



By Bridget McCrea

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Precision in the **WILD**

PRECAST CONCRETE PLAYS A CRITICAL ROLE IN THE REPLACEMENT OF AN AGING RIVER BRIDGE IN YELLOWSTONE NATIONAL PARK



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Yellowstone National Park has held a unique place in the American landscape since 1872, when it became the nation's first national park. It spans more than 2.2 million acres across Wyoming, Montana and Idaho, and draws millions of visitors each year. Known for its rugged terrain, geothermal features and abundant wildlife, Yellowstone also is home to a complex and aging infrastructure system that requires careful attention and ongoing investment.

The park's northeast entrance provides direct access to some of its most iconic and remote areas, including the Lamar Valley, a prime location for wildlife viewing and backcountry exploration. Providing access to the region while also protecting its natural environment is a constant balancing act that becomes especially challenging when critical infrastructure needs to be replaced or upgraded.

The Yellowstone River Bridge is one such example. Located near Tower Junction, the bridge spans a stretch of river in a geologically active and environmentally sensitive area. According to the Federal Highway Administration (FHWA), the project involves replacing a 60-year-old bridge with a new 1,285-foot-long, 175-foot-high steel girder bridge. The existing road is being removed, and the area will be regraded to restore Lost Creek's natural channel, surrounding wetlands, upland habitat and a fish barrier system.

As of the FHWA's most recent project update, the girder erection and precast deck panel installation have both been completed and



Former Yellowstone Bridge

bridge deck work is currently underway. Recent progress includes installation of drainage systems, geosynthetic reinforced soil (GRS) backfill, concrete wingwalls, rebar placement and shear stud welding. The project commenced in January 2023 and is expected to be completed by November 2026.

WHEN PRECISION COUNTS

As the impressive new bridge takes shape high above the Yellowstone River, precast concrete is playing a central role in meeting the project's

The project includes replacing a 60-year-old bridge with a new bridge featuring precast deck panels.





structural, environmental and logistical demands. Contech Engineered Solutions used a match-casting process to produce 28 precast concrete box sections for the bridge's three support columns. Twenty-five of the sections measured 18 feet by 12 feet by 10 feet (LWH), and each one weighed approximately 105,000 pounds. The additional three sections manufactured for one of the columns were 14 feet by 8.5 feet (LW) and weighed about 62,000 pounds each.

Lee Wegner, regional sales manager at Contech, says the company got involved with the bridge rebuilding effort after learning about it from a project subcontractor

that the precaster had previously worked with. Match-casting was a firm requirement from the Army Corps of Engineers, prompting Contech to take on a method it hadn't used before. The technique

Twenty-eight precast concrete box sections comprise the bridge's three support columns.

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involves directly casting concrete segments against each other to better ensure the right fit and alignment during assembly.

“Match-casting was new for us, but we were up to the challenge,” Wegner said.

The site’s remote location was another roadblock that Contech and its construction partners had to work through. Getting the massive precast pieces to such a remote site meant hauling 105,000-pound components through Yellowstone National Park during peak tourist season.

“That was no easy task,” Wegner said. “While large bridge projects are standard for us, there were definitely a few unusual hurdles on this job.”

MINIMIZING ENVIRONMENTAL IMPACTS

Building in the middle of Yellowstone National Park came with two more challenges: limited access to materials and a short construction window. With no reliable way to get ready-mix concrete to the site and only four months to work each year, precast was the clear solution. It allowed crews to get the columns installed quickly so the bridge work could move forward without delay.

Wegner said precast also helped minimize the environmental impact on the park.

“It eliminated the waste, cleanup and formwork associated



Precast offered a solution for a project with limited access in the Yellowstone wilderness.

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“It eliminated the waste, cleanup and formwork associated with cast-in-place concrete. Fewer materials and less equipment on site meant a smaller footprint and less disruption to the surrounding area.”

– Lee Wegner, Contech

with cast-in-place concrete,” he explained. “Fewer materials and less equipment on site meant a smaller footprint and less disruption to the surrounding area.”

To support the match-casting process used for the bridge’s massive support columns, Contech partnered with Hamilton Form Company to design and build the custom forms. The forms had to hold a dead-flat surface, resist heavy concrete pressures and repeat the same dimensions without fail.

Precast helped minimize the environmental impact on the park.



A red Combilift forklift is shown in a warehouse setting, lifting a large, light-colored concrete slab. The forklift is a straddle carrier type, designed for heavy lifting in industrial environments. The background shows other concrete slabs and warehouse infrastructure.

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– Lee Wegner, Contech

“We’re talking about holding back a 10-foot-tall head of concrete while keeping everything within a tight tolerance range,” said Bob Mills, vice president of sales at Hamilton Form Company. “If the forms move even slightly, those errors multiply with every pour.”

The team used massive whaler beams to reinforce the forms and prevent bulging and included both an internal core and outer formwork that had to work together seamlessly.

With acid exposure from nearby geothermal features also in play, the finishes had to be clean and consistent to support later sealing, Mills said. Hamilton Form is capable of producing this level of formwork. While most of its projects involve more routine products like double tees and girders, the company welcomed the challenge.

“Having a complex job every now and then helps keep everyone sharp,” Mills said. “This one definitely fit the bill.”

ENGINEERING AGAINST THE ELEMENTS

The Yellowstone River Bridge project pushed everyone involved to think differently, plan carefully and execute with precision. From the match-casted columns to the custom formwork that can handle massive loads and tight tolerances, every step required attention to detail. The remote location, corrosive environmental conditions and short construction window added to the complexity while underscoring the need to use high-quality precast components and well-engineered forms to get the job done right.

With the precast portion of the job completed, the structural foundation for the new bridge is solidly in place. What started as a challenging assignment turned into an opportunity to showcase the strengths of modern precast construction — from speed and accuracy to long-term durability and minimal site disruption. For Contech, Hamilton Form and the broader project team, this was more than just another job; it was a chance to contribute to a critical infrastructure upgrade in one of the nation’s most iconic, beloved national parks.



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