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ADVANCING PROFESSIONAL STANDARDS IN LANDSCAPE ARCHITECTURE

CONTINUING EDUCATION AIA

Landscape Architecture Continuing Education System℠

LA CES™

EDUCATION PROVIDER

Spec for Success: The Benefits of Structural Soil

June 24, 2026

Webinar Tech Tips and Reminders

Please mute your microphone unless presenting or asking a question.

Chat function on bottom of screen is available – and presenters will see questions posted.

This event is being recorded. Recordings and slides will be emailed out tomorrow.

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IN LANDSCAPE ARCHITECTURE

Presented by: Tim Shanahan, Industry Partnership Developer: Minick Materials

tims@minickmaterials.com

MINICK MATERIALS
SINCE 1958
SOIL · STONE · SERVICE

Minick Materials is a Registered Provider with The American Institute of Architects Continuing Education Systems & Landscape Architects Continuing Education System (AIA/CES & LA/CES).

Questions related to specific materials, methods, and services will be addressed at the conclusion of this presentation by the presenter.

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What is Structural Soil?

"An innovative medium under pavement that improves street tree vigor and prevents sidewalk failure“ (U.S. patent #5,849,069)

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Why Structural Soil?

-Meets horticultural and engineering requirements
-Provides optimal rooting space under pavement
-Decreases tree mortality
-Provides sidewalk failure and risk of accidents
-Mitigates and filters stormwater
-Produced with tested and local materials
-More than 3000 successful installs within 48 states, Canada, Puerto Rico, Ireland, England, Israel, and Hong Kong

Examples: Trees not in Structural Soils

Parker Square Flower Mound, TX North Central Texas College

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Examples: Trees not in Structural Soils

Parker Square Flower Mound, TX North Central Texas College

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Examples: Trees not in Structural Soils

Outcome: Tree removals and repairs

Parker Square Flower Mound, TX North Central Texas College

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Streetscaping where structural soils were not in use

Total Redesign! Costs?

Benefits of Urban Street Trees

- REDUCE HEAT ISLAND EFFECT AND REDUCE POLLUTANTS-Through evaporative cooling by reducing the amount of sunlight in parking lots and buildings, emits oxygen while removing carbon dioxide from the air
- REDUCE NEED FOR DRAINAGE INFRASTRUCTURE- trees absorb the first 30% of most precipitation through their leaf system – this moisture never hits the ground. Another % (up to 30%) of precipitation is absorbed back into the ground and taken in by the root structure, helps recharge groundwater supply
- REDUCE ENERGY BILLS- properly shaded neighborhood from urban street trees can reduce energy bills for a household 15 - 35%
- IMPROVE BUSINESS- businesses on treescaped streets show 20% higher income streams, filters dust and pollutants from the air
- INCREASE PROPERTY VALUE- estimates of street tree vs. non-street tree comparable streets shows a $15,000 – $25,000 increase in a home or business- this adds to the tax base of a city
- EXTEND PAVEMENT LIFE- studies in CA show that shade from urban street trees can add from 40 – 60% more life to asphalt

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Mean Streets: Costly Crumbling Concrete

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Examples of Issues with Street Trees:

Same tree:

Same tree:

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Same tree:

The Traditional Urban Tree Planting Method

"The Burial Pit"

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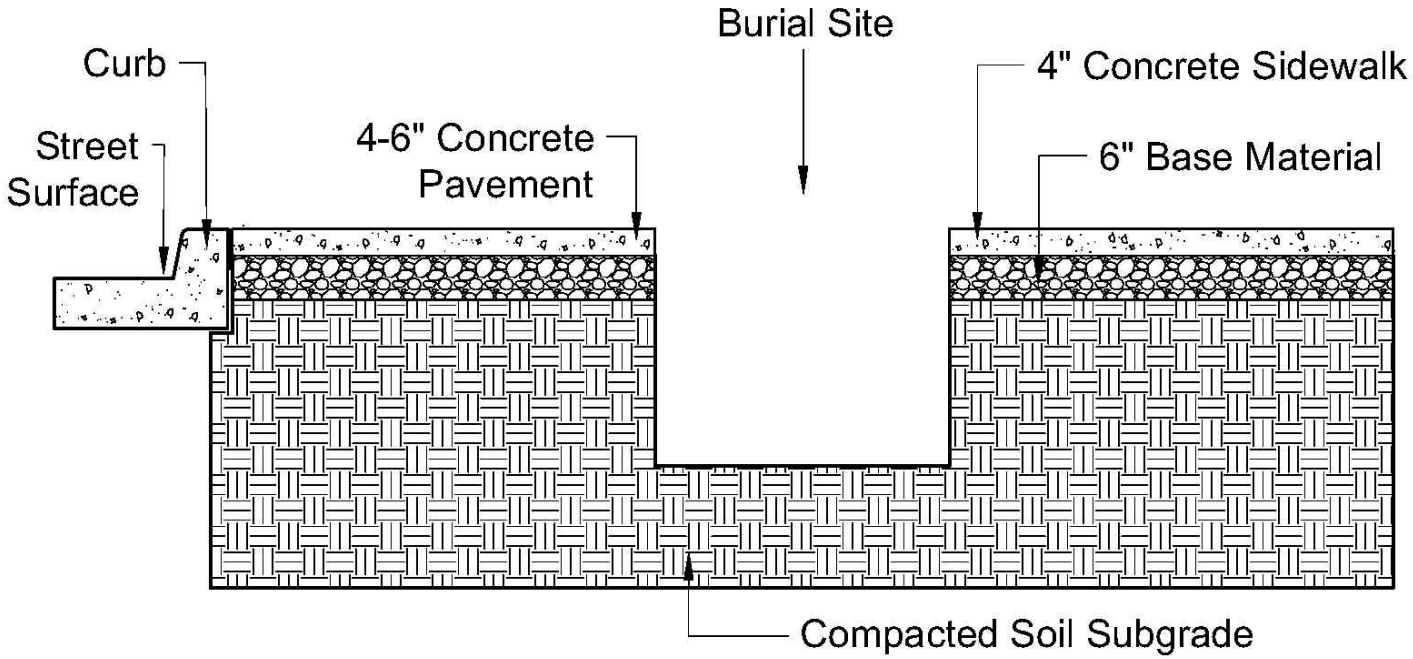
The Traditional Urban Tree Planting Method



“The Burial Pit Diagram”

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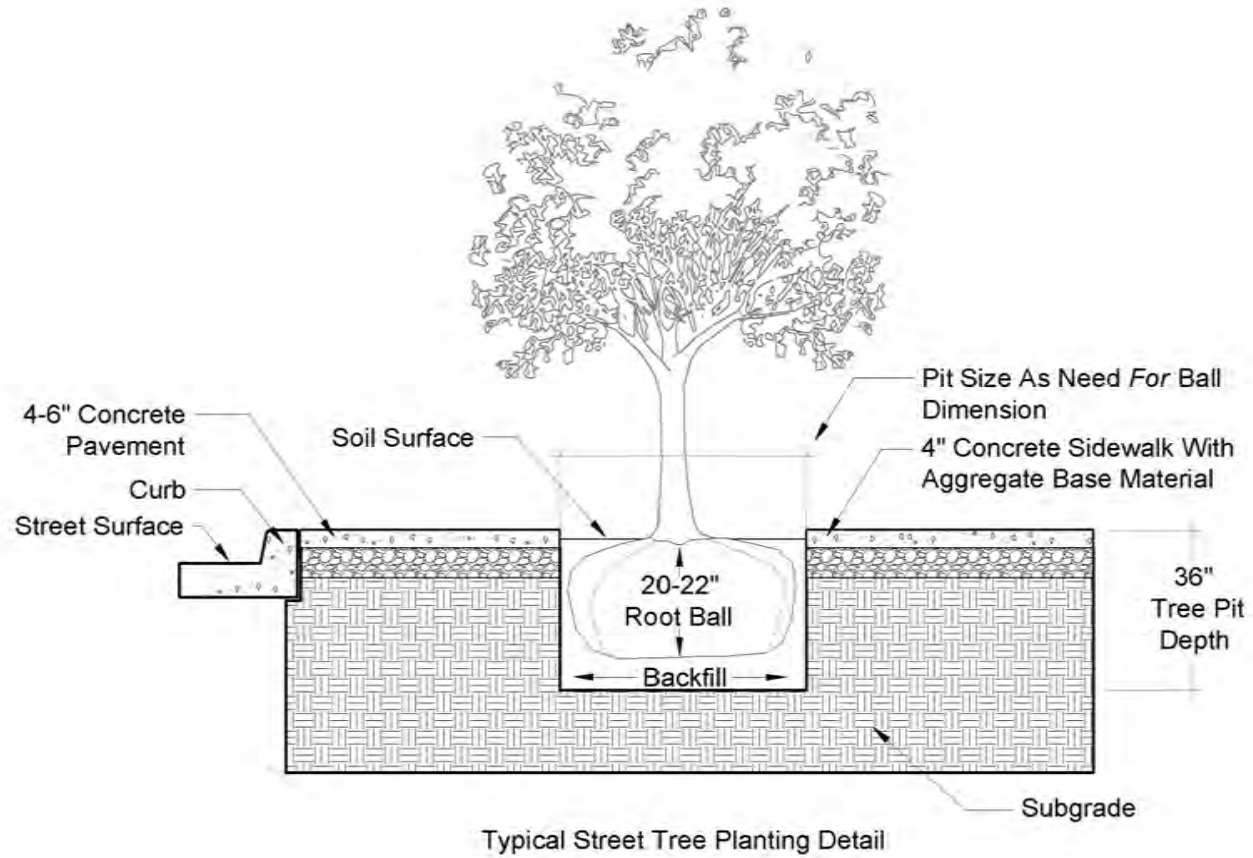
The Tree Pit as a Dysfunctional Design

All of the surrounding profile is designed for surrounding pavement
Base: Little water and no nutrients
Subgrade: Essentially Impermeable
Drainage: Is designed for the pavement, not the tree



Typical Street Tree Planting Detail

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The Tree Pit as a Dysfunctional Design

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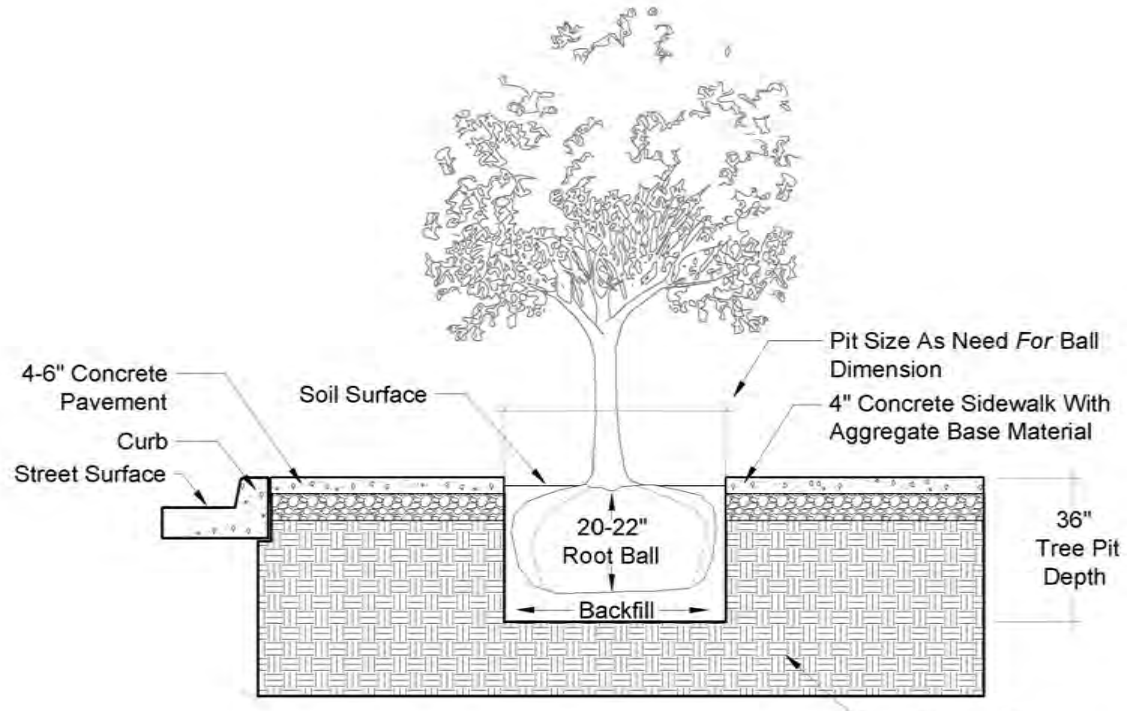
Questions?



Typical Street Tree Planting Detail

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Idea Behind Structural Soil?

-Reduces expensive sidewalk failures
-Decreases tree mortality
-Decreases risks of injuries, accidents, falls and lawsuits
-Provides increased rooting volume
-Meets landscape architects' and engineers' requirements

Structural Soil: How much Soil?

2 cubic feet of soil for every 1 foot of crown projection*
SAMPLE CALCULATION:
A 20’ diameter tree canopy would need:
a) $3.14 \times 10^2 = 314$ square feet
b) 314 square feet x 2 cubic feet of soil = 628 cubic feet of soil to support it

*Reasonable ‘rule of thumb’ for most of the U.S., as per research conducted at UHI (Urban Horticulture Institute

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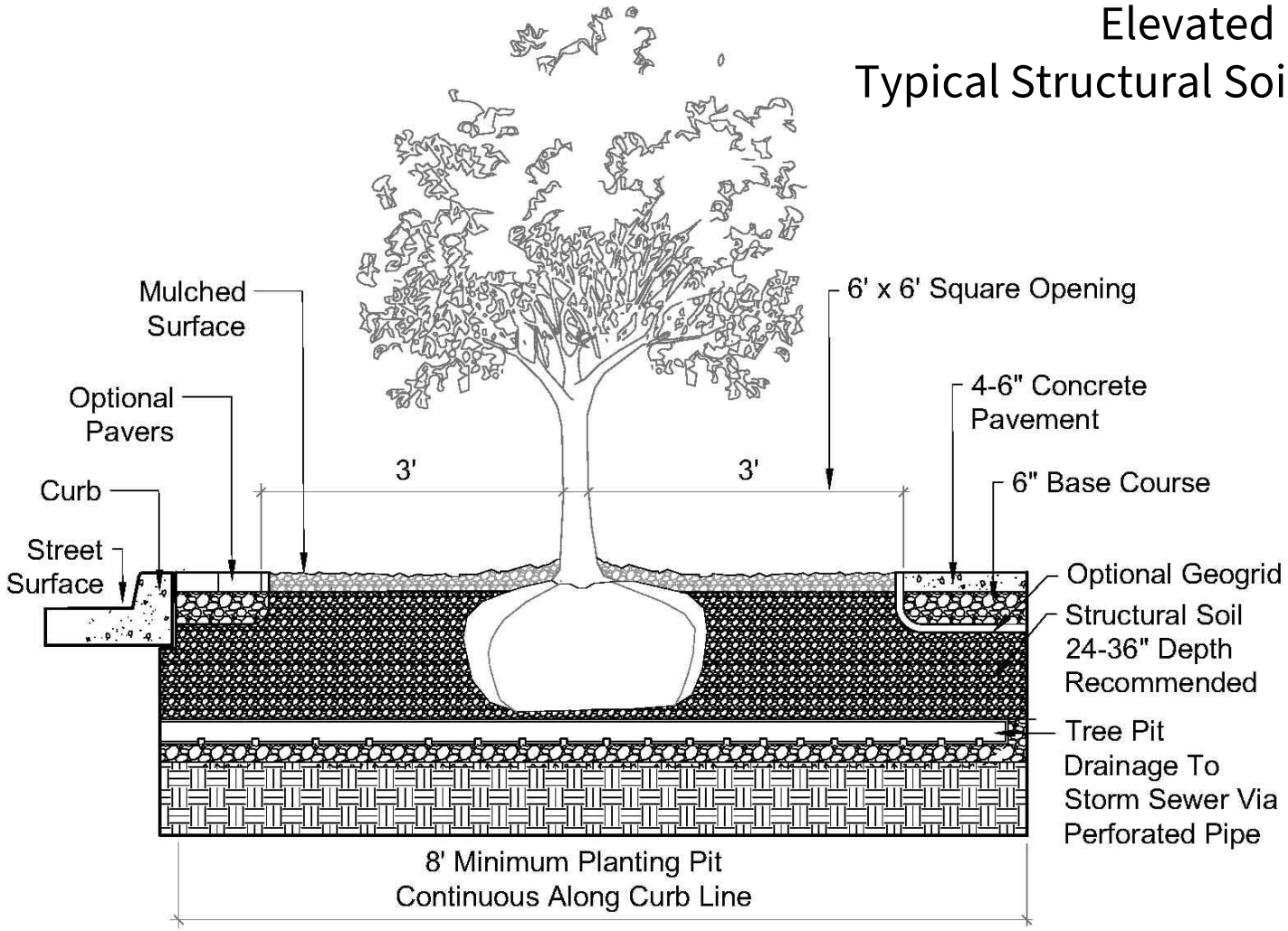
Structural Soil: Elevated Installation Drawing

Elevated Planting of a
Typical Structural Soil Installation



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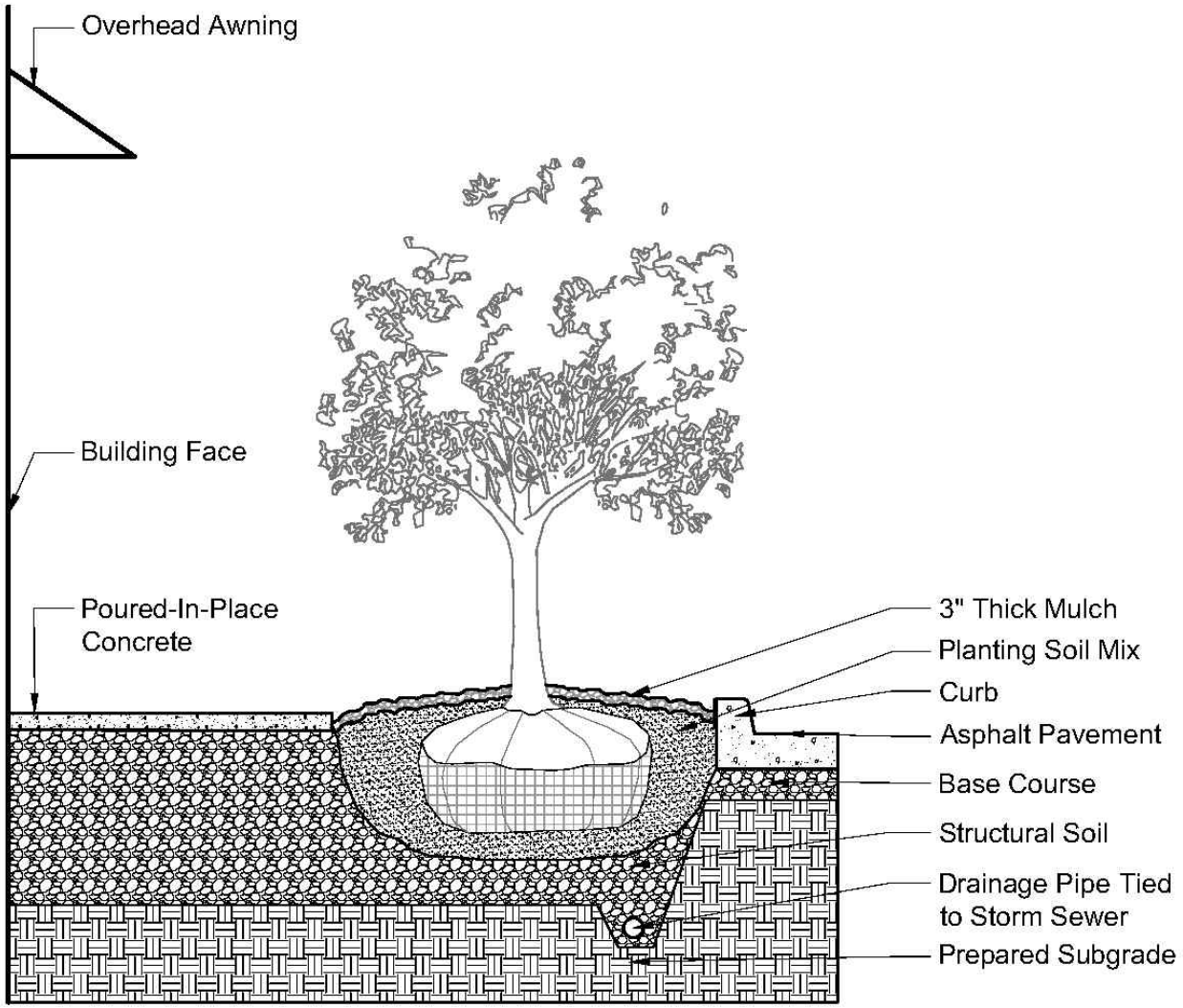
Structural Soil: Drainage Integrated Detail



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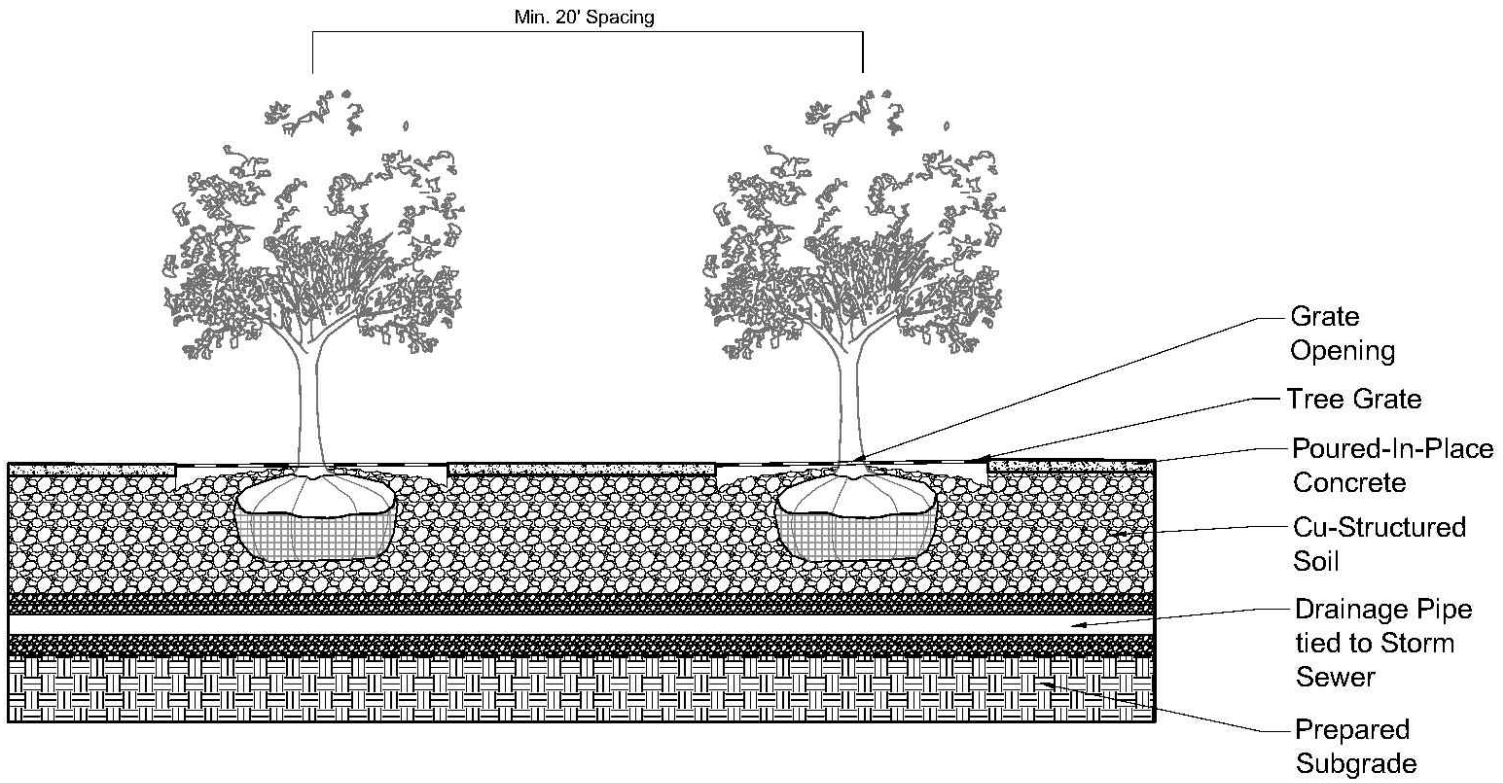
Structural Soil: Continuous Trench Concept



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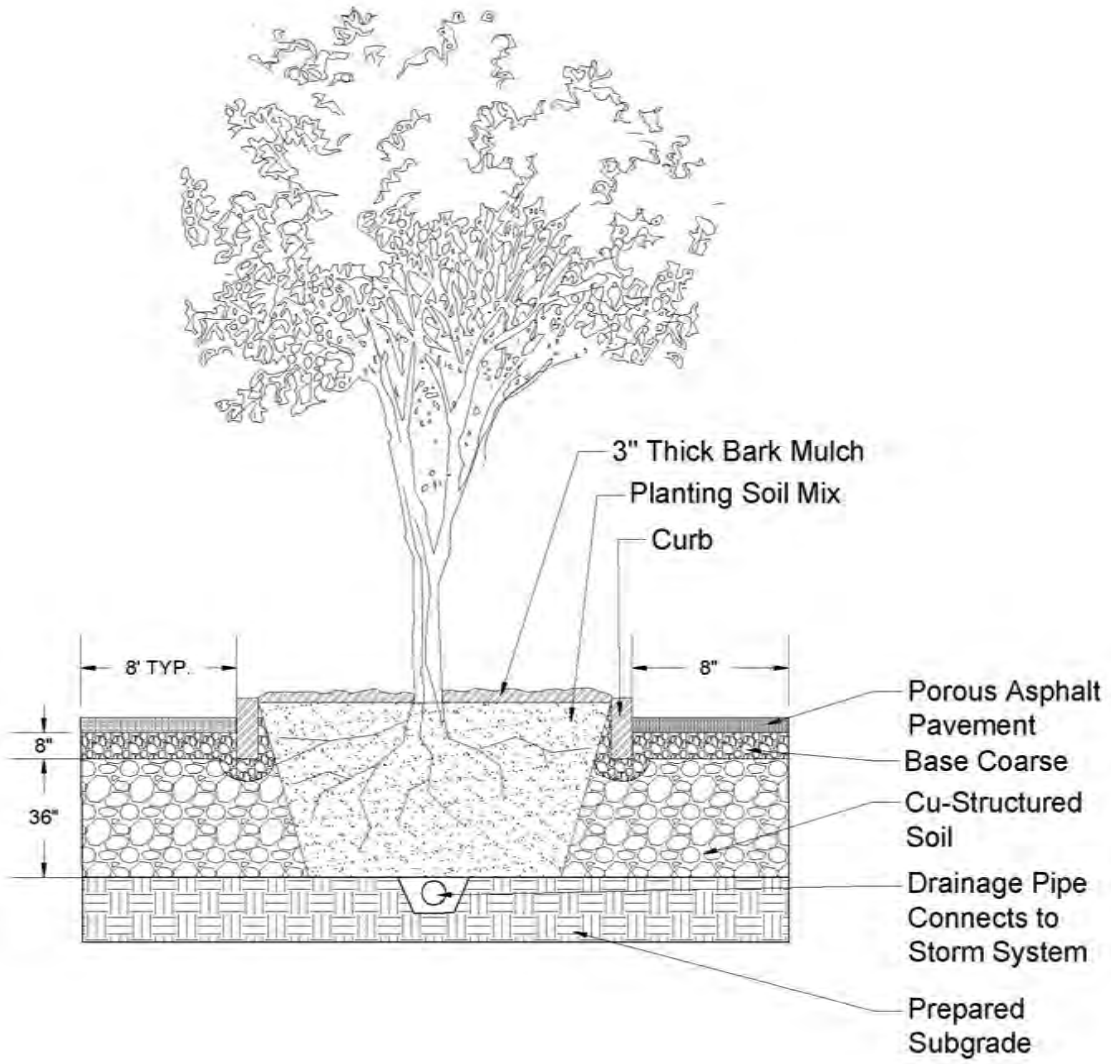
Structural Soil: Parking Lot Island (bare root)



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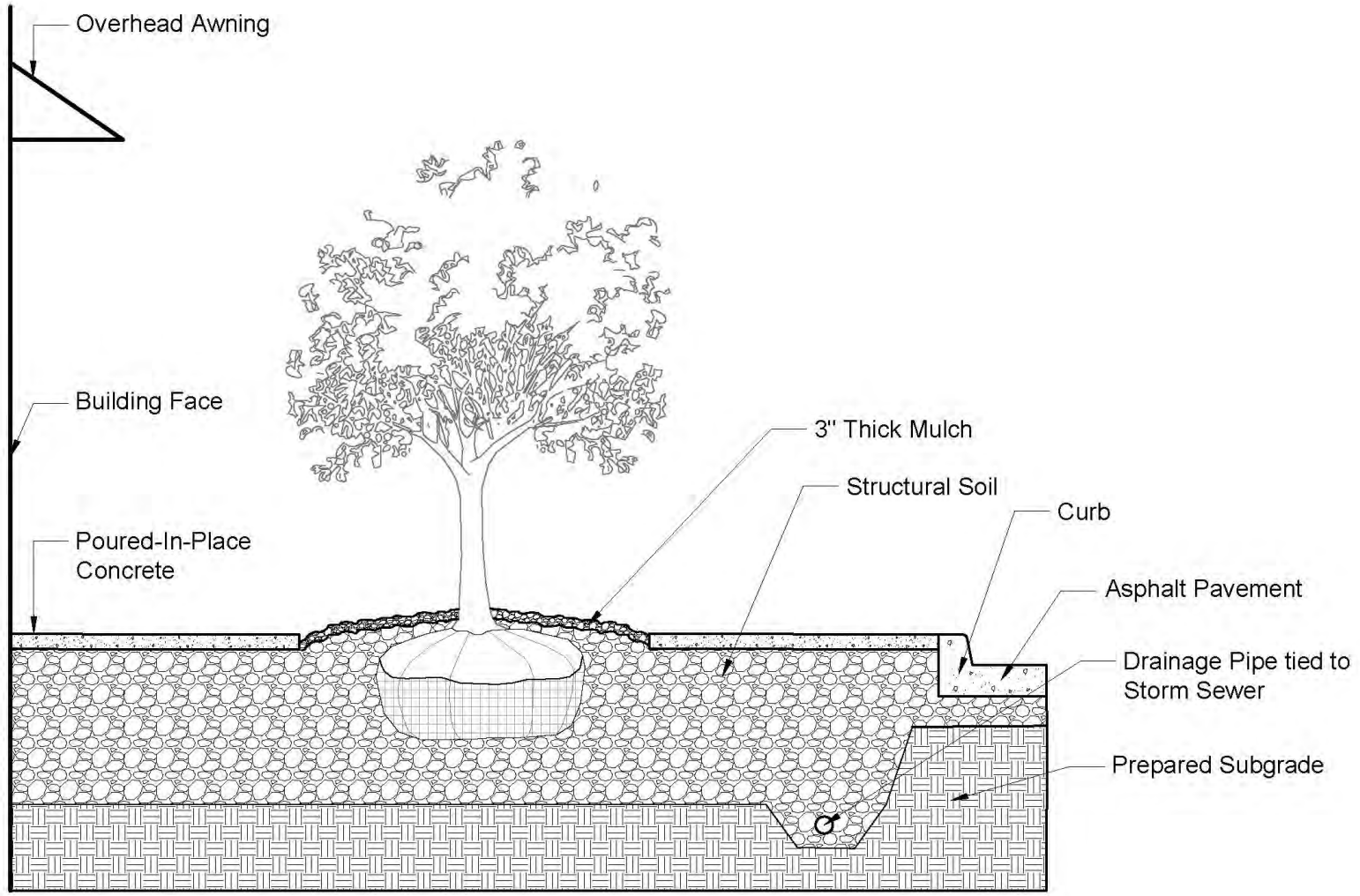
Structural Soil: Typical Street Tree



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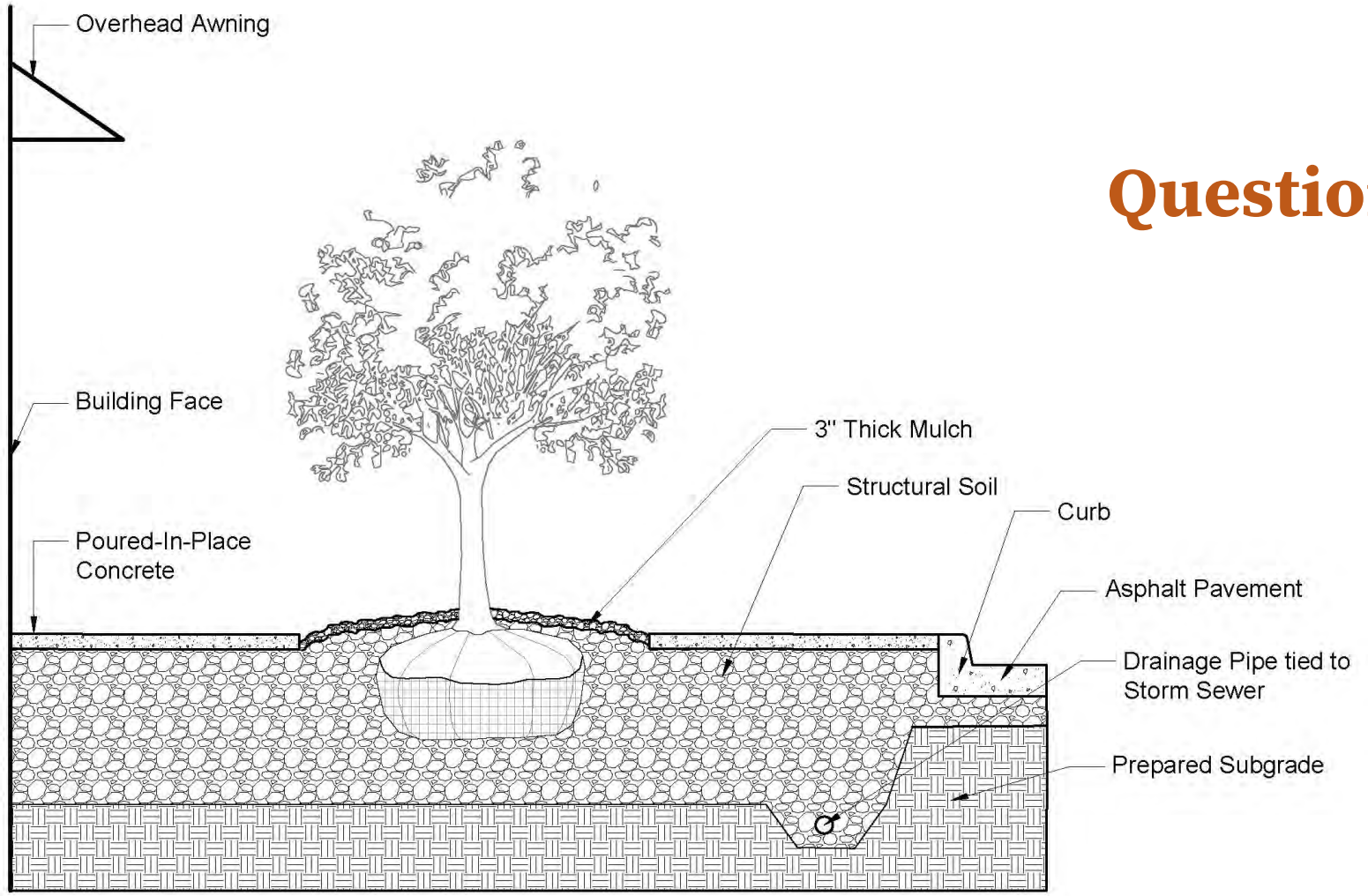
Structural Soil: Typical Street Tree



Questions?

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Structural Soil Appearance

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Structural Soil is produced from local materials by LICENSED companies!

AMEREQ, INC.

Exclusive Rights Holder and Producer of Cornell University CU-Soil® and CU-Structural Soil®
ATTESTS THAT:

MINICK MATERIALS COMPANY, INC.

has been qualified and has satisfactorily met all requirements to produce and sell CU-Structural Soil®
(CU-Soil®/Cornell University Urban Tree Mix) in accordance with its specifications and thereby confers
this

Sublicense No. **25-351709**
Expiring: September 17, 2026

In Witness Thereof This Certificate Has Been Duly Signed and the Seal of the Corporation Has Been Affixed
This 17th day of September, 2025

President and CEO

Vice President and Corporate Secretary

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Gelscape


AMEREQ™
FOR CU-SOIL™ PRODUCTION
(FOLLOW LICENSED MIXING DIRECTIONS)
NET WEIGHT ■ 50 LBS. (22.7 KGS.)
Gelscape®
Hydrogel/Tackifier
FOR THE PRODUCTION OF CU-Structural Soil®
(Cornell Urban Soil Mix, CU-Soil™ U.S. Pat.# 5,849,069)
ACTIVE INGREDIENTS:
Potassium Propenoate-Propenamide Copolymers* 99.5%
INERT INGREDIENTS 0.5%
CAUTION: Spilled product should be cleaned up immediately. It is extremely slippery when wet and should be treated as a potential hazard.
*U.S. Patent No. 4,192,727
*Can. Patent No. 1,134,981
NOT A PLANT FOOD PRODUCT
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Tel: 800-852-8788 · Fax: 845-634-8143
www.structuralsoil.com

Quality Control and Installation

-Raw Materials/Testing
-Production method
-Finished product testing
-Compacting effort (Proctor Density 95%)
-Submittals
-License verification
-Installation & Handling Procedures
-Timing of Delivery
-No long –term stockpiling - covering
-Install in 6” lifts, compact to 95% or higher Proctor - Density
-Cover installed material if paving not done

Compaction

Vibratory Plate Compacter

Compaction

Large Roller Compacter

Compaction

Addison, TX

Compaction

Addison, TX

Case Studies and Process

Addison, TX

Case Studies and Process

Street trees planted in structural soil for 5 years

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Case Studies and Process

Maple tree roots-6 yrs. old

General Presentation Material Questions from Chat?

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Case Studies and Process: Ithaca, NY

Cornell University

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Case Studies and Process: Ithaca, NY

Cornell University Campus NY 2001

Case Studies and Process: Ithaca, NY

Cornell University Campus NY, Aug. 2006

Case Studies and Process: Ithaca, NY

Cornell University Campus NY, Aug. 2006

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Case Studies and Process: Ithaca, NY

Cornell University Campus NY, Jul. 2019

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Case Studies and Process: Ithaca, NY

Ithaca, NY 2006
Town Square

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Case Studies and Process: Ithaca, NY

Ithaca, NY 2009
Town Square

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Case Studies and Process: Ithaca, NY

Ithaca, NY 2011
Town Square

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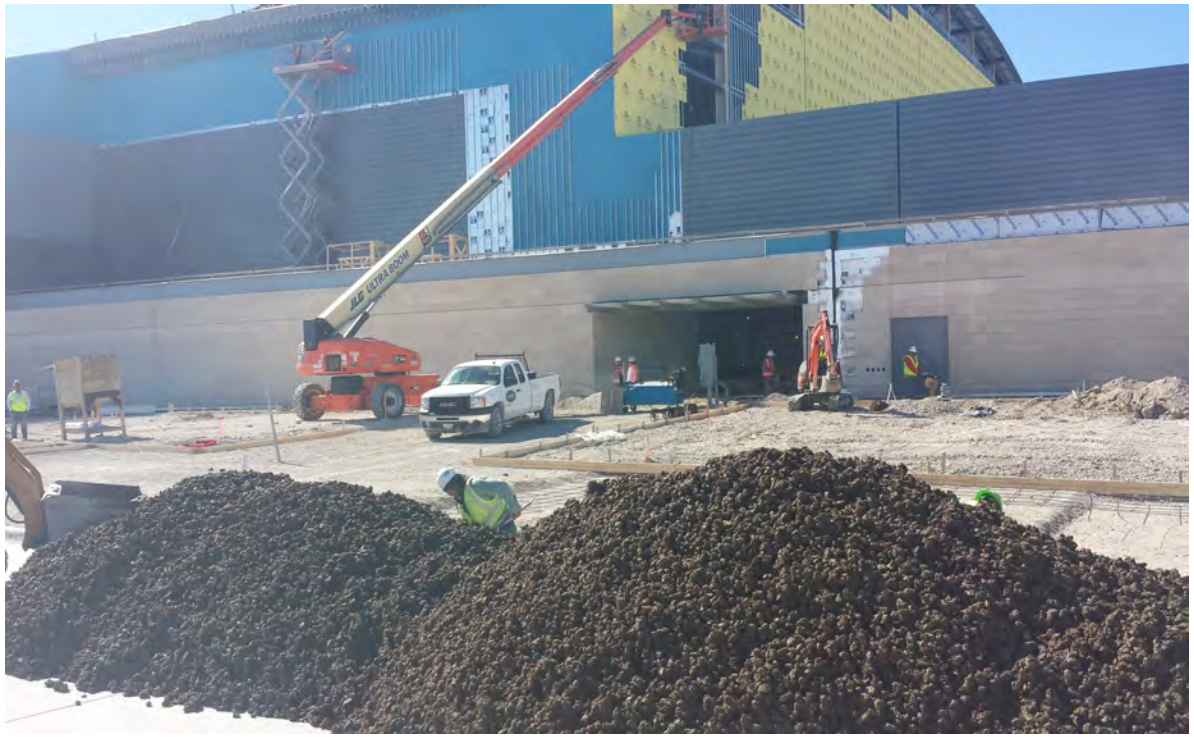
Case Studies and Process: Frisco, TX



Dallas Cowboys HQ 2016 Install

Case Studies and Process: Frisco, TX

Dallas Cowboys HQ 2018

Dallas Cowboys HQ 2021

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Case Studies and Process: Frisco, TX

Dallas Cowboys HQ 2023

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Case Studies and Process: Frisco, TX

Photograph
taken 2017

Photograph
taken 2019

Photograph
taken 2021

Omni Hotel Frisco, Installed Aug. 2016

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Case Studies and Process: Frisco, TX

Photograph
taken April 2023

Photograph
taken Aug. 2024

Photograph
taken Jul. 2025

Omni Hotel Frisco, Installed Aug. 2016

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Case Studies and Process: Campbell, CA

Pruneyard Towers- Campbell, CA

Trees Planted in CU-Soil™
(over 30 feet tall)

Trees Planted in Traditional Tree Pits
(less than 20 feet)

All trees planted at same time from same nursery stock- photos are 3 years after installation

*photos courtesy Matt Moore, TMT Enterprises, Inc.

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Case Studies and Process: Campbell, CA

Trees in CU-Soil™(left) Trees in Traditional Tree Pits (right)

Case Studies and Process: Campbell, CA

Trees in CU-Soil ™

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Case Studies and Process: Campbell, CA

Trees Planted in CU-Soil™
12 years

Trees Planted in Traditional Tree Pits
12 years

Canopy of Trees Planted
in CU-Soil™ 12 years

Canopy of Trees Planted in
Traditional Tree Pits
12 years

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General Presentation Questions from Chat?

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Case Studies and Process: Northwest Arkansas

June and July 2018

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Case Studies and Process: Northwest Arkansas

Case Studies and Process: Arlington, TX

1 year after install

Case Studies and Process: Arlington, TX

4 years after install

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Case Studies and Process: Arlington, TX

5 years after install

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Case Studies and Process: Arlington, TX

5 years after install

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Case Studies and Process: Dallas Metro Area

1.5 years after install

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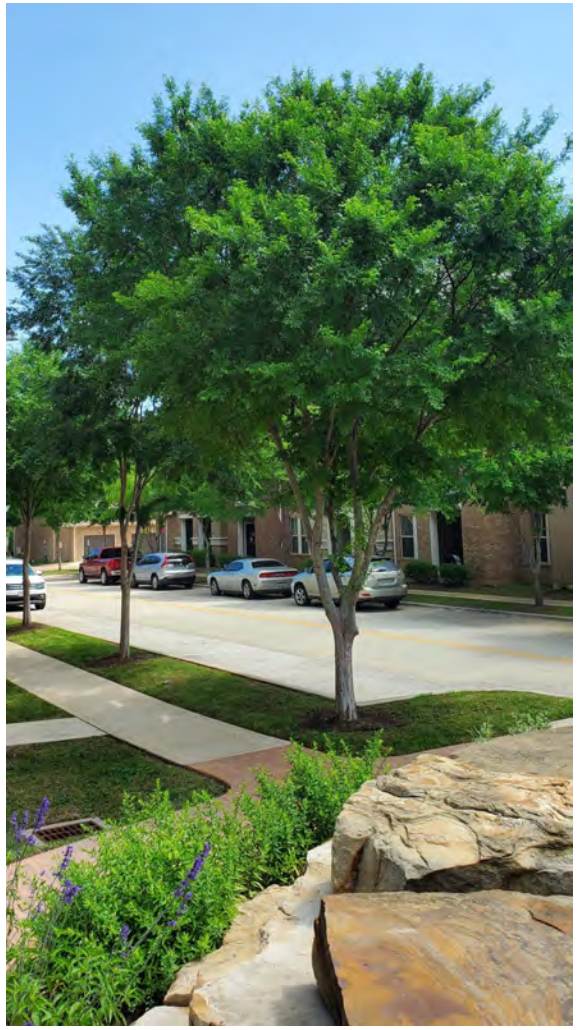
Case Studies and Process: Dallas Metro Area



5 years after install

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Case Studies and Process: Dallas Wyly Theater

11 years after install

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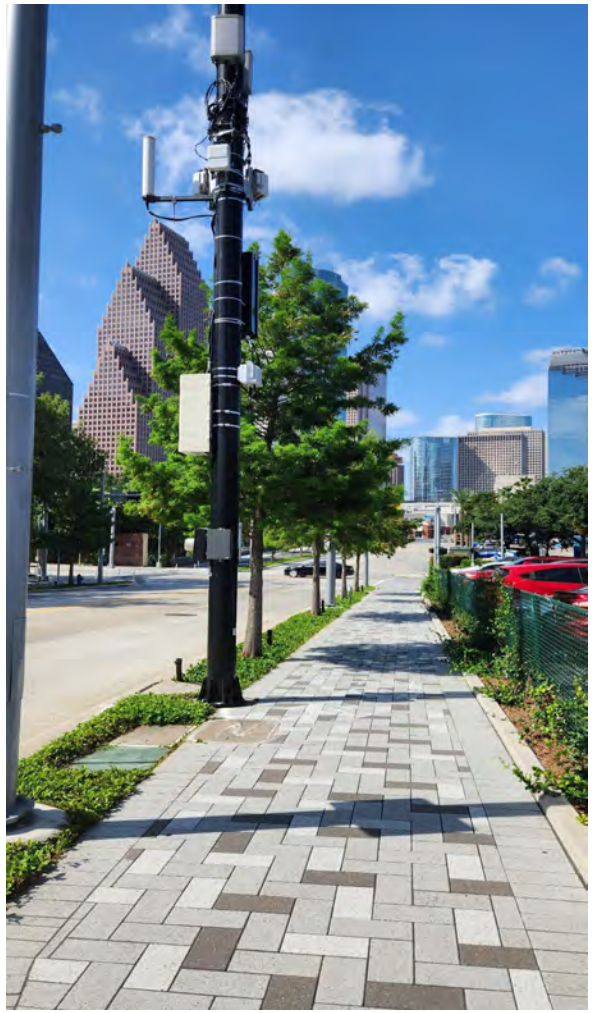
Case Studies and Process: Wyly Theater

16 years after install

Case Studies and Process: Houston, TX Bagby Street

Case Studies and Process: Houston, TX Bagby Street



Case Studies and Process: Houston, TX Bagby Street

Dec. 2021

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Case Studies and Process: Houston, TX Bagby Street

Dec. 2024

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Case Studies and Process: Mesa Arts Center Mesa, AZ

Case Studies and Process: Mesa Arts Center Mesa, AZ

Case Studies and Process: NYC, NY Zuccotti Park

Case Studies and Process: NYC, NY Zuccotti Park

4 years later

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Case Studies and Process: Birmingham, AL

Structural Soil Under Turf

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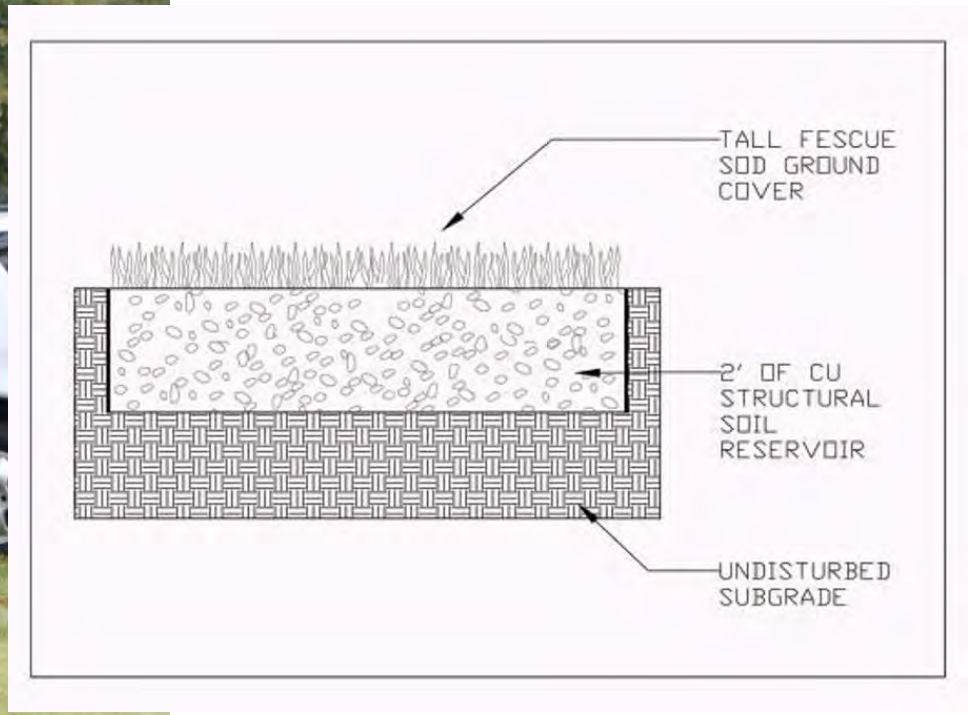
Case Studies and Process: Birmingham, AL

Structural Soil Under Turf



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Case Studies and Process: OKC, OK & OKC Memorial

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Structural v. Not Structural Soils

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Complete by July 9, 2026

1. Post-session quiz (75% or higher)
2. Evaluation
3. Certificates will be emailed on July 7.

Provide your feedback:

Complete the CE quiz:

Upcoming ProSeries

All $0 for active CLARB Record Holders

Wednesday, August 26

Attend in person, virtually or on-demand.

1:00-2:00 p.m. MDT	**When Shade is Not a Tree**	
2:30-3:30 p.m. MDT	**Designing for Multigenerational Play**	
4:00-5:00 p.m. MDT	**Biophilic Design in Public Space**	

PRO SERIES
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pland COLLABORATIVE

Crystal
where ideas flow™

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