
PUBLIC WORKS ENGINEERING DIVISION

Date: Thursday, February 09, 2017

To:

OLSSON ASSOCIATES

Melissa DeGonia, P.E.

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From: Gene Williams, P.E.

Senior Staff Engineer

Application Number: PL2017012

Application Type: Engineering Plan Review

Application Name: Eagle Creek 15th Plat - Street, Stormwater, Master Drainage Plan, and Erosion and Sediment Control

The Public Works Department received plans for this project on January 19, 2017. We have completed our review and offer the following comments:

Engineering Review

1. Sheet C103 - Street Typical Sections: Please provide a dimension label showing the subgrade and subgrade stabilization will be extended one (1) foot beyond the back of curb.
2. Sheet C103: Please be aware of the new standards concerning the substitution of geogrid for flyash stabilization (if applicable). If substituting flyash stabilization with geogrid, the MoDOT Type 5 base aggregate layer should be increased to 10" thickness.
3. Sheet C103: The creek realignment will require a United States Army Corps of Engineers (USACE) permit. Has this permit been issued?
4. Sheet C103: The outfall of the storm sewer into the creek at E.S. 2-1 appears to be at a right angle to the stream flow. Please consider a layout which aligns the discharge in the same fashion as the other discharge points. Please see additional comments (below) which reference the Kansas City American Public Works Association (KCAPWA) Section 5605.6 "Discharge Outfalls" for design criteria.
5. Sheet C104: Please provide the contour interval on the grading plan, and please show additional elevations by labeling the contours. As shown, there are very few contours labeled.
6. Sheet C104: Please see previous comment concerning the alignment of the discharge point at E.S. 2-1. This discharge point is shown at a right angle to flow within the realigned creek, and will likely lead to

stream erosion, as well as maintenance issues with the pipe.

7. Sheet C107: It appears an underdrain is warranted at the sag location between curb inlet 1-3 and 1-4. Please call-out the location of this underdrain, and provide a reference to the standard detail in the back of the plan set.
8. Sheet C110: A extraneous manhole is shown (i.e., MH 2-4) which does not appear to be needed. This is extra infrastructure that the City does not desire. What is the purpose of this manhole?
9. General Comment: Please provide calculations (preferably within the plan set, but alternatively within a separate report) showing the energy dissipation measures meet Section 5605.6 and 5606.4, Kansas City American Public Works Association (KCAPWA) "Energy Dissipation". Other measures besides rip rap should be considered
10. Stormwater: Are there any other overflow routes needed to manage the 1% storm event? Since the majority of the stormwater system was designed for the 10% event, it is requested that this be evaluated further.
11. Sheet C114 - Master Drainage Plan: What is the calculated 100 year water surface elevation within the stream that is adjacent to the lots on the south side of the development? The MBOEs should be a minimum of two (2) feet higher than this calculated elevation.
12. Sheet C114: Please show the calculated 100 year water surface elevation for the stream adjacent to the west lots.
13. Sheet C114: Please show the calculated 100 year water surface elevation within any emergency overflow swale.
14. Sheet C114: Please label the "emergency overflow" as "emergency overflow swale".
15. Sheet C114: Please indicate the contour interval, and please provide additional elevation call-outs on the contours.
16. Additional curb inlets and piping system appears warranted along River Trail Rd. Curb inlet 4-3 is greater than 400 feet from the intersection of Ladderback Dr. and River Trail Rd., which is not allowed by the Design and Construction Manual. It should be noted that the future connection to River Trail Rd. to the east will introduce additional stormwater along River Trail Rd., and it would appear the most logical location for the storm inlets and piping would be at the intersection of Ladderback Dr. and River Trail Rd. At a minimum, they should be extended to the east side of Ladderback Dr. to enable an easy connection to a future phase.

17. Based on the above comment, the stormwater analysis should be revised to include the additional drainage area. It appears a significant drainage area is missing from the calculations, and in particular, the drainage to the east of the Ladderback Dr./River Trail Rd. intersection.
18. It does not appear the drainage area upstream of Field Inlet 2-5 was included in the calculations? Are there any other off-site drainage areas which were omitted from the drainage calculations? Please provide an updated Sheet C112 which provides the additional off-site drainage areas.
19. Sheet C113: It is unclear what figures were used for the existing drainage areas from off-site areas. For instance, what is the drainage area upstream of Field Inlet 2-5?
20. Sheet C113: Curb Inlet 4-4 is shown with a drainage area of 0.88 acres. The drainage area map on Sheet C112 shows 1.00 acre? Are there other drainage areas that need to be checked? Please be aware this was a "spot check".
21. Sheet C113: Rainfall intensity data has changed in accordance with new Atlas 14 data. Please provide calculations using the new data. For instance, the rainfall intensity for the 1% event have changed upward by 20% based on the Atlas 14 data. This would apply to any calculations, including storm sewer calculations and 100 year water surface elevation calculations described in the previous comments.
22. Sheet C114: There appears to be insufficient slope in the rear yard of Lot 675. An absolute minimum of 2% is required, unless calculations show a larger slope is necessary.
23. Sheet C114: Please label the rear yard swale on the east side of Tract O, and the east side of Lots 674 and 675 as a "SWALE".
24. Sheet C114: Please label the rear yard swale on the east side of Lots 676, 677, 678, 679, and 680 as "SWALE".
25. Sheet C114: Is there a swale on the east side of Lot 681? It appears finish grading is not shown. If a swale is necessary, please label as "SWALE".
26. Please provide the 100 year water surface elevation within any designated "SWALE". The MBOE should be set at a minimum of two (2) feet higher than the 100 year water surface elevation. The calculations of the 100 year water surface elevation should take into account the new Atlas 14 data, which shows an approximate 20% increase in the 24 rainfall intensity.
27. Sheet C114: Please provide a note stating that interpolation of MBOEs may be used in cases where the upstream and downstream portion of a lot is adjacent to a swale or stream.

28. Sheet C114: It appears there is insufficient slope on the east side of Lots 680 through 676. An absolute minimum 2.0% slope is required.
29. Sheet C114; It appears the proposed contours within the swale between Lots 680 and 681 do not match what is called-out for corner elevations.
30. The Engineer's Estimate of Probable Construction Costs appeared low for the following unit prices, based on similar projects with similar scope: 1) surface and base course asphaltic concrete.
31. The Engineer's Estimate of Probable Construction Costs appeared to be missing the following items: 1) stream relocation, 2) MoDOT type 5 aggregate in the area one beneath the curb and one (1) foot beyond the back of curb, 3) subgrade stabilization in the area beneath the curb and one (1) foot beyond the back of curb, 4) concrete sidewalks and ADA-ramps, regardless of whether they are built with the subdivision or later, 5) additional stormwater piping and structures to address the comments in the body of this letter, 6) toe walls, 7) additional energy dissipation measures at the end of pipe(s), 8) grading in accordance with the Master Drainage Plan.

Traffic Review - NO COMMENTS

In order to calculate the Public Works' 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) 969-1800 or e-mail to Gene.Williams@cityofls.net.

Sincerely,

Original Signed

Gene Williams, P.E.
Senior Staff Engineer

cc: Development Engineering Project File