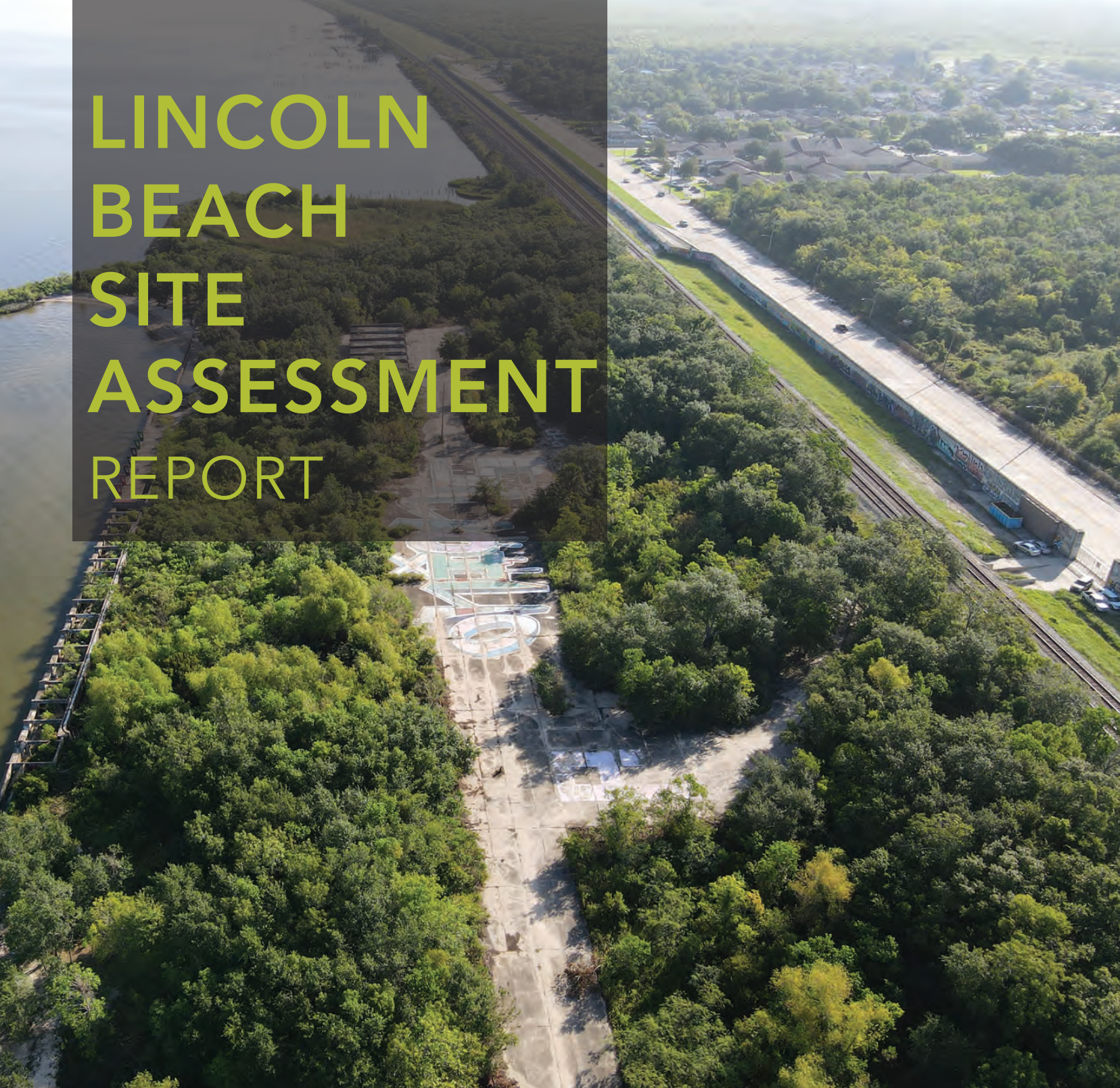
# LINCOLN BEACH SITE ASSESSMENT REPORT



PREPARED FOR THE CITY OF NEW ORLEANS

Department of Public Works

digital engineering

DIGITAL ENGINEERING & IMAGING, INC.

April 2021

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# INTRODUCTION

Recreation, eco-tourism, education, historic preservation, and special events. These are the potential uses the City of New Orleans envisions for the new Lincoln Beach, a source of community pride and one that offers accessibility for all - pedestrians, vehicles, cyclists, seniors, and people with disabilities.

Closed since 1964, structures and facilities at Lincoln Beach have deteriorated and certainly additional damage has occurred from hurricanes. As a result, it was essential to perform a subsequent site assessment to determine the infrastructure necessary to restore this area and provide various alternative solutions for accessibility.

The Digital Engineering team was selected by the City to perform a comprehensive site assessment that evaluates existing conditions of structures, parking lots, and an access tunnel as well as facility access, utilities, and waterfront / coastal structures.

The ultimate mission of the DE team is to provide the City with our findings to assist in the future master planning of the site. This site assessment includes conceptual level engineering evaluations and drawings indicating potential areas of future development of the site, suitability of existing structures for recreational use, permitting requirements, etc.

This multi-prong approach must first address the site's accessibility and the improvements necessary for safe, ADA compliant access for all visitors. After diligent assessments and analyses, we are presenting the City with three improvement scenarios on the following pages:

- Minimum Improvements
- Moderate Improvements
- Extensive Improvements

Each scenario is accompanied by a visual rendering of the recommended possibilities for improvements to a given level of intervention and a table that highlights benefits, challenges, and cost of each.

While the following pages provide a range of possible solutions, the Minimum, Moderate, and Extensive Improvement scenarios should not be interpreted as the only possible solutions. The scenarios presented have been selected based on the anticipated level of construction needed for implementation. Preferred access, utility, and asset improvements may be blended to achieve specific desired outcomes for the City.


# THE CHALLENGES.

Upon its opening, Lincoln Beach was a vibrant amusement park home to roller coasters, swimming piers, sandy beaches, pools, restaurants, and various musical performances along its waterfront pavilion Since closing in 1964, the Lincoln Beach site on Hayne Boulevard has remained idle and vacant, and has gradually deteriorated due to lack of maintenance and a barrage of hurricane impacts to Lake Pontchartrain. Though access to Lincoln Beach is currently forbidden, the site is now home to unpermitted activities such as recreation, socialization, camping, artistic expression, and living.

Access to the site is by way of a tunnel under the existing railroad, which is further restricted by a floodwall and the L-20 Floodgate of the Hurricane and Storm Damage Risk Reduction System (HSDRRS). There are currently no utilities such as water, sewer, or power to the site, and many of its facilities are unsafe for use and not compliant with current safety and accessibility codes. As a result, all existing structures within the site pose a safety risk.

The current challenge confronting the reopening of Lincoln Beach is constructing and maintaining safe, unhindered access across Hayne Boulevard, beyond the floodwall, and across the railroad tracks.

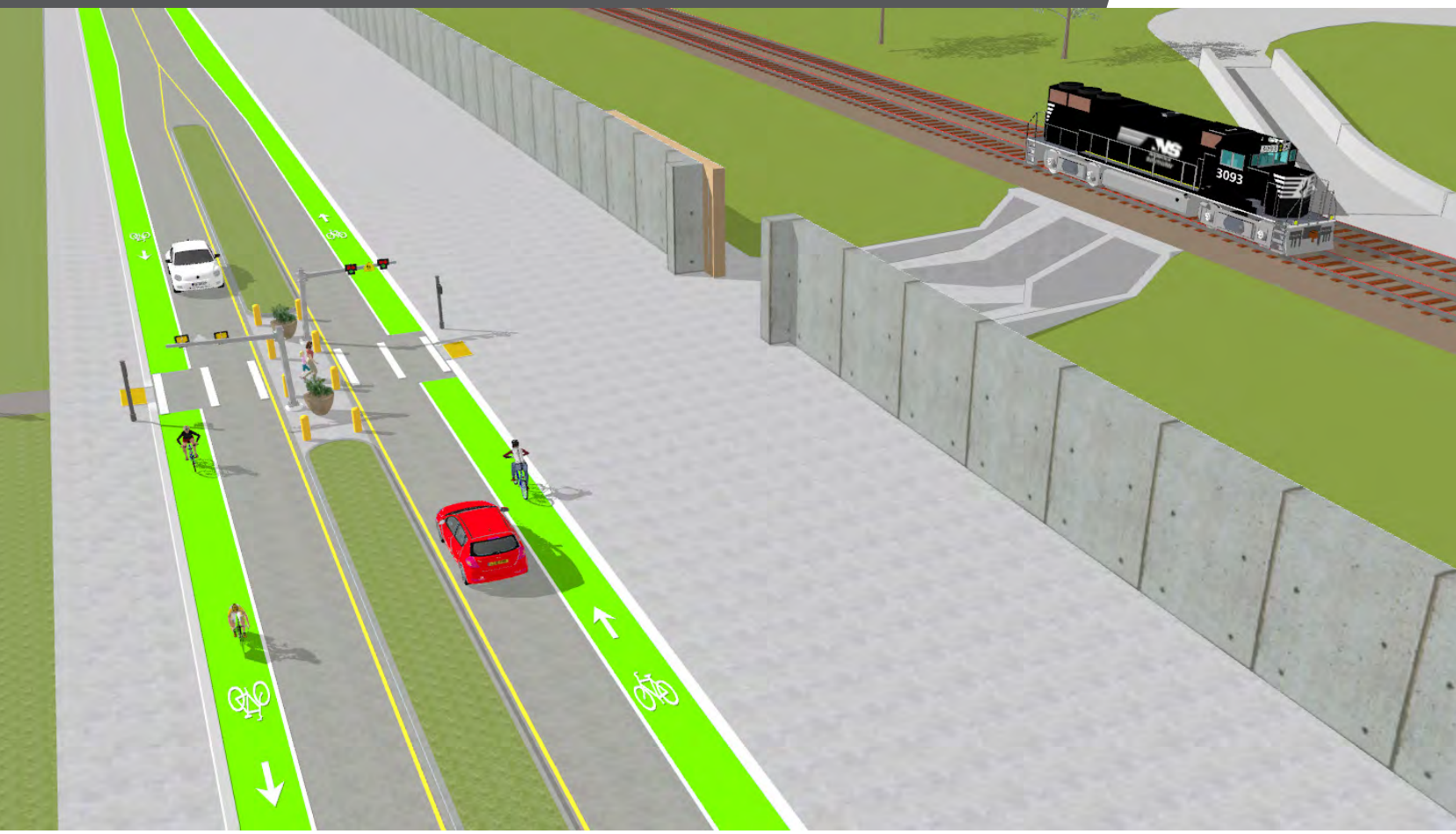
The existing infrastructure that now stands between the former Lincoln Beach parking lot on the south side of Hayne Boulevard and the park space on the north side creates a series of physical barriers to safe access including speeding traffic, steel and cement floodwalls, and narrow passageways that produce choke points for pedestrian and vehicle access.

The HSDRRS floodwall and floodgate, constructed following Hurricane Katrina, must not be disturbed as doing so may compromise the integrity of the system that protects the City from storm surge during tropical events. The railroad, which is a vital corridor for commerce with daily rail traffic, must also not be disturbed.

Any solutions for providing safe, universal access to Lincoln Beach must account for maintaining the integrity of these two physical barriers. Other challenges such as providing utilities to the site without impacting the floodwall or railroad, and retrofitting existing facilities for compliance with current codes for safety and accessibility must also be overcome.

While safety improvements and accessibility are paramount, equally as important is the preservation of historic character and cultural significance within the existing site. Designing improvements with emphasis on this preservation will ensure Lincoln Beach is once again a source of pride within the community and a destination synonymous with other local and unique New Orleans attractions.

# MINIMUM IMPROVEMENTS




The Minimum Improvements scenario considers the improvements necessary to make the park universally accessible and able to be occupied by the public while constructing a minimal amount of new infrastructure.

To arrive at this scenario, the minimum improvements required to meet applicable health and safety codes were considered.

Although these improvements may require the minimum amount of infrastructure to achieve project goals, they may not necessarily be the easiest to implement. In some cases these improvements require more extensive permitting than other scenarios, and in other cases require more long-term maintenance.

In this scenario, the pedestrian crossing of Hayne Boulevard will be accomplished with an at-grade crossing. The extent of these improvements shall be determined by a traffic study, however, at a minimum will include striping and signage and at most, will include a High-Intensity Activated Crosswalk Beacon (HAWK) with signalization.

Pedestrian access across the railroad tracks in this scenario will be accomplished by utilizing the existing tunnel with improvements.

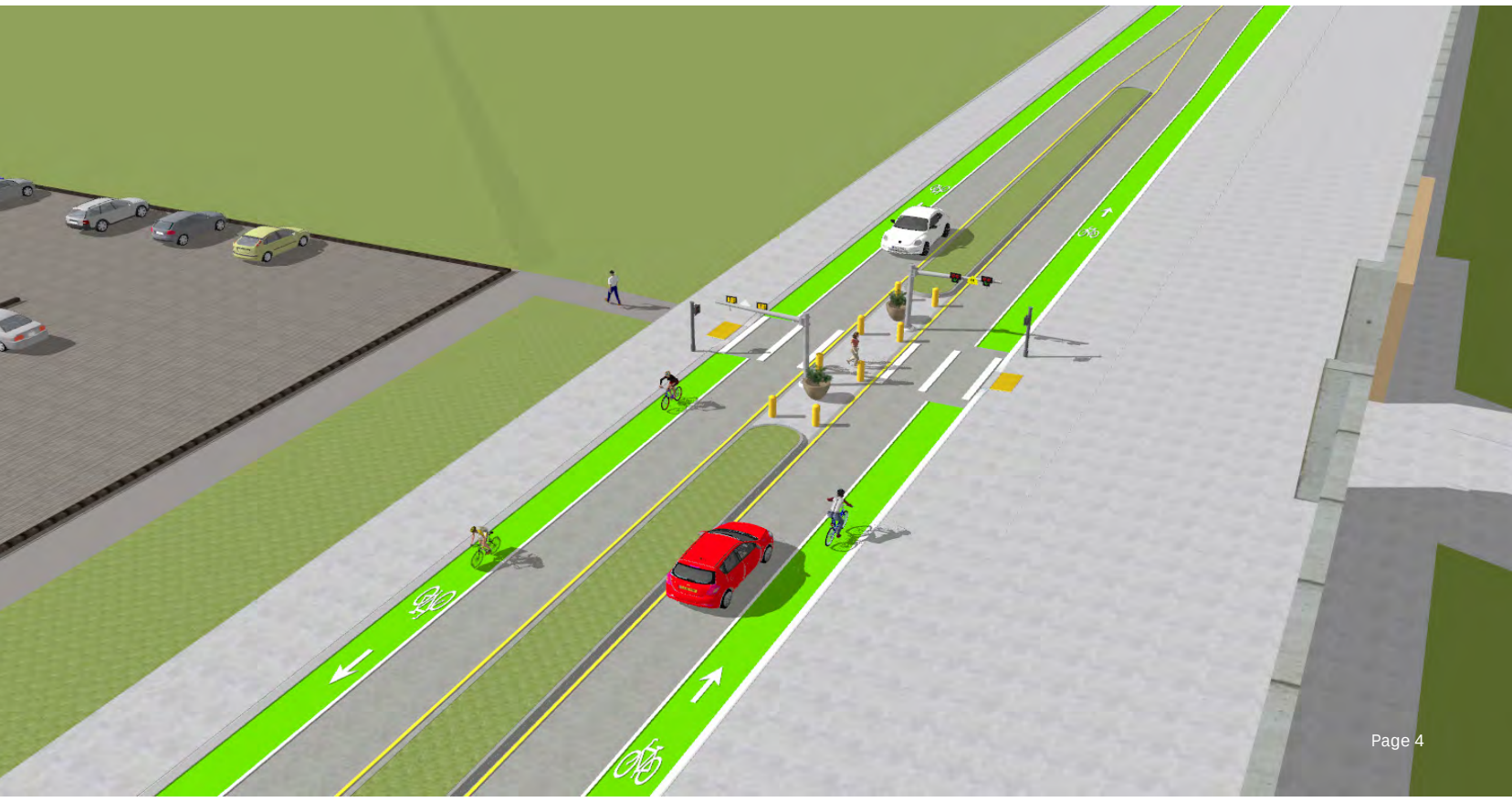
Utility improvements in this scenario can be accomplished by constructing new utilities on-site such as a small sewer treatment plant and water well, or by constructing new tie-ins to the municipal system. Although on-site facilities may be cheaper initially, these facilities will require more maintenance and are more susceptible to storm surge.

Also included in this scenario are construction of a permeable aggregate paving parking lot on the east side of Hayne Boulevard, drainage improvements within the tunnel, and removal and/or rehabilitation of structures within the Lincoln Beach site. These items are consistent across all scenarios.

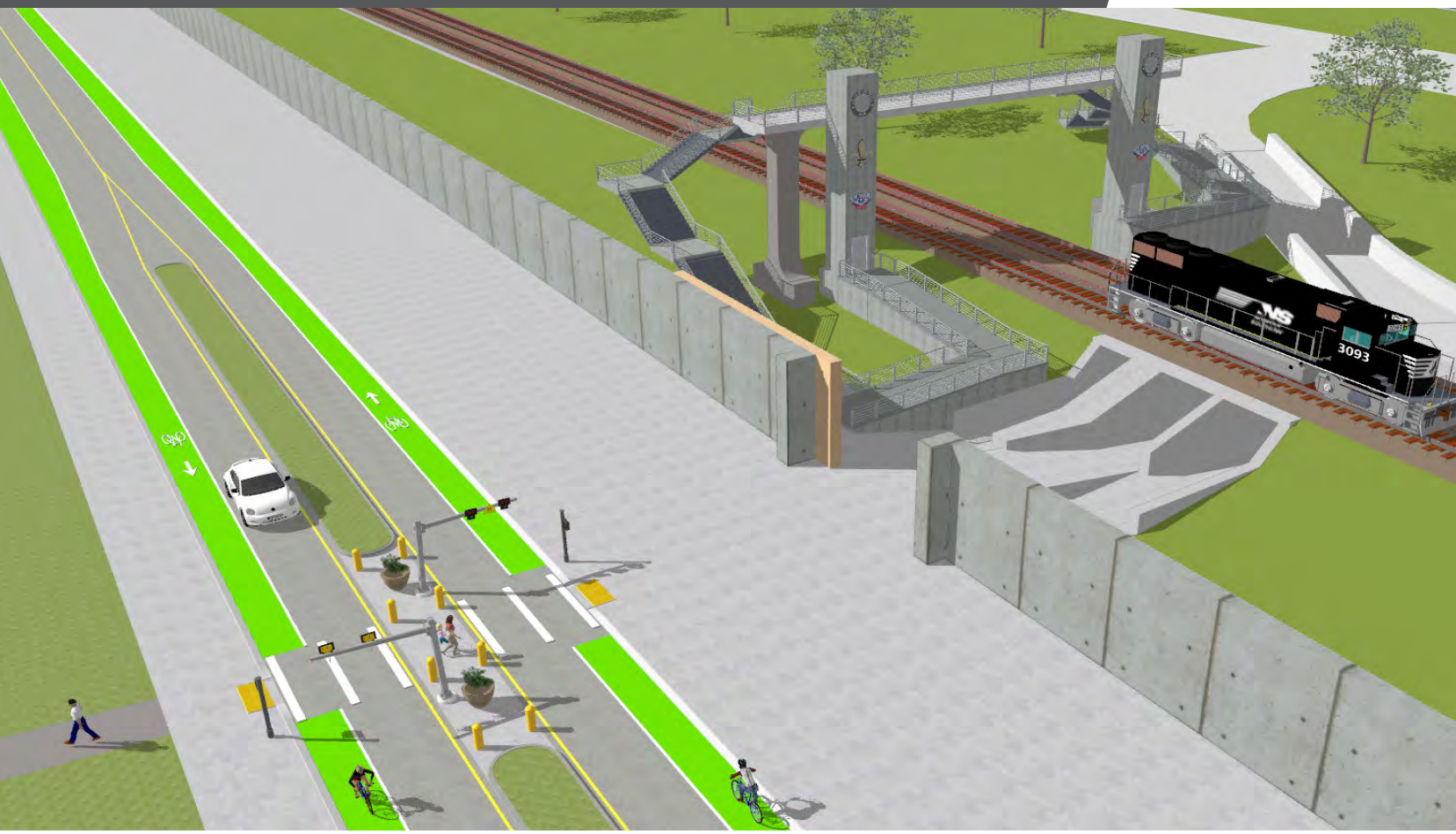
*The table on the following page summarizes the range of costs, benefits, and challenges of the Minimum Improvements Scenario.*

# MINIMUM IMPROVEMENTS

| Improvement | Cost | Benefits | Challenges | Cost Range |
|---|---|---|---|---|
| **Pedestrian Access - Hayne Boulevard** | | | | |
| Striping, Signage, RRFBs | $56,000 | Minimal construction | Least-safe pedestrian access | $56,000 - $364,000 |
| HAWK Crossing | $364,000 | Highest safety for at-grade crossing | Higher cost | |
| **Pedestrian Access - Railroad** | | | | |
| Existing Tunnel | $269,000 | Minimal construction; minimal permitting | Limited capacity | $269,000 |
| **Utilities - Sewer** | | | | |
| On-site Treatment Plant | $1,087,000 | Least cost | Most maintenance; susceptible to storms | $1,087,000 - $1,984,000 |
| Tie-in to Municipal System (drill under railroad) | $1,984,000 | Resilient; no access hindrance | Requires rail permitting; most expensive | |
| Tie-in to Municipal System (tunnel utility corridor) | $1,183,000 | Resilient; lower end of cost range | Hinders access through one tunnel | |
| **Utilities - Water** | | | | |
| On-site Water Well | $572,000 | Least cost | Most maintenance; susceptible to storms | $440,000 - $1,240,000 |
| Tie-in to Municipal System (drill under railroad) | $1,240,000 | Resilient; no access hindrance | Requires rail permitting; most expensive | |
| Tie-in to Municipal System (tunnel utility corridor) | $440,000 | Resilient; least cost | Hinders access through one tunnel | |
| | | | **Total** | **$1,852,000 - $3,857,000** |



# MODERATE IMPROVEMENTS




The Moderate Improvements scenario considers improvements that may alleviate some permitting, safety, and logistical challenges of the Minimal Improvements scenario, while still attempting to work within the existing site constraints.

To arrive at this scenario, the alternatives were developed to alleviate the permitting and logistical challenges from the Minimum Improvements scenario that were considered to have the most impact on project implementation.

These improvements result in a greater amount of new infrastructure being constructed and an escalation of cost, however, safety is increased and permitting and regulatory restrictions are reduced.

In this scenario, pedestrian crossing of Hayne Boulevard will be accomplished by a High-Intensity Activated Crosswalk Beacon (HAWK) with signalization, which is the highest level of pedestrian safety that can be achieved with an at-grade crossing.

Increased pedestrian access across the railroad tracks in this scenario will be accomplished by constructing a new pedestrian bridge over the railroad which is the major escalation in cost that results from this scenario. The bridge crossing results in the higher level of safety than an at-grade crossing, eliminates the need to remove other at-grade crossings throughout the city, provides additional capacity beyond the existing tunnel, and can be constructed with no physical disturbance of the railroad.

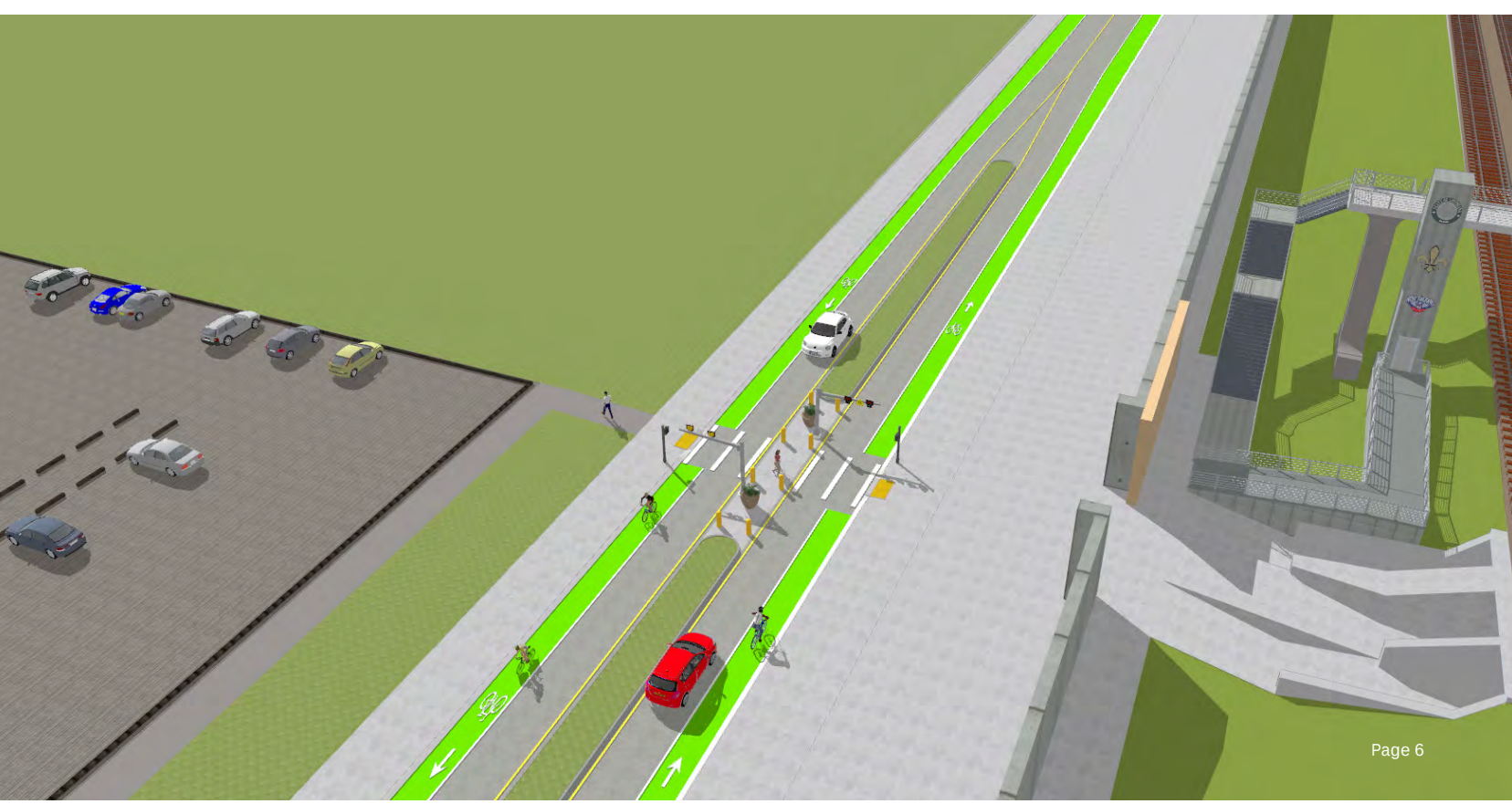
Utility improvements in this scenario are accomplished by constructing new tie-ins to the municipal system. Although these improvements are more expensive than constructing a water well and sewer treatment plant on-site, resilience is increased by reducing infrastructure susceptible to storm surge and maintenance is reduced.

Also included in this scenario are construction of a permeable aggregate paving parking lot on the east side of Hayne Boulevard, drainage improvements within the tunnel, and removal and/or rehabilitation of structures within the Lincoln Beach site. These items are consistent across all scenarios.

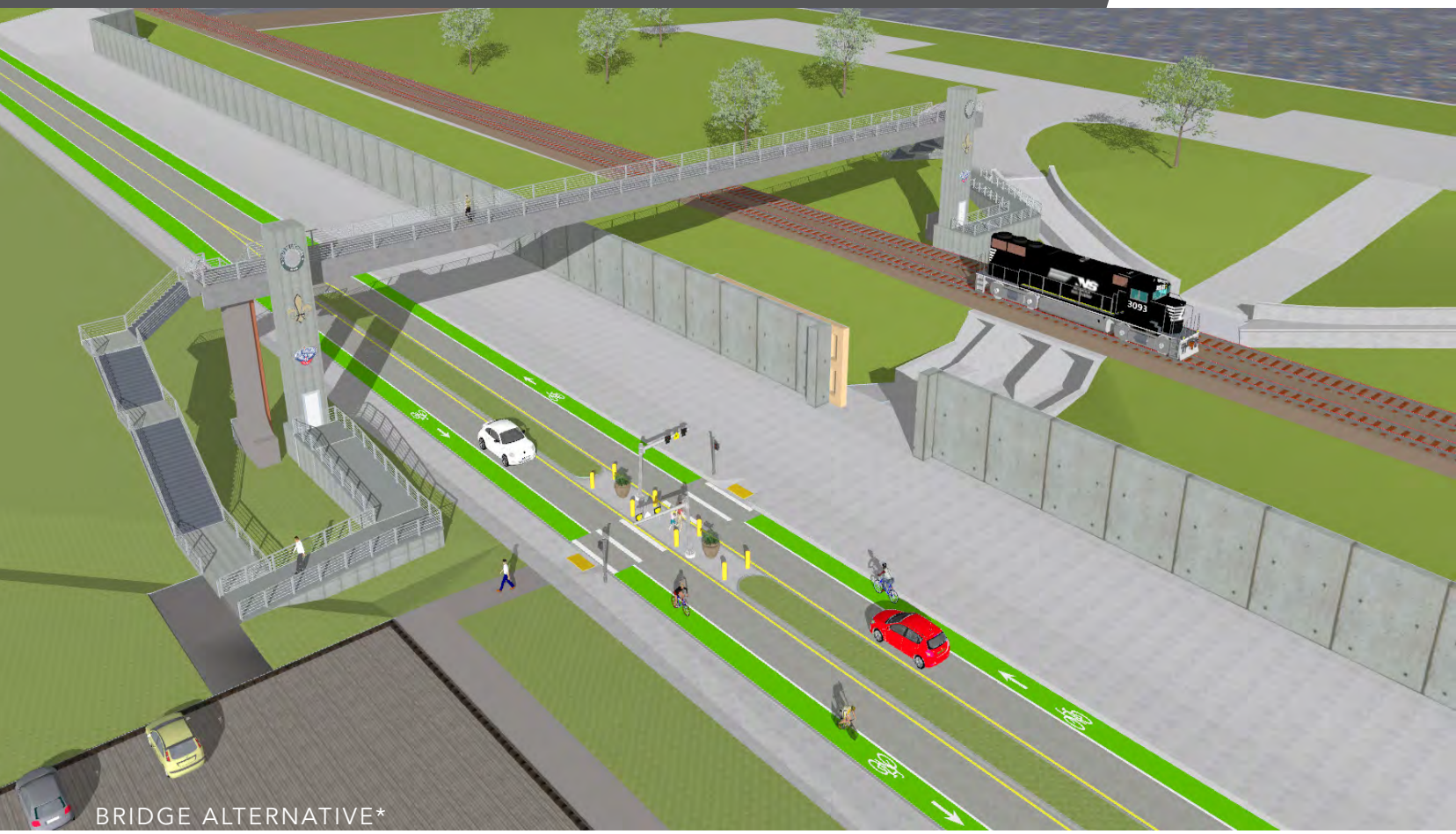
*The table on the following page summarizes the range of costs, benefits, and challenges of the Moderate Improvements Scenario.*

# MODERATE IMPROVEMENTS

| Improvement | Cost | Benefits | Challenges | Cost Range |
|---|---|---|---|---|
| **Pedestrian Access - Hayne Boulevard** | | | | |
| HAWK Crossing | $364,000 | Highest safety for at-grade crossing | Highest cost than standard at-grade crossing | $364,000 |
| **Pedestrian Access - Railroad** | | | | |
| Existing Tunnel | $269,000 | Minimal construction; minimal permitting | Limited capacity | $3,621,000 - $4,521,000 |
| Bridge over Railroad (w/elevator and stairs) | $3,352,000 | High level of safety; no physical disturbance of railroad; small footprint | High cost; estimated 1-2 year railroad approval process | |
| Bridge over Railroad (w/ ramps) | $4,252,000 | High level of safety; no physical disturbance of railroad | Highest cost in Moderate Improvements scenario; large footprint for ramps; estimated 1-2 year railroad approval process | |
| **Utilities - Sewer** | | | | |
| Tie-in to Municipal System (drill under railroad) | $1,984,000 | Resilient; no access hindrance | Requires rail permitting; most expensive | $1,183,000 - $1,984,000 |
| Tie-in to Municipal System (tunnel utility corridor) | $1,183,000 | Resilient; lower end of cost range | Hinders access through one tunnel | |
| **Utilities - Water** | | | | |
| Tie-in to Municipal System (drill under railroad) | $1,240,000 | Resilient; no access hindrance | Requires rail permitting; most expensive | $440,000 - $1,240,000 |
| Tie-in to Municipal System (tunnel utility corridor) | $440,000 | Resilient; least cost | Hinders access through one tunnel | |
| | | | **Total** | **$5,608,000 - $8,109,000** |



# EXTENSIVE IMPROVEMENTS



BRIDGE ALTERNATIVE*

The Extensive Improvements scenario proposes significant new infrastructure for the Lincoln Beach site to achieve maximum levels of safety or capacity.

To develop this scenario, alternatives were considered that provide the maximum amount of safe, unhindered access to the site. Although these improvements result in significant new infrastructure, value is achieved with this scenario by providing new space-efficient pathways for pedestrian access and utility corridors.

Whereas the previous scenarios considered working within site constraints for pedestrian and utility access, creating new corridors to access the site provide opportunity for holistic solutions.

Economies of scale may provide cost savings in this scenario over the Moderate Improvements scenario.

There are two alternatives for pedestrian access in this scenario: a single bridge over Hayne Boulevard and the railroad for direct access from the parking lot to the Lincoln Beach site, or tunnel replacement under the railroad tracks paired with a HAWK crossing as described in the previous scenarios.

Use of a single bridge to cross both Hayne Boulevard and the railroad tracks provides the maximum level of safety for pedestrians as they are removed from any interface with vehicles or rail.

A tunnel replacement with HAWK crossing, alternatively, provides opportunity for increased pedestrian capacity while still maintaining a high level of safety.

Either pedestrian alternative in this scenario creates value opportunities for utilities not achieved by the Minimum or Moderate Improvement scenarios.

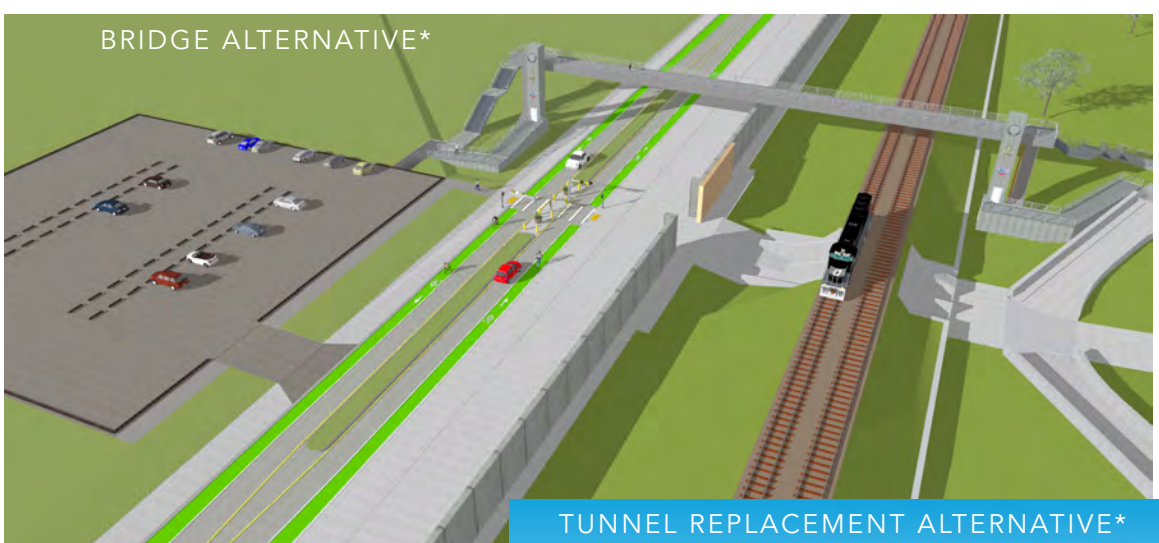
Since new corridors are created by the bridge or new tunnel, utilities can be accounted for in the design of either alternative. In the case of the new bridge, utilities can be hung from the bridge structure, eliminating the need to construct a levee crossing and jack and bore utilities under the railroad.
In the case of a tunnel replacement, a new utility corridor can be constructed that, again, eliminates the need to jack and bore utilities under the railroad. A levee crossing for water and sewer lines will still be required in the case of the new tunnel.

Also included in this scenario are construction of a permeable aggregate pavement parking lot on the east side of Hayne Boulevard, drainage improvements within the tunnel, and removal and/or rehabilitation of structures within the Lincoln Beach site. These items are consistent across all scenarios.

*The table on the following page summarizes the range of costs, benefits, and challenges of the Extensive Improvements Scenario.*

# EXTENSIVE IMPROVEMENTS

| Improvement | Cost | Benefits | Challenges | Cost Range |
|---|---|---|---|---|
| **Pedestrian Access** | | | | |
| HAWK Crossing + Tunnel Replacement* | $4,536,000 | Highest safety for at-grade crossing; greatest pedestrian capacity; some vehicle capacity | 3 year minimum railroad approval process; most difficult to implement and construct; longest implementation time | $4,536,000 - $4,559,000 |
| Bridge over Hayne and Railroad (w/elevator and stairs)* | $4,559,000 | Highest level of safety; no physical disturbance of railroad; small footprint | High cost; less pedestrian capacity than tunnel replacement; no vehicle capacity | |
| Bridge over Hayne and Railroad (w/ ramps)* | $4,549,000 | Highest level of safety; no physical disturbance of railroad | High cost; less pedestrian capacity than tunnel replacement; no vehicle capacity | |
| **Utilities - Sewer** | | | | |
| Tie-in to Municipal System (attach to bridge) | $ 923,000 | Resilient; lowest cost sewer alternative | May be challenging to obtain permits | $923,000 - $1,183,000 |
| Tie-in to Municipal System (expanded tunnel utility corridor) | $1,183,000 | Resilient; lower end of cost range; easily permitted | None | |
| **Utilities - Water** | | | | |
| Tie-in to Municipal System (attach to bridge) | $61,000 | Resilient; lowest cost sewer alternative | May be challenging to obtain permits | $61,000 - $440,000 |
| Tie-in to Municipal System (expanded tunnel utility corridor) | $440,000 | Resilient; lower end of cost range; easily permitted | None | |
| | | | **Total** | **$5,520,000 - $6,182,000** |




* In this scenario, there are two possible improvements: *bridge over Hayne/Railroad or tunnel replacement.*

# COST SUMMARY

| Other Improvements - Consistent Across Scenarios | | | | |
|---|---|---|---|---|
| Permeable Paver Parking Lot | $730,000 | | | $730,000 |
| Tunnel Drainage Improvements | | | | $800,000 - $920,000 |
| Restoration of Existing Pavement | $202,000 | | | $202,000 |
| Brick Wall Rehabilitation | $464,000 | | | $464,000 |
| Pavilion Rehabilitation (Alt 1) | $250,000 | Lower cost repair; maintain building character | None | $248,000 - $630,000 |
| Pavilion Rehabilitation (Alt 2) | $630,000 | None relative to Alternative 1 | Labor intensive; more expensive alternative | |
| Rehabilitation of Waterfront Structures | $4,100,000 | Maintain historic structures | Requires additional testing and investigations to determine true cost of repairs | $3,641,000 - $4,100,000 |
| Removal of Waterfront Structures | $3,641,000 | Allows waterfront to be developed / programmed specifically for planned use | High demo cost due to access restrictions | |
| Dock | $403,000 | | | $403,000 |
| Beach Nourishment | $1,200,000 | | | $1,200,000 |
| | | | **Total** | **$7,688,000 - $8,649,000** |

| Scenario | Total Cost: All Improvements |
|---|---|
| MINIMUM IMPROVEMENTS | **$9,540,000 - $12,506,000** |
| MODERATE IMPROVEMENTS | **$13,296,000 - $16,758,000** |
| EXTENSIVE IMPROVEMENTS | **$13,208,000 - $14,831,000** |

# APPENDIX

Technical Reports - Data Gap Analysis // Utility, Asset, and Access Assessments

Phase I Environmental Assessment

Wetland Delineation and Habitat Assessment

# CITY OF NEW ORLEANS

## LINCOLN BEACH SITE ASSESSMENT

FINAL TECHNICAL MEMORANDA:

*Data Gap Analysis*

*Utility Assessment*

*Asset Assessment*

*Access Assessment*

PREPARED BY

digital engineering
Digital Engineering & Imaging, Inc.

APRIL 2021

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# SUMMARY AND INTRODUCTION

Lincoln Beach is an approximately 15-acre site bounded by Lake Pontchartrain to the north, east and west and by Southern Railroad/Hayne Blvd. to the south. The site was an amusement park, managed by the City until it was closed in 1964. The site of the former amusement park parking lot is located across Hayne Blvd. The approx. 10-acre lot is currently overgrown and used as an illegal dump site. The Lincoln Beach facilities and structures have remained idle since the 1960s and have continued to gradually deteriorate. The site was most certainly impacted by Hurricane Katrina in 2005, though there has been no official assessment of the site conditions since that time.

Access to the Lincoln Beach site is prohibited however there is ample evidence of unpermitted and unlawful use of the beach and property behind the Lake Pontchartrain and Vicinity earthen levee and floodwall on Hayne Blvd. It appears the beach is used for recreation, socialization, camping, artistic expression, and possibly living. Prior to being closed, the beach was accessible through a tunnel beneath the levee. The tunnel is currently fenced and filled with water.

Digital Engineering and Imaging, Inc. (DE) has been contracted by the City of New Orleans to perform an assessment of the property. A summary of DE's tasks is as follows:

- Task 1 – Data Inventory and Gap Analysis
- Task 2 – Phase 1 Environmental Site Assessment
- Task 3 – Phase 2 Environmental Site Assessment (if needed)
- Task 4 – Facility Asset Assessment
- Task 5 – Facility Access Assessment
- Task 6 – Utility Assessment
- Task 7 – Habitat Assessment
- Task 8 – Topographic, Bathymetric, and Magnetometer Survey
- Task 9 – Comprehensive Site Assessment and Master Plan Recommendations

This report includes technical memoranda for Task 1 – Data Inventory and Gap Analysis; Task 4 – Facility Asset Assessment; Task 5 – Facility Access Assessment; and Task 6 – Utility Assessment. The technical memoranda are presented in a modified order from the task list to best communicate the information in a logical manner.

Task 8 – Topographic, Bathymetric, and Magnetometer survey is complete and has been used as a basis for developing the alternatives presented in the technical memoranda. Task 2 – Phase 1 Environmental Assessment and Task 7 – Habitat Assessment are complete and included as attachments.

Each technical memorandum presents a summary of alternatives considered to provide varying levels of service for public access to the site. At this time, no Master Plan has been developed for the site. The intent of these assessments is to inform the master planning process so that a range of possibilities can be considered for the Lincoln Beach property. The alternatives presented for each assessment should not be considered an all-inclusive list of possibilities for utility, asset, and pedestrian improvements for the site. Rather, the alternatives presented should be used as a basis of decision making for further planning and development of the site. The alternatives can be used as a basis for conceptual level design such as a Master Plan so that future use of the site can be visualized.

Similarly, the construction cost estimates and implementation schedules presented for the alternatives should be used for planning-level basis only. Many assumptions were made in the development of these alternatives since the final use of the site is not known. Variables including but not limited to level of future development, location of development, architectural considerations, geotechnical variables, and stakeholder and permitting entity input will impact the final construction cost and duration. Construction cost estimates and timelines should be evaluated throughout the master planning and design process.

# TECHNICAL MEMO 1: DATA GAP ANALYSIS

## Objective/Introduction

A search was performed on the Louisiana Department of Environmental Quality's (LDEQ) Electronic Document Management System (EDMS) database to acquire all previous environmental studies and correspondence regarding Lincoln Beach. All documents obtained from EDMS were reviewed and analyzed to find gaps in previous studies and unresolved environmental issues.

## Summary of Data Inventory

The earliest document on the EDMS database is a Lincoln Beach Public Access Evaluation: Environmental Site Assessment Supplement dated January 1999. This report summarizes the findings of a Phase II Environmental Site Assessment (ESA) that was performed in April 1998. The Phase II ESA found Asbestos on transite panels, floor tiles, ceiling tiles, pipe insulation, tank insulation, boiler insulation, transite pipes, and pipe gaskets; lead paint in the haunted house, merry go round, carver restaurant, both arcade buildings, pool canopy, filter house, and stage; and Polychlorinated biphenyls (PCB's) on the concrete floors and walls in electrical vaults EV-2, EV-4, EV-5, EV-6, and in the soil at EV-2, EV-6, and EV-7. It is necessary to remove these contaminants before the beach is open to the public.

The next environmental study at Lincoln Beach was a Phase I and Phase II ESA in April 2001. These ESA's also concluded that there were Asbestos, lead, and PCB contaminants on the site. In October 2001, a Risk Evaluation/Corrective Action Program (RECAP) Site Assessment was performed determined that EV-2 needed to be remediated by excavating the contaminated soil from around the vault and disposing at an approved landfill. As a result of this RECAP Site Assessment, 3 ground water wells were plugged and abandoned according to Louisiana Department of Transportation and Development regulations. In January 2002, an Addendum was provided to the RECAP Site Assessment as well as a Corrective Action Plan. The Corrective Action Plan requires that all 8 electrical vaults be demolished, and the soil excavated around electrical vault 2 prior to redevelopment of the site as a recreational area.

In November 2003 the Final Corrective Action Report was submitted to LDEQ requesting a No Further Action at This Time determination. The Final Corrective Action report summarized that all PCB's had been removed from the electrical vaults as well as 5 light towers between April 28, 2003 to September 30, 2003 as per the LDEQ and Environmental Protection Agency (EPA) standards. Between January 2004 and April 2005, the LDEQ noted multiple deficiencies in the Final Corrective Action Report and requested additional information be submitted to supplement the report. On April 7, 2005, the LDEQ gave New Orleans Building Corporation a determination of No Further Action Necessary regarding the Final Corrective Action Report.

## Gap Analysis and Conclusions

Ultimately all deficiencies noted by the LDEQ from 1998 to 2005 were resolved and the New Orleans Building Corporation was given a No Further Action Necessary determination for all environmental issues that had been noted at Lincoln Beach. As of the most recent documentation of the EDMS data base in 2005, there are no outstanding environmental issues at Lincoln Beach. However, since no known environmental assessments have been performed on the property since 2005, a Phase I ESA was performed in September 2020 to ensure there are currently are environmental issues on the property.

The results of the Phase I ESA show that there are potential Recognized Environmental Conditions at Lincoln Beach, including: two piles of contractor-style garbage bags near the west and east pavilions; the current and any former locations of the squatters' encampment and associated debris piles; and the debris pile along the north chain-link fence of the parking lot area which contained automotive fuel tanks. Personal safety measures consistent with biohazard protection guidelines should be used when disposing the bagged garbage, squatters' encampment, and debris pile. The full Phase I ESA report is included in Attachment 4.

# TECHNICAL MEMO 2: UTILITY ASSESSMENT

## Objective/Introduction

This memorandum assesses the existing utilities at Lincoln Beach and provides recommendations to upgrade the drainage, sewage, potable water, gas, and electric utilities to meet the minimum anticipated level of service and all applicable codes and standards required by the Louisiana Department of Environmental Quality, the Louisiana Department of Health, the United States Environmental Protection Agency, and the Sewerage and Water Board of New Orleans. Record drawings and Sewerage and Water Board unit maps were utilized to determine the locations, age, and condition of existing utilities at Lincoln Beach.

## Drainage

Storm water at Lincoln Beach flows outward from the highest elevation at the concrete pavement in the center of the property as shown in the Drainage Map in Figure 1. From the central high point, storm water flows to the southwest, northwest, and northeast into Lake Pontchartrain. Storm water flows southeast from the high point and collects at the lowest point of elevation in the tunnel beneath the railroad shown in Figure 2. The storm water that falls between the railroad tracks and floodwall also flows to the low point in the access tunnel. Based on record drawings, survey data, and field review, it is believed that the southern-most tunnel under the railroad tracks drained by gravity to the west. Record drawings indicate this tunnel has a constant slope to facilitate drainage to an inlet, which then drained by gravity to Hayne Blvd. No record drawings are available for the center and north tunnel. Based on field investigations and review of record drawings for the L-20 flood gate, it is believed these tunnels were drained by a pump system. These two tunnels each slope to low points at their midpoints where apparent trench-style inlets collect water. The L-20 flood gate record drawings indicate a previously existing sump and pump system, which it is believed was connected to the trench drains. Record drawings indicate this sump pump system discharged to the gravity system on Hayne Blvd through a penetration in the flood wall subsurface sheet pile. During construction of the floodwall the pump was removed and the sump was backfilled with sand and covered with concrete. Therefore, drainage upgrades will be necessary at the access tunnels to remove the ponding storm water.

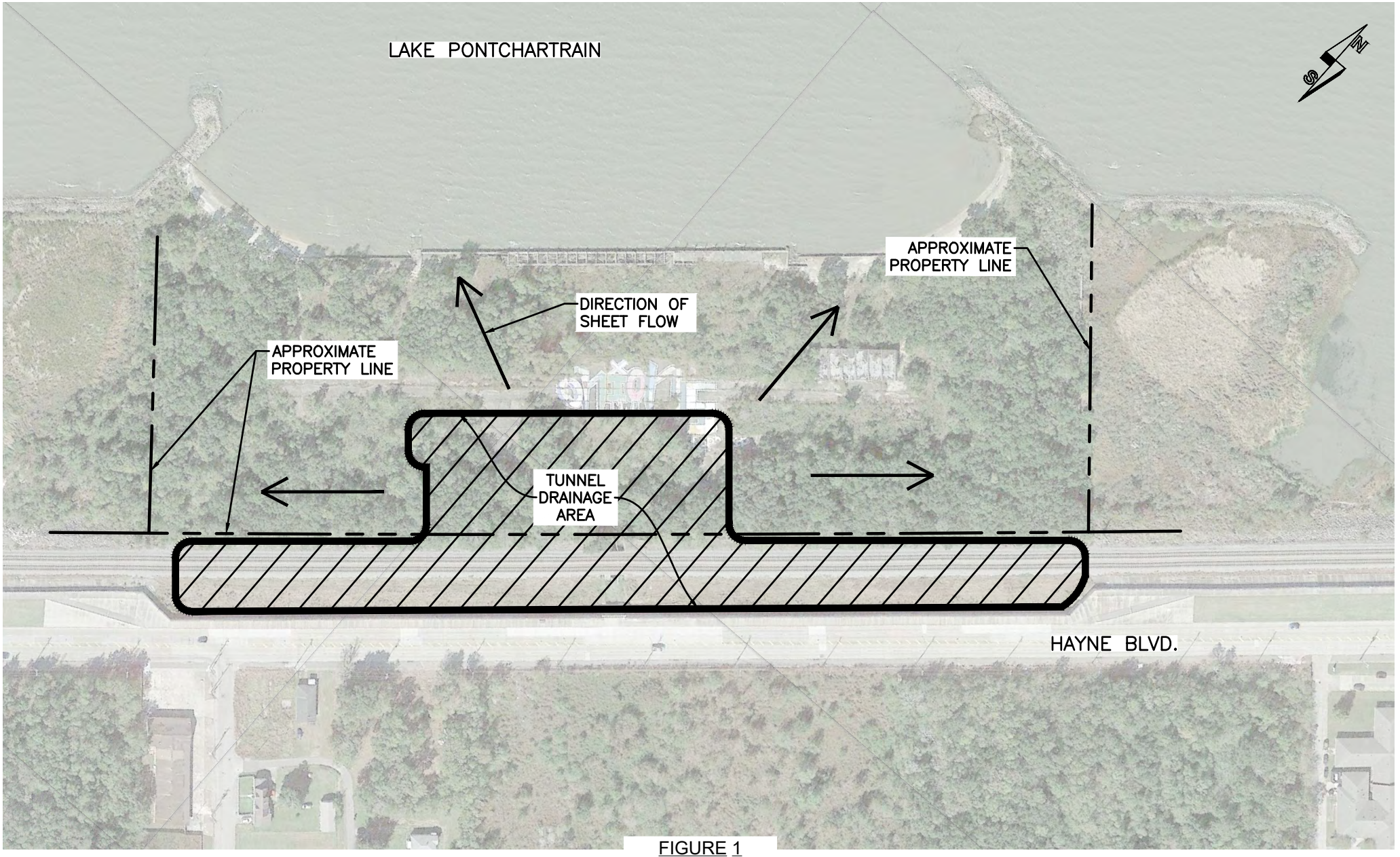



FIGURE 1

DRAINAGE MAP
LINCOLN BEACH
SCALE: 1"=200'

Figure 2: Access Tunnel to Lincoln Beach

The existing drainage features described above are currently not functional and the condition of the pipes is unknown. All drains are filled with sediment and debris and the tunnels remain flooded with storm water. Since the access tunnel is the lowest point in the area a pump will be required to remove the water. Record drawings indicate that there may be an existing penetration in the floodwall that connects to the existing gravity pipes on Hayne Blvd from where the tunnel previously was pumped. Due to its age, this existing penetration will need to be cleaned and video inspected to determine if it is structurally adequate to discharge the storm water from the access tunnel as shown in Drainage Alternative No. 1 in Figure 3. In this drainage concept a valve would be necessary at the floodwall to prevent backflow into the drainage system on Hayne Blvd during storm surges. If this existing sheet pile penetration cannot support future upgrades, the storm water will need to be pumped to discharge in Lake Pontchartrain as shown in Drainage Alternative No. 2 in Figure 4.

The proximity of the drainage upgrades to the railroad and floodwall will create constructability challenges and will require that a coastal use permit, levee safety permit, and railroad permit be obtained prior to construction of either Alternative No. 1 or Alternative No. 2. Once the design of the drainage upgrades is complete, it can take up to a year to obtain all required permits. Estimated construction costs of each alternative are shown in Table 2-1 and a detailed cost estimate is in Attachment 1.

Table 1: Estimated Cost of Drainage Upgrades at Access Tunnel

| Description | Cost |
|---|---|
| Alternative No. 1 Total | $798,890 |
| Alternative No. 2 Total | $914,453 |

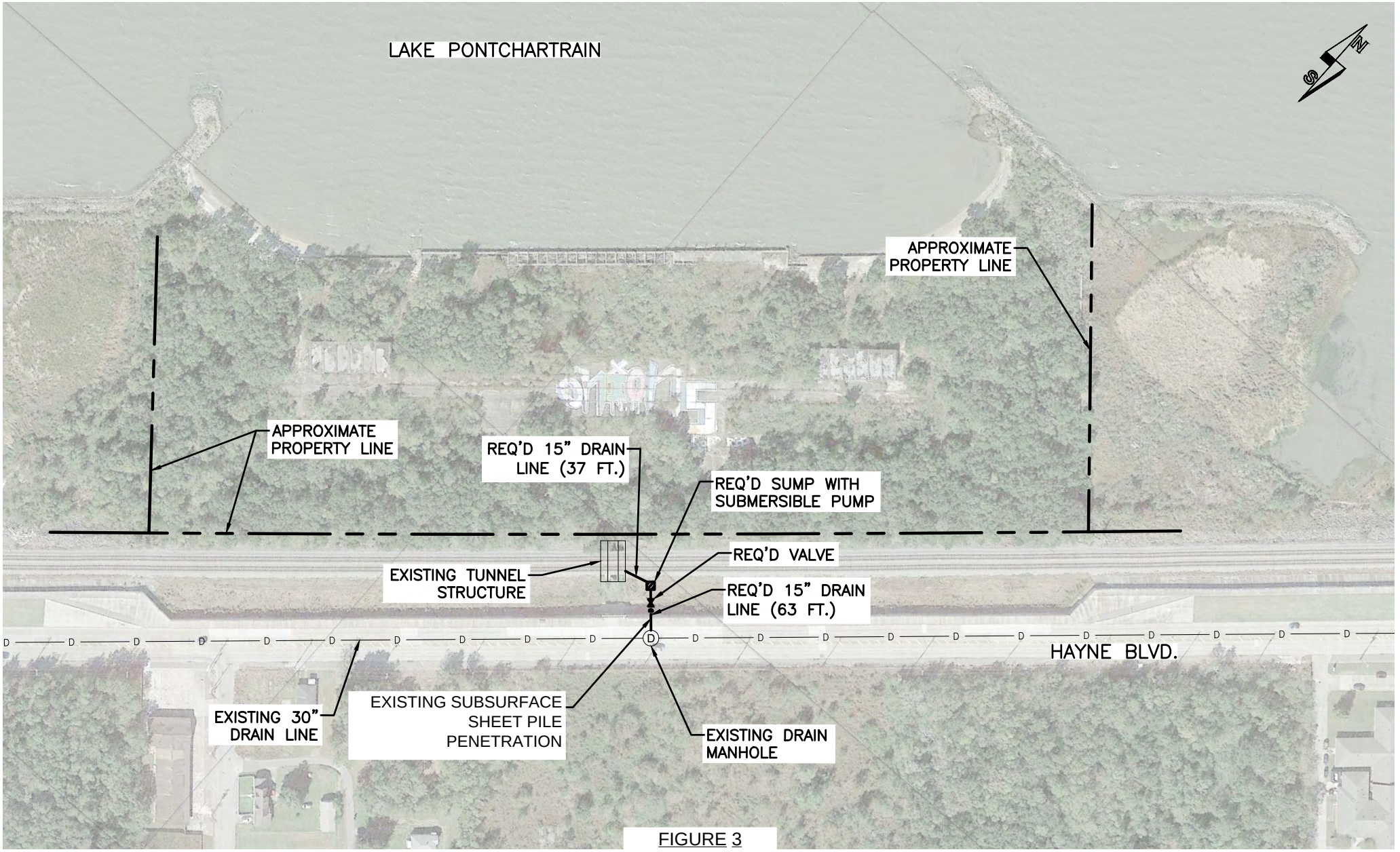



FIGURE 3

DRAINAGE ALTERNATIVE 1
LINCOLN BEACH
SCALE: 1"=200'

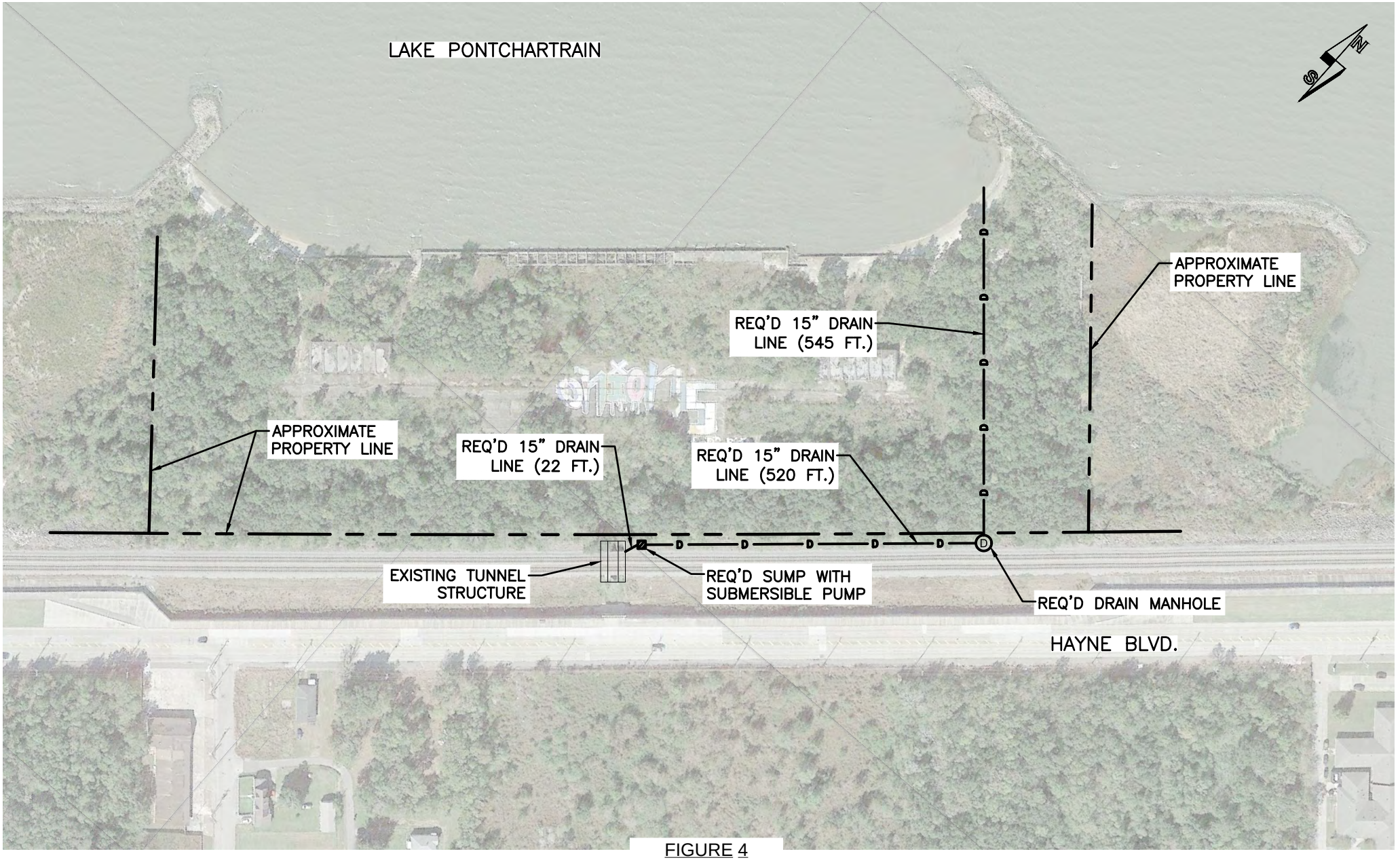



FIGURE 4

DRAINAGE ALTERNATIVE 2
LINCOLN BEACH
SCALE: 1"=200'

## Sewage

Record drawings from the L-20 flood gate indicate that the sanitary sewer line that previously penetrated the subsurface sheet piles of the flood wall to service Lincoln Beach has been plugged and abandoned and therefore cannot be utilized to service Lincoln Beach. To connect to the nearest municipal sanitary sewer line on Hayne Blvd the sewer line will need to cross both the flood protection levee and the railroad. Shown in Figure 5, Alternative No. 1 for sanitary sewer at Lincoln Beach is to pump the wastewater over the levee and cross underneath the railroad tracks. In Alternative No. 1a the sewer line is jack and bored under the railroad track in a steel casing, and in Alternative No. 1b one of the access tunnels is used as a utility corridor for the sewer line to cross under the railroad. It is anticipated that the Flood Protection Authority will not allow a penetration in the subsurface sheet piles beneath the flood wall for the sewer line to cross to Lincoln Beach. Using one of the access tunnels as a utility corridor will have less constructability challenges and will be cheaper than jack and boring the sewer line 10 feet under the railroad; however this will restrict access to the tunnel used as a utility corridor. Alternative No. 1 will require that a coastal use permit, levee safety permit, railroad permit, and LDH permit be obtained prior to the start of construction. These permits can take up to one year to obtain.

Alternative No. 2 for sanitary sewer service at Lincoln Beach is to treat the wastewater onsite and dispose the treated water into Lake Pontchartrain. Figure 6 shows an example of a treatment plant with enough capacity to treat the amount of wastewater that may be produced at Lincoln Beach. Actual capacity will need to be assessed during the Master Planning and detailed design phases of site development. An onsite treatment plant can be positioned so that it will not have the constructability challenges or permit requirements that Alternative No. 1 has near the railroad and floodwall; however an onsite treatment facility will require more maintenance. Maintenance for an onsite treatment facility can cost up to $10,000 per year. If the treatment facility is not properly maintained it can produce an odor, therefore it is recommended that an onsite treatment plant be buffered from human activities by planting trees or constructing a fence around the treatment plant. The effluent water from the treatment facility would discharge into Lake Pontchartrain at a quality level approved by the Louisiana Department of Environmental Quality. Construction of Alternative No. 2 will still require a coastal use permit and an LDH permit.

*Figure 6 – Example Onsite Wastewater Treatment Plant*

If an overhead pedestrian access bridge is constructed over the floodwall and railroad track Alternative No. 3 for sewer service is to connect the sewer line along the bottom of the access bridge to cross from Hayne Blvd to Lincoln Beach. Alternative No. 3 will require that a coastal use permit, LDH permit, levee safety permit, and railroad permit be obtained prior to construction.

All 3 sewer alternatives require the construction of a pump station to pump the wastewater either over the levee or under the railroad, to discharge the treated wastewater to Lake Pontchartrain, or to pump the wastewater over the floodwall and railroad along the access bridge. The pumps will need to be submersible and resilient to potential flooding from storm surges. Electrical controls for the pump station will need to be elevated high enough to avoid getting flooded. Any existing sewer collection lines at Lincoln Beach have been abandoned and will need to be replaced with a new 8" PVC collection line. The layout of the sewer collection lines around Lincoln Beach will depend on the ultimate development plan for the site and therefore are not included in these alternatives. The 8" PVC sewer collection lines are expected to cost approximately $150 per linear foot. Table 2 shows estimated construction costs of each sanitary sewer alternative and a detailed cost estimate is in Attachment 1.

*Table 2 – Estimated Construction Cost of Sanitary Sewer Alternatives*

| Description | Cost |
|---|---|
| Alternative No. 1a Total | $1,898,031 |
| Alternative No. 1b Total | $1,127,719 |
| Alternative No. 2 Total | $1,045,375 |
| Alternative No. 3 Total | $887,094 |

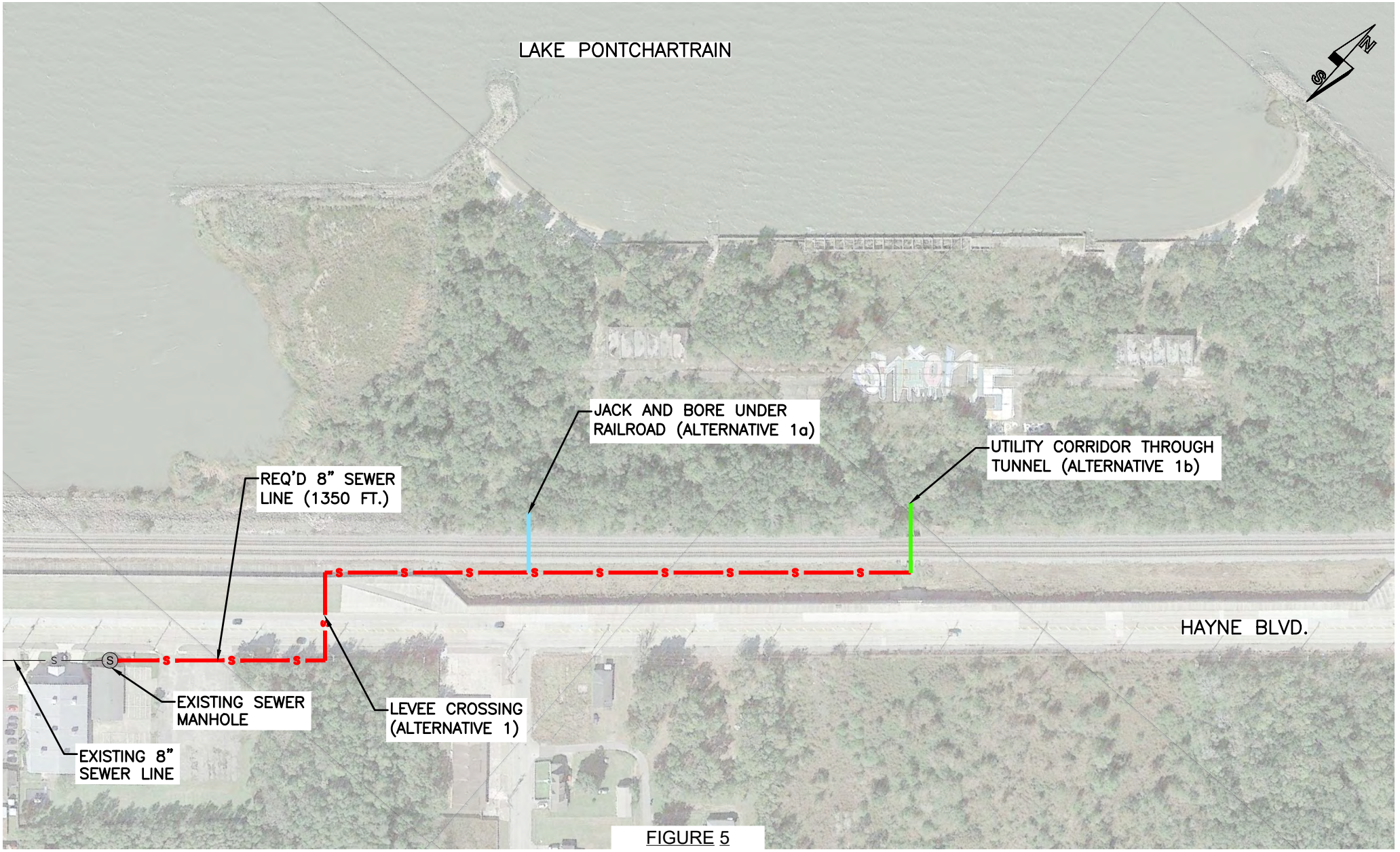



FIGURE 5

SANITARY SEWER ALTERNATIVES FOR LINCOLN BEACH

SCALE: 1"=200'

LEGEND:

- ALTERNATIVE 1
- ALTERNATIVE 1a
- ALTERNATIVE 1b

## Potable Water

According to a previous environmental assessment found on the LDEQ's EDMS database, there are 3 existing groundwater wells at Lincoln Beach that have been plugged and abandoned and can no longer be used to provide drinking water. To provide municipal water to Lincoln Beach, as shown in Alternative No. 1 in Figure 7, the water line on Hayne Blvd will need to cross over the flood protection levee and under the railroad. To cross under the railroad, the water line can either be jack and bored in a steel casing approximately 10 feet underneath the railroad as shown in Alternative No. 1a, or one of the access tunnels can be used as a utility corridor for the water line to cross under the railroad as shown in Alternative No. 1b. Using the access tunnel as a utility corridor will have less constructability challenges than jack and boring the water line under the railroad and will be less expensive to construct; however may restrict access through the tunnel. Alternative No. 1 would require a coastal use permit, levee safety permit, LDH permit, and railroad permit be obtained prior to construction, which can take up to a year to obtain.

Alternative No. 2 to provide potable water to Lincoln Beach is to drill a groundwater well on site. Drilling a groundwater well onsite would have less constructability challenges than Alternative No. 1 as the well can be positioned away from the railroad and floodwall. The positioning of the groundwater well can also minimize the permits needed for construction to only a coastal use permit and an LDH permit. The groundwater well in Alternative No. 2 will require more maintenance than Alternative No. 1 (approximately $2,000.00 annually). After approximately 20 years the well pump will need to be replaced or at least rehabilitated.

If an overhead pedestrian access bridge is constructed over the floodwall and railroad track Alternative No. 3 for potable water service is to connect the water line along the bottom of the access bridge to cross from Hayne Blvd to Lincoln Beach. Alternative No. 3 will require that a coastal use permit, LDH permit, levee safety permit, and railroad permit be obtained prior to construction.

A pressure test will need to be conducted on the nearest fire hydrant on Hayne Blvd to determine if a booster station is needed to get water from the municipal waterline to Lincoln Beach for Alternative No. 1 and Alternative No. 3. Any existing water distribution lines at Lincoln Beach have been abandoned and will need to be replaced with new 8" PVC distribution lines. The layout of the water distribution lines around Lincoln Beach will depend on the ultimate development plan for the site and therefore are not included in these alternatives. The construction cost of 8" PVC water distribution lines is expected to be approximately $100 per linear foot. An 8" PVC waterline will provide enough capacity if fire protection is needed at Lincoln Beach. Table 3 shows the estimated construction cost of each potable water alternative and a detailed cost estimate is in Attachment 1.

*Table 3 – Estimated Construction Cost of Potable Water Alternatives*

| Description | Cost |
|---|---|
| Alternative No. 1a Total | $1,182,500 |
| Alternative No. 1b Total | $410,625 |
| Alternative No. 2 Total | $572,000 |
| Alternative No. 3 Total | $58,125 |

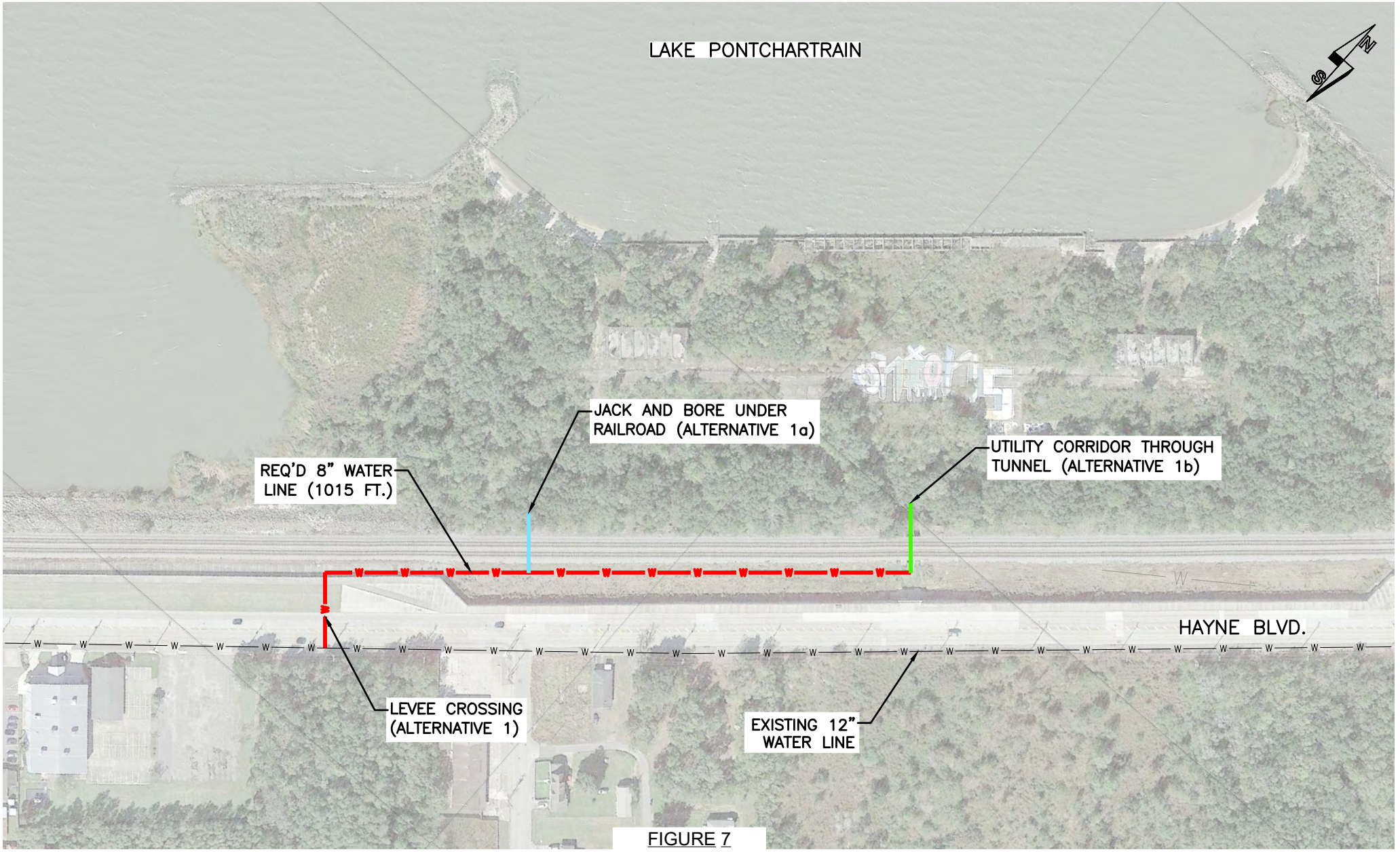



FIGURE 7

POTABLE WATER ALTERNATIVES FOR LINCOLN BEACH

SCALE: 1"=200'

LEGEND:

- ALTERNATIVE 1
- ALTERNATIVE 1a
- ALTERNATIVE 1b

## Gas

Coordination will be needed with Entergy to get gas service to Lincoln Beach. Construction costs for the gas line from the meter to Lincoln Beach will be paid for by the City. Construction costs from the meter to the existing main line will be paid for by Entergy if the revenue from the gas makes up for the cost of construction after 2 years.

## Electrical Systems

It is anticipated that 3-phase power will be required to run the various pumps required to upgrade the drainage, sanitary sewer, and potable water utilities at Lincoln Beach. Currently a 3-phase power line runs along the south side of Hayne Blvd that can be extended to reach Lincoln Beach. Coordination with Entergy will be required to get electrical services to Lincoln Beach. Construction costs from the meter to Lincoln Beach will be paid for by the City. Construction costs from the meter to the existing power line will be paid for by Entergy if the revenue from the metered electricity makes up for the cost of construction after 2 years.

# TECHNICAL MEMO 3: ASSET ASSESSMENT

## Introduction

This technical memorandum is meant to assess the existing site and develop inventory of existing assets including but not limited to parking lots, shelters, tunnels, swimming pools, concrete pads, waterfront structures, coastal structures, and other historic structures.

## Existing Conditions

Multiple site visits have taken place to assess the existing facilities at the Lincoln Beach property. The first site visit was to get a preliminary view of the existing structures immediately after the property had been cleared and dewatered by third party contractors. The second visit consisted of Digital Engineering and a structural engineer with the intent to record the condition of the existing structures to determine what would be salvageable and what would need to be removed/replaced. Immediately beyond the floodwall separating Lincoln Beach from Haynes Boulevard are three (3) access tunnels previously used by pedestrians and possibly vehicles to enter Lincoln Beach. Once through the tunnels, and upon reaching the top of the access ramps, the property opens to nearly 80,000 square feet of concrete paving that previously provided walkways for beachgoers to navigate the different attractions around the property. Of all the structures that used to populate Lincoln Beach, the only two (2) structures that remain intact are the east and west pavilions. The two (2) pools are still present, one a diving pool and the other a swimming pool with a shallow and a deep end, however they are overgrown with trees and brush making them inaccessible. Along the beachhead is the existing bulkhead, which is approximately 1,050 feet in length. An old deck with a canopy previously spanned approximately 400 feet of this bulkhead, primarily adjacent to the large swimming pool, but only approximately 150 feet of this deck remains walkable. One (1) pier appears to have been in use on the west side of the property. There are two (2) breakwaters on Lincoln Beach, one on the east side of the beach and one on the west side. A 2,250 foot brick fence runs around the perimeter of the property.

## Potential Structure Rehabilitation/Salvageability

### Concrete Paving Panels

The initial assessment of the nearly 80,000 square feet (8,889 square yards) of existing concrete panels throughout the property is that a majority of the concrete appears to be in good condition, but the joints between panels will need to be cleaned and resealed. Almost all of the joints have become overgrown with grass and filled with dirt from years of abandonment (Figures 8 & 9). There are nearly 9,300 linear feet of transverse and longitudinal joints that will need to be cleaned and resealed. Typical unit cost for joint cleaning and sealing is approximately $3 per linear foot.

Figure 8: Overgrown joints between concrete panels.

Figure 9: Overgrown joints between concrete panels

Figure 10: Severe overgrown in concrete joint, likely causing damage to the adjoining panels

There are instances of panels showing excessive cracking/damage that is beyond repair. These 10'x14' panels (shown in Figures 11 & 12) will need to be removed and replaced at a cost of approximately $125 per square yard. In total there are 40 panels (approx. 622 square yards) that will need to be removed and replaced due to excessive cracking, settlement, and/or non ADA-compliant slope. Existing concrete will be pressure washed to allow it to match the new concrete panels more closely at a cost of $2.25 per square yard. However, depending on future use of the park, some of these panels may only need to be removed and not replaced. The lack of access for large vehicles such as a concrete truck, or equipment needed to break up and remove damaged concrete panels creates a challenge for the rehabilitation of the property. Large equipment may need to be brought to the site on a barge, and any demolished material may need to be removed from the site by barge. Due to time restraints related to when concrete is batched and when it can be poured, the concrete may need to be mixed on site rather than being mixed at an off-site concrete plant. This would increase the cost of all work relating to new concrete on the site.

| Description | Cost |
|---|---|
| Pavement Rehabilitation | $201,095 |

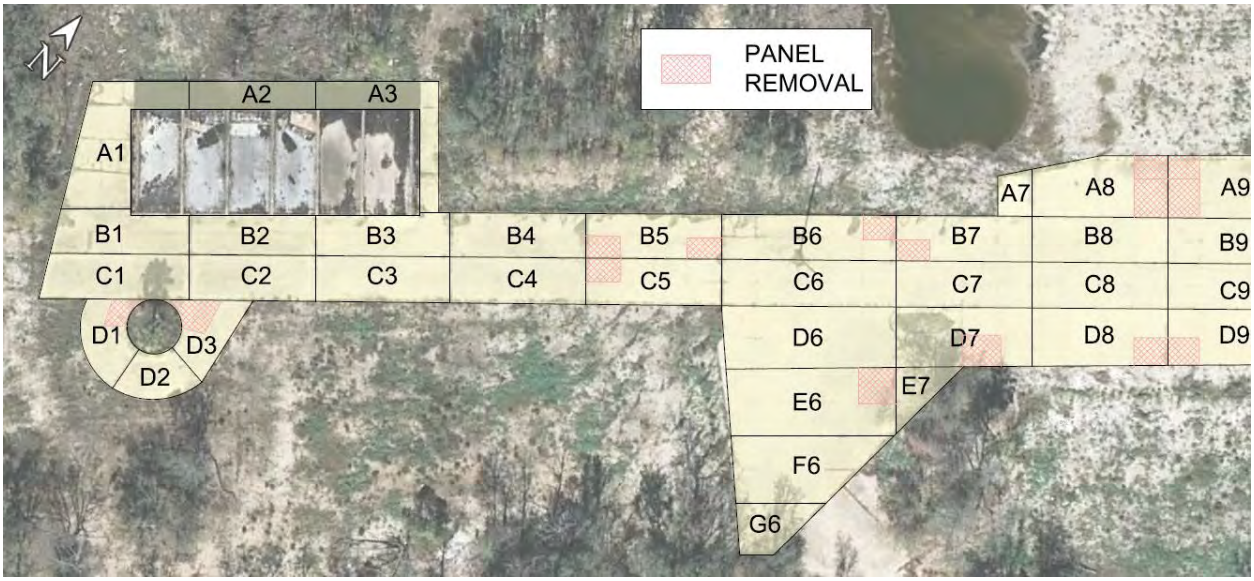



Figure 11: Western half of the property's pavement, broken down into 2x4 panel segments

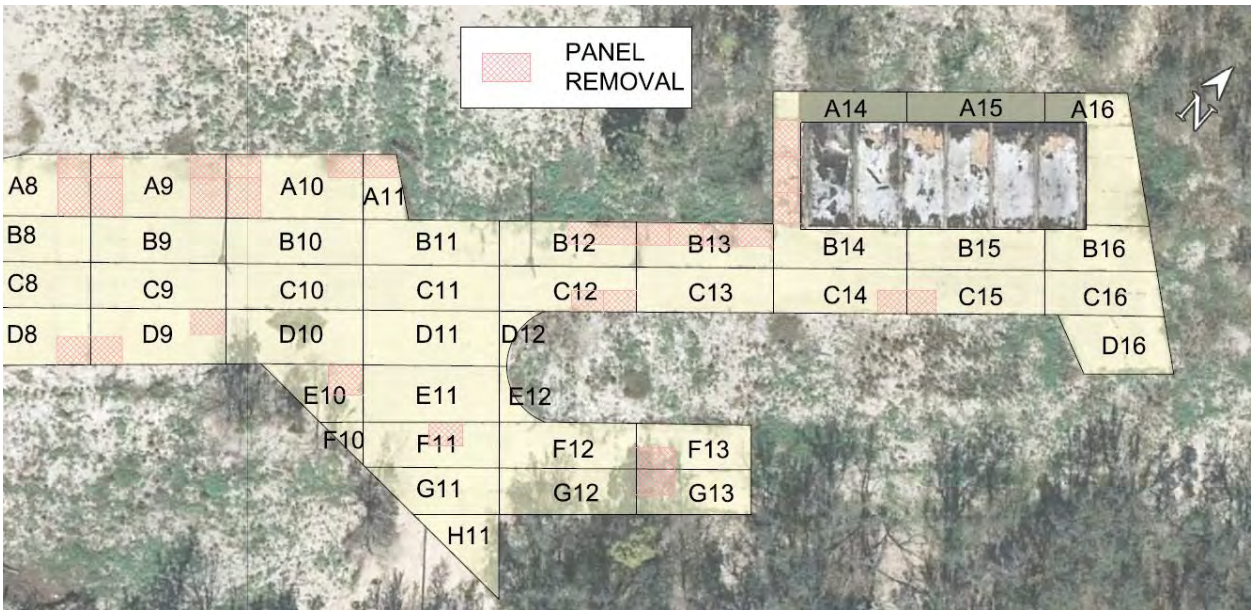



Figure 12: Eastern half of the property's pavement, broken down into 2x4 panel segments

Figure 13: Excessive cracking in Segment A14.

Figure 14: Half of panel cracked and missing in Segment C12.

Figure 15: Aerial view of the east pavilion

**Concrete Pavilions**

There are two (2) 124'x46' concrete pavilions on the east and west sides of the Lincoln Beach property. On the north end of the pavilions are 14 inch diameter columns spaced at 20 feet on center, and on the south end there are 15"x45" rectangular columns spaced at 20 feet on center. The roof is separated into six (6) 20'x46' panels, with a thickness of 6 inches.

West Pavilion

The rectangular columns appeared to be structurally sound, though some slight cosmetic cracking was present. The circular columns displayed visual damage. There is spalling of concrete on the bottoms of columns A1, A2, A6, and A7 revealing the reinforcement. Column A5 had significant spalling revealing the bottom 4' of reinforcement and had been repaired prior to the second site visit. On the north side at the top of all columns, except the repaired A5, there is cracking caused by the columns flexing inward due to the weight of the roof. There is some minor cracking on each of the roof panels, and some exposed rebar on the ceiling due to the rebar not being placed properly when the structure was built. The original tar and gravel coating on the roof is in poor condition and needs to be replaced.

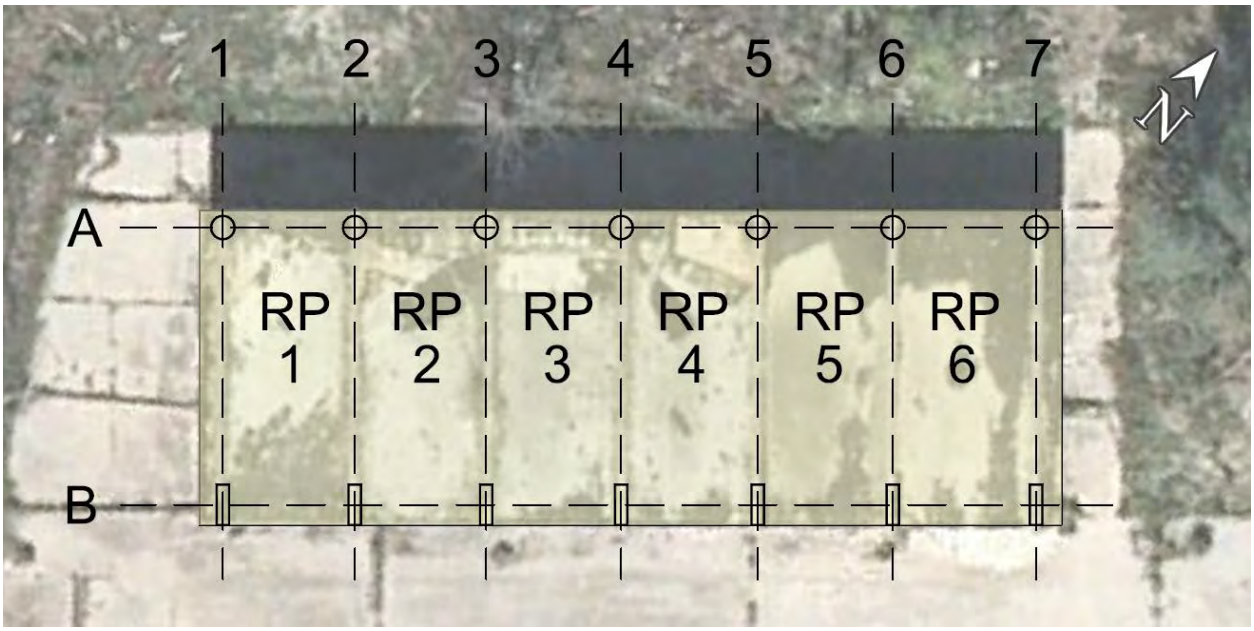



Figure 16: Layout of the west pavilion

Figure 17: Column A5 showing significant damage before being repaired

Figure 18: The tops of all columns of the west and east pavilion exhibited this cracking

Figure 19: Visible concrete reinforcement caused by incorrect placement of the rebar at the time of the pavilion's construction

Figure 20: Tar and gravel roof in poor condition

East Pavilion

The rectangular columns appeared to have the same small cosmetic cracking as the west pavilion and appear structurally sound. Similar to the west pavilion, all of the circular columns have stress cracking on the north side of the columns caused by the roof load. Columns A2, A5, and A7 have spalling near the bottom of the columns revealing reinforcement, while columns

A1 and A3 are spalling at the mid height of the columns. Roof panel 1 is in poor condition due to repeated fires created under that portion of the ceiling by encampments. Heat from the fires has caused excessive spalling and deformation of reinforcement within the concrete. Roof panel 5 has significant cracking that originates from column A6, showing that the roof panel has failed.

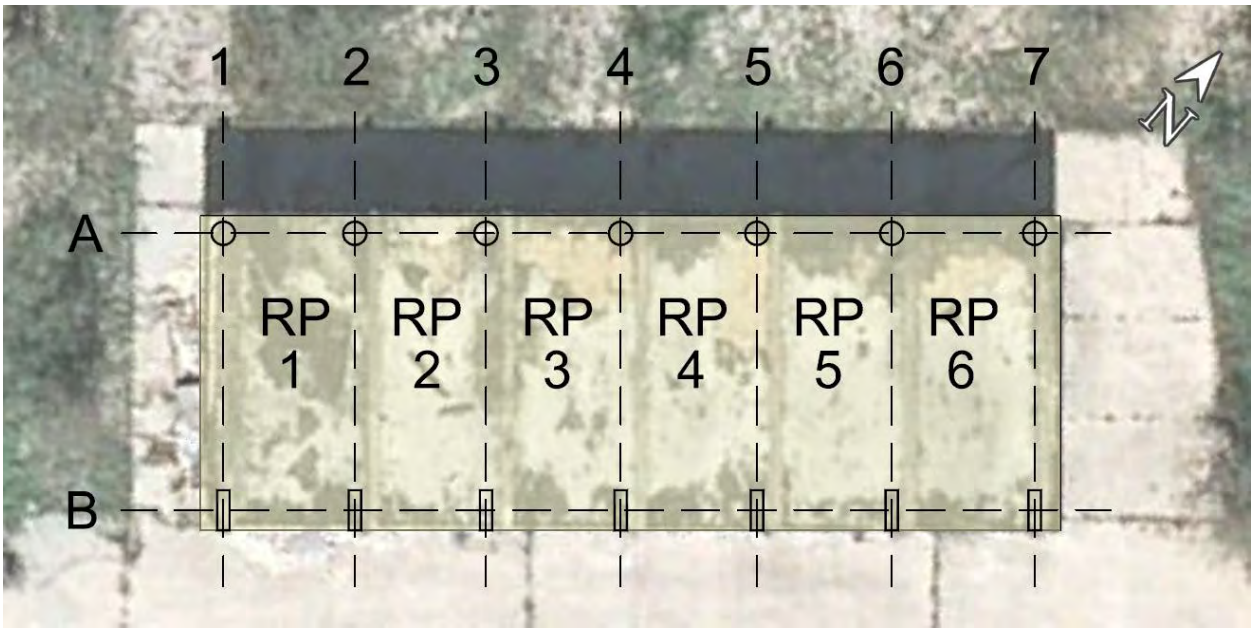



Figure 21: Layout of the east pavilion

Figure 22: Roof panel 1 with exposed rebar caused by the spalling of concrete under the heat of encampment fires

Figure 23: Mid-height spalling at column A3.

Figure 24: Spalling at bottom of column A5

Figure 25: Crack running through roof panel 5 that originates at column A6.

The International Code Council (ICC) provides guidance in the International Existing Building Code (IEBC 2018) as to how to best classify structures in terms of their safety for the general public. According to the IEBC, both pavilions could classify as "dangerous" due to significant risk of collapse, detachment or dislodgement of any portion, member, appurtenance or ornamentation of the building or structure under service loads. Additionally, under the IEBC both pavilions may exhibit "substantial structural damage" due to vertical elements of the lateral force resisting system having suffered damage such that the lateral load-carrying capacity of the structure in any horizontal direction has been reduced by more than 33% from its pre-damage condition. The pavilions may also have "substantial structural damage" due to the capacity of vertical gravity load-carrying components that support more than 30% of the total area of the structure's roof being reduced more than 20% from its pre-damage condition, and the remaining capacity of such affected elements, with respect to all dead and live loads, is less than 75% of that required by the International Building Code (IBC 2018) for new buildings of similar structure, purpose, and location. To determine whether the pavilions reach the criteria for having "substantial structural damage," structural analysis and testing will need to take place on the pavilions. This testing and analysis shall establish whether the pavilions in their current state, or if repaired to their pre-damage state, would comply with the provisions of the IBC for load combinations. The testing would be completed by a certified testing company utilizing ACI and ASTM methods with requirements for test load magnitudes, test protocols, and acceptance criteria for conducting a load test as a means of evaluating the safety and serviceability of concrete structural members and systems for existing buildings as required by ACI 562-13. Digital Engineering is in discussions with certified testing companies to determine the cost of necessary structural tests. After testing, the data and observations will be assessed to find what meets the code and design requirements. The certainty of the findings will need to be assessed, accounting for factors such as existing conditions below the ground and encapsulated or hidden items. The effect of the underground existing conditions could be determined by the excavation of the foundations to reveal what elements exist, such as grade beams and pilings, and the condition of these elements as well as a geotechnical report on the soil conditions. Once all findings are complete, they must be reported to the owner, and the appropriate actions can be taken to repair the structure. If the analysis and testing find that there is no "substantial structural damage" then repairs can be made to restore the structure to its pre-damage condition (IEBC 405.2.1). If there is "substantial structural damage" then the structure must be repaired and retrofitted according to Sections 405.2.3 and 405.2.4 of the IEBC. Finally, if the structure is deemed a historic building, repair of "substantial structural damage" is not required to comply with Sections 405.2.3 and 405.2.4. "Substantial structural damage" shall be repaired in accordance with Section 405.2.1. Additionally, for historical buildings the conditions determined to be "dangerous" shall not require work beyond what is required to remedy the dangerous condition.

1. No "Substantial Structural Damage" or Historical Building Designation – If the structural analysis determines that there is no "substantial structural damage" or the building is designated as a historical building, the repair methods will be the same:
    a. The existing circular columns on the east and west pavilions will be injected with a high strength epoxy to fill cracks, and then they will be encased in a composite wrap. This method of column repair has been utilized by the DOTD on bridge columns to restore strength to damaged columns, most recently on the fire damaged columns under the High Rise Bridge on I-10. This composite repair is lightweight, adds no significant thickness to the columns, and can have

a concrete finish applied to match the existing look of the columns. This would cost approximated $4,600 per column. The roof panels of the pavilions would be cleaned of the existing tar and gravel roof as much as possible and covered in a similar method as the columns. A high strength epoxy would be injected into the roof to seal cracks and prevent water intrusion to the reinforcement and underside of the roof. A composite material would then be adhered to the surface to provide a protective covering for the roof. This roof repair method would cost approximately $5.26 per square foot. To remedy exposed rebar, the rebar would be cleaned and covered with fresh grout to provide cover to the rebar and prevent deterioration. To repair the underside of the damaged roof panels (1 & 5) on the east pavilion a similar method to the top of the roof panels would be utilized. Exposed rebar would be cleaned and covered with fresh grout, and then a high strength epoxy would be applied to the roof panel and covered in a composite wrap. This could be finished with concrete like the columns to keep the same appearance as the existing roof. The large rectangular columns would have small cosmetic cracking repaired with fresh grout.

2. "Substantial Structural Damage" and No Historical Building Designation – If the pavilions are determined to have "substantial structural damage" and they have not been designated as a historical building, IEBC Sections 405.2.3 and 405.2.4 require the structure to be retrofitted to comply with current applicable live, dead, and wind loads as required by IBC 2018. Work needed to rehabilitate the pavilions in this situation would be as follows:
    a. Existing circular columns on the east and west pavilions will need to be encapsulated by new concrete containing new stirrups and vertical rebar to match the current building codes. The current spacing of the stirrups for the circular columns does not allow the columns to reach the current shear requirements of the American Concrete Institute (ACI) and IBC. The added weight of the column repairs may be too much for the existing foundation and require improvements to be made to the foundation to allow for the increased weight. Foundation condition and capacity would be evaluated during the structural analysis on the structures. All fourteen (14) circular columns would need to have these repairs to improve the columns to current code as well as allow for the columns to all look identical. The cost of these improvements would be approximately $3,300/column. Cosmetic cracking on any of the existing rectangular columns on each pavilion could be repaired with fresh grout.
    b. The roof of the west pavilion is in better condition than the east pavilion, mostly due to the west pavilion not enduring any fire damage. Both pavilions have exposed rebar that should be checked for deformation. Deformation would be visible change in appearance of the rebar, such as the rebar no appearing smooth instead of ribbed or apparent thinning of the rebar visible. If the rebar is in good condition, concrete around the rebar could be removed, and grout installed around the existing rebar to ensure that the rebar has appropriate cover. If the rebar is deformed, then it will have to be removed and replaced with rebar that is up to current code. If rebar needs to be removed and

replaced, then the roof structure would have to be shored during repairs to ensure that it does not collapse. On the east pavilion, at least two (2) of the roof panels (1 & 5) would likely need to be removed and replaced completely if they are determined to have "substantial structural damage." This will also require shoring of the entire roof structure. Once the exiting roof panels are removed, new panels matching the existing dimensions of the old panels would need to be constructed with reinforcement adhering to current codes and be tied into existing roof supports. The cost of the new roof panels would be approximately $80/square foot. Upgrading the roof panels to current coding could require more rebar, increasing the weight on existing supports. If this increased weight is too much for the existing supports, then the existing supports would need to be improved as well to carry this weight.

c. By increasing the weight on the foundation with the new roof panels and the column repairs, structural/geotechnical analysis would need to take place to ensure the foundation is still adequate for the pavilions. A geotechnical team would need to take soil borings to determine the soil capacity in the areas around the pavilions. Additionally, the existing foundation would need to be excavated to determine if the structures are pile supported, and to determine the dimensions of the existing foundations. Based on the structural/geotechnical findings, necessary repairs can be applied to the foundation to support the additional weight. This would likely involve jacketing the north and south edges of the foundation to increase the capacity that the foundation can carry. The cost of jacketing the exiting foundation would be $330/Linear foot of existing foundation to be enhanced.

| Description | Cost |
|---|---|
| Alternate No. 1 (No Substantial Structural Damage | $248,000 |
| Alternate No. 2 (Substantial Structural Damage) | $630,000 |

Figure 26: Current condition of the pool deck

**Lakefront Structures**

Pool Deck/Pool Canopy

As stated previously, the pool deck area along the beach bulkhead had an original total length of approximately 400 feet, but there is currently only 150 feet of deck still intact. It appears 250 feet of the deck was destroyed by storm surge, leaving only the deck supports behind. The canopy that ran along the deck is also missing, with only seven (7) canopy supports remaining on the 150 foot portion of deck still standing. The canopy supports had visual damage where the canopy was ripped away; leaving exposed rebar that has been damaged by corrosion from years of exposure. The 150 feet of deck remaining is lower than the missing portion, with a set of stairs leading up to the missing portion. The portion of deck still standing appears to be in good condition, but the support system of the deck was unobservable and there are no record drawings of the support system. The support beams for the portion of deck that has washed away appear to be in poor condition. Structural analysis can be completed for the deck supports to determine the classification of the supports as "dangerous" or having experienced "substantial structural damage," but after a base visual inspection of the damaged deck supports it appears that they are unusable. There is severe cracking and spalling occurring on most of the beams revealing the rebar, with apparent deformation of the rebar. Additionally, a geotechnical inspection will be required to determine soil conditions and existing pile tip locations to ensure that the load capacity of the existing deck is adequate to support the rehabilitated pool deck. However, if the desire to keep the Lincoln Beach property as close to the original design and reuse original structures for historical purposes is paramount, then the following repairs could be made:

1. The support beams (18) for the deck would need to undergo a stress test to determine the current capacity for the supports and determining if they have "substantial structural damage". If those supports meet current strength guidelines, they may only require minor grout repairs to fix cracking and provide cover to exposed rebar. However, if the beams have "substantial structural damage" then the existing beams must be encapsulated by new stirrups, longitudinal bars, and concrete according to current code requirements. This repair would cost

approximately $6,000/support. The material chosen for the new deck would be determined by future design choices; however the original deck was made of concrete panels.

Figure 27: Visual crack through the entire section of the existing deck support

Figure 28: Aerial view of existing deck supports and the washed away concrete decking

2. The few pool canopy supports that remain could be salvaged and used as a reference for a potential new pool canopy. The existing supports would need minor crack repairs with grouting, and the exposed rebar where the canopy connected to the supports would need to be removed. A new canopy could be connected to the exiting supports. The remaining pool canopy supports could also be salvaged for

$20,000 each and moved to a different location on site to be utilized as supports for future Lincoln Beach elements to be determined by the property owner.

Figure 29: The remaining pool canopy supports remaining on the portion of deck still standing

Figure 30: Exposed rebar on where pool canopy connected to support.

Figure 31: Canopy support with all rebar exposed due to spalling

Lakefront Bulkhead

The bulkhead stretching 1,050 feet across the beachfront area of Lincoln Beach is in poor condition. The existing wood piles have been in place since construction nearly 80 years ago, and their structural capacity is unknown. The wooden bulkhead has deteriorated below the waterline along most of its length, thus eroding away the sand behind the retaining wall. The removal or repair of this bulkhead would depend on future design decisions, but to repair the bulkhead the following would need to take place:

The 12 inch diameter wood piles (approx. 130) will need to be encapsulated and poured with grout around the deteriorated wood to ensure that the piles are structurally sound. Most of the wood panels comprising the retaining wall would need to be replaced with new wood panels or potentially synthetic or metal panels instead.

Figure 32: Portion of bulkhead exhibiting damage and erosion of sand

Figure 33: Damaged bulkhead beneath the pool deck supports

Figure 34: Erosion exposing the underneath of the bulkhead

| Description | Cost |
|---|---|
| Lakefront Structure Rehabilitation | $4,093,700 |
| Lakefront Structure Removal | $3,640,650 |

**Piers**

The existing concrete pad in Figure 1 is all that remains from the old pier that used to be at Lincoln Beach and will need to be removed from the site to upgrade the beach. A new timber dock can be constructed for approximately $120 per square foot of dock. For boats to be able to access the dock it is recommended for the dock to extend to the -4.5 foot contour line. Constructing a dock of similar size to the previous pier that used to exist will cost approximately $477,500. This cost includes access dredging for a barge to reach the site since the equipment used to construct the dock will not be able to access the site from Hayne Blvd through the tunnel.

Figure 35 – Concrete Pad to be Removed

**Breakwaters**

The existing breakwaters at Lincoln Beach are in fair condition and are functioning as they were intended to by providing wave protection for the wetlands and submerged aquatic vegetation. A review of historic imagery shows sediment accumulation and marsh growth behind the breakwaters as intended by the design completed in 1998. The breakwaters have a relatively consistent crest elevation and do not appear to have settled much since their construction, therefore no improvements to the breakwaters are recommended at this time.

**Beach**

Satellite imagery indicates that the shoreline of Lincoln Beach has receded approximately 15 feet over the past 20 years. If the lakefront bulkhead is removed the beach will continue to erode away, however it can be re-nourished to provide a larger recreational area. To design a beach nourishment at Lincoln Beach a shoreline movement analysis will need to be performed and a model will need to be created to analyze the wind and waves that are the driving forces of the erosion. Soil borings will need to be taken to analyze the characteristics of the existing sand at the beach to determine a suitable sand source for nourishment. It is unlikely that there is a suitable sand source in Lake Pontchartrain; therefore sand will likely be bought from an outside source and delivered to the site via barge. The cost to nourish the beach across the 1,200 foot width between the breakwaters to the -3 foot contour is estimated to be approximately $1,193,400. This is a preliminary cost, and further analysis is needed to determine the appropriate nourishment template in regards to shoreline position, depth, and final nourishment elevation as well as identifying a sand source. Alternate sand supply sources and innovative methods, such as sand created from recycled glass, could be investigated as part of a design phase. Nourishing the beach will require obtaining a Coastal Use Permit, Army Corps Permit, and Levee Safety Permit. If the lakefront structures are removed and the beach is

not re-nourished there will still need to be some backfill delivered to the site to smoothly grade the shoreline where the structures are removed.

### Brick Perimeter Fence

There is approximately 2,250 linear feet of brick fencing surrounding three sides of the Lincoln Beach property. Some portions of the fence have been knocked over on the west side of the property, as well as a portion on the southwest side that potentially provides access to the property for people who go around the floodwall. The brick wall has brick pilasters spaced every 20' to provide support, but most of these pilasters have become detached from the wall. The brick fence is salvageable. The damaged or knocked down portions of the wall will need to be replaced to match the original design. The detached pilasters will need to be repaired or replaced to attach them to the wall to provide support against wind shear at a cost of $1,500/pilaster. Additional pilasters may need to be placed between the existing pilaster locations to bring the wall up to IEBC 2018 and ACI 530/530.1-13: Building Code Requirements and Specification for Masonry Structures and Companion Commentaries.

| Description | Cost |
|---|---|
| Brick Perimeter Wall Rehabilitation | $463,450 |


Figure 36: Location of brick perimeter fence for the Lincoln Beach Property

Figure 37: Separation of pilaster from the brick fence

Figure 38: Portion of brick fence covered in graffiti but in good condition

### Access Tunnels

Structurally the three access tunnels appear to be in good condition. The only issue with the access tunnels is the western tunnel on the north side has the bottom half of the concrete retaining wall missing. This has caused earth behind the wall and beneath the train tracks to erode. If this is left unattended, the earth beneath the train track will eventually erode completely, threatening the integrity of the tracks. It is recommended that the owner of the retaining to repair it as soon as possible to prevent further erosion beneath the train tracks. The tunnels will also need new drainage, as the tunnels currently hold multiple feet of water. Alternatives for tunnel drainage is provided in the Utilities Technical Memorandum.

Figure 39: The bottom of the retaining wall is missing, revealing earth beneath the train tracks

| Description | Cost |
|---|---|
| Access Tunnel Rehabilitation | $54,000 |

### Pools

While open, the property had one large pool, a diving pool, and a wading pool. The large pool was unobservable during site visits as it has been overgrown with trees and brush with no way to access it. There is also no access to the wading pool. According to an environmental report from 2004, the bottom of the diving pool was removed due to having pollutant present (polychlorinated biphenyls or PCB's). It is unclear from the report if the entire pool was demolished after the removal of the polluted portions, or if only the polluted portions were removed. Due to the amount of overgrowth located on the property where the pools were located, it can be safely assumed that the pools are not salvageable if there are any remnants remaining.

## Conclusion

Lincoln Beach's concrete pavement throughout the property appears to be in good condition and is easily repairable to be reused in the future. However, the few existing structures that remain on the property are "dangerous" and appear to have experienced "substantial structural damage" since being installed nearly 80 years ago. The only waterfront features that have not experienced significant damage over the years are the breakwaters on either side of the beach.

The concrete panels throughout the property have remained in good condition, and recommended repairs would be the cleaning and resealing of existing joints throughout all of the panels, as well as the removal and replacement of panels that have experience significant cracking or do not comply with ADA requirements.

Both concrete pavilions are in poor condition. Removing and replacing the existing pavilions with identical new pavilions is an option that would allow for the pavilions to be completely up to current codes. However, the historical significance of this property should be considered and maintaining the structures as they are currently will be necessary to have the property placed on the National Register of Historic Places. The repairs mentioned above in would allow for the original structures to be retained as well as allowing the repaired structures to appear visually unchanged.

Depending on future property use, it is recommended that the pool deck and lakefront bulkhead be removed completely and replaced by the beach nourishment. The cost of rehabilitating the existing pool deck beams to support a new deck as well as repairing the damaged bulkhead would be less cost effective than the complete removal of these items and replacing them with a new visually appealing beachfront along the north side of property. The existing pool canopy supports and pool deck tiles should be salvaged, so they can be utilized in the renovated Lincoln Beach property.

If a new dock is desired, it is recommended that the remnants of the old concrete pier be removed and replaced with a new wood/composite dock.

The breakwaters are in good condition and are functioning as intended. The beach may be re-nourished with sand from a suitable source to extend the recreational area of the beach. Further analysis is required including identification of a suitable sand source and desired extents of nourishment.

The brick fence surrounding the perimeter needs to be repaired to bring the fence up to current design codes, as well as to ensure that the fence does not present a safety threat to the public by falling over. Missing areas need to be repaired to match the existing fence, and existing pilasters must be repaired/replaced, or even additional pilasters must be added to provide stability to the fence.

Overall, the decision of whether to attempt to salvage the existing structures on the property relies on the desire of the City to maintain the historical significance of the existing structures. The repair of the concrete panels throughout the property and the perimeter fence are recommended, and the rehabilitation of the pavilions is necessary to maintain the historical significance of the property. The removal and replacement of the existing lakefront structures would allow for a scenic beachfront for the entire north side of the property. If the site can be named a Historic Place, then additional outside funding could be made available to help with the rehabilitation of the property.

# TECHNICAL MEMO 4: ACCESS ASSESSMENT

This report is meant to assess the existing pedestrian/bicyclist access conditions between Hayne Blvd. and Lincoln Beach and propose possible solutions if needed.

## Existing Conditions

Multiple site visits have taken place to assess the existing pedestrian/bicyclist access. After the site visits, it was determined that there are no current pedestrian safety features on site. The beach lies behind a concrete flood wall along Lake Pontchartrain in New Orleans, La. Access is allowed behind the flood wall through a 30' wide sliding flood gate that fronts Hayne Blvd. The concrete driveway/turnout is wide enough for 2-way traffic to move through the flood wall gate. Pedestrian/bicyclist access here will be challenging as there is very little room for safe pedestrian/bicyclist access through the flood gate if vehicular traffic is allowed to continue. Inside the flood gate, there are two (2) railroad tracks that run East/West. Currently, there is an 11'11" wide by 11'10" tall roadway tunnel that is wide enough to fit one car and two (2) adjacent 8' wide by 7'5" tall pedestrian/bicyclist tunnels, which cross under the railroad tracks. Due to the non-operational subsurface drainage system, these tunnels are typically filled with rainwater as a low point is formed here. Connecting to the tunnels on the North side is a paved horseshoe-shaped driveway with sidewalks. This driveway slopes up to the natural existing grade and connects to an expansive paved area that once housed amusement attractions. On the east and west sides of the paved area there are dirt paths that lead down to the beach.

## Potential Pedestrian/Bicyclist Access Improvements:

### Parking

Parking near the entrance to the site is non-existent. A 100-car capacity minimum parking lot is recommended on the south side of Hayne Blvd. to allow a sizeable amount of vehicle parking. The conceptual level proposed parking lot is proposed as permeable grid-style aggregate pavement to accommodate the City of New Orleans green infrastructure requirements. Colored parking line delineators (Superspots) will be used in lieu of thermoplastic striping. Lighting is needed along the interior of the parking lot for safety reasons. See Figure 40 for proposed improvement detail. **The estimated construction cost for this parking concept, per 100 spaces, is $729,528.08 (see Attachment 3 for cost breakdown).** Additional parking capacity may be added at a similar unit cost depending on the final proposed use of the property.

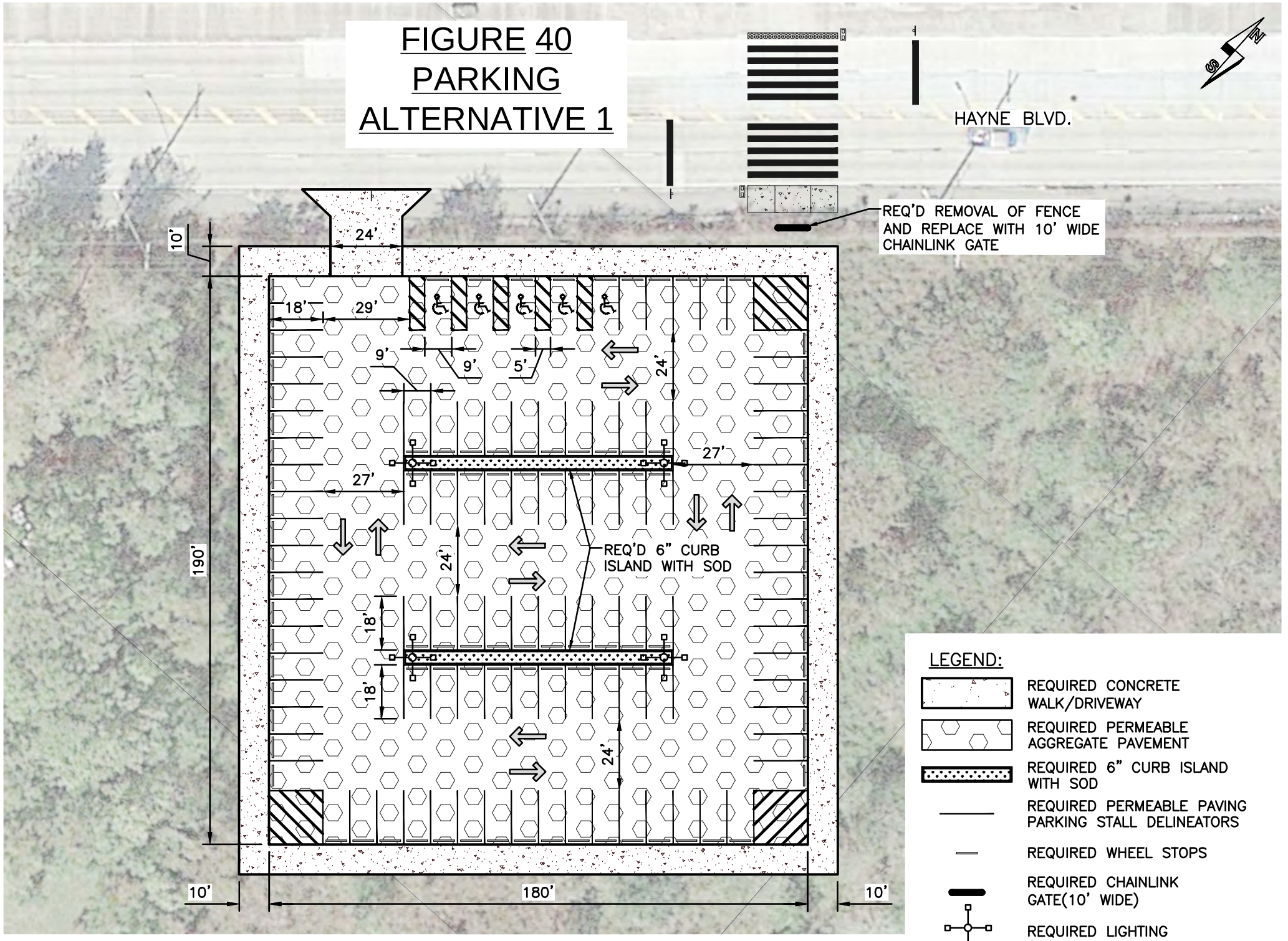
### ADA Crossing Hayne Blvd.

Improvements at the crossing of Hayne Blvd. are needed for potential ADA compliance. Two alternatives are presented for crossing Hayne Blvd.

<u>Alternative 1</u>

Since parking will be proposed south of Hayne Blvd., improvements for pedestrians crossing this roadway are needed along with ADA compliance improvements. Handicapped curb ramps are needed on the South side of Hayne Blvd. and detectable warning surfaces are needed on the North side of Hayne Blvd., adjacent to the flood gate. Continental crosswalk striping will be needed for pedestrian/bicyclist's crossing Hayne Blvd. Two (2) Rectangular Rapid Flashing Beacons (RRFB's) will be needed facing eastbound and westbound Hayne Blvd. due to the lack of stop controlling measurements at this crossing. Appropriate warning signage will be needed

# FIGURE 40
# PARKING
# ALTERNATIVE 1




PROPOSED PARKING LOT FOR LINCOLN BEACH

SCALE: 1"=40'

for the RRFB's. A pedestrian traffic engineering study will be required for the addition of a crossing at an uncontrolled intersection. This study will take approximately 6 months to complete. See Figure 41 for proposed improvement detail.

Alternative 2

Another alternative is to install High Intensity Activated Crosswalk (HAWK) Beacon at the uncontrolled crossing from the proposed parking lot to the flood gate. At a HAWK crossing, drivers receive multiple cues to emphasize the potential presence of a pedestrian. These cues include a unique configuration of the HAWK beacon (two red lenses over a single yellow lens), high-visibility crosswalk markings (continental-style markings as opposed to only two transverse 8" thick white lines), a stop bar approximately 50 feet from the crosswalk, 8-inch solid lane lines between through travel lanes, retroreflective signs that can be illuminated and read "CROSSWALK," and pedestrian/bicyclist advanced warning signs. When activated, the HAWK uses a red indication to inform drivers to stop, thereby creating a time period for pedestrians to cross the major roadway. Figure 42 shows an example of the current head configuration for the HAWK.

The HAWK Beacon is not illuminated until it is activated by a pedestrian/bicyclist, triggering the warning flashing yellow lens on the major street as indicated in Figure 43 below. After a set amount of time, the indication changes to a solid yellow light to inform drivers to prepare to stop. The beacon then displays a dual solid red light to drivers on the major street and a walking person symbol to pedestrians/bicyclist. At the conclusion of the walk phase, the beacon displays an alternating flashing red light and pedestrians/bicyclist are shown an upraised hand symbol with a countdown display informing them of the time left to cross. During the alternating flashing red lights, drivers can proceed after coming to a full stop and checking that pedestrians/bicyclist have already crossed their lane of travel. Each successive driver is legally required to come to a full stop before proceeding during the alternating flashing red phase.

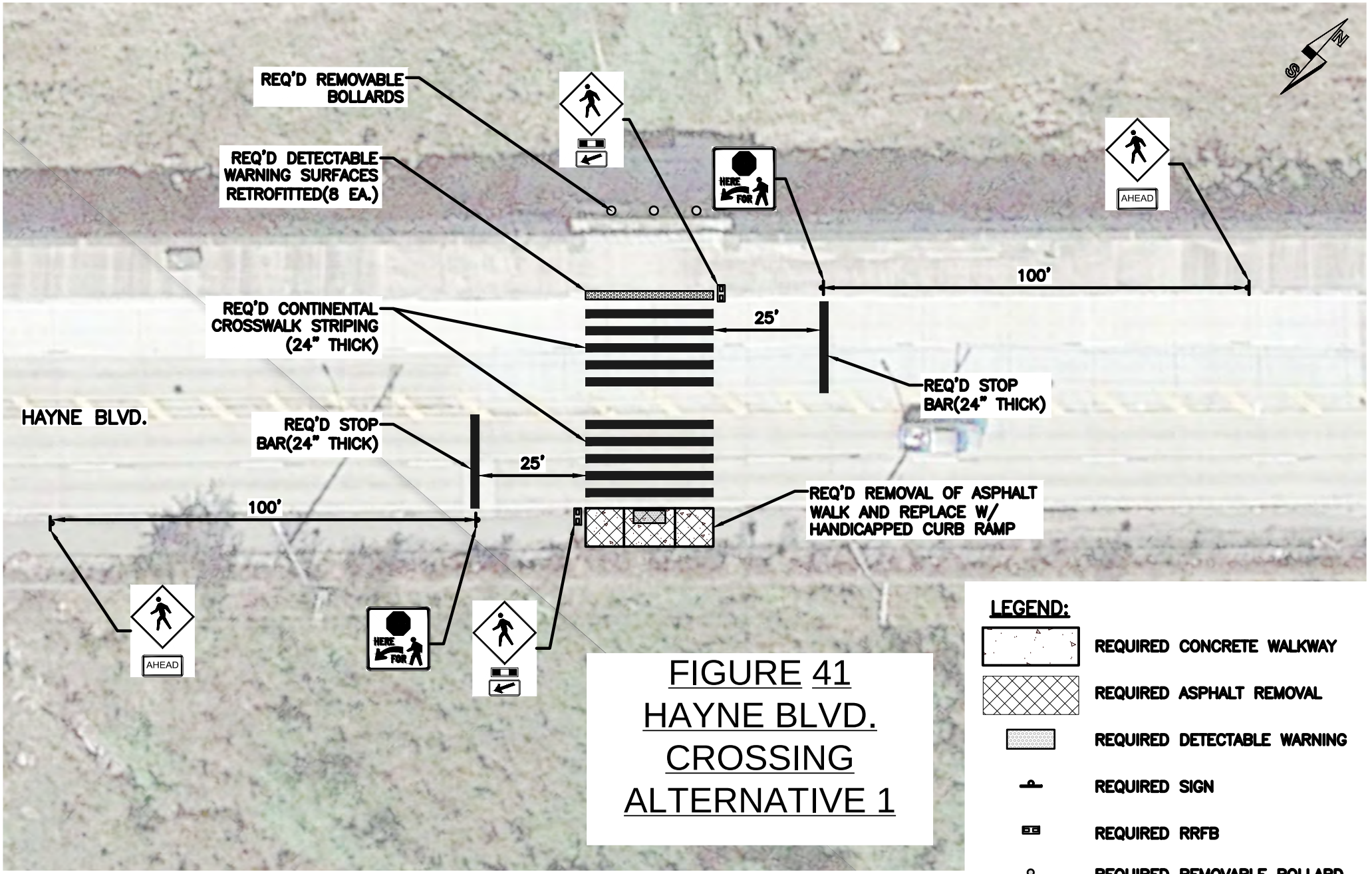
This new pedestrian crossing improvement would include crosswalk striping, pedestrian signal heads, electrical wiring, APS push buttons, and (2) two traffic mast arms with (2) two HAWK Beacons each. A pedestrian traffic engineering study will be required for the addition of a crossing at an uncontrolled intersection. This study will take approximately 6 months to complete. See Figure 44 for proposed improvement detail.

*Table 4 – Estimated Construction Cost of Hayne Blvd. At-Grade Crossing*

| Description | Cost |
|---|---|
| Alternative No. 1 Total | $56,160 |
| Alternative No. 2 Total | $364,234 |

In addition to alternatives 1 and 2 addressing the compliant crossing of Hayne Blvd., supplemental traffic/pedestrian calming measures can also be considered. Road diets provide a low-cost alternative to road reconstruction that include reducing lanes through re-stripping and usually the inclusion of bicycle facilities. The Federal Highway Administration states that "Road Diets reduce vehicle-to-vehicle conflicts that contribute to rear-end, left-turn, and sideswipe crashes by removing the four-lane undivided inside lanes serving both through and turning traffic. Studies indicate a 19 to 47 percent reduction in overall crashes when a Road Diet is installed on a previously four-lane undivided facility as well as a decrease in crashes involving drivers under 35 years of age and over 65 years of age." This

proposed road diet would include reducing the number of lanes on Hayne Blvd. from 4 lanes to 2 lanes by re-stripping the existing road for optimal vehicle channelization. Bicycle lanes would also be included in both directions along Hayne Blvd. A raised concrete median could be installed at the pedestrian crossing of Hayne Blvd. to the Lincoln Beach site as shown in this report.




# FIGURE 41
# HAYNE BLVD. CROSSING ALTERNATIVE 1

PEDESTRIAN ACCESS FOR LINCOLN BEACH

SCALE: 1"=30'

Figure 42: Example of HAWK Treatment

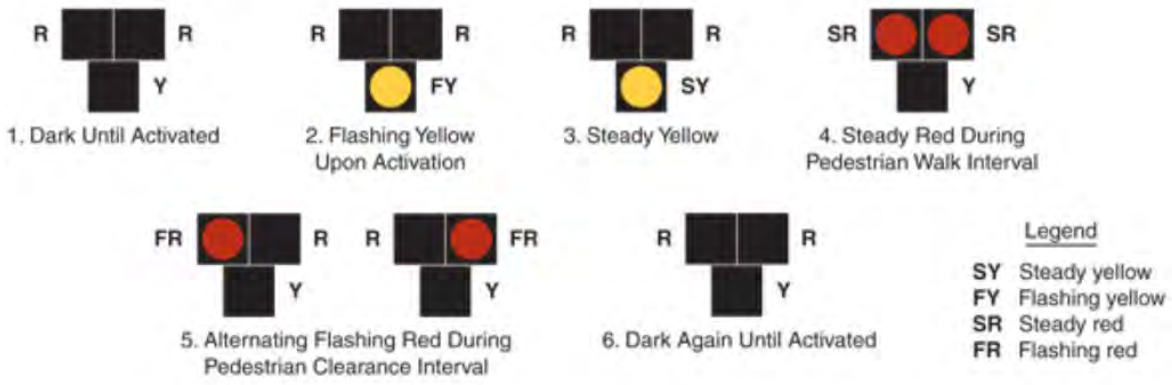
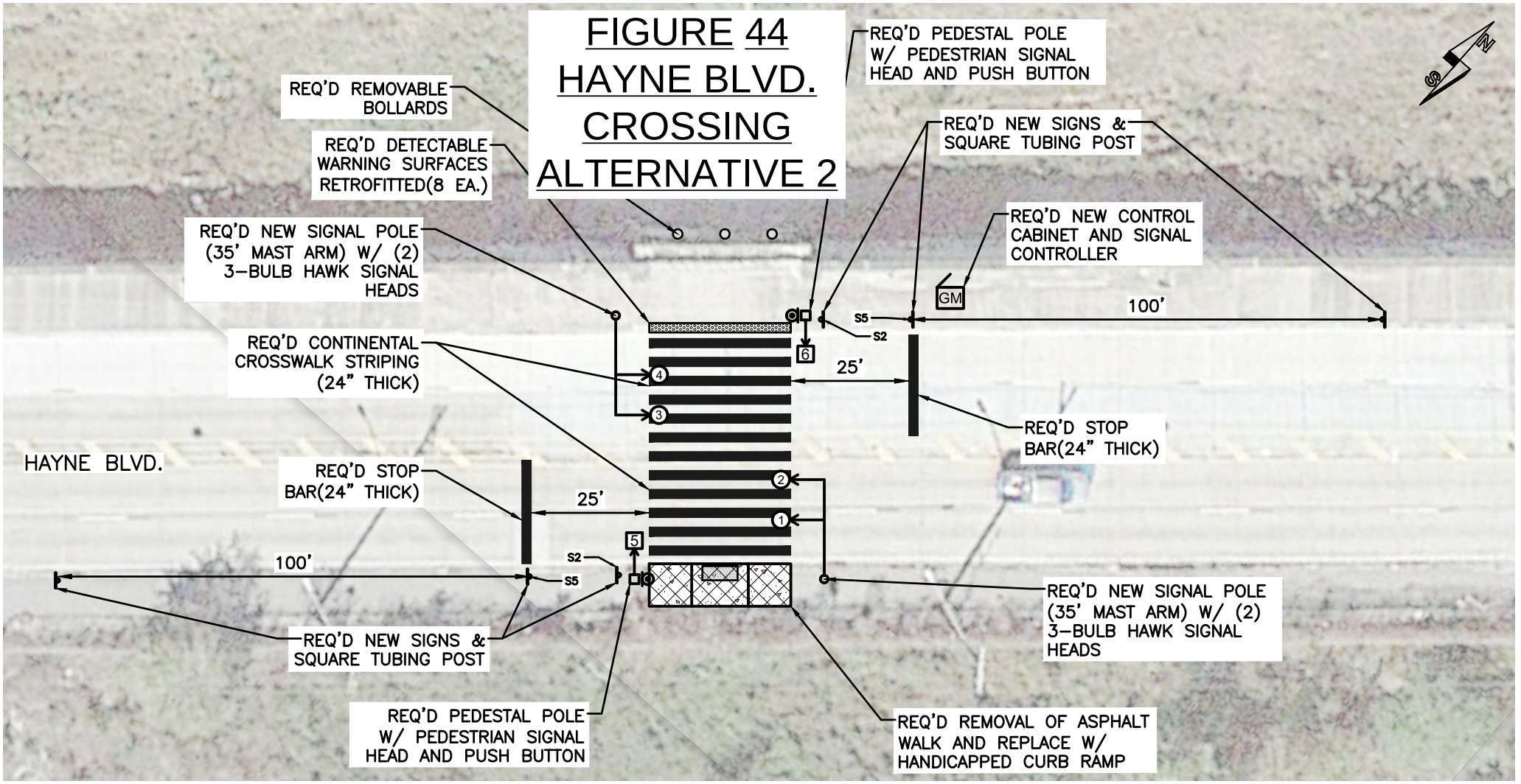


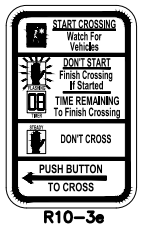

Figure 43: Sequence for HAWK Beacon

# FIGURE 44
# HAYNE BLVD. CROSSING ALTERNATIVE 2




PEDESTRIAN ACCESS FOR LINCOLN BEACH

SCALE: 1"=30'



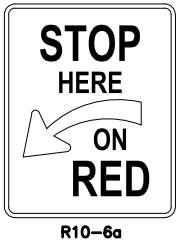

R10-3e
9"x15" (x2)
(INSTALLED ABOVE PUSH BUTTON)


R10-23
24"x30"
SIGN: S1(x2)

W11-15
36"x36"
SIGN: S2(x2)

W16-7pL
24"x12"
SIGN: S3(x2)

W16-7pR
24"x12"
SIGN: S4(x2)




R10-6a
24"x30"
SIGN: S5(x2)


W11-2
24"x30"
SIGN: S6(x2)

LEGEND:

- REQUIRED CONCRETE WALKWAY
- REQUIRED ASPHALT REMOVAL
- REQUIRED DETECTABLE WARNING
- REQUIRED SIGN
- REQUIRED REMOVABLE BOLLARD

### Access through the Flood Gate

Access to the site is bottlenecked through a 30' wide sliding floodgate with no other access points. If the City of New Orleans chooses to prohibit vehicular traffic, removable bollards are recommended behind the flood gate to deter drivers from turning into the area. A concrete barrier could be placed in front of the driving tunnel that is in between the two (2) pedestrian/bicyclist tunnels.

If the City of New Orleans wishes to keep vehicular traffic open, protection for the pedestrians/bicyclist will be needed. To ensure the safety of pedestrians/bicyclists, it is proposed that striping, delineators, bollards, or concrete barriers should be placed adjacent to the edge line striping to create a minimum 8' wide path to protect the pedestrians/bicyclist while passing through the flood gate. Any improvements shall be coordinated with SLFPA-E to ensure proper operation of the flood gate.

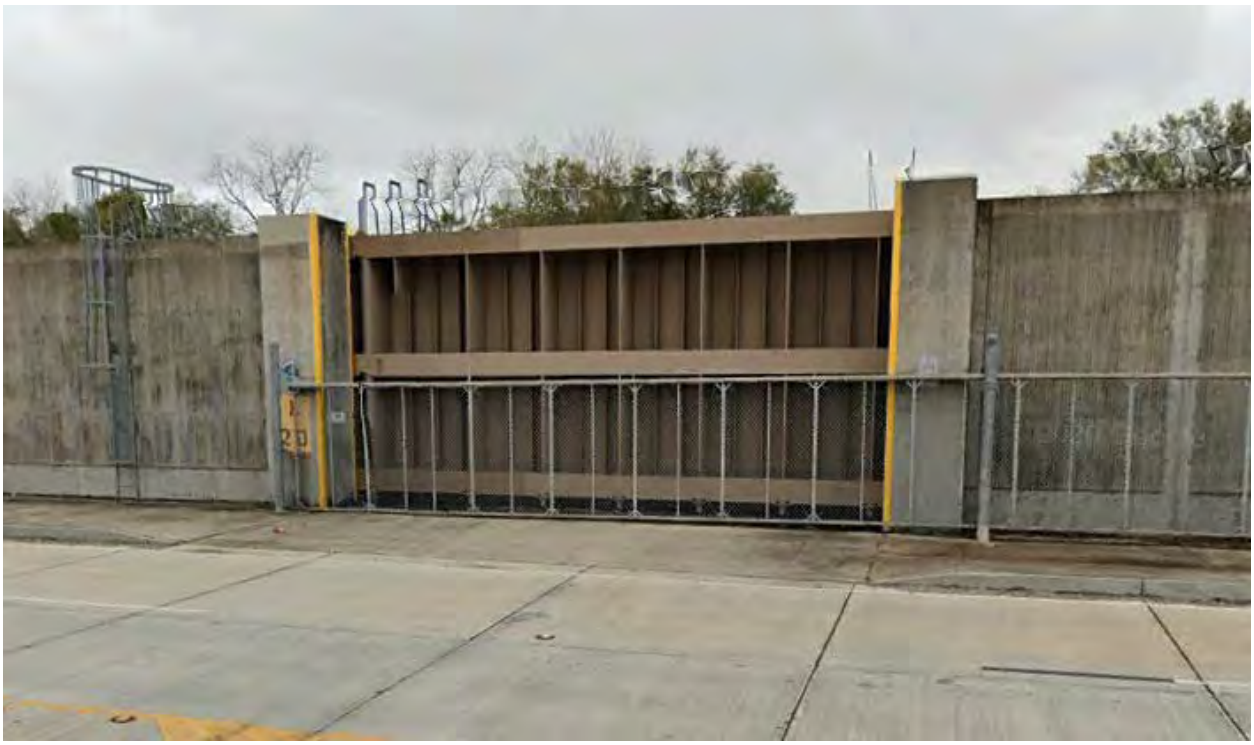


Figure 45: Closed Flood Gate

### Crossing the Railroad Tracks

There are two (2) existing pedestrian tunnels that traverse under the two (2) railroad tracks. A portion of the concrete base at the entrance transition to the tunnels is not currently ADA compliant and will need to be replaced. The existing height of the tunnels is 7.5' and the minimum desired vertical clearance requirement for bicycles is 8 ft. Pedestrian spacing and level of service were taken into consideration. Assuming both pedestrian tunnels are utilized with 4' wide effective walkways (8' wide subtracted by (2) 2' width adjustments for each wall of the tunnel), for a peak 15-minute pedestrian flow of 500 (ped/ft/min), the level of service for the tunnels is calculated as "A" per the Highway Capacity Manual 2010 (HCM 2010) as shown in the calculations below:

(Step 1) Calculate pedestrian flow rate:

$$v_p = v_{15} \div (15 \times W_E)$$

$$v_p = Pedestrian\ flow\ rate\ (\frac{ped}{ft}/min)$$

$v_{15}$

$= Pedestrian\ flow\ rate\ during\ the\ peak\ 15\ minutes\ \left(\frac{ped}{hr}\right)(assumed\ 250)(500\ split\ between\ 2\ tunnels)$

$W_E = Effective\ Width\ (ft)\ (assumed\ 4)(8'\ tunnel\ width\ subtract\ 4\ for\ width\ adjustments\ from\ walls)$

$$v_p = 250 \div (15 \times 4) = \frac{4.17 ped}{ft}/min$$

(Step 2) Calculate average pedestrian spacing:

$$A_p = S_p \div v_p$$

$$A_p = Pedestrian\ space\ (ft^2/ped)$$

$$S_p = Pedestrian\ speed\ \left(\frac{ft}{min}\right)(default\ asumption\ is\ 3.4\ mph\ or\ 300\ \frac{ft}{min})$$

$$v_p = Pedestrian\ flow\ rate\ (\frac{ped}{ft}/min)\ (From\ Step\ 1)$$

$$A_p = 300 \div 4.17 = 72\ ft^2/ped$$

(Step 3) See Exhibit 23-1 Average Walkways Flow LOS Criteria (HCM 2010)

| LOS | Average Space ($ft^2$/p) | Related Measures: Flow Rate (p/min/ft)[a] | Related Measures: Average Speed (ft/s) | Related Measures: v/c Ratio[b] | Comments |
|---|---|---|---|---|---|
| A | >60 | ≤5 | >4.25 | ≤0.21 | Ability to move in desired path, no need to alter movements |
| B | >40–60 | >5–7 | >4.17–4.25 | >0.21–0.31 | Occasional need to adjust path to avoid conflicts |
| C | >24–40 | >7–10 | >4.00–4.17 | >0.31–0.44 | Frequent need to adjust path to avoid conflicts |
| D | >15–24 | >10–15 | >3.75–4.00 | >0.44–0.65 | Speed and ability to pass slower pedestrians restricted |
| E | >8–15[c] | >15–23 | >2.50–3.75 | >0.65–1.00 | Speed restricted, very limited ability to pass slower pedestrians |
| F | ≤8[c] | Variable | ≤2.50 | Variable | Speeds severely restricted, frequent contact with other users |

$From\ Exhibit\ 23-1, the\ calculated\ Level\ of\ Service\ for\ each\ pedestrian\ tunnel\ is\ an\ A.$

On the beach side of the pedestrian tunnels, 30'x8' and 50'x8' sections of concrete walk adjacent to the East tunnel and West tunnels, respectively, have been removed. (See Figures 46 & 47 below). Also, these tunnels hold rainwater during and after every rain event. Alternatives for draining the tunnel are provided in the Lincoln Beach Utility Assessment technical memorandum. The existing vehicular tunnel is 11'-11" tall by 11'-10" wide and can accommodate one vehicle at a time. Larger emergency vehicles will not be able to fit due to restricted height and slopes of the approach slab.

Alternative 1

The first alternative for crossing the railroad tracks is to utilize the existing tunnels by making the minimal improvements necessary for safe, universal access. The existing height of the tunnels is 7.5' and the minimum desired vertical clearance requirement for bicycles is 8 ft. Low clearance signs should be added to all entrances to the tunnels to warn bikers of the hazard.

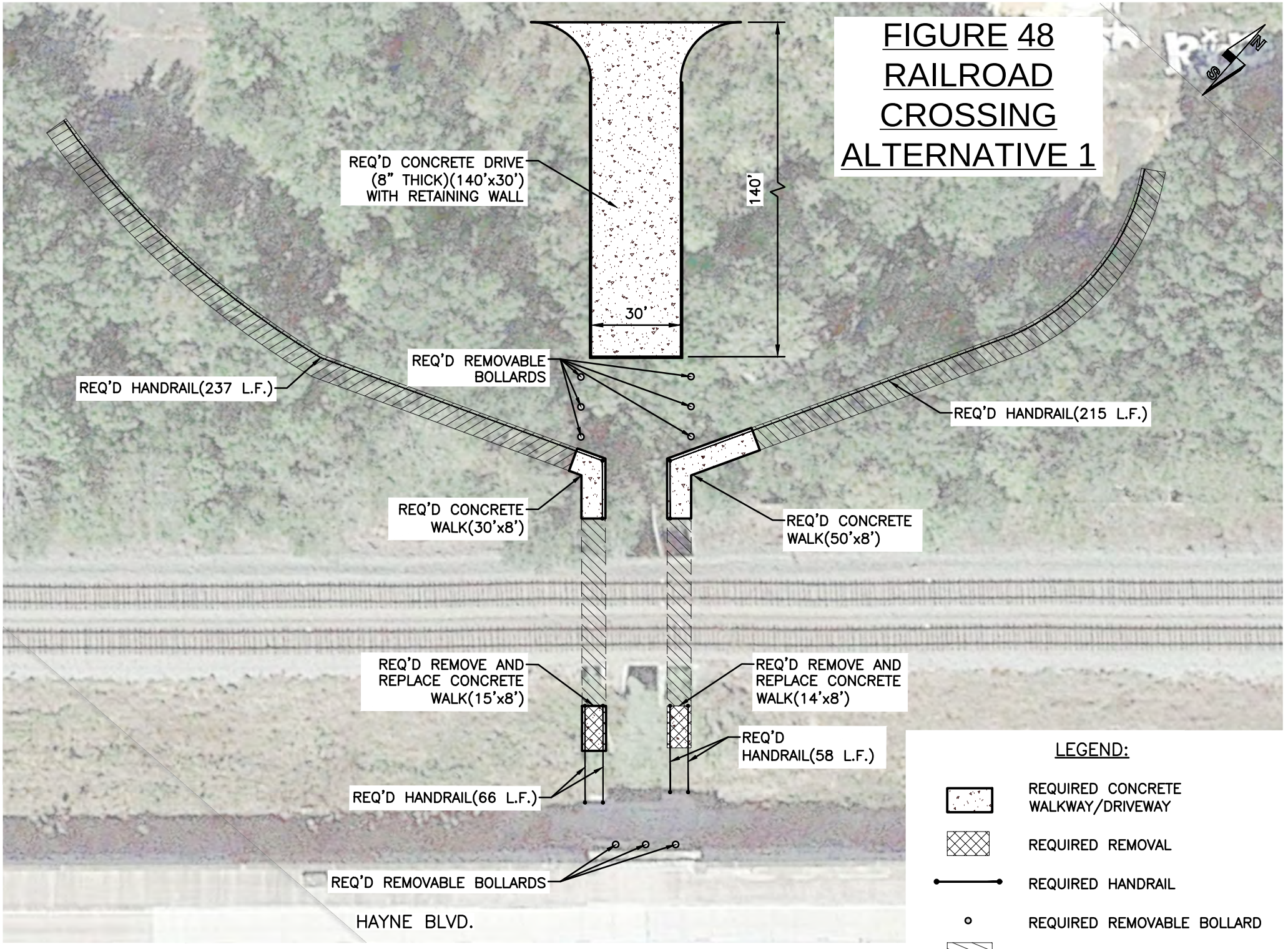
On the beach side of the pedestrian tunnels, the 30'x8' and 50'x8' sections of concrete walk adjacent to the East tunnel and West tunnels, will need to be replaced and embankment will be required to restore the area to the existing grade. Handrails will need to be placed on at the entrances and exits of both tunnels where drop-offs exist (See Figure 48). Also, these tunnels hold rainwater during and after every rain event and will need to be addressed as discussed in Technical Memo 2 - Utility Assessment.. A pump or drainage solution will be needed to alleviate the drainage issues inside the tunnels.

The existing vehicular tunnel is 11'-11" tall by 11'-10" wide and can accommodate one vehicle at a time. If the City would like to utilize this tunnel for small vendors and emergency vehicles, it should be limited to mid-size trucks for vendors and normal ambulance sized van with a vertical clearance of 9.5' or under. Firetrucks may not be able to fit due to restricted height and slopes of the approach slab, depending on the vehicle. To improve vehicle access for mid-size trucks and trailers, it is recommended that the approach slab on the lake side of the tunnel be extended straight towards the paved area. This improvement would require minimum coordination and approval from the railroad company. See Figure 48 for proposed improvement detail.

Figure 46: Missing 50’x8’ Concrete Walk on East side of Horseshoe Driveway

Figure 47: Missing 30'x8' Concrete Walk on West side of Horseshoe Driveway

# FIGURE 48
# RAILROAD CROSSING ALTERNATIVE 1




PEDESTRIAN ACCESS FOR LINCOLN BEACH

SCALE: 1"=40'

Alternative 2

Construction of a brand-new tunnel or replacing the existing tunnels have also been explored in the area. A new tunnel to the East or West of the existing tunnels will be extremely difficult due to the limited vehicle turning radius after entering through the flood wall gate. The geometrics of the roadway/driveway will not be able to adhere to national roadway design guidelines and will be in railroad right of way and require acquisition or easement. The new tunnel alternative would also require the old tunnels to be filled with stone and abandoned, due to the slope and elevations of the existing driveway adjacent to the levee wall. The new driveway would need to turn 90 degrees abruptly on the North side of the flood wall.

Replacing the existing 3 tunnels with a new vehicle/pedestrian tunnel has also been explored. A box culvert tunnel could accommodate vehicular access and an 8' wide pedestrian/bicyclist path. The removal and replacement of the existing tunnel will require extensive temporary bracing and the possibility that the railroad tracks be closed for 1-2 months. The Railroad owner has made it clear that their tracks must always remain open. After speaking with Norfolk Southern, this new tunnel or tunnel replacement will take approximately 3 years to approve and suggestions were made to "look at other alternatives".

Alternative 3

The installation of a pedestrian/bicyclist bridge over the railroad tracks is also an alternative to consider. The elevation of existing ground for the land between the flood wall and the railroad is approximately 0.0 feet NAVD 88, while the elevation of the railroad tracks is approximately 8.0 feet NAVD 88. Significant ramping is needed to reach the grade of 21-24 feet above the railroad tracks to achieve this improvement. An example of the ramp up is shown in Figure 49. These are the minimum vertical clearance requirements that differ per railroad company. The decking for the bridge can be concrete or a lighter composite material with a longer life span. The installation of the bridge would require minimal closing of the rail line of a few hours. Elevators and stairs can be installed in place of the ramps. With the installation of elevators comes a yearly maintenance cost of approximately $5,000/year. The average wait time for an elevator will be approximately 1 minute. The pro of installing an elevator and stairs is the quick nature that pedestrians can enter and exit the pedestrian bridge area. One downfall is the limited space for multiple bicycles to fit into the elevator. Railroad permitting will be required and conversations with Nortfolk Southern indicate it will take approximately 1 year for the approval process. See Figure 51 for proposed improvement detail. The costs shown below are base costs for the pedestrian bridge and should not be taken as final costs.

Figure 49: Example of Possible Pedestrian/Bicyclist Bridge Ramp Up


Figure 50: Proposed Pedestrian Bridge Type

Alternative 3

Considerations were made for the pedestrian bridge to span over Hayne Blvd. as well as the railroad track. The length of the bridge would be 250' and would connect the proposed parking lot to the North side of the railroad tracks. This alternative would traverse the flood wall and the rails in one movement. This alternative would also eliminate the need for crossing improvements on Hayne Blvd. and the tunnel improvements. This improvement includes elevators and stairs due to the limited area available near the proposed parking lot. The bridge would be pre-assembled in the proposed parking lot area and placed on the foundations in one move to allow for minimal disruption of the railroad. Proposed utilities could also use the pedestrian bridge for passage over the flood wall and railroad. Similar to the pedestrian bridge

in Alternative 2, this bridge will take approximately 1.5 years to be approved by Norfolk Southern. See Figure 52 for proposed improvement detail. The costs shown below are base costs for the pedestrian bridge and should not be taken as final costs.

*Table 5 – Estimated Construction Cost of Pedestrian Railroad Crossing Alternatives*

| Description | Cost |
|---|---|
| Alternative No. 1 | $215,299 |
| Alternative No. 2 | $4,171,895 |
| Alternative No. 3 (w/elevator and stairs) | $3,351,382 |
| Alternative No. 3 (w/ramps) | $4,251,393 |
| Alternative No. 4 (w/elevator and stairs) | $4,558,453 |
| Alternative No. 4 (w/ramps) | $4,548,453 |

### Accessing the Paved Area

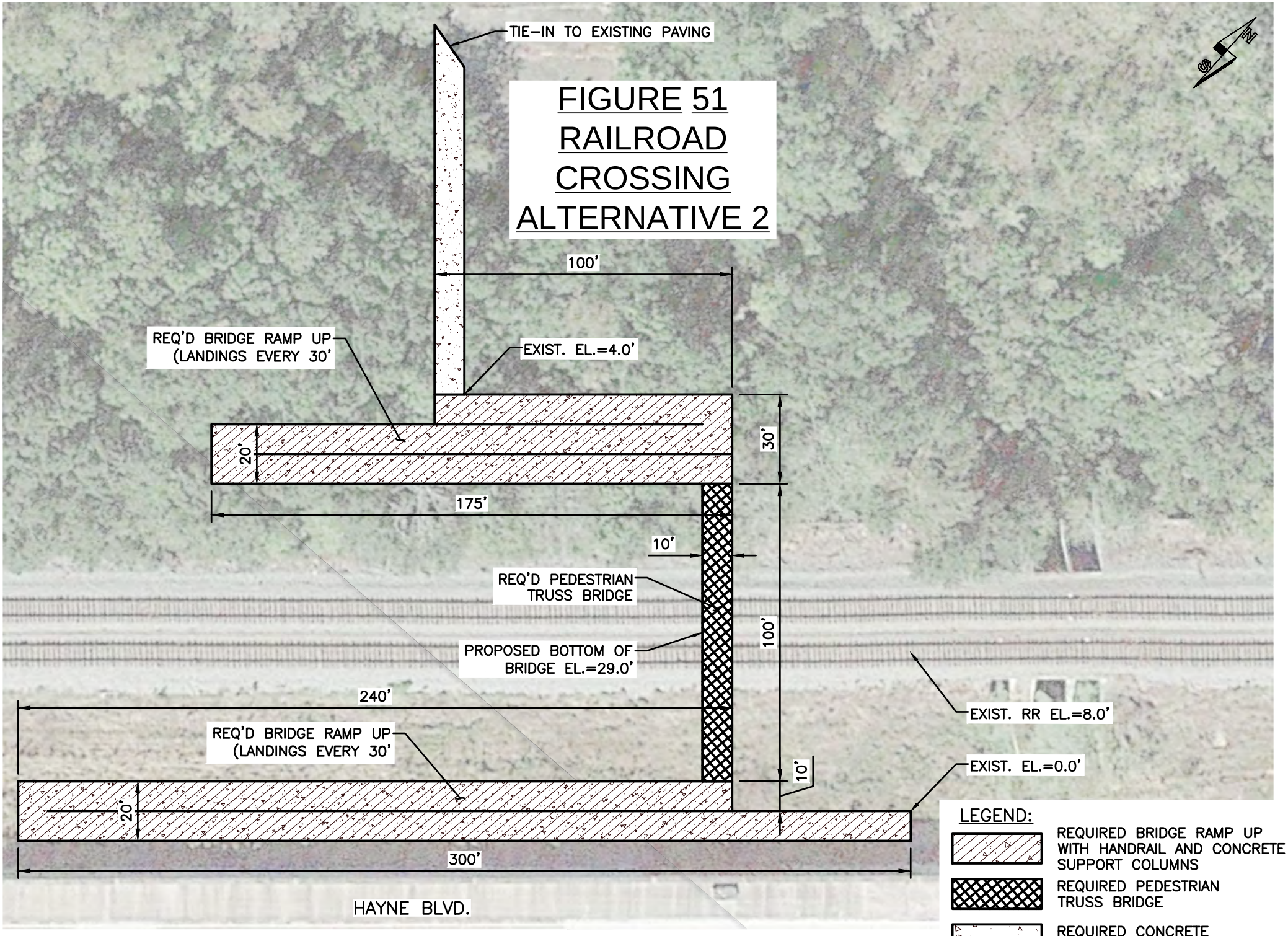
On the North side of the tunnels, there exists a split driveway/walkway in the shape of a horseshoe. These walkways are currently ADA compliant slope-wise (less than 5% longitudinal slope and less than 2% cross slope) but will need a handrail on the roadside to protect pedestrians/bicyclist from a steep drop-off. If the vehicular tunnel is utilized, the horse-shoe driveway may be difficult for utility trucks to navigate. For this reason, a driveway can be installed on the North side of the tunnel sloping directly North to the paved area and bisecting the horseshoe driveway. This addition would eliminate the turning movements for trucks with small trailers for garbage and decrease the likelihood for vehicles striking the tunnel. Concrete retaining walls would be needed along both sides of the driveway to hold back the existing earthwork. This cost is included in the tunnel improvements section as shown in Figure 48 and Attachment 3.

### Traversing the Paved Area

On the North side of the horseshoe driveway/walkway lays a large paved area previously used for amusement attractions. If vehicular traffic is not allowed in this area, minor pedestrian/bicyclist access improvements will be needed. The joint sealant between the concrete panels has been chipped away and is full of dirt, grass, and debris. To address the ADA requirement for tripping hazards it is recommended to replace the joint sealant for all these concrete panels. The slopes of most of these panels are currently ADA compliant and very little subsidence has taken place since the area was closed. Refer to the pavement assessment area of the report for more information. This cost is included in the pavement assessment portion of the Facility Asset Assessment Technical Memorandum.

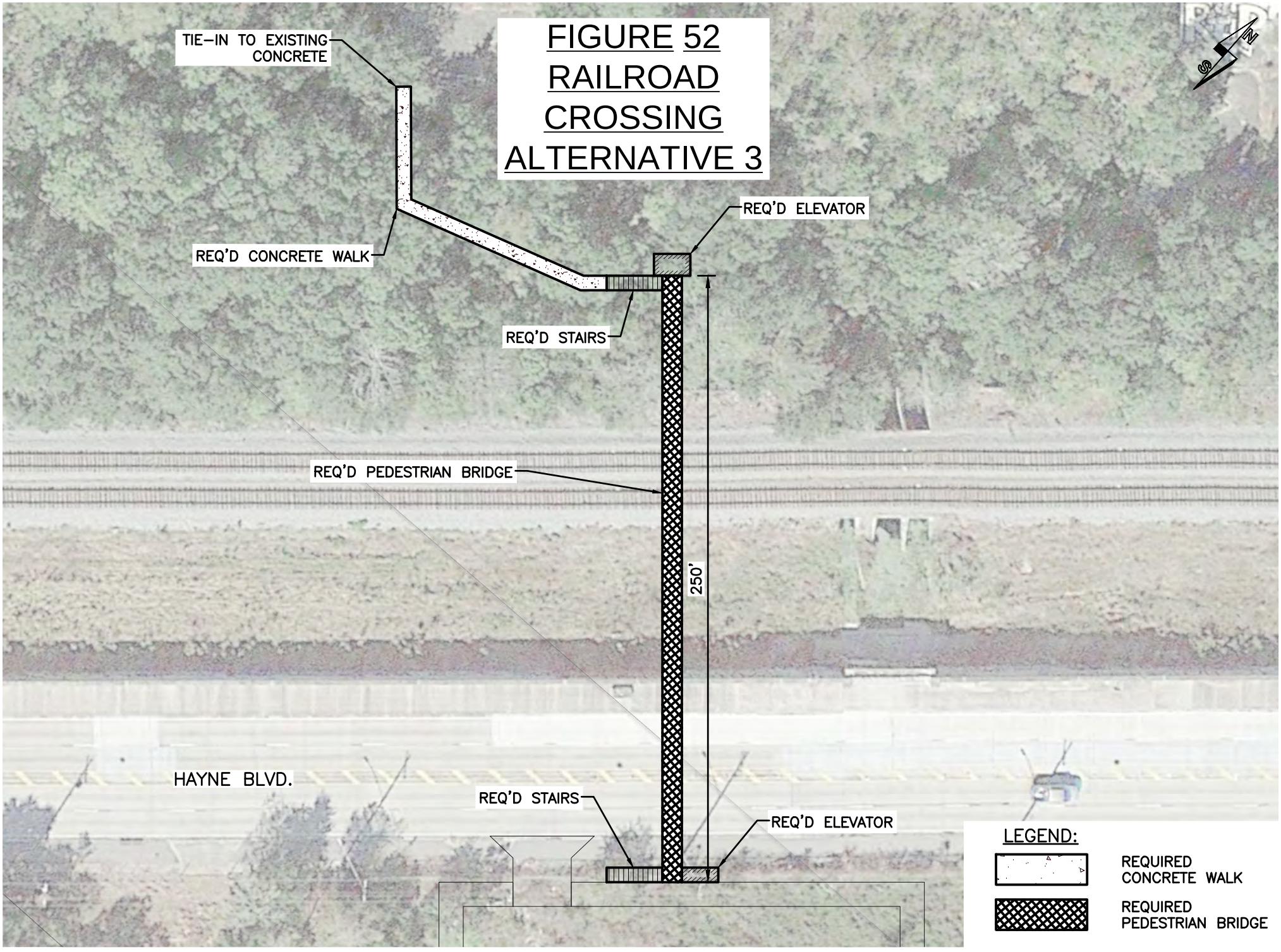
### Access to the Beach

On the far east and west sides of the property lie two sand beaches. These beaches are currently accessible by a dirt path that ties into the existing paved area. At the East beach approach, a 10’ wide by 110’ long wooden boardwalk is recommended to allow proper ADA access to the beach area. At the West beach approach, a 10’ wide by 110’ long wooden boardwalk is recommended to allow proper ADA access to the beach area. The Estimated Construction Cost to provide wooden boardwalk beach access is $119,730.00 (See Attachment 3 for Cost Breakdown).




PEDESTRIAN ACCESS FOR LINCOLN BEACH

SCALE: 1"=40'




PEDESTRIAN ACCESS FOR LINCOLN BEACH

SCALE: 1"=50'

## Conclusion

In summary, some improvements must be made to make the Lincoln Beach site ADA compliant. The existing concrete is generally in fair condition with minor improvements required. Beyond the existing infrastructure, several upgrades must be made to make the site fully ADA accessible. A summary of alternatives for the required upgrades is presented below.

Parking near the entrance to the site is currently non-existent. The existing right of ways and floodwall restriction do not allow for on-street parking. For this reason, the parking lot improvements as shown in Figure 41 will be necessary. This parking lot would be on land already owned by the City of New Orleans.

The improvements for crossing Hayne Blvd. vary depending on owner preference from the City of New Orleans. If the city decides to cross Hayne Blvd at street level, Rectangular Rapid Flashing Beacons or High Intensity Activated Crosswalk (HAWK) Beacons should be installed with the appropriate striping and signage. One alternative to this is the construction of a 250 foot long pedestrian truss bridge that would traverse Hayne Blvd., the flood wall, and the two (2) railroad tracks. If the City decides to build the 250 foot pedestrian truss bridge that crosses Hayne Blvd., then the previous stated improvements will not be necessary.

The solution to crossing the two (2) railroad tracks is subject to the City of New Orleans' goals and budget. There are four (4) alternatives for this crossing for the city to choose from. Firstly, the concrete walks adjacent to the tunnels can be replaced to achieve ADA compliance along with handrails. Handrails are also necessary along the adjacent horseshoe driveway to protect pedestrians/bicyclist from a steep drop-off. This will be the cheapest and least invasive option. Another alternative is to ramp up to the top elevation of the railroad tracks and cross with an at-grade pedestrian/bicyclist concrete crossing. This improvement will include handrails and cross-bucks with appropriate railroad crossing signage. This improvement will be moderately priced but will require special approval from the railroad company for the crossings. The next alternative would be to replace the existing tunnels or build a new tunnel adjacent to the existing tunnels. This alternative will require extensive design from the engineers and approval timetables from the railroad. With Norfolk Southern requiring that the railroad tracks always remain open, this alternative will have difficulty being built as per tunnel manufacturer guidelines stating that the tracks may need to be closed for up to one (1) month. The final alternative is the erecting of an ADA compliant 100 foot long pedestrian/bicyclist bridge to only cross the railroad tracks. This bridge will be required to be elevated 21 feet to 24 feet above the railroad tracks and will require an extensive ramping system to meet ADA slope requirements or the installation of elevators and stairs. This option will be the most expensive and require the most amount of construction time, but also provides a high level of pedestrian safety crossing the railroad. As stated above, if the City decides to build the 250 foot pedestrian truss bridge, then all of the previous stated alternative will not be necessary.

Raised timber boardwalks with handrails are recommended at the tie-in points between the concrete pavement and the dirt walkways that lead to the beaches to allow for wheelchairs to reach the edges of the sand.

# ATTACHMENT 1: UTILITY COST ESTIMATES

| ITEM | DESCRIPTION | UNIT | QUANTITY | UNIT PRICE | TOTAL COST |
|---|---|---|---|---|---|
| **Drainage Alternative No. 1** | | | | | |
| 1 | Sump Well | LS | 1 | $ 70,000 | $ 70,000 |
| 2 | Submersible Pump Station | EA | 1 | $ 466,800 | $ 466,800 |
| 3 | 15" RCP | LF | 37 | $ 100 | $ 3,700 |
| 4 | 8" PVC | LF | 63 | $ 100 | $ 6,300 |
| 5 | Remove & Replace Concrete Roadway | SY | 100 | $ 100 | $ 10,000 |
| 6 | Dewater Tunnel | LS | 1 | $ 4,750 | $ 4,750 |
| 7 | Video Inspection of Existing Drainage | LF | 150 | $ 10 | $ 1,500 |
| 8 | Lining/Repair of Existing Drainage | LF | 150 | $ 72 | $ 10,800 |
| 9 | 8" Valve w/ Valve Box | EA | 1 | $ 3,000 | $ 3,000 |
| 10 | Rehab & Tie-in to Existing Drain Manhole | EA | 1 | $ 250 | $ 250 |
| 11 | Concrete Repair/Replacement | SY | 300 | $ 125 | $ 37,500 |
| | | | | Subtotal | $ 614,600 |
| | | | | 30% Contingency | $ 184,380 |
| | | | | **Alternative No. 1 Total** | **$ 798,980** |

| | | | | | |
|---|---|---|---|---|---|
| **Drainage Alternative No. 2** | | | | | |
| 1 | Sump Well | LS | 1 | $ 70,000 | $ 70,000 |
| 2 | Submersible Pump Station | EA | 1 | $ 466,800 | $ 466,800 |
| 3 | 15" RCP | LF | 22 | $ 100 | $ 2,200 |
| 4 | 8" PVC | LF | 1,065 | $ 100 | $ 106,500 |
| 5 | Manhole | EA | 1 | $ 3,375 | $ 3,375 |
| 6 | Dewater Tunnel | LS | 1 | $ 4,750 | $ 4,750 |
| 7 | Video Inspection of Existing Drainage | LF | 150 | $ 10 | $ 1,500 |
| 8 | Lining/Repair of Existing Drainage | LF | 150 | $ 72 | $ 10,800 |
| 9 | Concrete Repair/Replacement | SY | 300 | $ 125 | $ 37,500 |
| | | | | Subtotal | $ 703,425 |
| | | | | 30% Contingency | $ 211,028 |
| | | | | **Alternative No. 2 Total** | **$ 914,453** |

| ITEM | DESCRIPTION | UNIT | QUANTITY | UNIT PRICE | TOTAL COST |
|---|---|---|---|---|---|
| **Water Alternative No. 1** | | | | | |
| 1 | Levee Crossing | EA | 1 | $ 200,000 | $ 200,000 |
| 2 | Remove & Replace Concrete Roadway | SY | 75 | $ 100 | $ 7,500 |
| 3 | 8" PVC Water Line | LF | 1,015 | $ 100 | $ 101,500 |
| 4 | 8" Valve w/ Valve Box | EA | 1 | $ 2,000 | $ 2,000 |
| 5 | Tie-in to Existing Water Line on Hayne Blvd | LS | 1 | $ 10,000 | $ 10,000 |
| | | | | Subtotal | $ 321,000 |
| **Water Alternative No. 1a** | | | | | |
| 6 | Jack & Bore Under Railroad | LF | 125 | $ 160 | $ 20,000 |
| 7 | 8" PVC Water Line | LF | 125 | $ 100 | $ 12,500 |
| 8 | Pit Excavation | LS | 1 | $ 600,000 | $ 600,000 |
| | | | | a Subtotal | $ 632,500 |
| | | | | Alternative No. 1a Subtotal | $ 953,500.00 |
| | | | | 30% Contingency | $ 286,050.00 |
| | | | | **Alternative No. 1a Total** | **$ 1,239,550.00** |
| **Water Alternative No. 1b** | | | | | |
| 6 | Utility Corridor Through Tunnel | LF | 150 | $ 100 | $ 15,000.00 |
| | | | | b Subtotal | $ 15,000.00 |
| | | | | Alternative No. 1b Subtotal | $ 336,000.00 |
| | | | | 30% Contingency | $ 100,800.00 |
| | | | | **Alternative No. 1b Total** | **$ 436,800.00** |
| **Water Alternative No. 2** | | | | | |
| 1 | Groundwater Well (incl. 20 years maint.) | LS | 1 | $ 440,000 | $ 440,000.00 |
| | | | | Subtotal | $ 440,000.00 |
| | | | | 30% Contingency | $ 132,000.00 |
| | | | | **Alternative No. 2 Total** | **$ 572,000.00** |
| **Water Alternative No. 3** | | | | | |
| 1 | Conduit Along Access Bridge | LF | 345 | $ 100 | $ 34,500 |
| 2 | 8" Valve w/ Valve Box | EA | 1 | $ 2,000 | $ 2,000 |
| 3 | Tie-in to Existing Water Line on Hayne Blvd | LS | 1 | $ 10,000 | $ 10,000 |
| | | | | Subtotal | $ 46,500 |
| | | | | 30% Contingency | $ 13,950 |
| | | | | **Alternative No. 3 Total** | **$ 60,450** |

| ITEM | DESCRIPTION | UNIT | QUANTITY | UNIT PRICE | TOTAL COST |
|---|---|---|---|---|---|
| **Sewer Alternative No. 1** | | | | | |
| 1 | Levee Crossing | EA | 1 | $ 200,000 | $ 200,000 |
| 2 | Remove & Replace Concrete Roadway | SY | 75 | $ 100 | $ 7,500 |
| 3 | 8" PVC Sewer Line | LF | 1,350 | $ 150 | $ 202,500 |
| 4 | Lift Station | LS | 1 | $ 466,800 | $ 466,800 |
| 5 | Sewer Manhole | EA | 3 | $ 3,375 | $ 10,125 |
| 6 | Rehab & Tie-in to Existing Sewer Manhole | EA | 1 | $ 250 | $ 250 |
| | | | | Subtotal | $ 887,175 |
| **Sewer Alternative No. 1a** | | | | | |
| 7 | Jack & Bore Under Railroad | LF | 125 | $ 160 | $ 20,000 |
| 8 | 8" PVC Sewer Line | LF | 125 | $ 150 | $ 18,750 |
| 9 | Pit Excavation | LS | 1 | $ 600,000 | $ 600,000 |
| | | | | a Subtotal | $ 638,750 |
| | | | | Alternative No. 1a Subtotal | $ 1,525,925 |
| | | | | 30% Contingency | $ 457,778 |
| | | | | **Alternative No. 1a Total** | **$ 1,983,703** |
| **Sewer Alternative No. 1b** | | | | | |
| 7 | Utility Corridor Through Tunnel | LF | 150 | $ 150 | $ 22,500.00 |
| | | | | b Subtotal | $ 22,500.00 |
| | | | | Alternative No. 1b Subtotal | $ 909,675 |
| | | | | 30% Contingency | $ 272,903 |
| | | | | **Alternative No. 1b Total** | **$ 1,182,578** |
| **Sewer Alternative No. 2** | | | | | |
| 1 | Onsite Treatment Plant | LS | 1 | $ 60,000 | $ 60,000 |
| 2 | Onsite Treatment Plant O&M | YR | 20 | $ 10,000 | $ 200,000 |
| 3 | Concrete Foundation w/ Timber Piles | LS | 1 | $ 30,000 | $ 30,000 |
| 4 | 6' Wooden Privacy Fence | LF | 90 | $ 50 | $ 4,500 |
| 5 | Effluent Discharge Pipe | LF | 500 | $ 150 | $ 75,000 |
| 6 | Lift Station | LS | 1 | $ 466,800 | $ 466,800 |
| | | | | Subtotal | $ 836,300 |
| | | | | 30% Contingency | $ 250,890 |
| | | | | **Alternative No. 2 Total** | **$ 1,087,190** |
| **Sewer Alternative No. 3** | | | | | |
| 1 | Conduit Along Access Bridge | LF | 345 | $ 150 | $ 51,750 |
| 2 | 8" PVC Sewer Line | LF | 1,250 | $ 150 | $ 187,500 |
| 3 | Lift Station | LS | 1 | $ 466,800 | $ 466,800 |
| 4 | Sewer Manhole | EA | 1 | $ 3,375 | $ 3,375 |
| 5 | Rehab & Tie-in to Existing Sewer Manhole | EA | 1 | $ 250 | $ 250 |
| | | | | Subtotal | $ 709,675 |
| | | | | 30% Contingency | $ 212,902.50 |
| | | | | **Alternative No. 3 Total** | $ 922,577.50 |

# ATTACHMENT 2: ASSET COST ESTIMATES

## SUMMARY OF ESTIMATED QUANTITIES (PAVEMENT REHABILITATION)

| ITEM | DESCRIPTION | UNIT | UNIT PRICE | QUANTITY | TOTAL COST |
|---|---|---|---|---|---|
| 001 | Cleaning and Resealing Concrete Joints | LNFT | $ 3.00 | 9300 | $ 27,900.00 |
| 002 | Removal of Portland Cement Concrete | SQYD | $ 15.00 | 622 | $ 9,330.00 |
| 003 | Barge Rental for Demolition Removal | EACH | $ 50,000.00 | 1 | $ 50,000.00 |
| 004 | Pressure Washing Existing Concrete | SQYD | $ 2.25 | 8267 | $ 18,600.75 |
| 005 | Portland Cement Concrete (4" Thick) | SQYD | $ 60.00 | 622 | $ 37,320.00 |
| 006 | Mobilization | LUMP | $ 10,000.00 | 1 | $ 10,000.00 |
| 007 | Construction Layout | LUMP | $ 5,000.00 | 1 | $ 5,000.00 |
| | | | | | |
| Contingency - 30% | | | | | $ 42,945.23 |
| | | | | | |
| **TOTAL** | | | | | $ 201,095.98 |

## SUMMARY OF ESTIMATED QUANTITIES (PAVILION REHABILITATION ALTERNATE 1)

| ITEM | DESCRIPTION | UNIT | UNIT PRICE | QUANTITY | TOTAL COST |
|---|---|---|---|---|---|
| 001 | Column Repair (Epoxy Injection & Composite Wrap) | EACH | $ 5,600.00 | 13 | $ 72,800.00 |
| 002 | Removal of Existing Tar and Gravel Roof Coating | SQFT | $ 2.50 | 11040 | $ 27,600.00 |
| 003 | Sealing of Roof (Epoxy Injection & Composite Wrap) | SQFT | $ 5.26 | 11040 | $ 58,070.40 |
| 004 | Cleaning/Covering Exposed Rebar | SQFT | $ 4.00 | 300 | $ 1,200.00 |
| 005 | Damaged Ceiling Repairs (Epoxy Injection & Composite Wrap) | SQFT | $ 5.26 | 1840 | $ 9,678.40 |
| 006 | Minor Crack Repairs w/ Grout | LUMP | $ 500.00 | 1 | $ 500.00 |
| 007 | Mobilization | LUMP | $ 17,000.00 | 1 | $ 17,000.00 |
| 008 | Construction Layout | LUMP | $ 4,000.00 | 1 | $ 4,000.00 |
| | | | | | |
| Contingency - 30% | | | | | $ 57,254.64 |
| | | | | | |
| **TOTAL** | | | | | $ 248,103.44 |

## SUMMARY OF ESTIMATED QUANTITIES (PAVILION REHABILITATION ALTERNATE 2)

| ITEM | DESCRIPTION | UNIT | UNIT PRICE | QUANTITY | TOTAL COST |
|---|---|---|---|---|---|
| 001 | Column Repair (New Rebar Cage & 6" of Concrete) | EACH | $ 3,300.00 | 14 | $ 46,200.00 |
| 002 | Removal of Existing Tar and Gravel Roof Coating | SQFT | $ 2.50 | 9200 | $ 23,000.00 |
| 003 | Sealing of Roof (Epoxy Injection & Composite Wrap) | SQFT | $ 5.26 | 9200 | $ 48,392.00 |
| 004 | Cleaning/Covering Exposed Rebar | SQFT | $ 4.00 | 300 | $ 1,200.00 |
| 005 | Removal and Replacement of Roof Panel | SQFT | $ 80.00 | 1840 | $ 147,200.00 |
| 006 | Geotechnical Services | LUMP | $ 6,000.00 | 1 | $ 6,000.00 |
| 007 | Structural Analysis of Existing Pavilions | LUMP | $ 3,500.00 | 1 | $ 3,500.00 |
| 008 | Foundation Improvements (Jacketing of Existing Foundation)* | LNFT | $ 330.00 | 480 | $ 158,400.00 |
| 009 | Excavation for Foundation Improvements* | LUMP | $ 8,000.00 | 1 | $ 8,000.00 |
| 010 | Minor Crack Repairs w/ Grout | LUMP | $ 500.00 | 1 | $ 500.00 |
| 011 | Mobilization | LUMP | $ 30,000.00 | 1 | $ 30,000.00 |
| 012 | Construction Layout | LUMP | $ 12,000.00 | 1 | $ 12,000.00 |
| | | | | | |
| Contingency - 30% | | | | | $ 145,317.60 |
| | | | | | |
| **TOTAL** | | | | | $ 629,709.60 |

*May not be necessary depending on geotechnical/structural analysis

## SUMMARY OF ESTIMATED QUANTITIES (LAKEFRONT STRUCTURE REHABILITATION)

| ITEM | DESCRIPTION | UNIT | UNIT PRICE | QUANTITY | TOTAL COST |
|---|---|---|---|---|---|
| 001 | Deck Support Beam Repair (New Rebar Cage & 6" of Concrete) | EACH | $ 6,000.00 | 18 | $ 108,000.00 |
| 002 | Removal of Collapsed Existing Pool Deck (Concrete) | LUMP | $ 220,000.00 | 1 | $ 220,000.00 |
| 003 | Barge Rental For Demolition Removal | EACH | $ 50,000.00 | 2 | $ 100,000.00 |
| 004 | Crane Barge W/ Fuel, Consumables | LUMP | $ 500,000.00 | 1 | $ 500,000.00 |
| 005 | Tug Boats Running Barges | LUMP | $ 600,000.00 | 1 | $ 600,000.00 |
| 006 | Misc Rigging/Safety/Scaffolding/Work Platforms | LUMP | $ 75,000.00 | 1 | $ 75,000.00 |
| 007 | Demolition Equipment (Wire Saw, Breaker) | LUMP | $ 350,000.00 | 1 | $ 350,000.00 |
| 008 | Disposal of Concrete & Debris | LUMP | $ 100,000.00 | 1 | $ 100,000.00 |
| 009 | Repairs to Existing Bulkhead | LNFT | $ 250.00 | 1050 | $ 262,500.00 |
| 010 | Installation of New Decking | SQFT | $ 55.00 | 4900 | $ 269,500.00 |
| 011 | Installation of Guardrails | LNFT | $ 150.00 | 400 | $ 60,000.00 |
| 012 | Geotechnical Services | LUMP | $ 6,000.00 | 1 | $ 6,000.00 |
| 013 | Structural Testing of Existing Deck Supports | LUMP | $ 7,500.00 | 1 | $ 7,500.00 |
| 014 | Rehabilitation of Existing Pool Canopy Supports | EACH | $ 7,500.00 | 7 | $ 52,500.00 |
| 015 | Installation of New Canopy on Deck | LNFT | $ 425.00 | 400 | $ 170,000.00 |
| 016 | Salvage of Remaining Pool Tiles Along Pool Deck | LUMP | $ 8,000.00 | 1 | $ 8,000.00 |
| 017 | Mobilization | LUMP | $ 200,000.00 | 1 | $ 200,000.00 |
| 018 | Construction Layout | LUMP | $ 60,000.00 | 1 | $ 60,000.00 |
| | | | | | |
| Contingency - 30% | | | | | $ 944,700.00 |
| | | | | | |
| **TOTAL** | | | | | $ 4,093,700.00 |

## SUMMARY OF ESTIMATED QUANTITIES (LAKEFRONT STRUCTURES/BULKHEAD REMOVAL)

| ITEM | DESCRIPTION | UNIT | UNIT PRICE | QUANTITY | TOTAL COST |
|---|---|---|---|---|---|
| 001 | Demolition of Existing Pool Deck | LUMP | $ 415,000.00 | 1 | $ 415,000.00 |
| 002 | Demolition of Existing Bulkhead/Brick Retaining Walls | LNFT | $ 250.00 | 1050 | $ 262,500.00 |
| 003 | Barge Rental For Demolition Removal | EACH | $ 50,000.00 | 3 | $ 150,000.00 |
| 004 | Crane Barge W/ Fuel, Consumables | LUMP | $ 500,000.00 | 1 | $ 500,000.00 |
| 005 | Tug Boats Running Barges | LUMP | $ 600,000.00 | 1 | $ 600,000.00 |
| 006 | Misc Rigging/Safety/Scaffolding/Work Platforms | LUMP | $ 75,000.00 | 1 | $ 75,000.00 |
| 007 | Demolition Equipment (Wire Saw, Breaker) | LUMP | $ 350,000.00 | 1 | $ 350,000.00 |
| 008 | Disposal of Concrete & Debris | LUMP | $ 100,000.00 | 1 | $ 100,000.00 |
| 009 | Salvage/Relocation of Existing Pool Canopy Supports | EACH | $ 20,000.00 | 7 | $ 140,000.00 |
| 010 | Salvage of Remaining Pool Tiles Along Pool Deck | LUMP | $ 8,000.00 | 1 | $ 8,000.00 |
| 011 | Mobilization | LUMP | $ 200,000.00 | 1 | $ 200,000.00 |
| | | | | | |
| Contingency - 30% | | | | | $ 840,150.00 |
| | | | | | |
| **TOTAL** | | | | | $ 3,640,650.00 |

## SUMMARY OF ESTIMATED QUANTITIES (BRICK PERIMETER WALL REHABILITATION)

| ITEM | DESCRIPTION | UNIT | UNIT PRICE | QUANTITY | TOTAL COST |
|---|---|---|---|---|---|
| 001 | Removal of Damaged Brick Wall | LUMP | $ 27,500.00 | 1 | $ 27,500.00 |
| 002 | New Brick Wall (8' Tall) | LNFT | $ 450.00 | 250 | $ 112,500.00 |
| 003 | Removal/Replacement of Brick Pilasters | EACH | $ 1,500.00 | 116 | $ 174,000.00 |
| 004 | Mobilization | LUMP | $ 30,000.00 | 1 | $ 30,000.00 |
| 005 | Construction Layout | LUMP | $ 12,500.00 | 1 | $ 12,500.00 |
| | | | | | |
| Contingency - 30% | | | | | $ 106,950.00 |
| | | | | | |
| **TOTAL** | | | | | $ 463,450.00 |

## SUMMARY OF ESTIMATED QUANTITIES (TUNNEL REHABILITATION)

| ITEM | DESCRIPTION | UNIT | UNIT PRICE | QUANTITY | TOTAL COST |
|---|---|---|---|---|---|
| 001 | New Concrete Retaining Wall | SQYD | $ 75.00 | 13 | $ 975.00 |
| 002 | Removal/Replacement of Existing Drainage | LUMP | $ 22,000.00 | 1 | $ 22,000.00 |
| 003 | Removal/Replacement of Tunnel Floor (6" Concrete) | SQYD | $ 85.00 | 136 | $ 11,560.00 |
| 003 | Sump Pump For New Drainage | EACH | $ 1,500.00 | 1 | $ 1,500.00 |
| 004 | Mobilization | LUMP | $ 4,000.00 | 1 | $ 4,000.00 |
| 005 | Construction Layout | LUMP | $ 1,500.00 | 1 | $ 1,500.00 |
| | | | | | |
| Contingency - 30% | | | | | $ 12,460.50 |
| | | | | | |
| **TOTAL** | | | | | $ 53,995.50 |

## DOCK

| ITEM | DESCRIPTION | UNIT | QUANTITY | UNIT PRICE | TOTAL COST |
|---|---|---|---|---|---|
| 1 | 5' Wide Dock | SF | 2,100 | $ 120 | $ 252,000 |
| 2 | Removal of Ex Concrete | LS | 1 | $ 30,000 | $ 30,000 |
| 3 | Access Dredging | CY | 2,800 | $ 10 | $ 28,000 |
| | | | | Subtotal | $ 310,000 |
| | | | | 30% Contingency | $ 93,000 |
| | | | | **Total** | **$ 403,000** |

## BEACH NOURISHMENT

| ITEM | DESCRIPTION | UNIT | QUANTITY | UNIT PRICE | TOTAL COST |
|---|---|---|---|---|---|
| 1 | Access Dredging | CY | 2,800 | $ 10 | $ 28,000 |
| 2 | Sand Placement | CY | 14,000 | $ 60 | $ 840,000 |
| 3 | Unknown Marine Debris Removal | LS | 1 | $ 50,000 | $ 50,000 |
| | | | | Subtotal | $ 918,000 |
| | | | | 30% Contingency | $ 275,400 |
| | | | | **Total** | **$ 1,193,400** |

# ATTACHMENT 3: ACCESS COST ESTIMATES

## SUMMARY OF ESTIMATED QUANTITIES (EXISTING PEDESTRIAN TUNNEL IMPROVEMENTS)

| ITEM | DESCRIPTION | UNIT | UNIT PRICE | TOTAL QUANTITIES | TOTAL COST |
|---|---|---|---|---|---|
| 202-02-06100 | Removal of Concrete Walks and Drives | SQYD | $ 20.00 | 26 | $ 520.00 |
| 203-03-00100 | Embankment | LUMP | $ 5,000.00 | 1 | $ 5,000.00 |
| 204-06-00100 | Temporary Silt Fencing | LNFT | $ 1.50 | 200 | $ 300.00 |
| 702-04-00100 | Adjusting Manholes | EACH | $ 1,500.00 | 1 | $ 1,500.00 |
| 702-04-00200 | Adjusting Catch Basins | EACH | $ 1,500.00 | 1 | $ 1,500.00 |
| 706-01-00100 | Concrete Walk (6" Thick) | SQYD | $ 60.00 | 96.9 | $ 5,814.00 |
| 706-02-00200 | Concrete Drive (8" Thick) | SQYD | $ 70.00 | 373.3 | $ 26,131.00 |
| 713-01-00100 | Temporary Signs and Barricades | LUMP | $ 3,000.00 | 1 | $ 3,000.00 |
| 727-01-00100 | Mobilization | LUMP | $ 5,000.00 | 1 | $ 5,000.00 |
| 740-01-00100 | Construction Layout | LUMP | $ 4,250.00 | 1 | $ 4,250.00 |
| 805-01-00600 | Class A1 Concrete (Retaining Wall) | CUYD | $ 2,000.00 | 26 | $ 52,000.00 |
| TS-707-23060 | Bollards (Removable or Adjustable) | EACH | $ 1,000.00 | 3 | $ 3,000.00 |
| TS-800-00300 | Handrail | LNFT | $ 100.00 | 576 | $ 57,600.00 |
| | | | | | |
| Contingency - 30% | | | | | $ 49,684.50 |
| | | | | | |
| | | | | | **$ 215,299.50** |

## SUMMARY OF ESTIMATED QUANTITIES (TUNNEL REPLACEMENT)

| ITEM | DESCRIPTION | UNIT | UNIT PRICE | TOTAL QUANTITIES | TOTAL COST |
|---|---|---|---|---|---|
| 202-02-06100 | Removal of Concrete Walks and Drives | SQYD | $ 20.00 | 533 | $ 10,660.00 |
| 203-03-00100 | Embankment | LUMP | $ 10,000.00 | 1 | $ 10,000.00 |
| 204-06-00100 | Temporary Silt Fencing | LNFT | $ 1.50 | 200 | $ 300.00 |
| 702-04-00100 | Adjusting Manholes | EACH | $ 1,500.00 | 1 | $ 1,500.00 |
| 702-04-00200 | Adjusting Catch Basins | EACH | $ 1,500.00 | 1 | $ 1,500.00 |
| 706-01-00100 | Concrete Drive (8" Thick) | SQYD | $ 70.00 | 467.0 | $ 32,690.00 |
| 713-01-00100 | Temporary Signs and Barricades | LUMP | $ 75,000.00 | 1 | $ 75,000.00 |
| 727-01-00100 | Mobilization | LUMP | $ 140,000.00 | 1 | $ 140,000.00 |
| 740-01-00100 | Construction Layout | LUMP | $ 120,000.00 | 1 | $ 120,000.00 |
| TS-707-23060 | Bollards (Removable or Adjustable) | EACH | $ 1,000.00 | 10 | $ 10,000.00 |
| TS-800-00300 | Handrail | LNFT | $ 100.00 | 75 | $ 7,500.00 |
| TS-XXX-XXXXX | Removal of Existing Tunnel w/ Temporary Bracing | LUMP | $ 1,000,000.00 | 1 | $ 1,000,000.00 |
| TS-XXX-XXXXX | Replace Timber Railroad Ties and Stone | LUMP | $ 500,000.00 | 1 | $ 500,000.00 |
| TS-XXX-XXXXX | Box Culvert Tunnel (36' Wide) | LUMP | $ 1,000,000.00 | 1 | $ 1,000,000.00 |
| TS-XXX-XXXXX | Box Culvert Tunnel Foundation | LUMP | $ 200,000.00 | 1 | $ 200,000.00 |
| TS-XXX-XXXXX | Box Culvert Wingwalls and Headwalls | LUMP | $ 100,000.00 | 1 | $ 100,000.00 |
| | | | | | |
| Contingency - 30% | | | | | $ 962,745.00 |
| | | | | | |
| | | | | | **$ 4,171,895.00** |

## SUMMARY OF ESTIMATED QUANTITIES (PEDESTRIAN BRIDGE IMPROVEMENTS OVER RAILROAD)

| ITEM | DESCRIPTION | UNIT | UNIT PRICE | TOTAL QUANTITIES | TOTAL COST |
|---|---|---|---|---|---|
| 203-03-00100 | Embankment | LUMP | $ 10,000.00 | 1 | $ 10,000.00 |
| 204-06-00100 | Temporary Silt Fencing | LNFT | $ 1.50 | 200 | $ 300.00 |
| 706-01-00100 | Concrete Walk (6" Thick) | SQYD | $ 60.00 | 166.7 | $ 10,002.00 |
| 713-01-00100 | Temporary Signs and Barricades | LUMP | $ 25,000.00 | 1 | $ 25,000.00 |
| 727-01-00100 | Mobilization | LUMP | $ 150,000.00 | 1 | $ 150,000.00 |
| 740-01-00100 | Construction Layout | LUMP | $ 75,000.00 | 1 | $ 75,000.00 |
| TS-XXX-XXXXX | Pedestrian Truss Bridge over Railroad (TRUSS DECK AND FOUNDATIONS) | LUMP | $ 1,500,000.00 | 1 | $ 1,500,000.00 |
| TS-XXX-XXXXX | Pedestrian Bridge Ramp Up (FOUNDATION, PIERS, DECK) | LUMP | $ 1,500,000.00 | 1 | $ 1,500,000.00 |
| | | | | | |
| | | | | | |
| Contingency - 30% | | | | | $ 981,090.60 |
| | | | | | |
| | | | | | **$ 4,251,392.60** |

## SUMMARY OF ESTIMATED QUANTITIES (PEDESTRIAN BRIDGE IMPROVEMENTS OVER HAYNE BLVD. AND RAILROAD)

| ITEM | DESCRIPTION | UNIT | UNIT PRICE | TOTAL QUANTITIES | TOTAL COST |
|---|---|---|---|---|---|
| 203-03-00100 | Embankment | LUMP | $ 10,000.00 | 1 | $ 10,000.00 |
| 204-06-00100 | Temporary Silt Fencing | LNFT | $ 1.50 | 1000 | $ 1,500.00 |
| 706-01-00100 | Concrete Walk (6" Thick) | SQYD | $ 60.00 | 166.7 | $ 10,002.00 |
| 713-01-00100 | Temporary Signs and Barricades | LUMP | $ 130,000.00 | 1 | $ 130,000.00 |
| 727-01-00100 | Mobilization | LUMP | $ 170,000.00 | 1 | $ 170,000.00 |
| 740-01-00100 | Construction Layout | LUMP | $ 85,000.00 | 1 | $ 85,000.00 |
| TS-XXX-XXXXX | Pedestrian Truss Bridge over Railroad (TRUSS, DECK, AND FOUNDATIONS) | LUMP | $ 2,500,000.00 | 1 | $ 2,500,000.00 |
| TS-XXX-XXXXX | Elevator for Pedestrian Bridge (HOUSING STRUCTURE AND ELEVATOR) | EACH | $ 200,000.00 | 2 | $ 400,000.00 |
| TS-XXX-XXXXX | Access Stairs for Pedestrian Bridge | EACH | $ 100,000.00 | 2 | $ 200,000.00 |
| | | | | | |
| Contingency - 30% | | | | | $ 1,051,950.60 |
| | | | | | |
| | | | | | **$ 4,558,452.60** |

## SUMMARY OF ESTIMATED QUANTITIES (PARKING LOT) (100 VEHICLE CAPACITY

| ITEM | DESCRIPTION | UNIT | UNIT PRICE | TOTAL QUANTITIES | TOTAL COST |
|---|---|---|---|---|---|
| 202-02-06100 | Removal of Concrete Walks and Drives | SQYD | $ 20.00 | 42 | $ 840.00 |
| 202-02-12020 | Removal of Fence (Chain Link) | LNFT | $ 50.00 | 10 | $ 500.00 |
| 203-03-00100 | Embankment | LUMP | $ 20,000.00 | 1 | $ 20,000.00 |
| 204-06-00100 | Temporary Silt Fencing | LNFT | $ 1.50 | 500 | $ 750.00 |
| 705-07-08040 | 10-Foot Single Gates for Chain Link Fence (6 Foot Height) | EACH | $ 2,000.00 | 1 | $ 2,000.00 |
| 706-01-00100 | Concrete Walk (4" Thick) | SQYD | $ 55.00 | 844.4 | $ 46,444.44 |
| 706-02-00300 | Concrete Drive (8" Thick) | SQYD | $ 70.00 | 41.7 | $ 2,919.00 |
| 713-01-00100 | Temporary Signs and Barricades | LUMP | $ 20,000.00 | 1 | $ 20,000.00 |
| 727-01-00100 | Mobilization | LUMP | $ 25,000.00 | 1 | $ 25,000.00 |
| 740-01-00100 | Construction Layout | LUMP | $ 20,000.00 | 1 | $ 20,000.00 |
| TS-XXX-XXXXX | Wheel Stops | LNFT | $ 250.00 | 100 | $ 25,000.00 |
| TS-XXX-XXXXX | Permeable Aggregate Pavement | SQFT | $ 10.00 | 32400 | $ 324,000.00 |
| TS-XXX-XXXXX | Parking Delineators (Superspots) | EACH | $ 2.00 | 1861 | $ 3,722.00 |
| TS-XXX-XXXXX | Lighting (4 Poles w/ 4 Lights Each) | LUMP | $ 70,000.00 | 1 | $ 70,000.00 |
| | | | | | |
| Contingency - 30% | | | | | $ 168,352.63 |
| | | | | | |
| | | | | | **$ 729,528.08** |

## SUMMARY OF ESTIMATED QUANTITIES (PEDESTRIAN HAWK SIGNAL CROSSING HAYNE BLVD.)

| ITEM | DESCRIPTION | UNIT | UNIT PRICE | TOTAL QUANTITIES | TOTAL COST |
|---|---|---|---|---|---|
| 202-02-06100 | Removal of Concrete Walks and Drives | SQYD | $ 20.00 | 9 | $ 180.00 |
| 706-04-00100 | Handicapped Curb Ramps | EACH | $ 2,000.00 | 1 | $ 2,000.00 |
| 713-01-00100 | Temporary Signs and Barricades | LUMP | $ 9,000.00 | 1 | $ 9,000.00 |
| 727-01-00100 | Mobilization | LUMP | $ 11,000.00 | 1 | $ 11,000.00 |
| 729-01-00100 | Sign (Type A) | SQFT | $ 30.00 | 50 | $ 1,500.00 |
| 729-21-00100 | U-Channel Post | EACH | $ 50.00 | 10 | $ 500.00 |
| 732-01-02080 | Plastic Pavement Striping (24" Width) (Thermoplastic 125 mil) | LNFT | $ 20.00 | 350 | $ 7,000.00 |
| 740-01-00100 | Construction Layout | LUMP | $ 9,000.00 | 1 | $ 9,000.00 |
| TS-XXX-XXXXX | Pedestrian HAWK Signal Crossing Hayne Blvd. | EACH | $ 120,000.00 | 2 | $ 240,000.00 |
| | | | | | |
| Contingency - 30% | | | | | $ 84,054.00 |
| | | | | | |
| | | | | | **$ 364,234.00** |

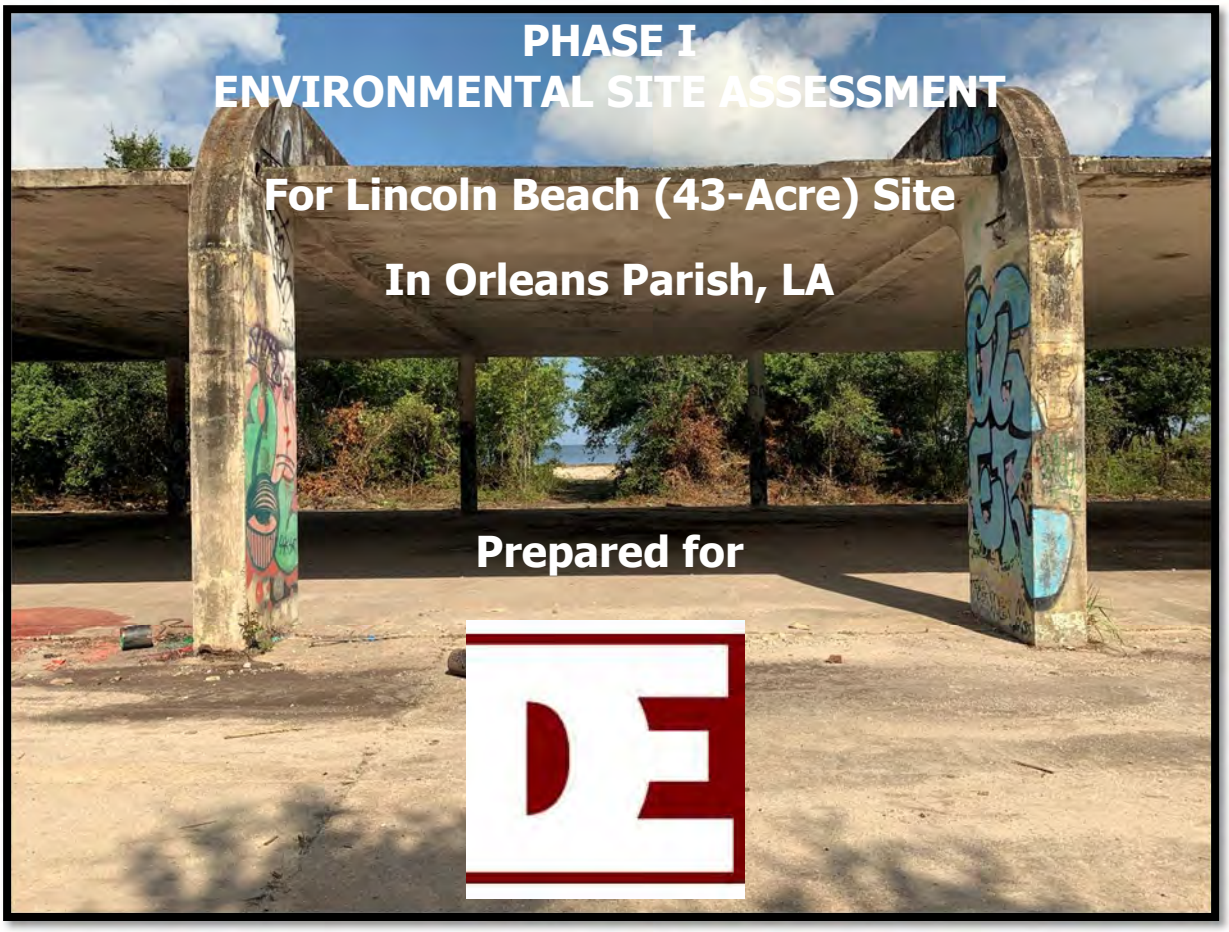
## SUMMARY OF ESTIMATED QUANTITIES (RECTANGULAR RAPID FLASHING BEACONS CROSSING HAYNE BLVD.)

| ITEM | DESCRIPTION | UNIT | UNIT PRICE | TOTAL QUANTITIES | TOTAL COST |
|---|---|---|---|---|---|
| 202-02-06100 | Removal of Concrete Walks and Drives | SQYD | $ 20.00 | 9 | $ 180.00 |
| 706-04-00100 | Handicapped Curb Ramps | EACH | $ 2,000.00 | 1 | $ 2,000.00 |
| 713-01-00100 | Temporary Signs and Barricades | LUMP | $ 1,700.00 | 1 | $ 1,700.00 |
| 727-01-00100 | Mobilization | LUMP | $ 2,500.00 | 1 | $ 2,500.00 |
| 729-01-00100 | Sign (Type A) | SQFT | $ 30.00 | 74.0 | $ 2,220.00 |
| 729-21-00100 | U-Channel Post | EACH | $ 50.00 | 2 | $ 100.00 |
| 732-01-02080 | Plastic Pavement Striping (24" Width) (Thermoplastic 125 mil) | LNFT | $ 20.00 | 350 | $ 7,000.00 |
| 740-01-00100 | Construction Layout | LUMP | $ 1,700.00 | 1 | $ 1,700.00 |
| NS-736-00210 | Rectangular Rapid Flashing Beacon Assembly Pair (Double Sided) | EACH | $ 10,000.00 | 2 | $ 20,000.00 |
| TS-707-23060 | Bollards (Removable or Adjustable) | EACH | $ 1,000.00 | 3 | $ 3,000.00 |
| TS-MSC-00080 | Detectable Warning System Retrofit for Curb Ramps | EACH | $ 350.00 | 8 | $ 2,800.00 |
| | | | | | |
| Contingency - 30% | | | | | $ 12,960.00 |
| | | | | | |
| | | | | | **$ 56,160.00** |

## SUMMARY OF ESTIMATED QUANTITIES (RAISED BEACH BOARDWALK IMPROVEMENTS)

| ITEM | DESCRIPTION | UNIT | UNIT PRICE | TOTAL QUANTITIES | TOTAL COST |
|---|---|---|---|---|---|
| 203-03-00100 | Embankment | LUMP | $ 5,000.00 | 1 | $ 5,000.00 |
| 204-06-00100 | Temporary Silt Fencing | LNFT | $ 1.50 | 400 | $ 600.00 |
| 713-01-00100 | Temporary Signs and Barricades | LUMP | $ 2,000.00 | 1 | $ 2,000.00 |
| 727-01-00100 | Mobilization | LUMP | $ 4,000.00 | 1 | $ 4,000.00 |
| 740-01-00100 | Construction Layout | LUMP | $ 3,500.00 | 1 | $ 3,500.00 |
| TS-700-03010 | Timber Boardwalk with Railing (Raised, 10' Wide) | LNFT | $ 350.00 | 220 | $ 77,000.00 |
| | | | | | |
| Contingency - 30% | | | | | $ 27,630.00 |
| | | | | | |
| | | | | | **$ 119,730.00** |

# ATTACHMENT 4: PHASE I ENVIRONMENTAL SITE ASSESSMENT




**Digital Engineering and Imaging, Inc.**
**527 West Esplanade Avenue, Suite 200**
**Kenner, LA 70065**

**By**

**607 West Morris Avenue**
**Hammond, LA 70403**
**985-662-5501 (Office) • 985-662-5504 (Fax)**

**February 2021**

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## LIST OF FIGURES



## APPENDICES



## ACRONYMS

| | |
|---|---|
| AAI | all appropriate inquiries |
| ASTM | American Society for Testing and Materials |
| CERCLA | Comprehensive Environmental Response, Compensation and Liability Act |
| CESQG | conditionally exempt small quantity generator of hazardous waste |
| CFR | Code of Federal Regulations |
| EDR | Environmental Data Resources Inc. (vendor of environmental records) |
| EDMS | Electronic Data Management System (LDEQ online database) |
| ELOS | ELOS Environmental, LLC |
| EPA | U.S. Environmental Protection Agency |
| ESA | Environmental Site Assessment |
| LA 632 | Louisiana State Highway 632 |
| LDEQ | Louisiana Department of Environmental Quality |
| LLP | landowner liability protections |
| LUST | Leaking Underground Storage Tanks |
| PCB | polychlorinated biphenyls |
| RCRA | Resource Conservation and Recovery Act |
| REC | recognized environmental condition |
| SEMS-ARCHIVE | Superfund Enterprise Management System Archive |
| US 190 | U.S. Highway 190 |
| U.S.C. | U.S. Code |
| UST | Underground Storage Tanks |

# 1 SUMMARY

A Phase I Environmental Site Assessment (ESA) was conducted for a 43-acre site located on the southeast shoreline of Lake Pontchartrain in Orleans Parish, Louisiana, west of Bayou Sauvage National Wildlife Refuge, and on the north and south sides of Hayne Boulevard in New Orleans, Louisiana. The site, known as Lincoln Beach, consist of two tracts of land. The tracts are situated in Section 25; Township 11 South – Range 12 East consisting of the primary 33-acre Lincoln Beach site where the Lincoln Beach Amusement Park was located and an additional 10-acre parcel south of Hayne Boulevard (the Subject Property) which was used as a parking lot for the adjacent Amusement Park. Coordinates of the center point of the Subject Property are approximately latitude 30° 4' 8.186"N and longitude 89° 57' 25.595"W. As shown in **Figure 1,** the primary 33-acre tract is bounded by Lake Pontchartrain to the north, east, and west and by the Norfolk Southern Railroad and the Lake Pontchartrain and Vicinity floodwall and levee system to the south. The 10-acre tract on the southern side of Hayne Boulevard is bounded by Hayne Boulevard to the north, residential properties to the west and south, and Ferncrest Manor Living Center to the east. The Subject Property has the street address 14100 Hayne Boulevard, New Orleans, Louisiana.

The ESA was conducted by personnel of ELOS Environmental, LLC (ELOS) for Digital Engineering and Imaging, Inc. (Client) for the City of New Orleans under supervision of an Environmental Professional as defined in the final rule at 40 Code of Federal Regulations (CFR) §312.10 in conformance with the scope and limitations of American Society for Testing and Materials (ASTM) Practice E 1527-13. Any exceptions to, or deletions from, this practice are described below. The assessment conducted at the Subject Property also complies with the All Appropriate Inquiries (AAI) documentation requirements set forth in 40 CFR Part 312.

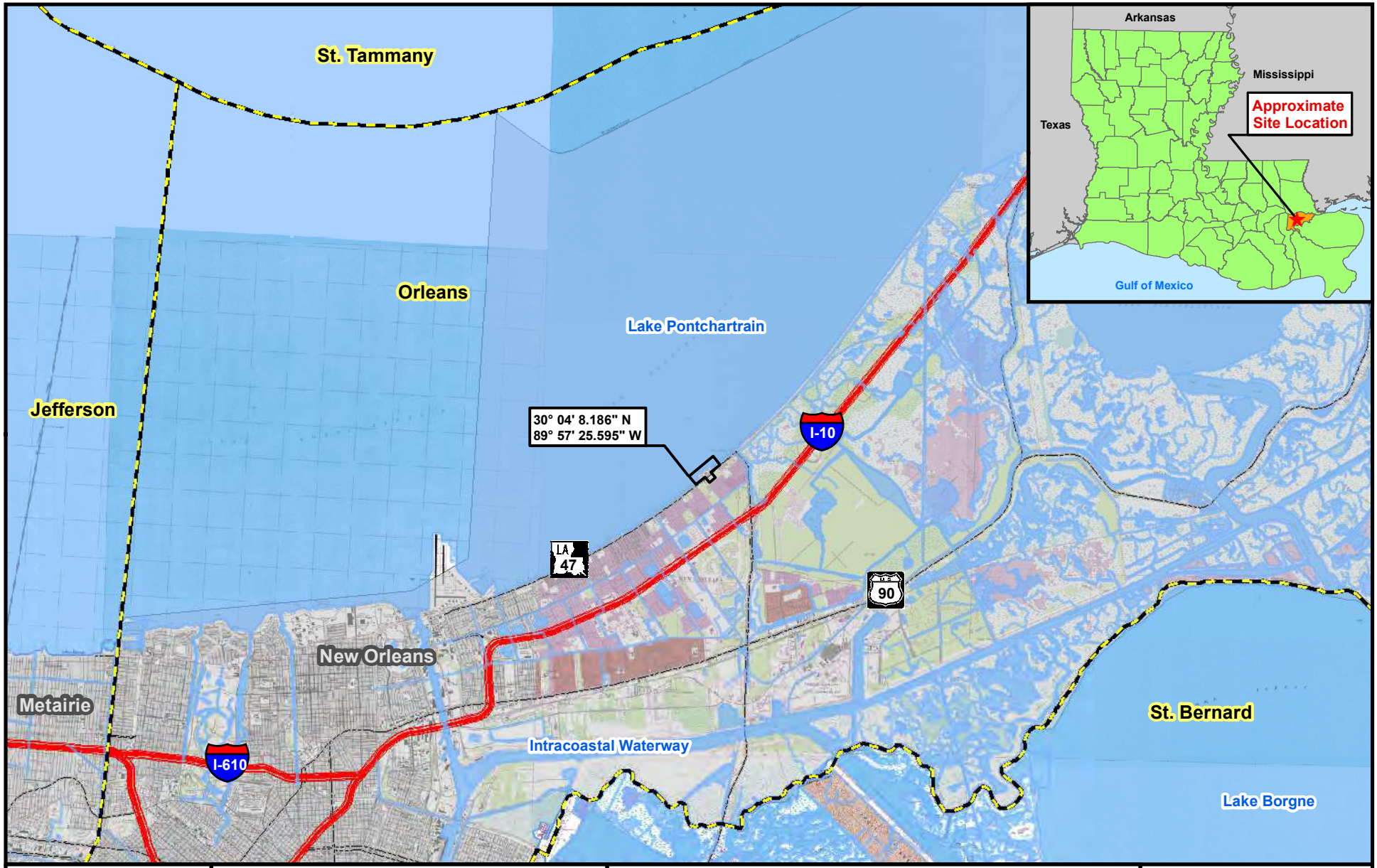
This ESA revealed unauthorized dumping of household waste, automotive fuel tanks, numerous tires, demolition debris, paint cans and buckets (1 gallon and 5-gallon), a squatters' encampment, and some unknown waste in black contractor-style garbage bags. The unknown waste contained in contractor-style garbage bags, the automotive fuel tanks, and the squatters' encampment (current and any former locations) and their associated debris piles are considered as potential evidence of recognized environmental conditions (RECs) on the Subject Property. Other waste observed on the site were not observed in concentration or volume sufficient to be greater than *de minimis* conditions. ELOS recommends disposal automotive fuel tanks according to proper protocols for disposal of petroleum contaminated waste. ELOS also recommends the clean-up and decontamination of the squatters' encampment using proper precautions for biohazards. The Client intends to determine the appropriate use of the Subject Property, including but not limited to a public recreational area; therefore, the recommendations herein are based on public recreational use. No evidence of RECs was found in connection with any of the adjoining properties.

# 2 INTRODUCTION

ELOS conducted a Phase I ESA for the Client for the Subject Property located in Orleans Parish, LA in accordance with ASTM Standard Practice E1527-13.

## 2.1 PROPERTY IDENTIFICATION

The Phase I ESA was conducted for 43 acres of land situated in Section 25; Township 11 South – Range 12 East. The Subject Property is identified on the Orleans Parish Tax Assessor record provided in **Appendix A** as Parcel No. 39901 (33-acre tract) and Parcel No. 39900 (10-acre tract). Coordinates of the center point of the Subject Property are approximately latitude 30° 4' 8.186"N and longitude 89° 57' 25.595"W.




ELOS®
http://elosenv.com/

Figure 1: TopoVicinity Map

## Lincoln Beach

This figure was prepared utilizing public and proprietary data. It should not be used to establish any legal boundaries or specific locations. ELOS Environmental, L.L.C., is not responsible for any usage of this figure contrary to its original, intended purpose.

**Legend:**

- Site Outline
- Parish Boundary
- City/Town
- Interstate
- Highway
- Stream/River
- Waterbody

**Sections: 24, 25**
**Township: 11 South**
**Range: 12 East**

N W E S

Feet
0 7,000 14,000

F:\KLE\Lincoln Beach\GIS Maps\ESA\Figure 1_TopoVicinity Map

As shown in **Figure 1**, the Subject Property is located on the southeast shoreline of Lake Pontchartrain in Orleans Parish, Louisiana, west of Bayou Sauvage National Wildlife Refuge, and on the north and south sides of Hayne Blvd. in New Orleans, Louisiana. The Subject Property is a 33-acre parcel and a 10-acre parcel listed by the Orleans Parish Tax Assessor (see **Appendix A**) as Parcel No. 39901 (33-acre tract) and Parcel No. 39900 (10-acre tract). Parcel No. 39901 consists of miscellaneous and commercial lands once used for an amusement park in the 1950s. Parcel No. 39900 consists of commercial lands once used for a parking lot adjacent to the amusement park. The tax parcels are owned by The City of New Orleans.

### 2.2 PURPOSE

The purpose of the Phase I ESA is to investigate the Subject Property with respect to the range of contaminants within the scope of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and petroleum products. As such, the Phase I ESA is intended to permit a user to satisfy one of the requirements to qualify for the innocent landowner, contiguous property, or bona fide prospective purchaser limitation on CERCLA liability. These limitations are known as landowner liability protections (LLPs): that is, the practices that constitute "all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice" as defined in 42 U.S. Code (USC) § 9601 (35)(B).

Specifically, the purposes of this assessment are to:

1. Review past and current land use for indications of the generation, use, storage, and/or disposal of hazardous substances at the Subject Property;
2. Evaluate the potential for soil and ground water contamination resulting from past and present land use activities at the Subject Property; and,
3. Render the findings and professional opinions regarding the potential for contamination at the Subject Property.

The scope of work for the Subject Property meets the Phase I ESA requirements prescribed by the ASTM E1527-13 Standard (i.e., to identify conditions that would constitute a recognized environmental condition on the Subject Property). ASTM E1527-13 revised the definition of a recognized environmental condition to state that:

> *the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. De minimis conditions are not recognized environmental conditions.*

A *de minimis* condition is defined as a condition that generally does not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

### 2.3 CONTINUED VIABILITY AND USER RELIANCE

ELOS conducted this assessment under authorization from the Client. ASTM defines a user as a party seeking to use the ASTM E1527-13 standard to complete a Phase I ESA of the property. A user may include, without limitation, a potential purchaser of property, a potential tenant of property, an owner of property, a lender, or a property manager. However, the findings and conclusions of this report may not be relied upon by any other party without the written consent of the Client.

The report may be relied upon by the users identified by the Client in Section 3.1 for a period not to exceed 180 days after the date of this report. This report may be used after the 180-day period, as

long as the information was collected or updated within one year prior to the date of acquisition of the property provided that the following components of the inquiries were conducted or updated within 180 days of the date of purchase or the date of the intended transaction:

- interviews with owners, operators, and occupants;
- searches for recorded environmental cleanup liens;
- reviews of federal, tribal, state, and local government records;
- visual inspections of the property and of adjoining properties; and
- the declaration by the environmental professional responsible for the assessment update.

### 2.4 LIMITATIONS AND EXCEPTIONS OF ASSESSMENT

This assessment does not address whether requirements *in addition to all appropriate inquiry* have been met in order to qualify for CERCLA's LLPs. It does not address requirements of any state or local laws or of any federal laws other than the *appropriate inquiry provisions* of CERCLA's innocent landowner defense. It is possible that federal, state, and local laws may impose environmental assessment obligations beyond the scope of this assessment. It is also possible that there may be other legal obligations with regard to hazardous substances or petroleum products, which may be discovered on the property, that are not addressed in this assessment and that may pose risks of civil and/or criminal sanctions for non-compliance. The ASTM standards adhered to in this assessment are strictly limited in scope to identify, for informational purposes, certain environmental conditions (not an all-inclusive list) that may exist on a property that may warrant consideration by parties to a commercial real estate transaction. For example, buried debris may exist, but was not found due to the limitations of the Phase I ESA process.

ELOS has made a diligent effort to identify RECs and addressed issues that fulfill an AAI investigation. ELOS certifies that the field inspections and photographs accurately describe the conditions on the Subject Property as of the most recent reconnaissance visit on September 8, 2020. ELOS does not warrant that these findings have remained unchanged since then.

### 2.5 METHODOLOGY USED AND RECOGNIZED LIMITATIONS

ELOS has made all reasonable efforts to conduct this assessment in accordance with, and following, the established good site assessment practices that satisfy the due diligence responsibilities of participants in commercial and real estate transactions as developed and promulgated by the ASTM Practice E1527-13. This report constitutes a statement of professional judgment only. It is not to be construed as a guarantee, or warranty as to the potential liability associated with environmental conditions or impacts at the Subject Property. ELOS is not responsible for conditions resulting from information, which was not available, not fully disclosed, or was withheld during the interviews or at the time of the property inspection. ELOS is not responsible for conditions obscured for sight by dense vegetation, spoil piles, water, or soil.

Additionally, ELOS is only required to review record information that is reasonably ascertainable. According to the Standard, "record information that is reasonably ascertainable means (1) information that is publicly available, (2) information that is obtainable from its source within reasonable time and costs constraints, and (3) information that is practically reviewable." Sampling and analysis of soils, water, air, and other media are not included in this assessment.

Hazardous substances are defined in five federal statutes [42 USC § 9601 (14) (A - F)]. Representative hazardous substances sought on the Subject Property included, but were not limited to: polychlorinated biphenyls (PCBs), chemicals, solvents, heavy metals, and petroleum-based fuels, oils, and grease. Petroleum products are included because they are of concern with respect to many

parcels of commercial real estate. Current custom and usage include an inquiry into the presence of petroleum products when doing an ESA of commercial real estate. Inclusion of petroleum products in this ESA is not based upon the applicability, if any, of CERCLA to petroleum products.

Site reconnaissance of the Subject Property and surrounding areas was conducted on September 8, 2020 by Ms. Maria Bernard Reid and Mr. Wren Vicknair (ELOS Environmental Scientists). The ground inspection focused on the search for exposed soil, dead and/or stressed vegetation, and any other unusual characteristics, anomalies, or features that would indicate stress or damage to the landscape caused by releases of hazardous materials or petroleum products.

## 3 USER PROVIDED INFORMATION

This section contains information provided by the Client, who is the user of this report.

### 3.1 USERS OF REPORT

The Client is the user of this report.

### 3.2 USER QUESTIONNAIRE

Ms. Cheryn Robles, Environmental Affairs Administrator, City of New Orleans representing the User/Owner (current) of the Subject Property completed the User Questionnaire form provided in **Appendix B**. The User Questionnaire identified no known contamination on-site or use limitations.

### 3.3 TITLE SEARCH

Typically, a Phase I ESA is performed on property that is owned or optioned for purchase by a single entity. Most frequently the property under consideration is owned by one entity who obtained it through purchase, inheritance, etc. from other entities. This series of ownerships is referred to as a Chain of Title. In performing typical Phase I ESAs, examining the Chain of Title provided by the client is a means of determining if environmentally questionable activities may have occurred on the tract as a result of some previous owner's activities. A research of the Chain of Title is not included in the assessment process, but tax assessor data compiled in **Appendix A** was reviewed to determine ownership by the City of New Orleans. The property south of Hayne Boulevard was deeded to the City in 1938 by Samuel Zemurray. In 1940, the Orleans Levee Board purchased the property from the City (Materials Management Group, Inc., 2001).

### 3.4 OTHER INFORMATION PROVIDED BY USER

The following information was provided by the Client.
Previous Environmental Reports:

- Lincoln Beach Public Access Evaluation: Master Plan and Environmental Site Assessment (Burk-Kleinpeter, 1999)
- Lincoln Beach Public Access Evaluation: Environmental Site Assessment Supplement (Burk-Kleinpeter, 1999)
- Phase I and II Environmental Site Assessment, Lincoln Beach, 14001 Hayne Boulevard, New Orleans Louisiana (Materials Management Group, Inc., 2001)
- Lake Pontchartrain and Vicinity Reach LPV 107 Lincoln Beach Floodwall and Gate, Orleans Parish, Louisiana, As-Built Drawings (U.S. Army Corps of Engineers, 2010)
- Deep Pool Cleanup Summary Report: Lincoln Beach (Materials Management Group, Inc., 2004

### 3.5 USER SPECIFIED TERMS, CONDITIONS, AND LIMITATIONS

The user did not specify any terms or conditions that limited the scope of this assessment.

## 4 RECORDS REVIEW

### 4.1 STANDARD ENVIRONMENTAL RECORDS SOURCES

Section 8.2.1 of ASTM 1527-13 provides a list of standard environmental record sources that shall be reviewed within a stipulated minimum search distance. Environmental Data Resources Inc. (EDR), a commercial vendor, conducts a file search of the Louisiana state and federal databases defined in the ASTM E1527-13 Standard pertaining to the Subject Property and neighboring properties. Sites within the minimum search distances are then mapped. The Subject Property was listed in the Brownfields, US Brownfields, and Facility Index System/Facility Registry System (FINDS) databases searched by EDR. State records researched by EDR indicated there were no state hazardous waste sites within a one-mile radius of the Subject Property. There were also no state landfills or leaking underground storage tanks (LUST) within one-half mile of the Subject property. The search indicated that there were no underground storage tanks (UST) within one-quarter mile of the Subject Property. The chart below represents the results of the EDR Radius Report:

| Map ID | Site Name | Address | Database Acronyms | Distance from Subject Property, Direction |
|---|---|---|---|---|
| A1 | LINCOLN BEACH | 14100 HAYNE BLVD. | BROWNFIELDS | 1 foot |
| A2 | 14100 HAYNE BLVD. | 14100 HAYNE BLVD. | US BROWNFIELDS, FINDS | 1 foot |
| 3 | COIN LAUNDRY | 13880 HAYNE BLVD. | EDR HIST CLEANER | 242 feet, 0.046 mile, SSW |

The portion of the Subject Property located north of Hayne Boulevard is identified as a Brownfield site. Previous environmental investigations during phases of the demolition of the amusement park document the removal of electrical equipment with associated contaminations of PCBs and buildings with lead paint and asbestos. At the time of the 2001 surveys and reporting, the PCB contamination within the electrical vaults was below the levels of required remediation. However, during site demolition in 2004, transformers were found in the deep (diving) pool. Contaminated sections of concrete pool bottom and underlying soils tested above Louisiana Department of Environmental Quality's (LDEQ) Risk Evaluation/Corrective Action Program (RECAP) screening levels. Samples of the pool water were tested and found to not contain PCBs and was pumped out. All corrective actions were conducted and documented in accordance with U.S. Environmental Protection Agency and LDEQ's standards. The corrective action was reviewed by LDEQ, and LDEQ determined that no further action (NFA) was necessary at that time (April 2005).

The Coin Laundry at 13880 Hayne Boulevard was found in the database of historic dry cleaners. The building is a small strip mall which is currently boarded up and vacant. The City Directory, Appendix E, identified a dry cleaner at that address in 1994. Other businesses listed in the directory for this address during the years 1986 through 2017 include a grocery, meat market, bail bonds, U Haul rental, Orleans Levee District, Levee District Police, coin laundry, pharmacy, and financial planners.

Sites found in the records search with no discernible locations are known as orphan sites. One orphan site was listed by EDR ID S123144154, with the site name listed as FEMA TEMP GROUP HOUSING - LINCOLN, address of HAYNE BLVD. BETWEEN VINCENT RD. 70128, and listed under the database of NPDES. Further research using aerial photography and FEMA documentation of

recovery efforts in the New Orleans area shows no evidence that a group home site was ever established along this portion of Hayne Boulevard between Vincent Road and Ferncrest Manor.

A copy of the EDR Radius Map™ Report is provided in **Appendix C**.

### 4.2 ADDITIONAL ENVIRONMENTAL RECORDS SOURCES

ELOS also conducted a search of the LDEQ Electronic Data Management System (EDMS) online database. A search of these EDMS records for the Subject Property was conducted. Records of the corrective actions taken in 2004 during the demolition of buildings, structures, and swimming pools on the Subject Property, as discussed in section 4.1. The EDMS online database returned no records with the address associated with the Coin Laundry also identified above in section 4.1.

### 4.3 PHYSICAL SETTING SOURCES

The critical source required by ASTM to establish the physical setting is the 7.5-minute U.S. Geological Survey quadrangle map with the area depicted. A 2012 topographic map is provided in **Appendix D** along with several historic topographic maps dating back to 1892. These maps illustrate that the Subject Property is along Hayne Boulevard in the area of Orleans Parish known as Little Woods. The Subject Property is bound by Lake Pontchartrain on the north, a nursing home facility on the east, and residential neighborhoods to the south and west. Between 1998 and 1967, the topographic maps show the layout of buildings and structures associated with the Amusement Park on the northern parcel of the Subject Property. The 1951 topographic map shows none of the land built north of the railway or levee for the amusement park; however, “Lincoln Beach” is identified in the Lake amongst many fishing camps built along the lake shore. Also depicted on the 1951 map are two structures and an access road within the southwestern portion of the southern parcel (former amusement park parking lot) south of Hayne Boulevard. The topographic maps spanning 1943 through 1936, show the Hayne Boulevard, the railway, fish camps along the lakeshore, and drainage canals (Morrison, Janncke, Cannon, Vincent, and Little Woods) as the only development within one mile of the Subject Property. The 1892 topographic map shows the railway as the only man-made alteration of the natural lake and adjacent marsh habitat.

Aerial images from 2017 to 1965, also provided in **Appendix D**, illustrate the changes to the Subject Property over time since the closure of the Amusement Park in 1964. The 1965 photograph shows the amusement park and parking lot as patrons of the park would have seen it during the height of its use. The roller coaster, long swimming pier, sandy beaches, pools, and other facilities are recognized in the photograph. By 1972, the roller coaster was removed from the site, but most of the other site improvements remain. Aerial images from 1985 and 1989 depict denser landscape of vegetation as facility conditions at the park slowly degrade due to lack of maintenance. The swimming pier is no longer visible in the 2004 image. Many of the buildings, structures, and pools were removed or filled in 2004. In the 2007 aerial image, the Subject Property appears to be in a rapid state of decline. More vegetation is observed breaking through areas previously covered in concrete. The beach is greatly reduced in width and length. The roof of the covered colonnade between the large pool area and the lake has completely collapsed, leaving the support beams standing. Much of this damage between 2004 and 2007 may potentially be attributed to Hurricane Katrina which impacted the area in 2005. Aerial photographs of the Subject Property between 2010 and 2017 capture the continued growth of uncontrolled shrubby vegetation in both the former amusement park area and parking area south of Hayne Boulevard.

**Figure 2** illustrates the Subject Property elevations based on LiDAR data. The topography of the Subject Property shows that the property was constructed and elevated to be above sea level. The Subject Property has a slight slope ranging from 0 to 2 feet along the shoreline, 4 to 6 feet throughout most of the central areas, and 8 to 10 feet along portions of the property adjacent to the leveed railroad. A depressional area lying at -2 feet in elevation is located where the entrance tunnels go under the railroad. The current railroad system that runs through the Subject Property and along the south shoreline of Lake Pontchartrain is built up to an elevation ranging from 6 to 10 feet. Portion of the Subject Property, known as the properties parking lot, on the protected side of the floodwall had elevations -4 to 0 feet. **Figure 3** is a modified version of the Orleans Parish Soil Survey with the Subject Property depicted. The soil survey illustrates that the Subject Property lies over Aquents (AT and An) and Levees (LV) units.

Aquents (AT and An), dredged, frequently flooded, component makes up 90 percent of the map unit. Slopes are 0 to 1 percent. This component is on marshes. The parent material consists of alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is frequently flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. This soil meets hydric criteria.

Levees (LV) Borrow pits complex have 0 to 25 percent slopes. Two components of LV consist of Arents (60%) and Aquents (40%). The Arents component makes up 60 percent of the map unit. Slopes are 5 to 20 percent. This component is on man-made levees on delta plains. The parent material consists of alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Non- irrigated land capability classification is 6e. This soil does not meet hydric criteria. The Aquents component makes up 40 percent of the map unit. Slopes are 0 to 1 percent. This component is on natural levees on delta plains. The parent material consists of clayey dredge spoils and/or loamy dredge spoils. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is rarely flooded. It is not ponded. A seasonal zone of water saturation is at 6 inches during January, February, March, April, May, June, November, December. Non-irrigated land capability classification is 7w. This soil meets hydric criteria.

An analysis of these physical setting sources was conducted to determine whether or not the migration of hazardous substances onto the Subject Property may be an issue. During severe storm events, the Subject Property is frequently flooded by Lake Pontchartrain. The compacted fill material used to build the land north of Hayne Boulevard is somewhat poorly drained, and hazardous materials that may be carried by floodwaters onto the Subject Property. Migration of hazardous materials dumped on the Subject Property would likely lead to the lake. The site reconnaissance focused on locating containers potentially holding hazardous materials on site, evidence of past spills, and on investigation of waterways draining through the site.

### 4.4 HISTORICAL USE INFORMATION

The Subject Property consists of a 43-acre site located on the southeast shoreline of Lake Pontchartrain in Orleans Parish, Louisiana, west of Bayou Sauvage National Wildlife Refuge, and divided into two tracts on the north and south side of Hayne Boulevard in New Orleans, Louisiana. The Subject Property, known as Lincoln Beach, was established on a 2.3-acre tract deeded to the City of New Orleans by Samuel Zemurray in 1938 as a Jim-Crow era beach for African-Americans.

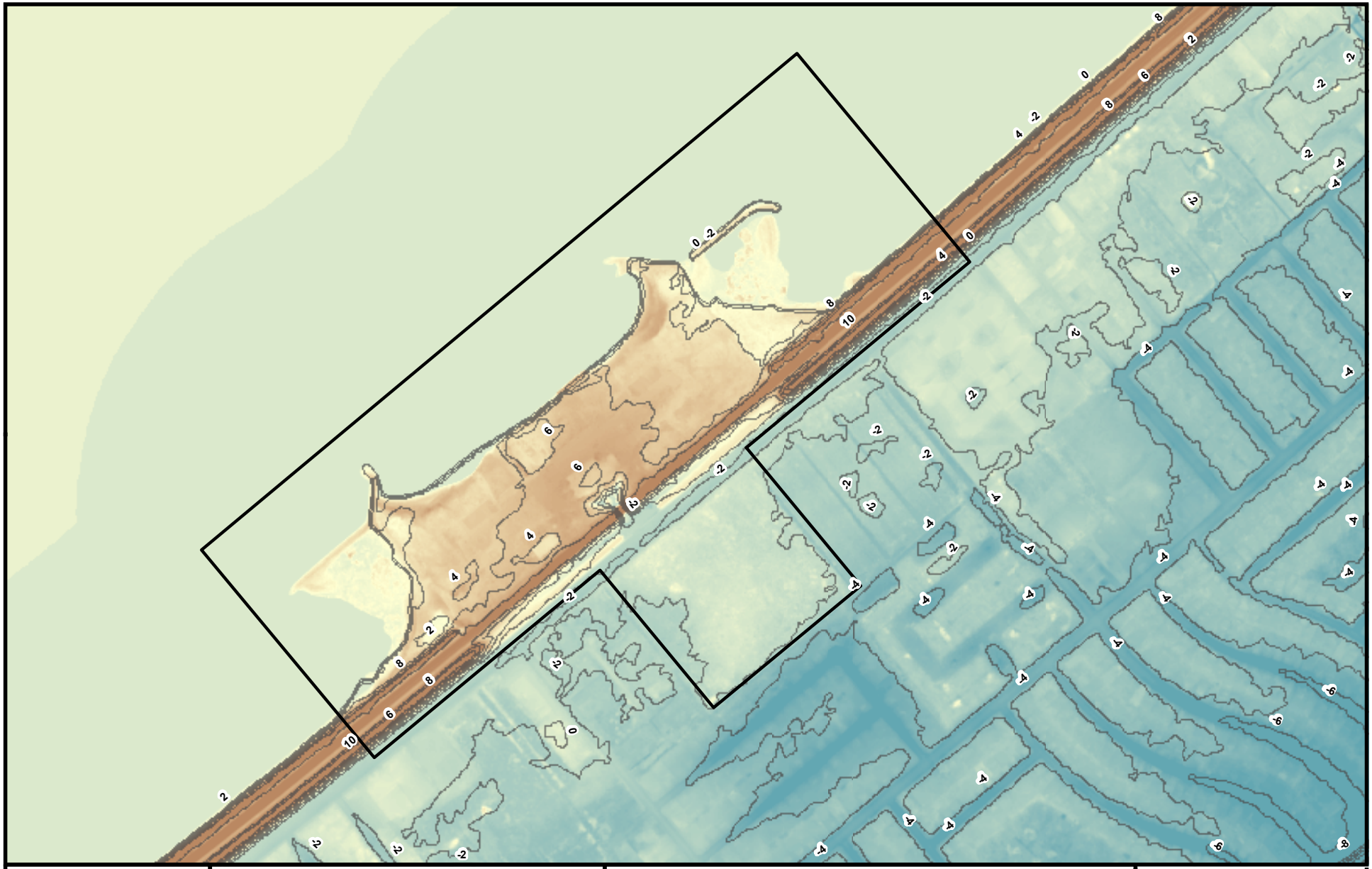


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Figure 2: Elevations Map

## Lincoln Beach

This figure was prepared utilizing public and proprietary data. It should not be used to establish any legal boundaries or specific locations. ELOS Environmental, L.L.C., is not responsible for any usage of this figure contrary to its original, intended purpose.

**Legend:**

- Site Outline
- Contour
- Higher
- Lower

N
W E
S

Feet
0 250 500

F:\KLE\Lincoln Beach\GIS Maps\ESA\Figure 2_Elevations Map

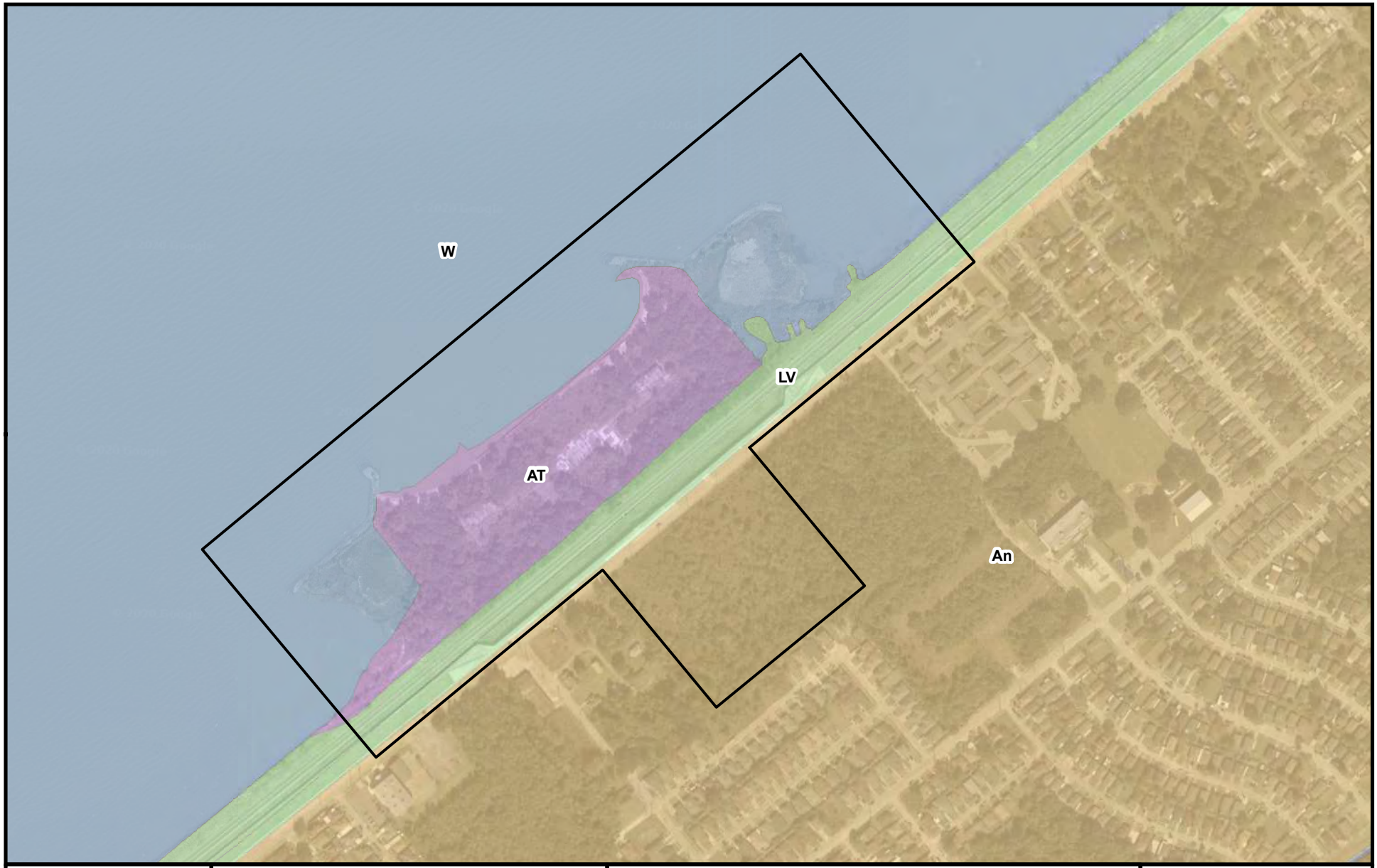


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Figure 3: Soils Map

## Lincoln Beach

This figure was prepared utilizing public and proprietary data. It should not be used to establish any legal boundaries or specific locations. ELOS Environmental, L.L.C., is not responsible for any usage of this figure contrary to its original, intended purpose.

**Legend:**

- Site Outline
- Aquents, dredged
- Aquents, dredged, Frequently flooded
- Levees-Borrow pits complex, 0 to 25 percent slopes
- Water

N W E S

Feet

0 250 500

F:\KLE\Lincoln Beach\GIS Maps\ESA\Figure 3_Soils Map

A sand beach and beach house were built at the site in 1939, by the Works Progress Administration. In 1951, the site was expanded to its current size by depositing dredged materials from the Lake and developed into an amusement park which opened in 1954. The amusement park was developed as a Plessey vs. Ferguson-compliant facility with a Ferris wheel, arcade, roller coaster, midway with games of chance, three swimming pools, food and refreshment vendors, a table-service restaurant and bar, and a stage where top entertainers (such as Fats Domino, Nat King Cole, Ray Charles, Little Richard, Josephine Baker, and Ike and Tina Turner) were featured. In 1964, the Civil Rights Act was passed and Pontchartrain Beach was opened to everyone and the smaller Lincoln Beach facility closed.

Historical topographic maps from 1892, 1936, 1938, 1943, 1951, 1967, 1969, 1972, 1979, 1994, 1998, and 2012 show that the Subject Property was developed into what was known as Lincoln Beach with the parking lot area being partial undeveloped and partially forested. Aerial images from 1965, 1972, 1985, 1989, 2004, 2007, 2010, 2013, and 2017 confirm that the Subject Property was developed into what was known as Lincoln Beach with a parking lot area, then becomes abandoned and over grown and partially forested. These sources, provided in **Appendix D,** also illustrate the majority use of the Subject Property was once used as commercial property but have since been abandoned. Most of the adjoining property currently are used for residential use.

Sanborn insurance maps from 1979 and 1994 were found for the Subject Property. The coverage report is provided in **Appendix E**. City Directory data, also provided in **Appendix E**, identified mostly vacant or residential properties adjacent to the Subject Property. Non-residential uses were identified at 13796 Hayne Boulevard (New Home Full Gospel Cathedral overflow and Claver Lodge), 13800 Hayne Boulevard (New Home Family Worship Center, New Home Full Gospel Cathedral), 13812 Hayne Boulevard (Vacant since 1961, Ritz Café and Bar, Brice Buster Picnic Grounds), 13880 Hayne Boulevard (small strip mall as discussed in Section 4.1), 13904 Hayne Boulevard (Golden Touch Hair Care Center), 14063 Hayne Boulevard (1961 and 1966 listings for Bonnie Humphrey's Place, Soft Drinks). The Ferncrest Manor Nursing Home (14500 Hayne Boulevard) was not located in the City Directory searches, but is shown on the 1994 Sanborn Map and on the 1989 aerial photograph of the Subject Property.

### 4.5 INFORMATION REGARDING ENVIRONMENTAL LIENS, ETC

At the time this report was completed, ELOS had no knowledge of a complete Chain of Title. Therefore, ELOS could not determine if any environmental liens or any evidence from present or past owners of legal action related to environmental matters relative to the Subject Property exist. Neither the Client nor the current owner had knowledge of environmental liens on the Subject Property.

## 5 SUBJECT PROPERTY RECONNAISSANCE

The objective of reconnaissance is to physically observe the Subject Property and adjoining properties for any uses or conditions that may indicate the likelihood of RECs in connection with the Subject Property. A site visit was conducted on September 8, 2020. Photographs of the Subject Property and adjoining sites taken at locations shown on **Figure 4** are provided in **Appendix F**.

### 5.1 METHODOLOGY AND LIMITING CONDITIONS

The weather conditions during the field reconnaissance on September 8, 2020, were partly sunny with temperatures ranging from the mid-80s to low 90s with light winds out of the south. The property was surveyed over several transects; therefore, it was possible to inspect for signs of ground stains, discolored vegetation, or waste dumping. Drainages and areas holding water were inspected for


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Figure 4: Photo Location Overview

## Lincoln Beach

This figure was prepared utilizing public and proprietary data. It should not be used to establish any legal boundaries or specific locations. ELOS Environmental, L.L.C., is not responsible for any usage of this figure contrary to its original, intended purpose.

**Legend:**

- Site Outline
- Breakdown
- Photo Locations
- Highway
- Local Road

N W E S

Feet

0 250 500

F:\KLE\Lincoln Beach\GIS Maps\ESA\Figure 4_Photo Locations

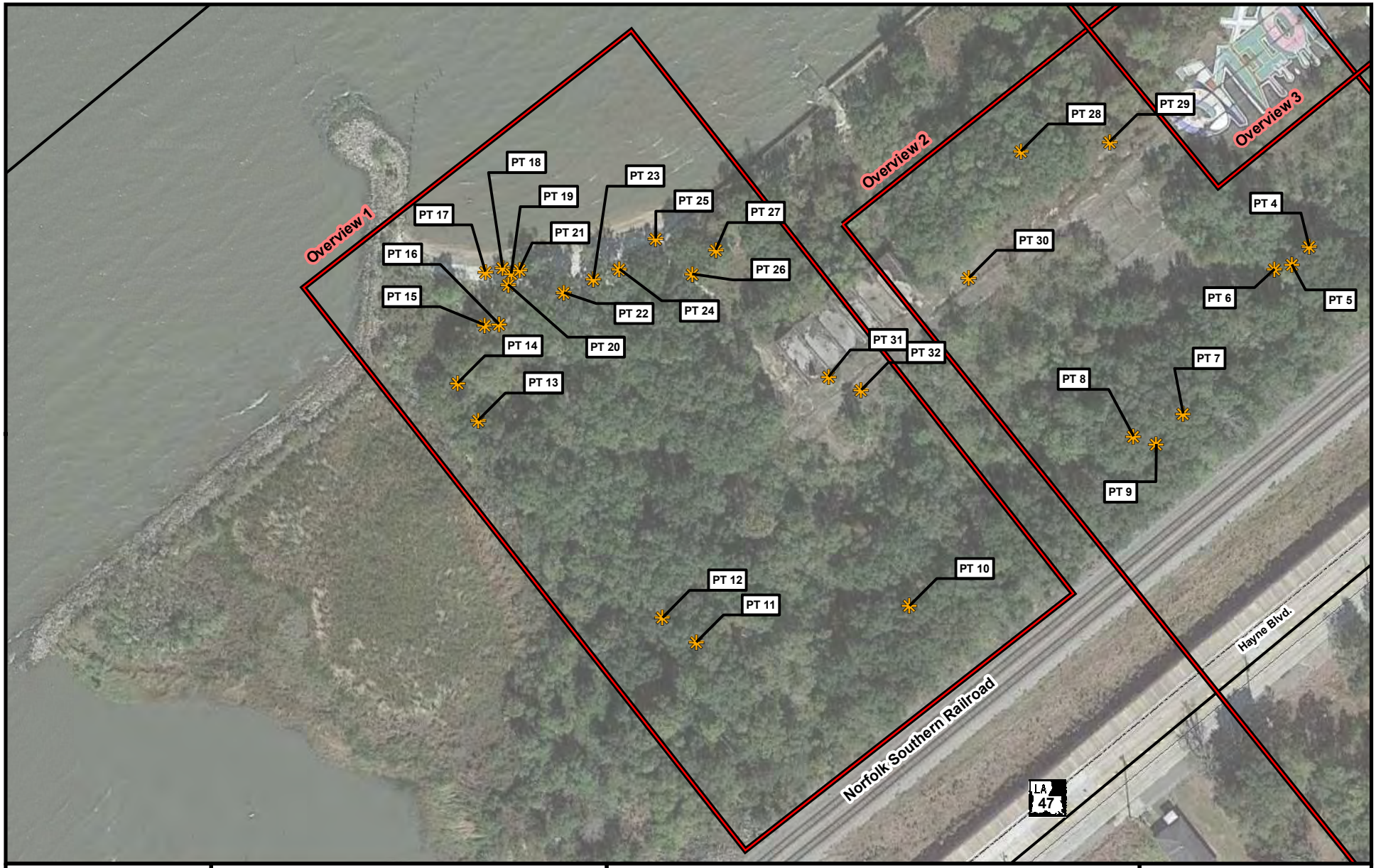


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Figure 4.1: Photo Locations Overview 1

## Lincoln Beach

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**Legend:**

- Site Outline
- Breakdown
- Photo Locations
- Highway
- Local Road

N W E S

Feet

0 55 110

F:\KLE\Lincoln Beach\GIS Maps\ESA\Figure 4_Photo Locations

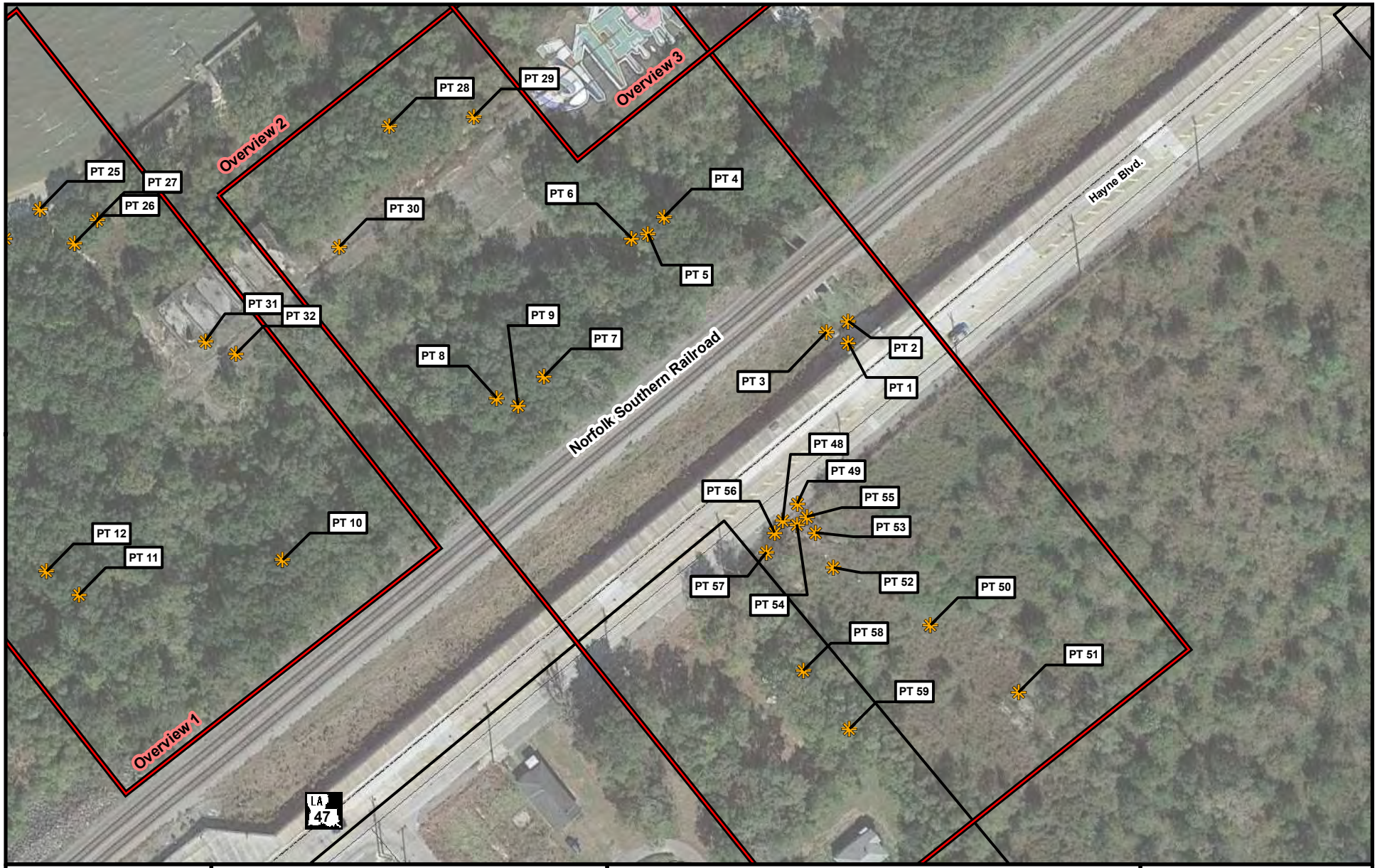


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Figure 4.3: Photo Locations Overview 2

## Lincoln Beach

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**Legend:**

- Site Outline
- Breakdown
- Photo Locations
- Highway
- Local Road

N W E S

Feet

0 60 120

F:\KLE\Lincoln Beach\GIS Maps\ESA\Figure 4.3_Photo Locations Overview 3

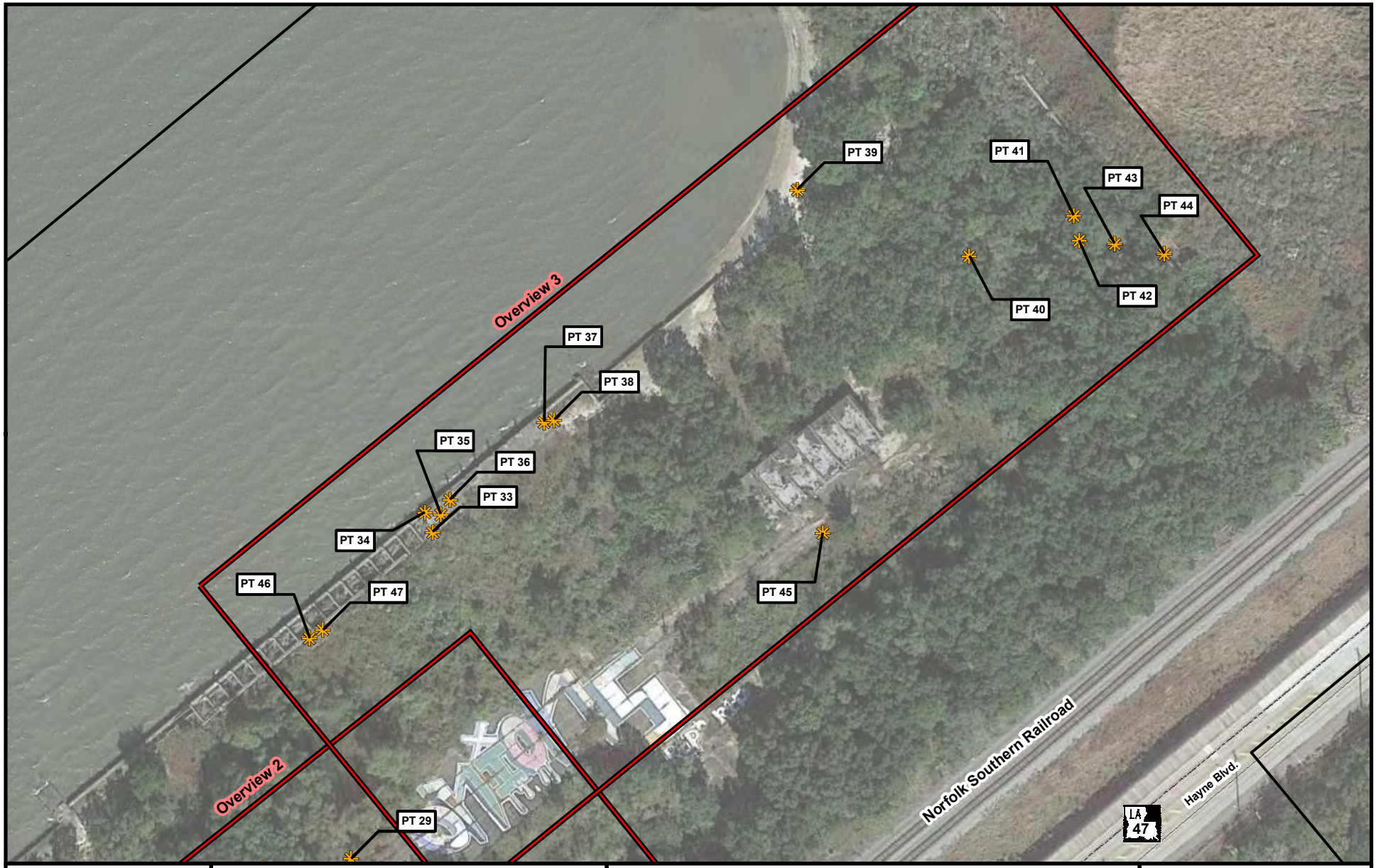


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Figure 4.3: Photo Locations Overview 3

**Lincoln Beach**

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**Legend:**

- Site Outline
- Breakdown
- Photo Locations
- Highway
- Local Road

N W E S

Feet
0 50 100

F:\KLE\Lincoln Beach\GIS Maps\ESA\Figure 4.3_Photo Locations Overview 3

sheen indicative of recent chemical spills and releases. ELOS is not responsible for conditions resulting from the potential for hazardous materials within dense vegetation or in debris piles that were obscured from view during the on-site investigation.

### 5.2 SUBJECT PROPERTY USE AND IMPROVEMENTS

The Subject Property consists of two parcels: 33 acres of a former amusement park and 10 acres of parking lot. The amusement park area was dismantled/demolished over many years. Most buildings were removed from the site, but two pavilions, the concrete pavement of the former midway, and remnants of the pools and colonnade remain. The pools were filled with soil during the 2004 site demolition and remediation actions. The colonnade was a shade structure that paralleled the large swimming pool and was elevated from lakeshore beach. The colonnade and remaining pool walls are in poor condition. A bulkhead which ran beneath the colonnade is collapsing and is visible through missing portions of the concrete floor and footings of the remaining colonnade. A section of the colonnade roof supports also remain **(see Appendix F: Photograph 36)**. The broken bulkhead and concrete pool allow lake water into the soil fill in the large swimming pool and diving pools. Site photographs show the ponded water within the pool area **(see Appendix F: Photograph 28)**.

The parking lot area is overgrown with shrubby vegetation and a tangle of woody vines. Site reconnaissance observations were greatly impaired by the vegetation. There are patches of concrete pavement within the parking lot area **(see Appendix F: Photograph 11)**; however, most of the area was covered by a thin layer of soil over a gravel and shell mix. Remnants of a small shed structure were observed **(see Appendix F: Photographs 52, 53)**. It was unclear if the structure was demolished and left on site, or if it was illegally dumped.

The Subject Property is inhabited by an established squatter encampment of approximately 10 tent-like structures. At the time of the survey, the encampment was found along the west side (outside) of the western brick boundary wall near the western overlook **(see Appendix F: Photograph 11)**. There were two tents on the western beach. The larger tent appeared to be used as a living space. The smaller tent might serve as a latrine. The encampment maintained a campfire on the western beach.

The proposed future use of the Subject Property is that the City of New Orleans has expressed interest in exploring the feasibility of using this property for public recreational use.

### 5.3 USES OF ADJOINING PROPERTIES

Records review and site reconnaissance confirm that the majority of the properties adjoining the Subject Property are vacant or residential. The commercial/non-residential developments are discussed above in Section 4.4.

### 5.4 EXTERIOR OBSERVATIONS

Only four locations on site exhibited the potential to contain or likely contain hazardous substances or petroleum products. These four locations and the suspected hazardous substances are described below.

- On the western portion of the Subject Property, under the west pavilion, several filled large contractor-style garbage bags were observed stacked together **(see Appendix F: Photograph 31)**. The bags were not opened and the pile was not shifted to observe contents.
- A smaller pile of the same type of garbage bags was observed near the northeastern corner of the east pavilion **(see Appendix F: Photograph 46)**. The Client mentioned a recent clean-up effort. It is assumed that the bagged materials are the result of that clean-up. The bags were not opened and the pile was not shifted to observe contents.

- Along the west side of western brick boundary wall, a squatter encampment and debris pile were observed. Camping-style and other tent structures, plastic buckets, food and drink containers and packaging, filled shopping bags and garbage bags with unknown contents, clothing, and broken camp furniture were identified **(see Appendix F: Photograph 24)**. There was a strong odor of human waste.
- Located at the southern portion of the Subject Property, near an opening in the chain-link northern boundary fence of the parking lot area, was a trash pile that contained at least two plastic tanks believed to be used automobile fuel tanks. No fuel smells, no stressed vegetation, and no soil stains were recognized at the time of the site visit. It is possible that the time elapsed since the fuel tanks were dumped at the Subject Property is sufficient for what fuel spilled or left in the tanks would have evaporated or been diluted and washed from the site by rainfall. Along with the pile of trash was random debris and used tires identified and photographed **(see Appendix F: Photographs 50, 51, 55, and 57 through 60)**.

A large depression holding water was observed during the site visit. The location was marked with a handheld global positioning system (GPS). When projected over a geo-referenced site plan of Lincoln Beach, the depression was located in the western end of the filled swimming pool and portions of the diving pool. During the 2004 demolition and remediation efforts at the Subject Property, the soils beneath diving pool were remediated due to concentrations of PCBs from submerged transformers found in the pool. During the September 2020 site visit, no evidence of sheens on the water or wet soils, no chemical or petroleum odors, no soil stains, and no stressed vegetation was observed **(see Appendix F: Photograph 28)**.

Debris and trash were scattered throughout much of the Subject Property most of which was house hold food and drink materials, 5-gallon buckets, broken concrete, woody vegetation debris, clothing, and vehicle tires. A few empty or dried 1-gallon paint cans were observed near the east pavilion. Graffiti art covers nearly every hard surface.

Within the parking lot area and along its northern and western fence lines, much of the trash and debris consisted of used tires, broken furniture, non-fuel related vehicle parts (windshield, dashboard, wheels), demolition debris, clothing, and plastic containers (**see Appendix F: Photographs 58 and 59).** The debris piles observed in the center of parking lot area contained mostly woody debris (**see Appendix F: Photographs 52, 53, and 54).**

The existing remnants of the bulkhead that runs northeast to southwest along the lakeshore within the Subject Property had sections of what was believed to be exposed terra cotta piping protruding from the existing concrete footing **(see Appendix F: Photograph 33).** Field investigators assume the piping was originally connected to the demolished bathhouse. No other clearly marked or visible underground lines were observed.

No evidence of oily sheens was observed within the Subject Property. Materials in debris and trash piles mentioned above were not shifted or moved to observe additional materials that may have been obscured from view. No chemical or petroleum products were observed around the observed gas tanks, and no distinct odors were noted. No evidence of releases was found.

All drainages or areas of standing water within the Subject Property were inspected during the site visit. No evidence of oily sheens or chemical or petroleum odors were observed.

### 5.5 INTERIOR OBSERVATIONS

The interior of the squatter encampment was not investigated.

### 5.6 OTHER OBSERVATIONS

Site reconnaissance included a windshield survey along Hayne Boulevard and neighborhood streets within 0.5 mile of the Subject Property. The majority of the surrounding land is separated from the Subject property by the Lake Pontchartrain and Vicinity flood protection levee and floodwalls. The surrounding areas are also lower in elevation. No violations pertaining to hazardous waste on adjacent properties were found on record.

## 6 INTERVIEWS

Due to COVID restrictions, interviews were attempted via phone calls and emails with the interview forms being sent to local public safety services such as the fire department, sheriff department, and state police. Contact with the New Orleans Fire Department (NOFD) was made via emails with a completed interview form received from Mr. Wayne Regis the Senior Inspector for the NOFD. As stated on the interview form "the NOFD has no indication that any hazardous materials exist or existed at this location." Sent with the completed interview form was an attached spreadsheet with fire department calls for service within the Subject Property's location associated fire zones. This was implemented to include any land masses that would be within this location's vicinity. The attached responses have dates, types of responses, and addresses for these incidents.

No other public safety service provided responses to the interview request.

## 7 EVALUATIONS

### 7.1 FINDINGS AND OPINIONS

ELOS has performed a Phase I ESA in conformance with the scope and limitations of ASTM Practice E 1527-13 on a 43-acre site, known as Lincoln Beach, located on the southeast shoreline of Lake Pontchartrain in Orleans Parish, Louisiana, west of Bayou Sauvage National Wildlife Refuge, and on the north and south sides of Hayne Boulevard in New Orleans, Louisiana. Any exceptions to, or deletions from, this practice are described in Section 7.4 of this report. The assessment conducted at the Subject Property also complies with AAI documentation requirements set forth in 40 CFR Part 312. The purpose of this assessment was to identify conditions indicative of releases or threatened releases of hazardous substances, pollutants and contaminants, petroleum or petroleum products, or controlled substances, that would constitute a REC by investigating and making inquiries regarding the Subject Property's history, existing observable conditions, current Subject Property use, and current and historic uses of surrounding properties.

The ASTM E1527-13 Standard requires an opinion regarding evidence of RECs identified during the ESA process. ELOS is of the opinion that this assessment has revealed evidence of potential RECs in connection with the Subject Property. The location of potential RECs observed on the Subject Property are shown in **Figure 5** and marked with the corresponding photograph point (PT) number from the Photograph Log in **Appendix F**. Potential RECs include the two piles of contractor-style garbage bags near the west and east pavilions; the current and any former locations of the squatters' encampment and associated debris piles; and the debris pile along the north chain-link fence of the parking lot area which contained automotive fuel tanks. Due to the unknown nature of the contents of the garbage bags and squatters' encampment and debris pile, ELOS suggests personal safety measures consistent with biohazard protection guidelines be used when disposing the bagged garbage and further investigation, decontamination, or remediation of the squatters' encampment and debris pile.

No evidence of RECs was observed during the site-visit that may have migrated onto the Subject Property from adjacent or upgradient properties.

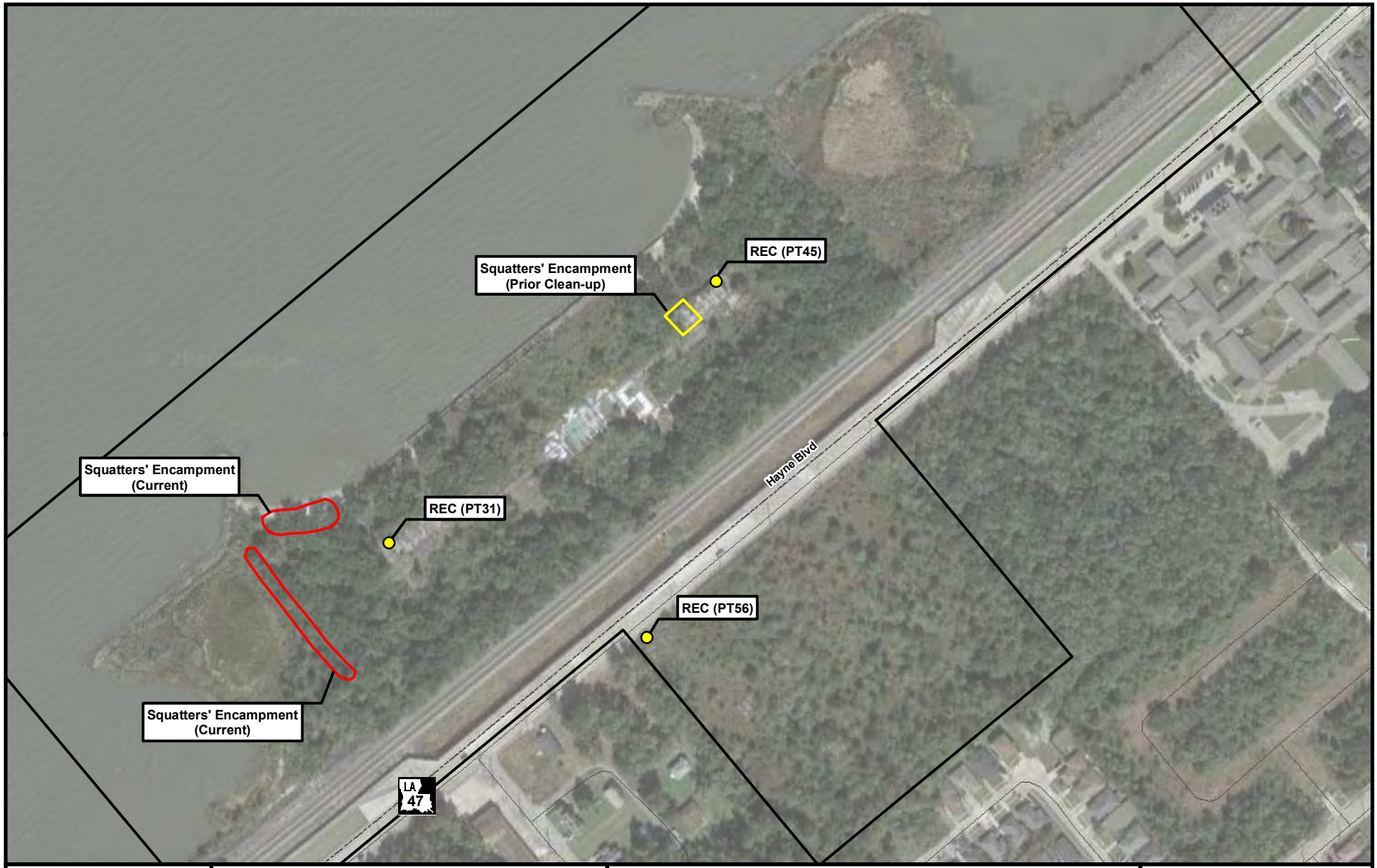


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Figure 5: Observed Potential RECs

## Lincoln Beach

This figure was prepared utilizing public and proprietary data. It should not be used to establish any legal boundaries or specific locations. ELOS Environmental, L.L.C., is not responsible for any usage of this figure contrary to its original, intended purpose.

**Legend:**

- Site Outline
- Squatters' Encampment (Current)
- Squatters' Encampment (Prior Clean-up)
- REC Point
- Highway
- Local Road

N W E S

Feet
0 150 300

F:\KLE\Lincoln Beach\GIS Maps\ESA\Figure 5_Observed Potential RECs

Our opinion is limited by the conditions prevailing at the time our work is performed. The rationale for this opinion is that records research, interviews, and field inspections provided no evidence of conditions indicative of releases. However, during the site visit, evidence of potential threatened releases of hazardous substances on, at, in, or to the Subject Property was observed. These conclusions are based entirely on the activities described in this report. Neither analytical testing of ground water or soils nor testing for the presence of Radon gas, asbestos, or lead were performed as part of this assessment. Materials in debris piles were not shifted or moved to observe additional materials that may have been obscured from view.

### 7.2 DATA GAPS

ELOS did not inspect the interior of all the squatter encampment. ELOS did not survey the entire parking lot area due to dense vegetation creating a visual barrier between surveyors and the ground surface. Several interview attempts were made to local public safety services such as Louisiana State Police and the sheriff's department. No information on the Subject Property was gathered from these sources, so the past, current, and future uses are based on publicly available data sources and the questionnaire response from the City of New Orleans.

### 7.3 ADDITIONAL INVESTIGATION OPINION

Before construction or modification to the Subject Property, the many bags of garbage, tires, and automotive parts should be disposed of in appropriate landfills for the substances. Any areas determined to be current or past squatter encampment areas should be treated as potential biohazard areas. These areas should be decontaminated and all waste removed be treated as biohazard.

### 7.4 LIMITING CONDITIONS, DELETIONS, AND DEVIATIONS

Limiting conditions are discussed in Sections 2.4, 2.5, and 5.1 of this report. No other limiting conditions, deletions, or deviations from this practice have affected the scope of this report.

### 7.5 CONCLUSIONS

The ESA was conducted on a 43-acre site, known as Lincoln Beach, located on the southeast shoreline of Lake Pontchartrain in Orleans Parish, Louisiana, west of Bayou Sauvage National Wildlife Refuge, and on the north and south sides of Hayne Boulevard in New Orleans, Louisiana by personnel of ELOS in conformance with the scope and limitations of ASTM Practice E 1527-13. Partially wooded, demolished amusement park and parking lot are the current uses of the two tracts of the Subject Property. Historically, the Subject Property was an amusement park from 1954 through 1964, and a swimming beach from 1938 through 1951. Adjoining properties have been fishing camps along the lakeshore and undeveloped marsh, and developed residential, institutional, and commercial properties.

EDR identified three sites within a 1/8$^{th}$ mile of the Subject Property, two of which are the Subject Property. The third site was a coin laundry and dry cleaner which is now vacant. Search of EDMS records for these sites located files regarding the demolition and remediation of the Subject Property including electrical vaults and the diving pool with PCB contamination. In April 2005, LDEQ recorded that no further actions were required for the Subject Property. ELOS does not suspect migration of contaminants from off-site onto the Subject Property.

Field reconnaissance conducted on September 8, 2020 confirmed that the Subject Property is currently partially wooded, dismantled/demolished and decaying former amusement park. The Subject Property has been cleared of structures except for concrete pavement of the former midway, two pavilions, and the remnants of the pools and colonnade. The pools were filled with soil during the 2004 site demolition and remediation actions. The colonnade and remaining pool walls are in

poor condition. A bulkhead which ran beneath the colonnade is collapsing and is visible through missing portions of the concrete floor and footings of the remaining colonnade. The broken bulkhead and concrete pool allow lake water into the soil fill in the large swimming pool and diving pools. The Subject Property was generally littered throughout with household waste, food and beverage containers, tires, broken concrete, 5-gallon buckets, and woody vegetative debris. Paint cans and piles of contractor-style garbage bags at both the east and west pavilions were observed. Contents are unknown and thus should be treated as potentially hazardous for disposal.

There is also a squatters' encampment along the western boundary wall. ELOS did not inspect the interiors of the encampment; however, this current encampment site and any former locations on the Subject Property should be treated as biohazards for future clean-up and decontamination.

The parking lot area is overgrown with shrubby vegetation and a tangle of woody vines. Site visit observations were greatly impaired by the vegetation. There are patches of concrete pavement within the parking lot area; however, most of the area was covered by a thin layer of soil over a gravel and shell mix. Remnants of a small shed structure were observed. It was unclear if the structure was demolished and left on site, or if it was illegally dumped. Other dumping has occurred along the fence lines of the parking lot area. Piles of debris including furniture, household waste, clothing, tires, automotive fuel tanks, windshields, plastics, lumber and vegetation were observed. Fuel tanks and other automotive parts and tires should be disposed appropriately during future site clean-up.

This Phase I ESA revealed evidence of potential RECs from substances in, on, or at the Subject Property. The locations of these RECs are shown on **Figure 5**. Potential RECs include the piles of garbage bags under the west and east pavilions; the automotive fuel tanks along the northern fence line of the parking lot area; and the current squatters encampment and any former location of the encampment and their associated debris piles on the Subject Property.

## 8 ENVIRONMENTAL PROFESSIONAL STATEMENT AND QUALIFICATIONS

I, Maria Bernard Reid, a Senior Environmental Scientist for ELOS Environmental, LLC, declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in §312.10 of 40 CFR § 312. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the Subject Property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312. My signature is provided below.

By: 

ELOS Environmental, LLC
Maria Bernard Reid

Ms. Reid is an Environmental Professional with a Bachelor of Science degree in Forest Management, a Master of Science degree in Agribusiness/Agricultural Economics and Natural Resources Policy. As a consultant for over 19 years, she has been involved in the preparation and oversight of Phase I ESAs in addition to other environmental consulting services.

## 9 NON-SCOPE CONSIDERATIONS

This Phase I ESA does not cover the non-scope items (not an all-inclusive list), according to the Standard, "asbestos containing building materials, radon, lead base paint, lead in drinking water, wetlands, regulatory compliance, cultural and historic resources, industrial hygiene, health and safety, ecological resources, endangered species, indoor air quality, biological agents, or mold." Also, no

analytical sampling was conducted as a part of this investigation. Due to the cultural history of the site as a Jim Crow-era facility, ELOS suggests a site survey by qualified archaeologists and documentation of the remaining standing structures.

## 10 PROVIDER DISCLAIMER

The information contained in this report has been obtained from publicly available sources and other secondary sources of information produced by entities other than the Provider. Although great care has been taken by the Provider in compiling and checking the information contained in this report to ensure that it is current and accurate, the Provider disclaims any and all liability for any errors, omissions, or inaccuracies in such information and data, whether attributable to inadvertence or otherwise, and for any consequences arising there from. The data provided hereunder neither purports to be nor constitutes legal advice. It is further understood that THE PROVIDER MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND, INCLUDING, BUT NOT LIMITED TO, SUCH REPRESENTATIONS OR WARRANTIES TO BE IMPLIED WITH RESPECT TO THE DATA FURNISHED, AND THE PROVIDER ASSUMES NO RESPONSIBILITY WITH RESPECT TO CUSTOMER'S ITS EMPLOYEES', CLIENTS', OR CUSTOMERS' USE THEREOF. THE PROVIDER SHALL NOT BE LIABLE FOR ANY SPECIAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES RESULTING, IN WHOLE OR IN PART, FROM CUSTOMER'S USE OF THE DATA. Liability on the part of the Provider is limited to the monetary value paid for this report. The report is valid only for the geographical parameters specified in paragraph 2.1 of this report, and any alteration or deviation from this description will require a new report. This report does not constitute a legal opinion.

# Appendix A
# Tax Assessor Data


## Lincoln Beach Parcel 39901

Parcel: 39901 Acres: 716780

| | | | |
|---|---|---|---|
| Name: | THE CITY OF NEW ORLEANS | Land Value: | $1,187,700 |
| Site: | 39901 | Building Value: | $1,700 |
| Sale: | $0 on 08-2002 Vacant?= Qual= CITY OF NEW ORLEAN | Total Value: | $1,189,400 |
| Mail: | 1300 PERDIDO ST ROOM 5W17<br>NEW ORLEANS, LA 70112 | | |


Orleans Parish makes every effort to produce the most accurate information possible. No warranties, expressed or implied, are provided for the data herein, its use or interpretation. The assessment information is from the last certified taxroll. All data is subject to change before the next certified taxroll.
Date printed: 08/31/20 : 15:26:20


Previous Parcel | Next Parcel | Return to Main Search Page | Orleans Home

**Owner and Parcel Information**

| | | | |
|---|---|---|---|
| **Owner Name** | THE CITY OF NEW ORLEANS | **Today's Date** | August 28, 2020 |
| **Mailing Address** | 1300 PERDIDO ST ROOM 5W17<br>NEW ORLEANS, LA 70112 | **Municipal District** | 3 |
| **Location Address** | 39901 | **Tax Bill Number** | 39W005308 |
| **Property Class** | Exempt | **Special Tax District** | |
| **Subdivision Name** | LAKESHORE | **Land Area (sq ft)** | 716780 |
| **Zoning District** | Show Viewer (41185750) | **Building Area (sq ft)** | 0 |
| **Square** | 0 | **Revised Bldg Area (sqft)** | |
| **Book** | 18 | **Lot / Folio** | / 009 |
| **Line** | 004 | **Parcel Map** | Show Parcel Map |
| **Legal Description** | 1. SQ LAKESHORE LANDS<br>2. VACANT (16.455 ACRES)<br>3. LINCOLN BEACH | **Assessment Area** | LITTLE WOODS COM 34<br>Show Assessment Area Map |

**Value Information** — Estimate Taxes | Tax Information

Special Assessment Treatment

| Year | Land Value | Building Value | Total Value | Assessed Land Value | Assessed Building Value | Total Assessed Value | Homestead Exemption Value | Taxable Assessment | Age Freeze | Disability Freeze | Assmnt Change | Tax Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *2021 | $ 1,187,700 | $ 1,700 | $ 1,189,400 | $ 118,770 | $ 260 | $ 119,030 | $ 0 | $ 0 | | | | |
| 2020 | $ 1,187,700 | $ 1,700 | $ 1,189,400 | $ 118,770 | $ 260 | $ 119,030 | $ 0 | $ 0 | | | | |
| 2019 | $ 1,118,200 | $ 1,700 | $ 1,119,900 | $ 111,820 | $ 260 | $ 112,080 | $ 0 | $ 0 | | | | |

* Uncertified Values

**Sale/Transfer Information**

| Sale/Transfer Date | Price | Grantor | Grantee | Notarial Archive Number | Instrument Number |
|---|---|---|---|---|---|
| 08-12-2002 | $ 0 | | CITY OF NEW ORLEANS | 01-38901 | 000223022 |
| 09-28-1995 | $ 0 | | | 06151998 | 000111457 |
| 08-28-1992 | $ 500,000 | | | 02181993 | 000057698 |
| 07-11-1990 | $ 500,000 | | | 11291990 | 000024265 |
| 03-05-1990 | $ 0 | | | 03231990 | 000017488 |

Previous Parcel | Next Parcel | Return to Main Search Page | Orleans Home


## Lincoln Beach Parcel 39900

Parcel: 39900 Acres: 435600

| | | | |
|---|---|---|---|
| Name: | THE CITY OF NEW ORLEANS | Land Value: | $122,000 |
| Site: | 39900 | Building Value: | $0 |
| Sale: | | Total Value: | $122,000 |
| Mail: | 1300 PERDIDO ST ROOM 5W17<br>NEW ORLEANS, LA 70112 | | |


Orleans Parish makes every effort to produce the most accurate information possible. No warranties, expressed or implied, are provided for the data herein, its use or interpretation. The assessment information is from the last certified taxroll. All data is subject to change before the next certified taxroll.
Date printed: 08/31/20 : 15:29:28


Previous Parcel | Next Parcel | Return to Main Search Page | Orleans Home

**Owner and Parcel Information**

| | | | |
|---|---|---|---|
| **Owner Name** | THE CITY OF NEW ORLEANS | **Today's Date** | August 28, 2020 |
| **Mailing Address** | 1300 PERDIDO ST ROOM 5W17<br>NEW ORLEANS, LA 70112 | **Municipal District** | 3 |
| **Location Address** | 39900 | **Tax Bill Number** | 39W005307 |
| **Property Class** | Exempt | **Special Tax District** | |
| **Subdivision Name** | LAKESHORE | **Land Area (sq ft)** | 435600 |
| **Zoning District** | Show Viewer (41116669) | **Building Area (sq ft)** | 0 |
| **Square** | 0 | **Revised Bldg Area (sqft)** | |
| **Book** | 18 | **Lot / Folio** | / 009 |
| **Line** | 003 | **Parcel Map** | Show Parcel Map |
| **Legal Description** | 1. SQ LAKESHORE LANDS SECTION 2<br>2. GROVES 9-10 (10 ARCES) VACAN | **Assessment Area** | NA |

**Value Information** — Estimate Taxes | Tax Information

Special Assessment Treatment

| Year | Land Value | Building Value | Total Value | Assessed Land Value | Assessed Building Value | Total Assessed Value | Homestead Exemption Value | Taxable Assessment | Age Freeze | Disability Freeze | Assmnt Change | Tax Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *2021 | $ 122,000 | $ 0 | $ 122,000 | $ 12,200 | $ 0 | $ 12,200 | $ 0 | $ 0 | | | | |
| 2020 | $ 122,000 | $ 0 | $ 122,000 | $ 12,200 | $ 0 | $ 12,200 | $ 0 | $ 0 | | | | |
| 2019 | $ 122,000 | $ 0 | $ 122,000 | $ 12,200 | $ 0 | $ 12,200 | $ 0 | $ 0 | | | | |

* Uncertified Values

**Sale/Transfer Information**

| Sale/Transfer Date | Price | Grantor | Grantee | Notarial Archive Number | Instrument Number |
|---|---|---|---|---|---|
| No sales information associated with this parcel. | | | | | |

Previous Parcel | Next Parcel | Return to Main Search Page | Orleans Home

# Appendix B
# User Questionnaire

## ASTM E1527-13 USER QUESTIONNAIRE

When the "user" (the party for whom the assessment is being prepared) of the Phase I is required to help the environmental professional identify recognized environmental conditions at the property, a "User Questionnaire" is completed by the user to help gather information that may identify recognized environmental conditions at the property.

We ask that you answer the six questions below to the best of your knowledge. We understand that, in some circumstances, you may have little or no information. Still, we encourage you to complete and return the questionnaire as soon as possible. This will allow us to reflect the fact that the Questionnaire was completed when we issue our report as is required. Completion of the assessment to the new standard, when conducted in connection with the asset purchase of a real property, may entitle the user to certain federal liability protections that result from conducting "All Appropriate Inquiries" into the previous ownership and uses of a property.

On the second page of this form is a list of documentation. The E1527-13 Standard requires that the User will ensure that the consultant is made aware that any of these materials exist for a site, and if so, that these documents be provided for the consultant's review. Please indicate whether any of these documents are available, and ensure that ELOS Environmental LLC (ELOS) will either receive a copy of or be provided an opportunity to review the relevant materials.

We appreciate your assistance. If you have any questions, feel free to contact us.

1. Are you aware of any environmental cleanup liens against the property that are filed or recorded under federal, tribal, state or local law?

No

2. Are you aware of any Activity and Use Limitations (AULs), such as engineering controls, land use restrictions or institutional controls that are in place at the site and/or have been filed or recorded in a registry under federal, tribal, state or local law?

Wetland delineations would restrict some uses.

3. As the user of this ESA do you have any specialized knowledge or experience related to the property or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the property or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business?

No

4. Does the purchase price/loan amount for this property reasonably reflect the fair market value of the property? If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the property?

No known contamination is present, property has not been assessed in approx. 5 years.

5. Are you aware of commonly known or reasonably ascertainable information about the property that would help the environmental professional to identify conditions indicative of releases or threatened releases? For example, as user, (a.) Do you know the past uses of the property? (b.) Do you know of specific chemicals that are present or once were present at the property? (c.) Do you know of spills or other chemical releases that have taken place at the property? (d.) Do you know of any environmental cleanups that have taken place at the property?

EPA assisted with clean up when the electrical was stolen. The City was able to track invoices to

MMG for approx $934,000 but details on what the scope included is limited to what's on the attached PDF.

6. As the user of this ESA, based on your knowledge and experience related to the property are there any obvious indicators that point to the presence or likely presence of contamination at the property?

Aside from bottles, cans and garbage from unauthorized users, there is no remaining known contamination onsite. Previous documents referred to asbestos tiles but upon testing, the tile was standard construction tiles and did not require any special disposal.

**As part of this study, which of the following are you providing?**

1. Previous environmental site assessment reports. Yes
2. Environmental compliance audit reports. No
3. Environmental permits (including but not limited to solid waste disposal permits, hazardous waste disposal permits, wastewater permits, NPDES permits, underground injection permits). No
4. Registrations for underground and aboveground storage tanks. No
5. Registrations for underground injection systems. No
6. Material safety data sheets. No
7. Community Right-to-Know plan. No
8. Safety plans; preparedness and prevention plans; spill prevention, countermeasure, and control plans; etc.… No
9. Reports regarding hydrogeologic conditions on the property or surrounding area. No
10. Notices or other correspondence from any government agency relating to past or current violations of environmental laws with respect to the property or relating to environmental liens encumbering the property. No
11. Hazardous waste generator notices or reports. No
12. Geotechnical studies. No
13. Risk assessments. No
14. Recorded Activity and Use Limitations (AULs). No

**Please return to:**
**Maria Bernard Reid**
**ELOS Environmental, LLC**
**Phone: 985-662-5501**
**Email: mreid@elosenv.com**

## ASTM E1527-13 USER QUESTIONNAIRE

| | |
|---|---|
| Completed by: | Cheryn Robles |
| Signature: | |
| Title: | Environmental Affairs Administrator |
| Company: | City of New Orleans |
| Relationship to site (i.e. lender, purchaser, owner): | Owner |
| Date: | Oct. 21, 2020 |

## Cheryn Robles

**From:** Kyle D. Homan
**Sent:** Thursday, May 14, 2020 4:31 PM
**To:** Cheryn Robles; David W. Morris; Anne Coglianese
**Subject:** RE: EXTERNAL EMAIL: Lincoln Beach

Total expenses for MMG was $934k. There are no funds remaining. They probably did some other demolition scope based off other vendor names (Gill's Crane & Dozer and Concrete Busters).

-----Original Message-----
From: Cheryn Robles <crobles@nola.gov>
Sent: Thursday, May 14, 2020 4:27 PM
To: Kyle D. Homan <kdhoman@nola.gov>; David W. Morris <dwmorris@nola.gov>; Anne Coglianese <acoglianese@nola.gov>
Subject: Re: EXTERNAL EMAIL: Lincoln Beach

The last environmental assessment was in 2004 by MMG so that makes sense but that wouldn't have cost more than $250k.

Could that funding still be available?

Cheryn Robles, APR
Department of Public Works
New Orleans City Hall
1300 Perdido St., Rm 6W03
New Orleans, LA 70112
504.658.8046 desk
504.657.9169 cell

_____
From: Kyle D. Homan <kdhoman@nola.gov>
Sent: Thursday, May 14, 2020 4:25 PM
To: David W. Morris; Anne Coglianese; Cheryn Robles
Subject: RE: EXTERNAL EMAIL: Lincoln Beach

Yes, it looks like there were several years of project applications but the description of scope is limited. We have a couple CEAs as well. Financially, it looks like we received about $781k from State. This is a historical project so I don't have a lot of details but may have also had federal funding ($616K) from Federal Coastal Management Impact(?) as well as City bonds ($1M).

Expenses from 2001-2005. Vendors are Materials Management Group (environmental), Burk-Kleinpeter (engineer), Gill's Crane & Dozer, New Orleans Building Corp., BFM (Survey), Concrete Busters, Eustis (materials/Geotech), Foundation for Coastal and…, and Pappalardo Consultants.

We would have to dig more if you want additional information.

From: David W. Morris <dwmorris@nola.gov>
Sent: Thursday, May 14, 2020 4:12 PM

To: Anne Coglianese <acoglianese@nola.gov>; Cheryn Robles <crobles@nola.gov>; Kyle D. Homan <kdhoman@nola.gov>
Subject: Re: EXTERNAL EMAIL: Lincoln Beach

I ran this by Joe very quickly. He wasn't aware of anything off the top of his head, but, Kyle, he said that you would be our best bet as far as institutional knowledge goes.

Do you know of any history of Lincoln Beach being included in state capital outlay in the early 2000's or any other time?

Thanks,
dwm

_____
From: Anne Coglianese <acoglianese@nola.gov<mailto:acoglianese@nola.gov>>
Sent: Wednesday, May 13, 2020 12:25 PM
To: Cheryn Robles <crobles@nola.gov<mailto:crobles@nola.gov>>
Cc: David W. Morris <dwmorris@nola.gov<mailto:dwmorris@nola.gov>>
Subject: Re: EXTERNAL EMAIL: Lincoln Beach

Hmm this is the first I'm hearing of this. I did a quick google search and it looks like there may have been a line item in the Capital Outlay budget back in 2004, but I'm really not sure what/if anything happened with that.

http://www.legis.la.gov/Legis/ViewDocument.aspx?d=820961&n=ACT2

Cc'ing David Morris -- David, do you know who might have the answer to this? Presumably someone in the CAOs office would be able to help us answer this question, but I'm not sure who that would be.

_____
From: Cheryn Robles <crobles@nola.gov<mailto:crobles@nola.gov>>
Sent: Wednesday, May 13, 2020 12:06 PM
To: Anne Coglianese <acoglianese@nola.gov<mailto:acoglianese@nola.gov>>
Subject: Re: EXTERNAL EMAIL: Lincoln Beach

Anne,

Any idea how I find out if it's true that "there has been monies appropriated in previous Capital Outlay budgets in previous years by the state's legislators for funds to redevelop Lincoln Beach. "

Cheryn

_____
From: Cheryn Robles <crobles@nola.gov<mailto:crobles@nola.gov>>
Sent: Wednesday, May 13, 2020 12:04 PM
To: Tara G. Richard
Subject: Re: EXTERNAL EMAIL: Lincoln Beach

Hi Tara,

Any idea how I find out if it's true that "there has been monies appropriated in previous Capital Outlay budgets in previous years by the state's legislators for funds to redevelop Lincoln Beach. "

Cheryn

_____
From: Lorraine Washington <lwash135@yahoo.com<mailto:lwash135@yahoo.com>>
Sent: Wednesday, May 13, 2020 11:55 AM
To: Cheryn Robles
Cc: LaToya Cantrell
Subject: EXTERNAL EMAIL: Lincoln Beach

EMAIL FROM EXTERNAL SENDER: DO NOT click links, or open attachments, if sender is unknown, or the message seems suspicious in any way. DO NOT provide your user ID or passsword.

Dear Ms. Robles,

I would like to see the city to begin the redevelopment of Lincoln Beach immediately. There has been monies appropriated in previous Capital Outlay budgets in previous years by the state's legislators for funds to redevelop Lincoln Beach. Obviously, the funds were reallocated to other projects.

We need the city to install a new fence along Paris Road (either a brick fence or a horizontal bamboo type fence) next to the Little Woods Subdivision. Also, we need Parks and Parkways to plant trees on Paris Road to compliment the newly beautifully installed fence.

We also need to give serious thought in the redevelopment of the former site of the visitors center on Paris Road.

We need to have our new canopy of trees planted before summers end and the new fence installed before Christmas. The following Christmas we should be ready to have a lighted Christmas display along Paris Road in preparation of the opening of Lincoln Beach.

Sincerely,

Lorraine Washington

Sent from my iPhone

Appendix C
EDR Radius Map ™ Report

# Appendix D
# Historic Topographic Maps and Aerial Photographs

# Appendix E
# Sanborn Maps and City Directories

# Appendix F
# Photograph Log

# ATTACHMENT 5: HABITAT ASSESSMENT & WETLAND DELINEATION

February 8, 2021

US Army Corps of Engineers
New Orleans District
CEMVN-OD-SS
7400 Leake Avenue
New Orleans, LA 70118

ATTN: Mr. Brad Guarisco
Chief, Surveillance and Enforcement

RE: Request for a Preliminary Jurisdictional Determination of the Lincoln Beach project located in Orleans Parish, Louisiana.

Dear Mr. Guarisco:

On behalf of City of New Orleans, ELOS Environmental, LLC, would like to request a Preliminary Jurisdictional Determination for approximately 75.21 acres referred to as Lincoln Beach. The site is located in Sections 24 and 25; Township 11 South – Range 12 East in Orleans Parish, Louisiana.

Enclosed is the complete wetland delineation report with all associated documents.

If you would like to discuss the request, please do not hesitate to contact me at the office by phone at 985-662-5501, fax at 985-662-5504, or e-mail at wvicknair@elosenv.com.

Sincerely,
**ELOS Environmental, LLC**

Wren Vicknair
*Environmental Scientist*

# Wetland Delineation

For

# Approximately 75.21 Acres

Known As

# Lincoln Beach

In

# Orleans Parish, Louisiana

Prepared For

# City of New Orleans

By

607 W Morris Avenue
Hammond, LA 70403
985-662-5501 (Office) • 985-662-5504 (Fax)

February 2021

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# LIST OF FIGURES



# APPENDIX A

WETLAND DATA FORMS / PHOTOGRAPHS

# APPENDIX B

SOILS CHARACTERISTICS

# 1 INTRODUCTION

## 1.1 PURPOSE AND SCOPE

This report includes a presentation of data including, but not limited to, field findings, interpretations of aerial photography, United States Department of Agriculture (USDA) Soil Surveys, and Digital Elevation Models (DEM's) of onsite and adjacent properties to establish an opinion on the presence and potential extent of jurisdictional "wetlands" and/or "other waters of the U.S." on the sites. Only the U.S. Army Corps of Engineers (USACE) can make an official determination of wetlands and other waters of the U.S. or regulatory jurisdiction over property. This wetlands delineation task was completed in accordance with the requirements of the USACE 1987 Wetland Delineation Manual (Wetlands Research Program Technical Report Y-87-1) and the specifications found in the latest appropriate USACE guidelines, the USACE "Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region, (Version 2.0)" (ERDC/EL TR-10-20), hereinafter referred to as the "USACE Manual" and can be used to assist USACE personnel in rendering a determination of the wetland and other waters of the U.S. status of the sites. In addition, ELOS Environmental, LLC (ELOS) used RGL No. 05-05, 33 CFR 328.3 (e), 33 CFR 329.11 (a) (1), the joint Environmental Protection Agency (EPA) – USACE memorandum entitled "Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States" (December 2, 2008 memorandum) and the joint ruling by the USACE and the EPA entitled " The Navigable Waters Protection Rule: Definition of " Waters of the United States" (April 21, 2020 ruling), to assist in providing an opinion on the likely jurisdictional authority of the USACE.

The USACE (*Federal Register* 1982) and the Environmental Protection Agency (EPA) (*Federal Register* 1980) defined wetlands as "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." The three diagnostic environmental characteristics a site must exhibit to be classified as wetlands by the USACE are hydric soils, a prevalence of hydrophytic vegetation, and wetland hydrology.

- A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, July 13, 1994).
- Hydrophytic vegetation is the community of macrophytes that occurs in areas where inundation or soil saturation is either permanent or of sufficient frequency and duration to exert a controlling influence on the plant species present. Hydrophytic vegetation is present when the plant community is dominated by species that can tolerate prolonged inundation or soil saturation during the growing season.

- The criteria for wetland hydrology in an area are inundation or soil saturation to the surface for at least 5% of the growing season in most years (Environmental Laboratory, 1987).

Also, the USACE uses "other waters of the U.S." to describe a broad range of waters and wetlands over which they have jurisdiction. These waters include, but are not limited to, the territorial seas and traditional navigable waters; perennial and intermittent tributaries that contribute surface water flow to such waters; certain lakes, ponds, and impoundments of jurisdictional waters; and wetlands adjacent to other jurisdictional waters. Additionally, the USACE will decide on a case by case basis if the term "other waters of the U.S." covers non-navigable tributaries that are not relatively permanent, wetlands adjacent to non-navigable tributaries that are not relatively permanent, and wetlands adjacent to but do not directly abut a relatively permanent non-navigable tributary.

To establish the "ordinary high water mark" (OHWM) and limits of "other waters of the U.S.", ELOS followed USACE regulations which define the term "ordinary high water mark" for the purposes of the Clean Water Act lateral jurisdiction at 33 CFR 328.3 (e), which states:

> "The term *ordinary high water mark* means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas."

# 2 SITE DESCRIPTION

## 2.1 SITE LOCATION

The site is located in Sections 24 and 25; Township 11 South – Range 12 East in Orleans Parish, with the most northwestern point of the site located at 30° 4' 8.186" North Latitude, $89^0$ 57' 25.595" West Longitude (Figure 1).

## 2.2 SITE CHARATERISTICS

The site is approximately 75.21 acres in size and consists of 35.28 acres of other waters and 39.93 acres of four identifiable habitat types: coastal live-oak forests, created marsh, old field habitat, and remnant concrete and structures from the Lincoln Beach amusement park. The area known as Lincoln Beach was formerly an amusement area, featuring rides, swimming facilities, a restaurant, and support facilities. The majority of buildings were removed from the site in 2004. Concrete structures and paving still remain on site. After the buildings were removed the site was allowed to reforest, with hardwood species reclaiming unpaved areas of the site. Figure 7 provides a modified version of the Orleans Parish soil survey with the project depicted. According to LiDAR data (Figure 8), the elevation of the site ranges from

approximately 4 feet below sea level, to approximately 10 feet above sea level. The watershed and 8-digit hydrologic unit code (HUC) are shown in Figure 9.

## 2.3 HABITAT ANALYSIS

The approximately 39.93-acre land area of Lincoln Beach primarily consists of four readily divisible habitat types: coastal live-oak forests, created marsh, old field habitat, and unclassifiable habitat. The coastal live-oak forests are characterized by species and features typical of low-lying coastal live oak forests and early successional forests. This habitat site occupies approximately 12.31 acres. Typical tree species across the site include: *Quercus virginiana, Quercus laurifolia, Carya illinoinensis, Salix nigra,* and *Morus rubra.* Typical shrub species include: *Ilex vomitoria, Morella cerifera,* and *Baccharis halimifolia.* Typical woody vines across the site include: *Ampelopsis arborea, Campsis radicans,* and *Toxicodendron radicans. T. radicans,* or poison ivy, is a vine found commonly throughout the eastern US. An oil produced by the vine often produces adverse allergic reactions, including skin rashes and swelling, in humans if even lightly disturbed. This plant was found ubiquitously and abundantly across vegetated areas of the site and it is recommended to be removed before the area is reopened to the public. It is likely continued maintenance will be required to minimize exposure to the plant.

The site contained many large oak trees, particularly *Q. virginiana,* the live oak tree, and *Q. laurifola,* the laurel oak tree. These oaks were generally in good health and appeared mature. These trees have likely been on site prior to the 2004 site demolition. Any large healthy trees should be cleared of vines and left standing on site. *M. rubra,* the red mulberry, were also present and appeared mature and healthy. Some members are smaller and may lead to visibility problems if wooded areas are meant to be used recreationally

The marsh creation areas, to the approximately northeast and southwest of the main Lincoln Beach area, were not surveyed intensively due to difficulty of access as well as being part of a separate City of New Orleans restoration project. This area occupies approximately 6.06 acres of the site.

The parking area located south of Hayne Blvd has been allowed to revegetate as well. Due to the nature of the soil in the area, being largely covered in gravel and concrete, the area has not reforested and can best be described as old field habitat type. This habitat type occupies approximately 9.81 acres of the site. Few trees and shrubs have recolonized, *S. nigra* and *Ligustrum lucidum* being uncommon in the area. Herbaceous vegetation and vines are much more common. The herbaceous strata is represented by *Solidago altissima* and *Sabal minor.* The ground was completely covered in vines, primarily *C. radicans* and *Rubus trivialis.* If the area is to be utilized for its initial purpose, i.e. as a parking lot, all of this vegetation will need to be removed. One potential method would be to burn the vegetation in a controlled manner, but smoke is a concern for nearby residents. The parking area can than be regraded to its original state.

The remainder of land within the site outline, approximately 11.75 acres, is occupied by unclassifiable habitats, being remnant concrete/structures from Lincoln Beach facilities, the current flood wall and associated levees, rock weirs and associated beach fronts, railroad tracks, and public streets.

Wildlife species occurring within Lincoln Beach would be limited by habitat available and level of human activity. Species commonly observed within suburban areas, wetlands, and shorelines would be expected, such as raccoons (*Procyon lotor*), opossums (*Didelphis virginiana*), armadillos (*Dasypus* spp.), fox squirrels (*Sciurus niger*), feral cats (*Felis catus*), Norway rats (*Rattus norvegicus*), common songbirds (Northern Cardinals [*Cardinalis cardinalis*], Mockingbirds [*Mimus polyglottos*], American Crow [*Corvus brachyrhynchos*], Carolina wrens [*Thryothorus ludocivianus*], Red-winged Blackbirds [*Agelaius phoeniceus*], House Wrens [*Troglodytes aedon*]), common shorebirds (sandpipers [*Actitis* spp.], seagulls [Family Laridae], herons, egrets, and bitterns [Family Ardeidae]), birds of prey (Osprey [*Pandion haliaetus*], Red-tailed Hawk [*Buteo jamaicensis*]) and common brackish fish and mollusk species.

# 3 FIELD SURVEY

## 3.1 GENERAL

ELOS personnel inspected and made observations throughout the tract. Representative sample locations were chosen to characterize the site. At each sample location, vegetation species were recorded and dominance was estimated, soil samples were collected and examined for identification and determination of hydric properties, and observations were made on hydrologic conditions. Data forms and photographs (Appendix A) were taken to document site conditions at the sample sites.

## 3.2 PRELIMINARY DATA GATHERING

Prior to conducting fieldwork, ELOS mapped available information and characteristics of the site at a common scale. These included:

- Natural Resources Conservation Service (NRCS) Parish Soil Survey
- Digital Orthophoto Quarter Quadrangles (DOQQ) from 2008, 2010, and 2013
- Light Detection and Ranging (LIDAR) Data
- Hydrologic Units
- United States Geological Survey (USGS) 7.5-minute Topographic Maps

### 3.2.1 SOIL SURVEY

The soils information was provided by the USDA Natural Resource Conservation Service (originally the Soil Conservation Service). ELOS also used the online soil survey system to verify that the soils descriptions and extents are still valid according to the USDA.

Since 1935, the Natural Resources Conservation Service has provided information in an effort to help land owners conserve their soil, water, and other natural resources. In the field, soil scientists correlate the differences in soils with the differences in vegetation. After extensive review of this information, they delineate the general boundaries of individual soil types on aerial photographs. Soil maps are prepared for the soil survey report based on this data. When the survey for any given parish is completed, a soil survey report is published. The report contains information about the parish and its soils (i.e. climate, soil series and map units, use and management of soils, and formation and classification of soils) plus large scale photo-based maps showing the location and configuration of individual soil-map units. Soil-map units represent mapped areas of various soil types designated by an alphabetical code or a numerical code on the maps. Generally, the minimum map unit of soil types ranges from 1.5 to 10 acres, depending on landscape diversity and survey objectives.

Figure 7 is a modified version of the Orleans Parish Soil Survey with the project area depicted. A brief soil description based upon information provided by the USDA Natural Resources Conservation Service can be found in Appendix B.

### 3.2.2 CIR (DOQQs)

Color Infrared (CIR) photography was first developed by the military to detect camouflaged, anthropic features on the landscape. It is currently used, among other uses, as a tool in preparing wetland delineations (based on the USACE Manual). Many CIR photographs are available in a DOQQ (Digital Orthophoto Quarter Quadrangle) format, which allows for easier referencing. CIR registers sunlight reflected off the terrain. Various colors visible on the DOQQs can be used to correlate with other sources to determine the signatures of various vegetative communities among the landscape, including wetland signatures. The film is limited to three wavelength regions, the visible green, visible red and reflective infrared, which are displayed as blue, green, and red colors in a CIR photo. Chlorophyll in vigorous vegetation absorbs in the visible red and the visible blue portions of the electromagnetic spectrum. It has a very high reflectance in the reflective, infrared wavelength region to which the red emulsion of the CIR film is sensitive. Thus, chlorophyll-rich vegetation appears red in CIR film. Objects that appear from blue to black on the CIR film have one thing in common: they contain little, if any chlorophyll. As a result, water, tree trunks, buildings, roads and parking lots, shadows, dark soils, blackened leaves on the ground and other chlorophyll poor objects can appear from blue to black in the CIR film. This is not very discriminating of anything except chlorophyll.

CIR photography can be useful in identifying flats, depressions, and drainage ways. Dark regions in CIR photographs may indicate drainage ways where stained leaves may be present, dark soil exposed, as well as but not necessarily, the presence of standing water at the time the photographs were taken. It does not provide clues to any previous climatic conditions, so the presence of standing water should be

weighed against previous climatic conditions to determine if water is present for sufficient duration to substantiate wetland hydrology.

A problem with using CIR aerial photography is that the flights for the national programs (NHAP and NAPP) are often scheduled for before or after the beginning of the growing season. Skies are normally clear and cloudless after the passage of low pressure fronts, so the flights are often timed to follow these fronts across the country. Since these fronts usually include a large amount of rainfall, the presence of surface water cannot be fully trusted without further investigation.

Figures 2 - 6 show the outline of the project area depicted on aerial photographs taken in 1965, 1998, 2008, 2013, and 2019.

### 3.2.3 LIDAR

The LIDAR systems used in Louisiana are accurate to 15-30 cm root mean squared error (RMSE) and support contours of 1-2 foot vertical map accuracy standards, which meet Federal Emergency Management Agency (FEMA) standards for flood maps. The Louisiana LIDAR project is funded by FEMA and matching funds from the State of Louisiana, primarily in response to large flood loss rates in the state. LIDAR is a complex system of airborne instruments which employ an airborne/ground-based GPS, inertial measurement units, and an active laser sensor as the source to measure ranges and angles to specific points on the ground.

The range of elevations on the property, according to LIDAR data provided by the Louisiana Statewide LIDAR Project via the LSU Atlas website (http://atlas.lsu.edu), are shown in Figure 8.

### 3.2.4 USGS 7.5-MINUTE TOPOGRAPHIC MAPS

The USGS describes topographic maps as usually portraying both natural and manmade features. They show and name works of nature including mountains, valleys, plains, lakes, rivers, and vegetation. They also identify the principal works of man, such as roads, boundaries, transmission lines, and major buildings. The feature that most distinguishes topographic maps from maps of other types is the use of contour lines to portray the shape and elevation of the land. Topographic maps render the three-dimensional ups and downs of the terrain on a two-dimensional surface.

Topographic maps are used for engineering, energy exploration, natural resource conservation, environmental management, public works design, commercial and residential planning, and outdoor activities like hiking, camping, and fishing.

The amount of detail shown on a map is proportionate to the scale of the map: the larger the map scale, the more detail shown. Since one inch on the map represents 2,000 feet on the Earth, 1:24,000-scale maps depict considerable detail. Such large-scale maps of developed areas show features like schools, churches, cemeteries, campgrounds, and even fence lines. Many of these features are generalized or omitted in smaller scale topographic maps.

Site specific elevation and geomorphic characteristics are available on the USGS topographic map (Figure 1).

### 3.3 SAMPLE LOCATIONS

Sample locations were chosen to represent the various plant communities and soils characteristics. A handheld global positioning system was used to mark sample stations and delineation boundaries where possible. The approximate sample site locations are shown in Figure 10 and the Site Plan Overlay.

# 4 SITE DATA

### 4.1 SOILS

The soils found on portions of the site match the published description for the area (Appendix B). The soils largely consisted of fill material and aquents.

### 4.2 VEGETATION

The United States Fish and Wildlife Service (USFWS), in cooperation with other federal agencies, has developed a list of plants that grow in the nation's wetlands based on exhaustive reviews of botanical manuals, with subsequent review by wetland experts and plant ecologists (Tiner 1998). These plants were allocated an indicator status that refers to the estimated frequency of a plant species occurring in wetlands. These indicators are as follows: Upland (UPL), Facultative upland (FACU), Facultative (FAC), Facultative wetland (FACW), and Obligate (OBL) (Environmental Laboratory 1987).

Upland plants (UPL) are found almost exclusively in upland environments. Facultative upland plants (FACU) may be found in wetland environments less than 33 percent of the time. Facultative plants (FAC) are found in wetland and upland environments evenly. Facultative wetland plants (FACW) are found 67 to 99 percent of the time in wetland environments. Obligatory wetland plants (OBL) are found more than 99 percent of the time in wetlands (Environmental Laboratory 1987).

A site's vegetation status is either considered to be hydrophytic or non-hydrophytic depending on the indicator status of the dominant species found on a site. The vegetation of a site is determined to be hydrophytic vegetation when more than 50 percent of the dominate species found on a site have an indicator status of FAC, FACW, and OBL. This is one of the three criteria for determining whether or not a site is a wetland.

The site consists primarily of early to mid-successional hardwood forests and reclaimed parking lot. See the wetland data forms in Appendix A for more information on the various plants found.

### 4.3 HYDROLOGY

According to the USACE Manual, wetland hydrology encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the

surface at some time during the growing season. Areas with evident characteristics of wetland hydrology are those where the presence of water has an overriding influence on characteristics of vegetation and soils due to anaerobic and reducing conditions, respectively. Such characteristics are usually present in areas that are inundated or have soils that are saturated to the surface for sufficient duration to develop hydric soils and support vegetation typically adapted for life in periodically anaerobic soil conditions. To determine if an area is a potential wetland, it is necessary to establish that the area is periodically inundated or has saturated soils during the growing season.

Hydrology indicators found on the site include; high-water table, saturation, water-stained leaves, water marks, crayfish burrows, and FAC-neutral test. The watershed and 8-digit hydrologic unit code (HUC) are shown in Figure 7.

# 5 CONCLUSIONS

Evidence observed and documented indicates that portions of this site meet the established criteria to be considered "wetlands". In addition, portions of this site meet the established criteria to be considered "other waters of the U.S.". The evidence for this determination includes identification of dominant plant species, the examination and documentation of soil samples, the presence or lack of primary and or secondary wetland hydrology indicators and guidance from RGL No. 05-05, 33 CFR 328.3 (e) and 33 CFR 329.11 (a) (1). The findings include:

- *Soils*: Hydric soil characteristics were observed on portions of the site.
- *Vegetation*: The vegetation on portions of the site was found to be hydrophytic.
- *Hydrology*: Hydrology indicators found on the site include; high-water table, saturation, sediment deposits, water-stained leaves, oxidized rhizospheres along living roots, surface soil cracks, sparsely vegetated concave surface, moss trim lines, crayfish burrows, and FAC-neutral test.

Based on field examinations, DOQQ findings, soil surveys, elevation maps, and LIDAR, ELOS mapped proposed wetland delineation boundaries in Figures 10 and 11, and again in the Site Plan Overlay.

# 6 WORKS CITED


33 Code of Federal Regulations (CFR) 328.3 (e). Definition of the term *ordinary high water mark.*

33 Code of Federal Regulations (CFR) 329.11 (a) (1). Geographic and jurisdictional limits of rivers and lakes.

85 FR 22250 The Navigable Waters Protection Rule: Definition of "Waters of the United States."

Environmental Laboratory. 1987. U.S. Army Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.

Louisiana Statewide LIDAR Project c/o the LSU Atlas website (http://atlas.lsu.edu).

Lyon, John Grimson. Practical Handbook for Wetland Identification and Delineation. Boca Raton, Florida: Lewis Publishers, 1993.

National Technical Committee for Hydric Soils (NTCHS). 1991. Hydric Soils of the United States. U.S.D.A. Soil Conservation Service.

Riley, D., 2005. Regulatory Guidance Letter (RGL) 05-05, Subject: Ordinary High Water Mark Identification. http://www.usace.army.mil/Portals/2/docs/civilworks/RGLS/rgl05-05.pdf

Tiner, Ralph W. In Search of Swampland: A Wetland Sourcebook and Field Guide. New Burnswick, New Jersey: Rutgers University Press, 1998.

U.S. Army Corps of Engineers (2010). "Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0)", ERDC/EL TR-10-20, U.S. Army Engineer Research and Development Center, Vicksburg, MS.

U.S. Fish and Wildlife Service, National Wetlands Inventory (http://www.fws.gov/wetlands/Data/Mapper.html)

# FIGURES

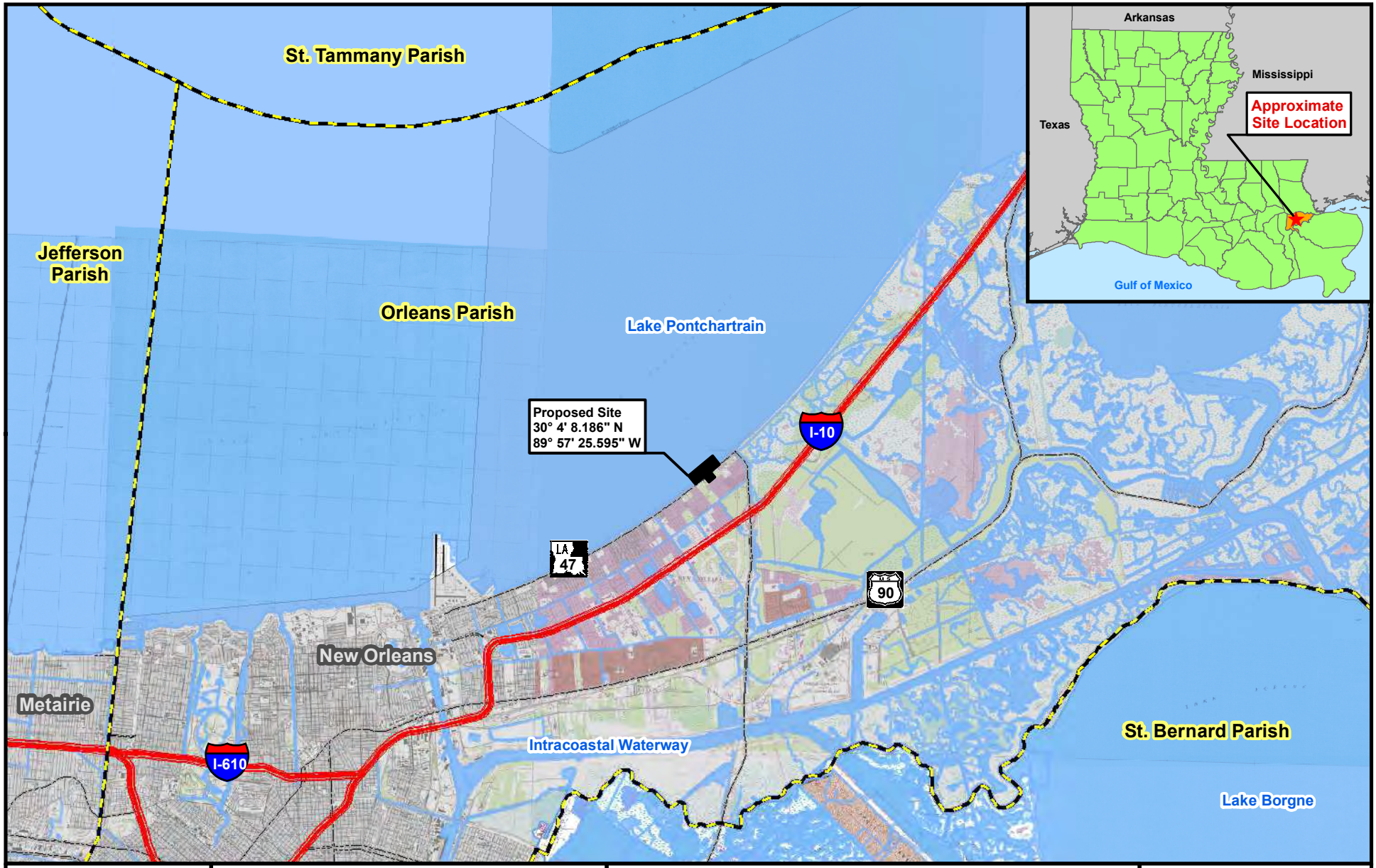


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Figure 1:TopoVicinity Map

## Lincoln Beach

This figure was prepared utilizing public and proprietary data. It should not be used to establish any legal boundaries or specific locations. ELOS Environmental, L.L.C., is not responsible for any usage of this figure contrary to its original, intended purpose.

**Legend:**

- Site Outline
- Parish Boundary
- City/Town
- Interstate
- Highway
- Stream/River
- Waterbody

**Sections: 24, 25**
**Township: 11 South**
**Range: 12 East**

N W E S

Feet
0 7,000 14,000

F:\KLE\Lincoln Beach\GIS Maps\Delineation\Figure 1_TopoVicinity Map


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Figure 2: 1965 Aerial

## Lincoln Beach

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**Legend:**

- Site Outline
- Highway
- Roadways

N W E S

Feet

0 250 500

F:\KLE\Lincoln Beach\GIS Maps\Delineation\Figure 2_1965 Aerial


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Figure 3: 1998 Aerial

## Lincoln Beach

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**Legend:**

- Site Outline
- Highway
- Roadways

N
W E
S

Feet
0 250 500

F:\KLE\Lincoln Beach\Delineation\GIS Maps\Figure 3_1998 Aerial


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Figure 4: 2008 Aerial

## Lincoln Beach

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**Legend:**

- Site Outline
- Highway
- Roadways

N
W E
S

Feet
0 250 500

F:\KLE\Lincoln Beach\GIS Maps\Delineation\Figure 4_2008 Aerial


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Figure 5: 2013 Aerial

## Lincoln Beach

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**Legend:**

- Site Outline
- Highway
- Local Road

N W E S

0 250 500 Feet

F:\KLE\Lincoln Beach\GIS Maps\Delineation\Figure 5_2013 Aerial


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Figure 6: 2019 Aerial

## Lincoln Beach

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**Legend:**

- Site Outline
- Highway
- Roadways

N
W E
S

Feet
0 250 500

F:\KLE\Lincoln Beach\Delineation\GIS Maps\Figure 6_2019 Aerial

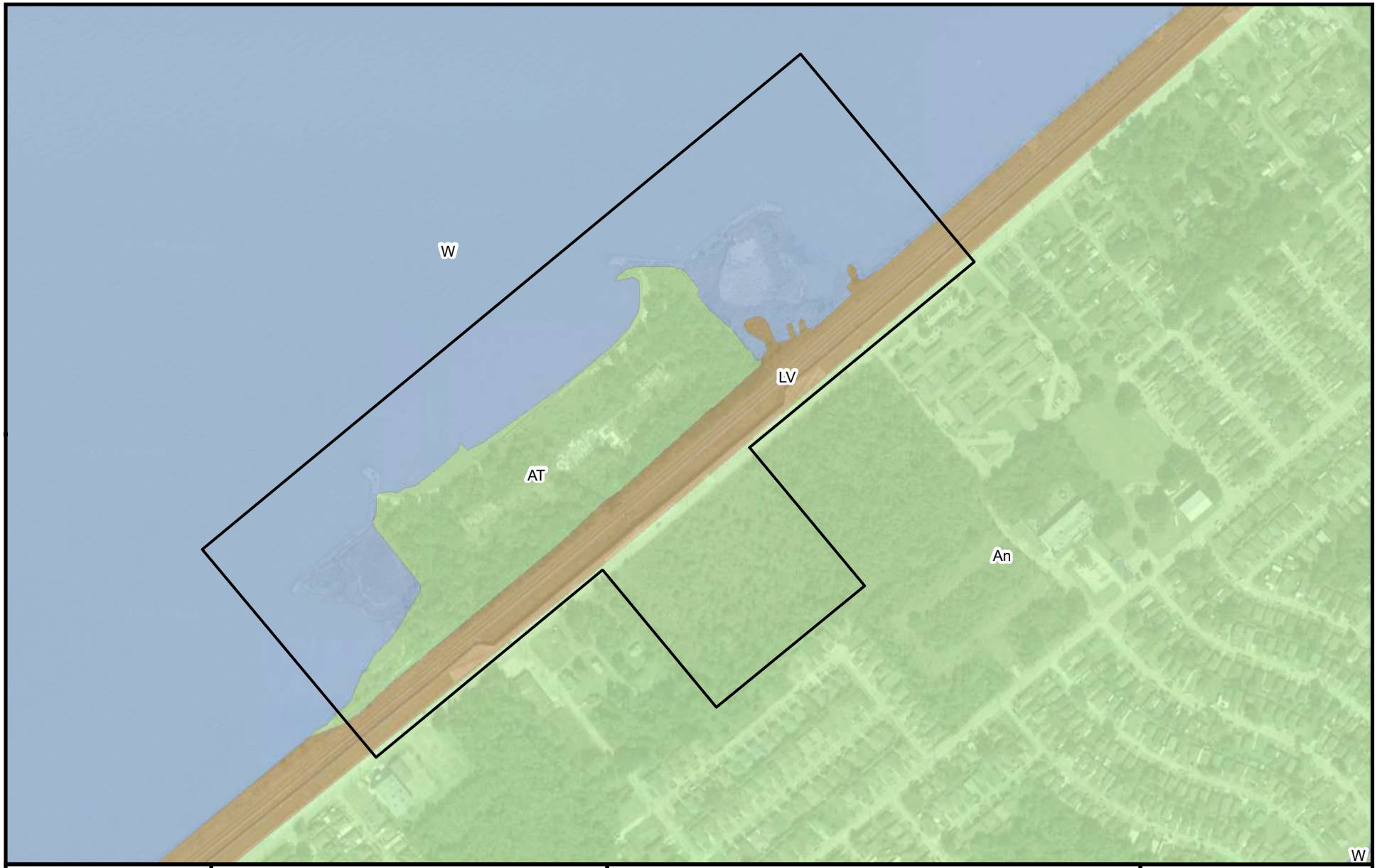


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Figure 7: Soils Map

## Lincoln Beach

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**Legend:**

- Site Outline
- Hydric
- Non-Hydric
- Water

N W E S

Feet

0 250 500

F:\KLE\Lincoln Beach\GIS Maps\Delineation\Figure 7_Soils Map

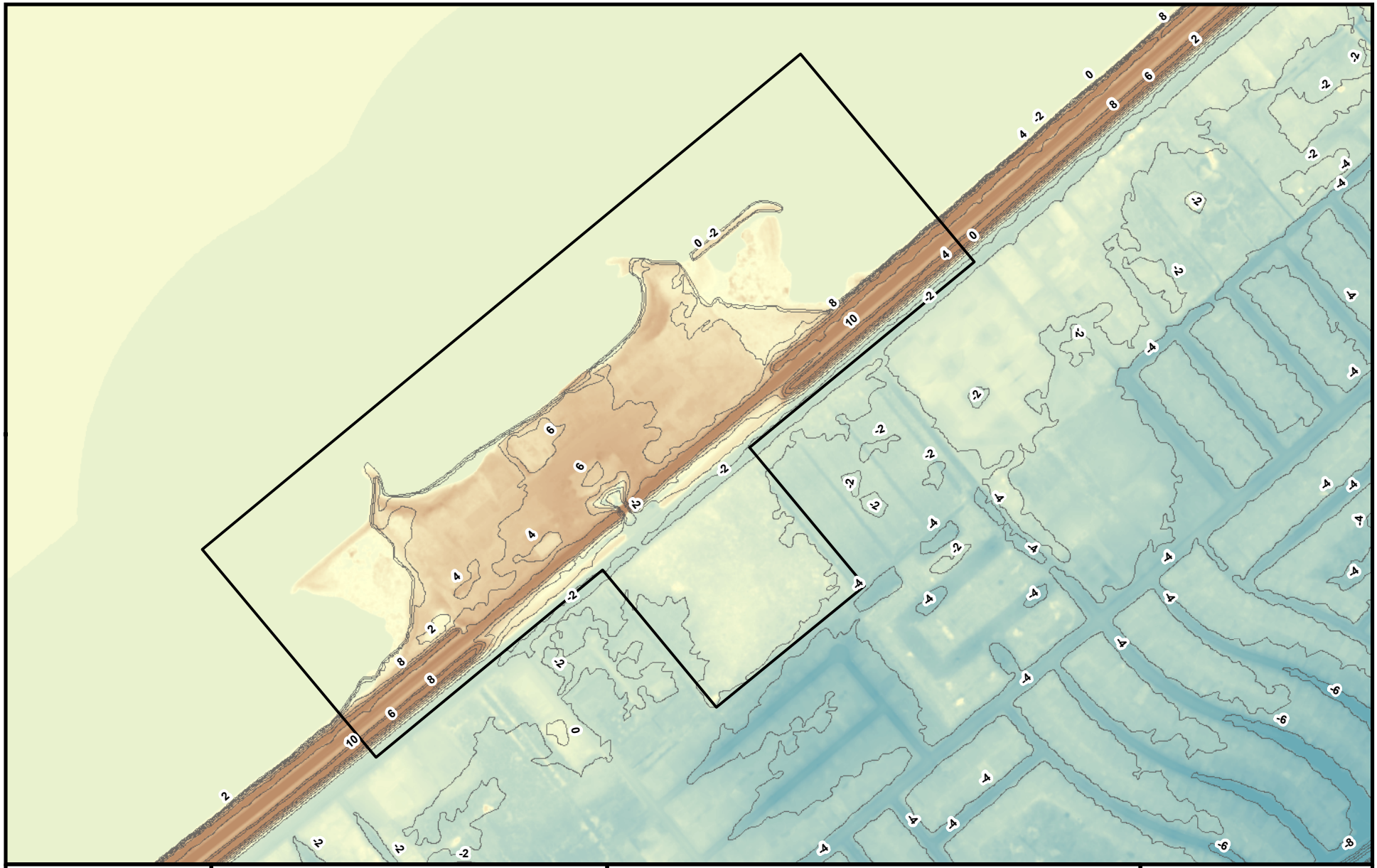

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Figure 8: Elevations Map

## Lincoln Beach

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**Legend:**

- Site Outline
- Contour
- Higher
- Lower

N
W E
S

Feet
0 250 500

F:\KLE\Lincoln Beach\GIS Maps\Delineation\Figure 8_Elevations Map

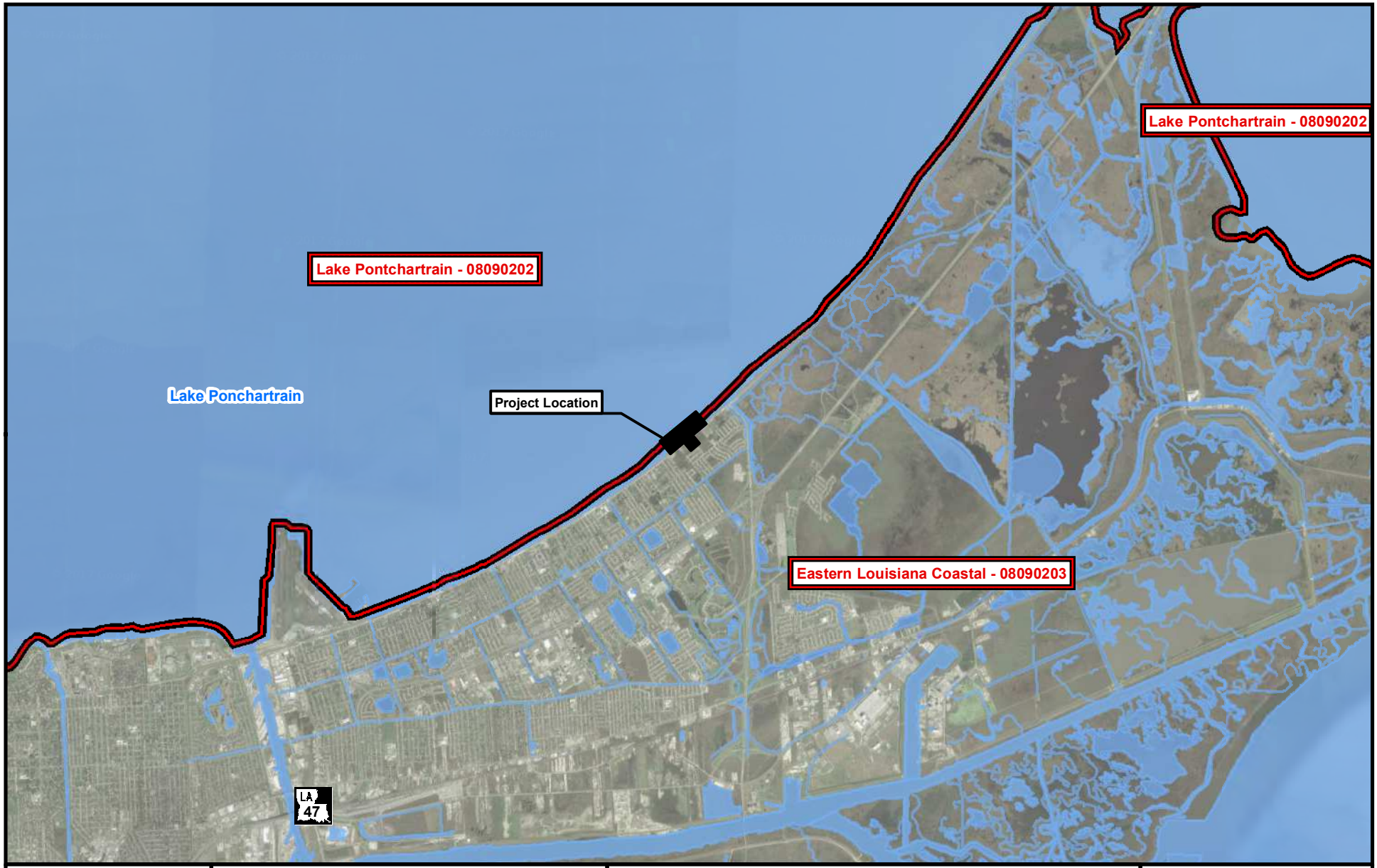


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Figure 9: Hydrologic Unit Map

## Lincoln Beach

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**Legend:**

- Site Outline
- Hydrologic Unit Boundary
- Stream/River
- Waterbody

N W E S

Feet
0 4,200 8,400

F:\KLE\Lincoln Beach\GIS Maps\Delineation\Figure 9_Hydrologic Unit Map

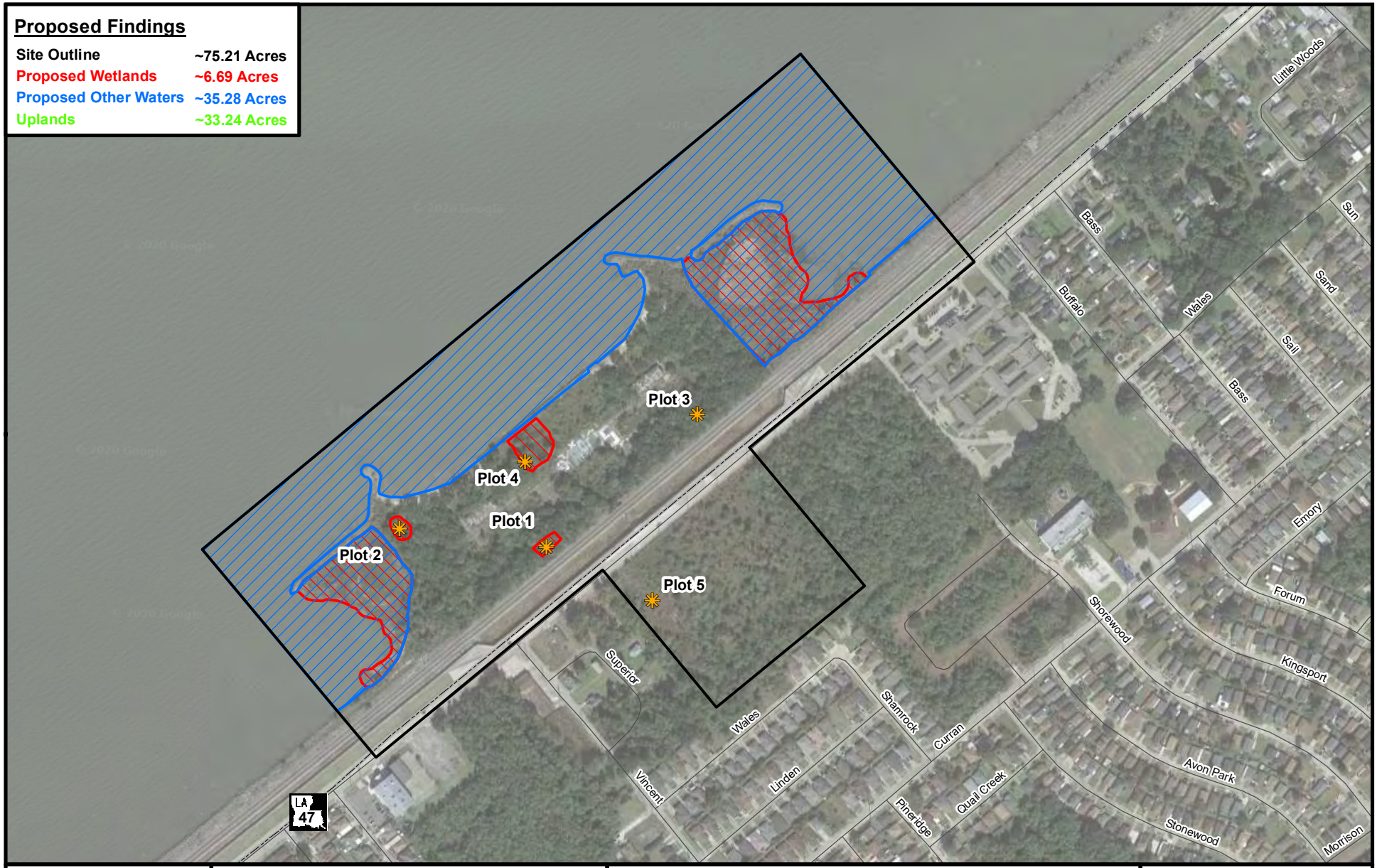


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Figure 10: Proposed Delineation with 2019 Aerial

## Lincoln Beach

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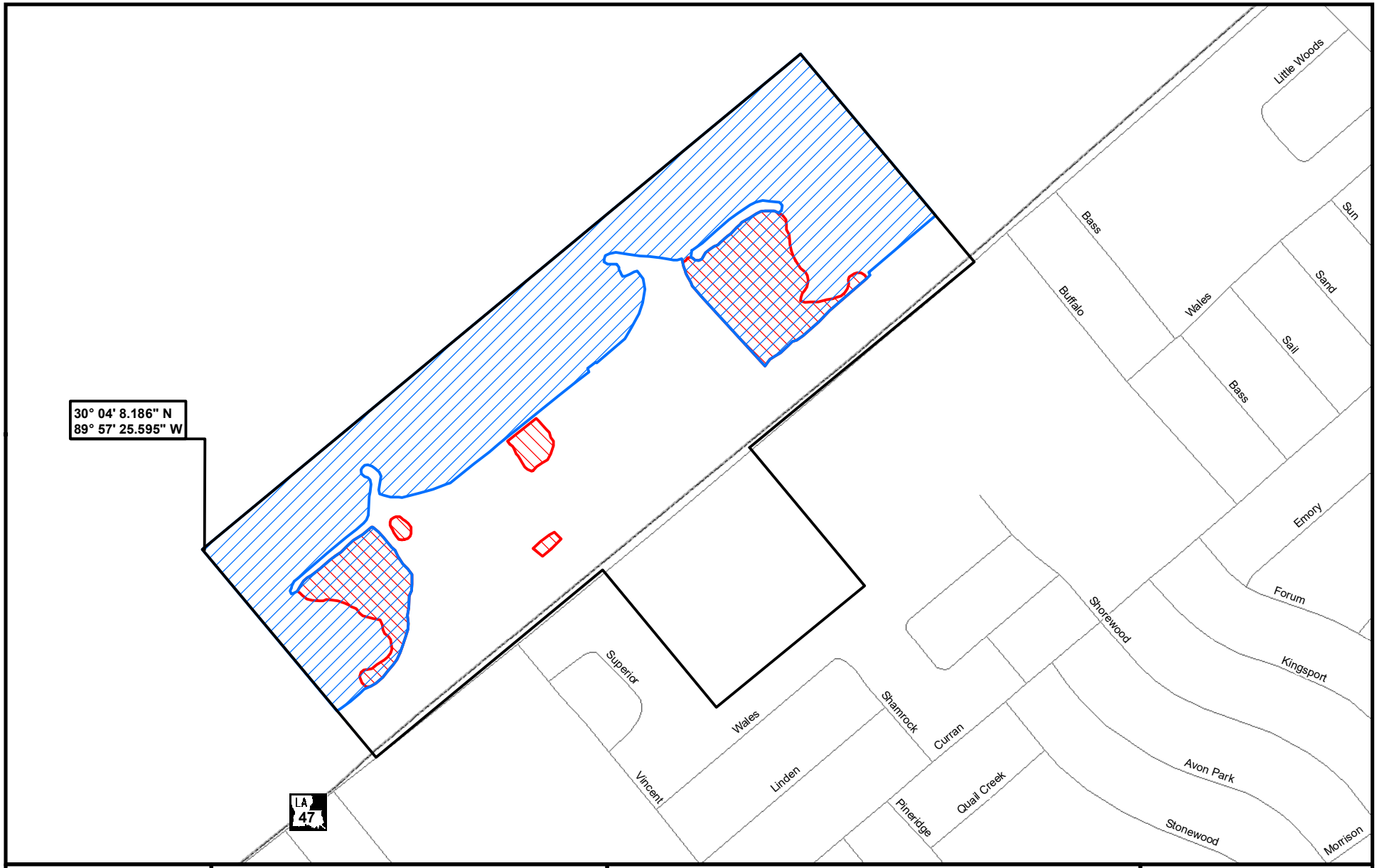
**Legend:**

- Site Outline
- Proposed Wetlands
- Proposed Other Waters
- Sample Plot
- Highway
- Roadways

N W E S

Feet
0 250 500

F:\KLE\Lincoln Beach\GIS Maps\Delineation\Figure 10_Proposed Delineation with 2019 Aerial

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# Figure 11: Proposed Delineation

## Lincoln Beach

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**Legend:**

- Site Outline
- Proposed Wetlands
- Proposed Other Waters
- Highway
- Roadways

N W E S

Feet
0 250 500

F:\KLE\Lincoln Beach\Delineation\GIS Maps\Figure 11_Proposed Delineation

# APPENDIX A

# WETLAND DATA FORMS / PHOTOGRAPHS

## WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Lincoln Beach City/County: New Orleans, Orleans Sampling Date: 9-8-20

Applicant/Owner: City of New Orleans State: LA Sampling Point: Plot 1

Investigator(s): Wren Vicknair and Maria Reid Section, Township, Range: Section: 25, Township: 11S, Range: 12E

Landform (hillside, terrace, etc.): Wooded depression Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR or MLRA): LRR T, MLRA 151 Lat: 30° 4' 8.908' N Long: 89° 57' 11.423" W Datum: NAD83

Soil Map Unit Name: AT- Aquents, dredged, frequently flooded NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes X | No ____ | **Is the Sampled Area within a Wetland?** **Yes** X **No** ____ |
| Hydric Soil Present? | Yes X | No ____ | |
| Wetland Hydrology Present? | Yes X | No ____ | |

Remarks:
Shovel met impenetrable resistance due to fill material at 9 inches depth.

### HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T,U)**

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ____ | No X | Depth (inches): ____ |
| Water Table Present? | Yes ____ | No X | Depth (inches): ____ |
| Saturation Present? (includes capillary fringe) | Yes ____ | No X | Depth (inches): ____ |

**Wetland Hydrology Present?** **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Area was depressional with no connection to a waterway.

**VEGETATION (Five Strata)** – Use scientific names of plants.

Sampling Point: Plot 1

| Tree Stratum (Plot size: 30' radius) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Quercus virginiana* | 25 | Yes | FACU |
| 2. *Quercus laurifolia* | 10 | Yes | FACW |
| 3. *Morus rubra* | 12 | Yes | FACU |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| | 47 | =Total Cover | |
| 50% of total cover: 24 | | 20% of total cover: | 10 |

| Sapling Stratum (Plot size: 30' radius) | | | |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| | | =Total Cover | |
| 50% of total cover: | | 20% of total cover: | |

| Shrub Stratum (Plot size: 30' radius) | | | |
|---|---|---|---|
| 1. *Morus rubra* | 5 | No | FACU |
| 2. *Ilex vomitoria* | 10 | Yes | FAC |
| 3. *Ligustrum japonicum* | 25 | Yes | FAC |
| 4. *Triadica sebifera* | 4 | No | FAC |
| 5. | | | |
| 6. | | | |
| | 44 | =Total Cover | |
| 50% of total cover: 22 | | 20% of total cover: | 9 |

| Herb Stratum (Plot size: 30' radius) | | | |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | | =Total Cover | |
| 50% of total cover: | | 20% of total cover: | |

| Woody Vine Stratum (Plot size: 30' radius) | | | |
|---|---|---|---|
| 1. *Ampelopsis arborea* | 5 | No | FAC |
| 2. *Campsis radicans* | 10 | Yes | FAC |
| 3. *Jacquemontia tamnifolia* | 25 | Yes | FACU |
| 4. | | | |
| 5. | | | |
| | 40 | =Total Cover | |
| 50% of total cover: 20 | | 20% of total cover: | 8 |

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 57.1% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 10 | x 2 = | 20 |
| FAC species | 54 | x 3 = | 162 |
| FACU species | 67 | x 4 = | 268 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 131 (A) | | 450 (B) |

Prevalence Index = B/A = 3.44

**Hydrophytic Vegetation Indicators:**

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Definitions of Five Vegetation Strata:**

**Tree** – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

**Sapling** – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

**Shrub -** Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

**Herb** – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

**Woody Vine** – All woody vines, regardless of height.

**Hydrophytic Vegetation Present?** **Yes** X **No** ___

Remarks: (If observed, list morphological adaptations below.)

## SOIL

Sampling Point: Plot 1

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-2 | 10YR 5/2 | 100 | | | | | Loamy/Clayey | |
| 2-9 | 10YR 5/1 | 85 | 10YR 4/6 | 15 | C | M | Loamy/Clayey | Prominent redox concentrations |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR, P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) (**MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- X Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**

**Indicators for Problematic Hydric Soils[3]:**

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Coast Prairie Redox (A16) **(outside MLRA 150A)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** **Yes** X **No** ___

Remarks:

Shovel hit gravel @ 9".

Photo 1: Soils Sample Plot 1, Soil Sample.

Photo 2: Soils Sample Plot 1, Vegetation View 1.

Photo 3: Soils Sample Plot 1, Vegetation View 2.

Photo 4: Soils Sample Plot 1, Vegetation View 3.

## WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Lincoln Beach City/County: New Orleans/ Orleans Sampling Date: 9-8-2020

Applicant/Owner: City of New Orleans State: LA Sampling Point: Plot 2

Investigator(s): Wren Vikcnair and Maria Reid Section, Township, Range: Section: 25, Township: 11S, Range: 12E

Landform (hillside, terrace, etc.): Dune Backside Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR or MLRA): LRR T, MLRA 151 Lat: 30°4'9.001" N Long: 89° 57'17.950" W Datum: NAD83

Soil Map Unit Name: AT- Aquents, Dredged, Frequently flooded NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes X | No ____ | **Is the Sampled Area within a Wetland?** **Yes** X **No** ____ |
| Hydric Soil Present? | Yes X | No ____ | |
| Wetland Hydrology Present? | Yes X | No ____ | |

Remarks:
Shovel met resistance due to fill. Area was a depression located behind a sand dune.

### HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- X Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T,U)**

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ____ | No X | Depth (inches): ____ |
| Water Table Present? | Yes X | No ____ | Depth (inches): 4 |
| Saturation Present? (includes capillary fringe) | Yes X | No ____ | Depth (inches): 0 |

**Wetland Hydrology Present?** **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**VEGETATION (Five Strata)** – Use scientific names of plants. Sampling Point: Plot 2

| Tree Stratum (Plot size: 30' radius) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix nigra* | 30 | Yes | OBL |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| | 30 | =Total Cover | |
| 50% of total cover: 15 | | 20% of total cover: | 6 |
| **Sapling Stratum** (Plot size: 30' radius) | | | |
| 1. *Triadica sebifera* | 5 | Yes | FAC |
| 2. *Salix nigra* | 5 | Yes | OBL |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| | 10 | =Total Cover | |
| 50% of total cover: 5 | | 20% of total cover: | 2 |
| **Shrub Stratum** (Plot size: 30' radius) | | | |
| 1. *Triadica sebifera* | 2 | Yes | FAC |
| 2. *Diospyros virginiana* | 2 | Yes | FAC |
| 3. *Baccharis halimifolia* | 2 | Yes | FAC |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| | 6 | =Total Cover | |
| 50% of total cover: 3 | | 20% of total cover: | 2 |
| **Herb Stratum** (Plot size: 30' radius) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | | =Total Cover | |
| 50% of total cover: | | 20% of total cover: | |
| **Woody Vine Stratum** (Plot size: 30' radius) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | | =Total Cover | |
| 50% of total cover: | | 20% of total cover: | |

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 35 | x 1 = | 35 |
| FACW species | 0 | x 2 = | 0 |
| FAC species | 11 | x 3 = | 33 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 46 (A) | | 68 (B) |

Prevalence Index = B/A = 1.48

**Hydrophytic Vegetation Indicators:**

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Definitions of Five Vegetation Strata:**

**Tree** – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

**Sapling** – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

**Shrub -** Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

**Herb** – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

**Woody Vine** – All woody vines, regardless of height.

**Hydrophytic Vegetation Present?** **Yes** X **No** ___

Remarks: (If observed, list morphological adaptations below.)

## SOIL

Sampling Point: Plot 2

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-4 | 10YR 4/1 | 100 | | | | | Loamy/Clayey | |
| 4-9 | 10YR 6/1 | 100 | | | | | Sandy | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR, P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) (**MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- X Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- X Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**

**Indicators for Problematic Hydric Soils[3]:**

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Coast Prairie Redox (A16) **(outside MLRA 150A)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** **Yes** X **No** ___

Remarks:

Concretel gravel fill at 9 inches.

Photo 5: Soils Sample Plot 2, Soil Sample.

Photo 6: Soils Sample Plot 2, Vegetation View 1.

Photo 7: Soils Sample Plot 2, Vegetation View 2.

Photo 8: Soils Sample Plot 2, Vegetation View 3.

## WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Lincoln Beach City/County: New Orleans, Orleans Sampling Date: 9-8-2020

Applicant/Owner: City of New Orleans State: LA Sampling Point: Plot 3

Investigator(s): Wren Vicknair and Maria Reid Section, Township, Range: Section: 25, Township: 11S, Range: 12E

Landform (hillside, terrace, etc.): Forested Fill Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR or MLRA): LRR T, MLRA 151 Lat: 30° 4' 13.561" N Long: 89° 57' 5.155" W Datum: NAD83

Soil Map Unit Name: AT- Aquentes, Dredged, Frequently flooded NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ____ | No X | **Is the Sampled Area within a Wetland?** **Yes** ____ **No** X |
| Hydric Soil Present? | Yes ____ | No X | |
| Wetland Hydrology Present? | Yes ____ | No X | |

Remarks:
Shovel met resistance due to fill material at 9 inches.

### HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T,U)**

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ____ | No X | Depth (inches): ____ |
| Water Table Present? | Yes ____ | No X | Depth (inches): ____ |
| Saturation Present? (includes capillary fringe) | Yes ____ | No X | Depth (inches): ____ |

**Wetland Hydrology Present?** **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**VEGETATION (Five Strata)** – Use scientific names of plants.

Sampling Point: Plot 3

| Tree Stratum (Plot size: 30' radius) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Carya illinoinensis* | 20 | Yes | FACU |
| 2. *Morus rubra* | 15 | Yes | FACU |
| 3. *Quercus virginiana* | 20 | Yes | FACU |
| 4. *Quercus laurifolia* | 20 | Yes | FACW |
| 5. | | | |
| 6. | | | |
| | 75 | =Total Cover | |
| 50% of total cover: 38 | | 20% of total cover: | 15 |
| Sapling Stratum (Plot size: 30' radius) | | | |
| 1. *Morus rubra* | 25 | Yes | FACU |
| 2. *Triadica sebifera* | 5 | No | FAC |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| | 30 | =Total Cover | |
| 50% of total cover: 15 | | 20% of total cover: | 6 |
| Shrub Stratum (Plot size: 30' radius) | | | |
| 1. *Cornus florida* | 5 | No | UPL |
| 2. *Morella cerifera* | 5 | No | FAC |
| 3. *Ilex vomitoria* | 25 | Yes | FAC |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| | 35 | =Total Cover | |
| 50% of total cover: 18 | | 20% of total cover: | 7 |
| Herb Stratum (Plot size: 30' radius) | | | |
| 1. *Morella cerifera* | 4 | Yes | FAC |
| 2. *Cornus florida* | 2 | Yes | UPL |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 6 | =Total Cover | |
| 50% of total cover: 3 | | 20% of total cover: | 2 |
| Woody Vine Stratum (Plot size: 30' radius) | | | |
| 1. *Ampelopsis arborea* | 5 | Yes | FAC |
| 2. *Parthenocissus quinquefolia* | 2 | Yes | FACU |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 7 | =Total Cover | |
| 50% of total cover: 4 | | 20% of total cover: | 2 |

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40.0% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 20 | x 2 = | 40 |
| FAC species | 44 | x 3 = | 132 |
| FACU species | 82 | x 4 = | 328 |
| UPL species | 7 | x 5 = | 35 |
| Column Totals: | 153 (A) | | 535 (B) |
| Prevalence Index = B/A = | | | 3.50 |

**Hydrophytic Vegetation Indicators:**

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Definitions of Five Vegetation Strata:**

**Tree** – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

**Sapling** – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

**Shrub -** Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

**Herb** – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

**Woody Vine** – All woody vines, regardless of height.

**Hydrophytic Vegetation Present?** **Yes** ___ **No** X

Remarks: (If observed, list morphological adaptations below.)

## SOIL

Sampling Point: Plot 3

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-4 | 10YR 3/1 | 100 | | | | | Loamy/Clayey | |
| 4-9 | 10YR 6/3 | 95 | 10YR 6/6 | 5 | C | M | Loamy/Clayey | Distinct redox concentrations |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR, P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) (**MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**

**Indicators for Problematic Hydric Soils[3]:**

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Coast Prairie Redox (A16) **(outside MLRA 150A)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** **Yes** ___ **No** X

Remarks:

Shovel met resistance due to fill material at 9 inches.

Photo 9: Soils Sample Plot 3, Soil Sample.

Photo 10: Soils Sample Plot 3, Vegetation View 1.

Photo 11: Soils Sample Plot 3, Vegetation View 2.

Photo 12: Soils Sample Plot 3, Vegetation View 3.

## WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Lincoln Beach City/County: New Orleans/ Orleans Sampling Date: 9-8-2020

Applicant/Owner: City of New Orleans State: LA Sampling Point: Plot 4

Investigator(s): Wren Vicknair and Maira Reid Section, Township, Range: Section: 25, Township: 11S, Range: 12E

Landform (hillside, terrace, etc.): ponded depression Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR or MLRA): LRR T, MLRA 151 Lat: 30° 4' 11.675" N Long: 89° 57' 12.350" W Datum: NAD83

Soil Map Unit Name: AT- Aquents, dredged, frequently flooded NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes X | No ____ | **Is the Sampled Area within a Wetland?** **Yes** X **No** ____ |
| Hydric Soil Present? | Yes X | No ____ | |
| Wetland Hydrology Present? | Yes X | No ____ | |

Remarks:
Area was historically a large diving pool and has been filled. Settling over time has likely led to the ponded nature of this area. Soils were a mottled fill material.

### HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T,U)**

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ____ | No X | Depth (inches): ____ |
| Water Table Present? | Yes X | No ____ | Depth (inches): 6 |
| Saturation Present? (includes capillary fringe) | Yes X | No ____ | Depth (inches): 0 |

**Wetland Hydrology Present?** **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**VEGETATION (Five Strata)** – Use scientific names of plants.

Sampling Point: Plot 4

| Tree Stratum (Plot size: 30' radius) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Salix nigra* | 35 | Yes | OBL |
| 2. *Carya illinoinensis* | 10 | Yes | FACU |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| | 45 | =Total Cover | |
| 50% of total cover: 23 | | 20% of total cover: | 9 |
| **Sapling Stratum** (Plot size: 30' radius) | | | |
| 1. *Triadica sebifera* | 5 | Yes | FAC |
| 2. *Salix nigra* | 15 | Yes | OBL |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| | 20 | =Total Cover | |
| 50% of total cover: 10 | | 20% of total cover: | 4 |
| **Shrub Stratum** (Plot size: 30' radius) | | | |
| 1. *Morella cerifera* | 20 | Yes | FAC |
| 2. *Morus rubra* | 15 | Yes | FACU |
| 3. *Ilex vomitoria* | 5 | No | FAC |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| | 40 | =Total Cover | |
| 50% of total cover: 20 | | 20% of total cover: | 8 |
| **Herb Stratum** (Plot size: 30' radius) | | | |
| 1. *Solidago sempervirens* | 12 | Yes | FACW |
| 2. *Baccharis halimifolia* | 10 | Yes | FAC |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 22 | =Total Cover | |
| 50% of total cover: 11 | | 20% of total cover: | 5 |
| **Woody Vine Stratum** (Plot size: 30' radius) | | | |
| 1. *Campsis radicans* | 6 | Yes | FAC |
| 2. *Toxicodendron radicans* | 4 | Yes | FAC |
| 3. *Rubus argutus* | 4 | Yes | FAC |
| 4. | | | |
| 5. | | | |
| | 14 | =Total Cover | |
| 50% of total cover: 7 | | 20% of total cover: | 3 |

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 11 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 81.8% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 50 | x 1 = | 50 |
| FACW species | 12 | x 2 = | 24 |
| FAC species | 54 | x 3 = | 162 |
| FACU species | 25 | x 4 = | 100 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 141 (A) | | 336 (B) |

Prevalence Index = B/A = 2.38

**Hydrophytic Vegetation Indicators:**

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Definitions of Five Vegetation Strata:**

**Tree** – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

**Sapling** – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

**Shrub -** Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

**Herb** – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

**Woody Vine** – All woody vines, regardless of height.

**Hydrophytic Vegetation Present?** **Yes** X **No** ___

Remarks: (If observed, list morphological adaptations below.)

## SOIL

Sampling Point: Plot 4

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-20 | 10YR 4/1 | 80 | 10YR 4/4 | 5 | C | M | Loamy/Clayey | Distinct redox concentrations |
| | | | 10YR 6/2 | 15 | C | M | | Faint redox concentrations |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR, P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) (**MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- X Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**

**Indicators for Problematic Hydric Soils[3]:**

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Coast Prairie Redox (A16) **(outside MLRA 150A)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** **Yes** X **No** ___

Remarks:

Soils contain clay/shell fill.

Photo 13: Soils Sample Plot 4, Soil Sample.

Photo 14: Soils Sample Plot 4, Vegetation View 1.

Photo 15: Soils Sample Plot 4, Vegetation View 2.

Photo 16: Soils Sample Plot 4, Vegetation View 3.

## WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Lincoln Beach City/County: New Orleans/ Orleans Sampling Date: 9-8-2020

Applicant/Owner: City of New Orleans State: LA Sampling Point: Plot 5

Investigator(s): Wren Vicknair and Maria Reid Section, Township, Range: Section: 25, Township: 11S, Range: 12E

Landform (hillside, terrace, etc.): Overgrown Parkinng Lot Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR or MLRA): LRR T, MLRA 151 Lat: 30° 4' 6.768" N Long: 89° 57' 6.804" W Datum: NAD83

Soil Map Unit Name: An- Aquents, dredged NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil X, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes ____ No X

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | | | |
|---|---|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ____ | No X | **Is the Sampled Area** | | |
| Hydric Soil Present? | Yes ____ | No X | **within a Wetland?** | **Yes** ____ | **No** X |
| Wetland Hydrology Present? | Yes ____ | No X | | | |

Remarks:
Area is Overgrown gravel/concrete parking lot. Nosoils sample was able to be taken.

### HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T,U)**

**Field Observations:**

| | | | |
|---|---|---|---|
| Surface Water Present? | Yes ____ | No X | Depth (inches): ____ |
| Water Table Present? | Yes ____ | No X | Depth (inches): ____ |
| Saturation Present? (includes capillary fringe) | Yes ____ | No X | Depth (inches): ____ |

**Wetland Hydrology Present?** **Yes** ____ **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Hydrology is significantly disturbed. Entire area is a gravel/concrete parking lot with overgrowing vegetation. Natural drainage conditions do not exist on site.

**VEGETATION (Five Strata)** – Use scientific names of plants. Sampling Point: Plot 5

| Tree Stratum (Plot size: 30' radius) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| | =Total Cover | | |
| 50% of total cover: | 20% of total cover: | | |
| **Sapling Stratum** (Plot size: 30' radius) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| | =Total Cover | | |
| 50% of total cover: | 20% of total cover: | | |
| **Shrub Stratum** (Plot size: 30' radius) | | | |
| 1. *Ligustrum lucidum* | 5 | Yes | UPL |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| | 5 =Total Cover | | |
| 50% of total cover: 3 | 20% of total cover: 1 | | |
| **Herb Stratum** (Plot size: 30' radius) | | | |
| 1. *Solidago altissima* | 15 | Yes | FACU |
| 2. *Sabal minor* | 10 | Yes | FACW |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 25 =Total Cover | | |
| 50% of total cover: 13 | 20% of total cover: 5 | | |
| **Woody Vine Stratum** (Plot size: 30' radius) | | | |
| 1. *Campsis radicans* | 80 | Yes | FAC |
| 2. *Rubus trivialis* | 30 | Yes | FACU |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 110 =Total Cover | | |
| 50% of total cover: 55 | 20% of total cover: 22 | | |

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40.0% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 10 | x 2 = | 20 |
| FAC species | 80 | x 3 = | 240 |
| FACU species | 45 | x 4 = | 180 |
| UPL species | 5 | x 5 = | 25 |
| Column Totals: | 140 (A) | | 465 (B) |
| Prevalence Index = B/A = | | | 3.32 |

**Hydrophytic Vegetation Indicators:**

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Definitions of Five Vegetation Strata:**

**Tree** – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

**Sapling** – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

**Shrub -** Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

**Herb** – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

**Woody Vine** – All woody vines, regardless of height.

**Hydrophytic Vegetation Present?** **Yes** ___ **No** X

Remarks: (If observed, list morphological adaptations below.)

## SOIL

Sampling Point: Plot 5

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR, P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) (**MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**

**Indicators for Problematic Hydric Soils[3]:**

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Coast Prairie Redox (A16) **(outside MLRA 150A)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** **Yes** ___ **No** ___

Remarks:

Discussed significantly disturbed soils.

Photo 17: Soils Sample Plot 5, Soils View.

Photo 18: Soils Sample Plot 5, Vegetation View 1.

Photo 19: Soils Sample Plot 5, Vegetation View 2.

Photo 20: Soils Sample Plot 5, Vegetation View 3.

# APPENDIX B

# SOILS CHARACTERISTICS

Minor map unit components are excluded from this report.

## Orleans Parish, Louisiana

**Map Unit:** An—Aquents, dredged

**Component:** Aquents (90%)

The Aquents component makes up 90 percent of the map unit. Slopes are 0 to 1 percent. This component is on marshes. The parent material consists of alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. This soil meets hydric criteria.

**Component:** Minor components (10%)

Generated brief soil descriptions are created for major soil components. The Minor components soil is a minor component.

**Map Unit:** AT—Aquents, dredged, frequently flooded

**Component:** Aquents (90%)

The Aquents component makes up 90 percent of the map unit. Slopes are 0 to 1 percent. This component is on marshes. The parent material consists of alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is frequently flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. This soil meets hydric criteria.

**Component:** Minor components (10%)

Generated brief soil descriptions are created for major soil components. The Minor components soil is a minor component.

**Map Unit:** LV—Levees-Borrow pits complex, 0 to 25 percent slopes

**Component:** Arents (60%)

The Arents component makes up 60 percent of the map unit. Slopes are 5 to 20 percent. This component is on man-made levees on delta plains. The parent material consists of alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Nonirrigated land capability classification is 6e. This soil does not meet hydric criteria.

**Component:** Aquents (40%)

The Aquents component makes up 40 percent of the map unit. Slopes are 0 to 1 percent. This component is on natural levees on delta plains. The parent material consists of clayey dredge spoils and/or loamy dredge spoils. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is rarely flooded. It is not ponded. A seasonal zone of water saturation is at 6 inches during January, February, March, April, May, June, November, December. Nonirrigated land capability classification is 7w. This soil meets hydric criteria.

**Map Unit:** W—Water

**Component:** Water, large (100%)

Generated brief soil descriptions are created for major soil components. The Water is a miscellaneous area.

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