

# PREDL SYSTEMS NORTH AMERICA

7520 Conrad Street, Burnaby, BC V5A 2H7

## PVC Material Information

PVC Pipe Dia.	60.000	inch
Wall Thickness	1.208	inch
I of Wall	0.147	inch <sup>4</sup> /in

## Soil Information

Water Density	62.4	lbs/cu.ft.
Counter Weight Soil Density	80	lbs/cu.ft.
Soil Dry Density	120.000	lbs/cu.ft.
Soil Sat. Density	135.000	lbs/cu.ft.
Soil Inter. Friction Angle	30.000	psi, E'
Friction Coefficient	0.400	
Soil Modulus	1000.000	
Active Earth Pres. Coeff.	0.333	

## Bouyancy Effect Check

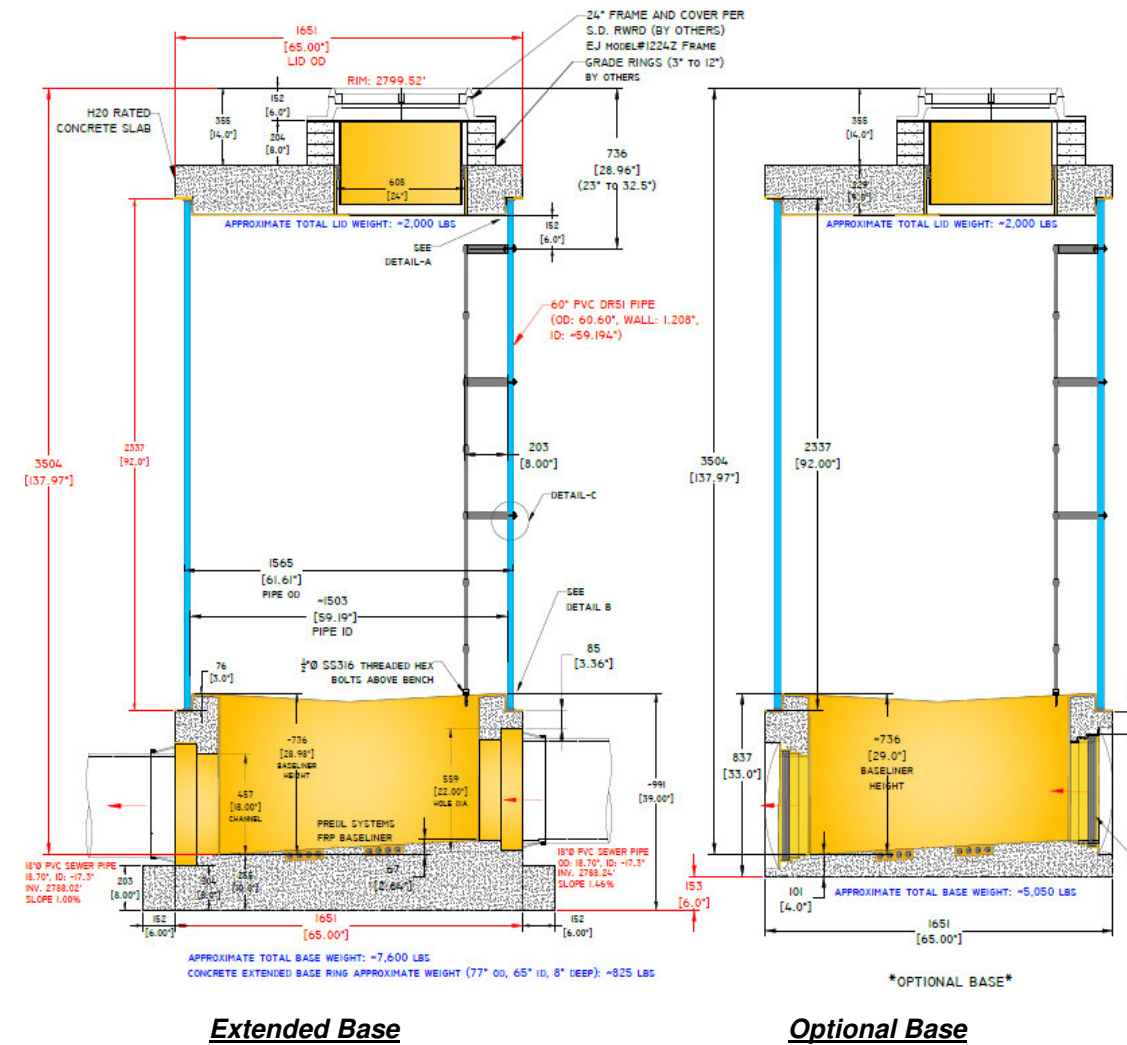
Counter Weights considered in the calculation:

1. Backfill Soil Weight on top of the Lid.
2. Self-Weight of Base and Lid.
3. Soil carried by the Extended Base or Anti-Floating Ring.
4. PVC Self-Weight.
5. Down Drag Force by Soils.

Note: Cells in yellow are the input variables. Output is the Bouyancy Effect Safety Factor, which should be greater than 1.0

## Calculation Sheet

Manhole Depth ft	PVC Length ft	D.D. Shear Stress lbf/sf	D.D. Force lbs	Bouyancy Force lbs	Bouyancy Effect Safety Factor	
					<i>Extended Base</i>	<i>Optional Base</i>
9.00	6.00	81.68	8007.65	11026.99	1.97	1.74
10.00	7.00	92.57	10587.89	12252.21	2.01	1.79
11.00	8.00	103.46	13524.03	13477.43	2.06	1.86
12.00	9.00	114.35	16816.06	14702.65	2.13	1.94
13.00	10.00	125.24	20463.99	15927.87	2.22	2.03
14.00	11.00	136.13	24467.81	17153.10	2.31	2.13
15.00	12.00	147.02	28827.53	18378.32	2.41	2.23
16.00	13.00	157.91	33543.15	19603.54	2.51	2.34
17.00	14.00	168.80	38614.66	20828.76	2.62	2.46
18.00	15.00	179.69	44042.06	22053.98	2.74	2.58
19.00	16.00	190.58	49825.36	23279.20	2.85	2.70
20.00	17.00	201.47	55964.56	24504.42	2.97	2.82



D.D. Force: Down Drag Force

Counter Weight Option #1 (Extended Base) =	7,600	lbs
Counter Weight Option #2 (Optional Base) =	5,650	lbs
Counter Weight (Lid) =	2,000	lbs
PVC Riser Weight (per foot length) =	155	lbs/ft



8/8/2019