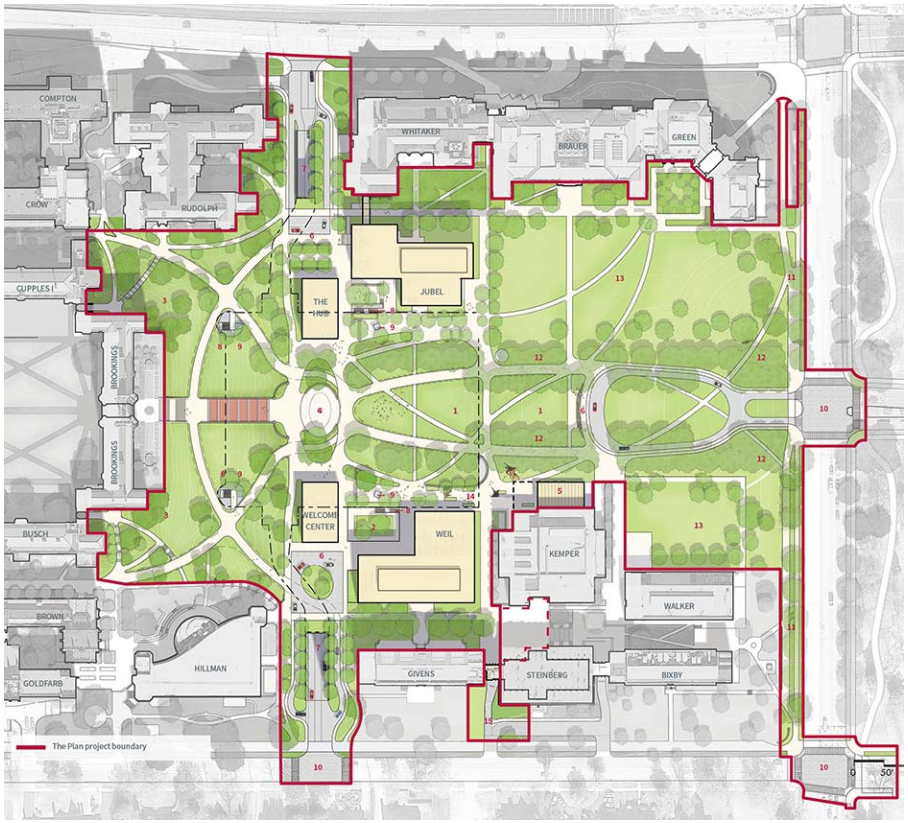
WASHINGTON UNIVERSITY EAST CAMPUS

Project boundary



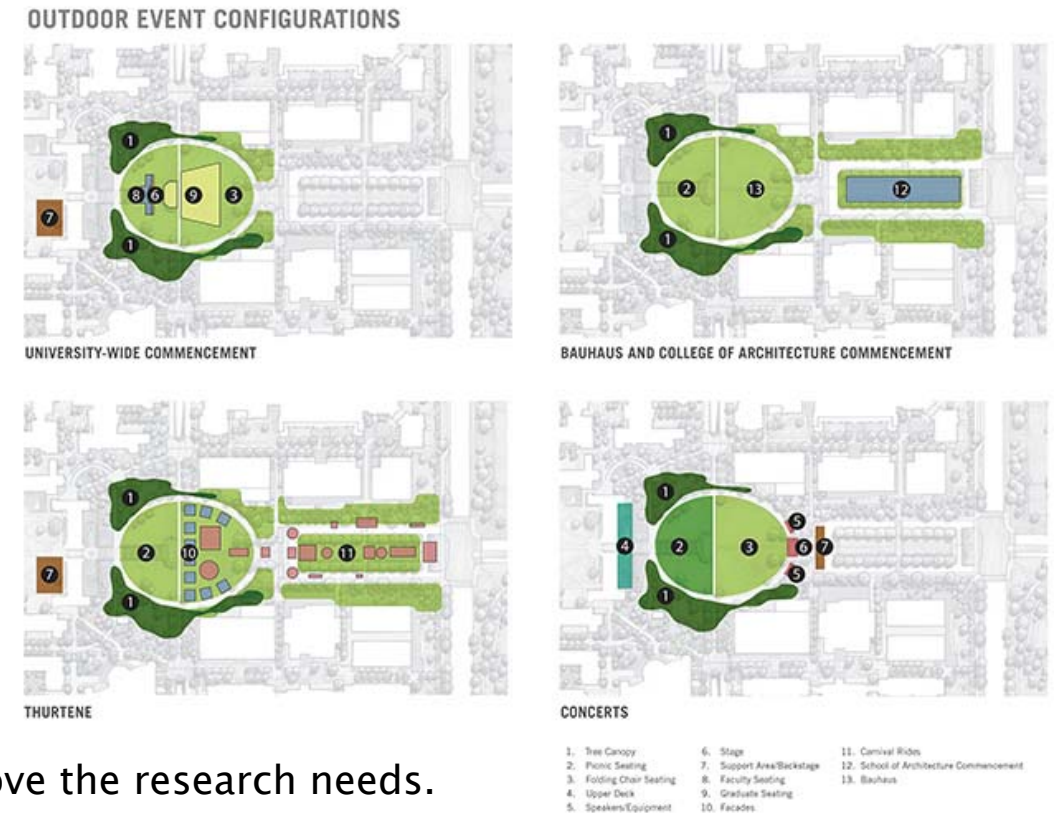
SOURCE: MICHAEL VERGASON LANDSCAPE ARCHITECTS

WASHINGTON UNIVERSITY EAST CAMPUS

Proposed improvements above parking garage.

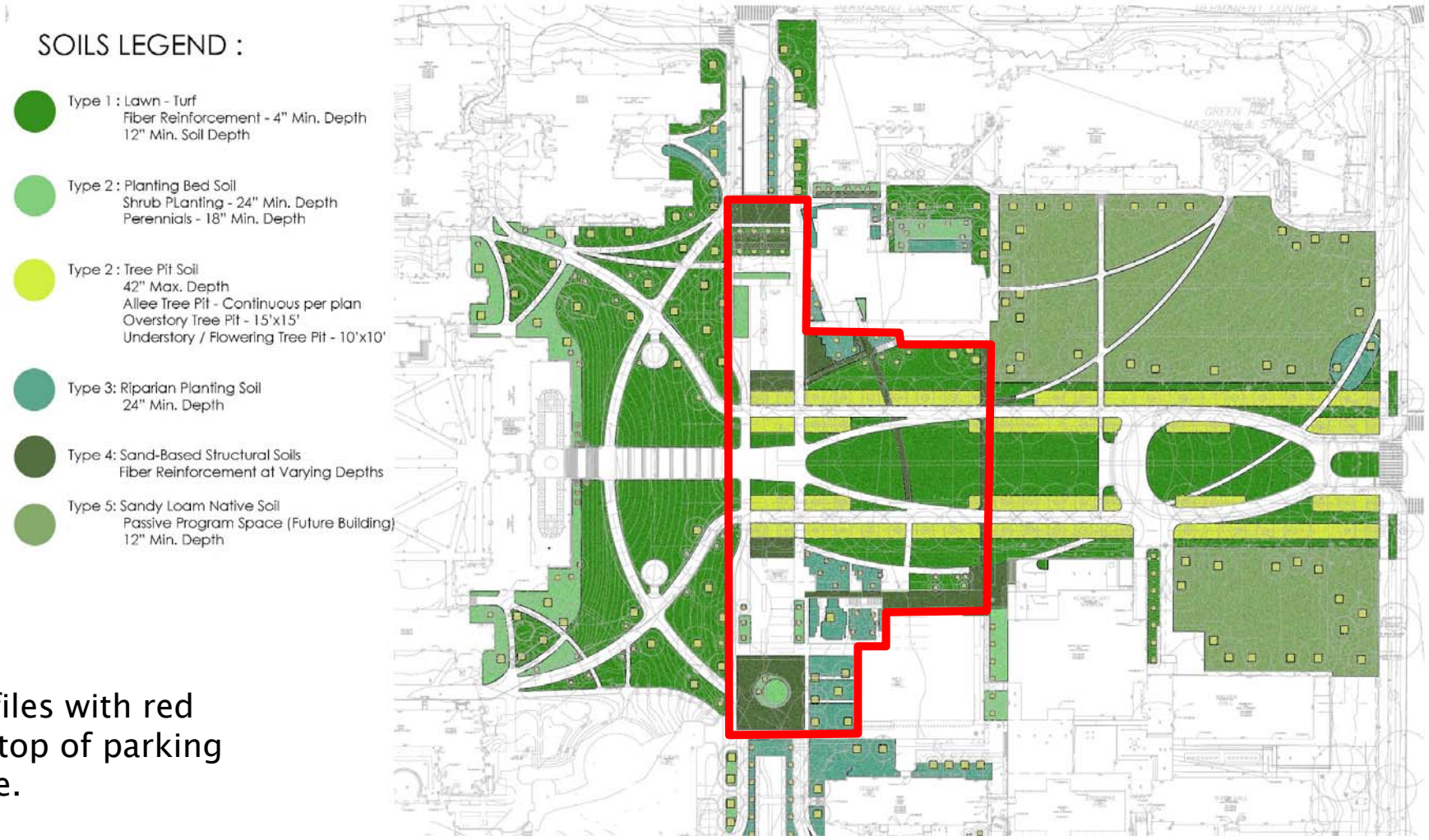
SOURCE: MICHAEL VERGASON LANDSCAPE ARCHITECTS

WASHINGTON UNIVERSITY EAST CAMPUS



High intensity program use of the site which drove the research needs.

SOURCE: SASAKI ASSOCIATES



Soil profiles with red area on top of parking structure.

SOIL PROFILES

Low to Medium Programmed Use Turf Soil Profile

High Programmed Use Turf Soil Profile (fiber reinforced)

Shrub Soil Profile

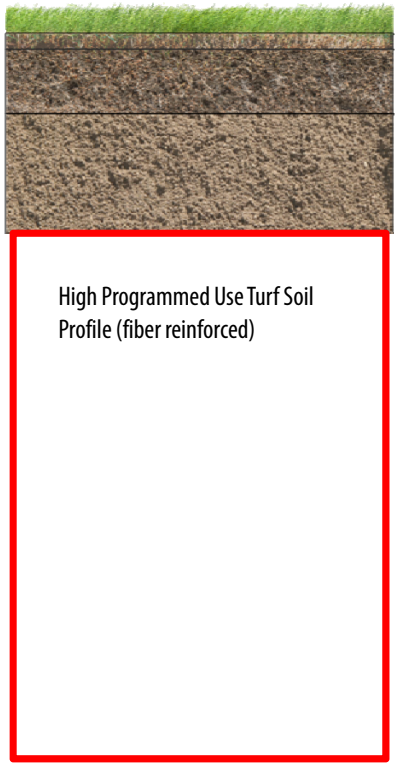
Bio-Retention Planting Soil Profile

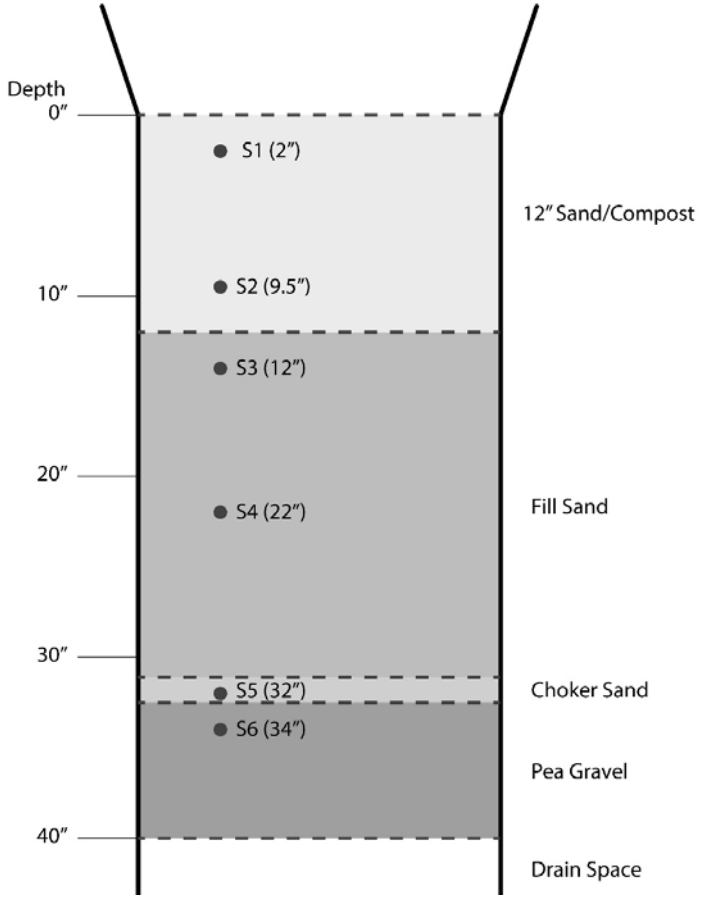
Structural Soil Profile

Tree Planting Soil Profile

Soil profiles with bulking requirements in red.

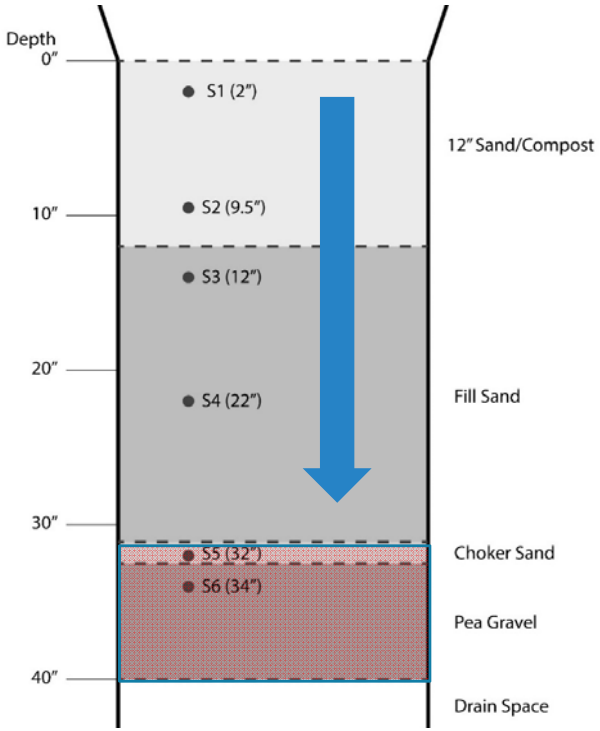
PROFILE MOCK-UP

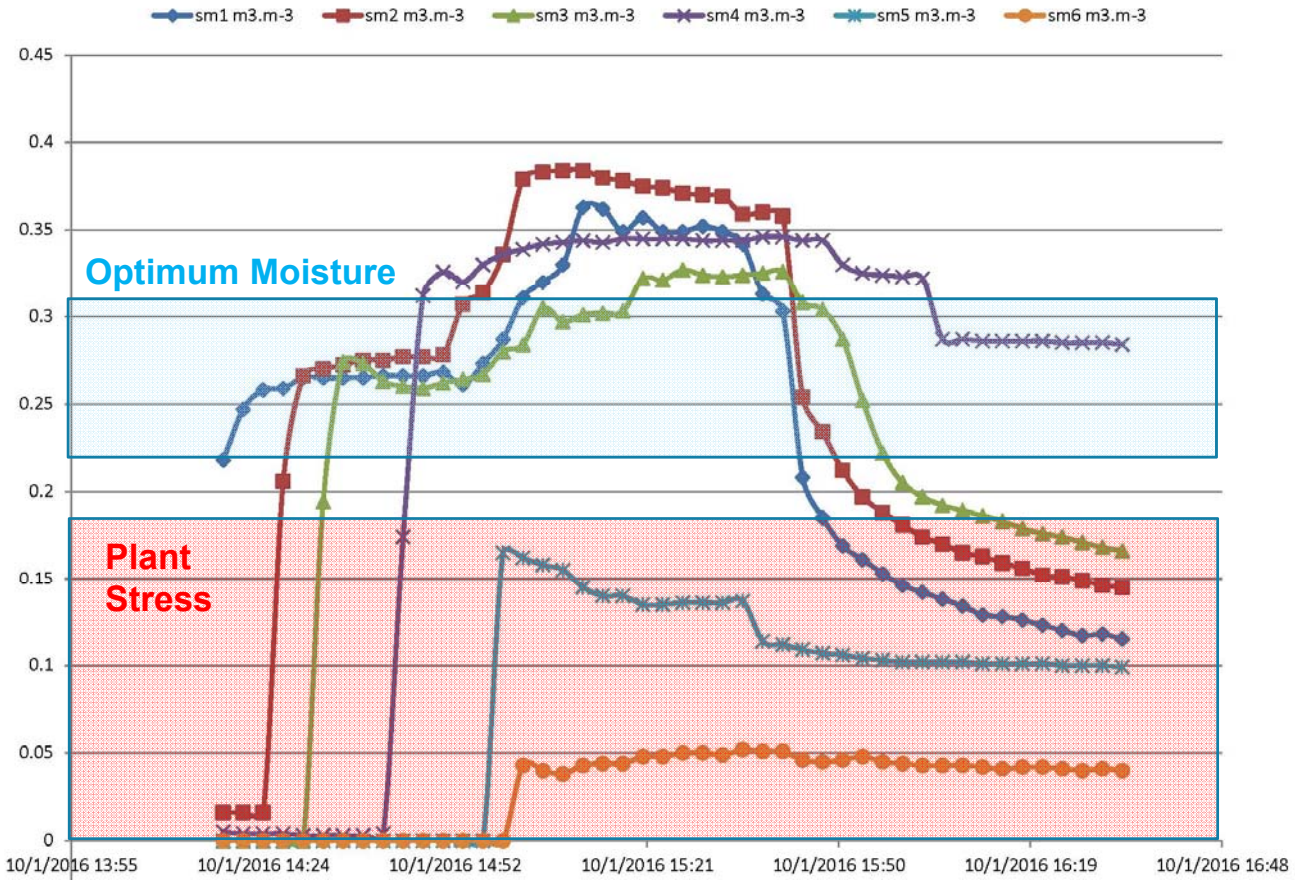




Testing mock-up of initial profile concept.

PROFILE 1 3 Hour Simulation



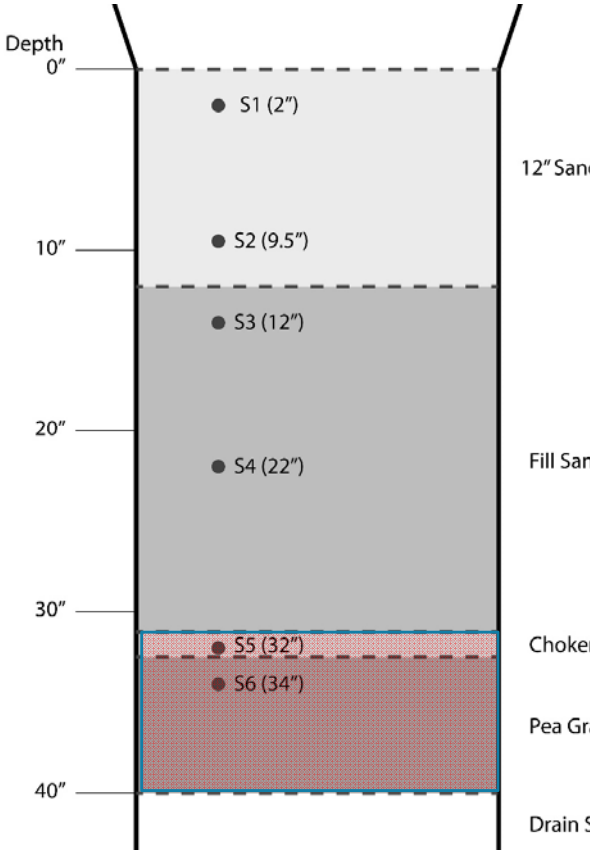


Simulation demonstrated excessive capillary pull during irrigation loading cycles

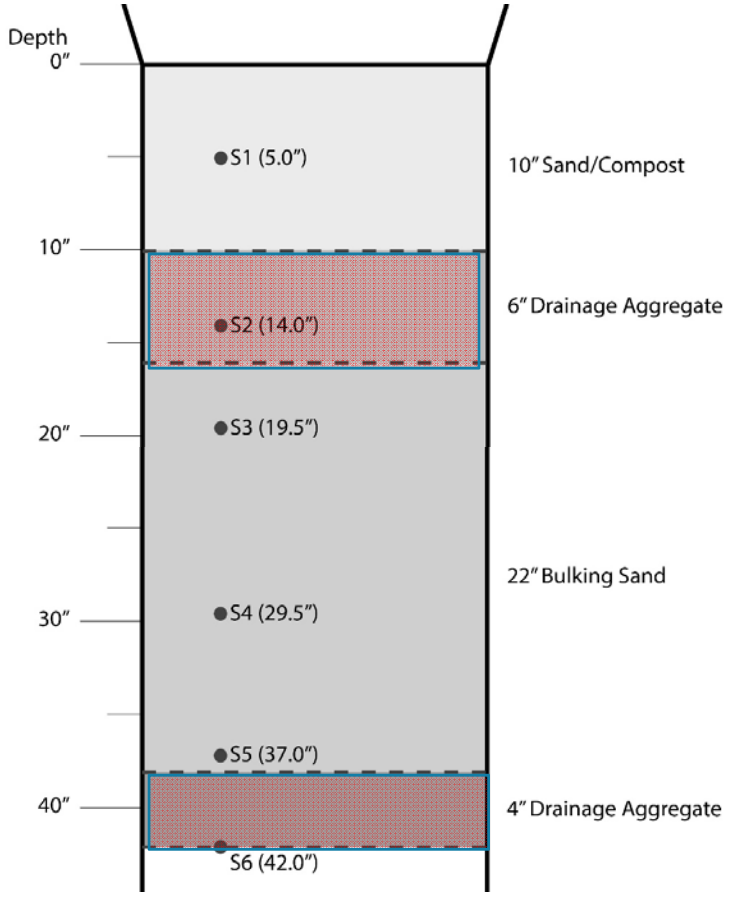
PROFILE REDESIGN

Capillary Break

Soil profile redesign to improve soil moisture efficiency and management.

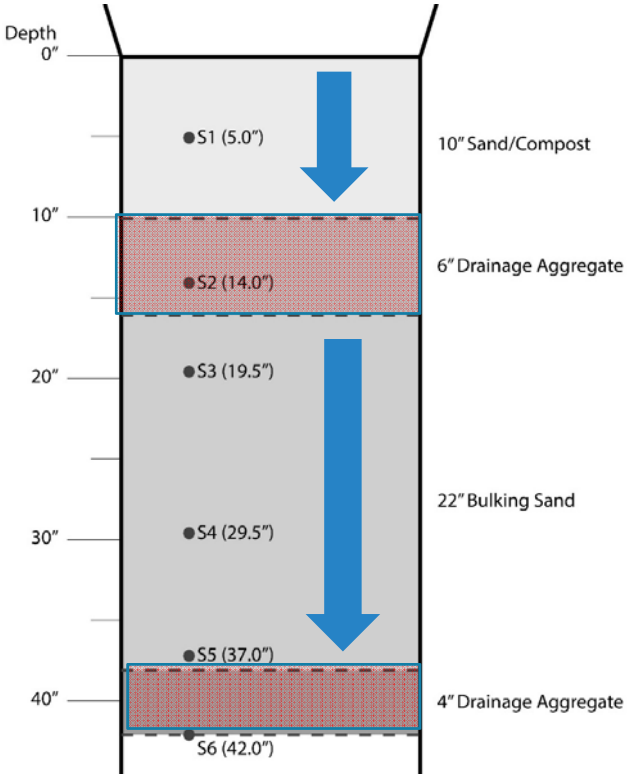


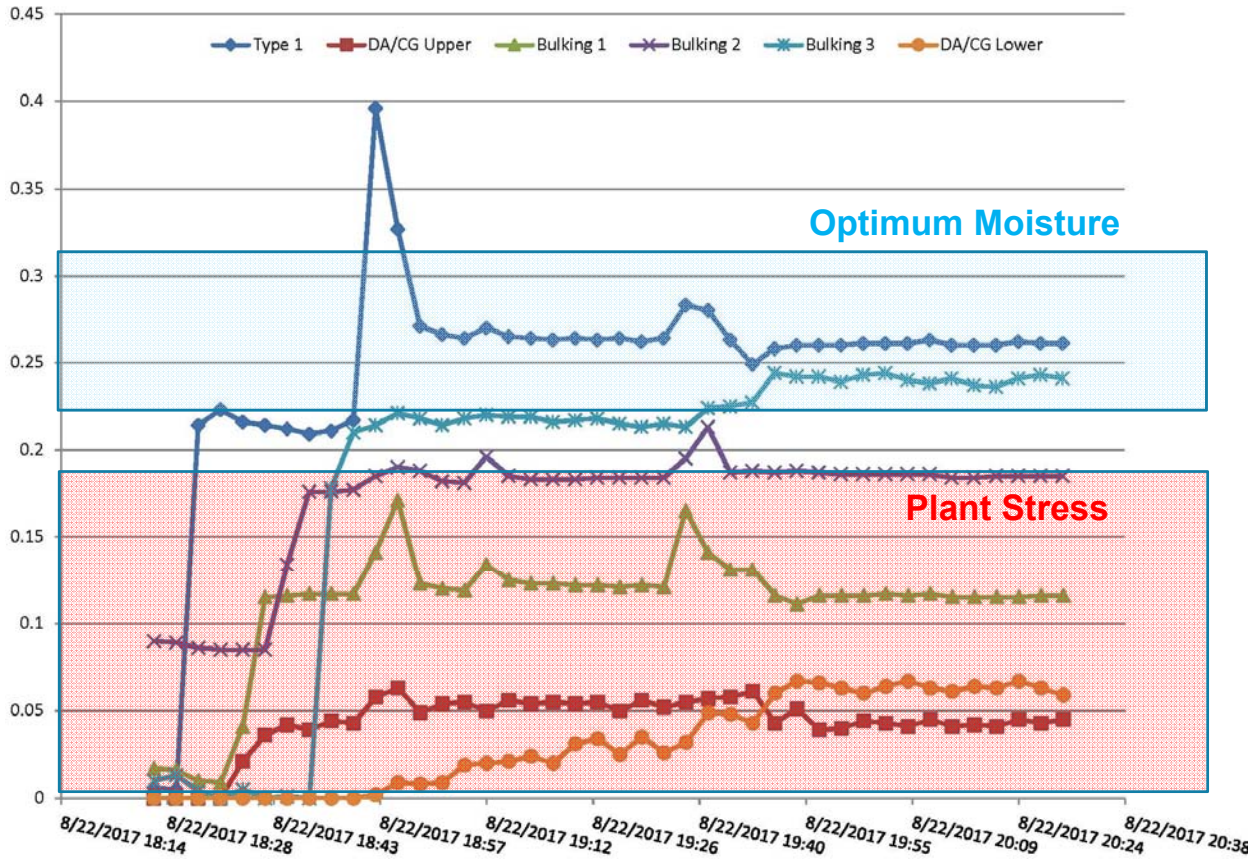
Profile #1



Profile #2

PROFILE 2 3 Hour Simulation

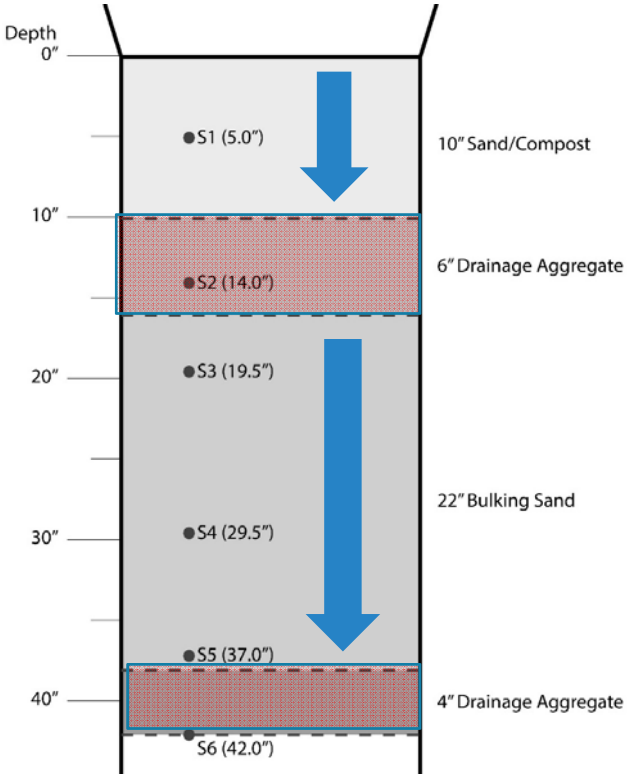


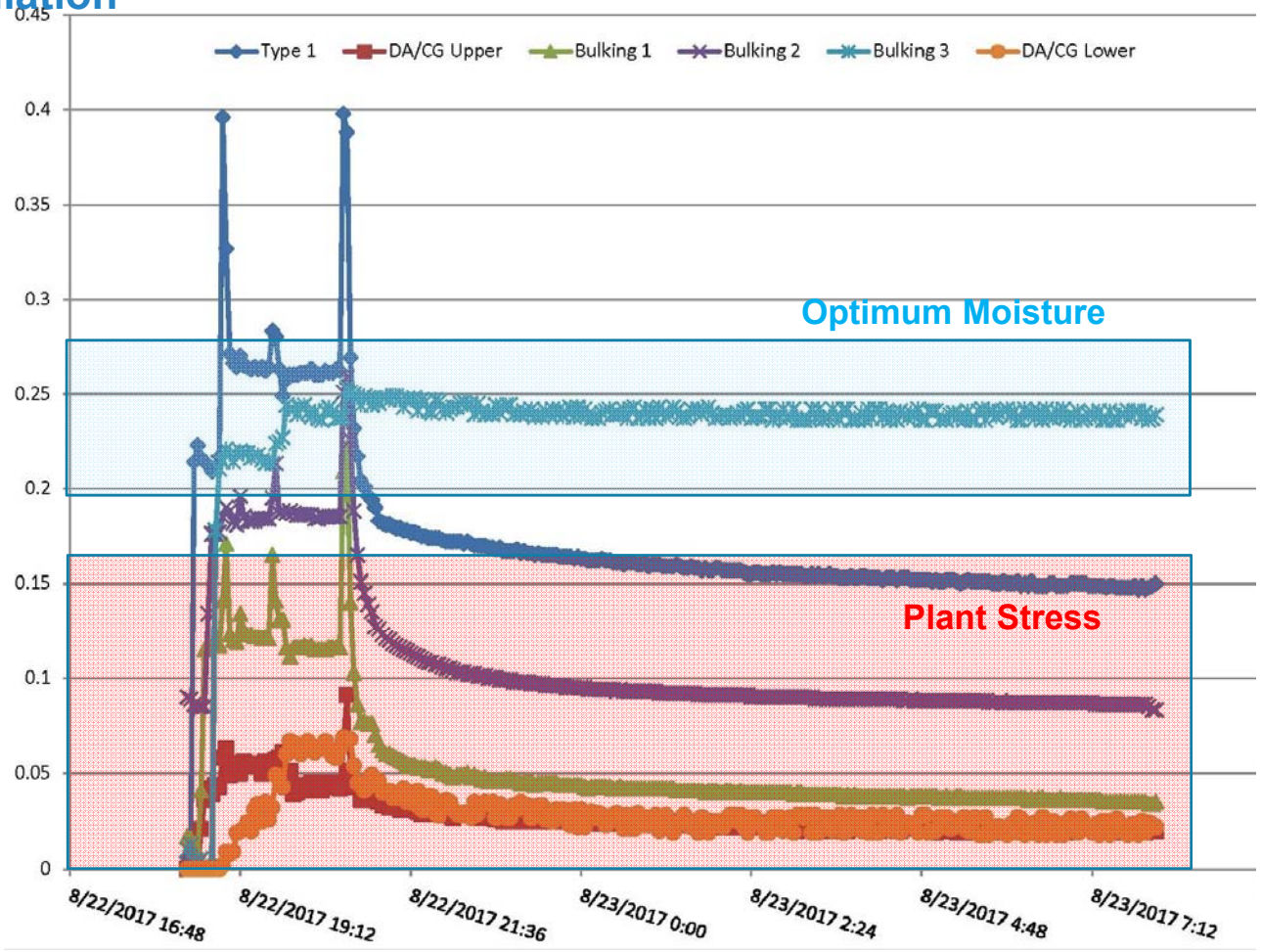


Optimized water management performance validating proof of concept

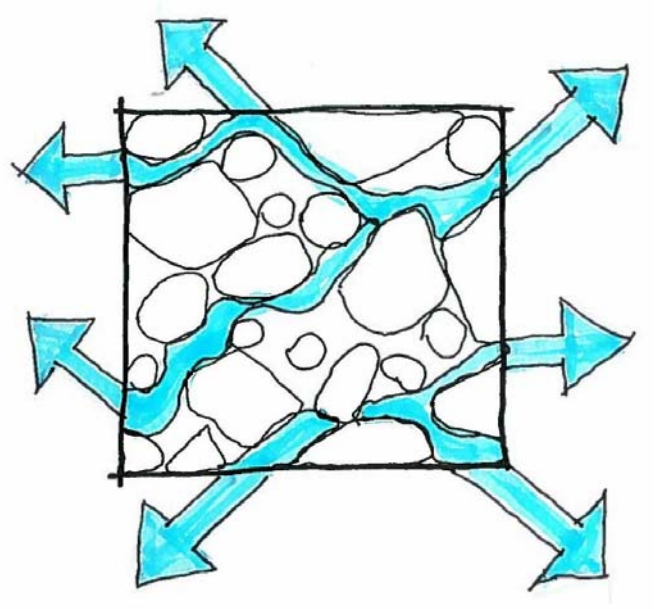
PROFILE 2

24 Hour Simulation

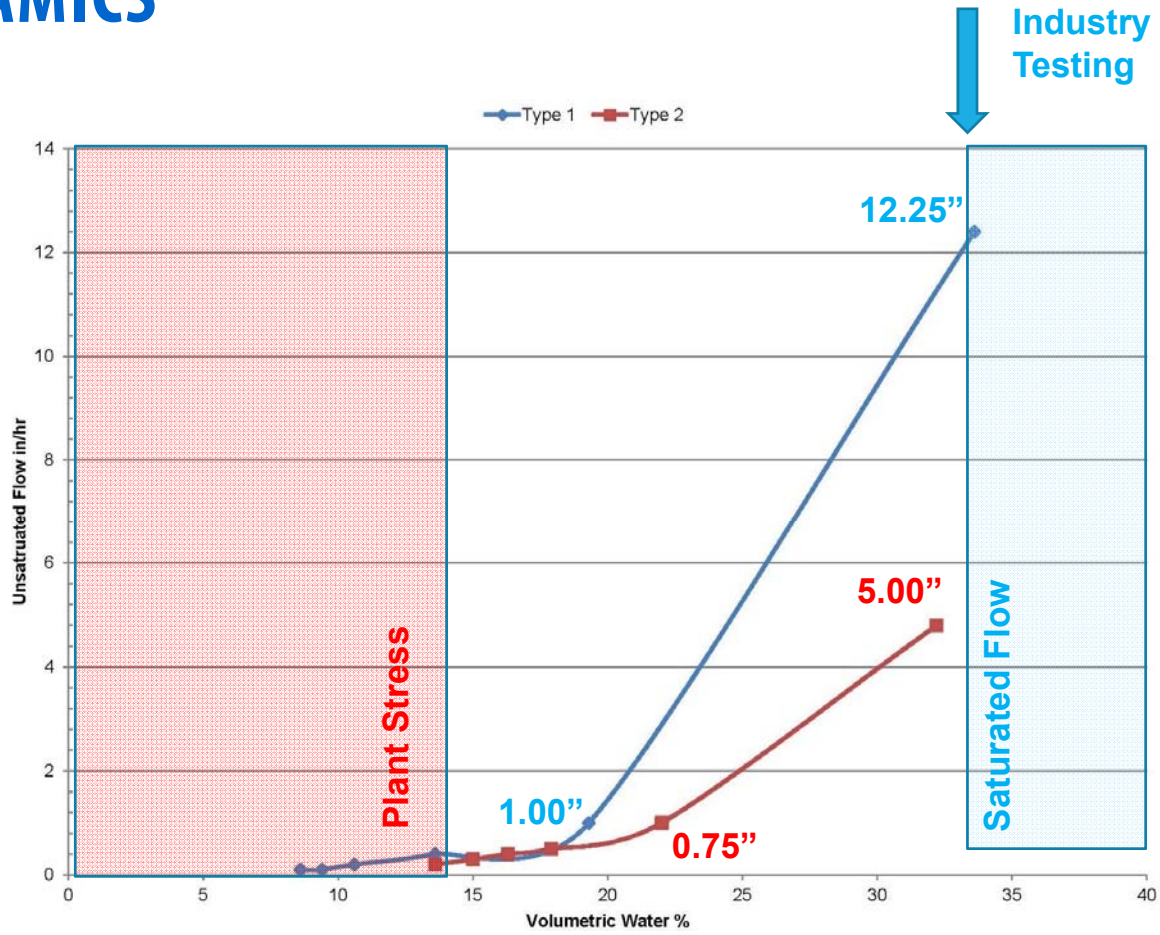




UNSATURATED FLOW DYNAMICS



The research provided a better understanding of unsaturated flow dynamics in deep soil profiles which are only evaluated in saturated flow conditions

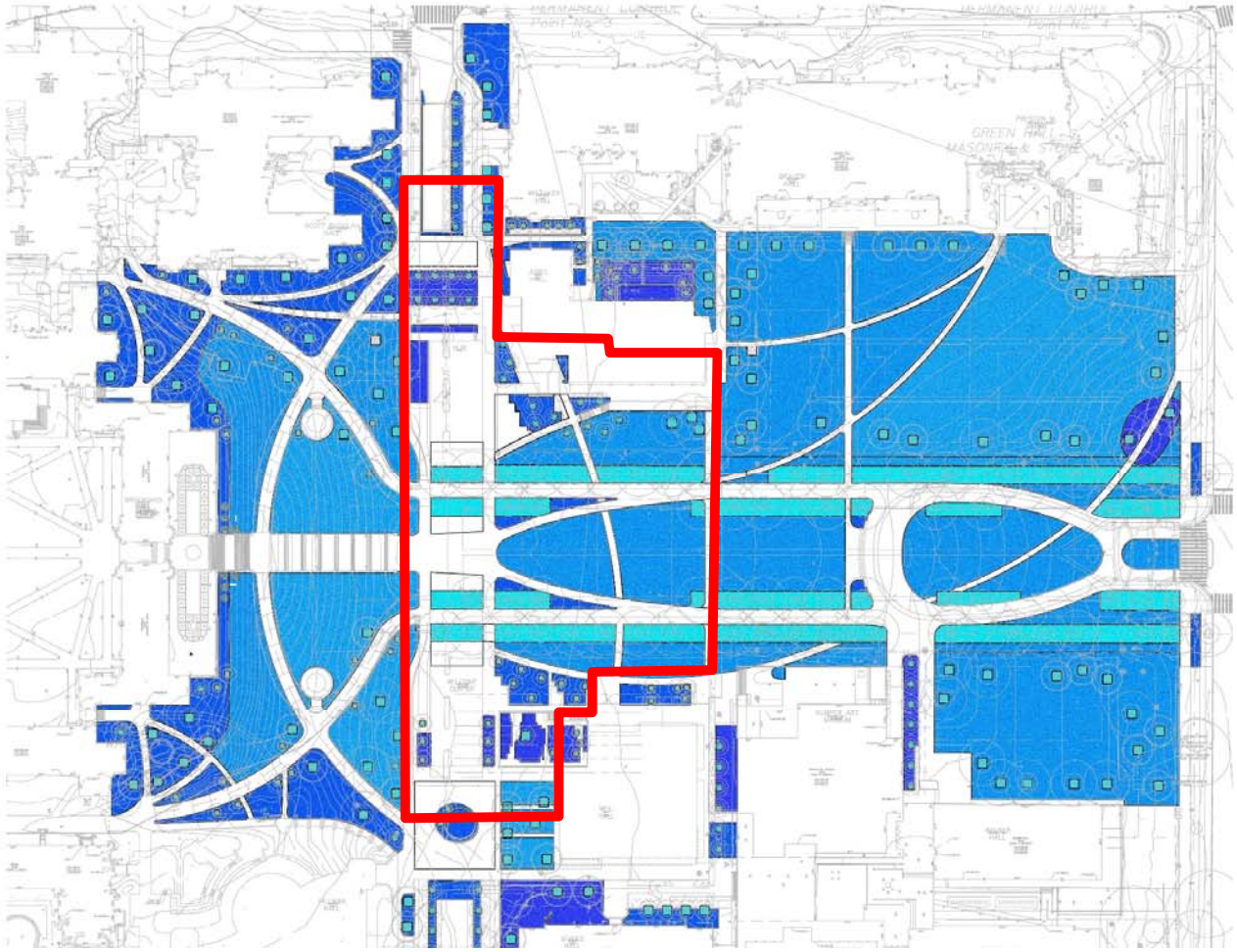


STORMWATER FUNCTION

Type 1: Irrigation Rotor Heads
Stainless Steel Sleeves

Type 2: Irrigation Spray Heads

Type 3: Deep Root Watering Tubes
Typ. 2 Per Tree



175,000 SF

525,000 CF soil volume

This equates to 1,570,905 gallons or 4.83 acre-feet, or 58 acre-inches of storage over the parking facility.