

**WRRDA 7001 Submissions Package**  
**U.S. Army Corps of Engineers**

Proposal Name: Fritchie Marsh Effluent Force Main

Submission Date: 09/19/2016

Proposal ID Number: a555ed31-bb6c-4027-83f9-dcbf908f1dfa

Purpose of Proposal: Based on several planning studies, St. Tammany Parish, Louisiana (Parish) has thoroughly evaluated the need to consolidate wastewater treatment from small package plants and individual on-site systems to regional wastewater treatment plants (WWTPs). Previous reports focused on consolidation of the entire East St. Tammany Wastewater Management Area (WWMA) to one regional facility located within the Lakeshore Estates subdivision. The decision has recently been made by the Parish to split the East St. Tammany WWMA flows between a new WWTP in the Lakeshore Estates subdivision and a new Cross Gates WWTP. The Cross Gates WWTP will service the area to the north and east of the City of Slidell, above Highway 190. Wastewater flows from the area south and east of the City of Slidell, below Highway 190, will be treated at a new regional facility in the Lakeshore Estates subdivision with the intent to discharge to the Fritchie Marsh for wetland assimilation.

*1. Administrative Details*

**Proposal Name: Fritchie Marsh Effluent Force Main**

**by Agency: St. Tammany Parish Government**

**Locations: LA**

**Date Submitted: 09/19/2016**

**Confirmation Number: a555ed31-bb6c-4027-83f9-dcbf908f1dfa**

*Supporting Documents*

<b>File Name</b>	<b>Date Uploaded</b>
Fritchie Marsh Effluent Force Map.pdf	09/19/2016
Fritchie Marsh Effluent Force Main Cost.pdf	09/19/2016
Fritchie Marsh Effluent Report.pdf	09/19/2016
Fritchie Marsh Effluent Force Support Letter.pdf	09/19/2016

*2. Provide the name of the primary sponsor and all non-Federal interests that have contributed or are expected to contribute toward the non-Federal share of the proposed feasibility study or modification.*

Sponsor	Letter of Support
St. Tammany Parish Government(Primary)	The St. Tammany Parish Administration is in full support of this project and will provide all necessary resources to ensure that it is completed.

*3. State if this proposal is for a feasibility study, a modification to an authorized USACE feasibility study or a modification to an authorized USACE project. If it is a proposal for a modification, provide the authorized water resources development feasibility study or project name.*

Feasibility Study

***4. Clearly articulate the specific project purpose(s) of the proposed study or modification. Demonstrate that the proposal is related to USACE mission and authorities and specifically address why additional or new authorization is needed.***

Based on several planning studies, St. Tammany Parish, Louisiana (Parish) has thoroughly evaluated the need to consolidate wastewater treatment from small package plants and individual on-site systems to regional wastewater treatment plants (WWTPs). Previous reports focused on consolidation of the entire East St. Tammany Wastewater Management Area (WWMA) to one regional facility located within the Lakeshore Estates subdivision. The decision has recently been made by the Parish to split the East St. Tammany WWMA flows between a new WWTP in the Lakeshore Estates subdivision and a new Cross Gates WWTP. The Cross Gates WWTP will service the area to the north and east of the City of Slidell, above Highway 190. Wastewater flows from the area south and east of the City of Slidell, below Highway 190, will be treated at a new regional facility in the Lakeshore Estates subdivision with the intent to discharge to the Fritchie Marsh for wetland assimilation.

5. To the extent practicable, provide an estimate of the total cost, and the Federal and non-Federal share of those costs, of the proposed study and, separately, an estimate of the cost of construction or modification.

	Federal	Non-Federal	Total
<b>Study</b>	\$948,291	\$0	\$948,291
<b>Construction</b>	\$9,482,905	\$0	\$9,482,905

**Explanation (if necessary)**

The project construction cost will be \$9,482,905. The soft cost (engineering, permitting, etc.) is \$5,388,250. The total cost is \$14,871,155. The estimated Federal study cost is 10% of the total construction cost for a total of \$948,291.

***6. To the extent practicable, describe the anticipated monetary and nonmonetary benefits of the proposal including benefits to the protection of human life and property; improvement to transportation; the national economy; the environment; or the national security interests of the United States.***

The intent of the wastewater consolidation program is to improve water quality in the Parish by eliminating wastewater discharges from un-sewered areas and package WWTPs through treatment of these flows at Regional WWTPs. The un-incorporated area surrounding the City of Slidell is home to one of the most densely populated areas in the Parish. Approximately 25% of the East St. Tammany WWMA population is currently un-sewered. The remaining 75% of the population is served by several privately owned and Parish owned facilities of various ages and conditions. A consolidated wastewater treatment facility allows for consistently treated effluent to be discharged in a single location, thus improving surface water quality within the Parish. Wetland assimilation of the treated effluent has the potential to restore degraded marsh, while also offering the benefit of less stringent discharge limitations, which translates to lower treatment costs.

**7. Does local support exist? If 'Yes', describe the local support for the proposal.**

Yes

### **Local Support Description**

The St. Tammany Parish Administration is in full support of this project and will provide all necessary resources to ensure that it is completed.

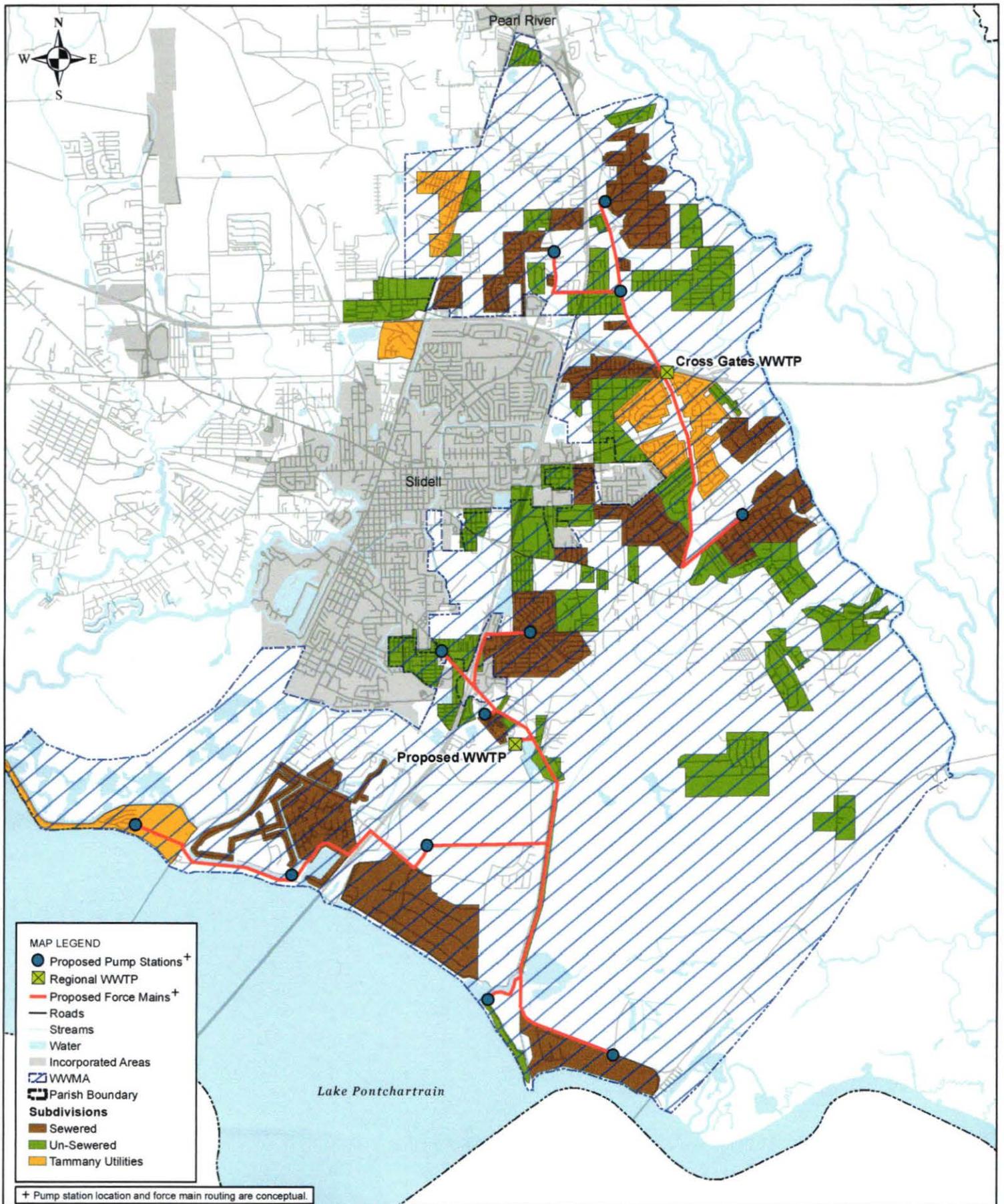
**8. Does the primary sponsor named in (2.) above have the financial ability to provide for the required cost share?**

Yes

# Map Document

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**Fritchie Marsh Effluent Force Map.pdf**



MAP PREPARED BY CDM 2011  
 DATA SOURCE: ST. TAMMANY PARISH & CDM

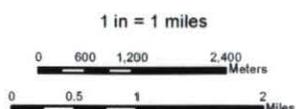
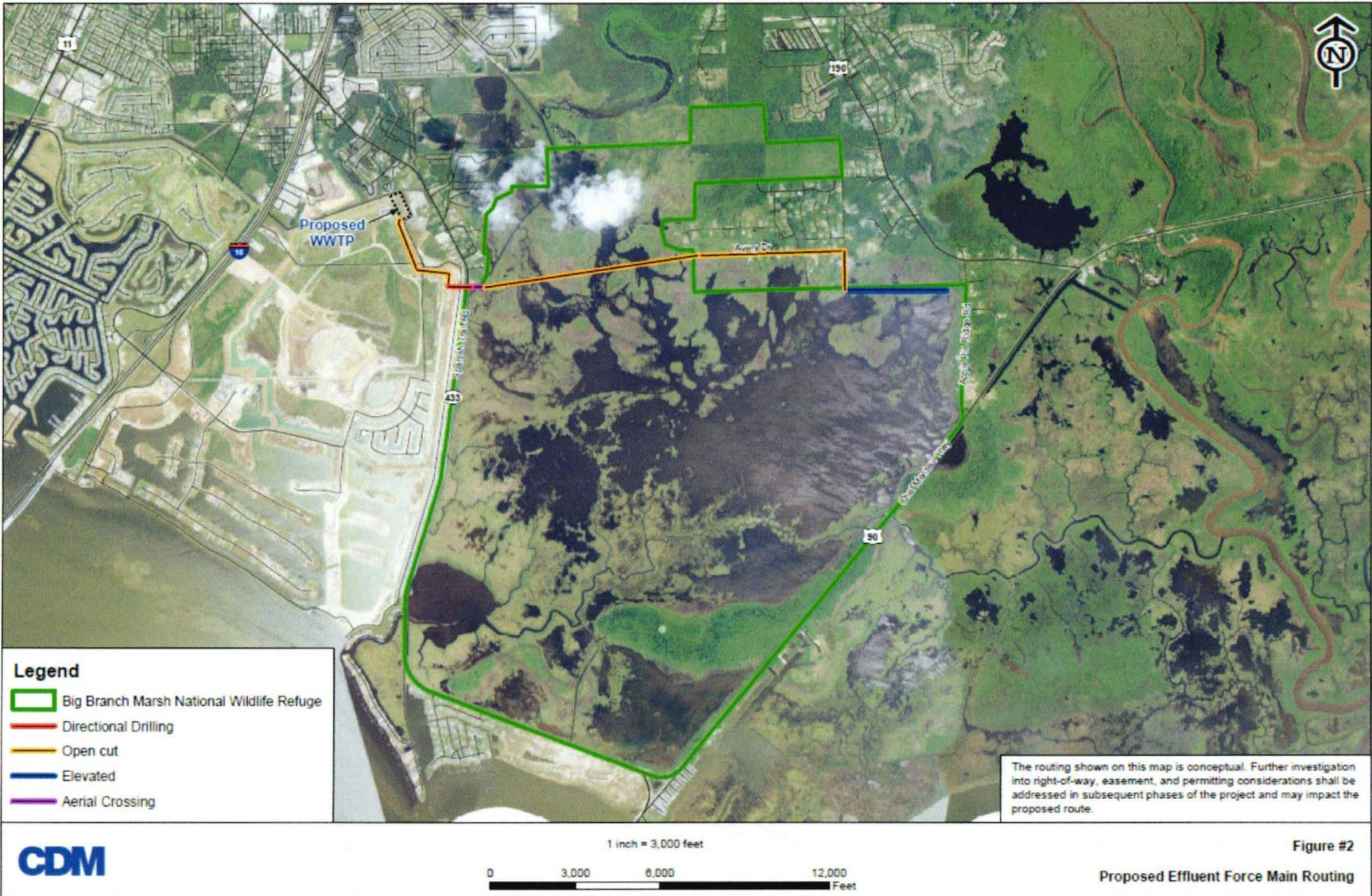


Figure #1

East St Tammany Wastewater Management Area

Proposed Consolidation



# Additional Proposal Information

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**Fritchie Marsh Effluent Force Main Cost.pdf**

## Fritchie Marsh Effluent Force Main

### Cost Estimate

**Table 1 - Opinion of Probable Construction Cost**

	Unit Price	Quantity	Unit	Total
36-inch HDPE Open Cut (Lakeshore Estates and Avery Drive)	\$200.00	9000	LF	\$1,800,000.00
36-inch HDPE Open Cut (Marsh)	\$250.00	8300	LF	\$2,075,000.00
36" HDPE Directional Drill	\$326.00	1000	LF	\$326,000.00
Canal Crossing	\$1,030.00	75	LF	\$77,250.00
30-inch Ductile Iron Elevated Pipe with Walkway and Feeder Pipes	\$240.00	4000	LF	\$960,000.00
Planting	\$2,000.00	75	ACRES	\$150,000.00
<b>Subtotal Direct Cost</b>				<b>\$5,388,250.00</b>
Permits, Sales Tax, Insurance, Bonds		12%		\$646,590.00
<b>Subtotal Prior to OH&amp;P</b>				<b>\$6,034,840.00</b>
GC General Conditions		10%		\$603,484.00
<b>Contractor Total OH&amp;P</b>		10%		<b>\$948,000.00</b>
<b>Subtotal with OH&amp;P</b>				<b>\$7,586,324.00</b>
Construction Contingency		25%		\$1,896,581.00
<b>TOTAL</b>				<b>\$9,482,905.00</b>

# Additional Proposal Information

(This is as uploaded, a blank page will show if nothing was submitted)

**Fritchie Marsh Effluent Report.pdf**

*Final*  
Technical  
Memorandum

**St. Tammany Parish**

Fritchie Marsh Effluent Force  
Main Routing and Distribution



April 22, 2011

**CDM**



## Memorandum

*To: Gregory Gorden*

*From: Christopher Munson, Lisbeth Nagrath, and Jeffrey Lange*

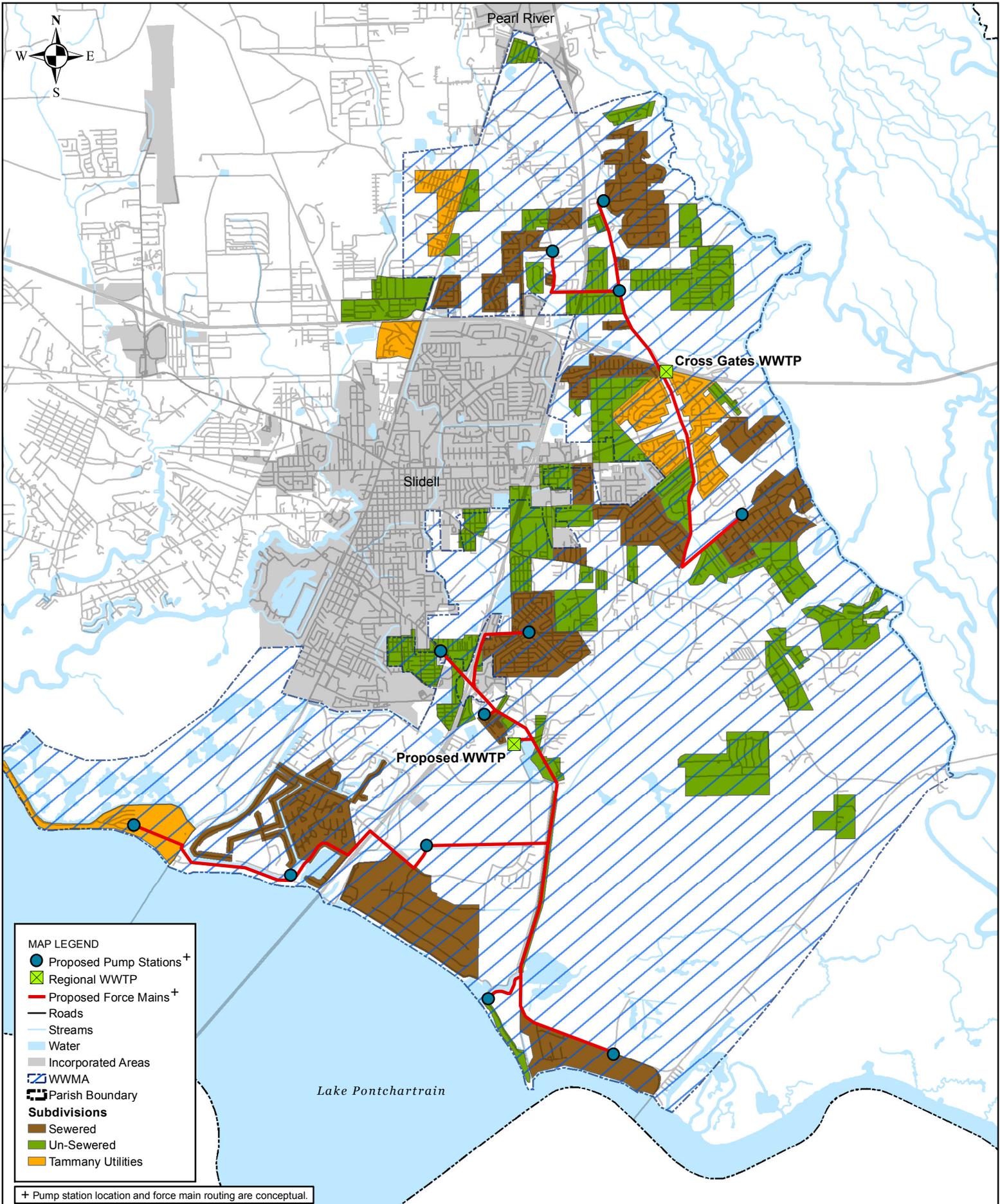
*Date: April 22, 2011*

*Subject: Fritchie Marsh Effluent Force Main Routing and Distribution*

Based on several planning studies, St. Tammany Parish, Louisiana (Parish) has thoroughly evaluated the need to consolidate wastewater treatment from small package plants and individual on-site systems to regional wastewater treatment plants (WWTPs). Previous reports focused on consolidation of the entire East St. Tammany Wastewater Management Area (WWMA) to one regional facility located within the Lakeshore Estates subdivision. The decision has recently been made by the Parish to split the East St. Tammany WWMA flows between a new WWTP in the Lakeshore Estates subdivision and a new Cross Gates WWTP. The Cross Gates WWTP will service the area to the north and east of the City of Slidell, above Highway 190. Wastewater flows from the area south and east of the City of Slidell, below Highway 190, will be treated at a new regional facility in the Lakeshore Estates subdivision with the intent to discharge to the Fritchie Marsh for wetland assimilation. **Figure 1** shows the two proposed regional WWTPs and conceptual pump station and force main layouts for the East St. Tammany WWMA.

The preliminary recommendations included in this memorandum fulfill Task 3 of the Phase 5 Lake Pontchartrain Restoration Program/EPA grant. The recommendations are based on stakeholder input, evaluation of existing systems, the Preliminary Feasibility Analysis and Baseline Ecological Characterization completed as Tasks 1 and 2 of the Phase 5 grant, and impacts to the discharge area. The memorandum addresses the following:

- Stakeholder considerations.
- Effluent force main routing from the proposed new WWTP in the Lakeshore Estates Subdivision to the discharge area.
- Location of the distribution system in the Fritchie Marsh.
- Permitting considerations.



## **Stakeholders**

### **St. Tammany Parish**

The intent of the wastewater consolidation program is to improve water quality in the Parish by eliminating wastewater discharges from unsewered areas and package WWTPs through treatment of these flows at Regional WWTPs. The un-incorporated area surrounding the City of Slidell is home to one of the most densely populated areas in the Parish. Approximately 25 percent of the East St. Tammany WWMA population is currently unsewered. The remaining 75 percent of the population is served by several privately owned and Parish owned facilities of various ages and conditions. A consolidated wastewater treatment facility allows for consistently treated effluent to be discharged in a single location, thus improving surface water quality within the Parish. Wetland assimilation of the treated effluent has the potential to restore degraded marsh, while also offering the benefit of less stringent discharge limitations, which translates to lower treatment costs.

### **United States Fish and Wildlife Service**

The Fritchie Marsh, part of the Big Branch Marsh Wildlife Refuge, is owned and managed by the United States Fish and Wildlife Service (USFWS). Over the years, the Fritchie Marsh has suffered negative hydrologic effects resulting from the construction of surrounding Louisiana Highway 433 and U.S. Highway 90. Hurricane Katrina, in 2005, caused significant change to the marsh including land loss, salt water intrusion, and change to open water. Wetland assimilation may provide a much needed nutrient rich, freshwater source to the Fritchie Marsh and could assist with marsh restoration.

CDM met with Daniel Breau (USFWS) on July 27<sup>th</sup>, 2010 to discuss the East St. Tammany WWMA Facility Plan, potential options for the project, and to develop an agenda for a second meeting with the Parish. The Parish and CDM met with the USFWS on September 8<sup>th</sup>, 2010 to discuss the feasibility and impact of an effluent discharge into the Fritchie Marsh. During this meeting, USFWS expressed their concern over whether the construction of the discharge system would cause significant harm to the marsh, and whether the benefit of the effluent would offset any harm caused by construction. Specifically, USFWS conveyed the need to preserve the aesthetics of the marsh, and to preserve the quantity and quality of wildlife in the marsh. Daniel Breau indicated that an Environmental Assessment may be required to evaluate the impact of the project on federal land.

Other points of discussion included the proposed location of the East St. Tammany WWTP in the Lakeshore Estates subdivision, the effluent force main routing, and the discharge area proposed in the East St. Tammany WWMA Facility Plan. USFWS indicated that they believe the greatest benefit would be achieved by a discharge location on the northeastern side of the marsh. This location would ensure maximum exposure of effluent to marsh, before the water exits the marsh to the west via the W14 Canal. Additionally, a terracing project in the northeastern area of the marsh has been proposed for Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) funding. This CWPPRA project could benefit from the added

freshwater and nutrients contributed to the marsh via wetlands assimilation. This discharge location would also allow for the elevated portion of the effluent line to be located in an area receiving minimal traffic from citizens using the marsh for recreation.

USFWS recommended an open trench installation (as opposed to directional drilling), which may reduce construction impacts. For aesthetic, maintenance, and security purposes, USFWS prefers that the effluent line be submerged for the majority of its length, with an elevated, accessible section only along the points of discharge.

## **Site Visits**

CDM chose to visit the Mandeville WWTP and the Hammond WWTP wetland assimilation projects, as both facilities discharge to marsh and both facilities have constructed effluent discharge lines in recent years.

### **Mandeville**

CDM met with the City of Mandeville WWTP staff to discuss their effluent discharge system on May 19<sup>th</sup>, 2010. The Mandeville WWTP began discharging wastewater to the Tchefuncte Marsh for wetland assimilation in the latter part of 2009. Wetland discharge to the marsh facilitated a 2 MGD expansion to the Mandeville WWTP, which increased the current capacity to 4 MGD. 70 percent of the flow is discharged to the Tchefuncte Marsh and 30 percent is discharged to Bayou Chinchuba. The Mandeville WWTP consists of a three cell aerated lagoon, rock reed filters, and UV disinfection.

Mandeville's distribution system to the Tchefuncte Marsh consists of approximately 2,500 linear feet (LF) of aerial piping, constructed along the edge of a nearby aquatic ecosystem restoration easement within a Cleco right-of-way. Mandeville's distribution system is divided into zones comprised of several discharge points at approximately 90 foot intervals. Discharge zones are managed to balance the need for fresh water and nutrients while minimizing wetland impacts. The elevated discharge structure consists of wooden pilings, joists, and cross bracing which support the force main and walkway used for operation, maintenance, and monitoring. The discharge piping is tapped into the bottom of the force main and extends under the walkway. A ball valve is used to manually control active discharge zones. The elevated discharge area is accessed from the site of the City of Mandeville's abandoned oxidation pond. Security fencing is used to restrict access to the site. Photographs of the discharge site are included in **Appendix A**.

### **Hammond**

CDM met with Hammond WWTP staff to discuss their effluent discharge system on May 20<sup>th</sup>, 2010. The Hammond WWTP consists of a three cell oxidation lagoon with chlorination/dechlorination and has a design capacity of 8 MGD. This facility began wetland discharge in 2006.

Hammond's effluent distribution system is comprised of 3,600 LF of aerial piping, constructed on pilings along the south bank of South Slough. The effluent is discharged directly into the South Slough Wetlands, which in turn drain into the Joyce Wildlife Management Area wetlands. Hammond's distribution system employs 900 discharge points at approximately 4 foot intervals. Discharge points are rotated to provide uniform coverage and to maximize assimilation and wetland productivity.

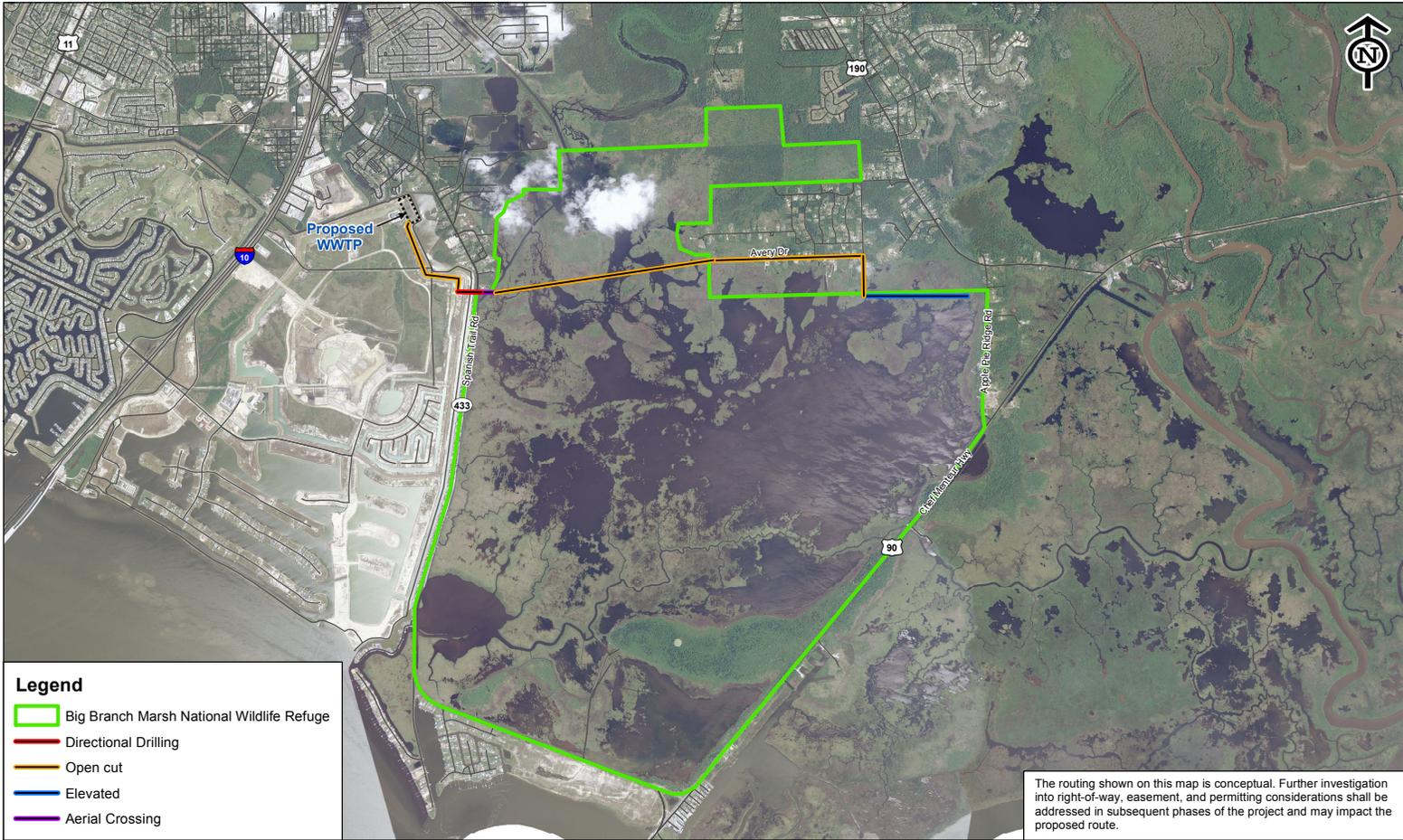
CDM attended a workshop on October 4, 2010 sponsored by the Lake Pontchartrain Basin Foundation concerning project performance following discharge to the South Slough Wetlands. The Hammond wastewater assimilation project has experienced unexpected results. Opinions vary on the cause of issues with the project ranging from nutria to WWTP performance, hydrology, and suitability of the wetlands for assimilation. Photographs of the discharge site are included in **Appendix B**.

### **Fritchie Marsh**

CDM visited the Fritchie Marsh project area and sampling locations on March 16, 2010 with Lee Walters from C-K Associates. C-K Associates performed the Preliminary Feasibility Analysis to determine the capacity of the marsh for assimilation and the Baseline Ecological Characterization to document baseline conditions prior to the application of wastewater. At the time the Preliminary Feasibility Analysis was performed, the intent of the project was to treat the flows of the East St. Tammany WWMA at an expanded City of Slidell's Terrace Avenue WWTP. The projected flows for assimilation included the City of Slidell's flow along with phased flows from the WWMA at the existing plant's loading rates. It was determined that the marsh does have the capacity to assimilate the projected flows. Since this determination, consolidation plans have changed resulting in reduced flows; however, due to wetland discharge, permit limits are likely to be higher than those at the Terrace Avenue WWTP, which discharges to the W-14 Canal. Increased loading rates combined with a reduction in flow are likely to balance the assimilation potential considered in the Preliminary Feasibility Analysis. Further considerations for the level of treatment appropriate for wetland discharge shall be addressed in the preliminary design phase of the East St. Tammany WWTP.

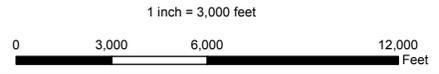
### **Effluent Force Main Routing**

**Figure 2** shows a map of the effluent force main route from the proposed East St. Tammany WWTP in the Lakeshore Estates Subdivision to the discharge area in the Fritchie Marsh. The force main will begin at the site of the WWTP and run along the toe of the levee at the northeastern end of the subdivision. This portion of the force main will be constructed via open cut installation to the point where the levee begins to parallel Highway 433. At this point the force main will be directional drilled under the levee, the adjacent canal, and Highway 433 to the triangular area of land just north of the point where the W-14 Canal turns to the northeast away from Highway 433. This land appears to be accessible by Highway 433 and would provide the easiest access for drilling contractors while reducing marsh impacts.



- Legend**
- █ Big Branch Marsh National Wildlife Refuge
  - █ Directional Drilling
  - █ Open cut
  - █ Elevated
  - █ Aerial Crossing

The routing shown on this map is conceptual. Further investigation into right-of-way, easement, and permitting considerations shall be addressed in subsequent phases of the project and may impact the proposed route.



**Figure #2**  
**Proposed Effluent Force Main Routing**

The force main will then transition above ground to an aerial crossing of the W-14 Canal. On the eastern bank of the W-14 Canal, the force main will transition again to a buried installation across the marsh. Construction options for this section, which extends to the end of Avery Drive, are discussed below.

An open trench installation is recommended for the section of the main that runs along the east/west portion of Avery Drive, approximately 5,200 LF adjacent to the northern boundary of the refuge. At the point where Avery Drive runs in the north/south direction, the force main will turn south toward the refuge and extend out to the refuge property. Once the force main reaches the northern boundary of the refuge, the transition from buried to aerial piping will begin as the line turns to the east for discharge. Photographs of Avery Drive are included in **Appendix C**.

## **Construction Options**

The options available for force main construction through the marsh interior include directional drilling, open trench, and elevated on pilings. The USFWS prefers a buried force main, so the option of aerial piping on pilings was not considered through the marsh interior; however aerial piping is required for the length of the discharge. The directional drilling and open trench options are discussed below.

### **Directional Drilling through the Marsh**

The chief benefit of directional drilling is its potential for minimizing impact to the marsh. In order to achieve the smallest possible impact, the pipe must be pulled a distance of approximately 9000 LF, from the western bank of the W14 canal to the western end of Avery Drive. Pulls this long are rare, and pits are generally used to break long pipe installations into segments. However, at the preference of USFWS, pits would not be used in this project, due to the large impact area deep excavation would have on the marsh interior.

In order to make such a long pull, an intersect bore technique is required. This technique involves drilling from both the bank of the W14 canal, and from Avery Drive, meeting in the marsh approximately half way across the expanse. The area required for drilling equipment is approximately 150 feet by 150 feet or greater. HDPE is recommended for directional drilling, unless a material with higher tensile strength is required.

Pipe approximately half the length of the bore distance could potentially be laid out along Avery Drive. Less space is available on the Lakeshore Estates Subdivision side. As a result, the pipe must be fused during the pulling process. Such a long pull is a high-risk operation, and this will be reflected in the cost. Only select contractors in the area have the expertise and equipment to perform such an installation.

## **Open Trench through the Marsh**

An open trench installation is the recommended option. This method is more economical and may have a more superficial impact to the marsh than deep drilling pits. Open trench is also the preferred method of the USFWS. Boats will be required to access/excavate the proposed route, and much earth will be disturbed over the duration of the construction process. Weights may be required to anchor the piping. Post-construction planting may hasten the recovery of the marsh, and signage warning of a pipeline and prohibiting anchorage should be posted along the length of the submerged pipe.

## **Fritchie Marsh Distribution System**

The proposed distribution system in the Fritchie Marsh lies in the northeastern section of the refuge. At the point where Avery Drive turns to the south, the open trench installation would continue from the end of Avery Drive into the marsh, where an elevated walkway would begin to provide access to the discharge piping. Security fencing would be provided at the access point to the walkway. At the point where the USFWS land boundary begins the buried force main would transition to an elevated installation on pilings and run east approximately 4,400 LF. The walkway would continue along the length of the distribution system to provide operation and maintenance access.

**Figure 3** shows preliminary drawings of the distribution system. 3-inch taps in the bottom of the 30 inch ductile iron force main would be spaced at approximately 90 foot intervals. Ball valves control the discharge points and would allow for the management of flow throughout the discharge area. The discharge pipes would extend under the elevated walkway.

The location of the proposed distribution system was guided by the USFWS. The intention is for the assimilation project to reach the most degraded area of the marsh. This wetland assimilation project could assist in the success of the proposed CWPPRA terracing project. Likewise, the CWPPRA terracing project could prevent potential short circuiting. Plantings may be required due to the existing open marsh conditions near the discharge area.

## **Opinion of Probable Construction Cost**

The opinion of probable construction cost for the conceptual force main routing and distribution system is approximately \$9.4 million. Project costs for the recommended option of open cut through the marsh are included in **Table 1**. If the option to directional drill the length of the force main through the marsh is ultimately chosen, costs may increase by approximately \$1.2 million. This increase eliminates the cost for the aerial crossing of the W-14 Canal. Variables exist for the directional drilling estimates, including the required drilling depth. Surveys of the proposed routing within the Fritchie Marsh, canals and drilling areas would be required to refine project cost estimates. Right-of-way, easement, and permitting considerations will require further investigation during the design phase of the project, and may impact both costs and routing options.

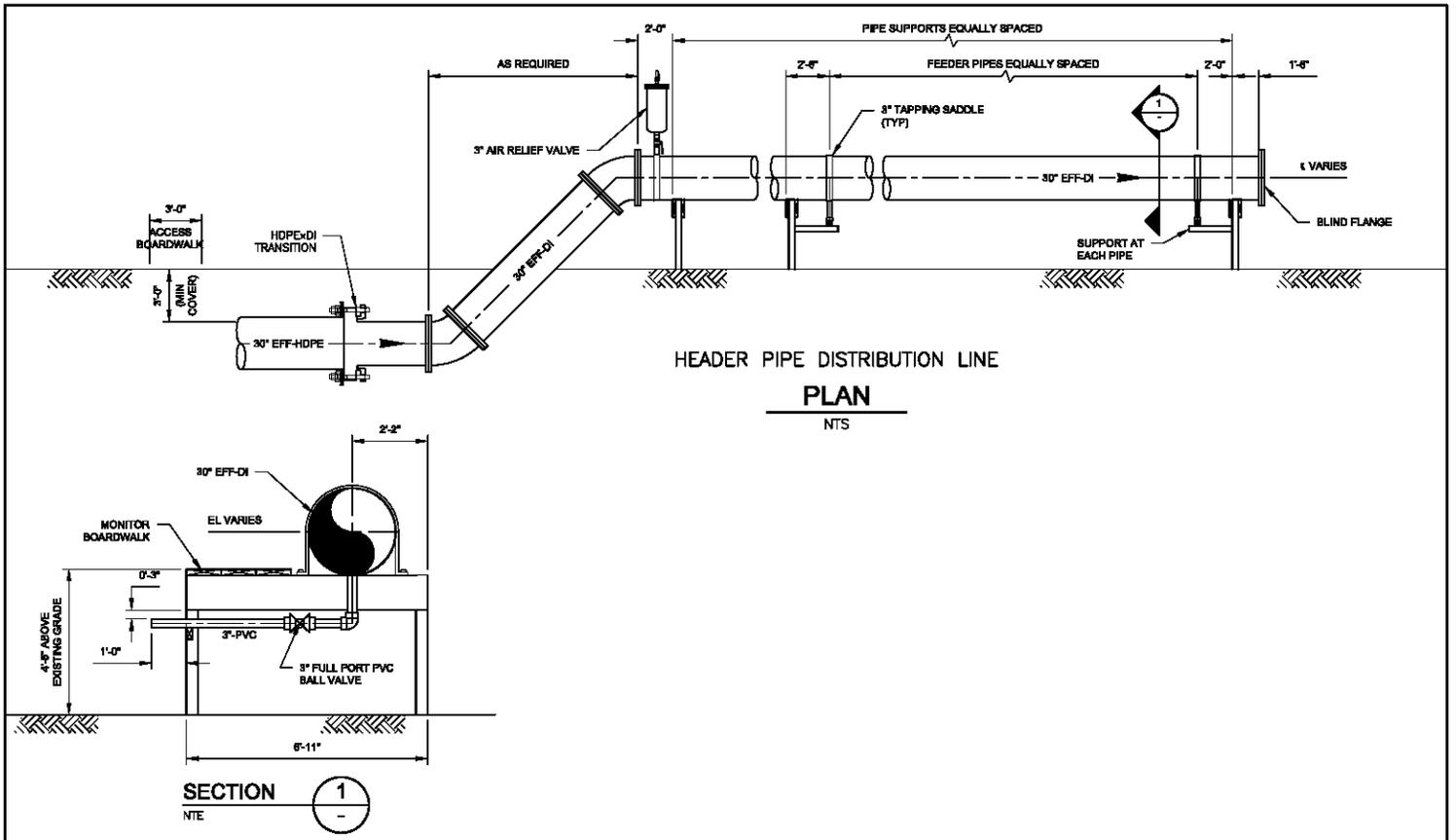


FIGURE 3  
EFFLUENT DISCHARGE PIPE

**Table 1 – Opinion of Probable Construction Cost**

	<b>Unit Price</b>	<b>Quantity</b>	<b>Unit</b>	<b>Total</b>
36-inch HDPE Open Cut (Lakeshore Estates and Avery Drive)	\$200.00	9000	LF	\$1,800,000.00
36-inch HDPE Open Cut (Marsh)	\$250.00	8300	LF	\$2,075,000.00
36" HDPE Directional Drill	\$326.00	1000	LF	\$326,000.00
Canal Crossing	\$1,030.00	75	LF	\$77,250.00
30-inch Ductile Iron Elevated Pipe with Walkway and Feeder Pipes	\$240.00	4000	LF	\$960,000.00
Planting	\$2,000.00	75	ACRES	\$150,000.00
<b>Subtotal Direct Cost</b>				<b>\$5,388,250.00</b>
Permits, Sales Tax, Insurance, Bonds		12%		\$646,590.00
<b>Subtotal Prior to OH&amp;P</b>				<b>\$6,034,840.00</b>
GC General Conditions		10%		\$603,484.00
Contractor Total OH&P		10%		\$948,000.00
<b>Subtotal with OH&amp;P</b>				<b>\$7,586,324.00</b>
Construction Contingency		25%		\$1,896,581.00
<b>TOTAL</b>				<b>\$9,482,905.00</b>

## Permits

Daniel Breaux is the USFWS Refuge Manager for the Big Branch Marsh including the Fritchie Marsh. USFWS indicated that the project would require a long term special use permit, including maintenance of the discharge piping and the area affected by the discharge. Daniel Breaux's contact information is:

Daniel Breaux  
 Refuge Manager  
 Atchafalaya, Big Branch Marsh, and Bogue Chitto NWR's  
 Southeast Louisiana Refuges  
 US Fish and Wildlife Service  
 61389 Highway 434  
 Lacombe, LA 70445  
 Office: 985-882-2030  
 Cell: 985-640-3277  
 Fax: 985-882-9133  
 Email: [daniel\\_breaux@fws.gov](mailto:daniel_breaux@fws.gov)

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The Fritchie Marsh lies within the Louisiana Coastal Zone, which involves the Louisiana Department of Natural Resources (LDNR) in the wetland permitting process. A pre-application meeting for wetland impacts would be required. Wetland permitting, which includes the US Army Corps of Engineers (USACE) would be initiated through LDNR. It is possible that one permit application be submitted for both. The Administrator for Permits at LDNR is Karl Morgan, contact information is listed below:

Karl Morgan  
P.O. Box 44487  
Baton Rouge, LA 70804-4487  
Phone: 225-342-7591  
Fax: 225-342-9439

Mike Farabee is the Section Chief for St. Tammany Parish with the USACE. His office number is 504-862-2292.

Todd Franklin is the Wetland Assimilation Permit Supervisor with the Louisiana Department of Environmental Quality (LDEQ). His contact information is listed below:

Todd Franklin  
Water Permits Division  
LDEQ Office of Environmental Services  
Phone: 225-219-3138

A permit will be required from the Louisiana Department of Transportation and Development (LA DOTD) for installation of the force main under Highway 433.

Coordination with Tammany Holding Corporation will be required for the portion of the force main within the Lakeshore Estates Subdivision. Contact information is:

J. Durel Landry  
3600 Lakeshore Boulevard – E  
Lakeshore, LA 70461  
Office: 985-641-0089  
Fax: 985-641-0887

## **Conclusion**

The evaluation provided by this memorandum indicates that the routing of an effluent force main to the desired discharge location within Fritchie Marsh would be a possible, although costly, discharge option. The environmental and permitting work required to route the force main through the marsh could also prove difficult and time consuming. Several other elements may also impact the effluent force main route and distribution system proposed in this memorandum, including the Parish's acquisition of the proposed site of the East St. Tammany WWTP.

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April 22, 2011  
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The proposed East St. Tammany WWTP site is in close proximity to the W-14 Canal, which could also be considered as an effluent discharge option. Given the cost and potential difficulties associated with routing an effluent force main through the marsh, other levels of treatment (tertiary and advanced) and discharge options should be considered, in addition to wetlands assimilation, during the preliminary design phase of the WWTP.

cc: Allison Weiner, UNO Foundation

**Appendix A**



**Mandeville Effluent Discharge**      Discharge Piping



**Mandeville Effluent Discharge**      Effluent Force Main and Boardwalk

**Appendix B**



**Hammond Effluent Discharge**      Discharge Piping



**Hammond Effluent Discharge**      Elevated Force Main Prior to Discharge

**Appendix B**



**Hammond Effluent Discharge**      Effluent Force Main



**Hammond Effluent Discharge**      Observation Boardwalk and Discharge Piping

**Appendix C**



**Avery Drive** Looking Easterly, from the Western End of Avery Drive



**Avery Drive** Looking Westerly, from the Western End of Avery Drive

**Appendix C**



**Avery Drive**      Looking Westerly, from the Western End of Avery Drive

# Primary Sponsor Letter of Support

(As uploaded)

**Fritchie Marsh Effluent Force Support Letter.pdf**



## ST. TAMMANY PARISH

PATRICIA P. BRISTER  
PARISH PRESIDENT

September 9, 2016

### **Re: Fritchie Marsh Effluent Force Main**

Dear Sir/Madam:

On behalf of St. Tammany Parish, I am pleased to submit the Fritchie Marsh Effluent Force Main project for consideration under WRRDA and hereby request funding assistance from United States Army Corps of Engineers.

The Fritchie Marsh Effluent Force Main project will split the East St. Tammany Wastewater Management Area into two new waste water treatment plants. The intent of the wastewater consolidation program is to improve water quality in the Parish by eliminating wastewater discharges from un-sewered areas.

A consolidated wastewater treatment facility allows for consistently treated effluent to be discharged in a single location, thus improving surface water quality within the Parish. Wetland assimilation of the treated effluent has the potential to restore degraded marsh, while also offering the benefit of less stringent discharge limitations, which translates to lower treatment costs.

Sincerely,

A handwritten signature in blue ink that reads "Patricia P. Brister".

Patricia P. Brister  
Parish President