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November 11, 2024

City of Sedona Public Works
Attn: Hanako Ueda
102 Roadrunner Drive
Sedona, Arizona 86336

RE: Ambiente Creekside Resort
Drainage Analysis

This letter has been prepared to present a preliminary drainage analysis and identify the drainage improvements required for the development of the property located at 520 N. State Route 89A within the City of Sedona, Coconino County, Arizona.

This drainage analysis will verify the development of the property along with the mitigation measures that will mitigate the post development runoff conditions to a level equivalent to or less than the pre development condition and meet the criteria of the City of Sedona and Coconino County drainage criteria. Construction stormwater pollution prevention measures are not a part of this analysis.

Location

The proposed development will be located within the City of Sedona, Coconino County, Arizona, more specifically described as Assessor Parcel Number (APN) 401-08-006A, 401-13-059, 401-09-001A, 401-09-001B, and 401-09-001C within a portion of the Northwest $\frac{1}{4}$ of Section 8, Township 17 North, Range 6 East of the Gila & Salt River Base Meridian. The property is located East of State Route 89A. The proposed access point for the development will be located off State Route 89A.

Project Description

The proposed development will consist of 36 Guest Units, a Restaurant, Spa and Fitness Center, Arrival Check-In Building, and Asphalt Parking Lot. The property encompasses approximately 11.0 acres and is currently undeveloped.

The property falls within the 100-year floodplain and floodway of Oak Creek as shown in the FEMA Flood Insurance Rate Map (FIRM) No. 04005C7657H with an effective date March 21, 2023. The property does not fall within an City of Sedona designated floodplain or floodway.

Existing Drainage Conditions

The geologic composition of the property primarily consists of Vortex Soils and Urban Land and Vortex Fine Sand, which are Natural Resource Conservation Services (NRCS) Hydrologic Soil Group Type 'B' soil and Hydrologic Soil Group Type 'A' soil, respectively. NRCS Soil Group Type 'B' soil is typically characterized as loamy fine sand which has a low rate of runoff potential. NRCS Soil Group Type 'A' soil is typically characterized as fine sand which has a very low rate of runoff potential. The existing topography of the property is primarily sloped with an average 3 to 4 percent grade in a northwest to southeast direction.

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In affiliation with:

Heritage Land Surveying & Mapping, Inc. with office in Sedona, Camp Verde & Colorado



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Runoff discharge from the property is typically shallow overland sheet flows which concentrate along the southern property boundary and flow into Oak Creek.

Off-site runoff flows enter the property along the western property boundary primarily as sheet flow from existing developments.

Developed Conditions

The proposed grading of the property will be completed to maintain the existing drainage patterns and discharge from the property as it historically has done. All on-site flows will continue to be directed to the southeast corner of the property. The development of the property will result in an increase in the overall runoff between the pre development condition and the post development condition. The increase in impervious area resulting from development is the primary leading factor. Mitigation of the increase in discharge will be required to reduce the discharges to a level below the historic values.

To reduce the post development runoff flows additional measures to mitigate the flows will be considered. Such measures as pedestrian paths and driving surfaces will be constructed of permeable pavers which allow surface runoff to percolate through the top surface to the natural ground. Also roof drains will be directed to a riprap drainage trench which will dissipate the concentrate flows to the natural ground. Areas of the property that will remain unpaved, such as landscaped areas, will be considered for biofiltration areas to provide additional reduction in the post development runoff.

If a stormwater collection system is required to convey onsite flows, the system manholes and catch basins will be fitted with a Flex Storm Inlet Filter sized to treat the initial First Flush volume from the development. The filtration system will provide removal of sediments, debris, and other non-point source pollutants from the development along with removal of petrochemicals and hydrocarbons within the parking lot area. This system would be compliant with the Arizona Pollutant Discharge Elimination System (AZPDES) permit and the City of Sedona regulations.

If you have any questions, please contact me at (928) 202-3999 or email me at ls@sefengco.com.

Sincerely,



Luke A. Sefton, P.E., CFM
Principle Engineer

Attachment: