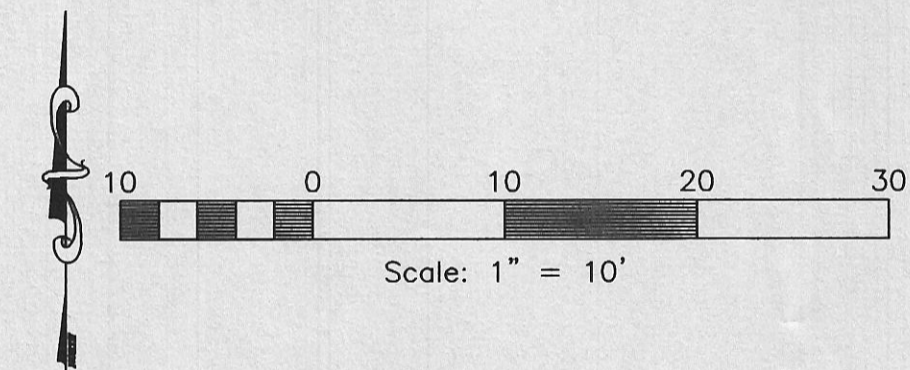


**DETENTION VOLUME CALCULATIONS**  
 1' FREEBOARD  
 HIGH WATER AREA (4237.65) = 4,992 S.F.  
 BOTTOM AREA (4235.00) = 1,682 S.F.  
 [4,992 + 1,682]/2 = 3,337 S.F. AVG.  
 3,337 S.F. x 2.65' DEEP = 8,843 C.F.  
 8,843 C.F. > 8,735 C.F. (REQ'D.) = OK



**Storm Runoff Calculations**  
 Blue Acres Subdivision - Phase 4  
 6/19/2014 TBM

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 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:

- 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

$Q(out) = A^{0.2} = 1.28$  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	1.28 * t

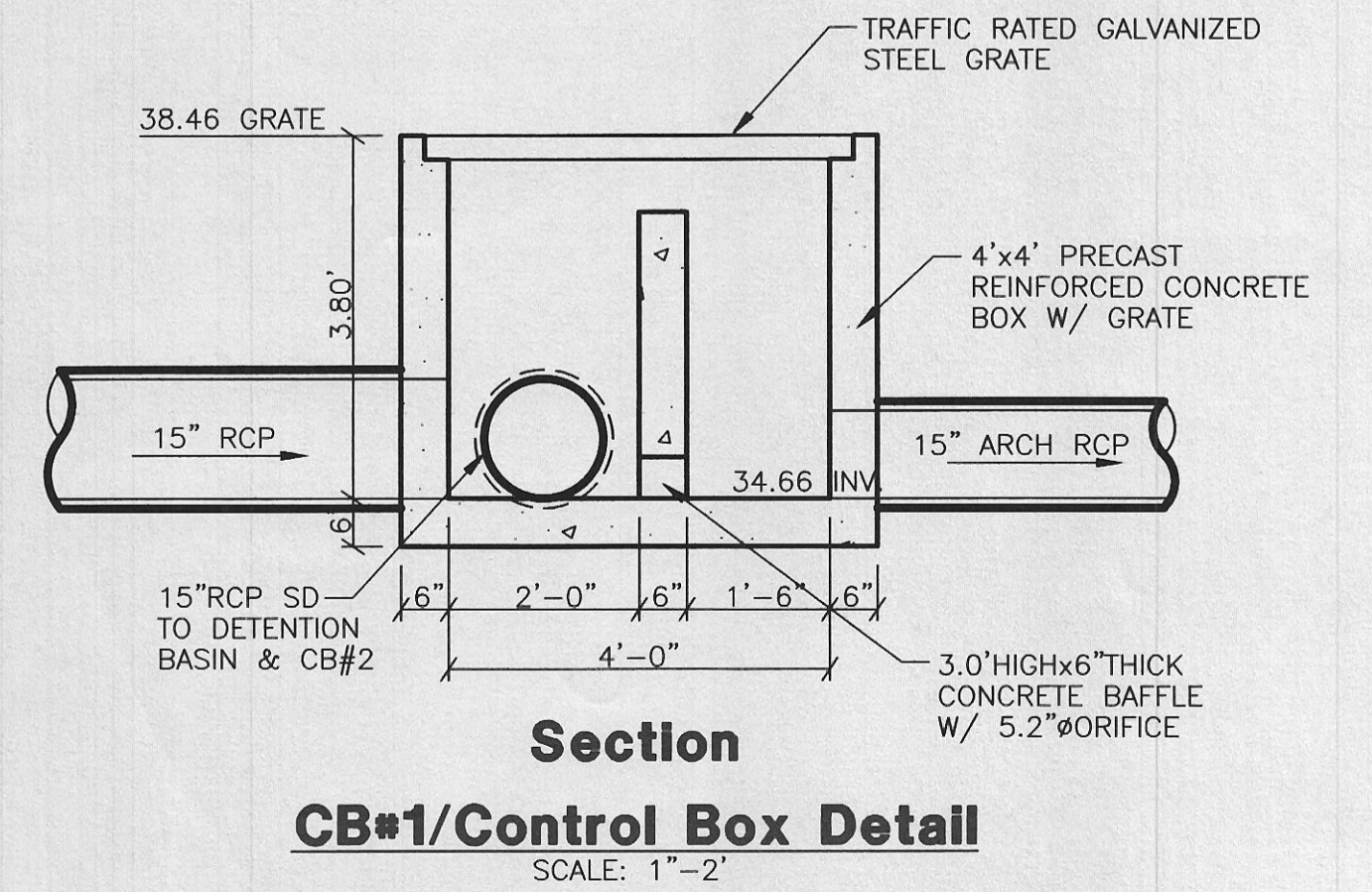
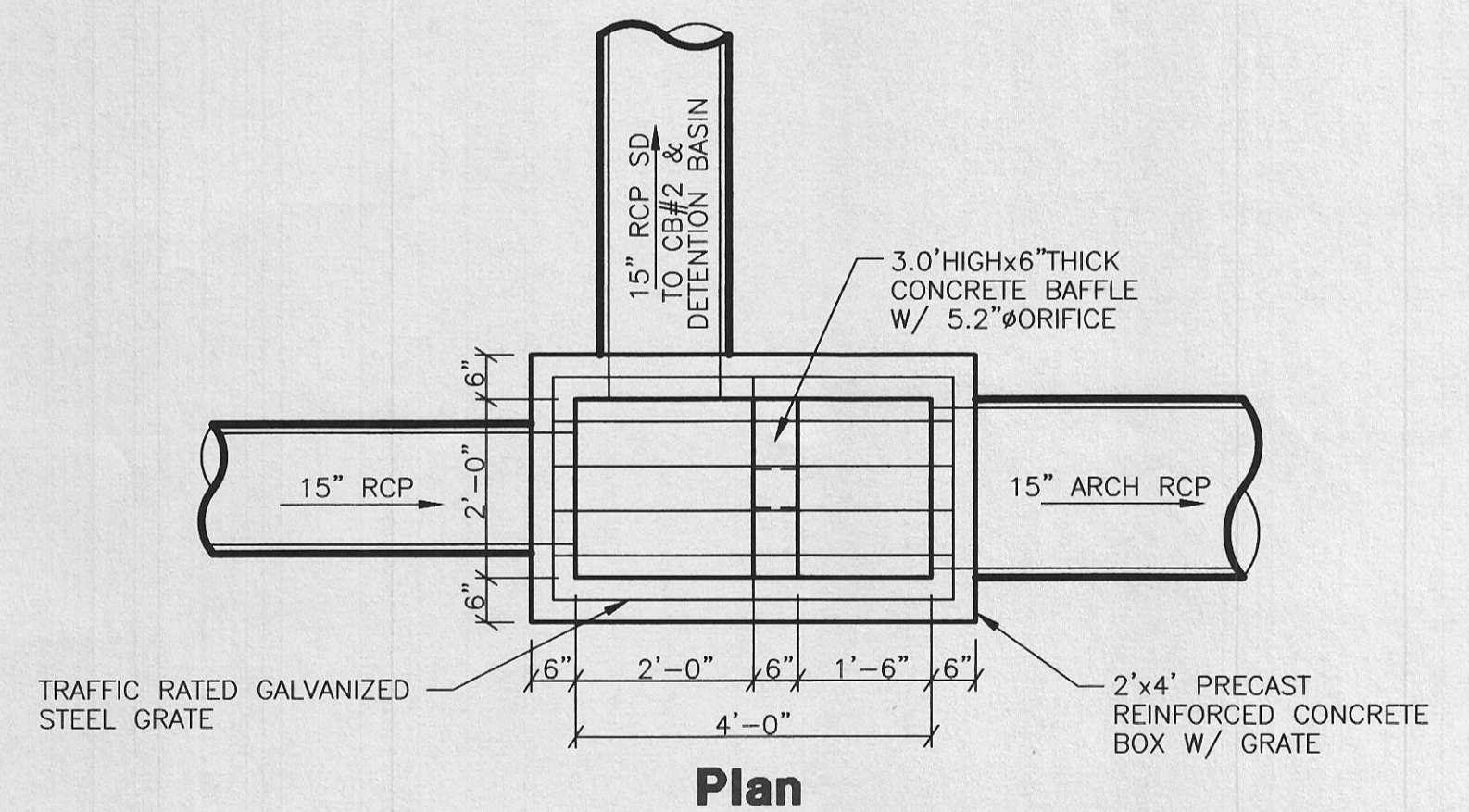
The capacity of the detention basin is calculated as the maximum difference between the volume flowing in and the volume flowing out.

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

*This is not a storm water study, these are just the calculations*



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