Carter Barron Retrofit Project

Public Stakeholder Meeting
September 19, 2017

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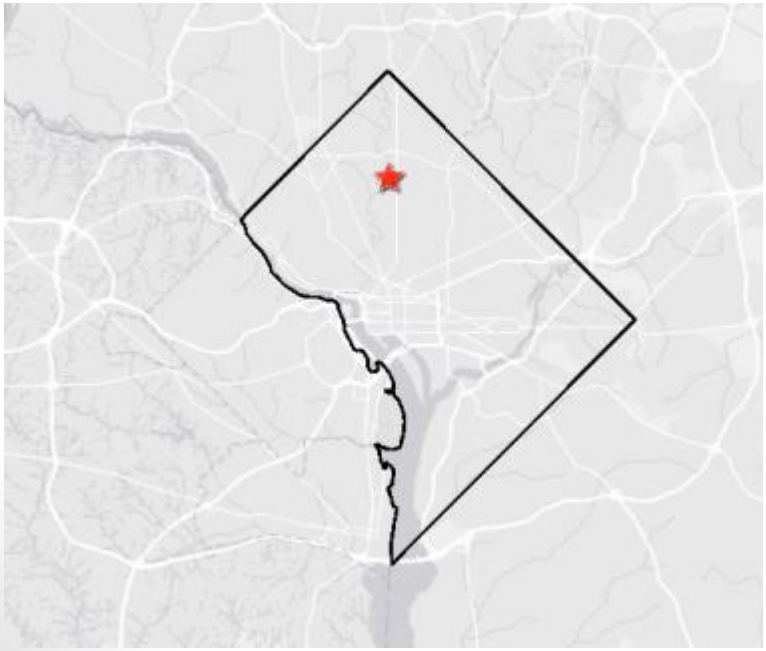
District Department of Energy and Environment

DEPARTMENT OF ENERGY & ENVIRONMENT

Agenda

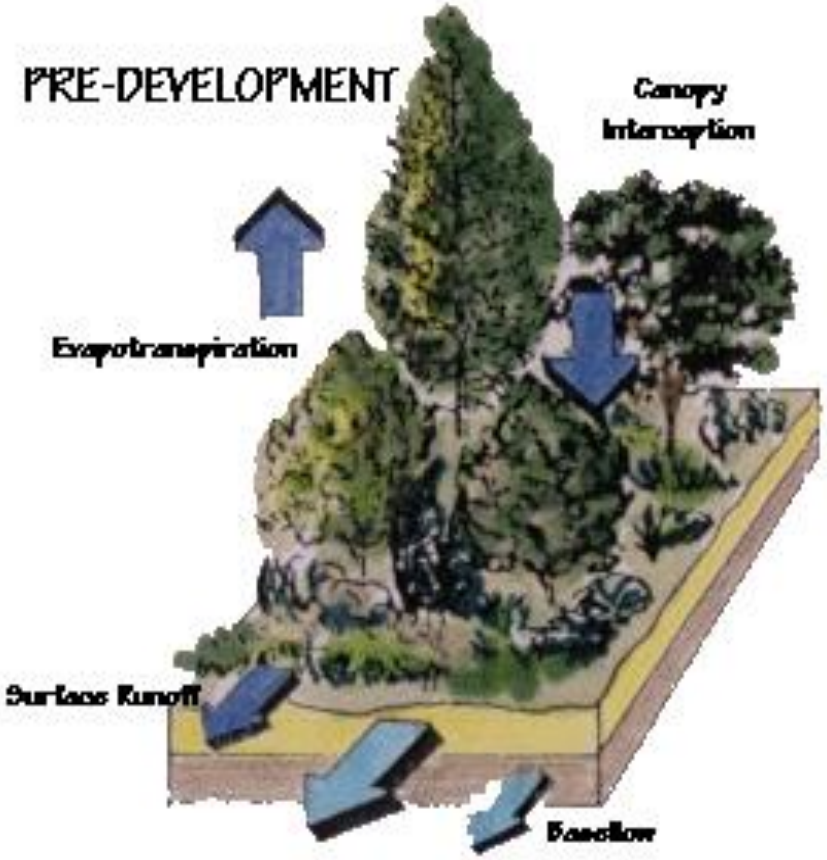
- Project Area & Background
- Potential Opportunities
- Timeline
- Q&A

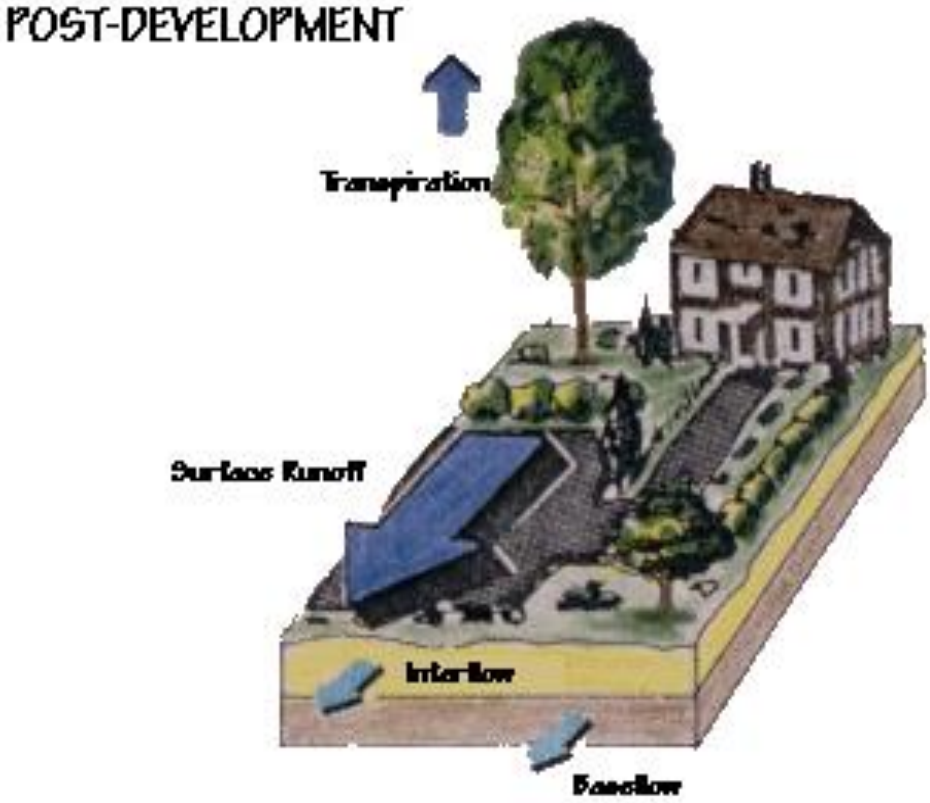
Project Location



BACKGROUND

WATER BALANCE





Problem of Stormwater Pollution

Background

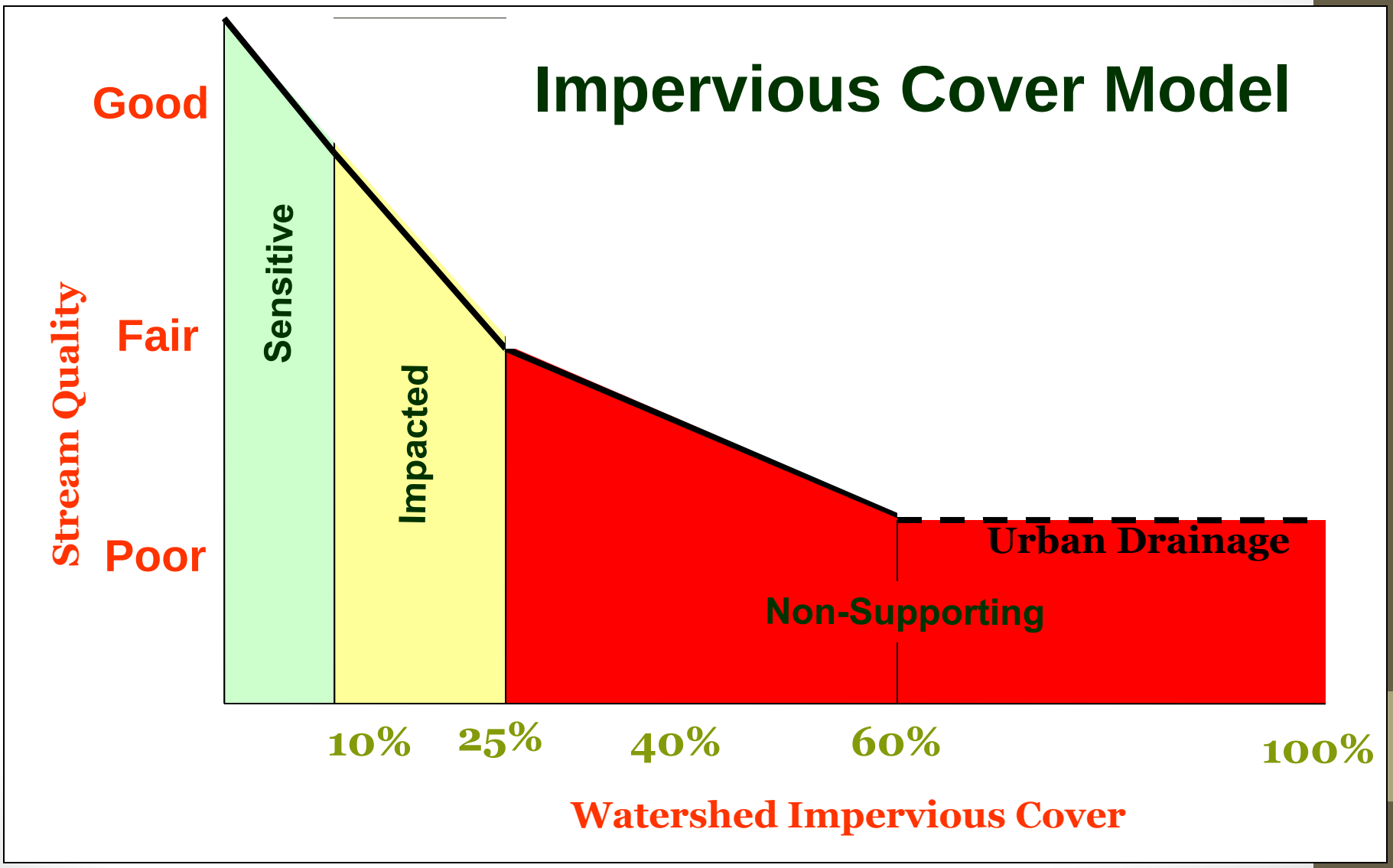
Blagden Run watershed

- 240 acres
- Averages 69% impervious cover

Project Site

- Located in headwaters of Blagden Run watershed
- 11 acre site
- Contains ~ 15% of IC in watershed
- Large impervious area developed prior to stormwater management requirements
- Stormwater leaves the site through 5 outfalls

The Original Model

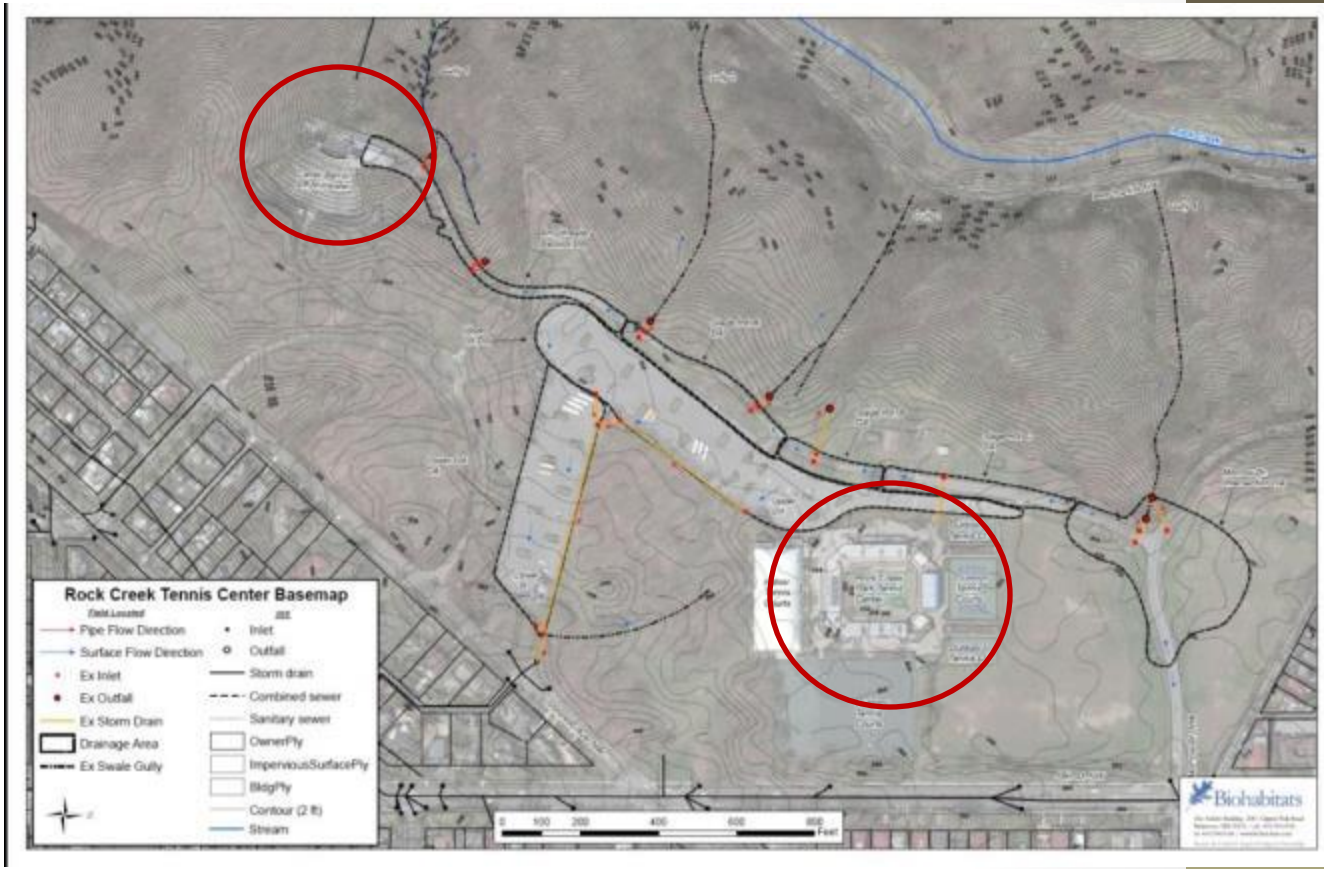


Assumptions

- Treat maximum amount of stormwater from the site in the most cost effective way
- Work within the original limit of disturbance
- Minimal impacts to the community
- Educational opportunities

Existing Conditions

- Eroded gullies
- Standing water
- Wide roads
- Turf cover
- Well used



Stormwater from Morrow Drive NW

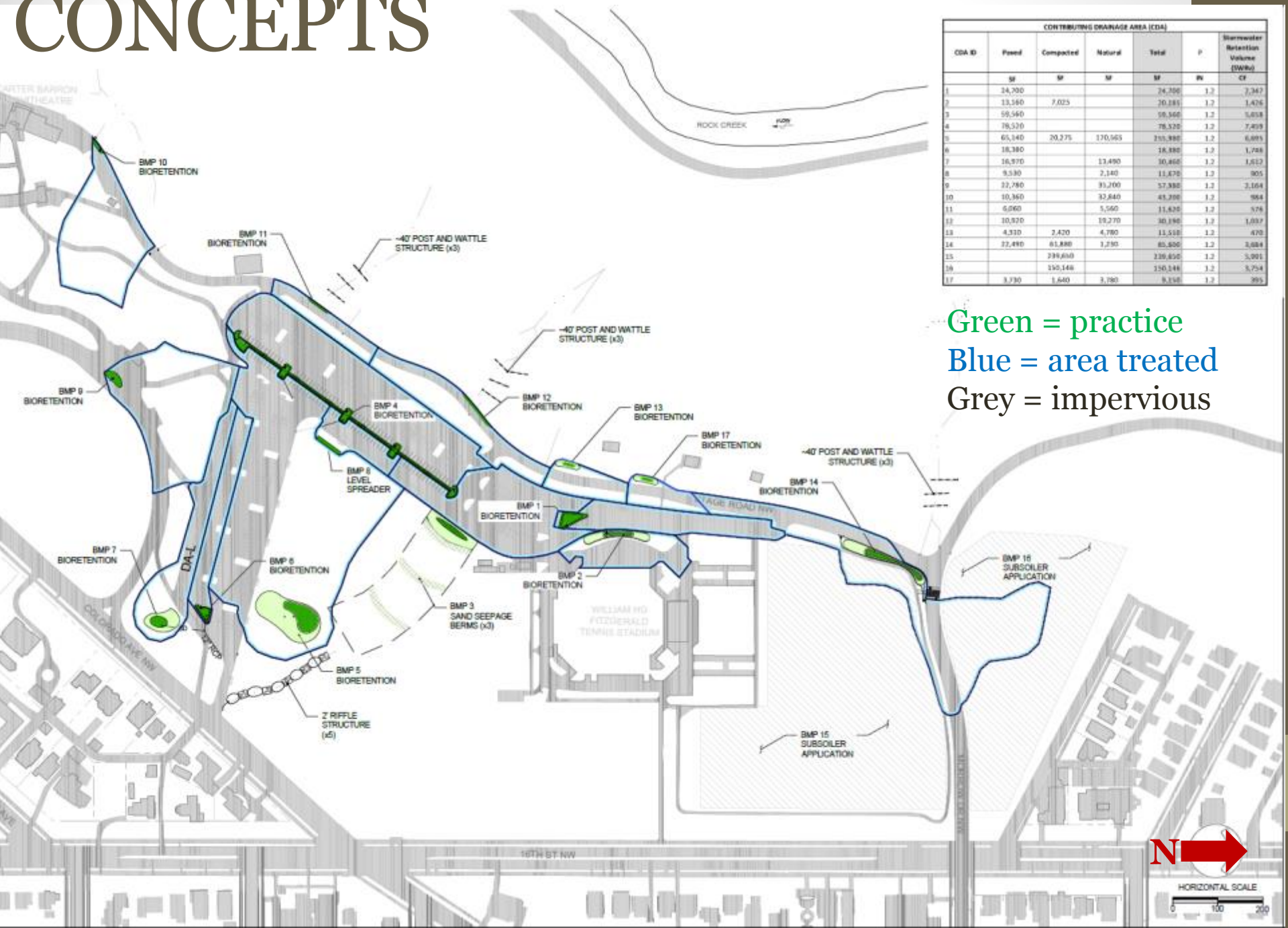
Gully erosion

Objectives

The proposed approaches all work the same way: they collect stormwater runoff and use or mimic natural processes that result in the infiltration, evapotranspiration or use of stormwater in order to protect water quality and associated aquatic habitat (EPA).

Slow it down, Spread it Out, Soak it In !

CONCEPTS



CONTRIBUTING DRAINAGE AREA (CDA)

CDA ID	Paved	Compacted	Natural	Total	P	Stormwater Retention Volume (SWRv)
	SF	SF	SF	SF	IN	CF
1	24,700			24,700	1.2	2,347
2	13,160	7,025		20,185	1.2	1,476
3	59,560			59,560	1.2	5,658
4	78,320			78,320	1.2	7,439
5	65,140	20,275	170,565	255,980	1.2	6,895
6	18,380			18,380	1.2	1,746
7	16,970		13,490	30,460	1.2	1,612
8	9,530		2,140	11,670	1.2	905
9	22,780		35,200	57,980	1.2	2,164
10	10,360		32,840	43,200	1.2	984
11	6,060		5,560	11,620	1.2	576
12	10,920		19,270	30,190	1.2	1,037
13	4,330	2,420	4,780	11,530	1.2	470
14	22,490	61,880	1,230	85,600	1.2	3,684
15		239,650		239,650	1.2	5,991
16		150,146		150,146	1.2	3,754
17	3,730	1,640	3,780	9,150	1.2	355

Green = practice
Blue = area treated
Grey = impervious

Highlights

17 Potential Practices

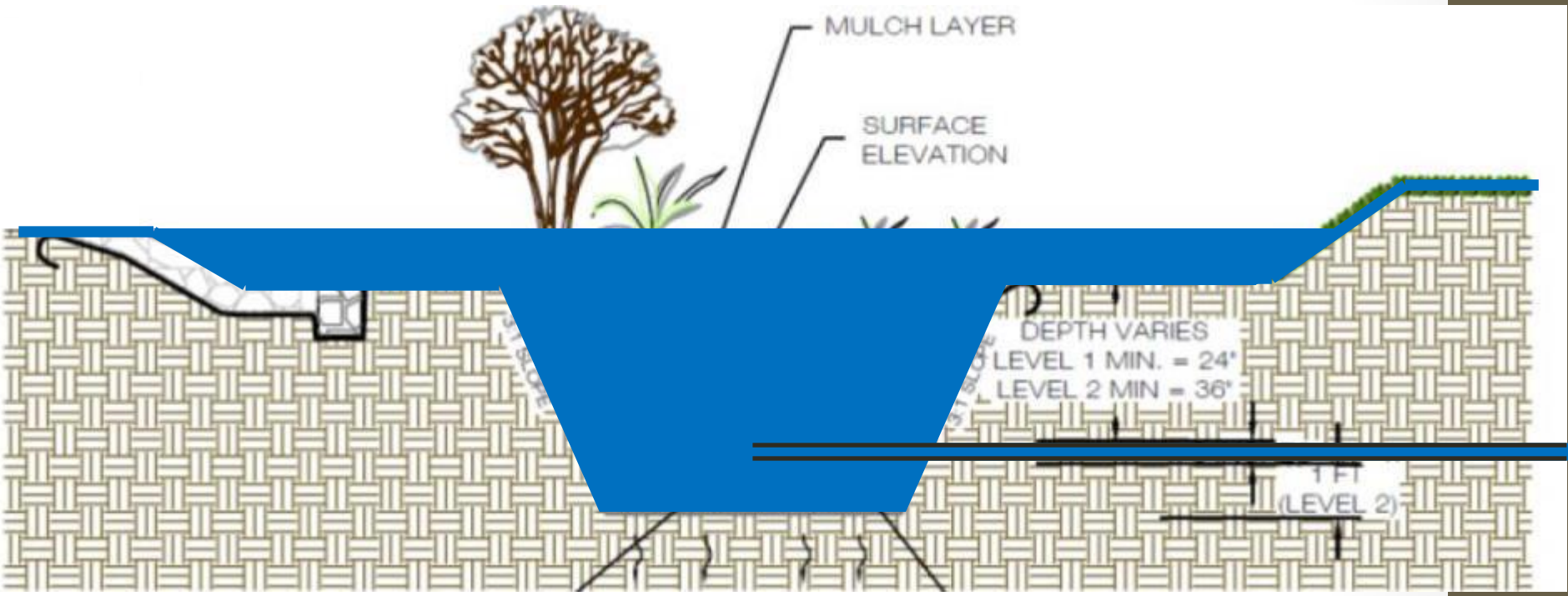
- 13 Bioretention systems
- 1 Sand seepage berm
- 1 Level Spreader
- 2 Subsoiling

Able to capture and treat most of the site

Bioretention examples

Stormwater runoff flows into a bioretention facility and temporarily ponds. Water is either used by the vegetation or slowly filters through an engineered filter bed where it is either collected by the underdrain and sent to the storm sewer system or infiltrates into the surrounding area.

Bioretention: How it works



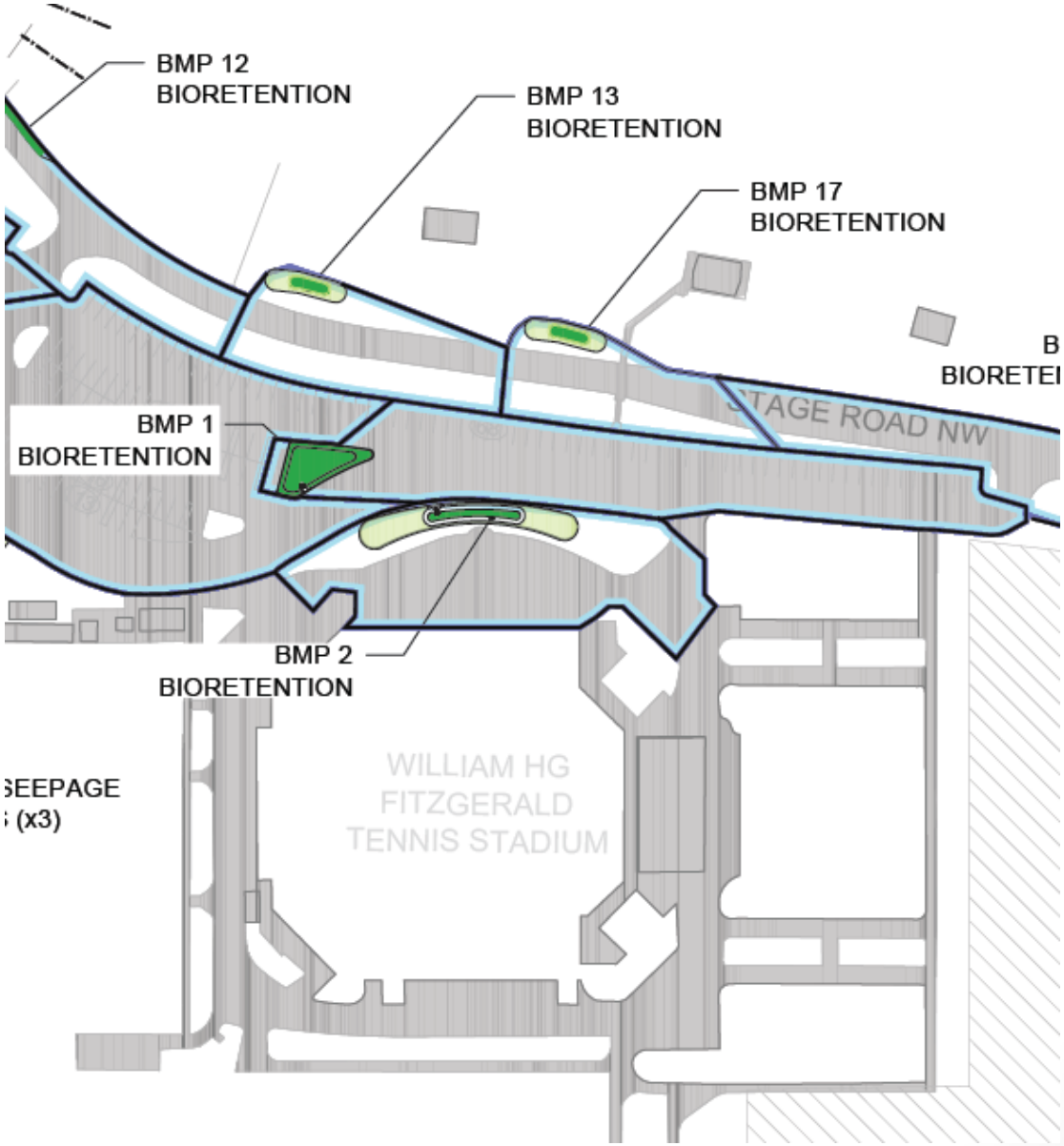
Different applications of bioretention

Alongside roadways

“Bump-out” bioretention

In parking lot medians

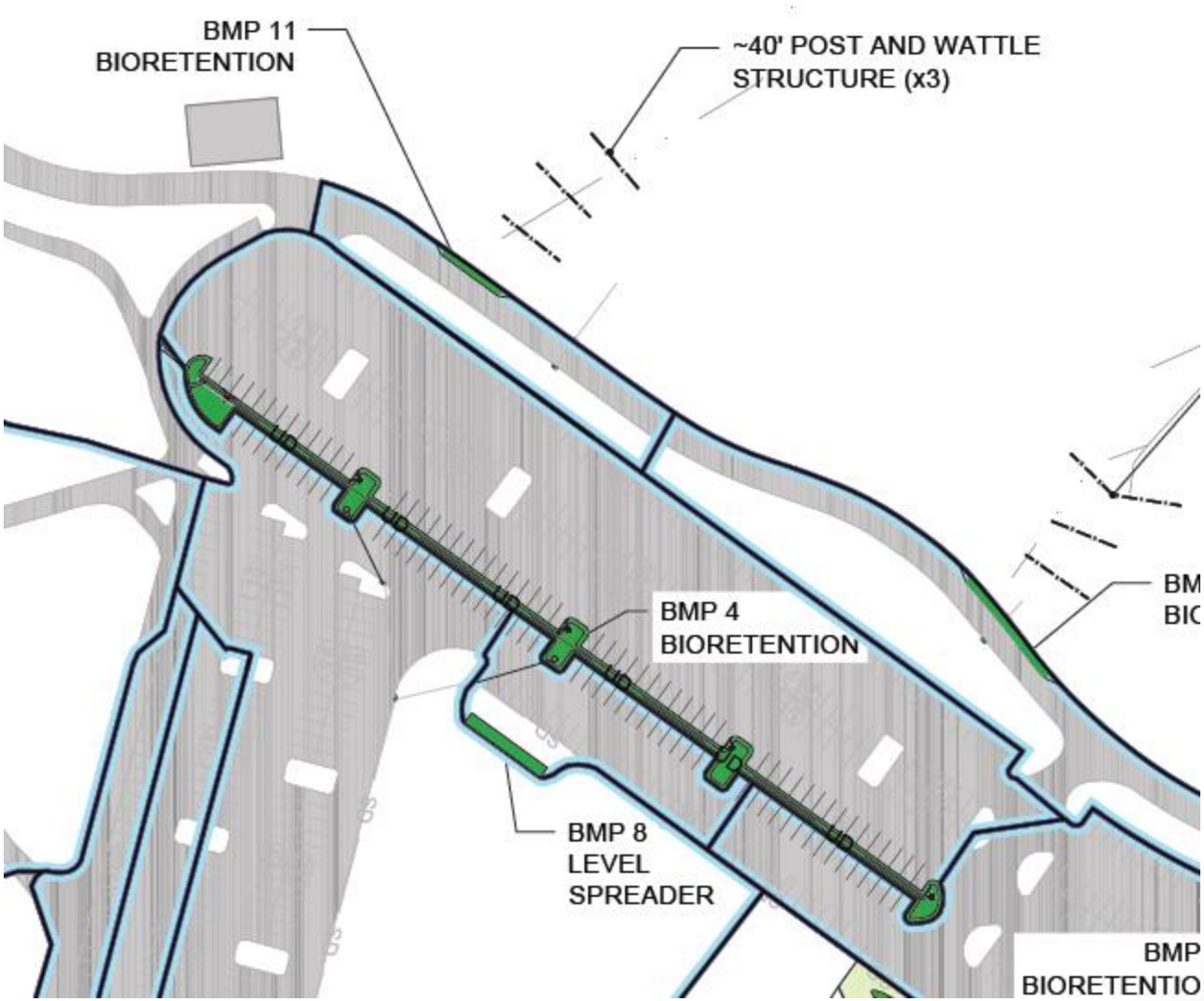
Stage Road NW – Near the Tennis Center



BMP 2

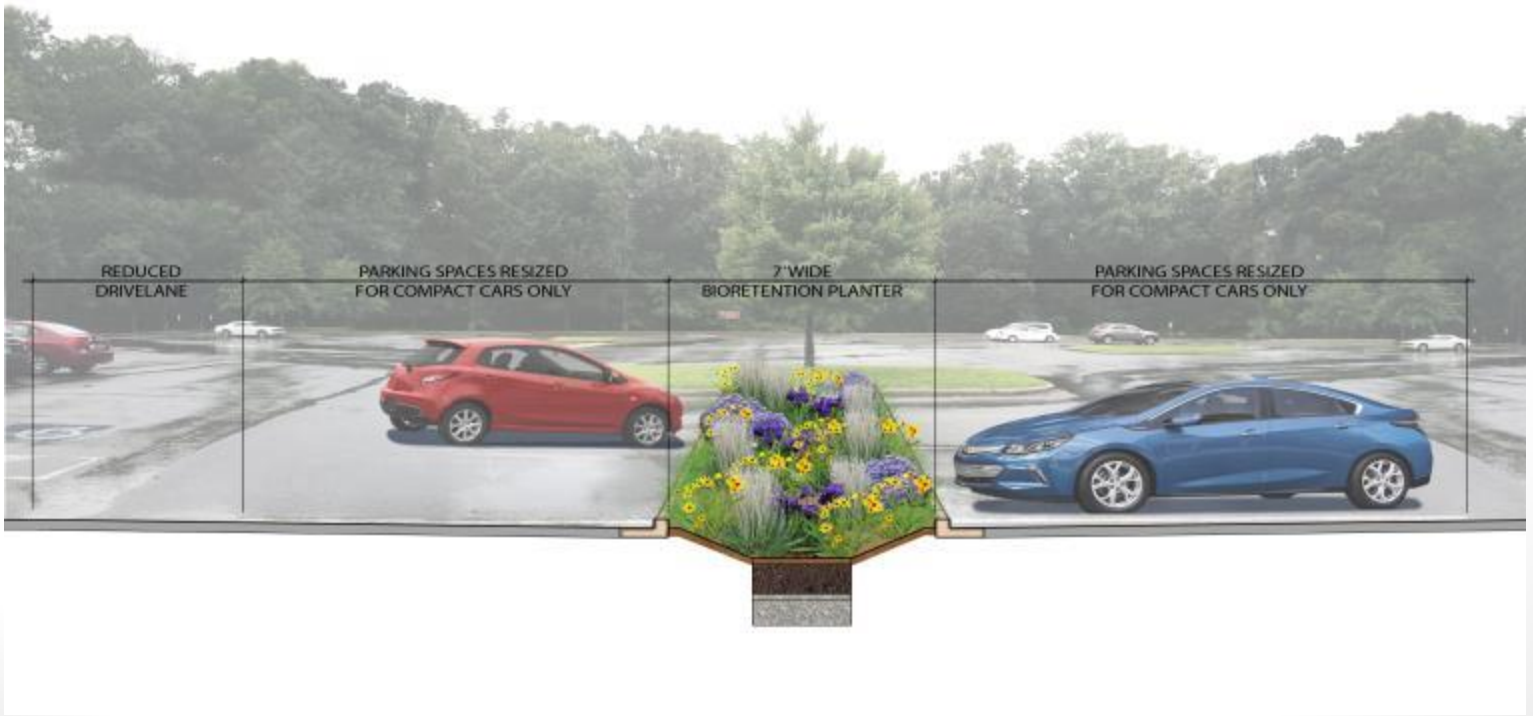
- Located in front of the Tennis Center
- Has a slightly different design
- Good opportunity for education and outreach

Bioretention in the parking lot

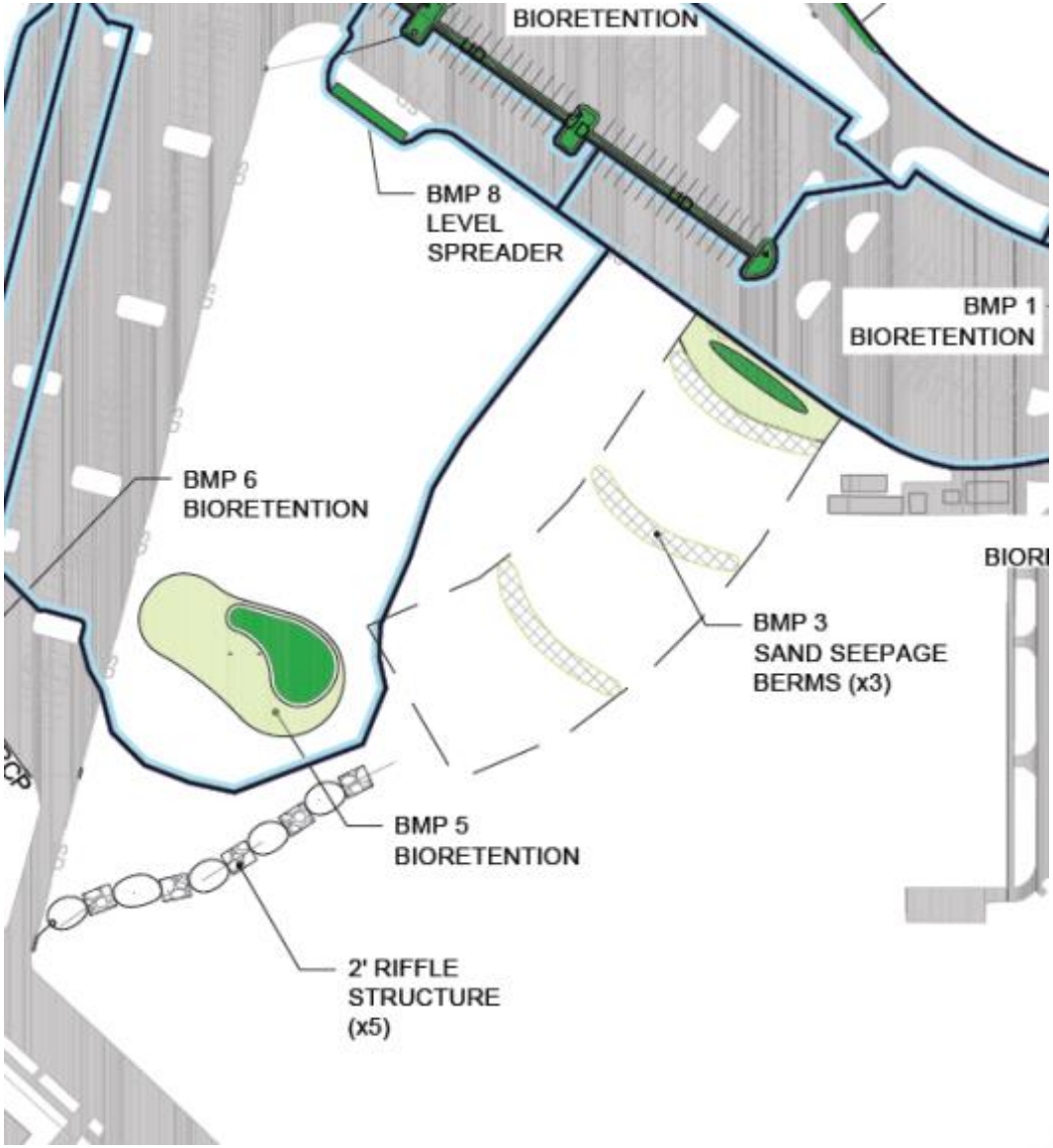


BMP 4: Parking lot bioretention

- Captures and treats stormwater in depression between the parking rows
- Allows for more vegetation in parking lot areas
- Will provide cooling effect in summer

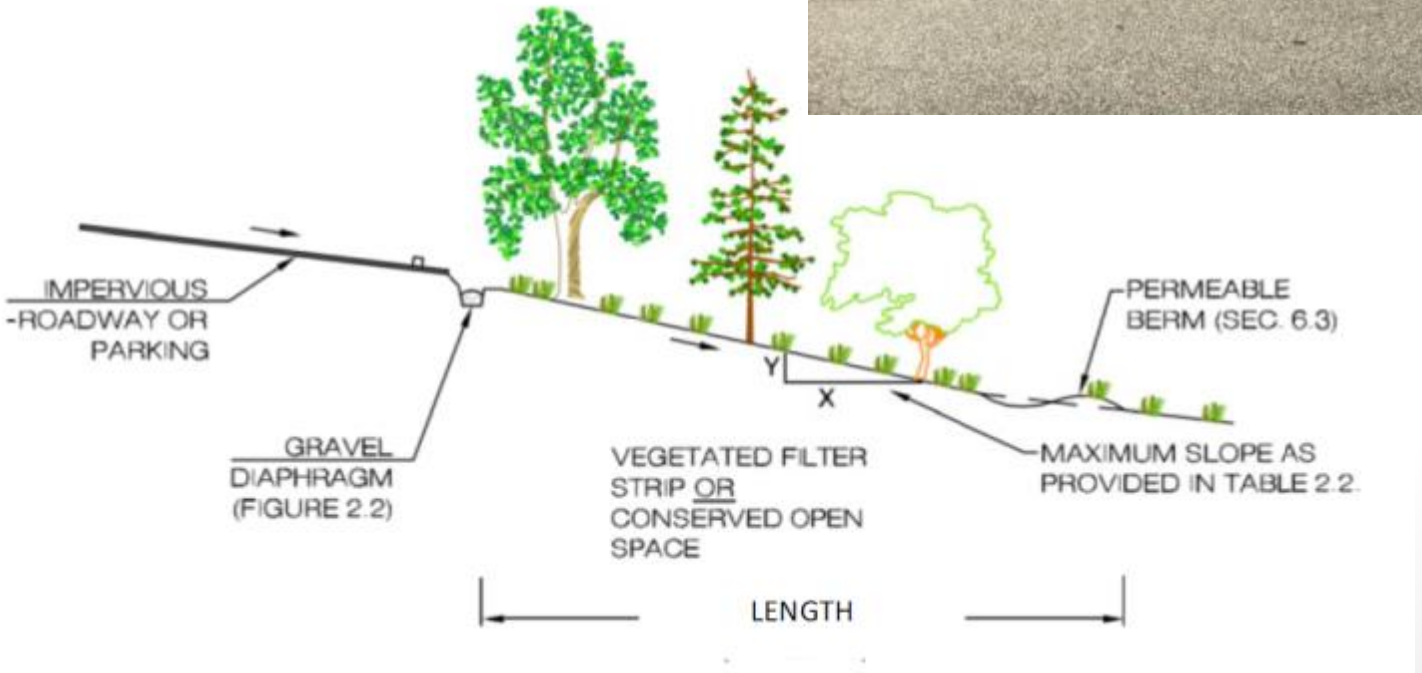


Open space practices



BMP 8: Level spreader

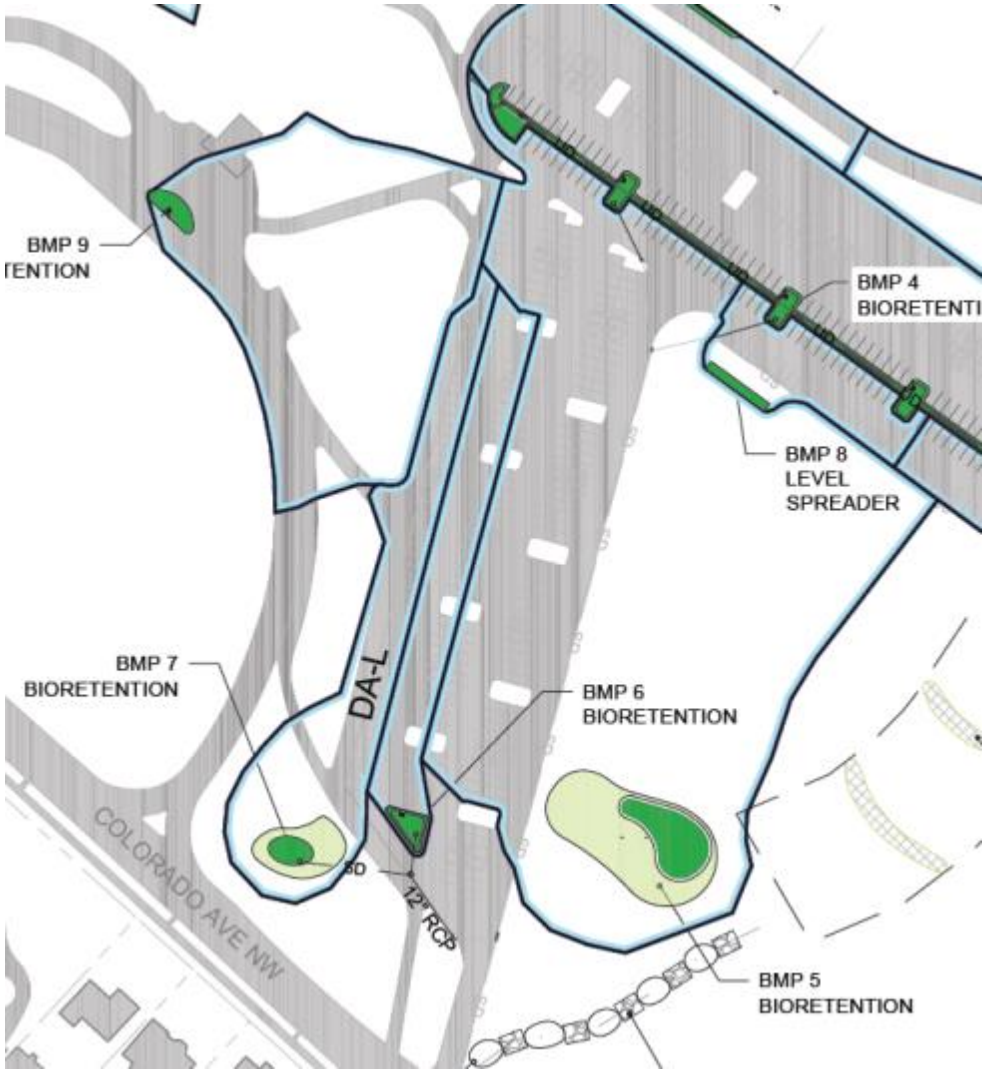
- Disconnecting parking lot to existing open space
- Use of a level spreader to prevent erosion, direct the flows
- Minimal impact to trees, usage concerns



Riffle Grade Control Structures

- Consists of a series of riffles and/or cascades and shallow depressions
- Safely slows down and conveys storm flows
- Allows for stormwater to become groundwater

Eastern parking lot



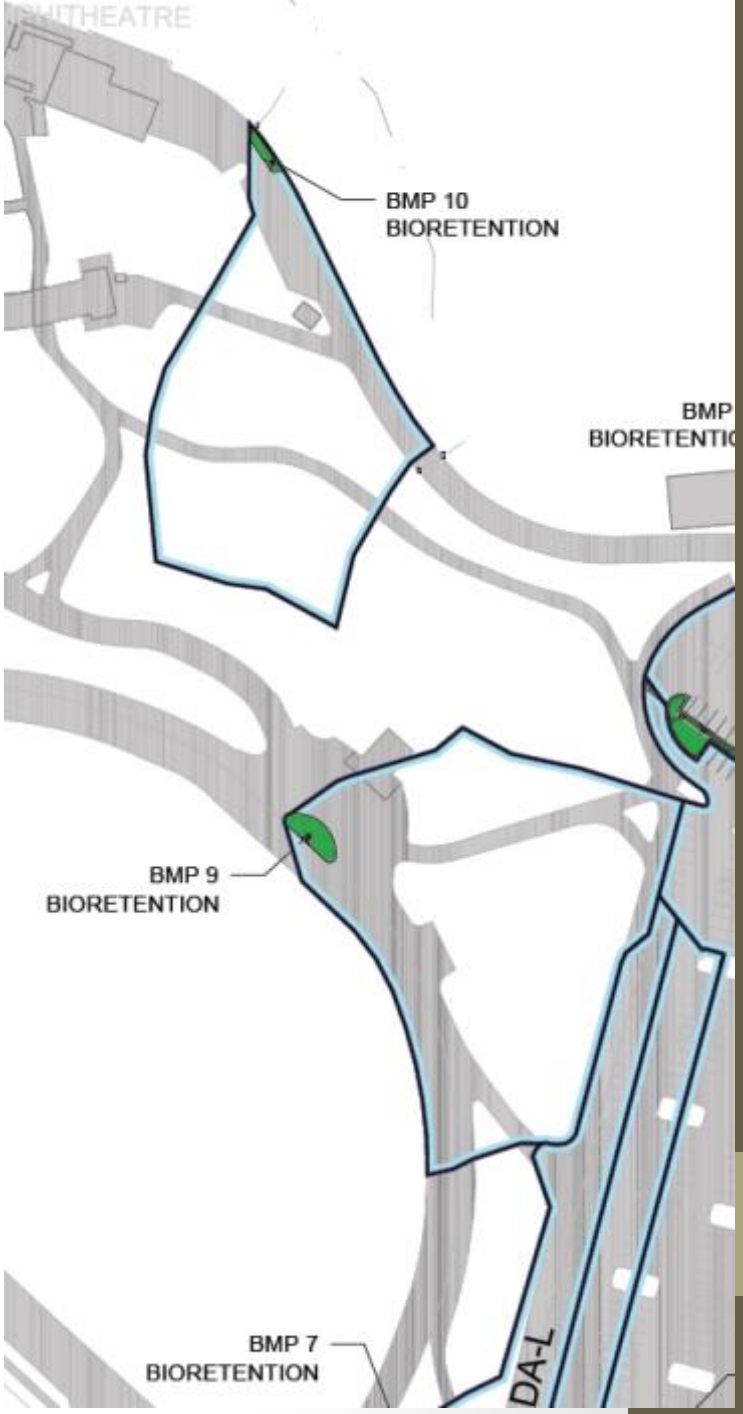
Existing conditions

Lots of impervious cover

Primarily drains to catch basins at the low spot at the east

Evidence of standing water

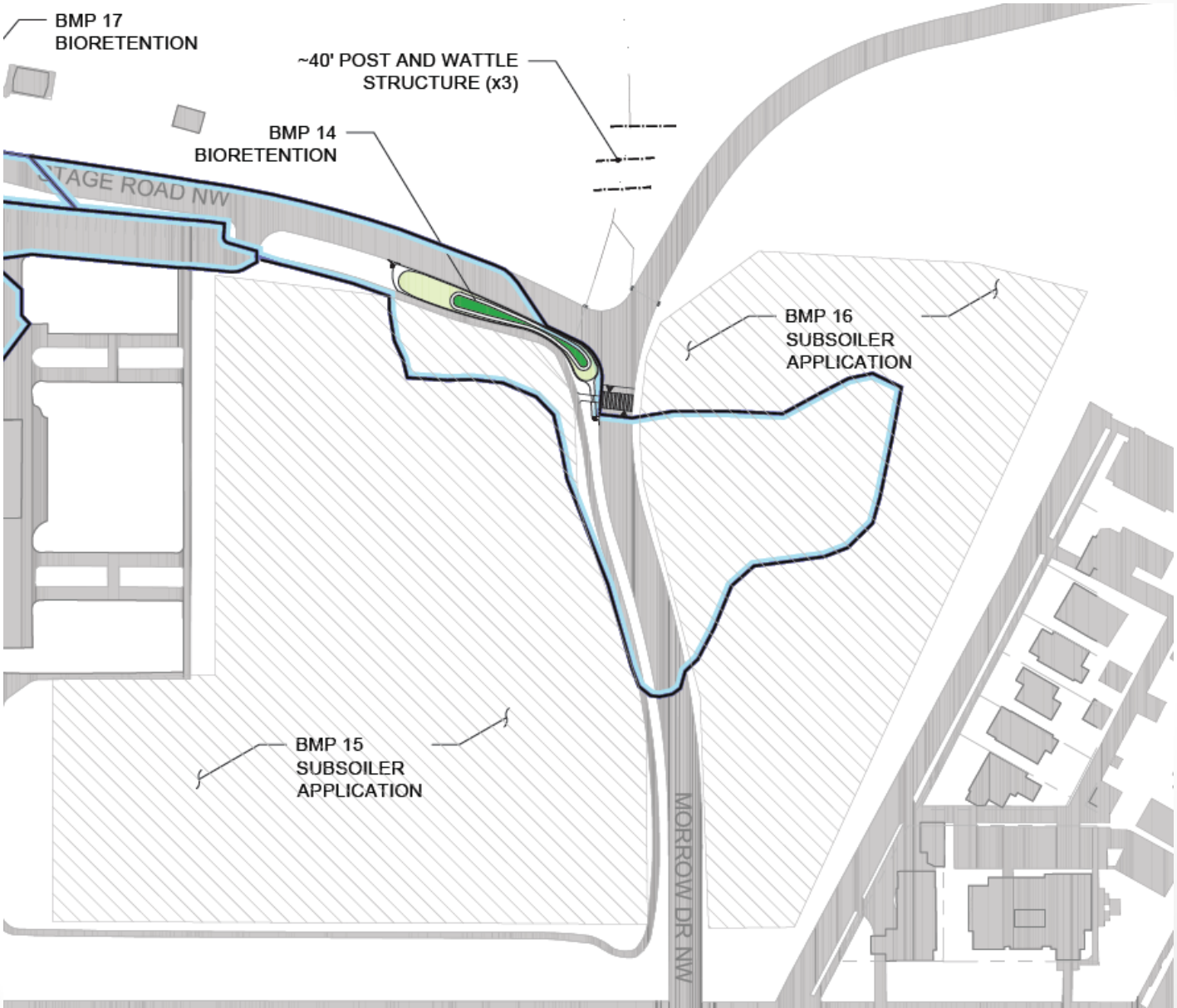
Amphitheater areas



BMP 9: In front of box office

- Another excellent opportunity for engaging with the public

Stage Road NW – North side of the project site



BMP 14: Bioretention in the ROW

- Adjacent to athletic fields
- Good opportunity to collect roadway runoff and treat it in unused open space
- Alleviates roadway flooding during large storm events
- Good opportunity to engage the public – adjacent to walking path

BMPs 15 & 16: Subsoiling Application

- De-compacts soils in heavily used areas
- Allows for better infiltration of stormwater
- More room for roots = better vegetation

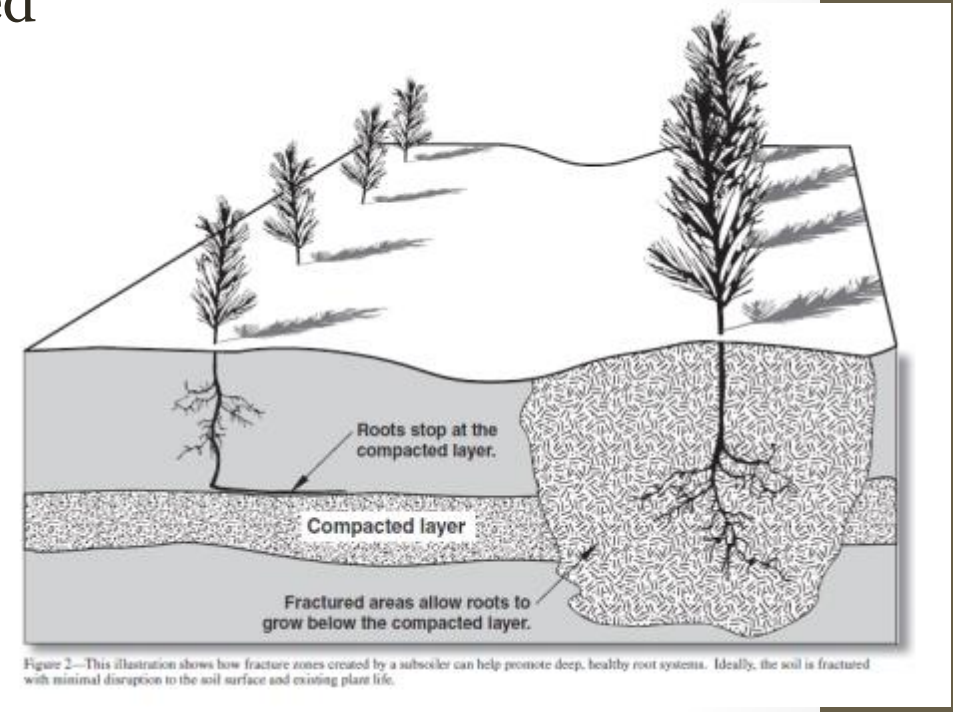


Figure 2—This illustration shows how fracture zones created by a subsoiler can help promote deep, healthy root systems. Ideally, the soil is fractured with minimal disruption to the soil surface and existing plant life.

Project Timeline

- September 2017: 30% Designs
- December 2017: 60% Designs
- March 2018: Final Designs + permitting
- April 2018 – September 2018: Construction*

*Project construction will not occur during tennis tournament

Questions