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April 16, 2024

Mr. Gene Williams
City of Lee's Summit
220 SE Green Street
Lee's Summit, MO 64063

RE: Comment Response Letter
Wilshire Hills Public Improvements
NE Wilshire Drive
Lee's Summit, Missouri

Dear Mr. Williams:

Please find enclosed the civil related comment responses for Wilshire Hills Public Improvement Plan Construction Document review submittal. Comments were received on April 12, 2024. Below are responses to site plan review comments received.

Mass Grading an Erosion and Sediment Control Plans

No Comments

Public Water: Gene Williams

No Comments

Sanitary Sewer Plans: Gene Williams

No Comments

Street and Storm: Gene Williams

1. Sheet C2.17: The upper right hand inset detail does not make sense. The 100% clogged/zero available storage condition HGL which appears to be below the emergency spillway crest elevation callout. The clogged condition/zero available storage should be higher than the emergency spillway crest elevation, not below the crest elevation. Please evaluate and revise as appropriate, and if applicable, please update and revise the stormwater report as appropriate.

   The elevation noted on the spillway cross section has been revised to 922.18, to match the Hydraulic Report.

2. Perforated riser did not appear to be included in the routing calculations. Why was this done? In addition, the 4.5-inch orifice within the interior of the outlet structure is shown after the perforated riser, and thus would not be valid as shown in the stormwater report? Please evaluate and revise as appropriate.

   The perforated riser acts as a trash rack only. These perforations prevent debris from clogging the low flow orifice. In our experience, this riser has been effective in preventing and reducing low flow orifice clogging. The perforation specification has been added to the detail.
   For your reference, I have attached the stage storage curve including this perforated riser. I have highlighted this riser verses the 4.5" orifice, except for the very early stage (less than 4-in), the riser has significantly more capacity than the orifice. The Hydraflow software will not allow this riser to be routed through the orifice. Therefore, adding it to the model will not be accurate.

3. Hydrograph 18 contained within the appendix appears to show a 100-year water surface elevation for the 100-year event as 920.88. This elevation differs from what is shown on the plans (i.e., 921.00). Please evaluate and revise as appropriate, including any revision necessary to the stormwater report and plans.

   The hydraulic report now combins the downstream analysis with the comprehensive analysis, . removing the minor difference between the models. The 100-year elevation is 921.00.

4. Storage shown on the same hydrograph appears to differ from what is shown on the detention basin plan Sheet C2.17. Plan Sheet C2.17 appears to show 187,600 cubic feet of storage, but the hydrograph appears to show 182,059 for the 100 year event. Please review and revise as appropriate.

   The storage volume on the plan now exactly matches the report.

5. Please title Sheet C2.17 as "BMP and Detention Basin Plan". This will enable our GIS technicians to enter the information to our GIS system.

   The title has been revised.

6. Sheet C2.17: The detail view of the outlet structure does not make sense in regard to the 2.2 foot weir shown in the outlet structure. Recommend an additional section view to show the dimensions of this weir and where it is located in relation to all other features within the outlet structure.

   The side view has been revised to now show the weir as well as the perforated riser.

7. Perforated riser is shown with attachment points, but no specific details are provided. Please provide specific details for support of the perforated riser to ensure this feature is adequately supported. Please revise as appropriate.

   Attachment details have been added.

8. It does not appear any stormwater will enter the top of the box based on the discrepancies listed above.

   The 100-year storm will just overtop the box.

Public Water: Gene Williams

No Comments

Traffic Review: Scott Ready

No Comments.

Final Plat

No Comments.

If you have any questions or comments, please contact me.

Sincerely,

Matthew A. Kriete

Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020 Tuesday, 04 / 16 / 2024

Pond No. 2 - Basin

Pond Data

Contours -User-defined contour areas. Average end area method used for volume calculation. Begining Elevation = 911.70 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	911.70	00	0	0
0.30	912.00	2,386	358	358
1.30	913.00	13,639	8,012	8,370
2.30	914.00	15,509	14,574	22,944
3.30	915.00	17,465	16,487	39,431
4.30	916.00	19,505	18,485	57,916
5.30	917.00	21,926	20,716	78,632
6.30	918.00	23,832	22,879	101,511
7.30	919.00	26,575	25,204	126,714
8.30	920.00	29,956	28,266	154,980
9.30	921.00	31,503	30,730	185,709
10.30	922.00	33,676	32,590	218,299

Culvert / Orifice Structures

Orifice

Perforated Riser

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 42.00	4.50	Inactive	2.50
Span (in)	= 42.00	4.50	0.00	2.50
No. Barrels	= 1	1	1	74
Invert El. (ft)	= 911.50	911.70	0.00	911.70
Length (ft)	= 47.30	0.00	0.00	9.20
Slope (%)	= 0.20	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 25.00	2.20	0.00	0.00
Crest El. (ft)	= 920.96	915.50	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	Rect	---	---
Multi-Stage	= Yes	Yes	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	911.70	0.00	0.00	---	0.00	0.00	0.00	---	---	---	---	0.000
0.30	358	912.00	0.25 oc	0.18 ic	---	0.14	0.00	0.00	---	---	---	---	0.321
1.30	8,370	913.00	0.58 oc	0.56 ic	---	1.30	0.00	0.00	---	---	---	---	1.865
2.30	22,944	914.00	0.82 oc	0.77 ic	---	3.07	0.00	0.00	---	---	---	---	3.842
3.30	39,431	915.00	0.95 oc	0.94 ic	---	5.28	0.00	0.00	---	---	---	---	6.212
4.30	57,916	916.00	3.71 oc	1.00 ic	---	7.85	0.00	2.59	---	---	---	---	11.44
5.30	78,632	917.00	14.40 oc	0.91 ic	---	10.74	0.00	13.46	---	---	---	---	25.11
6.30	101,511	918.00	29.86 oc	0.89 ic	---	13.92	0.00	28.96	---	---	---	---	43.77
7.30	126,714	919.00	48.84 oc	0.98 ic	---	17.36	0.00	47.86 s	---	---	---	---	66.19
8.30	154,980	920.00	68.82 oc	1.02 ic	---	21.04	0.00	67.80 s	---	---	---	---	89.86
9.30	185,709	921.00	89.11 oc	1.03 ic	---	24.96	0.67	87.42 s	---	---	---	---	114.07
10.30	218,299	922.00	132.46 ic	0.40 ic	---	29.09	76.88 s	55.18 s	---	---	---	---	161.55