

Date: Friday, December 14, 2018

To:

HG CONSULT, INC

Kevin Sterrett, P.E.

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Fax #: <NO FAX NUMBER>

From: Gene Williams, P.E.

Senior Staff Engineer

Application Number: PL2018210

Application Type: Engineering Plan Review

Application Name: Cobey Creek 1st Plat - Water Line Plans

The Development Services Department received plans for this project on November 21, 2018. We have completed our review and offer the following comments listed below.

- Resubmit three (3) full size sets of plans (no larger than 24"x36") folded to 8-½"x11", one (1) comment response letter, and one (1) digital copy following the electronic plan submittal guides as stated below.
- Revised plans will be reviewed within five (5) business days of the date received.

Engineering Review

1. The general layout of the water line should be revised as follows: 1) complete a loop from Cobey Creek Dr. to the connection on M-150, and 2) eliminate the loop to the southwest on Ayva Blvd. until a later phase. The reason for this recommended change is to eliminate the drainage issues that will be created by the construction of the loop at Ayva Blvd. and M-150, and also the issue of access to this line by Water Utilities. Although ultimately this will require the addition of another loop on M-150, it will eliminate the need to provide suitable drainage structures or drainage conveyance systems along the rough-graded roadway, and will also eliminate access issues for Water Utilities personnel.
2. All Sheets: Please update all construction contact notes. Development Services - Inspections Group should be contacted for all inspection activities, not Public Works. The phone number is 816-969-1200.
3. As applicable, off-Site easements shall be required along all unplatted portions of the development prior to approval of the plans. The easements must be in a form acceptable to the City, and standard templates can be obtained by contacting the right of way agent at 816-969-1800. The easements should be general utility easements, dedicated to the City of Lee's Summit (i.e., grantee).
4. Notes must be provided that the cut-in tee installation on M-150 must be performed at night, with adequate notice to affected users. The installation must be completed within 8 hours. The contractor is responsible for providing sufficient notice to all affected water users.

5. An additional butterfly valve appears to be warranted on the 12 inch main along M-150 (i.e., at both locations, including the new one along Cobey Creek Dr.). The location of this valve should be placed within a reasonable distance of the branch tee.
6. Is it possible to identify each water line (e.g., Water Line A, Water Line B, etc.) on the general overview layout sheet? This would greatly enhance the plans.
7. Separate permits from MoDOT are required for the water line installation beneath M-150. Although the City does not require casing pipe for water lines to be installed beneath roadways, MoDOT may require this to be installed. If so, please show all details, including sufficient notes and standard drawing call-outs on the plan view. Provide the length of the casing carrier pipe, material type and size, and specify the connection is to be bored and cased.
8. Sheet 5 of 14: An additional fire hydrant appears warranted along Cobey Creek Dr.
9. Overview Sheet and Sheet 5 of 14: Water Line C does not appear to serve any purpose other than for future phases. Please delete it, at least delete the portion from the west side of Cobey Creek Dr. near station 0+75 onwards. It would be acceptable to install the crossing, and provide a temporary fire hydrant at the end of the line, on the west side of Cobey Creek Dr.
10. Sheet 6 of 14: The end of the line shows a plug, with an offset fire hydrant. Typically, end of the line fire hydrants should be installed "in-line", unless the location of the fire hydrant for future phases will not change. Is this the proposed permanent location of the offset fire hydrant?
11. Is it possible to show the locations of fire hydrants on the general overview sheet? This would greatly enhance the plans.
12. General Comment on All Plan Sheets: The locations of all bends must be shown. The magnitude of the bend must also be shown (e.g., 45 degree, 22.5 degree, etc.). Thrust blocks should also be called-out at these locations. C-900 pipe does not allow for any flexure in the pipe. The only allowance is within the pipe joint itself, and the magnitude of this "bend" is only 1 degree per joint. This equates to approximately 1200 feet minimum radius of "curvature" (i.e., it is not really curvature, but resembles curvature when stacking several 1 degree bends in the joint). To summarize, no flexure is allowed in the pipe, but a very small deflection can be provided in the joint to achieve a very modest "radius of curvature".
13. The above comment concerning the location and magnitude of bends would apply to all applicable line segments, and this would appear to apply to all segments that are currently shown in a curved configuration.

14. There appears to be several locations where fill is being proposed, with finish grade higher than existing grade elevation. Provide sufficient notes at these locations specifying that the installation of water line follow the Design and Construction Manual (i.e., fill must be brought-in, properly compacted, and then the pipe is installed after this has been completed).
15. All M-150 Roadway Crossings: One valve is required at the tee, but an additional valve is also required on the opposite side of the roadway. Due to the arterial nature of this roadway, this is needed to isolate the segment beneath the roadway in the event of repair.
16. Two (2) unnecessary and undesired "jogs" are shown at the following locations: 1) Carter Rd. and Corbin Dr. intersection, and 2) Riley Way and Corbini Dr. intersection. It is unknown why these "jogs" are shown. They create maintenance issues, and the second "jog" creates a parallel line which is not desired or needed.
17. Please remove the trench check details. These are only used for sanitary sewer laterals.
18. Please remove the water meter well detail. These are not installed as part of this project.
19. Please remove the backflow vault detail. It is not used on this project.
20. Sheet 4 of 14: Please show on the profile view, the 8 inch line, and the 12 inch line. This can be in the form of a note on the profile view, showing dimension lines from xxx to xxx, or similar.
21. The locations of the air release assemblies for the 12 inch line were not shown. These must be specified at all high points on the 12 inch line.
22. Insufficient depth of cover is shown graphically on Sheet 5 of 14 near station 0+00.
23. There appear to be numerous instances where valves are shown beneath finish grade on the various profile views. Please clean-up as appropriate.

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

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 shall be provided in the following formats

- Plats – All plats shall be provided in multi-page Portable Document Format (PDF).
- Engineered Civil Plans – All engineered civil plans shall be provided in multi-page Portable Document Format (PDF).
- Studies – Studies, such as stormwater and traffic, shall be provided in Portable Document Format (PDF).

Please contact me if you have any questions or comments.

Sincerely,

Original Signed

Gene Williams, P.E.
Senior Staff Engineer
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cc: Development Engineering Project File