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## **Memorandum**

**To:** Stacey Nerger, Associate Planner

**Date:** April 13, 2020

**From:** Alex Mestdagh, P.E., Engineering Services Manager  
Michael Grabczyk, P.E., Project Manager

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

**Subject: Compark Village South Filing No. 1 – Plan Revisions**

<b><u>Document</u></b>	<b><u>Date Received</u></b>
Drainage Report	March 2020
Construction Documents	March 2020
Cost Estimate	March 2020

The Engineering Department has reviewed the documents submitted for this project. Based on our review we have the following comments:

### **CONSTRUCTION PLANS – ENVIRONMENTAL**

#### **GENERAL COMMENTS**

1. Please note that the CBMP estimate will be reviewed with the Grading Permit after all CBMP comments have been addressed and the site plan is near approval.
2. The subdivision CBMP plans shall be included and reviewed with the subdivision improvement plans and application.

#### **INITIAL CBMP PLANS**

3. **Sheet 3:** Provide a callout at the Peoria/Belford intersection stating that no construction access will take place from Belford until bottom lift has been installed or a VTC has been installed, inspected, and approved by the Town’s environmental inspector.
4. **Sheet 3:** Include the sump upstream of the eastern WQ pond within the LOC.
5. **Sheet 3:** Relocate the concrete wash out (CWA) and portable toilet protection (PTP) to be located on a flat area within the site and preferably upstream of a TSB or other controls prior to entering the GAT.
6. **Sheet 4:** Freeze the future subdivision improvements on the Phase A CBMP plan sheets.
7. **Sheet 4:** Revise the CF linework at the utility corridor which extends to the E-470 ROW. Provide a check dam (CD) at the downstream end of this channel/utility corridor.

8. **Sheet 4:** Revise the perimeter controls and LOC adjacent to the cut embankment located west of the GAT and south of Belford Avenue.
9. **Sheet 4:** Include the temporary bypass berm within the LOC. Provide a copy of the temporary easements discussed in Note 2 for the bypass inundation area.
10. **Sheet 4:** Revise the silt fence along the GAT corridor to align along the toe of the 4:1 embankment as it flattens into the floodplain bench.
11. **Sheet 4:** Provide additional protections for the proposed mass grading north/west of the GAT and across the GAT from the regional pond. This area has a proposed shallow draw which should be identified as a diversion ditch (DD) with check dams (CD) and a temporary sediment basin (TSB) prior to entering the stream.
12. **Sheet 5:** Provide a DD for the western edge of the mass grading area located east of the temporary diversion channel. Provide a discharge location for the eastern DD as it currently terminates into the Belford ROW with no clear discharge location.
13. **Sheet 5:** Continue the silt fence along the GAT corridor at the Toe of the embankments as they flatten into the floodplain bench.
14. **Sheet 5:** It appears additional silt fence is being proposed outside of the LOC at the northeastern project boundary, please clarify this area.
15. **Sheet 5:** Revise the viewport wipeout by the north arrow to show the entire limits of the LOC.
16. **Sheet 6:** Revise the note regarding the TSB to remain until the Belford Avenue bridge over Happy Canyon Creek has been constructed. All flows from the pavement shall be diverted to the TSB.
17. **Sheet 6:** Label the floodplain limits shown for Happy Canyon Creek.
18. **Sheet 6:** Freeze/remove the gray revision cloud.

#### **INTERIM/FINAL CBMP PLANS**

19. Provide and identify rough cut street control (RCSC) for Belford Avenue.
20. Provide erosion control blanket (ECB) for all slopes greater than 4:1.
21. **Sheet 8:** Revise the CD locations north of Belford avenue and east of the Belford/Peoria intersection where some are shown in the proposed pavement.
22. **Sheet 8:** Revise the rock sock (RS) protection to culvert protection (CP) upstream of both WQ ponds.
23. **Sheet 8:** Provide sediment control log (SCL) for back of walk protection for the sidewalk south/east of Belford Avenue.
24. **Sheet 9:** Correct the placement of the IPAN and RSS located in Grand View Estates.
25. **Sheet 9-10:** Provide a callout which identifies that the TSB located immediately upstream of the culverts along the south edge of Belford Avenue shall only be removed at the discretion of the Town's environmental inspector or upon development of the subdivision.

26. **Sheet 10:** Show detention pond protection (DP) for the outlet structure of the regional pond.
27. **Sheet 10:** Correct the Belford Avenue pavement hatch to correctly correspond to the improvements proposed with these plans.
28. **Sheet 11:** Show the TSB at the end of the Belford Avenue roadway template to remain in place at the discretion of the Town's environmental inspector or upon development of the Belford Avenue bridge.
29. **Sheet 11:** Freeze/remove the gray revision clouds and the future trail along Happy Canyon Creek not proposed with this application.
30. Provide and identify sediment control logs (SCL) along all paved areas adjacent landscape/pervious areas. This includes landscape islands and all pedestrian walks.

#### **CONSTRUCTION PLANS – STORMWATER**

31. Storm Drainage Infrastructure Notes on sheet 2 appear to be out of date. Include current notes provided in the SDECM on the Town's website (<http://parkeronline.org/577/Storm-Drainage-and-Environmental-Criteri>)
32. Please note that per the IGA between Douglas County and the Town of Parker, all storm drainage improvements for the project, including water quality and detention, shall be designed and constructed in accordance with Town standards.
33. Provide details within the plans for all baffle diversion structures.
34. **Sheet 17:** Identify the bold lines crossing the bottom left corner of the Storm-3 plan view.
35. **Sheet 17:** Sketch in the arch culvert structure on the Storm-3 profile to show where the tie-in lies vertically in relation to the top and bottom of the structure. Also identify the outfall elevation of the pipe.
36. **Sheet 17:** Identify and provide specifications for the water quality structure proposed with STMH7 1-3.
37. **Sheet 17:** Identify the end treatment for outfall of FES 1-4 to the GAT, including the dimensions and configuration of the Type-M rip-rap bank protection.
38. **Sheet 18:** Pull FES 2-4 farther into the property to allow for a full rip-rap apron and the appropriate easement area to work on the FES.
39. **Sheet 18:** FES 2-5 appears to be proposed outside of the subject property. Please identify a stormwater easement over this infrastructure and the proposed contributing swale.
40. **Sheet 19:** Ensure the soffit elevations of the inlet laterals match that of the trunk line when entering STMH 10-12.
41. **Sheet 20:** Provide a match line for the Storm-12 plan and profile.
42. **Sheet 22:** Pull manholes 12-12, 13-12, and 14-12 to the top of the embankment to provide better access.
43. **Sheet 22:** Identify the rip-rap armoring upstream of TEMP FES 3-5.

44. **Sheet 23:** Identify the minor and major HGLs through the pond outlet pipe.
45. **Sheet 27:** Please note, additional comments on the Box/Arch Culvert plan sheet may be generated based on the GAT 90% set in order to ensure no gaps in scope have occurred.
46. **Sheet 28-32:** Revise the outlet structure and pipe to pass the 100-year undetained flows in-lieu of using the emergency spillway for this and more frequent storm events.
47. **Sheet 28-32:** Revise the outlet structure to match the sloped design with trash screen shown in Figure 7.9 of the Town's SDECM.
48. **Sheet 34:** Revise or clarify the Section A detail to allow for the trickle channel flows to enter the forebay.

### **DRAINAGE REPORT**

49. Provide the inlet hydraulic calculations for all inlets proposed with the Belford Avenue/CVS F1 improvements.
50. Within the appendix, provide full scale versions of the hydrologic and hydraulic calculations shown on the drainage area maps.
51. Provide a tabular breakdown of pre-developed, developed detained, and bypassed flows similar to that provided within the narrative for each of the storm events calculated in the UDFCD-Detention spreadsheet. This will be utilized to compare pre-developed, developed, and bypassed flows for each of the storm events.
52. Provide calculations for the sizing of the forebay notches within the Appendix C forebay calculation sheets.
53. Provide within the appendix all calculations for the two water quality ponds located in the Douglas County tract as the inspections and pond certifications will run through the Town of Parker.
54. Provide within the appendix the StormCAD flex tables identifying pipe c-values, flows, and velocities for each pipe.
55. Provide armoring and capacity calculations for the proposed temporary swales.
56. **Sheet 44:** the 2-yr HGL is shown below the pipe invert, please revise.

### **ROADWAY PLANS**

57. Please discuss with Engineering Staff the proposed six-foot bike lane proposed on the inside of the half section of Belford Avenue. The applicant may want to consider omitting this pavement from the initial construction, as portions of it is located where the future median will be constructed with the ultimate major collector section.
58. Please clarify why the width of the Belford Avenue tree lawn and utility space behind the sidewalk (6.0' and 6.5') differ from the Town's major collector template (8.0' and 4.5').
59. Delineators should be installed adjacent to the road base shoulder to mark the edge of the roadway in the interim condition in accordance with MUTCD spacing guidance.

60. The proposed material for the Green Acres Tributary trail (soft surface vs. concrete) should be clarified with Engineering and Planning Staff.
61. Intersection Detail Sheets: please use perpendicular cross slopes (or clarify that the arrows/labels shown are true cross slopes) for all intersection designs, including future side street stubs. Provide quarter-point elevations and grades along all proposed curb returns.
62. The Town is moving away from diagonal curb ramps at major intersections in favor of directional ramps. At Belford intersections where a crossing of the major roadway is not contemplated, Town Detail 18 should be used with ramps parallel to Belford Avenue. Where pedestrian crossings of Belford Avenue may be desired, potential treatment should be discussed with Engineering Staff.

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.