING CATCH BASINS

- ALL JOINTS IN PRECAST SECTIONS TO BE SEALED WITH FLEXIBLE BUTYL RUBBER SEALANT (OR APPROVED EQUAL).
- PRECAST SECTION TO CONFORM TO A.S.T.M. C-478 (LATEST EDITION).
- ALL COVERS TO MEET CITY OF LETHBRIDGE STANDARDS.
- NO GRAVEL REQUIRED IF BASE IS SET ON UNDISTURBED SOIL. OTHERWISE 150 MINIMUM THICKNESS.
- ALL DIMENSIONS ARE IN MILLIMETRES.
- CEMENT TO BE TYPE 50 (SULFATE RESISTANT).

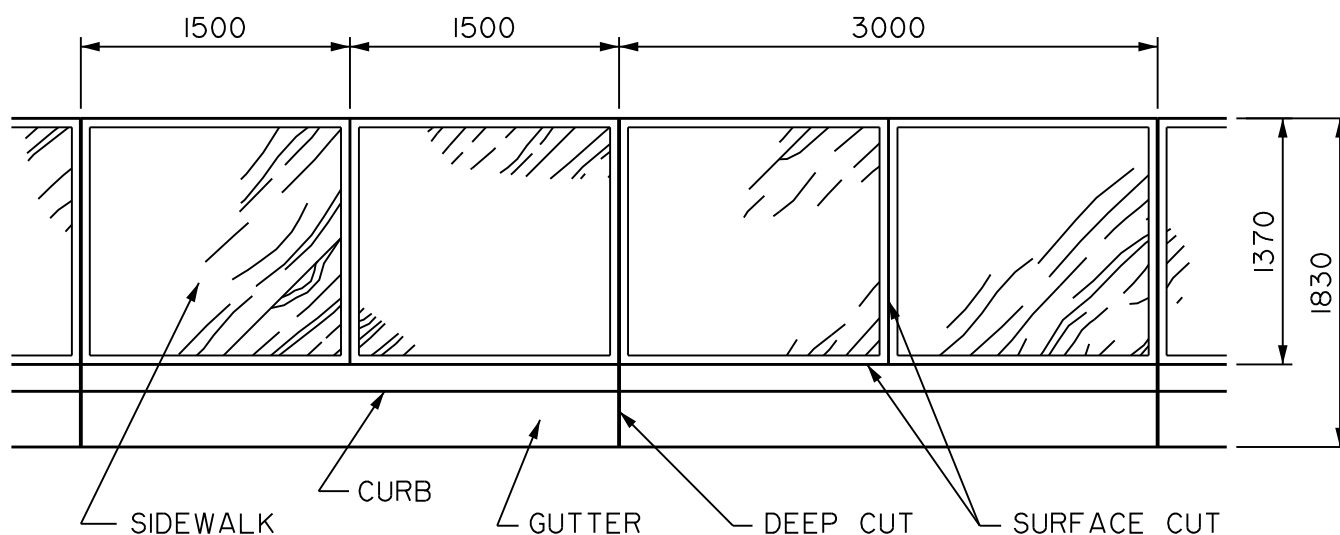
REVISED	 <p>CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</p>	DRAWN	C.R.S.
		CHECKED	
		APPROVED	
		SCALE	N.T.S.
		DATE	97/03/06
		DWG NO	S-14
	CATCH BASIN ROLLED CURB		



REVISED	 <p>CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</p>	DRAWN	R. J. K
		CHECKED	R. A. B.
		APPROVED	
		SCALE	NTS
		DATE	OCT 31/2005
REVISED 03/14/07 R. J. K.	LOW PROFILE ROLLED CURB	DWG NO	STR-06.1.dgn



REVISED	 <p>CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</p>	DRAWN	D.Mc.
		CHECKED	
		APPROVED	
		SCALE	NTS
		DATE	OCT 31/2005
		DWG NO	STR-09.dgn
	COMBINED SIDEWALK ROLLED CURB GUTTER		



NOTE:

- SIDEWALK SURFACE TO BE BRUSHED FINISHED
- 6mm x 32mm DEEP EXPANSION JOINT TO BE LOCATED AT 3000mm INTERVAL.



City of Lethbridge
INFRASTRUCTURE

SIDEWALK JOINTING

DRAWN jrg

CHECKED

APPROVED

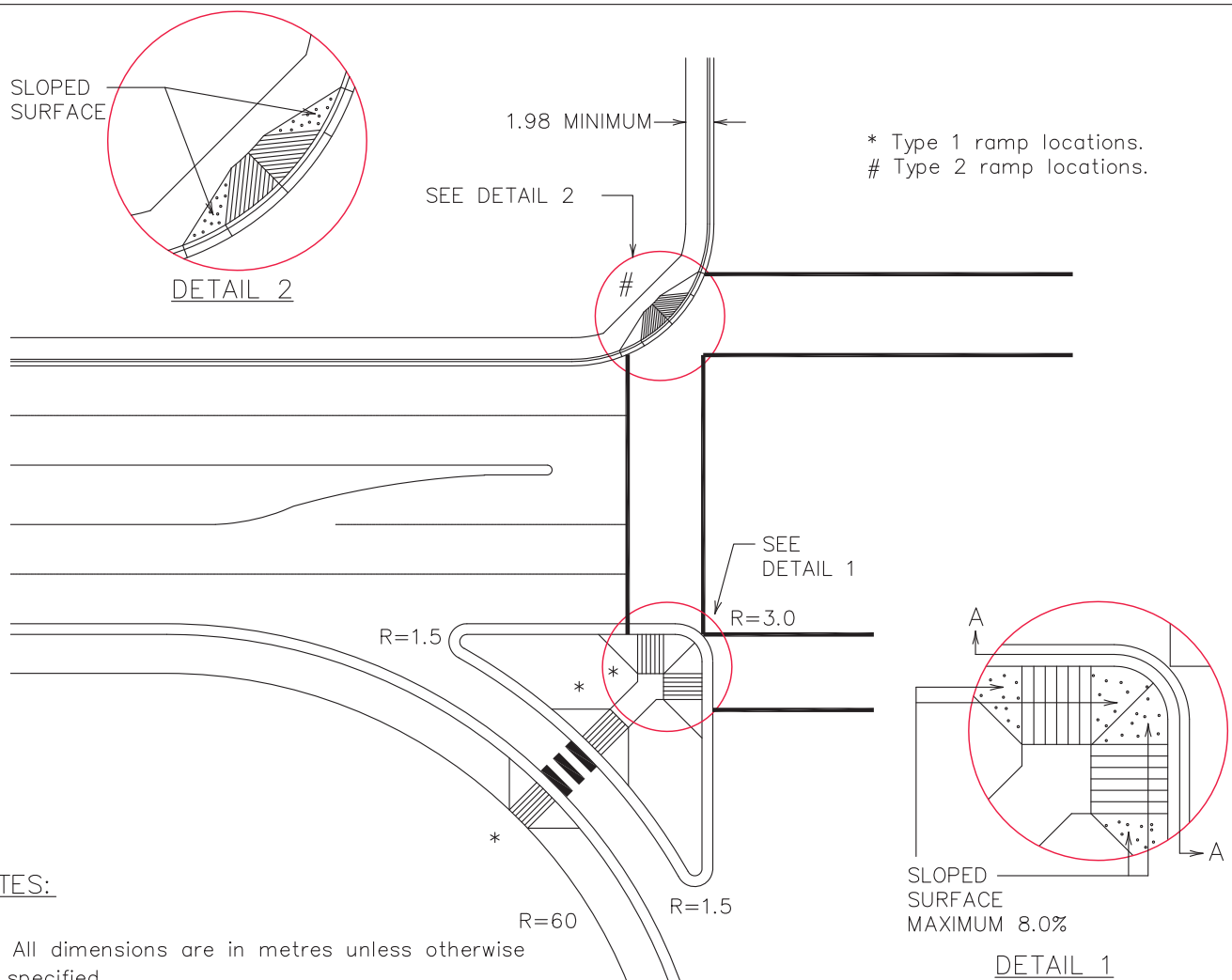
SCALE N.T.S.

DATE 99/05/03

REV. DATE

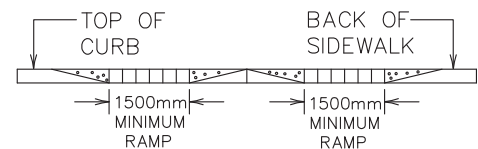
DWG NO

STR_10

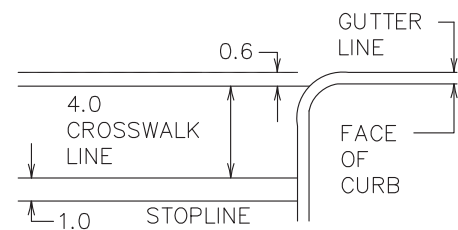


NOTES:

- All dimensions are in metres unless otherwise specified.
- Sidewalk ramps must provide access directly to crosswalks.
- The selection of curb ramp type is dependent on the location of the crosswalk relative to the curb face. Where the curb return radius is greater than or equal to 4.0m one Type 2 ramp can be used. Where the curb return radius is less than 4.0m two Type 1 ramps are required.
- Where crosswalks are controlled by signals with a push-button system, the sidewalks and ramps must allow access by wheelchair to the push button.
- Refer to Drawing Nos. STR 11.1 and 11.2 for details of Type 1 and Type 2 ramps.
- On a sharp corner where two Type 1 ramps are being used, the slope on the flared areas between the two ramps can be less than the 0.08 m/m maximum shown. This will provide a smoother sidewalk for general use especially for pedestrians who are not using the crosswalk.



SECTION A-A



DETAIL SHOWING
CROSSWALK DIMENSIONS

DATE	REVISION	BY
02/11	REVISED SHAPE	R.J.K.
FILE:	str_11.0.dwg	

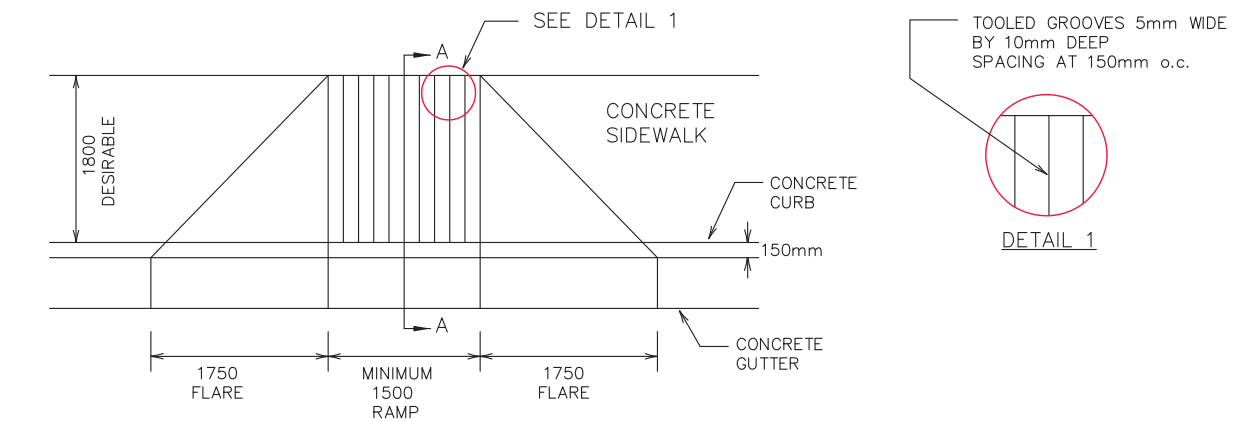


CITY OF
Lethbridge

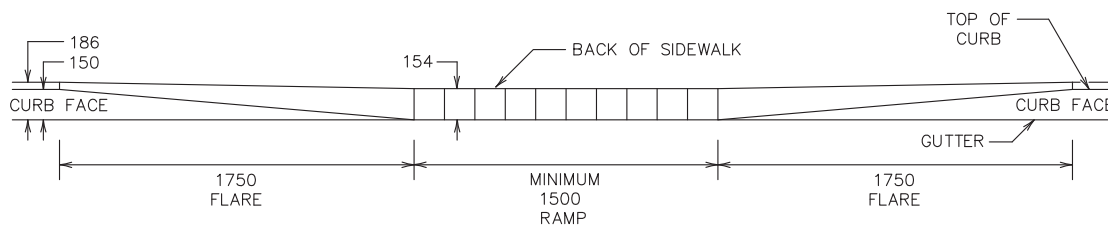
INFRASTRUCTURE SERVICES

TYPICAL LAYOUT OF CROSSWALKS
AND LOCATION AND TYPE OF
SIDEWALK RAMPS AT
URBAN INTERSECTIONS

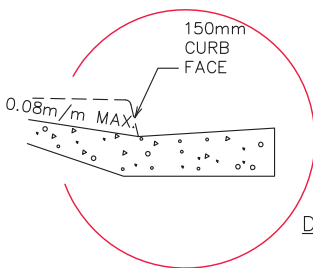
DRAWN:	C.R.S.
DESIGN:	R.J.K.
CHECKED:	R.A.B.
APPROVED:	D.L.J.
SCALE:	N.T.S.
DATE:	02/10/1991
DWG NO:	STR 11.0



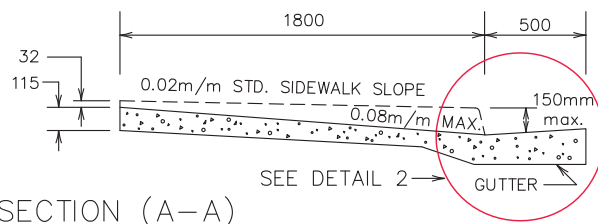
TYPICAL PLAN VIEW



TYPICAL ELEVATION



DETAIL 2



TYPICAL CROSS SECTION (A-A)

NOTES:

- All dimensions are in millimetres unless otherwise specified.
- Ramps for users of wheelchairs/bicycles should be located at all junctions of crosswalks and sidewalks.
- Grooves on sidewalk ramps are to alert persons who are visually impaired of the curb-cut and a street crossing.
- Where crosswalks are controlled by signals with a push-button system, the sidewalks and ramps must allow access by wheelchair to the push-button.
- Concrete sidewalks, curbs and ramps to be poured monolithically.
- Minimum width of ramp is 1500mm. It may be necessary to build wider ramps in busy urban areas where the volume of pedestrian traffic is high.
- Maximum ramp slope is 0.08m/m.
- Where the sidewalk is less than 1800mm wide, the 0.08m/m maximum slope should not be exceeded and therefore the back of the sidewalk must be lowered accordingly.
- Refer to Drawing No. STR 11.0 for typical layout of crosswalks and location and the type of ramp to be used.
- For details of typical ramps for 90 degree corners, refer to Drawing No. STR 11.2.



CITY OF
Lethbridge

INFRASTRUCTURE SERVICES

CONCRETE SIDEWALK RAMP FOR
WHEELCHAIR OR BICYCLE
ON TANGENT (TYPE 1)

DRAWN: C.R.S.

DESIGN: C.R.S.

CHECKED: P.R.A.

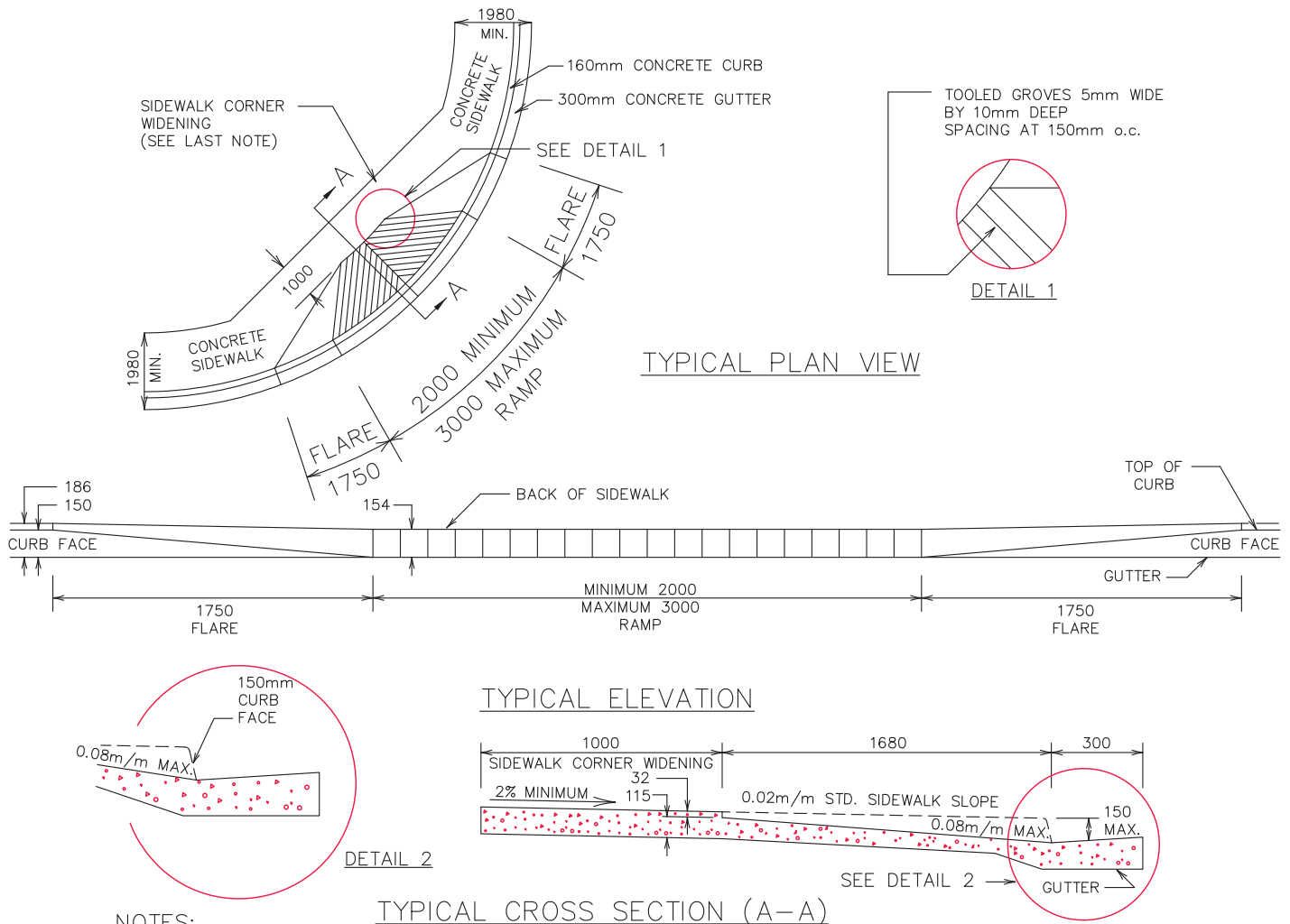
APPROVED: B.L.H.

SCALE: N.T.S.

DATE: 10/10/1991

DWG NO: STR 11.1

DATE	REVISION	BY
FILE:	str_11.1.dwg	



NOTES:

- All dimensions are in millimetres unless otherwise specified.
- Ramps for users of wheelchairs/bicycles should be located at all junctions of crosswalks and sidewalks. Ramp must be located within a crosswalk.
- Grooves on sidewalk ramps are to alert persons who are visually impaired of the curb-cut and a street crossing.
- Where crosswalks are controlled by signals with a push-button system, the sidewalks and ramps must allow access by wheelchair to the push-button.
- Concrete sidewalks, curbs and ramps to be poured monolithically.
- Minimum width of ramp is 2000mm. It may be necessary to build wider ramps in busy urban areas where the volume of pedestrian traffic is high.
- Maximum ramp slope is 0.08m/m.
- Where the sidewalk is less than 1800mm wide, the 0.08m/m maximum slope should not be exceeded and therefore the back of the sidewalk must be lowered accordingly.
- Refer to Drawing No. STR 11.0 for typical layout of crosswalks and location and the type of ramp to be used.
- For details of typical ramps for tangent sections, refer to Drawing No. STR 11.1.
- Where right-of-way is available, the sidewalk is to be widened at corner locations as shown so that at least a 1.0m width of minimum 2% sloped sidewalk is provided adjacent to the ramp.

DATE	REVISION	BY
02/11	REVISED SHAPE	R.J.K.
05/11	RECORD REVISION	R.J.K.
05/12	SIZE REVISION	R.J.K.
FILE:	str_11.2.dwg	

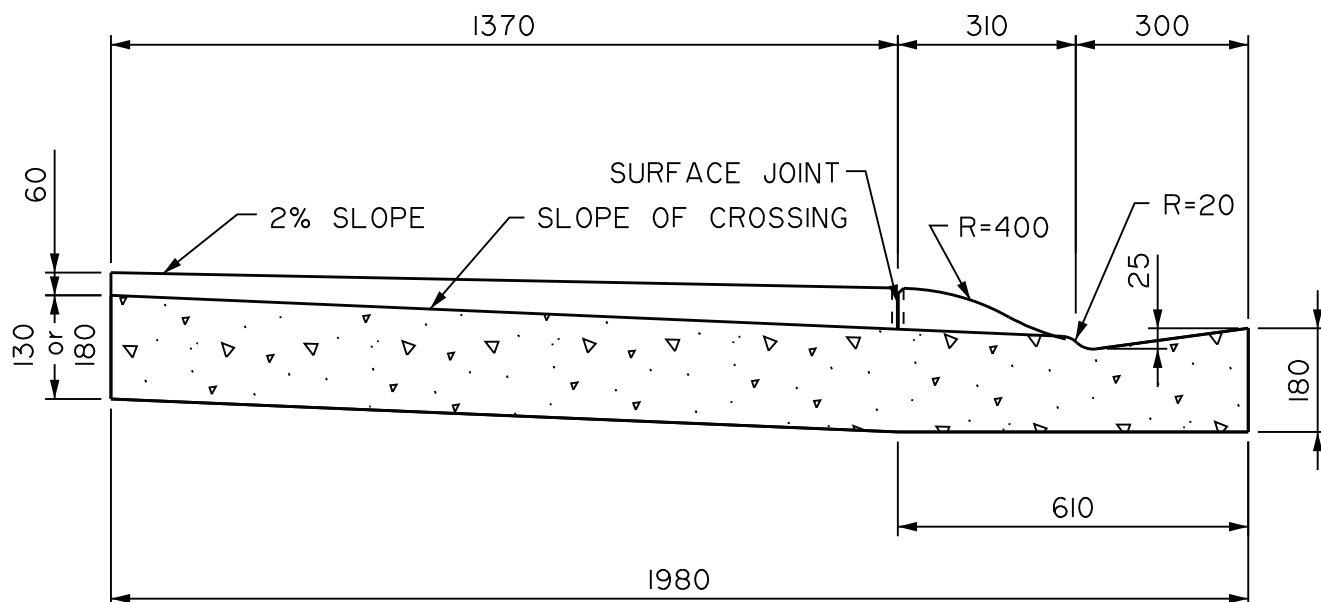


CITY OF
Lethbridge

INFRASTRUCTURE SERVICES

CONCRETE SIDEWALK RAMP FOR
WHEELCHAIR OR BICYCLE ON
CORNER (TYPE 2)

DRAWN:	C.R.S.
DESIGN:	R.J.K.
CHECKED:	R.A.B.
APPROVED:	D.L.J.
SCALE:	N.T.S.
DATE:	10/11/1991
DWG NO:	STR 11.2



NOTE:

- RESIDENTIAL CROSSING TO BE MIN. 130mm THICK.
LANE OR COMMERCIAL CROSSING TO BE MIN.
180mm THICK.



City of Lethbridge
INFRASTRUCTURE

REVISION: CURB RADII TO 20. DI FROM TOP
OF CROSSING TO SIDEWALK 60

**CROSSING THROUGH COMBINED SIDEWALK
ROLLED CURB AND GUTTER**

DRAWN jrg

CHECKED

APPROVED

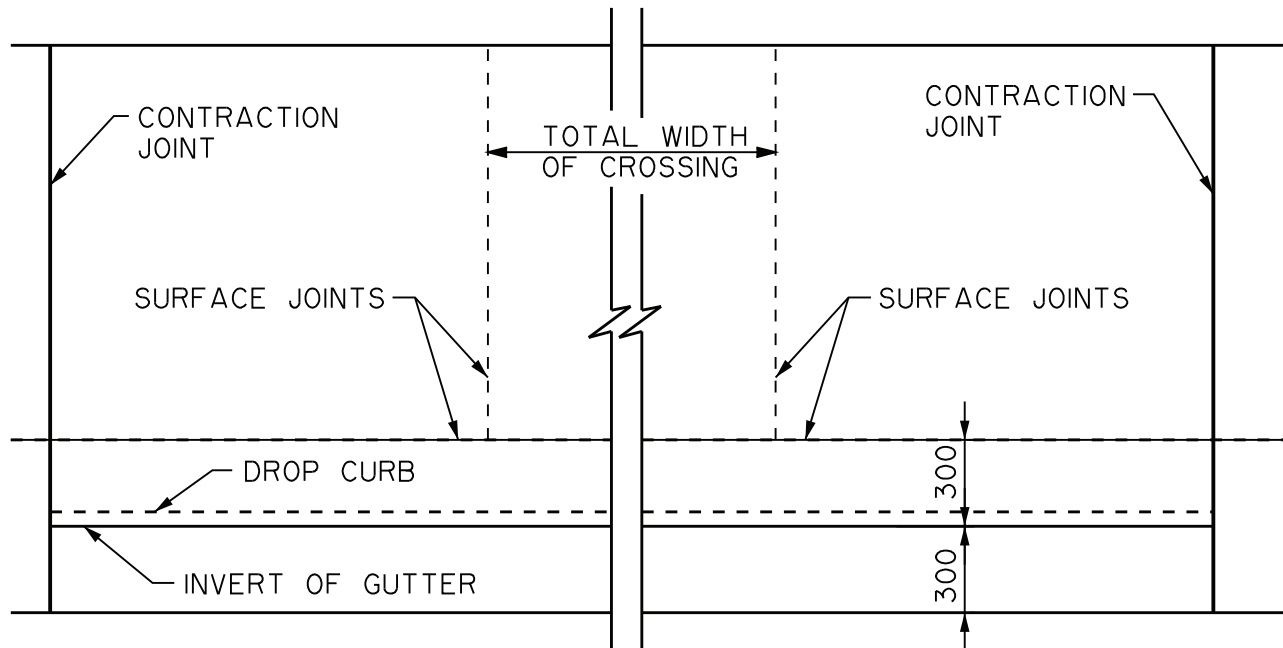
SCALE N.T.S.

DATE 99/05/03

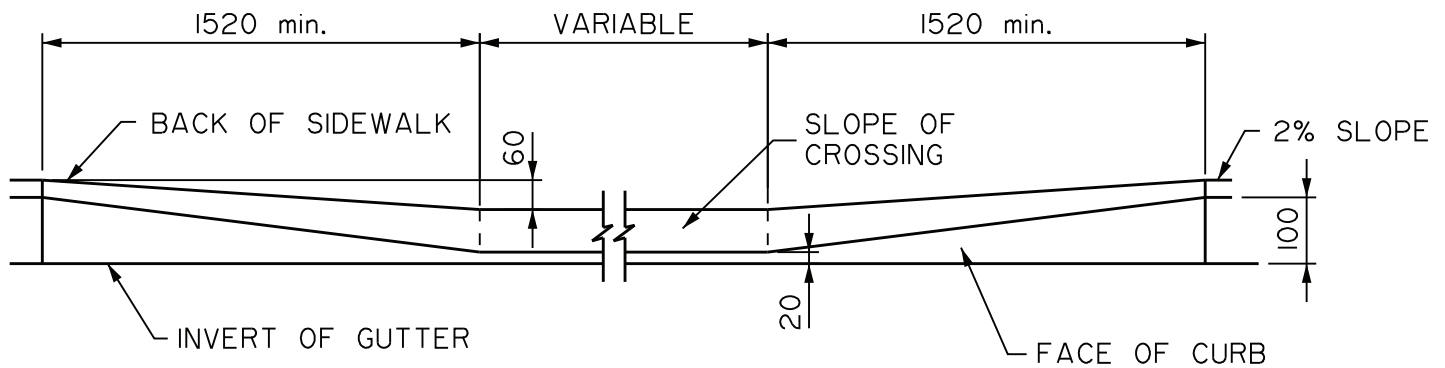
REV. DATE 99/12/14

DWG NO

STR_14_0



PLAN VIEW



FRONT VIEW

NOTE:
- BRUSH FINISH SURFACE



City of Lethbridge
INFRASTRUCTURE

**CROSSING THROUGH COMBINED SIDEWALK
STANDARD ROLLED CURB AND GUTTER**

REVI: CHANGED CURB HEIGHT TO 20.
BACK TO 60

DRAWN jrg

CHECKED

APPROVED

SCALE N.T.S.

DATE 99/05/03


REV. DATE

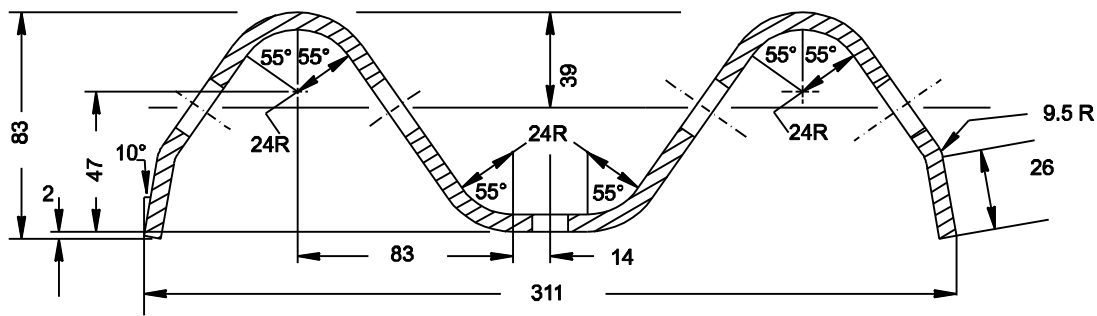
DWG NO

STR_14_1

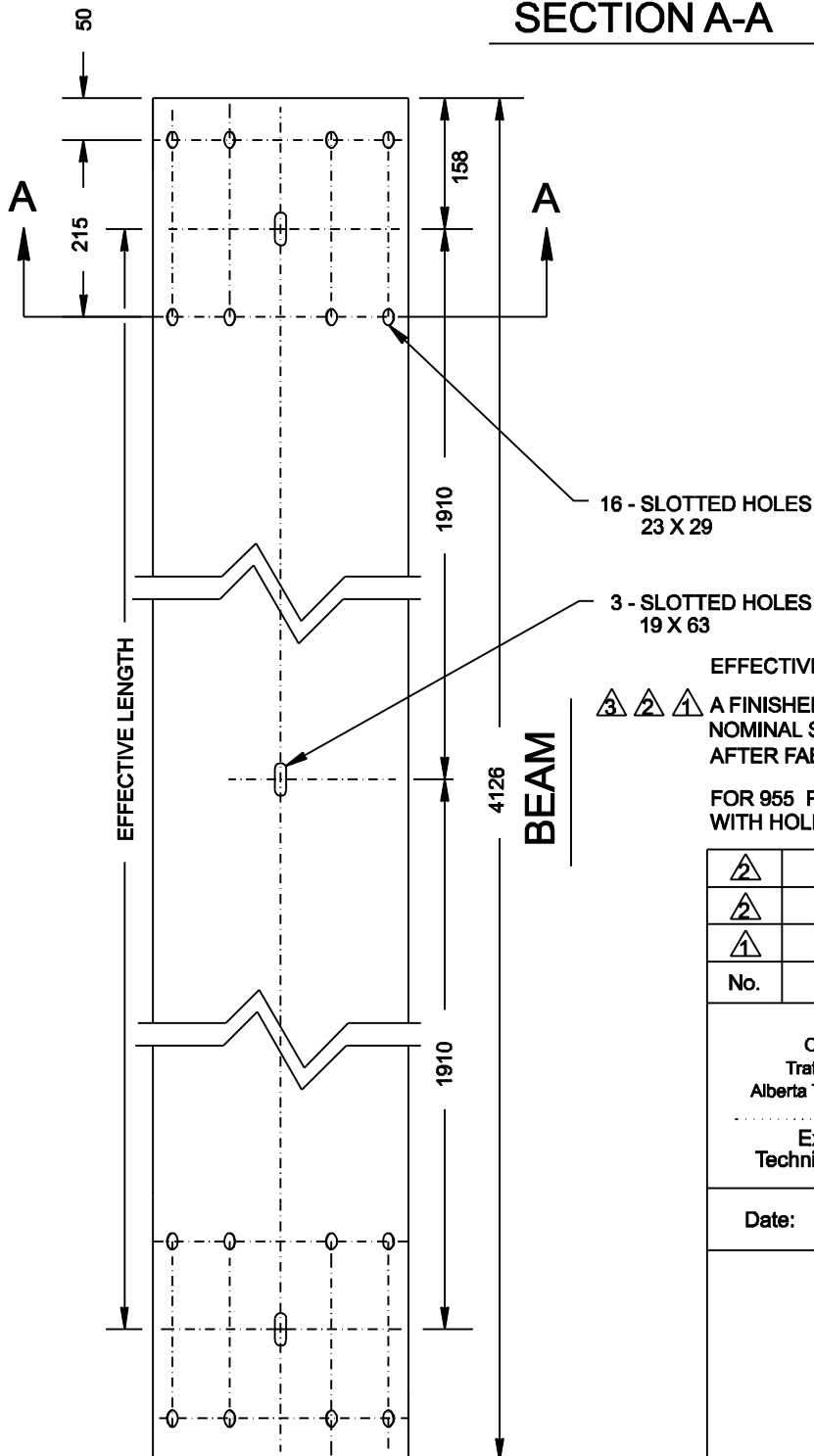
LINE TYPE	PATTERN	USE
STOP BAR		STOP LINE
STANDARD CROSSWALK		STANDARD CROSSWALK
ZEBRA CROSSWALK		ZEBRA CROSSWALK FOR ADDED VISIBILITY

	Dwg. no. changed from TCS-C-3.01	B.B.	Mar/03
No.	DESCRIPTION	BY	DATE

	FIGURE TCS-C-301	
	Date: <u>MAY 1999</u> ----	
TRANSVERSE PAVEMENT MARKINGS DIMENSIONS AND DEFINITIONS		
Prepared By: <u>R.M.</u>	Checked By: <u>S.J.M.</u>	Scale: <u>---- N.T.S. --</u>
Section C3		



SECTION A-A



16 - SLOTTED HOLES
23 X 29

3 - SLOTTED HOLES
19 X 63

EFFECTIVE LENGTH = 3820 (12' 6")

3 2 1 A FINISHED THICKNESS OF RAIL TO BE 2.82 mm
NOMINAL STEEL AND HOT DIPPED GALVANIZED
AFTER FABRICATION.

FOR 955 POST SPACING, SPECIFY RAIL ELEMENT
WITH HOLES AT 955 CENTRES.

△	Revised Note	B.K.	08/05/07
△	Steel Thickness	B.K.	01/03/06
△	Steel Thickness	B.K.	12/07/05
No.	REVISIONS	BY	DATE

Approved:
Original approved by
Traffic Operations Branch
Alberta Transportation and Utilities
Executive Director,
Technical Standards Branch

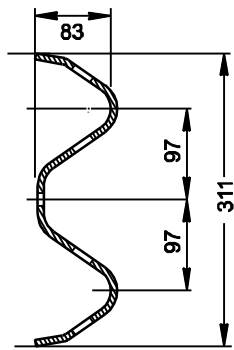
Date: NOVEMBER 11, 1992

Alberta
INFRASTRUCTURE AND
TRANSPORTATION

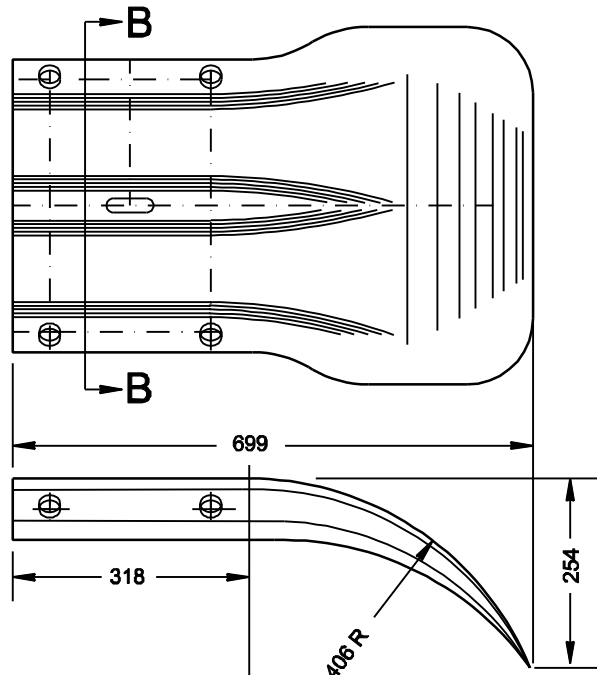
W - BEAM GUARDRAIL HARDWARE RAIL DETAIL

All dimensions are in millimetres unless otherwise indicated.

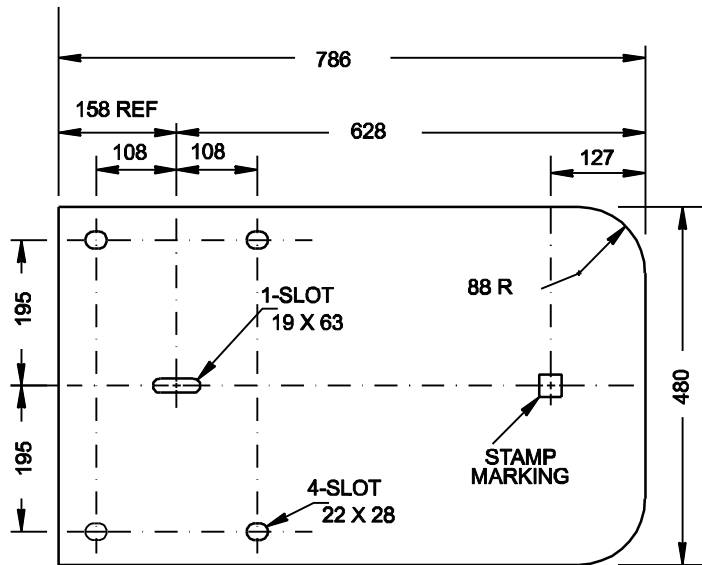
Prepared By: M.T	Checked By: B.K	Scale: N.T.S.	Dwg No.: TEB 3.02
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SECTION B - B



END SECTION




BLANK LAYOUT

THICKNESS OF STEEL=2.82mm AFTER GALVANIZING



3	Galvanizing added	B.K.	08/05/07
2	Steel Thickness	P.M.	31/01/06
1	Steel Thickness	B.K.	12/07/05
No.	REVISIONS	BY	DATE

<p>Approved:</p> <p>Original approved by Traffic Operations Branch Alberta Transportation and Utilities</p> <p>Executive Director, Technical Standards Branch</p>	 <p>INFRASTRUCTURE AND TRANSPORTATION</p>
<p>Date: NOVEMBER 11, 1992</p>	

**W - BEAM GUARDRAIL
HARDWARE
END SECTION - WING**

Prepared By: M.T	Checked By: B.K	Scale: N.T.S.	Dwg No.: TEB 3.03
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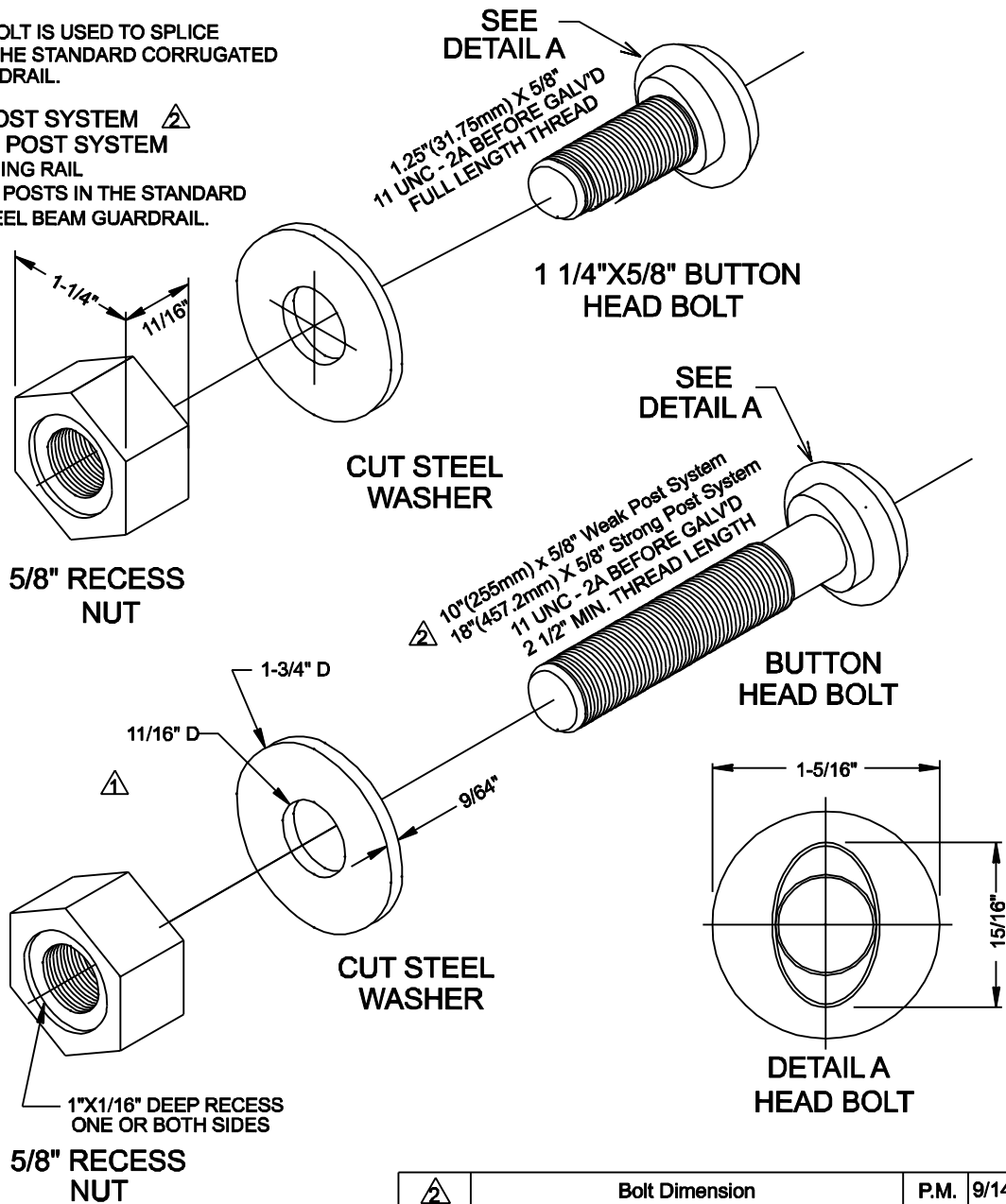
All dimensions are in millimetres unless otherwise indicated.

(1-1/4" LENGTH) THIS BOLT IS USED TO SPLICE RAIL ELEMENTS USED IN THE STANDARD CORRUGATED SHEET STEEL BEAM GUARDRAIL.

(10" LENGTH) WEAK POST SYSTEM 



(18" LENGTH) STRONG POST SYSTEM

THIS BOLT IS FOR FASTENING RAIL TO WOOD OR CONCRETE POSTS IN THE STANDARD CORRUGATED SHEET STEEL BEAM GUARDRAIL.



BOLTS SHALL CONFORM TO THE REQUIREMENTS OF A.S.T.M A307 AND NUTS TO THE REQUIREMENT OF A.S.T.M A563, GRADE A OR BETTER, AND BE GALVANIZED IN ACCORDANCE WITH CSA G 164-M EXCEPT WHEN CORROSION RESISTANT STEEL IS REQUESTED IN WHICH CASE BOLTS AND NUTS SHALL BE MADE OF MATERIAL HAVING AN ATMOSPHERIC CORROSION RESISTANCE, APPROXIMATELY TWO TIMES THAT OF CARBON STRUCTURAL STEEL WITH COPPER AND SHALL NOT BE GALVANIZED.

All dimensions are in millimetres unless otherwise indicated.

	Bolt Dimension	P.M.	9/14/05
	Rectangular Washer Removed	B.K.	12/07/05
No.	REVISIONS	BY	DATE

Approved:
Original approved by
Traffic Operations Branch
Alberta Transportation and Utilities

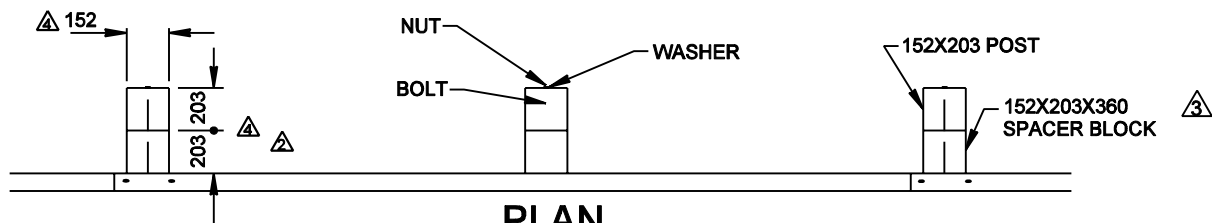
Executive Director,
Technical Standards Branch

Date: DECEMBER 11, 1992

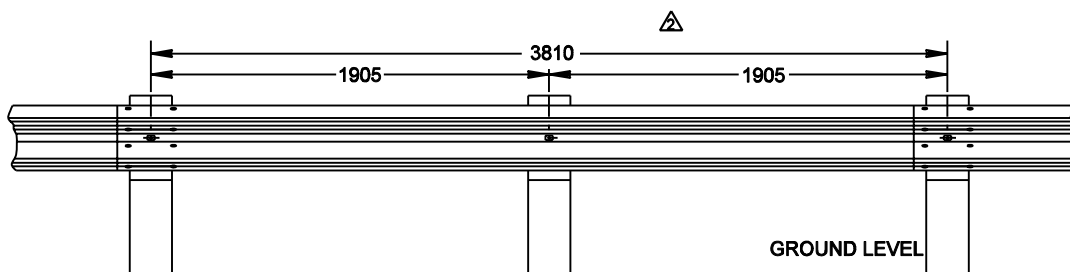
Alberta
INFRASTRUCTURE AND
TRANSPORTATION

W - BEAM GUARDRAIL HARDWARE BOLT, NUT AND WASHER

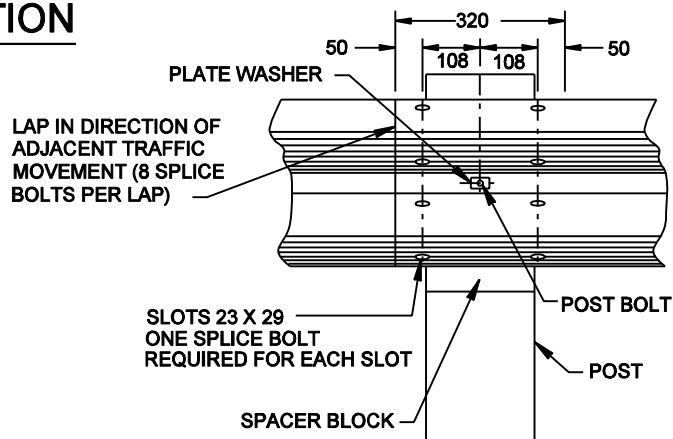
Prepared By: M.T	Checked By: B.K	Scale: N.T.S.	Dwg No.: TEB 3.06
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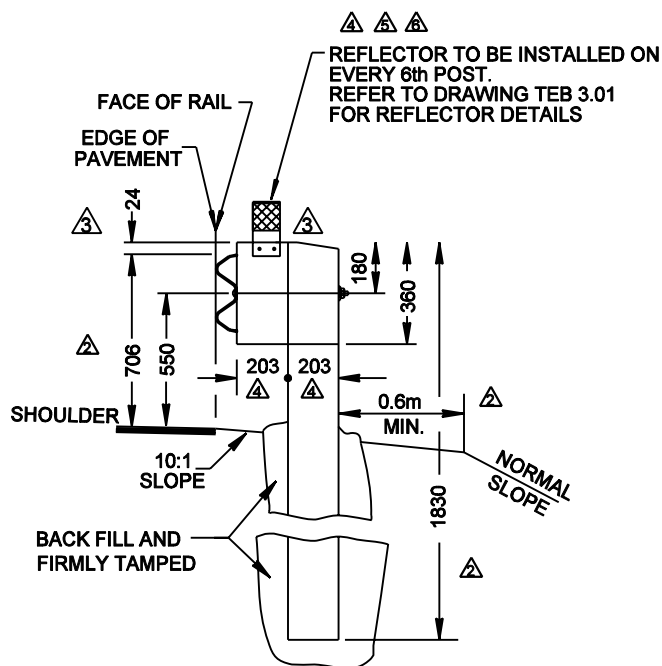
PLAN



ELEVATION



RAIL SPLICE DETAIL




POST AND SPACER DETAILS

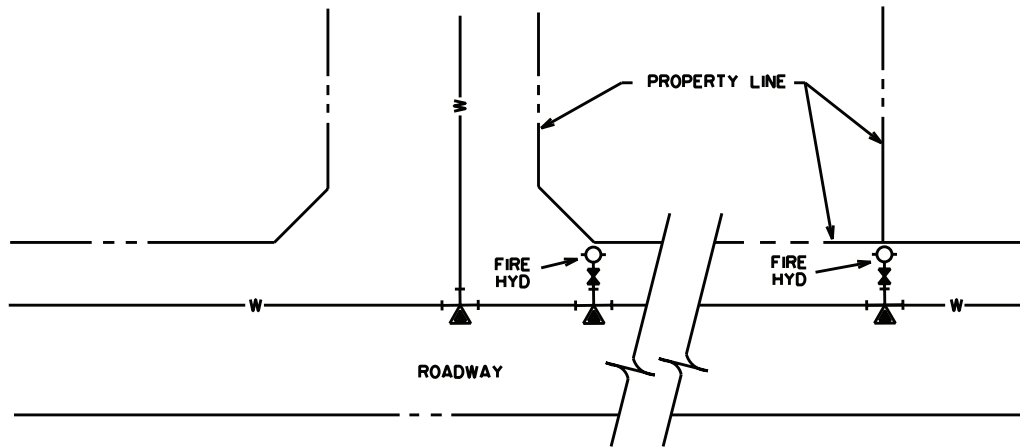


NOTE: THE STANDARD POST LENGTH FOR STRONG POST SYSTEM IS 1830mm (6'0"). OTHER POST LENGTHS MAY BE USED IF DIRECTED BY THE ENGINEER.

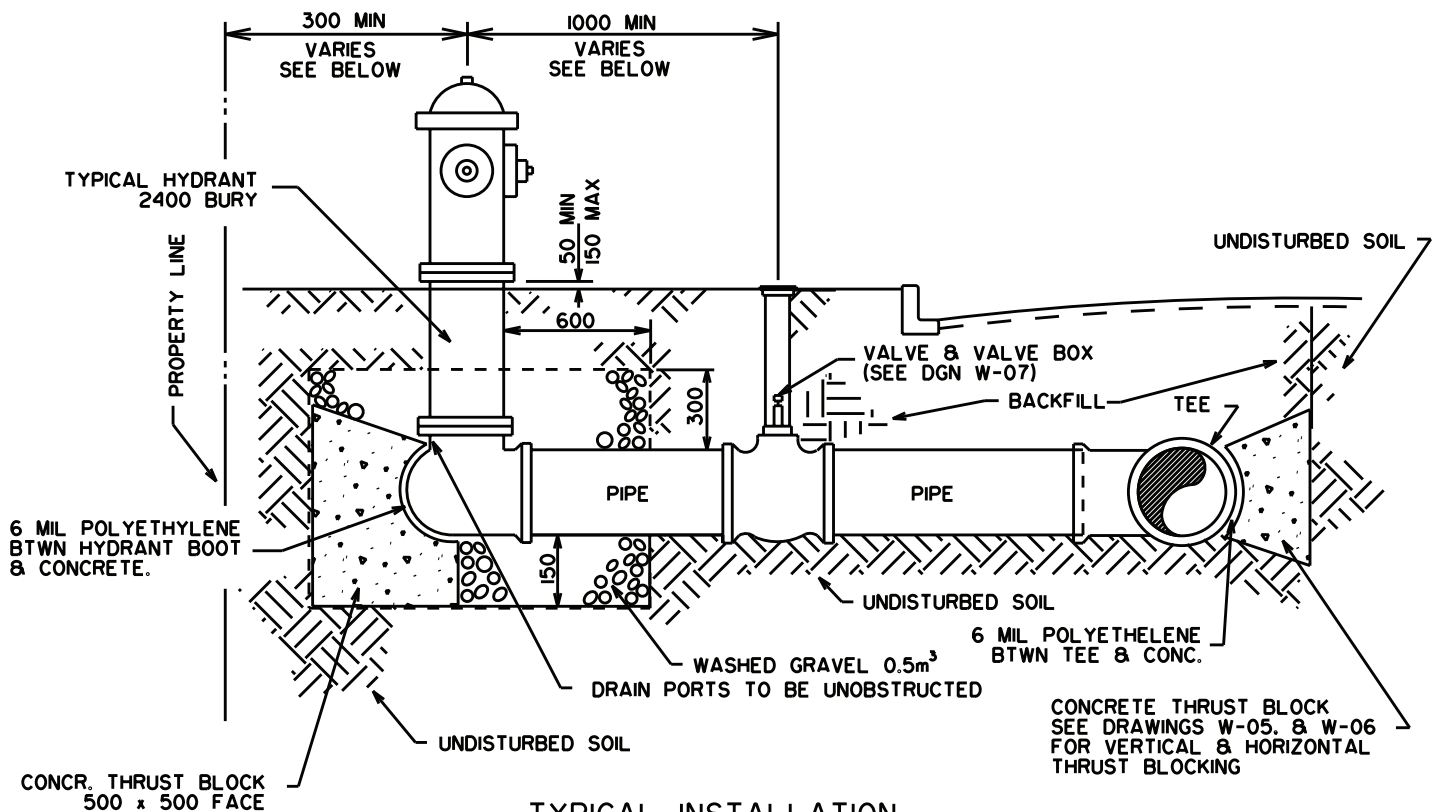
All dimensions are in millimetres unless otherwise indicated.

6	Reflector Note Revised	PM	8 JUL 09
5	Reflector Note Revised (Include Type IX)	BK	03/23/07
4	Reflector Note and Added Post Dimensions	BK	08/11/06
3	Dimensions and Reflector Detail	BK	12/07/05
2	Notes and Dimensions	BK	12-04
1			06-95
No.	REVISIONS	BY	DATE

<p>Approved: Original signed by A.D. Cherwenuk</p> <p>Executive Director, Technical Standards Branch</p>			
<p>Date: DECEMBER 11, 1992</p>			
<p>STRONG POST W-BEAM BLOCKED-OUT GUARDRAIL</p>			
Prepared By: M.T	Checked By: B.K	Scale: N.T.S.	Dwg No.: TEB 3.09



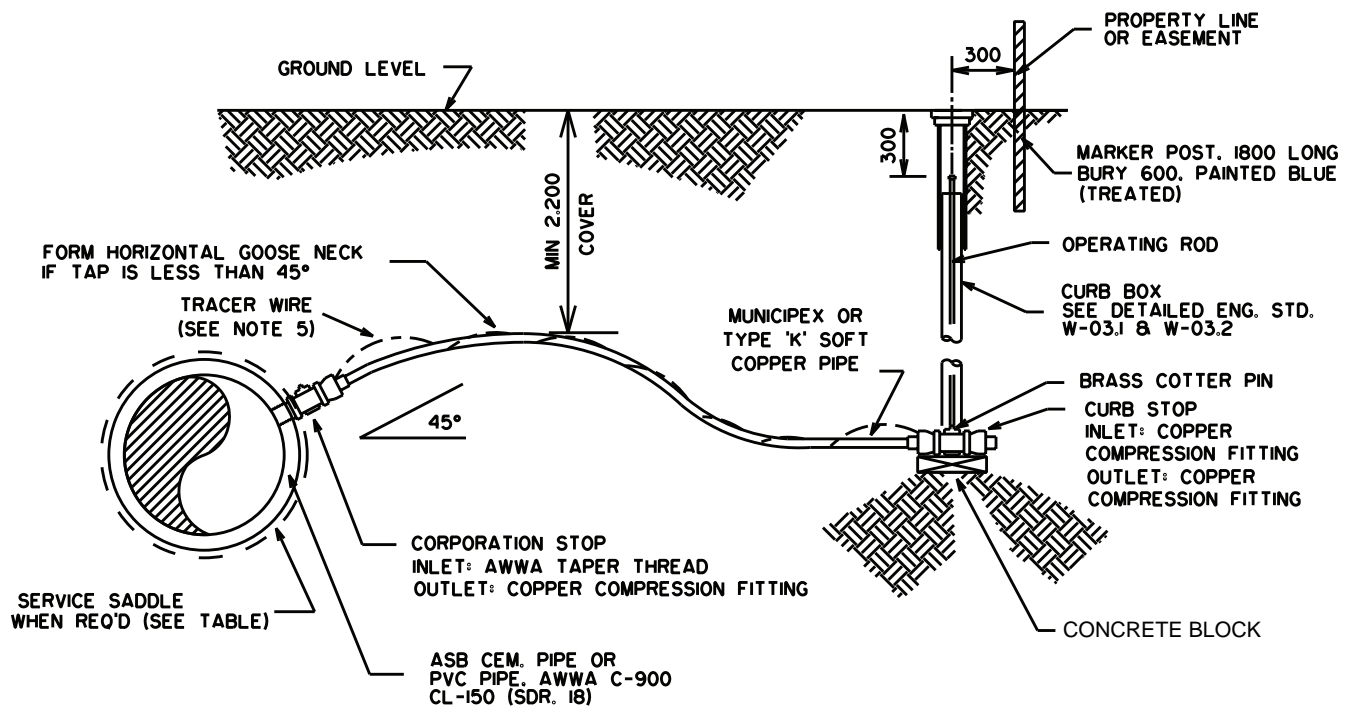
TYPICAL LOCATION



TYPICAL INSTALLATION

- THRUST BLOCKS SHALL BE OF CONCRETE OBTAINING A COMPRESSIVE STRENGTH OF AT LEAST 30 MPa @ 28 DAYS. CEMENT TO BE TYPE 50 (SULPHATE RESISTANT).
- TO OBTAIN DISTANCE FROM PROPERTY LINE TO HYDRANT AND VALVE, SEE CITY OF LETHBRIDGE ROAD R.O.W. - LINE ASSIGNMENT CORRESPONDING TO R.O.W. WIDTH.
- ALL DIMENSIONS ARE IN MILLIMETERS.

REVISED	 <div>CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</div>	DRAWN	P.R.A.
07/01/10		CHECKED	
		APPROVED	
		SCALE	N.T.S.
		DATE	97/03/11
	STANDARD FOR FIRE HYDRANT INSTALLATION	DWG NO	W-01

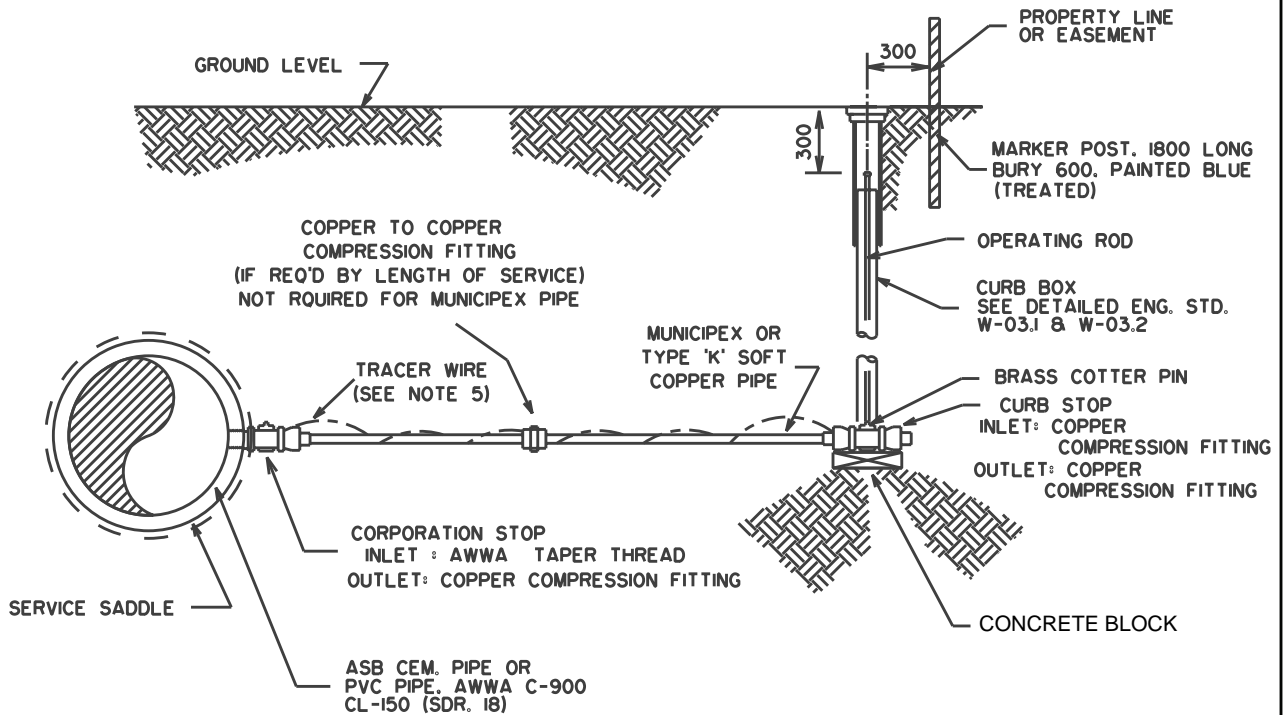


PIPE SIZE	MAX SIZE OF OUTLET ALLOWED WITH CL 150 AC PIPE		MAX SIZE OF OUTLET WITH PVC PIPE CL 150 (SDR.18)	
	CORPORATION STOP ONLY	CORP STOP WITH SERVICE SADDLE	CORPORATION STOP ONLY	CORP STOP WITH SERVICE SADDLE
100	-	25	20	50
150	-	37	25	50
200	-	50	25	50
250	-	50	25	50
300	-	50	25	50
350	-	50	25	50
400	-	50	25	50

NOTES:

1. CORPORATION STOPS TO BE STAGGERED AND AT LEAST 400 mm APART.
2. CORPORATION STOPS TO BE 300 mm MIN. FROM END OF PIPE SECTION.
3. USE AWWA THREAD FOR ALL DIRECT TAPS & SERVICE SADDLE CONNECTIONS
4. FOR CONNECTIONS IN EXISTING AREAS, HORIZONTAL GOOSENECK TO BE FORMED IF DEPTH IS LESS THAN 1500 mm
5. TRACER WIRE SHALL BE INSTALLED IN CUL-DE-SACS AND WHERE SPECIFIED BY THE CITY ENGINEER.

REVISED	 <div>CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</div>	DRAWN	P.R.A.
DEC 15, 2005		CHECKED	
		APPROVED	
		SCALE	N.T.S.
		DATE	97/03/11
	STANDARD FOR 20mm & 25mm WATER SERVICE	DWG NO	W-02



PIPE SIZE	MAX SIZE OF OUTLET ALLOWED WITH CL 150 AC PIPE		MAX SIZE OF OUTLET WITH PVC PIPE CL 150 (SDR.18)	
	CORPORATION STOP ONLY	CORP STOP WITH SERVICE SADDLE	CORPORATION STOP ONLY	CORP STOP WITH SERVICE SADDLE
100	—	25	—	50
150	—	37	—	50
200	—	50	—	50
250	—	50	—	50
300	—	50	—	50
350	—	50		
400	—	50		

NOTES:

1. SERVICE SADDLE TO BE BRONZE BODY, AWWA THREAD, C/W DOUBLE STAINLESS STEEL STRAP FOR PIPE > 100mm Ø & SINGLE 50mm WIDE FOR STAINLESS STEEL STRAP FOR PIPE 100 mm Ø
2. CORPORATION STOPS TO BE STAGGERED AND AT LEAST 400 mm APART.
3. CORPORATION STOPS TO BE 300 mm MIN. FROM END OF PIPE SECTION.
4. USE AWWA THREAD FOR ALL DIRECT TAPS
5. TRACER WIRE SHALL BE INSTALLED IN CUL-DE-SACS AND WHERE SPECIFIED BY THE CITY ENGINEER.

REVISED	 <p>CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</p>	DRAWN	P.R.A.
		CHECKED	
		APPROVED	
		SCALE	N.T.S.
		DATE	97/03/08
		DWG NO	W_03
	STANDARD FOR 37mm & 50mm WATER SERVICE		

FOR 20mm & 25mm VALVES

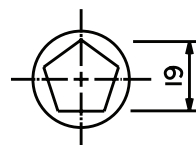
FOR 37mm & 50mm VALVES

CAST-IRON, RIBBED LID c/w 32mm
PENTAGON HEAD BRASS PLUG

STANDARD I.P. THREAD

35
MIN

610 MIN
1000 MAX



TOP VIEW
BRASS PLUG

35
MIN

610 MIN
1000 MAX

TOP BOX SLIDER, 38mm SCHEDULE 40
GALVANIZED IRON PIPE

CASING, 25mm SCHEDULE 40
GALVANIZED IRON PIPE

15.875mm \varnothing STAINLESS STEEL ROD
SEE ENGINEERING STANDARD W-03B

10mm \varnothing GALVANIZED SET SCREW
OR THREADED JOINT

NECK I.D.
38mm

38

230

EPOXY COATED BOOT

NECK I.D. 38mm

38

280

15 92 \varnothing

15 127 \varnothing

REVISED



CITY OF
Lethbridge

INFRASTRUCTURE SERVICES

CURB STAND DETAIL
(SERVICE BOX)

DRAWN

CHECKED

APPROVED

SCALE

N.T.S.

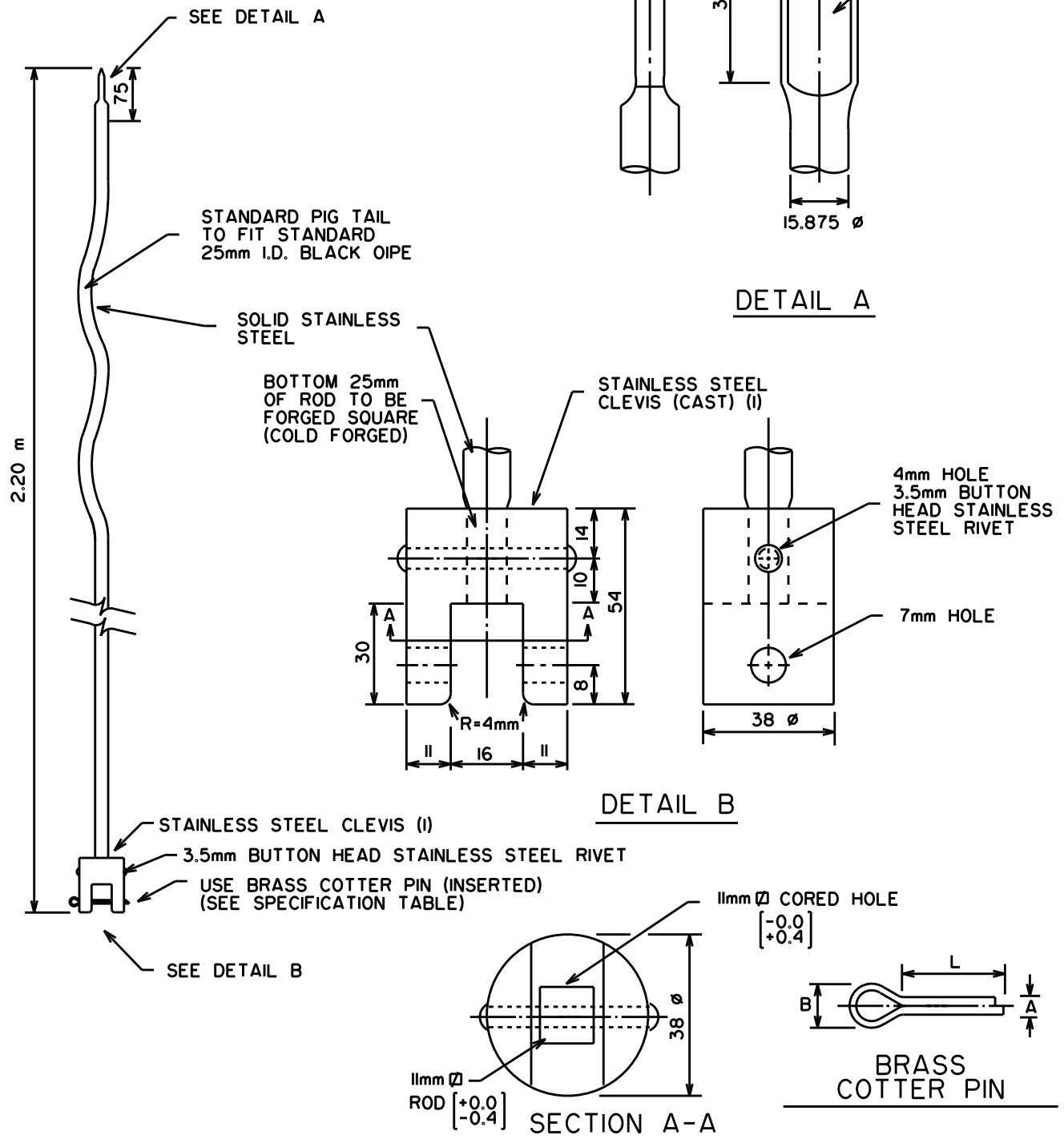
DATE

97/02/28

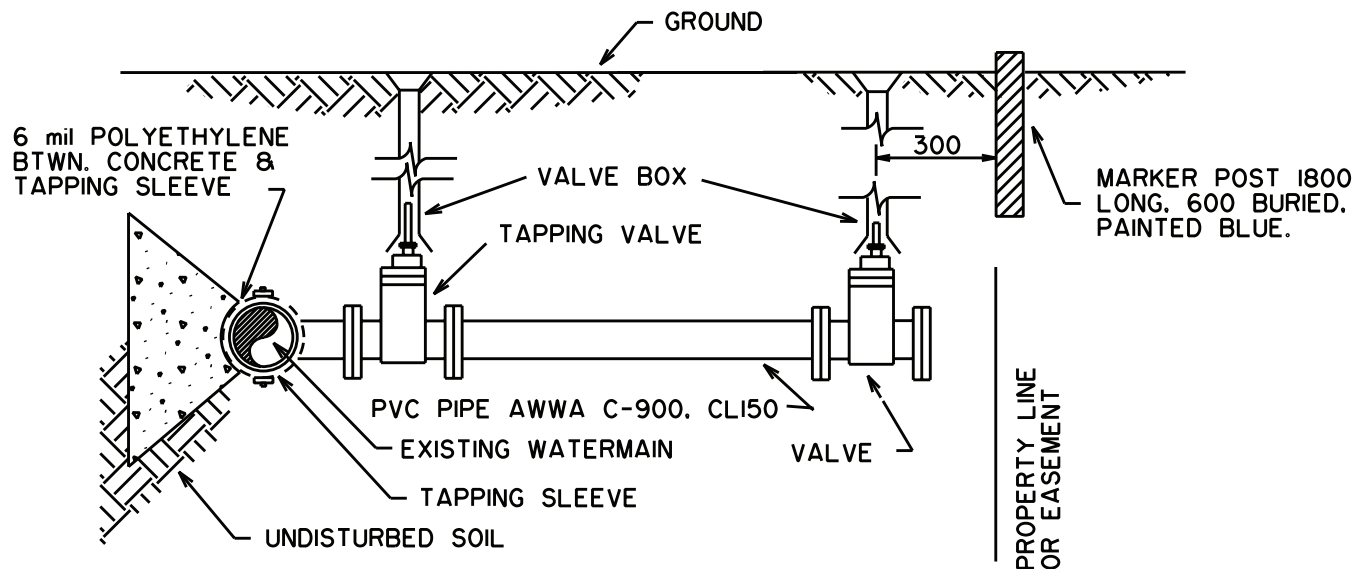
DWG NO

W-03A

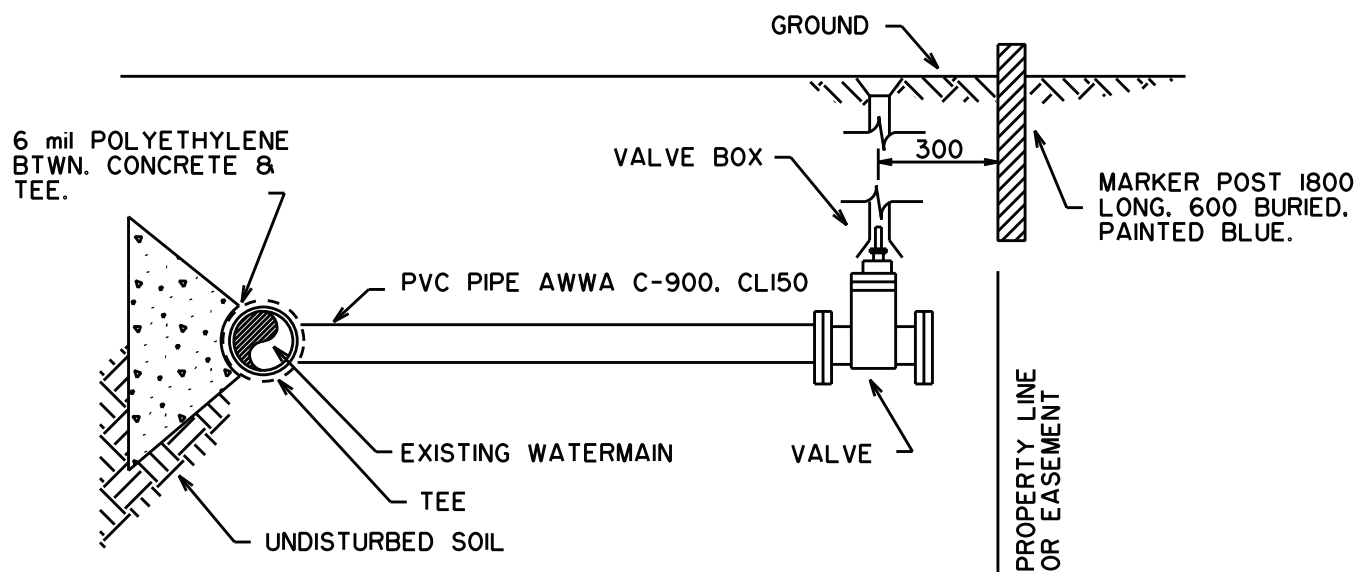
COTTER PIN SPECIFICATIONS					
NOMINAL DIAMETER	DIAMETER A		OUTSIDE EYE DIAMETER B (MIN)	HOLE SIZE RECM'D	LENGTH L
	MAX	MIN			
6.35mm	5.7mm	5.6mm	12.7mm	6.7mm	55mm



REVISED	 <div>CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</div>	DRAWN	P.R.A.
JAN 27, 2005 - (I)		CHECKED	
		APPROVED	
		SCALE	N.T.S.
		DATE	97/02/07
	CURB STAND OPERATING ROD DETAIL	DWG NO	W-03B



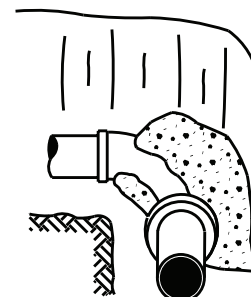
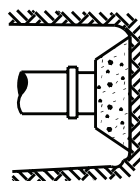
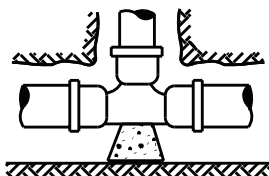
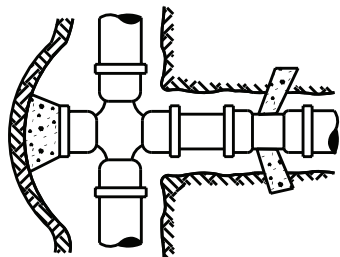
FOR MAIN UNDER PRESSURE



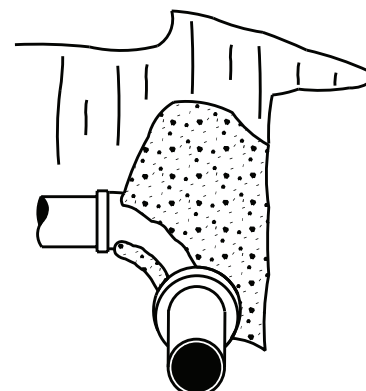
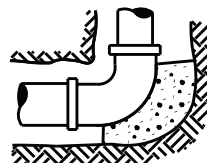
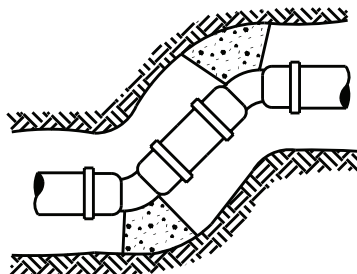
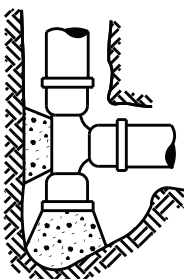
AT TIME OF CONSTRUCTION

- NOTE:
- ALL DIMENSIONS IN MILLIMETERS.
 - THRUST BLOCKS TO BE AS PER "STANDARD FOR HORIZONTAL THRUST BLOCKING" DRAWING W-05.

REVISED	<div><div>CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</div></div>	DRAWN	P.R.A.
		CHECKED	
		APPROVED	
		SCALE	N.T.S.
		DATE	97/02/19
		DWG NO	W_04
	STANDARD WATER SERVICE CONNECTIONS FOR 150mm & 200mm		



FOR SMALL PIPE



FOR LARGE PIPE

LOCATION OF HORIZONTAL THRUST BLOCKS

TABLE "A"					
THRUST BLOCK FACE AREA IN SQ. METRES AT FITTING FOR CL150 PIPE @ 1000kPa & SOIL BEARING CAPACITY OF 100 kPa					
PIPE SIZE	DEAD ENDS & TEES	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND
100	0.12	0.17	0.10	0.10	0.10
150	0.25	0.35	0.19	0.10	0.10
200	0.43	0.60	0.33	0.17	0.10
250	0.70	0.99	0.54	0.27	0.14
300	1.00	1.40	0.75	0.39	0.19
350	1.35	1.90	1.03	0.52	0.26
400	1.75	2.47	1.34	0.68	0.34
450	2.24	3.15	1.72	0.87	0.44
500	2.77	3.90	2.12	1.07	0.54
600	4.00	5.64	3.07	1.55	0.78
750	6.26	8.83	4.81	2.44	1.22
900	9.03	12.70	7.58	3.51	1.76

TABLE "B"	
SOIL TYPE	SAFE BEARING LOAD - kPa
SOFT CLAY; LOOSE SAND	50
MED. SOFT CLAY; DENSE SAND	100
DENSE CLAY TILL & GRAVEL	150
HARD SHALE	500

NOTE: - CONCRETE THRUST BLOCKS ARE TO BE PLACED AT ALL TEES, BENDS, PLUGS, CAPS, PIPE DEFLECTIONS AND REDUCERS.

- CONCRETE THRUST BLOCKS SHALL EXTEND INTO UNDISTURBED SOIL. THRUST BLOCKS IN SOFT UNSTABLE SOILS WILL REQUIRE REMOVAL OF SOIL & REPLACEMENT WITH COMPACTABLE FILL OF SUFFICIENT STABILITY TO RESIST THRUST TO THE SATISFACTION OF THE ENGINEER.

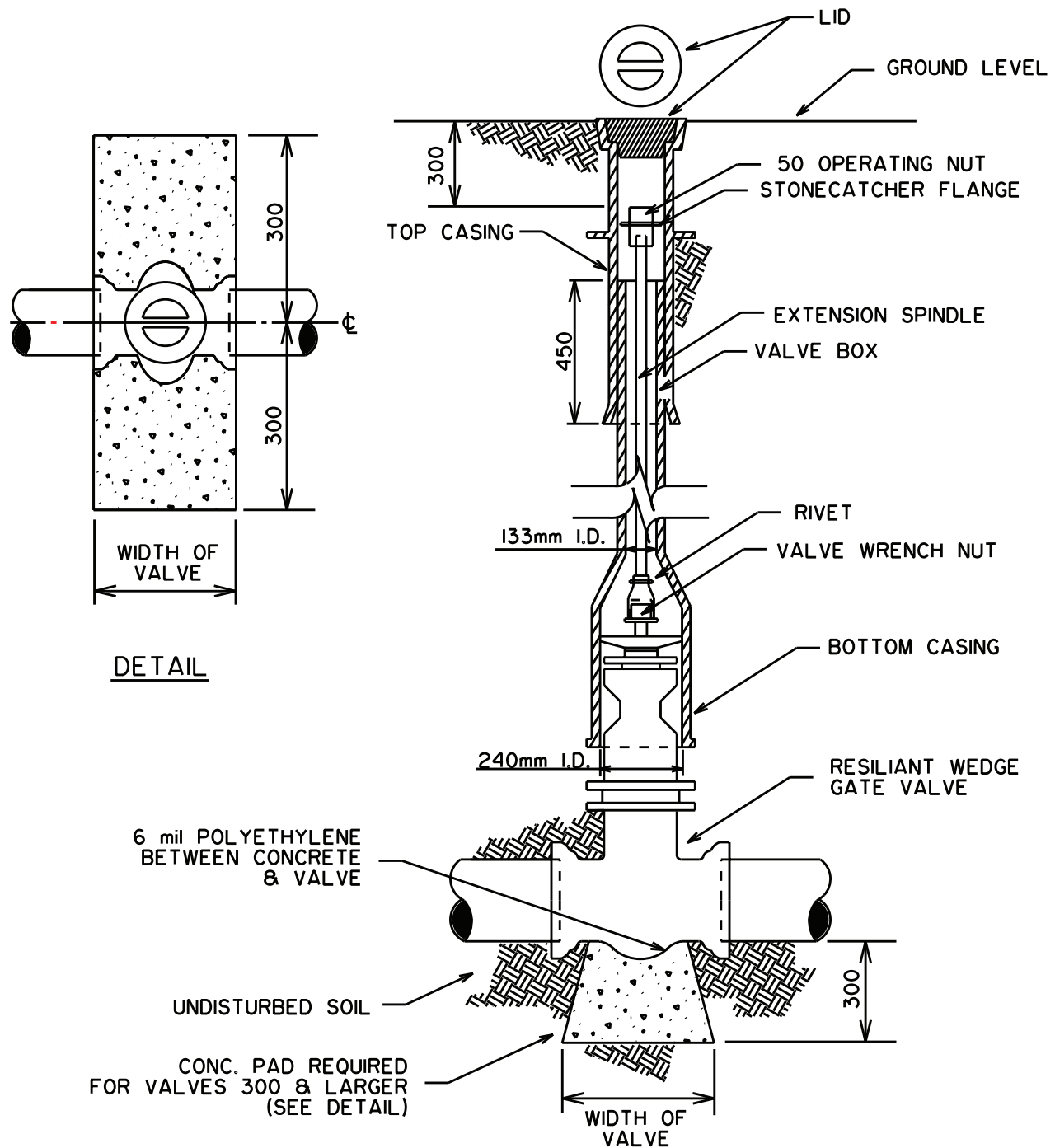
- THRUST BLOCKS SHALL BE OF CONCRETE OBTAINING A COMPRESSIVE STRENGTH OF AT LEAST 30 MPa @ 28 DAYS. CEMENT TO BE TYPE 50 (SULPHATE RESISTANT).

- CONCRETE SHALL BE KEPT CLEAR OF BELLS AND SHALL NOT CONTACT THE PIPE. USE A MINIMUM OF 6 mil POLYETHYLENE BETWEEN CONCRETE AND ALL FITTING SURFACES.

- ALL THRUST BLOCKS SHALL HAVE A MINIMUM FACE OF 0.10 m²

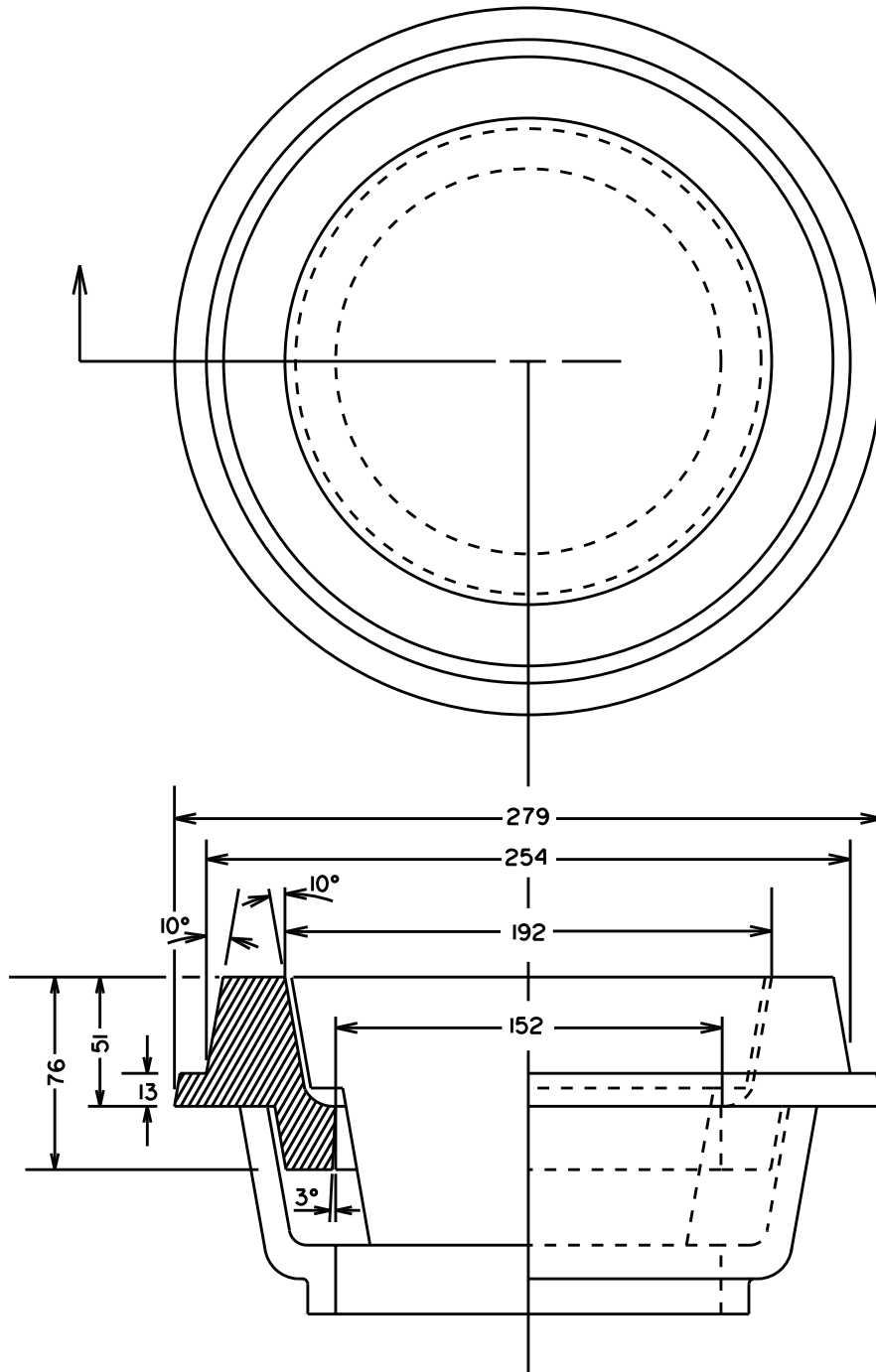
- REDUCERS SHALL HAVE A TOTAL BEARING AREA EQUAL TO THAT OF AN 11 1/4° BEND BASED UPON THE LARGEST DIAMETER OF THE REDUCER.

REVISED	 <p>CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</p>	DRAWN	P.R.A.
		CHECKED	
		APPROVED	
		SCALE	N.T.S.
		DATE	97/02/12
		DWG NO	W-05
	HORIZONTAL THRUST BLOCKING		




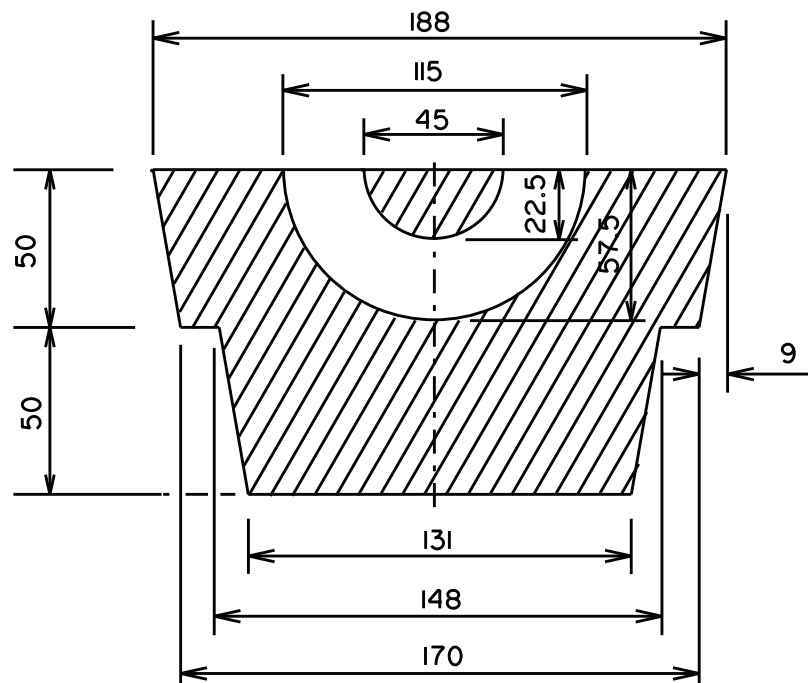
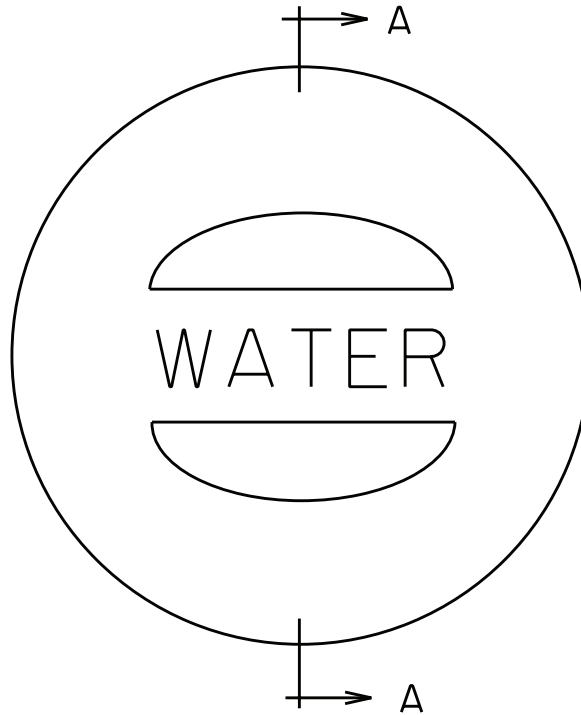
- NOTE:
- ALL DIMENSIONS ARE IN MILLIMETERS
 - ALL VALVES LEFT TURN TO OPEN (COUNTER-CLOCKWISE) FOR MAIN SIZES 150mm TO 300mm
 - CONCRETE SHALL OBTAIN A MINIMUM COMPRESSIVE STRENGTH OF 30 MPa @ 28 DAYS. ALL CEMENT TO BE TYPE 50 (SULPHATE RESISTANT).

REVISED	<div><div>CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</div></div>	DRAWN	P.R.A.
		CHECKED	
		APPROVED	
		SCALE	N.T.S.
		DATE	95/05/11
	STANDARD GATE VALVE INSTALLATION	DWG NO	W-07



NOTE: ALL DIMENSIONS IN MILLIMETERS

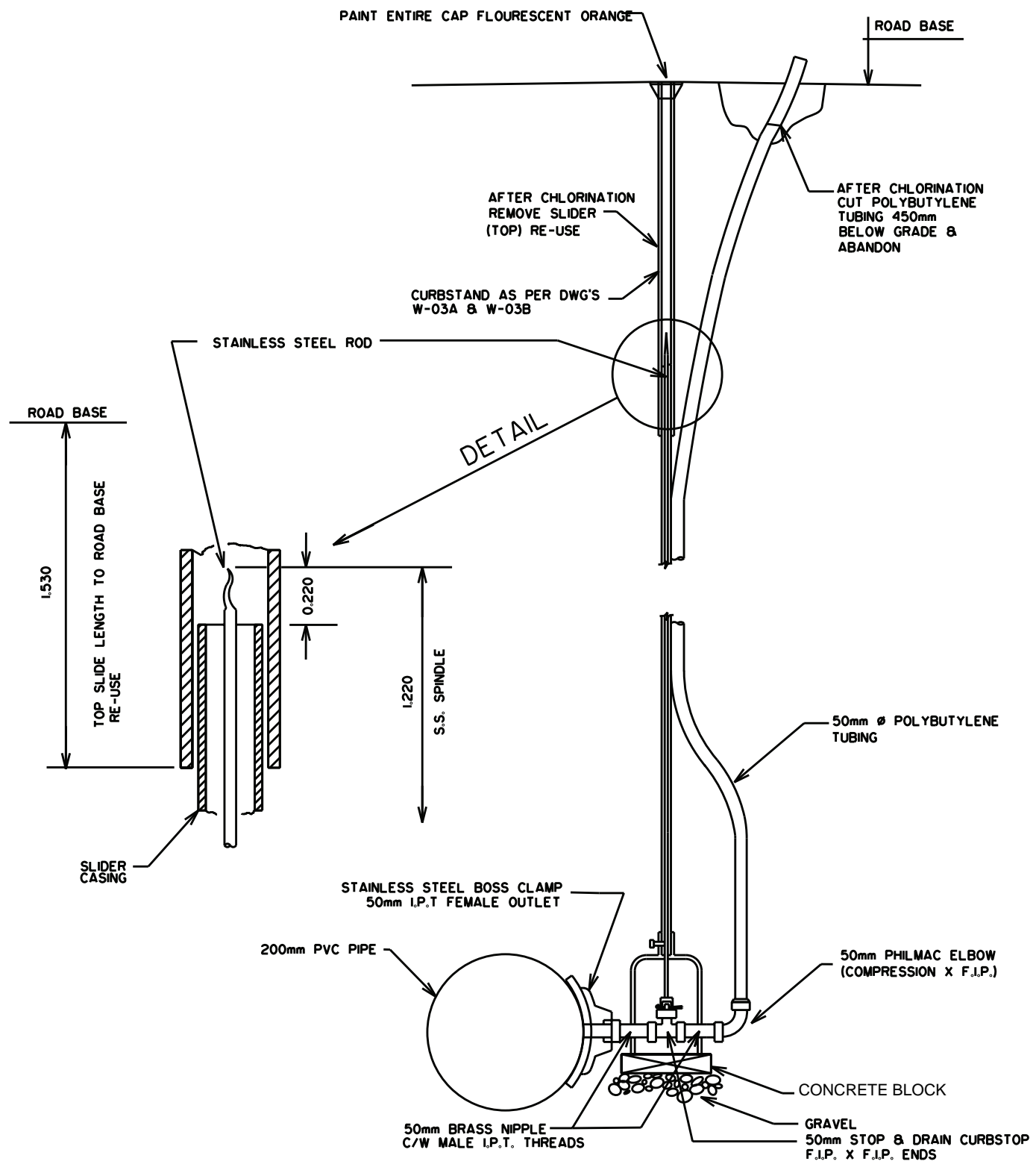
REVISED	<div><div>CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</div></div>	DRAWN	P.R.A.
		CHECKED	
		APPROVED	
		SCALE	N.T.S.
		DATE	97/02/10
		DWG NO	W-12
		VALVE RISER BOX	



SECTION A-A

NOTE: ALL DIMENSIONS IN MILLIMETERS

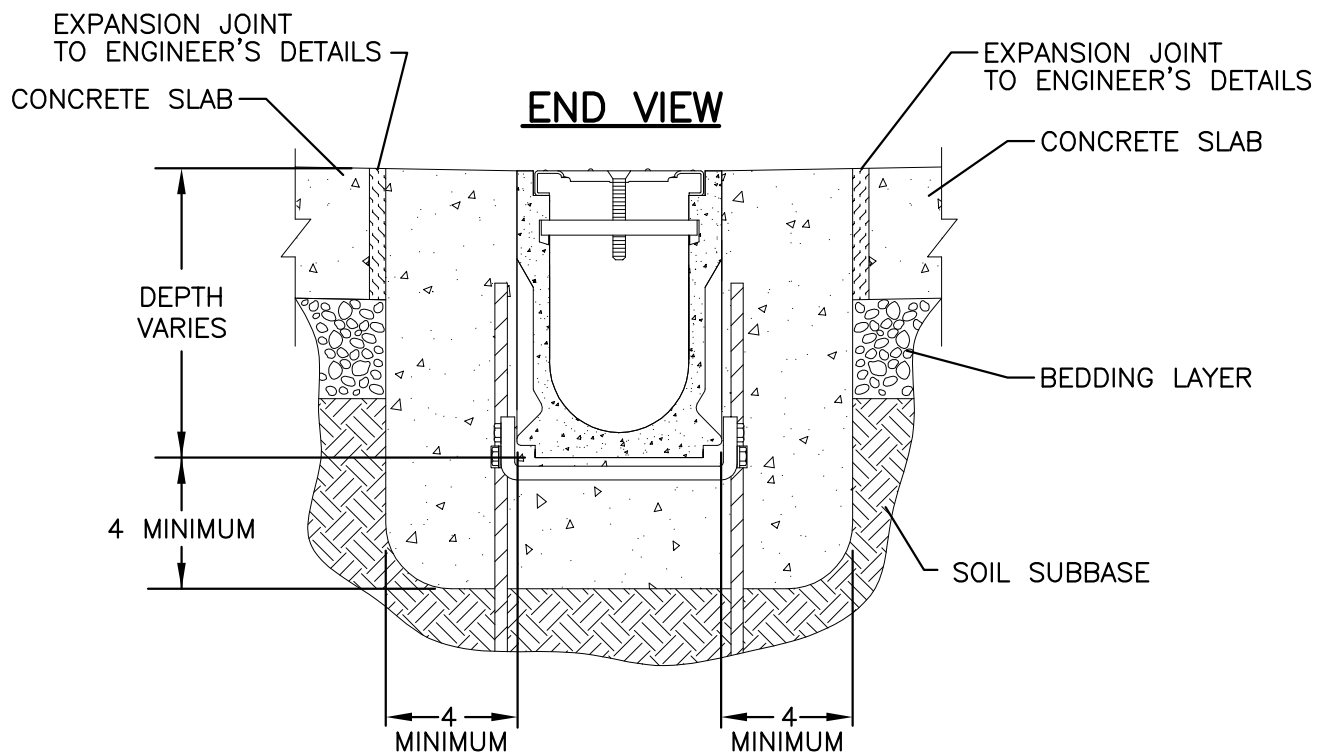
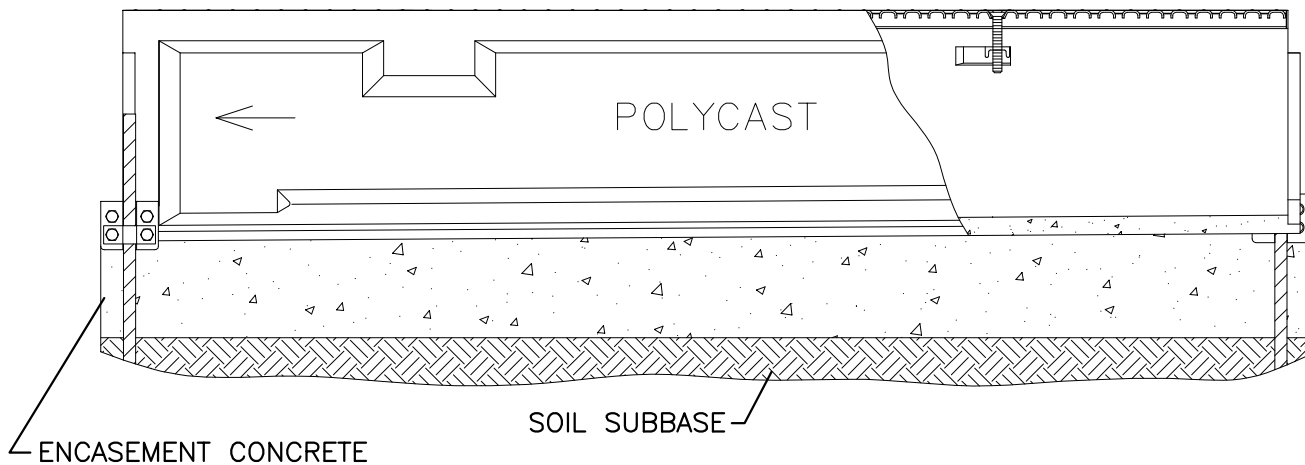
REvised 	 CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES	DRAWN	D.F.
		CHECKED	
		APPROVED	
		SCALE	N.T.S.
	VALVE BOX CAP	DATE	06/12/08
		DWG NO	W-12A



CHLORINATION SYSTEM

REVISED	 <p>CITY OF <i>Lethbridge</i> INFRASTRUCTURE SERVICES</p> <p>FOR CHLORINATING & FLUSHING WATERMAINS</p>	DRAWN	L.M.C
		CHECKED	
		APPROVED	
		SCALE	N.T.S.
		DATE	97/02/01
		DWG NO	W-13

SIDE ELEVATION VIEW



NOTES:

- CONCRETE STRENGTH, THICKNESS AND REINFORCEMENT BE DETERMINED BY THE STRUCTURAL ENGINEER.
- REFER TO POLYCAST[®] INSTALLATION GUIDE FOR COMPLETE DETAILS.
- EXPANSION JOINTS SHOULD BE USED TO PROTECT THE CHANNEL AND CONCRETE ENCASEMENT.



3621 Industrial Park Drive
 Lenoir City, TN 37771
 Phone: 800-346-3061 or 865-986-9726
 Web: <http://www.polycastdrain.com>
 e-mail: hpsliterature@hubbell.com

POLYCAST[®] 600 SERIES INSTALLATION DETAIL

LITERATURE NO.

PC1705

DATE

9/22/11

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DISCLAIMER: The customer and the site architects, engineers, contractors and consultants are solely responsible for the selection, installation, and maintenance of all products purchased from Hubbell. POLYCAST[®] suggested concrete details are suggested minimums only; the customer's site planners and engineers are responsible for all site design, stability and integrity.



DG0641

600 Series

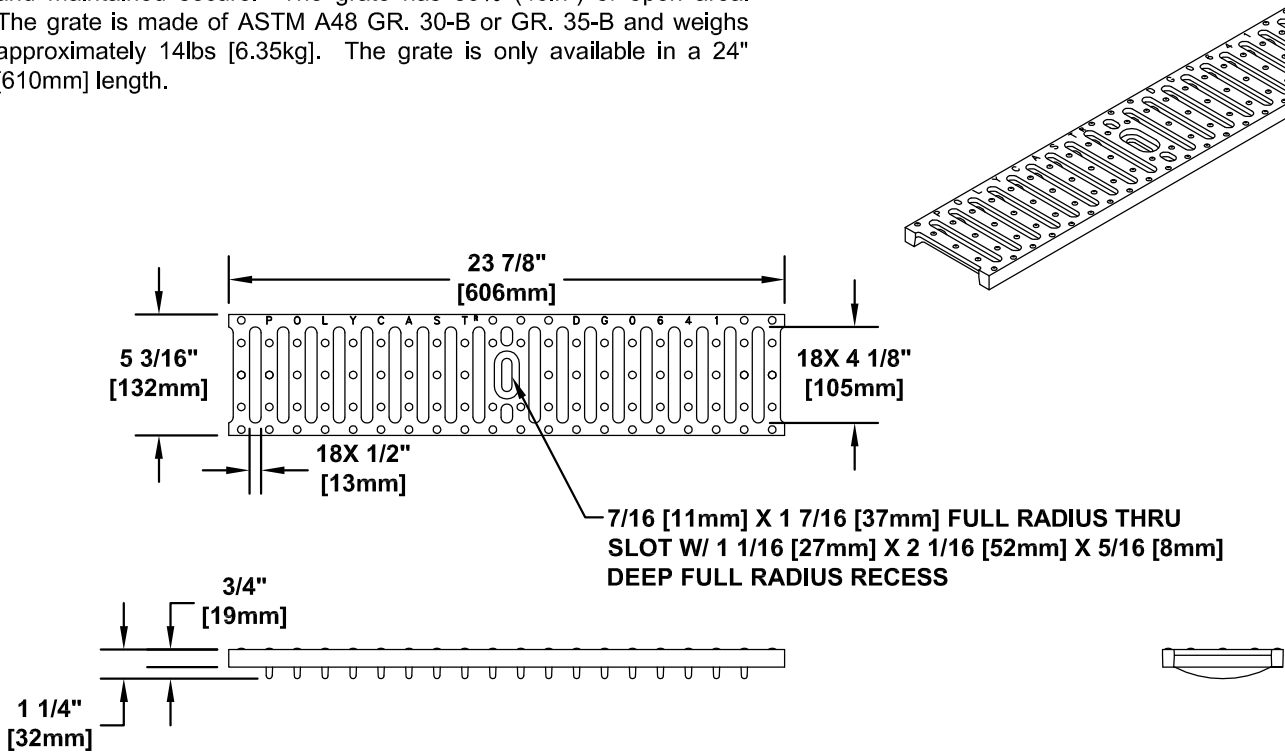
Cast Iron Slotted

PROJECT ID/
CONTRACT NO: _____

LOCATION: _____

ENGINEERING SPECIFICATION:

POLYCAST® DG0641 is appropriate for many general use conditions. Grating locking device Part No. DA0642B (not shown) should be used and maintained secure. The grate has 39% (40in²) of open area. The grate is made of ASTM A48 GR. 30-B or GR. 35-B and weighs approximately 14lbs [6.35kg]. The grate is only available in a 24" [610mm] length.



DIN APPLICATION LOAD CLASS C:
Curb sides, highway shoulders, and parking areas
Designed for a distributed pressure of 56,200 lbs (250 kN).

Meets the following Standards & Specifications:

- DIN 19580 / DIN EN 1433 Drainage Channels for Vehicular and Pedestrian Areas
- Australian Standard AS 3996-2006 Clause 3.3.6



www.polycastdrain.com
Toll Free Number:
1-800-346-3062

PC-41
9/6/11