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April 27, 2022

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

Attn: Shannon McGuire, Planner

RE: Response to City Comments for FDP
Application Number: PL2022056
Application Type: Commercial Final Development Plan
Application Name: SUMMIT POINT 2ND PHASE FINAL DEVELOPMENT PLAN
Location: 520 NE ENGLISH MANOR DR, LEES SUMMIT, MO 64086

Dear Shannon:

Following is the responses to comments, we are resubmitting plans, and revised storm study with this submittal.

Required Corrections:

Fire Review	Jim Eden (816) 969-1303	Assistant Chief Jim.Eden@cityofls.net	Corrections

2. IFC 903.3.7 - Fire department connections. The location of fire department connections shall be approved by the fire code official. Connections shall be a 4 inch Storz type fitting and located within 100 feet of a fire hydrant, or as approved by the code official.

Action required- Show the location of the FDC's on all of the buildings and the hydrant within 100-feet. *The locations of the FDC's and fire hydrants have been shown on Sheet C407 Water Line Plan.*

3. IFC 503.3 - Where required by the fire code official, approved signs or other approved notices or markings that include the words NO PARKING—FIRE LANE shall be provided for fire apparatus access roads to identify such roads or prohibit the obstruction thereof. The means by which fire lanes are designated shall be maintained in a clean and legible condition at all times and be replaced or repaired when necessary to provide adequate visibility.

Action required- The cul-de-sac shall be posted "Fire Lane- No Parking". *The public improvement plans have been revised to include "Fire Lane- No Parking" signs.*

4. IFC 506.1 - Where access to or within a structure or an area is restricted because of secured openings or where immediate access is necessary for life-saving or fire-fighting purposes, the fire code official is authorized to require a key box to be installed in an approved location. The key box shall be of an approved type listed in accordance with UL 1037, and shall contain keys to gain necessary access as required by the fire code official. 506.1.1 Locks. An approved lock shall be installed on gates or similar barriers when required by the fire code official.

Action required- A Knox padlock shall be provided on the gate and a Knox box on each of the buildings. *Knox boxes and padlock keys shall be provided on the gate and buildings as required.*

5. D105.1 Where required. Where the vertical distance between the grade plane and the highest roof surface exceeds 30 feet (9144 mm), approved aerial fire apparatus access roads shall be provided. For purposes of this section, the highest roof surface shall be determined by measurement to the eave of a pitched roof, the intersection of the roof to the exterior wall, or the top of parapet walls, whichever is
greater.

D105.2 Width. Aerial fire apparatus access roads shall have a minimum unobstructed width of 26 feet (7925 mm), exclusive of shoulders, in the immediate vicinity of the building or portion thereof.

D105.3 Proximity to building. One or more of the required access routes meeting this condition shall be located not less than 15 feet (4572 mm) and not greater than 30 feet (9144 mm) from the building, and shall be positioned parallel to one entire side of the building. The side of the building on which the aerial fire apparatus access road is positioned shall be approved by the fire code official.

Action required- Fire access lanes for buildings greater than 30 feet in height shall be 26 feet wide (drivable surface). *Fire lanes have been provided as required.*

6. IFC 503.2.3 - Fire apparatus access roads shall be designed and maintained to support the imposed loads of fire apparatus and shall be surfaced so as to provide all-weather driving capabilities.

Action required- Fire lanes shall be capable of carrying the weight of fire apparatus (75,000-pounds). Provide a pavement detail. *The fire lane pavement is a heavy duty pavement section that exceeds the minimum thickness of the Residential Collector street.*

Planning Review | Shannon McGuire | Planner | Corrections
(816) 969-1237 | Shannon.McGuire@cityofls.net

1. Please provide details for the material to be used in all proposed retaining walls.*A detail has been provided on Sheet C600.*

2. Please provide the manufacturer's specification sheets for proposed exterior lighting to include both parking lot pole mounted and wall mounted fixtures. The specification sheets shall indicate the exact fixture to be used.*See sheet ES-1*

3. All vehicle parking lot areas and access drives in all zoning districts shall have a boundary constructed of straight-back Portland cement concrete curbing (CG-1) or an integral Portland cement concrete sidewalk and curb with a vertical face. Please provide the standard details for the proposed curbing type. *Detail have been provided.*

4. All accessible parking shall comply with the requirements of the federal Americans with Disabilities Act. Please provide details on the signage and parking lot markings for ADA stalls. *Details for the layout, pavement marking and signs for the ADA accessible parking spaces have been provided in the revised plans.*

5. Please provide slope callouts and elevation callouts for ADA-accessible routes from the parking stalls to the building they are serving. *The slopes and key spot elevations along ADA-accessible pedestrian paths from the buildings to the parking stalls have been included in the revised plans.*

6. All exterior trash storage containers shall be screened so that they are not visible from off the property. Please provide details for the proposed trash enclosure screening. *The exterior trash enclosures would be screened with walls and details have been provided in the revised plans.*

7. Please provide the required photometric diagram indicating the foot candle levels throughout the site and at the property lines. The maximum maintained vertical footcandle at an adjoining residential property line shall be 0.5 footcandles, measured at three feet above the grade. *See Sheet ES-1*

8. All light fixtures on properties within or adjoining residential uses and/or districts shall not exceed 15 feet in height within the perimeter area. For purpose of this standard, the perimeter area shall be measured 100 feet from the property line closest to the residential use and/or district. Outside the perimeter area, the overall height may be increased to 20 feet, measured to the top of the fixture from grade. Please provide details on the light pole, including height, to be used. See Sheet ES-1

9. Trash enclosure areas shall be improved with a Portland cement concrete pad and a Portland cement concrete approach 30 feet in length, measured from the enclosure opening. The pad and approach shall be improved with a minimum six inches of full depth unreinforced Portland cement concrete constructed on a sub-grade of four inches of granular base course. *Details of the trash enclosure pad have been included in the revised plans.*

10. Designated fire lanes, delivery/freight truck access lanes, and loading areas shall be improved per UDO requirements (Sec. 8.620. - Parking lot design). Please provide standard details for this pavement type and call out the pavement type on the plan sheets. Please also provide standard

details for other pavement types and call out on the plan sheets. *Details for light and heavy duty pavement sections designed for parking areas and for service drives and fire lanes have been included in the revised plans.*

11. To promote pedestrian connectivity please connect the sidewalks at the northwest corner of building B1-1. *The gap between the sidewalks has been eliminated.*

12. Sidewalks shall be a minimum width of five feet. Please update the plans to meet this requirement. *The proposed sidewalks have been revised to five foot minimum widths.*

Engineering Review	Gene Williams, P.E. (816) 969-1223	Senior Staff Engineer Gene.Williams@cityofls.net	Corrections

1. The base flood elevation appears incorrect. Although your LOMA allowed a lower BFE, your HEC-RAS study from last summer showed a BFE of 1000.9. This was also discussed in staff letter to Planning Commission for the BFE. The plans shall be revised to show horizontal extent of floodplain in relation to this elevation. As shown, your floodplain limits are based on what appears to be an incorrect BFE, and the horizontal limits of the floodplain are too narrow. The main concern is overtopping of a levy that is questionable in terms of long term viability and design. This levy was neither permitted by USACE, and does not appear to have been built to any design standard. Please revise, matching the 1000.9 elevation to the existing contours. *The City reviewed the base flood elevation for the above-referenced site with the City Floodplain Administrator, and agreed with CFS Engineer's recommendation to use the 1% chance annual flood elevation shown in the LOMA dated Dec. 15, 2021, Case Number 22-07-0199A – highest base flood elevation of 998.8.*

2. Stream buffers missing on the overall grading plan (it was shown on the detailed view, but should also be shown on the overall view). Please show the location of stream buffers on the overall grading plan. *The stream buffers have been added to the overall grading plan sheet.*

3. Floodplain Development Permit is required for any work within the floodplain. It appears some grading and construction is proposed within the floodplain, but it is not clear at the moment since the horizontal extent of the floodplain has not been correctly identified. Please see comment 1 for more details. *The City's Floodplain Development Permit has been completed.*

4. Elevation Certificate shall be obtained. Please follow City requirements for submittal of this document. There shall be multiple submittals of this document during the construction process to ensure foundations are not poured prior to review of the Elevation Certificate. *The FEMA Elevation Certificate was downloaded from the City's website and completed.*

5. Provide BFE in accordance with HEC-RAS study at the detention basin. WSE for 2, 10, and 100 year events are needed at this location (i.e., the detention basin). The storage below these WSEs shall be subtracted from the available storage of the basin due to hydraulic communication between the discharge pipe of the basin, and the creek. *The FEMA HEC-RAS Model of Prairie Branch Tributary P3 did not include stream flows for the 2-year storm, so an approximate 2-year stream flow was created based on the relative difference in 24-hour rainfall depth between the 10 and 2 year storms. Channel cross section RS 5659.57 was very close to the outlet from the proposed stormwater detention basin, and the 2, 10 and 100-year WSEL's were calculated at 992.28', 992.65' and 994.37'. The bottom of the stormwater detention basin was set at 995.00'.*

6. Stream buffer shall be shown in relation to: 1) overall grading plan, 2) detention basin plan, and 3) general site plans. Please revise as appropriate. *The revised stream buffer limits have been shown on or added to the Overall Grading Plan, the Detention Basin Plan and the General Site Plan.*

7. LOMA language shall be revised to state "The City of Lee's Summit has adopted the more stringent base flood elevation of 1000.9 analyzed in the HEC-RAS study [cite the actual name of the report, who prepared the report, and the date of the report]". This is due to the questionable nature of the levy at the northwest corner of the project. Without knowing whether this levy was constructed to an acceptable design standard at the time, there is no way of knowing whether the area behind this levy is outside the floodplain. Since this project should be designed using conservative approach in regard to floodplain issues, the floodplain should be shown at the higher BFE of 1000.9. Please revise. *The LOMA language on Sheet C101, Index and Site Data, of the Final Development Plan has not been revised. The City reviewed the base flood elevation for the above-referenced site with the City Floodplain Administrator, and decided to concur with CFS Engineer's recommendation to use the 1% chance annual flood elevation shown in the LOMA dated Dec. 15, 2021, Case Number 22-07-0199A – highest base flood elevation of 998.8. .*

8. Pavement section was not provided. Please be aware the pavement section described in the geotechnical report does not meet City standards, and if utilized for an alternative design to the standard design shown in the Unified Development Ordinance (UDO), specific design parameters are required. If this is desired, please contact me for these design parameters, such as the 20 year design life, etc. *The pavement section shown in the geotech report and on the plans exceeds the city's standard pavement thickness. In pavement design, 3 inches of rock subgrade is approximately equivalent to 1 inch of asphalt pavement, so the proposed 7 inch asphalt and aggregate base pavement section is equivalent to the City's 5-½" asphalt pavement section.*

9. Public improvement plans are shown within the Final Development Plan. These are public improvements and require a separate review. Currently, I am showing a review under PL2021416 under "Public Street Improvements Summit Point Phase 2", and we were awaiting a response to comment letter and a resubmittal. Submittal of public infrastructure plans within a Final Development Plan is not allowed in this instance, and submittal under the PL2021416 review number is required. No further review of the public street plans was performed at this time. *Public Improvement Plans are now approved.*

10. Comments were sent on Dec. 9, 2021 on the public road improvements project. No resubmittal has been received as of this date. This is under application PL2021416. *Public Improvements Plans are now approved.*

11. A separate sheet(s) is required for the detention basin, the outlet structure, and the outfall from the detention basin. Since this separate sheet(s) was not provided, no further review of the stormwater report was conducted in relation to the detention basin design since this is required to determine whether the detention basin meets the design contained within the report. *A separate Detention Basin Detail Sheet has been created and included with the revised plans.*

12. The separate sheet(s) discussed in the above comment shall require the following items:
1) top of dam elevation, *1003.30'*
2) emergency spillway elevation, *1001.30'*
3) 100 year water surface elevation for the nominal and clogged/zero available storage in numeric and graphic format, with setback dimensions from property lines and buildings shown (i.e., 20 foot minimum setback is required from the clogged/zero available storage condition), *1000.81'*
4) section view of the emergency spillway, *30 ft long graded spillway at crest elevation 1001.30' and depth of overflow water from second 100-year storm of 1.0'*
5) section view of the dam, including a minimum 3 foot flat area on top of dam, *see the Detention Basin Detail Sheet*
6) 100 year water surface elevation in relation to the emergency spillway, including the minimum 0.5 feet of freeboard, *100-yr WSEL=1000.81'; 6" Freeboard=1001.30'; Crest of Emergency Overflow Spillway=1001.30';*
7) 100 year water surface elevation in relation to the top of dam, including the minimum 1.0 feet freeboard, *Crest of Emergency Overflow Spillway=1001.30'; Second 100-yr Overflow Q=84.42 cfs, Depth in 30' wide spillway = 1.0'/ Elev=1002.30', 12" Freeboard = 1003.30'*
8) a note stating the detention basin shall be constructed first, along with other erosion and control measures, *Added a note stating that the proposed detention basin would be utilized as a sediment basin during Phase-II of the Erosion Control Plan*
9) elevation callouts on the grading contours within the basin at key intervals, *Bottom of basin at 995.00', top of dam at 1003.30', contours shown and labeled at one foot intervals*
10) design storage volume for the 90 percent, 2, 10, and 100 year event, *BMP/90th Percentile Storm Vol=0.444ac-ft @ 997.47', Vol-2yr=0.830ac-ft @ 998.56', Vol-10yr=1.242ac-ft @ 999.61', Vol-100yr=1.768ac-ft @ 1000.81'*
11) design allowable release rate for the 2, 10, and 100 year events, *Q-2yr=16.44cfs. Q-10yr=35.67cfs, Q-100yr=56.11cfs*
12) design discharge for the 2, 10, and 100 year event, *Q-2yr=10.32cfs. Q-10yr=28.29cfs, Q-100yr=56.06cfs*
13) elevation of all weirs and orifices used in the outlet structure, to match what is shown in the stormwater report pond setup table, *4" Dia Outlet Orifice @ FL=994.85'; 33" Rectangular Weir @ Crest Elev=997.50'*
14) slope callouts on the bottom of the detention basin which also match the contour elevations shown on the detention basin grading plan, *1% minimum slope in Concrete Trickle Channel and on bottom grades of Detention Basin*

15) design of trash guards, *Using the MARC BMP Manual, a minimum trash guard area of 1.48 sqft was calculated, and a MMMPS Trash Screen by Mascot Engineering would have approximately 1.81 sqft of opening area to protect it*
16) design of the outfall discharge to the creek, including all design calculations. *See the Final Stormwater Drainage Study*

13. A note shall be placed on the detention basin sheet(s) stating that an as-graded and as-built plan shall be submitted to the City and accepted by the City prior to occupancy. If the as-graded plan or as-built plan differs from the proposed plan, it may require revisions to the design and/or the stormwater report. *The as-graded and as-built plan note has been included on the Detention Basin Detail Sheet.*

14. Sheet C200: As previously discussed in this comment letter, the extent of the floodplain is incorrect. It is based on an incorrect base flood elevation. The base flood elevation to be used to construct the limits of the floodplain shall be 1000.9 as indicated by your HEC-RAS study. Please revise the limits of the floodplain to match the 1000.9 elevation. *See response to Item 7.*

15. Sheet C200: This sheet is incomplete in terms of showing the detention basin. A note is pointing to a blank area, and there is a diagonal feature shown within the blank space. At a minimum, sufficient details shall be shown for the basin, including proposed grading or an outline of the basin or both, along with the proposed outfall location from the basin. Revise as appropriate. *The limits of the proposed stormwater detention basin have been added and updated.*

16. Sheet C200: Overstrike errors exist on this sheet for the "stream setback" callouts. Ensure these callouts are legible and not overstriking other features. Correct as necessary. *The overstrike errors have been corrected.*

17. General Comment Concerning the Plan Set: Proposed improvements are difficult to determine based on linewidths that are similar to existing features. Recommend lightening the existing features to a lineweight which makes reading the plans easier. As shown, these plans are difficult to read, and will be even more difficult to read in the field. Please revise the lineweights on all sheets. *Drafting line weights have been revised to help clarify the readability of the drawings.*

18. Sheet C200: There was no designation on this sheet regarding what type of pavement design is being utilized for the parking lot, nor any reference to a typical pavement section to be shown elsewhere in the plan set. Provide callouts of the pavement type on this sheet or elsewhere within the plan set, with specific callouts referencing a typical detail section view of the pavement design using standard drafting notation. *Pavement type call-outs have been added to the drawing.*

19. Sheet C200: A note shall be provided for public street improvements (i.e., the separate public infrastructure plans) to be constructed by others, and referencing the separate plans. Revise as appropriate. *A note about the public street improvement plans has been added to the drawing.*

20. Sheet C200: The legend is missing: 1) stream buffer callout and linetype, 2) regulatory floodplain and linetype. *Added a legend to the sheet that included the stream buffer callout and the regulatory floodplain.*

21. Sheet C400: Two (2) water meters appear to be shown without any sizing. Please provide the size of the meter. *Water meter sizes have been added to the sheet.*

22. Sheet C407: Why is ductile iron pipe being proposed for the private line? If using DIP, it shall be zinc-coated as per City of Lee's Summit specifications. Otherwise, recommend CIP. *The private water line material has been changed to DIP or PVC in accordance with City requirements (note 1).*

23. Sheet C407: Label the profile view as "PRIVATE". *The profile of water Line-1 has been labeled as "PRIVATE."*

24. Note Concerning All Stormwater Profile Views: The hydraulic grade line for the design storm shall be shown on the profile view. *The 100-year hydraulic grade line profiles have been added to the storm sewer profiles.*

25. Sheet C406: Please label the profile view as "PRIVATE". *The profiles of sanitary sewer Line-1 on Sheet C405 and sanitary sewer Line-2 on Sheet C406 have been labeled as "PRIVATE."*

26. All utility sheets: The private fire hydrant shown near the cul-de-sac bulb in the northeastern portion of the project appears to be shown within an easement or right of way. This private fire hydrant shall be moved outside the limits of right of way or public easements. Please revise. *The private fire hydrant's location has been adjusted to keep it outside of the utility easement.*

27. Erosion Control Plan: Why is the detention basin not being utilized as a sediment basin? It appears this basin should be utilized as a sediment basin, and a site-specific design is required showing the location of faircloth skimmer or other devices. Please analyze, and revise as appropriate. *The Erosion Control Plan has been revised to use the proposed stormwater detention basin as a temporary sediment basin. Calculations for the incoming drainage areas, sediment load volumes, stormwater storage depths, etc, have been included with the revised plans.*

28. A Stormwater Pollution Prevention Plan (SWPPP) is required for this project. It was missing from the submittal package. *A SWPPP has been prepared for the project.*

29. Erosion and Sediment Control Plan: This plan is incomplete for the following reasons: *The Erosion Control Plans have been extensively revised to split into three phases for pre-construction, active construction and post-construction restoration. Sequence notes and sediment storage calculations have also been included.*
1) no phasing chart or phasing schedule was provided, *Added*
2) no sediment basin design, *Added*
3) no notes concerning the requirement that the detention basin/sediment basin be constructed before any improvements are constructed, *Added*

4) no construction entrance was shown, *Added*
5) only a perimeter silt fence was shown, while it would appear an interior silt fence is also necessary. Please review and revise as appropriate. *Added*

30. Grading Plan and Parking Lot Details: The ADA-accessible spaces within the parking lot did not show sufficient detail for review. Elevation callouts are insufficient to review the slope requirements. Slope callouts are required in the vicinity of all ADA-accessible parking spaces. Please review and revise as appropriate. *Additional details for the proposed ADA-accessible parking spaces have been added to the plans.*

31. Sheet C302: Grading along the detention basin may create an adverse impact to adjoining property to the east. Sufficient detailing of the swale being created, along with design calculations, are required for this drainage feature. Please review and revise as appropriate. *The estimated total drainage area contributing to the ditch formed along the east property line, east of the proposed stormwater detention storage basin was approximately 0.41 acres. Total impervious area was estimated at approximately 28.3%. Using a five minute time of concentration, the peak 100-year runoff was calculated to be approximately 2.80 cfs. The V-shaped channel with a longitudinal channel slope of approximately 7.1% would have a peak channel depth of approximately 0.15 ft with a velocity of approximately 2.2 fps. The APWA 5600 calls for peak velocities over grass surfaces at 6 fps to prevent erosion. It appears that the proposed grading of the detention basin would not cause excessive flow depths in the existing channel along the eastern side of the site and should not cause undue erosion problems.*

32. Sheet C302: A swale detail with dimensions, slope callouts, cross-sections at selected intervals, etc. is warranted for the swale described above. *In consideration of the flow calculations outlined in the response to Comment #31 above, the 100-year flow depths and velocities are relatively shallow and slow. Details and dimensions for this existing swale were not deemed necessary and have not been provided in the Final Development Plans. Calculations for the swale's contributing drainage area ahd hydraulics have been included in the Final Stormwater Drainage Study.*

33. Sheet C302: The grading to the east of building A2-1 will create an adverse impact to the property to the east. Although the grading plan was close to what is required, a swale appears warranted. The problem is the swale has been forced upon the adjacent property owner, which is not allowed unless a specific agreement is reached with the adjacent property owner. Please correct. *The existing contours along the eastern property line behind the proposed Building A2-1 indicate that the ground slopes downwards to the east, and that the proposed berm along the back of the building would serve to reduce the amount of surface drainage flowing off of the Summit Point site and onto the neighboring property. There is an existing area inlet on the neighboring property located approximately 80 ft east of Building A2-1 that was constructed in 2017 to collect the surface runoff from the church building and parking lot addition.*

34. Modular block retaining walls are called-out throughout the project. All retaining walls greater than 42 inches in height (including footer) shall be designed by a registered design professional in the State of Missouri. This shall be required prior to construction of these features, but shall not

necessarily delay approval of the Final Development Plan. *It will be completed with the shop drawing by the wall manufacturer prior to construction.*

35. Sheet C400: The detention basin outlet to the creek is significantly different than shown on the Preliminary Development Plan. As discussed during review of the Preliminary Development Plan, this outfall to the creek has the potential to affect adjacent property owners. Although difficult to determine from this drawing, it would appear this design is substandard and shall create a negative impact to the adjacent property owner. Recommend review of the Preliminary Development Plan and pursuing a concept that is in line with that preliminary design rather than simple rip rap at the end of pipe. Analyze, review, and revise as appropriate, and please be aware a separate sheet(s) shall be required for the detention basin and outlet structure/emergency spillway. *The outlet culvert at the stormwater detention basin has been revised to a 42" HDPE pipe discharging into a trapezoidal riprap channel with a base width of 6.5' and 3:1 side slopes. At the end of the riprap channel, a check dam barrier of energy-dissipating boulders has been added to slow the outflow velocity and minimize the risks of eroding the downstream outlet channel draining into the main creek channel. A separate detail sheet has been added into the plans to show the entire grading limits of the stormwater detention basin and outlet channel to the creek, along with a plan and profile of the outlet structure, structural detail of the outlet structure showing the 4" diameter low-flow outlet orifice, a 33" wide outlet weir, the top of structure with an accessible grate cover for maintenance, and the emergency overflow spillway, top of dam and peak 100-year WSEL.*

36. There are numerous instances throughout the plan set with callouts to sheets that do not exist. For instance, Sheet C402 includes a note at the outlet structure stating "see detail sheet C". No such sheet exists. Review these instances and correct. *The plans have been revised and the full Civil construction document set has been submitted for FDP approval*

37. A different method of energy dissipation at the discharge point of the detention basin is likely required. Rip rap is likely not going to be sufficient due to the proximity to the adjacent property. Recommend alternative designs which reduce the energy of flows up to and including the 100 year event to sub-critical flow. There are numerous design options available, and the engineer shall explore different methods. One particular concept design was shown on the Preliminary Development Plan, and it would appear a stilling basin could be constructed at the end of this discharge, along with rip rap towards the property line. Please review, analyze, and revise as appropriate, and please be aware the specific details of design shall be shown on the separate detention basin sheet(s). *The hydraulic characteristics of the proposed 42" HDPE outlet culvert from the stormwater detention basin were modeled using HY-8. The peak 10-year outflow release rate from the detention pond was calculated to be approximately 25.38 cfs with a velocity of 6.18 fps exiting the pipe and reducing to 3.35 cfs at the riprap blanket. During the 100-year design storm, the discharge was approximately 49.10 cfs with a velocity of 7.77 fps exiting the pipe and reducing to 4.07 cfs at the riprap blanket. At the end of the riprap channel, a check dam barrier of energy-dissipating boulders has been added to slow the outflow velocity and minimize the risks of eroding the downstream outlet channel draining into the main creek channel.*

38. The concrete trickle channel is not allowed in the City of Lee's Summit without a design waiver. Is a french drain more appropriate for this application? Are there issues with achieving the necessary storage volume? A 0.5% slope appears very low, and would appear too small to function correctly. Please review and revise as appropriate. *The slope of the concrete trickle channel has been revised to 1%. The outflow from the 42" HDPE storm sewer pipe discharging into the detention basin during a 10-year design storm was approximately 45.89 cfs with a velocity of 8.56 fps exiting the pipe and reducing to 3.9 cfs at the concrete trickle channel. During the 100-year design storm, the discharge was approximately 81.73 cfs with a velocity of 9.45 fps exiting the pipe and reducing to 4.4 cfs at the concrete trickle channel. The channel outflow calculations were, very conservatively, calculated without accounting for the effect of accumulating backwater from the impounded stormwater held inside the detention basin. The trickle channel calculations have been included in the Final Stormwater Drainage Study.*

39. Assuming that no internal sub-meters are being proposed? It appears two (2) master meters (unlabeled as to size) are serving this development, which is acceptable. However, please note that any sub-meters installed within the boundary of the project shall be at the expense of the developer and shall be maintained by the developer. The City shall not read these meters or maintain these meters in any way. Please review and if appropriate, show the locations of any private sub-meters within the interior of the project. Noted

40. It is difficult to determine whether the backflow vaults along Chipman Rd. are outside any public easement or right of way due to the lack of linework showing these features. Please show the right of way and easements along Chipman Rd. to ascertain whether the backflow vault encroaches into these areas. Ensure the backflow vault is outside the limits of these areas, with the exception of the gate valve just prior to the backflow vault. The gate valve denotes the end of the public line, and is allowed to encroach within the easement or right of way, but the actual backflow vaults shall be outside these limits. Please revise as appropriate. *The proposed water meters and backflow preventer vaults shall be located outside of and existing utility easements or the public right-of-way on Chipman Road.*

41. General Comment Concerning Stream Setback: The stream setback (i.e., stream buffer) shall be denoted with a bold line on all sheets. As presented, it is very light, as well as the labeling. It is difficult to see, and may be missed during construction. *The stream setback lines have been revised to be bold and readily discernible.*

42. General Comment Concerning Stream Buffer: A note shall be provided on all sheets with the stream buffer shown that "no grading or development activities allowed within the limits of the stream buffer, except as shown for the detention basin", or equivalent language. *The "no grading or development activities allowed within the limits of the stream buffer, except as shown for the detention basin" note has been added to the plans.*

43. Profile view of Line 1 (storm line exiting the detention basin) was not provided. It should be part of the detention basin plan sheet(s) discussed earlier in this comment letter. Please review and revise

as appropriate. *A profile of the detention basin storm sewer outlet culvert has been included with the new detention basin detail sheet.*

44. All profile views of storm lines, water lines, and sanitary sewer lines shall be noted as "PRIVATE" across the top of the profile view. This enables quick transfer of the private utilities to the City GIS system. Please revise as appropriate. *The profile views of the proposed storm sewers, sanitary sewers and water lines shall be labeled "PRIVATE."*

45. Sheet C700: Parking lot detailing was incomplete for the clubhouse. Please see previous comments related to slope callouts and elevation callouts for ADA-accessible spaces. Revise as appropriate. *Details for the improvements to the parking lot around the clubhouse have been included in the revised plans.*

46. Curb and gutter section view is required for the Final Development Plan parking lot. It shall show the subgrade being extended a minimum of 12 inches beyond the back of curb. *The subgrade limits for the pavement and curb have been extended 12 inches past the back of curb.*

47. C1001: Although a part of the public street improvement project, the section view of the curb and gutter shown at the bottom of this page is typical of what I would expect for the parking lot curb and gutter detail. It can also serve as a pavement typical section view for the parking lot. The only exception is the curb type, which shall be straight back curb and gutter. Please review and revise as appropriate. *The curb & gutter detail has been revised.*

48. Sheet C405: Missing north arrow. *Added north arrow and scale to plan.*

49. Sheet C406: Missing north arrow. *Added north arrow and scale to plan.*

50. Sheet C405: A portion of Sanitary Sewer Line 1 is shown "to be abandoned". How will this line be abandoned? Will the line be removed? Please review the City's Design and Construction Manual for acceptable methods of abandoning a sanitary sewer line. Revise the plans with detailed notes and/or drawings showing the work to be completed. *The existing sanitary sewer line shall be removed*

51. Sheet C405: Doghouse manhole is proposed at one location west of building A2-3 . Doghouse manholes are not allowed on public or private lines. Please revise, and provide sufficient notes showing acceptable alternatives to doghouse manholes. Pumping around appears to be the only suitable alternative in this case. *The doghouse manhole has been revised to call for a standard manhole set on the existing sanitary sewer line with the existing connecting pipes removed and then re-connected into the new manhole. The Contractor shall make provisions to plug the upstream lines to allow time for the existing sewer lines to be cut , the new manhole set and the sewer lines re-connected into the new manhole. If the process will require several hours or days, the Contractor shall make provisions for temporarily pumping the sewage to the downstream manhole.*

53. Sheet C405: There are two (2) instances of "manhole 1 line 1" on this sheet. Please review and eliminate any discrepancies in manhole numbering and/or labeling. Revise as appropriate. *The manhole numbering has been modified.*

54. Sheet C405: The eastern manhole 1 may need to be removed and replaced. It is unclear whether the manhole can be re-used with the angle of entry. Please review and revise as appropriate. *TWith the removal of the line the existing manhole should be usable for connection of the new line.*

55. Sheet C406: Manhole 5 on line 2 is shown as a doghouse manhole. Please see previous comments related to doghouse manholes not being allowed on public or private lines. Please add sufficient details so there is no confusion on this issue, as the City shall not allow doghouse manholes. Please revise. *The plans have been revised to eliminate the doghouse manhole. See the above response to Comment #51.*

56. Sheet C406: Manhole 5 line 2 is shown within the stream buffer. What is the extent of tree removal that shall take place during the installation of this private sanitary sewer line? Please show on the plans. *The limits of clearing and tree removal within the stream buffer have been shown on the revised plans.*

57. A trenching and backfill detail was missing for the sanitary sewer line, the water and fire line, and the storm lines. Please ensure the new standard of 12 inch aggregate is shown over the top of pipe. *This standard changed in July 2020. The updated pipe trench detail has been included in the revised plans.*

58. Pre-cast curb inlets are called-out with no corresponding detail or reference on the plans to what is being installed. Please use standard drafting standards to show: 1) what is being installed and where, 2) the sheet number of the detail, and 3) the detail number. Please revise as appropriate. We added notes.

59. Nyloplast inlets are being called-out with no corresponding details. Please see above comment and revise as appropriate. *Details for the proposed Nyloplast inlets and junction boxes have been included with the revised plans.*

60. Flared end section detail showing the toe wall was not shown. Please show in the detail section. *The pipe sizes were revised so that all of the flared end sections would be 42" diameter. Details for the flared end sections with toe walls have been included in the revised plans.*

61. Sanitary sewer manhole detail was missing. Please use the City of Lee's Summit standard drawings, and insert as appropriate. *The City's detail for the sanitary sewer manholes has been included in the revised plans.*

62. Gate valve detail was missing. Please add the standard detail in the detail section. *The City's detail for the gate valves has been included in the revised plans.*

63. Backflow vault detail was missing. Please insert the City standard drawing for backflow vault. *The City's detail for the backflow preventer vault has been included in the revised plans.*

64. Please show the method that is being proposed to drain the sump within the backflow vault. It can drain via: 1) gravity to daylight, or 2) installation of an infiltration gallery. Review and revise as appropriate, and show on the plan view what is being installed and where. *A gravity drain line has been added to the proposed backflow preventer vault to connect to the adjacent storm sewer.*

65. Fire hydrant standard details were missing. Please provide. *The City's fire hydrant standard details have been included in the revised plans.*

66. Thrust block standard details were missing. Please provide. *The City's thrust block standard details have been included in the revised plans.*

67. Straddle block details were missing. Please provide. *The City's straddle block details have been included in the revised plans.*

68. Water meter standard detail was missing. Please provide. *The City's water meter standard details have been included in the revised plans.*

69. Wye connection standard detail was missing. Please provide. *The City's wye connection standard details have been included in the revised plans.*

70. There are instances where Nyloplast inlets may not be appropriate due to longevity issues. Recommend looking at the City standard curb inlet/junction boxes for larger applications. Please evaluate and revise as appropriate. *The plastic Nyloplast inlets have been designed and tested as UV-resistant. With the plastic construction, they are readily adaptable for trimming or extending to fit encountered field conditions or variations in planned construction. The inlets would also be private and the owner's responsibility for any service or replacement requirements that may arise over time.*

71. Please ensure that the 100 year WSE for the nominal and clogged event is taken into account when preparing the profile view for Line 2. This will affect upstream HGL calculations since the pipe will be flowing full. Please evaluate, and please provide the HGL on the profile view for the design storm event. In the case of Line 2, the design event shall be the 100 year clogged condition/zero available storage event. *The storm sewer hydraulic analysis spreadsheet was revised to analyze the 100-year hydraulic grade line on Storm Sewer Line 2 based on the stormwater detention basin being completely full at the 100-year peak WSEL.*

72. Sheet C400: A gate valve is required just prior to the backflow vault, near the public water main. This point denotes the end of the public service. Please revise as appropriate. *A gate valve has been added to the line by the proposed backflow preventer vault.*

73. Standard detail for manhole frame and lid was not provided. Please add to the details section. *The City's manhole frame and cover standard details have been included in the revised plans.*

74. General Comment: Many of the sheets in the plan set include an unidentified dashed line on the west side of the project in close proximity to the stream buffer line. What does this line denote? Please identify, or remove as appropriate. *The unidentified dashed lines have been removed from the revised plans.*

75. Sheet C400: Please thoroughly review this sheet. Private domestic water lines to serve buildings are missing in some instances, while some private sanitary sewer lines are not shown connecting the buildings. In one case, the private sanitary sewer is shown connecting to a curb inlet. In another case, a callout is provided stating to connect to water, but a sanitary sewer is shown as the connection point. Please review and revise as appropriate. No further review of this sheet was performed due to QA/QC issues. *The plan sheet has been revised.*

77. The "Final Stormwater Drainage Study" dated Feb. 2, 2022 (hereinafter referred to as "the stormwater report") includes within the appendix a drawing Sheet C600 which was not included within the plan set. No further review of this sheet was conducted due to the incomplete nature of the detention basin outlet structure. See previous comments related to the required detention basin details sheet(s). It will also require the design of a suitable trash guard to mitigate clogging issues. *Sheet C600 has been expanded to include details of the stormwater detention basin, outlet structure and riprap blanket with energy dissipating check dam. See the responses to Comment #35 for more information.*

78. There is concern that a 42 inch pipe is discharging into the detention basin, but a 36 inch pipe is exiting the basin. Please ensure the 36 inch pipe is able to manage up to and including the 100 year event without utilizing the emergency spillway. The emergency spillway shall only be designed to be utilized in the event of a storm in excess of the 100 year event, or clogging of the primary outlet structure. *The outlet Culvert from the stormwater detention basin has been revised to a 42" HDPE.*

79. The stormwater report presents Sheet C600 within the appendix (not included within the plan set). This sheet shows simple rip rap (unlabeled, so making the assumption). Please see previous comments related to this issue. Suitable energy dissipation measures may need to go above and beyond simple rip rap. This was discussed during the Preliminary Development Plan, and the City was assured the final design would incorporate features that addressed this issue. In particular, please see the Preliminary Development Plan for a geometric concept of a spillway design that appeared acceptable, subject to final design and detailing. It appears the proposed design in the latest Final Development Plan has abandoned this concept in favor of an inferior product. Please review and revise as appropriate. *Sheet C600 has been expanded to include details of the stormwater detention basin, outlet structure and riprap blanket with energy dissipating check dam. See the responses to Comment #35 for more information.*

80. The erosion and sediment control plan was missing a final restoration plan. *The Erosion Control Plans have been revised and now includes a Phase-III Final Restoration Plan Sheet.*

81. A signed and sealed Engineer's Estimate of Probable Construction Costs is required prior to formal approval of the Final Development Plan. This estimate shall include all site work necessary to construct the project, including public or private infrastructure such as parking lots, sanitary sewer, water lines, stormwater, and erosion and sediment control and final restoration. *A construction cost estimate has been prepared and included with the revised plans.*

Traffic Review	Brad Cooley, P.E., RSPI Brad.Cooley@cityofls.net	No Comments

Building Codes Review	Joe Frogge (816) 969-1241	Plans Examiner Joe.Frogge@cityofls.net	Corrections

1. Inadequate information to complete review.

Provide the following:
- Water pipe sizes and materials
- Size of water meter(s)

Added to plans.

Respectfully,
Cook Flatt & Strobel Engineers, P.A.

Lance W. Scott, P.E.
Sr. Vice President