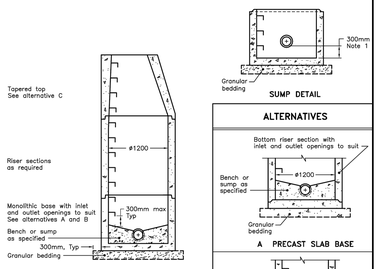
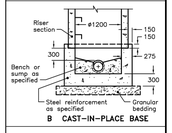


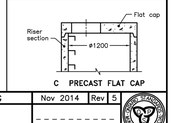
SUMP DETAIL

ALTERNATIVES

A PRECAST SLAB BASE



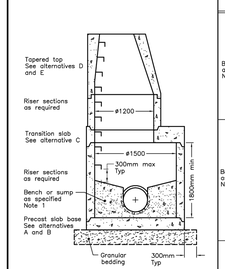
B CAST-IN-PLACE BASE



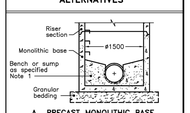
C PRECAST FLAT CAP

NOTES:
1 The sump is measured from the lowest invert.
A Granular backfill shall be placed to a minimum thickness of 300mm all around the maintenance hole.
B Precast concrete components shall be according to OPSD 701.030, 701.031, or 701.032.
C Structure exceeding 5.0m in depth shall include safety platform according to OPSD 404.020.
D Pipe support according to OPSD 708.020.
E For benching and pipe opening details, see OPSD 701.021.
F For adjustment unit and frame installation, see OPSD 704.010.
G All dimensions are nominal.
H All dimensions are in millimetres unless otherwise shown.

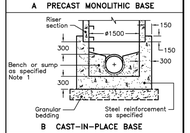
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 5
PRECAST CONCRETE MAINTENANCE HOLE 1200mm DIAMETER		OPSD 701.010



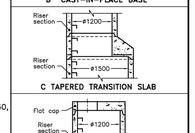
ALTERNATIVES



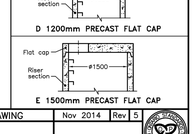
A PRECAST MONOLITHIC BASE



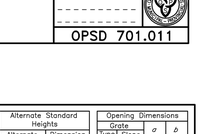
B CAST-IN-PLACE BASE



C TAPERED TRANSITION SLAB



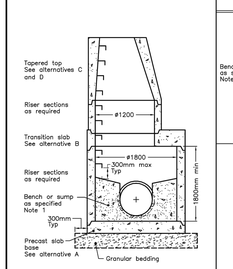
D 1200mm PRECAST FLAT CAP



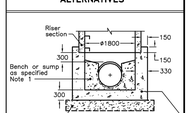
E 1500mm PRECAST FLAT CAP

NOTES:
1 For sump detail, see OPSD 701.010.
A Granular backfill shall be placed to a minimum thickness of 300mm all around the maintenance hole.
B Precast concrete components shall be according to OPSD 701.030, 701.031, 701.040, 701.041, 703.011, 703.021, and 706.010.
C Structures exceeding 5.0m in depth shall include safety platform according to OPSD 404.020 or 404.021.
D Pipe support shall be according to OPSD 708.020.
E For benching and pipe opening details, see OPSD 701.021.
F For adjustment unit and frame installation, see OPSD 704.010.
G All dimensions are nominal.
H All dimensions are in millimetres unless otherwise shown.

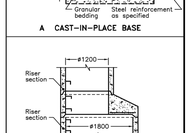
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 5
PRECAST CONCRETE MAINTENANCE HOLE 1500mm DIAMETER		OPSD 701.011



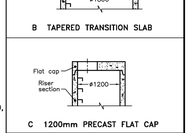
ALTERNATIVES



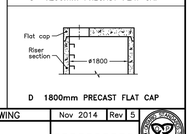
A CAST-IN-PLACE BASE



B TAPERED TRANSITION SLAB



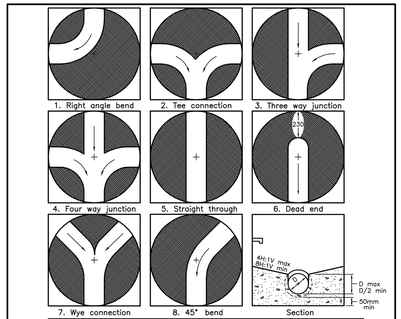
C 1200mm PRECAST FLAT CAP



D 1800mm PRECAST FLAT CAP

NOTES:
1 For sump detail, see OPSD 701.010.
A Granular backfill shall be placed to a minimum thickness of 300mm all around the maintenance hole.
B Precast concrete components shall be according to OPSD 701.030, 701.031, 701.050, 701.051, 703.012, 703.022, and 706.020.
C Structures exceeding 5.0m in depth shall include safety platform according to OPSD 404.020 or 404.022.
D Pipe support shall be according to OPSD 708.020.
E For benching and pipe opening details, see OPSD 701.021.
F For adjustment unit and frame installation, see OPSD 704.010.
G All dimensions are nominal.
H All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 5
PRECAST CONCRETE MAINTENANCE HOLE 1800mm DIAMETER		OPSD 701.012

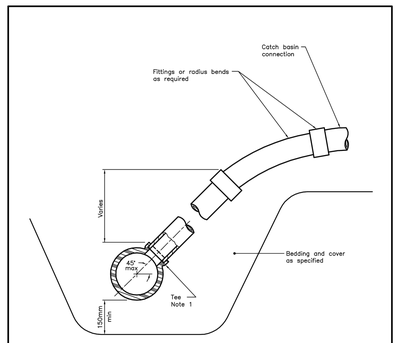


MAXIMUM SIZE HOLE IN THE WALL IN PRECAST RISER SECTIONS

Maintenance Hole Diameter	No. 1–4	No. 5 and 6	No. 8	No.7	
				Inlet Hole	Outlet Hole
1200	700	860	780	700	860
1500	860	1220	960	860	1170
1800	1220	1485	1220	1220	1485
2400	1485	2020	1760	1485	2020
3000	1930	2450	2300	1930	2450
3600	2470	3085	2730	2470	3085

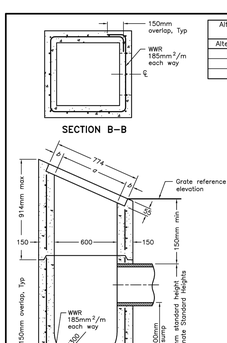
NOTES:
1 Slopes shall be maintained from the outlet hole opening for top of benching.
A Concrete for benching shall be 30MPa.
B When benching is hand-finished, it shall be given wood float finish, channel shall be given steel trowel finish.
C Benching slope and height shall be as specified.
D When specified, maintenance holes that are 1200mm in diameter with a uniform channel for 200 or 250mm pipe may be prebenched at the manufacturer with standardized benching slope and channel orientation.
E All dimensions are nominal.
F All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 4
MAINTENANCE HOLE BENCHING AND PIPE OPENING ALTERNATIVES		OPSD 701.021



NOTES:
1 For catch basin connections 300mm in diameter or less, factory made tees shall be used.
A For catch basin connections greater than 300mm in diameter, maintenance holes shall be used at the main sewer.
B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2016	Rev 3
CATCH BASIN CONNECTION FOR FLEXIBLE MAIN PIPE SEWER		OPSD 708.030

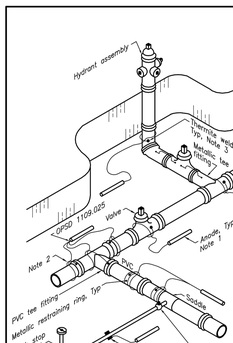


Alternate Standard Heights	
Alternate	Dimension
A	1980
B	1520
C	1380

Opening Dimensions			
Grate		a	b
Type	Slope		
A	2H:1V	670	52
	3H:1V	632	71
	4H:1V	618	78
	6H:1V	608	83
	HOR	600	87

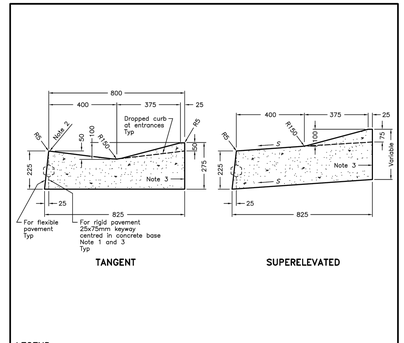
NOTES:
1 Outlet hole size 525mm maximum diameter, location as required.
A Where inlet is placed across ditch and is accessible to vehicular traffic, grating slope shall be 6H:1V or flatter.
B Center reinforcing in wall and slab ±25mm.
C Granular backfill shall be placed to a minimum thickness of 300mm all around the ditch inlet.
D Grating shall be according to OPSD 403.010.
E Pipe support shall be according to OPSD 708.020.
F All dimensions are nominal.
G All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2019	Rev 4
PRECAST CONCRETE DITCH INLET 600 x 600mm		OPSD 705.030



NOTES:
1 Anode shall be placed at least 1.0m away from the water system pipe and appurtenances and as deep as the bottom of the pipe and appurtenances. Minimum distance between anodes shall be 1.0m.
2 Anode connecting wire shall be loosely wrapped around pipes and fittings and knotted.
3 Protective coating shall be applied to all thermite welds.

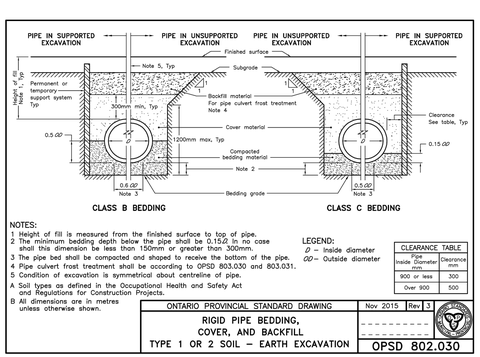
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 2
CATHODIC PROTECTION FOR PVC WATERMAIN SYSTEMS		OPSD 1109.011



LEGEND:
S – Rate of pavement superelevation in percent, %.

NOTES:
1 When curb and gutter is adjacent to concrete pavement or base, this drawing shall be used in conjunction with OPSD 552.010 and 552.020.
2 Flexible and composite pavement shall be placed 5mm above the adjacent edge of gutter.
3 For slipforming procedure a 5% batter is acceptable.
A Treatment at entrances shall be according to OPSD 351.010.
B Outlet treatment shall be according to the OPSD 610 Series.
C The transition from one curb type to another shall be a minimum length of 3.0m, except in conjunction with guide rail where it shall be according to the OPSD 900 Series.
D All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2012	Rev 2
CONCRETE MOUNTABLE CURB WITH WIDE GUTTER		OPSD 600.030

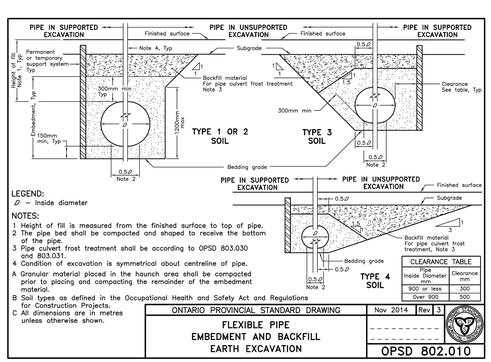


NOTES:
1 Height of fill is measured from the finished surface to top of pipe.
2 The minimum bedding depth below the pipe shall be 0.15 $\varnothing$ in no case shall this dimension be less than 150mm or greater than 300mm.
3 The pipe bed shall be compacted and shaped to receive the bottom of the pipe.
4 Pipe culvert frost treatment shall be according to OPSD 803.030 and 803.031.
5 Condition of excavation is symmetrical about centreline of pipe.
A Soil types as defined in the Occupational Health and Safety Act and Regulations for Construction Projects.
B All dimensions are in metres unless otherwise shown.

LEGEND:
D – Inside diameter
OD – Outside diameter

CLEARANCE TABLE	
Pipe Inside Diameter mm	Clearance mm
900 or less	300
Over 900	500

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 3
RIGID PIPE BEDDING, COVER, AND BACKFILL TYPE 1 OR 2 SOIL – EARTH EXCAVATION		OPSD 802.030

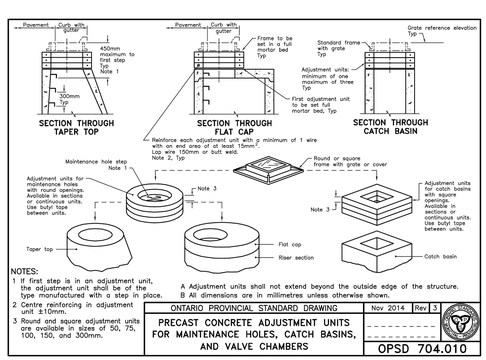


LEGEND:
D – Inside diameter

NOTES:
1 Height of fill is measured from the finished surface to top of pipe.
2 The pipe bed shall be compacted and shaped to receive the bottom of the pipe.
3 Pipe culvert frost treatment shall be according to OPSD 803.030 and 803.031.
4 Condition of excavation is symmetrical about centreline of pipe.
A Granular material placed in the haunch area shall be compacted prior to placing and compacting the remainder of the embedment material.
B Soil types as defined in the Occupational Health and Safety Act and Regulations for Construction Projects.
C All dimensions are in metres unless otherwise shown.

CLEARANCE TABLE	
Pipe Inside Diameter	Clearance mm
900 or less	300
Over 900	500

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 3
FLEXIBLE PIPE EMBEDMENT AND BACKFILL EARTH EXCAVATION		OPSD 802.010



NOTES:
1 If first step is in an adjustment unit, the adjustment unit shall be of the type manufactured with a step in place.
2 Centre reinforcing in adjustment unit ±10mm.
3 Round and square adjustment units are available in sizes of 50, 75, 100, 150, and 300mm.
A Adjustment units shall not extend beyond the outside edge of the structure.
B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 3
PRECAST CONCRETE ADJUSTMENT UNITS FOR MAINTENANCE HOLES, CATCH BASINS, AND VALVE CHAMBERS		OPSD 704.010

No.	REVISION	DATE	BY
5			
4			
3			
2			
1			

REGISTERED PROFESSIONAL ENGINEER
B.JACKSON
100210382
SEPT. 16, 2021
PROVINCE OF ONTARIO

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CONSTRUCTION DETAILS & STANDARD DRAWINGS

PROJECT #:	19-607	DRAWING:	C-404
SITE PLAN FILE No.: ######			
SUBDIVISION FILE No.: #####			
CITY FILE No.: ######			
REGION FILE No.: ######			
DESIGNED:	B.J.	CHECKED:	B.J.
DRAWN:	J.M.	DATE:	SEPT. 2021
SCALE:	AS SHOWN		