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January 6, 2026

SUBJECT: Comments on the Hume SoCal Campground Expansion Project/Camp Hume Camp Hume **Project No.: PROJ-2024-00046**

TO: Elena Barragan, Senior Planner
County of San Bernardino, Planning Division,
385 N. Arrowhead Ave., San Bernardino, CA 92415-0187
Email : elena.barragan@lus.sbcounty.gov

Dear Ms. Barragan:

I am writing to formally convey several points of concern regarding the proposed **Hume SoCal Campground Expansion Project / Camp Hume (Project No. PROJ-2024-00046)**. These comments focus on potential impacts to watershed conditions, including on-site and off-site hydrology, groundwater recharge, stormwater runoff, ecosystem and riparian habitat conversion, and cumulative increases in water resource demand.

The environmental documentation characterizes project impacts as minimal; however, this conclusion is not supported by a sufficiently detailed or quantitative analysis. Established hydrologic science demonstrates that at a minimal land development involving grading, vegetation removal, soil compaction, and impervious surfaces typically increases runoff coefficients, reduces time of concentration, limits infiltration, and elevates peak discharge rates (NRCS, 1986; NRCS, 2004).

Hydrology & Watershed Processes

The proposed project has the potential to significantly alter surface and subsurface hydrologic processes, including runoff generation, sediment transport, groundwater recharge, and downstream channel stability. Increased impervious and compacted surfaces reduce infiltration capacity and increase overland flow, accelerating erosion and sediment delivery to receiving waters.

Project development, such as the proposed site expansion, that increases impervious area and soil compaction typically reduces infiltration and decreases watershed travel time, which in turn increases runoff volume and peak discharge, and can increase erosive forces delivered to channels and infrastructure. These mechanisms are well documented in the NRCS/SCS TR-55 stormwater framework, which identifies reduced infiltration and shorter travel times as common drivers of increased runoff and peak flows (NRCS, 2004; USGS, 2019).

The hydrology assessment should comprehensively evaluate potential changes in hydrograph response, including increases in runoff coefficient, reduced time of concentration, higher unit discharge, and potential downstream impacts such as channel incision, bank erosion, and sedimentation. Without such analysis, the "minimal impact" conclusion is not supported by substantial evidence.

Climate Nonstationarity & Increasing Hydrologic Volatility

The analysis does not account for climate nonstationarity. Extensive research indicates California is experiencing longer dry periods punctuated by fewer but more intense precipitation events, often associated with atmospheric rivers.

The project's hydrologic review should be updated to explicitly account for climate nonstationarity—the well-established reality that historic precipitation timing and intensity are no longer reliable predictors of future conditions. The United States Geological Survey (USGS) and the National Oceanic and Atmospheric Administration (NOAA) have summarized research indicating California is experiencing greater precipitation volatility, with more intense atmospheric rivers and longer dry periods between storms, which affects both flood risk and water-supply reliability (USGS, 2017; USGS, 2022; NOAA, 2023).

Additional research programs focused on California indicate that extreme precipitation events are expected to intensify, which increases the need for conservative stormwater and erosion-risk design assumptions (especially for steep terrain, disturbed soils, and constrained infrastructure) (UCLA, 2026).

Given these documented trends, the hydrology analysis should not rely solely on generalized "typical" conditions. It should evaluate a range of conditions that reflect modern risk: prolonged drought periods followed by short-duration, high-intensity storm sequences (including atmospheric rivers).

Stormwater, Flooding, & Infrastructure Risk

Given the documented trend toward more intense extreme precipitation events and the importance of atmospheric rivers in Southern California's hydrology (UCLA, 2026; USGS 2023), the analysis should include stormwater evaluation under high-intensity rainfall scenarios, including atmospheric river-driven events.

The project's stormwater approach should demonstrate—through calculations and/or regional data informed modeling—how proposed site changes affect:

- peak discharge (Qp) and runoff volume,
- conveyance capacity of on-site drainage and downstream culverts,
- erosion potential (shear stress / stream power indicators),
- and sediment yield from disturbed soils (construction-phase and long-term).

The TR-55 framework explicitly notes the role of infiltration limits, cover condition, and imperviousness in driving runoff response; therefore, stormwater conclusions should be supported by defensible assumptions and calculations rather than qualitative statements (NRCS, 1986; USGS, 2022).

Water Supply, Demand, & Cumulative Use

Each phase of development will create incremental and cumulative increases in water demand associated with construction, operations, staff use, and peak participant occupancy. The document does not provide a defensible estimate of annual demand or peak-period demand under realistic occupancy and operational scenarios, which is necessary to evaluate impacts to local water resources and dependent ecosystems.

These concerns are heightened because water demand typically peaks during periods when water availability is most constrained—hotter periods with elevated evapotranspiration, and seasonal low groundwater conditions. NRCS climate and water updates have documented periods of dry starts to the wet season in Southern California, including conditions involving periodic Santa Ana winds and drought stress, which can further reduce soil moisture and increase water resource vulnerability (NRCS, 2023, 2025; USGS 2023).

Because demand fluctuates with occupancy, it is not sufficient to provide a single "average" estimate. The analysis should evaluate upper-bound demand during peak use periods and compare that demand to water availability and sustainable recharge under drought and heat stress

conditions (NRCS, 2021). The document does not adequately quantify annual or peak-period water demand.

Construction-Phase Impacts & Sediment Yield

Construction-related activities including grading, excavation, vegetation clearing, and temporary access infrastructure will disturb soils and alter drainage pathways. Without a comprehensive understanding of how these disturbances affect erosion rates, sediment yield, and downstream turbidity, the project risks causing short- and long-term degradation of watershed function.

The current analysis does not sufficiently evaluate construction-phase hydrologic impacts, nor does it demonstrate that proposed mitigation measures will effectively protect downstream resources under worst-case conditions.

The document should include erosion and sediment control analysis that is scaled to:

- disturbed acreage,
- slope and soil erodibility,
- storm intensity expectations,
- and downstream sensitivity.

Without a construction-phase sediment and hydrology analysis that reflects extreme-event risk, the conclusion of minimal impacts is not adequately supported.

Fire Weather, Santa Ana Winds, & Post-Fire Hydrologic Risk

The environmental document should explicitly evaluate the interaction between development and fire-weather-driven watershed vulnerability, including Santa Ana wind conditions. NOAA has documented that Southern California fire events are strongly influenced by combinations of dry antecedent conditions and strong Santa Ana wind events that reduce humidity and vegetation moisture and increase spread risk.

Post-fire watersheds can exhibit increased runoff, erosion, and debris-flow susceptibility due to vegetation loss and soil hydrophobicity. Because these risks can increase both on-site and downstream hazards (roads, culverts, buildings, and channel stability), a complete assessment should address fire-weather exposure and post-fire hydrologic response in addition to “average year” runoff conditions (NOAA, 2020; USGS, 2018).

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Biological Resources, Riparian Corridors, & Connectivity

As proposed, the project would result in conversion and fragmentation of riparian and upland habitats that provide critical hydrologic and ecological functions, including baseflow support and habitat connectivity (USFS, 2017).

The proposed project raises concerns regarding conversion and fragmentation of habitat, including riparian corridors. Riparian areas provide essential watershed functions: bank stabilization, filtration of sediment and pollutants, shading and thermal regulation, and support for terrestrial and aquatic habitat, including endangered species. The environmental document should evaluate how alterations could affect connectivity, riparian function, and the watershed's ability to sustain perennial or near-perennial flows through baseflow and shallow groundwater exchange.

Deep Creek – Cultural, Ecological, & Downstream Importance

Deep Creek is within the watershed and downstream of the project site. Deep Creek serves as a critical ecological corridor and is identified as a river of high ecological significance, supporting diverse habitats and functioning as an important wildlife linkage within the San Bernardino National Forest system (National Wild and Scenic Rivers System, 2022).

Deep Creek also has formal Wild and Scenic River planning and management context through federal agencies; the USDA Forest Service has issued communications regarding the Deep Creek Comprehensive River Management Plan and management actions intended to protect watershed condition and outstandingly remarkable values (USFS, 2017). Additionally, Deep Creek converges downstream to form the Mojave River providing essential water resources to High Desert communities, many of which are characterized as disadvantaged.

Given Deep Creek's ecological and cultural significance (including importance to Tribal communities and downstream users), the environmental review must evaluate how changes in recharge, runoff, sediment delivery, and water demand could affect baseflows, water quality, and riparian/aquatic habitat function in both the near field and downstream receiving environments.

Inadequacy of the Hydrologic Assessment:
Request for an Extensive Environmental & Hazards Impact Assessment

The site hydrologic assessment relies primarily on regulatory checklists and generalized observations rather than quantitative, condition-based analysis. It represents a snapshot in time and does not capture hydrologic behavior during critical stress periods, including drought, extreme heat, Santa Ana wind events, and high-intensity storm conditions.

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A comprehensive assessment would require multi-season monitoring, groundwater level data, baseflow measurements, and storm-event analysis to accurately characterize watershed response and risk. Without such analysis, the conclusion that impacts are minimal is not supported by substantial evidence.

Given the deficiencies outlined above, the environmental review does not adequately assess the project's potential to cause adverse and potentially significant impacts to hydrology, water resources, biological systems, and downstream communities. *A more comprehensive, technically robust, and climate-informed analysis is necessary to ensure compliance with environmental review standards and to protect watershed integrity, cultural resources, and long-term water sustainability.*

Sincerely,

Jennifer Alford

Jennifer B. Alford, PhD

Referenced Documents:

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