

CASE STUDY

You Can't Have a Park Without the Trees

SUMMARY

Centennial Park is in the heart of downtown Midland, in the space previously Occupied by Centennial Plaza and the Midland County Courthouse. The project transforms two central blocks in downtown Midland into a natural and cultural oasis. The four-acre park is centered around the great lawn and performance pavilion, with tree-lined promenades running along its perimeter. An interactive water feature functions as a splash pad by day and a fountain by night. Additional features include a dog park, concessions kiosk, grove seating, and a nature-style playground.



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THE CHALLENGE

The first thing that comes to most people minds when they think of park are trees. Centennial Park is no exception to that assumption. Once the project is complete, the park will have large trees spread through the great lawn. They will help create shade during the summer, reduce ambient temperatures and provide a better experience for the public. Landscape Architects know they can't rely on the urban environment to provide the necessary soil conditions to sustain a full-grown tree. Downtown areas can be inhospitable for trees and their root systems, especially when the ground is covered by an impermeable surface. The urban landscape has some of the worst soil conditions you could think of; compacted, devoid of nutrients, and cut off from most or all the rainfall that lands on it.

THE SOLUTION

The design team at Ten Eyck wanted a solution to provide enough soil volume so that each tree could reach its full maturity and life expectancy. Structural soil cells from Citygreen, called Stratavault, were chosen to provide 50,000 CF of soil for all the trees in the park. Stratavault is a modular design that provides structural support for pavement surfaces and creates a soil matrix of healthy, uncompacted soil. Just like every other construction project, designers are tasked with creating a design that meets their intent, but also keeping construction costs low.

Ten Eyck used a series of linear tree pits that allowed the root systems from multiple trees to share the same soil matrix. When these tree pits are connected, it helps reduce the overall soil volume required for each tree. Another cost saving method is to take the soils excavated for the tree pits and re-use it to fill the soil cells. This can be done by amending them with organics and nutrients before placing them back in the ground. This results in a huge savings since it prevents having to use multiple truckloads of blended soil from an off-site source. Not only were the excavated soils used for the filler soil for the tree roots, but they were also used to backfill perimeter of the Stratavault system.

Construction EcoServices (CES) teamed up with Tom's Tree Place to install 11 tree pits in 2019. Each tree pit had its own challenges; including electrical utilities and retaining walls that the installation team had to manage. After CES installed the Stratavault system, Tom's Tree Place had to wait for the electrical contractor to install conduit lines for the lighting system before backfilling the soil cells. After the first two tree pits were installed, the process became more efficient. In addition to the electrical conduits, there were two steel retaining walls that interfered with two of the largest tree pits. The modularity of the Stratavault system allowed the installation team to make field adjustments and not sacrifice soil volume.

Even though the trees are tolerant of the arid conditions of West Texas, irrigation lines were placed above the soil cell matrix. Water reclaimed from an underground cistern consisting of R-Tanks will be used to help supply the water demand of the trees throughout the life of the project.



About Construction EcoServices

Construction EcoServices is focused exclusively in the stormwater marketplace. Our business units provide solutions involving turnkey compliance assurance services, engineering sub-consultancy and cutting-edge stormwater management systems to all segments of the development, design and construction markets where those pursuits intersect with the rapidly evolving stormwater regulations.

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