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From: **Will Barkman** <wbarkman@mhfd.org>
Date: Fri, Apr 18, 2025 at 4:59 PM
Subject: MHFD Comments - 6800 KILMER RV STORAGE (DA2024-0016)
To: jbebo@arvada.org <jbebo@arvada.org>

Jeremiah,

I have attached MHFD's review comment letter associated with referenced referral for **6800 KILMER RV STORAGE (DA2024-0016).** Please reach out to us with any questions or concerns.
Thank you,

Will Barkman
Project Engineer
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April 18, 2025

To: Jeremiah Bebo (Arvada) Via email
Subject: MHFD Review Comments Re: 6800 KILMER RV STORAGE (DA2024-0016)
Submittal ID: 10013445 MEP Phase: Referral (4th)

This letter responds to the referral request for our comments concerning the referenced project. We have reviewed the referral only as it relates to a major drainageway and for maintenance eligibility of storm drainage features, in this case: Ralston Creek S...rch MHFD staff has the following comments to offer: (References to MHFD criteria are in parentheses.)

1) How would maintenance crews access the detention facility and creek? It appears the access easement and drainage easement do not intersect on the plat. How will maintenance crews access the detention outfall from the pond maintenance access path? Can a maintenance vehicle turn around with the access path?

2) According to the FEMA map, the parcel is in an area where a floodplain exists. A floodplain development permit is likely required along with supporting floodplain analysis to show there are no adverse impacts. Additionally, it appears the 100-year base flood elevation, located near the emergency spillway of the detention basin, is approximately 5556 feet. Please help us understand how the detention basin would function if flood flows reached this elevation as the spillway's elevation is 5554.17 feet. Refer to FEMA, CWCB, and City of Arvada floodplain requirements, which may require a Letter of Map Revision (LOMR).

3) The calculation of hydrologic parameters (WQCV and Rational Method) may be using different design parameters as intended by the criteria. The detention basin worksheet uses an impervious value of 38% which seems low for a site where a large portion of Basin A will be paved (our total impervious estimate is 60-70%). Impervious values per MHFD criteria are 95% for paved surfaces and 20% for pervious surfaces. The site imperviousness used is directly in the WQCV calculation. Additionally, the final imperviousness is used to develop a set of runoff coefficients for corresponding design storms in the Rational Method. Please revise calculations and review (Volume 1 Chapter 6 and Volume 3 Chapter 3) for more information.

4) How will the pipe outlet and spillway discharge from the detention pond be safely conveyed to the Ralston Creek (Volume 2, Chapter 9 - Pipe outfalls and Chapter 12 - Storage -spillways)? Please consider streambank instability as noted in the Terracon Streambank Survey Restoration Technical Memorandum.

5) According to the detention pond details, the proposed pipe from the detention pond outlet structure appears to be elevated above the structure base. Help us understand why the pipe is oriented this way.

6) The Streambank Survey and Restoration Technical Memorandum by Terracon characterizes the stream as unstable and will likely continue to degrade. The memorandum provides an estimated streambank erosion rate of a foot or more per year in several streambank locations with a total of 11.8 feet per year within the stream corridor. The proposed plan has parking and astormwater detention basin along the edge of the identified steep and unstable streambanks which may create a safety concern as erosion continues towards the development. In addition, further lateral streambank movement may expose the buried landfill material potentially creating an environmental hazard.

7) Streams are a natural system which requires horizontal space to allow it adjusts to seek a dynamic equilibrium (Volume 1, Chapter 8). The site development plan should consider preservation and protection of the stream corridor, including but not limited to stream stability, streambank protection, and access (Volume 1, Chapter 1). To perform stream maintenance/repair activities drainageways must have permanent access (Volume 1, Chapter 1). To ensure adequate stream corridor space is provided for stream function and future maintenance/repairs, request we concept design of stream repairs using a High Functioning Low Maintenance (HFLM) approach and means for evaluating/establishing a stream corridor buffer for preservation. We also request a dedicated easement along the determined buffer area that is necessary to provide access for implementation the of concept design when it is determined repairs are required and stream corridor preservation.

We appreciate the opportunity to review this proposal. Please feel free to reach out to me with questions or concerns.

Sincerely,
Will Barkman, P.E.
Project Engineer Mile High Flood District wbarkman@mhfd.org