

Fact Sheet - Stormwater Wetland at the Former Duke Diet and Fitness Center (DDFC)

The 9 acre site is located at the headwaters of South Ellerbe Creek at the confluence of the Trinity (230 acres) and Downtown (255 acres) Basins, two heavily developed urban basins near down-town Durham. Almost the entire DDFC site is located within the 100-year floodplain and nearly half of the existing building is located within the regulated floodway.

The recommended design converts the site to an on-line constructed **wetland** to provide water quality treatment and flood detention storage.

- The project is not be viable without the removal of the DDFC building and parking areas. Additional site modifications include removal of the failing 8'H X 10'W arch culvert, and the abandoned 18" VCP sewer line.
- Removal and relocation of the active 18-inch PVC sanitary sewer pipe.
- Installation of a new outfall for the arch culvert that will be removed at Trinity Avenue
- Relocation of the existing greenway trail

The project is needed to reduce nitrogen and phosphorus load from existing development prior to reaching Falls Lake (Falls Lake existing development rule and NPDES permit requirements).

Costs for the conceptual design are variable and dependent on the characteristics of the final design.

Est. Falls Lake Stage I load reduction	Est. Cost of Falls Lake Stage I reduction w/o Stormwater Wetland	Est. Cost of Falls Lake Stage I reduction w/ Stormwater Wetland	Est. Savings w/ Stormwater Wetland	Est. Stormwater Wetland load reduction	Est. SW Wetland Cost (Design, Permitting, Construction, Land)
1600 lb/yr	\$45 million	\$25 - \$38 million	\$7 - \$20 million	480-960 lb/yr (30-60%)	\$7 million

Additional savings beyond those noted above will be realized by lower maintenance cost of a single facility versus 15-25 smaller facilities needed to achieve the same result.

Maintenance Plan

Maintenance for the constructed wetland and surrounding area would consist of trash removal (weekly), mowing (seasonally), structural inspection (min. annually), and monitoring and replacement of plants as necessary (seasonal/annual inspection). These items would be done as a combination of public works staff and under a contract for maintenance of City owned stormwater quality facilities. Annualized cost for maintenance would average about \$20,000/yr.

Potential Amenities

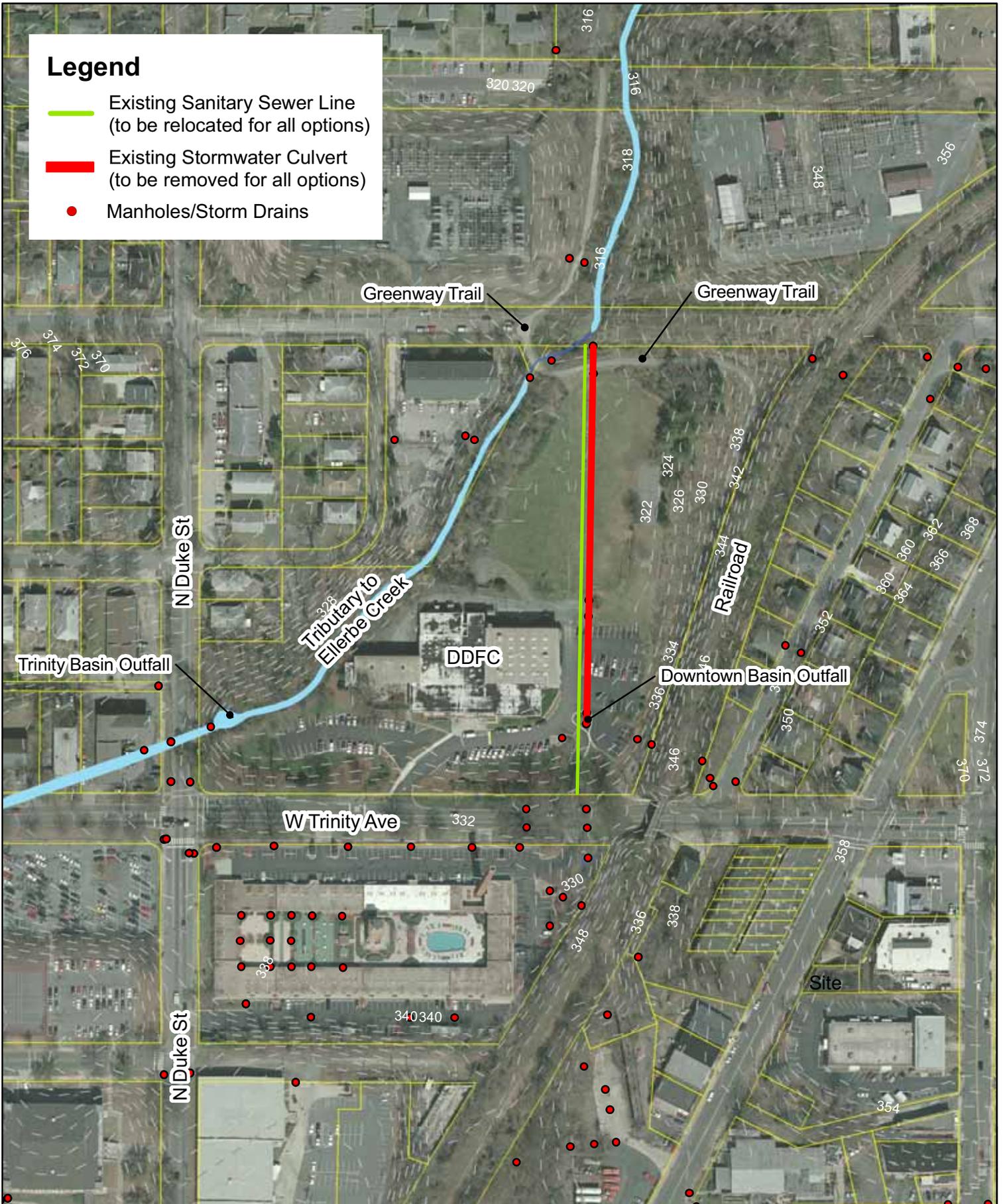
Emphasis will be placed on the aesthetic appeal of the plantings and landscape. Landscaping with larger plants using a variety of evergreen and perennial plant species will make the project more appealing sooner and throughout the year. An existing trail is located on the property and can be enhanced with viewing areas of the wetland and educational signage. Seating can also be added to the viewing areas which overlook the wetland to see butterflies, dragonflies, frogs, ducks, and other animal species attracted to the site. Additional trail head parking can be provided at the end of Dacian Ave. Green infrastructure elements such as permeable pavers can be used for the viewing areas and trail head parking. The project will serve as a stormwater educational opportunity for both local schools and citizens. A public meeting will be planned to talk about the project and solicit input on possible amenities.

Evaluation of the current site conditions

A Phase I Environmental Site Assessment (ESA) of the DDFC site was completed (EcoEngineering August 2011). A limited Phase II ESA is in the process of being completed. Preliminary results indicate that there is asbestos containing material and lead containing material in the building and there is a dump site with some limited soil contamination but no groundwater contamination was found. Duke has been notified of the soil contamination and is moving forward to take care of it.

Legend

-  Existing Sanitary Sewer Line (to be relocated for all options)
-  Existing Stormwater Culvert (to be removed for all options)
-  Manholes/Storm Drains



City of Durham
 Public Works Department
 101 City Hall Plaza
 Durham, NC 27701

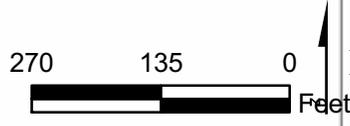


Figure 2
Existing Site Conditions
 (Preliminary Draft)

Brown AND Caldwell
 DATE:
 September 2011

Prepared by Eco Engineering with Brown and Caldwell

Duke Diet and Fitness Center