What Do We Look For During a "45 Day" Inspection?

Key Elements of Completed Systems

Peter Schultze-Allen

Senior Scientist, EOA Inc.

December 4, 2013

45 Day Inspection Prep:

1. Purpose: Final Inspection of System for approval and/or permit sign-off.
2. The system must be complete, so wait until all plants and mulch are in or re-inspect.
3. Review Landscape Drawings with Job Superintendent in Construction Trailer before inspecting systems

Common Problems:

1. Wrong Biotreatment Soil
2. Biotreatment Soil Compacted
3. Wrong Plants or Location
4. Wrong Mulch or No Mulch
5. Poor Water Distribution
6. Water doesn't get into system
7. Poor Grading
8. Overflow in Wrong Place
9. Erosion of soil at end of construction
10. Irrigation Problems
11. Standing Water

1. Wrong Biotreatment Soil

a) All projects approved since Dec. 2011 must use soil specifications in Attachment L of MRP.

b) Min. 5”/hour infiltration rate <u>over life of system</u>. Higher initial rates are ok. Will slow over time.

c) Must support healthy plant growth

d) Ask for Name of Supplier

e) Check Documentation from Supplier

f) Eight Suppliers identified in Bay Area

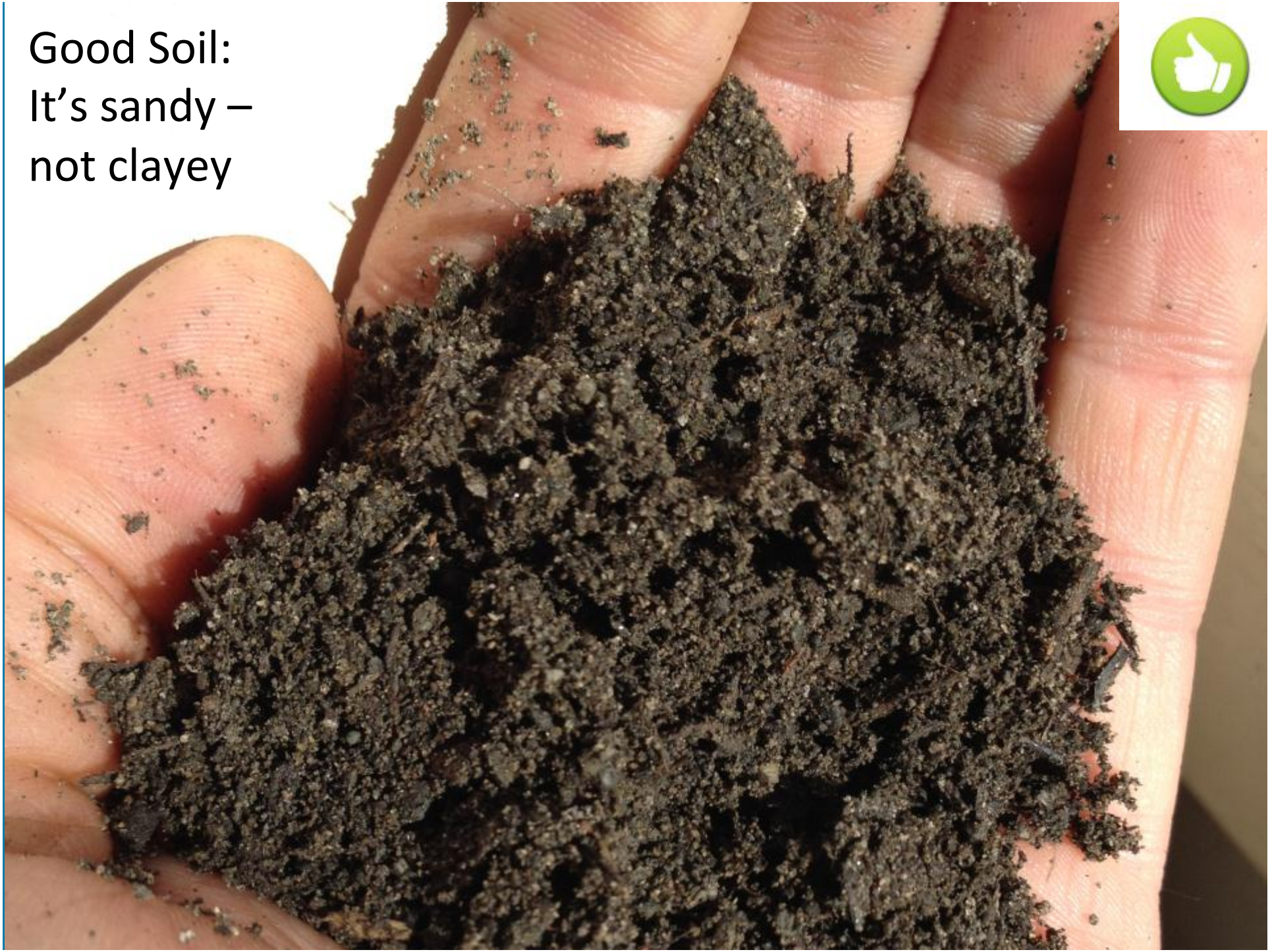

The muddy fines in this soil will likely result in a slower infiltration rate over time
8 1:14PM


8 1:16PM


8 1:21PM

This is the proper tool, but checking the lab results is easier.

Good Soil:
It's sandy –
not clayey



2. Biotreatment Soil Compacted

a) Soil should only be compacted with water or manually.
b) No mechanical compaction.
c) Exception: large scale projects may use specially equipped machinery.
d) Can be measured with a soil probe.
e) Mulch and Soil products can be blown in.

3. Wrong Plants or Location

a) Plants should be spaced with mature plant sizes in mind to avoid excess removal later

b) Avoid excess irrigation in plant establishment period

c) Trees should not be planted near perf pipes, overflows and cleanouts or root problems later

Design tips:

- Plants should be consistent with the C3 Technical Manual plant list.
- Trees to be planted in ponding areas should be chosen carefully - Consider future shading issues
- Small trees are better in general, if at all

Some plants were added but more are still needed and mulch needs replenishing

High traffic or entry points need plant replacement more often.

Trees shade out other plants so what might work in the beginning might not work later.

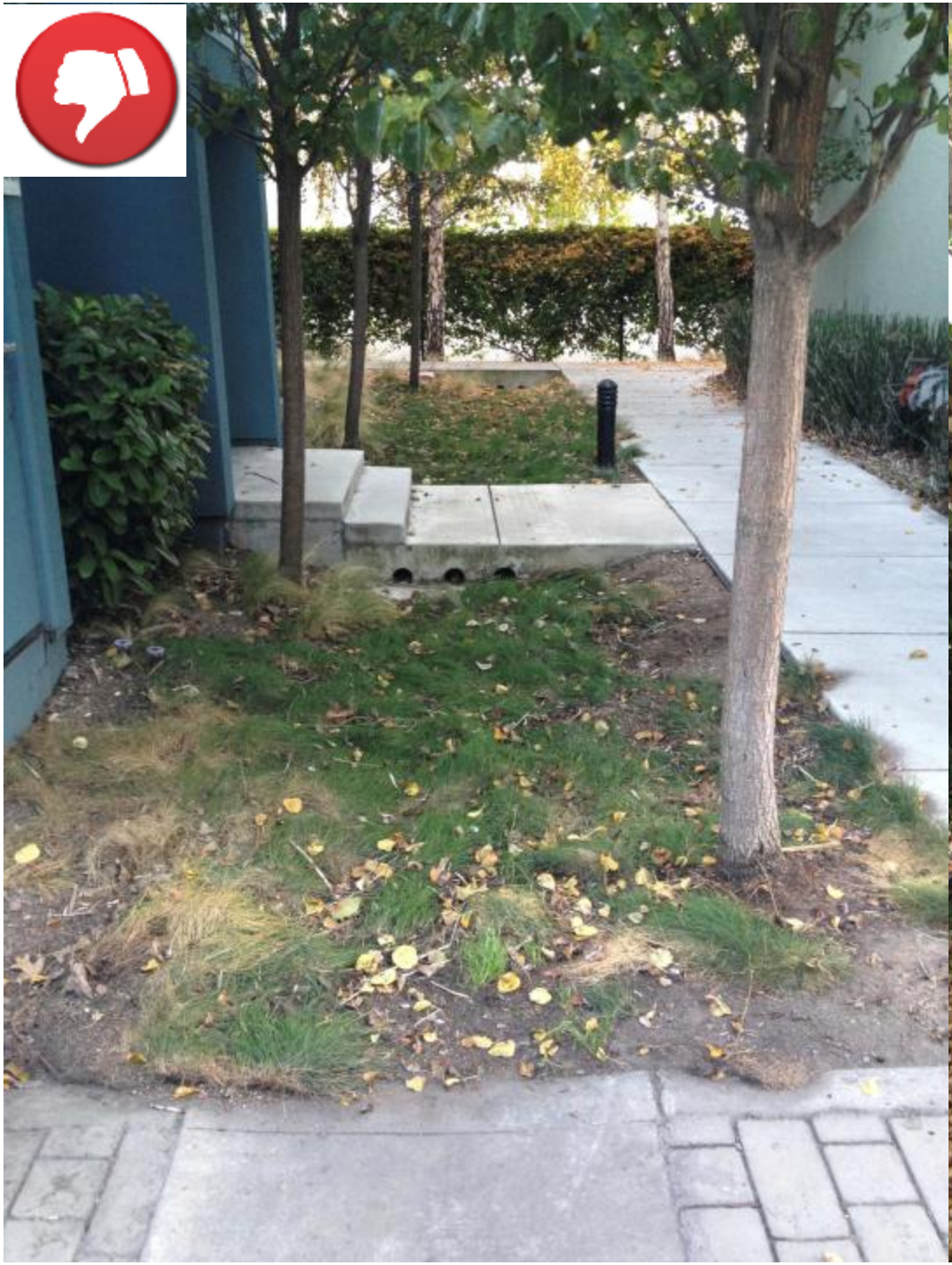
4. Wrong Mulch or No Mulch

a) Use Aged Composted Mulch or shredded Tree Trimmings
b) No bark or wood chips or gorilla hair
c) Consider rock mulch in flow lines and low spots
d) No loose cobble near windows


25 3:58PM

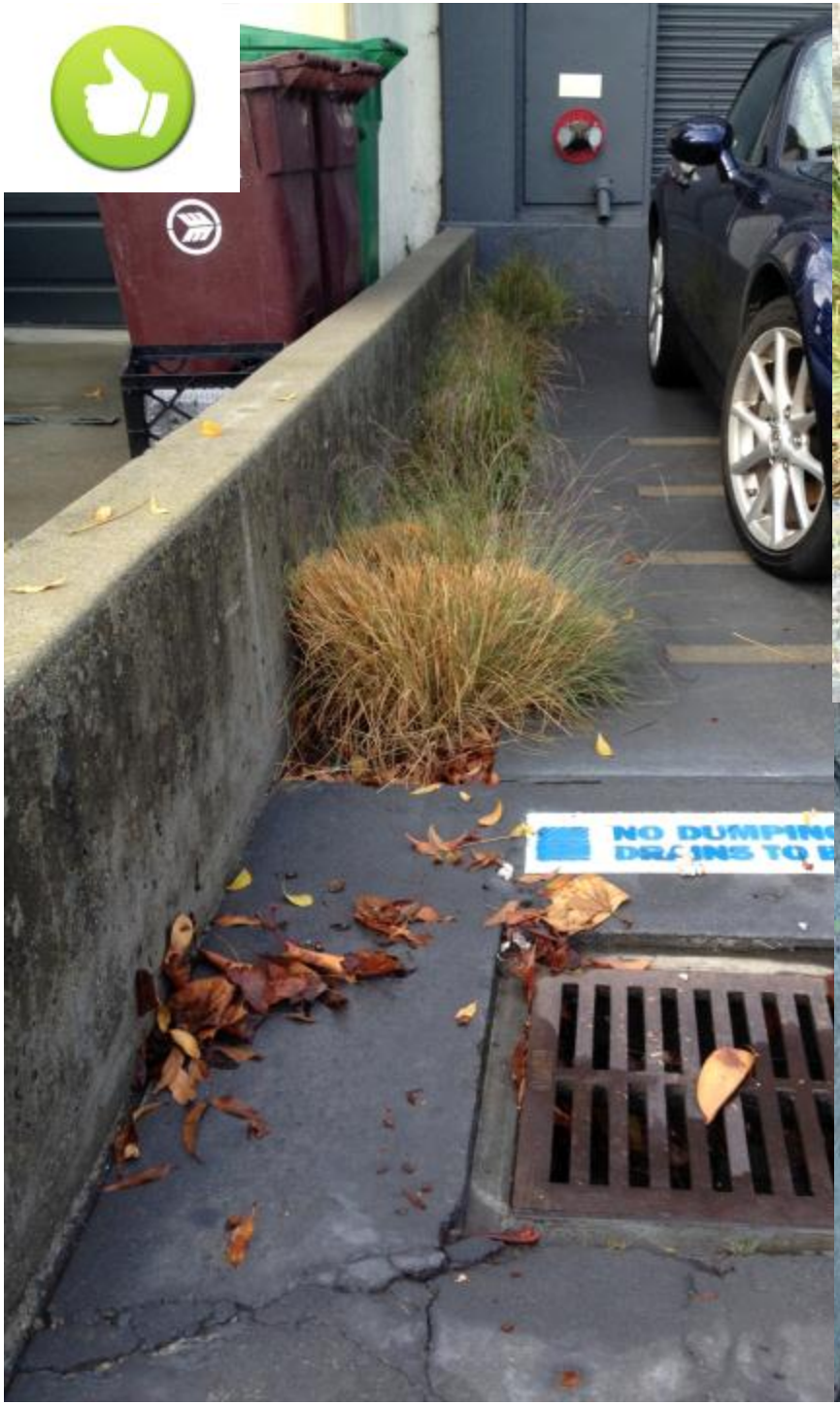
5. Poor Water Distribution

a) Only one inlet for large area
b) Flow doesn't spread through area
c) Inlets clog easily
d) Elevation drop insufficient
e) Plant, drain or equipment obstacles
f) Flow Splitters
g) Flow Spreaders



This Flow Splitter is designed to divert high flows from the system by using a weir inside the concrete box

It also has a Flow Spreader pipe to move water through the long and narrow system


NO DUMPING


This System's Flow Spreader half pipe needs some vegetation removal

6. Water doesn't get into system

a) Bad curb cut
b) Clogged Roof Leader or Roof Drain
c) Wrong location of Overflow
d) Pumps not working


25 4:00PM

7. Poor Grading

a) Grading not built per plan
b) Grading design not sufficient
c) Common in surface parking lots
d) Solutions can include berms and/or addition of unplanned pervious paving or treatment areas. Pumps can be used as a last resort.

8. Overflow in Wrong Place

a) Should not be at the very lowest spot unless it's raised.
b) Can also be on uphill side of system.
c) Should not be near inlet
d) Not needed in small areas.

NO DUMPING!
DRAINS TO BAY

9. Erosion of soil

a) No splash block or dissipater
b) Plants can help
c) Forebay
d) Weirs
e) Rock mulch
f) System undersized

10. Irrigation Problems

a) Not off in winter?

b) Smart Controller installed and On-line?

c) Leaks in system?

Design Tip:

Spray Irrigation is not good for Green Roofs


HAY STREET

11. Standing Water

a) Check Outflow Pumps
b) Compacted Soil
c) Subdrain clogged


RESERVED
NHI
STUDENTS
RESERV
NHI
STUDE

Questions?

Peter Schultze-Allen

510-832-2852 x128

pschultze-allen@eoainc.com

Jill Bicknell

408-720-8811 x1

jcbicknell@eoainc.com