

Steamboat Creek Flood Study

Reno, NV

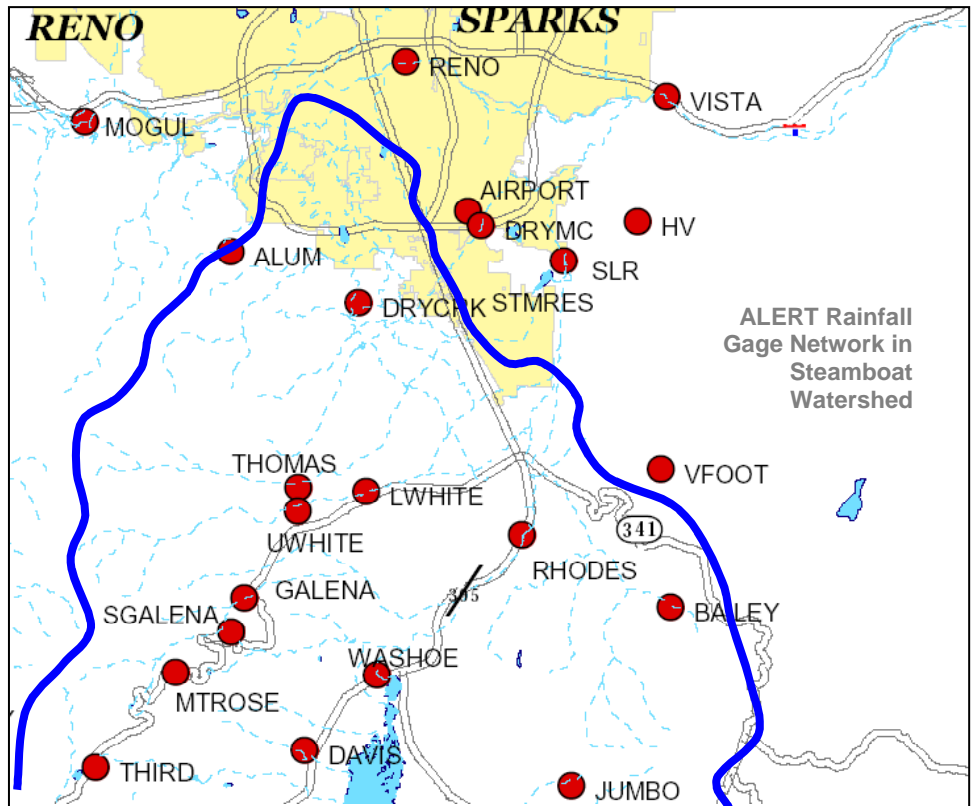


CLIENT

Lennar, Reno, LLC

SCOPE OF SERVICES

Hydrologic/Hydraulic Analysis
Geomorphology Analysis
Rosgen Restoration Methods
Sedimentation Assessment
Detailed Model Calibration
Advanced GIS Analyses



The Steamboat Creek watershed is tributary to the Truckee River, one of the most protected rivers in Nevada. Citizens who reside along Steamboat Creek and its tributaries have experienced a marked increase in flooding within recent years; flooding widespread enough that even casual discussion of new

development within the watershed results in a high level of concern and emotion, clearly seen during meetings that were held with the local residents. The purpose of the study was to conduct a geomorphology study using Rosgen Stream Restoration methodologies and to establish accurate Base Flood Elevations (BFEs) in support of a number of residential developments proposed along Steamboat Creek. The below discussion provides highlights on the geomorphology portion of this large-scale project.

The Steamboat Creek watershed is a 240 square mile area, with 83.9 square miles discharging to Washoe Lake, which can accommodate runoff from all but the most extreme storm events. Elevations within the watershed range from 10,800 in the headwaters to 4,370 in the lower reaches. Total precipitation depths of a 1% annual chance event (100-year storm) range from 2.1 to 11 inches, depending on the location within the watershed. This project involved the development and calibration of a HEC-HMS hydrologic model for the entire 240 square mile watershed and a HEC-RAS hydraulic model for 11 miles of Steamboat Creek.



Steamboat Creek, Reno Nevada

Portions of Steamboat Creek have been reconstructed. Accordingly, the geomorphology study was used to determine if these areas were stable along with determining the classification of these areas. Numerous cross-sections were taken over the 11 mile stretch along Steamboat Creek. Information gathered at each cross-section included width, depth, centerline, thalweg depth, bankfull, top of bank, and toe of slope. A pebble count was also conducted throughout the project corridor to determine the dominate substrate and to assist in the classification of the stream type. Field data was input into River Morph, a stream model developed by Dave Rosgen, to determine stream types. The stream types along Steamboat Creek include Stream Type A, C, D, and F, a clear indication that this stream varies widely over the 11 miles studied.