Grading & Drainage Design

for Bioretention Facilities

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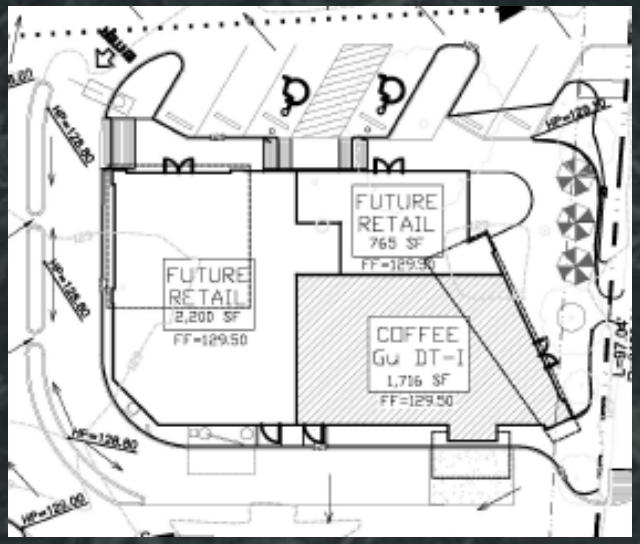
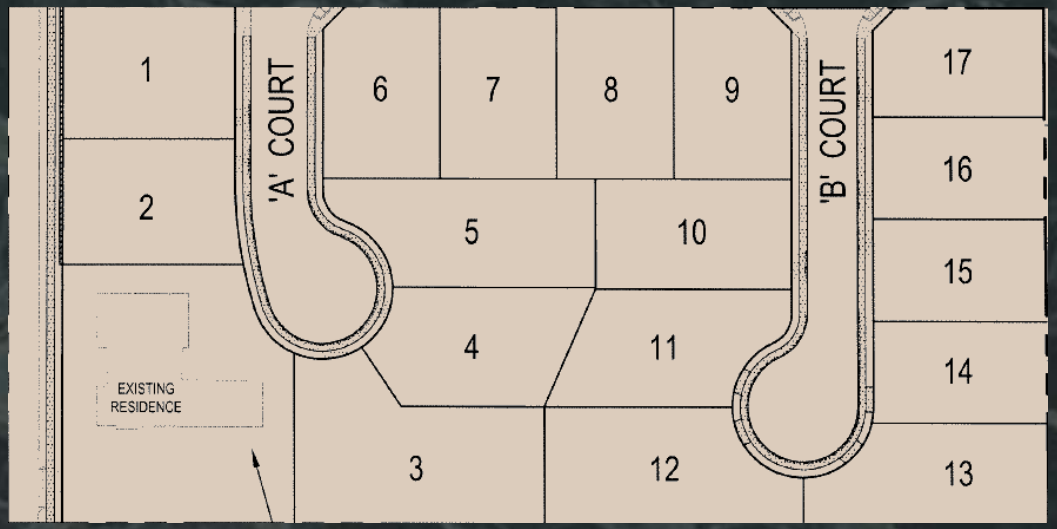
Overview

- Consider drainage early in the design process
- Find suitable sites for bioretention
- Use roof plans and grading/paving plans to analyze and display drainage management areas
- Distribute bioretention through the site
- Grade to distribute drainage to among inlets
- Use the head from roof leaders to move roof runoff
- Avoid utility conflicts

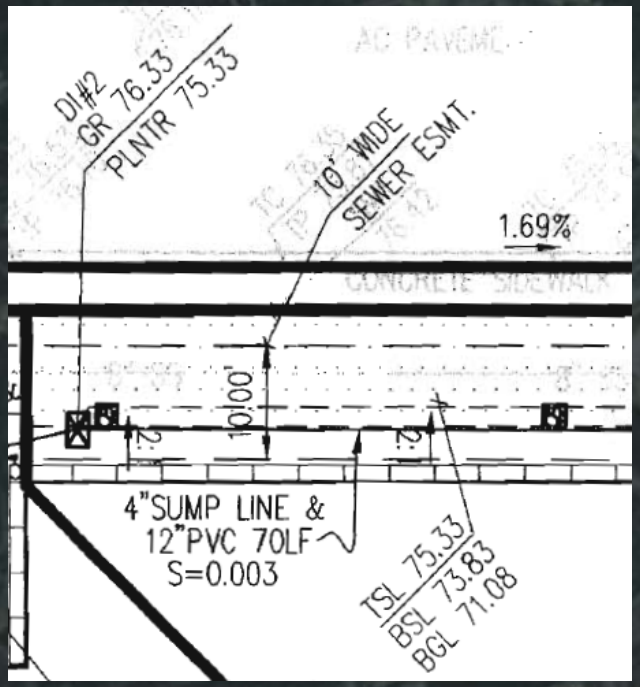
Consider Drainage Early





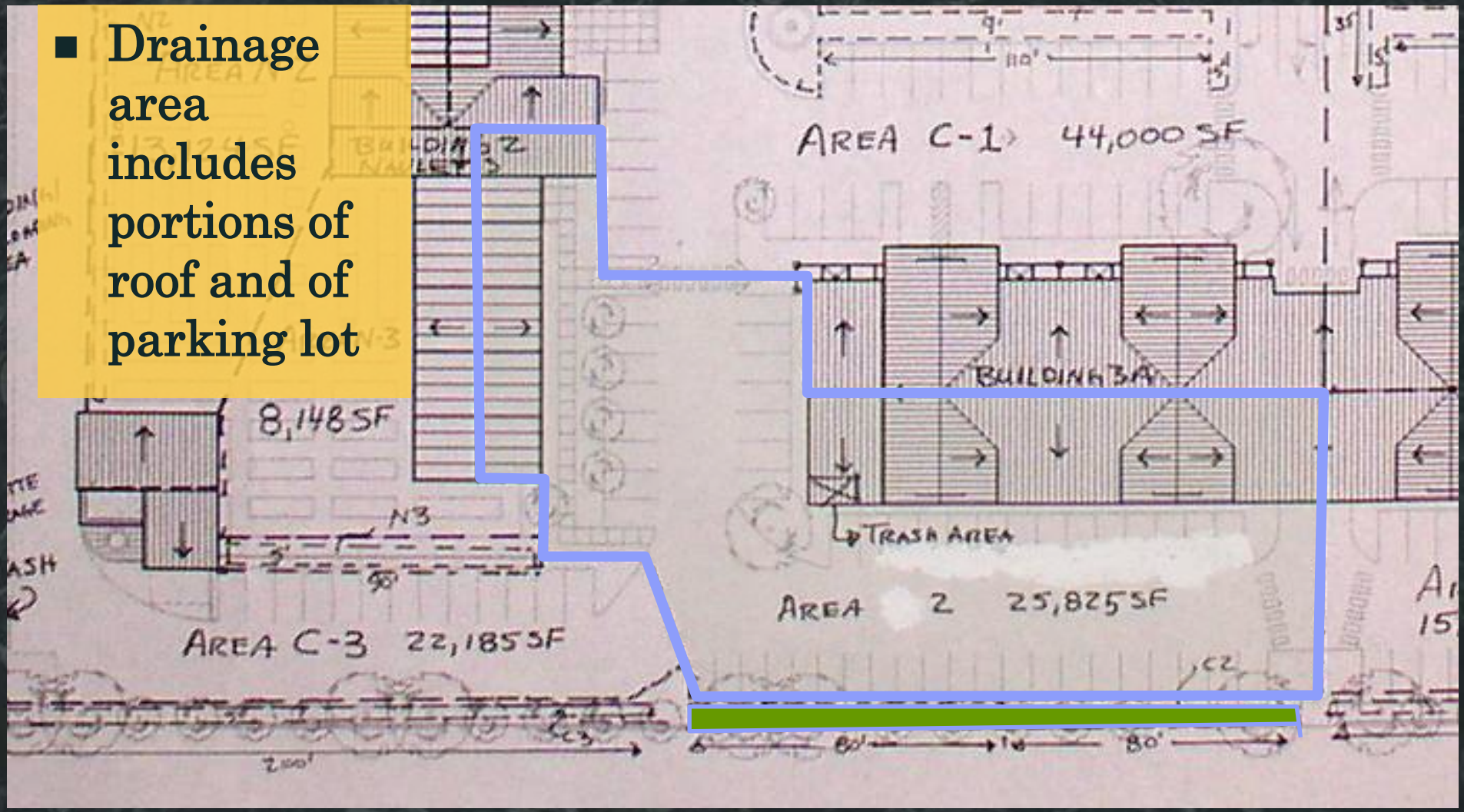
Suitable Sites

- Find suitable sites for bioretention
  - Downgradient
  - Unbuildable
  - Aesthetic



Roof and Grading Plans

- Drainage area includes portions of roof and of parking lot



Distribute through the site

- Facilitates mimicking pre-development hydrology of site
- Keeps drainage runs short and shallow
- Avoid creating barriers to circulation

Distribute throughout site

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- On steep sites consider:
  - Integrating bioretention facilities with terracing
  - Collecting runoff in the conventional way and piping to bioretention facilities at the base of the slope

Distribute runoff

- Avoid conventionally swaled pavement

Tightline Roof Leaders

- Use the head from roof leaders to move roof runoff

Utility Conflicts

- Avoid conflicts with existing underground utilities
- Avoid conflicts with newly installed utilities