

DETENTION VOLUME CALCULATIONS
 FREEDOM AREA (4237.65) = 4,992 S.F.
 HIGHWAY AREA (4235.00) = 1,692 S.F.
 BOTTOM AREA (4235.00) = 3,337 S.F. AVG.
 $[4,992 + 1,692] / 2 = 3,337$ S.F. AVG.
 $3,337$ S.F. x $2.65'$ DEEP = $8,843$ C.F.
 $8,843$ C.F. > $8,735$ C.F. (REQ'D) = OK

Storm Runoff Calculations
Blue Acres Subdivision - Phase 4
 6/19/2014^{1st}

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 detailed 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 = 0.200
 Rainfall Intensity I = 2.81 IN./HR.
 Runoff Quantity Q = 0.2 per acre
 Acreage A = 6.40 ACRES

$Q(out) = A \times I \times C = 1.28$ CFS

2. Runoff from developed land
 Runoff Coefficients
 Paved Area 30,871 C = 0.19
 Landscaped Area 222,225 C = 0.2
 Roof 25,931 C = 0.18

Weighted Runoff Coefficient C = 0.33

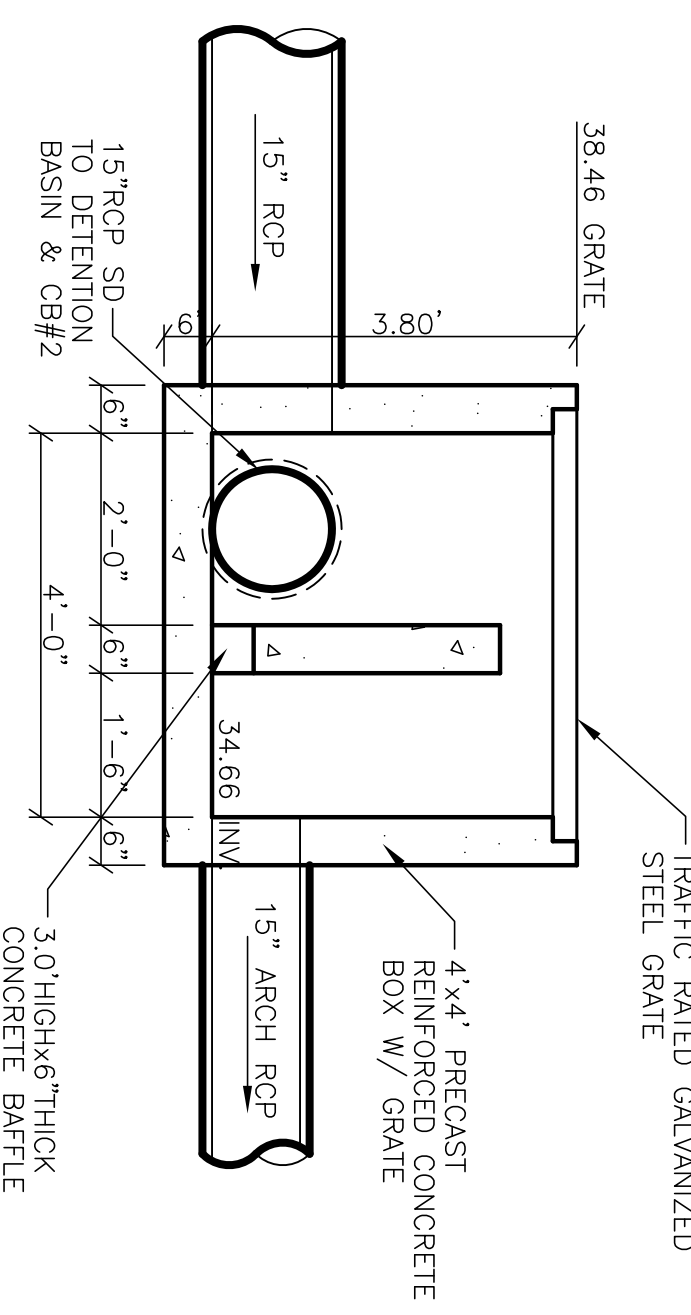
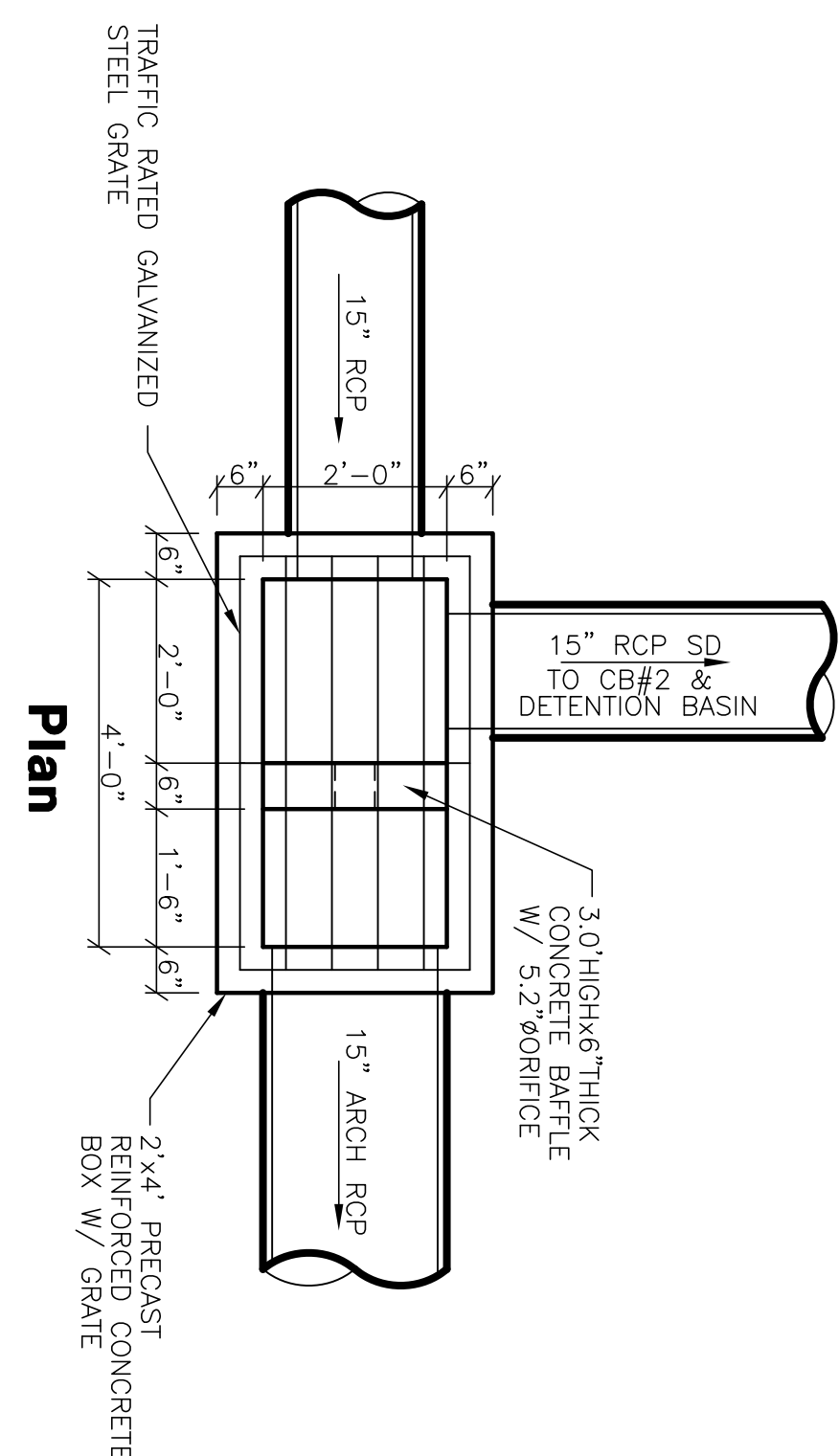
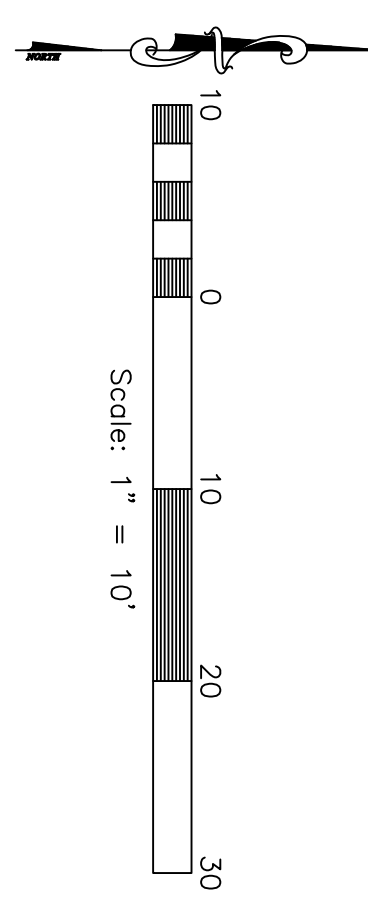
Rainfall Intensity I = varies with time
 Runoff Quantity Q = CIA

3. Detention Basin
 Volume in O = t
 Volume out 1.28 * 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 1.28 cfs for Q outflow

The required volume of the detention basin is 8,735 cubic feet

USE A 5.2 INCH DIAMETER ORIFICE AT OUTLET



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

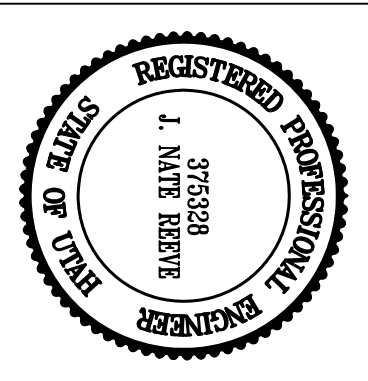
Revised: 2-11-15

Blue Acres Subdivision
Phase-4
 WEBER COUNTY, UTAH

Detention Basin

REVISIONS	
DATE	DESCRIPTION
9-3-14	RH Client Changes
1-12-15	RH County Comments
1-20-15	RH County Comments
2-11-15	RH Client Changes

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 TRAFFIC ENGINEERS • STRUCTURAL ENGINEERS • LANDSCAPE ARCHITECTS



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

Sheet **6** of 8 Sheets

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