URBAN DRAINAGE AND FLOOD CONTROL DISTRICT

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UDFCD Maintenance Eligibility Program
Referral Review Comments

Project: **Trails at Crowfoot Filing 1**
Stream: **Lemon Gulch**
UDFCD MEP Phase: **Design**
UD MEP ID: **106912**

Dear **Ms. Stacey Nerger**,

This letter is in response to the request for our comments concerning the referenced project. We appreciate the opportunity to review this proposal. We have reviewed this proposal only as it relates to major drainage features, in this case:

- Outfall at Lemon Gulch, Check Structure in Lemon Gulch, and Pond A

We have the following comments to offer:

1. Construction Drawings.
    a. Please provide a maintenance site plan for Pond A. Guidelines and an example are on our website. The path is: http://udfcd.org/wp-content/uploads/uploads/working%20with%20us/maintenance%20eligibility/Guideline%20for%20UDFCD%20Maintenance%20Site%20Plan.pdf
    b. On Sheet 4, easement for Pond Outfall to Lemon Gulch should include energy dissipation.
    c. On Sheets 4 and 93, replace horizontal bend in trickle channel with curve.
    d. On Sheet 93, pull outfall energy dissipater back into bank of Lemon Gulch, so not to impact flow and floodplain.
    e. On Sheet 93, revise the check structure cross-section to have side slopes flatter than 2.5H:1V. Provide and the low spot of the crest in the center of the stream. It is ok, to bury sides and crest of check to match into existing grade.
    f. On sheet 94, label the toe elevation of the spillway riprap. Riprap should be keyed in to protect embankment with a top of riprap elevation at the toe at Outlet Box Invert Elevation 5587.50.

g. On Sheet 94, update stage storage curve to match final drainage study.

2. Drainage Study.
   a. The Pond A design has a 50-year peak inflow that is greater than the 100-year peak inflow. It appears that the designer input the values for the 100-year hydrograph. The input values for time-steps 35 to 47 are less than the 50-year. The time interval is 5.92 minutes versus 5 minutes (see below). Please provide model for User Defined hydrograph and check input into UD-Detention Workbook.

Detention Basin Outlet Structure Design

Outflow Hydrograph Workbook Filename:

Storm Inflow Hydrographs — UD-Detention, Version 3.07 (February 2017)

The user can override the calculated inflow hydrographs from this workbook with inflow hydrographs developed in a separate program.

	SOURCE	WORKBOOK	WORKBOOK	WORKBOOK	WORKBOOK	WORKBOOK	WORKBOOK	WORKBOOK	USER	WORKBOOK
Time Interval	TIME	WQCV [cfs]	EURV [cfs]	2 Year [cfs]	5 Year [cfs]	10 Year [cfs]	25 Year [cfs]	50 Year [cfs]	100 Year [cfs]	500 Year [cfs]
5.92 min	0:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0:05:55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00
Hydrograph	0:11:50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.85	0.00
Constant	0:17:46	1.48	3.45	2.57	3.94	5.18	7.24	8.23	7.53	10.26
0.844	0:23:41	4.06	9.81	7.16	11.34	15.37	22.74	26.81	31.71	36.32
	0:29:36	10.43	25.20	18.39	29.12	39.48	58.53	69.47	77.69	96.45

Please feel free to contact me with any questions or concerns.

Sincerely,
Urban Drainage and Flood Control District

Richard G. Borchardt
Stream Services Program

Cc: Jacob James, Stormwater Manager, Town of Parker