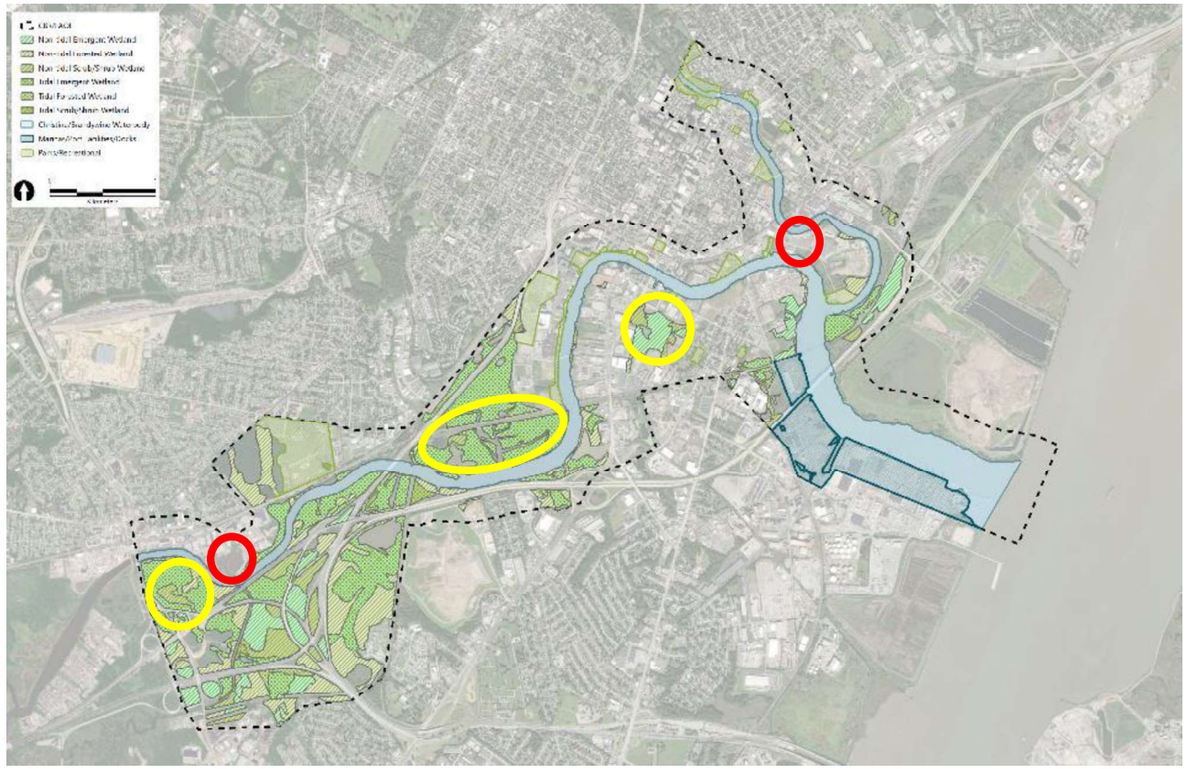
Opportunity: Wetland Creation and Uplift



Wetlands are important for many reasons- they provide habitat and food sources for fish and wildlife; act as incubators for baby fish; filter and clean water; and act like a sponge to absorb heavy rainfall and help prevent flooding.

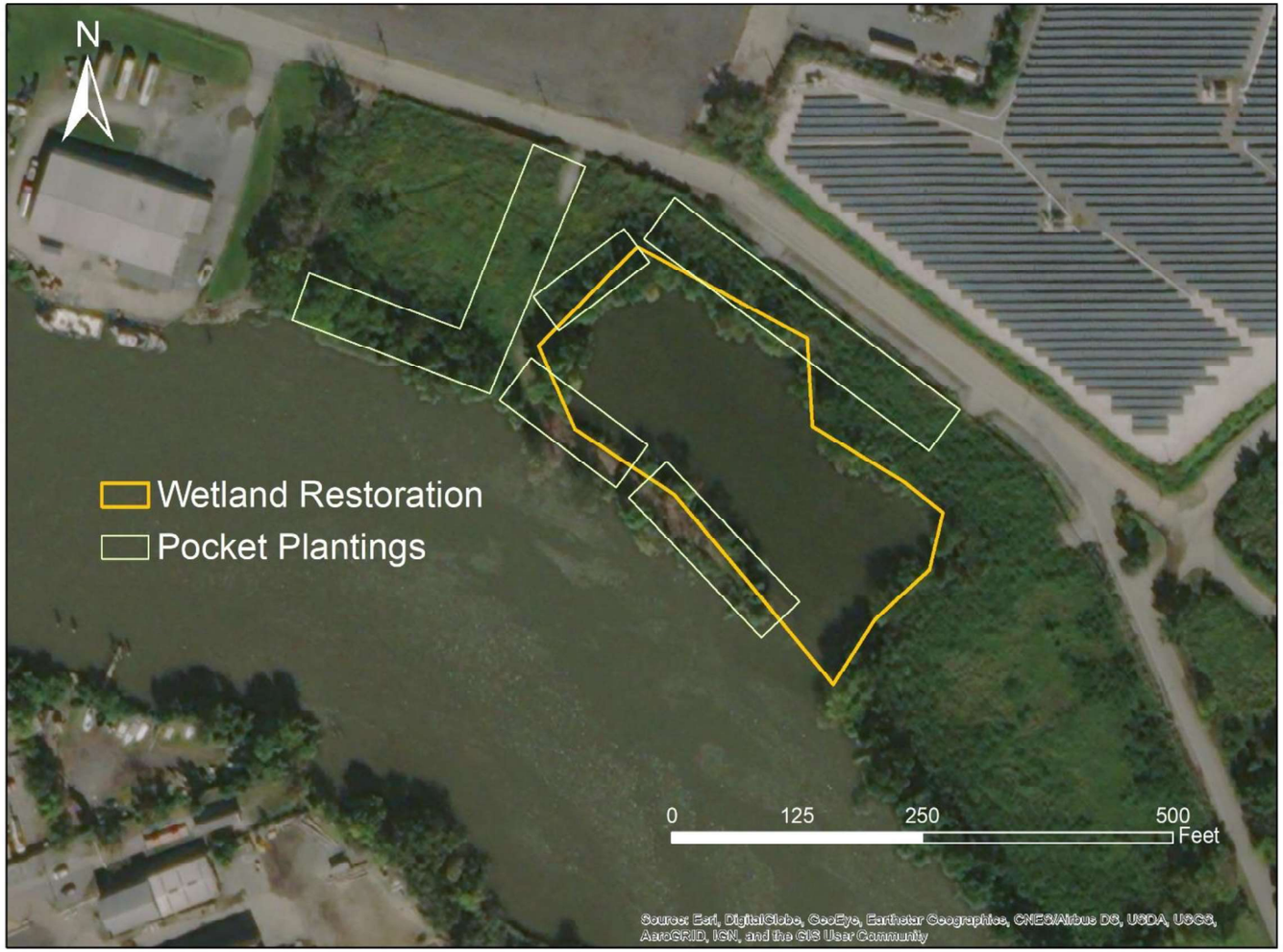
There are over 1,000 acres of wetlands in the project area. It's important to protect the wetlands we have, make them healthier, and where possible, create more. The project area has some unique opportunities for creating wetlands.

Which CBR4 goals does this opportunity meet?

- ☑ Restoration and Protection of Wetlands
- ☑ Restoration and Protection of Riparian Areas
- ☑ Restoration and Protection of Shorelines
- ☑ Remediation of Contaminants
- ☐ Restoration and Protection of Adjacent Habitats
- ☑ Increase Community Resilience
- ☑ Improve Community Access to Rivers

Example Project

Creating Wetlands: Christina Marina



Summary: Lagooon near the Challenge Program

Existing Conditions:

- Low energy, soft sediment basin
- Key odonates, native plants, and breeding birds observed

Example Project

Creating Wetlands: Christina Marina

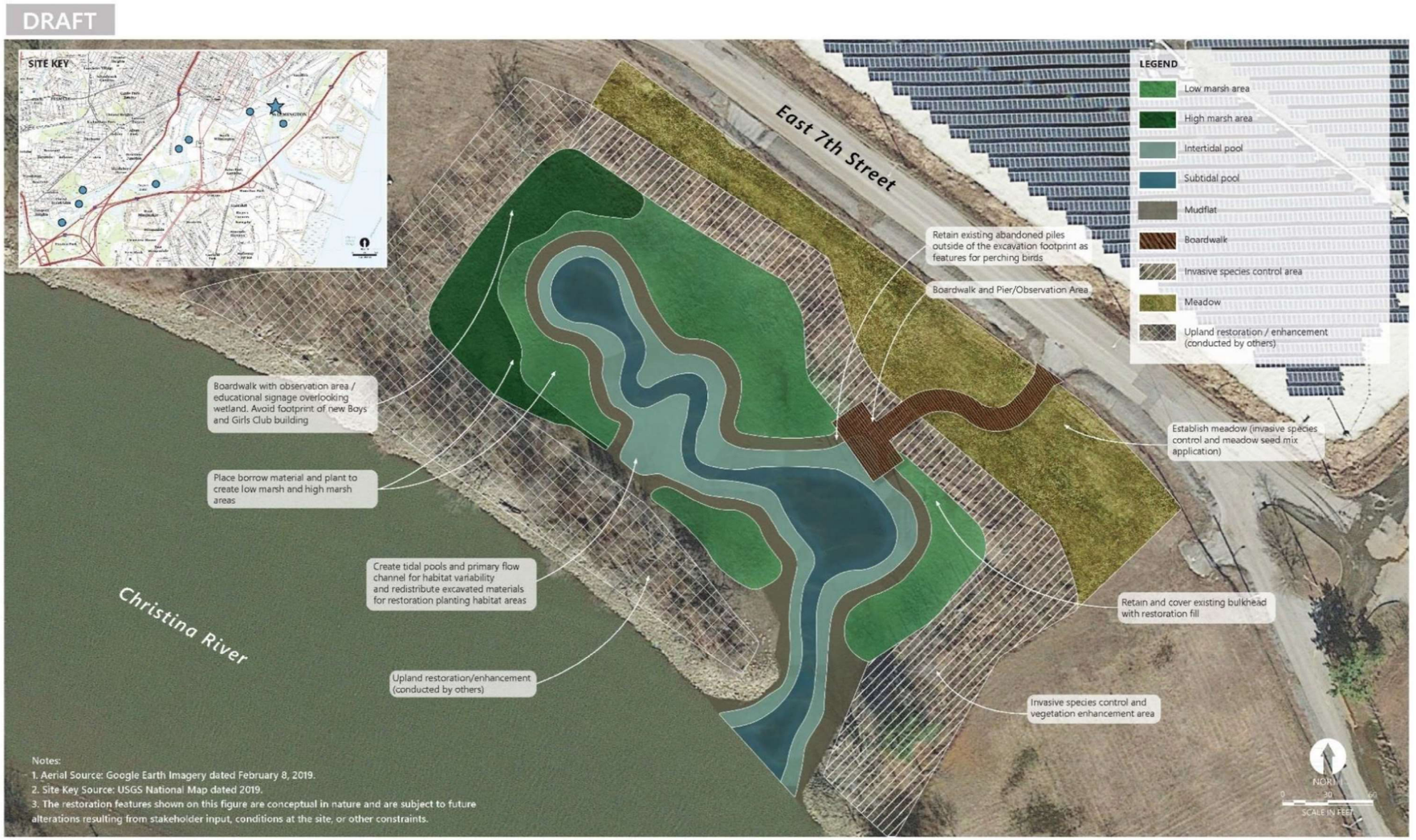


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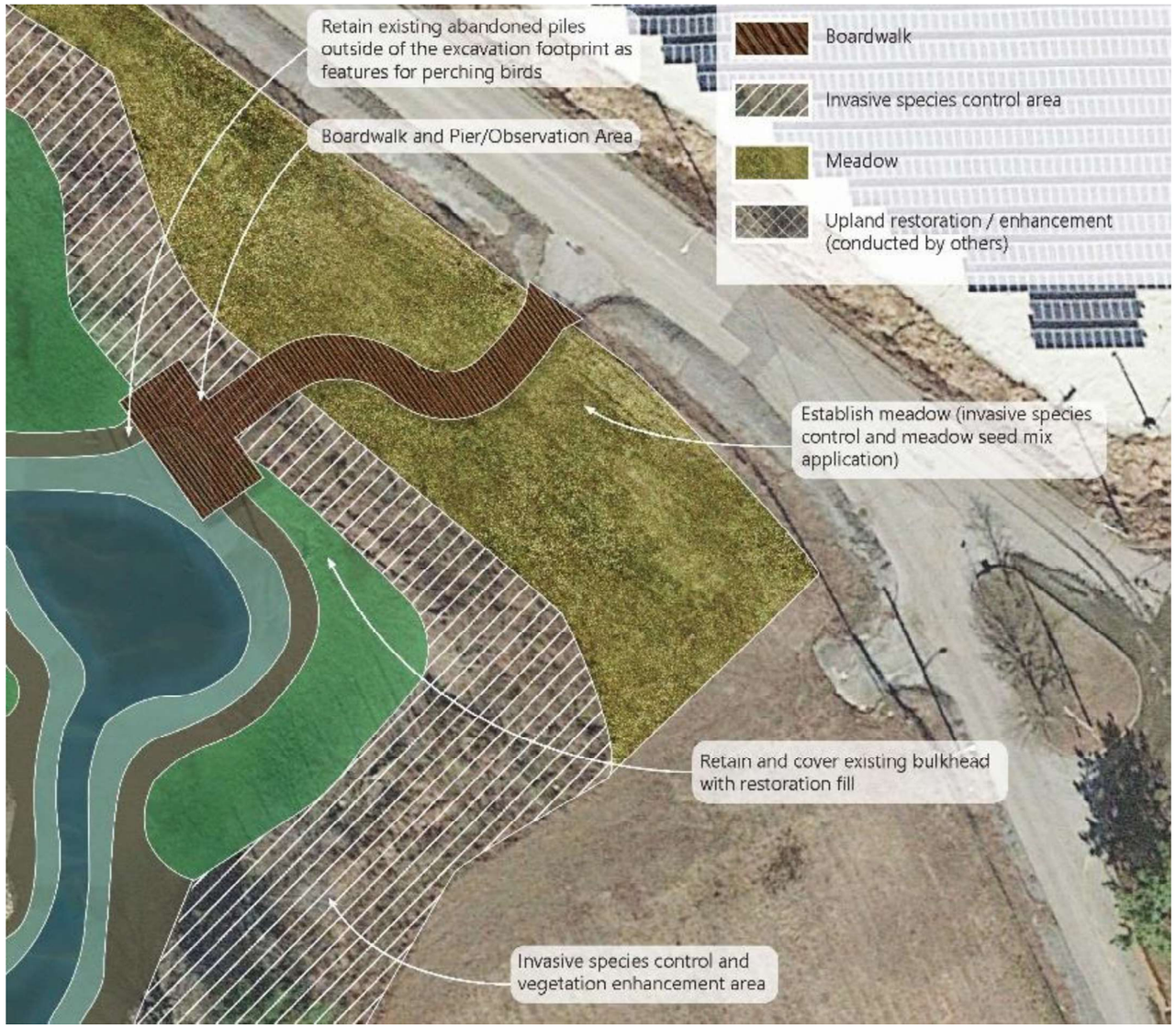
Figure 3
Christina Marina - Plan View

Restoration Concept Plans
Christina Brandywine River Remediation
Restoration Resilience (CBR4) Project
Wilmington, Delaware

Example Project

Creating Wetlands: Christina Marina

Project Features:
1. Pocket Plantings • Invasive species control • Native species plantings



Example Project

Creating Wetlands: Christina Marina

Project Features:

1. Pocket Plantings

2. Restore lagoon to tidal wetland

- Elevate to mean tide
- Potential layer of harder substrate
- Cut channels
- Vegetation plantings

Example Project

Creating Wetlands: Christina Marina

Restoration	Creation of freshwater tidal wetland habitat allows for re-introduction of one of the most important but threatened habitats in the region
Remediation	Due to history and possible redistribution across site, thorough assessment of sediment will be needed
Resilience	Wetlands provide maximized flooding resilience compared to hardened shorelines
*Public Access	Good opportunity to engage with local groups like Challenge Program

Signature Species

Northern Red-bellied Cooter

The Northern Red-bellied Cooter is a large turtle with a bright red belly found in freshwater coastal habitats of the Mid-Atlantic.

Example Project

Creating Wetlands: Newport Boat Ramp

Summary: Low-lying, semi-enclosed embayment

Existing Conditions:

- Accreting but low vegetation cover due to elevation
- Primarily subtidal / intertidal mud flat
- Islands of Spatterdock

Example Project

Creating Wetlands: Newport Boat Ramp

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Figure 10
Newport Marina - Plan View

Restoration Concept Plans
Christina-Brandywine River Remediation
Restoration Resilience (CBR4) Project
Wilmington, Delaware

Example Project

Creating Wetlands: Newport Boat Ramp

Project Features:

1. Restore to intertidal wetland

- Create low and high marsh
- Integrate flow channels

Example Project

Creating Wetlands: Newport Boat Ramp

Project Features:

1. Restore to intertidal wetland

2. Access for public viewing and education

- Interpretive signage
- Easy access points

Example Project

Creating Wetlands: Newport Boat Ramp

Restoration	Creation of freshwater tidal wetland habitat allows for re-introduction of one of the most important but threatened habitats in the region
Remediation	May need to evaluate outside borrow sources depending on state of the sediment
Resilience	Wetlands provide maximized flooding resilience compared to hardened shorelines
*Public Access	Will emphasize viewing opportunities to serve as an educational example of the valuable habitats that once existed in abundance within the Christina system.

Signature Species

Wild Rice

Wild rice is a tall, distinctive grass that occurs in freshwater tidal habitats and provides food and shelter for birds and mammals and habitat for invertebrates. Wild rice also improves water quality.