

PIPE DIA	ENDWALL DIMENSIONS							
	A	B	C	D	E	F	G	H
600	1050	2400	2725	1400	300	75	1525	2350
675	1125	2400	2725	1475	300	75	1600	2425
750	1200	2400	2725	1550	300	75	1675	2500
825	1275	2400	2725	1625	300	75	1755	2575
900	1350	2400	2725	1700	300	75	1825	2650
975	1425	2400	2725	1775	375	150	1975	2725
1050	1500	3000	3400	1850	375	150	2050	3100
1200	1650	3000	3400	2000	375	150	2200	3250
1350	1800	3000	3400	2150	375	150	2350	3400
1500	1950	3000	3400	2300	375	150	2500	3550
1650	2100	3000	3400	2450	375	150	2650	3700
1800	2250	3000	3400	2600	375	150	2800	3850
2400	3000	3000	3400	3350	375	150	3550	4600

NOTES:
A This OPSD to be read in conjunction with OPSD 3940.150.
B Class of concrete: 30MPa.
C Cover to reinforcing bars: 75mm ±20mm.
D Granular backfill to be placed to 300mm min thickness on all sides.
E All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING Nov 2017 Rev 1
CONCRETE HEADWALL FOR SEWER OR CULVERT PIPE OUTLET
OPSD 804.040

NOTES:
A All aluminum in contact with concrete shall be thoroughly coated with asphalt paint.
B All bolts, nuts, and washers shall be made of Type 304 stainless steel.
C All welding shall be according to CSA W47.2 and W59.2.
D All brackets, bars, rungs, and stringers shall be fabricated from 6000 series structural aluminum.
E All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING Nov 2018 Rev 3
ALUMINUM LADDER FOR MAINTENANCE HOLES
OPSD 406.010

TABLE 1 - NUMBER OF RODS IN FRAME	
PIPE DIA	No of RODS
450	1
525	1
600	2
675	3
750	3
825	4
900	4
975	5
1050	6
1200	7

TABLE 2 - NUMBER OF FIXED RODS IN UPPER SECTION	
PIPE DIA	No of RODS
1350	3
1500	4
1650	5
1800	6
1950	7
2100	8
2250	9
2400	10

NOTES:
1 Grates shall be secured by either a bolt and nut or a locking device as specified.
A Metal surfaces shall be either painted with 2 coats of self priming abrasion resistant immersion grade epoxy or hot dip galvanized as specified.
B Frame, hinge strap, mounting bracket, and steel rods shall be medium grade steel.
C All welding shall be according to CSA W59.
D All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING Nov 2021 Rev 3
GRATING FOR CONCRETE ENDWALL
OPSD 804.050

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Box Name	Inside Dimensions	Outside Dimensions		Top Slap Thickness	Bot. Slap Thickness	Wall (W) Thickness
		A	B			
M-3-3	914 x 914	1218	1218	152	152	152
M-4	1219 x 1219	1677	1677	229	229	229
M-5	1524 x 1829	1982	2287	229	229	229
M-5.5	1829 x 1829	2287	2287	229	229	229
M-6.5	1829 x 2438	2287	2896	229	229	229
M-7.5	1829 x 3048	2287	3506	229	229	229
M-8	2438 x 2438	2896	2896	254	254	229
M-9	2438 x 3048	2896	3506	254	254	229
M-9.5	3048 x 3048	3506	3506	254	254	229
M-10	2438 x 3810	2896	4268	254	254	229
M-11	3048 x 3810	3506	4268	254	254	229
M-12	3810 x 3810	4260	4260	254	254	229
M-13	2438 x 4270	2896	4728	254	254	229
M-14	3048 x 4270	3506	4728	254	254	229
M-15	3810 x 4270	4260	4728	300	300	229
M-16	4270 x 4270	4728	4728	300	300	229

Notes:
1. Manufactured in accordance with OPSD 1351.
2. Top Section heights @ 152mm increments. Bottom section heights at 152mm increments.
3. See page 44 for 1200mm tapered top details.
4. Maintenance hole steps are circular hollow aluminum as per OPSD 405.010.
5. All dimensions are in millimeters unless otherwise shown.
6. Mono top sections available when required.

Wetcast Maintenance Hole Box Chambers

NOTES:
1. SHOP DRAWINGS OF THE RAILING PREPARED BY CONTRACTOR SHALL BE SUBMITTED TO ENGINEER FOR REVIEW.
2. RAILING TO BE DESIGNED AND MANUFACTURED TO FIELD DIMENSIONS OF COMPLETED STRUCTURES.
3. PIPE FOR RAILING TO ASTM A53-GRADE 240 MPa. ELECTRODES E 410 X.
4. RAILING TO BE HOT DIP GALVANIZED UPON FABRICATION TO CSA G164-M94.
5. MINIMUM TENSILE WORKING LOAD FOR ANCHORS IS 14 kN.
6. CHANGE TO GEOMETRY AND MEMBERS SIZES REQUIRE ENGINEER APPROVAL.
7. VENT HOLES REQUIRED IN ALL MEMBERS.
8. LOWEST PORTION OF RAILING ON WING WALLS TO BE 0.3m ABOVE LEVEL THE PERMANENT WATER LEVEL.

TYPICAL ANCHOR PLATE
TYPICAL RAILING DETAIL IN CONCRETE APPLICATION N.T.S.

Revision	By	App'd	Date
0	ISSUED FOR REVIEW	M.S.	PM 25.08.22
1	Revision	By	App'd YJ/MA/02
2	Revision	By	App'd YJ/MA/02



Client/Project
W. O. Stinson & Son Ltd.
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Title
POND DETAILS