Design Exception Request

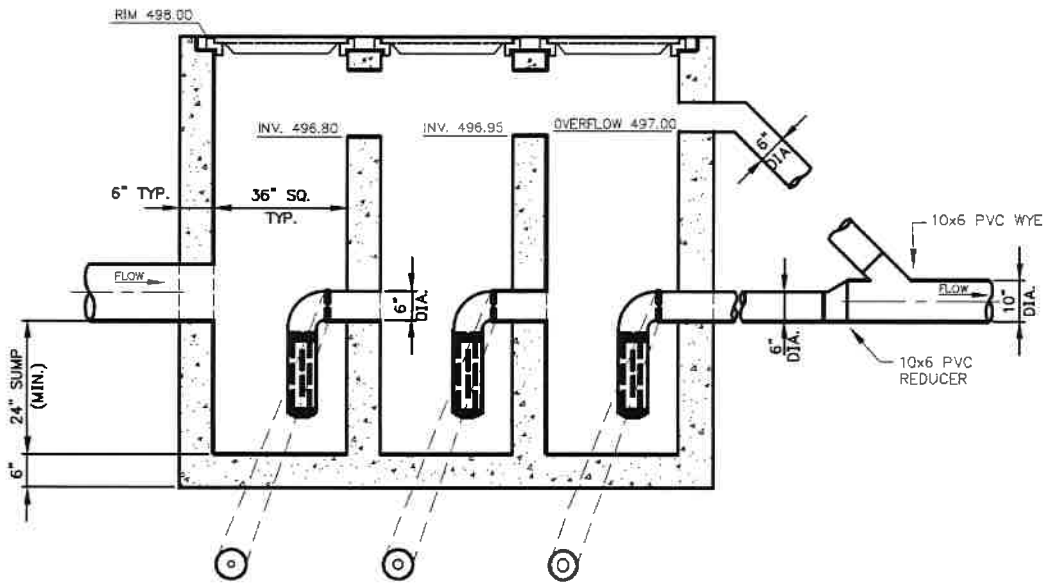
2014 City of Salem's Public Works Administrative Rules Chapter 109, Division 004

Anthony's Place

Division	Section	Exception	Reason	City Engineer Approval Initials	Date
Stormwater System	Standard Plan No. 251B	Alternative Control Structure	An alternative control structure is proposed for this site, given the need to use surface storage in the parking lot. The alternative control structure is one that has been used in other projects in the City of Salem. It is a concrete box with staged weirs and orifices. Each chamber is designed with an orifice to control the outflow and the top elevation of the weir is set at or just above the water surface elevation for the corresponding storm event. For this reason, the control structure has basically one weir set for each design storm event. The orifice elevation for all of the weirs are set at the same elevation, which allows for the previous orifice to not interfere with the modeling of the next larger storm event. The drawing below shows the control structure box used on another project. The drawing shows each chamber, with its own orifice and weir height. Essentially, each chamber acts as an orifice for the flow control and the weir height is set at or above the water surface elevation in the parking lot. For the example shown, only 3 design storms were needed. For Anthony's Place, four chambers will be needed.		

REGISTERED PROFESSIONAL ENGINEER
80415
OREGON
JANUARY 3, 2011
NATALIE G. JANNEY

Renew date: 6.30.2023



SECTION A-A

NOTES:
1. SEE TYPE 1 CATCH BASIN DETAIL FOR ADDITIONAL CONSTRUCTION INFORMATION.
2. RIM AND INVERT ELEVATIONS ARE CRITICAL TO THE FUNCTION OF THE CONTROL STRUCTURE.

Using this method for controlling flow from the detention volume allows for small changes to elevation between storm events. The City of Salem's standard control structures require a much larger head difference, which won't work with parking lot storage.

The table below shows the proposed orifice and weir elevations proposed for this project. These values show the small changes in water surface height and orifice that achieve the different allowable outflows.

Design Storm	Orifice size (in)	Weir Elevation	Outflow (cfs)	WSE	Water Depth (ft)
0.5-2	0.04	397.05	0.003	397.04	0.54
10	2.8	397.1	0.142	397.09	0.59
25	3.4	397.15	0.199	397.07	0.57
100	4.7	397.2	0.347	397.05	0.55