LEE'S SUMMIT
MISSOURI

PUBLIC WORKS ENGINEERING DIVISION

Date: Tuesday, July 26, 2016

To:
ENGINEERING SOLUTIONS
Matt Schlicht, P.E.
Email: MSCHLICHT@ES-KC.COM
Fax #: (816) 623-9849

From: Gene Williams, P.E.
Senior Staff Engineer

Application Number:	PL2016138
Application Type:	Engineering Plan Review
Application Name:	View High Dr. to Chipman Road Sanitary Sewer

The Public Works Department received plans for this project on July 05, 2016. We have completed our review and offer the following comments:

Engineering Review

1. Sheet C.001: Are there any wyes being installed with these plans? The notes at the bottom right hand corner would seem to indicate they are, but it does not appear there any to be constructed for this project.

2. A sanitary sewer analysis should be performed. It should include the entire drainage basin, and take into account the receiving sewer, including hydraulic grade line of the receiving sewer.

3. How will the construction site be accessed? It does not appear any provision was made for site access.

4. Sheet C.052: Is there any bank stabilization measures to be performed? it would appear this is required.

5. Sheet C.401: Property ownership information must be provided on this sheet.

6. Sheet C.401: Please show the limits of Cedar Creek, along with a label denoting "Cedar Creek".

7. Sheet C.401: Please show the limits of the 100 year floodplain.

8. Sheet C.401: Please provide labels denoting the "existing Cedar Creek interceptor".

9. Sheet C.401: Please show the location of the smaller tributary from manhole A-15 to manhole A-1.

10. All Profile Views of Sanitary Sewer: Please show the hydraulic grade line within the pipe and manholes.

11. Sheet C.402: The project must be designed as a "no-rise" condition (i.e., no increase in the 100 year base flood elevation will be allowed). It is difficult to determine whether this will be possible, given the fact that the concrete encasement will extend two (2) feet higher than the existing stream bed.

12. Sheet C.402; Please show the limits of the 100 year base flood elevation on the profile view. Manholes must be a minimum of one (1) foot above the 100 year base flood elevation.

13. Sheet C.402: Concrete encasement should be extended further between manhole A-2 and manhole A-1. This is due to the fact that Cedar Creek will likely meander in course over the years. Ductile iron with restrained joints should be clearly specified. The drawing should clearly reference the detail to use for the concrete encasement, and if using SAN-7, T must be equal to or greater than 8 inches. Steel reinforcement equaling or exceeding the steel shown on SAN-7 must be shown.

14. Sheet C.402: The fall between incoming and outgoing flowline elevations at manhole A-2 should be increased to 0.5 feet due to the high degree of deflection angle.

15. Sheet C.402: The fall between incoming and outgoing flowline elevations at manhole A-1 should be increased to 0.5 feet due to the high degree of deflection angle.

16. All Sheets: Are there any coordinates that can be provided? Please provide these.

17. Sheet C.402: The profile view of the new sanitary sewer manhole shows a flowline "in" of 700.00'. Is this a typographical error?

18. Sheet C.402: The pipe slopes shown on the profile do not appear correct (i.e., manual calculation shows a difference between A-3 and A-2, A-1 and A-0, and A-0 to the existing sanitary sewer manhole #27-189. Please correct as appropriate.

19. All Sheets: Please show the proposed easements on the plan view. Label the easements, and the property owner(s) whom the easement must be obtained.

20. Sheet C.402: The placement of the sanitary sewer above the streambed will require a waiver to the Design and Construction Manual. A formal waiver request will be necessary.

21. Sheet C.402: Plans were missing on how this design will be able to be constructed, yet preserve the "no-rise" requirement during the 100 year event. Will Cedar Creek be widened to increase flows in this area? Without plans showing how this will be performed, it is difficult to determine whether the project will be possible.

22. Sheet C.403: Manhole A-8 shows what appears to be erroneous flowline "in" elevations.

23. Sheet C.403: Manhole A-7 shows what appears to be erroneous flowline "in" and flowline "out" elevations.

24. Sheet C.403; Manhole A-6 shows what appears to be erroneous flowline "in" elevations.

25. Sheet C.404: Pipe slope between A-14 and A-13 appears to be erroneous on the profile view. Our calculations show 7.24% rather than 10.53%.

26. Sheet C.404: The tributary stream crossing is too shallow. Please see the Design and Construction Manual for specific depth requirements. The depth requirements are dependant upon the presence of bedrock, or lack thereof. If bedrock is two (2) feet or more below the bottom of the stream, three (3) feet of cover is required. This measurement is made to the top of the concrete encasement.

27. Sheet C.404: Provide a specific reference to the drawing number for the concrete encasement, and specify ductile iron with restrained joints.

28. Sheet C.404: Manhole A-12 and A-13 are shown at the edge of the streambank. Please move these manholes further back from the streambank to mitigate exposure concerns (i.e., erosion of the streambank and subsequent manhole exposure).

29. Sheet C.404; The pipe slope shown on the profile view between manhole A-12 and A-11 appears erroneous. Our calculations show 2.73%.

30. Sheet C.404: The stationing for manhole A-11 appears erroneous compared to the plan view. In addition, it does not appear that 0.20 feet of fall was provided for this manhole.

31. Sheet C.404: The fall at manhole A-12 and A-13 must be increased to 0.50 feet to account for the large deflection angle.

32. Sheet C.404: The plan view shows what appear to be "on-site" sanitary sewer lines to the south of manhole A-15. If so, please label these.

33. Sheet C.405: It does not appear that drop manholes, casing carrier pipe, or building sewer stubs will be used on this project. Please delete them if they are not used. The same comment would apply to shallow manholes. If shallow manholes are not being used on this project, then please delete this detail.

34. United States Army Corps of Engineers (USACE) permits, including wetlands permits, may be required for this project prior to approval.

35. A floodplain development permit would be required for this project for any fill within the floodplain.

36. Approval of this project is contingent upon the ability to certify that the design will not increase the base flood elevation after installation. This includes any areas upstream (and downstream) of the project. It is uncertain how this will be accomplished because the sanitary sewer encasement is already being proposed two (2) feet higher than the bottom of the streambed, and no engineering plans were provided showing how the adjacent streambed would modified to prevent a rise in the base flood elevation.

37. Approval of this project is dependant upon the acquisition of sanitary sewer easements across the properties shown on the revised "Overview Sheet".

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 Re-submittal

Begining Monday, May 23, 2016, all Planning application and development engineering plan re-submittals 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 storm 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