

**BOUYANCY CALCULATION
FOR PUMPING STATION DESIGN**

**PORT ST. GEORGES
NORTH PUMPING STATION**

PROJECT NO. 11373.BB.CB

BY: RKM, 04-26-2024

Inside diameter	6.00 feet
Wall thickness	6.00 inches
Outside diameter	7.00 feet
Top of barrel elevation	34.25 feet
Bottom of barrel elevation	16.75 feet
Barrel Height	17.50 feet
Top slab length	0.00 feet
Top slab width	0.00 feet
Top slab thickness	0.00 inches
	0.00 feet
Top slab top elevation	0.00 feet
Hatch length	0.00 feet
Hatch width	0.00 feet
Base slab thickness	12.00 inches
	1.00 feet
Base slab diameter	9.00 feet
Ground Elevation	34.75 feet
Density of soil	53 lb/cf
Volume of Soil normal to shelf	440 cu. Ft
Soil friction angle 26-36	26
R1 (large base, top of wet well)	13 feet
R2 (small base, bottom of wet well)	5 feet
Volume of Soil at angle to shelf	3,447 cu. ft
Total volume acting on shelf	3,887 cu. ft
Concrete weight	150 lbs/cu ft
Top slab volume	- cubic feet
Top slab weight	- lbs
Barrel weight	107,207 lbs
Base slab weight	9,543 lbs
Soil weight	206,005 lbs
Total weight	322,754 lbs
Water table elevation ¹	25.75 feet
Water displaced by barrel	86,452 lbs
Water displaced by base	3,970 lbs
Total bouyanacy	90,421 lbs
Safety factor	3.57

Notes: 1 Geotech report prepared by Duffield, water level is 9 feet below grade.