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**PUBLIC WORKS ENGINEERING DIVISION**

**Date:** Friday, July 27, 2018

**To:**

SCHLAGEL & ASSOCIATES

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**From:** Gene Williams, P.E.

Senior Staff Engineer

**Application Number:** PL2018066

**Application Type:** Engineering Plan Review

**Application Name:** Winterset Valley 12th Plat - Street, Stormwater, Master Drainage Plan, and Erosion and Sediment Control

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The Development Services Department received plans for this project on Jul. 20, 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. Please refer to the applicant letter dated May 15, 2018 (hereinafter referred to the previous applicant letter). Comment #3 requested that cross-sections be provided for swales at a maximum of 50 foot spacing, with additional cross-sections at structures such as field inlets and intersecting drainage systems. Generic details are not acceptable. This is stated in Section 5609.9 of the Design and Construction Manual.
2. Please refer to comment #4 of the previous applicant letter. We had provided a comment that the table shown on Sheet 3 (now labeled as Sheet 9 in the revised plans) did not match what is shown on the grading plan. In addition, discrepancies exist on the generic swale detail. The generic swale detail shows a 1 foot depth swale with 3:1 sidewalls, but when transposing the bottom width and top width, we are calculating a 0.17 foot deep swale. Please see previous comment, however, since we will need to see cross-sections as required by Section 5609.9.
3. Please refer to comment #10 of the previous applicant letter. Cross-sections are called-out on the Master Drainage Plan, but there are no associated labels stating "emergency overflow swale", or "swale", or "x.x% slope". Please provide appropriate call-outs for these items.

4. Please refer to the previous applicant letter. Comment #9 requested existing and proposed elevations at all lot corners. Existing elevations were provided, but no proposed contours were provided.
5. The Master Drainage Plan appears to show MBOEs for Lots 1438 and 1439 which are too low in relation to the 100 year water surface elevation within the adjacent swale.
6. Please refer to comment #12 of the previous applicant letter. We had noted that there will be drainage issues on the rear of Lots 1435 through 1438, unless an underground drainage system was installed. No modification was made to the drainage system, and we still believe that an additional field inlet is warranted along the rear of these lots, along with associated piping directed to the north. The City does not desire to see drainage swales used as the sole method of rear yard drainage if the upstream drainage area will be 2 acres or greater. It appears the upstream area is greater than 2 acres.
7. Please refer to comment #13 of the previous applicant letter. Even though the design for the temporary detention basin is shown in the plans, we will need a detention/drainage study for this portion of the project.
8. Please refer to comment #14 of the previous applicant letter. A retaining wall profile was requested, but it appears the new revised design has deleted the retaining wall. It now appears that 1:1 slopes are being proposed, which is not acceptable. The maximum slope is 3:1.
9. Please refer to comments #19, 20, and 21 of the previous applicant letter. An ADA-accessible route with a cross-slope of no greater than 1.5% must be provided across Carson Dr. at the intersection of Carson Dr. and Thoreau Dr. The plans must clearly show how this will be accomplished, either on the intersection details, ADA-accessible ramp details, or both.
10. Please refer to comment #20 of the previous applicant letter. Standard details for the ADA-accessible ramps should be removed as requested since this is a site-specific design, and the slope call-outs contradict the design criteria called-out on Table LS-5 of Section 5305 of the Design and Construction Manual. The purpose for these standard details are to facilitate their construction when no construction plans are available (i.e., retrofit projects, reconstruction projects, etc.). In other words, they do not pertain to this project, except to the extent that the general geometry shown on these diagrams should be followed when providing a site-specific design.
11. Please refer to comment #21 of the previous comment letter. Our comment concerning side tapers appears to have been missed, since it appears side tapers are shown. There does not appear to be any need for side tapers on the ADA-accessible ramps, since grading appears to be the easiest method to provide the transition to the adjacent green space.
12. Please refer to comment #20 of the previous applicant letter. On Sheet 15, cross-sections are called-out on the ADA-accessible ramp plan view, but the actual cross-sections are missing. Although the locations of the cross-sections comply with Section 5304.8 of the Design and Construction Manual, the actual

cross-sections need to be provided.

13. Please refer to comment #22 of the previous applicant letter. CMP end sections are not allowed, but are still shown and noted for structure 901 and 902. Please be aware that CMP, either aluminized or galvanized, is not allowed within the City of Lee's Summit.
14. Please refer to comment #24 of the previous applicant letter. We had requested that aluminized CMP be removed as an option for storm pipe, but it is still noted on Sheet 17. Please see above comment concerning the prohibition of either galvanized or aluminized CMP within the City of Lee's Summit.
15. Please refer to comment #25 of the previous applicant letter. We had requested that references to KCAPWA curb inlets, junction boxes, and grated inlets be removed, since the City of Lee's Summit has their own design standards (i.e., as shown on the standard details you have provided in the "details" section of the plans). However, Sheet 17 still references the KCAPWA standards for these features under "Material Notes". Please revise as appropriate.
16. Please refer to comment #26 of the previous applicant letter. Storm Line 100 appears to be flowing in a supercritical fashion, and there is concern about the erosion at the discharge point. An even greater concern is the design of the temporary detention basin, with its rock-lined weir and 24 inch pipe bearing the brunt of the discharge. The Master Drainage Plan shows Line 100 discharging to a point just upstream of the 24 inch pipe draining the temporary detention basin, and the concern is that this area will undergo catastrophic erosion which would likely wash the rock-lined weir away during frequent storm events. It is our opinion that the rock-lined weir, forming a part of the temporary detention basin, and the placement of the 24 inch pipe, will experience severe erosion and failure during frequent storm events. We feel that a more robust design should be provided.
17. Additional Comments Concerning the Temporary Detention Basin: 1) the depth of cover over the 24 inch HDPE does not appear adequate in the vicinity of the upstream end to prevent floating out of the ground during frequent storm events, 2) the rock-lined overflow weir will likely fail during the first significant rainfall event due to the lack of any stilling basin on the downstream end, or other suitable method to dissipate the energy of this supercritical flow regime, 3) you are showing a notch within the earthen basin at a slope greater than 1:1, perhaps 0.8:1, which we believe is unrealistic and un-constructable, 4) larger plan views of the detention basin, weir, etc., should be provided which clearly show how this will be constructed (i.e., as shown, there is very little detail, and there is a lot of speculation on the part of a contractor or inspector on what is expected during construction of this feature).
18. Please refer to comment #28 of the previous applicant letter. We had requested calculations for the rip rap sizing, but we received a USDOT table for sizing rip rap. What consideration was given to discharge points where the flow was supercritical, and therefore, additional measures warranted?
19. Please refer to comment #29 of the previous applicant letter. We had asked the question "...are there any swales that need to be designated as emergency overflow swales on the Master Drainage Plan?". Please label their location on the Master Drainage Plan.

20. Please refer to comment #30 of the previous applicant letter. We had requested the design storm event for the stormwater table, and this was provided for the top portion of the table. However, the bottom portion was not provided. Finally, please remove the reference to Overland Park.
21. Please refer to comment #32 of the previous applicant letter. We had asked whether a temporary sediment basin or temporary sediment trap was warranted for the site. It is clear where these traps are located, although it appears the temporary detention basin is being designed to act in this fashion. Provide clear notes on the plans showing the location(s) of these features. Provide calculations showing that the design meets the standards in terms of upstream drainage areas and required volumes. This can be provided within the plans, the separate storm drainage/detention study, or both.
22. Please refer to comment #34 of the previous applicant letter. The underdrain detail is provided in the details section, but their location(s) are not shown anywhere in the plan set? Please provide their location within the plan set. A note stating "install at the sag points" will not be considered sufficient detail for the plans.
23. Please refer to comment #35 of the previous applicant letter. We had requested that City standard detail GEN-3A and GEN-3B be removed from the plan set, since a site-specific design is required. The standard details are still shown within the "details" portion of the plans. Please remove them.
24. Please refer to comment #36 of the previous applicant letter. We had requested that an ADA-accessible route be provided across Carson Dr. where there is a stop-controlled (i.e., stop sign) intersection at Thoreau Dr. Please see previous comments concerning the requirements.
25. Please refer to comment #37 of the previous applicant letter. We had stated that 1/4" per foot cross-slope on sidewalks is not correct. The City of Lee's Summit requires no more than 1.5% design slope as stated in Table LS-5, Section 5305 of the Design and Construction Manual. Sheet 22, "Residential Local/Access" typical section still shows 1/4 inch per foot. Please revise.
26. Please refer to comment #39 of the previous comment letter. A SWWP shall be required prior to approval of the plans, or prior to a land disturbance permit being issued.
27. Concerning comment #40 of the previous applicant letter, please revise the Final Plat to include language concerning a geotechnical report on Lot 1451, due to fill being placed on this lot.
28. Other Comments: Provide (in bold) the limits of sidewalk construction for this project, along with appropriate labels and notation. This includes all sidewalk constructed adjacent to common area Tracts, and adjacent to unplatted property. This would appear to include: 1) the sidewalk to the west of Lot 1451, 2) the sidewalk between Lot 1448 and Lot 1345, and 3) the sidewalk west of Lot 1455, to the west end of NW Thoreau Dr.

29. Other Comments: The note on Sheet 16 concerning construction of sidewalks and ADA-accessible ramps is not entirely correct. All ADA-accessible ramps must be constructed along with all other subdivision improvements, since this is considered part of the street construction. Sidewalks, however, may be deferred to the individual homebuilder, provided that the sidewalk is not adjacent to a common area tract, or adjacent to unplatted land.

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**

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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 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 me if you have any questions or comments.

Sincerely,

*Original Signed*

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cc: Development Engineering Project File