# Storm Runoff Calculations

## Edgewater Estates

4/2/2012 SKT

The following runoff calculations are based on the Rainfall - Intensity - Duration Frequency Curve for the Huntsville, UT area taken from data compiled by NOAA Atlas14, using a 100 year storm.

Runoff storm water has been calculated for two different sets of conditions, one being the existing undeveloped land and the other with land fully improved. The difference between the two quantities will be detained in a holding pond. All water that runs off and over the property at present will be diverted into the holding pond and released at a reduced rate into the existing drainage system.

The calculations are as follows:

1. Runoff from the undeveloped existing land.

| | | | |
|---|---|---|---|
| Runoff Coefficient | C = | 0.2 | |
| Rainfall Intensity | i = | 3.20 | IN./HR. |
| Runoff Quantity | Q = | CiA | |
| Acreage | A = | 13.08 | ACRES |

Q(out) = C*i*A = 8.37 CFS

2. Runoff from developed land

Runoff Coefficients

| | | |
|---|---|---|
| Paved Area | 138,270 | C = 0.9 |
| Landscaped Area | 302,801 | C = 0.2 |
| Roof | 128,900 | C = 0.8 |

Weighted Runoff Coefficient C = 0.51

| | |
|---|---|
| Rainfall Intensity | i = varies with time |
| Runoff Quantity | Q = CiA |

3. Detention Basin

| | |
|---|---|
| Volume in | Q * t |
| Volume out | 8.37 * t |

The capacity of the detention basin is calculated as the maximum difference between the volume flowing in and the volume flowing out.

The outflow from the detention basin is limited to outflow if undeveloped.
Use 8.37 cfs for Q outflow

**The required volume of the detention basin is 23,025 cubic feet**

**USE A 13.3 INCH DIAMETER ORIFICE AT OUTLET**