

**PUBLIC WORKS ENGINEERING DIVISION**

**Date:** Monday, September 19, 2016

**To:**

ENGINEERING SOLUTIONS

Matt Schlicht, P.E.

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**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 (off-site Village at View High)

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The City received plans for this project on Aug. 12, 2016. We have completed our review and offer the following comments:

**Engineering Review**

1. Sheet C.402: The "Encasement Profile" does not appear to match what is shown on Sheet C.204.
2. The design of the concrete slab and encasement is incomplete.
3. The temporary construction easement was not shown. The response to comment letter states this is within a "hatched" area, but no such "hatched" area was found on the plan sheet(s). There was a shaded area, but it was not continuous and not defined in terms of a legend or other identifiable symbol. The temporary easement should be clearly defined, and on one plan view rather than in pieces.
4. Sheet C.402: The plan view in the upper left hand corner did not include a north arrow. In addition, the north arrow on the upper right "Sanitary Plan and Profile View" appears reversed. Please show this in one plan view, and one north arrow, and please clearly define the limits of the temporary grading easement.
5. Scott Edgar's Comments: Creek patterns and profiles and geometry are formed by the flowing water and sediment load delivered to the creek. These characteristics are created in a way to be very efficient at transporting the water and sediment load. When changes occur in the watershed, creeks adapt and change to accommodate the new flow regimes. Therefore, they move and change slightly all the time in urban settings. The basic parameters, however, stay within ranges for specific watersheds. There is concern that a concrete mat as proposed does not match the characteristics of any stable stream. The stream will move around the obstruction to the west as proposed. Weirs in streams must match a stable cross section, or the stream will work around the obstruction.

6. Scott Edgar's Comments: The concrete mat is 80 feet by 90 feet by one (1) foot thick. There are questions concerning the construction details, the fact that the grading shown does not match the spot elevations shown on the concrete mat, the fact that the mat has 1.5 feet of elevation change on the outside of the meander bend and will lead to migration of the stream to the west, the fact that the floodplain shelf should be on the outside of the meander bend only, with armoring on the outside and/or weirs placed to maintain a stable cross section, and the fact that the sides of the mat lack any footings which will most likely lead to scour, undercut, and failure of the mat.
7. Scott Edgar's Comments: Proposed grading is shown on the bottom of the creek bed. How will this occur in practice?
8. Scott Edgar's Comments: There appears to be no geomorphic assessment of the stream. There appears to be a solution without any regard to the geomorphology of the project.
9. Scott Edgar's Comments: What is the flow capacity and flow velocity of the mat both upstream and downstream?
10. Scott Edgar's Comments: Has there been a comparison of stream power in the existing channel versus the new mat profile?
11. Scott Edgar's Comments: The HEC-RAS data output appears to include only one (1) model run. The FEMA MT-2 would require additional model runs. There is nothing to compare the model run against (i.e., duplicate effective model).
12. Scott Edgar's Comments: There appears to be a high erosion potential of soil and backfill beyond the mat when the stream is outside its banks.
13. Scott Edgar's Comments: It would appear the grading design should be revised to include a low flow shelf to minimize stream energy and discourage overbank flooding. The design should seek to mimic a natural, stable stream.
14. Scott Edgar's Comments: The design should be based on several stage/flow scenarios rather than one (1) design flow.
15. Scott Edgar's Comments: Hard structural armoring is only strong for the first years of a project. Natural solutions are weakest, but grow stronger each year and provide for minimal maintenance costs to the City. It appears this was not considered in the design.
16. It would appear a meeting would be beneficial to discuss these comments. As designed, it is the opinion of the City that the solution shown in the plans will not be effective in minimizing future costs to the City.

in terms of maintenance, and may lead to a failure at the stream crossing.

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**

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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](mailto:Gene.Williams@cityofls.net).

Sincerely,

*Original Signed*

Gene Williams, P.E.  
Senior Staff Engineer

cc: Development Engineering Project File