

# C.3 in MRP 2.0

What to Expect (as of March 17, 2015)

Dan Cloak

# What's Unlikely to Change

- Threshold for Regulated Projects
- Requirements for Small Projects
- Exclusions, including those for roads
- 50% Rule
- Alternative compliance
- Ambiguities related to applicability
- Organization of permit provision
- Reporting (except for Special Projects)

# MRP 2.0: What's Likely to Change

- Design specs for pervious pavement
- Operation and maintenance verification
  - Apply to pervious pavements
  - Enforcement response plan required
- Green Infrastructure Plan

# Still under discussion (as of 3/17)

- Grandfathering
- Infiltration and Harvest/Reuse Feasibility
- Soil Specification (Attachment L)
- Hydromodification Management
- Special Projects
  - Intention to eliminate in next permit term
  - Tweaks to definitions of density required
  - More explicit analysis of bioretention feasibility

# Stormwater Control Plans

What to Look for During Your Review

Dan Cloak

# Four Questions for SCP Review

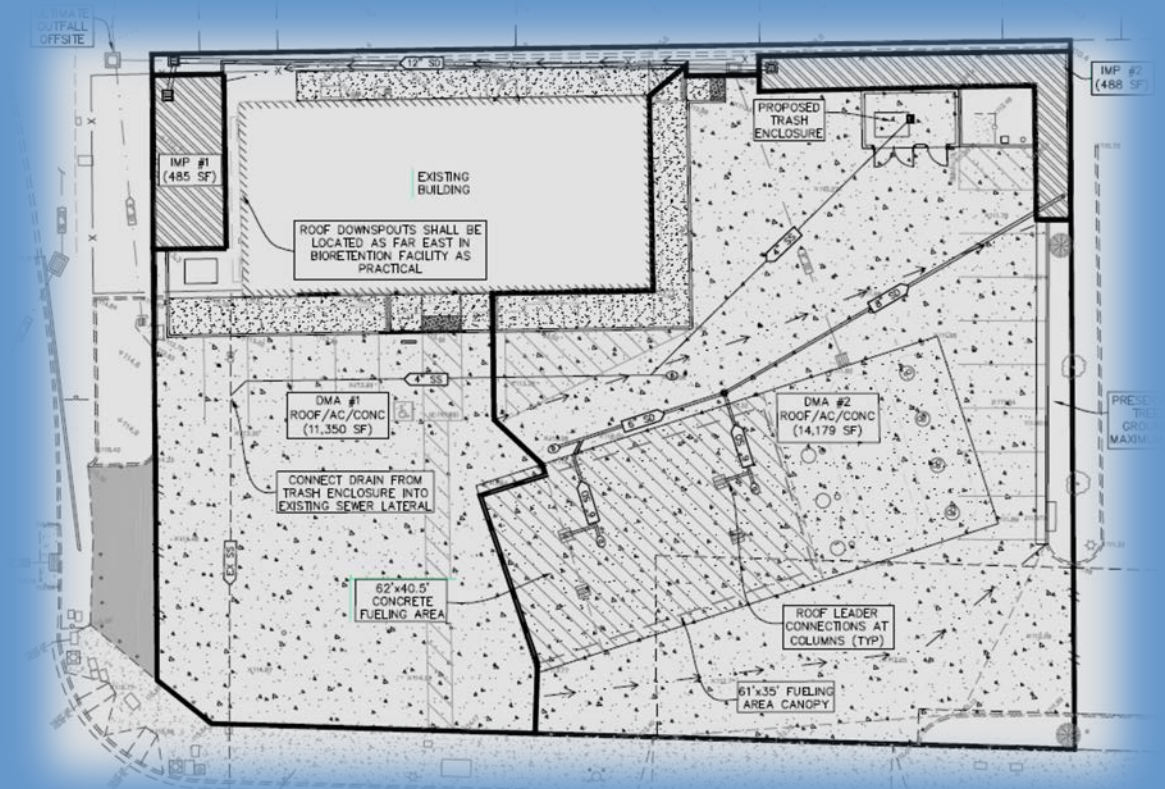
- Does it meet Provision C.3 requirements?
  - All impervious areas accounted for?
  - Features and facilities adequately sized?
  - Facilities properly designed?
- Is it congruent with the project design?
  - Site Plan
  - Grading and Drainage Plan
  - Landscaping Plan

# Four Questions for SCP Review

- Is it buildable?
  - Slopes
  - Soils
  - Setbacks and allowable uses
  - Other project requirements
- Is it the best design for this project?
  - Most effective stormwater treatment
  - Cost effective and maintainable
  - Best for municipality and community

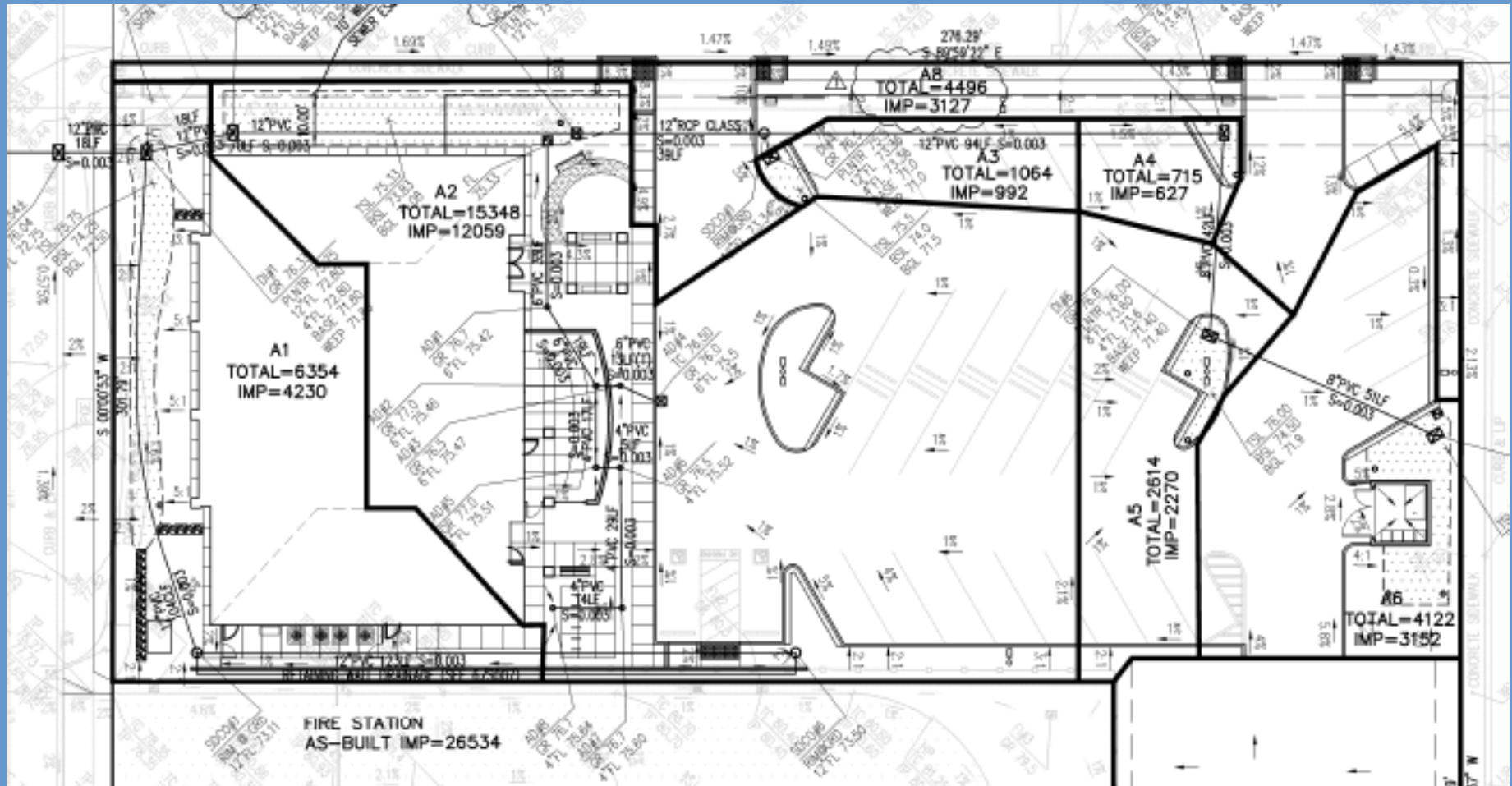
# Exhibit

- Entire site divided into DMAs
- Locations and sizes of LID facilities

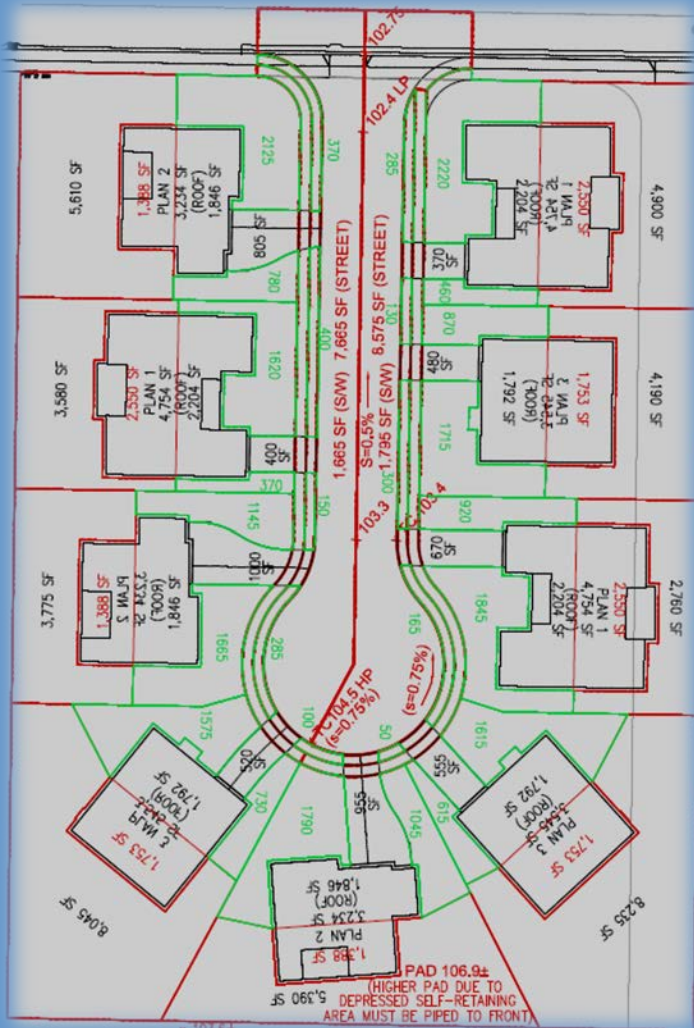




# Drainage Management Areas



# Surface Drainage



# Before Entitlements

- Delineation of DMAs is consistent with preliminary grading and drainage design
- Each bioretention facility is level and flat
- Facilities are shown in artist renderings
- Facilities do not create conflicts with vehicle and pedestrian circulation
- Landscaping plans show bioretention facilities with appropriate plant palette

# Bioretention Facilities

What to Look for During Plan Check

Dan Cloak

# Revisions to Preliminary Plans

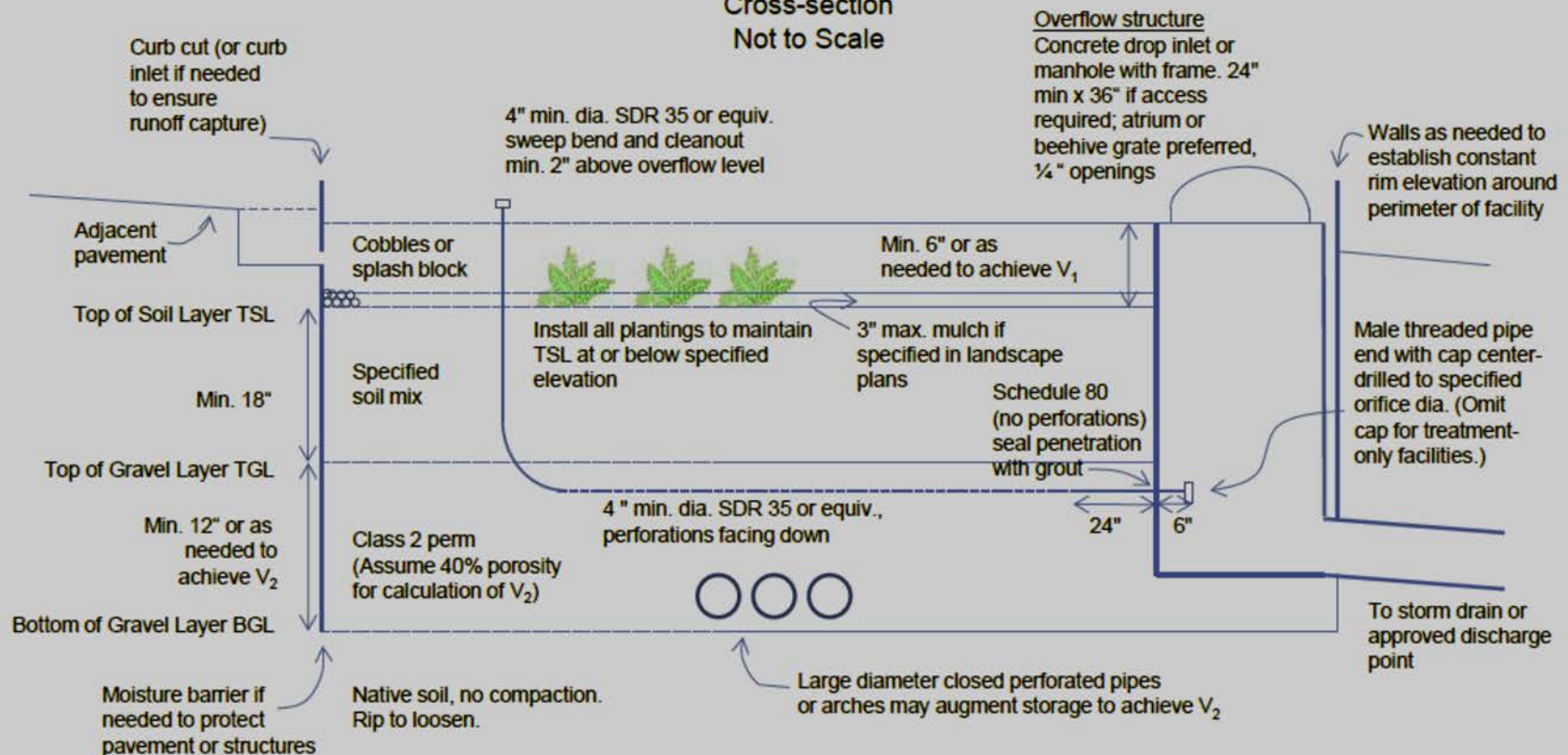
- Site Plan
- Grading and Drainage Plan
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# Bioretention Design Specs

## Bioretention Facility

Cross-section  
Not to Scale



### Notes:

- No liner, no filter fabric, no landscape cloth.
- Maintain BGL, TGL, TSL throughout facility area at elevations to be specified in plan.
- Class 2 perm layer may extend below and underneath drop inlet.
- Elevation of perforated pipe underdrain is near top of gravel layer, except when zero infiltration is expected.
- See Appendix B for soil mix specification, planting and irrigation guidance.
- See Chapter 4 for factors and equations used to calculate  $V_1$ ,  $V_2$ , and orifice diameter.

# Bioretention Functions

evapotranspiration

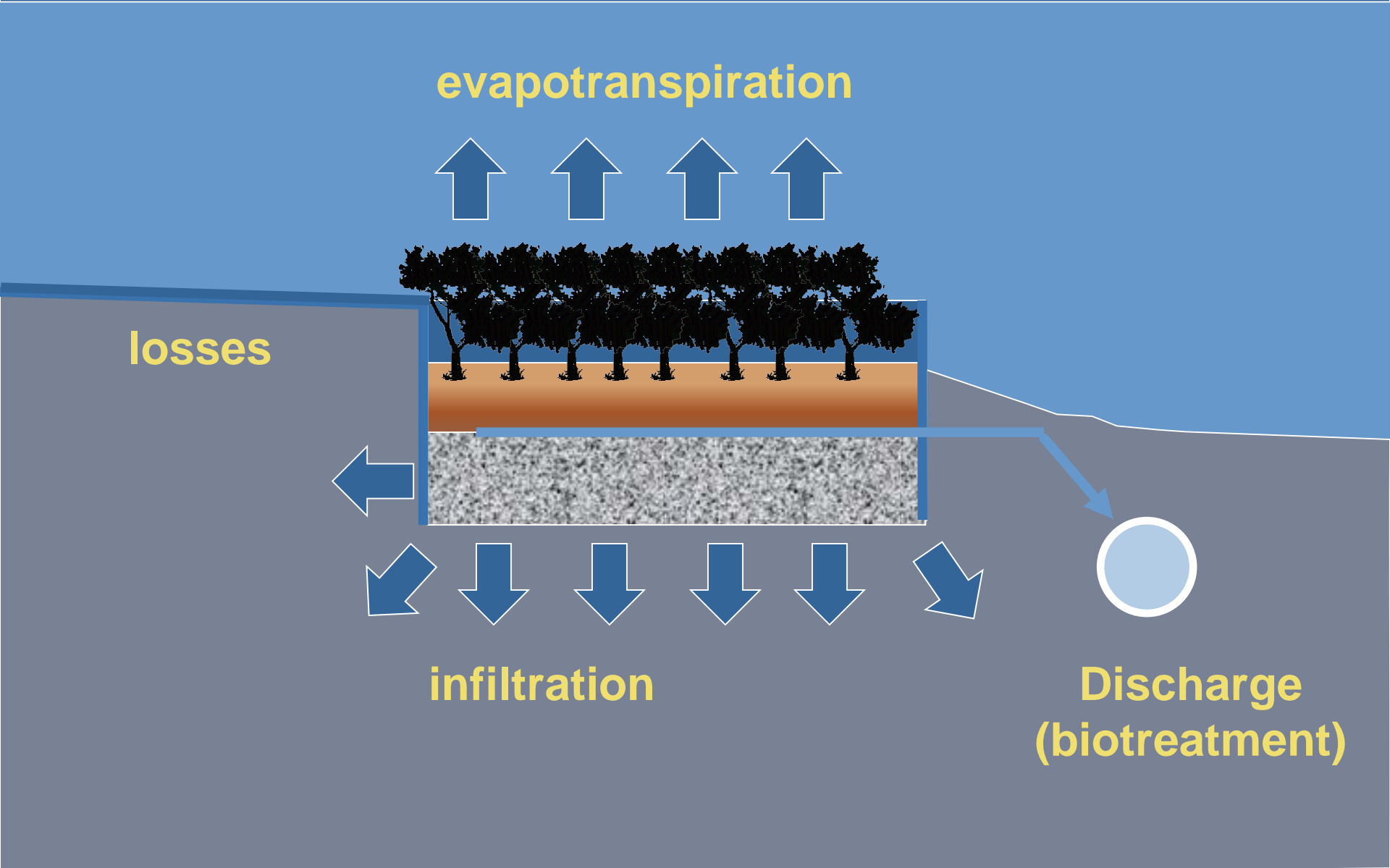


losses



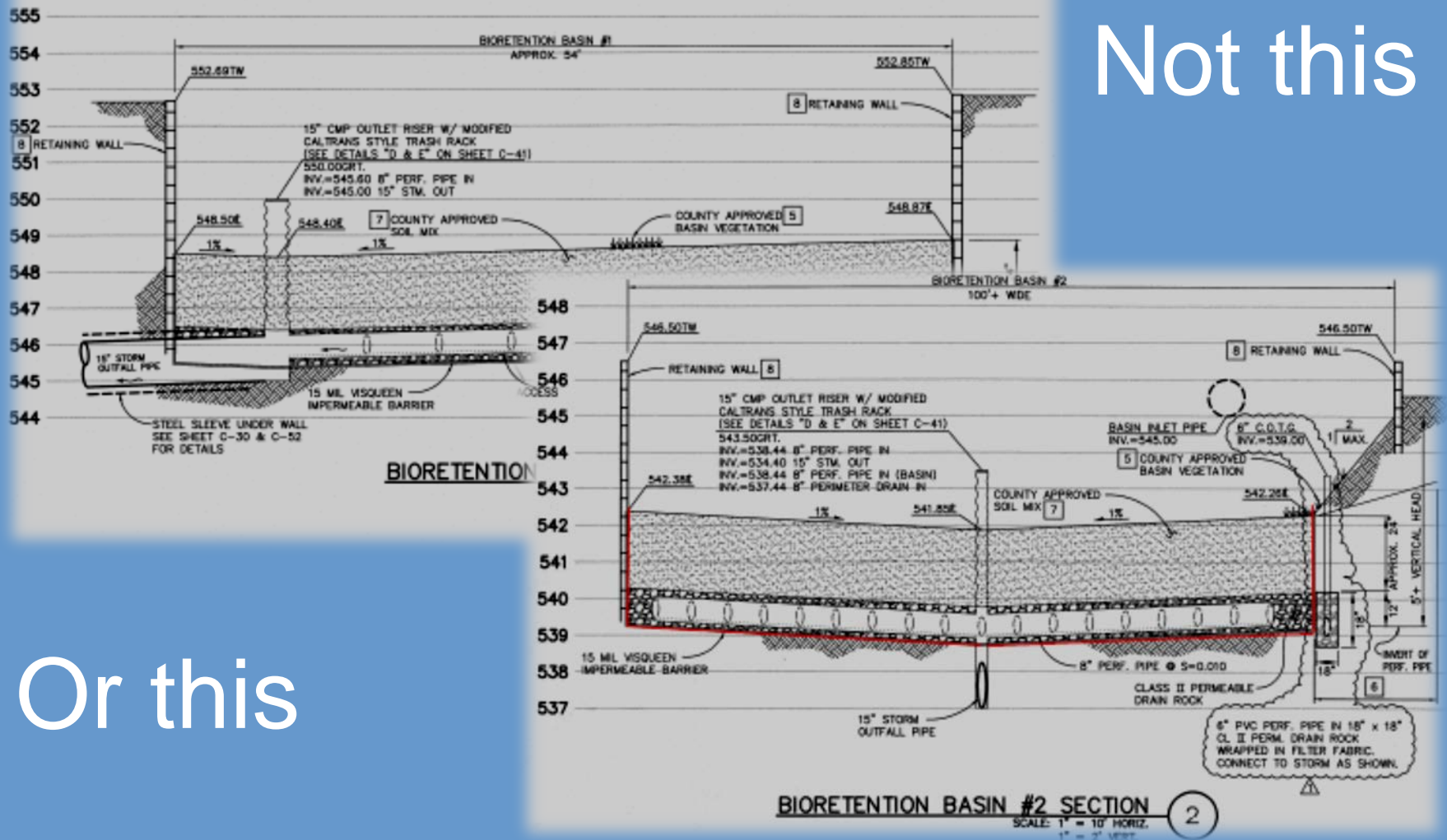
infiltration

Discharge  
(biotreatment)



# Flat with raised underdrain

Not this



Or this





# Overflow Elevation

Overflow  
elevation

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# Underdrain Elevation





# Protection of Adjacent Structures



# Utilities



# Discussion

# Inspecting Construction of Bioretention Facilities

Carlton Thompson and Jeff Cowling

# Reviewing Bioretention Soil Submittals

Dan Cloak, Carlton Thompson, and Jeff Cowling



# Background

On the bioretention soil specification

Dan Cloak

# Soil Specifications Milestones

- Early bioretention specifications called for “sandy loam” with a minimum infiltration rate of 5"/hr.
- Municipal staff developed a “bucket test” and then the “dirt bong” to check the infiltration rate
- Staff encountered difficulty obtaining consistent and repeatable results from test

# Soil Specifications Milestones

- More consistent results could be obtained by an engineered soil (sand/compost mix)
- Contra Costa developed and refined a specification (2008)
- MRP 1.0 (2009) required development of a soil specification for all Permittees
- Regional roundtable recommended Contra Costa's mix
- Specification added to permit (2011)

# Soil Specifications Milestones

- Permit Attachment L allows municipalities to accept a “brand-name” mix in lieu of site-specific testing
- CCCWP invited soil suppliers to submit samples and lab results for “brand name” mixes and be listed on website
- Some municipalities are using the bucket test or dirt bong to field-test delivered mix