

Contracted Scope

Provide a detailed description of your scope for this project. Responses should include: type of construction; size of project; contract value; length of project; and percentage of labor that is self-performed.

Project Description/Type of Construction

After a competitive RFP process, Rodgers was awarded preconstruction and construction services for a major expansion at the Riverbanks Zoo & Garden in Columbia, South Carolina.

Called “Destination Riverbanks,” components of the expansion program awarded to Rodgers included a new main Zoo entrance with a landscaped plaza and entrance gates; Grizzly Ridge and Otter Run (new habitat for river otters and grizzly bears); a new guest services building with an information lobby, administrative offices and security; new restrooms; a new gift shop; Sea Lion Landing (an exhibit designed to recreate San Francisco’s Pier 39); and a new pedestrian bridge to cross from parking areas to the Zoo entrance over a busy CSX rail line.

The exhibits included extensive shotcrete rockwork and habitats designed by a nationally renowned zoo exhibit designer, and large acrylic panels for viewing animals in their habitat. The sea lion exhibit involves complex, state-of-the-art Life Support Systems (LSS) designed for a saltwater environment.



Size of Project

Total square footage of structures including Guest Services, Gift Shop, Restrooms, LSS Mechanical Room, Viewing and Holding Buildings and Stadium Seating: 25,768 SF

The project also includes approximately four acres devoted to exhibit space for Grizzly Ridge, Otter Run and Sea Lion Landing.

Sea Lion Landing includes a 250,000-gallon saltwater pool. Life Support Systems included 6000 LF of piping, 3000-gallon sludge tank, 2000-gallon brine tank, along with pumps, filters and skimmers.

Contract Value

Construction costs totaled \$24,362,404.

Length of Project

Phase 1: 6/30/14 – 7/3/15

River Otter, Grizzly Bear exhibits, gift shop, guest services, new zoo entrance

Phase 2: 1/2/15 – 5/10/16 *

Seal and Sea Lion exhibit, Life Support Systems

Phase 3: 2/5/16 – 9/7/16

Pedestrian Bridge across CSX railroad tracks

* Substantial completion was achieved at the conclusion on Phase 2, marked by Sea Lion Landing’s public grand opening on May 26, 2016.

Self-Performed Labor

Rodgers self-performed concrete work at approximately 4% of labor on the project.

One of Rodgers’ superintendents pauses to visit a river otter, swimming inside a new glass panel installed for viewing animals in their underwater habitat.

Project Narrative

Provide a written narrative indicating why this project is special and why it qualifies for the Carolinas Chapter award. The focus of the narrative should be the construction of the project.

Why is this project special?

“Destination Riverbanks,” a major expansion and renovation project at the Riverbanks Zoo & Garden in Columbia, South Carolina, resulted in a complete transformation of the Zoo’s main entrance, enhanced guest services and gift shop, new habitat for river otters and grizzly bears, and a major new exhibit for seals and sea lions, which has quickly become a favorite for zoo visitors.

Increased attendance figures also drove the need for a pedestrian bridge to cross from parking areas over an active CSX rail line.

Riverbanks Zoo remained open throughout construction, which began in mid-2014. The grizzly and river otter exhibits opened to the public a few weeks ahead of schedule in June 2015, and in July the guest services building and new zoo entrance were completed. Work continued on Sea Lion Landing, which opened in late May 2016. Public interest remained at a high level throughout the project, which was funded through public bonds, state tax dollars, and charitable donations.

The Zoo’s main entrance was closed for approximately 12 months, with visitor access provided via a temporary entrance. Screened construction fencing included view portals so the zoo guests could watch construction activity as it progressed.

Weekly construction reports with progress photos were provided to the Zoo, which were posted on their website (<https://www.riverbanks.org/plan-your-visit/destination.shtml>), along with a “Zoo Construction Cam” on site to keep the public informed and engaged.

The scope included demolition of an existing gift shop, which was replaced by one at double the size. Animals from existing exhibits were moved by the Zoo to make room for construction of the



new exhibits. Site work included coordination of underground utilities and easements with South Carolina Electric and Gas, the city of Columbia, and CSX.

Project Coordination

Along with coordination of underground utilities, the Life Support Systems (LSS) for animal exhibits were complex. Rodgers used BIM 360 on this project, a cloud-based application by Autodesk that allows the architect, engineer, contractor and trades to access the BIM and collaborate to quickly resolve issues.

**DESTINATION
RIVERBANKS**

The Riverbanks Zoo project was designed by two architects: a local Columbia, SC firm, Jumper Carter Sease Architects (JCS), designed the buildings, and national zoo exhibit designer CLR Design in Philadelphia created the animal habitats. The MEP systems and LSS were also designed by different firms, and there were other specialized consultants working with Riverbanks Zoo and the project team. Allowing all parties to access the model and share information enhanced communications and allowed for faster resolution of issues.

Laser Scanning

One of the critical elements of the exhibit design included custom glass and acrylic enclosures to allow zoo guests to view and interact with the animals from different vantage points, including underwater. The acrylic panels were designed with complex curved shapes to maximize viewing potential, and custom cast to fit openings in the exhibit viewing walls.

Rodgers laser scanned the formed concrete rough wall openings and overlaid the scan on the BIM,

ensuring the fabricator was provided with exact dimensions to create the curved acrylic panel, with any adjustments verified and approved by designers – resulting in a perfect fit for installation when the materials were received on site.

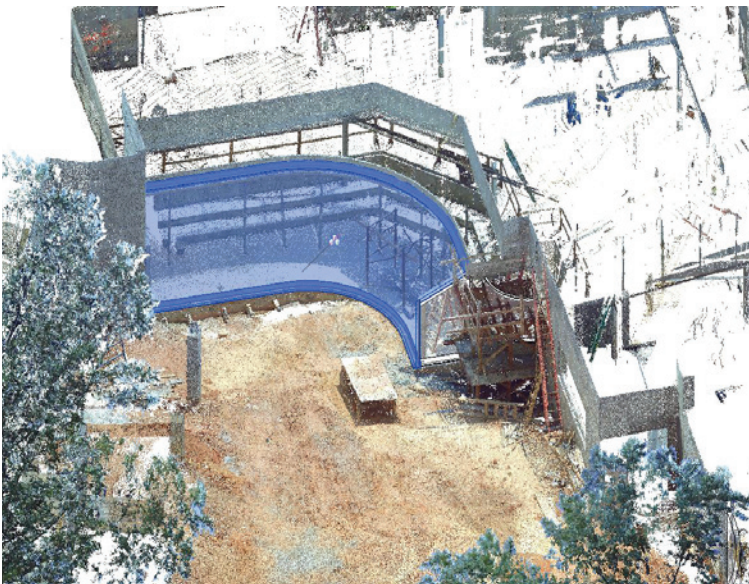
Team members traveled to Reynolds Polymer in Colorado during fabrication to ensure the materials would meet the specifications.

4D Scheduling

While the use of BIM and virtual design and construction technology has become a standard component of many large construction projects, 4D Scheduling is less frequently used. On the Zoo project, the complexity of the underground systems, the small site, elevation changes, and potential conflicts within systems made sequencing the work especially critical. 4D scheduling allowed the project team to visualize the coordination and sequence, starting from deepest to shallowest layers of the site to ensure earth was moved only once, and previously installed work remained undisturbed. This process combined the baseline schedule with key elements of the model to produce a visual schedule, viewable as a video with the ability to start/stop/rewind to observe and resolve any potential challenges or conflicts.

Unique Experiences

From start to finish, construction of the Destination Riverbanks expansion projects for Riverbanks Zoo & Garden brought unique and interesting experiences to all the project team members.





During interviews for the selection process, Rodgers team members chose an animal to best represent their individual strengths and characteristics, and presented the Seal Team – having a little fun with what often can be a high intensity activity.

While several of the team members had worked on zoo construction or other similar projects, for many on the team, working in a zoo environment was a first-time experience. One Rodgers team member recalled overhearing a plumbing subcontractor's comment not often expressed on a construction site: "I'm not going into that area until they take the alligators out."

The project team's safety training included procedures for responding to a "Code E" – an escaped animal – and even several training scenarios to rehearse the procedures. Fortunately, there were no actual Code E instances during construction. However, one team member recalls arriving several mornings and observing what appeared to be fresh excavation within the animal habitat. The grizzly bears' nocturnal activity sometimes resulted in unscheduled "landscaping." The final punch list walk-through was conducted with a grizzly bear seeming to review the list along with Riverbanks Zoo's president (behind exhibit glass, of course).

Since the grand opening of Destination Riverbanks, the largest expansion in the Zoo's 40-year history, Riverbanks Zoo & Garden has experienced record-setting attendance of 1.2 million guests, roughly 225,000 over the previous record. The Zoo attracts guests throughout the year from the Columbia area and beyond, hosting special events such as the upcoming "Boo at the Zoo," and for adults, "Brew at the Zoo."

"Riverbanks Zoo and Garden is South Carolina's largest attraction, with over 1.2 million visitors annually.... It is to Rodgers' credit that these projects, which were located in the very heart of the Zoo, were constructed with virtually no interruption to the guest experience. Even more impressive is the fact that all projects were completed on budget or ahead of schedule."

*Palmer "Satch" Krantz, President & CEO
Riverbanks Zoo & Garden*



Quality of Finished Project

Describe the end product in detail referencing Site, Exterior, Interior, MEP, Other. Include detailed pictures not included in Section 4 (Photographs) that show the quality of the work.

The design for the new entrance and animal habitats at Riverbanks Zoo & Garden, created by Jumper Carter Sease Architects and CLR Design, introduces a dynamic and welcoming visitor experience for one of the nation's top zoological parks.

Replacing a formerly cramped and outdated space, the new facilities help to better serve and accommodate the zoo's over one million annual guests. Design elements include a landscaped plaza and entry gates, a guest services and ticketing facility, a new gift shop, and two new animal habitats.



Designed as a village of separate structures, the architecture of the new buildings takes formal and material cues from the existing zoo context as well as African safari influences, as demonstrated by the sloping roof forms, the warm and inviting material palette, and the careful detailing of the exposed wood structure.

The guest services building helps welcome and direct pedestrian circulation into the main entry gates, where upon arrival, visitors are sheltered by deep roof overhangs and shaded exterior porches. Clerestory windows provide natural light to both the interior office and reception areas. Building amenities include a main reception and information lobby, open offices and administrative spaces, and a first-aid and security room.

In keeping with conservation efforts embraced by the zoo, both the guest services and gift shop buildings are designed to optimize energy performance and sustainability. Strategies include the use of high-efficiency HVAC systems, high-performance glazing, water conservation efforts, and the use of recycled and locally sourced materials.

Located immediately adjacent to the guest services building, Grizzly Ridge and Otter Run highlight the natural setting of both the grizzly bears and otters, creating a dynamic and interactive setting. The architecture of these exhibits is in keeping with its surroundings, with exposed wood and concrete structure and careful selection of materials.

"Rodgers' management team consistently provided exemplary attention to customer service and construction quality. The project managers and project superintendents are knowledgeable and understand the importance of quality construction, as well as meeting schedules, which portrays a high standard and pride in the construction process."

*L. Todd Sease, AIA, LEED AP, Principal
Jumper Carter Sease Architects, PA*



Sea Lion Landing was designed to recreate the San Francisco Pier 39 and features an extremely complex life support system that provides the animals with a chilled saltwater environment. The exhibit also features several very large acrylic windows for public viewing. The windows allow Zoo visitors to observe the animals from several vantage points, including underwater.



The Life Support Systems treat 250,000 gallons of water, turning over the complete volume in one hour. Water is monitored and measured for temperature, salinity, oxygen and bacteria, etc.

In Phase 3, careful planning and coordination preceded the crane lift for the pedestrian bridge.



"Rodgers should be recognized for their commitment to quality construction, excellent client relations and their ability to deliver a quality product on time and on budget. We look forward to working with them in the future."

*Palmer "Satch" Krantz, President & CEO
Riverbanks Zoo & Garden*

