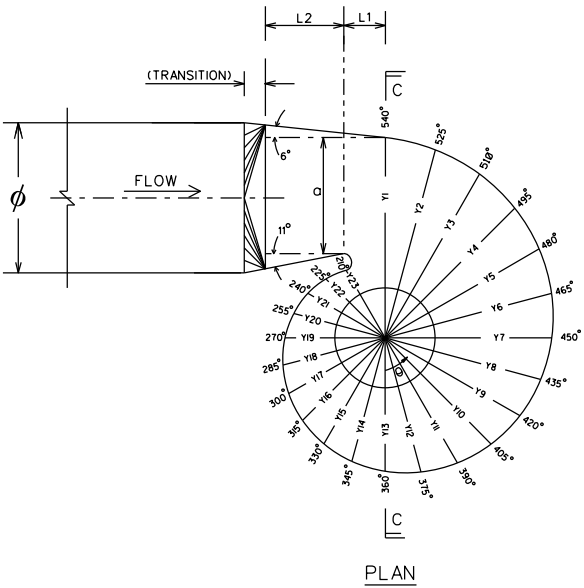


ϕ =Incoming Pipe diameter [See Note 2]	200	250	300	350	400	450
d=drop pipe diameter	300	350	450	450	500	500
Dimension						
D	1000	1167	1500	1500	1667	1667
d1	420	490	630	630	700	700
t	200	233	300	300	334	334
a	348	406	522	522	580	580
L1	125	146	188	188	209	209
L2	235	274	352	352	392	392
R1	488	569	731	731	813	813
R2	33	39	50	50	55	55
Q_{design} (l/s) [See Note 2]	48	72	129	152	203	230

Where:
 1. Q_{design} is the design capacity of drop pipe (d)
 2. Q_{ϕ} is the design capacity of incoming pipe (ϕ)
 3. $Q_{design} \geq Q_{\phi}$

DIMENSION & DISCHARGE CAPACITY OF VORTEX DROP

Vortex Drop pipe diameter (d)	Vortex Width																						
	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14	Y15	Y16	Y17	Y18	Y19	Y20	Y21	Y22	Y23
300	600	583	567	550	533	517	500	483	467	450	433	417	400	383	367	350	333	317	300	283	267	250	233
350	700	681	661	642	622	603	583	564	544	525	506	486	467	447	428	408	389	369	350	331	311	292	272
450	900	875	850	825	800	775	750	725	700	675	650	625	600	575	550	525	500	475	450	425	400	375	350
500	1000	972	944	917	889	861	833	806	778	750	722	694	667	639	611	583	556	528	500	472	444	417	389
θ = Angle of Revolution	540	525	510	495	480	465	450	435	420	405	390	375	360	345	330	315	300	285	270	255	240	225	210



NOTES :

- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED.
- THIS VORTEX DROP IS ONLY UP TO 450mm IN DIAMETER OR DESIGN CAPACITY UP TO 230 L/S. LARGER VORTEX DROPS HAVE TO BE INDIVIDUALLY DESIGNED BY THE P.E.
- FOR DETAIL OF MULTISTRAND POLY-PROPYLENE NYLON ROPE NETTING BELOW MANHOLE COVER, REFER TO DWG NO. PUB/WRN/STD/00B.
- FOR DETAIL OF STANDARD ANODISED ALUMINIUM ALLOY SAFETY CHAIN AND HANDRAIL, REFER TO DWG NO. PUB/WRN/STD/102.

1. DETAILS OF MANHOLE FRAME AND COVER ON ROAD/PAVEMENT AND ON TURF UPDATED.
2. HEIGHT OF BRICKWALL TO EXCLUDE MANHOLE FRAME THICKNESS.
3. MIN 2.5mm THICK HDPE LINING ADDED TO MANHOLE WALLS WITH INTEGRAL ANCHOR STUDS ALL ROUND. 1.5mm THICK PVC REMOVED.
A 4. SUITABLE PILES AT CENTRES AND LENGTHS AT ALL MANHOLE SECTIONS ADDED.
5. MINIMUM 300mm CONCRETE HAUNCHING WITH CAST IN OR CHEMICALLY ANCHORED DOWEL BARS WRAP ROUND THE HAUNCHING ADDED.
6. NOTES REVISED.
7. MIN DIMENSIONS OF CHAMBER ADDED.

AMENDMENTS

ISSUED : OCT 2013	SCALES
LAST REVIEWED : JAN 2019	1 : 10 UNLESS OTHERWISE STATED

VORTEX DROP

OPUB SINGAPORE'S NATIONAL WATER AGENCY
 WATER RECLAMATION (NETWORK) DEPARTMENT
 DRG. NO. PUB/WRN/STD/009A

[ORIGINAL BORDER SIZE 810mm X 565mm]