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Memorandum

To: Stacy Nerger, Associate Planner

Date: October 5, 2017

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

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

Subject: Trails at Crowfoot Filing 9 Final Plat – Engineering 1st Review

The Engineering Department has reviewed the documents submitted for Trails at Crowfoot Filing 9. The submittal consisted of the following documents:

<u>Document</u>	<u>Date Received</u>
Final Drainage Report	August 30, 2017
Drainage Maps	August 30, 2017
Cost Estimate	August 30, 2017
Final Plat	August 30, 2017
Landscape Plans	August 30, 2017
Construction Documents	August 30, 2017
Traffic Study	August 30, 2017

The site is located east of Crowfoot Valley Road, directly south of the Richlawn Hills subdivision. This filing plats the major roads on the east side of Bayou Gulch 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.

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General Comments

1. The applicant will be required to financially secure all Public Improvements via Subdivision Improvement Agreement. Security shall be cash or letter of credit at 110% of the construction cost of these items. The Town's standard Subdivision Agreement template will be provided to the applicant for review. When all applicable exhibits have been completed and approved, a full draft will be assembled and provided to the applicant. The Engineering Department anticipates inclusion of the following specific conditions related to infrastructure obligations:
 - The Developer shall construct North Pinery Parkway through the Property as a full residential boulevard collector roadway, including all necessary auxiliary, acceleration, and deceleration lanes, in accordance with the approved construction documents and the Town's Roadway Design Criteria and Construction Manual.

Final Plat

2. Please reference Section 4 in the *RDCCM* for additional right-of-way requirements at intersections and revise the plans accordingly.
3. Sidewalk easements are required on any sidewalk outside of the right-of-way.
4. Show sight easements and sight triangles (even those that do not require an easement) on the plat.
5. Add the following notes to the plat:

"Within the sight triangles, as shown, limited landscaping shall be allowed but no solid structures or trees will be permitted. Solid structures shall include, but not be limited to, fences, mailboxes, and utility boxes. Landscaping within the sight triangles will be limited to shrubs and plantings that at maturity will be no taller than two feet. Landscaping within the sight triangle shall be maintained by the property owner or appropriate association."

"Blanket drainage easements are hereby dedicated to the Town of Parker over and across Tracts A, C, and J for the purpose of accessing, maintaining, and repairing stormwater management improvements including, but not limited to, inlets, pipes, culverts, channels, ditches, hydraulic structures, riprap, detention basins, forebays, micropools, and water quality facilities in the event that the property owner fails to satisfactorily maintain or repair said facilities."

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6. Pond D needs to be in a Tract, with a blanket drainage easement dedicated across it. Please make that revision and update the plat note shown in the previous comment.
7. The future filings in this development should be platted as unbuildable tracts with the Filing 9 plat. Please make the necessary revisions and add the following note, with the appropriate tract designations, to plat:

“Tracts [x,y,z...] are hereby established as a parcels to be re-platted in the future into buildable lots. At such time as a replat is approved for this tract, public improvements associated with the resulting lots will be determined by a signed and financially secured subdivision agreement with each replat application. No portion of the tract shall be developed, including but not limited to, staking, overlot grading, or the erection of any structure, temporary or otherwise, until the property is re-platted and/or site plan approval is obtained, except as allowed for in the Trails at Crowfoot Filing 9 Subdivision Improvement Agreement.”

Public Improvements Cost Estimate

8. Please reference the Cost Estimate template in Appendix B of the *RDCCM*. Include only the costs associated with public streets and trails (earthwork and materials), storm sewer, drainage channel, and detention ponds.

Landscape Plans

9. On future submittals, include a visual scale and ensure no trees are proposed within 7 feet of any storm sewer infrastructure.
10. Show sight triangles on the landscape plan and ensure no trees or landscape above 2 feet are proposed within the sight triangles. Please only show sight triangles for the interim condition.

Traffic Study

Please see Traffic Study comments on eTrakit.

Construction Plans

11. Please add the Town’s engineering signature block to the Area Utility plan sheets in the Water and Sanitary set.
12. Remove all arrow stripping at intersection except for turn arrows.

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13. Please include major and minor HGL's on all storm sewer profiles.
14. Please use the Town's updated street sign and manhole details. These have been uploaded to eTrakit file SUB17-039.
15. Coordinate with Town staff regarding the phasing of the storm sewer. Developed flows must be routed to a pond via storm pipe. The Town will not accept the FES shown at Bayou Gulch and N Pinery PKWY.
16. Only show the signing and striping for Filing 9 in the signing and striping plan. Please also remove 'ultimate' signs from the plan.
17. Please use the 70 foot residential collector section shown in Appendix A in the *RDCCM* on Scarlet Sage Ave, east of Bayou Gulch. Dedicate additional ROW as necessary at the intersection.
18. Please evaluate the need for a crossing of Scarlet Sage adjacent to the park. This will most likely be a high traffic area and pedestrian signage may be appropriate.
19. Remove on-street parking striping from Alpine Phlox. Parking is permitted on local streets but it is not striped.
20. Revise parallel parking stalls to be 24 feet long unless adjacent to a taper; see Detail 24 in the *RDCCM*.
21. The private streets on Scarlet Sage Ave should have directional ramps on both sides of their accesses.
22. Storm Lateral 63 is showing exposed pipe upstream of the outfall. Please revise.
23. The Town requires the 100-year HGL to remain at least 1 foot below finished grade. Please revise any areas that don't comply with this criteria.
24. Provide 2' x 10' crosswalks at all non local-local intersections.

Please reference Section 7 in the *Town's Storm Drainage and Environmental Criteria Manual* in regards to the following comments; note that these comments apply to all ponds in the development:

25. Provide an outlet structure plan view per Figure 7.5. Please revise dimensions to comply with the detail.

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26. The Town would prefer that the outlet pipe invert be at the bottom of the secondary chamber as shown in Figure 7.5. However, if the outlet pipe is to remain at the proposed elevation, the secondary chamber must be filled with concrete to the outlet pipe invert to avoid standing water.
27. Show the minimum 4" initial surcharge elevation on the outlet structure profile.
28. Add manhole steps to the micropool.
29. Please use the most updated UDFCD detention workbook to evaluate the need for a 100-year restrictor plate.
30. Add a note to the outlet structure profile stating that "no gap shall be present at the top of the structure between the well screen and the orifice plate."
31. Add the diagonal standard bar grated 'trash rack' shown in Figure 7.5's micropool.
32. Show the topsoil cover and type 2 bedding material thicknesses on the emergency spillway profile.
33. Show the direction of flow on the emergency spillway profile.
34. Ensure the embankment width is the minimum 10 feet.
35. Callout the riprap being extended 10 feet upstream of the wall.
36. Please revisit the WSE's shown on the emergency spillway profiles. The Pond A detail shows the 100-year and the emergency overflow elevations as the same.
37. The maximum inlet grate size is 3' by 4'.
38. Show WSE's on pond layout sheets.
39. Callout type 2 bedding material under the outlet structure, forebay, and trickle channel.
40. The Town requires 4% minimum pond bottom slope tying into the trickle channel; the pond details show 2%. Please revise.
41. Provide maintenance access details per Figure 7.4.

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42. Please add a forebay detail per Figure 7.1. Ensure a maintenance access ties into the forebay walls as shown. Each pond must provide access to the forebay(s) and outlet structure.
43. Provide an internal access ramp in the forebay.
44. Show pond details on a specific scale.
45. Please revise the orifice plate to have 3 vertical holes per UDFCD criteria.
46. The Town would prefer to minimize the number of pipes outletting to each forebay as well as the number of forebays in each pond. Please consider combining pipes at manholes upstream of the ponds to minimize the number of outlets.
47. Please evaluate the need for energy dissipation, or baffles, in the forebays.
48. Specify the grates to be used on the outlet structure, coarse bar or standard bar grating. Refer to Figure 7.5 in the Town of Parker Storm Drainage and Environmental Criteria Manual.
49. Show profile and details of detention pond outlet pipe, low tailwater basin, etc.
50. Soil riprap thickness should be 2 X D50.
51. Show a detailed plan view of the detention pond on a separate sheet including trickle channel slope, and pond bottom slopes. Refer to Figure 7.3 for pond bottom grading requirements.
52. Include storm sewer infrastructure details.
53. Add note 17 to the Storm Drainage and Infrastructure Notes: Pipe bells shall not be cast into manhole bases or inlets.
54. Address the storm line dead-end on Beebalm Ave. Sheet 37.
55. Address the storm line dead-end on Coppermallow Trl. Sheet 33.
56. Grade appears to be reversed between SDMH-90 and SDMH-60 Sheet 33.

Stormwater Review Comments

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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.

Final Drainage Report

See Filing 1 Engineering Memo for drainage report comments.

Sediment and Erosion Control

57. Split all CBMP plans into an Initial Plan and an Interim/Final Plan.
58. Clearly specify how phasing or staging for this project will work. Will the entire site be overlot graded at once, will this be phased according to the erosion control stages?
59. Once the detention ponds are on line, any areas still in a rough graded state will need to drain to a TSB prior to draining to the detention ponds.
60. Add ALL Town of Parker CBMP Notes and Details to the plan set.
61. All areas of disturbance need to be included within the LOC (storm outfalls, grading work, etc.)
62. Show outfall locations, depths, and volumes for TSBs.
63. Ensure silt fence is shown down-gradient of all disturbance, construction fence may only be used when up-gradient of all disturbance.
64. Show debris and trash control on all streets in and adjacent to the site.
65. Show erosion control blanket on both sides of the trickle channel in the detention pond.
66. Show erosion control blanket on slopes steeper than 4:1.
67. Specify the type of inlet protection.
68. Show portable toilet protection in multiple areas.

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69. Show rough cut street control on all roadways prior to paving.
70. Show surface roughening on all subdivision blocks.
71. Show seeding, mulching, and crimping on all proposed subdivision blocks, parks, etc.
72. Show stabilized staging areas connected to VTCs where possible.
73. Show temporary irrigation in all areas of permanent native vegetation that are not already served by permanent irrigation. Ensure that the temporary irrigation is also shown on the landscape plans.
74. Add note stating that it may be necessary to provide back of sidewalk protection and back of curb protection once home building has started.
75. Add note stating: Install ECB in tree lawn after installation of curb and gutter and sidewalk. Typical throughout subdivision.

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.