

**Luxury Dealership Saves Land with Stormwater Storage and Treatment**  
UrbanPond™ & Modular Wetlands® Linear



Jaguar Land Rover Dealership, Miramar California

**Introduction**

San Diego’s Marine Corps Air Station Miramar, made famous by the movie Top Gun and the “need for speed,” has a new neighbor in the city’s northern region. Jaguar Land Rover (JLR), the premier auto manufacturer, is constructing its largest luxury dealership in the county across the street from the airbase. Once completed, the brand-new 2.9-acre dealership will have a 48,000 square foot building and a fleet of first-class cars. Due to the sheer size of the building, the first hurdle is designing an efficient infrastructure and a stormwater system for the limited footprint.



**Situation**

With space at a premium and the potential for generating pollutants related to vehicle traffic and staging, Samantha Wohlfarth at TAIT & Associates, Inc., the engineer of record, reached out to Bio Clean Environmental to design two underground storage systems with a downstream volume-rated filtration unit. Each storage system needed to include an outlet vault with a high flow bypass weir and orifice to control hydromodification volume draindown.

**Stormwater Challenges:**

- Limited Footprint in an Urban Area
- Install Completely Underground (Traffic Rated Systems)
- Stormwater Storage Required
- Shallow Existing Drainage System
- Range of Pollutant Treatment Requirements

**Challenges**

The dealership includes a large parking structure, showroom, and maintenance facility, all within a relatively small footprint and along a busy thoroughfare. The workable area is further reduced by the depth of the existing drainage system, which will be connected to the new system. All flows, including roof runoff, need to be directed to two basins for underground stormwater storage. In addition to storage, the site will have to

address several pollutants, such as TSS, oils, grease, brake dust, trash and debris. Lastly, the entire system proposed must be traffic rated and placed under drive aisles.

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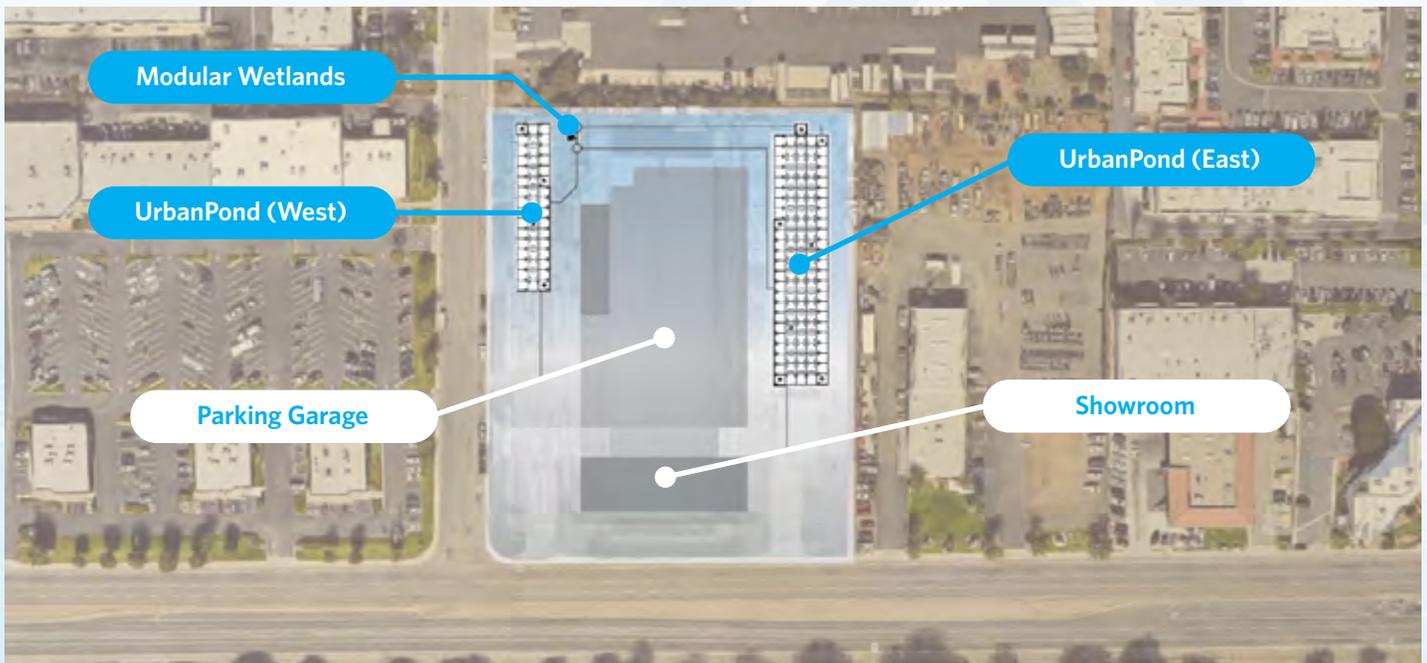


### Solution

Two UrbanPond storage systems were designed with 6 feet inside height modules; both units contain interior walls for separating hydromodification, direct capture volume (DCV), and outlet controls. A standard box culvert was initially proposed, but UrbanPond gave the designers more flexibility to accommodate the building's footprint, landscaping, and interior chamber requirements.

The two storage systems sit on opposing sides of the main building. On the west side, the UrbanPond is comprised of 48 modules, while the east has 121 modules. Both storage units flow downstream to a single 4'x8' Modular Wetlands Linear, creating a hydraulically connected treatment train for optimal performance. All three units are traffic rated and were placed below the driveway and parking areas.

Diagram 1: Jaguar Land Rover Stormwater Detention & Treatment System



### REFERENCES

1. Google Maps Website  
<https://www.google.com/maps/place/Miramar,+San+Diego,+CA/>

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### CONTACT INFORMATION

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### SYSTEM ADVANTAGES

<p>UrbanPond™</p> 	 Lighter weight and easier to install.
	 Can be installed deeper without the need to increase wall thickness or add additional rebar.
	 Higher void percentages & increased material efficiency for best in class cost per cubic foot storage.
	 Designed to meet H-20 loading requirements and the square tessellation provides superior strength and load capacity.
	 Does not require imported rock back-fill in most applications.
	 A linkUP slab allows elimination of some modules, further decreasing cost and installation time.

<p>The Modular Wetlands® System Linear</p>  <p>Side-by-Side Orientation</p>	<p>WA TAPE GULD Approval <b>Without Plants</b></p>  With or without plants (open planter or sealed), the system maintains superior performance in any design configuration.
	<p>Can Accept Existing <b>Pipe Below Surface</b></p>  Piping into the system opens up numerous configuration and design options, like downstream of detention usage or diverting for retrofits.
	<p>Works Months Without <b>Requiring Maintenance</b></p>  The easily accessible pretreatment chamber traps and isolates trash, sediments, and hydrocarbons. A unique feature, proven to keep maintenance frequencies and costs at industry-leading lows.
	<p>Can Accommodate <b>High Flow Internal Bypass</b></p>  The Side-By-Side Orientation option allows abnormal high flows to bypass from pretreatment directly to the discharge chamber.
	<p>Design Flexibility <b>&amp; Safety</b></p>  Space-saving design provides low excavation and installation costs, plus there is no dangerous depressed planter or standing water.