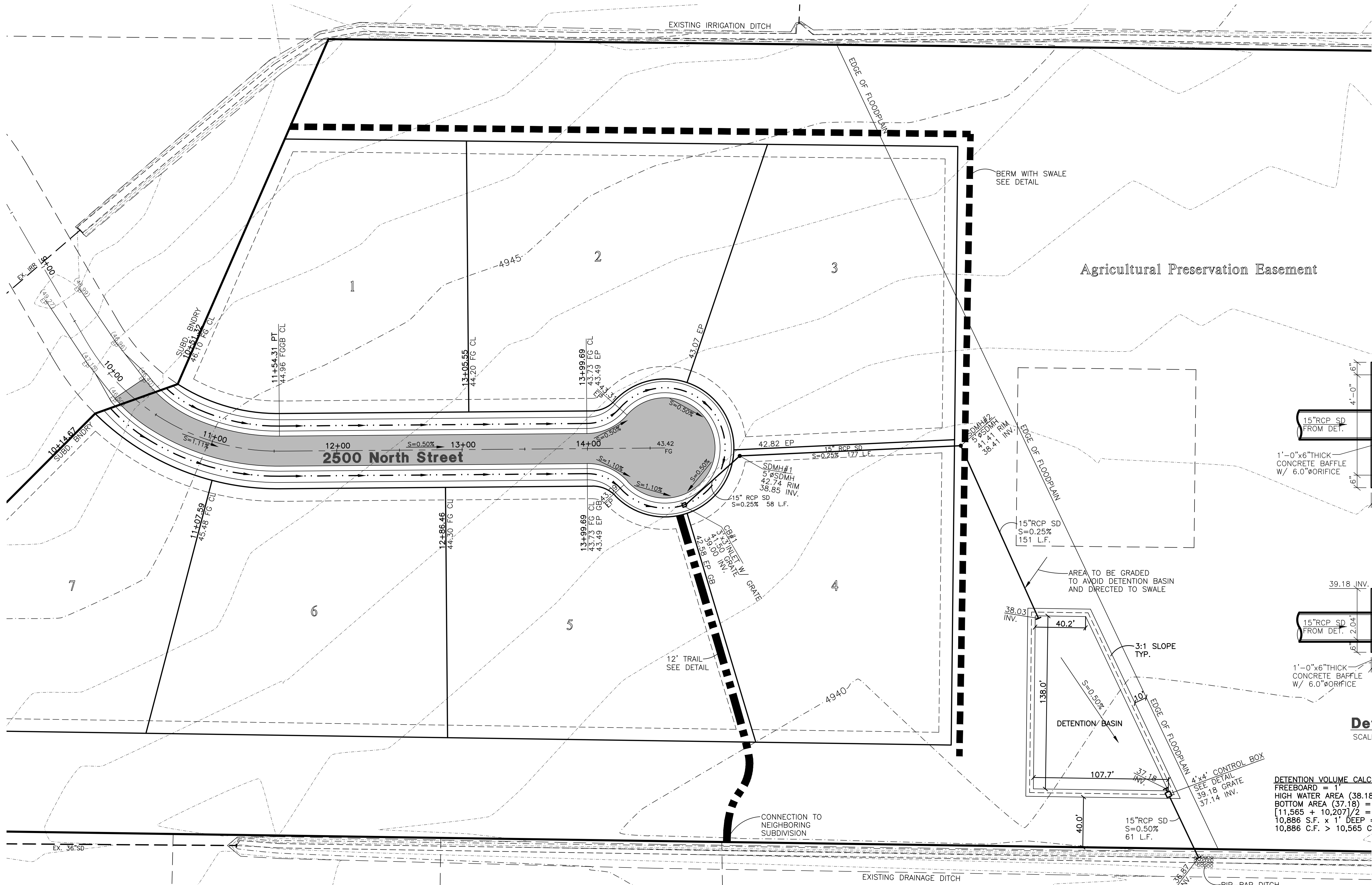




Storm Runoff Calculations

Sandhill Crane Cluster Subdivision

4/14/2015

The following runoff calculations are based on the Rainfall - Intensity - Duration Frequency Curve for the Ogden UT area taken from data compiled by NOAA Atlas 14, using a 100 year

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:

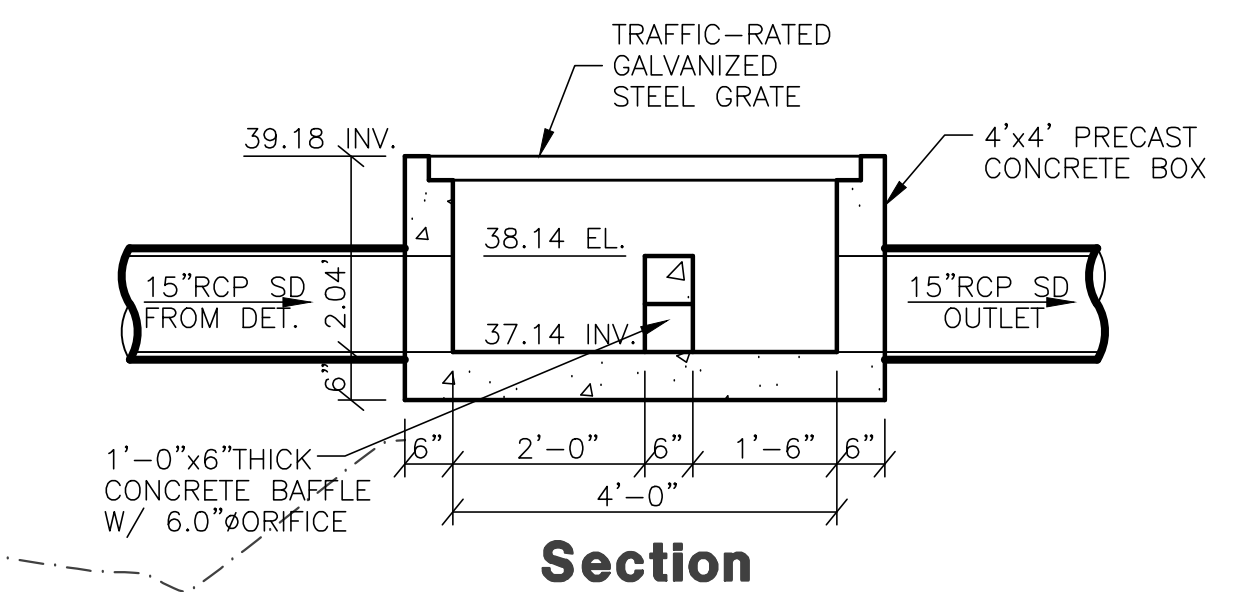
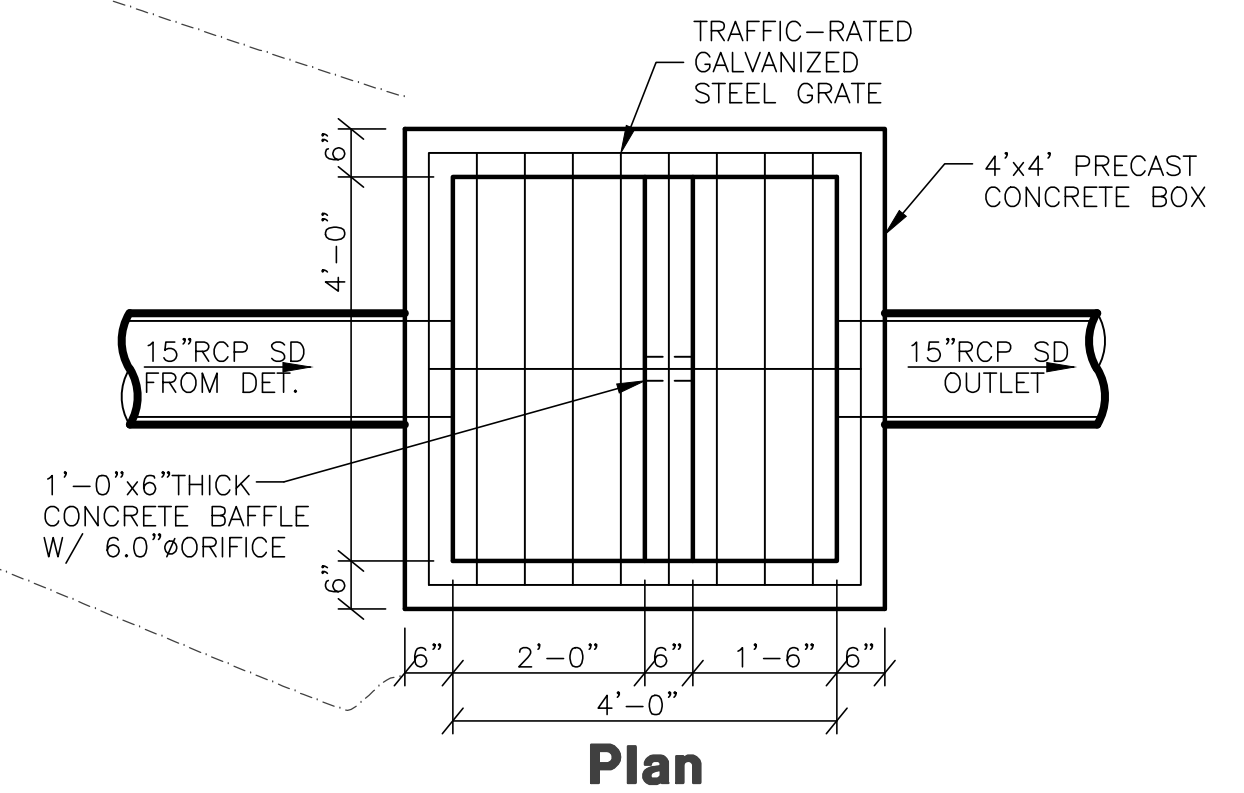
1. Runoff from the undeveloped existing land.		
Runoff Quantity	Q =	0.2 cfs/acre
Area	Asite =	7.80 ACRES
	Aofsite =	0.94 ACRES
	Atotal =	8.54 ACRES
Time of Concentration	Tc =	60.00 min
	Q(out) =	0.27 A
		1.71 CFS
2. Runoff from developed land		
Runoff Coefficients		
Paved Area (Including Driveways)	21632	C = 0.9
Landscaped Area	52910	C = 0.2
Roof	21000	C = 0.8
Weighted Runoff Coefficient		C = 0.27
Rainfall Intensity	i =	varies with time
Runoff Quantity	Q =	CIA
3. Detention Basin		
Volume in	Q * t	
Volume out	1.71 * 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 1.71 cfs for Q outflow

The required volume of the detention basin is 10,566 cubic feet

USE A 6.0 INCH DIAMETER ORIFICE AT OUTLET



Detention Control Box

SCALE: 1" = 2'

DETENTION VOLUME CALCULATIONS

FREEBOARD = 1'

HIGH WATER AREA (38.18) = 11,565 S.F.

BOTTOM AREA (37.18) = 10,207 S.F.

[11,565 + 10,207] / 2 = 10,886 S.F. AVG.

10,886 S.F. x 1' DEEP = 10,886 C.F.

10,886 C.F. > 10,565 C.F. = OK

Reeve & Associates, Inc.

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IRA

REVISIONS	DATE	DESCRIPTION
3-2-15	RH	City Comments
4-6-15	TP	City Comments

Sandhill Crane Cluster Subdivision

EDEN, WEBER COUNTY, UTAH

Storm Drain/Grading Plan

REGISTERED PROFESSIONAL ENGINEER

375328

J. NATE REEVE

STATE OF UTAH

Project Info.

Engineer: J. NATE REEVE, P.E.

Drafter: R. HANSEN

Begin Date: FEBRUARY 4, 2015

Name: SANDHILL CRANE CLUSTER SUBDIVISION

Number: 6460-01

Sheet **6**

4 Sheets