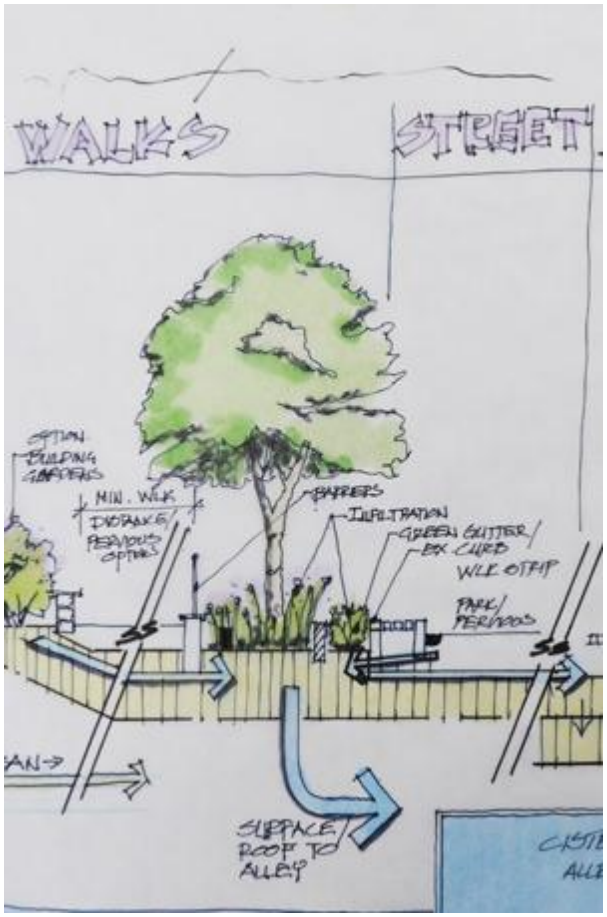
Reconstruction of Existing Public Right-of-Way (PROW)

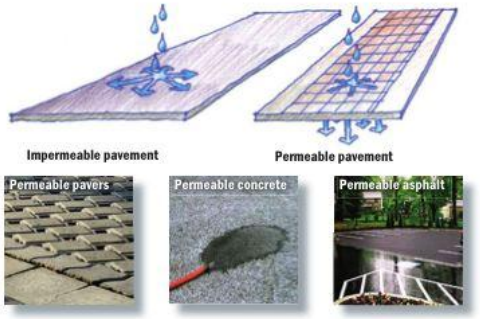
MEP tailored to the streetscape portion of a Major Regulated Project


AVEDA
BED BATH &
BEYOND


capital bikeshare

Rain gardens will reduce runoff from storms.

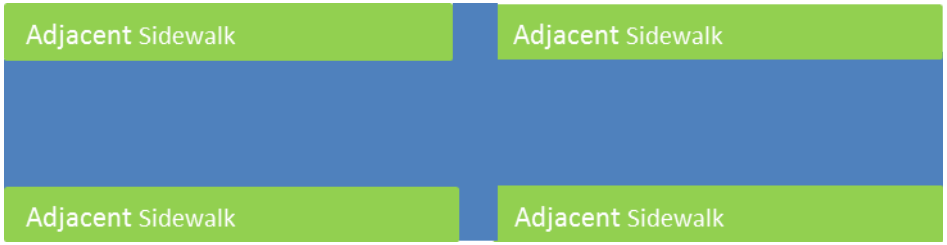




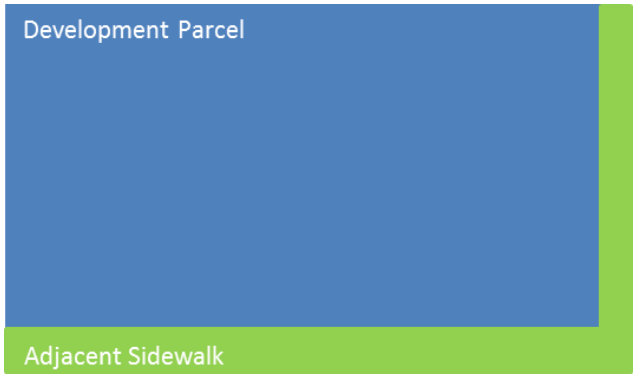
When PROW MEP applies…

Reconstruction of existing public right-of-way

- Type 1: federal or municipal
  - roads, alleys, sidewalks, trails, etc.

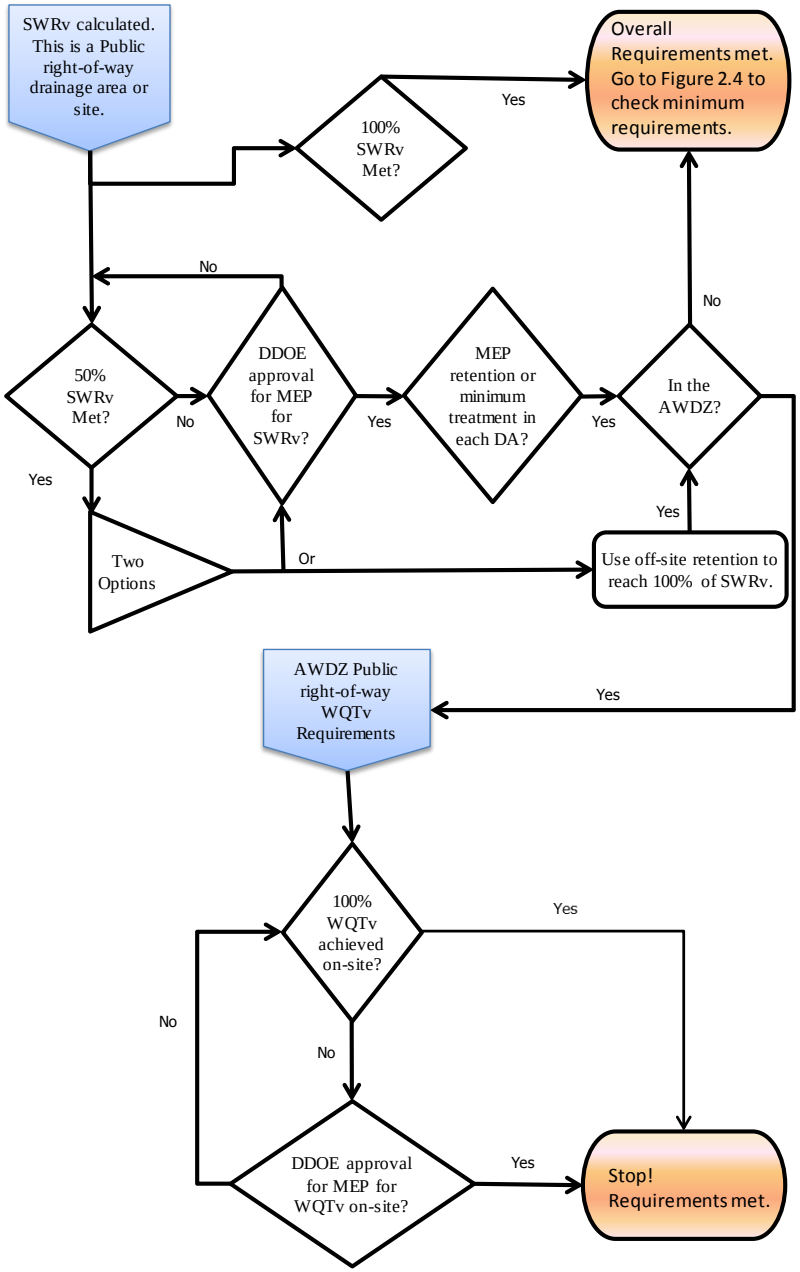


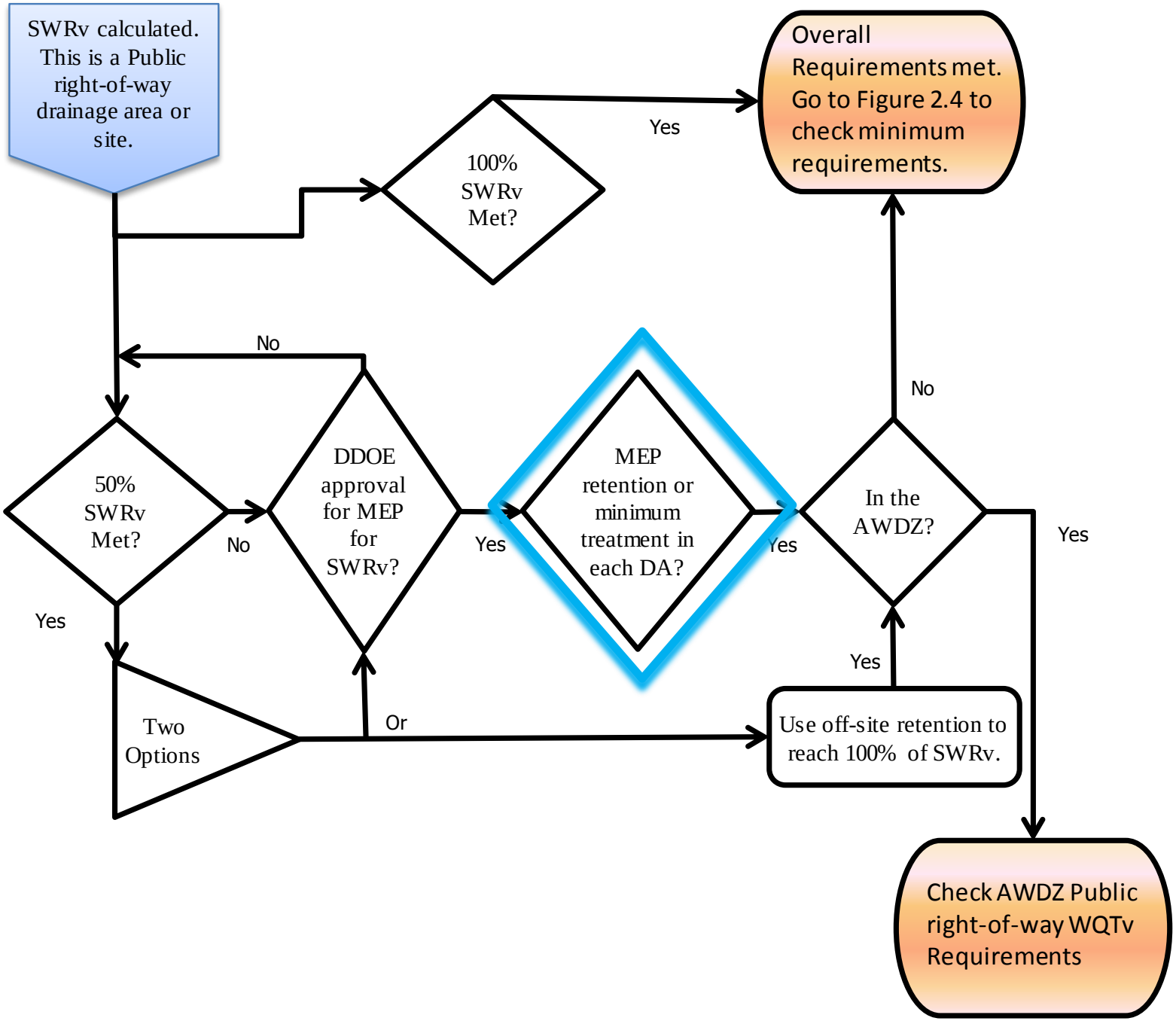
- Type 2: private development
  - adjacent sidewalks and alleys



When PROW MEP does **not** apply…

- A major regulated project that does not disturb the adjacent public right-of-way
- Voluntary retrofits of existing PROW
- PROW disturbance that is limited to
  - Trenches
  - Driveways
  - Utilities
  - Aprons
  - Minor disturbance


SWRv calculated. This is a Public right-of-way drainage area or site.
100% SWRv Met?
Yes
Overall Requirements met. Go to Figure 2.4 to check minimum requirements.
No
50% SWRv Met?
No
DDOE approval for MEP for SWRv?
Yes
MEP retention or minimum treatment in each DA?
Yes
In the AWDZ?
No
Yes
Two Options
Or
Use off-site retention to reach 100% of SWRv.
Yes
AWDZ Public right-of-way WQTv Requirements
100% WQTv achieved on-site?
Yes
No
No
DDOE approval for MEP for WQTv on-site?
Yes
Stop! Requirements met.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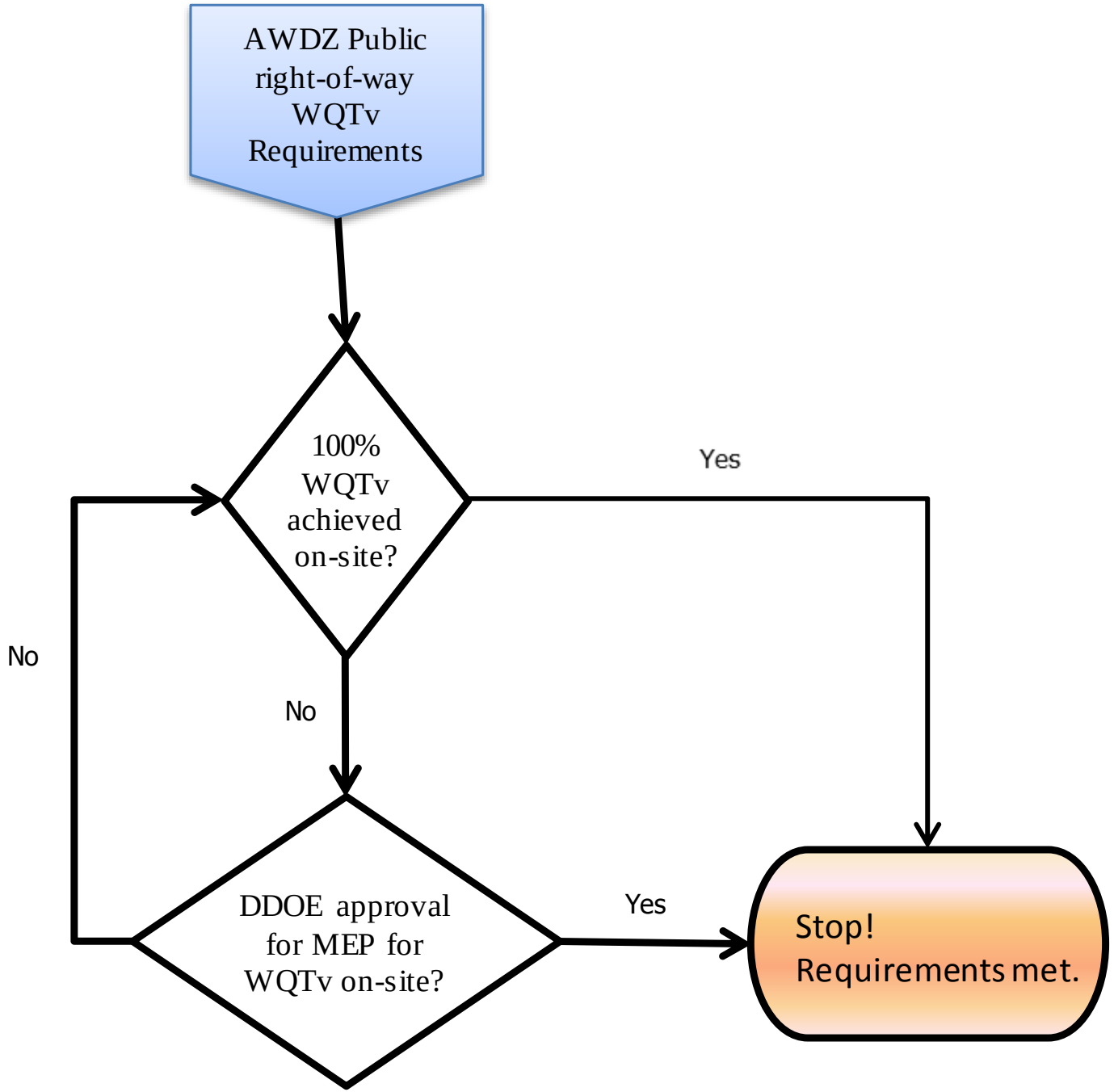
Check AWDZ Public right-of-way WQTv Requirements


AWDZ Public right-of-way WQTv Requirements
100% WQTv achieved on-site?
Yes
No
No
DDOE approval for MEP for WQTv on-site?
Yes
Stop! Requirements met.

Principles of PROW MEP include…

- Maximize BMP placement
- Maximize BMP sizing
- Innovate--integrate “green” with “grey” infrastructure
- Minimize impervious widths
- Maximize land cover types with little stormwater runoff
- Maximize tree canopy
  - planting or preserving trees, amending soils, increasing soil volumes and connecting tree roots with stormwater runoff
- Use impervious surface disconnection strategies
  - e.g., draining sidewalk area to continuous tree planting strip
- Manage comingled stormwater runoff
  - prioritize the conveyance and control of roadway runoff
  - over-control the roadway runoff beyond LOD to compensate for less retention elsewhere
- Use porous pavement or pavers for low traffic roadways, on-street parking, shoulders or sidewalks
- Integrate BMPs into traffic calming measures

Type 2 MEP steps include…

- Calculate SWRv
- Prioritize managing roadway runoff inside the curb line
- Place, size and design PROW BMPs to maximize retention
  - Stormwater Management Guidebook Chapter 3 BMP specifications
  - Stormwater Management Guidebook Appendix B BMP priorities and limitations
  - General Retention Calculator Spreadsheet
  - DDOT LID Standards and Specifications
    http://dc.gov/DC/DDOT/Projects+and+Planning/Environment/Low+Impact+Development
- AWDZ requires WQTv

Limitations on Maximizing Retention

- Low infiltration rate, low head, topography
- Minimal surface area, or CDA, for BMP type
- High volume usage for BMP type or land cover conversion
- Building egress and exit demands
- Utilities, above & below ground
- Hotspots
- Safety issues, view lines
- Existing shade trees in good condition
- DDOT standards and guidelines

Parcel PROW MEP review process?

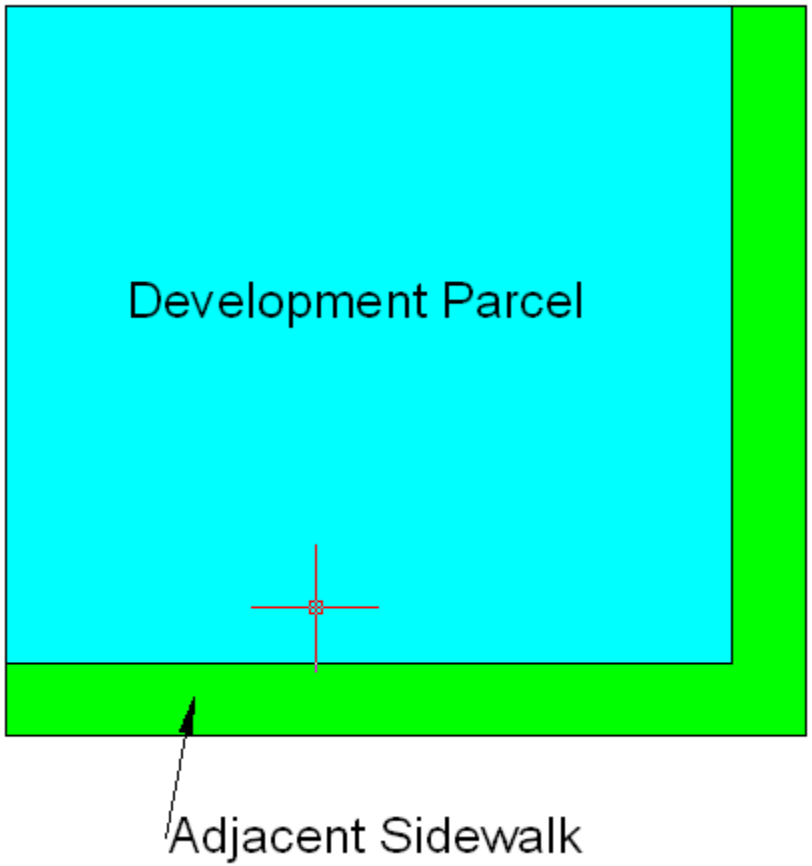
- Appendix B & E: follow the memo format with supporting documentation
  - Tables and charts
  - Maps, plan view
  - Narrative
- Submitted after the 65% design to ensure sufficient documentation to support claim if less then the full performance standard is anticipated.

Design Example: Scenario

- Corner property includes 200’ x 10’ adjacent PROW disturbance (sidewalk)
- SWRv = 1.2” x (0.95x100%) x 2000 sf x 7.48/12
- SWRv = 1,421 gallons

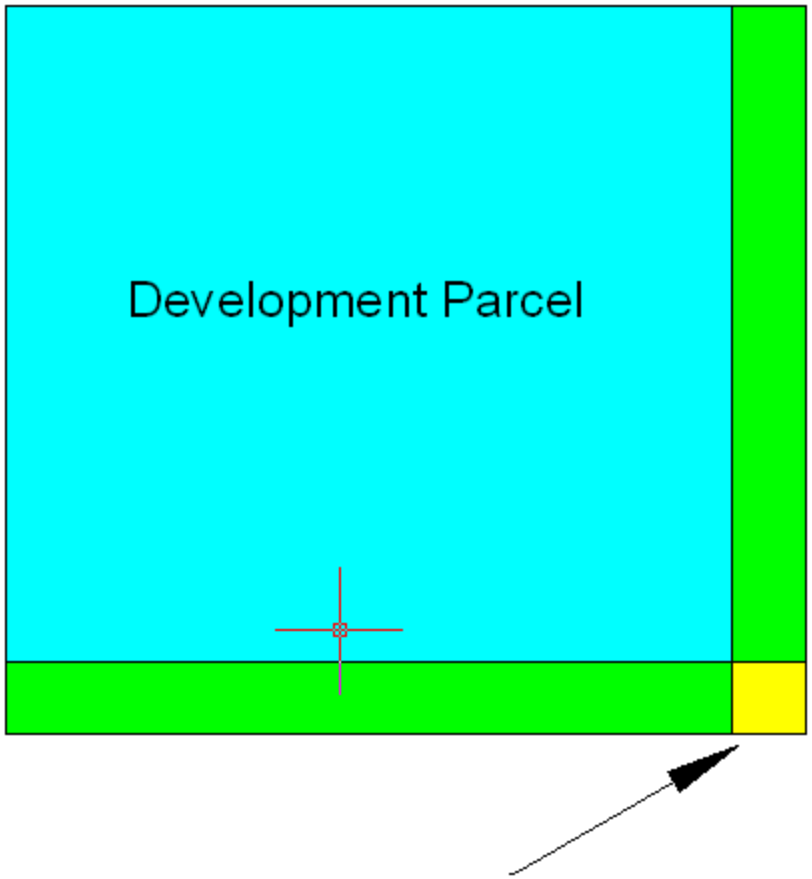
- Poor infiltration rate on site
- Sufficient head available for underdrain connections.

Design Example: Site Plan



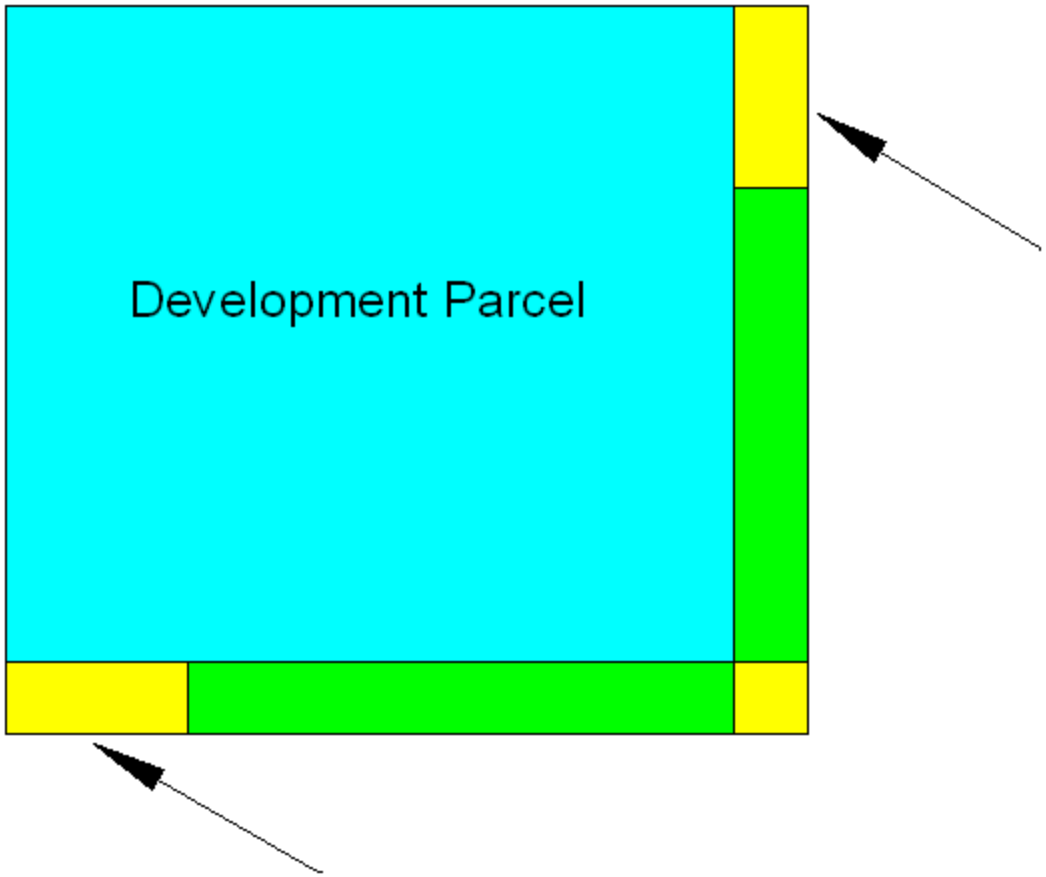
Design Example: Limitations

- ADA Crossing Requirements



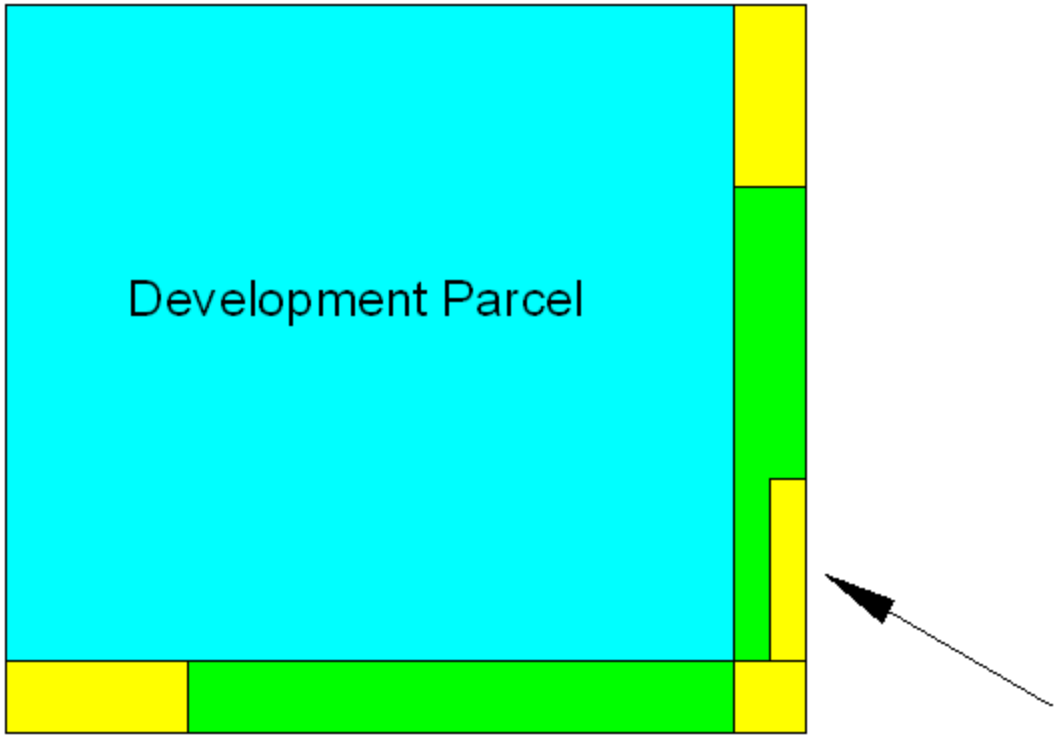
Design Example: Limitations

- Driveways



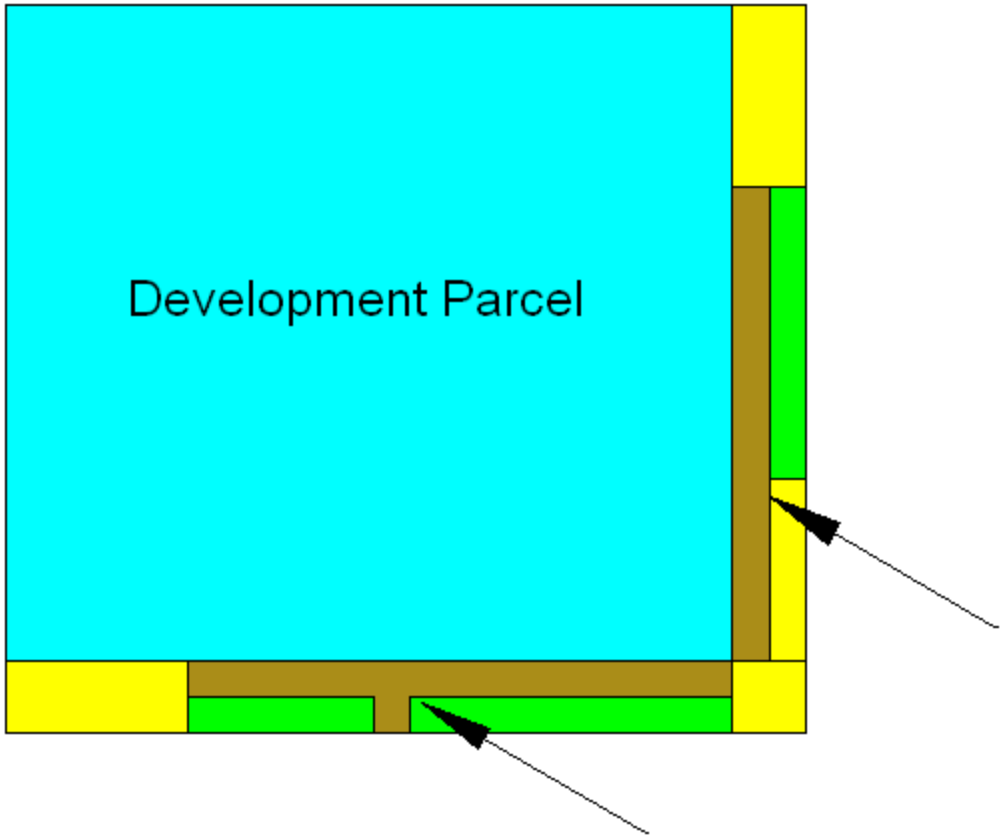
Design Example: Limitations

- Bus Stop



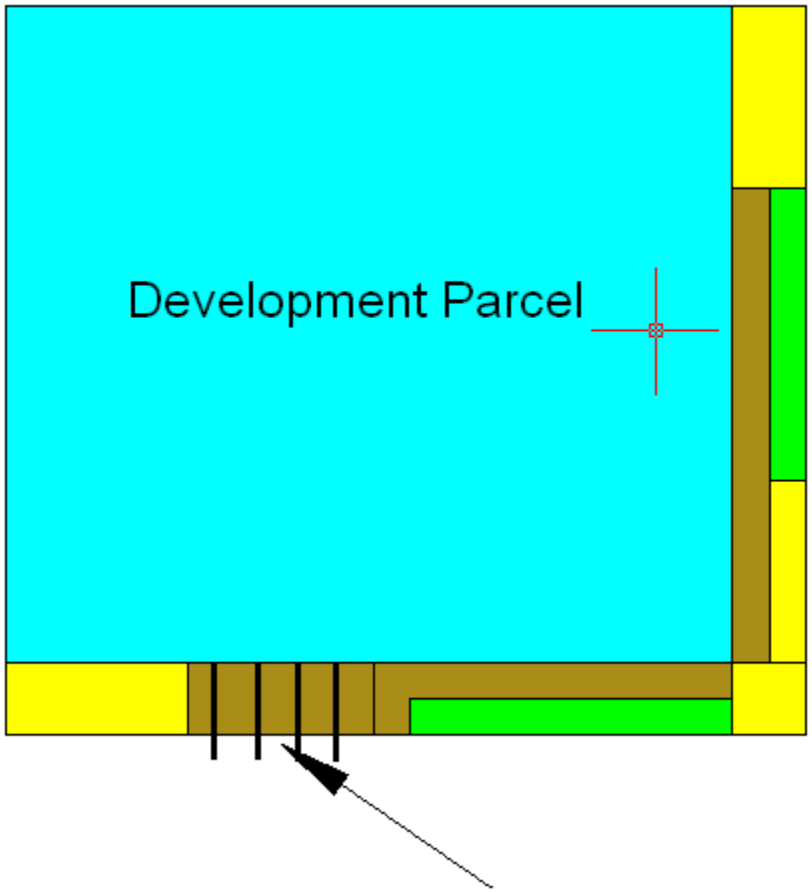
Design Example: Limitations

- Building Exit and 5’-Wide Sidewalk



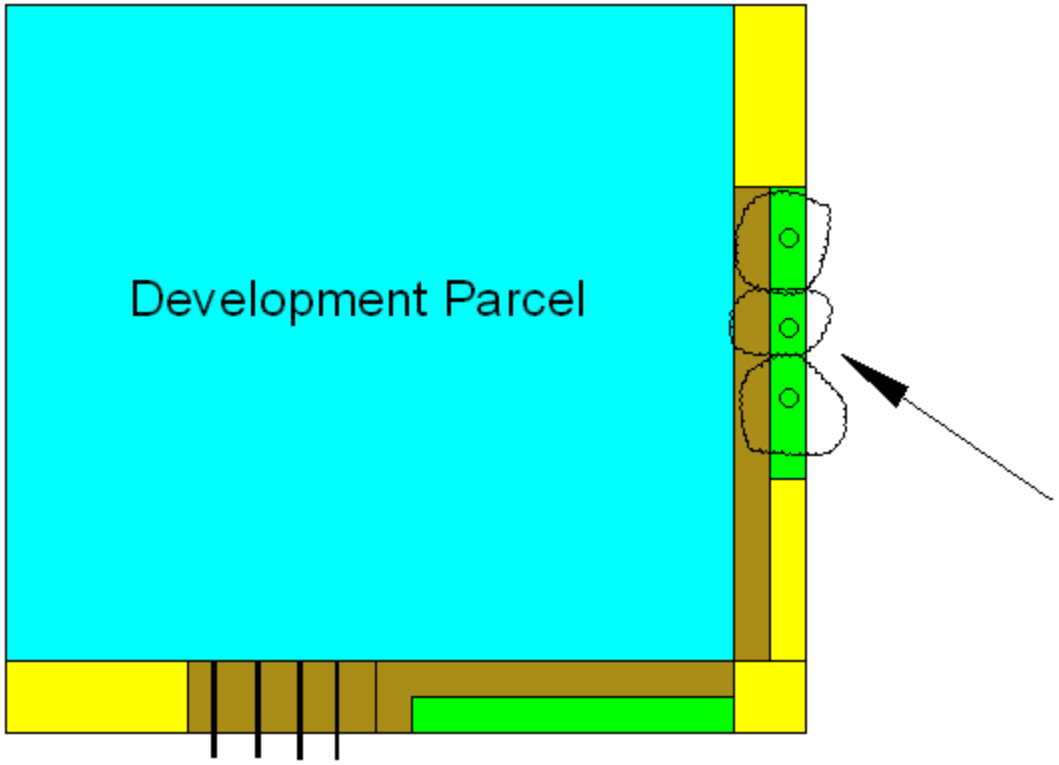
Design Example: Limitations

- Utilities



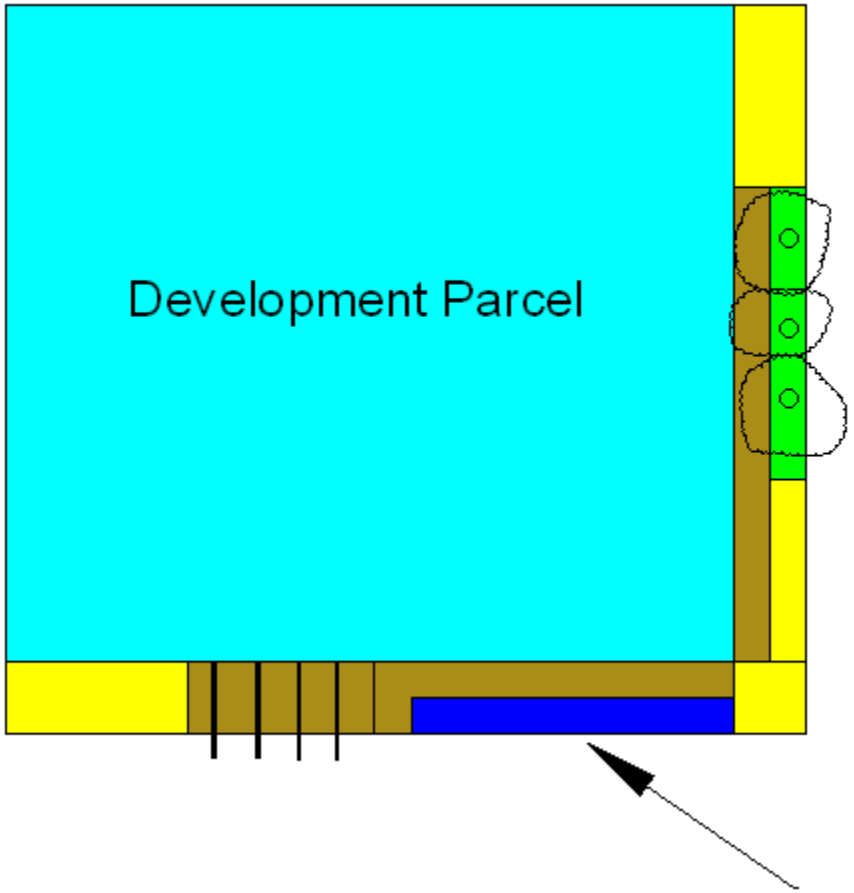
Design Example: Limitations

- Existing Trees



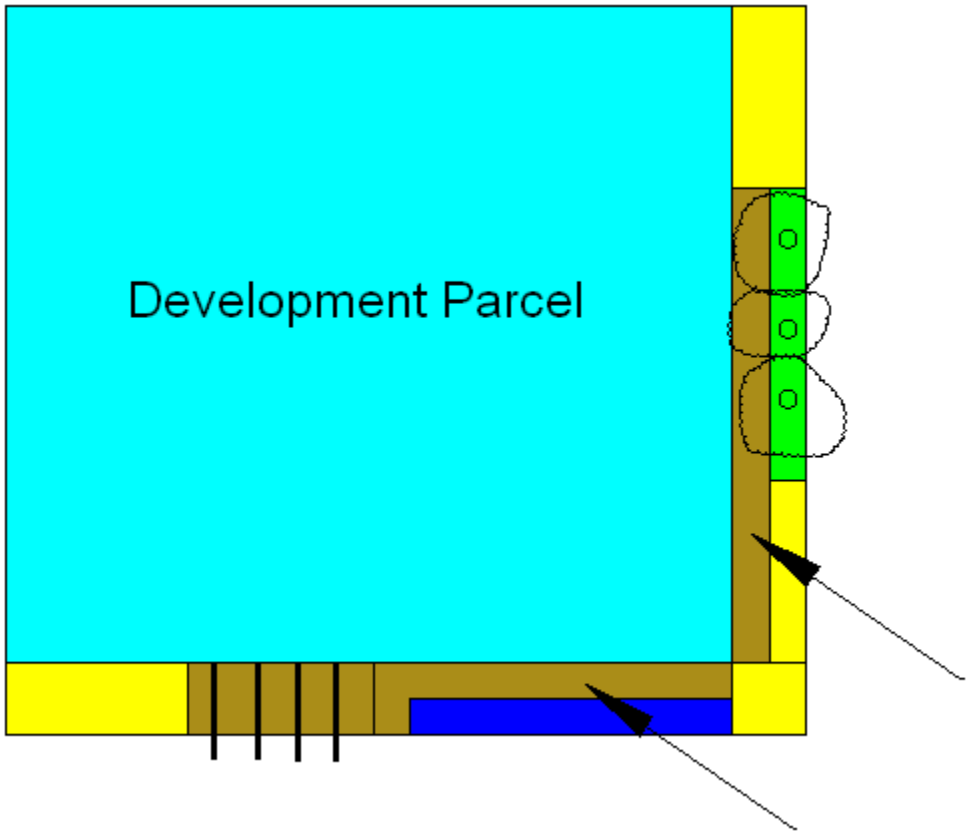
Design Example: BMPs

- Bioretention



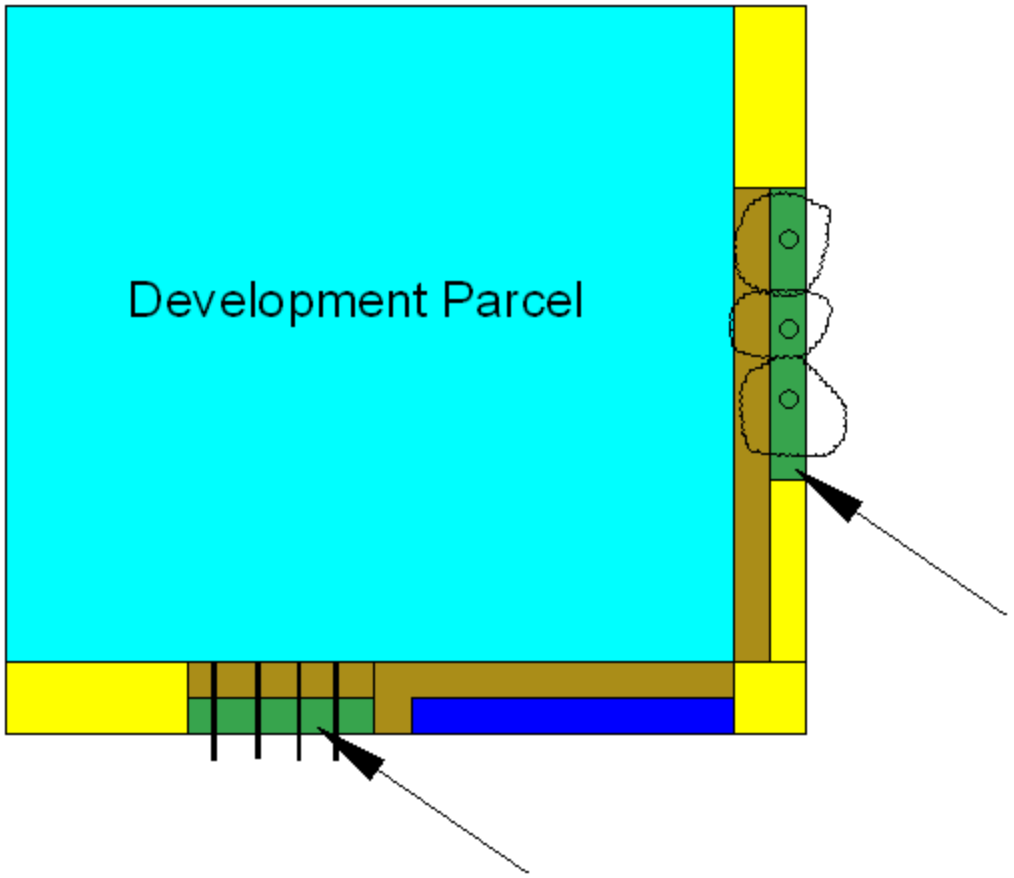
Design Example: BMPs

- Permeable Pavement considered, but trees and utilities limit space available and much of remaining sidewalk drains to bioretention area.



Design Example: BMPs

- Reduce Impervious Cover



Design Example: Results

- Recalculate SWRv for Reduced Impervious Cover:
- SWRv =

  1.2” × (0.95 × 84% + 0.25 × 16%) x 2,000 sf × 7.48/12
- SWRv = 1,254 gallons

- Poor infiltration rate on site
- Sufficient head available for underdrain connections.

Design Example: Results

- SWRv Achieved:
- 3 existing trees × 20 cf × 7.48 = 449 gallons
- 220 sf bioretention area (with shallow ponding) provides 823 gallons of storage
- 823 gallons x 0.6 = 494 gallons
- SWRv Achieved = 943 gallons

- Required SWRv not met, but MEP process followed.