



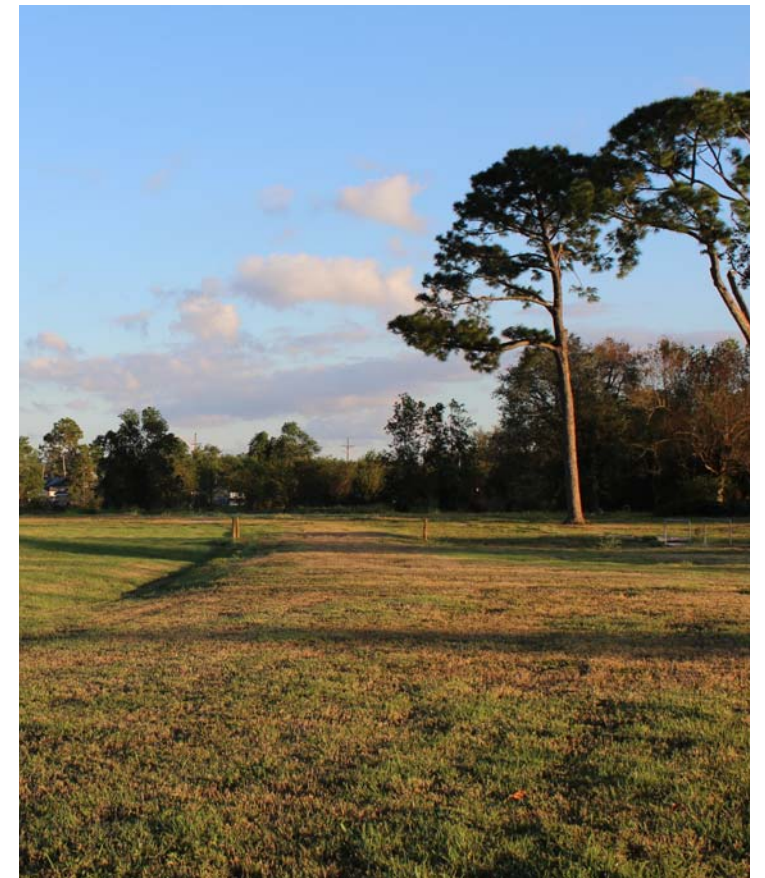
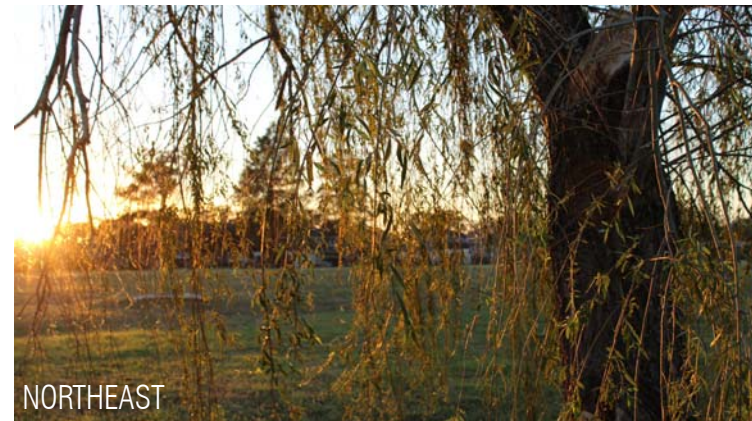
Waggoner & Ball

MIRABEAU WATER GARDEN

June 30, 2018

SITE

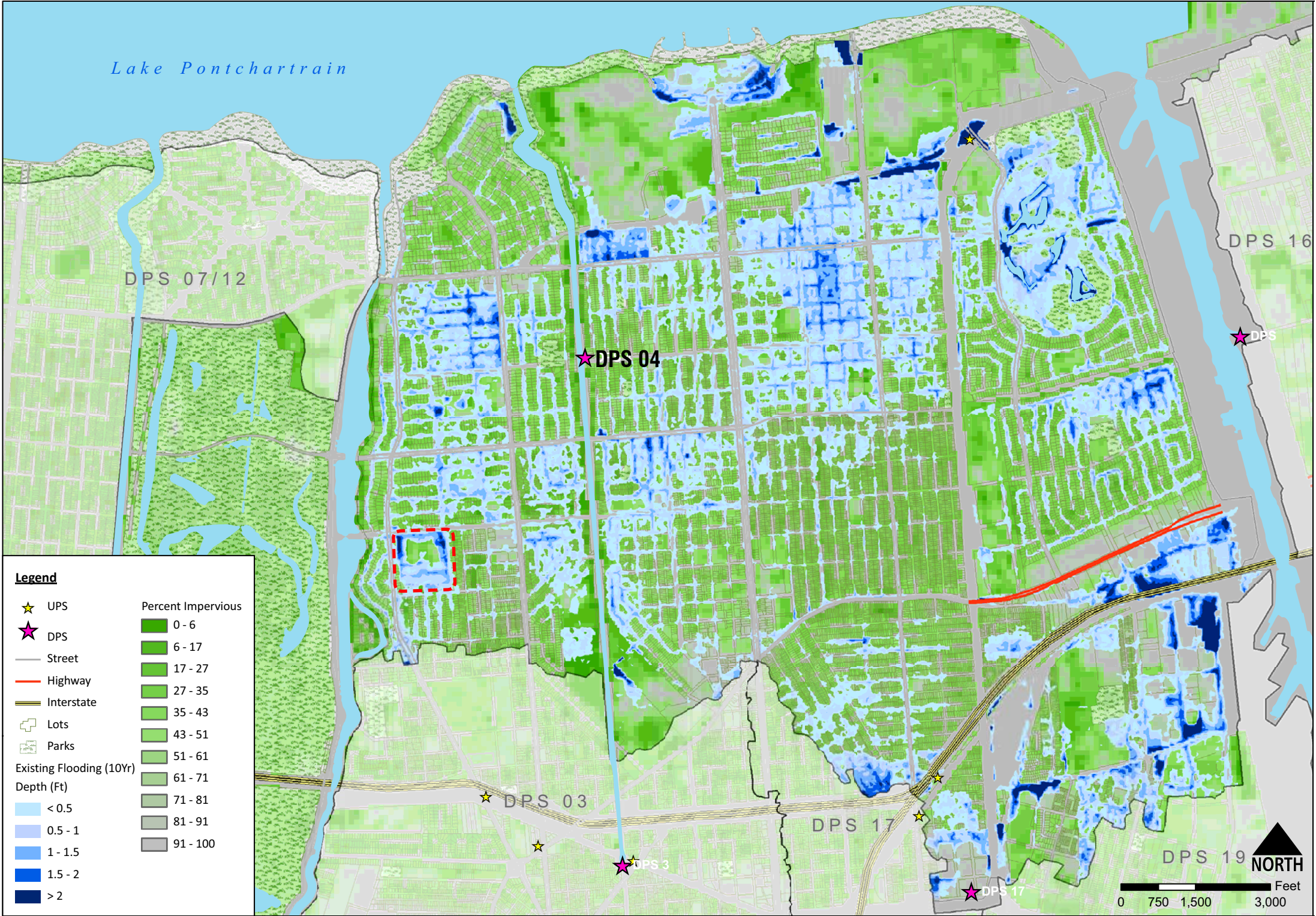
Existing Conditions



PROBLEM

Water Issues Identified

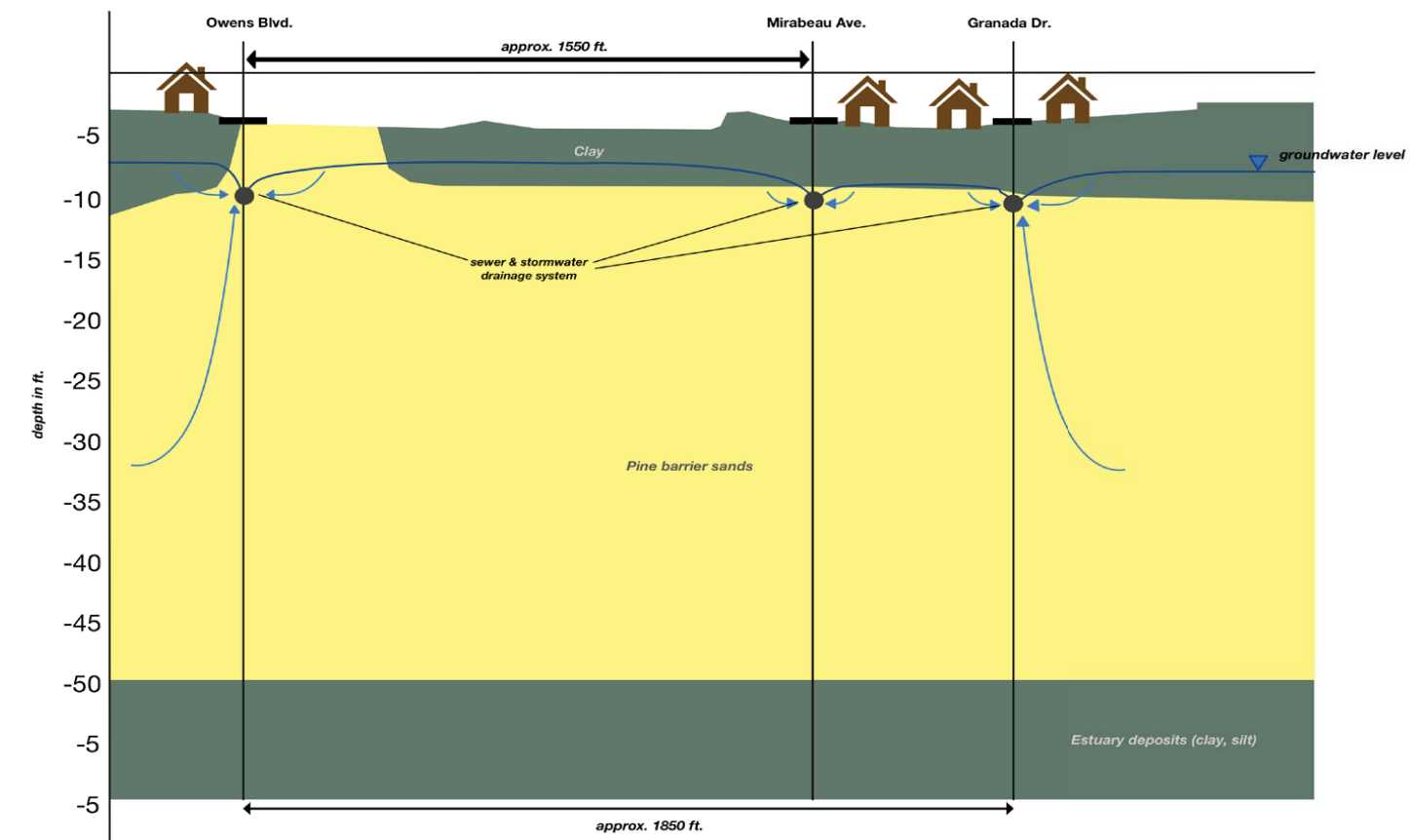
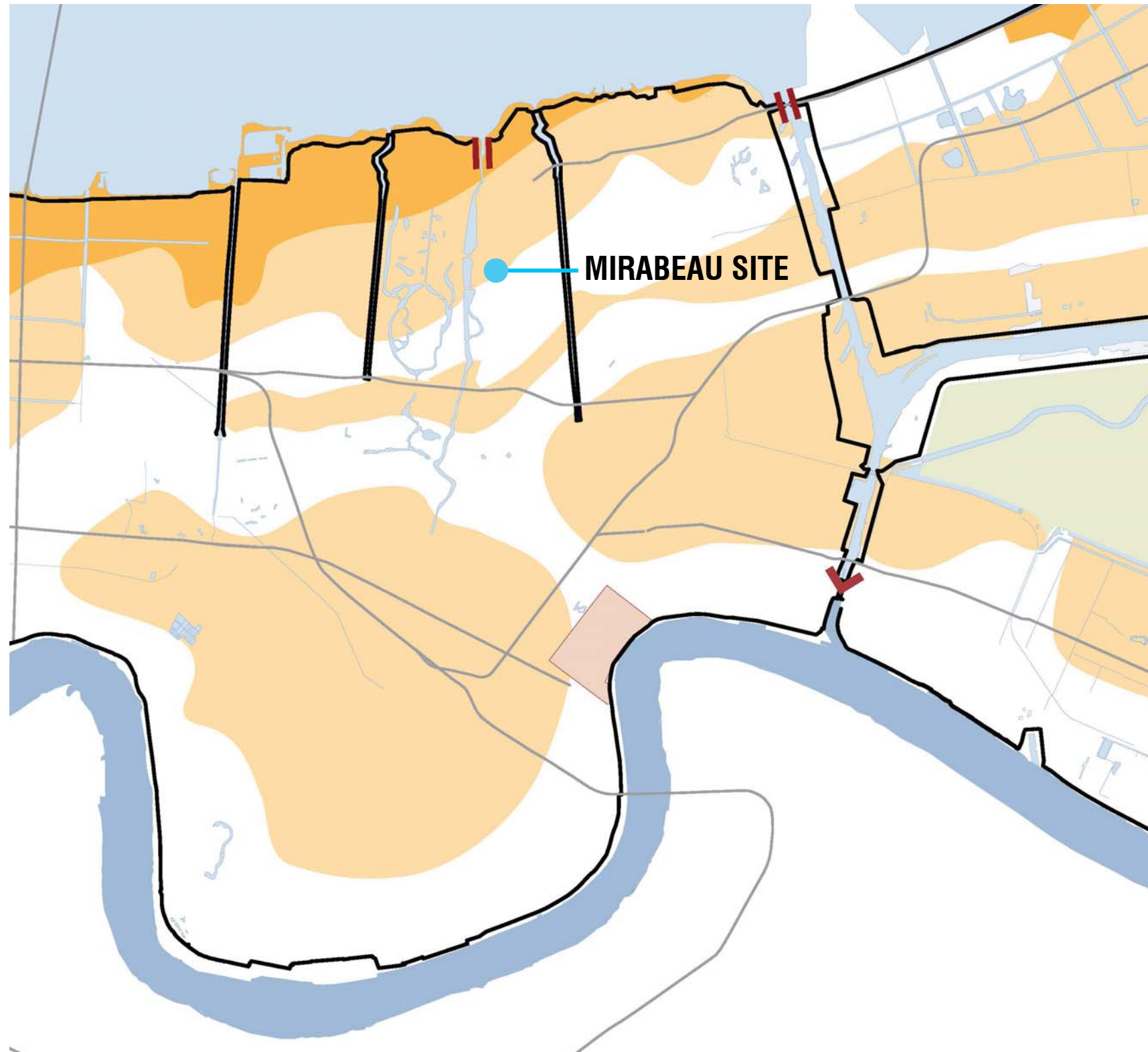
Flooding



DPS 04 Service Area: Existing System Flooding, 10-Year Storm

PROBLEM

Subsidence Issues Identified



Subsidence-damaged House on Mirabeau Avenue



Subsidence-caused Street Damage on Owens Boulevard

The map displays the NDRC Framework for St. Bernard Parish, Louisiana. It features a network of green infrastructure projects overlaid on a topographic map. The projects are color-coded: blue for Blue-Green Corridors, yellow for Microgrids, and green for various green infrastructure initiatives. Key locations and projects are labeled with leader lines pointing to their locations on the map.

OBJECTIVES
NDRC Framework

Microgrids

Blue-Green Corridors

St. Anthony Green Streets

LMI Homeowner Resilience Retrofit Program

Milne Campus

Pontilly Neighborhood Green Infrastructure

London Ave Canal Art/Intervention

Mirabeau Water Garden

Dillard Wetland

St. Bernard Neighborhood Campus

OBJECTIVES
NDRC Framework

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London Ave Canal Art/Intervention

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St. Bernard Neighborhood Campus

The figure is a detailed map of St. Bernard Parish, Louisiana, illustrating the NDRC Framework. The map features a network of blue-green corridors (thick blue lines) and microgrids (yellow rectangular areas). Various green infrastructure projects are highlighted, including St. Anthony Green Streets, LMI Homeowner Resilience Retrofit Program, Milne Campus, Pontilly Neighborhood Green Infrastructure, London Ave Canal Art/Intervention, Mirabeau Water Garden, and Dillard Wetland. The St. Bernard Neighborhood Campus is also indicated. The map includes a legend on the right side with labels for these projects and a title 'OBJECTIVES NDRC Framework' in the top left corner. The map shows a mix of urban areas, water bodies, and green spaces, with the NDRC Framework projects overlaid on the landscape.

The map displays the NDRC Framework for St. Bernard Parish, Louisiana, highlighting various green infrastructure projects. The map includes a legend on the right side with the following items:

- Microgrids
- Blue-Green Corridors
- St. Anthony Green Streets
- LMI Homeowner Resilience Retrofit Program
- Milne Campus
- Pontilly Neighborhood Green Infrastructure
- London Ave Canal Art/Intervention
- Mirabeau Water Garden
- Dillard Wetland

Additional labels on the map include:

- St. Bernard Neighborhood Campus

The map shows a network of blue-green corridors (blue lines) and microgrids (yellow lines) connecting various green infrastructure projects. The map also shows the location of the St. Bernard Neighborhood Campus, the St. Anthony Green Streets, the LMI Homeowner Resilience Retrofit Program, the Milne Campus, the Pontilly Neighborhood Green Infrastructure, the London Ave Canal Art/Intervention, the Mirabeau Water Garden, and the Dillard Wetland.

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OBJECTIVES
NDRC Framework

Microgrids

Blue-Green Corridors

St. Anthony Green Streets

LMI Homeowner Resilience Retrofit Program

Milne Campus

Pontilly Neighborhood Green Infrastructure

London Ave Canal Art/Intervention

Mirabeau Water Garden

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St. Bernard Neighborhood Campus

The figure is a detailed map of a city area, likely St. Bernard, illustrating the NDRC Framework. The map features a network of blue-green corridors (thick blue lines) and microgrids (yellow rectangular areas). Various green infrastructure projects are highlighted, including St. Anthony Green Streets, LMI Homeowner Resilience Retrofit Program, Milne Campus, Pontilly Neighborhood Green Infrastructure, London Ave Canal Art/Intervention, Mirabeau Water Garden, and Dillard Wetland. The St. Bernard Neighborhood Campus is also labeled. The map includes a legend on the right side with labels for each project and objective. The map is overlaid with a grid of streets and a network of blue-green corridors. The map is titled 'OBJECTIVES' and 'NDRC Framework' in the top left corner. The map is a grayscale aerial photograph with colored overlays representing the infrastructure projects.

OBJECTIVES
NDRC Framework

Microgrids

Blue-Green Corridors

St. Anthony Green Streets

LMI Homeowner Resilience Retrofit Program

Milne Campus

Pontilly Neighborhood Green Infrastructure

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The map displays the NDRC Framework for St. Bernard Parish, Louisiana, highlighting various green infrastructure projects. The map includes a legend on the right side with the following items:

- Microgrids
- Blue-Green Corridors
- St. Anthony Green Streets
- LMI Homeowner Resilience Retrofit Program
- Milne Campus
- Pontilly Neighborhood Green Infrastructure
- London Ave Canal Art/Intervention
- Mirabeau Water Garden
- Dillard Wetland

Key locations and features labeled on the map include:

- St. Bernard Neighborhood Campus
- St. Anthony Green Streets
- Milne Campus
- Pontilly Neighborhood Green Infrastructure
- London Ave Canal Art/Intervention
- Mirabeau Water Garden
- Dillard Wetland

The map shows a network of blue-green corridors (blue lines) and microgrids (yellow lines) connecting various green infrastructure projects. The map also shows the St. Bernard River and the St. Bernard Canal. The map is overlaid with a grid of streets and a network of green infrastructure projects. The map is titled "OBJECTIVES" and "NDRC Framework".

The map displays the NDRC Framework for St. Bernard Parish, Louisiana. It features a network of green infrastructure projects overlaid on a topographic map. The projects are color-coded: blue for Blue-Green Corridors, yellow for Microgrids, and green for various green infrastructure initiatives. Key locations and projects are labeled with leader lines pointing to specific areas on the map.

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NDRC Framework

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Additional labels on the map include:

- St. Bernard Neighborhood Campus

OBJECTIVES

HMGP / NDR

HAZARD MITIGATION GRANT PROGRAM

- Reduce localized street flooding
- Reduce flooding damages to private and public structures
- Reduce traffic delays due to roadway flooding
- Meet min. Benefit Cost Ratio of 1:1

HUD NATIONAL DISASTER RESILIENCE

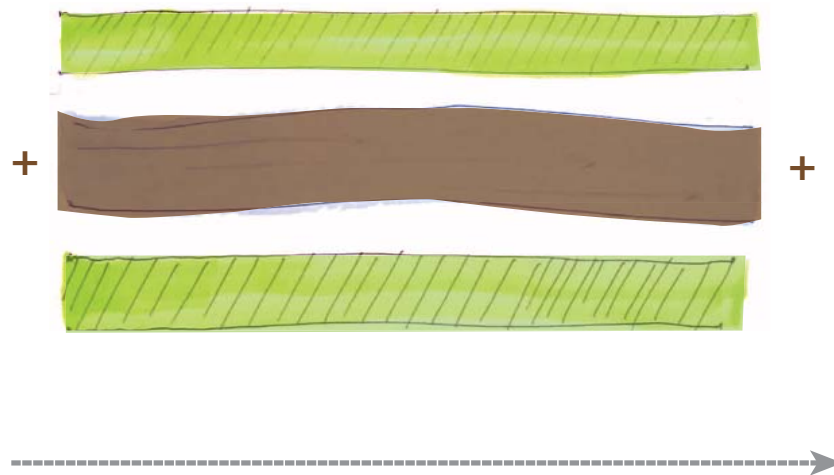
- Reduce localized street flooding
- Control subsidence
- Improve water quality
- Add aesthetic value to the neighborhood
- Improve quality of life for residents

OBJECTIVES

Site Design

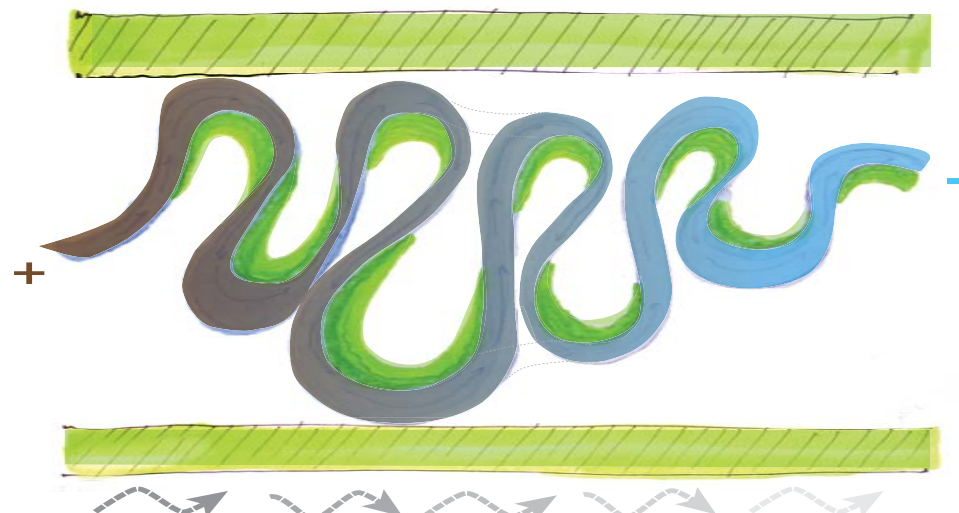
IMPROVE URBAN WATERSHED

- 1 Reduce volume of water entering the London Avenue Canal via Pump Station #4
- 2 Divert water from the Mirabeau trunk line
- 3 Accept street and neighborhood runoff
- 4 Retain and filter all site runoff
- 5 Retain and filter site greywater and potentially blackwater



IMPROVE QUALITY OF LIFE

- 1 Infiltrate stormwater to maintain a higher water table and limit local subsidence
- 2 Provide urban amenities and programming with recreational and educational components
- 3 Create destination place to help drive reinvestment in the neighborhood

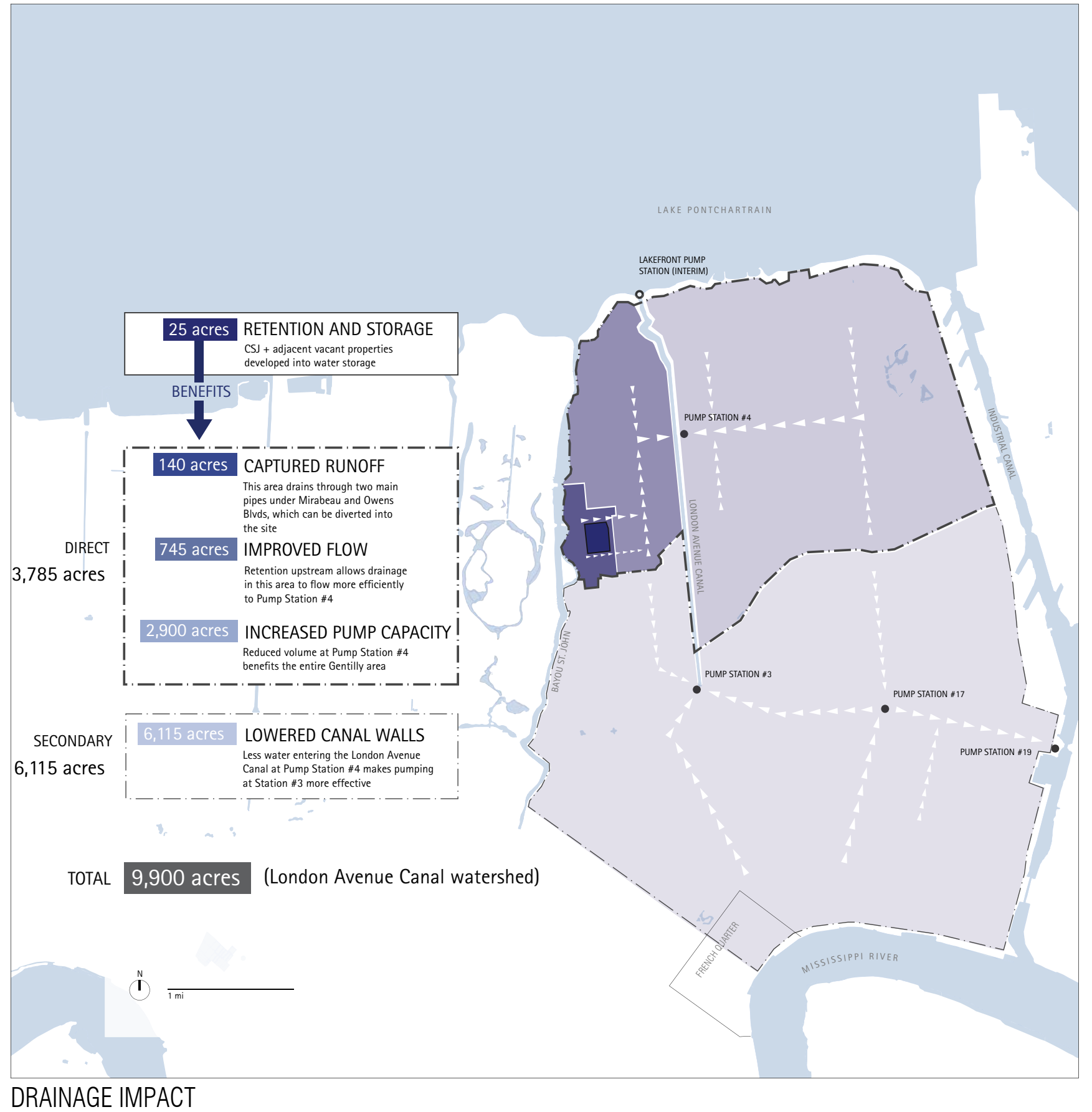


PROVIDE REPLICABLE MODEL

- 1 Utilize natural processes and systems to clean water and provide ecological education
- 2 Minimize the use of mechanical systems when possible
- 3 Make water visible and attractive to foster interaction and use
- 4 Retain site characteristics and existing trees
- 5 Develop site as a model for neighborhood scale retention and filtration sites

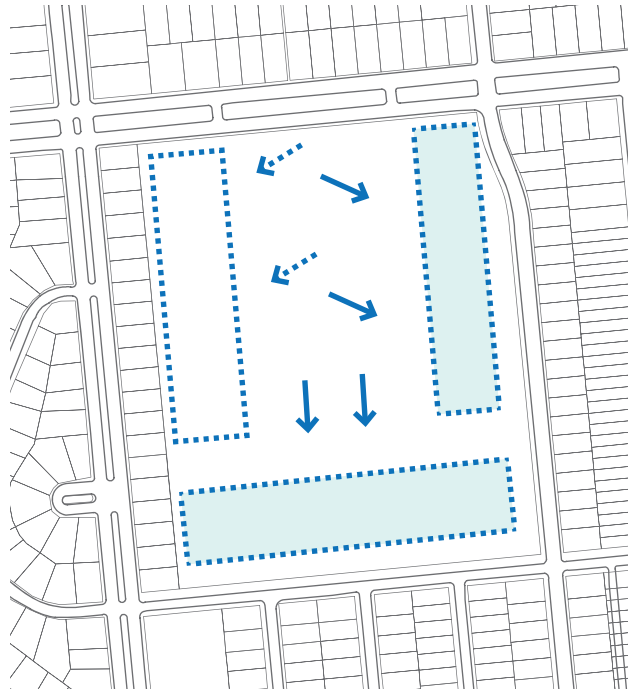
DRAINAGE

Flow / Impact

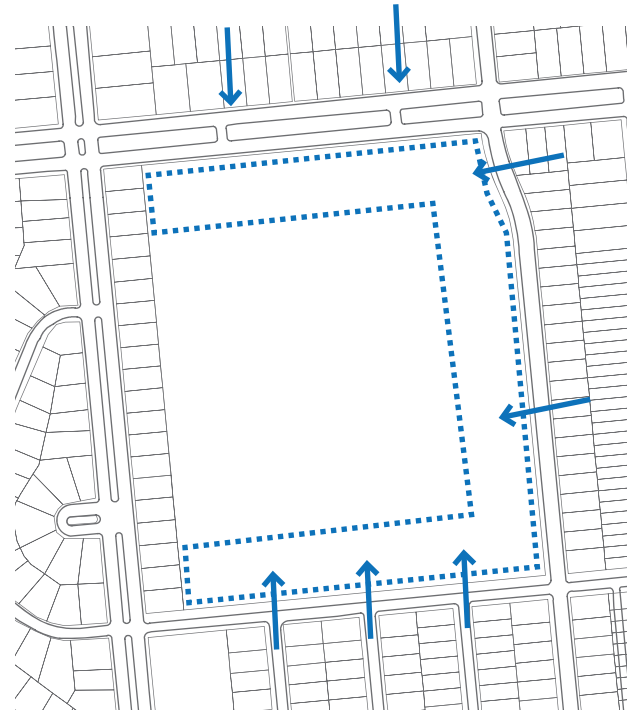


CONCEPT

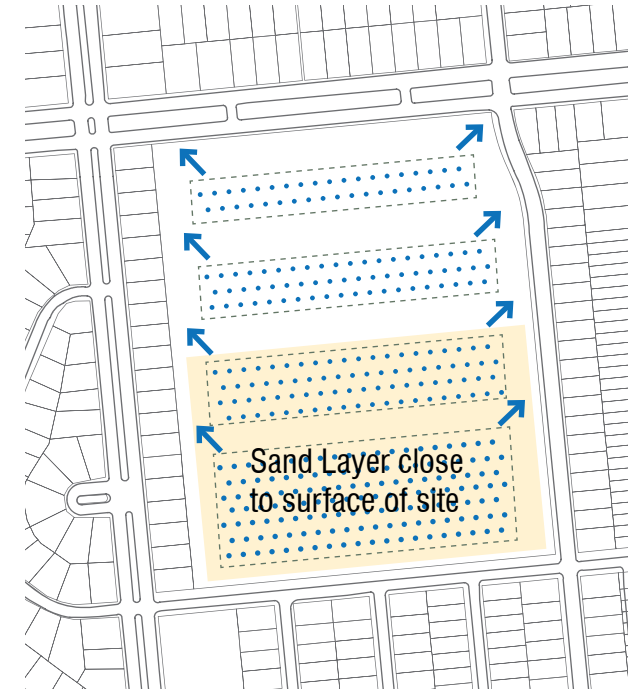
Dry Streets / Wet Soils



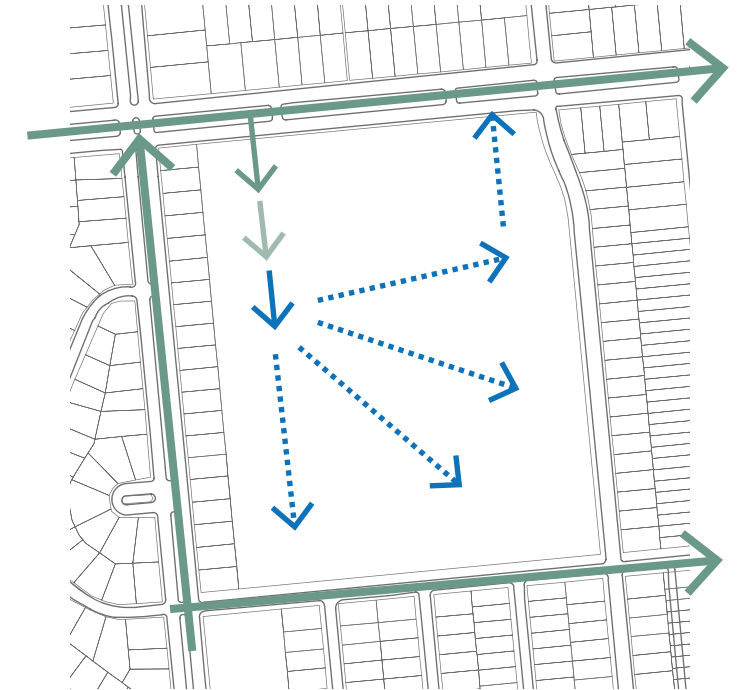
SITE RUNOFF



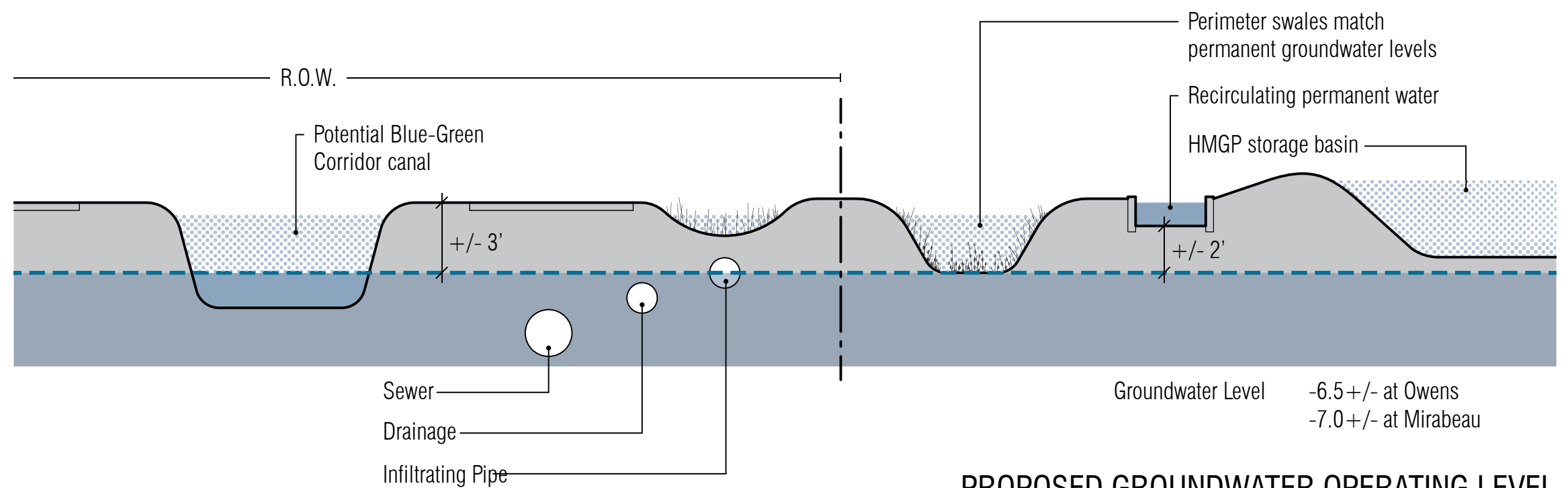
NEIGHBORHOOD RUNOFF



GROUNDWATER RECHARGE



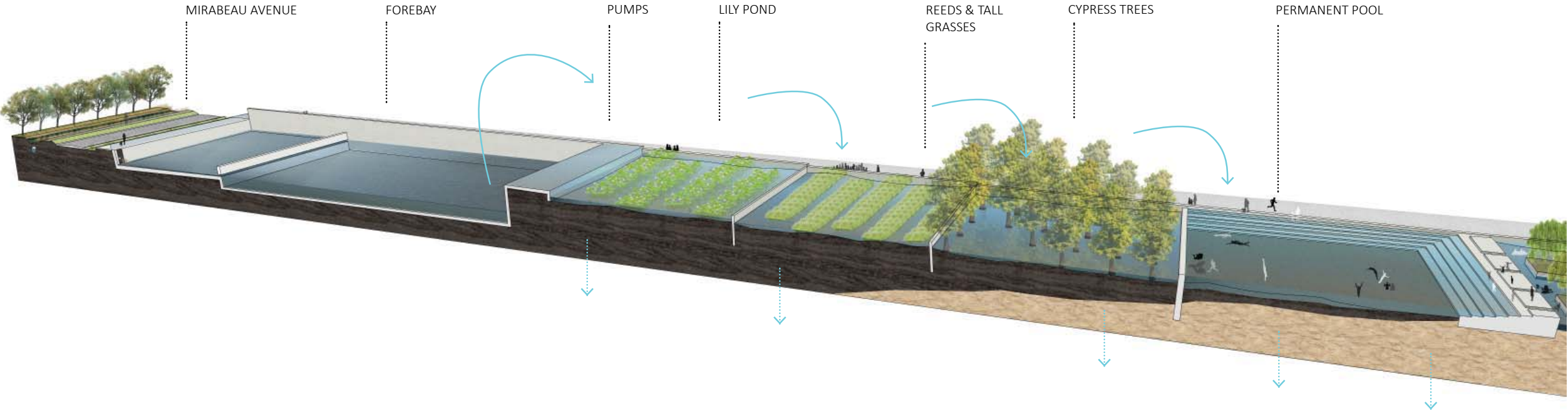
STORE, FILTER, INFILTRATE



PROPOSED GROUNDWATER OPERATING LEVEL

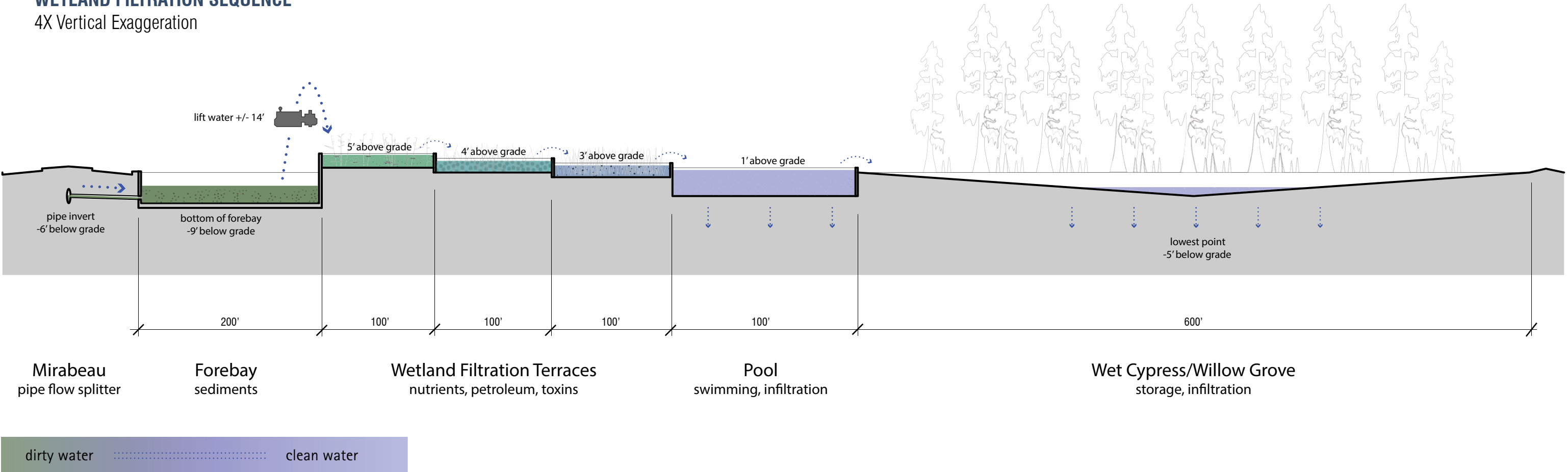
CONCEPT

Water Treatment



WETLAND FILTRATION SEQUENCE

4X Vertical Exaggeration



DESIGN INSPIRATION

Hold / Move / Filter



Renaissance Park, Chattanooga



Polder Landscape, Netherlands



Weir and Canal, Netherlands



Westerpark, Amsterdam



Watergraafsmeer Polder, Amsterdam

DESIGN INSPIRATION

Engage / Play / Learn



Westerpark, Amsterdam



Westerpark, Amsterdam



Westerpark, Amsterdam



Middleton Place, Charleston



Seonyundo Park, Korea



Water Playground, Netherlands



Fazenda Vargem Grande, Sao Paulo



Chapultepec Park, Mexico City

Available

- H&H model [provided by City](#)
- 1999 survey [provided by CSJ](#)
- Plan & Profile surveys of Cartier Ave and St Bernard/Mirabeau intersection [provided by City](#)
- State LiDAR [by Design Team](#)
- Initial soils & groundwater investigations [by Design Team](#)
- Field observations of significant trees [by City and Design Team](#)

Needed

- Site survey [by Design Team](#)
- Geotechnical investigation [by Design Team](#)
- Groundwater monitoring & modeling [by Design Team](#)
- Water quality and levels at Mirabeau and Owens drainage pipes [by SWBNO](#)
- DPS4 daily rainfall and evaporation data [by SWBNO](#)
- Archaeological survey [by FEMA](#)

PROPOSED SOLUTION

30% Design



HMGP Budget: \$12.5M

Interventions:

- drainage diversion into detention basin
- perimeter bioswales
- water treatment cells
- pervious parking/subsurface storage

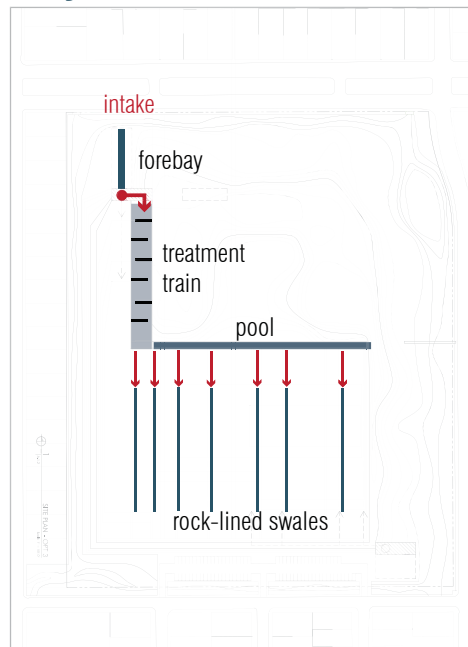
Water Storage Capacity:

1,327,680 cubic feet

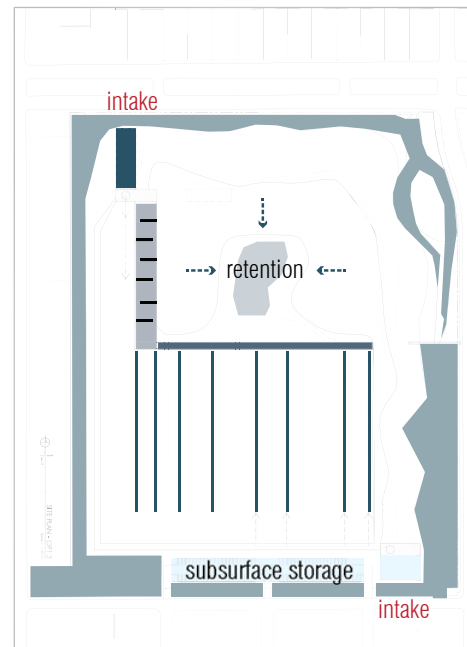
Key Benefits:

- flooding eliminated from 1-year storm
- 20% flood reduction from 10-yr storm
- recreation
- environmental education

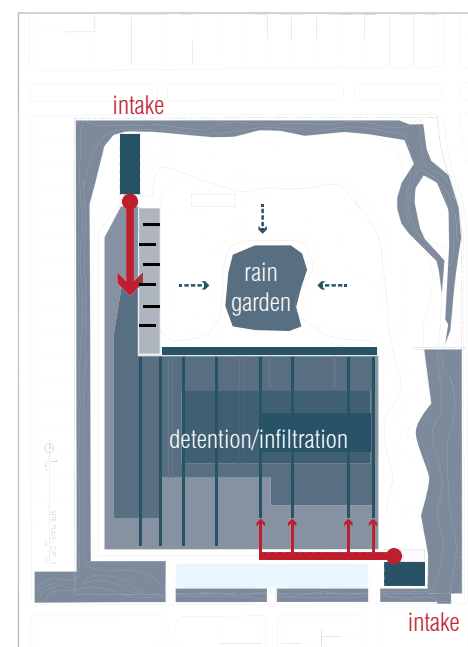
Dry



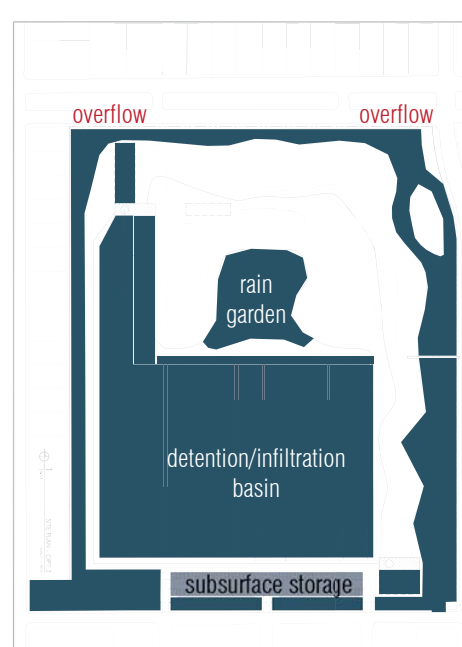
2-Yr Storm



5-Yr Storm



10-Yr Storm

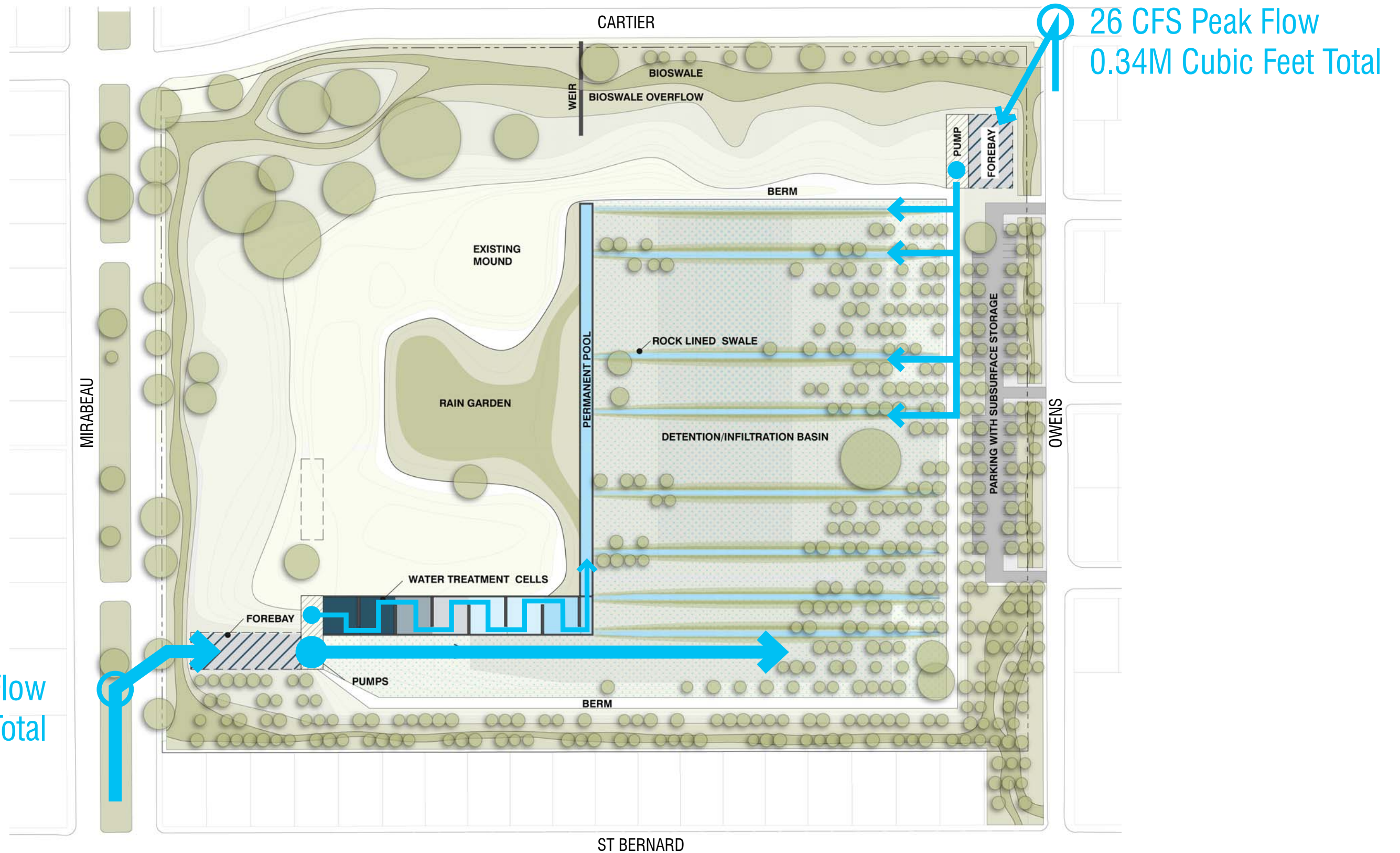


Benefit Cost Ratio:

2.4

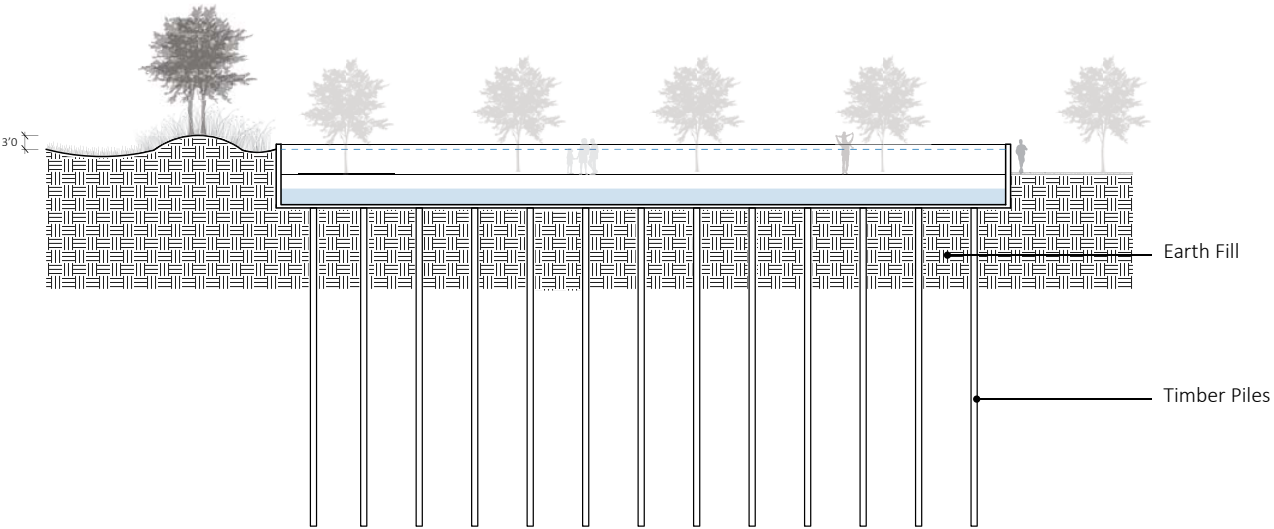
PROPOSED SOLUTION

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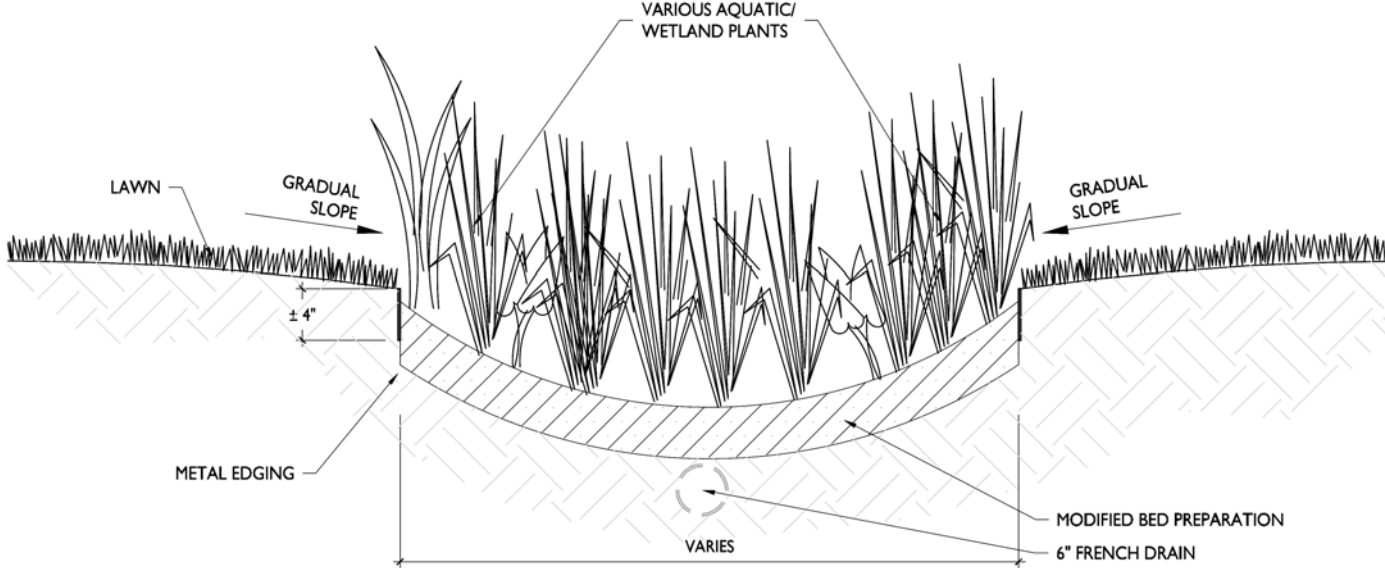


PROPOSED SOLUTION

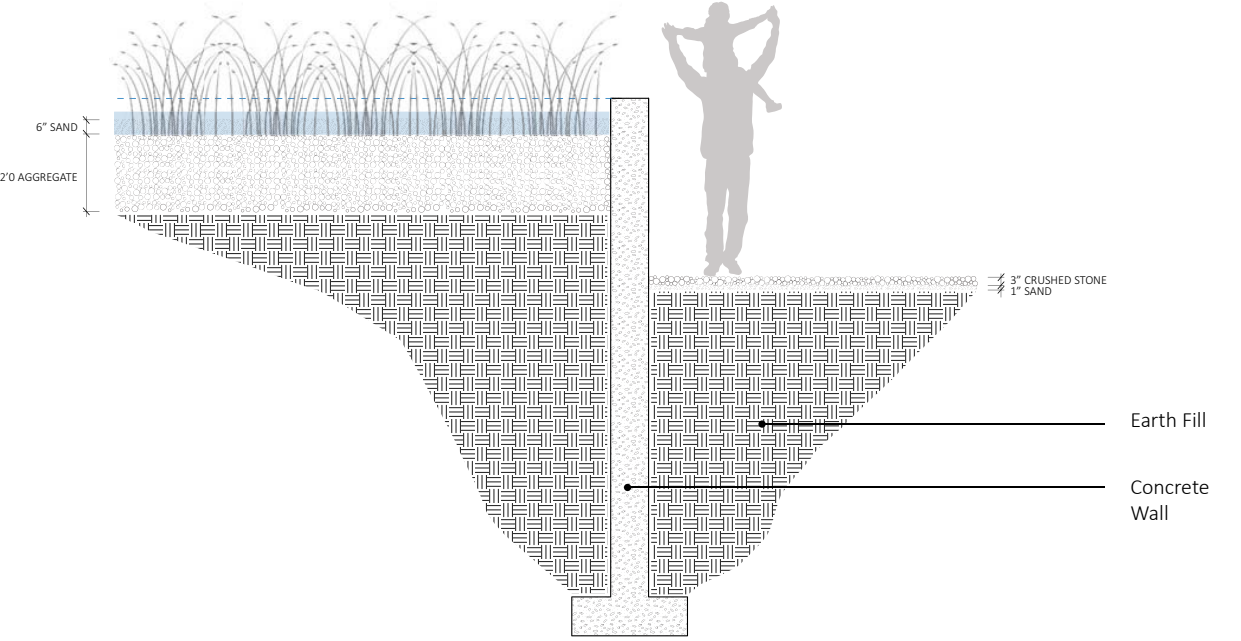
30% Design



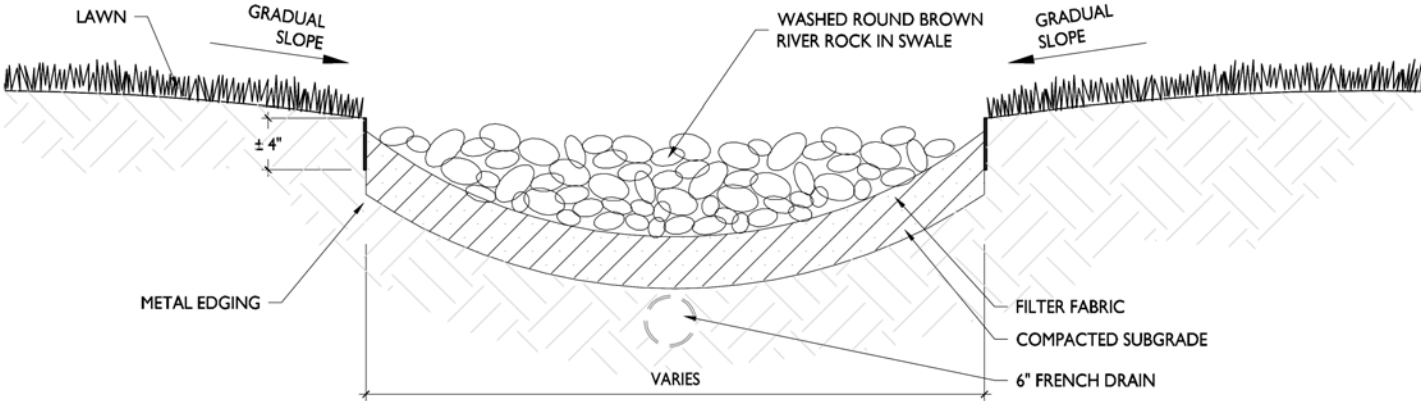
FOREBAY



VEGETATED BIOSWALE



WATER TREATMENT CELLS



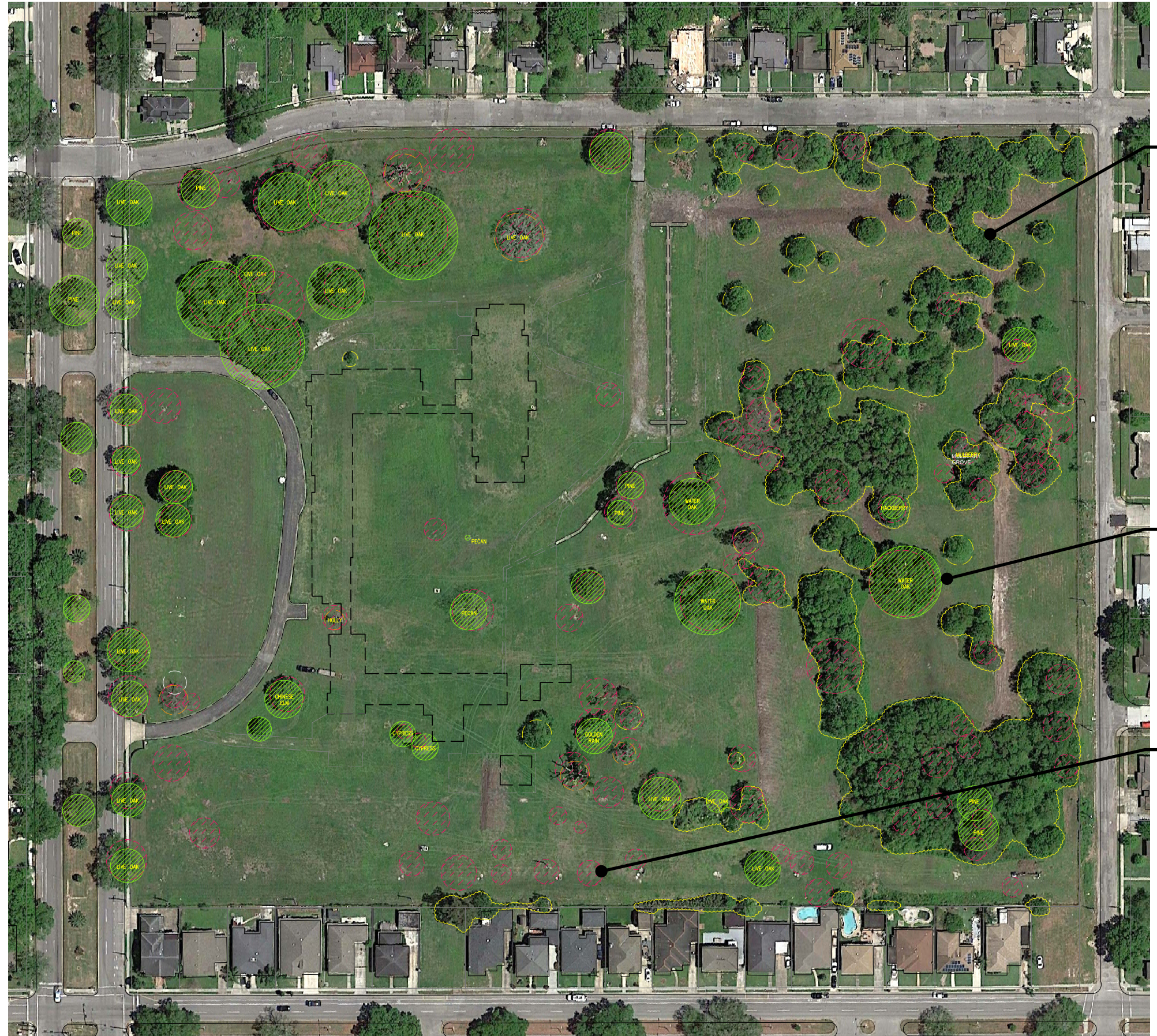
ROCK LINED SWALE

2006 + 2016 TREES

30% Design



2006 Google Aerial



Volunteer
Trees +
Bushes

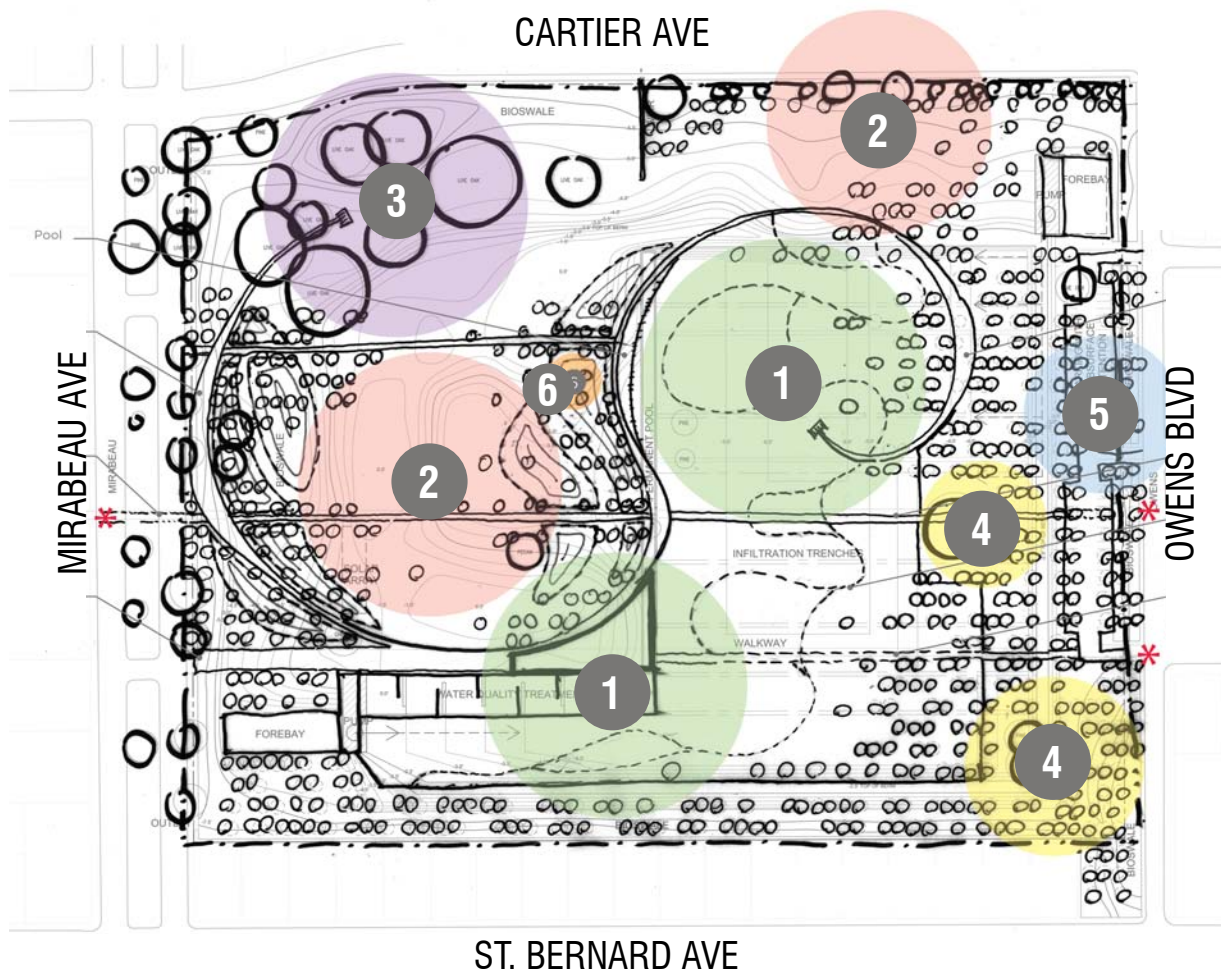
2016
Trees

2006
Trees

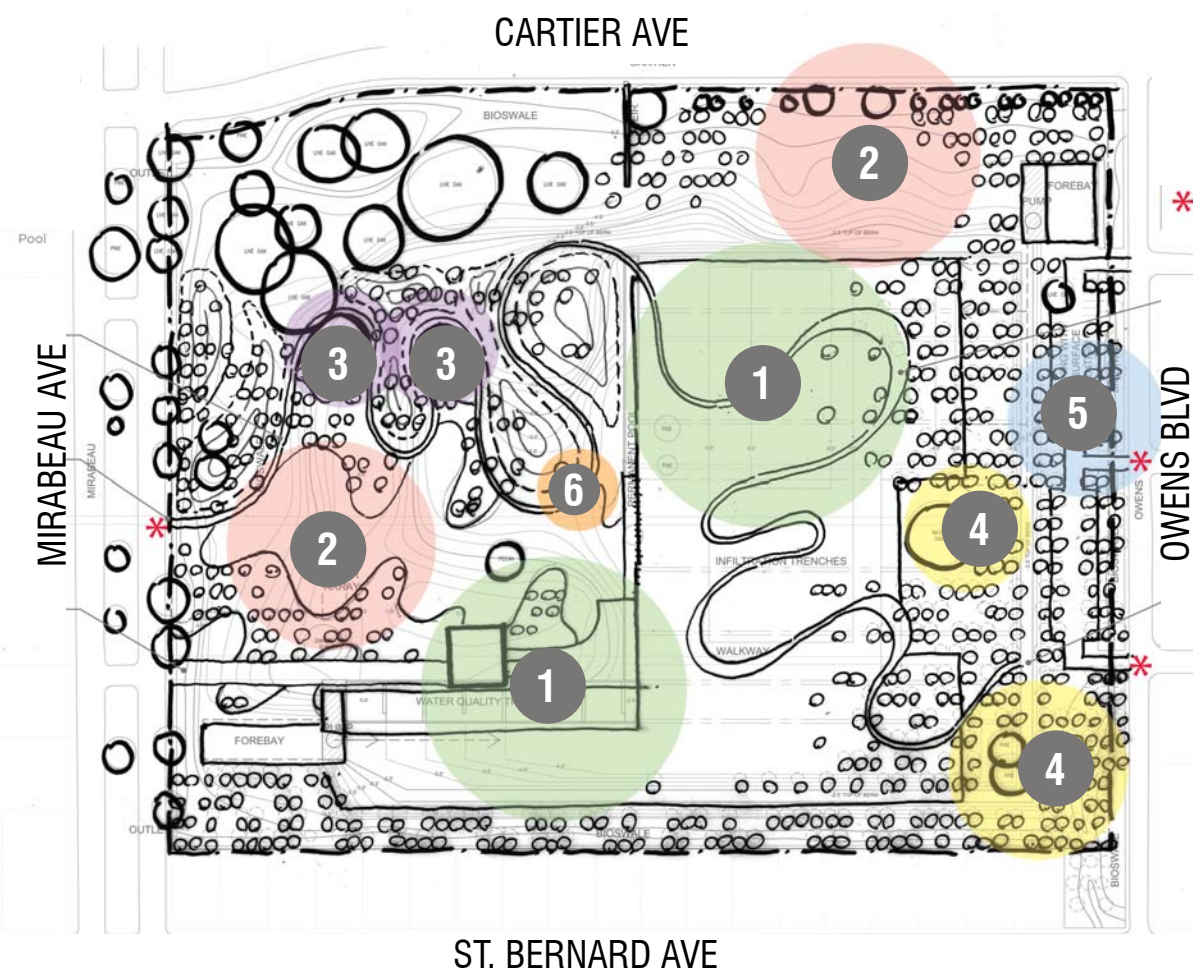
2016 Google Aerial

DESIGN EXPLORATIONS

Post 30% Design



Option A
Simple main path separating area into spaces



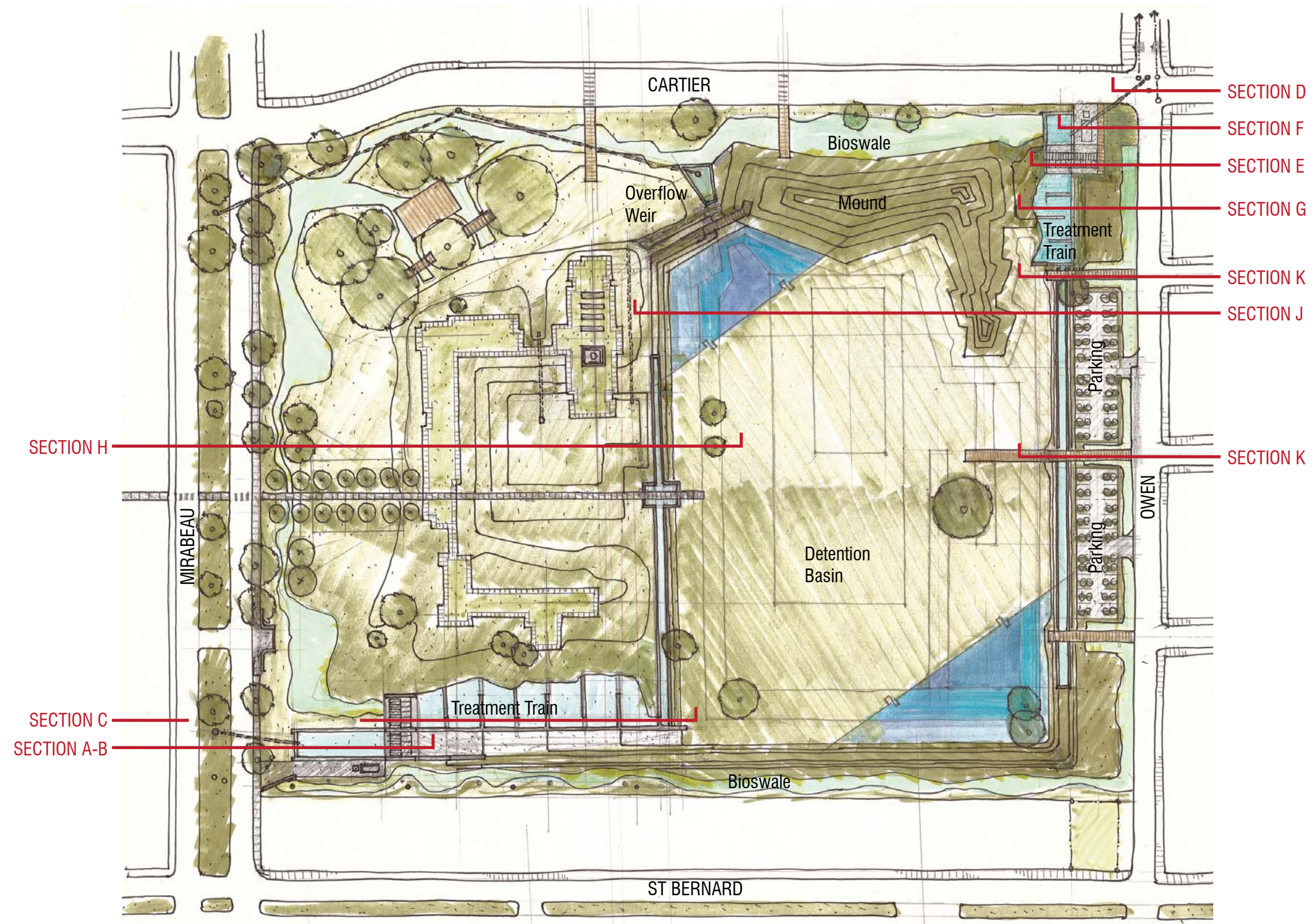
Option B
Dynamic layout with winding main path creating unique small spaces

* Major Access Point

- 1 Eco Education, Native/ Water Plants, Interpretive
- 2 Passive / Active Recreation
- 3 Spiritual / Contemplative
- 4 Dog Park / Buffer
- 5 Parking
- 6 Water Play

DESIGN EXPLORATIONS

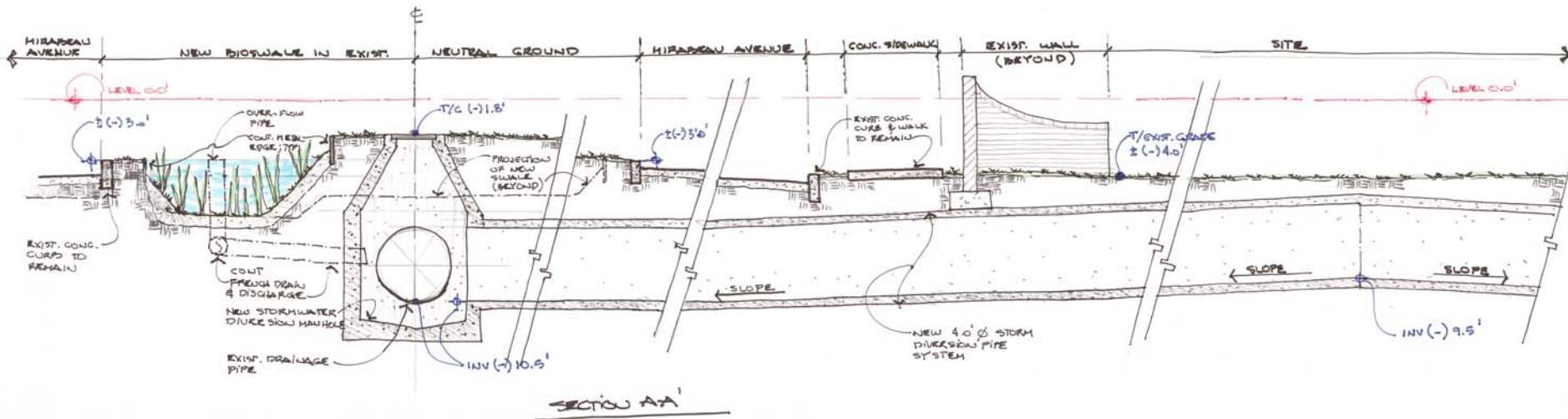
Post 30% Design



DESIGN EXPLORATIONS

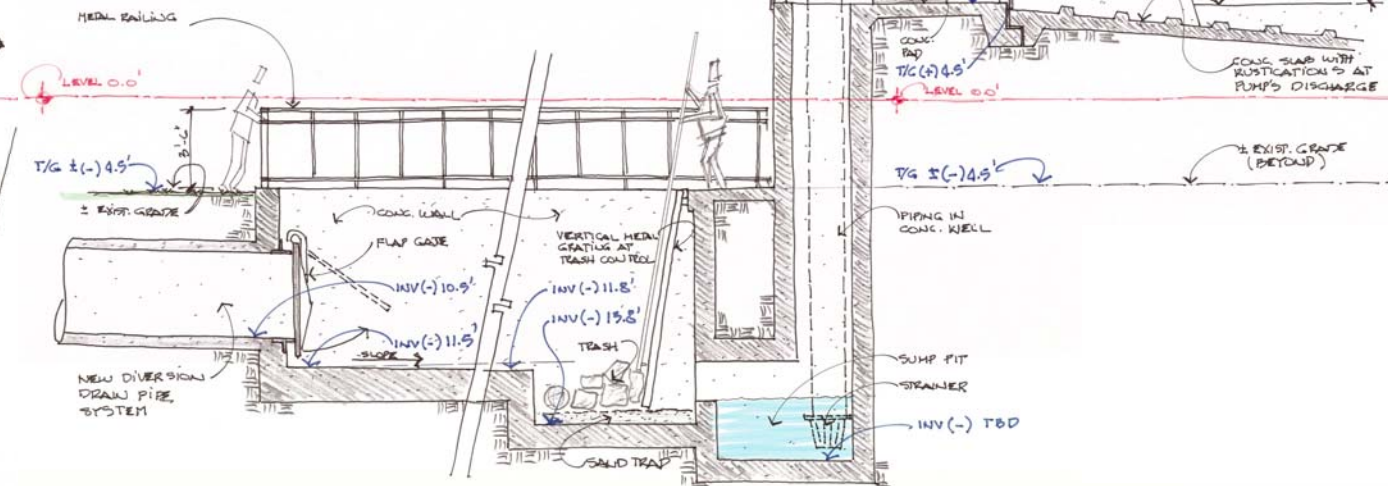
Post 30% Design - Sectional Studies

Mirabeau Avenue Tie-In



SECTION A

Mirabeau Forebay, Settling + Suction Basin



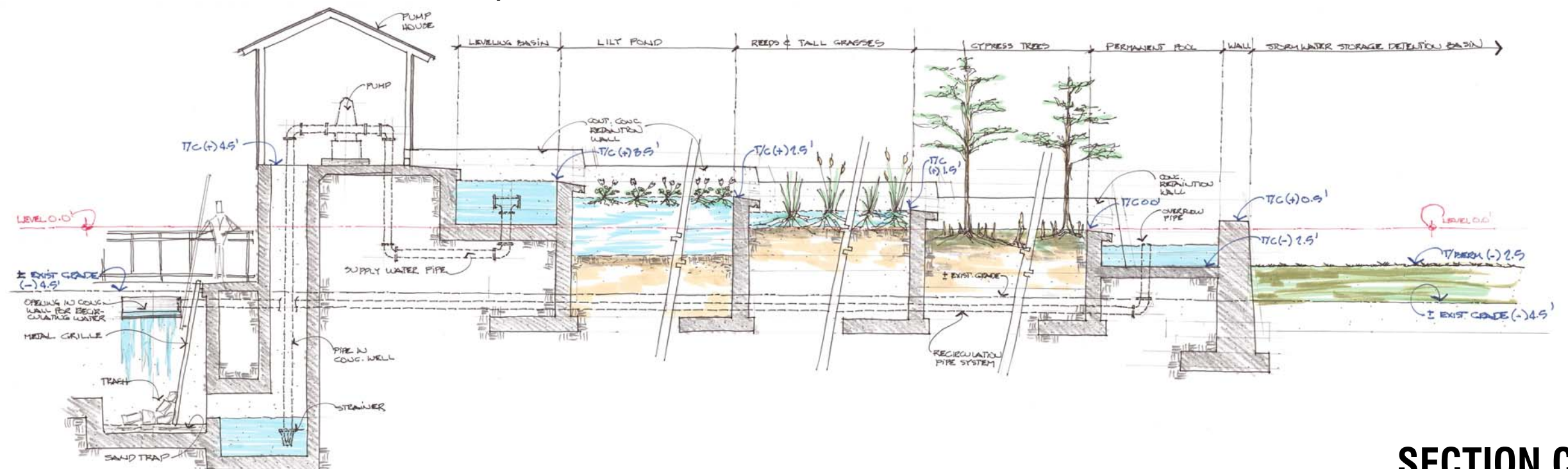
SECTION B

Re-circulation

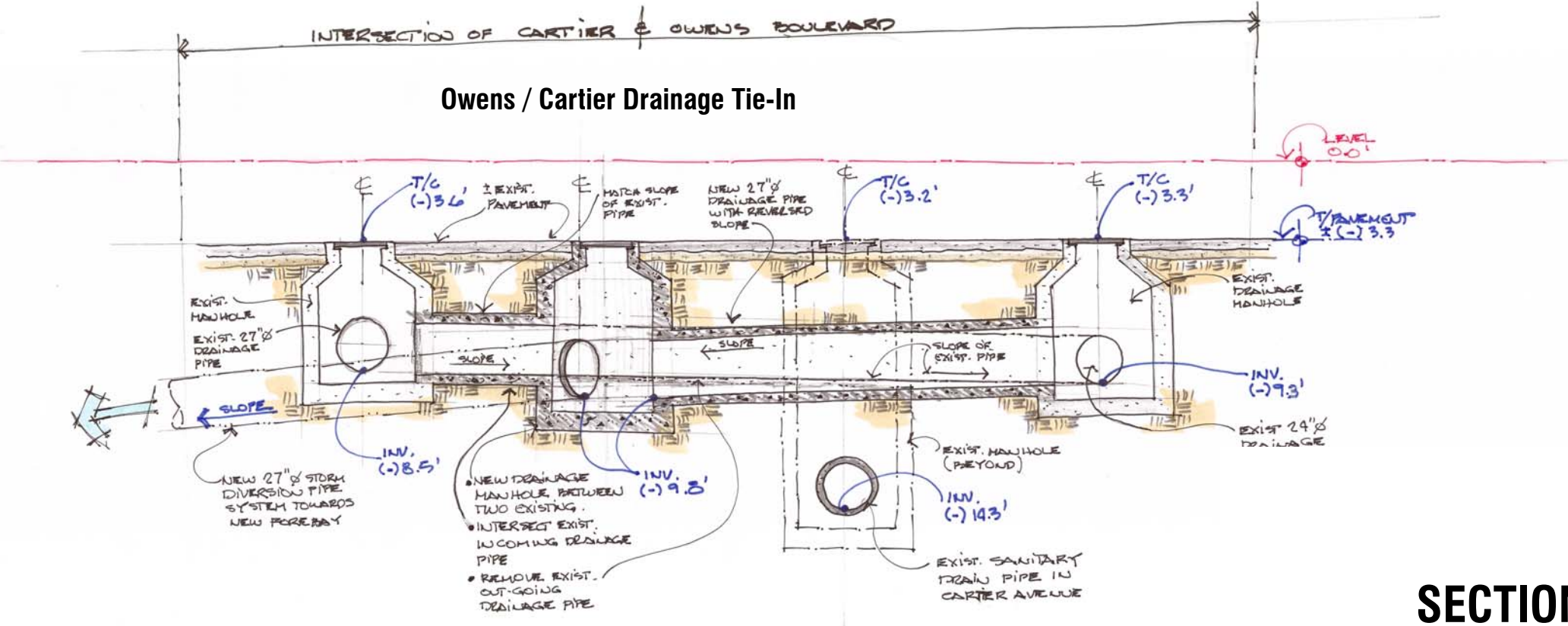
Low-Flow Pump

Treatment Train

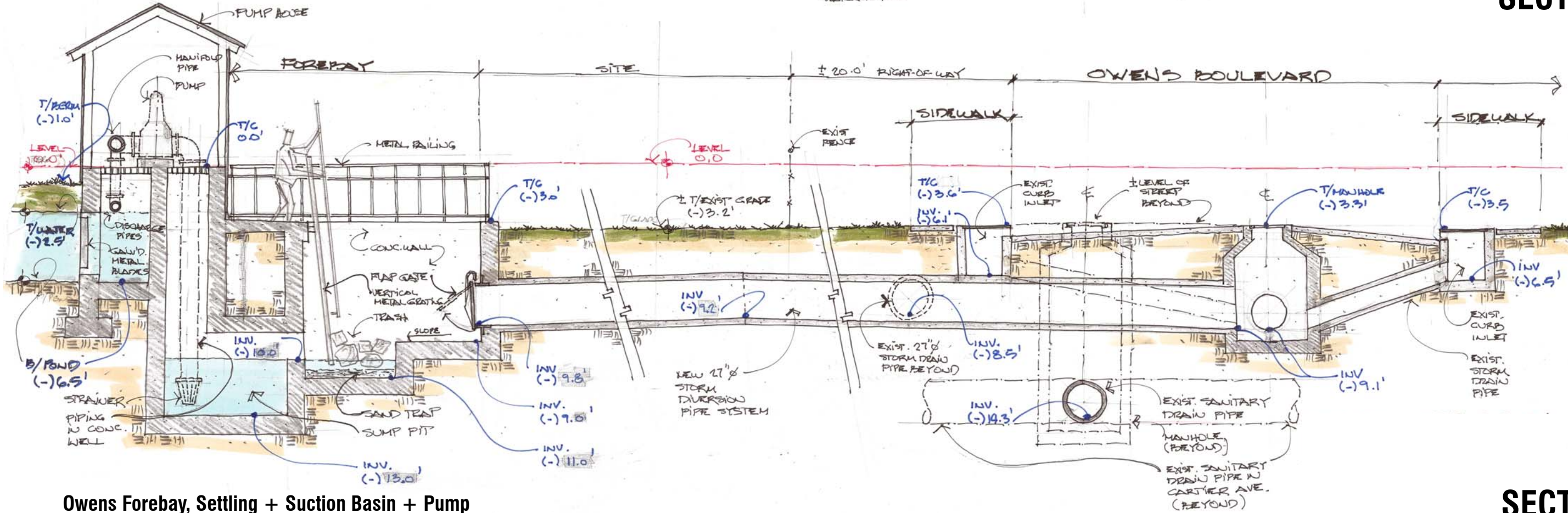
Detention Basin



SECTION C



SECTION D

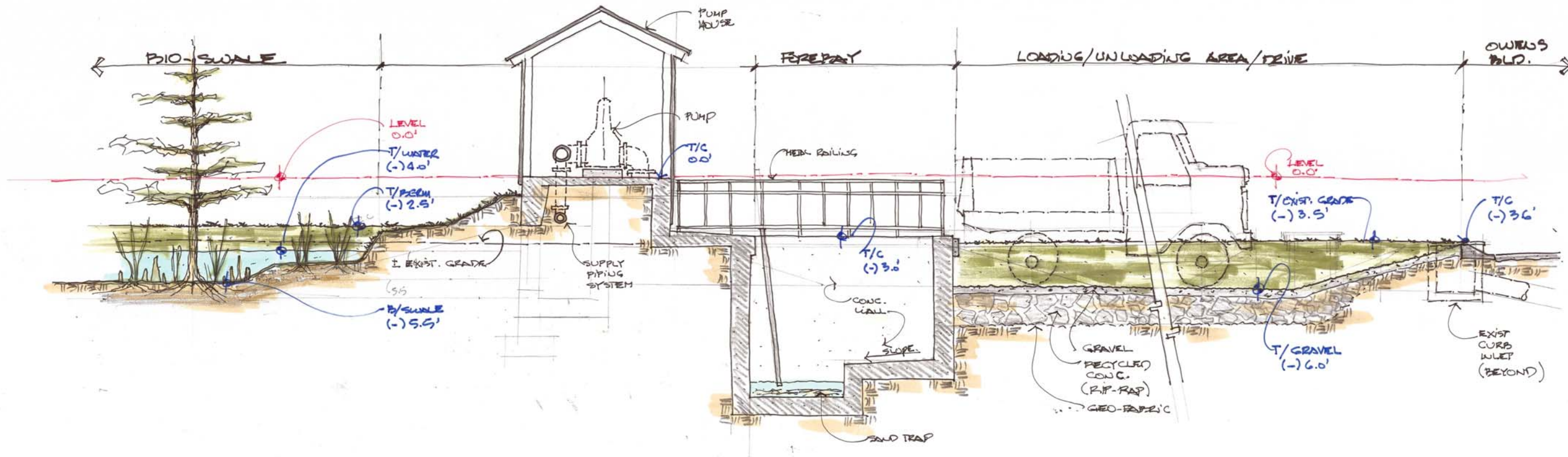


Owens Forebay, Settling + Suction Basin + Pump

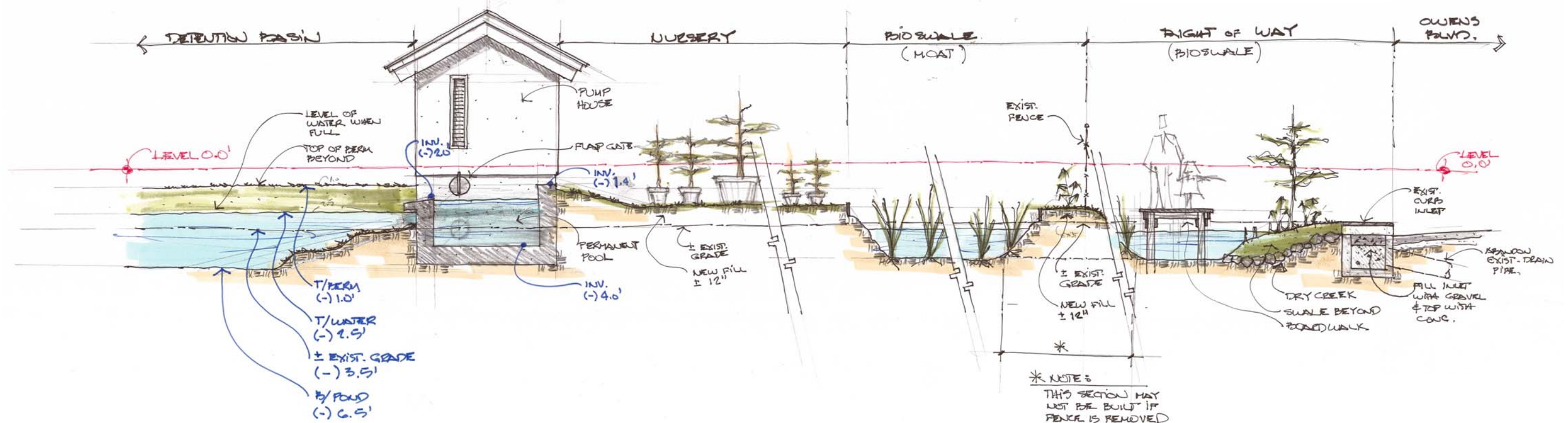
SECTION E

DESIGN EXPLORATIONS

Post 30% Design - Sectional Studies



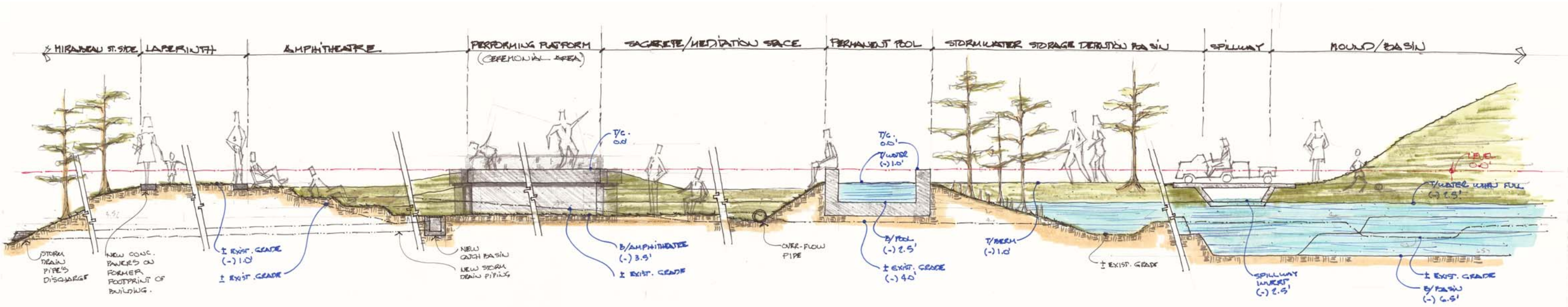
SECTION F



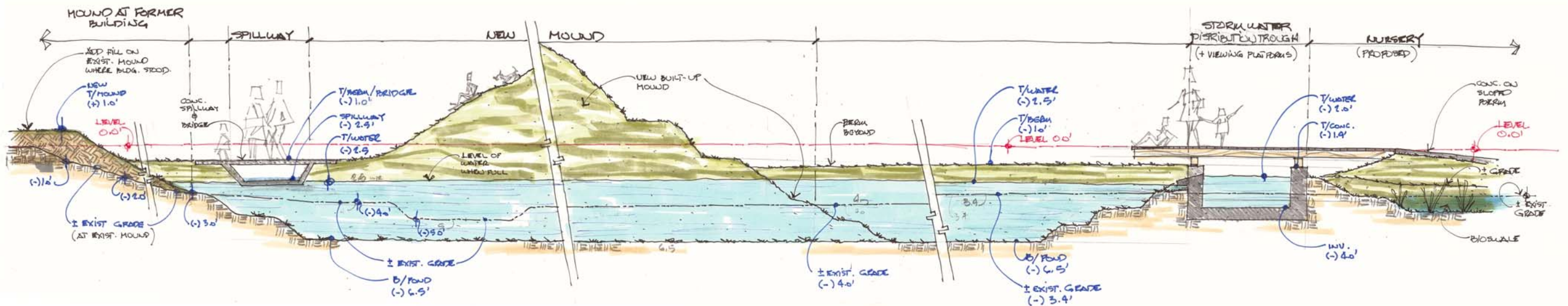
SECTION G

DESIGN EXPLORATIONS

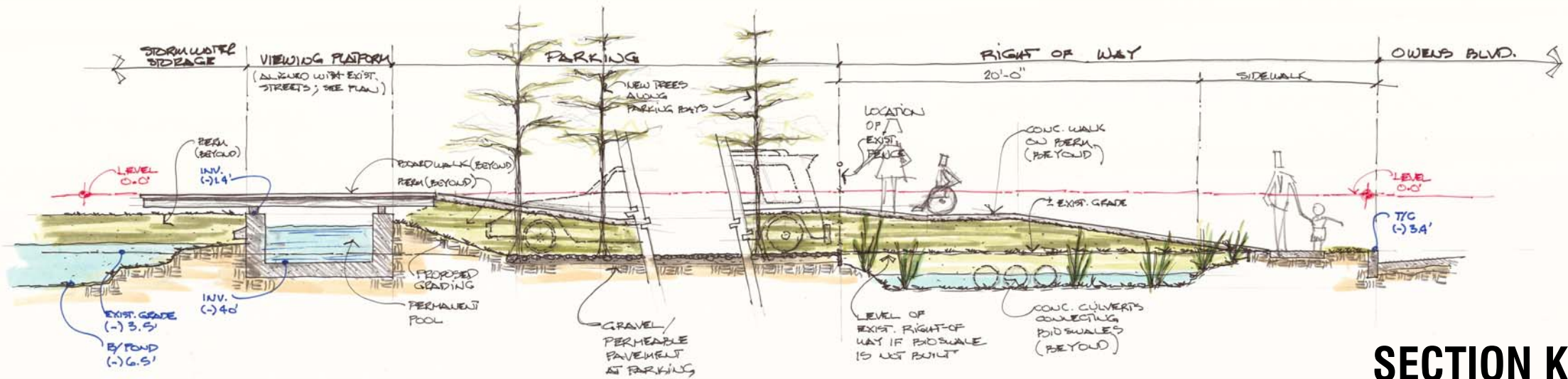
Post 30% Design - Sectional Studies



SECTION H



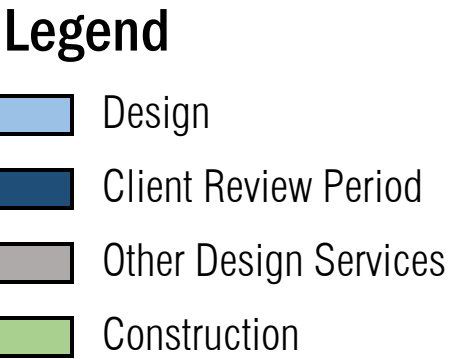
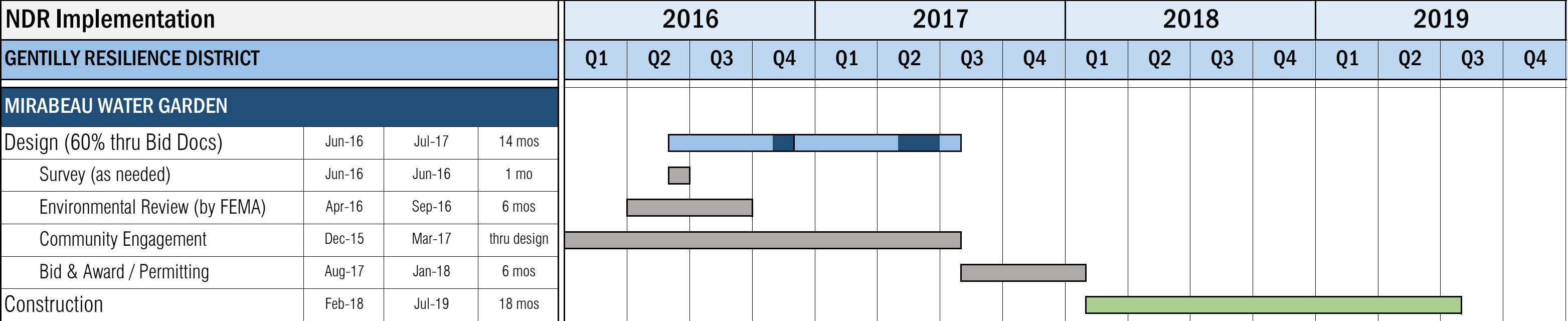
SECTION J



SECTION K

PROJECT SCHEDULE

Assumes June 2016 Restart



COMMUNITY ENGAGEMENT

Completed and Planned

Schedule of Activities	2016									
	January					February				
	04 - 08	11 - 15	18 - 22	25 - 29	01 - 05	08 - 12	15 - 19	22 - 26	29 - 04	
COMMUNITY ENGAGEMENT										
Outreach Coordination Meetings										
Outreach Strategy for City Review		Draft1	Review	Draft2			Final			
NDRC Press Release at Mirabeau site										
City Council Presentation and Web Content for City Review				Draft	Review	Final				
City Council Briefings by CNO staff										
Invitations to Neighborhood and Gentilly Working Groups										
Councilman Brossett Public Meeting										
Publish web content										
(7) Meetings with Neighborhood Working Group										
(2) Design Workshops with Neighborhood Stakeholders										
(5) Meetings with Gentilly Working Group										
(2) Presentations to Gentilly Community (DPS4)										

