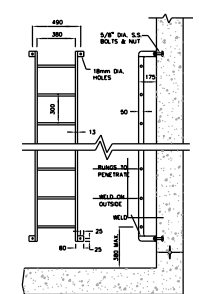
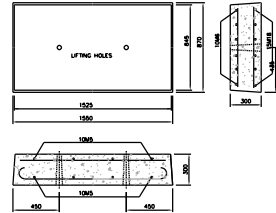
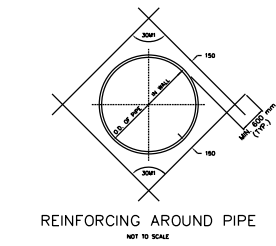
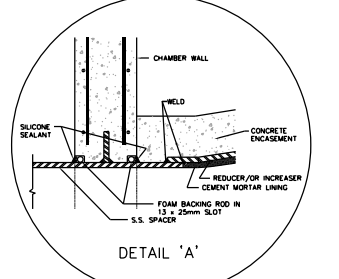
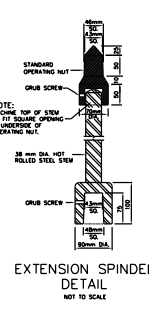
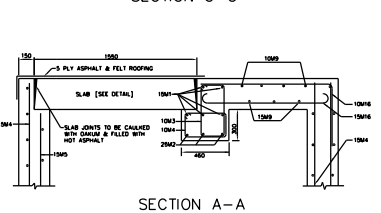


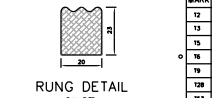
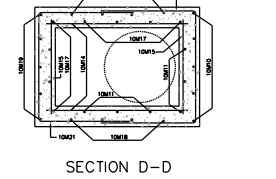
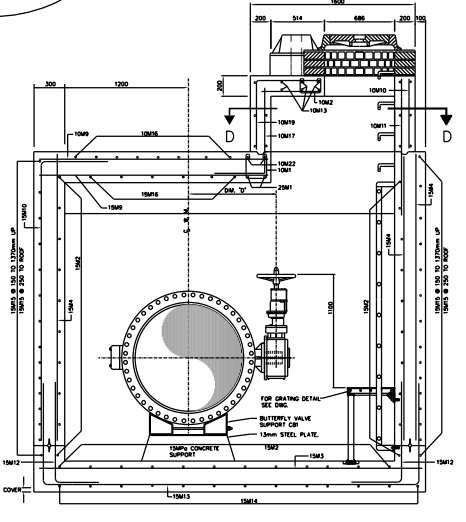
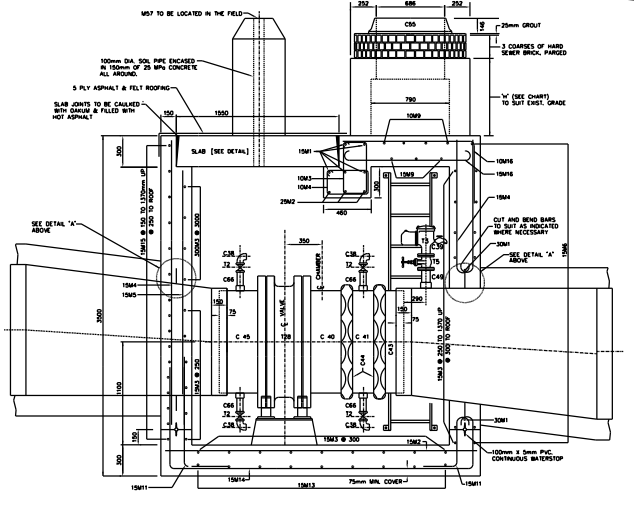
- NOTES:**
- 25mpa CONCRETE TO BE USED EXCEPT AS NOTED.
 - MAXIMUM SIZE OF COARSE AGGREGATE TO BE 30mm.
 - COVER TO MAIN REINFORCEMENT TO BE 50mm OR AS INDICATED.
 - ALL BAR DIMENSIONS ARE OUT TO OUT.
 - BARs TO BE BENT COLD, MINIMUM INSIDE RADIUS TO 4 DIAMETERS.
 - ALL CROSSING BARs TO BE WELL WROED.
 - ALL REINFORCING STEEL TO BE DEFORMED BILLET-STEEL, BARs GRADE 350, CONFORMING TO C.S.A. STANDARD G30.12M.
 - ALL LAPS IN REINFORCING STEEL TO BE AT LEAST 30 DIAMETERS IN LENGTH OR AS SHOWN, AND TO BE STAGGERED.
 - ALL BRICKWORK TO BE OF HIGH QUALITY HARD SEWER BRICK, LAD IN FULL MORTAR BED AND JOINTS, PARGED INSIDE AND OUT.
 - WATERSTOP (PVC) TO BE PROVIDED AT ALL CONSTRUCTION JOINTS.
 - WHERE NECESSARY ADJUST REINFORCING STEEL TO SUIT WATERSTOPS AND OPENINGS.
 - PROVIDE SUMP PIT WITH GRATING AND SLOPE FLOOR TO SUMP 10mm/METRE.
 - DRAIN OUTLET TO BE LOCATED AT NEAREST POINT TO EXISTING SEWER. IF ELEVATION OF SEWER IS HIGHER THAN CHAMBER FLOOR THE DRAIN MAY BE CLAMPE TO THE WALL BY AN APPROVED METHOD, IF NO SEWER IS AVAILABLE DELETE DRAIN TYPE 'A' AND CONSTRUCT DRAIN TYPE 'B' AND INSTALL PIPE WITH STOPPER AS SHOWN ON DWG.
 - DRAIN CONNECTION TO SEWER TO BE MADE BY CONTRACTOR UNLESS OTHERWISE STATED IN THE GENERAL SPECIFICATIONS.
 - LADDERS, GRATINGS AND RAILINGS TO BE ALUMINUM AND OF REMOVABLE TYPE WITH STAINLESS STEEL BOLTS.
 - TOP TWO STEPS AND ANY ADDITIONAL STEPS IN THE CHIMNEY TO BE OF THE REMOVABLE TYPE.
 - CHAMBERS DEEPER THAN 1200mm FROM SURFACE ELEVATION TO TOP OF WALKING OPERATING SPINDLE SHALL HAVE EXTENSION SPINDLE AND GUIDE BRACKET.
 - ALL ALUMINUM SURFACES CONTACTING CONCRETE TO RECEIVE ONE COAT OF BITUMINOUS PAINT.
 - 'X' DEPENDS ON HEIGHT (H) & BARs SHALL BE COUNTED TO ENSURE THAT THE BOTTOM BAR IS LESS THAN 150mm ABOVE THE ROOF CHAMBER.



BENDING SCHEDULE

BAR No.	SHAPE	Q.C.	No. REQ'D.
10M1	900	200	200
10M2	750	230	200
10M3	1640	520	230
10M4	1380	380	230
10M5	750	230	200
10M6	1425	550	230
10M7	650	200	8
10M9	2200	200	5
10M10	H=100	300	6
10M11	H=600	300	6
10M12	614	300	4
10M13	1090	300	6
10M14	1000	300	8
10M15	1000	300	8
10M16	1830	1300	350
10M17	H=430	H=200	450
10M18	H=140	H=100	500
10M19	H=140	H=100	514
10M20	2140	1910	350
10M21	2890	1000	200
10M22	2080	500	3000
15M1	3700	1000	10
15M2	3000	1000	10
15M3	3700	1000	29
15M4	2750	1000	30
15M5	1500	1000	6
15M6	1800	1000	22
15M8	660	300	5
15M9	2200	300	3
15M10	2570	2750	300
15M11	3700	1000	30
15M12	1220	700	300
15M13	1640	1000	200
15M14	6540	3000	800
15M15	5440	1230	3000
15M16	1300	1000	300
15M17	2270	1910	300
15M18	1810	1350	13
25M1	29	200	2
28M2	4280	2700	10
30M1	30	O.D. OF PIPE + 600	8

CHAMBER No.	DM. 'A'	DM. 'B'	DM. 'C'	DM. 'D'	DM. 'E'



CHAMBERS

CHAMBER No.	CHAMBER DIMENSIONS (m)	BATTERMAN & ELV. (m)	SURFACE ELV. (m)	DIFFERENCE IN ELV. (m)	COVER LOCATION	COVER TYPE	DRAIN TYPE	FOR LOCATION REFER TO PLAN No.	REMARKS

MATERIAL LIST

MARK	SUPPLIED BY CITY OF TORONTO	MARK	SUPPLIED BY CONTRACTOR
L2	4-50mm GATE VALVE (DOWNEY)	C40	1-100mm FABRICATED S.S. V-CLT CONNECTION
L3	1-100mm AIR VALVE (FLANGED)	C41	1-100mm FABRICATED S.S. V-CLT W/CH BRASS
L4	1-100mm GATE VALVE (FLANGED)	C42	1-100mm FABRICATED S.S. V-CLT CONNECTION
L5	1-150mm BACKWATER CHECK VALVE	C43	2-100mm VCT. COUPLING STEEL SHOULDERED
L6	1-100mm CENTRE PLUG FOR CHAMBER COVER	C44	1-100mm VCT. COUPLING STEEL SHOULDERED
L7	1-100mm HOR. BUTTERFLY VALVE	C45	1-100mm FABRICATED S.S. FLANGE ASSEMBLY
L8	1-100mm HOR. BUTTERFLY VALVE	C53	2-100mm TO 100mm REDUCERS
L9	1-30mm ROUND TOP	C55	1-CIRCULAR COVER WITH FRAME AS PER METH. PLAN (INDICATE AREA STANDING SURFACE)
C38	4-50mm GALVANIZED STREET ELBOW	C61	56-M36 x 18mm S.S. BOLTS & NUTS
C39	1-30mm MALE NPT SW. FAUCET, ROUGH BRASS WITH HOSE END AND 3/16" OR EQUIVALENT	C61	56-M36 x 18mm S.S. TUBES EACH WITH 1 NUT (L.I.C.)
C48	1-FABRICATED 100mm S.S. NOZZLE	C62	3-100mm CLOTH INSERTED RUBBER GASKETS (DUAL FACE ONE PIECE)
C61	16- M16 x 85mm S.S. BOLTS & NUTS	C64	1-C-CL. RUNNING TRAP WITH CLEANOUT & COVER
C62	2-100mm GASKETS (DUAL FACE ONE PIECE)	C64	1-150mm SOL. PIPING
C66	4-30mm x 150mm LONG EXTRA STRONG BRASS NPTX THREADED BOTH ENDS	C65	1-SUMP WITH FRAME AND GRATING
C75	1-STEEL PLATE, 300mm x 90mm x 6mm	C68	STANDARD ALUMINUM LADDER AND STEPS
C81	2-STANDARD BUTTERFLY VALVE SUPPORTS	C75	1-STEEL PLATE, 300mm x 90mm x 6mm

ALL DIMENSIONS SHOWN HERE ARE IN MILLIMETRES UNLESS OTHERWISE NOTED



Toronto Engineering & Construction Services

Title
Subfile 1
Subfile 2

1050 mm HORIZONTAL BUTTERFLY VALVE CHAMBER (POSITION 'A')

DESIGN: Design DRAWN: Drawn CHECKED: Checked CONTRACT No. X-X

SCALE: SCALE DRAWING NUMBER: T-1110.10-1 SHEET X OF X

DATE: DATE

No.	DATE	REVISIONS	INITIAL	SIGNED

GENERAL MANAGER, TORONTO WATER	DIRECTOR, Design and Construction Linear Underground Infrastructure
EXECUTIVE DIRECTOR, Engineering & Construction Services	MANAGER, Design and Construction Linear Underground Infrastructure