

CBP LAND USE WORKGROUP CASE STUDY

June 25, 2024

UNPAVING PARADISE: USING LAND COVER DATA TO INFORM PUBLIC POLICY & SHOWCASING A GREEN PARKING LOT RETROFIT

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A Planners Press Book

The High Cost of Free Parking

DONALD SHOUP

Why do planners care about parking lots?

Parking is a major land use category.

Parking has significant impacts on the local economy, community appearance and health, and the environment.

Parking is driven at least in part by public policies and regulations.

Parking is expensive!

Land Cover Data & Planners

Remotely sensed data such as land cover can help planners understand the impacts of public policies and private development decisions.



Background

In 2011, the HRPDC began a series of projects funded by the Virginia Coastal Zone Management Program to identify policies and practices local governments could undertake to protect land and water quality. This included assessing how localities were regulating parking.





Hampton Roads Parking Lot Analysis Goals and Objectives

1

Assess current parking patterns in Hampton Roads

- Research locality parking regulations and current best practices
- Analyze location, size, and land use of large parking lots using GIS
- Analyze water quality impacts of large impervious surfaces

2

Develop recommendations and strategies for reducing negative impacts of parking

- Policy changes
- Opportunities for retrofits or other improvements



News

Richmond City Council eliminates parking minimums

VPM | By [Jahd Khalil](#)

Published April 25, 2023 at 7:03 PM EDT



▶ LISTEN • 1:12

municode
POWERED BY CIVICPLUS

1

What are current best practices for regulating parking lots in the United States?

2

How do Hampton Roads communities' parking regulations compare to best practices and each other?

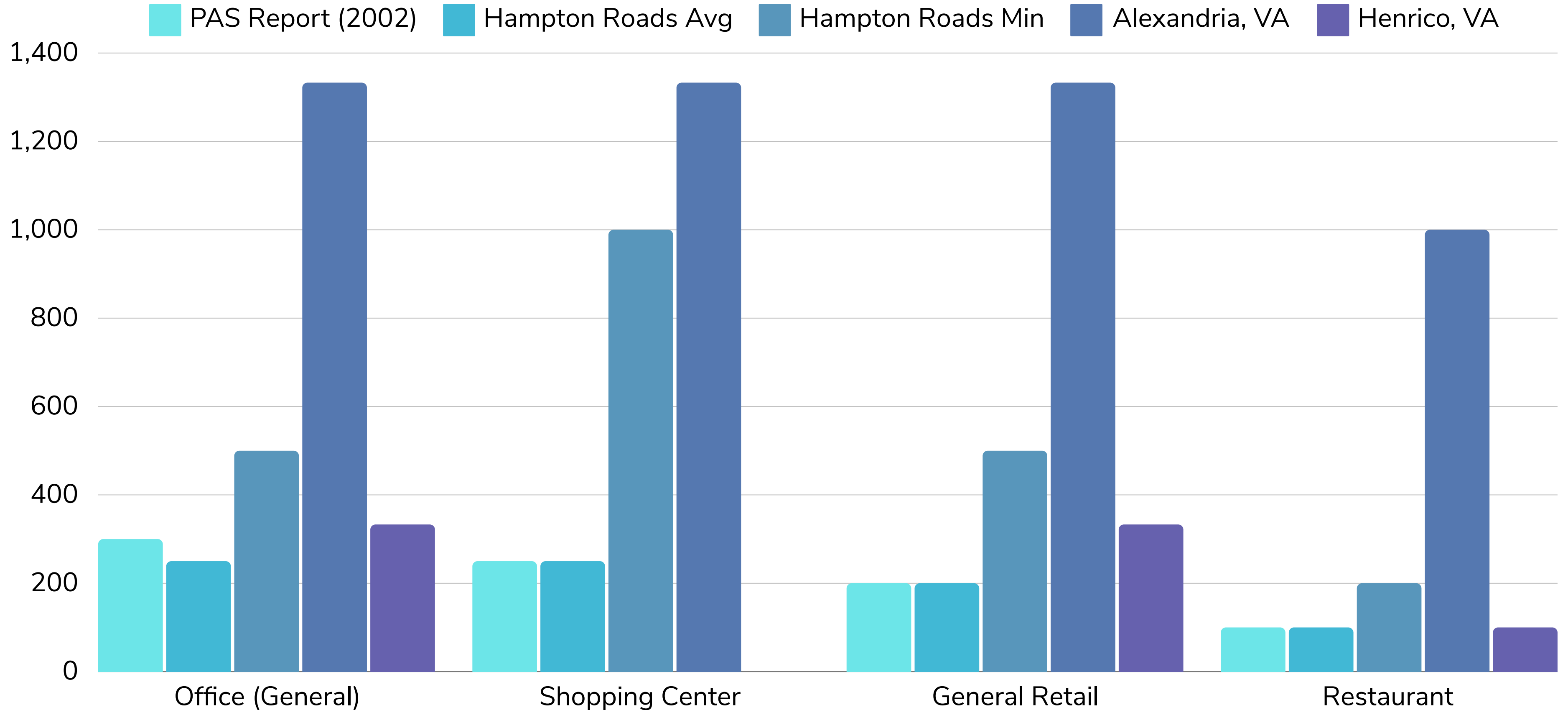
3

How do sites with large parking lots in Hampton Roads measure up to local regulations?

4

What are some steps localities can do to reduce parking in areas with a surplus amount?

Minimum Square Footage per Parking Space





Data and Information

The Hampton Roads Parking Analysis required gathering and considering several different data layers and information sources to accurately characterize parking in different communities.

- | | | | |
|---|------------------------------|---|---------------------------------|
| 1 | CBP Land Use/Land Cover | 5 | Locality Land Ordinances |
| 2 | Regional Land Use/Land Cover | 6 | Locality Parking Specifications |
| 3 | Regional Parcels | 7 | Google Earth Imagery |
| 4 | Locality Zoning | | |

An aerial photograph of Military Circle Mall in Norfolk, Virginia. The mall is a large, multi-story commercial building with a complex roofline, surrounded by extensive parking lots. The surrounding area includes residential neighborhoods with houses and streets, and other commercial buildings. A dark blue banner with white text is overlaid on the top right of the image.

Case Study: Military Circle Mall, Norfolk, VA

- **Square Footage:** 696,543 sq ft (enclosed mall) plus 84,087 sq ft Cinemark Movie Theater
- **Local Zoning Classification:** CR Commercial Industrial / Military Circle LASO / Suburban Character District
- **Minimum Parking Standard(s):** 1 per 250 sq ft (Cinema: 1 space per 5 seats)
- **Minimum Parking Space Dimensions:** 8'x18'
- **Minimum Calculated # of Parking Spaces:** 3,012
- **Manual Count of Parking Spaces:** 4,052
- **Excess Spaces:** 1,040
- **Excess Parking Area:** 149,760 sq ft

Parking is necessary.

The parking we have is not.

1

Parking is driven by both regulatory requirements and private development decisions.

2

Changes to local regulations, including reducing or eliminating minimums or implementing maximums, can reduce the amount of space devoted to parking.

3

Land cover data is an important tool for helping communities understand the impacts of development.



BUT WAIT, THERE'S MORE... 📍

SHOWCASING A GREEN PARKING LOT RETROFIT

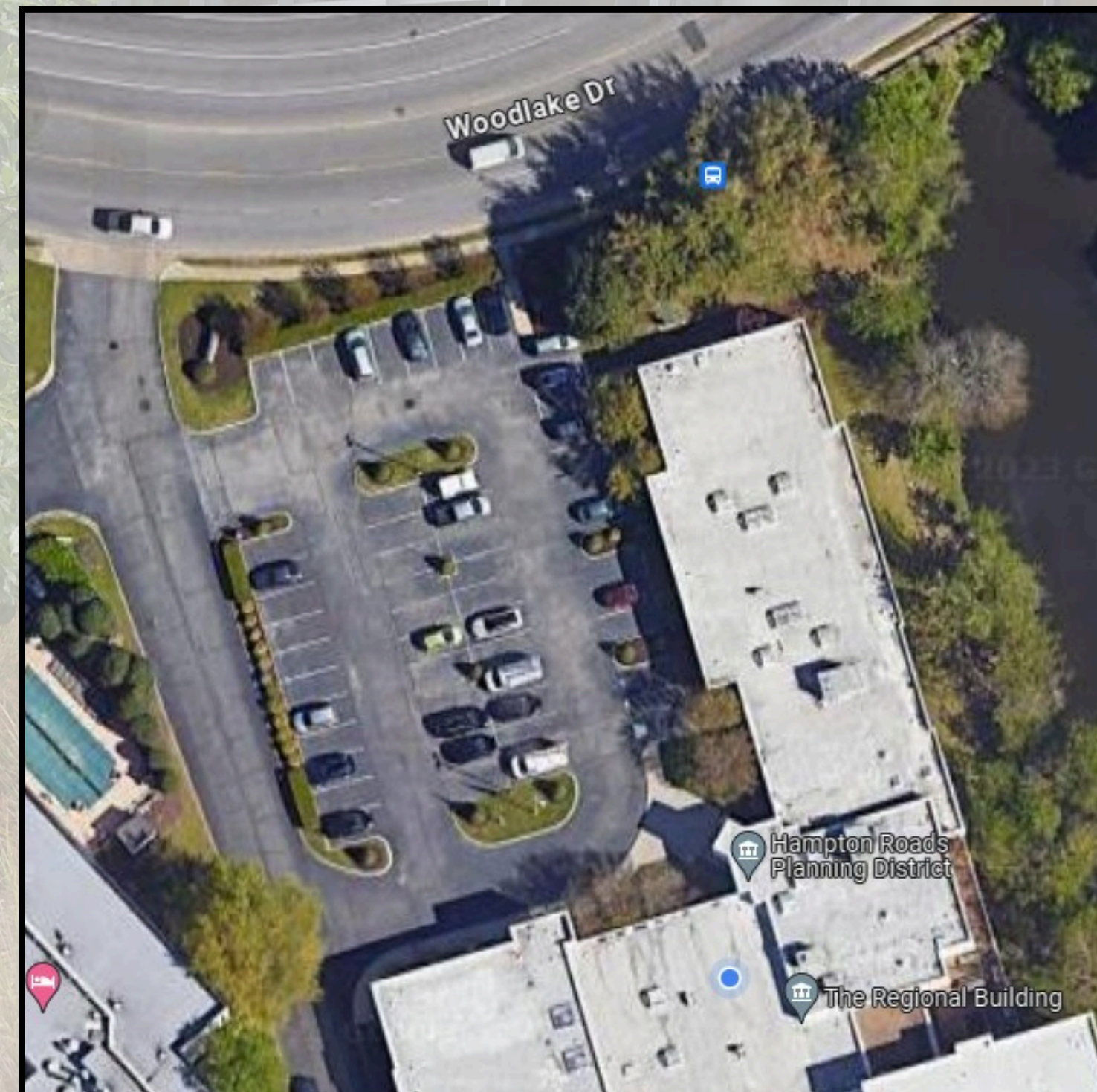
Hampton Inn
Norfolk/Chesapeake...
4.0 ★ 3-star hotel

The Regional Building

Delta Hotel
Chesapeake



HAMPTON ROADS
PDC



Regional Building Parking Lot

Why Retrofit?



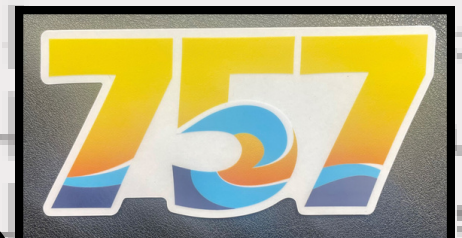
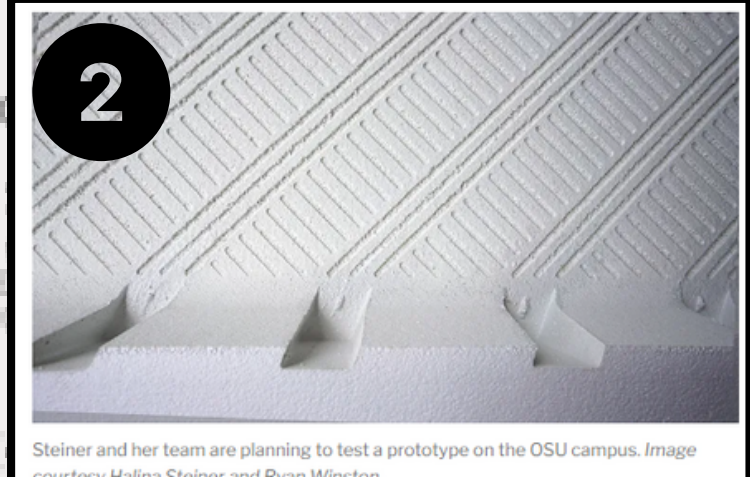
Program Objectives

- Bay TMDL drivers
- Improve local water quality
- Flood prevention



Opportunity

- Highly visible demonstration project
- Innovative stormwater technologies



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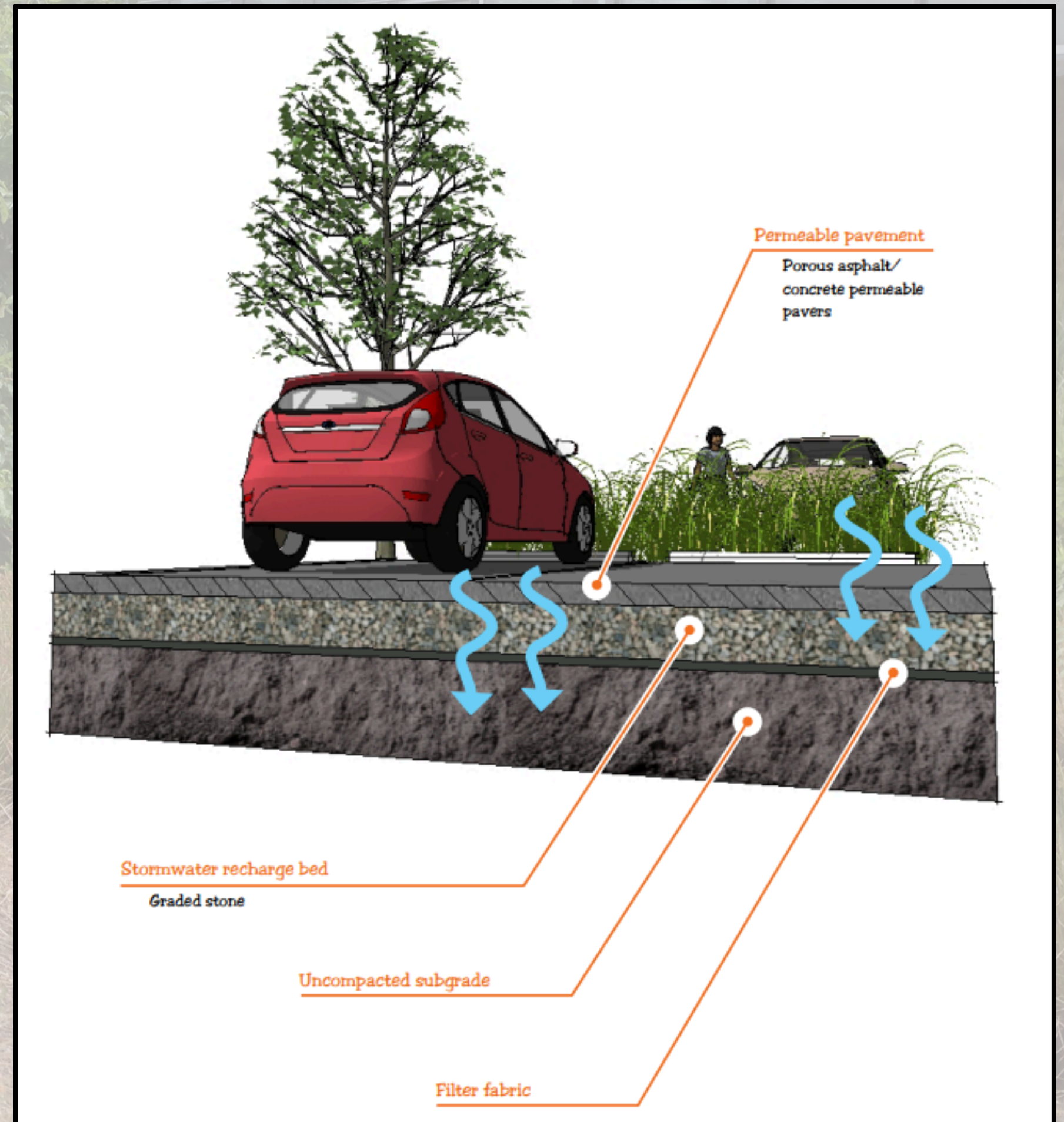
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4



Permeable Pavement

- Reduces impervious area without losing functionality
- Retains stormwater onsite
- Sometimes called porous asphalt, pervious concrete, permeable pavers, etc.

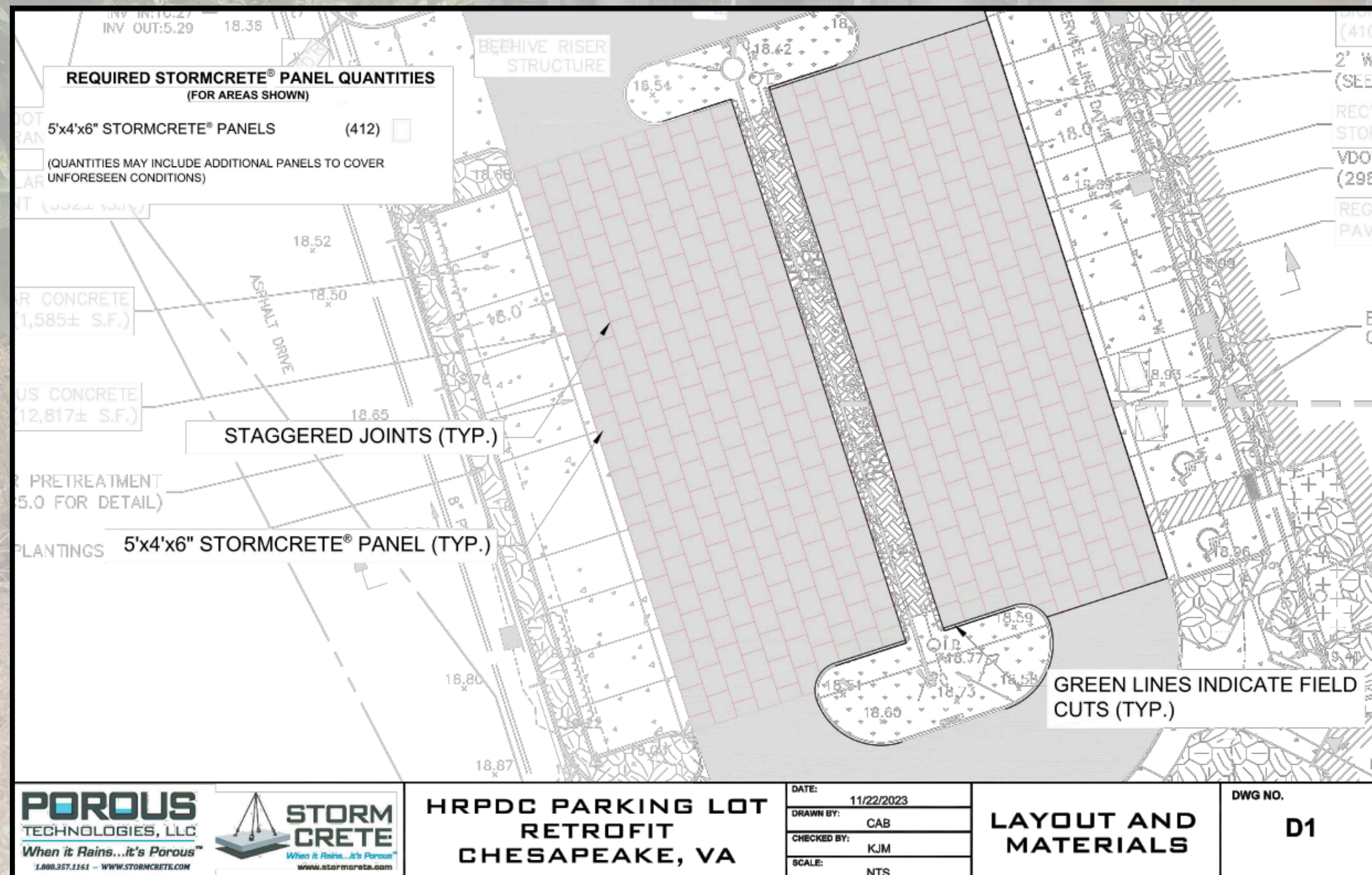


1

Precast Porous Concrete Panels



- Quality control
- Faster and simpler installation
- Modular (removable/replaceable)
- Less likely to ice over
- **First Stormcrete project in Hampton Roads**



Innovation to Reduce Maintenance

Traditional
Impervious
Concrete

Stamped
Grooves in
Concrete Strip

Porous
Concrete

Stormwater Runoff

- Stamped grooves in concrete strip traps sediment
- Reduce maintenance frequency
- **Third pilot in country (Ohio State University, New York City, and HRPDC)**



3

4

Native Plants



Black Tupelo



Carousel Little Bluestem



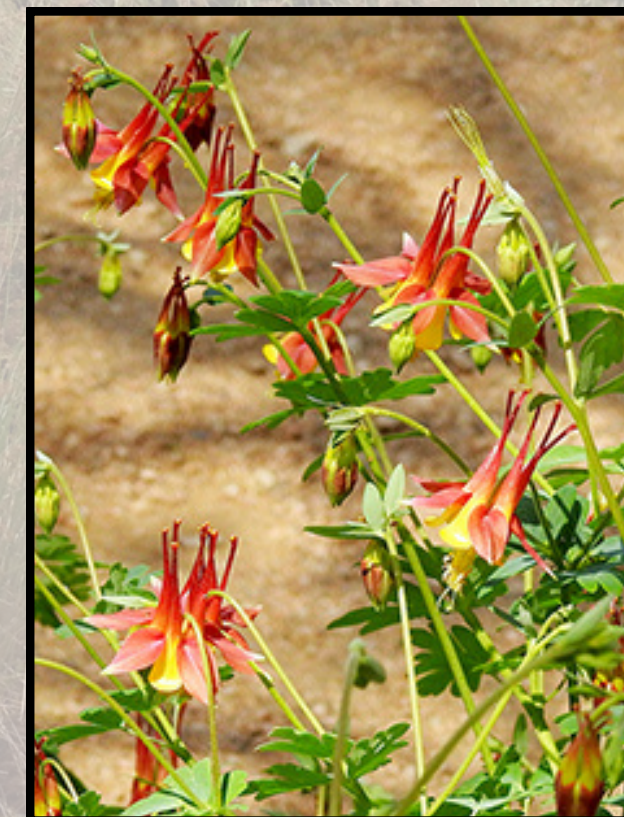
Blue Muffin Arrowwood
Viburnum



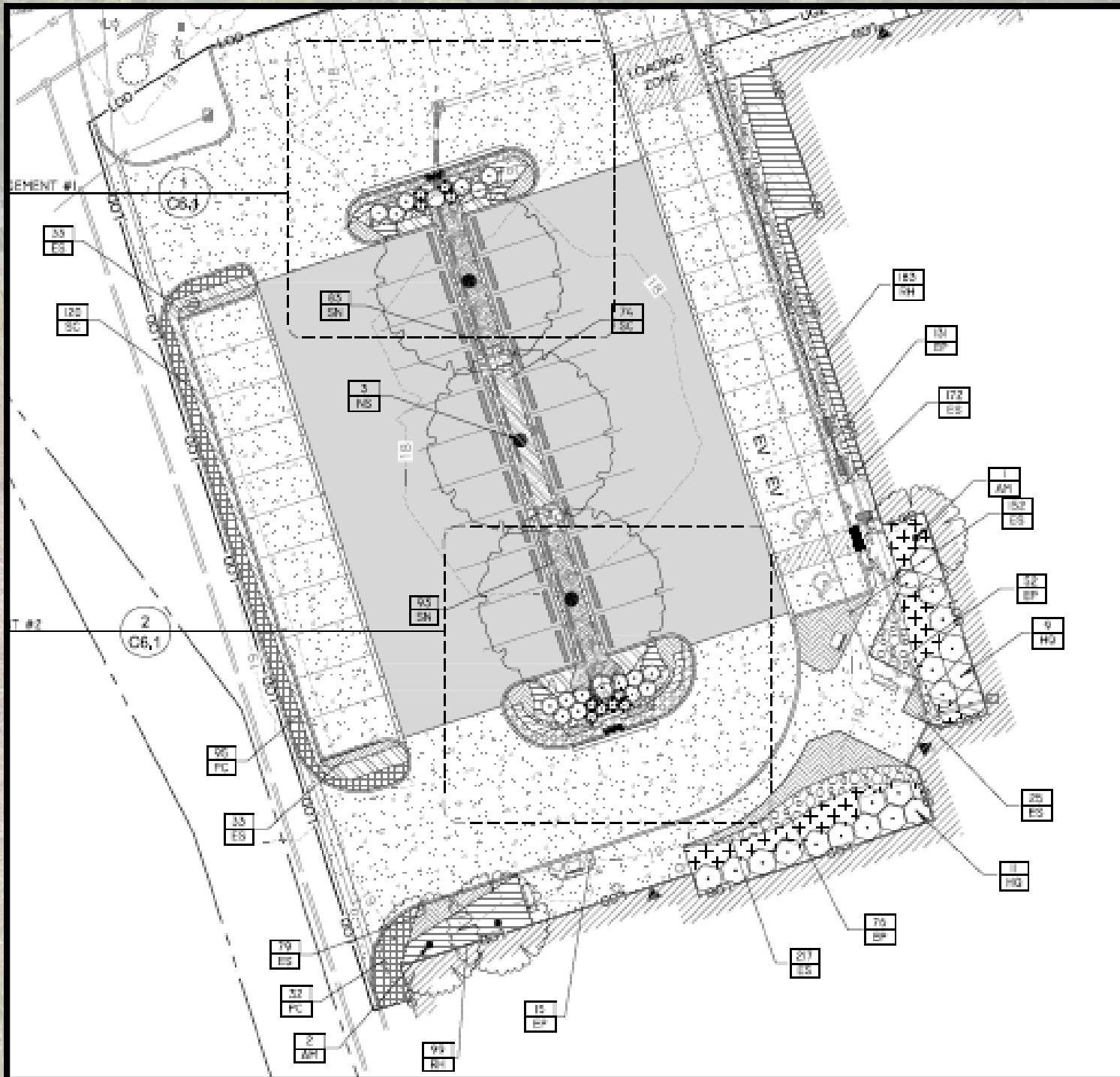
Black Eyed Susans



Butterfly Milkweed



Eastern Columbine



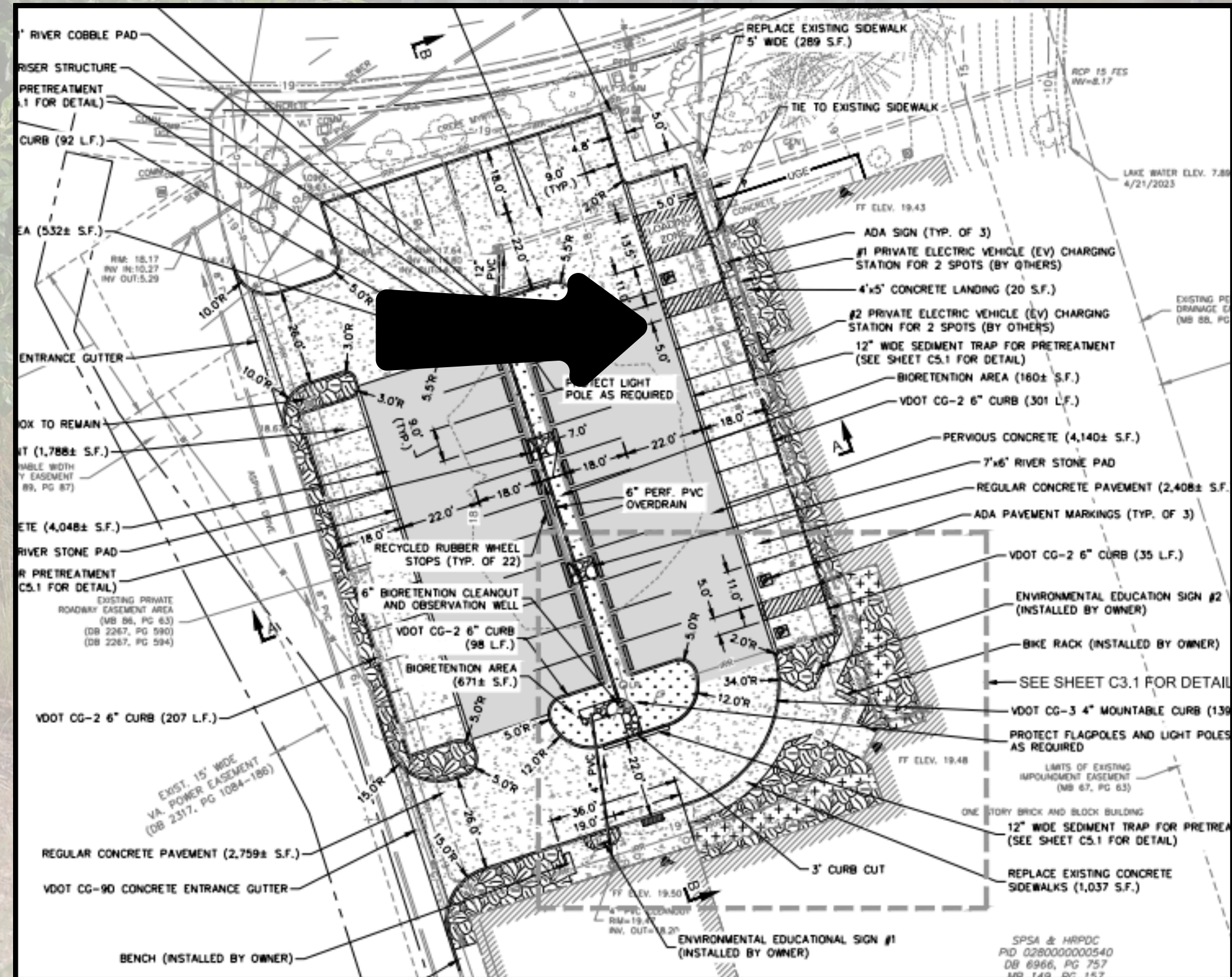
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Bioretention Basin



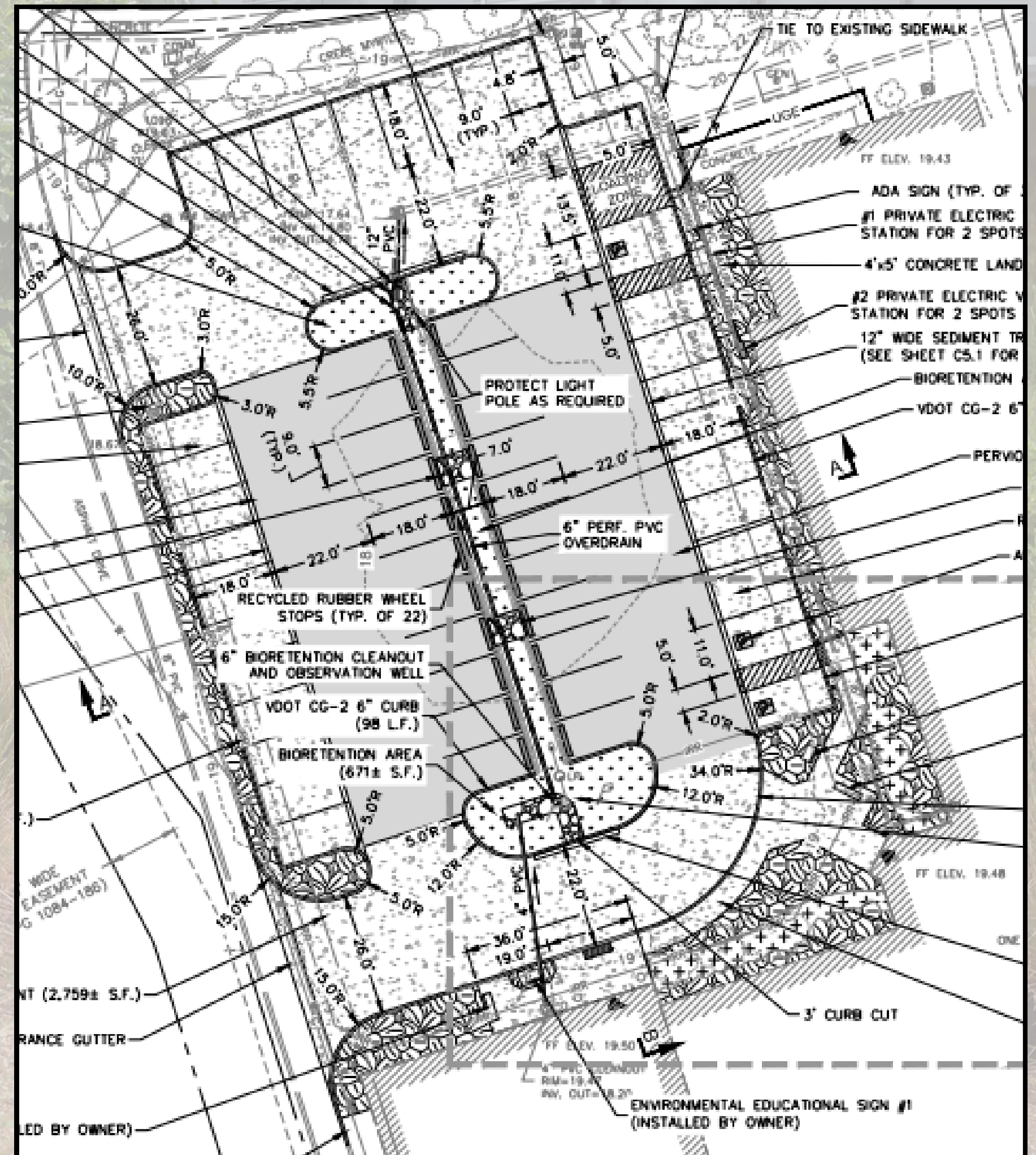
EV Charging Stations

- Two dual-port Level 2 stations
- Four charging spots
- 4-to-6 hours to fully charge
- Virginia Clean Cities



Summary of Improvements

1. Precast Porous Concrete Panels
2. Stamped Concrete Strip
3. Native trees, low maintenance
4. Native plants
5. Recycled rubber tire stops
6. Bioretention basins
7. Biochar
8. EV Charging Stations
9. Educational Signage
10. Bike rack



THANK YOU

Hampton Inn
Norfolk/Chesapeake...
4.0 ★ 3-star hotel

Hampton Roads
Planning District

The Regional Building

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