

TREES IN SUSPENDED PAVEMENT THRIVE

Charlotte, NC trees are flourishing 25 years after planting



Willow Oak: Avg DBH 16"; avg height 44 feet

By L. Peter MacDonagh

While we do not have any 25 year old Silva Cell installations yet, there are comparable projects that have used custom suspended pavement systems to support large tree growth. One such project went in the ground in Charlotte, NC in 1985, where City Arborist Don McSween conceived of a major renovation project along 10 blocks of Tryon Street and two blocks of Trade Street, two of the major thoroughfares in downtown Charlotte.

McSween wanted each new tree to have 1,000 cubic feet (28 cubic meters) of good, usable soil. In order to supply the trees with that quantity the City needed to create a custom suspended system using precast concrete pavement supported by concrete piers. The whole system was topped by pavers. Almost 170 trees were planted.

The trees flourished. In 2009 Tom Smiley, with the Bartlett Tree Lab, was brought in by the City of Charlotte because the Willow Oaks that had been planted were starting to look unwell. He did a complete inventory and GIS map of all the trees from the 1985 planting. After measuring the trees and testing the soil volumes, Smiley discovered that the contractor had installed only 700 cubic feet of soil rather than

the full 1,000. However, since the tree pits connected in a continuous trench along the length of a block, the trees had the benefit of sharing soil. Today, the Willow Oaks (*Quercus phellos*) have an average DBH of 16 inches (40.5 cm) and an average height of 44 feet (13.4 meters).

Smiley diagnosed the cause of the poor looking foliage to be a leaf sucking scale insect that was not related to the soil volumes. He also diagnosed some of the trees with Phytophthora Root Rot, which was treated. After a few foliar applications the trees were much better and on the road to recovery. (The pesticides to treat these maladies are not bio-accumulating, so they are appropriate in a downtown setting.)

Perhaps the most striking thing is that all the trees are very tall and look great. Often trees on the corners of the blocks look the best, but all the trees along this stretch were lush and happy. On a recent sunny afternoon it was 85 degrees out. I was uncomfortable everywhere except under the trees, and I wasn't the only one -- there were loads of people out promenading or sitting on the many benches under the shady parts of the sidewalks. This stretch of trees is a powerful example of how much soil it takes to grow a mature tree, and a reminder that with planning and commitment we can have trees like this in all of our cities.

