

Appendices

SITE ASSESSMENTS
WETLANDS CONCEPTS
CONFLUENCE CONCEPTS

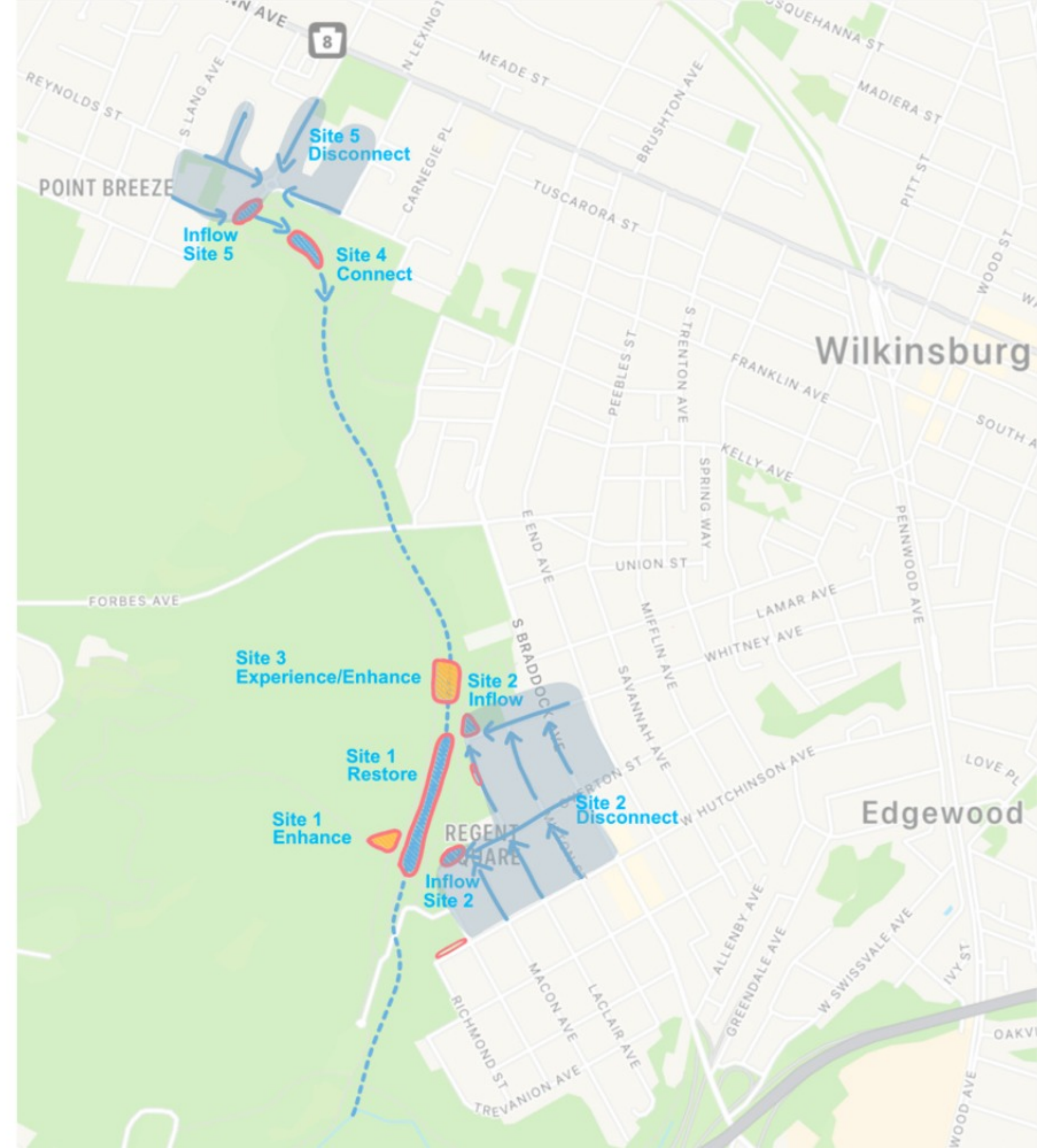


Fern Hollow Restoration Design & Planning

Environmental Site Assessment

Project Areas

- 1 The Confluence
- 2 The Wetlands
- 3 Regent Square GSI Park Inflow
- 4 Point Breeze GSI Park Inflow



Project Areas

Pittsburgh Water
Impervious Surface
Billing Areas

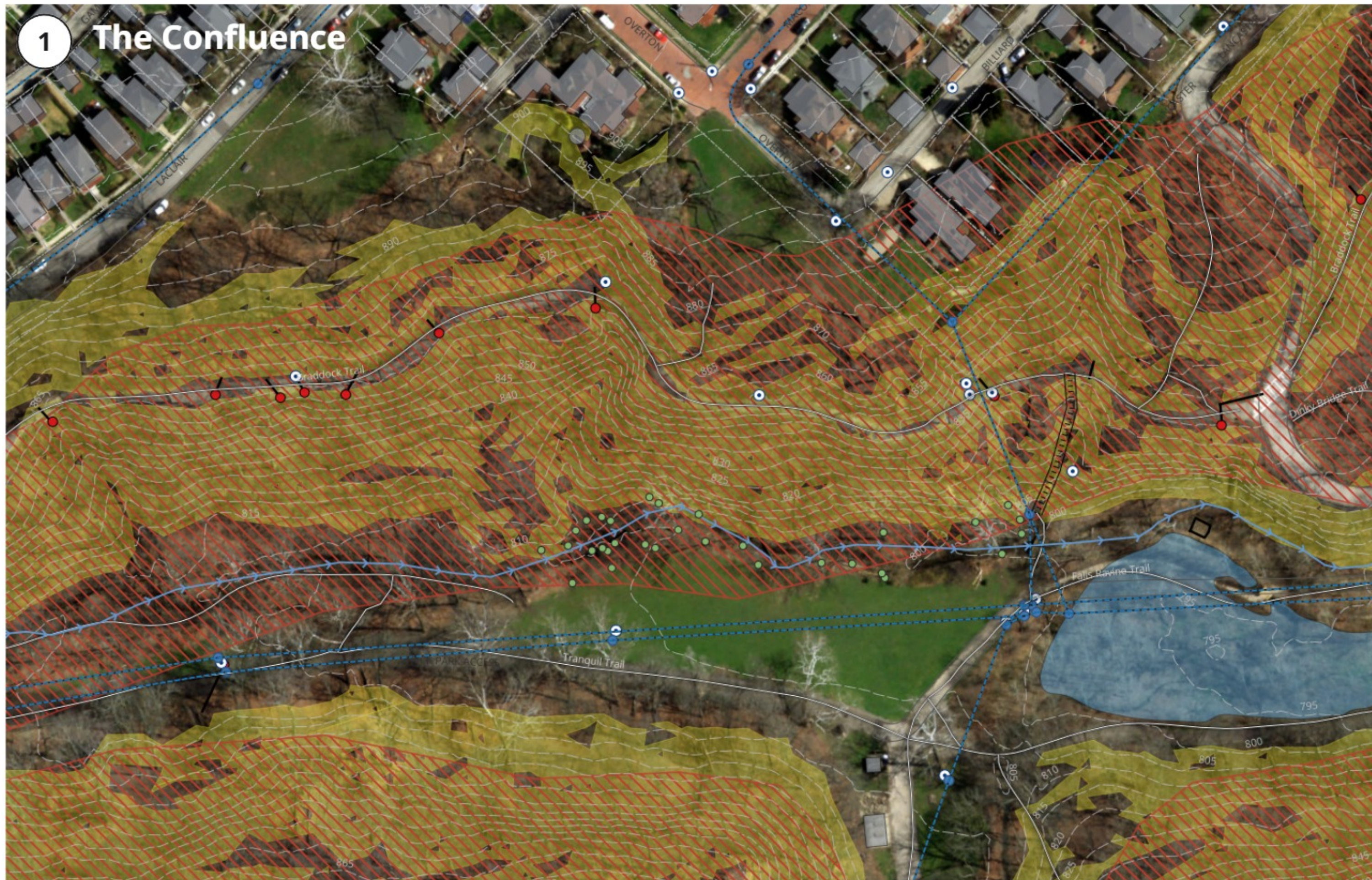


LEGEND

- Trees Survey
- Streams
- Park Culverts
- Culvert Outfalls
- ImperviousSurface_Billing
- Transportation

1

The Confluence



Environmental Overlay

LEGEND

- Trees Survey
- Streams
- Sewer Pipes
- Trails
 - Multi Use
 - Park Pathway
 - Pedestrian
- Steps
- Sewer Structures
- PWSA Inlets
- Parcels
- Streets
- Park Culverts
- Culvert Outfalls
- Building Footprints
- Landslide_Prone
- Steep Slope Overlay
- FEMA FloodPlain
- Contours 5ft



Opportunities

- 1 Address erosion from tributary channels
- 2 Realign creek channel to buffer hillside slope
- 3 Redefine creek channel to increase connectivity
- 4 Improve and enhance riparian buffer ecology
- 5 Provide opportunities to engage with creek ecology
- 6 Establish new restroom & pavilion facilities
- 7 Establish new seating and amenities
- 8 Existing field enhancements



Constraints

- 1 Creek is located in a landslide prone overlay zone
- 2 Creek is within 50' of steep slope overlay zone
- 3 Creek realignment will require DEP/ACOE joint permit.
- 4 Tributary channels located in steep slope overlay zone
- 5 Existing tree survey and geotech needed to finalize
- 6 Gap in existing sewer infrastructure mapping
- 7 Condition of existing utilities for restroom facility
- 8 Phasing and permitting with multiple agencies

1

The Confluence

Site
Investigation

Inflow
sediment &
undercutting

Inflow sediment
& hillside cutting

Tributary
channel
erosion

Tributary
channel
& trail
erosion

MS4
Outfall
erosion

Tributary
channel
erosion

Tributary
channel
erosion

Potential
creek I&I

Facility
upgrade

Existing
canopy

Creek cutting
exposed

Improve flow
connectivity

Improve
trail &

1 The Confluence

Pittsburgh Water
Impervious Surface
Billing Areas



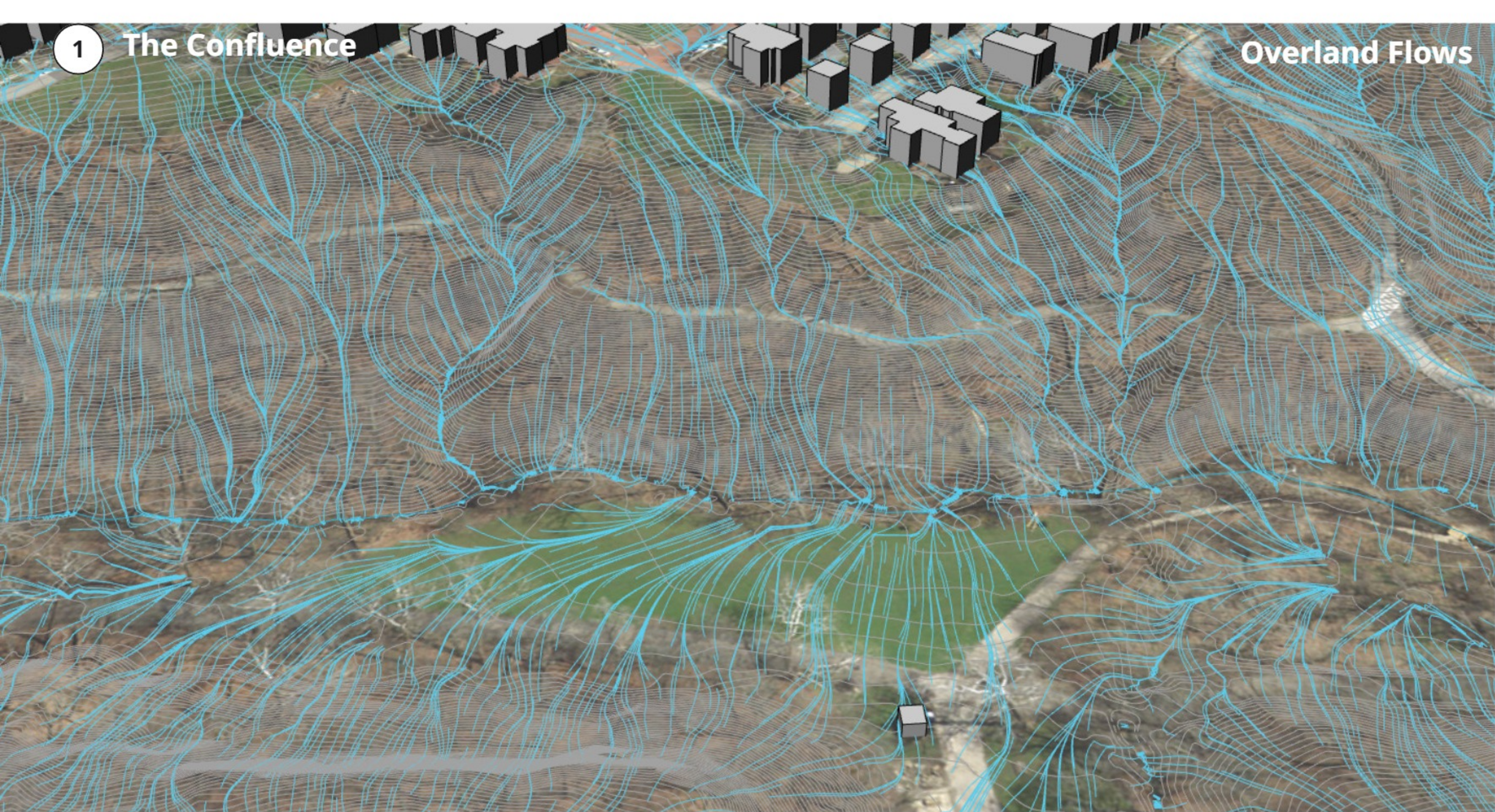
LEGEND

-  Trees Survey
-  Streams
-  Park Culverts
-  Culvert Outfalls
-  ImperviousSurface_Billing
-  Transportation

1

The Confluence

Overland Flows



2

The Wetlands

Environmental Overlay



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Opportunities

- 1 Improve adjacent drainage connectivity to stream
- 2 Improve elevation relationship between stream & trails
- 3 Redefine stream channel & wetland edge
- 4 Improve and enhance wetland buffer ecology
- 5 Provide opportunities to engage with wetland ecology
- 6 Establish new boardwalk stream crossings
- 7 Establish new seating area and educational amenities
- 8 Reduce City's stormwater fee charges from parking, paths, and tennis courts

Constraints

- 1 Project area is located in a landslide prone overlay zone
- 2 Project area is within 50' of steep slope overlay zone
- 3 Wetland project will require DEP/ACOE joint permit
- 4 Tributary channels located in steep slope overlay zone
- 5 Existing tree survey and geotech needed to finalize
- 6 Gaps in existing sewer infrastructure mapping
- 7 Existing sewer infrastructure is very shallow
- 8 Phasing and permitting with multiple agencies

2

The Wetlands

Parking lot GSI
inflow opportunity

Existing shallow
underground
utilities

Existing footbridge
culvert & infrastructure
access

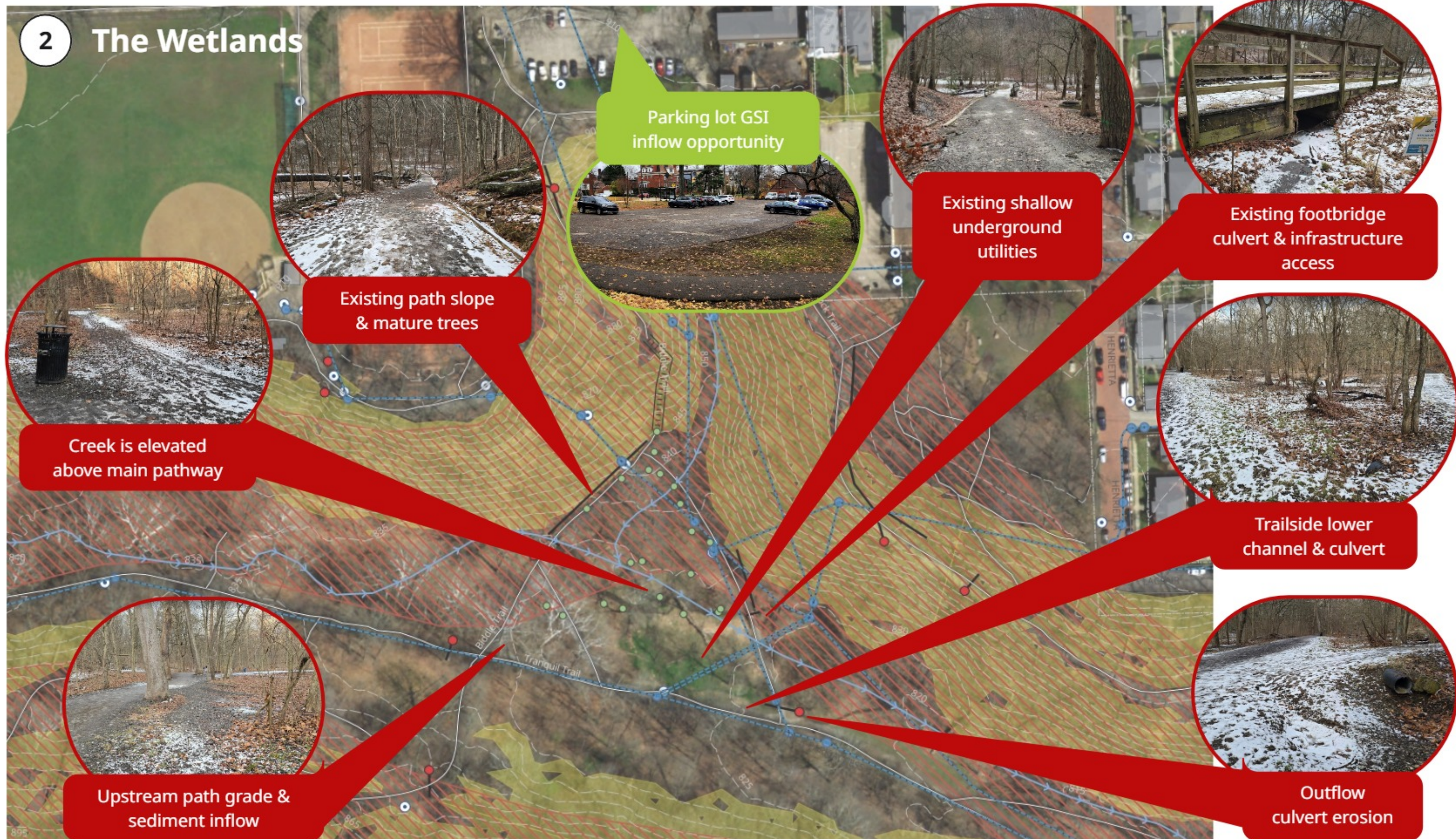
Existing path slope
& mature trees

Creek is elevated
above main pathway

Trailside lower
channel & culvert

Upstream path grade &
sediment inflow

Outflow
culvert erosion



2

The Wetlands

Pittsburgh Water
Impervious Surface
Billing Areas



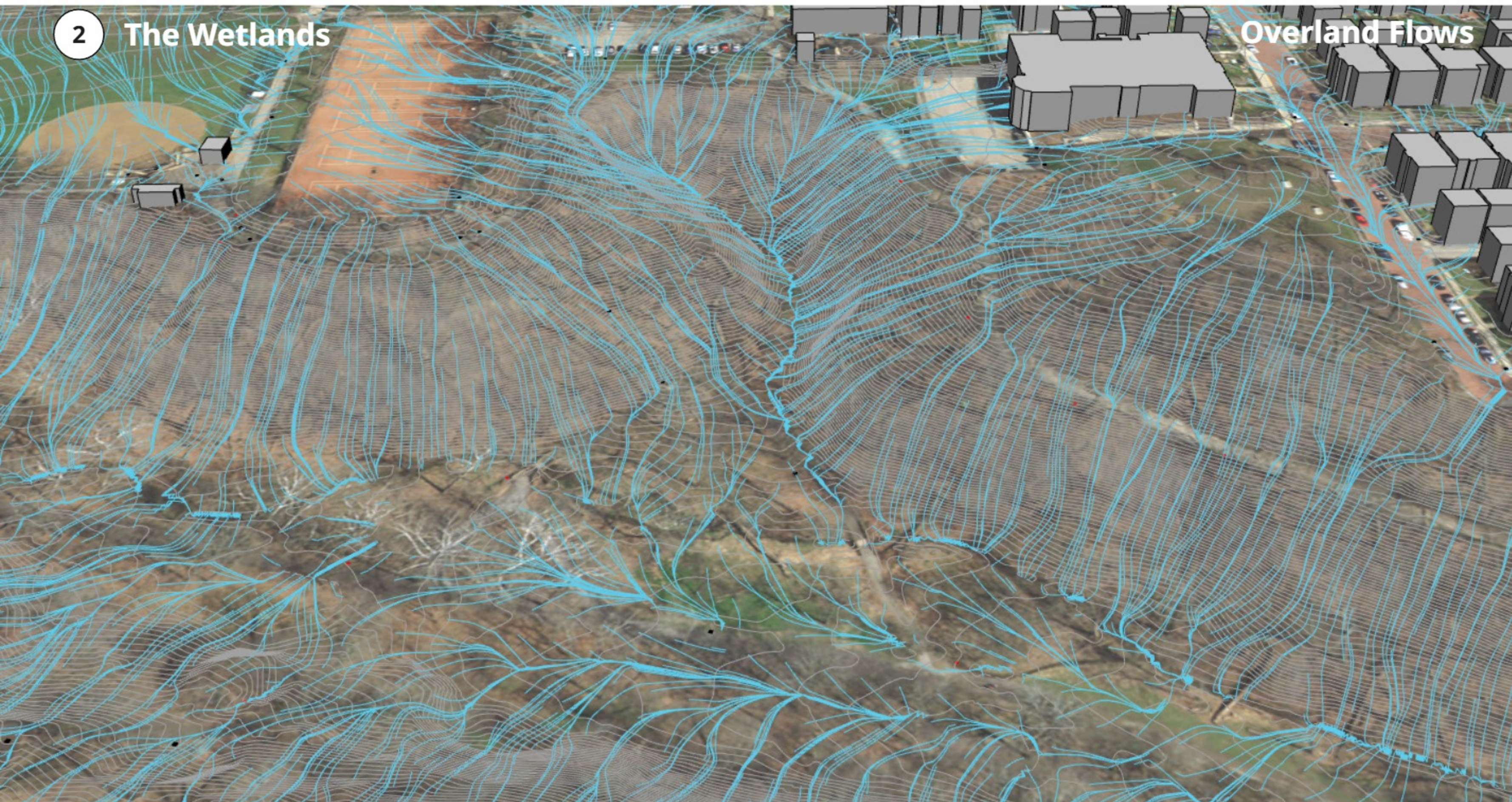
LEGEND

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2

The Wetlands

Overland Flows



3

Regent Square GSI Park Inflow



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Opportunities

- 1 Utilize existing MS4 outfall to park & channel to creek
- 2 Address existing/historical erosion tributary to creek
- 3 Minimal risk opportunity to bring in offsite stormwater
- 4 Project includes ability to phase/expand capture area
- 5 Provide opportunities to enhance existing trailhead
- 6 Increase and regulate inflow to Fern Hollow Creek
- 7 ?
- 8 ?



Constraints

- 1 Project is located in a landslide prone overlay zone
- 2 Project area is within 50' of steep slope overlay zone
- 3 Project will require ROW work & coordination with DOMI
- 4 Tributary channels located in steep slope overlay zone
- 5 Existing tree survey and geotech needed to finalize
- 6 Will require tributary channel stablization
- 7 May require engagement with neighboring property
- 8 ?

3

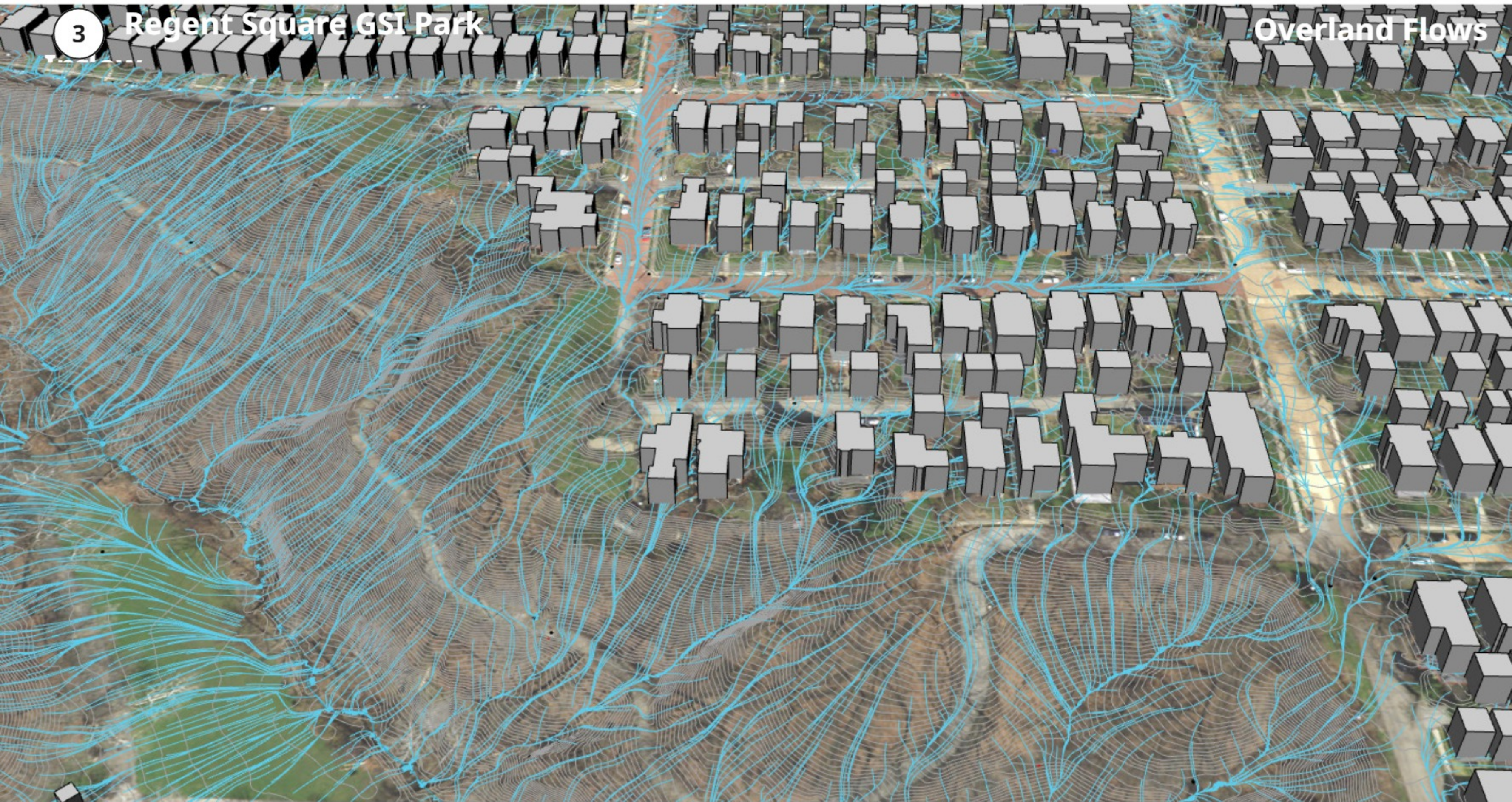
Regent Square GSI Park Inflow



3

Regent Square GSI Park

Overland Flows



3

Regent Square GSI Park

Pittsburgh Water
Impervious Surface
Billing Areas



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Regent Square GSI Park Inflow

Environmental
Overlay

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Opportunities

- 1 Address existing erosion at Henrietta & Laclair
- 2 Partner with Environmental Charter School
- 3 Improve pedestrian ROW safety & vehicle staging
- 4 Integrate with outdoor education space
- 5 Provide slow release inflow to Fern Hollow Creek
- 6 Increase and regulate inflow to Fern Hollow Creek
- 7 ?
- 8 ?



Constraints

- 1 Project is located in a landslide prone overlay zone
- 2 Project area is within 50' of steep slope overlay zone
- 3 Project will require ROW work & coordination with DOMI
- 4 Tributary channels located in steep slope overlay zone
- 5 Project would require lined underground detention
- 6 Existing tree survey and geotech needed to finalize
- 7 May require engagement with multiple property owners
- 8 May reduce existing street parking capacity

3

Regent Square GSI Park Inflow

ROW GSI requires
utility coordination
& street restoration

Opportunity for ROW
GSI to slow release to

Opportunity for ECS
partnership and ROW GSI to
enhance pedestrian safety

Outleting to steep slope
requires significant
stabilization or pipe slope

Potential to
address existing
trail erosion

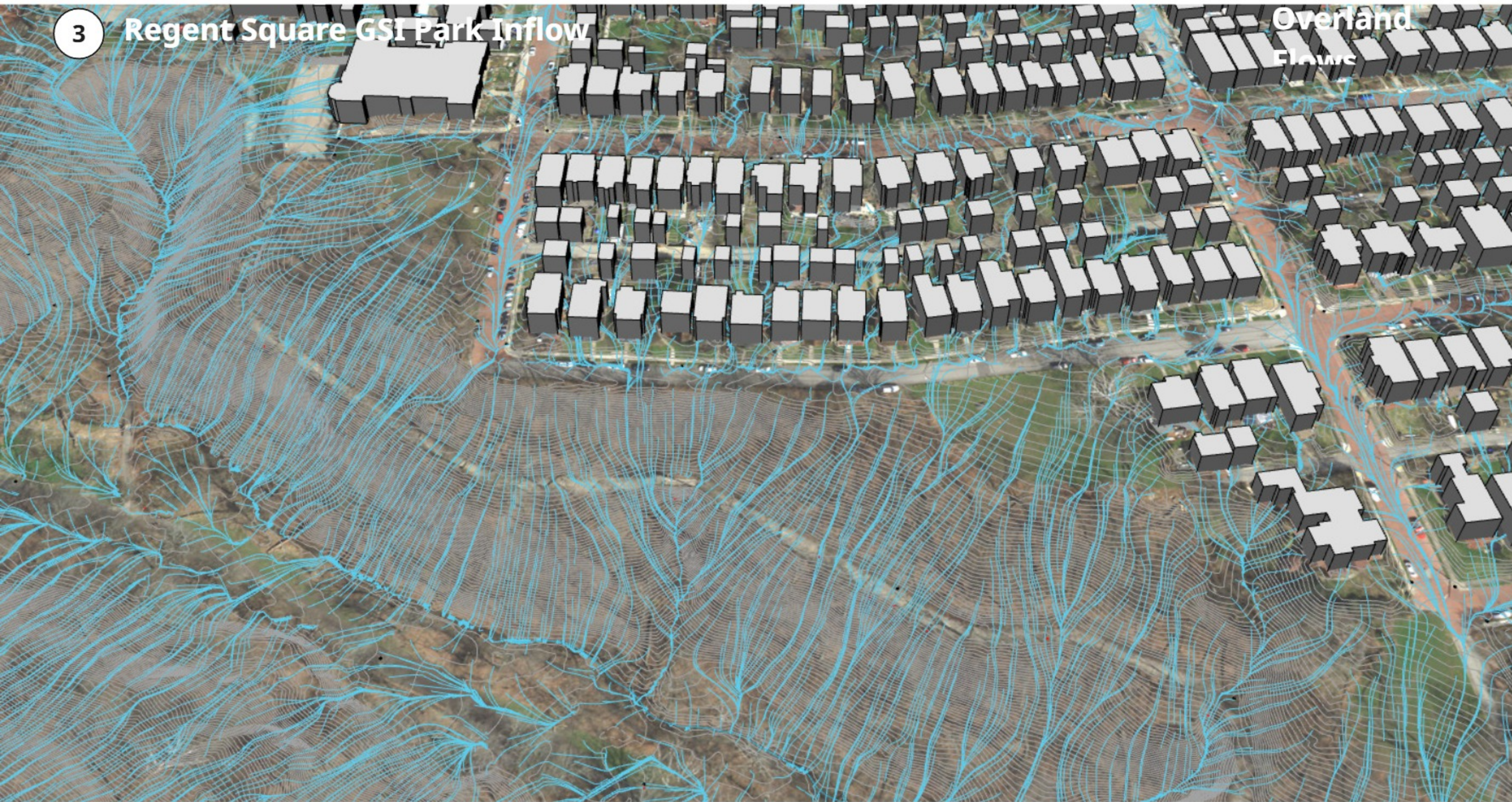
Potential to
address erosion at
existing culvert



3

Regent Square GSI Park Inflow

Overland
Flows



3

Regent Square GSI Park Inflow

Pittsburgh Water
Impervious Surface
Billing Areas



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4

Point Breeze GSI Park Inflow

Environmental
Overlay

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- FEMA FloodPlain



Opportunities

- 1 Utilize existing MS4 outfall to park & channel to creek
- 2 Project includes ability to phase/expand capture area
- 3 Partner with PPS Sterrett Classical Academy
- 4 Provide environmental education and storytelling
- 5 Increase and regulate inflow to creek headwaters
- 6 Provide opportunities to enhance existing trailhead
- 7 Leverage natural basin for detention
- 8 ?



Constraints

- 1 Increased inflow may be intercepted by sewer I&I
- 2 Project area is within 50' of steep slope overlay zone
- 3 Project will require ROW work & coordination with DOMI
- 4 Outfall channel located in steep slope overlay zone
- 5 Vague existing channel could increase trail flooding
- 6 Existing tree survey and geotech needed to finalize
- 7 May require engagement with multiple property owners
- 8 May reduce existing street parking capacity

4

Point Breeze GSI Park Inflow



Partnership opportunity



Existing MS4 area draining to park



Additional capture area to MS4 outfall

Potential sewer I&I

Culvert required to pass flow

Creek loses definition and runs down Tranquil Trail

4

Point Breeze GSI Park Inflow

Pittsburgh Water
Impervious Surface
Billing Areas



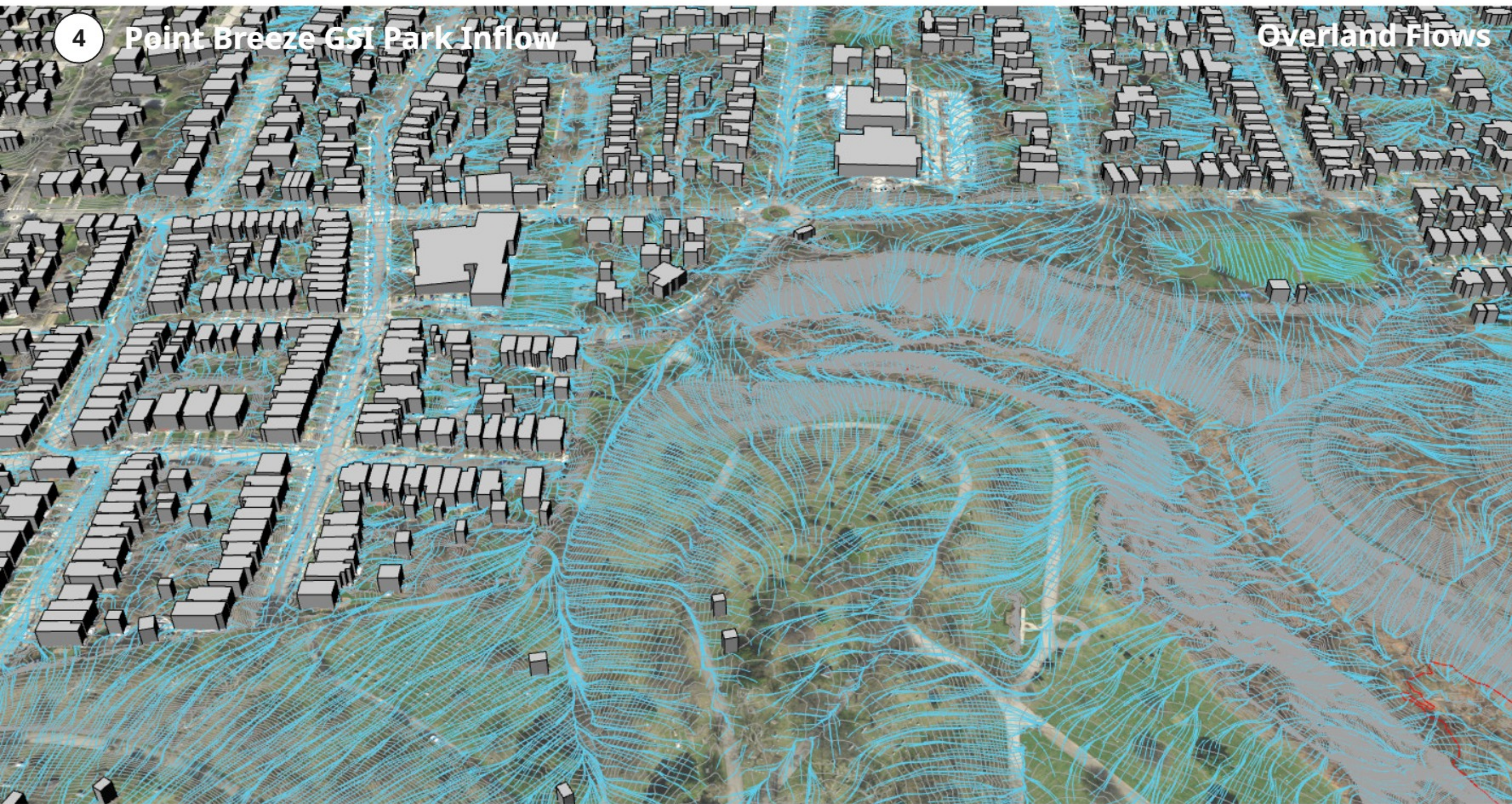
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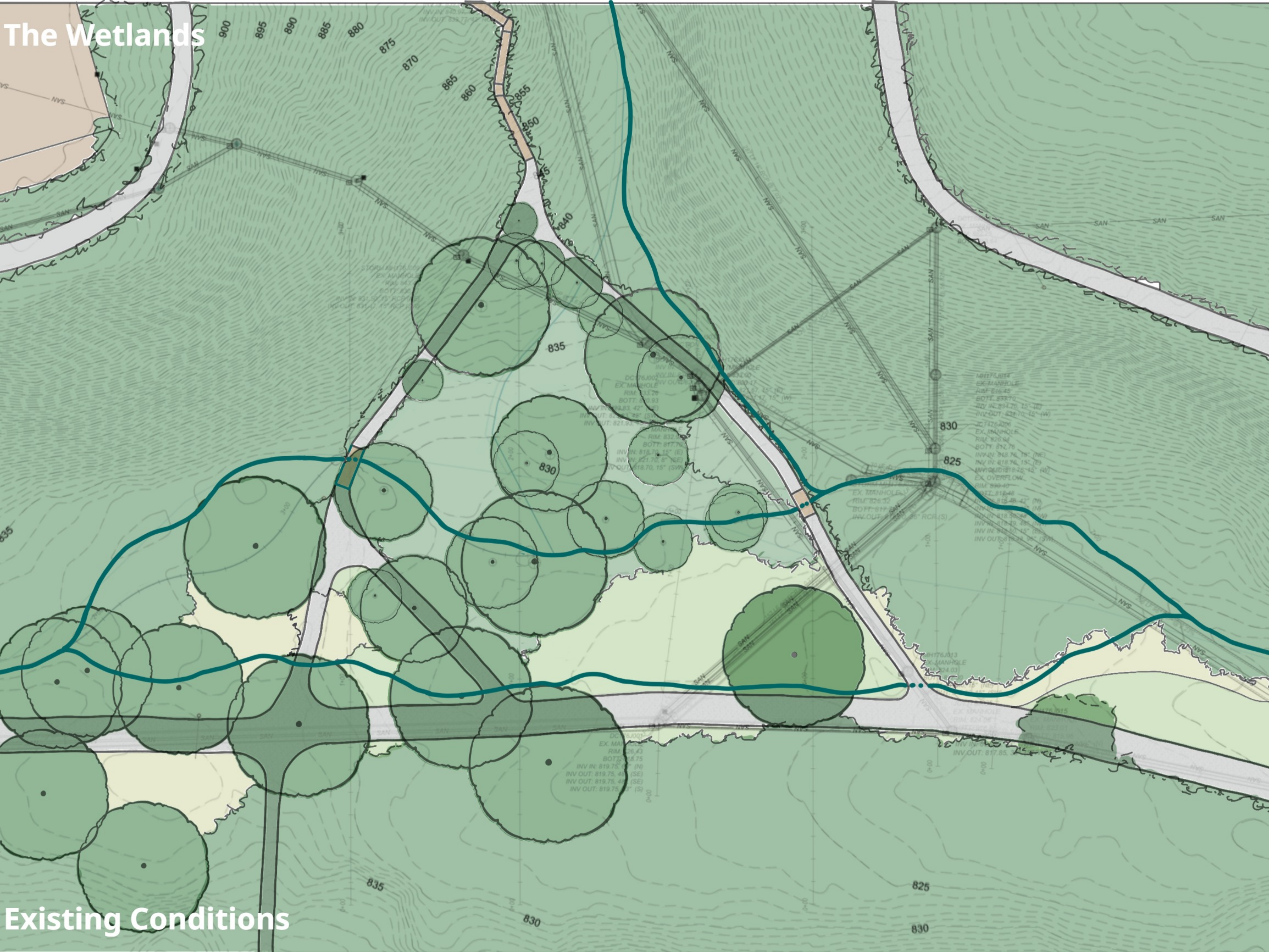
4

Point Breeze GSI Park Inflow

Overland Flows

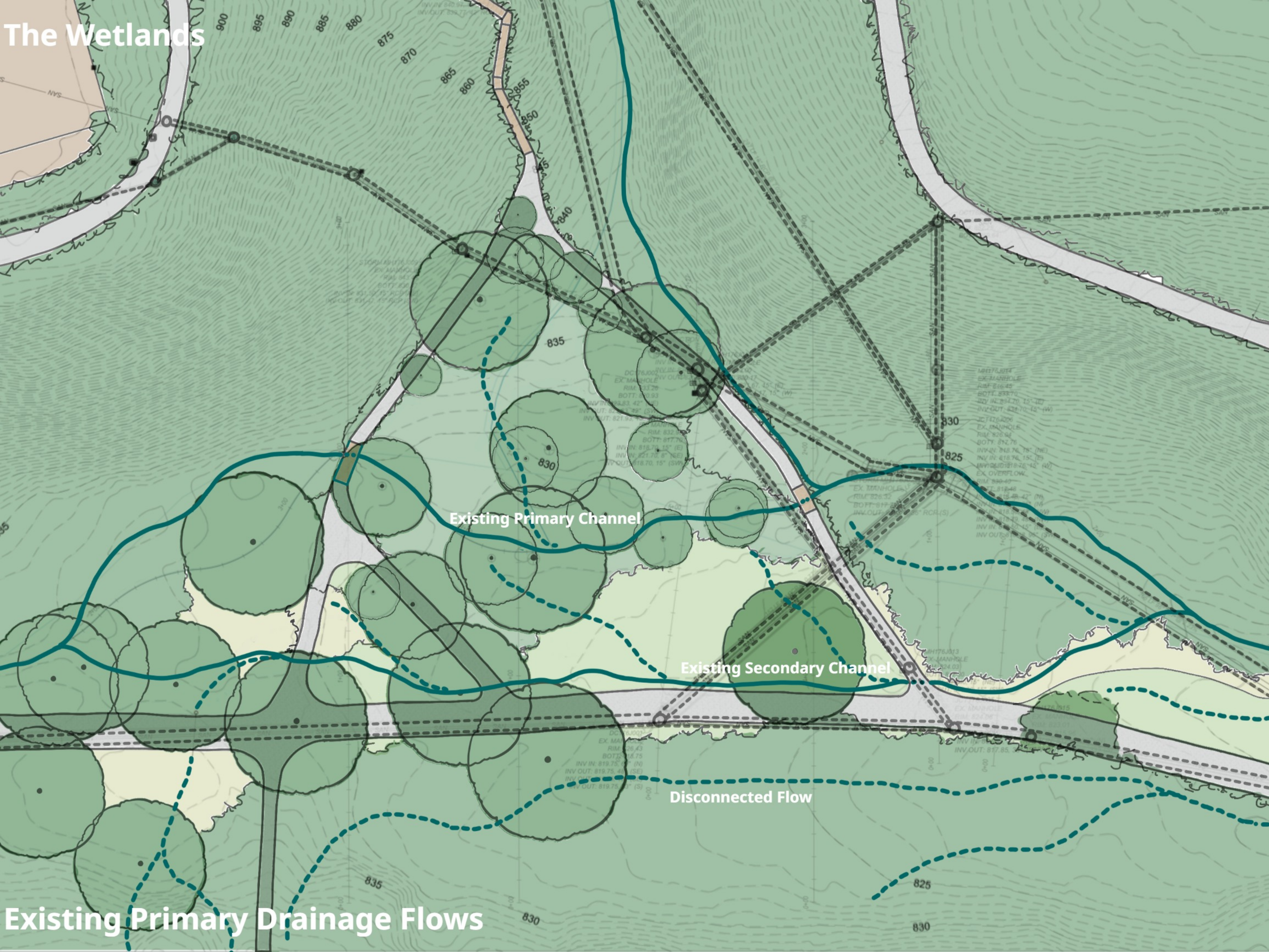


The Wetlands



Existing Conditions

The Wetlands



Existing Primary Channel

Existing Secondary Channel

Disconnected Flow

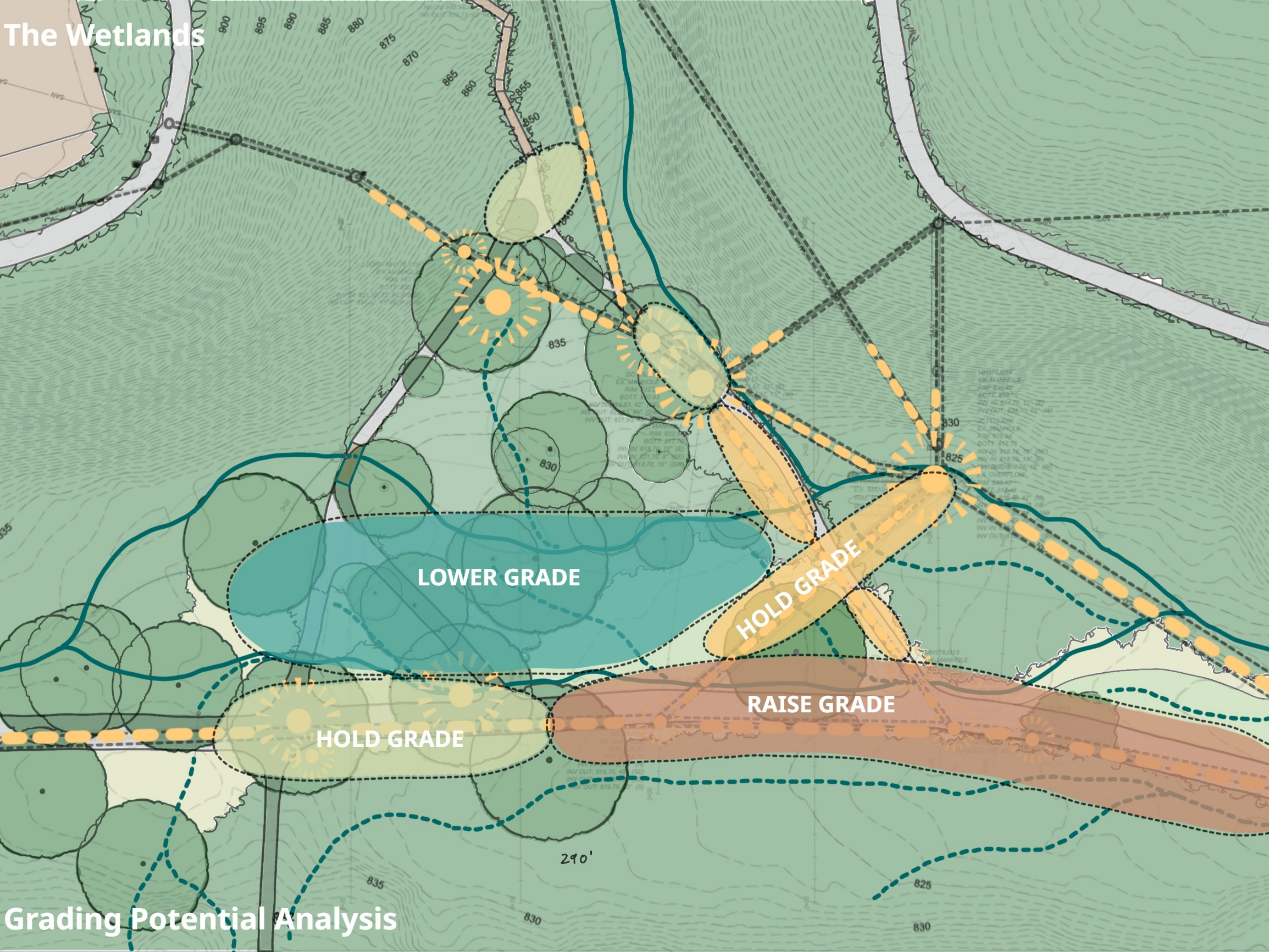
Existing Primary Drainage Flows

[illegible]

The map illustrates the existing design constraints for a project, focusing on wetlands and sanitary infrastructure. Key features include:

- Existing Sanitary:** Represented by dashed orange lines with yellow circular markers at junctions and endpoints.
- Existing Mature Trees:** Represented by green circles with yellow sunburst patterns, indicating areas of ecological sensitivity.
- Topographic Data:** Contour lines and elevation markers (e.g., 830, 835, 840, 845, 850, 855, 860, 865, 870, 875, 880, 885, 890, 895, 900) are shown across the landscape.
- Engineering Notes:** Various technical annotations are present, including manhole elevations (e.g., RIM 826.43, BOTT 818.75), invert elevations (e.g., INV IN 819.75, INV OUT 819.75), and flow directions (e.g., (N), (SE), (S), (W)).
- Legend:** The map includes a legend at the bottom left identifying the symbols for 'Existing Sanitary' and 'Existing Mature Trees'.

The Wetlands



Grading Potential Analysis

The Wetlands



Proposed Primary Channel

Proposed Secondary Channel

Proposed Design Intervention - 1

The Wetlands



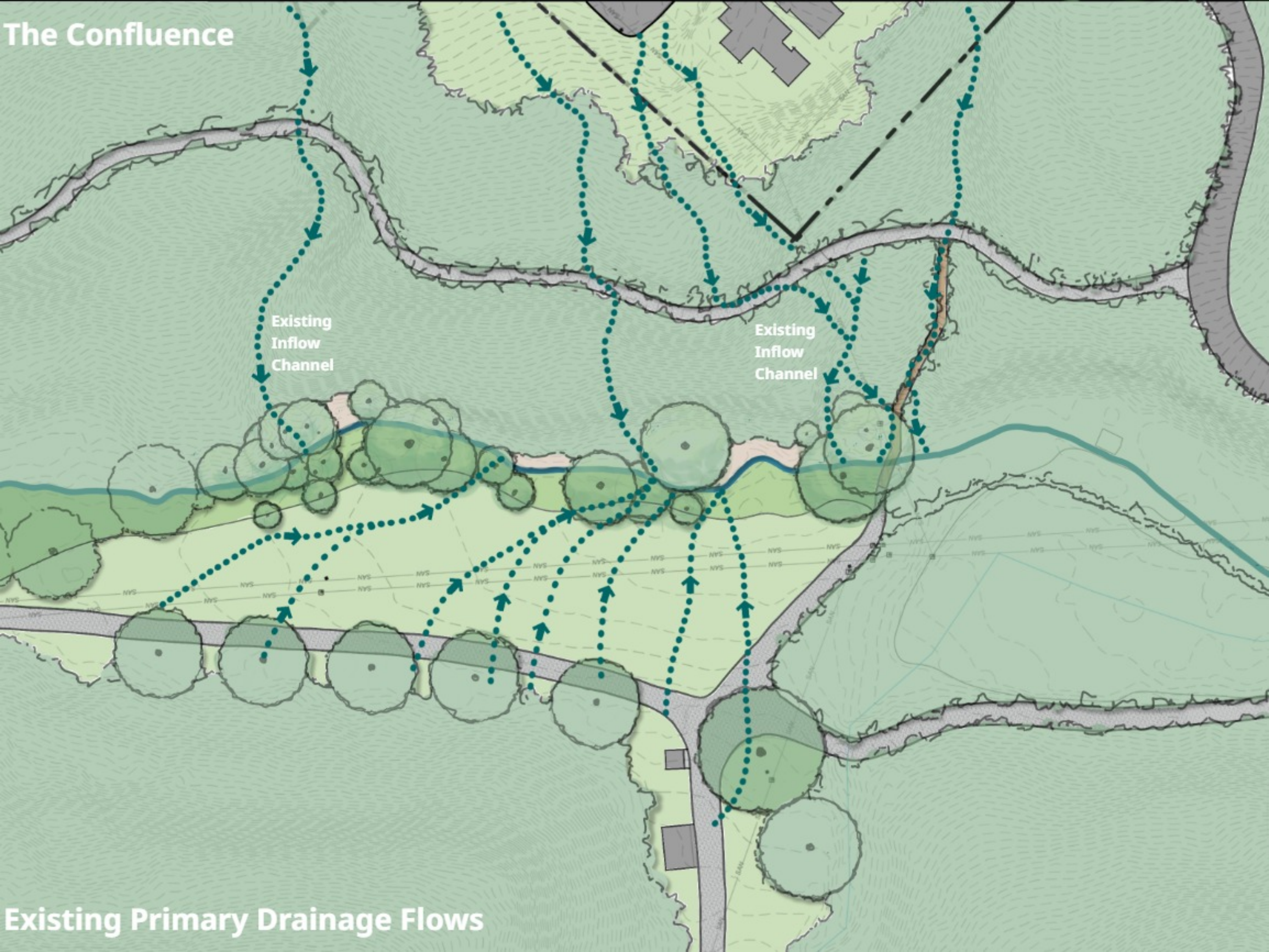
Proposed Wetland System

Proposed Secondary Channel

Proposed Design Intervention - 2

Existing Conditions

The Confluence



Existing
Inflow
Channel

Existing
Inflow
Channel

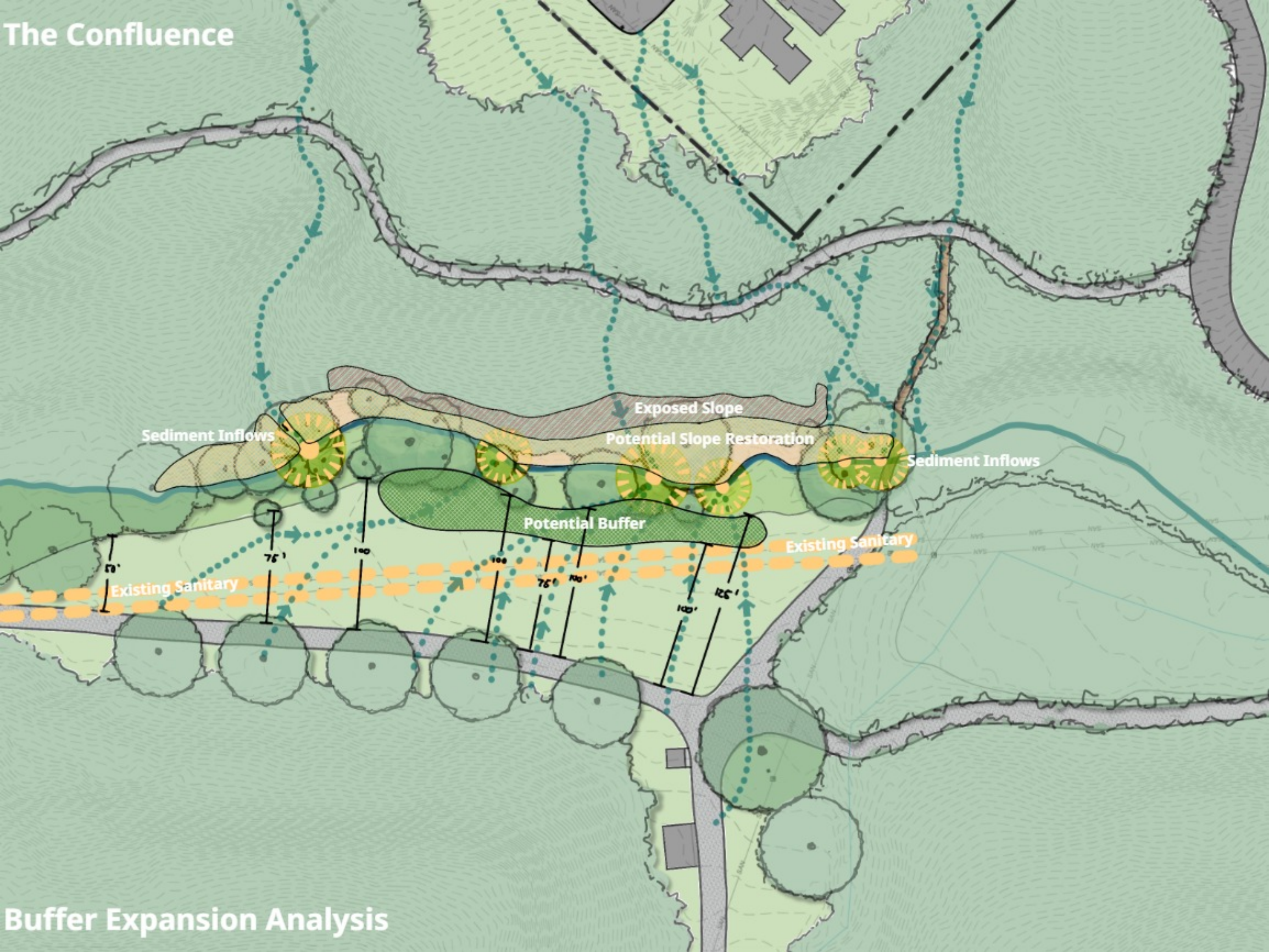
Existing Primary Drainage Flows

The Confluence



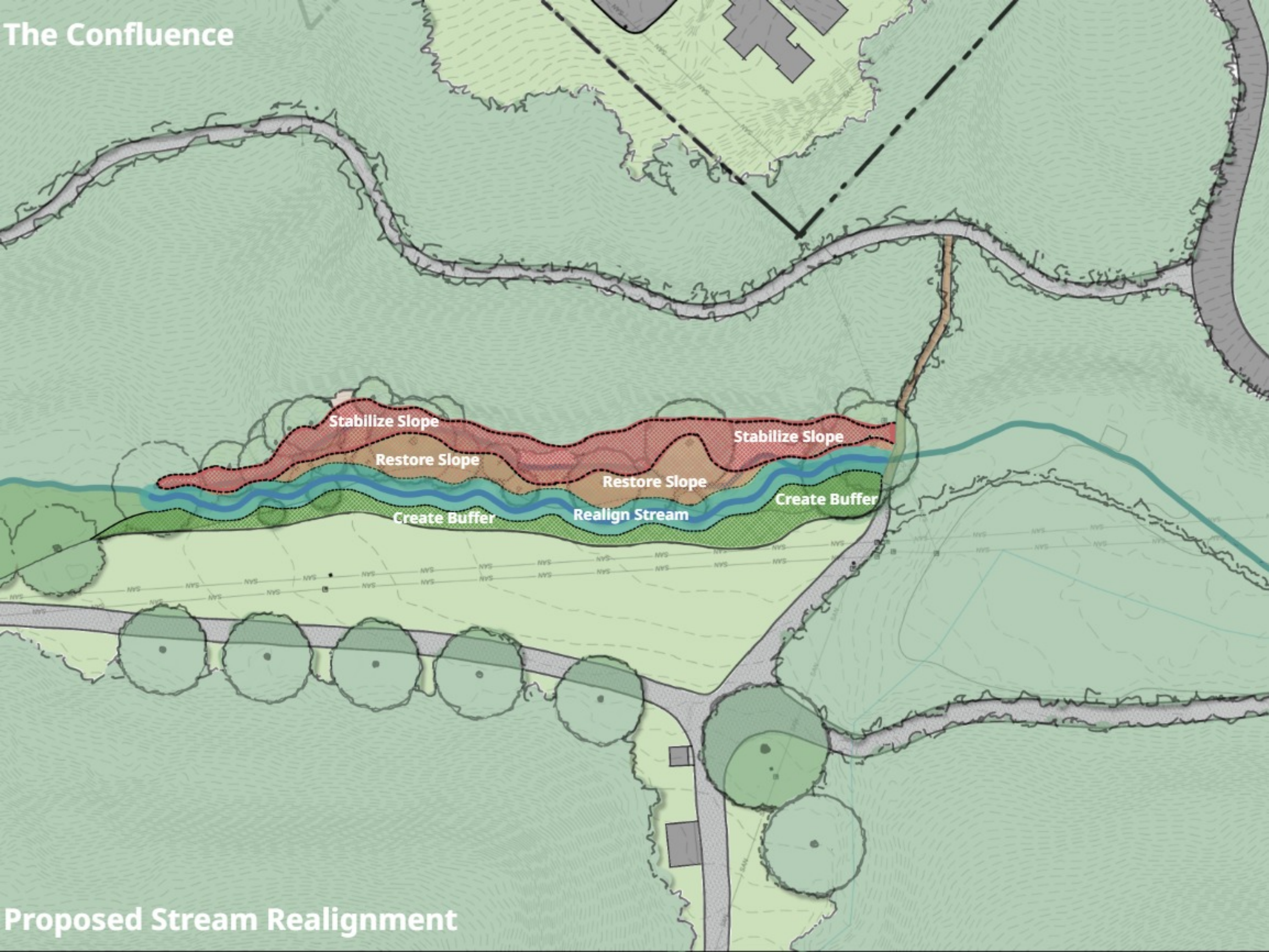
Existing Design Constraints

The Confluence



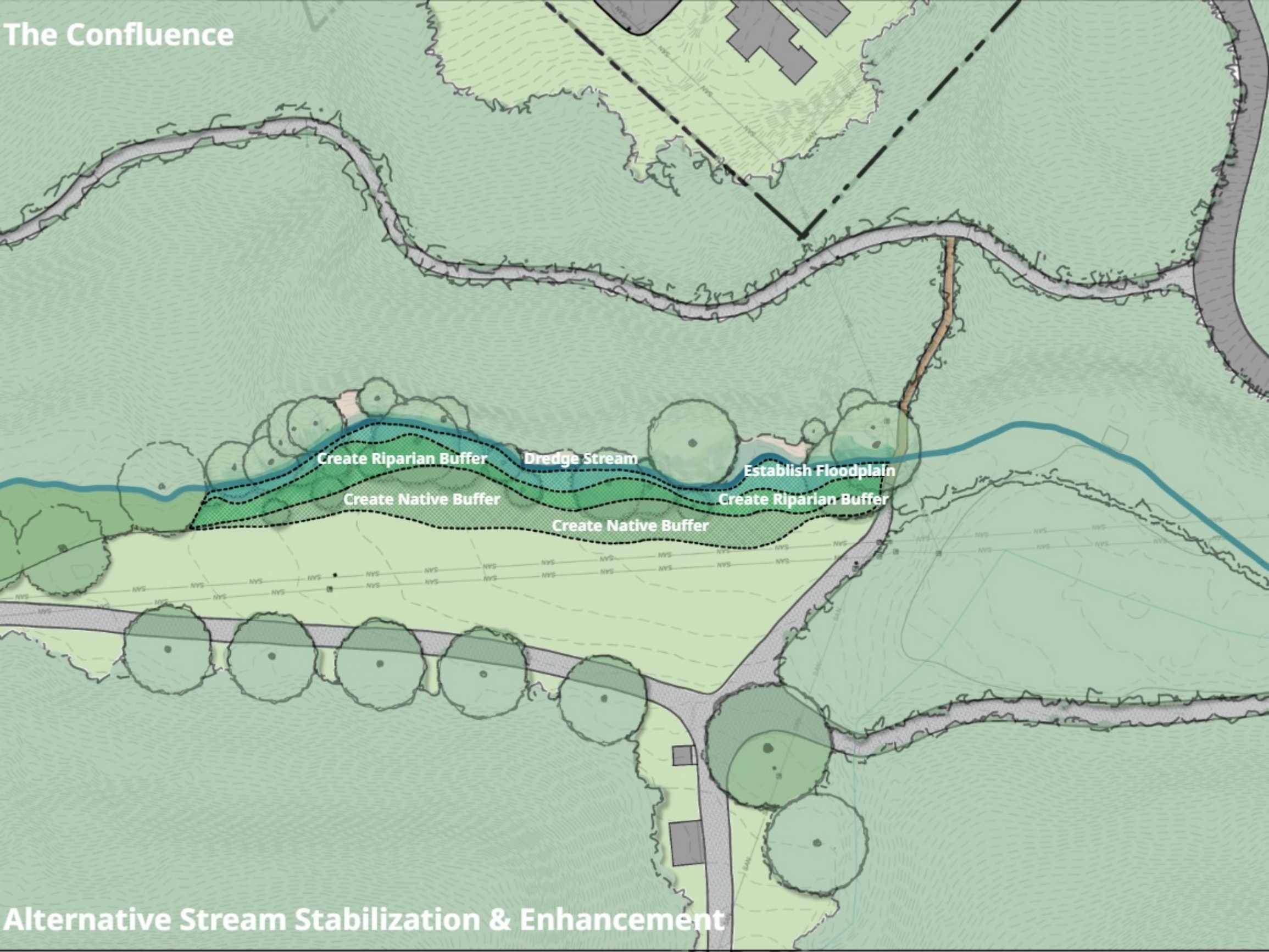
Buffer Expansion Analysis

The Confluence



Proposed Stream Realignment

The Confluence



Alternative Stream Stabilization & Enhancement