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Project No: 20-10008

Bryan Bondy, PG, CHG
Executive Director
Upper Ventura River Groundwater Agency
202 West El Roblar Drive
Ojai, California 93023
Via email: bbondy@uvrgroundwater.org

Subject: Camino Cielo Stream Flow Monitoring Annual Data Transmittal for Water Year 2025
Upper Ventura River Groundwater Agency, Ventura County, California

Dear Mr. Bondy:

Rincon Consultants, Inc. (Rincon) has prepared the following Annual Data Transmittal for Water Year 2025 (October 1, 2024, through September 30, 2025) for stream flow monitoring activities performed at Camino Cielo located in the most northern portion of the Upper Ventura River Groundwater Basin in Ventura County, California (Figure 1). This memorandum was prepared for Upper Ventura River Groundwater Agency (UVRGA) in accordance with UVRGA's Monitoring and Data Collection Protocols and Data Quality Control Review Procedures.

Continuous flow monitoring activities for the 2025 Water Year commenced on April 25, 2025[1], which included redeployment of a Solinst Levelogger automated pressure transducer approximately 200 feet upstream from the County-owned culvert at Camino Ceilo in the natural stream bed. The transducer location had been moved from being affixed to the downstream abutment of the culvert at Camino Cielo, where it was located for the 2023 and 2024 Water Years, due to challenges encountered during the 2024 Water Year related to performance issues of the Levelogger being able to accurately record level data in very low-flow conditions (i.e., less than 0.3 feet of water column). Cross section (Figure 2) and channel slope (Figure 3) surveys were completed to support the development of a stage-discharge rating curve. Rincon developed a stage-discharge rating curve for Camino Cielo using HydroCalc Version 3.0c software (HydroCalc), which utilizes Manning's equation to model flow rates from observed depth of water and channel dimensions.

Low flows caused by below average precipitation in the winter of Water Year 2025 allowed for equipment deployment and data collection to commence sooner than in Water Years 2023 and 2024. Instantaneous discharge measurements (Figure 4), which commenced on April 14, 2025, were collected to support rating curve development. Calibration of the rating curve involved utilizing field-derived flow measurements, and a best-fit curve was applied to the HydroCalc outputs to establish an equation for calculating discharge rates based on stream depths at the thalweg (Figure 5). The resulting calculated discharge rates using the best-fit curve equation were used to generate the hydrograph for Camino Cielo (Figure 6). While Manning's equation-derived rating curves may exhibit inaccuracies beyond the calibration data range, the pressure transducer-derived depths consistently

[1] Rincon mobilized on April 14, 2025, to commence continuous flow monitoring and collect instantaneous flow measurements. However, the initial transducer location was unsuitable for installation due to insufficient water depth. Rincon remobilized on April 25, 2025, to a nearby location suitable for the transducer installation.

fell within the established calibration range, resulting in reliable calculated flow rates for low-flow conditions throughout the monitoring period.

The pressure transducer installed at Camino Cielo was temporarily removed on October 13, 2025, prior to incoming storm flows from a precipitation event that began on October 14, 2025. The pressure transducer was reinstalled on October 22, 2025, once the storm flows subsided and risk of losing equipment had lessened. The temporary transducer removal is noted on and reflected in the data of Figure 6. Attachment 1 includes a Microsoft Excel file containing spreadsheets with instantaneous discharge measurements, channel cross-section, and slope data. We appreciate the opportunity to support this project and are available to address any questions or provide clarification as needed.

Sincerely,
Rincon Consultants, Inc.

Tyler Sinnott
Environmental Scientist, MS, QSP

Kiernan Brtalik
Director Watershed Sciences

Attachments

Attachment 1 Camino Cielo Flow Data (Microsoft Excel File provided electronically)

Figure 1 Camino Cielo Stream Gage Location

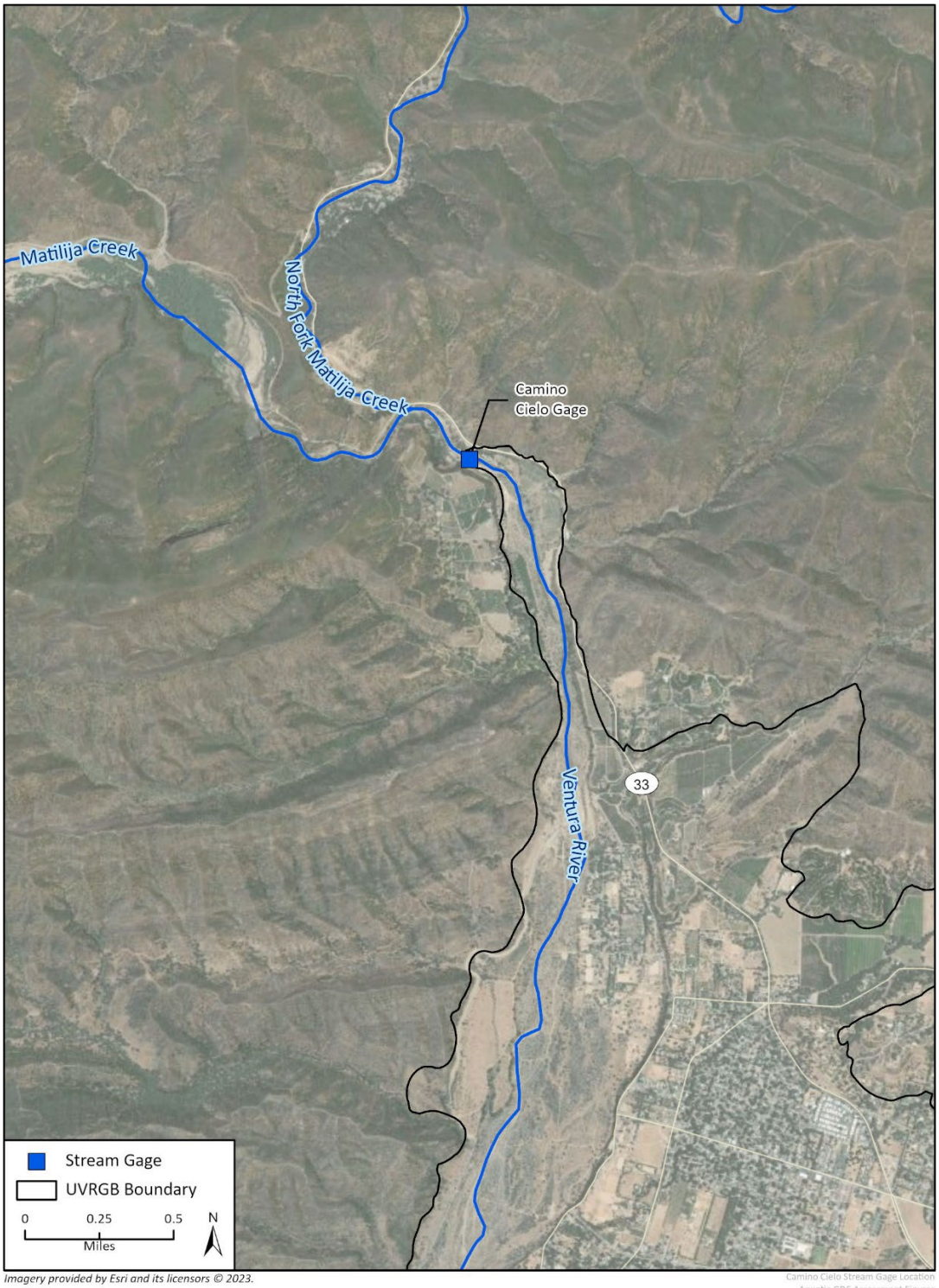


Figure 2 Camino Cielo Cross Section

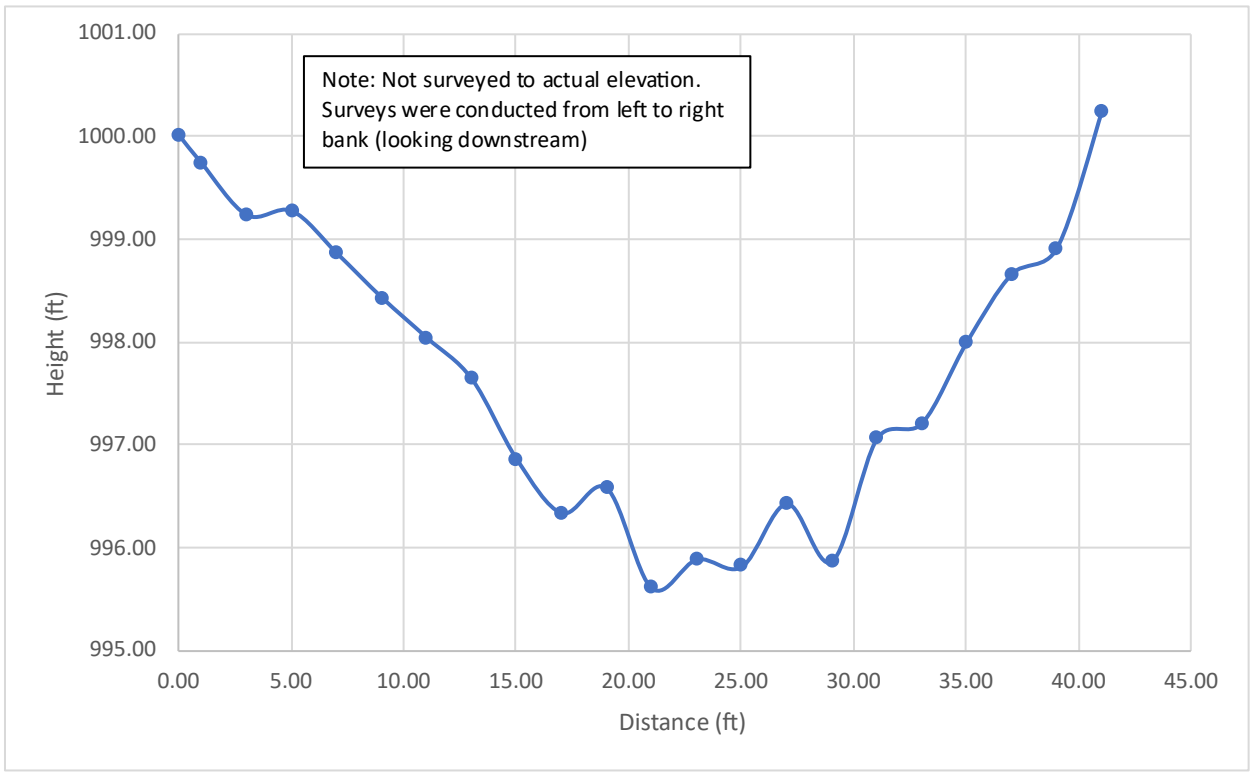


Figure 3 Camino Cielo Channel Slope

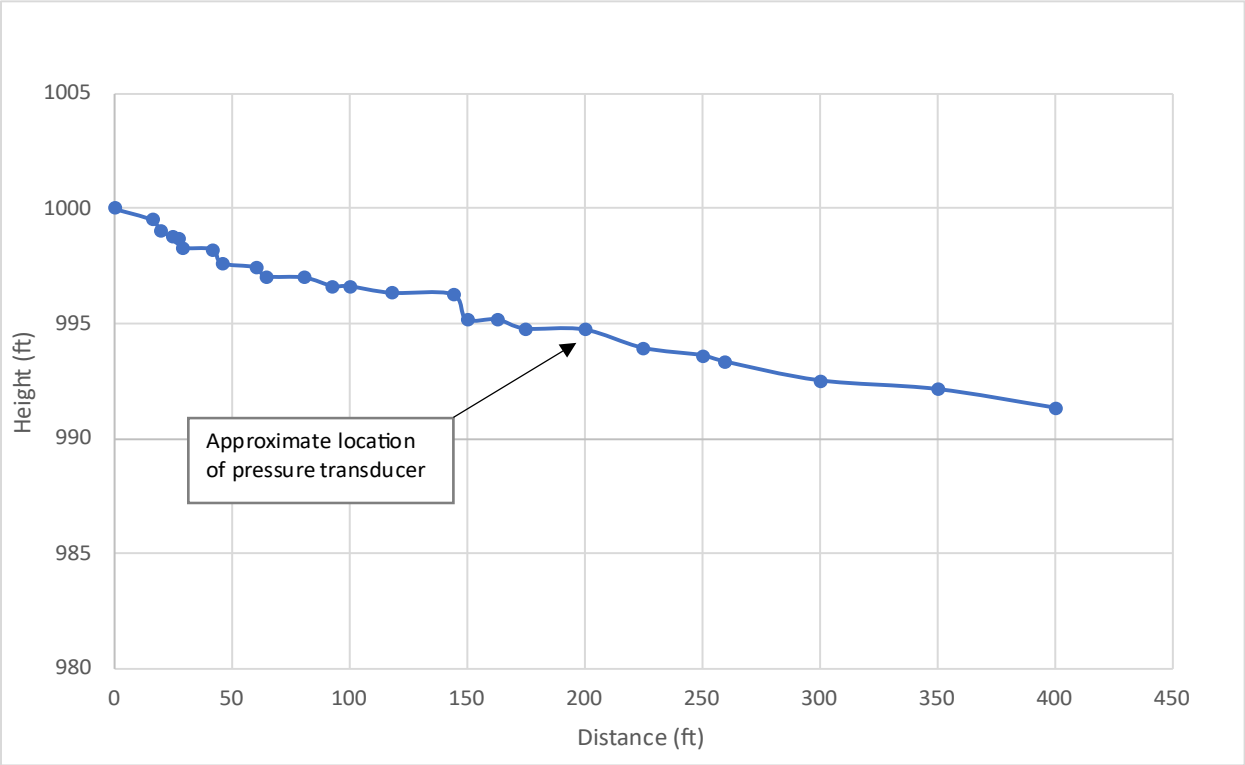


Figure 4 Camino Cielo Instantaneous Discharge Measurements

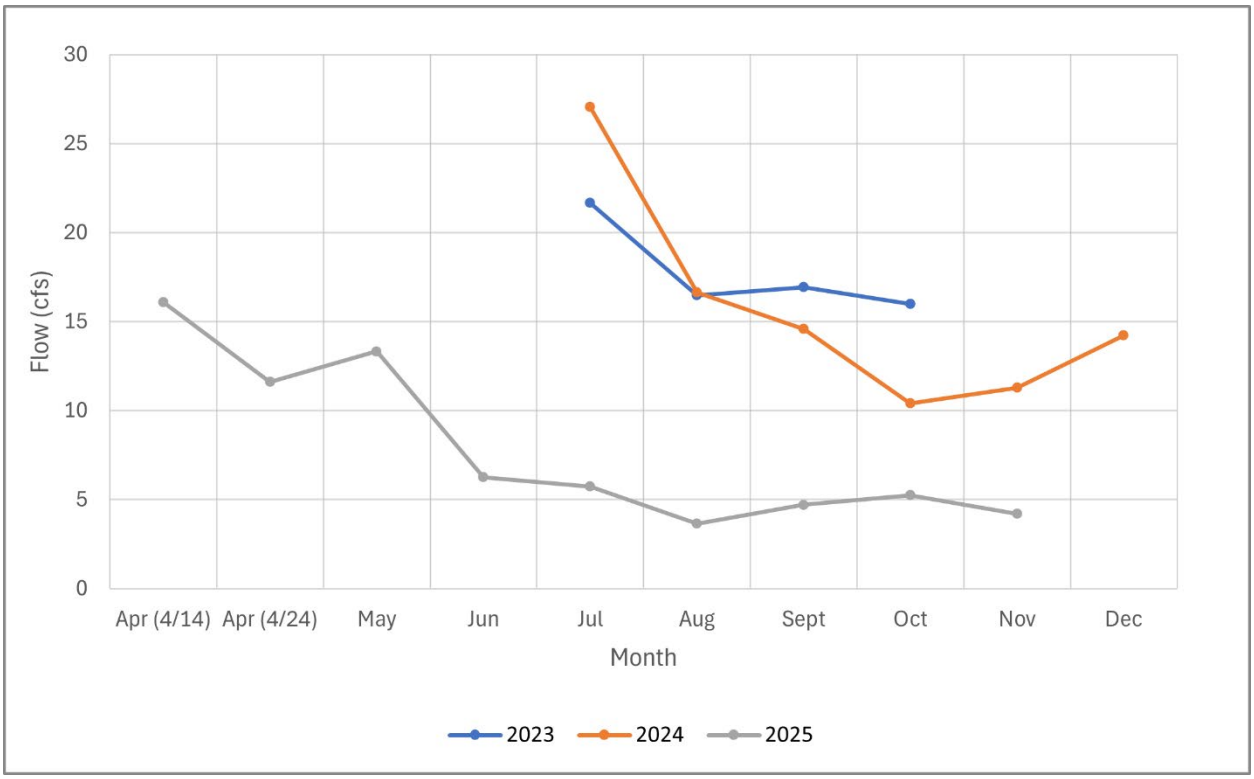
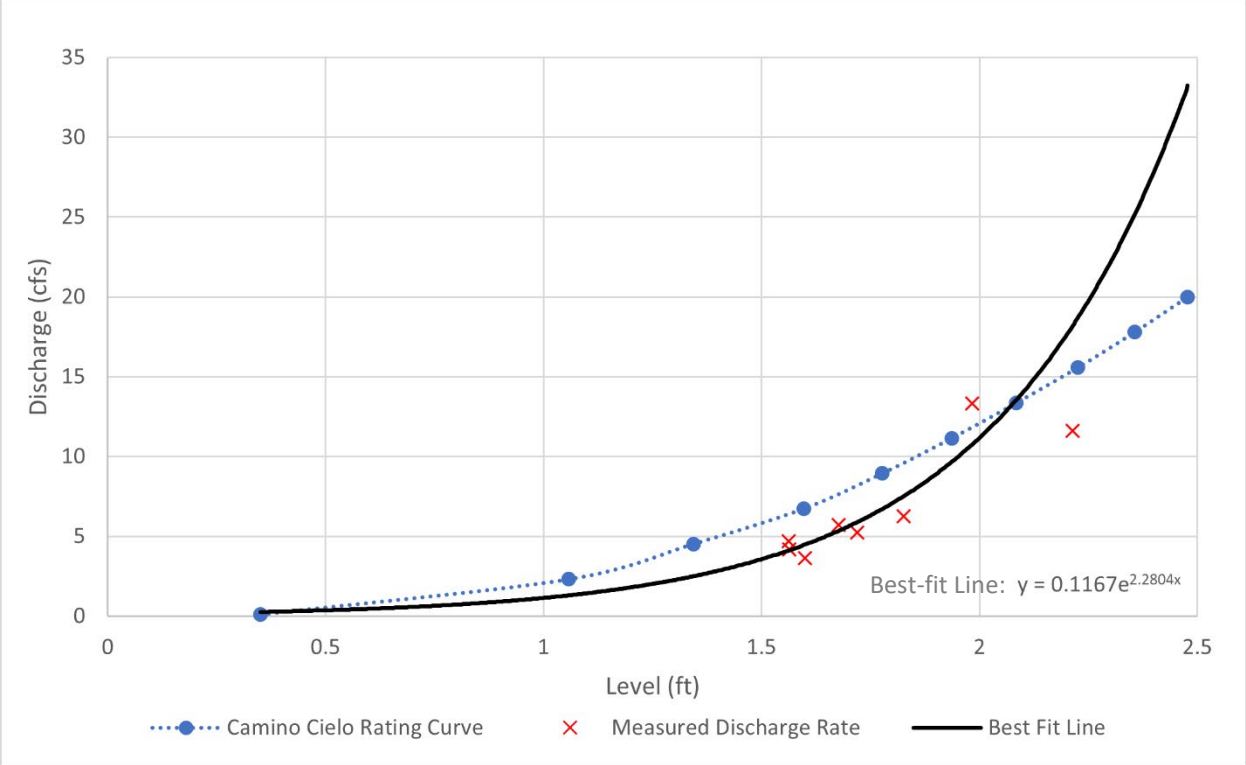


Figure 5 Camino Cielo Rating Curve[2]



[2] The measured discharge rate of 16.07 cfs, collected on April 14, 2024, cannot be displayed on the Figure 5 because continuous flow monitoring did not commence until April 24, 2024, so there is no corresponding Level (ft) measurement to plot this measured discharge rate. However, this measured discharge rate was considered when generating the Camino Cielo best-fit line and resulting hydrograph (Figure 6).

Figure 6 Camino Cielo Hydrograph