

**Project: Bambrough Subdivision, Weber County, Rev. July 2013**  
 Design: K. Price  
 Date: 07/17/13

**RETENTION VOLUME CALCULATIONS (INCLUDING TREASURE ACRES)**

**Design Criteria: Weber County, 10 year storm**

Area Calculations		Area Coefficients	
developed residential	3.90 acres	CI	0.40
Street & Shoulder	1.24 acres	Cr	0.90
landscape	8.93 acres	Cg	0.60
<b>Total Area</b>	<b>14.07 acres</b>		

Total Area Coefficient  
 $C = (A_I \times C_I + A_r \times C_r + A_g \times C_g) / A = 0.57$

**Allowable Runoff Based on Existing 2.5" Restriction 0.65 cfs**

Minutes	C*A	I	T(sec)	Cumulative Runoff	Allowable Runoff	Storage (cu.ft.)
5	8.03	2.76	300	6,652	195	6,457
10	8.03	2.10	600	10,123	390	9,733
15	8.03	1.74	900	12,581	585	11,996
30	8.03	1.17	1,800	16,920	1,170	15,750
60	8.03	0.72	3,600	20,940	2,340	18,600
120	8.03	0.41	7,200	23,832	4,680	19,152
360	8.03	0.17	21,600	30,021	14,040	15,981
720	8.03	0.10	43,200	35,054	28,080	6,974
1440	8.03	0.06	86,400	39,566	56,160	-16,594

**Storage Required 19,152 cu.ft.**

Outlet Control

$Q = 0.65 \text{ cfs}$        $g = 32.20 \text{ ft/s}^2$   
 $C = 0.60$                $h = 1.00 \text{ ft}$

Required Restriction Size =  $Q / (C \times (2 \times g \times h)^{0.5}) = 19.44 \text{ in}^2$

**Restriction Diameter 2.5 inches**



**JUL 17 2013**