



February 5th, 2021

City of Lee's Summit
Development Services
220 SE Green Street
Lee's Summit, MO 64063

RE: Engineering Plan Review PL2020269

We are responding to your comments dated September 28, 2020 and are submitting with this letter, the revised plans. Please find our responses to your plan markups below.

If you have any questions or need additional information, please do not hesitate to contact me by phone at (816) 442-6056 or by email at nheiser@olsson.com.

Thank You,

A handwritten signature in black ink, appearing to read "Nick Heiser".

Nicholas D. Heiser

Engineering Review (Sue Pyles)

1. *These comments are for the following:*
 - o *PL2020269 Aria OffSite Detention – Comments 2-5*
 - o *PL2020250 Aria FDP – Comments 6-31*
 - o *The Stormwater Report (Same report submitted for both projects) – Comment 32*

Due to the nature of these comments, additional comments may be forthcoming and both projects will require a 10-day review period.

RESPONSE: Noted.

2. *Please add a sheet to the Detention Basin plan set clearly indicating the various drainage areas shown in the plans.*

RESPONSE: Sheet 03 has been added with the drainage areas shown and labeled. There are also exhibits within the stormwater report showing all drainage areas within the studied area.

3. *Where is the underdrain located in the detention basin? How is it to be constructed? Are there special grading requirements in the basin?*

RESPONSE: The underdrain is located at the NW corner of basin near the outlet control structure. It is now called out on Sheet 03. It is to be installed in the lowest corner of the basin to ensure that area will dry out in between rain events.

4. *Is the basin to be seeded on the bottom?*

RESPONSE: Yes. Seeding hatch and information has been added to Sheet 04.

5. *What lifespan Biodegradable Turf Mat is required?*

RESPONSE: TRM will be Class 1, Type A, with a minimum lifespan of 12 months.

6. *Include spot grades as needed to ensure the future building pad sites will not pond water.*

RESPONSE: Spot elevation have been added on Sheets C302-C307.

7. *Storm sewers are to be designed to keep the design HGL within the storm sewer system. Please revise as needed.*

RESPONSE: All storm sewers are designed to contain the 100-YR HGL greater than 6" below the structure opening, per APWA 5606.3. In addition, 10-YR HGL is contained within the pipe for all storm sewers, and has been added to the profile views.

8. *Junction Box, Area Inlet and Field Inlet designations are all used in the storm sewer plans. It appears that field inlets have openings and area inlets do not, and area inlets seem to be in paved areas. Are the area inlets actually junction boxes? Please clarify.*

RESPONSE: The area inlets are rectangular concrete structures with grate tops. All of these structures have been renamed to "Grate Inlet" and a detail has been added to avoid confusion.

9. *When identifying the number of openings in a Field Inlet, please also indicate which sides those openings are on.*

RESPONSE: Opening side directions have been added field inlet structure notes.

10. *Please verify that there are standard details for every type of structure used, even the various Nyloplast structures.*

RESPONSE: Standard details have been added for all storm structures. Curb inlets, junction boxes, field inlets, manholes, grate inlets, and nyloplast structures.

11. *Include lid types of Nyloplast structures in the Structure Tables.*

RESPONSE: Lid types are included in the structure tables for the nyloplast structures; specified as "solid top" or "dome grate top".

12. *Please review and verify that where the domestic and fire water lines are shown crossing the storm sewer, pipe graphics and inverts for both lines are shown in the storm profiles.*

RESPONSE: Water crossings have been updated to show both domestic and fire.

13. *Structures greater than 7' deep require a special design. Please add to the plan set.*

RESPONSE: Design tables have been added to the storm structures details on Sheets C905 and C906 for applications deeper than 7'.

14. *Are the drainage easements shown at the end sections public or private? Please clarify with a note.*

RESPONSE: The drainage easement are private as the storm sewers are private, but being installed on adjacent properties. Notes have been added to the plans as requested.

15. *Please review and verify that compacted fill hatching is shown all the way downstream to end sections in Profile views where needed.*

RESPONSE: Compacted fill hatching has been revised.

16. *Sheet C505 Profile: Please add the 15" Inv. In at Str. 1-1.*

RESPONSE: Invert has been added to the profile view.

17. *Sheet C511 Profile: Please extend the compacted fill hatching to Str. 9-1 and upstream to Str. 9-9.*

RESPONSE: Compacted fill hatching has been revised.

18. *Sheet C512 Profile: Move the SW Inv. Out (15" HDPE) label to the downstream side of the structure.*

RESPONSE: Label has been modified as requested.

19. *Sheet C513 Profile: Remove the labels for a water line crossing that isn't there upstream of Str. 10-10.*

RESPONSE: Labels have been removed.

20. *Sheet C514: Please verify the size (15" vs 18") of Str. 12-5.*

RESPONSE: The 18" structure (riser) size is correct for the 2'x3' Nyloplast curb inlet per the manufacturer's details. The pipes in and out of the structure are 15" HDPE.

21. *Sheet C515 Line 14 Plan: Please label the retaining wall.*

RESPONSE: The retaining wall has been labeled in plan view now.

22. *Sheet C515 Line 14 Profile:*

- *Please include the sanitary sewer crossing.*
- *Please revise the Proposed Ground line to terminate at the Existing Ground line.*

RESPONSE: The sanitary sewer crossing was previously shown and remains on the plans. The proposed ground line has been updated to terminate at the existing grade line.

23. *Sheet C516 Plan: There appear to be 2 lines connecting to Line 15 with tees*

downstream of Str. 15-6. Please verify.

RESPONSE: Yes, those lines are called out on Sheet C533 and are to be connected with ADS Inserta-Tee.

24. *Sheet C516 Profile:*

- *Please add the 15" Inv. In at Str. 15-1.*
- *Please darken the Proposed Ground label.*
- *Please verify the proposed ground profile between Str. 15-4 & 15-4.*

RESPONSE: Additional invert has been added to the profile view and the ground label has been darkened. The proposed grade near Str. 15-4 is correct. A sump area is to be graded for water quality volume storage. Spot grades are provided on Sheet C306.

25. *Sheet C518 Profile: Remove the labels for a 6" water line crossing that isn't there upstream of Str. 15-3.*

RESPONSE: Label has been removed.

26. *Sheet C519 Profile: Complete the water line crossing information just downstream of Str. 19-1.*

RESPONSE: Water crossing information has been added to the profile view.

27. *Sheet C526 Profile:*

- *Please include the sanitary crossing.*
- *Relocate overlapping text for clarity.*

RESPONSE: The sanitary sewer crossing has been added and the overlapping text has been fixed.

28. *Deleted comment*

29. *Sheet C528 Profile:*

- *Please include the sanitary crossing.*
- *The size of ES-01 appears incorrect in the Structure Table. Please revise.*

RESPONSE: The sanitary sewer crossing has been added and ES-01 has been changed to be a 12" end section.

30. *Sheet C529 Profile: Please include the sanitary crossings upstream and downstream of Str. YD-P1.*

RESPONSE: Alignment P has been revised and no longer has sanitary crossings. All sanitary crossings are shown in profiles where crossings do occur.

31. *Sheet C531 Profile: Please label Str. YD-S2.*

RESPONSE: Label has been added.

32. *Please address the following comments in the submitted Stormwater Report:*

- *Please provide design input and calculations for the proposed infiltration basins.*

RESPONSE: Design tables and drainage areas have been added to sheets C602-C611 for all filtration and depressed storage areas. These sheets are also being included in the stormwater report.

- *Please provide additional information on the proposed use of Snouts. How are they accounted for in runoff modeling? What design parameters are appropriate for them, and are installation requirements provided?*

RESPONSE: Snout details have been added to the storm drainage study. The Snouts did not need to be accounted for in the runoff modeling but are accounted for in the storm sewer design and sizing. Snouts were sized dependent on the required discharge rate of the storm system the snout is being placed on, and the size of the storm structure is determined based upon the size of the Snout and offset parameters from the Snout manufacturer. On storm lines with lower discharge rates, Snouts were chosen that can convey the 100-Yr Q through the Snout, For storm lines with higher discharge rates, the Snouts were not sized to convey the whole 100-YR Q. In those applications, an internal divider wall and second outlet pipe are incorporated into the storm structure design to convey the 100-Yr flow.

- *Is the difference between the “Peak Q In” for the detention basin between the Aria micro and Overall macro scenarios due to the additional development in the macro scenario directing additional drainage to the basin?*

RESPONSE: Yes.

- *Design and Construction Manual Design Modifications Requests, or “waivers”, are required for several items. When submitting, please be sure to include a complete narrative why the waiver is being requested and provide justification for approval.*

Waivers are required for the following:

- o *Not providing 40-hour extended detention for the Water Quality event as required by the City.*
- o *Exceeding the allowed release rate.*

RESPONSE: The waiver form is attached with this resubmittal.