

City of St. Catharines Standard Drawings

SEPTEMBER 2018

Roads	Dwg No.	Revision
Standard Sidewalk Detail	110-2001	2
Monolithic Curb-Faced Sidewalk	110-2002	3
Sidewalk Ramp Details Semi-Urban Intersection	110-2004	2
Typical Curb-Face Sidewalk At Driveway Entrance	110-2008	1
Typical Standard Sidewalk At Driveway Entrance	110-2009	2
Bus Boarding and Shelter Pads with Sidewalk	110-2010	2
Bus Boarding and Shelter Pads without Sidewalk	110-2011	4
Standard Semi Urban Cross Section (Reconstruction Only)	110-2013	4
Standard Semi Urban Cross Section (Widening or Overlays)	110-2014	4
Permanent Road Reinstatement Requirements	110-2015	2
Temporary Road Reinstatement Requirements	110-2016	3
Construction Detail for Support of Utilities	110-2017	1
Typical Trench Reinstatements for Grass Boulevards	110-2018	2
Typical Subdrain Installation for Existing Asphalt	110-2019	1
Typical Subdrain Installation for Concrete Base Repairs	110-2020	1
Typical Culvert Replacement or Relocation	110-2021	1
Detail for Culvert Cleanout	110-2022	1
Typical Cross Section Ditch Re-grading	110-2023	1
Curb Replacement Details for Concrete Roads	110-2024	3

Desired Cross-Section of Routed and Sealed Cracks	110-2025	2
Parking Meter Post Detail	110-2026	2
Permanent Bollard	110-2027	1
Sawcutting Details for Catchbasin Replacement in Concrete Roads	110-2029	2
Concrete Pavement Restoration Close To Monolithic Curb	110-2030	1
Modified Curb	110-2031	1

Sewers	Dwg No.	Revision
Sewer Lateral Detail – For Mains in Excess of 5m In Depth	110-3002	3
Sanitary Cleanout	110-3003	2

Water	Dwg No.	Revision
Preferred Location for Watermains and Hydrants at Intersections with a 7.6m Radius	110-4001	2
Preferred Location for Watermains and Hydrants at Intersections with a 10.7m Radius	110-4002	3
Temporary Connection to Existing Watermain	110-4003	3
Typical Watermain Under-Crossing	110-4004	2
Insulation of Water Services or Watermains	110-4005	1
Common Fire Hydrants In Use	110-4008	4
Standard Hydrant Assembly	110-4009	2
Fire Hydrant Protection	110-4010	3

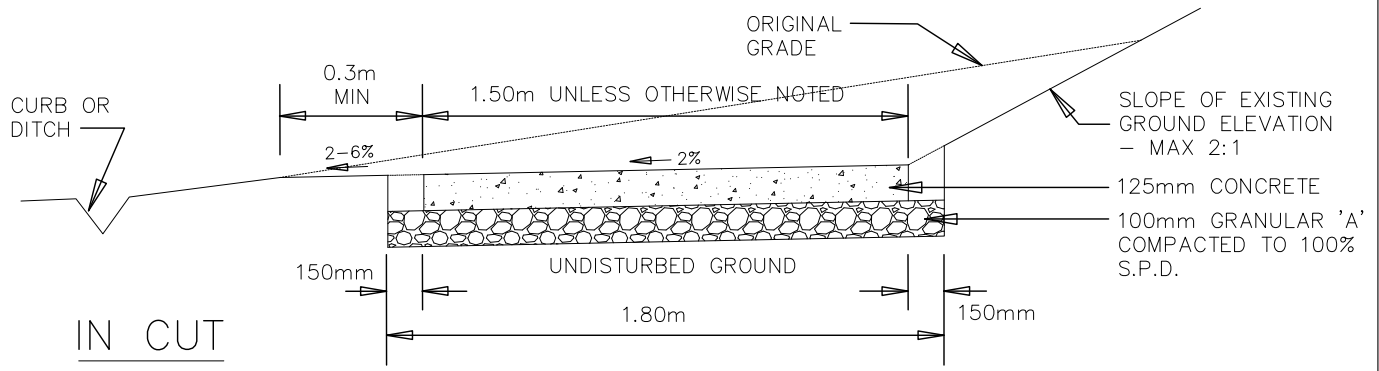
Development Standards	Dwg No.	Revision
Typical Service Layout for Single Family Dwellings	110-5001	3
Typical Service Layout for Semi-Detached	110-5002	2
Minimum Pipe Separation for Services	110-5003	3
Typical Water Service Layout for Condominium or Rental Townhouses (Single Ownership Properties) Fronting Municipal Road Allowance	110-5006	3
Typical Residential Water Meter Installation	110-5007	2
Typical Meter Installation for Light Industrial and Commercial	110-5008	2
Proposed Water Servicing Single Building(Domestic and Fire Protection)	110-5010	2
Typical Urban Cross-Section (20m R.O.W.) with Sidewalks & 8.0m Pavement Width	110-5011	3
Typical Urban Cross-Section (18m R.O.W.) with Sidewalks & 8.0m Pavement Width	110-5012	3
Typical Service Entrances for 100mm to 300mm Services	110-5013	1
Typical Cross-Slope Drainage	110-5014	1
Typical Rear Lot Drainage	110-5015	1
General Notes, Drainage Specifications and Lot Data	110-5016	1
Schematic Diagram for Cleanouts	110-5017	1
Steel Framed Garbage Enclosure Example	110-5018	1
Masonry Garbage Enclosure Example	110-5019	1
Detectable Warning Surface and Accessible Signage Layout	110-5020	1
Permanent Bollard with Accessible Sign	110-5022	2
Sump Pump and Storm Lateral Detail	110-5023	0

Meter Chamber Detail (For 75mm & 150mm Dia. Water Services)	110-5024	2
Meter Chamber Detail (For 150mm & 200mm Dia. Water Services)	110-5025	1
Winterized Meter Pit ¾" & 2"	110-5026	2
Urban Cul-de-sac and Roadway Bend & Radius Bulb Layout (18.0m Width – Local Road)	110-5027	2
Typical 20m ROW Urban Cross-section with Sidewalks and Bike Lanes 10.0m Pavement Width	110-5028	1

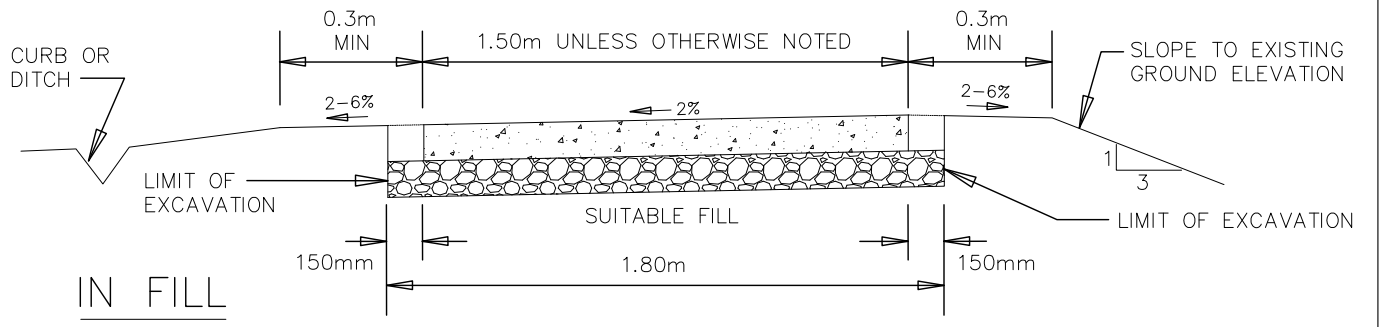
Recreation and Community Services	Dwg No.	Revision
Deciduous Planting Detail	110-6001	2
Coniferous Planting Detail	110-6002	2
Shrub Planting Detail	110-6003	1
Ground Cover Planting Detail	110-6004	1
Wood Post Detail	110-6005	2
Low Wood Fence Rail Detail	110-6006	3
Park Sign Detail With Optional Donor Board	110-6007	2
Armour Stone Detail	110-6008	3
Bench Pad Detail	110-6009	3
Typical Roadway Entrance Gate	110-6010	3
Typical Asphalt Pedestrian Trail Cross Section	110-6012	2
Typical Tree Spade Detail	110-6013	2
Typical Precast Concrete Planter Cover Detail	110-6014	1
Tree Pit Cover & Soil Cell Layout	110-6015	1
Soil Cell Detail	110-6016	1
Typical Raised Planter Section	110-6017	1
Concrete Walkway Street Names	110-6018	1
Curb Face Accent Strip Detail	110-6019	1

Fire Services	Dwg No.	Revision
No Parking Fire Route Sign Requirements	110-7001	
Fire Hydrant Sign	110-7006	

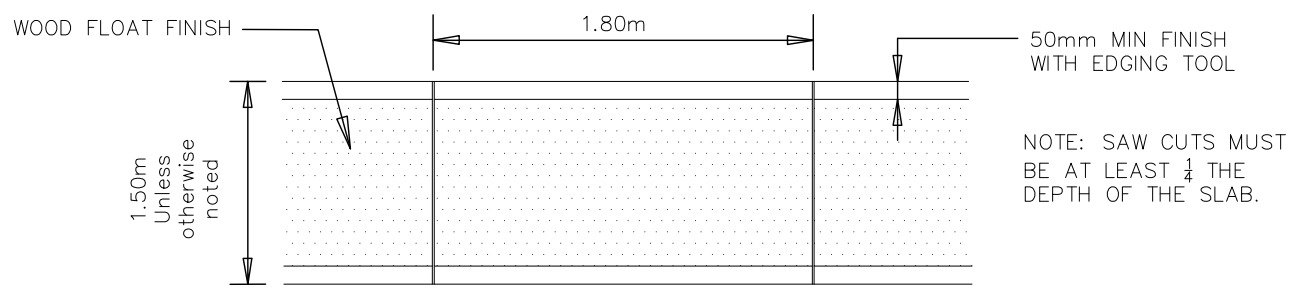
Roads



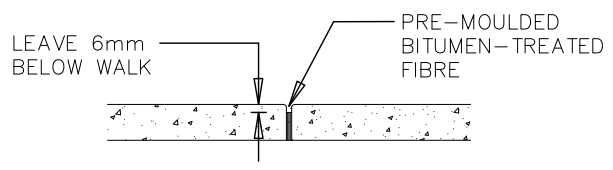
IN CUT



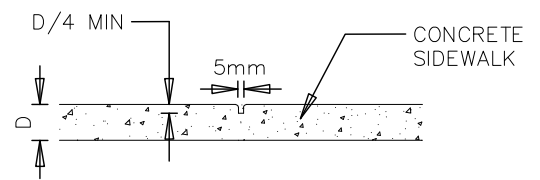
IN FILL



PANEL DETAIL



EXPANSION JOINT



CONTRACTION JOINT

1. THE BOULEVARD ON THE STREET SIDE OF THE WALK SHALL BE GRADED DOWN SO AS TO PROVIDE ADEQUATE SLOPE TO THE CURB OR TOP OF DITCH.
2. THE SIDEWALK SHALL BE 125mm THICK AND AT COMMERCIAL DRIVEWAYS WIRE MESH SHALL BE INSTALLED.
3. SPACING OF THE EXPANSION JOINT SHALL BE AS PER THE NPSCD B9.

NO.	REVISION	DATE
2	Added Expansion Joint Note	March, 2018
1	Drawing Number Changed	April, 2013



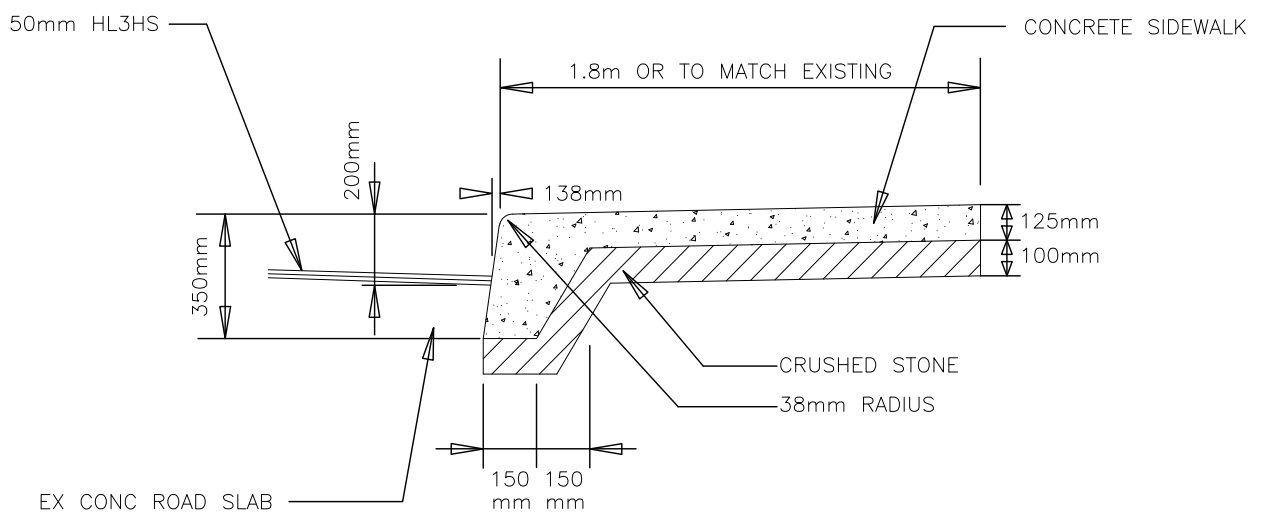
TRANSPORTATION & ENVIRONMENTAL SERVICES

DATE May 31, 1983 SCALE N.T.S.

DESIGNED BY M.W. DRAWN BY J.C.

Standard Sidewalk Detail

FORMERLY 110-1201 DRAWING No. 110-2001 2



TYPICAL CROSS-SECTION

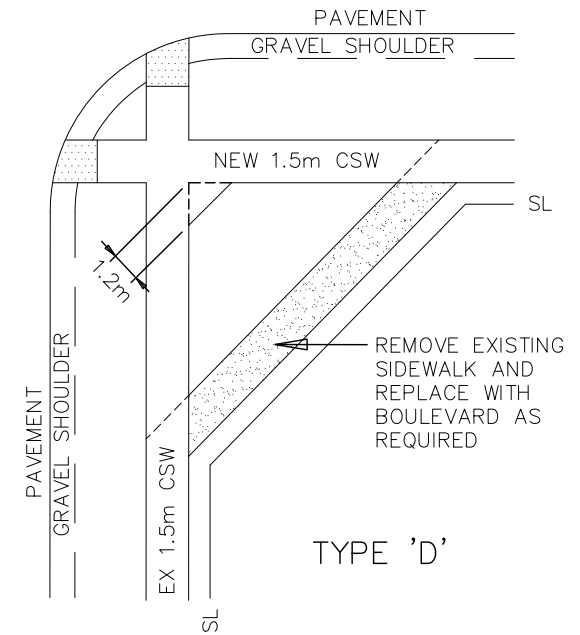
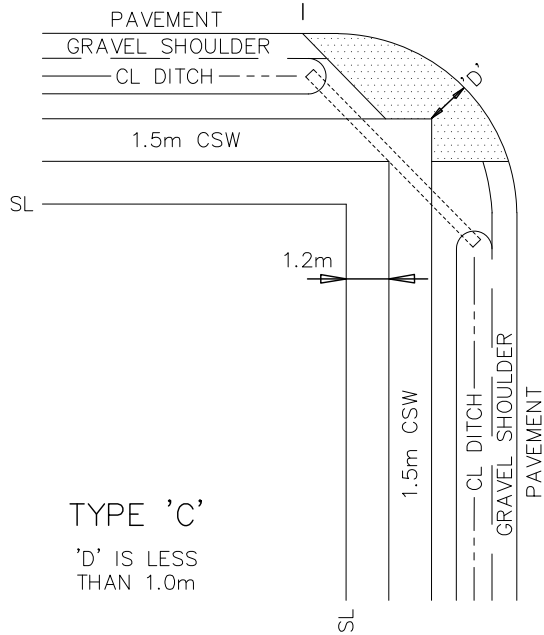
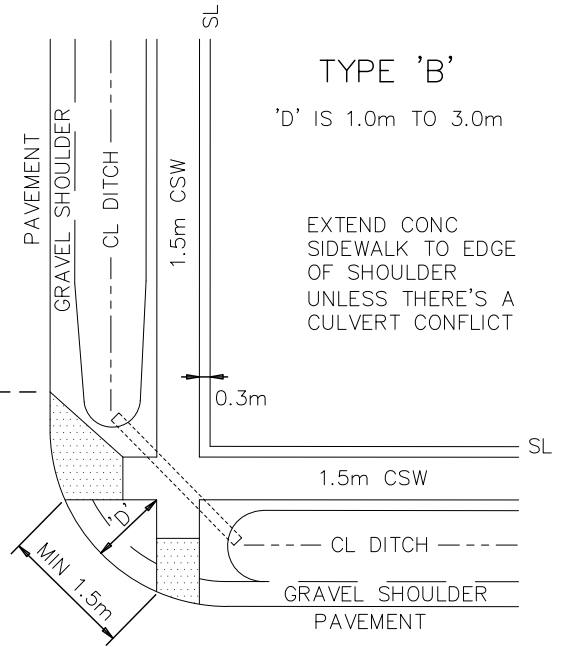
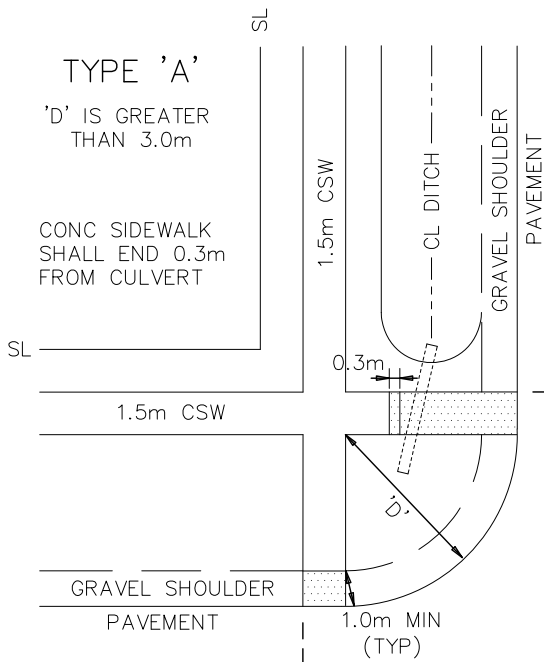
NO.	REVISION	DATE
3	Updated Title	March, 2018
2	Revised Sidewalk Width	May, 2014
1	Drawing Number Changed	April, 2013



**TRANSPORTATION &
ENVIRONMENTAL
SERVICES**

**MONOLITHIC
CURB-FACED SIDEWALK**

DATE	May, 1963	SCALE	N.T.S.		
DESIGNED BY	J.H.	DRAWN BY	J.H.	FORMERLY	110-1202
				DRAWING No.	110-2002
					3



NO.	REVISION	DATE
2	Updated Sidewalk Widths	June, 2017
1	Drawing Number Changed	April, 2013



TRANSPORTATION & ENVIRONMENTAL SERVICES

DATE January 30, 1987 SCALE N.T.S.

DESIGNED BY A.W. DRAWN BY R.L.

SEE ALSO:
 CITY OF ST. CATHARINES FADS
 (FACILITY ACCESSIBILITY DESIGN STANDARDS)

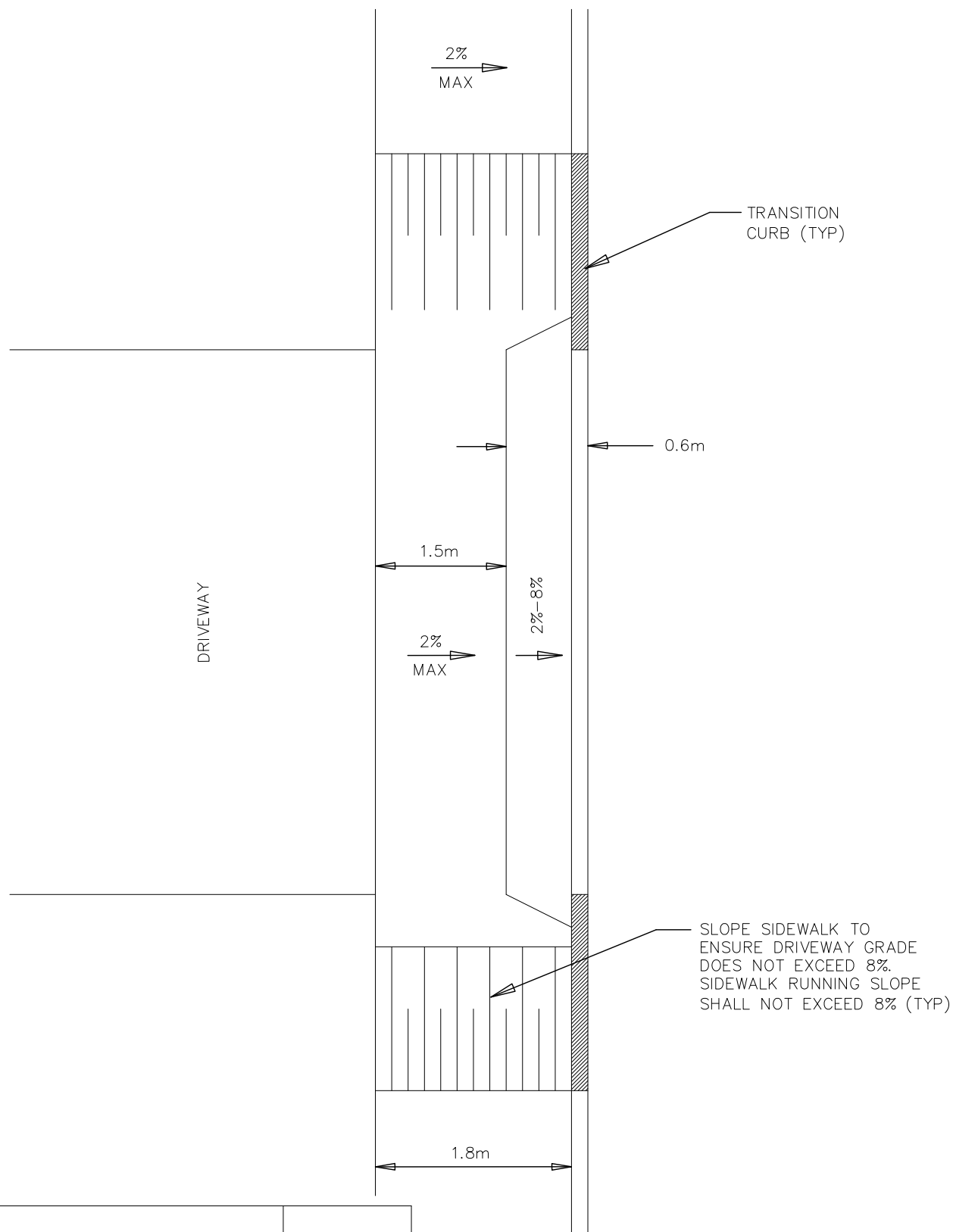
NIAGARA PENINSULA CONTRACT DOCUMENTS
 B34 TACTILE WARNING SURFACES, OPSS 351
 AND OPSP 310.039 FOR PLACEMENT.

SIDEWALK RAMP DETAILS SEMI-URBAN INTERSECTIONS


FORMERLY 110-1218

DRAWING No. 110-2004

2

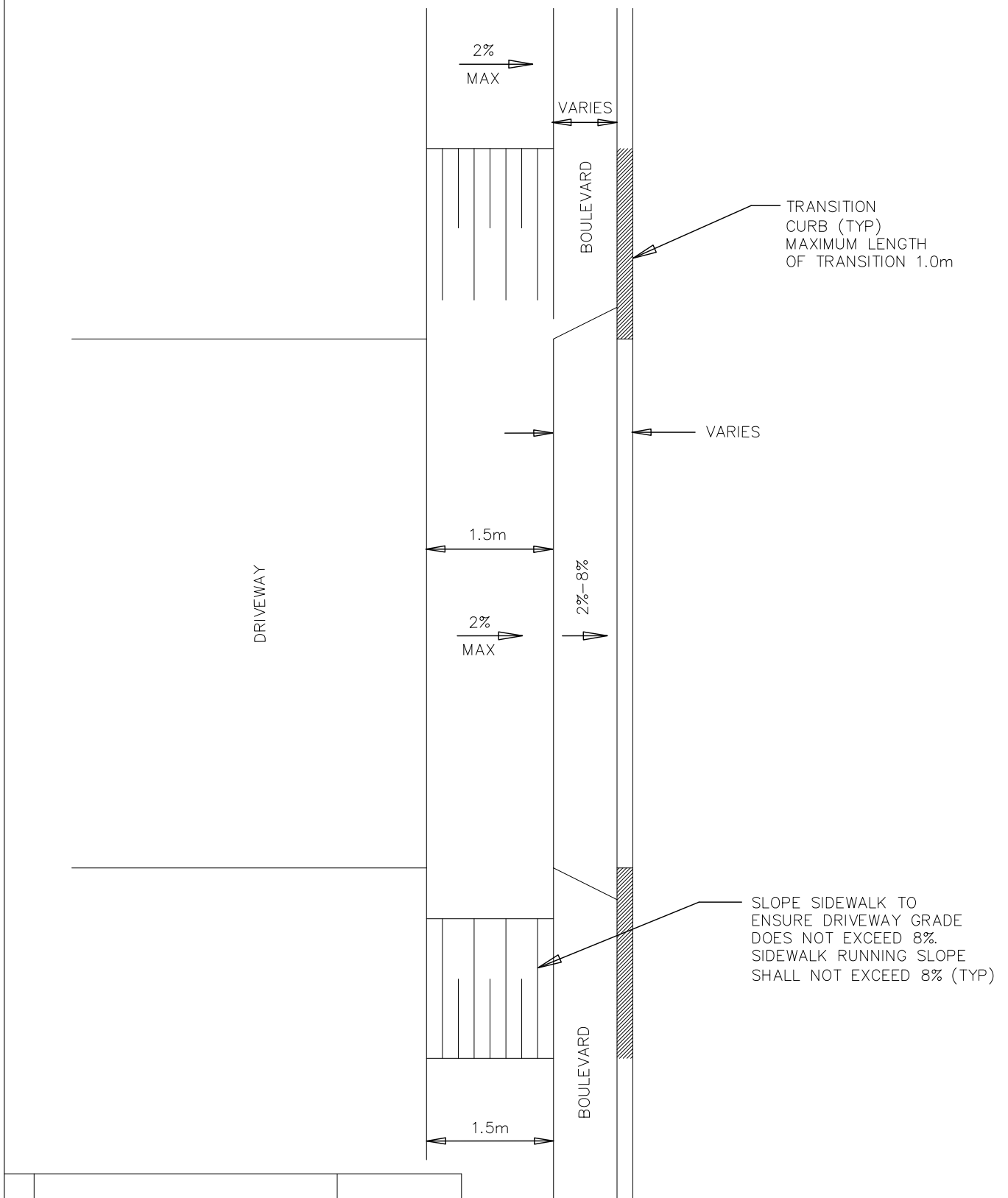


NO.	REVISION	DATE
1	Drawing Number Changed	April, 2013


TRANSPORTATION & ENVIRONMENTAL SERVICES
 DATE February 20, 2012 SCALE N.T.S.
 DESIGNED BY S.D./M.W. DRAWN BY N.B.

TYPICAL CURB-FACE SIDEWALK AT DRIVEWAY ENTRANCE

FORMERLY 110-1244	DRAWING No. 110-2008	1
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NO.	REVISION	DATE
2	Notations Updated	March, 2018
1	Drawing Number Changed	April, 2013

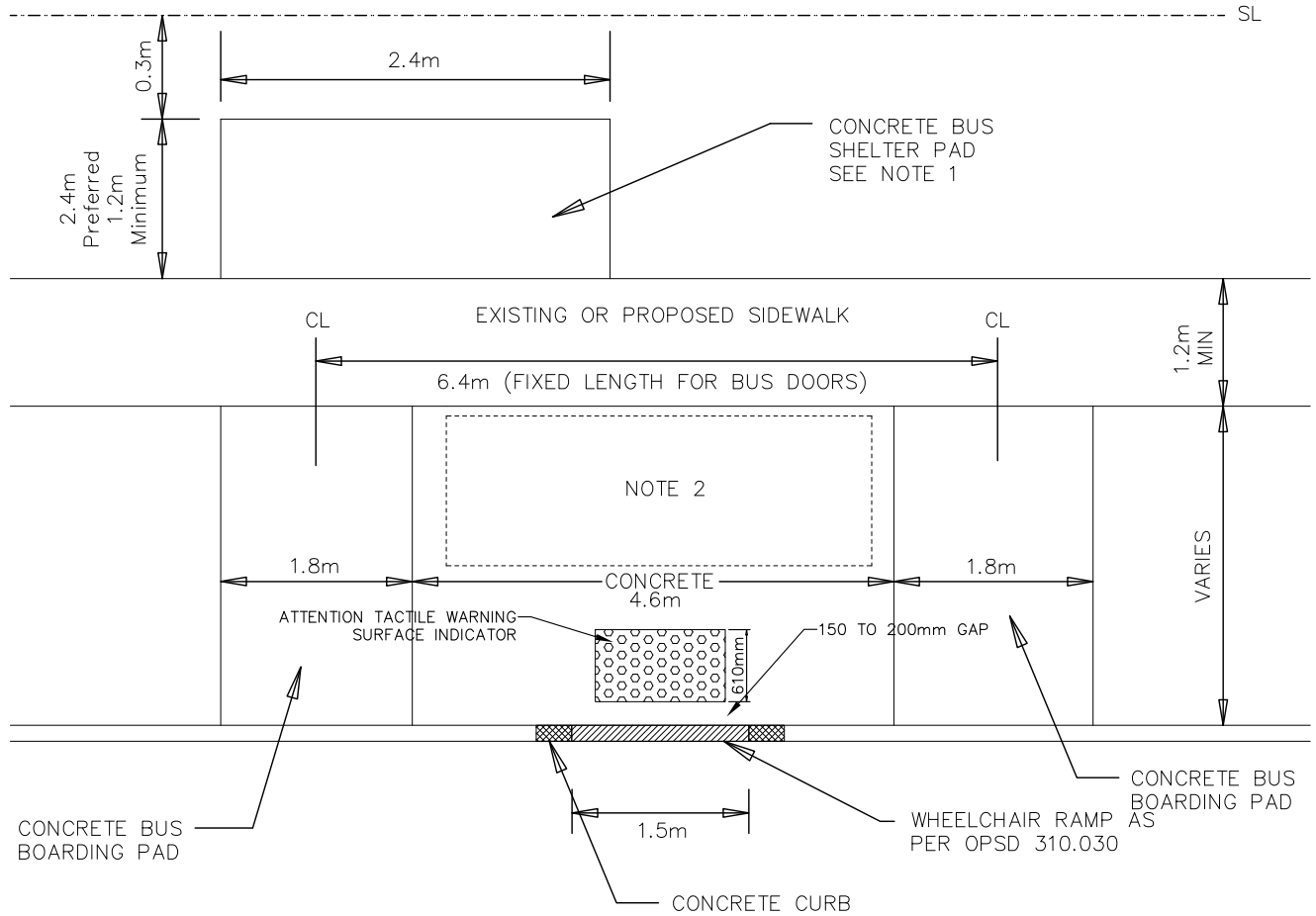


**TRANSPORTATION &
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SERVICES**

DATE February 20, 2012	SCALE N.T.S.
DESIGNED BY S.D./M.W.	DRAWN BY N.B.

**TYPICAL STANDARD
SIDEWALK AT
DRIVEWAY ENTRANCE**

A. LOCATION WITH EXISTING OR PROPOSED SIDEWALK



NOTE 1 – PREFERRED LOCATION FOR CONCRETE BUS SHELTER PAD

NOTE 2 – ALTERNATIVE LOCATION FOR CONCRETE BUS SHELTER PAD

CONCRETE BUS PAD 125mm THICK JOINTING AS PER OPSP 310.020

NO.	REVISION	DATE
2	Added Tactile Plate	March, 2018
1	Drawing Number Changed	April, 2013



TRANSPORTATION & ENVIRONMENTAL SERVICES

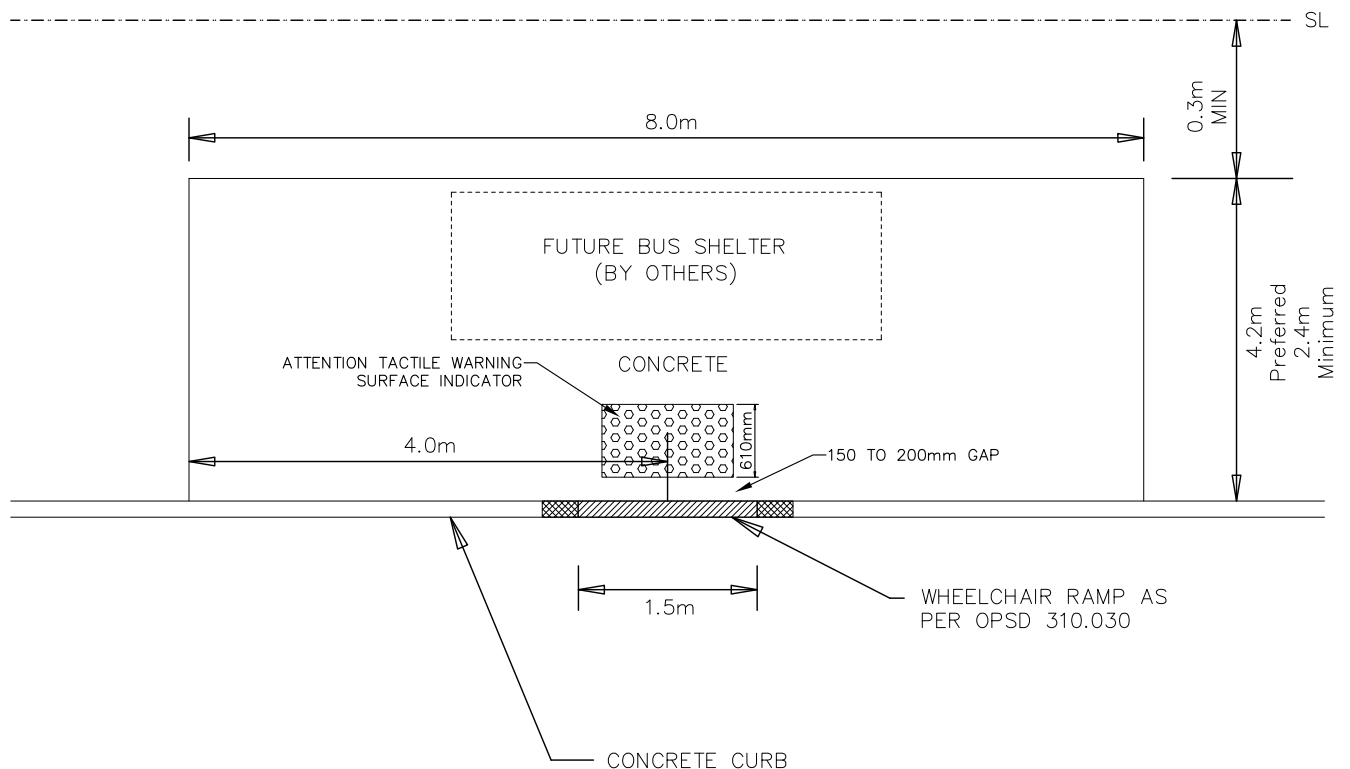
DATE June 23, 2005 SCALE N.T.S.

DESIGNED BY P.P. DRAWN BY N.B.

BUS BOARDING AND SHELTER PADS WITH SIDEWALK

FORMERLY 110-1236-A DRAWING No. 110-2010

B. LOCATION WITH NO SIDEWALK



4	Added Tactile Plate	March, 2018
3	Drawing Number Changed	April, 2013
2	Revised	March, 2012
1	Revised	May, 2010
NO.	REVISION	DATE

CONCRETE BUS PAD 125mm THICK
JOINTING AS PER OPSD 310.020



**TRANSPORTATION &
ENVIRONMENTAL
SERVICES**

BUS BOARDING AND SHELTER PADS WITHOUT SIDEWALK

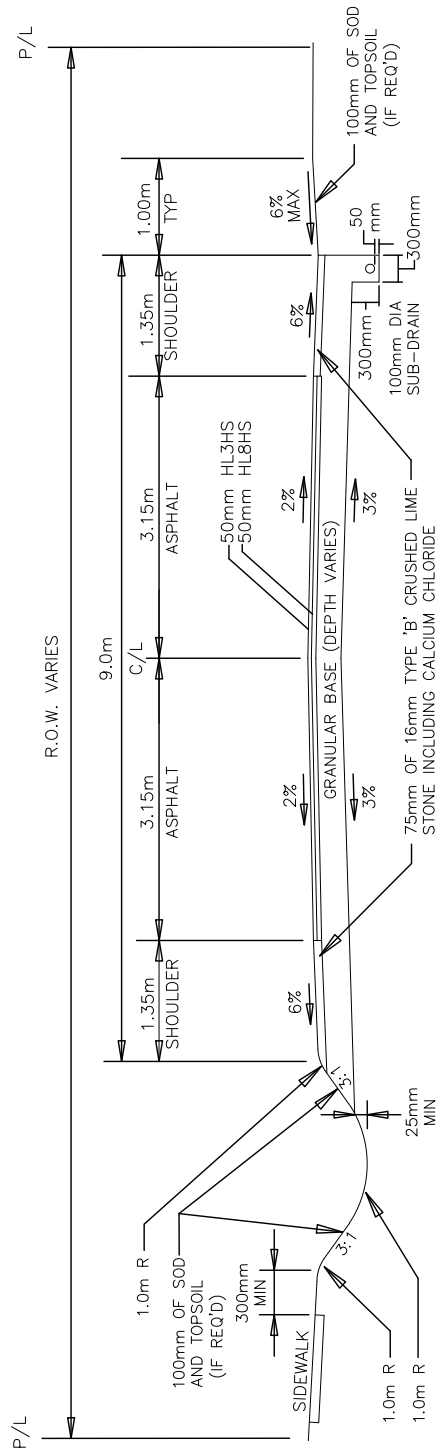
DATE September 2, 2009 SCALE N.T.S.

DESIGNED BY P.P. DRAWN BY N.B.

FORMERLY 110-1236-B

DRAWING No. 110-2011

4



(i) DITCH SECTION (ii) SUB-DRAIN AND SWALE SECTION

NOTE: SWALE ACROSS DRIVEWAY SHOULD BE PAVED UP TO EX SIDEWALK OR 1.0m BEYOND SWALE

AADT > 500

NOTE: DITCH SIDE SLOPES 3:1 DESIRABLE 2:1 MAXIMUM

4	Drawing Number Changed	April, 2013
3	Revised	November, 1988
2	Revised	February, 1984
1	Revised	January, 1984
NO.	REVISION	DATE



TRANSPORTATION & ENVIRONMENTAL SERVICES

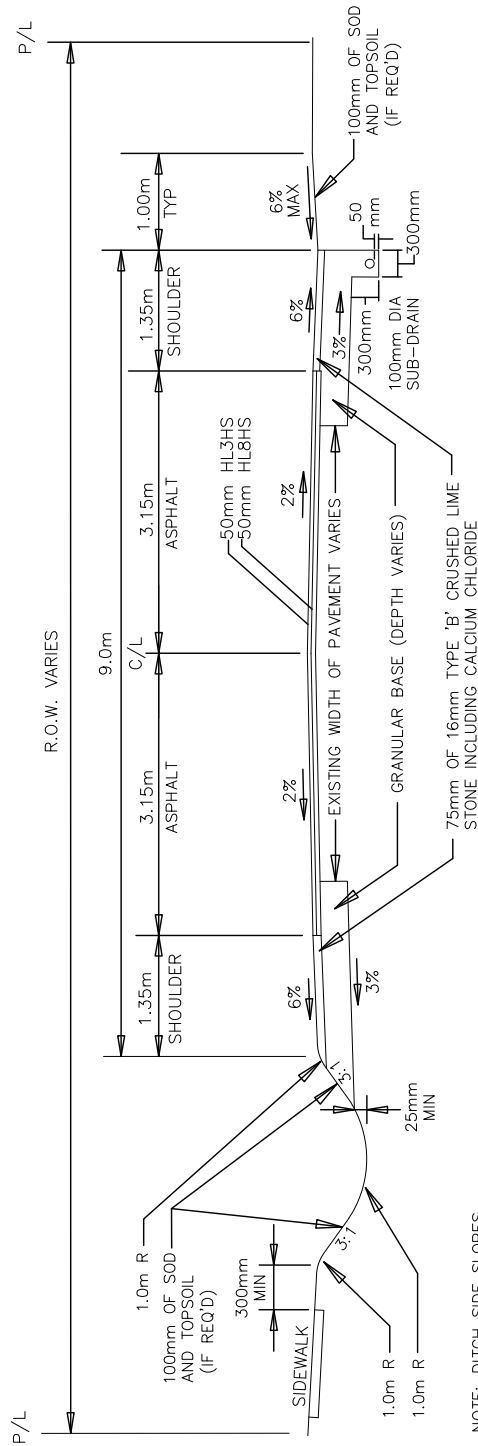
DATE June 23, 1983 SCALE N.T.S.

DESIGNED BY P.M. DRAWN BY R.L.

STANDARD SEMI URBAN CROSS SECTION RECONSTRUCTION ONLY

FORMERLY 110-1213

DRAWING No. 110-2013




(i) DITCH SECTION
(ii) SUB-DRAIN AND SWALE SECTION

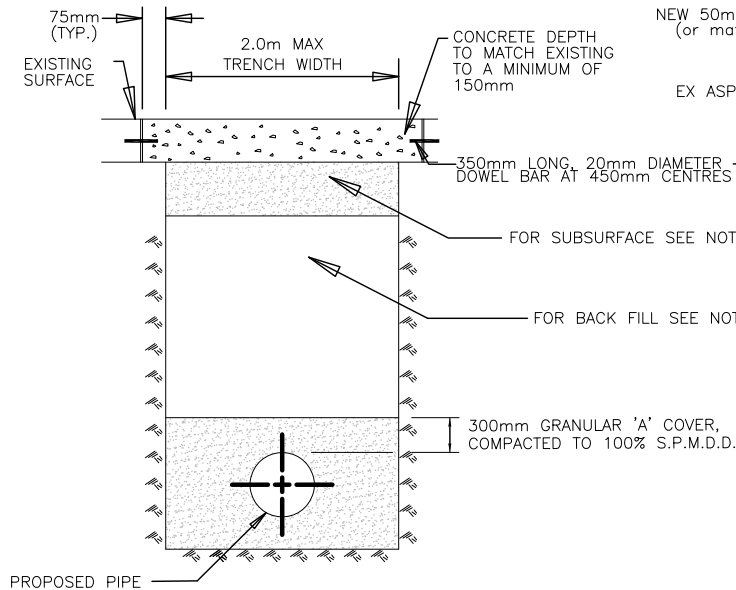
NOTE: SWALE ACROSS DRIVEWAY SHOULD BE PAVED UP TO EX SIDEWALK OR 1.0m BEYOND SWALE

AADT > 500

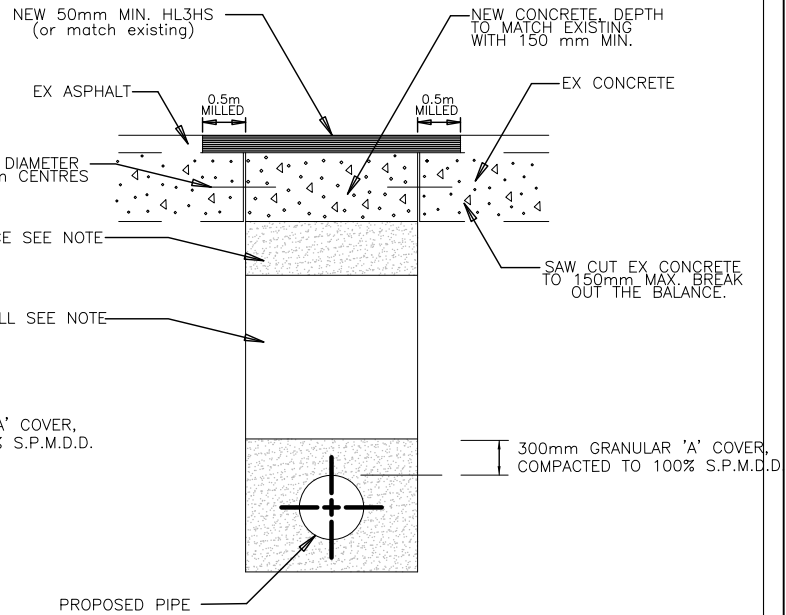
NO.	REVISION	DATE
4	Drawing Number Changed	April, 2013
3	Revised	November, 1988
2	Revised	February, 1984
1	Revised	January, 1984

		TRANSPORTATION & ENVIRONMENTAL SERVICES		STANDARD SEMI URBAN CROSS SECTION WIDENINGS OR OVERLAYS	
DATE	June 24, 1983	SCALE	N.T.S.	FORMERLY	110-1214
DESIGNED BY	P.M.	DRAWN BY	R.L.	DRAWING No.	110-2014
					4

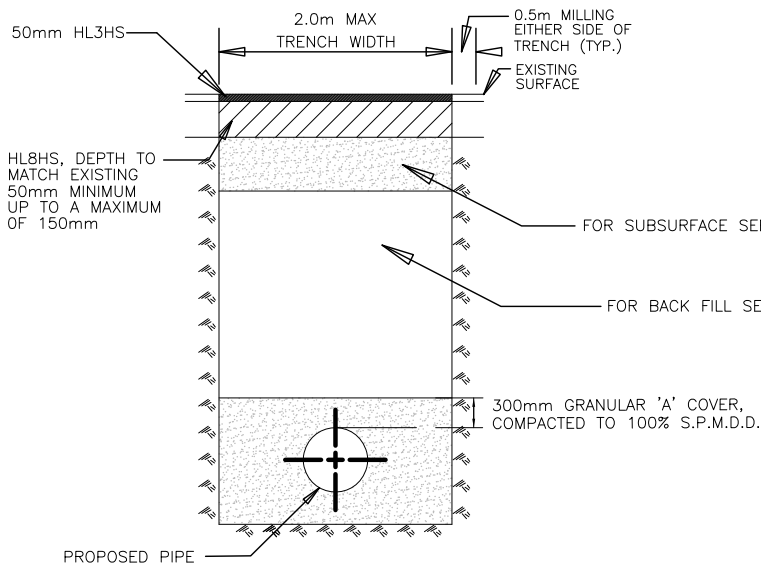
(A) REINSTATEMENT FOR CONCRETE ROADS



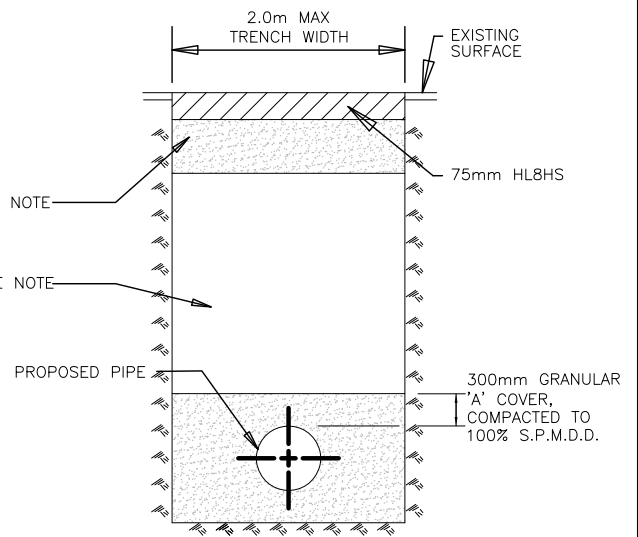
(B) REINSTATEMENT FOR COMPOSITE ROADS



(C) REINSTATEMENT FOR ASPHALT PAVEMENT



(D) REINSTATEMENT FOR SURFACE TREATED ROADS



NOTES

- 1 ALL PAVEMENTS SHALL BE SAWCUT FOR THE REQUIRED TRENCH WIDTH. FOR CONCRETE SURFACE PAVEMENTS SAWCUTS SHALL BE MADE ON 75mm OUTSIDE THE TRENCH WIDTH.
- 2 PRIOR TO HOT MIX ASPHALT APPLICATION, THE SIDES OF THE CUT PAVEMENT SHALL BE PAINTED WITH AN APPROVED ASPHALT EMULSION.
- 3 NEW CONCRETE IS TO BE 30 MPa WITH A MINIMUM CEMENT CONTENT OF 325 Kg /m³. MIN.
- 4 MIN FOR ROADWAYS: 50mm HL3HS SURFACE 50mm HL8HS BASE
- 5 MIN FOR SUBSURFACE FOR ROADWAYS/DRIVEWAYS: 350mm GRANULAR 'A', COMPACTED TO 100% S.P.M.D.D.
- 6 BACKFILL SHALL BE AS SPECIFIED, OR;
- 7 FOR EXISTING ROADWAYS/DRIVEWAYS: GRANULAR 'A' BACKFILL, COMPACTED TO 100% S.P.M.D.D.
- 8 FOR ROADWAYS IN NEW SUBDIVISIONS: GRANULAR 'A' BACKFILL, COMPACTED TO 100% S.P.M.D.D. OR NATIVE BACKFILL, COMPACTED TO 95% S.P.M.D.D. (MIN.)

NO.	REVISION	DATE
2	Updated Descriptions	June, 2017
1	Drawing Number Changed	April, 2013



TRANSPORTATION & ENVIRONMENTAL SERVICES

DATE November 16, 2004 SCALE N.T.S.

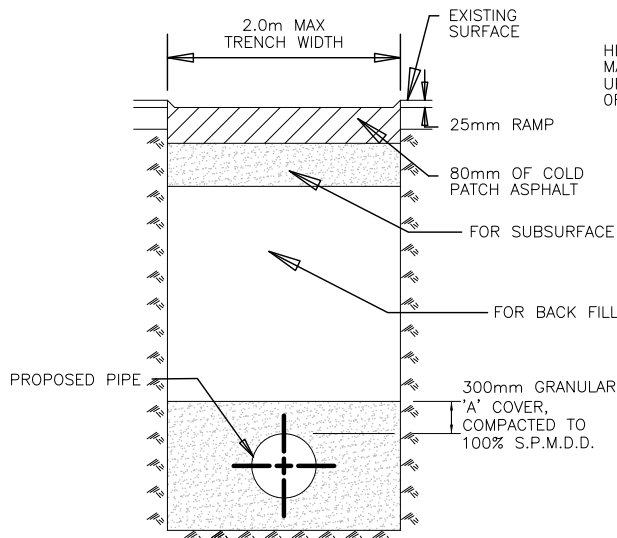
DESIGNED BY S.D. DRAWN BY N.B.

PERMANENT ROAD REINSTATEMENT REQUIREMENTS

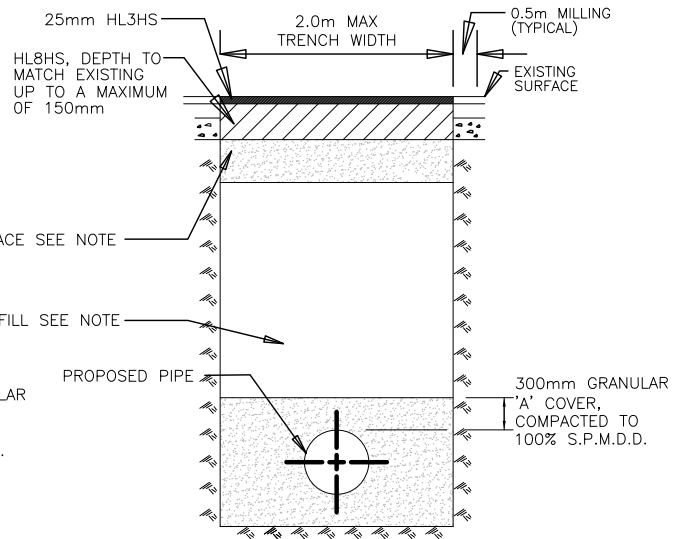
FORMERLY 110-1428

DRAWING No. 110-2015

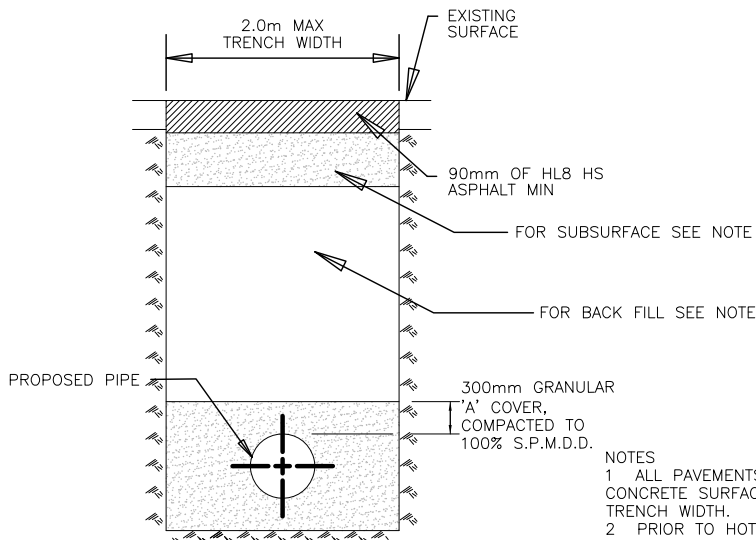
(A) TEMPORARY REINSTATEMENT WITH COLD MIX



(B) TEMPORARY REINSTATEMENT FOR ASPHALT PAVEMENT ON CONCRETE BASE



(C) TEMPORARY REINSTATEMENT WITH BASE ASPHALT



NOTES

- 1 ALL PAVEMENTS SHALL BE SAWCUT FOR THE REQUIRED TRENCH WIDTH. FOR CONCRETE SURFACE PAVEMENTS SAWCUTS SHALL BE MADE ON 75mm OUTSIDE THE TRENCH WIDTH.
- 2 PRIOR TO HOT MIX ASPHALT APPLICATION, THE SIDES OF THE CUT PAVEMENT SHALL BE PAINTED WITH AN APPROVED ASPHALT EMULSION.
- 3 NEW CONCRETE IS TO BE 30 MPa WITH A MINIMUM CEMENT CONTENT OF 325 Kg /m³. MIN.
- 4 MIN FOR ROADWAYS: 50mm HL3HS SURFACE 50mm HL8HS BASE
- 5 MIN FOR SUBSURFACE FOR ROADWAYS/DRIVEWAYS: 350mm GRANULAR 'A', COMPACTED TO 100% S.P.M.D.D.
- 6 BACKFILL SHALL BE AS SPECIFIED.
- 7 FOR EXISTING ROADWAYS/DRIVEWAYS: GRANULAR 'A' BACKFILL, COMPACTED TO 100% S.P.M.D.D.
- 8 FOR ROADWAYS IN NEW SUBDIVISIONS: GRANULAR 'A' BACKFILL, COMPACTED TO 100% S.P.M.D.D. OR NATIVE BACKFILL, COMPACTED TO 95% S.P.M.D.D. (MIN.)

NO.	REVISION	DATE
3	Updated Standard	June, 2017
2	Drawing Number Changed	April, 2013
1	Revised 0.5 Milling and HL3HS	November, 2013



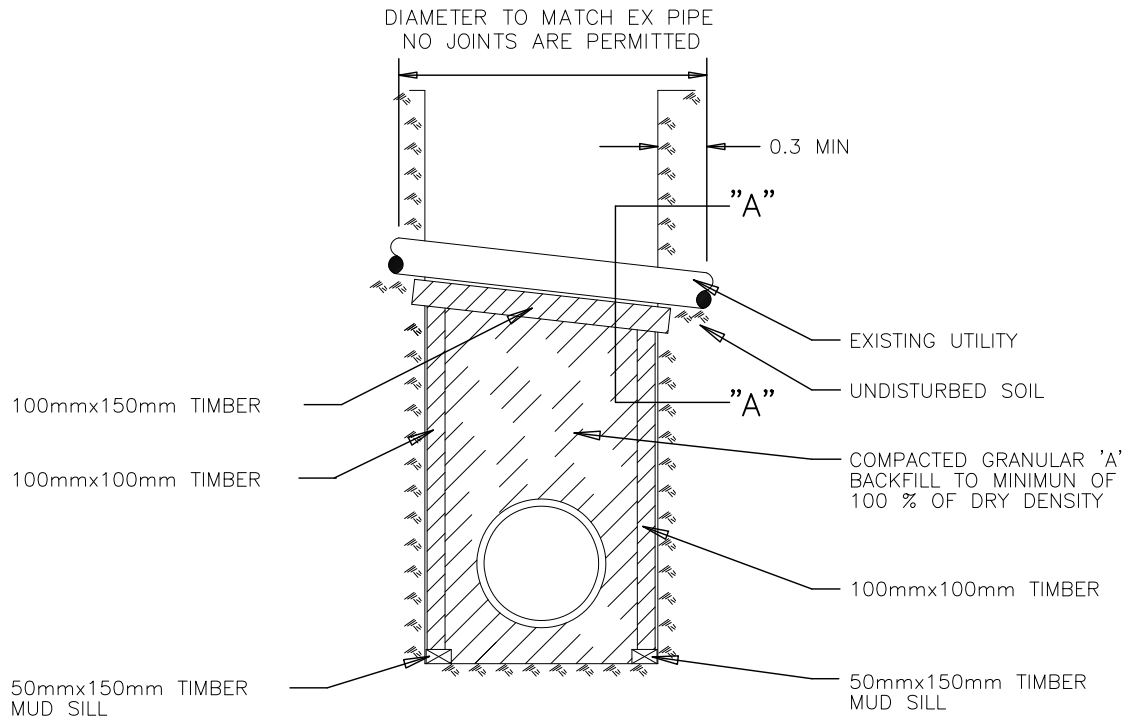
TRANSPORTATION & ENVIRONMENTAL SERVICES

TEMPORARY ROAD REINSTATEMENT REQUIREMENTS

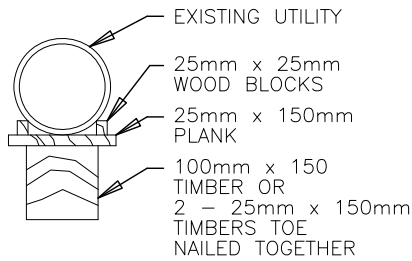
DATE	October 8, 1993	SCALE	N.T.S.
DESIGNED BY	R.S.	DRAWN BY	R.W.

FORMERLY 110-1219

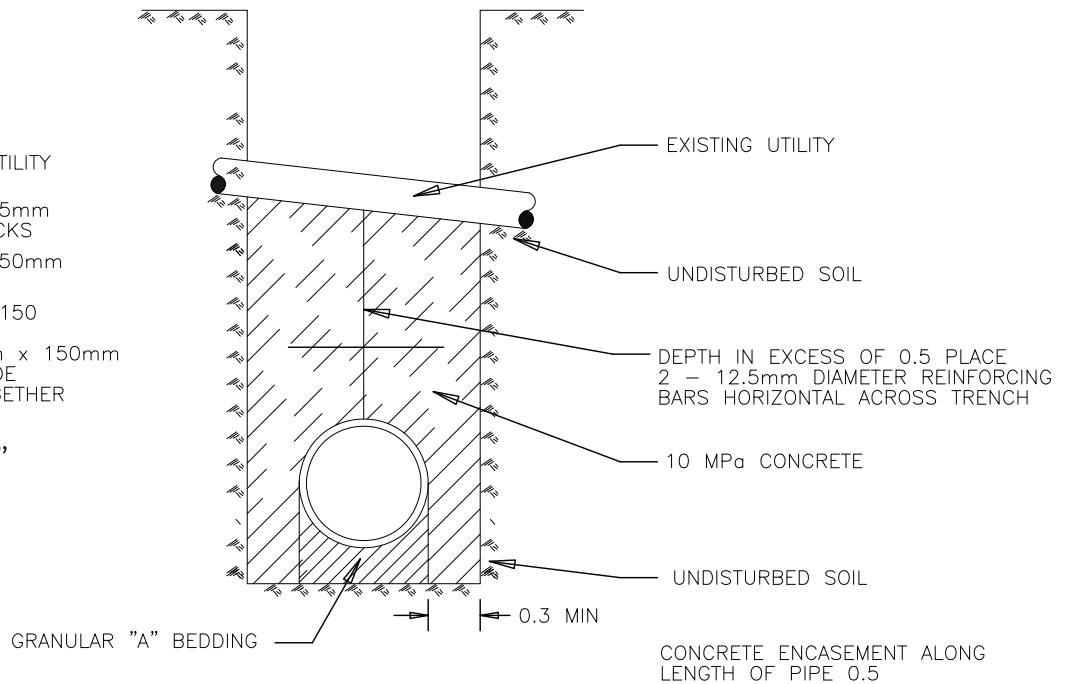
DRAWING No. 110-2016



ALTERNATE



SECTION "A"-"A"



1	Drawing Number Changed	April, 2013
NO.	REVISION	DATE

NOTE: ALL MEASUREMENTS ARE IN METRES UNLESS OTHERWISE NOTED



TRANSPORTATION & ENVIRONMENTAL SERVICES

DATE November 15, 2004 SCALE N.T.S.

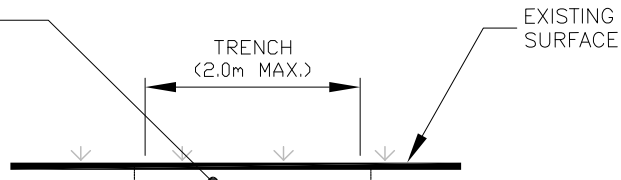
DESIGNED BY S.D. DRAWN BY N.B.

CONSTRUCTION DETAIL FOR SUPPORT OF UTILITIES

FORMERLY 110-1427

DRAWING No. 110-2017

SURFACE REINSTATEMENT:
 MIN. FOR BOULEVARD:
 100mm TOP SOIL AND SOD



SUB-SURFACE:
 MIN. FOR BOULEVARD:
 350mm NATIVE BACKFILL,
 COMPACTED TO 95% S.P.M.D.D.

BACKFILL:
 BACKFILL SHALL BE AS SPECIFIED.
 FOR BOULEVARDS:
 NATIVE BACKFILL,
 COMPACTED TO 95% S.P.M.D.D. (MIN.)

300mm GRANULAR 'A' COVER,
 COMPACTED TO 100% S.P.M.D.D.

PROPOSED PIPE

NOTES:

- 1 ALL PAVEMENT SHALL BE SAWCUT FOR THE REQUIRED TRENCH WIDTH. FOR CONCRETE SURFACES, PAVEMENT SAWCUTS SHALL BE MADE 75mm OUTSIDE THE TRENCH WIDTH.
- 2 PRIOR TO HOT MIX ASPHALT APPLICATION, THE SIDES OF THE CUT PAVEMENT SHALL BE PAINTED WITH AN APPROVED ASPHALT EMULSION.
- 3 NEW CONCRETE IS TO BE 32 MPa WITH A MINIMUM CEMENT CONTENT OF 325kg/m³.
- 4 WHERE COLD PATCH ASPHALT IS USED FOR TEMPORARY REINSTATEMENT, AT THE END OF EACH WORKING DAY, AREAS ARE TO BE REVIEWED AND COLD PATCH SHALL BE APPLIED ACCORDINGLY, TO PROVIDE AN APPROPRIATE LEVEL SURFACE.
- 5 FULL GRANULAR 'A' BACKFILL, COMPACTED TO 100% S.P.M.D.D. IS REQUIRED FOR INSTALLATIONS UNDER EXISTING DRIVEWAYS.

2	Revised from Sewer to Boulevard	June, 2017
1	Updated	Feb, 2017
NO.	REVISION	DATE

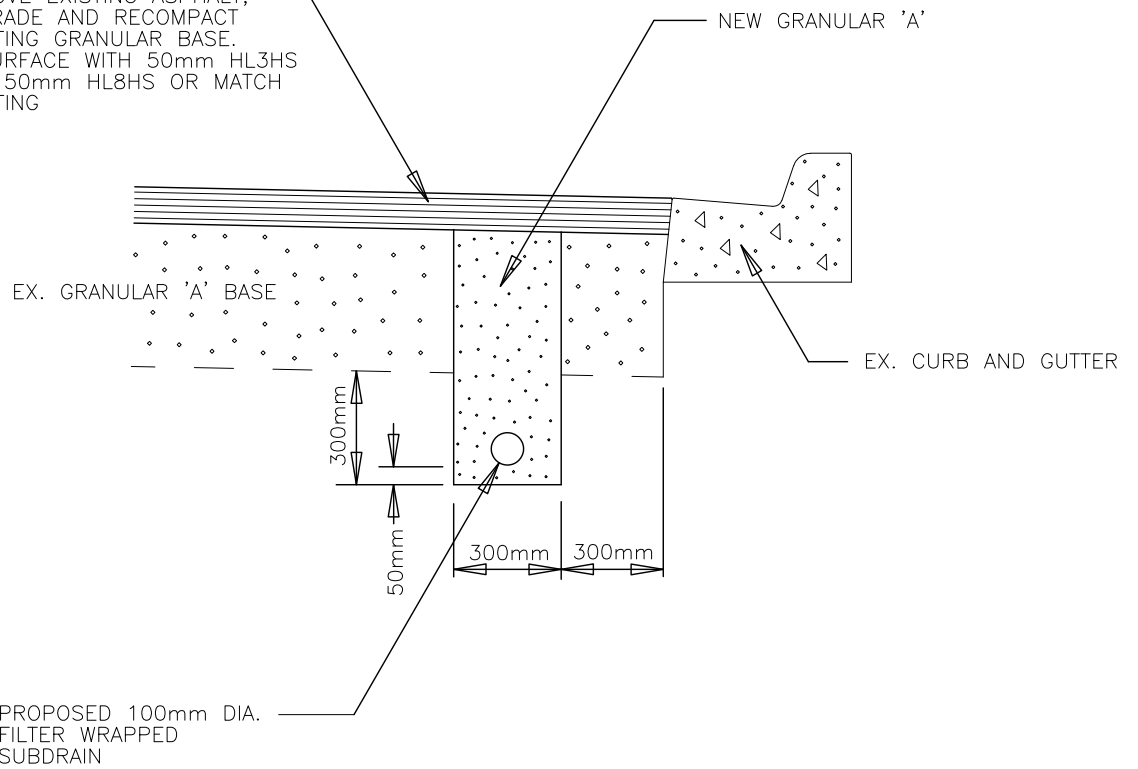


**TRANSPORTATION &
 ENVIRONMENTAL
 SERVICES**

DATE	16 FEB 2017	SCALE	N.T.S.
DESIGNED BY	B.J.	DRAWN BY	S.I.

**TYPICAL TRENCH
 REINSTATEMENTS FOR GRASS
 BOULEVARDS**

REMOVE EXISTING ASPHALT,
 REGRADE AND RECOMPACT
 EXISTING GRANULAR BASE.
 RESURFACE WITH 50mm HL3HS
 AND 50mm HL8HS OR MATCH
 EXISTING



1	Drawing Number Changed	April, 2013
NO.	REVISION	DATE



**TRANSPORTATION &
 ENVIRONMENTAL
 SERVICES**

DATE April 24, 1985 SCALE N.T.S.

DESIGNED BY R.S. DRAWN BY R.W.

**TYPICAL SUBDRAIN
 INSTALLATION FOR EXISTING
 ASPHALT ROAD**

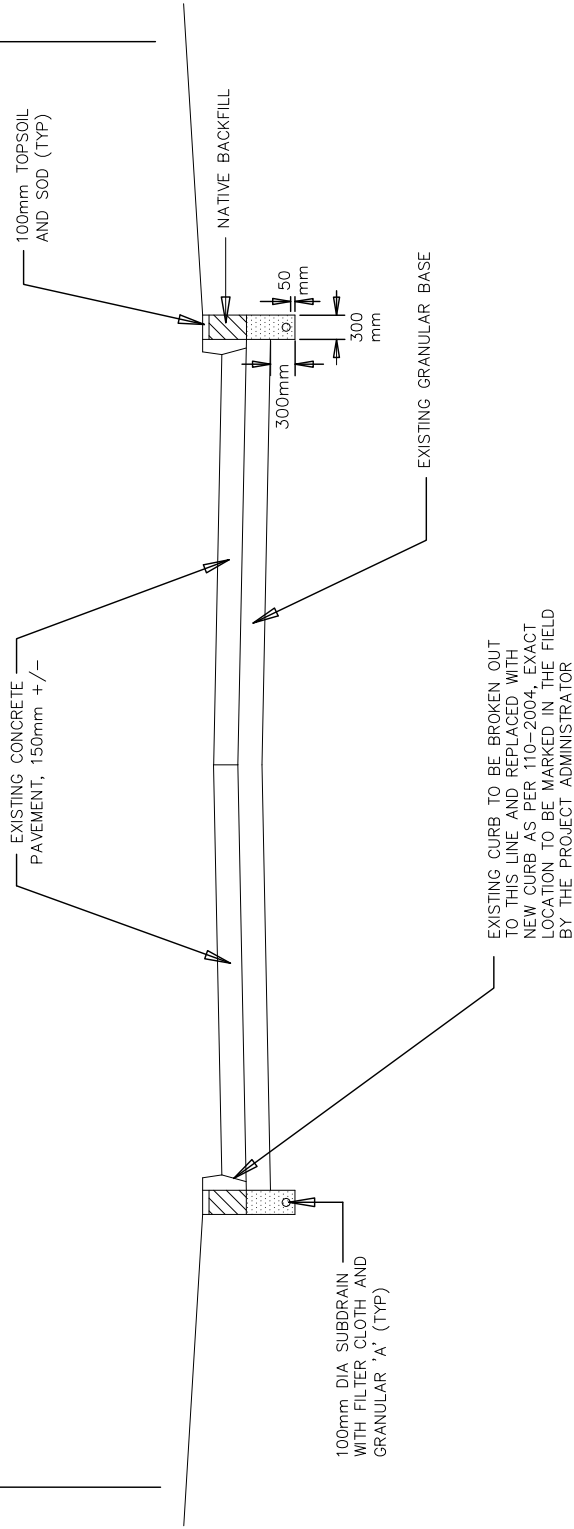
FORMERLY 110-1210

DRAWING No. 110-2019

1

P/L

P/L



1	Drawing Number Changed	April, 2013
NO.	REVISION	DATE



**TRANSPORTATION &
ENVIRONMENTAL
SERVICES**

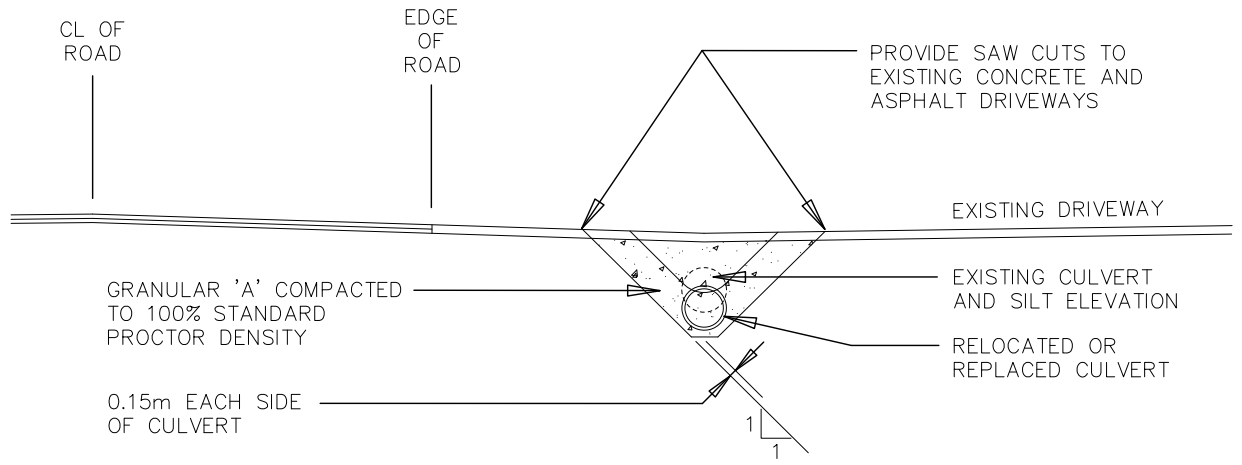
DATE April, 1995 SCALE N.T.S.
DESIGNED BY R.S. DRAWN BY R.W.

TYPICAL SUBDRAIN INSTALLATION FOR CONCRETE BASE REPAIRS

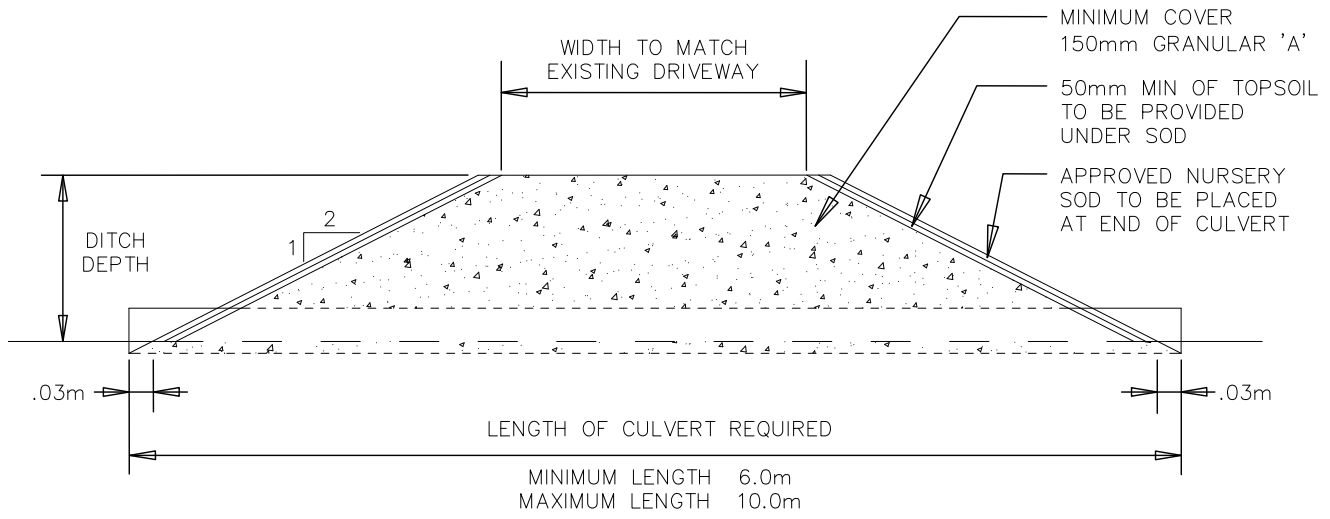
FORMERLY 110-1235

DRAWING No. 110-2020

1



CROSS SECTION



FRONT VIEW

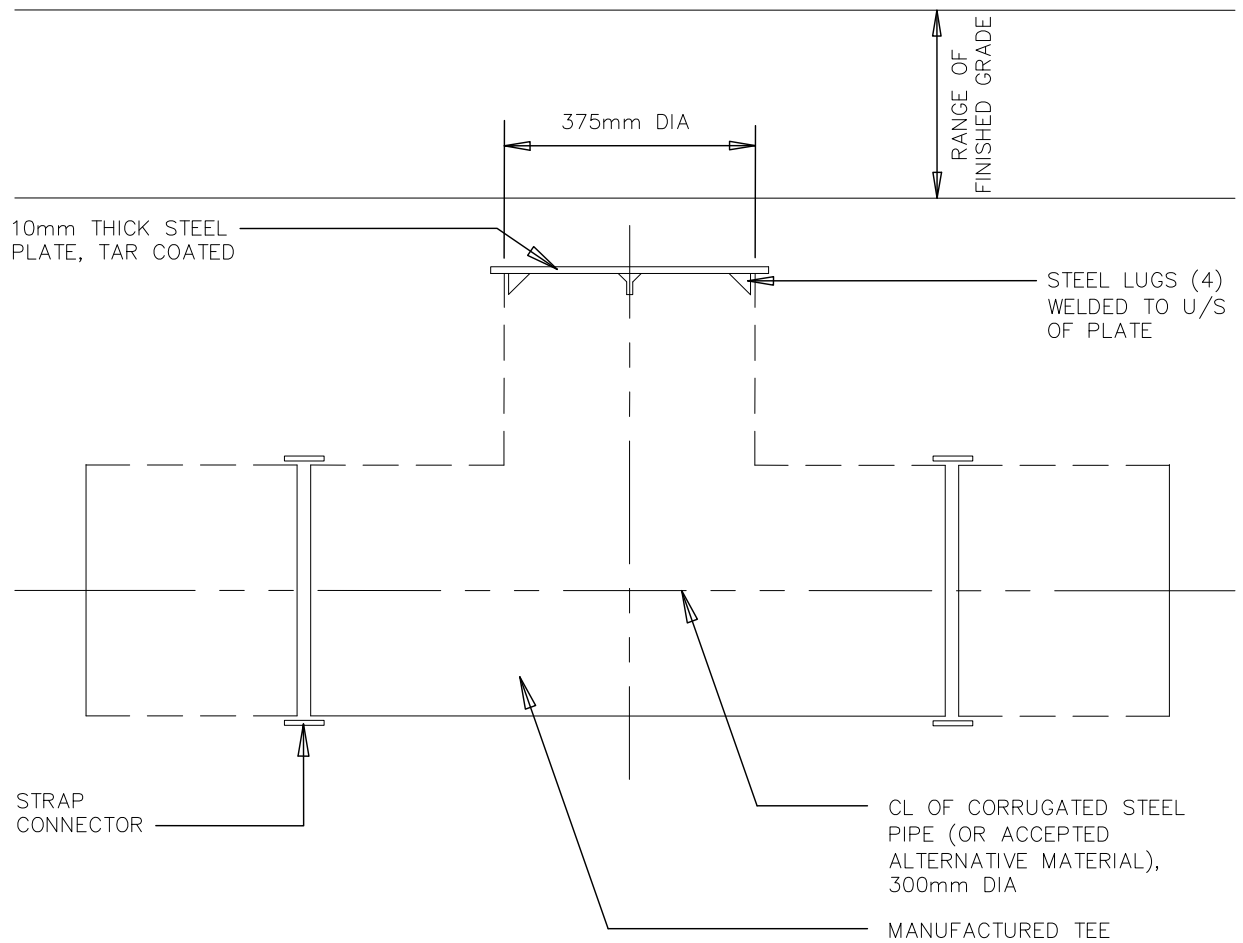
1	Drawing Number Changed	April, 2013
NO.	REVISION	DATE


TRANSPORTATION & ENVIRONMENTAL SERVICES


DATE	May 3, 1983	SCALE	N.T.S.
DESIGNED BY	R.S.	DRAWN BY	J.C.

TYPICAL CULVERT REPLACEMENT OR RELOCATION

FORMERLY 110-1215	DRAWING No. 110-2021	1
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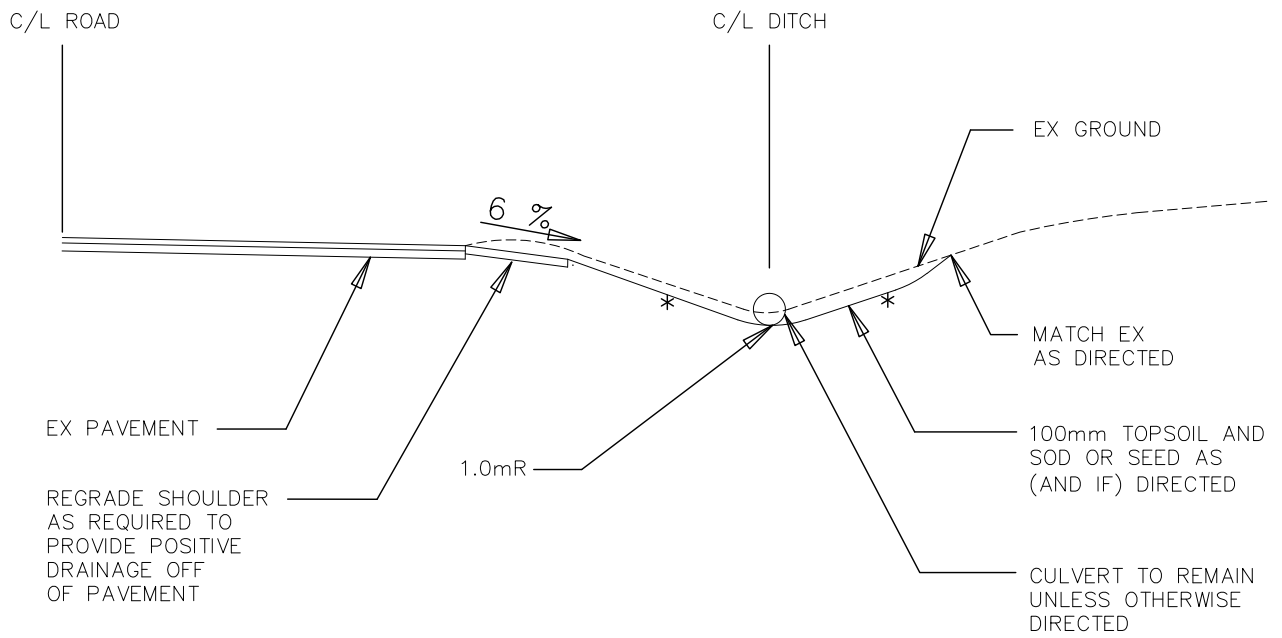
CROSS SECTION

1	Drawing Number Changed	April, 2013	
NO.	REVISION	DATE	
		TRANSPORTATION & ENVIRONMENTAL SERVICES	
DATE	May 3, 1983	SCALE	N.T.S.
DESIGNED BY	R.S.	DRAWN BY	J.C.

**DETAIL FOR
CULVERT CLEANOUT**

FORMERLY 110-1217

DRAWING No. 110-2022



* DITCH SIDE SLOPES
 3:1 DESIRABLE
 2:1 MAXIMUM

1	Drawing Number Changed	April, 2013
NO.	REVISION	DATE



**TRANSPORTATION &
 ENVIRONMENTAL
 SERVICES**

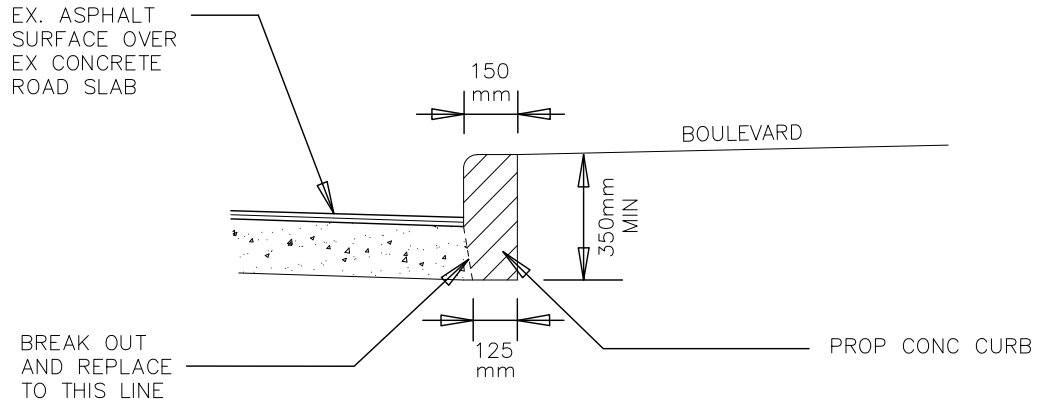
DATE July 14, 2005 SCALE N.T.S.

DESIGNED BY D.D. DRAWN BY N.B.

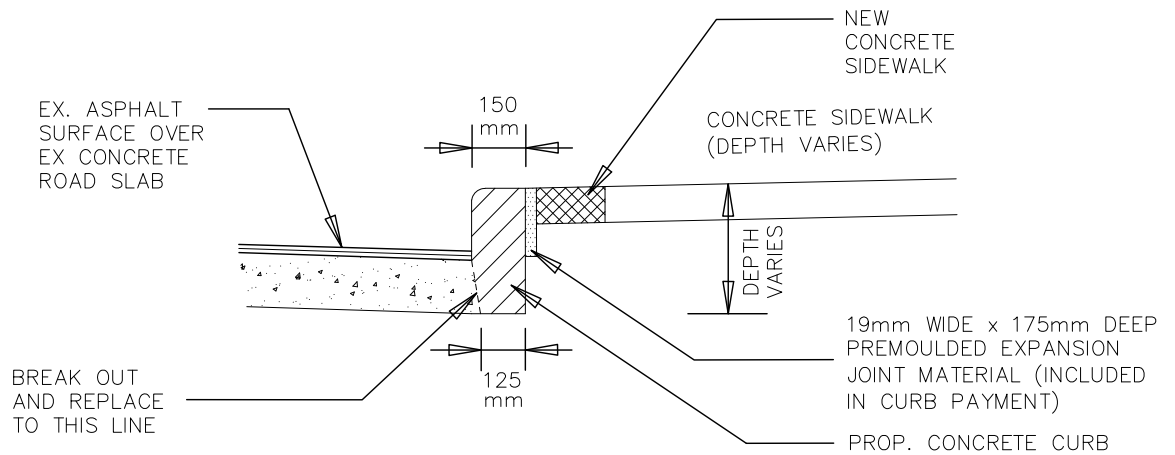
TYPICAL CROSS SECTION DITCH REGRADING

FORMERLY 110-1237

DRAWING No. 110-2023



DETAIL OF CURB REMOVAL AND REPLACEMENT ADJACENT TO BOULEVARD



DETAIL OF CURB REMOVAL AND REPLACEMENT ADJACENT TO SIDEWALK

3	Added Note	March, 2018
2	Drawing Number Changed	April, 2013
1	Revised	July, 1980
NO.	REVISION	DATE

NOTE: DOWEL INTO EXISTING AT EITHER END OF THE REPAIR.



TRANSPORTATION & ENVIRONMENTAL SERVICES

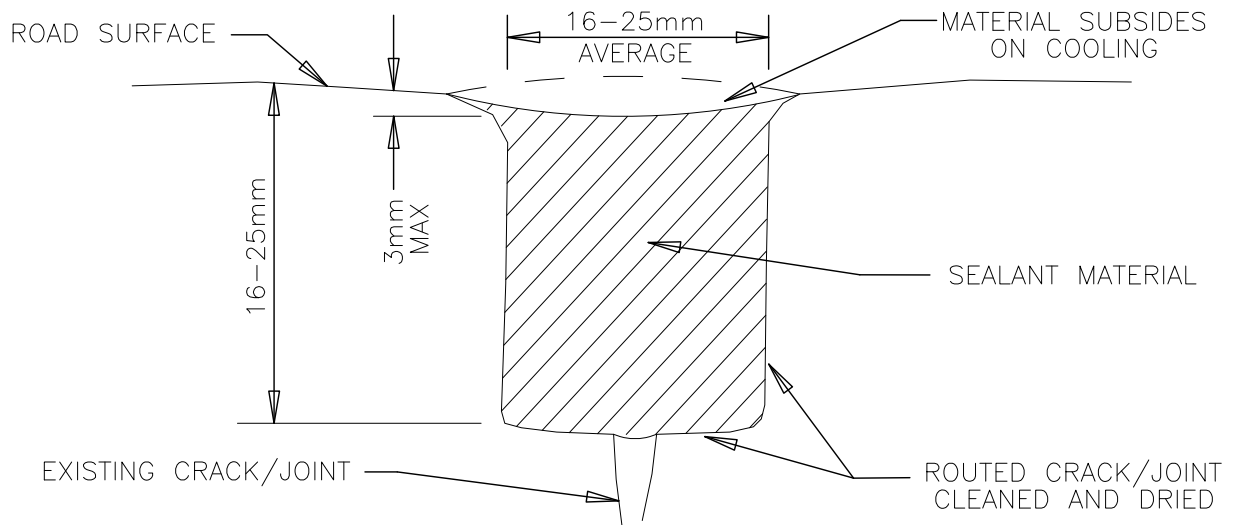
DATE June 13, 1963 SCALE N.T.S.

CURB REPAIR DETAILS FOR CONCRETE ROADS

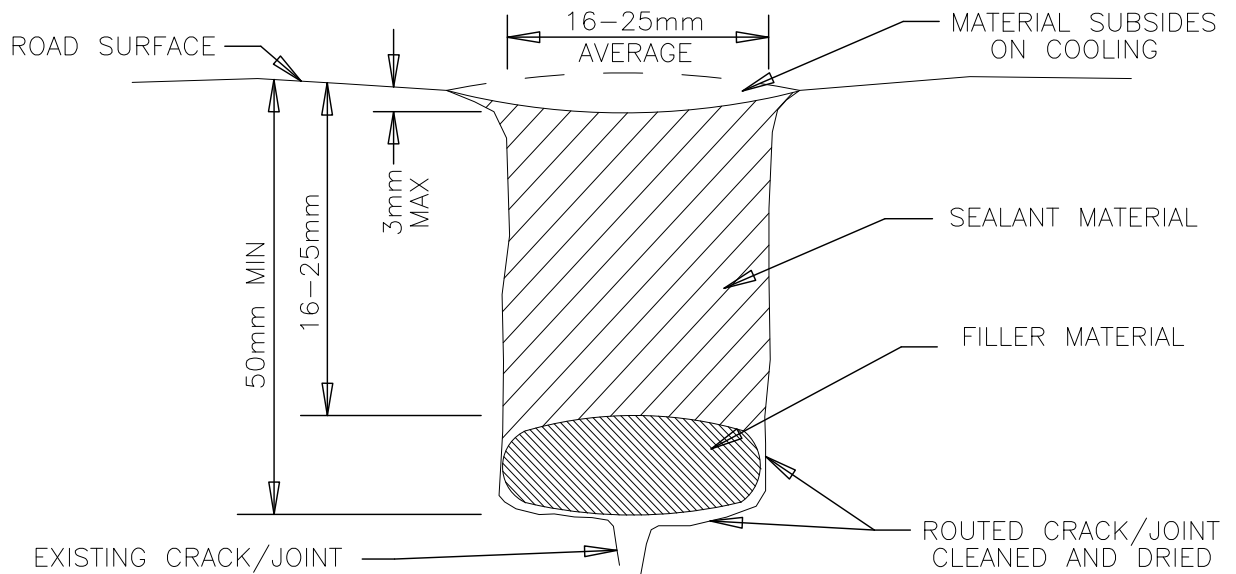
DESIGNED BY M.W. DRAWN BY A.K.

FORMERLY 110-1207

DRAWING No. 110-2024



A) NO FILTER MATERIAL REQUIRED



B) FILTER MATERIAL REQUIRED

- NOTES:
1. THIS DRAWING APPLIES TO CONCRETE AND ASPHALT ROADS.
 2. FOR EXISTING FORMED PAVEMENTS OR CONCRETE ROADS THE CRACK SHALL BE ROUTED TO THE FULL WIDTH OF THE EXISTING JOINT.
 3. THE CONTRACTOR SHALL MAINTAIN A SHAPE FACTOR OF $1.0 = \frac{\text{WIDTH OF ROUTED CRACK}}{\text{DEPTH OF ROUTED CRACK}}$
 4. FILLER MATERIAL SHALL BE BACKER ROD.

NO.	REVISION	DATE
2	Drawing Number Changed	April, 2013
1	Revised	July, 1984



TRANSPORTATION & ENVIRONMENTAL SERVICES

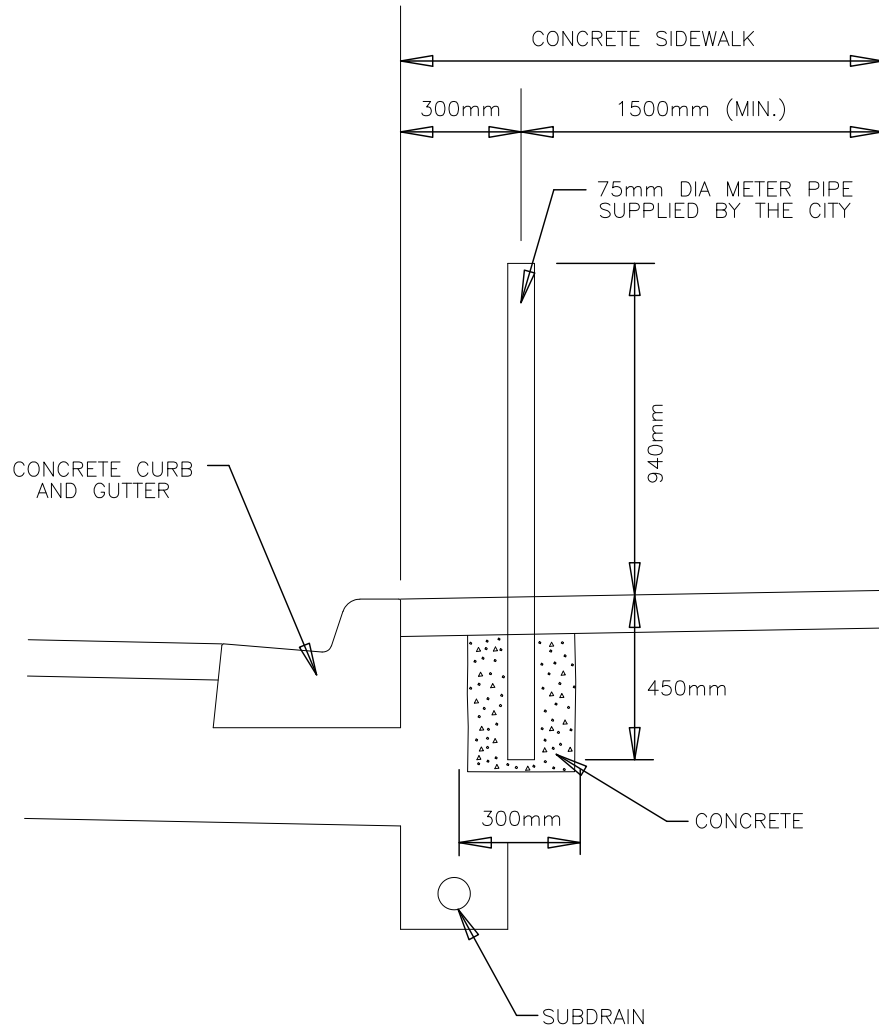
DATE APRIL 2013 SCALE N. T. S.

DESIGNED BY W.S. DRAWN BY J.C.

DESIRED CROSS-SECTION OF ROUTED AND SEALED CRACKS

FORMERLY 110-1212

DRAWING No. 110-2025



NO.	REVISION	DATE
2	Added 1500mm Dimension	May, 2014
1	Drawing Number Changed	April, 2013



**TRANSPORTATION &
ENVIRONMENTAL
SERVICES**

**PARKING METER POST
DETAIL**

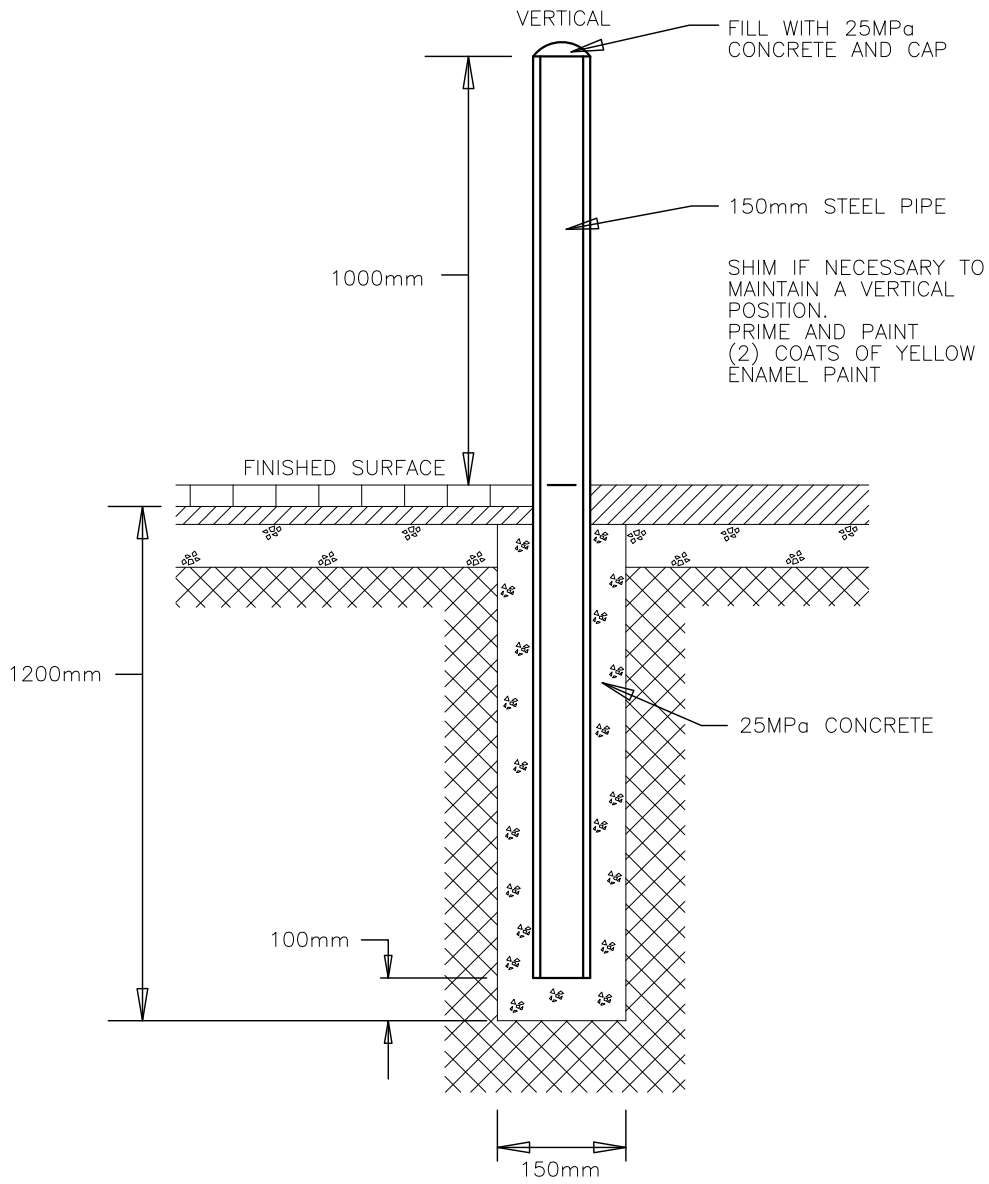
DATE August 15, 1994 SCALE N.T.S.

DESIGNED BY D.D. DRAWN BY N.B.

FORMERLY 110-1224

DRAWING No. 110-2026

2



1	Drawing Number Changed	April, 2013
NO.	REVISION	DATE



**TRANSPORTATION &
ENVIRONMENTAL
SERVICES**

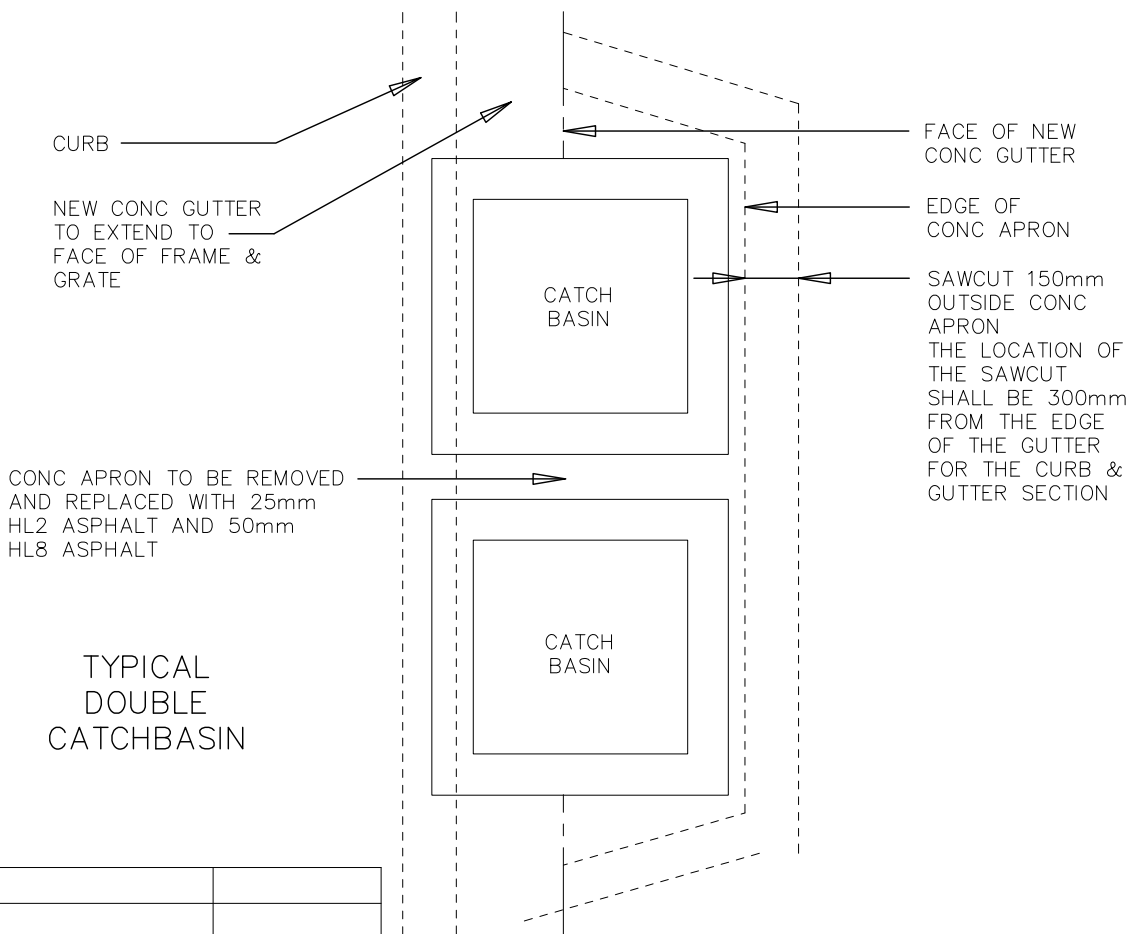
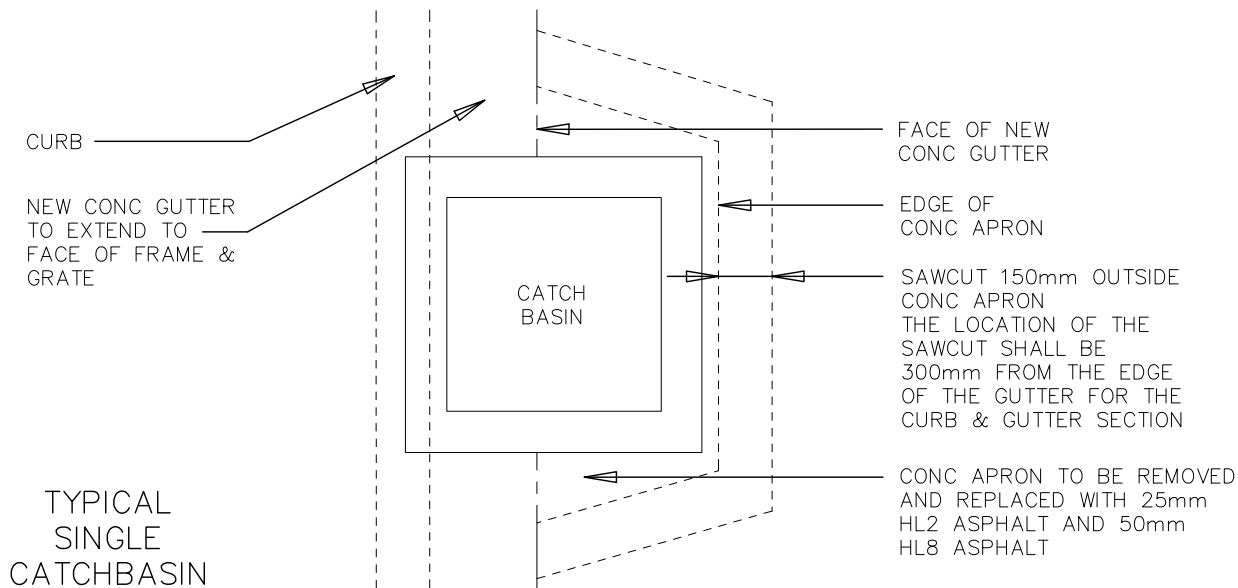
DATE February 15, 1998 SCALE N.T.S.

DESIGNED BY T.A.H. DRAWN BY N.B.

**PERMANENT
BOLLARD**

FORMERLY 110-1226

DRAWING No. 110-2027



NO.	REVISION	DATE
2	Drawing Number Changed	April, 2013
1	Revised	July, 1985



TRANSPORTATION & ENVIRONMENTAL SERVICES

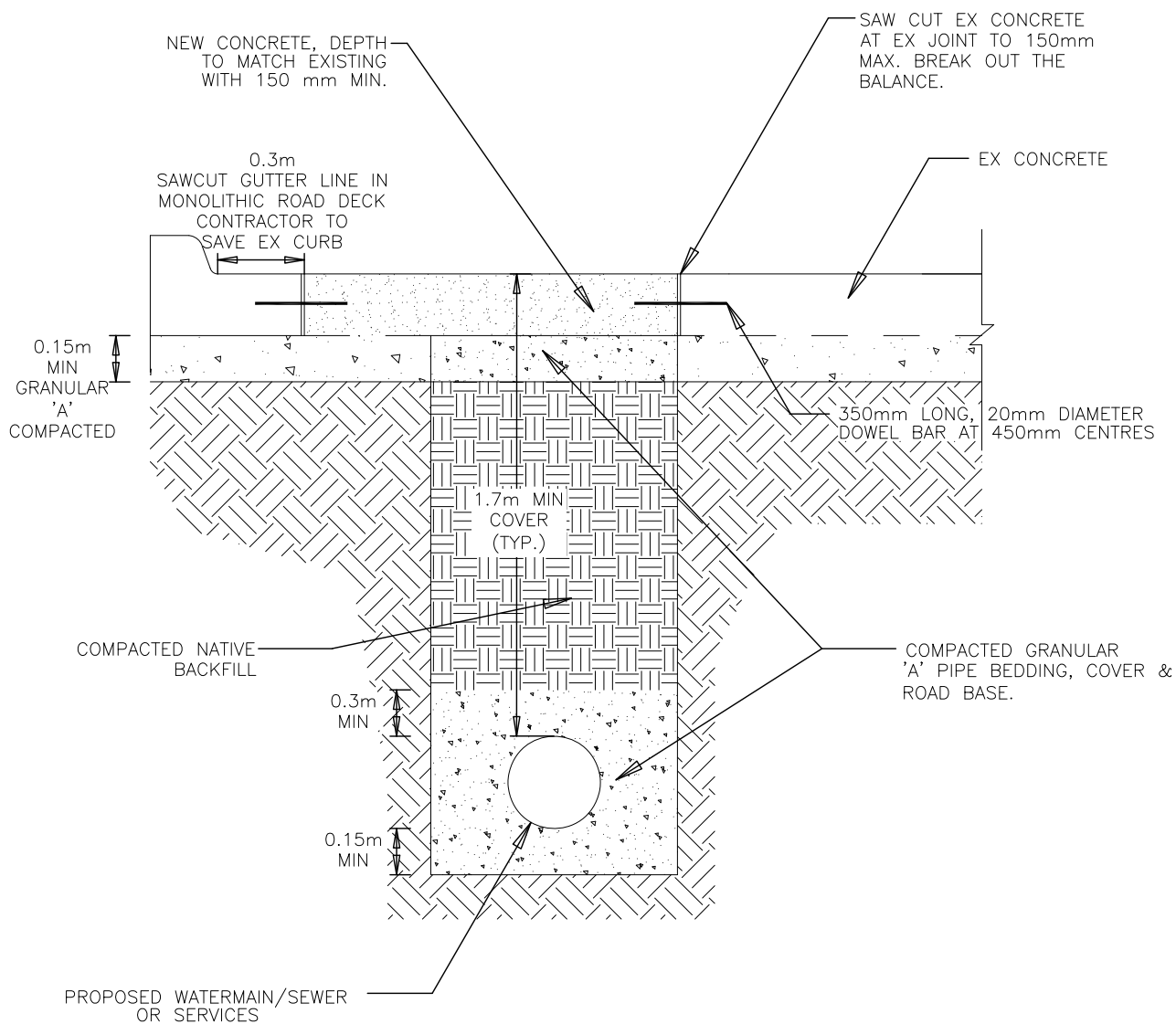
DATE May 10, 1985 SCALE N.T.S.

DESIGNED BY W.S. DRAWN BY L.P.

SAWCUTTING DETAILS FOR CATCHBASIN REPLACEMENT IN CONCRETE ROADS

FORMERLY 110-1211

DRAWING No. 110-2029



NO.	REVISION	DATE
1	New Detail from P14-104	March, 2018

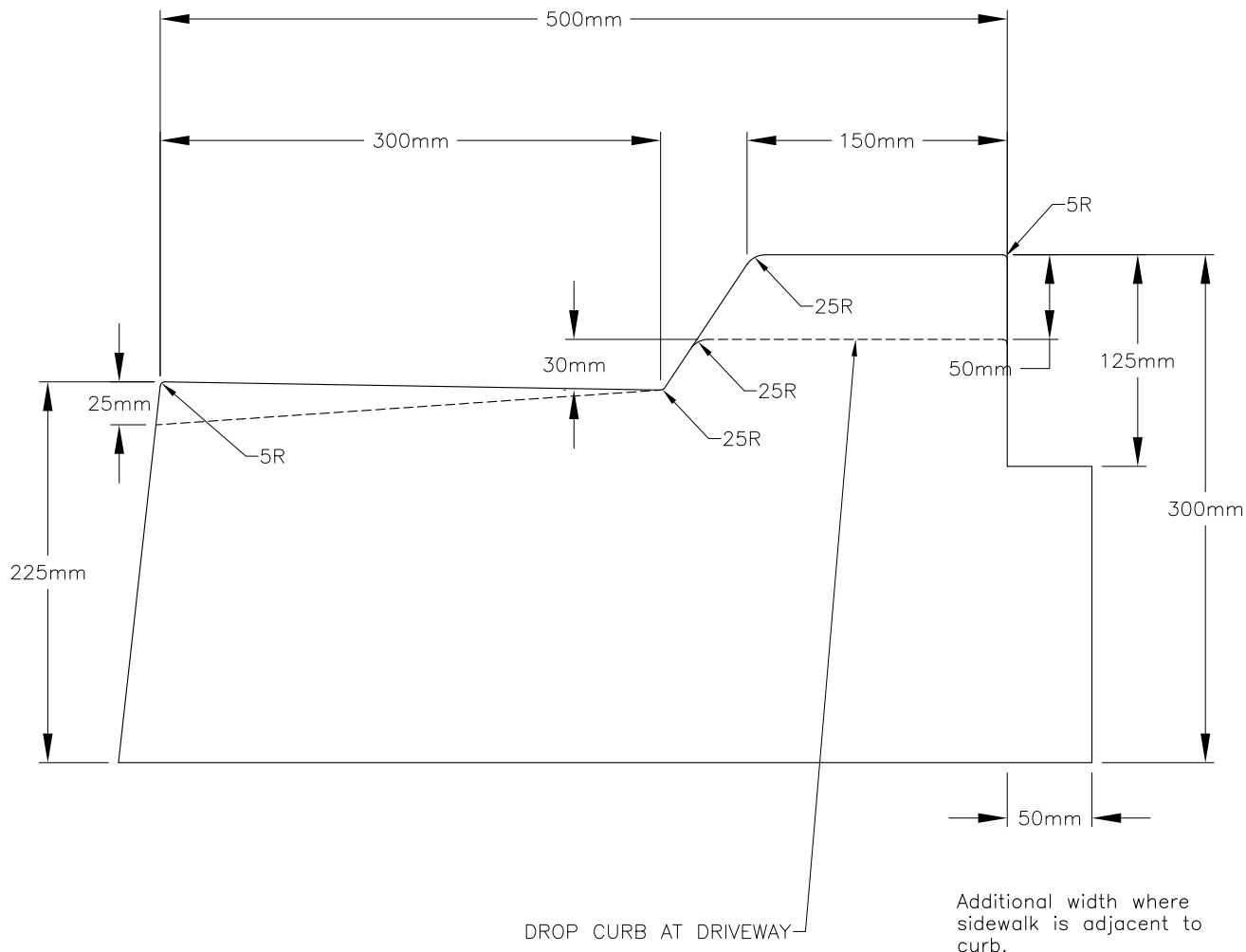


**TRANSPORTATION &
ENVIRONMENTAL
SERVICES**

DATE	March, 2018	SCALE	N.T.S.
DESIGNED BY		DRAWN BY	S.H.

CONCRETE PAVEMENT RESTORATION CLOSE TO MONOLITHIC CURB

DRAWING No. 110-2030



1	New Detail from C. of B.	March, 2018
NO.	REVISION	DATE

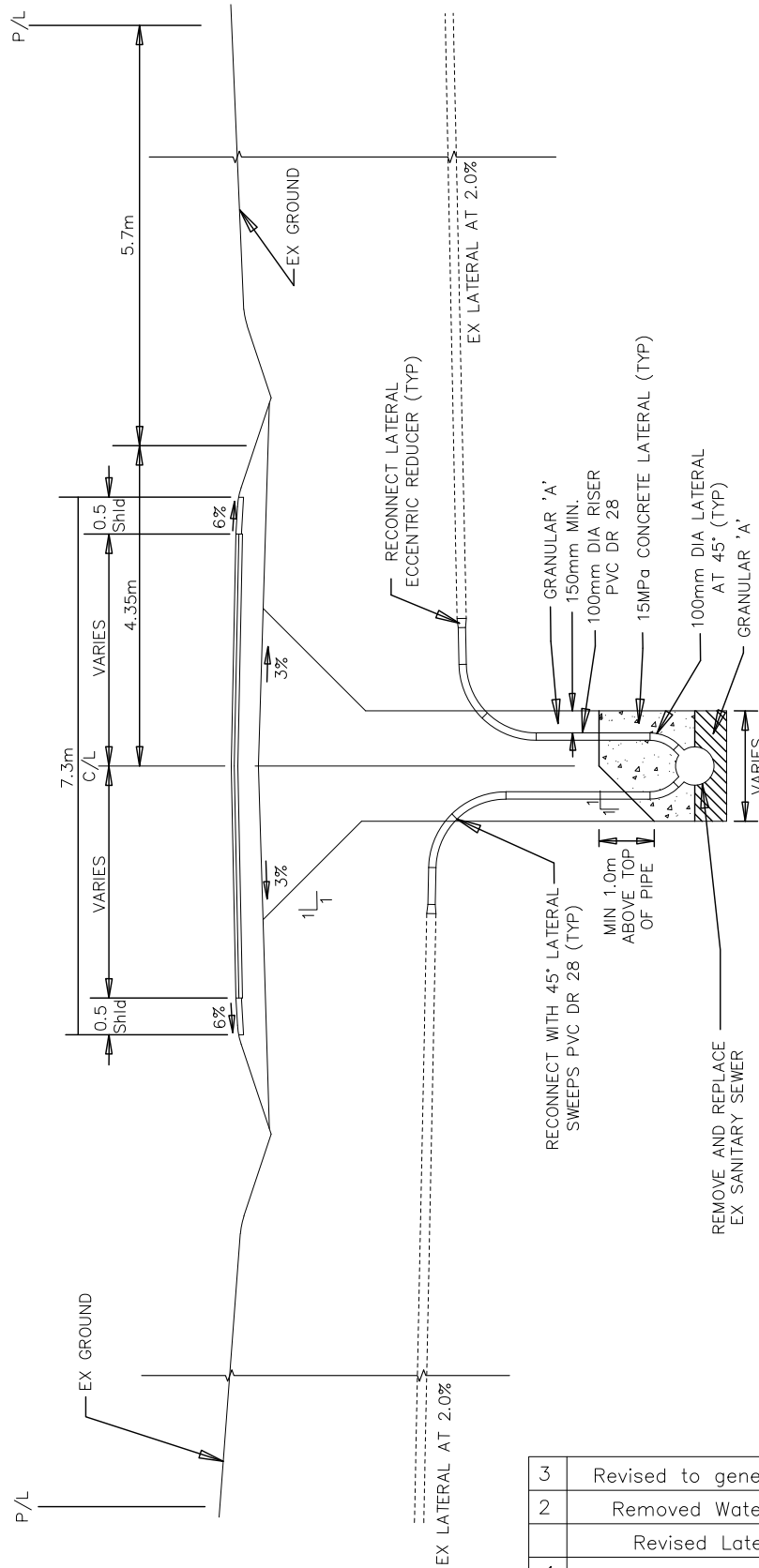


**TRANSPORTATION &
ENVIRONMENTAL
SERVICES**

DATE	April, 2018	SCALE	N.T.S.
DESIGNED BY	SH	DRAWN BY	SH

MODIFIED CURB

Sewers



NO.	REVISION	DATE
3	Revised to generic standard	March, 2018
2	Removed Watermain and Revised Lateral Sizes	January, 2014
1	Drawing Number Changed	April, 2013



TRANSPORTATION & ENVIRONMENTAL SERVICES

SEWER LATERAL DETAIL - FOR MAINS IN EXCESS OF 5m IN DEPTH

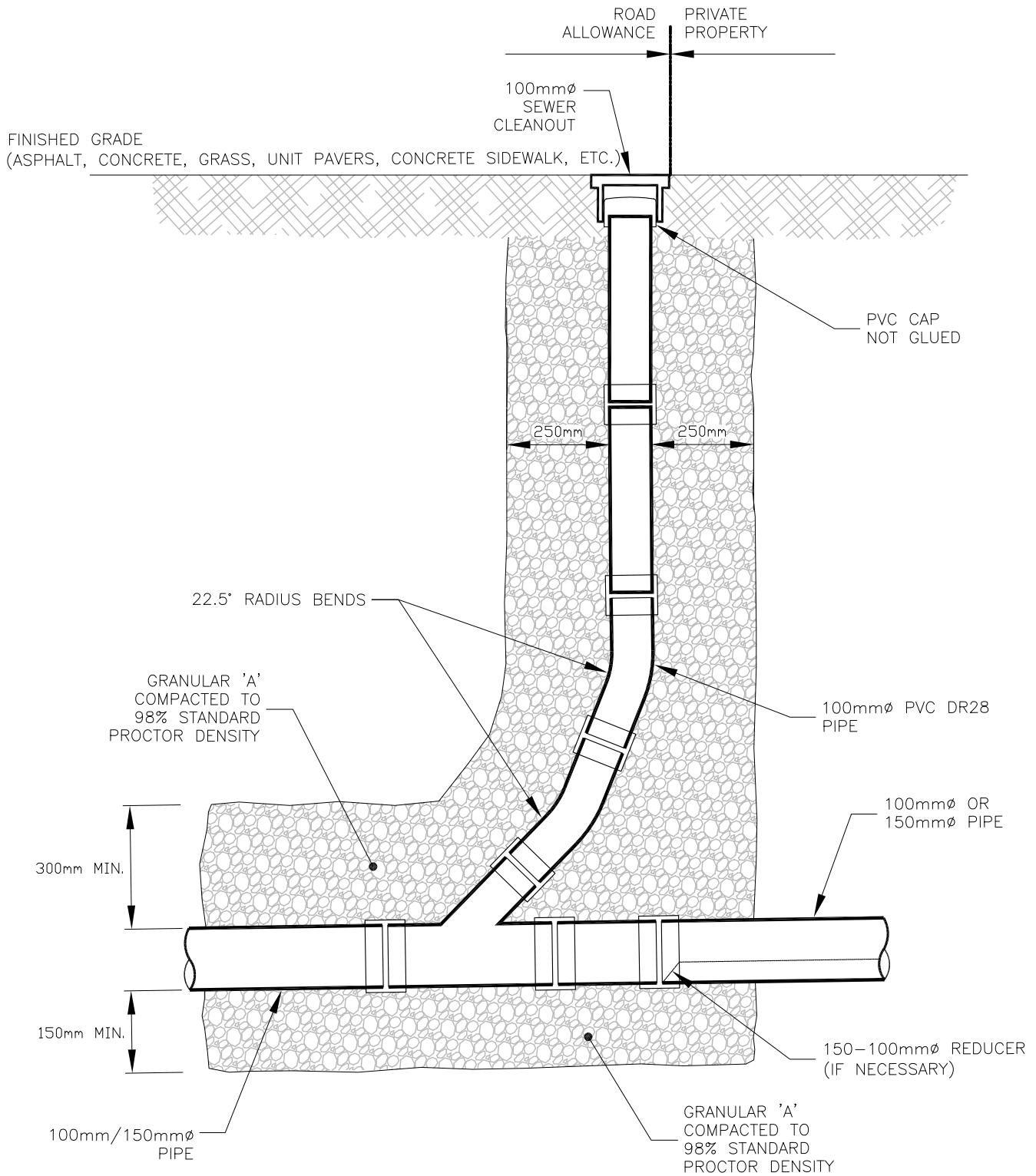
DATE September 3, 2010 SCALE N.T.S.

DESIGNED BY T.H. DRAWN BY N.B.

FORMERLY 110-1315

DRAWING No. 110-3002

3



NOTES:

- Cleanouts installed in an asphalt or concrete surface shall have a 135mm slide type valve box & cover (marked "SEWER") over a PVC cap which has not been glued. Use East Jordan IW Product number 85508024 with a 6800 series drop lid or approved equal. The lid shall be set flush to the elevation of surrounding asphalt or concrete surface.
- Cleanouts installed in grass, unit pavers, or concrete sidewalk shall have Cast Iron Flat Cap complete with Gasketed Adaptor. Use Bibby Ste-Croix Part No DF44 or Sigma VB-SC 04L bolted lid or approved equal. The lid shall be set flush to the surrounding surface elevation.

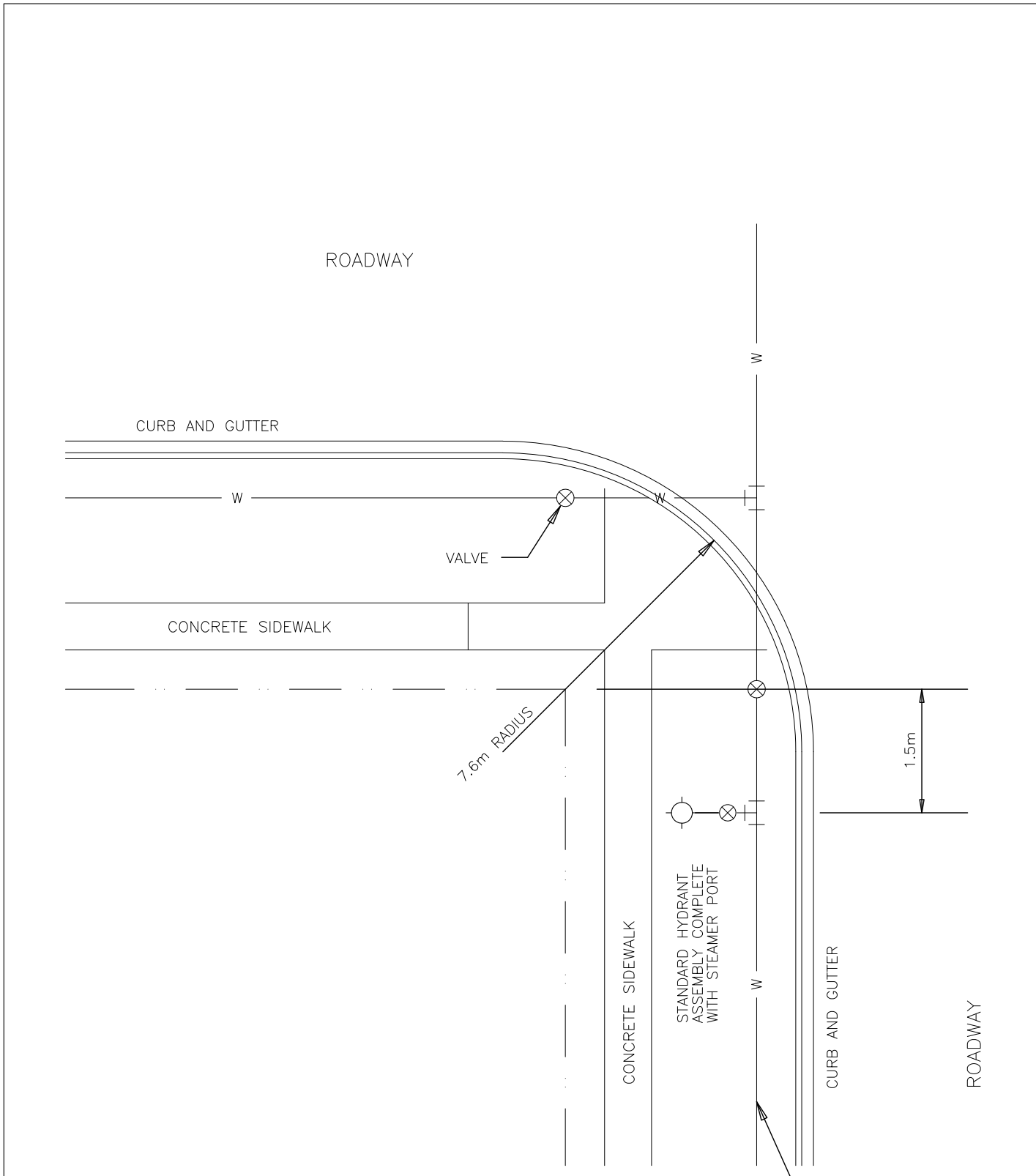


TRANSPORTATION & ENVIRONMENTAL SERVICES

SANITARY CLEANOUT

DATE	17 FEB 2016	SCALE	N.T.S.	DRAWING No. 110-3003	2
DESIGNED BY	T.M.	DRAWN BY	S.I.		

Water



2	Drawing Number Changed	April, 2013
1	Revised	April, 2011
NO.	REVISION	DATE



**TRANSPORTATION &
ENVIRONMENTAL
SERVICES**

DATE November 9, 2004 SCALE N.T.S.

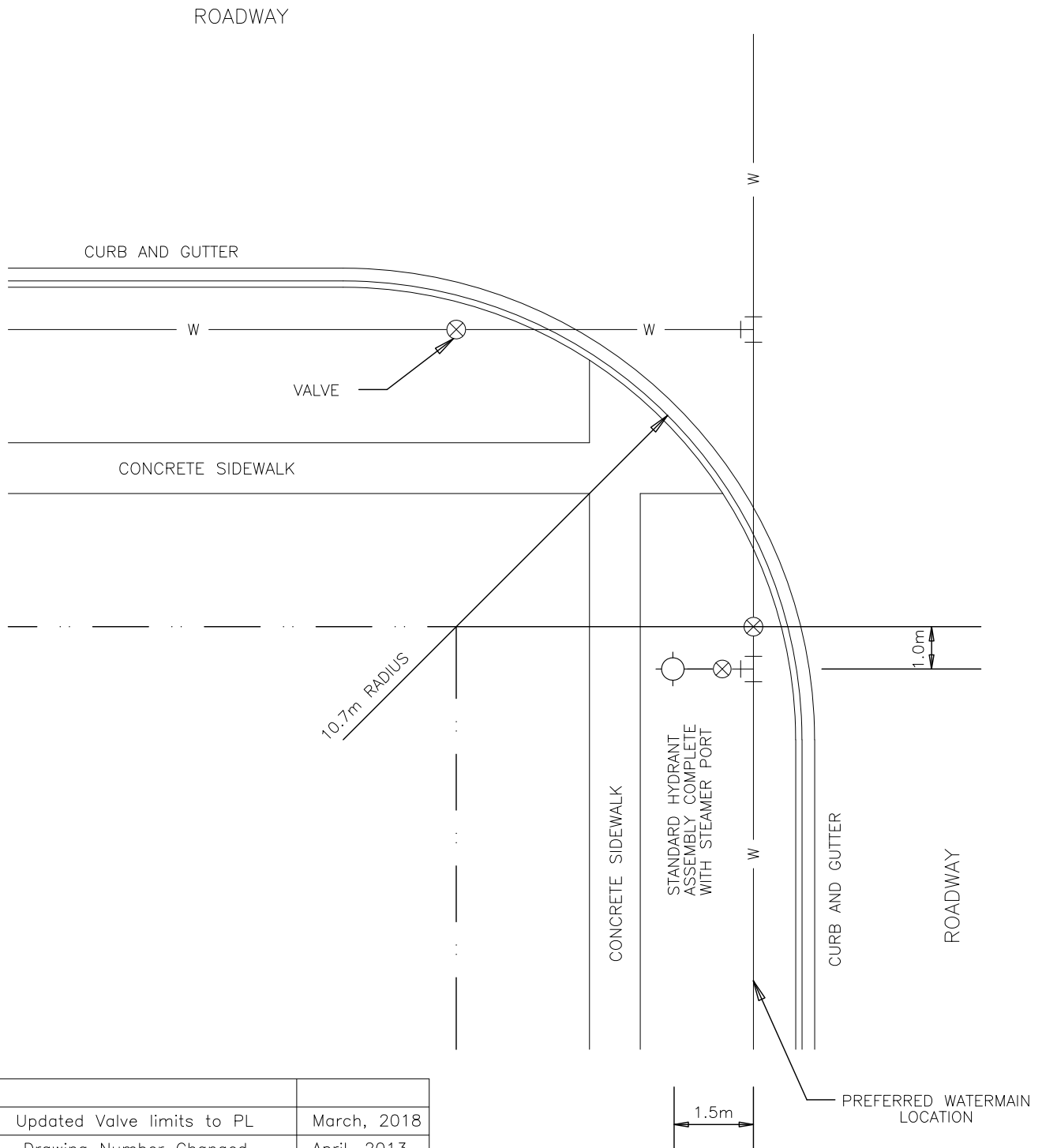
DESIGNED BY S.D./D.D. DRAWN BY N.B.

**PREFERRED LOCATION FOR
WATERMANS AND HYDRANTS AT
INTERSECTIONS WITH A 7.6m RADIUS**

FORMERLY 110-1408

DRAWING No. 110-4001

2



NO.	REVISION	DATE
3	Updated Valve limits to PL	March, 2018
2	Drawing Number Changed	April, 2013
1	Revised	April, 2011



**TRANSPORTATION &
ENVIRONMENTAL
SERVICES**

DATE November 9, 2004 SCALE N.T.S.

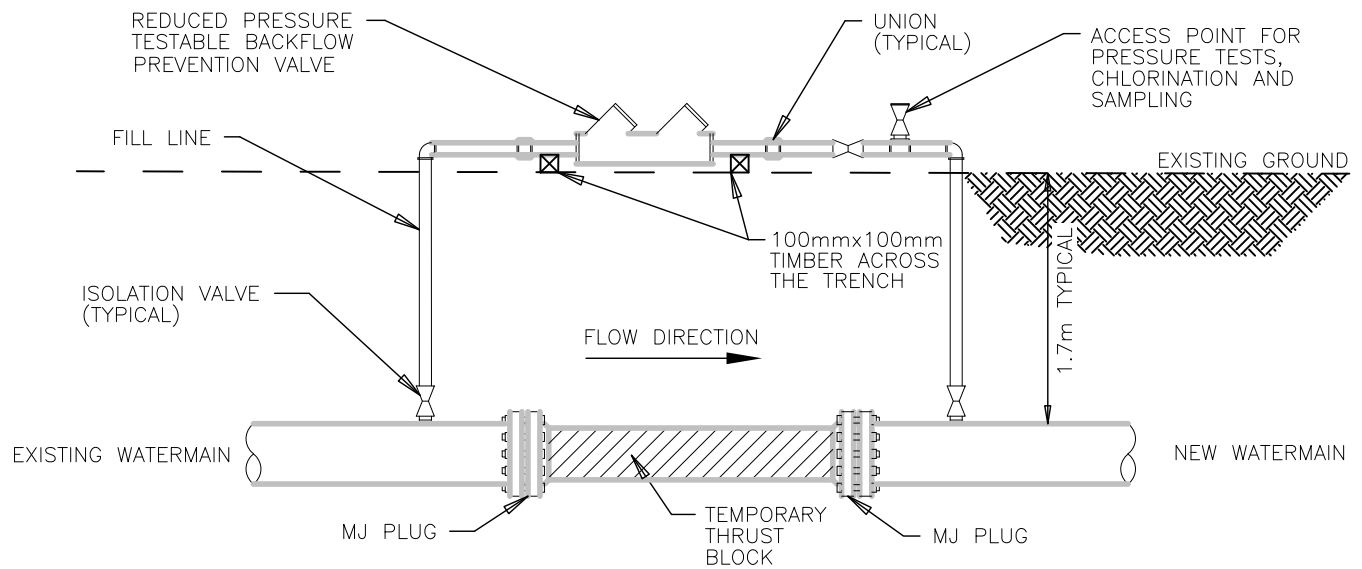
DESIGNED BY S.D./D.D. DRAWN BY N.B.

**PREFERRED LOCATION FOR
WATERMANS AND HYDRANTS AT
INTERSECTIONS WITH A 10.7m RADIUS**

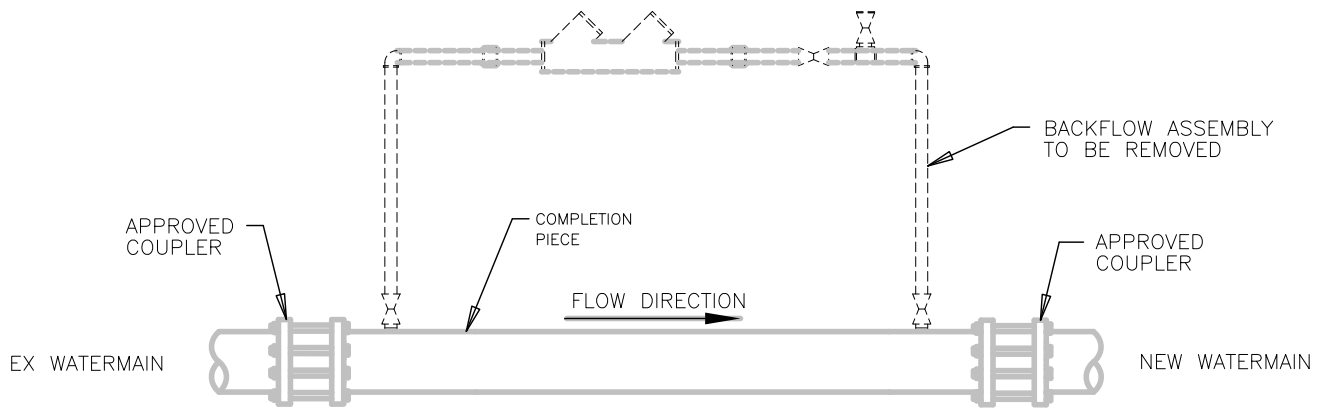
FORMERLY 110-1403

DRAWING No. 110-4002

3



BACKFLOW PREVENTION VALVE ASSEMBLY



WATERMAIN COMPLETION ASSEMBLY

NOTES:

1. THE BACKFLOW PREVENTION VALVE ASSEMBLY SHALL BE REMOVED DURING THE WATERMAIN PRESSURE TEST.
2. THE FINAL CONNECTION OF THE WATERMAIN SHALL BE COMPLETED ONLY AFTER AUTHORIZATION BY THE MUNICIPALITY.
3. THE WATERMAIN SHALL BE DRAINED BY CONTROLLED MEANS. SUFFICIENT TRENCH DEWATERING CAPACITY SHALL BE USED WHEN THE EXISTING AND NEW WATERMAINS ARE DRAINED PRIOR TO THE FINAL CONNECTION TO ENSURE THERE IS NO BACKFLOW INTO EITHER WATERMAIN.
4. THE WATERMAIN SHALL BE CUT BACK TO REMOVE THE TAPPING POINTS OF THE BACKFLOW PREVENTION VALVE ASSEMBLY.
5. ALL NEW PIPING AND APPURTENANCES PLACED IN THE CONNECTION SHALL BE THOROUGHLY DISINFECTED WITH 1% SOLUTION OF SODIUM HYPOCHLORITE OR EQUIVALENT.
6. ON NON-METALLIC WATERMAINS, THE TRACING WIRE SHALL BE CONNECTED TO THE COUPLER ONLY IF THE COUPLER IS NOT IN CONTACT WITH A METALLIC WATERMAIN.
7. ONLY MUNICIPAL STAFF SHALL OPERATE MUNICIPALLY OWNED VALVES.
8. THIS DETAIL IS FOR SCHEMATIC INFORMATION ONLY. THE CONFIGURATION USED MUST SATISFY THE INTENTIONS OF THIS DRAWING.

3	Drawing Number Changed	April, 2013
2	Revised	December, 2008
1	Revised	February, 2007
NO.	REVISION	DATE



**TRANSPORTATION &
ENVIRONMENTAL
SERVICES**

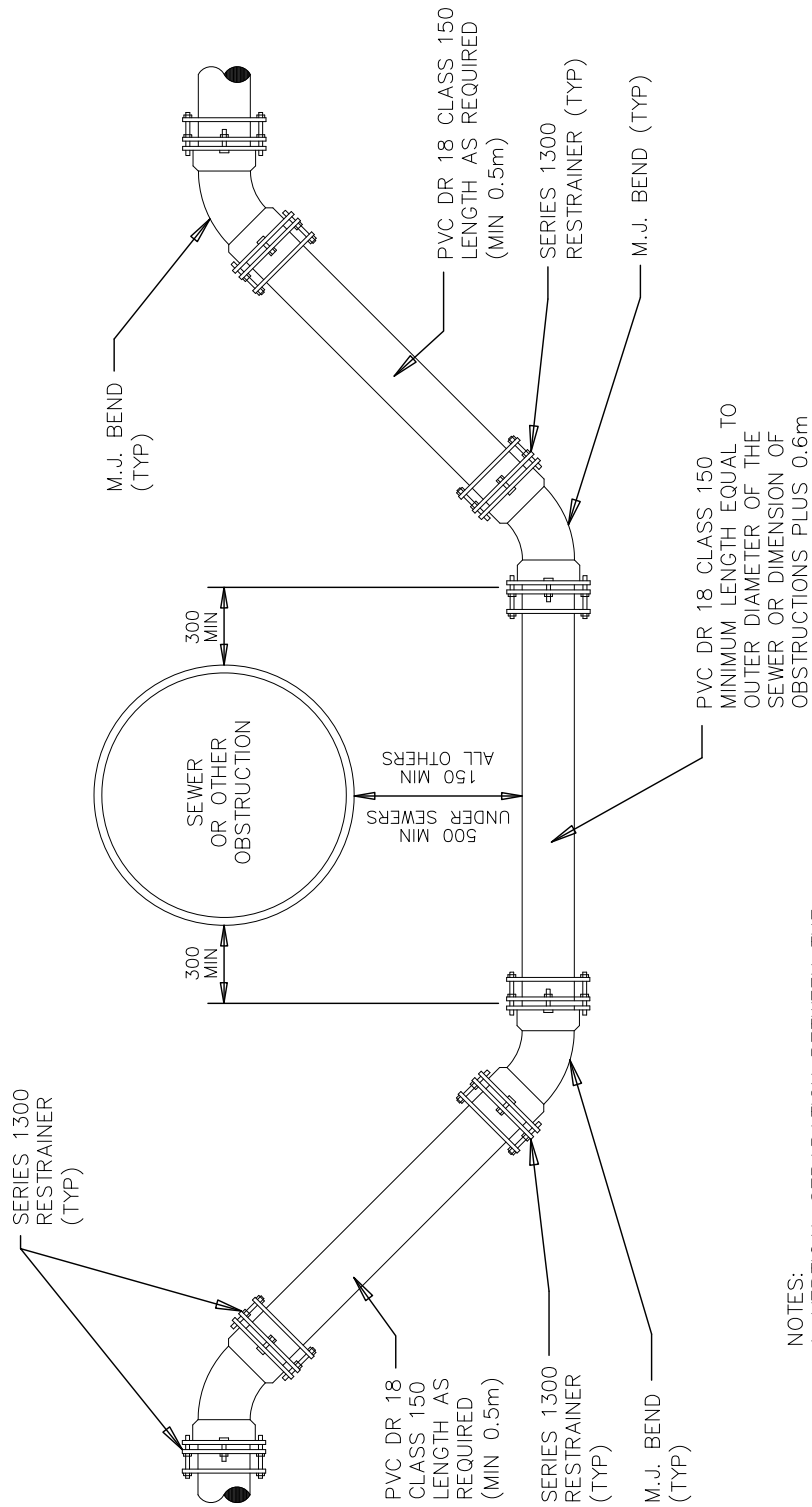
DATE December 17, 2004 SCALE N.T.S.

DESIGNED BY S.D. DRAWN BY N.B.

**TEMPORARY CONNECTION TO
EXISTING WATERMAIN**

FORMERLY 110-1429

DRAWING No. 110-4003



- NOTES:
1. VERTICAL SEPARATION BETWEEN THE INVERT OF THE SEWER AND THE CROWN OF THE WATERMAIN SHOULD BE 500mm MINIMUM.
 2. SUPPORT THE SEWER OR OBSTRUCTION DURING CONSTRUCTION AS NECESSARY.
 3. WATERMAIN UNDER THE SEWER OR OBSTRUCTION COULD BE INSTALLED BY BORE AND JACK METHOD.

NO.	REVISION	DATE
1	Revised	March, 2009
2	Drawing Number Changed	April, 2013



**TRANSPORTATION &
ENVIRONMENTAL
SERVICES**

DATE	November 15, 2004	SCALE	N.T.S.
DESIGNED BY	S.D.	DRAWN BY	N.B.

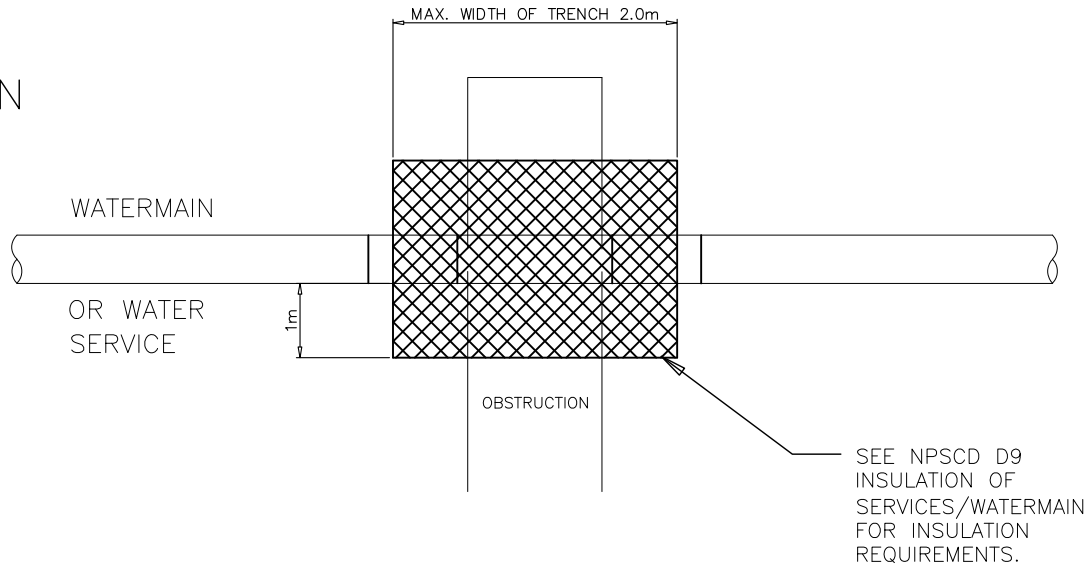
TYPICAL WATERMAIN UNDER-CROSSING

FORMERLY 110-1419

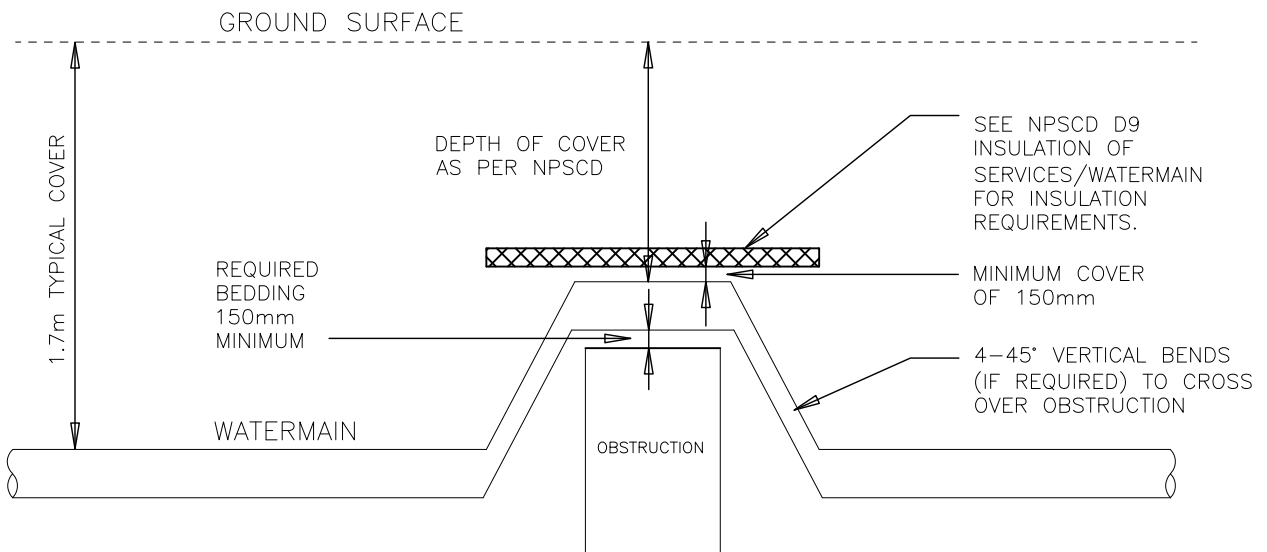
DRAWING No. 110-4004

2

PLAN



SECTION



NOTE:
IF USING MULTIPLE LAYERS OF INSULATION JOINTS SHALL BE STAGGERED.

IN CASE OF AN OPEN AIR CULVERT, APPROPRIATE COVER AND/OR INSULATION IS REQUIRED FROM THE UNDERSIDE. SEE INTERIM STANDARD DRAWING 1-110-8604

NO.	REVISION	DATE
2	Notation Updated	March, 2018
1	Drawing Number Changed	April, 2013



**TRANSPORTATION &
ENVIRONMENTAL
SERVICES**

DATE June 8, 2011 SCALE N.T.S.

DESIGNED BY F.K. DRAWN BY J.E.

INSULATION OF WATER SERVICES OR WATERMAINS

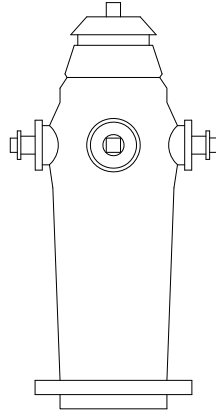
FORMERLY 110-1432

DRAWING No. 110-4005

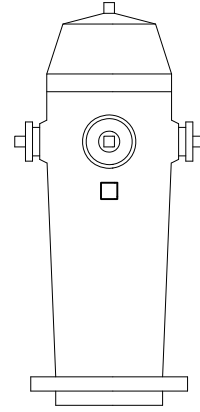
2

COMMON HYDRANTS IN USE

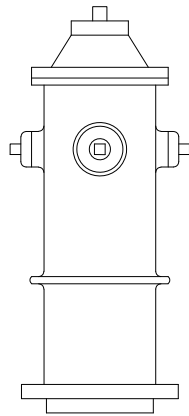
McAVITY M – 67



CANADA VALVE CENTURY



AMERICAN AVK 27 / 80



NOTES:

- ALL HYDRANTS TO BE CHROME YELLOW IN COLOUR.
- PUMPER/STEAMER NOZZLE FOR ALL HYDRANTS TO BE 100mmØ STORZ CONNECTION AS PER NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) STANDARD FOR FIRE HOSE CONNECTIONS.
- STORZ CONNECTIONS TO BE BLACK IN COLOUR.

4	Storz Connection Added	Feb, 2018
3	Colour Coding Removed	June, 2017
2	Concord Hydrant Removed	March, 2017
1	Drawing Number Changed	April, 2013
NO.	REVISION	DATE



**TRANSPORTATION &
ENVIRONMENTAL
SERVICES**

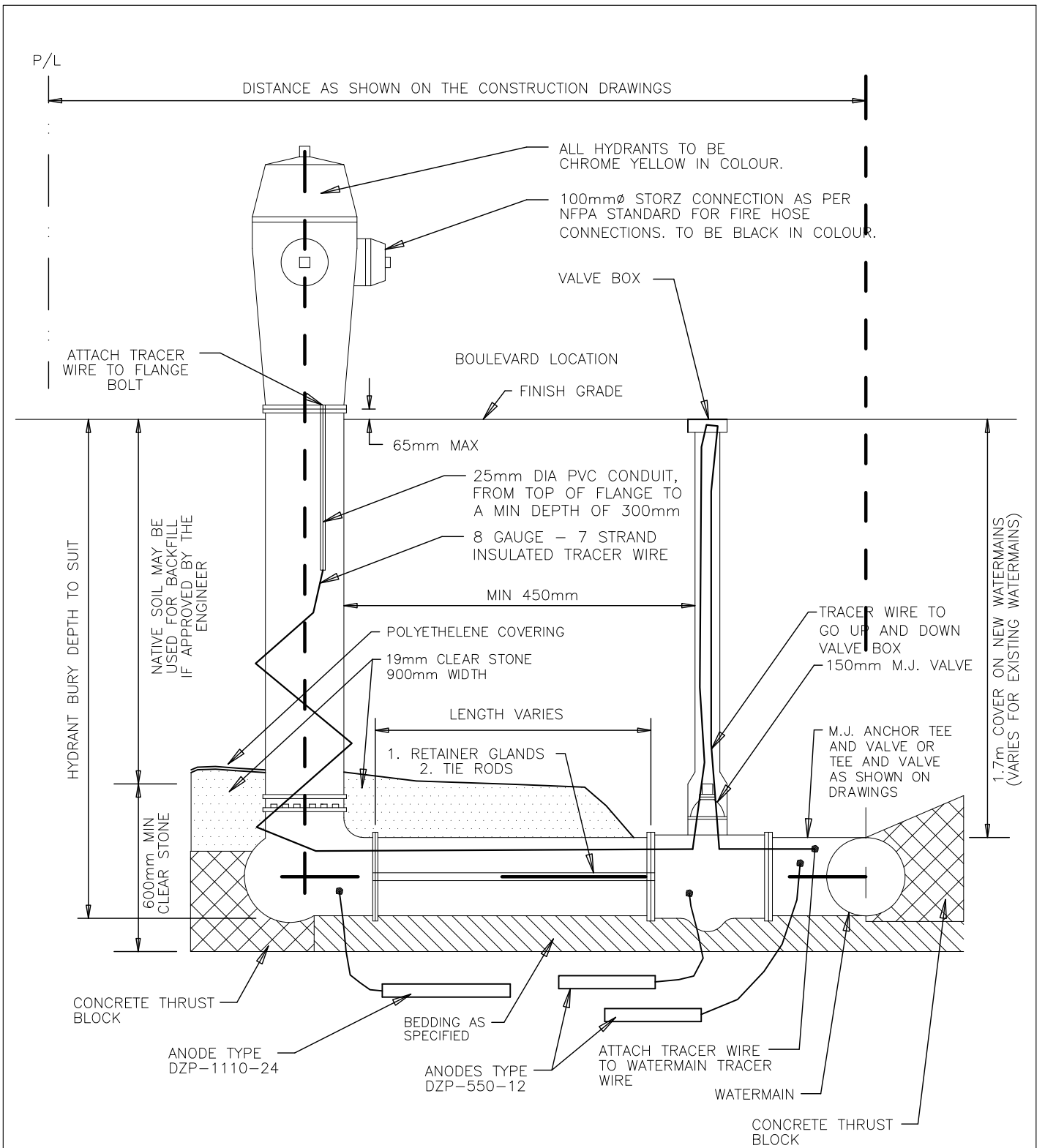
DATE November 11, 2004 SCALE N.T.S.

DESIGNED BY S.D. DRAWN BY N.B.

COMMON FIRE HYDRANTS IN USE

FORMERLY 110-1415

DRAWING No. 110-4008



NOTES:

- VALVES ARE TO BE A.W.W.A. TYPE, IRON BODY, M.J. GATE VALVES WITH "O" RING STEW PACKING, AS MANUFACTURED BY JENKINS BROS. VALVE No. 2397A OR McAVITY VALVE No. 20075-D OR MUELLER LTD. VALVE No. A2380-21.
- ALL MEASUREMENTS ARE IN METERS UNLESS OTHERWISE NOTED.

NO.	REVISION	DATE
2	Storz connection added	Feb, 2018
1	Drawing Number Changed	April, 2013



TRANSPORTATION & ENVIRONMENTAL SERVICES

DATE November 3, 2004 SCALE N.T.S.

DESIGNED BY S.D./D.D. DRAWN BY N.B.

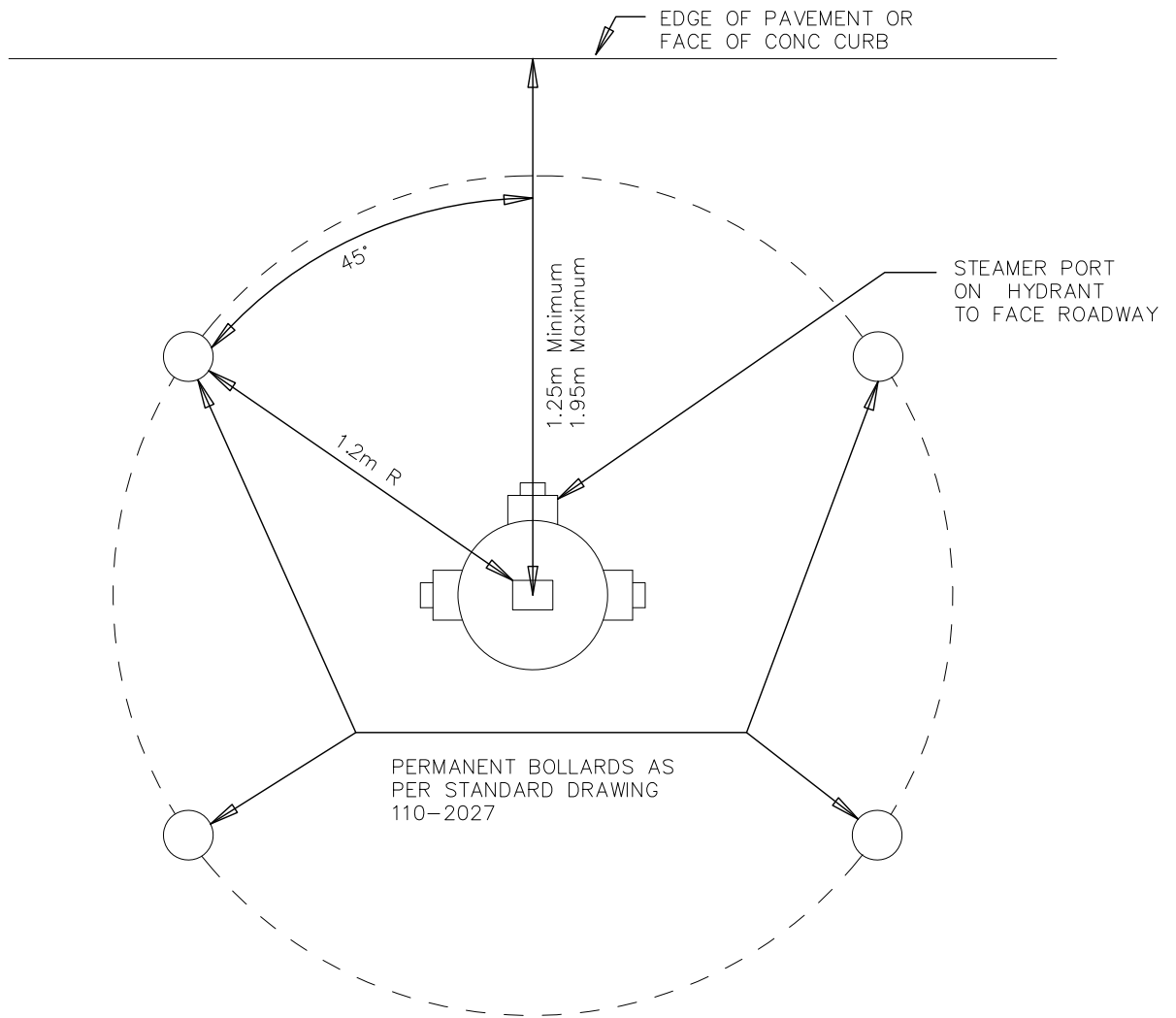
STANDARD HYDRANT ASSEMBLY

FORMERLY 110-1401

DRAWING No. 110-4009

2

PLAN



NO.	REVISION	DATE
3	Revised Notation	March, 2018
2	Drawing Number Changed	April, 2013
1	Revised	June, 2011



**TRANSPORTATION &
ENVIRONMENTAL
SERVICES**

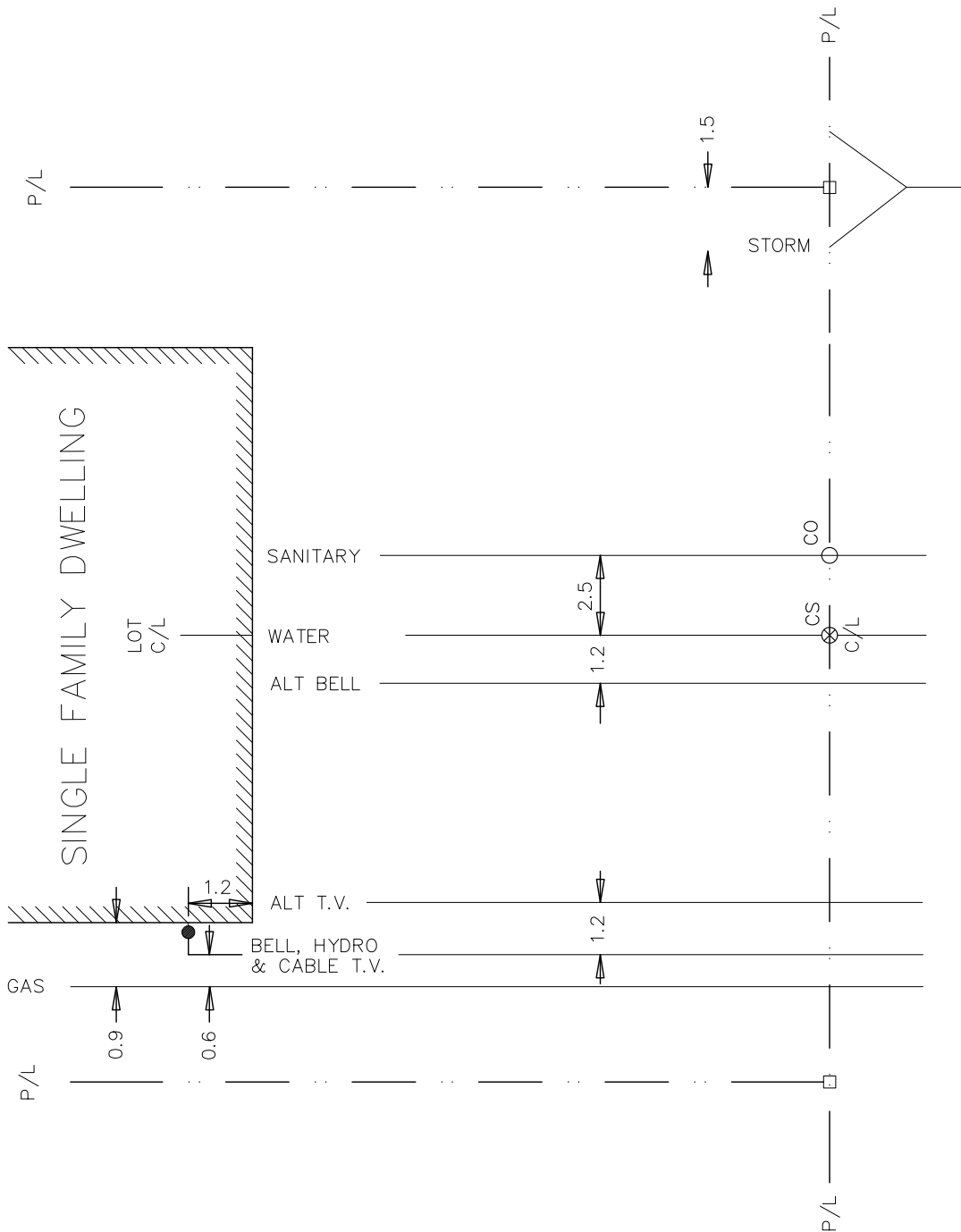
FIRE HYDRANT PROTECTION

DATE	February 6, 1987	SCALE	N.T.S.
DESIGNED BY	W.H.	DRAWN BY	R.L.

FORMERLY 110-1421

DRAWING No. 110-4010

Development Standards



NO.	REVISION	DATE
3	Switched W & WW added CO & CS	March, 2018
2	Drawing Number Changed	April, 2013
1	Revised	March, 2005

NOTES:
 1. LOCATIONS SHOWN ARE SUGGESTED ONLY AND NOT STANDARD.
 2. SEE ALSO DWG. NO. 110-5003



**TRANSPORTATION &
 ENVIRONMENTAL
 SERVICES**

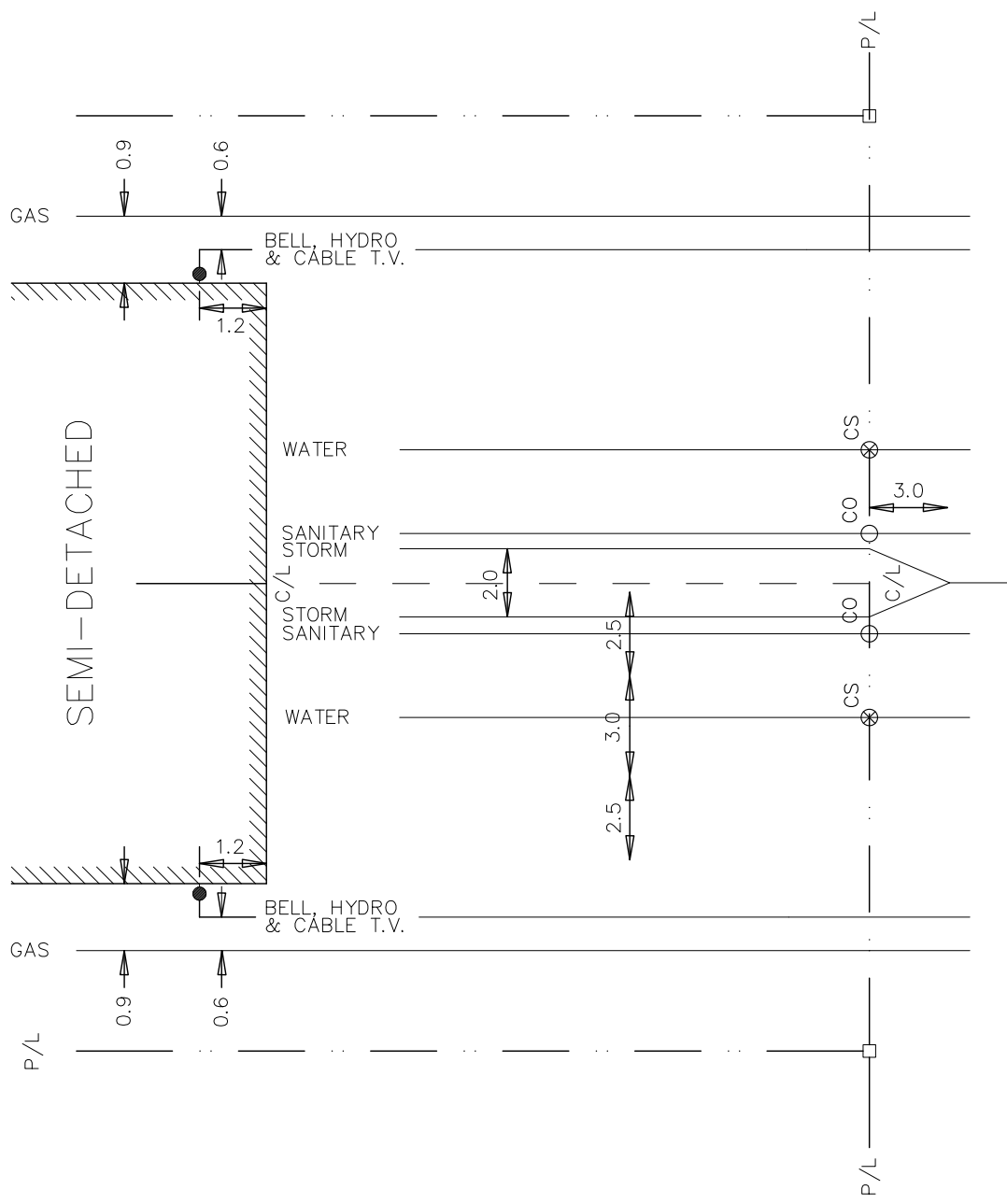
DATE May 5, 1983 SCALE N.T.S.

DESIGNED BY J.F. DRAWN BY R.G.

**TYPICAL SERVICE LAYOUT
 FOR SINGLE FAMILY
 DWELLINGS**

FORMERLY 110-1304

DRAWING No. 110-5001



NO.	REVISION	DATE
2	Added CO & CS	March, 2018
1	Drawing Number Changed	April, 2013

NOTES:
 1. LOCATIONS SHOWN ARE SUGGESTED ONLY AND NOT STANDARD.
 2. SEE ALSO DWG. NO. 110-5003



TRANSPORTATION & ENVIRONMENTAL SERVICES

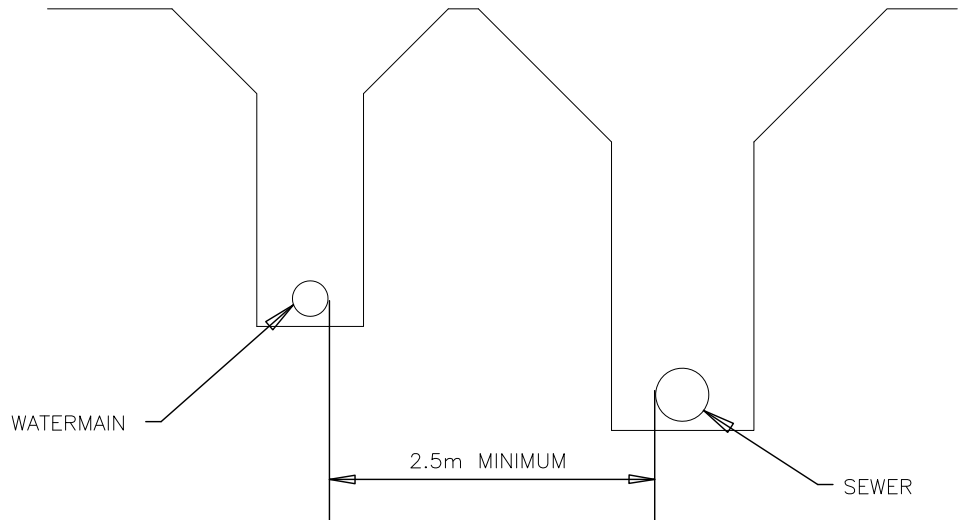
TYPICAL SERVICE LAYOUT FOR SEMI-DETACHED

DATE March 8, 2005 SCALE N.T.S.

DESIGNED BY B.M. DRAWN BY N.B.

FORMERLY 110-1305

DRAWING No. 110-5002



NOTE 1

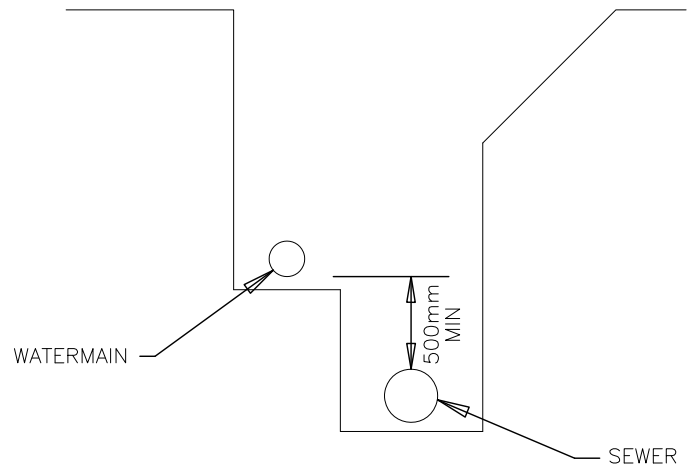
NOTES:

1. Except as permitted in Sentence (2) a buried water service pipe shall be separated from the building drain, building sewer and a private sewage disposal system, by not less than 2.5M measured horizontally, of undisturbed or compacted earth.

2. The water service pipe may be closer than 2.5M or be placed in the same trench with the building drain or building sewer if:
 (i) the bottom of the water service pipe at all points is at least 500mm above the top of the building drain or building sewer and,
 (ii) when in a common trench with the building drain or building sewer, the water service is placed on a shelf at one side of the common trench.

3. The water service pipe is constructed of a single run of pipe with no joints or fittings between the street line and source of supply.

4. If the horizontal and vertical separations could not be achieved then the building drain or building sewer is constructed of piping which is pressure tested in accordance with the Building Code at 345 kPa (50 lb/sq ft).



NOTE 2

3	Revised Notations	March, 2018
2	Revised	May, 2014
1	Drawing Number Changed	April, 2013
NO.	REVISION	DATE



**TRANSPORTATION &
ENVIRONMENTAL
SERVICES**

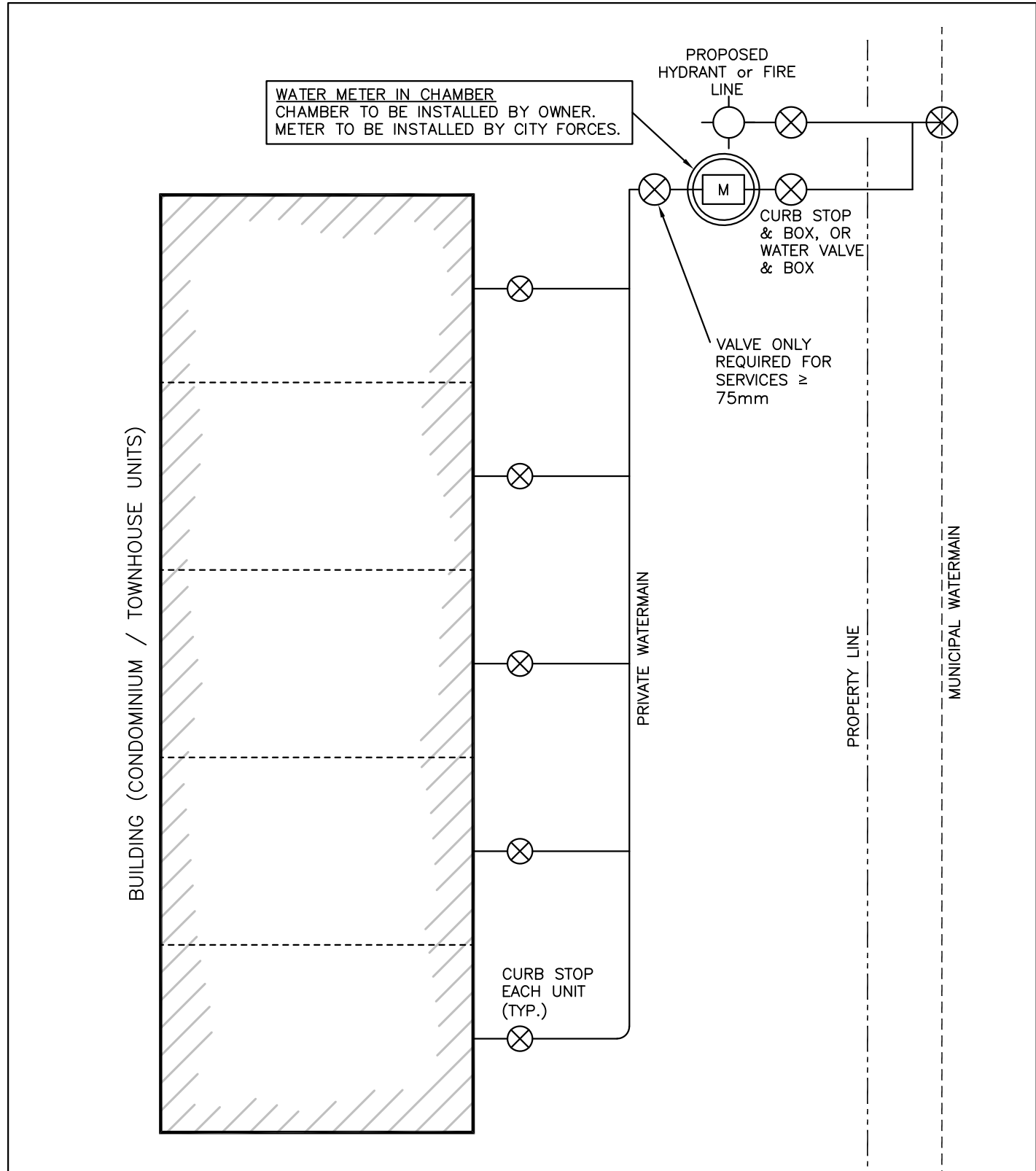
DATE APRIL 2013 SCALE N.T.S.

DESIGNED BY S.D. DRAWN BY J.E.

**MINIMUM
PIPE SEPARATION
FOR SERVICES**

FORMERLY 110-1313


DRAWING No. 110-5003



3	Revised Fire Line and Valve locations	March, 2018
2	Updated Specifications	May, 2017
1	RE-ISSUED STANDARD FOR SINGLE-OWNERSHIP PROPERTIES	7 NOV 2016
No.	REVISION	DATE

NOTE:

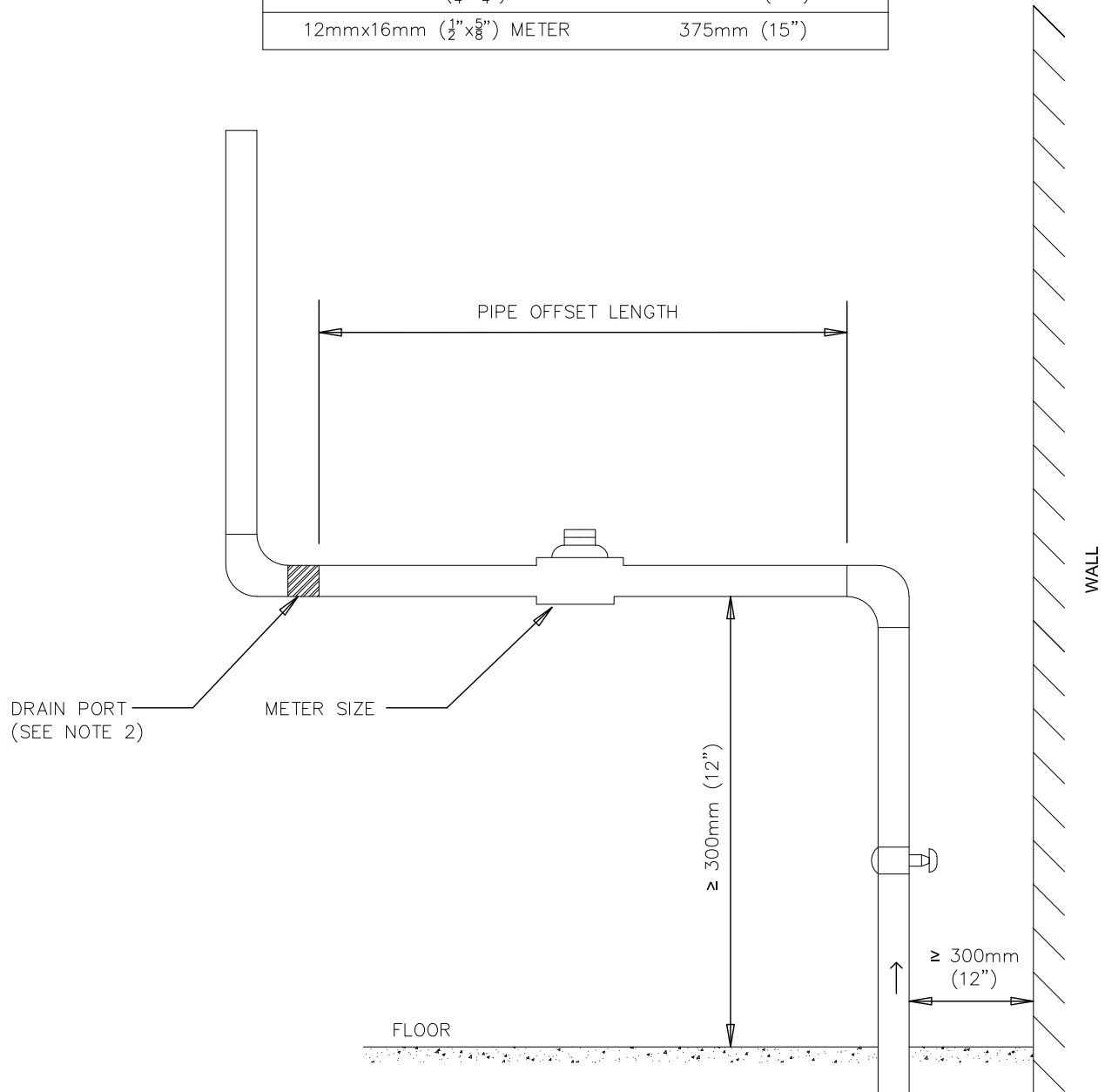
1. FOR METER CHAMBER DETAIL, SEE DWG. 110-5024 / 110-5025
2. IRRIGATION CONNECTION NOT PERMITTED IN METER PIT.

 TRANSPORTATION & ENVIRONMENTAL SERVICES				
				DATE
DESIGNED BY	S.M.	DRAWN BY	S.I.	

TYPICAL WATER SERVICE LAYOUT FOR CONDOMINIUM OR RENTAL TOWNHOUSES (SINGLE-OWNERSHIP PROPERTIES) FRONTING MUNICIPAL ROAD ALLOWANCE

DRAWING No.	110-5006	3
-------------	----------	---

METER SIZE	PIPE OFF-SET LENGTH
50mm (2") METER	650mm (26")
40mm (1 1/2") METER	550mm (22")
25mm (1") METER	450mm (18")
20mmx20mm (3/4"x3/4") METER	400mm (16")
12mmx16mm (1/2"x5/8") METER	375mm (15")



NOTE:
WHETHER THE WATER SUPPLY COMES FROM
THE FLOOR OR WALL INDICATED CLEARANCES
MUST BE LEFT FOR THE WATER METER.

1. METER TO BE INSTALLED ON HORIZONTAL PLANE.
2. DRAIN PORT REQUIRED FOR SERVICES >20mm AND MUST BE LOCATED AFTER REQUIRED OFFSET LENGTH.

NO.	REVISION	DATE
2	Updated Specifications	May, 2017
1	Drawing Number Changed	April, 2013



**TRANSPORTATION &
ENVIRONMENTAL
SERVICES**

DATE January 8, 1988 SCALE N.T.S.

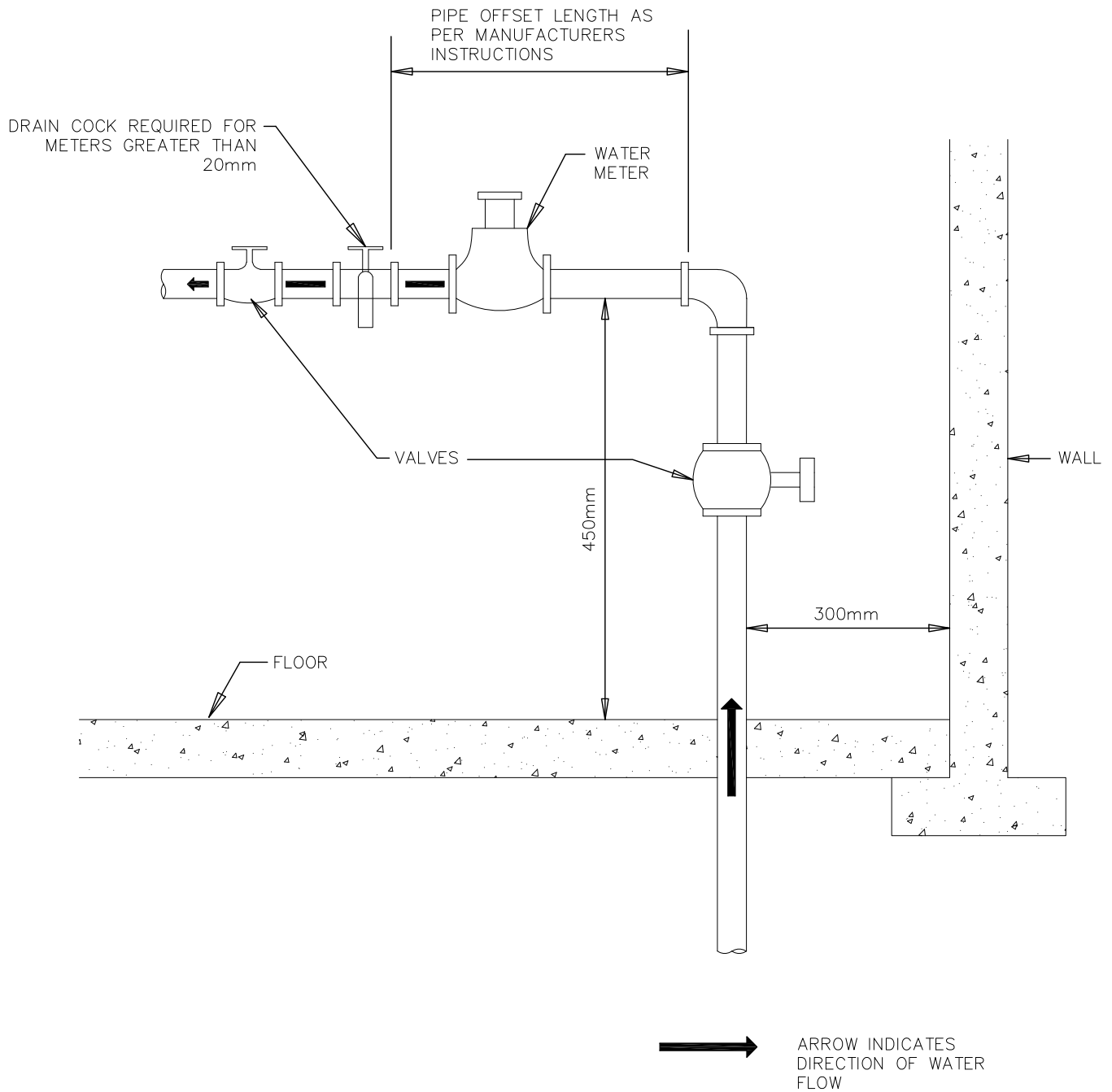
DESIGNED BY J.R. DRAWN BY J.K.

TYPICAL RESIDENTIAL WATER METER INSTALLATION

FORMERLY 110-1422

DRAWING No. 110-5007

2



2	Updated Specifications	May, 2017
1	Drawing Number Changed	April, 2013
NO.	REVISION	DATE

NOTE:

- METER TO BE INSTALLED ON HORIZONTAL PLANE.



**TRANSPORTATION &
ENVIRONMENTAL
SERVICES**

DATE December 8, 1997 SCALE N.T.S.

DESIGNED BY K.R. DRAWN BY D.S.

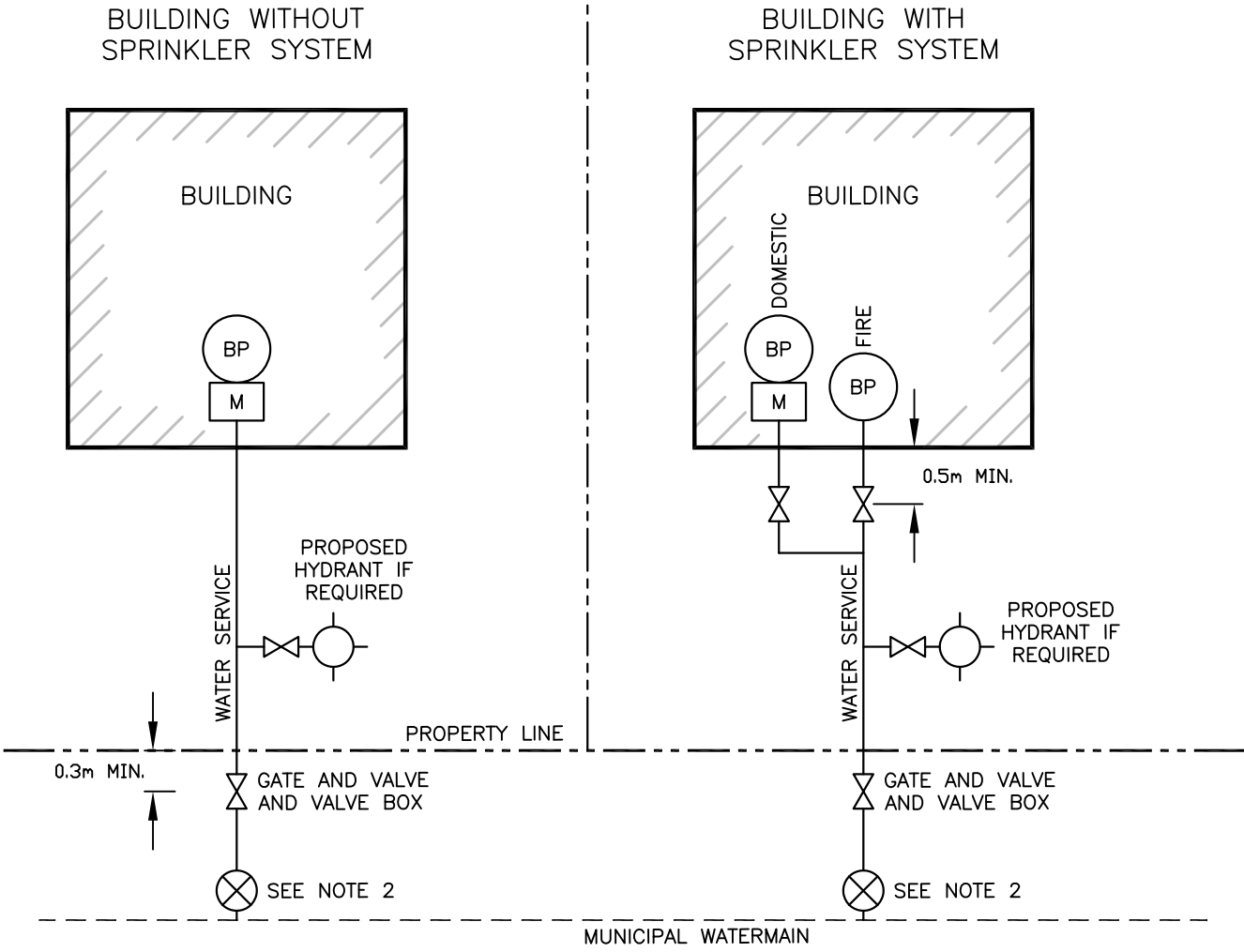
TYPICAL METER INSTALLATION FOR LIGHT INDUSTRIAL AND COMMERCIAL

FORMERLY 110-1425

DRAWING No. 110-5008

2

M = WATER METER
 BP = BACKFLOW PREVENTER



- NOTES:**
1. WATER METER TO BE INSTALLED AS PER CITY STANDARD (INTERNAL)
 2. TAPPING VALVE AND VALVE BOX AT DISCRETION OF CITY, AND BY CITY FORCES
 3. MAXIMUM DISTANCE FROM PROP HYDRANT TO INTERNAL BUILDING FIRE PROTECTION SYSTEM SUBJECT TO ONTARIO BUILDING CODE REQUIREMENTS
 4. BACKFLOW PREVENTION AS PER ONTARIO BUILDING CODE
 5. SEE CITY STANDARD DWGS. 110-5007 & 110-5008 FOR INTERNAL METER INSTALLATION DETAILS

2	Revised FH Note	March, 2018
1	RE-ISSUED STANDARD FOR SINGLE BUILDINGS	7 NOV 2016
No.	REVISION	DATE

TRANSPORTATION & ENVIRONMENTAL SERVICES

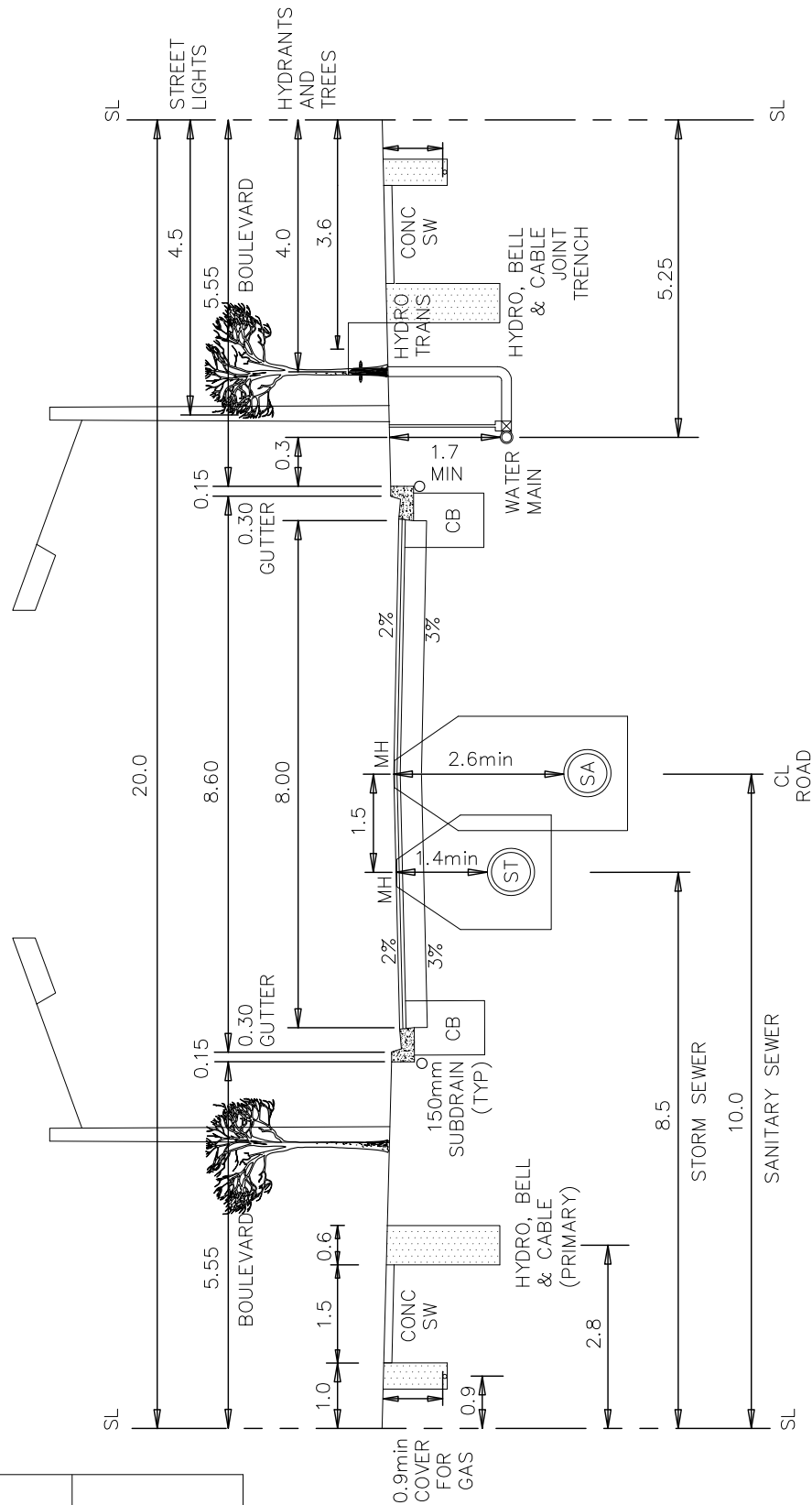
St. Catharines

DATE	3 NOV 2016	SCALE	N.T.S.
DESIGNED BY	S.M.	DRAWN BY	S.I.

PROPOSED WATER SERVICING SINGLE BUILDING (DOMESTIC AND FIRE PROTECTION)

DRAWING No.	110-5010	2
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NOTE:
1. LOCATIONS SHOWN ARE APPLICABLE TO BOTH SIDES



NO.	REVISION	DATE
3	Revised to Match in use standards	March, 2018
2	Drawing Number Changed	April, 2013
1	Revised	December, 1990



**TRANSPORTATION &
ENVIRONMENTAL
SERVICES**

DATE May 5, 1983 SCALE N.T.S.

DESIGNED BY J.F. DRAWN BY R.G.

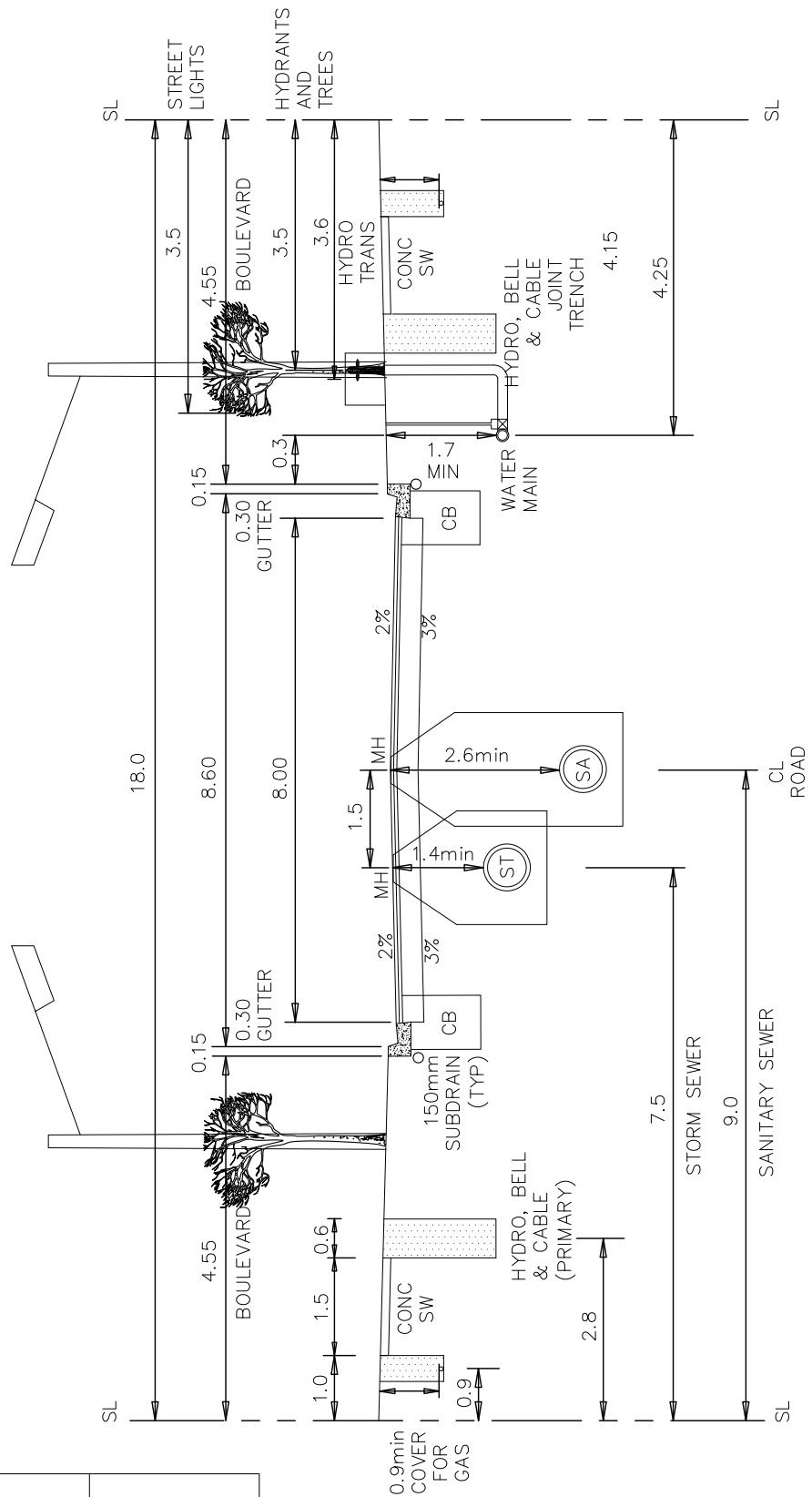
**TYPICAL 20m R.O.W. URBAN CROSS-SECTION
WITH SIDEWALKS AND 8.0m
PAVEMENT WIDTH**

FORMERLY 110-1103-A

DRAWING No. 110-5011

3

NOTE:
1. LOCATIONS SHOWN ARE APPLICABLE TO BOTH SIDES



NO.	REVISION	DATE
3	Revised to Match in use standards	March, 2018
2	Drawing Number Changed	April, 2013
1	Revised	December, 1990



**TRANSPORTATION &
ENVIRONMENTAL
SERVICES**

DATE May 5, 1983 SCALE N.T.S.

DESIGNED BY J.F. DRAWN BY R.G.

**TYPICAL 18m R.O.W. URBAN CROSS-SECTION
WITH SIDEWALKS AND
8.0m PAVEMENT WIDTH**

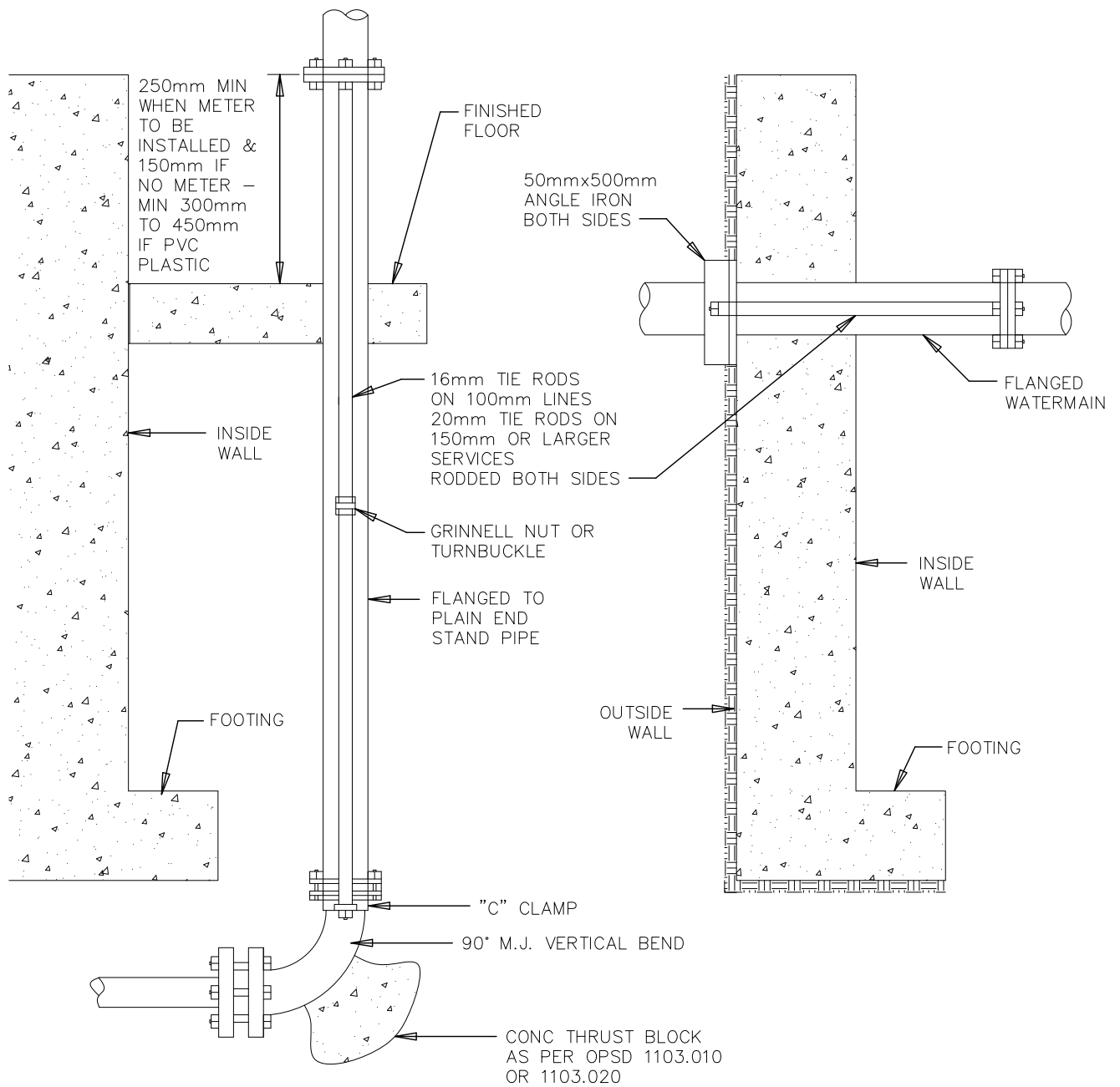
FORMERLY 110-1103

DRAWING No. 110-5012

3

UNDER FOOTING INSTALLATION

THROUGH WALL INSTALLATION



1	Drawing Number Changed	April, 2013
NO.	REVISION	DATE



TRANSPORTATION & ENVIRONMENTAL SERVICES

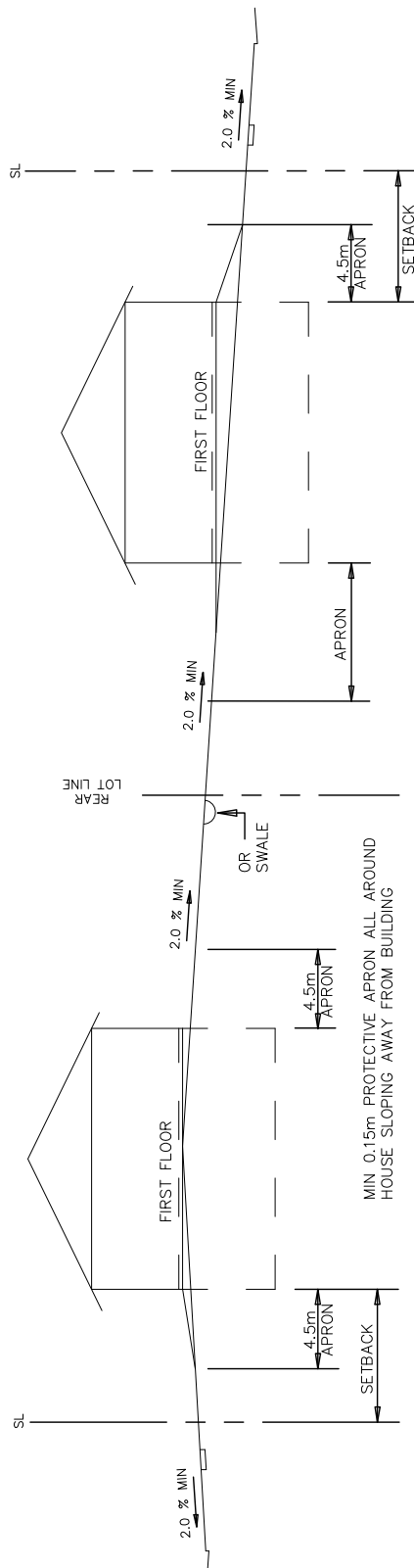
DATE August 6, 1981 SCALE N.T.S.

DESIGNED BY R.G. DRAWN BY R.G.

TYPICAL SERVICE ENTRANCES FOR 100mm TO 300mm SERVICES

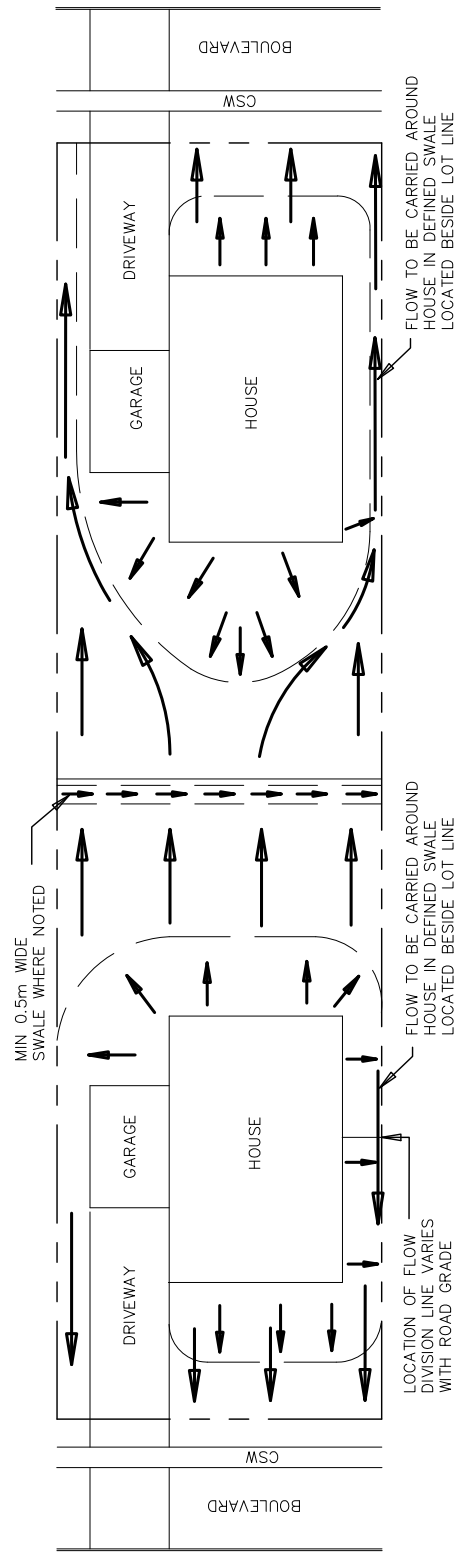
FORMERLY 110-1418

DRAWING No. 110-5013



DRAINAGE TYPE 'A'

DRAINAGE TYPE 'D'



TYPICAL CROSS-SLOPE DRAINAGE

1	Drawing Number Changed	April, 2013	
NO.	REVISION	DATE	
DATE	June 6, 2010	SCALE	N.T.S.
DESIGNED BY	M.W.	DRAWN BY	J.E.

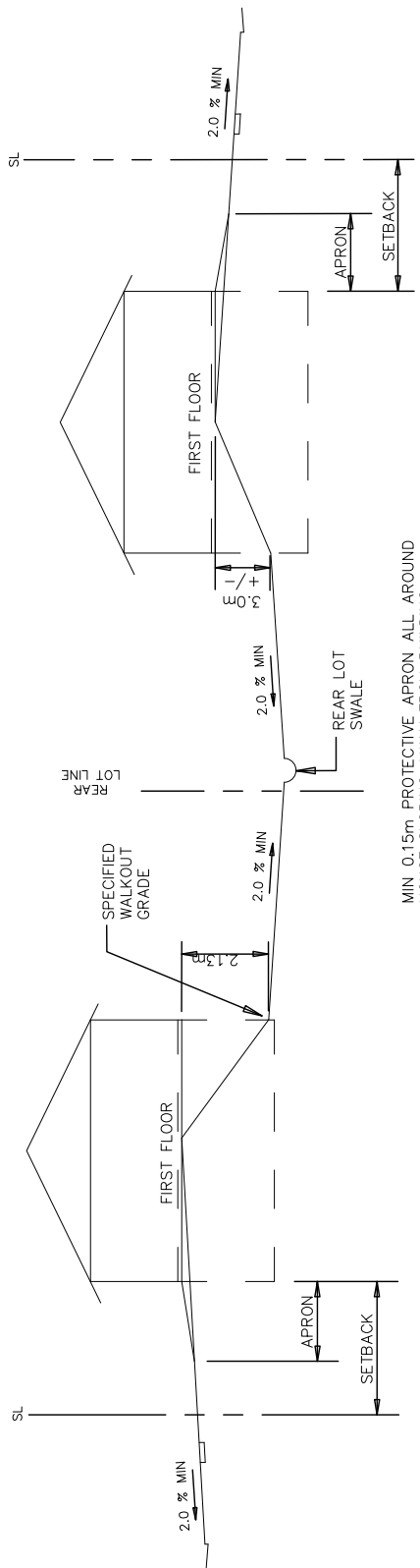
NOTE: TO BE USED IN CONJUNCTION WITH 110-5016

TYPICAL CROSS-SLOPE DRAINAGE

FORMERLY 110-1306

DRAWING No. 110-5014

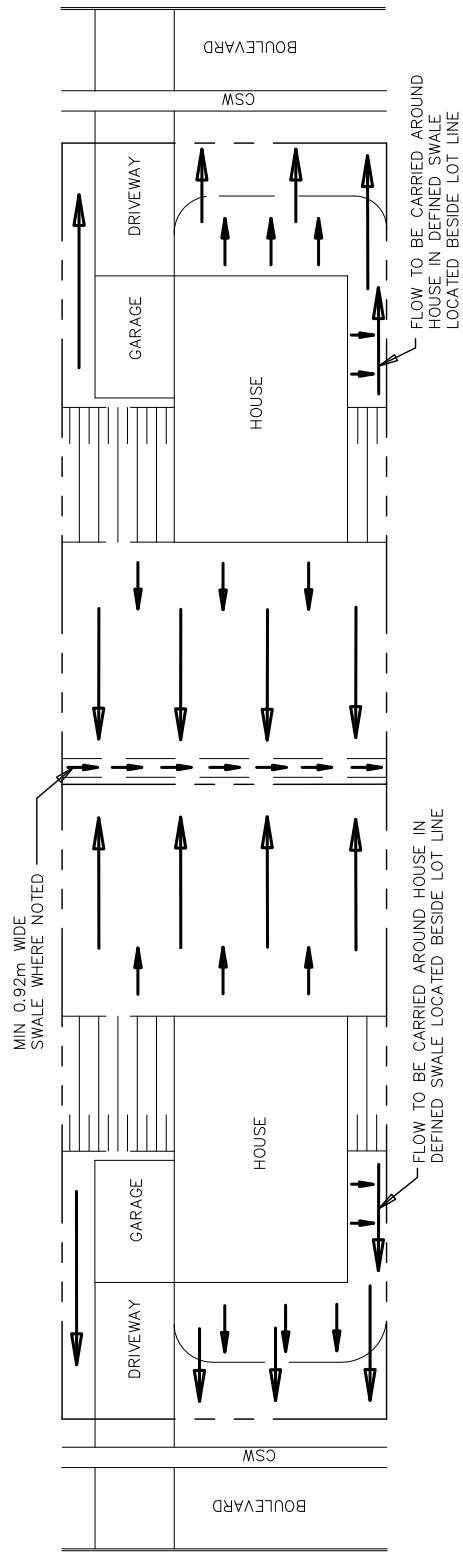
1



MIN 0.15m PROTECTIVE APRON ALL AROUND HOUSE SLOPING AWAY FROM BUILDING

DRAINAGE TYPE 'B'

DRAINAGE TYPE 'E'



TYPICAL REAR LOT DRAINAGE

NOTE: TO BE USED IN CONJUNCTION WITH 110-5016

TYPICAL REAR LOT DRAINAGE

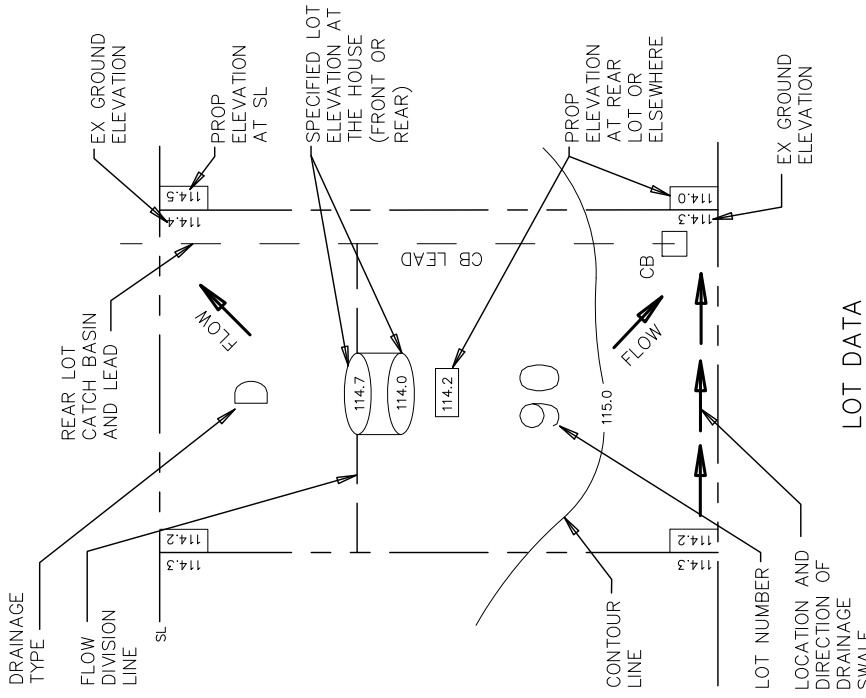
1	Drawing Number Changed	April, 2013
NO.	REVISION	DATE
TRANSPORTATION & ENVIRONMENTAL SERVICES		
DATE	June 6, 2010	SCALE N.T.S.
DESIGNED BY	M.W.	DRAWN BY J.E.

FORMERLY 110-1307

DRAWING No. 110-5015

1





GENERAL NOTES

- 1) THE TOPOGRAPHY AND LOT ELEVATIONS INDICATED ON THESE PLANS ARE SUPPLIED FOR THE BUILDERS INFORMATION ONLY. IT IS THE BUILDERS RESPONSIBILITY TO VERIFY THE ACCURACY OF ALL INFORMATION OBTAINED BY HIM FROM THESE PLANS.
- 2) THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE DRAWINGS, AND, WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED.
- 3) UNLESS OTHERWISE INDICATED ON THE FINAL PLANS, ELEVATIONS SHOWN ON THE DETAILED DRAWINGS ARE GENERALLY THE MINIMUM ELEVATIONS FOR THE SPECIFIED DRAINAGE PATTERN.
- 4) CONSTRUCT DRAINAGE SWALES IN THE LOCATIONS AND TO THE GRADES, DEPTHS AND SECTIONS SPECIFIED.
- 5) BENCHMARKS ARE SHOWN ON EACH OF THE DETAILED DRAWINGS.
- 6) FOR EXACT LOCATION OF CATCH BASINS AND LEADS REFER TO THE ENGINEERING DRAWINGS.
- 7) THE MAXIMUM SIDESLOPE OF ALL EMBANKMENTS FORMED DURING LOT GRADING, EXCEPTING SWALE SLOPES, IS TO BE 2:1.
- 8) DIVERT EXTERNAL DRAINAGE AREA TO THE INLETS PROVIDED.
- 9) DIRECT DRAINAGE FLOWS AWAY FROM HOUSES.
- 10) CONFINE DRAINAGE FLOWS WHICH ARE CARRIED AROUND HOUSES, TO DEFINED SWALES. THESE SWALES ARE TO BE LOCATED AS FAR FROM THE HOUSE AS POSSIBLE.
- 11) WITH FRONT LOT DRAINAGE DO NOT USE THE DRIVEWAY AS AN OUTLET. IF THE OUTLET IS ON THE DRIVEWAY SIDE OF THE LOT, THEN DRAINAGE IS TO BE VIA SODDED SWALE.
- 12) SILT FENCE TO BE INSTALLED AND MAINTAINED PRIOR TO AND DURING CONSTRUCTION.
- 13) RAINWATER LEADERS TO BE DIRECTED TO FRONT/BACK OF LOT ONLY.
- 14) SUMP PUMPS TO BE DISCHARGING VIA STORM LATERAL TO STORM SEWER, WHERE AVAILABLE. OTHERWISE THEY SHALL DISCHARGE AT GRADE AT FRONT/REAR OF FOUNDATION ONLY.

NO.	REVISION	DATE
1	Drawing Number Changed	April, 2013



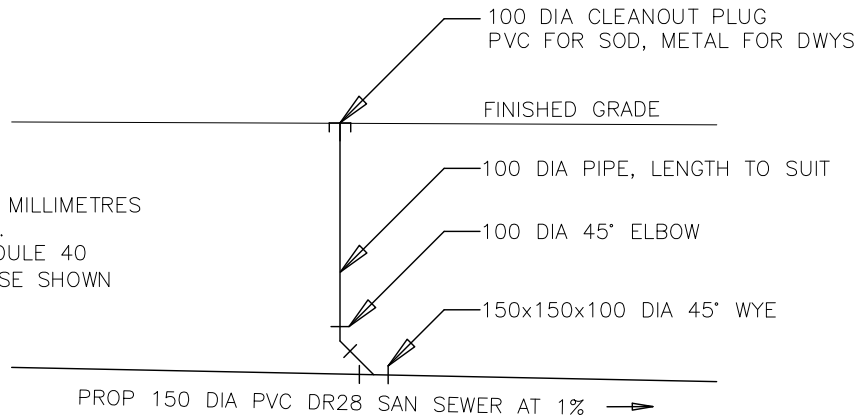
TRANSPORTATION & ENVIRONMENTAL SERVICES

DATE	June 6, 2010	SCALE	N.T.S.
DESIGNED BY	M.W.	DRAWN BY	J.E.

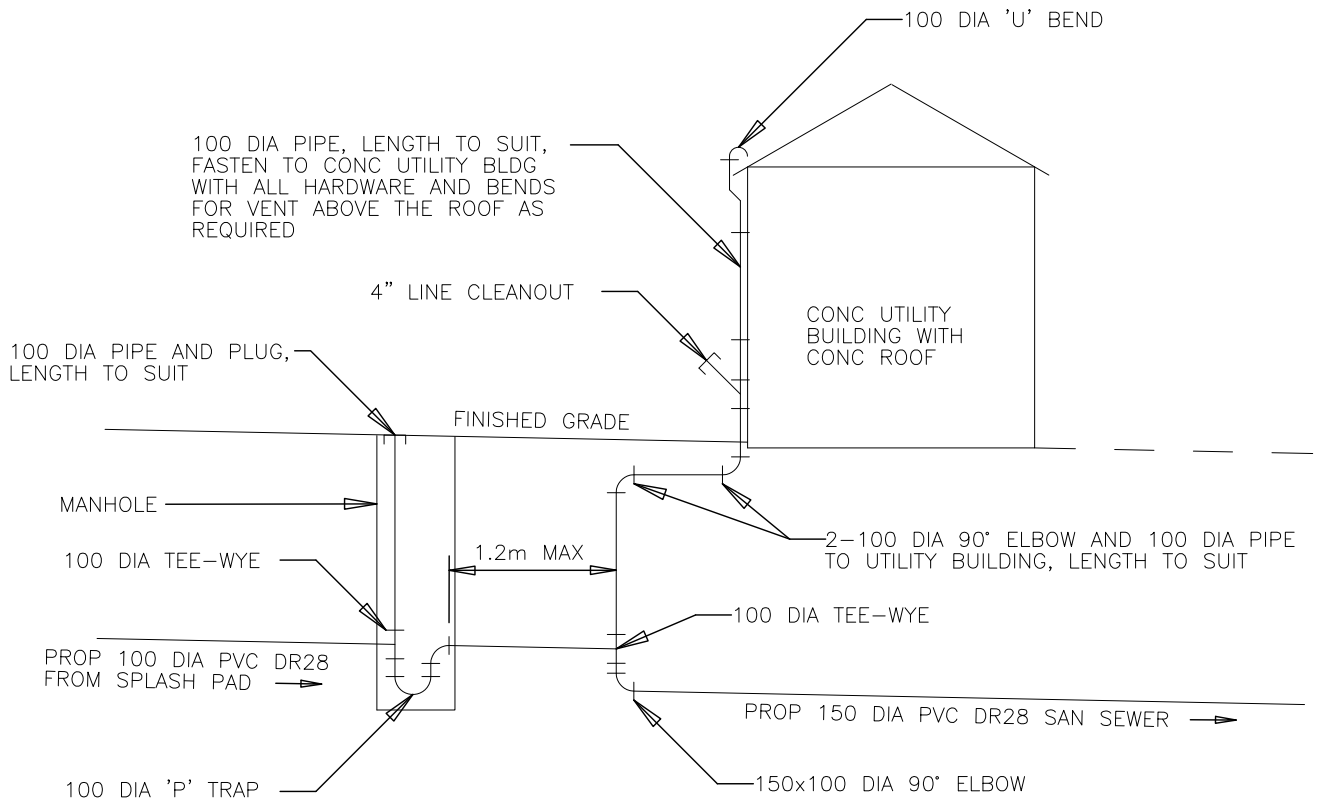
GENERAL NOTES, DRAINAGE SPECIFICATIONS AND LOT DATA

FORMERLY	110-1309	DRAWING No.	110-5016	1
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NOTES:
 1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.
 2. ALL PIPES TO BE SCHEDULE 40 ABS/PVC UNLESS OTHERWISE SHOWN



STANDARD CLEANOUT



CLEANOUT WITH TRAP & VENT INSIDE MANHOLE

SEE APPENDIX 'A' - A-7.4.5.4.(1)(c)(ii) OF THE CODE AND GUIDE FOR PLUMBING 2006

1	Drawing Number Changed	April, 2013
NO.	REVISION	DATE



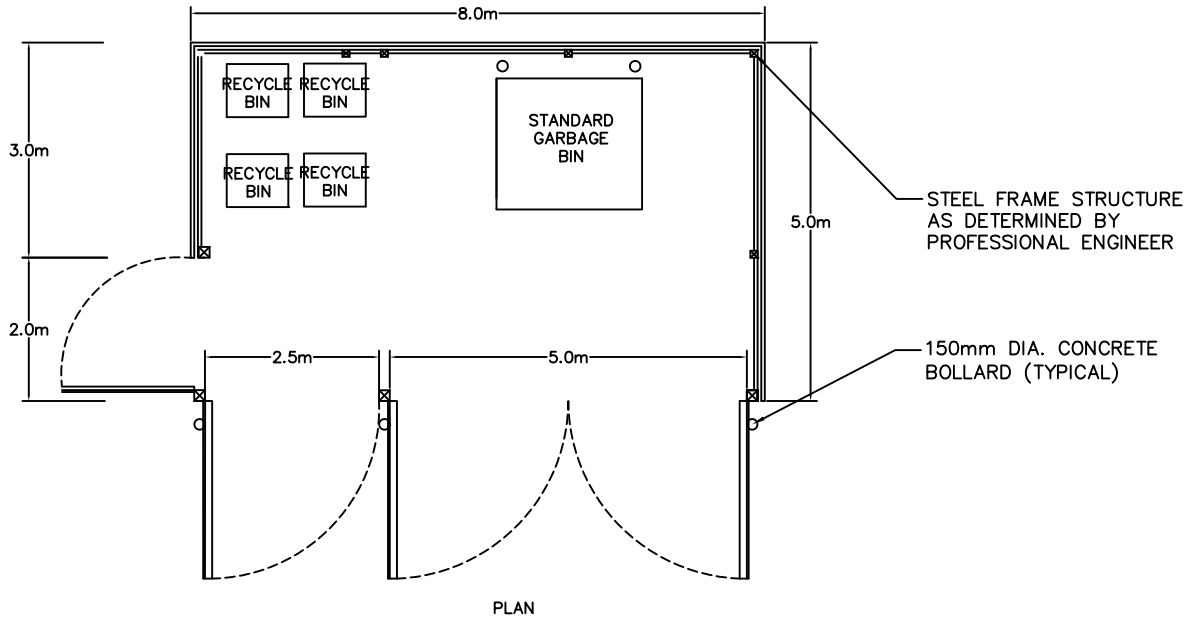
TRANSPORTATION & ENVIRONMENTAL SERVICES

DATE March 29, 2006 SCALE N.T.S.

DESIGNED BY D.D./T.L DRAWN BY R.W.

SCHEMATIC DIAGRAM FOR CLEANOUTS

FORMERLY 110-1314-A DRAWING No. 110-5017 1

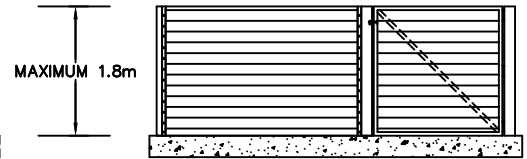


PLAN

DECORATIVE WOOD FACE OR OTHER ACCEPTABLE MATERIAL TO MATCH BUILDING FACADE

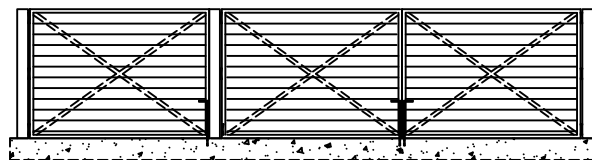


REAR ELEVATION

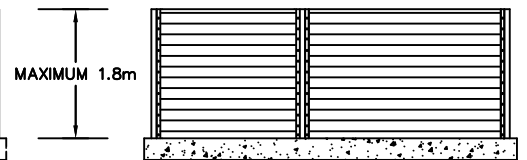


LEFT ELEVATION

FOUNDATION AS DETERMINED BY PROFESSIONAL ENGINEER




FRONT ELEVATION



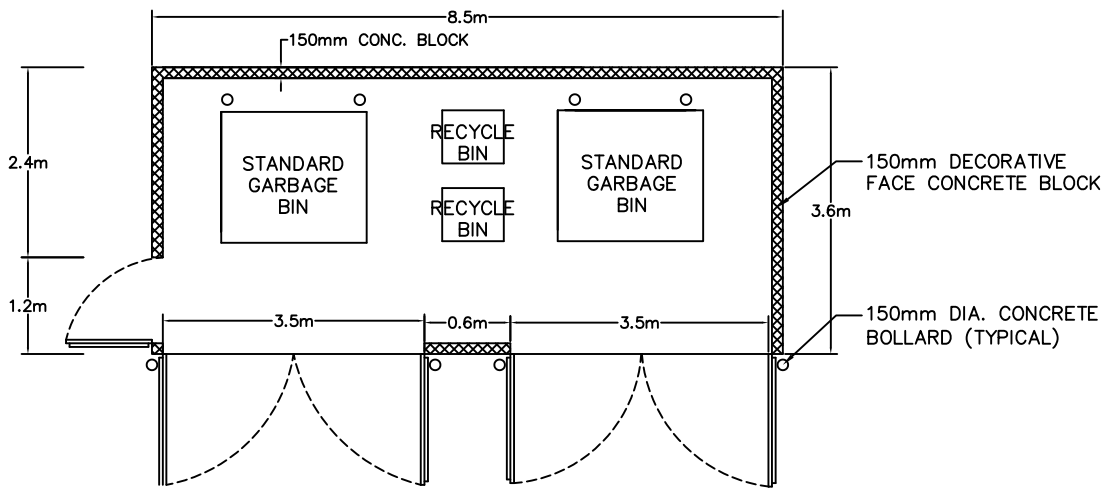
RIGHT ELEVATION

NOTES:

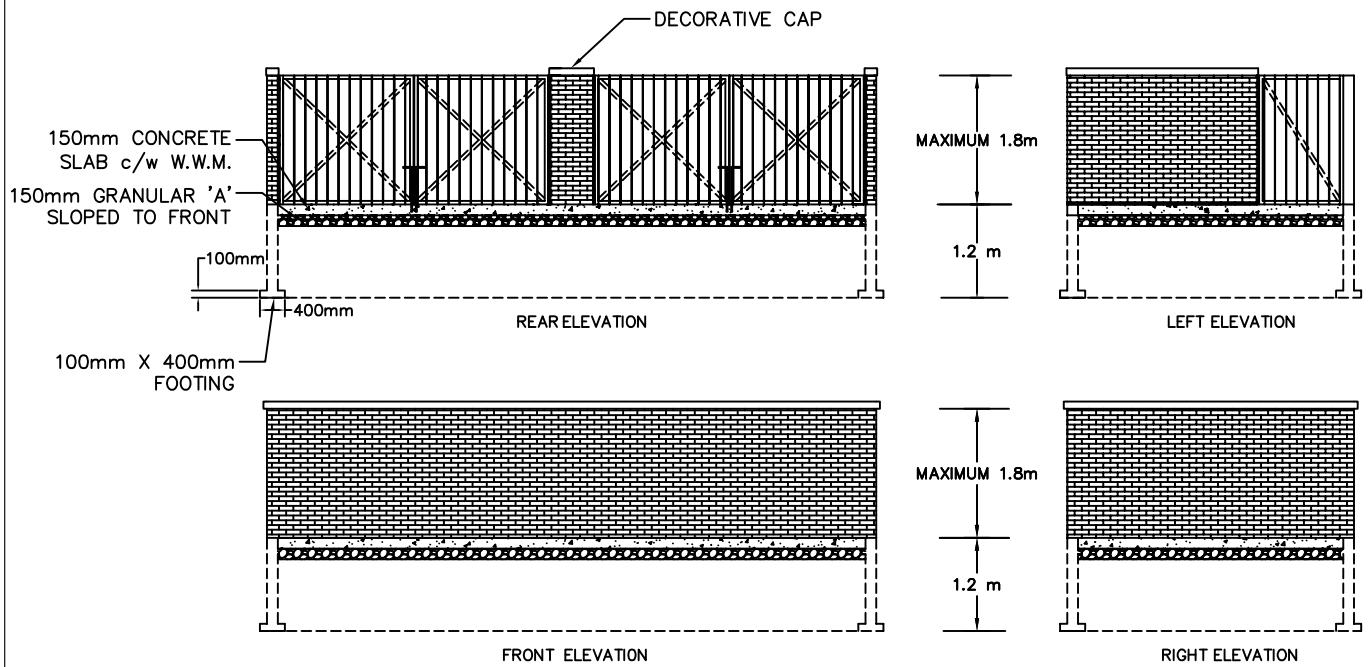
1. THE ARRANGEMENT SHOWN ON THIS PLAN MAY BE USED AS A GUIDE. ADDITIONAL STYLES AND MATERIALS MAY BE USED WHICH WILL CONFIRM TO SURROUNDING ARCHITECTURE.
2. EXTERNAL DIMENSIONS MUST BE CHECKED AGAINST CONTAINER SIZE REQUIRED FOR DEVELOPMENT.
3. LOCATION OF ENCLOSURE MUST BE APPROVED BY THE CITY.
4. THE SUBMITTED DESIGN MUST BE STAMPED BY A PROFESSIONAL ENGINEER FOR THE ENTIRE STRUCTURE.

1	Drawing Number Changed	April, 2013	
NO.	REVISION	DATE	
 TRANSPORTATION & ENVIRONMENTAL SERVICES			
DATE	May. 31, 2012	SCALE	N.T.S.
DESIGNED BY	S.M.	DRAWN BY	J.E.

STEEL FRAMED GARBAGE ENCLOSURE EXAMPLE		
FORMERLY	110-1600	DRAWING No. 110-5018
		1



PLAN



NOTES:

1. THE ARRANGEMENT SHOWN ON THIS PLAN MAY BE USED AS A GUIDE. ADDITIONAL STYLES AND MATERIALS MAY BE USED WHICH WILL CONFIRM TO SURROUNDING ARCHITECTURE.
2. EXTERNAL DIMENSIONS MUST BE CHECKED AGAINST CONTAINER SIZE REQUIRED FOR DEVELOPMENT.
3. LOCATION OF ENCLOSURE MUST BE APPROVED BY THE CITY.

1	Drawing Number Changed	April, 2013
NO.	REVISION	DATE



**TRANSPORTATION &
ENVIRONMENTAL
SERVICES**

**MASONRY GARBAGE
ENCLOSURE EXAMPLE**

DATE	May. 31, 2012	SCALE	N.T.S.
DESIGNED BY	S.M.	DRAWN BY	S.M.

FORMERLY 110-1601

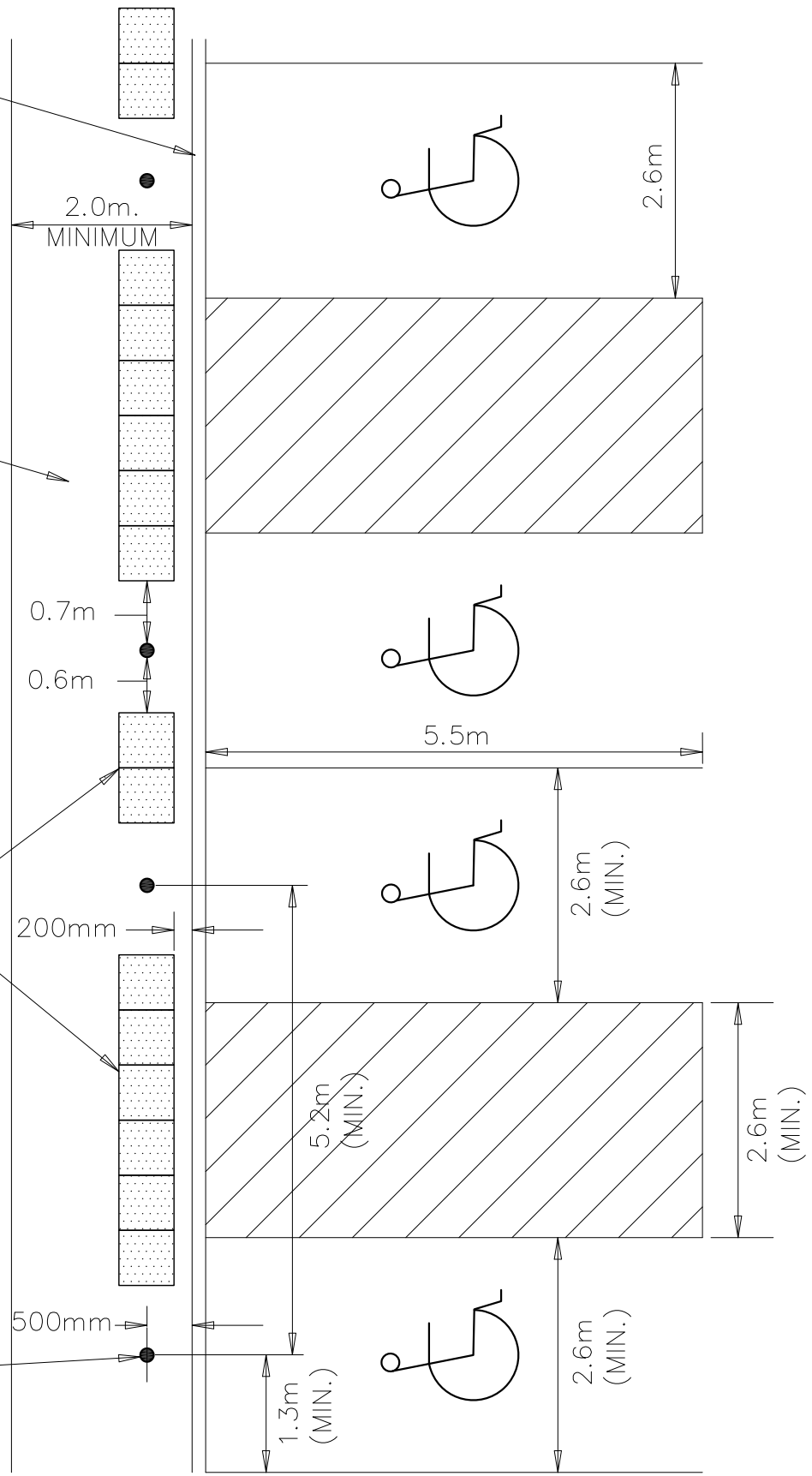
DRAWING No. 110-5019

MOUNTABLE CURB

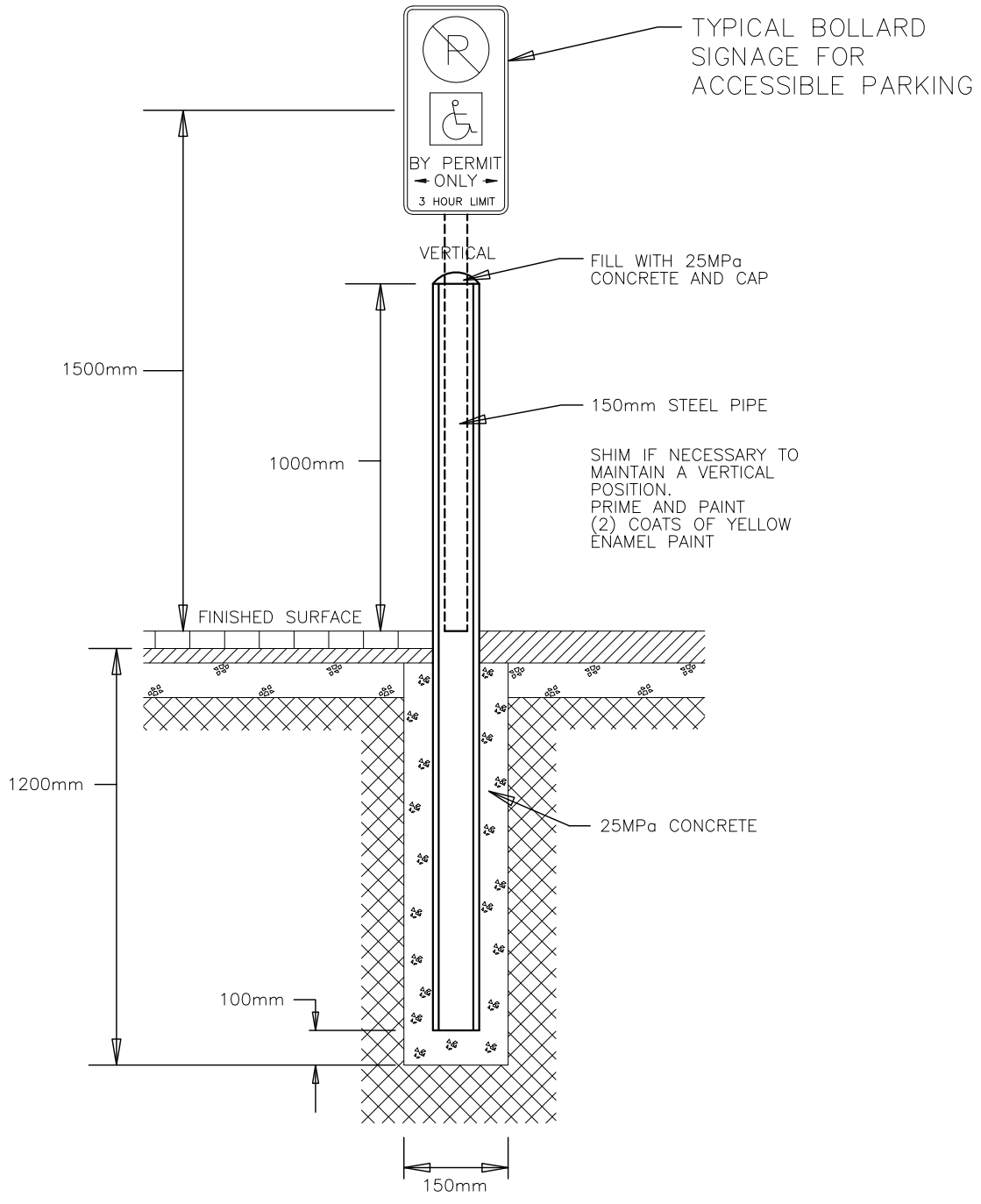
CONCRETE SIDEWALK

610mmX610mm TACTILE WARNING PLATES

PERMANENT BOLLARD WITH ACCESSIBLE NO PARKING SIGN TYPICAL SEE DWG. 110-5022



DETECTABLE WARNING SURFACE AND ACCESSIBLE SIGNAGE LAYOUT



NO.	REVISION	DATE
2	Accessible Sign Added	March, 2014
1	Drawing Number Changed	April, 2013



**TRANSPORTATION &
ENVIRONMENTAL
SERVICES**

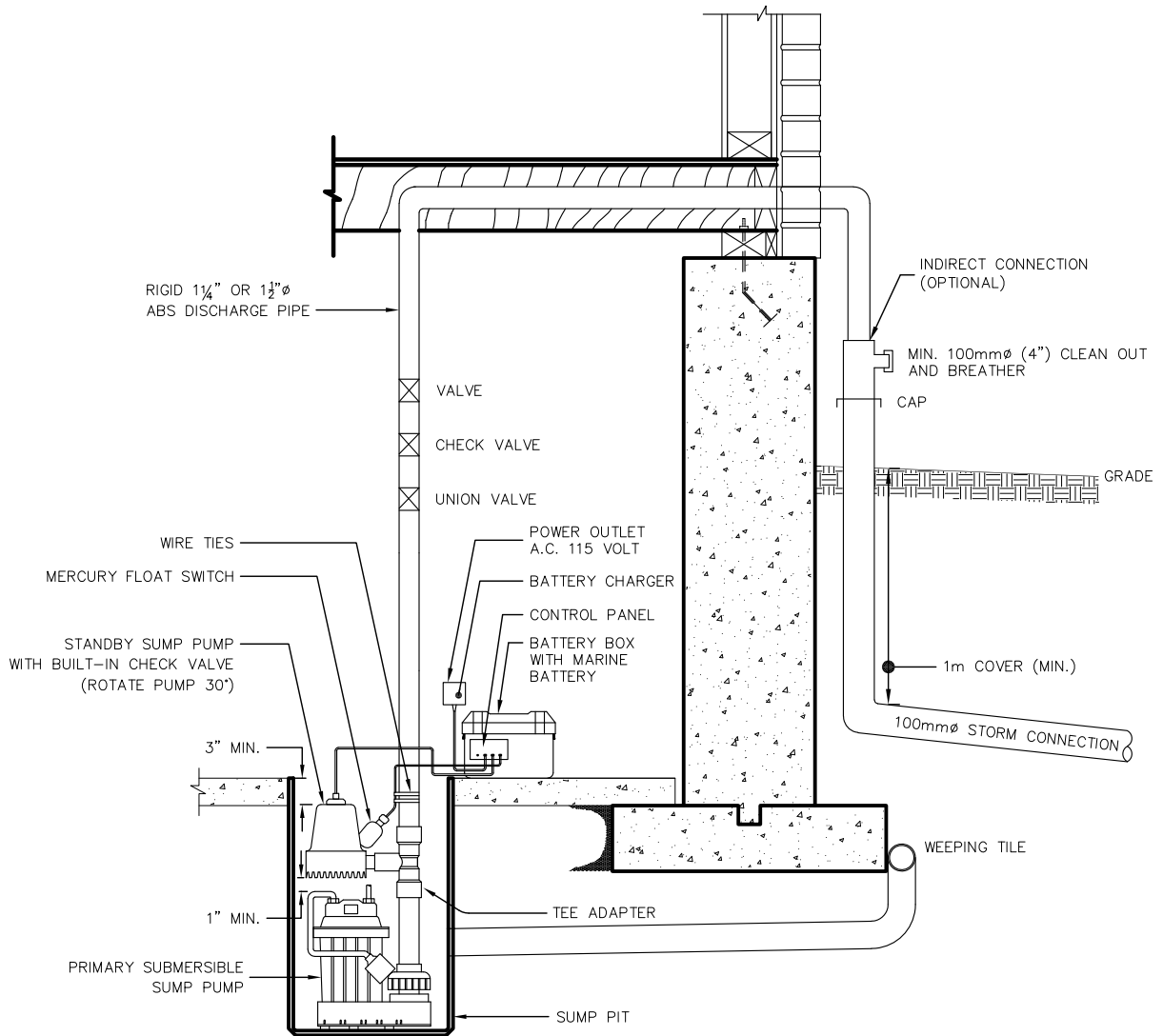
DATE February 15, 1996 SCALE N.T.S.

DESIGNED BY T.A.H. DRAWN BY N.B.

**PERMANENT BOLLARD
WITH ACCESSIBLE SIGN**

FORMERLY 110-1226

DRAWING No. 110-5022



NOTES:

1. SUMP PUMP PLUMBING SHALL CONFORM TO PLUMBING CODE
2. STORM LATERAL SHALL CONFORM TO OPSS 410
3. FOR STORM LATERAL LOCATION AT PROPERTY LINE SEE DWG.
4. ALL DIMENSIONS ARE IN mm EXCEPT AS NOTED
5. APPLICABLE ONLY TO NEW CONSTRUCTION WHERE STORM SEWERS ARE AVAILABLE. OTHERWISE DISCHARGE TO GRADE
6. CONTRACTOR TO PROVIDE REMOVABLE SUMP PUMP LID FOR MAINTENANCE
7. A WATER BACKUP SUMP PUMP IS RECOMMENDED IF A SUITABLE SIZED WATER LINE IS READILY AVAILABLE

NO.	REVISION	DATE
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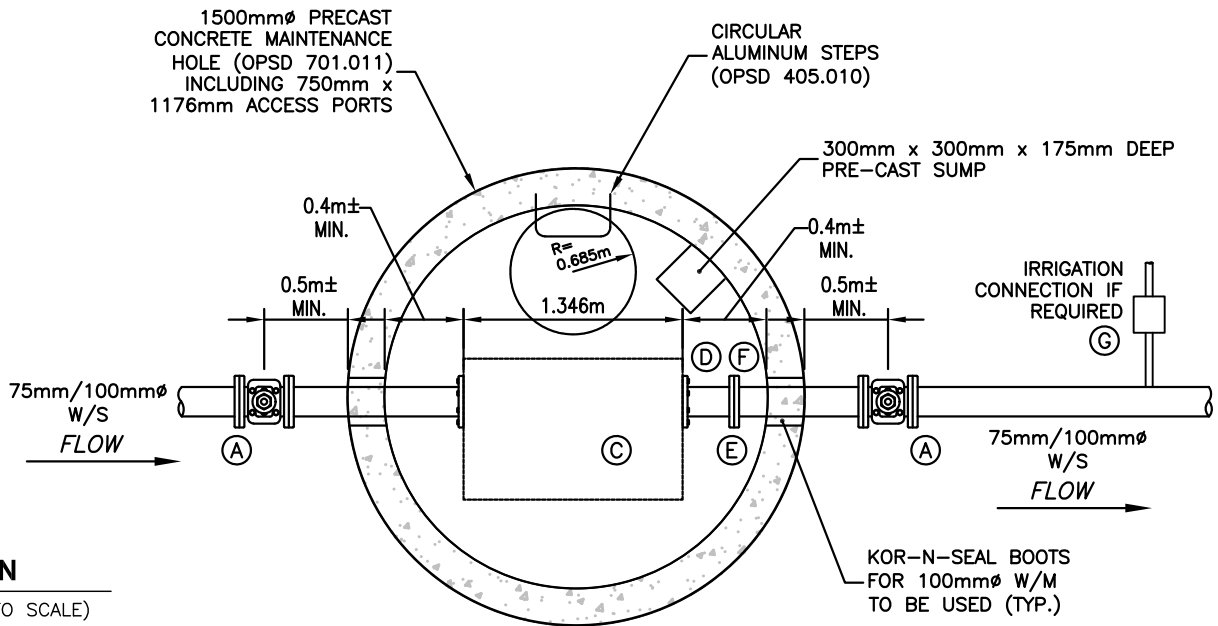
**TRANSPORTATION &
ENVIRONMENTAL
SERVICES**

**SUMP PUMP AND
STORM LATERAL DETAIL**

DATE June 13, 2016	SCALE	N.T.S.
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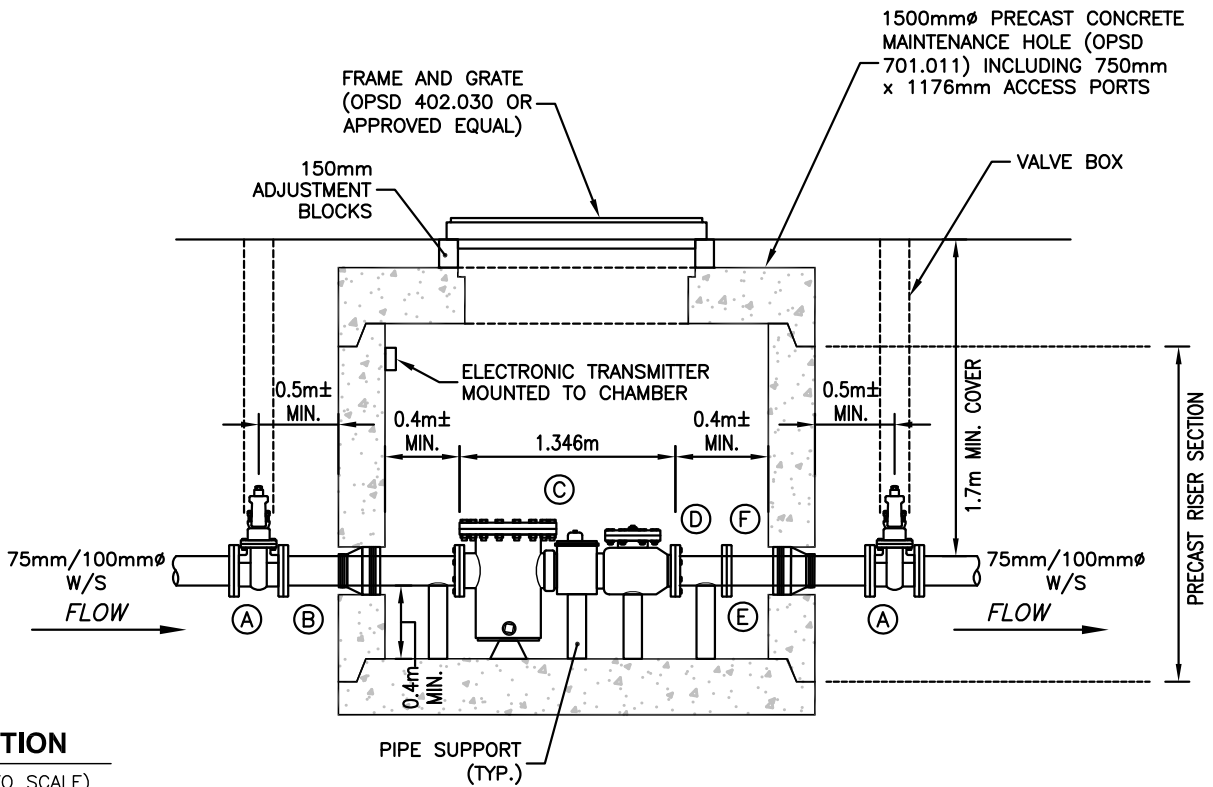
DESIGNED BY B.J.	DRAWN BY B.J.
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DRAWING No.110-5023	0
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PLAN

(NOT TO SCALE)



SECTION

(NOT TO SCALE)

- A. 75mm/100mmØ GATE VALVE (MJ TO MJ) AND VALVE BOX.
- B. 1.0m± - 75mm/100mmØ DUCTILE IRON W/S (PIPE END TO FLANGE END)
- C. 75mm/100mm (4") SENSUS OMNI C2 METER(FLANGE END TO FLANGE END)
- D. 0.3m± - 75mm/100mmØ DUCTILE IRON W/S LANGE END TO VICTAULIC END)
- E. 75mm/100mmØ VICTAULIC MODEL 107 QUICKVIC RIGID COUPLING, OR APPROVED EQUAL
- F. 1.2m± - 75mm/100mmØ DUCTILE IRON W/S (VICTAULIC END TO PIPE END)
- G. IRRIGATION CONNECTION NOT PERMITTED IN METER PIT.



**TRANSPORTATION &
ENVIRONMENTAL
SERVICES**

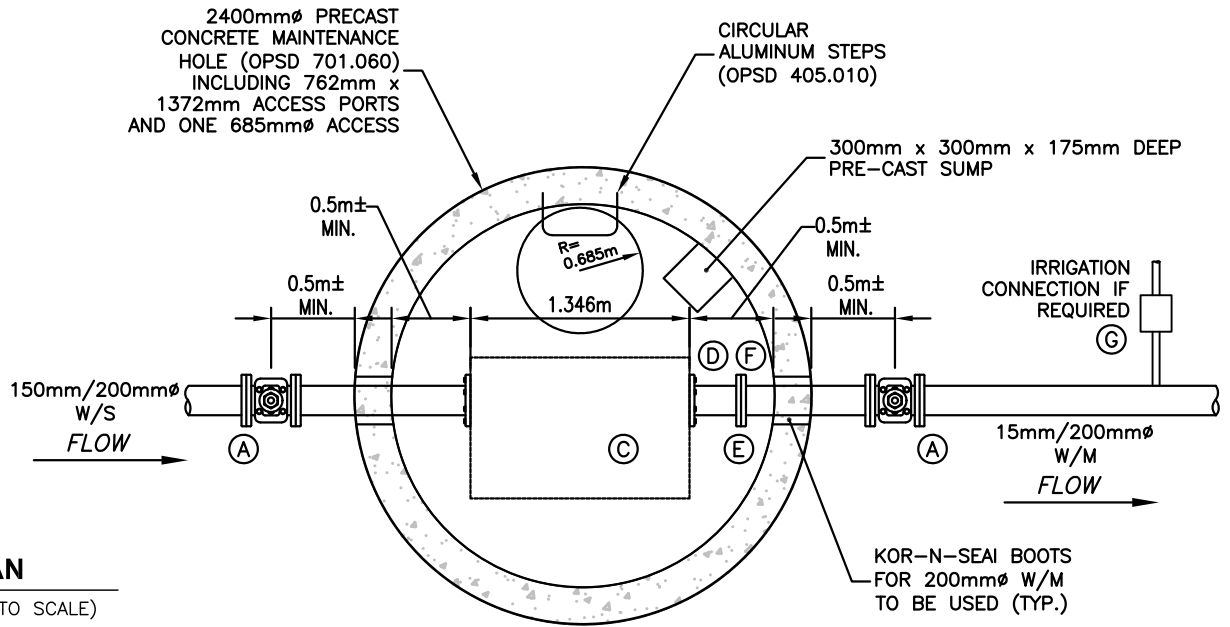
**METER CHAMBER DETAIL
FOR 75mmØ & 100mmØ WATER SERVICES**

DATE 23 NOV 2016 SCALE N.T.S.

DESIGNED BY S.M. DRAWN BY S.I.

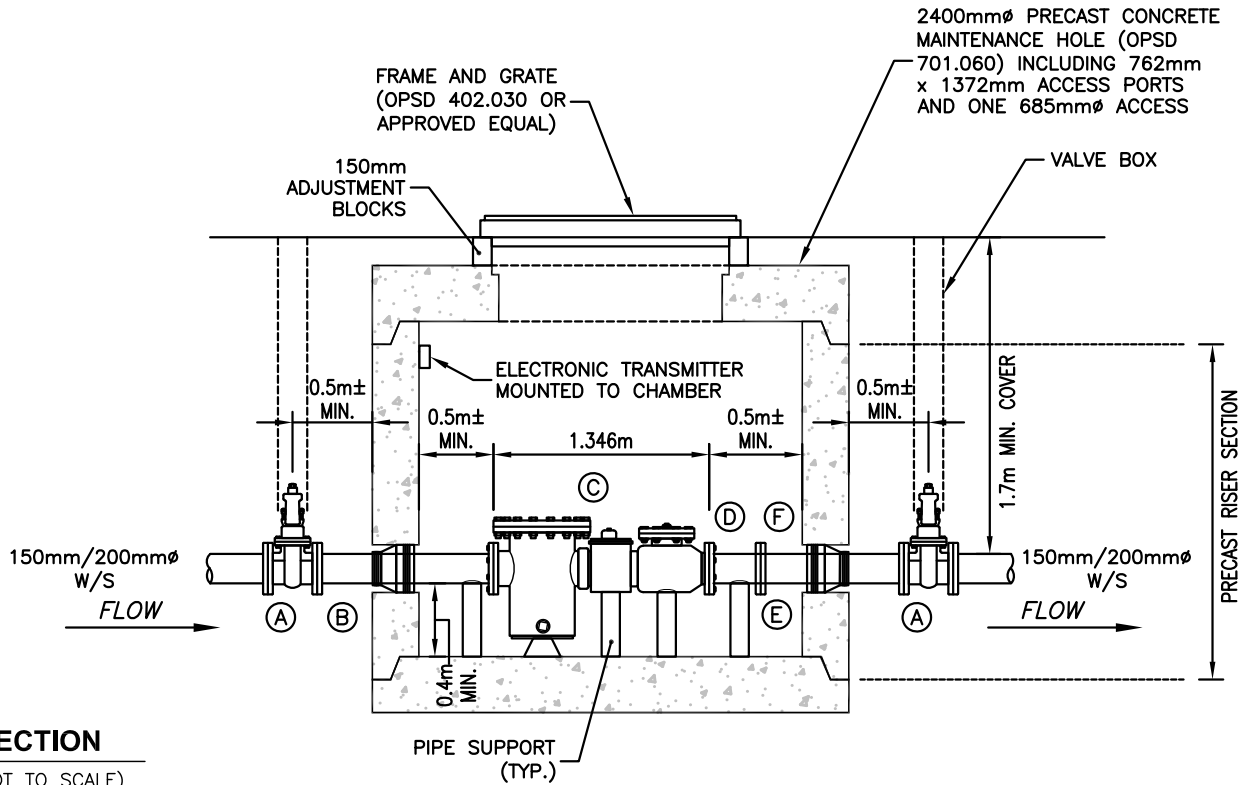
DRAWING No. 110-5024

2



PLAN

(NOT TO SCALE)



SECTION

(NOT TO SCALE)

- A. 150mm/200mm ϕ GATE VALVE (MJ TO MJ) AND VALVE BOX.
- B. 1.0m \pm - 150mm/200mm ϕ DUCTILE IRON W/M (PIPE END TO FLANGE END)
- C. 150mm (6") / 200mm (8") SENSUS OMNI F2 (FLANGE END TO FLANGE END)
- D. 0.3m \pm - 150mm/200mm ϕ DUCTILE IRON W/M (FLANGE END TO VICTAULIC END)
- E. 150mm/200mm ϕ VICTAULIC MODEL 107 QUICKVIC RIGID COUPLING, OR APPROVED EQUAL
- F. 1.2m \pm - 150mm/200mm ϕ DUCTILE IRON W/M (VICTAULIC END TO PIPE END)
- G. IRRIGATION CONNECTION NOT PERMITTED IN METER PIT.



TRANSPORTATION & ENVIRONMENTAL SERVICES

METER CHAMBER DETAIL FOR 150mm ϕ & 200mm ϕ WATER SERVICES

DATE	23 NOV 2016	SCALE	N.T.S.
DESIGNED BY	S.M.	DRAWN BY	S.I.

METER PIT SPECIFICATIONS (Ford Plastic Pit Setter Numbering System):

TYPE OF PLASTIC SETTER

PD = Standard Double Lid Cover

INLET VALVE TYPE

B = Angle Ball Valve

OUTLET VALVE TYPE

H = Angle Check Valve

METER SIZE (INLET-OUTLET SIZE)(Select Size)

3 = 3/4" (3/4") [20mm]

4 = 1" (1") [25mm]

6 = 1-1/2" (1-1/2") [40mm]

7 = 2" (2") [50mm]

TYPES OF INLET-OUTLET (One End-Other End)

8 = Male Pipe Threads

PIT DIAMETER & DEPTH

20-72 = 20" x 72"

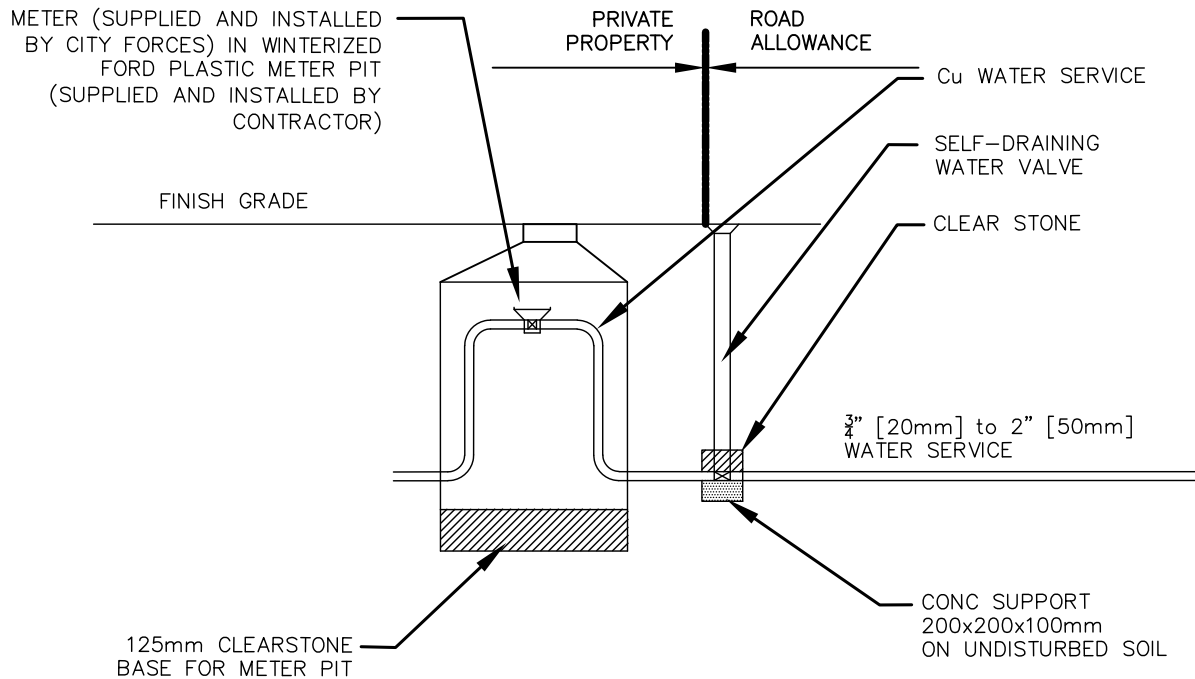
NL = No-lead Alloy

(ex. PDBH-488-20-72-NL)

WABASH DOUBLE LID COVERS:


W3 (11-1/2" [290mm] Cover with Locking Lid) Use

EXT-5 (Extension ring) for use on 36" [900mm] tile applications



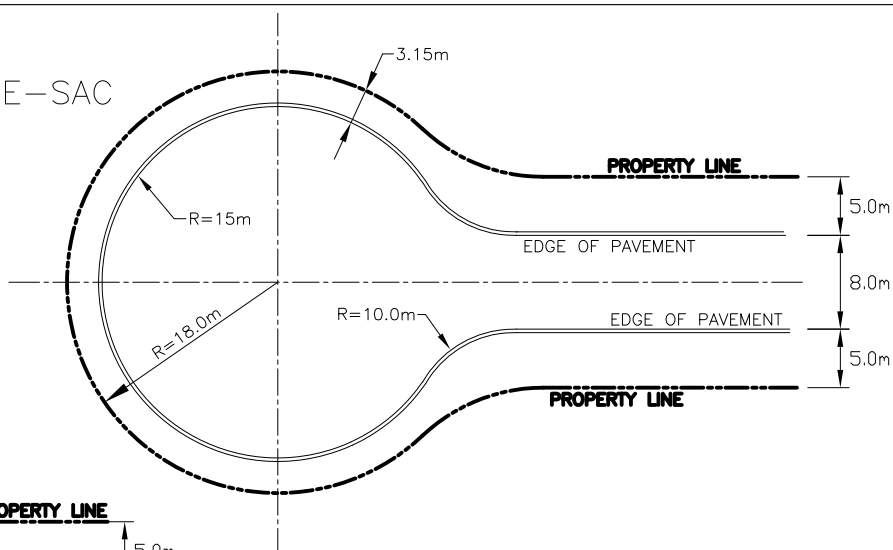
SECTION DETAIL OF METER PIT AND VALVE

2	Specs Updated	May, 2017
1	Drawing Number Changed	April, 2013
NO.	REVISION	DATE

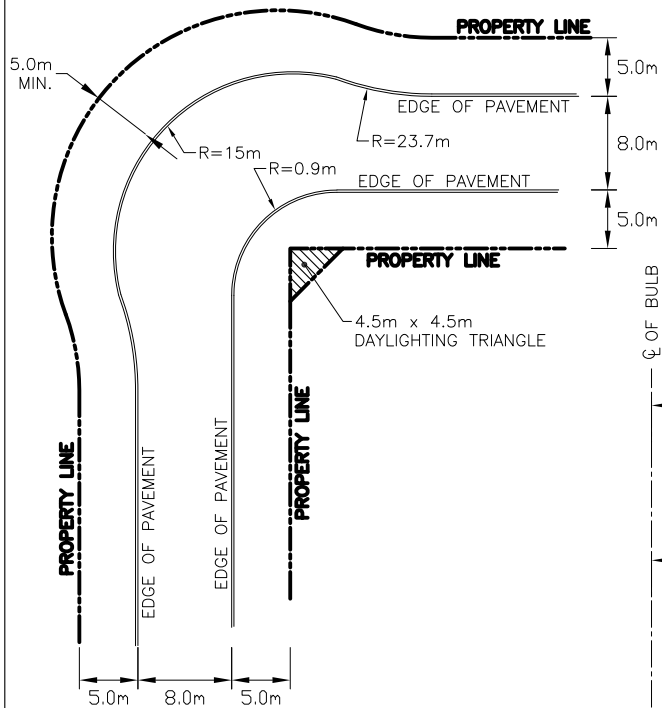
		TRANSPORTATION & ENVIRONMENTAL SERVICES	
		DATE	SCALE
DESIGNED BY	F.K.	DRAWN BY	J.E.

WINTERIZED METER PIT 3/4" [20mm] & 2" [50mm]	
FORMERLY 110-1433	DRAWING No. 110-5026
	2

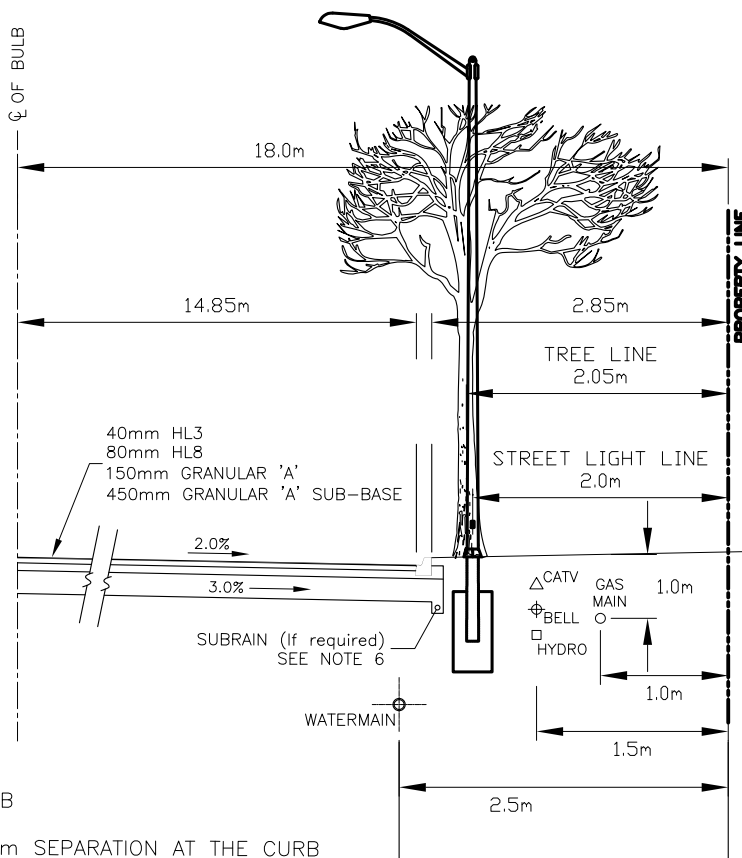
CUL-DE-SAC



ROADWAY BEND



CUL-DE-SAC RADIUS BULB



NOTES

1. NO ISLANDS PERMITTED IN THE CUL-DE-SAC BULB
2. NO SIDEWALKS PERMITTED IN THE CUL-DE-SAC
3. ADJACENT DRIVEWAYS SHALL HAVE A MINIMUM 1.0m SEPARATION AT THE CURB
4. MINIMUM CENTRELINE GRADE SHALL BE 0.70% WITH A MINIMUM GUTTER GRADE OF 0.50%
5. REDUCTION IN COVER MAY BE APPROVED IN CERTAIN SITUATIONS
6. SUBDRAINS TO BE CONSTRUCTED IN ACCORDANCE WITH CITY STANDARDS
7. ALL ROADWAY DESIGNS ARE SUBJECT TO RECOMMENDATIONS AND CONSIDERATIONS ADDRESSED IN A GEOTECHNICAL INVESTIGATION REPORT
8. LOCATIONS SHOWN ARE APPLICABLE AROUND THE BULB
9. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SHOWN
10. STREET LIGHT ARMS/LUMINAIRES SHALL BE DESIGNED TO MEET CURRENT STREET LIGHT GUIDELINES.



TRANSPORTATION & ENVIRONMENTAL SERVICES

URBAN CUL-DE-SAC, AND ROADWAY BEND & RADIUS BULB LAYOUT (18.0m WIDTH - LOCAL ROAD)

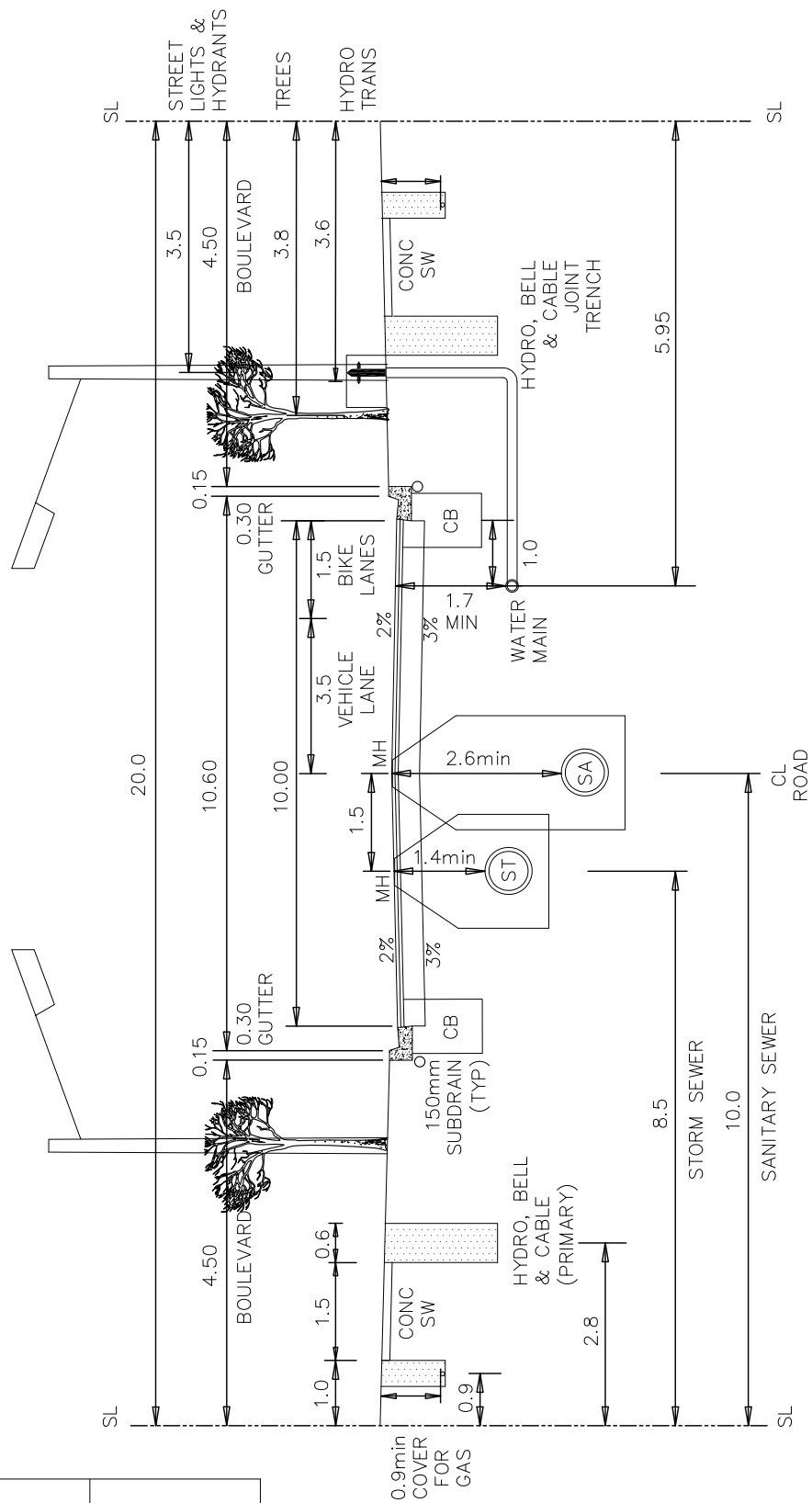
DATE	13 SEP 2017	SCALE	N.T.S.
DESIGNED BY	B.J.	DRAWN BY	S.I.

I-110-8605

DRAWING No. 110-5027

2

NOTE:
1. LOCATIONS SHOWN ARE APPLICABLE TO BOTH SIDES



NO.	REVISION	DATE
1	New Standard	September, 2018



TRANSPORTATION & ENVIRONMENTAL SERVICES

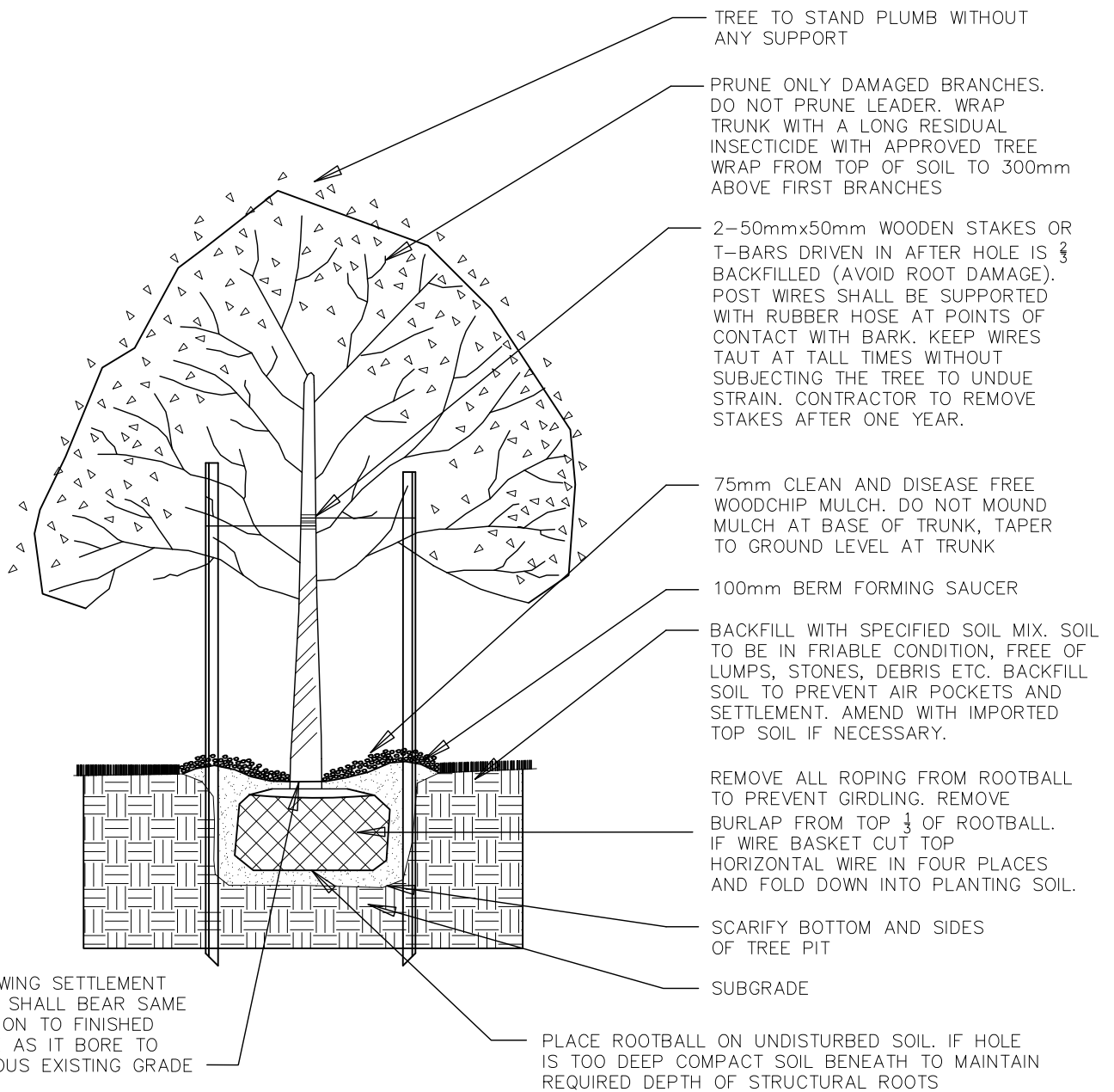
**TYPICAL 20m R.O.W. URBAN CROSS-SECTION WITH SIDEWALKS AND BIKE LANES
10.0m PAVEMENT WIDTH**

DATE September 6, 2018 SCALE N.T.S.

DESIGNED BY B.J. DRAWN BY S.H.

DRAWING No. 110-5028

Recreation & Community Services



ONLY NURSERY GROWN STOCK FREE OF DISEASE, INSECT INFESTATION, ABNORMAL GROWTH AND PHYSICAL INJURY SHALL BE USED.
 ALL PLANT MATERIAL TO CONFORM TO THE CANADIAN NURSERY TRADES ASSOCIATION SPECIFICATIONS AND STANDARDS.
 AT TIME OF INSPECTION ALL TREES SHALL BE IN A HEALTHY, VIGOROUS GROWING CONDITION AS PER SPECIFICATIONS.
 ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED FOR A MINIMUM PERIOD OF ONE (1) FULL YEAR FROM ACCEPTANCE. WARRANTY SHALL BE EXTENDED ON REPLACEMENT MATERIAL FOR A PERIOD EQUAL TO ORIGINAL WARRANTY PERIOD.
 TREGATOR WATERING BAGS SHOULD BE UTILIZED FOR WATERING AND SHOULD BE DONE OFTEN ENOUGH WHEN REQUIRED AND SUFFICIENTLY TO SATURATE THE ROOT SYSTEM, THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION OF THE WATERING BAGS, AND FOR THEIR REMOVAL AT THE END OF THE MAINTENANCE PERIOD.

NO.	REVISION	DATE
2	Watering Bag Notation	March, 2018
1	Drawing Number Changed	April, 2013



**TRANSPORTATION &
 ENVIRONMENTAL
 SERVICES**

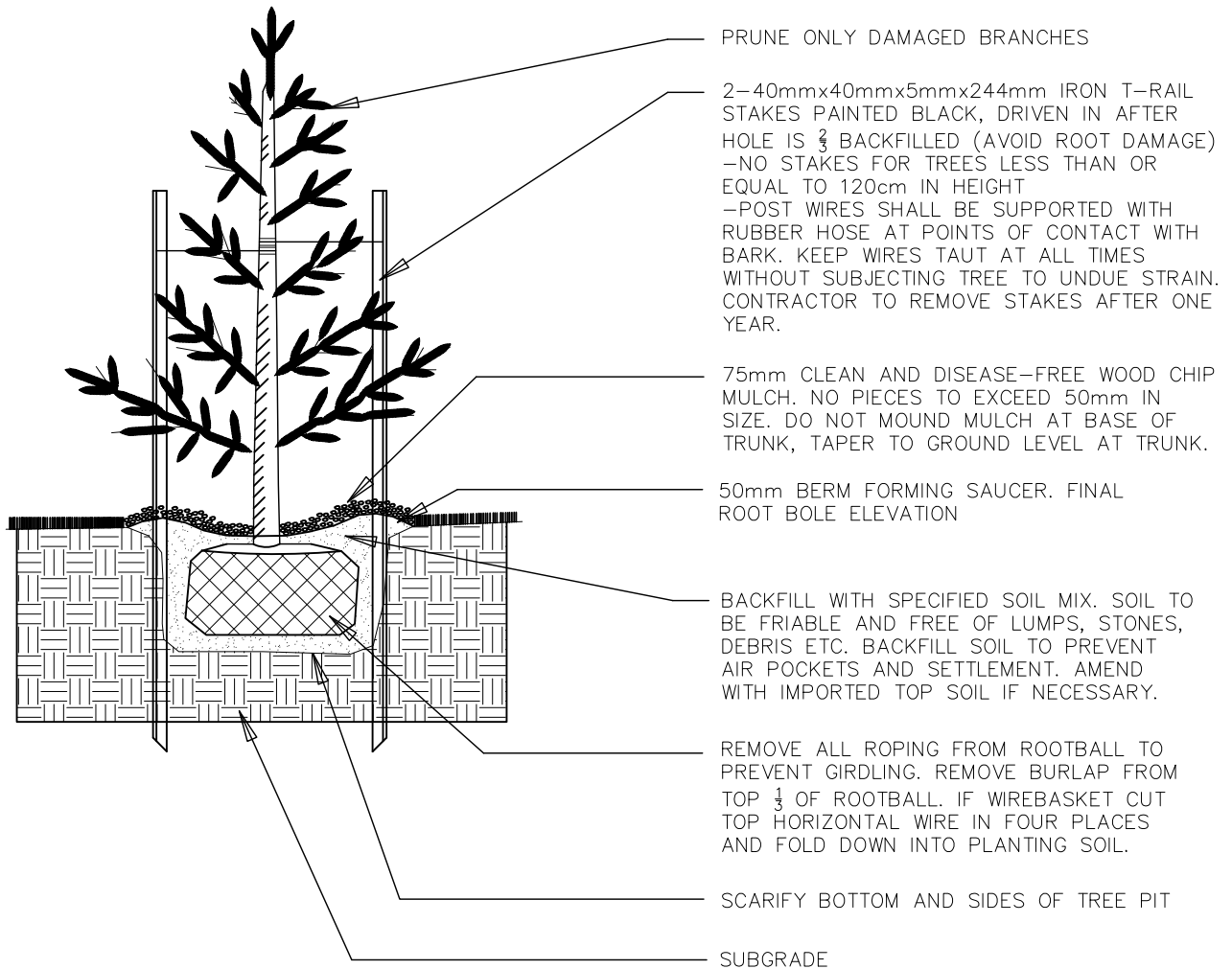
DATE	July 25, 2007	SCALE	N.T.S.
DESIGNED BY	J.B.	DRAWN BY	N.B.

DECIDUOUS PLANTING DETAIL

FORMERLY	110-1209	DRAWING No.	110-6001	2
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EXCAVATION SIZE:
 - 1 ½ x ROOT BALL WIDTH
 - 1 x ROOT BALL DEPTH

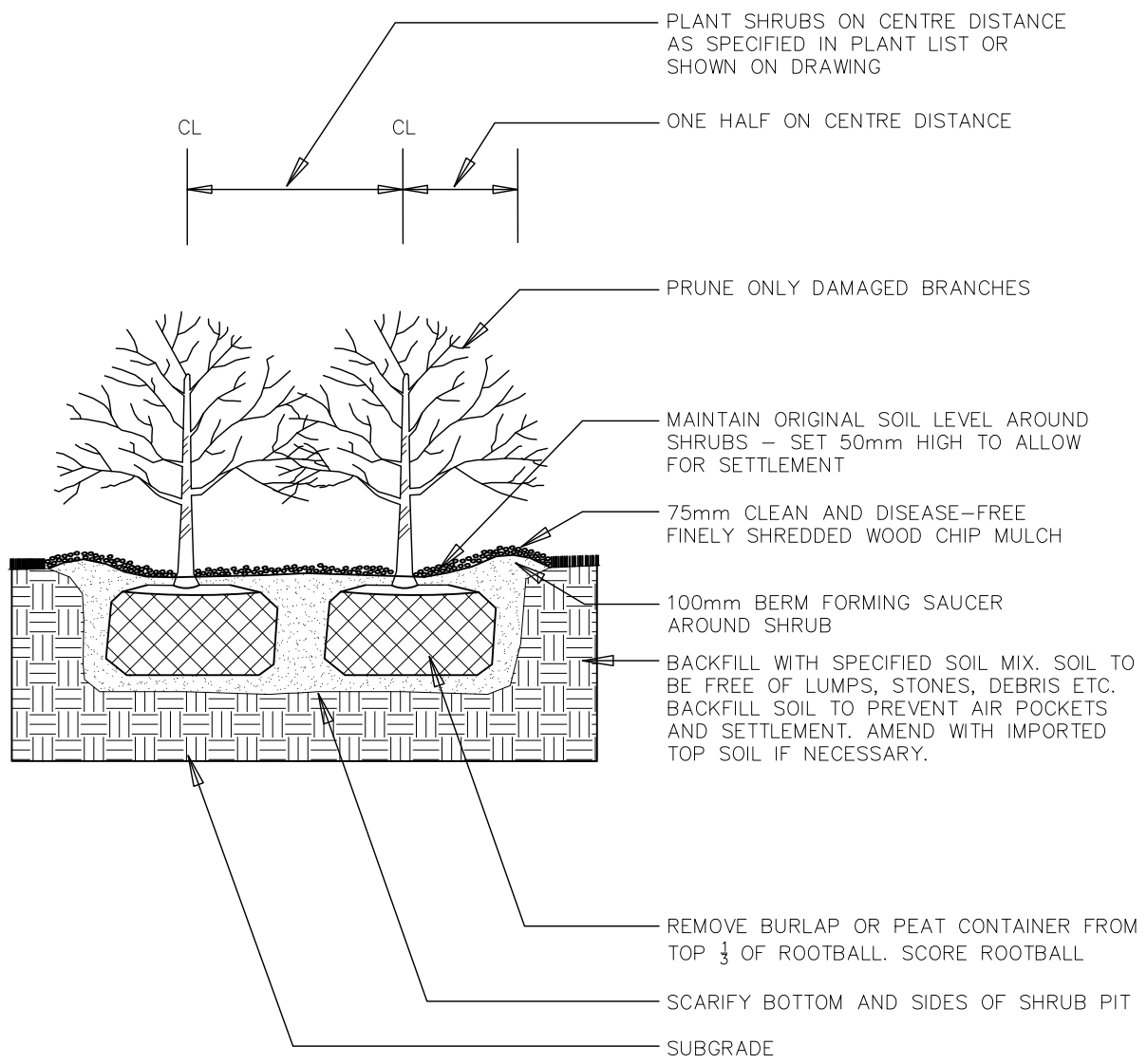
TREE TO STAND PLUMB WITHOUT ANY SUPPORT



ONLY NURSERY GROWN STOCK FREE OF DISEASE, INSECT INFESTATION, ABNORMAL GROWTH AND PHYSICAL INJURY SHALL BE USED.
 ALL PLANT MATERIAL TO CONFORM TO THE CANADIAN NURSERY TRADES ASSOCIATION SPECIFICATIONS AND STANDARDS.
 AT TIME OF INSPECTION ALL TREES SHALL BE IN A HEALTHY, VIGOROUS GROWING CONDITION AS PER SPECIFICATIONS.
 ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED FOR A MINIMUM PERIOD OF ONE (1) FULL YEAR FROM ACCEPTANCE. WARRANTY SHALL BE EXTENDED ON REPLACEMENT MATERIAL FOR A PERIOD EQUAL TO ORIGINAL WARRANTY PERIOD.
 TREGATOR WATERING BAGS SHOULD BE UTILIZED FOR WATERING AND SHOULD BE DONE OFTEN ENOUGH WHEN REQUIRED AND SUFFICIENTLY TO SATURATE THE ROOT SYSTEM, THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION OF THE WATERING BAGS, AND FOR THEIR REMOVAL AT THE END OF THE MAINTENANCE PERIOD.

NO.	REVISION	DATE
2	Watering Bag Notation	March, 2018
1	Drawing Number Changed	April, 2013

		TRANSPORTATION & ENVIRONMENTAL SERVICES		CONIFEROUS PLANTING DETAIL	
DATE	July 25, 2007	SCALE	N.T.S.		
DESIGNED BY	P.B.	DRAWN BY	N.B.	FORMERLY 110-1238	DRAWING No. 110-6002
					2



ONLY NURSERY GROWN STOCK FREE OF DISEASE, INSECT INFESTATION, ABNORMAL GROWTH AND PHYSICAL INJURY SHALL BE USED.
 ALL PLANT MATERIAL TO CONFORM TO THE CANADIAN NURSERY TRADES ASSOCIATION SPECIFICATIONS AND STANDARDS.
 AT TIME OF INSPECTION ALL TREES SHALL BE IN A HEALTHY, VIGOROUS GROWING CONDITION AS PER SPECIFICATIONS.
 ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED FOR A MINIMUM PERIOD OF ONE (1) FULL YEAR FROM ACCEPTANCE. WARRANTY SHALL BE EXTENDED ON REPLACEMENT MATERIAL FOR A PERIOD EQUAL TO ORIGINAL WARRANTY PERIOD.

1	Drawing Number Changed	April, 2013
NO.	REVISION	DATE

TRANSPORTATION & ENVIRONMENTAL SERVICES

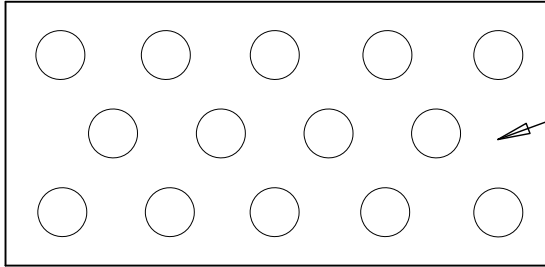
St. Catharines

DATE July 25, 2007 SCALE N.T.S.

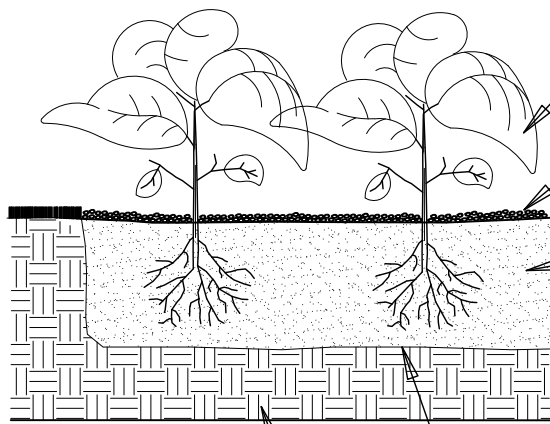
DESIGNED BY P.B. DRAWN BY N.B.

SHRUB PLANTING DETAIL

FORMERLY 110-1239 DRAWING No. 110-6003 1



TYPICAL ALTERNATE GRID SPACING
SPACE PLANTS AND ROWS AS INDICATED
PLANT GROUND COVERS 30cm O.C.



ASSURE ALL LEAVES AND STEMS
ARE NOT COVERED OR
ENCUMBERED BY MULCH

50mm CLEAN AND DISEASE-FREE
SHREDDED BARK CHIP MULCH

PLANTING MEDIUM TO BE TRIPLE MIX
AS PER SPECIFICATIONS (MIN DEPTH
TO BE 300mm)

SCARIFY BOTTOM EXCAVATION

SUBGRADE

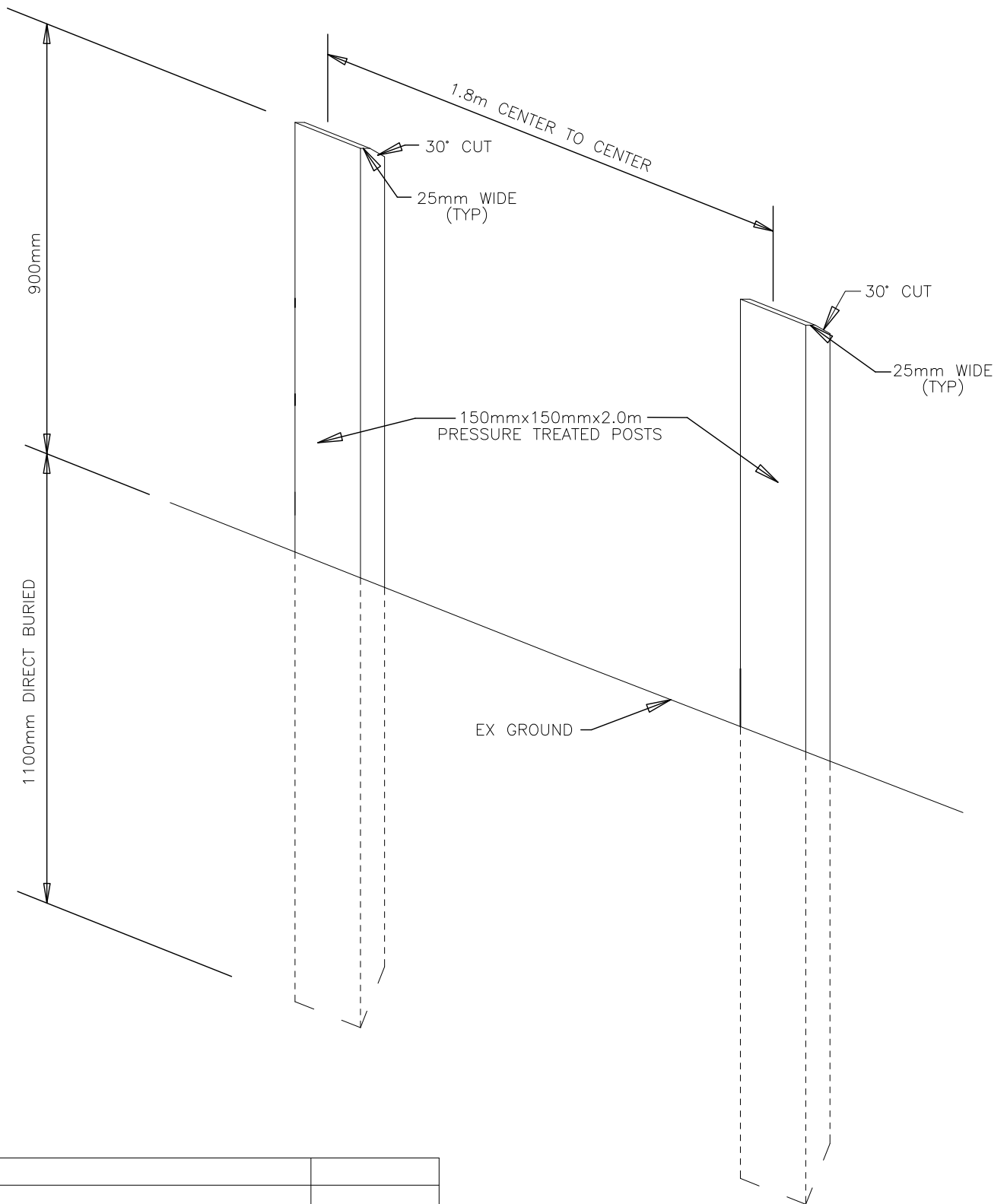
1	Drawing Number Changed	April, 2013
NO.	REVISION	DATE



**TRANSPORTATION &
ENVIRONMENTAL
SERVICES**

DATE	July 25, 2007	SCALE	N.T.S.
DESIGNED BY	P.B.	DRAWN BY	N.B.

**GROUND COVER
PLANTING DETAIL**



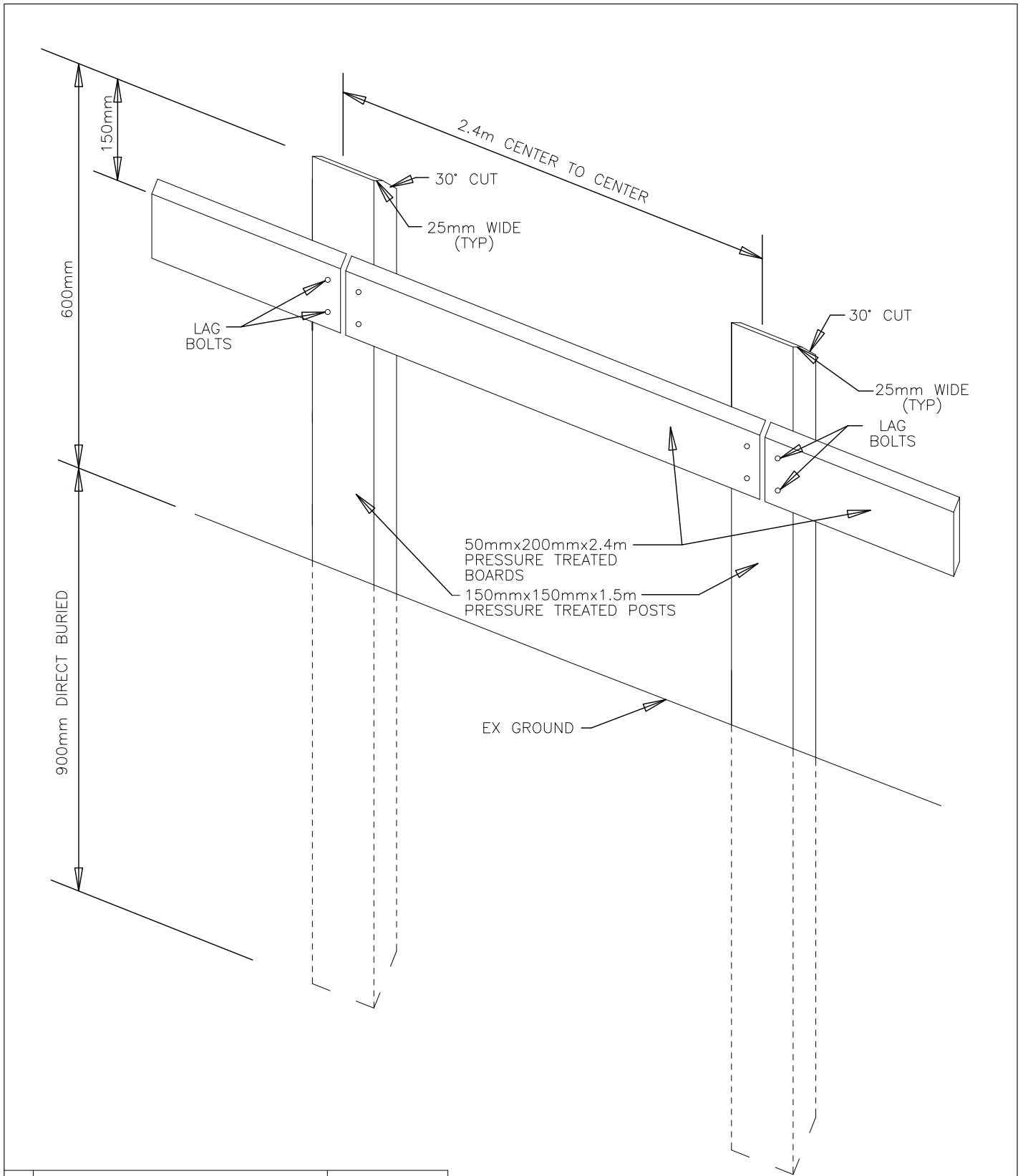
NO.	REVISION	DATE
2	Drawing Number Changed	April, 2013
1	Revised	August, 2006



**TRANSPORTATION &
ENVIRONMENTAL
SERVICES**

DATE	May 22, 1998	SCALE	N.T.S.
DESIGNED BY	N.B.	DRAWN BY	N.B.

WOOD POST DETAIL



3	Revised Title	March, 2018
2	Drawing Number Changed	April, 2013
1	Revised	August, 2006
NO.	REVISION	DATE

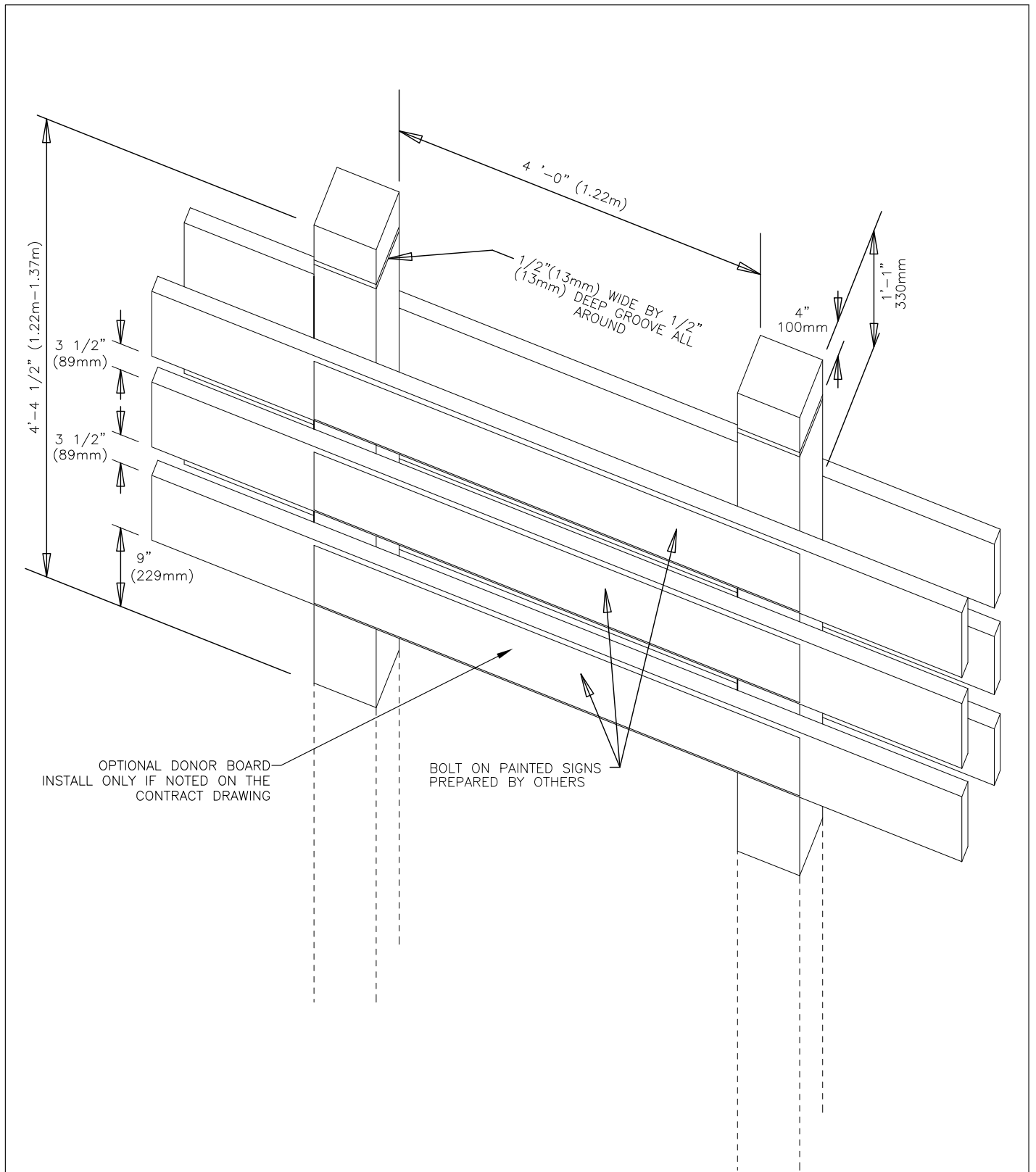


**TRANSPORTATION &
ENVIRONMENTAL
SERVICES**

DATE	May 22, 1998	SCALE	N.T.S.
DESIGNED BY	N.B.	DRAWN BY	N.B.

LOW WOOD FENCE RAIL DETAIL

FORMERLY 110-1229	DRAWING No. 110-6006	3
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2	Updated Optional Board Notation	March, 2018
1	Drawing Number Changed	April, 2013
NO.	REVISION	DATE

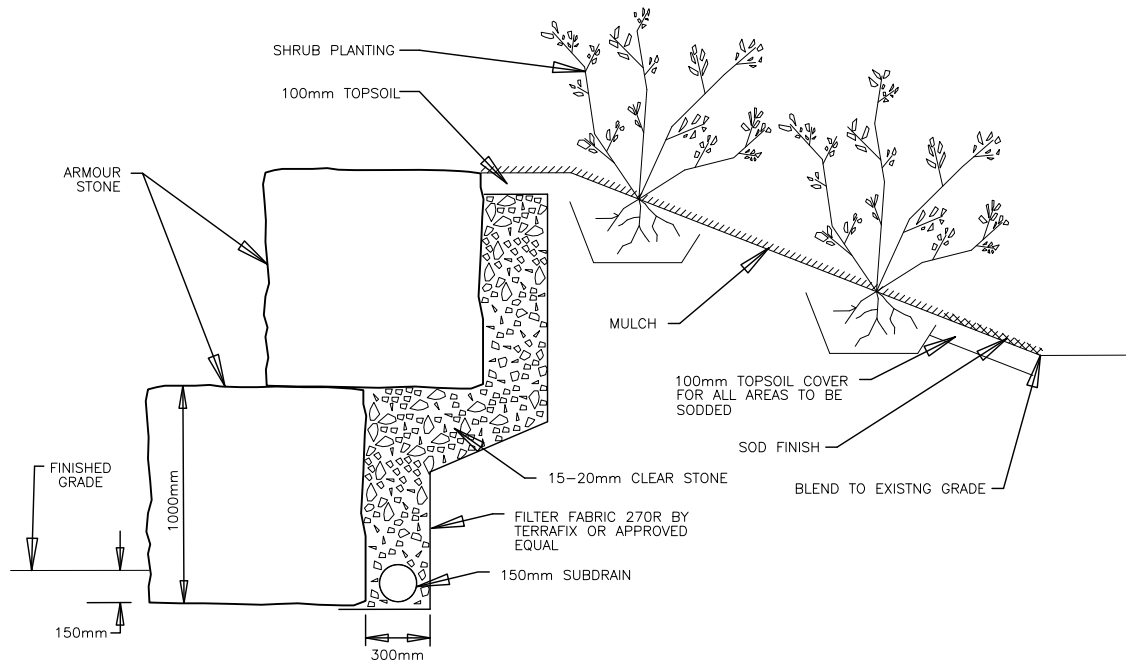
POSTS ANCHORED IN CONCRETE 3'-6" (1.1m) DEPTH
 POSTS 8"x8" (200mmx200mm) PRESSURE TREATED
 BOARDS 2"x8"x8' (50mmx200mmx2.4m) PRESSURE TREATED



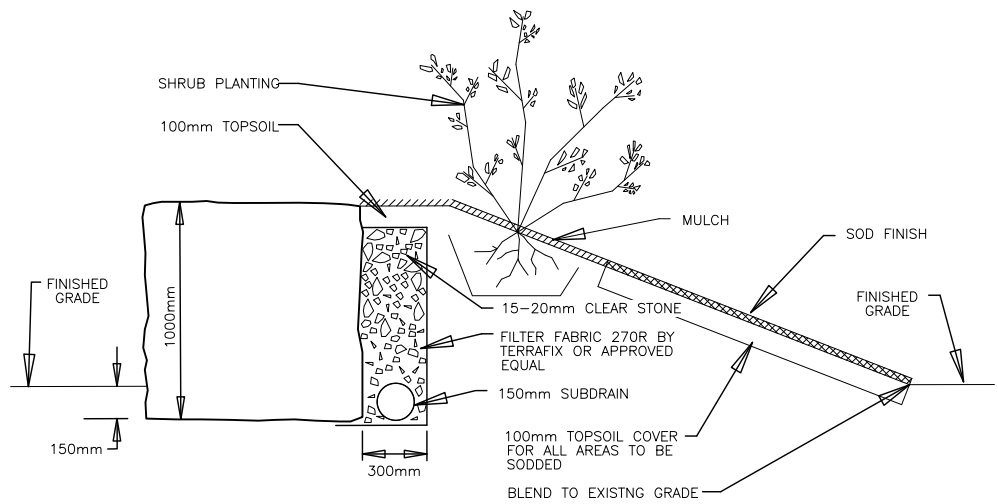
**TRANSPORTATION &
 ENVIRONMENTAL
 SERVICES**

DATE May 7, 1998 SCALE N.T.S.
 DESIGNED BY S.G. DRAWN BY N.B.

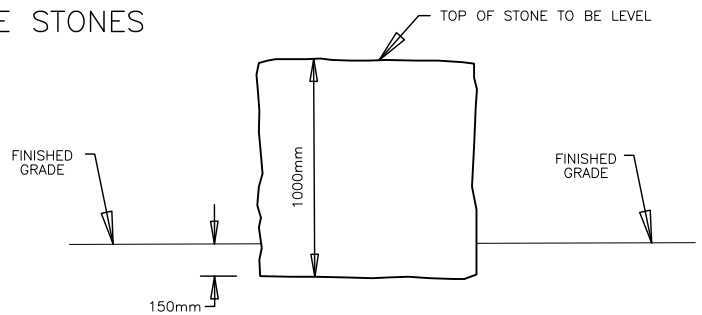
**PARK SIGN DETAIL
 WITH OPTIONAL
 DONOR BOARD**



FOR STONES WHICH ARE BUTTED TOGETHER



FOR INDIVIDUALLY PLACE STONES



NO.	REVISION	DATE
3	Added Subdrain	March, 2018
2	Drawing Number Changed	April, 2013
1	Revised	August, 2006



**TRANSPORTATION &
ENVIRONMENTAL
SERVICES**

DATE May 22, 1998 SCALE N.T.S.

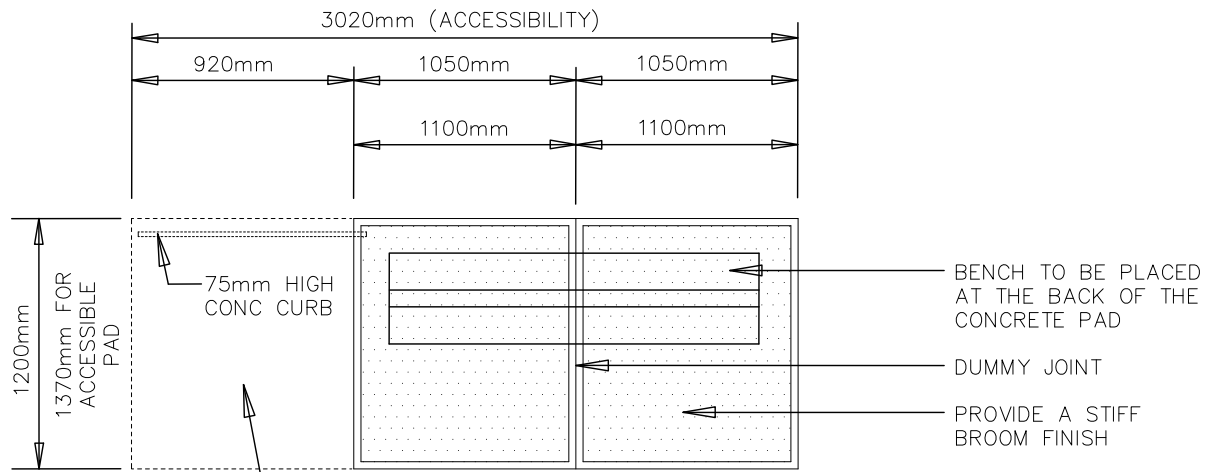
DESIGNED BY S.G. DRAWN BY N.B.

ARMOUR STONE DETAIL

FORMERLY 110-1228

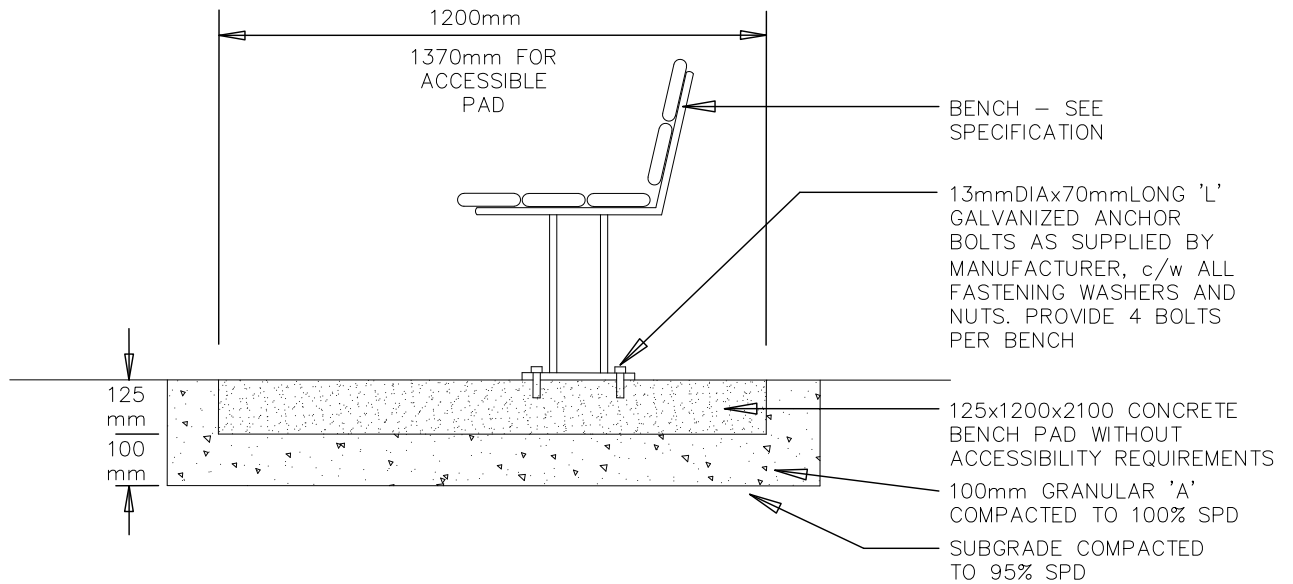
DRAWING No. 110-6008

3



BENCH PAD PLAN VIEW

ENLARGED BENCH PAD TO BE PROVIDED FOR WHEELCHAIR ACCESSIBILITY (AS PER FADS) ONLY WHEN BENCH IS ADJACENT TO ACCESSIBLE SIDEWALKS AND PATHWAYS



BENCH PAD CROSS SECTION

NO.	REVISION	DATE
3	Updated to match FADS	March, 2018
2	Accessibility / Pad Revisions	September, 2013
1	Drawing Number Changed	April, 2013



TRANSPORTATION & ENVIRONMENTAL SERVICES

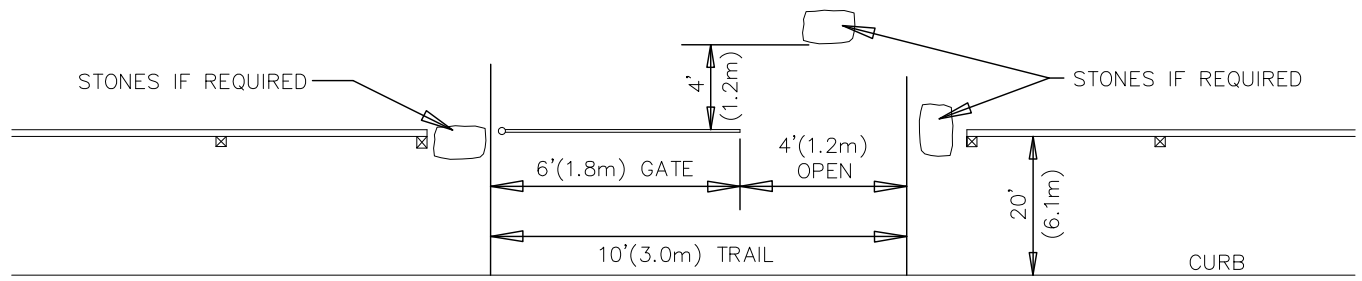
DATE March 28, 2003 SCALE N.T.S.

DESIGNED BY S.G. DRAWN BY N.B.

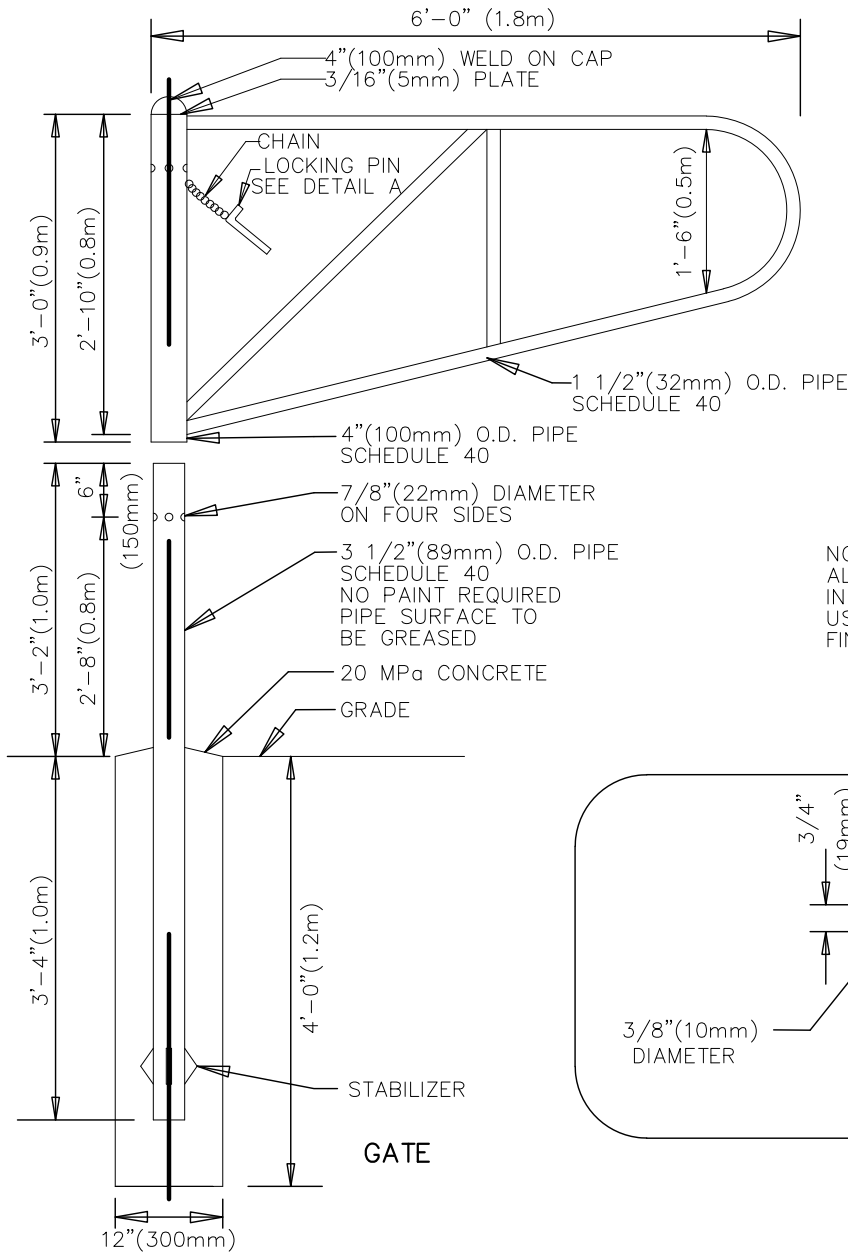
BENCH PAD DETAIL

FORMERLY 110-1234

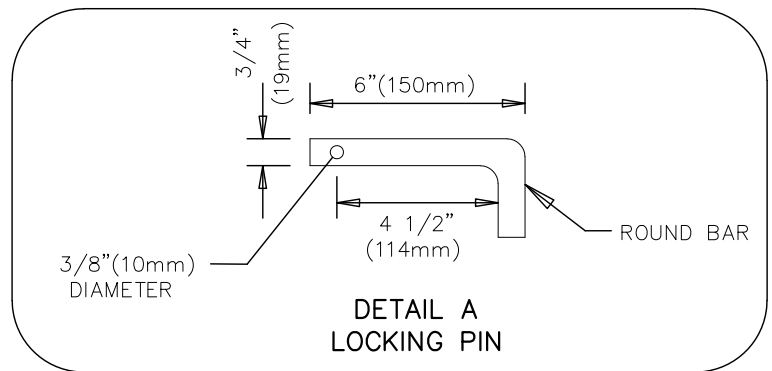
DRAWING No. 110-6009



TYPICAL ROADWAY ENTRANCE GATE LAYOUT



NOTE :
ALL EXPOSED SURFACES AFTER
INSTALLATION TO BE PAINTED
USING TREMCLAD RED PRIMER AND
FINISH WITH TREMCLAD GLOSS GREEN



NO.	REVISION	DATE
3	Updated Notation for Stones	March, 2018
2	Added Metric Dimensions	January, 2014
1	Drawing Number Changed	April, 2013



**TRANSPORTATION &
ENVIRONMENTAL
SERVICES**

DATE February 24, 2003 SCALE N.T.S.

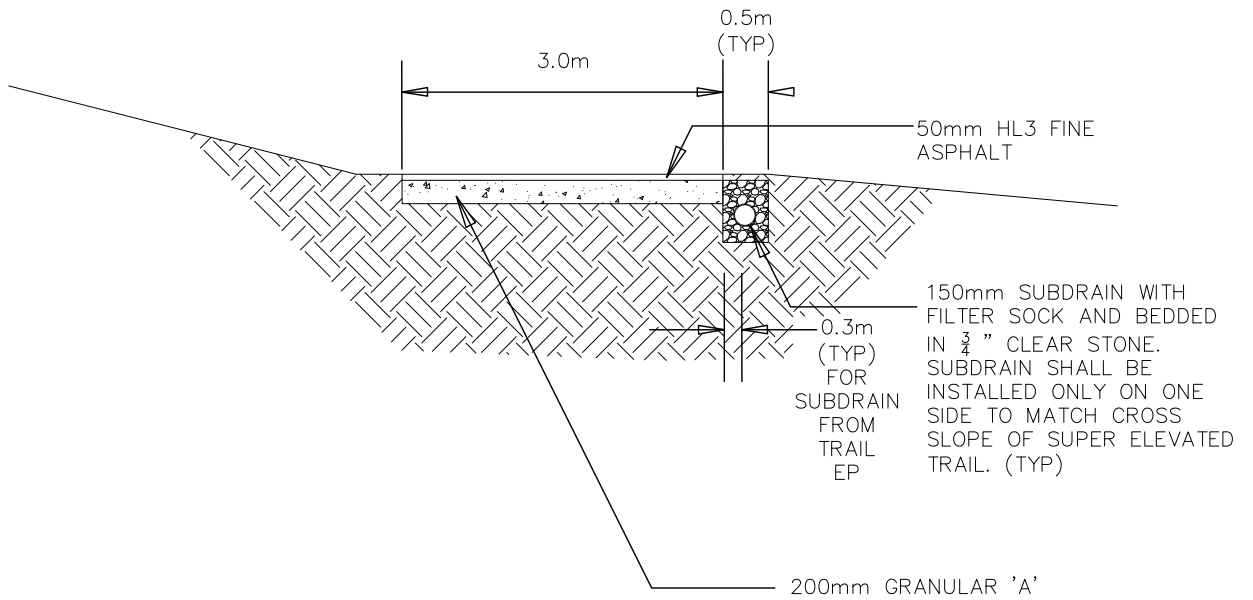
DESIGNED BY D.B. DRAWN BY N.B.

**TYPICAL ROADWAY
ENTRANCE GATE**

FORMERLY 110-1232

DRAWING No. 110-6010

3



2	Revised Subdrain Notations	March, 2018
1	Subdrain Added	March, 2017
NO.	REVISION	DATE



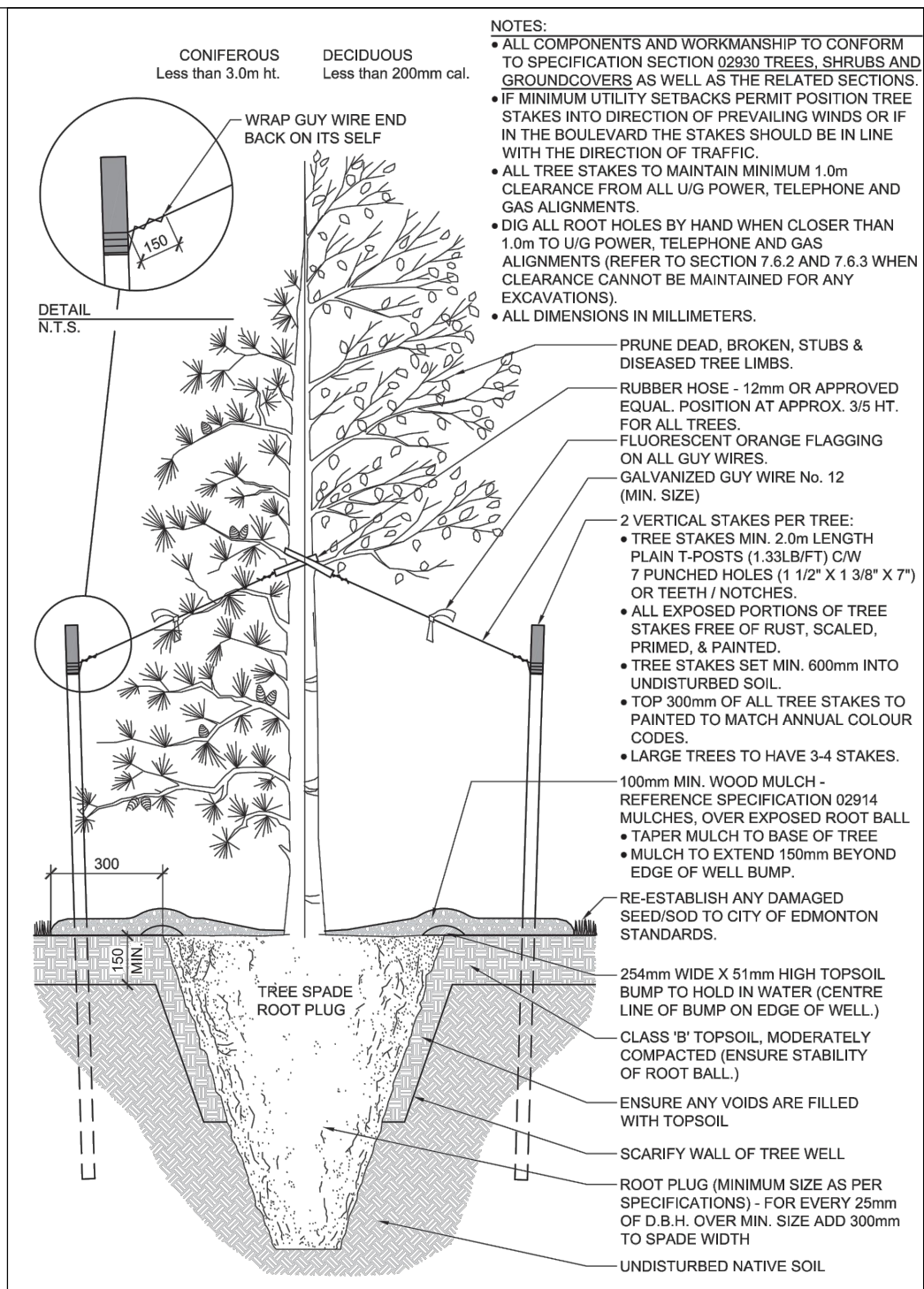
**TRANSPORTATION &
ENVIRONMENTAL
SERVICES**

**TYPICAL ASPHALT PEDESTRIAN TRAIL
CROSS SECTION**

DATE	APRIL 2013	SCALE	N.T.S.
DESIGNED BY	S.D.	DRAWN BY	J.E.

FORMERLY

DRAWING No. 110-6012



ONLY NURSERY GROWN STOCK FREE OF DISEASE, INSECT INFESTATION, ABNORMAL GROWTH AND PHYSICAL INJURY SHALL BE USED.

ALL PLANT MATERIAL TO CONFORM TO THE CANADIAN NURSERY TRADES ASSOCIATION SPECIFICATIONS AND STANDARDS.

AT TIME OF INSPECTION ALL TREES SHALL BE IN A HEALTHY, VIGOROUS GROWING CONDITION AS PER SPECIFICATIONS.

ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED FOR A MINIMUM PERIOD OF ONE (1) FULL YEAR FROM ACCEPTANCE. WARRANTY SHALL BE EXTENDED ON REPLACEMENT MATERIAL FOR A PERIOD EQUAL TO ORIGINAL WARRANTY PERIOD.

TREEGATOR WATERING BAGS SHOULD BE UTILIZED FOR WATERING AND SHOULD BE DONE OFTEN ENOUGH WHEN REQUIRED AND SUFFICIENTLY TO SATURATE THE ROOT SYSTEM, THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION OF THE WATERING BAGS, AND FOR THEIR REMOVAL AT THE END OF THE MAINTENANCE PERIOD.



**TRANSPORTATION &
ENVIRONMENTAL
SERVICES**

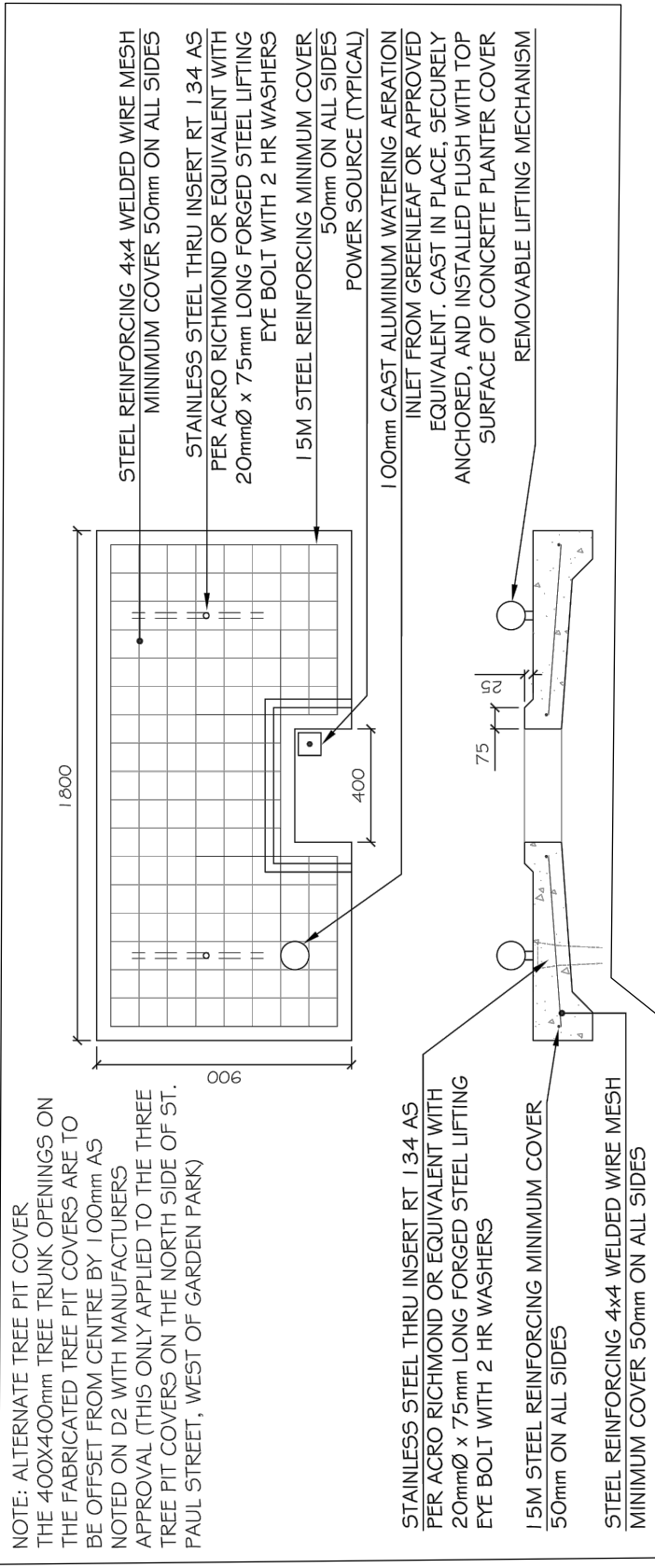
**TYPICAL TREE
SPADE DETAIL**

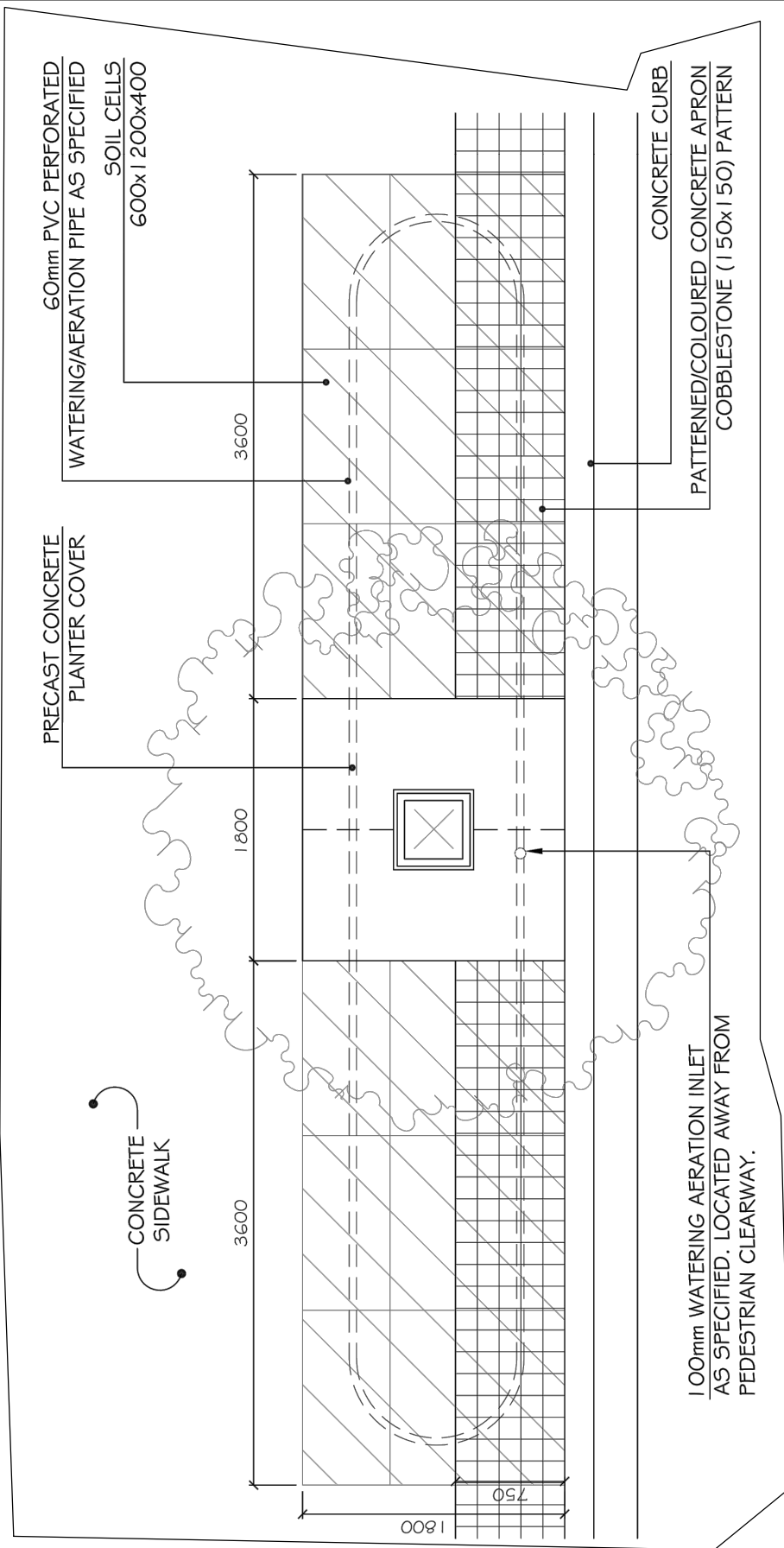
DATE 25 APR 2017 SCALE N.T.S.

DESIGNED BY DRAWN BY S.H.

DRAWING No. 110-6013

2





**TRANSPORTATION &
ENVIRONMENTAL
SERVICES**

**TREE PIT COVER
& SOIL CELL LAYOUT**

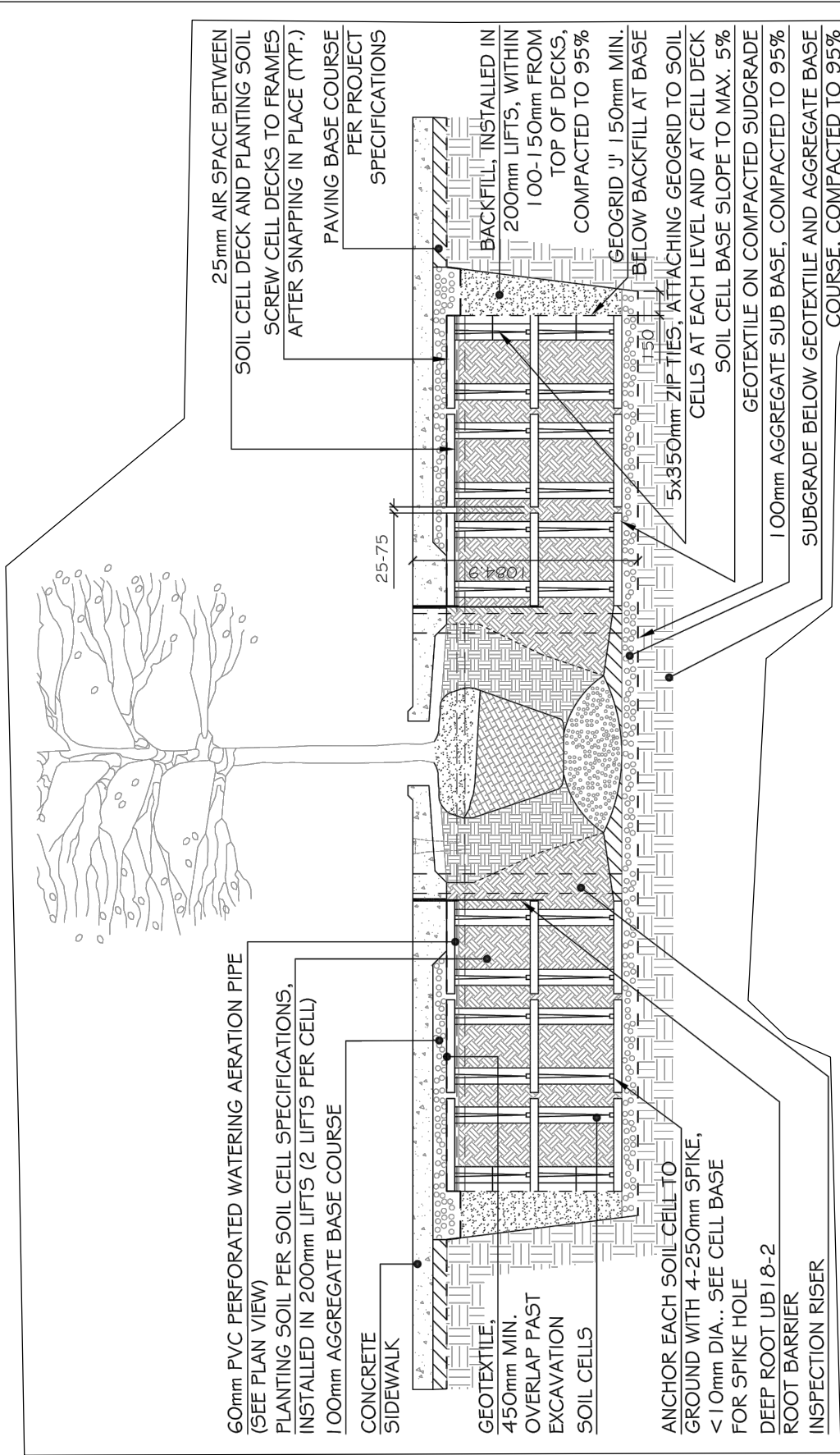
DATE APRIL 2018 SCALE N.T.S.

DESIGNED BY J MW DRAWN BY J MW

FROM P13-062

DRAWING No. 110-6015

1



TRANSPORTATION & ENVIRONMENTAL SERVICES

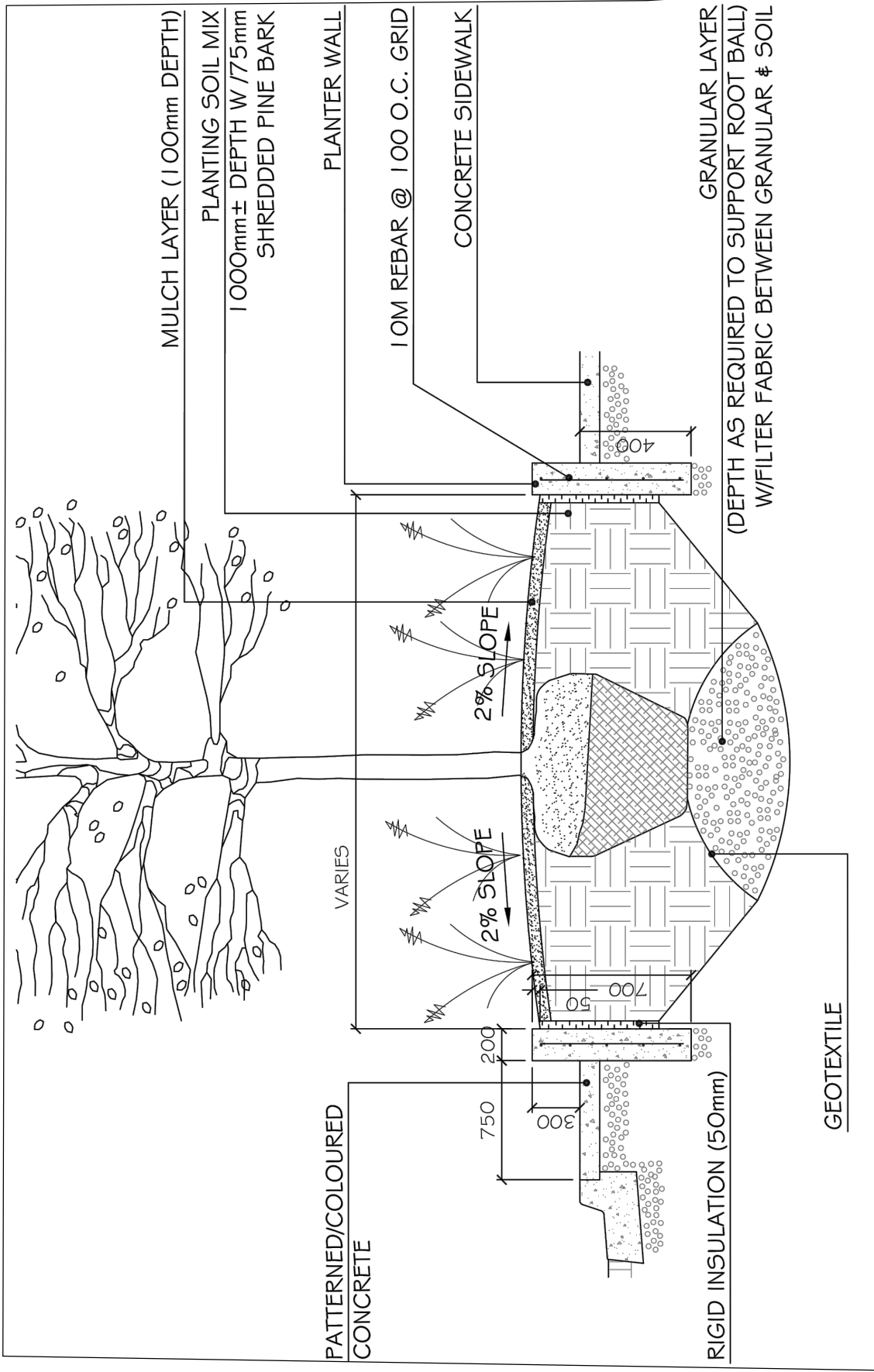
SOIL CELL DETAIL

DATE APRIL 2018 SCALE N.T.S.

DESIGNED BY J MW DRAWN BY J MW

FROM P13-062

DRAWING No. 110-6016



**TRANSPORTATION &
ENVIRONMENTAL
SERVICES**

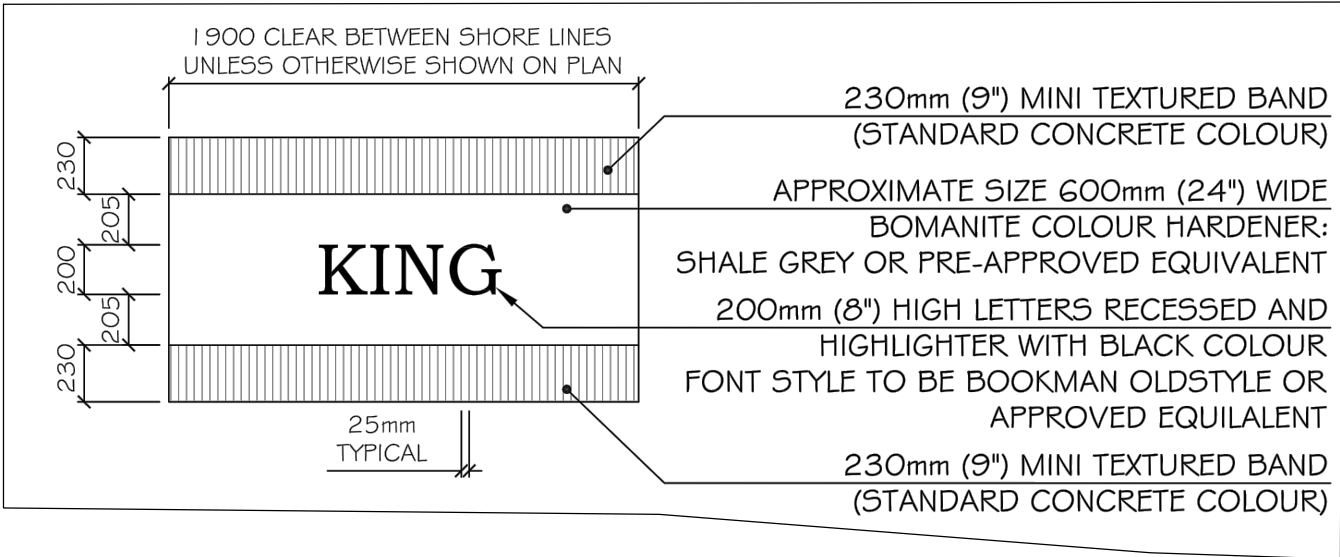
**TYPICAL RAISED
PLANTER SECTION**

DATE APRIL 2018 SCALE N.T.S.

DESIGNED BY J MW DRAWN BY J MW

FROM P13-062

DRAWING No. 110-6017



**TRANSPORTATION &
ENVIRONMENTAL
SERVICES**

**CONCRETE WALKWAY
STREET NAMES**

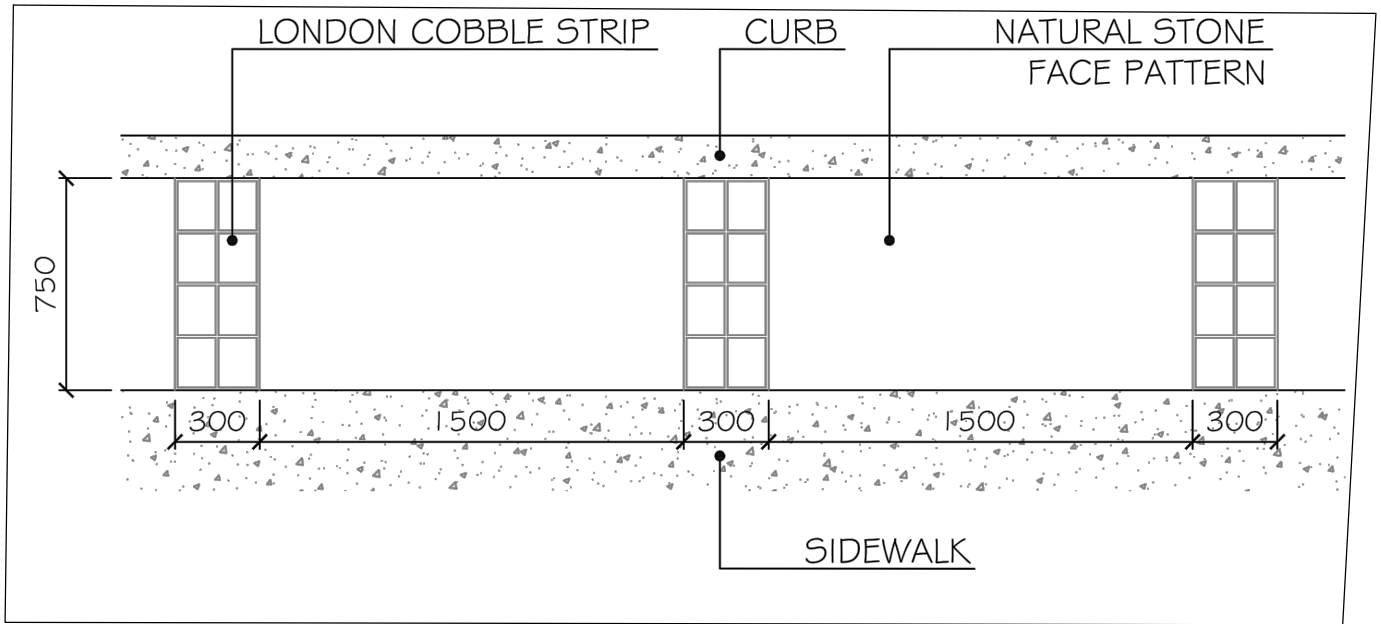
DATE APRIL 2018 SCALE N.T.S.

DESIGNED BY J MW DRAWN BY J MW

FROM P13-062

DRAWING No. 110-6018

1



**TRANSPORTATION &
ENVIRONMENTAL
SERVICES**

**CURB FACE ACCENT
STRIP DETAIL**

DATE APRIL 2018 SCALE N.T.S.

DESIGNED BY J MW DRAWN BY J MW

FROM P13-062

DRAWING No. 110-6019

1

Fire Services



The signs shall be 30cm in width and 45cm in length and shall display the information 'No Parking' or a symbol in lieu thereof as specified by the Highway Traffic Act and Regulations passed thereunder.

The signs shall be placed:

- a) At fire hydrants located on private property when not located along the fire route.
- b) At gates, post and chain and barriers installed as part of an emergency access.
- c) Additional fire route signs shall be installed at the discretion of the Fire Chief or designate based on individual site conditions.
- d) Signs shall be placed horizontally to the street or at an angle no more than 45 degrees, to a line parallel to the flow of traffic and should always be visible to approaching traffic.
- e) shall be located so as that the bottom of the sign is between 183cm and 213cm measured to the finished pavement/grade.
- f) Signs shall be installed so as that there are no visual obstructions within 6 metres of the sign and be visible to approaching traffic.

NO.	REVISION	DATE



**TRANSPORTATION &
ENVIRONMENTAL
SERVICES**

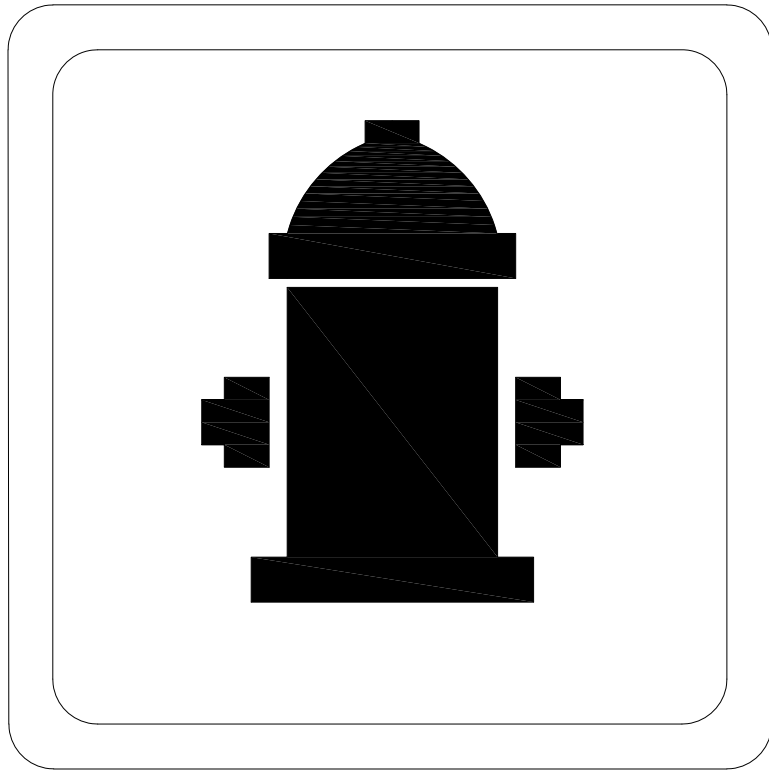
**NO PARKING FIRE ROUTE
SIGN REQUIREMENTS**

DATE April 15, 2013 SCALE N.T.S.

DESIGNED BY S.M. DRAWN BY J.E.

FORMERLY

DRAWING No. 110-7001



NO.	REVISION	DATE


TRANSPORTATION & ENVIRONMENTAL SERVICES

FIRE HYDRANT SIGNS

DATE April 15, 2013 SCALE N.T.S.

DESIGNED BY S.M. DRAWN BY J.E.

FORMERLY

DRAWING No.110-7006