

*John Ball Zoo Treehouse  
Service Drive*

***Owners:***

John Ball Zoological Garden

***Contact Person Names/Phones:***

Ms. Brenda Stringer  
Director-John Ball Zoological Society  
(616) 336-4303

Mr. Allmon Forrester  
Operations Manager-John Ball Zoological Garden

***Location of Project:***

City of Grand Rapids, Kent County, Michigan

***Date Started/Completed:***

May 2010 – September 2011

***Dollar Value:***

\$704,000

***Site Engineering Project Team:***

Robert E. Bruggink, P.E., Principal in Charge  
Timothy Hoffert, P.E. - Project Engineer  
Steve Green, P.S. - Survey Chief  
Progressive AE-Electrical Design Consultant



***Project Description:***

This project included construction of an access road, extension of water, sewer, gas, and electrical utilities, and relocation of overhead electrical lines. The project provided the needed utilities and vehicular access for construction of the Bissell Tree House indoor event building, the Idema Funicular, and for future zoo development in a previously inaccessible area. Moore & Bruggink provided full service design and construction engineering, surveying, inspection, and construction administration for this project.

The project is located on one of the tallest hills within the City of Grand Rapids. The access road was cut through the woods and into the side of the hill in such a way as to

provide vehicular access at a reasonable grade, save as many old growth trees as possible, and maximize space for future exhibit development. The project began with a topographic survey that included an extensive tree survey of the 5 acre forested site. Many different alignment and profile combinations were evaluated to determine the best route with the least environmental impact. Of the trees that were removed, many of the better specimens were retained by the zoo for milling and use in future exhibit construction. Storm water was routed into infiltration basins, allowing the water to return to the ground on the hill and not add to the existing full to capacity storm system.

Located at an active zoo, the project had many unique challenges. The project limits fell both within and outside of the zoo's secondary containment fence. Containment had to be maintained at all times during construction, requiring systematic relocation of the fence along a new route and extensive coordination with the contractors who at times staged a full time gate keeper to ensure the gates remained closed. Zoo operations were maintained during construction, with animals in very close vicinity to the construction. Contract provisions were created to limit noise, dust, and construction hours minimize the impact on the animals and zoo patrons.

The project was completed on time and under budget for immediate use in construction of the tree house and funicular in the fall and winter of 2011/2012.

The John Ball Zoological Gardens is located on the side of one of the tallest hills within the City of Grand Rapids and is landlocked with a major highway serving as the north and west boundaries, and designated park land serving as the south and east boundary.