

Aesthetic Treatment Planning for
Interim Closure Structure
and Temporary Pumps

New Orleans, LA

60% Design Development Report

August 14, 2008



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IN ASSOCIATION WITH

MWH

GULF SOUTH RESEARCH CORPORATION

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Background

Project Purpose

The purpose of this planning effort is to develop cost effective additions and/or alterations to the existing Interim Closure Structures (ICS) sites that improve the integration of these vital flood control features into their site contexts. The ICS facilities and temporary pumps were built near the mouths of the London Avenue, Orleans Avenue and 17th Street outfall canals as emergency repairs during the first year after Hurricane Katrina struck New Orleans in August 2005. Under these conditions, the design and construction of the facilities did not employ a deliberate site planning approach and, therefore, did not fully consider the existing site conditions or the aesthetic impacts that would result from construction and operation of the stations. This project is intended to address those concerns.

Context

17th Street Canal

Located on the Orleans Parish boundary with Jefferson Parish, the 17th Street Canal ICS site is less residential and park-like in setting than the other outfall canals. The early 20th century lake reclamation project along the New Orleans lakefront resulted in the construction of the west end marina complex along the eastern side of this canal. The western (Jefferson Parish) side of the canal is closely tied to the historic Bucktown community that has existed in the area for over a hundred years.

Orleans Avenue Canal

The Orleans Avenue ICS is located within the public green space that extends from the Lake Pontchartrain shoreline to the Robert E. Lee Blvd bridge crossing. This green corridor is centered along the curvilinear footprint of the Orleans Avenue Canal and provides a visual and physical connection from the public park areas along the lakeshore to the main east-west roadway (Robert E. Lee Blvd) setback from the shore. Grass-covered levees line both banks of the curvilinear canal.

London Avenue Canal

Similar in setting to the Orleans Avenue site, the London ICS is located within the public green space that extends from the Lake Pontchartrain shoreline to the Leon C. Simon Blvd bridge crossing. This green corridor is centered along the curvilinear footprint of the London Avenue Canal and provides a visual and physical connection from the public park areas along the lakeshore to the main east-west roadway setback from the shore. Like the Orleans Avenue Canal setting, grass-covered levees line both banks of the curvilinear canal.

Project Goals

The over-all objective of this landscape design program is to improve the physical and psychological well being of people who live and work around the ICS locations by enhancing their environment. This will be accomplished by preserving and enhancing existing landscape resources, improving overall visual quality, improving the environmental quality of the site locations, and minimizing maintenance requirements.

The primary goal of this design effort is to provide detailed plans for each of the ICS sites that improve the integration of these essential flood control features into their physical and social settings. The designs will be successful if they are cost-effective, they meet the operational and security requirements of the U.S. Army Corps of Engineers, and they meet the needs and expectations of the neighboring communities.

Project Planning Process

Inventory

Collection of Engineering Data

The inventory began with assembly of construction drawings, as-built drawings, aerial photography imagery, and operational manuals. The graphical data were compiled in ArcView GIS in order to develop existing site plans to serve as the basis of design. Engineering data provided by the Corps of Engineers was converted to CAD files and overlaid with the CAD drawings of the City of New Orleans' streets provided by the New Orleans Department of Public Works.

Analysis of existing land uses and planning issues

In order to analyze planning issues related to the ICS sites, the design team reviewed a number of documents from municipal ordinances to recent city planning efforts that have been developed with public participation from area residents and business owners, including:

- New Orleans Comprehensive Zoning Ordinance
- New Orleans 1999 Land Use Plan
- Unified New Orleans Plan (2007) – Citywide and District 5 & 6 Plans
- West End Mixed-Use Redevelopment Plan (2007) – New Orleans Regional Planning Commission
- New Orleans City Park 2018 Masterplan (Revised 2007)
- New Orleans Bicycle Masterplan (2005)

Information contained in these documents which was relevant to the ICS sites was incorporated into the site analysis information, and guided the concept development process.

Site visits and meeting with Pump Station Captains

In the first few weeks of the design process, the USACE project manager arranged for the design team to tour all three sites in order to gain a better understanding of site layout and function. These site visits were a valuable first step but generated a number of questions from the design team. This resulted in a meeting with all three ICS canal captains where questions regarding operational requirements and limitations were discussed and evaluated.

Analysis

Site Conflict Analysis

The surrounding areas of each ICS site were assessed through personal observation at different times of day and in different modes including vehicle approaches, walk-bys, photographic analysis, and interviews with people nearby. Results of these observations were plotted on aerial maps of the sites and their surroundings, with conflicts identified in primary conflict areas, secondary conflict areas, and tertiary conflict areas. Primary conflict areas were those where impacts from the pump stations included visual, noise, and odor impacts. Secondary conflict areas were those which experience visual and noise impacts. Tertiary impacts were identified as areas experiencing only visual impacts.

The design team determined the three levels of impact that would be mitigated by first establishing an Assessment Framework based on the procedures outlined in the *Visual Resource Assessment Procedure for US Army Corps of Engineers*, March 1988. The framework was used to classify 5 different zones of conflict, of which the top three were determined to be significant enough to warrant mitigation measures. Below is an outline of the Assessment Framework, showing assessment values assigned to each Conflict Zone:

Residential Area Conflict Assessment Worksheet

Zone 1 = High Degree of Conflict- In need of treatment

Zone 5 = No Conflict (ideal)-no need for treatment

(TAV) Total Assessment Value = addition of all assessment values, Higher the number (9) the more the need for treatment addressing these areas.

Lower the Number (1 or 0) Lower the necessity for treatment.

Zone 1–Needs major treatment for all conflict aspects

	Distinct (3)	Average (2)	Minimal (1)	N/A (0)
Sight	3			
Sound	3			
Smell	3			

Total Assessment Value 9

Zone 2- Needs major treatment for line of sight, some treatment for sound conflict and engine exhaust.

	Distinct (3)	Average (2)	Minimal (1)	N/A (0)
Sight	3			
Sound		2		
Smell			1	
<u>Total Assessment Value</u>				<u>6</u>

Zone 3 – Needs some treatment for line of sight conflicts, little treatment for sound, none for engine exhaust

	Distinct (3)	Average (2)	Minimal (1)	N/A (0)
Sight		2		
Sound			1	
Smell				0
<u>Total Assessment Value</u>				<u>3</u>

Zone 4- Little treatment for line of sight, no treatment for sound or exhaust.

	Distinct (3)	Average (2)	Minimal (1)	N/A (0)
Sight			1	
Sound				0
Smell				0
<u>Total Assessment Value</u>				<u>1</u>

Zone 5 - Ideal

	Distinct (3)	Average (2)	Minimal (1)	N/A (0)
Sight				0
Sound				0
Smell				0
<u>Total Assessment Value</u>				<u>0</u>

Opportunities and Constraints Definition

Analysis of the built conditions of the pump stations in relation to their surrounding environment, review of operational aspects of the sites and of uses by residents of the area, and consideration of various methods that could be employed to address the situation were distilled into a presentation of Opportunities and Constraints for each ICS site. These presentation materials were used to engage in discussion with area stakeholders about the various approaches that could be explored in the aesthetic mitigation of the ICS sites.

The presentation materials narrowed the aesthetic impacts of the ICS sites to the following basic problems:

- Visual clutter from parking and truck access.
- Exposure of the pump station infrastructure.
- Pump engine sound and odors.

- Unappealing look of the exposed rusted metal sheet pile walls.
- Recreation / amenity loss due to park land and levee top inaccessibility.
- Proximity of infrastructure to surrounding residential properties.

For each of these problems, a number of possible approaches that could be used to mitigate the impacts were presented in photographic example format. The discussions with stakeholders regarding these possible approaches yielded valuable information as to the design scenarios that would be most supported by area constituents.

Stakeholder Engagement

Lakefront Neighborhoods

As an integral part of the design process, the design team engaged the neighboring residents and neighborhood associations to determine their concerns and interests. Neighborhood meetings held for the London Avenue, Orleans Avenue and 17th Street ICS locations were very useful in identifying impacts and obtaining feedback on initial site planning ideas.

University of New Orleans

The main campus of the University of New Orleans (UNO) abuts the eastern side of the London Avenue ICS. In order to obtain the views of this key stakeholder and understand the future plans for the adjoining campus, the design team met with appropriate staff of UNO.

City Park of New Orleans

The eastern side of the Orleans Avenue station is situated on lands owned and maintained by City Park of New Orleans. The design team met with the executive director of the park in order to obtain his views and concerns relative to the existing site conditions and any proposed improvements.

New Orleans Regional Planning Commission

The New Orleans Regional Planning Commission has a number of initiatives that fall within the lakefront area and would be impacted by the ICS sites. The design team met with members of the planning commission to discuss urban planning issues relating to the West End Redevelopment plan and the role of the ICS sites in the bicycle masterplan for the region.

USACE Security and Operational Analysis

As the design progressed to the drafting of initial conceptual designs, it became necessary to re-engage with the ICS canal captains in order to review operational concerns and constraints. In addition, the design team engaged the USACE security officer in order to clarify constraints relative to physical security of the ICS facilities. Of particular concern are the

Department of Defense requirements for fences, clear zones, and standoff distances for anti-terrorism purposes.

Design Concept Development

17th Street Canal

The contextual aspects of the 17th Street Interim Pump Station cause it to be less of an aesthetic problem than the other two sites, which are located in the midst of single-family residential neighborhoods. The prominent visibility of the 17th Street site along a well-traveled commercial street, combined with the large scale of the installation, result in an appropriate design solution that frames views of the complex, defines its edges, and provides access to the site in order to showcase the facility as an important part of New Orleans' recovery.

Orleans Avenue Canal

The Orleans Avenue Canal ICS site was, prior to construction of the flood control structure, the most attractive of the canal sites. The curvilinear canal shape, ample park space to the sides, and connection to City Park and Lakeshore Drive imparted a pastoral, naturalistic setting to the site, which was prized by the residents. The design solution will be to restore as much of the original character of the site as possible. The east side has enough space to accomplish these goals. On the west side of the canal, however, the proximity of the pump station to the road will require a more creative solution to aesthetic improvement that will not involve restoration to a naturalistic setting.

London Avenue Canal

The London Avenue Canal ICS site is similar to the Orleans Avenue site in many ways. The west side pump house is fairly close to the road, but far enough away to facilitate some degree of traditional landscaping treatment if the perimeter security fencing is moved back away from the street. The east side pump house is built very close to the property line of the University of New Orleans, where it adjoins a parking lot and some of the physical plant facilities of the University. The aesthetic treatment for the east side will include some screen planting near the student housing area but otherwise the treatment will not need to be significant.

Inventory and Analysis of Existing Conditions

17th Street Canal

On-Site Factors

Man-Made Elements

The visual setting of the 17th Street ICS is much more eclectic and mixed than the other two sites. Adjoining land uses include restaurants, several marinas, a heavily utilized active public recreation area, a prominent bridge crossing, and mid-rise and high-rise residential structures. Unlike the other two canals, the 17th Street Canal is oriented in a straight line that does not lend itself to any aesthetic interpretation other than as a utilitarian drainage canal.

In contrast to the other two ICS sites, the aesthetic impacts of the 17th Street ICS are more localized and directly related to its proximity to adjoining land uses. Probably the most significant aesthetic impacts have been felt by the Mariner's Cove residential complex immediately adjoining the site to the east. The scale and proximity of the ICS facilities (pumps, access roads, generators, etc.) intrudes into this residential area and introduces an industrial aesthetic that is incompatible with the prior setting. The aesthetic impacts to the Coconut Beach recreation area are not as significant in scope.

The impacts on the western side are largely related to altered views from the Bucktown Marina complex and the impacts to the general aesthetic setting of the historic Bucktown area. The immense scale of the ICS facilities creates a dominating industrial presence at one of the prime viewsheds in the area, the Hammond Highway bridge crossing. Prior to construction of the ICS, the views from the bridge were of an open connection to Lake Pontchartrain. The view of the lake is now entirely disrupted by the large closure structure.

Besides impacts to the pre-existing setting, the construction, operation and maintenance of the 17th Street Canal ICS also significantly effects the planning and implementation of restoration and redevelopment plans for both the Jefferson Parish lakefront and the West End complex. Post-Katrina planning and design efforts are underway for the adjoining lakefront areas, demonstrating their significance to the future of the metropolitan area. The scale and location of the facilities complicate the efforts to reestablish pedestrian connections across the 17th Street Canal. In addition, the uncertainties of the tenure of the "temporary" ICS stations and the siting of the permanent stations will likely result in delays to the redevelopment and restoration efforts, which could negatively affect the restoration of the area.

Perceptual Characteristics

Initial impressions of the 17th Street Canal ICS site are gained from the view from the Old Hammond Highway bridge. The control structure is impressive in scale, with a monumental character that invites one to stop and observe. One cannot see this pump station site in its entirety from any one ground level location, and thus the perceptual character is different from different locations around the site.

Off-Site Factors

Land Uses

The adjoining land uses include commercial institutional, multi-family residential, high-density residential, marinas, a well-utilized active public recreation area. The varied land uses surrounding the site result in the necessity of different strategies for dealing with aesthetic treatments on each side of the site.

Primary Stakeholders

Like the land uses, the stakeholder groups are varied and disparate. There is no overall organization to the stakeholders, and perhaps this is exacerbated by the fact that the site straddles the parish line between Orleans and Jefferson. Particular stakeholders include residents of Mariner's Cove, the high-rise residential developments beyond, the Fleur-de-Lis neighborhood across Old Hammond Highway, the Bucktown merchants, and Lake Avenue residents. Also included in the list should be the U.S. Coast Guard, the Lake Pontchartrain Basin Foundation, and the Coconut Beach players.

Visual, Sound, and Odor Conflicts

Off-site experiential impacts were inventoried through personal site visits. Extensive site photographs were taken to document existing conditions and record visual relationships. The *Residential Area Conflict Assessment Worksheet* (as outlined in a previous section of this document) was completed for various locations within the surrounding neighborhood in order to determine which areas are most impacted by the presence of the ICS Sites.

Analysis

Site Conflict Analysis

The Conflict Assessment Worksheets were used to determine the extent of the primary, secondary, and tertiary conflict zones in the surrounding areas near the ICS sites. These zones were then plotted on an aerial photograph map of the area for determining the most appropriate mitigation measures to be applied to the ICS sites. The Conflict Zone maps were presented and discussed with the stakeholder groups, and adjustments were made to the maps based on feedback gained from those meetings.

Opportunities and Constraints Definition

Based on the inventory and analysis information, the team narrowed the aesthetic impacts of the ICS sites to the following basic problems:

- Visual clutter from parking and truck access.
- Exposure of the pump station infrastructure.
- Pump engine sound and odors.
- Unappealing look of the exposed rusted metal sheet pile walls.

- Recreation / amenity loss due to park land and levee top inaccessibility.
- Proximity of infrastructure to surrounding residential properties.

For each of these problems, a number of possible approaches that could be used to mitigate the impacts were presented in photographic example format. The discussions with stakeholders regarding these possible approaches yielded valuable information as to the design scenarios that would be most supported by area constituents.

17th Street Pumpstation Analysis

Land-Use Analysis



- Green: Greenspace
- Red: Marina
- Pink: Commercial
- Blue: Residential
- Brown: Government
- Yellow: Recreation/ Levee

Conflict Analysis



- Purple: Primary Conflict Area
Sight of Pumpstation
Sound of Engines
Exhaust Fumes
- Orange: Secondary Conflict Area
Sight of Pumpstation
Sound of Engines
- Red: Tertiary Conflict Area
Sight of Pumpstation

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UL Army Corps of Engineers



**17th St. Pumpstation
Photo Board**



17th Street Pumpstation

Opportunities & Constraints



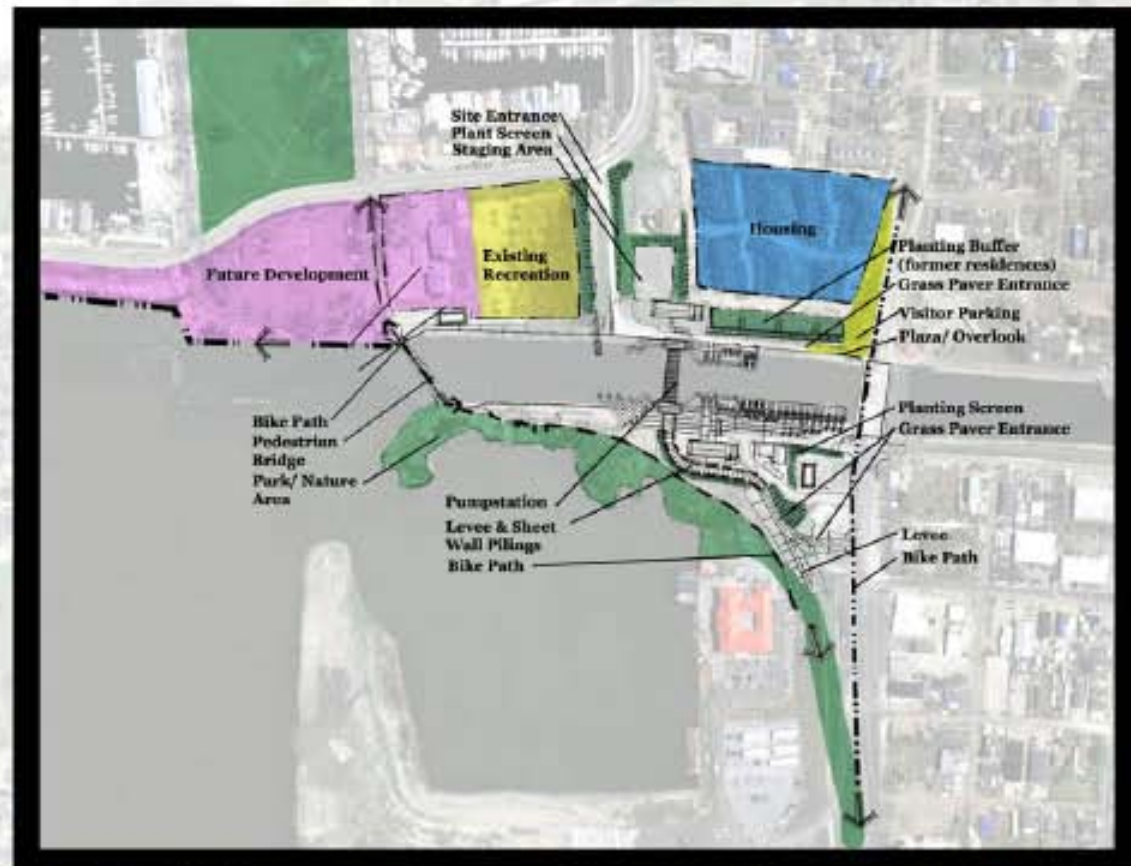
Location Map



Aerial #1



Aerial #2



Problem:



Recreation/
Amenity Loss

Opportunities:



Beach Park Area



Bike/Walk
Path



Pedestrian Bridge



Overlook/ Viewing Area

Constraints: Area around pumpstation must remain secure.

Problem:



Exposed Pumpstation

Opportunities:



Acoustic Metal Wall
Panels



Green Screen
(Trellis system for
climbing vines)



Naturalistic Plantings



Formal Hedge
plantings

Constraints: Any additions to pumpstations must be able to withstand hurricane force winds, Very little space for planting area, planting must not interfere with security of site.



Pumpstation Engine
Sound & Smell



Acoustic Paneling



Green Screen



Buffer Planting

Constraints: Very small area for planting, paneling must be able to withstand hurricanes, engine room must be ventilated.



Parking Lot & Truck
Access



Grass Paver



Viewing/ Overlook
Area



Plaza Area



Parking Area



Screen Planting

Constraints: Refueling trucks must be able to access the site, 2-3x per year, cranes must both sides of pumps, planting must not interfere with security of site.



Sheet Wall Pilings



Planting



Painting



Stone Clad

Constraints: Stone cladding may be cost prohibitive, any additions to site must not



Proximity to Neighbors



Acquire condos for buffer
planting area



Hedge planting
along access road



Green Screen

Constraints: Purchase of neighboring condos, very little space for buffer plantings.

Orleans Avenue Canal

On-Site Factors

Man-Made Elements

The entire landscape is man-made, all part of a massive early 20th century reclamation project that created new land northward from the historic lakeshore near the current location of Robert E. Lee Blvd. The mix of public green spaces, extensions of existing drainage canals to resemble natural streams, new residential neighborhoods, public streets and other facilities were all designed and constructed over the last 80 years.

By the time Hurricane Katrina struck in August 2005, the former lake bottom was a mature landscape with grass-covered hurricane protection levees lining both banks of the canal and a varied mix of mature trees (mostly live oaks, cypress, and pines) and shrubs scattered throughout the wide expanses of public spaces between the levees and private spaces.

The public green space along this corridor is expansive and of great value as a direct connection to the lakeshore recreation areas. On the east side of the canal, the underlying ownership is New Orleans City Park and Marconi Drive has a parkway aesthetic as it heads northward from the middle of the city, passes along the western edge of City Park, crosses Robert E. Lee Blvd and continues on to connect with Lakeshore Drive. The adjoining neighborhood of well-designed and maintained single-family homes, named Lake Vista, enjoys a park-like setting highlighted by wide-open grassy expanses broken up by mature live oak and pine trees.

The western side of the Orleans Avenue Canal can be described as a corridor of undeveloped green space that extends along General Haig and a public road that provides access to the lakefront. Another high quality residential neighborhood of single-family homes, named Lakeshore, borders the corridor to the west and enjoys the benefits of a park-like setting regularly maintained by the Orleans Levee District.

The existing ICS facilities are utilitarian, industrial-type structures situated in an existing residential and park setting. The architectural elements and aesthetics are more typical of an industrial park and stand in stark contrast to their setting. The construction, operation, and maintenance of the facilities are disruptive to the public's use of the green space and the private use and enjoyment of adjoining residential properties. While impressive in scale and function, the facilities exhibit little unity in color or texture and the lack of an overall site plan is apparent.

The aesthetic impacts to the Lakeshore community on the west side of the canal are greater than those to the Lake Vista neighborhood on the east due to

the closer proximity to residential properties and the narrower public green space on the west side. The station is much closer to the residences on the west side than any other portion of either Orleans or London Canals. Both residential areas, however, have experienced negative aesthetic impacts as well as disruptions to public use of the corridors along the levees.

Perceptual Characteristics

Initial impressions of the Orleans Avenue Canal ICS site are of the stark contrast between the industrial nature of the pump station and the idyllic setting surrounding. The prime objective for this site is simply to screen the site with materials that make the pump station appear to fit in with these parkland surroundings. The impression of the west side of the canal is the most problematic, with the pump station practically on top of the neighboring properties.

Off-Site Factors

Land Uses

The area surrounding the Orleans Avenue Canal ICS site is of completely homogenous land uses, with single-family residential being the only land use in the area. The concerns of these homeowners are of primary concern in developing mitigation measures for this site.

Primary Stakeholders

The stakeholders in the area consist of the residents that live in closest proximity to the station, as well as the two neighborhood associations in the area – Lakeshore Neighborhood Association, and Lake Vista Neighborhood Association.

Visual, Sound, and Odor Conflicts

Off-site experiential impacts were inventoried through personal site visits. Extensive site photographs were taken to document existing conditions and record visual relationships. The *Residential Area Conflict Assessment Worksheet* (as outlined in a previous section of this document) was completed for various locations within the surrounding neighborhood in order to determine which areas are most impacted by the presence of the ICS Sites.

Analysis

Site Conflict Analysis

The Conflict Assessment Worksheets were used to determine the extent of the primary, secondary, and tertiary conflict zones in the surrounding areas near the ICS sites. These zones were then plotted on an aerial photograph map of the area for determining the most appropriate mitigation measures to be applied to the ICS sites. The Conflict Zone maps were presented and

discussed with the stakeholder groups, and adjustments were made to the maps based on feedback gained from those meetings.

Opportunities and Constraints Definition

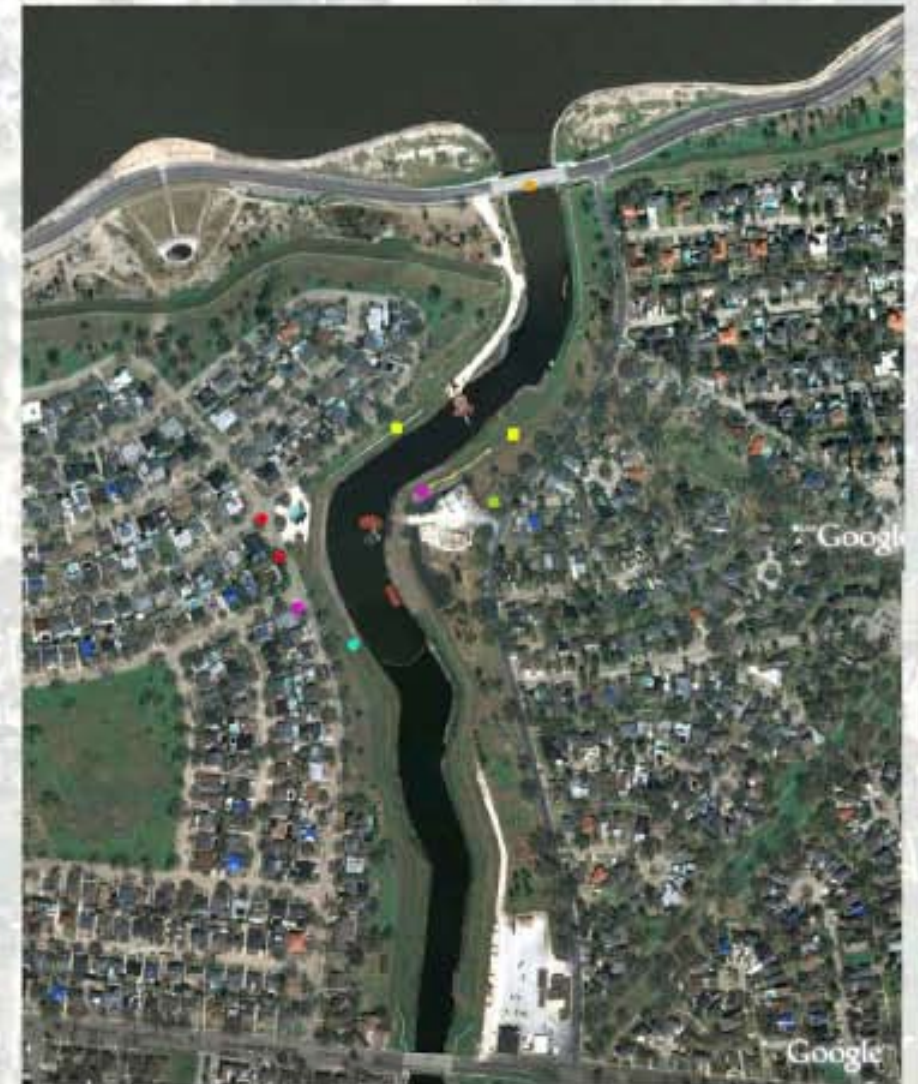
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- Recreation / amenity loss due to parkland and levee top inaccessibility.
- Proximity of infrastructure to surrounding residential properties.

For each of these problems, a number of possible approaches that could be used to mitigate the impacts were presented in photographic example format. The discussions with stakeholders regarding these possible approaches yielded valuable information as to the design scenarios that would be most supported by area constituents.

Orleans Pumpstation Analysis

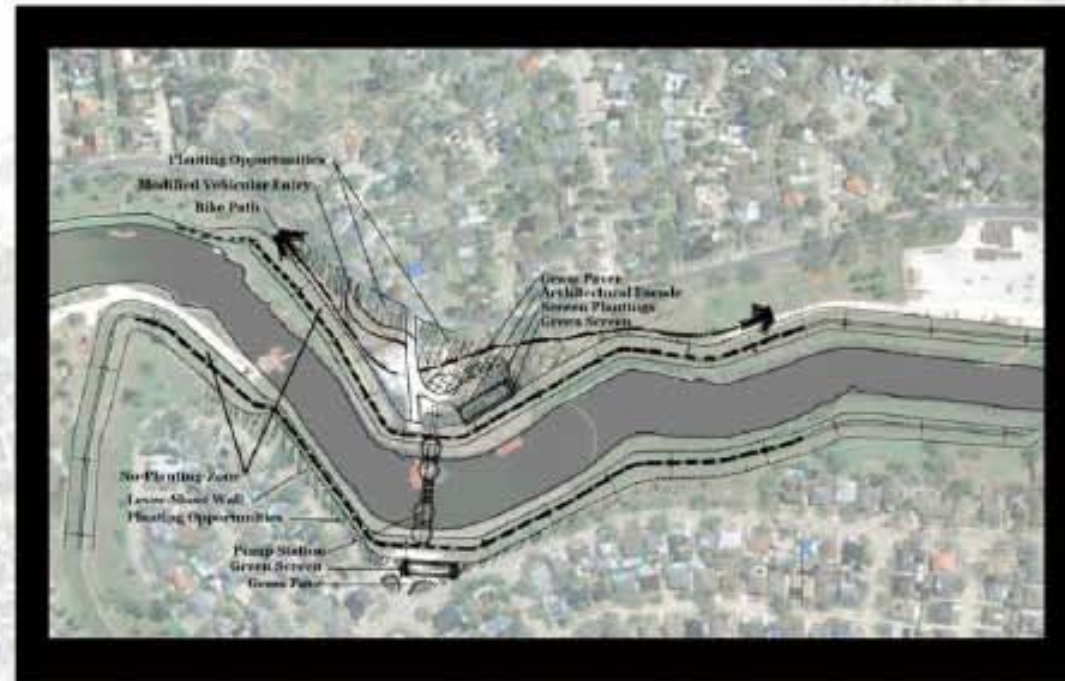




Orleans Pumpstation
Photo Board

Orleans Pump Station

Opportunities & Constraints



Aerials # 2



Aerials # 1



Location Map

Problem:



Exposed Sheet Wall Piling

Opportunities:




Concrete capped

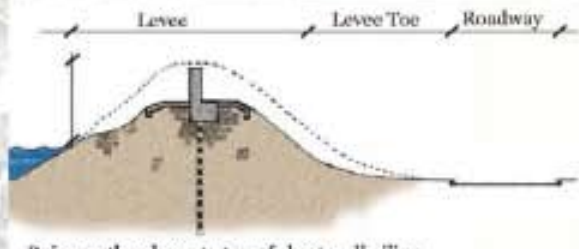


Painting

Constraints:



Stone Clad



Raise earthen levee to top of sheet wall piling

- Additions may be cost-prohibitive.
- Any additions to the levee must not affect structural integrity.

Problem:



Exposed Pumpstation

Opportunities:



Formal Hedge plantings



Architectural Metal Wall Panels

Constraints:




Naturalistic Plantings



Green Screen (Trellis System)

- Any planting or additions to pumpstation must be:
- Able to withstand hurricane force winds
- Ventilated to let the engine exhaust out of the station
- Planting must not be within 20' of toe of the levee
- Not interfere with security of site.

Problem:



Parking and Truck Access

Opportunities:



Planted parking lot



Grass Pave



Decorative Gate



Inconspicuous Access

Constraints:

- Refueling truck must be able to access the site (2-3x per year).
- Create access and staging area.
- Planted trees & gates must not interfere with site access by trucks and cranes.
- Grass pave must be able to withstand crane/ truck weight.

Problem:



Recreation

Opportunities:



New Run/Bike Path



Picnic Area



Viewing Platforms



Playground



Pavilion

Constraints:

- Area around pumpstations must remain secure.
- Bike path can't affect levee integrity.
- Recreation must not interfere with station operations.

Problem:



Engine Sound & Exhaust

Opportunities:



Acoustic Paneling

Constraints:



Rustic Treatment

- Monetary expense of treatments
- Engine rooms must be ventilated

Opportunities:



Mimic Residential Architecture

Opportunities:



Modern Aesthetic

London Avenue Canal

On-Site Factors

Man-Made Elements

On the east side of the canal is the main campus of the University of New Orleans. Most of the adjoining land uses on the campus are utilitarian (parking areas, engineering and storage facilities) and have low aesthetic quality. The northern reach, however, is the location of student housing and the aesthetic setting in this area is of higher value and importance to the UNO campus. The southern reach adjacent to Robert E. Lee Blvd is the location of married student housing units, which are currently unoccupied but planned for renovation and occupancy in the future.

On the west side of the canal was a corridor of undeveloped green space that extends from the lake to Pratt Drive, a public road that provides access to the lakefront. A well-designed and maintained residential neighborhood of single-family homes, named Lake Terrace, borders the other side of Pratt Street. The homes fronting Pratt and neighboring homes enjoyed the park-like setting provided by the London Avenue corridor. The Orleans Levee District regularly maintains these public green spaces.

The existing ICS facilities are utilitarian, industrial-type structures situated in an existing residential and park setting. The architectural elements and aesthetics are more typical of an industrial park and stand in stark contrast to their setting. The construction, operation, and maintenance of the facilities are disruptive to the public's use of the green space and the private use and enjoyment of adjoining residential properties. While impressive in scale and function, the facilities exhibit little unity in color or texture and the lack of an overall site plan is apparent.

The aesthetic impacts to the Lake Terrace community on the west side of the canal are greater than those to the UNO campus due to its proximity to residential properties and disruption of the public green space along Pratt Drive.

Perceptual Characteristics

Initial impressions of the London Avenue Canal ICS site are of the stark visibility of the pump station and microwave tower in an open grassed area. The open grassed area looks like it may have once been a shady parkland like the Orleans Avenue site, but the site has been disturbed and denuded during construction of the ICS. The prime objective for this site is simply to screen the site with materials that make the pump station appear to fit in with these parkland surroundings, and to improve the parkland aesthetics as well. The impression of the east side of the canal along UNO's campus is

that the area is well hidden from view, with less problems to be addressed.

Off-Site Factors

Land Uses

The area surrounding the London Avenue Canal ICS site is of homogenous single-family residential land uses to the west, and institutional uses to the east. The concerns of the homeowners on the west is of primary concern in developing mitigation measures for this site. There are some measures to be implemented on the east side, but these are much less significant.

Primary Stakeholders

The stakeholders in the area consist of the residents that live in closest proximity to the station, the Lake Terrace Neighborhood Association, and the University of New Orleans.

Visual, Sound, and Odor Conflicts

Off-site experiential impacts were inventoried through personal site visits. Extensive site photographs were taken to document existing conditions and record visual relationships. The *Residential Area Conflict Assessment Worksheet* (as outlined in a previous section of this document) was completed for various locations within the surrounding neighborhood in order to determine which areas are most impacted by the presence of the ICS Sites.

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Site Conflict Analysis

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Opportunities and Constraints Definition

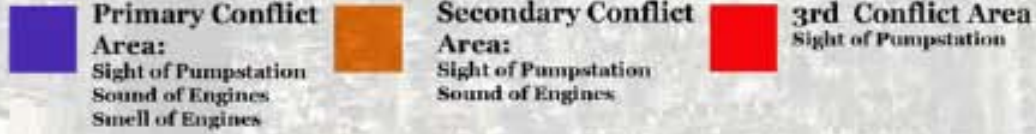
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London Pumpstation Analysis



MWH Americas, Inc
Gulf South Research Corp





Gulf South Research Corp
MWH Americas, inc

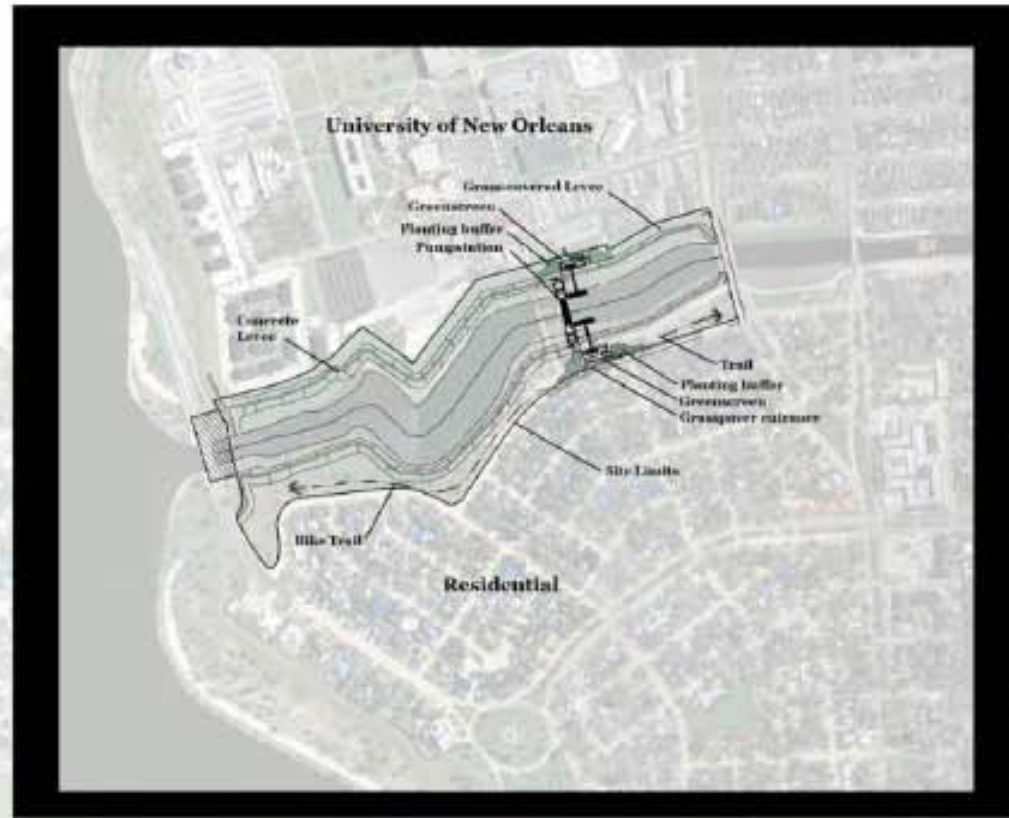


Mathes Brierre
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London Canal Photo Board

London Pump Station

Opportunities & Constraints



Aerials # 1



Aerials # 2



Site Location Map

Problem:



Parking and Truck Access

Opportunities



Planted parking lot



Grass Pave



Decorative Gate



Inconspicuous Access

Constraints: -Refueling truck must be able to access the site (2-3x per year), Crane access and staging area, planted trees & gates must not interfere with site access by trucks and cranes, grass pave must be able to withstand crane/ truck weight.

Problem:



Recreation/ Amenity Loss

Opportunities



New Jogging/ Bike Path



Picnic Area



Viewing Platforms



Playground



Pavilion

Constraints: -Area around pumpstations must remain secure, bike path can't affect levee integrity, recreation must not interfere with station operations.

Problem:



Exposed Sheet Wall Piling

Opportunities:



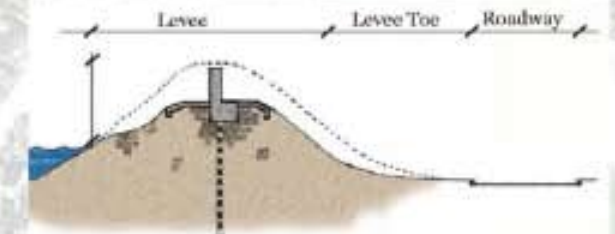
Concrete capped



Painting



Stone Clad



Raise earthen levee to top of sheet wall piling

Constraints

- Additions may be cost-prohibitive.
- Any additions to the levee must not affect structural integrity.

Problem:



Exposed Pumpstation

Opportunities



Formal Hedge plantings



Naturalistic Plantings

Constraints

Any planting or additions to pumpstation must:
- Able to withstand hurricane force winds
- Let the engine exhaust out of the station
- Planting must not be within 20' of toe of the levee
- Not interfere with security of site.



Architectural Metal Wall Panels



Green Screen Trellis System

Problem:



Pumpstation Engine Sound & Smell

Opportunities



Acoustic Paneling



Green Screen Trellis System

Constraints

- Monetary expense of treatments
- Engine room must be ventilated



Garden Wall Screening



Modern Aesthetic

Gulf South Research Corp
MWH Americas, Inc

Mathes Brierre
ARCHITECTS



Stakeholder Engagement

17th Street Canal

Participants and Key Concerns

The design team identified the Mariner's Cove Homeowner's Association as the primary residential stakeholder. The east side of the ICS facility is literally in the back yards of this neighborhood. Initial coordination via telephone conversations and email of design drawings was accomplished with the attorney representing the association and the president of the association. After some delays, a community meeting was held on June 16, 2008 and was attended by two board members of the association. An introductory presentation covered the design team's site inventory and analysis. This was followed by open discussion of the property owners' questions and concerns. The comments and concerns are summarized below:

Stakeholder Concern	Potential design responses
Visual intrusion related to the east-side pump platform and storage lot adjacent to townhomes	Screening of views with vegetation, greenscreen fencing, architectural treatment of platforms
Concern about the future of the site of townhomes being purchased by USACE	Control access by public and provide vegetation and physical barriers.
The security of their neighborhood is a concern and residents do not want visitation by non-residents.	Block views of areas visitors frequent, control access by public
Lights on platforms seem excessive and intrude into community	Consult with USACE on reducing the normal night-time lighting.
Concerned about future of abandoned tennis club, would like to see it demolished.	This area is adjacent to USACE storage yard but outside of scope of design work. Refer the concern to Orleans Levee District.

Additional Feedback

Questionnaires

As part of the stakeholder engagement with area residents in the neighborhoods most impacted by the ICS sites, the design team issued questionnaires to residents at an initial meeting with them. The responses were used to assist in the site analysis, and particularly the conflict analysis to judge impacts to individuals within different impact zones.

Below is a copy of the content of the questionnaire.

US Army Corps of Engineers – Aesthetic Treatments to Interim Control Structures and Temporary Pump Stations

What: Questionnaire to assist design team in assessing the community's concerns regarding the interim control structures and temporary pump stations and determine negative impacts on surrounding neighborhoods. Responses will be used to inform decisions regarding planting and architectural design around the pump stations in order to better integrate them into the surrounding landscape.

When: Community Meeting, Conceptual Design Report

Who: Please let us know your name and address (optional):

How: Answer all questions with a circle around the most appropriate answer. Please provide comments on any question with which you are comfortable. The more information we have from the community, the more the community will benefit.

- 1= No, Not at all
- 2= Slightly
- 3= Yes, Moderately
- 4= Significantly
- 5= Extremely

- 1) Has the United State Army Corps of Engineers (U.S.A.C.E.) pump station installation affected the surrounding neighborhood?
- 2) Since completion of the pump station, has operation of the facility disrupted any community activities in the neighborhood or on the levee? For Example: Walking, biking, picnics, etc. If so, Please list the activities obstructed by the pump station
- 3) Can you see the pump station from where you live?
- 4) Can you hear the pump station from where you live?
- 5) Can you smell the pump station engines from where you live?
- 6) Have you ever heard the pump station operating at night?
- 7) Does lighting at night impact you?
- 8) Would running/ testing the pump during the day be less of a disturbance?
- 9) Has there been an increase in traffic, large trucks in the neighborhood.
- 10) How often was the site used prior to the installation of the pumps? If So, then how was the site used?
- 11) What changes would you like to see to the stations, or area surrounding the stations?

Responses may be mailed or faxed to:

Mathes Brierre Architects
 201 St. Charles Avenue, Suite 4100
 New Orleans, Louisiana 70170-4100
 Fax: 504-582-1305

Evaluation

Mariner's Cove Neighborhood Association completed the questionnaires and were collected. Once they were reviewed, the design team evaluated the responses for additional justification of mitigation measures.

Orleans Avenue Canal

Participants and Key Concerns

Early in the design process, the team made contact with the Lake Vista and Lakeshore Property Owners Associations, which represent the neighborhoods that border the both sides of the Orleans ICS facilities. In consultation with the associations, a community meeting was held on April 15, 2008 to provide for input early in the site analysis and design process. With the assistance of USACE, flyers were hand-delivered to neighboring homes a few days prior to the meeting in the hope of generating attendance by those persons most directly affected by the construction and operation of the facilities. The community meeting was well-attended (a total of 17 persons including officers of both associations and several immediate neighbors) and very useful discussion ensued after some introductory presentations by the design team. The comments and concerns expressed are summarized below:

Stakeholder Concern – Community meeting	Potential design responses
Engine noise can be heard at some distance from the structures.	Vegetative screening or architectural panels on the platforms could reduce noise.
Nighttime lighting was a major complaint and recommended shielding or turning off lights not needed.	Consult with USACE on reducing the normal night-time lighting
Recommend that the bottom of platforms be enclosed to shield views.	Vegetative screening or architectural panels on the platforms could screen views from neighborhood
Architectural treatments of stations are not strongly supported. If included, incorporate NOLA designs (maybe louvered shutters). Rather, residents would prefer more naturalistic approach to restore park-like setting.	Noted, include in design process
No support for recreational development that might attract outsiders	Do not include such features in design

Strong support for walking path to restore lost recreational amenity and direct pedestrians around the station.	Include in design
Support also expressed for possible wall as screening measure, but concerns about graffiti.	Possible inclusion in design.
Move or disguise the communication tower	Consult with USACE on possibility of moving tower. Review approaches to disguising towers.
Neighborhood opposes visits by tour busses and recommends their prohibition. Do not accommodate in design.	Opposition noted.
Construction damaged street curbing and drainage and should be restored to improve drainage and discourage driving on grass.	Consult with USACE to address.
Support for vegetative screen around station and fencing but concerned about providing places for criminals to hide.	Include concern in design process.
Access roads and parking areas are gravel and generate considerable dust that is a nuisance.	Review potential mitigation efforts and possibility of paving roads and parking.
Requested that vegetative plantings be low maintenance.	Include in design and consult USACE on maintenance of plantings outside of fences.
Residents on west (Lakeshore POA) recommend moving as much as possible to east side (Lake Vista POA) where there is much more room. Lake Vista reps supported this idea.	Communicate to USACE and include in design.

The community meeting was attended by Bob Becker, Executive Director of City Park, which was useful in identifying concerns related to current operations and future plans for the park. However, to ensure that the design team had a good understanding of issues related to City Park, an additional meeting with Mr. Becker was held on April 25, 2008. The comments and

concerns expressed are summarized below:

Stakeholder Concern – City Park	Potential design responses
Requests that vegetative plantings be low maintenance. Asked if USACE can maintain plantings.	Include in design and consult USACE on maintenance of plantings outside of fences.
Consider the long-term viability of plantings relative to the siting of the permanent pump stations.	Noted, include in design process.
Suggest that tour busses either be accommodated or prohibited.	Noted, include in design process.
Reduce the dust generated by the rock access roads and parking.	Review potential mitigation efforts and possibility of paving roads and parking.
Supports idea of bike/pedestrian path and notes its inclusion in City Park master plan. A 10-foot wide curvilinear concrete or asphalt path would be consistent with other City Park efforts. City Park could contribute towards costs.	Include in design

Additional Feedback

Questionnaires

As part of the stakeholder engagement with area residents in the neighborhoods most impacted by the ICS sites, the design team issued questionnaires to residents at initial meetings with them. These questionnaires were well received and response rate was good, with about 20 responses received per ICS site. The responses were used to assist in the site analysis, and particularly the conflict analysis to judge impacts to individuals within different impact zones.

Evaluation

18 questionnaires were received from the surrounding residents near Orleans Canal. Once the questionnaires were collected and reviewed, the design team evaluated the responses for additional justification of mitigation measures.

London Avenue Canal

Participants and Key Concerns

Early in the design process, the team made contact with the Lake Terrace Property Owners Association, which represents the neighborhood that borders the western side of the London ICS facilities. In consultation with the association, a community meeting was held on April 14, 2008 to provide for input early in the site analysis and design process. With the assistance of USACE, flyers were hand-delivered to neighboring homes a few days prior to the meeting in the hope of generating attendance by those persons most directly affected by the construction and operation of the facilities. The community meeting was well-attended (a total of 11 persons including officers of the association and several immediate neighbors) and very useful discussion ensued after some introductory presentations by the design team. The comments and concerns expressed are summarized below:

Stakeholder Concern – Community meeting	Potential design responses
Engine noise can be heard in the back of the neighborhood, not just along Pratt Drive.	Vegetative screening or architectural panels on the platforms could reduce noise.
Diesel fume smells extend to the area along Pratt near Leon Simon	Vegetative screening or architectural panels on the platforms could reduce smells in neighborhood
Immediate measures to improve the area should be considered, including moving port-o-potty and communication tower to east (UNO) side of canal, restoring grass and lost and damaged trees in construction staging areas, especially area between ICS and Leon Simon Blvd One resident also complained of fuel alarms are a recurring problems.	Consult with USACE on possibility of moving port-o-potty and tower as well as improved restoration of former staging areas. Urge USACE to replace lost trees, especially live oaks.
Lack of maintenance between ICS and Leon Simon Blvd at present – gravel on ground and dust in neighborhood when used.	Bring to attention of USACE and request proper restoration of the area.

Access roads and parking areas are gravel and generate considerable dust that is a nuisance.	Review potential mitigation efforts and possibility of paving roads and parking.
Fence should be closer to station	Move fence closer to station
Remove barbed wire from fences	Review USACE security requirements, screen views of fence
No support for recreational development that might attract outsiders	Do not include such features in design
Strong support for walking path to restore lost recreational amenity and direct pedestrians around the station.	Include in design
Lights are on all night and seem excessive. Scale back lighting to what is necessary for everyday operations with lights switched on for crisis periods.	Consult with USACE on reducing the normal night-time lighting
Support for vegetative screen around station and fencing. Should be fast-growing and evergreen.	Include in design
Support also expressed for possible wall as screening measure, but concerns about graffiti.	Possible inclusion in design.
USACE contractors bring cranes down Pratt Drive damaging the roadway, curbs and drainage catch basins. Residents would prefer crane access from elsewhere.	Bring to attention of USACE and request consideration of concerns.
Recommend that maintenance employees access from the UNO side instead of Pratt	Bring to attention of USACE and request consideration of concerns

After completion of the community meeting, the design team made contact with Mr. Joel Chatelain, Vice Chancellor of University of New Orleans to schedule a meeting on April 28, 2008. The purpose of the meeting was to ensure that the design team had a good understanding of issues related to current operations and future plans for the university. The comments and concerns expressed are summarized below:

Stakeholder Concern - UNO	Potential design responses
Founders Road on the west side of the campus is main access into campus and already overloaded.	Do not plan on additional access through UNO campus.
The access road at the toe of the levee between Leon Simon Blvd and the ICS is gravel and generates dust on campus.	Review potential mitigation efforts and possibility of paving road.
UNO would like to see plantings along property line as vegetative screen. Offered that plantings could be placed on UNO property if ROW is not adequate.	Include in design and consult USACE on plantings off-site.
Want any vegetative plantings to be low maintenance; suggested hedgerows rather than greenscreen fences, perhaps Leland cypress	Possible inclusion in design
Do not support idea of bike path on edge of UNO campus due to security concerns.	Do not include in design
Concerns about lighting impacts to residential areas – Lafitte Village to the north and the married student housing along Leon Simon that is under renovation. Additional lighting in middle portion would actually benefit campus security.	Consult with USACE on reducing the normal night-time lighting

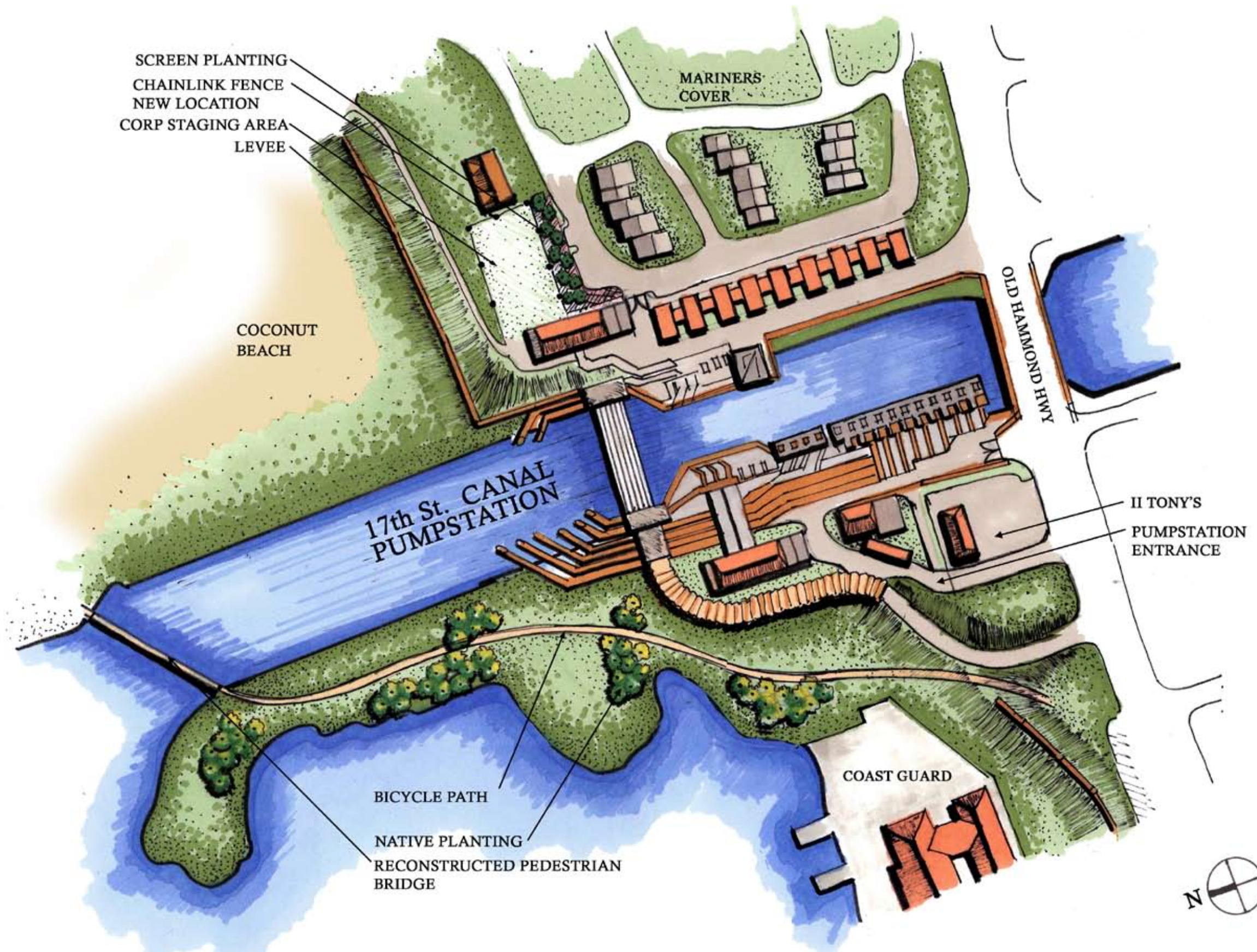
Evaluation

20 questionnaires were received from the surrounding residents near London Canal. Once the questionnaires were collected and reviewed, the design team evaluated the responses for additional justification of mitigation measures.

Additional Feedback

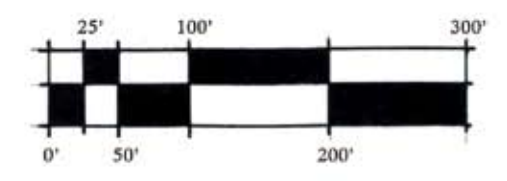
Questionnaires

As part of the stakeholder engagement with area residents in the neighborhoods most impacted by the ICS sites, the design team issued questionnaires to residents at initial meetings with them. These questionnaires were well received and response rate was good, with about 20 responses received per ICS site. The responses were used to assist in the site analysis, and particularly the conflict analysis to judge impacts to individuals within different impact zones.



Mathes Brierre
 ARCHITECTS MWH
 GULF SOUTH RESEARCH CORPORATION

AESTHETIC TREATMENT CONCEPT
17th STREET CANAL INTERIM CLOSURE STRUCTURE



17th Street Canal

Concept Summary

Site Program

The 17th Street Canal Interim Pump Station site is unique among the three sites in that it is located among an eclectic group of land uses in a highly visible and accessible location. The surrounding land uses range from commercial and institutional along Old Hammond Highway, to residential and recreational along West End Blvd. The structure of the pump station itself is very conspicuous in its placement along Old Hammond Highway, causing passersby to take notice of the structure as they cross the 17th Street Canal Bridge. The location is also notable because of its siting at the border between Orleans and Jefferson Parishes, and the site acts as a natural nodal point in the circulation for the area.

Because of the site's importance as connection point for recreational circulation along the lakefront, the concept plan also includes a bicycle / jogging path linkage across the canal, restoring a connection that existed previous to Hurricane Katrina which was displaced due to the siting of the pump station, and which is consistent with municipal planning efforts. In conjunction with the restored recreational linkage, restoration of some natural habitat areas along the lake edge nearby could be accomplished by the community through a separate effort.

Removal of townhomes immediately adjacent to the east side floodwall in the Mariner's Cove development, and conversion to a landscape buffer will mitigate impacts of the pump station to that community as well as provide an opportunity for public visitation. However, this mitigation work will be done as a separate project in conjunction with the future townhouse building demolition.

Aesthetic Approach

Unlike the Orleans and London Avenue Canals, the 17th Street Canal pump station ties into the surrounding city fabric and does not require such heavy screening, nor is there adequate space where screen planting could be accommodated. The surrounding area has a much more urbanized character, and other elements of the adjacent lakefront present a strong maritime character so that the infrastructure of the pump station appears less conflicting with its environment. The aesthetic approach will thus focus on augmenting the existing character of the site and to exploit the naturalistic setting of the west side of the site.

One exception to this approach will be the treatment at the north side of the Mariner's Cove site, where aesthetic mitigation will focus on hiding the pump station through vegetative screening for the benefit of

the quality of life of this residential area.

Conceptual Plan

The conceptual landscaping plan for the 17th Street Canal Pump Station consists of three primary zones, including:

- The area on the east side of the canal, fronting on Old Hammond Highway, currently consists of a service vehicle access road along the floodwall. The road is built up precipitously against a row of condemned townhouses on the edge of the Mariner's Cove neighborhood. Although the current landscaping plan does not address the modifications to this area, another future mitigation project will involve demolition of these townhouse units along the floodwall, and landscaping should be designed to screen these areas from the adjacent residents. In addition, this area is an appropriate location to accommodate by the public. In concept, a visitor parking and overlook area could be provided without disturbance to the adjoining residential areas.
- The area along the north and west sides of the Mariner's Cove neighborhood is impacted by unobstructed views of the back of the pump station and a service yard belonging to the Corps of Engineers. The concept calls for relocating the existing pump station perimeter fence, and removing some area of existing concrete paving on the Mariner's Cove side, in order to increase the space in which screen planting can be installed.
- The area on the peninsula to the northwest of the pump station is a naturalized area controlled by the Corps of Engineers which is not currently being utilized. This area will be designed to accommodate a bicycle / jogging path link from the Jefferson Parish lakefront levee to the recreation areas of West End and Lakeshore Drive. Restoration of the pre-existing pedestrian bridge across the canal mouth from the peninsula to West End is a key component of this plan. The area on the peninsula outside of the restored path will be restored with cleanup of debris left over from emergency work by the corps and naturalized tree planting. Further habitat restoration could be accomplished by others.

Design Features

The 17th Street Canal Pump Station site is complex in its relationship to the surrounding areas. Unlike the other two Pump Stations, there is no clearly defined visual boundary to the site and the whole pump station complex is not visible from any one particular location; thus the site is difficult to comprehend visually and spatially. Because of this situation, the design features to be implemented in the aesthetic treatment will respond individually to the different built conditions at each of the three zones as outlined in the previous paragraphs.

Key features of the design in each of the zones will include:

- The area on the east side of the canal will at some time in the future be modified by acquisition and demolition of the townhomes immediately adjacent to the floodwall. It is recommended that upon the demolition of these structures, that the area have additional fill material applied to slope up toward the pump station site access road, and that this slope then be planted with evergreen screening hedge to benefit the Mariner's Cove neighborhood. In Addition, the provision of visitor parking and an overlook area should be considered. This work is not included in the scope of the current project.
- There is very little space around the back side of the east pump house or the adjacent fenced service yard with which to plant screening materials to benefit the Mariner's Cove properties. The fence around the yard should be moved at least 20 feet to the north, so that screen planting can be accommodated along the Mariner's Cove site. Near the corner of the pump station, a 20 foot section of the existing concrete strip of parking on the street within Mariner's Cove should be removed in order to accommodate an evergreen screen planting there.
- The area to the west and northwest of the pump station will be distinctly different from the other zones in the design. This area is visually removed from the more publicly seen sides of the pump station, and is defined primarily by its natural character and proximity to the lake. The key feature will be an asphalt bicycle path to replace the circulation path which previously existed in the location of the current pump station. There is currently no linkage between the Jefferson Parish and Orleans Parish lakefront bike paths since this link was removed, so this plan will restore that link. The remaining land on the peninsula can remain open space, and will become a community and environmental benefit if restored as a natural habitat area, with native trees and other plant materials attractive to waterfowl and fisheries. The area will be designed as a low maintenance landscape, which will be allowed to revert back to somewhat natural conditions.

Implementation and Maintenance Considerations

There are a number of critical steps that will need to be taken in order to implement the 17th Street Canal Design concept plan described in this report. These steps include the following:

- The area on the east side of the canal will be altered by the demolition of the existing condemned townhomes in Mariner's Cove which are to be acquired by the USACE. The space created by these demolitions will become a prime component in the aesthetic mitigation for that neighborhood. We recommend that the Corps of Engineers proceed quickly with this acquisition and demolition so that landscaping of the area may proceed. Due to the difference in timing of the two projects,

this landscaping work is not included in this project proposal at this time.

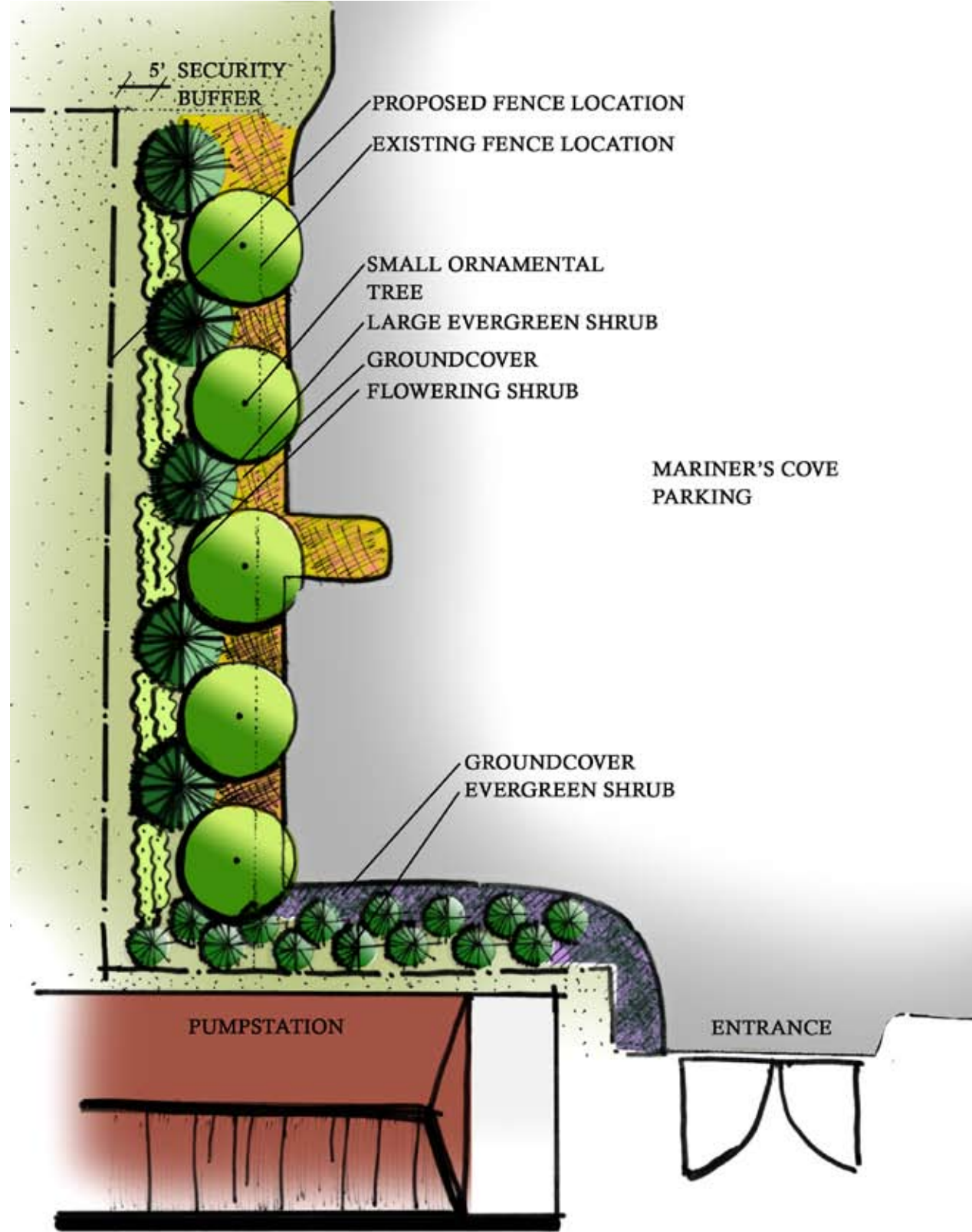
- The area along the lakeshore on the northwest side of the pump station, which includes the peninsula to be improved as a natural habitat area is currently an open area without any significant built elements or constraints that would prevent the landscape design as proposed. The area is separated from the pump station by a tall metal sheet pile wall that serves as part of the flood protection system. To the immediate west of the site is the Coast Guard facility and parking area. There is currently no one managing the site, so landscape improvements would have to be managed by the Corps of Engineers, though it is possible that an entity such as the Lake Pontchartrain Basin Foundation may be interested in lending support to this effort since the site will be utilized for a habitat area. An open area will be maintained within 30 feet of the sheet pile wall in order to maintain access to that wall by a mobile crane that will need access to the floodgates.
- The preexisting pedestrian bridge across the 17th St. Canal in this area was damaged by Hurricane Katrina, and was the subject of a FEMA worksheet, but the bridge was subsequently removed in entirety by the Corps of Engineers. FEMA and the Corps should coordinate the restoration of this bridge with Orleans and Jefferson Parish officials.

Security Factors

Two inter-related security factors affect the site design process – perimeter fencing, and standoff distances. Inventory and site analysis of the three ICS stations indicates that there has been inconsistent application of these security factors at the facilities. While this is not unexpected when one considers the variable site conditions at each site and the emergency construction schedule for all three facilities, it has complicated the design process. In general, this landscape mitigation plan includes aesthetic mitigation measures that can be accomplished without disturbing existing security fences. These concerns are further explored in USACE Operational Review section later in this document.

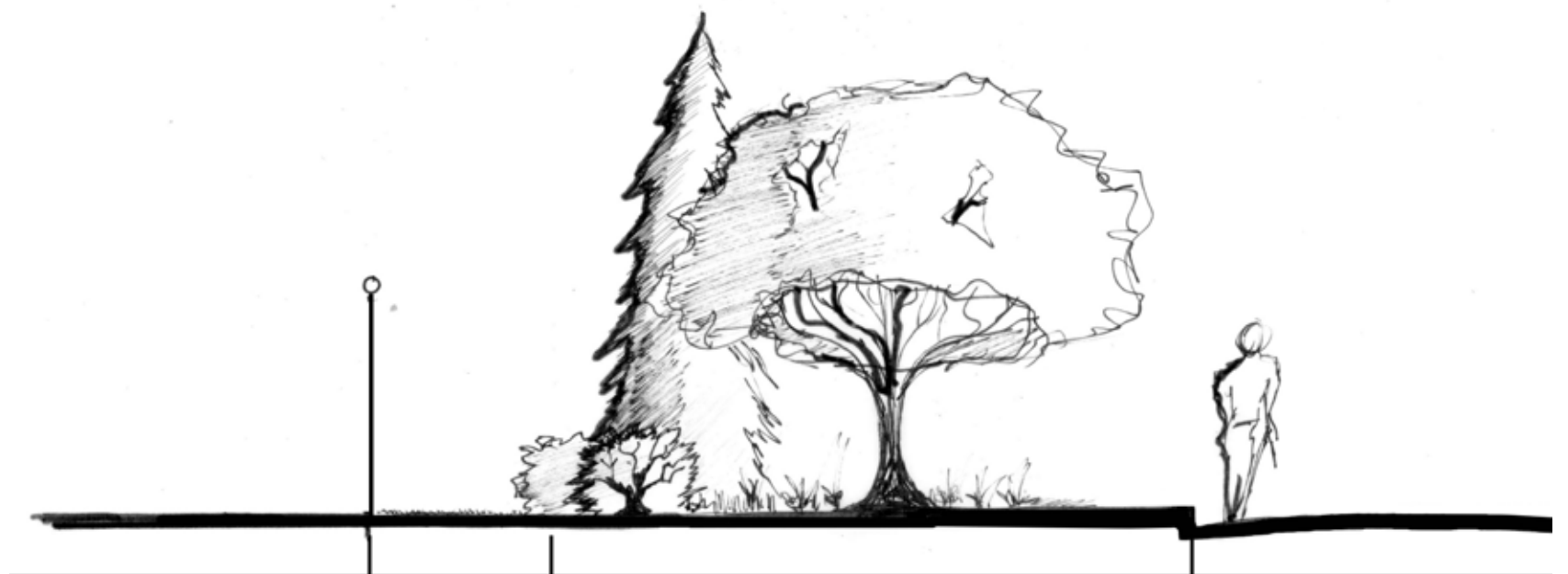
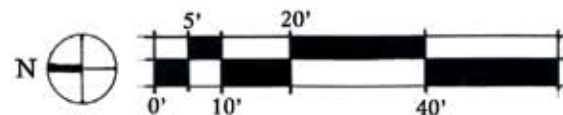
Another security factor that needs to be addressed at all three ICS locations is the nighttime lighting. The current all-night illumination levels greatly exceed the security requirements

for normal conditions and are designed for the relatively rare occasions when nighttime operations are required. Per section 5-6 of Army Field Manual 3-19.30, “security lighting usually requires less intensity than working lights.” The lighting design of the 17th Street ICS station should be revised to provide for a lower level of illumination during non-operational nights. Continuous lighting should be reduced and those fixed lights that must remain on should be revised to avoid bleeding off-site. Extensive use of standby lighting that is not continuously lit should be employed. Such lights could be automatically or manually turned on when suspicious activity is suspected or when nighttime operations are required.



DETAIL PLAN

17th ST CANAL INTERIM CLOSURE



SECTION

17th ST CANAL INTERIM CLOSURE

NOT TO SCALE

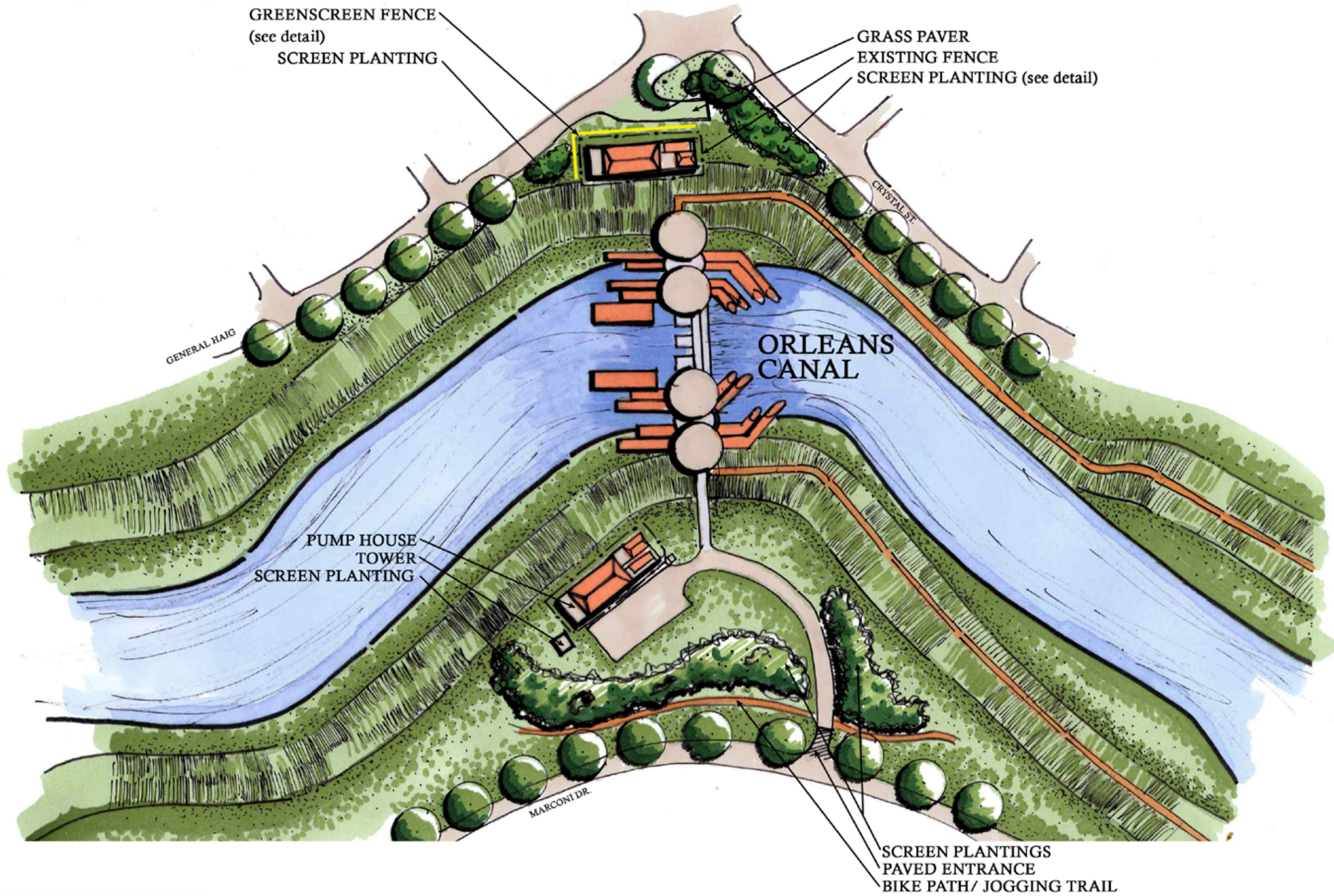
Left: Detail Plan showing planting buffer between Mariner's Cove and 17th St pumpstation

Below: Section showing planting area that separates Mariner's Cove and the 17th St pumpstation.



DETAIL PLAN FOR EAST SIDE OF 17TH ST CANAL
POSSIBLE FUTURE TREATMENT CONCEPT

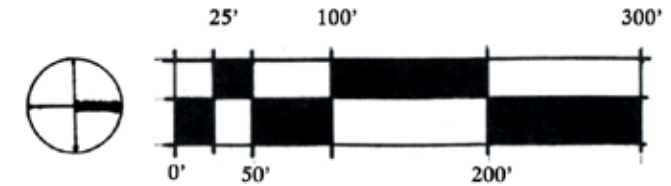
Above: Plan showing possible future layout of Mariners Cove screening and 17th St overlook.



Mathes Brierre
ARCHITECTS **MWH**

GULF SOUTH RESEARCH CORPORATION

**AESTHETIC TREATMENT CONCEPT
ORLEANS CANAL INTERIM CLOSURE**



Orleans Avenue Canal

Concept Summary

Site Program

In contrast to the diversity and complexity of the 17th Street Canal ICS site, the Orleans Avenue Canal ICS site is located in the midst of a stable, well-maintained residential neighborhood where the site has always served as open space parkland which was available for passive recreation such as strolling along the top of the levee. The resident groups expressed a desire to restore, to the greatest extent possible, the character of that green space that has been lost since construction of the ICS. The site program will thus be limited to arranging the utilitarian site elements in a more compact layout in order to minimize the development footprint, installing screen planting to shield the views of the facility, and installing a walking / biking path around the ICS site to replace the levee top pathway lost to the ICS. The path is consistent with the City Park 2018 Masterplan, which includes this site. The path will improve security and public safety by giving people an optional pathway to the levee top, where people are currently walking under the pipe structure in order to pass by the ICS.

Aesthetic Approach

The residents on both side of the canal expressed a desire to return to the original aesthetic of the site, with a pastoral green and a natural woodland appearance. Due to site spatial constraints, the residents on each side of the canal were accepting of the fact that the aesthetic approach would have to be different in order to be effective.

The east side of the canal, along Marconi Drive, has ample amount of space, with the pump house set far back from the road. In this area, naturalistic plantings of a variety of evergreen trees of different scales, textures, and forms should be planted to visually screen out the view of the pump house. On west side of the canal, in the Lakeshore neighborhood, there is very little space available for aesthetic treatment and landscaping. In this area, the aesthetic approach will be more of a contemporary solution. Where screening the pump house structure is impossible due to physical proximity, the plan will instead be to modify the engineered look of the building itself through the addition of an attractive panel system applied around the structure. The result will be that the structure itself becomes a more attractive element in the neighborhood rather than being screened from view. Other site enhancements would be used to support and reinforce this aesthetic.

Conceptual Plan

The conceptual plan for the Orleans Avenue Canal ICS site includes the following primary components:

- The main operational center of the site is on the east side of the canal, and residents on both sides agreed that the east side, along Marconi Drive, has the site capacity to include all general site operational needs on that side. Thus the plan is to consolidate all employee parking to the east side of the site, and to pave the existing driveway with a area of asphalt near the public street in order to reduce dust and gravel from collecting on the neighborhood street.
- The rest of the site on the east side of the canal will feature evergreen screen plantings, new street tree plantings, and a walking path that will reroute pedestrians around the pump station.
- The west side of the canal will feature a Greenscreen panel system around the pump house, within feet of the structure. The screening system will be located just outside of the existing chain-link security fence which is located about two feet from the structure. The site immediately surrounding the pump house, which is currently a limestone parking area, will be redesigned to feature a more aesthetically appealing Grasscrete paving and landscaping look, while still providing for access by refueling trucks on an occasional basis.
- The open space areas to the north and south of the west side pump house should be planted with new street trees and more evergreen screen plantings where possible.

Design Features

The design features in the implementation of the mitigation plan will include:

- The entrance to the parking lot for operations staff on the east side of the canal will be paved with asphalt for a distance of 20 or 30 feet from Marconi Drive.
- Screen planting will be maintained at a 20 foot standoff distance from the parking lot and perimeter security fence.
- The walking path will be a curvilinear path of gravel, mulch, or some other informal material to encourage pedestrians to walk around them pump station without building a permanent pathway. The path will be on the east side of the canal only since there is not enough space to accommodate one on the west side.
- The planting on the east side of the canal will be selected for types and arranged in a way to create a naturalistic woodland edge impression. Along the street, Live Oak trees will be selectively planted in order to replace trees where there are gaps in the original planting.
- The west side of the canal will feature a Greenscreen fence system around the pump house to mitigate the visual impact of the pump house. The screening system will be a gridwire Greenscreen fence

that partially screens the view while providing a structure for climbing vines to grow. The combination screen wall may be 18 to 20 feet tall in order to shield the view of the building.

- The limestone paved area in front of the west-side pump house will be removed and replaced with a grasspave paving system that will support the loading capacity required for occasional refueling truck access while appearing to nearby residents as a grassed area. Also at this corner, the dying Live Oak tree should be removed, and new screen plantings should be installed in combination with the other remaining Live Oak trees. Only one vehicle entrance will be maintained on the west side of the property for fuel truck access. The northwest side will be screened with evergreen planting.


Implementation and Maintenance Considerations

There are no significant factors outside of the control of the Corps of Engineers scope of control that would limit the implementation of this concept design plan. Most of the areas of concern would fall within the category of maintenance, including the following:

- All of the plant material indicated on the concept plan will be located outside of the perimeter security fences for the pump houses. The resident stakeholders expressed a strong desire to hide the security fencing as well as the pump stations, and this would not be accomplished with the fencing in front of the planting. The planting also extends along the parkway to the north and south of the pump stations for two reasons. The new landscaping around the pump stations will appear more appropriate to the site if there is more supporting planting, and some of the planting will be considered as replacement tree planting for trees that were destroyed during construction of the ICS sites.
- Decision will have to be made regarding the care of the landscape planting. The Corps may choose to contract with a landscape maintenance vendor to support the planting installation. The planting materials chosen will be low maintenance tree species, which will be self-sustaining after an initial establishment period. It is recommended that the Corps select a contractor that will install the plant materials and provide one year of maintenance, including watering the plants on a regular basis. The contractor may use TreeGator bags or some similar product to water the trees weekly, especially during the growing season.

Security Factors

Two inter-related security factors affect the site design process – perimeter fencing, and standoff distances. Inventory and site analysis of the three ICS stations indicates that there has been inconsistent application of these security factors at the facilities. In general, this landscape mitigation plan includes aesthetic mitigation measures that can be accomplished



without disturbing existing security fences. These concerns are further explored in USACE Operational Review section later in this document.

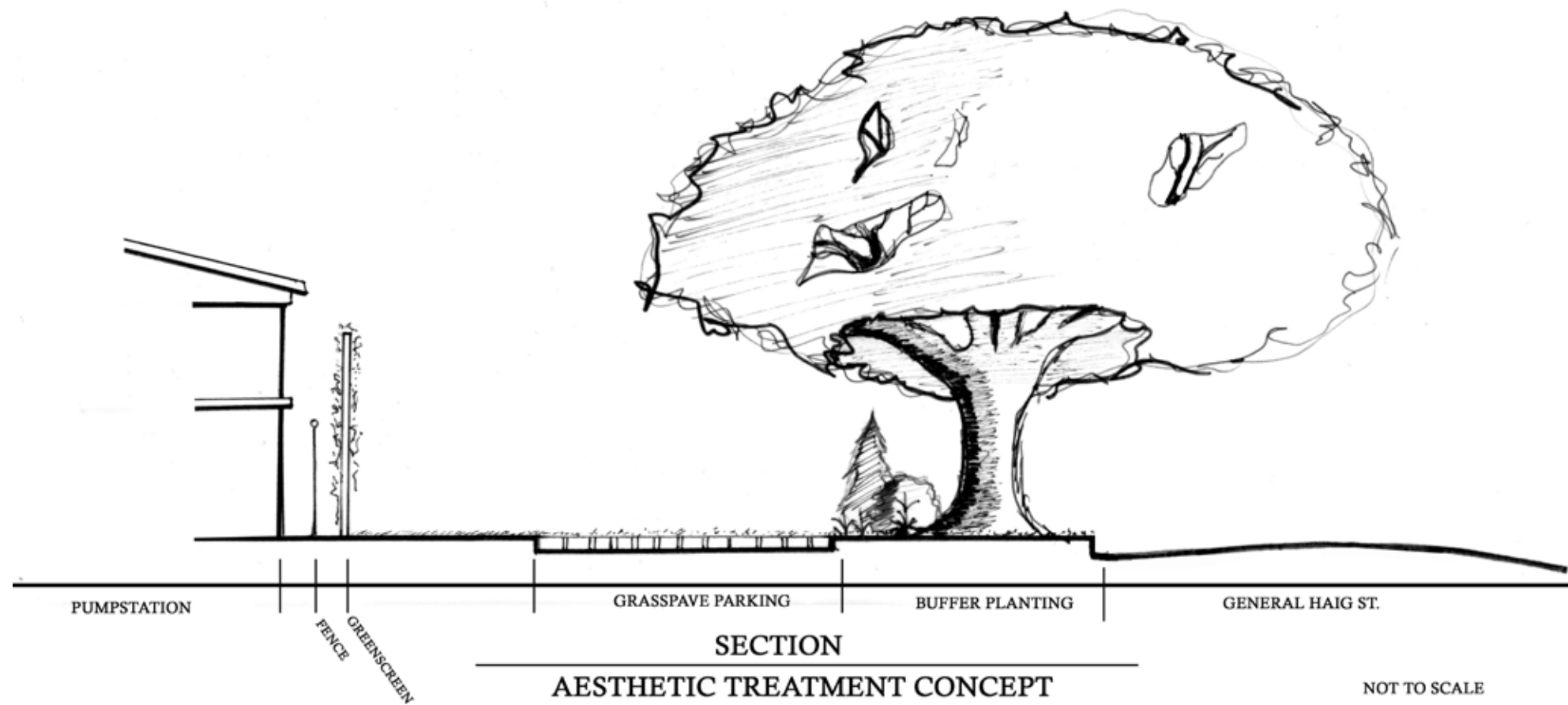
Another security factor that needs to be addressed at the Orleans ICS location is the nighttime lighting. The current all-night illumination levels greatly exceed the security requirements for normal conditions and are designed for the relatively rare occasions when nighttime operations are required. Per section 5-6 of Army Field Manual 3-19.30, “security lighting usually requires less intensity than working lights.” The lighting design of the Orleans ICS station should be revised to provide for a lower level of illumination during non-operational nights. Continuous lighting should be reduced and those fixed lights that must remain on should be revised to avoid bleeding off-site. Extensive use of standby lighting that is not continuously lit should be employed. Such lights could be automatically or manually turned on when suspicious activity is suspected or when nighttime operations are required.



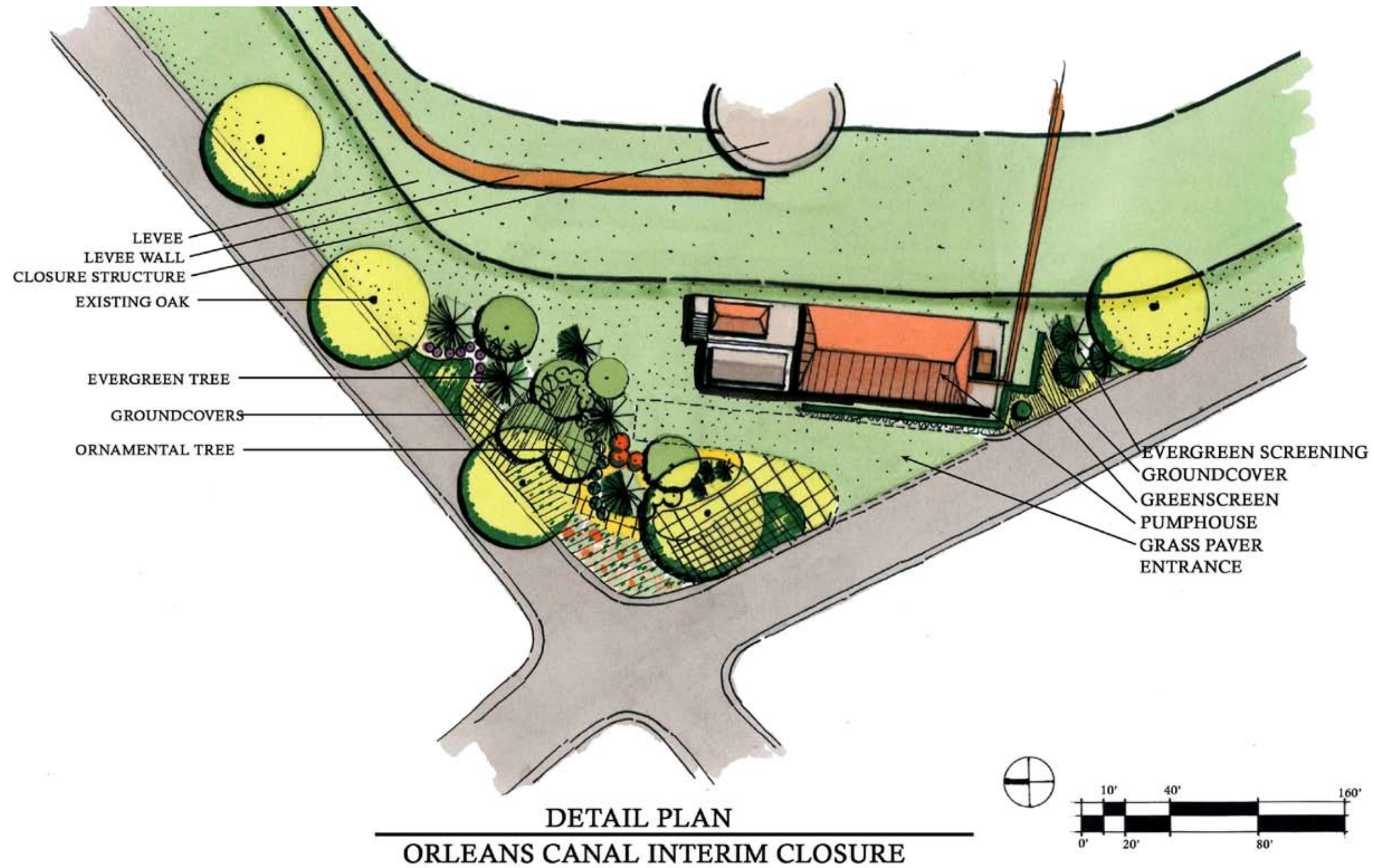
Orleans Avenue Canal - West Side - Current Condition



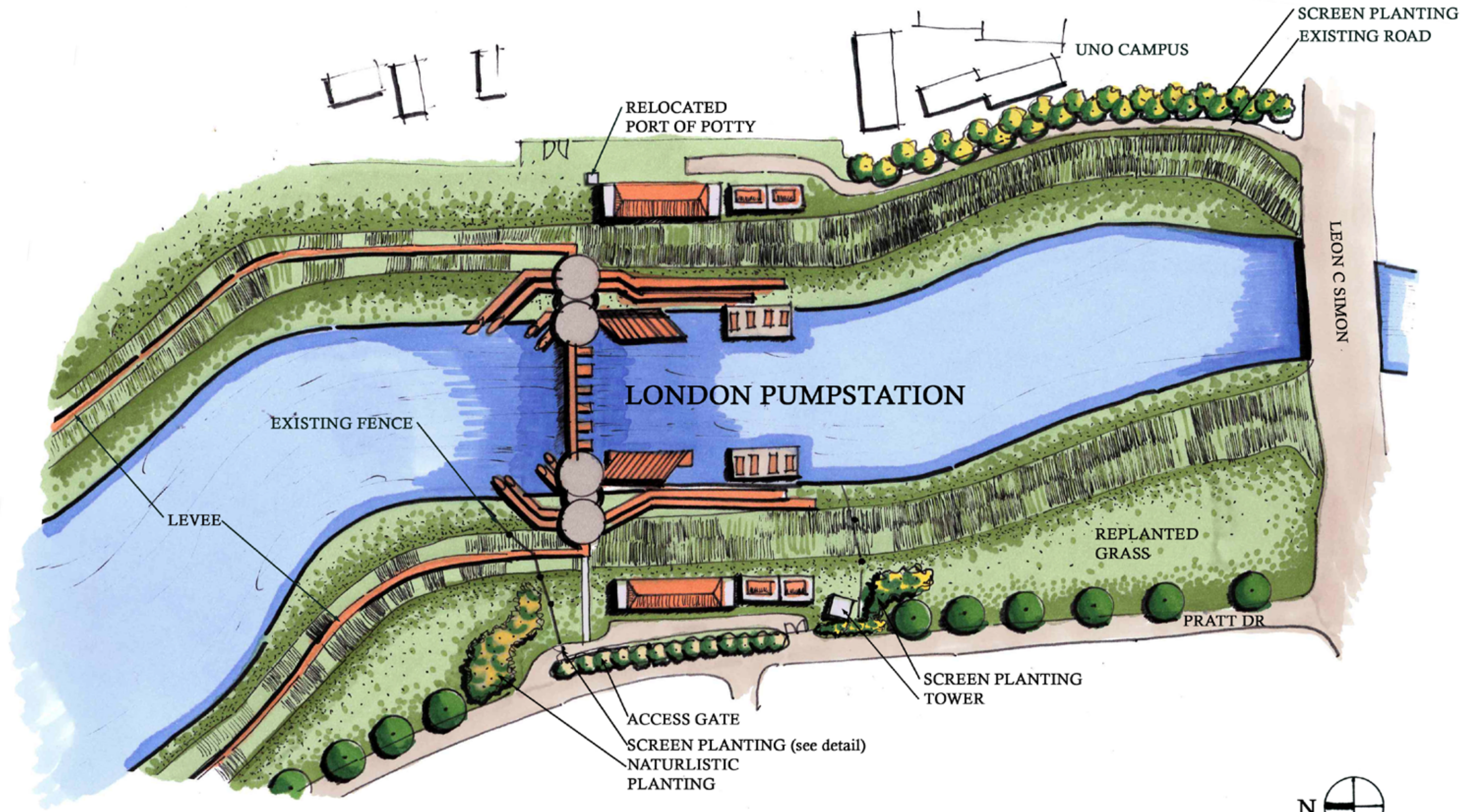
Orleans Avenue Canal - West Side - Possible Vertical Garden Screen Wall Applications. Greenscreen (upper) and Architectural Panels w/ Green Walls (lower)



Section: Showing the pumpstation, Greenscreen, decorative fence, planting and Grasspaver parking lot.



Detail Plan Showing the pumpstation, Greenscreen, decorative fence, planting and Grasspaver parking lot.

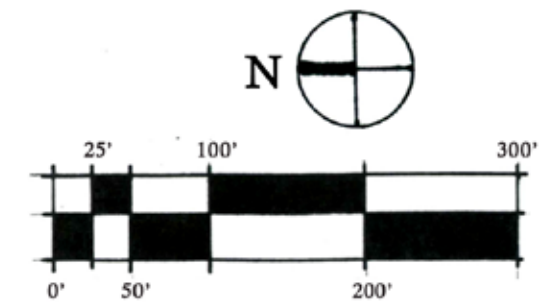


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AESTHETIC TREATMENT CONCEPT
LONDON CANAL INTERIM CLOSURE STRUCTURE



London Avenue Canal

Concept Summary

Site Program

Similar to the Orleans Avenue Canal ICS site, the west side of the London Avenue Canal ICS site is located in the midst of a stable, well-maintained residential neighborhood where the site has always served as open space parkland which was available for passive recreation such as strolling along the top of the levee. The resident groups expressed a desire to restore, to the greatest extent possible, the character of that green space that has been lost since construction of the ICS. The site program for the west side will thus be limited to rearranging one of the site access locations, installing screen planting to shield the views of the facility, and installing a walking path around the ICS site to replace the levee top pathway lost to the ICS. The path will improve security and public safety by giving people an optional pathway to the levee top.

In contrast to the Orleans Avenue Canal, which has residential uses on both sides, the east side of the London Avenue Canal adjoins the campus of the University of New Orleans. There is very limited space between the ICS site and the university property, and no road separating the two. An existing limestone access road will remain, and a portion of the road may be paved with asphalt adjacent to Leon C. Simon in order to reduce dust and gravel spilling out into the road. Screen planting should buffer the site from the Married-Student Housing on the university campus. Other areas of campus north of the housing area are more utilitarian uses and parking area, and not significantly impacted by the pump station. No major mitigation measures are needed for these areas.

Aesthetic Approach

The residents of the Lake Terrace neighborhood on the west side of the canal expressed a desire to return to the original aesthetic of the site, with a pastoral green and a natural woodland appearance. Due to site spatial constraints, however, the residents were accepting of the fact that the aesthetic approach would have to be a hybrid approach in order to effectively screen the pump house.

In the Lake Terrace neighborhood, there is a moderate amount of space available for aesthetic treatment and landscaping. In this area, a mixed planting of evergreen hedge plantings and small flowering trees will be installed along the roadway.

Conceptual Plan

The conceptual plan for the London Avenue Canal ICS site includes the following primary components:

- The main operational center of the site is on the west side of the canal, and the inconvenience of accessing the east side makes it necessary to maintain primary employee access on the west side. The parking area entrance on the north side of the site will be reconfigured to allow for better screening of the parking lot, and entrances will be paved with asphalt to reduce dust and gravel spilling out into the road.
- The fenced area surrounding a streetside transformer and unused electric meters will be removed in order to accommodate consistent screen planting along Pratt Dr. The fence entrance gates will be covered with screen fabric to reduce objectionable views into the property.
- Screen plantings of small flowering trees and low shrubs will be installed just outside of the chainlink fence, between the fence and the street curb.
- The west side of the canal will also feature additional street tree plantings, naturalistic groupings of evergreen screen plantings, and an informal walking path that will guide people around the pump station site.
- The east side of the canal at the University of New Orleans will feature only a screen hedge as mentioned in the Site Program section above.

Design Features

The design features in the implementation of the mitigation plan will include:

- The perimeter security fence will remain as the standard chain-link fence with barbed-wire top. Screen planting outside the fence will maintain a 5 foot clear zone buffer at the base of the fence for security reasons.
- The walking path on the west side of the canal will parallel Pratt Dr. and will be constructed from informal materials such as gravel or mulch. In order to minimize conflicts and maximize public safety, the entire path will be down at the street level rather than atop the levee. A path will be built on the west side of the canal only.
- The planting on the west side of the canal along Pratt Drive will be selected for types and arranged in a way to create a naturalistic woodland impression. Open grassy areas will be left for informal play where possible. Along the street, Live Oak trees will be selectively planted in order to replace trees where there are gaps in the original planting.

Implementation and Maintenance Considerations

There are no significant factors outside of the control of the Corps of Engineers scope of control that would limit the implementation of this concept design plan. Most of the areas of concern would fall within the category of maintenance, including the following:

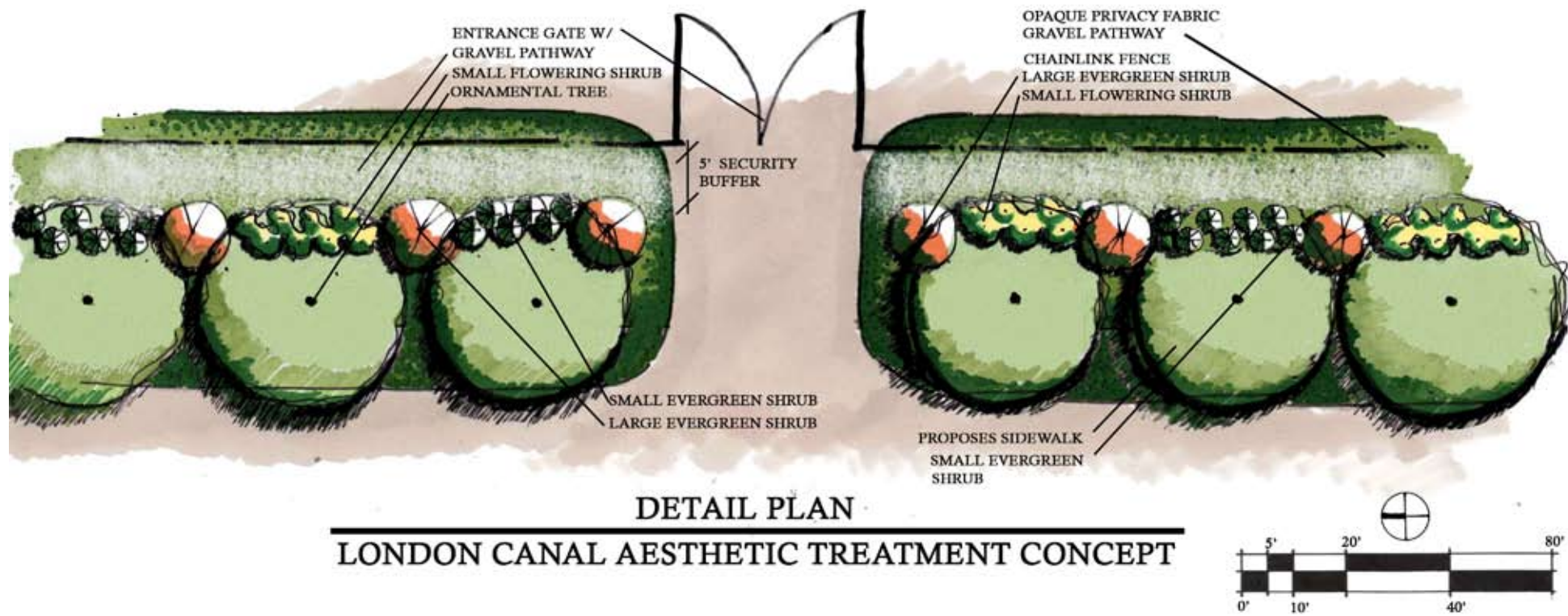
- All of the plant material indicated on the concept plan will be located outside of the perimeter security fences for the pump houses. The resident stakeholders expressed a strong desire to hide the security fencing as well as the pump stations, and this would not be accomplished with the fencing in front of the planting. The planting also extends along the parkway to the north and south of the pump stations for two reasons. The new landscaping around the pump stations will appear more appropriate to the site if there is more supporting planting, and some of the planting will be considered as replacement tree planting for trees that were destroyed during construction of the ICS sites.
- Decision will have to be made regarding the care of the landscape planting. The Corps may choose to contract with a landscape maintenance vendor to support the planting installation. The planting materials chosen will be low maintenance tree species, which will be self-sustaining after an initial establishment period. It is recommended that the Corps select a contractor that will install the plant materials and provide one year of maintenance, including watering the plants on a regular basis. The contractor may use TreeGator bags or some similar product to water the trees weekly, especially during the growing season.

Security Factors

Two inter-related security factors affect the site design process – perimeter fencing, and standoff distances. Inventory and site analysis of the three ICS stations indicates that there has been inconsistent application of these security factors at the facilities. In general, this landscape mitigation plan includes aesthetic mitigation measures that can be accomplished without disturbing existing security fences. These concerns are further explored in USACE Operational Review section later in this document.

Another security factor that needs to be addressed at the London ICS location is the nighttime lighting. The current all-night illumination levels greatly exceed the security requirements for normal conditions and are designed for the relatively rare occasions when nighttime operations are required. Per section 5-6 of Army Field Manual 3-19.30, “security lighting usually requires less intensity than working lights.” The lighting design of the London ICS station should be revised to provide for a lower-level of illumination during non-operational nights. Continuous lighting should be reduced and those fixed lights that must remain on should be revised to avoid bleeding off-site, with one exception. Facility managers at UNO have stated

that they see additional lighting over the adjoining parking area as a benefit as long as it does not intrude upon residential areas on campus. Extensive use of standby lighting that is not continuously lit should be employed. Such lights could be automatically or manually turned on when suspicious activity is suspected or when nighttime operations are required.



Detail Plan: Showing proposed sidewalk, planting scheme, parking lot, entrance gate and existing security fence,

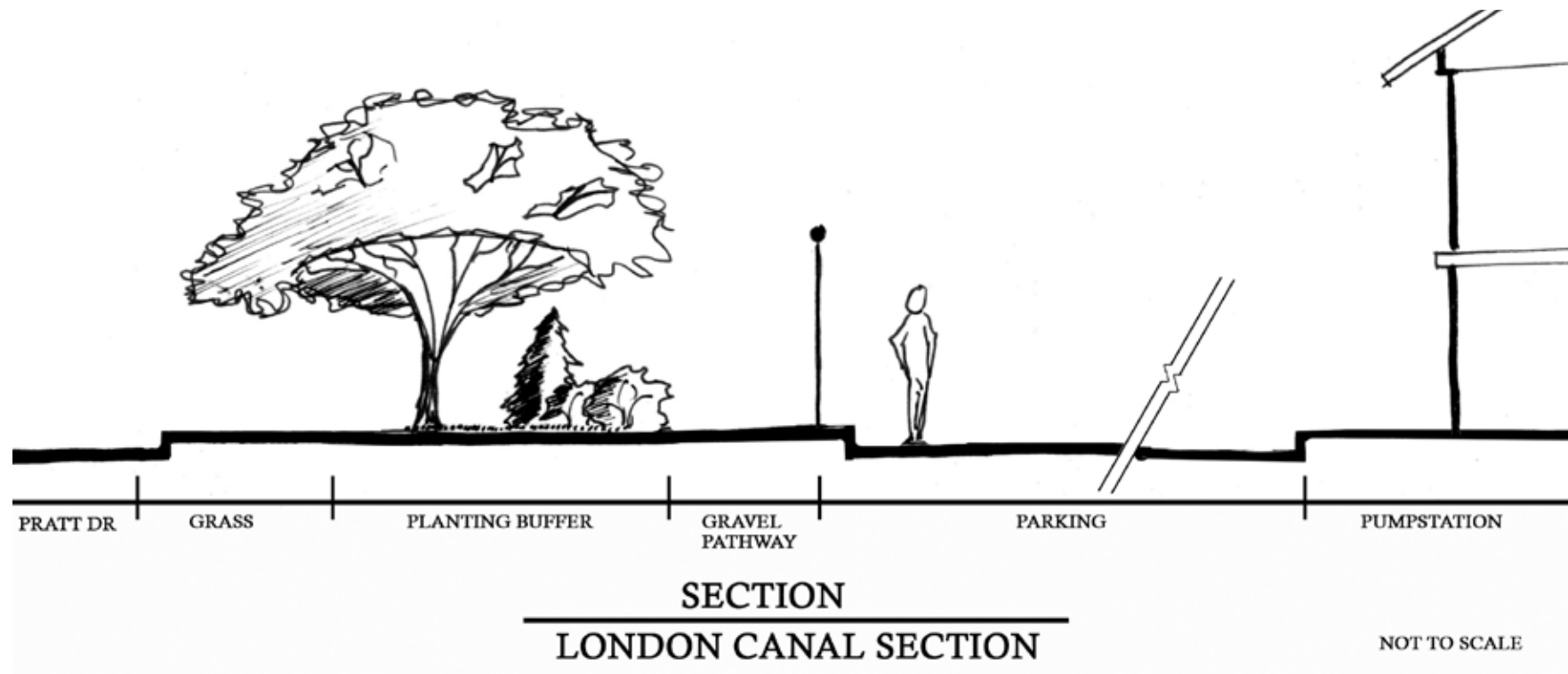


Current Conditions



Aesthetic Treatment Concept

AESTHETIC TREATMENT CONCEPT
LONDON CANAL INTERIM CLOSURE STRUCTURE



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Next Steps

USACE Operational Review

Two inter-related security factors affect the site design process – perimeter fencing, and standoff distances. Inventory and site analysis of the three ICS stations indicates that there has been inconsistent application of these security factors at the facilities. Because the existing site layouts are not consistent, they do not offer reliable guidelines for:

- Where must perimeter fences be located to control access?
- What clearance zones are required for fence lines?
- Are standoff distances for anti-terrorism concerns required?
- If so, what minimum distance must be maintained?
- What exceptions might be allowable considering the adjoining land uses?

These concerns were researched and discussed with USACE operations and security staff during the design development process. The conceptual designs presented in this report incorporate appropriate security requirements as summarized below.

Perimeter Fencing

Guidance regarding perimeter fencing is found in MIL-HDBK-1013/10 dated 14 May 1993, entitled Military Handbook, Design Guidelines for Security Fencing, Gates, Barriers, and Guard Facilities. Some key provisions are cited below:

Section	Excerpt of Guidance	Relevance
1.7.	It is imperative that security fencing requirements for restricted areas be evaluated on a case-by-case basis.	<i>One size does not fit all.</i>
2.2.	Establish a protective perimeter around all designated restricted areas. The protective perimeter will be a chain-link fence, taut-wire fence, the exterior walls of a structure, or a combination thereof.	<i>There is flexibility in establishing the protective perimeter.</i>

2.2.	Determine the type of barrier to be used after a study of local conditions and applicable directives. The barrier or combination of barriers used must afford equal and continuous protection along the entire perimeter of the restricted area. When a section of natural or structural barriers (or lack thereof) provide a lesser degree of protection, other supplementary means to detect and assess intrusion attempts must be provided or a waiver or exception requested.	<i>Local conditions are to be considered in determination of barrier. Supplementary means such as intrusion sensors or security cameras can be used to address deficiencies.</i>
2.2.1.	Initial Barrier Design. During the on-site inspection and during subsequent review, consider: a) What types of walls or fences are present, their condition, and their adequacy to meet the design requirements specified in this handbook. b) Proximity of protected area to public property. d) Sensitivity of protected materials, mission, and personnel. e) How the newly designed security barrier will best integrate with the existing surroundings. f) Operational requirements. g) The desirability or requirement for Intrusion Detection System (IDS) sensors along the perimeter, or the need for Close Circuit Television (CCTV). h) The extent of local criminal activity and the protected area’s vulnerability to that activity. i) What, if any, local building codes or ordinances regulate construction or upgrades of the perimeter barrier system contemplated.	<i>A thorough design process should be used to develop barrier features.</i>

2.3.5.1.	Fence Placement. Security fencing for restricted areas will consist of a single-line fence surrounding the restricted area. Buildings, structures, waterfronts, and other barriers can be used as a part of a security fence line as long as they provide equivalent protection to the fencing enclosing the restricted area.	<i>Again, there is flexibility in establishing the protective perimeter.</i>
2.3.6.1.	Clear Zones. Maintain unobstructed areas or clear zones on both sides of, and between, physical barriers surrounding restricted and non-restricted areas. These areas must be cleared of all vegetation and man-made or natural obstructions that exceed 8 inches (203.2 mm) in height. As a minimum, a 30-foot (9-m) interior clear zone will be established inside of the fence line. An exterior clear zone of at least 20 feet (6.1 m) or greater will be established outside of the fence line. At some activities it may not be feasible, practical, or even possible to provide the required minimal clear zones due to various reasons such as lack of Government controlled property, previous construction encroaching the required clear area, etc. In these cases, OPNAVINST 5530.14B requires that compensatory measures and procedures be employed.	<i>Clear zones should be 30 feet on interior and 20 feet on exterior of physical barriers. However, these minimums are sometimes not feasible and compensatory measures and procedures should be employed.</i>

In one location where the minimum clear zones are not feasible due to physical limitations and adjoining residential land uses, a greenscreen fence should be considered for placement close to the back sides of the pump platforms. The greenscreen would be a living fence of steel gridwire, with vines planted at the base, or some other vertical garden installation. The fence would be placed within feet of the building structure, and could serve dual purposes as a security perimeter and an aesthetic treatment. Supplementary security measures (cameras, intrusion detection, steel cables, etc.) can be

added to greenscreen fences without diminishing the aesthetic values.

In addition to the use of greenscreen fencing, there are locations where screening vegetation is recommended within the 20-foot exterior clearance zones. These locations are limited in space and we recommend supplemental measures to overcome the problems introduced by vegetation.



Greenscreen Fencing

GREENscreen® provides tools for trellising, fencing, and other vertical landscaping applications. The main component of the system is a modular 3-D wire trellis panel. When the panel is combined with evergreen or climbing vines, GREENscreen® forms a landscaping system that defines or encloses space, provides privacy, and offers shading. Following are the product specifications for the Greenscreen system:

COMPONENTS

1. Panels shall be rigid, three-dimensional welded wire grid fabricated of 14-gage ASTM A641 galvanized steel wire.
2. Face Grid: Wires shall be welded at each intersection to form a 2 x 2 inch face grid on the front and back of panels.
3. Trusses: Face grids shall be separated by bent wire trusses spaced at 2-inch centers and welded to front and back face grids at each truss apex.
4. Panel Thickness: 2 inches or 3 inches.
 - a. 2 inch thick panels should be used only at wall-mounted conditions. They take up less area and enable the two-inch module to be maintained around corners.
 - b. 3 inch thick panels can be used at wall-mounted conditions, edge-mounted conditions with supports at up to 96 inches on center, and at horizontal or inclined (overhead) conditions with supports at up to 48 inches on center.
5. Panel Length and Width: Provide in 2-inch nominal increments up to 4' x 14'.

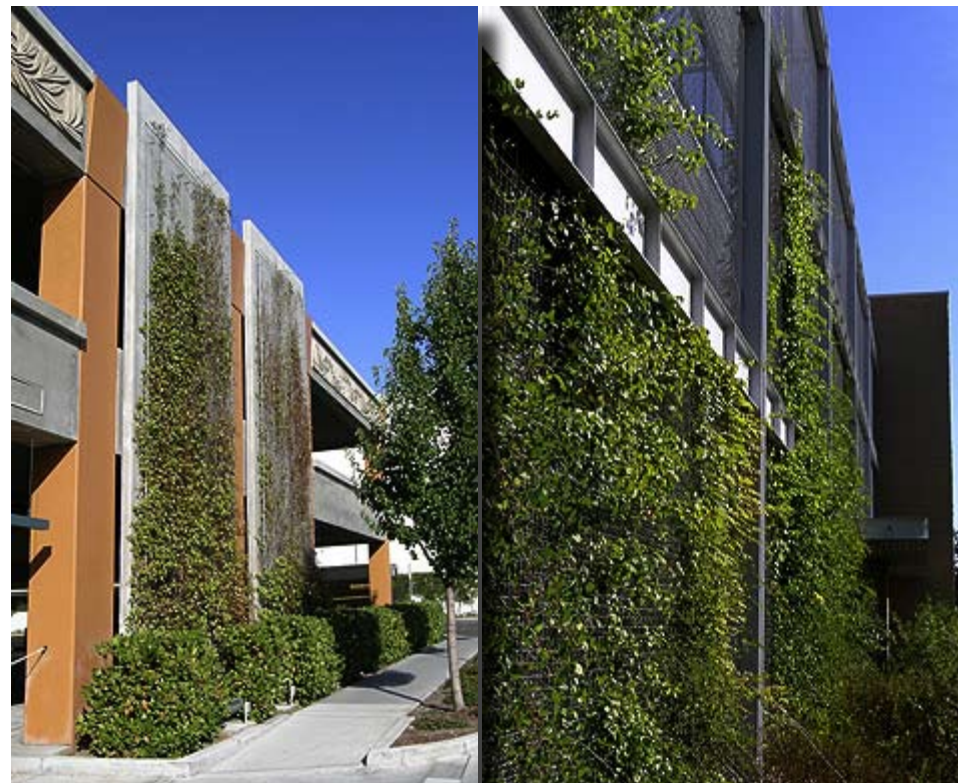
ACCESSORIES

6. Trim: Fabricate from 20-gage ASTM A879 galvanized steel. Recommended adjacent to pedestrian traffic areas and where required visually or to provide an edge to which vines can be trimmed for maintenance. Do not use channel trim at bottom of panels where it could hold water and restrict plant growth.
 - a. Channel Trim: Thickness of panel x 1/2 inch legs.
 - b. Angle Trim: 1/2 inch x 1/2 inch legs.

7. Clips and Straps: Provide manufacturer's standard types of clips and straps suitable for mounting conditions. Fabricate from ASTM A879 galvanized steel. Adjustable clips shall have 1/4 inch diameter 18-8 stainless steel bolt, washer, and nut.
8. Posts: For Freestanding installations, 3-inch square ASTM A500B steel tube. Imbed length and footing size should be determined based on overall height, spacing, wind load, soil conditions, and type of footing.
9. Fasteners for Mounting Clips to Fence Posts: Self drilling, self tapping hex washer head screws, Type 410 stainless steel, and free from rust when salt spray tested for 300 hours in accordance with ASTM B117.

FINISHES

10. Metal components (except fasteners) shall be factory finished after fabrication
11. Finish System: Pretreat with general purpose, alkaline, water based cleaner / degreaser applied at 240 degrees F. Prime with zinc-rich epoxy powder coat. Topcoat with polyester or polyester-urethane powder coat.
12. Salt Spray Resistance: Finish shall remain rust free when tested 1680 hours in accordance with ASTM B117.
13. Fasteners used for attachment to structure should have a minimum resistance of 550 lbs. pull out.
14. Fasteners for Attachment to Structure:
 - a. To Concrete or Masonry: 550 lbs.
 - b. To Structural Steel: 550 lbs.
 - c. To Light-Gage Steel Framing: 550 lbs.
15. Weld trim to panels and grind smooth exterior surfaces of welds.
16. GREENscreen® offers six standard finishes including four gloss finishes and two matte textured finishes. RAL Colors are available at a slight premium, depending upon the size of an order. Contact factory for information on custom colors.



Metal Architectural Panels and Green Wall Installation

Stand-off Distances

Regarding the issue of stand-off distances, the reference consulted during this design process is UFC 4-010-01 dated 22 Jan 2007, entitled Department of Defense Minimum Antiterrorism Standards for Buildings. Some key provisions are cited below:

Section	Excerpt of Guidance	Relevance
1-4	INTENT. The intent of these standards is to minimize the possibility of mass casualties in buildings or portions of buildings owned, leased, privatized, or otherwise occupied, managed, or controlled by or for DoD.	<i>Concern is mass casualties of personnel, which is not likely at the ICS facilities.</i>
1-6	APPLICABILITY. These standards apply to all DoD Components, to all DoD inhabited buildings, billeting, and high occupancy family housing, and to all DoD expeditionary and temporary structures	<i>Again, the requirements apply only to inhabited buildings.</i>



<p>2-4.5.3</p>	<p>Operational Option for Existing Buildings. Because moving parking and roadways associated with existing buildings or applying structural retrofits to harden those buildings may be impractical, operational options are provided for complying with the standoff distance requirements for existing parking and roadways associated with existing buildings (including leased buildings). Those operational options allow for establishing access control for parking at the applicable standoff distances in either Table B-1 or Table D-1, in which case parking can be allowed to be as close as 10 meters to buildings without hardening or analysis.</p> <p>The access control in those situations must be established at a location in accordance with Tables B-1 or D-1. The assumption is that by establishing access control into the parking lot, there will be a lesser opportunity to enter the parking area with an explosive in a vehicle. For roadways, the operational option is to prohibit parking along roadways within the applicable standoff distances in Tables B-1 and D-1.</p> <p>These operational options will result in increased risk for existing buildings, but acceptance of that risk is necessary to make application of these standards to existing buildings practical. The additional option for allowing parking even closer than 10 meters (33 feet) as long as the applicable level of protection is met,</p>	<p><i>If these minimums apply to the ICS facilities, standoff distances can be 10m or less as long as access control to parking areas is implemented.</i></p>
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<p>Inhabited building. Buildings or portions of buildings routinely occupied by 11 or more DoD personnel and with a population density of greater than one person per 40 gross square meters (430 gross square feet). This density generally excludes industrial, maintenance, and storage facilities, except for more densely populated portions of those buildings such as administrative areas. The inhabited building designation also applies to expeditionary and temporary structures with similar population densities.</p> <p>Standoff distance. A distance maintained between a building or portion thereof and the potential location for an explosive detonation.</p>	<p><i>The ICS facilities do not meet the definition of inhabited buildings.</i></p>
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Based on our review of the guidance, it seems that standoff distances do not apply to the ICS facilities. The only features of the three sites that might possibly qualify as “inhabited buildings” might be the control, or safe, rooms. If these standards are applicable, we note that the guidance allows for flexibility in implementation at existing buildings and urban areas.

Security Fence Recommendations

Perimeter security control was not a part of the scope of this project. However, in order to accomplish aesthetic mitigation through landscaping, the security guidelines were reviewed here. In general, this landscape mitigation plan includes aesthetic mitigation measures that can be accomplished without disturbing existing security fences. The design plans feature landscape treatments with enough standoff distances and clear zones to meet security guidelines as described to the design team during meetings with the USACE operational team. In some cases, these guidelines are compromises suggested in the interest of accomplishing the goals of this aesthetic mitigation project in very constrained spaces that were not properly planned during initial construction, and cannot thus meet full security guidelines for newly constructed “inhabited” buildings.

Where some modifications to the existing fence layout is called for, the plan recommends to install new fencing of the same standard as that which is already on site. In other cases, the plan calls for simple measures such as adding screening fabric to the chain link gates in order to screen views

at entrances, where screen planting cannot be installed. These measures are suggested in order to accomplish the project goals while maintaining economy.

Other Operational Issues

Two other issues merit USACE review, the first issue is maintenance of plantings outside of the restricted areas defined by perimeter fencing. We anticipate that vegetation planted as part of the aesthetic treatment of the ICS facilities will be maintained for the first year. However, periodic maintenance (trimming, mulching, weeding, etc.) will be required for some of the planted areas to maintain their vitality and aesthetic values. We recommend that USACE include such maintenance in the grounds maintenance contracts for the ICS facilities.

The other issue that merits USACE review is the recommendation for a pedestrian pathways to guide people around the ICS facilities. In the instance of the Orleans and London ICS sites, the recommended paths will replace the previously existing levee-top pathways that were heavily used by the neighboring communities. In addition to mitigating for a lost public amenity, the pathways will enhance physical security by directing pedestrians away from the facilities rather than the current ad hoc situation that often results in undesirable intrusions. These pathways can be constructed as temporary installations of loose materials.

At the 17th Street ICS location, the proposed pathway and canal crossing lakeward of the structure would replace a constructed path or road that was removed to build the control structure. This pathway should thus be constructed from a more permanent material, as it could provide a long-term replacement for what was removed. The inclusion of this feature would also advance the long-term regional planning efforts to connect the cycling opportunities along the Jefferson and Orleans parishes lakefronts.

Stakeholder Review

After completion of internal USACE review, the conceptual design will be adjusted as needed and made available for public and stakeholder review.

Detailed Design Refinement

The design team will take feedback from all of the stakeholders in this process into consideration together with implementation, budget, and operational concerns to refine the design concepts and develop a set of site designs that can best provide aesthetic mitigation measures that are feasible and implementable in the near term.



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