**WESTERN HERITAGE CONSULTING & ENGINEERING**
1551 Three Crowns Dr. Suite 104 Casper, WY 82604
Wyoming: 307-215-7430 | Colorado: 970-245-4133
info@westernhce.com

March 13, 2024

Attn: Jeff Barnes
City of Scottsdale – Planning and Development Services
7447 E. Indian School Road, Suite 105
Scottsdale, AZ 85251

RE: **21-DR-2002#2, Drainage Report Comments**
Vargo Quarter Horses (VQHS)
**3474C (Key Code)**

The following letter includes the response to the review comments by the Planning & Development Services for the above referenced Drainage Report dated 9/28/2023.

Title Page:

1. Drainage Report Title Page was revised to include the following items:
    - Title changed from Drainage Report to Preliminary Drainage Report.
    - The report and revision dates were added to the Title Page.
2. The Case # had been added to all pages in the report at the bottom right corner of the page.
3. Engineers seal and signature was added to the Title Page and Table of Contents.

Table of Contents:

1. The Table of Contents has been updated per the revised drainage report.

Introduction:

1. Zoning information was included with the location description.
2. Flood Hazard Classification data including Flood Insurance Rate Map (FIRM) information was included. FEMA FIRMette Flood Panel was added to the Exhibits following the report.

Existing Conditions:

1. The existing conditions section was revised to clarify the existing site survey , the existing conditions of the washes and culverts. The survey drawing was included as an Exhibit following the report.

Hydrology:

1. The hydrology section of the report was revised to show derivations of the stormwater flows for both washes based on the reviewed Flo-2D User Interface. The wash drainage contributions were evaluated with existing site topography and the Flo-2d modeling contributions and developed across the site. Figures were added clarifying the derivation of the 100-yr peak flows across the wash.

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2. Drainage easement requirements were included for the North Wash based on design flows derived. The easement boundary was defined by utilizing a HEC-RAS modeling of the wash using the design flows and site topography.
3. Erosion Hazard Setbacks calculations were included for the wash using the ADWR State Standard 5-96, Guideline 1, Level 1. In addition to the setback calculations, scour protection calculations were developed for the culvert inlet and outlet locations.
4. First Flush and stormwater storage information was presented for the site conditions.

Proposed Conditions:

1. The proposed condition section was revised to clarify the site improvement in comparison to the existing approved Site Plan per Case 21-DR-2002. This site plan was included in the Exhibits for reference only.
2. Proposed culvert improvements in the wash were presented including respective scour protection and Wash Modification Application requirements.
3. Site grading for the improvements was described for the new Shop including finished floor elevations and adjacent 100-year peak design flood water surface elevation. Preliminary Grading & Drainage drawings were included in the Exhibits.

Hydraulics:

1. The hydraulic modeling of the existing and proposed site was defined using HEC-RAS modeling based on the design flows developed in the Hydrology section. HEC-RAS modeling was used to determine the water surface elevations for the 100-year peak flood, culvert design and driveway flood depths.
2. The HEC-RAS results were presented with figures from the modeling design output.

Additional Requirements:

1. Stormwater Quality Requirements were presented for the project based on ADEQ including a Notice of Intent and Stormwater Pollution Prevention Plan for construction.

Conclusion

1. The conclusion section was updated to present findings of report in general.

Thank you,

Matthew Peterson, PE
Project Manager