
Zion Heritage, LLC

Zion East Gateway: Ecological Assessment & Integrated Water Strategies

Mt. Carmel, Utah



Designed in consideration of its ecological and hydrological setting, Zion National Park's East Gateway Lodge and Visitor Center will treat effluent with a zero discharge water recycling approach.

SERVICES

Engage
Assess
Plan
Engineer & Design
Regenerate

Each year, more than four million people flock to the spectacular slot canyons and sandstone cliffs of Zion National Park. Carved by the Virgin River and its tributaries, the geologically and topographically diverse park supports a myriad of habitats. The western entrance has abundant lodging and visitor amenities, but facilities are nonexistent for the one million annual visitors at the eastern entrance.

Lacking space within the park's eastern side, the National Park Service partnered with Zion Mountain Ranch, a local property owner of 8,000 acres of adjacent land. With a shared vision to add visitor lodging and amenities, stimulate local economic growth, and create a place that fits within its ecology and watershed, the partners developed a plan for a 190-room lodge and a visitor station. The site occupies the edge of the Colorado Plateau, a region with critical water management issues. The landscape, developed for more than a century and used primarily for ranching and second homes, has suffered impacts such as overgrazing, erosion, and habitat fragmentation.

As a consultant on Overland Partners' team, Biohabitats provided an ecological framework based on an understanding of the interrelationship between the site's geology, hydrology, and habitat. Using a conservation suitability analyses, Biohabitats recommended management areas for restoration and conservation. Strategies include creek restoration, wildlife connectivity, stormwater green infrastructure integration and recreational planning. The project is seeking 'zero discharge' by reusing all effluent for toilet flushing and irrigation of pasture lands. After determining the project's water footprint and wastewater generation rates, Biohabitats developed two concepts for treating effluent including a constructed-wetland based system as well as a Moving Bed Bioreactor (both coupled with seasonal storage) to treat wastewater from the lodge, visitor center, and nearby properties with aging systems.