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Memorandum

To: Stacy Nerger, Associate Planner

Date: March 13, 2017

From: Alex Mestdagh, P.E., Engineering Services Manager
Jacob James, P.E., Stormwater Manager
Kurt Patrick, P.E., Stormwater Engineer
Dave Aden, P.E., Traffic Engineer
Tyler Sandt, Development Review Engineer

Cc: Tom Williams, P.E., Director of Public Works and Engineering

Subject: Trails at Crowfoot Filing No. 1 – Engineering 2nd Review

The Engineering Department has reviewed the documents submitted for Trails at Crowfoot Filing No. 1. The submittal consisted of the following documents:

<u>Document</u>	<u>Date Received</u>
Preliminary Construction Documents	February 8, 2017
Preliminary Drainage Report	February 8, 2017
Preliminary Plat	February 8, 2017
Landscape Plans	February 8, 2017

The site is located south of the Richlawn Hills subdivision and east of Crowfoot Valley Road. Based on our review we have the following comments:

Traffic and Roadway Review Comments

The following comments concern traffic, access, roadway design, and construction standard issues for the subject property. They are based upon our review of the submittal documents in accordance with the criteria presented in the Town of Parker's Roadway Design and Construction Criteria Manual (RDCCM), as revised, July 2015. Additional regulatory and planning documents may have been utilized in the review, and are referenced in the comments where appropriate

Preliminary Plan

1. Per discussions with the applicant, sight triangles around knuckle roadways may be based on the lower design speeds associated with the turning movements. Please coordinate with Town staff regarding acceptable design speeds.
2. Please note that at final plat, sight easements will be required over all sight triangles encroaching upon private property.

Landscape Plans

3. Please note that at final plat stage, all trees, landscape, and solid structures above two feet in height will be required to be located outside of the sight triangles.

Preliminary Construction Plans

4. Ensure all sanitary sewer that lies above water lines or storm sewer are encased. Specifically, the sanitary sewer under Street J.
5. Please note that some local-local intersections will require crossspans where there is a negative slope and a sag condition leading into the intersection. These comments can be addressed at final plat.
6. Coordinate with Fire-Life Safety regarding pavement widths and on-street parking on Streets AA and BB.
7. Per discussions with the applicant, the Town will not allow emergency access to be taken off Street E onto Street Z. Please revise the street layout accordingly.
8. The regional storm culvert crossing under Crowfoot Valley shall be final designed as a single box culvert at least 6 feet high for maintenance purposes.
9. All outfalls to the regional channel adjacent to Crowfoot Valley will need to be conveyed to the bank via storm pipe with adequate outfall protection. Long riprap lined rundowns will not be accepted.
10. Final design drawings will need to include additional details of the proposed drop structures, plan and profile sheets of the regional drainageway, and all necessary design details for the regional drainage infrastructure.

11. The storm outfall from North Pinery Parkway into the eastern detention pond shall be piped to a forebay in the detention pond. The storm outfall from Street J shall be continued to the detention pond and terminate in a forebay.
12. All drop structures shall be called out as grouted sloping boulder drop structures. Sculpted concrete drop structures will only be considered based on final design details and qualifications review of the contractor.
13. The final design drawings shall address offsite storm flows from the southern property west of Bayou Gulch Road.
14. Please size the regional channel to showing 4:1 side slopes for the low flow portion.

Stormwater Review Comments

The following comments concern drainage, erosion and sediment control, and non-point source pollution control issues for the subject property. They are based upon our review of the submittal documents against the criteria presented in the Town of Parker's, *Storm Drainage and Environmental Criteria Manual (SDECM)*, as revised, February, 2014. Additional regulatory and planning documents were utilized in the review, and are referenced in the comments where appropriate.

Preliminary Drainage Report

15. Please provide additional detention pond design information to allow for a preliminary approval of the proposed pond tracts. Please show proposed WSE's and a preliminary plan layout of key elements for each pond.
16. Clarify in the drainage report that the ponds are maintenance eligible through the Town's Stormwater Utility rather than Urban Drainage maintenance eligible.
17. The drainage report shall be progressed to provide final design calculations for the Crowfoot Valley regional channel, drop structures, outfalls, and grading for the final plat submittal.
18. The drainage report maps shall be progressed to show all design points and associated design flows. The drainage maps provided do not show design point flows for the design points identified for the Crowfoot Valley regional drainage channel.

19. The drainage report shall be modified to reflect changes to the storm infrastructure as mentioned in the construction drawings comments.
20. The final drainage report and construction drawings shall show how Basin E2 is served by the detention pond.
21. Please clarify how the Crowfoot Valley improvements will drain storm flows. The current basin delineation suggests that runoff from the east side of Crowfoot will flow overland towards undeveloped areas on the west side of the road.

Erosion and Sediment Control Plans

22. Full CBMP plan review will be completed with the final plat.

The submittal is not in general conformance with the Town of Parker's *Roadway Design and Construction Criteria Manual* and *Storm Drainage and Environmental Criteria Manual*. The submittal must be revised and re-submitted for review. All submittals should be through the Town Community Development Department, accompanied by a letter that responds to each comment herein. Direct submittals to the Engineering Department will not be accepted.

An attempt has been made to identify all of the items that do not meet the Town of Parker's design criteria; however, it remains the developer's responsibility to ensure that all criteria are met.

If you have any questions regarding the comments please do not hesitate to contact the Engineering Department at (303) 840-9546.