

# Henrietta GSI

## Site Introduction & Existing Conditions

The Henrietta Street GSI project area encompasses the residential rights-of-way along Henrietta Street and LaClair Street in Regent Square, immediately adjacent to Frick Park’s eastern boundary. The project area drains a combined total of 6.27 acres, of which 3.70 acres is directly connected impervious surface—residential streets, driveways, a parking lane, and an alley whose runoff currently enters the combined sewer system via street catchbasins, bypassing Fern Hollow Creek entirely. The adjacent Environmental Charter School campus generates significant pedestrian and vehicular traffic pressure during school pickup and drop-off, a factor that constrains both construction sequencing and the design of right-of-way features. Existing utilities within the ROW, mature street trees, and the steep and landslide-prone slopes along the flow path from the street to the park are additional constraints that shape where and how GSI features can be placed.

## Proposed Solution

The schematic design proposes a “street creek” networked ROW GSI retrofit—a connected series of green infrastructure features distributed along Henrietta Street and LaClair Street that collectively capture, treat, and slowly release stormwater that currently flows to the combined sewer. Features include curb bumpout stormwater planters, a porous paving parking lane, a porous paving “green” alley retrofit, and subsurface stormwater storage with slow release. Together, these features intercept combined-sewer-bound runoff at or near its source and route treated stormwater to a new, energy-dissipating MS4 outfall within Frick Park, restoring flow to Fern Hollow Creek while reducing the volume of stormwater entering the combined sewer system. This reduction in combined sewer inflow directly lowers the risk of CSO discharges to Nine Mile Run during storm events. The networked design is intentionally phased and expandable, allowing individual features to be constructed incrementally as funding and right-of-way coordination allow.

## Expected Performance & Implementation Considerations

Based on schematic-level analysis, the project is sized to detain approximately 15,908 cubic feet of stormwater during the 95th percentile storm event across a contributing drainage area of 6.27 acres. Implementation requires DOMI coordination for all right-of-way work; DPW coordination for connection to the existing MS4 outfall in the park; and Pittsburgh Water coordination for work around and/or relocation of existing combined sewer catchbasins. Subsurface utility investigation and CCTV inspection of existing infrastructure are prerequisites before design can be finalized. Construction phasing should be coordinated with the Environmental Charter School academic calendar to minimize disruption during peak school traffic periods. The project’s networked, modular design allows individual features to be permitted, funded, and constructed in phases—an important advantage given the complexity of ROW coordination in an active residential neighborhood.

## DESIGN FEATURES:

- “Street creek” networked ROW GSI retrofit
- Curb bumpout stormwater planters
- Porous paving parking lane
- Porous paving “green” alley retrofit
- Subsurface stormwater storage with slow release

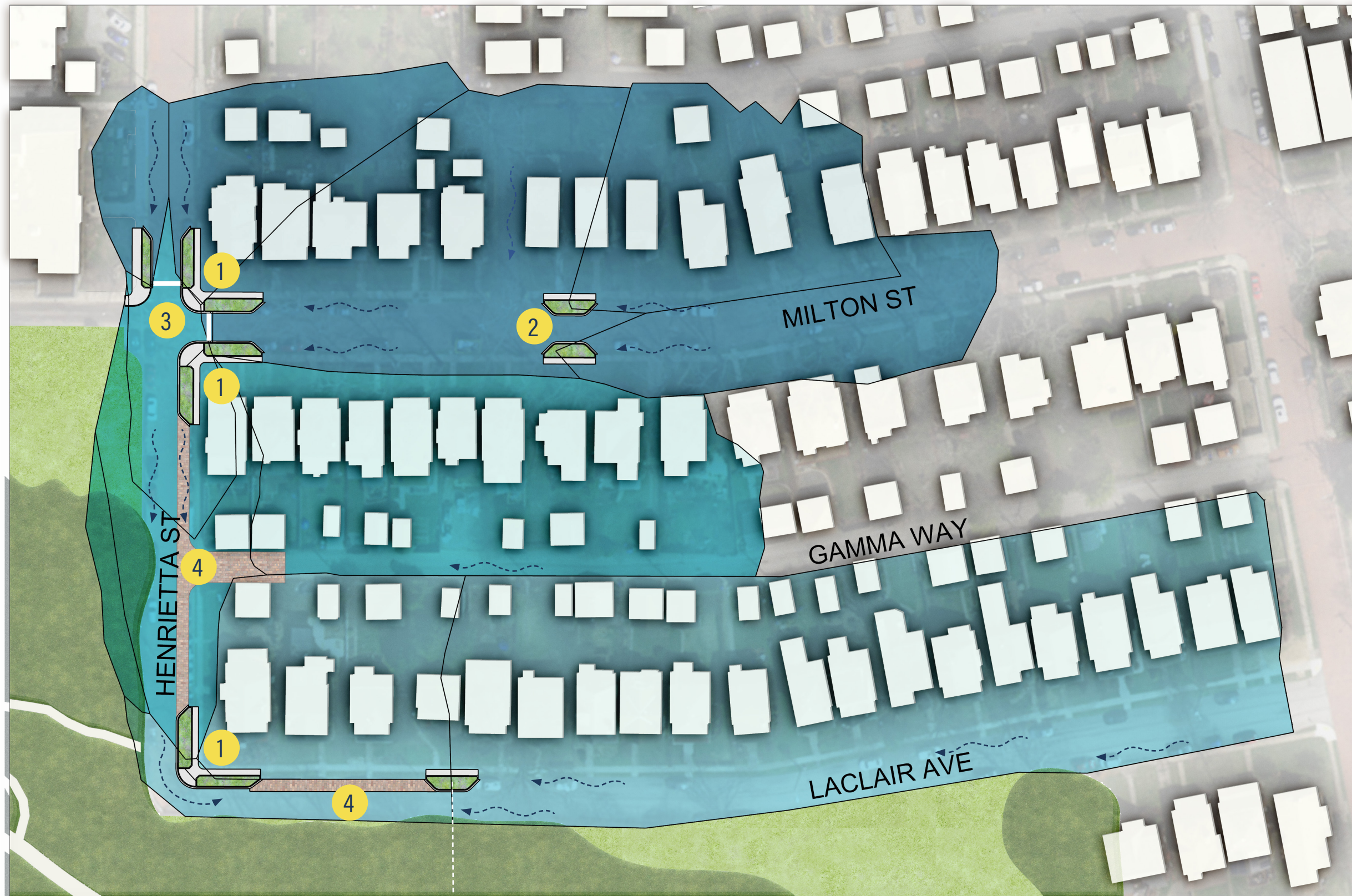
## SITE CONSTRAINTS:

- Steep and landslide prone slopes adjacent to project area and along flow path to stream
- Existing utilities within ROW
- Existing flood control level service within the neighborhood
- Mature trees along right of way
- Heavy pedestrian and vehicular parking and traffic pressure at school pickup / drop off times

## PERFORMANCE METRICS:

- Total Drainage Area Captured: 6.27 Acres
- Directly Connected Impervious Area: 3.70 Acres
- 95th Percentile Storm Volume Detained: 15,908 CF
- GSI Footprint:
- Loading Ratio:
- Cost per Impervious Acre Managed:





#### DESIGN NOTES

- 1 CURBED BIORETENTION GARDENS WITH SIDEWALK RESTORATION AND CONCRETE GUTTER
- 2 FLOW THROUGH STORMWATER PLANTERS
- 3 TRENCH DRAIN CONVEYANCE
- 4 POROUS PAVER PARKING LANE CAPTURE AND CONVEYANCE SYSTEM
- 4 PIPE SLOPE OVERFLOW AND CONVEYANCE SYSTEM TO FERN HOLLOW CREEK

#### LEGEND

- Drainage Area - Primary Capture
- Drainage Area - Secondary Capture
- Drainage Area - Tertiary Capture
- Stormwater Flow Direction

## Henrietta GSI



# Overton GSI

## Site Introduction & Existing Conditions

The Overton Street GSI project area encompasses residential rights-of-way along Overton Street in Regent Square, north of the Henrietta Street corridor and closer to the upper portion of the Fern Hollow Creek watershed. The project area drains 5.37 acres, of which 3.01 acres is directly connected impervious surface whose runoff currently enters the combined sewer system via street catchbasins—bypassing Fern Hollow Creek and contributing to combined sewer overflow risk in Nine Mile Run downstream. As with Henrietta Street, steep and landslide-prone slopes run adjacent to the project area and along the flow path from the street to the park, existing utilities are present within the ROW, and mature street trees constrain feature placement. The existing combined sewer system provides a degree of flood control service to the neighborhood that the GSI design must account for—ensuring that stormwater intercepted from the combined system is managed in a way that does not increase flood risk for adjacent properties.

## Proposed Solution

The schematic design proposes a “street creek” networked ROW GSI retrofit combining surface and subsurface stormwater management features. Curb bumpout stormwater planters capture and filter runoff along Overton Street, while a neighborhood “parklet” subsurface stormwater storage node at the corner of Overton and Macon Avenue serves as the project’s primary detention element. The storage node adapts an existing sloped parklet space—gently regrading to create a small “event lawn” at grade while providing subsurface detention volume below—and routes treated stormwater with slow release to the existing MS4 outfall within Frick Park and on to Fern Hollow Creek. By intercepting combined-sewer-bound runoff and returning it to the stream through a managed, attenuated release, the project restores flow to Fern Hollow while reducing combined sewer inflow and the associated risk of CSO discharges to Nine Mile Run.

## Expected Performance & Implementation Considerations

Based on schematic-level analysis, the project is sized to detain approximately 12,812 cubic feet of stormwater during the 95th percentile storm event across a contributing drainage area of 5.37 acres. Implementation requires DOMI coordination for all right-of-way work; DPW coordination for connection to the MS4 outfall connection; Pittsburgh Water coordination for work around and/or relocation of existing combined sewer catchbasins. Subsurface utility investigation and CCTV inspection of existing infrastructure are prerequisites before design can be finalized. The subsurface storage node will require geotechnical assessment given the proximity of steep and landslide-prone slopes along the flow path to the park.

## DESIGN FEATURES:

- “Street creek” networked ROW GSI retrofit
- Curb bumpout stormwater planters
- Neighborhood “parklet” subsurface stormwater storage node with slow release to existing MS4 outfall in park
- Storage node adapts sloped parklet space, flattening the grades slightly to create a small “event lawn” space at the corner of Overton and Macon ave

## SITE CONSTRAINTS:

- Steep and landslide prone slopes adjacent to project area and along flow path to stream
- Existing utilities within ROW
- Existing flood control level service within the neighborhood
- Mature trees along right of way

## PERFORMANCE METRICS:

- Total Drainage Area Captured: 5.37 Acres
- Directly Connected Impervious Area: 3.01 Acres
- 95th Percentile Storm Volume Detained: 12,812 CF
- GSI Footprint:
- Loading Ratio:
- Cost per Impervious Acre Managed:





DESIGN NOTES

- 1 CURBED BIORETENTION GARDENS WITH SIDEWALK RESTORATION AND CONCRETE GUTTER
- 2 FLOW THROUGH STORMWATER PLANTERS
- 3 TRENCH DRAIN CONVEYANCE
- 4 UNDERGROUND STORMWATER STORAGE SYSTEM WITH PIPED CONNECTION FROM BIORETENTION SYSTEM
- 5 MINOR GRADING OF EXISTING LAWN AREA TO ACCOMMODATE UNDERGROUND STORAGE SYSTEM
- 6 PIPE SLOPE OVERFLOW AND CONVEYANCE SYSTEM TO FERN HOLLOW CREEK

LEGEND

- Drainage Area - Primary Capture
- Drainage Area - Secondary Capture
- Stormwater Flow Direction

# Overton GSI