

Fact Sheet — Sandbags, Sand, Personnel, Equipment

Sandbags

Engineers recommend building a dike with a width at the base that is three times the dike height. For example, a 4-foot-high dike would have a base width of 12 feet.

Each foot of finished dike length requires one bag, each foot of height requires three bags, and each 2.5 feet of width requires three bags.

The chart below calculates the **estimated** number of sandbags needed for 100 linear feet of dike;

Base width 3 times the height		Base width 2 times the height	
Height (feet)	Number of sandbags	Height (feet)	Number of sandbags
1	600	1	600
2	2100	2	1700
3	4500	3	3000
4	7800	4	5500

Source: U.S. Army Corps of Engineers; North Dakota State University, Fargo, North Dakota

Costs per Sandbag	Filled	Empty
	\$5.10	\$0.98

Source: Local supplier quote on September 7, 2012

Sand

One cubic yard of sand will fill approximately 100 - 14" x 26" sandbags with a weight of 30 lbs each. Every sandbag will hold about 0.4 cubic feet of sand.

The chart below calculates the **estimated** cubic yards of sand per 100 linear feet of dike:

Dike Height (ft)										
		1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0
Cubic Yards of Sand	Width 3 x h	7	15	25	38	54	73	95	119	145
	Width 2 x h	6	11	18	27	38	50	65	82	100

Source: U.S. Army Corps of Engineers; North Dakota State University, Fargo, North Dakota

Sand – per tonne	Delivery – per tonne	1 tonne = 3.70 cubic yards
\$3.50	\$3.40 to \$5.70 (depending on location)	

Example: 1 truckload (28 tonnes) delivered to St. Clair Depot — \$7.50/tonne \$210.00 + taxes

Source: Local supplier quote on September 7, 2012

Personnel

Filling sandbags by hand is labour intensive. Two people working together with a shovel and tying off the bag can fill approximately 12 sandbags per hour. It would take 2 people 50 hours to fill enough bags to build a dike that is one foot high with a recommended base of twice the width.

Greater Sudbury does not own any equipment to assist with the filling of sandbags however there are several products currently available on the market

Equipment

The **Sandbagger** is a large portable machine with twelve spouts that can fill 5000 bags per hour in a sand pit or in a large building during inclement weather. Sand is sent into the machine on a conveyer belt. One person stands at the end of the chute ready for a quick dump of sand, and quickly passes it down the assembly line consisting of bag tiers, bag passers and bag tossers. The **Sandbagger** sells for \$36,000.

ExpressBagger is designed to work with three or more individuals. One person with a shovel continuously throws sand into the funnels while others are alternating between filling, tying and removing bags. A team of three can fill 240 bags in an hour. The **ExpressBagger** ranges in cost from \$87 for a single funnel up to \$2253 for 30 funnels.