

**DETENTION VOLUME CALCULATIONS**  
 HIGH WATER AREA (4238.05) = 5,559 S.F.  
 BOTTOM AREA (4234.90) = 1,578 S.F.  
 $(5,559 + 1,578) / 2 = 3,569$  S.F. AVG.  
 $3,569$  S.F. x  $3.15'$  DEEP =  $11,241$  C.F.  
 $11,241$  C.F. >  $11,040$  C.F. (REQ'D.) = **OK**

**Storm Runoff Calculations**  
**Blue Acres Subdivision - Phase 4**  
 8/19/2015 skt

The following runoff calculations are based on the Rainfall - Intensity - Duration Frequency Curve for the Weber County, UT area taken from data compiled by NOAA Atlas 14, 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:

- Runoff from the undeveloped existing land.
 

Runoff Coefficient	C =	0.200
Rainfall Intensity	i =	2.81 IN./HR.
Runoff Quantity	Q =	0.1 per acre
Acreage	A =	6.40 ACRES

$Q(out) = A \cdot 0.1 = 0.64$  CFS
- Runoff from developed land
 

Runoff Coefficients			
Paved Area	30,671	C =	0.9
Landscaped Area	222,225	C =	0.2
Roof	25,931	C =	0.8
Weighted Runoff Coefficient		C =	0.33

Rainfall Intensity  $i =$  varies with time  
 Runoff Quantity  $Q = CIA$
- Detention Basin
 

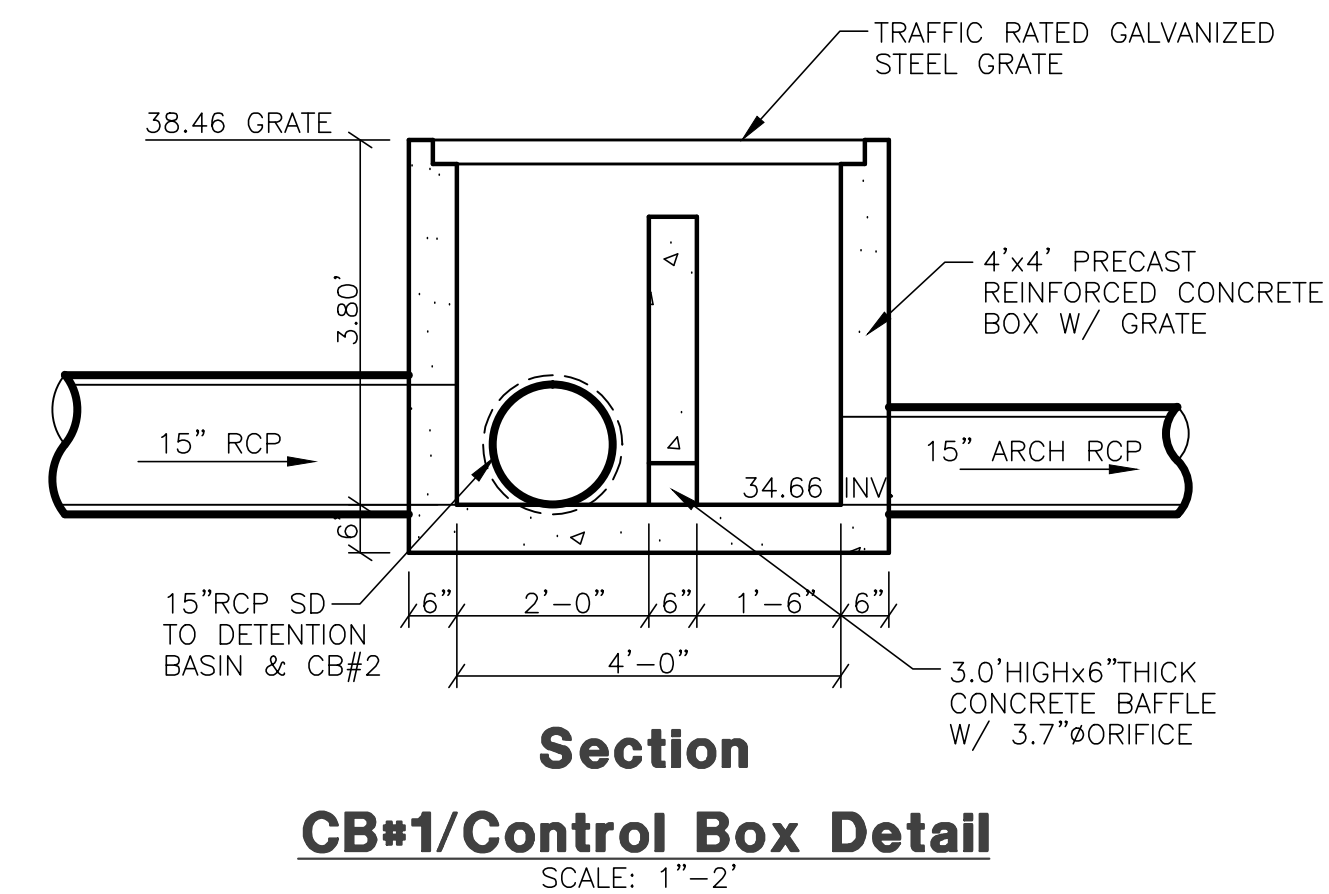
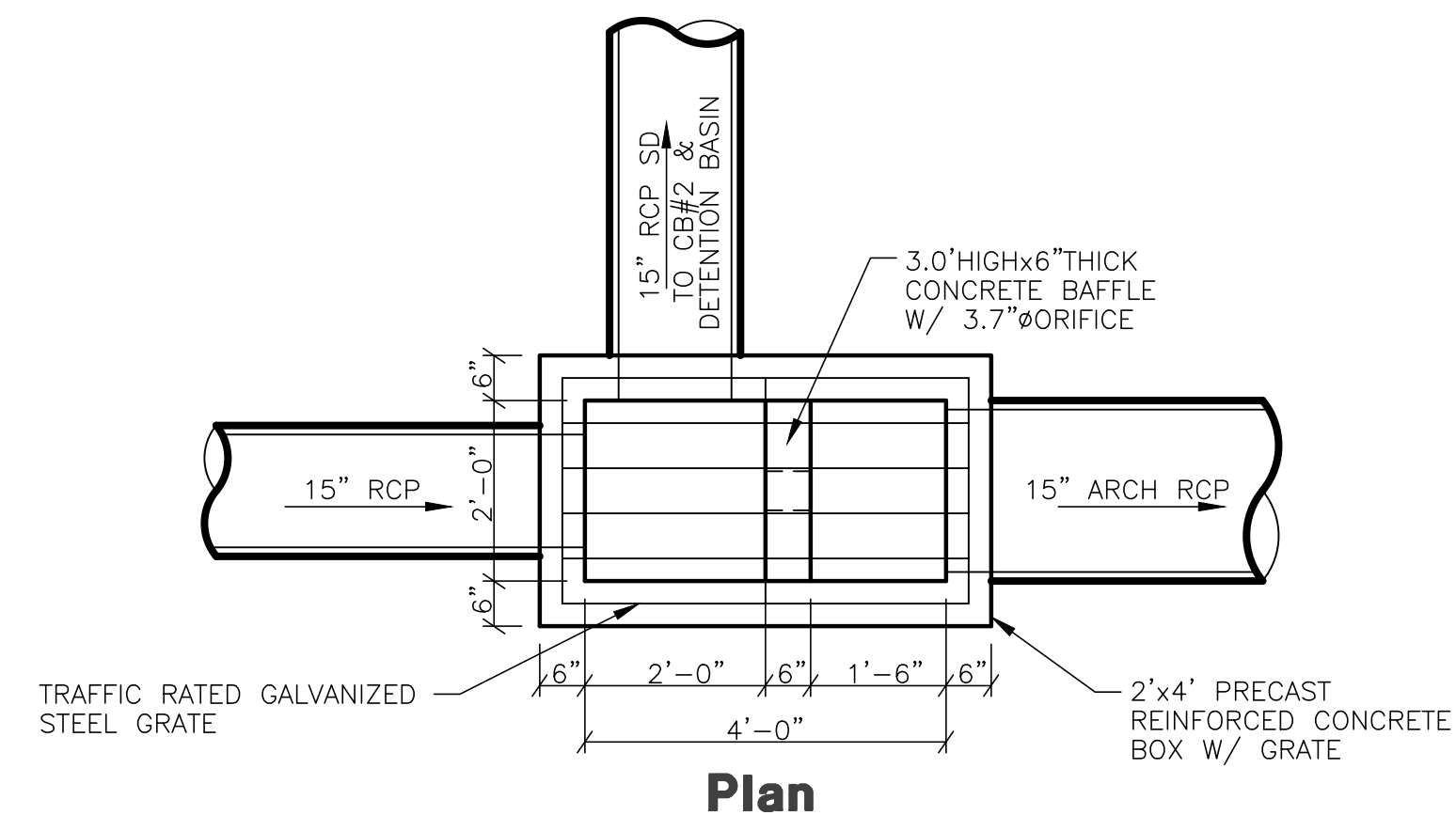
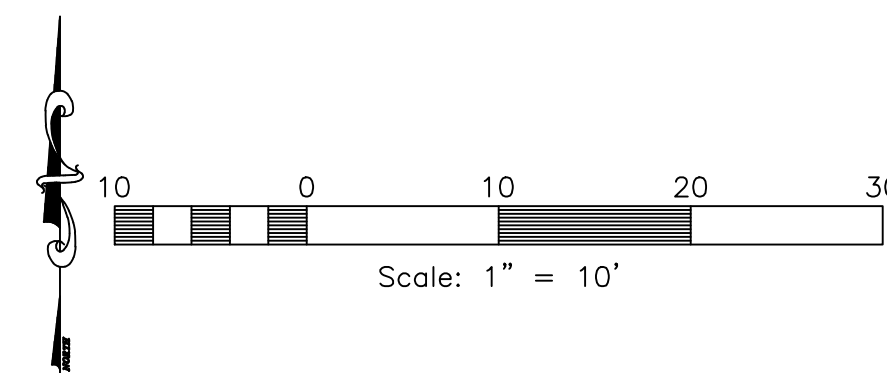
Volume in	Q * t
Volume out	0.64 * t

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 0.64 cfs for Q outflow

**The required volume of the detention basin is 11,040 cubic feet**

**USE A 3.7 INCH DIAMETER ORIFICE AT OUTLET**



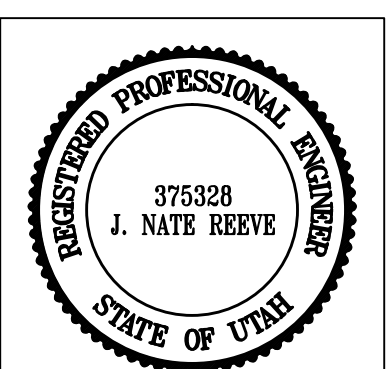
**Section**  
**CB#1/Control Box Detail**  
 SCALE: 1" = 2"

Revised: 11-25-15

**Reeve & Associates, Inc.**  
 920 CHAMBERS STREET, SUITE 14, OGDEN, UTAH 84403  
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DATE	DESCRIPTION
3-17-15	IP County Comments
3-27-15	IP County Comments
6-25-15	RH County Comments
7-22-15	RH County Comments
9-17-15	RH County Comments
11-12-15	RH County Comments
11-25-15	RH County Comments

**Blue Acres Subdivision Phase-4**  
 WEBER COUNTY, UTAH  
**Detention Basin**



**Project Info.**

Engineer:	J. NATE REEVE, P.E.
Drafter:	R. HANSEN
Begin Date:	JUNE 10, 2014
Name:	BLUE ACRES SUBDIVISION PHASE-4
Number:	5036-01

Blue Stakes Location Center  
**Call: Toll Free 1-800-662-4111**  
 Two Working Days Before You Dig

Sheet	<b>8</b>
<b>6</b>	Sheets