
PUBLIC WORKS ENGINEERING DIVISION

Date: Friday, May 19, 2017

To:

BHC RHODES

Patrick Joyce, P.E.

Email: PATRICK.JOYCE@IBHC.COM

Fax #: (913) 663-1633

From: Gene Williams, P.E.

Senior Staff Engineer

Application Number: PL2017110

Application Type: Engineering Plan Review

Application Name: The Grove - Mass Grading and Stormwater

The Development Services Department received plans for this project on May 12, 2017. We have completed our review and offer the following comments:

Engineering Review

1. Sheet C4.1: Please check the slope on the north side of the Lot 2 development. Please see comments on the Final Development Plan for detailed comments concerning the slope in this area. It appears that several options are available to achieve a minimum of 3:1 (or better) slope.
2. Sheet C4.1: Please show the permanent pool elevation, and the 100 year water surface elevation within the retention pond. Please consider labeling this as "Retention Basin" due to the fact this has a permanent pool.
3. As a basin with a permanent pool, there are several requirements applicable to this situation. The first requirement is that a non-clogging outlet be installed, typically with a reverse slope, as per Section 5608.4(E)(5). Also, an emergency spillway in accordance with Section 5608.4(F). A method for emergency drawdown should be designed in accordance with Section 5608.4(G). Usually, we have seen a siphon installed to eliminate the potential for piping, with a 8" PVC pipe installed over the top of the dam. Finally, the dam and associated structures must be designed in accordance with SCS Technical Release 60, "Earth Dams and Reservoirs", as a Class C structure.
4. All Stormwater Profile View Sheets: Show the hydraulic grade line of the design storm. It would appear the 1% storm must be used as the criteria for design in the case of the RCB.
5. Sheet C5.2: A box should be installed downstream of the retention basin outlet structure to denote the end of the public stormwater system. This box should be installed within the limits of a drainage easement. The retention basin outlet structure must be installed outside the limits of the drainage

easement.

6. General Comment: A stormwater calculation sheet was not provided. Please provide a separate sheet for all stormwater calculations, including design storm. Ensure that velocities are shown in the calculations along with all other normal calculations.
7. Sheet C5.2: The slope of the RCB between the last RCB bend at station 2+86, and the flared end section appears too high. Without velocity calculations, it is difficult to determine if the maximum velocity of 20 ft/sec will be exceeded during the 1% design storm. Please provide calculations, and consider flattening the slope in this section.
8. Sheet C5.2: Please provide sufficient notes at the end of the flared end section which reference the specific detail for the energy dissipation measures to be installed.
9. Sheet C5.2: Where are the finish grades on the profile view? They appear to be missing. Please show the road (i.e., 16th St.) in the profile view.
10. Sheet C6.1: CSB is called-out with no definition. Please define CSB.
11. Sheet C6.1: Please provide a typical section view of the temporary shoo-fly.
12. Sheet C6.2: The pavement trench detail is lacking sufficient detail. Please provide the thickness of the KCMMB concrete patch (i.e., 8"), extending a minimum of one (1) foot on either side of undisturbed native subgrade, and a final 2" layer of asphaltic concrete. In addition, the detail calls-out note #8 for compacted soil, but it does not appear this note is included. If this note is included on a separate sheet, then reference the sheet number where the note is located.
13. The RCB is a single box culvert without a low-flow channel. At a minimum, a low-flow channel should be installed within this single box culvert. This requirement would be in addition to any United States Army Corps of Engineers (USACE) requirements concerning the 404 permit.
14. It did not appear that any RCB bend details were provided.
15. Sheet C6.3: The City does not want the water line to be installed beneath the RCB. An alternate route should be established either to the south of the RCB, or on top of the RCB. Without proposed grades (see previous comment), it is difficult to determine the best course of action.
16. Standard details appeared to be missing for junction boxes, and manhole frame and covers (including standard City of Lee's Summit lettering for the covers).

17. Details for the two RCBs used on the project appear to be lacking. Please provide details of these boxes. Provide notes stating that the City shall review, but the engineer shall ultimately approve, the shop drawings for the public RCB (i.e., the long RCB installed beneath 16th St.). It must meet the requirements of Section 5700 of the City of Lee's Summit Design and Construction Manual (i.e., KCAPWA incorporated by reference). Please be aware of the specific design details required under Section 5711 of the Design and Construction Manual.

In order to calculate the Engineering Plan Review and Inspection Fee, a sealed Engineer's Opinion of Probable Construction Costs shall accompany your final submittal copies. The itemized estimate (material and installation) shall be sufficiently broken down and shall include the following items, as applicable.

- Public infrastructure, both onsite and offsite.
- Private street construction, including parking lots and driveways.
- Sidewalks located within the right-of-way.
- ADA accessible ramps.
- Sanitary sewer manholes and piping between manholes, including private mains.
- Connection of the building sanitary sewer stub to the public main.
- Waterlines larger than 2 inches in diameter, valves, hydrants, and backflow preventer with vault, if outside the building.
- Stormwater piping greater than 6 inches in diameter, structures, and detention / retention facilities - public or private.
- Water quality features installed to meet the 40-hour extended duration detention requirements.
- Grading for detention / retention ponds.
- Grading to establish proper site drainage.
- Utility infrastructure adjustments to finished grade (i.e. manhole lids, water valves, etc.).
- Erosion and sediment control devices required for construction.
- Re-vegetation and other post-construction erosion and sediment control activities.

Electronic Plans for Resubmittal

Beginning Monday, May 23, 2016, all Planning application and development engineering plan resubmittals shall include an electronic copy of the documents as well as the required number of paper copies. Electronic copies will not be required for initial application submittals at this time as the plans are subject to change.

Electronic copies shall be provided on CD in the following formats

- Plats – All plats shall be provided in Tagged Image Format File (TIFF) Group 4 compression.
- Engineered Civil Plans – All engineered civil plans shall be provided in Tagged Image Format File (TIFF) Group 4 compression. All sheets shall be individually saved and titled with the sheet title.
- Architectural and other plan drawings – Architectural and other plan drawings, such as site electrical and landscaping, shall be provided in Portable Document Format (PDF).
- Studies – Studies, such as stormwater and traffic, shall be provided in Portable Document Format (PDF).
- It is requested that each plan sheet be a maximum of 2MB.

Please contact Staff with any questions or concerns you may have.

If you have any questions or comments, please contact me, Gene Williams either at (816) 969-1812 or e-mail to Gene.Williams@cityofls.net.

Sincerely,

Original Signed

Gene Williams, P.E.
Senior Staff Engineer

cc: Development Engineering Project File