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CDM estimated the surface runoff from the tributary area using the US EPA SWMM 5.0 RUNOFF module, using the Horton soil infiltration method, and considering the topographic characteristics of flowpaths. The proposed project does not include any change in the tributary areas, and therefore there is no proposed condition included in this analysis. The rainfall distribution used for this evaluation corresponds to an SCS Type II, with 24-hour duration and storm depths shown in the table below:

	1.2 inch	5-yr	10-yr	25-yr	100-yr
Storm Depth	1.2	5.5	6.5	7.7	9.1

### Hydraulic Evaluation

The upstream areas receive surface runoff from roadway and parking inlets in the Valdosta Mall area, and discharge it to the Twin Road Ditch, which has an average steep slope of 2 percent. CDM used the US EPA SWMM 5.0 EXTRAN module to route the flows along the Twin Road ditch, through the Baytree Road culvert, and discharge the flows to Sherri Lake. A fixed boundary condition was used to account for the existing Sherri Lake weir invert elevation of 155 ft. The analysis consisted of routing several 24-hour storms and comparing the existing and the proposed condition. The existing condition includes the existing 4 ft by 4 ft box culvert, as well as the current debris fence installed by the City. The proposed condition eliminates the debris fence, located on the upstream side of the Baytree culvert, and includes details regarding the concrete sump, three 42-inch box openings, three 72FTB Snouts, and a protective metal grate. CDM obtained from the SNOOT manufacturer (BMP, Inc.) a table with the suggested loss coefficients to be used for the SNOUTs, which are dependent on the flow velocity through each of them, as shown in the table below.

**Snout K Factor (based on table supplied by BMP Inc)**

	1.2 inch	5 yr	10 yr	25 yr	100 yr
	0.37	1.31	1.30	1.30	1.30

### Results

- **Baytree Road Flooding:** Baytree Road is currently classified as a local road at the project location, with very limited traffic since there is no urban development to the west. It is anticipated that in the future, an apartment complex will generate numerous traffic counts per day. Based on field survey, the road crown elevation is 170.5 ft-NAVD. The model results estimate that the proposed condition will have lower flood elevations for all of the storms with the exception of the 5-year storm, for which there shall be an increase of 0.4 foot in flood stages. This result is mostly associated with the fact that the proposed