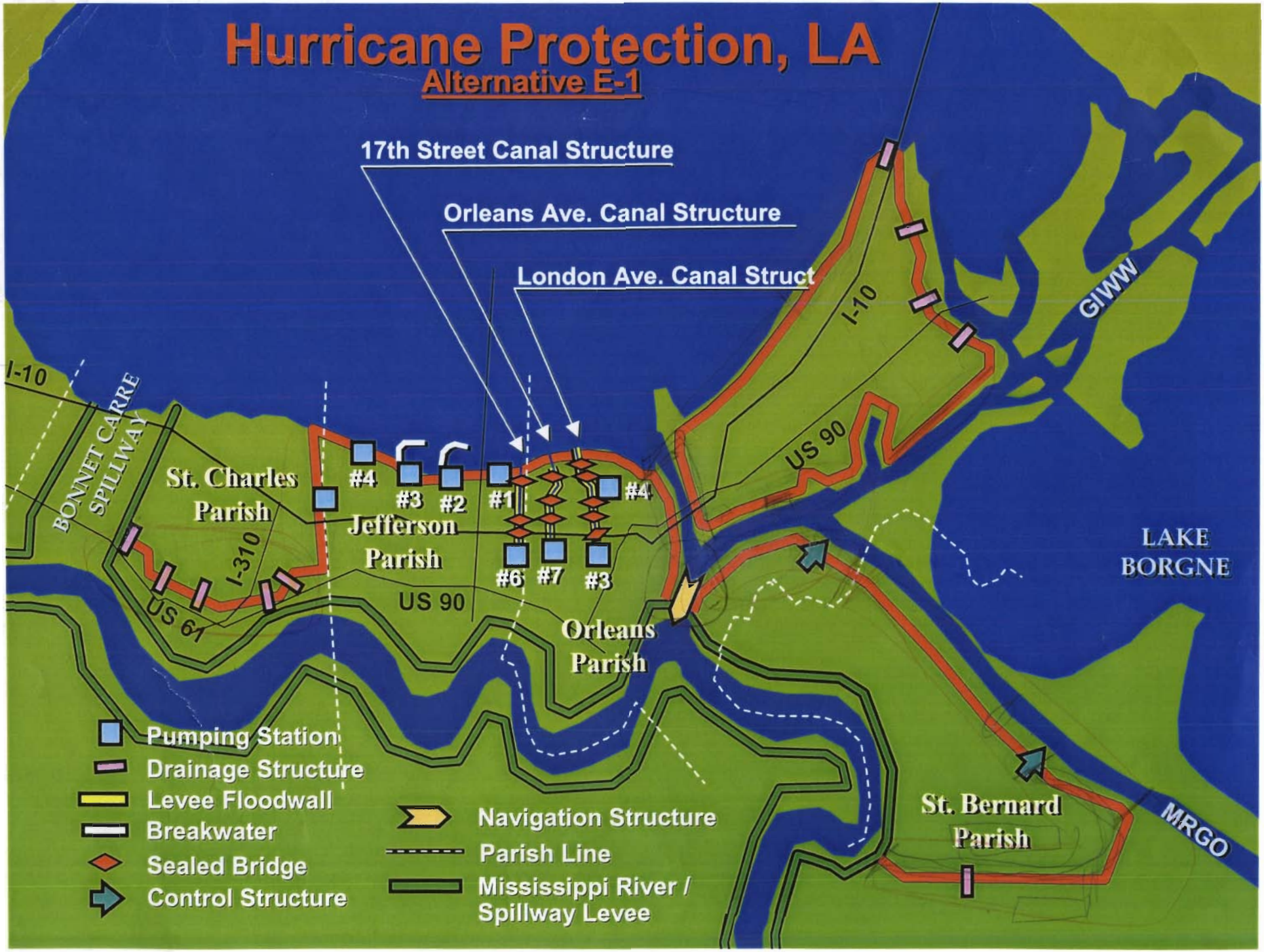
(12)


Hurricane Protection, LA
Alternative E-1
17th Street Canal Structure
Orleans Ave. Canal Structure
London Ave. Canal Struct
I-10
BONNET CARRE SPILLWAY
St. Charles Parish
Jefferson Parish
Orleans Parish
St. Bernard Parish
I-310
US 61
US 90
I-10
GIWW
LAKE BORGNE
MRGO
#4
#3
#2
#1
#4
#6
#7
#3
Pumping Station
Drainage Structure
Levee Floodwall
Breakwater
Sealed Bridge
Control Structure
Navigation Structure
Parish Line
Mississippi River / Spillway Levee

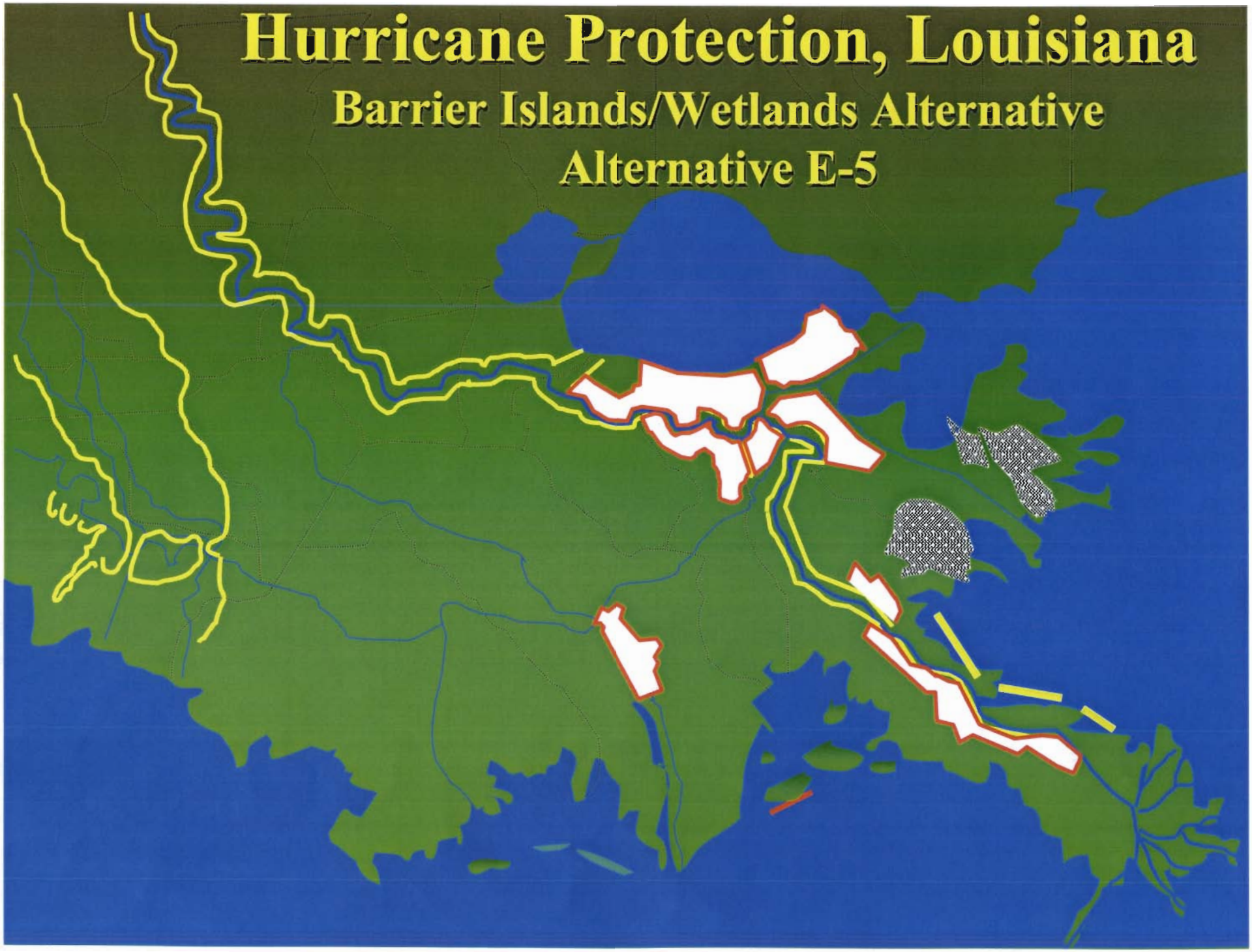
(Aerials)

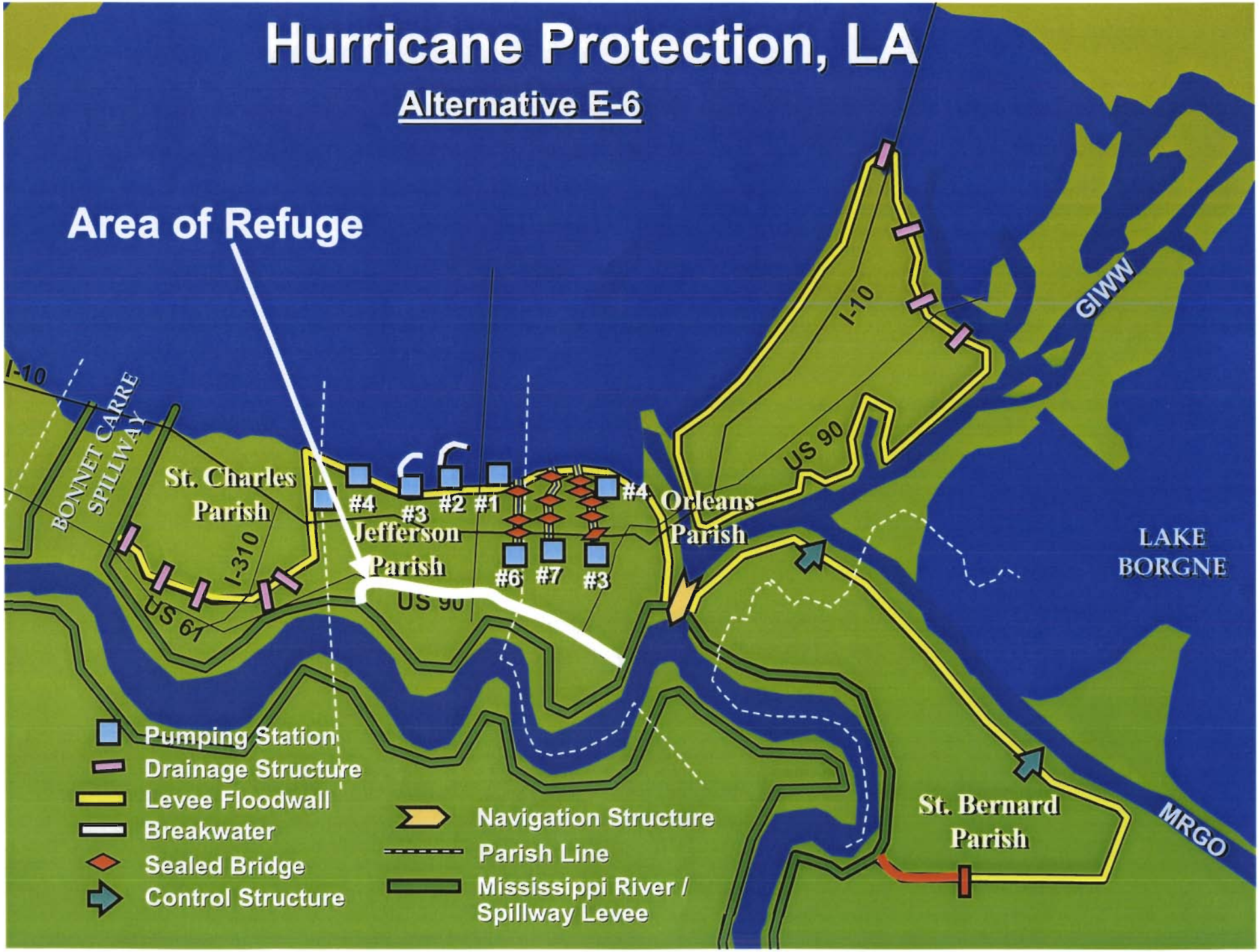

Hurricane Protection, LA
Alternative E-2
17th Street Canal Structure
Orleans Ave. Canal Structure
London Ave. Canal Struct
Seabrook Structure
I-10
GIWW
US 90
GIWW/MRGO Structure
LAKE BORGNE
I-10
BONNET CARRE SPILLWAY
St. Charles Parish
#4
#3
#2
#1
#4
Jefferson Parish
I-310
US 61
US 90
#6
#7
#3
Orleans Parish
St. Bernard Parish
MRGO
Pumping Station
Drainage Structure
Levee Floodwall
Breakwater
Sealed Bridge
Control Structure
Navigation Structure
Parish Line
Mississippi River / Spillway Levee

LEVEE E-WALL

(3) - 160' - UND
(3) - 90' - UND
12 - 90' General Type


Hurricane Protection, LA
Alternative E-4
Reach C
Phoenix
Davant
Pointe a la Hache
MISSISSIPPI RIVER
St. Jude
Bohemia
City Price
Port Sulphur
Tropical Blend
Empire
Buras
Venice

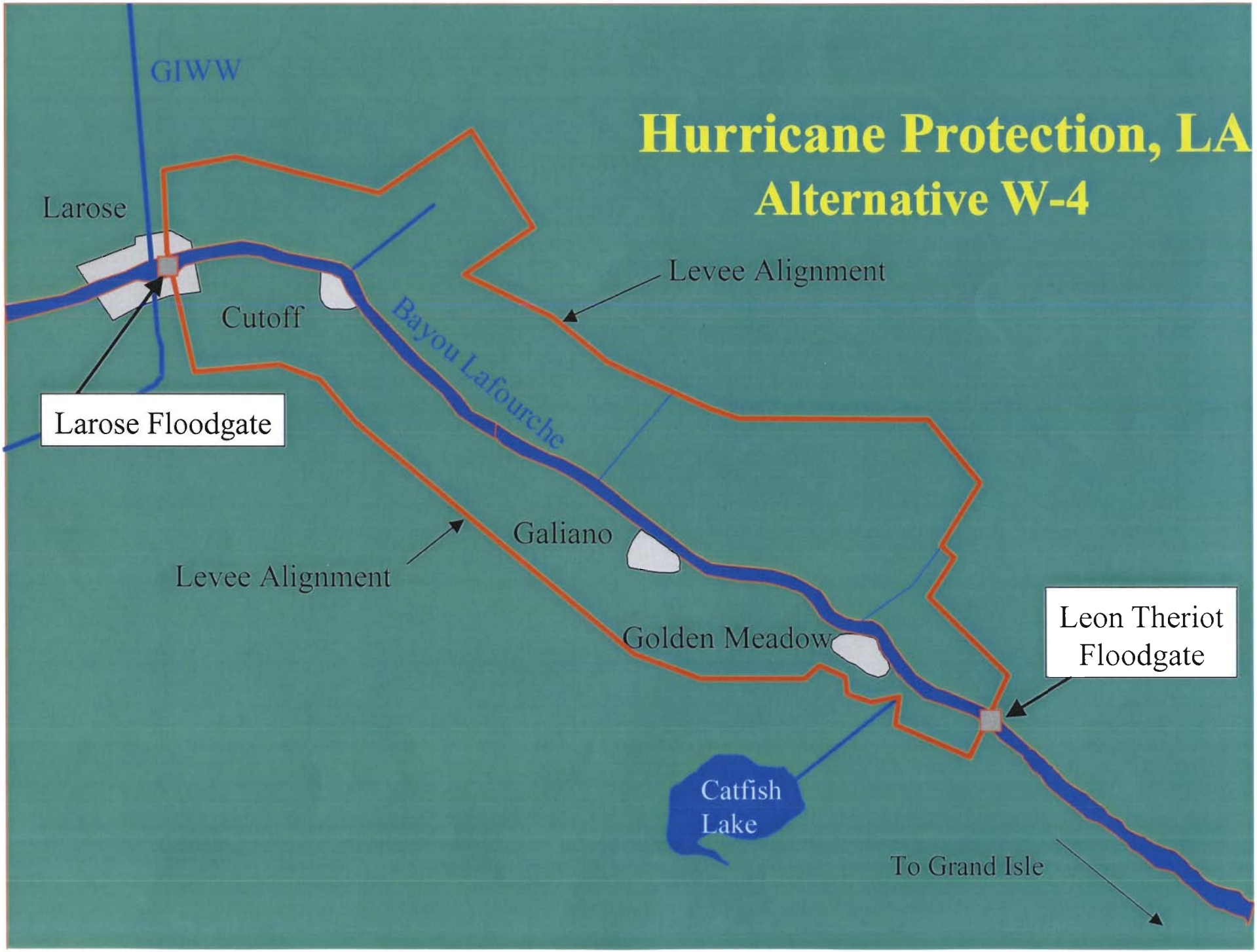

Hurricane Protection, Louisiana
Barrier Islands/Wetlands Alternative
Alternative E-5

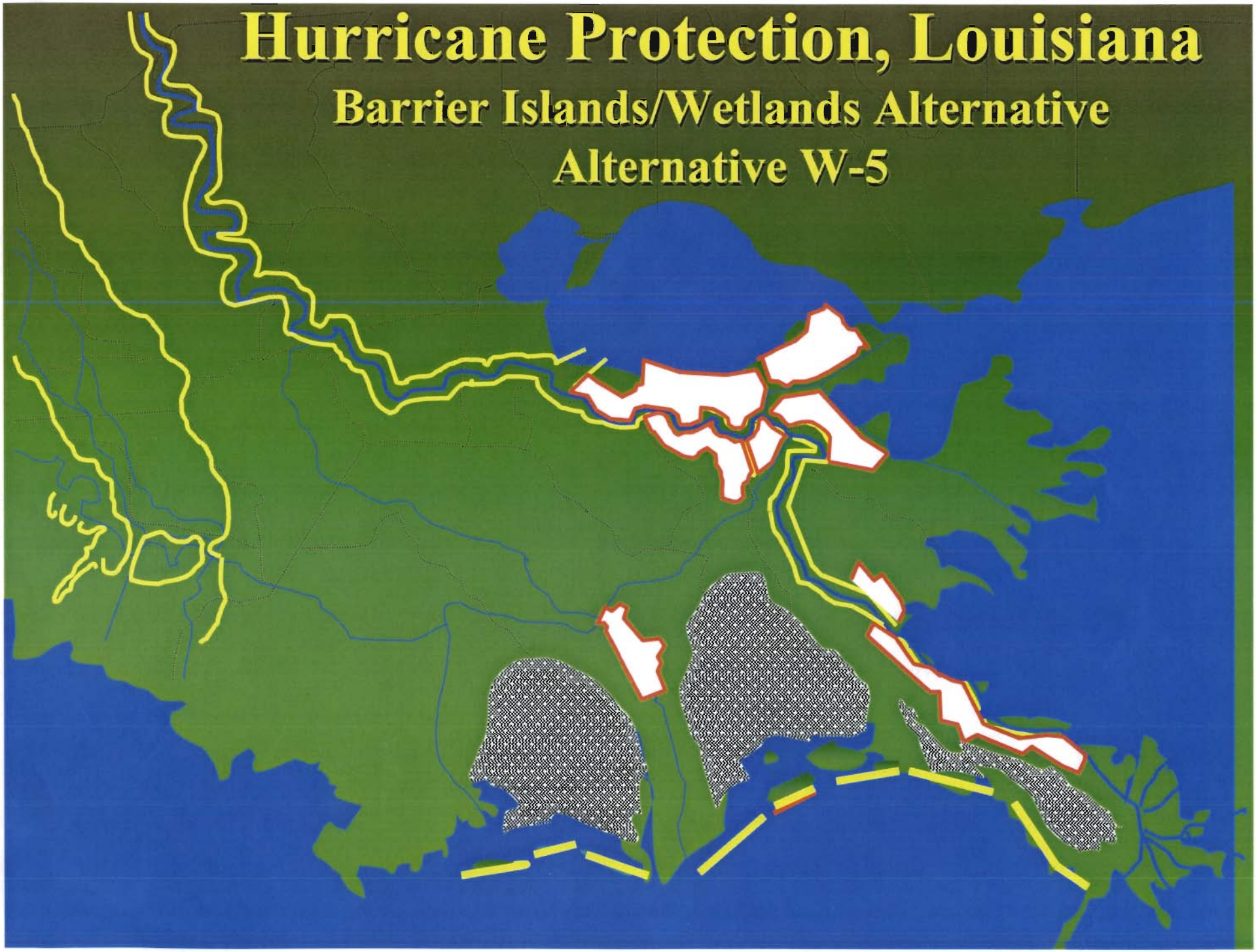

Hurricane Protection, LA
Alternative E-6
Area of Refuge
I-10
BONNET CARRE SPILLWAY
St. Charles Parish
I-310
US 61
#4
#3
#2
#1
Jefferson Parish
US 90
#6
#7
#3
#4
Orleans Parish
I-10
US 90
GIWW
LAKE BORGNE
St. Bernard Parish
MRGO
Pumping Station
Drainage Structure
Levee Floodwall
Breakwater
Sealed Bridge
Control Structure
Navigation Structure
Parish Line
Mississippi River / Spillway Levee


West Bank & Vicinity, New Orleans, LA,
Hurricane Protection Project
Alternative W-1
New Orleans
MISSISSIPPI RIVER
East of Harvey Canal Area
ALGIERS LOCK
N.O. S&WB P.S. #11
N.O. S&WB P.S. #13
BELLE CHASSE #2 P.S.
PLANTERS P.S.
HARVEY LOCK
HARVEY CANAL
HARVEY P.S.
SEGNETTE P.S.
OLD WESTWEGO P.S.
NEW WESTWEGO P.S.
Lake Cataouatche Area
LAKE CATAOUATCHE
AMES P.S.
MT. KENNEDY P.S.
OAK COVE P.S.
COUSINS P.S.
NEW ESTELLE P.S.
ESTELLE P.S.
HERO P.S.
ALGIERS CANAL
PLAQUEMINES P.S.
HERO CANAL
B. SEGNETTE
LAKE SALVADOR
Westwego to Harvey Canal Area
Existing Pumping Stations
Project Levees/Floodwalls
Road
Floodgate Structure

Shallow draft control structure


Hurricane Protection, LA
Alternative W-3
Phoenix
Davant
Reach C
Pointe a la Hache
MISSISSIPPI RIVER
St. Jude
Bohemia
City Price
West Bank
River Levee
Port Sulphur
Reach A
Tropical Blend
Empire
Reach B-1
Buras
Venice
Reach B-2


GIWW
Hurricane Protection, LA
Alternative W-4
Larose
Levee Alignment
Cutoff
Bayou Lafourche
Larose Floodgate
Galiano
Levee Alignment
Golden Meadow
Leon Theriot
Floodgate
Catfish
Lake
To Grand Isle


Hurricane Protection, Louisiana
Barrier Islands/Wetlands Alternative
Alternative W-5

DEVELOPMENT OF GEOTECHNICAL DESIGN FOR THE EAST BANK HURRICANE PROTECTION PROJECT STUDY PLAN FOR CATEGORY 4 AND 5 STORMS

GEOTECHNICAL BRANCH (ED-F)
Organization Code: KX (B2L0310)

What: **Engineering Coordination.** Supervision of Geotechnical Design Section's input to the subject project.

Why: To assure Branch goals and objectives are met.

Who: One GS-14 Branch Chief and one GS-5 Secretary.

When: During all phases of the project requiring Geotechnical Design Section input.

How: Review of input for existing conditions and all alternatives considered during this study. This work will be accomplished through meetings and oral, written, and electronic communications.

Time and Cost: $00,000 Duration = Duration of Study Plan

ENCLOSURE 1

ALTERNATIVE 1

KX - Structure Foundations Section (ED-FS)

What: **ST CHARLES PARISH EAST BANK HURRICANE PROTECTION STUDY PLAN**
E & D of St Charles Parish Hurricane Protection Feasibility Study Plan. Improvements include analyzing alternatives for raising the East Bank existing hurricane protection levees and structures to category 4 and 5 flood protection.

Why: To provide feasibility scope geotechnical engineering designs for raising the East Bank existing hurricane protection levees and structures to category 4 and 5 flood protection.

Who: GS-13 Supervisory Civil Engineer
GS-12 Civil Engineer
GS-11 Civil Engineers
GS-11 Civil Engineer Technician

When: We will start this task after we receive the plan and cross-sections from Civil or Structure Branch.

How: Research and compile existing geotechnical data. Using soil test data and geotechnical design standards, all relevant geotechnical designs will be performed, i.e. reinforced levee design analyses, levee design analyses, I-wall and T-wall analyses, settlement analysis, deep-seated stability analysis, pile capacity curves, and excavation stability analyses, if required. Geotechnical write-up with design plates will be prepared for inclusion into the feasible report.

Time & Cost: $520,000 Duration: 18 months

ALTERNATIVE 1

KX - Structure Foundations Section (ED-FS)

What: **JEFFERSON PARISH HURRICANE PROTECTION STUDY PLAN (RETURN LEVEE)**
E & D of Jefferson Parish Hurricane Protection Feasibility Study Plan. Improvements include analyzing alternatives for raising the East Bank existing hurricane protection levees and structures to category 4 and 5 flood protection.

Why: To provide feasibility scope geotechnical engineering designs for raising the East Bank existing hurricane protection levees and structures to category 4 and 5 flood protection.

Who: GS-13 Supervisory Civil Engineer
GS-12 Civil Engineer
GS-11 Civil Engineers
GS-11 Civil Engineer Technician

When: We will start this task after we receive the plan and cross-sections from Civil or Structure Branch.

How: Research and compile existing geotechnical data. Using soil test data and geotechnical design standards, all relevant geotechnical designs will be performed, i.e. levee design analyses, I-wall and T-wall analyses, settlement analysis, deep-seated stability analysis, pile capacity curves, and excavation stability analyses, if required. Geotechnical write-up with design plates will be prepared for inclusion into the feasible report.

Time & Cost: $72,000 Duration: 3 months

ALTERNATIVE 1

KX - Structure Foundations Section (ED-FS)

What: **ORLEANS PARISH HURRICANE PROTECTION STUDY PLAN (not complete)**
E & D of Orleans Parish Hurricane Protection Feasibility Study Plan. Improvements include analyzing alternatives for raising the existing hurricane protection levees and structures to category 4 and 5 flood protection.

Why: To provide feasibility scope geotechnical engineering designs for raising the East Bank existing hurricane protection levees and structures to category 4 and 5 flood protection.

Who: GS-13 Supervisory Civil Engineer
GS-12 Civil Engineer
GS-11 Civil Engineers
GS-11 Civil Engineer Technician

When: We will start this task after we receive the plan and cross-sections from Civil or Structure Branch.

How: Research and compile existing geotechnical data. Using soil test data and geotechnical design standards, all relevant geotechnical designs will be performed, i.e. levee design analyses, rock dike design analyses, reinforced levee design analyses, I-wall and T-wall analyses, settlement analysis, deep-seated stability analysis, pile capacity curves, and excavation stability analyses, if required. Geotechnical write-up with design plates will be prepared for inclusion into the feasible report.

Time & Cost: $1,500,000 Duration: 36 months

ALTERNATIVE 1

KX - Structure Foundations Section (ED-FS)

What: **ST. BERNARD PARISH HURRICANE PROTECTION STUDY PLAN**
E & D of Orleans Parish Hurricane Protection Feasibility Study Plan. Improvements include analyzing alternatives for raising the existing hurricane protection levees and structures to category 4 and 5 flood protection.

Why: To provide feasibility scope geotechnical engineering designs for raising the existing hurricane protection levees and structures to category 4 and 5 flood protection.

Who: GS-13 Supervisory Civil Engineer
GS-12 Civil Engineer
GS-11 Civil Engineers
GS-11 Civil Engineer Technician

When: We will start this task after we receive the plan and cross-sections from Civil or Structure Branch.

How: Research and compile existing geotechnical data. Using soil test data and geotechnical design standards, all relevant geotechnical designs will be performed, i.e. levee design analyses, I-wall and T-wall analyses, settlement analysis, deep-seated stability analysis, pile capacity curves, and excavation stability analyses, if required. Geotechnical write-up with design plates will be prepared for inclusion into the feasible report.

Time & Cost: $550,000 Duration: 15 months

ALTERNATIVE 2

KX - Structure Foundations Section (ED-FS)

What: **ST CHARLES PARISH EAST BANK HURRICANE PROTECTION STUDY PLAN**
E & D of St Charles Parish Hurricane Protection Feasibility Study Plan. Improvements include analyzing alternatives for raising the East Bank existing hurricane protection levees and structures to category 4 and 5 flood protection.

Why: To provide feasibility scope geotechnical engineering designs for raising the East Bank existing hurricane protection levees and structures to category 4 and 5 flood protection.

Who: GS-13 Supervisory Civil Engineer
GS-12 Civil Engineer
GS-11 Civil Engineers
GS-11 Civil Engineer Technician

When: We will start this task after we receive the plan and cross-sections from Civil or Structure Branch.

How: Research and compile existing geotechnical data. Using soil test data and geotechnical design standards, all relevant geotechnical designs will be performed, i.e. reinforced levee design analyses, levee design analyses, I-wall and T-wall analyses, settlement analysis, deep-seated stability analysis, pile capacity curves, and excavation stability analyses, if required. Geotechnical write-up with design plates will be prepared for inclusion into the feasible report.

Time & Cost: $520,000 Duration: 18 months

ALTERNATIVE 2

KX - Structure Foundations Section (ED-FS)

What: **JEFFERSON PARISH HURRICANE PROTECTION STUDY PLAN (RETURN LEVEE)**
E & D of Jefferson Parish Hurricane Protection Feasibility Study Plan. Improvements include analyzing alternatives for raising the East Bank existing hurricane protection levees and structures to category 4 and 5 flood protection.

Why: To provide feasibility scope geotechnical engineering designs for raising the East Bank existing hurricane protection levees and structures to category 4 and 5 flood protection.

Who: GS-13 Supervisory Civil Engineer
GS-12 Civil Engineer
GS-11 Civil Engineers
GS-11 Civil Engineer Technician

When: We will start this task after we receive the plan and cross-sections from Civil or Structure Branch.

How: Research and compile existing geotechnical data. Using soil test data and geotechnical design standards, all relevant geotechnical designs will be performed, i.e. levee design analyses, I-wall and T-wall analyses, settlement analysis, deep-seated stability analysis, pile capacity curves, and excavation stability analyses, if required. Geotechnical write-up with design plates will be prepared for inclusion into the feasible report.

Time & Cost: $72,000 Duration: 3 months

ALTERNATIVE 2

KX - Structure Foundations Section (ED-FS)

What: **ORLEANS PARISH HURRICANE PROTECTION STUDY PLAN (not complete)**
E & D of Orleans Parish Hurricane Protection Feasibility Study Plan. Improvements include analyzing alternatives for raising the existing hurricane protection levees and structures, designing Seabrook and GIWW/MRGO structures with tie-in levees (assumed approx 3.5 miles of new levee) to category 4 and 5 flood protection.

Why: To provide feasibility scope geotechnical engineering designs for raising the existing hurricane protection levees and structures to category 4 and 5 flood protection.

Who: GS-13 Supervisory Civil Engineer
GS-12 Civil Engineer
GS-11 Civil Engineers
GS-11 Civil Engineer Technician

When: We will start this task after we receive the plan and cross-sections from Civil or Structure Branch.

How: Research and compile existing geotechnical data. Take three (3)- 160'and three (3)-90'undisturbed soil borings and twelve (12) – 90' general type soil borings. Soil borings will be taken at the proposed structure and along the new proposed levee alinement. Soil samples from the borings will be tested and analyzed. Using soil test data and geotechnical design standards, all relevant geotechnical designs will be performed, i.e. reinforced levee design analyses, I-wall and T-wall analyses, settlement analysis, deep-seated stability analysis, pile capacity curves, and excavation stability analyses, if required. Geotechnical write-up with design plates will be prepared for inclusion into the feasible report.

Time & Cost: $1,100,000 Duration: 24 months

ALTERNATIVE 2

KX - Structure Foundations Section (ED-FS)

What: **ST. BERNARD PARISH HURRICANE PROTECTION STUDY PLAN**
E & D of Orleans Parish Hurricane Protection Feasibility Study Plan. Improvements include analyzing alternatives for raising the existing hurricane protection levees and structures to category 4 and 5 flood protection.

Why: To provide feasibility scope geotechnical engineering designs for raising the existing hurricane protection levees and structures to category 4 and 5 flood protection.

Who: GS-13 Supervisory Civil Engineer
GS-12 Civil Engineer
GS-11 Civil Engineers
GS-11 Civil Engineer Technician

When: We will start this task after we receive the plan and cross-sections from Civil or Structure Branch.

How: Research and compile existing geotechnical data. Using soil test data and geotechnical design standards, all relevant geotechnical designs will be performed, i.e. levee design analyses, I-wall and T-wall analyses, settlement analysis, deep-seated stability analysis, pile capacity curves, and excavation stability analyses, if required. Geotechnical write-up with design plates will be prepared for inclusion into the feasible report.

Time & Cost: $550,000 Duration: 15 months

ALTERNATIVE 3

KX - Structure Foundations Section (ED-FS)

What: **ORLEANS PARISH HURRICANE PROTECTION STUDY PLAN (not complete)**
E & D of Orleans Parish Hurricane Protection Feasibility Study Plan. Improvements include analyzing alternatives for raising the existing hurricane protection levees and structures, designing Seabrook and GIWW/MRGO structures with tie-in levees (assumed approx 3.5 miles of new levee) to category 4 and 5 flood protection.

Why: To provide feasibility scope geotechnical engineering designs for raising the existing hurricane protection levees and structures to category 4 and 5 flood protection.

Who: GS-13 Supervisory Civil Engineer
GS-12 Civil Engineer
GS-11 Civil Engineers
GS-11 Civil Engineer Technician

When: We will start this task after we receive the plan and cross-sections from Civil or Structure Branch.

How: Research and compile existing geotechnical data. Take three (3)- 160'and three (3)-90'undisturbed soil borings and twelve (12) – 90' general type soil borings. Soil borings will be taken at the proposed structure and along the new proposed levee alinement. Soil samples from the borings will be tested and analyzed. Using soil test data and geotechnical design standards, all relevant geotechnical designs will be performed, i.e. reinforced levee design analyses, I-wall and T-wall analyses, settlement analysis, deep-seated stability analysis, pile capacity curves, and excavation stability analyses, if required. Geotechnical write-up with design plates will be prepared for inclusion into the feasible report.

Alignment Along Hwy 90
Time & Cost: $520,000 Duration: 11 months

Alternative Alignment along I-10
Time & Cost: $810,000 Duration: 19 months

ALTERNATIVE 3

KX - Structure Foundations Section (ED-FS)

What: **ST. BERNARD PARISH HURRICANE PROTECTION STUDY PLAN**
E & D of Orleans Parish Hurricane Protection Feasibility Study Plan. Improvements include analyzing alternatives for raising the existing hurricane protection levees and structures to category 4 and 5 flood protection.

Why: To provide feasibility scope geotechnical engineering designs for raising the existing hurricane protection levees and structures to category 4 and 5 flood protection.

Who: GS-13 Supervisory Civil Engineer
GS-12 Civil Engineer
GS-11 Civil Engineers
GS-11 Civil Engineer Technician

When: We will start this task after we receive the plan and cross-sections from Civil or Structure Branch.

How: Research and compile existing geotechnical data. Using soil test data and geotechnical design standards, all relevant geotechnical designs will be performed, i.e. levee design analyses, I-wall and T-wall analyses, settlement analysis, deep-seated stability analysis, pile capacity curves, and excavation stability analyses, if required. Geotechnical write-up with design plates will be prepared for inclusion into the feasible report.

Time & Cost: $550,000 Duration: 15 months

ALTERNATIVE 1,2, or 3 - TECHNICAL REVIEW

LW and KX –Geology (ED-FG) & Structure Foundations Section (ED-FS)

What: Technical Review. A technical review will be performed on geotechnical designs, and recommended plan of action and reports.

Why: Review the results of Feasible Report and engineering designs to insure that the level of quality desired is achieved.

Who: GS -13 Civil Engineer
GS -12 Civil Engineer
GS -13 Supervisory Geologist
GS -12 Geologist

When: The first review will be held when the selected alternatives are identified. The second review will be conducted towards the end of the study after the Draft Report is completed.

How: Attend and provide resolution of comments for two technical reviews. This will accomplish through meetings and oral, written and electronic communications.

Time & Cost:

LW - Time to Accomplish Tasks : -- Labor Days (LD)
Cost @ $800/LD : $0000
Duration: ---. month

KX - Time to Accomplish Tasks : -- Labor Days (LD)
Cost @ $800/LD : $0000
Duration: ---. month

Field Investigation by Subsurface Exploration Unit (ED-FG-S) or by A-E Contractor

ORLEANS - ALTERNATIVE 2

What: Soil borings
Drill six undisturbed soil borings (5-inch) totaling 750 linear feet and twelve general type soil borings (3-inch) totaling 1080 linear feet. Clear and survey the area to determine the ground and water table elevations. Transport the soil samples to laboratory.

Why: To determine the soil types of the foundation and to obtain soil samples for laboratory tests.

Who: Drill Crew

When: After Real Estate Division provides Right-of-Entry and a positive initial site assessment for HRTW has been completed.

How: By using a drill rig and standard drilling procedures utilizing barge, tug, and marsh buggy.

Time & Cost: $253,000 Duration: 3 months

Lab Testing by Soil and Material Processing Unit (ED-FG-P) or by A-E Contractor

ORLEANS - ALTERNATIVE 2

What: Soil classification and testing – Visual classification of six undisturbed soil borings totaling 750 linear feet and twelve general type soil borings totaling 1080 linear feet. Process and store samples for in-house use and detailed testing. Perform liquid and plastic limits, water content, UCT tests, sieve and other miscellaneous tests as required.

Why: To determine the soil types of the foundation for geotechnical design.

Who: Major portion GS-5
GS-6
GS-8
Supervision and review GS-11

When: After samples are received from the field.

How: By performing the various test procedures in EM 1110-2-1906, dated 30 Nov 70.

Time & Cost: $68,000 Duration: 2 months

What: Detailed soil testing – Perform approximately 81 unconsolidated-undrained triaxial tests (Q-tests), 21 consolidated-undrained triaxial tests (R-tests) with pore pressure readings, 12 consolidated-drained triaxial tests (S-tests), 81 unconfined compression tests (UCT), 60 consolidation tests, 30 sieve analysis (complete), and 255 liquid and plastic limits. Determine water content, specific gravity, plot mohr circles for each specimen, and furnish test sheets for each sample.

Why: To obtain soil parameters that can reliably be used to perform geotechnical analyses.

Who: A/E Contractor – Soil Laboratory

When: Within 6 weeks after receiving samples from NOD laboratory.

How: By using triaxial and other state-of-the-art laboratory test equipment.

Time & Cost: $53,000 Duration: 3 months

Alternative 1

St. Charles Parish East Bank
Hurricane Protection Study

B2L0350 – Geotechnical Branch, Geology Section (ED-FG)

What: Determine site-specific geologic conditions at the study site. Develop geologic cross-sections and writeups describing the foundation conditions along the hurricane protection levee's alignment.

Why: For use in geotechnical design.

Who: GS-13 Geologist
GS-12 Geologist
GS-11 Geologist

When: Upon completion of boring classification by Soils and Materials Processing Unit.

How: Through interpretation of new and existing boring, groundwater, and subsidence data.

Time and Cost: Time: 25 Labor Days (LD)
Cost at $800/LD: $ 20,000
Duration: 3 months

Alternative 1

Jefferson Parish Hurricane
Protection Study Plan (Return Levee)

B2L0350 – Geotechnical Branch, Geology Section (ED-FG)

What: Determine site-specific geologic conditions at the study site. Review and update existing geologic profiles.

Why: For use in geotechnical design.

Who: GS-13 Geologist
GS-12 Geologist
GS-11 Geologist

When: Upon completion of boring classification by Soils and Materials Processing Unit.

How: Through interpretation of new and existing boring, groundwater, and subsidence data.

Time and Cost: Time: 2 Labor Days (LD)
Cost at $800/LD: $ 1,600
Duration: 1 week

Alternative 1

Orleans Parish Hurricane
Protection Study Plan (not complete)

B2L0350 – Geotechnical Branch, Geology Section (ED-FG)

What: Determine site-specific geologic conditions at the study site. Develop geologic cross-sections and writeups describing the foundation conditions along the hurricane protection levee's alignment.

Why: For use in geotechnical design.

Who: GS-13 Geologist
GS-12 Geologist
GS-11 Geologist

When: Upon completion of boring classification by Soils and Materials Processing Unit.

How: Through interpretation of new and existing boring, groundwater, and subsidence data.

Time and Cost: Time: 105 Labor Days (LD)
Cost at $800/LD: $ 84,000
Duration: 1 year

Alternative 1

St. Bernard Parish
Hurricane Protection Study Plan

B2L0350 – Geotechnical Branch, Geology Section (ED-FG)

What: Determine site-specific geologic conditions at the study site. Develop geologic cross-sections and writeups describing the foundation conditions along the hurricane protection levee's alignment.

Why: For use in geotechnical design.

Who: GS-13 Geologist
GS-12 Geologist
GS-11 Geologist

When: Upon completion of boring classification by Soils and Materials Processing Unit.

How: Through interpretation of new and existing boring, groundwater, and subsidence data.

Time and Cost: Time: 65 Labor Days (LD)
Cost at $800/LD: $ 52,000
Duration: 9 months

Alternative 2

St. Charles Parish East Bank
Hurricane Protection Study

B2L0350 – Geotechnical Branch, Geology Section (ED-FG)

What: Determine site-specific geologic conditions at the study site. Develop geologic cross-sections and writeups describing the foundation conditions along the hurricane protection levee's alignment.

Why: For use in geotechnical design.

Who: GS-13 Geologist
GS-12 Geologist
GS-11 Geologist

When: Upon completion of boring classification by Soils and Materials Processing Unit.

How: Through interpretation of new and existing boring, groundwater, and subsidence data.

Time and Cost: Time: 25 Labor Days (LD)
Cost at $800/LD: $ 20,000
Duration: 3 months

Alternative 2

Jefferson Parish Hurricane
Protection Study Plan (Return Levee)

B2L0350 – Geotechnical Branch, Geology Section (ED-FG)

What: Determine site-specific geologic conditions at the study site. Review and update existing geologic profiles.

Why: For use in geotechnical design.

Who: GS-13 Geologist
GS-12 Geologist
GS-11 Geologist

When: Upon completion of boring classification by Soils and Materials Processing Unit.

How: Through interpretation of new and existing boring, groundwater, and subsidence data.

Time and Cost: Time: 2 Labor Days (LD)
Cost at $800/LD: $ 1,600
Duration: 1 week

Alternative 2

Orleans Parish Hurricane
Protection Study Plan (not complete)

B2L0350 – Geotechnical Branch, Geology Section (ED-FG)

What: Determine site-specific geologic conditions at the study site. Develop geologic cross-sections and writeups describing the foundation conditions along the hurricane protection levee's alignment.

Why: For use in geotechnical design.

Who: GS-13 Geologist
GS-12 Geologist
GS-11 Geologist

When: Upon completion of boring classification by Soils and Materials Processing Unit.

How: Through interpretation of new and existing boring, groundwater, and subsidence data.

Time and Cost: Time: 85 Labor Days (LD)
Cost at $800/LD: $ 68,000
Duration: 8 months

Alternative 2

St. Bernard Parish
Hurricane Protection Study Plan

B2L0350 – Geotechnical Branch, Geology Section (ED-FG)

What: Determine site-specific geologic conditions at the study site. Develop geologic cross-sections and writeups describing the foundation conditions along the hurricane protection levee's alignment.

Why: For use in geotechnical design.

Who: GS-13 Geologist
GS-12 Geologist
GS-11 Geologist

When: Upon completion of boring classification by Soils and Materials Processing Unit.

How: Through interpretation of new and existing boring, groundwater, and subsidence data.

Time and Cost: Time: 65 Labor Days (LD)
Cost at $800/LD: $ 52,000
Duration: 9 months

Alternative 3

Orleans Parish Hurricane
Protection Study Plan (not complete)

B2L0350 – Geotechnical Branch, Geology Section (ED-FG)

What: Determine site-specific geologic conditions at the study site. Develop geologic cross-sections and writeups describing the foundation conditions along the hurricane protection levee's alignment.

Why: For use in geotechnical design.

Who: GS-13 Geologist
GS-12 Geologist
GS-11 Geologist

When: Upon completion of boring classification by Soils and Materials Processing Unit.

How: Through interpretation of new and existing boring, groundwater, and subsidence data.

Time and Cost: Time: 25 Labor Days (LD)
Cost at $800/LD: $ 20,000
Duration: 2 months

Alternative 3

St. Bernard Parish
Hurricane Protection Study Plan

B2L0350 – Geotechnical Branch, Geology Section (ED-FG)

What: Determine site-specific geologic conditions at the study site. Develop geologic cross-sections and writeups describing the foundation conditions along the hurricane protection levee's alignment.

Why: For use in geotechnical design.

Who: GS-13 Geologist
GS-12 Geologist
GS-11 Geologist

When: Upon completion of boring classification by Soils and Materials Processing Unit.

How: Through interpretation of new and existing boring, groundwater, and subsidence data.

Time and Cost: Time: 65 Labor Days (LD)
Cost at $800/LD: $ 52,000
Duration: 9 months

Geology Section Work Request

To: Alan Blake, Chief, Geology Section

From: Richard Pierce Date: 14 JAN 2003

Job Title: Hurricane Study PMP

Projects Engineering POC:

~~4~~ days

Description of work: Soil Sampling

Location of work (attach maps showing study areas and boring locations):
See Map - St Bernard Parish Area

Check Service/Services Required:

- ☒ Soil Borings – List #, type, and depth of borings
  - 12 General 90' ea – 1080'
  - 3 undisturbed 160' ea 480' $252,463
  - 3 " 90' ea 270' NOD
- ☐ Soils Lab Analysis
- ☐ Geologic Studies
  - ☐ geologic profiles
  - ☐ geologic write-up

1,830 Ft.

37,800 12 Gen
19,200 3 - 160' Und
10,800 3 - 90' Und
N.O.D
testing $67,800 (18) TOTAL

Date Work Required By:
Borings –
Lab Analysis –
Writeups –

Geology $10,000.00

↑ Doug reduced to $8,000

Additional Notes to Geology Section:

Labor # for Preparing Cost Estimates: $330,463.00

Note: Geology section will use the above information to prepare a cost and time estimate that will be furnished to the project engineer. If the estimate is acceptable, the project engineer must have labor #'s established for each of the units to perform their tasks.

Alan Blake 14 Jan 03

Time and Cost Estimate to preapre Fleasibility Study for East Bank Hurricane upgrade

EAST BANK	Alt #	Description	GS13 RATES/HR 113	GS12 95	GS11 75	GS11T 75	Total Cost
1. St Charles Parish	a	Earthen Enlargement(Cat 4.)	1	10	50	20	50504
11 Levee section	b	Earthen Enlargement(Cat 5.)	1	10	50	20	50504
3 waste pits	c	I-wall (cat 4)	2	15	50	20	55208
1 high strength fabric	d	I-wall (cat 5)	2	15	50	20	55208
5 DS, 2 R/R gates	e	PS and DS (Cat 4)	4	40	180	20	154016
6 pipelines	f	PS and DS (Cat 5)	4	40	180	20	154016
Duration 5 months		combination of the above	14	130	560	120	**519,456**
2. Jeff Return levee	a	T-wall & stone dike(cat 4)	1	10	30	15	35504
6 design reaches	b	T-wall & stone dike(cat 5)	1	10	30	15	35504
T & I-walls existing							
Duration 5 months		combination of the above	2	20	60	30	**71,008**
5a. Citrus Lakefront	a	I-wall & stone dike(cat 4)	1	10	35	15	38504
7 reaches	b	I-wall & stone dike(cat 5)	1	10	35	15	38504
3 tie-in to PS	c	T-wall & stone dike(cat 4)	1	10	35	15	38504
foreshore dike	d	T-wall & stone dike(cat 5)	1	10	35	15	38504
	e	Pump stations (cat 4)	1	5	15	5	16704
	f	Pump stations (cat 5)	1	5	15	5	16704
Duration 5 months		combination of the above	5	45	155	65	170720
5b. NOE Lakefront	a	Earthen enlargement (cat 4)	1	10	40	20	44504
7 ?? reaches	b	Earthen enlargement (cat 5)	1	10	40	20	44504
3 tie-in to PS	c	I-wall & stone dike(cat 4)	1	10	40	20	44504
foreshore dike	d	I-wall & stone dike(cat 5)	1	10	40	20	44504
Duration 5 months		Combination of the above	4	40	160	80	178016
6. SouthP to GIWW	a	Earthen enlargement (cat 4)	1	10	40	15	41504
6 soil reaches, 2 ramps	b	Earthen enlargement (cat 5)	1	10	40	15	41504
4 soil founded drainage	c	I-wall (cat 4)	1	10	45	15	44504
strucutes, 1 floodgate	d	I-wall (cat 5)	1	10	45	15	44504
	e	DS and FG(cat 4)	1	10	75	10	59504
	f	DS and FG (cat 5)	1	10	75	10	59504
Duration 5 months		Combination of the above	6	60	320	80	291024
7a. NOE back levee	a	Earthen enlargement (cat 4)	1	8	30	15	33984
13 Levee Sections	b	Earthen enlargement (cat 5)	1	8	30	15	33984
I -wall at P/L	c	I-wall (cat 4)	1	8	30	15	33984
another P/L crossing	d	I-wall (cat 5)	1	8	30	15	33984
	e	Pump stations (cat 4)	1	3	10	5	12184
	f	Pump stations (cat 5)	1	3	10	5	12184
Duration 5 months		Combination of the above	6	38	140	70	160304
7b. Michoud Area	a	T-wall (cat 4)	1	5	20	5	19704
assumed 6 sections	b	T-wall (cat 5)	1	5	20	5	19704
existing I- & T-walls							

62		Combination of the above	2	10	40	10	39408
8. Citrus Back Levee	a	I-wall (cat 4)	1	10	40	10	38504
5 levee reaches	b	I-wall (cat 5)	1	10	40	10	38504
assumed 4 p/l	c	T-wall (cat 4)	1	10	40	10	38504
	d	T-wall (cat 5)	1	10	40	10	38504
Duration 5 months		Combination of the above	4	40	160	40	154016
10a. IHNC to GIWW	a	I-wall (cat 4)	1	10	50	12	45704
10 section	b	I-wall (cat 5)	1	10	50	12	45704
existing I and T-walls	c	T-wall (cat 4)	1	10	50	12	45704
existing levee	d	T-wall (cat 5)	1	10	50	12	45704
	e	Pump stations (cat 4)	1	3	10	3	10984
	f	Pump stations (cat 5)	1	3	10	3	10984
Duration 5 months		Combination of the above	6	46	220	54	204784
10b GIWW to Bienv.	a	Earthen enlargement (cat 4)	1	10	40	10	38504
assume 8 reaches	b	Earthen enlargement (cat 5)	1	10	40	10	38504
1 P/l and 1 gate	c	I-wall (cat 4)	1	10	40	10	38504
	d	I-wall (cat 5)	1	10	40	10	38504
	e	Bienvenue Structure (cat 4)	1	10	30	10	32504
	f	Bienvenue Structure (cat 5)	1	10	30	10	32504
Duration 5 months		Combination of the above	6	60	220	60	219024
Subt Orleans Parish							**1,417,296**
11. Chal along MRGO	a	Earthen enlargement (cat 4)	1	10	50	12	45704
	b	Earthen enlargement (cat 5)	1	10	50	12	45704
assume 7 levee sect's	c	I-wall (cat 4)	1	10	50	12	45704
3 p/l crossing	d	I-wall (cat 5)	1	10	50	12	45704
	e	Dupre Structure (cat 4)	1	10	30	12	33704
	f	Dupre Structure (cat 5)	1	10	30	12	33704
Duration 5 months		Combination of the above	6	60	260	72	250224
12. MRGO to River	a	Earthen enlargement (cat 4)	1	10	40	10	38504
	b	Earthen enlargement (cat 5)	1	10	40	10	38504
assumed 6 levee	c	I-wall (cat 4)	1	10	40	10	38504
sections, 1 DS & 2 P/L	d	I-wall (cat 5)	1	10	40	10	38504
	e	T-wall (cat 4)	1	10	40	10	38504
	f	T-wall (cat 5)	1	10	40	10	38504
	g	D. structures and F/g's (cat 4)	1	10	25	10	29504
	h	D. structures and F/g's (cat 5)	1	10	25	10	29504
Duration 5 months		Combination of the above	8	80	290	80	290032
Subt Orleans Parish							**540,256**
13 Barrier Plan	a	Struc. A MRGO/Giww (cat 4)	5	40	120	60	142920
Seabrook existing data	b	Struc. A MRGO/Giww (cat 5)	5	40	120	60	142920
MRGO struc new loc	c	Seabrook Structure (cat 4)	5	25	90	40	101520
need borings for	d	Seabrook Structure (cat 5)	5	25	90	40	101520

structure & levees	e	Connecting Levees (cat4)	1	10	30	15	35504
	f	Connecting Levees (cat5)	1	10	30	15	35504
Duration 5 months		Combination of the above	22	150	480	230	**559,888**
TOTAL			91	779	3065	991	**3,038,296**

Alternative E-1							
St Charles Parish			14	130	560	120	519456
Jefferson Parish			2	20	60	30	71008
Orleans Parish			39	339	1415	459	1417296
St Bernard Parish			14	140	550	152	540256

Alternative E-2							
St Charles Parish			14	130	560	120	519456
Jefferson Parish			2	20	60	30	71008
Orleans Parish			31	233	955	375	1003104
St Bernard Parish			14	140	550	152	540256

Alternative E-3							
Orleans Parish	*		18	138	440	220	517152
Orl Parish- Alt alinem't	**		24	198	760	300	808176
St Bernard Parish			14	140	550	152	540256

Lab Test cost estimate for PMP Hurricane - Alt 2 - Orleans Parish

Type	amount	Cost/test	
Q	81	116.36	9425.16
R	21	267.63	5620.23
S	12	403.14	4837.68
U	81	24.9	2016.9
C	60	275.28	16516.8
Sieve	30	26.88	806.4
Att	255	32.37	8254.35
			47477.52

use $53,000