

## Concept Statement

TEAM E

The plan for beautifying the open canals primarily focuses on three ideas: increasing green space, filtering storm water and reducing maintenance. The main focus of beautifying the open canals is to ensure that the capacity of the water storage is not reduced. Gabion block walls will help increase green space and will also reduce maintenance. Storm water will be filtered at outfall pipes before the water enters the canal. Additional aesthetic additions include unifying the vehicular bridges and re-routing utilities to cross the canal under the vehicular and pedestrian bridges.

### **Gabion Block Walls**

The most significant aspect of the concept is the use of gabion walls. These walls will have many benefits for the aesthetics, and function, of the canal. The first benefit of the gabion block walls is related to maintenance. The walls will eliminate the need for mowing the canals, and thus prevent weed growth. Also, the walls will prevent erosion, by water flow and nutria, of the canals and the need for Jefferson Parish to fill and repair the earthen slopes. Jefferson Parish will be able to save thousands of dollars, and reduce pollution, each year by eliminating the use of slope mowers and excavating equipment. Another important feature of the gabion block walls is that they can be placed in such a way to produce a steeper slope of the canal and thus create a wider canal bank. The wider canal bank will act as additional green space, and will also act as a detention area in times of heavy rainfall. Because the canals are kept at a regulated water level for the majority of time, creating detention areas will give citizens the opportunity to use these areas as linear parks when the ponds are dry. The wider bank, and no longer needed excavator access, gives the opportunity to plant trees closer to the canal banks and alongside the roadway. Depending on the distance from the top of bank and the roadway, guardrails will be installed for safety precautions.

Traditional gabion blocks are galvanized baskets filled with river rock or even limestone. By utilizing recycled concrete instead of rock, we would save money purchasing the rock, and lessen the amount of resources required to ship in a river rock that is not native to Louisiana. A piling system will need to be engineered to stabilize the gabion baskets along the canal banks.

### **Linear Park**

The additional green space gained by use of the gabion block walls will be turned into a linear park. A wide sidewalk, benches and plantings will create a park like setting along the canal. The width of the park will vary, but will allow a safe and comfortable pedestrian pathway along West Esplanade Avenue.

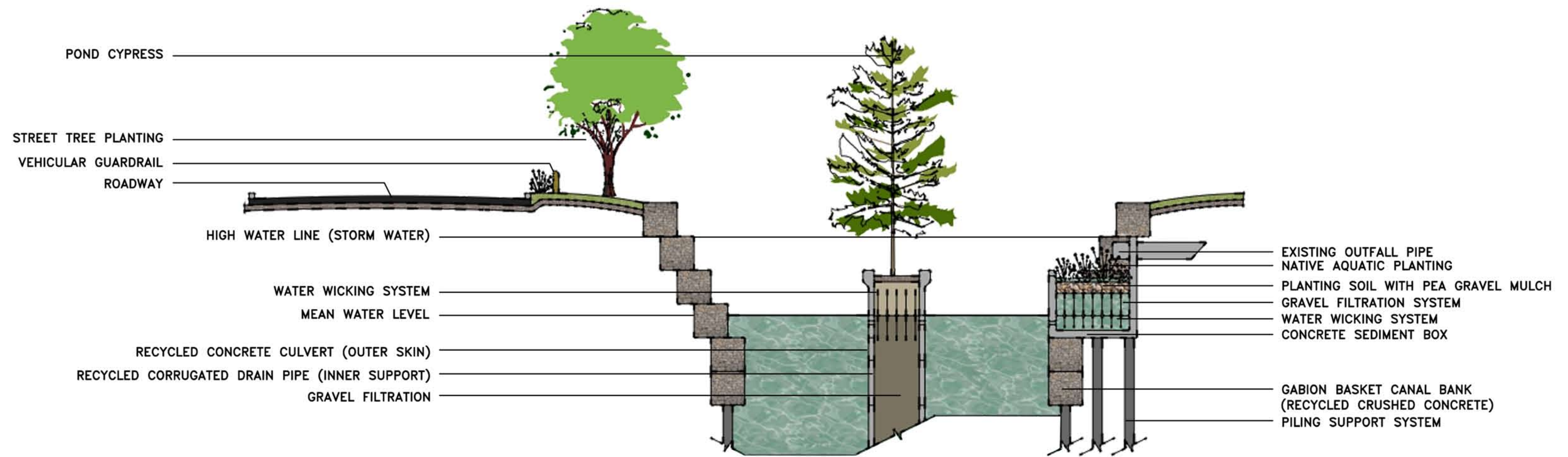
## **Tree Cylinders**

Another aesthetic feature of the design is the planting of trees in the canals. Utilizing recycled drainage culverts, tree planters will be placed in the middle of the canal. 6' diameter round culverts would be driven, perpendicular, into the canal to create the planters. It is estimated that the top of the culvert would be placed a few feet above the normal water height. The culverts will incorporate a wicking system, and would be planted with pond cypress trees. The pond cypress is a good choice because they will grow to a height that would be visible from the road and can take the occasional high water that is associated with the canal. Utilizing the round culverts, the planters would not obstruct the water flow in the canal.

## **Water Filtration Boxes**

The design also includes filtration of storm water as it enters the canal. Concrete box filtration planters will be constructed at the ends of all outfall pipes. The boxes will vary in size, but all will include a gravel filtration system, and the planting a native aquatic plants such as Louisiana iris. Water will enter the box from the outfall culverts and filter through layers of gravel and filter fabric. The top of the box will incorporate a weir to allow the water to enter the open canal. Just like the tree cylinders, a wicking system will be built-in into the filtration boxes to irrigate the plants in times of drought.

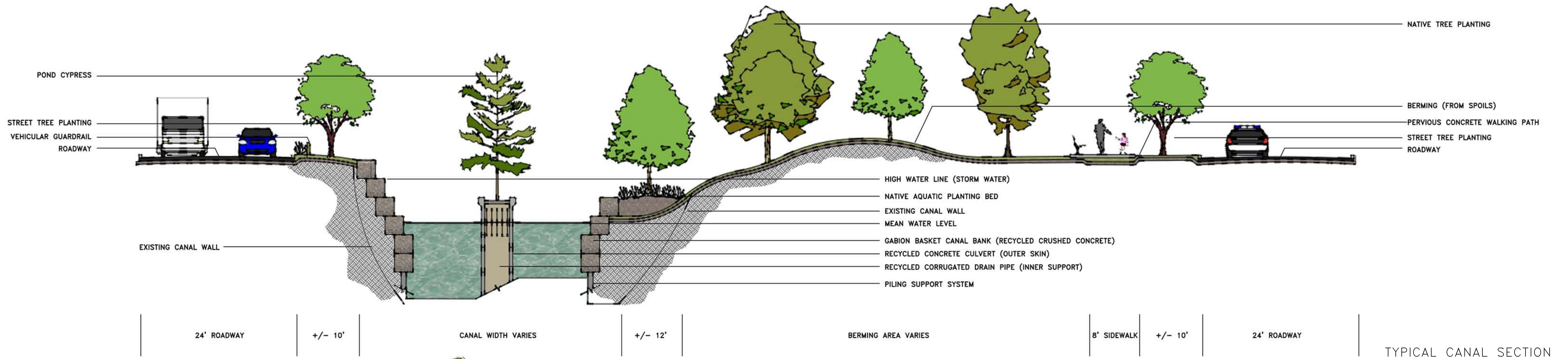
# WEST ESPLANADE CANAL REHABILITATION



WATER FILTRATION BOX SECTION



# JEFFERSON PARISH, LOUISIANA



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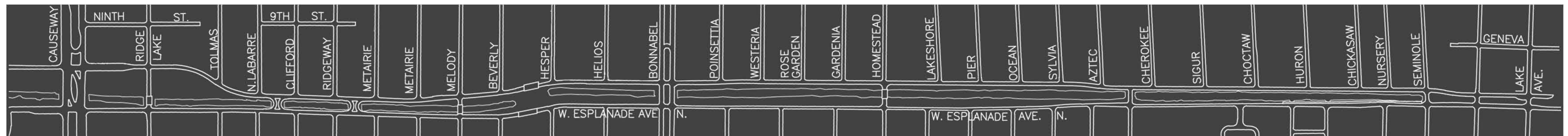
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## **Estimated Costs and Maintenance**

The proposed ideas for the open canal would have a seemingly substantial upfront cost; however, the reduced maintenance would financially benefit the parish over time. It is estimated that the gabion block walls would be significantly cheaper than closing in the canals with a box culvert. Exact engineering would be required to pinpoint the cost estimate, but it is calculated at \$8 to \$10 million dollars to install the gabion block walls on both sides of the 2.5 mile long canal. The walls are by far the most expensive feature of the project. The landscape, grading, sidewalks, guardrails and filtration boxes cost estimate is under \$5 million dollars.

As with all projects, phasing should be considered. The block walls should be constructed in increments to not only save initial money, but to act as testing for future applications. Once the green space is delineated from the construction of the gabion blocks, the tree planting should be implemented. The last phase should include the water filtration, sidewalk and site amenities, as well as aesthetic projects such as the tree placement in the canals.

Maintenance of the canals should be greatly reduced with this concept. The parish will no longer need to bring in equipment to re-grade the canals, and slope mowing will be abolished. There will still be the need to cut grass in the linear park, but it will be much easier than cutting the slopes. Other maintenance needs will be yearly pruning of the trees and aquatic plants, mulch placement and general monitoring of the block walls and filtration boxes. Most of these maintenance practices could be incorporated into existing parish contracts.

## **Suggested Funding Sources**

Funding for this project should come from as many sources as possible. The first option should be funding by Jefferson Parish. This would show that the parish is seriously interested in developing a new, and greener, method of storm water management. Second, grants from the State of Louisiana should be applied from. Community Development and TEP grants could help with various portions of the project. Finally, grant funding should be applied for on the national level. This project should catch the attention of the Environmental Protection Agency, and most likely qualify for an Environmental Education grant.

Marketing this project for research and education would be smart. The winning concept should be implemented in such a way that it can be monitored for future projects. All aspects such as installation costs, maintenance costs and reliability of constructing materials should be studied and engineered so that future phases are less expensive to install and maintain, and work as efficiently as possible.

