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116th Congress, 1st Session – – – – – – – – – – – – – – House Document 116–69

SOUTHWEST COASTAL LOUISIANA INTEGRATED FINAL FEASIBILITY REPORT AND ENVIRONMENTAL IMPACT STATEMENT

COMMUNICATION

FROM

THE ASSISTANT SECRETARY OF THE ARMY, CIVIL WORKS, THE DEPARTMENT OF DEFENSE

TRANSMITTING

THE CORPS' SOUTHWEST COASTAL LOUISIANA INTEGRATED FINAL FEASIBILITY REPORT AND ENVIRONMENTAL IMPACT STATEMENT FOR APRIL 2016

PART 2 OF 2

SEPTEMBER 24, 2019.—Referred to the Committee on Transportation and Infrastructure and ordered to be printed

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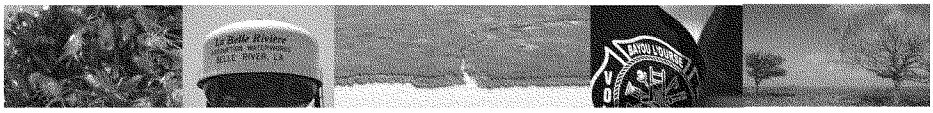
PLAN FORMULATION APPENDIX



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1.0 INTRODUCTION

This appendix provides supplemental plan formulation information for the Southwest Coastal Louisiana feasibility study. It supplements the information in Chapter 2 of the main report and includes tables used in the initial and intermediate development, screening, and evaluation of management measures, features, and alternative plans. The formulation process from the development of the NED and NER focused arrays through the identification of the NED and NER Tentatively Selected Plans (TSPs) is fully documented in Chapter 2 of the Main Report. Chapter 2 of the Main Report contains details of how the NED and NER TSPs were refined and optimized. Additional updates and changes to the NED TSP and NER TSP occurred after release of the 2013 Initial Draft Report for public review as well as the 2015 Revised Draft Report for public review. Significant changes to the NED plan consisted of updating costs and benefits to refine the pool of eligible structures. Significant changes to the NER plan consisted of adjusting the marsh restoration benefits and the implementation plan. Details of the outcome of the formulation process, which resulted in the identification of the NED and NER Recommended Plans (RPs) are included in Chapter 4. The NED RP is further described in Appendix L, which outlines how the NED RP would be implemented. Fact sheets for all NER features are included in Appendix K. A description of the NER RP can also be found in Chapter 4.

Universe of NED & NER Features: The initial set of concepts for consideration under the Southwest Coastal feasibility study was inventoried from multiple sources as shown in figure 1. Since concepts were pulled from multiple sources, some concepts did not meet the definition of a management measure, and in some cases the same concept or measure was repeated more than once (for example if it appeared in both the State Master Plan and the LACPR report) so duplicates had to be removed. Only measures that met the following criteria were carried forward into the initial array of features:

- Meets the definition of a feature ("a project or an activity that can be implemented at a specific geographic site to address one or more planning objectives");
- Not part of the future without project condition;
- Addresses one or more of the Southwest Coastal planning objectives;
- Doesn't violate any of the Southwest Coastal planning constraints.

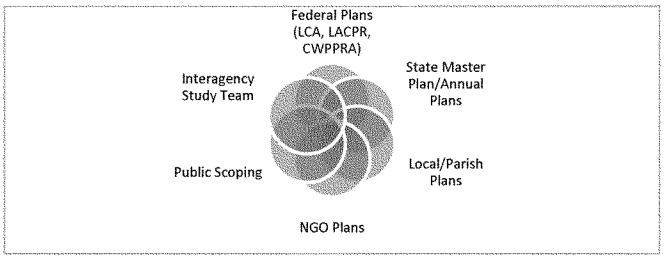

Figure 1. Sources of ideas to solve problems in the Southwest Coastal area.

After sorting through approximately 300 concepts or measures, approximately 100 were found to be unique and viable measures.

Table C-1, Initial NED and NER Features Compiled and Screened

Initial ID	Feature No.	Name/Description/Location	Source	Objective No.	Incorporated into the initial array of features?	
1	N/A	Freshwater Introduction from Sabine River to Sabine National Wildlife Refuge	Draft SMP 4-19	N/A	No	Does not address any planning objectives. CRMS data indicate the area is relatively healthy and not in need of salinity/hydrologic control.
2	N/A	Salinity control structures along the east shoreline of Sabine Lake near Blue Buck Point, Sabine Island and Black Bayou	Preliminary Draft SMP	N/A	No	Does not address any planning objectives. Modeling performed for CWPPRA project CS-32: East Sabine Lake Hydrologic Restoration indicated limited benefit from proposed structures.
3	3a1, 3c	Beneficial Use of Dredged Material from Calcasieu Ship Channel	SMP 4-13	7	Yes	The planning team reduced acreage of this measure to exclude historic water bodies, existing terraces, DMMP sites, etc. East of Calcasieu Lake the measure was repositioned to reinforce the lake rim in areas of recent land loss.
4	21a, 21b, 21c	Salinity control structures at Hwy 82	Preliminary Draft SMP	2	Yes	Duplicate of Measure #21.
5	5a	Gulf Shoreline Protection (Holly Beach reach)	SMP 4-10/ LACPR/ Cameron Parish	5	Yes	Per BICM data, Holly Beach has experienced high shoreline recession rates (~22.5 ft/yr). Pending beach nourishment project in the area will provide a short-term buffer between Highway 82 and the Gulf of Mexico.
	N/A	Gulf Shoreline Protection (Johnson's Bayou and Ocean View Beach reaches)	SMP 4-13/ LACPR	N/A	No	Does not address any planning objectives. BICM data indicate that shoreline recession rates are low. Johnson's Bayou reach has consistently been accreting since the 1880s. Ocean View Beach has been accreting since the 1990s with only minor erosion (~1.5 ft/yr) between the 1880s and 1990s.
6	N/A	Gulf Shoreline Protection (Hackberry Beach and Mermentau Beach reaches)	SMP 4-11/ LACPR	N/A	No	Does not address any planning objectives. BICM data indicate that shoreline recession rates are relatively low. Hackberry Beach has recently experienced periods of accretion (41.4 ft/yr from 2004-2005) or minor erosion (4.4 ft/yr from 1990s – 2005).
	6b	Gulf Shoreline Protection (Rockefeller Refuge reach)	SMP 4-11/ LACPR/ Cameron Parish	5	Yes	Shoreline recession is consistently highest along Rockefeller Refuge. Per BICM data, Rockefeller Refuge has recently experienced the highest recession rates in the study area (a loss of 52.4 ft/yr from 1990s to 2005).
7	7	Salinity control structures in Calcasieu Ship Channel near Ferry/at the Gulf of Mexico	Preliminary Draft SMP	2	Yes	
8	3a1, 3c	Beneficial uses of dredged material program: utilize sediment and dedicated dredging for marsh enhancement and construction of terraces near Calcasieu Lake	Preliminary Draft SMP	7	Yes	Duplicate of Measure #3.

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Table C-1, Initial NED and NER Features Compiled and Screened

Initial ID	Feature No.	Name/Description/Location	Source	Objective No.	Incorporated into the initial array of features?	
9	N/A	Salinity control structures at points on east side of Calcasieu Lake	Preliminary Draft SMP	N/A	No	Salinity control structures already exist on the eastern shore of Calcasieu Lake.
10	N/A	Maximize freshwater inflow to tributaries of the Mermentau from outside sources	Preliminary Draft SMP	N/A	No	Does not address any planning objectives.
11	N/A	Maximize freshwater inflow to Mermentau from outside sources	Preliminary Draft SMP	N/A	No	Does not address any planning objectives.
12	12a-d	Stabilize Grand Lake Shoreline	SMP 4-6	N/A	No	Measure was investigated. Areas of existing shoreline protection (i.e. the majority of the south and southeastern shorelines) were screened out. USGS analyses of other shoreline reaches showed relatively low recession rates (<2 feet per year). Therefore, this measure was excluded from further analysis because it doesn't address an area of critical need.
13	13	Freshwater introduction/retention structure or sill on Little Pecan Bayou	Preliminary Draft SMP	2	Yes	
14	N/A	Freshwater introduction/retention structure or sill on Rollover Bayou	Preliminary Draft SMP	N/A	No	Part of the future without project condition. Addressed by State project ME-01 Pecan Island Freshwater Introduction.
15	N/A	Stabilize White Lake Shoreline	SMP 4-7	N/A	No	Does not address any planning objectives. The entire south shore is protected by rock dikes whereas the north shore has not experienced significant recent shoreline recession.
16	16a	Fortify and restore banks of Schooner Bayou Canal from Highway 82 to North Prong	SMP 4-15 and Vermilion Parish	N/A	No	Measure was investigated. USGS analyses of this part of Schooner Bayou showed relatively low bankline recession rates (about 1 foot per year). Therefore, this measure was excluded from further analysis because it doesn't address an area of critical need.
	16b	Fortify and restore banks of Freshwater Bayou Canal	SMP 4-15 and Vermilion Parish	5	Yes	Banklines with existing or impending rock dikes were screened out.
17	17a	Salinity control structure on Alkali Ditch	LCA PBMO/ LACPR 5-4	2	Yes	
	17b	Salinity control structure on Crab Gully		2	Yes	
	17c	Salinity control structure on Black Lake Bayou near Hackberry	LCA PBMO/ LACPR 5-3	2	Yes	
18	N/A	Build new chamber for navigation at Calcasieu Lock on GIWW and use old lock to evacuate excess water	Preliminary Draft SMP	N/A	No	Building a new lock for navigation does not meet any planning objectives. The USACE has an existing ongoing Calcasieu Lock Replacement study. Operations of existing structures will be evaluated under Measure #602.
19	16b	Stabilize banks of Freshwater Bayou	SMP 4-8	5	Yes	Duplicate of Measure #16b.

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Table C-1, Initial NED and NER Features Compiled and Screened

Initial ID	Feature No.	Name/Description/Location	Source	Objective No.	Incorporated into the initial array of features?	
20	49b1	Stabilize eastern shore of Lake Calcasieu	SMP 4-16	5	Yes	Duplicate of Measure #49.
21	21a, 21b, 21c	Hydraulic Improvements in Mermentau Basin at Highways 82 and 27 (via Hydraulic Improvement Structures)	SMP 4-20	2 & 4	Yes	Note that there are structures proposed (CWPPRA project ME-20) or constructed (CIAP project at Highway 27) that overlap with this measure. Chenier Plain Hydrodynamic model will determine best locations for additional culverts to discharge excess water and control saltwater intrusion.
22	N/A	Manage watershed to reduce rapid inflows into Mermentau Sub-basin	Preliminary Draft SMP	N/A	No	This is a planning objective not a management measure.
23	N/A	Restore marsh by filling abandoned canals	Preliminary Draft SMP	N/A	No	Although restoring marsh is a planning objective, backfilling all abandoned canals without regard to their location does not meet the objective of strategically restoring marsh and is not feasible given limited sediment resources. Also, many canals that appear to be abandoned may still serve active wells or production units.
24	N/A	Utilize freshwater inflow from Atchafalaya River: Convey Atchafalaya River Water Westward via GIWW (via Rock Dike)	LACPR PU3b 1-2	N/A	No	Does not address any planning objectives. There are significant challenges in conveyance of water due to the GIWW's relatively "porous" bankline, as well as long-term implications to Atchafalaya (and Mississippi) River operations all the way to the Old River Control Structure. This measure is not feasible or cost effective at this time because of constructability and navigation issues. This measure would be better investigated under the proposed LCA Upper Atchafalaya Basin Study.
25	N/A	Improve hydrology of the old Mermentau River Channel between Mud Lake and Gulf of Mexico	Preliminary Draft SMP	N/A	No	This measure would be difficult to implement successfully considering the proximity of the more hydraulically-efficient Mermentau River Navigation Channel.
26	26	Bankline Protection for Gulf Intracoastal Waterway (GIWW)	SMP 4-4	N/A	No	Measure was investigated. USGS analyses of the GIWW from the Sabine River to Leland Bowman Lock showed relatively low bankline recession rates (<2 feet per year for the majority of the northern bankline, and <3 feet per year for the majority of the southern bankline). Therefore, this measure was excluded from further analysis because it doesn't address an area of critical need and because of low cost-effectiveness.
27	N/A	Allow Calcasieu Lake and surrounding area to become and remain brackish to saline	Preliminary Draft SMP	N/A	No	Does not address any planning objectives.
28	N/A	Dedicated dredging from the Gulf of Mexico for marsh creation and enhancement.	Preliminary Draft SMP	N/A	No	Does not meet the definition of a management measure (doesn't meet a planning objective at a specific location). Dredging from

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Initial ID	Feature No.	Name/Description/Location	Source	Objective No.	Incorporated into the initial array of features?	
						the Gulf of Mexico will be evaluated as a potential source of material for measures.
29	N/A	Maintain Hwy 82 for marsh protection	Preliminary Draft SMP	N/A	No	Maintenance of Hwy 82 is a LADOTD responsibility.
30	16b	Fortify spoil banks on GIWW in St. Mary and Vermilion Parish, Freshwater Bayou Canal	LACPR 3-12	1 & 5	Yes	Only Freshwater Bayou portion of this proposed measure was carried forward. Duplicate of Measure #16b.
31	416, 509, 510	Restore Chenier Forests	Preliminary Draft SMP	7	Yes	Duplicate of Measures #416, 509, and 510.
32	149, 411, 412	Lake Charles & Vicinity Hurricane Protection (via Earthen Levee/Major Structure)	SMP 4-1	1	Yes	Duplicate of Measures #149, 411, and 412.
33	N/A	New levee alignment along Highway 82 (from Vinton to Abbeville)	LACPR Atlas PU4-H	N/A	No	This alignment did not pass the initial LACPR screening because of strong local opposition; high cost; environmental concerns such as wetland impacts and drainage problems (e.g. trapping saltwater after a storm). Based on LACPR Final Technical Report evaluations, this measure doesn't meet Federal of cost effectiveness or protecting the nation's environment.
34	GIWW	Abbeville to Lake Charles Hurricane Protection (via Earthen Levee)	SMP 4-2	1	Yes	Study authority requires assessing the "feasibility of constructing an armored 12-foot levee along the Gulf Intracoastal Waterway."
35	N/A	New levee alignment along the 10-ft contour (from Abbeville to Texas border)	LACPR Atlas PU4-C	N/A	No	This alignment did not pass the initial LACPR screening because of long length (high life-cycle costs); environmental concerns such as wetland impacts and drainage problems (e.g. trapping saltwater after a storm). Based on LACPR Final Technical Report evaluations, this measure doesn't meet Federal of cost effectiveness or protecting the nation's environment.
36	N/A	Nonstructural collaboration with local, State and Federal agencies for application of all nonstructural measures	LACPR Atlas	N/A	No	Doesn't meet the definition of a management measure, but will be identified as a multi-agency collaboration opportunity in the report.
37	601	Nonstructural incentive program to elevate above ABFE/BFE to + mean sea level for new construction and reconstruction/relocation in collaboration with other agencies	LACPR Atlas	1	Yes	Will be considered under Measure #601.
38	601	Nonstructural permanent evacuation/relocation of residential assets along Hwy LA-82 for Risk Reduction and Ecosystem Restoration	LACPR Atlas	1	Yes	Will be considered under Measure #601.

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Initial ID	Feature No.	Name/Description/Location	Source	Objective No.	Incorporated into the initial array of features?	
39	N/A	Nonstructural technical assistance/information/workshops on implementation of measures	LACPR Atlas	N/A	No	Doesn't meet the definition of a management measure, but will be identified as a multi-agency collaboration opportunity in the report.
40	601	Localized risk reduction surrounding private property	LACPR Atlas	1	Yes	Will be considered under Measure #601
41	601	Nonstructural flood proofing critical facilities and critical economic assets	LACPR Atlas	1	Yes	Will be considered under Measure #601
42	149, 411, 412	Lake Charles and Vicinity Hurricane Protection	SMP 4-1	1	Yes	Duplicate of Measures #149, 411, and 412.
43	N/A	Abbeville to Lake Charles Hurricane Protection	SMP 4-2	N/A	No	Doesn't meet Federal objective of cost effectiveness based on LACPR Final Technical Report evaluations. Also, high environmental mitigation costs.
44	TBD	Raise and Maintain Highways 82 and 27	SMP 4-3	1	No	To be evaluated with ADCIRC modeling to determine if risk reduction measures can be formulated (e.g. raising low parts of the highway, rock armor in select areas, etc.). Maintenance of Highways 82 and 27 is a LADOTD responsibility.
45	N/A	Restore the Mermentau Lakes Basin Integrity	SMP 4-5	N/A	No	This is a goal not a measure. See Objectives 2, 3, and 4.
46	7	Salinity Control Structure at Calcasieu Pass	SMP 4-9	2	Yes	Duplicate of Measure #7.
47	47a, 47c, 47f, 47h	Marsh Restoration Using Dredged Material South of Highway 82	SMP 4-12	7	Yes	The planning team reduced acreage of this measure to exclude areas with existing or planned terraces, areas that Rockefeller Refuge uses for duck research, etc.
48	48	Salinity Control Structure at Sabine Pass	SMP 4-14	2	Yes	Changed measure to be a sill or rock dike closure between the Sabine Navigation Channel and the marsh in Cameron Parish just north of highway 82. However, the ship channel is open to Sabine Lake at the north end, so the benefits of the sill probably will not be as effective as if the system was isolated from the ship channel. In fact, the sill could exacerbate issues on the north end by increases in differential stage levels within the lake.
49	49b1	Stabilize Calcasieu Lake Shoreline	SMP 4-16/ Cameron Parish	5	Yes	Only 49b1 portion of this measure (i.e., shoreline in front of the Cameron-Creole Watershed) was carried forward because USGS analyses of other shoreline reaches showed relatively low recession rates (about 2 feet per year).
50	N/A	Stabilize Sabine Lake Shoreline	SMP 4-17	N/A	No	USGS analyses of the Sabine Lake shoreline showed relatively low recession rates. Therefore, this measure was excluded from further analysis because it doesn't address an area of critical need.

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Initial ID	Feature No.	Name/Description/Location	Source	Objective No.	Incorporated into the initial array of features?	
51	N/A	Mermentau Basin Watershed Management Plan to Retain Freshwater Resources	SMP 4-18	N/A	No	Does not meet the definition of a measure; however, measures consistent with this plan may be formulated pending the results of the Chenier Plain Hydrodynamic model.
52	N/A	Chenier Plain Freshwater and Sediment Management and Reallocation	LACPR 5-17	N/A	No	Does not meet the definition of a measure. The LCA "Chenier Plain Freshwater and Sediment Management and Allocation Reassessment Study" has not been funded; however, some ecosystem restoration concepts are being evaluated as part of the SW Coastal feasibility study.
53	GIWW	To evaluate the GIWW alignments in Planning Units 3b and 4	LACPR Atlas	1	Yes	Duplicate of Measure #34. Authority requires assessing the "feasibility of constructing an armored 12-foot levee along the Gulf Intracoastal Waterway."
54	149, 411, 412	Hurricane surge protection for Lake Charles metropolitan area and Vinton using ring levees	Preliminary Draft SMP	1	Yes	Duplicate of Measures #149, 411, and 412.
55	141, 142, 143, 144, 347	Hurricane surge protection from Vermilion River to GIWW/Calcasieu River Lock	Preliminary Draft SMP	1	Yes	Duplicate of Measures #141, 142, 143, 144, and 34.
56	TBD	Raise & Maintain Highways 82 and 27	SMP 4-3	1	No	Duplicate of Measure #14.
57	N/A	Proposed hurricane protection levee for 30-A storm surge at coastline	Preliminary Draft SMP	N/A	No	This alignment did not pass the initial LACPR screening for the same reasons as the Hwy 82 alignment: strong local opposition; high cost; environmental concerns such as wetland impacts and drainage problems (e.g. trapping saltwater after a storm). Based on LACPR Final Technical Report evaluations, this measure doesn't meet Federal of cost effectiveness or protecting the nation's environment.
58	N/A	Complete/accelerate the Chenier Plain Freshwater and Sediment Management and Allocation Reassessment study which was included in the LCA Near-Term Plan	LACPR 5-17	N/A	No	The LCA "Chenier Plain Freshwater and Sediment Management and Allocation Reassessment Study" has not been funded; however, some ecosystem restoration concepts are being evaluated as part of the SW Coastal feasibility study.
59	601	Develop a plan to elevate and/or relocate assets located outside the hurricane protection levee	SMP	1	Yes	Will be considered under Measure #601.
60	N/A	Toll road on top of levee south of GIWW	Preliminary Draft SMP	N/A	No	Not water resources related. Does not address any planning objectives.
61	N/A	Hebert Canal Watershed	Preliminary Draft SMP	N/A	No	Does not meet the definition of a measure. See Measure #142 for Hebert Canal storm surge measure.

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Initial ID	Feature No.	Name/Description/Location	Source	Objective No.	Incorporated into the initial array of features?	
62	N/A	North Prong Salinity control coastal storm damage risk reduction for Mermentau Basin	Preliminary Draft SMP	N/A	No	Project constructed as part of "Schooner Bayou to GIWW." Part of the future without project condition.
63	N/A	Storm buffering systems	Preliminary Draft SMP	N/A	No	Does not meet the definition of a measure (no geographic area specified). Evaluated as part of the study.
64	N/A	Maintain Mermentau Basin as Fresh Water Basin	Preliminary Draft SMP	N/A	No	Stated as a planning objective, not a measure. See Objectives 2 – 4.
65	N/A	Cameron: Use old Calcasieu lock for flood control	Scoping	N/A	No	Duplicate of Measure #18. Change in lock operations will be evaluated under Measure #602.
66	N/A	Cameron: Need storm surge protection south of Route 82	Scoping	N/A	No	Storm surge risk reduction is a planning objective not a measure. Nonstructural risk reduction measures will be evaluated south of Hwy 82.
67	N/A	Cameron: Need beneficial use of dredged material to build levees/barriers	Scoping	N/A	No	Does not meet the definition of a measure. Levee construction methods will be evaluated if a structural plan is carried forward.
68	N/A	Cameron: Need to consolidate drainage boards by watershed for effective management	Scoping	N/A	No	Does not address any study planning objectives but will be identified in the report as a multi-agency collaboration opportunity.
69	N/A	Cameron: Need buffers/setbacks away from population	Scoping	N/A	No	Not a specific measure. Concept included in the study's multiple lines of defense strategy.
70	N/A	Cameron: Look at levee impacts on wetlands and the economy of the area	Scoping	N/A	No	Not a measure. Will be evaluated during the study
71	5a, 6b	Cameron: Erosion is a problem- need beach/shoreline stabilization along the Gulf	Scoping	5	Yes	Duplicate of Measures #5 and 6.
72	N/A	Cameron: Restore Kelso Bayou	Scoping	N/A	No	Stated as an objective not a measure. Hydrologic/Salinity Control Measure #17c would help restore Kelso Bayou. Marsh restoration is also proposed along Kelso Bayou by CWPPRA project CS-53.
73	3a1, 124a-d	Cameron: Need marsh creation west of the Calcasieu	Scoping	7	Yes	Several marsh creation sites are being evaluated west of Calcasieu Lake. Duplicate of Measures #3 and 124.
74	74a, 74b, 74c	Cameron: Need spillway structures at East Calcasieu Lake (A), Humble Canal (B), North of Deep Lake (C)	Scoping	2, 3, & 4	Yes	
75	75a and 75b	Cameron: Need sediment bypass at Mermentau River and Calcasieu Ship Channel	Scoping	N/A	No	Both measures were considered. CPRA performed a recon-level evaluation of a proposed CIAP project similar to 75b. The findings were: 1. Sand availability from the borrow source at the east side of the jetty is of limited volume; 2. The shoreline to the east of the jetty, which includes 4,000 feet of shoreline adjacent

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Initial ID	Feature No.	Name/Description/Location	Source	Objective No.	Incorporated into the initial array of features?	
						to the jetty, is currently subject to erosion. It is not common practice to use sand from eroding shorelines as a borrow source for beach nourishment at other places; and 3. A breach at the north end of the east jetty could occur if the width of the beach on the Gulf side is reduced due to excavation of sand, posing a problem for jetty stability and general shoreline erosion. Based on these findings, both 75a and 75b were removed from consideration in this study.
76	12, 16b, 26	Cameron: Need shoreline protection at Grand, Sweet, and Willow Lakes, and Freshwater Bayou	Scoping	5	Yes	Duplicate of Measures #12, 16, and 26. Only Freshwater Bayou portion of this measure was carried forward.
77	N/A	Cameron: Put a barrier along Calcasieu Lake	Scoping	N/A	No	Barriers already exist along the shorelines of much of Calcasieu Lake.
78	N/A	Cameron: Streamline the permitting process as related to existing structures/terraces	Scoping	N/A	No	Does not address planning objectives.
79	N/A	Cameron: There is marsh loss at Gum Cove	Scoping	N/A	No	This is a problem statement rather than a measure. Does not address any planning objectives. Gum Cove is located in a relatively stable subunit that shows a recent (1984 to 2010) land gain trend of 6 acres/year. Local marsh benefits from the hydrologic restoration project CS-27.
80	N/A	Cameron: There is water retention/drainage problem in Creole, sedimentation in Creole Canal	Scoping	N/A	No	This is a problem statement rather than a measure. Will be evaluated through H&H modeling.
81	N/A	Cameron: Trees have been lost at Rutherford Beach because of erosion	Scoping	N/A	No	This is a problem statement rather than a measure. Chenier reforestation will be evaluated under Measure #510.
82	N/A	Cameron: There is rapid land loss at Grand Chenier/Johnson Bayou	Scoping	N/A	No	This is a problem statement rather than a measure. This is partially addressed by Measure #47.
83	N/A	Lake Charles: Use dredge material from Cameron Loop for levee repair	Scoping	N/A	No	Does not address any planning objective. Dredge material is more suitable for marsh restoration than levee repair.
84	TBD	Lake Charles: Make every effort to maintain Highway 82	Scoping	1	No	Duplicate of Measure #44.
85	N/A	Lake Charles: Streamline the regulatory process for existing structures	Scoping	N/A	No	Does not address any planning objectives.
86	N/A	Lake Charles: Plan to protect and restore the areas north of I-10	Scoping	N/A	No	Stated as an objective not a measure. Hurricane risk reduction Measures #149, 411, and 412 would address this objective.

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Initial ID	Feature No.	Name/Description/Location	Source	Objective No.	Incorporated into the initial array of features?	
87	N/A	Lake Charles: Create an artificial barrier off the coast	Scoping	N/A	No	Not specific enough to determine which planning objectives would be met.
88	N/A	Lake Charles: Restore wetlands	Scoping	N/A	No	Restoring wetlands is an opportunity that will be addressed by the study but it does not meet the definition of a measure.
89	N/A	Lake Charles: Limit the depth of the ship channel	Scoping	N/A	No	The Calcasieu Ship Channel is an authorized navigation channel with authorized dimensions. This measure would violate the constraint to avoid actions that negatively affect the ability of authorized navigation projects to continue to fulfill their purpose. Any changes to those dimensions would have to be addressed through the navigation authority.
90	N/A	Lake Charles: Use sheet pile in the Intracoastal and Calcasieu ship channel to prevent erosion	Scoping	N/A	No	Use of sheet pile is not relevant to meeting objectives. Sheet pile will be considered for use on all shoreline protection projects.
91	N/A	Lake Charles: Drainage concerns caused by levees; pumps may not be adequate.	Scoping	N/A	No	Does not meet the definition of a measure. Effects of any proposed structural measures will be evaluated.
92	N/A	Lake Charles: Repair levee east of Calcasieu Lake	Scoping	N/A	No	The Cameron/Creole levee has been repaired and is part of the future without project condition.
93	N/A	Lake Charles: Drainage boards by watershed	Scoping	N/A	No	Does not address any planning objectives.
94	N/A	Lake Charles: Need gate at Contraband Bayou and ship channel	Scoping	N/A	No	Does not address any planning objectives as a stand-alone measure. Will be considered part of Hurricane Storm Damage Risk Reduction Measure #411.
95	N/A	Abbeville: Issues goes upriver to where Atchafalaya splits; sediment delivery needs to be measured	Scoping	N/A	No	Does not meet the definition of a measure. Upriver changes may be better investigated through the proposed LCA Upper Atchafalaya Basin Study.
96	N/A	Abbeville: Worried that gates will hold water in just as it holds water out; need way for water to be let out	Scoping	N/A	No	Does not meet the definition of a measure. Effects of any proposed structural measures will be evaluated.
97	N/A	Abbeville: Implement canal speed regulations for boats	Scoping	N/A	No	Although implementing boating speed limits is consistent with study objectives, the costs/benefits would be uncertain and unquantifiable. There is difficultly in enforcing these types of regulations.
98	507, 508	Abbeville: Consider artificial reef creation; Navy ships could be used as reefs by sinking them, old oil platforms or sheet pile could be used	Scoping	5	Yes	Reef-like structures will be investigated under Measures #507 and 508.

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Table C-1, Initial NED and NER Features Compiled and Screened

Initial ID	Feature No.	Name/Description/Location	Source	Objective No.	Incorporated into the initial array of features?	
99	99a	Barrier Shoreline Restoration: Freshwater Bayou to South Point/Marsh Island (Western section)	Scoping/ LACPR PU3b 1-10	5	Yes	Available data and information suggest shoreline recession rates are relatively low (although localized hotspots do exist) due to longshore sediment transport from Atchafalaya River. Measure #99a refined to provide protection to Cheniere Au Tigre, which is a unique natural feature that provides some degree of storm surge protection to inland areas/communities.
	N/A	Barrier Shoreline Restoration: Freshwater Bayou to South Point/Marsh Island (Marsh Island section)	Scoping/ LACPR PU3b 1-10	N/A	No	This portion of the measure was screened out because it is outside the authorized study area.
100	47a, 47c	Abbeville: Need marsh creation at Grand Chenier	Scoping	7	Yes	Duplicate of Measure #47.
101	N/A	Abbeville: Preserve fresh water marsh	Scoping	N/A	No	Preservation of freshwater marsh addressed through ecosystem restoration objectives.
102	507, 508	Abbeville: Restore reefs	Scoping	5	Yes	Salinities may be too low to sustain oyster reefs in the Acadiana Bays; however, reef-like structures will be investigated under Measures #507 and 508.
103	N/A	Abbeville: Need coastal storm damage risk reduction	Scoping	N/A	No	Coastal storm damage reduction is a planning objective not a measure.
104	N/A	Abbeville: Use rocks to rebuild levees	Scoping	N/A	No	Construction method rather than a specific measure. The most cost efficient method of levee construction will be evaluated.
105	N/A	Abbeville: Levee height needs to be addressed	Scoping	N/A	No	Not a measure. Detailed hydrodynamic modeling and analysis will be used to determine levee heights.
106	N/A	Abbeville: Put material against levee wall to stop erosion due to barge traffic	Scoping	N/A	No	Construction method rather than a specific measure.
107	N/A	Abbeville: Address flooding from the Gulf	Scoping	N/A	No	Coastal storm damage reduction is a planning objective not a measure.
108	N/A	Implement State Right of Access for Geotechnical, Environmental, Coastal planning efforts similar to Surveying	Scoping	N/A	No	Does not meet the definition of a measure.
109	N/A	Salinity control Structure at Mermentau River Navigation Channel /Salinity Control at Hog Bayou	Coast 2050	N/A	No	Does not address any planning objectives because Hog Bayou is silting in and is being short-circuited by Beach Prong.
110	16b	Freshwater Bayou Bank Protection, Belle Isle to Lock	LACPR 3b 1-8	5	Yes	Duplicate of Measure #16b.
111	N/A	Marsh Island Shoreline Protection	LACPR 3b 1-10	N/A	No	This measure is outside the authorized study area.
112	99a	Gulfshore Protection from Freshwater Bayou to Southwest Pass	LACPR 3b 1-11	5	Yes	Duplicate of Measure #99.

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Table C-1, Initial NED and NER Features Compiled and Screened

Initial ID	Feature No.	Name/Description/Location	Source	Objective No.	Incorporated into the initial array of features?	
113	113b2	Stabilize Shoreline of Vermilion, East & West Cote Blanche Bays (via Rock Dike)	LACPR 3b 1-12	5	Yes	Shoreline reaches outside the authorized study area were screened out. USGS analyses of the remaining shoreline reaches showed relatively low recession rates along much of Vermilion Bay. Measure #113b2 along Southwest Point was carried forward due to concerns that the loss of the Point could result in increased marine influences (i.e., saltwater intrusion, tidal action) in Vermilion Bay.
114	114a	LA Highway 333/82 Hurricane Protection.	Vermilion Parish	1	Yes	In the ADCIRC model, highway will be raised in low spots only; highway assumed to be maintained by LA DOTD.
	114b	LA Highway 330 Hurricane Protection. Armor south side of east side of LA 330.	Vermilion Parish	1	Yes	In the ADCIRC model, highway will be raised in low spots only; highway assumed to be maintained by LA DOTD.
115	N/A	Sabine Basin Watershed Management (Maximize Freshwater Inflow from Sabine River)	SMP 4-19	N/A	No	Doesn't address any planning objectives. CRMS data indicate the area is relatively healthy and not in need of salinity/hydrologic control.
116	N/A	Salinity Control Structure at Oyster Bayou	LCA PBMO/ LACPR 5-1	N/A	No	This project has already been constructed as part of local Ducks Unlimited/NAWCA restoration efforts.
117	N/A	Salinity Control Structure at Long Point Bayou	LCA PBMO/ LACPR 5-2	N/A	No	Doesn't address any planning objectives. CRMS data indicate the area is relatively healthy and not in need of salinity/hydrologic control.
118	17a	Salinity Control Structure at Alkali Ditch	LCA PBMO/ LACPR 5-4	2	Yes	Duplicate of Measure #17a
119	602	Modify existing Cameron-Creole Watershed Control Structure	LCA PBMO/ LACPR 5-5	2, 3, & 4	Yes	Change in structure operations will be considered under Measure #602.
120	N/A	East Sabine Hydrologic Restoration	LCA PBMO/ LACPR 5-8	N/A	No	Does not meet the definition of a measure.
121	21c	Freshwater Introduction at Pecan Island	LCA PBMO/ LACPR 5-9	2 & 4	Yes	Duplicate of Measure #21c.
122	21b	Freshwater Introduction at South Grand Chenier	LCA PBMO/ LACPR 5-13	2 & 4	Yes	Duplicate of Measure #21b.
123	N/A	Black Bayou Bypass Culverts	LCA PBMO/ LACPR 5-14	N/A	No	Addressed as part of the CWPPRA CS-29 project.
124	124a-d	Marsh Creation at Mud Lake	LACPR PU4 1-1	7	Yes	The planning team removed the central portion of Measure #124 because it is located within the existing CWPPRA CS-20 project area.
125	47a, 47c	Marsh Creation at South Grand Chenier	LACPR PU4 1-2	7	Yes	Duplicate of Measure #47.
126	47f, 47h	Marsh Creation at South Pecan Island	LACPR PU4 1-3	7	Yes	Duplicate of Measure #47.

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Table C-1, Initial NED and NER Features Compiled and Screened

Initial ID	Feature No.	Name/Description/Location	Source	Objective No.	Incorporated into the initial array of features?	
127	127c	Marsh Creation at East Pecan Island (Eastern portion)	LACPR PU4 1-4	7	Yes	The planning team reduced acreage of this measure to focus on an area of recent land loss near the west bank of the Freshwater Bayou Canal.
128	3a1	Marsh Creation at NW Calcasieu	LACPR 2-6	7	Yes	Duplicate of Measure #3.
129	N/A	Marsh Creation at No-Name Bayou	LACPR PU4 1-5	N/A	No	Measure screened out because it overlaps with a proposed Calcasieu Ship Channel DMMP site.
130	3c	Marsh Creation at East Calcasieu Lake	LACPR 2-7	7	Yes	Duplicate of Measure #3.
131	N/A	Marsh Creation at Black Bayou	LACPR PU4 1-8	N/A	No	Measure screened out because it did not meet screening criteria; i.e., it would not reinforce critical landscape features, it is far from a preferred borrow source, and it is in an area proposed for Sabine-Neches Waterway mitigation.
132	N/A	Marsh Creation at Gum Cove	LACPR PU4 1-9	N/A	No	Measure screened out because it did not meet screening criteria; i.e., it is far from a preferred borrow source, and it is in an area proposed for Sabine-Neches Waterway mitigation.
133	N/A	Marsh Creation at Cameron Meadows	LACPR PU4 1-10	N/A	No	Measure screened out because it did not meet screening criteria; i.e., it would not reinforce critical landscape features, and it is in an area of geologic instability.
134	N/A	Marsh Creation at Central Canal	LACPR PU4 1-11	N/A	No	Measure screened out because it did not meet screening criteria; i.e., it would not reinforce critical landscape features, it is far from a preferred borrow source, and it is in an area proposed for Sabine-Neches Waterway mitigation.
135	135a	Marsh Creation at Sweet Lake	LACPR PU4 1-12	7	Yes	The planning team repositioned this measure to avoid deep water areas with poor geotechnical conditions.
136	N/A	Brady Canal Area Marsh Creation	LACPR PU3b 1-15	N/A	No	This measure is outside the authorized study area.
137	3a1, 3c	Marsh Creation & Terracing northwest of Calcasieu Lake and East Calcasieu Marsh Creation	LACPR PU4 1-6 and 1-7	7	Yes	Duplicate of Measure #3.
138	N/A	Raise existing oilfield canals spoil bank alignments for storm surge	Vermilion Parish	N/A	No	Vermilion Parish would like to use dredge material from oilfield canal dredging to fortify the spoil banks rather than use the material for marsh nourishment. The purpose would be to allow for the establishment of trees and other vegetation that are more effective for multiple lines of defense, i.e., breaking of wind and waves, etc. This would violate the study constraint of avoiding

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Table C-1, Initial NED and NER Features Compiled and Screened

Initial ID	Feature No.	Name/Description/Location	Source	Objective No.	Incorporated into the initial array of features?	
						actions that deprive one area of limited sediment resources to benefit projects in another area. Any such operational change is a permitting and policy issue that needs to be vetted through LDNR and USACE wetland permitting
139	16b, 26	Fortify spoil banks of GIWW and Freshwater Bayou	LACPR PU 3b 3-15/ Vermilion Parish	5	Yes	Duplicate of Measures #16b and 26. Only Freshwater Bayou portion of this measure was carried forward.
140	511	Flood Control Structure at Boston Canal	Vermilion Parish	1	Yes	Duplicate of Measure #511.
141	141	Four Mile Canal Structure	Vermilion Parish	1	Yes	
142	142	Hebert Canal Watershed/storm protection	Vermilion Parish	1	Yes	
143	143	Flood Control Structure at Oaks Canal	Vermilion Parish	1	Yes	CBDG project.
144	144a-c	Protection Levee on the marsh/ upland interface	Vermilion Parish	1	Yes	Alignment needs to be smoothed. Will be modeled in ADCIRC for further screening evaluations.
145	144a-c	Bayou Tigre Watershed Coastal storm damage risk reduction	Vermilion Parish	1	Yes	Will be considered under Measure #144.
146	146	Gueydan 100-year protection ring levee	LACPR	1	Yes	Will be evaluated with ADCIRC modeling for further screening.
147	149, 601	C-RL-100-1 (100-yr risk reduction through ring levees and nonstructural)	LACPR	1	Yes	Duplicate of Measures #149 and 601.
148	149, 601	C-RL-400-1	LACPR	1	Yes	Duplicate of Measures #149 and 601. Combined 100-yr, 400-yr, and 1000-yr LACPR alternatives into one measure since they are on the same footprint. Level of risk reduction to be determined.
149	149	Lake Charles Ring Levee	LACPR	1	Yes	LACPR Measures CL-RL-100-1, CL-RL-400-1, and C-RL-1000-1 all on same footprint. Level of risk reduction to be determined. Measure #149 is an alternative to Measures 411/412.
150	GIWW	Continuous levee along the GIWW from Vermilion Bay to west of Vinton	LACPR Atlas PU4-G	1	Yes	Duplicate of Measure #34. Study authority requires assessing the "feasibility of constructing an armored 12-foot levee along the Gulf Intracoastal Waterway."
151	149, 411, 412, 146, 409, 114, 144	Large ring levees around Vinton/Lake Charles and Gueydan/Kaplan/Abbeville	LACPR Atlas PU4-RL-2	1	Yes	Ring levees will be modeling with ADCIRC for further screening.
152	149, 411, 412, 146, 409, 114, 144	Small ring levees around Vinton, Lake Charles, Gueydan, and Kaplan	LACPR Atlas PU4-RL	1	Yes	Ring levees will be modeling with ADCIRC for further screening.

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Table C-1, Initial NED and NER Features Compiled and Screened

Initial ID	Feature No.	Name/Description/Location	Source	Objective No.	Incorporated into the initial array of features?	
153	N/A	Continuous levee following Highway 82	LACPR Atlas PU4-H	N/A	No	Duplicate of Measure #33.
154	N/A	Levees along the 10-foot contour	LACPR Atlas PU4-C	N/A	No	Duplicate of Measure #35.
155	GIWW, 149, 411, 412	100-year levee along the GIWW and 500-year ring levee around Vinton/Lake Charles	LACPR Atlas PU4-State	1	Yes	Duplicate of Measures #149, 411, and 412.
156	N/A	Continuous levee along the GIWW from Morgan City to Vermilion Bay	LACPR Atlas PU3b-G-1	N/A	No	This measure is outside the authorized study area.
157	N/A	Continuous levee along the GIWW from Morgan City to Abbeville	LACPR Atlas PU3b-G-2	N/A	No	This measure is outside the authorized study area.
158	N/A	Continuous levee from Franklin to Abbeville inland of the GIWW	LACPR Atlas PU3b-FA	N/A	No	This measure is outside the authorized study area.
159	N/A	Continuous levee from Franklin to Abbeville from preliminary draft of State Master Plan	LACPR Atlas PU3b-FA-State	N/A	No	This measure is outside the authorized study area.
160	601	Permanent Evacuation	LACPR Atlas	1	Yes	Will be considered under Measure #601.
161	601	Relocation of Residential Assets along Hwy LA 82	LACPR Atlas	1	Yes	Duplicate of Measure #38. Will be considered under Measure #601.
162	601	Buyout	LACPR Atlas	1	Yes	Duplicate of Measure #38. Will be considered under Measure #601.
163	601	Wet/Dry flood Proofing of Structures	LACPR Atlas	1	Yes	Duplicate of Measure #41. Will be considered under Measure #601.
164	601	Raising in Place	LACPR Atlas	1	Yes	Duplicate of Measure #59. Will be considered under Measure #601.
165	601	Permanent Evacuation	LACPR Atlas	1	Yes	Duplicate of Measure #38. Will be considered under Measure #601.
166	601	Relocation of Residential Assets along Hwy LA 82	LACPR Atlas	1	Yes	Duplicate of Measure #38. Will be considered under Measure #601.
167	601	Buyout	LACPR Atlas	1	Yes	Duplicate of Measure #38. Will be considered under Measure #601.
168	601	Wet/Dry flood Proofing of Structures	LACPR Atlas	1	Yes	Duplicate of Measure #41. Will be considered under Measure #601.
169	601	Raising in Place	LACPR Atlas	1	Yes	Duplicate of Measure #59. Will be considered under Measure #601.
170	N/A	Cameron - Estuarine Species Management	Cameron Parish	N/A	No	Does not meet the definition of a measure.

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Table C-1, Initial NED and NER Features Compiled and Screened

Initial ID	Feature No.	Name/Description/Location	Source	Objective No.	Incorporated into the initial array of features?	
171	N/A	Cameron - Beneficial Use of Dredged Material	Cameron Parish	N/A	No	Does not meet the definition of a measure. Marsh creation sites have been identified in Cameron Parish that could beneficially use dredged material.
172	N/A	Cameron - Water Level Management	Cameron Parish	N/A	No	Does not meet the definition of a measure. The Chenier Plain Hydrodynamic model will be used to evaluate methods of water level management.
173	N/A	Cameron - Sediment Management	Cameron Parish	N/A	No	Does not meet the definition of a measure. Sediment management will be evaluated as part of this study.
174	N/A	Cameron - Salinity Control Structures	Cameron Parish	N/A	No	Does not meet the definition of a measure (no location specified).The Chenier Plain Hydrodynamic model will be used to evaluate placement of potential Salinity Control Structures. See Measures #48, 407, 17a, 17b, 17c, 7, 74a, 74b, 74c, 21a, 21b, 21c, 13, and 603.
175	N/A	Cameron - Locks replacement and management	Cameron Parish	N/A	No	Does not address any planning objectives. The Chenier Plain Hydrodynamic model will be used to evaluate the need to replace or manage locks in Cameron Parish. Will be considered under Measure #602.
176	5a, 6b, 49b1	Cameron - Shoreline stabilization	Cameron Parish	7	Yes	Shoreline stabilization measures are being considered in Cameron Parish. See Measures #5a, 6b, and 49.
177	N/A	Cameron - Flood relief structure	Cameron Parish	N/A	No	Does not meet the definition of a measure. H&H modeling will determine placement of flood control structures.
178	N/A	NRCS Cooperative River Basin studies	NRCS	N/A	No	Does not meet objectives. Reports are outdated (over 15 years old) and the measures are too small and specific to individual landowners to comprehensively address study area problems. Better addressed by NRCS programs.
300	114, 144, 141, 142, 143, 511	Abbeville & Vicinity Hurricane Protection (via Earthen Levee/Major Structure)	SMP 3b-1	1	Yes	Will establish benefit-cost ratio using initial ADCIRC results.
301	16b	Bankline Stabilization of Freshwater Bayou from Belle Isle Bayou to Freshwater Bayou Canal Lock (via Rock Dike)	SMP 3b-7	5	Yes	Duplicate of Measure #16b.
302	N/A	Increase Sediment Transport Down Wax Lake Outlet (via Channel Construction)	SMP 3b-8	N/A	No	This measure is outside the authorized study area.
303	N/A	Southwest Pass Shoreline Stabilization (via Rock Dike)	SMP 3b-9a	N/A	No	Measure was investigated. USGS analyses showed relatively low shoreline recession rates (<2 feet per year). Therefore, this

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Table C-1, Initial NED and NER Features Compiled and Screened

Initial ID	Feature No.	Name/Description/Location	Source	Objective No.	Incorporated into the initial array of features?	
						measure was excluded from further analysis because it doesn't address an area of critical need.
304	304a, 304b	Southwest Pass Sills	SMP 3b-9	5	Yes	Measures #304a and 304b are dependent on each other.
305	26	Bankline Protection for Gulf Intracoastal Waterway (GIWW) (via Rock Dike)	SMP 3b-11	N/A	No	Duplicate of Measure #26.
306	306a, 306b	Rainey Marsh Restoration	SMP 3b-12	7	Yes	There has been little recent land loss in the original location of this measure. Therefore, the measure was repositioned to the area just east of Freshwater Bayou Canal, where there is a greater need for marsh restoration to reinforce the bankline.
307	N/A	Marsh Restoration Using Dredged Material at Weeks Bay	SMP 3b-14	N/A	No	This measure is outside the authorized study area.
308	26, 16b	Fortify Spoil Banks of GIWW & Freshwater Bayou	SMP 3b-19	5	Yes	Duplicate of Measures #16b and 26. Only Freshwater Bayou portion of this measure was carried forward.
400	N/A	South Marsh Island (Restore to ~1978 marsh extent with marsh creation (500 acres)	MLODS	N/A	No	This measure is outside the authorized study area.
401	N/A	Outer Atchafalaya Bay (Restore structural oyster reefs at appropriate isohaline conditions)	MLODS/ SMP 3b-6	N/A	No	This measure is outside the authorized study area.
402	N/A	Wax Lake Outlet (Maintain status quo of active delta)	MLODS/ SMP 3b-8	N/A	No	This measure is outside the authorized study area.
403	N/A	GIWW - Hwy 317 to Hwy 82 (Outfall management to convey freshwater east of Hwy 82)	MLODS/ SMP 3b-13	N/A	No	Duplicate of Measure #24.
404	N/A	Sabine R. to Sabine National WR	MLODS/Draft SMP PU4-16	N/A	No	Duplicate of Measure #1.
405	N/A	GIWW (Outfall management to convey freshwater east of Hwy 82)	MLODS/Draft SMP PU4-17	N/A	No	Duplicate of Measure #24.
406	N/A	Red River/Bayou Beouf (Diversion to convey freshwater through the upper Mermentau Basin and into the lower basin)	MLODS	N/A	No	Does not address any planning objectives. Better addressed through the proposed LCA Upper Atchafalaya Basin Study.
407	407	Structure on GIWW at Gum Cove Ridge	MLODS	2	Yes	Purpose is to restore the function of the ridge that hydrologically separated the Sabine and Calcasieu basins.
408	21b, 21c	South of White & Grand Lakes (Flap-gate culverts)	MLODS	2, 3, & 4	Yes	Duplicate of Measure # 21.
409	409	Kaplan 100 year ring levee	MLODS/ LACPR	1	Yes	Will be evaluated with ADCIRC modeling for further screening. Expected to be screened out based on damages vs. levee costs.

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Table C-1, Initial NED and NER Features Compiled and Screened

Initial ID	Feature No.	Name/Description/Location	Source	Objective No.	Incorporated into the initial array of features?	
410	146	Gueydan 100 year ring levee protection	MLODS/ LACPR	1	Yes	Duplicate of Measure #146.
411	411	Greater Lake Charles region: east side of Calcasieu (New levee alignment 500 year protection provided by the coastal storm damage risk reduction system)	MLODS/SMP	1	Yes	1% annual depth of flooding may be maximum feasible level of protection. Will be modeled in ADCIRC for further screening evaluation. Measure #94 from hydrologic/ salinity control measures is considered part of this measure. Measures #411 (east) and 412 (west) are meant to be considered as a system for providing risk reduction for the Lake Charles area for storm surge. Measures #411/412 are an alternative to Measure #149.
412	412	Greater Lake Charles region: west side of Calcasieu (New levee alignment 500 year protection provided by the coastal storm damage risk reduction system)	MLODS/SMP	1	Yes	See comment for Measure #411 above.
413	N/A	White Lake-Grand Lake Land Bridge (Restore & maintain landbridge with marsh creation and shoreline protection)	MLODS	N/A	No	Measure screened out because it did not meet screening criteria. Furthermore, the Grand-White Lakes Landbridge Protection (ME-19) CWPPRA project is part of the future without project condition.
414	416	Grand Chenier ridges (Restore ridges and upland forests on prominent ridges)	MLODS/ Preliminary Draft SMP	6	Yes	Duplicate of Measure #416.
415	510a, 510b	Hackberry & Blue Buck Ridges (Restore ridges and upland forests on prominent ridges)	MLODS/ Preliminary Draft SMP	6	Yes	Duplicate of Measure #510.
416	416	Grand Chenier Ridges (Restore ridges and upland forests on prominent ridges)	MLODS/ Preliminary Draft SMP	6	Yes	
500	N/A	Create marsh at Weeks Bay	LACPR PU3b 3-10	N/A	No	Duplicate of #307.
501	306a, 306b	Restore marsh at Marsh Island south shoreline and Rainey Marsh via dedicated dredging	LACPR PU3b 1-17 and 3-8	7	Yes	Marsh Island portion excluded because it is outside the authorized study area. Rainey marsh portion of this measure is a duplicate of Measure #306.
502	N/A	Increase sediment transport from Atchafalaya River down Wax Lake Outlet (via Major Structure)	LACPR PU3b 2-4	N/A	No	Duplicate of #302.
503	N/A	Historic Reef from Point Chevreuil to Marsh Island	Coast 2050	N/A	No	This measure is outside the authorized study area.

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Table C-1, Initial NED and NER Features Compiled and Screened

Initial ID	Feature No.	Name/Description/Location	Source	Objective No.	Incorporated into the initial array of features?	
504	N/A	Historic Reef from Point Au Fer to Marsh Island		N/A	No	This measure is outside the authorized study area.
505	N/A	Improve hydrology of the old Mermentau River Channel between Mud Lake and Gulf of Mexico. (via Channel Restoration)		N/A	No	Duplicate of Measure # 25.
506	N/A	Restore marsh by filling abandoned canals	Preliminary Draft SMP	N/A	No	Duplicate of Measure #23.
507	507	Feature from Dead Cypress Point (Near Cypremort Point) to Near Bayou Michael (NW Corner of Marsh Island) (to Replace Historic Reefs)	Planning Team	5	Yes	Purpose of the measure is to reduce wave fetch and thus shoreline erosion along Vermilion Bay. Proof of concept in early phase 2a using three historic storms (Audrey, Rita & Ike) before proceeding further. LDWF doesn't think oysters will thrive in this location, therefore feature described as a submerged sill rather than reef restoration.
508	508	Feature from Marone Point or Point No Point to Lake Point (Marsh Island) (to Replace Historic Reefs)	Planning Team	5	Yes	See comment for #507 above.
509	509a,c,d	Restore/Sustain Chenier ridges and upland forests on prominent ridges in Vermilion Parish	MLODS/ Preliminary Draft SMP	6	Yes	
510	510a,b,d	Chenier Ridges in Cameron Parish (Restore/Sustain ridges and upland forests on prominent ridges	MLODS/ Preliminary Draft SMP	6	Yes	
511	511	Boston Canal Structure	Planning Team	1	Yes	CBDG project
512	17a	Alkali Ditch	LCA PBMO/ LACPR 5-4	2	Yes	Duplicate of Measure #17a
513	TBD	Erath/Delcambre and Vicinity (Vermilion Parish)	LACPR	1	Yes	For comparison with Measure #144. Added measure to highlight protection along/near the upland/marsh interface. Base condition modeling results needed to determine risk. LACPR identified two basic demonstration projects in Delcambre. They are relocation/buyout of existing residential and some commercial structures and flood proofing of existing critical facilities such as schools, water treatment facilities, police and fire stations, and city halls, as well as some commercial structures in the downtown areas considered critical to the community such as grocery stores and pharmacies.

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Table C-1, Initial NED and NER Features Compiled and Screened

Initial ID	Feature No.	Name/Description/Location	Source	Objective No.	Incorporated into the initial array of features?	
600	16b	Freshwater Bayou Rock Armor	Stakeholder	7	Yes	The majority of this is a duplicate of Measure #16b. The one portion that does not overlap with 16b showed relatively low shoreline recession rates (about 3 feet/year).
601	601	Placeholder for nonstructural measures	LACPR	1	Yes	Implementation of nonstructural measures requires a multi-agency approach, involving the Federal Emergency Management Agency (FEMA), the National Oceanic & Atmospheric Association, the National Weather Service, U.S. Department of Transportation, the United States Housing and Urban Development Administration the U.S. Army Corps of Engineers, the Coastal Protection and Restoration Authority, the Governor's Office of Homeland Security and Emergency Preparedness and numerous other Federal, State, and local agencies.
602	602	Operational changes to existing structures	Planning Team	2, 3, & 4	Yes	Measures to be formulated pending results of Chenier Plain Hydrodynamic modeling.
603	603	Control structure at Tom's Bayou	Planning Team	2	Yes	
604	604	Preservation of Sabine Historic Oyster Reefs	Planning Team	1	Yes	Storm surge effects to be modeled in ADCIRC both with and without the oyster reef in the channel.

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Following the initial screening features were grouped into NED and NER analysis categories and separated to undertake parallel processes for screening/plan formulation in each category. The features were also separated into Measure groups within each category.

NED PLAN FORMULATION

NED Goal: Provide hurricane and storm damage risk reduction and reduce flooding induced by storm surge.

Problems	Opportunities	Objectives	Measures
Flooding from tidal surge and waves associated with tropical storms	Raise or remove buildings out of the floodplain. Block surge with levees and floodgates.	Objective 1. Reduce the risk of economic losses from flooding caused by hurricanes and storm surges.	Structural (levees, floodgates, floodwalls, pumps) or Non-Structural (raise or buyout property)

The NED analysis category was comprised of two primary measure groups Structural and Non-structural. Following the initial screening forty-six remaining features were identified that would provide hurricane and storm damage risk reduction to the area. Twenty of them were nonstructural in nature. The evaluation of non-structural viability was considered generically across the entire study area as part of the NED array. The team determined that specific application of non-structural methods would be defined in the feasibility design phase subject to the justification of a programmatic non-structural plan.

The remaining 26 features presented in Table C-2 below were structural risk reduction measures and received preliminary individual evaluation in the initial NED array.

Table C-2, Initial Array of NED Structural Risk Reduction Features

No.	ID/ Feature #	Description	Name	Basin	Source
1	1	Armored 12-ft earthen levee along the GIWW		Calcasieu-Sabine, Mermentau	Southwest Coastal Louisiana Reconnaissance Report
2	34	Abbeville to Lake Charles Hurricane Protection		Calcasieu-Sabine, Mermentau	State Master Plan
3	35	New levee alignment along the 10-ft contour (from Abbeville to Texas border)		Calcasieu-Sabine, Mermentau	
4	56	Raising and maintaining Highways 82 and 27 in Cameron Parish		Calcasieu-Sabine	State Master Plan
5	57	Proposed hurricane protection levee for 30-A storm surge at coastline.			
6	65	Cameron: Use old Calcasieu Lock for flood control.			
7	138	Raise existing oilfield canals spoil bank			

		alignments for storm surge			
8	114a	LA Highway 333/82 Hurricane Protection	N/A	Mermentau	Vermilion Parish
9	114b	LA Highway 330 Hurricane Protection	N/A	Mermentau	Vermilion Parish
10	141	Four Mile Canal Structure (V3)	N/A	Mermentau	Vermilion Parish Plan
11	142	Hebert Canal Watershed/storm protection (V5)	N/A	Mermentau	Vermilion Parish Plan
12	143	Flood Control Structure at Oaks Canal (V8)	N/A	Mermentau	Vermilion Parish Plan
13	144a	Extension of Protection Levee on the marsh/upland interface (V6) to GIWW West of Forked Island	Protection Levee on the marsh/ upland interface	Mermentau	Vermilion Parish Plan
14	144b	Protection Levee on the marsh/upland interface (V6)			
15	144c	Extension of Protection Levee on the marsh/upland interface (V6) to Delcambre Canal			
16	146	Gueydan 100 yr ring levee protection PU4_fl_1000_3	Gueydan ring levee	Mermentau	LACPR
17	149a	C-RL-1000-1 Lake Charles Ring Levee/CL-RL-100-1/CL-RL-400-1 (on same footprint)	Lake Charles ring levee	Calcasieu-Sabine	LACPR
18	150	Continuous levee along the GIWW from Vermilion Bay to west of Vinton		Calcasieu-Sabine, Mermentau	
19	155	100-year levee along the GIWW and 500-year ring levee around Vinton/Lake Charles.		Calcasieu-Sabine	
20	156	Continuous levee along the GIWW from Morgan City to Abbeville.		Calcasieu-Sabine, Mermentau, Teche-Vermilion	
21	159	Continuous levee from Franklin to Abbeville.			Draft State Master Plan
22	409	Kaplan 100 yr ring levee	Kaplan ring levee	Mermentau	MLODS/ LACPR
23	411	Greater Lake Charles region (New levee alignment 500 year protection provided by the hurricane storm damage risk reduction system)	Lake Charles ring levee	Calcasieu-Sabine	MLODS/State Master Plan
24	412				
25	511	Boston Canal	N/A	Mermentau	Planning Team
26	513	Delcambre, Erath and vicinity levee alignment		Mermentau	LACPR

Data and Assumptions Applied to NED Plan Evaluation

Stage-Probability Curves Data and Assumptions:

- Blended rainfall flooding from the HEC-RAS model with surge flooding from the ADCIRC model. Therefore, damages could be from surge and/or rainfall flooding.
- Surge elevations are still water only (no waves).
- No surge results were available for the 1-yr to 25-yr frequencies because ADCIRC typically does not compute below the 50-yr threshold.
- To indicate whether the subunits is surge and/or rainfall dominated, hydraulics has designated subunits by "zone" as follows:
    - North-0 results are 100% HEC-RAS.
    - North-1 is HEC-RAS below the 100-year, the greater of HEC-RAS or ADCIRC at the 100-year, and ADCIRC above the 100-year.
    - North-2 is adjusted HEC-RAS at 100-year and below, with ADCIRC above the 100-year. From this point the magnitude of the adjustment is the smallest. Adjustments were ADDED to HEC-RAS values to simulate ADCIRC runs that are not calculated. The difference between 100-year events is the maximum adjustment and linearly decreases to zero at the 1-year event.
    - South-0 to South-2 are calculated the same as North-2, but the magnitude of adjustment keeps getting bigger with each successive group.

Cost Data and Assumptions:

- "Low" scenario cost calculated using $21M/mile armored; $19M/mile un-armored (grass only).
    - The unarmored cost is based on indexing the LACPR estimates to current levels assuming the existing ground elevation is +5 for a 12' levee elevation of +17 with contingency, the levee $/mile would be about $15.5M for the levee only. It would be around $18.6M if you include E&D and S&A. Rounded to $19M/mile.
    - Added $2 million/mile for additional armoring to the study authority measure.
    - Similar to the Westshore Lake Pontchartrain study levee costs.
- "High" cost calculated using $32M/mile armored; $29M/mile un-armored (grass only).
    - High costs based on 50% increase over Low costs rounded up to nearest million.
    - High costs are still lower than for some other studies (e.g. Morganza to the Gulf) but those costs were not used because of different soil conditions/geographic location (e.g. Morganza levees were in wetland/open water areas close to the Gulf vs. Southwest Coastal levees along the banks of the GIWW).

Damage/Benefit Data and Assumptions:

- Benefits assume a 100-yr levee in place.
- With-project damages for the 1-yr through 10-yr event and the 500-yr event (see highlighted cells in table 1) are assumed to be the same as the without-project values (no benefits for those events) for the following reasons:
    - 1-yr through 10-yr are rainfall events and those damages would remain even with the levee/pumps in place (assuming pumps only to alleviate induced flooding caused by levee in place, NOT to eliminate rainfall flooding that existed prior to the levee project).
    - The 500-yr event is assumed to overtop the 100-yr levee.
- With-project damages for the 25-yr to 200-yr event are assumed to be reduced to zero. The 200-yr event was included because Morganza 100-yr levee was shown to reduce damages up to the 200-yr event.

Screening of the NED Initial Array

Analysis of the initial array was conducted as described in Table C-3. Data generated by the structural inventory was assigned to the hydrologic units that would be protected by each structural plan. The annual damages were modeled, resulting in annual damages. Aggregated subunit damages avoided were then considered to be project benefits and used to estimate the project cost that could be supported for each plan. Costs were estimated

based on previous project costs per distance measurement, with estimated pumping costs included. Benefits and costs were compared to determine the potential for benefit cost ratios that exceeded 1, and would therefore be justified.

Early modeling output that overlaid Expected Annual Damages (EAD) for structure inventory and sub unit damages was used in combination with screening results to form the intermediate array.

Table C-3, Summary of Initial Ring Levee Screening Steps and Results

What	Why	How (Methods/Assumptions)	Results
Adjusted structure inventory…	…to address repetitive damages and rebuild assumptions.	Similar to Morganza method, raised structures in the database that are below the existing (2012) 10-yr floodplain elevation to an elevation above the 100-yr floodplain.	Of the approximately 52,000 structures in the inventory, 3,881 were elevated above the 2012 100-yr floodplain.
Modeled annual damages…	…to determine without-project damages for existing (2012) conditions.	Ran HEC-FDA model by subunit (reach).	Total of $113M annual damages for the entire study area (90 subunits).
Screened subunits....	…to ensure only relevant subunits/data used for screening structural measures and to reduce unnecessary calculations.	Ignored subunits (1) with zero structures/damages (2) south of proposed levees or (3) north of proposed levees but dominated by rainfall flooding.	Of the 90 original subunits, only 40 used for screening because: 22 are wetland areas containing no structures; 22 are south of the GIWW and; 6 were north of proposed levees but dominated by rainfall damages.
Calculated existing annual benefits…	…for subunits behind levees to determine the existing benefits of proposed levee.	Used an Excel spreadsheet, data from Step 2, and a set of simplifying assumptions.	Varies by subunit. In $1000s in the Gueydan and Kaplan areas, almost $9M in an Abbeville subunit, and over $25M in one of the Lake Charles subunits.
Aggregated subunit data…	…to estimate total annual benefits of each proposed levee measure.	Using maps and Excel spreadsheets.	Varies by ring levee. From thousands (Gueydan & Kaplan) to $35M for Lake Charles levees to over $87M (north of GIWW). See table C-2.
Adjusted annual benefits…	…to account for higher damages in the future due to RSLR and estimate equivalent annual benefits over the period of analysis.	Increased annual benefits by 50% based on trends from Morganza to the Gulf project.	From thousands (Gueydan & Kaplan) to $52M for Lake Charles levees to over $131M (north of GIWW). See table C-2.
Estimated total benefits…	…to determine the order of magnitude of project that could be justified.	Multiplied annual benefits by 20, which is approximately 1 over the interest and amortization factor based on the current interest rate and a 50-yr period of analysis.	From <$1M (Kaplan) to $1B (Lake Charles) to $2.6B (GIWW). See table C-2.
Estimated levee costs…	…for use in preliminary benefit-cost ratio calculations.	Estimated levee costs for low and high cost scenarios. See cost estimate assumptions.	From over $100M for a small ring levee to $2.6 to $3.9 Billion for the armored GIWW levee. See table C-2.
Estimated pumping costs…	…to account for costs of pumps to reduce interior induced flooding causes by levees.	Levee measures will likely require pumping to remove induced rainfall flooding. Pumping costs based on LACPR data.	From several $1M for the smallest ring levees to several $100M for the largest ring levees to over $800M for the GIWW alignment. See table C-2.

What	Why	How (Methods/Assumptions)	Results
Summed levee and pumping costs…	…to get total costs for comparison to total benefits.	Estimated total costs for low and high cost scenarios.	From over $100M for a small ring levee to $3.4 to $4.7 Billion for the armored GIWW levee. See table C-2.
Compare benefits to costs…	…to determine which alternatives to include in the final array.	Excel spreadsheet. If both Low & High C > B, screen the measure out. If B > than Low C, carry measure forward (even if B < High C). If the High C > B > Low C, consider reformulating the measure before running ADCIRC to achieve B > C.	**Screened out** the armored 12-ft levee along the GIWW. Removed Gueydan and Kaplan from the comprehensive ring levee plan. See table C-2.

- B = Benefits; C = Costs; BCR = Benefit-Cost Ratio

Intermediate Array of NED Alternatives: After combining overlapping features; screening out features with large negative environmental impacts; and identifying ineffective/incomplete features such as highway raisings and lock and flood control structures, 13 features and sub-feature variations were carried forward.

The intermediate array of alternatives for evaluation was as follows:

- Armored 12-ft Levee along the GIWW (Recon Alt S-1) – Carried forward from initial array for evaluation.
- Gueydan ring levee (Feature 146) - Carried forward from initial array for evaluation.
- Kaplan ring levee (Feature 409) - Carried forward from initial array for evaluation.
- Lake Charles ring levees variations - Incremental variations on the Lake Charles ring levee carried forward from initial array for evaluation were evaluated including:
  - Lake Charles ring levee (Feature 149) - southern (east and west)
  - Lake Charles ring levee (Feature 149) - southern/eastern ring only
  - Lake Charles ring levee (Feature 149) - southern/western ring only
  - Lake Charles ring levee (Feature 411/412) - northern (east and west)
  - Lake Charles ring levee (Feature 411/412) - northern/east ring only
  - Lake Charles ring levee (Feature 411/412) - northern/west ring only
- Abbeville ring levee variations – Alternative variations on the Abbeville ring levee carried forward from initial array for evaluation were evaluated including:
  - Abbeville Marsh/Upland Interface (Feature 144b) – Adopted by the Vermilion Parish Policy Jury in their official Hurricane Protection/Restoration Plan in 2009. The Plan addresses features that would reduce storm surge by creating a multiple lines of defense. One of those features is a "Protection Levee on the Marsh/Upland Interface." The area of the marsh/upland interface, south of Louisiana Highway 330 follows the alignment of existing agricultural levees. The plan proposes to raise the height of those agricultural levees.
  - Abbeville ring levee along LA Hwy 330 (Feature 114b)
  - Abbeville ring levee along GIWW – carried forward from Recon Study.
  - Abbeville ring levee (shortened variation of feature carried forward from initial array for evaluation) – Excludes Erath and Delcambre

The evaluation of the intermediate array, presented in Table C-4, identified two plans on the east side of Lake Charles and one plan in the vicinity of Abbeville as viable options for further consideration. In considering other social and economic factors the PDT determined that it would be appropriate to retain plans that addressed the west side of Lake Charles for the final evaluation. Additionally the team opted to retain only the favorable plan that optimized net benefits for East Lake Charles. The evaluation also revealed, in the consideration of a plan focused specifically on community of Abbeville as compared to a larger plan, that a

majority of the benefits seemed to be associated with the communities of Delcambre and Erath. As a result, the team also decided to iteratively restore a plan based on feature number 513, Delcambre, Erath and vicinity levee alignment, and retain all three plans for final evaluation.

Table C-4. Evaluation Data for Structural Plans.

Name (feature ID)	Levee Length (miles)	Existing Condition Adjusted EAD	Existing Condition Benefits based on Adjusted EAD	Future RSLR Benefits/ Existing Damages increased by 50%	Best Estimate Benefits x 20	"Low Cost Scenario" Levee + Pumps	"High Cost Scenario" Levee + Pumps	Are best estimate benefits x 20 greater than "Low" costs?	Are best estimate benefits x 20 greater than "High" costs?
1-Armored 12-ft Levee along the GIWW	122	$87M	<$87M	$131M	$2.6B	$3.4B	$4.7B	No	No
149a-Lake Charles RL - southern (east and west)	45	$52M	$35M	$52M	$1.0B	$1.3B	$1.8B	No	No
149a-Lake Charles RL - southern/eastern ring only	22.5	$42M	$31M	$46M	$929M	$576M	$801M	Yes	Yes
149a-Lake Charles RL - southern/western ring only	22.5	$10M	$4	$6M	$119M	$725M	$950M	No	No
411/412-Lake Charles RL - northern (east and west)	45	$41M	$29M	$43M	$866M	$1.2B	$1.7B	No	No
411/412-Lake Charles RL - northern/east ring only	22.5	$33M	$26M	$38M	$767M	$509M	$734M	Yes	Yes

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Name (feature ID)	Levee Length (miles)	Existing Condition Adjusted EAD	Existing Condition Benefits based on Adjusted EAD	Future RSLR Benefits/ Existing Damages increased by 50%	Best Estimate Benefits x 20	"Low Cost Scenario" Levee + Pumps	"High Cost Scenario" Levee + Pumps	Are best estimate benefits x 20 greater than "Low" costs?	Are best estimate benefits x 20 greater than "High" costs?
411/412-Lake Charles RL - northern/west ring only	22.5	$8M	$3M	$5M	$99M	$706M	$931M	No	No
144b-Abbeville Marsh/Upland Interface	33	$20M	$16M	$24M	$484M	$990M	$1.3B	No	No
Abbeville RL along GIWW (from Recon)	30	$23M	$18M	$27M	$548M	$933M	$1.2B	No	No
114b-Abbeville RL along LA Hwy 330	13	$15M	$11M	$17M	$336M	$275M	$405M	Yes	No
Abbeville RL (shortened variation)	6.5	$4M	$4M	$6M	$121M	$151M	$216M	No	No
146-Gueydan Ring Levee	6	$546K	$386K	$579K	$12M	$120M	$180M	No	No
409-Kaplan Ring Levee	11	$32K	$32K	$48K	$960K	$215M	$325M	No	No

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Evaluation of Nonstructural Measures

The study has evaluated nonstructural measures that include structure elevation, dry flood proofing, wet flood proofing, detached flood proofing using localized risk reduction and small walls, structure relocations, acquisition, building restrictions, and code enforcement. A detailed explanation of some of these measures is provided below.

Structure elevation is a common and widely applied nonstructural measure in the region and in the nation. Structure elevation is primarily focused on residential structures and implemented by private sector contractors, many of which have many years of experience. The technology used to implement structure elevation will be contingent upon the nature of the structure (foundation type, number of stories, exterior composition) and the nature of the soils, which is an important consideration in coastal Louisiana. Moreover, contractors typically specialize in one, or possibly more, structure elevation technology.

Dry flood proofing is a method of preventing surge water from entering the structure through the application of impermeable materials to the perimeter of the building and the placement of barriers at entrances. This approach is generally applied to nonresidential structures since the nature of the construction is more amenable to this type of retrofitting. While technically applicable to residential structures, the National Flood Insurance Program gives no credit to residential property owners for this method of flood mitigation for the purpose of determining flood insurance premiums, therefore leaving structure elevation as their primary financial incentive. Materials technology and techniques of application often vary, but the nature and scope of this approach to reducing flood risk is generally consistent from structure to structure. Dry flood proofing is effective for flood depths not greater than three feet above the adjacent ground.

In contrast, wet flood proofing consists of physically modifying the structure, except for its foundation, and the relocation of damageable items such that the interaction of the structure and flood water will result in less economic damage. The techniques applied for wet flood proofing can vary widely, is customized for each structure, and can only be determined by site inspection. Like dry flood proofing, there is a limit to its effectiveness, generally three feet of flood depth, although opportunities for performance of greater than three feet often are available depending upon individual circumstances.

Detached flood proofing employs localized risk reduction features and small walls engineered with a footprint that closely approximates the perimeter of the structure being protected. What distinguishes these features from local levees or ring levees is that they do not alter the hydrology of the flood plain and have no significant environmental impacts. Heights of these features range generally from 3 to 6 feet.

Structure relocation consists of the physical conveyance of a structure from its current location to another vacant parcel that has significantly reduced flood risk. The technology involved is reasonably straightforward, but not all structures are candidates for this type of measure as the footprint of the structure itself must be able to accommodate the capacity of the equipment needed to conduct the haul.

Acquisition as a nonstructural measure is more accurately described as acquisition of the structure and demolition of the structure. The implementation of property acquisition (if necessary) will be described in the Real Estate Plan. To complete this nonstructural measure, the structure thus acquired would be demolished to remove the asset from the flood plain and thereby entirely eliminate flood risk. The degree of engineering planning needed to execute demolition is limited and the techniques required to implement include the deployment of conventional, specialized, mobile construction equipment.

Although all of the nonstructural measures described above are viable options for implementation and were considered, the evaluation of nonstructural measures included only those that relate to structure elevation, dry

flood proofing, and acquisition. Subsequent investigations of nonstructural measures at a higher level of detail in future studies will include the full range of nonstructural measures as presented earlier.

Nonstructural Implementation Considerations

In formulating the nonstructural plan the PDT followed the guidance contained in the Memorandum from James F. Johnson, Chief, Planning and Policy Division, Directorate of Civil Works (22 January 2001), which provides changes to ER 1105-2-100 (April 2000) and IWR Report 88-R-2 (March 1988) pertaining to flood plain evacuation by relocation or acquisition/demolition for all projects proposed after the Water Resource and Development Act of 1999. Additional regulations that were considered include, but are not limited to, Executive Order 11988, "Floodplain Management" (24 May 1977) as amended (Jan. 2015); Federal Emergency Management Agency ("FEMA") Revised Guidelines for Implementing Executive Order 11988, Floodplain Management; EP 1165-2-314 "Flood Proofing Regulations" (15 Dec. 1995): ER 1165-2-26 "Implementation of Executive Order 11988 on Flood Plain Management" (30 March 1984); ER 1105-2-101 "Risk Analysis for Flood Damage Reduction Studies" (3 Jan 2006); EM 1110-2-1619 "Risk Based Analysis for Flood Damage Reduction Studies" (1 Aug 1996); Section 73 of the Water Resource and Development Act of 1974; and Section 219 of the of the Water Resource and Development Act of 1999; Planning Bulletin 2016-01:Clarification of Existing Policy for USACE Participation in Nonstructural Flood Risk Management and Coastal Storm Damage Reduction Measures.

A primary goal of the Nonstructural Plan is reduce the risk of hurricane storm surge damage for residential and non-residential structures that have first floor elevations at or below the 0-25-year floodplain, based on hydrologic conditions predicted to occur in 2025 (the beginning of the period of analysis). The Plan will provide reduced hurricane storm surge risk for a total of 4,952 total impacted structures comprised of 4,219 eligible residential structures, 396 eligible commercial structures and public buildings, and 337 eligible warehouses. The expected average annual net benefits are approximated at $231.6 million dollars, with $846,000,000 in first costs and a benefit/cost ration of 7.74:1. Eligible structures will require additional structure specific analysis during the preconstruction engineering and design ("PED") and construction phases to determine the best, most cost-effective measures to be employed for reducing hurricane storm surge risk. Consequently, each eligible structure will be inspected by a floodplain engineer, structural engineer, cost engineer, civil engineer, and/or real estate specialist to determine the type of nonstructural measure to be employed. The inspection of individual structures has not been performed at this stage of the Study.

Implementation of structure elevation is expected to be performed by private contractors consistent with the requirements outlined in the Real Estate Plan. Parish or community ordinances (building codes) articulate specific engineering requirements necessary to issue a permit for structure elevation and a certificate of occupancy once the elevation is completed. These ordinances must conform to the minimum flood plain management requirements as contained in Chapter 44 of the Code of Federal Regulations (44 CFR Part 60) as a condition of participation in the National Flood Insurance Program. Among those requirements is an elevation certificate issued by a licensed public engineer, and associated inspections by public officials related to the enforcement of electrical, plumbing, and other codes as utilities are reestablished.

In the implementation of structure elevation as a Federal project, the role of the non-Federal sponsor would include the review of plans and specifications provided by the private sector contractor as a condition of the flood mitigation agreement between the Corps, the non-Federal sponsor, and the property owner. The objective of the review of the plans and specifications is to ensure that they comply with existing engineering standards and regulatory guidance as presented in local ordinances, the Louisiana State Building Code, and 44 CFR Part 60.

Initial Focused Array of NED Alternatives

Based on the PDT's assessment of the evaluation of the intermediate array six structural plans were identified for the focused array and more detailed analysis. The PDT also determined from initial evaluations that a programmatic non-structural risk reduction plan was viable. Based on the screening conclusions, the focused array of action alternative plans included the following:

0. No action
1. Lake Charles ring levee ("Eastbank" Feature 149)
   - southern/eastern ring only
2. Lake Charles ring levee ("Westbank Sulphur South" Feature 149)
   - southern/western ring only
3. Lake Charles ring levee ("Westbank Sulphur Extended" Feature 411/412)
   - northern/west ring only
4. Abbeville ring levee along LA Hwy 330 ("Abbeville to Delcambre" Feature 114b)
5. Delcambre, Erath and vicinity levee alignment (Feature 513)
6. Abbeville levee (shortened variation)
7. Nonstructural Plan (Nonstructural Justified Reaches)
8. Nonstructural Plan (Nonstructural 100-Year Floodplain)

Net Benefits Analysis of NED Focused Array & Elimination of all Structural NED alternatives

The Table below summarizes the net benefits of the structural alternatives, as well as the benefits for the 100-year level of risk reduction nonstructural alternatives. The two nonstructural plans considered any structure with a FFE below the 2075 100-year (1% ACE) stage. This was done to correspond with FEMA regulations that require new development to FFE higher than the 100 year (1% ACE) floodplain.

Net NED benefits.

Alternatives	50 year (Mil $)	100 year (Mil $)	200 year (Mil $)
Plan 1: Lake Charles Eastbank	1.9	6.8	6.9
Plan 2: Lake Charles Westbank Sulphur Extended	-5.0	-5.2	-8.4
Plan 3: Lake Charles Westbank Sulphur South	-17.7	-20.4	-25.5
Plan 4: Delcambre/Erath	-4.4	-5.8	-8.5
Plan 5: Abbeville to Delcambre	-8.4	-7.3	-11.1
Plan 6: Abbeville	-10.3	-8.2	-10.2
Plan 7: Nonstructural -Justified Reaches Plan	N/A	4.3	N/A
Plan 8: Nonstructural - 100-Year Floodplain Plan	N/A	-64.3	N/A

The assessment of economic feasibility for six independent structural measures was conducted in the focused array analysis. Initial results of the assessment showed that only one structural alternative was economically justified: the Lake Charles Eastbank Levee Alternative, Plan 1. With mitigation costs of approximately $100,000,000 included for each alternative, the 100-year (1% ACE) level of risk reduction yielded a benefit/cost ratio of 1.01 and the 200-year (0.5% ACE) level of risk reduction yielded a benefit/cost ratio of 1.04 (adding the mitigation costs made the 50-year (2% ACE) level of risk reduction not economically justified).

In addition, prior to the completion of the initial draft report additional assessment of the 100-year (1% ACE) and 200-year (0.5% ACE) Lake Charles levee alignments was conducted to evaluate the potential for any other viable levee design scales (75-year (1.5% ACE), 125-year (0.8% ACE). This additional investigation exposed an anomaly in the structure inventory database. The structure inventory used to calculate benefits for this alternative was modified to adjust the first-floor elevation for a single commercial structure that was incorrectly placed within the 100-year (1% ACE) floodplain. This structure would otherwise account for an unusually high percentage of damages and benefits in initial evaluations. Once this adjustment was completed, the benefit/cost ratio for Plan 1 fell to 0.61 for the 100-year (1% ACE) level of risk reduction and to 0.30 for the 200-year (0.5% ACE) level of risk reduction. **As a result of this additional evaluation, none of the structural levee alignments were found to be economically justified and none were carried into the final array.**

Nonstructural NED Plans considered in the draft 2013 Initial Draft Report.

The evaluation of the focused array determined that the most cost-effective solution to reduce hurricane and storm surge flood risk within the study area is through nonstructural measures. Two alternative nonstructural plans plus the No Action Plan were carried forward for the NED final array. Plan 7 "Nonstructural - Justified Reaches Plan" was based on only the 11 economically justified reaches. Plan 8 "Nonstructural - 100-year Floodplain Plan" was considered to represent a potentially reasonable alternative based on the incremental presence of relatively high flood risk structures (100-Year floodplain) that exist throughout the study area irrespective of location within a defined reach. Plan 7 applied nonstructural measures (i.e. structure raising, flood proofing, and property buy-outs) to structures within the 11 justified reaches and consisted of elevation of existing residential structures or acquisition of properties that require significant elevation, and flood proofing measures for non-residential structures for at-risk properties within the 2075, 100-year (1% ACE) floodplain. The initial basis for the selection of Plan 7 as the original TSP was the number of structures and cost identified in the 11 justified reaches. The preliminary estimated cost of Plan 7 as presented in the initial draft report is $388,000,000 for nonstructural measures benefiting 3,915 structures.

Completion of the NED Formulation Process

From this point on in the NED evaluation the details of how the nonstructural plan was refined and optimized can be found in Chapter 2. Additional updates and changes to the TSP occurred after release of the 2013 Initial Draft Report for public review. Significant changes to the plan consisted of updating costs and benefits to refine the pool of eligible structures. Details of the completion of the formulation process are included in Chapter 4 describes the NED Recommended Plan (RP) and Appendix L describes how the nonstructural RP would be implemented.

NER PLAN FORMULATION

NER Goal: Provide ecosystem restoration to achieve ecosystem sustainability.

Problems	Opportunities	Objectives	Measures
Increased flood durations in wetlands (resulting in wetland loss)	Add or modify water control and/or drainage structures.	Objective 2. Improve hydrologic connectivity of wetlands to prevent scouring and loss of wetland soils and reduce storm surge-deposited saltwater residency time. Objective 3. Reduce flooding in non-flotant fresh and intermediate marshes during the vegetation growing season (March – September).	Hydrologic and salinity control structures or operational changes.
Erosion of channel banks and shorelines (resulting in wetland loss)	Stabilize navigation channel banks, lake rims, and coastal shorelines.	Objective 4. Reduce erosion of canal banks and shorelines in critical areas to protect adjacent wetlands.	Marsh Bank and shoreline stabilization features (breakwaters, riprap, dunes vegetative plantings, artificial reefs)
Deforestation and mining of chenier ridges and oyster beds.	Stop sand mining and restore chenier and oyster habitat.	Objective 5. Restore critical geomorphologic features, such as marshes and cheniers, to maintain their function as wildlife habitat and as protective barriers to inland areas.	Replant chenier ridges with native trees. Re-seed oyster beds.
Wetland loss	Restore wetland habitat.	Objectives 2 – 5 listed above.	Marsh creation, terracing, plantings.

Features were initially assembled from these existing studies:

1. LACPR Planning Unit 4 Coastal Restoration Plan
2. 2007 State Master Plan Coastal Restoration Plan

These plans were dissected into individual features and features were added from other sources (parish plans, NEPA scoping, interagency PDT). NER measures are categorized by Measure type and by basin in the following set of tables.

Table C-5: Hydrologic and Salinity Control Measures

Basin	ID	Feature Name
Calcasieu-Sabine Basin	7	Salinity control structures in Calcasieu Ship Channel near Ferry/at the Gulf of Mexico
	48	Salinity Control Structure at Sabine Pass
	407	Structure on GIWW at Gum Cove Ridge
	17a	Salinity control structure on Alkali Ditch
	17b	Salinity control structure on Crab Gully
	17c	Salinity control structure on Black Lake Bayou near Hackberry (Kelso Bayou)
	74a	Need spillway structures at East Calcasieu Lake
Mermentau Basin	74b	Need spillway structures at Humble Canal
	74c	Need spillway structures North of Deep Lake
	13	Freshwater introduction/retention structure or sill on Little Pecan Bayou
	21a	Hydraulic Improvements in Mermentau Basin at Highways 82 and 27: East of Calcasieu Lake (Big Burn)
	21b	Hydraulic Improvements in Mermentau Basin at Highways 82 and 27: South of Grand Lake (Little Pecan Bayou Hydrologic Restoration)
	21c	Hydraulic Improvements in Mermentau Basin at Highways 82 and 27: South of White Lake (South Pecan Freshwater Introduction)
Teche-Vermilion Basin	304a	Southwest Pass Sills - Southwest portion
	304b	Southwest Pass Sills – Northeast portion
	507	Reef like feature from Dead Cypress Point (Near Cypremort Point) to NW corner of Marsh Island
	508	Reef like feature from Maroon Point to Lake Point (Marsh Island)
	603	Control structure at Tom's Bayou
All	602	Operational changes to existing structures (not on map)

The initial set of chenier measures included all cheniers and elevated features identified by the Providence Engineering, Chenier and Natural Ridges Study (2009) and are presented in the table below.

Table C-6, Preservation/Restoration of Unique Natural Features (Oyster Reefs & Chenier Ridges) Measures

Basin	Subunit	ID	Feature Name/Description
Calcasieu-Sabine	Sabine Lake	604	**Preservation of Sabine Historic Oyster Reefs**
	038 – Sabine Ridges	510a	**Blue Buck Ridge** - Eight tracts totaling approximately 524 acres were identified.
		510b	**Hackberry Ridge** - Three tracts totaling approximately 149 acres were identified. The western two miles (including the 63 acre tract) of this measure have been identified by the Louisiana Natural Heritage Program as "Remnant Chenier Forest", but appear to have been damaged by recent hurricanes.
	009 – Cameron-Creole Front Ridge	510d	**Front Ridge** - In general, the eastern 3 miles of this measure do not encompass large swaths of suitable elevation. Of the remainder, eleven tracts totaling approximately 459 acres were identified.
Mermentau	061- Grand Chenier Ridge	416	**Grand Chenier Ridge** - In general, the eastern 6 miles of this measure do not encompass large swaths of suitable elevation. Of the remainder, nine tracts totaling approximately 252 acres were identified.
Teche-Vermilion	091 – East Freshwater Bayou/Cheniere au Tigre Bayou	509c	**Bill Ridge** - Three tracts were identified that encompass approximately 9 acres of the northern ridge, and roughly 7 and 6 acres of the southern ridge. The middle section of the southern ridge was excluded due to insufficient elevation.
		509d	**Cheniere Au Tigre** - The majority of this chenier is currently forested with the exception of an 8 acre tract on the western end. The eastern part of the measure along the Gulf shoreline was screened out due to concerns about the sustainability of tree plantings in these exposed areas.

Table C-7, Marsh Restoration Measures

Basin	ID	Feature Description	Project Area
Calcasieu-Sabine	3a1	Black Lake marsh restoration	597 ac
	3c1	Cameron-Creole marsh restoration	2,147 ac
	3c2		1,137 ac
	3c3		1,322 ac
	3c4		1,016 ac
	3c5		3,389 ac
	124a	Mud Lake marsh restoration	1,102 ac
	124b		341 ac
	124c		2,658 ac
	124d		623 ac
	135a	Sweet/Willow Lake marsh restoration	1,620 ac
Mermentau	127c1	Marsh restoration at East Pecan Island on west side of Freshwater Bayou	1,176 ac
	127c2		1,300 ac
	127c3		894 ac
	47a1	Terracing south of Highway 82	889 ac
	47a2		1,562 ac
	47c1		984 ac
	47c2		1,199 ac
	47f	Terracing south of Highway 82	809 ac
	47h	Terracing south of Highway 82	1,520 ac
Teche-Vermilion	306a1	Rainey Marsh Restoration	2,089 ac
	306a2		2,476 ac
	306b1		1,245 ac
	306b2		1,371 ac
	306b3		2,233 ac

Table C-8, Shoreline/Bankline Stabilization Measures

Basin	ID	Feature Description	Project Length
Calc-asieu-Sabine	49b1	Shoreline protection for Calcasieu Lake/ Cameron-Creole levee	77,253 lf
	5a	Holly Beach shoreline	39,445 lf
Mermentau	6b1	Gulf shoreline of Rockefeller NWR	58,707 lf
	6b2		42,805 lf
	6b3		37,911 lf
	16b (west)	Freshwater Bayou – unprotected portions of west bank	48,123 lf
Teche-Vermilion	16b (east)	Freshwater Bayou –unprotected portions on east bank	72,817 lf
	99a	Gulf shoreline protection in front of Chenière Au Tigre ridge	9,235 lf
	113b2	Vermilion Bay shoreline: Southwest section	42,473 lf

Initial Screening of NER Measures

NER features were next screened by measure type across the entire study area.

Chenier Reforestation Measure Screening - To identify the most critical/strategic cheniers or segments of cheniers to reforest, the implementability and sustainability of the project was considered. Areas were deemed unsuitable for reforestation and were screened out for the following reasons:

- Low elevation. Unsuitable due to poor soil drainage and potential exposure to high salinities.
- Shoreline erosion. Areas exposed to high rates of shoreline erosion unsustainable.
- Forested areas. Areas with existing canopy cover would not benefit from reforestation.
- Developed areas. The presence of roads, homes, utilities, or oil and gas infrastructure, etc. restricts reforestation efforts.

Pecan Island Ridge (Measure 509a) was screened out because Pecan Island ridge is densely developed with no large (>5 acres) tracts available for reforestation. Mulberry Ridge (509b) and Belle Isle Ridge (509e) were screened out because elevations are less than +5 feet NAVD 88 and are unsuitable for reforestation to achieve long-term sustainability. Hackberry Beach Ridge (510c) was screened out because the only area with sufficient elevation is immediately adjacent to the beach, and tree plantings would not be sustainable in that location.

Cheniers carried forward included Grand Chenier Ridge (Measure 416), Bill Ridge (Measure 509c), Cheniere au Tigre Ridge (509d), Blue Buck Ridge (510a), Hackberry Ridge (510b), and Front Ridge (510d). These sites were further divided into 35 reforestation tracts totaling approximately 1,413 acres.

Hydrologic & Salinity Control Measure Screening – Modeling performed for the 2012 State Master Plan showed that some H&S control features had only modest or little benefits (see Figure C-1). Measures benefiting less than 500 acres were screened out. Some H&S control measures work together. See Table C-9 below.

Table C-9, Hydrologic & Salinity Control Measure Screening Summary

ID	Feature Name	Conclusions
7	Salinity control structures in Calcasieu Ship Channel near Ferry/at the Gulf of Mexico	These measures work as a unit for exterior perimeter control and preclude the need for Alkali Ditch/Crab Gully/Kelso Bayou, GIWW at Gum Cove Ridge (407), and East Calcasieu Lake (74a).
48	Salinity Control Structure at Sabine Pass	
407	Structure on GIWW at Gum Cove Ridge	
17a	Salinity control structure on Alkali Ditch	These three measures work as a unit (do 17a, 17b, and 17c together).
17b	Salinity control structure on Crab Gully	
17c	Salinity control structure on Black Lake Bayou near Hackberry (Kelso Bayou)	
74a	Need spillway structures at East Calcasieu Lake	
74b	Need spillway structures at Humble Canal	Screened out <500 acres (see figure C-1).
74c	Need spillway structures North of Deep Lake	Screened out <500 acres (see figure C-1)
13	Freshwater introduction/retention structure or sill on Little Pecan Bayou	
21a	Hydraulic Improvements in Mermentau Basin at Highways 82 and 27: East of Calcasieu Lake (Big Burn)	Screened out because structure already constructed there under the CWPPRA authority.

ID	Feature Name	Conclusions
21b	Hydraulic Improvements in Mermentau Basin at Highways 82 and 27: South of Grand Lake (Little Pecan Bayou Hydrologic Restoration)	Screened out <500 acres (see figure C-1)
21c	Hydraulic Improvements in Mermentau Basin at Highways 82 and 27: South of White Lake (South Pecan Freshwater Introduction)	Screened out <500 acres (see figure C-1)
304a	Southwest Pass Sills - Southwest portion	Screened out <500 acres (see figure C-1)
304b	Southwest Pass Sills -- Northeast portion	Screened out <500 acres (see figure C-1)
507	Reef like feature from Dead Cypress Point (Near Cypremort Point) to NW corner of Marsh Island	Screened out because (1) the Louisiana State Master Plan showed only modest benefits for these measures (2) the measures are outside the study area (3) these measures may be constructed with Oil Spill Restoration dollars
508	Reef like feature from Maroon Point to Lake Point (Marsh Island)	Screened out for same reasons as 507 above.
603	Control structure at Tom's Bayou	Screened out <500 acres (see figure C-1)
602	Operational changes to existing structures (not on map)	Still a possible measure.

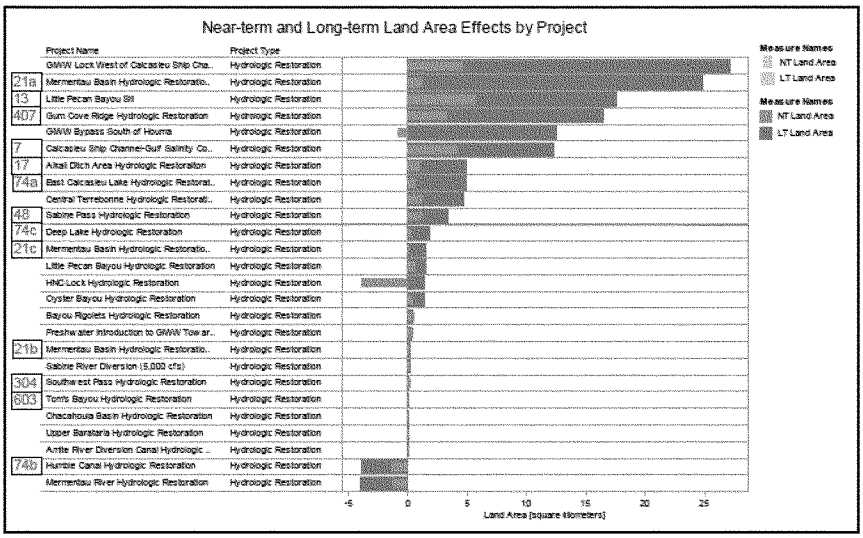


Figure C-1. State Master Plan Modeling Results used for H&S measure screening.

Marsh Restoration Measure Screening – Started with proposed marsh restoration for eight geographic locations across the study area. Divided these large marsh restoration areas into 29 individual measures/sites ranging in size from hundreds of acres to thousands of acres, totaling over 40,000 acres (refer to table NER1 for more details). Five measures/sites were screened out for the following reasons:

- Two of the Black Lake sites (Measures 3a2 and 3a3) were screened out because the areas are already permitted for use by a liquid natural gas company (SEMPRA).
- The Commissary Point site (Measure 3d) was screened out because it was found to be the least efficient marsh restoration measure. Its cost per net acre is over five times that of the most efficient marsh restoration measure. The measure is located in Subunit 45, which is gaining at a rate of +0.021%/year. It was gaining prior to Hurricane Rita at a rate 0.396%/year so the hurricane did have an impact, just not enough to convert the area to a loss trend. Based on this information, it appears that the marsh in this area will rebound on its own.
- One of the two Sweet/Willow Lake sites (Measure 135b) was dropped because of sustainability issues. The depth near 135b is likely greater than 2 feet. Terracing projects in this area have failed in the past because of high subsidence rates.

Table C-10: Marsh restoration measure attributes and screening summary.

Site	ID	Total Acres*	First Cost ($Million) **	Effective-ness: Net Acres***	Efficiency: Cost/Net Acre	In or out?	Comments and/or Screening Rationale
Black Lake	3a1	597	$20.4	545	$37,431	In	Based on the recent Black Lake project, cost estimate may be too low if the area is deeper than estimated. Potential synergy with any proposed hydro/salinity control measures that would prevent saltwater intrusion in the area. Synergy with other beneficial use projects in the Black Lake area.
	3a2	1,465	$40.5	1,271	$31,865	**Out**	Measures 3a2 and 3a3 were screened out because the areas are already permitted for use by LNG company (SEMPRA).
	3a3	490	$15.3	465	$32,903	**Out**	
Cameron-Creole	3c1	2,147	$43.7	1,333	$32,783	In	The Calcasieu Lake rim is considered a critical landscape feature. These marsh creation measures help preserve the outer lake rim and have synergy with proposed shoreline stabilization measure 49b1 which helps preserve the inner lake rim and hydrologic/salinity control levee. These measures are also located within or adjacent to the Cameron Prairie National Wildlife Refuge.
	3c2	1,137	$31.8	808	$39,356	In	
	3c3	1,322	$36.9	999	$36,937	In	
	3c4	1,016	$28.3	771	$36,706	In	
	3c5	3,389	$80.8	2,412	$33,499	In	
Commissary Point	3d	399	$13.0	73	$178,082	**Out**	Measure 3d is the least efficient marsh restoration measure. Its cost per net acre is over five times that of the most efficient marsh restoration measure. The measure is located in Subunit 45, which is gaining at a rate of +0.021%/year. It was gaining prior to Hurricane Rita at a rate 0.396%/year so the hurricane did have an impact, just not enough to convert the area to a loss trend. Based on this information, it appears that the marsh in this area will rebound on its own.

Site	ID	Total Acres*	First Cost ($Million) **	Effectiveness: Net Acres***	Efficiency: Cost/Net Acre	In or out?	Comments and/or Screening Rationale
S. of Hwy 82	47a1	889	$41.9	827	$50,665	In	Measure 47h may be built with CGBG funds. Measures 47f and h were reclassified as marsh creation, and then subsequently dropped because we decided to select marsh creation measures that would best reinforce critical landscape features, with particular emphasis on areas that are exposed to saltwater, tidal and wave action because it is critical to introduce new sediment to these areas to increase wetland sustainability. 47f and h are not exposed to high salinities as much as the other marsh creation areas selected.
	47a2	1,562	$67.2	1,362	$49,339	In	
	47c1	984	$45.3	930	$48,710	In	
	47c2	1,199	$58.2	1,176	$49,490	In	
	47f	809	$38.7	789	$49,049	**Out**	
	47h	1,520	$58.4	516	$113,178	**Out**	
Mud Lake	124a	1,102	$35.8	820	$43,659	In	These measures are all relatively efficient with the exception of measure 124d; however, 124d is critical because it reinforces the West Cove lake rim which is a critical landscape feature. Most of measure 124d is located either within or adjacent to the Sabine NWR. Measure 124a is also part of the Sabine National Wildlife Refuge and is adjacent to Hwy 27. Measure 124c is adjacent to Hwy 27 and would have synergy with measure 5a.
	124b	341	$12.4	248	$50,000	In	
	124c	2,658	$71.6	1,778	$40,270	In	
	124d	623	$13.8	159	$86,792	In	
Pecan Island	127c1	1,176	$41.7	648	$64,352	In	The 127 measures are critical to preventing further degradation to the wetlands to the west of Freshwater Bayou. They would also have synergy with existing and proposed Freshwater Bayou stabilization measures.
	127c2	1,300	$61.2	1,182	$51,777	In	
	127c3	894	$28.4	370	$76,757	In	
Sweet/	135a	1,620	$28.0	663	$42,232	**Out**	Not in a critical area for marsh creation (i.e. salinities are relatively low in this location).
	135b	2,146	$71.5	1,699	$42,084	**Out**	Measure 135b was dropped because of sustainability issues. The depth near 135b is likely greater than 2 feet. Terracing projects in this area have failed in the past because of high subsidence rates.
Rainey Marsh	306a1	2,089	$52.2	631	$82,726	In	Measures 306b1-3 were screened out because the portion of Freshwater Bayou bank that is adjacent to them is relatively solid and protected by rock.
	306a2	2,476	$74.7	1,309	$57,066	In	
	306b1	1,245	$35.5	408	$87,010	**Out**	
	306b2	1,371	$40.3	574	$70,209	**Out**	
	306b3	2,233	$52.0	623	$83,467	**Out**	

*Total wetland acres to be constructed by proposed measure.
** Rounded to nearest 100,000.
***Net acres over the period of analysis. Land change rates used to calculate net acres based on USGS hyper-temporal analysis.

Shoreline Protection Measure Screening – Approximately 1.9 million linear feet (or 360 miles) of bank and shoreline stabilization measures were evaluated. Of the approximately 30 bank/shoreline features evaluated, 20 were screened out for the following reasons:

- All four of the Grand Lake features (features 12a – 12d) were screened out. Two of the features produced zero benefits. The other two features were not very effective or efficient (cost/net acre 2 to 4 times the average).
- Schooner Bayou (feature 16a) was not very effective or efficient (cost/net acre 4 to 5 times the average).
- It was not cost effective to rock the entire length of the GIWW (feature 26). Shoreline stabilization may be considered as part of measures located adjacent to the GIWW (e.g. Marsh Restoration features 3a1) if required by field conditions.
- Although West Cove is an important lake rim because of its proximity to Hwy 27 and the Sabine National Wildlife Refuge, the 49a features are not very cost efficient or effective in terms of net acres. The area most at risk in the future without project condition can be more cost effectively protected by marsh restoration feature 124d.
- The Lake Calcasieu features were dropped because there were either not effective (49b1 benefited limited to levee protection) or not efficient (49b2 cost/net acre 3 times the average).
- Four of the five Vermilion Bay features were screened because of low effectiveness/efficiency. For example, feature 113a2 was screened out because shoreline loss rates are low (2.6 ft/yr) resulting in low efficiency. Although over 100 net acres could be preserved, a shoreline stabilization feature would not be effective in reducing interior wetland loss.
- All of the Southwest Past (303's) and Freshwater Bayou (606's) measures were screened because they were not effective or efficient.

Table C-11: Bank/Shoreline protection feature attributes and screening summary.

Site	ID	Total Length (feet)	Cost ($Million)	Effectiveness: Net Acres	Efficiency: Cost/Net Acre	In or out?	Comments and/or Screening Rationale
Holly Beach	5a	39,445	$43.0	870	$49,409	In	Critical protection for Holly Beach community and Hwy 27. Synergy with marsh measure 124c.
Rockefeller	6b1	58,707	$80.6	3,395	$23,726	In	Critical protection for the Rockefeller Wildlife Refuge. Synergy with CWPPRA project ME-18. Soil/foundation concerns are currently being analyzed through demonstration projects.
	6b2	42,805	$58.9	2,638	$22,316	In	
	6b3	37,911	$52.3	1,640	$31,864	In	
Grand Lake	12a	11,491	$5.9	0	N/A	**Out**	Measures 12a and 12b don't meet objectives because they produce zero benefits.
	12b	1,240	$3.3	0	N/A	**Out**	
	12c	13,138	$6.2	29	$214,916	**Out**	Not effective – the combined benefits of 12c and 12d are less than 100 net acres. Not efficient – Cost/net acre 2 to 4 times the average.
	12d	45,248	$21.4	59	$362,497	**Out**	
Schooner Bayou	16a	20,317	$14.2	29	$488,244	**Out**	Not effective – less than 30 net acres. Not efficient - Cost/net acre 4 to 5 times the average.

Site	ID	Total Length (feet)	Cost ($Million)	Effectiveness: Net Acres	Efficiency: Cost/Net Acre	In or out?	Comments and/or Screening Rationale
Freshwater Bayou	16b-west	~ 150,000	$16.5	181	$91,160	In	Freshwater Bayou and surrounding marshes are critical landscape features. From an indirect benefits perspective, on the east bank there is a greater area of potentially vulnerable wetlands behind the southern part as compared to the northern part.
	16b-east (N)		$13.0	121	$107,438	In	
	16b-east (S)		$32.5	450	$72,222	In	
GIWW	26	960,079	$488.0	1,958	$249,212	**Out**	Not cost effective to rock the entire length of the GIWW. Shoreline stabilization may be considered as part of measures located adjacent to the GIWW (e.g. Marsh Measure 3a1) if required by field conditions.
West Cove	49a1	33,839	$18.4	87	$211,874	**Out**	Although West Cove is an important lake rim because of its proximity to Hwy 27 and the Sabine National Wildlife Refuge, the 49a measures are not very cost effective or effective in terms of net acres. The area most at risk in the future without project condition can be more cost effectively protected by marsh restoration measure 124d.
	49a2	36,701	$20.0	107	$186,534	**Out**	
Lake Calcasieu	49b1	82,282	$41.4	402	$102,934	**Out**	Benefits mostly limited to levee protection.
	49b2	151,249	$31.0	90	$344,714	**Out**	Not effective or efficient.
Chenière au Tigre	99a	9,235	$7.2	86	$83,359	In	Part of the Chenière au Tigre State Park. Despite producing less than 100 net acres, measure retained because Chenière au Tigre is a critical landscape feature and shoreline stabilization is critical to protecting the Chenière au Tigre reforestation measure.
Vermilion Bay	113a1	16,085	$11.6	46	$252,671	**Out**	Not efficient or effective.
	113a2	65,728	$46.1	185	$249,027	**Out**	Screened out because shoreline loss rates are low (2.6 ft/yr) resulting in low efficiency. Although over 100 net acres could be preserved, shoreline stabilization measure would not be effective in reducing interior wetland loss.
	113a3	N/A	N/A	N/A	N/A	**Out**	Measure was reformulated to remove sections located outside of the study area. The remaining portions within the study area were found to be stable.
	113b 1	52,845	$37.1	288	$128,940	**Out**	Below average efficiency.
	113b 2	42,473	$29.8	282	$105,630	In	Measure may be shortened to improve efficiency and protect the most vulnerable portion of the marsh.
South	303a1	6,953	$4.1	15	$275,526	**Out**	Not effective or efficient.

Site	ID	Total Length (feet)	Cost ($Million)	Effective-ness: Net Acres	Efficiency: Cost/Net Acre	In or out?	Comments and/or Screening Rationale
	303a2	31,434	$17.2	79	$217,643	Out	
	303b 1	9,288	$5.4	18	$299,819	Out	
	303b 2	17,353	$9.7	55	$175,864	Out	
Freshwater Bayou	600a	1,980	$2.0	14	$146,346	Out	
	600b	4,165	$3.9	14	$276,155	Out	Not effective or efficient.
	600c	5,241	$4.8	10	$481,053	Out	

Completion of the NER Formulation Process

The combination of the remaining features to develop a focused array of NER alternatives is described in Chapter 2, Plan Formulation, of the Main Report. Also fully documented in Chapter 2 is the comparison of the NER focused array, selection of the final array of alternative plans, and the identification of the NER TSP. Public, technical, and policy comments received following release of the initial draft feasibility report supported a modification of the implementation considerations for the NER TSP to allow for a full construction recommendation to be developed. Details of how the formulation process was completed are included in Chapter 2, Plan Formulation, of the Main Report. Fact sheets for all NER features are included in Appendix K. A description of the NER RP can be found in Chapter 4.

The information in this appendix describes the initial formulation steps, through the development of a focused array, for both the NED and NER plan formulation. It provides the foundation for the completion of the plan formulation process, which is more fully described in Chapter 2 of the Main Report.

ECONOMICS

A. BACKGROUND INFORMATION

1 INTRODUCTION

General. This appendix presents an economic evaluation of the six structural storm surge risk reduction alternatives and nonstructural risk reduction alternatives under consideration for the Southwest Coastal Louisiana feasibility study evaluation area, which includes portions of three parishes in the state of Louisiana. The appendix also presents an analysis of NER plans that were also considered for the evaluation area. These analyses were prepared in accordance with Engineering Regulation (ER) 1105-2-100, Planning Guidance Notebook, and ER 1105-2-101, Planning Guidance, Risk Analysis for Flood Damage Reduction Studies. The National Economic Development Procedures Manual for Flood Risk Management and Coastal Storm Risk Management, prepared by the Water Resources Support Center, Institute for Water Resources, was also used as a reference, along with the User's Manual for the Hydrologic Engineering Center Flood Damage Analysis Model (HEC-FDA). IWR-Plan was used to facilitate the analyses of NER plans.

The structure inventory was valued using October 2012 price levels (Fiscal Year 2013). However, the estimates of economic damages, benefits, net benefits, NED costs and NER costs were reported using Fiscal Year 2015 price levels (October 1, 2014). The year 2025 was identified as the base year for each of the NED and NER alternatives as the basis for plan comparison. Estimates of interest during construction and amortization of values were conducted using the FY 2015 Federal discount rate of 3.375 percent. The final net benefit results were updated to FY 2016 price levels (October 1, 2015) and the FY 2016 Federal discount rate of 3.125 percent.

Regional Economic Development. The Regional Economic Development (RED) account will be addressed in a separate section following the identification of the NED and NER plans. If the economic activity lost in the flooded region can be transferred to another area or region in the national economy, then these losses are not included in the NED account. However, the impacts on the employment, income, and output of the regional economy are considered part of the RED account and are generated by the spending stimulus originating with the additional expenditures required to construct the plan. The input-output macroeconomic model RECONS was used to address the impacts of the construction spending associated with the NED and NER recommended plans.

2 DESCRIPTION OF THE STUDY AREA

Geographic Location. Located in southwest Louisiana the study area includes three parishes; Calcasieu, Cameron, and Vermilion. The Southwest Coastal evaluation area was divided into 81 unique hydrologic reaches. To enable an economic analysis of the project alternatives through the use of the HEC-FDA certified model the area was further refined to include 90 study area reaches. Of these 90 reaches, only 63 were shown to include economic assets that were subject to inundation damages. The study area is bounded to the west by the Sabine River, which forms the Texas-Louisiana border, to the east by the border of Vermilion and Iberia parishes, and to the south by the Gulf of Mexico. The study area contains marshlands, agricultural lands, a wildlife refuge, and coastal communities that are not included within any Federal risk reduction levee system. Communities located within the study area include Lake Charles, Vinton, and Sulphur in Calcasieu Parish; Hackberry and Holly Beach in Cameron Parish; and Erath and Abbeville in Vermilion Parish. The area is subject to flooding associated with hurricane tropical storm surge which results in inundation damages to residential, non-residential, and industrial structures and to ecosystem resources.

A map depicting the locations of the reaches within the study area is shown in Chapter 2– Plan Formulation.

Land Use. The total number of acres of developed, agricultural, and undeveloped land in the study area is shown in Table 1. As shown in the table, approximately 3 percent of the total acres in the study area are currently developed. Since there are approximately 834,414 acres of agricultural land and 1,312,216 acres of undeveloped land there is sufficient land available to accommodate the projected residential and non-residential

development through the year 2075 without impacting the wetlands in the area. This projected future development is expected to be located on parcels that tend to be relatively higher ground and are the least exposed to flood risk since floodplain regulations require that the elevation of the first floor of any structure so constructed be at or above the base flood elevation specified in the community's Flood Rate Insurance Map, published by FEMA as a condition of participation in the National Flood Insurance Program.

3 SOCIOECONOMIC SETTING

Population and Number of Households. Table 2 displays the population in each of the parishes for the years 1970, 1980, 1990, 2000, and 2010 as well as projections for the year 2020 and the year 2080. Population projections are based on the Moody's County Forecast Database, which has population projections to the year 2038. Moody's projections were extended using a linear trend by New Orleans District based on historical data. As shown in Table 2, Calcasieu, and Vermilion Parishes experienced a steady increase in population between 1970 and 2010. Cameron Parish experienced a decline in population following Hurricane Rita in 2005.

Table 3 displays the estimated population within the inventoried study area for the year 2010 and the projected population for the years 2025 and 2075. The 2010 estimates are based on an inventory of residential and non-residential properties assembled in 2010 by field survey teams. The number of inventoried residential structures was then multiplied by 2.7, the average number of persons per household in the study area in 2012. The annual compounded growth rate in population in the study area between 2010 and 2080 is expected to be 0.41 percent and 0.32 percent between 2020 and 2080.

Table 4 shows the total number of households in each parish for the years 1970, 1980, 1990, 2000, and 2010 and projections for the years 2020 and 2080. The projected number of households was based on the Moody's County Forecast Database and extended from the year 2038 to the year 2080 based on a linear growth rate using historical data.

Calcasieu and Vermilion experienced a steady increase in the total number of households between 1970 and 2010, which paralleled the growth in population. The number of households in Cameron decreased between 2000 and 2010 largely due to Hurricane Rita in 2005.

Income. Table 5 shows the per capita personal income levels for each parish for the years 1990, 2000, 2005, 2010 and 2013, the year with the latest available data. As shown in the table, the three parishes experienced a steady increase in per capita income between 1990 and 2010.

Employment. Table 6 shows the total employment by parish for the years 1970, 1980, 1990, 2000, 2010, and projections for the years 2020 and 2080. The employment projections were based on historical data and extended from the year 2011 to the year 2080 using linear extrapolation.

In all portions of the study area, growth is highly dependent upon the major employment sectors. With the exception of the city of Lake Charles in Calcasieu Parish, most of the land in the study area is sparsely populated. However, the area is rich in natural resources and industrial infrastructure. The economy of the coastal communities is centered on fishing, shrimping, and offshore oil services. The agricultural land located 30 to 40 miles inland is used for rice, sugar cane, and livestock production. The northern-most portion of the study area is heavily forested and supports a substantial timber industry. Lake Charles, which is the population center of the region, is the home of large oil refineries, petro-chemical plants, a deep-water port, McNeese State University, and casinos along the lakefront area.

Compliance with Policy Guidance Letter (PGL) 25 and Executive Order 11988.

Given continued growth in employment, it is expected that development will continue to occur in the study area with or without the hurricane storm surge risk reduction system, and will not conflict with PGL 25 and

EO 11988, which state that the primary objective of a flood risk reduction project is to protect existing development, rather than to make undeveloped land available for more valuable uses. However, since the overall growth rate is anticipated to be the same with or without the project in place, the recommended NED plan will not induce development, but would rather reduce the consequences of flood risk after a major storm event. Reference full discussion in Chapter 2 of the Main Report.

4 RECENT FLOOD HISTORY

Tropical Flood Events. While the three parishes have periodically experienced localized flooding from excessive rainfall events, the primary cause of the flood events that have taken place in the three-parish study area has been the tidal surges from hurricanes and tropical storms. During the past 25 years, coastal Louisiana was impacted by eight major tropical events: Hurricane Juan (1985), Hurricane Andrew (1992), Tropical Storm Isidore and Hurricane Lili (2002), Hurricanes Katrina and Rita (2005), and Hurricanes Gustav and Ike (2008). However, the major storms that affected this study area are Hurricane Rita (2005) and Hurricane Ike (2008).

Table 7 provides a summary of the total Federal Emergency Management Agency (FEMA) disaster assistance paid to all Louisiana policyholders as a result of these tropical events. The table includes the number of paid losses, the total amount paid, and the average amount paid on each loss. The table excludes losses that were not covered by flood insurance.

The following is a summary of the two major tropical events and their effects on the three-parish area.

Hurricane Rita. The most significant flood event to affect the Southwest Coastal area since Hurricane Audrey in 1957 was Hurricane Rita. Hurricane Rita made landfall along the Texas-Louisiana border on September 24, 2005, as a Category 3 storm with winds in excess of 120 miles per hour. A storm surge of approximately 15 - 20 feet affected the coastal region from Port Arthur, Texas to Terrebonne Parish, Louisiana. The flooding extended north to Lake Charles, where the downtown and residential areas around the lake were covered with 3 to 6 feet of flooding. With estimated losses of approximately $3 billion, Hurricane Rita became one of the most costly natural disasters in U.S. history. Approximately 55,000 housing units in Calcasieu, Cameron, and Vermilion parishes incurred flood damages as a result of this hurricane.

Approximately 2,000 square miles of farmland and marshes throughout the coastal area were inundated. According to the LSU AgCenter, agricultural losses totaled approximately $490 million. The agricultural resources impacted by the storm include sugarcane, cotton, rice, soybeans, timber, pecans, citrus, and livestock. The losses to aquaculture (crawfish, alligators, and turtles), fisheries (shrimp, oysters, and menhaden), and wildlife and recreational resources totaled approximately $100 million.

Hurricane Ike. On September 12 and 13, the Louisiana coastal region incurred flood damages as Hurricane Ike moved along the Louisiana coast. The area receiving the most widespread flooding from storm surge occurred in Southwest Louisiana, which includes the parishes of Cameron, Calcasieu, and Vermilion.

The hardest hit area was coastal Cameron Parish where almost all 2,900 homes and businesses in the area were impacted by the storm surge. Even though the area was spared a direct hit from the storm, floodwaters extended 30 miles inland to just south of the City of Lake Charles. Hundreds of residents were rescued by search and rescue teams from the Louisiana Department of Wildlife and Fisheries in conjunction with the Louisiana National Guard and the U.S. Coast Guard. The LSU AgCenter estimated that potential lost revenues and damages to the infrastructure of the agriculture, forestry, and fisheries industries in Louisiana resulting from the two hurricanes totaled approximately $959 million. The storm surge primarily affected the cattle, rice, soybeans, and sugarcane.

FEMA Flood Claims. The study area has been impacted by numerous tropical events during the past several decades. According to FEMA data, flood claims for the three parishes in the study area that were paid between

1978 and December 2012 totaled $421 million: $ 132 million in Calcasieu, $173 million in Cameron, and $115 million in Vermilion. Table 8 shows the insurance payments between 1978 and December 2012 for each of the parishes in the study area.

5 SCOPE OF THE STUDY

Problem Description. The study area, which is characterized by low, flat terrain, is highly susceptible to flooding from the tidal surges associated with hurricanes and tropical storms due to its close proximity to the Gulf of Mexico. The apparent subsidence that is taking place along the coast of Louisiana and an increase in relative sea level rise is expected to increase the potential for coastal flooding in the future. As the level of the ground sinks relative to the levels of the Gulf of Mexico, the depth of potential flooding in the future will increase. The largest population centers are Lake Charles in Calcasieu Parish and Abbeville in Vermilion Parish.

This study will focus on the development of a storm surge risk reduction plan for the area. The ultimate goal is to create either a structural system that will reduce water levels throughout selected protected areas or otherwise reduce hurricane storm surge risk reduction from the implementation of nonstructural measures.

NED Benefit Categories Considered. The NED procedure manuals for coastal and urban areas recognize four primary categories of benefits for hurricane storm surge risk management measures: inundation reduction, intensification, location, and employment benefits. The majority of the benefits attributable to a project alternative generally result from the reduction of actual or potential damages caused by inundation. Inundation reduction, which is the only category of NED benefits addressed in this evaluation, includes the reduction of physical damages to structures, contents, and vehicles.

Physical hurricane storm surge damage risk reduction benefits include the decrease in potential damages to residential and commercial structures, their contents, and the privately owned vehicles associated with these structures. Damages included in the appendix considered both existing and future conditions. Projections of the future development expected to be in place in the study area during the period of analysis were included as part of the future without-project condition analysis.

Office of Management and Budget survey forms were used to collect information on the value and placement of contents in the industrial facilities located in the study area. The information from these surveys was used to develop the physical flood damage and benefits for these industrial properties.

Project Alternatives. Six structural alternatives and various nonstructural measures were considered in this analysis. These project alternatives are described in Chapter 2 – Plan Formulation.

B. ECONOMIC AND ENGINEERING INPUTS TO THE HEC-FDA MODEL

1 HEC-FDA MODEL

Model Overview. The Hydrologic Engineering Center Flood Damage Analysis (HEC-FDA) Version 1.2.5b Corps-certified model was used to calculate the without-project damages and benefits for the Southwest Coastal LA evaluation. The version 1.2.5b was provided by the Hydrologic Engineering Center to the New Orleans District in place of version 1.2.5a for use in this study. The version 1.2.5b includes an adjustment in programming code to address an anomaly that prematurely terminated model execution given the specific definition of the study area. The nature and scope of the adjustment was coordinated with the FRM-PCX that has review authority over the FDA model and the sufficiency of the model adjustment was found acceptable through the vertical team and through the ATR process.

The economic and engineering inputs necessary for the model to calculate without-project damages for existing conditions (2012), the project base year (2025), and the final year in the period of analysis (2075) include

structure inventory, future development, contents-to-structure value ratios, vehicles, first floor elevations, and depth-damage relationships, ground elevations, and without-project stage probability relationships.

The uncertainty surrounding each of the economic and engineering variables was also entered into the model. Either a normal probability distribution, with a mean value and a standard deviation, or a triangular probability distribution, with a most likely, a maximum and a minimum value, was entered into the model to quantify the uncertainty associated with the key economic variables. A normal probability distribution was entered into the model to quantify the uncertainty surrounding the ground elevations. The number of years that stages were recorded at a given gage was entered for each study area reach to quantify the hydrologic uncertainty or error surrounding the stage-probability relationships.

2 ECONOMIC INPUTS TO THE HEC-FDA MODEL

Structure Inventory. Field surveys were completed in 2012 to develop a residential and non-residential structure inventory for the economic analysis. Based on the structural information collected during the field surveys, the Marshall and Swift Valuation Service was used to calculate a depreciated replacement cost for all residential and non-residential structures in the study area reaches. The inventoried structures were classified as one of 14 structure types: residential one-story with slab or pier foundation, residential two-story with slab or pier foundation, mobile home, eating and recreation, grocery and gas station, multi-family residence, professional building, public and semi-public building, repairs and home use establishment, retail and personal services building, and warehouse, and contractor services building. Table 9 shows the number of structures by structure category and the total number of vehicles associated with the residential structures for in the year 2012 when the field teams collected the data. The value of the land was not included in the analysis. Table 10 shows the number of structures in each structure category and the average depreciated replacement values in October 2012 prices (FY 13 price level) and in October 2015 (FY 15 price level).

The reduction in expected future damages to the physical plant of industrial facilities in the study area was considered as an NED benefit for benefit-to-cost ratio computations. To achieve this, direct telephone contact was initiated to all of 71 owners/operators of industrial facilities in the area requesting information relating to the replacement cost of at-risk facility components and associated depth-percent-damage relationships that are required for benefit computation. Of these 71 inquiries, 44, (62%), were successful in obtaining data that is required in the economic analysis. However, no information was provided by remaining 27 owners/operators. Lacking these data, and given the significantly wide variation in the design and attributes of unique industrial infrastructure, the estimation of depth-damage relationships to these facilities could not be made. As a result, the structure inventory used to evaluate damages and benefits for levee plans do not include these facilities. It is acknowledged that, despite the unusually high response rate, there may be economic benefits that could have been included in the report if more industrial facilities would have responded to the surveys. Unfortunately, in the absence of this information, and given the rigorous standards applied to planning studies, it would be inappropriate to speculate on what those benefits might have been.

Compliance with Section 308 of WRDA 1990. Section 308 excludes the accrual of economic benefits to those structures within a county substantially located within the 100-year floodplain that were built or substantially improved within the 10-year floodplain after July 1, 1991. For this study, no NED benefits were accounted for existing structures that are built out of compliance with the elevation standards set forth in building codes that conform to FEMA's minimum floodplain management requirements, established as a condition of participation by the community in the NFIP, membership for which predated 1991.

The study area includes over 52,000 structures of which 15,500 are within the 100-year floodplain as defined by Corps H&H modeling for the year 2025. (The distribution of these structures by type for the future base year 2025--and not the existing conditions 2012--are provided among the tables addressing the analysis of nonstructural measures. See table 40.)

The number of structures within the current FEMA base flood elevation (100-year floodplain) is not known, but is likely lower since it does not reflect the most current information on storm surge modeling and RSLR.

The PDT spoke with floodplain managers or permit officials from each of the parishes in the study area and several FEMA officials representing Region 6 on the subject of compliance. FEMA has an active inspection mechanism in place to monitor compliance in the region, particularly in the aftermath of major storms when rebuilding of severely damaged structures is common. These "Community Assistance Visits" are comprised of field inspections with local officials to assess construction and rebuilding activities and result in corrective actions when needed. According to FEMA Region 6 officials, there are no outstanding issues with Calcasieu, Cameron, and Vermilion Parishes with respect to compliance with floodplain standards.

It should be emphasized, however, that compliance with floodplain regulations is met whenever the first floor elevation of newly built or significantly repaired structures equals or exceeds the BFE as established in the Flood Insurance Rate Maps (FIRMs) in effect at the time of construction. A number of structures are Pre-Firm, which means that they were constructed before the communities joined the National Flood Insurance Program (NFIP) in the late 1970s and, as a result, there was no BFE established as a standard for compliance. Those structures constructed "Post-Firm" were found to be compliant with the BFEs in the prevailing FIRMs. Since joining the NFIP, there have been periodic and routine revisions of the FIRMs for these parishes which, in many cases, showed higher BFEs for individual structures than previously existed, placing the first floor elevations into mapped Special Flood Hazard Areas (SFHA), i.e., below the BFE for that area. FEMA, and parish floodplain management officials, consider these structures compliant with floodplain standards since they were constructed consistent with the BFEs prevailing at the time of construction. More recently, in the aftermath of Hurricanes Rita (2005) and Ike (2008), FEMA established higher "advisory" BFEs pending the development of final revised FIRMs for the parishes in 2011 and 2012. The incidence of pre-FIRM construction, in combination with higher BFEs for the region over time, has placed a number of structures within the SFHA, although they were constructed in compliance with the floodplain standards at the time.

Future Development Inventory. Projections were made of the future residential and non-residential development to take place in the Southwest Coastal, LA feasibility study area under without-project conditions. Based on a pattern of historical development, a total of 3,750 residential and 396 non-residential structures were placed on the undeveloped land within the study area reaches as part of the structure inventory for the year 2025. An additional 14,994 residential and 1,580 non-residential structures were added to the inventory for the year 2025 to obtain the structure inventory for the year 2075. Table 11 shows the projected number of structures in each structure category for the future years 2025 and 2075, respectively. The value of the land was not included in the analysis.

The development projected to occur in each study area reach between the year 2012 and the year 2025 was placed at an elevation equal to the stage associated with the 2025 without-project one percent annual chance exceedance (1% ACE) (100-year) event, unless the ground elevation was higher. The projected development occurring after the year 2025 was placed at an elevation equal to the stage associated with the without-project 1% ACE (100-year) event for the year 2075, unless the ground elevation was higher. The values for the projected residential and non-residential structures were assigned using the average value calculated for each structure category based on the 2010 existing development.

Floodplain regulations, mandated by the NFIP and executed through ordinances, building codes and permits, require that the first floor elevation of any new structure be placed at or above the base flood

elevation as indicated by the corresponding Flood Rate Insurance Map. Therefore, while structures that are expected to be placed into service in the future are included in the structure inventory, their exposure to flood risk is significantly less than many structures found in the inventory under existing conditions. For levee plans that provide flood risk reduction up to the base flood elevation 1% (100-year) ACE event, little if no benefits accrue to these structures. Therefore, their addition to the structure inventory has a minor impact on benefit estimates.

Residential and Non-Residential Content-to-Structure Value Ratios. The content-to- structure value ratios (CSVRs) used in this evaluation were based on the on-site interviews conducted as part of the Morganza to the Gulf evaluation. These interviews were conducted with the owners of a sample of structures from each of the three residential content categories and each of the eight non-residential content categories from each of the three evaluation areas. A total of 10 residential structures and 80 non-residential structures were used to determine the CSVRs for each of the residential and non-residential categories. The results are summarized in Table 12.

Since only a limited number of property owners participated in the field surveys and the participants were not randomly selected, statistical bootstrapping was performed to address the potential sampling error in estimating the mean and standard deviation of the CSVR values. Statistical bootstrapping is a method that uses re-sampling with replacement to improve the estimate of a population statistic when the sample size is insufficient for straightforward statistical inference. The bootstrapping method has the effect of increasing the sample size. Thus, bootstrapping provides a way to account for the distortions caused by the specific sample that may not be fully representative of the population.

Vehicle Inventory. Based on 2000 Census block group data for the evaluation area, it was determined that there are an average of 1.64 vehicles associated with each household (owner occupied housing or rental unit). According to the Southeast Louisiana Evacuation Behavioral Report published in 2006 following Hurricanes Katrina and Rita, approximately 70 percent of privately owned vehicles are used for evacuation during storm events. The remaining 30 percent of the privately owned vehicles remain parked at the residences and are subject to damages from hurricane storm surge. Using the Manheim Used Vehicle Value Index, which is based on over 4 million annual automobile transactions adjusted to reflect retail replacement value, each vehicle was assigned an average value of $13,411 at the 2014 price level. Since only those vehicles not used for evacuation can be included in the damage calculations, an adjusted average vehicle value of $6,598 ($13,411 x 1.64 x 0.30) was assigned to each individual residential structure record in the HEC-FDA model. If an individual structure had more than one housing unit, then the adjusted vehicle value was assigned to each housing unit in a residential or multi-family structure category.

First Floor Elevations and Elevation of Vehicles. Topographical data obtained from the Light Detection and Ranging (LIDAR) digital elevation model (DEM) using the NAVD88 (2004.65 epoch) were used to determine ground elevations. Field survey teams estimated the height of each residential and non-residential structure above the ground using hand levels. The ground elevation was added to the height of the foundation of the structure above the ground in order to determine the first floor elevation of the structure. Vehicles were assigned to the ground elevation of the adjacent residential structures.

Depth-Damage Relationships. Site-specific saltwater, long duration (approximately one week) depth-damage relationships, developed by a panel of building and construction experts for structures, contents, and vehicles and CSVRs in support of the Lower Atchafalaya and Morganza to the Gulf, Louisiana feasibility study, were used in the economic analysis. These curves indicate the percentage of the total structure value that would be damaged at various depths of flooding. Damage percentages were determined for each one-half foot increment from one-half foot below first floor elevation to two feet above first floor, and for each one-foot increment from 2 feet to 15 feet above first floor elevation. The panel of experts developed depth-damage relationships for five residential structure categories and for three commercial structure categories. Depth-damage relationships were also developed for three residential content categories and eight commercial content

categories. The depth-damage relationships for vehicles were developed based on interviews with the owners of automobile dealerships that had experienced flood damages and were used to calculate flood damages to vehicles at the various levels of flooding.

The saltwater, long duration depth-damage relationships developed for the Morganza to the Gulf, Louisiana (MTOG) evaluation were used to estimate hurricane storm surge damages for the Southwest Coastal, Louisiana (SWCLA) study area evaluation. The eastern edge of the SWCLA study area is located approximately 100 miles west of the western edge of the MTOG study area. Both study areas are characterized by low, flat terrain and are highly susceptible to flooding from the tidal surges associated with hurricanes and tropical storms due to their proximity to the Gulf of Mexico. The apparent subsidence that is taking place along the coast of Louisiana and an increase in relative sea level rise are expected to increase the potential for coastal flooding in the future.

The two study areas also have similar land usage, socioeconomic characteristics, and structure types. Since less than 10 percent of the total acres in the each of the areas is currently developed, there is land available for future development. The land is primarily used for oil and gas activities, recreation, and agriculture. The larger population centers (Lake Charles in SWCLA and Houma in MTOG) are located in the northern portions of the study area. Both areas contain wood frame with pier foundation and masonry with slab foundation residential structures, and similar types of retail, eating and recreation, and warehouse non-residential structures. The average depreciated value of an inventoried residential structure using the Marshal and Swift Residential Cost Estimator Program in 2012 prices for the MTOG is slightly less than a $120,000, while the average value is approximately $116,000 for the SWCLA study area.

Since the source of flooding in both study areas is hurricane storm surges from the Gulf of Mexico, saltwater depth-damage relationships were used in the analysis. When the water is pushed into the area during a tropical event, it must flow over land features such as marshes, agricultural land, roads and highways, ridges along waterways, localized flood risk management systems, etc. After the storm system moves through the area, there are no mechanisms to push the water back over these land features, and the saltwater will remain inside of inundated structures for several days. Evacuated residents will not be able to return to their homes until the roads are safely passable and electrical power has been restored. According to a panel of experts, when water remains inside of structures located in a warm, humid climate for several days, mold will quickly develop and additional damage will occur. Thus, long duration depth-damage relationships were used in the analysis.

Table 13 shows the residential and non-residential depth-damage relationships developed for structures, contents, and vehicles.

Uncertainty Surrounding the Economic Inputs. The uncertainty surrounding the four key economic variables was quantified and entered into the HEC-FDA model. These economic variables included structure values, contents-to-structure value ratios, first floor elevations, and depth-damage relationships. The HEC-FDA model used the uncertainty surrounding these variables to estimate the uncertainty surrounding the stage-damage relationships developed for each study area reach.

Structure and Vehicle Values. In order to quantify the uncertainty surrounding the values calculated for the residential and non-residential structure inventory, several survey teams valued an identical set of structures from various evaluation areas in the Gulf Coast region. The structure values calculated by each of the teams during windshield surveys were used to develop a mean value and a standard deviation for each structure in the sample. The standard deviation was then expressed as a percentage of the mean value for that structure. The average standard deviation as a percentage of the mean for the sampled structures was then used to represent the uncertainty surrounding the structure value for all the inventoried residential and non-residential structures. The average standard deviation, which was expressed as a percentage of the mean structure value, totaled 12.15 percent for residential structures and 14.28 percent for non-residential structures.

The uncertainty surrounding the values assigned to the vehicles in the inventory was determined using a triangular probability distribution function. The Manheim vehicle value, adjusted for number of vehicles per household and for the evacuation of vehicles prior to a storm event, was used as the most likely value. The average value of a new vehicle before taxes, license, and shipping charges was used as the maximum value, while the average 10-year depreciation value of a vehicle was used as the minimum value.

Content-to-Structure Value Ratios. As shown in Table 12, a CSVR was computed for each residential and non-residential structure in the sample based on the total depreciated content value developed from the surveys. An average CSVR and standard deviation for each of the five residential structure categories and nine commercial structure classifications was calculated as the average of the individual structure CSVRs

First Floor Elevations. The topographical data used to estimate the first floor elevations assigned to the structure inventory contain two sources of uncertainty. The first source of uncertainty arises from the use of the 2009 LIDAR data, and the second source of uncertainty arises from the use of hand levels to determine the structure foundation heights above ground elevation. The error implicit in using LIDAR data to estimate the ground elevation of each of the inventoried structures is normally distributed with a mean of zero and a standard deviation of 0.297 feet. According to the Hydrologic Engineering Center training manual, and the uncertainty implicit in estimating foundation heights using hand levels from within 50 feet of the structure is normally distributed with a mean of zero and a standard deviation of 0.3 feet at the 95 percent level of confidence.

Depth-Damage Relationships. A triangular probability density function was used to determine the uncertainty surrounding the damage percentage associated with each depth of flooding. A minimum, maximum and most likely damage estimate was provided by a panel of experts for each depth of flooding. The specific range of values regarding probability distributions for the depth-damage curves can be found in the final report mentioned above.

3 ENGINEERING INPUTS TO THE HEC-FDA MODEL

Ground Elevations. Geospatial Engineering acquired elevation data for the Southwest Coastal, LA study area. The LIDAR data were processed and used to create a digital elevation model (DEM) with a five-foot by five-foot horizontal grid resolution. The DEM used NAVD88 2004.65 vertical datum to determine the ground elevations for each of the residential and non-residential structures in the evaluation area.

Stage-Probability Relationships and Levee Features. Stage-probability relationships were provided for the existing (2012) without-project condition and future without-project conditions (2025 and 2075). Water surface profiles were provided for eight annual chance exceedance (ACE) events: 99% (1-year), 20% (5-year), 10% (10-year), 4% (25-year), 2% (50-year), 1% (100-year), 0.5% (200-year), and 0.2% (500-year). The water surface profiles were based on storm surge and incorporated rainfall events.

Under with-project conditions, a top of levee elevation for each study area was entered into the HEC-FDA models for three levels of risk reduction (50-year, 100-year, and 200-year) for the six structural alternatives. A top of levee elevation equal to the stage associated with the 10% (10-year) ACE event for each study area reach was also entered into the HEC-FDA models in order to adjust the results for damages caused by rainfall. The stages associated with the events more frequent than the 10-year event are almost exclusively based on rainfall rather than storm surge.

Uncertainty Surrounding the Engineering Inputs. The uncertainty surrounding two key engineering parameters was quantified and entered into the HEC-FDA model. These engineering variables included ground elevations and the stage-probability curves. The HEC-FDA model used the uncertainty surrounding these variables to estimate the uncertainty surrounding the elevation of the storm surges for each study area reach.

Ground Elevations. A topographic survey was conducted to estimate the uncertainty surrounding the use of the LIDAR data to estimate ground elevations in urbanized areas. The uncertainty surrounding the ground elevations was 0.297 feet for a residential and non-residential structure which was discussed in the first floor elevation uncertainty section of this report.

Stage-Probability Relationships. A 50-year equivalent record length was used to quantify the uncertainty surrounding the stage-probability relationships for each study area reach. Based on this equivalent record length, the HEC-FDA model calculated the confidence limits surrounding the stage-probability functions.

4 NED FLOOD DAMAGE AND BENEFIT CALCULATIONS FOR STRUCTURAL ALTERNATIVES

HEC-FDA Model Calculations. The HEC-FDA model was utilized to evaluate flood damages using risk-based analysis. Damages were reported at the index location for each of the 90 study area reaches that define the study area. A range of possible values, with a maximum and a minimum value for each economic variable (first floor elevation, structure and content values, and depth-damage relationships), was entered into the HEC-FDA model to calculate the uncertainty or error surrounding the elevation-damage, or stage-damage, relationships. The model also used the number of years that stages were recorded at a given gage to determine the hydrologic uncertainty surrounding the stage-probability relationships.

The possible occurrences of each variable were derived through the use of Monte Carlo simulation, which used randomly selected numbers to simulate the values of the selected variables from within the established ranges and distributions. For each variable, a sampling technique was used to select from within the range of possible values. With each sample, or iteration, a different value was selected. The number of iterations performed affects the simulation execution time and the quality and accuracy of the results. This process was conducted simultaneously for each economic and hydrologic variable. The resulting mean value and probability distributions formed a comprehensive picture of all possible outcomes.

Stage-Damage Relationships with Uncertainty. The HEC-FDA model used the economic and engineering inputs to generate a stage-damage relationship for each structure category in each study area reach under existing (2012) and future (2025 and 2075) conditions. The possible occurrences of each economic variable were derived through the use of Monte Carlo simulation. A total of 1,000 iterations were executed by the model for the Southwest Coastal LA feasibility study. The sum of all sampled values was divided by the number of samples to yield the expected value for a specific simulation. A mean and standard deviation was automatically calculated for the damages at each stage.

Stage-Probability Relationships with Uncertainty. The HEC-FDA model used an equivalent record length (50 years) for each study area reach to generate a stage-probability relationship with uncertainty for the without-project condition under existing (2012) and future (2025 and 2075) conditions through the use of graphical analysis. The model used the eight stage-probability events together with the equivalent record length to define the full range of the stage-probability or stage-probability functions by interpolating between the data points. Confidence bands surrounding the stages for each of the probability events were also provided.

Without-Project Expected Annual Damages. The model used Monte Carlo simulation to sample from the stage-probability curve with uncertainty. For each of the iterations within the simulation, stages were simultaneously selected for the entire range of probability events. The sum of all damage values divided by the number of iterations run by the model yielded the expected value, or mean damage value, with confidence bands for each probability event. The probability-damage relationships are integrated by weighting the damages corresponding to each magnitude of flooding (stage) by the percentage chance of exceedance (probability). From these weighted damages, the model determined the expected annual damages (EAD) with confidence bands (uncertainty). For the without-project alternative, the expected annual damages were totaled for each

study area reach to obtain the total without-project EAD under existing (2012) and future (2025 and 2075) conditions. Table 14 shows the expected annual damages for structures, contents and vehicles for 2012, 2025 and 2075 and the percentage increase between 2012 and 2025 and 2012 and 2075. Table 15 shows the number and type of structures that are damaged by each annual chance exceedance event for the years 2025 and 2075 using the intermediate sea level rise scenario. Table 16 shows the equivalent annual without-project damages by study area reach.

Structural Alternatives. Based on existing economic and engineering data, the location of without-project damages, and parametric costs, six structural alternatives were developed for the study area. Three alternatives, Abbeville to Delcambre, Delcambre/Erath, and Abbeville Ring Levee, are located in the eastern portion of the study area. Three alternatives, Lake Charles Westbank Sulphur Extended, Lake Charles Westbank Sulphur South, and Lake Charles Eastbank, are located in the western portion of the study area. Three levels of risk reduction (50-year, 100-year, and 200-year) were evaluated for each of the six structural alternatives.

Economic and engineering inputs were developed and entered into HEC-FDA models for each of the six structural alternatives. Tables 17 and 18 show the expected annual without-project damages, with-project damages, and damages reduced at the 0.02 (50-year) annual exceedance probability (AEP), the 0.01 (100-year) AEP, and the 0.005 (200-year) AEP for each of structural alternatives for the years 2025 and 2075, respectively. The expected annual without-project damages, with-project damages, and damages reduced were converted to equivalent annual values using the FY 2015 Federal discount rate of 3.375 percent and a 50-year period of analysis.

The total project cost for each of the structural alternatives includes construction costs, interest during construction, and operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) for the three levels of risk reduction. Mitigation costs were only included for the Lake Charles Eastbank alternative. Tables 19, 20 and 21 show the calculation of the estimated annual cost for the alternatives using the 3.375 percent discount rate and a 50-year period of analysis.

Tables 22 through 39 show the equivalent annual without-project damages, with-project damages and benefits, annual costs, and equivalent annual net benefits for the six structural alternatives at the three levels of risk reduction. Adjustments were made to the with-project damage results to account for damages that would occur with the project alternative in place as a result of rainfall rather than storm surge. A top of levee elevation equal to the stage associated with the 10% (10-year) ACE event was entered into the HEC-FDA model. The damages reduced by the 10-year levee adjustment were added to the with-project damages for each of the three levels of risk reduction. The increase in the with-project damages has the effect of reducing the benefits from the project alternatives. The net benefit results show that the six structural alternatives are not economically justified.

5 NED FLOOD DAMAGE AND BENEFIT CALCULATIONS FOR NONSTRUCTURAL ALTERNATIVES

Nonstructural Measures. Nonstructural measures comprise an alternative approach to reducing risk of damages from hurricane storm surge in comparison to structural measures in that implementation of a nonstructural measure does not alter the hydrologic characteristics of the floodplain. There is no change in hydrology between without-project and with-project conditions that can be measured through modeling. Rather, nonstructural measures succeed in reducing flood risk by altering the susceptibility to flooding of economic assets in the floodplain. The most common of these physical measures are structure elevation (raising-in-place), relocation, acquisition (buy-out), and flood proofing. Among other nonstructural measures identified for the Corps' National Nonstructural Flood Proofing Committee (NFPC) are flood warning preparedness, floodplain regulation, and flood insurance.

Another hurricane storm surge risk reduction measure that was included among the array of alternatives as a nonstructural measure is termed a "a localized storm surge risk reduction measure." For this analysis, localized storm surge risk reduction measure refers to a measure constructed of earth, concrete, masonry, or steel along

the perimeter of a warehouse. As a nonstructural measure, it does not affect the hydrologic characteristics of the floodplain in a manner that can be measured by existing hydrologic modeling. Its footprint is extremely small compared to conventional levees and does not have nearly the same adverse environmental impact as do levee systems. Operations and maintenance costs for the Government and Non-Federal Sponsor are negligible. The number of warehouses to which this measure would apply is small, ranging from 2 to 6 percent of the total structure inventory, depending upon which reach or floodplain is under consideration. There are no implications for this distinction in plan formulation or estimation of damages, benefits, or costs.

This investigation considered the following as the most appropriate of nonstructural measures: structure elevation for residential structures, flood proofing of non-residential structures (commercial and public buildings), and localized storm surge risk reduction measures for warehouse facilities. Elevation was considered the most appropriate nonstructural measure for residential structures given its effectiveness and the fact that there are a significant number of firms (elevation or shoring companies) in coastal Louisiana that have over recent years developed considerable expertise in implementing this type of engineered solution. In contrast, elevation of most non-residential properties was found not to be a practical nonstructural alternative given the unique and diverse characteristics of most of these structures. The construction types that characterize restaurants, gas stations, municipal offices, and retail stores, for instance, do not lend themselves to standard elevation practices, whereas flood proofing techniques are expected to be far more cost-effective. For this study, flood proofing consists of the application of an impermeable barrier along the perimeter of the structure, supported by adjacent retaining walls as necessary, and the placement of temporary barriers, or dams, at entryways immediately in advance of floods which, for coastal storm surge events, have significant warning time to make this approach effective.

Structure elevation and flood proofing each have limitations. The elevation of residential structures greater than 13 feet above ground level is not considered a safe practice (even if special and more costly engineering techniques could be designed) since the structure would become significantly more exposed to the effects of wind damage—again characteristic of coastal storms. Flood proofing is effective up to only three feet above the foundation. The implementation of flood proofing treatments beyond this limit would result in a significant disparity in hydrostatic pressures between the unprotected and protected side of the building walls should the depth of storm surge flooding exceed three feet and the structural integrity of the building would therefore be compromised.

For warehouses, localized storm surge risk reduction measure placement is the most appropriate measure to reduce risk of damage from hurricane storm surge. Given the geometry and composition of warehouse framing and walls, the application of flood proofing techniques becomes problematic. Instead, the placement of a small-scale localized storm surge risk reduction measure around the perimeter of the warehouse, contingent upon the unique characteristics of the site, would provide hurricane storm surge risk reduction up to 6 feet of flood depth.7 The 6-foot limit for the height of nonstructural localized storm surge risk reduction measures was selected based upon a design developed for a similar nonstructural plan for a separate study in coastal Louisiana (West Shore—Lake Pontchartrain, La.) and is consistent with recent recommendations of the Corps' National Nonstructural/Flood Proofing Committee.

Nonstructural measures for industrial facilities are not included in the Recommended Plan. The complex, diverse, and atypical nature of the facilities requires detailed engineering investigations on a location-specific basis to design a set of measures that would be unique to each facility and that would be effective in reducing hurricane storm surge risk. Close coordination and consultation with facility owners/operators would be required to develop feasibility level designs and costs necessary to complete the analysis of economic feasibility and requested information about existing levels of storm surge damage reduction methods was not provided to USACE by a majority of the industrial facilities.

Acquisition of residential properties was also considered as a nonstructural measure. The advantage of acquisition is that it eliminates all flood risk at the location of the property under study. The disadvantage is that acquisition tends to represent the most costly measure to implement since land value is included in the

implementation cost as are relocation costs, which are an NED cost irrespective of whether or not participants are entitled to reimbursement under the Uniform Relocations Act. Furthermore, the non-Federal sponsor would take ownership of the acquired property and thereby incur the cost of demolition and perpetual maintenance of the vacated parcel, which again is an NED cost. As a condition of acquisition, no further development of the parcel would be permitted. An evaluation of the economic feasibility of acquisition as a stand-alone plan is discussed later in this appendix. On an individual basis, acquisition of residential structures was considered as an option if structure elevation is otherwise precluded, such as in the case where the minimum required elevation (to the year 2075 base flood elevation) is greater than 13 feet.

Flood warning preparedness, floodplain regulation, and flood insurance were not further considered as nonstructural measures for this investigation. In coastal Louisiana, public warning of approaching or impending coastal storms is highly developed and effective. Evacuation protocols, executed by coastal parishes in coordination with the Louisiana Department of Homeland Security and Emergency Preparedness, are robust and mature. Nearly all residents of coastal Louisiana possess an extremely high awareness of flood risk from coastal storms during the well-established season beginning each year on June 1 and ending on November 30. While improvements to public warning, preparedness, and evacuation can always be re-assessed, it was determined that the potential to significantly further reduce NED inundation damages by further coordination with parish and state emergency planners would not be as effective as compared to alternative methods described above.

With respect to floodplain regulations as a nonstructural measure, the preparation of a floodplain management plan by the non-Federal partner or benefiting community is a requirement of the project partnership agreement that executes any hurricane storm surge risk reduction project for which there is a Federal interest. The parishes that are included in the study area, Cameron, Calcasieu, and Vermilion, each have pre-existing floodplain management plans that were established as a condition of participating in the National Flood Insurance Program (NFIP). These plans articulate a wide range of requirements, limits, and qualifications that significantly impact how properties are developed in the jurisdictional floodplains. The most notable of these is the requirement that the first floor of all newly-constructed structures be placed at or above the base flood elevation (BFE), i.e. the elevation associated with the 0.01 annual chance event (100-year stage) as indicated on the corresponding Flood Rate Insurance Maps. Also, repetitively flood-damaged structures, or structures that are significantly damaged (50% or more of the market value of the structure) that are located within FEMA's Special Flood Hazard Areas (SFHAs) must be elevated to the BFE. Therefore, pursuing refinements to existing floodplain management plans, beyond those mandated by the NFIP would be in addition to, and not a replacement of, the nonstructural measures previously identified. Similar to that of flood warning preparedness, it was determined that since such plans are already in place, that the potential for refinements to significantly reduce NED damages was not as significant compared to alternative nonstructural methods described above.

Flood insurance is often included among those in the "toolbox" of nonstructural measures. Flood insurance is acquired by individual property owners from the Flood Insurance Administration (FIA), through the NFIP, and is usually underwritten by local insurance agents. No applicant with property located in a community that participates in NFIP can be denied a policy. Flood insurance is an effective means to manage flood risk by diversifying such risk within a pool of common policy holders on a nation-wide basis. As a nonstructural measure, the effect of flood insurance is to attenuate the severity of the financial impact of flood-related losses, not the physical consequences that are usually ascribed to flood risk. For this reason, no NED impacts are present to be evaluated for the purposes of economic justification.

Scope of Nonstructural Measures. Nonstructural measures could be implemented for each residential structure, non-residential structure, and warehouse facility in the study area. This could potentially include the 51,857 residential and non-residential structures counted within the 500-year overflow that defines the study area in the year 2012. Nonstructural plans that were considered in initial screening consisted of applying nonstructural measures either to all residential and nonresidential structures in the study area within the 100-year floodplain (under 2075 hydrologic conditions), or to only a subset of structures that, when evaluated

collectively at the reach level, were found to be economically justified. The results of this initial screening are found in the appendix to Chapter 2—Plan Formulation.

Upon the completion of initial screening, an alternative approach to the formulation of nonstructural measures was adopted that focused on those structures that are subject to the highest levels of risk from hurricane storm surge damage. Under this approach, nonstructural measures were limited to those structures that were determined to have first-floor elevations at or below the 100-year overflow (0.01 ACE stage) in the base year of the study, 2025.

While relative sea level rise is expected to raise the 100-year stage throughout the 50-year period of analysis and the FFEs for a limited number of structures migrate into gradually increasing 100-year floodplain, economic benefits for implementing such plans for these structures in the year 2025 would be heavily discounted, minimizing the level of benefits that could accrue. Moreover, since the average degree of elevation would average less than two feet, the high mobilization costs would result, in addition to the relatively small benefit, in negative net benefits and lack economic justification.

The stage associated with the 100-year overflow (2025 H&H conditions) was selected as the criterion for identifying the structures with the highest risk of damage from hurricane storm surge and potential candidates for nonstructural solutions to reduce this risk. The rationale for the elevation is based upon floodplain regulations in effect for any community that participates in the NFIP. As a condition of NFIP participation, communities must enforce ordinances requiring, through the issuance of building permits, that the minimum height of any new construction or structure elevation activity is no less than the base flood elevation (100-year stage).

For structures with FFEs within the 100-year floodplain, nonstructural analysis was optimized on the basis of independent strata, or tiers, of the floodplain. Structures found between the 0 and 25 year floodplain (tier 1) were deemed to be exposed to the highest level risk of damage from hurricane storm surge and were considered for Phase I implementation. Phase II implementation considers only those structures with FFEs higher than the 25-year stage, but lower than or equal to the 50 year stage (tier 2). Phase III encompasses all remaining structures within the 100-year floodplain (tier 3).

Without and With-Project Equivalent Annual Damages for Tiered Alternatives. The Hydrologic Engineering Center - Flood Damage Analysis (HEC-FDA) Version 1.2.5b certified model was used to estimate damages and benefits for nonstructural measures within the study area. For nonstructural measures, the model was used to create a separate module that contained all of the residential and non-residential structures and warehouses with a first floor elevation less than the stage associated with the 0.01 annual exceedance probability, or 100-year event, in the year 2025 for each reach in the evaluation area. The hydrologic reach was used as the unit of analysis and reporting for the model since stage-frequency data were reported at reach level. The HEC-FDA model was then executed to compute without-project damages for all such structures in the module.

Table 40 provides a summary of floodplain characteristics with respect to the number of structures for the entire study area and a breakdown by floodplain. The structure inventory was segmented into three separate floodplains (tiers): the 0-25 year, the 25-50 year, and the 50-100 year floodplains. Included in this summary is the estimate of equivalent annual without-project damages for the study area as a whole, the 100-year floodplain, and each of the three tiers within the 100-year floodplain.

Under with-project conditions, the first floor elevation of all residential structures was raised to the stage associated with the 2075 100-year event within each study area reach. Those structures that would otherwise require elevation greater than 13 feet above ground level, were not to be raised at all, but instead would be considered for acquisition. As a result of the analysis, six residential structures were found to require elevation greater than 13 feet above ground level and were, therefore, identified for property acquisition. For non-residential structures, where flood proofing techniques were applied, the depth-damage relationships within corresponding to these structure types were adjusted to eliminate damage from hurricane storm surge for the

first three feet of flood depth, beyond which damage occurs similar to what is expected under without-project conditions. Hurricane storm surge damage risk to warehouses was reduced by placement of localized storm surge risk reduction measures along the perimeter of the structure according to a predefined set of parameters. The height of the localized storm surge risk reduction measure was set at the 6-feet, which represents the maximum for this type of nonstructural measure. The HEC-FDA model computed damages under with-project conditions using depth-damage curves that were modified so that structures would receive no damages up to six feet of inundation. The result is that damages to warehouses are eliminated for the first six feet of hurricane storm surge depth until the localized storm surge risk reduction measure is overtopped.

Table 41 summarizes the performance of these measures in the form of hurricane storm damages reduced. With-project damages are subtracted from without-project damages for each of the three tiers to yield an estimate of equivalent annual benefits. These benefits are shown at the FY 15 Federal discount rate of 3.375 percent and the 7 percent OMB rate.

B.5.1 **Nonstructural Implementation Costs.**

B.5.1.1 Residential Structures.

The estimate of the cost to elevate all residential structures was computed once model execution was completed. Elevation costs were based on the difference in the number of feet between the original first floor elevation and the target elevation (the 100-year stage) for each structure in the HEC-FDA module. The number of feet that each structure was raised was rounded to the closest one-foot increment, with the exception that structures less than one foot below the target elevation were rounded-up to one foot. Elevation costs by structure were summed to yield an estimate of total structure elevation costs. The cost per square foot for raising a structure was based on data obtained during interviews with representatives of three major metropolitan New Orleans area firms that specialize in the structure elevation. Composite costs were derived for residential structures by type: slab and pier foundation, one story and two story configuration, and for mobile homes. These composite unit costs also vary by the number of feet that structures may be elevated. Table 42 displays the costs for each of the five residential categories analyzed and by the number of feet elevated.

The cost per square foot to raise an individual structure to the target height was multiplied by the footprint square footage of each structure to compute the costs to elevate the structure. The footprint square footage for each structure was determined by applying the average square footage estimated for each residential structure category as shown in Table 43. The average was taken from the structures in the structure inventory. Added to the elevation cost was the cost to temporarily relocate residents during the period when utilities are severed. Temporary relocation costs included packing/moving, labor, storage, hotel costs, per diem costs, kennel costs for pets, and contingencies. Contractors provided a median estimate of 30 days for temporary relocations, which is equivalent to $6,148 per structure. Also, a labor estimate of $10,000 per structure to complete required administrative activities by the Federal sponsor in implementing this nonstructural measure was added to the cost of implementation. The total costs for all elevated structures were annualized over the 50-year period of analysis of the project using the Fiscal Year 2015 Federal discount rate of 3.375 percent and an October 2012 price level which was subsequently indexed to October 2014 price levels (Fiscal Year 2015 prices).

B.5.1.2 Non-Residential Structures.

The flood proofing measures were applied to all non-residential structures except for warehouses. Separate cost estimates were developed to flood proof these structures based on their relative square footage. If the square footage was between zero and 20,000, then the total cost equaled $98,922; between 20,000 and 100,000 square feet, then $306,452; and greater than 100,000 square feet, then $772,158. These costs were developed for the Draft Nonstructural Alternatives Feasibility Study, Donaldsonville LA to the Gulf evaluation (September 14, 2012) by contacting local contractors and were adopted for this study due to the similarity in the structure types between the two study areas. Also, a labor estimate of $10,000 per structure to complete

required administrative activities by the Federal sponsor in accomplishing this nonstructural measure was added to the cost of implementation. Again, final cost estimates are expressed in FY 2015 prices, and the components of these costs are shown in Table 44.

B.5.1.3 Warehouses.

The perimeter in linear feet of each warehouse was derived from the average square footage for all warehouses in the structure inventory. A buffer of 160 linear feet was added to the perimeter to account for business activity such as the loading and unloading of trucks. This sum was multiplied by the cost per linear foot of building the localized storm surge risk reduction measure, $780. Also, a labor estimate of $10,000 per warehouse to complete required administrative activities by the Federal sponsor in implementing this nonstructural measure was added to the cost. As with non-residential structures, these costs were developed for the Draft Nonstructural Alternatives Feasibility Study, Donaldsonville LA to the Gulf evaluation (September 14, 2012), using data from local contractors, and updated to FY 2015 prices. The components of these costs are shown in Table 44.

B.5.1.4 OMRR&R.

The owner of the structure bears all of the costs and responsibility to OMRR&R the nonstructural improvements to the properties once those improvements have been implemented and a notice of construction completion is furnished. The signatory parties (the owners, third parties, and holders of liens and encumbrances, together with their heirs, successors and assigns) to the Agreements that were executed as a condition of the Government's implementation of the nonstructural improvements will have a continuing obligation to comply with all of the provisions of those Agreements. In addition to the OMRR&R obligations of the structure owners and others , the Non-Federal Sponsor (NFS), as a part of its obligations for the NED feature, is required to prepare a Floodplain Management Plan in coordination with the U.S. Army Corps of Engineers (USACE) to maintain the integrity of the project; to issue annual notifications to the public regarding the risk reduction measures that have been implemented; to comply with the requirements of Section 402 of the Water Resources Development Act of 1986, as amended, to conduct regular periodic inspections of the properties upon which the nonstructural measures have been implemented in order to assure continuing compliance that the terms of the non-structural agreements executed by the owners and others; and to prevent obstructions or encroachments on the project, including prescribing and enforcing regulations to prevent any such obstructions or encroachments that might reduce the level of risk reduction provided by the NED project or that hinder or interfere with the operation and maintenance of the project and the project's proper function. NFS obligations are described more fully in Chapter 7 of the Final Report.

For elevation measures, there are no further resources necessary to ensure that the engineered activity operates as intended.

For flood proofing measures, periodic inspection of the work which may be required is expected to be insignificant (approximately $500 per structure over several years). Such inspection costs are an extremely small percentage of the overall cost of implementation and can be considered capitalized in the initial cost of implementation. OMRR&R for localized storm surge risk reduction measures is expected to be limited to occasional vegetation control (grass mowing), which is equivalent to a zero incremental cost since this activity already occurs under without-project conditions. Ensuring the localized storm surge risk reduction measure maintains its elevation is a structure owner OMRR&R responsibility. However, due to the measure being built to reduce risk based on 2075 conditions, this expense is expected to be low.

B.5.1.5 Property Acquisitions.

The cost to acquire the 6 (based upon present estimates) structures that would not be elevated beyond the 13-foot limit discussed earlier in this appendix is the sum of the depreciated cost of the structure, the average land value of $70,000, relocation assistance of up to $60,000 (only for tenants), and a labor estimate of $30,000 per structure to complete required administrative activities by the Federal sponsor. Although elevation is not an

option for these 6 structures, a separate analysis was conducted that verified that acquisition of these structures was still economically justified, although with net benefits that are lower than what would have accrued with structure elevation if the elevation criteria were not applied. Table 44 summarizes the cost components of the nonstructural measures included in this analysis. Table 45 shows the combined first costs and average annual cost for implementing all nonstructural measures (elevation, flood proofing, localized storm risk reduction measures, and acquisition) by tier within the 100-year floodplain.

The base year for the study is 2025, consistent with that established for the structural plan and associated with the year for which hydrologic conditions were modeled. The implementation of the nonstructural plan would also commence in 2025. However, given the large number of structures that are eligible, and likely limits on annual appropriations, an estimated 5 to 10 years may be required before nonstructural measures are implemented for all voluntary participants. Since each structure is evaluated as a project increment, the benefit for the implementation of a nonstructural measure does not begin to accrue until the costs to implement that measure is incurred, and that one year or less is required for the implementation of each increment, the base year for an individual structure can vary depending upon the timing of project construction.

Net Benefit Analysis for Tiered Alternatives. Benefits were reported by the HEC-FDA model as the reduction in the without-project damages by reach that would result from implementation of each of the nonstructural measures previously described. Costs were computed exogenous to the model, but using model data with respect to the number of feet by which each structure had been elevated, by the number of linear feet of flood proofing, contingent upon the footprint of the non-residential structure, and by the length of localized storm surge risk reduction measures, that was based on the square-footage of warehouses.

Benefits and costs were then totaled for each floodplain increment and compared to yield an estimate of the net benefits associated with implementing a structure elevation plan for all residential structures within the prescribed floodplain. As indicated earlier, the structure inventory was segmented into three separate floodplains (tiers): the 0-25 year, the 25-50 year, and the 50-100 year floodplains. These tiers can be considered to correspond for phases of implementation, ranked according to flood risk, if the results of the analysis show that any of the tiers are economically justified. Table 46 displays the equivalent annual without-project and with-project damages by segment, along with their associated benefits. The table also includes the implementation cost and average annual cost for each of the floodplains. Last, the table displays the calculation of equivalent annual net benefits and associated benefit-to-cost ratios for these project increments.

As the results are shown for the floodplain tiers, implementation of any plan increment (or tier) is independent of the others. The results show significant net benefits for the 0-25 year floodplain, and show narrowly positive net benefits for the 25-50 year floodplain. The 50-100 year floodplain increment is not economically justified. While the 25-50 year floodplain increment is economically justified, and could be added to the 0-25 year floodplain increment to form a more comprehensive plan, ER 1105-2-100 permits the exclusion of an otherwise economically justified increment if the change in implementation costs is relatively high. In this case, implementation costs approximately double and, effectively, accrue benefits that are roughly equal to costs.

This tiered approach reveals that the highest benefits, and net benefits, accrue to those structures that are exposed to the highest risk of damage from hurricane storm surge, as represented by their proximity in the floodplain to the greatest frequency of flooding. The analysis also suggests that for residential structures that may be found in the less exposed portion of the floodplain (approximating the 100-year stage) that relatively less benefits accrue since the absolute height that such a structure must be raised to be placed at the target base flood elevation (2075 H&H conditions) is less. From this perspective, it is not surprising that the economic feasibility of elevating structures in the 50-100 year floodplain is far less than the others given that structure elevation activities require a relatively significant, fixed mobilization cost and that the cost of each added foot of actual elevation is relatively lower.

In sum, the highest level of net benefits are indicated for the plan which implements nonstructural measures to all structures in the study area for that inventory with FFEs below the 25-year stage (2025). The number of

structures included is 4,952 with an implementation cost of $834,361 million. The average annual net benefits are $228,405 million with a benefit to cost ratio of 7.57 to one. This plan achieves completeness throughout the study area with respect to the 25-year floodplain, reducing the complexity of its formulation, and thereby enhancing the implementability of the plan. Net benefits for structures considered in Phase II (tier 2) are considerably less than those found in Phase I, which was expected due to the presence of relatively less risk of damage from hurricane storm surge. Net benefits remain positive and support the Federal interest for subsequent implementation. In contrast, net benefits for Phase III (tier 3) are negative. This result owes to the fact that properties within these floodplains do not require the same magnitude of elevation as do the structures considered in Phases I and II. Given the high fixed costs of conducting the elevation-in-place technique, the accrued benefits are insufficient to compensate for the high mobilization costs.

Acquisition Measures. The acquisition of structures represents an alternative to elevation as a nonstructural measure to reduce flood risk, the advantages and disadvantages of which were described previously in this analysis. A comprehensive, stand-alone plan to potentially acquire all 4,219 residential structures within the 25-year floodplain was conducted but not determined to be economically justified. A comparison of the relative merits of acquisition, as measured by net benefits, to elevation of residential structures was then conducted on a structure-by-structure basis. Given the practical limitation of the HEC-FDA to conduct benefit analysis on a structure-by-structure basis on this scale, an alternative method was used to extract data from FDA's "struc.detail.out" file in order to derive approximate estimates of damages and damages reduced within a spreadsheet environment. This task was accomplished by manually calculating for each structure the expected annual damages using the damage-probability event table. Adjustment factors were also applied to account for the lack of risk and uncertainty and the effects of sea-level rise.

The economic benefits associated with acquisition were measured as the without-project flood damage which is eliminated by removing the property from the 25-year floodplain. The costs associated with this measure included the depreciated replacement cost of the structure plus up to $60,000 (only for tenants) as estimated for the Uniform Relocations Act, $30,000 for Supervision and Administration, and $70,000 for Lands. This adds an additional $160,000 to the depreciated structure value. Economic justification was determined by comparing the expected annual benefits to the expected annual costs. Net benefits were calculated by subtracting the expected annual costs from the expected annual benefits.

In the 2025 25-year floodplain, only 1 of 4,219 residential structures had higher net benefits from being acquired compared to elevation. Of the remainder, approximately 40 percent were economically justified for acquisition as the nonstructural measure, but in each case for an individual structure, elevation-in-place yielded higher net benefits. As a result, a decision was made that structure acquisition would not be included among nonstructural measures further considered for recommendation apart from the six structures already identified due to engineering constraints.

Plan Optimization

The target level of risk reduction (LORR) for the elevation of residential structures is the stage associated with the 0.01 ACE (100-year event) under 2075 H&H conditions. Plan optimization requires that alternative LORRs be considered to identify the NED plan. To accomplish this, equivalent annual benefits, annual costs, and equivalent annual net benefits were also estimated through model runs for the 0.02 ACE (50-year event) and the 0.005 ACE (200-year event) for all eligible structures in the 0-25 year floodplain. Table 47 ranks the results of the net benefits of each plan according to progressively increasing levels of risk reduction. The analysis shows that equivalent annual net benefits are extremely close for all plans. An inspection of the H&H inputs that yield these results show that the relative differences in stages between the 0.02, 0.01, and 0.005 ACEs is one foot or less. As LORR increases, benefits increase in near linear fashion, and results in the highest level of net benefits at the plan providing 200-year LORR. The conclusion is not surprising since the incremental cost does not change at the same higher rate as does incremental equivalent annual net benefits. This is due to the fact that much of the implementation costs for structure elevation is a fixed mobilization costs and each

additional foot of structure-raising does not add as greatly to total costs. Benefits increase also, but at a decreasing rate, since the majority of benefits for hurricane storm surge damage reduction is captured in the first several feet of flooding, and so the incremental addition to equivalent annual benefits is not as great. Although, net benefits for the 200-year LORR alternative are higher than the others, a corporate decision was made that the plan providing 100-year LORR "reasonably" maximized net benefits, in view of the substantial additional cost to achieve the higher LORR.

Without and With-Project Equivalent Annual Damages for the Tier 1 Alternative.

The economic analysis has thus far screened nonstructural alternatives that may apply from all 52,000 individual structures in the entirety of the study area to approximately 5,000 that have FFEs within the 0-25 year floodplain. These structures represent those that face the highest risk of flooding from hurricane storm surge, as defined by the frequency of flooding. At this point, the definition of most likely future without-project condition requires greater scrutiny since the estimate of without-project damages for properties located in this floodplain are likely overstated. The basis for this statement is that it is not reasonable to expect property owners to repair structures "in-kind" that are repetitively damaged—that is, recurrently repairing structures without taking some form of remedial action on their own to reduce risk of damage from hurricane storm surge, so to avoid the significantly accumulating cost of repair over the period of analysis. "Repetitive flooding" may be an intuitive, and perhaps, obvious, concept in attempting to identify a trigger for property owners to alter their post-flood repair behavior which then directs the analyst to formulate a change in the study methodology to account for it. However, since HEC-FDA is a model based upon the statistical likelihood of flooding, and is not an "event-driven" simulation model, neither the timing nor intervals between floods can be determined. Therefore, an adjustment to the study methodology based upon "repetitive flooding" is problematic.

Instead, hurricane storm surge that results in "severe damage" to structures serves as an exceptionally sound basis upon which to formulate a change in study methodology to take into account the most likely post-flood response for property owners in high-risk floodplains under future without-project conditions. The basis of this approach lies in the fundamental statistical observation that, over a 50-year period of analysis, the probability of the 25-year event (0.04 ACE) occurring is approximately 87 percent. Moreover, the probability of the 10-year event (0.10 ACE) occurring over the same period is 99.5 percent. These relatively high probabilities can reasonably constitute nearly certain events for the purpose of formulating an adjustment to account for post-hurricane storm surge damage behavior.

Consequently, for structures that have FFEs within the 25-year floodplain, there is near certainty that they will experience a hurricane storm surge damage event with a stage associated with the 0.04 ACE. Depending on the characteristics of the structure, the depth-damage relationships and the exact FFE, flooding from such a single event may be relatively minor or it may be "severe" as defined as 50 percent or more damage to the depreciated replacement value of the structure. Using the probability-damage table for each individual structure developed by HEC-FDA as an intermediate output file, an estimate was made that approximately 1,029 structures would incur severe damage during the period of analysis.

The incidence of "severe" damage to structures has profound consequences from a post-hurricane storm surge damage response standpoint. As a condition of obtaining a building permit to repair a severely damaged structure, local ordinances require that property owners also elevate that structure to the BFE specified on the local FIRMs. The community enforces this FEMA floodplain regulation as a requirement of participation in the National Flood Insurance Program and is applied to all property owners irrespective of whether they own a flood insurance policy or whether they "self-insure" (assume all flood risk themselves). While property owners may decide to abandon the property rather than repair with this elevation requirement, the effect is the same: future flood risk is reduced.

While the exact method of "flood risk mitigation" may take various forms, in this study, the reduction in future flood risk is captured by resetting the FFE for each of the affected structures to the 100-year stage under 2075

conditions. In so doing, the estimate of expected annual damages for all structures in this tier is reduced. This adjustment does not rely on the speculative nature of human behavior after a flood and it does not require knowing in advance the exact time of the flood event that would invoke elevation. An action to elevate a structure under the circumstance described is required by law and can be considered deterministic. Although the model is not designed to specify the in which year such a flood event would take place, even if this information could be known with certainty, the fact that the FFE is reset in the last period of analysis results in an estimation of without-project expected annual damages in 2075 that is lower than they would have been in absence of the adjustment. Next, the execution routine of HEC-FDA interpolates the difference in expected annual damages between the years 2025 and 2075, resulting in an estimate of without-project EAD that is less than without the adjustment. The reduction in EAD for the without-project condition only for structures included in this plan is approximately 20 percent.

Under with-project conditions, all structures with FFEs within the 25-year floodplain are eligible for the application of nonstructural measures under the implementation plan. This means that the future costs that would have been otherwise incurred to comply with floodplain requirements for elevation of damaged structures would be avoided. These avoided costs qualify as NED benefits. However, the magnitude of these benefits are not large relative to the benefits for inundation damage reduction and no study resources were committed to calculate them for this study, as they do not affect plan formulation or plan recommendation.

In addition to the aforementioned adjustment for the without-project condition, a separate adjustment was considered for the with-project condition. This second adjustment relates to the fact that, while the plan significantly reduces residual risk for all structures within the 25-year floodplain, there will likely be instances where the elevation, flood proofing, or localized storm surge risk reduction measures may not be economically justified if evaluated on a structure-by-structure basis. With guidance and approval from the vertical team, the intermediate HEC-FDA struc.detail.out file was used to ascertain from the individual structure records, the number which would be economically justified as a project increment. The total number of structures that are economically justified on an individual basis is 3,961, compared to all eligible structures in the 25-year floodplain of 4,952, a decline of approximately 20 percent. As a result of this analysis, the estimation of equivalent annual benefits and average annual costs were limited to those structures that positively contributed to total plan annual net benefits.

A final HEC-FDA model run was performed to account for both adjustments: 1) a reset of FFEs to account for incidence of severe structure damage, and 2) a limit of NED benefits to project increments that are economically justified only upon a structure-by-structure basis. The results of the model run with respect to equivalent annual without-project damages, with-project damages, and equivalent annual benefits in Table 48. The table also shows the first cost, annual costs, net benefits, and benefit-to-cost ratios using the preliminary cost estimate and the certified cost estimate provided in Table 48. Finally, in Table 49, a distribution of nonstructural measures by structure type is provided.

6 NED RECOMMENDED PLAN

Structural and Nonstructural Alternative. The structural alternatives were not found to be economically justified. However, the nonstructural alternative of elevating 3,456 residential structures, flood proofing 342 non-residential structures, and constructing localized storm surge risk reduction measures for 157 warehouses, were found to be economically justified. Equivalent annual net benefits are $176,419,000 based on a Federal discount rate of 3.125 percent, 50-year period of analysis, and FY 2016 price levels. The corresponding benefit-to-cost ratio is 7.50 to 1.0. As a result, this alternative is the NED recommended plan. The table also reports net benefits and benefit-to-cost ratios at the 7 percent OMB rate.

7 RISK ANALYSIS

Benefit Exceedance Probability Relationship. The HEC-FDA model used the uncertainty surrounding the economic and engineering inputs to generate results that can be used to assess the performance of the project alternatives. Table 50 shows the equivalent annual benefits at the 75, 50, and 25 percentiles. These percentiles reflect the percentage chance that the benefits will be greater than or equal to the indicated values. The benefit exceedance probability relationship for each of the project alternatives can be compared to the point estimate of the average annual costs for each of the project alternatives. The table indicates the percent chance that the equivalent annual benefits will exceed the equivalent annual costs. For the collection of nonstructural measures that are applied to structures in the 25-year floodplain for the year 2025, there is a greater than 75 percent chance that the project benefits exceed the project costs.

Residual Risk and Public Safety. Residual risk is described with respect to the remaining risk of hurricane storm surge damage present within the study area subsequent to the implementation of the recommended plan, when compared to the future without-project condition. The results of the HEC-FDA model show risk of hurricane storm surge damage for the entire study area under the without-project condition as equivalent annual damages of $474,571,000 (Table 40 at FY 2015 price levels). This figure includes all 51,857 structures in the study area, including automobiles, which are exposed to increased risk of hurricane storm surge damage over the period of analysis due to sea level rise. Only a portion of this inventory would have received hurricane storm surge risk reduction in any of the six structural plans considered. Equivalent annual without-project damages for structures otherwise protected by levee alignments total approximately $319,240,000 (based on Tables 22-39 for each of the levee plan levels of risk reduction at FY 2015 price levels) which represents approximately 67 percent of that for the total study area. This represents the maximum benefits that could be achieved if, in the improbable event, that levee plans were completely effective in removing all hurricane storm surge risk from the protected area; in this case, residual risk would represent equivalent with-project damages, or a maximum of $155,331,000. But since no structural plans were found to be economically justified or recommended, no discussion is included in this section to further identify residual risk associated with levees.

To evaluate a potential nonstructural recommended plan that performs up to a target of level of risk reduction of 100-years under 2075 conditions, expected without-project damages were recomputed. This re-computation was required to accurately describe the expected future without-project damages for a subset of the study area structure inventory, excluding vehicles and those structures with first floor elevations at or above the 0.01 ACE. These structures would not be included among the potentially benefiting structures since they currently exceed the target level of minimum risk exposure. Without-project expected annual damages for structures (less vehicles) confined to the 100-year floodplain was estimated to be $333,561,000 (Table 40—2015 prices). It should be noted that this estimate is for 2025 hydrologic conditions only.

With existing information, the total number of additional residential structures, for example, that will enter the 100-year flood zone over the succeeding 50-years can be determined. This change is attributable only to the expected change in stages associated with relative sea level rise. For these structures, the number of feet of structure elevation required to achieve the 2075 100-year stage cannot be higher than the change in the 100-year stage between 2025 and 2075, which is approximately, and on average, 2-3 feet. Based on the economic evaluations completed to date and the high mobilization cost for the elevation-in-place technique, the economic justification for the elevation measure is nonexistent for such nominally small increments. Therefore, no estimate of 'equivalent' annual damages and benefits were made for these additional structures as part of the nonstructural analysis.

As shown in Table 40, expected annual without-project damages under 2025 H&H conditions for the 100-year floodplain is $333,561,000 at FY 2015 price levels. In comparison, the expected annual without-project damages for the study areas as a whole for the 2025-2075 period of analysis is $474,571,000. It would appear that the expected annual damages for the 100-year floodplain (2025 conditions) is a significant percentage (70%) of that of the entire study area for the period of analysis.

As previously mentioned, for the study area as a whole, equivalent without-project damages are $474,571,000 at 2015 prices. Once adjustments are made, shown in Table 48, to consider candidate structures limited to the

0-25 year floodplain and apply the severe damage adjustment, equivalent without-project damages are estimated to be $215,776,000—or approximately 46 percent of total equivalent annual damages in the study area. With the recommended plan in place, equivalent annual damages in the 0-25 year floodplain decline to $15,676,000, a reduction in damages of approximately 93 percent. The recommended plan reduces equivalent annual damages by 58 percent when compared to without-project equivalent annual damages for the study area as a whole ($474,571,000 minus $200,100,000 in damages reduced).

By and large, hurricane storm surge damage risk management projects positively contribute to public safety. This is particularly true for structural plans where, for the most frequent hurricane storm surge events, the incidence of inundation are reduced for communities and other developed areas. However, for less frequent and more severe flood events in coastal areas that are characteristic of the study area, structural plans could have a negative effect on public safety. This may arise from some among the public who do not abide by mandatory evacuation orders in advance of an approaching storm, but who otherwise would, believing that the structural levee may provide greater protection from storm surge that may be warranted. Thus the total population exposed to flooding in the event of overtopping or breach could be greater under with-project conditions. However, for nonstructural plans, no change is expected in evacuation behavior since the potential exaggerated expectations of performance afforded to structural measures is not present, and awareness of risk from hurricane storm surge is not abated.

8 FURTHER CONSIDERATIONS

Refinement of Future Conditions Inventory. Of the 4,952 structures in the 0 to 25-year floodplain, 2,581 (52%) are also in 0 to 10-year floodplain. Structures in this floodplain (0 to 10-year) are exposed to the highest risk of damage from hurricane storm surge of all those that were inventoried in the study area. By definition, the frequency of flooding from hurricane storm surge—on a probabilistic basis—is the highest among those in the 100-year floodplain. In addition, they are most likely to sustain significant damage (greater than 50 percent of the depreciated structure value) for a single hurricane storm surge event.

For all flood risk management studies using the certified HEC-FDA model as the tool of analysis, flood risk is evaluated using statistical probability methods. This highlights what is evident for the purpose of estimating flood damages that occur in the future: the timing, location, and severity of specific flood events are not known. Because specific flood events cannot be predicted using current analytical tools, the expected value of future flood damages can only be estimated on the basis of the expected value of damages for the full range of specific events and weighted by the probability of occurrence.

For structures that reside in particularly high-risk areas, such as the 0 to 10-year floodplain, it is reasonable to expect that the inventory of structures in that area to change over time under the most likely future without-project condition. Incidence of hurricane storm surge events occurring closely together or by single-event severe flooding, while not predictable, on average, has a higher chance of occurring in the 0 to 10-year floodplain. For this reason, some indefinite number of structures would be expected to change their location within the study area over time. This means that the owners of structures would undertake some mitigation of their own under without-project conditions. Mitigation options include structure elevation, relocation, evacuation, "dry flood proofing," and localized storm surge risk reduction measures. These options are the same as those considered under with-project conditions.

In absence of any change to the first floor elevations, or other characteristics, associated with structures used as input to the HEC-FDA model to reflect the reasonable expectation of an undetermined degree of adjustment to future hurricane storm surge damage risk through mitigation activities, the estimate of future without-project damages is likely overestimated. Yet, it is also reasonable to expect that, despite the high flood hazard from hurricane storm surge, not all structures in the 0 to 10-year floodplain would be subject to effective mitigation activities such that, over time, no structures would remain. Predicting which specific structures are mitigated

and those that are not again presumes foreknowledge of future hurricane storm surge events which does not exist.

C. PART 4: NATIONAL ECOSYSTEM RESTORATION (NER)

Background. The purpose of the Southwest Coastal National Ecosystem Restoration (NER) plan is to reduce the risks associated with habitat damage via saltwater intrusion, shoreline retreat, and loss of geomorphologic infrastructure. This result would contribute towards achieving and sustaining a larger coastal ecosystem that can support and protect the environment, economy, and culture of southern Louisiana and thus contribute to the economy and well-being of the Nation.

Alternatives and Nomenclature. The focused array of alternatives consists of twenty-seven plans (Table 51). The array consists of combinations of measures to be implemented in the Calcasieu and Mermentau Basins exclusively and in concert. Furthermore, plans that contained the salinity control gate in the Calcasieu Ship Channel in the initial array were also examined without the gate. The "C" plans are combinations of measures to be implemented in the Calcasieu Basin. The "M" plans are combinations of measures to be implemented in the Mermentau Basin. The numbers one through six represents unique combinations of measures.

Cost-effectiveness and Incremental Cost Analysis. ER 1105-2-100 requires that the NER outputs of ecosystem restoration plans be expressed in non-monetary units. Since the combination of costs and benefits of ecosystem restoration plans cannot be expressed in a common metric, cost effectiveness and incremental cost analysis are employed as a means of comparing alternatives. A plan is cost effective if no other alternative plan provides the same level of output for less cost and if no other alternative plan provides more output for the same or less cost. The subset of cost effective plans that are superior financial investments are identified through incremental cost analysis. These "best buys" are the most efficient plans at producing the output variable, providing the greatest increase in the value of the output variable for the least increase in the value of the cost variable. The first best buy is the most efficient plan. It produces output at the lowest incremental cost per unit of output, which, for the first best buy, is equal to the lowest average cost. The next best buy is the most efficient plan for producing additional output, and each subsequent best buy can be ranked based on the same process.

Model Overview. The IWR Planning Suite is a certified decision support model used to assist with the formulation and comparison of alternative plans, primarily with environmental restoration and watershed planning studies. Specifically the model performs cost effectiveness and incremental cost analysis. The IWR Planning Suite was developed within the US Army Corps of Engineers' Investment and Management Decision Making Research Program, conducted by the Corps Institute for Water Resources (IWR).

Cost and Output. Costs to implement each plan consists of first cost and OMRR&R, scheduled by fiscal year to constitute a schedule of construction and post-construction expenditures throughout the period of analysis. The costs incurred during the construction period were used to calculate interest during construction as an essential component of project implementation cost. Construction costs were compounded up to the base year of 2025 and operations and maintenance costs were discounted back to the base year of 2025 using the Federal discount rate for FY 2016 of 3.125 percent. The project costs were then annualized over a 50-year period. The output metric used in this analysis was net average annual habitat units (AAHUs). A modified analysis was performed that provided an alternate summary of AAHUs for all component measures considered.

C.1.1 Results. Table 52 displays the average annual cost and net AAHUs for each plan. Among these, there are eleven cost-effective alternatives not including the no-action alternative. Of the nine cost-effective plans, three alternatives are best buys. Both the cost effective plans and best buy plans are displayed in Table 53. Figure 1, an output of the IWR-PLANNING SUITE, shows the cost-efficiency frontier curve of the cost-effective alternatives. At each point on the curve, which represents a cost-effective plan, no other plans yielded the same or more output for the same or lower cost. Figure 2 shows the incremental cost per unit of

output. Plan C-1 is the most efficient plan, yielding the lowest average cost per unit of output. However, since C-1 does not address the needs of the Mermentau Basin, it is considered to be an incomplete plan. Plan CM-4 was selected as the recommended plan, because it was the lowest-cost alternative that included management measures for addressing the needs of both the Calcasieu and Mermentau Basins. A complete rationale for the determination of the recommended plan that deviates from a best-buy plan is discussed in detail in Chapter 3.

C.1.2 See Table 54 for the cost schedule associated with the recommended plan; see Table 55 for the average annual cost derivation of the TSP.

D. PART 5: REGIONAL ECONOMIC DEVELOPMENT (RED) IMPACTS

Background. The Southwest Coastal nonstructural hurricane risk reduction system is located in Cameron, Calcasieu, and Vermilion parishes in southwest Louisiana. This system is being implemented in response to recurring hurricane storm damage and is designed to reduce the risks of loss of life and hurricane storm surge damages. For this analysis, the regional economic development (RED) effects of implementing nonstructural measures, for the purpose of hurricane storm surge risk reduction, in the 0-25 year 2025 floodplain are examined. The nonstructural measures being considered are raising residential structures, flood proofing nonresidential structures, and constructing localized storm surge risk reduction measures for warehouses. The micropolitan impact area consisting of Cameron, Calcasieu, Vermilion, Jefferson Davis, and Acadia parishes was selected based on the labor market, commuter-shed, and population centers serving the project area. According to RECONS' 2009 data, the population of the study area is 346,000. The number of households is 130,383. Total personal income is $11,655 million (Table 56).

Methodology. This Regional Economic Development (RED) analysis employs input-output economic analysis, which measures the interdependence among industries and workers in an economy. This analysis uses a matrix representation of a region's economy to predict the effect of changes in one industry on others. The greater the interdependence among industry sectors, the larger the multiplier effect on the economy. Changes to government spending drive the input-output model to project new levels of sales (output), value added (GRP), employment, and income for each industry.

The specific input-output model used in this analysis is RECONS (Regional Economic System). This model was developed by the Institute for Water Resources (IWR), Michigan State University, and the Louis Berger Group. RECONS uses industry multipliers derived from the commercial input-output model IMPLAN to estimate the effects that spending on USACE projects has on a regional economy. The model is linear and static, showing relationships and impacts at a certain fixed point in time. Spending impacts are composed of three different effects: direct, indirect, and induced. RECONS is designed to evaluate a discrete spending stimulus, which means that all expenditures occurring over multiple years that are required to complete a project are considered to occur in a single year. Therefore, RECONS is not time-sensitive with respect to the calculation of effects and reporting of outputs. Direct effects represent the impacts the new federal expenditures have on industries which directly support the new project. Labor and construction materials can be considered direct components to the project. Indirect effects represent changes to secondary industries that support the direct industries. Induced effects are changes in consumer spending patterns caused by the change in employment and income within the industries affected by the direct and induced effects. The additional income workers receive via a project may be spent on clothing, groceries, dining out, and other items in the regional area.

The inputs for the RECONS model are expenditures that are entered by work activity or industry sector, each with its own unique production function. The production function "Construction and Major Repairs of Earth Levees" was selected to gauge the impacts of the construction of localized storm surge risk reduction measures, while "FRM Construction" was selected to gauge the impacts of structure raising and flood proofing. The baseline data used by RECONS to represent the regional economy of Louisiana are annual averages from the Bureau of the Census, the Bureau of Labor Statistics, and the Bureau of Economic Analysis for the year 2009. The model results are expressed in 2012 dollars.

Assumptions. Input-output analysis rests on the following assumptions. The production functions of industries have constant returns to scale, so if output is to increase, inputs will increase in the same proportion. Industries face no supply constraints; they have access to all the materials they can use. Industries have a fixed commodity input structure; they will not substitute any commodities or services used in the production of output in response to price changes. Industries produce their commodities in fixed proportions, so an industry will not increase production of a commodity without increasing production in every other commodity it produces. Furthermore, it is assumed that industries use the same technology to produce all of its commodities. Finally, since the model is static, it is assumed that the economic conditions of 2009, the year of the socio-economic data in the RECONS model database, will prevail during the years of the construction process.

Description of Metrics. "Output" is the sum total of transactions that take place as a result of the construction project, including both value added and intermediate goods purchased in the economy. "Labor Income" includes all forms of employment income, including employee compensation (wages and benefits) and proprietor income. "Gross Regional Product (GRP)" is the value-added output of the study regions. This metric captures all final goods and services produced in the study areas because of the project's existence. It is different from output in the sense that one dollar of a final good or service may have multiple transactions associated with it. "Jobs" is the estimated worker-years of labor required to build the project.

Results[1]. For the NED plan, for the study area, an initial construction stimulus of $822 million would generate 13,382 worker-years of labor, $502 million in labor income, $1 billion in output, and $660 million in Gross Regional Product (see Table 57). For the state of Louisiana as a whole, the construction stimulus would generate 16,000 worker-years of labor, $639 million in labor income, $1.3 billion in output, and $870 million in Gross Regional Product (see Table 57).

For the NER plan, for the study area, an initial construction stimulus of $1.3 billion would generate 14 thousand worker years of labor, $761 million in labor income, $1.5 billion in output, and $932 million in Gross Regional Product. For the state of Louisiana as a whole, the construction stimulus would generate 15.5 thousand worker years of labor, $867 million in labor income, $1.8 billion in output, and 1 billion in Gross Regional Product (see Table 57).

The impact area captures about 80% of the direct spending on the project. About 10% of the spending leaks out into other parts of the state of Louisiana. The rest of the nation captures about 9.5%. The secondary impacts, the combined indirect and induced multiplier effects, account for 34% of the total output, about 22% of employment, about 22% of labor income, and 30% of gross regional product in the impact area.

[1] The RED analysis was conducted prior to changes in both the NED and NER plans.

Table 1
Southwest Coastal, LA Feasibility Study
Land Use in the Study Area

Land Class Name	Acres	Percentage of Total
Developed land	81,081	3%
Agricultural Land	834,414	32%
Undeveloped Land	1,312,216	51%
Open Water	360,736	14%
Total	2,588,446	100%

Source: National Agricultural Statistical Service (2009)

Table 2
Southwest Coastal, LA Feasibility Study
Historical and Projected Population by Parish
(1,000s)

Parish	1970	1980	1990	2000	2010	2020	2080
Calcasieu	145.6	168.3	168.3	183.5	187.5	195.0	236.7
Cameron	8.2	9.4	9.2	10.0	6.8	6.6	3.9
Vermilion	43.1	48.7	50.0	54.0	56.7	59.9	76.8
Total	197.0	226.4	227.5	247.4	251.0	261.4	317.4

Source: U.S. Census data, and Moody's County Forecast Database

Table 3
Existing Condition and Projected Population Within Inventoried Study Area
Southwest Coastal, LA Feasibility Study
(1,000s)

2010	2025	2075
160,596	173,529	224,975

Source: U.S. Census data, and Moody's County Forecast Database
Note: Population estimates assume 2.7 residents based on average houshold size and 20 housing units within a multi family structure.

Table 4
Southwest Coastal, LA Feasibility Study
Existing Condition and Projected Households by Parish
(1,000s)

Parish	1970	1980	1990	2000	2010	2020	2080
Calcasieu	42.1	56.8	60.4	68.6	70.6	76.4	104.5
Cameron	2.3	3.0	3.2	3.6	2.5	2.5	2.3
Vermilion	12.8	16.3	17.8	19.9	21.1	23.1	33.0
Total	57.2	57.2	81.3	92.1	94.2	102.0	139.8

Source: U.S. Census data, and Moody's County Forecast Database

Table 5
Southwest Coastal, LA Feasibility Study
Per Capita Income ($)

Parish	1990	2000	2005	2010	2013
Calcasieu	15,478	23,025	28,304	34,346	38,668
Cameron	12,880	18,941	20,678	34,540	39,069
Vermilion	12,423	19,342	23,397	30,273	34,030

Source: Bureau of Economic Analysis

Table 6
Southwest Coastal, LA Feasibility Study
Total Employment
(1,000s)

Parish	1970	1980	1990	2000	2010	2020	2080
Calcasieu	54.2	80.8	82.2	102.8	106.9	126.3	210.4
Cameron	3.4	5.6	5.5	5.7	4.1	5.0	5.4
Vermilion	14.4	19.3	17.7	20.3	20.9	22.7	31.1
Total	72.0	105.7	105.4	128.8	131.9	154.0	246.9

Source: Bureau of Economic Analysis for years 1980-2010 and projections extrapolated from historical data.

Table 7
Southwest Coastal, LA Feasibility Study
Flood Insurance Claims
Coastal Louisiana

Event	Month/ Year	Number of Paid Claims	Total Amount Paid ($1,000s)
Tropical Storm Juan	Oct-85	6,187	194,854
Hurricane Andrew	Aug-92	5,589	277,940
Tropical Storm Isadore	Sep-02	8,441	145,614
Hurricane Lili	Oct-02	2,563	47,265
Hurricane Katrina	Aug-05	167,099	19,046,139
Hurricane Rita	Sep-05	9,507	553,318
Hurricane Gustav	Sep-08	4,524	118,293
Hurricane Ike	Sep-08	46,137	2,784,591
Hurricane Isaac	Aug-12	7,323	386,203

Source: Federal Emergency Management Agency
Note: Total amount paid and average amount paid have been updated to the Oct FY 2015 price level using the CPI for all urban consumers.

Table 8
Southwest Coastal, LA Feasibility Study
FEMA Flood Claims by Parish
1978-2012

Parish	Number of Claims	Total Nominal Dollar Amount ($1,000s)	Average Dollar Amount per Claim
Calcasieu	5,775	131,973	$23,000
Cameron	3,061	173,494	$57,000
Vermilion	3,218	115,411	$36,000
Total Study Area	12,054	420,878	$35,000

Source: Federal Emergency Management Agency

Table 9
Southwest Coastal, LA Feasibility Study
Number of Structures Under Existing Conditions
(2012)

Reach Name	Residential	Mobile Home	Non-Residential	Vehicle	Total
Total	38,213	8,647	4,997	67,666	119,523

Note: The table shows the number of structures inventoried within the estimated 500-year overflow for the study area in 2012.

Table 10
Southwest Coastal, LA Feasibility Study
Residential and Non-Residential Structure Inventory
Existing Conditions (2012)

Structure Category	Number	Average Depreciated Replacement Value ($)	
		FY 2012	FY 2015
Residential			
One-Story Slab	21,045	154,900	159,547
One-Story Pier	15,065	103,850	106,966
Two-Story Slab	1,708	236,880	243,986
Two-Story Pier	395	168,000	173,040
Mobile Home	8,647	13,920	14,338
Total Residential	**46,860**		
Non-Residential			
Eating and Recreation	300	755,020	777,671
Professional	932	680,760	701,183
Public and Semi-Public	603	1,404,530	1,446,666
Repair and Home Use	133	563,060	579,952
Retail and Personal Services	635	817,020	841,531
Warehouse	1,565	370,640	381,759
Grocery and Gas Station	138	494,890	509,737
Multi-Family Occupancy	631	898,350	925,301
Industrial	60	100,558,900	103,575,667
Total Non-Residential	**4,997**		

Table 11
Southwest Coastal, LA Feasibility Study
Number of Projected Residential and Non-Residential Structures

Future Conditions (2025)	
Structure Category	Number
Residential	
One-Story Slab	1,685
One-Story Pier	1,205
Two-Story Slab	136
Two-Story Pier	32
Mobile Home	692
Total Residential	**3,750**
Non-Residential	
Eating and Recreation	24
Professional	11
Public and Semi-Public	47
Repair and Home Use	76
Retail and Personal Services	50
Warehouse	11
Grocery and Gas Station	125
Multi-Family Occupancy	52
Industrial	0
Total Non-Residential	**396**
Future Conditions (2075)	
Structure Category	Number
Residential	
One-Story Slab	6,734
One-Story Pier	4,821
Two-Story Slab	547
Two-Story Pier	125
Mobile Home	2,767
Total Residential	**14,994**
Non-Residential	
Eating and Recreation	95
Professional	43
Public and Semi-Public	193
Repair and Home Use	298
Retail and Personal Services	202
Warehouse	45
Grocery and Gas Station	501
Multi-Family Occupancy	203
Industrial	0
Total Non-Residential	**1,580**

Table 12
Southwest Coastal, LA Feasibility Study
Content-to-Structure Value Ratio (CSVR) and Standard Deviation (SD)
by Structure Category

Structure Category		(CSVR, SD)
Residential	One-story (1STY-PIER/1STY-SLAB)	(0.72,0.23)
	Two-story (2STY-PIER/2STY-SLAB)	(0.51,0.28)
	Mobile home (MOBHOM)	(1.42,0.65)
Non-Residential	Eating and Recreation (EAT)	(3.19,4.60)
	Groceries and Gas Stations (GROC)	(1.31,0.98)
	Professional Buildings (PROF)	(0.76,0.71)
	Public and Semi-Public Buildings (PUBL)	(0.84,1.06)
	Multi-Family Buildings (MULT)	(0.24,0.13)
	Repair and Home Use (REPA)	(2.33,2.00)
	Retail and Personal Services (RETA)	(1.40,1.01)
	Warehouses and Contractor Services (WARE)	(2.93,3.56)

Source: Based on the report entitled *Depth-Damage Relationships for Structures, Contents, and Vehicles and Content-to-Structure Value Ratios (CSVR) in Support of the Lower Atchafalaya and Morganza to the Gulf, Louisiana, Feasibility Study .*

Table 13
Southwest Coastal, LA Feasibility Study
Depth-Damage Relationships for Structures, Contents and Vehicles

Occupancy Type	Category Name	Damage Type	Parameter																					
1STY-PIER	Residential		Stage	-1.0	-0.5	0.0	0.5	1.0	1.5	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0
		Structure	Mean %	1.1	12.2	15.2	49.4	50.1	66.7	70.2	71.2	97.5	97.5	97.5	97.5	97.5	97.5	97.5	97.5	97.5	97.5	97.5
			Lower %	0.0	1.0	11.9	13.7	44.4	45.1	60.0	63.2	64.1	87.7	87.7	87.7	87.7	87.7	87.7	87.7	87.7	87.7	87.7
			Upper %	0.0	1.7	18.3	22.8	74.0	75.1	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
		Contents	Mean %	0.0	0.0	0.0	0.0	95.0	95.0	95.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0
			Lower %	0.0	0.0	0.0	0.0	90.0	90.0	95.0	95.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0
			Upper %	0.0	0.0	0.0	0.0	98.0	98.0	98.0	98.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1STY-SLAB	Residential		Stage	-1.0	-0.5	0.0	0.5	1.0	1.5	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0
		Structure	Mean %	1.1	1.1	23.3	23.3	37.2	41.9	45.3	92.0	92.0	92.0	92.0	92.0	92.0	92.0	92.0	92.0	92.0	92.0	92.0
			Lower %	0.0	1.0	21.0	21.0	35.5	37.7	40.8	82.8	82.8	82.8	82.8	82.8	82.8	82.8	82.8	82.8	82.8	82.8	82.8
			Upper %	0.0	1.7	35.0	35.0	55.9	62.9	68.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
		Contents	Mean %	0.0	0.0	0.0	0.0	95.0	95.0	95.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0
			Lower %	0.0	0.0	0.0	0.0	90.0	90.0	95.0	95.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0
			Upper %	0.0	0.0	0.0	0.0	98.0	98.0	98.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
2STY-PIER	Residential		Stage	-1.1	-1.0	-0.5	0.0	0.5	1.0	1.5	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0
		Structure	Mean %	0.0	1.4	2.2	6.4	19.0	19.0	31.9	32.6	33.3	93.4	93.4	93.4	93.4	93.4	93.6	93.6	93.6	93.6	93.6	93.6
			Lower %	0.0	1.2	2.0	5.8	17.1	17.1	28.7	29.3	30.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0	84.0
			Upper %	0.0	2.1	3.3	9.6	28.5	28.5	47.9	48.9	49.9	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
		Contents	Mean %	0.0	0.0	0.0	0.0	69.6	74.7	74.7	78.5	79.9	83.2	83.2	83.2	83.2	83.2	83.2	97.5	97.8	98.5	98.5	98.5
			Lower %	0.0	0.0	0.0	0.0	66.2	70.9	70.9	74.6	75.9	79.0	79.0	79.0	79.0	79.0	79.0	92.6	92.9	93.6	93.6	93.6
			Upper %	0.0	0.0	0.0	0.0	73.1	78.4	78.4	82.5	83.9	87.3	87.3	87.3	87.3	87.3	87.3	100.0	100.0	100.0	100.0	100.0
2STY-SLAB	Residential		Stage	-1.1	-1.0	-0.5	0.0	0.5	1.0	1.5	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0
		Structure	Mean %	0.0	1.2	1.2	16.1	16.1	26.1	27.1	28.5	80.0	80.0	80.0	80.0	80.0	80.0	80.3	80.3	83.2	83.2	83.2	83.2
			Lower %	0.0	1.1	1.1	14.5	14.5	23.5	24.4	25.7	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0
			Upper %	0.0	1.8	1.8	24.2	24.2	39.1	40.7	42.8	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
			Stage	-1.0	-0.5	0.0	0.5	1.0	1.5	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0
		Contents	Mean %	0.0	0.0	0.0	0.0	69.6	74.7	74.7	78.5	79.9	83.2	83.2	83.2	83.2	83.2	83.2	97.5	97.8	98.5	98.5	98.5
			Lower %	0.0	0.0	0.0	0.0	66.2	70.9	70.9	74.6	75.9	79.0	79.0	79.0	79.0	79.0	79.0	92.6	92.9	93.6	93.6	93.6
			Upper %	0.0	0.0	0.0	0.0	73.1	78.4	78.4	82.5	83.9	87.3	87.3	87.3	87.3	87.3	87.3	100.0	100.0	100.0	100.0	100.0
VEHICLES	AUTO		Stage	0.0	0.5	1.0	1.5	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
		Structure	Mean %	0.0	0.0	3.7	13.0	46.7	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
			Lower %	0.0	0.0	2.3	12.0	44.7	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
			Upper %	0.0	0.0	4.7	15.0	45.3	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Note 1: For the purpose of this table stage is defined as the number of feet above or below the first floor elevation of the structure or automobile.
Note 2: "Upper %" represents the maximum value; "Lower %" represents the minimum value; "Mean %" represents the average value.

Table 13 (Cont)
Depth-Damage Relationships for Structures, Contents and Vehicles
Southwest Coastal, LA Feasibility Study

Occupancy Type	Category Name	Damage Type	Parameter																					
EAT	COM		Stage	-1.0	-0.5	0.0	0.5	1.0	1.5	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0
		Structure	Mean %	0.0	0.0	6.6	19.8	19.8	24.5	24.5	29.6	34.7	37.9	37.9	37.9	63.3	63.3	63.3	63.3	63.3	63.3	63.3	63.3
			Lower %	0.0	0.0	6.2	18.4	18.4	22.8	22.8	26.6	31.2	34.1	34.1	34.1	57.0	57.0	57.0	57.0	57.0	57.0	57.0	57.0
			Upper %	0.0	0.0	7.6	22.8	22.8	28.2	28.2	37.0	43.4	47.4	47.4	47.4	79.2	79.2	79.2	79.2	79.2	79.2	79.2	79.2
		Contents	Mean %	0.0	0.0	0.0	41.2	45.6	73.3	74.8	92.4	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
			Lower %	0.0	0.0	0.0	39.2	43.3	69.6	71.1	87.8	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0
			Upper %	0.0	0.0	0.0	51.5	57.0	91.6	93.5	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
GROC	COM		Stage	-1.0	-0.5	0.0	0.5	1.0	1.5	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0
		Structure	Mean %	0.0	0.0	6.6	19.8	19.8	24.5	24.5	29.6	34.7	37.9	37.9	37.9	63.3	63.3	63.3	63.3	63.3	63.3	63.3	63.3
			Lower %	0.0	0.0	6.2	18.4	18.4	22.8	22.8	26.6	31.2	34.1	34.1	34.1	57.0	57.0	57.0	57.0	57.0	57.0	57.0	57.0
			Upper %	0.0	0.0	7.6	22.8	22.8	28.2	28.2	37.0	43.4	47.4	47.4	47.4	79.2	79.2	79.2	79.2	79.2	79.2	79.2	79.2
		Contents	Mean %	0.0	0.0	0.0	99.1	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
			Lower %	0.0	0.0	0.0	94.1	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0
			Upper %	0.0	0.0	0.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
MOBHOM	MOBHOME		Stage	-1.1	-1.0	-0.5	0.0	0.5	1.6	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0
		Structure	Mean %	0.0	6.4	7.3	9.9	43.4	44.7	97.6	97.6	97.6	97.6	97.6	97.6	97.6	97.6	97.6	97.6	97.6	97.6	97.6	97.6
			Lower %	0.0	6.1	6.9	9.4	41.2	42.5	92.7	92.7	92.7	92.7	92.7	92.7	92.7	92.7	92.7	92.7	92.7	92.7	92.7	92.7
			Upper %	0.0	8.6	9.8	13.4	58.6	60.3	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
		Contents	Mean %	0.0	0.0	0.0	95.0	96.0	97.0	98.0	99.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
			Lower %	0.0	0.0	0.0	90.0	92.0	94.0	96.0	98.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
			Upper %	0.0	0.0	0.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
MULT	COM		Stage	-1.0	-0.5	0.0	0.5	1.0	1.5	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0
		Structure	Mean %	0.0	0.0	6.6	19.8	19.8	24.5	24.5	29.6	34.7	37.9	37.9	37.9	63.3	63.3	63.3	63.3	63.3	63.3	63.3	63.3
			Lower %	0.0	0.0	6.2	18.4	18.4	22.8	22.8	26.6	31.2	34.1	34.1	34.1	57.0	57.0	57.0	57.0	57.0	57.0	57.0	57.0
			Upper %	0.0	0.0	7.6	22.8	22.8	28.2	28.2	37.0	43.4	47.4	47.4	47.4	79.2	79.2	79.2	79.2	79.2	79.2	79.2	79.2
		Contents	Mean %	0.0	0.0	0.0	20.1	26.2	33.5	42.4	49.8	51.7	51.7	51.7	51.7	51.7	51.7	71.8	85.2	100.0	100.0	100.0	100.0
			Lower %	0.0	0.0	0.0	15.8	22.4	31.2	40.5	46.6	50.3	50.3	50.3	50.3	50.3	50.3	56.4	79.6	93.5	97.1	97.1	97.1
			Upper %	0.0	0.0	0.0	22.2	28.7	35.2	46.2	51.4	53.0	53.1	54.6	54.6	54.6	54.6	79.3	89.5	100.0	100.0	100.0	100.0
PROF	COM		Stage	-1.0	-0.5	0.0	0.5	1.0	1.5	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0
		Structure	Mean %	0.0	0.0	6.6	19.8	19.8	24.5	24.5	29.6	34.7	37.9	37.9	37.9	63.3	63.3	63.3	63.3	63.3	63.3	63.3	63.3
			Lower %	0.0	0.0	6.2	18.4	18.4	22.8	22.8	26.6	31.2	34.1	34.1	34.1	57.0	57.0	57.0	57.0	57.0	57.0	57.0	57.0
			Upper %	0.0	0.0	7.6	22.8	22.8	28.2	28.2	37.0	43.4	47.4	47.4	47.4	79.2	79.2	79.2	79.2	79.2	79.2	79.2	79.2
		Contents	Mean %	0.0	0.0	0.0	35.0	43.3	56.7	63.9	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
			Lower %	0.0	0.0	0.0	30.0	37.1	48.6	54.8	85.7	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
			Upper %	0.0	0.0	0.0	50.0	61.8	81.0	91.3	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Note 1: For the purpose of this table stage is defined as the number of feet above or below the first floor elevation of the structure or automobile.

Note 2: "Upper %" represents the maximum value; "Lower %" represents the minimum value; "Mean %" represents the average value.

Table 13 (Cont)
Depth-Damage Relationships for Structures, Contents and Vehicles
Southwest Coastal, LA Feasibility Study

PUBL	COM		Stage	-1.0	-0.5	0.0	0.5	1.0	1.5	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0
		Structure	Mean %	0.0	0.0	1.1	22.3	23.7	25.8	32.7	34.4	79.1	79.1	79.1	79.1	79.1	79.1	79.1	79.1	80.5	80.5	80.5	80.5
			Lower %	0.0	0.0	1.1	20.8	22.1	24.0	29.5	31.0	71.2	71.2	71.2	71.2	71.2	71.2	71.2	71.2	72.4	72.4	72.4	72.4
			Upper %	0.0	0.0	1.3	25.7	27.3	29.7	39.3	43.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
		Contents	Mean %	0.0	0.0	0.0	80.0	85.0	85.7	86.6	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
			Lower %	0.0	0.0	0.0	60.0	63.8	64.3	65.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0
			Upper %	0.0	0.0	0.0	88.0	93.5	94.2	95.3	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
REPA	COM		Stage	-1.0	-0.5	0.0	0.5	1.0	1.5	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0
		Structure	Mean %	0.0	0.0	1.1	22.3	23.7	25.8	32.7	34.4	79.1	79.1	79.1	79.1	79.1	79.1	79.1	79.1	80.5	80.5	80.5	80.5
			Lower %	0.0	0.0	1.1	20.8	22.1	24.0	29.5	31.0	71.2	71.2	71.2	71.2	71.2	71.2	71.2	71.2	72.4	72.4	72.4	72.4
			Upper %	0.0	0.0	1.3	25.7	27.3	29.7	39.3	43.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
		Contents	Mean %	0.0	0.0	0.0	33.3	34.3	34.3	69.2	70.6	72.1	80.6	83.7	83.7	83.7	83.7	83.7	83.7	83.7	83.7	83.7	83.7
			Lower %	0.0	0.0	0.0	31.7	32.6	32.6	65.7	67.1	68.5	76.6	79.6	79.6	79.6	79.6	79.6	79.6	79.6	79.6	79.6	79.6
			Upper %	0.0	0.0	0.0	41.7	42.9	42.9	86.5	88.3	90.2	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
RETA	COM		Stage	-1.0	-0.5	0.0	0.5	1.0	1.5	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0
		Structure	Mean %	0.0	0.0	1.1	22.3	23.7	25.8	32.7	34.4	79.1	79.1	79.1	79.1	79.1	79.1	79.1	79.1	80.5	80.5	80.5	80.5
			Lower %	0.0	0.0	1.1	20.8	22.1	24.0	29.5	31.0	71.2	71.2	71.2	71.2	71.2	71.2	71.2	71.2	72.4	72.4	72.4	72.4
			Upper %	0.0	0.0	1.3	25.7	27.3	29.7	39.3	43.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
		Contents	Mean %	0.0	0.0	0.0	36.6	60.5	60.5	75.4	85.1	94.5	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
			Lower %	0.0	0.0	0.0	34.8	57.5	57.5	71.6	80.8	89.7	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0
			Upper %	0.0	0.0	0.0	45.7	75.7	75.7	94.2	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
WARE	COM		Stage	-1.0	-0.5	0.0	0.5	1.0	1.5	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0
		Structure	Mean %	0.0	0.0	1.1	22.3	23.7	25.8	32.7	34.4	79.1	79.1	79.1	79.1	79.1	79.1	79.1	79.1	80.5	80.5	80.5	80.5
			Lower %	0.0	0.0	1.1	20.8	22.1	24.0	29.5	31.0	71.2	71.2	71.2	71.2	71.2	71.2	71.2	71.2	72.4	72.4	72.4	72.4
			Upper %	0.0	0.0	1.3	25.7	27.3	29.7	39.3	43.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
		Contents	Mean %	0.0	0.0	0.0	17.6	22.1	22.1	29.2	34.0	42.8	50.8	58.7	66.7	74.6	79.7	79.7	79.7	79.7	79.7	79.7	79.7
			Lower %	0.0	0.0	0.0	16.8	21.0	21.0	27.8	32.3	40.7	48.3	55.8	63.4	70.9	75.7	75.7	75.7	75.7	75.7	75.7	75.7
			Upper %	0.0	0.0	0.0	22.0	27.7	27.7	36.6	42.5	53.6	63.5	73.4	83.4	93.3	99.6	99.6	99.6	99.6	99.6	99.6	99.6

Note 1: For the purpose of this table stage is defined as the number of feet above or below the first floor elevation of the structure or automobile.

Note 2: "Upper %" represents the maximum value; "Lower %" represents the minimum value; "Mean %" represents the average value.

Source: Based on *Depth-Damage Relationships for Structures, Contents, and Vehicles and Content-to-Structure Value Ratios (CSVRs) in Support of the Lower Atchafalaya and Morganza to the Gulf, Louisiana, Feasibility Study Final Report* dated May 1997

Table 14
Southwest Coastal, LA Feasibility Study
Expected Annual Damages (1,000's)
Structures, Contents, and Vehicles
FY 2015 Price Level
FY 2015 Federal Discount Rate, 3.375%

Analysis Year	Without- Project Damages	Percent Increase from 2012
2012	$ 148,991	
2025	$ 370,155	148%
2075	$ 663,252	345%

Note: Without-project damages increase due to future development and relative sea-level rise. Most of the increase in damages are due to relative sea-level rise since the future development is placed at an elevation equal to or above the stage associated with the 2025 and 2075 0.01 (100-year) annual chance exceedance event.

Table 15
Southwest Coastal, LA Feasibility Study
Number of Structures Receiving Damages By Probability Event in 2025 and 2075
Residential, Non-Residential, and Mobile Homes
Without-Project Condition

Annual Chance Exceedance Event (ACE)	Residential	Non-Residential	Mobile Home	Total
Base year 2025				
0.99 (1 yr)	538	74	91	703
0.20 (5 yr)	2,161	278	338	2,777
0.10 (10 yr)	4,220	537	646	5,403
0.04 (25 yr)	7,613	945	1,336	9,894
0.02 (50 yr)	11,893	1,425	2,432	15,750
0.01 (100 yr)	17,113	2,199	3,849	23,161
0.005 (200 yr)	19,675	2,637	4,970	27,282
0.002 (500 yr)	23,380	3,228	5,915	32,523
Future year 2075 Intermediate Sea Level Rise				
0.99 (1 yr)	555	78	93	726
0.20 (5 yr)	2,721	433	536	3,690
0.10 (10 yr)	5,466	806	1,147	7,419
0.04 (25 yr)	11,378	1,487	2,940	15,805
0.02 (50 yr)	19,847	2,568	5,141	27,556
0.01 (100 yr)	35,015	4,791	9,515	49,321
0.005 (200 yr)	41,715	5,660	10,291	57,666
0.002 (500 yr)	45,971	6,195	10,949	63,115

Note: The table shows the number of structures with a first floor elevation equal to or less than the stage associated with an ACE event.

Structue Inventory is not adjusted for higher code compliance standards and costs for severely damaged structures.

Table 16
Southwest Coastal, LA Feasibility Study
Equivalent Annual Without Project Damages by Reach ($1,000s)
Complete Study Area
(FY 2015 Price Level)
FY 2015 Discount Rate, 3.375%
50-year Project Life

Damage Reach Name	Damage Reach Description	Equivalent Annual Damage or Damage Categories				Total Damage
		AUTO	COM	MOBHOME	RES	
SA-001(1)	SA-001	0.07	1.84	0.03	2.43	4.37
SA-006 (7)	SA-006	0.00	0.00	0.00	0.00	0.00
SA-010(19)	SA-010	0.00	0.00	0.00	0.00	0.00
SA-011(22)	SA-011	12.65	1083.89	55.39	420.53	1572.46
SA-012(25)	SA-012	3083.57	45299.90	60.60	85096.52	133540.58
SA-013(28)	SA-013	59.55	878.61	17.31	268.84	1224.32
SA-014(31)	SA-014	37.73	914.28	15.62	134.77	1102.41
SA-015 (34)	SA-015	0.00	0.00	0.00	0.00	0.00
SA-016(37)	SA-016	0.04	0.00	0.00	8.23	8.27
SA-017(40)	SA-017	20.95	206.69	11.72	275.79	515.15
SA-017-RL(43)	SA-017-RL	123.28	2457.04	32.33	1595.68	4208.33
SA-019 (46)	SA-019	0.00	0.00	0.00	0.00	0.00
SA-021(49)	SA-021	4.64	0.00	2.38	0.48	7.50
SA-023(52)	SA-023	11.16	4.66	8.47	26.07	50.36
SA-030(61)	SA-030	74.59	2816.53	37.65	2169.63	5098.40
SA-031(64)	SA-031	45.92	1692.98	50.42	131.24	1920.56
SA-033(70)	SA-033	192.37	1829.91	61.59	3275.48	5359.36
SA-033-RL(73)	SA-033-RL	0.79	98.70	0.05	15.01	114.55
SA-033-RL(76)	SA-033-RL	32.51	196.90	8.24	291.20	528.85
SA-034(79)	SA-034	78.80	1935.29	108.49	641.58	2764.15
SA-036 (82)	SA-036	0.00	0.00	0.00	0.00	0.00
SA-038(85)	SA-038	6.37	0.00	0.00	203.11	209.48
SA-040 (91)	SA-040	0.00	0.00	0.00	0.00	0.00
SA-046(103)	SA-046	10.97	0.00	38.19	1.34	50.50
SA-048(106)	SA-048	1192.40	6391.54	167.35	14250.39	22001.68
SA-054 (112)	SA-054	0.00	0.00	0.00	0.00	0.00
SA-067(130)	SA-067	7.74	0.00	6.20	1.64	15.58
SA-070 (133)	SA-070	0.00	0.00	0.00	0.00	0.00
SA-070-N(136)	SA-070-N	147.75	2801.61	99.19	2427.00	5475.55
SA-070-S(139)	SA-070-S	89.64	7254.43	17.61	1324.32	8686.00
SA-074(151)	SA-074	33.18	117.38	7.94	253.94	412.43
SA-079(166)	SA-079	12.50	48.96	3.56	23.90	88.92
SA-086 (173)	SA-086	0.00	0.00	0.00	0.00	0.00
SA-087 (176)	SA-087	0.00	0.00	0.00	0.00	0.00
SA-089(181)	SA-089	61.56	286.19	16.85	551.67	916.27
SA-090 (184)	SA-090	0.00	0.00	0.00	0.00	0.00
SA-091(187)	SA-091	86.74	4867.87	142.54	478.93	5576.08
SA-092 (190)	SA-092	0.00	0.00	0.00	0.00	0.00
SA-096(202)	SA-096	41.42	921.32	37.21	725.83	1725.78
SA-097 (205)	SA-097	0.00	0.00	0.00	0.00	0.00
SA-099(211)	SA-099	1093.07	34676.35	460.61	4449.02	40679.05
SA-099-RL(214)	SA-099-RL	1098.39	4037.72	1922.26	19836.68	26895.04
SA-100(217)	SA-100	16.88	320.48	10.31	288.35	636.02
SA-101(220)	SA-101	12.55	526.83	2.93	22.15	564.45
SA-104 (232)	SA-104	0.00	0.00	0.00	0.00	0.00
SA-106(238)	SA-106	1577.74	5479.22	306.45	6439.27	13802.67
SA-107 (241)	SA-107	0.00	0.00	0.00	0.00	0.00
SA-111(247)	SA-111	0.00	30.40	0.00	0.00	30.40
SA-112(250)	SA-112	49.04	4490.81	34.02	522.77	5096.65
SA-114 (256)	SA-114	0.00	0.00	0.00	0.00	0.00
SA-115(259)	SA-115	12.22	27.39	6.25	131.45	177.31
XA-304(271)	XA-304	11.88	63.32	9.37	105.50	190.06
XA-304-RL(274)	XA-304-RL	273.71	2035.33	126.82	2826.64	5262.49
XA-305(277)	XA-305	38.01	68.42	23.62	543.03	673.08
XA-306(280)	XA-306	1925.68	22777.87	485.78	16953.65	42142.98
XA-307(283)	XA-307	538.10	2305.96	164.29	9288.22	12296.56

Table 16 (cont.)
Southwest Coastal, LA Feasibility Study
Equivalent Annual Damages by Study Area Reach
(2015 Price Level)

Damage Reach Name	Damage Reach Description	Equivalent Annual Damage or Damage Categories				Total Damage
		AUTO	COM	MOBHOME	RES	
XA-307(283)	XA-307	538.10	2305.96	164.29	9288.22	12296.56
XA-310(292)	XA-310	12.23	20.42	12.81	89.16	134.63
XA-311(295)	XA-311	80.61	2718.63	36.35	1121.18	3956.76
XA-313(301)	XA-313	45.67	1955.06	28.08	540.77	2569.59
XA-315(307)	XA-315	161.09	3672.67	27.89	863.95	4725.60
XA-316(310)	XA-316	23.73	0.00	3.81	261.31	288.84
XA-316-RL(313)	XA-316-RL	55.30	4465.07	12.53	761.90	5294.81
XA-319(322)	XA-319	11.32	136.23	5.67	254.91	408.13
XA-320(325)	XA-320	616.07	31.69	3.32	659.38	1310.46
XA-322(331)	XA-322	7.21	240.18	3.01	222.09	472.49
XA-324(337)	XA-324	279.02	271.61	13.91	3264.78	3829.32
XA-325 (340)	XA-325	0.00	0.00	0.00	0.00	0.00
XA-326(343)	XA-326	10.70	29347.56	0.98	26.47	29385.71
XA-327(346)	XA-327	10.43	104.57	0.00	8.94	123.93
XA-329(352)	XA-329	9.38	455.82	3.14	108.91	577.25
XA-331(358)	XA-331	9.86	0.00	16.91	6.16	32.93
XA-336(373)	XA-336	4.06	732.66	0.02	33.23	769.97
XA-337(376)	XA-337	192.82	5173.48	102.19	2969.31	8437.80
XA-340(385)	XA-340	1842.53	950.76	821.91	20816.65	24431.86
XA-341(388)	XA-341	6.48	257.92	0.00	2.56	266.95
XA-343 (394)	XA-343	0.00	0.00	0.00	0.00	0.00
XA-344 (397)	XA-344	0.00	0.00	0.00	0.00	0.00
XA-346(403)	XA-346	20.42	0.00	53.68	0.00	74.10
XA-347(406)	XA-347	23.75	176.73	23.38	161.18	385.04
XA-347-RL(409)	XA-347-RL	4.65	127.75	16.13	58.41	206.93
XA-348 (412)	XA-348	117.71	1519.85	52.26	843.29	2533.11
XA-348-RL(415)	XA-348-RL	27.63	454.33	49.08	84.67	615.70
XA-349(418)	XA-349	0.00	0.19	0.00	0.00	0.19
XA-350(421)	XA-350	0.00	1.08	0.00	0.00	1.08
XA-351 (424)	XA-351	0.00	0.00	0.00	0.00	0.00
XA-352 (427)	XA-352	0.00	0.00	0.00	0.00	0.00
XA-353(430)	XA-353	1.04	105.80	0.00	1.85	108.69
XA-354(433)	XA-354	0.30	34.93	0.00	5.88	41.11
XA-355(436)	XA-355	5.46	15.48	1.74	507.26	529.94
XA-356(439)	XA-356	975.84	21222.29	293.94	9368.82	31860.89
		16671.48	233139.36	6142.37	219045.28	474998.50

Note 1: Structue Inventory is not adjusted for higher code compliance standards and costs for severely damaged structures.

Note 2: The last line represents the total equivalent damages of all reaches.

Table 17
Southwest Coastal, LA Feasibility Study
Expected Annual Damages and Estimated Benefits for Six Structural Alternatives (2025)
$1,000s in FY 2015 Price Level
FY 2015 Federal Discount Rate, 3.375%

SWCLA Alternative 2025		0.02 (50-Year) AEP Levee		0.01 (100-year) AEP Levee		0.005 (200-Year) AEP Levee	
	Without project Damages	With project Damages	Benefits	With project Damages	Benefits	With project Damages	Benefits
Abbeville to Delcambre	54,288	40,278	14,010	33,980	20,308	30,694	23,594
Delcambre/Erath	26,886	17,567	9,319	13,359	13,527	11,587	15,299
Abbeville Ring Levee	4,847	4,541	306	4,023	824	3,479	1,368
Lake CharlesWestbankSulfurExtended	6,145	4,124	2,021	2,794	3,351	3,311	2,834
Lake CharlesWestbankSulfurSouthExtended	11,020	10,066	954	9,474	1,546	8,679	2,341
Lake Charles Eastbank	147,655	118,344	29,311	99,930	47,725	99,303	48,352
Total	250,841	194,920	55,921	163,560	87,281	157,053	93,788

Note 1: With-project damages were adjusted to include rainfall damages that still occur with a levee alternative in place by including rainfall damages associated with the 0.10 (10-year) ACE event.
Note 2: The Structue Inventory is not adjusted for higher code compliance standards and costs for severely damaged structures.
Note 3: The without-project damages are associated with the area of influence for each of the levee alignments. The area of influence for all of the levee alignments combined do not cover the entire study area.
Therefore the sum of the without-project damages for the levee alignment plans, annualized over the period of analysis, will not match the total without-project damages for the entirety of the study area shown in Table 16.

Table 18
Southwest Coastal, LA Feasibility Study
Expected Annual Damages and Estimated Benefits for Six Structural Alternatives (2075)
($1,000s in FY 2015 Price Level)

SWCLA Alternative 2075		0.02 (50-Year) AEP Levee		0.01 (100-year) AEP Levee		0.005 (200-Year) AEP Levee	
	Without-Project Damages	With-project Damages	Benefits	With-project Damages	Benefits	With-project Damages	Benefits
Abbeville to Delcambre	108,549	74,132	34,417	56,744	51,805	44,537	64,012
Delcambre/Erath	54,311	32,926	21,385	25,562	28,749	23,621	30,690
Abbeville Ring Levee	20,880	17,757	3,123	11,508	9,372	9,564	11,316
Lake CharlesWestbankSulfurExtended	17,750	17,260	490	13,535	4,215	12,335	5,415
Lake CharlesWestbankSulfurSouthExtended	36,272	32,676	3,596	25,322	10,950	20,221	16,051
Lake Charles Eastbank	204,303	170,692	33,611	152,797	51,506	136,296	68,007
Total	442,065	345,443	96,622	285,468	156,597	246,574	195,491

Note 1: With-project damages were adjusted to include rainfall damages that still occur with a levee alternative in place by including rainfall damages associated with the 0.10 (10-year) ACE event.
Note 2: The Structue Inventory is not adjusted for higher code compliance standards and costs for severely damaged structures.
Note 3: The without-project damages are associated with the area of influence for each of the levee alignments. The area of influence for all of the levee alignments combined do not cover the entire study area.
Therefore the sum of the without-project damages for the levee alignment plans, annualized over the period of analysis, will not match the total without-project damages for the entirety of the study area shown in Table 16.

Table 19
Southwest Coastal, LA Feasibility Study
Average Annual Costs for the 0.02 AEP for Alternative

Abbeville to Delcambre

Year	Period of Analysis	Construction Costs ($ millions)	PV Factor	Present Value of Construction Costs ($ millions)
2015	-9	0.00	1.348	0.00
2016	-8	0.00	1.304	0.00
2017	-7	28.25	1.262	35.64
2018	-6	28.25	1.220	34.48
2019	-5	117.99	1.181	139.29
2020	-4	117.99	1.142	134.74
2021	-3	117.99	1.105	130.34
2022	-2	117.99	1.069	126.08
2023	-1	89.73	1.034	92.76
2024	0	89.73	1.000	89.73
2025	1	0.00	0.967	0.00
2026	2	0.00	0.936	0.00
2027	3	0.00	0.905	0.00
2028	4	0.00	0.876	0.00
2029	5	0.00	0.847	0.00
2030	6	0.00	0.819	0.00
2031	7	0.00	0.793	0.00
2032	8	0.00	0.767	0.00
2033	9	0.00	0.742	0.00
2034	10	0.00	0.718	0.00
2035	11	0.00	0.694	0.00
2036	12	0.00	0.671	0.00
2037	13	0.00	0.650	0.00
2038	14	0.00	0.628	0.00
2039	15	0.00	0.608	0.00
2040	16	0.00	0.588	0.00
2041	17	0.00	0.569	0.00
2042	18	0.00	0.550	0.00
2043	19	0.00	0.532	0.00
2044	20	0.00	0.515	0.00
2045	21	0.00	0.498	0.00
2046	22	0.00	0.482	0.00
2047	23	0.00	0.466	0.00
2048	24	0.00	0.451	0.00
2049	25	0.00	0.436	0.00
2050	26	0.00	0.422	0.00
2051	27	0.00	0.408	0.00
2052	28	0.00	0.395	0.00
2053	29	0.00	0.382	0.00
2054	30	0.00	0.369	0.00
2055	31	0.00	0.357	0.00
2056	32	0.00	0.346	0.00
2057	33	0.00	0.334	0.00
2058	34	0.00	0.323	0.00
2059	35	0.00	0.313	0.00
2060	36	0.00	0.303	0.00
2061	37	0.00	0.293	0.00
2062	38	0.00	0.283	0.00
2063	39	0.00	0.274	0.00
2064	40	0.00	0.265	0.00
2065	41	0.00	0.256	0.00
2066	42	0.00	0.248	0.00
2067	43	0.84	0.240	0.20
2068	44	0.84	0.232	0.20
2069	45	5.55	0.225	1.25
2070	46	5.55	0.217	1.21
2071	47	5.55	0.210	1.17
2072	48	0.00	0.203	0.00
2073	49	0.00	0.197	0.00
2074	50	0.00	0.190	0.00
		726.25		787.08

Interest Rate (%)	0.03375	
Amortization Factor	0.04168	
Interest During Construction		75.15
Average Annual Costs		32.80
O&M Costs ($Millions)		0.51
Total Average Annual Costs ($Millions)		33.31

Note: FY 2015 Price Level; FY 2015 Federal Discount Rate

Table 19 (cont.)
Southwest Coastal, LA Feasibility Study
Average Annual Costs for the 0.02 AEP for Alternative

Delcambre/Erath

Year	Period of Analysis	Construction Costs ($ millions)	PV Factor	Present Value of Construction Costs ($ millions)
2015	-9	$0	1.348	0.00
2016	-8	$0	1.304	0.00
2017	-7	15.17	1.262	19.13
2018	-6	15.17	1.220	18.51
2019	-5	52.16	1.181	61.57
2020	-4	52.16	1.142	59.56
2021	-3	52.16	1.105	57.62
2022	-2	52.16	1.069	55.74
2023	-1	36.99	1.034	38.24
2024	0	36.99	1.000	36.99
2025	1	0.00	0.967	0.00
2026	2	0.00	0.936	0.00
2027	3	0.00	0.905	0.00
2028	4	0.00	0.876	0.00
2029	5	0.00	0.847	0.00
2030	6	0.00	0.819	0.00
2031	7	0.00	0.793	0.00
2032	8	0.00	0.767	0.00
2033	9	0.00	0.742	0.00
2034	10	0.00	0.718	0.00
2035	11	0.00	0.694	0.00
2036	12	0.00	0.671	0.00
2037	13	0.00	0.650	0.00
2038	14	0.00	0.628	0.00
2039	15	0.00	0.608	0.00
2040	16	0.00	0.588	0.00
2041	17	0.00	0.569	0.00
2042	18	0.00	0.550	0.00
2043	19	0.00	0.532	0.00
2044	20	0.00	0.515	0.00
2045	21	0.00	0.498	0.00
2046	22	0.00	0.482	0.00
2047	23	0.00	0.466	0.00
2048	24	0.00	0.451	0.00
2049	25	0.00	0.436	0.00
2050	26	0.00	0.422	0.00
2051	27	0.00	0.408	0.00
2052	28	0.00	0.395	0.00
2053	29	0.00	0.382	0.00
2054	30	0.00	0.369	0.00
2055	31	0.00	0.357	0.00
2056	32	0.00	0.346	0.00
2057	33	0.00	0.334	0.00
2058	34	0.00	0.323	0.00
2059	35	0.00	0.313	0.00
2060	36	0.00	0.303	0.00
2061	37	0.00	0.293	0.00
2062	38	0.00	0.283	0.00
2063	39	0.00	0.274	0.00
2064	40	0.00	0.265	0.00
2065	41	0.00	0.256	0.00
2066	42	0.00	0.248	0.00
2067	43	2.13	0.240	0.51
2068	44	2.13	0.232	0.49
2069	45	21.10	0.225	4.74
2070	46	21.10	0.217	4.58
2071	47	0.00	0.210	0.00
2072	48	0.00	0.203	0.00
2073	49	0.00	0.197	0.00
2074	50	0.00	0.190	0.00
		359.42		357.70

Interest Rate (%)	0.03375	
Amortization Factor	0.04168	
Interest During Construction		34.42
Average Annual Costs		14.91
O&M Costs		0.24
Total Average Annual Costs ($ Millions)		15.15

Note: FY 2015 Price Level; FY 2015 Federal Discount Rate

Table 19 (cont.)
Southwest Coastal, LA Feasibility Study
Average Annual Costs for the 0.02 AEP for Alternative

Abbeville Ring Levee

Year	Period of Analysis	Construction Costs ($ millions)	PV Factor	Present Value of Construction Costs ($ millions)
2015	-9	$0	1.348	0.00
2016	-8	$0	1.304	0.00
2017	-7	12.91	1.262	16.28
2018	-6	12.91	1.220	15.75
2019	-5	43.45	1.181	51.30
2020	-4	43.45	1.142	49.62
2021	-3	43.45	1.105	48.00
2022	-2	43.45	1.069	46.43
2023	-1	30.54	1.034	31.57
2024	0	30.54	1.000	30.54
2025	1	0.00	0.967	0.00
2026	2	0.00	0.936	0.00
2027	3	0.00	0.905	0.00
2028	4	0.00	0.876	0.00
2029	5	0.00	0.847	0.00
2030	6	0.00	0.819	0.00
2031	7	0.00	0.793	0.00
2032	8	0.00	0.767	0.00
2033	9	0.00	0.742	0.00
2034	10	0.00	0.718	0.00
2035	11	0.00	0.694	0.00
2036	12	0.00	0.671	0.00
2037	13	0.00	0.650	0.00
2038	14	0.00	0.628	0.00
2039	15	0.00	0.608	0.00
2040	16	0.00	0.588	0.00
2041	17	0.00	0.569	0.00
2042	18	0.00	0.550	0.00
2043	19	0.00	0.532	0.00
2044	20	0.00	0.515	0.00
2045	21	0.00	0.498	0.00
2046	22	0.00	0.482	0.00
2047	23	0.00	0.466	0.00
2048	24	0.00	0.451	0.00
2049	25	0.00	0.436	0.00
2050	26	0.00	0.422	0.00
2051	27	0.00	0.408	0.00
2052	28	0.00	0.395	0.00
2053	29	0.00	0.382	0.00
2054	30	0.00	0.369	0.00
2055	31	0.00	0.357	0.00
2056	32	0.00	0.346	0.00
2057	33	0.00	0.334	0.00
2058	34	0.00	0.323	0.00
2059	35	0.00	0.313	0.00
2060	36	0.00	0.303	0.00
2061	37	0.00	0.293	0.00
2062	38	0.00	0.283	0.00
2063	39	0.00	0.274	0.00
2064	40	0.00	0.265	0.00
2065	41	0.00	0.256	0.00
2066	42	0.00	0.248	0.00
2067	43	1.16	0.240	0.28
2068	44	1.16	0.232	0.27
2069	45	11.51	0.225	2.58
2070	46	11.51	0.217	2.50
2071	47	0.00	0.210	0.00
2072	48	0.00	0.203	0.00
2073	49	0.00	0.197	0.00
2074	50	0.00	0.190	0.00
		286.04		295.14

Interest Rate (%)	0.03375	
Amortization Factor	0.04168	
Interest During Construction		28.80
Average Annual Costs		12.30
O&M Costs		0.28
Total Average Annual Costs ($ Millions)		12.58

Note: FY 2015 Price Level; FY 2015 Federal Discount Rate

Table 19 (cont.)
Southwest Coastal, LA Feasibility Study
Average Annual Costs for the 0.02 AEP for Alternative

Lake Charles Westbank Sulphur Extended

Year	Period of Analysis	Construction Costs ($ millions)	PV Factor	Present Value of Construction Costs ($ millions)
2015	-9	$0	1.348	0.00
2016	-8	$0	1.304	0.00
2017	-7	5.89	1.262	7.43
2018	-6	5.89	1.220	7.19
2019	-5	21.61	1.181	25.51
2020	-4	21.61	1.142	24.68
2021	-3	21.61	1.105	23.88
2022	-2	21.61	1.069	23.10
2023	-1	15.72	1.034	16.25
2024	0	15.72	1.000	15.72
2025	1	0.00	0.967	0.00
2026	2	0.00	0.936	0.00
2027	3	0.00	0.905	0.00
2028	4	0.00	0.876	0.00
2029	5	0.00	0.847	0.00
2030	6	0.00	0.819	0.00
2031	7	0.00	0.793	0.00
2032	8	0.00	0.767	0.00
2033	9	0.00	0.742	0.00
2034	10	0.00	0.718	0.00
2035	11	0.00	0.694	0.00
2036	12	0.00	0.671	0.00
2037	13	0.00	0.650	0.00
2038	14	0.00	0.628	0.00
2039	15	0.00	0.608	0.00
2040	16	0.00	0.588	0.00
2041	17	0.00	0.569	0.00
2042	18	0.00	0.550	0.00
2043	19	0.00	0.532	0.00
2044	20	0.00	0.515	0.00
2045	21	0.00	0.498	0.00
2046	22	0.00	0.482	0.00
2047	23	0.00	0.466	0.00
2048	24	0.00	0.451	0.00
2049	25	0.00	0.436	0.00
2050	26	0.00	0.422	0.00
2051	27	0.00	0.408	0.00
2052	28	0.00	0.395	0.00
2053	29	0.00	0.382	0.00
2054	30	0.00	0.369	0.00
2055	31	0.00	0.357	0.00
2056	32	0.00	0.346	0.00
2057	33	0.00	0.334	0.00
2058	34	0.00	0.323	0.00
2059	35	0.00	0.313	0.00
2060	36	0.00	0.303	0.00
2061	37	0.00	0.293	0.00
2062	38	0.00	0.283	0.00
2063	39	0.00	0.274	0.00
2064	40	0.00	0.265	0.00
2065	41	0.00	0.256	0.00
2066	42	0.00	0.248	0.00
2067	43	0.60	0.240	0.14
2068	44	0.60	0.232	0.14
2069	45	5.97	0.225	1.34
2070	46	5.97	0.217	1.30
2071	47	0.00	0.210	0.00
2072	48	0.00	0.203	0.00
2073	49	0.00	0.197	0.00
2074	50	0.00	0.190	0.00
		142.81		146.68

Interest Rate	0.03375	
Amortization	0.04168	
Interest During Construction		14.09
Average Annual Costs		6.11
O&M Costs		0.21
Total Average Annual Costs ($Millions)		6.32

Note: FY 2015 Price Level; FY 2015 Federal Discount Rate

Table 19 (cont.)
Southwest Coastal, LA Feasibility Study
Average Annual Costs for the 0.02 AEP for Alternative

Lake Charles Westbank Sulphur South

Year	Period of Analysis	Construction Costs ($ millions)	PV Factor	Present Value of Construction Costs ($ millions)
2015.0	-9.0	0.0	1.3	0.00
2016.0	-8.0	0.0	1.3	0.00
2017.0	-7.0	23.9	1.3	30.12
2018.0	-6.0	23.9	1.2	29.13
2019.0	-5.0	69.5	1.2	82.01
2020.0	-4.0	69.5	1.1	79.33
2021.0	-3.0	69.5	1.1	76.74
2022.0	-2.0	69.5	1.1	74.24
2023.0	-1.0	45.6	1.0	47.13
2024.0	0.0	45.6	1.0	45.60
2025.0	1.0	0.0	1.0	0.00
2026.0	2.0	0.0	0.9	0.00
2027.0	3.0	0.0	0.9	0.00
2028.0	4.0	0.0	0.9	0.00
2029.0	5.0	0.0	0.8	0.00
2030.0	6.0	0.0	0.8	0.00
2031.0	7.0	0.0	0.8	0.00
2032.0	8.0	0.0	0.8	0.00
2033.0	9.0	0.0	0.7	0.00
2034.0	10.0	0.0	0.7	0.00
2035.0	11.0	0.0	0.7	0.00
2036.0	12.0	0.0	0.7	0.00
2037.0	13.0	0.0	0.6	0.00
2038.0	14.0	0.0	0.6	0.00
2039.0	15.0	0.0	0.6	0.00
2040.0	16.0	0.0	0.6	0.00
2041.0	17.0	0.0	0.6	0.00
2042.0	18.0	0.0	0.6	0.00
2043.0	19.0	0.0	0.5	0.00
2044.0	20.0	0.0	0.5	0.00
2045.0	21.0	0.0	0.5	0.00
2046.0	22.0	0.0	0.5	0.00
2047.0	23.0	0.0	0.5	0.00
2048.0	24.0	0.0	0.5	0.00
2049.0	25.0	0.0	0.4	0.00
2050.0	26.0	0.0	0.4	0.00
2051.0	27.0	0.0	0.4	0.00
2052.0	28.0	0.0	0.4	0.00
2053.0	29.0	0.0	0.4	0.00
2054.0	30.0	0.0	0.4	0.00
2055.0	31.0	0.0	0.4	0.00
2056.0	32.0	0.0	0.3	0.00
2057.0	33.0	0.0	0.3	0.00
2058.0	34.0	0.0	0.3	0.00
2059.0	35.0	0.0	0.3	0.00
2060.0	36.0	0.0	0.3	0.00
2061.0	37.0	0.0	0.3	0.00
2062.0	38.0	0.0	0.3	0.00
2063.0	39.0	0.0	0.3	0.00
2064.0	40.0	0.0	0.3	0.00
2065.0	41.0	0.0	0.3	0.00
2066.0	42.0	0.0	0.2	0.00
2067.0	43.0	1.8	0.2	0.43
2068.0	44.0	1.8	0.2	0.42
2069.0	45.0	12.0	0.2	2.69
2070.0	46.0	12.0	0.2	2.60
2071.0	47.0	12.0	0.2	2.51
2072.0	48.0	0.0	0.2	0.00
2073.0	49.0	0.0	0.2	0.00
2074.0	50.0	0.0	0.2	0.00
		456.32		472.95

Interest Rate	0.03375
Amortization	0.04168
Interest During Construction	47.49
Average Annual Costs	19.71
O&M Costs	0.44
Total Average Annual Costs ($Millions)	20.16

Note: FY 2015 Price Level; FY 2015 Federal Discount Rate

Table 19 (cont.)
Southwest Coastal, LA Feasibility Study
Average Annual Costs for the 0.02 AEP for Alternative

Lake Charles Eastbank

Year	Period of Analysis	Construction Costs ($ millions)	PV Factor	Present Value of Construction Costs ($ millions)
2015	-9	0.00	1.348	0.00
2016	-8	0.00	1.304	0.00
2017	-7	72.83	1.262	91.88
2018	-6	72.83	1.220	88.88
2019	-5	124.68	1.181	147.19
2020	-4	124.68	1.142	142.39
2021	-3	124.68	1.105	137.74
2022	-2	124.68	1.069	133.24
2023	-1	51.86	1.034	53.61
2024	0	51.86	1.000	51.86
2025	1	0.00	0.967	0.00
2026	2	0.00	0.936	0.00
2027	3	0.00	0.905	0.00
2028	4	0.00	0.876	0.00
2029	5	0.00	0.847	0.00
2030	6	0.00	0.819	0.00
2031	7	0.00	0.793	0.00
2032	8	0.00	0.767	0.00
2033	9	0.00	0.742	0.00
2034	10	0.00	0.718	0.00
2035	11	0.00	0.694	0.00
2036	12	0.00	0.671	0.00
2037	13	0.00	0.650	0.00
2038	14	0.00	0.628	0.00
2039	15	0.00	0.608	0.00
2040	16	0.00	0.588	0.00
2041	17	0.00	0.569	0.00
2042	18	0.00	0.550	0.00
2043	19	0.00	0.532	0.00
2044	20	0.00	0.515	0.00
2045	21	0.00	0.498	0.00
2046	22	0.00	0.482	0.00
2047	23	0.00	0.466	0.00
2048	24	0.00	0.451	0.00
2049	25	0.00	0.436	0.00
2050	26	0.00	0.422	0.00
2051	27	0.00	0.408	0.00
2052	28	0.00	0.395	0.00
2053	29	0.00	0.382	0.00
2054	30	0.00	0.369	0.00
2055	31	0.00	0.357	0.00
2056	32	0.00	0.346	0.00
2057	33	0.00	0.334	0.00
2058	34	0.00	0.323	0.00
2059	35	0.00	0.313	0.00
2060	36	0.00	0.303	0.00
2061	37	0.00	0.293	0.00
2062	38	0.00	0.283	0.00
2063	39	0.00	0.274	0.00
2064	40	0.00	0.265	0.00
2065	41	0.00	0.256	0.00
2066	42	0.00	0.248	0.00
2067	43	3.10	0.240	0.74
2068	44	3.10	0.232	0.72
2069	45	20.45	0.225	4.59
2070	46	20.45	0.217	4.44
2071	47	20.45	0.210	4.30
2072	48	0.00	0.203	0.00
2073	49	0.00	0.197	0.00
2074	50	0.00	0.190	0.00
		815.63		861.57

Interest Rate	0.03375
Amortization	0.04168
Interest During Construction	98.68
Average Annual Costs	35.91
O&M Costs	0.60
Total Average Annual Costs ($Millions)	36.51

Note: FY 2015 Price Level; FY 2015 Federal Discount Rate

Table 20
Southwest Coastal, LA Feasibility Study
Average Annual Costs for the 0.02 AEP for Alternative

Abbeville to Delcambre

Year	Period of Analysis	Construction Costs ($ millions)	PV Factor	Present Value of Construction Costs ($ millions)
2015	-9	0.00	1.348	0.00
2016	-8	0.00	1.304	0.00
2017	-7	30.53	1.262	38.51
2018	-6	30.53	1.220	37.25
2019	-5	143.21	1.181	169.06
2020	-4	143.21	1.142	163.54
2021	-3	143.21	1.105	158.21
2022	-2	143.21	1.069	153.04
2023	-1	112.69	1.034	116.49
2024	0	112.69	1.000	112.69
2025	1	0.00	0.967	0.00
2026	2	0.00	0.936	0.00
2027	3	0.00	0.905	0.00
2028	4	0.00	0.876	0.00
2029	5	0.00	0.847	0.00
2030	6	0.00	0.819	0.00
2031	7	0.00	0.793	0.00
2032	8	0.00	0.767	0.00
2033	9	0.00	0.742	0.00
2034	10	0.00	0.718	0.00
2035	11	0.00	0.694	0.00
2036	12	0.00	0.671	0.00
2037	13	0.00	0.650	0.00
2038	14	0.00	0.628	0.00
2039	15	0.00	0.608	0.00
2040	16	0.00	0.588	0.00
2041	17	0.00	0.569	0.00
2042	18	0.00	0.550	0.00
2043	19	0.00	0.532	0.00
2044	20	0.00	0.515	0.00
2045	21	0.00	0.498	0.00
2046	22	0.00	0.482	0.00
2047	23	0.00	0.466	0.00
2048	24	0.00	0.451	0.00
2049	25	0.00	0.436	0.00
2050	26	0.00	0.422	0.00
2051	27	0.00	0.408	0.00
2052	28	0.00	0.395	0.00
2053	29	0.00	0.382	0.00
2054	30	0.00	0.369	0.00
2055	31	0.00	0.357	0.00
2056	32	0.00	0.346	0.00
2057	33	0.00	0.334	0.00
2058	34	0.00	0.323	0.00
2059	35	0.00	0.313	0.00
2060	36	0.00	0.303	0.00
2061	37	0.00	0.293	0.00
2062	38	0.00	0.283	0.00
2063	39	0.00	0.274	0.00
2064	40	0.00	0.265	0.00
2065	41	0.00	0.256	0.00
2066	42	0.00	0.248	0.00
2067	43	1.19	0.240	0.29
2068	44	1.19	0.232	0.28
2069	45	7.87	0.225	1.77
2070	46	7.87	0.217	1.71
2071	47	7.87	0.210	1.65
2072	48	0.00	0.203	0.00
2073	49	0.00	0.197	0.00
2074	50	0.00	0.190	0.00
		885.24		954.48

Interest Rate (%)	0.03375	
Amortization Factor	0.04168	
Interest During Construction		89.5
Average Annual Costs		39.8
O&M Costs ($Millions)		0.56
Total Average Annual Costs ($Millions)		40.3

Note: FY 2015 Price Level; FY 2015 Federal Discount Rate

Table 20 (cont.)
Southwest Coastal, LA Feasibility Study
Average Annual Costs for the 0.01 AEP for Alternative

Delcambre/Erath

Year	Period of Analysis	Construction Costs ($ millions)	PV Factor	Present Value of Construction Costs ($ millions)
2015	-9	0.00	1.348	0.00
2016	-8	0.00	1.304	0.00
2017	-7	16.66	1.262	21.02
2018	-6	16.66	1.220	20.33
2019	-5	68.78	1.181	81.20
2020	-4	68.78	1.142	78.55
2021	-3	68.78	1.105	75.98
2022	-2	68.78	1.069	73.50
2023	-1	52.12	1.034	53.88
2024	0	52.12	1.000	52.12
2025	1	0.00	0.967	0.00
2026	2	0.00	0.936	0.00
2027	3	0.00	0.905	0.00
2028	4	0.00	0.876	0.00
2029	5	0.00	0.847	0.00
2030	6	0.00	0.819	0.00
2031	7	0.00	0.793	0.00
2032	8	0.00	0.767	0.00
2033	9	0.00	0.742	0.00
2034	10	0.00	0.718	0.00
2035	11	0.00	0.694	0.00
2036	12	0.00	0.671	0.00
2037	13	0.00	0.650	0.00
2038	14	0.00	0.628	0.00
2039	15	0.00	0.608	0.00
2040	16	0.00	0.588	0.00
2041	17	0.00	0.569	0.00
2042	18	0.00	0.550	0.00
2043	19	0.00	0.532	0.00
2044	20	0.00	0.515	0.00
2045	21	0.00	0.498	0.00
2046	22	0.00	0.482	0.00
2047	23	0.00	0.466	0.00
2048	24	0.00	0.451	0.00
2049	25	0.00	0.436	0.00
2050	26	0.00	0.422	0.00
2051	27	0.00	0.408	0.00
2052	28	0.00	0.395	0.00
2053	29	0.00	0.382	0.00
2054	30	0.00	0.369	0.00
2055	31	0.00	0.357	0.00
2056	32	0.00	0.346	0.00
2057	33	0.00	0.334	0.00
2058	34	0.00	0.323	0.00
2059	35	0.00	0.313	0.00
2060	36	0.00	0.303	0.00
2061	37	0.00	0.293	0.00
2062	38	0.00	0.283	0.00
2063	39	0.00	0.274	0.00
2064	40	0.00	0.265	0.00
2065	41	0.00	0.256	0.00
2066	42	0.00	0.248	0.00
2067	43	2.66	0.240	0.64
2068	44	2.66	0.232	0.62
2069	45	17.59	0.225	3.95
2070	46	17.59	0.217	3.82
2071	47	17.59	0.210	3.70
2072	48	0.00	0.203	0.00
2073	49	0.00	0.197	0.00
2074	50	0.00	0.190	0.00
		470.79		469.31

Interest Rate (%)	0.03375	
Amortization Factor	0.04168	
Interest During Construction		43.90
Average Annual Costs		19.56
O&M Costs		0.24
Total Average Annual Costs ($ Millions)		19.80

Note: FY 2015 Price Level; FY 2015 Federal Discount Rate

Table 20 (cont.)
Southwest Coastal, LA Feasibility Study
Average Annual Costs for the 0.01 AEP for Alternative

Abbeville Ring Levee

Year	Period of Analysis	Construction Costs ($ millions)	PV Factor	Present Value of Construction Costs ($ millions)
2015	-9	0.00	1.348	0.00
2016	-8	0.00	1.304	0.00
2017	-7	13.68	1.262	17.26
2018	-6	13.68	1.220	16.70
2019	-5	52.06	1.181	61.46
2020	-4	52.06	1.142	59.46
2021	-3	52.06	1.105	57.52
2022	-2	52.06	1.069	55.64
2023	-1	38.38	1.034	39.68
2024	0	38.38	1.000	38.38
2025	1	0.00	0.967	0.00
2026	2	0.00	0.936	0.00
2027	3	0.00	0.905	0.00
2028	4	0.00	0.876	0.00
2029	5	0.00	0.847	0.00
2030	6	0.00	0.819	0.00
2031	7	0.00	0.793	0.00
2032	8	0.00	0.767	0.00
2033	9	0.00	0.742	0.00
2034	10	0.00	0.718	0.00
2035	11	0.00	0.694	0.00
2036	12	0.00	0.671	0.00
2037	13	0.00	0.650	0.00
2038	14	0.00	0.628	0.00
2039	15	0.00	0.608	0.00
2040	16	0.00	0.588	0.00
2041	17	0.00	0.569	0.00
2042	18	0.00	0.550	0.00
2043	19	0.00	0.532	0.00
2044	20	0.00	0.515	0.00
2045	21	0.00	0.498	0.00
2046	22	0.00	0.482	0.00
2047	23	0.00	0.466	0.00
2048	24	0.00	0.451	0.00
2049	25	0.00	0.436	0.00
2050	26	0.00	0.422	0.00
2051	27	0.00	0.408	0.00
2052	28	0.00	0.395	0.00
2053	29	0.00	0.382	0.00
2054	30	0.00	0.369	0.00
2055	31	0.00	0.357	0.00
2056	32	0.00	0.346	0.00
2057	33	0.00	0.334	0.00
2058	34	0.00	0.323	0.00
2059	35	0.00	0.313	0.00
2060	36	0.00	0.303	0.00
2061	37	0.00	0.293	0.00
2062	38	0.00	0.283	0.00
2063	39	0.00	0.274	0.00
2064	40	0.00	0.265	0.00
2065	41	0.00	0.256	0.00
2066	42	0.00	0.248	0.00
2067	43	1.45	0.240	0.35
2068	44	1.45	0.232	0.34
2069	45	14.41	0.225	3.23
2070	46	14.41	0.217	3.13
2071	47	0.00	0.210	0.00
2072	48	0.00	0.203	0.00
2073	49	0.00	0.197	0.00
2074	50	0.00	0.190	0.00
		344.11		353.14

Interest Rate (%)	0.03375	
Amortization Factor	0.04168	
Interest During Construction		33.71
Average Annual Costs		14.72
O&M Costs		0.28
Total Average Annual Costs ($ Millions)		14.99

Note: FY 2015 Price Level; FY 2015 Federal Discount Rate

Table 20 (cont.)
Southwest Coastal, LA Feasibility Study
Average Annual Costs for the 0.01 AEP for Alternative

Lake Charles Westbank Sulphur Extended

Year	Period of Analysis	Construction Costs ($ millions)	PV Factor	Present Value of Construction Costs ($ millions)
2015	-9	0.00	1.348	0.00
2016	-8	0.00	1.304	0.00
2017	-7	6.52	1.262	8.22
2018	-6	6.52	1.220	7.95
2019	-5	28.59	1.181	33.75
2020	-4	28.59	1.142	32.65
2021	-3	28.59	1.105	31.59
2022	-2	28.59	1.069	30.56
2023	-1	22.08	1.034	22.82
2024	0	22.08	1.000	22.08
2025	1	0.00	0.967	0.00
2026	2	0.00	0.936	0.00
2027	3	0.00	0.905	0.00
2028	4	0.00	0.876	0.00
2029	5	0.00	0.847	0.00
2030	6	0.00	0.819	0.00
2031	7	0.00	0.793	0.00
2032	8	0.00	0.767	0.00
2033	9	0.00	0.742	0.00
2034	10	0.00	0.718	0.00
2035	11	0.00	0.694	0.00
2036	12	0.00	0.671	0.00
2037	13	0.00	0.650	0.00
2038	14	0.00	0.628	0.00
2039	15	0.00	0.608	0.00
2040	16	0.00	0.588	0.00
2041	17	0.00	0.569	0.00
2042	18	0.00	0.550	0.00
2043	19	0.00	0.532	0.00
2044	20	0.00	0.515	0.00
2045	21	0.00	0.498	0.00
2046	22	0.00	0.482	0.00
2047	23	0.00	0.466	0.00
2048	24	0.00	0.451	0.00
2049	25	0.00	0.436	0.00
2050	26	0.00	0.422	0.00
2051	27	0.00	0.408	0.00
2052	28	0.00	0.395	0.00
2053	29	0.00	0.382	0.00
2054	30	0.00	0.369	0.00
2055	31	0.00	0.357	0.00
2056	32	0.00	0.346	0.00
2057	33	0.00	0.334	0.00
2058	34	0.00	0.323	0.00
2059	35	0.00	0.313	0.00
2060	36	0.00	0.303	0.00
2061	37	0.00	0.293	0.00
2062	38	0.00	0.283	0.00
2063	39	0.00	0.274	0.00
2064	40	0.00	0.265	0.00
2065	41	0.00	0.256	0.00
2066	42	0.00	0.248	0.00
2067	43	1.27	0.240	0.30
2068	44	1.27	0.232	0.29
2069	45	12.58	0.225	2.82
2070	46	12.58	0.217	2.73
2071	47	0.00	0.210	0.00
2072	48	0.00	0.203	0.00
2073	49	0.00	0.197	0.00
2074	50	0.00	0.190	0.00
		199.25		195.78

Interest Rate (%)	0.03375	
Amortization Factor	0.04168	
Interest During Construction		18.06
Average Annual Costs		8.16
O&M Costs		0.21
Total Average Annual Costs ($Millions)		8.36

Note: FY 2015 Price Level; FY 2015 Federal Discount Rate

Table 20 (cont.)
Southwest Coastal, LA Feasibility Study
Average Annual Costs for the 0.01 AEP for Alternative

Lake Charles Westbank Sulphur South

Year	Period of Analysis	Construction Costs ($ millions)	PV Factor	Present Value of Construction Costs ($ millions)
2015	-9	0.00	1.348	0.00
2016	-8	0.00	1.304	0.00
2017	-7	25.99	1.262	32.79
2018	-6	25.99	1.220	31.72
2019	-5	93.07	1.181	109.88
2020	-4	93.07	1.142	106.29
2021	-3	93.07	1.105	102.82
2022	-2	93.07	1.069	99.46
2023	-1	67.08	1.034	69.34
2024	0	67.08	1.000	67.08
2025	1	0.00	0.967	0.00
2026	2	0.00	0.936	0.00
2027	3	0.00	0.905	0.00
2028	4	0.00	0.876	0.00
2029	5	0.00	0.847	0.00
2030	6	0.00	0.819	0.00
2031	7	0.00	0.793	0.00
2032	8	0.00	0.767	0.00
2033	9	0.00	0.742	0.00
2034	10	0.00	0.718	0.00
2035	11	0.00	0.694	0.00
2036	12	0.00	0.671	0.00
2037	13	0.00	0.650	0.00
2038	14	0.00	0.628	0.00
2039	15	0.00	0.608	0.00
2040	16	0.00	0.588	0.00
2041	17	0.00	0.569	0.00
2042	18	0.00	0.550	0.00
2043	19	0.00	0.532	0.00
2044	20	0.00	0.515	0.00
2045	21	0.00	0.498	0.00
2046	22	0.00	0.482	0.00
2047	23	0.00	0.466	0.00
2048	24	0.00	0.451	0.00
2049	25	0.00	0.436	0.00
2050	26	0.00	0.422	0.00
2051	27	0.00	0.408	0.00
2052	28	0.00	0.395	0.00
2053	29	0.00	0.382	0.00
2054	30	0.00	0.369	0.00
2055	31	0.00	0.357	0.00
2056	32	0.00	0.346	0.00
2057	33	0.00	0.334	0.00
2058	34	0.00	0.323	0.00
2059	35	0.00	0.313	0.00
2060	36	0.00	0.303	0.00
2061	37	0.00	0.293	0.00
2062	38	0.00	0.283	0.00
2063	39	0.00	0.274	0.00
2064	40	0.00	0.265	0.00
2065	41	0.00	0.256	0.00
2066	42	0.00	0.248	0.00
2067	43	3.24	0.240	0.78
2068	44	3.24	0.232	0.75
2069	45	21.40	0.225	4.81
2070	46	21.40	0.217	4.65
2071	47	21.40	0.210	4.50
2072	48	0.00	0.203	0.00
2073	49	0.00	0.197	0.00
2074	50	0.00	0.190	0.00
		629.12		634.86

Interest Rate (%)	0.03375	
Amortization Factor	0.04168	
Interest During Construction		60.94
Average Annual Costs		26.46
O&M Costs		0.44
Total Average Annual Costs ($Millions)		26.90

Note: FY 2015 Price Level; FY 2015 Federal Discount Rate

Table 20 (cont.)
Southwest Coastal, LA Feasibility Study
Average Annual Costs for the 0.01 AEP for Alternative

Lake Charles Eastbank

Year	Period of Analysis	Construction Costs ($ millions)	PV Factor	Present Value of Construction Costs ($ millions)
2015	-9	0.00	1.393	0.00
2016	-8	0.00	1.342	0.00
2017	-7	75.32	1.294	97.46
2018	-6	75.32	1.247	93.94
2019	-5	175.91	1.202	211.46
2020	-4	175.91	1.159	203.82
2021	-3	175.91	1.117	196.45
2022	-2	175.91	1.076	189.35
2023	-1	77.12	1.038	80.01
2024	0	77.12	1.000	77.12
2025	1	0.00	0.964	0.00
2026	2	0.00	0.929	0.00
2027	3	0.00	0.895	0.00
2028	4	0.00	0.863	0.00
2029	5	0.00	0.832	0.00
2030	6	0.00	0.802	0.00
2031	7	0.00	0.773	0.00
2032	8	0.00	0.745	0.00
2033	9	0.00	0.718	0.00
2034	10	0.00	0.692	0.00
2035	11	0.00	0.667	0.00
2036	12	0.00	0.643	0.00
2037	13	0.00	0.620	0.00
2038	14	0.00	0.597	0.00
2039	15	0.00	0.576	0.00
2040	16	0.00	0.555	0.00
2041	17	0.00	0.535	0.00
2042	18	0.00	0.515	0.00
2043	19	0.00	0.497	0.00
2044	20	0.00	0.479	0.00
2045	21	0.00	0.462	0.00
2046	22	0.00	0.445	0.00
2047	23	0.00	0.429	0.00
2048	24	0.00	0.413	0.00
2049	25	0.00	0.398	0.00
2050	26	0.00	0.384	0.00
2051	27	0.00	0.370	0.00
2052	28	0.00	0.357	0.00
2053	29	0.00	0.344	0.00
2054	30	0.00	0.331	0.00
2055	31	0.00	0.319	0.00
2056	32	0.00	0.308	0.00
2057	33	0.00	0.297	0.00
2058	34	0.00	0.286	0.00
2059	35	0.00	0.276	0.00
2060	36	0.00	0.266	0.00
2061	37	0.00	0.256	0.00
2062	38	0.00	0.247	0.00
2063	39	0.00	0.238	0.00
2064	40	0.00	0.229	0.00
2065	41	0.00	0.221	0.00
2066	42	0.00	0.213	0.00
2067	43	4.62	0.205	0.95
2068	44	4.62	0.198	0.91
2069	45	30.49	0.191	5.82
2070	46	30.49	0.184	5.61
2071	47	30.49	0.177	5.40
2072	48	0.00	0.171	0.00
2073	49	0.00	0.165	0.00
2074	50	0.00	0.159	0.00
		1109.22		1,168.31

Interest Rate (%)	0.03375	
Amortization Factor	0.04168	
Interest During Construction		141.09
Average Annual Costs		48.69
O&M Costs		0.60
Total Average Annual Costs ($Millions)		49.30

Note: Includes Mitigation costs.
Note: FY 2015 Price Level; FY 2015 Federal Discount Rate

Table 21
Southwest Coastal, LA Feasibility Study
Average Annual Costs for the 0.005 AEP for Alternative

Abbeville to Delcambre

Year	Period of Analysis	Construction Costs ($ millions)	PV Factor	Present Value of Construction Costs ($ millions)
2015	-9	0.00	1.348	0.00
2016	-8	0.00	1.304	0.00
2017	-7	33.90	1.262	42.77
2018	-6	33.90	1.220	41.37
2019	-5	180.66	1.181	213.27
2020	-4	180.66	1.142	206.31
2021	-3	180.66	1.105	199.57
2022	-2	180.66	1.069	193.06
2023	-1	146.76	1.034	151.71
2024	0	146.76	1.000	146.76
2025	1	0.00	0.967	0.00
2026	2	0.00	0.936	0.00
2027	3	0.00	0.905	0.00
2028	4	0.00	0.876	0.00
2029	5	0.00	0.847	0.00
2030	6	0.00	0.819	0.00
2031	7	0.00	0.793	0.00
2032	8	0.00	0.767	0.00
2033	9	0.00	0.742	0.00
2034	10	0.00	0.718	0.00
2035	11	0.00	0.694	0.00
2036	12	0.00	0.671	0.00
2037	13	0.00	0.650	0.00
2038	14	0.00	0.628	0.00
2039	15	0.00	0.608	0.00
2040	16	0.00	0.588	0.00
2041	17	0.00	0.569	0.00
2042	18	0.00	0.550	0.00
2043	19	0.00	0.532	0.00
2044	20	0.00	0.515	0.00
2045	21	0.00	0.498	0.00
2046	22	0.00	0.482	0.00
2047	23	0.00	0.466	0.00
2048	24	0.00	0.451	0.00
2049	25	0.00	0.436	0.00
2050	26	0.00	0.422	0.00
2051	27	0.00	0.408	0.00
2052	28	0.00	0.395	0.00
2053	29	0.00	0.382	0.00
2054	30	0.00	0.369	0.00
2055	31	0.00	0.357	0.00
2056	32	0.00	0.346	0.00
2057	33	0.00	0.334	0.00
2058	34	0.00	0.323	0.00
2059	35	0.00	0.313	0.00
2060	36	0.00	0.303	0.00
2061	37	0.00	0.293	0.00
2062	38	0.00	0.283	0.00
2063	39	0.00	0.274	0.00
2064	40	0.00	0.265	0.00
2065	41	0.00	0.256	0.00
2066	42	0.00	0.248	0.00
2067	43	1.56	0.240	0.37
2068	44	1.56	0.232	0.36
2069	45	10.28	0.225	2.31
2070	46	10.28	0.217	2.23
2071	47	10.28	0.210	2.16
2072	48	0.00	0.203	0.00
2073	49	0.00	0.197	0.00
2074	50	0.00	0.190	0.00
		1117.89		1,202.25

Interest Rate (%)	0.03375	
Amortization Factor	0.04168	
Interest During Construction		110.87
Average Annual Costs		50.11
O&M Costs ($Millions)		0.56
Total Average Annual Costs ($Millions)		50.67

Note: FY 2015 Price Level; FY 2015 Federal Discount Rate

Table 21 (cont.)
Southwest Coastal, LA Feasibility Study
Average Annual Costs for the 0.005 AEP for Alternative

Delcambre/Erath

Year	Period of Analysis	Construction Costs ($ millions)	PV Factor	Present Value of Construction Costs ($ millions)
2015	-9	0.00	1.348	0.00
2016	-8	0.00	1.304	0.00
2017	-7	18.27	1.262	23.05
2018	-6	18.27	1.220	22.30
2019	-5	86.68	1.181	102.33
2020	-4	86.68	1.142	98.98
2021	-3	86.68	1.105	95.75
2022	-2	86.68	1.069	92.63
2023	-1	68.40	1.034	70.71
2024	0	68.40	1.000	68.40
2025	1	0.00	0.967	0.00
2026	2	0.00	0.936	0.00
2027	3	0.00	0.905	0.00
2028	4	0.00	0.876	0.00
2029	5	0.00	0.847	0.00
2030	6	0.00	0.819	0.00
2031	7	0.00	0.793	0.00
2032	8	0.00	0.767	0.00
2033	9	0.00	0.742	0.00
2034	10	0.00	0.718	0.00
2035	11	0.00	0.694	0.00
2036	12	0.00	0.671	0.00
2037	13	0.00	0.650	0.00
2038	14	0.00	0.628	0.00
2039	15	0.00	0.608	0.00
2040	16	0.00	0.588	0.00
2041	17	0.00	0.569	0.00
2042	18	0.00	0.550	0.00
2043	19	0.00	0.532	0.00
2044	20	0.00	0.515	0.00
2045	21	0.00	0.498	0.00
2046	22	0.00	0.482	0.00
2047	23	0.00	0.466	0.00
2048	24	0.00	0.451	0.00
2049	25	0.00	0.436	0.00
2050	26	0.00	0.422	0.00
2051	27	0.00	0.408	0.00
2052	28	0.00	0.395	0.00
2053	29	0.00	0.382	0.00
2054	30	0.00	0.369	0.00
2055	31	0.00	0.357	0.00
2056	32	0.00	0.346	0.00
2057	33	0.00	0.334	0.00
2058	34	0.00	0.323	0.00
2059	35	0.00	0.313	0.00
2060	36	0.00	0.303	0.00
2061	37	0.00	0.293	0.00
2062	38	0.00	0.283	0.00
2063	39	0.00	0.274	0.00
2064	40	0.00	0.265	0.00
2065	41	0.00	0.256	0.00
2066	42	0.00	0.248	0.00
2067	43	3.18	0.240	0.76
2068	44	3.18	0.232	0.74
2069	45	21.02	0.225	4.72
2070	46	21.02	0.217	4.57
2071	47	21.02	0.210	4.42
2072	48	0.00	0.203	0.00
2073	49	0.00	0.197	0.00
2074	50	0.00	0.190	0.00
		589.49		589.36

Interest Rate (%)	0.03375	
Amortization Factor	0.04168	
Interest During Construction		54.10
Average Annual Costs		24.56
O&M Costs		0.24
Total Average Annual Costs ($ Millions)		24.81

Note: FY 2015 Price Level; FY 2015 Federal Discount Rate

Table 21 (cont.)
Southwest Coastal, LA Feasibility Study
Average Annual Costs for the 0.005 AEP for Alternative

Abbeville Ring Levee

Year	Period of Analysis	Construction Costs ($ millions)	PV Factor	Present Value of Construction Costs ($ millions)
2015	-9	0.00	1.348	0.00
2016	-8	0.00	1.304	0.00
2017	-7	15.10	1.262	19.05
2018	-6	15.10	1.220	18.43
2019	-5	67.81	1.181	80.05
2020	-4	67.81	1.142	77.44
2021	-3	67.81	1.105	74.91
2022	-2	67.81	1.069	72.46
2023	-1	52.71	1.034	54.49
2024	0	52.71	1.000	52.71
2025	1	0.00	0.967	0.00
2026	2	0.00	0.936	0.00
2027	3	0.00	0.905	0.00
2028	4	0.00	0.876	0.00
2029	5	0.00	0.847	0.00
2030	6	0.00	0.819	0.00
2031	7	0.00	0.793	0.00
2032	8	0.00	0.767	0.00
2033	9	0.00	0.742	0.00
2034	10	0.00	0.718	0.00
2035	11	0.00	0.694	0.00
2036	12	0.00	0.671	0.00
2037	13	0.00	0.650	0.00
2038	14	0.00	0.628	0.00
2039	15	0.00	0.608	0.00
2040	16	0.00	0.588	0.00
2041	17	0.00	0.569	0.00
2042	18	0.00	0.550	0.00
2043	19	0.00	0.532	0.00
2044	20	0.00	0.515	0.00
2045	21	0.00	0.498	0.00
2046	22	0.00	0.482	0.00
2047	23	0.00	0.466	0.00
2048	24	0.00	0.451	0.00
2049	25	0.00	0.436	0.00
2050	26	0.00	0.422	0.00
2051	27	0.00	0.408	0.00
2052	28	0.00	0.395	0.00
2053	29	0.00	0.382	0.00
2054	30	0.00	0.369	0.00
2055	31	0.00	0.357	0.00
2056	32	0.00	0.346	0.00
2057	33	0.00	0.334	0.00
2058	34	0.00	0.323	0.00
2059	35	0.00	0.313	0.00
2060	36	0.00	0.303	0.00
2061	37	0.00	0.293	0.00
2062	38	0.00	0.283	0.00
2063	39	0.00	0.274	0.00
2064	40	0.00	0.265	0.00
2065	41	0.00	0.256	0.00
2066	42	0.00	0.248	0.00
2067	43	1.87	0.240	0.45
2068	44	1.87	0.232	0.43
2069	45	18.57	0.225	4.17
2070	46	18.57	0.217	4.03
2071	47	0.00	0.210	0.00
2072	48	0.00	0.203	0.00
2073	49	0.00	0.197	0.00
2074	50	0.00	0.190	0.00
		447.74		458.63

Interest Rate (%)	0.03375	
Amortization Factor	0.04168	
Interest During Construction		42.68
Average Annual Costs		19.11
O&M Costs		0.28
Total Average Annual Costs ($ Millions)		19.39

Note: FY 2015 Price Level; FY 2015 Federal Discount Rate

Table 21 (cont.)
Southwest Coastal, LA Feasibility Study
Average Annual Costs for the 0.005 AEP for Alternative

Lake Charles Westbank Sulphur Extended

Year	Period of Analysis	Construction Costs ($ millions)	PV Factor	Present Value of Construction Costs ($ millions)
2015	-9	0.00	1.348	0.00
2016	-8	0.00	1.304	0.00
2017	-7	8.17	1.262	10.31
2018	-6	8.17	1.220	9.98
2019	-5	47.02	1.181	55.51
2020	-4	47.02	1.142	53.70
2021	-3	47.02	1.105	51.95
2022	-2	47.02	1.069	50.25
2023	-1	38.85	1.034	40.16
2024	0	38.85	1.000	38.85
2025	1	0.00	0.967	0.00
2026	2	0.00	0.936	0.00
2027	3	0.00	0.905	0.00
2028	4	0.00	0.876	0.00
2029	5	0.00	0.847	0.00
2030	6	0.00	0.819	0.00
2031	7	0.00	0.793	0.00
2032	8	0.00	0.767	0.00
2033	9	0.00	0.742	0.00
2034	10	0.00	0.718	0.00
2035	11	0.00	0.694	0.00
2036	12	0.00	0.671	0.00
2037	13	0.00	0.650	0.00
2038	14	0.00	0.628	0.00
2039	15	0.00	0.608	0.00
2040	16	0.00	0.588	0.00
2041	17	0.00	0.569	0.00
2042	18	0.00	0.550	0.00
2043	19	0.00	0.532	0.00
2044	20	0.00	0.515	0.00
2045	21	0.00	0.498	0.00
2046	22	0.00	0.482	0.00
2047	23	0.00	0.466	0.00
2048	24	0.00	0.451	0.00
2049	25	0.00	0.436	0.00
2050	26	0.00	0.422	0.00
2051	27	0.00	0.408	0.00
2052	28	0.00	0.395	0.00
2053	29	0.00	0.382	0.00
2054	30	0.00	0.369	0.00
2055	31	0.00	0.357	0.00
2056	32	0.00	0.346	0.00
2057	33	0.00	0.334	0.00
2058	34	0.00	0.323	0.00
2059	35	0.00	0.313	0.00
2060	36	0.00	0.303	0.00
2061	37	0.00	0.293	0.00
2062	38	0.00	0.283	0.00
2063	39	0.00	0.274	0.00
2064	40	0.00	0.265	0.00
2065	41	0.00	0.256	0.00
2066	42	0.00	0.248	0.00
2067	43	2.06	0.240	0.49
2068	44	2.06	0.232	0.48
2069	45	20.40	0.225	4.58
2070	46	20.40	0.217	4.43
2071	47	0.00	0.210	0.00
2072	48	0.00	0.203	0.00
2073	49	0.00	0.197	0.00
2074	50	0.00	0.190	0.00
		327.05		320.69

Interest Rate (%)	0.03375	
Amortization Factor	0.04168	
Interest During Construction		28.57
Average Annual Costs		13.37
O&M Costs		0.21
Total Average Annual Costs ($Millions)		13.57

Note: FY 2015 Price Level; FY 2015 Federal Discount Rate

Table 21 (cont.)
Southwest Coastal, LA Feasibility Study
Average Annual Costs for the 0.005 AEP for Alternative

Lake Charles Westbank Sulphur South

Year	Period of Analysis	Construction Costs ($ millions)	PV Factor	Present Value of Construction Costs ($ millions)
2015	-9	0.00	1.348	0.00
2016	-8	0.00	1.304	0.00
2017	-7	29.23	1.262	36.87
2018	-6	29.23	1.220	35.67
2019	-5	129.04	1.181	152.33
2020	-4	129.04	1.142	147.36
2021	-3	129.04	1.105	142.55
2022	-2	129.04	1.069	137.90
2023	-1	99.81	1.034	103.18
2024	0	99.81	1.000	99.81
2025	1	0.00	0.967	0.00
2026	2	0.00	0.936	0.00
2027	3	0.00	0.905	0.00
2028	4	0.00	0.876	0.00
2029	5	0.00	0.847	0.00
2030	6	0.00	0.819	0.00
2031	7	0.00	0.793	0.00
2032	8	0.00	0.767	0.00
2033	9	0.00	0.742	0.00
2034	10	0.00	0.718	0.00
2035	11	0.00	0.694	0.00
2036	12	0.00	0.671	0.00
2037	13	0.00	0.650	0.00
2038	14	0.00	0.628	0.00
2039	15	0.00	0.608	0.00
2040	16	0.00	0.588	0.00
2041	17	0.00	0.569	0.00
2042	18	0.00	0.550	0.00
2043	19	0.00	0.532	0.00
2044	20	0.00	0.515	0.00
2045	21	0.00	0.498	0.00
2046	22	0.00	0.482	0.00
2047	23	0.00	0.466	0.00
2048	24	0.00	0.451	0.00
2049	25	0.00	0.436	0.00
2050	26	0.00	0.422	0.00
2051	27	0.00	0.408	0.00
2052	28	0.00	0.395	0.00
2053	29	0.00	0.382	0.00
2054	30	0.00	0.369	0.00
2055	31	0.00	0.357	0.00
2056	32	0.00	0.346	0.00
2057	33	0.00	0.334	0.00
2058	34	0.00	0.323	0.00
2059	35	0.00	0.313	0.00
2060	36	0.00	0.303	0.00
2061	37	0.00	0.293	0.00
2062	38	0.00	0.283	0.00
2063	39	0.00	0.274	0.00
2064	40	0.00	0.265	0.00
2065	41	0.00	0.256	0.00
2066	42	0.00	0.248	0.00
2067	43	5.03	0.240	1.21
2068	44	5.03	0.232	1.17
2069	45	33.22	0.225	7.46
2070	46	33.22	0.217	7.22
2071	47	33.22	0.210	6.98
2072	48	0.00	0.203	0.00
2073	49	0.00	0.197	0.00
2074	50	0.00	0.190	0.00
		883.94		879.70

Interest Rate (%)	0.03375	
Amortization Factor	0.04168	
Interest During Construction		81.44
Average Annual Costs		36.66
O&M Costs		0.44
Total Average Annual Costs ($Millions)		37.11

Note: FY 2015 Price Level; FY 2015 Federal Discount Rate

Table 21 (cont.)
Southwest Coastal, LA Feasibility Study
Average Annual Costs for the 0.005 AEP for Alternative

Lake Charles Eastbank

Year	Period of Analysis	Construction Costs ($ millions)	PV Factor	Present Value of Construction Costs ($ millions)
2015	-9	0.00	1.393	0.00
2016	-8	0.00	1.342	0.00
2017	-7	78.55	1.294	101.64
2018	-6	78.55	1.247	97.97
2019	-5	211.79	1.202	254.60
2020	-4	211.79	1.159	245.39
2021	-3	211.79	1.117	236.52
2022	-2	211.79	1.076	227.97
2023	-1	109.78	1.038	113.89
2024	0	109.78	1.000	109.78
2025	1	0.00	0.964	0.00
2026	2	0.00	0.929	0.00
2027	3	0.00	0.895	0.00
2028	4	0.00	0.863	0.00
2029	5	0.00	0.832	0.00
2030	6	0.00	0.802	0.00
2031	7	0.00	0.773	0.00
2032	8	0.00	0.745	0.00
2033	9	0.00	0.718	0.00
2034	10	0.00	0.692	0.00
2035	11	0.00	0.667	0.00
2036	12	0.00	0.643	0.00
2037	13	0.00	0.620	0.00
2038	14	0.00	0.597	0.00
2039	15	0.00	0.576	0.00
2040	16	0.00	0.555	0.00
2041	17	0.00	0.535	0.00
2042	18	0.00	0.515	0.00
2043	19	0.00	0.497	0.00
2044	20	0.00	0.479	0.00
2045	21	0.00	0.462	0.00
2046	22	0.00	0.445	0.00
2047	23	0.00	0.429	0.00
2048	24	0.00	0.413	0.00
2049	25	0.00	0.398	0.00
2050	26	0.00	0.384	0.00
2051	27	0.00	0.370	0.00
2052	28	0.00	0.357	0.00
2053	29	0.00	0.344	0.00
2054	30	0.00	0.331	0.00
2055	31	0.00	0.319	0.00
2056	32	0.00	0.308	0.00
2057	33	0.00	0.297	0.00
2058	34	0.00	0.286	0.00
2059	35	0.00	0.276	0.00
2060	36	0.00	0.266	0.00
2061	37	0.00	0.256	0.00
2062	38	0.00	0.247	0.00
2063	39	0.00	0.238	0.00
2064	40	0.00	0.229	0.00
2065	41	0.00	0.221	0.00
2066	42	0.00	0.213	0.00
2067	43	5.98	0.205	1.23
2068	44	5.98	0.198	1.18
2069	45	39.48	0.191	7.53
2070	46	39.48	0.184	7.26
2071	47	39.48	0.177	7.00
2072	48	0.00	0.171	0.00
2073	49	0.00	0.165	0.00
2074	50	0.00	0.159	0.00
		1354.22		1,411.97

Interest Rate (%)	0.03375	
Amortization Factor	0.04168	
Interest During Construction		163.94
Average Annual Costs		58.85
O&M Costs		0.60
Total Average Annual Costs ($Millions)		59.45

Note: Includes Mitigation costs.
Note: FY 2015 Price Level; FY 2015 Federal Discount Rate

Table 22
Southwest Coastal, LA Feasibility Study
0.02 AEP (50-year) Abbeville to Delcambre Alternative Total Equivalent Annual Net Benefits
(FY 2015 Price Level; 3.375% Discount Rate)
(Costs and Benefits $ Millions)

Item	Equiv Annual W/O Project Damages (2025-2075)	Equiv Annual With-Project Damages (2025-2075)	Equiv Annual Benefits (2025-2075)
Damage Categories			
Residential & Commercial - Structure/Content/Vehicles	73.7	52.4	21.3
First Costs			726.3
Interest During Construction			75.1
Annual Operation & Maintenance Costs			0.51
Total Annual Costs			33.3
Benefit Cost Ratio			0.64
Equivalent Annual Net Benefits - 2025 Base Year			-12.00

Note: Costs for Environmental Mitigation are not included in the cost estimates.
Structue Inventory is not adjusted for higher code compliance standards and costs for severely damaged structures.

Table 23
Southwest Coastal, LA Feasibility Study
0.02 AEP (50-year) Delcambre/Erath Alternative Total Equivalent Annual Net Benefits
(FY 2015 Price Level; 3.375% Discount Rate)
(Costs and Benefits $ Millions)

Item	Equiv Annual W/O Project Damages (2025-2075)	Equiv Annual With-Project Damages (2025-2075)	Equiv Annual Benefits (2025-2075)
Damage Categories			
Residential & Commercial - Structure/Content/Vehicles	36.7	23.1	13.6
First Costs			359.4
Interest During Construction			34.4
Annual Operation & Maintenance Costs			0.24
Total Annual Costs			15.1
Benefit Cost Ratio			0.90
Equivalent Annual Net Benefits - 2025 Base Year			-1.52

Note: Costs for Environmental Mitigation are not included in the cost estimates.
Structue Inventory is not adjusted for higher code compliance standards and costs for severely damaged structures.

Table 24
Southwest Coastal, LA Feasibility Study
0.02 AEP (50-year) Abbeville Ring Levee Total Equivalent Annual Net Benefits
(FY 2015 Price Level; 3.375% Discount Rate)
(Costs and Benefits $ Millions)

Item	Equiv Annual W/O Project Damages (2025-2075)	Equiv Annual With-Project Damages (2025-2075)	Equiv Annual Benefits (2025-2075)
Damage Categories			
Residential & Commercial - Structure/Content/Vehicles	10.6	9.3	1.3
First Costs			286.0
Interest During Construction			28.8
Annual Operation & Maintenance Costs			0.28
Total Annual Costs			12.6
Benefit Cost Ratio			0.10
Equivalent Annual Net Benefits - 2025 Base Year			-11.26

Note: Costs for Environmental Mitigation are not included in the cost estimates.
Structue Inventory is not adjusted for higher code compliance standards and costs for severely damaged structures.

Table 25
Southwest Coastal, LA Feasibility Study
0.02 AEP (50-year) Lake Charles Westbank Sulfur Extended Total Equivalent Annual Net Benefits
(FY 2015 Price Level; 3.375% Discount Rate)
(Costs and Benefits $ Millions)

Item	Equiv Annual W/O Project Damages (2025-2075)	Equiv Annual With-Project Damages (2025-2075)	Equiv Annual Benefits (2025-2075)
Damage Categories			
Residential & Commercial - Structure/Content/Vehicles	10.3	10.2	0.1
First Costs			142.8
Interest During Construction			14.1
Annual Operation & Maintenance Costs			0.21
Total Annual Costs			6.3
Benefit Cost Ratio			0.02
Equivalent Annual Net Benefits - 2025 Base Year			-6.20

Note: Costs for Environmental Mitigation are not included in the cost estimates.
Structue Inventory is not adjusted for higher code compliance standards and costs for severely damaged structures.

Table 26
Southwest Coastal, LA Feasibility Study
0.02 AEP (50-year) Lake Charles Westbank Sulfur South Total Equivalent Annual Net Benefits
(FY 2015 Price Level; 3.375% Discount Rate)
(Costs and Benefits $ Millions)

Item	Equiv Annual W/O Project Damages (2025-2075)	Equiv Annual With-Project Damages (2025-2075)	Equiv Annual Benefits (2025-2075)
Damage Categories			
Residential & Commercial - Structure/Content/Vehicles	20.1	18.2	1.9
First Costs			456.3
Interest During Construction			47.5
Annual Operation & Maintenance Costs			0.44
Total Annual Costs			20.2
Benefit Cost Ratio			0.09
Equivalent Annual Net Benefits - 2025 Base Year			-18.26

Note: Costs for Environmental Mitigation are not included in the cost estimates.
Structue Inventory is not adjusted for higher code compliance standards and costs for severely damaged structures.

Table 27
Southwest Coastal, LA Feasibility Study
0.02 AEP (50-year) Lake Charles Eastbank Total Equivalent Annual Net Benefits
(2014 Price Level; 3.375% Discount Rate)
(Costs and Benefits $ Millions)

Item	Equiv Annual W/O Project Damages (2025-2075)	Equiv Annual With-Project Damages (2025-2075)	Equiv Annual Benefits (2025-2075)
Damage Categories			
Residential & Commercial - Structure/Content/Vehicles	167.9	137.1	30.8
First Costs			815.6
Interest During Construction			98.7
Annual Operation & Maintenance Costs			0.60
Total Annual Costs			36.5
Benefit Cost Ratio			0.84
Equivalent Annual Net Benefits - 2025 Base Year			-5.66

Note: Mitigation costs are included in the 0.02 AEP (50-year) Lake Charles Eastbank cost estimate.
Structue Inventory is not adjusted for higher code compliance standards and costs for severely damaged structures.

Table 28
Southwest Coastal, LA Feasibility Study
0.01 AEP (100-year) Abbeville to Delcambre Alternative Total Equivalent Annual Net Benefits
(FY 2015 Price Level; 3.375% Discount Rate)
(Costs and Benefits $ Millions)

Item	Equiv Annual W/O Project Damages (2025-2075)	Equiv Annual With-Project Damages (2025-2075)	Equiv Annual Benefits (2025-2075)
Damage Categories			
Residential & Commercial - Structure/Content/Vehicles	73.7	42.1	31.6
First Costs			885.2
Interest During Construction			89.5
Annual Operation & Maintenance Costs			0.56
Total Annual Costs			40.3
Benefit Cost Ratio			0.78
Equivalent Annual Net Benefits - 2025 Base Year			-8.77

Note: Costs for Environmental Mitigation are not included in the cost estimates.
Structue Inventory is not adjusted for higher code compliance standards and costs for severely damaged structures.

Table 29
Southwest Coastal, LA Feasibility Study
0.01 AEP (100-year) Delcambre/Erath Alternative Total Equivalent Annual Net Benefits
(FY 2015 Price Level; 3.375% Discount Rate)
(Costs and Benefits $ Millions)

Item	Equiv Annual W/O Project Damages (2025-2075)	Equiv Annual With-Project Damages (2025-2075)	Equiv Annual Benefits (2025-2075)
Damage Categories			
Residential & Commercial - Structure/Content/Vehicles	36.7	17.7	19.0
First Costs			470.8
Interest During Construction			43.9
Annual Operation & Maintenance Costs			0.24
Total Annual Costs			19.8
Benefit Cost Ratio			0.96
Equivalent Annual Net Benefits - 2025 Base Year			-0.83

Note: Costs for Environmental Mitigation are not included in the cost estimates.
Structue Inventory is not adjusted for higher code compliance standards and costs for severely damaged structures.

Table 30
Southwest Coastal, LA Feasibility Study
0.01 AEP (100-year) Abbeville Ring Levee Total Equivalent Annual Net Benefits
(FY 2015 Price Level; 3.375% Discount Rate)
(Costs and Benefits $ Millions)

Item	Equiv Annual W/O Project Damages (2025-2075)	Equiv Annual With-Project Damages (2025-2075)	Equiv Annual Benefits (2025-2075)
Damage Categories			
Residential & Commercial - Structure/Content/Vehicles	10.6	6.7	3.9
First Costs			344.1
Interest During Construction			33.7
Annual Operation & Maintenance Costs			0.28
Total Annual Costs			15.0
Benefit Cost Ratio			0.26
Equivalent Annual Net Benefits - 2025 Base Year			-11.11

Note: Costs for Environmental Mitigation are not included in the cost estimates.
Structue Inventory is not adjusted for higher code compliance standards and costs for severely damaged structures.

Table 31
Southwest Coastal, LA Feasibility Study
0.01 AEP (100-year) Lake Charles Westbank Sulfur Extended Total Equivalent Annual Net Benefits
(FY 2015 Price Level; 3.375% Discount Rate)
(Costs and Benefits $ Millions)

Item	Equiv Annual W/O Project Damages (2025-2075)	Equiv Annual With-Project Damages (2025-2075)	Equiv Annual Benefits (2025-2075)
Damage Categories			
Residential & Commercial - Structure/Content/Vehicles	10.3	8.0	2.3
First Costs			199.3
Interest During Construction			18.1
Annual Operation & Maintenance Costs			0.21
Total Annual Costs			8.4
Benefit Cost Ratio			0.28
Equivalent Annual Net Benefits - 2025 Base Year			-6.06

Note: Costs for Environmental Mitigation are not included in the cost estimates.
Structue Inventory is not adjusted for higher code compliance standards and costs for severely damaged structures.

Table 32
Southwest Coastal, LA Feasibility Study
0.01 AEP (100-year) Lake Charles Westbank Sulfur South Total Equivalent Annual Net Benefits
(FY 2015 Price Level; 3.375% Discount Rate)
(Costs and Benefits $ Millions)

Item	Equiv Annual W/O Project Damages (2025-2075)	Equiv Annual With-Project Damages (2025-2075)	Equiv Annual Benefits (2025-2075)
Damage Categories			
Residential & Commercial - Structure/Content/Vehicles	20.1	15.1	4.9
First Costs			629.1
Interest During Construction			60.9
Annual Operation & Maintenance Costs			0.44
Total Annual Costs			26.9
Benefit Cost Ratio			0.18
Equivalent Annual Net Benefits - 2025 Base Year			-21.99

Note: Costs for Environmental Mitigation are not included in the cost estimates.
Structue Inventory is not adjusted for higher code compliance standards and costs for severely damaged structures.

Table 33
Southwest Coastal, LA Feasibility Study
0.01 AEP (100-year) Lake Charles Eastbank Total Equivalent Annual Net Benefits
(FY 2015 Price Level; 3.375% Discount Rate)
(Costs and Benefits $ Millions)

Item	Equiv Annual W/O Project Damages (2025-2075)	Equiv Annual With-Project Damages (2025-2075)	Equiv Annual Benefits (2025-2075)
Damage Categories			
Residential & Commercial - Structure/Content/Vehicles	167.9	118.8	49.1
First Costs			1109.2
Interest During Construction			141.1
Annual Operation & Maintenance Costs			0.60
Total Annual Costs			49.30
Benefit Cost Ratio			0.996
Equivalent Annual Net Benefits - 2025 Base Year			-0.219

Note: Mitigation costs are included in the 0.01 AEP (100-year) Lake Charles Eastbank cost estimate.
Structue Inventory is not adjusted for higher code compliance standards and costs for severely damaged structures.

Table 34
Southwest Coastal, LA Feasibility Study
0.005 AEP (200-year) Abbeville to Delcambre Alternative Total Equivalent Annual Net Benefits
(FY 2015 Price Level; 3.375% Discount Rate)
(Costs and Benefits $ Millions)

Item	Equiv Annual W/O Project Damages (2025-2075)	Equiv Annual With-Project Damages (2025-2075)	Equiv Annual Benefits (2025-2075)
Damage Category			
Residential & Commercial - Structure/Content/Vehicles	73.7	35.6	38.1
First Costs			1117.9
Interest During Construction			110.9
Annual Operation & Maintenance Costs			0.56
Total Annual Costs			50.7
B/C Ratio			0.75
Equivalent Annual Net Benefits - 2025 Base Year			-12.62

Note: Mitigation is not included in the cost estimates
Structue Inventory is not adjusted for higher code compliance standards and costs for severely damaged structures.

Table 35
Southwest Coastal, LA Feasibility Study
0.005 AEP (200-year) Delcambre/Erath Alternative Total Equivalent Annual Net Benefits
(FY 2015 Price Level; 3.375% Discount Rate)
(Costs and Benefits $ Millions)

Item	Equiv Annual W/O Project Damages (2025-2075)	Equiv Annual With-Project Damages (2025-2075)	Equiv Annual Benefits (2025-2075)
Damage Categories			
Residential & Commercial - Structure/Content/Vehicles	36.7	15.9	20.8
First Costs			589.5
Interest During Construction			54.1
Annual Operation & Maintenance Costs			0.24
Total Annual Costs			24.8
Benefit Cost Ratio			0.84
Equivalent Annual Net Benefits - 2025 Base Year			-4.00

Note: Mitigation is not included in the cost estimates
Structue Inventory is not adjusted for higher code compliance standards and costs for severely damaged structures.

Table 36
Southwest Coastal, LA Feasibility Study
0.005 AEP (200-year) Abbeville Ring Levee Total Equivalent Annual Net Benefits
(FY 2015 Price Level; 3.375% Discount Rate)
(Costs and Benefits $ Millions)

Item	Equiv Annual W/O Project Damages (2025-2075)	Equiv Annual With-Project Damages (2025-2075)	Equiv Annual Benefits (2025-2075)
Damage Categories			
Residential & Commercial - Structure/Content/Vehicles	10.6	5.7	4.9
First Costs			447.7
Interest During Construction			42.7
Annual Operation & Maintenance Costs			0.28
Total Annual Costs			19.4
Benefit Cost Ratio			0.25
Equivalent Annual Net Benefits - 2025 Base Year			-14.46

Note: Mitigation is not included in the cost estimates
Structue Inventory is not adjusted for higher code compliance standards and costs for severely damaged structures.

Table 37
Southwest Coastal, LA Feasibility Study
0.005 AEP (200-year) Lake Charles Westbank Sulfur Extended Total Equivalent Annual Net Benefits
(FY 2015 Price Level; 3.375% Discount Rate)
(Costs and Benefits $ Millions)

Item	Equiv Annual W/O Project Damages (2025-2075)	Equiv Annual With-Project Damages (2025-2075)	Equiv Annual Benefits (2025-2075)
Damage Categories			
Residential & Commercial - Structure/Content/Vehicles	10.3	7.8	2.5
First Costs			327.1
Interest During Construction			28.6
Annual Operation & Maintenance Costs			0.21
Total Annual Costs			13.6
Benefit Cost Ratio			0.19
Equivalent Annual Net Benefits - 2025 Base Year			-11.03

Note: Mitigation is not included in the cost estimates
Structue Inventory is not adjusted for higher code compliance standards and costs for severely damaged structures.

Table 38
Southwest Coastal, LA Feasibility Study
0.005 AEP (200-year) Lake Charles Westbank Sulfur South Total Equivalent Annual Net Benefits
(FY 2015 Price Level; 3.375% Discount Rate)
(Costs and Benefits $ Millions)

Item	Equiv Annual W/O Project Damages (2025-2075)	Equiv Annual With-Project Damages (2025-2075)	Equiv Annual Benefits (2025-2075)
Damage Categories			
Residential & Commercial - Structure/Content/Vehicles	20.1	12.8	7.2
First Costs			883.9
Interest During Construction			81.4
Annual Operation & Maintenance Costs			0.44
Total Annual Costs			37.1
Benefit Cost Ratio			0.20
Equivalent Annual Net Benefits - 2025 Base Year			-29.86

Note: Mitigation is not included in the cost estimates
Structue Inventory is not adjusted for higher code compliance standards and costs for severely damaged structures.

Table 39
Southwest Coastal, LA Feasibility Study
0.005 AEP (200-year) Lake Charles Eastbank Total Equivalent Annual Net Benefits
(FY 2015 Price Level; 3.375% Discount Rate)
(Costs and Benefits $ Millions)

Item	Equiv Annual W/O Project Damages (2025-2075)	Equiv Annual With-Project Damages (2025-2075)	Equiv Annual Benefits (2025-2075)
Damage Categories			
Residential & Commercial - Structure/Content/Vehicles	167.9	112.5	55.4
First Costs			1354.2
Interest During Construction			163.9
Annual Operation & Maintenance Costs			0.60
Total Annual Costs			59.5
Benefit Cost Ratio			0.93
Equivalent Annual Net Benefits - 2025 Base Year			-4.07

Note: Mitigation costs are included in the 0.005 AEP (200-Year) Lake Charles cost estimate.
Structue Inventory is not adjusted for higher code compliance standards and costs for severely damaged structures.

Table 40
Southwest Coastal, LA Feasibility Study
Floodplain Summary
$1000s

	Complete Study Area	Total 100-Year Floodplain	Tier 1 0 to 25 year Floodplain	Tier 2 25 to 50 year Floodplain	Tier 3 50 to 100 year Floodplain
Equivalent Annual					
Without Project Damages	474,998	333,561	280,457	30,428	22,676
Total Number of Structure	51,857	15,667	4,952	4,216	6,499
Residential Structures	46,860	13,934	4,219	3,811	5,904
Non-Residential Structure	3,432	1,003	396	209	398
Warehouses	1,565	730	337	196	197

Notes: 1. Without-project damages represent equivalent annual damages for the period 2025-2075, and reflect 2015 price levels.

Table 41
Southwest Coastal, LA Feasibility Study
Equivalent Annual Damages and Benefits
FY 2015 Price Level
FY15 3.375% Discount Rate
50-year Project Life
$1000s

Floodplain	Tier 1 0 to 25 year	Tier 2 25 to 50 year	Tier 3 50 to 100 year
Without-Project Damages	$ 280,457	$ 30,428	$ 22,676
With-Project Damages	17,278	5,713	5,617
Project Benefits	263,179	24,715	17,059

OMB 7% Discount Rate

Floodplain	0 to 25 year	25 to 50 year	50 to 100 year
Without-Project Damages	$ 273,254	$ 27,944	$ 19,972
With-Project Damages	15,341	4,773	4,455
Project Benefits	257,913	23,171	15,517

Note: Results reflect the inclusion of an anomaly in the structure inventory that does not affect plan selection.

Table 42
Southwest Coastal, LA Feasibility Study
Cost per Square Foot of Elevating Residential Structures
(2015 Price Level)
(In Dollars)

	1STY-SLAB			2STY-SLAB			1STY-PIER			2STY-PIER			MOBHOM		
Ft. Raised	Min	Most Likely	Max	Min	Most Likely	Max	Min	Most Likely	Max	Min	Most Likely	Max	Min	Most Likely	Max
1	66	74	82	74	82	90	57	65	73	64	72	80	32	36	40
2	66	74	82	74	82	90	57	65	73	64	72	80	32	36	40
3	67	75	83	75	83	91	60	68	76	67	75	83	32	36	40
4	70	78	86	80	88	96	60	68	76	67	75	83	32	36	40
5	70	78	86	80	88	96	60	68	76	67	75	83	40	44	48
6	71	79	87	82	90	98	61	69	77	68	76	84	40	44	48
7	71	79	87	82	90	98	61	69	77	68	76	84	40	44	48
8	74	82	90	85	93	101	63	71	79	70	78	86	40	44	48
9	74	82	90	85	93	101	63	71	79	70	78	86	40	44	48
10	74	82	90	85	93	101	63	71	79	70	78	86	40	44	48
11	74	82	90	85	93	101	63	71	79	70	78	86	40	44	48
12	74	82	90	85	93	101	63	71	79	70	78	86	40	44	48
13	77	85	93	90	98	106	64	72	80	71	79	87	40	44	48

(2012 Price Level)
(In Dollars)

	1STY-SLAB			2STY-SLAB			1STY-PIER			2STY-PIER			MOBHOM		
Ft. Raised	Min	Most Likely	Max	Min	Most Likely	Max	Min	Most Likely	Max	Min	Most Likely	Max	Min	Most Likely	Max
1	62	70	77	70	77	85	54	62	69	61	68	76	30	34	38
2	62	70	77	70	77	85	54	62	69	61	68	76	30	34	38
3	64	71	79	71	79	86	57	64	72	63	71	78	30	34	38
4	66	74	81	76	84	91	57	64	72	63	71	78	30	34	38
5	66	74	81	76	84	91	57	64	72	63	71	78	38	42	45
6	68	75	83	78	85	93	58	66	73	65	72	80	38	42	45
7	68	75	83	78	85	93	58	66	73	65	72	80	38	42	45
8	70	78	85	80	88	96	60	67	75	66	74	81	38	42	45
9	70	78	85	80	88	96	60	67	75	66	74	81	38	42	45
10	70	78	85	80	88	96	60	67	75	66	74	81	38	42	45
11	70	78	85	80	88	96	60	67	75	66	74	81	38	42	45
12	70	78	85	80	88	96	60	67	75	66	74	81	38	42	45
13	73	80	88	85	93	101	61	69	76	68	75	83	38	42	45

Table 43
Southwest Coastal, LA Feasibility Study
Average Footprint of Structure by Category

Structure Category	Average Footprint (sq. ft.)
One story Pier	1,479
One story slab	2,031
Two story pier	1,328
Two story slab	1,788
Mobile home	576
Eatery	5,972
Grocery	6,362
Multi-Occupancy	38,321
Professional	6,190
Public	7,970
Repair	5,772
Retail	11,408
Warehouse	6,297

Note: Calculated from collected structure inventory.

Table 44
Southwest Coastal, LA Feasibility Study
Unit Cost of Nonstructural Measures
(FY 2012 Price Level)
(In Dollars)

Floodproofing Cost		Localized Risk Reduction Measures		Acquisitions		Structure Raising	
Square Feet of Structure	Cost per Structure	Real Estate Administrative Cost	$10,000	The Depreciated Replacement Value of Each Structure		Real Estate Administrative Cost	$ 10,000
< 20k	$ 98,922						
20-100k	306,452	Buffer: 160 Linear Feet		Real Estate Administrative Cost	$ 30,000	Temporary Relocation Cost	$ 6,148
> 100k	772,158	Cost per Linear Foot:	$780	Relocation Assistance Cost	$ 60,000	Cost per square foot of raising times the square footage of the structure	
Real Estate Administrative Cost	$ 10,000	Perimeter of wareouse plus buffer times cost per linear foot		Land Value	$ 70,000		

(FY 2015 Price Level)
(In Dollars)

Floodproofing Cost		Localized Risk Reduction Measures		Acquisitions		Structure Raising	
Square Feet of Structure	Cost per Structure	Real Estate Administrative Cost	$ 10,540	The Depreciated Replacement Value of Each Structure		Real Estate Administrative Cost	$ 10,540
< 20k	$ 104,264						
20-100k	323,000	Buffer: 160 Linear Feet		Real Estate Administrative Cost	$ 31,620	Temporary Relocation Cost	$ 6,480
> 100k	813,855	Cost per Linear Foot:	$ 822	Relocation Assistance Cost	$ 63,240	Cost per square foot of raising times the square footage of the structure	
Real Estate Administrative Cost	$ 10,540	Perimeter of wareouse plus buffer times cost per linear foot		Land Value	73,780		

Sources: Donaldsonville-to-the-Gulf, Feasibilty Study and Real Estate Division, New Orleans District.

Table 45
Southwest Coastal, LA Feasibility Study
First Cost and Averge Annual Cost
FY 2012 Price Level
$1000s
FY15 3.375% Discount Rate
50-Year Project Life

Floodplain	Tier 1 0 to 25 year		Tier 2 25 to 50 year		Tier 3 50 to 100 year
First Cost	801,577		558,689		879,889
Average Annual Cost	33,408		23,284		36,671

OMB 7% Discount Rate

Floodplain	Tier 1 0 to 25 year		Tier 2 25 to 50 year		Tier 3 50 to 100 year
First Cost	801,577		558,689		879,889
Average Annual Cost	58,082		42,138		66,364

FY 2015 Price Level
$1000s
FY15 3.375% Discount Rate

Floodplain	Tier 1 0 to 25 year		Tier 2 25 to 50 year		Tier 3 50 to 100 year
First Cost	834,361		581,539		915,877
Average Annual Cost	34,774		24,237		38,171

OMB 7% Discount Rate

Floodplain	Tier 1 0 to 25 year		Tier 2 25 to 50 year		Tier 3 50 to 100 year
First Cost	834,361		581,538.88		915,876.78
Average Annual Cost	60,458		42,138		66,364

Table 46
Southwest Coastal, LA Feasibility Study
Net Benefit Analysis
FY 2015 Price Level
$1000s
FY15 3.375% Discount Rate
50-Year Project Life

Floodplain	Tier 1 0 to 25 year		Tier 2 25 to 50 year		Tier 3 50 to 100 year
First Cost	834,361		581,539		915,877
Equivalent Annual Benefits	263,179		24,715		17,059
Average Annual Cost	34,774		24,237		38,171
Annual Net Benefits	228,405		478		(21,112)
Benefit-to-Cost Ratio	7.57		1.02		0.45

OMB 7% Discount Rate

Floodplain	Tier 1 0 to 25 year		Tier 2 25 to 50 year		Tier 3 50 to 100 year
First Cost	834,361		581,539		915,877
Equivalent Annual Benefits	257,913		23,171		15,517
Average Annual Cost	60,458		42,138		66,364
Annual Net Benefits	197,455		(18,967)		(50,847)
Benefit-to-Cost Ratio	4.27		0.55		0.23

Note: Results reflect the inclusion of an anomaly in the structure inventory that does not affect plan selection.

Table 47
Southwest Coastal, LA Feasibility Study
Optimization of Tier 1 Plan by Level of Risk Reduction
FY 2015 Price Level
$1000s
FY 2015 Federal Discount Rate-3-3/8%
50-Year Project Life

	50-Year	100-Year	200-Year
First Costs	823,708	834,361	842,354
Average Annual Costs	34,330	34,774	35,107
Average Annual Benefits	199,833	204,023	204,894
Benefit-to-Cost Ratio	5.82	5.87	5.84
Excess Benefits	165,503	169,250	169,787

OMB Discount Rate-7%

	50-Year	100-Year	200-Year
First Costs	823,708	834,361	842,354
Average Annual Costs	59,686	60,458	61,037
Average Annual Benefits	206,559	210,544	211,217
Benefit-to-Cost Ratio	3.46	3.48	3.46
Excess Benefits	146,873	150,086	150,180

Note: Results reflect the adjustment made to structures receiving damage equivalent to 50% or more of their depreciated replacement value.

Table 48
Southwest Coastal, LA Feasibility Study
Net Benefit Analysis for Plan Tier 1
$1000s
50-Year Project Life

FY 2015 Price Level FY 2015 Federal Discount Rate-3.375%	
First Costs (Preliminary)	678,126
Equivalent Without-Project Damages	215,776
Equivalent With-Project Damages	15,676
Equivalent Annual Benefits	200,100
Average Annual Costs	28,262
Benefit-to-Cost Ratio	7.08
Equivalent Annual Net Benefits	171,838
OMB Discount Rate-7%	
First Costs (Preliminary)	678,126
Equivalent Without-Project Damages	220,586
Equivalent With-Project Damages	14,032
Equivalent Annual Benefits	206,554
Average Annual Costs	49,137
Benefit-to-Cost Ratio	4.20
Equivalent Annual Net Benefits	157,417
FY 2016 Price Level FY 2016 Federal Discount Rate 3.125%	
First Costs (Preliminary)	681,887
Equivalent Without-Project Damages	219,683
Equivalent With-Project Damages	16,129
Equivalent Annual Benefits	203,554
Average Annual Costs	27,134
Benefit-to-Cost Ratio	7.50
Equivalent Annual Net Benefits	176,419
FY 2016 Federal Discount Rate 3.125% with Certified Cost	
First Costs (Certified)	906,091
Equivalent Without-Project Damages	219,683
Equivalent With-Project Damages	16,129
Equivalent Annual Benefits	203,554
Average Annual Costs	36,056
Benefit-to-Cost Ratio	5.65
Equivalent Annual Net Benefits	167,498

Table 48 Continued

OMB Discount Rate-7%	
First Costs (Preliminary)	681,887
Equivalent Without-Project Damages	224,998
Equivalent With-Project Damages	14,312
Equivalent Annual Benefits	210,686
Average Annual Costs	49,409
Benefit-to-Cost Ratio	4.26
Equivalent Annual Net Benefits	161,277

OMB Discount Rate-7% with Certified Cost	
First Costs (Certified)	906,091
Equivalent Without-Project Damages	224,998
Equivalent With-Project Damages	14,312
Equivalent Annual Benefits	210,686
Average Annual Costs	65,655
Benefit-to-Cost Ratio	3.21
Equivalent Annual Net Benefits	145,031

Note 1: Results reflect the adjustment made to structures receiving damage equivalent to 50% or more of their depreciated replacement value.

Note 2: Results include economically justified structures only.

Table 49
Southwest Coastal, LA Feasibility Study
Structure Counts by Measure for Plan Tier 1

	Residential	Non-Residential	Warehouses
Elevations	3,456	0	0
Flood Proofings	0	342	0
Localized Risk Reduction Measures	0	0	157
Acquisitions	6	0	0
Total	3,462	342	157

Note: The six acquisitions are due to the 13 foot limit on elevations.

Table 50
Southwest Coastal, LA Feasibility Study
Risk Analysis
Probability that Equivalent Annual Benefits Exceed Annual Costs
NED Plan
$1000s

		Values (2015 price levels)					
Component	Equivalent Annual Damages Reduced	0.75	0.50	0.25	Annual Costs	Probability Benefits Exceed Costs
FY 2015 Price Level and Discount Rate (Preliminary Cost)	200,100	169,154	198,483	229,206	28,262	Greater than 75 percent
FY 2016 Price Level and Discount Rate (Preliminary Cost)	203,554	171,883	201,807	233,135	27,134	Greater than 75 percent
FY 2016 Price Level and Discount Rate (Certified Cost)	203,554	171,883	201,807	233,135	36,056	Greater than 75 percent
FY 2016 Price Level; OMB rate (Certified Cost)	210,686	179,125	208,709	210,565	65,655	Greater than 75 percent

Table 51
Southwest Coastal, LA Feasibility Study
Focused Array of Alternatives for National Ecosystem Restoration

PLAN NUMBER	Alternative
C-1	Calcasieu Large Integrated Restoration
C-2	Calcasieu Moderate Integrated Restoration
C-3	Calcasieu Moderate Integrated Restoration
C-4	Calcasieu Small Integrated Restoration
C-5	Calcasieu Interior Perimeter Salinity Control
C-6	Calcasieu Marsh & Shoreline
CM-1	Comprehensive Large Integrated Restoration
CM-2	Comprehensive Moderate Integrated Restoration
CM-3	Comprehensive Moderate Integrated Restoration
CM-4	Comprehensive Small Integrated Restoration
CM-5	Comprehensive Interior Perimeter Salinity Control
CM-6	Comprehensive Marsh & Shoreline
M-1	Mermentau Large Integrated Restoration
M-2	Mermentau Moderate Integrated Restoration
M-3	Mermentau Moderate Integrated Restoration
M-4	Mermentau Small Integrated Restoration
M-5	Mermentau Interior Perimeter Salinity Control
M-6	Mermentau Marsh & Shoreline

Table 52
Southwest Coastal, LA Feasibility Study
Costs and Net AAHUs
Without Negative Measures
FY16 Federal Discount Rate 3.175%
50-Year Project Life

Plan	AA Cost (1,000$)	Net AAHUs
C-1	32,905	4,129
C-2	29,474	3,688
C-3	40,833	3,868
C-4	15,360	1,800
C-5	26,719	1,980
C-6	32,905	4,129
CM-1	85,933	8,623
CM-2	63,216	6,990
CM-3	74,575	7,170
CM-4	46,766	4,976
CM-5	58,125	5,156
CM-6	80,884	8,285
M-1	53,028	4,495
M-2	33,742	3,301
M-3	33,742	3,301
M-4	31,406	3,176
M-5	31,406	3,176
M-6	47,978	4,157

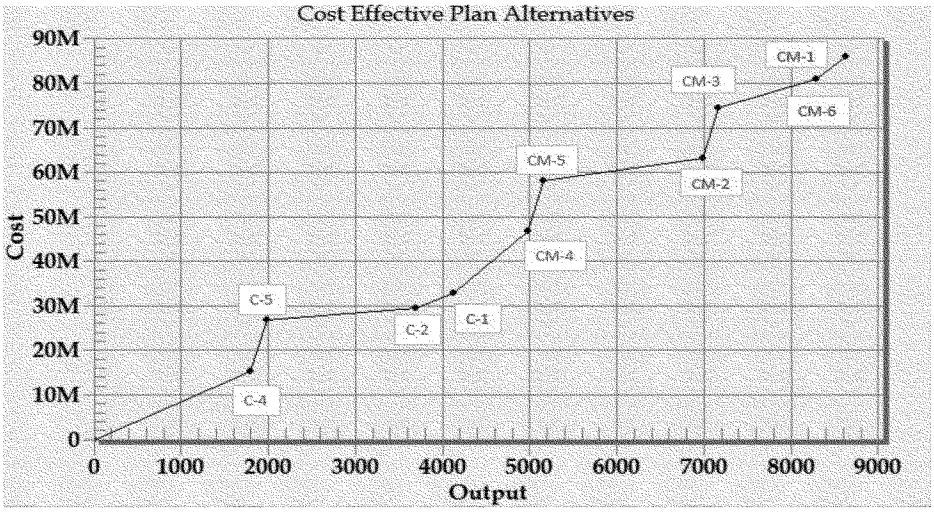
Note: Average Annual Cost estimates include construction cost, O&M, and interest during construction.

Table 53
Southwest Coastal, LA Feasibility Study
Best Buys and Cost-Effective Plans
Incremental Cost Analysis Results
FY16 Federal Discount Rate 3.175%
50-Year Project Life

Name	AA Cost (1000$)	Net AAHUs	Cost Effective
CM-6	80,884	8,285	Best Buy
CM-3	74,575	7,170	Yes
CM-2	63,216	6,990	Best Buy
CM-5	58,125	5,156	Yes
CM-4	46,766	4,976	Yes
C-1	32,905	4,129	Best Buy
C-2	29,474	3,688	Yes
C-5	26,719	1,980	Yes
C-4	15,360	1,800	Yes

Plan	Net AAHUs (Output)	AA Cost	Average Cost	Incremental Cost	Incremental Output	Inc. Cost Per Inc. Output
C-1	4,129	32,905	7.97	32,905	4,129	7.97
CM-2	6,990	63,216	9.04	30,311	2,861	10.59
CM-6	8,285	80,884	9.76	17,668	1,295	13.64

Figure 1
Southwest Coastal, LA Feasibility Study
Cost-Effective and Best Buy Plans



Plans in Blue are cost effective; plans in red are best buys.

Figure 2
Southwest Coastal, LA Feasibility Study
Incremental Cost Per Unit of Output

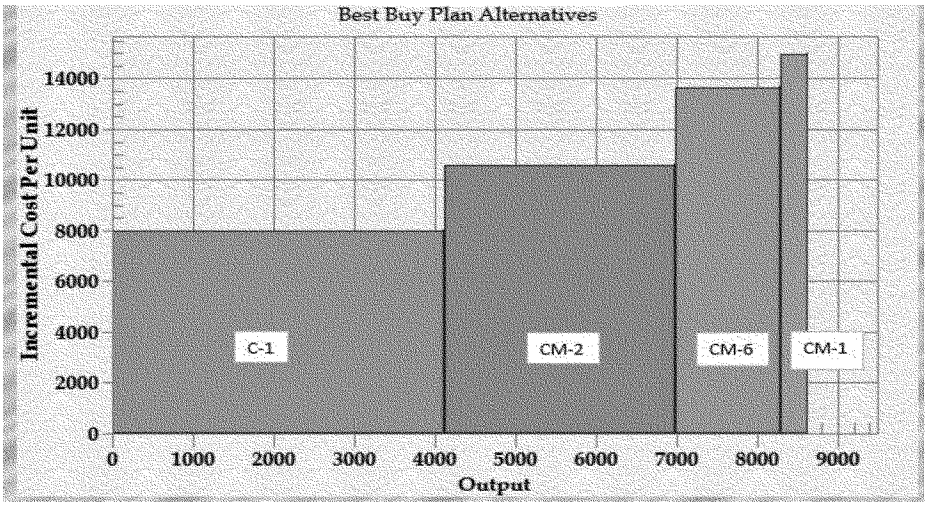


Table 54
Southwest Coastal, LA Feasibility Study
Construction Cost Schedule (CM-4)
FY16 Federal Discount Rate 3.175%
50-Year Project Life

Year	Period of Analysis	Construction Costs	PV Factor	Construction Costs
2022	-2	$206,007,000	1.0635	$219,084,000
2023	-1	$491,949,000	1.0313	$507,322,000
2024	0	$292,614,000	1.0000	$292,614,000
2025	1	$0	0.9697	0
2026	2	$0	0.9403	0
2027	3	$0	0.9118	0
2028	4	$0	0.8842	0
2029	5	$0	0.8574	0
2030	6	$0	0.8314	0
2031	7	$0	0.8062	0
2032	8	$0	0.7818	0
2033	9	$0	0.7581	0
2034	10	$0	0.7351	0
2035	11	$0	0.7128	0
2036	12	$0	0.6912	0
2037	13	$0	0.6703	0
2038	14	$0	0.6500	0
2039	15	$0	0.6303	0
2040	16	$0	0.6112	0
2041	17	$0	0.5927	0
2042	18	$0	0.5747	0
2043	19	$0	0.5573	0
2044	20	$0	0.5404	0
2045	21	$0	0.5240	0
2046	22	$0	0.5082	0
2047	23	$0	0.4928	0
2048	24	$0	0.4778	0
2049	25	$0	0.4633	0
2050	26	$0	0.4493	0
2051	27	$0	0.4357	0
2052	28	$0	0.4225	0
2053	29	$0	0.4097	0
2054	30	$0	0.3973	0
2055	31	$0	0.3852	0
2056	32	$0	0.3736	0
2057	33	$0	0.3622	0
2058	34	$0	0.3513	0
2059	35	$0	0.3406	0
2060	36	$0	0.3303	0
2061	37	$0	0.3203	0
2062	38	$0	0.3106	0
2063	39	$0	0.3012	0
2064	40	$0	0.2920	0
2065	41	$0	0.2832	0
2066	42	$0	0.2746	0
2067	43	$0	0.2663	0
2068	44	$0	0.2582	0
2069	45	$0	0.2504	0
2070	46	$0	0.2428	0
2071	47	$0	0.2354	0
2072	48	$0	0.2283	0
2073	49	$0	0.2214	0
2074	50	$0	0.2147	0
Total		$ 990,570,000		$1,019,020,000

Table 54
Southwest Coastal, LA Feasibility Study
O&M Schedule (CM-4)
FY16 Federal Discount Rate 3.175%
50-Year Project Life

Year	Period of Analysis	Construction Costs	PV Factor	PV Construction Costs
2022	-2		1.0635	0
2023	-1		1.0313	0
2024	0		1.0000	0
2025	1	-	0.9697	0
2026	2	-	0.9403	0
2027	3	-	0.9118	0
2028	4	-	0.8842	0
2029	5	-	0.8574	0
2030	6	-	0.8314	0
2031	7	-	0.8062	0
2032	8	-	0.7818	0
2033	9	-	0.7581	0
2034	10	-	0.7351	0
2035	11	22,482,000	0.7128	16,026,000
2036	12	-	0.6912	0
2037	13	-	0.6703	0
2038	14	-	0.6500	0
2039	15	-	0.6303	0
2040	16	-	0.6112	0
2041	17	-	0.5927	0
2042	18	-	0.5747	0
2043	19	-	0.5573	0
2044	20	-	0.5404	0
2045	21	50,989,000	0.5240	26,720,000
2046	22	-	0.5082	0
2047	23	-	0.4928	0
2048	24	-	0.4778	0
2049	25	-	0.4633	0
2050	26	238,103,000	0.4493	106,980,000
2051	27	-	0.4357	0
2052	28	-	0.4225	0
2053	29	-	0.4097	0
2054	30	-	0.3973	0
2055	31	-	0.3852	0
2056	32	-	0.3736	0
2057	33	-	0.3622	0
2058	34	-	0.3513	0
2059	35	-	0.3406	0
2060	36	-	0.3303	0
2061	37	-	0.3203	0
2062	38	-	0.3106	0
2063	39	-	0.3012	0
2064	40	-	0.2920	0
2065	41	-	0.2832	0
2066	42	-	0.2746	0
2067	43	-	0.2663	0
2068	44	-	0.2582	0
2069	45	-	0.2504	0
2070	46	-	0.2428	0
2071	47	-	0.2354	0
2072	48	-	0.2283	0
2073	49	-	0.2214	0
2074	50	-	0.2147	0
Total		311,574,000		149,726,000

Note: The construction cost estimate of CM-4 represents the project feasibility cost estimate ; the Corps' Cost Center of Expertise reported a certified construction cost of $2,422,220,000. Preliminary costs were used to evaluate alternatives. Cost certification, which includes contingencies, PED costs, and S&A costs, was only developed for the recommended plan.

Table 55
Southwest Coastal, LA Feasibility Study
Average Annual Cost of the TSP (CM-4)

Interest Rate		3.125%
Amortization Factor (Rounded)		0.03980
Construction Cost		$990,570,000
Interest During Construction		28,450,000
Total Implementation Cost		$1,019,020,000
O&M Cost		149,726,000
Average Annual Construction Cost		40,549,817
Average Annual O&M Cost		5,958,040
Total Average Annual Cost FY15 Price Level	$	46,507,857
Total Average Annual Cost FY16 Price Level	$	46,765,789

Note: The construction cost estimate of CM-4 represents the project feasibility cost estimate; estimate; the Corps' Cost Center of Expertise reported a certified construction cost of $2,422,220.00

Table 56
Southwest Coastal, LA Feasibility Study
Regional Economic Development Analysis (RED)
Impact Region Profile

County	FIPS	Area (sq. mi)	Population	Households	Total Personal Income (in millions)
Acadia	22001	657	61,376	22,377	$1,905
Calcasieu	22019	1,094	188,606	72,232	$6,796
Cameron	22023	1,642	7,597	2,782	$233
Jefferson Davis	22053	659	31,519	11,706	$989
Vermilion	22113	1,301	56,905	21,286	$1,731
Total		**5,353**	**346,003**	**130,383**	**$11,655**

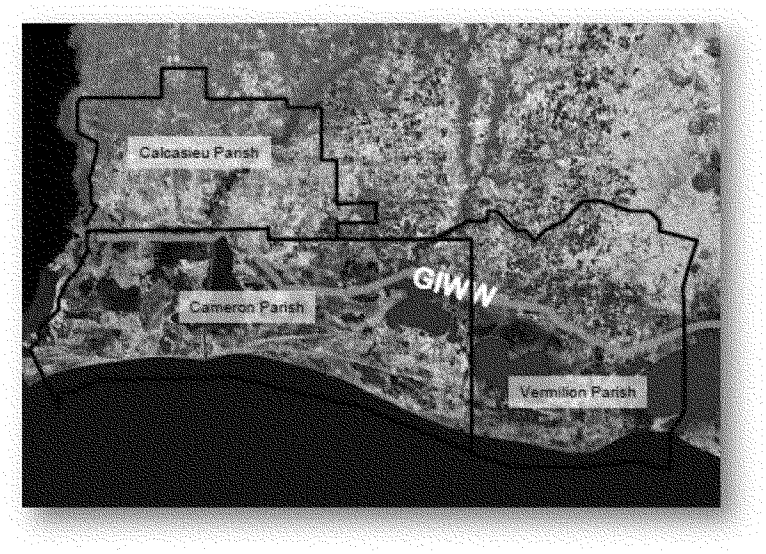
Table 57
Southwest Coastal, LA Feasibility Study
Regional Economic Development Analysis (RED)
Summary of Impacts
NED TSP

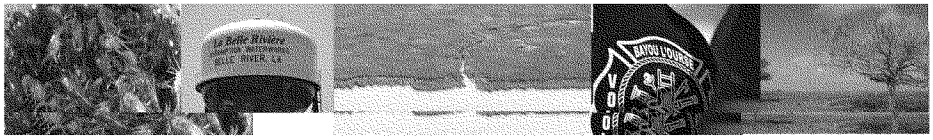
Impact	Regional	State	National
		Direct Impact	
Output	$660,333,000	$744,510,000	$819,000,000
Jobs	10,000	11,000	12,000
Labor Income	$392,779,000	$432,323,000	$465,166,000
GRP	$463,510,000	$516,580,000	$556,135,000
		Secondary Impact	
Output	$344,177,000	$605,097,000	$1,390,755,000
Jobs	3,000	5,000	9,000
Labor Income	$109,232,000	$207,306,000	$460,665,000
GRP	$196,483,000	$353,819,000	$793,667,000
		Total Impact	
Output	$1,004,510,000	$1,349,607,000	$2,209,754,000
Jobs	13,000	16,000	21,000
Labor Income	$502,011,000	$639,629,000	$925,832,000
GRP	$659,994,000	$870,399,000	$1,349,802,000

NER TSP

Impact	Regional	State	National
		Direct Impact	
Output	$971,189,000	$981,153,000	$1,307,454,000
Jobs	9,000	9,000	14,000
Labor Income	$577,812,000	$586,585,000	$775,023,000
GRP	$603,774,000	$612,455,000	$814,158,000
		Secondary Impact	
Output	$599,652,000	$854,653,000	$2,447,847,000
Jobs	5,000	6,000	14,000
Labor Income	$183,545,000	$281,142,000	$779,414,000
GRP	$328,662,000	$475,174,000	$1,338,064,000
		Total Impact	
Output	$1,570,840,000	$1,835,806,000	$3,755,301,000
Jobs	14,000	16,000	28,000
Labor Income	$761,357,000	$867,727,000	$1,554,437,000
GRP	$932,436,000	$1,087,630,000	$2,152,222,000

APPENDIX E
REAL ESTATE PLAN





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A. PURPOSE OF THE REAL ESTATE PLAN

This Real Estate Plan (REP) presents the real estate requirements and costs for the Integrated Final Feasibility Report and Environmental Impact Statement for the Southwest Coastal Louisiana Feasibility Study (SWC). The information contained herein is tentative in nature for planning purposes only. Design optimization and feature prioritization will be performed after project authorization; therefore, this Real Estate Plan may be revised upon further analysis. Detailed maps for access, staging and other specifics relating to project features may not be developed until each restoration measure undergoes more detailed design analysis.

The study purpose is to evaluate risk reduction for damages from hurricane storm surge and coastal ecosystem degradation in Cameron, Calcasieu, and Vermilion parishes in Louisiana. The intent is to develop risk reduction measures for hurricane storm surge damages and measures to address coastal ecosystem degradation.

B. PROJECT AUTHORIZATION

The Southwest Coastal Louisiana study has both National Economic Development (NED) and National Ecosystem Restoration (NER) components. This stems from two authorizations. The development of an NED plan was authorized pursuant to a Resolution of the Committee on Transportation and Infrastructure, U.S. House of Representatives, Docket 2747, on December 7, 2005, following the impact of Hurricane Rita in 2005, and included consideration of a plan for an armored 12-foot levee along the GIWW across Calcasieu, Cameron, and Vermilion Parishes:

> 'Resolved by the Committee on Transportation and Infrastructure of the United States House of Representatives, that, in accordance with Section 110 of the River and Harbor Act of 1962, the Secretary of the Army is requested to survey the coast of Louisiana in Cameron, Calcasieu, and Vermilion Parishes with particular reference to the advisability of providing hurricane protection and storm damage reduction and related purposes to include the feasibility of constructing an armored 12-foot levee along the Gulf Intracoastal Waterway." (December 7, 2005 – Committee on Transportation and Infrastructure, U.S. House of Representatives, Resolution Docket 2747, Southwest Coastal Louisiana)

The investigation of large scale ecosystem restoration concepts, including the Chenier Plain Freshwater Management and Allocation Reassessment Study (Chenier Plain Study), was recommended in the January 31, 2005 Chief's Report for the Louisiana Coastal Area, Ecosystem Restoration. The Chenier Plain Study was one of six large-scale restoration concepts that were purported to have the ability to "significantly restore environmental conditions that existed prior to large-scale alteration of the natural ecosystem upon construction". The Louisiana Coastal Area (LCA) program was authorized in Title VII of the Water Resources Development Act of 2007 (WRDA 2007). Guidance provided by the Director of Civil Works on December 19, 2008 states that *"the coastal restoration components proposed as part of the LCA Chenier Plain study will be evaluated as part of the Southwest Coastal Louisiana feasibility study".*

C. STUDY AREA AND PROJECT PURPOSE

The overall study area is located in southwest Louisiana and includes Calcasieu, Cameron and Vermilion Parishes encompassing approximately 4,700 square miles. The area is rich in natural resources and industrial infrastructure. The economy of the coastal communities is centered on fishing, shrimping, and offshore oil services. The agricultural land located 30 to 40 miles inland is used for rice, sugar cane, and livestock production. The northern-most portion of the area is heavily forested and supports a substantial timber industry. Lake Charles, which is the population center of the region, is the home of large oil refineries, petro-chemical plants, a deep-water port,

McNeese State University, and casinos along the lakefront area. The Port of Lake Charles is a key center for international trade, and is among the top 15 busiest ports in the nation.

The low elevation of the land and proximity to the Gulf of Mexico put the area's unique environment and cultural heritage at risk due to damages from hurricane storm surge and coastal erosion. Land subsidence, combined with rising sea level, is expected to increase the potential for coastal flooding, shoreline erosion, saltwater intrusion, and loss of wetland and Chenier habitats. The NED purpose is to develop a plan to reduce damages caused by flooding associated with hurricane storm surge in Cameron, Calcasieu, and Vermilion parishes in Southwest Coastal Louisiana. The NER purpose is to evaluate coastal restoration components and develop a plan to reduce land loss and coastal erosion, and restore environmental conditions for the Chenier Plain ecosystem in Southwest Coastal Louisiana.

The Federal objective of water and related land resources planning is to contribute to national economic development while protecting the Nation's environment. There are two Recommended Plans described in this REP: (1) The NED RP, and (2) the NER RP.

D. PROJECT MAPS

Larger versions of the project maps displayed within this document, as well as additional maps showing project features, are located within Annex 1 (NED) and Annex 2 (NER).

E. NON-FEDERAL SPONSOR

A Feasibility Cost Share Agreement (FCSA) with the Coastal Protection and Restoration Authority of Louisiana, now known as the Coastal Protection and Restoration Authority Board of Louisiana (CPRAB), was executed for this study on January 14, 2009. It is anticipated that CPRAB will be the Non-Federal Sponsor (NFS) for the design, construction, operation, maintenance, repair, rehabilitation and restoration (OMRR&R) of the project. CPRAB as the NFS, is charged, among other things, with responsibility for the provision of all lands, easements, and rights-of-way, including those required for relocations, the borrowing of material, and the disposal of dredged or excavated material; performing or ensuring the performance of all relocations; and constructing all improvements required on lands, easements, and rights-of-way to enable the disposal of dredged or excavated material all as determined by the Government to be required or to be necessary for the construction and OMRR&R of the project (LERRDs). Although CPRAB does not have the authority to acquire and hold lands, its implementation and enforcement arm, the Coastal Protection and Restoration Authority (CPRA) has authority to acquire and hold immovable property and other land rights.

As the NFS for previous USACE projects, CPRAB, acting through CPRA has been found to be fully capable of acquiring LERRDs, based on its authority to perform acquisition, as well as its authority to partner with local agencies (*See.* La. R,S, 49:214.1, *et seq.*). Because the NED plan in the Final Report recommends voluntary participation by structure owners, it is not anticipated that CPRA will be required to exercise its condemnation authority for any of the LERRDs required for the NED Plan. However, if condemnation becomes necessary for acquisition of LERRDs for the NER Plan, it is noted that CPRA does not have "quick take" authority for acquisition of a real property interests for coastal restoration or creation of coastal wetlands, except with regard to the limited quick take authority provided under La. R.S. 49.214.61 relative to barrier island restoration, creation and protection which does not apply to the NER RP features. CPRA does have the authority to partner with another public agency, including but not limited to a levee district or parish government, pursuant to La. R.S. 38:301, La. R.S. 38:301.1 and La. R.S. 49:214.5.2, to acquire the lands needed for this project.

An Assessment of the NFS' Real Estate Acquisition Capability for CPRAB is attached as Annex 3. The NFS has been found to be highly capable of performing acquisition of the LER required for the project, conditioned upon its ability to enter into a Cooperative Endeavor Agreement with another public agency, political subdivision, or political entity that has quick-take condemnation authority, should it be necessary to acquire any

LERRDs for the NER project features through condemnation proceedings. In the event that quick-take authority should be necessary, the NFS has indicated its willingness to partner with another agency. The NFS has been notified in writing of the risks of acquiring LERRDs before execution of the PPA.

F. NED RECOMMENDED PLAN

The NED Recommended Plan (RP) consists of implementing nonstructural measures to reduce the risk of damages from hurricane storm surge to residential and non-residential structures that have first floor elevations at or below the 0-25 year flood plain based on hydrology predicted to occur in 2025. An assessment of at-risk properties has currently identified a total of 3,961 total structures (3,462 residential, 342 commercial and 157 warehouses) that appear to meet the preliminary eligibility criteria for participation in the Project.

The Nonstructural NED Plan consists of the following hurricane storm surge damage risk reduction measures:

1. Elevation to the 100-year base flood elevation (BFE) based on year 2075 hydrology of eligible residential structures. If the required elevation is greater than 13 feet above ground level, the structure would not be eligible for elevation.
2. Dry flood-proofing to the BFE generally means the use of a variety of techniques to reduce the risk of hurricane storm surge damage to a structure by making that structure resistant to flooding from hurricane storm surge.

3. Construction of localized storm surge risk reduction measures of less than 6 feet in height around warehouses.

Figure 1 below shows an overview of the locations of properties that are eligible for participation in the nonstructural program within the study area. Additionally, a larger map demonstrating the structures located within the 25 year flood plain is located within Annex 1.

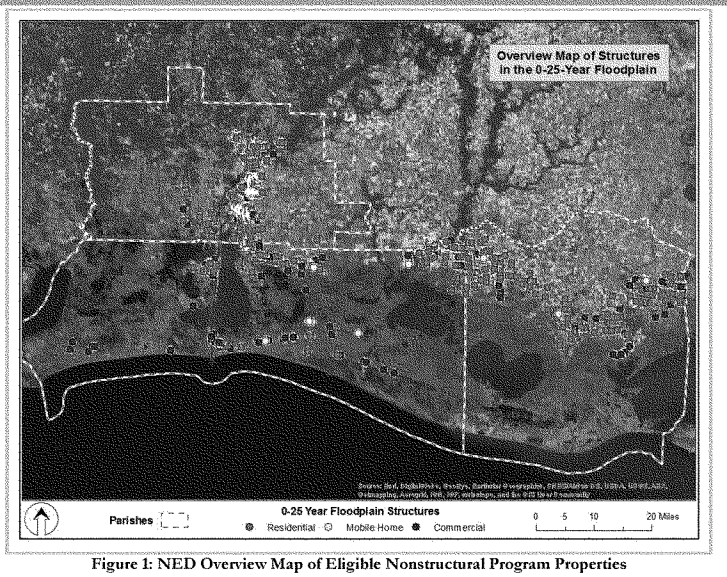

Figure 1: NED Overview Map of Eligible Nonstructural Program Properties

The District has prepared a Nonstructural Implementation Plan, which provides details regarding a possible method of program implementation (Refer to Appendix L). An overview discussion of the Nonstructural Implementation Criteria, as discussed in Appendix L, is also included this Real Estate Plan.

It is assumed that all properties have legal access by way of public streets or existing public right-of-way. Further it is assumed that residential and commercial properties participating in the program will have sufficiently large sites to accommodate staging of material and equipment. For the purposes of this report, the assumption is that no further real estate rights need to be acquired for access to the properties or staging. Should additional right-of-way be necessary, a standard Temporary Work Area Easement would be acquired.

1. RESIDENTIAL STRUCTURE ELEVATION

The following information is based on information contained in Appendix L of the Revised Integrated Feasibility Report and Environmental Impact Statement. More detailed information regarding the proposed implementation plan can be found in Appendix L. Some or all of this information may be modified as the implementation plan is finalized as a part of Planning, Engineering and Design (PED).

Each residential structure that is located within the 0-25-year floodplain will be considered for eligibility for elevation of the structure "in place". Elevations will be voluntary in nature and will be available to willing landowners for structures that meet the eligibility criteria detailed in Appendix L. If after completion of the investigation of the property, USACE determines that the structure is eligible for elevation, the entire

foundation of the structure will be lifted and placed on a new foundation (i.e., columns, piers, posted or raised foundation walls) so that the lowest habitable finished floor is at or above the 100-year BFE predicted to occur in 2075. All utilities and mechanical equipment, such as air conditioners and hot water heaters, will also be raised to or above this elevation. Property owners may choose to raise the structure, utilities, and/or mechanical equipment in excess of the predicted 2075 100-year BFE; however costs attributable to elevations in excess of the minimum requirements set forth herein are not eligible and must be born solely by the property owner.

2. DRY FLOOD PROOFING OF NON-RESIDENTIAL STRUCTURES

Dry flood proofing consists of sealing all areas from the ground level up to approximately 3 ft of a structure to reduce the risk of damage from storm surge resulting from hurricanes of a certain magnitude, as described in this report, by making walls, doors, windows and other openings resistant to penetration by storm surge waters. Walls are coated with sealants, waterproofing compounds, or plastic sheeting is placed around the walls and covered, and back-flow from water and sewer lines prevention mechanisms such as drain plugs, standpipes, grinder pumps, and back-up valves are installed. Openings, such as doors, windows, sewer lines and vents, may also be closed temporarily, with sandbags or removable closures, or permanently. Some common flood proofing measures include:

- Backflow valves;
- Closures on doors, windows, stairwells, and vents--they may be temporary or permanent;
- Rearranging or protecting damageable property--e.g., relocate or raise utilities;
- Sump pumps and sub-drains; and
- Water resistant material; metal windows, doors and jambs; waterproof adhesives; sealants and floor drains.

3. CONSTRUCTION OF LOCALIZED STORM SURGE RISK REDUCTION MEASURES AROUND INDUSTRIAL FACILITIES AND WAREHOUSES

These measures are intended to reduce the risk of flooding from certain hurricane storm surge events, as described in this report. These measures involve the construction of localized storm surge risk reduction features that measure less than six feet in height around industrial complexes and warehouses that meet the Project's eligibility criteria. These risk reduction measures can be constructed of earth, concrete, masonry or steel and can be placed around a single structure or a contiguous group of structures. While each individual eligible warehouse and industrial structure will be evaluated for the most cost effective nonstructural measure, the government reserves the right to determine which measure shall be implemented at each structure location.

Each non-residential structure will be evaluated to determine the most cost effective method of flood proofing. At the time of this Report, it is anticipated that implementation of localized storm surge risk reduction measures will be through the Federal procurement of Indefinite Deliverable, Indefinite Quantity (IDIQ) contracts that will be implemented by the issuance of individual task orders for the implementation of flood proofing measures at each warehouse. The basis for this assumption is that the PDT has completed an inspection of the warehouse inventory. That inspection indicates that the geographic distribution of these warehouses and the inability to determine the schedule for voluntary participation do not comport with the clustering strategy whereby the rest of the NED RP will be implemented. For these reasons it is anticipated that an individual task order will be limited to a single warehouse to be flood proofed. The PDT anticipates that only a small amount of borrow would be needed for construction of the localized storm surge risk reduction measures for each warehouse being accomplished by separate task order. Based on this conclusion, it is foreseeable that commercial borrow sites would be used. As of the date of this Report, there are several commercial borrow sites within the project area that are readily available.

Real Estate regulations (ER. 405-1-12, paragraph 12-9d(3)) allow for small quantities of borrow material to be supplied by the construction contractor through the use of readily available commercial sites, if supported by an analysis conducted by the Government and the NFS, and if no other constraints exist. Since it has been determined that each IDIQ task order will address a single warehouse, for purposes of this Final Report, it has been assumed that the analysis performed pursuant to the above cited ER 405-1-12 will determine that the required borrow quantities constitute a small quantity that can be obtained through a commercial site that meets the Project requirements. Prior to issuing a construction task order, the Government will conduct the necessary analysis in accordance with ER 405-1-12. Contractors would be required to demonstrate that any proposed commercial borrow site is environmentally cleared and contains geotechnically suitable borrow material. In evaluating the suitability of the proposed commercial borrow site, impacts to wetlands or bottomland hardwoods would be prohibited. Costs of utilizing a commercial borrow site would be considered an item of construction cost, and not an item of LERRD cost.

4. NED PLAN – ESTATES

For properties that are eligible for elevation or dry flood proofing or localized storm surge risk reduction measures, an Agreement will be executed between the NFS and the landowner, which will serve as Right-of-Entry for the NFS and the U.S. for construction, inspection and OMRR&R of the Project. The agreement, as well as any required curative documents, subordination or release agreement(s), shall be recorded by the NFS in the public records of the Parish in which the property is located prior to commencement of the nonstructural improvements on the property. This Agreement is discussed in more detail in Appendix L. During PED, the necessary real estate rights for each of the measures will be determined, and if there is no standard estate applicable to the project, the rights required for construction will be drafted as non-standard estates (rights for residential elevations, dry flood proofing of eligible non-residential structures, and construction of localized storm surge risk reduction measures around warehouses). The draft estates will be submitted through CEMVD to CEHQ-RE as a Request for Approval of a Non-Standard Estate.

5. NED PLAN - UNIFORM RELOCATION ASSISTANCE (P.L. 91-646, TITLE II AS AMENDED)

Residential Elevations

Property owner/occupants of eligible residential structures who willingly participate in the residential elevation program are not considered displaced persons (in accordance with 49 CFR Part 24), and therefore are not entitled to receive relocations assistance benefits. However, displaced tenants of eligible residential structures to be elevated, are eligible for temporary relocations assistance benefits. Eligible tenants that temporarily relocate would be reimbursed for the cost of temporary alternate housing, meals and incidentals (such as laundry services), and the fees for disconnection and connection of utilities at the temporary residence. Alternate housing could be hotels or apartments, depending upon availability in the community. All temporary housing costs would need to be approved in advance by the NFS after first obtaining the prior written approval of USACE. Hotel costs would be reimbursed based on the General Services Administration per diem rates for Louisiana. Apartment costs would be based on market rents. All conditions of temporary relocation must be reasonable. Temporary relocation should not extend beyond one year before the person is returned to his or her previous unit or location. Any residential tenant who has been temporarily relocated for more than one year must be offered permanent relocation assistance which may not be reduced by the amount of any temporary relocation assistance previously provided. At a minimum, tenants shall be provided the following: reimbursement for all reasonable out-of-pocket expenses incurred in connection with the temporary relocation, including the cost of moving to and from the temporarily occupied housing, and any increase in monthly rent or utility costs at such housing. Tenants

are entitled to receive appropriate advisory services, including reasonable advance written notice of the following:

- Date and approximate duration of the temporary relocation;
- Address of the suitable decent, safe, and sanitary dwelling to be made available for the temporary period;
- Terms and conditions under which the tenant may lease and occupy a suitable decent, safe and sanitary dwelling in the building/complex upon completion of the project; and
- Provisions of reimbursement for all reasonable out of pocket expenses incurred in connection with the temporary relocation as noted above.
- In addition to relocation advisory services, displaced tenants may be eligible for other relocation assistance including relocation payments for moving expenses and replacement housing payments for the increased costs of renting or purchasing a comparable replacement dwelling.

All temporary housing costs must be approved in advance by the NFS. In order for the NFS to receive credit towards their cost-share obligations, USACE must provide prior written approval for those expenditures.

Dry Flood-Proofing of Non-Residential Structures and Construction of Localized Storm Risk Reduction Measures

It is assumed that for these measures, there will be no requirements for temporary relocation. In the event that relocations are required, in accordance with 49 CFR Part 24 (Subpart A, Section 24.2(a)(9)(ii)(D), property owner/occupants of non-residential structures who willingly participate in the program are not considered displaced, and therefore are not entitled to receive relocations assistance benefits. Additionally, businesses will not receive benefits for temporary loss of operation during construction. Business owners who are tenants of the structure, and who must relocate temporarily during construction, could receive relocation assistance advisory services and moving expenses, in accordance with 49 CFR Part 24.

6. NED PLAN - EXISTING FEDERAL PROJECTS WITHIN THE LER REQUIRED FOR THE PROJECT

There are numerous Federal projects located within the project study area. However, it is not anticipated that the structures identified for the NED nonstructural project features will be located within the boundaries of an existing Federal project.

7. NED PLAN - FEDERALLY OWNED LANDS WITHIN THE LER REQUIRED FOR THE PROJECTS

None of the structures identified for the NED nonstructural project features will be located on Federally owned lands.

8. NED PLAN - NON-FEDERAL SPONSOR OWNED LER

It is not anticipated that residential structures identified for the NED nonstructural project features will be located on NFS owned lands. However, there may be public buildings identified for flood proofing, or commercial buildings/warehouses that are located on public property, and the NFS will be required to obtain the rights necessary for construction.

9. NED PLAN – INDUCED FLOODING

There will be no induced flooding as a result of the Project.

10. NED PLAN – BASELINE COST ESTIMATES; CHART OF ACCOUNTS

Rough Order of Magnitude level cost estimates were prepared based on the assumption that there are a total of 3,961 structures to be included within the plan (3,462 residential, 342 non-residential and 157 warehouses). Real estate costs for the NED plan include administrative costs for execution of the agreement between the NFS and landowner, for elevations of residential structures and flood proofing of non-residential structures, and estimated relocation assistance costs for tenants. Costs of elevations and flood proofing are construction costs, and are not included as real estate costs. Appendix L of this report contains a listing of eligible and ineligible costs associated with the nonstructural NED measures. Figure 2 below shows the estimated real estate costs for the NED Plan:

SOUTHWEST COASTAL
NONSTRUCTURAL PLAN (0-25 YR FLOOD PLAIN)
REAL ESTATE COST ESTIMATES
3/25/2016

Total number of structures in the 0-25 yr flood plain **3961**

RESIDENTIAL ELEVATIONS AND OTHER NONSTRUCTURAL FEATURES

	RESIDENTIAL ELEVATIONS	NON-RESIDENTIAL DRY FLOOD PROOFING	LOCALIZED STORM RISK REDUCTION MEASURES	TOTAL
Estimated # of Structures	3462	342	157	3961
Land Values	$0	$0	$0	$0
Relocation Assistance	$9,966,000	$0	$0	$9,966,000
Administrative Costs	$34,620,000	$3,420,000	$1,570,000	$39,610,000
Condemnations	$0	$0	$0	$0
TOTAL REAL ESTATE COSTS	$44,586,000	$3,420,000	$1,570,000	$49,576,000
CONTINGENCIES - 25%	$11,146,500	$855,000	$392,500	$12,394,000
TOTAL PROJECT REAL ESTATE COSTS	**$55,732,500**	**$4,275,000**	**$1,962,500**	**$61,970,000**

Relocation assistance is estimated for tenants.
Minimal differences between costs presented here and those in the MCASES are due to rounding and not considered significant.
Note: This cost estimate is a worst-case scenario estimate, and assumes 100% participation. It is possible that the number of participating structures will be less, due to compliance with eligibility criteria requirements and based on the voluntary nature of participation.

Figure 2: NED Plan Real Estate Cost Estimates

These cost estimates are subject to revision during PED.

11. NED PLAN - TIMBER/MINERAL/ROW CROP ACTIVITY

The Louisiana Department of Natural Resources provides a Strategic Online Natural Resources Information System (SONRIS), which contains up-to-date information on oil & gas activity in the state of Louisiana. Review of this information indicated that there are active oil and gas wells within the study area within the justified reaches within the NED RP. Maps of specific locations of structures to be elevated/ flood proofed were not available at the time of this report. As this information is developed during more detailed design, research will be conducted to verify that mineral activity is not impacted by the project. It is not anticipated that there will be active mineral activity on lands where flood proofing measures will take place. Nonstructural project features are not expected to affect timber or crop activity within the project area.

12. NED PLAN - ZONING

It is anticipated that there may be amendments to land use regulations and building codes to prohibit new construction within the NED Project area. However, there will be no application or enactment of zoning ordinances in lieu of, or to facilitate, the nonstructural features of this project. During PED, planning and zoning regulations will be further reviewed and discussions will be conducted with the NFS regarding future land use regulations. The NFS will be required to coordinate these matters with local planning commissions.

13. NED PLAN - ACQUISITION SCHEDULE

The nonstructural project elevations and flood proofing features will require execution of an agreement between the landowner and the NFS. In addition, the following administrative functions, among others, will be required: title research, HTRW analysis, and structural condition analysis, and additional property inspections to determine eligibility. Temporary rights of entry will have to be obtained from the owners in order to perform some of these administrative duties. (Refer to Appendix L of the Integrated Feasibility Report and Environmental Impact Statement for more detailed discussion of the non-structural implementation plan.)

Tasks shown below would likely vary by property; therefore the schedule shown is the overall anticipated time for the total number of structures and assumes an overlap of tasks. The schedule is dependent upon a defined nonstructural implementation plan and assumes that project funding will be available every year. Therefore, this estimated schedule is expected to be refined as more information becomes available during PED and implementation of the NED RP.

Obtain Right-of-Entry for Investigations (To Determine Eligibility)	6-12 months	
Title research	40-60 months	
Preliminary Investigations (i.e. HTRW, structural, surveys, etc.)	36-60 months	
Execution of agreement between landowner and NFS and curative Documents for elevations or non-residential flood proofing	12-24 months	
Filing Agreement between landowner and NFS		12 months
Relocation of Displaced Tenants	12-24 months	

14. NED PLAN - FACILITY/UTILITY RELOCATIONS

At the time of this report, no facility/utility relocations have been identified, therefore no relocations are anticipated to be required for the NED features of the project. Should it be determined during PED that

facility/utility relocations are required, all costs associated with such relocations will be the responsibility of the NFS.

ANY CONCLUSION OR CATEGORIZATION CONTAINED IN THIS REPORT THAT AN ITEM IS A UTILITY OR FACILITY RELOCATION TO BE PERFORMED BY THE NON-FEDERAL SPONSOR AS PART OF ITS LERRD RESPONSIBILITIES IS PRELIMINARY ONLY. THE GOVERNMENT WILL MAKE A FINAL DETERMINATION OF THE RELOCATIONS NECESSARY FOR THE CONSTRUCTION, OPERATION OR MAINTENANCE OF THE PROJECT AFTER FURTHER ANALYSIS AND COMPLETION AND APPROVAL OF FINAL ATTORNEY'S OPINIONS OF COMPENSABILITY FOR EACH OF THE IMPACTED UTILITIES AND FACILITIES.

15. NED PLAN - HAZARDOUS, TOXIC AND RADIOACTIVE WASTE

Current information suggests there will be no HTRW issues within the project area. An ASTM Phase I HTRW Environmental Site Assessment (ESA) and Asbestos Investigation (and a Phase II ESA, if necessary) will be conducted by the non-Federal sponsor for all participating properties during the PED/project implementation phase. At that time, a determination will be made as to whether this element of the eligibility criteria has been met for each given property.

G. NER RECOMMENDED PLAN

The NER RP consists of the following measures to be implemented in the area located south of the Gulf Intracoastal Waterway (GIWW):

- Marsh Restoration and Nourishment - 9 marsh restoration features consist of delivering sediments to former marsh areas and eroding marsh areas to restore 8,175 acres and nourish 3,439 acres, resulting in an estimated net 11,666 acres. Two marsh restoration features (124d and 3c1) are partially located on USFWS refuge lands. Although these features are part of the overall NER RP, USACE is recommending USFWS seek authorization and appropriation to construct these features.
- Shoreline Protection - 5 Gulf shoreline protection features primarily consisting of offshore breakwaters span approximately 251,528 linear feet resulting in 6,135 net acres.
- Chenier Reforestation Program – replanting of seedlings on 1,413 acres in Cameron and Vermilion parishes and removal of invasive species.

Maps showing the general location of each of the NER features are located in Annex 2. Restoration features would be constructed over a large extent of the study area across a variety of habitat types. Marsh restoration and nourishment features consist of delivering sediments to open water or eroding marsh areas in order to create new vegetated wetlands. These areas would have water levels of less than two feet and have been optimized to help preserve or restore critical geomorphologic features. The minimum acreage size per restoration site is 100 acres and dredged material for restoration could come from a variety of sources including nearby borrow sites, the Gulf of Mexico or the Calcasieu Ship Channel. Hydrologic and salinity control features serve as measures that prevent the flow of water into or out of certain areas. Their primary functions are to inhibit salinity excesses and to increase wetland productivity. Only features in this category that provided benefits of at least 500 net acres are recommended in the NER RP.

Shoreline protection features have been designed to reduce erosion of canal banks and shorelines in critical areas in order to protect adjacent wetlands. Only wetland areas in excess of 100 net acres are recommended as part of the NER RP. Shoreline protection primarily consists of segmented breakwaters using rock and rip-rap. Chenier restoration features consist of planting seedlings in areas greater than five feet in elevation and with low shoreline erosion rates as well as removal of certain invasive species. Features in this category are only recommended in the NER RP if existing canopy coverage is less than 50% or if nearby development would prevent achieving study.

Two marsh restoration measures, Features 124d and 3c1 are partially located on USFWS property (Sabine National Wildlife Refuge and Cameron Prairie National Wildlife Refuge, respectively) and are included in the NER RP. These features are vitally important to help preserve the Calcasieu Lake rim and prevent vast new expanses of open water from forming should the lake rim be breached by erosional forces. All NED and NER RP features (including those recommended for appropriation and construction by USFWS) represent the "Federal Plan". Because USFWS is ultimately responsible for managing its refuge lands, USACE is not seeking authorization and funding for Features 124d and 3c1 (the USFWS features). The NED RP and the subset of NER features that are recommended for authorization and appropriation by USACE (all features minus 124d and 3c1) represent the "Corps Plan". Rather, USACE supports USFWS in seeking its own authorization and appropriation to construct the USFWS features and offers USFWS the information that USACE developed under this study effort as a starting point for USFWS efforts to obtain independent authorization and funding for the USFWS features of the Federal Plan. These two USFWS features are not included in the LERRDs necessary for the construction and OMRR&R of the Corps Plan.

1. NER PLAN - LANDS, EASEMENTS & RIGHTS-OF-WAY (LER)

Table 1 below provides descriptions of the Project features, as well as the type of ownership and proposed estate to be acquired for the construction features of each of these features of the NER RP. Acquisition for each feature will occur as individual NER features are designed. Refer to Section 2 below for the language of estates to be acquired for the project.

a. ACCESS

Project access areas have been identified on the maps located in Annex 2. The access areas identified are located on public lands. If during PED, additional access areas are determined to be required on privately owned lands, a Perpetual Access Easement will be acquired for this portion of the project. (Refer to the Estates Section G-2 below for discussion regarding the Perpetual Access Easement.)

b. STAGING

Staging area locations have been identified on the maps located in Annex 2. The staging areas will be located primarily on public lands. Detailed maps will be prepared during PED. When additional staging areas are determined to be on privately owned lands, a standard Temporary Work Area Easement will be acquired for the additional right-of-way required for this portion of the project.

c. BORROW

Project features outlined in Table 1 below contain some descriptions of borrow areas identified for construction of the project. Borrow sources include the Calcasieu Ship Channel, and parts of the Gulf of Mexico. Both borrow sources are in State of Louisiana owned water bottoms. CPRAB, a state agency, is required to provide all lands, easements, and rights-of-way, relocations, disposal and borrow areas. The CPRAB will provide the necessary interests for the project as deemed necessary by the Government, and will be entitled to have the Government consider providing credit for the lands and real property interests that CPRAB provides to the project. CPRAB will be required to obtain the necessary agreements from any non-federal government entity, and provide Right-of-Entry to the Government.

Some project features will be implemented through beneficial use of dredged material associated with the ordinary maintenance dredging cycle at Calcasieu Ship Channel. At the present time it is anticipated that the dredged materials will be transferred via pipeline through the GIWW (Federal jurisdiction). This information is subject to change based on additional analysis. Should further analysis find that there is a need for an alternative borrow source located on private lands, additional HTRW and environmental analysis would be required, and a standard Temporary Work Area Easement would be acquired for borrow. Should it be determined during PED that renourishment would be required for project features, a standard perpetual borrow easement would be acquired.

d. DREDGED MATERIAL PLACEMENT

The marsh restoration features of the NER plan require transport of sediments from borrow sites to the various marsh restoration sites, which will be done via pipeline. OMRR&R for the NER Plan features consists of marsh re-nourishment to maintain wetland elevations. A standard perpetual Utility and/or Pipeline Easement will be acquired over privately owned lands. CPRAB, as the non-Federal sponsor, will provide the necessary interests for the project as deemed necessary by the Government and will be entitled to have the Government consider providing credit for the lands and real property interests that CPRAB provides to the project. CPRAB will be required to obtain the necessary agreements from any non-federal governmental entity, and will provide Right-of-Entry to the Government. Ownership of the areas to be used for pipeline placement is further described in Table 1 below.

e. MITIGATION

The intent of the NER measures is to restore ecosystems; therefore, it is not likely that wetland habitats will be destroyed. The assumption at this time is that no mitigation is necessary. If this assumption changes at a later date, revisions will be made to the REP.

Table 1: NER Recommended Plan LER for Construction and OMRR&R

Feature	Description	Ownership	Estate
MARSH RESTORATION – 11,748 TOTAL ACRES			
3a1	Beneficial Use of Dredged Material from Calcasieu Ship Channel. 599 acres of marsh restoration on privately owned wetlands in an area northwest of Calcasieu Lake along the southern bankline of the GIWW. Approximately 5,300,000 cubic yards of material will be borrowed from maintenance dredging of the Calcasieu Ship Channel. Refer to paragraph 1c above for information concerning borrow. Pipeline for dredged material on state water bottoms.	Private State	Fee, Excluding Minerals Right of Entry
47a1	Marsh Restoration using Dredged Material South of Highway 82. 933 acres of marsh restoration and 88 acres of marsh nourishment in a privately owned area south of Highway 82 near the town of Grand Chenier. Approximately 3,000,000 cubic yards will be borrowed from a borrow area in the nearby Gulf of Mexico (state water bottom). Refer to paragraph 1c above for information concerning borrow. Pipeline for dredged material will be located partially on private lands or state water bottoms.	Private State	Fee, Excluding Minerals/Perpetual Pipeline Easement Right of Entry
47a2	Marsh Restoration using Dredged Material South of Highway 82. 1,297 acres of marsh restoration and 126 acres of marsh nourishment in a privately owned area south of Highway 82 near the town of Grand Chenier. Approximately 8,800,000 cubic yards will be borrowed from a borrow area in the nearby Gulf of Mexico. Refer to paragraph 1c above for information concerning borrow. Pipeline for dredged material will be located partially on private lands or state water bottoms.	Private State	Fee, Excluding Minerals/Perpetual Pipeline Easement Right of Entry
47c1	Marsh Restoration using Dredged Material South of Highway 82. 1,304 acres of marsh restoration and 4 acres of marsh nourishment in a privately owned area south of Highway 82 near the town of Grand Chenier. Approximately 8,600,000 cubic yards will be borrowed from a borrow area in the nearby Gulf of Mexico. Refer to paragraph 1c above for information concerning borrow. Pipeline for dredged material will be located partially on private lands or state water bottoms.	Private **State**	Fee, Excluding Minerals/Perpetual Pipeline Easement **Right of Entry**
124c	Marsh Restoration at Mud Lake. 1,077 acres of marsh restoration and 708 acres of marsh nourishment in a privately owned area near Mud Lake, southwest of Calcasieu Lake. Approximately 11,100,000 cubic yards will be borrowed from a borrow area in the nearby Gulf of Mexico. Refer to paragraph 1c above for	Private **State**	Fee, Excluding Minerals/Perpetual Pipeline Easement **Right of Entry**

	information concerning borrow. Pipeline for dredged material will be located partially on private lands or state water bottoms.		
127c3	Marsh Restoration East Pecan Island. 832 acres of marsh restoration and 62 acres of marsh nourishment in a privately owned area east of Pecan Island and west of Freshwater Bayou. Approximately 7,300,000 cubic yards will be borrowed from a borrow area in the nearby Gulf of Mexico. Refer to paragraph 1c above for information concerning borrow. Pipeline for dredged material will be located partially on private lands or state water bottoms.	Private **State**	Fee, Excluding Minerals/Perpetual Pipeline Easement **Right of Entry**
306a1	Rainey Marsh Restoration - Southwest Portion (Christian Marsh). 627 acres of marsh restoration and 1,269 acres of marsh nourishment in a privately owned area within Rainey Marsh along the eastern bankline of Freshwater Bayou. Approximately 8,100,000 cubic yards will be borrowed from a borrow area in the nearby Gulf of Mexico. Refer to paragraph 1c above for information concerning borrow. Pipeline will placed on Freshwater Bayou, a state water bottom.	Private **State**	Fee, Excluding Minerals **Right of Entry**
SHORELINE PROTECTION – 6135 TOTAL ACRES			
5a	Holly Beach Shoreline Stabilization. Approximately 46,000 linear feet (8.7 miles) of shoreline protection using rock breakwaters offshore along the Gulf of Mexico shoreline from the western jetty of the Calcasieu Ship Channel to just west of the town of Holly Beach. Located within state owned water bottoms.	State	Right of Entry
6b1	Gulf Shoreline Restoration: Calcasieu River to Freshwater Bayou. Approximately 58,300 linear feet (11.1 miles) of shoreline protection using reef breakwaters with lightweight aggregate core approximately 150' offshore along the Gulf of Mexico shoreline of the Rockefeller Wildlife Management Area and Game Preserve.	State	Right of Entry
6b2	Gulf Shoreline Restoration: Calcasieu River to Freshwater Bayou. Approximately 42,800 linear feet (8.1 miles) of shoreline protection using reef breakwaters with lightweight aggregate core approximately 150' offshore along the Gulf of Mexico shoreline of the Rockefeller Wildlife Management Area and Game Preserve.	State	Right of Entry
6b3	Gulf Shoreline Restoration: Calcasieu River to Freshwater Bayou. Approximately 33,300 (7.1 miles) linear feet of shoreline protection using reef breakwaters with lightweight aggregate core approximately 150' offshore along the Gulf of Mexico shoreline of the Rockefeller Wildlife Management Area and Game Preserve.	State	Right of Entry

16b	Fortify Spoil banks of GIWW and Freshwater Bayou. Approximately 71,000 combined linear feet (13.4 miles) of bankline protection with rock dikes along three separate reaches of the Freshwater Bayou Navigation Canal. USACE owns 6,000 acres channel/disposal easements at Freshwater Bayou (state water bottoms).	State	Right of Entry
CHENIER REFORESTATION – 1413 TOTAL ACRES			
416	Reforestation of approximately 252 total acres of Grand Chenier Ridge in Cameron Parish.	Private	Fee, Excluding Minerals
509c	Reforestation of approximately 21 total acres of Bill Ridge in Vermilion Parish.	Private	Fee, Excluding Mineral
509d	Reforestation of approximately 8 acres of Chenier Au Tigre in Vermilion Parish.	Private	Fee, Excluding Minerals
510a	Reforestation of approximately 524 total acres of Blue Buck Ridge in Cameron Parish.	Private	Fee, Excluding Minerals
510b	Reforestation of approximately 149 total acres of Hackberry Ridge in Cameron Parish.	Private	Fee, Excluding Minerals
510d	Reforestation of approximately 459 total acres of Front Ridge in Cameron Parish.	Private	Fee, Excluding Minerals

2. NER PLAN - ESTATES

Standard Estates

The following estates will be required for the Project:

a. FEE EXCLUDING MINERALS (With Restriction on Use of the Surface)

The fee simple title to the land, subject, however, to existing easements for public roads and highways, public utilities, railroads and pipelines; excepting and excluding all oil and gas, in and under said land and all appurtenant rights for the exploration, development, production and removal of said oil and gas, but without the right to enter upon or over the surface of said land for the for the purpose of exploration, development, production and removal therefrom of said -oil and gas.

This estate will be acquired for NER project features. The District is of the opinion that this estate provides all the rights necessary for the project as well as protects the integrity of the project features. There are no active oil and gas wells within the project area, but it is unknown whether there are marketable minerals under the surface of the impacted properties. The District recognizes that if oil or gas were discovered, there is a possibility that the owner could develop those minerals through directional drilling. The District consulted with Louisiana Geological Survey regarding the feasibility of this process and potential impact to the surface of the project area. Because of depths involved in the drilling process (approximately 5,000 feet below the surface), directional drilling for

minerals beneath the surface will have no impact on the surface. For a project of this size, directional drilling would be feasible. Given the acreages of the sites proposed for the project, the District verified that drilling to targets laterally can be achieved from up to 6 miles away. Extraction of minerals by existing conventional means would not impact the integrity of the project features.

Furthermore, the District believes that landowners may be less willing to sell the property if the mineral rights are acquired by the NFS. This in turn would require acquisition through condemnation which would increase the cost of the project. For planning purposes, we assume that the additional cost would be approximately $20,000 in labor for each tract that requires condemnation, to include title, curative work, and preparation of condemnation assembly and assistance to Justice Department once the condemnation case is filed.

The risks to the project of not acquiring minerals are negligible; therefore, it is in the best interest of the Government to acquire Fee Excluding Minerals (with Restriction on Use of the Surface).

b. UTILITY AND/OR PIPELINE EASEMENT

A perpetual and assignable easement and right-of-way in, on, over and across (the land described in Schedule A) (Tracts Nos. _____,_____ and _____), for the location, construction, operation, maintenance, alteration; repair and patrol of overhead (specifically name type of utility or pipeline); together with the right to trim, cut, fell and remove therefrom all trees, underbrush, obstructions and other vegetation, structures, or obstacles within the limits of the right-of-way; reserving, however, to the landowners, their heirs and assigns, all such rights and privileges as may be used without interfering with or abridging the rights and easement hereby acquired; subject, however, to existing easements for public roads and highways, public utilities, railroads and pipelines.

c. BORROW EASEMENT

A perpetual and assignable right and easement to clear, borrow, excavate and remove soil, dirt, and other materials from (the land described in Schedule A) (Tract Nos. _____, _____ and _____); subject, however, to existing easements for public roads and highways, public utilities, railroads and pipelines; reserving, however, to the landowners, their heirs and assigns, all such rights and privileges in said land as may be used without interfering with or abridging the rights and easement hereby acquired.

d. TEMPORARY WORK AREA EASEMENT (NOTE: At the time of this report it is anticipated that all staging areas will be provided on lands owned by the State of Louisiana and will be provided to the project through a right of entry provided by CPRAB as the non-Federal Sponsor. If it is later determined that staging areas are required on privately owned lands, the Temporary Work Area Easement will be acquired on those lands.)

A temporary easement and right-of-way in, on, over and across (the land described in Schedule A) (Tracts Nos. _____, _____ and _____), for a period not to exceed _____, beginning with date possession of the land is granted to the Coastal Protection and Restoration Authority Board of Louisiana for its use and for use by the United States of America and by the representatives, agents, and contractors of the Coastal Protection Restoration Authority Board of Louisiana and the United States of America as a work area, including the right to deposit fill, spoil and waste material thereon move, store and remove equipment and supplies, and erect and remove temporary structures on the land and to perform any other work necessary and incident to the construction of the _____ Project, together with the right to trim, cut, fell and remove therefrom all trees, underbrush, obstructions, and any other vegetation, structures, or obstacles within the limits of the right-of-way; reserving, however, to the landowners, their heirs and assigns, all such rights and privileges as may be used without interfering with or abridging the rights and easement hereby acquired; subject, however, to existing easements for public roads and highways, public utilities, railroads and pipelines.

d. PERPETUAL ACCESS EASEMENT (Non-Material Deviation from Standard Estate) (NOTE: At the time of this report it is anticipated that all access areas will be provided on lands owned by the State of Louisiana and will be provided to the project through a right of entry provided by CPRAB as the non-Federal Sponsor. If it is later determined that access areas are required on privately owned lands, the Perpetual Access Easement will be acquired on those lands.)

A perpetual non-exclusive and assignable easement is granted to the Coastal Protection and Restoration Authority Board of Louisiana for its use and for use by the United States of America and by the representatives, agents, and contractors of the Coastal Protection Restoration Authority Board of Louisiana and the United States of America as an access route and/or right-of-way in, on, over and across (the land described in Schedule A) (Tracts Nos. _____, _____ and _____); together with the right to construct, operate, maintain, alter and replace any improvements necessary for the use as an access route and/or right-of-way, and with the right to trim, cut, fell and remove therefrom all trees, underbrush, obstructions and other vegetation, structures, or obstacles within the limits of the right-of-way, reserving, however, to the owners, their heirs and assigns, all such rights and privileges as may be used without interfering with or abridging the rights and easement hereby acquired, including the right to cross over the right-of-way as access to their adjoining land; subject, however, to existing easements for public roads and highways, public utilities, railroads and pipelines.

Approval of the Perpetual Access Easement (Non-Material Deviation from Standard Estate) is attached as Annex 4.

3. NER PLAN – EXISTING FEDERAL PROJECTS WITHIN THE LER REQUIRED FOR THE PROJECT

Calcasieu Ship Channel

As stated in Section G(1)(c) above, borrow for one of the NER project features (3a1) will come from the existing Calcasieu Ship Channel. The channel is a part of the Calcasieu River and Pass project, authorized under the River and Harbor Act of July 14, 1960, House Document 436, 86th Congress, 2nd Session (P.L. 86-646). The government holds perpetual channel and disposal easements over 14,912 acres of the Calcasieu Ship Channel. Those easements were provided as an item of local cooperation via assurance agreements with the Lake Charles Harbor and Terminal District, to include the project construction and subsequent maintenance of the project. The existing perpetual easements would be sufficient and available for the needs of this project for circumstances in which dredged materials are obtained as a part of ordinary O&M dredging. However, the easements would not be sufficient to support obtaining borrow materials for dedicated dredging efforts, and a borrow easement would be required for any required dedicated dredging.

Gulf Intracoastal Waterway (GIWW)

Portions of the project (measures 3a1 and 16b) will transport the dredged material through pipelines to be laid on the GIWW bottoms. The GIWW was first authorized and construction began in the 1920s. The project was authorized by the River and Harbor Act of July 24, 1946, Senate Document 242, 79th Congress, 2nd Session. The government holds perpetual channel and disposal easements over 60,000 acres for the GIWW There are assurance agreements over some of the reaches of the GIWW, providing some of the lands as an item of local cooperation. However, the lands were provided by the Parish and not the NFS for this project. The GIWW is man-made waterway which is used by the public. It will be determined during PED if additional real property rights must be acquired for the temporary pipeline to be placed on GIWW water bottoms. If additional right-of-way is required, a temporary pipeline easement would be acquired.

Freshwater Bayou

Portions of the project (measures 16b and 306a1) will require use of the Freshwater Bayou, a 23.1-mile navigation channel. The project was authorized under the River and Harbor Act of July 14, 1960 and constructed between 1965 and 1967. The government owns perpetual channel and disposal easements at Freshwater Bayou, as well as 87 acres in fee at Freshwater Bayou Lock. At the time of this report, it is not known whether the existing easements will be sufficient and available for this project. It will be determined during PED if additional real property rights must be acquired for these project features. The access corridor for measure 16b will pass thru the Freshwater Bayou Lock, which is owned in fee by USACE.

4. NER PLAN - FEDERALLY OWNED LANDS WITHIN THE LER FOR THE PROJECT

Two marsh restoration measures, Features 124d and 3c1 are partially located on USFWS property (Sabine National Wildlife Refuge and Cameron Prairie National Wildlife Refuge, respectively) and are included in the NER RP. Because USFWS is ultimately responsible for managing its refuge lands, USACE is only seeking Congressional authorization and funding for the Corps Plan (which excludes Features 124d and 3c1, the USFWS features). For that reason, neither the USFWS features nor the real estate costs associated with the USFWS features, have been included in the LERRDs required for the Corps Plan features of the NER RP.

5. NER PLAN - NON-FEDERAL SPONSOR OWNED LER

Some of the NER features (such as shoreline stabilization along the Gulf Coast) lie within state owned lands or state claimed water bodies. It is noted that the NFS for this project is a State of Louisiana entity, but none of the required state lands are under the jurisdiction of CPRAB. CPRAB will be required to obtain the necessary agreements with state agencies which hold jurisdiction over the areas required for the project, and will provide Authorization for Entry over all non-Federal government owned and controlled lands.

6. NER PLAN - INDUCED FLOODING

There will be no induced flooding as a result of the project.

7. NER PLAN - BASELINE COST ESTIMATES/CHART OF ACCOUNTS (COAS)

A Chart of Accounts for the RP is included in Figure 3 below. The estimated total cost for Real Estate Acquisition for the NER Plan is $10,130,000.

The costs for NER features include land payments as well as administrative costs and incremental costs associated with acquiring the real estate interests, as well as costs for potential condemnations.

Real estate land values are $7,114,000, which is less than 1% of total project costs; therefore a gross appraisal was not prepared for this project. LER costs are based on cost estimates prepared for each measure by the Appraisal Branch in April, 2014. The appraiser determined that there was no need to update the cost estimate because the lands impacted by the NER plan are wetlands, woodlands and pasture, and the unit values of these types of properties have not changed since the estimate was prepared.

CEMVK-RE-E
REAL ESTATE DIVISION

SOUTHWEST COASTAL LOUISIANA PROJECT
REAL ESTATE COST ESTIMATE
NER PLAN

October 2015

BASED ON COST ESTIMATES PROVIDED IN APRIL, 2014							
					AMOUNT	CONTINGENCY	PROJECT COST
						ROUNDED	10,130,000
	TOTAL PROJECT COSTS				8,103,350	2,025,850	10,130,200
01	**LANDS AND DAMAGES**		CONTINGENCY	PROJECT COST	8,103,350	2,025,850	10,130,200
01B	**ACQUISITIONS**						
01B10	BY GOVERNMENT	0	0	0			
01B20	BY NON-FEDERAL SPONSOR (NFS)	1,101,800	275,450	1,378,250			
01B30	BY GOVT ON BEHALF OF LS	0	0	0			
01B40	REVIEW OF LS	598,550	149,650	748,200			
01C	**CONDEMNATIONS**						
01C10	BY GOVERNMENT	0	0	0			
01C20	BY LS	280,000	70,000	350,000			
01C30	BY GOVT ON BEHALF OF LS	0	0	0			
01C40	REVIEW OF LS	0	0	0			
01E	**APPRAISAL**						
01E10	BY GOVT (IN HOUSE)	0	0	0			
01E20	BY GOVT (CONTRACT)	0	0	0			
01E30	BY LS	288,000	72,000	360,000			
01E40	BY GOVT ON BEHALF OF LS	0	0	0			
01E50	REVIEW OF LS	144,000	36,000	180,000			
01F	**PL 91-646 ASSISTANCE**						
01F10	BY GOVERNMENT	0	0	0			
01F20	BY LS	0	0	0			
01F30	BY GOVT ON BEHALF OF LS	0	0	0			
01F40	REVIEW OF LS	0	0	0			
01R	**REAL ESTATE PAYMENTS**						
01R1	**LAND PAYMENTS**						
01R1A	BY GOVERNMENT	0	0	0			
01R1B	BY LS	5,691,000	1,422,750	7,113,750			
01R1C	BY GOVT ON BEHALF OF LS	0	0	0			
01R1D	REVIEW OF LS	0	0	0			
01R2	**PL 91-646 ASSISTANCE PAYMENTS**						
01R2A	BY GOVERNMENT	0	0	0			
01R2B	BY LS	0	0	0			
01R2C	BY GOVT ON BEHALF OF LS	0	0	0			
01R2D	REVIEW OF LS	0	0	0			
	ASSUMES 158 LANDOWNERS						

Figure 3: NER Real Estate Cost Estimates

8. NER PLAN - UNIFORM RELOCATION ASSISTANCE (PL 91-646, TITLE II AS AMENDED)

At the time of this report, it was not known whether there could be any improvements, such as recreational camps, or items of personal property on the marsh restoration sites or chenier reforestation sites. The assumption made at this time, is that those sites are unimproved and that URA relocations would not be necessary for the NER project features. This information will be refined during PED.

9. NER PLAN - TIMBER/MINERAL/ROW CROP ACTIVITY

The Louisiana Department of Natural Resources provides a Strategic Online Natural Resources Information System (SONRIS), which contains up-to-date information on oil & gas activity in the state of Louisiana. Review of this information indicated that although there are oil and gas wells within the study area near the NER project features, there are no active wells within the projected RP NER alignment. This information

will be reviewed and confirmed in PED. In the event that design information indicates that there are active oil and gas wells within the vicinity of the NER project, the PDT determined that oil and gas wells will not be relocation items, and the alignments would be changed during the project Plans and Specifications (P&S) phase to avoid them.

With the exception of the acquisition of the standard Fee Excluding Minerals (With Restrictions on the Use of the Surface) estate, which has the potential to impact mineral rights over certain lands, the other estates have no impact on mineral rights and the Government will not acquire mineral rights to any of the LER required for the NER project. Over lands where the fee (excluding minerals) estate is being acquired, mineral rights will be subordinated. Estimated costs associated with subordination of mineral rights has been included in the real estate cost estimates for the NER plan. Mineral right owners can still explore for minerals through directional drilling.

There are approximately 1,413 acres of pasture/woodlands impacted by the project. For some of the NER project elements (specifically, within the chenier ridges), lands with potential farmland use may be removed from agricultural use. Refer to Chapter 3 for further discussion. Any timber present within required right of way is included in the overall appraised value of the land. In the event the pasture lands are cultivated, the owner will be allowed to harvest crops prior to acquisition. In the event that project schedules do not allow for such, the contributory value of crops will be included in the estimate of property value in the appraisal.

10. NER PLAN - OYSTER LEASES

Review of the SONRIS information provided by Louisiana Department of Natural Resources indicates there are no oyster leases within the project study area. No oyster leases will be acquired as a result of the project.

11. NER PLAN - ZONING ORDINANCES

There will be no application or enactment of zoning ordinances in lieu of, or to facilitate, acquisition of real estate rights for NER features of this project.

12. NER PLAN - ACQUISITION SCHEDULE

The following acquisition schedule for ecosystem project features is based on the premise that the project will impact approximately 135 landowners for the NER project features. It is assumed that the project will be constructed in sections. Chapter 4, Section 4.2.2 of the Integrated Feasibility Report and Environmental Impact Statement outlines the proposed implementation plan for the NER project features, demonstrating project features to be implemented in a tiered structure. The general schedule below would be applied for each Tier referenced within the implementation plan once the project is approved and funded for implementation. This tentative schedule provides the total amount of time to complete the acquisition of real estate rights for the construction of the ecosystem project features based on the preliminary information available at this time. Note that in some instances, an NER RP feature overlaps with a mitigation project. When overlap occurs, the NER RP features would not be constructed until the mitigation project satisfies its mitigation obligations-either under the requirements of the permit(s) applicable to the action that was mitigated and/or, where applicable, under the statutory and cost-sharing obligations for the Federal project associated with the mitigation measure. As such, implementation of these features would be deferred and would not proceed in accordance with the tiered plan of implementation. (See Chapter 4, Section 4.2.2 for more discussion on implementation of these NER RP features.) A detailed acquisition schedule will be prepared once the 95% plans and specifications are prepared for each section of the project. This schedule is only for purposes of the feasibility study.

1)	TOD, Mapping	1 year
2)	Obtain Title & Appraisals	2 years
3)	Negotiations	3 years
4)	Closing	1 years
5)	Eminent Domain Proceedings	3 years

13. NER - FACILITY/UTILITY RELOCATIONS

At this point in time, no facility/utility relocations are anticipated to be required for the NER features of the Project.

ANY CONCLUSION OR CATEGORIZATION CONTAINED IN THIS REPORT THAT AN ITEM IS A UTILITY OR FACILITY RELOCATION TO BE PERFORMED BY THE NON-FEDERAL SPONSOR AS PART OF ITS LERRD RESPONSIBILITIES IS PRELIMINARY ONLY. THE GOVERNMENT WILL MAKE A FINAL DETERMINATION OF THE RELOCATIONS NECESSARY FOR THE CONSTRUCTION, OPERATION OR MAINTENANCE OF THE PROJECT AFTER FURTHER ANALYSIS AND COMPLETION AND APPROVAL OF FINAL ATTORNEY'S OPINIONS OF COMPENSABILITY FOR EACH OF THE IMPACTED UTILITIES AND FACILITIES.

14. NER PLAN - HAZARDOUS, TOXIC AND RADIOACTIVE WASTE

A Phase I Environmental Site Assessment was completed in February, 2015. There were no significant issues identified as a result of this assessment. Current information suggests there will be no HTRW issues within the Project area.

H. NAVIGATION SERVITUDE

The navigation servitude is the dominant right of the Government under the Commerce Clause of the U.S. Constitution to use, control and regulate the navigable waters of the United States and submerged lands thereunder for various commerce-related purposes. Portions of feature 3a1 will be constructed through beneficial use of dredged material from ordinary maintenance dredging at the Calcasieu Ship Channel. The USACE asserts the navigation servitude for these dredging operations. The navigation servitude will not be asserted for any other features of this Project.

I. LANDOWNER CONCERNS

The attitudes of the landowners who will be affected by construction of the NER Project features is not known at this time. Generally, community support for coastal restoration is high. It is expected that once further analysis is conducted for the NER Project features, landowner meetings will be held. At that time, landowner concerns and support for the NER measures will be assessed. Based on experience with other ecosystem restoration projects, it is expected that private landowners would prefer acquisition of a non-standard estate, rather than fee acquisition for the NER features.

It is anticipated that implementation of the NED non-structural portion of the Project could produce challenges (refer to Appendix L of the Revised Integrated Draft Feasibility Report and Environmental Impact Statement for more discussion). Public meetings were held in each Parish affected by the NED measures. The proposed NED plan has changed, since those public meetings were held. At the time of this report, the attitudes of landowners who will be affected by the nonstructural measures proposed in the NED Plan is not known. However, local Parish officials have indicated that many of their residents have expressed interest in and are highly supportive of structure elevations.

J. RISK LETTER

The Coastal Protection and Restoration Authority Board, through its implement arm, the Coastal Protection and Restoration Authority, was notified by letter dated 1 April 2016 of the risks associated with acquisition of real estate interests prior to project authorization by Congress and execution of the Project Partnership Agreement.

K. OTHER ISSUES

In the Integrated Final Feasibility Report and EIS, Appendix A, Annex F (State Historic Preservation Officer (SHPO) and Tribal Coordination Letters), it is noted that Programmatic Agreements will be executed with the SHPO and the Advisory Council on Historic Preservation to delay historic/cultural investigations until the PED Phase. Based on preliminary investigations, it is noted that there is a high probability there will be areas which have adverse effects. The Programmatic Agreement outlines actions that will be taken to minimize effects, including designation of a "no work" zone until a resolution process is set forth.

Prepared By:

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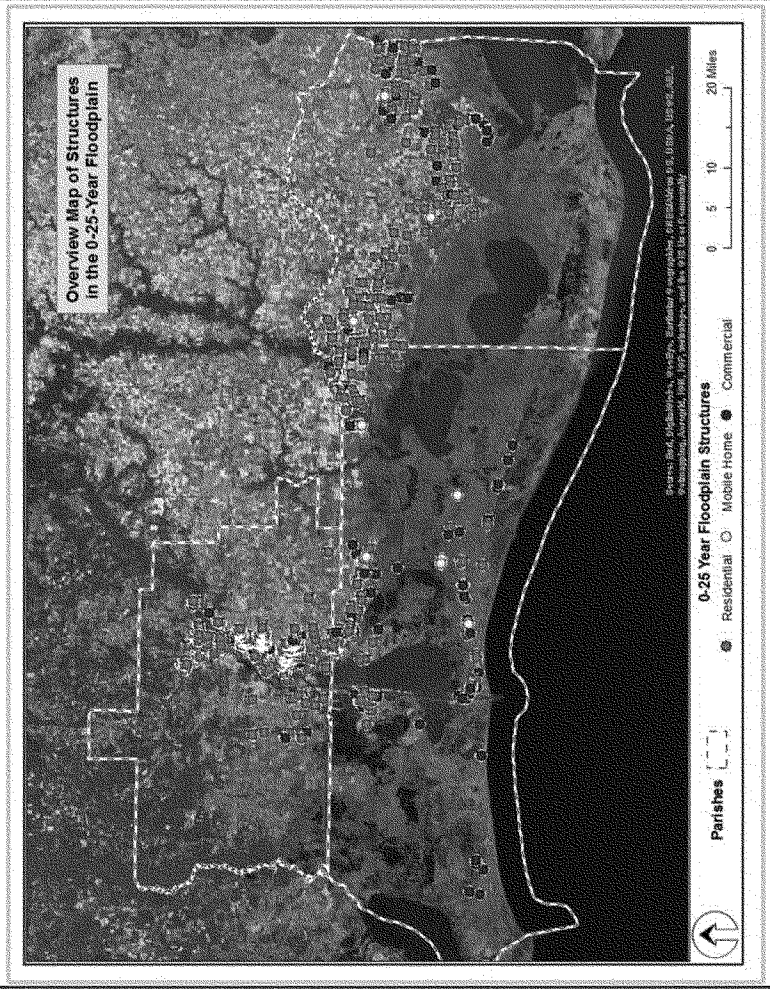
Real Estate Region South Division
April 1, 2016

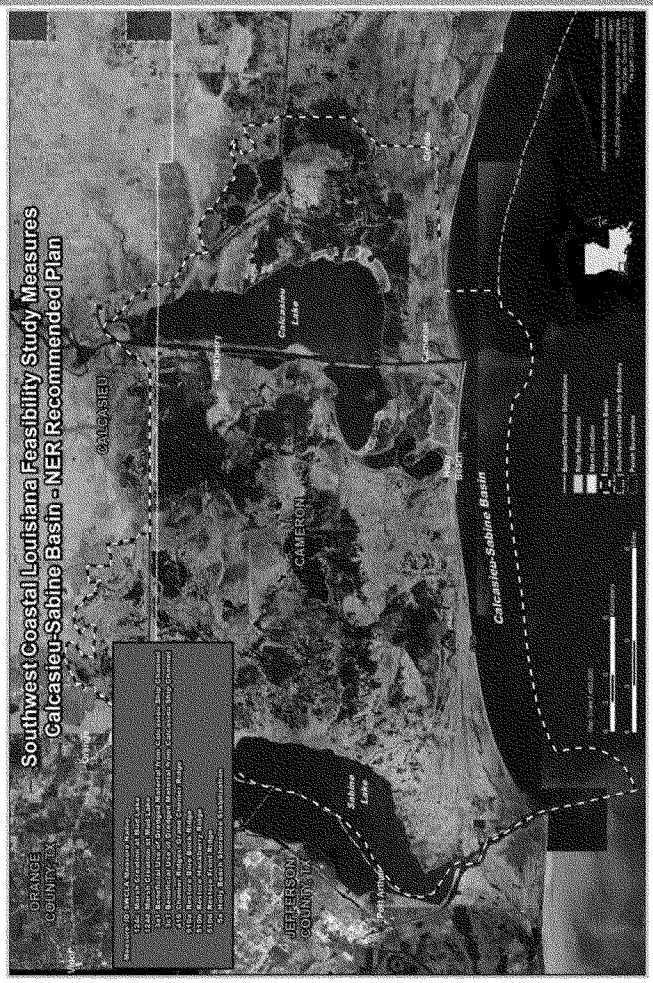
Recommended for Approval By:

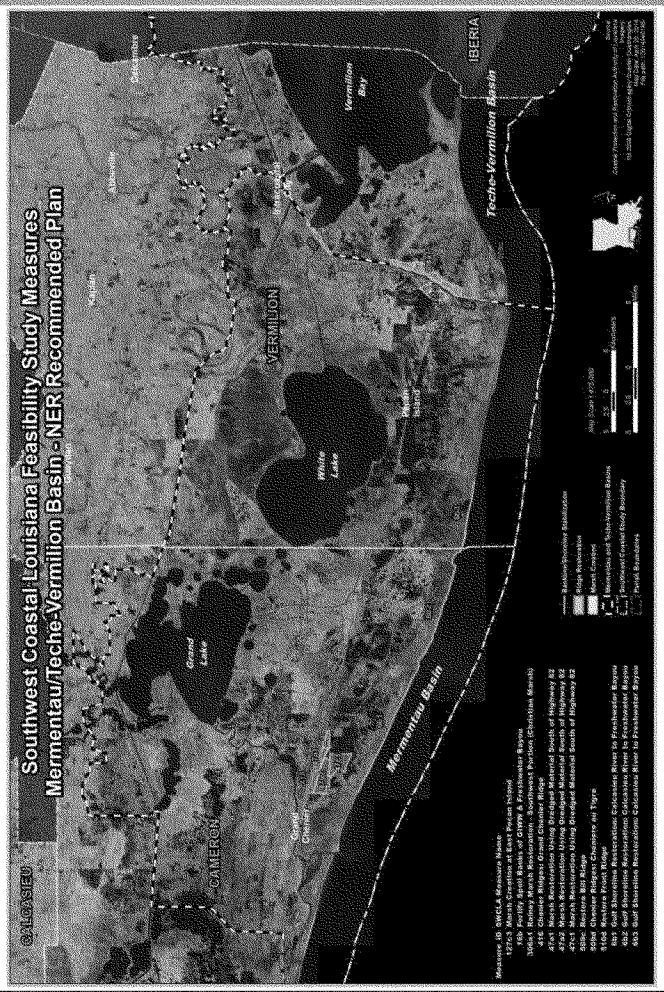
Judith Y. Gutierrez
Chief, Appraisal & Planning Branch
Real Estate Region South Division
April 1, 2016

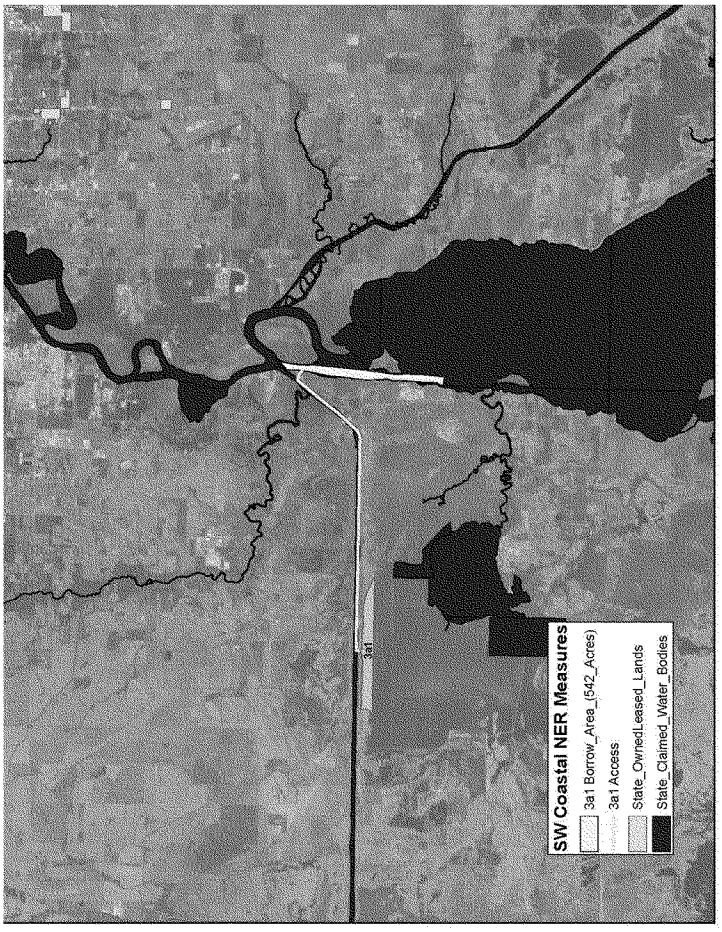
ANNEX 1
PROJECT MAPS
NED PLAN


Overview Map of Structures in the 0-25-Year Floodplain
Parishes
0-25 Year Floodplain Structures
Residential
Mobile Home
Commercial
0
5
10
20 Miles

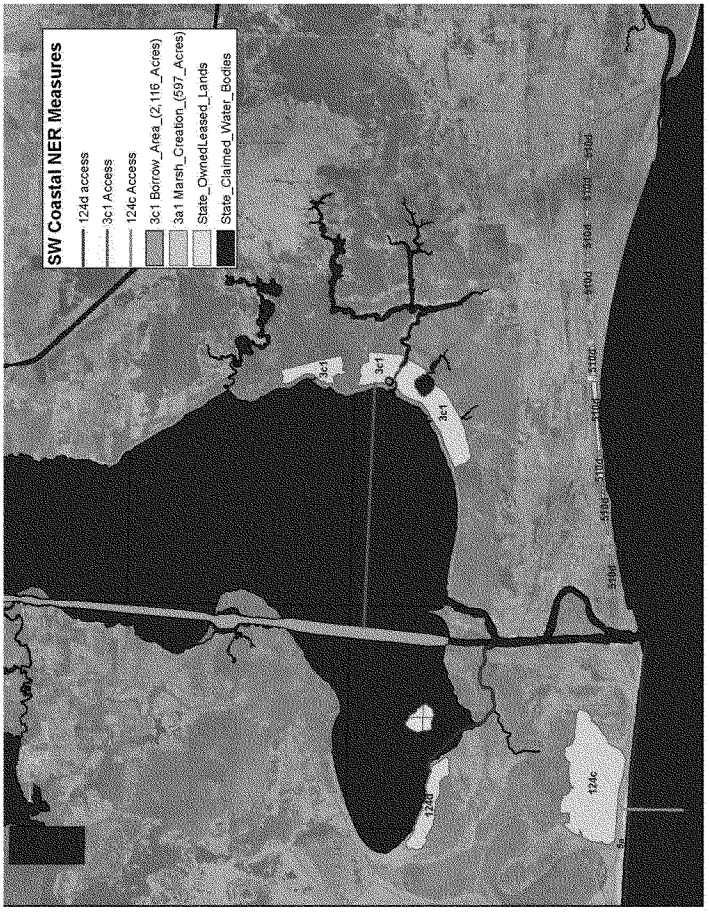
ANNEX 2
PROJECT MAPS
NER PLAN

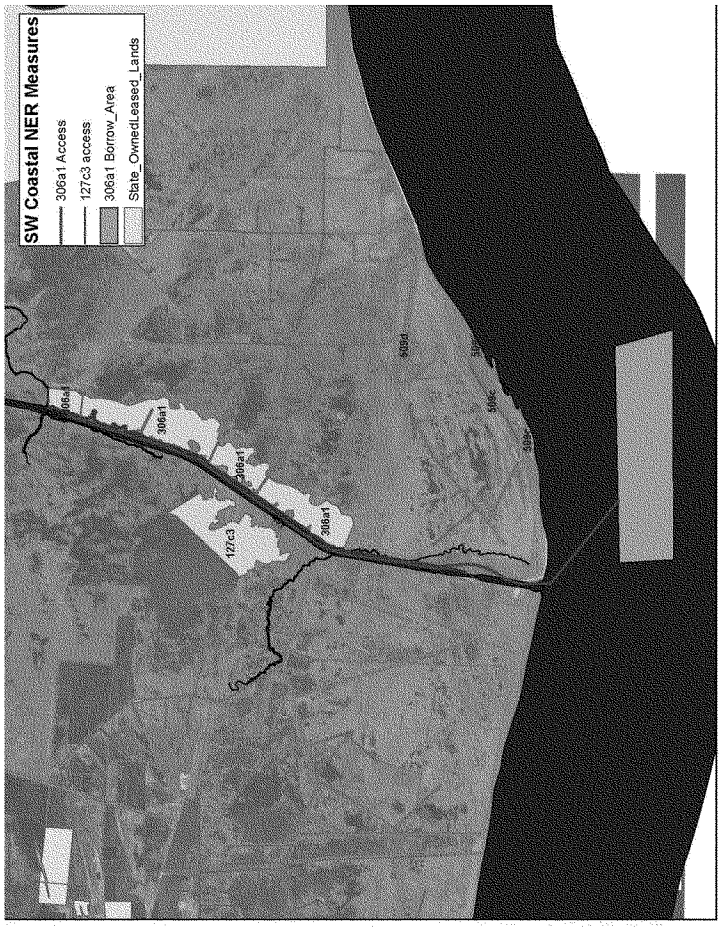

Southwest Coastal Louisiana Feasibility Study Measures
Calcasieu-Sabine Basin - NER Recommended Plan
CALCASIEU
CAMERON
ORANGE COUNTY, TX
JEFFERSON COUNTY, TX
Calcasieu Lake
Sabine Lake
Calcasieu-Sabine Basin

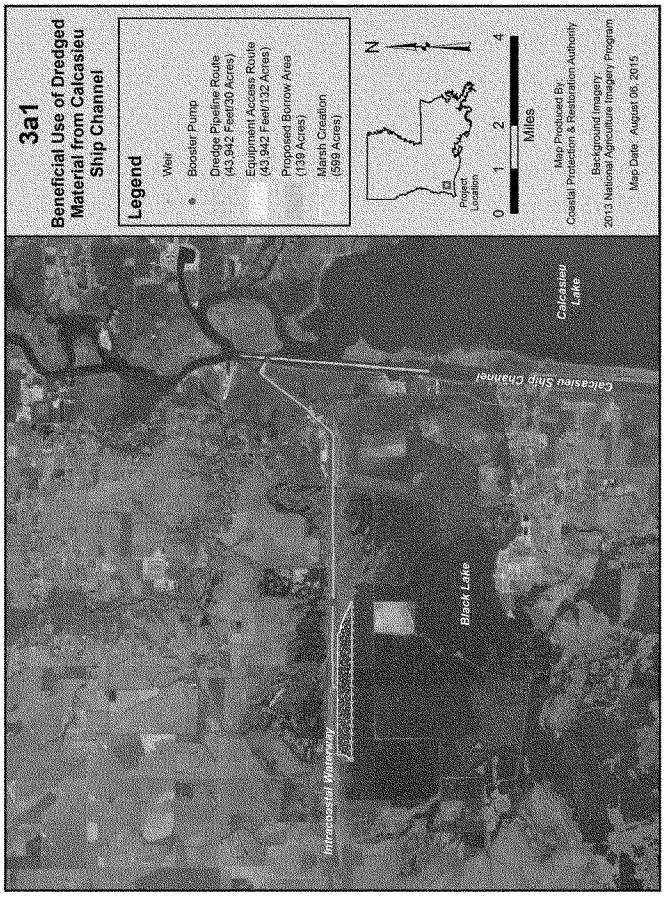

Southwest Coastal Louisiana Feasibility Study Measures
Mermentau/Teche-Vermilion Basin - NER Recommended Plan
CALCASIEU
CAMERON
VERMILION
IBERIA
Grand Lake
White Lake
Vermilion Bay
Mermentau Basin
Teche-Vermilion Basin

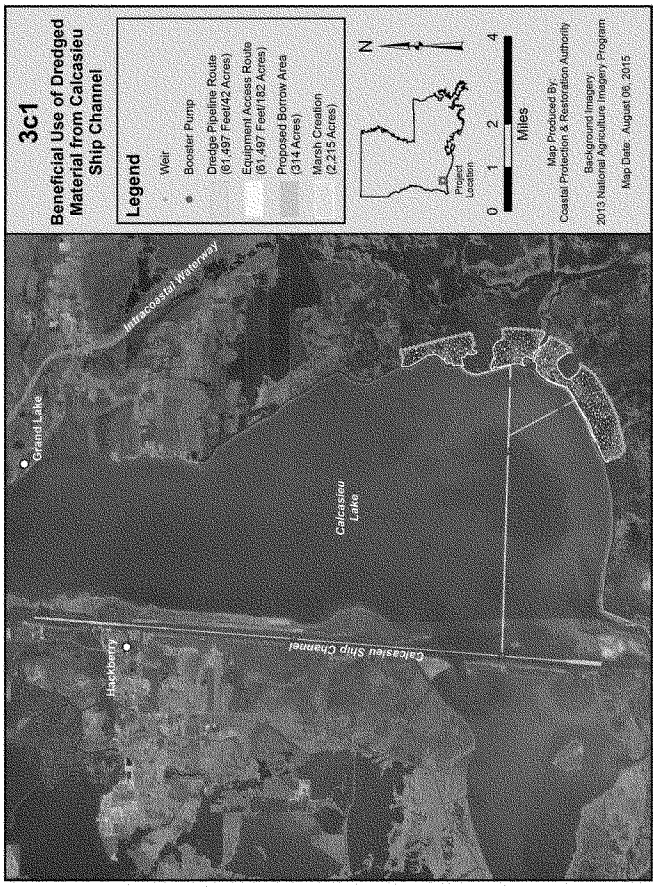

SW Coastal NER Measures
3a1 Borrow_Area_(542_Acres)
3a1 Access
State_OwnedLeased_Lands
State_Claimed_Water_Bodies
3a1

SW Coastal NER Measures
State_OwnedLeased_Lands
National Wildlife Refuges
State_Claimed_Water_Bodies

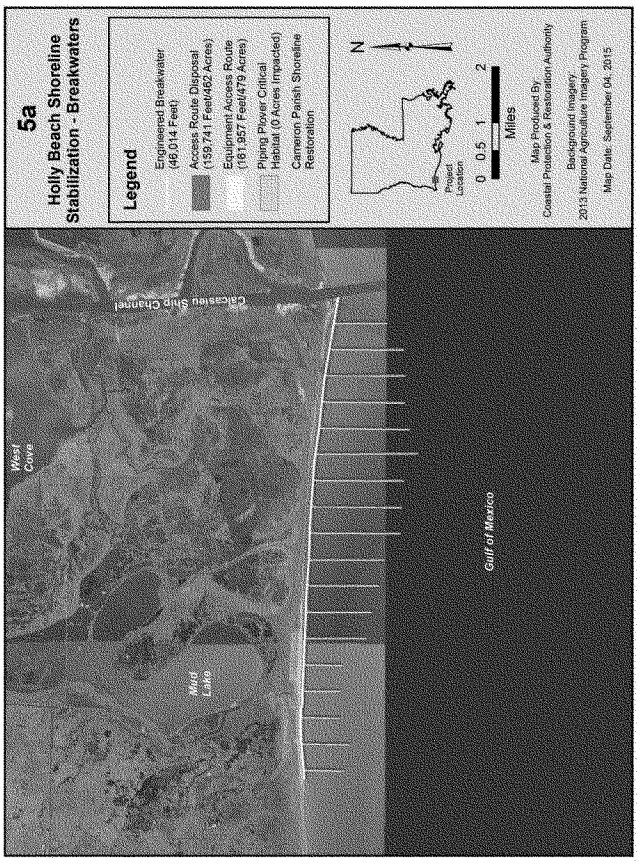

SW Coastal NER Measures
124d access
3c1 Access
124c Access
3c1 Borrow_Area_(2,116_Acres)
3a1 Marsh_Creation_(597_Acres)
State_OwnedLeased_Lands
State_Claimed_Water_Bodies
3c1
3c1
3c1
124d
124c

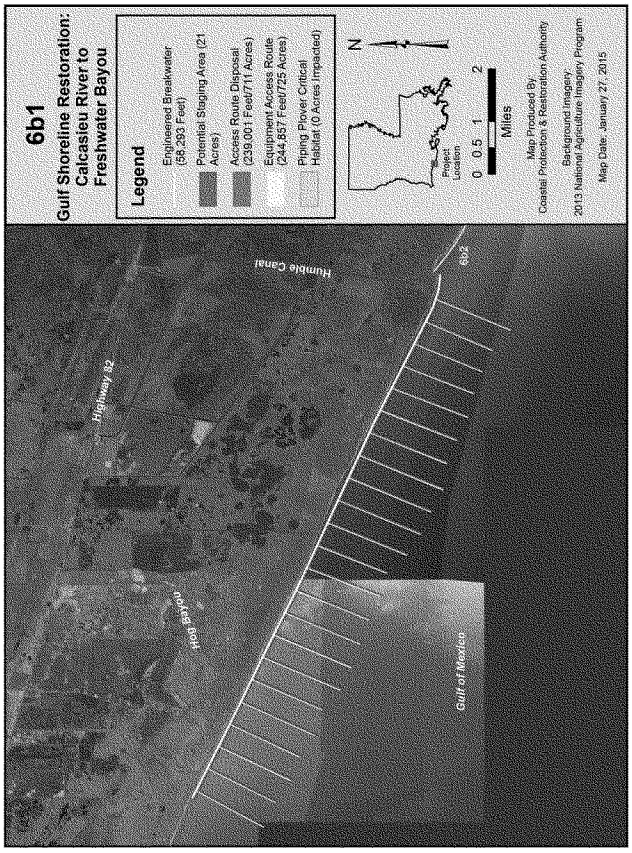

SW Coastal NER Measures
306a1 Access
127c3 access
306a1 Borrow_Area
State_OwnedLeased_Lands
306a1
306a1
306a1
306a1
127c3

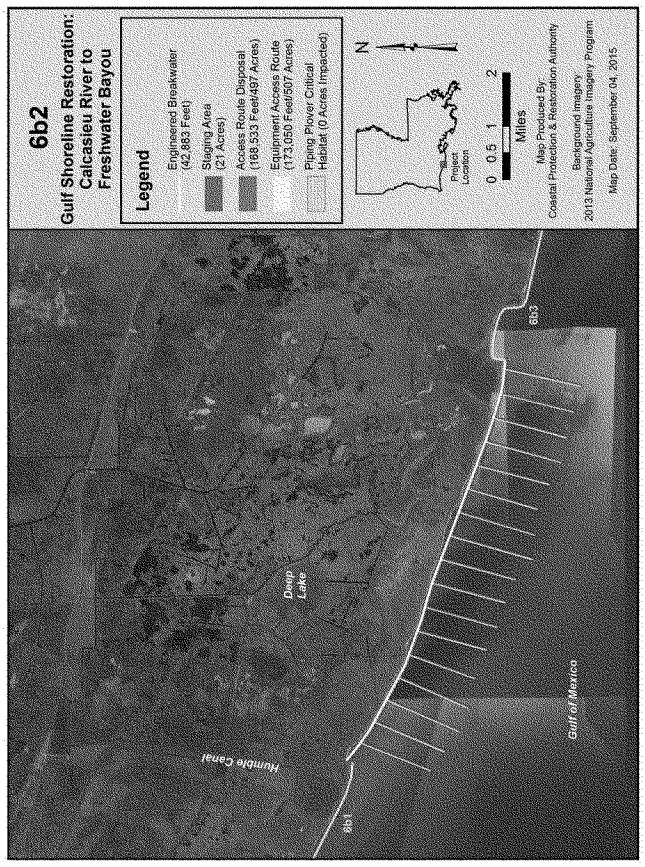

3a1
Beneficial Use of Dredged Material from Calcasieu Ship Channel
Legend
Weir
Booster Pump
Dredge Pipeline Route (43,942 Feet/30 Acres)
Equipment Access Route (43,942 Feet/132 Acres)
Proposed Borrow Area (139 Acres)
Marsh Creation (599 Acres)
Project Location
N
0 1 2 4
Miles
Map Produced By:
Coastal Protection & Restoration Authority
Background Imagery:
2013 National Agriculture Imagery Program
Map Date: August 06, 2015
Calcasieu Lake
Calcasieu Ship Channel
Black Lake
Intracoastal Waterway

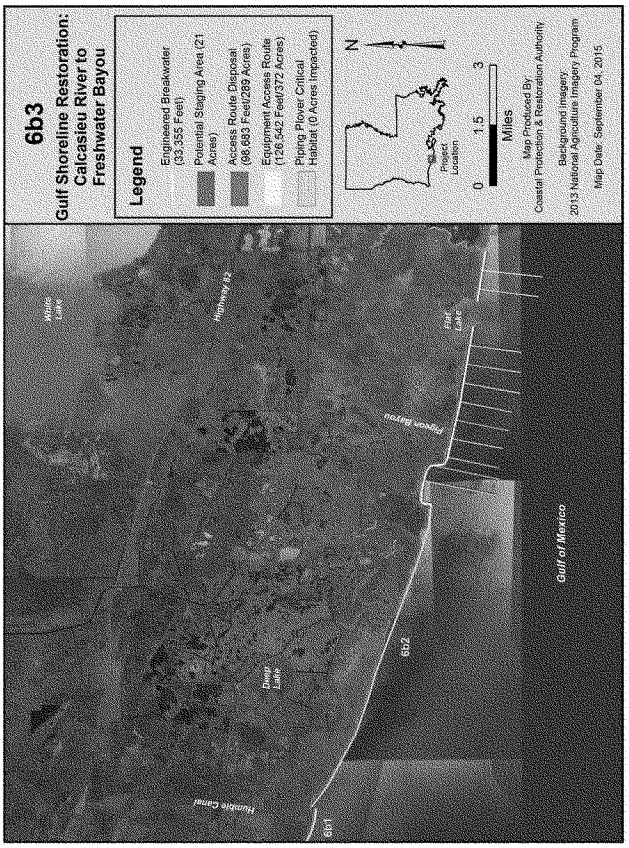


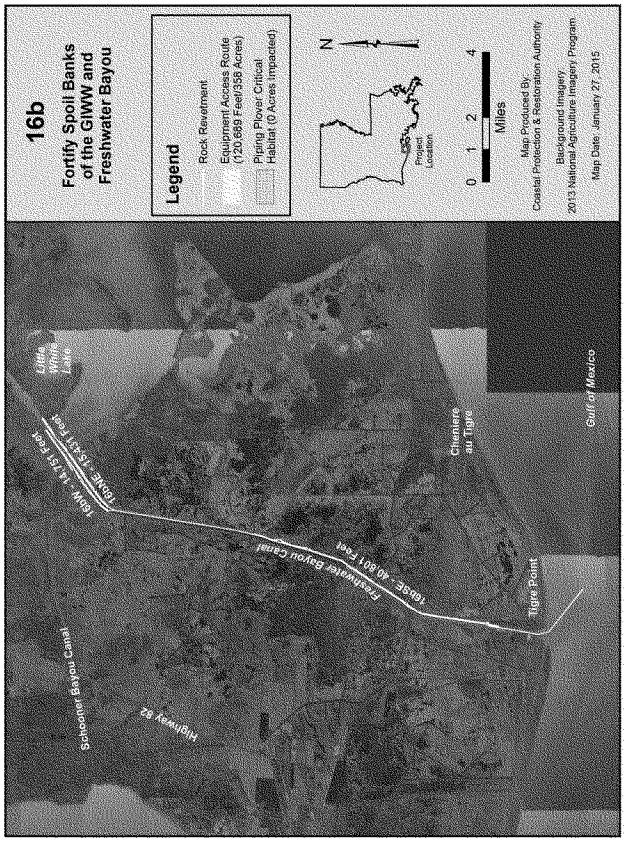
NOTE: This feature is not included as part of the LERRDs required for the project, and real estate costs do not include this feature.

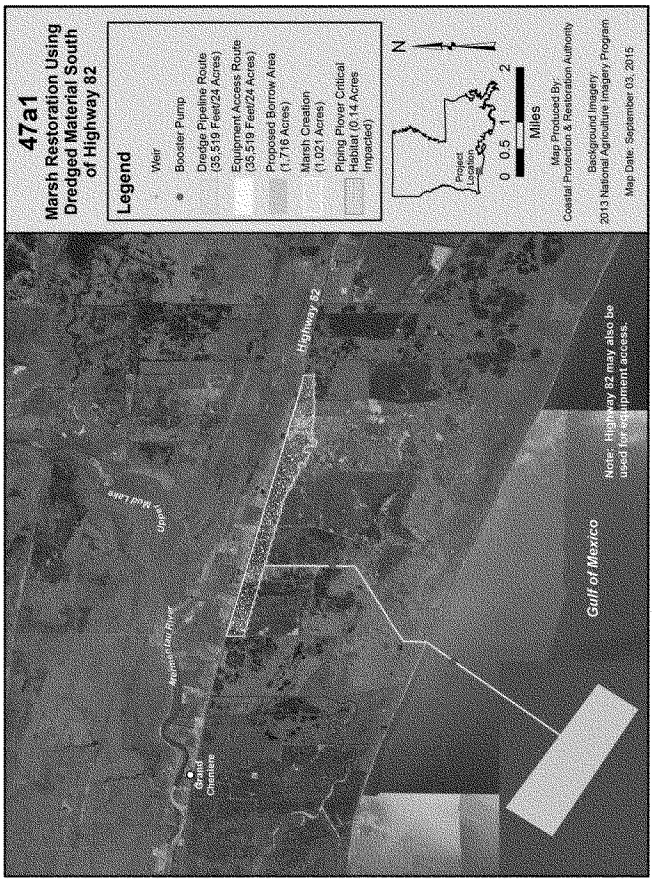

5a
Holly Beach Shoreline Stabilization - Breakwaters
Legend
Engineered Breakwater (46,014 Feet)
Access Route Disposal (159,741 Feet/462 Acres)
Equipment Access Route (161,957 Feet/479 Acres)
Piping Plover Critical Habitat (0 Acres Impacted)
Cameron Parish Shoreline Restoration
Project Location
N
0 0.5 1 2
Miles
Map Produced By:
Coastal Protection & Restoration Authority
Background Imagery:
2013 National Agriculture Imagery Program
Map Date: September 04, 2015
Calcasieu Ship Channel
West Cove
Marsh Land
Gulf of Mexico

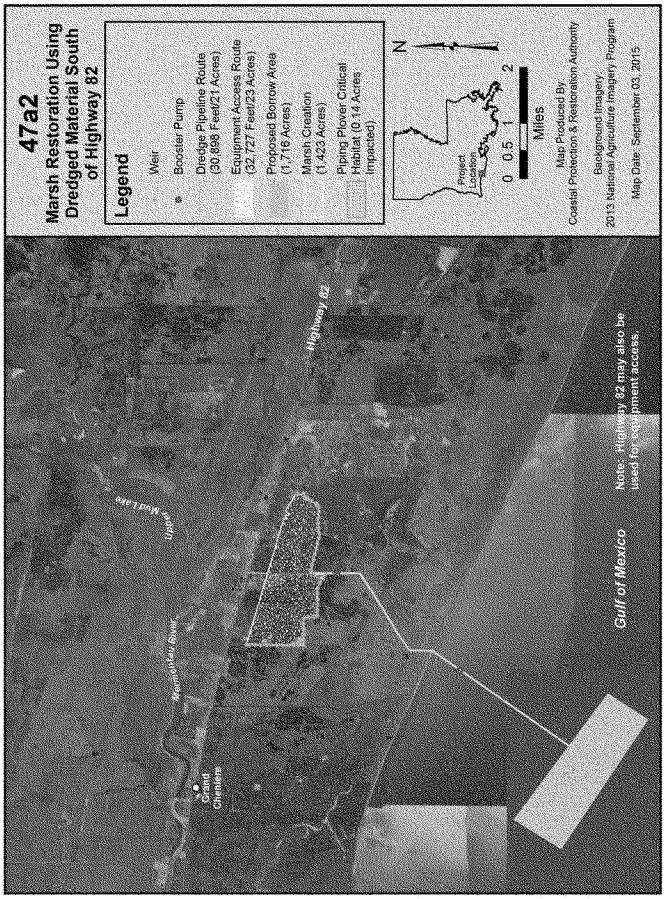

6b1
Gulf Shoreline Restoration: Calcasieu River to Freshwater Bayou
Legend
Engineered Breakwater (58,293 Feet)
Potential Staging Area (21 Acres)
Access Route Disposal (239,001 Feet/711 Acres)
Equipment Access Route (244,857 Feet/725 Acres)
Piping Plover Critical Habitat (0 Acres Impacted)
N
Project Location
0 0.5 1 2
Miles
Map Produced By:
Coastal Protection & Restoration Authority
Background Imagery:
2013 National Agriculture Imagery Program
Map Date: January 27, 2015
Humble Canal
Highway 82
Hog Bayou
Gulf of Mexico
6b2

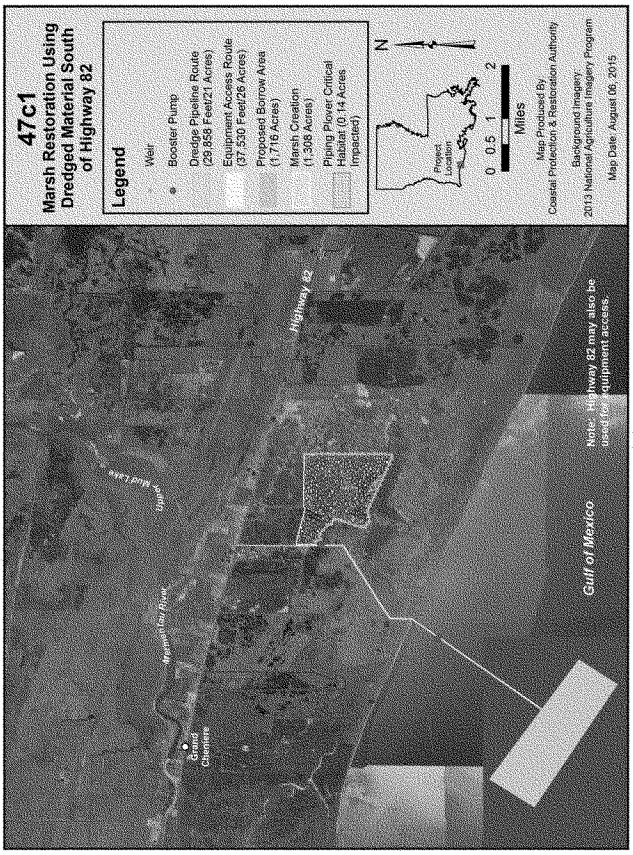

6b2
Gulf Shoreline Restoration: Calcasieu River to Freshwater Bayou
Legend
Engineered Breakwater (42,883 Feet)
Staging Area (21 Acres)
Access Route Disposal (168,533 Feet/497 Acres)
Equipment Access Route (173,050 Feet/507 Acres)
Piping Plover Critical Habitat (0 Acres Impacted)
N
Project Location
0 0.5 1 2
Miles
Map Produced By:
Coastal Protection & Restoration Authority
Background imagery
2013 National Agriculture Imagery Program
Map Date: September 04, 2015
Humble Canal
Deep Lake
Gulf of Mexico
6b3
6b1

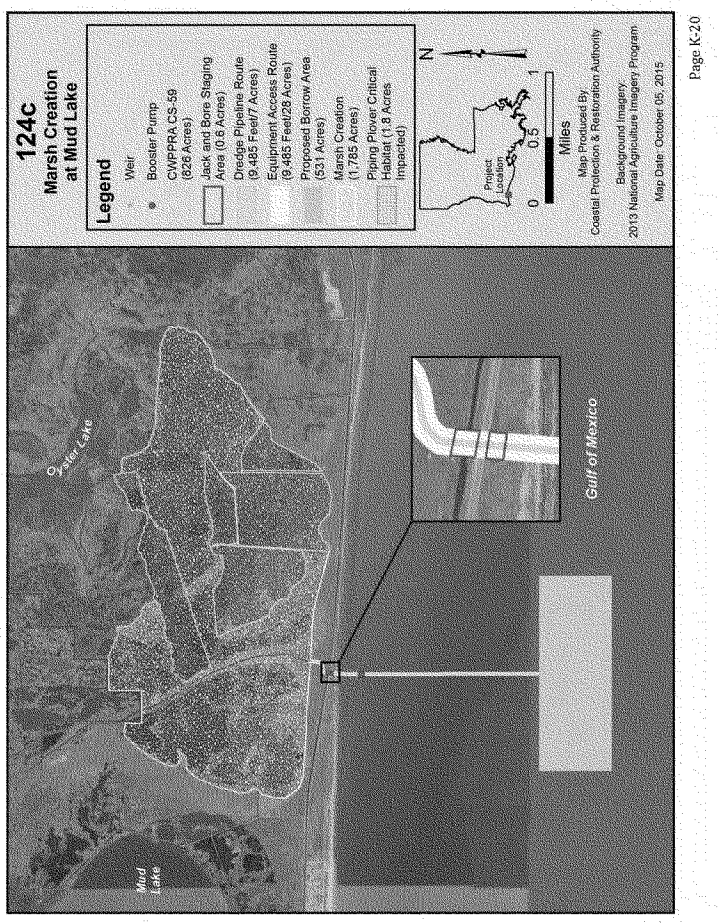

6b3
Gulf Shoreline Restoration:
Calcasieu River to
Freshwater Bayou
Legend
Engineered Breakwater (33,355 Feet)
Potential Staging Area (21 Acres)
Access Route Disposal (98,683 Feet/289 Acres)
Equipment Access Route (126,542 Feet/372 Acres)
Piping Plover Critical Habitat (0 Acres Impacted)
N
Project Location
0 1.5 3
Miles
Map Produced By:
Coastal Protection & Restoration Authority
Background Imagery:
2013 National Agriculture Imagery Program
Map Date: September 04, 2015
Gulf of Mexico
Pigeon Bayou
Humble Canal
6b1
6b2

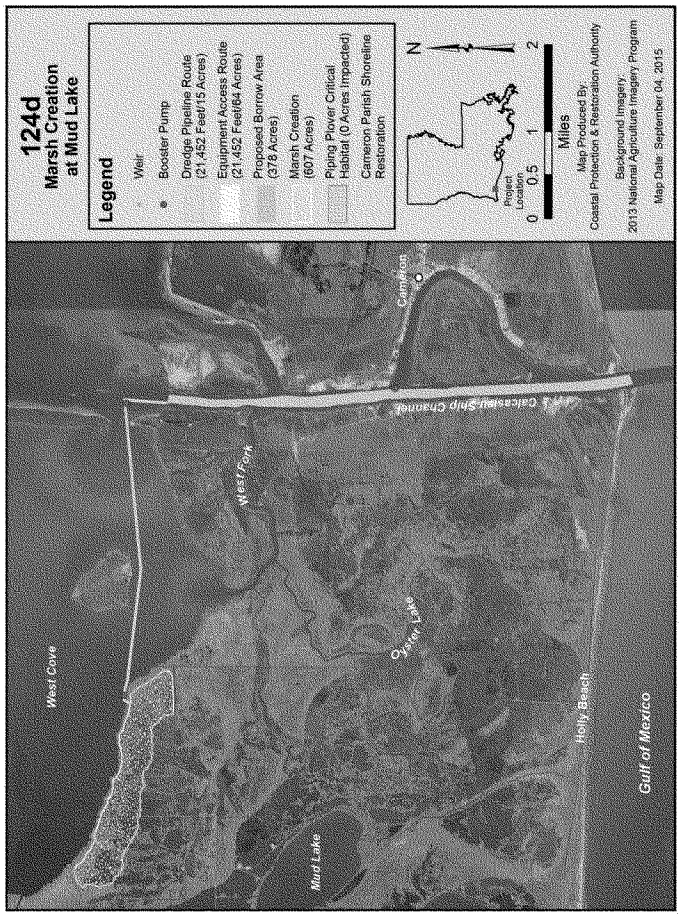

16b
Fortify Spoil Banks of the GIWW and Freshwater Bayou
Legend
Rock Revetment
Equipment Access Route (120,669 Feet/358 Acres)
Piping Plover Critical Habitat (0 Acres Impacted)
N
Project Location
0 1 2 4
Miles
Map Produced By:
Coastal Protection & Restoration Authority
Background Imagery:
2013 National Agriculture Imagery Program
Map Date: January 27, 2015
Lake White
Schooner Bayou Canal
Highway 82
Freshwater Bayou Canal
Cheniere au Tigre
Tigre Point
Gulf of Mexico


47a1
Marsh Restoration Using Dredged Material South of Highway 82
Legend
Weir
Booster Pump
Dredge Pipeline Route (35,519 Feet/24 Acres)
Equipment Access Route (35,519 Feet/24 Acres)
Proposed Borrow Area (1,716 Acres)
Marsh Creation (1,021 Acres)
Piping Plover Critical Habitat (0.14 Acres Impacted)
Project Location
N
0 0.5 1 2
Miles
Map Produced By:
Coastal Protection & Restoration Authority
Background Imagery:
2013 National Agriculture Imagery Program
Map Date: September 03, 2015
Note: Highway 82 may also be used for equipment access.
Gulf of Mexico
Highway 82
Mud Lake
Marsh Bay Point
Grand Chenier

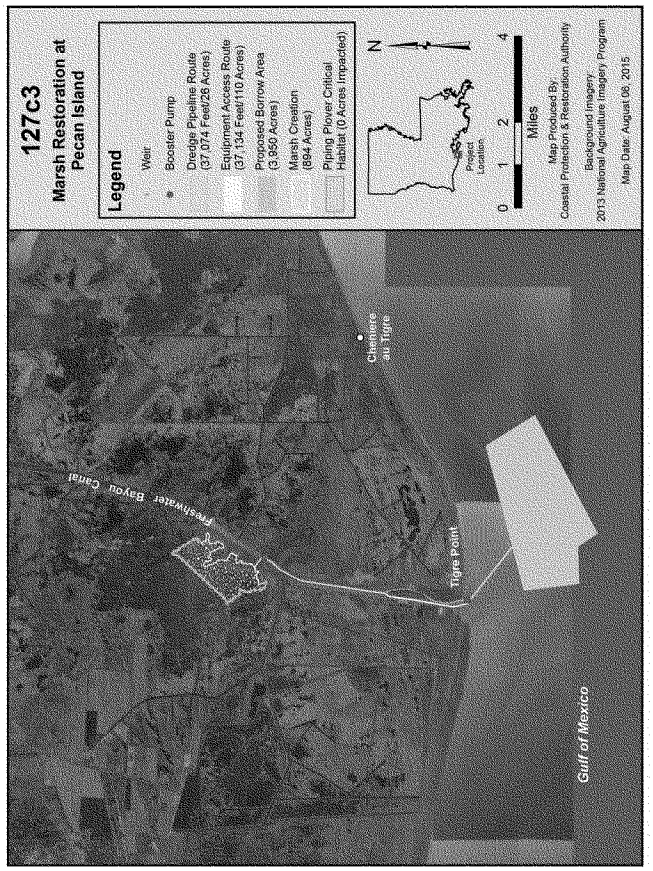

47a2
Marsh Restoration Using Dredged Material South of Highway 82
Legend
Weir
Booster Pump
Dredge Pipeline Route (30,898 Feet/21 Acres)
Equipment Access Route (32,727 Feet/23 Acres)
Proposed Borrow Area (1,716 Acres)
Marsh Creation (1,423 Acres)
Piping Plover Critical Habitat (0.14 Acres Impacted)
N
Project Location
0 0.5 1 2
Miles
Map Produced By:
Coastal Protection & Restoration Authority
Background Imagery:
2013 National Agriculture Imagery Program
Map Date: September 03, 2015
Note: Highway 82 may also be used for equipment access.
Gulf of Mexico
Highway 82
Mud Lake
Grand Chenier

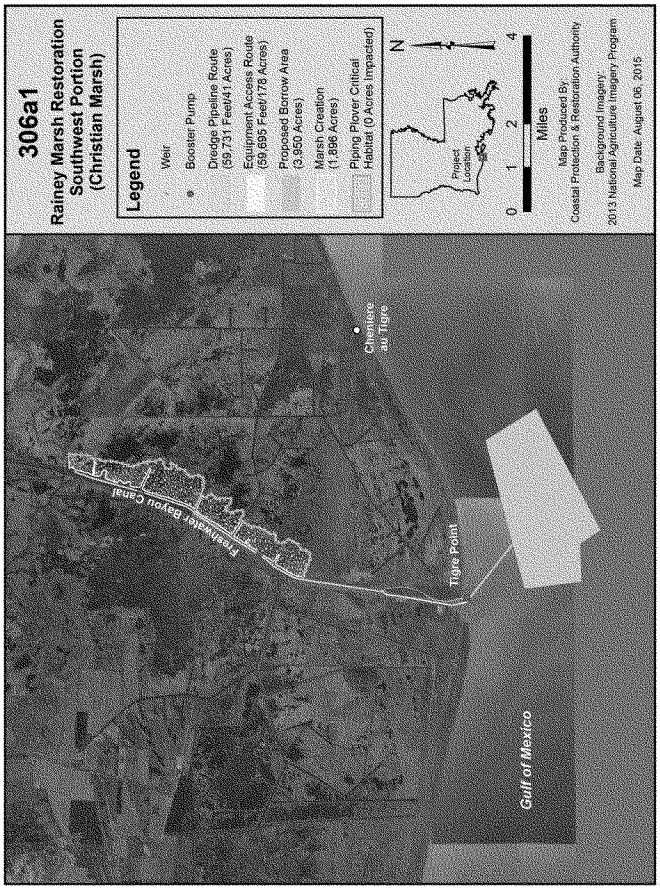

47c1
Marsh Restoration Using Dredged Material South of Highway 82
Legend
Weir
Booster Pump
Dredge Pipeline Route (29,858 Feet/21 Acres)
Equipment Access Route (37,530 Feet/26 Acres)
Proposed Borrow Area (1,716 Acres)
Marsh Creation (1,308 Acres)
Piping Plover Critical Habitat (0.14 Acres Impacted)
Project Location
N
0 0.5 1 2
Miles
Map Produced By:
Coastal Protection & Restoration Authority
Background Imagery:
2013 National Agriculture Imagery Program
Map Date: August 06, 2015
Highway 82
Gulf of Mexico
Grand Chenier
Note: Highway 82 may also be used for equipment access.

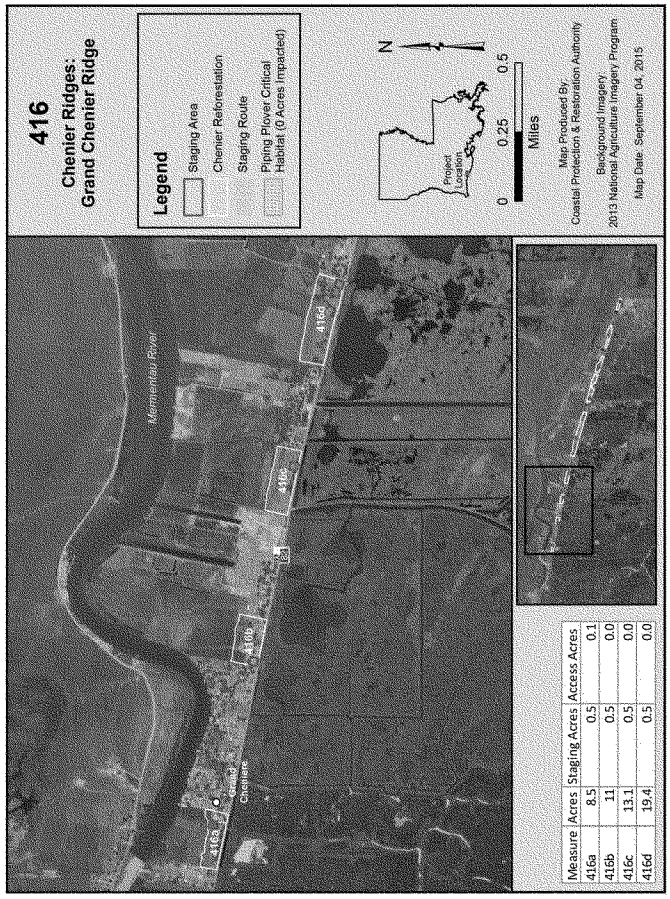

124c
Marsh Creation
at Mud Lake
Legend
Weir
Booster Pump
CWPPRA CS-59
(626 Acres)
Jack and Bore Staging
Area (0.6 Acres)
Dredge Pipeline Route
(9,485 Feet/7 Acres)
Equipment Access Route
(9,485 Feet/28 Acres)
Proposed Borrow Area
(531 Acres)
Marsh Creation
(1,785 Acres)
Piping Plover Critical
Habitat (1.8 Acres
Impacted)
Project
Location
N
0
0.5
1
Miles
Map Produced By:
Coastal Protection & Restoration Authority
Background Imagery:
2013 National Agriculture Imagery Program
Map Date: October 05, 2015
Page K-20
Oyster Lake
Mud
Lake
Gulf of Mexico

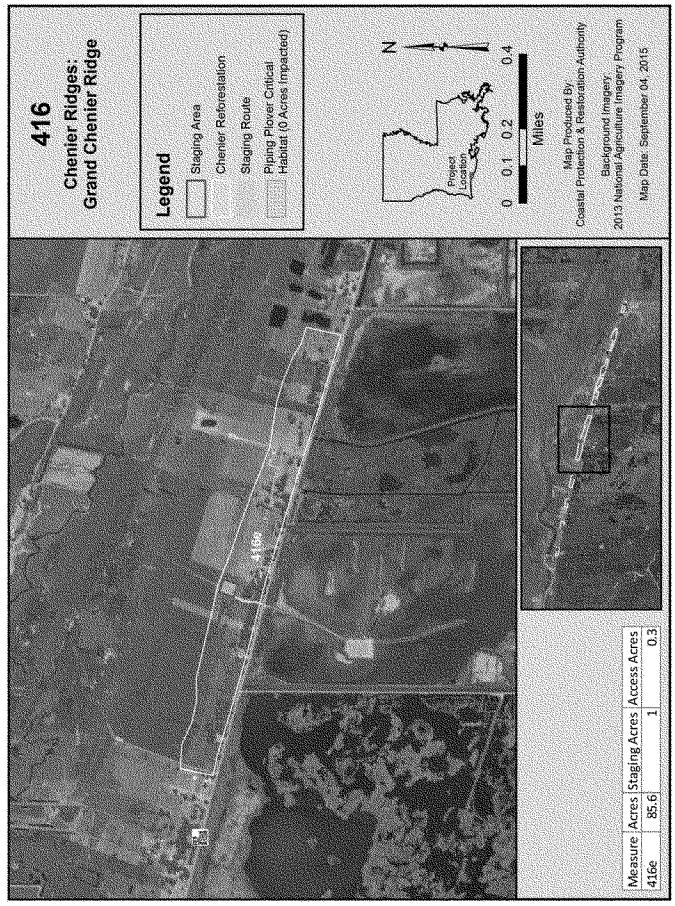


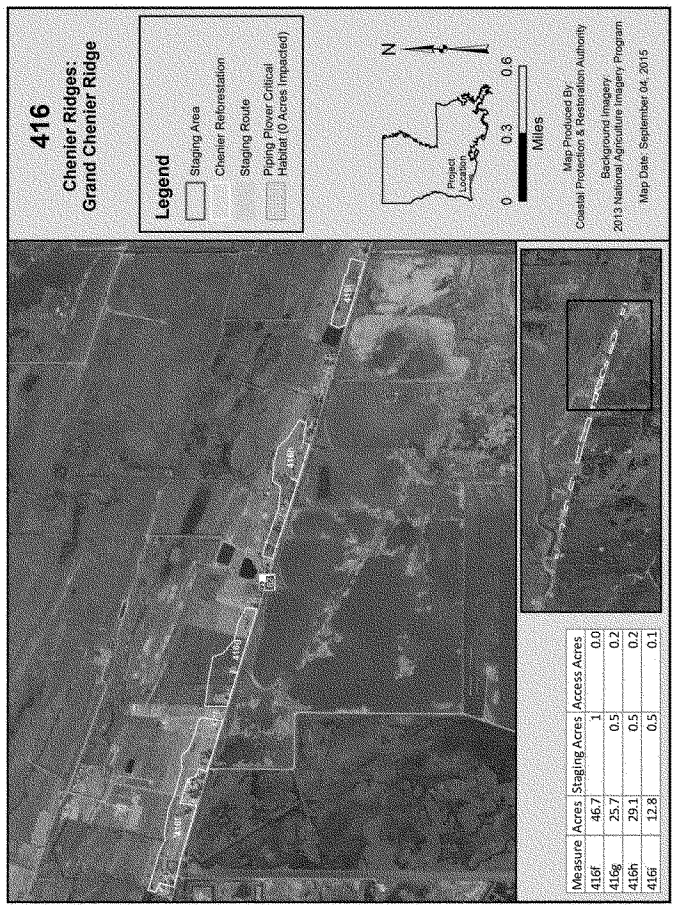
NOTE: This feature is not included as part of the LERRDs required for the project, and real estate costs do not include this feature.

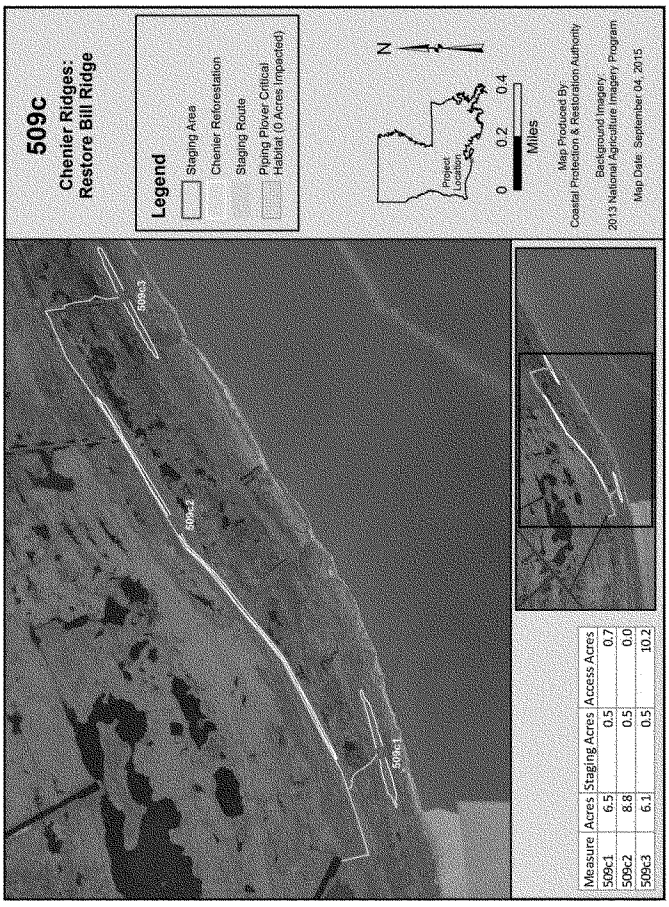

127c3
Marsh Restoration at Pecan Island
Legend
Weir
Booster Pump
Dredge Pipeline Route (37,074 Feet/28 Acres)
Equipment Access Route (37,134 Feet/110 Acres)
Proposed Borrow Area (3,350 Acres)
Marsh Creation (894 Acres)
Piping Plover Critical Habitat (0 Acres Impacted)
N
Project Location
0 1 2 4
Miles
Map Produced By:
Coastal Protection & Restoration Authority
Background Imagery:
2013 National Agriculture Imagery Program
Map Date: August 06, 2015
Freshwater Bayou Canal
Cheniere au Tigre
Tigre Point
Gulf of Mexico

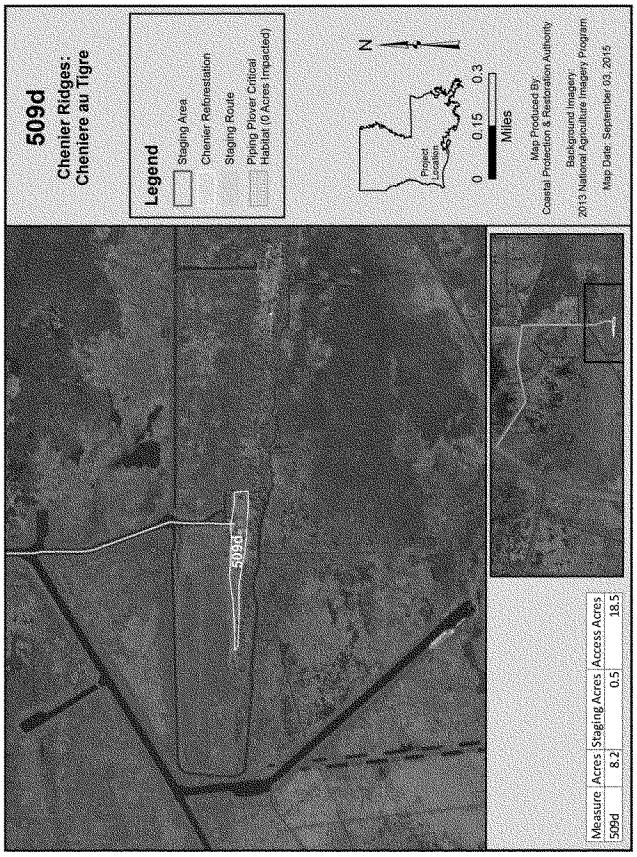

306a1
Rainey Marsh Restoration
Southwest Portion
(Christian Marsh)
Legend
Weir
Booster Pump
Dredge Pipeline Route
(59,731 Feet/41 Acres)
Equipment Access Route
(59,695 Feet/178 Acres)
Proposed Borrow Area
(3,950 Acres)
Marsh Creation
(1,896 Acres)
Piping Plover Critical
Habitat (0 Acres Impacted)
Project
Location
N
0
1
2
4
Miles
Map Produced By:
Coastal Protection & Restoration Authority
Background Imagery:
2013 National Agriculture Imagery Program
Map Date: August 06, 2015
Freshwater Bayou Canal
Cheniere
au Tigre
Tigre Point
Gulf of Mexico


416
Chenier Ridges:
Grand Chenier Ridge
Legend
Staging Area
Chenier Reforestation
Staging Route
Piping Plover Critical Habitat (0 Acres Impacted)
Project Location
N
0
0.25
0.5
Miles
Map Produced By:
Coastal Protection & Restoration Authority
Background Imagery:
2013 National Agriculture Imagery Program
Map Date: September 04, 2015
Mermentau River
Chenier
416a
416b
416c
416d
Measure | Acres | Staging Acres | Access Acres
416a | 8.5 | 0.5 | 0.1
416b | 11 | 0.5 | 0.0
416c | 13.1 | 0.5 | 0.0
416d | 19.4 | 0.5 | 0.0


416
Chenier Ridges:
Grand Chenier Ridge
Legend
Staging Area
Chenier Reforestation
Staging Route
Piping Plover Critical Habitat (0 Acres Impacted)
Project Location
N
0 0.1 0.2 0.4
Miles
Map Produced By:
Coastal Protection & Restoration Authority
Background Imagery:
2013 National Agriculture Imagery Program
Map Date: September 04, 2015
416e
Measure | Acres | Staging Acres | Access Acres
416e | 85.6 | 1 | 0.3


416
Chenier Ridges:
Grand Chenier Ridge
Legend
Staging Area
Chenier Reforestation
Staging Route
Piping Plover Critical Habitat (0 Acres Impacted)
Project Location
N
0
0.3
0.6
Miles
Map Produced By:
Coastal Protection & Restoration Authority
Background Imagery:
2013 National Agriculture Imagery Program
Map Date: September 04, 2015
Measure | Acres | Staging Acres | Access Acres
416f | 46.7 | 1 | 0.0
416g | 25.7 | 0.5 | 0.2
416h | 29.1 | 0.5 | 0.2
416i | 12.8 | 0.5 | 0.1


509c
Chenier Ridges:
Restore Bill Ridge
Legend
Staging Area
Chenier Reforestation
Staging Route
Piping Plover Critical Habitat (0 Acres Impacted)
509c3
509c2
509c1
N
Project Location
0 0.2 0.4
Miles
Map Produced By:
Coastal Protection & Restoration Authority
Background Imagery:
2013 National Agriculture Imagery Program
Map Date: September 04, 2015
Measure | Acres | Staging Acres | Access Acres
509c1 | 6.5 | 0.5 | 0.7
509c2 | 8.8 | 0.5 | 0.0
509c3 | 6.1 | 0.5 | 10.2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Staging Route
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Miles
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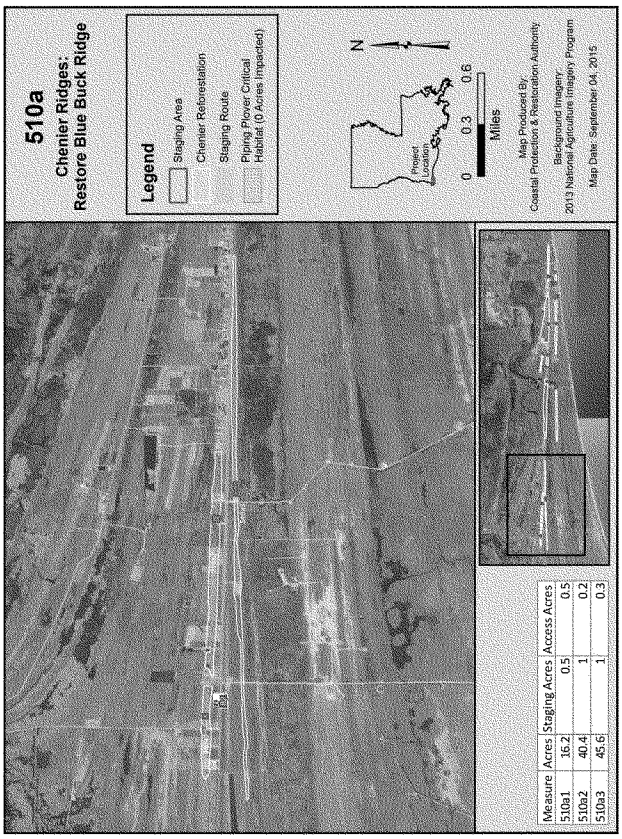
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0 0.3 0.6
Miles
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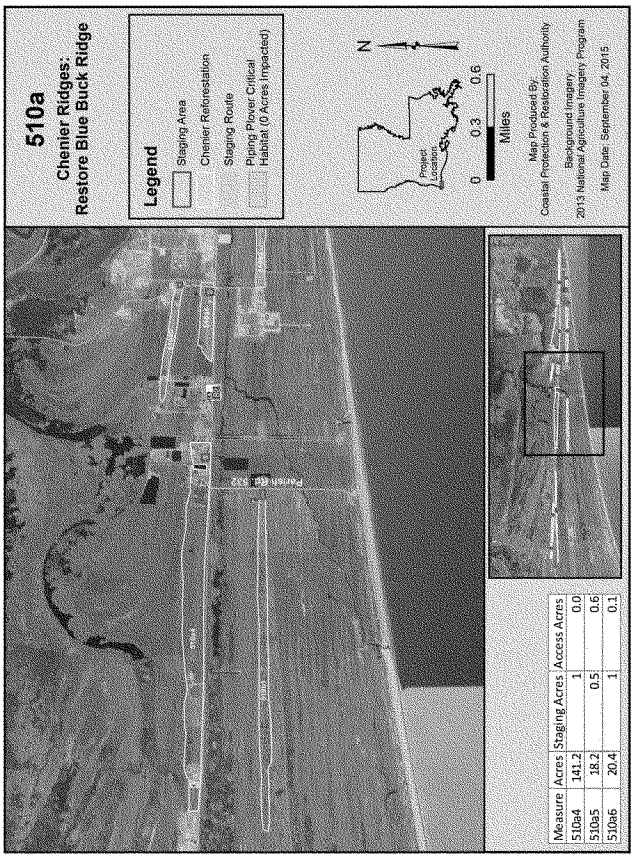
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Project Location
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2013 National Agriculture Imagery Program
Map Date: September 04, 2015
Measure | Acres | Staging Acres | Access Acres
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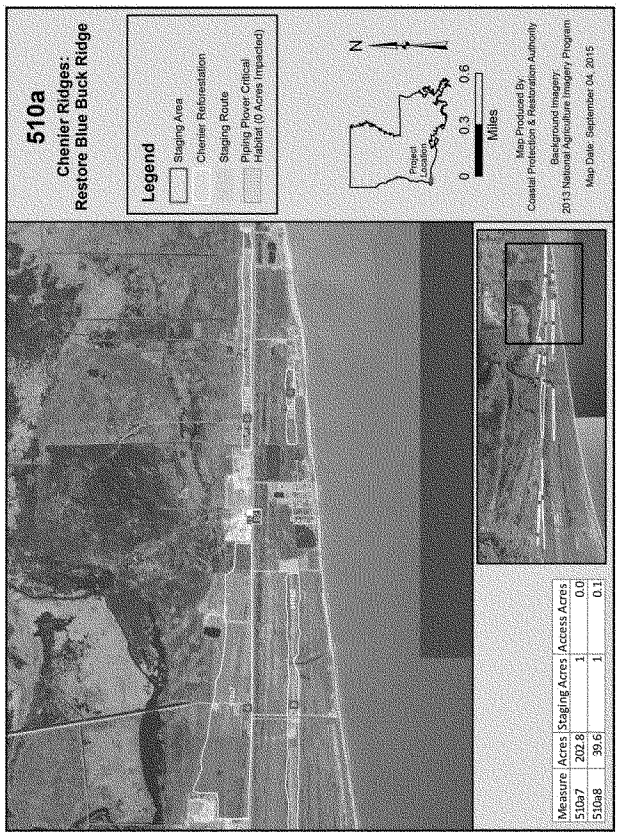
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Project Location
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Map Produced By:
Coastal Protection & Restoration Authority
Background Imagery:
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Measure | Acres | Staging Acres | Access Acres
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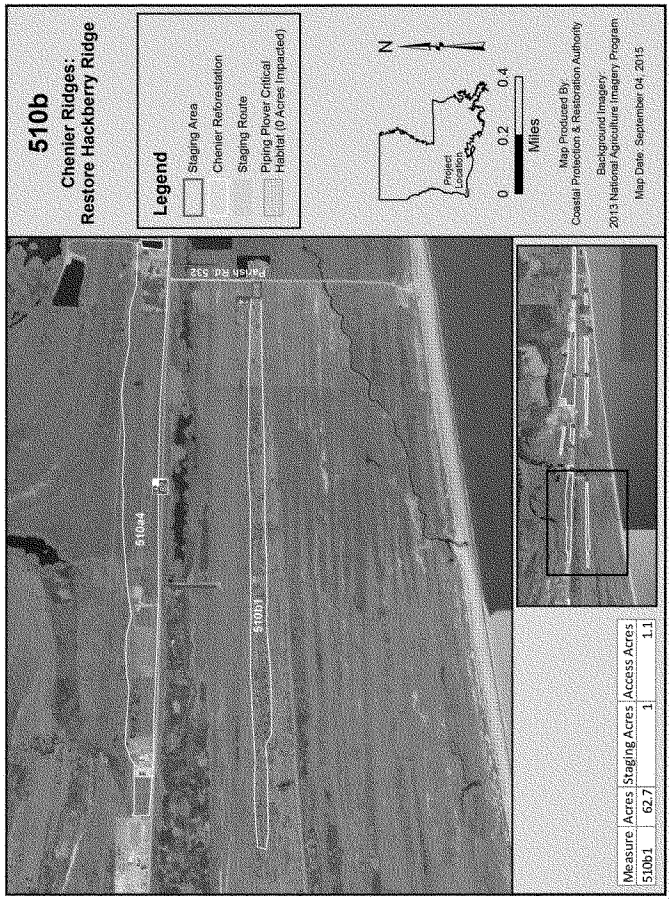
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Staging Route
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Project Location
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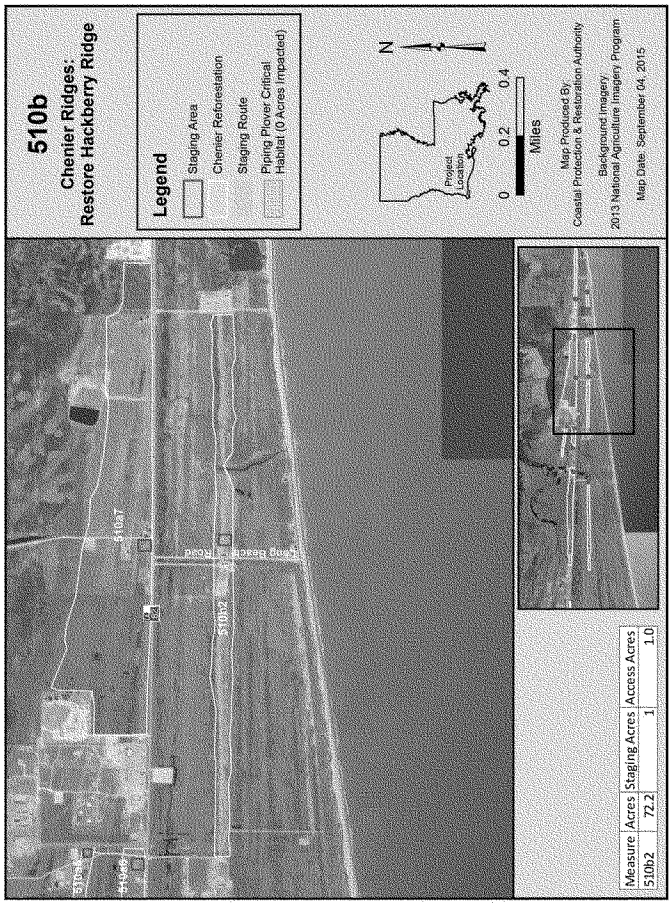
1.1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Project Location
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Map Produced By:
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Map Date: September 04, 2015
Measure | Acres | Staging Acres | Access Acres
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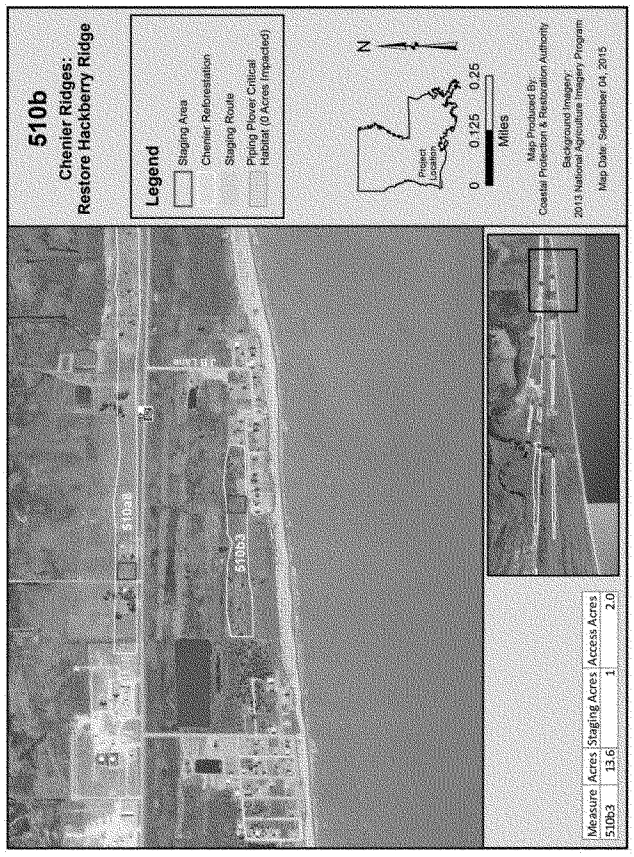
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Staging Area
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Staging Route
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Project Location
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Map Produced By:
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Background Imagery:
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Map Date: September 04, 2015
510b2
510b3
Measure | Acres | Staging Acres | Access Acres
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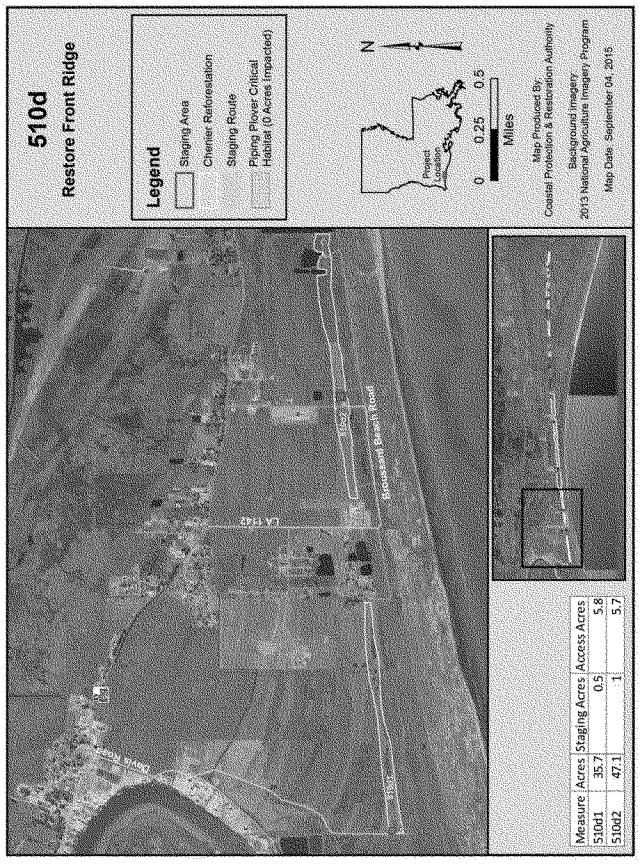
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Staging Route
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Miles
Map Produced By:
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Background Imagery:
2013 National Agriculture Imagery Program
Map Date: September 04, 2015
Brousseard Beach Road
LA 1142
Measure | Acres | Staging Acres | Access Acres
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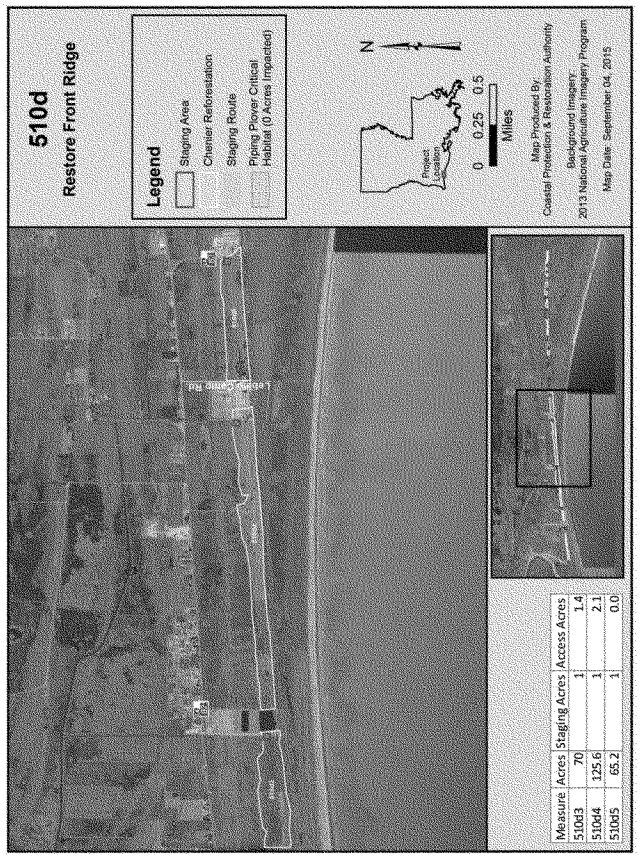
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Project Location
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Miles
Map Produced By:
Coastal Protection & Restoration Authority
Background Imagery:
2013 National Agriculture Imagery Program
Map Date: September 04, 2015
Measure | Acres | Staging Acres | Access Acres
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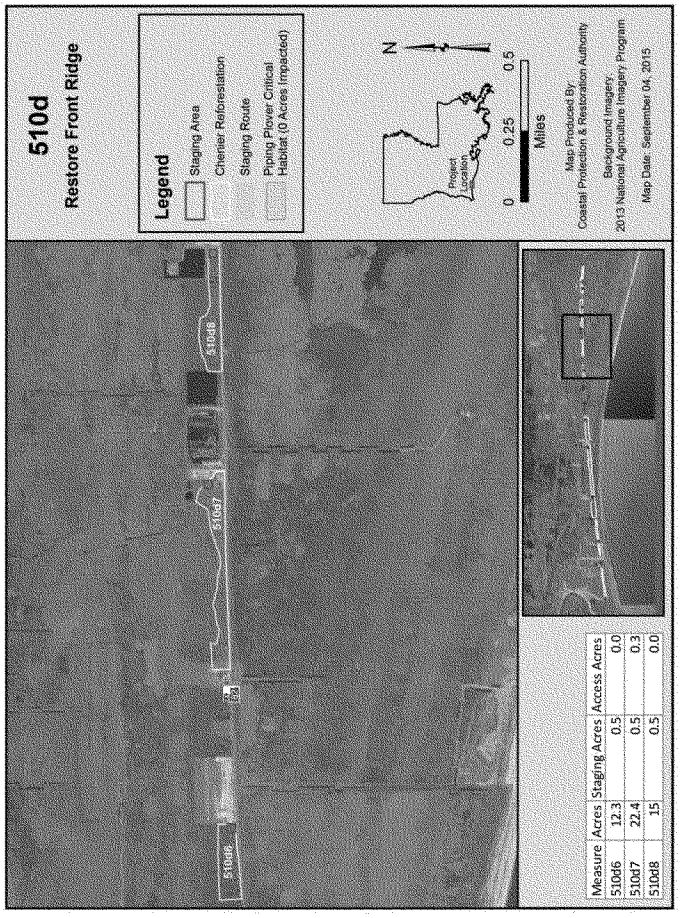
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510d6
510d7
510d8
Project Location
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Map Produced By
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Background Imagery:
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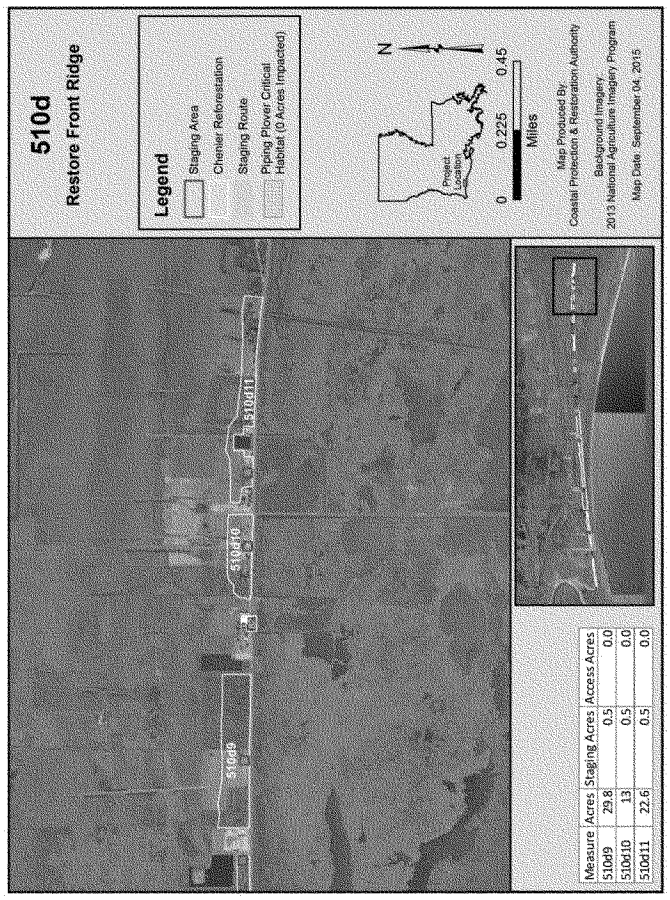
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Legend
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Staging Route
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Project Location
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Miles
Map Produced By:
Coastal Protection & Restoration Authority
Background Imagery:
2013 National Agriculture Imagery Program
Map Date: September 04, 2015
510d9
510d10
510d11
Measure | Acres | Staging Acres | Access Acres
510d9 | 29.8 | 0.5 | 0.0
510d10 | 13 | 0.5 | 0.0
510d11 | 22.6 | 0.5 | 0.0

ANNEX 3
ASSESSMENT OF NON-FEDERAL SPONSOR'S
ACQUISITION CAPABILITY

ASSESSMENT OF NON-FEDERAL SPONSOR'S REAL ESTATE ACQUISITION CAPABILITY

COASTAL PROTECTION AND RESTORATION AUTHORITY ("CPRA"), IMPLEMENTATION ARM OF THE COASTAL PROTECTION AND RESTORATION AUTHORITY BOARD ("BOARD")

I. Legal Authority:

a. Does the sponsor have legal authority to acquire and hold title to real property for project purposes? **NO, the Board does not have the ability to acquire and hold title to real property, however, CPRA, the implementation and enforcement arm of the Board, has the ability to acquire by purchase, donation, own, administer, or alienate, and otherwise disposes of all property, movable or immovable, corporeal and incorporeal,, for projects authorized by the Board. (*See*: La. R.S. 49:214.6.2).**

b. Does the sponsor have the power of eminent domain for this project?
The NED plan is voluntary in nature; therefore the power of eminent domain should not be necessary. For the NER Plan, the sponsor, acting through its implementation arm, CPRA, has conventional eminent domain authority to acquire all real estate interests for integrated coastal protection projects pursuant to La.R.S. 49:214.6.2(D)(2), including for the restoration and creation of coastal wetlands. However, eminent domain acquisition in Louisiana requires a reservation of mineral rights to the landowner and thus, does not allow for acquisition of all subsurface real estate interests.

c. Does the sponsor have "quick-take" authority for this project?
"Quick-take" authority will not be required for the NED Plan. For the NER Plan, immovable property may need to be acquired. CPRA does not have "quick take" authority, however, should this be needed for the Project, CPRA or the CPRA Board may partner with a Levee District or Parish Government that has quick-take authority in accordance with to La. R.S. 38:301, La. R.S. 38:301.1 and La. R.S. 49:214.5.2, pursuant to an intergovernmental agreement.

d. Are any of the lands/interests in land required for the project located outside the sponsor's political boundary? **NO.**

e. Are any of the lands/interests in land required for the project owned by an entity whose property the sponsor cannot condemn? **Unknown.**

II. Human Resource Requirements:

a. Will the sponsor's in-house staff require training to become familiar with the real estate requirements of Federal projects including P.L. 91-646, as amended? **NO**

b. If the answer to II.a. is "yes," has a reasonable plan been developed to provide such training? **N/A**

c. Does the sponsor's in-house staff have sufficient real estate acquisition experience to meet its responsibilities for the project? **YES**

d. Is the sponsor's projected in-house staffing level sufficient considering its other workload, if any, and the project schedule? **Not at this time. However, CPRA has numerous contracts in place which provide ample resources.**

e. Can the sponsor obtain contractor support, if required in a timely fashion? **YES, contracts are in place now.**

f. Will the sponsor likely request USACE assistance in acquiring real estate? **It is unlikely that the Sponsor will request assistance.**

III. Other Project Variables:

a. Will the sponsor's staff be located within reasonable proximity to the project site? **YES.**

b. Has the sponsor approved the project/real estate schedule/milestones? **At the feasibility level, there are too many unknowns to develop a definite project schedule. Once project designs are finalized, the Sponsor will be requested to provide an acquisition schedule.**

IV. Overall Assessment:

a. Has the sponsor performed satisfactorily on other USACE projects? **YES.**

b. With regard to this project, the sponsor is anticipated to be: highly capable/fully capable/moderately capable/marginally capable/insufficiently capable. **Highly capable.**

V. Coordination:

a. Has this assessment been coordinated with the sponsor? **YES.**

b. Does the sponsor concur with this assessment? **YES.**

Prepared by:	Approved by:	Approved by:
Karen E. Vance	Michael Ellis	Johnny Bradberry
Realty Specialist	Executive Director	Chairman
Appraisal & Planning Branch	Coastal Protection &	Coastal Protection &
Real Estate Region South Division	Restoration Authority	Restoration Authority Board
USACE		
2/26/16	2/24/16	2/26/2016
Date	Date	Date

ANNEX 4
NON-MATERIAL DEVIATION FROM STANDARD
PERPETUAL ACCESS EASEMENT

PERPETUAL ACCESS EASEMENT

A perpetual non-exclusive and assignable easement is granted to the Coastal Protection and Restoration Authority Board of Louisiana for its use and for use by the United States of America and by the representatives, agents, and contractors of the Coastal Protection Restoration Authority Board of Louisiana and the United States of America as an access route and/or right-of-way in, on, over and across (the land described in Schedule A) (Tracts Nos. _____, _____ and _____); together with the right to construct, operate, maintain, alter and replace any improvements necessary for the use as an access route and/or right-of-way, and with the right to trim, cut, fell and remove therefrom all trees, underbrush, obstructions and other vegetation, structures, or obstacles within the limits of the right-of-way, reserving, however, to the owners, their heirs and assigns, all such rights and privileges as may be used without interfering with or abridging the rights and easement hereby acquired, including the right to cross over the right-of-way as access to their adjoining land; subject, however, to existing easements for public roads and highways, public utilities, railroads and pipelines.

In accordance with paragraph 12-10 c. of ER 405-1-12, the District Chief of Real Estate may approve a non-standard estate if it serves the intended project purpose, substantially conforms with and does not materially deviate from a corresponding standard estate, and does not increase the costs or potential liability of the Government. The foregoing estate complies with those requirements as it achieves the project purpose in as narrow a manner as practical, and is a minor modification of the standard Road Easement . The lands over which this easement will be acquired are wetlands or private water bodies over which roads cannot be constructed. Therefore, the standard road easement provides more rights than the project needs.

Reviewed by:

Mary V. Kinsey
Assistant District Counsel
New Orleans District

Approved by:

Linda Labure
Geographic Chief, Real Estate Region South Division

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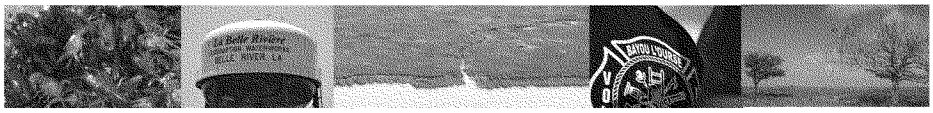

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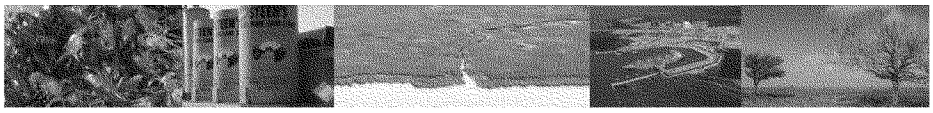

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Mr. Kevin Norton	State Conservationist - NRCS	9797 Government St Alexandria, LA 71302
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This document was provided to interested parties who requested to be in the CEMVN District stakeholder and NEPA mailing lists. This mailing list is maintained as a database and contains personal information.

COMMENTS AND RESPONSES TO THE REVISED INTEGRATED DRAFT FEASIBILITY REPORT AND ENVIRONMENTAL IMPACT STATEMENT

(Responses to comments on the December 2013 Initial Draft Report are available upon request)

SUMMARY

This document describes the public comments and responses by the U.S. Army Corps of Engineers (USACE), New Orleans District (CEMVN) regarding the Revised Integrated Draft Feasibility Report and Environmental Impact Statement (Revised Integrated Draft Report and EIS) for the Southwest Coastal Louisiana Study. In accordance with the Council of Environmental Quality regulations (40 CFR §1503.1) for implementing the National Environmental Policy Act of 1969, the CEMVN issued a Notice of Availability dated March 20, 2015, inviting public participation to comment on the Revised Integrated Draft Feasibility Report and Environmental Impact Statement for the Southwest Coastal Louisiana study which was published by the U.S. Environmental Protection Agency in the Federal Register Volume 80, No. 54, March 20, 2013, page 15001. The Revised Integrated Draft Report and EIS was distributed for review and comment to Federal, state, and local agencies; Tribes; libraries; and other interested parties. The Revised Integrated Draft Feasibility Report and Environmental Impact Statement was also posted on the study webpage: http://www.mvn.usace.army.mil/About/Projects/SouthwestCoastal.aspx. Comments on the Revised Integrated Draft Feasibility Report and Environmental Impact Statement were requested during the 45-day comment period from March 20, 2015 to May 4, 2015.

Three public hearings were held during the comment period. A total of 184 people signed in to the public hearings; however, more people were in attendance than had signed in for all three hearing sites. The CEMVN received a total of 2,752 comments, including: 2,540 signatures on petitions; 50 emails; 40 oral comments during the public hearings; 34 governmental (including Federal, state, parish, and local); 10 letters; 7 postcards; and 4 telephone comments received during the comment period. Most comments were comprised of several specific comments; a few of the comments provided attachments.

All comments received on the Revised Integrated Draft Report and EIS, whether or not the comment is thought to merit individual discussion, are included in this report. Comments received most often included:

1. Request to include a list of all Parish Priority Projects and Coastal Restoration and Protection Plans in the report.
2. Request that any and all reference to eminent domain and involuntary participation be removed from the study.
3. Request that a 'Local Sponsor' be chosen and have immediate 'voice' in the remaining planning process.
4. Request to replace reforestation measures be replaced by shoreline protection measures.

All comments were reviewed and considered by the Project Development Team in further developing the Integrated Final Feasibility Report and Environmental Impact Statement. Many salient comments, questions, and concerns were expressed in both the written and oral form.

The substantive comments received on the NED plan warranted significant changes resulting in revising it from a programmatic level to a feasibility level of detail suitable for recommendation for construction.

The environmental restoration (NER) component of the study remains at the feasibility level of detail and suitable for recommendation for construction. Two additional appendices are added to the Integrated Final Feasibility Report and Environmental Impact Statement to include an appendix with copies of Parish Priority Projects and Coastal Restoration and Protection Plans, and an appendix displaying maps of all affected structures under the NED Plan. In addition, detailed responses included discussions of eminent domain and involuntary participation, why chenier reforestation is a necessary component of the NER Plan, and the continued involvement of local interested parties in the study process. The Final Integrated Feasibility Report and Environmental Impact Statement will be made available for review and will also be posted on the study webpage: http://www.mvn.usace.army.mil/About/Projects/SouthwestCoastal.aspx.

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ACRONYMS AND ABBREVIATIONS

ACHP	Advisory Council on Historic Preservation
CCA	Coastal Conservation Association
CCMP	Comprehensive Conservation Management Plan
CEMVN	U.S. Army Corps of Engineers, Mississippi Valley Division, New Orleans District
CFR	Code of Federal Regulations
CPRA	Louisiana Coastal Protection and Restoration Agency
CWPPRA	Coastal Wetland Planning, Protection, and Restoration Act
CZM	Coastal Zone Management
FEMA	Federal Emergency Management Agency
FEIS	Final Environmental Impact Statement
GIWW	Gulf Intracoastal Waterway
LCA	Louisiana Coastal Area
LDNR	Louisiana Department of Natural Resources
LDWF	Louisiana Department of Wildlife and Fisheries
NED	National Economic Development
NEPA	National Environmental Policy Act
NER	National Ecosystem Restoration
NGO	Non-Government Organization
NMFS	National Marine Fisheries Service
NRCS	Natural Resources Conservation Service
PDT	Project Delivery Team
PEIS	Programmatic Environmental Impact Statement
RP	Recommended Plan
SHPO	State Historic Preservation Officer
TSP	Tentatively Selected Plan
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
WRDA	Water Resources Development Act

1.0 INTRODUCTION

This document describes the public comments received during the 45-day public comment period and the CEMVN responses to those comments. The Council of Environmental Quality (CEQ) regulations (40 CFR §1503.1) for implementing the National Environmental Policy Act (NEPA) established a nationwide policy that after preparing a draft environmental impact statement (EIS) and before preparing a final EIS the agency shall:

- Obtain the comments of any Federal agency which has jurisdiction by law or special expertise with respect to any environmental impact involved or which is authorized to develop and enforce environmental standards.
- Request the comments of:
  - Appropriate state and local agencies which are authorized to develop and enforce environmental standards;
  - Indian tribes, when the effects may be on a reservation; and
  - Any agency which has requested that it receive statements on actions of the kind proposed.
- Request comments from the public, affirmatively soliciting comments from those persons or organizations who may be interested or affected.

An agency may request comments on a final environmental impact statement before the decision is finally made. In any case, other agencies or persons may make comments before the final decision unless a different time is provided under 40 CFR §1506.10.

A Notice of Availability (NOA), dated March 20, 2015, inviting public participation to comment on the Revised Integrated Draft Feasibility Report and Environmental Impact Statement (Revised Integrated Draft Report) for the Southwest Coastal Louisiana study was published by the U.S. Environmental Protection Agency in the Federal Register Volume 80, No. 54, March 20, 2013, page 15001. The Revised Integrated Draft Report and EIS was distributed for review and comment to Federal, state, and local agencies; Tribes; libraries; and other interested and affected parties; and was also posted on the study webpage: http://www.mvn.usace.army.mil/About/Projects/SouthwestCoastal.aspx. Comments on the Revised Integrated Draft Report and EIS were requested during the 45-day comment period from March 20, 2015 to May 4, 2015.

News releases announcing public hearings were distributed to media outlets throughout the study area, as well as posted to the USACE New Orleans District website (www.mvn.usace.army.mil) and social media outlets such as Facebook and Twitter. Paid advertisements for the meetings were placed in the following local newspapers: Vermilion Today on April 12 and 14, 2015; American Press on April 12 and 15, 2015; and Dequincy News on April 12 and 16, 2015. Notifications were sent to non-governmental organizations (NGOs) that are actively involved in coastal restoration via the New Orleans. Public hearings were also coordinated with Calcasieu, Cameron, and Vermilion Parish Presidents' Office and Coastal Zone Managers. As an additional measure for providing public access to the document, the Revised Integrated Draft Report available for view and downloading from the World Wide Web at: http://www.mvn.usace.army.mil/About/Projects/SouthwestCoastal.aspx. No reports of user difficulty were reported to the webmaster for the site.

Three public hearings were conducted by the CEMVN in April 2015. The public hearings provided a forum for public expression of verbal statements regarding the proposed action and the content of findings of the Revised Integrated Draft Feasibility Report and Environmental Impact Statement. Each meeting also provided an opportunity for attendees to ask questions of CEMVN and the non-Federal Sponsor representatives regarding the Southwest Coastal Louisiana study. The dates, locations number of individuals signing in, and number of individuals providing comments at the public hearings is presented in Table 1.

Table 1 Public Hearings Information		
Date	**Location**	**Attendees**
April 14, 2015	Vermilion Parish: Abbeville High School 1305 Wildcat Drive Abbeville, Louisiana	61 individuals signed in 13 individuals offered comments
April 15, 2015	Calcasieu Parish: Lake Charles Civic Center 900 Lakeshore Drive Lake Charles, Louisiana	21 individuals signed in 7 individuals offered comments
April 16, 2015	Cameron Parish: Cameron Police Jury 119 Smith Circle Cameron, Louisiana	102 individuals signed in 20 individuals offered comments

The public hearing format included an Open House from 6:00 to 6:30 pm where general information about the proposed Southwest Coastal Louisiana study effort and process was provided. From 6:30 to 8:30 pm, an overview of the proposed Southwest Coastal Louisiana study was presented, followed by a question and answer session and acceptance of formal public comments on the Revised Integrated Draft Feasibility Report and Environmental Impact Statement. A copy of the sign-in sheets for the public hearings/meetings is presented in **Attachments 1, 2,** and **3.**

A certified court reporter provided a written transcript of each hearing/meeting record. A copy of the transcripts from each hearing/meeting is available upon request. Provisions were made for comments to be written on comment cards and provided to the CEMVN during or following the hearings. A total of 184 people signed in to the public hearings; 61 people signed in at the Vermilion Parish hearing, 21 people signed in at the Calcasieu Parish hearing and 102 people signed in at the Cameron Parish hearing. There were more people in attendance of the public hearings than had signed in at all three sites. A total of 40 individuals offered oral comments during the public hearings.

The NEPA provides specific guidance (40 CFR 1503.4) about responding to comments. An agency preparing a final EIS shall assess and consider comments both individually and collectively, and shall respond by one or more of the means listed below, stating its response in the final statement. Possible responses to comments include:

- Modify alternatives including the proposed action.
- Develop and evaluate alternatives not previously given serious consideration by the agency.
- Supplement, improve, or modify its analyses.
- Make factual corrections.
- Explain why the comments do not warrant further agency response, citing the sources, authorities, or reasons which support the agency's position and, if appropriate, indicate those circumstances which would trigger agency reappraisal or further response.

All comments received on the Revised Integrated Draft Report and EIS, whether or not the comment is thought to merit individual discussion, are included in this report. Comments received most often included:

1. Request to include a list of all Parish Priority Projects and Coastal Restoration and Protection Plans in the report.
2. Request that any and all reference to eminent domain and involuntary participation be removed from the study.
3. Request that a 'Local Sponsor' be chosen and have immediate 'voice' in the remaining planning process.
4. Request to replace reforestation measures be replaced by shoreline protection measures.

All comments were reviewed and considered by the Project Development Team in further developing the Integrated Final Feasibility Report and Environmental Impact Statement. Many salient comments, questions, and concerns were expressed in both the written and oral form.

The substantive comments received on the NED plan warranted significant changes resulting in revising it from a programmatic level to a feasibility level of detail suitable for recommendation for construction.

The environmental restoration (NER) component of the study remains at the feasibility level of detail and suitable for recommendation for construction. Two additional appendices are added to the Integrated Final Feasibility Report and Environmental Impact Statement to include an appendix with copies of Parish Priority Projects and Coastal Restoration and Protection Plans, and an appendix displaying maps of all affected structures under the NED Plan. In addition, detailed responses included discussions of eminent domain and involuntary participation, why chenier reforestation is a necessary component of the NER Plan, and the continued involvement of local interested parties in the study process. The Final Integrated Feasibility Report and Environmental Impact Statement will be made available for review and will also be posted on the study webpage: http://www.mvn.usace.army.mil/About/Projects/SouthwestCoastal.aspx.

2.0 COMMENTS

The CEMVN received a total of 2,752 comments, including: 2,540 signatures on petitions; 50 emails; 40 oral comments during the public hearings; 34 governmental (including Federal, state, parish, and local); 10 letters; 7 postcards; and 4 telephone comments received during the comment period. Most comments included several specific comments; a few of the comments provided attachments.

Table 2 lists the Federal, state, and local agencies; individuals and other interested parties that provided oral testimonies, written and other comments on the Revised Integrated Draft Report and EIS. A portable document format (pdf) copy of all comments, including petitions, is available upon request.

Table 2. List of individuals that provided comments on the Revised Integrated Draft Report and EIS.

Email Comments		
Ashely K. Buller	Keith Hayden	Nedra Davis
Alaine M Devalcourt	E. Scott Henry	Roderic Vaughn
Arnold Jones Jr.	Gloria Conlin	Ryan Bourriaque
Ashley K Buller	John Dale "Zach" Lee	Shannon Neveaux
Carol Fountain	Judith Falcon	Shannon Neveaux
Carolyn Woosley	Karen Wheat	CPRA
Mayor Randy Roach	Michael Hare	Sue Neveaux
Stephen R. Spencer	Mike Toerner	Suzy Heck
Elvin "Bubba" Wheat	Morgan Herden	Tom Couste
	Nancy Murphy Geer Toerner	Tricia Gaspard
Government Comments (Federal, state, parish, local)		
Ashley K. Buller	Don Haydel	LDWF
(ACHP) Brian Lusher	Department of the Interior Office	Nedra Davis
D.Y. Doland	of the Secretary Stephen R.	Nicole Minvielle
Cameron Parish Gravity Drainage	Spencer	(NOAA, NMFS) Virgina M. Fay
District No. 4	(EPA) Craig Weeks	(SHPO) Pam Breaux
Calcasieu Parish Police Jury	Erath (Town of)	Teche-Vermilion Fresh Water
City of Lake Charles Mayor Randy	Jonathan "JP" Perry, LA State	District
Roach	Senator, District 26	(NRCS) Kevin Norton, State
CPRA	Kristin Saltzman	Conservationist
State Senator Dan "Blade" Morrish	Kirk Quin	Vermilion Parish Police Jury
	Ray Fremin, Jr.	

Table 2. List of individuals that provided comments on the Revised Integrated Draft Report and EIS.		
	Louisiana Delegation, Congress of the United States	
Letter Comments (other than Government)		
Alfred Broussard Elray Henry	Louisiana Farm Bureau Federation Martin Miller	Michael Toerner
Petitions (names and copies of petitions available upon request)		
1,752 signatures on undated Petition to Change the SWCL Study's 2015 Draft (Shannon Neveaux) 63 signatures on petition dated April 16, 2015 748 signatures on petition dated April 17, 2015 4 signatures on petition dated April 21, 2015		
Postcard Comments		
Barbara Primeaux D.Y. Dolsard Jr. Davy L. Doxy	Iris Broussard Jeff & Shari Richard	Lisa Chiasson Susan Boudreaux
Public Hearings/Meeting Calcasieu Parish April 15, 2015		
Carolyn Woosley Jennifer Cobian	John Mouton Laurie Cormier	Mayor Randy Roach Nedra Davis Nic Hunter
Public Hearings/Meetings Cameron Parish April 16, 2015		
Benny Welch Billy Dorian Curtis Fountain Cynthia Sellers David Richard Dinah Landry J.C. Reina	Kirk Quinn Marshal Young Mike Mr. Miller Ms. Jones Nedra Davis Paul Sellers	Ray Clement Ryan Bourriaque Scooter Trosclair Sherriff Johnson Stacy Verret Terry Beard Unidentified
Public Hearings/Meeting Vermilion Parish April 14, 2015		
Earl Landry Joe Tessier Kevin Segrera Mark Shirley	Mayor John LeBlanc Mike Sagrera Nedra Davis Peter Vincent	Randy Moertel Roland Viator Shannon Neveau
Telephone Comments		
Robert Duboit	Jolene Lane	Billy Waters

The formal NEPA comments presented at the public hearings, as well as all other comments (letter, email, comment cards, and telephone) on the Revised Integrated Draft Report and EIS are presented in **Table 3.**

Table 3. Comments on the Revised Integrated Draft Feasibility Report and Environmental Impact Statement							
Comment #	**Person/Agency**	**Date**	**Source of Comment**	**Mode of Comment**	**Theme**	**Comment (may be paraphrased or summarized)**	**Response**
	EMAIL COMMENTS						
1	Ashely K. Buller	May 5, 2015	Cameron Parish Police Jury	email	petitions on behalf of Cameron Parish residents	Please accept the attached petitions on behalf of the residents of Cameron Parish.	Acknowledge receipt of email and attached petitions. Response to petition comments are included in the General Responses.
2	Alaine M Devalcourt	April 24, 2015	public	email	flooding	I am a concerned citizen from Abbeville located in Vermilion Parish. I grew up in Esther which is about 15 minutes south of Abbeville. My grandparents have lived there for more than 50 years and will not leave the only place they know as home. Their house is built between 13-16 feet high, however for Hurricane Ike the water line marked more than halfway up the creosote poles. Living in the south flooding will always be a problem, especially with a hurricane in the equation.	Comment acknowledged.
3					fisheries	Also, our coast provides 1/3 of the nations coastal fisheries. Coastal fisheries off of our marsh lands are an incredible boost to our economy.	The Final Integrated Report provides details regarding potential project induced impacts and benefits to the significant resources of fishery and other aquatic resources, including essential fish habitat. Shoreline protection would protect existing and restored marsh which function as various essential fish habitats.
4					protection people and marshlands	The point is these people that live here and have lived here, as well as the marsh land that constantly erodes away, needs to be protected. Without the help of engineers building some type of 'barrier', the coastal wetlands will continue to erode and these people in the south will lose all they own. Eventually, maybe not in our life time, the land will erode away enough that these southern parishes will be part of the Gulf of Mexico and waters will continue to erode north.	The Recommended Plan would reduce risk of damages from hurricane storm surge flooding for almost 4,000 structures. The Recommended Plan also includes marsh and chenier restoration features and shoreline protection features resulting in restoration, nourishment and/or protection to over 15,000 net acres and over 4,000 average annual habitat units.
5					people, economy & jobs	Without some type of action put in place, there won't be any wetlands, will not be any elders enjoying their retirement in the only place they know as home, and the state economy will surely decline. Louisiana's coast gives this state's economy a huge boost. There are so many people that would lose jobs once the wetlands erode away. I hope me, along with all of the others petitioning, can get our voices across to someone who cares.	The Recommended Plan would reduce risk of damages from hurricane storm surge flooding for almost 4,000 structures. The Recommended Plan also includes marsh and chenier restoration features and shoreline protection features resulting in creation, nourishment and/or protection to over 15,000 net acres and over 4,000 average annual habitat units.

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Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
	EMAIL COMMENTS						
6	Arnold Jones Jr.	April 17, 2015	public	email	eminent domain	We attended last night's meeting and wish to submit a comment and a request: We feel as though the use and or threat of "eminent domain" are not required and should be removed from the draft.	The Recommended NED Plan would be entirely voluntary participation. *See response to "involuntary participation" and "eminent domain" comments in General Responses located at the end of this table.
7					list of affected properties	We would like to request a copy of affected properties in Cameron parish as we are property owners, we know the list is preliminary and subject to review but would like to know if any of my properties are affected.	Each of the properties potentially affected by implementation of the NED Plan is presented in Appendix N to the Final Integrated Report displaying maps of all affected structures.
20	Cameron Parish Police Jury Ashley K Buller	April 24, 2015	Cameron Parish Police Jury	email	petitions on behalf of Cameron Parish residents	petitions dated 16 April 2015 from Theodor A. Broussard (Grand Chenier); Pamela Kelley (Grand Chenier); Richard James Dahlan (Creole); Mitchel Kelly (Grand Chenier); Darilyn Canik (Grand Chenier); David Al Dupre (Grand Chenier); Sheila Miller (Grand Chenier); Cecil J Clark (Grand Chenier); Craig Matthew Manuel (Sweetlake); Zachary Taylor Vincent (Grand Lake); Cheryl A. Broussard (Grand Chenier); Richard Canik (Grand Chenier); Gary Shipman (Cameron); Kim Richard (Creole); Freddie Theriot (Grand Chenier); Gary Primeaux (Grand Chenier); Jeanette Thibodeaux Jacobs (Creole); Willis Luie (name is not legible, Grand Chenier); Carol Wainght (name not legible, Grand Chenier); Ceasar Swire (Grand Chenier); Christopher Fountein (Grand Chenier); Darren Richard (Creole); Catlyn Hendrix (Creole); Tye Fontenot (Creole); Win Kioin Warrant (name not legible, Grand Chenier); Bacron Guidry (Grand Chenier); Michael Jacobs (Creole); Lanny Nihire (name not legible, Grand Chenier); Drucilla Vincent (Grand Chenier); Sara Roy (Grand Chenier); Susan Fawvar (name not legible, Grand Chenier); Kenton Bonsall (Grand Chenier); Watt Richard (Grand Chenier); Eruc Baccughlopi (Creole); Denton C. Vincent (Grand Chenier); Leslie D. Griffth (Grand Chenier); Craig Hendrix (Grand Lake); Danny Lavergue (Grand Lake); JoDee Roberts (Grand Lake); Peggy Reyes (Cameron); Martial A. Young (Grand Lake); Brandon J. Carter Jr.	Acknowledged receipt of petitions. Responses to petition comments provided in below and in General Responses.

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Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
	EMAIL COMMENTS						
						(Grand Chenier); Francis Guilbeau (Cameron); Iris Broussard (Grand Chenier); Barbara Portie (Creole); Ran Johnson (name not legible, Grand Lake); Steven Landry (Creole); Robert Portie (Creole); Ann Langlinais (Abbeville); Jimmie Ann McLean (Grand Chenier); Rodney McLean (Grand Chenier); Beulah Bradley (Hackberry); Toby Landry (Grand Lake); Dinah Landry (Grand Lake); Joseph E. Trahan (Grand Lake); Nadine Richard (Grand Chenier); Douglas M. Haynie (Creole); Judy & P.J. Broussard (Abbeville); Jerry Dockins (Cameron); Jennifer Dockins (Cameron); Emma Jean Miller (Cameron); Jennifer Picou (Cameron); Nina Jones (Grand Chenier).	
21	Carol Fountain	April 23,2015	public	email	property list	If a home was listed in the preliminary report and earmarked and has now been lifted what would be the outcome on this situation? How can someone find out which SRL properties are on this list?	Preliminary lists of identified affected structures should not be considered final. Affected structures have been identified in a series of maps and included in a new appendix to the Final Integrated Report.
22	Carolyn Woosley	May 4, 2015	public	email	forward comments	Greetings to you two, and thanks for your hard work, P.J. and Paul. My apologies for not forwarding this modest comment through proper channels, but I could not figure out where the comment link was re: the draft feasibility study. Please forward these comments to the correct persons. I commend the USACE on the proposed marsh restoration and chenier ridge reforestation projects, as well as the coastline stabilization projects. Those cannot be implemented soon enough, as you well know.	Acknowledged
23					involuntary participation/eminent domain	Concerning the "hot topic" of this study, I believe that the "involuntary" eminent domain element should be removed until other risk reduction measures, re: storm surge and other high waters possibilities, are exhausted, particularly the former.	The Recommended NED Plan would be entirely voluntary participation. *See response to "involuntary participation" and "eminent domain" comments in General Responses located at the end of this table.

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Table 3. Comments on the Revised Integrated Draft Feasibility Report and Environmental Impact Statement							
Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
	EMAIL COMMENTS						
24					Calcasieu Ship Channel	The USACE has as part of its mission, not only navigation, but also coastal preservation and protection. On the subject of protection, to the extent that you can address the causes of hurricane-related risk, please do. The Ship Channel, a true engine of the region's and the nation's economy, is unfortunately also a conduit of storm surge. Do not ask citizens to take it on the chin, whilst leaving a cause of hurricane storm damage, the Ship Channel, undressed.	The study recommends the Calcasieu Ship Channel salinity barrier be a separate long-term study due to the complexity of this project.
25					Calcasieu Ship Channel	I have proposed mobile gates that would swing out across the Channel only after, in anticipation of a major storm, it is closed to traffic. Such (expensive) gates could be porous and could possibly break some of the force of the surge, while allowing water to permeate those same gates but with its powers lessened. The waters would admittedly disperse over the southwest Louisiana landscape but at a lowered height and force. These gates could, perhaps, shave off a few feet from the height of this surge. This needs study, obviously.	The study recommends the Calcasieu Ship Channel salinity barrier be a separate long-term study due to the complexity of this project.
26					Calcasieu Ship Channel	Left to its own devices a surge arrives at Prien Lake and Lake Charles, its powers unaddressed. A curving (natural) river combined with 25+ miles of intervening marshes are supposed to take the bite out of the height and force of a surge; but, the Calcasieu River has been straightened; the marshes are waning. Not to address the Ship Channel (called by some in the USACE a "hurricane highway") is not to address the cause of much destruction in the highly populated Lake Area.	The study recommends the Calcasieu Ship Channel salinity barrier be a separate long-term study due to the complexity of this project.
27					Calcasieu Ship Channel	I understand that an engineering firm is in the process of isolating or making whole the banks of the Calcasieu Ship Channel to the south of the GIWW. That is a very good thing, re: containing the salinization of the waters and marshes. However, given this scenario, with the Ship Channel's borders made whole, during a major storm, those same walls hold the Channel within its banks (up to a certain height), and this creates, I would think, an even	The study recommends the Calcasieu Ship Channel salinity barrier be a separate long-term study due to the complexity of this project.

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Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
	EMAIL COMMENTS						
						more pure and powerful, unabated surge into the Lake Area. That is my fear.	
28					Calcasieu Ship Channel	I have lived through Audrey, Rita and Ike, always on the Ship Channel where it enters Lake Charles. I've seen a lot. I don't want to see what greater storms will deliver to a fast-developing area with a "hurricane highway" that is unaddressed. Please address the Ship Channel. Not to do so is wrong.	The study recommends the Calcasieu Ship Channel salinity barrier be a separate long-term study due to the complexity of this project.
29					Calcasieu Ship Channel	I realize fully that the Port of Lake Charles expresses strong sentiments against anything impeding ship traffic. Does the Port of Lake Charles speak for the citizenry? Does the area's citizenry control the Port of Lake Charles? What I suggest (and perhaps someone else can come up with a better plan) does not impede the normal course of ship traffic. It is a mobile solution/suggestion put into place only when ship traffic is already stopped in advance of a possible major storm. A solution which is a win-win is the ticket to success on this topic, but it must be pursued. Again, thanks. It was a pleasure to work with you since 2009.	The study recommends the Calcasieu Ship Channel salinity barrier be a separate long-term study due to the complexity of this project.

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	EMAIL COMMENTS						
30	City of Lake Charles Mayor Randy Roach	April 29, 2015	City of Lake Charles	email/letter	National Flood Insurance Program / eminent domain	1. We request that in the event the National Flood Insurance Program (NFIP) remains a relative part of the Study, that all eminent domain references be removed and that all owners of property identified as being candidates for relocation be notified and allowed opportunity to review the Study and make public comment.	The Recommended NED Plan would be entirely voluntary participation. *See response to "involuntary participation" and "eminent domain" comments in General Responses located at the end of this table. The requirements under the authorized National Flood Insurance Program were considered during the study.. The Final Integrated Report will be available for public review during State and Agency Review.
31					Congressional authorization of use of flooding for coastal restoration	2. We further recommend that if "flooding" is to be used as a part of the criteria to develop and implement coastal restoration projects in this or any other coastal region of the country, such rule be based on a new set of standards authorized by Congress and which address: a) the unique hydrological characteristics of any coastal region affected by such regulations; b) the need to protect the history, culture and related socioeconomic characteristics of such coastal regions; and c) be designed to protect coastal residents from forced relocation of residences and businesses from those areas.	The recommended plan has been developed within Congressional authorizations specific to hurricane storm surge risk reduction as well as ecosystem restoration.
32					Cameron and Vermilion Parishes priority projects	3. We recommend adding an appendix to the report to include a list of all priority projects submitted by Cameron and Vermilion Parishes in order to make sure that these projects will be eligible for consideration in any future funding opportunities.	Parish priority projects have been included in Appendix N to the report.

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	EMAIL COMMENTS						
33					Calcasieu Parish update coastal plan including priority projects list	4. We recommend adding a statement in the draft as follows: "Calcasieu Parish anticipates coastal plan which will include a priority projects list. Those projects will be viable projects for consideration of funding for protecting Lake Charles to the 500 year level of protection as deemed necessary by the Coastal Master Plan for Louisiana 2012."	Parish priority projects have been included as a separate new Appendix N in the Final Integrated Report. Appendix N contains the following statement: "Though not an endorsement of any project under this study effort, Parish Priority Projects that would be provided by the Parishes to the State for consideration as deemed necessary by the Coastal Master Plan for Louisiana are included in this Appendix only as a reference for future planning under other study authorities."

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Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
	EMAIL COMMENTS						
34					original goals and objectives / national flood insurance program	5. We recommend that the original goals and objectives of the SWLA study, namely: Ecosystem Restoration, Risk Reduction and Historic and Cultural Preservation, be included, analyzed and specifically addressed in the conclusions and recommendations of the study instead of allowing the provisions of the NFIP to take preference and priority over such considerations in determining the programming and the priority for coastal restoration and protection projects eligible for funding with state and federal monies.	Generally, the planning goals of the NED Plan are to reduce risk of damages associated with hurricane storm surge. The NED storm damage risk reduction plans were formulated to achieve NED principles and objectives. Contributions to NED are increases in the net value of the national output of goods and services, expressed in monetary units, and are the direct net benefits that accrue in the planning area and the rest of the Nation. The general planning goals of the NER Plan are to significantly and sustainably reduce land loss and coastal erosion in the study area, restore environmental conditions for the Chenier Plain ecosystem in SWC Louisiana, and evaluate a range of coastal restoration components to address a multitude of ecosystem problems. Plans were formulated to achieve NER principles and objectives. Contributions to NER are increases in the net quantity and/or quality of desired ecosystem resources, and are measured in the study area and nationwide.
35					shapefiles	6. We request that access to the Shape files for the elevation of all structures surveyed as part of your decision making criteria be made	Appendix N with maps of all identified structures included in the NED Recommended Plan is included in the Final Integrated Report.

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Table 3. Comments on the Revised Integrated Draft Feasibility Report and Environmental Impact Statement							
Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
	EMAIL COMMENTS						
						available to Calcasieu, Cameron and Vermillion Parishes.	
36					windshield survey vs benefit cost ratio	7. We specifically reject the methodology used to determine the Benefit Cost Ratio (BCR) parameters because it was based on "wind shield view" survey which is not adequate to assess and make recommendations as to the listing of project s or the development of programs necessary to implement the recommendations of the study.	The windshield data collection is consistent with requirements for feasibility report level of analysis. Additional detailed analysis will be conducted during subsequent project phases.
37					original projects modeled	8. We recommend that the projects originally submitted by Cameron and Vermilion Parishes be modeled as they were originally submitted instead of using modified versions of the original projects and that the evaluation of these projects be re-submitted for review and comment before the plan is finalized. Thank you in advance for your consideration and support of the comments submitted above. Should you have any questions, please call (337) 491-1381	Projects submitted by Cameron and Vermilion Parishes were screened, along with other proposed measures, to the same level of analysis sufficient to determine viable alternative array.
38	Department of the Interior Office of the Secretary Stephen R. Spencer	May 4, 2015	Federal agency	email /letter	no comments	The U.S. Department of the Interior has reviewed the Southwest Coastal Louisiana Revised Integrated Draft Feasibility Report and Environmental Impact Statement. In this regard, we have no comment.	Comment acknowledged.
39	Elvin "Bubba" Wheat	April 19.2015	public	email	involuntary participation/eminent domain	1. As a citizen residing within the 3 parish area affected by this study, I do not want the involuntary participation portion left in the final document containing the "eminent domain" language. It was added after the December 2013 draft, which is considered in the eleventh hour. I am fully aware of the benefits and also the weather dangers that are a part of residing in this coastal area. I do not wish for the government to decide where I choose to live.	The Recommended NED Plan would be entirely voluntary participation. *See response to "involuntary participation" and "eminent domain" comments in General Responses located at the end of this table.
40					Chenier Plain Coastal Restoration and Protection Authority	2. I view the windshield data collection within the document as problematic based on investigations made by the Chenier Plain Coastal Restoration and Protection Authority 7575 Jefferson Highway #322 Baton Rouge, LA 70806	The windshield data collection is consistent with requirements for feasibility report level of analysis. Additional detailed analysis will be conducted during subsequent project phases.

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Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
	EMAIL COMMENTS						
41					historical & Cultural	3. I strongly feel that the historical / cultural vision of our Louisiana heritage is lost in the document's scope and process.	Historic and cultural resources have been considered throughout the entire plan formulation process are specifically addressed subsections of Chapters 1 and 3. The Recommended NED and NER Plans were developed to address coastal land loss and reduce risk of hurricane storm surge damages to these resources.
42					government overreach	4. Based on reading previous versions I feel there is now a project distortion in the same sections of originally proposed areas. This needs to be addressed and returned to previous versions that local citizens approved. I consider this new draft an offensive government over reach.	The plan formulation process is an iterative process that develops and refines the proposed action based on consideration of existing, new and re-analyzed information. The study has moved from a general programmatic analysis documented in earlier draft reports and is now at a level of detail suitable for recommendation for construction.
43					shapefiles	5. The "shapefile" sharing issue is problematic; parishes have requested the "shapefiles" (all) since 2013.	Each of the properties potentially affected by implementation of the NED Plan is presented in Appendix N to the Final Integrated Report displaying maps of all affected structures.
44					Parish Priority Projects	6. Local parish Priority Projects are not being included in this document. In previous years I have found that when this occurs, local projects are abandoned or funding is pulled. Our local citizens know best what our parishes need and are able to prioritize them better than non-residents.	Parish priority projects have been included as a separate and new appendix to the Final Integrated Report.
45					Representative Boustany's intent of bill	7. This study does not represent what was originally intended by Rep. Boustany's bill drafted after Hurricane Ike.	The study is consistent with the study authorization Resolution of the Committee on Transportation and Infrastructure, U.S. House of Representatives, Docket 2747, on December 7, 2005. The study conducted a survey of the coast of Louisiana in Cameron, Calcasieu, and Vermilion Parishes, with particular reference to the advisability of providing hurricane protection and storm damage reduction and related purposes, including the feasibility of constructing an armored 12-foot levee along the Gulf Intracoastal Waterway. The 12-foot levee feature was evaluated and considered not viable because it would not provide the necessary hurricane storm surge risk reduction in a cost effective manner.

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Comment #	**Person/Agency**	**Date**	**Source of Comment**	**Mode of Comment**	**Theme**	**Comment (may be paraphrased or summarized)**	**Response**
	EMAIL COMMENTS						
46					Acknowledge receipt of comments and request final draft and future meeting dates	Thank you for reading and including my concerns to the study within the public comment period. I would appreciate some type of acknowledgement of receipt of my comments and also a copy of the final draft and any future meeting dates.	Acknowledge receipt of comments. The Final Integrated Report will be made available to all interested parties.
47	Environmental Protection Agency (Keith Hayden)	April 30, 2015	Federal agency	email/letter	comment letter	Thank you for submitting the Revised Draft EIS for EPA review. If you have any questions or concerns with our comment letter, please call or email at your earliest convenience. A hard copy of this letter will arrive by mail in the next few days.	Acknowledged receipt of comment letter/see separate responses to comment letter in "Government" subsection
48	E. Scott Henry	May 4, 2015	public	email	request copy EIS	I would like to request a copy of the EIS, concerning the Southwest Coastal Louisiana project, proposed by the USACE, Mississippi Valley Division, New Orleans District (CEMVN). If not included, please furnish the NER plan for the Southwest Coastal projects for risk reduction measures. The National Ecosystem Restoration (NER) plan for the Southwest Coastal projects would be of great use; if it is possible to list the project funding status and impact to specific areas along with a realistic timeline.	A copy of the revised Draft Integrated Report was provided. The project funding status is pending upon receipt of Congressional approval of the project. The implementation timeline is presented in the Final Integrated Report.
49					eminent domain	I have not heard if these projects are classified as imminent domain or voluntary. This knowledge would bring up, among other questions; funding, environmental cost and choice of citizens to participate or not.	The Recommended NED Plan would be entirely voluntary participation. "See response to "involuntary participation" and "eminent domain" comments in General Responses located at the end of this table.
50					cheniers reforestation	The planting of chenier friendly trees and vegetation seems to be a great way to get the public involved, especially in Cameron and Vermillion Parishes. The Cheniers support a variety of trees, animals, human habitat and of course the mighty live oak. The protection and preservation of these magnificent trees has always been, a responsibility and tradition of landowners, big and small, for generations. They are almost sacred. Their protection has been passed down from one generation to the next, by example and dedication. The	The restoration of the chenier forests is considered an important component of ecosystem restoration across the southwest coastal Louisiana area.

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						government has never had to protect them, the citizens have usually done the best job.	
51					Highway 82	We have fought the ROW clearing of Hwy 82 when the State DOTD ordered the live oak to be indiscriminately cut out of the State Row along Hwy 82 from Cameron to Abbeville. This authorized disaster was averted by the action of the citizens and the help of Mrs. Foster, who stepped up that day.	Comment acknowledged.
52					cheniers reforestation	The clearing of helicopter landing spots during Rita would have cost dozens of 100 year old trees to be removed for landing pads, had not General Honore intervened, upon learning of the significance of the tree to the survivors of Hurricane Audry. We did lose an especially large tree in Cameron at the Court House Square, because it was in the way of a construction path. The PW called for the removal of one of these great oaks due to the fact that this great tree was close to 7' in girth and impeded the construction of a FEMA project work space. The explanation was to 'just plant another one!" Please allow the general public to participate in this part of the plan, we live here, we will be here for the next storm and we hope the great live oak will be left in the hands of the stewards and not just the policy makers and wage earners, who do what they are told and or lose their job. We were blessed with a group of Nat. Guard, La. State employees, local business and brave citizens; who spoke up and confronted the removal of even a limb, much to the criticisms of good people who grew up protecting these trees, but was caught up in the Fed vs State vs citizens dilemma and what to do and what not to do. Years ago, I ask my Grandfather why he planted acorns every year. He said he would never sit in the shade of any live oak he planted. I thought he was senile! But, he said because someone planted an acorn before him, he owed the next generation the ability to sit in the shade of a live oak. If he did not, then no one would be able to swing on a limb or sit in the shade of a tree he planted. He said he was	Comment acknowledged.

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Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
	EMAIL COMMENTS						
						doing it for his grandchildren. Now I do the same, I appreciate your help and your offer, but please do not take the choice or freedom to protect these grand survivors.	
53					keep up good work	Please do not take anything I have said as being ungrateful to the community, Nat Guard, Fermi, State and Federal government or any employee's for all the help and money they poured into our little corner of the world. You are why we are still here, It will take more of us to establish and guarantee that there will always be someone here to protect and work as a steward of the land. Please keep up the good work. Let us help.	Comment acknowledged
54	Gloria Conlin	April 22, 2015	public	email/petition	April 17, 2015 petition	As a voting resident of Louisiana I ask that you reconsider the attached and accept my personal comments in relation to the Southwest Coastal Louisiana Study's 2015 Revised Integrated Draft Feasibility Report and Environmental Impact Statement. Please protect Our Coast, Our Culture and Our Ability to Provide for Our Families! Thank you.	Acknowledge receipt of email and attached petitions. Response to petition comments are included in the General Responses.
55	John Dale "Zach" Lee	April 22, 215	public	email/petition	April 17, 2015 petition	As a voting resident of Louisiana I ask that you reconsider the attached and accept my personal comments in relation to the Southwest Coastal Louisiana Study's 2015 Revised Integrated Draft Feasibility Report and Environmental Impact Statement. Please protect Our Coast, Our Culture and Our Ability to Provide for Our Families! Thank you.	Acknowledge receipt of email and attached petitions. Response to petition comments are included in the General Responses.
56	Judith Falcon	April 30, 2015	public	email	proposed plan will cause erosion and storm surge	I am extremely disappointed in the Corps of Engineer's Plan. Instead of submitting a plan to save our precious coast, they are submitting a plan to ensure further erosion and storm surge. An agency which was originally established to protect and serve has become an agency to ruin and rob.At one time, not many years in the past, the Corps was held in such high esteem. So disappointing.	The Recommended Plan would reduce the risk of hurricane storm surge flood damages for almost 4,000 structures. The Recommended Plan also includes marsh and chenier restoration features and shoreline protection features resulting in creation, nourishment and/or protection to over 15,000 net acres and over 4,000 average annual habitat units.

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57	Karen Wheat	April 19, 2015	public	email	involuntary participation/eminent domain	1. As a citizen residing within the 3 parish area affected by this study, I do not want the involuntary participation portion left in the final document containing the "eminent domain" language. It was added after the December 2013 draft, which is considered in the eleventh hour. I am fully aware of the benefits and also the weather dangers that are a part of residing in this coastal area. I do not wish for the government to decide where I choose to live.	*See response to "involuntary participation" and "eminent domain" comments in General Responses located at the end of this table. See responses to Elvin "Bubba" Wheat (see page J-16 of this Appendix).
58					Chenier Plain Coastal Restoration and Protection Authority	2. I view the windshield data collection within the document as problematic based on investigations made by the Chenier Plain Coastal Restoration and Protection Authority 7575 Jefferson Highway #322 Baton Rouge, LA 70806	See responses to Elvin "Bubba" Wheat on page J-16 of this Appendix.
59					historical & Cultural	3. I strongly feel that the historical / cultural vision of our Louisiana heritage is lost in the document's scope and process.	See responses to Elvin "Bubba" Wheat on page J-16 of this Appendix.
60					government overreach	4. Based on reading previous versions I feel there is now a project distortion in the same sections of originally proposed areas. This needs to be addressed and returned to previous versions that local citizens approved. I consider this new draft an offensive government over reach.	See responses to Elvin "Bubba" Wheat on page J-16 of this Appendix.
61					shapefiles	5. The "shapefile" sharing issue is problematic; parishes have requested the "shapefiles" (all) since 2013.	See responses to Elvin "Bubba" Wheat on page J-16 of this Appendix.
62					Parish Priority Projects	6. Local parish Priority Projects are not being included in this document. In previous years I have found that when this occurs, local projects are abandoned or funding is pulled. Our local citizens know best what our parishes need and are able to prioritize them better than non-residents.	See responses to Elvin "Bubba" Wheat on page J-16 of this Appendix.
63					Representative Boustany's intent of bill	7. This study does not represent what was originally intended by Rep. Boustany's bill drafted after Hurricane Ike.	See responses to Elvin "Bubba" Wheat on page J-16 of this Appendix.
64					Acknowledge receipt of comments and request final	Thank you for reading and including my concerns to the study within the public comment period. I would appreciate some type of acknowledgement of receipt of my	See responses to Elvin "Bubba" Wheat on page J-16 of this Appendix.

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Table 3. Comments on the Revised Integrated Draft Feasibility Report and Environmental Impact Statement							
Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
	EMAIL COMMENTS						
					draft and future meeting dates	comments and also a copy of the final draft and any future meeting dates.	
65	Michael Hare (Deputy Director, Congressman Charles W. Boustany Jr., LA 3)	May 4, 2015	Federal	email	submission of comments Louisiana Delegation	Ms. Stiles, On behalf of the entire Louisiana Delegation, please accept these comments and concerns. Please note, I have also attached 2 documents related to Cameron and Vermilion Parishes as referenced in our letter. Thank you,	Acknowledge receipt of comment letter. Please see response to Louisiana Delegation Comments in "Government" sub-table.
66	Mike Toerner	April 28, 2015	public	email	email with attached comments	I have attached a Word document that outlines my objections to the NED portion of the Corps' March, 2015 Revised Integrated Draft Feasibility Report. Thank you for considering my comments as you develop the final version of the NED plan.	Acknowledge receipt of comment email
67					elevation of structures	I am writing because my wife and I own property in Calcasieu and Cameron parishes and because I oppose the "National Economic Development (NED)" portion of the Corps' report. The reasons for my opposition are as follows.1. The Corps did not have the statutory authority to make the recommendations that it did.On 12/7/2005, the Committee on Transportation and Infrastructure of the U.S. House of Representatives authorized the Corps to survey the coast of Louisiana, use the survey information to recommend ways to provide hurricane and storm protection, and study the feasibility of constructing a levee along the Intracoastal Waterway. The House Committee did not give the Corps the authority to develop a plan to elevate residential structures and to use eminent domain to seize the property of the residents who did not want to participate in the elevation program.	The study is consistent with the study authorization Resolution of the Committee on Transportation and Infrastructure, U.S. House of Representatives, Docket 2747, on December 7, 2005. The study conducted a survey of the coast of Louisiana in Cameron, Calcasieu, and Vermilion Parishes, with particular reference to the advisability of providing hurricane protection and storm damage reduction and related purposes, including the feasibility of constructing an armored 12-foot levee along the Gulf Intracoastal Waterway. The 12-foot levee feature was evaluated and considered not viable because it would not provide the necessary hurricane storm surge risk reduction in a cost effective manner. **See response to "involuntary participation" and "eminent domain" comments in General Responses located at the end of this table.
68					cost benefit ratio	2. The cost/benefit analysis that underlies the NED plan is based on questionable assumptions. The Corps defined "benefits" as the reduction in damages that would result from implementing its recommendations (page D-18). "Damages," however, can be defined in a variety of ways, many of which could produce lower dollar amounts (and, thus, "benefits") than the ones that the Corps obtained.	The cost/benefit analysis was conducted consistent with the Appendix D, Economics and Social Consideration in Environmental Regulation 1105-2-100.

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Table 3. Comments on the Revised Integrated Draft Feasibility Report and Environmental Impact Statement							
Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
	EMAIL COMMENTS						
69					due process, failure to identify affected public	3. Property owners affected by the NED plan were denied due process. To date, the Corps has refused to publicly identify the thousands of residential properties whose owners would be required to elevate their homes or face eminent-domain seizure of their property. There is no doubt that, had they known what the Corps was proposing with regard to their property, these individuals would have attended the Corps' public hearings and/or made written comments to the Corps.	Each of the properties potentially affected by implementation of the NED Plan is presented in Appendix N to the Final Integrated Report displaying maps of all affected structures. Recommended Plan is included in the Final Integrated Report.
70					eminent domain	4. The NED plan is biased against residential property owners. As mentioned above, the NED plan provides that residential property owners who do not voluntarily participate in the Corps' structure-elevation program will face eminent-domain seizure of their property. The NED plan contains no such provision for non-residential property owners who refuse to either dry floodproof their structures or construct berms around their property.	The Recommended NED Plan would be entirely voluntary participation*See response to "involuntary participation" and "eminent domain" comments in General Responses located at the end of this table.
71					eminent domain	5. The NED plan discriminates against property owners in coastal Louisiana. People who live in other parts of the U.S. are not being told by the Corps or other Federal agencies to disaster-proof their homes or face eminent-domain seizure of their property. By not treating all disaster-area residents the same, the Corps is discriminating against the residents of coastal Louisiana.	The Recommended NED Plan would be entirely voluntary participation. *See response to "involuntary participation" and "eminent domain" comments in General Responses located at the end of this table.
72					eminent domain	6. The eminent-domain feature of the NED plan represents governmental overreach.I believe that people, in choosing where to live, weigh the costs and risks against the perceived benefits. I do not believe that the government has the right to threaten to use its eminent-domain authority to try to make people move to an area that the government deems more desirable.Thank you for considering my comments as you develop the final version of the NED plan.	The Recommended NED Plan would be entirely voluntary participation. *See response to "involuntary participation" and "eminent domain" comments in General Responses located at the end of this table.

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Table 3. Comments on the Revised Integrated Draft Feasibility Report and Environmental Impact Statement							
Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
	EMAIL COMMENTS						
73	Morgan Herden	April 17,2015	public	email	identify if included in NED Plan	My wife bought a piece of land in 2009 or 2010, 621 Shamrock Lane, Sulphur La 70663. In late 2013 we cleared it and built a pad for a double wide 2400 sq ft trailer. We went through the parish and met all the requirements for the flood stage which is 16' now. They raised this level after Hurricane Rita which basically 3-4' above the paved road. I have the I Beam of the trailer sitting at 17' and our main floor around 19'. I went a little higher for safety reasons. Pretty much if we flood, the city of Sulphur, Westlake, and Lake Charles will be under water for the most part. This Study is saying that you can take our land from us and there are 400 structures that are in the Involuntary Participation. I have spent almost $40,000 on improving our land. How can I find out where we stand within this study? I do not want to wait a year and waste more money if you are going to come to me and say get out.	The Recommended NED Plan would be entirely voluntary participation. *See response to "involuntary participation" and "eminent domain" comments in General Responses located at the end of this table. Appendix N with maps of all identified structures included in the NED Recommended Plan is included in the Final Integrated Report.
74	Nancy Murphy Geer Toemer	April 20, 2015	Public Comment	Email	Involuntary participation	As a citizen residing within the 3 parish area affected by this study, I do not want the involuntary participation portion left in the final document containing the "eminent domain" language. It was added after the December 2013 draft, which is considered in the eleventh hour. I am fully aware of the benefits and also the weather dangers that are a part of residing in this coastal area. I do not wish for the government to decide where I choose to live.	The Recommended NED Plan would be entirely voluntary participation. *See response to "involuntary participation" and "eminent domain" comments in General Responses located at the end of this table. A new appendix with maps of all identified structures included in the NED Recommended Plan is included in the Final Integrated Report.
75					windshield data	I view the windshield data collection within the document as problematic based on investigations made by the: Chenier Plain Coastal Restoration and Protection Authority, 7575 Jefferson Highway #322, Baton Rouge, LA 70806	The windshield data collection is consistent with requirements for feasibility report level of analysis. Additional detailed analysis will be conducted during subsequent project phases.
76					historic & cultural heritage	I strongly feel that the historical / cultural vision of our Louisiana heritage is lost in the document's scope and process.	Historic and cultural resources have been considered throughout the entire plan formulation process and are specifically addressed in Chapter 1 and 3 the Final Integrated Report devoted entirely to these resources.

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Table 3. Comments on the Revised Integrated Draft Feasibility Report and Environmental Impact Statement							
Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
	EMAIL COMMENTS						
77					previous versions of projects	Based on reading previous versions I feel there is now a project distortion in the same sections of originally proposed areas. This needs to be addressed and returned to previous versions that local citizens approved. I consider this new draft an offensive government over reach.	The plan formulation process is an iterative process that develops and refines the proposed action based on consideration of existing, new and re-analyzed information. The study has moved from a general programmatic analysis documented in earlier draft reports and is now at a level of detail suitable for recommendation for construction.
78					shapefiles	The "shapefile" sharing issue is problematic; parishes have requested the "shapefiles" (all) since 2013.	Each of the properties potentially affected by implementation of the NED Plan is presented in a new appendix to the Final Integrated Report displaying maps of all affected structures.
79					include local parish priority projects into study	Local parish Priority Projects are not being included in this document. In previous years I have found that when this occurs, local projects are abandoned or funding is pulled. Our local citizens know best what our parishes need and are able to prioritize them better than non-residents.	Parish priority projects have been included as a separate and new appendix to the report.
80					Representative Boustany's intent of bill	This study does not represent what was originally intended by Rep. Boustany's bill drafted after Hurricane Ike.	The study is consistent with the study authorization Resolution of the Committee on Transportation and Infrastructure, U.S. House of Representatives, Docket 2747, on December 7, 2005. The study conducted a survey of the coast of Louisiana in Cameron, Calcasieu, and Vermilion Parishes, with particular reference to the advisability of providing hurricane protection and storm damage reduction and related purposes, including the feasibility of constructing an armored 12-foot levee along the Gulf Intracoastal Waterway. The 12-foot levee feature was evaluated and considered not viable because it would not provide the necessary hurricane storm surge risk reduction in a cost effective manner.
81					Acknowledge receipt of comments and request final draft and future meeting dates	Thank you for reading and including my concerns to the study within the public comment period. I would appreciate some type of acknowledgement of receipt of my comments and also a copy of the final draft and any future meeting dates. Best regards, Nancy Murphy Geer Toerner	Acknowledge receipt of comments. The Final Integrated Report will be made available to all interested parties.

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Table 3. Comments on the Revised Integrated Draft Feasibility Report and Environmental Impact Statement							
Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
	EMAIL COMMENTS						
82	Nedra Davis	April 27, 2015	Local Government	email/letter	submission of comments of Chenier Plain Authority	In January of 2009 the U.S. Army Corps of Engineers and the State of Louisiana announced an agreement to jointly fund an eight (8) million dollar feasibility study to provide hurricane damage risk reduction and coastal restoration to Southwest Coastal Louisiana. The Southwest Coastal Feasibility Study was initially authorized in December of 2005. In March 2015, the U.S. Army Corps of Engineers released the Southwest Coastal Feasibility Draft Study (Draft Study) and the agency is currently accepting public comment until May 4, 2015. The Chenier Plain Coastal Restoration & Protection Authority (Chenier Plain Authority), by intent of this correspondence, hereby respectfully requests that the U.S. Army Corps of Engineers accept the following Letter and Resolution (attachments) as comments provided by the Chenier Plain Authority's review of the Draft Study. The Chenier Plain Authority would like to thank the U.S. Army Corps of Engineers for allowing us to comment on this draft feasibility report for the Southwest Coastal Study. Please contact us if you have any questions or concerns regarding our comments.	Acknowledge receipt of comment.
83					involuntary participation/eminent domain	Section 1. The Chenier Plain Authority recommends the removal of all eminent domain or involuntary participation references from the study.	The Recommended NED Plan would be entirely voluntary participation. See response to "involuntary participation" and "eminent domain" comments in General Responses located at the end of this table.
84					Parish Priority Projects	Section 2. The Chenier Plain Authority recommends the U.S. Army Corps of Engineers add an appendix to include a list of all priority projects from Cameron and Vermilion Parishes identifying these projects as good and viable for consideration in any future funding opportunities.	Parish priority projects have been included as a separate and new appendix to the Final Integrated Report.

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Table 3. Comments on the Revised Integrated Draft Feasibility Report and Environmental Impact Statement							
Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
	EMAIL COMMENTS						
85					Parish Priority Projects	Section 3. The Chenier Plain Authority recommends that the U. S. Army Corps of Engineers add astatement in the draft that states, "Calcasieu Parish anticipates updating their coastal plan which willinclude a priority projects list. Those projects will be viable projects for consideration of funding forprotecting Lake Charles to the 500 year level of protection as deemed necessary by the Coastal Master Plan for Louisiana 2012."	Parish priority projects have been included as a separate and new Appendix N to the Final Integrated Report. Appendix N contains the following statement: "Though not an endorsement of any project under this study effort, Parish Priority Projects that would be provided by the Parishes to the State for consideration as deemed necessary by the Coastal Master Plan for Louisiana are included in this Appendix only as a reference for future planning under other study authorities."
					funding in place	Section 4. The Chenier Plain Authority recommends that 100% federal and state funding be in place for all mitigation non-structural components.	Mitigation for project-induced impacts is not anticipated.
					historic and cultural preservation	Section 5. The Chenier Plain Authority recommends that the original goals and objectives of the Ecosystem Restoration, Risk Reduction and Historic and Cultural Preservation, be included and implemented as part of the final draft of the study.	Generally, the planning goals of the NED Plan are to reduce risk of damages associated with hurricane storm surge flooding. The NED storm damage risk reduction plans were formulated to achieve NED principles and objectives. Contributions to NED are increases in the net value of the national output of goods and services, expressed in monetary units, and are the direct net benefits that accrue in the planning area and the rest of the Nation. The general planning goals of the NER Plan are to significantly and sustainably reduce land loss and coastal erosion in the study area, restore environmental conditions for the Chenier Plain ecosystem in SWC Louisiana, and evaluate a range of coastal restoration components to address a multitude of ecosystem problems. Plans were formulated to achieve NER principles and objectives. Contributions to NER are increases in the net quantity and/or quality of desired ecosystem resources, and are measured in the study area and nationwide. • NED Objective 1. Reduce the risk of damages and losses from hurricane storm surge flooding. • NER Objective 2. Manage tidal flows to improve drainage, and prevent salinity from exceeding 2 parts per thousand (ppt) for fresh

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Table 3. Comments on the Revised Integrated Draft Feasibility Report and Environmental Impact Statement							
Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
	EMAIL COMMENTS						
							marsh and 6 ppt for intermediate marsh. • NER Objective 3. Increase wetland productivity in fresh and intermediate marshes to maintain function by reducing the time water levels exceed marsh surfaces. • NER Objective 4. Reduce shoreline erosion and stabilize canal banks to protect adjacent wetlands. • NER Objective 5. Restore landscapes, including marsh, shoreline, and cheniers to maintain their function as wildlife habitat and improve their ability to serve as protective barriers.
					shapefiles	Section 6. The Chenier Plain Authority recommends that the U.S. Army Corps of Engineers provideCalcasieu, Cameron and Vermilion parishes the Shape files for the elevation of all structures surveyed as part of its decision making criteria.	Parish priority projects have been included as a separate and new appendix to the Final Integrated Report.
					benefit cost ratio	Section 7. The Chenier Plain Authority recommends a review of the Benefit Cost Ratio (BCR) parameters instead of the "wind shield view" BCR and requests transparency of how the final Benefit Cost Ratio will be determined.	The cost/benefit analysis was conducted consistent with the Appendix D, Economics and Social Consideration in Environmental Regulation 1105-2-100. The windshield data collection is consistent with requirements for feasibility report level of analysis. Additional detailed analysis will be conducted during subsequent project phases.
86					modeling original projects	Section 8. The Chenier Plain Authority recommends that projects originally submitted be modeled as they were submitted and not have projects watered down to include only a small-scale section of what was originally intended.	Projects submitted by various entities (e.g., Cameron and Vermilion Parishes) were screened, along with other proposed measures, to the same level of analysis sufficient to determine viable alternative array.

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Table 3. Comments on the Revised Integrated Draft Feasibility Report and Environmental Impact Statement							
Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
	EMAIL COMMENTS						
87					certified copy of resolution provided	BE IT FUTHER RESOLVED that a certified copy of this resolution be forwarded to the U. S. Army Corps of Engineers, New Orleans District, the Honorable Charles Boustany and all congressional representatives of the parishes of Calcasieu, Cameron and Vermilion parishes, the Police Juries of Calcasieu, Cameron and Vermilion parishes, the Louisiana State Levee Consortium, the Association of Louisiana Board of Levees, and the Police Jury Association of Louisiana, respectfully requesting consideration and support of the comments submitted by the Chenier Plain Coastal Restoration & Protection Authority by virtue of this resolution. THUS DONE AND APOTED by a unanimous vote of the Chenier Plain Coastal Restoration & Protection Authority, in regular session convened on this 21 day of April 2015.	Acknowledge receipt of comment resolution.
88	Roderic Vaughn	April 30, 2015	public	email/petition	email with April 17, 2015 petition	I am sending you a signed copy of petition opposing Eminent Domain writing in Vermilion Parish coastal protection recommendations. I was born in Vermilion Parish and oppose this part of the flood protection draft. I would like it removed.	Receipt of email and petition acknowledged, please see response to petition under April 17 2015 petition subheading. *See response to "involuntary participation" and "eminent domain" comments in General Responses located at the end of this table.
89	Ryan Bourriaque (Parish Administrator, Cameron Parish Police Jury)	April 27, 2015	Parish Government	email/letter	email with comment letter attachment	Please accept the attached letter of comment on behalf of the Cameron Parish Police Jury. The hard copy original will be forwarded to your office. Please reply and verify receipt of this email.Thank you for this courtesy,	Receipt of email and comment letter acknowledged, please see response to comment letter under "government" subheading.
90	Shannon Neveaux	May 1, 2015	public	email/petition	email with comment petitions	I respectfully request that the US Army Corps of Engineers accept the enclosed 2,040 comments pertaining to the Southwest Coastal Louisiana Study's 2015 Revised Integrated Draft Feasibility Report and Environmental Impact Statement along with any others that may have arrived separately before or after receipt of this package.Although these comments are presented in a 'petition' format, this document was not created to replace personal comments. This comment/petition was designed to give the people of our communities the opportunity to clearly and uniformly express the MAJOR concerns that we have with the current draft, as we found	Receipt of petition format comments is acknowledged. Responses to petition comments are included in General Comment Response. *See response to "involuntary participation" and "eminent domain" comments in General Responses located at the end of this table.

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Table 3. Comments on the Revised Integrated Draft Feasibility Report and Environmental Impact Statement							
Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
	EMAIL COMMENTS						
						many struggled to consider comments on such a large detailed document in the time allowed. These simple signatures should be considered a representation of only a small portion, of the strength of our opposition the language in the draft that references 'Involuntary Participation' and 'Eminent Domain'. These signatures should not be considered to be a complete list of concerns.An electronic copy of the signatures and comments enclosed is available upon your request.	
91	Shannon Neveaux	May 5, 2015	public	email/petition	email with comment petitions	I respectfully request that the US Army Corps of Engineers accept the enclosed 445 comments, pertaining to the Southwest Coastal Louisiana Study's 2015 Revised Integrated Draft Feasibility Report and Environmental Impact Statement in addition to the 2040 signatures sent on May 1, 2015 and along with any others that may have arrived separately before or after receipt of this electronic file. Please let me know where these comments will be recorded and how they will be included with other comments received during this draft's comment period. The originals have been sent to you via the US Postal Service and should arrive later this week. These additions bring the total number of comments/petitions to 2485. This total does not include copies that have been sent separately by individuals or parishes. To many people the total number may not seem very impressive, but it is very close to the 2616 owner-occupied units that were flooded in Vermilion Parish alone for Hurricane Rita. The majority of signatures were collected from residents of Vermilion, Cameron and Calcasieu parishes. We also received support for our message from people living outside of these parishes. Many of them own property here, worked here or enjoy the marshes and coastal areas in Vermilion, Cameron and Calcasieu that we are asking you to protect. Although these comments are presented in a 'petition' format, this document was not created to replace personal comments. This comment/petition was designed to give the people of our	Acknowledge receipt of petition comments. *See response to "involuntary participation" and "eminent domain" comments in General Responses located at the end of this table.

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Table 3. Comments on the Revised Integrated Draft Feasibility Report and Environmental Impact Statement							
Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
	EMAIL COMMENTS						
						communities the opportunity to clearly and uniformly express the MAJOR concerns that we have with the current draft, as we found many struggled to consider comments on such a large, detailed document in the time allowed. These simple signatures should be considered a representation of only a small portion, of the strength of our opposition the language in the draft that references 'Involuntary Participation' and 'Eminent Domain'. These signatures should not be considered to be a complete list of concerns. An electronic copy of the signatures and comments enclosed is available upon your request. Thank you,	
92	State of Louisiana, Coastal Protection and Restoration Authority (CPRA)	April 28, 2015	Louisiana State agency	email/letter	include locally proposed projects in report	Secondly, the CPRA recognizes the National Ecosystem Restoration Plan, while comprehensive and large in scale, addresses only the critical needs of the three-parish study area and that other restoration measures not included in this study, such as those contained in parish plans, would be beneficial and should be considered viable projects. We would therefore request that language be added to address the importance of locally proposed projects that may be pursued by federal, state and/or local governments. These projects should be evaluated independently on their merits and should be judged on how these projects will act in concert with existing program s and plans to address local issues of concern.	Parish priority projects have been included as a separate and new appendix to the Final Integrated Report.
93					contact information	Thank you again for this opportunity to offer comments on the SWCFS. We look forward to continuing to work with the USACE to advance this important study. If you have any questions, please do not hesitate to contact me or Jennifer Mouton of my staff at (225) 342-1452.	Acknowledged.

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Table 3. Comments on the Revised Integrated Draft Feasibility Report and Environmental Impact Statement							
Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
	EMAIL COMMENTS						
94	Sue Neveaux	April 28, 2015	public citizen	email	involuntary participation/eminent domain	As a North Vermilion Parish resident I would like to comment on the recent studies and finding of the Corps of Engineers for the coastline of Vermilion Parish. We personally have been effected by laws set to "supposedly" protect our coast, wetlands and people. Because of the recent laws we cannot do what we want to do on our own land. Our children can't build homes where they want to on family land. I will never agree with studies you do with the words "imminent domain" or "involuntary participation" in them. Please remove these phrases from the studies.	The Recommended NED Plan would be entirely voluntary participation*See response to "involuntary participation" and "eminent domain" comments in General Responses located at the end of this table.
95	Suzy Heck	April 16, 2015	public citizen	email	elevation of structures and list of affected properties	Concerning an Article in the April 16, 2015 American Press Titled "Concerns expressed over SW La. coastal study". My home in Flooded in 2005 Hurricane Rita (2' floodwater in house for 24+ hours), and again in 2008 Hurricane Ike (3' floodwater in house for 3 days). I received a letter from Calcasieu Parish Police Jury - Division of Planning and Development on February 26, 2014 stating that "Congratulations! You have been approved for grant funding to assist with the costs..... Voluntary Homeowners Agreement for Elevation".I hear nothing back from them and called in April 2014. After talking with several employees there - I was told that they had decided that I was not worth it. If my property flooded again, that they "might" reconsider. How do I find out if my property is one that is considered in this study? I want to keep my house and land. I have lived here for 20+ years and never flooded before Hurricane Rita. Please, I cannot go through another flood. Please - the toll on my house, property, and health cannot take another flood. I live south of Lake Charles close to the Calcasieu River. Thank you in advance for any information you can give,	*See response to "involuntary participation" and "eminent domain" comments in General Responses located at the end of this table. A new appendix with maps of all identified structures included in the NED Recommended Plan is included in the Final Integrated Report.

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Table 3. Comments on the Revised Integrated Draft Feasibility Report and Environmental Impact Statement							
Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
	EMAIL COMMENTS						
96	Tom Couste	May 4, 2015	public citizen	email	beneficial use of dredged material	The following is my public comment regarding the Southwest Coastal Louisiana Study Revised Integrated Draft Feasibility Report and Environmental Impact Statement: It is understood the USACE Federal Standard is defined as the least costly dredged material disposal or placement alternative (or alternatives) identified by USACE. In an effort to provide storm surge damage risk reduction and ecosystem restoration while maintaining navigable waters, I encourage the USACE, State of Louisiana, and Port Authorities to utilize dredged materials for beneficial use on all south Louisiana dredge maintenance projects. This includes developing long term strategies/planning for each Louisiana river requiring maintenance dredging, identify/develop specific beneficial use projects, and provide complementary Federal and State funding for the additional cost if needed. As a resident of southwest Louisiana, I feel beneficial use of dredged material is a critical part of stabilizing Louisiana's coastal areas. Dredged material should be treated as a resource instead of a waste material.Thank you for the opportunity to comment.	The USACE is presently beneficially utilizing maintenance-dredged material to the maximum extent practicable during maintenance dredging operations. The Southwest Coastal Louisiana study includes the following beneficial use: Two marsh restoration features of the recommended plan (3a1 & 3c1) involve the beneficial use of dredge material from the Calcasieu Ship Channel. Feature 3c1 is partially located on USFWS refuge lands. USFWS should seek authorization and appropriation to construct this feature as described in the Final Report (including the beneficial use of dredged material).
97	Tricia Gaspard	April 28, 2015	public citizen	email	levee/oil funds	The money we get from oil in our area should only go to this protection levee.	Funding for the proposed Southwest Coastal Louisiana project would be authorized from Congress.
98					involuntary participation/eminent domain	This is our land that we paid for. Our home. This decision is not yours to make!!!! Don't play GOD.	The Recommended NED Plan would be entirely voluntary participation*See response to "involuntary participation" and "eminent domain" comments in General Responses located at the end of this table.

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Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
1	Ashley K. Buller Cameron Parish Police Jury April 16, 2015 dated Petitions signed by following: Cameron Parish Police Jury Ashley K Buller sent 64 petitions dated 16 April 2015 from following individuals: Ann Langlinais (Abbeville); Barbara Portie (Creole); Barron Guidry (Grand Chenier); Beulah Bradley (Hackberry); Brandon J. Carter Jr. (Grand Chenier); Carol Wainght (name not legible, Grand Chenier); Catlyn Hendrix (Creole); Ceasar Swire (Grand Chenier); Cecil J Clark (Grand Chenier); Cheryl A. Broussard (Grand Chenier); Christopher Fountein (Grand Chenier); Craig Hendrix (Grand Lake); Craig Matthew Manuel (Sweetlake); Danny Lavergue (Grand Lake); Darilyn Canik (Grand Chenier); Darren Richard (Creole); David Al Duprie (Grand Chenier);	April 24, 2015	Cameron Parish Police Jury	email/petitions	petitions on behalf of Cameron Parish residents	As a voting resident of Louisiana I ask that you reconsider the listed items and accept my personal comments in relation to the Southwest Coastal Louisiana Study's 2015 Revised Integrated Draft Feasibility Report and Environmental Impact Statement. "Please include Parish Priority Projects! The Corp has prepared a study that will recommend a non-structural plan of action. Due to the inability to meet your current 'cost/benefit ratio' standards, only a very small list of measures have been 'tentatively selected'. While the selected list may indeed be cost effective, I feel that our parish deserves 'protection'. In order to clearly support any future consideration of funding for a structural protection measure, I ask that you insert a LIST of ALL of the measures and projects proposed in the parishes' existing and proposed Coastal Restoration & Protection Plans. The inclusion will eliminate all unintentional exclusion of projects that were not tentatively selected and will clearly indicate worthiness for future consideration for funding. Inclusion of these projects will also allow the study to reflect the original purpose and intent of Rep. Boustany's bill, which was always to provide hurricane protection to Southwest Coastal Louisiana. The resiliency and efficiency shown by the parish's residents and business owners in protecting their homes and buildings should not have lessened the urgency and consideration given to protecting the land on which those structures have been built "I ask that any and all reference or language to 'eminent domain ' and "involuntary participation' be completely removed from this study. The property owner's choice remain at their 'own risk' or possibly without future assistance are the only appropriate alternatives to 'voluntary participation'. I do not agree that protecting the Federal government's interests	Acknowledge receipt of email and attached petitions. Response to petition comments are included in the General Responses. Parish priority projects have been included as a separate and new Appendix N to the Final Integrated Report. Appendix N contains the following statement: "Though not an endorsement of any project under this study effort, Parish Priority Projects that would be provided by the Parishes to the State for consideration as deemed necessary by the Coastal Master Plan for Louisiana are included in this Appendix only as a reference for future planning under other study authorities." The Recommended NED Plan would be entirely voluntary participation"See response to "involuntary participation" and "eminent domain" comments in General Responses located at the end of this table.

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Table 3. Comments on the Revised Integrated Draft Feasibility Report and Environmental Impact Statement							
Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
	Denton C. Vincent (Grand Chenier); Dinah Landry (Grand Lake); Douglas M. Haynie (Creole); Drucilla Vincent (Grand Chenier); Emma Jean Miller (Cameron); Eric Baccaglupi (Creole); Francis Guilbeau (Cameron); Freddie Theriot (Grand Chenier); Gary Primeaux (Grand Chenier); Gary Shipman (Cameron); Iris Broussard (Grand Chenier); Jeanette Thibodeaux Jacobs (Creole); Jennifer Dockins (Cameron); Jennifer Picou (Cameron); Jerry Dockins (Cameron); Jimmie Ann McLean (Grand Chenier); JoDee Roberts (Grand Lake); Joseph E. Trahan (Grand Lake); Judy & P.J. Broussard (Abbeville); Kenton Bonsall (Grand Chenier); Kim Richard (Creole); Leslie D. Griffith (Grand Chenier); Martial A. Young (Grand Lake);					should supersede the choices that landowners make. It was my understanding that the goal of this plan was to restore and protect the coast and marshes, assist in preserving the unique culture, not to remove people from their homes and family lands. The precedence set by such language has the potential to completely destroy the culture and unique way of life in coastal Louisiana. PLEASE TAKE IT OUT! *I request that a 'Local sponsor' be chosen and have an immediate 'voice' in the remaining planning process of the study. It is clear that 'local sponsor' will be burdened with implementing and enforcing many portions of the study if ever funded. Modeling and Data should never realistically replace the practical knowledge gained by living in an area for a lifetime. Local sponsors can assist in making valid and important corrections and local concerns could be addressed immediately. *I ask that reforestation measures be replaced with shoreline protection measures. Reforestation is the most cost effective measure proposed in the study. By deleting all protective levees and structures out of the 'Temporary Selected Plan', the Corp's was able to meet one of its highest priorities, cost effectiveness. More shoreline protection is critical. Previous projects have shown that reforestation will be successful only after protection is implemented. Shoreline protection would be a better investment for our coasts future.	Coordination with Parishes and local stakeholders has occurred since the study was initiated. Efforts to keep stakeholders up to date were redoubled after the public review period to ensure awareness of study developments. This included study presentations, public meetings, conference calls, and other communication updates. Chenier and shoreline protection measures were all evaluated under a comprehensive integrated restoration strategy. Each measure accomplishes a different goal that is important for the ecosystem. Cheniers cover over 1,400 acres and shoreline extends for over 250,000 ft. Both measures are important in working towards overall ecosystem restoration.

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	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
	Michael Jacobs (Creole); Lanny Nihite (name not legible, Grand Chenier); Mitchel Kelly (Grand Chenier); Nadine Richard (Grand Chenier); Nina Jones (Grand Chenier). Pamela Kelley (Grand Chenier); Peggy Reyes (Cameron); Ran Johnson (name not legible, Grand Lake); Richard Cauik (Grand Chenier); Richard James Dahlan (Creole); Robert Portie (Creole); Rodney McLean (Grand Chenier); Sara Roy (Grand Chenier); Sheila Miller (Grand Chenier); Steven Landry (Creole); Susan Fawvar (name not legible, Grand Chenier); Theodor A. Broussard (Grand Chenier); Toby Landry (Grand Lake); Tye Fontenot (Creole); Watt Richard (Grand Chenier); Willis Luie (name is not legible, Grand Chenier); Win Kioin Warrant (name not legible, Grand Chenier); Zachary Taylor Vincent (Grand Lake)						

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	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
2	Brian Lusher (Advisory Council on Historic Preservation)	May 4, 2015	Federal (Advisory Council on Historic Preservation)	email	cultural and historic resources	Thank you for the opportunity to comment the Revised Integrated Draft Feasibility Report and Environmental Impact Statement, March, 2015. I am also in receipt of the SHPO's comments on this draft. The SHPO has raised some very good questions and provided great information; I look forward to the Corps' response to those comments:	Acknowledgment
3					borrow areas	P1-21, Second paragraph: Though no previously recorded sites have been identified at the borrow locations, does Corps propose surveying those areas for historic properties?	USACE shall complete cultural resources investigations pursuant to the stipulations of the Section 106 programmatic agreements. The level of survey to be conducted and the survey methodology will be developed in consultation with the SHPO and consulting Tribes and will be completed in a manner that meets the standards of the Louisiana Division of Archaeology.
4					presence of archeology in cheniers	1-33, first paragraph: this paragraph seems very vague and, in reference to SHPO's comments, should it be clarified to indicate the likely presence of archaeology in the Cheniers? Or perhaps Corps could allude to the fact that it may not yet know of the presence of historic properties and that identification efforts will be identified in a PA?	The likelihood of encountering cultural resources in the cheniers and the status of identification efforts have been clarified in Chapter 3.
5					survey and identification	Page 2-2, 2.2: historic and cultural resources: at the high altitude level this document has, it may be very worthwhile to also characterize how much land has NOT been surveyed for historic properties. In other words, how much ID of HP's is likely necessary in the future? The characterization that is presented might mislead the casual reader to think that all HP's have been identified. Does only one historic district fall into the APE?	This has been clarified in the report. It is estimated that less than 15% of the NER APE has been surveyed for cultural and historic resources. Identification and evaluation of historic properties will take place pursuant to the stipulations of the Section 106 programmatic agreements.

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Table 3. Comments on the Revised Integrated Draft Feasibility Report and Environmental Impact Statement							
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	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
6					13-foot elevation	Page 2-14, 2.5.5., second bullet: Are you saying that any building that would require elevation over 13 feet would be acquired? For what? Automatic demolition? This is unclear and should be clarified.	The NED RP is 100% voluntary. Any structure that requires raising more than 13 ft. above ground level would be ineligible to participate due to engineering and risk related factors.
7					PA implementation	Page 3-16, 3.3.9.: This may be too much detail, but if the Corps may wish to implement a PA by the fall of 2015, then time is of the essence. Is it the Corps strategy to identify HP's, via a PA protocol, after project authorization? Again, this begs the question as some HP's have been identified, but it is unclear how much survey work may be necessary.	Identification and evaluation of historic properties will take place pursuant to the stipulations of the Section 106 programmatic agreements.
8					nonstructural concerns	Page 4-1, 4.1.1.: What happens if, say, an owner otherwise meets the criteria for a voluntary non-structural project, but then, say, refuses to accept a covenant (or is otherwise unwilling or unable to accept the conditions)? Would this then become an involuntary action? Who carries the cost of removing asbestos? What are the eligibility criteria used to determine if a property is eligible for a non-structural action? Dry flood proofing: is it a known fact that any historic building subjected to this treatment would suffer an adverse effect? In other words, is this treatment reversible or has the Corps considered whether that is possible? Who makes the determination that flood proofing has been installed as proposed? Corps?	The NED RP is 100% voluntary. Please refer to the NED RP draft implementation plan for additional details.
9					entire structure vs habitable area	4-3, 4.1.2.: Regarding lifting a structure -- to determine effects, it seems the Corps would need to be able to distinguish between 'entire structure' and 'habitable area'. For instance, how would this distinction affect historic properties? Does this refer to, say, a main house and other support structures?	Effects to historic properties will be determined through consultation pursuant to the stipulations of the Section 106 programmatic agreements.
10					elevated vs acquired	4.1.2.1.: regarding the 'elevated' or 'acquired' choice, can you provide more detail on how that choice would be made and how the Corps would consider effects? If acquired, is it solely for the purpose of demolition? I wonder whether there are circumstances in which Corps should consider ways to avoid or minimize the potential effect. What about	The NED RP includes elevating residential structures, dry flood proofing non-residential structures, and constructing localized storm surge risk reduction measures around warehouses. Effects will be determined through consultation pursuant to the stipulations of the Section 106 programmatic agreements.

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Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
						mitigation for cases in which demolition is unavoidable?	
11					finding cultural resources	Page 4-12, paragraph 3: SHPO raises an interesting question about the possibility of finding cultural resources in this area and it will be productive to hear the Corps' thoughts on this	USACE shall complete cultural resources investigations pursuant to the stipulations of the Section 106 programmatic agreements. The level of survey to be conducted and the survey methodology will be developed in consultation with the SHPO and consulting Tribes and will be completed in a manner that meets the standards of the Louisiana Division of Archaeology.
12					exclude properties eligible for listing in NRHP	Appendix L: L-3, fourth paragraph, first sentence. Why does this specifically exclude all properties eligible for listing in the NRHP? At 17 years, this is to be a long-lived undertaking. Think about how the eventual 106 agreement will address periodic means for the CP's to assess the document's efficacy.	Historic properties are not excluded from participation.
13					historic property avoid minimize reduce	Appendix L: 7-7, C: Residential Structure Elevation Program -- is it correct that a building may be only elevated or acquired for demolition? Would there be circumstances in which a historic property may meet one of the criteria for involuntary participation? In this case, how would Corps think about avoiding, minimizing, or mitigating adverse effects?	The NED RP includes elevation and floodproofing. There is no involuntary participation.
14	Cameron Parish Gravity Drainage District No. 5. D.Y. Doland, President		Cameron Parish	letter	do not limit restoration projects	1. Please do not limit the number of coastal restoration projects listed in the study. Include the Cameron Master Plan projects even in an appendix to be available for other discretionary funding sources in the future. Currently, the Parish has 9 projects listed in the study. We feel that there are significantly more projects that are viable and are not even up for discussion due to the benefit cost ratio and the national interest with these projects. THUS DONE AND ADOPTED on the 23rct day of April, 2015.	Parish Priority Projects have been included as a separate and new appendix (Appendix P) to the Final Integrated Report. Parish Priority Projects were evaluated and screened, along with other proposed measures, to the same level of analysis sufficient to determine viable alternatives.
15					Involuntary participation, funding sources local sponsors	Removing the discussion about involuntary participation in the non-structural aspect of the program. This was never the intent of the study to have relocations. Other questions arise from this section such as funding sources,	*See response to "involuntary participation" and "eminent domain" comments in General Responses located at the end of this table. The CPRA is the non-Federal Sponsor or "Local Sponsor". As in most civil works projects,

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	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
						sponsoring agencies, local sponsors, administrative processes, etc. that all should be addressed prior to finalizing the study with this included.	funding and other administrative processes follow prescribed laws, rules and regulation. The approval of funds for the project is by Congressional action.
16						3. Provide GIS Shapefiles of the eligible structures to be elevated as part of the NED project for Cameron Parish for the Parish to determine the current status of these structures. Cameron Parish has several State and Federal programs that have assisted with elevation and flood-proofing of structures post-Rita & Ike. Building codes and elevation requirements should assist with mitigating the risk of these structures.	A new appendix with maps of all identified structures included in the NED Recommended Plan is included in the Final Integrated Report.
17					contact telephone number	Regarding the Southwest Study, revisions to the draft version of this document would certainly result in a more effective and efficient study. Thank you for allowing us to comment on this draft feasibility report for the Southwest Coastal Study. Feel free to call me if you have any questions or concerns at 337-652-9771.	Comments on the Revised Draft Integrated Report have been incorporated into the Final Integrated Report.
18	Cameron Parish Gravity Drainage District No. 4	April 15, 2015	Cameron Parish	letter	do not limit restoration projects	1. Please do not limit the number of coastal restoration projects listed in the study. Include the Cameron Master Plan projects even in an appendix to be available for other discretionary funding sources in the future. Currently, the Parish has 9 projects listed in the study. We feel that there are significantly more projects that are viable and are not even up for discussion due to the benefit cost ratio and the national interest with these projects.	Parish Priority Projects have been included as a separate and new appendix to the Final Integrated Report. Parish Priority Projects were evaluated and screened, along with other proposed measures, to the same level of analysis sufficient to determine viable alternatives.
19					involuntary participation/other questions to be answered	2. Removing the discussion about involuntary participation in the non-structural aspect of the program. This was never the intent of the study to have relocations.	The Recommended NED Plan would be entirely voluntary participation *See response to "involuntary participation" and "eminent domain" comments in General Responses located at the end of this table.
20					address other questions	Other questions arise from this section such as funding sources, sponsoring agencies, local sponsors, administrative processes, etc. that all should be addressed prior to finalizing the study with this included.	The Final Integrated Report identifies the non-Federal sponsor as the State of Louisiana, Coastal Protection & Restoration Authority Board of Louisiana, the cost share, and other

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	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
							administrative processes for implementing the project.
21					shapefiles	3. Provide GIS Shapefiles of the eligible structures to be elevated as part of the NED project for Cameron Parish for the Parish to determine the current status of these structures.	Each of the properties potentially affected by implementation of the NED Plan is presented in a new appendix to the Final Integrated Report displaying maps of all affected structures.
22					elevation and flood-proofing	Cameron Parish has several State and Federal programs that have assisted with elevation and flood-proofing of structures post-Rita & Ike. Building codes and elevation requirements should assist with mitigating the risk of these structures.	Acknowledge Cameron Parish previous actions regarding building codes and elevation requirements.
23					revise draft report	Regarding the Southwest Study, revisions to the draft version of this document would certainly result in a more effective and efficient study. Thank you for allowing us to comment on this draft feasibility report for the Southwest Coastal Study.	The Final Integrated Report has been revised based on comments to the Revised Integrated Draft Report and EIS.
24	Calcasieu Parish Police Jury	April 24, 2015	Calcasieu Parish	memorandum of resolution on April 23, 2015	resolution	Enclosed is a certified copy of a resolution which was adopted by the Calcasieu Parish Police Jury on April 23, 2015, wherein the Police Jury respectfully requests the U.S. Army Corps of Engineers to accept comments and recommendations based upon its review of the Southwest Coastal Louisiana Study, Draft Programmatic Environmental Impact Statement (DPEIS Study) that was released in March 2015. Your support of the Police Jury in this matter would be greatly appreciated.	Copy of certified resolution adopted by the Calcasieu Parish Police Jury on April 23, 2015 is acknowledged

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Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
25					whereas	WHEREAS, in January of 2009, the U.S. Army Corps of Engineers and the State of Louisiana announced an agreement to jointly fund an $8 million feasibility study to provide hurricane damage risk reduction and coastal restoration to Southwest Coastal Louisiana; and WHEREAS, authority for the reconnaissance study exists under resolutions of the Committee on Transportation and Infrastructure of the United States House of Representatives in response to a request for support submitted by Congressman Charles Boustany; and WHEREAS, the U.S. Army Corps of Engineers released the Southwest Coastal Louisiana Study, Draft Programmatic Environmental Impact Statement (DPEIS Study) in March 2015, and the agency is currently accepting public comment until May 5, 2015; and WHEREAS, Southwest Coastal Louisiana is highly susceptible to an increased risk of coastal flooding, shoreline erosion, saltwater intrusion and loss of wetlands and habitats due to land subsidence, sea-level rise, the area's low elevation, flat terrain, and close proximity to the Gulf of Mexico; and WHEREAS, land loss and ecosystem degradation threaten the continued productivity of Southwest Coastal Louisiana's ecosystem, the economic viability of its industries, and the safety of its residents.	Acknowledged receipt of comment.
26					eminent domain	NOW, THEREFORE, BE IT RESOLVED BY THE POLICE JURY OF CALCASIEU, PARISH, LOUISIANA, in Regular Session convened on the 23rd day of April, 2015, that it does hereby respectfully request the U.S. Army Corps of Engineers to accept the following comments and recommendations as part of the Police Jury's review of the outhwest Coastal Louisiana Study, Draft Programmatic Environmental Impact Statement (DPEIS Study). Section 1. Remove all eminent domain references from the study.	The Recommended NED Plan would be entirely voluntary participation *See response to "involuntary participation" and "eminent domain" comments in General Responses located at the end of this table.

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Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
27					add appendix priority list projects	Section 2. Add an appendix to include a list of all priority projects from Cameron and Vermilion Parishes identifying these projects as good and viable for consideration in any future funding opportunities.	Parish Priority Projects have been included as a separate and new appendix to the Final Integrated Report. Parish Priority Projects were evaluated and screened, along with other proposed measures, to the same level of analysis sufficient to determine viable alternatives.
28					add statement Calcasieu Parish coastal plans	Section 3. Add a statement in the draft that states "Calcasieu Parish anticipates updating their coastal plan which will include a priority projects list. Those projects will be viable projects for consideration of funding for protecting Lake Charles to the 500-year level of protection as deemed necessary by the Coastal Master Plan for Louisiana 2012."	Parish Priority Projects have been included as a separate and new appendix to the Final Integrated Report. Parish Priority Projects were evaluated and screened, along with other proposed measures, to the same level of analysis sufficient to determine viable alternatives. Appendix N contains the following statement: "Though not an endorsement of any project under this study effort, Parish Priority Projects that would be provided by the Parishes to the State for consideration as deemed necessary by the Coastal Master Plan for Louisiana are included in this Appendix only as a reference for future planning under other study authorities."
29					funding in place	Section 4. Require that 100% federal and state funding to be in place for all mitigation non-structural components.	Mitigation for project-induced impacts of the NED Plan is not anticipated.

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Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
30					original goals and objectives	Section 5. Include and implement the original goals and objectives, Ecosystem Restoration, Risk Reduction and Historic and Cultural Preservation, as part of the final draft of the study.	Generally, the planning goals of the NED Plan are to reduce risk of damages associated with hurricane storm surge flooding. The NED storm damage risk reduction plans were formulated to achieve NED principles and objectives. Contributions to NED are increases in the net value of the national output of goods and services, expressed in monetary units, and are the direct net benefits that accrue in the planning area and the rest of the Nation. The general planning goals of the NER Plan are to significantly and sustainably reduce land loss and coastal erosion in the study area, restore environmental conditions for the Chenier Plain ecosystem in SWC Louisiana, and evaluate a range of coastal restoration components to address a multitude of ecosystem problems. Plans were formulated to achieve NER principles and objectives. Contributions to NER are increases in the net quantity and/or quality of desired ecosystem resources, and are measured in the study area and nationwide. Historic and cultural resources are considered in subsections of Chapters 1 and 3.
31					shapefiles	Section 6. Provide Calcasieu, Cameron and Vermilion parishes the Shape files for the elevation of all structures surveyed as part of its decision making criteria.	Each of the properties potentially affected by implementation of the NED Plan is presented in a new appendix to the Final Integrated Report displaying maps of all affected structures.
32					benefit to cost ratio and windshield survey	Section 7. Review the Benefit Cost Ratio (BCR) parameters instead of the "wind shield view" BCR and provide transparency of how the final Benefit Cost Ratio will be determined.	The cost/benefit analysis was conducted consistent with the Appendix D, Economics and Social Consideration in Environmental Regulation 1105-2-100. The windshield data collection is consistent with requirements for feasibility report level of analysis. Additional detailed analysis will be conducted during subsequent project phases.
33					model projects	Section 8. Projects originally submitted be modeled as they were submitted and not have projects watered down to include only a small scale section of what was originally intended.	Projects submitted by various entities (e.g., Cameron and Vermilion Parishes) were screened, along with other proposed measures, to the same level of analysis sufficient to determine viable alternative array.

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	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
34					funding	Section 9. Require that 100% federal and state funding to be in place for all restoration components.	Federal funding and availability for the project will be determined by Congress.
35					certified copies provided to Corps	BE IT FURTHER AND FINALLY RESOLVED that certified copies of this resolution be forwarded to the U.S. Army Corps of Engineers, New Orleans District, the Honorable Charles Boustany and all congressional representatives of the parishes of Calcasieu, Cameron and Vermilion parishes, the Police Juries of Cameron and Vermilion parishes, and the Police Jury Association of Louisiana, respectfully requesting consideration and support of the comments and recommendations submitted by the Calcasieu Parish Police Jury by virtue of this resolution.	Acknowledge receipt of certified copy the resolution.
36	City of Lake Charles Mayor Randy Roach (Matt Young email transmittal)	April 29, 2015	City of Lake Charles	letter/email	National Flood Insurance Program / eminent domain	1. We request that in the event the National Flood Insurance Program (NFIP) remains a relative part of the Study, that all eminent domain references be removed and that all owners of property identified as being candidates for relocation be notified and allowed opportunity to review the Study and make public comment.	The requirements under the authorized National Flood Insurance Program were considered during the study. *See response to "involuntary participation" and "eminent domain" comments in General Responses located at the end of this table.
37					Congressional authorization of use of flooding for coastal restoration	2. We further recommend that if "flooding" is to be used as a part of the criteria to develop and implement coastal restoration projects in this or any other coastal region of the country, such rule be based on a new set of standards authorized by Congress and which address: a) the unique hydrological characteristics of any coastal region affected by such regulations; b) the need to protect the history, culture and related socioeconomic characteristics of such coastal regions; and c) be designed to protect coastal residents from forced relocation of residences and businesses from those areas.	The study has been developed within the described Congressional authorizations specific to hurricane storm surge risk reduction as well as ecosystem restoration.

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	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
38					Cameron and Vermilion Parishes priority projects	3. We recommend adding an appendix x to the report to include a list of all priority projects submitted by Cameron and Vermilion Parishes in order to make sure that these projects will be eligible for consideration in any future funding opportunities .	Parish Priority Projects have been included as a separate and new appendix to the Final Integrated Report. Parish Priority Projects were evaluated and screened, along with other proposed measures, to the same level of analysis sufficient to determine viable alternatives.
39					Calcasieu Parish update coastal plan including priority projects list	4. We recommend adding a statement in the draft as follows: "Calcasieu Parish anticipates coastal plan which will include a priority projects list. Those projects will be viable projects for consideration of funding for protecting Lake Charles to the 500 year level of protection as deemed necessary by the Coastal Master Plan for Louisiana 2012."	Parish Priority Projects have been included as a separate and new appendix to the Final Integrated Report. Parish Priority Projects were evaluated and screened, along with other proposed measures, to the same level of analysis sufficient to determine viable alternatives.

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	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
40					original goals and objectives / national flood insurance program	5. We recommend that the original goals and objectives of the SWLA study, namely: Ecosystem Restoration , Risk Reduction and Historic and Cultural Preservation, be included, analyzed and specifically addressed in the conclusions and recommendations of the study instead of allowing the provisions of the NFIP to take preference and priority over such considerations in determining the programming and the priority for coastal restoration and protection projects eligible for funding with state and federal monies.	Generally, the planning goals of the NED Plan are to reduce risk of damages associated with hurricane storm surge flooding. The NED storm damage risk reduction plans were formulated to achieve NED principles and objectives. Contributions to NED are increases in the net value of the national output of goods and services, expressed in monetary units, and are the direct net benefits that accrue in the planning area and the rest of the Nation. The general planning goals of the NER Plan are to significantly and sustainably reduce land loss and coastal erosion in the study area, restore environmental conditions for the Chenier Plain ecosystem in SWC Louisiana, and evaluate a range of coastal restoration components to address a multitude of ecosystem problems. Plans were formulated to achieve NER principles and objectives. Contributions to NER are increases in the net quantity and/or quality of desired ecosystem resources, and are measured in the study area and nationwide. Historic and cultural resources are considered in subsections of Chapters 1 and 3.
41					shapefiles	6. We request that access to the Shape files for the elevation of all structures surveyed as part	Each of the properties potentially affected by implementation of the NED Plan is presented

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	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
						of your decision making criteria be made available to Calcasieu, Cameron and Vermillion Parishes.	in a new appendix to the Final Integrated Report displaying maps of all affected structures.
42					windshield survey vs benefit cost ratio	7. We specifically reject the methodology used to determine the Benefit Cost Ratio (BCR) parameters because it was based on "wind shield view" survey which is not adequate to assess and make recommendations as to the listing of projects or the development of programs necessary to implement the recommendations of the study.	The cost/benefit analysis was conducted consistent with the Appendix D, Economics and Social Consideration in Environmental Regulation 1105-2-100. The windshield data collection is consistent with requirements for feasibility report level of analysis. Additional detailed analysis will be conducted during subsequent project phases. The windshield data collection is consistent with requirements for feasibility report level of analysis. Additional detailed analysis will be conducted during subsequent project phases.
43					original projects modeled	8. We recommend that the projects originally submitted by Cameron and Vermillion Parishes be modeled as they were originally submitted instead of using modified versions of the original projects and that the evaluation of these projects be re-submitted for review and comment before the plan is finalized. Thank you in advance for your consideration and support of the comments submitted above. Should you have any questions, please call (337) 491-1381	Projects submitted by Cameron and Vermilion Parishes were evaluated and screened, along with other proposed measures, to the same level of analysis sufficient to determine viable alternative array.
44	Coastal Protection & Restoration Authority Board of Louisiana (CPRA)	April 29, 2015	State	letter/email	eminent domain	While the State understands that the nonstructural measures will consist of floodproofing , elevating structures, and in some cases, buying-out properties in the area, we have serious concerns with the use of eminent domain to compel a family or business owner to comply with the requirements of the plan. Reducing flood risk is important, but it must be done in an acceptable manner to the citizens and communities. Our own 2012 Coastal Master Plan includes a nonstructural component and we believe it is an essential part of an overall strategy to reduce risks associated with hurricanes and storm surge damages to our citizens. However, it does not contain any provisions that would involuntarily force families in low-lying communities to leave behind their homes and property. Rather, it	The Recommended NED Plan would be entirely voluntary participation *See response to "involuntary participation" and "eminent domain" comments in General Responses.

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Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
						focuses on public education and communication of flood risk to encourage property owners to voluntarily reduce their risk of flooding. We believe this is the best approach for managing flood protection in coastal Louisiana. Therefore, we are requesting that the use of eminent domain be eliminated entirely from the National Economic Development Plan and that public participation remain voluntary.	
45					exclude self-insured property owners from involuntary plan	In addition, we are requesting that self-insured property owners, who choose to assume all risk due to flooding and consequently pose no financial liability to either the state or federal government, be clearly and completely excluded from the involuntary portion of the plan.	The Recommended NED Plan would be entirely voluntary participation *See response to "involuntary participation" and "eminent domain" comments in General Responses
46					include locally proposed projects in report	Secondly, the CPRA recognizes the National Ecosystem Restoration Plan, while comprehensive and large in scale, addresses only the critical needs of the three-parish study area and that other restoration measures not included in this study, such as those contained in parish plans, would be beneficial and should be considered viable projects. We would therefore request that language be added to address the importance of locally proposed projects that may be pursued by federal, state and/or local governments. These projects should be evaluated independently on their merits and should be judged on how these projects will act in concert with existing program s and plans to address local issues of concern.	Parish Priority Projects have been included as a separate and new appendix to the Final Integrated Report. Parish Priority Projects were evaluated and screened, along with other proposed measures, to the same level of analysis sufficient to determine viable alternatives.
47					contact information	Thank you again for this opportunity to offer comments on the SWCFS. We look forward to continuing to work with the USACE to advance this important study. If you have any questions, please do not hesitate to contact me or Jennifer Mouton of my staff at (225) 342-1452.	Acknowledge comments received.

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	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
48	Coastal Protection & Restoration Authority Board of Louisiana (CPRA)	April 29, 2015	State	letter/email	eminent domain	While the State understands that the nonstructural measures will consist of floodproofing, elevating structures, and in some cases, buying out properties in the area, we have serious concerns with the use of eminent domain to compel a family or business owner to comply with the requirements of the plan. Reducing flood risk is important, but it must be done in an acceptable manner to the citizens and communities. Our own 2012 Coastal Master Plan includes a nonstructural component and we believe it is an essential part of an overall strategy to reduce risks associated with hurricanes and storm surge damages to our citizens. However, it does not contain any provisions that would involuntarily force families in low-lying communities to leave behind their homes and property. Rather, it focuses on public education and communication of flood risk to encourage property owners to voluntarily reduce their risk of flooding. We believe this is the best approach for managing flood protection in coastal Louisiana. Therefore, we are requesting that the use of eminent domain be eliminated entirely from the National Economic Development Plan and that public participation remain voluntary.	The Recommended NED Plan would be entirely voluntary participation *See response to "involuntary participation" and "eminent domain" comments in General Responses.
49					exclude self-insured property owners from involuntary plan	In addition, we are requesting that self-insured property owners, who choose to assume all risk due to flooding and consequently pose no financial liability to either the state or federal government, be clearly and completely excluded from the involuntary portion of the plan.	The Recommended NED Plan would be entirely voluntary participation *See response to "involuntary participation" and "eminent domain" comments in General Responses.

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	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
50					include locally proposed projects in report	Secondly, the CPRA recognizes the National Ecosystem Restoration Plan, while comprehensive and large in scale, addresses only the critical needs of the three-parish study area and that other restoration measures not included in this study, such as those contained in parish plans, would be beneficial and should be considered viable projects. We would therefore request that language be added to address the importance of locally proposed projects that may be pursued by federal, state and/or local governments. These projects should be evaluated independently on their merits and should be judged on how these projects will act in concert with existing programs and plans to address local issues of concern.	Parish Priority Projects have been included as a separate and new appendix to the Final Integrated Report. Parish Priority Projects were evaluated and screened, along with other proposed measures, to the same level of analysis sufficient to determine viable alternatives.
51					contact information	Thank you again for this opportunity to offer comments on the SWCFS. We look forward to continuing to work with the USACE to advance this important study. If you have any questions, please do not hesitate to contact me or Jennifer Mouton of my staff at (225) 342-1452.	Acknowledge contact information.
52	Dan "Blade" Morrish, Louisiana State Senator, Distinct 25	May 1, 2015	State	letter	official comments of LA State Senator	In January of 2009 the U.S. Army Corps of Engineers and the State of Louisiana announced an agreement to jointly fund an eight (8) million dollar feasibility study to provide hurricane damage risk reduction and coastal restoration to Southwest Coastal Louisiana. The Southwest Coastal Feasibility Study was initially authorized in December of 2005. In March 2015, the U.S. Army Corps of Engineers released the Southwest Coastal Feasibility Draft Study (Draft Study) and the agency is currently accepting public comment until May 4, 2015 .Please accept this correspondence as my official comments to the U.S. Army Corps of Engineers.	Acknowledge receipt of comments

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	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
					involuntary participation and eminent domain	First, there is no circumstance that I foresee that provides enough justification to include any verbiage regarding "Involuntary Participation" or "Eminent Domain". You must recognize that, to Calcasieu, Cameron, & Vermilion Parishes, land ownership is a right that is not taken for granted. The intent of this study is being lost with the latest draft, in which the "Involuntary Participation" change was made recently and unbeknownst to these parishes. I feel the U.S. Army Corps of Engineers should see to that this clause is stricken from the report in its entirety. Perhaps, a separate study should be conducted at a later date by FEMA or the NFIP to address this housing issue and have the Southwest Study remain focused on the potential for coastal restoration and protection projects for the three parishes.	The Recommended NED Plan would be entirely voluntary participation *See response to "involuntary participation" and "eminent domain" comments in General Responses.
					Parish priority projects	Second, much time and effort has been afforded to the development of viable projects for Calcasieu, Cameron, and Vermilion Parishes. It is vital to have a reference of all of the Parish's existing projects listed in the study. Reference to these plans will not preclude the construction of other projects currently not listed in the study with discretionary funds, which may be a problem as the study is written today. In closing, I would like to request periodic updates on any changes associated with this study being that the CPRA is mentioned as the non-Federal sponsor for this initiative, and I sit on the CPRA Board. As I'm sure you have seen, much interest is being generated in my District and I do not take these concerns lightly. Please call me if you have questions or concerns at 337-824-3979.	Parish Priority Projects have been included as a separate and new appendix to the Final Integrated Report. Parish Priority Projects were evaluated and screened, along with other proposed measures, to the same level of analysis sufficient to determine viable alternatives.
53	Department of Natural Resources, Office of Coastal Management, Don Haydel	June 2, 1025	Louisiana State agency	Letter	Programmatic Level is consistent with LCRP	As noted in our letter of June 30, 2014, at the programmatic level, this project is consistent with the Louisiana Coastal Resources Program (LCRP). As information is developed and planning proceeds, consistency reviews will be necessary for each of the individual elements which make up the Southwest Coastal Louisiana Project.	Acknowledge consistency with LCRP. As additional information is developed the USACE and its non-Federal Sponsor will continue to coordinate with the Louisiana Department of Natural Resources regarding the LCRP.

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	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
54					eminent domain	The state acknowledges the importance of reducing flood risk, and realizes the essential role that nonstructural components play in reducing risk; however, the state has great concerns about the use of eminent domain to compel a family or business to comply with requirements of the plan. Rather, the state encourages the COE-NOD to develop a program of enhanced public education and communication of flood risk with citizens and communities to encourage voluntary participation with the plan.	The Recommended NED Plan would be entirely voluntary participation. *See response to "involuntary participation" and "eminent domain" comments in General Responses.
55					Mitigation coordination	The report states that compensatory mitigation is not seen as a requirement at this stage of project planning. Please be aware that, should mitigation be necessary, LCRP requirements differ in some details from Corps of Engineers' practices. Early coordination with OCM will help to minimize the effects of these differences on project development.	Compensatory mitigation is not anticipated for this project. Should mitigation be necessary, the USACE and its non-Federal Sponsor will initiate early coordination with OCM.
56					support NED/NER objectives	With the above-mentioned caveats, OCM fully supports both the National Economic Development and National Ecosystem Restoration objectives of this project, and looks forward to continued cooperation as the project goes forward. If you have any questions concerning these comments, please contact Jeff Harris of the Consistency Section at (225) 342-7949.	Acknowledged OCM support of the NED and NER objectives.
57	Department of the Interior Office of the Secretary Stephen R. Spencer	May 4, 2015	Federal agency	email /letter	no comments	The U.S. Department of the Interior has reviewed the Southwest Coastal Louisiana Revised Integrated Draft Feasibility Report and Environmental Impact Statement. In this regard, we have no comment.	Acknowledge US Department of Interior has no comment.
58	Environmental Protection Agency Craig Weeks	April 30, 2015	Federal	letter	EPA rating of EIS: EC-1	EPA rates the Revised Draft EIS as "EC-1" i.e., EPA has "environmental concerns and requests additional information" in the Final EIS (FEIS). The EPA's Rating System Criteria can be found at http://www.epa.gov /compliance /nepa/comments /ratings .html. The "EC" rating is based on the potential for adverse impacts to protected species and coastal resources. The "1" indicates the Revised Draft EIS needs additional clarifying language or information regarding protected	Acknowledge EPA rating of EC-1. The Final Integrated Report and EIS includes additional information regarding potential adverse impacts to protected species and coastal resources in Section 3.3.8. Comments and responses regarding the Revised Draft Integrated Report and EIS have been included in a Comment Response Appendix J in the Final Integrated Report and EIS.

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	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
						species and coastal resources. Responses to comments should be placed in a dedicated section of the FEIS and should include the specific location where the revision, if any, was made.	
59					format changes Table of Contents	The table of contents section numbers, titles, and page numbers do not correspond to their actual location in the PEIS. In some instances, sections listed in the table of contents cannot be found in the PEIS. This makes review of the PEIS difficult. Make sure section names and numbers listed in the table of contents match what is found throughout the document. In addition, make sure the page numbers listed in the table of contents are more specific than "page 1 of the chapter".	The Table of Contents has been revised to more accurately reflect the contents of the Final Integrated Report.
60					air quality mitigation	3.7 Mitigation It should be noted that the Lake Charles Metropolitan Statistical Area is vulnerable to being designated as non-attainment for ozone and particulate matter (PM) in the next few years. The Imperial Calcasieu Regional Planning & Development Commission (IMCAL), representing Calcasieu Parish, Cameron Parish, the Cities of Lake Charles, Westlake, Sulphur, Vinton, DeQuincy, the Town of Iowa, the Lake Charles Harbor and Terminal District, the Chennault International Airport, the Lake Area Industrial Alliance, the Southwest Louisiana Economic Development Alliance, and the Chamber SWLA has applied for and been accepted by EPA into the EPA Ozone Advance and PM Advance programs. The Advance programs are collaborative efforts between EPA, states and local governments to enact expeditious emission reductions to help near non-attainment areas remain in attainment of the NAAQS. This reflects the sensitivity of ozone and PM levels in the area, and the need for federally-funded projects in the study area to consider air emissions.	Acknowledge that Lake Charles Metropolitan Statistical Area is vulnerable to being designated as non-attainment for ozone and particulate matter. The USACE will continue to coordinate with EPA regarding designation of this area as non-attainment. We do not anticipate any air quality impacts due to construction of the NED and NER features. However, USACE will add EPA-suggested measures (i.e. a range of possible measures for reducing impacts associated with emissions of NOx, CO, PM, S02, and other pollutants from construction-related activities has been included in the Final Integrated Report) to address potential air quality mitigation related to construction activities.
61					air quality mitigation	This section suggests as a mitigation measure for air quality impacts the use of "heavy machinery fitted with approved muffling	Concur to add EPA-suggested measures to address fugitive dust related to construction activities.

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	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
						devices that reduce noise, vibration, and emissions". EPA agrees with this suggestion as a potential mitigation measure, but also recommends consideration of measures to address fugitive dust related to construction activities.	
62					mitigation fugitive dust source controls	Recommendations: In addition to all applicable local, state, or federal requirements, the following controls are provided to illustrate a range of possible measures for reducing impacts associated with emissions of NOx, CO, PM, S02, and other pollutants from construction-related activities: Fugitive Dust Source Controls: • Stabilize open storage piles and disturbed areas by covering and/or applying water or chemical/organic dust palliative where appropriate at active and inactive sites during workdays, weekends, holidays, and windy conditions; • Install wind fencing and phase grading operations where appropriate, and operate water trucks for stabilization of surfaces under windy conditions; and • Prevent spillage when hauling material and operating non-earthmoving equipment and limit speeds to 15 miles per hour. Limit speed of earth-moving equipment to 1 0 mph.	Concur to add EPA-suggested measures for reducing impacts associated with emissions of NOx, CO, PM, S02, and other pollutants from construction-related activities has been included in the Final Integrated Report.
63					Air Quality mitigation Mobile and stationary source controls	Mobile and Stationary Source Controls: • Plan construction scheduling to minimize vehicle trips; • Limit idling of heavy equipment to less than 5 minutes and verify through unscheduled inspections; • Maintain and tune engines per manufacturer's specifications to perform at EPA certification levels, prevent tampering, and conduct unscheduled inspections to ensure these measures are followed; • If practicable, utilize new, clean equipment meeting the most stringent of applicable Federal or State Standards. In general, commit to the best available emissions control technology. Tier 4 engines should be used for	Concur to add EPA-suggested Mobile and Stationary controls for air quality mitigation.

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						project construction equipment to the maximum extent feasible; • Lacking availability of non-road construction equipment that meets Tier 4 engine standards, the responsible agency should commit to using EPA-verified particulate traps, oxidation catalysts and other appropriate controls where suitable to reduce emissions of diesel particulate matter and other pollutants at the construction site; and • Consider alternative fuels and energy sources such as natural gas and electricity (plug-in or battery).	
64					unintended consequences soft shoreline erosion reduction and fish dips	The ecosystem restoration component of the Southwest Coastal Louisiana plan includes shoreline erosion reduction measures. The use of rocks and other hard materials for shoreline erosion reduction can provide targeted environmental benefits for important landscape features. Such measures can also have unintended adverse effects due to alteration of sedimentation patterns (which, for example, can increase erosion in unprotected areas) and reduced fish access. Subsequent project-specific NEPA documentation for shoreline erosion projects should assess such potential unintended adverse impacts and include mitigation measures as appropriate. This could possibly include the use of alternative "soft" approaches to shoreline erosion reduction and "fish dips" to allow for greater ingress and egress of aquatic organisms.	The potential for unintended adverse consequences, such as alteration of sedimentation patterns, associated with shoreline protection measures has been assessed and determined not significant. Shoreline protection measures will include construction of "fish dips" to allow for ingress and egress of aquatic organisms. Assessment of potential creation of tombolo and longshore transport is presented in section 3.3.1 and in shoreline protection measures described in Appendix K.
64					unintended consequences soft shoreline erosion reduction and fish dips	See Above	Supplemental Response based on Final State & Agency Review Comment Dated June 20, 2016 Fish dips will be provided for the foreshore rock dike shoreline protection measures to allow for ingress and egress of aquatic organisms. Sediment starvation is not expected to occur with the proposed Gulf shoreline breakwater measures along the shoreline of Rockefeller Refuge because this area is composed of a shell veneer covering marsh sediments with little long-shore movement of sediments in this system. The proposed

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							breakwater measure to be connected to the existing breakwaters at Holly Beach would provide continuous shoreline protection to the western Calcasieu Ship Channel jetty. The Calcasieu Ship Channel, and the jetties lining it, currently influence the longshore transport of coarse-grained material from east of the channel. By tying into the western jetty and fully extending project to the existing breakwater field to the west, the longshore transport would be normalized to a more uniform rate, which will decrease erosion. Additionally, the area immediately west of the Calcasieu Ship Channel jetty has been used as a single point discharge for maintenance dredging sediment from the jetty channel. Its probable continued use as such in the future should also help to further offset down current sediment starvation caused by the jetty. In addition to consideration of studies and monitoring reports, an analysis of survey data and tracer data reported in a Louisiana State University thesis study was considered which indicated the beach/breakwater system at Holly Beach is in a state of dynamic equilibrium at high tide, and static equilibrium at low tide. The existing "East Sabine Lake Hydrologic Restoration" project has introduced sands and increased the sediment budget for this area, so downstream sediment starvation is not expected to be a problem. Although the proposed breakwaters have been designed to initially capture sediment moving through the system, there will also be periods wherein sediments will flow freely through the system. In order to refine designs and implement the most effective possible projects we typically undertake additional assessment during Pre-construction Engineering and Design (PED). In collaboration with your agency, the final

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							design of the shoreline protection measures will be more fully developed and evaluated during the PED phase of the project through wave and sediment transport modeling. Included in this evaluation would be the indirect effects of proposed shoreline protection measures on down drift beaches.
65					finalize all environmental compliance and coordination with local, state and national agencies	Coordination with several county, state, and national agencies concerning environmental laws and executive orders is ongoing, and is not expected to be completed until after the FPEIS is released. EPA understands this is a PEIS, and that subsequent NEPA documentation and consultation will take place once individual elements of the TSP are implemented, but this does not absolve USACE from compliance with consultation requirements. Without specifics, and the available opinions of the agencies USACE is tasked with consulting, it is difficult to assess the potential environmental effects of the PEIS. EPA asks that USACE not release the Final PEIS until coordination with all local, state, and national agencies is finalized. This will allow the public and other interested parties a chance to fully evaluate the PEIS.	The Final Integrated Report and EIS includes documentation of all local, state and national consultation regarding both the NED and NER Recommended Plans in chapter 5. Additional details have been developed for the NER features that brings them to feasibility level of detail. As such the final report is not programmatic and all outstanding NEPA requirements have been addressed. No additional NEPA documents will be developed. The Final Report will be released for State and Agency Review in May 2016.
66					environmental justice	Even though the EJ analysis suggests that no disproportionate high and adverse impacts will occur to minority and low-income populations during the construction and normal operation, care should be taken to provide opportunities for public involvement and participation to ensure that EJ communities understand the plans, direct impacts, indirect impacts and cumulative impacts to their health and the environment. Information about this project, its location and the potential impacts upon its completion should be provided to the communities. The community should have opportunities to participate, ask questions, and voice opinions to those who plan the construction.	All interested parties, including EJ communities, have been provided opportunities to participate, ask questions and voice opinion regarding the direct, indirect and cumulative impacts of the proposed action. The USACE and its non-Federal Sponsor will continue to provide opportunities of public involvement and participation.

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67	Erath (Town of)	April 30, 2015	Town of Erath	Letter	eminent domain	The Town of Erath recommends the removal of all eminent domain references from the study. This was never the intent of the study as originally agreed in 2009 and supported by Congressman Charles Boustany.	The Recommended NED Plan would be entirely voluntary participation *See response to "involuntary participation" and "eminent domain" comments in General Responses.
68					redo levee benefit cost analysis	The Town of Erath was devastated with flooding during Hurricanes Rita and Ike and had hoped that the Southwest Study would provide the basis for funding for a flood protection system in southeastern Vermilion Parish. The levee alignments analyzed by the Study Team were not feasible as a result of the long north south segments of the levee on each end. The Town of Erath would like to hereby request that the levee benefit cost analysis be re-done with a levee that terminates at the Iberia Vermilion parish line near Bayou Tigre. The State of Louisiana is currently in the design phase of a flood control structure in that location and Iberia Parish is in the planning stages for a levee which will connect to the Vermilion Parish levee at the parish line.	The planning team was aware of the ongoing State of Louisiana effort in a flood control structure in that location in Iberia Parish and considered levee alignments to tie into the proposed State levee alignment. The planning team investigated various levee alignments, including an alignment similar to that suggested that would encompass the area south of the towns of Abbeville, Erath and Delcambre and terminate along the eastern shorelines of Delcambre Canal in Iberia Parish. No levee alignments considered had a positive benefit to cost ratio. The costs of constructing the necessary long lengths of levee required to provide risk reduction were consistently much greater than the benefits provided.
69	Jonathan "JP" Perry, LA State Senator, District 26	April 28, 2015	Louisiana State Senator	letter	Parish priority projects	This letter echoes the concerns of both myself and my constituents on the Revised Integrated Draft Feasibility Report and Environmental Impact Statement (March 2015) for the Southwest Coastal Louisiana Study. Specifically, there are three (3) points of concern to which I must direct your attention: The failure to incorporate a local plan of action for Vermilion Parish	Parish Priority Projects have been included as a separate and new appendix to the Final Integrated Report. Parish Priority Projects were evaluated and screened, along with other proposed measures, to the same level of analysis sufficient to determine viable alternatives.
70					involuntary participation and eminent domain	The inclusion of an "Involuntary Participation" (Section 4.1.2.1) mandate	The Recommended NED Plan would be entirely voluntary participation *See response to "involuntary participation" and "eminent domain" comments in General Responses.
71					involuntary participation and eminent domain	The forced compliance by residents though use of federal eminent domain	The Recommended NED Plan would be entirely voluntary participation *See response to "involuntary participation" and "eminent domain" comments in General Responses.

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72					protective plans for Vermilion Parish	As your study states, approximately 50% of the land within Vermilion Parish is considered coastal marsh. Vermilion Parish also houses Intracoastal City which provides access to both the Gulf of Mexico and Vermilion Bay, and is home to numerous fishing and energy sector-related businesses. While Vermilion Parish falls within my senate district (District 26), more importantly, it is an invaluable resource to the families and businesses that call this parish home. Therefore I must express my strong concern that protective plans suggested by local authorities be included within the Tentatively Selected Plan (TSP) that addresses the Vermilion Parish coastline.	Parish Priority Projects have been included as a separate and new appendix to the Final Integrated Report. Parish Priority Projects were evaluated and screened, along with other proposed measures, to the same level of analysis sufficient to determine viable alternatives.
73					involuntary participation and eminent domain	Secondly, and perhaps most importantly, the language included in Section 3.1 of APPENDIX A of the TSP, which calls for the use of "eminent domain" in "absence of willing participation" should be stricken from the study. The forced compliance of my constituents by way of "involuntary participation" will not be tolerated. While it is the goal of the Army Corps of Engineers to protect the Louisiana coastline and marshes, this goal should not dictate how private landowners use their own property.	The Recommended NED Plan would be entirely voluntary participation. *See response to "involuntary participation" and "eminent domain" comments in General Responses.
74					involuntary participation and eminent domain	In Annex B-1 8 of the Revised Integrated Draft Feasibility Report and Environmental Impact Statement (March 2015), Guideline 1.4 states: Guideline 1.4 These guidelines are not intended to nor shall they be interpreted so as to result in an involuntary acquisition or taking of property. /Emphasis added/ Response: No involuntary acquisition would be required for the proposed action. The above language, nor shall, is mandatory and should mean that in no way will the proposed Coastal Use Guidelines allow for the facilitation of eminent domain to force compliance of my constituents. Furthermore, the Department of the Army's response plainly states that "[n]o involuntary acquisition would be required for the proposed action". In order	*See response to "involuntary participation" and "eminent domain" comments in General Responses.

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						to support any future federal measures to protect our coastline, I respectfully request that all reference or language to "eminent domain" and "involuntary participation" be completely removed from this study.	
75					involuntary participation and eminent domain	As the Revised Integrated Draft Feasibility Report and Environmental Impact Statement (March 2015) states, Cameron, Calcasieu and Vermilion Parishes host many unique and diverse cultures. These areas also provide Louisiana with valuable job opportunities in the tourism, energy and fishing sectors. While the efforts by the Army Corps of Engineers to protect and strengthen the Louisiana coastline are sorely needed, such measures should not be forced via an involuntary participation component. Doing so would undermine the unique culture we are working so hard to protect	The Recommended NED Plan would be entirely voluntary participation. *See response to "involuntary participation" and "eminent domain" comments in General Responses.
76	Kristin Saltzman Project Specialist Cameron Parish Police Jury	April 15, 2015	Cameron Parish Police Jury	email	attached comment letter	Please see the attached comments Cameron Parish Gravity Drainage District No. 5.	Acknowledged receipt of comments

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	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
77	Kristin Saltzman - Parish of Cameron Gravity Drainage District No. 5. D.Y. Doland, President	April 15, 2015	Cameron Parish	letter	do not limit restoration projects	1. Please do not limit the number of coastal restoration projects listed in the study. Include the Cameron Master Plan projects even in an appendix to be available for other discretionary funding sources in the future. Currently, the Parish has 9 projects listed in the study. We feel that there are significantly more projects that are viable and are not even up for discussion due to the benefit cost ratio and the national interest with these projects. THUS DONE AND ADOPTED on the 23rct day of April, 2015.	Parish Priority Projects have been included as a separate and new appendix to the Final Integrated Report. Parish Priority Projects were evaluated and screened, along with other proposed measures, to the same level of analysis sufficient to determine viable alternatives.
78					Involuntary participation, funding sources local sponsors	Removing the discussion about involuntary participation in the non-structural aspect of the program. This was never the intent of the study to have relocations. Other questions arise from this section such as funding sources, sponsoring agencies, local sponsors, administrative processes, etc. that all should be addressed prior to finalizing the study with this included.	The Recommended NED Plan would be entirely voluntary participation. *See response to "involuntary participation" and "eminent domain" comments in General Responses. The non-Federal sponsor is the State of Louisiana.
79					shapefiles	3. Provide GIS Shapefiles of the eligible structures to be elevated as part of the NED project for Cameron Parish for the Parish to determine the current status of these structures. Cameron Parish has several State and Federal programs that have assisted with elevation and flood-proofing of structures post-Rita & Ike. Building codes and elevation requirements should assist with mitigating the risk of these structures.	Each of the properties potentially affected by implementation of the NED Plan is presented in a new appendix to the Final Integrated Report displaying maps of all affected structures.
80					contact telephone number	Regarding the Southwest Study, revisions to the draft version of this document would certainly result in a more effective and efficient study. Thank you for allowing us to comment on this draft feasibility report for the Southwest Coastal Study. Feel free to call me if you have questions or concerns at 337-652-9771.	The Final Integrated Report has been revised based on comments to the Revised Integrated Draft Report and EIS.

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	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
81	Kirk Quin (President Cameron Parish Police Jury)	April 24, 2015	Cameron Parish	letter	briefings on SWC study	The intent of this correspondence is to state Cameron Parish's concerns with the Southwest Coastal Louisiana Revised Integrated Draft Feasibility Report and Environmental Impact Statement (Southwest Study). Due to the fact that this is a regional study addressing issues in .three Parishes (Calcasieu, Cameron & Vermilion), and in an effort to provide clear and concise guidance on the Southwest Study, briefings have been held among Parish elected officials, Administrative staffs, and members of the Chenier Plain Coastal Restoration & Protection Authority Board and staff to discuss this version of the Southwest Study. This transmittal, which may mirror concerns other agencies will provide, is submitted to you on behalf of the Cameron Parish Police Jury, Cameron Parish Coastal Restoration Committee, landowners, and residents. Collectively, our requests are as follows:	Acknowledge receipt of comments.
82					eminent domain and involuntary participation removed from study	1. Remove any verbiage regarding involuntary participation or authorization of eminent domain. (New request not previously submitted.) The Parish is utterly appalled at the inclusion of the "Involuntary Participation" clause in this revised version of the study. Including this verbiage has resulted in heightened awareness and concern from our residents who have had their fair share of issues in the past ten years. The inclusion of this clause is alarming in itself, however, the fact that evaluation criteria for eligibility in this proposed program is, as a Corps Project Manager stated at the Cameron Parish Public Meeting, "...written in pencil" is even greater cause for concern. This open-ended verbiage leads to_ more stringent criteria being developed in the future and much farther reaching impacts than originally intended. The number of items to be addressed in the eventual "Implementation Plan" which would guide this process is too large to even mention here.	The Recommended NED Plan would be entirely voluntary participation. *See response to "involuntary participation" and "eminent domain" comments in General Responses.

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83					increase NER Measures in TSP/reference Parish Priority Projects for Coastal Restoration Master Plans	2. Increase the number of NER measures included in the TSP. (Repetitive request submitted initially in January 2014.) The TSP omitted several viable projects for a variety of reasons. The Parish acknowledges that there are budgetary limitations and federal regulatory limitations present in vetting projects for this study. The Parish is not requesting an analysis or authorization in the study for all restoration or protection projects relevant to Cameron Parish. At a minimum, however, the Parish is simply requesting that a reference to Coastal Restoration Master Plans present in the three Parishes be included in the study even in an appendix. If other projects are not included in some shape, form, or fashion, potential projects funded with Parish or discretionary funds and subsequent planning efforts for coastal restoration initiatives in the Parish could be discarded from consideration. The Parish does acknowledge that there are viable coastal restoration projects included in the study that would benefit our residents, however, these limitations and restrictions inherent to this study marginalize the potential construction of other projects.	Parish Priority Projects have been included as a separate and new appendix to the Final Integrated Report. Parish Priority Projects were evaluated and screened, along with other proposed measures, to the same level of analysis sufficient to determine viable alternatives.
84					shapefiles	3. Provide GIS Shapefiles of the eligible structures to be elevated as part of the NED project for Cameron Parish for the Parish to determine the current status of these structures. (Repetitive request submitted initially in January 2014.) All three Parishes have several complete and ongoing State and Federal programs that have assisted with elevation and flood-proofing of structures post-Rita & Ike. Building codes and elevation requirements should assist with mitigating the risk of these structures as well.	Each of the properties potentially affected by implementation of the NED Plan is presented in a new appendix to the Final Integrated Report displaying maps of all affected structures.
85					coordination with Parishes	4. Discuss major changes to this document with the relevant Parishes as they are incorporated and prior to the next comment period commencing. (New request not previously submitted.)	Coordination with all affected parishes regarding changes to the project will continue.

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	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
86					consider comments	Again, on behalf of our residents and landowners of Cameron Parish, I request that you provide every consideration to the comments presented herein. Our Parish has a long standing history of successes that span generations. Our culture and livelihood are tied to our land and its intrinsic value. Please do not threaten the harmony that exists there. In closing, the Police Jury feels that revisions to the draft version of this document would certainly result in a more effective and efficient study. Thank you for allowing us to comment on this Revised Integrated Draft Feasibility Report and Environmental Impact Statement document. Feel free to call me if you have questions or concerns at 337-775-5718.	Comments and responses on the Revised Integrated Draft Report and EIS have been included in a new appendix to be included with the Final Integrated Report.
87	Iberia Parish Levee, Hurricane, and Conservation District, Ray Fremin, Jr. Director and Vermilion Parish Police Jury letter dated April 20, 2015	April 28, 2015	Iberia Parish	letter	resolution	Enclosed please find Resolution No. 1015-18 as adopted by the Iberia Parish Levee, Hurricane, and Conservation District in Regular Session held on Thursday, April 28, 2015. This Resolution support Vermilion Parish Police Jury in opposition to the U.S. Army Corps of Engineers report on the Southwest Louisiana Coastal Study	Acknowledge receipt of resolution.
88					support Vermilion Policy Jury comment letter	Resolution No. 2015-18 A RESOLUTION SUPPORTING VERMILION PARISH POLICE JURY IN OPPOSITION TO THE U.S. ARMY COPRS OF ENGINEERS REPORT ON THE SOUTHWEST COASTAL STUDY. WHERAS, In January 2009 the U.S. Army Corps of Engineers and the State of Louisiana announced an agreement to jointly fund an $8 million feasibility study to provide hurricane damage risk reduction and coastal restoration to Southwest coastal La; and WHEREAS, Vermilion Parish Police Jury expressed opposition to the U.S. Army Corps of Engineers report onto the Southwest Coastal Louisiana Study, as attached in Exhibit "A". NOW THEREFORE BE IT RESOLVED, that the Iberia Parish Levee, Hurricane, and Conservation District does hereby support the position of the Vermilion Parish Policy Jury, as	Acknowledge Iberia Parish Levee, Hurricane, and Conservation District support of Vermilion Parish Police Jury response as attached.

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	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
						attached in Exhibit "A". BE IT FINALY RESOLVED, that this Resolution shall become effective immediately upon adoption by the Iberia Parish Levee, Hurricane, and Conservation District. Resolution adopted on April 28, 2015. SEE ALSO VERMILION PARISH POLICE JURY LETTER DATED APRIL 20, 2015	
89					resolution	copy of Vermilion Parish Police Jury letter dated April 20, 2015	Acknowledge receipt of copy of Vermilion Parish Police Jury letter dated April 20, 2015
90	Louisiana Delegation, Congress of the United States	May 4, 2015	Louisiana Delegation	letter	involuntary participation and eminent domain	We, as the Louisiana Delegation, are writing to express our view on the *Revised Integrated Draft Feasibility Report and Environmental Impact Statement* (March 2015) for the Southwest Coastal Louisiana Study. Despite the efforts to create a comprehensive storm surge protection and coastal restoration plan for Southwest Louisiana, the last minute inclusion of highly objectionable language by the Army Corps of Engineers and continued appropriate consideration of the project priority list from Cameron, Calcasieu and Vermilion Parishes threatens the long-term adoption and success of the study. The modifications requested in this letter will not diminish the effectiveness and benefits of the overall study, will likely increase the support and participation of local governments and residents, and will provide a meaningful investment in the protection of life and property while preserving a rich and diverse culture.	*See response to "involuntary participation" and "eminent domain" comments in General Responses.
91					involuntary participation and eminent domain	Because of the potential risk to life, property, and the continued burden on the National Flood Insurance Program (NFIP) the 366 "Severe Repetitive Loss" properties (358 residential, 7 commercial, and 1 warehouse), as defined by the Federal Emergency Management Agency (FEMA), should qualify for the Voluntary Program with the added benefits of the relocation assistance or property buyout if they so choose. These benefits should also be extended to properties that lie within a floodway as delineated by FEMA.	The Recommended NED Plan would be entirely voluntary participation. *See response to "involuntary participation" and "eminent domain" comments in General Responses.

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	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
92					involuntary participation and eminent domain	While we strongly believe many property owners will take advantage of this program, to force it upon them at the end of a lengthy process undermines the cooperative nature in which everyone has been working on this study and it is insulting to the generations of citizens who have lived along the Louisiana coast. With much of the nation's oil and gas development, agriculture, and seafood production occurring along the Louisiana coastline, the overwhelming emphasis should be on restoring and preserving natural barriers and structural efforts to reduce the effects of storm surges and flooding events.	The Recommended NED Plan would be entirely voluntary participation. *See response to "involuntary participation" and "eminent domain" comments in General Responses.
93					Parish priority projects	To this end, we appreciate the inclusion of approximately $1.2 billion in National Ecosystem Restoration projects. These projects will provide meaningful commitment to the restoration and protection requirements throughout the three affected parishes. Nevertheless, there are many important projects of interest to the local parishes that should be included in an additional Appendix. This written request was also made in January 2014 during the last public comment period. The concern arises from a practice whereby priority projects may not be allowed to proceed under other authorities if they are not included in the State of Louisiana Master Plan or an accompanying federal study.	Parish Priority Projects have been included as a separate and new appendix to the Final Integrated Report. Parish Priority Projects were evaluated and screened, along with other proposed measures, to the same level of analysis sufficient to determine viable alternatives.
94					Parish priority projects	The effect of a project being excluded from either the Master Plan or a federal study, serves as a de facto "veto" when being considered for advancement under a different program like the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA). Local authorities have the history, experience and responsibility to propose projects that best serve the needs of the citizens. Please include a list of qualified project priorities from Cameroon and Vermilion Parishes (NOTE: Calcasieu Parish support Cameron Parish's priority list). *attachment of Cameron Parish Master Plan and Vermilion Parish Coastal Priority Project list and map).	Parish Priority Projects have been included as a separate and new appendix to the Final Integrated Report. Parish Priority Projects were evaluated and screened, along with other proposed measures, to the same level of analysis sufficient to determine viable alternatives.

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	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
95					widening navigation channels (GIWW, Freshwater Bayou)	Lastly, we ask the Corps to address the damages done by widening the federal channels, including but not limited to the Gulf Intercoastal Waterway (GIWW) and Freshwater Bayou. Congress addressed this issue in Section 2009 of the Water Resources, Reform, and Development Act of 2014 (P.L. 113-121). This authority and all ongoing studies of the affected area must focus on this growing problem. While these waterways are important to promoting national commerce, the widening of these channels continues to significantly impact the marsh in surrounding areas. As a natural barrier to storm surge events, more focus should be given to containing these channels in order for the marsh to recover.	Addressing the impacts associated with widening of authorized navigation channels would be addressed under the authority for each navigation channel.
96					involuntary participation and eminent domain and Parish priority projects	The Louisiana Gulf Coast is a resilient part of our nation because of the hard-work dedication and culture of its people. We must never lose sight of this fact. We ask that you recognize the invaluable contribution the people of South Louisiana make to this nation. Please work to remove all references to the involuntary participation and eminent domain language and include project priority list. We appreciate your consideration of these requests and look forwarding to working with all of the agencies involved to improve this draft report.	The Recommended NED Plan would be entirely voluntary participation. *See response to "involuntary participation" and "eminent domain" comments in General Responses.
97	Louisiana Department of Wildlife and Fisheries	May 5, 2015	State	Letter	Request each NER project be submitted for comment	Overall, LDWF supports the conceptual plan referenced in the Draft Feasibility Report and Environmental Impact Statement. Furthermore, LDWF requests that each project proposed under the National Ecosystem Restoration Plan (NER) be forwarded to this office for review and comment.	Acknowledge LDWF supports the proposed project. The LDWF and all interested parties will be provided an opportunity to review and comment upon the final NER and NED Plans in the Final Integrated Report.

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	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
					Piping plover	The piping plover (*Charadrius melodus*) may occur within the project area. This species is federally listed as threatened with its critical habitat designated along the Louisiana coast. Piping plovers winter in Louisiana feeding at intertidal beaches, mudflats, and sand flats with sparse emergent vegetation. Primary threats to this species are destruction and degradation of winter habitat, habitat alteration through shoreline erosion, woody species encroachment of lake shorelines and riverbanks, and human disturbance of foraging birds. For more information on piping plover critical habitat, visit the U.S. Fish and Wildlife website: http://endangered.fvvs.gov.	Impacts to the piping plover and its critical habitat would be avoided and minimized by utilizing recommendations and buffer zones developed in coordination with LDWF and USFWS. Surveys would be conducted prior to construction to determine the presence of these species.
98					Wilson's Plover and Snowy Plover	Our database indicates an occurrence of Wilson's Plover (*Charadrius wilsonia*) and Snowy Plover (*Charadrius alexandrinus*) in your project area. These species are considered critically imperiled to imperiled in the state. We recommend that you take the necessary precautions to protect the breeding/wintering habitat of these species.	Impacts to the Wilson's plover and snowy plover would be avoided and minimized per the MBTA and by utilizing recommendations and buffer zones developed in coordination with LDWF and USFWS. Surveys would be conducted prior to construction to determine the presence of these species.
99					Protect Bald Eagle Nests	Our records indicate that the Mermentau Vermilion Teche Basin portion of the proposed project may potentially impact Bald Eagle (*Haliaeetus leucocephalus*) nesting sites. This species is protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c) and the Migratory Bird Treaty Act (16 U.S.C. 703-712) and is protected by the state of Louisiana. This proposed project is less than 1,000 ft. away from the bald eagle nest of concern. All bald eagle nests (active, inactive or seemingly abandoned) should be protected, and no large trees should be removed. Please refer to the Bald Eagle Management Guidelines for more information on avoiding impacts to bald eagles:	Impacts to the bald eagle and its nests would be avoided and minimized per the MBTA and by utilizing the Bald Eagle Management Guidelines and recommendations from USFWS. Surveys would be conducted prior to construction to determine the presence of active nests in the area. See Appendix A Annex K.
100					Protected bird nesting colonies	Our database indicates the presence of bird nesting colonies within one mile of the proposed project. Please be aware that entry into or disturbance of active breeding colonies is prohibited by the Louisiana Department of Wildlife and Fisheries (LDWF). In addition,	Impacts to colonial nesting wading birds and shorebirds would be avoided and minimized per the MBTA and by utilizing recommendations and buffer zones developed in coordination with LDWF and USFWS. Surveys would be conducted prior to

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	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
						LDWF prohibits work within a certain radius of an active nesting colony. Nesting colonies can move from year to year and no current information is available on the status of these colonies. If work for the proposed project will commence during the nesting season, conduct a field visit to the worksite to look for evidence of nesting colonies. This field visit should take place no more than two weeks before the project begins. If no nesting colonies are found within 400 meters (700 meters for brown pelicans) of the proposed project, no further consultation with LDWF will be necessary. If active nesting colonies are found within the previously stated distances of the proposed project, further consultation with LDWF will be required. In addition, colonies should be surveyed by a qualified biologist to document species present and the extent of colonies. Provide LDWF with a survey report which is to include the following information: 1. qualifications of survey personnel; 2. survey methodology including dates, site characteristics, and size of survey area; 3. species of birds present, activity, estimates of number of nests present, and general vegetation type including digital photographs representing the site; and 4. topographic maps and Arc View shapefiles projected in UTM NAD83 Zone 15 to illustrate the location and extent of the colony. -For colonies containing nesting wading birds (i.e., herons, egrets, night-herons, ibis, roseate spoonbills, anhinga, and/or cormorants), all project activity occurring within 300 meters of an active nesting colony should be restricted to the non-nesting period (i.e., September 1 through February 15). - For colonies containing nesting gulls, terns, and/or black skimmers, all project activity occurring within 400 meters (700 meters for brown pelicans) of an active nesting colony	construction to determine the presence of active colonies in the area.

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	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
						should be restricted to the non-nesting period (i.e., September 16 through April 1).	
					Diamondback terrapin	The Diamondback terrapin (Malaclemys terrapin) may also occur in the Mermentau Vermilion Teche Basin portion of the project area and is considered imperiled in Louisiana. It inhabits brackish water habitats, especially coastal marshes. The diamondback terrapin nests from April to May with nest cavities dug at the sandy edges of marshes and dunes. This species is affected by pollution, disturbed habitat, and nest destruction near populated coastal and beach sites. If the project will be conducted during the breeding season, we recommend searching for nests prior to project activities. If nests are found, the applicant must contact Beau Gregory at 337-491-2576 to coordinate activities.	USACE will continue to coordinate with the LDWF during design and construction of this project. Language has been added to the report discussing the species and any potential impacts that may occur. To the extent feasible, best management practices would be implemented. However, conducting surveys for diamondback terrapin nests may not be feasible due to the extensive amount of marsh restoration proposed within broken marsh areas.
101					Crested Caracara and habitat	The proposed project within the Calcasieu Sabine Basin may impact the Crested Caracara (*Caracara cheriway*) and its preferred habitat. The Crested Caracara is considered critically imperiled in the state of Louisiana, and is limited to the southwest corner of the state. It is a vulture sized bird spending much of its time on the ground hunting snakes, rodents, and other available prey. The main cause of its decline is the loss of habitat due to development and agriculture. The mixed coastal prairie and marsh that constitutes the Crested Caracara's preferred habitat have been recognized as ecologically significant and in need of conservation. Best management practices should be used to minimize impacts to this species and its preferred habitat. If you have any questions, please contact Michael Seymour at 225-763-3554.	Language will be included in the plans and specifications to ensure the contractor is aware of the potential for the presence of this species. Impacts to the crested caracara would be avoided and minimized per the MBTA and by utilizing recommendations and buffer zones developed in coordination with LDWF and USFWS.

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	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
102					Sandhill crane	The sandhill crane may occur within the project area. This species winters in Louisiana-its wintering habitat including shallow, open water marshes, coastal prairie, freshwater marshes, and working wetlands. Sandhill cranes are intolerant of human disturbance and are critically imperiled in Louisiana with a state rank of S2N. The species occurs in only a handful of reliable localities. This project occurs adjacent to the most well-known and documented sandhill crane wintering site in the state; the site has been known and followed closely by local bird enthusiasts for decades. We recommend that you take the necessary precautions to protect the wintering habitat of this species. In addition, because of the particular sensitivity of this site, we recommend a survey of the area for this species if work is done during the winter. If sandhill cranes are found, please contact LNHP at 225-765-2823 to coordinate activities.	Impacts to the sandhill crane would be avoided and minimized per the MBTA and by utilizing recommendations and buffer zones developed in coordination with LDWF and USFWS. Surveys would be conducted prior to construction to determine the presence of this species. The Corps will continue to coordinate with LDWF.
103					Paddlefish presence	The Paddlefish (*Polyodon spathula*) occurs in water bodies within the Mermentau Vermilion Teche Basin portion of the project area and is considered rare in Louisiana. The paddlefish is threatened by siltation of spawning habitat, pollution, back-to-back impoundments, and in some areas, exploitation by the caviar industry. Habitat destruction and river modification are the most obvious changes affecting abundance and distribution. We advise you to take the necessary measures in order to avoid any degradation of water quality of streams/canals. If you have any questions, please contact Beau Gregory at 337-491-2576.	Impacts to the paddlefish would be avoided and minimized by implementation of best management practices.

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104					Coastal Live Oak-Hackberry Forest Habitat (Cheniere)	The database indicates Coastal Live Oak-Hackberry Forest natural community records are located within the project area. This community is considered imperiled in the state of Louisiana with an S1 rank. This community type formed on ancient abandoned beach ridges in Southwest Louisiana. These ridges are composed primarily of sand and shell, and are approximately 4 to 5 feet above sea level. This community, also known as a cheniere, is an important storm barrier, limiting salt water intrusion, and acts as a migratory staging/stopover site for Neo-tropical migratory birds. We advise you to take the necessary measures to avoid any impacts to this ecological community. If you have any questions or need additional information, please contact Chris Reid at 225-765-2820.	The project would restore approximately 1,413 acres of chenier habitat and would have no permanent adverse impacts to this ecological community.
105					Coastal Prairie habitat impacts	The LNHP database indicates remnants of Coastal prairies within the proposed project area. Coastal prairies are considered imperiled globally and critically imperiled in the state of Louisiana, with a G2Q/S1 rank. This prairie region of southwestern Louisiana was once very extensive (~2.511Lillion acres) but today is limited to small, remnant parcels. On the southern edge of its range, the community may occur on "islands" or "ridges" surrounded by marsh. If Coastal prairies are found within the proposed project area, applicant must contact Chris Reid at 225-765-2820 to coordinate activities.	Language will be included in the plans and specifications to ensure the contractor is aware of the potential for the presence of this habitat. Chris Reid will be contacted if any coastal prairies are found within the project area.

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	National Marine Fisheries Service	April 20, 2015	federal	letter	description of TSP	The NOAA's National Marine Fisheries Service (NMFS) has reviewed the Southwest Coastal Louisiana Revised Integrated Draft Feasibility Report and Draft Environmental Impact Statement (EIS). The draft EIS evaluates alternatives which provide storm damage reduction and ecosystem restoration measures within the 4,700 square mile study area in Louisiana's Chenier plain, encompassing Cameron, Calcasieu, and Vermilion Parishes. As described in the draft EIS and Feasibility Report, the Tentatively Selected Plan (TSP) is a combination of non-structural storm surge protection measures and an array of different types of ecosystem restoration features. The TSP for the non-structural storm surge protection features include: (1) elevation of residential structures, (2) dry-flood proofing non-residential structures, (3) construction of barriers or berms around non-residential structures, (4) floodplain management plans, (5) more stringent local floodplain regulations, and (6) more restrictive parish and municipal building codes, land use and zoning regulations, and other developmental controls. The TSP for the ecosystem restoration features includes one hydrology/salinity control measure, nine marsh creation measures, five shoreline protection measures, and eight chenier restoration measures.	Acknowledged description of TSP.

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					ROW impacts	The NMFS has the following general and specific comments to make regarding information provided in the draft EIS: General Comments Marsh Restoration Features. While the majority of the pipeline routes from borrow to marsh creation areas are in open water, some are proposed to pass through marsh. The NMFS is concerned marsh in pipeline rights-of-way (ROWs) and staging areas could be adversely impacted by construction related activities. While NMFS understands such adverse impacts would be offset by the creation of marsh, we believe efforts are warranted to ensure the ROWs and staging areas impacted by construction are restored to pre-existing elevations. In general, such efforts include requiring contractors to pump dredged material into the ROW and staging areas as pipelines are removed, and armoring of ROWs with rip-rap where they intersect with open water areas. The NMFS recommends the Feasibility Report and final EIS include these potential construction-related adverse impacts, as well as description of measures to be taken to insure wetlands impacted by construction of marsh creation features are restored to the maximum extent practicable.	Added to the final report in Chapter 3 Section 3.3.4 Vegetation Resources is a discussion of the potential construction-related adverse impacts, as well as description of measures to be taken to insure wetlands impacted by construction of marsh creation features are restored to pre-construction conditions to the maximum extent practicable, prior to completion of construction activities.
					EFH	Section 1.4.8 Essential Fish Habitat Page 1-19 and Appendix A. The Essential Fish Habitat section of the draft EIS incorrectly lists some federally managed species potentially found in the project area. The species and life stages should be updated to reflect the attached list.	The list of federally managed species potentially found in the project area was updated in Section 1.4.8.

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	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
					EFH	The NMFS has a "findings" with the New Orleans District (NOD) on the fulfillment of coordination requirements under provisions of the Magnuson-Stevens Fishery Conservation and Management Act.In those findings, the NOD and NMFS agreed to complete EFH coordination requirements for federal civil works projects through our review and comment on National Environmental Policy Act documents prepared for those projects. Therefore, NMFS recommends the following to ensure the conservation of EFH and associated fishery resources: EFH Conservation Recommendation The final EIS and Record of Decision for this project should include measures to ensure pipeline ROW and staging areas are restored to pre-existing conditions, to the maximum extent practicable, prior to completion of construction activities.	The Feasibility Report and final EIS section 3.3.6 has been updated to include measures to ensure pipeline ROW and staging areas are restored to pre-existing conditions, to the maximum extent practicable, prior to completion of construction activities.
					respond to comments	Consistent with Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act and NMFS' implementing regulation at 50 CPR 600.920(k), your office is required to provide a written response to our EFH conservation recommendation within 30 days of receipt. Your response must include a description of measures to be required to avoid, mitigate, or offset the adverse impacts of the proposed activity. If your response is inconsistent with our EFH conservation recommendation, you must provide a substantive discussion justifying the reasons for not implementing the recommendation, If it is not possible to provide a substantive response within 30 days, the USACE should provide an interim response to NMFS, to be followed by the detailed response. The detailed response should be provided in a manner to ensure it is received by NMFS at least 10 days prior to the signing of a Record of Decision for this action. The NMFS is committed to working cooperatively with the USACE, the State and other natural resource agencies to facilitate planning on this effort. We appreciate the	The USACE, New Orleans District has provided written response to NMFS regarding comment letter.

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	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
						opportunity to provide these comments for consideration in finalizing the Feasibility Report and EIS.	
106	Nedra Davis (Chenier Plain Coastal Protection Restoration Authority)	April 24, 2015	Chenier Plain	letter	resolution	The Chenier Plain Coastal Restoration & Protection Authority (Chenier Plain Authority), by intent of this correspondence, hereby respectfully requests that the U.S. Army Corps of Engineers accept the following Resolution (attachment) as comments provided by the Chenier Plain Authority's review of the Draft Study. The Chenier Plain Authority would like to thank the U.S. Army Corps of Engineers for allowing us to comment on this draft feasibility report for the Southwest Coastal Study. Please contact us if you have any questions or concerns regarding our comments.	Receipt of resolution acknowledged.
107					resolution	CHENIER PLAIN COASTAL RESTORATION & PROTECTION AUTHORITY WHEREAS, the Chenier Plain Coastal Restoration & Protection Authority was created pursuant to the provisions of the Louisiana Constitution of 1974, Article VI, Sections 38, 38.1 and 44, and La. R.S. 38:329.5; and WHEREAS, the Chenier Plain CRPA is a political subdivision of the State of Louisiana, and through its board of commissioners, is organized with the primary duty to establish, construct, operate, or maintain flood control works as they relate to hurricane protection, tidewater flooding, saltwater intrusion, and conservation, and a secondary duty to establish flood control, adequate drainage relating to tidal or riverine flooding, and water resources development including but not limited to construction of reservoirs, diversion canals, gravity and pump drainage systems, erosion control measures, and marsh management; and WHEREAS, the Chenier Plain Authority is inclusive of the Parishes of Calcasieu, Cameron, & Vermilion; and WHEREAS, in January of 2009 the U.S. Army Corps of Engineers and the State of Louisiana	Resolution acknowledged.

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	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
						announced an agreement to jointly fund an $8 million feasibility study to provide hurricane damage risk reduction and coastal restoration to Southwest Coastal Louisiana; and WHEREAS, authority for the reconnaissance study exists under resolutions of the Committee on Transportation and Infrastructure of the United States House of Representatives in response to a request for support submitted by Congressman Charles Boustany; and WHEREAS, the U.S. Army Corps of Engineers released the Southwest Coastal Louisiana Feasibility Study in March 2015 and the agency is currently accepting public comment until May 4, 2015; and WHEREAS, Southwest Coastal Louisiana is highly susceptible to an increased risk of coastal flooding, shoreline erosion, saltwater intrusion and loss of wetlands and habitats due to land subsidence, sea-level rise, the area's low elevation, flat terrain, and close proximity to the Gulf of Mexico; and WHEREAS, land loss and ecosystem degradation threaten the continued productivity of Southwest Coastal Louisiana's ecosystem, the economic viability of its industries, and the safety of its residents; and WHEREAS, land loss and ecosystem degradation threaten the unique culture of Southwest Coastal Louisiana; and WHEREAS, the preservation of culture was one of the original goals of coastal legislation; and WHEREAS, involuntary participation in relocation would tear apart families and vital components of the community and culture; and	
108					eminent domain/involuntary participation	NOW, THEREFORE, BE IT RESOLVED BY THE CHENIER PLAIN COASTAL RESTORATION & PROTECTION AUTHORITY, LOUISIANA, in regular session convened on the day of April, 2015, that it does hereby respectfully request the U.S.	The Recommended NED Plan would be entirely voluntary participation. *See response to "involuntary participation" and "eminent domain" comments in General Responses.

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Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
						Army Corp of Engineers to accept the following comments as part of the Chenier Plain Authority's review of the Study. Section 1. The Chenier Plain Authority recommends the removal of all eminent domain or involuntary participation references from the study.	
109					Cameron and Vermilion Parishes priority projects	Section 2. The Chenier Plain Authority recommends the U.S. Army Corps of Engineers add an appendix to include a list of all priority projects from Cameron and Vermilion Parishes identifying these projects as good and viable for consideration in any future funding opportunities.	Parish Priority Projects have been included as a separate and new appendix to the Final Integrated Report. Parish Priority Projects were evaluated and screened, along with other proposed measures, to the same level of analysis sufficient to determine viable alternatives.
110					Calcasieu Parish update coastal plan including priority projects list	Section 3. The Chenier Plain Authority recommends that the U. S. Army Corps of Engineers add a statement in the draft that states, "Calcasieu Parish anticipates updating their coastal plan which will include a priority projects list. Those projects will be viable projects for consideration of funding for protecting Lake Charles to the 500 year level of protection as deemed necessary by the Coastal Master Plan for Louisiana 2012."	Parish Priority Projects have been included as a separate and new appendix to the Final Integrated Report. Parish Priority Projects were evaluated and screened, along with other proposed measures, to the same level of analysis sufficient to determine viable alternatives.
111					funding	Section 4. The Chenier Plain Authority recommends that 100% federal and state funding be in place for all mitigation non-structural components. The Chenier Plain Authority recommends that 100% federal and state funding be in place for all coastal restoration components.	Mitigation for project-induced impacts of the NED Plan is not anticipated.

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Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
112					original goals and objectives	Section 5. The Chenier Plain Authority recommends that the original goals and objectives, Ecosystem Restoration, Risk Reduction and Historic and Cultural Preservation, be included and implemented as part of the final draft of the study.	Generally, the planning goals of the NED Plan are to reduce risk of damages associated with hurricane and coastal storm surge flooding. The NED storm damage risk reduction plans were formulated to achieve NED principles and objectives. Contributions to NED are increases in the net value of the national output of goods and services, expressed in monetary units, and are the direct net benefits that accrue in the planning area and the rest of the Nation. The general planning goals of the NER Plan are to significantly and sustainably reduce land loss and coastal erosion in the study area, restore environmental conditions for the Chenier Plain ecosystem in SWC Louisiana, and evaluate a range of coastal restoration components to address a multitude of ecosystem problems. Plans were formulated to achieve NER principles and objectives. Contributions to NER are increases in the net quantity and/or quality of desired ecosystem resources, and are measured in the study area and nationwide. Both the NED and NER Plans include consideration of historic and cultural resources as described in the specific subsections in Chapters 1 and 3.
113					shapefiles	Section 6. The Chenier Plain Authority recommends that the U.S. Army Corps of Engineers provide Calcasieu, Cameron and Vermilion parishes the Shape files for the elevation of all structures surveyed as part of its decision making criteria.	Each of the properties potentially affected by implementation of the NED Plan is presented in a new appendix to the Final Integrated Report displaying maps of all affected structures.
114					windshield survey vs benefit cost ratio	Section 7. The Chenier Plain Authority recommends a review of the Benefit Cost Ratio (BCR) parameters instead of the "wind shield view" BCR and requests transparency of how the final Benefit Cost Ratio will be determined.	The cost/benefit analysis was conducted consistent with the Appendix D, Economics and Social Consideration in Environmental Regulation 1105-2-100. The windshield data collection is consistent with requirements for feasibility report level of analysis. Additional detailed analysis will be conducted during subsequent project phases.
115					original projects modeled	Section 8. The Chenier Plain Authority recommends that projects originally submitted be modeled as they were submitted and not have projects watered down to include only a	Projects submitted by Cameron and Vermilion Parishes were evaluated and screened, along with other proposed measures, to the same level of analysis sufficient to determine viable alternative array.

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Table 3. Comments on the Revised Integrated Draft Feasibility Report and Environmental Impact Statement							
Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
						small-scale section of what was originally intended.	
116					certified copy of resolution	BE IT FUTHER RESOLVED that a certified copy of this resolution be forwarded to the U. S. Army Corps of Engineers, New Orleans District, the Honorable Charles Boustany and all congressional representatives of the parishes of Calcasieu, Cameron and Vermilion parishes, the Police Juries of Calcasieu, Cameron and Vermilion parishes, the Louisiana State Levee Consortium, the Association of Louisiana Board of Levees, and the Police Jury Association of Louisiana, respectfully requesting consideration and support of the comments submitted by the Chenier Plain Coastal Restoration & Protection Authority by virtue of this resolution. THUS DONE AND APOTED by a unanimous vote of the Chenier Plain Coastal Restoration & Protection Authority, in regular session convened on this 21 day of April 2015.	Acknowledge receipt of resolution.
117	Nicole Minvielle - Iberia Parish Levee, Hurricane, and Conservation District, Ray Fremin, Jr. Director and Vermilion Parish Police Jury letter dated April 20, 2015	April 28, 2015	Iberia Parish	letter/email	resolution	Enclosed please find Resolution No. 1015-18 as adopted by the Iberia Parish Levee, Hurricane, and Conservation District in Regular Session held on Thursday, April 28, 2015. This Resolution support Vermilion Parish Police Jury in opposition to the U.S. Army Corps of Engineers report on the Southwest Louisiana Coastal Study	Acknowledge receipt of resolution.

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Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
118					support Vermilion Policy Jury comment letter	Resolution No. 2015-18 A RESOLUTION SUPPORTING VERMILION PARISH POLICE JURY IN OPPOSITION TO THE U.S. ARMY COPRS OF ENGINEERS REPORT ON THE SOUTHWEST COASTAL STUDY. WHERAS, In January 2009 the U.S. Army Corps of Engineers and the State of Louisiana announced an agreement to jointly fund an $8 million feasibility study to provide hurricane damage risk reduction and coastal restoration to Southwest coastal La; and WHEREAS, Vermilion Parish Police Jury expressed opposition to the U.S. Army Corps of Engineers report on the Southwest Coastal Louisiana Study, as attached in Exhibit "A". NOW THEREFORE BE IT RESOLVED, that the Iberia Parish Levee, Hurricane, and Conservation District does hereby support the position of the Vermilion Parish Policy Jury, as attached in Exhibit "A". BE IT FINALY RESOLVED, that this Resolution shall become effective immediately upon adoption by the Iberia Parish Levee, Hurricane, and Conservation District. Resolution adopted on April 28, 2015. SEE ALSO VERMILION PARISH POLICE JURY LETTER DATED APRIL 20, 2015	Acknowledge receipt of resolution and the Iberia Parish Levee, Hurricane, and Conservation District support of the position of the Vermilion Parish Policy Jury, as attached in Exhibit "A".
119					resolution	copy of Vermilion Parish Police Jury letter dated April 20, 2015	Acknowledge receipt of copy of Vermilion Parish Police Jury letter dated April 20, 2015.

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Table 3. Comments on the Revised Integrated Draft Feasibility Report and Environmental Impact Statement							
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	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
120	NOAA National Marine Fisheries Service Virginia M. Fay	April 29, 2015	Federal	letter	pipeline rights of way and staging areas impacts to existing marsh	Marsh Restoration Features. While the majority of the pipeline routes from borrow to marsh creation areas are in open water, some are proposed to pass through marsh. The NMFS is concerned marsh in pipeline rights-of-way (ROWs) and staging areas could be adversely impacted by construction related activities. While NMFS understands such adverse impacts would be offset by the creation of marsh, we believe efforts are warranted to ensure the ROWs and staging areas impacted by construction are restored to pre-existing elevations. In general, such efforts include requiring contractors to pump dredged material into the ROW and staging areas as pipelines are removed, and armoring of ROWs with rip -rap where they intersect with open water areas. The NMFS recommends the Feasibility Report and final EIS include those potential construction-related adverse impacts, as well as a description of measures to be taken to ensure wetlands impacted by construction of marsh creation features are restored to the maximum extent practicable.	Concur. The Corps will utilize best management practices to avoid and minimize potential impacts to existing marsh when routing dredge pipelines for marsh creation. The Corps will ensure wetlands unavoidably impacted by construction of marsh creation features are restored to the maximum extent practicable.
121					EFH species & life stages	Section 1.4.8 Essential Fish Habitat Page 1 19 and Appendix A. The Essential Fish Habitat section of the draft EIS incorrectly lists some federally managed species potentially found in the project area. The species and life stages should up updated to reflect the attached list.	Concur. The species and life stages have been updated in section 1.4.8 main report and section 1.4.9 Appendix A to reflect NMFS list.
122					pipeline rights of way and staging areas restoration	The NMFS has a "findings" with the New Orleans District (NOD) on the fulfillment of coordination requirements under provisions of the Magnuson-Stevens Fishery Conservation and Management Act. In those findings, the NOD and NMFS agreed to complete EFH coordination requirements for federal civil works projects through our review and comment on National Environmental Policy Act documents prepared for those projects. Therefore, NMFS recommends the following to ensure the conservation of EFH and associated fishery resources: EFH Conservation	The Final Integrated Report section 3.3.6 include measures to ensure pipeline ROW and staging areas are restored to pre-existing conditions to the maximum extent practicable prior to completion of construction activities.

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Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
						Recommendation The final EIS and Record of Decision for this project should include measures to ensure pipeline ROW and staging areas are restored to pre-existing conditions, to the maximum extent practicable, prior to completion of construction activities.	
123					response to NMFS	Consistent with Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act and NMFS' implementing regulation at 50 CFR 600.920(k), your office is required to provide a written response to our EFH conservation recommendation within 30 days of receipt. Your response must include a description of measures to be required to avoid, mitigate, or offset the adverse impacts of the proposed activity. If your response is inconsistent with our EFH conservation recommendation, you must provide a substantive discussion justifying the reasons for not implementing the recommendation. If it is not possible to provide a substantive response within 30 days, the USACE should provide an interim response to NMFS, to be followed by the detailed response. The detailed response should be provided in a manner to ensure it is received by NMFS at least 10 days prior to the signing of a Record of Decision for this action.	Concur. An interim response has been provided to the NMFS. The final response is included in the Final Integrated Report and EIS.
124					NMFS commitment	The NMFS is committed to working cooperatively with the USACE, the State and other natural resource agencies to facilitate planning on this effort. We appreciate the opportunity to provide these comments for consideration in finalizing the Feasibility Report and EIS.	Acknowledged
125					EFH table	NMFS table of EFH requirements for species managed by the Gulf of Mexico Fishery Management Council: Ecoregion 4, Mississippi River Delta (South Pass) to Freeport, TX	Concur. Table 1-14 section 2.4.8 was updated and incorporated into the Final Integrated Report and EIS
126	State Historic Preservation Officer (SHPO) Pam Breaux	May 1, 2015	Louisiana State agency	letter	archeology	1. Section 4.1.1- Of the six measures outlined in this section, four do not have any potential archaeological historic property issues. The two that do include the elevation of eligible	Acknowledged

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Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
						residential structures, and the construction of non-structural measures.	
127					archeology	2. Section 4.2.1 - The NER TSP measures have largely been addressed in a draft research design drafted by the New Orleans COE office. All but one of the proposed measures are straight-forward construction with specific footprints. The proposed research design in the draft report effectively addresses how historic properties will be identified and evaluated for these projects.	Acknowledge
128					archeology - Chenier reforestation	The one project of concern is the chenier reforestation. In this region, the cheniers represent the only elevated ground through the 2,500 year history of this area. Thus, they represent the location of all Native American and early Historic occupations. And due to the formational processes of the cheniers, all of the archaeological sites are situated at the modern surface in the top 12 inches of sediment. Sites will not be buried in the cheniers. These factors make the chenier reforestation measure of particular concern for its impacts on archaeological sites. The proposed planting interval and size of planting hole will have as yet undetermined effects on sites. Of equal or greater concern are the long term effects of establishing trees on sites. While the ultimate effect will be beneficial when the trees reach maturity and protect the cheniers from storm surge and wave erosion, there are challenges before then. Young trees may be more prone to toppling during storms as they lack the root system to anchor them. Toppling will cause the trees to uproot and create significant ground disturbances that will impact sites. We recommend further discussion concerning the benefits and potential impacts of planting trees on sites.	Concur. USACE shall complete cultural resources investigations pursuant to the stipulations of the Section 106 programmatic agreements. The level of survey to be conducted and the survey methodology will be developed in consultation with the SHPO and consulting Tribes and will be completed in a manner that meets the standards of the Louisiana Division of Archaeology. Effects will be determined through consultation pursuant to the stipulations of the Section 106 programmatic agreements.

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Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
129					archeology - survey lands purchased as part of project	The draft NER TSP indicates that the Corps intends to purchase the land to be incorporated into the reforestation project. We recommend that the Corps systematically survey this new land as it is brought into federal ownership, following Section 110 of the National Historic Preservation Act. This will enable the Corps to develop an appropriate process for assessing the potential impacts of the reforestation project upon archaeological historic properties.	USACE shall make the non-federal sponsor aware that cultural resources investigations should be completed during the evaluation by the non-federal sponsor of the real estate rights.
130					archeology - Chenier reforestation	3. Section 4.2.7 - We note that the chenier reforestation project will benefit cultural resources by bringing them into federal ownership and protection. As the reforestation project includes a significant acreage, this may ultimately result in a number of sites, some likely significant, that will be protected from development. The reforestation acreage can act as a preservation area where sites, along with important natural and environmental features, are preserved.	Real estate rights will be acquired by the non-federal sponsor.
131					archeology- chenier reforestation	4. Appendix L - The 4th paragraph of the Introduction states that any elevation project with potential ground disturbing effects to historic properties will not be considered eligible for the project. This restriction has the potential to eliminate a significant number of sites. As noted in an earlier comment, due to the geology and history of the cheniers, where people live today is where people have always lived on the cheniers. Archaeological sites are restricted to the cheniers and their presence will, by this language, potentially leave a significant number of buildings vulnerable to future storms. Furthermore, we question how "potential impacts" (4th paragraph, 2nd sentence) will be identified in the absence of systematic archaeological identification and evaluation.	There is no longer a restriction.
132					archeology- eminent domain	5. Appendix L - The last paragraph in the Introduction states that eminent domain may be used in some situations to acquire property. How will that process mesh with the previously stated goal that any property	The Recommended NED Plan would be entirely voluntary participation.

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Table 3. Comments on the Revised Integrated Draft Feasibility Report and Environmental Impact Statement							
Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
						potentially impacting historic properties will be excluded?	
133					built environment NFS	6. The acronym "NFS" is used throughout the document, but it is not defined. Because the document has a great many acronyms, please consider adding a list of them at the beginning of the document for easy reference.	Noted. NFS refers to the non-federal sponsor.
134					historic standing structures	7. It is our opinion that this EIS does not adequately address historic standing structures. Furthermore, Appendix L proposes to exclude the elevation process for historic buildings. While we are familiar with NFIP exemptions for historic properties, certain considerations must be addressed here, namely the lack of levees which place these important resources, when left at ground level in further harm's way of storm damage. If other buildings around extant historic buildings are elevated through this process, then historic properties/districts have the potential to be adversely impacted through visual character changes to a district or environment. Further discussions between SHPO and USACE regarding the language in Appendix L are requested, prior to the finalization of the EIS.	Noted. Section 106 consultation is ongoing, and two programmatic agreements have been executed.
135					historic properties in Abbeville and Lake Charles	8. Based on the maps provided, we note that historic properties in Abbeville and Lake Charles have the potential to be greatly impacted by this project. Currently, Abbeville has three historic districts that may be impacted and Lake Charles has two that we know of. If historic buildings in these areas are to be excluded from elevation and no other measures are made available to the owners as part of this process how will long term and cumulative effects be addressed or accounted for in this plan. Again, we request further discussions with USACE on this matter.	Noted. Section 106 consultation is ongoing. There are no longer any restrictions.
136					contacts at SHPO	We appreciate the opportunity to comment on this important document. If you have questions regarding the Archaeology comments, please contact Dr. Chip McGimsey, State Archaeologist at	Acknowledged

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Table 3. Comments on the Revised Integrated Draft Feasibility Report and Environmental Impact Statement							
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	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
						cmcginsey@crt.la.gov. And, if you have questions regarding the built environment, please contact Nicole Hobson-Morris at nmorris@crt.la.gov.	
137	Teche-Vermilion Fresh Water District	April 30, 2015	Teche-Vermilion District	Letter	eminent domain	1. The eminent domain issue should be removed from consideration as a means of solving the problem. This was never the intent of the supporters of this study. The intent of the study is ecosystem restoration, risk reduction, as well as historic and cultural preservation. These goals should be part of the final draft of the study.	The Recommended NED Plan would be entirely voluntary participation. *See response to "involuntary participation" and "eminent domain" comments in General Responses.
138						2. Citizens, Cities and The Governing Body of Vermilion Parish have invested countless hours into identifying and establishing a list of priority coastal projects that will benefit the objectives of the Feasibility Study and they should be recognized and added as being good and viable projects. This is necessary in order for these essential projects to have a possibility of being funded.	Parish Priority Projects have been included as a separate and new appendix to the Final Integrated Report. Parish Priority Projects were evaluated and screened, along with other proposed measures, to the same level of analysis sufficient to determine viable alternatives.
139					benefits being left out	3. Cost benefit ratios should be reviewed and all possible benefits should be included. Parish engineers should be consulted to ensure that there are no benefits being left out of the equation	The cost/benefit analysis was conducted consistent with the Appendix D, Economics and Social Consideration in Environmental Regulation 1105-2-100.
140					Shapefiles	4. It would be beneficial for the US Corps of Engineers to provide to the parish all GIS Shapefiles of the eligible structures to be elevated as part of the NED project for Vermilion parish. Vermilion Parish has several State and Federal programs that have assisted with elevation and flood-proofing of structures post-Rita.	Each of the properties potentially affected by implementation of the NED Plan is presented in a new appendix to the Final Integrated Report displaying maps of all affected structures.
141					Opportunity to comment	We thank you for the opportunity to comment on this study and look forward to assisting you in any way that will improve the chances of Vermilion Parish receiving the federal assistance that it needs and deserves	Acknowledge comment.

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	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
147	United States Department of Agriculture, NRCS; Kevin Norton, State Conservationist	May 5, 2015	Federal agency	letter	Reconsider position on Calcasieu Ship Channel;	NRCS requests that the USACE reconsider its position that the Calcasieu Ship Channel be excluded from further consideration due to potential impacts on navigation. The negative impacts of the CSC are well documented in the Calcasieu-Sabine Cooperative River Basin Study Report (USDA 1989) and addressing those are critically important to the area wetlands and estuaries.	The Calcasieu Ship Channel Salinity Barrier feature is considered an important feature of the Recommended Plan. However, because additional analysis regarding impacts to the authorized navigation channel is necessary, this feature is recommended for long term study
148					NER Plan Marsh creation	The NRCS is also concerned that of the approximately $1billion dollar estimated construction budget for the proposed projects, more than half is in marsh creation (i.e. Marsh Restoration). While these types of projects effectively provide immediate benefits in terms of land reconstruction, the total area that these projects encompass are only a small fraction of the total study area. According to the plan, the total wetland area of the project is over 1.3 million acres and the total benefits of the Marsh Restoration projects is only 8,714 acres (less than 1 percent of the study area).	Due to the complexity of the problems in southwest coastal Louisiana, the Recommended Plan targets critical landscape features in need of immediate restoration. The Recommended Plan also include additional long-term study of hydrologic and salinity features as well as features recommended for construction by the USFWS. In addition, the NER RP measures provide interactions, often synergistically, with other existing coastal restoration and mitigation projects
149					Lack of large scale hydrologic projects	We also understand that a comprehensive hydrodynamic modeling effort was included in this study and would have expected more emphasis on large scale hydrologic projects that are designed to address much broader areas that would provide comprehensive restoration to broad landscapes within the study area	Due to the complexity of the problems in southwest coastal Louisiana, the Recommended Plan targets critical landscape features in need of immediate restoration. The Recommended Plan also include additional long-term study of hydrologic and salinity features as well as features recommended for construction by the USFWS.

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	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
150					WVA may overestimate habitat value marsh restoration	Another NRCS concern is that evaluations by the Southwest Coastal Study Team may overestimate the realized habitat value of marsh creation projects. Specifically, after containment gapping, the Wetland Value Assessment (WVA) of marsh creation projects assigned optimum values to the aquatic organism access variable (V6) to marshes that flood less than 10% of the time. According to key scientific studies, projects that are constructed to elevations of minimal flooding duration and therefore limit aquatic organism access throughout much of the project life do not provide optimal access (please see Minella et al. 2012). Therefore, NRCS has concern that the technical and scientific information relied upon to support recommendations in decision documents or form the basis of designs, specifications, and/or O&M requirements of the proposed marsh restoration projects are not substantiated by the best available science, and consequently, the project selection process may be compromised based on an inaccurate evaluation with respect to habit value.	The guidance documentation for V6 in the "Coastal Wetlands Planning, Protection and Restoration Act - Wetland Value Assessment Methodology - Coastal Marsh Community Models" from March 19, 2010, restricts fish access scores based on control structures, not marsh elevation relative to tidal range. There is no established mechanism for assigning a reduced suitability for fish access for partially flooded marshes (and even a marsh that is never flooded can provide high quality marsh edge habitat if there is sufficient interspersion). Reductions in fish access are noted where impoundment or water control structures are present or proposed. The target elevation of the marsh is initially near the upper end of the tidal range so longevity can be maximized. This is how all marshes have historically been constructed with no modification to the V6 suitability. The subsidence rate applied for the SW Coastal Louisiana Feasibility Study is 5.6 mm/yr. The tidal range in this area is about 12 inches. Under the Intermediate RSLR scenario, by TY25 the marsh surface would have experienced enough RLSR that the inundation period would be 50%. We feel that this duration of flooding and planned interspersion will be adequate to provide fish and invertebrate access to the marsh, both through marsh edge and marsh surface habitat. We appreciate that scientific knowledge on the subject is evolving, but don't feel that a numeric adjustment to the suitability is warranted at this time based on the degree of flooding anticipated for the marsh restoration features of this project.
151					coastal restoration and scientific analyses	NRCS continues to be a major partner and supporter of coastal restoration in Louisiana and remains dedicated to ensuring that the work done to protect and restore coastal wetlands is done in a manner that provides the most benefit for the costs involved. We encourage the most rigorous and accurate scientific analyses of each project feature so that the public can be assured that the benefits	Acknowledge comment.

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	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
						are accurately reflected in the costs of this very important work.	
152	Vermilion Parish Police Jury	April 20, 2015	Vermilion Parish	letter	accept comments	The Vermilion Parish Police Jury, by intent of this correspondence, hereby respectfully requests that the U.S. Army Corps of Engineers accept the following comments as part of the Police Jury's review of the Study.	Acknowledge receipt of comments.
153					eminent domain	1. The VPPJ recommends the removal of all eminent domain references from the study. This was never the intent of the study as originally agreed in 2009 and supported by Congressman Charles Boustany.	The Recommended NED Plan would be entirely voluntary participation. *See response to "involuntary participation" and "eminent domain" comments in General Responses.
154					Vermilion Parish priority projects	2. The VPPJ recommends the adding of an appendix to include a list of all priority projects from Vermilion Parish Coastal Plans identifying these projects as good and viable for consideration in any future funding opportunities.	Parish Priority Projects have been included as a separate and new appendix to the Final Integrated Report. Parish Priority Projects were evaluated and screened, along with other proposed measures, to the same level of analysis sufficient to determine viable alternatives.

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	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
155					goals and objectives	3. The VPPJ recommends that the original goals and objectives, Ecosystem Restoration, Risk Reduction and Historic and Cultural Preservation, be included and implemented as part of the final draft of the study.	Generally, the planning goals of the NED Plan are to reduce risk of damages associated with hurricane storm surge flooding. The NED storm damage risk reduction plans were formulated to achieve NED principles and objectives. Contributions to NED are increases in the net value of the national output of goods and services, expressed in monetary units, and are the direct net benefits that accrue in the planning area and the rest of the Nation. The general planning goals of the NER Plan are to significantly and sustainably reduce land loss and coastal erosion in the study area, restore environmental conditions for the Chenier Plain ecosystem in SWC Louisiana, and evaluate a range of coastal restoration components to address a multitude of ecosystem problems. Plans were formulated to achieve NER principles and objectives. Contributions to NER are increases in the net quantity and/or quality of desired ecosystem resources, and are measured in the study area and nationwide.
156					benefit to cost ratio	4. The VPPJ recommends a review of the Benefit Cost Ratio parameters regarding the proposed levee alignments within Vermilion Parish and request transparency of how the final Benefit Cost Ratio will be determined.	The cost/benefit analysis was conducted consistent with the Appendix D, Economics and Social Consideration in Environmental Regulation 1105-2-100.
157					benefit to cost ration for levee alignments	5. The VPPJ made comments on the initial release of the Draft Report in January of 2014 regarding the Study levee alignment along the eastern Parish line. Refer to comment 3 on page J-105. The response from USACE is that the measures planned in Iberia Parish could not be considered since they were still in the planning stage and were considered "conceptual". The VPPJ would again request that the Benefit Cost Ratio be recomputed for a levee alignment without the north south segment along the Parish line even though it will be considered conceptual. While the Parish understands this measure (a levee) may not end up being included in the recommended plan, the more accurate Benefit Cost Ratio may provide for future inclusion in the plan if the	The cost/benefit analysis was conducted consistent with the Appendix D, Economics and Social Consideration in Environmental Regulation 1105-2-100. Measures planned in Iberia Parish are considered conceptual and still in the planning stage and therefore not further considered for detailed analysis.

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	GOVERNMENT COMMENTS (FEDERAL, STATE, PARISH, AND LOCAL)						
						conceptual plans (Iberia Parish levee) obtain funding as the study/project moves forward.	
158					shapefiles	6. The VPPJ recommends that the U.S. Corps of Engineers provide all GIS Shapefiles of the eligible structures to be elevated as part of the NED project for Vermilion Parish. Vermilion Parish has several State and Federal programs that have assisted with elevation and flood-proofing of structures post-Rita.	Each of the properties potentially affected by implementation of the NED Plan is presented in a new appendix to the Final Integrated Report displaying maps of all affected structures.
159					Thanks/contact offices	The Vermilion Parish Police Jury would like to thank the U.S. Army Corps of Engineers for allowing us to comment on this draft feasibility report for the Southwest Coastal Study. Feel free to contact our offices should you have questions or concerns regarding our comments.	Acknowledge comment.

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Comment #	**Person/Agency**	**Date**	**Source of Comment**	**Mode of Comment**	**Theme**	**Comment (may be paraphrased or summarized)**	**Response**
LETTER COMMENTS							
1	Alfred Broussard	not dated	public	letter	copy of report	I am requesting copies of the EIS, SW Coastal for Vermilion Parish	Acknowledged and copy of Revised Integrated Draft Report and EIS provided
2	Elliay Henry, Manager C.F. Henry Properties LLC	April 15, 2015	public	letter	Parish priority projects	The intent of this correspondence is to state our concerns with the Southwest Coastal Louisiana Revised Integrated Draft Feasibility Report and Environmental Impact Statement (Southwest Study). This transmittal is submitted to you on behalf of the C.F. Henry Properties, LLC and James Henry Co. In reviewing the Southwest Study, a few items caught our attention. Being a large landowner in lower Cameron Parish, it causes us a great deal of concern with the limited number of coastal restoration projects listed in the study. Our family has worked diligently with Cameron Parish to draft their Cameron Master Plan. It is the will of our board members to include other Cameron Parish projects even in an appendix to be available for other discretionary funding sources in the future. Currently, the Parish has nine projects listed in the study. We feel that there are significantly more projects that are viable and are not even up for discussion due to the benefit cost ratio and the national interest with these projects.	Parish Priority Projects have been included in Appendix P to the Final Integrated Report. Parish Priority Projects were evaluated and screened, along with other proposed measures, to the same level of analysis sufficient to determine viable alternatives.
3					involuntary participation and eminent domain	Secondly, the reference of "Involuntary Participation" in the NED portion of the study is alarming. Please understand that our Parish is a rural one with land remaining within families for generations. Our family hopes that this was never the objective of this study.	The Recommended NED Plan would be entirely voluntary participation. *See response to "involuntary participation" and "eminent domain" comments in General Responses.
4					economic development	Much time and effort should be given in considering the implementation side of the study prior to signing the final report. Much economic development is being conducted in Cameron Parish. Over $30 billion in investments have been made in our Parish with another $15-$20 billion in announced projects working through permits. Such regulations as this will no doubt impact the operation and staffing of these industrial accomplishments. We appreciate your time and courtesy to allow us to comment. Please reconsider the aspects	The proposed action is not to implement a new regulation. Rather, the Recommended Plan is to provide an opportunity for storm surge risk reduction throughout southwest coastal Louisiana project area. Implementing the Recommended Plan's storm surge damage risk reduction measures would not impact the operation of ongoing or future economic development.

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LETTER COMMENTS							
						of the draft that we have set forth. We look forward to reviewing the revised report.	
	Louisiana Farm Bureau Federation, Inc.	May 5, 2015	public	letter	involuntary participation and eminent domain	The Louisiana Farm Bureau Federation is an independent, nongovernmental voluntary organization of Louisiana farm and ranch families. Our purpose is to promote the well-being of our farm and ranch families and the agriculture industry in our state. After reviewing the Corps recommendations for public comment pertaining to the Southwest Coastal Louisiana Study's 2015 Revised Integrated Draft Feasibility Report and Environmental Impact Statement, we are very concerned that the Corps in recommending a "non-structural" hurricane protection plan for Vermilion, Cameron and Calcasieu parishes. This means no levees or other structural measures would be utilized to help provide protection to people living and working in these areas. Instead, the Corps is proposing the use of "Involuntary Participation" and "Eminent Domain" as a means for relocations and buy-outs resulting in removing people from their homes and family lands. This would establish a precedence that not only could destroy the culture and unique way of life in coastal Louisiana but put at risk the rights of any landowner living in a flood zone or not. We recommend that the Corps remove language in its draft of recommendations that has any reference to Involuntary Participation and or Eminent Domain.	The Recommended NED Plan would be entirely voluntary participation "See response to "involuntary participation" and "eminent domain" comments in General Responses.
					local sponsors	We further recommend that the Corps select and utilize local sponsors in implementing provisions of the study if approved and funded. Practical knowledge gained by living in an area cannot be replaced by computer modeling in making decisions for that area.	Implementation of the Recommended Plan will be closely coordinated with local communities, towns, cities and Parishes as well as the State of Louisiana. The practical and local knowledge of those living in the area will be used in implementing the Recommended Plan.

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Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
LETTER COMMENTS							
					shoreline protection, buyouts and relocations	The people, the land, the history and culture of Southwest Coastal Louisiana is important and should be protected, not with "remain at your own risk" or forced buy-outs, but with projects that provide shoreline protection. The goal of this study was to restore and protect the coast and marshes of Southwest Coastal Louisiana and preserve the areas unique culture. What we see the Corp proposing through the use of buy-outs and relocation does not address this goal.	The NED Recommended Plan will provide reduced risk of hurricane storm surge flood damage for a total of 3,961 impacted structures consisting of 3,462 eligible residential structures; 342 eligible commercial structures and public buildings; and 157 eligible warehouses. The NER Recommended Plan (Alternative CM-4) includes marsh restoration features (which involve hydraulic dredging and placing of sediments), shoreline protection/stabilization features, and chenier reforestation that will work synergistically with other ecosystem restoration projects in the area and facilitate hydrologic and geomorphic stability and resilience.
5	Martin Miller	April 30, 2015	public	letter	Combination of NED and NER Plan	Wondering how Congressman Charles Boustany's sponsoring a feasibility study in 2005 to provide "hurricane and storm damage risk reduction to reduce the risk of flood damage caused by hurricane and storm surges" was combined with the National Ecosystem Restoration (NER) Study, to "significantly restore environmental conditions for the Ecosystem", I contacted Andy MacInnes, Lead Planner of the Southwest Coastal Louisiana Feasible Study at (504) 862-1062. He informed me that the NER was included since a report had previously been done and it was decided to combine both reports in this feasibility study.	EC 1105-2-204 provides that project delivery teams (PDT's) should consider and take advantage of every opportunity to engage in the formulation of combined plans unless prohibited by study authority, the lack of financial capability or authority of the sponsors.
6					eminent domain marsh creation/condem nation for ecosystem restoration	I then asked about the element of marsh creation on private land and the threat of eminent domain if the landowner resisted, and he advised that he thought eminent domain was only applicable to structures, notwithstanding Appendix E to your feasibility study, pages 18-23, provides that the fee title is to be taken away from the landowner, excluding minerals, etc. He thought, "Fee Estate" meant an "offer to acquire" but deferred to the real estate specialist, Judy Dutierrez, at (504) 862-2575 who advised, after I spoke with her, that, yes, they recommend that the Coastal Protection and Restoration	The Recommended NED Plan would be entirely voluntary participation *See response to "involuntary participation" and "eminent domain" comments in General Responses.

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Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
LETTER COMMENTS							
						Authority have condemnation authority for marsh creation and ridge restoration.	
7					eminent domain	The undersigned is one of the landowners currently working with State and Federal authorities on CWPPRA (Coastal Wetlands Planning, Protection and Restoration Act) projects on a voluntary basis where we maintain fee ownership of our land, said projects being identified as ME-20 and ME-32. Your Measures/Features 47al , 47a2 and 47Cl as shown in Appendix K of http://www.mvn.usace.army.mil/About/Projects/SouthwestCoastal.aspx are in the proximity of the ME-20 and ME-32 projects and affect close to 2,000 acres of the undersigned's co-owned property. As your feasibility study includes the right of eminent domain for marsh creation I strongly object to same. Marsh creation is being accomplished through the CWPPRA programs and why we would want to support your study that would provide for the taking of our property for the same marsh creation? In addition to the above marsh creation features of your feasibility study, the Chenier Restoration Measure/Feature #416 shown in Appendix K affects the Grand Chenier ridge of which approximately 1/3 of the affected ridge land is the undersigned's co owned property, which also calls for eminent domain. In addition, the Bills Ridge Measure/Feature in Vermilion Parish, #509C shown in Appendix K, appears to be entirely on the undersigned's co-owned property. Accordingly, since eminent domain is also applicable to Chenier Restoration, I again oppose the inclusion of eminent domain in your feasibility study. Inasmuch as you are only in the feasibility study phase, should the	Restoring large areas of marsh is a prominent feature of the NER recommended plan. USACE and CPRA are currently working out how to implement marsh restoration while ensuring the benefits of the marsh restoration are preserved over the 50-year period of analysis. More details about how marsh restoration areas would be acquired will be developed during the design phase of the project.

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LETTER COMMENTS							
						inclusion of eminent domain remain therein, we will endeavor to make certain that your study is neither authorized nor funded .I understand the state will share in 35% of the cost of any of your suggested projects and accordingly, we will contact our State and Federal representatives to voice our strong objection to the inclusion of eminent domain, which objection has already been voiced by the Chairman of the Coastal Protection Restoration Authority Board of Louisiana, the Chenier Plain Coastal Restoration and Protection Authority, and the Police Jury of the Parish of Cameron.	
8	Michael Toemer	April 28, 2015	public	letter	Study Authority	I am writing because my wife and I own property in Calcasieu and Cameron parishes and because I oppose the "National Economic Development (NED)" portion of the Corps' report. The reasons for my opposition are as follows. 1. The Corps did not have the statutory authority to make the recommendations that it did. On 12/7/2005, the Committee on Transportation and Infrastructure of the U.S. House of Representatives authorized the Corps to survey the coast of Louisiana, use the survey information to recommend ways to provide hurricane and storm protection, and study the feasibility of constructing a levee along the Intracoastal Waterway. The House Committee did not give the Corps the authority to develop a plan to elevate residential structures and to use eminent domain to seize the property of the residents who did not want to participate in the elevation program.	Study Authority: A survey of the coast of Louisiana in Cameron, Calcasieu, and Vermilion Parishes, with particular reference to the advisability of providing hurricane protection and storm damage reduction and related purposes, including the feasibility of constructing an armored 12-foot levee along the Gulf Intracoastal Waterway was authorized by a Resolution of the Committee on Transportation and Infrastructure, U.S. House of Representatives, Docket 2747, on December 7, 2005. The Recommended NED Plan would be entirely voluntary participation. *See response to "involuntary participation" and "eminent domain" comments in General Responses

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LETTER COMMENTS							
9					cost/benefit analysis	2. The cost/benefit analysis that underlies the NED plan is based on questionable assumptions. The Corps defined "benefits" as the reduction in damages that would result from implementing its recommendations (page D-18). "Damages," however, can be defined in a variety of ways, many of which could produce lower dollar amounts (and, thus, "benefits") than the ones that the Corps obtained.	The cost/benefit analysis was conducted consistent with ER 1105-2-100 Planning Guidance Notebook and with Appendix D, Amendment #1 Economic and Social Considerations. The analysis was subjected to Agency Technical Review, and Independent External Peer Review.
10					identify NED properties	3. Property owners affected by the NED plan were denied due process. To date, the Corps has refused to publicly identify the thousands of residential properties whose owners would be required to elevate their homes or face eminent-domain seizure of their property. There is no doubt that, had they known what the Corps was proposing with regard to their property, these individuals would have attended the Corps' public hearings and/or made written comments to the Corps.	Each of the properties potentially affected by implementation of the NED Plan is presented in a new appendix to the Final Integrated Report displaying maps of all affected structures.

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LETTER COMMENTS							
11					eminent domain	4. The NED plan is biased against residential property owners. As mentioned above, the NED plan provides that residential property owners who do not voluntarily participate in the Corps' structure-elevation program will face eminent-domain seizure of their property. The NED plan contains no such provision for non-residential property owners who refuse to either dry floodproof their structures or construct berms around their property.5. The NED plan discriminates against property owners in coastal Louisiana. People who live in other parts of the U.S. are not being told by the Corps or other Federal agencies to disaster-proof their homes or face eminent-domain seizure of their property. By not treating all disaster-area residents the same, the Corps is discriminating against the residents of coastal Louisiana.6. The eminent-domain feature of the NED plan represents governmental overreach. I believe that people, in choosing where to live, weigh the costs and risks against the perceived benefits. I do not believe that the government has the right to threaten to use its eminent-domain authority to try to make people move to an area that the government deems more desirable. Thank you for considering my comments as you develop the final version of the NED plan.	The Recommended NED Plan would be entirely voluntary participation *See response to "involuntary participation" and "eminent domain" comments in General Responses.

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PETITION COMMENTS							
1	Petition to Change the SWCL Study's 2015 Draft total of 1,752 signatures (available upon request)	not dated	public	signed petition	Parish Plans	Include the list of parishes' existing & proposed coastal restoration Plans. We deserve better Protection!	Parish Priority Projects will be included as an appendix in the Final Report.
					eminent domain/involuntary participation	Remove 'eminent domain' and 'involuntary participation' from the study. Take it out!	The Recommended NED Plan would be entirely voluntary participation *See response to "involuntary participation" and "eminent domain" comments in General Responses.
					local sponsor	Immediately choose and directly include the 'local sponsor' in ALL remaining stages of the study.	In addition to the CPRA, who is the non-Federal sponsor, other congressional, state, parish and local representatives, along with non-governmental agencies, have participated and will continue to be encouraged to participate in the planning process.
					replace chenier reforestation with shoreline protection	Replace 'reforestation' with 'Shoreline protection measures'. Shoreline Protection is Critical!	Five shoreline protection measures were developed that would protect the area of greatest shoreline erosion. Reforestation of the Cheniers was developed and targeted for those existing cheniers that are in greatest need due to deforestation.
2	Petition dated April 16, 2015 total 63 signatures (available upon request)	May 5, 2015	public	April 16, 2015 petition/email	April 16, 2015 petition	Dear US Army Corps of Engineers, Louisiana Congressional Delegation, Governor of Louisiana, Louisiana Delegation, Municipalities and Parish Government. As a voting resident of Louisiana I ask that you reconsider the listed items and accept my personal comments in relation to the Southwest Coastal Louisiana Study's 2015 Revised Integrated Draft Feasibility Report and Environmental Impact Statement	Receipt of comments acknowledged

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Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Draft Response
PETITION COMMENTS							
3					include Parish Priority Projects	"Please include Parish Priority Projects! The Corp has prepared a study that will recommend a non-structural plan of action. Due to the inability to meet your current 'cost/benefit ration' standards, only a very small list of measures have been 'tentatively selected'. While the selected list may indeed be cost effective, I feel that our parish deserves 'protection'. In order to clearly support any future consideration of funding for a structural protection measure, I ask that you insert a LIST of ALL of the measures and projects proposed in the parishes' existing and proposed Coastal Restoration and Protection Plans. The inclusion will eliminate all unintentional exclusion of projects that were not tentatively selected and will clearly indicate the worthiness for future consideration for funding. Inclusion of these projects will also allow the study to reflect the original purpose and intent of Rep. Boustany's bill, which was always to provide hurricane protection to Southwest Coastal Louisiana. The resiliency and efficiency shown by the parish's residents and business owners in protecting their homes and buildings should not have lessened the urgency and consideration given to protecting the land on which those structures have been built.	Parish Priority Projects have been included as Appendix P in the Final Report. Note that over 200 project features were initially considered and screened by the interagency, interdisciplinary planning team, including: Parish Priority Projects, as well as previous CWPPRA, State and other Federal projects USDOI CIAP projects, LACPR, LCA Program, and the 2012 State Master Plan projects within the study area.
4					eminent domain and involuntary participation removed from study	I ask that any and all reference or language to 'eminent domain' and 'involuntary participation' be completely removed from this study. The property owner's choice to remain at their 'own risk' or possibly without future assistance are the only appropriate alternatives to 'voluntary participation'. I do not agree that protecting the Federal governments' interests should supersede the choices the landowners make. It was my understanding that the goal of this plan was to restore and protect the coast and marshes, assist in preserving the unique culture, not remove people from their homes and family lands. The precedence set by such language has the potential to completely destroy the culture and unique way of life in coastal Louisiana. PLEASE TAKE IT OUT!	The Recommended NED Plan would be entirely voluntary participation "See response to "involuntary participation" and "eminent domain" comments in General Responses.

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Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Draft Response
PETITION COMMENTS							
5					Local Sponsor	I request that a 'Local sponsor' be chosen and have an immediate 'voice' in the remaining planning process of the study. It is clear that 'local sponsor' will be burdened with implementing and enforcing many portions of the study if ever funded. Modeling and Data should never realistically replace the practical knowledge gained by living in an area for a lifetime. Local sponsors can assist in making valid and important corrections and local concerns could be addressed immediately.	In addition to the State (CPRA) who is the non-Federal sponsor, other congressional, state, parish and local representatives, along with non-governmental agencies, have participated and will continue to be encouraged to participate in the planning process;
6					shoreline protection to replace reforestation	I ask that reforestation measures be replaced with shoreline protection measures. Reforestation is the most cost effective measure proposed in the study. By deleting all protective levees and structures out of the 'Temporary Selected Plan', the Corp's was able to meet one of its highest priorities, cost effectiveness. More shoreline protection is critical. Previous projects have shown that reforestation will be successful only after protection is implemented. Shoreline protection would be a better investment for our coast's future.	Five shoreline protection measures were developed that would protect the area of greatest shoreline erosion. Reforestation of the Cheniers was not developed solely because it would be cost effective. Rather, chenier reforestation was developed and targeted for those existing cheniers that in greatest need due to deforestation.
7	Petition Dated April 17, 2015 total 748 signatures (available upon request)	April 17, 2015 petition	public	April 17, 2015 petition	Parish priority projects	As a voting resident of Louisiana I ask that you reconsider the listed items and accept my personal comments in relation to the Southwest Coastal Louisiana Study's 2015 Revised Integrated Draft Feasibility Report and Environmental Impact Statement: • Please include Parish Priority Projects! The Corp has prepared a study that will recommend a non-structural plan of action. Due to the inability to meet your current 'cost/benefit ratio' standards, only a very small list of measures have been 'tentatively selected'. While the selected list may indeed be cost effective, I feel that our parish deserves 'protection '. In order to clearly support any future consideration of funding for a structural protection measure, I ask that you insert a LIST of ALL of the measures and projects proposed in the parishes ' existing and proposed Coastal Restoration & Protection Plans. The inclusion will eliminate all unintentional exclusion of projects that were not tentatively selected and	Parish Priority Projects will be included as an appendix in the Final Report. Note that over 200 project features were initially considered and screened by the interagency, interdisciplinary planning team, including: Parish Priority Projects, as well as previous CWPPRA, State and other Federal projects USDOI CIAP projects, LACPR, LCA Program, and the 2012 State Master Plan projects within the study area

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Table 3. Comments on the Revised Integrated Draft Feasibility Report and Environmental Impact Statement							
Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Draft Response
PETITION COMMENTS							
						will clearly indicate worthiness for future consideration for funding. Inclusion of these projects will also allow the study to reflect the original purpose and intent of Rep. Boustany's bill, which was always to provide hurricane protection to Southwest Coastal Louisiana. The resiliency and efficiency shown by the parish's residents and business owners in protecting their homes and buildings should not have lessened the urgency and consideration given to protecting the land on which those structures have been built.	
8					eminent domain	• I ask that any and all reference or language to 'eminent domain ' and 'involuntary participation ' be completely removed from this study. The property owner's choice to remain at their 'own risk ' or possibly without future assistance are the only appropriate alternatives to 'voluntary participation'. I do not agree that protecting the Federal government's interests should supersede the choices that landowners make. It was my understanding that the goal of this plan was to restore and protect the coast and marshes, assist in preserving the unique culture, not to remove people from their homes and family lands. The precedence set by such language has the potential to completely destroy the culture and unique way of life in coastal Louisiana. PLEASE TAKE IT OUT!	The Recommended NED Plan would be entirely voluntary participation *See response to "involuntary participation" and "eminent domain" comments in General Responses.
9					Local Sponsor	• I request that a 'Local sponsor' be chosen and have an immediate 'voice' in the remaining planning process of the study. It is clear that 'local sponsor' will be burdened with implementing and enforcing many portions of the study if ever funded. Modeling and Data should never realistically replace the practical knowledge gained by living in an area for a lifetime. Local sponsors can assist in making valid and important corrections and local concerns could be addressed immediately.	The CPRA is the non-Federal Sponsor or "Local Sponsor". As in most civil works projects, funding and other administrative processes follow prescribed laws, rules and regulation. The approval of funds for the project is by Congressional action.

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Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Draft Response
PETITION COMMENTS							
10					shoreline protection to replace reforestation	I ask that reforestation measures be replaced with shoreline protection measures. Reforestation is the most cost effective measure proposed in the study. By deleting all protective levees and structures out of the 'Tentatively Selected Plan', the Carp's was able to meet one of its highest priorities, cost effectiveness. More shoreline protection is critical. Previous projects have shown that reforestation will be successful only after protection is implemented. Shoreline protection would be a better investment for our coast's future	Five shoreline protection measures were developed that would protect the area of greatest shoreline erosion. Reforestation of the Cheniers was not developed solely because it would be cost effective. Rather, chenier reforestation was developed and targeted for those existing cheniers that in greatest need due to deforestation.
11	Petition dated April 21, 2015 total 4 signatures (available upon request)	April 21, 2015	public	April 21, 2015 petition	April 21, 2015 petition	Dear US Army Corps of Engineers, Louisiana Congressional Delegation, Governor of Louisiana, Louisiana Delegation, Municipalities and Parish Government. As a voting resident of Louisiana I ask that you reconsider the listed items and accept my personal comments in relation to the Southwest Coastal Louisiana Study's 2015 Revised Integrated Draft Feasibility Report and Environmental Impact Statement	Acknowledge receipt of petitions
					include Parish Priority Projects	"Please include Parish Priority Projects! The Corp has prepared a study that will recommend a non-structural plan of action. Due to the inability to meet your current 'cost/benefit ration' standards, only a very small list of measures have been 'tentatively selected'. While the selected list may indeed be cost effective, I feel that our parish deserves 'protection'. In order to clearly support any future consideration of funding for a structural protection measure, I ask that you insert a LIST of ALL of the measures and projects proposed in the parishes' existing and proposed Coastal Restoration and Protection Plans. The inclusion will eliminate all unintentional exclusion of projects that were not tentatively selected and will clearly indicate the worthiness for future consideration for funding. Inclusion of these projects will also allow the study to reflect the original purpose and intent of Rep. Boustany's bill, which was always to provide hurricane protection to Southwest Coastal Louisiana. The resiliency and efficiency shown by the parish's residents and business owners in protecting their	Parish Priority Projects will be included as an appendix in the Final Report. Note that over 200 project features were initially considered and screened by the interagency, interdisciplinary planning team, including: Parish Priority Projects, as well as previous CWPPRA, State and other Federal projects USDOI CIAP projects, LACPR, LCA Program, and the 2012 State Master Plan projects within the study area.

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PETITION COMMENTS							
						homes and buildings should not have lessened the urgency and consideration given to protecting the land on which those structures have been built.	
					eminent domain and involuntary participation removed from study	I ask that any and all reference or language to 'eminent domain' and 'involuntary participation' be completely removed from this study. The property owner's choice to remain at their 'own risk' or possibly without future assistance are the only appropriate alternatives to 'voluntary participation'. I do not agree that protecting the Federal governments' interests should supersede the choices the landowners make. It was my understanding that the goal of this plan was to restore and protect the coast and marshes, assist in preserving the unique culture, not remove people from their homes and family lands. The precedence set by such language has the potential to completely destroy the culture and unique way of life in coastal Louisiana. PLEASE TAKE IT OUT!	The Recommended NED Plan would be entirely voluntary participation "See response to "involuntary participation" and "eminent domain" comments in General Responses.
					Local Sponsor	I request that a 'Local sponsor' be chosen and have an immediate 'voice' in the remaining planning process of the study. It is clear that 'local sponsor' will be burdened with implementing and enforcing many portions of the study if ever funded. Modeling and Data should never realistically replace the practical knowledge gained by living in an area for a lifetime. Local sponsors can assist in making valid and important corrections and local concerns could be addressed immediately.	In addition to the State (CPRA) who is the non-Federal sponsor, other congressional, state, parish and local representatives, along with non-governmental agencies, have participated and will continue to be encouraged to participate in the planning process;
					shoreline protection to replace reforestation	I ask that reforestation measures be replaced with shoreline protection measures. Reforestation is the most cost effective measure proposed in the study. By deleting all protective levees and structures out of the 'Temporary Selected Plan', the Corp's was able to meet one of its highest priorities, cost effectiveness. More shoreline protection is critical. Previous projects have shown that reforestation will be successful only after protection is implemented. Shoreline protection would be a better investment for our coast's future.	Five shoreline protection measures were developed that would protect the area of greatest shoreline erosion. Reforestation of the Cheniers was not developed solely because it would be cost effective. Rather, chenier reforestation was developed and targeted for those existing cheniers that in greatest need due to deforestation.

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Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Draft Response
	POSTCARD COMMENT						
1	Barbara Primeaux	May 5, 2015	public	post card	elevation	I attended the meeting in Cameron on 4-16-15 & was very disturbed when I left, My home is in Creole, LA. I was raised in my home, moved away & returned when I married. My Dad gave me the house. Raised all my children there. After Rita got insurance (flood) & repaired my homes. Parish officials told me I was grandfathered in & no one told us that we had to elevate. Same thing after Ike. I thought we had done the right thing & got flood insurance - we were wrong!	The Recommended NED Plan would be entirely voluntary participation.
2	D.Y. Dolsard Jr.	May 5, 2015	public	post card	shoreline protection & restoration	Shoreline protection and restoration needs to be #1 Priority.	Acknowledge comment.
3					elevation	Elevation of houses either voluntary or involuntary should not be considered at this time!	The Recommended NED Plan would be entirely voluntary participation "See response to "involuntary participation" and "eminent domain" comments in General Responses.
4					shoreline protection & restoration	Save Cameron - Shoreline Protection & Restoration	Acknowledge comment.
5	Davy L. Doxy	May 5, 2015	public	post card	spend money on coastal restoration	If you would take all the money spend on survey, studies, mileage, hotel room, meals & office expense and spend it on coastal rest. We would not need to attend this type of meeting.	Acknowledge comment.
6	Iris Broussard	May 5, 2015	public	post card	beach protection	I also have worked for Dr Martin O. Miller Estate for the last 35 years. In Pecan Island & Grand Chenier. The Miller property at Grand Chenier joins the Refuge. Along the Beach it's washing away so fast that some days with a south wind you can stand on the Beach and see it washing away. So I think first things first start at the Beach to stop it from washing away.	The proposed action would provide 6,135 acres of shoreline protection and stabilization.
7					nonstructural plan	I just don't thing making people leave their homes is the right thing to do.	The Recommended NED Plan would be entirely voluntary participation
8	Jeff & Shari Richard	May 5, 23015	public	post card	shoreline protection	I support shoreline protection	Acknowledge comment.
9					elevation	OBJECT to mandatory elevation of homes	The Recommended NED Plan would be entirely voluntary participation
10	Lisa Chiasson	May 5, 23015	public	post card	eminent domain and involuntary participation	Please remove eminent domain and involuntary participation from the study. No one wants their life taken from them.	The Recommended NED Plan would be entirely voluntary participation "See response to

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	POSTCARD COMMENT						
							"involuntary participation" and "eminent domain" comments in General Responses.
11					levee	We want a levee that will protect all.	The following structural measures were considered during planning process: earthen levees, floodgates, floodwalls, pumps, and highway armoring. Fifteen levee variations were considered. The focused array included 6 levee alternative plans. However, all of the structural alternatives had benefit-to-cost ratios less than 1.0.
12	Susan Boudreaux	May 5, 23015	public	post card	study funds	You are spending a lot of money on a study that only pertains to less than 1% of the structures in our 3 parish area.	One of the study objectives is to reduce the risk of damages and losses from hurricane storm surge flooding in southwest Louisiana. The project would provide risk reduction for 3,961 total structures.
13					structures survive storms	In Creole as an example there are 7 structures that are businesses 5 being used that are not elevated properly but they all have made it thru the storms on our dime not yours. Some of these 3 storms.	Acknowledge comment.
14					100 year old structure	There are 6 homes in Creole that are old enough to go thru all 3 and one is over 100 years old.	Acknowledge comment.
15					risk	Everything in life they are risk we take. So a 1% risk is not worth the money spent on your study.	The NED purpose was authorized on December 7, 2005 – Committee on Transportation and Infrastructure, U.S. House of Representatives, Resolution Docket 2747. "*Resolved by the Committee on Transportation and Infrastructure of the United States House of Representatives, that, in accordance with Section 110 of the River and Harbor Act of 1962, the Secretary of the Army is requested to survey the coast of Louisiana in Cameron, Calcasieu, and Vermilion Parishes with particular reference to the advisability of providing hurricane protection and storm damage reduction and related purposes...*"

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	POSTCARD COMMENT						
16					study protecting coast	But a study protecting our coast is beneficial not just for storms and salt water intrusion. But for the water that drains on us from the North- the Mermentau River locks & Calcasieu Lock, GIWW systems need study.	The NER purpose was recommended in the 2005 Chief's Report for the Louisiana Coastal Area (LCA) Ecosystem Restoration Program. The Chenier Plain Freshwater and Sediment Management and Allocation Reassessment Study was one of six large-scale restoration concepts to "significantly restore environmental conditions that existed prior to large-scale alteration of the natural ecosystem." The LCA Program was authorized in Title VII of the Water Resources Development Act of 2007.

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PUBLIC MEETINGS							
1	Nedra Davis	14-Apr-15	public meeting	oral comment	involuntary participation	My name is Nedra Davis. I'm the Executive Director of the Chenier Plain Authority. We're a new levee district in southwest. We represent Calcasieu, Cameron and Vermilion Parishes. So I wanted to start with that. My comments are a compilation of comments that have been collected over the last couple of weeks from meetings that we've had concerning the Southwest Coastal Study. So I wanted to read these into the record. First of all, my first one is that the parishes do not want the involuntary participation paragraph. We feel that it was added in after the 2013 draft at the eleventh hour and it's completely inappropriate.	The Recommended NED Plan would be entirely voluntary participation *See response to "involuntary participation" and "eminent domain" comments in General Responses.

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Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
PUBLIC MEETINGS							
2					windshield survey	My second comment is that the Windshield data collection as it's being permitted – presented as being problematic in that data was collected in 2010 and we feel that that data should be looked at in 2015.	The cost/benefit analysis was conducted consistent with the Appendix D, Economics and Social Consideration in Environmental Regulation 1105-2-100. The windshield data collection is consistent with requirements for feasibility report level of analysis.
3					historic & cultural	The number three: The historical and cultural vision has been lost in this process.	Historic and cultural resources are required to be considered under various laws, regulations, and policy. Separate sections in Chapters 1 and 3 provide the historic, existing, future without project and future with project analyses. Effects to historic properties and cultural resources will be evaluated through consultation pursuant to the stipulations of the Section 106 programmatic agreements.
4					project distortion	Number four: There is project distortion in some of the same sections of the originally proposed areas.	Without specific references, we cannot address alleged project distortion. Generally, the revised draft Integrated Report has been consistent with examining and developing alternatives for both storm surge risk reduction and ecosystem restoration throughout the study area.
5					shapefiles	Number five: We've asked for shape files and shape file sharing since 2013 and the parishes have requested this directly and have not received any shape files from the state or the Corps.	Each of the properties potentially affected by implementation of the NED Plan is presented in a new appendix to the Final Integrated Report displaying maps of all affected structures.
6					Parish priority projects	Number six: We feel that the parish priority projects are not being included.	Parish Priority Projects have been included as a separate and new appendix to the Final Integrated Report. Parish Priority Projects were evaluated and screened, along with other proposed measures, to the same level of analysis sufficient to determine viable alternatives.

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PUBLIC MEETINGS							
7					Representative Boustany	Number seven: This study does not represent what was originally intended by Representative Boustany still. And we feel that it - it needs to be completely revised.	The study has been developed within the described Congressional authorizations specific to hurricane storm surge risk reduction as well as ecosystem restoration.
8					involuntary and eminent domain	Our main points with the involuntary or eminent domain clauses need to be taken out.	The Recommended NED Plan would be entirely voluntary participation "See response to "involuntary participation" and "eminent domain" comments in General Responses.
9					Parish priority projects	That an appendix including the parish priorities and the parish plans for all three parishes be included. Cameron and Vermilion have a plan and we'd like to see language included and we'll request this in writing for Calcasieu's future planning. And then, what we've seen in the past with the master plan and in the proof rough is that if projects aren't included in the master plan, even though there was language included in the master plan that said that this was not the end all, be all, that's it's very difficult to get projects funded through means like CWPPRA. So that concludes my comments. Thank you very much.	Parish Priority Projects have been included as a separate and new appendix to the Final Integrated Report. Parish Priority Projects were evaluated and screened, along with other proposed measures, to the same level of analysis sufficient to determine viable alternatives.
10	Shannon Neaveaux	4/14/2015	public meeting	oral comment	Parish priority projects	My name is Shannon Neveaux and I' m a resident of Vermilion Parish. Neveaux. N-e-v-e-a-u-x. I have many comments about the study and I will be turning them in in writing but to be brief tonight, for the purpose of this meeting, I' m going to touch upon just four of them. I can't speak to the measures included in the study but I was present at many, many meetings after the first hurricane when our parish's coastal committee discussed things that could be done to protect our areas. I'm very disappointed to see that they're not physically included in this study. A statement saying that it's not the end all, be all is just not enough. I would not -- I would encourage everyone to not accept or support a study turned in that does not literally include them.	Parish Priority Projects have been included as a separate and new appendix to the Final Integrated Report. Parish Priority Projects were evaluated and screened, along with other proposed measures, to the same level of analysis sufficient to determine viable alternatives.

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PUBLIC MEETINGS							
11		4/14/2015	public meeting	oral comment	involuntary and eminent domain	I think there is nothing acceptable or appropriate about eminent domain and involuntary participation. The better option would be when you reach out to someone in that position, that they be given another choice and the choice would be that they agree to never accept assistance from you again, in exchange for the fact that you allow them to live on their property the way they want, where they want, for as long as they want.	The Recommended NED Plan would be entirely voluntary participation *See response to "involuntary participation" and "eminent domain" comments in General Responses.
12		4/14/2015	public meeting	oral comment	Parish resiliency	I think that the fact that Vermilion Parish was so resilient and efficient in getting back on their feet, it's obviously been a detriment to us in this study. It allowed the Corps to be unable to prove that we truly needed help. And so, the message is clear that resiliency did not encourage the government to work with us. It just gave them an excuse to opt out of assisting us. And my final comment is to Mr. Boustany's staff. The message that I hear is very, very clear. It was clear to me in the meeting in January of 2014. When I left that -- I left there being so offended and disappointed by the message and it boils down to the fact that Vermilion Parish is deemed unworthy and not valued enough because of the cost beneficial ratio, that you know, if we don't - - we're not worth protecting because of the process that you use. I would be ashamed to have my name on the legacy of this study. And that's my final comment. Thank you.	Hurricane storm surge risk reduction and ecosystem restoration alternatives were based on demonstrated needs and that met the authorizations, and study goals and objectives.
13	Roland Viator	4/14/2015	public meeting	oral comment	property rights involuntary and eminent domain	I 'm Roland Viator. And my question is: This is all about FEMA insurance. Am I right? This whole program here is the insurance that we had to buy for our homes. The reason I'm saying that: Like that lady out there, we're not looking for handouts. We live on our land and we -- if it breaks, we fix it. I don't know who in the world - - we have our property rights. Who is giving y'all the authority that you can come around and just move people as you wish, tell us what to eat and where to live? Only God can do that. We don't - - those of us who don't have insurance, don't want insurance, we should not be forced to do anything that you're saying here tonight. We	The Recommended Plan components were developed with regard to hurricane storm surge risk reduction and not with regard to FEMA insurance. Rather, the NED Recommended Plan was developed specifically to address hurricane storm surge risk reduction and the NER Recommended Plan was developed specifically for ecosystem restoration. The Recommended NED Plan would be entirely voluntary participation. *See response to "involuntary participation" and "eminent domain" comments in General Responses

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Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
PUBLIC MEETINGS							
						want our property rights not to be taken away. And when you do have this contract ready, we would like to read it. We would like to see it before -- and I would advise everybody never sign it until you have someone read it for you, if you don't understand it yourself. This last contract was really wrong. Thanks.	
14	Sherrill Sagrera	4/14/2015	public meeting	oral comment	list of properties involuntary and eminent domain	Mike Sagrera. Okay. You're listing --your list that says condemned property or condemnable property. When will the Police Jury get a copy of that list of the property? You have dots on the map and you have a lot of numbers. When will they get a list of the property? When can we get a list of the property? When will it be delivered to them? So your numbers are not good right now. Well, if it's considered even a draft list, you could assure a lot of people if you could produce this list. Then they are not included in it, so they don't have to mess with it. It would relieve a lot of people's anguish and anxiety that their property may be condemned.	Each of the properties potentially affected by implementation of the NED Plan is presented in a new appendix to the Final Integrated Report displaying maps of all affected structures. The Recommended NED Plan would be entirely voluntary participation *See response to "involuntary participation" and "eminent domain" comments in General Responses
15		4/14/2015	public meeting	oral comment	reforestation of Cheniers	I've got a couple of comments, if you don't mind. My first comment is on the reforest issue. I'm Sherrill Sagrera, a landowner. Sherrill. Not Shirley. It's Sherrill. On the reforestation, on the area on Cheniere Au Tigre, for instance, that y'all want to reforest. Between us and McIlhenny, we planted almost a thousand (1,000) trees there two or three years ago. How are y'all going to maintain that? I mean, y'all are going to plant these over four hundred (400) to five hundred (500) trees - - four or five hundred trees per acre on a ridge that if you get a little bit of dry weather, there's no moisture there. You're going to go and water them. Or you got a crew that's going to stay out there and water them. Are y'all going to take care of them and haul -- how are	Operations and maintenance (O&M) of all Recommended Plan features, include the chenier reforestation, has been considered and specific actions and associated costs included in the budget. O&M of project features would be the responsibility of the non-Federal Sponsor.

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Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
PUBLIC MEETINGS							
						y'all going to maintain that? But you should have thought about that when you did it. You know, what I mean? You've got to look at what -- the possibility of, you know, maintenance at that time.	
16		4/14/2015	public meeting	oral comment	floodway	My next comment is, basically, you're talking about a flood - - a flood -- I don't know what term you used. Where water flows out. Oh, floodway. Okay. For Rita and Ike, the flood way was from Iberia Parish to Texas. So how did y'all determine what's in that floodway? Because when the surge comes in, it's all a floodway. How do you determine that floodway? And these houses that's in that floodway, they're all in where it flooded. Well, I believe, with the drainage board we have in Vermilion Parish, we don't have that much problem with rain. We have problems when it comes from the south. And then, if you're worried about a floodway, it's all a flood way after a storm.	Each of the properties potentially affected by implementation of the NED Plan, as well as identification of the designated FEMA regulatory floodway is presented in a new appendix to the Final Integrated Report displaying maps of all affected structures.

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PUBLIC MEETINGS							
17	John LeBlanc	4/14/2015	public meeting	oral comment	elevation	My name is John LeBlanc and I'm Mayor of Erath. My question is: Who is going to manage the elevation program part of this study? We been through that before, as I said earlier. It has to be a true bid process, if you're going to elevate homes. Not a square footage type thing that we've been through before. So many more people could have been assisted if the past program, the HMGP program, had not had a square footage that a contractor could use. All the contractors knew what they'd use on a two thousand (2000) square foot home. It's not the right way. It's got to be a true bid. I worked the oilfield for thirty-eight (38) years and no one ever gave us that opportunity.	Elevation to the 100-year base flood elevation based on year 2075 hydrology of eligible residential structures. If the required elevation is greater than 13 feet above ground level, the structure would be ineligible to participate due to engineering and risk related factors. Tenants of structures that will be elevated are eligible for certain benefits in accordance with Uniform Relocation Assistance and Real Property Acquisition Policies for Federal and Federally Assisted Programs of 1970, Public Law 91-646, 84 Stat. 1894 (42 U.S.C. 4601), as amended by the Surface Transportation and Uniform Relocation Assistance Act of 1987, Title IV of Public Law 100-17, 101 Stat. 246-256; 49 Code of Federal Regulations 24; and HUD Handbook 1378. The method of implementation utilizes a Federal procurement to obtain design and construction contractors for the various flood proofing measures. The contractor will also be responsible for all work associated with the elevation from approval of the elevation plans for each structure to final inspection. See Chapter 4 and Appendix L concerning the NED implementation plan.
18					eminent domain	The other thing is: If you come to Erath and you want to start telling people they have to move out, you've got a problem on your hands. And I need to know and my council wants -- would want to know, how many homes you are actually talking about in Erath? We are in Vermilion Parish but we are the governing body in Erath. And I think we are due that respect.	The Recommended NED Plan would be entirely voluntary participation *See response to "involuntary participation" and "eminent domain" comments in General Responses.
19	Kevin Segrera	4/14/2015	public meeting	oral comment	eminent domain	Kevin Segrera, Vermilion Parish Police Jury. I'd also like to thank the Colonel and the Corps for coming out to give us this opportunity to express our concerns and CPRA, Ms. Mouton and Pat over there. Thank y'all for coming out. One of the issues - - if Vermilion Parish cannot support this at all with -- if we have anything to do with eminent domain. It's just -- I mean, the bottom line, Vermilion Parish cannot support this.	The Recommended NED Plan would be entirely voluntary participation *See response to "involuntary participation" and "eminent domain" comments in General Responses.

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PUBLIC MEETINGS							
20					reforestation of Cheniers and shoreline protection	And the -- Mr. Sherrill touched on about the reforestation issues. We see where we have projects and the reforestation is great. It's going to be a barrier. It's going to stop -- it's going to stop a surge but what killed it in the first place? And I know that that's not where y'all are at now, but we should know what kills it before we have it in a plan to put it in. I know that it's a cheaper alternative than having a hard structure somewhere but in our parish's view, one of the most important things that was in the study from when they first started, which was shoreline protection from Fresh water Bayou to Southwest Pass that was taken out.	The reforestation of Cheniers is not intended to stop storm surge. Rather, this feature is to restore a critical habitat type used by numerous wildlife, especially as stopover habitat for migratory birds. Five shoreline protection measures would protect approximately 5,509 acres with approximately 1,738 AAHUs in benefits.
21					shoreline protection	I know that it's a cheaper alternative than having a hard structure somewhere but in our parish's view, one of the most important things that was in the study from when they first started, which was shoreline protection from Fresh water Bayou to Southwest Pass that was taken out. If you lose that, that reforestation that you just did, just starting there, is all for naught.	The Recommended NER Plan includes 5 shoreline protection measures would protect approximately 5,509 acres with approximately 1,738 AAHUs in benefits.
22					state master plan and parish priority projects	So if there's -- there's a lot of issues that we have with it. Also, we have -- we have -- they had a statement of CWPPRA and having projects that aren't in the state master plan. So if we have -- as a Parish have a project and it's not in the state master plan, it's not going to go off quicker. We are very concerned that the projects we have here that were taken out of this plan, if they're not included in the appendices, then that project will never have life, even though it's a good plan. We as a parish would want to be certain that that is included in the appendices. The plans that the parish has as their master plan.	Parish Priority Projects have been included as a separate and new appendix to the Final Integrated Report. Parish Priority Projects were evaluated and screened, along with other proposed measures, to the same level of analysis sufficient to determine viable alternatives.
23					executive order	And another thing I know of concern, is the executive order that the president has out there. That's just something we want on the record as being a concern, too.	We cannot respond to this comment without knowing the specific Executive Order being referenced.
24					Freshwater Bayou shoreline protection	The Freshwater Bayou, you know, we do have some projects in there. The Freshwater Bayou and for the shoreline protection there. But it's just -- it's since 2005 and until now, 2015, ten years.	The Recommended NER Plan includes 5 shoreline protection measures would protect approximately 5,509 acres with approximately 1,738 AAHUs in benefits.

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PUBLIC MEETINGS							
25					lack of projects for Vermilion Parish	There's really not a whole lot in that Vermilion Parish can look at and see it's really going to be of help. That's a lot of protection area and I would just hope that comments are taken -- you take the comments of the people seriously and try to go and work on some of these portions of this project that are leaving a bad taste in everyone's mouth. And we thank you for your time.	Both the NED and NER Recommended Plans include features in Vermilion Parish. All substantive comments received on the draft and responses thereto are included in the Final Integrated Report in the form of this table. Actions taken on comments may include: (1) Modify alternatives (2) Develop and evaluate alternatives not previously given serious consideration (3) Supplement, improve, or modify the analyses. (4) Make factual corrections. (5) Explain why the comments do not warrant further agency response, citing the sources, authorities, or reasons which support the agency's position and, if appropriate, indicate those circumstances which would trigger agency reappraisal or further response.
26	Earl Landry	4/14/2015	public meeting	oral comment	consider Bayou Corne	Yeah, my name is Earl Landry. I sit on the Chenier Plain Authority we started up two years ago. I'm past president. I just stepped down last month. But I live in Erath and I have family in Delcambre and John was talking about (inaudible). I'm under the impression that we got alot of it coming from the Bayou Corne, the Delcambre Bayou. It came from -- the east side of Delcambre got it first, I think, pretty much. And then, I mean, I got fifty (50) acres in the Town of Erath. I'm in the City -- I'm in the City limits -- the corporate limits. So I saw afterwards the way that it hit us. But I'm thinking -- my comment is I think we need to bring in -- and I know Bayou Corne is in Iberia Parish because Delcambre splits the parish line. I think, y'all should consider taking Bayou Corne in the southwest study. Thank you.	All areas within the authorized study area were included in considerations of both the NER and NED Plans. Bayou Corne is outside the authorized study area.
27	Peter Vincent	4/14/2015	public meeting	oral comment	Teche-Vermilion Basin	Peter Vincent. I'm with National Audubon Society. In this plan, you list the Teche-Vermilion Basin as a part of the study area and every project that I've seen excludes the Teche-Vermilion Basin, including shoreline protection in the parish from Freshwater Bayou to Southwest Pass. The most damage we had after the storm in Erath and Delcambre, the eastern side, that's in the Teche-Vermilion. There is not one project considered in that area. And I just	The Vermilion Parish was considered and includes features for both hurricane storm surge risk reduction and ecosystem restoration.

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PUBLIC MEETINGS							
						don't think it's fair for the people on the eastern side of Vermilion that are in the Teche-Vermilion Basin that have no consideration whatsoever. Thank you.	
28	Sherrill Sagrera	4/14/2015	public meeting	oral comment	hurricane protection plan	Just a question basically. After the storm, we were approached that, you know, what do y'all need in Vermilion Parish? They said you need to have a plan. So we sat down and we put together a hurricane protection plan for the parish. A few years later, we came back and said we're going to put together a resiliency plan to make our own people more resilient for any kind of storm. Did y'all take into consideration of these two plans, whenever y'all were doing all of this work? Because in this plan, it showed alot of hurricane protection and storm protection and everything that should have been in this plan, if it wasn't.	Previous, existing and proposed hurricane storm surge risk reduction and ecosystem restoration efforts and plans were considered during the plan formulation process.
29	Randy Moertel	4/14/2015	public meeting	oral comment	structure elevation; involuntary participation	My name is Randy Moertel and I represent E. A. McIlhenny Company. And I just want to - - I'm stepping on very dangerous territory here. I don't live here. I live in LaFourche Parish. We got our own problems over there. But it seems to me that from what I am hearing here that this particular study provides a vehicle. Now, let's throw out the involuntary moving of houses. But it does provide a vehicle for voluntary elevation of houses that isn't there now. In other words, this study, if it were to be authorized, if I'm understanding correctly, then you can provide monies up to Eight Hundred Million Dollars ($800,000, 000.00), roughly, is that right, Andrew? For elevating houses that isn't available right now for those people that want to, like where I live. I would, you know, if I had the same opportunity. I'm trying to be objective here. I'm thinking okay, I have an opportunity - somebody is going to pay a hundred (100) percent. I still want to stay here. I'm going to elevate my house because the federal	The Recommended NED Plan would be entirely voluntary participation *See response to "involuntary participation" and "eminent domain" comments in General Responses. Elevation to the 100-year base flood elevation based on year 2075 hydrology of eligible residential structures. If the required elevation is greater than 13 feet above ground level, the structure would ineligible to participate due to engineering and risk related factors. Tenants of structures that will be elevated are eligible for certain benefits in accordance with Uniform Relocation Assistance and Real Property Acquisition Policies for Federal and Federally Assisted Programs of 1970, Public Law 91-646, 84 Stat. 1894 (42 U.S.C. 4601), as amended by the Surface Transportation and Uniform Relocation Assistance Act of 1987, Title IV of Public Law 100-17, 101 Stat. 246-256; 49 Code of Federal Regulations 24; and HUD Handbook 1378.

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PUBLIC MEETINGS							
						government is going to pay for that a hundred (100) percent. So the involuntary part, I would throw out. The voluntary part seems like a good thing to me. And I just want to make that comment because I know the involuntary thing is really cloudy. The other good part, from what I can understand, is going to happen on the voluntary side. So if that could be thrown out, it seems to me that the other part of elevating voluntarily is everybody's option. Nobody is moved. Nobody has to move. Everybody can live where they are. They can elevate or not elevate. It's strictly voluntary. But I was over here right after Hurricane Rita. I saw houses that were flooded in Erath and Delcambre, going all the way to Avery Island, people were under water. And guess what? They're all elevated now. And you know, and these people didn't move but they wanted to get elevated and get up out of the way so they could stay where they are. So I'm just saying that objectively, that's something that people might want to think about if say the involuntary movement part can be handled. When FEMA and insurance gets so high on my house, I'm just not going to get any flood insurance. But I'm not going to move. I own my house. You know, because I'm not -- that's where I want to live, if that makes sense. But anyway, I just wanted to make those comments. Thank you.	
30	Joe Tessier	4/14/2015	public meeting	oral comment	sediment into Vermilion Parish	Joe Tessier, a parish resident for forty nine (49) years. I was flooded by Hurricane Rita. I moved up. Not moving out. My question is: And I know you can't answer it right now, but would there be any plans to have some sediment pumped into lower Vermilion Parish like in the LaFourche areas? I hear that area is doing real good with – I said, LaFoueche -- Terrebonne areas. That area is doing real good with the new sediment that's being pumped in there to rebuild their marshes, which will help keep the storm surge out. Thank you.	Marsh creation projects would include pumping dredged sediments from designated borrow sites into marsh creation and nourishment sites throughout the study area.

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PUBLIC MEETINGS							
31	Sherrill Sagrera	4/14/2015	public meeting	oral comment	Protection for Iberia Parish; buy out and property taxes	Let me give you one more. You know, me and Mr. Darrell and a couple of others from the Corps had a long discussion last year about cost benefit ratio. "Well," I said, "well, why there's some kind of protection from, say from Iberia Parish to the Vermilion River, that didn't meet the cost benefit ratio." He said, "Well, we've had some on there. All the houses were raised." I said, "You don't need no protection." You remember that, huh, Darrell? No, you don't want to admit it. Okay. But now, so, basically, if we're going to raise all the houses, what are you going to do with the land that is from there to the Gulf of Mexico. A lot of this stuff talks about buying out. When you buy it out, what happens to that land? It's government land, basically. Does the government pay property taxes. No, they don't pay property taxes. So that -- all of that land that is taken out of private ownership takes away from your tax benefit s in that parish. Now, whenever -- that's one problem you're going to have.	Iberia Parish is not within the authorized study area.. The Recommended NED Plan would be entirely voluntary participation "See response to "involuntary participation" and "eminent domain" comments in General Responses.
32					protection	The next problem is: If you're not protecting it now, when it's yours, are you going to protect it? So if it goes away, when we own it or it goes away when you own it, it's gone. I mean, I just have a problem with not protecting -- just protecting the home and not protecting the land around it.	Structural levee alternatives would not provide a positive cost/benefit ration. Hence, a primary goal of the Nonstructural NED RP is to reduce hurricane storm surge risk for residential and non-residential structures that have first floor elevations at or below the 0-25-year floodplain, based on hydrologic conditions predicted to occur in 2025 (the beginning of the 50 year period of analysis). The Nonstructural NED RP will provide reduced risk of hurricane storm surge damage for a total of 3,961 impacted structures consisting of 3,462 eligible residential structures; 342 eligible commercial structures and public buildings; and 157 eligible warehouses. In addition, the NER Recommended Plan would provide marsh creation and nourishment, shoreline protection and chenier restoration.

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Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
PUBLIC MEETINGS							
33	Mark Shirley	4/14/2015	public meeting	oral comment	Parish priority projects	My name is Mark Shirley, a resident of Vermilion Parish. A couple of comments related to the ecosystem restoration. And it was mentioned before a couple of times but I want ted to make sure that everybody gets the message. The list of projects that were deleted from one of the previous drafts over two hundred (200) or so projects that you had local input addressing all these different projects that needed to be done from a coastal restoration standpoint. And those two hundred (200) and something projects were whittled down to twenty (20) or so. Okay? It is very important, like Kevin and a few others said, to make sure that these are listed somewhere in the appendix so that they are not deleted from the master plan or from some other plan in the future. We can say that here tonight and it may be true next year but ten years from now, when a whole new commission is in Baton Rouge or New Orleans, they won't know that. So all the projects that were listed that are critical for a coastal restoration in Vermilion Parish need to be listed and those for the other parishes too. Okay.	Parish Priority Projects have been included as a separate and new appendix to the Final Integrated Report. Parish Priority Projects were evaluated and screened, along with other proposed measures, to the same level of analysis sufficient to determine viable alternatives.

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Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
PUBLIC MEETINGS							
34					Freshwater Bayou	In the plan, when it calls for stabilization of the shorelines of freshwater Bayou Channel, and that is very important, that channel has altered the hydrology of that region on both the east side and the west side of the channel. The east side, which includes Audubon State Wildlife and some private marshland, that channel has short-circuited some of the water flow. And even though you do have the locks at Freshwater Bayou, down at the bottom end of it, it's still causing alteration in the flow of water through that whole marsh region and that's causing marsh loss, interior marsh loss. So that needs to be addressed further. And also, just the problem of that channel, Freshwater Bayou Channel. Already, CWPRA has spent many millions of dollars putting rocks along some miles of the channel and some of your projects offered had more miles of rocks. We're still not investigating the actual cause of the problem, which is boat wakes, and however many ships -- not ships but crew boats, a hundred (100) and something foot crew boats throwing a wake that's six or eight feet high. That's what has eroded that bank and continues to erode the bank and I'd like to see the Corps of Engineers address that. That's, I understand, is a federal navigation channel. If the Corps could address that, I'm sure you don't let a hundred and twenty (120) foot crew boat zip through Morgan City, you know, on step. So if that could be addressed as actually the cause of the problem, as well as stabilizing the shoreline and pumping sediment back into the marsh on both sides and restoring the marsh.	The Freshwater Bayou is an authorized navigation channel. Restoration of the authorized navigation channel would be accomplished under that navigation maintenance authority.

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Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
PUBLIC MEETINGS							
35					harbor refuge	Also, one last thing about the resiliency of the community. It's been listed in the Vermilion Parish Hazard Mitigation plan to address harbor refuge for our shrimp fleet in Intracoastal City. We have over seventy-five (75) large shrimp vessels and a good number of smaller shrimp vessels. But these larger shrimp vessels that are sixty-five (6 5) feet or bigger, they need a place to go in a storm and we do have a plan that we're trying to get support for. It's called a Harbor Refuge. And that would be to locate some moorings up river in the Vermilion River to where these seventy-five (75) or more vessels to go during the period of the storm, tie up and be safe from that surge and -- until the storm passes and then, they can come back down the river and get back out in the Gulf and get back to shrimping. So then, that may also be addressed in this plan. Thank you.	Harbor refuge is an important concern. However, the purpose of the NER Recommend Plan (RP) is to restore environmental conditions for the Chenier Plain ecosystem as more fully described in the 2004 Louisiana Coastal Area, Ecosystem Restoration Study. Ecosystem restoration features are focused on areas of critical need where restoration would replace lost habitats and/or help prevent predicted habitat losses.
36	Nick Hunter	4/15/2015	public meeting	oral comment	list of properties	Nic Hunter of the Calcasieu Parish Police Jury. First of all, thank you for being here just as in Vermilion, Plaquemines, Orleans, Gretna, just for us we're not just dots on the map as you know. This is our home. This is where we were born, where we're raised, where we want to live forever. This is a very emotional topic for us. I am going to make a few comments. The first one is all of those dots that were on that map a moment ago --I don't know if you have the ability to bring it up again -- but I promise you if those people who's houses represented those dots knew that, they would have been here this evening. And so I would make a formal to you and I think we will probably do it through the Police Jury, but that list needs to come out as soon as possible. People deserve to know that their houses are being looked at.	Each of the properties potentially affected by implementation of the NED Plan is presented in a new appendix to the Final Integrated Report displaying maps of all affected structures.

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Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
PUBLIC MEETINGS							
37					eminent domain	Secondly, eminent domain is very emotional and scary language. I don't speak for the entire Police Jury, but I know that personally I would like to see that entire phrase removed from the proposal. And I'll offer a couple of scenarios. Let's say somebody is at a repetitive loss and it's not because of anything -- Well, I'll be a little self-deprecating here. Let's say local government has done a poor job of drainage in their neighborhood and let's say they flooded a couple of times that haven't flooded in 50 years because of rain, but let's say local government didn't do a good job of drainage in the neighborhood. Now they may be a part of this involuntarily program and that is very scary, and I would hate to have people face that. Lastly, again I would just reiterate that eminent domain and that language locally we would like to see that completely removed. Let's say that someone has gone through the process and actually built their house to the specs that were required at that time and raised it to the levels necessary. We know that criteria changes over the years. What's going to happen to that person in five years when the criteria changes and all of a sudden they are asked to possibly surrender their home after they have built it to the criteria that was asked of them five years before. That is very concerning to us as well.	The Recommended NED Plan would be entirely voluntary participation "See response to "involuntary participation" and "eminent domain" comments in General Responses
38					list of properties	I will end by saying, those squares on the map locally, I would make a formal request that we have that list as soon as possible because people deserve to know as soon as possible if their homes might fall into this criteria. Thank you.	Each of the properties potentially affected by implementation of the NED Plan is presented in a new appendix to the Final Integrated Report displaying maps of all affected structures.

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PUBLIC MEETINGS							
39	Randy Roach, Mayor City of Lake Charles	4/15/2015	public meeting	oral comment	House Current Resolution 180 by Representative Perry and cultural heritage ecosystem restoration	Thank you very much. Randy Roach, City of Lake Charles. I will go ahead and say we're going to submit a formal response and formal comment. But I do want to say a couple of things this evening. And I have with me a house resolution that was passed in 2008, House Current Resolution 180 by Representative Perry, and it touches in part on what we're talking about tonight, and that's the importance of the preservation, the cultural heritage of the coastal region of the entire area of Louisiana. And it asked for a study to evaluate the impact of the National Flood Insurance Program as it relates to those socioeconomics of the area and the impact that those floodplain regulations were having at the time on recovery as it related to Hurricanes Rita and Katrina. The study was never done. It was a study that the state looked at but never had actual funding to do that study, but as I look at the information that you're sharing with us tonight, it is apparent that what's happening is the National Flood Insurance Program is having a profound influence on decisions that are being made relative to coastal restoration. And when we started with the coastal study, we didn't necessarily think of it in those terms. I'm not saying that we shouldn't have but we didn't. And I think as a result this situation is catching a lot of people by surprise and I think that has already been communicated to you. So we will be responding with something in writing. I'm going to ask you I just brought this with me so we can submit to it you as part of the written record, but I think it's important that you look at this resolution because this resolution touches on many of the issues that I think relate directly to what we're talking about tonight.	Historic and cultural resources are required to be considered for both the NED Plan and NER Plan under various laws, regulations, and policy. Separate sections in Chapters 1 and 3 provide the historic, existing, future without project and future with project analyses.

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Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
PUBLIC MEETINGS							
40					House Current Resolution 180 by Representative Perry and hydrology and geology	It [House Current Resolution 180) talks about what happens all across the Gulf Coast. It also touches on what some people have commented on and that's why it doesn't happen in New Jersey. Why doesn't this happen in Florida? Why is it happening here? Why doesn't it happen in some other areas? And I know it does happen to a degree but perhaps not to the degree it's happening here. One of the reasons I would suggest to you is that the hydrology, geology of coastal Louisiana is entirely different than what you find in Destin, Florida. You have condos that are built on the beach in Florida that are just as susceptible to a storm surge, but the National Flood Insurance Program is based more on flood elevation produced by rain water not so much as the storm surge. So they can build close because the elevation the way it is -- the way that God made it goes right up to the outer continental shelf and it drops off. That's why you go Bill fishing five miles off the coast of Destin. We don't do that here because we have marshes that extend out.	Comment acknowledged.

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PUBLIC MEETINGS							
41					Marsh supports cultural, historic socioeconomic way of life	Those marshes support a way of life. They support an energy industry. They support a fishing industry. They support a trapping industry. They support a recreational industry. And that industry depends on people who live in that area to help support that industry. I don't know historically that Cameron Parish has ever had much more than 10,000 people. So if you quantify the risks, and we did some quick numbers right after Hurricane Rita, it seems like the government was spending more money storing trailers in Arkansas than they were spending on some of the repetitive loss that we talk about in Cameron Parish simply because of the numbers. So I think it's -- I think it's a subject that really needs to be carefully considered, and we would ask that the record be left open that we can look at the cultural and historical impact that these regulations will have long term and particularly from the socioeconomic standpoint as far as the community is concerned.	The proposed action is not to implement a new regulation. Rather, the Recommended Plan is to provide an opportunity for storm surge risk reduction and ecosystem restoration in the southwest coastal Louisiana project area. Ecosystem restoration features are focused on areas of critical need where restoration would replace lost habitats and/or help prevent predicted habitat losses. The NER RP would provide important, essential and critical habitats used for shelter, nesting, feeding, roosting, cover, nursery, and other life requirements of migratory birds, wildlife, finfish, shellfish and other aquatic organisms; increase productivity and essential fish habitat (EFH); increase transitional coastal wetland habitats between estuarine and marine environments; and restore imperiled chenier forest habitats used as stopover habitat by migrating neotropic birds. Restoration and protection of coastal wetlands and chenier habitats could help buffer and protect human habitations.. Restoration of coastal wetlands would also help improve water quality by filtering pollutants and sediments. The CEMVN proposes ecosystem restoration measures in the Calcasieu/Sabine and Mermentau/Tech-Vermilion basins and include marsh restoration, shoreline protection and chenier reforestation and invasive species control. Historic and cultural resources are required to be considered for both the NED Plan and NER Plan under various laws, regulations, and policy. Separate sections in Chapters 1 and 3 provide the historic, existing, future without project and future with project analyses including potential socioeconomic impacts. Effects to historic properties and cultural resources will be evaluated through consultation pursuant to the stipulations of the Section 106 programmatic agreements.
42	Nedra Davis, Chenier Plain Coastal Restoration Authority	4/15/2015	public meeting	oral comment	involuntary participation	Nedra Davis with the Chenier Plain Coastal Restoration Authority. We had several meetings over the last few weeks with all three parishes: Cameron, Calcasieu and Vermilion. And I want	The Recommended NED Plan would be entirely voluntary participation "See response to "involuntary participation" and "eminent domain" comments in General Responses

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PUBLIC MEETINGS							
						to read some of the comments that were collected over the last few weeks into the record. We were at the meeting last night in Vermilion and we shared some of these comments with them and I'm sure the Corps and CPRA are very well aware of our comments, but I want to go ahead and read them into the record. The first comment is the parishes do not want the involuntary participation paragraph. We feel it was patterned after the 2013 draft in the last hour and it is completely inappropriate.	
43					windshield survey	Number 2, the windshield data that was collected in 2010 is problematic. We don't have a list of the properties. We don't -- it's been five years since it was collected. A lot of those properties have already been raised and we find it's problematic.	The cost/benefit analysis was conducted consistent with the Appendix D, Economics and Social Consideration in Environmental Regulation 1105-2-100. The windshield data collection is consistent with requirements for feasibility report level of analysis. Additional detailed analysis will be conducted during subsequent project phases. The windshield data collection is consistent with requirements for feasibility report level of analysis. Additional detailed analysis will be conducted during subsequent project phases.
44					historic/cultural	Number 3, the historical and cultural vision has been lost in this process.	Historic and cultural resources have been considered throughout the entire plan formulation process are specifically addressed subsections of Chapters 1 and 3. Effects to historic properties and cultural resources will be evaluated through consultation pursuant to the stipulations of the Section 106 programmatic agreements. The Recommended NED and NER Plans were developed to address coastal land loss and reduce risk of hurricane storm surge damage to these resources.
45					project distortion	Number 4, there's project distortions in some of the same sections of the originally proposed areas.	The plan formulation process is an iterative process that develops and refines the proposed action based on consideration of existing, new and re-analyzed information. The study has moved from a general programmatic analysis documented in earlier draft reports and is now at a level of detail suitable for recommendation for construction.

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PUBLIC MEETINGS							
46					shape files	Number 5, shape file sharing has been an issue. The parishes have requested the shale files since 2013 and has not received files from either the Corps or CPRA.	Each of the properties potentially affected by implementation of the NED Plan is presented in a new appendix to the Final Integrated Report displaying maps of all affected structures.
47					Parish priority projects	Number 6, the parish priority projections are not being included.	Parish priority projects have been included as a separate and new appendix to the Final Integrated Report.
48					Representative Botany's bill	Number 7, the study does not represent what was originally intended by Representative Botany's bill.	The study is consistent with the study authorization Resolution of the Committee on Transportation and Infrastructure, U.S. House of Representatives, Docket 2747, on December 7, 2005. The study conducted a survey of the coast of Louisiana in Cameron, Calcasieu, and Vermilion Parishes, with particular reference to the advisability of providing hurricane protection and storm damage reduction and related purposes, including the feasibility of constructing an armored 12-foot levee along the Gulf Intracoastal Waterway. The 12-foot levee feature was evaluated and considered not viable because it would not provide the necessary hurricane storm surge risk reduction in a cost effective manner.
49					Parish priority projects	Summing up our comments over the last few weeks, we would like to see language included that does not preclude parish priorities. We would like all of the parish plans to be included in an appendices, and for Calcasieu Parish who's plan is forthcoming, we'd like to have language opened to include that plan in the future.	Parish priority projects have been included as a separate and new appendix to the Final Integrated Report.
50					involuntary participation and eminent domain	The involuntary eminent domain clause we want out. Everyone does not see this as beneficial for the parishes.	The Recommended NED Plan would be entirely voluntary participation *See response to "involuntary participation" and "eminent domain" comments in General Responses.
51					Parish priority projects	And also for the whole entire plan, you know, one of the reasons we want all of our parish priorities included in the appendices, because we've seen the master plan. If your project is not included in the master plan then you're not eligible for a program like CPRA and that is our main funding source right now. And so we would like to -- we would like to see all of our plans included in an appendices.	Parish priority projects have been included as a separate and new appendix to the Final Integrated Report.

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PUBLIC MEETINGS							
52					Chenier Plain Authority	The Chenier Plain Authority will be making a written statement. I'd like to recognize Mike Dever, our president in the audience, and the board will be voting on Tuesday this next week here in Lake Charles to have a written resolution and the parishes have notified that they will also give written statements and resolutions during the comment period. So we want to make sure that everyone, you know in addition to comments that you make tonight. Please write a letter. Thanks so much.	Acknowledge comment.
53	Carolyn Woosley	4/15/2015	public meeting	oral comment	restoration and protection	Carolyn Woosley of Lake Charles. Concerning your call to restoration and protection which are newly highlighted goals of the Corps of Engineers, it was also a solitary goal of navigation, but those were added.	The USACE formally adopted national ecosystem restoration (NER) as a planning and evaluation objective in 2000 version of the *Planning Guidance Notebook*. In 2003 the USACE issued field guidance titled *Planning Civil Works Projects Under the Environmental Operating Principles*..
54					ship channel and land loss	Concerning addressing causes of the loss of land in this region, please address them not just symptoms. And in particular I'm looking at the ship channel isolation. You're doing a long-term salinity study which I condone that strongly, but I do know there is a plan to isolate the ship channel, in other words like a rocket and make it so that so much saltwater doesn't spill over into our fragile and disappearing marshes. I think that's an excellent, good plan.	Due to the complexity and various potential impacts the Calcasieu Ship Channel Salinity Barrier feature and the Cameron-Creole Spillway Salinity Control Structure feature are both recommended for long-term study.
55					surge protection	However, it must be paired with the issue of surge protection. If surge protection is not addressed, the surge will land in Prien Lake and Lake Charles in a highly populated and highly industrial area. This can be done I believe, having worked on this for some years, not compromising the economy of the ship channel. When a storm is approaching, the ships do not any longer enter the ship channel. Design a mobile system, just gates swing out. Something obviously it's expensive and then long term, but is mobile and coordinate it to be the stoppage in the first place of ship traffic. Without protecting surge, our lives are in jeopardy. That's the end of my comments. Please address both issues. Thank you very much.	Due to the complexity and potential impacts to authorized navigation channels, the Calcasieu Ship Channel Salinity Barrier feature and the Cameron-Creole Spillway Salinity Control Structure feature are both recommended for long-term study.

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PUBLIC MEETINGS							
56	Laurie Cormier, Calcasieu Parish Police Jury	4/15/2015	public meeting	oral comment	eminent domain	Laurie Cormier, Calcasieu Parish Police Jury. I'm going to reiterate a couple of things that Nedra said because I think they're really important. Calcasieu Parish requests that the eminent domain references be taken out of the study.	The Recommended NED Plan would be entirely voluntary participation "See response to "involuntary participation" and "eminent domain" comments in General Responses.
57					Parish priority projects	Calcasieu Parish also requests a reference or appendix with all of Cameron Parish and Vermilion Parish projects identified.	Parish priority projects have been included as a separate and new appendix to the Final Integrated Report.
58					future Calcasieu Parish Projects	We would also like the open-ended statements about future projects specifically concerning Calcasieu Parish to be included.	Parish priority projects have been included as a separate and new appendix to the Final Integrated Report.
59					historic and cultural	We would like to see the historical vision placed back into the study. Especially referring to historic and cultural preservation.	Historic and cultural resources have been considered throughout the entire plan formulation process are specifically addressed subsections of Chapters 1 and 3. The Recommended NED and NER Plans were developed to address coastal land loss and reduce risk of hurricane storm surge damages to these resources.
60					shape files	We request as we did in January of 2014 the shape files which identify all structures that are in question in terms of the involuntarily and voluntary procedures.	Each of the properties potentially affected by implementation of the NED Plan is presented in a new appendix to the Final Integrated Report displaying maps of all affected structures.
61					windshield survey and cost benefit analysis	Calcasieu Parish requests a greater consideration regarding the BCA parameters instead of the windshield view. We'd like to know what that would be and what it would look like for the future. And we'd ask that projections originally submitted be molded as is and not have projections watered down to only include a small section of what was originally intended and I believe that would end my comments.	The cost/benefit analysis was conducted consistent with the Appendix D, Economics and Social Consideration in Environmental Regulation 1105-2-100. The windshield data collection is consistent with requirements for feasibility report level of analysis. Additional detailed analysis will be conducted during subsequent project phases.

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PUBLIC MEETINGS							
62	Jennifer Cobian	4/15.2015	public meeting	oral comment	funding	I just wanted to touch on the -- Jennifer Cobian. We have a dire need for mitigation funding in Calcasieu Parish. Mitigation funding that is 100 percent funded with no homeowner cost share. Calcasieu Parish currently has more willing participants than funds available on our 100 percent federally funded grants. After rains just like the one we had last Friday, that list keeps growing and growing as, you know, a waiting list. It's extremely important that we get more funding to Southwest Louisiana. I hear the people's stories, their struggles on a daily basis. It's become personal. It's very, very necessary.	No features of the Recommended NED or NER Plans are anticipated to require compensatory mitigation for project-induced impacts. The study authorization does not include providing mitigation funding or grants.
63					easements	And I just want to add that I think for possible acquisitions that we should look into the easements mixed with the covenants for future acquisitions.	The Recommended NED Plan would be entirely voluntary participation "See response to "involuntary participation" and "eminent domain" comments in General Responses.
64	John Mouton	4/15/2015	public meeting	oral comment	unfulfilled promised projects	My name is John Mouton. I wasn't planning to say anything tonight, but I will. What concerns me is I've been coming to these meetings every time you had one. I've got maps at my house. I've got all kind of stuff. Y'all are going to do something to Calcasieu River, y'all are going to do everything in the world, and then all of a sudden that is out of the wind.	The plan formulation process is an iterative process that develops and refines the proposed action based on consideration of existing, new and re-analyzed information. The study has moved from a general programmatic analysis documented in earlier draft reports and is now at a level of detail suitable for recommendation for construction. The NED RP will reduce risk of hurricane storm surge damage for residential and non-residential structures that have first floor elevations at or below the 0.25-year floodplain, based on hydrologic conditions predicted to occur in 2025. The NER RP will provide marsh restoration, shoreline protection and chenier reforestation to 15,636 net acres.

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65				oral comment	storm surge protection	What I'm concerned about is storm surge protection. And according to what you had on the slide right there was elevation, water coming up, land going down. Well, this is 25 years. I'm concerned about way in the future. You said levees and all of that. Levees does work. I was at a church in Lake Arthur and right there by the Catholic church they've got a levee right there where the town got a pumping station. If it wouldn't be for that when the Mermentau River went up, it'd have flooded. East Lake Charles has got a levee system. They got one right there on Interstate 10. They got a pumping station right there. That land is low. They got one right there by Pine Shadows Golf Course. You got one downtown. Downtown flooded. What they did is they raised the road right there. It didn't take them long to do that either. They got a pumping station. The only place we don't have protection is on Contraband Bayou. And the Corps of Engineers came down here, if I can remember correctly, and said that it wasn't enough damage, 200 and something houses got water in it during Hurricane Rita, to put a storm surge protection on Contraband Bayou. Storm levees do work. Look at Hurricane Ike. When Rita came through here, well Port Arthur was on the north end of the wind blowing. So the water didn't get there. When Ike came in there, look at Port Arthur, Texas, look at Bridge City, look at Orange, Texas. Bridge City and Orange, Texas got water damage like crazy. Look at Port Arthur, they've got a levee all the way around. They didn't have any storm surge. It's right there on the Gulf. My concern is whatever y'all are doing, appreciate whatever y'all are doing, I don't know much about what y'all are talking about, but I'm worried about storm surge protection. Thank you.	Structural (e.g., levee) alternatives were considered but were not cost effective. The Recommended Plan would reduce the risk of hurricane storm surge flooding for almost 4,000 structures.
66	Curtis Fountain	4/16/2015	public meeting	oral comment	enter, exit and dewater beamed structures	Curtis Fountain, District 1. You talked about building levees around dikes or berms around homes and/or businesses, but you didn't talk about how once these things were built how are you going to enter and how are you going to	Requirements for drainage are unique to each structure. Hence, more detailed design will be conducted during the preconstruction, engineering and design (PED) phase of the project.

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						exit? You didn't talk about how when these things fill up with water, how are you going to get rid of that water.	
67					options for structure owners that disagree with proposed actions	Also you painted a pretty picture but you didn't talk about the circumstances if these people didn't agree to your plan.	The Recommended NED Plan would be entirely voluntary participation *See response to "involuntary participation" and "eminent domain" comments in General Responses.
68					involuntary program and eminent domain	You did not talk about the ones that -- the involuntary program and eminent domain which that subject came up more than once, but it never was talked to here tonight. So my question is when are you going to give us the whole story. Thank you.	The Recommended NED Plan would be entirely voluntary participation *See response to "involuntary participation" and "eminent domain" comments in General Responses.
69	Nedra Davis	4/16/2015	public meeting	oral comment	Chenier Plain Coastal Protection Restoration Authority	My name is Nedra Davis. I'm the Executive Director of the Chenier Plain coastal Protection Restoration Authority. We are a three parish levee board. We represent Cameron, Calcasieu and Vermilion Parishes. I would like to recognize our president Mike Dever, our vice-president, Scooter Trosclair. Scooter is from Cameron, Mike is from Calcasieu, and I would like to recognize another Commissioner. Ryan Boyett. And we have been to several meetings over the past few weeks concerning all of these issues and we compiled a list of comments, and I'm going to run through these comments pretty quick because I've got three minutes.	Acknowledge receipt of comments
70					involuntary participation	So the first comment is the parishes do not want involuntarily participation paragraphs left in this plan. It was added after the 2013 Draft. We feel it has been added in at the eleventh hour and is completely inappropriate.	The Recommended NED Plan would be entirely voluntary participation *See response to "involuntary participation" and "eminent domain" comments in General Responses.
71					window survey	The second comment is the windshield data that was collected in 2010 is old. The drive by is not adequate. We don't have a list of what the properties are. And we want another look at that data. It's problematic.	The windshield data collection is consistent with requirements for feasibility report level of analysis. Additional detailed analysis will be conducted during subsequent project phases.

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72					historic & cultural	The third comment, the historical and cultural vision has been lost in this process.	Historic and cultural resources have been considered throughout the entire plan formulation process are specifically addressed subsections of Chapters 1 and 3. Effects to historic properties and cultural resources will be evaluated through consultation pursuant to the stipulations of the Section 106 programmatic agreements. The Recommended NED and NER Plans were developed to address coastal land loss and hurricane storm surge risk reduction to these resources.
73					project distortion	The fourth comment, there's project distortion in the same sections of some of the originally proposed areas from the parishes.	The plan formulation process is an iterative process that develops and refines the proposed action based on consideration of existing, new and re-analyzed information. The study has moved from a general programmatic analysis documented in earlier draft reports and is now at a level of detail suitable for recommendation for construction.
74					shape files	The fifth comment is shape file sharing has been problematic. The parish has requested the shape files since the 2013 Draft and as recently as January 2014 and the parishes have not received anything from the Corps or CPRA.	Each of the properties potentially affected by implementation of the NED Plan is presented in Appendix N to the Final Integrated Report displaying maps of all affected structures
75					Parish priority projects	Six comment, the parish priority projects are not being included.	Parish priority projects have been included as a separate Appendix P to the Final Integrated Report.

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76					Representative Boustany	The seventh comment is this study does not represent what was originally intended in Representative Boustany's bill.	The study is consistent with the study authorization Resolution of the Committee on Transportation and Infrastructure, U.S. House of Representatives, Docket 2747, on December 7, 2005. The study conducted a survey of the coast of Louisiana in Cameron, Calcasieu, and Vermilion Parishes, with particular reference to the advisability of providing hurricane protection and storm damage reduction and related purposes, including the feasibility of constructing an armored 12-foot levee along the Gulf Intracoastal Waterway. The 12-foot levee feature was evaluated and considered not viable because it would not provide the necessary hurricane storm surge risk reduction in a cost effective manner.
77					Parish priority projects	To sum up my comments, we want language in the study that does not preclude the parish priority list. We want all of the parish plans included in the appendices and we want language to also eventually include Calcasieu Parish Plan because it's not ready yet.	Parish priority projects have been included as a separate and new appendix to the Final Integrated Report.
78					involuntary participation and eminent domain	The involuntary and eminent domain, we want that out. The parishes do not want involuntarily participation.	The Recommended NED Plan would be entirely voluntary participation *See response to "involuntary participation" and "eminent domain" comments in General Responses.
79					Parish priority projects	And we also want to talk about if projects are not included in this plan, we feel that based on what we have with the master plan that if projects aren't included then they're like precluded later on from other federal funding sources like CWPPRA. So thank you very much.	Parish priority projects have been included as a separate and new appendix to the Final Integrated Report.

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80	Marshal Young	4/16/2015	public meeting	oral comment	sea level rise	My name is Marshal Young and I really wish I had had a chance to say something while you were answering. Because it seems to me that you adhere to Al Gore's global warming. You said in 2075, I believe it is, you expect the seas to raise four foot. That's arbitrary. I can say, I don't think it's going to raise at all. Matter of fact it's going to go down. That's an arbitrary figure.	ETL 1100-2-1 dated 30 June 2014 provides guidance for projected future sea level change on USACE projects.
81					Corps of Engineers poor track record	Another thing is I really wish you would sell me on why I should go along with the Corps of Engineers when the poor track record that they've got when I look at Katrina and what happened to New Orleans and the levees that were built there, the property my family has got up in Calcasieu Parish that was deemed wetland that has never flooded so sell me on why I should believe the Corps of Engineers and what they're putting forth as what's going to happen in 2075?	Due to the uncertainty and variability of future sea level change, social, economic, and ecological changes, and their associated interactions, the USACE employs a robust framework for project performance that is flexible and adaptable to multiple future scenarios. Emphasis is placed on both how the project operates within a larger system and how project decisions made today can influence future system responses to perturbations through adjustments, feedbacks, or cascading impacts. Robustness is considered to be the ability of a project or system of projects, or their adaptation strategies, to continue to perform satisfactorily under changing conditions and over a wide range of conditions
82	Cynthia Sellers	4/16/2015	public meeting	oral comment	voluntary/involuntary	Hi, my name is Cynthia Sellers. I'm a Cameron Parish resident. I as one of the very few Cameron Parish residents who attended the January 2014 meeting and only about two or three of us actually made comments. I made several and one of them was we were concerned about the destruction of homes in the flood zone, but we don't have many homes left. The official response which we just received was actually given verbally but not during the comment period, but the official response was all participation will be voluntary. That's in black and white. And I really want to know when the change was made, when this was added and why. That's my comment for now.	The Recommended NED Plan would be entirely voluntary participation "See response to "involuntary participation" and "eminent domain" comments in General Responses.
83	Billy Dorian	4/16/2015	public meeting	oral comment	Cameron Parish protection and restoration	I'm Billy Dorian, Grand Chenier. I just want you to know it's been a long hard road to hold since Hurricane Rita. People have been through a lot here. If you go back and look at that look	The Recommended Plan would reduce the risk of hurricane storm surge flooding for almost 4,000 The Recommended Plan also includes marsh and chenier restoration features and

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						book, Cameron by Nolan Mae Ross. It shows a picture of Hurricane Audry. The day after the storm, there wasn't nothing left in Cameron. It shows a picture a year later after Hurricane Audry and the streets were full of people. In Cameron Parish today and everything today, we don't have anybody. This land of protection and restoration is great. We definitely need something done on our coast, but what I've seen tonight, what's going on here, is death and destruction of Cameron Parish and putting the last nail in our coffin.	shoreline protection features resulting in creation, nourishment and/or protection to over 16,000 net acres and over 5,000 average annual habitat units.
84	David Richard	4/16/2015	public meeting	oral comment	Congressman Boustany	David Richard, y'all have already heard some of my comments but for the official record. I'm going to say a number of things. Number 1, I want to concur with what was said earlier that this was not what Congressman Boustany had in mind when it was envisioned 10 years ago. We're seven years overdue in regard to when your time limit was, and as an official comment, you can answer why.	The study is consistent with the study authorization Resolution of the Committee on Transportation and Infrastructure, U.S. House of Representatives, Docket 2747, on December 7, 2005. The study conducted a survey of the coast of Louisiana in Cameron, Calcasieu, and Vermilion Parishes, with particular reference to the advisability of providing hurricane protection and storm damage reduction and related purposes, including the feasibility of constructing an armored 12-foot levee along the Gulf Intracoastal Waterway. The 12-foot levee feature was evaluated and considered not viable because it would not provide the necessary hurricane storm surge risk reduction in a cost effective manner.
85					study cost	I'd like to also know in a comment how much this study cost.	The total cost for the Southwest Coastal Study is $10,560,000
86					nonstructural and eminent domain	I've been involved intermittently with these calls for 10 years now getting to this and we see nonstructural means and involuntary participation added in the last 30 days that we've seen it. For 10 years, we have never seen or heard about involuntary participation. The use of eminent domain is inexcusable and that is my comment in regard to that.	The Recommended NED Plan would be entirely voluntary participation "See response to "involuntary participation" and "eminent domain" comments in General Responses.
87					Parish priority projects	The second thing is that we can see that some of the projects were precluded in this study because you used the 2012 Master Plan. The 2012 Master Plan did not include the projects that were listed for Cameron Parish. And I think that's why we're so adamant about having an	Project features were developed from a many different sources as well as those developed by the study team. Parish priority projects have been included as a separate and new appendix to the Final Integrated Report.

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						appendices of the projects that had been proposed for Cameron and for Vermilion Parish.	
88					reforestation of Cheniers	The parishes have used lots of people, lots of manpower, lots of time to put projects together that should be funded and they should be funded in an ecological way. We have had a number of programs to reforest Chenier ridges. There has been money for that for years. Because of encroachment that the government agencies wanted to do as far as reforestation, you've seen almost none done in Cameron Parish and you won't see any done in Cameron Parish unless they're forced to.	Restoration of the Chenier forests is considered important not only for stopover habitat for migrating neotropic birds, but to also provide habitat to other wildlife as well as providing historic and cultural and other benefits for the human populations.
89					cultural heritage	I think that some of the issues that you're doing here will destroy the cultural heritage. One of the initial components of this project was to maintain the cultural heritage of Cameron. I am going to have my own written comments. But for this evening, thank you for your time.	Historic and cultural resources have been considered throughout the entire plan formulation process and are specifically addressed in Chapter 4 and 5 the Final Integrated Report devoted entirely to these resources.
90	Mike	4/16/2015	public meeting	oral comment	infrastructure	This is Mike (inaudible) with Jeff Davis co-op. I am commenting on the infrastructure requirements that may be needed when all of these things are done. The switching of connection points for electrical service, water service, any type of service, and would like a comment if those costs will be included or covered so the people of Cameron Parish don't have to cover those costs. Plus any of these sites that you have identified if they're anything to do with infrastructure if those costs will be taken care of also. So ultimately the co-op people of Cameron Parish pay the rates for the electricity or any kind of services they get, if those happened to be altered will the cost be covered where the costs don't have to be passed through the people of Cameron Parish. Thank you.	The nonstructural work would include reconnecting existing services once construction is completed. Appendix L of the Final Report provides additional information concerning eligible and ineligible Project costs.
91	Ray Clement	4/16/2015	public meeting	oral comment	involuntary participation and eminent domain	I'll stand for this one. My name is Ray Clement. I go back a long way in this parish. My family has been here for – I guess my grandfather has been here since before the end of the 18th century. And I look at the people here. The	The Recommended NED Plan would be entirely voluntary participation "See response to "involuntary participation" and "eminent domain" comments in General Responses.

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PUBLIC MEETINGS							
						people that we have lost because of the regulatory concerns that were placed upon them. It's hard to see families displaced. The youngsters are leaving this parish to find a better life for themselves, yes. But Cameron Parish is losing its population which means it's going to lose its tax base. Anything that you do involuntarily to people are going to force them out of the area.	
92					tax base	One thing Cameron Parish has going for it is it's one of the richest parishes in the state because of the oil and gas revenue. We understand that, part of it. But if you don't have people to use the infrastructure that has been placed here and is trying to survive, if we don't have a tax base to help with that, it's going to be a difficult problem.	A primary goal of the Nonstructural NED Recommended Plan is to reduce the risk of hurricane storm surge damages for residential and non-residential structures that have first floor elevations at or below the 0.25-year floodplain, based on hydrologic conditions predicted to occur in 2025 (the beginning of the 50 year period of analysis). This would contribute to helping maintain the parishes' tax base.
93					sedimentation	Shifting gears, the comment was made a while ago about the loss of sedimentation because of the channelization projects of the Corps. I feel you need to look at that part of it. Mother Nature knows best. We didn't have these problems in the twenties. Yes, we had flooding. We understand that part of it. But Mother Nature was replacing what was being lost on an annual basis with the channelization projects the Corps undertook to try and protect people from the flood waters, the impact to the coastal regions and other regions as well is self-evident. All we have to do is look at the pictures that we have of what it was back then and what it is today. With the subsidence of the coastline, with the plate that continues to subside that we live on, and with all of the soil being channeled out off of the continental shelf, where it's not being able to be replaced on the grounds that we're trying to walk on, I think that you need to include in this study some way to get the sediment that's being channeled out back onto the grounds that we're trying to live on. You know, if you don't have a place for the people to live, they're going to have to move. There's no	The complexity of the southwest coastal system include loss of sediments. This and other reasons is why we are recommending the Calcasieu Ship Channel Salinity Barrier feature and the Cameron-Creole Spillway Salinity Control Features are recommended for long term study.

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						doubt about it. It's incumbent upon you as individuals who are trying to do something to help the people, and that's the caveat.	
94					inform public of meetings	Help the people. If you don't have that in the back of your minds when you're trying to develop a study, and I know looking at what I see here, the one big problem I have with this, I found out about this at 2:00 this afternoon. I didn't even know this study was ongoing.	Restoration and protection of coastal wetlands and chenier habitats could help buffer and protect human habitations. Restoration of coastal wetlands would also help improve water quality by filtering pollutants and sediments. The NED Recommended Plan will provide reduced risk of hurricane storm surge damage for a total of 3,961 impacted structures including reduce risk for residential and non-residential structures that have first floor elevations at or below the 0-25-year floodplain, based on hydrologic conditions predicted to occur in 2025 (the beginning of the 50 year period of analysis).
95					help the people	As a property owner, you would expect -- now, I'm not in this area. I live in Lafayette, but this is where I grew up. I'd like to be able to bring my grandkids and my great grandkids back down here so they can enjoy the things that I enjoyed, but we're losing that every day. So I'm asking you guys -- I know Jennifer. We work together. I'm asking you-all to help us, the people. That is your job. Your incumbent to help the people, not hurt them. Any project that you undertake	Restoration and protection of coastal wetlands and chenier habitats could help buffer and protect human habitations. Restoration of coastal wetlands would also help improve water quality by filtering pollutants and sediments. The NED Recommended Plan will provide reduced risk of hurricane storm surge damage for a total of 3,961 impacted structures including reduce risk for residential and non-residential structures that have first floor elevations at or below the 0-

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PUBLIC MEETINGS							
						should be to make things better for Cameron, Calcasieu, all the way down the coastline. I'm not just looking at Louisiana. I'm looking at Mississippi, Alabama, and Florida. You know we're all impacted the same way. I worked on a lot of problems in my tenure with the state and every project that we undertook was to try and make things better for the people. In fact, that's the first thing in our code is our main concern is to help the people of this state, and I'm asking you guys to reflect on that when you take a look at this revised plan. And when you put it out as a final, try to give us as much time to review it. I'd like a copy of the CD if I can get it so I can review the plan at east. So I'll have some further comments to make before the May deadline. Thank y'all for what y'all are trying to do for the State. I'm not going to throw rocks at you guys. We need the help. So I'm asking you to try and find a way to help the people because we've got to keep the people here. If we don't have people here, what do we have, just open land. And we're losing that as you can see. Thank y'all.	25-year floodplain, based on hydrologic conditions predicted to occur in 2025 (the beginning of the 50 year period of analysis).
96	Benny Welch	4/16/2015	public meeting	oral comment	industry-caused land loss	My name is Benny Welch. I'm from Oak Grove. I would like to make three comments. Number 1, I have been here a long time and I was raised on Hackberry Beach almost. And at that time when I was 16, 17 years old, Hackberry Beach was a Chenier and about half a mile out in the Gulf was another Chenier forming and then we had the jetties that were built, you know, for industry, and we all know that if you come south of Fresh Water City, Rockefeller is gone. If you come west of Grand Chenier, Rutherford Beach is gone. If you go west of Sabine, you can't even go to Galveston on that road anymore. So how are you going to interact industry which is causing this and nature like that?	Land loss in southwest coastal Louisiana is from many different and interacting human and natural sources. The NER RP includes marsh restoration features, shoreline protection/stabilization features, and chenier reforestation that will work synergistically with other ecosystem restoration projects in the area and facilitate hydrologic and geomorphic stability and resilience.

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97					100 year forecast and global warming	Number 2, the 25-year plan and a 100-year plan. How do you know what's going to be out in a hundred years from now? People get married and they're in love and they just we're going to be together forever and ten years later, they can't even stand each other, you know. I'm not saying it to be funny. It's just a hundred years from now, what's going to be happening down here a hundred years from now? If you will remember during the Jimmy Carter administration we were preparing for an ice age. Everything pointed to an ice age coming. Now, its 30 years later, we're preparing for global warming.	The Principles and Guidelines (P&G) is the latest version of the Corps planning process that is structured and rational approach for solving problems that has been evolving for over 200 years and is consistent with good planning theory. ETL 1100-2-1 dated 30 June 2014 provides guidance for projected future sea level change on USACE projects.
98					wind damage to elevated structures	And number 3, I've been through three hurricanes, and two of them were in the northeast quadrant and my house is elevated. It doesn't make any difference how high your house is or what's going on with water or anything when the winds are coming in at 175 miles an hour and there's no let up, your house is gone. Luckily my house made it the last time. One of the very, very, very few. It made it but it didn't make it. We had to go back and work on it. That's just things you're going to have to look at.	The NED Recommended Plan is to reduce risk of hurricane storm surge damage for residential and non-residential structures that have first floor elevations at or below the 0-25-year floodplain, based on hydrologic conditions predicted to occur in 2025 (the beginning of the 50 year period of analysis). Elevation of structures would be limited to 13 feet due to potential for greater wind damages. If the required elevation is greater than 13 feet above ground level, the structure would be ineligible to participate due to engineering and risk related factors.
99	Paul Sellers	4/16/2015	public meeting	oral comment	height of elevated structures	My name is Paul Sellers, and I normally don't like getting up in front of people. But looking at your plan and just what I read, you already have one glaring wrong. You're saying 13 feet. Go to Holly Beach, you're looking at what, Ray, 14? MR. RAY: 17, minimum of 17. MR. SELLERS: 17 feet. Most of the people down here have to go a minimum 15 feet. So you're saying 13. The government is saying 15 to 17. Who's going to pay the insurance difference in between?	Elevation of structures to greater than 13 feet is not acceptable due to the risk of exposure to greater wind damages. If the required elevation is greater than 13 feet above ground level, the structure would be ineligible to participate due to engineering and risk related factors.

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PUBLIC MEETINGS							
100					flood insurance and structure elevation	I have property – my family is from Abbeville. They got hit with a $250 raise on their flood insurance for certain properties that never flooded through Audrey, where I was in Abbeville for Audrey. Rita it never flooded. Ike it never flooded. Like I said, the rental properties up there, business properties got hit with an extra $250 and may go up next year. So you're saying 13 feet, the government is saying 17, 14, 17, 22. I think it's 22 by the beach over there. So I mean, there's some glaring some obvious things just from my reading it now that y'all are going to need to check on.	The combined effects of the Biggert-Waters Insurance Reform Act, the modified conditions imposed by the Homeowner Flood Insurance Affordability Act, and the likelihood of property transfers provide an incentive for property owners to have their structures flood-proofed. In addition, the clear and present risk of future storm surge events, and subsequent disaster declarations and relief funding, indicate potential situations for advantageously incentivizing and accelerating implementation. Elevation of structures to greater than 13 feet is not acceptable due to the risk of exposure to greater wind damages. If the required elevation is greater than 13 feet above ground level, the structure would be ineligible to participate due to engineering and risk related factors.
101	Ryan Bourriaque	4/16/2015	public meeting	oral comment	buy out and relocation	Ryan Bourriaque, Grand Chenier. I tell you what we have some pretty intuitive residents if y'all haven't noticed. Show of hands how many of the residents here have heard relocation and buyout discussed before? How many of your grandparents, parents discussed Cameron Parish being a wildlife reserve, a bird sanctuary, on and on and on. This isn't the first time we've heard it. I think the problem with hearing it is when we heard it. Ms. Cindy was exactly right with her comments. Her specific comment was we have industry coming back to this parish. We have a parish that's revitalizing itself. The last thing we want to do is if someone is not able or willing to elevate. If we have a 70 year old couple, not picking on the 70 year olds. If we have a 70 year old couple that has made it through three major hurricanes, there's a reason because it's constructed well, they took care of their home, they raised their family here. If they don't want to leave, but they don't want to elevate, I don't think we should make them. I just don't. How many of your grandparents, parents discussed Cameron Parish being a wildlife reserve, a bird sanctuary, on and on and on. This isn't the first time we've heard it. I think the problem with hearing it is when we heard it.	The Recommended NED Plan would be entirely voluntary participation *See response to "involuntary participation" and "eminent domain" comments in General Responses.

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Table 3. Comments on the Revised Integrated Draft Feasibility Report and Environmental Impact Statement							
Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
PUBLIC MEETINGS							
102					cultural heritage	How many people here grew up in this parish and their parents grew up in this parish? How about grandparents? How about great-grandparents? How about five generations back? How about seven generations back? That's why you have so many people here tonight. It's not -- they're not here to complain. They're scared they're losing the culture and heritage that they and their ancestors worked so hard to build for my generation and my two daughters. My two daughters in Grand Chenier is the seventh generation in my family to grow up on the same piece of property. That means something to us. There's value in that. At the end of the day, I think we'll be able to work through all of these issues, okay.	Historic and cultural resources have been considered throughout the entire plan formulation process are specifically addressed subsections of Chapters 1 and 3. The Recommended NED and NER Plans were developed to address coastal land loss and reduce risk of hurricane storm surge damages to these resources.
103					residents fearful	But here's the problem. We're nervous. We're scared. We've heard that it was going to be okay before and it wasn't. We've heard we were going to be taken care of before and it wasn't. And we're a hard working group of people that normally take care of themselves anyway, you know. So going back to what we're talking about here.	Following approval by the Chief of Engineers, the Recommended Plan is then subject to Administration Review by the Assistant Secretary of the Army for Civil Works and the Office of Management and Budget before being submitted for Congressional authorization and appropriation of construction funds.
104					Benefit to cost ratio versus value of oil and gas industry and fishing	Specifically in the study, we're going to talk about the benefit cost ratio and how some of these nonstructural and structural measures made it through. I think what we're neglecting to discuss is the value that we have in this parish across the board. LNG is expanding. A top two seafood fishing port, not that long ago. It's suffering right now. We understand that. We're putting some infrastructure in place to try to help that. We're open to the fishing industry. Hell, that's what made us. Before oil and gas was here, there were fishermen here.	The cost/benefit analysis was conducted consistent with the Appendix D, Economics and Social Consideration in Environmental Regulation 1105-2-100.

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Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
PUBLIC MEETINGS							
105					cultural heritage	And way back in the 1800's when that British topographer claimed this was an uninhabitable wasteland. Some of our family members were living there. Some of our family members had already been buried here whenever that British topographer floated in his little boat along the Gulf of Mexico. So the thing about it is, we're a top beef producing county. We're the healthiest, don't ask me how. We're the healthiest parish in the state of Louisiana. We did not fund this study. The University of Wisconsin, a bunch of Yankees took care of it for us. They must not have come and done surveys through the Fur Festival because they might not have done so well. We don't know how. Don't know how we're the healthier parish. We have the second highest average median household income in the State of Louisiana. Now think about that. Our households bring in over $64,000 a household. That's special. That's special. So we have people here who are succeeding. We have people here who have had a rough spot. No doubt about it. We weren't the first ones to go through a rough spot, people. There were those before us that went through the same rough spots, if not worse. They pulled through. You want to know why? They had faith in each other and faith in this parish. That's what we're going to find again. And we're going to work with Mike. We're going to work with Congressman Boustany and CPRA and the Corps, but we're not going to sell ourselves down the river. We can't.	Historic and cultural resources have been considered throughout the entire plan formulation process are specifically addressed subsections of Chapters 1 and 3. The Recommended NED and NER Plans were developed to address coastal land loss and reduce risk of hurricane storm surge damages to these resources.

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Table 3. Comments on the Revised Integrated Draft Feasibility Report and Environmental Impact Statement							
Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
PUBLIC MEETINGS							
106	Mr. Miller	4/16/2015	public meeting	oral comment	FEMA	MR. MILLER: I am getting back to my original comment. I asked you if you were working with FEMA and I've heard you talk, and Paul asked you the elevations and everything. All of that needs to be known to the public before you make your final survey, I mean your final whatever it is. You're not giving us enough information.	USACE and FEMA have coordinated to develop the nonstructural plan. The Nonstructural NED RP is to reduce hurricane storm surge risk for residential and non-residential structures that have first floor elevations at or below the 0.25-year floodplain, based on hydrologic conditions predicted to occur in 2025. All information on the details of the nonstructural plan can be found in Chp. 4 of the main report and Appendix L.
107	Unidentified	4/16/2005	public meeting	oral comment	Sabine Neches Channel	UNIDENTIFIED: Just one more official comment for your record. One of the areas you pointed to is western Cameron that has such land loss. The Sabine Neches Channel has now been authorized to 50 feet. I asked you-all this at a meeting a month ago but it wasn't official, so I'm going to ask you now. Is that the model, the expansion of the Sabine Neches Channel in regard to the saltwater intrusion and the wetland degradation, tide land pontoons and salinity increases that will happen with that increase. Thank you.	The study team coordinated with Galveston District regarding the oyster reef feature and a salinity control feature. The Galveston District modelers indicated that proposed salinity control feature could potentially cause a navigation hazard due to strong currents in the area.

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Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
PUBLIC MEETINGS							
108	Ms Jones	4/16/2015	public meeting	oral comment	flood insurance and elevation	One of the objectives I note up here is reduce flood insurance premiums, and one of the good things that we noticed when we elevated our homes after Rita is that the flood insurance went down. My office right now is $15,000 a year. Now it's worth it to me to stay here. That's what I want to do. But I could sure use some help with that. We had a program a while back about we were going to elevate commercial buildings, and I filled out this much paperwork, and I got three bids, and it was way more than the market value of my office to elevate that building because it doesn't look like it from the outside but it's pretty large.	The Nonstructural NED RP is to reduce risk of hurricane storm surge damage for residential and non-residential structures that have first floor elevations at or below the 0.25-year floodplain, based on hydrologic conditions predicted to occur in 2025. Pursuant to 42 U.S.C. §5154a, failure to maintain flood insurance on a property may prohibit the owner from receiving Federal disaster assistance with respect to the property in the event of a flood disaster. The property owner is also required to maintain this property in accordance with the flood plain management criteria of Title 44 of the Code of Federal Regulations Part 60.3 and the floodplain management regulations adopted by the community within which this property is located.

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109					cost benefit analysis	So I'm concerned that we're going to have that type of cost benefit analysis as I think is what they called it to the elevation program because it is very expensive to elevate a building especially a building on a slab.	The cost/benefit analysis was conducted consistent with the Appendix D, Economics and Social Consideration in Environmental Regulation 1105-2-100. A full description of how the economic analysis was conducted is available in Appendix E - Economics.

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Table 3. Comments on the Revised Integrated Draft Feasibility Report and Environmental Impact Statement

Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
PUBLIC MEETINGS							
110					flood proofing	And you know, we may run into that being something that causes -- because this flood proofing thing here, that's not going to work in Cameron. You can put a little three foot thing there and that's not going to help you when we have storm surge. Thank you.	These measures are intended to reduce the risk of damage from hurricane storm surge not eliminate floodplain management and flood insurance requirements. Localized storm surge risk reduction measures less than 6 feet in height will be installed around warehouses if the owner chooses to participate in the Project and the warehouse meets the eligibility criteriat.
111	J.C. Reina	4/16/2015	public meeting	oral comment	cultural heritage/real help	My name is J.C. Reina. I'm from Cameron Parish, Oak Grove, and I've been here a pretty long while and I've spent a lot of my time working -- all of my time really working in this parish. 89 years old. I've been working with this parish ever since 1950. Of course, my wife was here before me. But anyway we've lost an awful lot. I want to reiterate what the others have said before me about how important these cultural things are to us. It's not just the loss. What you're going to raise up and how much it coast. My house was lost for Audrey. It was in the Gulf. I went through Rita and Ike. I'm still here. And that's the most important thing is to get back on my feet, built my house as soon as I can without all of the commotion. In 2007 is when I finally got my house built. It should have been done in 2006. The thing I'm trying to say with these comments is we've had enough. It's time for us to have a little bit of help. Real help.	Historic and cultural resources have been considered throughout the entire plan formulation process are specifically addressed subsections of Chapters 1 and 3. The Recommended NED and NER Plans were developed to address coastal land loss and reduce risk of hurricane storm surge damages to these resources. NED Recommended Plan (RP) is to provide hurricane storm surge risk reduction to reduce the risk of flood damages caused by hurricane storm surge. Eligible properties must have a first floor elevation at or below the 2025 25-year Base Flood Elevation (BFE). Eligible structures would be raised to the 2075 100-year BFE.
112	Stacy Vecret	4/16/2015	public meeting	oral comment	involuntary participation	Hi, I'm Stacy Verret and I live in Grand Lake. Like all of y'all or most of y'all have been here y'all's whole life. That's not the case for us. We decided because of the sense of community to relocate here. We grew up in Calcasieu Parish. Me and my husband bought 15 acres and have built a home here. When we built, we knew if a hurricane came in that we were going to have some damage that probably, you know, the winds was going to get us and our home never flooded, but it surely had plenty of water because of the wind. And I just want to go on the record as saying anything done in this parish involuntarily is not going to work. It's not right. We kind of know what's going to happen. And trying to foresee what's going to happen in a	The Recommended NED Plan would be entirely voluntary participation "See response to "involuntary participation" and "eminent domain" comments in General Responses.

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Table 3. Comments on the Revised Integrated Draft Feasibility Report and Environmental Impact Statement

Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
PUBLIC MEETINGS							
						hundred years to me is ridiculous. We don't know what's going to happen in a hundred years and there's been plenty of studies done that are wrong. So I just want to go on record saying that anything done involuntary is objectionable.	
113	Dinah Landry	4/16/2015	public meeting	oral comment	State cost share	I'm Dinah Landry. I'm the director of the Cameron Council on Aging and I'm in Baton Rouge quite a bit because we deal with budgets and we deal with the legislature. My concern is that when Ryan pointed out there's a 35 percent state match is what y'all said, I have no idea where the State of Louisiana is going to get that kind of money in this legislation session or the next legislation session or the next. So I have a big question mark when it comes down to is the legislature going to provide that kind of money.	Before construction may proceed, a Project Partnership Agreement (PPA) must be signed. The PPA is a legally binding agreement between the Government and a non-Federal sponsor (state, municipal government, flood control district, port authority, etc.) for construction of a water resources project. It describes the project and the responsibilities of the Government and the non-Federal sponsor in the cost sharing and execution of work.
114	Scotter Trosclair	4/16/2015	public meeting	oral comment	Rockefeller Refuge	Scooter Trosclair with Rockefeller Wildlife Refuge, Program Manager, Chenier Plain also serve with the Gravity Drainage District Number 5. Also lived and grew up in Grand Chenier. My family was a big component with the fishing industry here in Cameron Parish with establishing the fur industry, also trapping and just living off the land. You know, you're looking at the group of people that, when you talk about survival of the fittest, here they are. There's no doubt about it. Just to go a little bit more about Rockefeller. You mentioned the shoreline stabilization project. That property was donated to the state maybe part of the state. There's no tax infrastructure. There's no license sale. This is funded -- self-funded from oil and gas and it's a success story from oil and gas. The same thing with this parish. We're rebuilding 74 miles of levee right now. We're rebuilding what we call the sub basin protection levee which is a 21 mile stretch of levee that we had to fight to get rebuilt. Before Hurricane Rita hit, we had it at an 11 foot elevation and they wanted to charge us $8 million to mitigate for building an existing levee. I took the Corps out there. We probed it. Thank God they were willing to work and set this thing up which is happening right now. Some of that is FEMA reimbursement.	Shoreline protection features 6b1, 6b2, and 6b3 incorporate the design and construction of a portion of a CWPPRA demonstration project (ME-18) along the Rockefeller Refuge shoreline.

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Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
PUBLIC MEETINGS							
						Thank God they're willing to help. But when I read the study, if I recall right, it was just like Rockefeller Wildlife Refuge, like a two or three sentence deal. It's more than that. We invest to help the community, okay? Drainage I just got a text there from a guy up in Gueydan on the east end locks open, we're getting seven inches of rain. It happens all the time. We're cutting levees. The levees are important because of the coastline retreating. We have to build the levees. But we also have the east end locks. You had five locks listed in the plan. East end lock should be in that plan. We're losing -- I think I mentioned 15,000 acres is what's estimated to be lost since the property has been donated. We're at a rate of 35 feet per year. We're up close to 70 feet per year. There's an area that the CWPPRA program is investing that's going to end up being $50 million. Why are we investing $50 million when the coast is actually a mile away going in to jeopardize these projects without first fixing the first line of defense, our coastline? I think a lot of that would solve a lot of these problems if we can stabilize that coast first. We haven't lost our property yet. The eastern part of the state is a different story. Let's not get to that point. Thank you.	
115	Mr Johnson, Parish Sheriff	4/16/2015	public meeting	oral comment	eminent domain and people will not move out	As sheriff of the parish, I want to make one final note for the federal government since this is the comment period. I can't say anything any better than our citizens have said it. Also noted that we've had the best turn out of the three meetings that you've had and probably the most partially populated area, but the best turn out. Now, I think the messages have come across very clear. We're not going anywhere. We're going to be here. And people was wondering what was happening in a hundred years from now or the year 2075, that's the year our great grandkids are still going to be here. So to the federal government from the Sheriff of Cameron Parish, we're going to be here. We're staying here.	Comment acknowledged.

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Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
				PUBLIC MEETINGS			
116	Terry Beard	4/16/2015	public meeting	oral comment	request information and transparency	I am Terry Beard. I'm Police Jury District 4. I spent 23 years living here in Cameron and I've moved back to Sweet Lake, the northern end of the parish. I've spent half of my life there. If you've listened to all the people here tonight, you'll know we know you're here now. We want information. Let us know what's going on. Be transparent as you can with us. They all had good statements here tonight. But we will be watching. We want to know what's going on, but we will be watching.	The comments and responses are provided in the Final Integrated Report which will be provided for public review. The study team will continue to engage various elements of the public to inform about the progress of the study.
117	Kirk Quinn	4/16/2015	public meeting	oral comment	provide comments	Kirk Quinn, Cameron Parish Police Jury, District 3 and current president. A lot of people in this room, a lot of comments, a lot of people staring and don't know what they're looking at right now. They know what they're looking at but they're not hearing what they want to hear. I hope each and everyone of y'all submit a written comment, flood them, make them have to read every one that comes through. It's the only way we're going to get a word in, and I'm going to be here on behalf of all the jurors. I'm going to be here to let y'all know we're going to fight tooth and nail to get this right for each and every one of y'all for the whole parish. It's not just one district, it's going to be the whole parish, east and west, north and south. We're here. If y'all got any questions, call us, call me, call any of your jurors. Call Ryan Bourriaque. I'll give y'all his direct line. No, I want to let y'all know thank y'all for showing up for the support and asking all of the questions and giving all the comments. It's a very good thing and there's a lot of people in here that's been here a long time. And the alligators are hungry around here, so.	Acknowledged.
				TELEPHONE COMMENTS			
1	Billy Waters	April 16, 2007	public	telephone	buying land	Mr. Waters saw a newspaper article about the Southwest Coastal Louisiana Revised Integrated Draft Report and EIS and thought the government was looking to buy land, as he had a parcel of land for sale.	Clarified the purpose of the project for him was hurricane storm surge risk reduction. Mr. Waters again offered his land for sale.
2	Jolene Lane	April 27, 2015	public	telephone	eminent domain	Request to remove the eminent domain language from the Southwest Coastal Louisiana Feasibility	The Recommended NED Plan would be entirely voluntary participation *See response to

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Table 3. Comments on the Revised Integrated Draft Feasibility Report and Environmental Impact Statement							
Comment #	Person/Agency	Date	Source of Comment	Mode of Comment	Theme	Comment (may be paraphrased or summarized)	Response
PUBLIC MEETINGS							
						Report. We live in a flood zone and we do not want our property taken away from us.	"involuntary participation" and "eminent domain" comments in General Responses.
3	Robert Duboit	April 16, 2015	public	telephone	map of affected structures	Mr. Duboit requested access to more detailed map showing individual structures to be elevated or acquired.	Informed Mr Duboit that the map was purposely kept at a very broad scale so that individual structures could not be identified because the planning was still ongoing and the plan could significantly change. In addition, Each of the properties potentially affected by implementation of the NED Plan is presented in a new appendix to the Final Integrated Report displaying maps of all affected structures.
*GENERAL COMMENT RESPONSES							

Response regarding "eminent domain" and "involuntary participation"
Initially, the draft study recommendation was that severe repetitive loss structures, structures with any life and safety risk, and structures located within the regulatory floodway were to be acquired, either voluntarily or, in the alternative, through the use of eminent domain, and removed from the floodplain. However, due to valuable input from members of the public and from local officials, the USACE and the CPRAB have modified the NED Recommended Plan to make it entirely voluntary. No acquisition and removal of structures from the floodplain would occur under the NED plan. Any structure that requires raising greater than 13 ft above ground level would be ineligible to participate due to engineering and risk related factors..

Response regarding Parish Priority Projects: A copy of the most recent available Parish Priority Projects has been included in Appendix P.

Response regarding 'Local sponsor' be chosen: The State of Louisiana through the CPRA is the non-Federal Sponsor for the study. Other Parish and local community officials have been and will continue to be invited to participate in the study process.

Response that reforestation measures be replaced by shoreline protection measures: five shoreline protection measures would provide a net benefit of 6,135 acres of protection with 1,738 AAHUs over the 50-year period of analysis. Whereas, the 35 chenier measures would reforest live oak and hackberry tree species for a net total of 1,413 acres with 538 AAHUs over the 50-year period of analysis. According to the Louisiana Natural Heritage Program (source: http://www.wlf.louisiana.gov/sites/default/files/pdf/fact_sheet_community/32367-Coastal%20Live%20Oak-Hackberry%20Forest/coastal_live_oak_hackberry_forest.pdf; accessed January 25, 2016) Louisiana's coastal chenier forests occur in the Chenier Plain from Iberia Parish westward across Vermilion and Cameron parishes. Of the original 100,000 to 500,000 acres in Louisiana, only 2,000 to 10,000 acres remain, 2-10 % of presettlement extent.

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ATTACHMENT 1

SIGN-IN SHEETS FOR
APRIL 14, 2015, VERMILION PARISH PUBLIC HEARINGS/MEETINGS

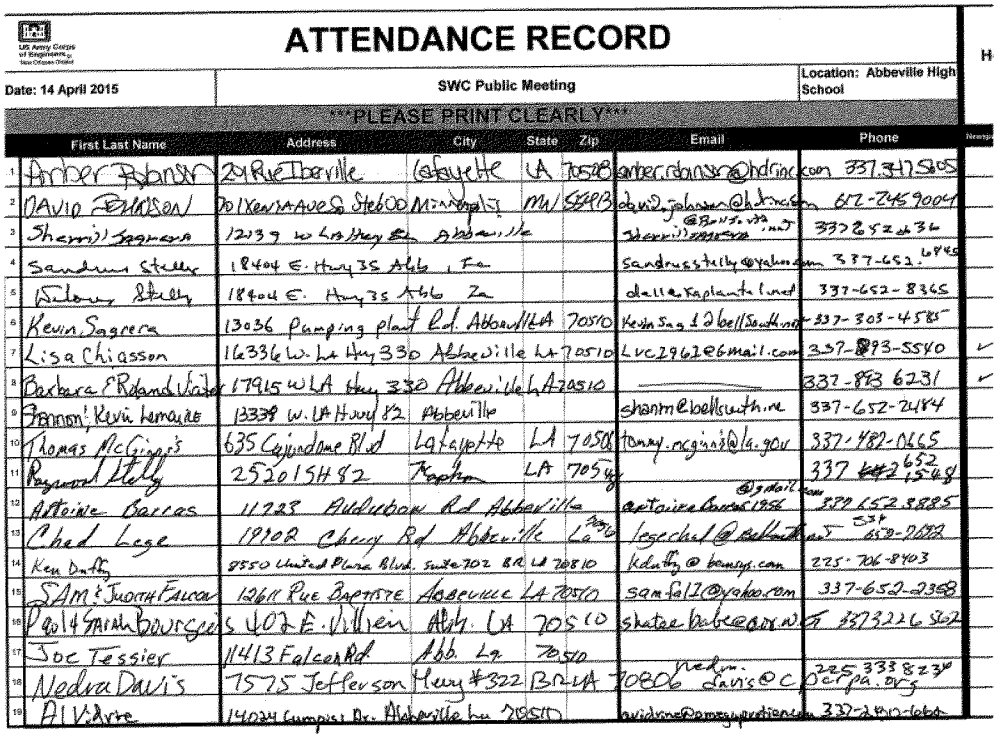
US Army Corps of Engineers New Orleans District

ATTENDANCE RECORD

Date: 14 April 2015 | SWC Public Meeting | Location: Abbeville High School

PLEASE PRINT CLEARLY

	First Last Name	Address	City	State	Zip	Email	Phone
1	Priscilla Cormier	21308 Pine Island Rd	Abbeville	La	70510		337-344-4300
2	Joseph Cormier	21308 Pine Island Rd	Abbeville	La	70510	jcormier502010@yahoo	337-257-9529
3	Lonnie Fontenot	P.O. Box 1324	Jennings	LA	70546	lfontenot@jescous.com	337-824-9074
4	Pat Landry	635 Cajundome Blvd	Lafayette	La	70506	patrick.landry@la.gov	337 482-0680
5	Patrick Duhon	818 S. Henry St. Abbeville, ~~LA~~ 70		LA	70510	bighunke20@yahoo.com	337-351-7946
6	Randy Moertle	1008 Mar Dr., Lockport, LA			70374	rmoertle@bellsouth.net	985-856-3630
7	Cathy Sagrera	13411 Nelson Dr	Abbeville	LA	70510	cathy_sagrera@bellsouth.net	(337) 893-5317
8	Lynn Sagrera	13411 Nelson Dr	Abbeville	LA	70510	↑same	↑same
9	Stacy Landry	20126 Horseshoe Rd	Abbeville	La	70510	stacy_gle@cox-internet.com	337-898-2242
10	Allen Lamaire	11799 Hilton R	Maurice	La	70555		517-5369
11	John Boudreaux	8301 Agnes Plantation	Abbeville, La		70510	agnesplantation@bellsouth.net	893-6743
12	James Theall	21975 LA Hwy 333	Abbeville, LA		70510	JimTheall@bellsouth.net	893-6415
13	Mark Shirley	8632 Meadow Lane	Abbev.		70510	mshirley@agcenter.lsu.edu	
14	Sylvia Trahan	19905 Cuz Rd	Abb		70510	strahan@agcenter.lsu.edu	
15	Karen Sagrera	13137 Pumping Plant	Abb		70510		893-0086
16	Aaron Lee	12401 W LA HWY 82	Abb., LA		70510		
17	Michael Hare	Rep Boudreaux					
18	MIKE CARLOSS	218 RUE BEAUREGARD LAF.		LA	70508	mcarloss@ducks.org	8408-3288
19	Tim Vincent	P.O. Box 187	Perry, LA		70575	rainey manager@ducks.org	337-652-[illegible]



US Army Corps of Engineers — New Orleans District

ATTENDANCE RECORD

Date: 14 April 2015 | SWC Public Meeting | Location: Abbeville High School

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	First Last Name	Address	City	State	Zip	Email	Phone
1	Amber Robinson	29 Rue Iberville	Lafayette	LA	70508	amber.robinson@hdrinc.com	337.347.5805
2	DAVID JOHNSON	701 Kenmare Ave Ste 600	Minneapolis	MN	55403	david.johnson@hdrinc.com	612-746-9004
3	Sherrill Sagrera	12139 W LA Hwy 82	Abbeville			sherrill.sagrera@bellsouth.net	337 652 2836
4	Sandra Stelly	18404 E. Hwy 35 Apt 6	Fa			sandrasstelly@yahoo.com	337-652-6845
5	Dallas Stelly	18404 E. Hwy 35 Apt 6	Za			dallas@aplanta1.net	337-652-8365
6	Kevin Sagrera	13036 Pumping plant Rd.	Abbeville	LA	70510	Kevin.sag12@bellsouth.net	337-303-4585
7	Lisa Chiasson	16336 W. LA Hwy 330	Abbeville	LA	70510	Lvc296286mail.com	337-893-5540
8	Barbara & Roland Vidrine	17915 W LA Hwy 330	Abbeville	LA	70510		337-893 6231
9	Shannon & Kevin Lemaire	13339 W. LA Hwy 82	Abbeville			shannon@bellsouth.net	337-652-2484
10	Thomas McGinnis	635 Cajundome Blvd	Lafayette	LA	70506	tommy.mcginnis@la.gov	337-482-0665
11	Raymond Stelly	25201 SH 82	Kaplan	LA	70548		337 893 6521548
12	Antoine Carcas	11223 Audubon Rd	Abbeville			antoine.carcas1856@gmail.com	337 652 8885
13	Chad Lege	19102 Cherry Rd	Abbeville	La	70510	legechad@bellsouth.net	337 652-2688
14	Ken Duffy	8550 United Plaza Blvd. Suite 702	BR	LA	70810	kduffy@bamsy.com	225-706-8403
15	SAM & JUDITH FALCON	12611 Rue Baptiste	Abbeville	LA	70510	samfal1@yahoo.com	337-652-2368
16	Paul & Sarah Bourgeois	402 E. Willen	Abb.	LA	70510	sharee.babe@aol.com	3373226562
17	Joe Tessier	11413 Falcon Rd	Abb.	La	70510		
18	Nedra Davis	7575 Jefferson Hwy #322	BR	LA	70806	nedra.davis@cpa.org	225 333 8237
19	Al Vidrine	14024 Cumpiss Dr.	Abbeville	La	70510	avidrine@amsupretion.com	337-298-6662

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US Army Corps of Engineers

ATTENDANCE RECORD

Date: 14 April 2015 | SWC Public Meeting | Location: Abbeville High School

PLEASE PRINT CLEARLY

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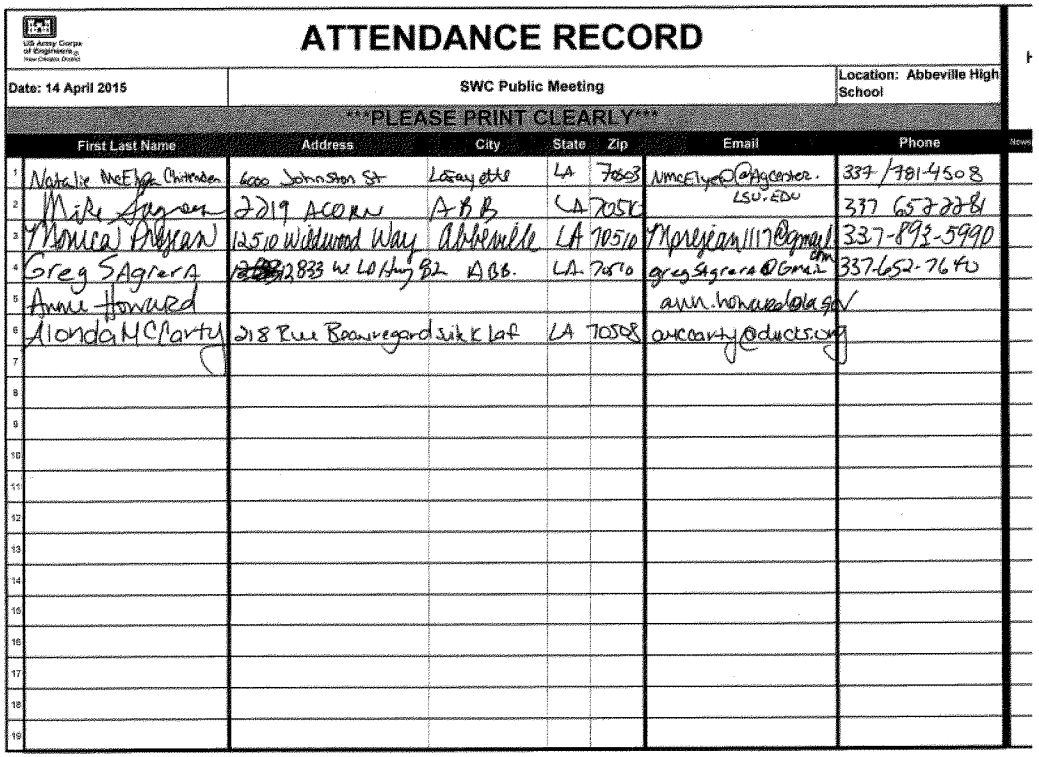

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ATTACHMENT 2

SIGN-IN SHEETS FOR
APRIL 15, 2015 CALCASIEU PARISH PUBLIC HEARINGS/MEETINGS

US Army Corps of Engineers
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ATTENDANCE RECORD

Date: 15 April 2015 | SWC Public Meeting | Location: Lake Charles Civic Center

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ATTENDANCE RECORD

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ATTACHMENT 3
SIGN-IN SHEETS FOR
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Date: 16 April 2015 | SWC Public Meeting | Location: Cameron Police Jury

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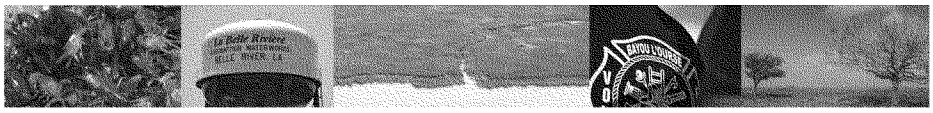
FACT SHEETS AND MAPS FOR FEATURES OF THE NATIONAL ECOSYSTEM RESTORATION RECOMMENDED PLAN



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Annex A Typical Design Drawings for Marsh Creation Features

Annex B Typical Design Drawings for Non Lightweight Aggregate Concrete Breakwater Features

Annex C Typical Design Drawings for Lightweight Aggregate Concrete Breakwater Features

Annex D Typical Design Drawings for Foreshore Rock Dike Features

NER Implementation Plan

This section describes the sequence in which NER Recommended Plan (RP) features would be constructed. NER RP features were categorized into three tiers whereby Tier I features would be constructed before Tier II, and Tier II features constructed before Tier III. Tier I features may be constructed simultaneously because they would not affect the construction of any nearby Tier I RP feature. Shoreline protection features would be constructed prior to marsh restoration features in order to provide immediate protection of the more storm-vulnerable marsh restoration features. This approach contributes to the sustainability of the marsh restoration features. Tier II RP features were so categorized because they utilize the same borrow or staging area, and/or construction of these features would potentially interfere with construction of a Tier I RP feature. Tier II RP features would be constructed contemporaneously as the construction of any one of these features would not affect any other feature within this grouping. Tier III RP features were so categorized because they would utilize the same borrow or staging area, and/or interfered with construction of a Tier II feature, and/or interfered with an existing mitigation project. Tier III features would be constructed contemporaneously if they would not affect construction of the other features within this grouping. In categorizing features, it was assumed that all construction funds would be available, multiple construction contracts could be let at one time, and there is an adequate supply of all materials to facilitate construction. More detailed design and analysis would be undertaken during the PED phase.

Tier I Projects:

- Holly Beach Shoreline Stabilization - Breakwaters (5a)
- Gulf Shoreline Restoration: Calcasieu River to Freshwater Bayou (6b1)
- Fortify Spoil Banks of the GIWW and Freshwater Bayou (16bSE)
- Fortify Spoil Banks of the GIWW and Freshwater Bayou (16bNE)
- Fortify Spoil Banks of the GIWW and Freshwater Bayou (16bW)
- Marsh Restoration at Mud Lake (124d)*
- Marsh Restoration at Pecan Island (127c3)
- Chenier Ridges: Grand Chenier Ridge (416)
- Restore Bill Ridge (509c)
- Chenier Ridges: Cheniere au Tigre (509d)
- Restore Blue Buck Ridge (510a)
- Restore Hackberry Ridge (510b)
- Restore Front Ridge (510d)

Tier II Projects:

- Gulf Shoreline Restoration: Calcasieu River to Freshwater Bayou (6b2)
- Marsh Restoration at Mud Lake (124c)
- Rainey Marsh Restoration Southwest Portion (Christian Marsh) (306a1)

Tier III Projects:

- Beneficial Use of Dredged Material from the Calcasieu Ship Channel (3a1)
- Beneficial Use of Dredged Material from the Calcasieu Ship Channel (3c1)*
- Gulf Shoreline Restoration: Calcasieu River to Freshwater Bayou (6b3)
- Marsh Restoration Using Dredged Material South of Highway 82 (47a1)

- Marsh Restoration Using Dredged Material South of Highway 82 (47a2)
- Marsh Restoration Using Dredged Material South of Highway 82 (47c1)

Recommended for Further Study:

- Calcasieu Ship Channel Salinity Control Structure
- Cameron-Creole Spillway Structure

**- Recommended for independent Congressional authorization and appropriation for construction by USFWS*

Two marsh restoration measures, (Features 124d and 3c1) are partially located on USFWS property (Sabine National Wildlife Refuge and Cameron Prairie National Wildlife Refuge, respectively) and are included in the NER RP. These features are vitally important to help preserve the Calcasieu Lake rim and prevent vast new expanses of open water from forming should the lake rim be breached by erosional forces. All NED and NER RP features (including those recommended for appropriation and construction by USFWS) represent the "Federal Plan". Because USFWS is ultimately responsible for managing its refuge lands, USACE is not seeking authorization and funding for the USFWS Features 124d and 3c1. (The NED RP and the subset of NER features that are recommended for authorization and appropriation by USACE (all features minus 124d and 3c1) represent the "Corps Plan".) Rather, USACE supports USFWS in seeking its own authorization and appropriation to construct the two features and offers USFWS the information that USACE developed under this study effort as a starting point for USFWS efforts to obtain independent authorization and funding for the USFWS features of the Federal Plan. These features are particularly desirable because they provide additional benefit not quantified in the evaluation and selection process (i.e. preserving critical geomorphic structure of the lake rim). These features are in the Federal interest and USFWS is encouraged to seek independent authorization and appropriation for construction.

In some instances, Permitted mitigation projects completed by others overlap with the NER RP features. When overlap occurs, the NER RP features would not be constructed until the mitigation projects satisfy their permitted obligations (this is reflected in the NER Implementation Plan).

Marsh Restoration Measures

Measure 3a1
Beneficial Use of Dredged Material from Calcasieu Ship Channel

Measure 3a1 is a marsh restoration feature located adjacent to the southern shoreline of the GIWW west of the Calcasieu Ship Channel near Black Lake.

The measure would restore marsh by converting approximately 599 acres of shallow open water to brackish marsh habitat through dedicated dredging of material to be borrowed from the Calcasieu Ship Channel from MM18 to MM22 with a hydraulic dredge (approximately 139 acres) (see Annex A for typical design drawings for this measure). Approximately 5.3 million cubic yards of borrow would be required for this marsh restoration feature. Material for the measure would be utilized from the USACE maintenance dredging of the Calcasieu Ship Channel, and consists of the incremental effort and cost of transporting the material from the cutterhead dredge in the Calcasieu Ship Channel to the measure site during the USACE maintenance cycle. Hopper dredges are not being proposed. Incidental takes of sea turtles have only been documented from hopper dredge operations that use trailing suction dragheads. Thus far, no incidental takes of sea turtles have been reported from clamshell (mechanical dredge), pipeline cutterhead (hydraulic dredge), or other types of dredges operating in southeastern coastal channels. Operational differences between these dredge types contribute to the differences in potential impacts to sea turtles. The relatively slow dredging motion of clamshell and pipeline dredges presents minimal risk for sea turtle takes.[1]

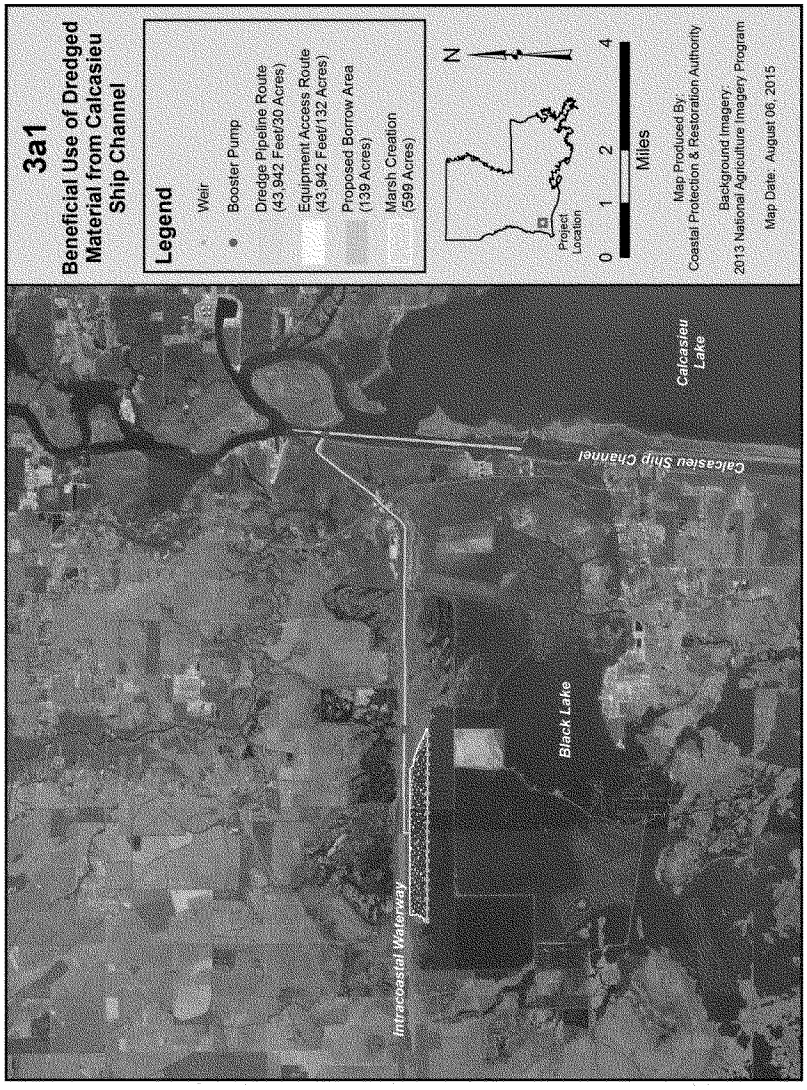
The average depth of open water is 1.2 feet, and the average elevation of existing marsh (for nourishment) is 1.5 feet. The material would be transported directly to the site via pipeline, for a distance of approximately 8.3 miles. Access for the pipeline would require a corridor approximately 30 feet wide, and would be placed along the southern extent of the GIWW. Navigation traffic is not anticipated to be impacted. The pipeline corridor is approximately 43,942 feet long (30 acres), and would require no dredging. Measure 3a1 would result in a net benefit of 191 AAHUs.

The dredged material would be placed to achieve a post-construction marsh target elevation of +1.4 feet (NAVD88), following dewatering. During construction, effluent from dewatering would be discharged into adjacent wetlands to the south via spill box weirs. Approximately 44,700 feet of earthen containment dikes would be constructed from in-situ material located within the marsh restoration/nourishment area using a mechanical (clamshell or bucket) dredge. Generally, containment dikes are constructed around the perimeter of the feature. Spill box weirs would be placed in optimal locations along the containment dikes to control the level of water and to allow for dewatering (see Figure below for containment dike and spill box weir locations). Access for the mechanical dredge would be the GIWW. No dredging for the access channel is anticipated. The borrow area used for construction of the earthen containment dike would be refilled during the placement of dredged material. One (1) foot of freeboard would be maintained at all times during dredge discharge operations. The earthen containment dikes would be constructed to an approximate 5 foot crown width and slopes no steeper than 4H:1V. Containment dikes would be breached in multiple places at TY3 if necessary to restore fish access if natural degradation is not sufficient. Breach locations would correspond to weir locations.

[1] Dickerson, D., M. Wolters, C. Theriot, and C. Slay. 2004. Dredging impacts on sea turtles in the southeastern USA: A historical review of protection. Presented during World Dredging Congress XVII – Dredging in Sensitive Environment. Congress Centre Hamburg, Germany. September 2004.

One renourishment cycle at TY30 is estimated to include 62 acres of marsh restoration along with 507 acres of marsh nourishment. Approximately 1.0 million cubic yards of borrow from the Calcasieu Ship Channel would be required for this renourishment cycle. The pipeline corridor for the renourishment event is the same as for initial construction.

Best management practices would be implemented to avoid unnecessary impacts. By utilizing material from the Calcasieu Shipping Channel, hypoxic conditions in the borrow area are anticipated to be avoided. The use of airboats to place the pipeline along the corridor would minimize impacts to existing marsh. Air boats and marsh buggies (if required) would follow the best management practices developed by the Louisiana Department of Natural Resources and Department of Wildlife and Fisheries, "Marsh Buggy Use in the Coastal Zone" (2000). Booster pumps would be situated within the access corridor if possible, or located to minimize impacts to existing wetlands. No critical habitat is expected to be impacted by this measure. All construction activities shall observe a buffer zone of 1,000 feet for any colonial-nesting waterbird colonies (e.g., egrets, herons, ibis, pelicans, etc.), 1,300 feet for any shorebird nesting colonies (e.g., terns, gulls, plovers, skimmers, etc.), and 2,000 feet for any brown pelican nesting colonies near the project feature. USFWS and USACE biologists would survey the area before construction to confirm active nesting bird locations. A nesting bird abatement plan would be developed if one of the aforementioned nesting colonies falls within its respective buffer zone. Additionally, USFWS guidelines would be followed to avoid adverse impacts to the nesting colonies.


3a1
Beneficial Use of Dredged Material from Calcasieu Ship Channel
Legend
Weir
Booster Pump
Dredge Pipeline Route (43,942 Feet/30 Acres)
Equipment Access Route (43,942 Feet/132 Acres)
Proposed Borrow Area (139 Acres)
Marsh Creation (599 Acres)
Project Location
N
0 1 2 4
Miles
Map Produced By:
Coastal Protection & Restoration Authority
Background Imagery:
2013 National Agriculture Imagery Program
Map Date: August 06, 2015
Intracoastal Waterway
Black Lake
Calcasieu Ship Channel
Calcasieu Lake

Measure 3c1
Beneficial Use of Dredged Material from Calcasieu Ship Channel

Measure 3c1 is a marsh restoration and nourishment feature located adjacent to the eastern rim of Calcasieu Lake and is situated within the Cameron-Creole Watershed area.

The measure would restore marsh by converting approximately 1,347 acres of open water to brackish marsh habitat, along with the nourishment of approximately 734 acres of adjacent wetlands, through maintenance dredging of material to be borrowed from the Calcasieu Ship Channel from MM5 to MM18 (approximately 314 acres) with a hydraulic dredge (see Annex A for typical design drawings for this measure). Approximately 9.5 million cubic yards of borrow would be required for this marsh restoration and nourishment feature. Material for the measure would be utilized from the USACE maintenance dredging of the Calcasieu Ship Channel, and consists of the incremental effort and cost of transporting the material from the cutterhead dredge in the Calcasieu Ship Channel to the measure site during the USACE maintenance cycle. Hopper dredges are not being proposed. Incidental takes of sea turtles have only been documented from hopper dredge operations that use trailing suction dragheads. Thus far, no incidental takes of sea turtles have been reported from clamshell (mechanical dredge), pipeline cutterhead (hydraulic dredge), or other types of dredges operating in southeastern coastal channels. Operational differences between these dredge types contribute to the differences in potential impacts to sea turtles. The relatively slow dredging motion of clamshell and pipeline dredges presents minimal risk for sea turtle takes.[2]

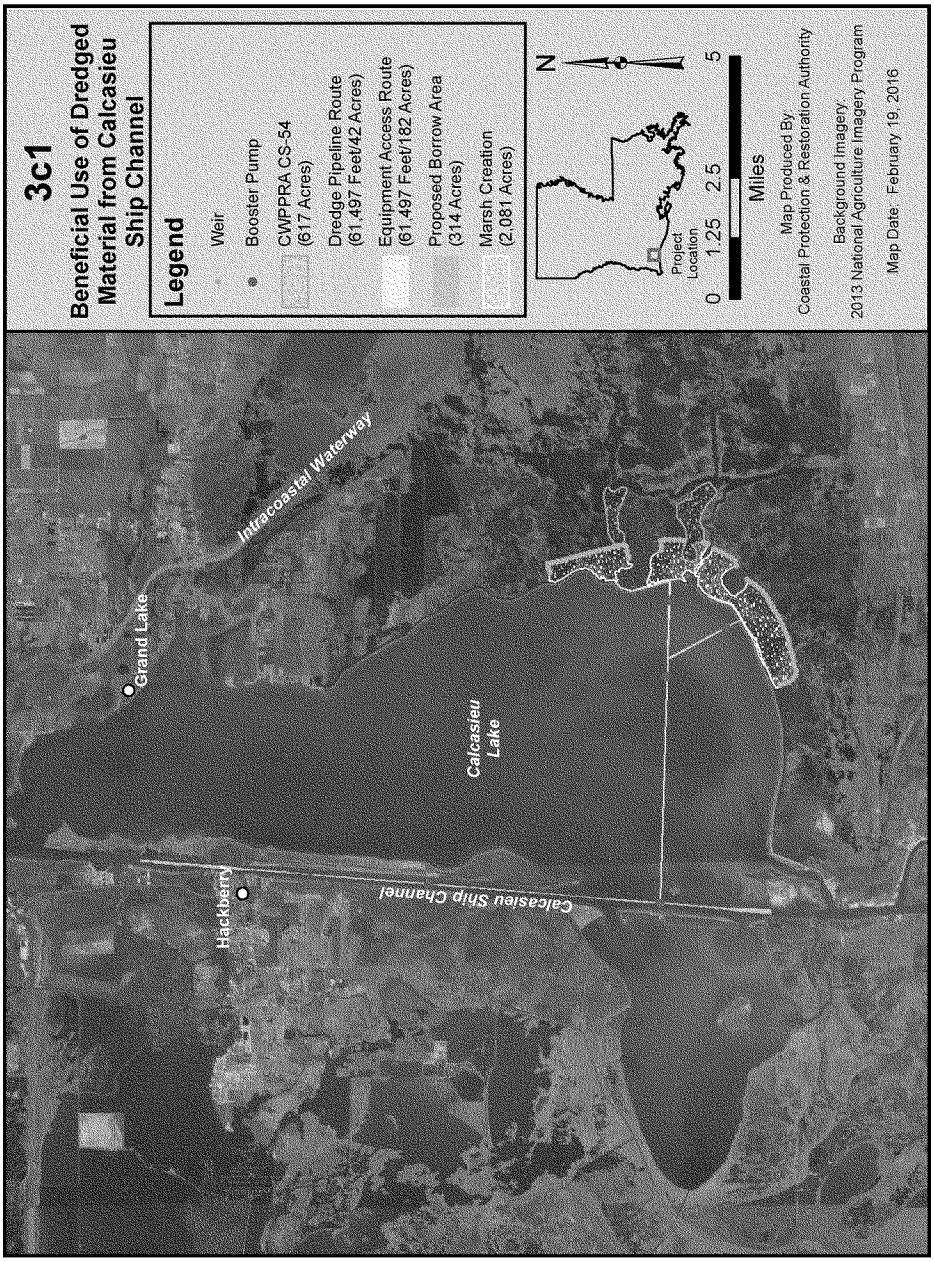
The average depth of open water is 0.5 feet, and the average elevation of existing marsh (for nourishment) is 0.7 feet. The material would be transported directly to the site via pipeline, for a distance of approximately 11.6 miles. Access for the pipeline would require a corridor approximately 30 feet wide, and would be located along the access corridor previously permitted for the Cameron Creole levee repair following Hurricane Ike. Inside the levee, the pipeline corridor would be placed in the open water borrow canal behind the levee. Navigation traffic is not anticipated to be impacted. The pipeline corridor is approximately 61,497 feet long (42 acres), and would not require dredging. Measure 3c1 would result in a net benefit of 607 AAHUs.

The dredged material would be placed to achieve a post-construction marsh target elevation of +1.4 feet (NAVD88), following dewatering. During construction, effluent from dewatering would be discharged into adjacent wetlands via spill box weirs. Approximately 97,250 feet of earthen containment dikes would be constructed from in-situ material located within the marsh restoration/nourishment area using a mechanical (clamshell or bucket) dredge. Generally, containment dikes are constructed around the perimeter of the feature. Spill box weirs would be placed in optimal locations along the containment dikes to control the level of water and to allow for dewatering (see Figure below for containment dike and spill box weir locations). Access for the mechanical dredge would be via the pipeline corridor. The borrow area used for construction of the earthen containment dike would be refilled during the placement of dredged material. One (1) foot of freeboard would be maintained at all times during dredge discharge operations. The earthen containment dikes would be constructed to an approximate 5 foot crown width and slopes no steeper than 4H:1V. Containment dikes would be breached in multiple places at TY3 if necessary to restore fish access if natural degradation is not sufficient. Breach locations would correspond to weir locations.

[2] Dickerson, D., M. Wolters, C. Theriot, and C. Slay. 2004. Dredging impacts on sea turtles in the southeastern USA: A historical review of protection. Presented during World Dredging Congress XVII – Dredging in Sensitive Environment. Congress Centre Hamburg, Germany. September 2004.

One renourishment cycle at TY30 is estimated to include 787 acres of marsh restoration along with 1,190 acres of marsh nourishment. Approximately 3.7 million cubic yards of borrow from the Calcasieu Ship Channel would be required for this renourishment cycle. The pipeline corridor for the renourishment event is the same as for initial construction.

Best management practices would be implemented to avoid unnecessary impacts. By utilizing material from the Calcasieu Shipping Channel, hypoxic conditions in the borrow area are anticipated to be avoided. The use of airboats to place the pipeline along the corridor would minimize impacts to existing marsh. Air boats and marsh buggies (if required) would follow the best management practices developed by the Louisiana Department of Natural Resources and Department of Wildlife and Fisheries, "Marsh Buggy Use in the Coastal Zone" (2000). Booster pumps would be situated within the access corridor if possible, or located to minimize impacts to existing wetlands. No critical habitat is expected to be impacted by this measure. All construction activities shall observe a buffer zone of 1,000 feet for any colonial-nesting waterbird colonies (e.g., egrets, herons, ibis, pelicans, etc.), 1,300 feet for any shorebird nesting colonies (e.g., terns, gulls, plovers, skimmers, etc.), and 2,000 feet for any brown pelican nesting colonies near the project feature. USFWS and USACE biologists would survey the area before construction to confirm active nesting bird locations. A nesting bird abatement plan would be developed if one of the aforementioned nesting colonies falls within its respective buffer zone. Additionally, USFWS guidelines would be followed to avoid adverse impacts to the nesting colonies.


3c1
Beneficial Use of Dredged Material from Calcasieu Ship Channel
Legend
Weir
Booster Pump
CWPPRA CS-54 (617 Acres)
Dredge Pipeline Route (61,497 Feet/42 Acres)
Equipment Access Route (61,497 Feet/182 Acres)
Proposed Borrow Area (314 Acres)
Marsh Creation (2,081 Acres)
Project Location
N
0 1.25 2.5 5
Miles
Map Produced By
Coastal Protection & Restoration Authority
Background Imagery
2013 National Agriculture Imagery Program
Map Date: February 19, 2016
Grand Lake
Intracoastal Waterway
Calcasieu Lake
Calcasieu Ship Channel
Hackberry

Measure 47a1
Marsh Restoration Using Dredged Material South of Highway 82

Measure 47a1 is a marsh restoration and nourishment feature located adjacent to the south side of Highway 82 approximately 4.5 miles east of Grand Chenier.

The measure would restore marsh by converting approximately 933 acres of shallow open water to brackish marsh habitat, along with the nourishment of approximately 88 acres of adjacent brackish marsh, through dedicated dredging of material to be borrowed from approximately 3 miles offshore within state waterbottoms (see Annex A for typical design drawings for this measure). Approximately 3.0 million cubic yards of borrow would be dredged with a hydraulic dredge for this marsh restoration and nourishment feature. Hopper dredges are not being proposed. Incidental takes of sea turtles have only been documented from hopper dredge operations that use trailing suction dragheads. Thus far, no incidental takes of sea turtles have been reported from clamshell (mechanical dredge), pipeline cutterhead (hydraulic dredge), or other types of dredges operating in southeastern coastal channels. Operational differences between these dredge types contribute to the differences in potential impacts to sea turtles. The relatively slow dredging motion of clamshell and pipeline dredges presents minimal risk for sea turtle takes.[3]

The average depth of open water is -1.5 feet (NAVD88), and the average elevation of existing marsh (for nourishment) is 1.27 feet (NAVD88). The borrow area is approximately 1,716 acres, which would be used for all of the dredging needs for 47a1, 47a2, and 47c1, including renourishment. The borrow area is anticipated to be dredged to a depth of 15 feet below the mudline. The size, location, and configuration of the borrow area (offshore, with the long axis parallel to the shoreline) is designed to minimize the potential to create hypoxic conditions. The material would be transported directly to the site via pipeline, for a distance of approximately 6.7 miles. Access for the pipeline would require a corridor approximately 30 feet wide, and would be placed along existing open-water canals to the extent practicable. Navigation traffic is not anticipated to be impacted. The pipeline corridor is approximately 35,519 feet long (24 acres), and would require no dredging. Measure 47a1 would result in a net benefit of 272 AAHUs.

This measure would be constructed before measures 47a2 and 47c1. The dredged material would be placed to achieve a post-construction marsh target elevation of +1.5 feet (NAVD88) following dewatering. During construction, effluent from dewatering would be discharged into adjacent wetlands via spill box weirs, with preference on placement that would flow into the footprint of measure 47a2. Approximately 68,300 feet of earthen containment dikes would be constructed from in-situ material located within the marsh restoration/nourishment area using a mechanical (clamshell or bucket) dredge. Generally, containment dikes are constructed around the perimeter of the feature. Spill box weirs would be placed in optimal locations along the containment dikes to control the level of water and to allow for dewatering (see Figure below for containment dike and spill box weir locations). Access for the mechanical dredge would be LA Highway 82. The borrow area used for construction of the earthen containment dike would be refilled during the placement of dredged material. One (1) foot of freeboard would be maintained at all times during dredge discharge operations. The earthen containment dikes would be constructed to an approximate 5 foot crown width and slopes no steeper than 4H:1V. Containment dikes would be breached in multiple places at TY3 if

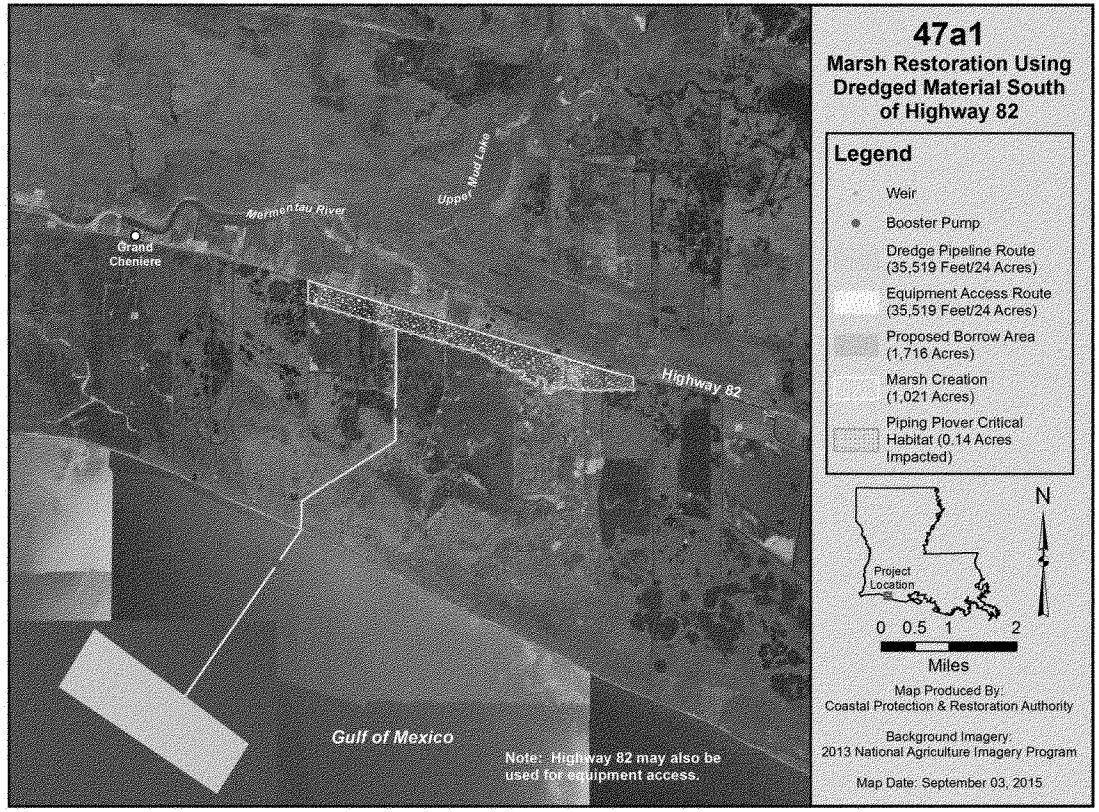
[3] Dickerson, D., M. Wolters, C. Theriot, and C. Slay. 2004. Dredging impacts on sea turtles in the southeastern USA: A historical review of protection. Presented during World Dredging Congress XVII – Dredging in Sensitive Environment. Congress Centre Hamburg, Germany. September 2004.

necessary to restore fish access if natural degradation is not sufficient. Breach locations would correspond to weir locations.

One renourishment cycle at TY30 is estimated to include 70 acres of marsh restoration along with 900 acres of marsh nourishment. Approximately 1.5 million cubic yards of borrow from approximately 3 miles offshore within state waterbottoms would be required for this renourishment cycle. The borrow area and pipeline corridor for the renourishment event would be the same as for initial construction.

Best management practices would be implemented to avoid unnecessary impacts. By dredging the borrow area with side slopes of no less than a 4H:1V, hypoxic conditions are anticipated to be minimized. Although a marsh buggy would be used to place the pipeline across the beach and may be used to place the pipeline along the corridor, the use of airboats to place the pipeline along the corridor may be utilized to minimize impacts to existing marsh. Air boats and marsh buggies would follow the best management practices developed by the Louisiana Department of Natural Resources and Department of Wildlife and Fisheries, "Marsh Buggy Use in the Coastal Zone" (2000). Booster pumps would be situated within the access corridor if possible, or located to minimize impacts to existing wetlands. Any changes in beach topography resulting from placement of the pipeline would be restored at least to their natural condition following construction, which would use the best available restoration techniques which improve the traversed area's ability to serve as a shoreline following pipeline removal. Piping plover critical habitat includes intertidal sand beaches (including sand flats) or mud flats (between the mean lower low water line and annual high tide) with no or very sparse emergent vegetation for feeding. Per USFWS protocol, the shoreline to vegetation line was digitized as a polygon, then buffered (on the water side) by 184 feet to approximate the mean lower-low water (MLLW) line. If necessary, a 100-foot wide bird abatement corridor across the beach would be maintained during construction to deter foraging, sheltering, and roosting of all potential migratory bird species. All construction activities shall observe a buffer zone of 1,000 feet for any colonial-nesting waterbird colonies (e.g., egrets, herons, ibis, pelicans, etc.), 1,300 feet for any shorebird nesting colonies (e.g., terns, gulls, plovers, skimmers, etc.), and 2,000 feet for any brown pelican nesting colonies near the project feature. USFWS and USACE biologists would survey the area before construction to confirm active nesting bird locations. A nesting bird abatement plan would be developed if one of the aforementioned nesting colonies falls within its respective buffer zone. Additionally, USFWS guidelines would be followed to avoid adverse impacts to the nesting colonies. Approximately 0.14 acres (200 feet long by 30 feet wide) of critical habitat is expected to be impacted temporarily by this measure. The USFWS Conservation Measures are as follows:

1. Pipeline alignment and associated construction activities may be modified to reduce impacts to foraging, sheltering, and roosting;
2. Avoid impacts to the primary constituent elements (PCEs) of piping plover Critical Habitat to the maximum extent practicable; and
3. Evaluate the project area prior to design and construction for the presence of piping plover PCEs as a basis for minimizing potential impacts.


47a1
Marsh Restoration Using Dredged Material South of Highway 82
Legend
Weir
Booster Pump
Dredge Pipeline Route (35,519 Feet/24 Acres)
Equipment Access Route (35,519 Feet/24 Acres)
Proposed Borrow Area (1,716 Acres)
Marsh Creation (1,021 Acres)
Piping Plover Critical Habitat (0.14 Acres Impacted)
Project Location
N
0 0.5 1 2
Miles
Map Produced By:
Coastal Protection & Restoration Authority
Background Imagery:
2013 National Agriculture Imagery Program
Map Date: September 03, 2015
Marmentau River
Upper Mud Lake
Grand Cheniere
Highway 82
Gulf of Mexico
Note: Highway 82 may also be used for equipment access.

Measure 47a2
Marsh Restoration Using Dredged Material South of Highway 82

Measure 47a2 is a marsh restoration and nourishment feature located on the south side of Highway 82 approximately 4.5 miles east of Grand Chenier. Measure 47a2 is located immediately south of Measure 47a1.

The measure would restore marsh by converting approximately 1,297 acres of shallow open water to brackish marsh habitat, along with the nourishment of approximately 126 acres of adjacent brackish marsh, through dedicated dredging of material to be borrowed from approximately 3 miles offshore within state waterbottoms (see Annex A for typical design drawings for this measure). Approximately 8.8 million cubic yards of borrow would be dredged with a hydraulic dredge for this marsh restoration and nourishment feature. Hopper dredges are not being proposed. Incidental takes of sea turtles have only been documented from hopper dredge operations that use trailing suction dragheads. Thus far, no incidental takes of sea turtles have been reported from clamshell (mechanical dredge), pipeline cutterhead (hydraulic dredge), or other types of dredges operating in southeastern coastal channels. Operational differences between these dredge types contribute to the differences in potential impacts to sea turtles. The relatively slow dredging motion of clamshell and pipeline dredges presents minimal risk for sea turtle takes.[4]

The average depth of open water in the placement area is -1.5 feet (NAVD88), and the average elevation of existing marsh (for nourishment) is 1.27 feet (NAVD88). The borrow area is approximately 1,716 acres, which would be used for all of the dredging needs for 47a1, 47a2, and 47c1, including renourishment. The borrow area is anticipated to be dredged to a depth of 15 feet below the mudline. The size, location, and configuration of the borrow area (offshore, with the long axis parallel to the shoreline) is designed to minimize the potential to create hypoxic conditions. The material would be transported directly to the site via pipeline, for a distance of approximately 5.9 miles. Access for the pipeline would require a corridor approximately 30 feet wide, and would be placed along existing open-water canals to the extent practicable. The pipeline corridor is approximately 30,898 feet long (21 acres), and would require no dredging. Measure 47a2 would result in a net benefit of 381 AAHUs.

This measure would require approximately 18 months of construction. Construction would begin in TY1, after the construction of measure 47a1, with anticipated completion in TY3. The dredged material would be placed to achieve a post-construction marsh target elevation of +1.5 feet (NAVD88) following dewatering. During construction, effluent from dewatering would be discharged into adjacent wetlands via spill box weirs, with preference on placement that would flow into the footprint of measure 47c1. Approximately 41,000 feet of earthen containment dikes would be constructed from in-situ material located within the marsh restoration/nourishment area using a mechanical dredge. Generally, containment dikes are constructed around the perimeter of the feature. Spill box weirs would be placed in optimal locations along the containment dikes to control the level of water and to allow for dewatering (see Figure below for containment dike and spill box weir locations). Access for the mechanical dredge would be from LA Highway 82. The equipment access corridor is 1,829 feet long (1.3 acres). The borrow area used for

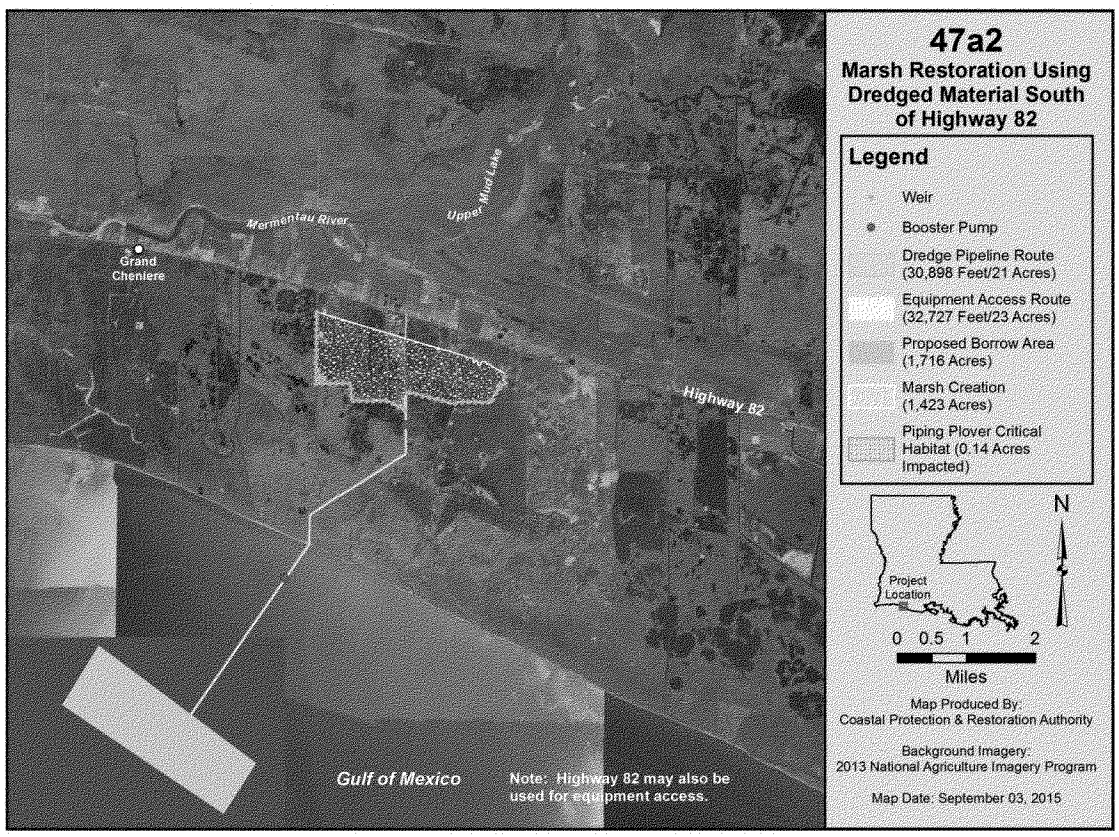
[4] Dickerson, D., M. Wolters, C. Theriot, and C. Slay. 2004. Dredging impacts on sea turtles in the southeastern USA: A historical review of protection. Presented during World Dredging Congress XVII – Dredging in Sensitive Environment. Congress Centre Hamburg, Germany. September 2004.

construction of the earthen containment dike would be refilled during the placement of dredged material. One (1) foot of freeboard would be maintained at all times during dredge discharge operations. The earthen containment dikes would be constructed to an approximate 5 foot crown width and slopes no steeper than 4H:1V. Containment dikes would be breached in multiple places at TY3 if necessary to restore fish access if natural degradation is not sufficient. Breach locations would correspond to weir locations.

One renourishment cycle at TY30 is estimated to include 125 acres of marsh restoration along with 1,227 acres of marsh nourishment. Approximately 1.5 million cubic yards of borrow from approximately 3 miles offshore within state waterbottoms would be required for this renourishment cycle. The borrow area and pipeline corridor for the renourishment event would be the same as for initial construction.

Best management practices would be implemented to avoid unnecessary impacts. By dredging the borrow area with side slopes of no less than a 4H:1V, hypoxic conditions are anticipated to be minimized. Although a marsh buggy would be used to place the pipeline across the beach and may be used to place the pipeline along the corridor, the use of airboats to place the pipeline along the corridor would be utilized to minimize impacts to existing marsh. Air boats and marsh buggies would follow the best management practices developed by the Louisiana Department of Natural Resources and Department of Wildlife and Fisheries, "Marsh Buggy Use in the Coastal Zone" (2000). Booster pumps would be situated within the access corridor if possible, or located to minimize impacts to existing wetlands. Any changes in beach topography resulting from placement of the pipeline would be restored at least to their natural condition following construction, which would use the best available restoration techniques which improve the traversed area's ability to serve as a shoreline following pipeline removal. Piping plover critical habitat includes intertidal sand beaches (including sand flats) or mud flats (between the mean lower low water line and annual high tide) with no or very sparse emergent vegetation for feeding. Per USFWS protocol, the shoreline to vegetation line was digitized as a polygon, then buffered (on the water side) by 184 feet to approximate the mean lower-low water (MLLW) line. If necessary, a 100-foot wide bird abatement corridor across the beach would be maintained during construction to deter foraging, sheltering, and roosting of all potential migratory bird species. All construction activities shall observe a buffer zone of 1,000 feet for any colonial-nesting waterbird colonies (e.g., egrets, herons, ibis, pelicans, etc.), 1,300 feet for any shorebird nesting colonies (e.g., terns, gulls, plovers, skimmers, etc.), and 2,000 feet for any brown pelican nesting colonies near the project feature. USFWS and USACE biologists would survey the area before construction to confirm active nesting bird locations. A nesting bird abatement plan would be developed if one of the aforementioned nesting colonies falls within its respective buffer zone. Additionally, USFWS guidelines would be followed to avoid adverse impacts to the nesting colonies. Approximately 0.14 acres (200 feet long by 30 feet wide) of critical habitat is expected to be impacted temporarily by this measure. The USFWS Conservation Measures are as follows:

1. Pipeline alignment and associated construction activities may be modified to reduce impacts to foraging, sheltering, and roosting;
2. Avoid impacts to the primary constituent elements (PCEs) of piping plover Critical Habitat to the maximum extent practicable; and
3. Evaluate the project area prior to design and construction for the presence of piping plover PCEs as a basis for minimizing potential impacts.


Mermentau River
Upper Mud Lake
Grand Chenier
Highway 82
Gulf of Mexico
Note: Highway 82 may also be used for equipment access.
47a2
Marsh Restoration Using Dredged Material South of Highway 82
Legend
Weir
Booster Pump
Dredge Pipeline Route (30,898 Feet/21 Acres)
Equipment Access Route (32,727 Feet/23 Acres)
Proposed Borrow Area (1,716 Acres)
Marsh Creation (1,423 Acres)
Piping Plover Critical Habitat (0.14 Acres Impacted)
N
Project Location
0 0.5 1 2
Miles
Map Produced By:
Coastal Protection & Restoration Authority
Background Imagery:
2013 National Agriculture Imagery Program
Map Date: September 03, 2015

Measure 47c1
Marsh Restoration Using Dredged Material South of Highway 82

Measure 47c1 is a marsh restoration and nourishment feature located on the south side of Highway 82 approximately 4.5 miles east of Grand Chenier.

The measure would restore marsh by converting approximately 1,304 acres of shallow open water to brackish marsh habitat, along with the nourishment of approximately 4 acres of adjacent brackish marsh, through dedicated dredging of material to be borrowed from approximately 3 miles offshore within state waterbottoms (see Annex A for typical design drawings for this measure). Approximately 8.6 million cubic yards of borrow would be dredged with a hydraulic dredge for this marsh restoration and nourishment feature. Hopper dredges are not being proposed. Incidental takes of sea turtles have only been documented from hopper dredge operations that use trailing suction dragheads. Thus far, no incidental takes of sea turtles have been reported from clamshell (mechanical dredge), pipeline cutterhead (hydraulic dredge), or other types of dredges operating in southeastern coastal channels. Operational differences between these dredge types contribute to the differences in potential impacts to sea turtles. The relatively slow dredging motion of clamshell and pipeline dredges presents minimal risk for sea turtle takes.[5]

The average depth of open water in the placement area is -1.5 feet (NAVD88), and the average elevation of existing marsh (for nourishment) is 1.27 feet (NAVD88). The borrow area is approximately 1,716 acres, which would be used for all of the dredging needs for 47a1, 47a2, and 47c1, including renourishment. The borrow area is anticipated to be dredged to a depth of 15 feet below the mudline. The size, location, and configuration of the borrow area (offshore, with the long axis parallel to the shoreline) is designed to minimize the potential to create hypoxic conditions. The material would be transported directly to the site via pipeline, for a distance of approximately 5.7 miles. Access for the pipeline would require a corridor approximately 30 feet wide, and would be placed along existing open-water canals to the extent practicable. Navigation traffic is not anticipated to be impacted. The pipeline corridor is approximately 29,858 feet long (21 acres), and would require no dredging.

This measure would require approximately 18 months of construction. Construction would begin in TY3, after the construction of measure 47a2, with anticipated completion in TY5. The dredged material would be placed to achieve a post-construction marsh target elevation of +1.5 feet (NAVD88) following dewatering. During construction, effluent from dewatering would be discharged into adjacent wetlands via spill box weirs. Approximately 35,200 feet of earthen containment dikes would be constructed from in-situ material located within the marsh restoration/nourishment area using a mechanical dredge. Generally, containment dikes are constructed around the perimeter of the feature. Spill box weirs would be placed in optimal locations along the containment dikes to control the level of water and to allow for dewatering (see Figure below for containment dike and spill box weir locations). Access for the mechanical dredge would be LA Highway 82 and would follow open water channels to the extent possible. The equipment access corridor for the mechanical dredge is 7,672 feet long (5.3 acres). The borrow area used for construction of the earthen containment dike would be refilled during the placement of dredged material. One (1) foot of freeboard

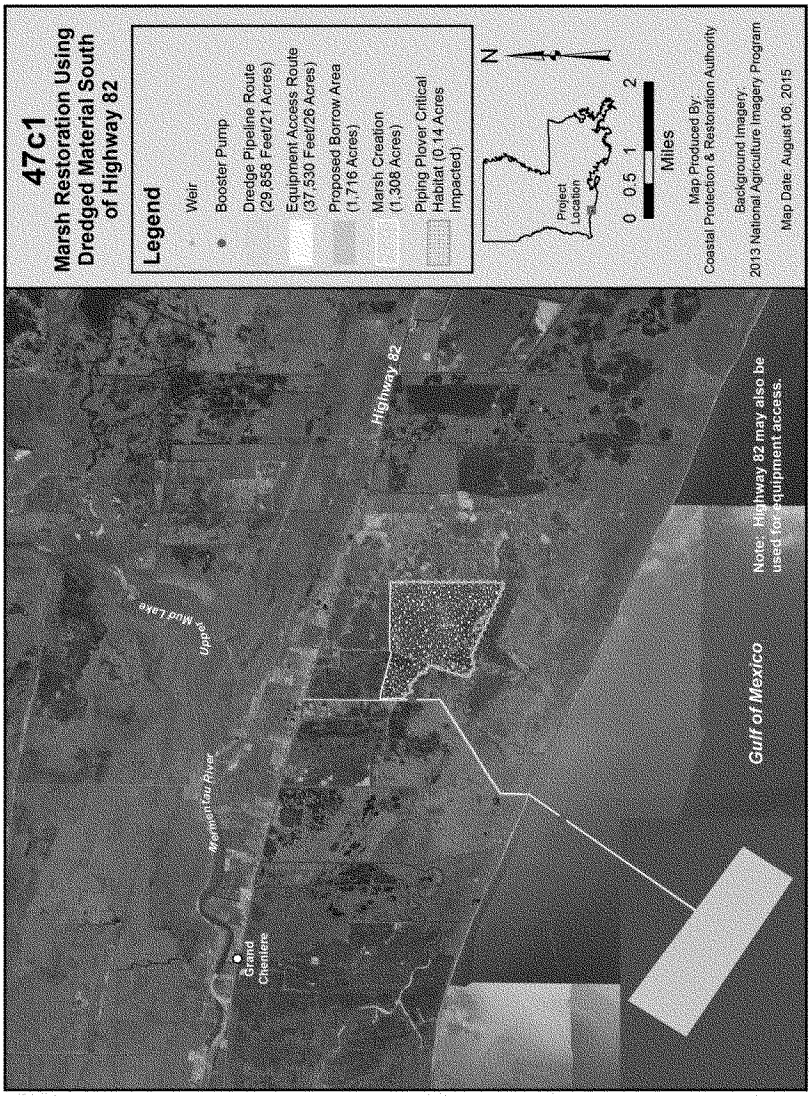
[5] Dickerson, D., M. Wolters, C. Theriot, and C. Slay. 2004. Dredging impacts on sea turtles in the southeastern USA: A historical review of protection. Presented during World Dredging Congress XVII – Dredging in Sensitive Environment. Congress Centre Hamburg, Germany. September 2004.

would be maintained at all times during dredge discharge operations. The earthen containment dikes would be constructed to an approximate 5 foot crown width and slopes no steeper than 4H:1V. Containment dikes would be breached in multiple places at TY3 if necessary to restore fish access if natural degradation is not sufficient. Breach locations would correspond to weir locations.

One renourishment cycle at TY30 is estimated to include 55 acres of marsh restoration along with 1,188 acres of marsh nourishment. Approximately 1.8 million cubic yards of borrow from approximately 3 miles offshore within state waterbottoms would be required for this renourishment cycle. The borrow area and pipeline corridor for the renourishment event would be the same as for initial construction. Measure 47c1 would result in a net benefit of 353 AAHUs.

Best management practices would be implemented to avoid unnecessary impacts. By dredging the borrow area with side slopes of no less than a 4H:1V, hypoxic conditions are anticipated to be minimized. Although a marsh buggy would be used to place the pipeline across the beach and may be used to place the pipeline along the corridor, the use of airboats to place the pipeline along the corridor would be utilized to minimize impacts to existing marsh. Marsh buggies and airboats would follow the best management practices developed by the Louisiana Department of Natural Resources and Department of Wildlife and Fisheries, "Marsh Buggy Use in the Coastal Zone" (2000). Booster pumps would be situated within the access corridor if possible, or located to minimize impacts to existing wetlands. Any changes in beach topography resulting from placement of the pipeline would be restored at least to their natural condition following construction, which would use the best available restoration techniques which improve the traversed area's ability to serve as a shoreline following pipeline removal. Piping plover critical habitat includes intertidal sand beaches (including sand flats) or mud flats (between the mean lower low water line and annual high tide) with no or very sparse emergent vegetation for feeding. Per USFWS protocol, the shoreline to vegetation line was digitized as a polygon, then buffered (on the water side) by 184 feet to approximate the mean lower-low water (MLLW) line. If necessary, a 100-foot wide bird abatement corridor across the beach would be maintained during construction to deter foraging, sheltering, and roosting of all potential migratory bird species. All construction activities shall observe a buffer zone of 1,000 feet for any colonial-nesting waterbird colonies (e.g., egrets, herons, ibis, pelicans, etc.), 1,300 feet for any shorebird nesting colonies (e.g., terns, gulls, plovers, skimmers, etc.), and 2,000 feet for any brown pelican nesting colonies near the project feature. USFWS and USACE biologists would survey the area before construction to confirm active nesting bird locations. A nesting bird abatement plan would be developed if one of the aforementioned nesting colonies falls within its respective buffer zone. Additionally, USFWS guidelines would be followed to avoid adverse impacts to the nesting colonies. Approximately 0.14 acres (200 feet long by 30 feet wide) of critical habitat is expected to be impacted temporarily by this measure. The USFWS Conservation Measures are as follows:

1. Pipeline alignment and associated construction activities may be modified to reduce impacts to foraging, sheltering, and roosting;
2. Avoid impacts to the primary constituent elements (PCEs) of piping plover Critical Habitat to the maximum extent practicable; and
3. Evaluate the project area prior to design and construction for the presence of piping plover PCEs as a basis for minimizing potential impacts.


47c1
Marsh Restoration Using Dredged Material South of Highway 82
Legend
Weir
Booster Pump
Dredge Pipeline Route (29,858 Feet/21 Acres)
Equipment Access Route (37,530 Feet/26 Acres)
Proposed Borrow Area (1,716 Acres)
Marsh Creation (1,308 Acres)
Piping Plover Critical Habitat (0.14 Acres Impacted)
Project Location
N
0 0.5 1 2
Miles
Map Produced By:
Coastal Protection & Restoration Authority
Background Imagery:
2013 National Agriculture Imagery Program
Map Date: August 06, 2015
Upper Mud Lake
Mermentau River
Grand Chenier
Highway 82
Gulf of Mexico
Note: Highway 82 may also be used for equipment access.

Measure 124c
Marsh Creation at Mud Lake

Measure 124c is a marsh restoration and nourishment feature located adjacent and north of Highway 82 and east of Mud Lake.

The measure would restore marsh by converting approximately 1,077 acres of shallow open water to saline marsh habitat, along with the nourishment of approximately 708 acres of adjacent saline marsh, through dedicated dredging of material to be borrowed from an area approximately 531 acres located approximately 1.5 to 3 miles offshore within state waterbottoms (see Annex A for typical design drawings for this measure). Approximately 10.4 million cubic yards of borrow would be dredged with a hydraulic dredge for this marsh restoration and nourishment feature. Hopper dredges are not being proposed. Incidental takes of sea turtles have only been documented from hopper dredge operations that use trailing suction dragheads. Thus far, no incidental takes of sea turtles have been reported from clamshell (mechanical dredge), pipeline cutterhead (hydraulic dredge), or other types of dredges operating in southeastern coastal channels. Operational differences between these dredge types contribute to the differences in potential impacts to sea turtles. The relatively slow dredging motion of clamshell and pipeline dredges presents minimal risk for sea turtle takes.[6]

The average depth of open water in the placement area is -1.5 feet (NAVD88), and the average elevation of existing marsh (for nourishment) is 1.13 feet (NAVD88). The size, location, and configuration of the borrow area (offshore, with the long axis parallel to the shoreline) is designed to minimize the potential to create hypoxic conditions. The material would be transported directly to the site via pipeline, for a distance of approximately 1.8 miles. The pipeline access corridor would be approximately 30 feet wide, and would follow existing waterways to the extent possible. Navigation traffic is not anticipated to be impacted. The pipeline corridor is approximately 9,485 feet long (7.0 acres), and would require no dredging. The pipeline would cross approximately 500 feet (0.34 acres) of beach placed for the Cameron Parish Shoreline Restoration (CS-33) project. The pipeline would be bored under Louisiana Highway 82. Measure 124c would result in a net benefit of 500 AAHUs.

The dredged material would be placed to achieve a post-construction marsh target elevation of +1.5 feet (NAVD88) following dewatering. During construction, effluent from dewatering would be discharged into adjacent wetlands via spill box weirs. Approximately 78,100 feet of earthen containment dikes would be constructed from in-situ material located within the marsh restoration/nourishment area using a mechanical dredge. Generally, containment dikes are constructed around the perimeter of the feature. Spill box weirs would be placed in optimal locations along the containment dikes to control the level of water and to allow for dewatering (see Figure below for containment dike and spill box weir locations). Access for the mechanical dredge would be via Louisiana Highway 82 and the pipeline corridor. The borrow area used for construction of the earthen containment dike would be refilled during the placement of dredged material. One (1) foot of freeboard would be maintained at all times during dredge discharge operations. The earthen containment dikes would be constructed to an approximate 5 foot crown width and slopes no steeper than 4H:1V. Containment dikes would be breached in multiple places at TY3 if necessary to restore fish access if natural degradation is not sufficient. Breach locations would correspond to weir locations.

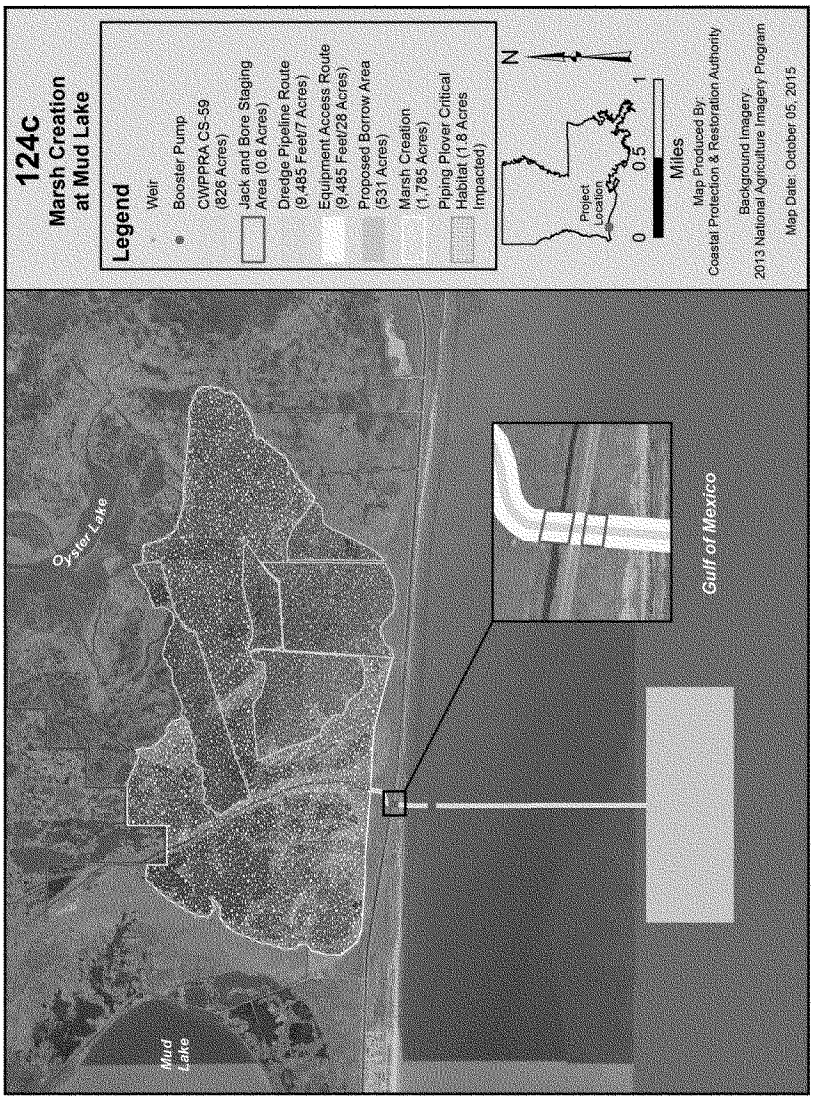
[6] Dickerson, D., M. Wolters, C. Theriot, and C. Slay. 2004. Dredging impacts on sea turtles in the southeastern USA: A historical review of protection. Presented during World Dredging Congress XVII – Dredging in Sensitive Environment. Congress Centre Hamburg, Germany. September 2004.

One renourishment cycle at TY30 is estimated to include 351 acres of marsh restoration along with 1,344 acres of marsh nourishment. Approximately 2.0 million cubic yards of borrow from 1.5 to 3 miles offshore within state waterbottoms would be required for this renourishment cycle. The borrow area, pipeline corridor, and equipment access for the renourishment cycle would be the same as for construction.

Best management practices would be implemented to avoid unnecessary impacts. By dredging the borrow area with side slopes of no less than a 4H:1V, hypoxic conditions are anticipated to be minimized. Although a marsh buggy would be used to place the pipeline across the beach and may be used to place the pipeline along the corridor, the use of airboats to place the pipeline along the corridor would be utilized to minimize impacts to existing marsh. Air boats and marsh buggies would follow the best management practices developed by the Louisiana Department of Natural Resources and Department of Wildlife and Fisheries, "Marsh Buggy Use in the Coastal Zone" (2000). Booster pumps would be situated within the access corridor if possible, or located to minimize impacts to existing wetlands. Any changes in beach topography resulting from placement of the pipeline would be restored at least to their natural condition following construction, which would use the best available restoration techniques which improve the traversed area's ability to serve as a shoreline following pipeline removal. Piping plover critical habitat includes intertidal sand beaches (including sand flats) or mud flats (between the mean lower low water line and annual high tide) with no or very sparse emergent vegetation for feeding. Per USFWS protocol, the shoreline to vegetation line was digitized as a polygon, then buffered (on the water side) by 184 feet to approximate the mean lower-low water (MLLW) line. If necessary, a 100-foot wide bird abatement corridor across the beach would be maintained during construction to deter foraging, sheltering, and roosting of all potential migratory bird species. All construction activities shall observe a buffer zone of 1,000 feet for any colonial-nesting waterbird colonies (e.g., egrets, herons, ibis, pelicans, etc.), 1,300 feet for any shorebird nesting colonies (e.g., terns, gulls, plovers, skimmers, etc.), and 2,000 feet for any brown pelican nesting colonies near the project feature. USFWS and USACE biologists would survey the area before construction to confirm active nesting bird locations. A nesting bird abatement plan would be developed if one of the aforementioned nesting colonies falls within its respective buffer zone. Additionally, USFWS guidelines would be followed to avoid adverse impacts to the nesting colonies. Approximately 1.8 acres of critical habitat is expected to be impacted temporarily by this measure.

The USFWS Conservation Measures are as follows:

1. Pipeline alignment and associated construction activities may be modified to reduce impacts to foraging, sheltering, and roosting;
2. Avoid impacts to the primary constituent elements (PCEs) of piping plover Critical Habitat to the maximum extent practicable; and
3. Evaluate the project area prior to design and construction for the presence of piping plover PCEs as a basis for minimizing potential impacts.


124c
Marsh Creation
at Mud Lake
Legend
Weir
Booster Pump
CWPPRA CS-59
(826 Acres)
Jack and Bore Staging
Area (0.6 Acres)
Dredge Pipeline Route
(9,485 Feet/7 Acres)
Equipment Access Route
(9,485 Feet/28 Acres)
Proposed Borrow Area
(531 Acres)
Marsh Creation
(1,785 Acres)
Piping Plover Critical
Habitat (1.8 Acres
Impacted)
Project
Location
N
0
0.5
1
Miles
Map Produced By:
Coastal Protection & Restoration Authority
Background Imagery:
2013 National Agriculture Imagery Program
Map Date: October 05, 2015
Oyster Lake
Mud
Lake
Gulf of Mexico

Measure 124d
Marsh Restoration at Mud Lake

Measure 124d is a marsh restoration and nourishment feature located west of the Calcasieu Ship Channel and adjacent to the southern rim of West Cove.

The measure would restore marsh by converting approximately 159 acres of shallow open water to brackish marsh habitat, along with the nourishment of approximately 448 acres of adjacent saline marsh, through dedicated dredging of material to be borrowed from the Calcasieu Ship Channel from MM00 to MM05 (378 acres) or West Cove with a hydraulic dredge (see Annex A for typical design drawings for this measure). Approximately 1.4 million cubic yards of borrow would be required for this marsh restoration and nourishment feature. Material for the measure would be utilized from the USACE maintenance dredging of the Calcasieu Ship Channel, and consists of the incremental effort and cost of transporting the material from the cutterhead dredge in the Calcasieu Ship Channel to the measure site during the USACE maintenance cycle. Hopper dredges are not being proposed. Incidental takes of sea turtles have only been documented from hopper dredge operations that use trailing suction dragheads. Thus far, no incidental takes of sea turtles have been reported from clamshell (mechanical dredge), pipeline cutterhead (hydraulic dredge), or other types of dredges operating in southeastern coastal channels. Operational differences between these dredge types contribute to the differences in potential impacts to sea turtles. The relatively slow dredging motion of clamshell and pipeline dredges presents minimal risk for sea turtle takes.[7]

The average depth of open water is 1.1 feet, and the average elevation of existing marsh (for nourishment) is 1.45 feet. The material would be transported directly to the site via pipeline, for a distance of approximately 4.1 miles. The pipeline access corridor would be approximately 21,452 feet long and 30 feet wide (15 acres), and would go west from the Calcasieu Shipping Channel to West Cove. The access channel for construction equipment would be dredged to a depth of 7 feet where required with a mechanical dredge to a bottom width of 80 feet, and a top width of approximately 130 feet, with 4H:1V side slopes. Material from the access channel would be sidecast adjacent to the access channel and returned after construction. Approximately 64 acres of state waterbottoms would be dredged for access. Measure 124d would result in a net benefit of 4 AAHUs. Despite the low environmental benefit, this measure was deemed justified for inclusion in the TSP because it would result in an increase of 168 acres over the No Action alternative, and would increase the integrity of the southern rim of the West Cove of Calcasieu Lake, protecting the marshes to the south from increased tidal energy and salinity levels.

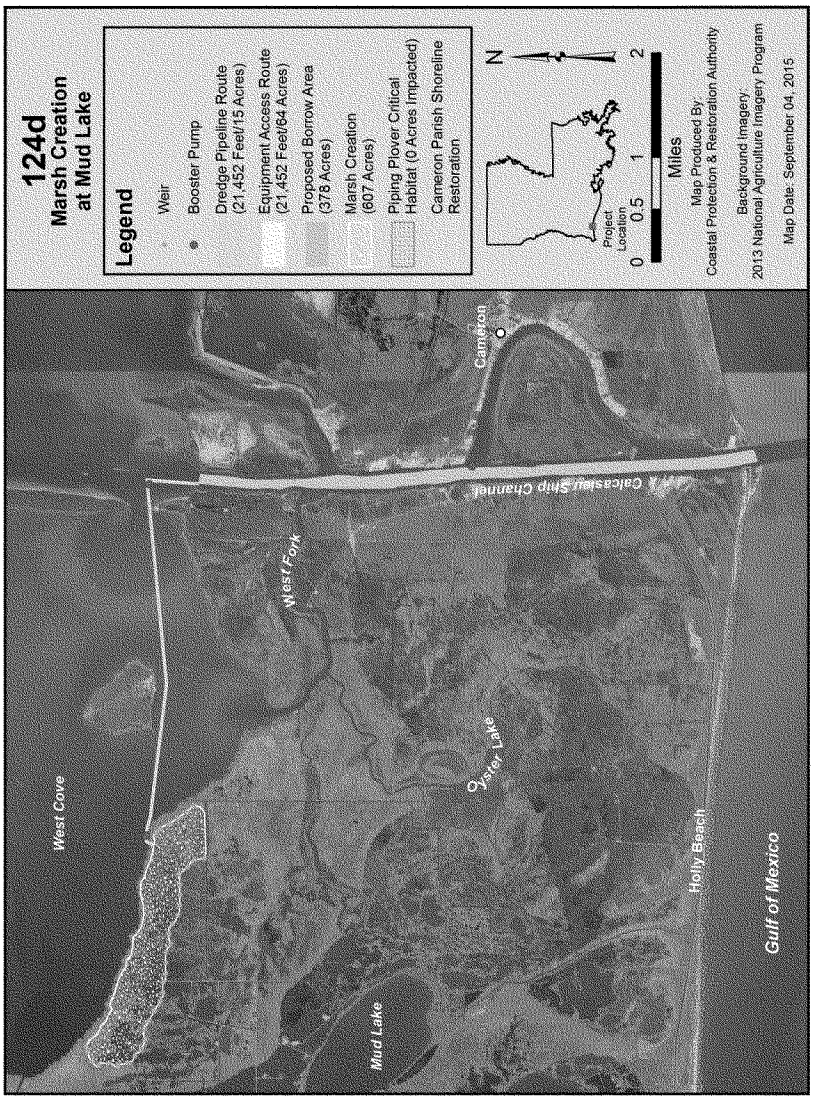
The dredged material would be placed to achieve a post-construction marsh target elevation of +1.5 feet (NAVD88) following dewatering. During construction, effluent from dewatering would be discharged into adjacent wetlands via spill box weirs. Approximately 32,500 feet of earthen containment dikes would be constructed from in-situ material located within the marsh restoration/nourishment area with a mechanical (clamshell or bucket) dredge. Generally, containment dikes are constructed around the perimeter of the feature. Spill box weirs would be placed in optimal locations along the containment dikes to control the level

[7] Dickerson, D., M. Wolters, C. Theriot, and C. Slay. 2004. Dredging impacts on sea turtles in the southeastern USA: A historical review of protection. Presented during World Dredging Congress XVII – Dredging in Sensitive Environment. Congress Centre Hamburg, Germany. September 2004.

of water and to allow for dewatering (see Figure below for containment dike and spill box weir locations). The access for the mechanical dredge would be via the pipeline corridor. The borrow area used for construction of the earthen containment dike would be refilled during the placement of dredged material. One (1) foot of freeboard would be maintained at all times during dredge discharge operations. The earthen containment dikes would be constructed to an approximate 5 foot crown width and slopes no steeper than 4H:1V. Containment dikes would be breached in multiple places at TY3 if necessary to restore fish access if natural degradation is not sufficient. Breach locations would correspond to weir locations.

One renourishment cycle at TY30 is estimated to include 103 acres of marsh restoration along with 474 acres of marsh nourishment. Approximately 1.2 million cubic yards of borrow from the Calcasieu Ship Channel or West Cove would be required for this renourishment cycle. Access for the renourishment cycle would be the same as for construction.

Best management practices would be implemented to avoid unnecessary impacts. By utilizing material from the Calcasieu Shipping Channel, hypoxic conditions in the borrow area are anticipated to be avoided. The use of airboats to place the pipeline along the corridor would minimize impacts to existing marsh. Air boats and marsh buggies (if required) would follow the best management practices developed by the Louisiana Department of Natural Resources and Department of Wildlife and Fisheries, "Marsh Buggy Use in the Coastal Zone" (2000). Booster pumps would be situated within the access corridor if possible, or located to minimize impacts to existing wetlands. The pipeline would be sunk where necessary to provide navigation access. No critical habitat is expected to be impacted by this measure. All construction activities shall observe a buffer zone of 1,000 feet for any colonial-nesting waterbird colonies (e.g., egrets, herons, ibis, pelicans, etc.), 1,300 feet for any shorebird nesting colonies (e.g., terns, gulls, plovers, skimmers, etc.), and 2,000 feet for any brown pelican nesting colonies near the project feature. USFWS and USACE biologists would survey the area before construction to confirm active nesting bird locations. A nesting bird abatement plan would be developed if one of the aforementioned nesting colonies falls within its respective buffer zone. Additionally, USFWS guidelines would be followed to avoid adverse impacts to the nesting colonies.


124d
Marsh Creation
at Mud Lake
Legend
Weir
Booster Pump
Dredge Pipeline Route
(21,452 Feet/15 Acres)
Equipment Access Route
(21,452 Feet/64 Acres)
Proposed Borrow Area
(378 Acres)
Marsh Creation
(607 Acres)
Piping Plover Critical
Habitat (0 Acres impacted)
Cameron Parish Shoreline
Restoration
N
Project
Location
0 0.5 1 2
Miles
Map Produced By:
Coastal Protection & Restoration Authority
Background Imagery:
2013 National Agriculture Imagery Program
Map Date: September 04, 2015
West Cove
West Fork
Mud Lake
Oyster Lake
Calcasieu Ship Channel
Cameron
Holly Beach
Gulf of Mexico

Measure 127c3
Marsh Restoration at Pecan Island

Measure 127c3 is a marsh restoration and nourishment feature located west of the Freshwater Bayou Canal and approximately 5 miles north of the Freshwater Bayou locks.

The measure would restore marsh by converting approximately 832 acres of shallow open water to brackish marsh habitat, along with the nourishment of approximately 62 acres of adjacent brackish marsh, through dedicated dredging of material to be borrowed from approximately 1 to 3 miles offshore within state waterbottoms (see Annex A for typical design drawings for this measure). Approximately 7.3 million cubic yards of borrow would be dredged with a hydraulic dredge for this marsh restoration and nourishment feature. Hopper dredges are not being proposed. Incidental takes of sea turtles have only been documented from hopper dredge operations that use trailing suction dragheads. Thus far, no incidental takes of sea turtles have been reported from clamshell (mechanical dredge), pipeline cutterhead (hydraulic dredge), or other types of dredges operating in southeastern coastal channels. Operational differences between these dredge types contribute to the differences in potential impacts to sea turtles. The relatively slow dredging motion of clamshell and pipeline dredges presents minimal risk for sea turtle takes.[8]

The average depth of open water in the placement area is -0.5 feet (NAVD88), and the average elevation of existing marsh (for nourishment) is 1.43 feet (NAVD88). The borrow area is approximately 3,950 acres, which would be used for all of the dredging needs for measures 127c3 and 306a1, including renourishment. The size, location, and configuration of the borrow area (offshore, with the long axis parallel to the shoreline) is designed to minimize the potential to create hypoxic conditions. The material would be transported directly to the site via pipeline, for a distance of approximately 7.0 miles. The pipeline access corridor would be approximately 130 feet wide, and follow the east bank of Freshwater Bayou, and would avoid the Freshwater Bayou Lock by following the bypass channel to the east. Navigation traffic is not anticipated to be impacted. The pipeline corridor is approximately 37,074 feet long (26 acres), the equipment access corridor is approximately 37,134 feet long (110 acres), and neither would require dredging. The pipeline corridor is contained within the equipment access corridor for the entire route except for where it bypasses the Freshwater Bayou Lock. This route is approximately 12,491 feet (8.60 acres). Measure 127c3 would result in a net benefit of 241 AAHUs.

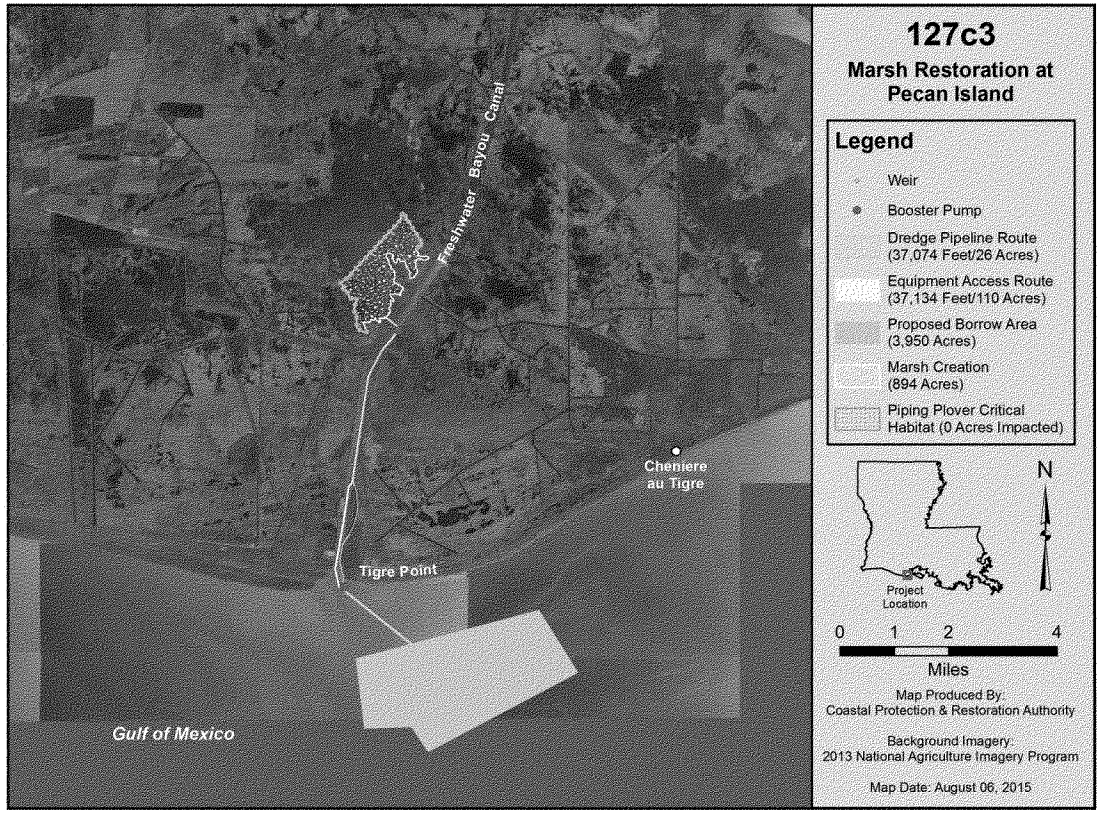
Construction would begin in TY0, prior to construction of measure 306a1, with anticipated completion in TY1. The dredged material would be placed to achieve a post-construction marsh target elevation of +1.4 feet (NAVD88) following dewatering. During construction, effluent from dewatering would be discharged into adjacent wetlands via spill box weirs. Approximately 46,000 feet of earthen containment dikes would be constructed from in-situ material located within the marsh restoration/nourishment area with a mechanical dredge. Generally, containment dikes are constructed around the perimeter of the feature. Spill box weirs would be placed in optimal locations along the containment dikes to control the level of water and to allow for dewatering (see Figure below for containment dike and spill box weir locations). Access for the mechanical dredge would be via Freshwater Bayou. No flotation dredging is anticipated to be required. The

[8] Dickerson, D., M. Wolters, C. Theriot, and C. Slay. 2004. Dredging impacts on sea turtles in the southeastern USA: A historical review of protection. Presented during World Dredging Congress XVII – Dredging in Sensitive Environment. Congress Centre Hamburg, Germany. September 2004.

borrow area used for construction of the earthen containment dike would be refilled during the placement of dredged material. One (1) foot of freeboard would be maintained at all times during dredge discharge operations. The earthen containment dikes would be constructed to an approximate 5 foot crown width and slopes no steeper than 4H:1V. Containment dikes would be breached in multiple places at TY3 if necessary to restore fish access if natural degradation is not sufficient. Breach locations would correspond to weir locations.

One renourishment cycle at TY30 is estimated to include 45 acres of marsh restoration along with 425 acres of marsh nourishment. Approximately 781,000 cubic yards of borrow from approximately 1 to 3 miles offshore within state waterbottoms would be required for this renourishment cycle. The borrow area, pipeline corridor, and equipment access for the renourishment cycle would be the same as for construction.

Best management practices would be implemented to avoid unnecessary impacts. By dredging the borrow area with side slopes of no less than a 4H:1V, hypoxic conditions are anticipated to be minimized. The use of airboats to place the pipeline along the corridor would minimize impacts to existing marsh. Air boats and marsh buggies (if required) would follow the best management practices developed by the Louisiana Department of Natural Resources and Department of Wildlife and Fisheries, "Marsh Buggy Use in the Coastal Zone" (2000). Booster pumps would be situated within the access corridor if possible, or located to minimize impacts to existing wetlands. The pipeline would be sunk where necessary to provide navigation access. No critical habitat is expected to be impacted by this measure. All construction activities shall observe a buffer zone of 1,000 feet for any colonial-nesting waterbird colonies (e.g., egrets, herons, ibis, pelicans, etc.), 1,300 feet for any shorebird nesting colonies (e.g., terns, gulls, plovers, skimmers, etc.), and 2,000 feet for any brown pelican nesting colonies near the project feature. USFWS and USACE biologists would survey the area before construction to confirm active nesting bird locations. A nesting bird abatement plan would be developed if one of the aforementioned nesting colonies falls within its respective buffer zone. Additionally, USFWS guidelines would be followed to avoid adverse impacts to the nesting colonies.


Freshwater Bayou Canal
Cheniere au Tigre
Tigre Point
Gulf of Mexico
127c3
Marsh Restoration at Pecan Island
Legend
Weir
Booster Pump
Dredge Pipeline Route (37,074 Feet/26 Acres)
Equipment Access Route (37,134 Feet/110 Acres)
Proposed Borrow Area (3,950 Acres)
Marsh Creation (894 Acres)
Piping Plover Critical Habitat (0 Acres Impacted)
N
Project Location
0 1 2 4
Miles
Map Produced By:
Coastal Protection & Restoration Authority
Background Imagery:
2013 National Agriculture Imagery Program
Map Date: August 06, 2015

Measure 306a1
Rainey Marsh Restoration – Southwest Portion (Christian Marsh)

Measure 306a1 is a marsh restoration and nourishment feature located east of the Freshwater Bayou Canal and approximately 5 miles north of the Freshwater Bayou locks. It would be constructed after the Shoreline Protection 16b measure so that the retention dikes would be protected from wave scour.

The measure would restore marsh by converting approximately 627 acres of shallow open water to brackish marsh habitat, along with the nourishment of approximately 1,269 acres of adjacent brackish marsh, through dedicated dredging of material to be borrowed from approximately 1 to 3 miles offshore within state waterbottoms (see Annex A for typical design drawings for this measure). Approximately 8.1 million cubic yards of borrow would be dredged with a hydraulic dredge for this marsh restoration and nourishment feature. Hopper dredges are not being proposed. Incidental takes of sea turtles have only been documented from hopper dredge operations that use trailing suction dragheads. Thus far, no incidental takes of sea turtles have been reported from clamshell (mechanical dredge), pipeline cutterhead (hydraulic dredge), or other types of dredges operating in southeastern coastal channels. Operational differences between these dredge types contribute to the differences in potential impacts to sea turtles. The relatively slow dredging motion of clamshell and pipeline dredges presents minimal risk for sea turtle takes.[9]

The average depth of open water in the placement area is -0.5 feet (NAVD88), and the average elevation of existing marsh (for nourishment) is 1.43 feet (NAVD88). The borrow area is approximately 3,950 acres, which would be used for all of the dredging needs for measures 127c3 and 306a1, including renourishment. The size, location, and configuration of the borrow area (offshore, with the long axis parallel to the shoreline) is designed to minimize the potential to create hypoxic conditions. The material would be transported directly to the site via pipeline, for a distance of approximately 11.3 miles. The pipeline access corridor would be approximately 30 feet wide, and follow the east bank of Freshwater Bayou, and would avoid the Freshwater Bayou Lock by following the bypass channel to the east. Navigation traffic is not anticipated to be impacted. The pipeline corridor is approximately 59,731 feet long (41 acres), the equipment access corridor is approximately 59,695 feet long (179 acres), and neither would require dredging. The pipeline corridor is contained within the equipment access corridor for the entire route except for where it bypasses the Freshwater Bayou Lock. This route is approximately 12,491 feet (8.6 acres). Measure 306a1 would result in a net benefit of 151 AAHUs.

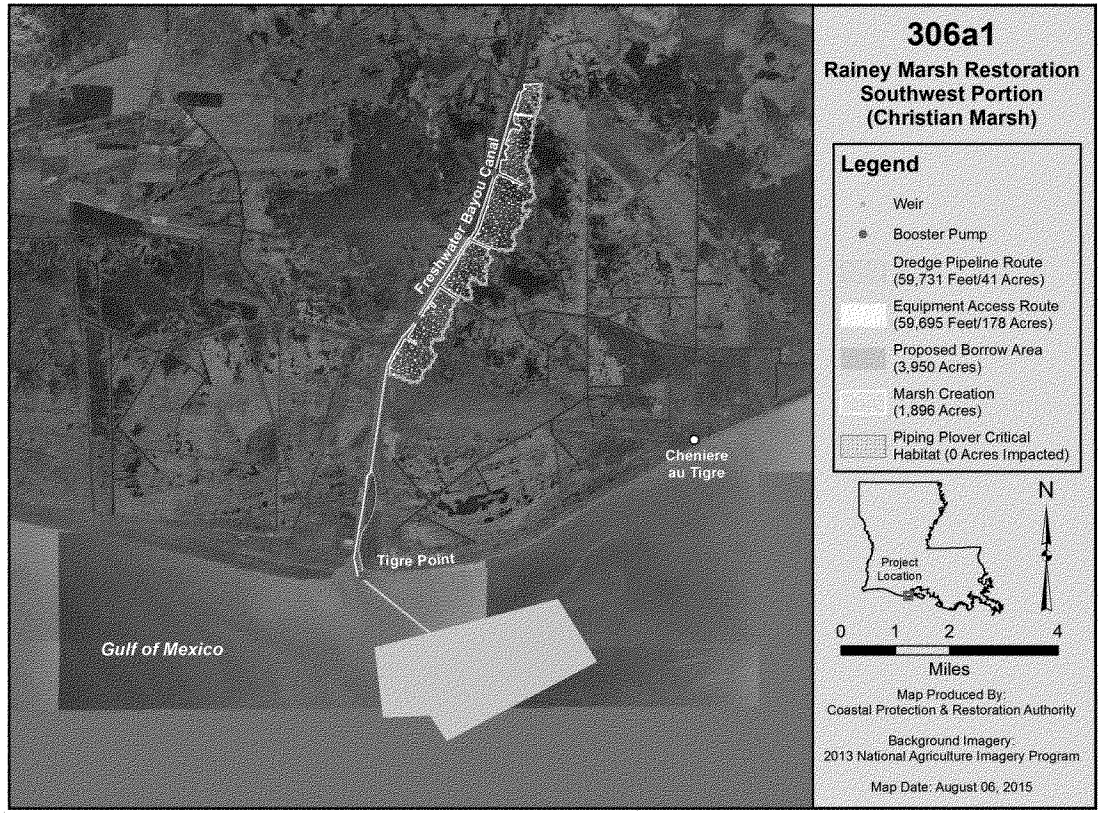
Construction would begin in TY1, after the construction of measure 16bSE which would provide protection to the marsh creation area, and measure 127c3, with anticipated completion in TY2. The dredged material would be placed to achieve a post-construction marsh target elevation of +1.4 feet (NAVD88) following dewatering. During construction, effluent from dewatering would be discharged into adjacent wetlands via spill box weirs. Approximately 108,000 feet of earthen containment dikes would be constructed from in-situ material located within the marsh restoration/nourishment area with a mechanical dredge. Generally, containment dikes are constructed around the perimeter of the feature. Spill box weirs would be placed in

[9] Dickerson, D., M. Wolters, C. Theriot, and C. Slay. 2004. Dredging impacts on sea turtles in the southeastern USA: A historical review of protection. Presented during World Dredging Congress XVII – Dredging in Sensitive Environment. Congress Centre Hamburg, Germany. September 2004.

optimal locations along the containment dikes to control the level of water and to allow for dewatering (see Figure below for containment dike and spill box weir locations). Access for the mechanical dredge would be via Freshwater Bayou. No flotation dredging is anticipated to be required. The borrow area used for construction of the earthen containment dike would be refilled during the placement of dredged material. One (1) foot of freeboard would be maintained at all times during dredge discharge operations. The earthen containment dikes would be constructed to an approximate 5 foot crown width and slopes no steeper than 4H:1V. Containment dikes would be breached in multiple places at TY3 if necessary to restore fish access if natural degradation is not sufficient. Breach locations would correspond to weir locations. Dewatering spill boxes would discharge into Freshwater Bayou behind the foreshore rock dikes (Shoreline Protection 16b measure) so that additional sediment discharged in the effluent would preferentially settle between the dike and the shoreline.

One renourishment cycle at TY30 is estimated to include 317 acres of marsh restoration along with 1,484 acres of marsh nourishment. Approximately 3.5 million cubic yards of borrow from approximately 1 to 3 miles offshore within state waterbottoms would be required for this renourishment cycle. The borrow area, pipeline corridor, and equipment access for the renourishment cycle would be the same as for construction.

Best management practices would be implemented to avoid unnecessary impacts. By dredging the borrow area with side slopes of no less than a 4H:1V, hypoxic conditions are anticipated to be minimized. The use of airboats to place the pipeline along the corridor would minimize impacts to existing marsh. Air boats and marsh buggies (if required) would follow the best management practices developed by the Louisiana Department of Natural Resources and Department of Wildlife and Fisheries, "Marsh Buggy Use in the Coastal Zone" (2000). Booster pumps would be situated within the access corridor if possible, or located to minimize impacts to existing wetlands. The pipeline would be sunk where necessary to provide navigation access. No critical habitat is expected to be impacted by this measure. All construction activities shall observe a buffer zone of 1,000 feet for any colonial-nesting waterbird colonies (e.g., egrets, herons, ibis, pelicans, etc.), 1,300 feet for any shorebird nesting colonies (e.g., terns, gulls, plovers, skimmers, etc.), and 2,000 feet for any brown pelican nesting colonies near the project feature. USFWS and USACE biologists would survey the area before construction to confirm active nesting bird locations. A nesting bird abatement plan would be developed if one of the aforementioned nesting colonies falls within its respective buffer zone. Additionally, USFWS guidelines would be followed to avoid adverse impacts to the nesting colonies.


306a1
Rainey Marsh Restoration
Southwest Portion
(Christian Marsh)
Legend
Weir
Booster Pump
Dredge Pipeline Route
(59,731 Feet/41 Acres)
Equipment Access Route
(59,695 Feet/178 Acres)
Proposed Borrow Area
(3,950 Acres)
Marsh Creation
(1,896 Acres)
Piping Plover Critical
Habitat (0 Acres Impacted)
Freshwater Bayou Canal
Cheniere
au Tigre
Tigre Point
Gulf of Mexico
Project
Location
N
0 1 2 4
Miles
Map Produced By:
Coastal Protection & Restoration Authority
Background Imagery:
2013 National Agriculture Imagery Program
Map Date: August 06, 2015

Shoreline Protection Measures

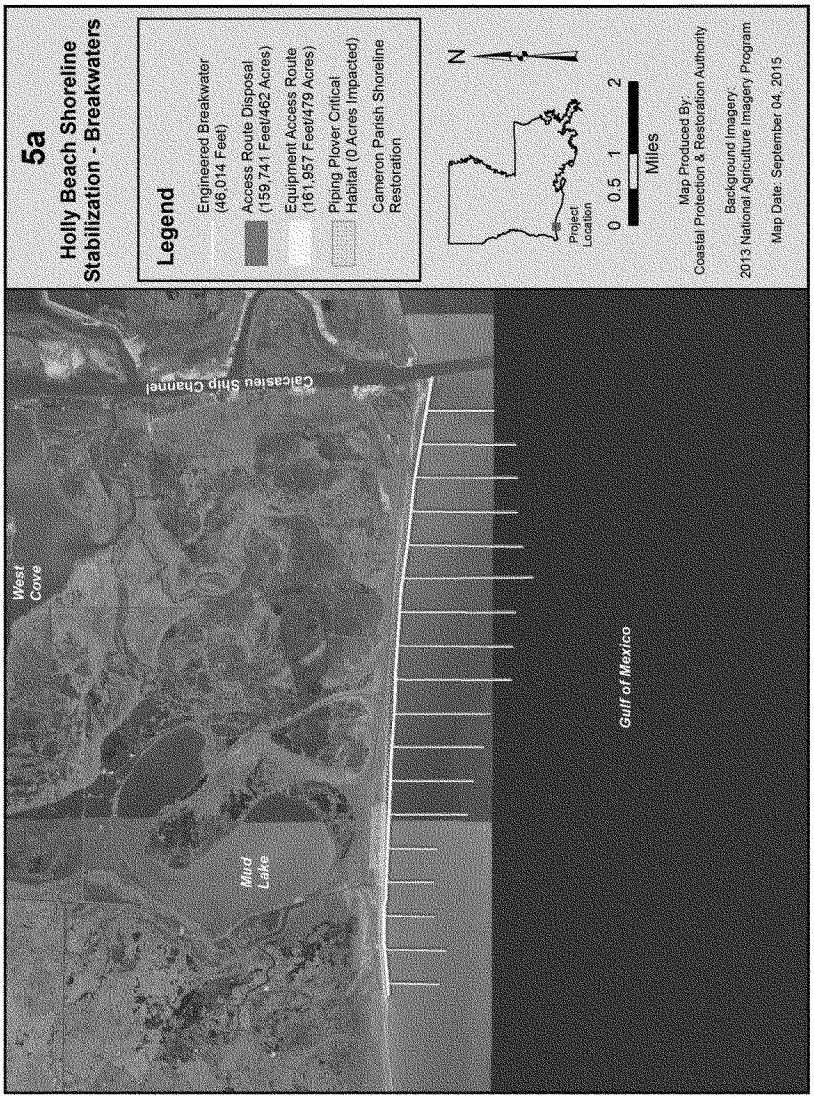
Measure 5a
Holly Beach Shoreline Stabilization – Breakwaters

This measure consists of the construction of approximately 8.7 miles of rock breakwaters and is a continuation of existing breakwaters. The breakwaters would be constructed at the approximate -4.0 foot (NAVD88) contour on state waterbottoms to a crown elevation of 3.5 feet (NAVD88) with a crown width of 24.0 feet and 2(H):1(V) side slopes (see Annex B for typical design drawings for this measure). It would also have a 10-foot (minimum) apron on the Gulf side and a 6 foot (minimum) apron on the shoreward side at -5 feet (NAVD88). The rock breakwaters would be constructed using 860,540 tons of rock (minimum of 250-pound gradation) underlain with 386,460 square yards of geotextile fabric to minimize settlement. Breakwater segments would be approximately 280 feet in length with 175 feet of gapping between breakwaters with offset, overlapping ends. The breakwater footprint is approximately 57.4 acres. Flotation dredging is anticipated for access to the site for construction equipment and material barges. Flotation excavation along the alignment would be limited to an 80-foot bottom width channel not to exceed an elevation of -7.0 feet (NAVD88), with a top width of 130 feet and 3:1 side slopes. Hopper dredges are not being proposed. Incidental takes of sea turtles have only been documented from hopper dredge operations that use trailing suction dragheads. Thus far, no incidental takes of sea turtles have been reported from clamshell (mechanical dredge), pipeline cutterhead (hydraulic dredge), or other types of dredges operating in southeastern coastal channels. Operational differences between these dredge types contribute to the differences in potential impacts to sea turtles. The relatively slow dredging motion of clamshell and pipeline dredges presents minimal risk for sea turtle takes.[10]

Access channels would be dredged perpendicular to the shoreline out to the -7.0 foot (NAVD88) contour every 2,500 feet. Approximately 479 acres are anticipated to be dredged for the access channels. Material removed from the access channel via mechanical dredge would be sidecast adjacent to the channel, and returned after construction. Approximately 462 acres are anticipated to be impacted by material removed from the access channels. A maintenance lift at TY15 consisting of approximately 15% of the initial rock quantity is included. A second maintenance at TY25 consisting of approximately 10% of the initial rock quantity is also included. Access for these maintenance events would be along the same access channels as the construction event. There is a possibility that longshore transport may be disrupted by the creation of tombolos. In other words, sediment may eventually fill in the lee of the breakwater and form a tombolo; the breakwater-tombolo formation may then act as a groin which might disrupt the longshore sediment transport in the area. Measure 5a would result in a net benefit of 56 AAHUs. Despite the low environmental benefit, this measure was deemed justified for inclusion in the TSP because it provides protection for the recently-constructed Cameron Parish Shoreline Restoration (CS-33) project, which renourished the beach with sand pumped from offshore. It ties into the existing breakwater field of the Holly Beach Sand Management (CS-31) project, and provides additional protection to the community of Holly Beach and Louisiana Highway 82, the only evacuation route in the vicinity. It also reduces the likelihood of a breach forming across Hwy 82, which would negatively impact the marshes to the north, including feature 124d.

[10] Dickerson, D., M. Wolters, C. Theriot, and C. Slay. 2004. Dredging impacts on sea turtles in the southeastern USA: A historical review of protection. Presented during World Dredging Congress XVII – Dredging in Sensitive Environment. Congress Centre Hamburg, Germany. September 2004.

Best management practices would be implemented to avoid unnecessary impacts. Impacts to sea turtles would be minimized through the use of mechanical dredges and dropping the bucket empty to alert nearby organisms. Shorebirds, including piping plover and red knot, and their habitats would be avoided by remaining offshore. All construction activities shall observe a buffer zone of 1,000 feet for any colonial-nesting waterbird colonies (e.g., egrets, herons, ibis, pelicans, etc.), 1,300 feet for any shorebird nesting colonies (e.g., terns, gulls, plovers, skimmers, etc.), and 2,000 feet for any brown pelican nesting colonies near the project feature. USFWS and USACE biologists would survey the area before construction to confirm active nesting bird locations. A nesting bird abatement plan would be developed if one of the aforementioned nesting colonies falls within its respective buffer zone. Additionally, USFWS guidelines would be followed to avoid adverse impacts to the nesting colonies. The proposed project would not impact designated wintering piping plover critical habitat.


5a
Holly Beach Shoreline Stabilization - Breakwaters
Legend
Engineered Breakwater (46,014 Feet)
Access Route Disposal (159,741 Feet/462 Acres)
Equipment Access Route (161,957 Feet/479 Acres)
Piping Plover Critical Habitat (0 Acres Impacted)
Cameron Parish Shoreline Restoration
West Cove
Calcasieu Ship Channel
Mud Lake
Gulf of Mexico
Project Location
N
0 0.5 1 2
Miles
Map Produced By:
Coastal Protection & Restoration Authority
Background Imagery:
2013 National Agriculture Imagery Program
Map Date: September 04, 2015

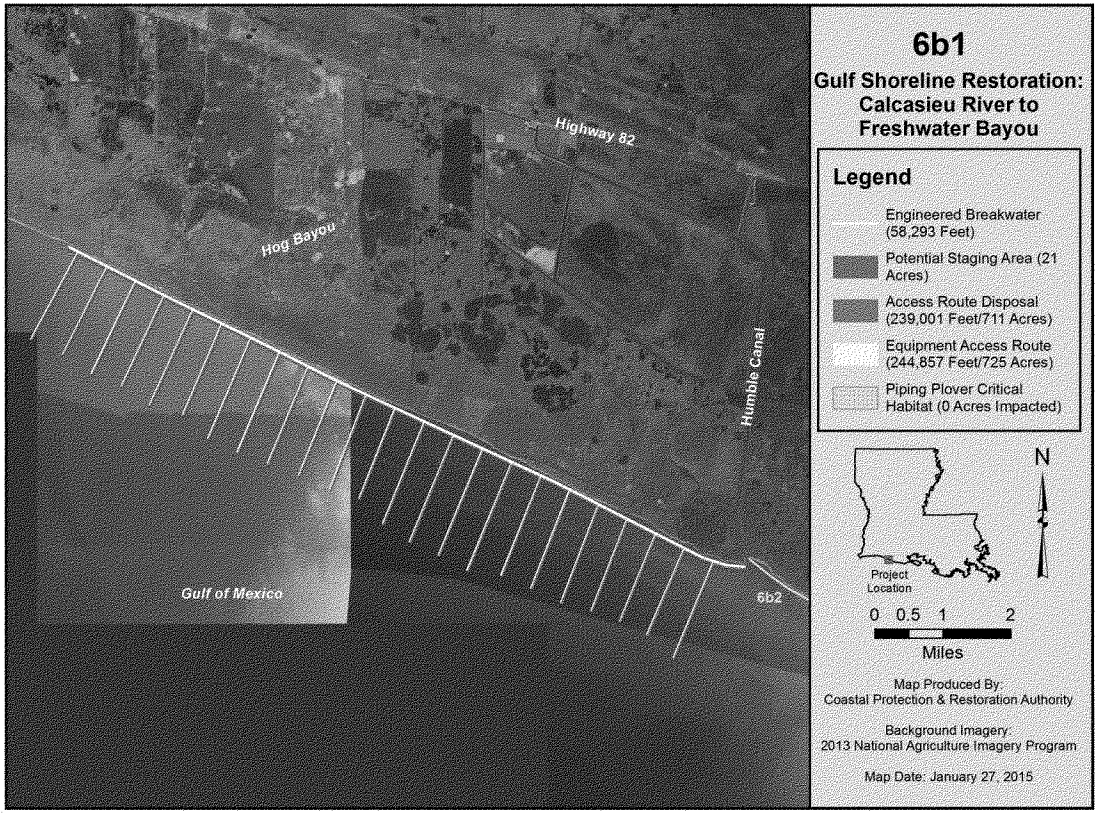
Measures 6b1
Gulf Shoreline Restoration: Calcasieu River to Freshwater Bayou

Measure 6b1 consists of the construction of approximately 11.0 miles of reef breakwater with a lightweight aggregate (LWA) core. The encapsulated LWA core decreases the bearing pressure and allows greater crest elevation and increased wave attenuation (see Annex C for typical design drawings for this measure). The design of this feature incorporates the design and construction of a portion of a CWPPRA demonstration project, Rockefeller Refuge Gulf Shoreline Stabilization (ME-18), along the Rockefeller Refuge shoreline. The breakwater would be located along the approximate -4 foot (NAVD88) contour approximately 150 feet offshore on state waterbottoms. The feature includes geotextile fabric overlying geogrid (447,830 square yards), 1 foot of bedding stone with 3.75 feet of LWA core to be initially covered by approximately 4 feet of armor stone. Approximately 479,150 tons of LWA would be used for the core, and 868,480 tons of rock (minimum 250-pound grade) would be used for the armor stone. The structure would have a crest elevation of +3.25 feet (NAVD88) with a width of 18 feet with 2(H):1(V) side slopes. It would also have a 10-foot (minimum) apron on the Gulf side and a 6 foot (minimum) apron on the shoreward side at -0.5 feet (NAVD88). Breakwater segments would be approximately 280 feet in length with 175 feet of gapping between breakwaters with offset, overlapping ends. The breakwater footprint is approximately 65.9 acres. Flotation dredging is anticipated for access to the site for construction equipment and material barges. Flotation excavation along the alignment would be limited to an 80-foot bottom width channel not to exceed an elevation of -7.0 feet (NAVD88), with a top width of 130 feet and 3:1 side slopes. Hopper dredges are not being proposed. Incidental takes of sea turtles have only been documented from hopper dredge operations that use trailing suction dragheads. Thus far, no incidental takes of sea turtles have been reported from clamshell (mechanical dredge), pipeline cutterhead (hydraulic dredge), or other types of dredges operating in southeastern coastal channels. Operational differences between these dredge types contribute to the differences in potential impacts to sea turtles. The relatively slow dredging motion of clamshell and pipeline dredges presents minimal risk for sea turtle takes.[11]

Access channels would be dredged perpendicular to the shoreline out to the -7.0 foot (NAVD88) contour every 2,500 feet. Approximately 725 acres are anticipated to be dredged for the access channels. Material removed from the access channel via mechanical dredge (clamshell or bucket) would be sidecast adjacent to the channel, and returned after construction. Approximately 711 acres are anticipated to be impacted by material removed from the access channels. Approximately 21 acres would be used for the staging area located off of Highway 82 adjacent to the Humble Canal. One maintenance lift at TY25 consisting of approximately 10% of the original armor stone quantity is included. Access for this maintenance event would be along the same access channels as the construction event. There is a possibility that longshore transport may be disrupted by the creation of tombolos. In other words, sediment may eventually fill in the lee of the breakwater and form a tombolo; the breakwater-tombolo formation may then act as a groin which might disrupt the longshore sediment transport in the area. Measure 6b1 would protect 2,140 acres and result in a net benefit of 625 AAHUs.

[11] Dickerson, D., M. Wolters, C. Theriot, and C. Slay. 2004. Dredging impacts on sea turtles in the southeastern USA: A historical review of protection. Presented during World Dredging Congress XVII – Dredging in Sensitive Environment. Congress Centre Hamburg, Germany. September 2004.

Best management practices would be implemented to avoid unnecessary impacts. Impacts to sea turtles would be minimized through the use of mechanical dredges and dropping the bucket empty to alert nearby organisms. Shorebirds, including piping plover and red knot, and their habitats would be avoided by keeping construction activities offshore from the Gulf of Mexico shoreline. All construction activities shall observe a buffer zone of 1,000 feet for any colonial-nesting waterbird colonies (e.g., egrets, herons, ibis, pelicans, etc.), 1,300 feet for any shorebird nesting colonies (e.g., terns, gulls, plovers, skimmers, etc.), and 2,000 feet for any brown pelican nesting colonies near the project feature. USFWS and USACE biologists would survey the area before construction to confirm active nesting bird locations. A nesting bird abatement plan would be developed if one of the aforementioned nesting colonies falls within its respective buffer zone. Additionally, USFWS guidelines would be followed to avoid adverse impacts to the nesting colonies. The proposed project would not impact designated wintering piping plover critical habitat.


Highway 82
Hog Bayou
Humble Canal
Gulf of Mexico
6b2
6b1
Gulf Shoreline Restoration: Calcasieu River to Freshwater Bayou
Legend
Engineered Breakwater (58,293 Feet)
Potential Staging Area (21 Acres)
Access Route Disposal (239,001 Feet/711 Acres)
Equipment Access Route (244,857 Feet/725 Acres)
Piping Plover Critical Habitat (0 Acres Impacted)
Project Location
N
0 0.5 1 2
Miles
Map Produced By:
Coastal Protection & Restoration Authority
Background Imagery:
2013 National Agriculture Imagery Program
Map Date: January 27, 2015

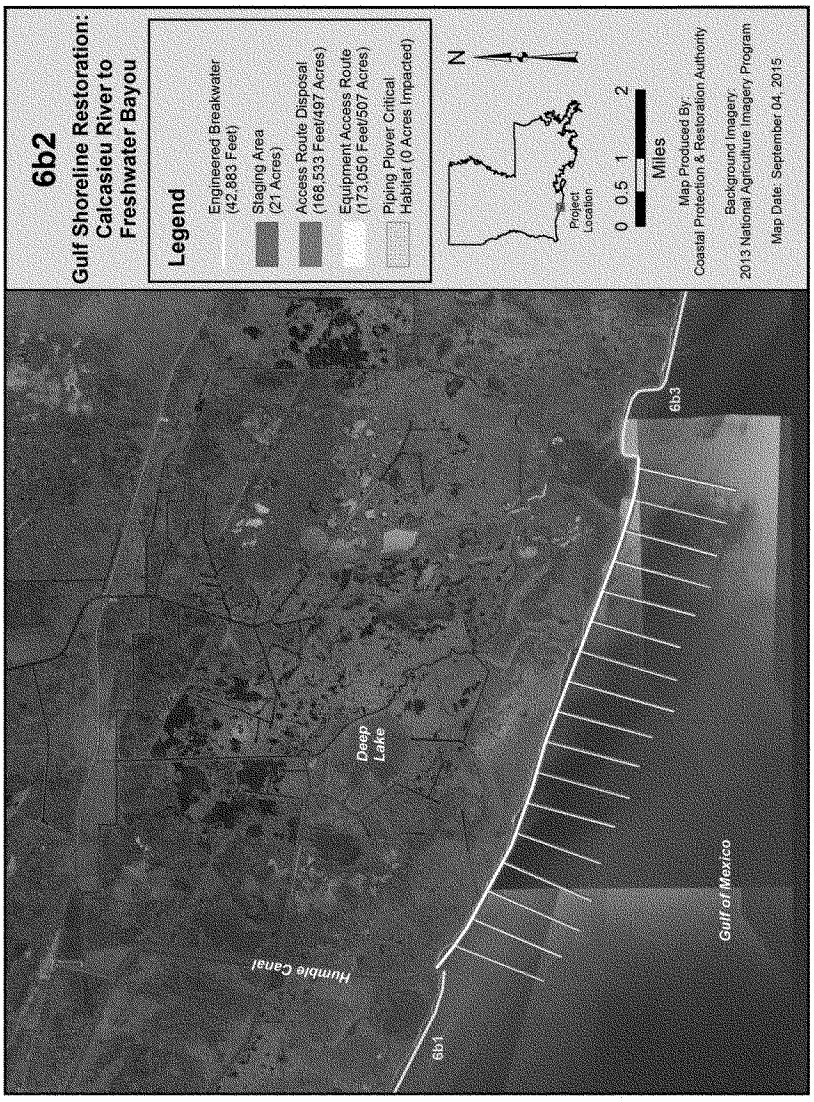
Measures 6b2
Gulf Shoreline Restoration: Calcasieu River to Freshwater Bayou

Measure 6b2 consists of the construction of approximately 8.1 miles of reef breakwater with a lightweight aggregate (LWA) core. The encapsulated LWA core decreases the bearing pressure and allows greater crest elevation and increased wave attenuation (see Annex C for typical design drawings for this measure). The design of this feature incorporates the design and construction of a portion of a CWPPRA demonstration project, Rockefeller Refuge Gulf Shoreline Stabilization (ME-18), along the Rockefeller Refuge shoreline. The breakwater would be located along the approximate -4 foot (NAVD88) contour approximately 150 feet offshore on state waterbottoms. The feature includes geotextile fabric overlying geogrid (363,270 square yards), 1 foot of bedding stone with 3.75 feet of LWA core to be initially covered by approximately 4 feet of armor stone. Approximately 357,010 tons LWA would be used for the core, and 687,140 tons of rock (minimum 250-pound grade) would be used for the armor stone. The structure would have a crest elevation of +3.25 feet (NAVD88) with a width of 18 feet with 2(H):1(V) side slopes. It would also have a 10-foot (minimum) apron on the Gulf side and a 6 foot (minimum) apron on the shoreward side at -0.5 feet (NAVD88). Breakwater segments would be approximately 280 feet in length with 175 feet of gapping between breakwaters with offset, overlapping ends. The breakwater footprint is approximately 40.2 acres. Flotation dredging is anticipated for access to the site for construction equipment and material barges. Flotation excavation along the alignment would be limited to an 80-foot bottom width channel not to exceed an elevation of -7.0 feet (NAVD88), with a top width of 130 feet and 3:1 side slopes. Hopper dredges are not being proposed. Incidental takes of sea turtles have only been documented from hopper dredge operations that use trailing suction dragheads. Thus far, no incidental takes of sea turtles have been reported from clamshell (mechanical dredge), pipeline cutterhead (hydraulic dredge), or other types of dredges operating in southeastern coastal channels. Operational differences between these dredge types contribute to the differences in potential impacts to sea turtles. The relatively slow dredging motion of clamshell and pipeline dredges presents minimal risk for sea turtle takes.[12]

Access channels would be dredged perpendicular to the shoreline out to the -7.0 foot (NAVD88) contour every 2,500 feet. Approximately 507 acres are anticipated to be dredged for the access channels. Material removed from the access channel via mechanical dredge (clamshell or bucket) would be sidecast adjacent to the channel, and returned after construction. Approximately 497 acres are anticipated to be impacted by material removed from the access channels. Approximately 21 acres would be used for the staging area located off of Highway 82 adjacent to the Humble Canal. One maintenance lift at TY25 consisting of approximately 10% of the original armor stone quantity is included. Access for this maintenance event would be along the same access channels as the construction event. There is a possibility that longshore transport may be disrupted by the creation of tombolos. In other words, sediment may eventually fill in the lee of the breakwater and form a tombolo; the breakwater-tombolo formation may then act as a groin which might disrupt the longshore sediment transport in the area. Measure 6b2 would protect 1,583 acres and result in a net benefit of 466 AAHUs.

[12] Dickerson, D., M. Wolters, C. Theriot, and C. Slay. 2004. Dredging impacts on sea turtles in the southeastern USA: A historical review of protection. Presented during World Dredging Congress XVII – Dredging in Sensitive Environment. Congress Centre Hamburg, Germany. September 2004.

Best management practices would be implemented to avoid unnecessary impacts. Impacts to sea turtles would be minimized through the use of mechanical dredges and dropping the bucket empty to alert nearby organisms. Shorebirds, including piping plover and red knot, and their habitats would be avoided by keeping construction activities offshore from the Gulf of Mexico shoreline. All construction activities shall observe a buffer zone of 1,000 feet for any colonial-nesting waterbird colonies (e.g., egrets, herons, ibis, pelicans, etc.), 1,300 feet for any shorebird nesting colonies (e.g., terns, gulls, plovers, skimmers, etc.), and 2,000 feet for any brown pelican nesting colonies near the project feature. USFWS and USACE biologists would survey the area before construction to confirm active nesting bird locations. A nesting bird abatement plan would be developed if one of the aforementioned nesting colonies falls within its respective buffer zone. Additionally, USFWS guidelines would be followed to avoid adverse impacts to the nesting colonies. The proposed project would not impact designated wintering piping plover critical habitat.


6b2
Gulf Shoreline Restoration:
Calcasieu River to
Freshwater Bayou
Legend
Engineered Breakwater
(42,883 Feet)
Staging Area
(21 Acres)
Access Route Disposal
(168,533 Feet/497 Acres)
Equipment Access Route
(173,050 Feet/507 Acres)
Piping Plover Critical
Habitat (0 Acres Impacted)
N
Project
Location
0 0.5 1 2
Miles
Map Produced By:
Coastal Protection & Restoration Authority
Background Imagery:
2013 National Agriculture Imagery Program
Map Date: September 04, 2015
Humble Canal
Deep
Lake
6b1
6b3
Gulf of Mexico

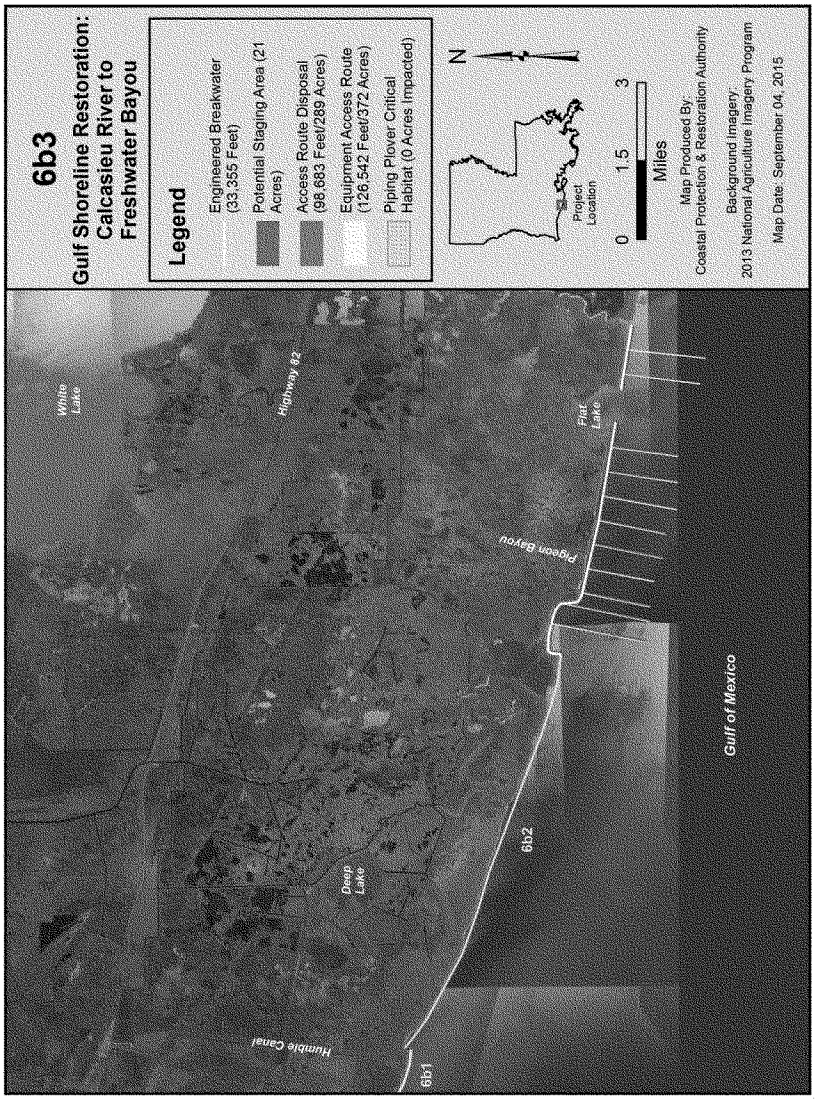
Measures 6b3
Gulf Shoreline Restoration: Calcasieu River to Freshwater Bayou

Measure 6b3 consists of the construction of approximately 6.3 miles of reef breakwater with a lightweight aggregate (LWA) core. The encapsulated LWA core decreases the bearing pressure and allows greater crest elevation and increased wave attenuation (see Annex C for typical design drawings for this measure). The design of this feature incorporates the design and construction of a portion of a CWPPRA demonstration project, Rockefeller Refuge Gulf Shoreline Stabilization (ME-18), along the Rockefeller Refuge shoreline. The breakwater would be located along the approximate -4 foot (NAVD88) contour approximately 150 feet offshore on state waterbottoms. The feature includes geotextile fabric overlying geogrid (244,205 square yards), 1 foot of bedding stone with 3.75 feet of LWA core to be initially covered by approximately 4 feet of armor stone. Approximately 279,030 tons of LWA would be used for the core, and 561,530 tons of rock (minimum 250 pound grade) would be used for the armor stone. The structure would have a crest elevation of +3.25 feet (NAVD88) with a width of 18 feet with 2(H):1(V) side slopes. It would also have a 10-foot (minimum) apron on the Gulf side and a 6 foot (minimum) apron on the shoreward side at -0.5 feet (NAVD88). Breakwater segments would be approximately 280 feet in length with 175 feet of gapping between breakwaters with offset, overlapping ends. The breakwater footprint is approximately 37.8 acres. Flotation dredging is anticipated for access to the site for construction equipment and material barges. Flotation excavation along the alignment would be limited to an 80-foot bottom width channel not to exceed an elevation of -7.0 feet (NAVD88), with a top width of 130 feet and 3:1 side slopes. Hopper dredges are not being proposed. Incidental takes of sea turtles have only been documented from hopper dredge operations that use trailing suction dragheads. Thus far, no incidental takes of sea turtles have been reported from clamshell (mechanical dredge), pipeline cutterhead (hydraulic dredge), or other types of dredges operating in southeastern coastal channels. Operational differences between these dredge types contribute to the differences in potential impacts to sea turtles. The relatively slow dredging motion of clamshell and pipeline dredges presents minimal risk for sea turtle takes.[13]

Access channels would be dredged perpendicular to the shoreline out to the -7.0 foot (NAVD88) contour every 2,500 feet. Approximately 372 acres are anticipated to be dredged for the access channels. Material removed from the access channel via mechanical dredge (clamshell or bucket) would be sidecast adjacent to the channel, and returned after construction. Approximately 289 acres are anticipated to be impacted by material removed from the access channels. Approximately 21 acres would be used for the staging area located off of Highway 82 adjacent to the Humble Canal. One maintenance lift at TY25 consisting of approximately 10% of the original armor stone quantity is included. Access for this maintenance event would be along the same access channels as the construction event. There is a possibility that longshore transport may be disrupted by the creation of tombolos. In other words, sediment may eventually fill in the lee of the breakwater and form a tombolo; the breakwater-tombolo formation may then act as a groin which might disrupt the longshore sediment transport in the area. Measure 6b3 would protect 1,098 acres and result in a net benefit of 312 AAHUs.

[13] Dickerson, D., M. Wolters, C. Theriot, and C. Slay. 2004. Dredging impacts on sea turtles in the southeastern USA: A historical review of protection. Presented during World Dredging Congress XVII – Dredging in Sensitive Environment. Congress Centre Hamburg, Germany. September 2004.

Best management practices would be implemented to avoid unnecessary impacts. Impacts to sea turtles would be minimized through the use of mechanical dredges and dropping the bucket empty to alert nearby organisms. Shorebirds, including piping plover and red knot, and their habitats would be avoided by keeping construction activities offshore from the Gulf of Mexico shoreline. All construction activities shall observe a buffer zone of 1,000 feet for any colonial-nesting waterbird colonies (e.g., egrets, herons, ibis, pelicans, etc.), 1,300 feet for any shorebird nesting colonies (e.g., terns, gulls, plovers, skimmers, etc.), and 2,000 feet for any brown pelican nesting colonies near the project feature. USFWS and USACE biologists would survey the area before construction to confirm active nesting bird locations. A nesting bird abatement plan would be developed if one of the aforementioned nesting colonies falls within its respective buffer zone. Additionally, USFWS guidelines would be followed to avoid adverse impacts to the nesting colonies. The proposed project would not impact designated wintering piping plover critical habitat.


6b3
Gulf Shoreline Restoration: Calcasieu River to Freshwater Bayou
Legend
Engineered Breakwater (33,355 Feet)
Potential Staging Area (21 Acres)
Access Route Disposal (98,683 Feet/289 Acres)
Equipment Access Route (126,542 Feet/372 Acres)
Piping Plover Critical Habitat (0 Acres Impacted)
N
Project Location
0 1.5 3
Miles
Map Produced By:
Coastal Protection & Restoration Authority
Background Imagery:
2013 National Agriculture Imagery Program
Map Date: September 04, 2015
White Lake
Highway 82
Humble Canal
Deep Lake
6b1
6b2
Pigeon Bayou
Flat Lake
Gulf of Mexico

Page K-41

Measure 16b
Fortify Spoil Banks of GIWW & Freshwater Bayou

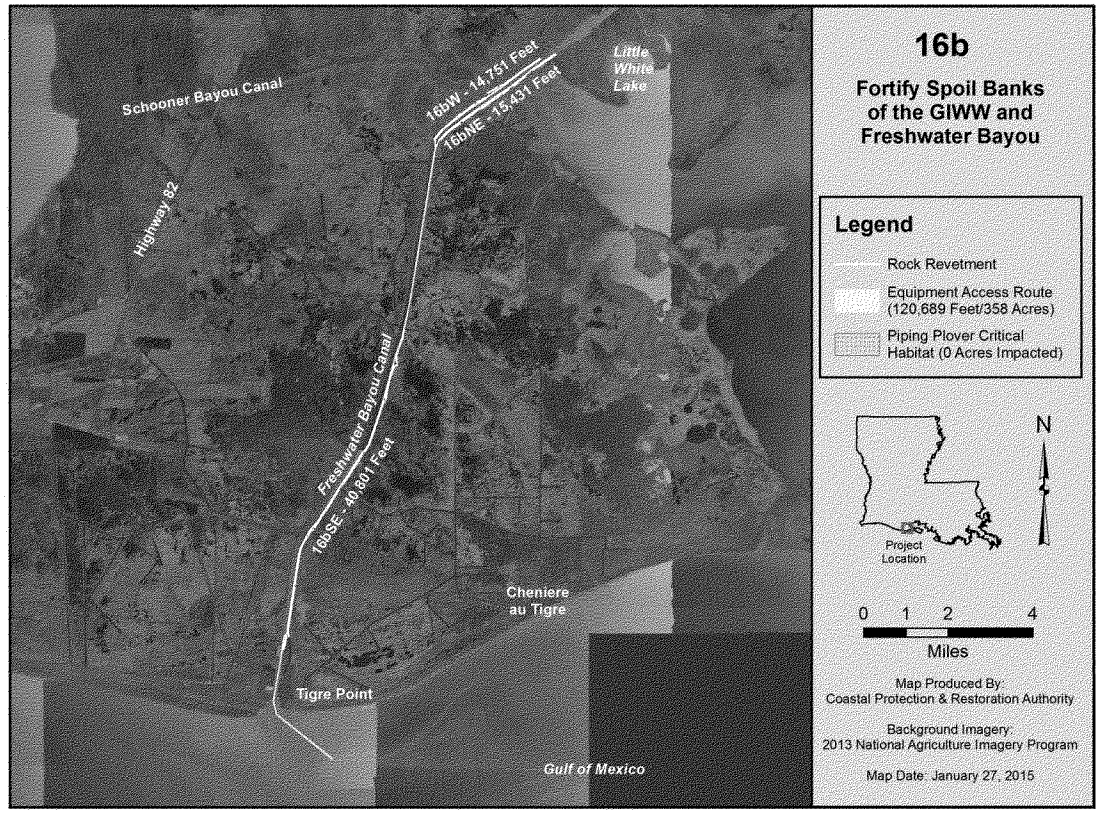
These three measure reaches, 16bNE (approx. 2.9 miles), 16bSE (approx. 7.7 miles), and 16bW (approx. 2.8 miles), consist of the construction of foreshore rock dike shoreline protection along critical areas of the Freshwater Bayou navigation canal. Armoring of the shoreline is intended to prevent the shoreline from breaching so that salt water does not negatively impact the surrounding freshwater marshes and lakes in the Mermentau Basin. Implementation of similar shoreline protection projects along Freshwater Bayou has halted the shoreline erosion along those reaches. The proposed rock dike feature would be located at the approximate -0.3 foot (NAVD88) contour (at Mean Low Water) on state waterbottoms, and contain 617,640 tons of rock (minimum 250 pounds gradation). Crown elevation would be +3.0 feet (NAVD88) with a 4 foot crown width and 4(H):1(V) side slopes (see Annex D for typical design drawings for this measure). The rock dike would be underlain with approximately 516,860 square yards of geotextile fabric to minimize settlement. Gaps would be included at naturally occurring waterways or navigable channels, with additional gaps for ingress and egress of aquatic organisms at 1,500 foot intervals, as needed. These features would be constructed prior to the Marsh Restoration 306a1 feature to provide protection to the retention dike from wave scour. Limited flotation dredging is anticipated for access to the site for construction equipment and material barges. Flotation excavation along the alignment would be accomplished with a mechanical dredge, and would be limited to a 120-foot bottom width channel not to exceed an elevation of -5.0 feet (NAVD88), with a top width of 130 feet and 2:1 side slopes. Hopper dredges are not being proposed. Incidental takes of sea turtles have only been documented from hopper dredge operations that use trailing suction dragheads. Thus far, no incidental takes of sea turtles have been reported from clamshell (mechanical dredge), pipeline cutterhead (hydraulic dredge), or other types of dredges operating in southeastern coastal channels. Operational differences between these dredge types contribute to the differences in potential impacts to sea turtles. The relatively slow dredging motion of clamshell and pipeline dredges presents minimal risk for sea turtle takes.[14]

The access channel would be at least 50 feet from the centerline of the rock dike. A maximum of approximately 358 acres could be dredged for the access channels. Any material dredged for access would be placed between the rock dike and the shoreline (to a maximum elevation of +5.0 feet NAVD88). A maintenance lift at TY15 consisting of approximately 15% of the initial rock quantity is included. A second maintenance lift at TY25 consisting of approximately 10% of the initial rock quantity is also included. Measure 16b would protect 1,288 acres and result in a net benefit of 279 AAHUs.

Best management practices would be implemented to minimize impacts to the water quality of Freshwater Bayou, including the use of mechanical dredging for access channels, if required. Shorebirds, including piping plover and red knot, and their habitats would be avoided by keeping construction activities offshore from the Freshwater Bayou shoreline. All construction activities shall observe a buffer zone of 1,000 feet for any

[14] Dickerson, D., M. Wolters, C. Theriot, and C. Slay. 2004. Dredging impacts on sea turtles in the southeastern USA: A historical review of protection. Presented during World Dredging Congress XVII – Dredging in Sensitive Environment. Congress Centre Hamburg, Germany. September 2004.

colonial-nesting waterbird colonies (e.g., egrets, herons, ibis, pelicans, etc.), 1,300 feet for any shorebird nesting colonies (e.g., terns, gulls, plovers, skimmers, etc.), and 2,000 feet for any brown pelican nesting colonies near the project feature. USFWS and USACE biologists would survey the area before construction to confirm active nesting bird locations. A nesting bird abatement plan would be developed if one of the aforementioned nesting colonies falls within its respective buffer zone. Additionally, USFWS guidelines would be followed to avoid adverse impacts to the nesting colonies. The proposed project would not impact designated wintering piping plover critical habitat.


Schooner Bayou Canal
Highway 82
16bW - 14,751 Feet
16bNE - 15,431 Feet
Little White Lake
Freshwater Bayou Canal
16bSE - 40,801 Feet
Cheniere au Tigre
Tigre Point
Gulf of Mexico
16b
Fortify Spoil Banks of the GIWW and Freshwater Bayou
Legend
Rock Revetment
Equipment Access Route (120,689 Feet/358 Acres)
Piping Plover Critical Habitat (0 Acres Impacted)
N
Project Location
0 1 2 4
Miles
Map Produced By:
Coastal Protection & Restoration Authority
Background Imagery:
2013 National Agriculture Imagery Program
Map Date: January 27, 2015

Chenier Reforestation Measures

Measure CR
Chenier Reforestation

Measure CR is a series of chenier ridge reforestation features located along existing chenier ridges situated within Cameron and Vermilion Parishes (see following maps).

The measure would consist of invasive species control and planting native species seedlings to achieve a 50 percent canopy cover. From the possible locations, east/west-oriented chenier ridges with elevations identified through LiDAR surveys as generally being greater than +5 feet (NAVD 88) were selected. The +5 feet (NAVD 88) target elevation is considered a conservative minimum elevation that could sustain tree plantings for the duration of the study period given relative sea level rise, and is taken from Didier (2007) and other professional opinions.

The selected chenier ridges included: Measure 416 - Grand Chenier Ridge (nine locations with 251.9 total acres); Measure 509c - Bill Ridge (three locations with 21.4 total acres); Measure 509d - Cheniere Au Tigre (one location with 8.2 acres); Measure 510a - Blue Buck Ridge (eight locations with 524.4 total acres); Measure 510b - Hackberry Ridge (three locations with 148.5 total acres); and Measure 510d - Front Ridge (eleven locations with 458.7 total acres). The total acreage included in the Chenier Reforestation measure is 1,413.1 acres. A total of 538.2 AAHUs are anticipated to be restored with this measure.

Prior to planting, an application of 64 ounces of Clearcast® would be sprayed over the top of hardwoods to control invasive species, primarily Chinese tallow (Triadica sebifera), if needed. Up to 50 percent of the measure acreage would be planted with live oak (Quercus virginiana) and hackberry (Celtis occidentalis). Bare-root seedlings would be planted on 10x10-foot spacing (435 trees per acre), which assumes 57% survival. Fencing would be installed to exclude cattle and reduce deer herbivory. Fencing would be 7.5 feet tall, and fence posts would be installed in concrete with a small tractor using an auger bit and portable cement mixer. Approximately 150,000 linear feet of fencing would be required at $1.00 per linear foot, not including labor. Fencing would not be required for the CR-509c and CR-509d measures, since they are located in a remote area along the coast where there is currently no cattle grazing.

For a given planting, a minimum of 250 seedlings/saplings per acre must be present (with a 60 to 40 hard mast to soft mast ratio) at the end of the fourth year (i.e., Year 5) following successful attainment of the one-year survivorship criteria. Trees established through natural recruitment may be included in this tally; however, no less that 125 hard mast-producing seedlings per acre must be present. Surviving hard mast seedlings must be representative of the species composition and percentage identified in this Plan. Exotic/invasive species may not be included in this tally. By Year 5 (four years following successful attainment of the one-year survivorship criteria) the perimeter would be virtually free (approximately 5% or less on an acre-by-acre basis) of exotic/invasive vegetative species. The developing plant community must exhibit characteristics and diversity indicative of a viable native forested chenier community commensurate with stand age and site conditions by Year 5.

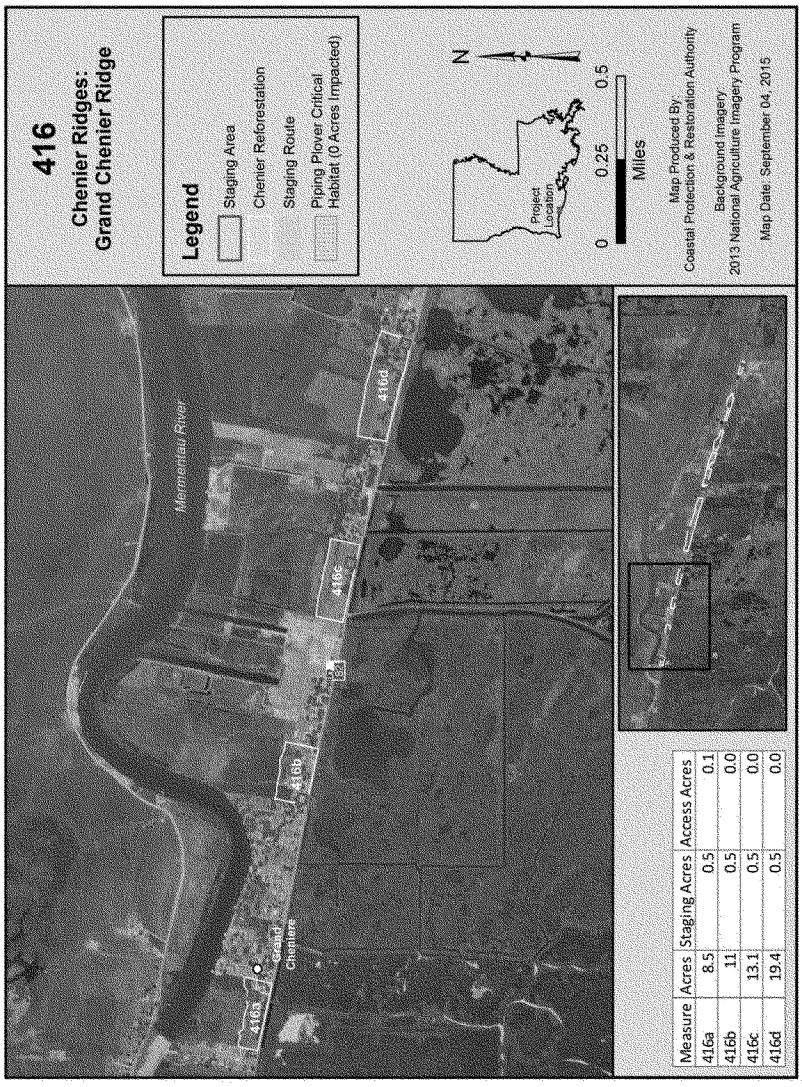
Costs are based on:

- Cost of bare root seedlings is $0.30 per seedling which includes delivery to the sites.
- Planting scheme: 10x10 spacing (435 trees per acre).

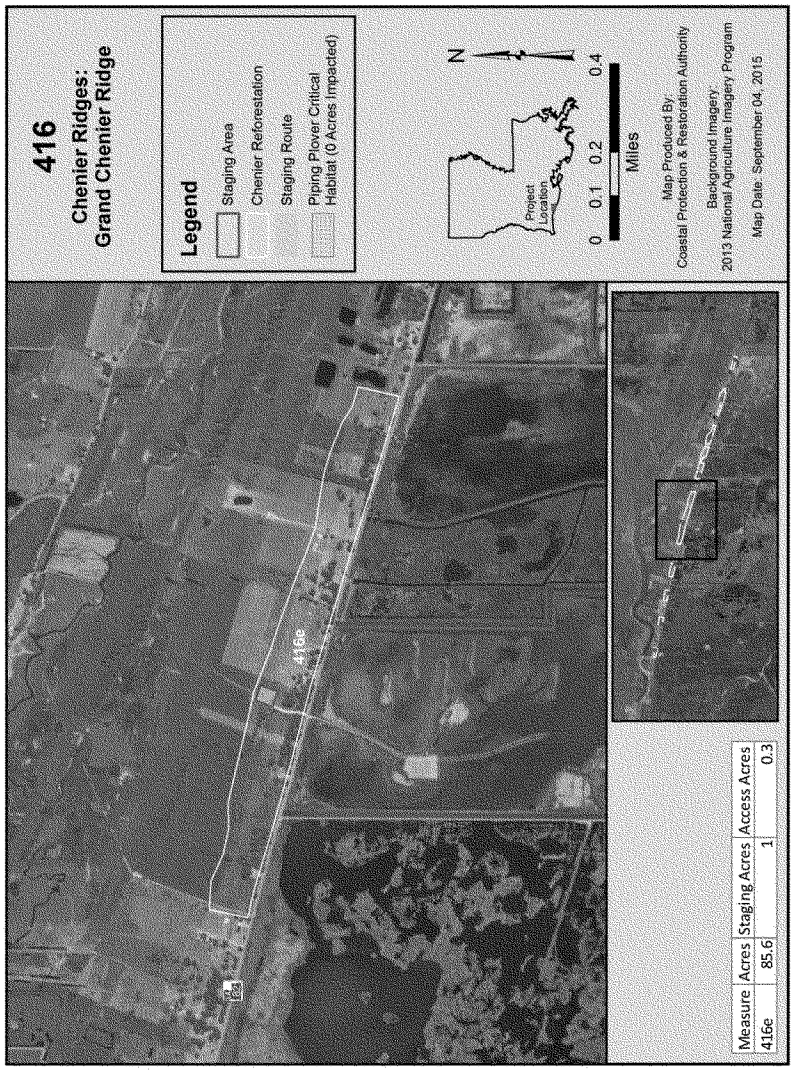
- Planting costs (labor): 20 acres and up = $65 per acre; 19 acres and less = $75 per acre
- Chinese tallow control spraying: $150 per acre for helicopter spraying. Sites would be sprayed using 64 ounces of Clearcast® sprayed over the top of hardwoods to control the tallow trees.
- Fencing cost is $1.00 per linear foot, not including labor (150,000 linear feet required).
- Air boat rental may be required for measures that are inaccessible by automobile (extra $10 per acre).

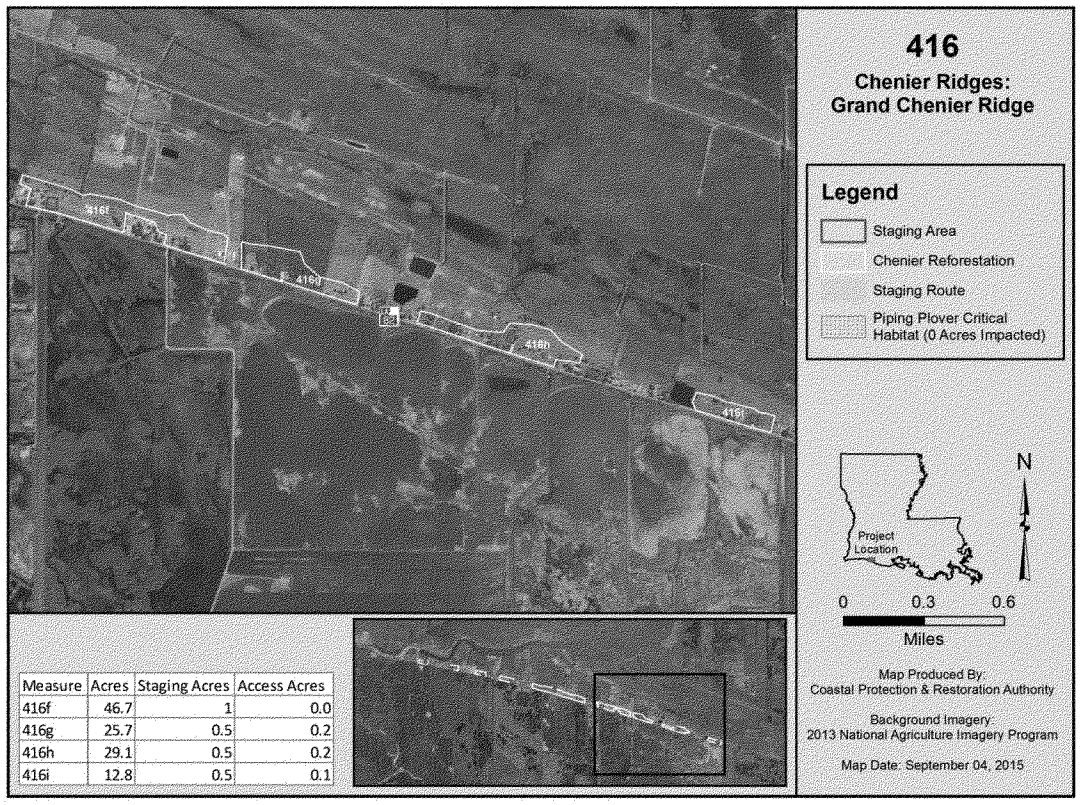
Mobilization for the chenier ridge restoration sites would be via Louisiana Highway 82 or other existing roadways, except for remote locations, such as measures 509c and 509d, which are not accessible by roadway. Measure 509c would be accessed by airboat using existing waterways and canals to the extent practicable to minimize impacts to existing wetlands. This access corridor is 13,867 feet long (10 acres). Measure 509d would be accessed by airboat or small barge from existing waterways connected to Freshwater Bayou. Air boats and marsh buggies would follow the best management practices developed by the Louisiana Department of Natural Resources and Department of Wildlife and Fisheries, "Marsh Buggy Use in the Coastal Zone" (2000). No wetland impacts are anticipated. For sites that are not immediately accessible via roadways, staging areas would be on developed land near the roadway, and would not damage existing chenier or other habitats. Planting would be accomplished by delivering seedlings to the planting site with a four-wheeler, marsh buggy or airboat, depending on topography and land use. Planting of seedlings would be by hand using staff that would walk to the site or be transported by marsh buggy or airboat. Staging areas and access routes would be returned to their pre-construction condition following construction. All construction activities shall observe a buffer zone of 1,000 feet for any colonial-nesting waterbird colonies (e.g., egrets, herons, ibis, pelicans, etc.), 1,300 feet for any shorebird nesting colonies (e.g., terns, gulls, plovers, skimmers, etc.), and 2,000 feet for any brown pelican nesting colonies near the project feature. USFWS and USACE biologists would survey the area before construction to confirm active nesting bird locations. A nesting bird abatement plan would be developed if one of the aforementioned nesting colonies falls within its respective buffer zone. Additionally, USFWS guidelines would be followed to avoid adverse impacts to the nesting colonies.

Recommendation. Because of the low relative cost, it was decided that the chenier reforestation program would be included in any restoration alternative recommended by the study.

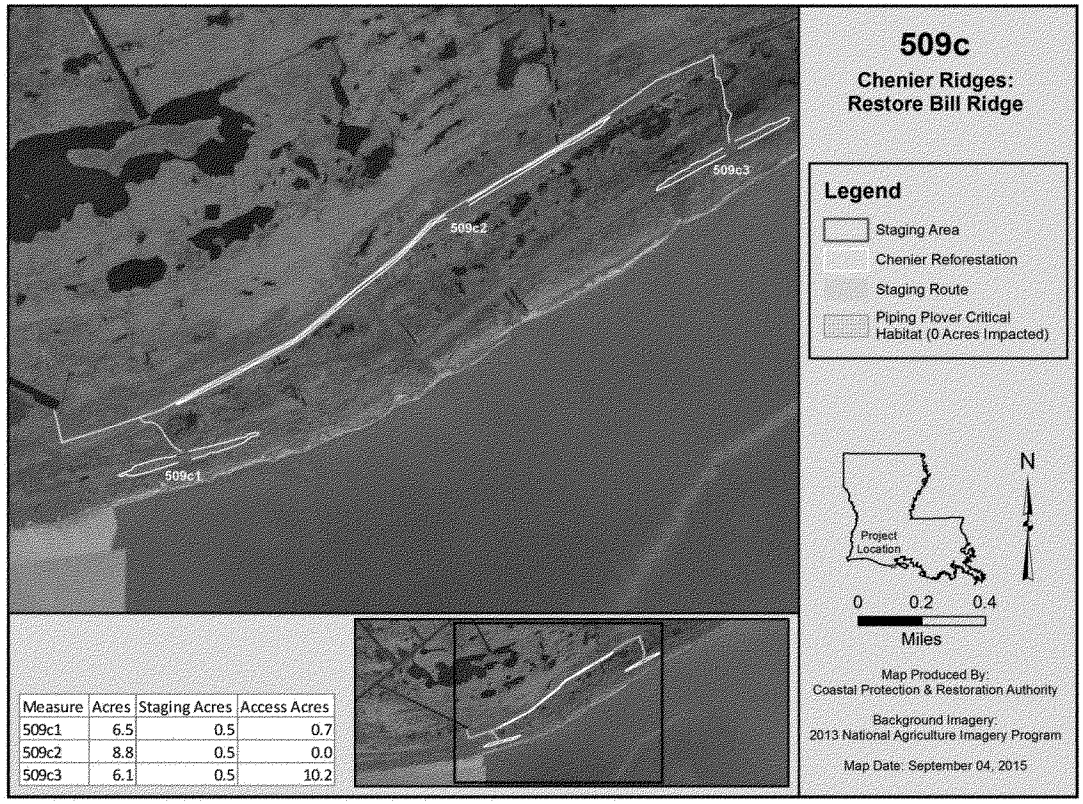


Measure	Acres	Staging Acres	Access Acres
416a	8.5	0.5	0.1
416b	11	0.5	0.0
416c	13.1	0.5	0.0
416d	19.4	0.5	0.0

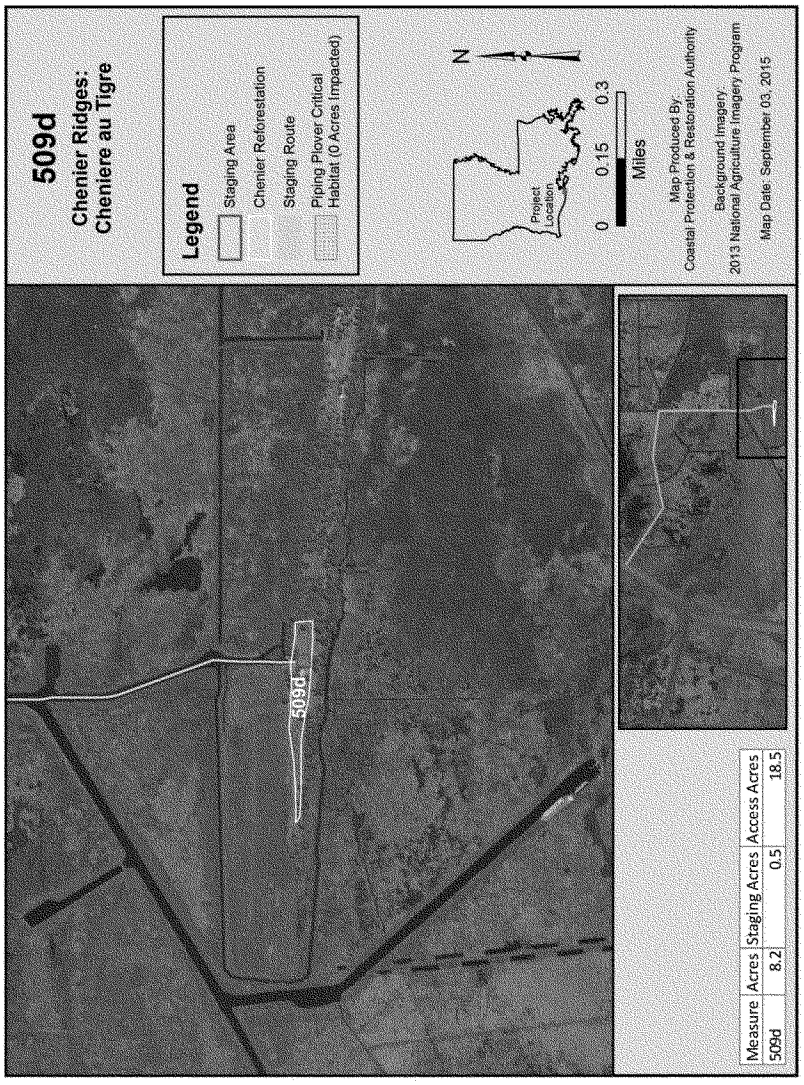

416
Chenier Ridges:
Grand Chenier Ridge
Legend
Staging Area
Chenier Reforestation
Staging Route
Piping Plover Critical Habitat (0 Acres Impacted)
Project Location
N
0 0.1 0.2 0.4
Miles
Map Produced By:
Coastal Protection & Restoration Authority
Background Imagery:
2013 National Agriculture Imagery Program
Map Date: September 04, 2015
416e
Measure | Acres | Staging Acres | Access Acres
416e | 85.6 | 1 | 0.3

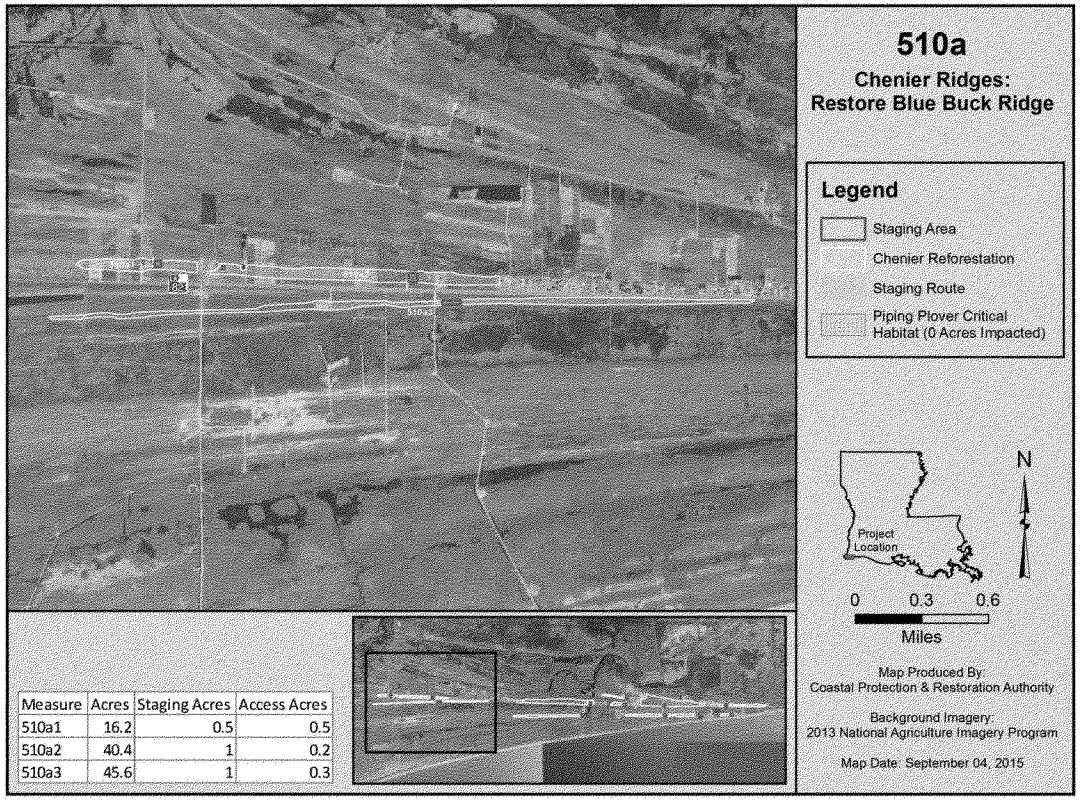


Measure	Acres	Staging Acres	Access Acres
416f	46.7	1	0.0
416g	25.7	0.5	0.2
416h	29.1	0.5	0.2
416i	12.8	0.5	0.1

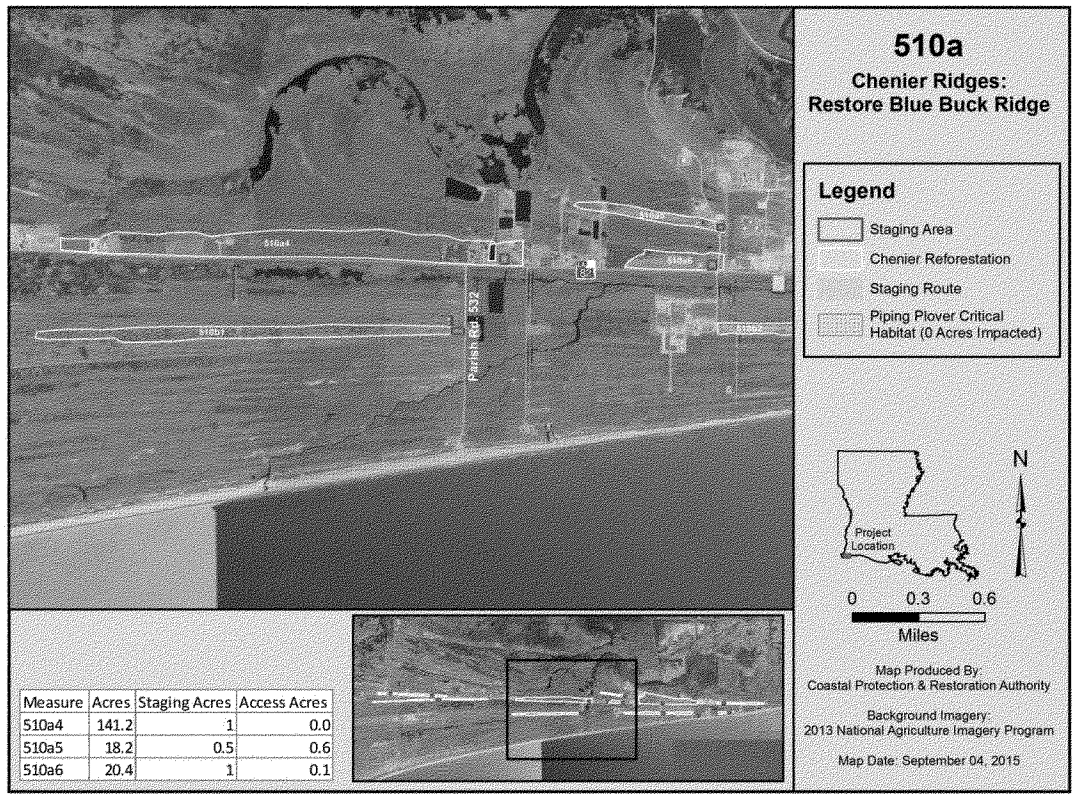


Measure	Acres	Staging Acres	Access Acres
509c1	6.5	0.5	0.7
509c2	8.8	0.5	0.0
509c3	6.1	0.5	10.2

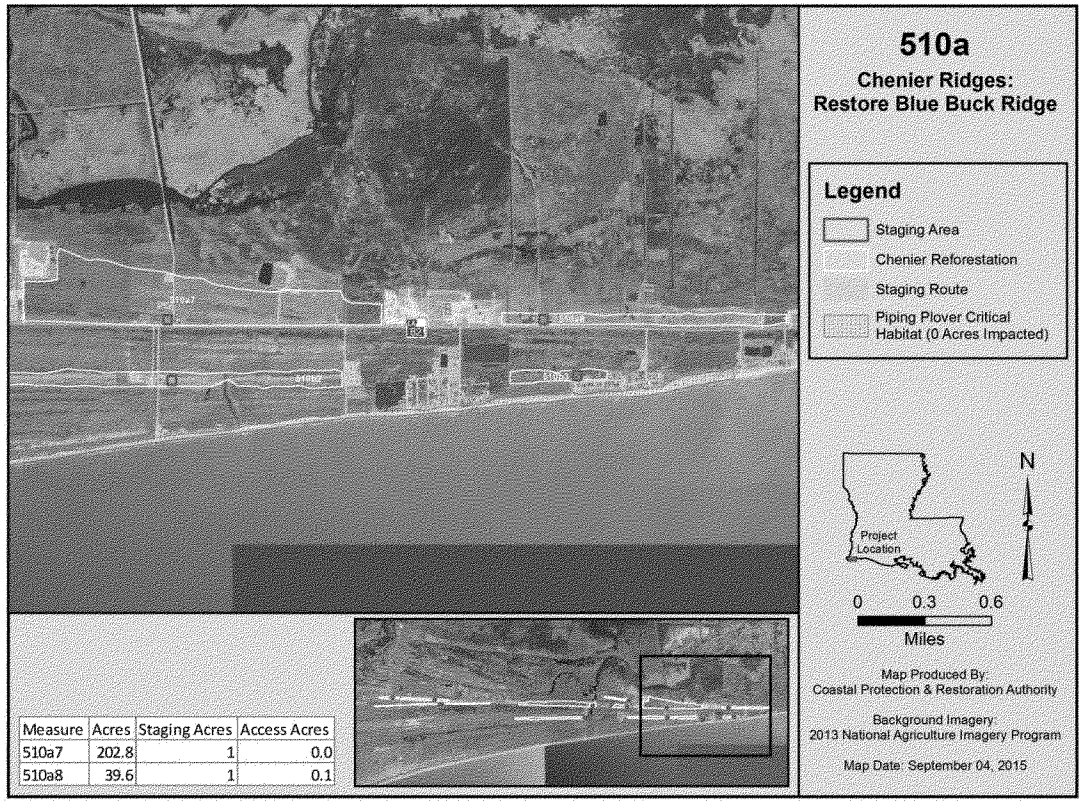

509d
Chenier Ridges:
Cheniere au Tigre
Legend
Staging Area
Chenier Reforestation
Staging Route
Piping Plover Critical Habitat (0 Acres Impacted)
509d
Project Location
N
0 0.15 0.3
Miles
Map Produced By:
Coastal Protection & Restoration Authority
Background Imagery:
2013 National Agriculture Imagery Program
Map Date: September 03, 2015
Measure | Acres | Staging Acres | Access Acres
509d | 8.2 | 0.5 | 18.5



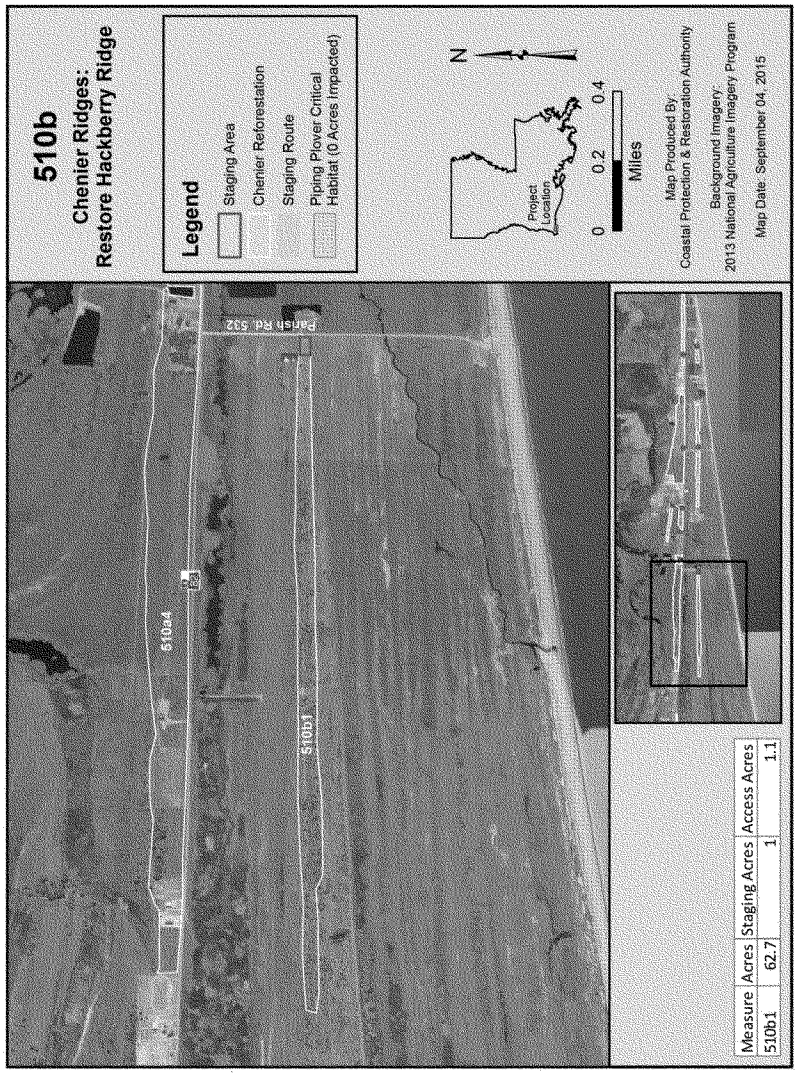
Measure	Acres	Staging Acres	Access Acres
510a1	16.2	0.5	0.5
510a2	40.4	1	0.2
510a3	45.6	1	0.3

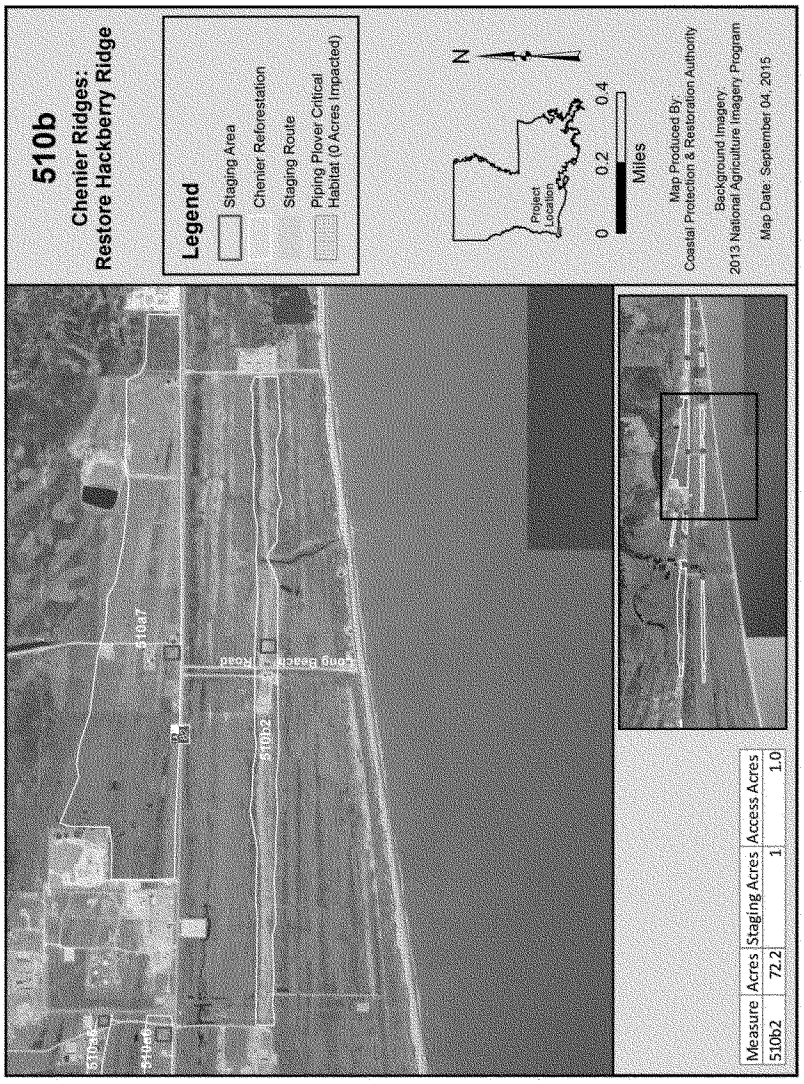


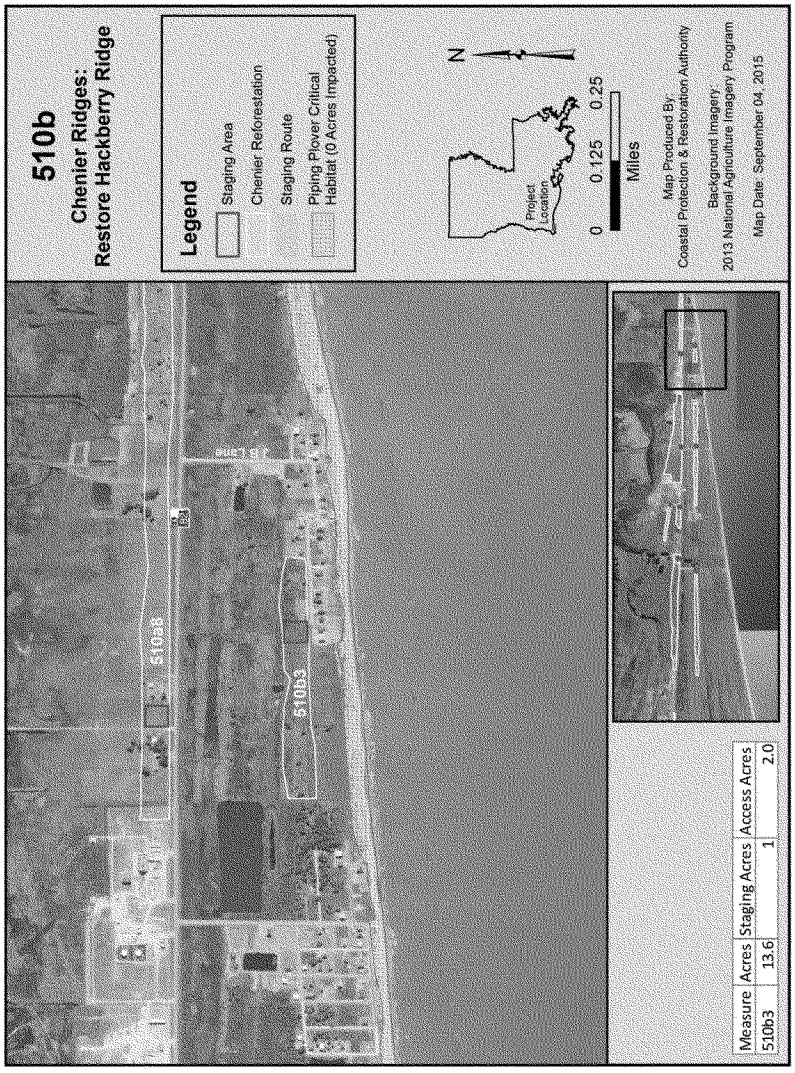
Measure	Acres	Staging Acres	Access Acres
510a4	141.2	1	0.0
510a5	18.2	0.5	0.6
510a6	20.4	1	0.1

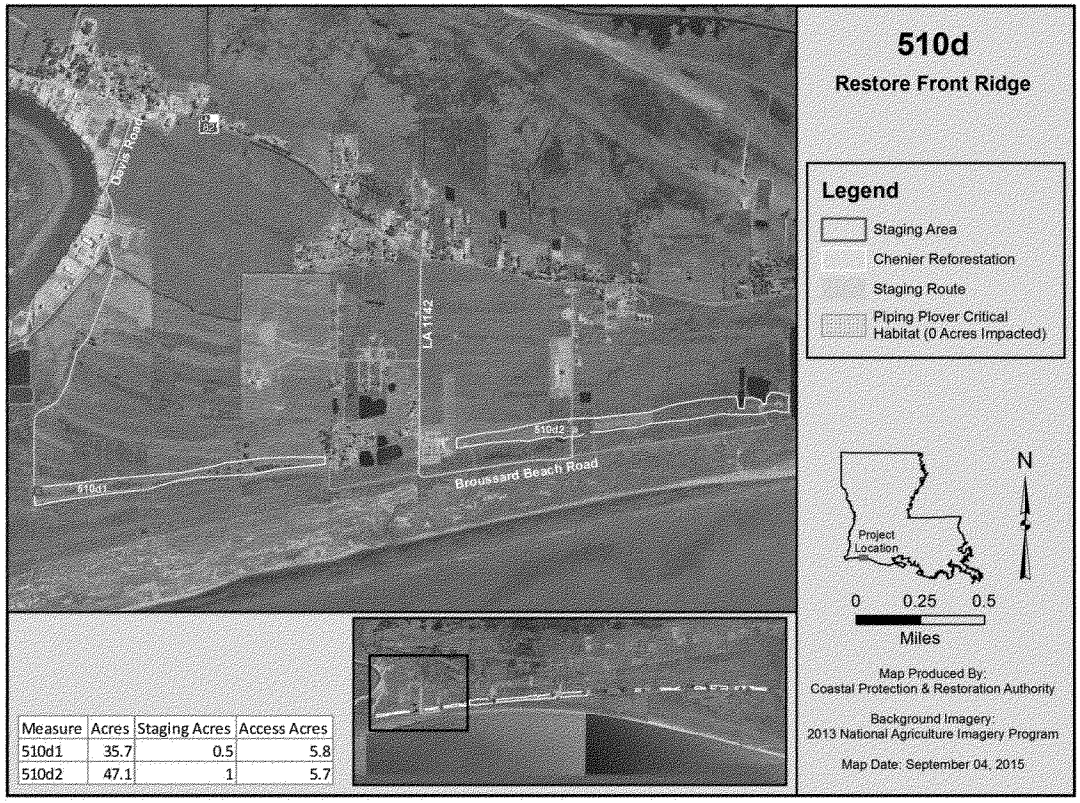


Measure	Acres	Staging Acres	Access Acres
510a7	202.8	1	0.0
510a8	39.6	1	0.1

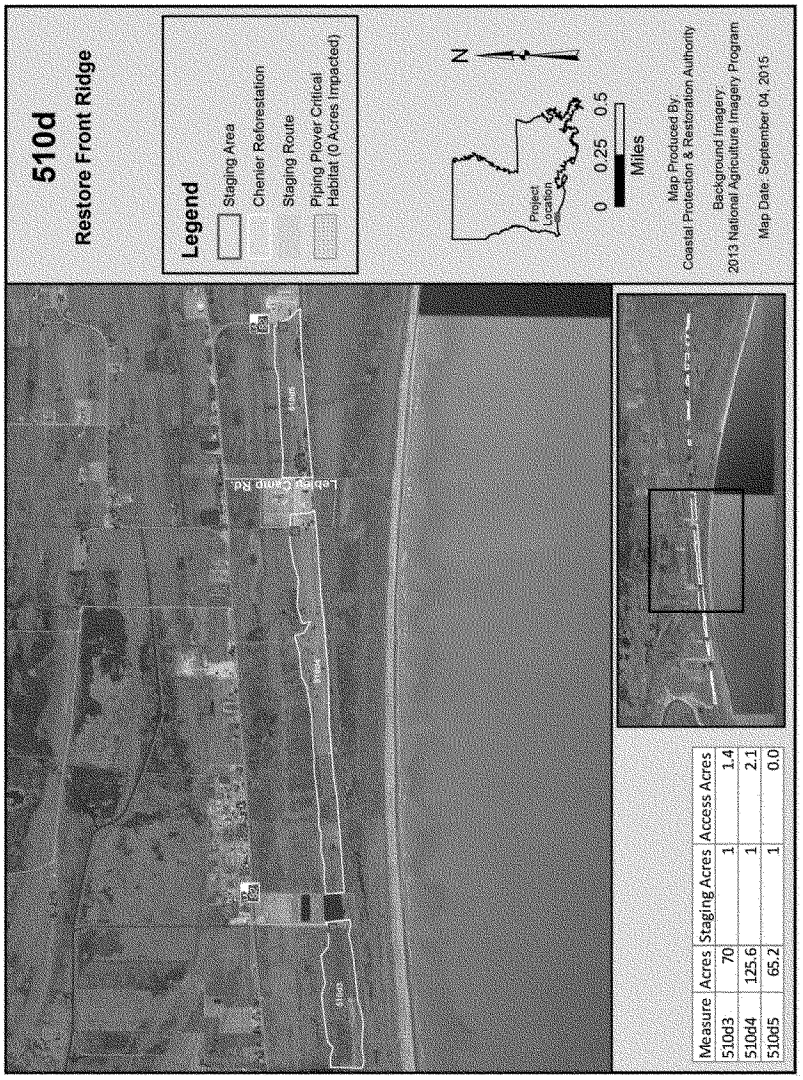

510b
Chenier Ridges:
Restore Hackberry Ridge
Legend
Staging Area
Chenier Reforestation
Staging Route
Piping Plover Critical Habitat (0 Acres Impacted)
Project Location
N
0
0.2
0.4
Miles
Map Produced By:
Coastal Protection & Restoration Authority
Background Imagery:
2013 National Agriculture Imagery Program
Map Date: September 04, 2015
Parish Rd 532
510b4
510b1
Measure | Acres | Staging Acres | Access Acres
510b1 | 62.7 | 1 | 1.1

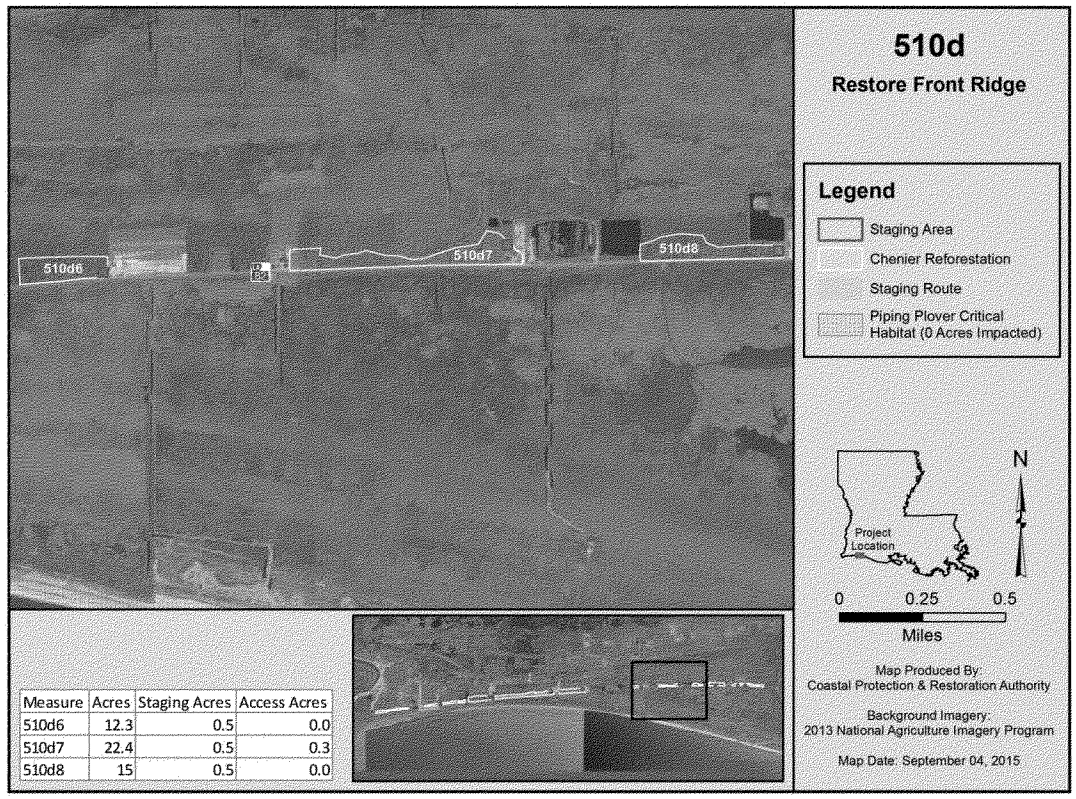

510b
Chenier Ridges:
Restore Hackberry Ridge
Legend
Staging Area
Chenier Reforestation
Staging Route
Piping Plover Critical Habitat (0 Acres Impacted)
Project Location
N
0 0.2 0.4
Miles
Map Produced By:
Coastal Protection & Restoration Authority
Background Imagery:
2013 National Agriculture Imagery Program
Map Date: September 04, 2015
Measure | Acres | Staging Acres | Access Acres
510b2 | 72.2 | 1 | 1.0


510b
Chenier Ridges:
Restore Hackberry Ridge
Legend
Staging Area
Chenier Reforestation
Staging Route
Piping Plover Critical Habitat (0 Acres Impacted)
510b3
510b8
Project Location
N
0
0.125
0.25
Miles
Map Produced By:
Coastal Protection & Restoration Authority
Background Imagery:
2013 National Agriculture Imagery Program
Map Date: September 04, 2015
Measure | Acres | Staging Acres | Access Acres
510b3 | 13.6 | 1 | 2.0

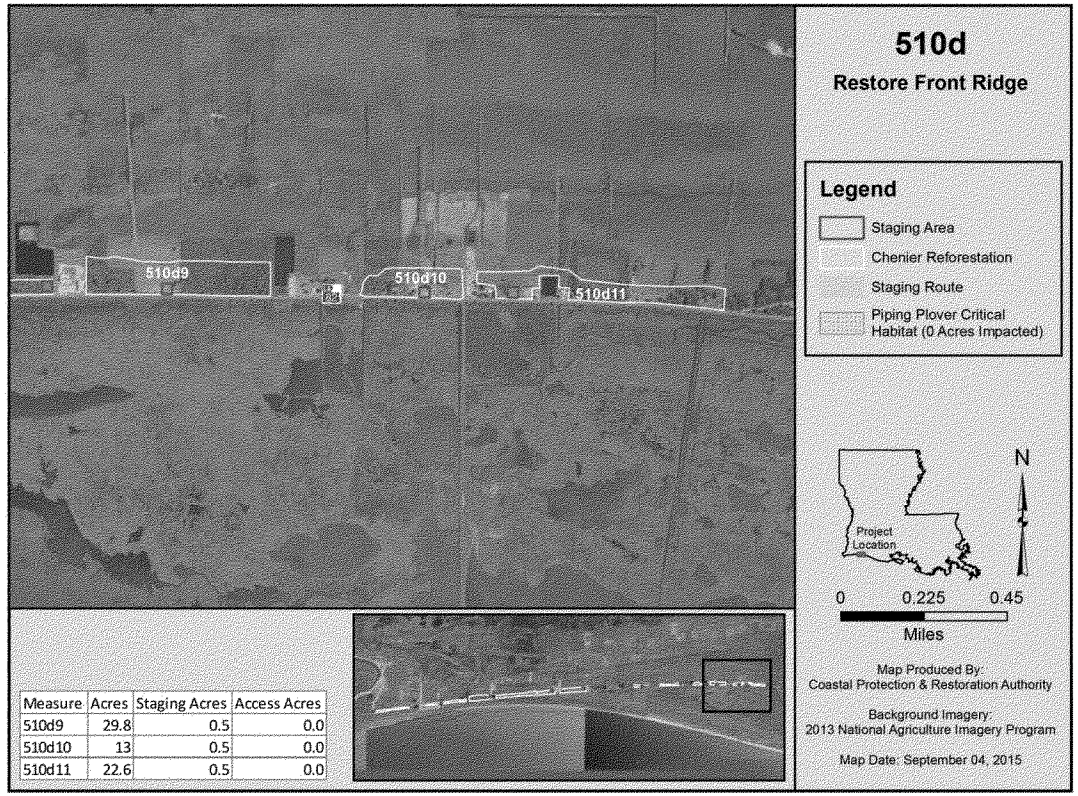


Measure	Acres	Staging Acres	Access Acres
510d1	35.7	0.5	5.8
510d2	47.1	1	5.7


510d
Restore Front Ridge
Legend
Staging Area
Chenier Reforestation
Staging Route
Piping Plover Critical Habitat (0 Acres Impacted)
Project Location
N
0 0.25 0.5
Miles
Map Produced By:
Coastal Protection & Restoration Authority
Background Imagery:
2013 National Agriculture Imagery Program
Map Date: September 04, 2015
Measure | Acres | Staging Acres | Access Acres
510d3 | 70 | 1 | 1.4
510d4 | 125.6 | 1 | 2.1
510d5 | 65.2 | 1 | 0.0



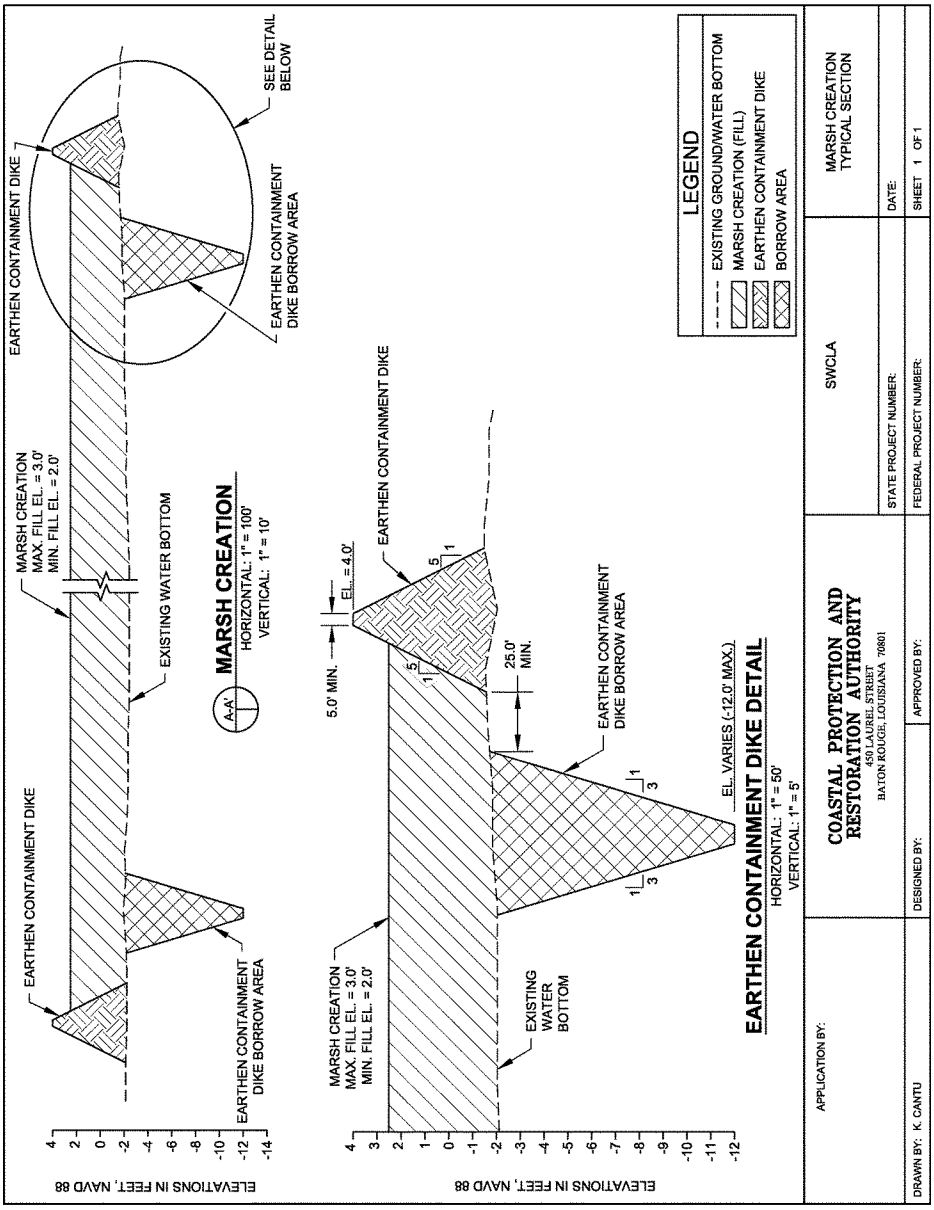
Measure	Acres	Staging Acres	Access Acres
510d6	12.3	0.5	0.0
510d7	22.4	0.5	0.3
510d8	15	0.5	0.0

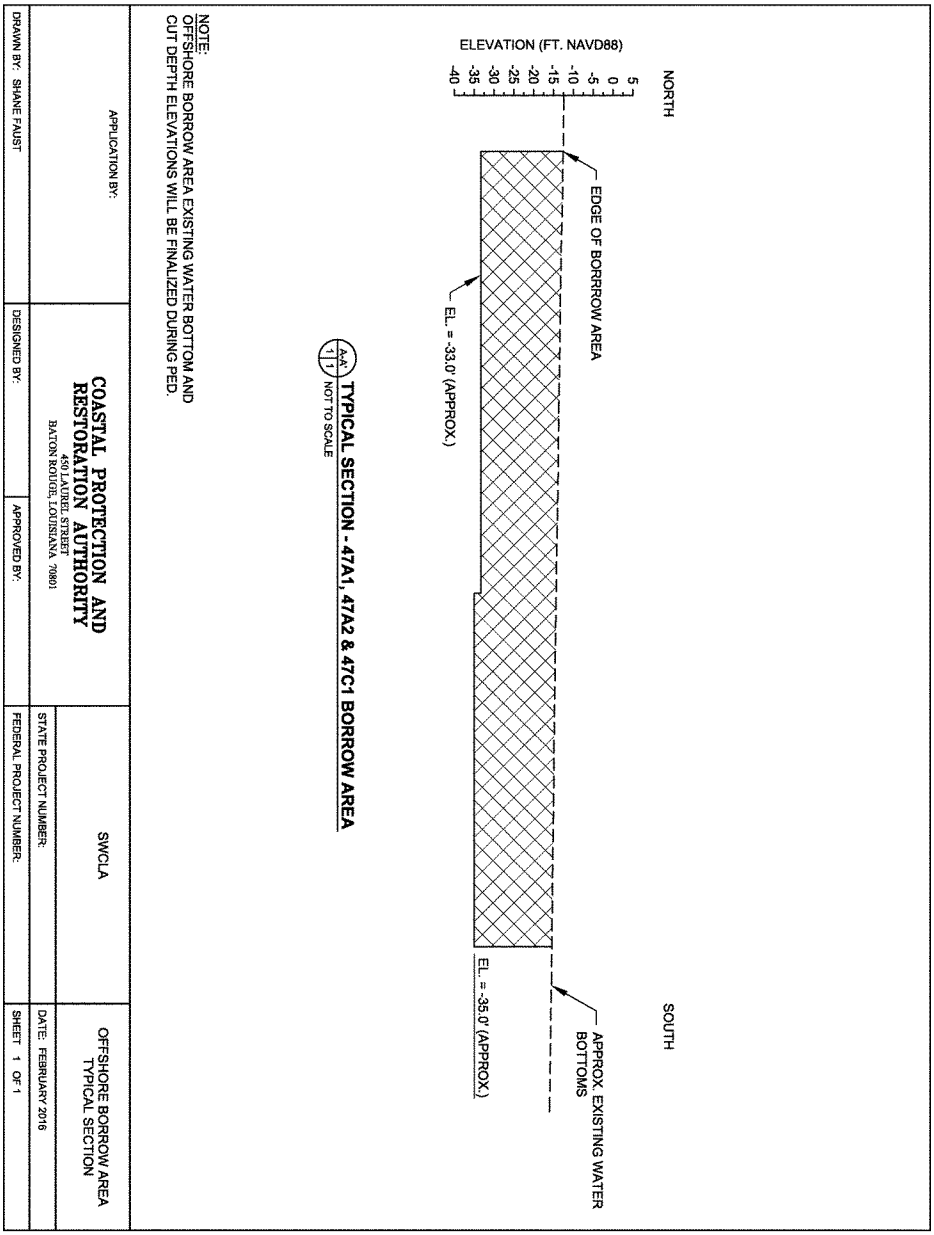


Measure	Acres	Staging Acres	Access Acres
510d9	29.8	0.5	0.0
510d10	13	0.5	0.0
510d11	22.6	0.5	0.0

Annex A

Typical Design Drawings for Marsh Creation Features


EARTHEN CONTAINMENT DIKE
MARSH CREATION
MAX. FILL EL. = 3.0'
MIN. FILL EL. = 2.0'
EXISTING WATER BOTTOM
EARTHEN CONTAINMENT
DIKE BORROW AREA
SEE DETAIL
BELOW
A-A'
MARSH CREATION
HORIZONTAL: 1" = 100'
VERTICAL: 1" = 10'
ELEVATIONS IN FEET, NAVD 88
LEGEND
EXISTING GROUND/WATER BOTTOM
MARSH CREATION (FILL)
EARTHEN CONTAINMENT DIKE
BORROW AREA
5.0' MIN.
EL. = 4.0'
25.0'
MIN.
EL. VARIES (-12.0' MAX.)
EARTHEN CONTAINMENT DIKE DETAIL
HORIZONTAL: 1" = 50'
VERTICAL: 1" = 5'
APPLICATION BY:
COASTAL PROTECTION AND
RESTORATION AUTHORITY
450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801
SWCLA
MARSH CREATION
TYPICAL SECTION
STATE PROJECT NUMBER:
DATE:
FEDERAL PROJECT NUMBER:
SHEET 1 OF 1
DRAWN BY: K. CANTU
DESIGNED BY:
APPROVED BY:



A-A' / 1:1 TYPICAL SECTION - 47A1, 47A2 & 47C1 BORROW AREA
NOT TO SCALE

NOTE:
OFFSHORE BORROW AREA EXISTING WATER BOTTOM AND CUT DEPTH ELEVATIONS WILL BE FINALIZED DURING PED.

APPLICATION BY:

COASTAL PROTECTION AND RESTORATION AUTHORITY
450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801

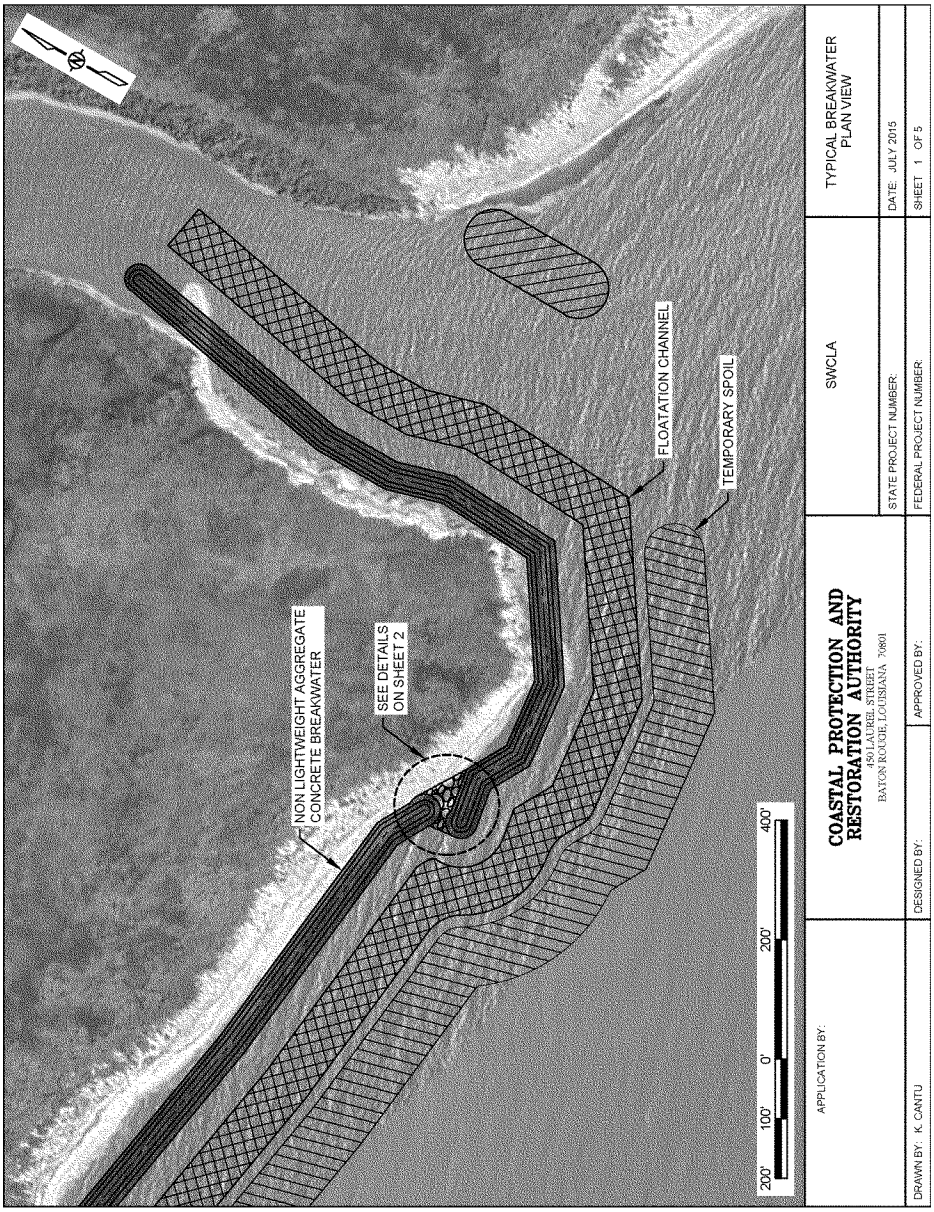
SWCLA

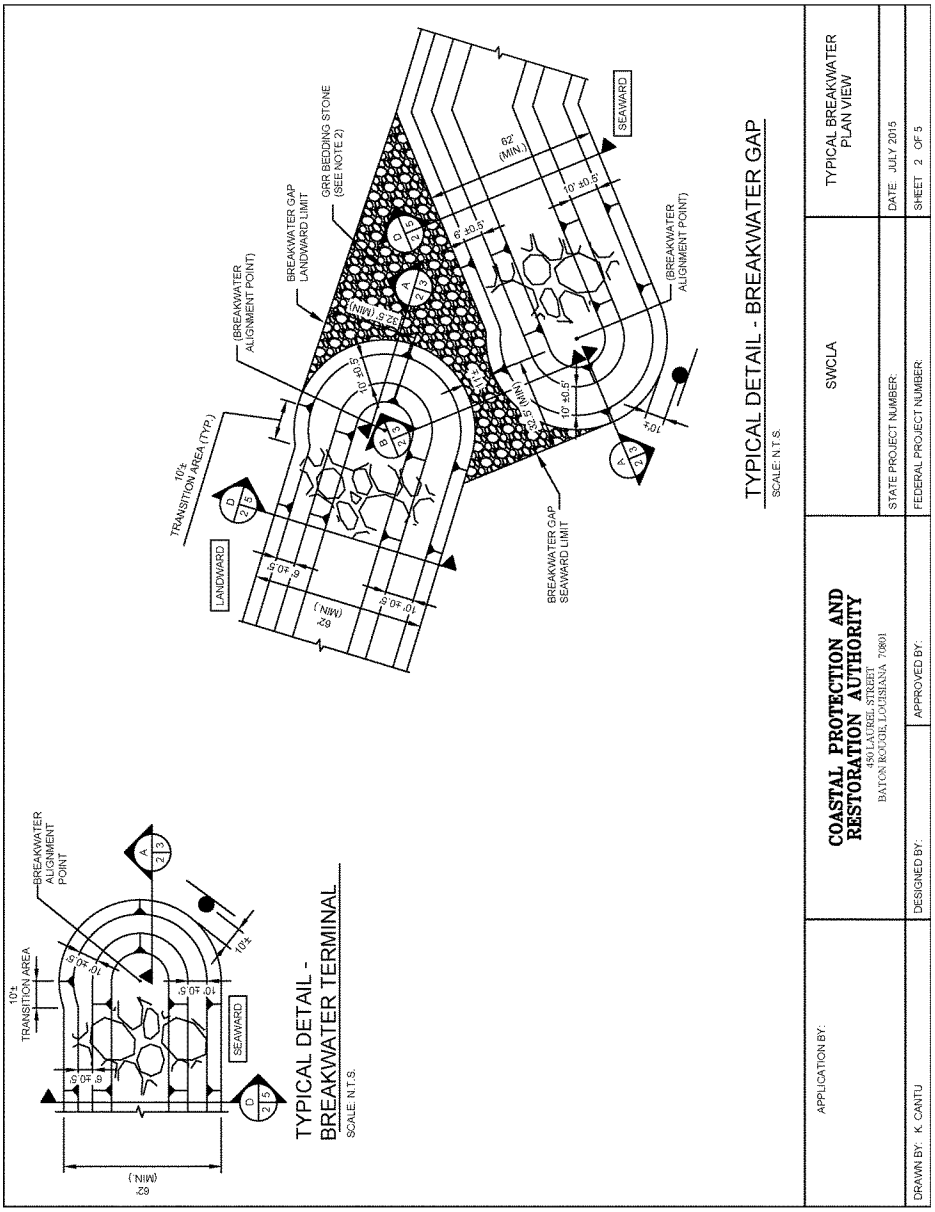
OFFSHORE BORROW AREA TYPICAL SECTION

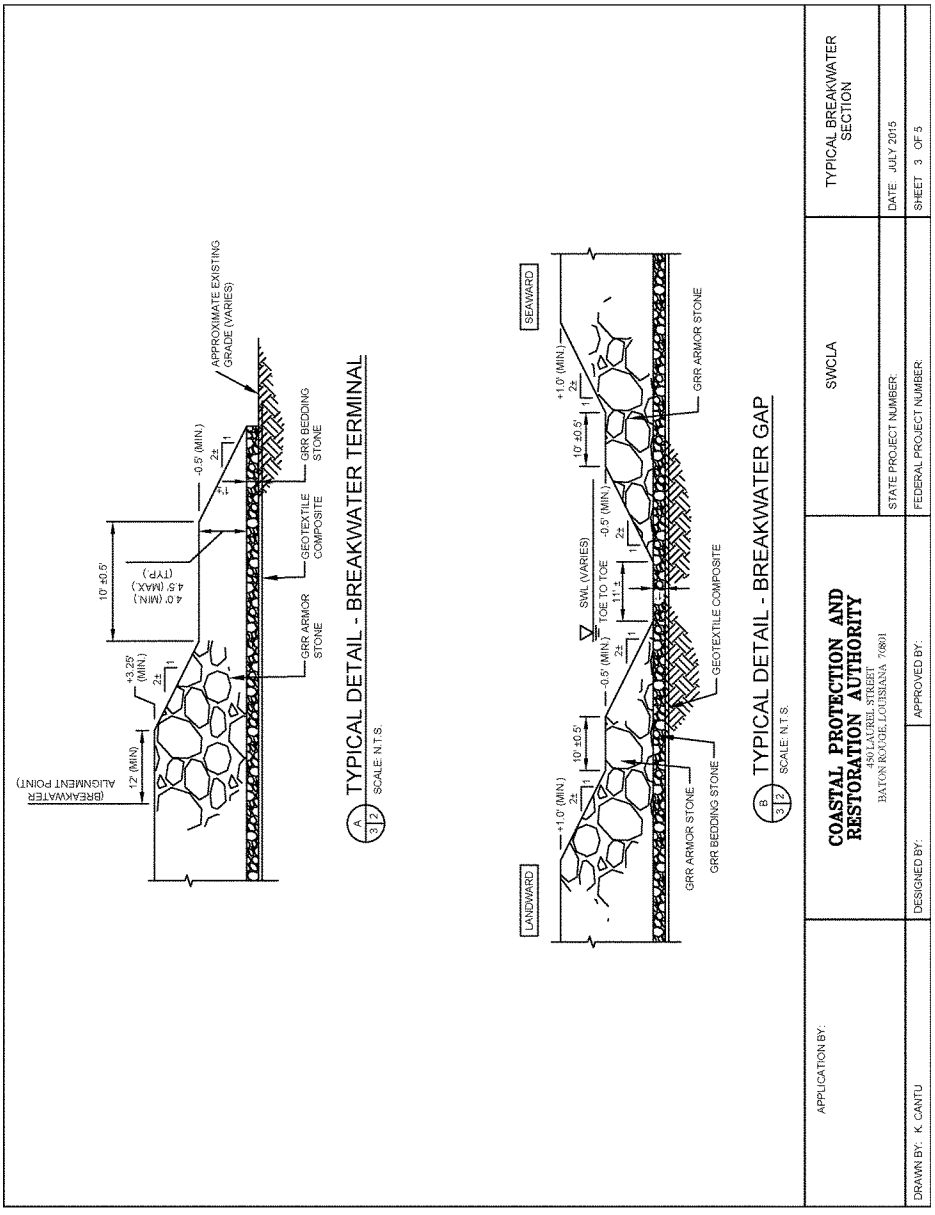
DRAWN BY: SHANE FAUST
DESIGNED BY:
APPROVED BY:
STATE PROJECT NUMBER:
FEDERAL PROJECT NUMBER:
DATE: FEBRUARY 2016
SHEET 1 OF 1

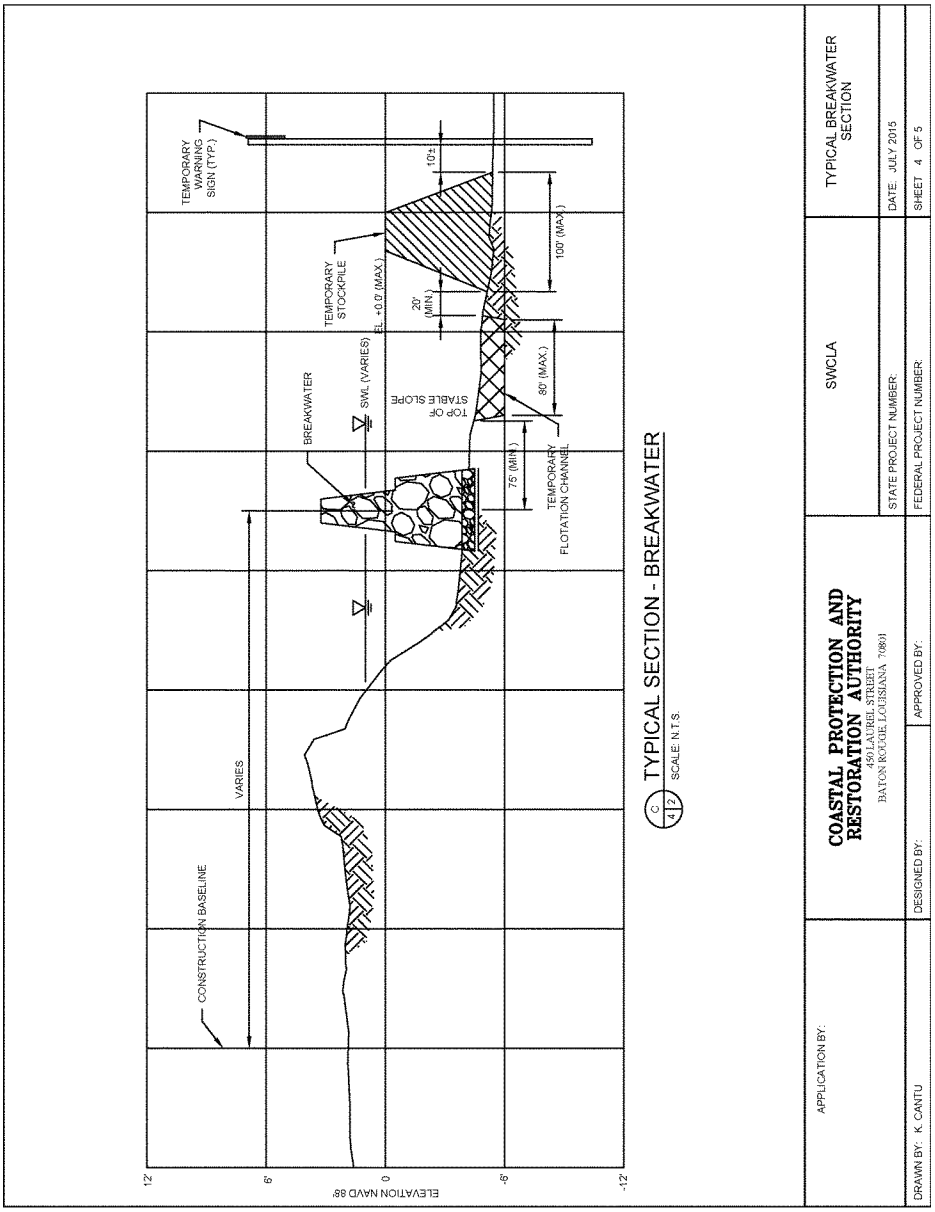
Annex B

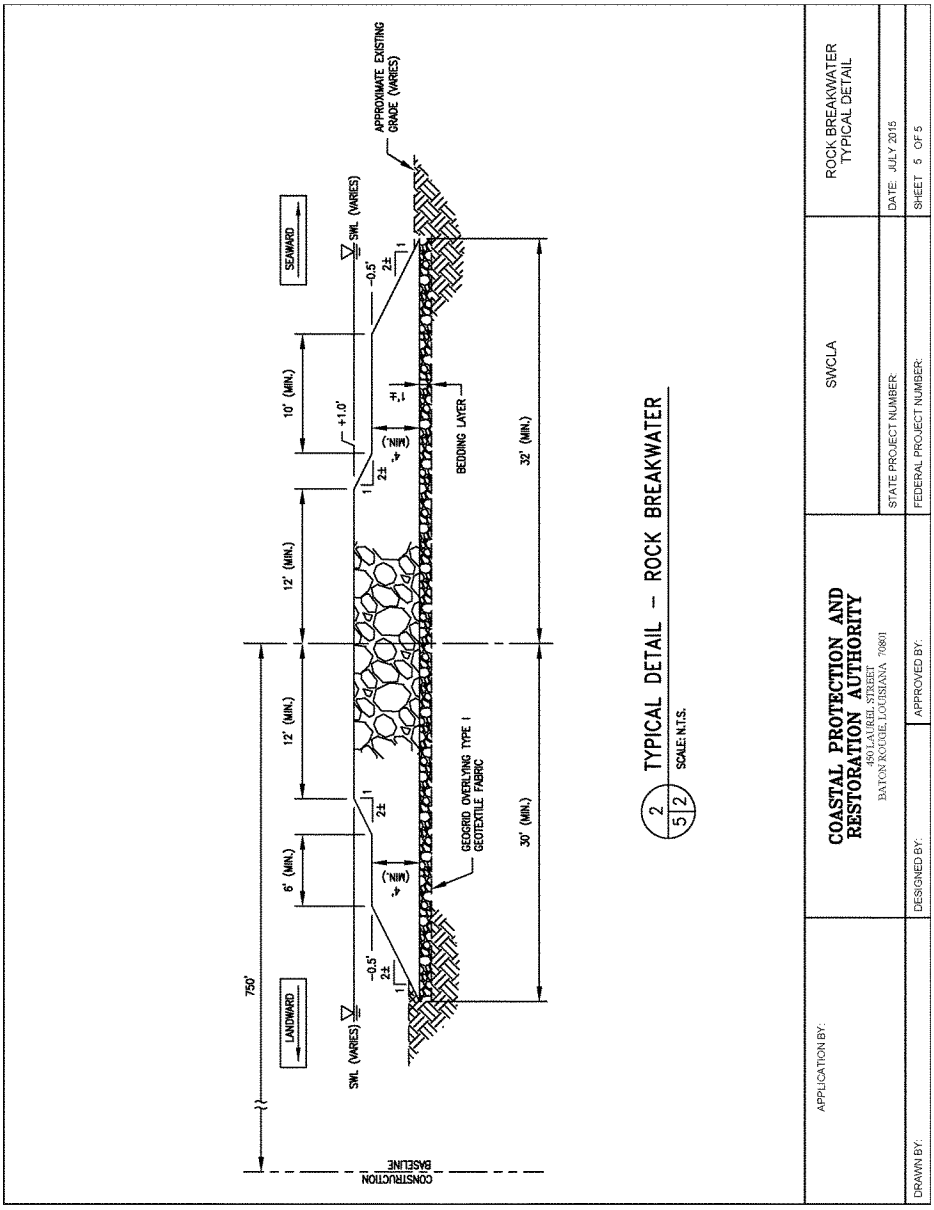
Typical Design Drawings for Non Lightweight Aggregate Concrete Breakwater Features


NON LIGHTWEIGHT AGGREGATE CONCRETE BREAKWATER
SEE DETAILS ON SHEET 2
FLOATATION CHANNEL
TEMPORARY SPOIL
200' 100' 0' 200' 400'
APPLICATION BY:
COASTAL PROTECTION AND RESTORATION AUTHORITY
450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801
SWCLA
TYPICAL BREAKWATER PLAN VIEW
DRAWN BY: K. CANTU
DESIGNED BY:
APPROVED BY:
STATE PROJECT NUMBER:
FEDERAL PROJECT NUMBER:
DATE: JULY 2015
SHEET 1 OF 5


TYPICAL DETAIL - BREAKWATER TERMINAL
SCALE: N.T.S.
TYPICAL DETAIL - BREAKWATER GAP
SCALE: N.T.S.
BREAKWATER ALIGNMENT POINT
TRANSITION AREA
SEAWARD
LANDWARD
BREAKWATER GAP LANDWARD LIMIT
BREAKWATER GAP SEAWARD LIMIT
GRR BEDDING STONE (SEE NOTE 2)
62' (MIN.)
APPLICATION BY:
COASTAL PROTECTION AND RESTORATION AUTHORITY
150 LAUREL STREET
BATON ROUGE, LOUISIANA 70801
SWCLA
TYPICAL BREAKWATER PLAN VIEW
DRAWN BY: K. CANTU
DESIGNED BY:
APPROVED BY:
STATE PROJECT NUMBER:
FEDERAL PROJECT NUMBER:
DATE JULY 2015
SHEET 2 OF 5

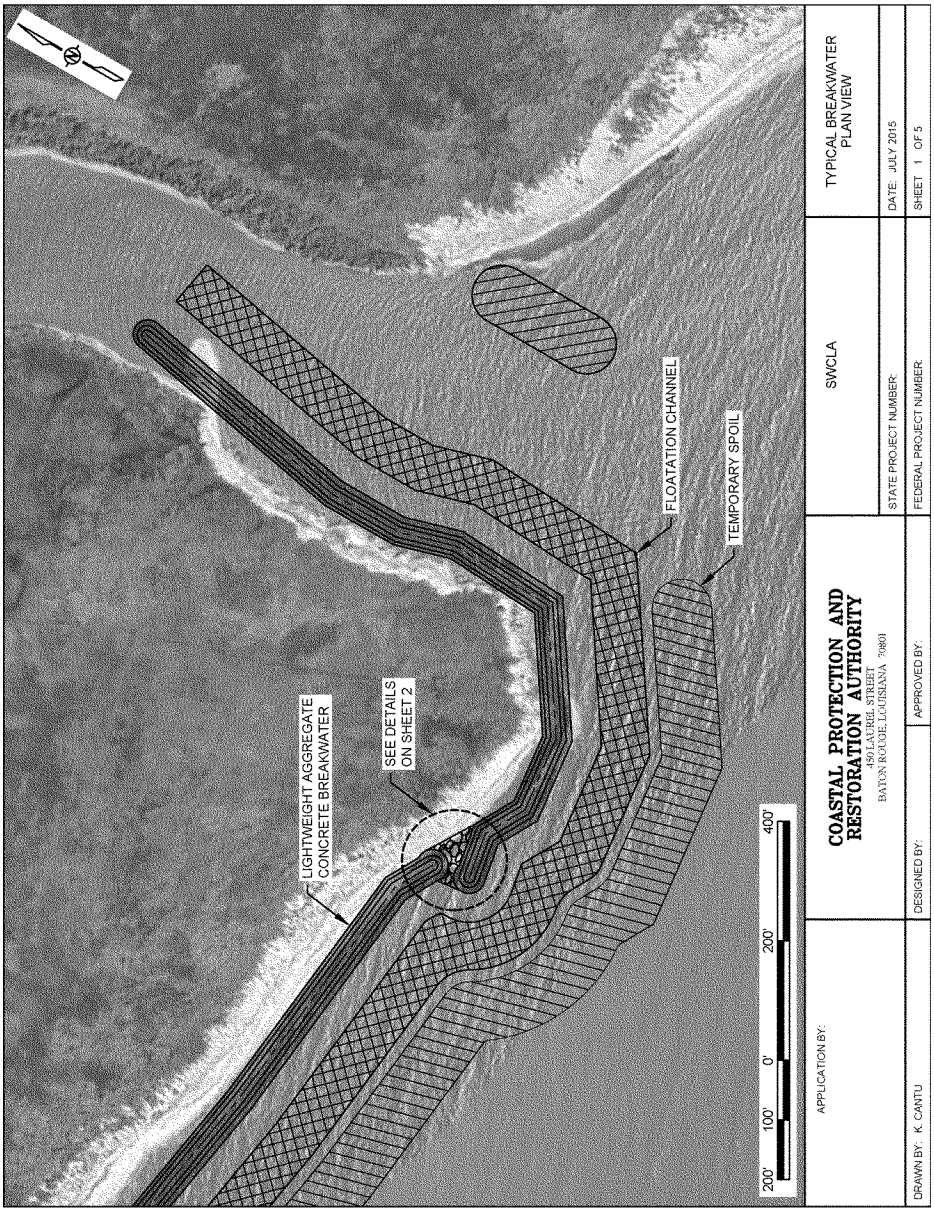

(BREAKWATER ALIGNMENT POINT)
12' (MIN)
+3.25' (MIN.)
2:1
10' ±0.5'
4.0' (MIN) 4.5' (MAX) (TYP.)
-0.5' (MIN.)
2:1
1:1
APPROXIMATE EXISTING GRADE (VARIES)
GRR BEDDING STONE
GEOTEXTILE COMPOSITE
GRR ARMOR STONE
A 3 2 TYPICAL DETAIL - BREAKWATER TERMINAL
SCALE: N.T.S.
LANDWARD
SEAWARD
+1.0' (MIN.)
2:1
10' ±0.5'
-0.5' (MIN.)
SWL (VARIES)
TOE TO TOE
11.5'
GRR ARMOR STONE
GRR BEDDING STONE
GEOTEXTILE COMPOSITE
B 3 2 TYPICAL DETAIL - BREAKWATER GAP
SCALE: N.T.S.
APPLICATION BY:
COASTAL PROTECTION AND RESTORATION AUTHORITY
150 LAUREL STREET
BATON ROUGE, LOUISIANA 70801
SWCLA
TYPICAL BREAKWATER SECTION
STATE PROJECT NUMBER:
DATE JULY 2015
DRAWN BY: K. CANTU
DESIGNED BY:
APPROVED BY:
FEDERAL PROJECT NUMBER:
SHEET 3 OF 5

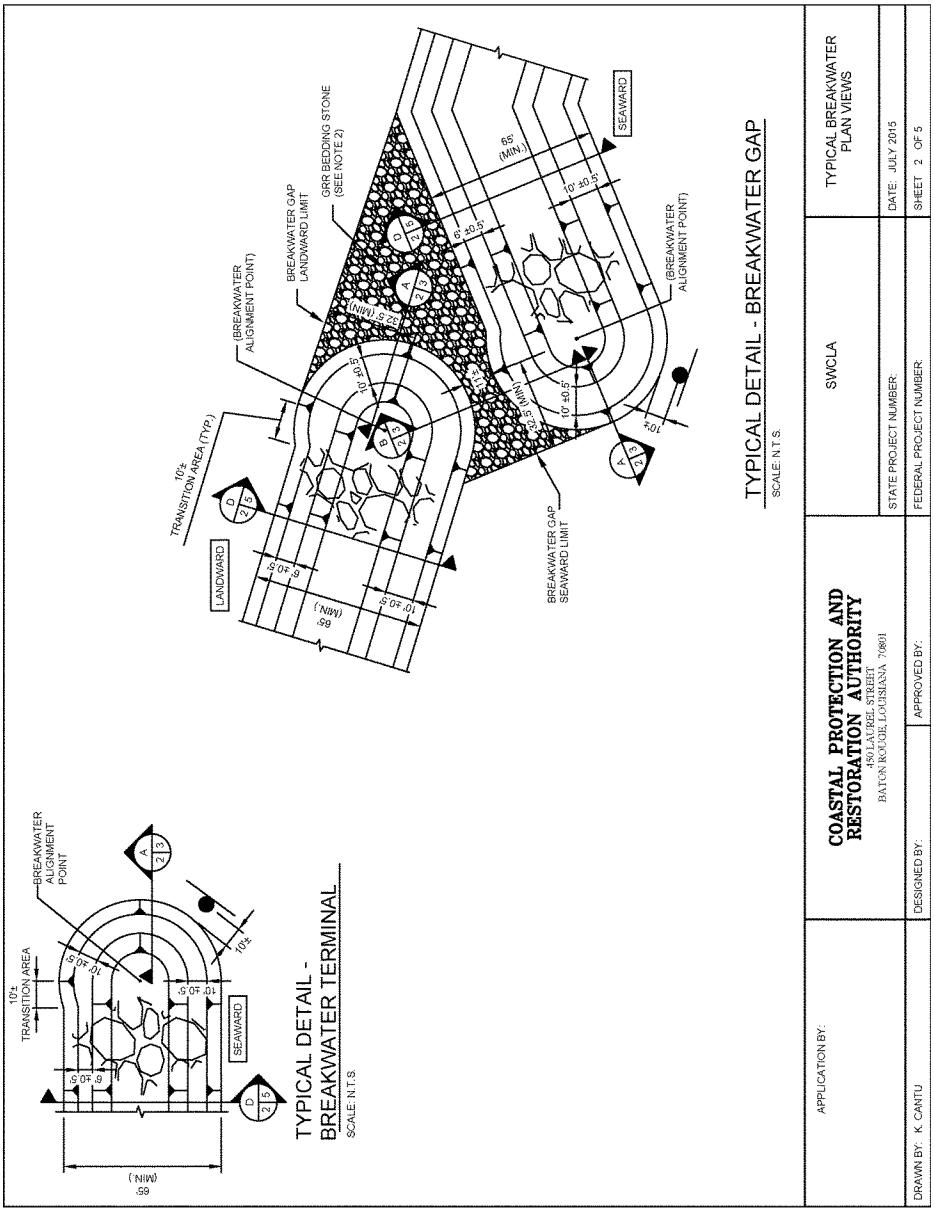

TEMPORARY WARNING SIGN (TYP.)
TEMPORARY STOCKPILE
EL. +0.0' (MAX.)
10±
20' (MIN.)
100' (MAX.)
BREAKWATER
SWL (VARIES)
TOP OF STABLE SLOPE
80' (MAX.)
75' (MIN.)
TEMPORARY FLOTATION CHANNEL
CONSTRUCTION BASELINE
VARIES
12'
6'
0
-6'
-12'
ELEVATION NAVD 88'
C 4 2 TYPICAL SECTION - BREAKWATER
SCALE: N.T.S.
APPLICATION BY:
COASTAL PROTECTION AND RESTORATION AUTHORITY
450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801
DRAWN BY: K. CANTU
DESIGNED BY:
APPROVED BY:
SWCLA
STATE PROJECT NUMBER:
FEDERAL PROJECT NUMBER:
TYPICAL BREAKWATER SECTION
DATE: JULY 2015
SHEET 4 OF 5

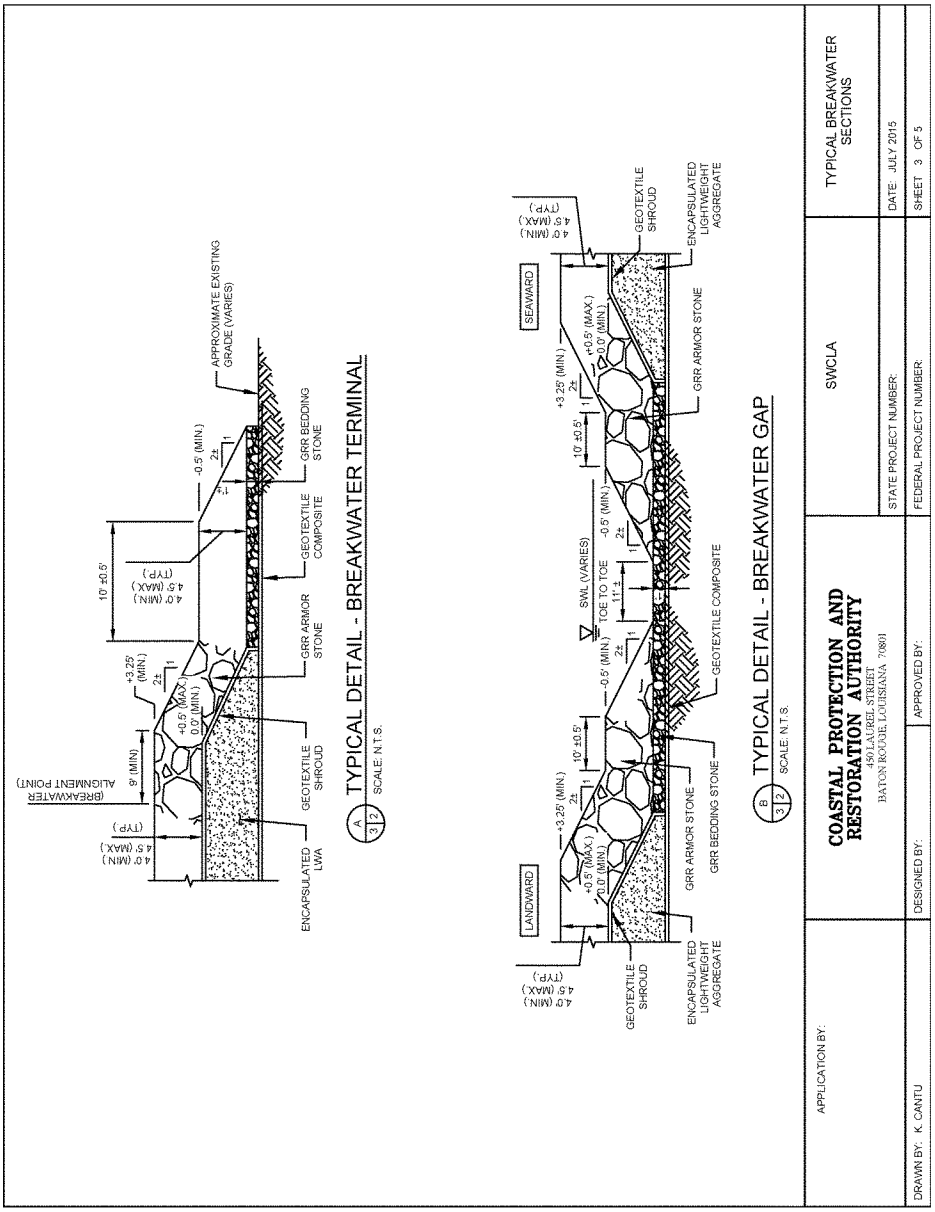

APPROXIMATE EXISTING GRADE (VARIES)
SEAWARD
SWL (VARIES)
-0.5'
2±
1
10' (MIN.)
+1.0'
1'±
4' (MIN.)
BEDDING LAYER
32' (MIN.)
12' (MIN.)
12' (MIN.)
6' (MIN.)
GEOGRID OVERLYING TYPE I GEOTEXTILE FABRIC
30' (MIN.)
750'
LANDWARD
CONSTRUCTION BASELINE
2
5 2
TYPICAL DETAIL – ROCK BREAKWATER
SCALE: N.T.S.
APPLICATION BY:
COASTAL PROTECTION AND RESTORATION AUTHORITY
450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801
SWCLA
ROCK BREAKWATER TYPICAL DETAIL
STATE PROJECT NUMBER:
DATE: JULY 2015
FEDERAL PROJECT NUMBER:
SHEET 5 OF 5
DRAWN BY:
DESIGNED BY:
APPROVED BY:

Annex C

Typical Design Drawings for Lightweight Aggregate Concrete Breakwater Features


LIGHTWEIGHT AGGREGATE CONCRETE BREAKWATER
SEE DETAILS ON SHEET 2
FLOATATION CHANNEL
TEMPORARY SPOIL
200' 100' 0' 200' 400'
APPLICATION BY:
COASTAL PROTECTION AND RESTORATION AUTHORITY
450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801
SWCLA
TYPICAL BREAKWATER PLAN VIEW
DRAWN BY: K. CANTU
DESIGNED BY:
APPROVED BY:
STATE PROJECT NUMBER:
FEDERAL PROJECT NUMBER:
DATE: JULY 2015
SHEET 1 OF 5


TYPICAL DETAIL - BREAKWATER TERMINAL
SCALE: N.T.S.
BREAKWATER ALIGNMENT POINT
TRANSITION AREA
SEAWARD
TYPICAL DETAIL - BREAKWATER GAP
SCALE: N.T.S.
TRANSITION AREA (TYP.)
LANDWARD
BREAKWATER GAP LANDWARD LIMIT
GRR BEDDING STONE (SEE NOTE 2)
BREAKWATER GAP SEAWARD LIMIT
APPLICATION BY:
COASTAL PROTECTION AND RESTORATION AUTHORITY
150 LAUREL STREET
BATON ROUGE, LOUISIANA 70801
SWCLA
TYPICAL BREAKWATER PLAN VIEWS
STATE PROJECT NUMBER:
DATE: JULY 2015
DRAWN BY: K. CANTU
DESIGNED BY:
APPROVED BY:
FEDERAL PROJECT NUMBER:
SHEET 2 OF 5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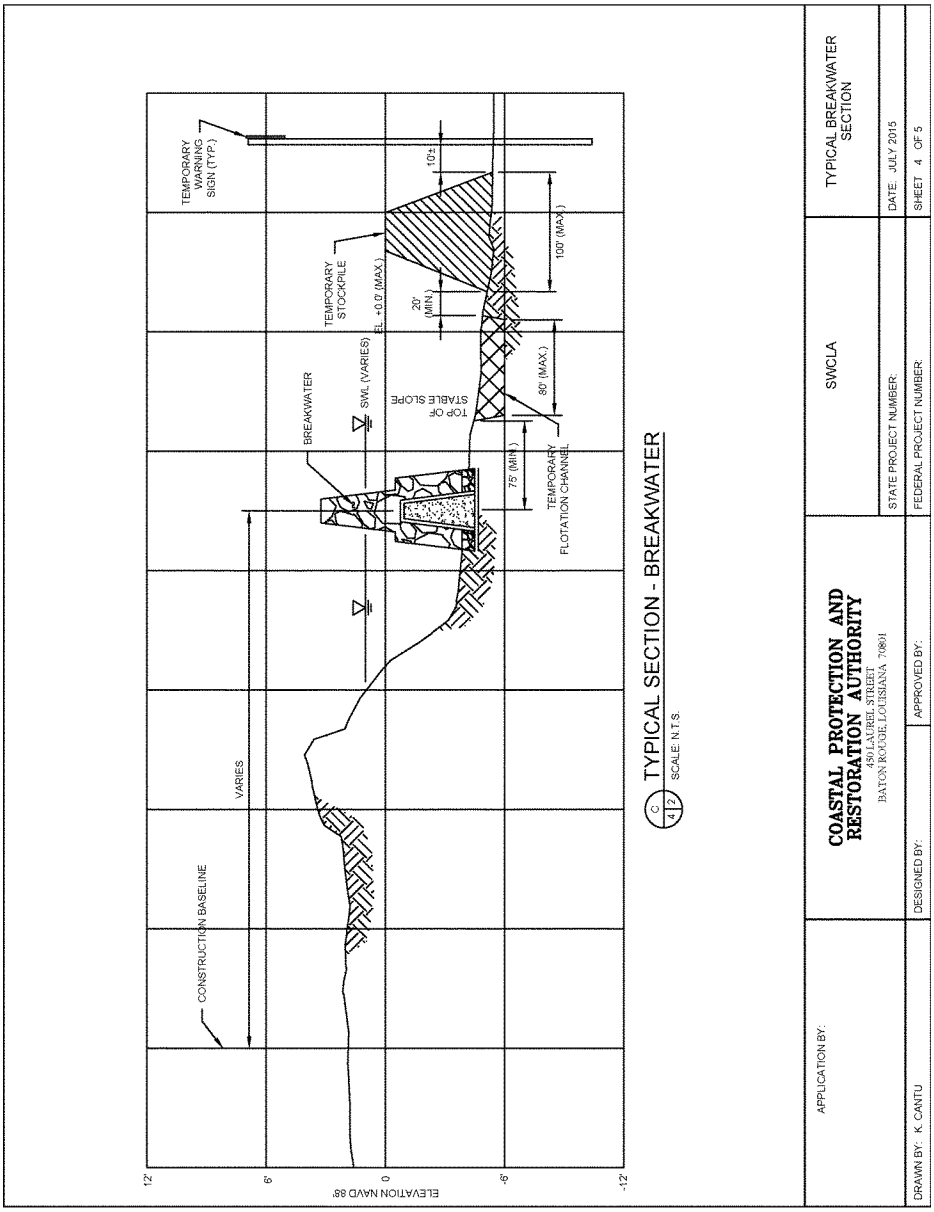
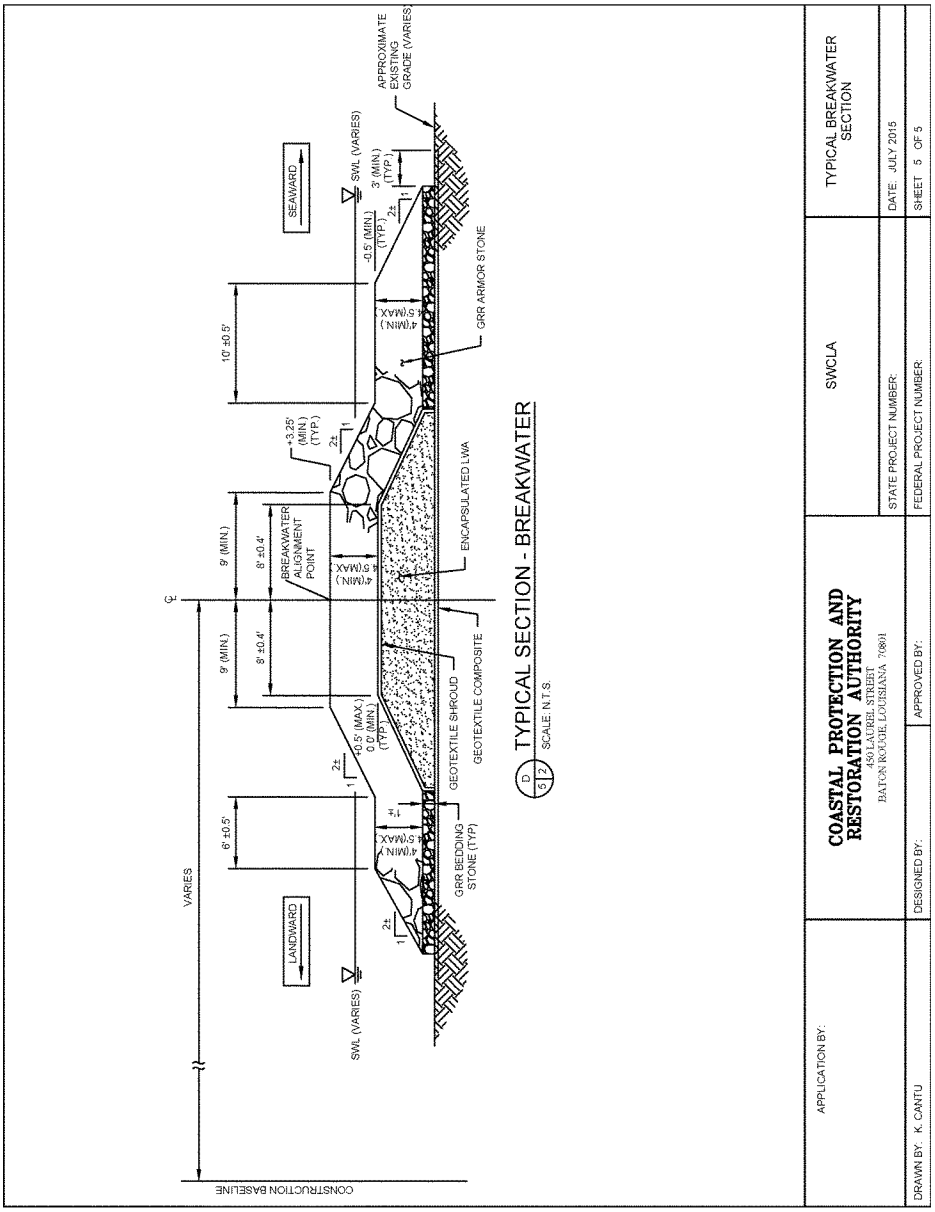
SCALE: N.T.S.
TYPICAL DETAIL - BREAKWATER GAP
SCALE: N.T.S.
LANDWARD
SEAWARD
GEOTEXTILE SHROUD
ENCAPSULATED LIGHTWEIGHT AGGREGATE
GRR ARMOR STONE
GRR BEDDING STONE
GEOTEXTILE COMPOSITE
SWL (VARIES)
TOE TO TOE
APPROXIMATE EXISTING GRADE (VARIES)
ENCAPSULATED LWA
GEOTEXTILE COMPOSITE
GRR BEDDING STONE
GRR ARMOR STONE
GEOTEXTILE SHROUD
ALIGNMENT POINT)
(BREAKWATER
APPLICATION BY:
COASTAL PROTECTION AND RESTORATION AUTHORITY
150 LAUREL STREET
BATON ROUGE, LOUISIANA 70801
SWCLA
TYPICAL BREAKWATER SECTIONS
DRAWN BY: K. CANTU
DESIGNED BY:
APPROVED BY:
STATE PROJECT NUMBER:
FEDERAL PROJECT NUMBER:
DATE: JULY 2015
SHEET 3 OF 5


TEMPORARY WARNING SIGN (TYP.)
TEMPORARY STOCKPILE
EL. +0.0' (MAX.)
10'±
20' (MIN.)
100' (MAX.)
BREAKWATER
SWL (VARIES)
TOP OF STABLE SLOPE
80' (MAX.)
75' (MIN.)
TEMPORARY FLOTATION CHANNEL
CONSTRUCTION BASELINE
VARIES
12'
6'
0
-6'
-12'
ELEVATION NAVD 88'
C 4 2 TYPICAL SECTION - BREAKWATER
SCALE: N.T.S.
APPLICATION BY:
COASTAL PROTECTION AND RESTORATION AUTHORITY
450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801
SWCLA
TYPICAL BREAKWATER SECTION
STATE PROJECT NUMBER:
DATE: JULY 2015
DRAWN BY: K. CANTU
DESIGNED BY:
APPROVED BY:
FEDERAL PROJECT NUMBER:
SHEET 4 OF 5


CONSTRUCTION BASELINE
VARIES
LANDWARD
SEAWARD
SWL (VARIES)
APPROXIMATE EXISTING GRADE (VARIES)
6' ±0.5'
9' (MIN.)
8' ±0.4'
BREAKWATER ALIGNMENT POINT
10' ±0.5'
3' (MIN.) (TYP.)
-0.5' (MIN.) (TYP.)
+3.25' (MIN.) (TYP.)
4'(MIN.)
4.5'(MAX.)
2±
1
GRR ARMOR STONE
ENCAPSULATED LWA
GEOTEXTILE SHROUD
GEOTEXTILE COMPOSITE
GRR BEDDING STONE (TYP)
+0.5' (MAX.) 0.0' (MIN.) (TYP.)
TYPICAL SECTION - BREAKWATER
SCALE: N.T.S.
APPLICATION BY:
COASTAL PROTECTION AND RESTORATION AUTHORITY
450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801
DRAWN BY: K. CANTU
DESIGNED BY:
APPROVED BY:
SWCLA
STATE PROJECT NUMBER:
FEDERAL PROJECT NUMBER:
TYPICAL BREAKWATER SECTION
DATE: JULY 2015
SHEET 5 OF 5

Annex D

Typical Design Drawings for Foreshore Rock Dike Features

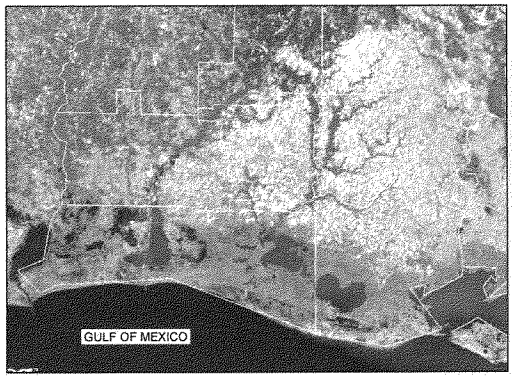
INDEX TO SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	TYPICAL ROCK BREAKWATER PLAN VIEW
3	TYPICAL ROCK DIKE SECTION
4	TYPICAL NAVIGATIONAL GAP AND FISH DIP SECTIONS
5	TYPICAL ROCK DIKE DETAILS
6	TYPICAL NAVIGATIONAL GAP AND FISH DIP DETAILS

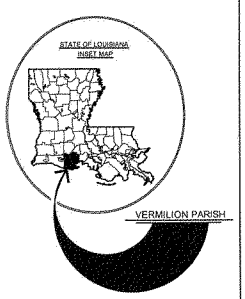
STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY

SOUTHWEST COASTAL LOUISIANA STUDY

VERMILION PARISH



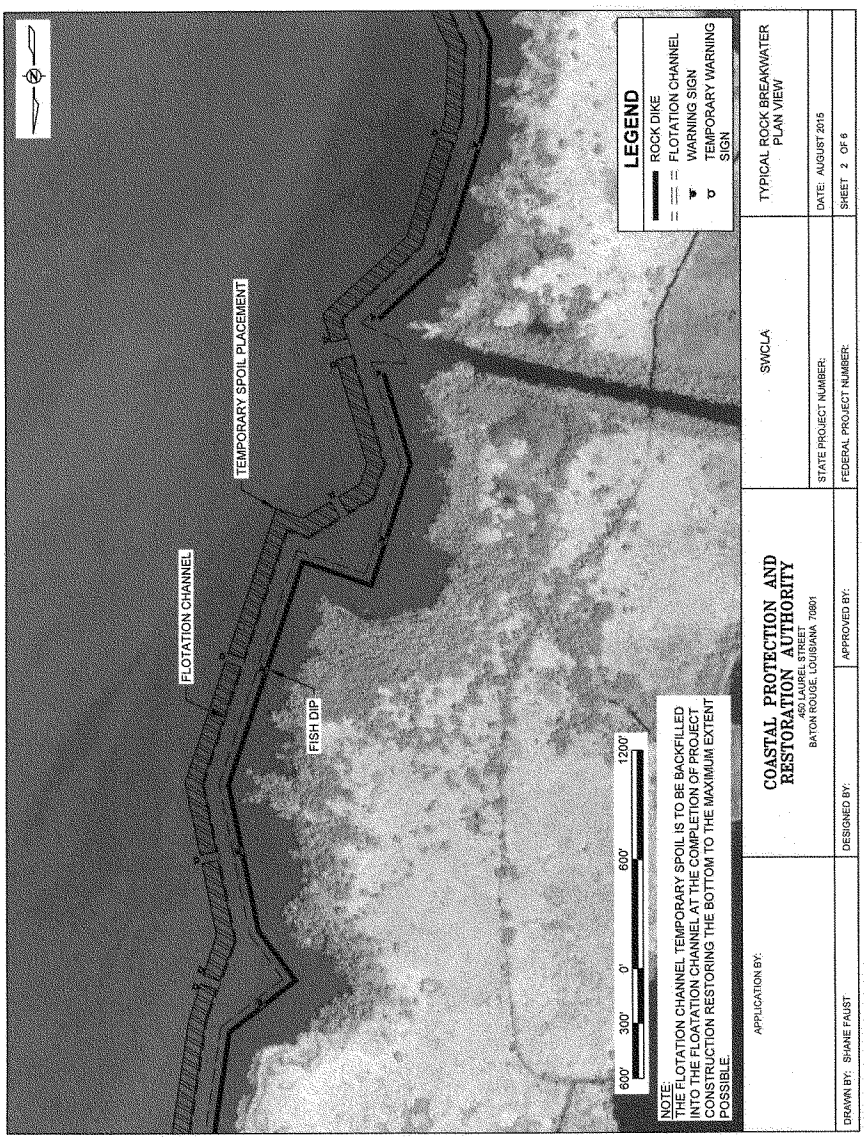
150,000' 75,000' 0' 150,000' 300,000'

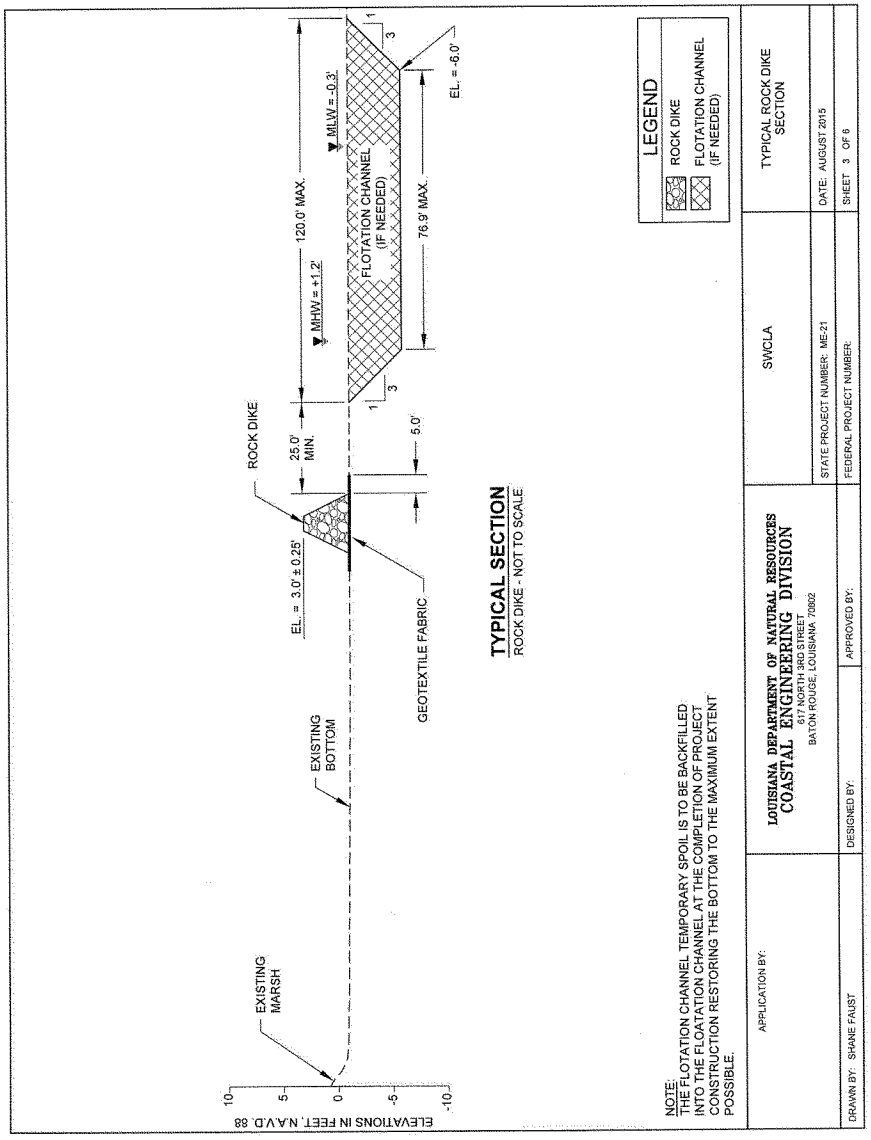


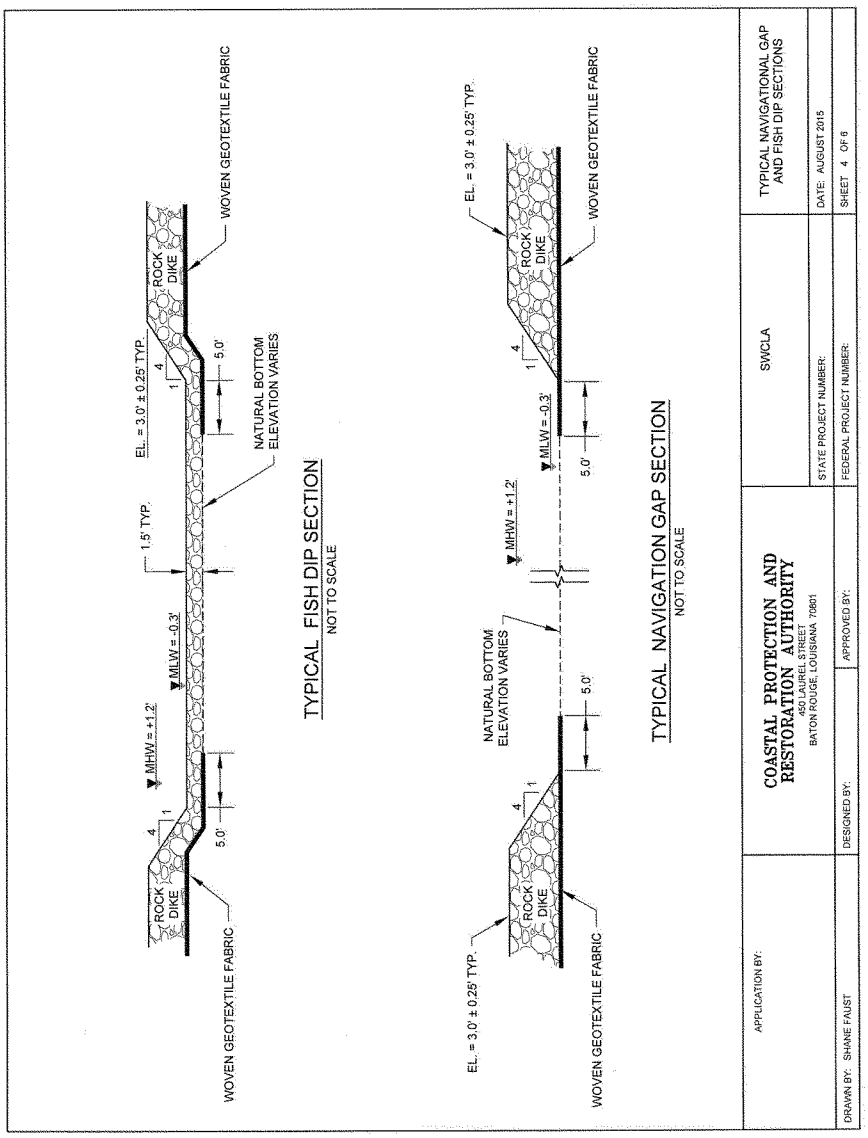
NOT FOR CONSTRUCTION

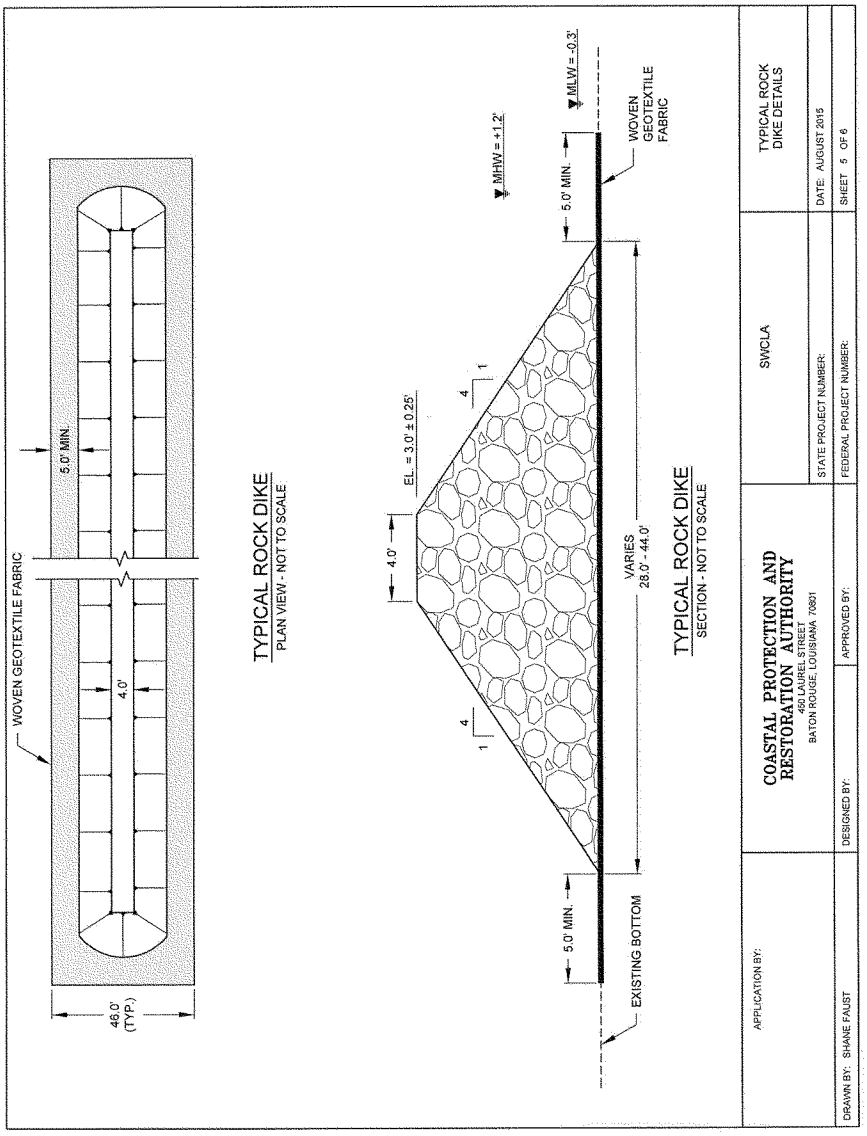
DOCUMENTS ARE NOT TO BE USED FOR CONSTRUCTION, BIDDING, RECORDATION, CONVEYANCE, OR SALES.

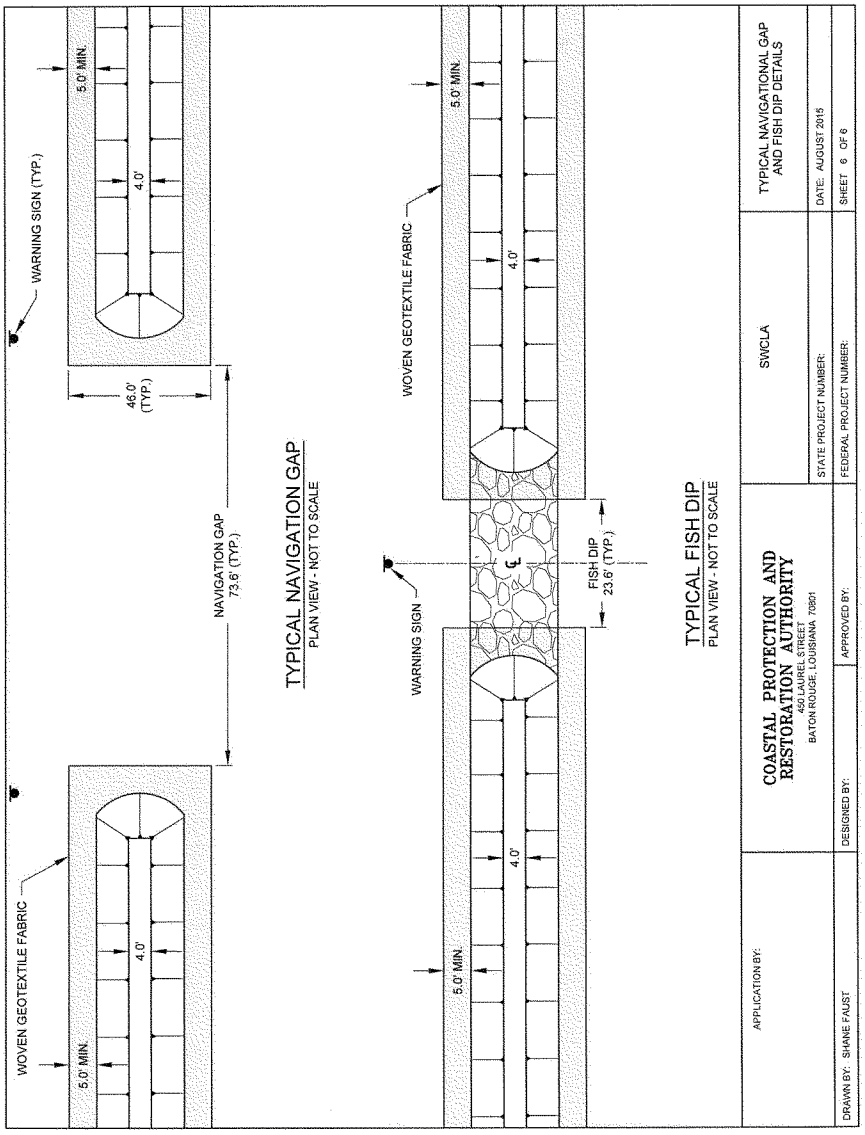
APPLICATION BY:	COASTAL PROTECTION AND RESTORATION AUTHORITY 450 LAUREL STREET BATON ROUGE, LOUISIANA 70801		SWCLA	TITLE SHEET
			STATE PROJECT NUMBER:	DATE: AUGUST 2015
DRAWN BY: SHANE FAUST	DESIGNED BY:	APPROVED BY:	FEDERAL PROJECT NUMBER:	SHEET 1 OF 6


FLOTATION CHANNEL
TEMPORARY SPOIL PLACEMENT
FISH DIP
LEGEND
ROCK DIKE
FLOTATION CHANNEL
WARNING SIGN
TEMPORARY WARNING SIGN
600' 300' 0' 600' 1200'
NOTE:
THE FLOTATION CHANNEL TEMPORARY SPOIL IS TO BE BACKFILLED INTO THE FLOATATION CHANNEL AT THE COMPLETION OF PROJECT CONSTRUCTION RESTORING THE BOTTOM TO THE MAXIMUM EXTENT POSSIBLE.
APPLICATION BY:
COASTAL PROTECTION AND RESTORATION AUTHORITY
450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801
SWCLA
TYPICAL ROCK BREAKWATER PLAN VIEW
STATE PROJECT NUMBER:
DATE: AUGUST 2015
DRAWN BY: SHANE FAUST
DESIGNED BY:
APPROVED BY:
FEDERAL PROJECT NUMBER:
SHEET 2 OF 6


ELEVATIONS IN FEET, N.A.V.D. 88
10
5
0
-5
-10
EXISTING MARSH
EXISTING BOTTOM
ROCK DIKE
EL. = 3.0' ± 0.25'
25.0' MIN.
MHW = +1.2'
MLW = -0.3'
120.0' MAX.
FLOTATION CHANNEL (IF NEEDED)
1
3
EL. = -6.0'
76.9' MAX.
5.0'
GEOTEXTILE FABRIC
TYPICAL SECTION
ROCK DIKE - NOT TO SCALE
LEGEND
ROCK DIKE
FLOTATION CHANNEL (IF NEEDED)
NOTE:
THE FLOTATION CHANNEL TEMPORARY SPOIL IS TO BE BACKFILLED INTO THE FLOATATION CHANNEL AT THE COMPLETION OF PROJECT CONSTRUCTION RESTORING THE BOTTOM TO THE MAXIMUM EXTENT POSSIBLE.
APPLICATION BY:
LOUISIANA DEPARTMENT OF NATURAL RESOURCES
COASTAL ENGINEERING DIVISION
617 NORTH 3RD STREET
BATON ROUGE, LOUISIANA 70802
SWCLA
TYPICAL ROCK DIKE SECTION
STATE PROJECT NUMBER: ME-21
DATE: AUGUST 2015
DESIGNED BY:
APPROVED BY:
FEDERAL PROJECT NUMBER:
SHEET 3 OF 6
DRAWN BY: SHANE FAUST


TYPICAL FISH DIP SECTION
NOT TO SCALE
ROCK DIKE
MHW = +1.2'
MLW = -0.3'
EL. = 3.0' ± 0.25' TYP.
1.5' TYP.
5.0'
4
1
WOVEN GEOTEXTILE FABRIC
NATURAL BOTTOM ELEVATION VARIES
TYPICAL NAVIGATION GAP SECTION
NOT TO SCALE
APPLICATION BY:
COASTAL PROTECTION AND RESTORATION AUTHORITY
450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801
SWCLA
TYPICAL NAVIGATIONAL GAP AND FISH DIP SECTIONS
STATE PROJECT NUMBER:
DATE: AUGUST 2015
FEDERAL PROJECT NUMBER:
SHEET 4 OF 6
DRAWN BY: SHANE FAUST
DESIGNED BY:
APPROVED BY:


WOVEN GEOTEXTILE FABRIC
5.0' MIN.
4.0'
46.0'
(TYP.)
TYPICAL ROCK DIKE
PLAN VIEW - NOT TO SCALE
EL. = 3.0' ± 0.25'
4.0'
4
1
MHW = +1.2'
MLW = -0.3'
5.0' MIN.
WOVEN
GEOTEXTILE
FABRIC
VARIES
28.0' - 44.0'
5.0' MIN.
EXISTING BOTTOM
TYPICAL ROCK DIKE
SECTION - NOT TO SCALE
APPLICATION BY:
COASTAL PROTECTION AND
RESTORATION AUTHORITY
450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801
SWCLA
TYPICAL ROCK
DIKE DETAILS
DRAWN BY: SHANE FAUST
DESIGNED BY:
APPROVED BY:
STATE PROJECT NUMBER:
FEDERAL PROJECT NUMBER:
DATE: AUGUST 2015
SHEET 5 OF 6


WARNING SIGN (TYP.)
5.0' MIN.
4.0'
46.0' (TYP.)
NAVIGATION GAP 73.6' (TYP.)
WOVEN GEOTEXTILE FABRIC
5.0' MIN.
4.0'
TYPICAL NAVIGATION GAP
PLAN VIEW - NOT TO SCALE
WOVEN GEOTEXTILE FABRIC
5.0' MIN.
4.0'
WARNING SIGN
5.0' MIN.
4.0'
FISH DIP 23.6' (TYP.)
TYPICAL FISH DIP
PLAN VIEW - NOT TO SCALE
APPLICATION BY:
COASTAL PROTECTION AND RESTORATION AUTHORITY
450 LAUREL STREET
BATON ROUGE, LOUISIANA 70801
SWCLA
TYPICAL NAVIGATIONAL GAP AND FISH DIP DETAILS
DRAWN BY: SHANE FAUST
DESIGNED BY:
APPROVED BY:
STATE PROJECT NUMBER:
FEDERAL PROJECT NUMBER:
DATE: AUGUST 2015
SHEET 6 OF 6

APPENDIX L

NONSTRUCTURAL IMPLEMENTATION PLAN

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APPENDIX L

Nonstructural Implementation Plan

A. Definitions

Term	Definition
0-25-Year Floodplain	The 0-25-Year Floodplain is defined as having up to a 4% chance of being exceeded in any given year.
Base Flood	Defined by the National Flood Insurance Program (NFIP) as the "flood having a 1% chance of being exceeded in any given year and is also called the 100-year flood".
Base Flood Elevation (BFE)	The computed elevation to which floodwater is anticipated to rise during the base flood. The BFE is shown on community's Flood Insurance Rate Map (FIRM).
Dry Flood Proofing	Dry flood proofing makes the structure watertight below the level for which hurricane storm surge risk reduction is provided by preventing flood waters that derive from storm surge from entering the structure. Dry floodproofing may include one or more of the following methods: using waterproof membranes or sealants to reduce seepage of floodwater through walls and wall penetrations; use of watertight shields for doors and windows; and/or installing measures to prevent sewer backup.
Economically Justified	The cost to elevate the structure does not exceed the total monetary cost of the hurricane storm surge damages that are anticipated to be avoided over the 50-year period of analysis (years 2025-2075).
Eligible structures	Structures that are determined by the United States Army Corps of Engineers (USACE) to be eligible for flood proofing after the completion of the investigations and analyses as described herein.
Flood Proofing	Any combination of structural and nonstructural additions, changes, or adjustments to structures which reduce the risk of hurricane storm surge damage to improved real property, water and sanitary facilities, structures and their contents.
Historic Structure	As defined in 44 CFR Part 59, means any structure that is (1) listed individually in the National Register of Historic Places (maintained by the Department of the Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register; (2) certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district; (3) individually listed on a state inventory of historic places with historic preservation programs which have been approved by the Secretary of the Interior; and (4) individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified either by (a) an approved state program as determined by the Secretary of the Interior or; (b) directly by the Secretary of the Interior in states without approved programs.

Hazardous, Toxic, or Radioactive Waste (HTRW)	HTRW means hazardous, toxic and radioactive waste as more specifically defined in Engineer Regulation (ER) 1165-2-132, "Hazardous, Toxic, and Radioactive Waste (HTRW) Guidance for Civil Works Projects".
Localized Storm Surge Risk Reduction Measures	Measures that are intended to reduce the risk of damage from certain hurricane storm surge events, as defined in this report. This measure consists of materials such as earth, concrete, masonry, or steel not to exceed six feet in height. These measures can be placed around a single structure or a small contiguous group of structures.
Non-Federal Sponsor (NFS)	The NFS is the cost-sharing partner for the study, design, construction of the project, as well as for the Operation, Maintenance, Repair, Rehabilitation and Replacement (OMRR&R) of the project.
Nonstructural Measures	Nonstructural Measures are permanent or contingent measures applied to a structure and/or its contents that reduces the risk of damages that could result from hurricane storm surge. Nonstructural measures differ from Structural measures (i.e., levees, floodwalls, etc.) in that they focus on reducing the consequences of damages from hurricane storm surge instead of focusing on reducing the probability of damages from hurricane storm surge.

B. Introduction

This Nonstructural Implementation Plan describes the general process for the implementation of nonstructural measures, as described in this Final Report, designed to reduce the risk of damages caused by hurricane and storm surge in the study area. The primary goal of the NED Recommended Plan (RP) is to reduce the risk of damage from hurricane storm surge for structures that have a FFE at or below the 0-25-year floodplain, based on hydrologic conditions predicted to occur in 2025 (the beginning of the 50-year period of analysis).

The NED RP consists of the following measures:

1. Elevation of eligible residential structures to the 100-year BFE based on year 2075 hydrology.

2. Dry flood proofing of eligible non-residential structures.

3. Construction of localized storm surge risk reduction measures of less than six feet in height around eligible industrial complexes and warehouses.

Property owners located in the project area will be informed of the details of implementation of the NED feature of the project, including eligibility criteria, the eligibility process, and the related duties and obligations of USACE, the NFS, and the property owner. Based upon present information, the anticipated duties and obligations are generally outlined below; however, some of this information may be modified as the Nonstructural Implementation Plan is finalized as part of planning, engineering, and design (PED). While each individual eligible non-residential and warehouse structures will be evaluated for the most cost effective nonstructural measure, the government reserves the right to determine which measure shall be implemented at each structure location. It is anticipated that implementation of the Nonstructural RP will occur over an approximate 18-year period (assuming funding of ~$50 million/year). However, the scale of the Project is highly dependent upon the participation rate and the amount of funding allocated in any given year.

If the structure owner does not want to participate in the Project, USACE and the NFS would defer any further action on that structure until such time as the structure owner elects to participate or until the period of construction ends. However, the Government reserves, at its sole discretion, the right to determine whether or not a structure may participate in the NED RP after a structure owner has declined participation, and if allowed to participate, the timing and scheduling of such participation in the Project.

C. Elevation of Eligible Residential Structures

Owners of eligible residential structures may participate in having their structure elevated to the 100-year BFE based on year 2075 hydrology. If the required elevation is greater than 13 ft above ground level, the structure would not be eligible for elevation and would be ineligible to participate due to engineering and risk related factors.

1. **Determining Eligibility: 2 Step Eligibility Process**

Step 1- Preliminary eligibility: Structures that meet the following eligibility criteria will have met this first step in the eligibility process and will be eligible for further consideration in the process.

- The residential structure must have a FFE at or below the 0-25-year BFE, based on hydrologic conditions predicted to occur in 2025 (the beginning of the 50-year period of analysis); and
- Elevation of the residential structure is deemed to be economically justified.

At the time of this Final Report, a structure inventory has been compiled which identifies 3,462 residential structures in the Study Area that, based on present information, have been deemed to be preliminarily eligible to participate in the Project (See Appendix N). These structures will require additional structure-specific analysis during PED to determine final eligibility.

Step 2 - Eligibility Determination – Investigations: The following is a general overview of Step 2 in the eligibility process for those residential structures meeting the Step 1 eligibility requirements. Additional details concerning the process, what makes up the eligibility criteria, and related requirements will be developed during PED and provided prior to Project implementation.

- Once preliminary eligibility is determined, residential property owners will be asked to grant a temporary right-of-entry to USACE and the NFS to enter upon the property to conduct such property and structural investigations deemed necessary to determine final eligibility for participation in the Project. These investigations may include, structural inspections, surveys, limited environmental testing and site assessments, verifying current elevation and determining elevation requirements, and conducting such other activities deemed necessary by USACE and the NFS to make a final determination of eligibility. A property owner may elect not to participate at any time prior to execution of an agreement for the performance of the nonstructural measure upon the property. Refusal to grant temporary right-of-entry will constitute the election not to participate.
- The property owner shall submit satisfactory documentation as deemed necessary by USACE (to be detailed during the design phase) which may include, but will not be limited to:
    - Proof of Ownership deemed necessary by USACE (including but not limited to a legal description of the property, deed, or a tax assessor's receipt) to identify the names of all of the owners of the property, and provide information regarding the names and addresses of all third party interest holders and any holders of a lien or encumbrance against the property.
    - In instances involving the representation of a person or persons whose signature is required for any document, subordination, or release which may be required to be executed for the Project, either through a trust, agency, succession, partnership, business, or corporation or any other form of representation under law or contract, documentation will be provided along with the title evidence that documents the identity, powers, and authorities of the person or persons authorized to act on behalf of the required signatory.
- The NFS shall conduct title research to confirm the property has clear title; and appraisals that may be necessary.
- An ASTM Phase I Environmental Site Assessment (ESA) and asbestos investigation will be conducted to confirm the absence of HTRW and damaged or friable asbestos or asbestos-containing materials, and, if warranted, additional HTRW investigations and a Phase II ESA will be conducted at the

property. If the presence of HTRW, asbestos, or asbestos-containing materials in a damaged or friable form is confirmed on the property, the property owner shall be obligated, at his sole cost and expense, to conduct all necessary response and remedial activities in full compliance with applicable local, state, and federal laws and regulations and provide proof of same before the property can be deemed to have met the eligibility requirements;

- The structure will be evaluated by USACE to ensure that all of the following eligibility requirements are satisfied:
  - The structure can be elevated to meet the required BFE. However, in no event will a structure be raised greater than 13 ft above the ground level;
  - Based on a visual assessment, the structure is in a condition that is suitable for elevation without the need for repair or rehabilitation as determined by a professional registered structural engineer. Any repair or rehabilitation necessary to achieve that condition will be at the sole cost and expense of the property owner (see paragraph 5 "Eligible and Ineligible Improvement Costs" below);
  - Implementation of nonstructural measures will not impact threatened or endangered species;
  - Implementing nonstructural measures on the property does not require fill in the waters of the United States and would not result in any impact to wetlands; and
  - The property has not previously received any disaster assistance for the elevation of the structure.

2. **Execution /Recordation of Agreement**

An agreement shall be executed between the NFS and the property owners. The agreement will be binding upon the owners, their heirs, assigns, transferees, and any other successors in interest. The provisions of this agreement will be developed during the design phase; however, it is anticipated that it will include provisions such as those discussed below. The agreement will obligate the property owner to expend any and all costs that may be necessary in connection with the elevation of the structure which are not deemed "eligible costs" (as described below); the agreement releases and holds USACE and the NFS harmless for any and all loss, cost, damage, or expense arising out of any claims, including third party claims that arise directly or indirectly from any Project-related activity. The agreement will include provisions that would prohibit both the conversion of any part of the structure located below the lowest habitable finished floor for purposes of human habitation, the alteration of the structure in any way that would impede the movement of flood waters under the structure and would prohibit the construction of any new habitable structures on the property that do not meet the FFE requirements of the Project. The agreement, as well as any required curative documents, subordination or release agreement(s), shall be recorded by the NFS in the public records of the Parish in which the property is located prior to commencement of the nonstructural improvements on the property.

The agreement will contain restrictive covenants that run with the land in perpetuity. Among other rights, the agreement will include the right for the NFS and the Government to inspect the property during structure elevation. The agreement, as well as any required curative documents, subordination or release agreement(s), shall be recorded by the NFS in the public records of the Parish in which the property is located prior to commencement of the nonstructural improvements on the property.

3. **Commencement of Nonstructural Improvements.**

Following eligibility determination and receipt of proof of recordation of the required documentation, elevation of the structure will be commenced. The entire foundation of the structure will be lifted and placed on a new foundation (i.e., columns, piers, posted or raised foundation walls) so that the lowest habitable finished floor is at or above the 100-year BFE predicted to occur in 2075. All utilities and mechanical equipment, including air conditioners and hot water heaters, will also be raised to the required elevation. Property owners may choose to raise the structure, utilities, and/or mechanical equipment in excess of the predicted 2075 100-year BFE; however costs attributable to elevations in excess of the minimum

requirements set forth herein are not deemed eligible costs (described below) and would be performed at the sole cost, risk, and expense of the property owner.

4. **Notice of Construction Complete (NCC).**

Upon completion of the improvements, an inspection will be performed by USACE and upon final approval by the District Engineer, or his designee, a notice of construction completion will be issued to the NFS and the individual elevation project will be closed out as complete.

5. **Eligible and Ineligible Project Costs.**

Eligible Project Costs: All elevations will require local permits prior to any onsite construction. Only the costs of elevation and foundation retrofitting are eligible costs. No Federal funds will be used to restore, replace, or repair the structure. No additions to the habitable spaces of the structure will be permitted in the performance of the elevation work. Elements of structure elevation work that are deemed to be potentially eligible project costs include: design costs; costs of obtaining all required permits (i.e., zoning or land use approvals, environmental permits or required certifications, historic preservation approvals, and building permits), except as identified to be an ineligible item of project cost; costs of title searches (in review of title information submitted by the property owner), surveys, and costs for the following tasks:

- elevating the structure;
- raising the roof and extending the walls of a side structure attached to the main structure (i.e., garage);
- raising mechanical equipment (i.e., air conditioner, furnace, water heater, electrical panel, fuel storage, valves, or meters);
- connecting, disconnecting, and extending utility connections for electrical power, fuel, incoming potable water, wastewater discharge;
- meeting access requirements of applicable building codes (i.e., stairs with landings, guardrails);
- creating large vent openings in the foundation and walls to meet requirements for flood water entry and exit;
- in instances where special access improvements (i.e., elevators, lifts, ramps, etc.) may be required (i.e., in the case of physically handicapped or elderly homeowners or occupants) special handicapped access can be considered an eligible improvement cost when documented by the medical certificate of a licensed physician. Multiple special access points may also be eligible for funding where necessary to meet state or local building code compliance;
- removal of any trees which restrict the elevation of a structure;
- site grading and site restoration including restoring landscaping to its preconstruction condition;
- for historic structures that are listed or eligible for listing on the National Register of Historic Places, costs associated with maintaining the historic designation as determined by the Louisiana State Historic Preservation Office (including such costs so as to preserve the historic façade and character of the building whether through exterior structural modifications, landscaping, lighting, paint, disguising and/or blending of the nonstructural measure with the building, etc.);
- temporary site protection measures during site work; and
- allowable relocation assistance funds for displaced tenants in accordance with Uniform Relocation Assistance and Real Property Acquisition Policies for Federal and Federally Assisted Programs of 1970, Public Law 91-646, 84 Stat. 1894 (42 U.S.C. 4601), as amended by the Surface Transportation and Uniform Relocation Assistance Act of 1987, Title IV of Public Law 100-17, 101 Stat. 246-256. Relocation assistance for tenants may include, among other things, advisory services, differential housing payments, and reimbursement of costs of moving personal property, rental assistance to supplement the costs of leasing a comparable replacement dwelling, or down payment assistance to purchase a replacement dwelling. (See Appendix E, Real Estate Plan for more detailed information.) Note that a structure is ineligible for nonstructural measures if it would require elevation over 13 ft

above ground level due to engineering and risk related factors. Landowners whose properties are voluntarily elevated will not be eligible for benefits in accordance with URA; however, tenants of these structures may be eligible for these benefits.

Ineligible Project Costs: The costs that exceed that which is necessary to safely elevate and or flood-proof an eligible structure are deemed ineligible costs and any such costs remain the sole responsibility of the property owner. These costs may include, among others, costs associated with:

- any structural and system repair due to existing deficiencies;
- modifications or improvements to a septic system except for extension of lines from the raised structure to the existing system;
- cost for elevation above the identified BFE;
- modifications to structures that are not attached to the eligible structure;
- modifications to tubs, pools, spas, hot tubs, and related structures or accessories;
- modifications to decks and patios not connected to or immediately adjacent to the structure except for modifications that are expressly required by building codes (i.e., stairways and landing modifications);
- the proper remediation, removal and disposal of environmental contaminants including but not limited to HTRW, asbestos, and asbestos-containing materials in damaged or friable form;
- costs associated with bringing a non-conforming structure into compliance with current building code, housing code, and/or other applicable codes;
- costs associated with special access improvements (i.e., elevators, lifts, ramps, etc.) that are not deemed eligible; and
- improvements to structures not considered the primary residence (i.e., detached garage, shed and/or barns).

D. Dry Flood Proofing of Eligible Non-Residential Structures

Dry flood proofing consists of sealing all areas from the ground level up to approximately 3 ft of a structure to reduce the risk of damage from storm surge resulting from hurricanes of a certain magnitude, as described in this report, by making walls, doors, windows and other openings resistant to penetration by storm surge waters. Walls are coated with sealants, waterproofing compounds, or plastic sheeting is placed around the walls and covered, and back-flow from water and sewer lines prevention mechanisms such as drain plugs, standpipes, grinder pumps, and back-up valves are installed. Openings, such as doors, windows, sewer lines and vents, may also be closed temporarily, with sandbags or removable closures, or permanently.
Some common flood proofing measures include:

- Backflow valves;
- Closures on doors, windows, stairwells, and vents--they may be temporary or permanent;
- Rearranging or protecting damageable property--e.g., relocate or raise utilities;
- Sump pumps and sub-drains; and
- Water resistant material; metal windows, doors and jambs; waterproof adhesives; sealants and floor drains.

While each individual eligible non-residential structures will be evaluated for the most cost effective nonstructural measure, the government reserves the right to determine which measure shall be implemented at each structure location.

Determination of Eligibility. The process of determining eligibility would be substantially similar to the process followed above in connection with the elevation of residential structures. Identification of eligibility criteria and details concerning the process will be developed during PED and provided prior to Project implementation. At the time of this Final Report, a structure inventory has been compiled which identifies 342

preliminarily eligible non-residential structures and public buildings in the Study Area. Eligible property owners who request application of the dry flood-proofing measures to their commercial structures or public buildings, must provide temporary right-of-entry, undergo similar site and structural assessments, present the requisite documentation, and undergo a structure-specific analysis performed during the design phase that is substantially similar to that which is described above in connection with the elevation of residential structures.

Commencement of Improvements and NCC. If a determination is made that a structure is qualified for dry flood proofing, a scope of work will be developed and the property owner will be required to execute an agreement in favor of the NFS. The agreement will be accompanied by the requisite curative documents, including, but not limited to any subordinations or releases of interest from third party interest owners, and holders of any liens or encumbrances against the property. The agreement and supporting curative instruments, subordinations and releases will be filed in the records of the Clerk of Court in the parish where the property is located and will be binding upon the owners, their heirs, assigns, transferees, and any other successors in interest. The provisions of this agreement will be developed during the design phase; however, it is anticipated that the developed agreement may include provisions such as those discussed below. Each structure that is dry flood proofed must have an approved sanitary disposal system and be in compliance with local and state health and building codes. The owners of the structure must agree to hold the Government and the NFS harmless for the dry flood proofing work to be performed on the structure and must allow both entities the right to inspect the properties during floodproofing. Additionally, the agreement will include provisions that would prohibit the conversion or modification of any part of the structure in a manner that would damage or impair the flood proofing work performed on the Structure by the Project and prohibit the construction of any new structure on the property or modification to the existing structure that is not flood proofed in accordance with the Project hurricane storm surge risk reduction objectives and requirements. After the agreement and associated curative documents are recorded in the public records of the Clerk of Court of the parish in which the property is located, the dry flood proofing work will be commenced, completed, inspected by USACE, and after final approval by the District Engineer, or his designee, a notice of construction completion will be issued to the NFS and the individual dry flood-proofing project will be closed out as complete.

E. Construction of Localized Storm Surge Risk Reduction Measures around Industrial Facilities and Warehouses

These measures are intended to reduce the risk of flooding from certain hurricane storm surge events, as described in this report. These measures involve the construction of localized storm surge risk reduction features that measure less than six feet in height around industrial complexes and warehouses that meet the Project's eligibility criteria. These risk reduction measures can be constructed of earth, concrete, masonry or steel and can be placed around a single structure or a contiguous group of structures. While each individual eligible warehouses and industrial structures will be evaluated for the most cost effective nonstructural measure, the government reserves the right to determine which measure shall be implemented at each structure location.

Determination of Eligibility. At the time of this Final Report, a structure inventory has been compiled which identifies 157 preliminarily eligible industrial complexes and warehouse in the Study Area. Eligible property owners, who request implementation of the localized storm surge risk reduction measures around their industrial facilities and warehouses must provide temporary right-of-entry, undergo similar site and structural assessments, present the requisite documentation, and undergo a site-specific analysis performed during the design phase that is substantially similar to that which is described above in connection with the elevation of residential structures. Identification of eligibility criteria and details concerning the process will be developed during PED and provided prior to Project implementation.

Commencement of Improvements and NCC. If a determination is made that a structure is qualified for localized storm surge risk reduction measures, a scope of work will be developed. Thereafter, an agreement in favor of the NFS shall be executed by the property owners and will be accompanied by requisite curative documents, including but not limited to subordinations or releases of interest from third party interest owners, and holders of any liens or encumbrances against the property. The agreement will be binding upon

the owners, their heirs, assigns, transferees, and any other successors in interest. The provisions of this agreement will be developed during the design phase; however, it is anticipated that the developed agreement may include provisions such as those discussed below. The agreement will include provisions that would prohibit the conversion or modification of any part of the localized storm surge risk reduction measures in a manner that would damage or impair the hurricane storm surge risk reduction objectives of the Project and would prohibit the construction of any new structure on the property or modification to the existing structures that does not provide for hurricane storm surge risk reduction in accordance with the Project objectives and risk reduction requirements. After the agreement and associated curative documents are recorded in the public records of the Clerk of Court of the parish in which the property is located, the localized storm surge risk reduction measures will be constructed and inspected, and after final approval by the District Engineer, or his designee, a notice of construction completion will be issued to the NFS and the individual storm surge risk reduction project will be closed out as complete.

F. Implementation Method: Federal Procurement

The traditional method of implementation is generally described in publications of the USACE National Flood Proofing Committee and Flood Risk Management Planning Center of Expertise. This method of implementation utilizes a Federal procurement to obtain design and construction contractors for the various flood proofing measures. The Government will procure contracts that will allow a contractor to perform flood proofing work on multiple structures through a series of one or more task orders. The contractor will also be responsible for all work associated with the elevation from approval of the elevation plans for each structure to final inspection. For construction of localized storm surge risk reduction measures a 'small quantities determination' by USACE Real Estate Division must be made and the ensuing solicitation would require the contractor to provide contractor furnished borrow from commercial pits that are environmentally compliant and that provide materials that meet the Government's specifications for this measure construction.

Each non-residential structure will be evaluated to determine the most cost effective method of flood proofing. At the time of this Report, it is anticipated that implementation of localized storm surge risk reduction measures will be through the Federal procurement of Indefinite Deliverable, Indefinite Quantity (IDIQ) contracts that will be implemented by the issuance of individual task orders for the implementation of flood proofing measures at each warehouse. The basis for this assumption is that the PDT has completed an inspection of the warehouse inventory. That inspection indicates that the geographic distribution of these warehouses and the inability to determine the schedule for voluntary participation do not comport with the clustering strategy whereby the rest of the NED RP will be implemented. For these reasons it is anticipated that an individual task order will be limited to a single warehouse to be flood proofed. The PDT anticipates that only a small amount of borrow would be needed for construction of the localized storm surge risk reduction measures for each warehouse being accomplished by separate task order. Based on this conclusion, it is foreseeable that commercial borrow sites would be used. As of the date of this Report, there are several commercial borrow sites within the project area that are readily available.

Real Estate regulations (ER. 405-1-12, paragraph 12-9d(3)) allow for small quantities of borrow material to be supplied by the construction contractor through the use of readily available commercial sites, if supported by an analysis conducted by the Government and the NFS, and if no other constraints exist. Since it has been determined that each IDIQ task order will address a single warehouse, for purposes of this Final Report, it has been assumed that the analysis performed pursuant to the above cited ER 405-1-12 will determine that the required borrow quantities constitute a small quantity that can be obtained through a commercial site that meets the Project requirements. Prior to issuing a construction task order, the Government will conduct the necessary analysis in accordance with ER 405-1-12. Contractors would be required to demonstrate that any proposed commercial borrow site is environmentally cleared and contains geotechnically suitable borrow material. In evaluating the suitability of the proposed commercial borrow site, impacts to wetlands or bottomland hardwoods would be prohibited. Costs of utilizing a commercial borrow site would be considered an item of construction cost, and not an item of LERRD cost.

G. Various Methods for Prioritizing the Nonstructural Elevation Work

NED Implementation Strategy

This Final Report recommends a strategy to implement the nonstructural project for eligible structures. Structures that have been identified as preliminarily eligible as part of the NED RP are located across the 4,700 mile, three-parish study area. In order to effectively implement the NED RP, clusters of eligible structures that represent the highest risk for storm surge damages (i.e. those with a FFE below the 10-year stage) would be identified and prioritized for construction. Individual structures would be addressed based on a ranking of risk from highest to lowest within the cluster. The ranking of individual structures would be revisited as elevation work is completed, as additional funding is distributed, and as new clusters are identified. Addressing groups of structures within a small geographic area would be more cost-effective, efficient, and would also allow for a more strategic methodology for applying nonstructural measures to at-risk structures. Additional work on this process would occur during the design phase of the Project.

Any structure scheduling or prioritization will be subject to the availability of Federal funds. The locations for scheduling or prioritizing the implementation of nonstructural work will be determined during PED but will be fully assessed for implementing the nonstructural plan in an efficient and cost-effective manner. Some of the methods for scheduling or prioritizing nonstructural work that will be considered as part of the prioritization process are as follows; however, additional methods of scheduling or prioritizing such work will also be considered for the priority locations to implement the nonstructural plan

Clustering

The eligible property owners in a contiguous neighborhood or subdivision (i.e. small scale area) would be targeted for priority in nonstructural plan implementation. A focus on clustered properties would create a ranking hierarchy of which properties to address first. The size of a cluster would need to be defined but would consist of an area where multiple eligible structures would be constructed simultaneously. This approach would rank efficiency as the main factor in determining which eligible properties should be prioritized.

Risk-Level

Within the clustered area, structures of various risk levels would be identified. In such cases, the focus would be on willing property owners that exhibit the highest risk for flood damages. For example, if 100 property owners execute agreements within the clustered area, the owners who reside in the 0-5-year floodplain would be prioritized for construction. Once these properties are elevated, the next highest-risk properties (6-10-year floodplain) would be targeted. This approach couples risk exposure and clustering to determine which eligible properties should be prioritized.

H. Operations, Maintenance, Repair, Rehabilitation, and Replacement (OMRR&R)

For all structure types (residential, non-residential, and warehouses) OMRR&R costs are expected to be 'de minimus' and will be confined to regular, periodic surveys and site visits of structures where nonstructural measures have been applied in order to determine that the requirements of the OMRR&R Manual are being met.. Costs for these efforts have not been calculated as part of NFS OMRR&R responsibilities. Once the NED nonstructural measures have been implemented and NCC'd, the owner of the property will be responsible for all cost and risk of maintaining, repairing, rehabilitating and replacement the flood proofing measures that were utilized for the subject property. A draft OMRR&R Manual shall be provided to the NFS as early as possible in the period of implementation because USACE will issue a NCC for each flood proofed structure once the flood proofing is complete. At the time of the issuance of an NCC, the NFS's obligations for operation and maintenance for the subject structure or lands commences. Flood proofed structures shall be considered a separable element and functional portion of the Project. The NFS is responsible for the enforcement of the provisions of the agreement executed by the owners of property benefiting from the nonstructural measures and for enforcement of the requirements of the OMRR&R Manual, including by not limited to, compliance with the requirements of Section 402 of the Water Resources Development Act of 1986,

as amended. Upon NCC for NED implementation for a given structure or contract, the USACE will furnish to the NFS a final OMRR&R manual addressing, among other things, the NFS responsibility for enforcement of terms of the flood proofing agreement, as well as other OMRR&R requirements.. The NFS shall conduct periodic inspections at the intervals specified in the OMRR&R Manual to ensure that the owners, their heirs, and assigns, are in compliance with the terms and conditions of the executed agreements and shall provide written certifications to USACE that the structures and lands have been inspected and that no violations have been found. Regarding the elevated residential structures, the inspections will determine among other things, that no part of the structure located below the level of the lowest habitable finished floor has been converted to living area for human habitation, or otherwise altered in any manner which would impede the movement of waters beneath the structure; that the area below the predicted 2075 100-year BFE is being used solely for the parking of vehicles, limited storage, or access to the structure and not for human habitation; that mechanical, electrical or plumbing devices have not been installed below the BFE; that the property is in compliance with all applicable floodplain ordinances and regulations. USACE shall have the right, but not the obligation, to perform its own inspections of the flood proofed structures pursuant to the Project.

INITIAL DRAFT REPORT

(Original draft report released for public review in December 2013)

AVAILABLE ON WEBSITE

www.mvn.usace.army.mil/About/Projects/SouthwestCoastal.aspx

REVISED DRAFT REPORT

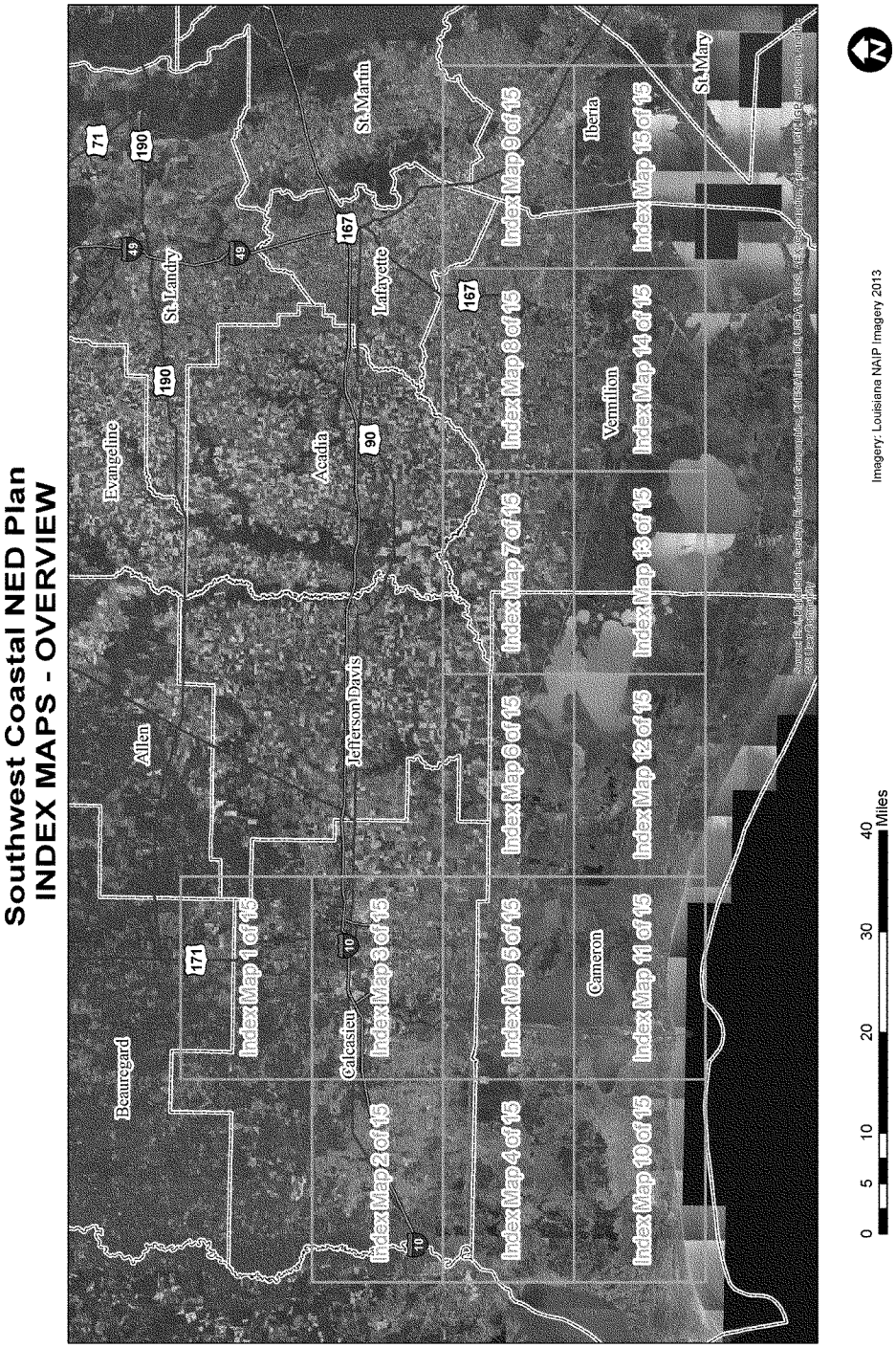
(Revised draft report released for public review in March 2015)

AVAILABLE ON WEBSITE

www.mvn.usace.army.mil/About/Projects/SouthwestCoastal.aspx

NATIONAL ECONOMIC DEVELOPMENT RECOMMENDED PLAN

MAPS OF PRELIMINARILY ELIGIBLE STRUCTURES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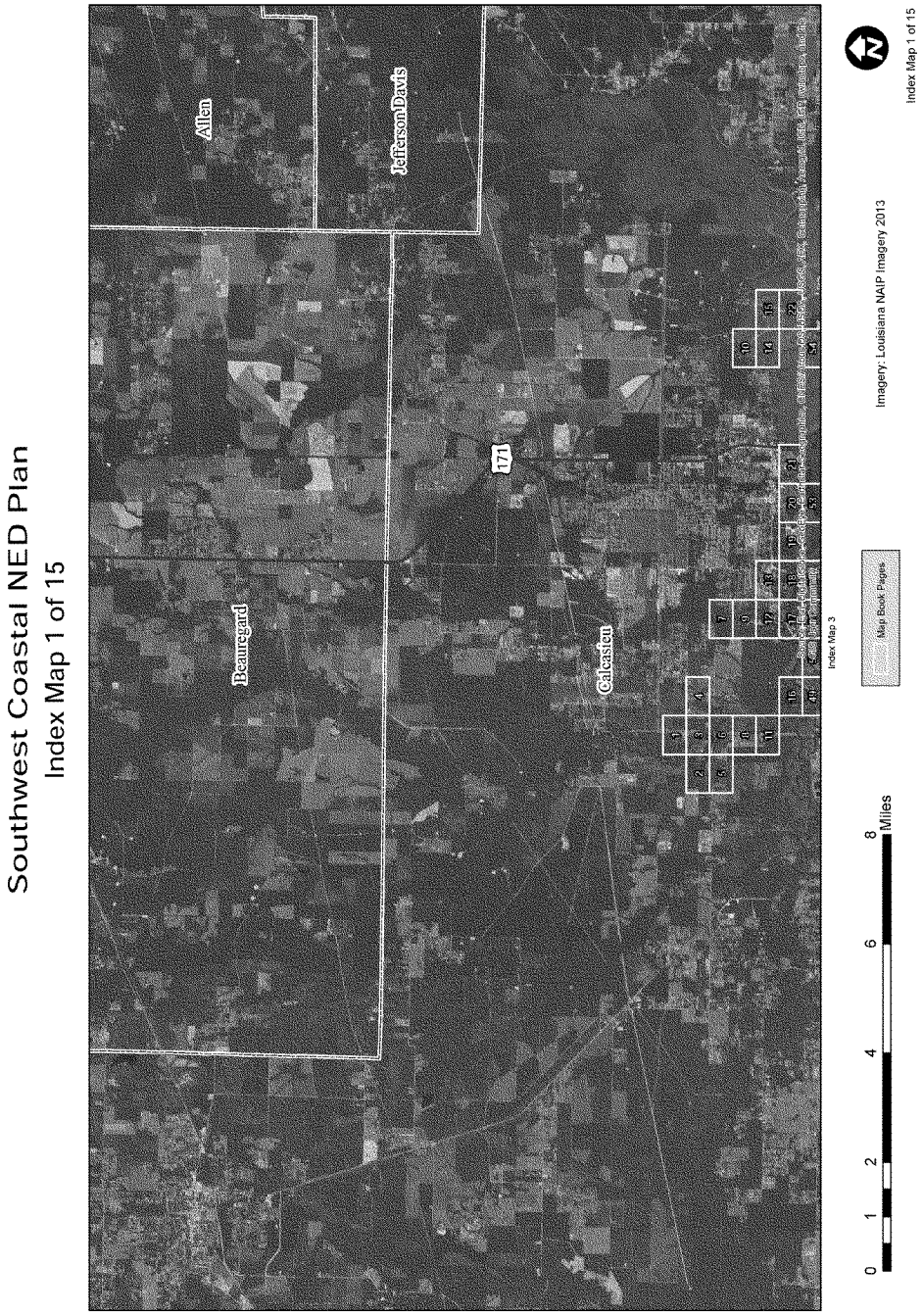
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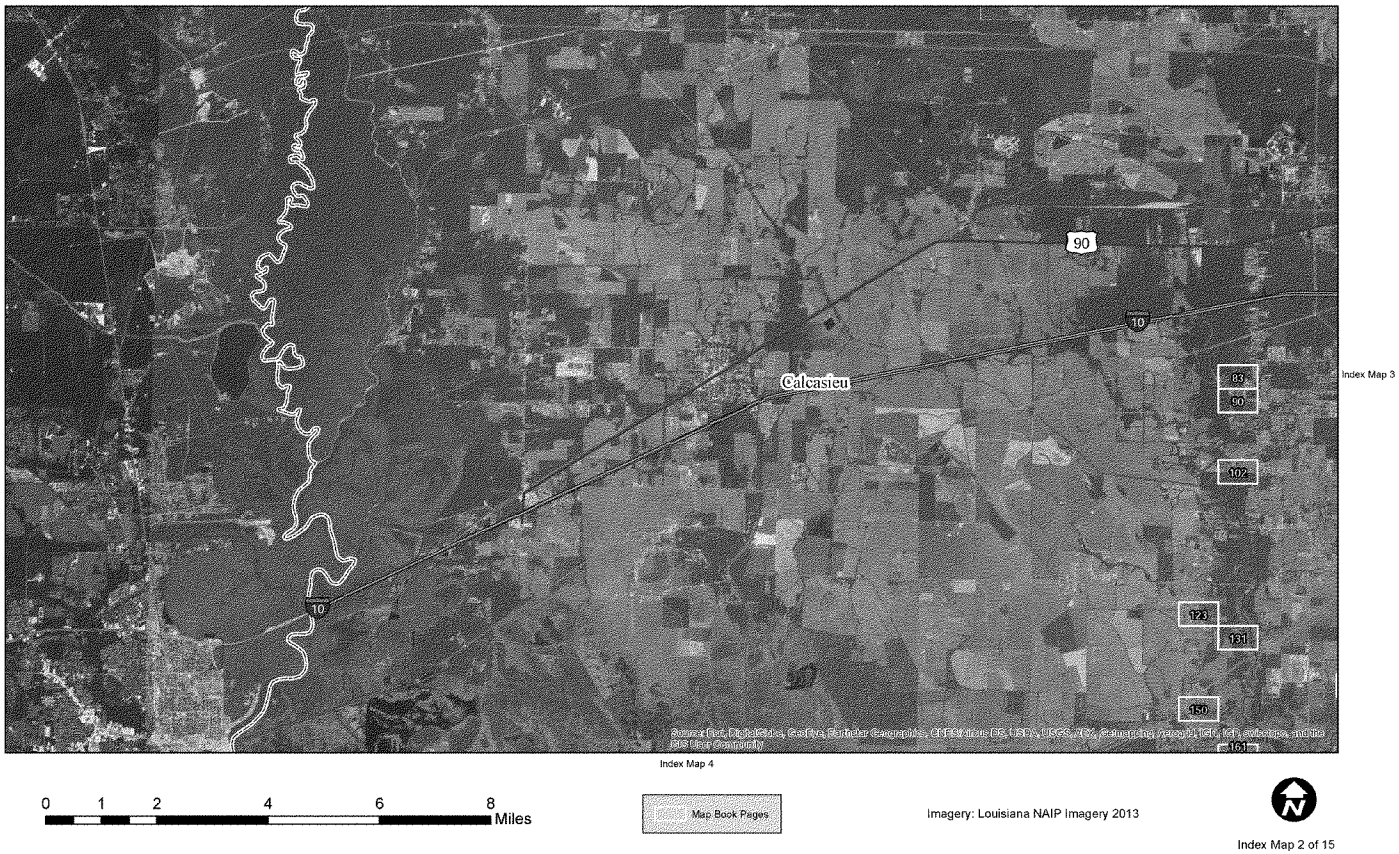

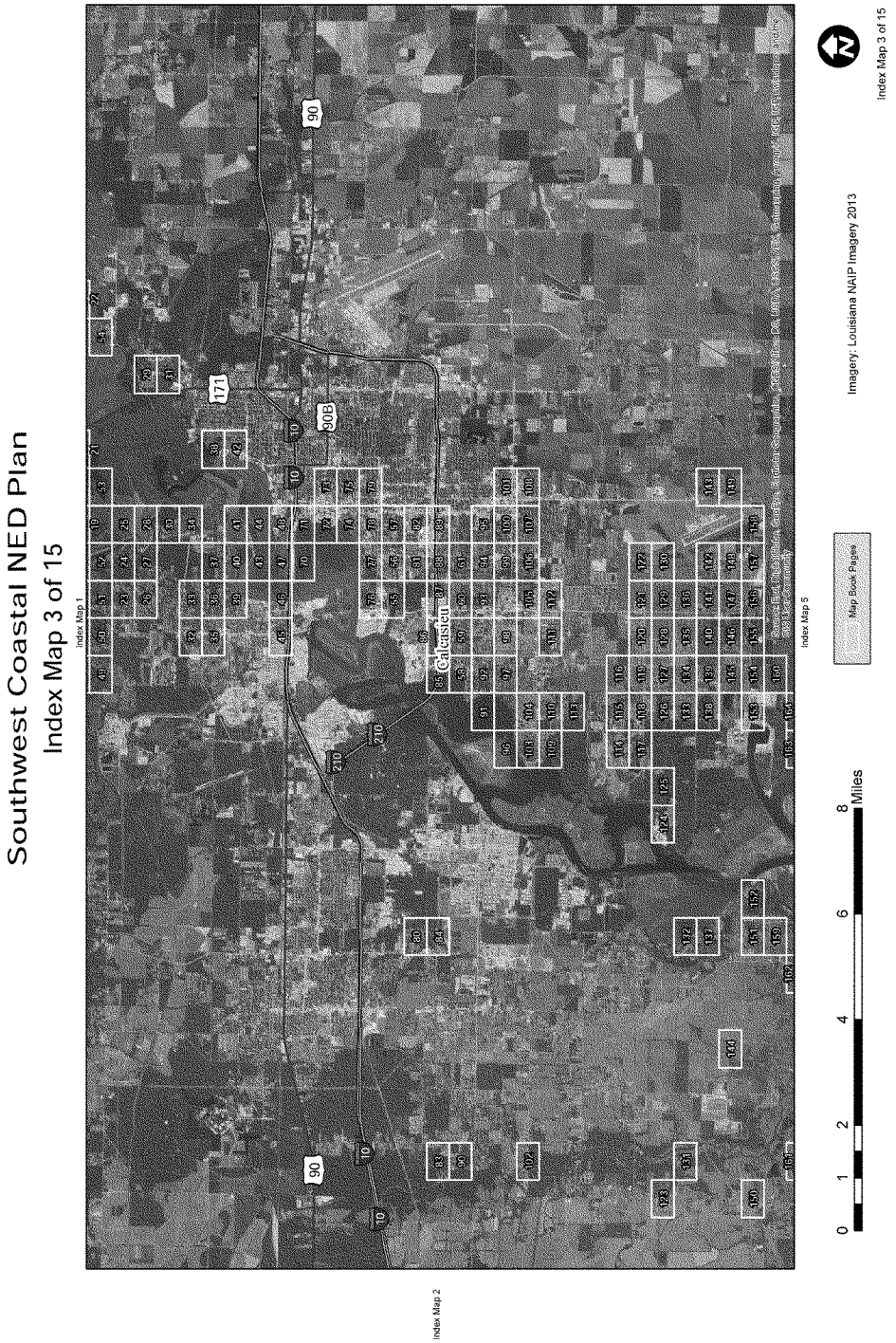
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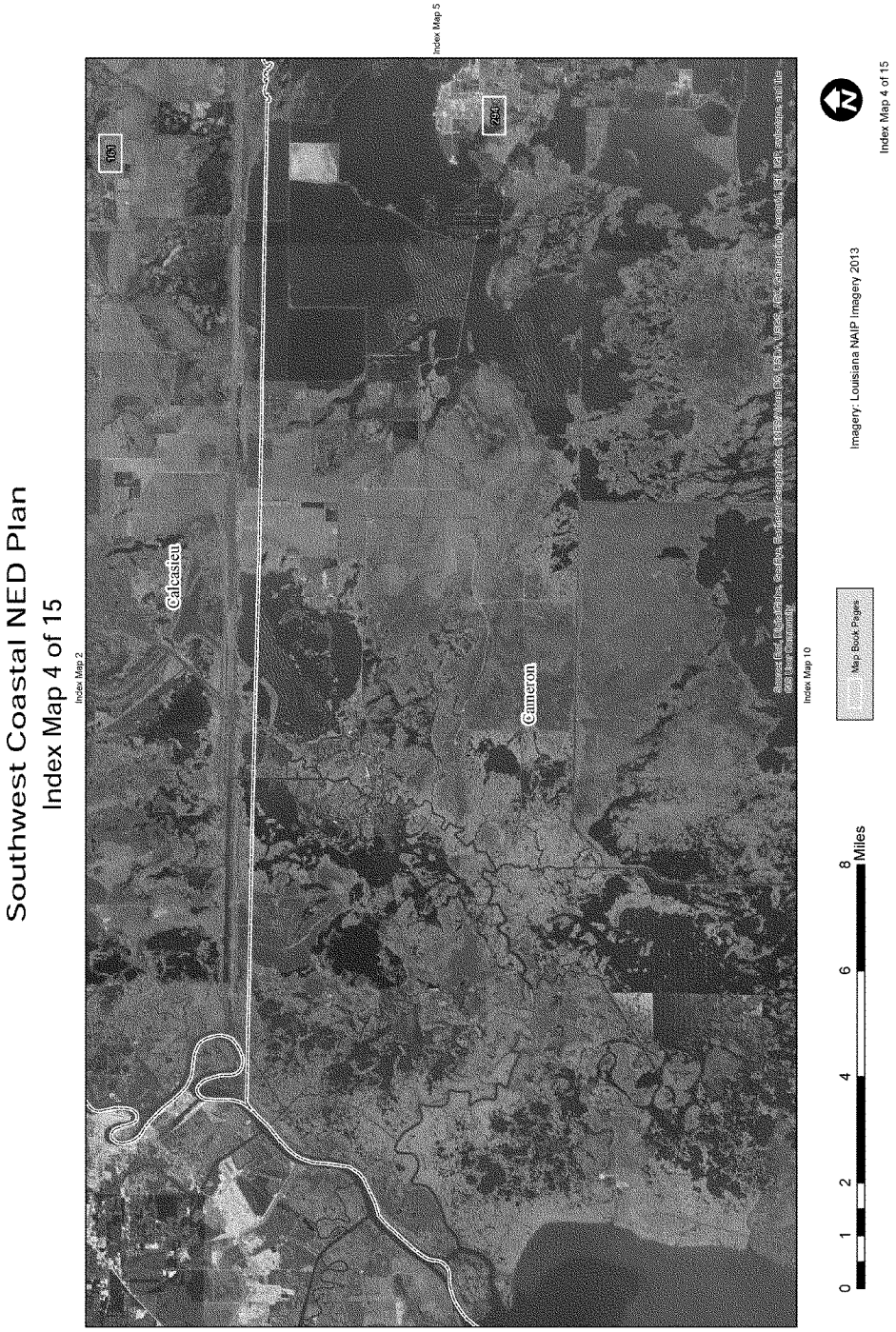
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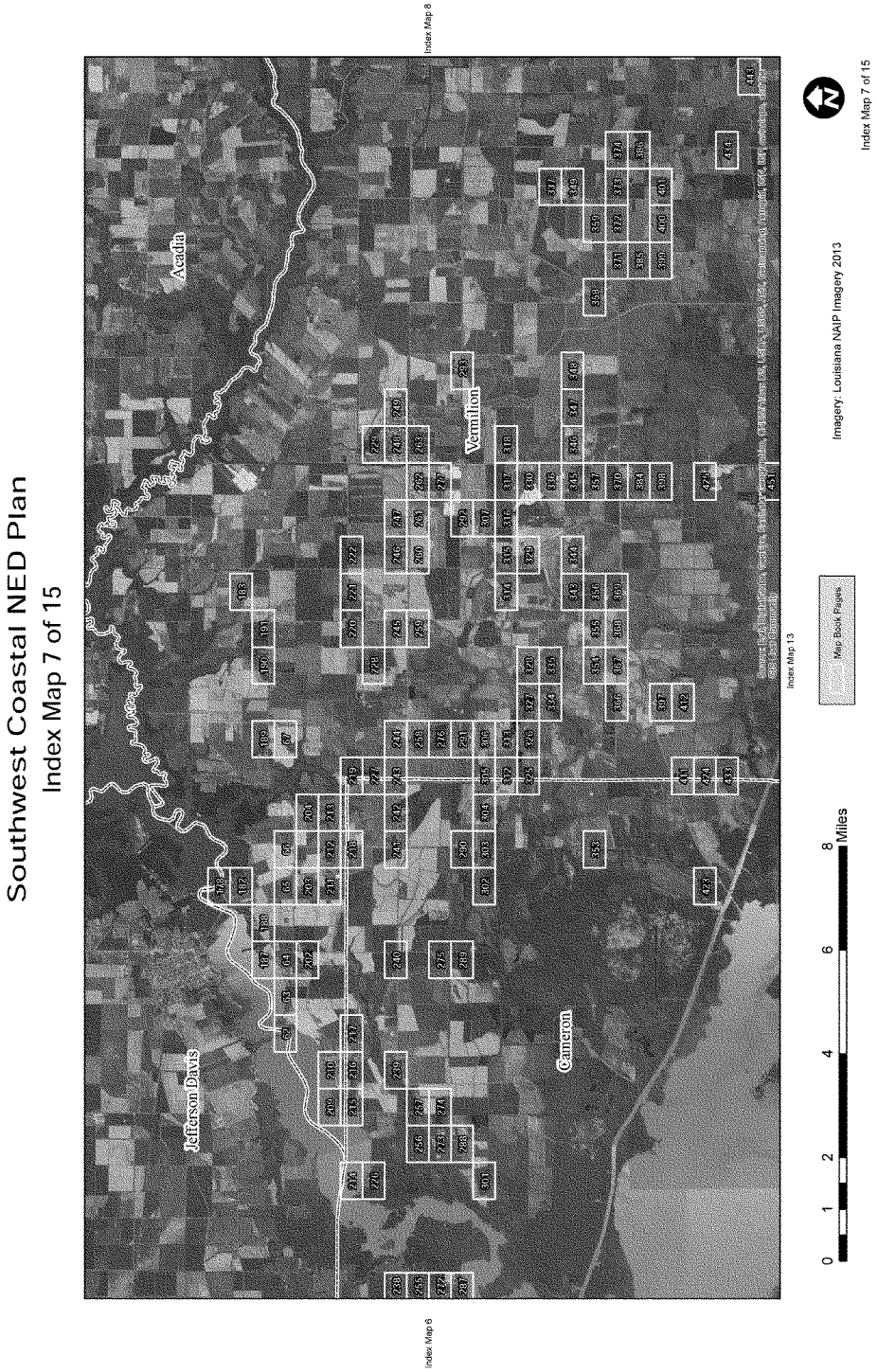
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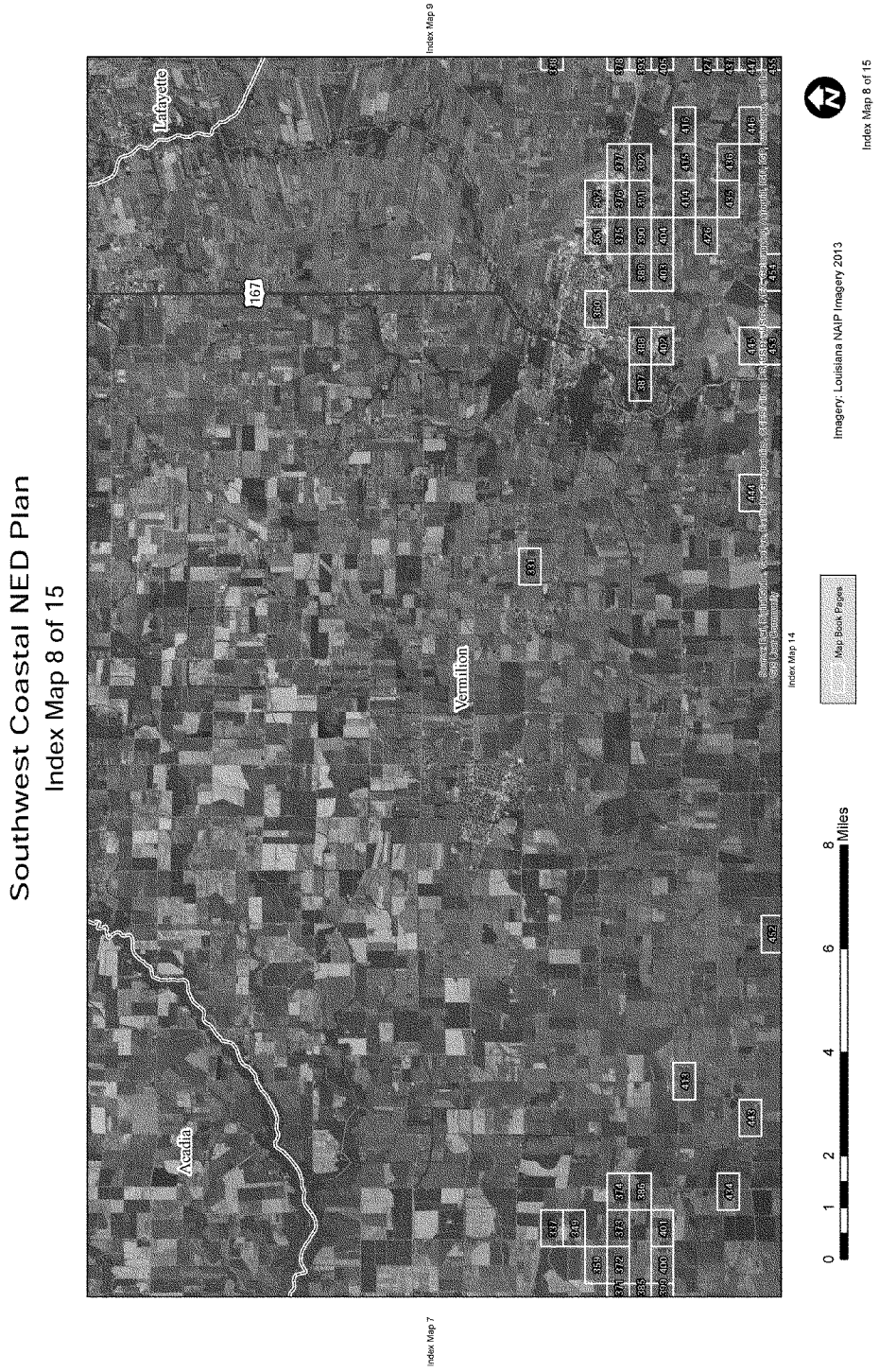
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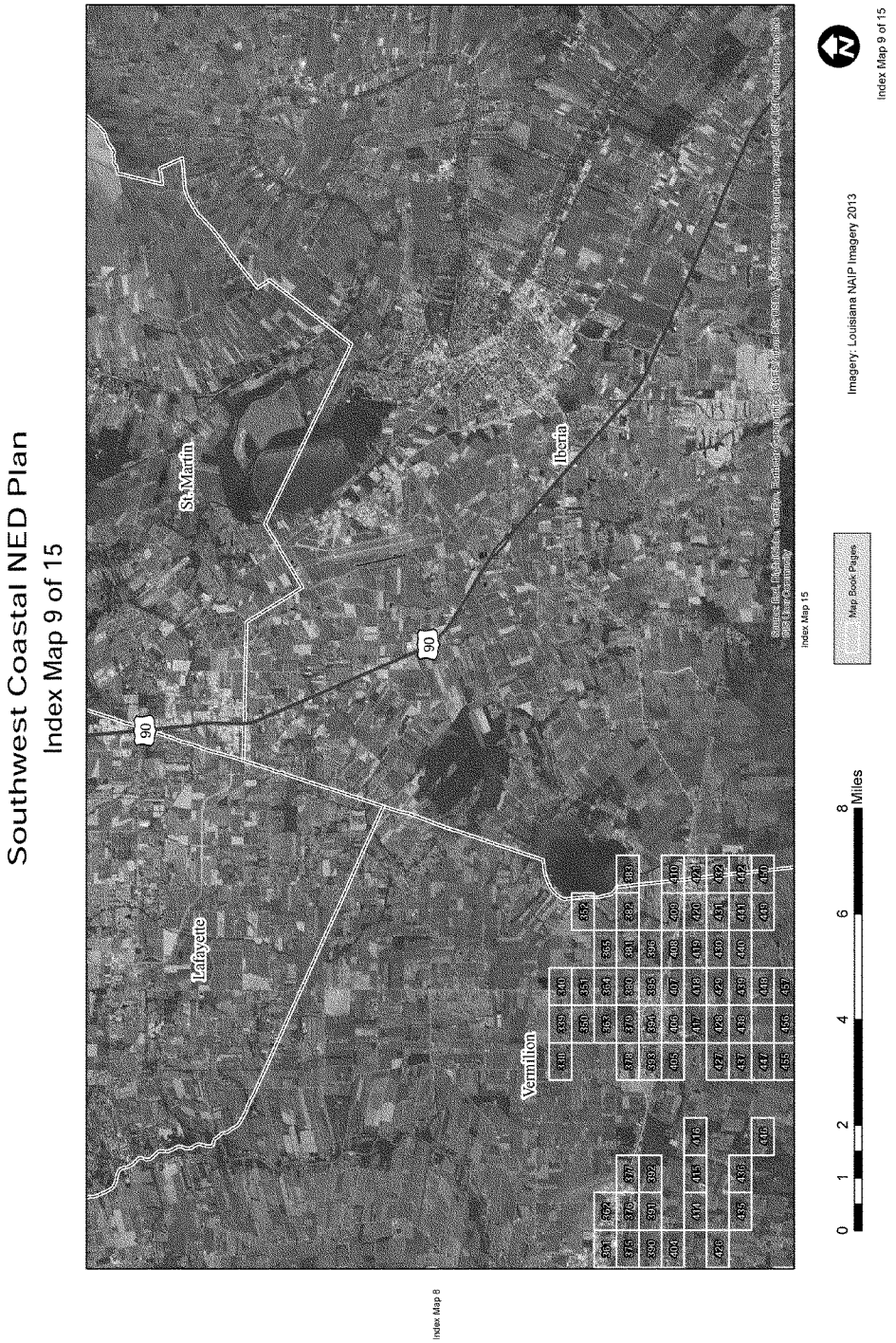
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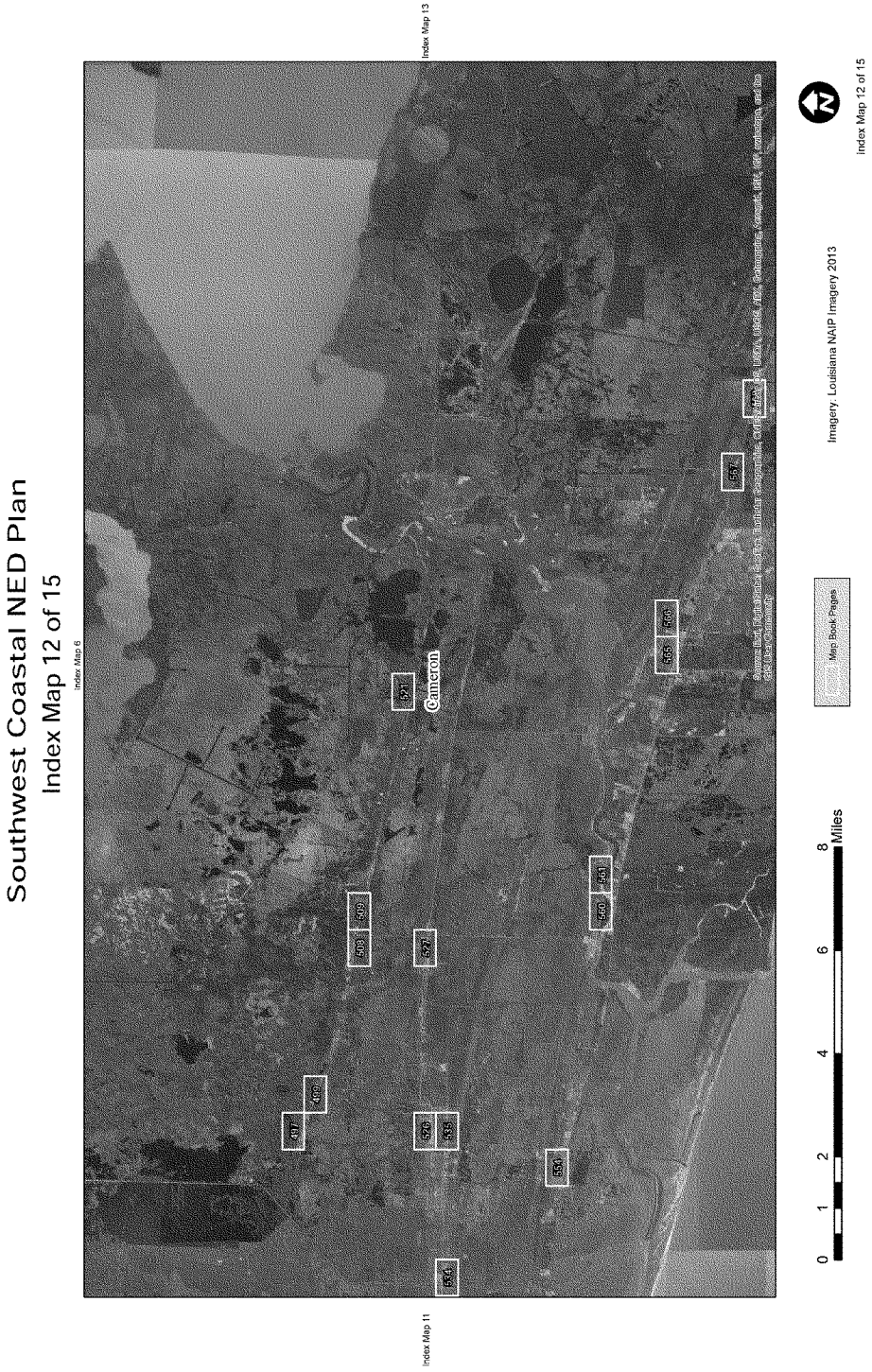
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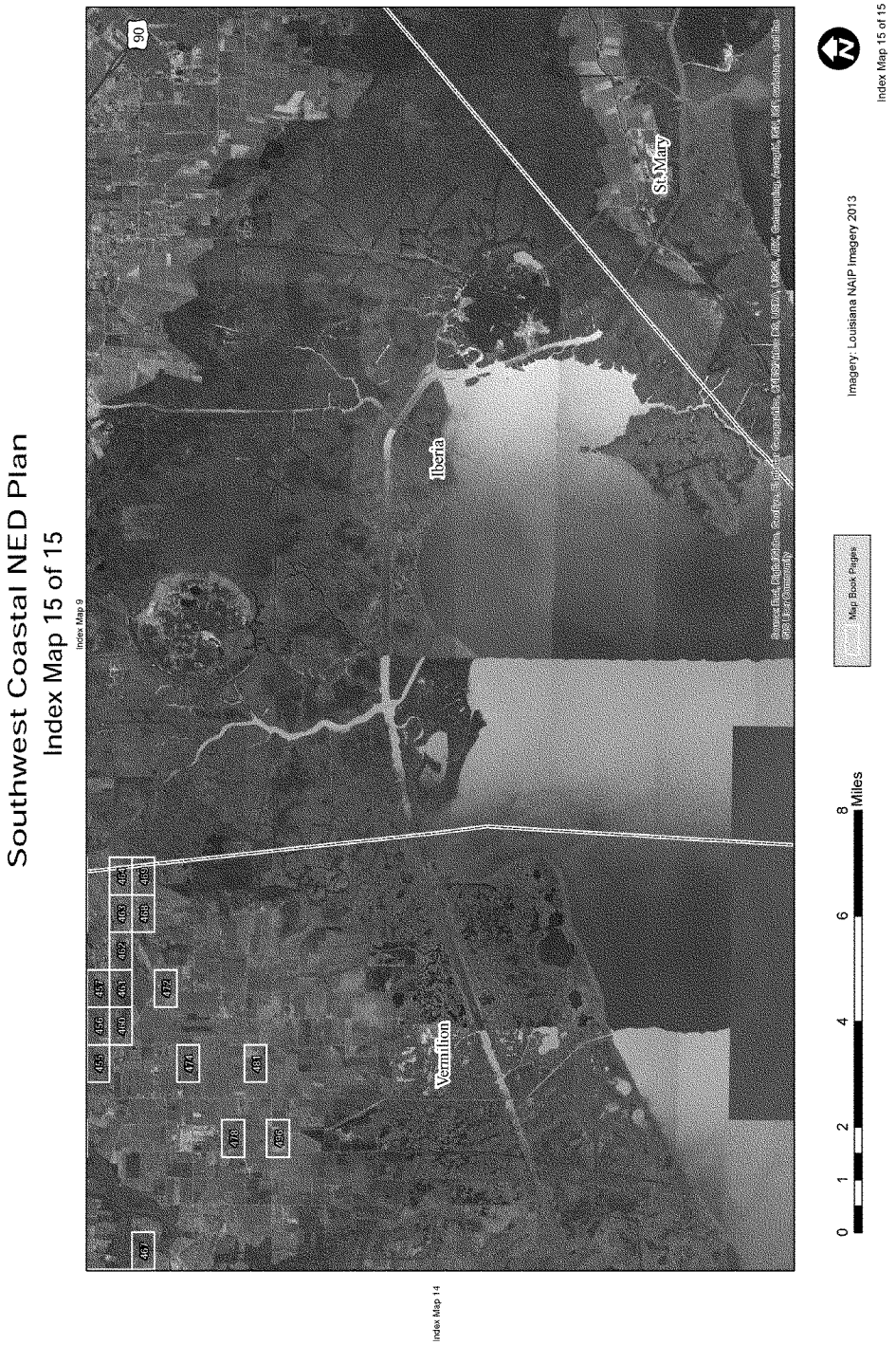
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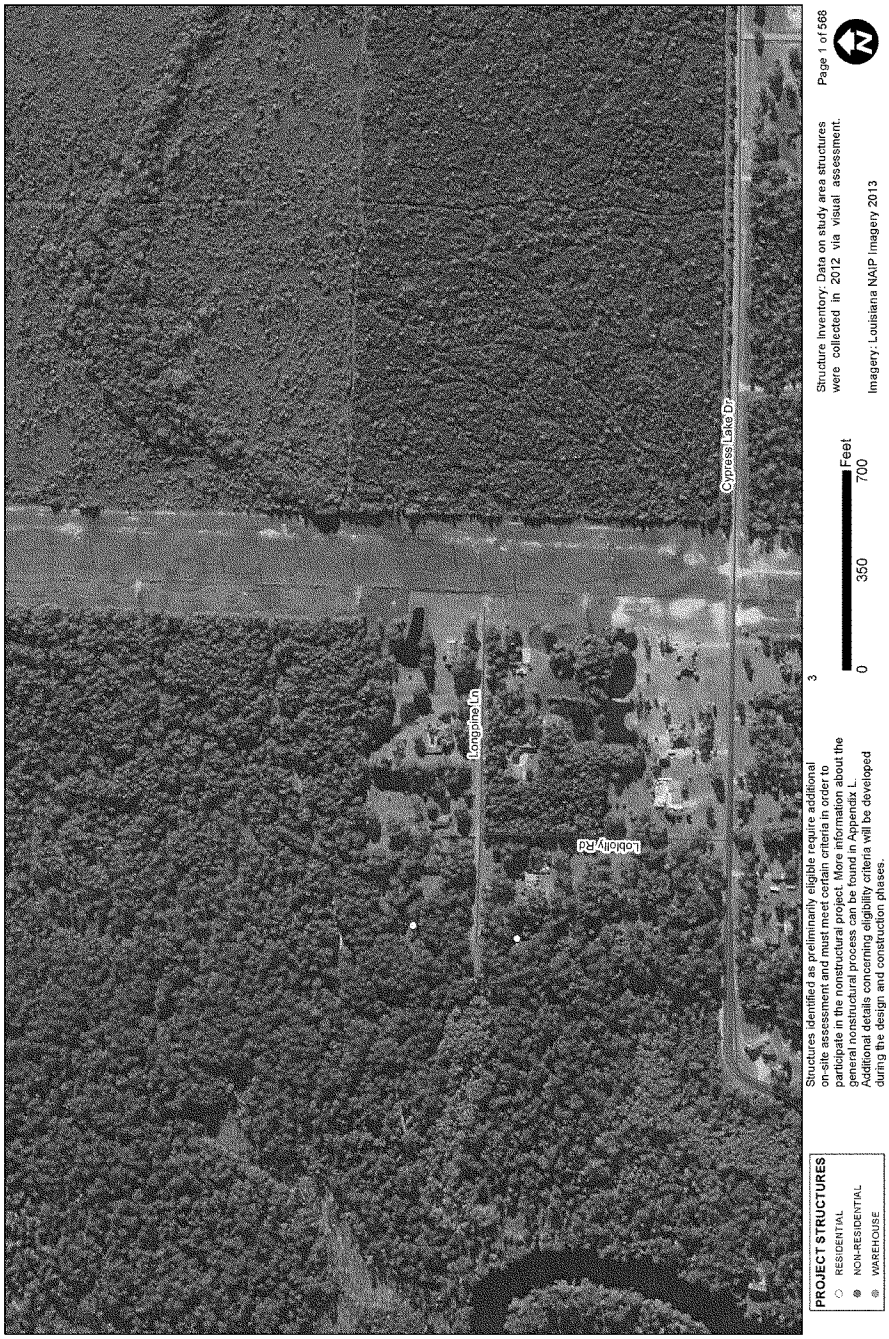

Southwest Coastal NED Plan

Southwest Coastal NED Plan

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PROJECT STRUCTURES

- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

6

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

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Southwest Coastal NED Plan
2
6
Cypress Lake Dr
Frank Parker Rd
Edwards Rd
Rigmaiden
Cecos Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
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Structure inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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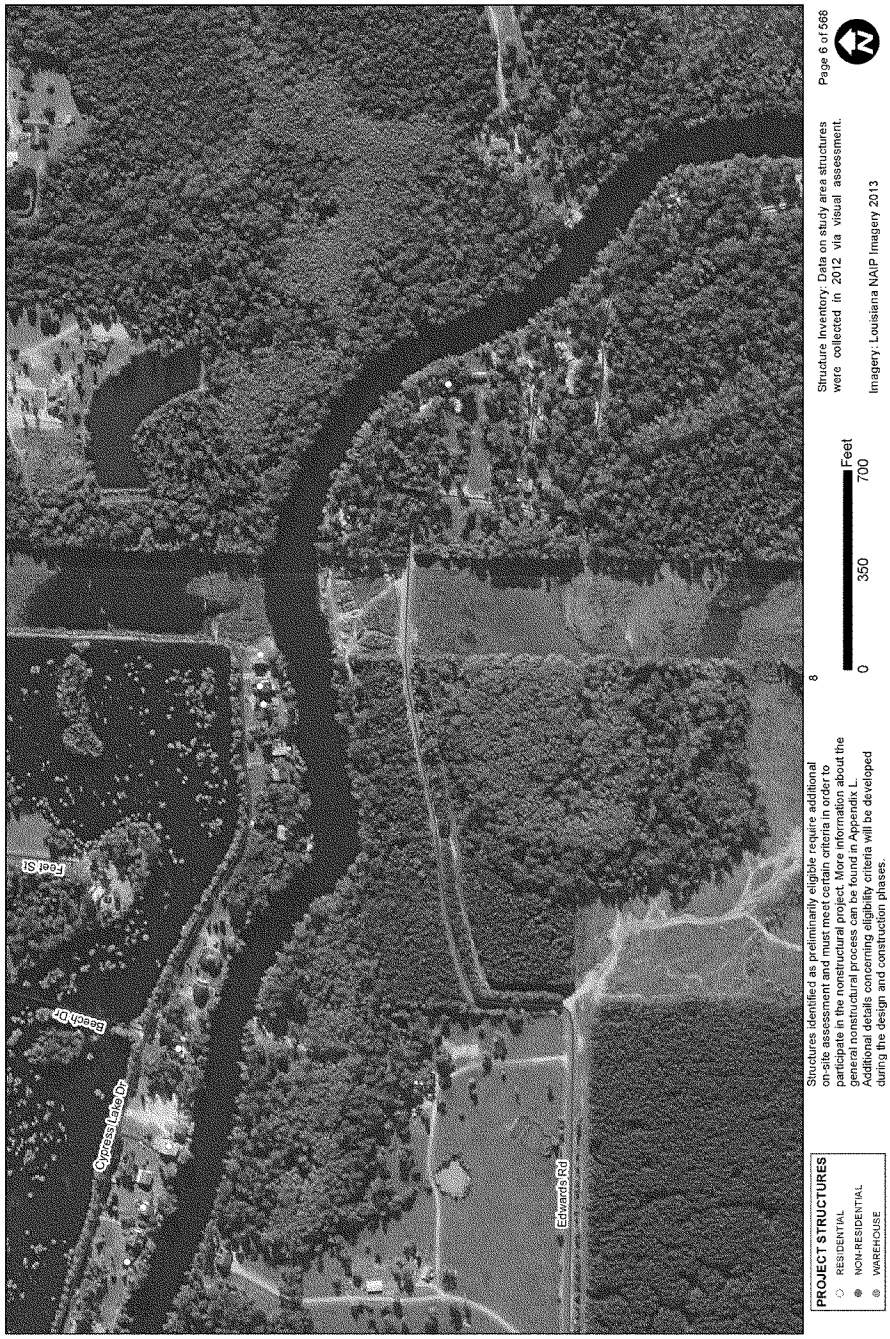
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Beech Dr
Cypress Lake Dr
Edwards Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
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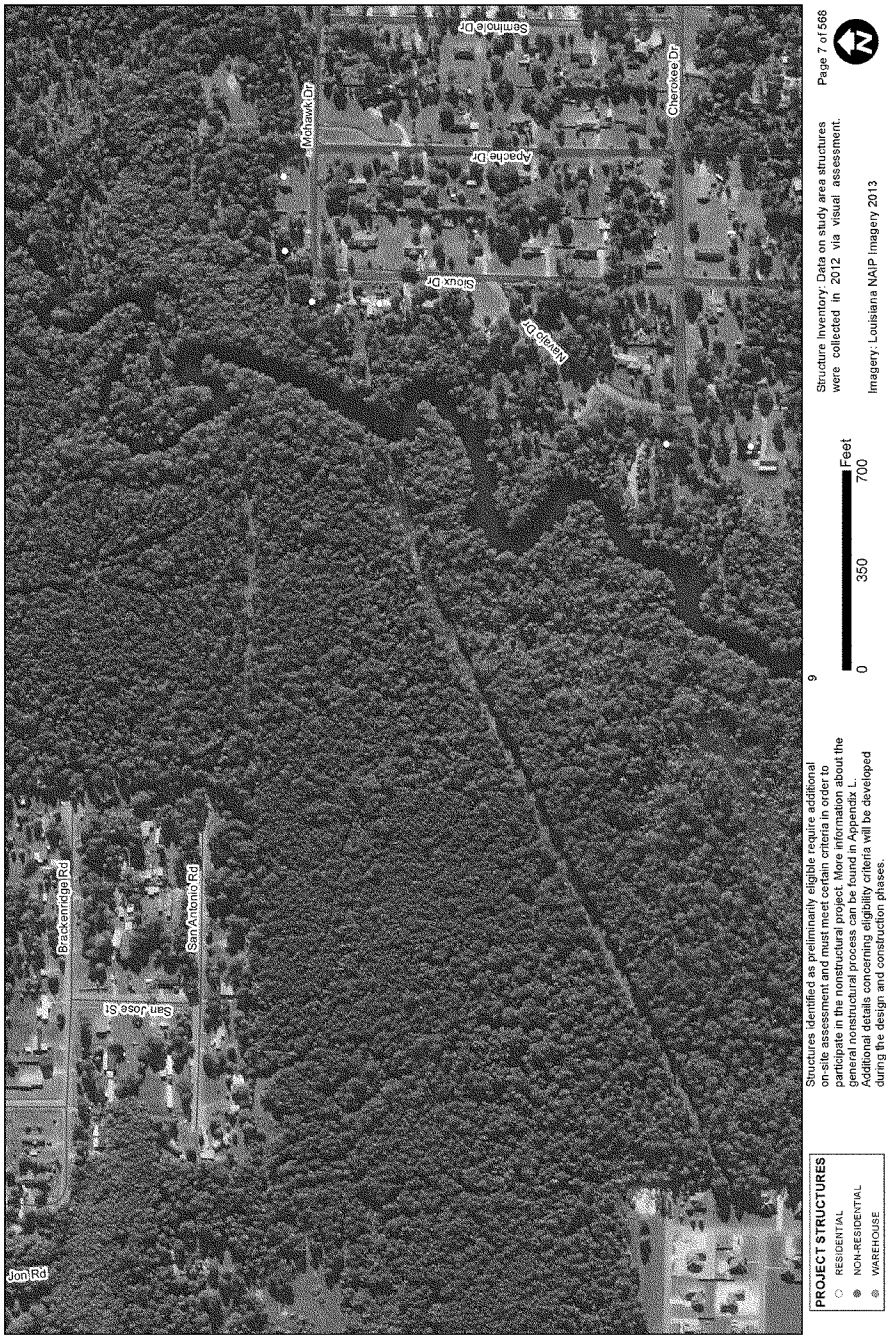

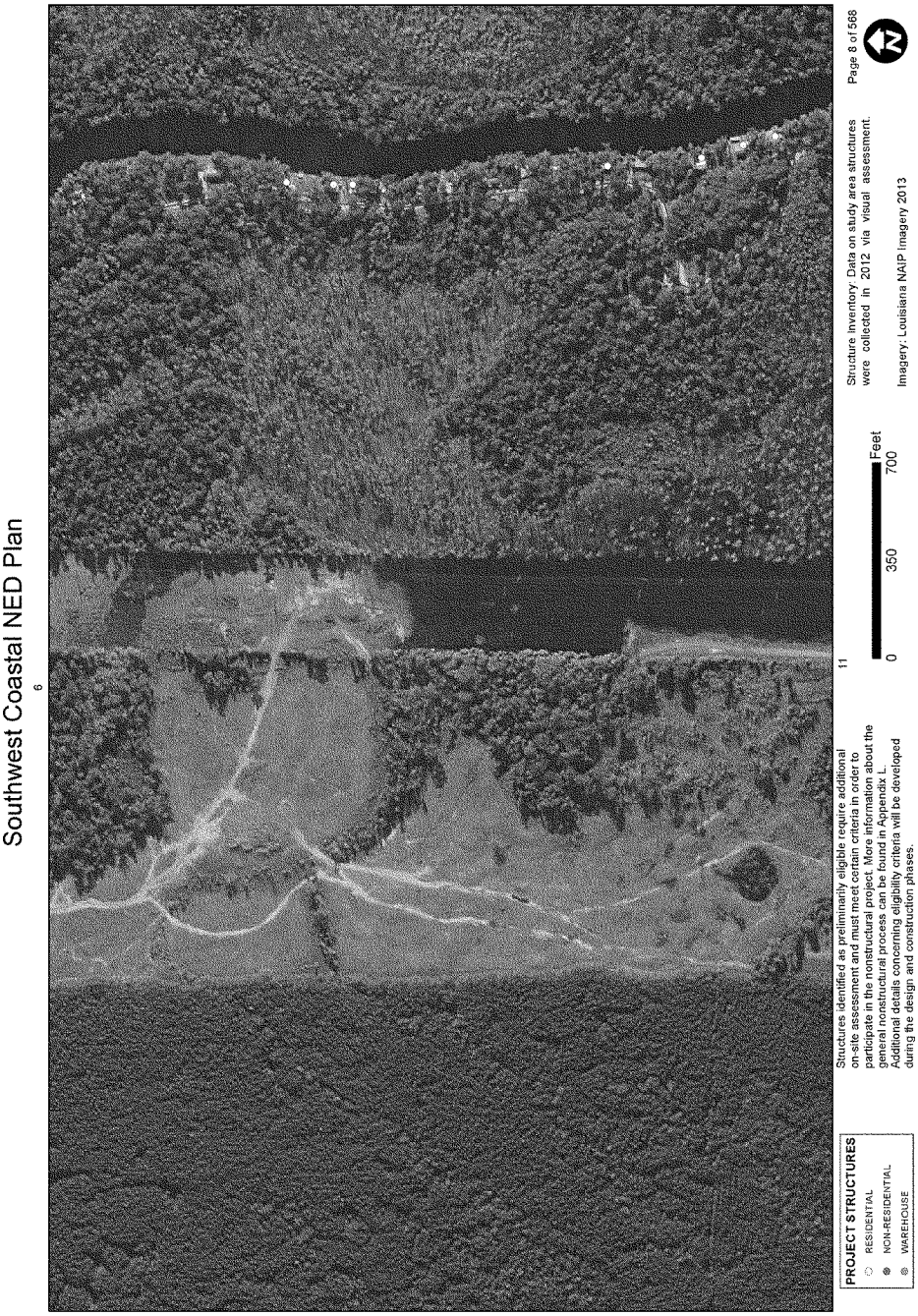
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PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
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Structure inventory Data on study area structures were collected in 2012 via visual assessment.
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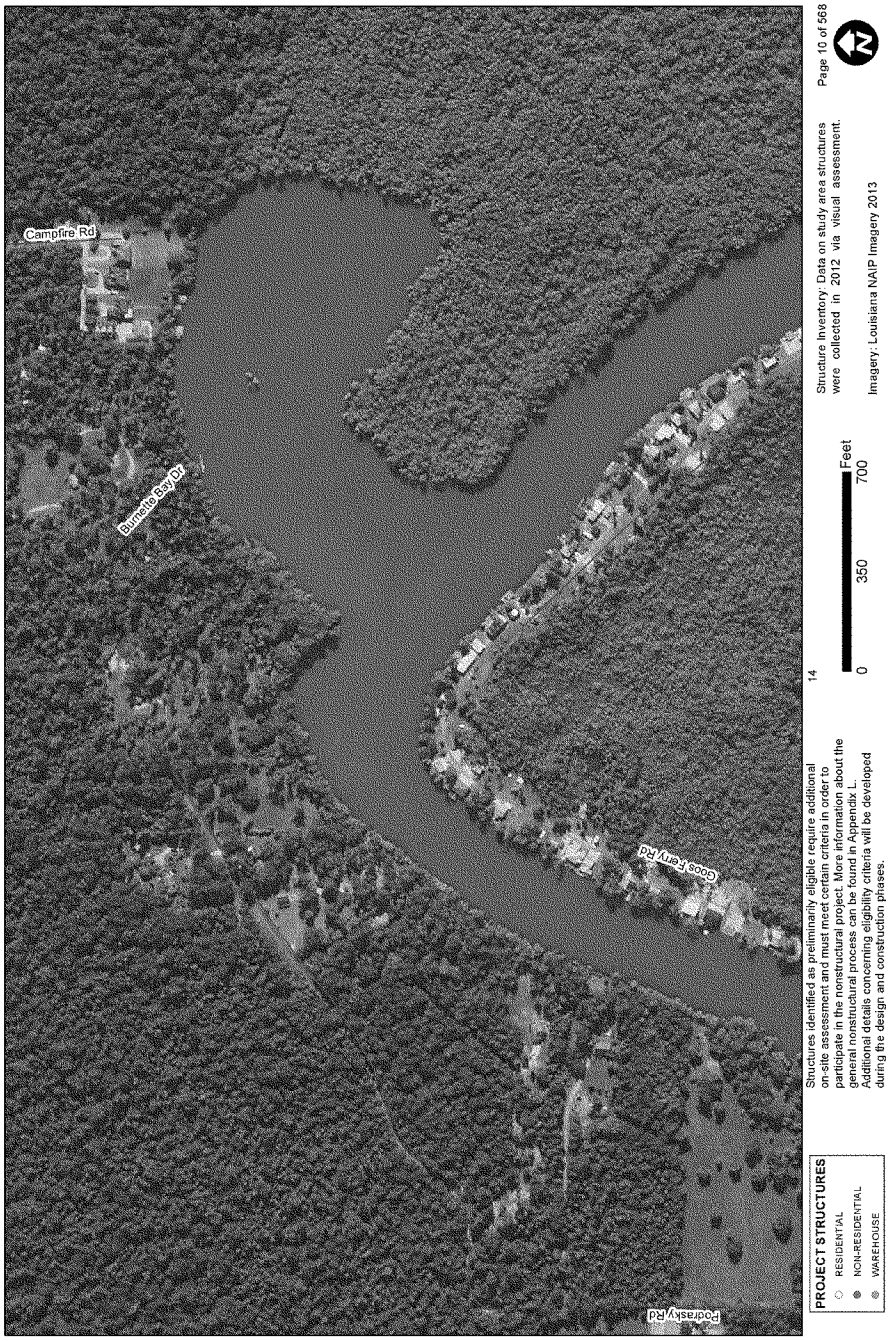
7
Cherokee Dr
Traxler St
Apache Dr
Sioux Dr
Pawnee Dr
Navajo Dr
Park Manor Cir
Park Manor Dr
Cousnatia Ln
Highway 378
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
12
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 9 of 568

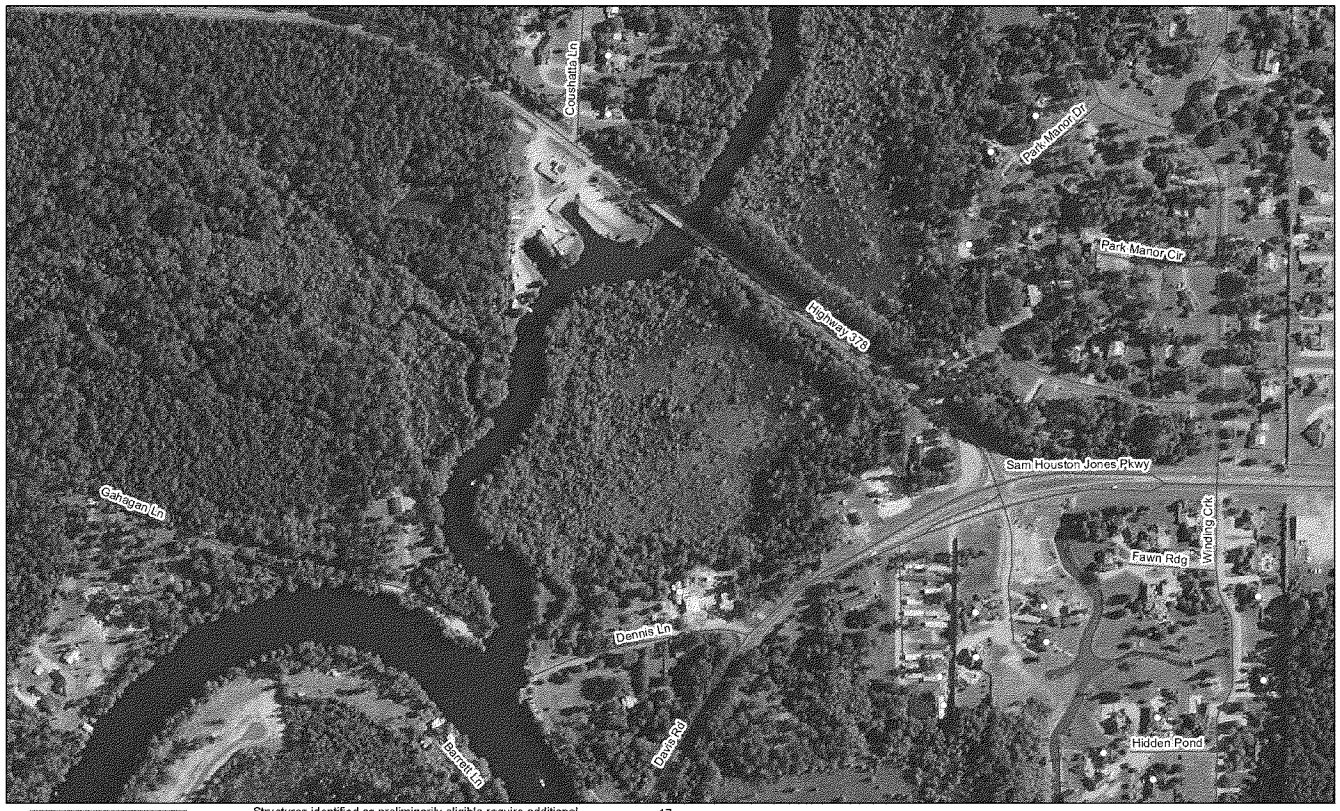
Southwest Coastal NED Plan



Southwest Coastal NED Plan
8
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 11 of 568

Southwest Coastal NED Plan

9



13

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

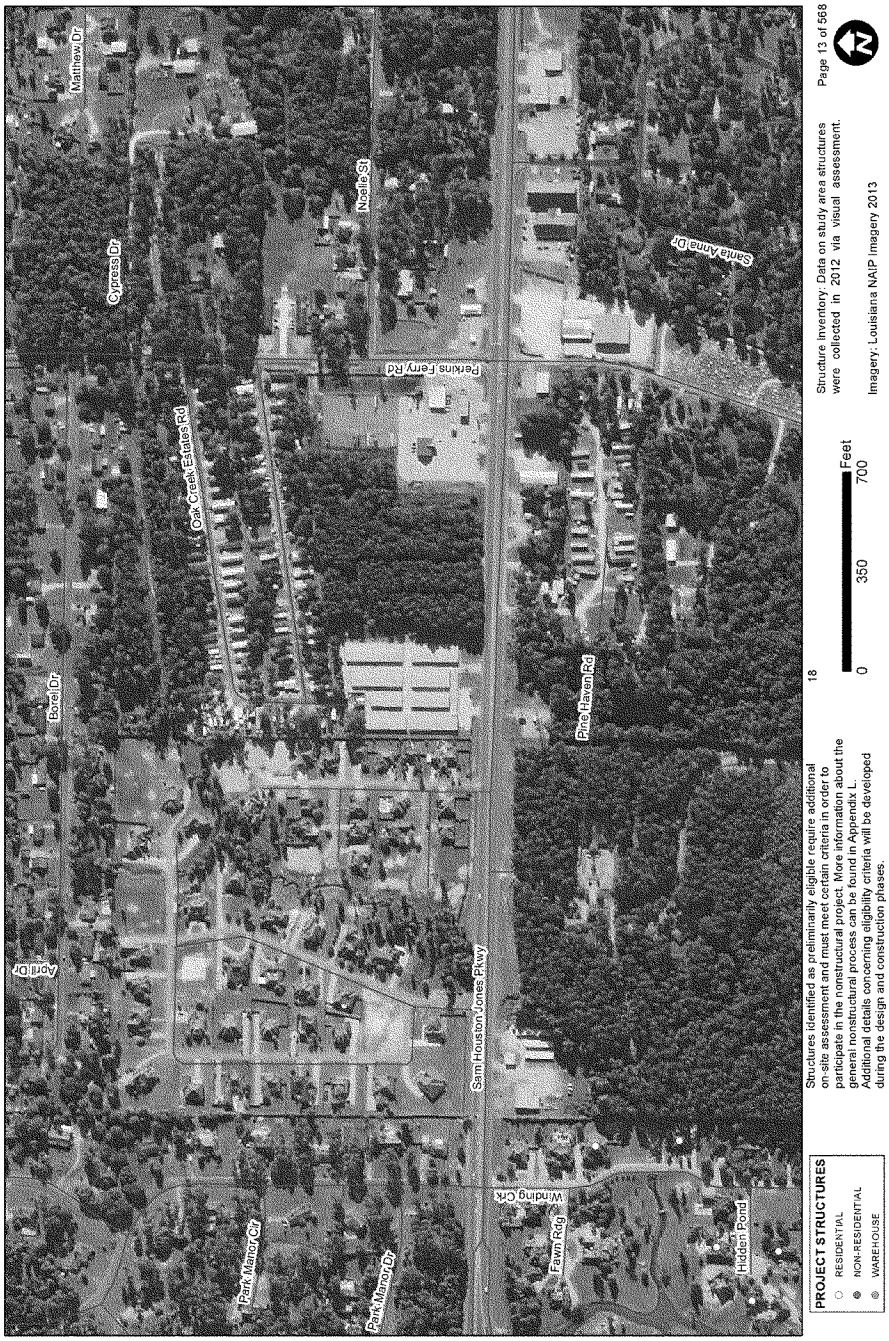
17

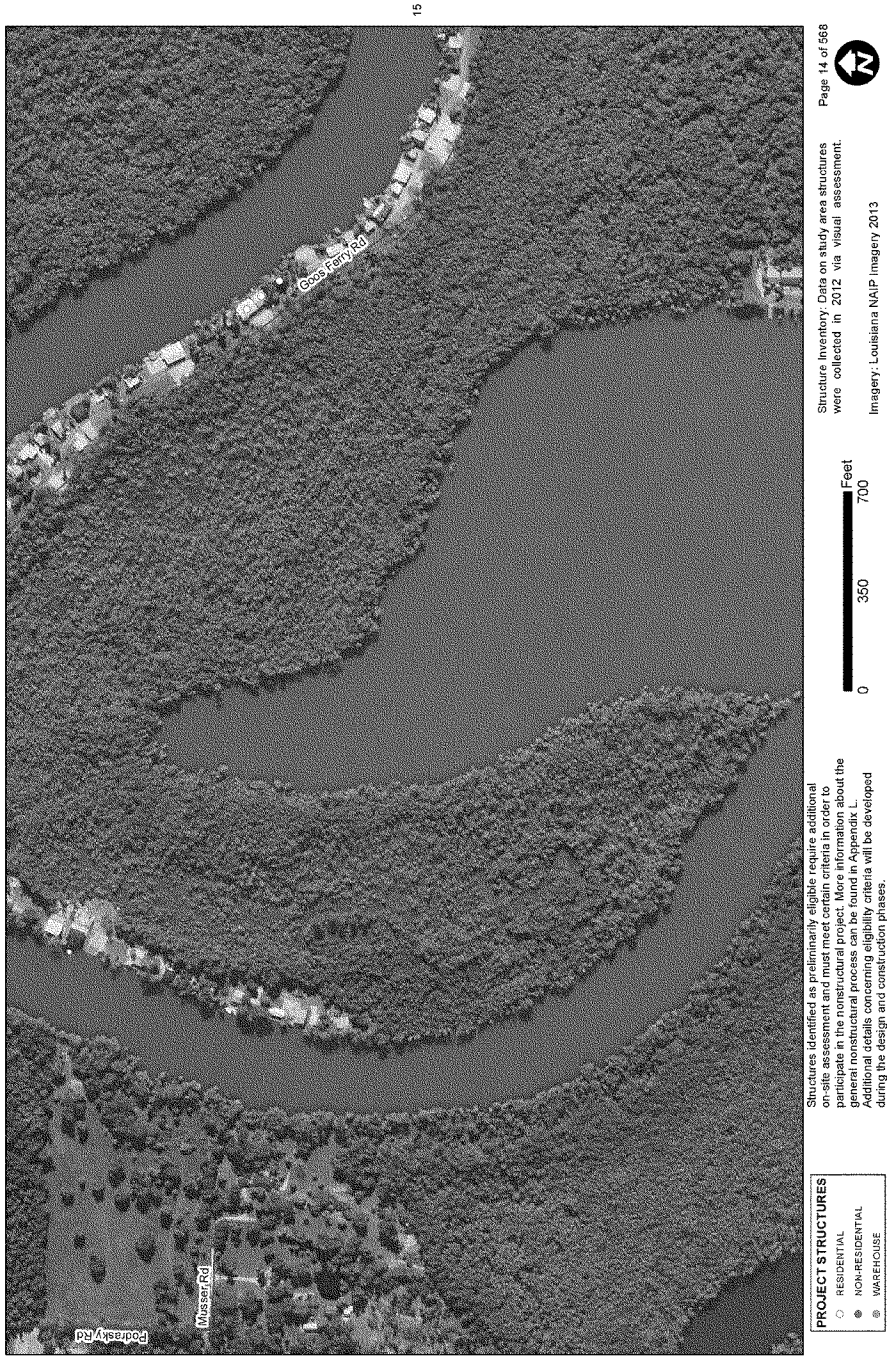
0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

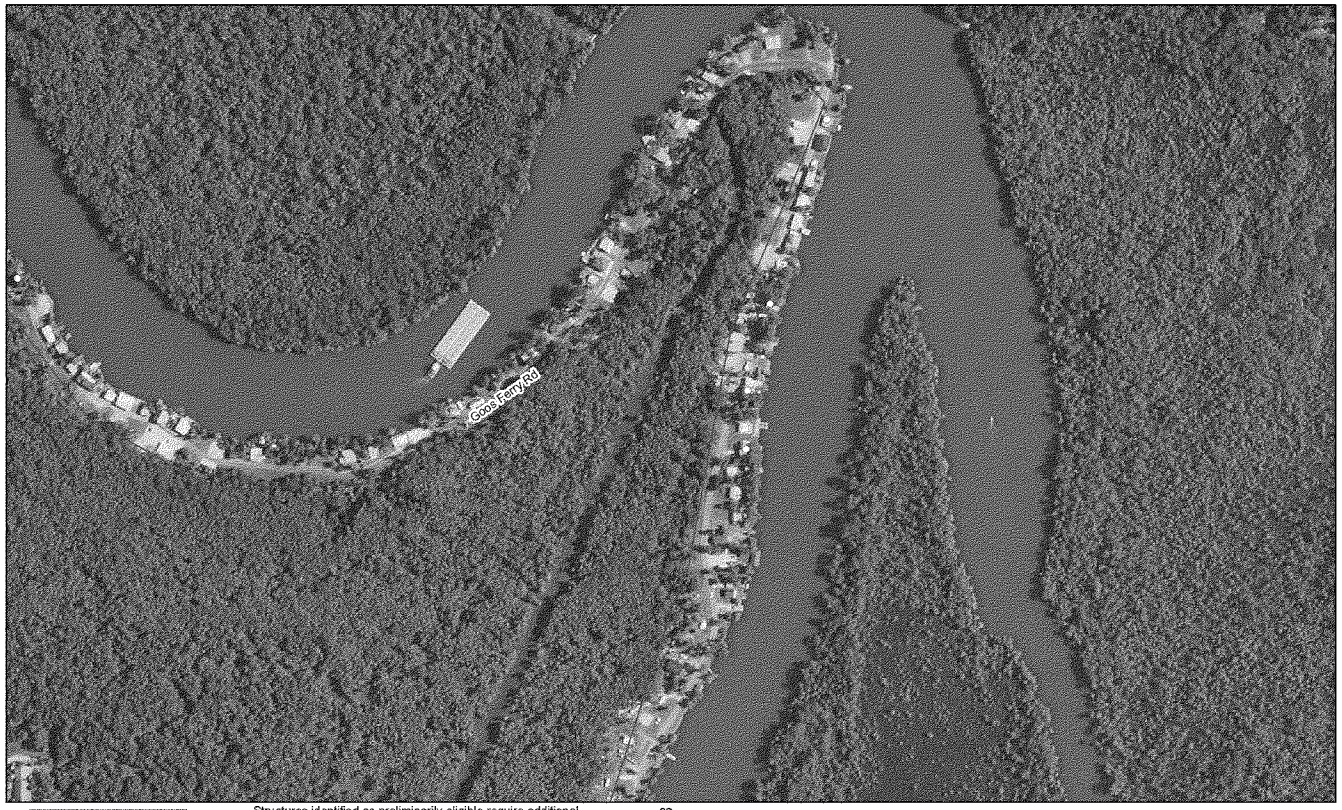
Imagery: Louisiana NAIP Imagery 2013

Southwest Coastal NED Plan




Southwest Coastal NED Plan
10
15
Podrasky Rd
Masser Rd
Goos Ferry Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 14 of 568

Southwest Coastal NED Plan



14

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

22

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Southwest Coastal NED Plan

Southwest Coastal NED Plan
12
18
51
Winding Crk
Barrett Ln
River Bluff Dr
Davis Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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Southwest Coastal NED Plan

13

17

19

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

52

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Southwest Coastal NED Plan
20
18
Santa Anna Dr
Santa Anna Dr
Salangs Rd
Jones Rd
Thelma Ln
Fehnstein Rd
Emile Rd
Maude Rd
Bozo Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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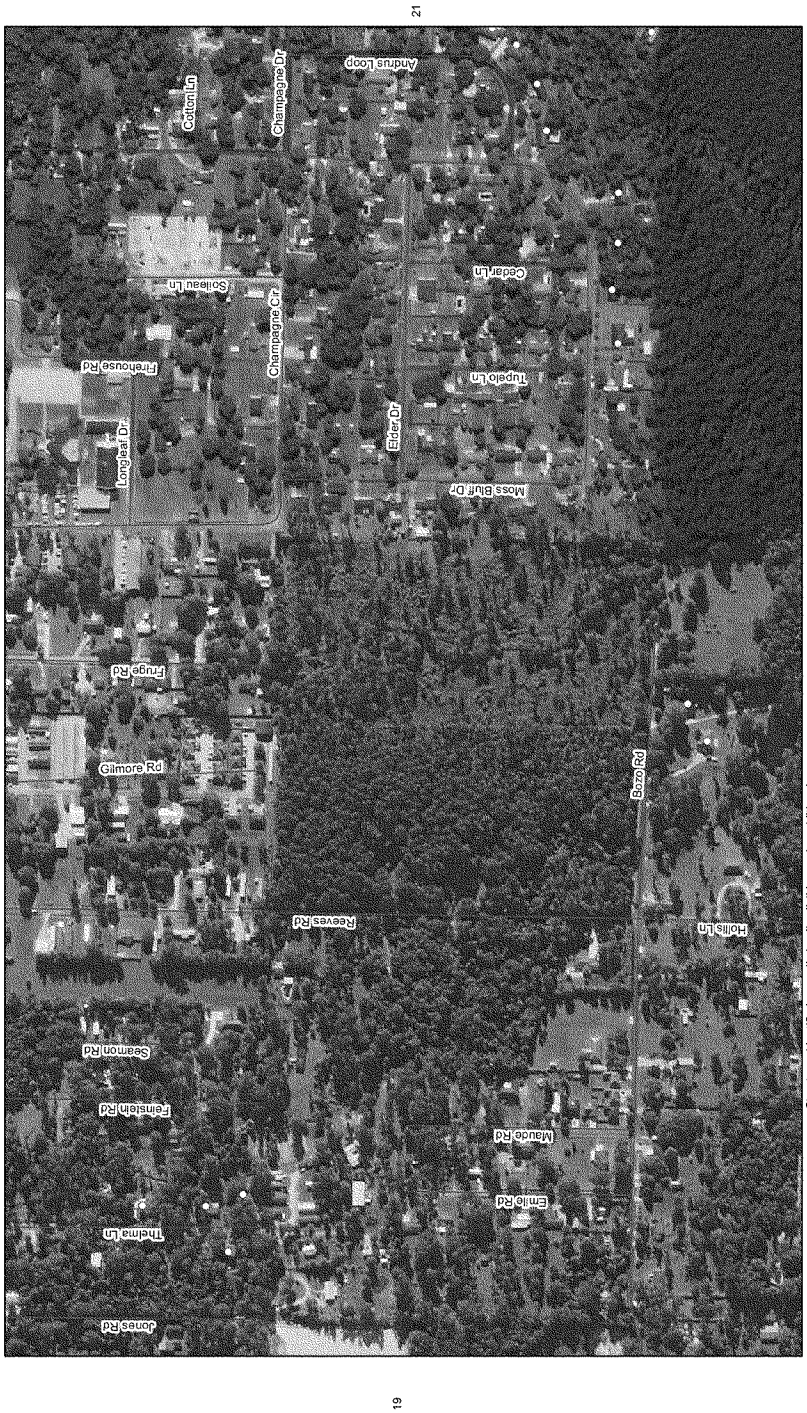
Southwest Coastal NED Plan
21
19
53
Jones Rd
Thelma Ln
Emile Rd
Maude Rd
Fernbelt Rd
Seamon Rd
Reeves Rd
Gilmore Rd
Fruge Rd
Longleaf Dr
Firehouse Rd
Soileau Ln
Champagne Dr
Champagne Cir
Cotton Ln
Andrus Loop
Cedar Ln
Tupelo Ln
Elder Dr
Moss Bluff Dr
Bozo Rd
Hollis Ln
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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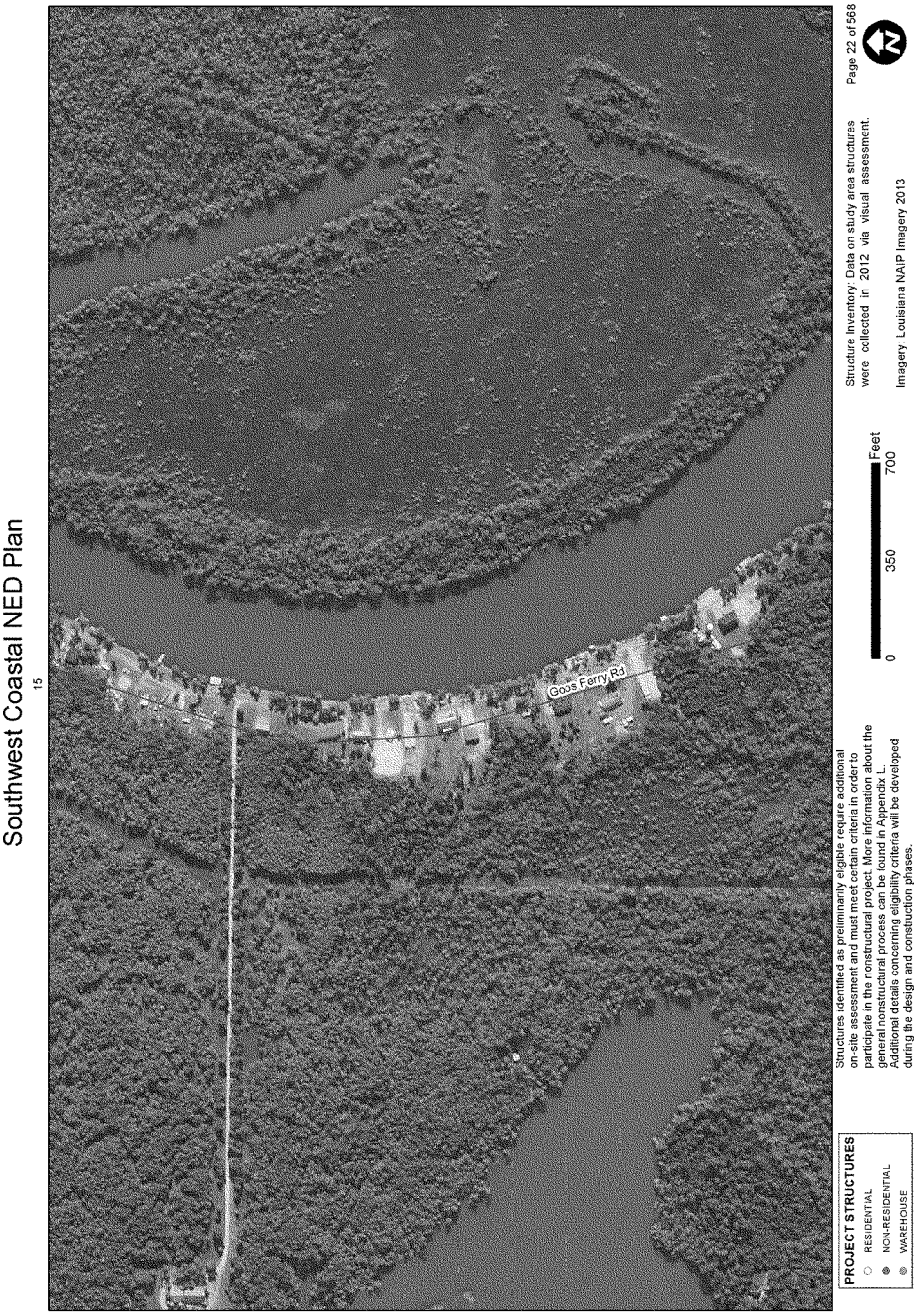
Southwest Coastal NED Plan
Pete Dantez Rd
Highway 171
Old Highway 171
171
Sid Ln
Bruce Cir
Lillie Burns Dr
White Oak Cir
White Oak Dr
Champagne Dr
School St
Champagne Dr
Cotton Ln
Champagne Cir
Andrus Loop
Moss Bluff Dr
Elder Dr
Cedar Ln
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 21 of 568
20


Southwest Coastal NED Plan
15
Goos Ferry Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 22 of 568
N

Southwest Coastal NED Plan
51
24
26
Davis Rd
Roberts Rd
Curelon Rd
Neely Rd
Phillips Rd
Fontenot Rd
McGuire Rd
Olin Rd
Morning Glory Ln
Honeysuckle Ln
Amaryllis Dr
Poinciana Ln
Oleander Ln
Delton Rd
Ann Terrace Ave
Pat Ave
Debra Ln
Jerrie Ave
Charlotte Ave
Imelda St
Charlotte Ave
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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Southwest Coastal NED Plan

52

23

25

27

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

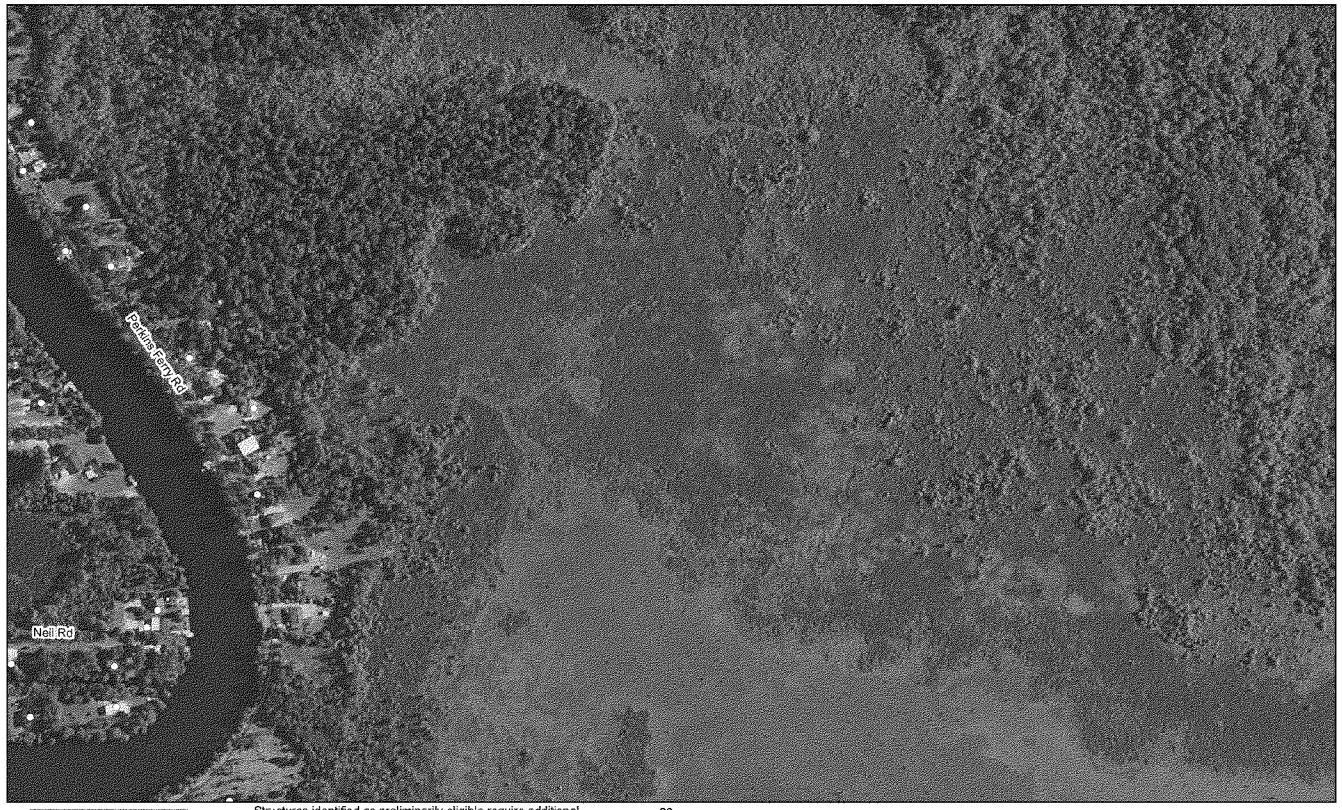
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Southwest Coastal NED Plan



24

28

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Southwest Coastal NED Plan
23
27
McGuire Rd
Kirk Dr
Olin Rd
Davis Rd
Houston Dr
Debra Ln
Imelda St
Charlotte Ave
Fletcher Rd
Alecco St
Crockett St
Travis St
Bowie St
Rue Dr
Wayside Dr
Dick Hayes Rd
Hudson Dr
Arthur St
Carlock Rd
Herebord Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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Southwest Coastal NED Plan

24

26

28

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

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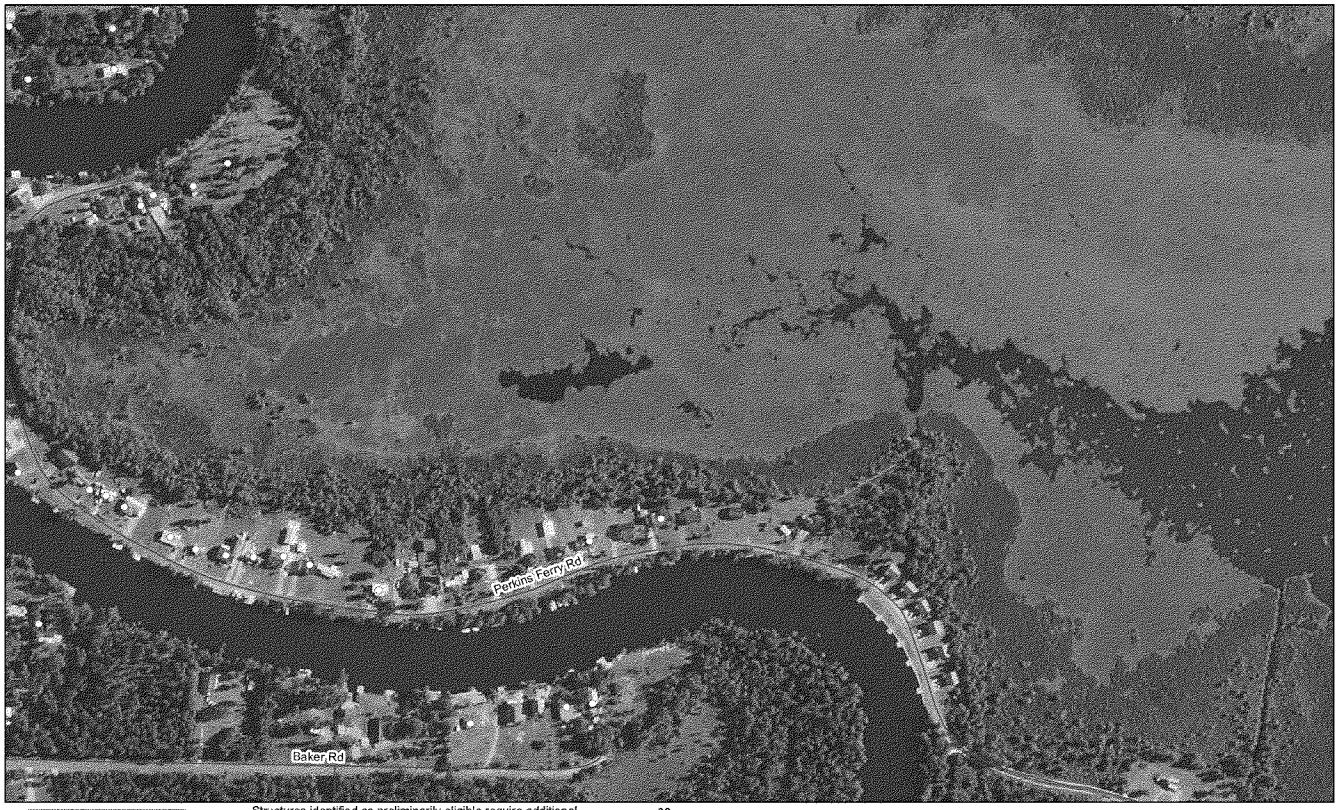
N

Southwest Coastal NED Plan

25

27



PROJECT STRUCTURES

- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

30

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Southwest Coastal NED Plan

Southwest Coastal NED Plan
28
34
Baker Rd
Bay Forest Dr
Bayou
Perkins Ferry Rd
Wetlakes Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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Southwest Coastal NED Plan

29

PROJECT STRUCTURES

- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

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Southwest Coastal NED Plan

Southwest Coastal NED Plan

32

Southwest Coastal NED Plan
30
Green Forest Rd
Forest Way Blvd
Forest Way Dr
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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N

Southwest Coastal NED Plan
32
36
Garden Dr
Hickman St
Live Oak St
Shady Ln
Ann St
Bee Tree St
Jones St
Pine St
McCloud St
Shafer St
Sampson St
Loftin St
Duke St
Garlin Dr
Palm Rd
Matilda St
Mahoney St
Hilma St
Beech St
des Chenes
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP imagery 2013
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Southwest Coastal NED Plan

33

35

37

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

39

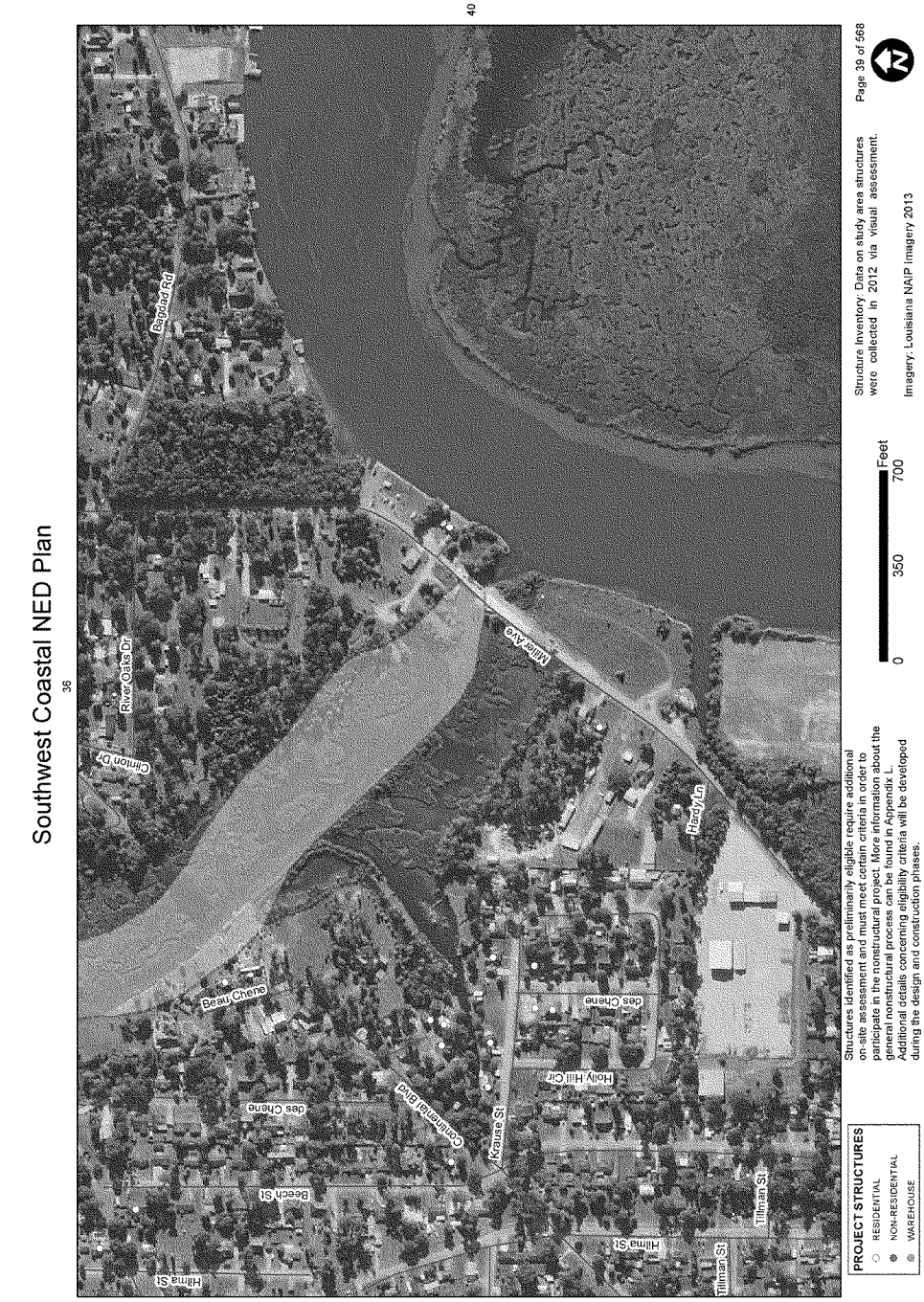
0 350 700 Feet

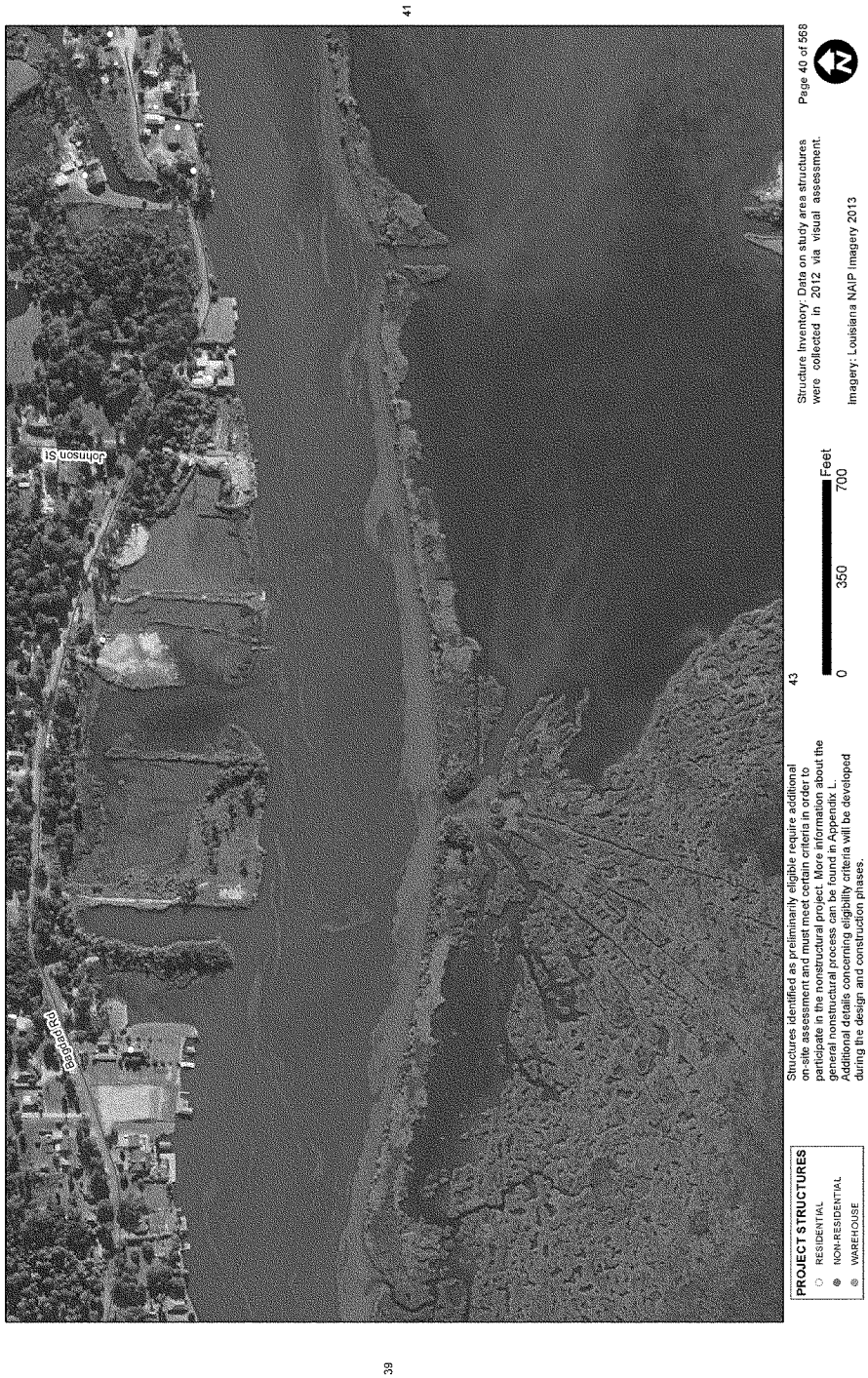
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

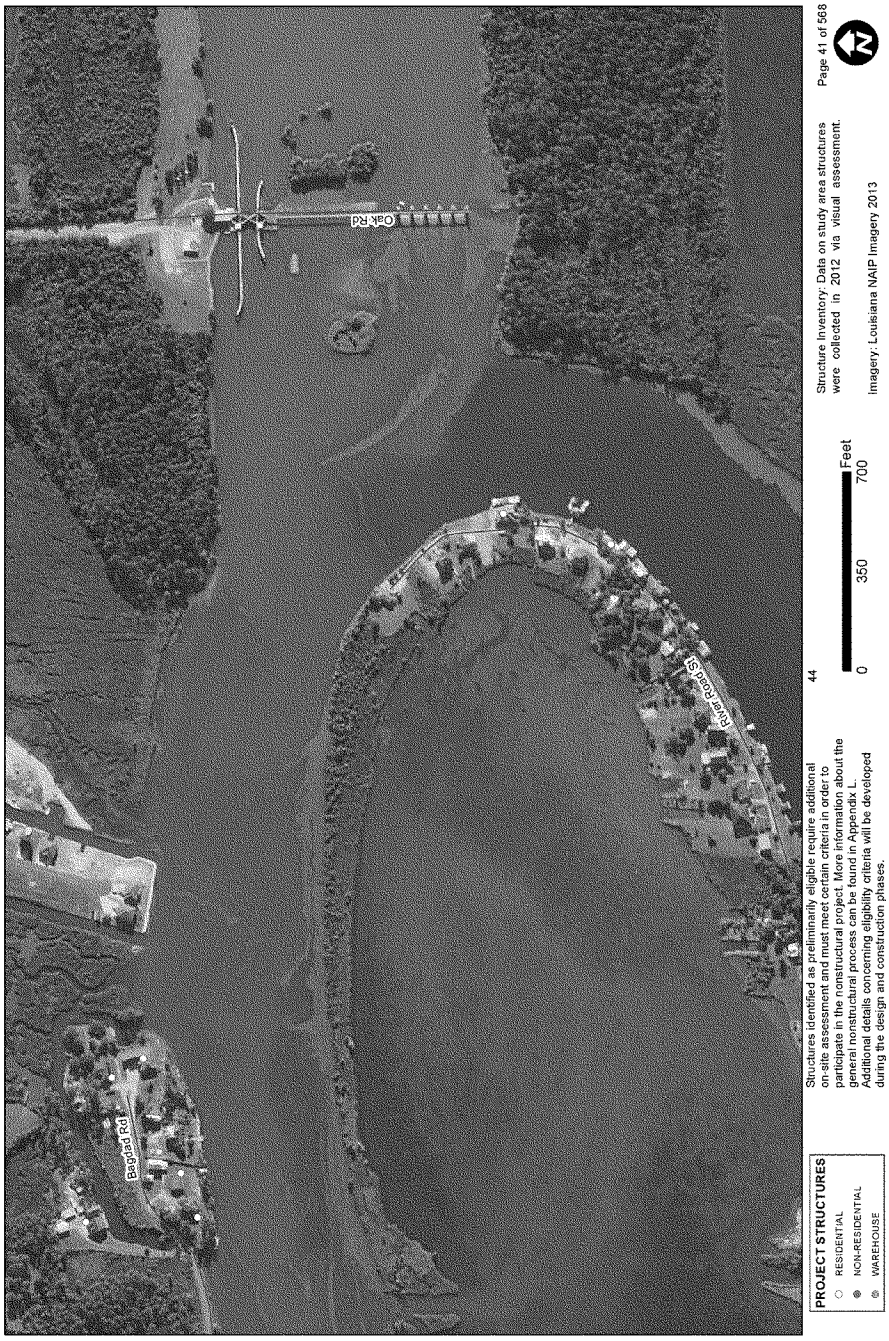
Southwest Coastal NED Plan
Stiffel Rd
John Fralor Rd
Green Forest Rd
Forest Way Blvd
Mims Rd
Paul Johnson Sr
Johnson St
Bagdad Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
40
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 37 of 568
36

Southwest Coastal NED Plan


Southwest Coastal NED Plan
36
40
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 39 of 568
Baptist Rd
River Oaks Dr
Clinton Dr
Beau Chene
des Chene
Beech St
Hilma St
Continental Blvd
Krause St
Holly Hill Cir
Miller Ave
Hardy Ln
Tillman St


Southwest Coastal NED Plan
37
41
39
43
Johnson St
Eastern Ave
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 40 of 568

Southwest Coastal NED Plan



Southwest Coastal NED Plan

38

Southwest Coastal NED Plan
40
44
47
River Road St
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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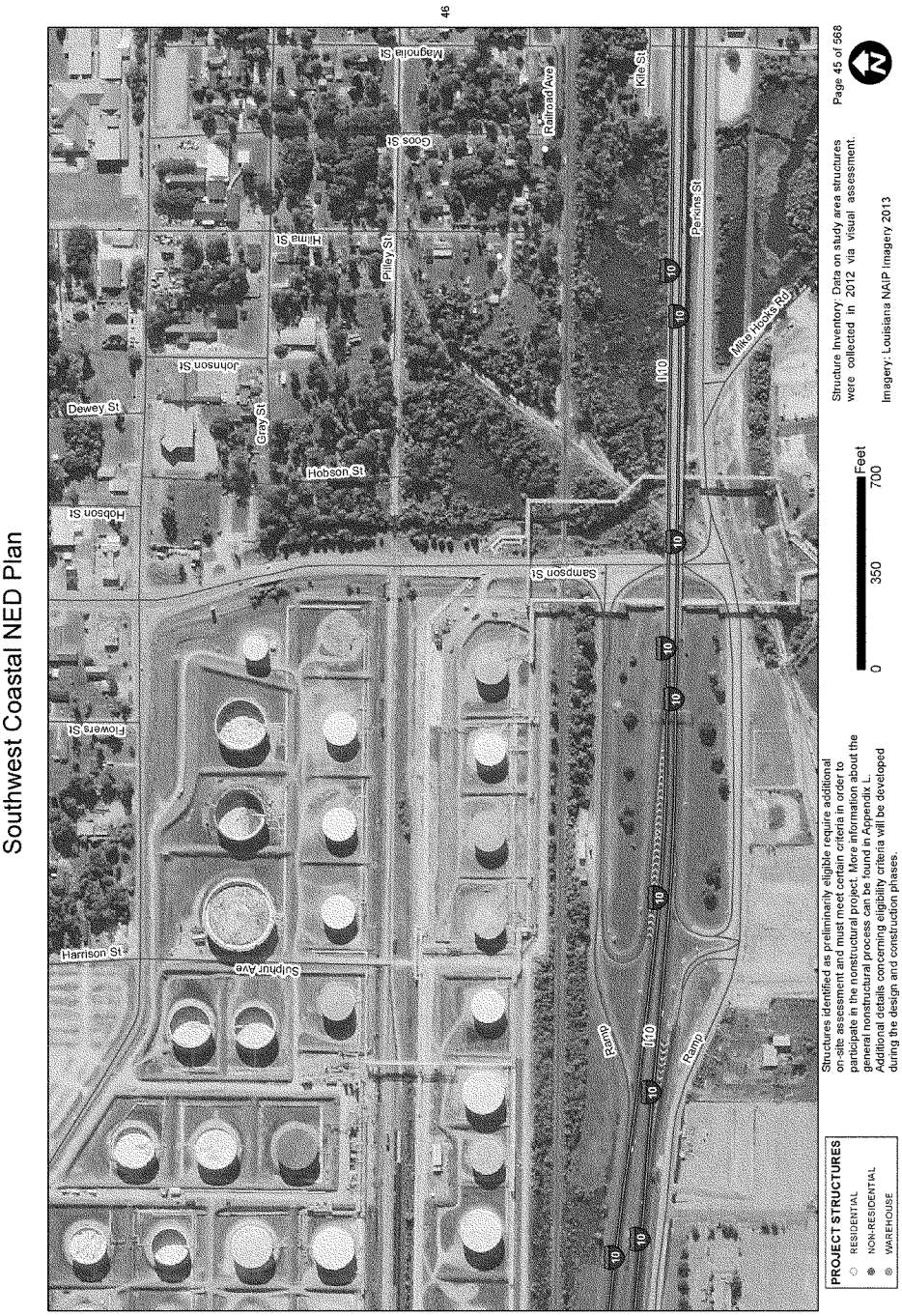
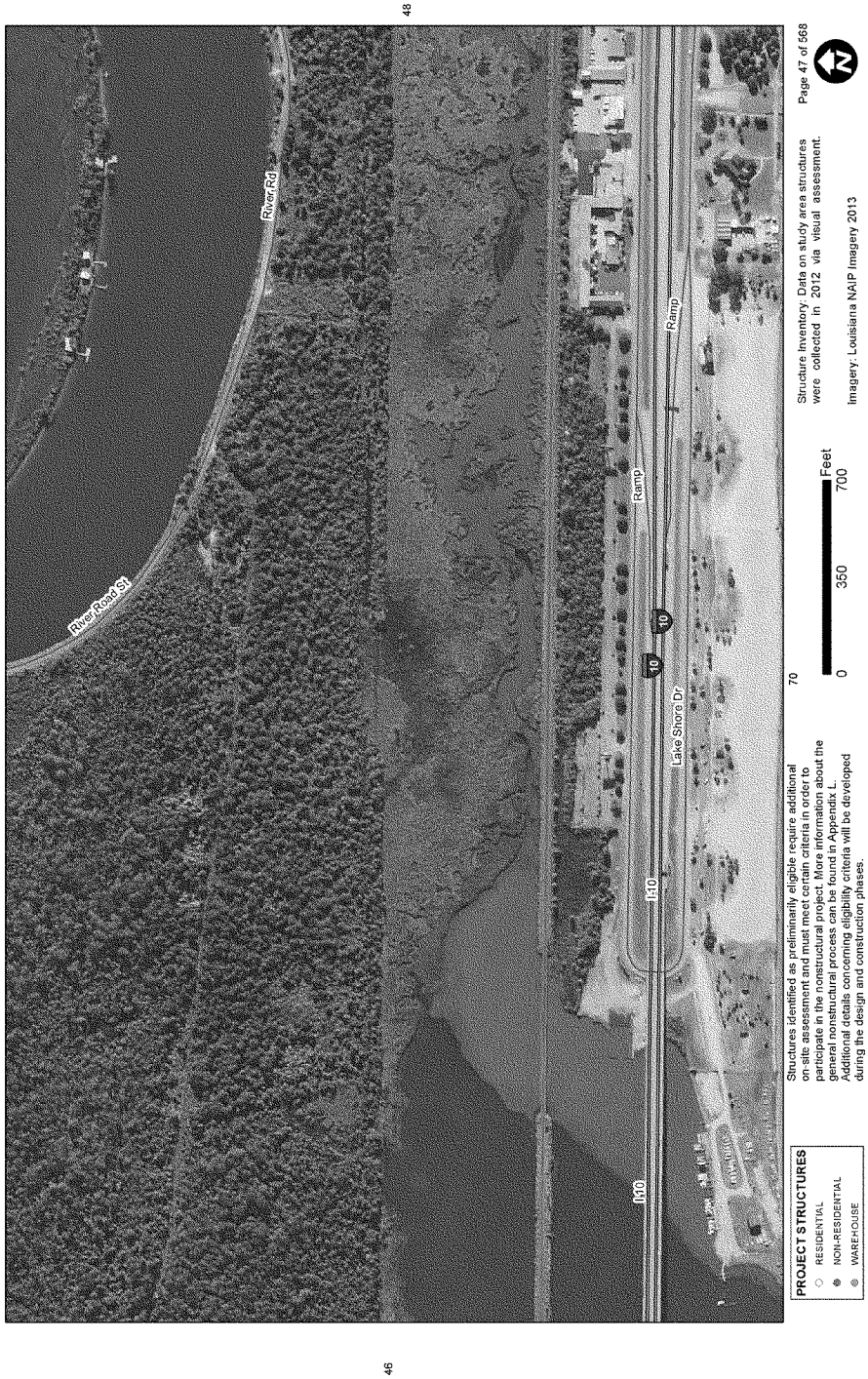
Southwest Coastal NED Plan
41
43
48
River Road St
River Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 44 of 568


46
Southwest Coastal NED Plan
Harrison St
Sulphur Ave
Flowers St
Hobson St
Dewey St
Johnson St
Gray St
Hobson St
Hilma St
Pilley St
Magnolia St
Goos St
Railroad Ave
Kile St
Perkins St
Mike Hooks Rd
Sampson St
I10
Ramp
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 45 of 568

Southwest Coastal NED Plan
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
0
350
700
Feet
Page 46 of 568
Riverside Dr
Stella St
Sulphur Ave
Gray St
Hilma St
Goos St
Pilley St
Magnolia St
Miller Ave
Railroad Ave
Westlake Ave
Kile St
Megason Ln
Perkins St
I-10


Southwest Coastal NED Plan
River Road St
River Rd
I-10
Lake Shore Dr
Ramp
Ramp
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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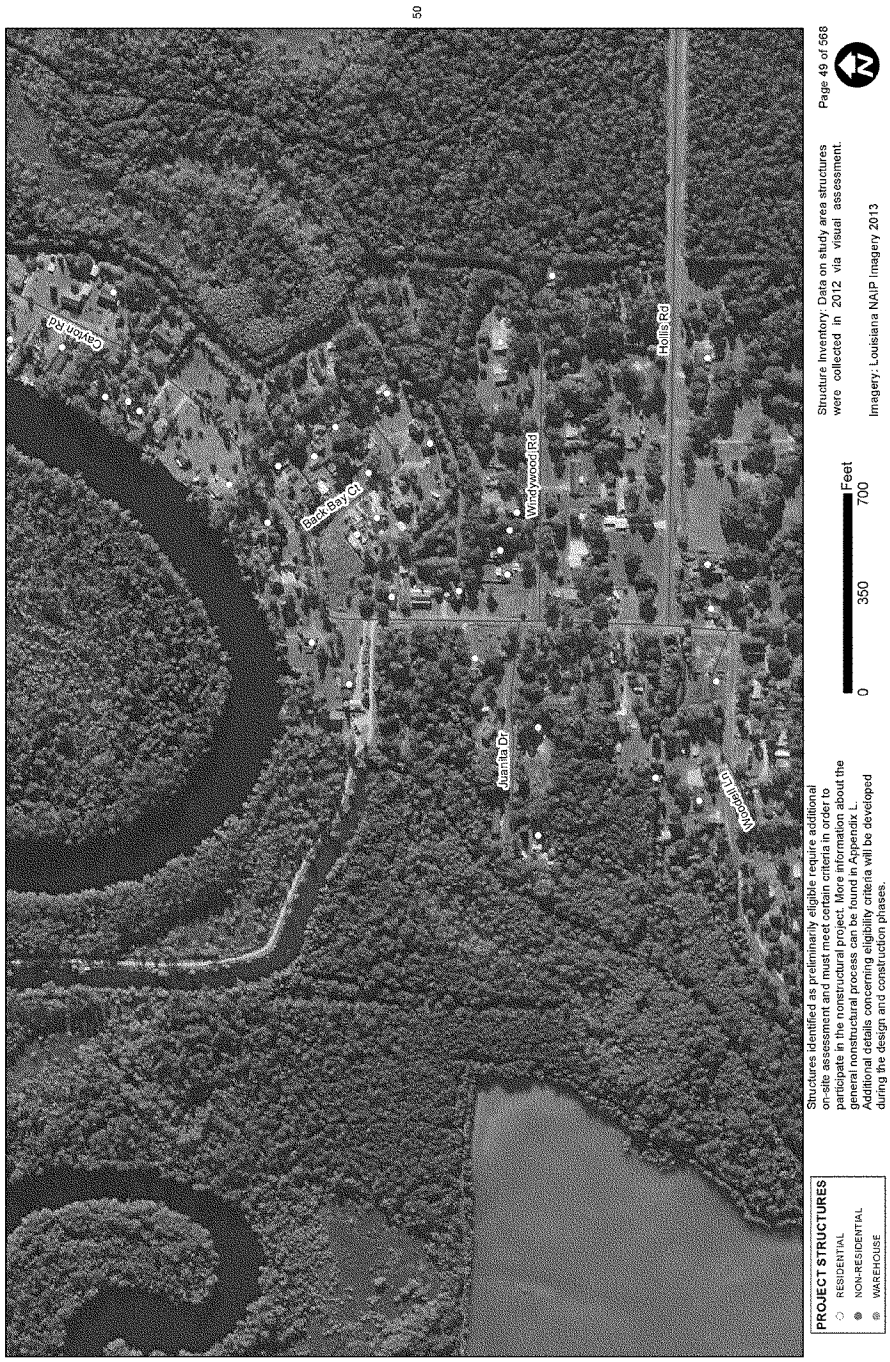
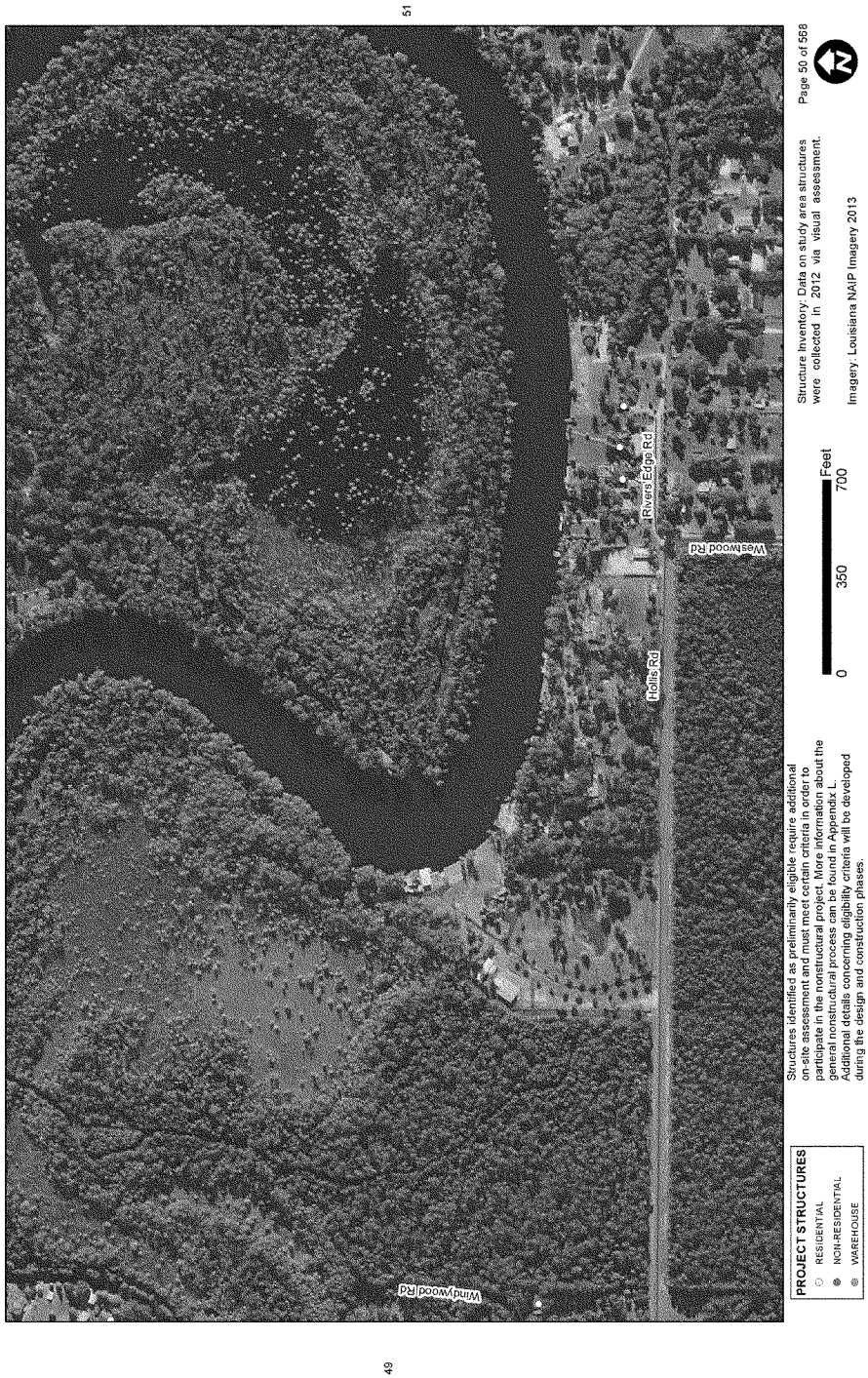
Southwest Coastal NED Plan
44
47
River Rd
Lake Shore Dr
I-10
Ramp
Jackson St
Railroad Ave
Ryan St
Church St
Front St
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
71
0
350
700
Feet
Structure Inventory Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 48 of 568


Southwest Coastal NED Plan
16
50
Ceylon Rd
Back Bay Ct
Windywood Rd
Hollis Rd
Juanita Dr
Woodall Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 49 of 568


Southwest Coastal NED Plan
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 50 of 568
Windwood Rd
Hollis Rd
Rivers Edge Rd
Westwood Rd
49
51

Southwest Coastal NED Plan

17

50

52

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

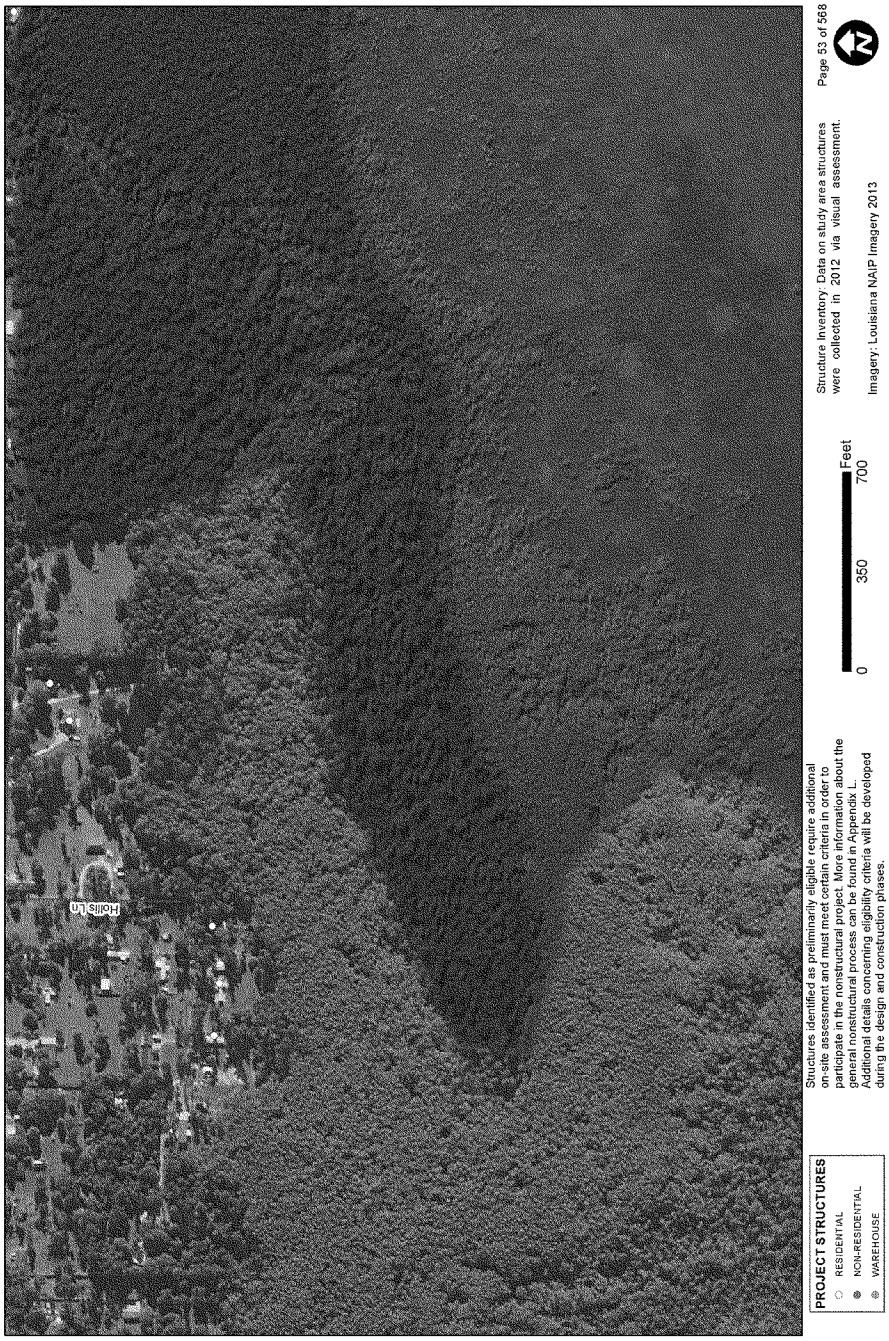
23

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Southwest Coastal NED Plan
18
51
Dalton Rd
Perkins Ferry Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
24
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 52 of 568
N


Southwest Coastal NED Plan
20
Hollis Ln
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 53 of 568

Southwest Coastal NED Plan

Southwest Coastal NED Plan
76
56
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 55 of 568
Ontario Dr
Norbert Dr
18th St
LAuberge Blvd

Southwest Coastal NED Plan

77

55

57

81

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

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Southwest Coastal NED Plan

78

56

PROJECT STRUCTURES

- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

82

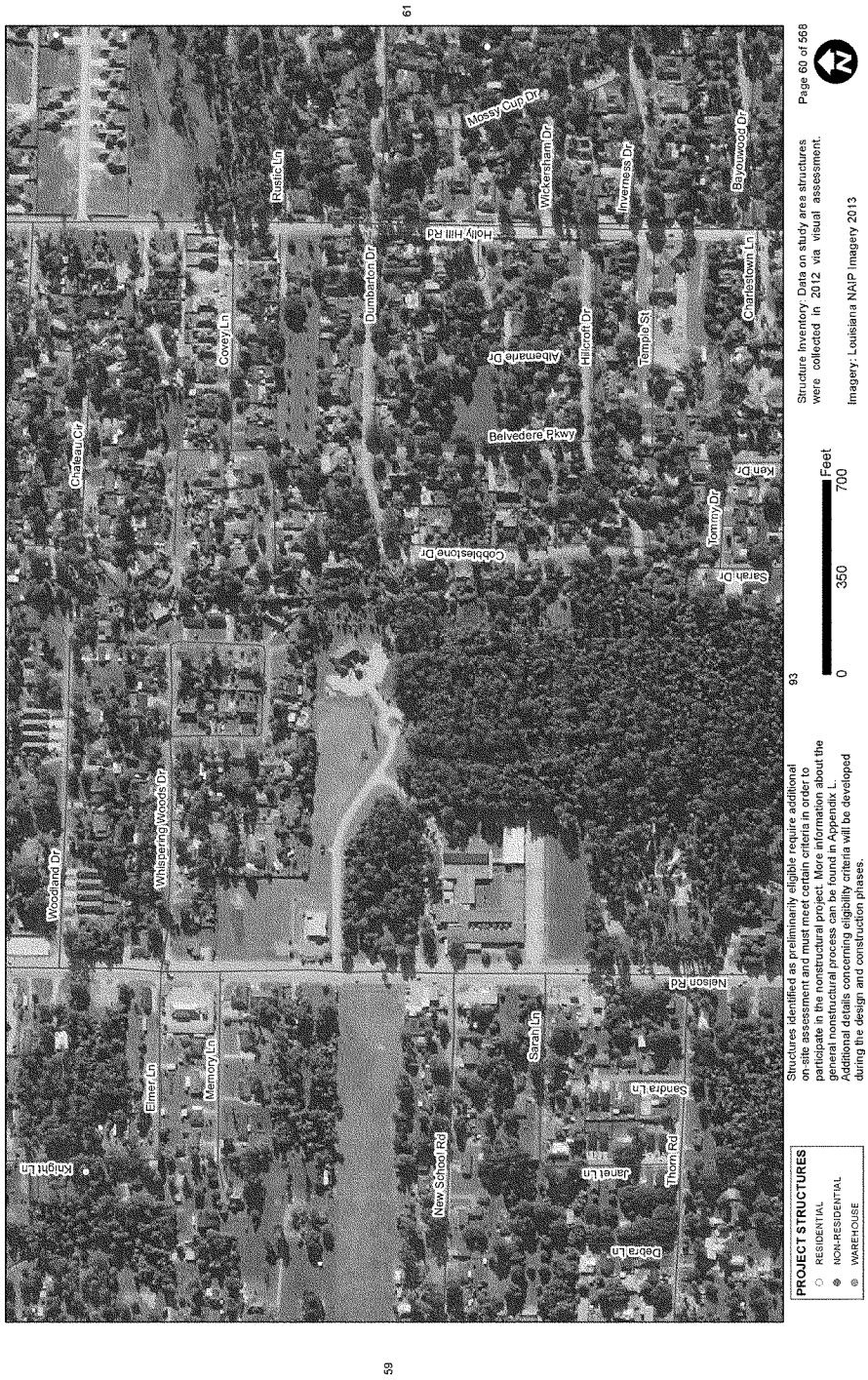
Feet
0 350 700

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

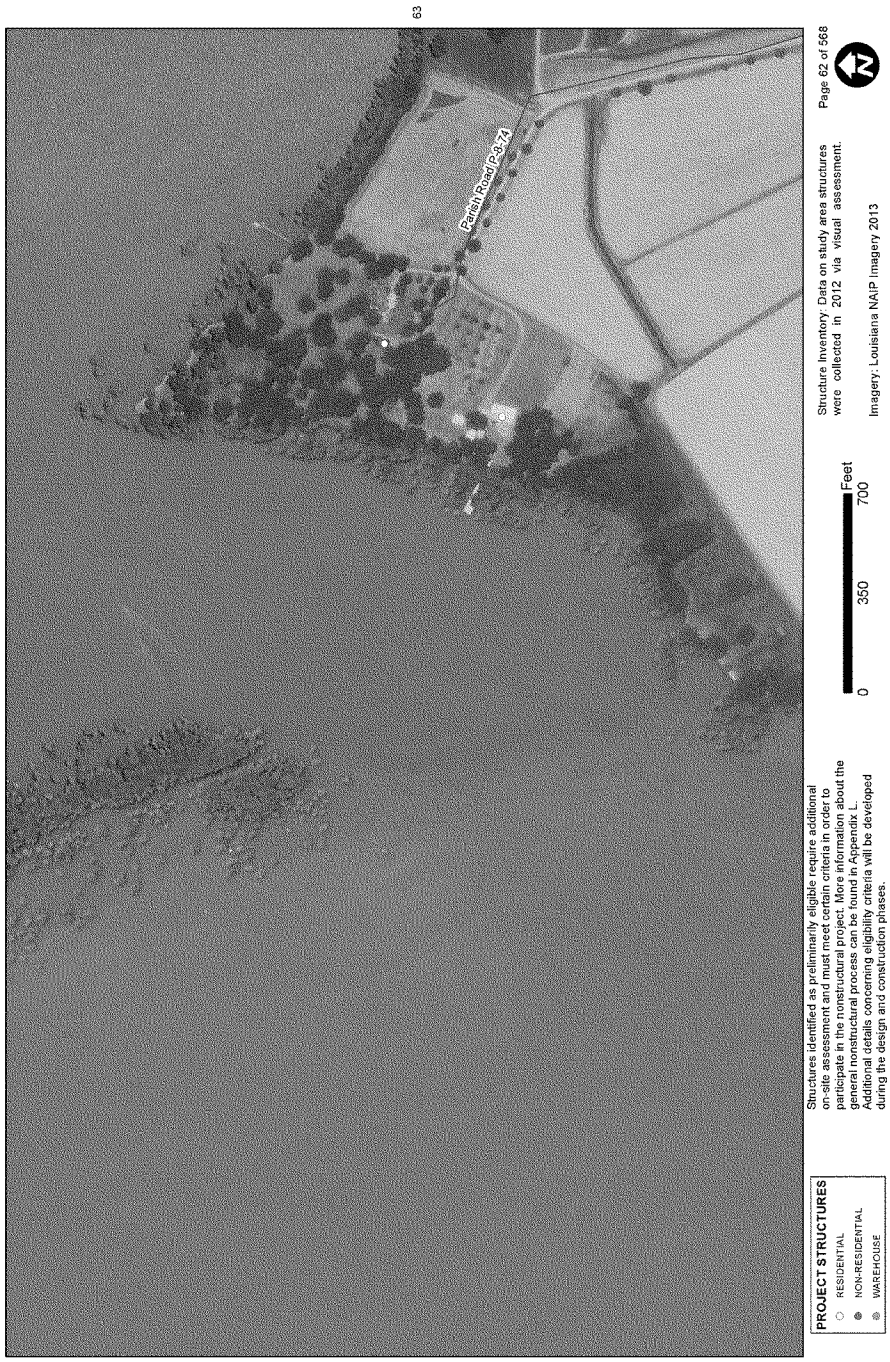
Imagery: Louisiana NAIP Imagery 2013

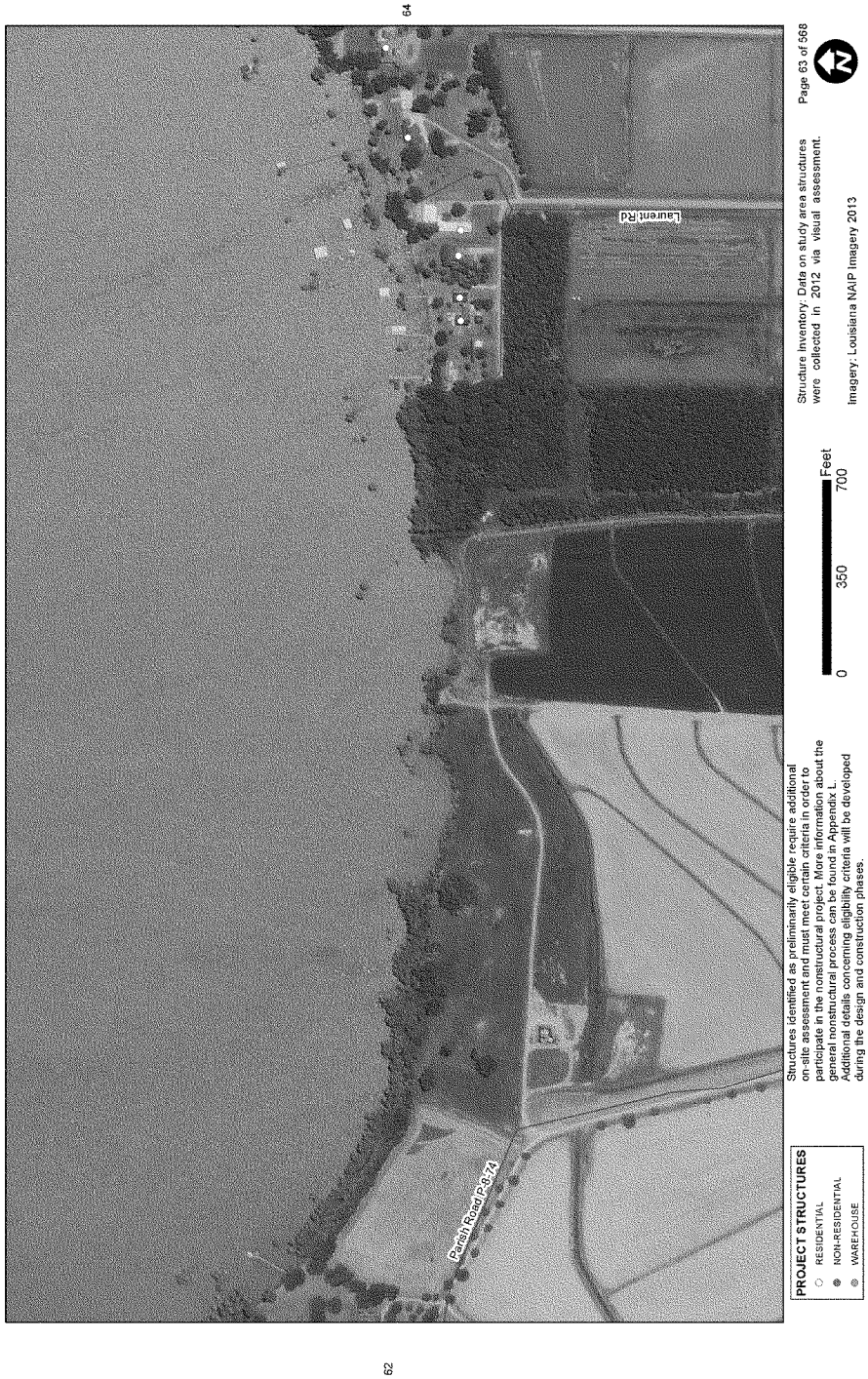
Southwest Coastal NED Plan
85
59
92
Arville St
Magnolia Ln
Edgewood Ln
Park Dr
Pinewood Dr
Timber Ln
Randy Ln
Pilan Lake Rd
Henderson Bayou Rd
Liz Lynn Dr
Locke Ln
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 58 of 568

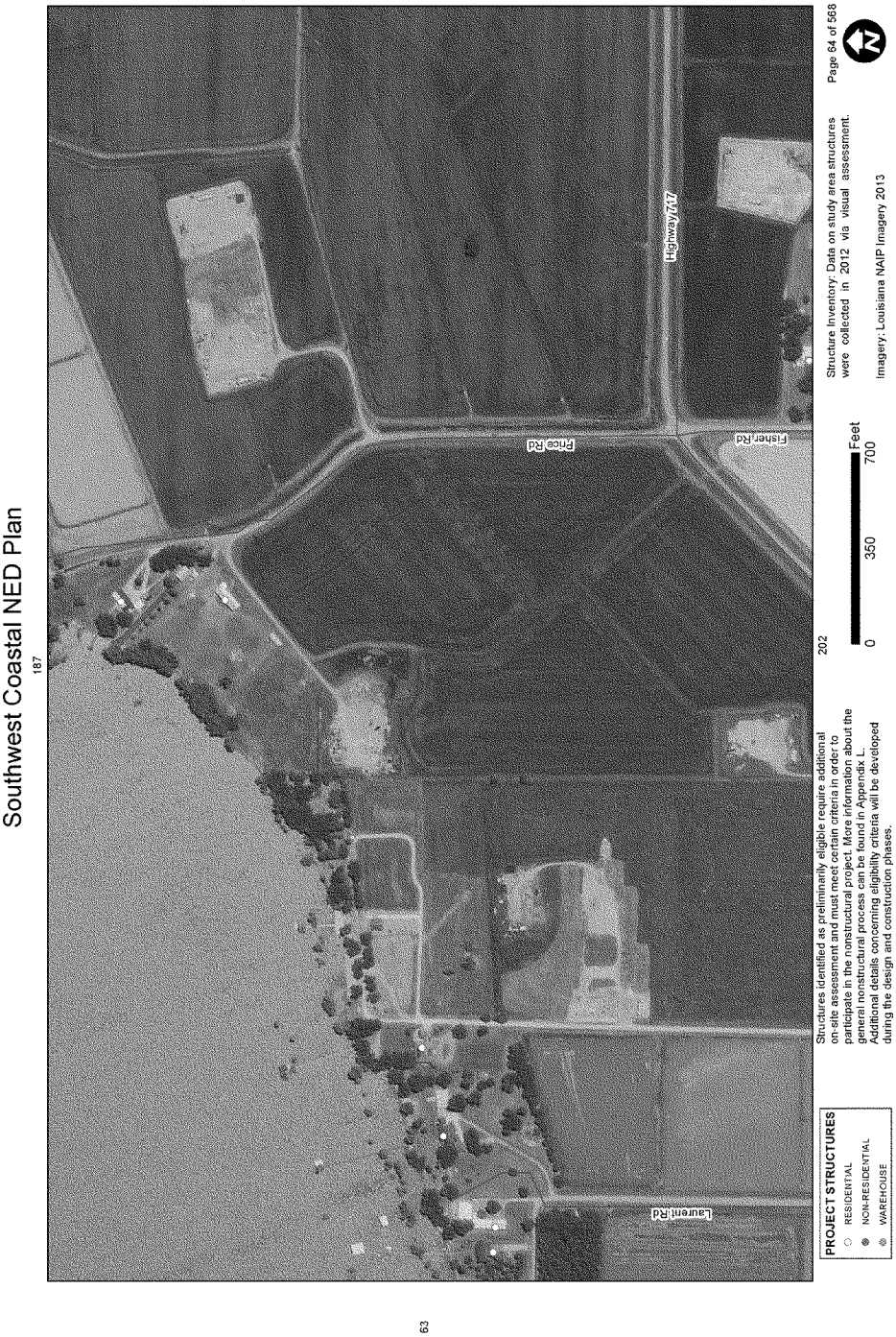
Southwest Coastal NED Plan
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WARRHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 59 of 568
Lost Ln
Arville St
Magnolia Ln
Edgewood Ln
Park Dr
Friendwood Dr
Timber Ln
Kandy Ln
Thomas Ln
Francis Dr
Thibodeaux Ln
Burton Ln
David Ln
Pin Oak Ct
Joan St
Pin Oak Ln
Hearn Rd
Knight Ln
Elmer Ln
Memory Ln
Barbe Wood Dr
Patricia Ln
Woodcrest St
New School Rd
Constance Ln
Ann Ln
Sarah Ln
Debra Ln
Thorn Rd
Janet Ln
Sandra Ln


Southwest Coastal NED Plan
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 60 of 566
Knight Ln
Woodland Dr
Elmer Ln
Memory Ln
Whispering Woods Dr
Chateau Cir
Covey Ln
Rustic Ln
Dumbarton Dr
Holly Hill Rd
Mossy Cup Dr
Wickersham Dr
Inverness Dr
Bayouwood Dr
Albemarle Dr
Hillcroft Dr
Temple St
Charlestown Ln
Belvedere Pkwy
Cobblestone Dr
Ken Dr
Tommy Dr
Sarah Dr
Nelson Rd
Sarah Ln
Sandra Ln
Janet Ln
Thom Rd
New School Rd
Debra Ln
59
61
87
93

Southwest Coastal NED Plan
88
60
94
Creole St
Julius St
Blackman St
Dewald Ln
Lakewood Dr
School St
Kingston St
Lake St
Oak Ln
Claude St
Lisa Ln
Laura Ln
Linda Ln
Lois Ln
Fair Oaks Ln
Audubon St
Treasure Ln
Bayou Oak Ln
Idlewilde Ln
Terry Ln
Belle Arbe Dr
Buccaneer Ln
Burgoyne Dr
Messy Cup Dr
Wickersham Dr
Inverness Dr
Bayouwood Dr
Dumbarton Dr
Holly Hill Rd
Rustic Ln
Covey Ln
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 61 of 568


Southwest Coastal NED Plan
63
Parish Road P-374
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 62 of 568


Southwest Coastal NED Plan
64
62
Parish Road P-8-74
Laurent Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 63 of 568


Southwest Coastal NED Plan
187
63
Laurent Rd
Frico Rd
Fisher Rd
Highway 317
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
202
0
350
700
Feet
Structure Inventory Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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66
Southwest Coastal NED Plan
Ellie Benoit Rd
Veterans Memorial Dr
Highway 317
Cypress Point Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
203
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 65 of 568

Southwest Coastal NED Plan

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

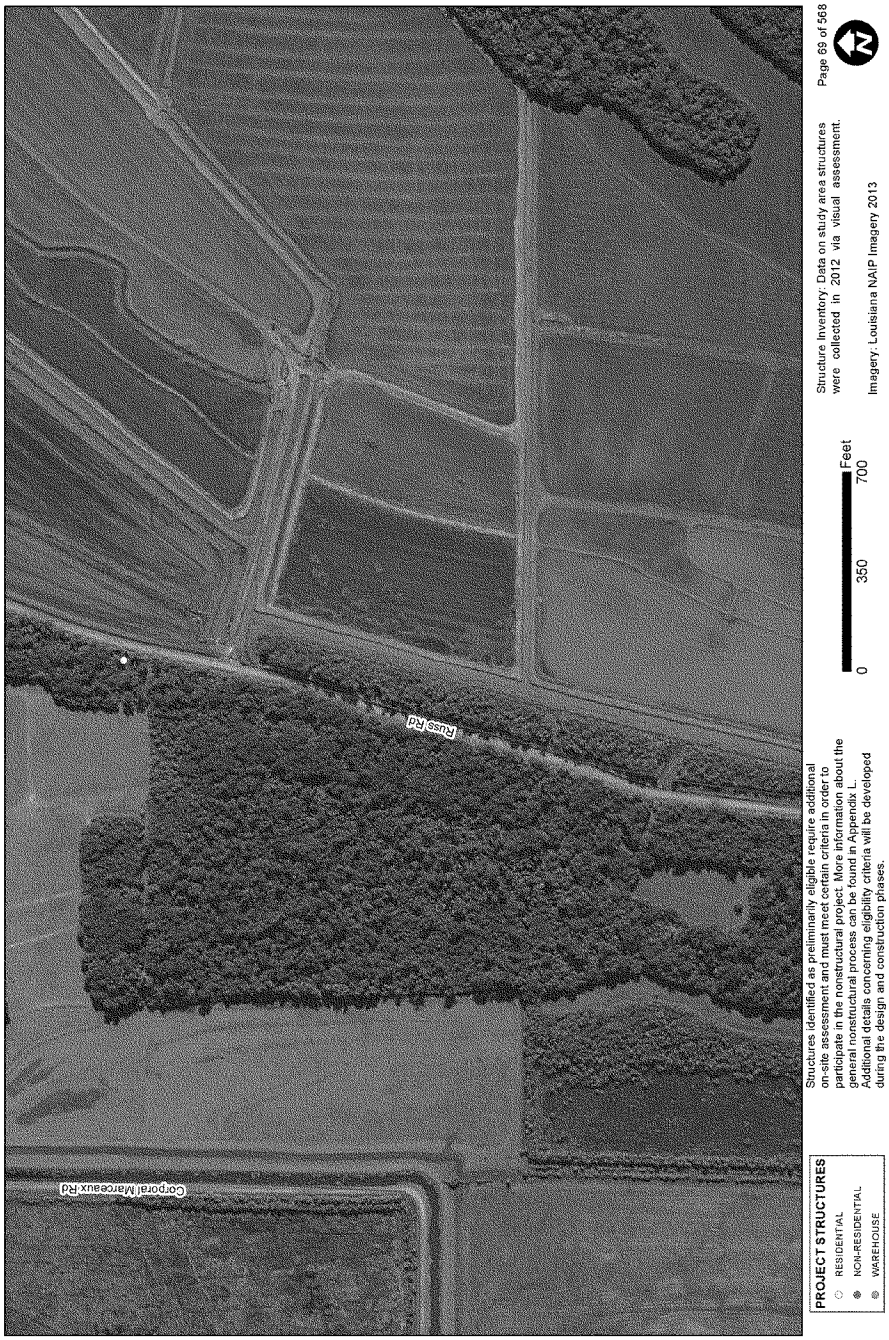
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

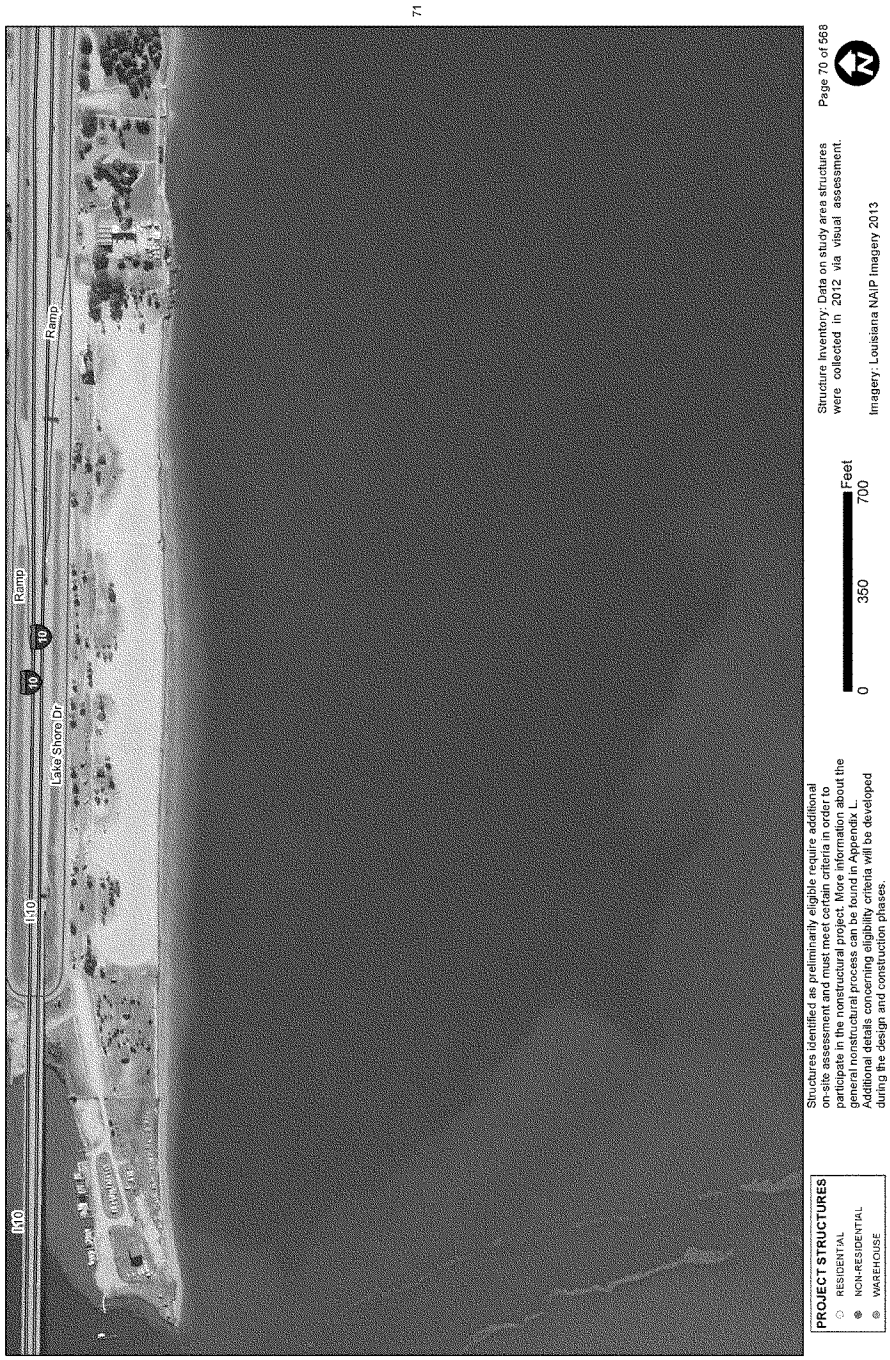
Imagery: Louisiana NAIP Imagery 2013

Southwest Coastal NED Plan
189
681
Zwan Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 67 of 568

Southwest Coastal NED Plan

Southwest Coastal NED Plan




Southwest Coastal NED Plan
47
71
I-10
I-10
Lake Shore Dr
Ramp
Ramp
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 70 of 568

Southwest Coastal NED Plan

48

70

PROJECT STRUCTURES

- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

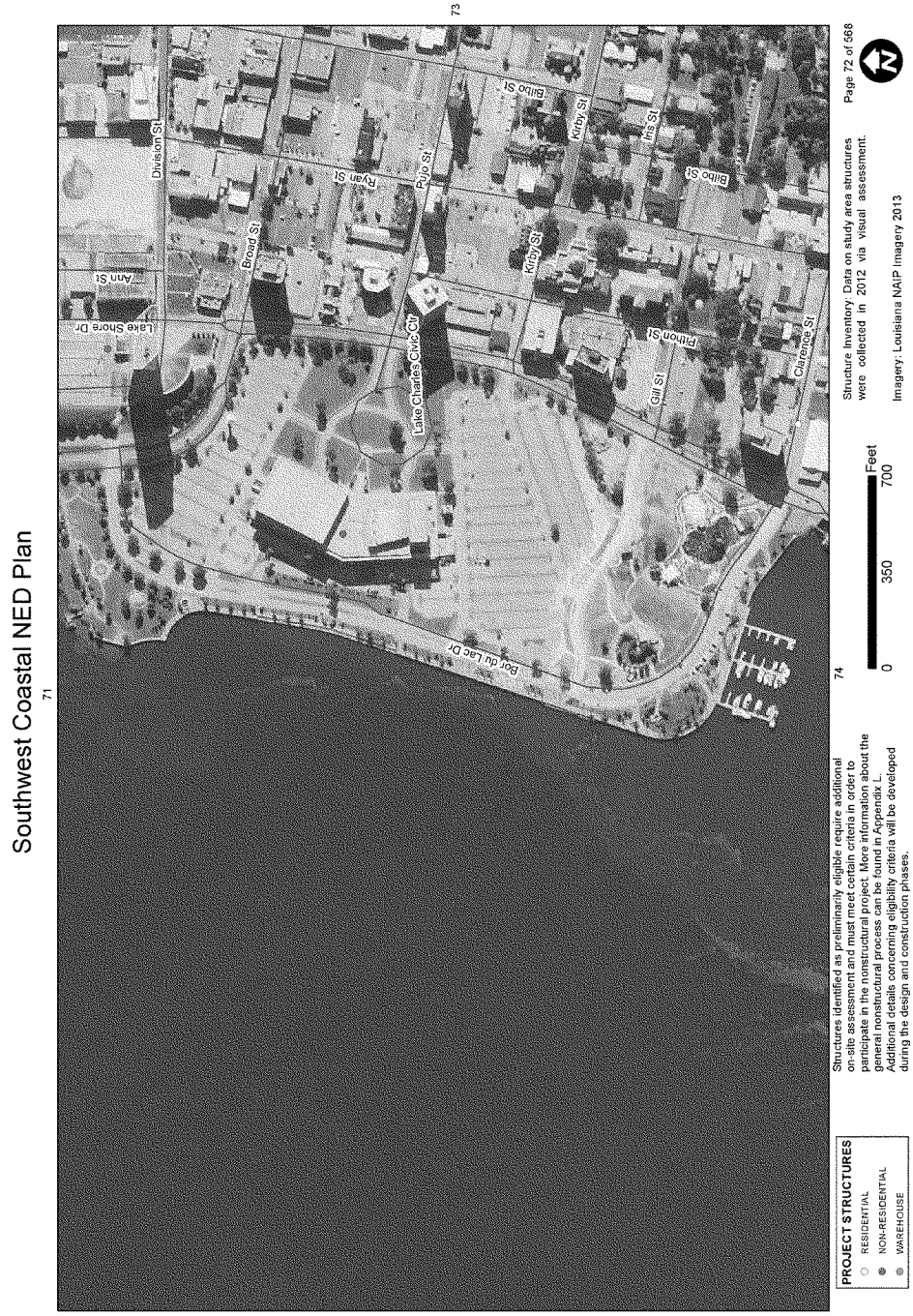
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

72

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013


Southwest Coastal NED Plan
71
73
74
Lake Shore Dr
Ann St
Division St
Broad St
Ryan St
Pujo St
Lake Charles Civic Ctr
Bilbo St
Kirby St
Iris St
Pluton St
Gill St
Clarence St
Bor du Lac Dr
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 72 of 568

Southwest Coastal NED Plan

72

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

75

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Southwest Coastal NED Plan

72

75

78

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

Feet
0 350 700

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Southwest Coastal NED Plan
73
74
79
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 75 of 568
Kirby Ln
Iris St
Clarence St
Kirkman St
Reid St
Cleveland St
Ford St
Moss St
Cottage Ln
Common St
Louisiana Ave
Enterprise Blvd
Bank St
2nd St
3rd St
4th St
6th St
7th St
8th St
Hodges St
Ryan St
Bilbo St
Prewitt St
Peake St
Burnett St

Southwest Coastal NED Plan
77
Shell Beach Dr
Daise Bell Ln
Marina St
Howe Ln
Riverside Dr
Merrie Ln
Driftwood Ln
Happy Ln
Sallier St
Charisse Dr
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
55
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 76 of 568

Southwest Coastal NED Plan

76

78

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

56

0 350 700 Feet

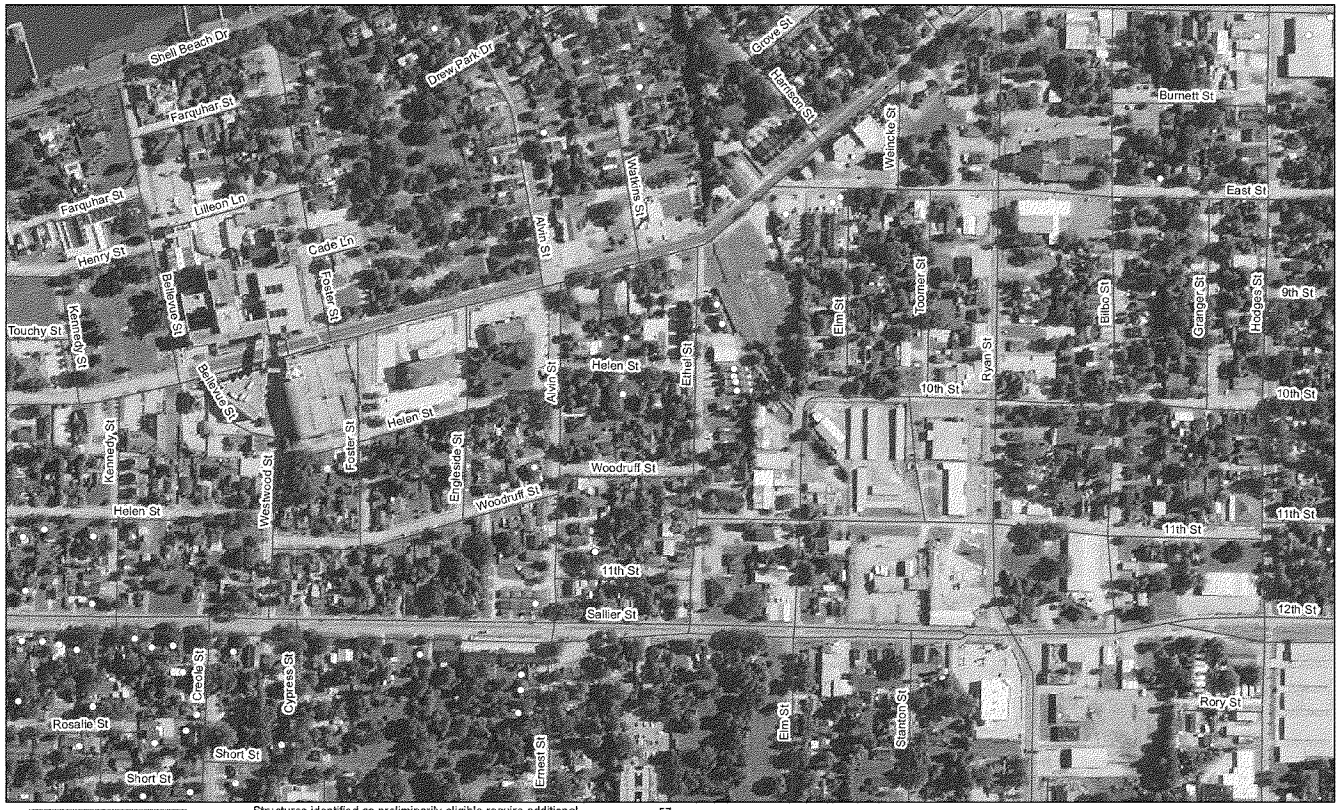
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Southwest Coastal NED Plan

74

77



79

PROJECT STRUCTURES

- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

57

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Southwest Coastal NED Plan

75

78

PROJECT STRUCTURES

- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Southwest Coastal NED Plan

Southwest Coastal NED Plan

56

82

88

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

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Southwest Coastal NED Plan

57

81

89

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

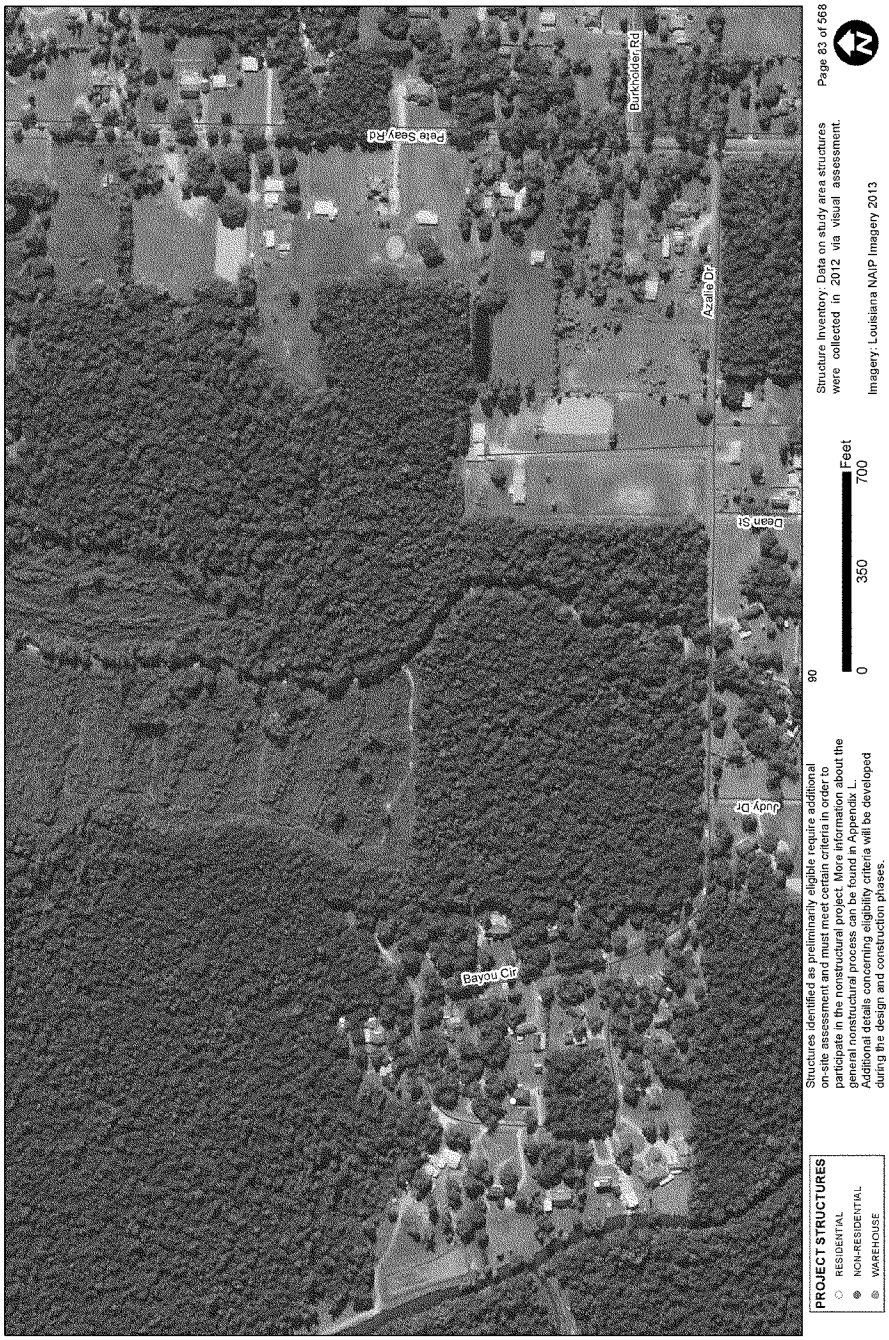
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

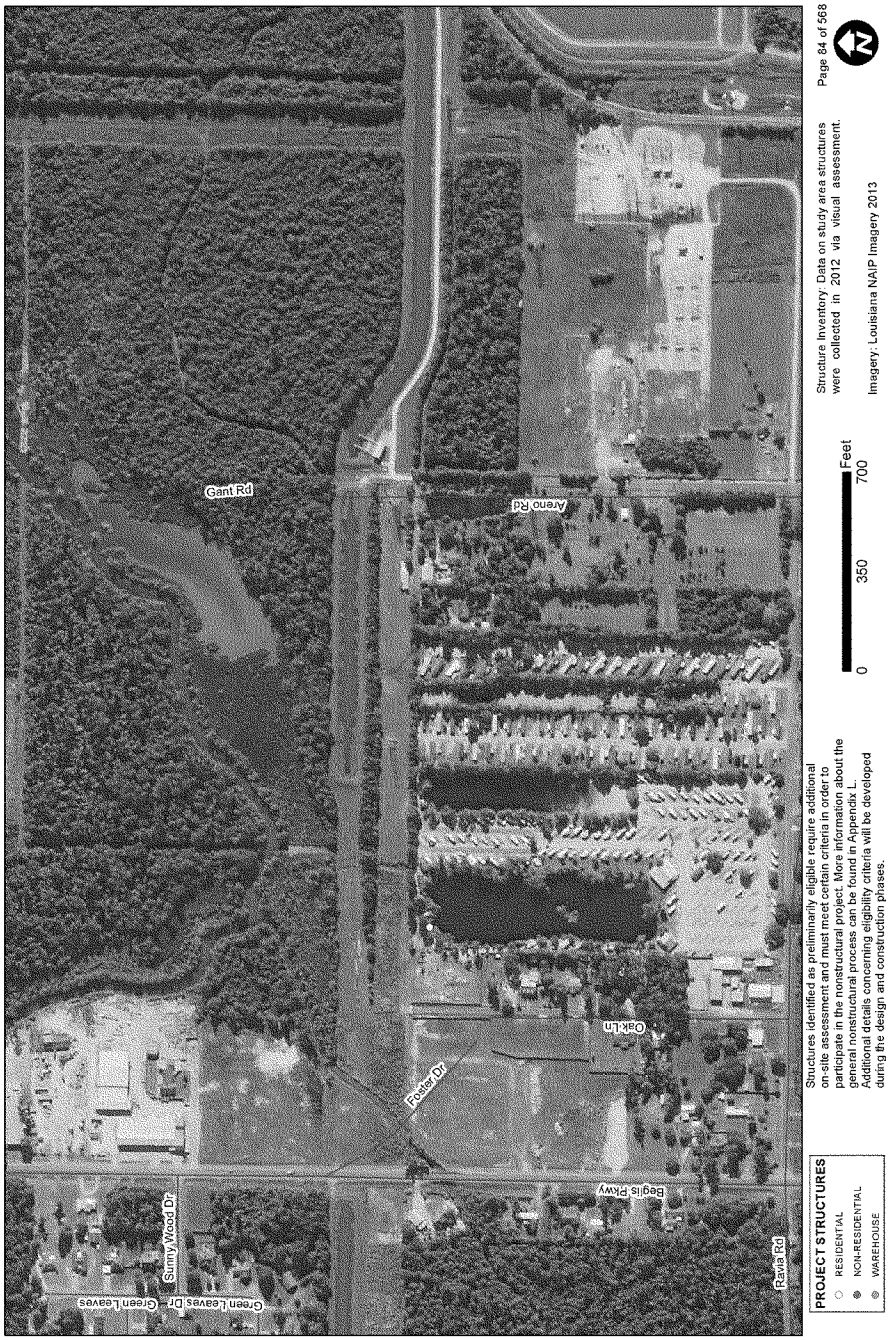
0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Southwest Coastal NED Plan




Southwest Coastal NED Plan
80
Gant Rd
Arena Rd
Foster Dr
Oak Ln
Begis Pkwy
Rena Rd
Green Leaves Dr
Sunny Wood Dr
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 84 of 568
N

Southwest Coastal NED Plan
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 85 of 568
0
350
700
Feet
Kiwanis Ln
I-210
I-210 Ramp
Cove Ln
Prien Lake Rd
Arville St
86
58

Southwest Coastal NED Plan

85

87

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

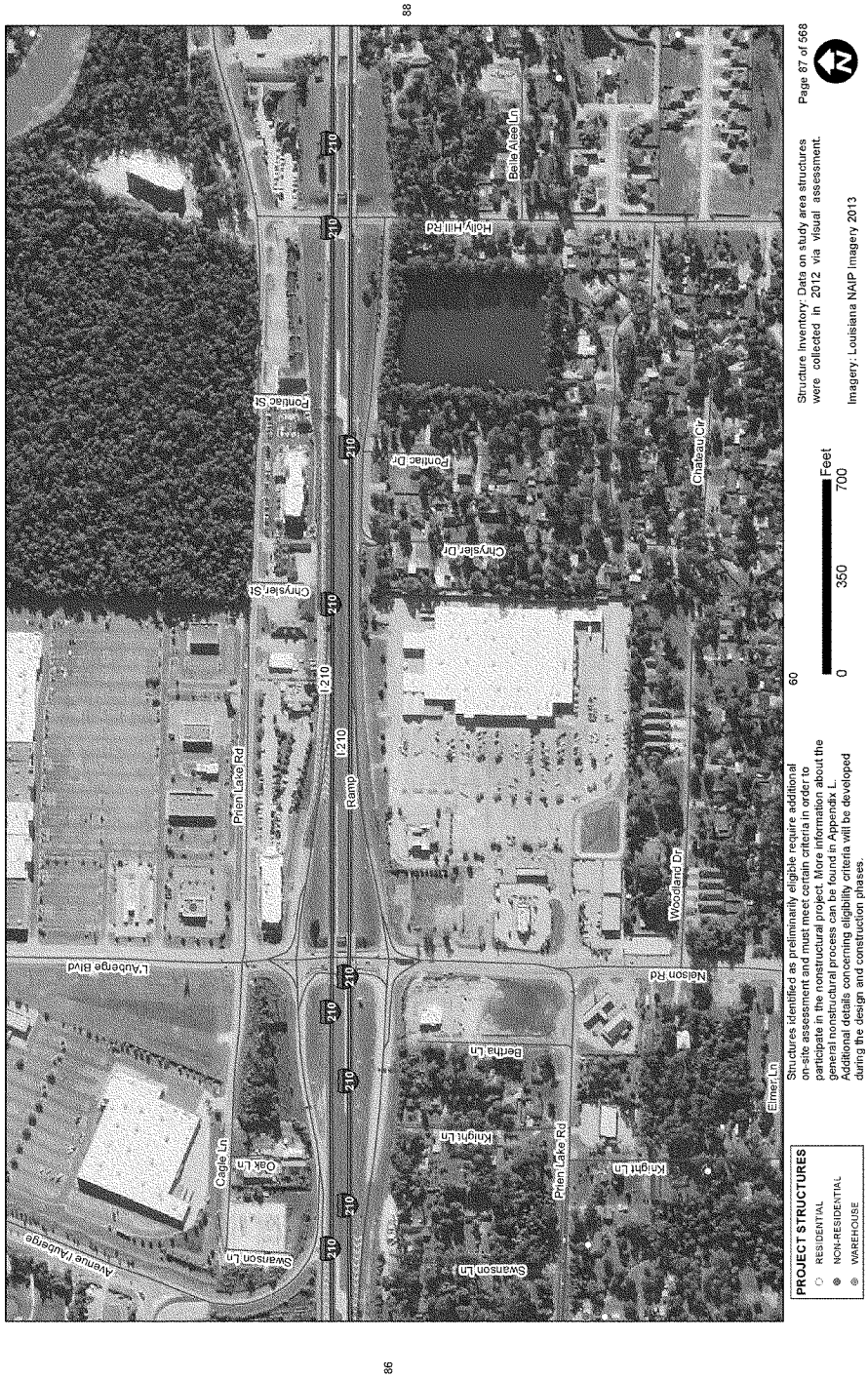
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

59

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013


Southwest Coastal NED Plan
88
86
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
60
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 87 of 568
I-210
Ramp
Prien Lake Rd
L'Auberge Blvd
Avenue L'Auberge
Swanson Ln
Cagle Ln
Oak Ln
Knight Ln
Elmer Ln
Bertha Ln
Nelson Rd
Woodland Dr
Chrysler Dr
Pontiac St
Pontiac Dr
Holly Hill Rd
Belle Alee Ln
Chateau Cir

Southwest Coastal NED Plan

81

87

89

61

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

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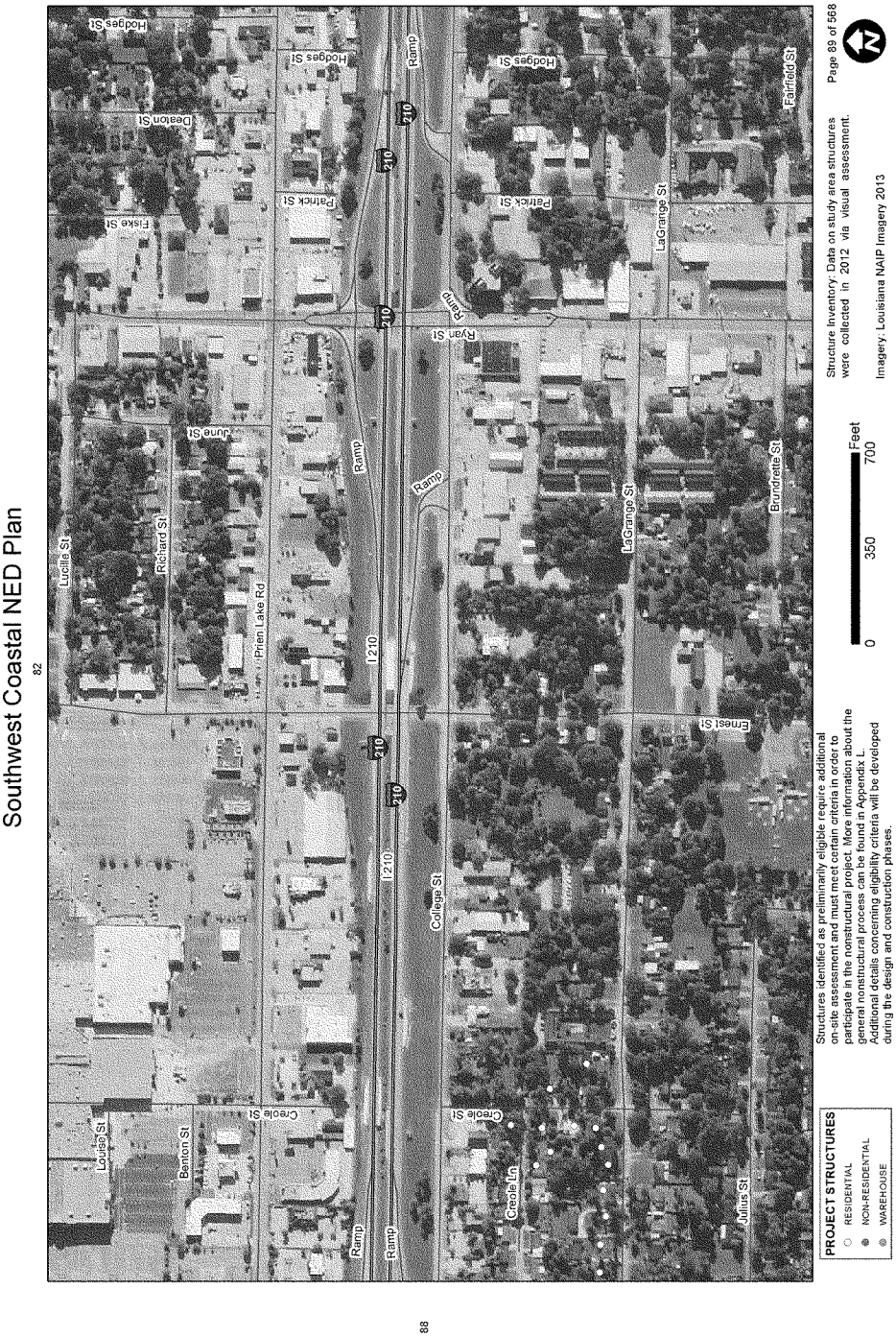
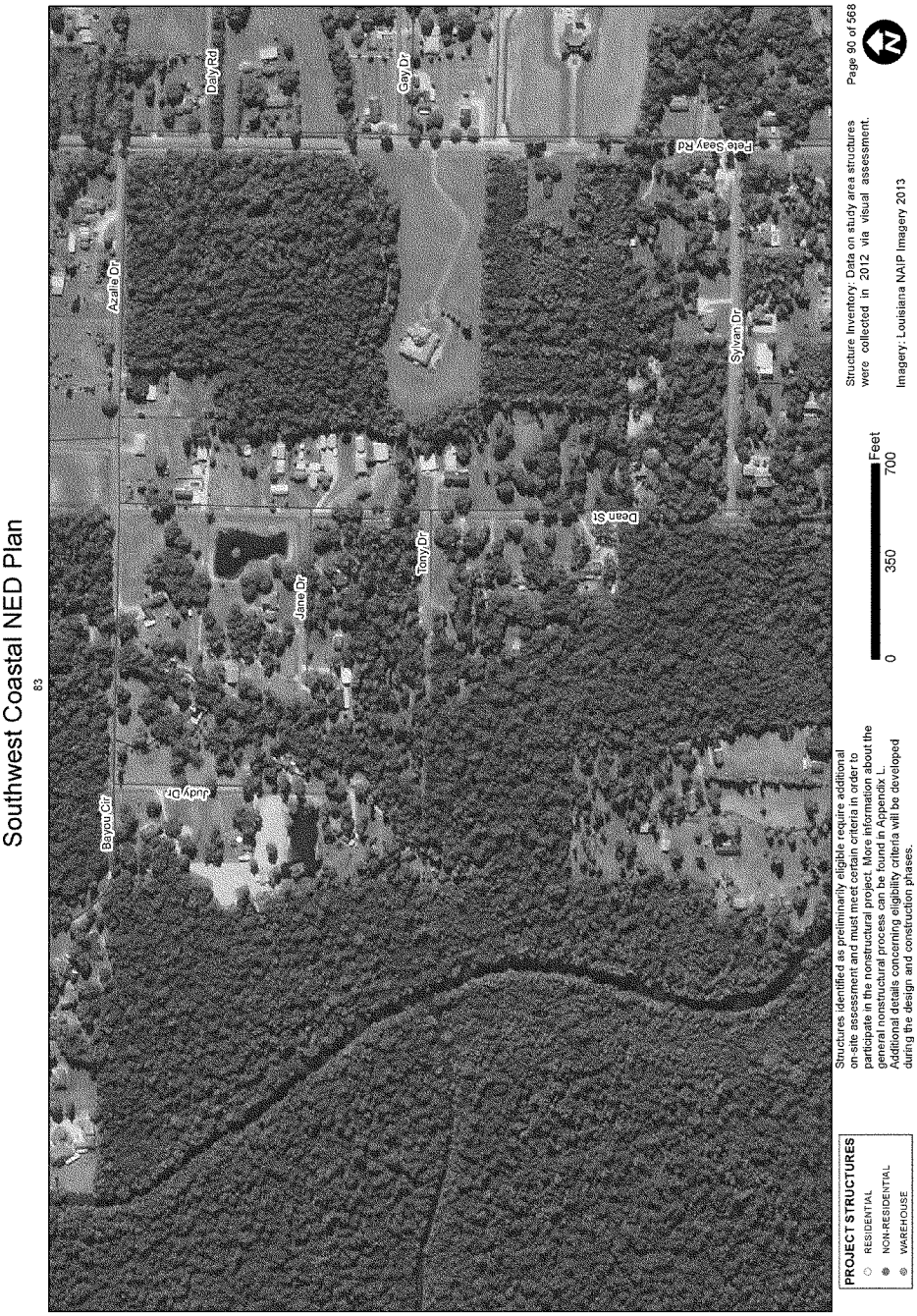

Southwest Coastal NED Plan
82
88
Louisa St
Benton St
Creole St
Creole Ln
Julius St
Lucille St
Richard St
Prien Lake Rd
June St
Hodges St
Deaton St
Fiske St
Patrick St
I-210
Ramp
College St
Ryan St
LaGrange St
Ernest St
Brundrette St
Fairfield St
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 89 of 568


Southwest Coastal NED Plan
83
Bayou Cir
Judy Dr
Azalia Dr
Dairy Rd
Jane Dr
Tony Dr
Dean St
Gay Dr
Pete Seary Rd
Sylvan Dr
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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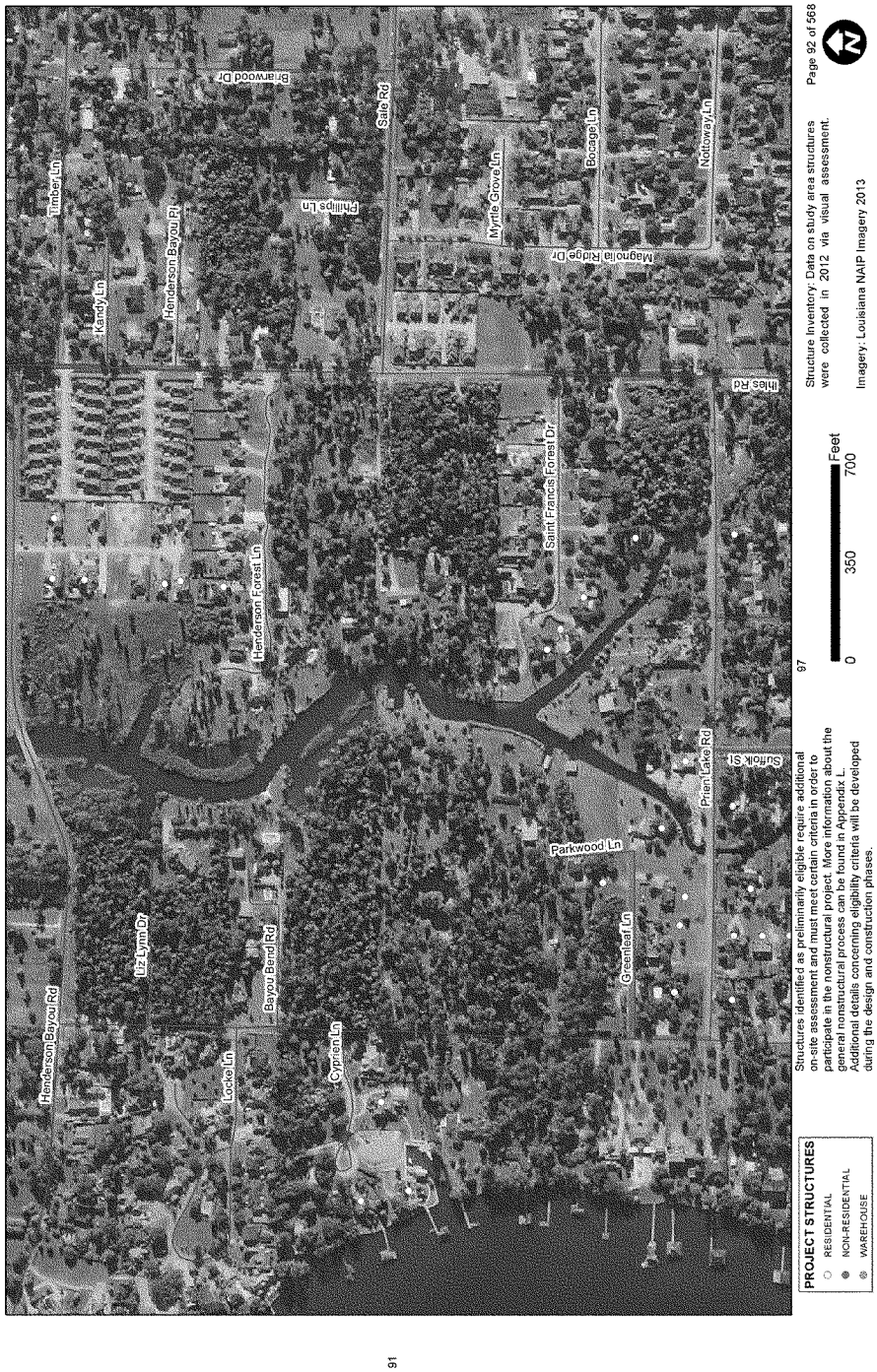
92

Southwest Coastal NED Plan


Southwest Coastal NED Plan
58
91
97
Henderson Bayou Rd
Liz Lynn Dr
Bayou Bend Rd
Locke Ln
Cyprien Ln
Henderson Forest Ln
Greenleaf Ln
Parkwood Ln
Prien Lake Rd
Suffolk St
Saint Francis Forest Dr
Myrtle Grove Ln
Magnolia Ridge Dr
Bocage Ln
Nottoway Ln
Miles Rd
Sale Rd
Phillips Ln
Henderson Bayou Pl
Kandy Ln
Timber Ln
Briarwood Dr
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 92 of 568
N

Southwest Coastal NED Plan

60

PROJECT STRUCTURES

- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Southwest Coastal NED Plan

61

93

95

99

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

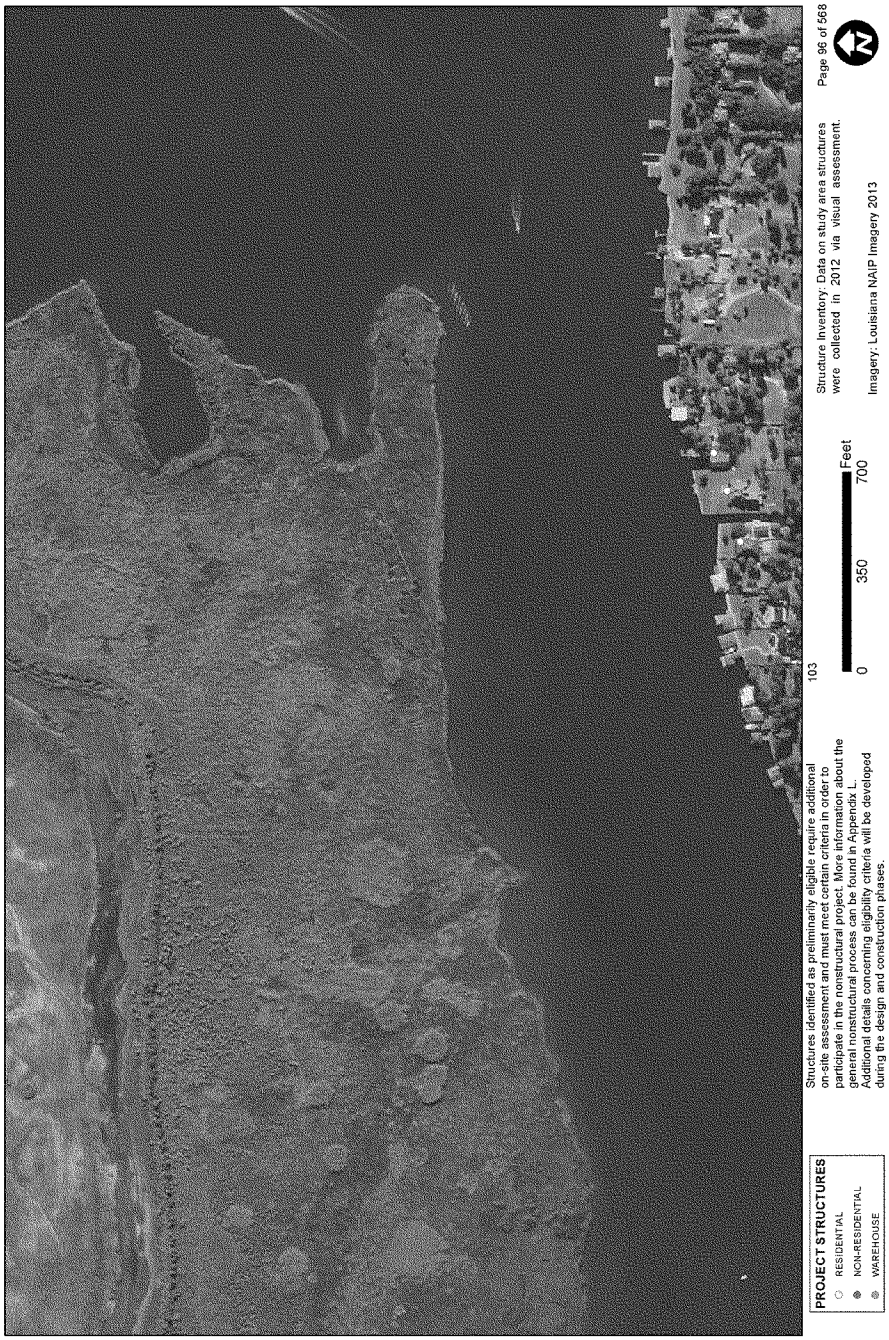
Feet
0 350 700

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

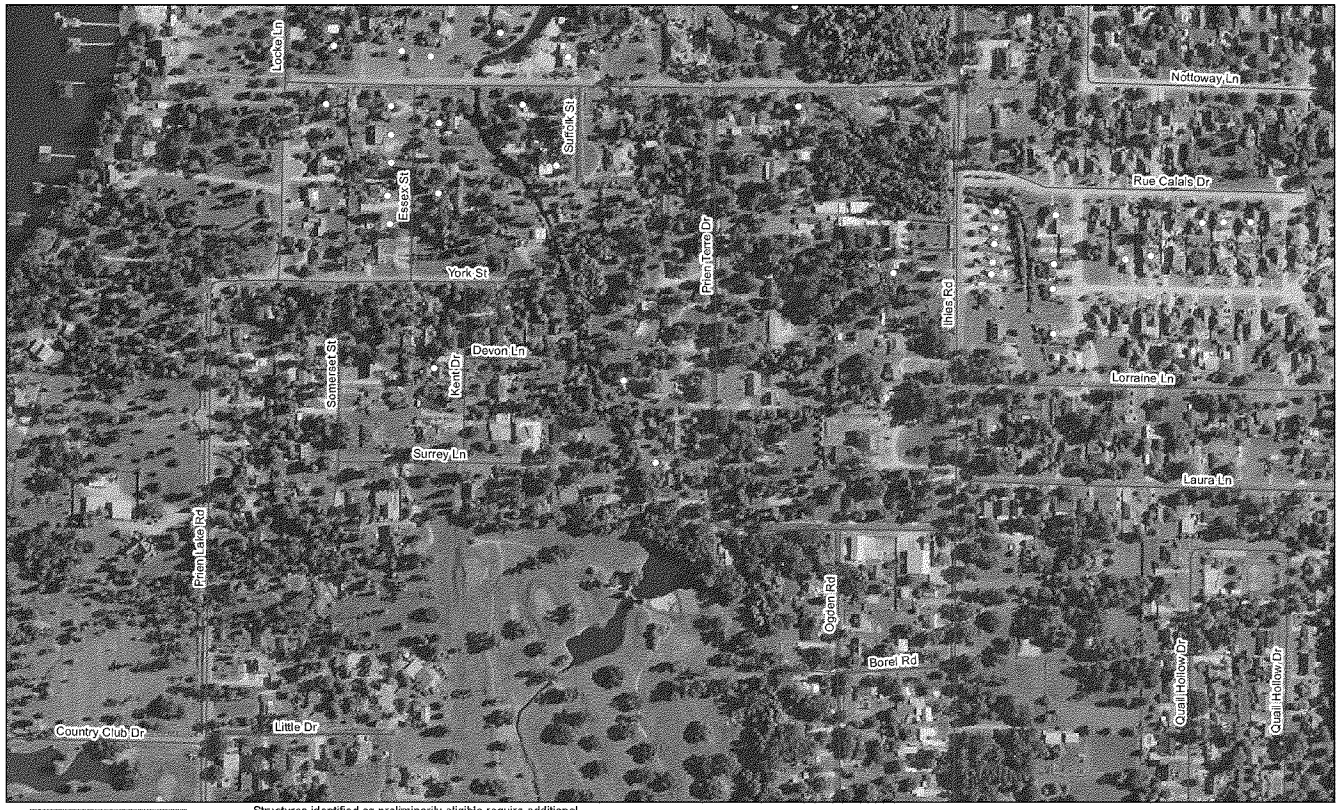
Southwest Coastal NED Plan

Southwest Coastal NED Plan



Southwest Coastal NED Plan

92



98

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

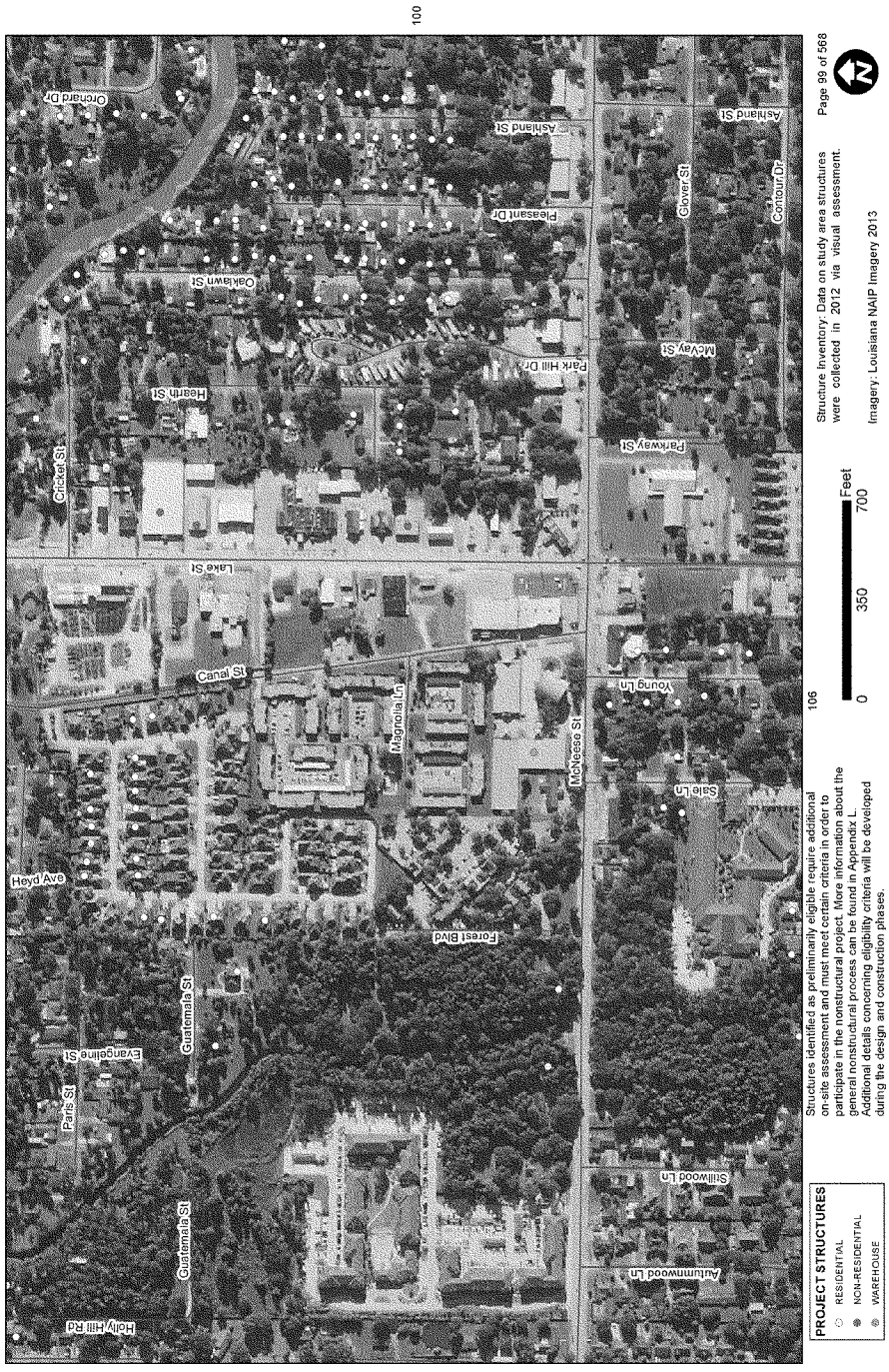
Feet
0 350 700

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Southwest Coastal NED Plan

97


Southwest Coastal NED Plan
94
100
106
Holly Hill Rd
Guatemala St
Parris St
Evangeline St
Guatemala St
Heyd Ave
Forest Blvd
Canal St
Lake St
Magnolia Ln
McNeese St
Autumnwood Ln
Stillwood Ln
Sale Ln
Young Ln
Parkway St
McVay St
Glover St
Contour Dr
Ashland St
Cricket St
Hearn St
Park Hill Dr
Oakdawn St
Pleasant Dr
Ashland St
Orchard Dr
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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Southwest Coastal NED Plan

95

99

101

107

PROJECT STRUCTURES

- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

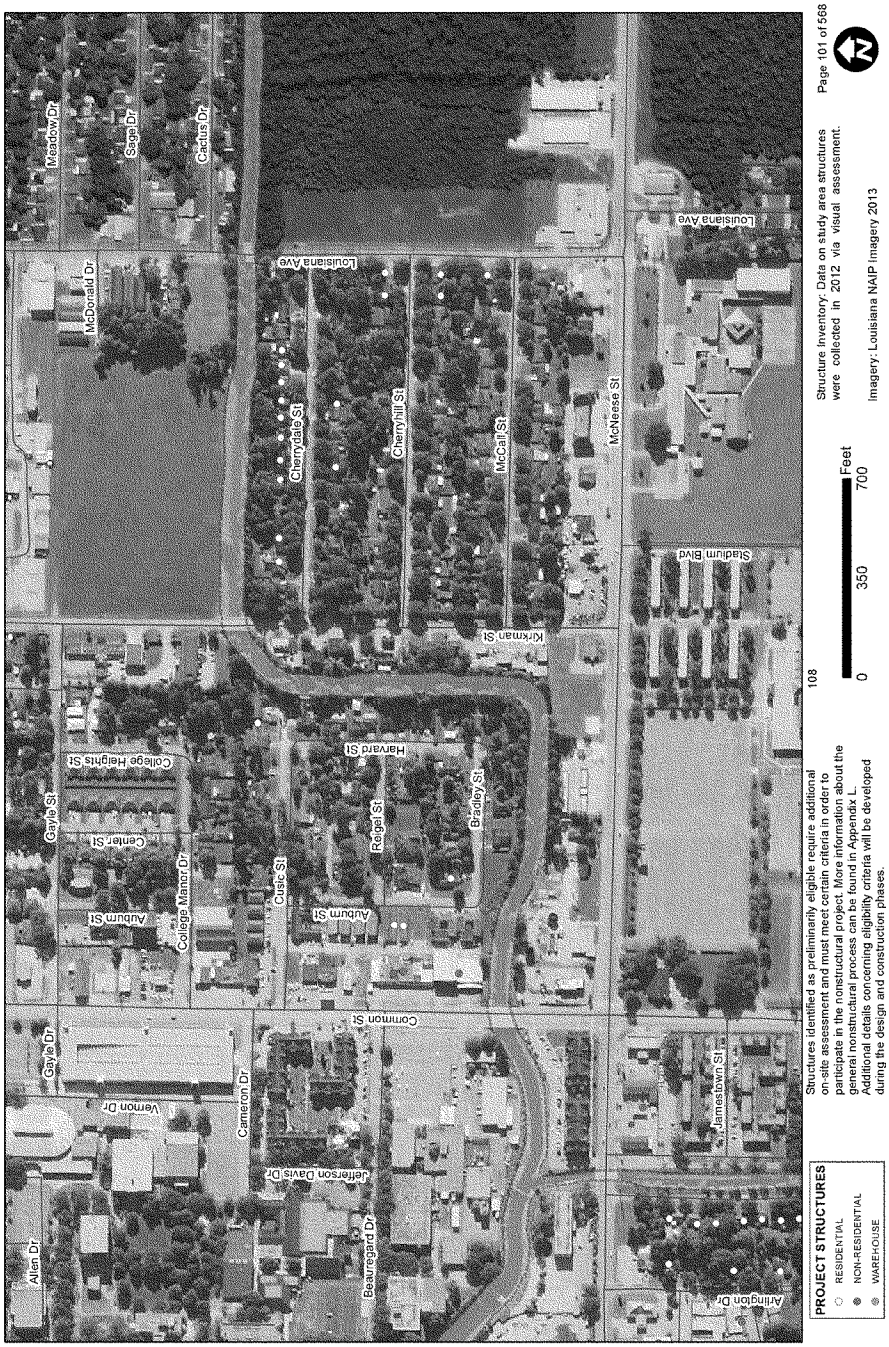
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

Feet
0 350 700

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Southwest Coastal NED Plan



Southwest Coastal NED Plan

Southwest Coastal NED Plan

96

104

109

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

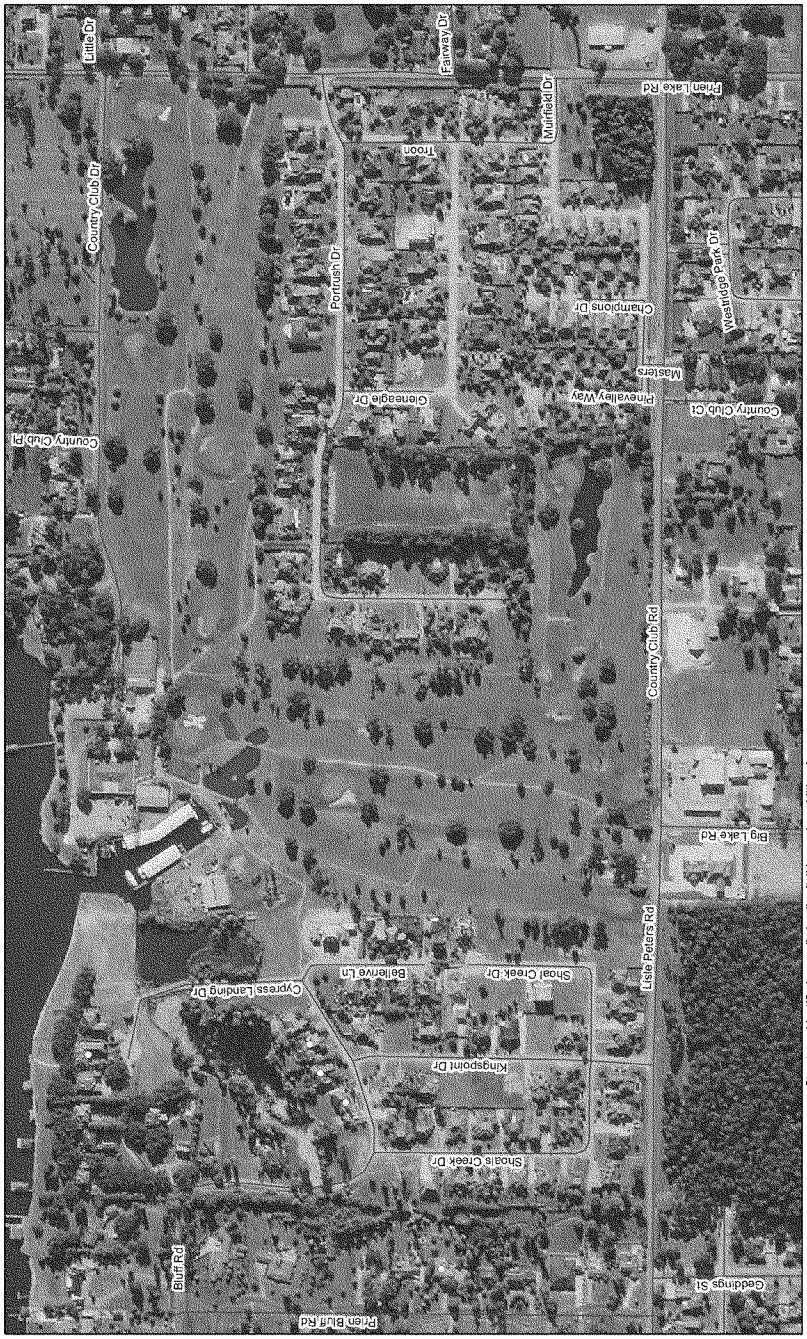
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Southwest Coastal NED Plan



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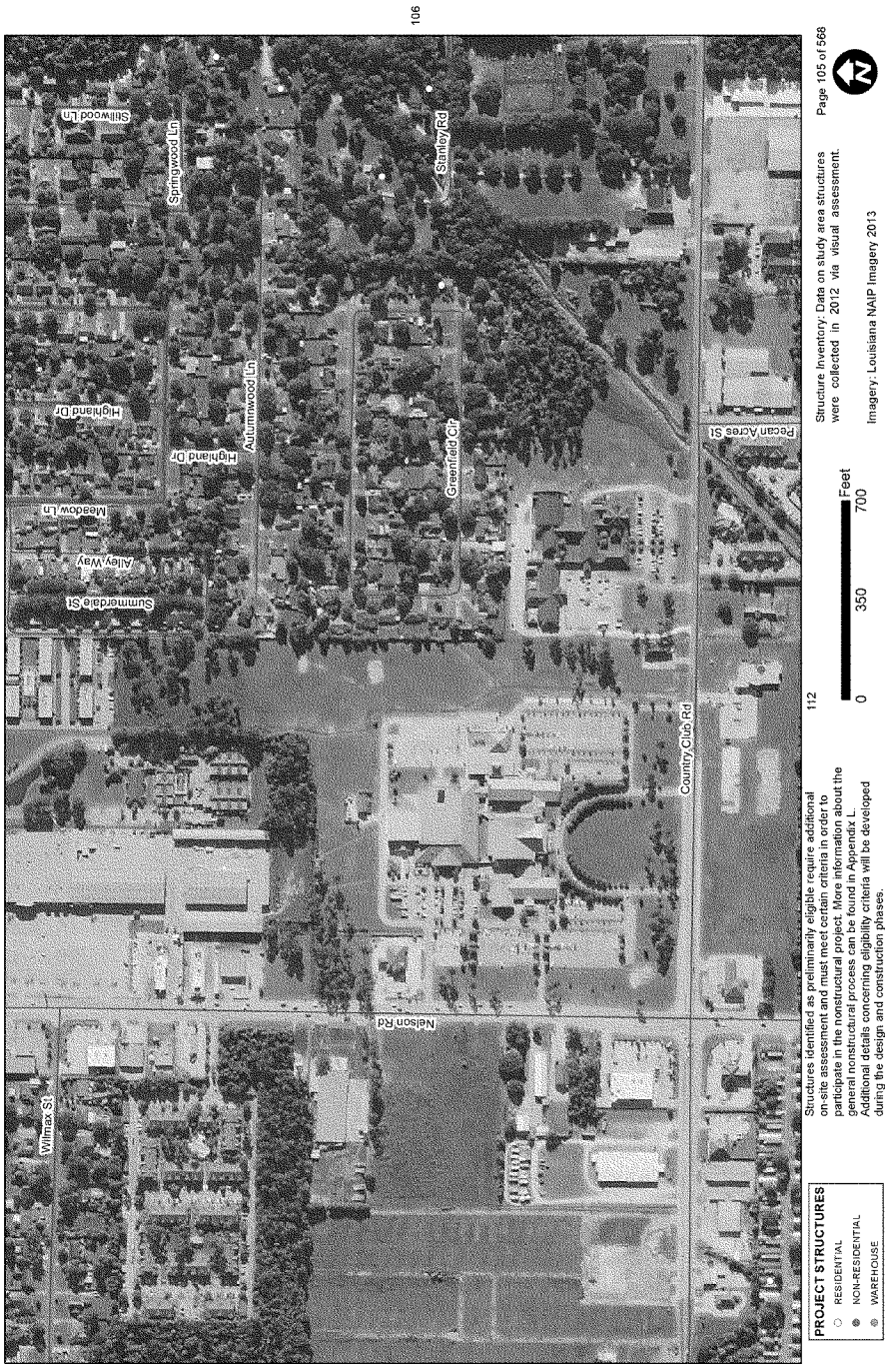
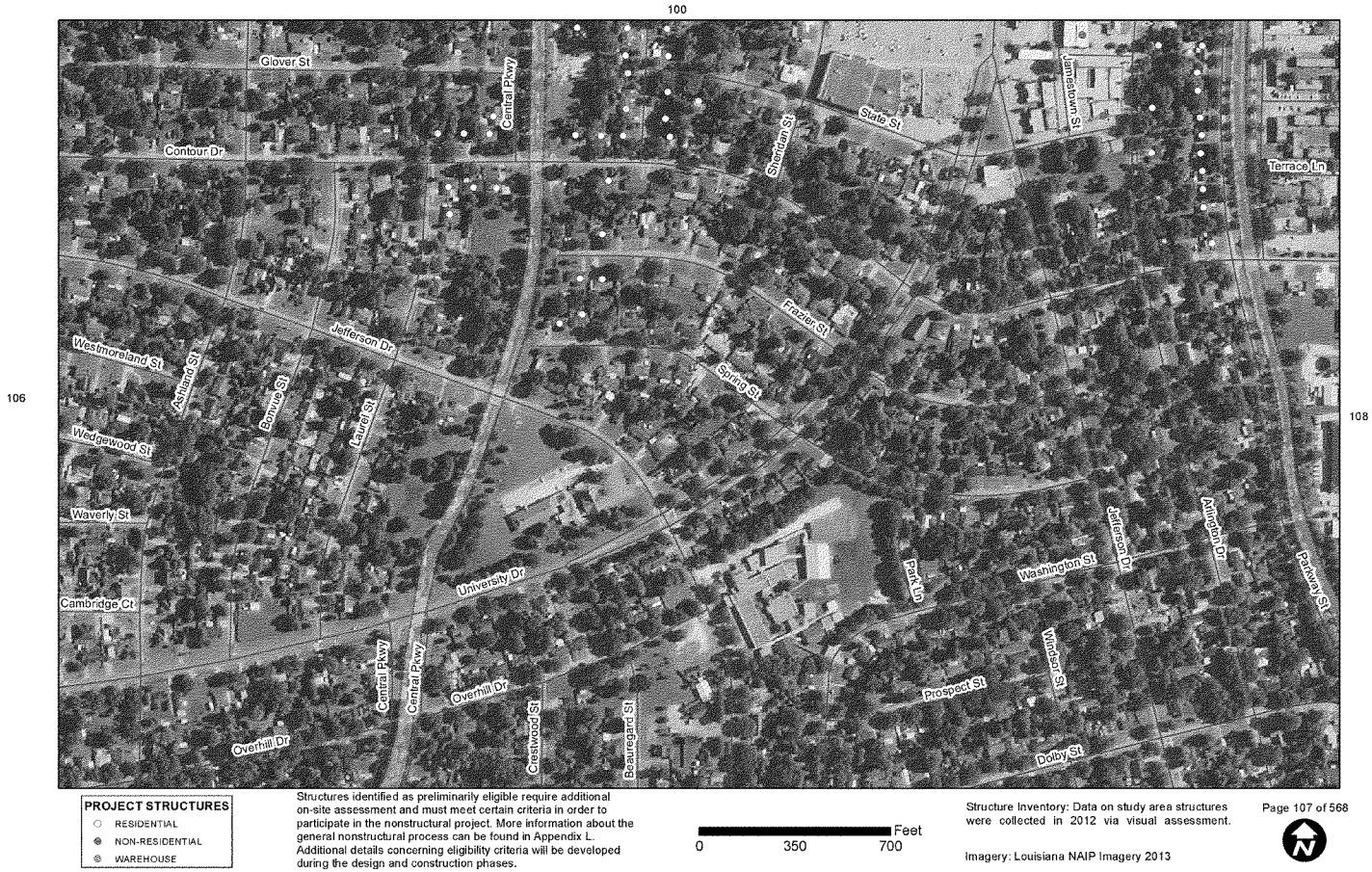
Southwest Coastal NED Plan



Southwest Coastal NED Plan
99
105
107
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 106 of 568
Autumnwood Ln
Springwood Ln
Silliwood Ln
Brown St
Van St
Stanley Rd
Country Club Rd
Southfield Rd
Young Ln
Ardmore St
Bluebonnet St
Powell Ln
Sale Ln
Rogers St
Canal St
Lake St
Jefferson Dr
Westmoreland St
Wedgewood St
Waverly St
Cambridge Ct
University Dr
Parkway St
McVay St
Glover St
Contour Dr
Ashland St
Bonnie St
Overhill Dr
Kimball St
Irving St
Mallard St

Southwest Coastal NED Plan



Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Southwest Coastal NED Plan

101

107

PROJECT STRUCTURES

- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

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Southwest Coastal NED Plan

103

110

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Southwest Coastal NED Plan

104

109

PROJECT STRUCTURES

- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

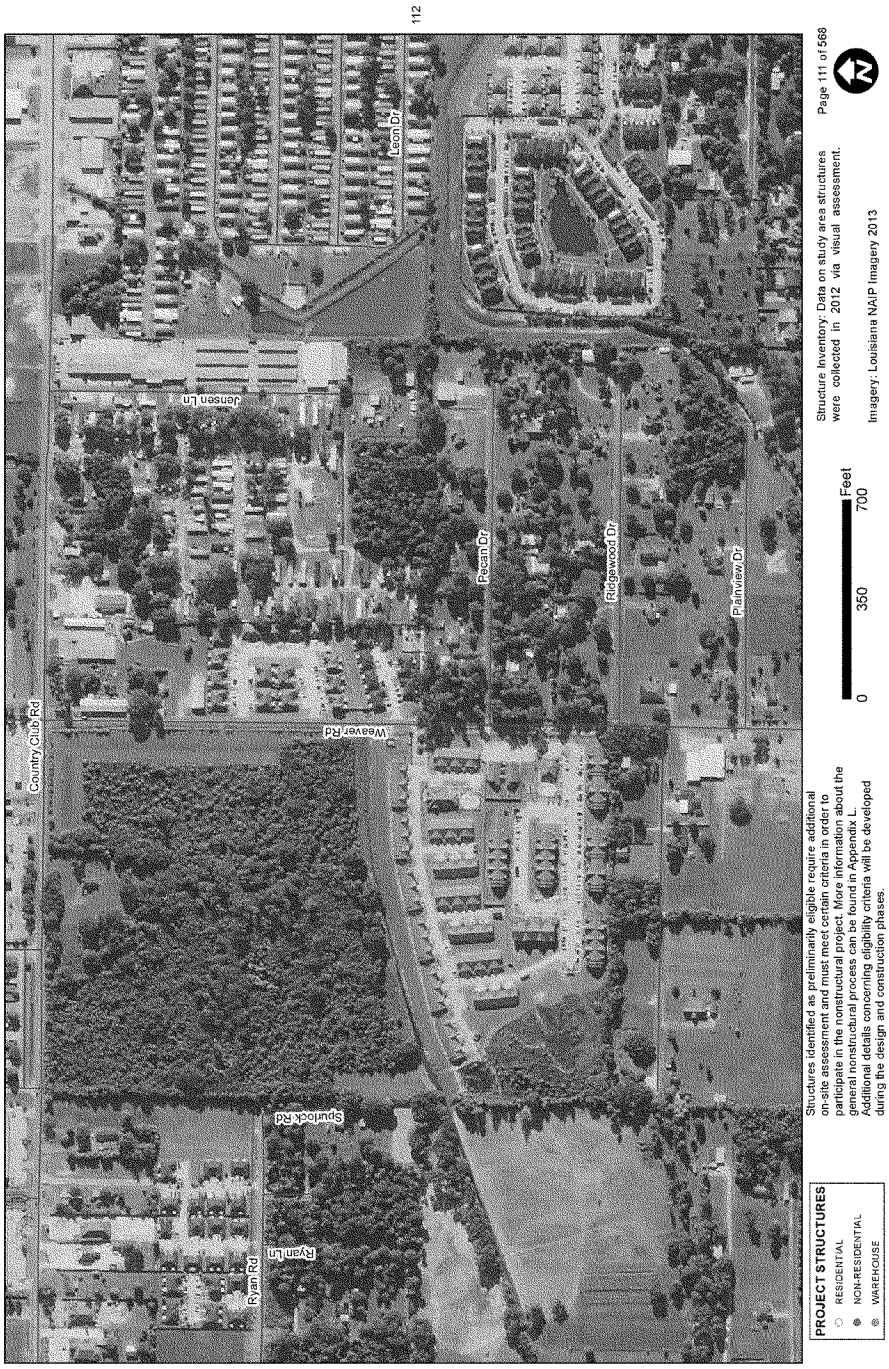
113

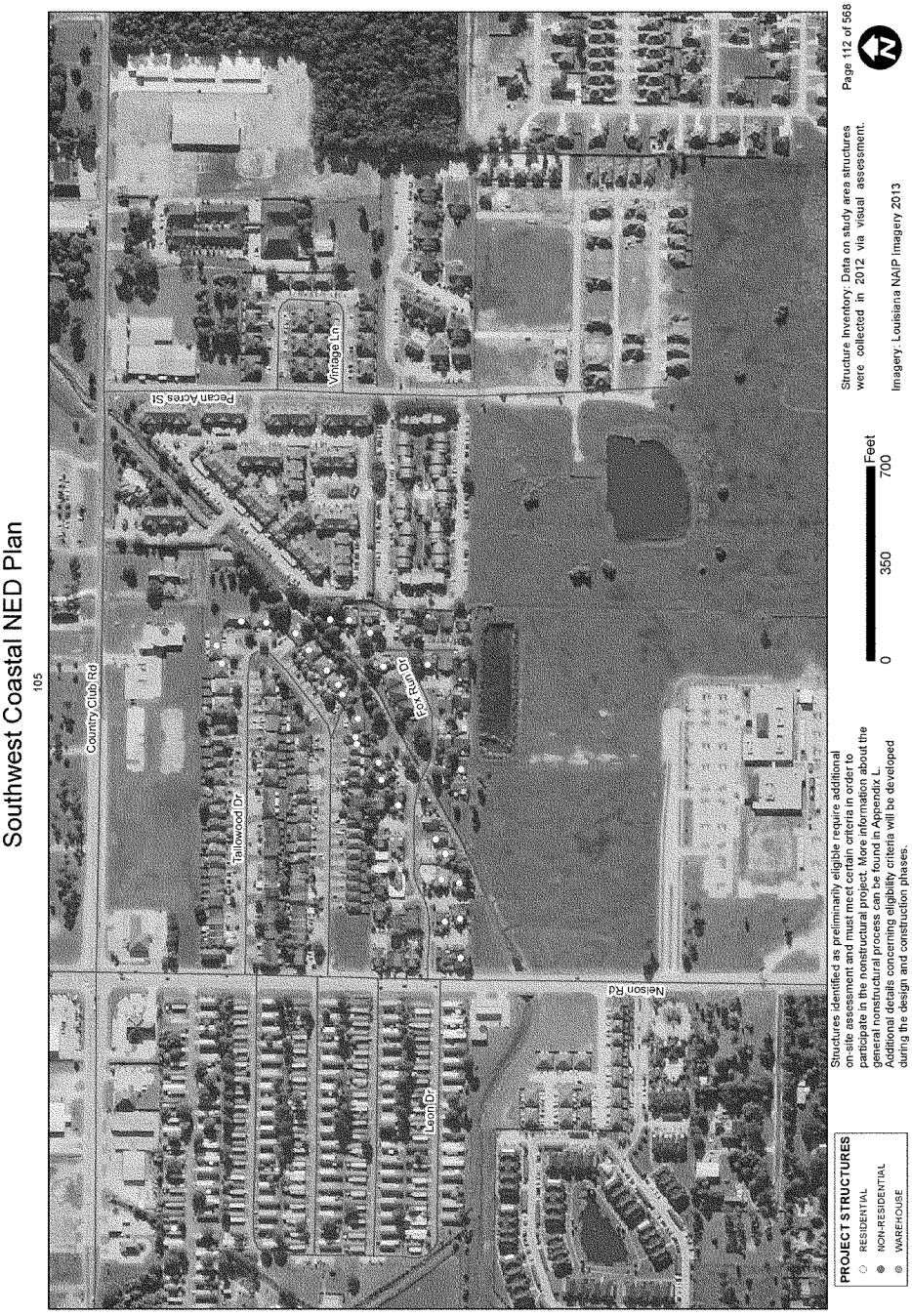
0 350 700 Feet

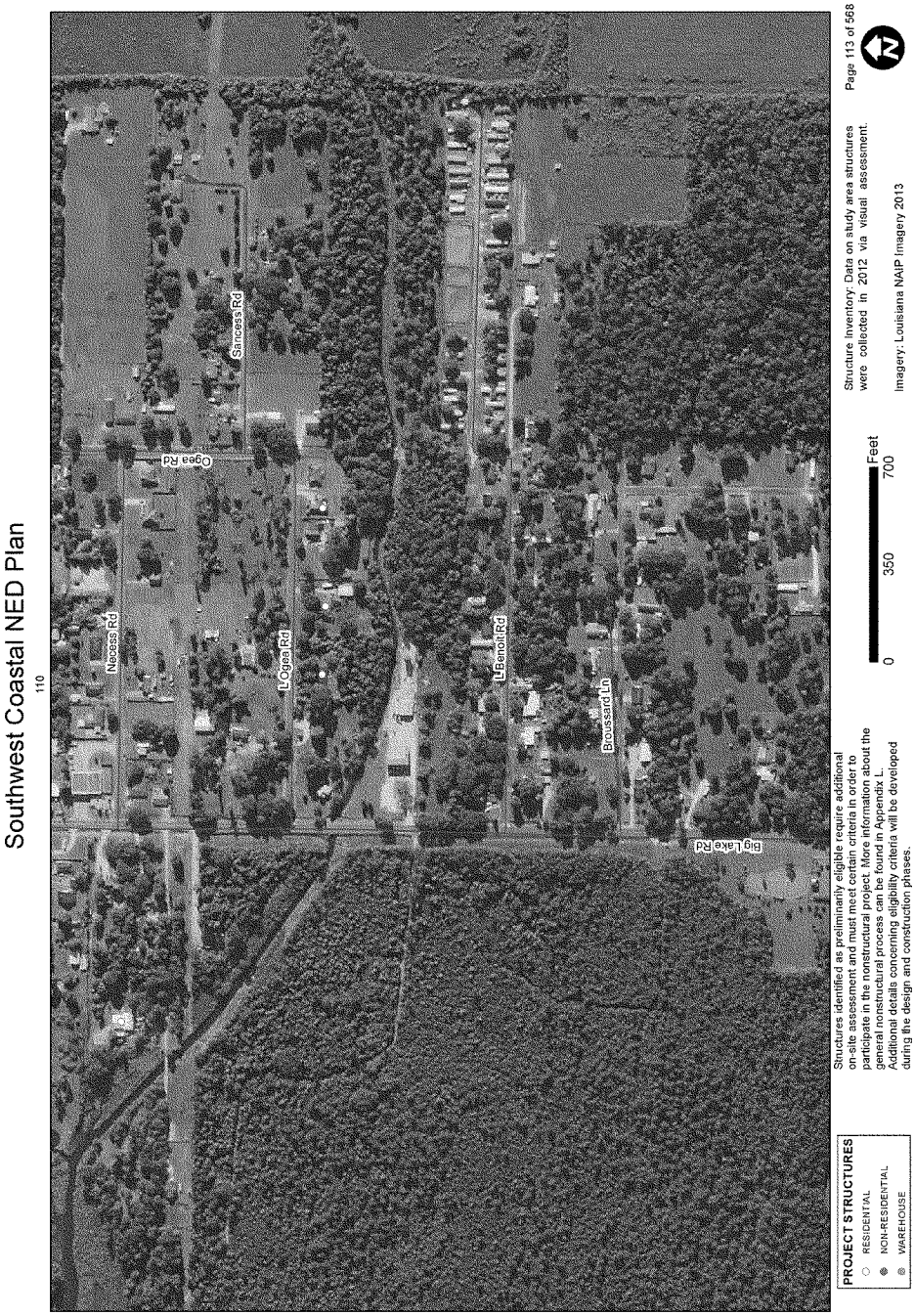
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Southwest Coastal NED Plan




Southwest Coastal NED Plan
105
111
Country Club Rd
Tallowood Dr
Fox Run Dr
Pecan Acres St
Vintage Ln
Nelson Rd
Leoni Dr
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 112 of 568


Southwest Coastal NED Plan
110
Ogea Rd
Nasess Rd
Stancess Rd
L'Ogea Rd
L'Benoit Rd
Broussard Ln
Big Lake Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 113 of 568

Southwest Coastal NED Plan

Southwest Coastal NED Plan

Southwest Coastal NED Plan
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
119
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 116 of 568
Miller Ln
Elliott Rd
Seth Ln
Grayson Ln
Crown Ln
Jude Ln
115

Southwest Coastal NED Plan

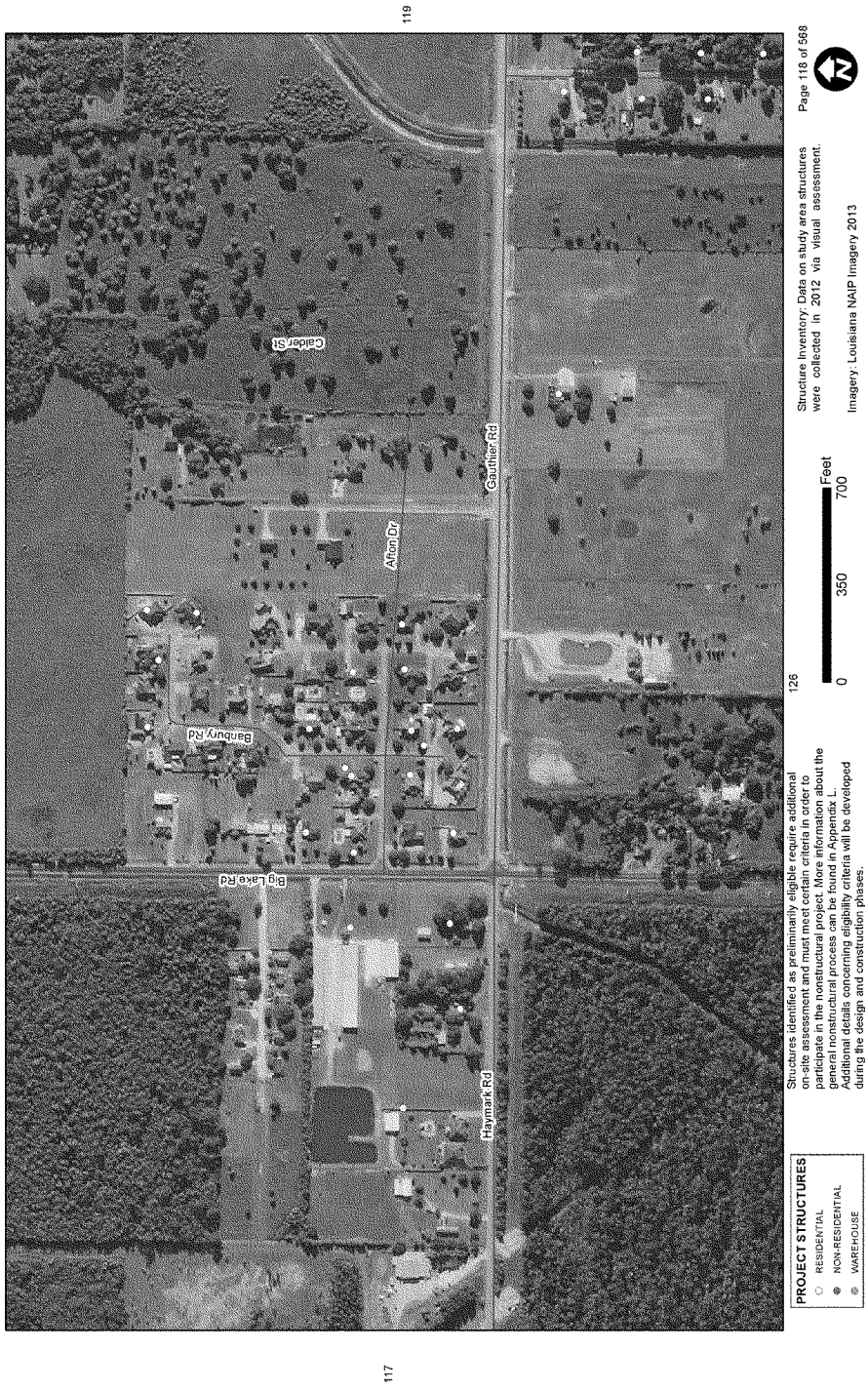
PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

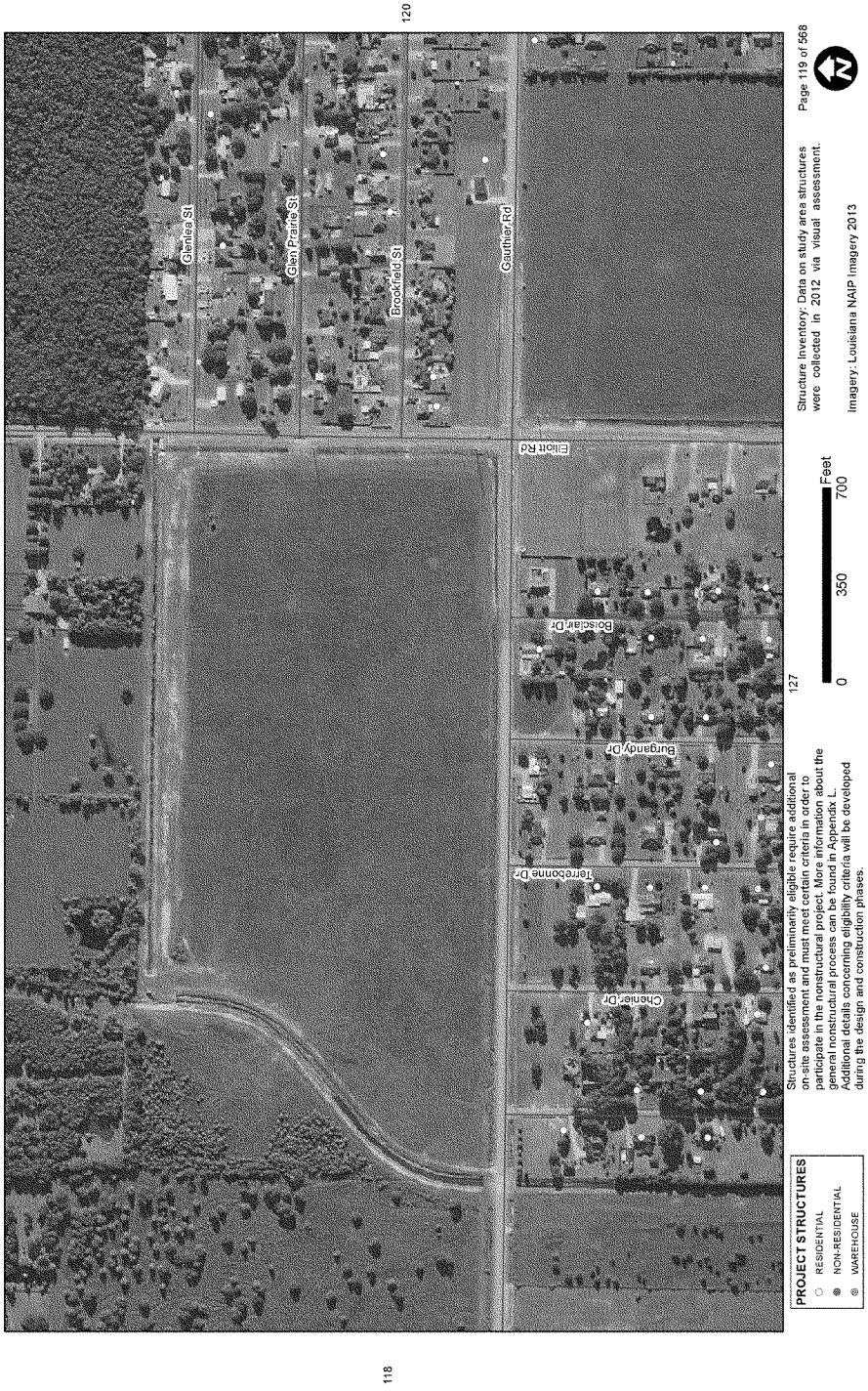
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

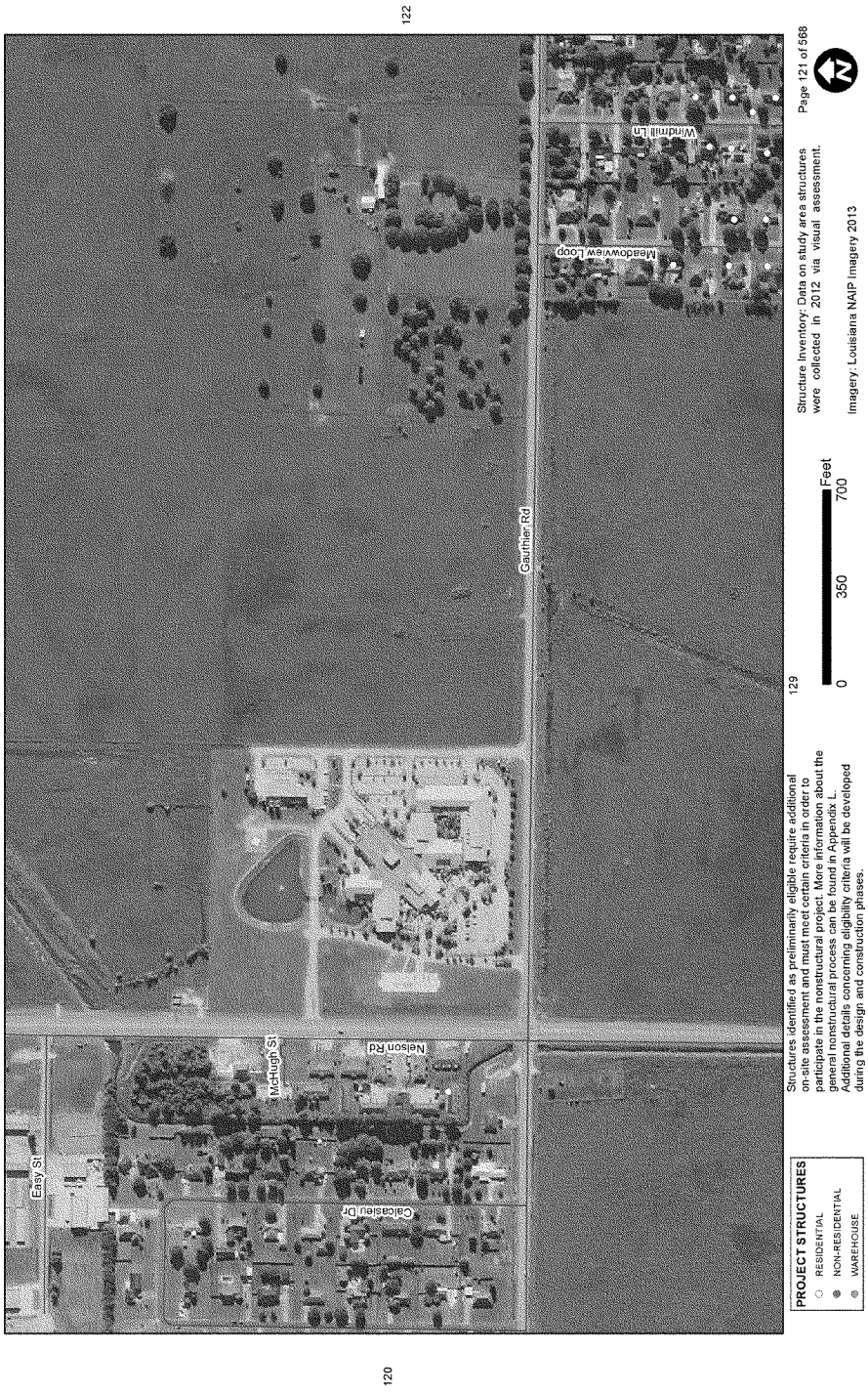
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013


Southwest Coastal NED Plan
115
119
117
126
Big Lake Rd
Banbury Rd
Afton Dr
Caldar St
Gauthier Rd
Haymark Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 118 of 568

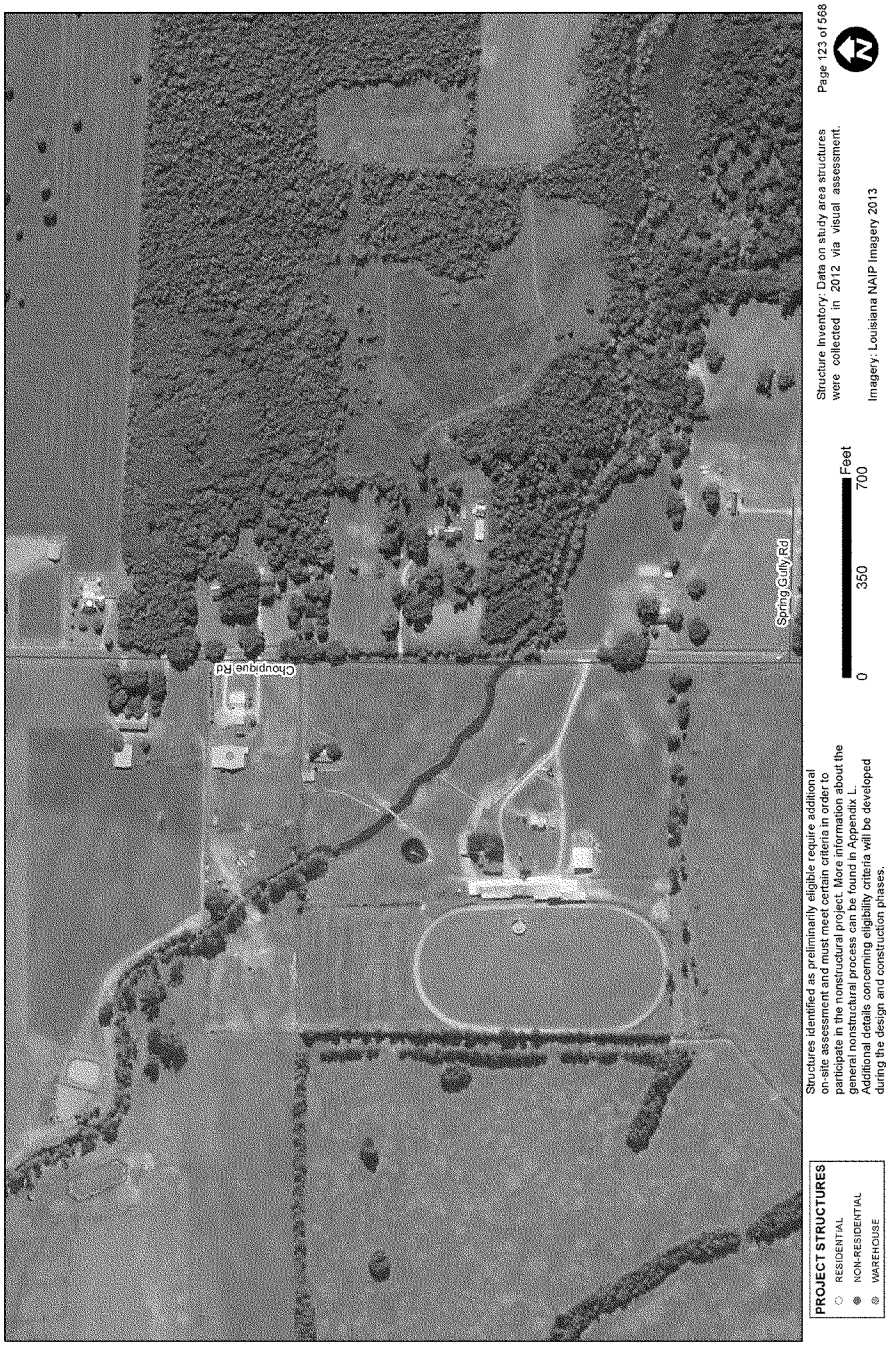

Southwest Coastal NED Plan
116
120
118
127
Glenlea St
Glen Prairie St
Brookfield St
Gauthier Rd
Elliott Rd
Boisclair Dr
Burgandy Dr
Terrebonne Dr
Chenier Dr
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 119 of 568

Southwest Coastal NED Plan
121
119
128
Easy St
Petite Meadow Rd
Calcasieu Dr
Bonne Meadow Ln
Sun Meadow Ln
Sun Ridge Ln
Meadow Ridge Ln
Glenmeadow St
Glenmeadow St
Genlea St
Glen Prairie St
Brookfield St
Gauthier Rd
Savannah Ln
Savannah Ln
Emily Ann Ln
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 120 of 568


Southwest Coastal NED Plan
120
122
129
Easy St
McHugh St
Nelson Rd
Calcasieu Dr
Gauthier Rd
Meadowview Loop
Windmill Ln
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 121 of 568

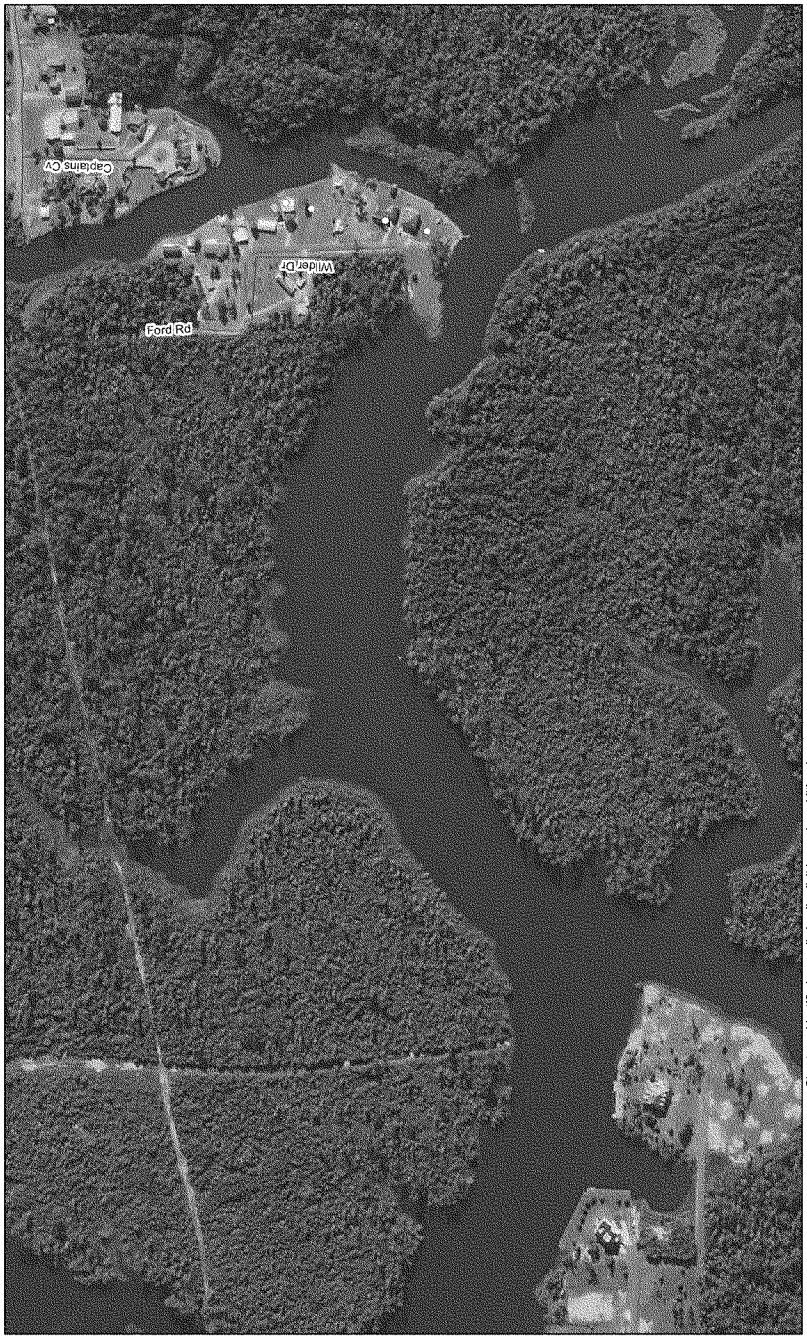
Southwest Coastal NED Plan
Lake St
Gauthier Rd
Meadowview Loop
Windmill Ln
Shadow Ln
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
130
0
350
700
Feet
Structure inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 122 of 568
121

Southwest Coastal NED Plan



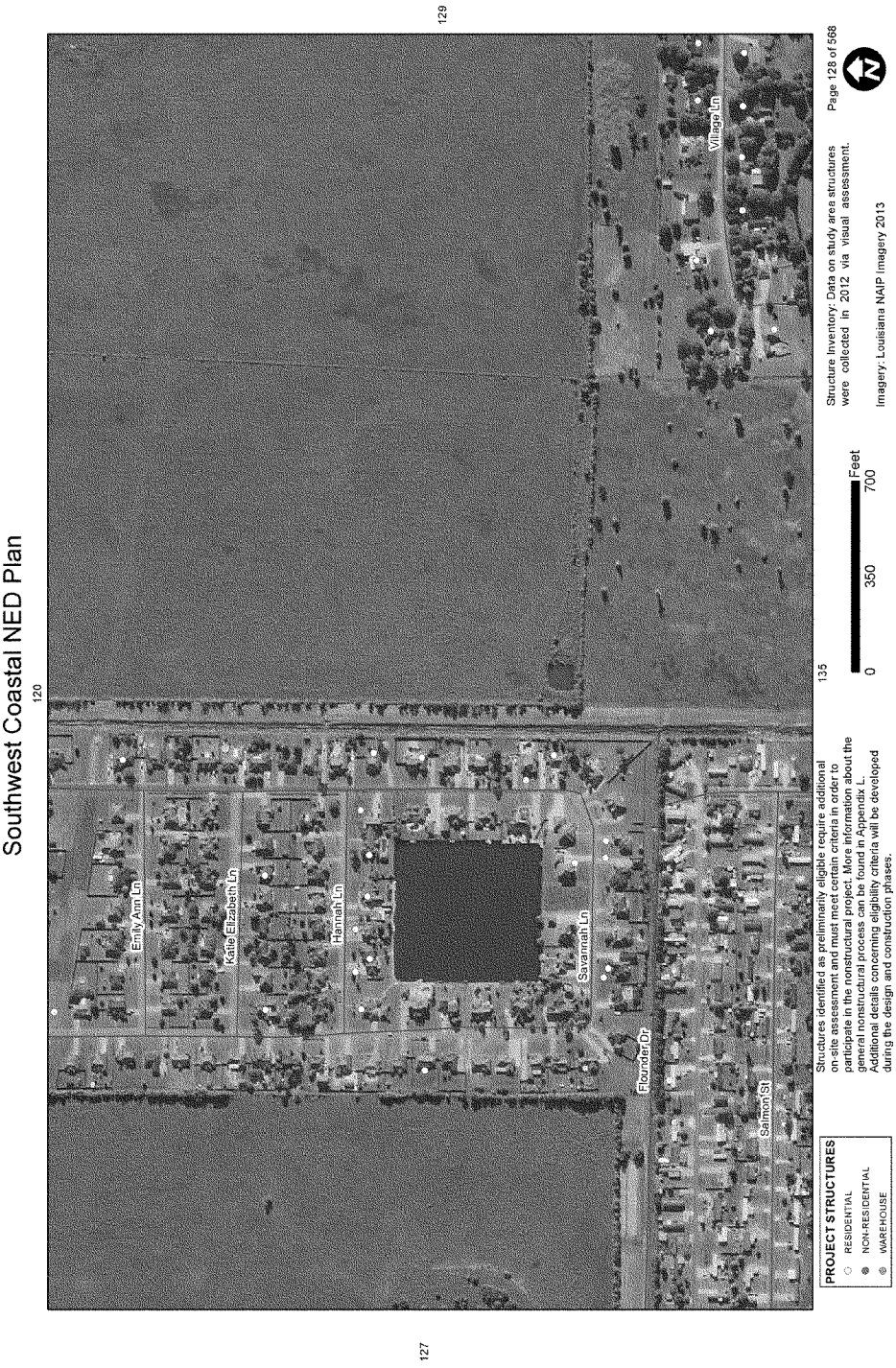
125

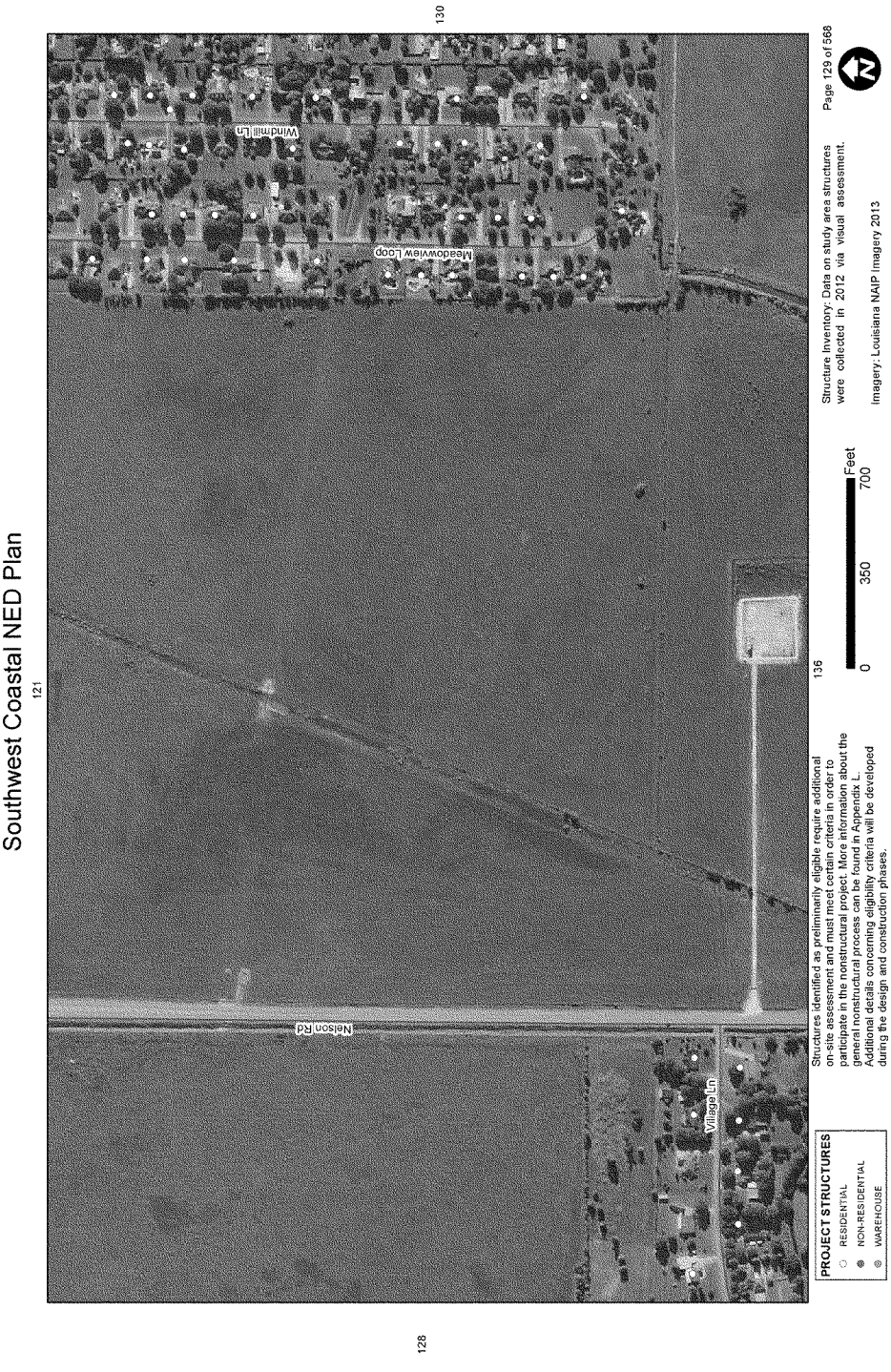
Southwest Coastal NED Plan


Southwest Coastal NED Plan
Captains Cv
Wilder Dr
Ford Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 125 of 568
124

Southwest Coastal NED Plan
118
127
133
Big Lake Rd
Vermillion Dr
Big Lake Pines Dr
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 126 of 568

Southwest Coastal NED Plan
119
128
126
134
Elliott Rd
Delta Dr
Boisclair Dr
Burgandy Dr
Terrebonne Dr
Vermillion Dr
Chenier Dr
Flounder Dr
Salmon St
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 127 of 568

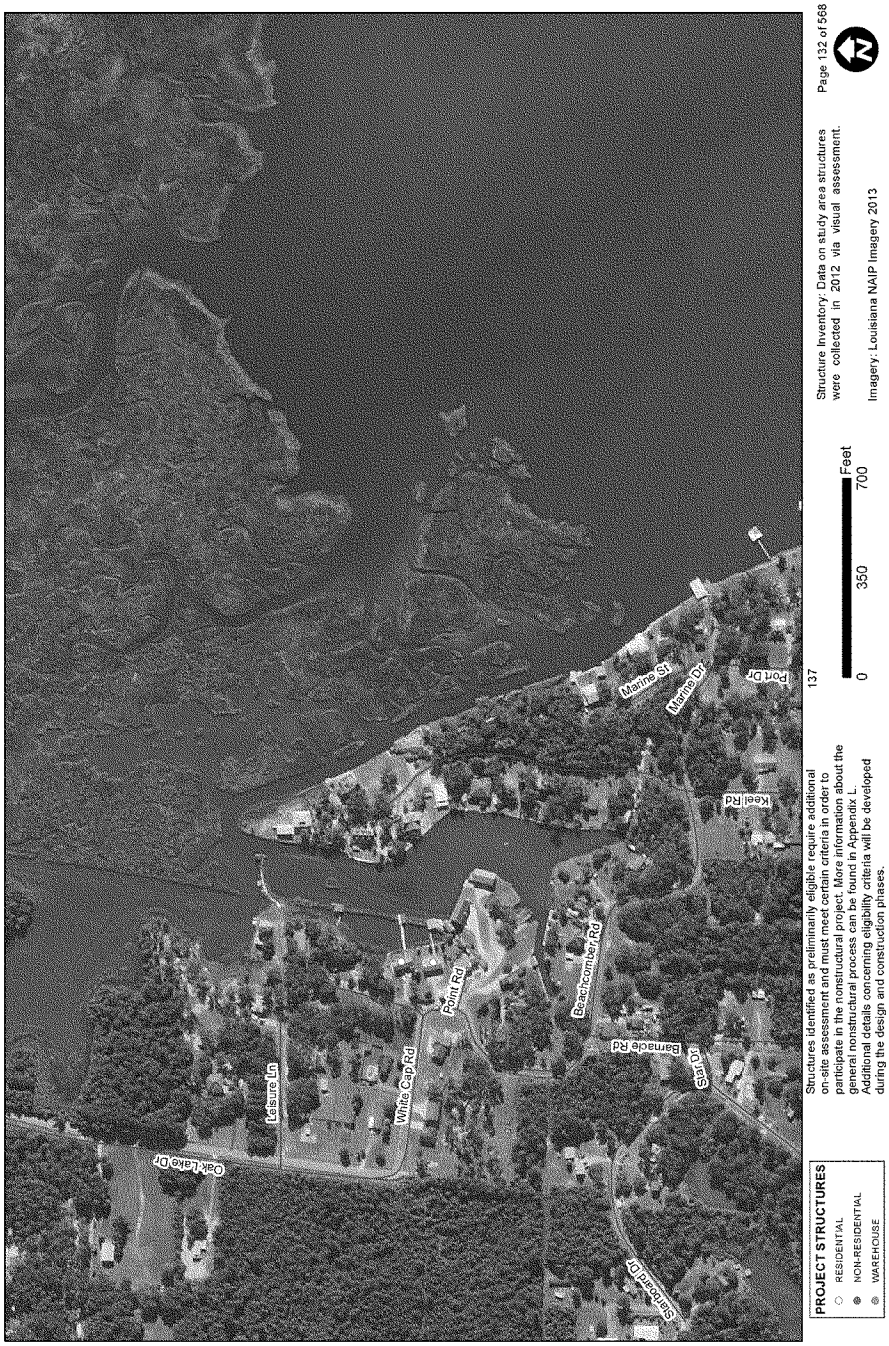

Southwest Coastal NED Plan
120
129
127
135
Emily Ann Ln
Katie Elizabeth Ln
Hannah Ln
Savannah Ln
Flounder Dr
Salmon St
Village Ln
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 128 of 568
12


Southwest Coastal NED Plan
121
130
128
136
Nelson Rd
Village Ln
Windmill Ln
Meadowview Loop
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 129 of 568

Southwest Coastal NED Plan
122
129
Lake St
Windmill Ln
Shadow Ln
Meadowview Loop
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP imagery 2013
Page 130 of 568

Southwest Coastal NED Plan
Spring Gully Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 131 of 568

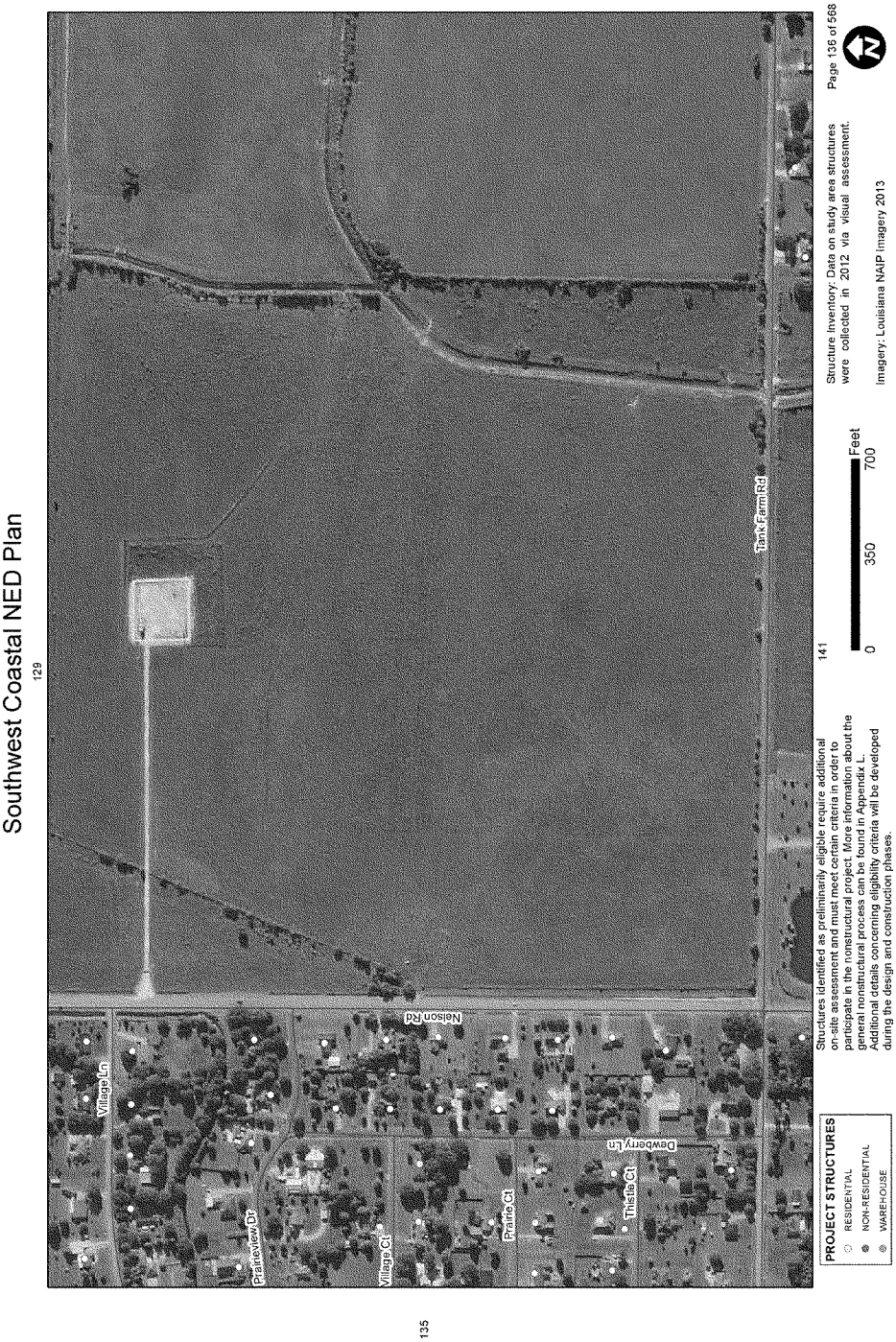
Southwest Coastal NED Plan



Southwest Coastal NED Plan
126
134
138
Big Lake Rd
Big Lake Pines Dr
Tank Farm Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 133 of 568

Southwest Coastal NED Plan
127
135
133
139
Salmon St
Stingray Dr
Dolphin Dr
Bonito Dr
Drum Dr
Pompano Dr
Tuna Ln
Sailfish Dr
Elliott Rd
Tank Farm Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 134 of 568

Southwest Coastal NED Plan
128
136
134
140
Village Ln
Salmon St
Stingray Dr
Dolphin Dr
Bonito Dr
Drum Dr
Sailfish Dr
Tuna Ln
Snapper Ln
Speck Dr
Mackerel Dr
Lang Rd
Tank Farm Rd
Village Ct
Prairie Ct
Thistle Ct
Dewberry Ln
Prairieview Dr
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 135 of 568


Southwest Coastal NED Plan
129
135
141
Village Ln
Prairieview Dr
Village Ct
Nelson Rd
Prairie Ct
Thistle Ct
Dewberry Ln
Tank Farm Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 136 of 568

Southwest Coastal NED Plan

132

PROJECT STRUCTURES

- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

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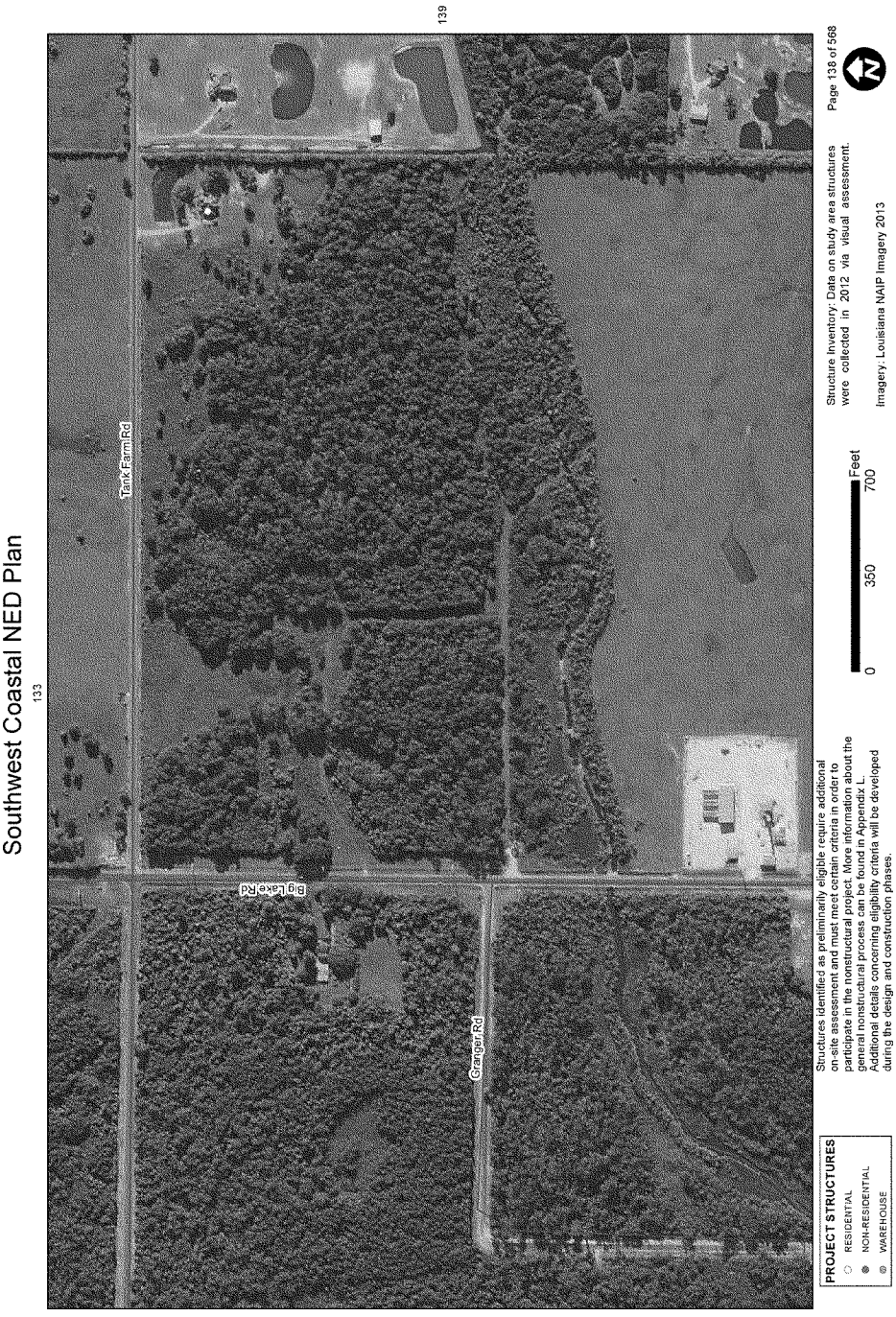
Southwest Coastal NED Plan
133
139
Tank Farm Rd
Big Lake Rd
Granger Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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Southwest Coastal NED Plan

134

138

140

145

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

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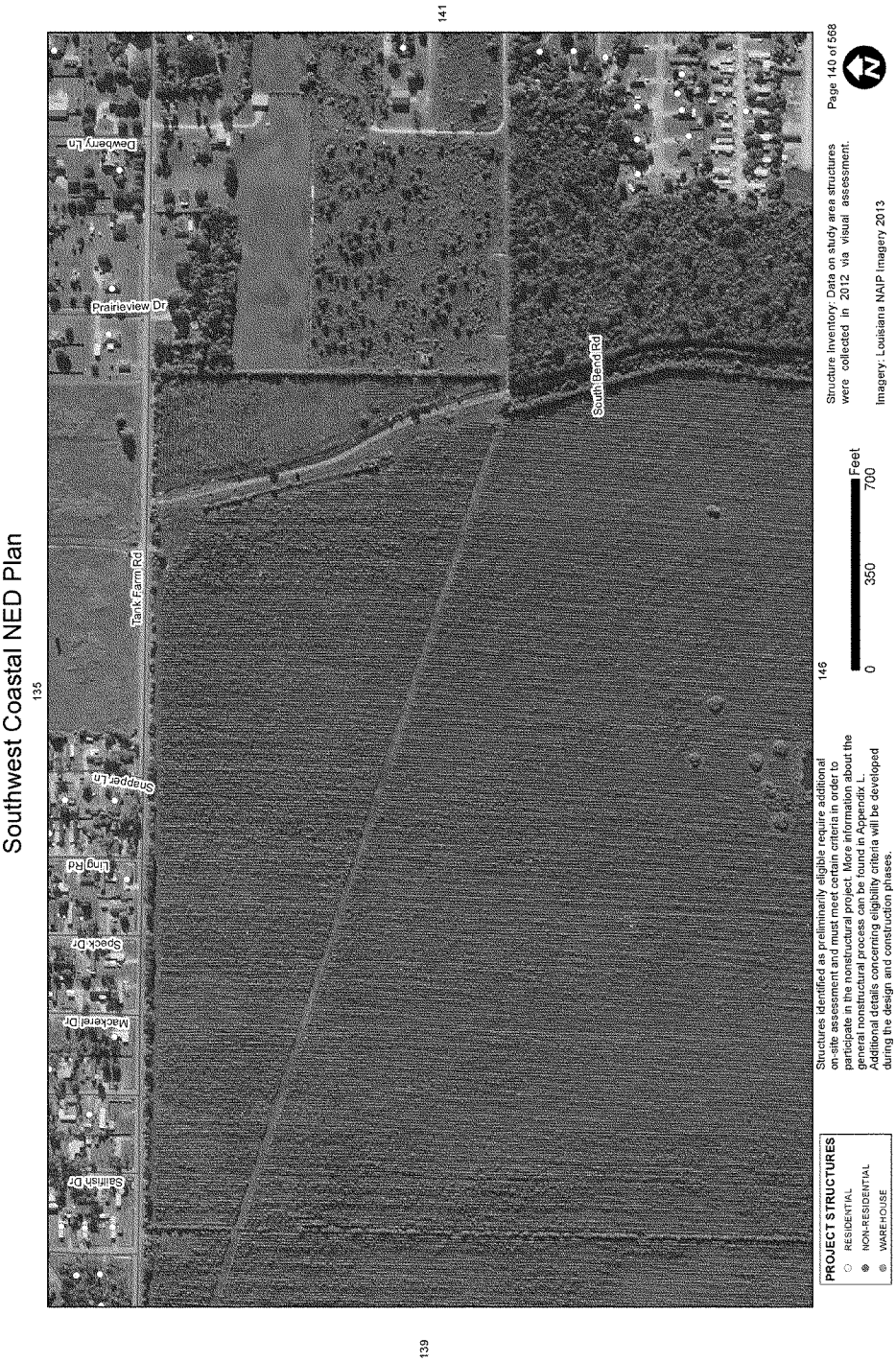
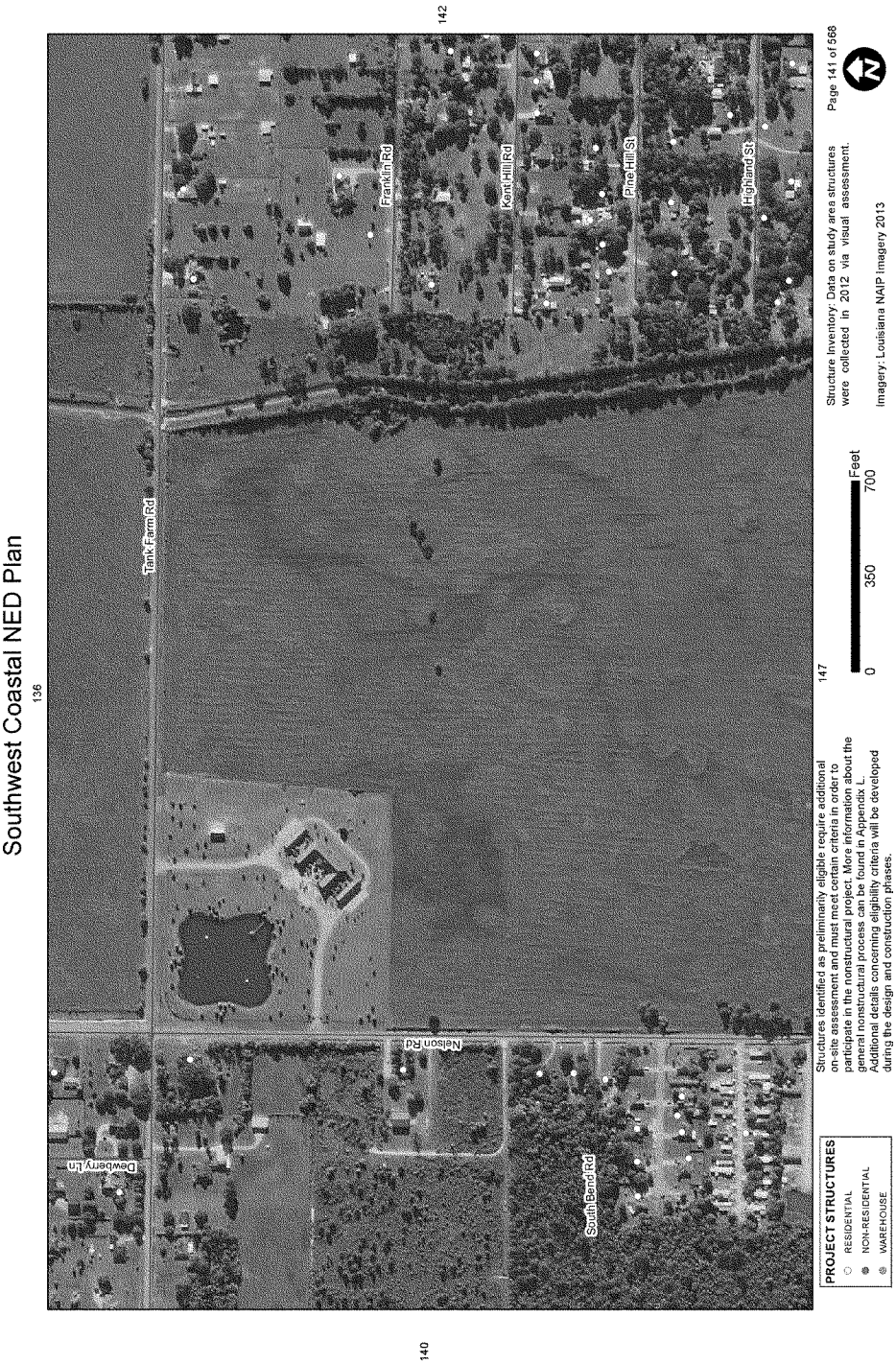
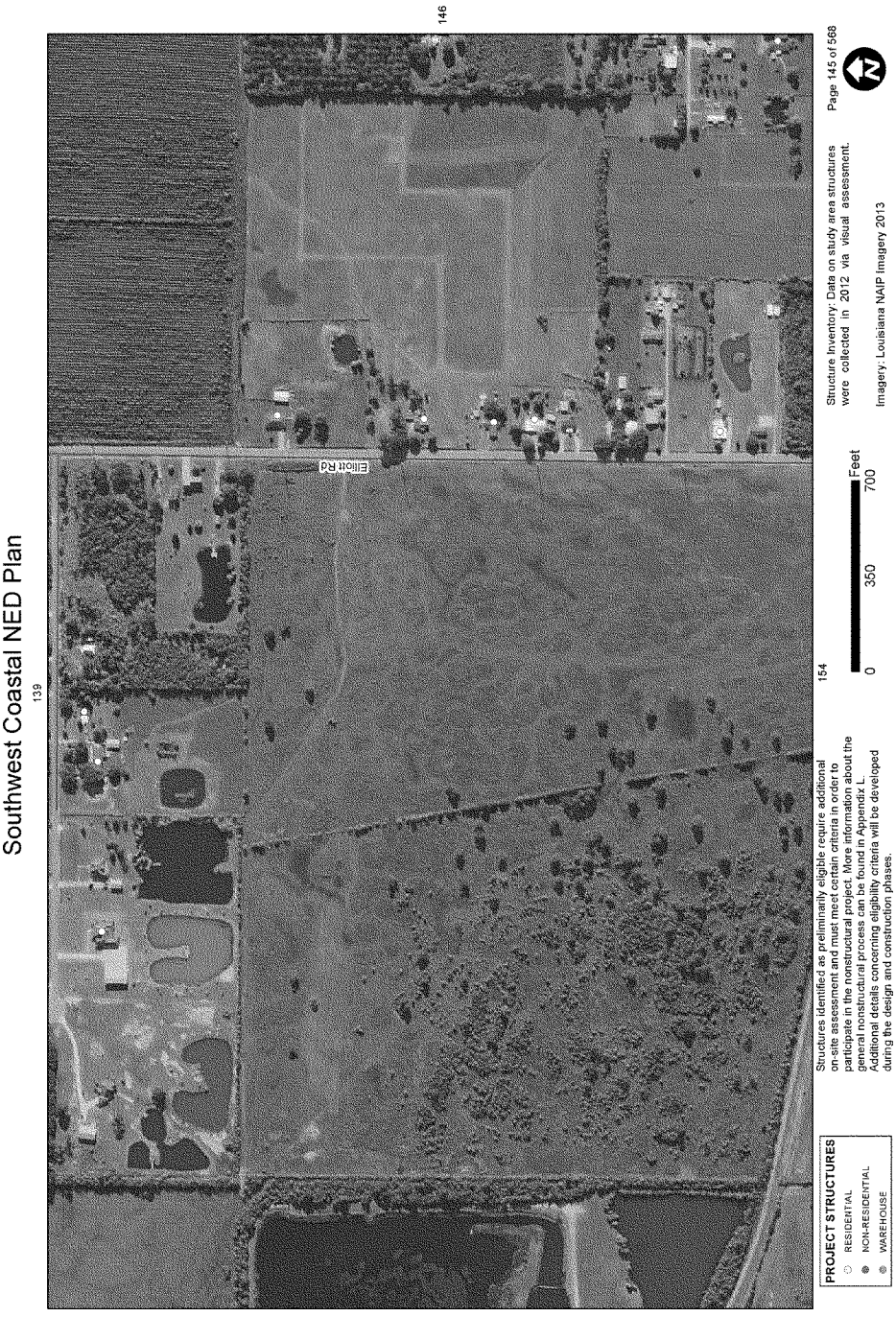

Southwest Coastal NED Plan
135
141
139
146
Dewberry Ln
Prairieview Dr
Tank Farm Rd
South Bend Rd
Snapper Ln
Ling Rd
Speck Dr
Mackerel Dr
Sailfish Dr
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 140 of 568


Southwest Coastal NED Plan
136
142
140
147
Tank Farm Rd
Dewberry Ln
Nelson Rd
South Bend Rd
Franklin Rd
Kent Hill Rd
Pine Hill St
Highland St
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 141 of 568

Southwest Coastal NED Plan

Southwest Coastal NED Plan

Southwest Coastal NED Plan


Southwest Coastal NED Plan
139
154
146
Elliott Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 145 of 568

Southwest Coastal NED Plan

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

155

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Southwest Coastal NED Plan
141
148
146
156
Highland St
Lake Land St
Whispering Pines Dr
Stout St
Nelson Rd
Miles Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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Southwest Coastal NED Plan
142
147
157
Highland St
Gossett Rd
Lake Land St
Lake St
Collette Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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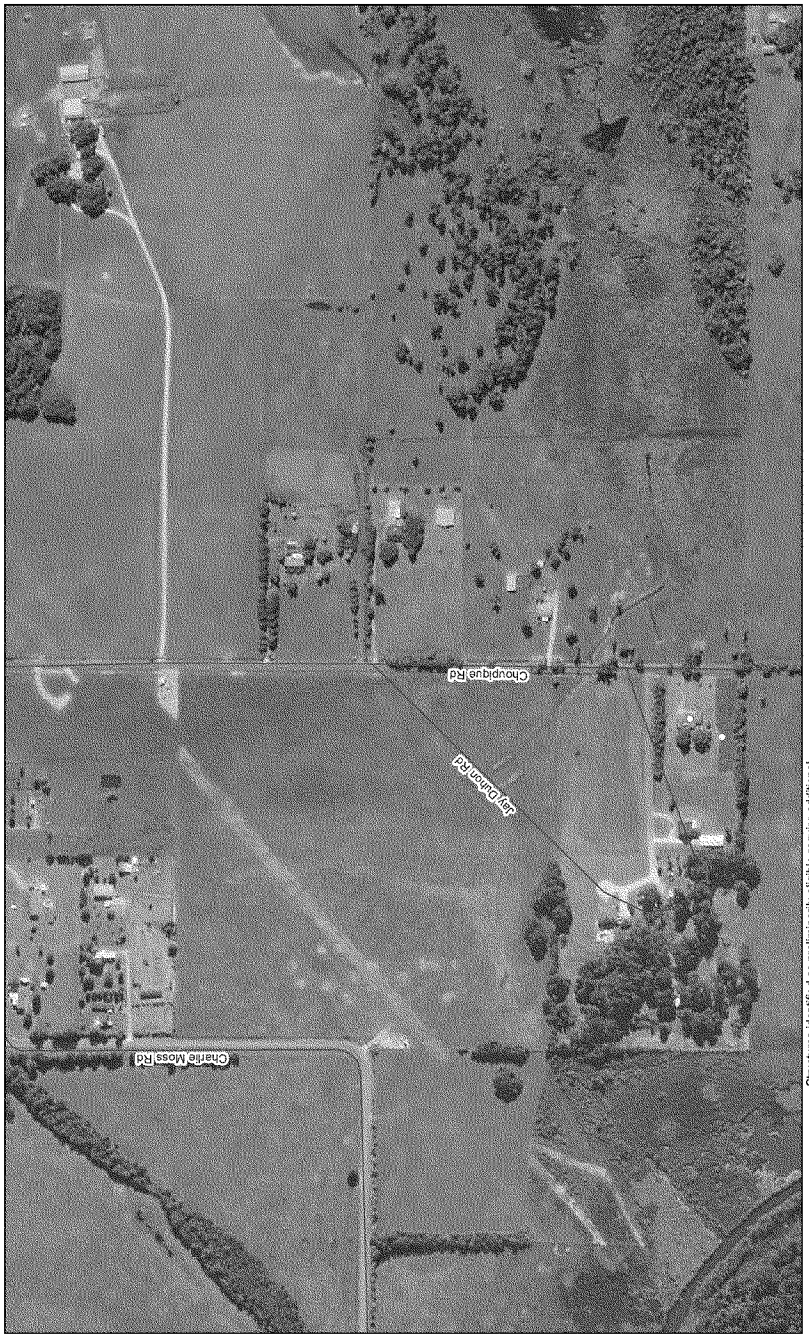
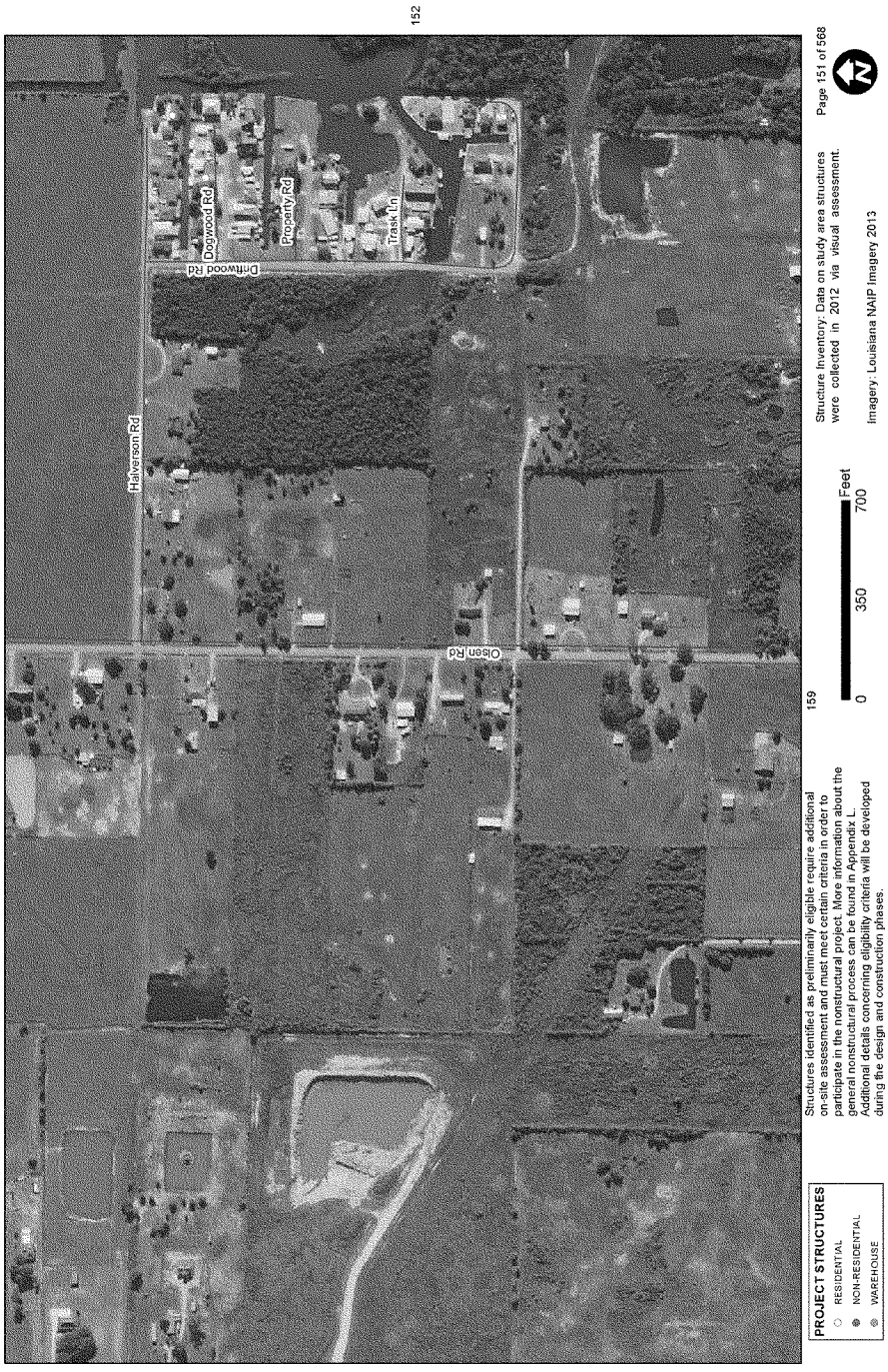
Southwest Coastal NED Plan
143
Herman Rd
Acadian Ln
McCindy Rd
Gulf Hwy
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 149 of 568

Southwest Coastal NED Plan



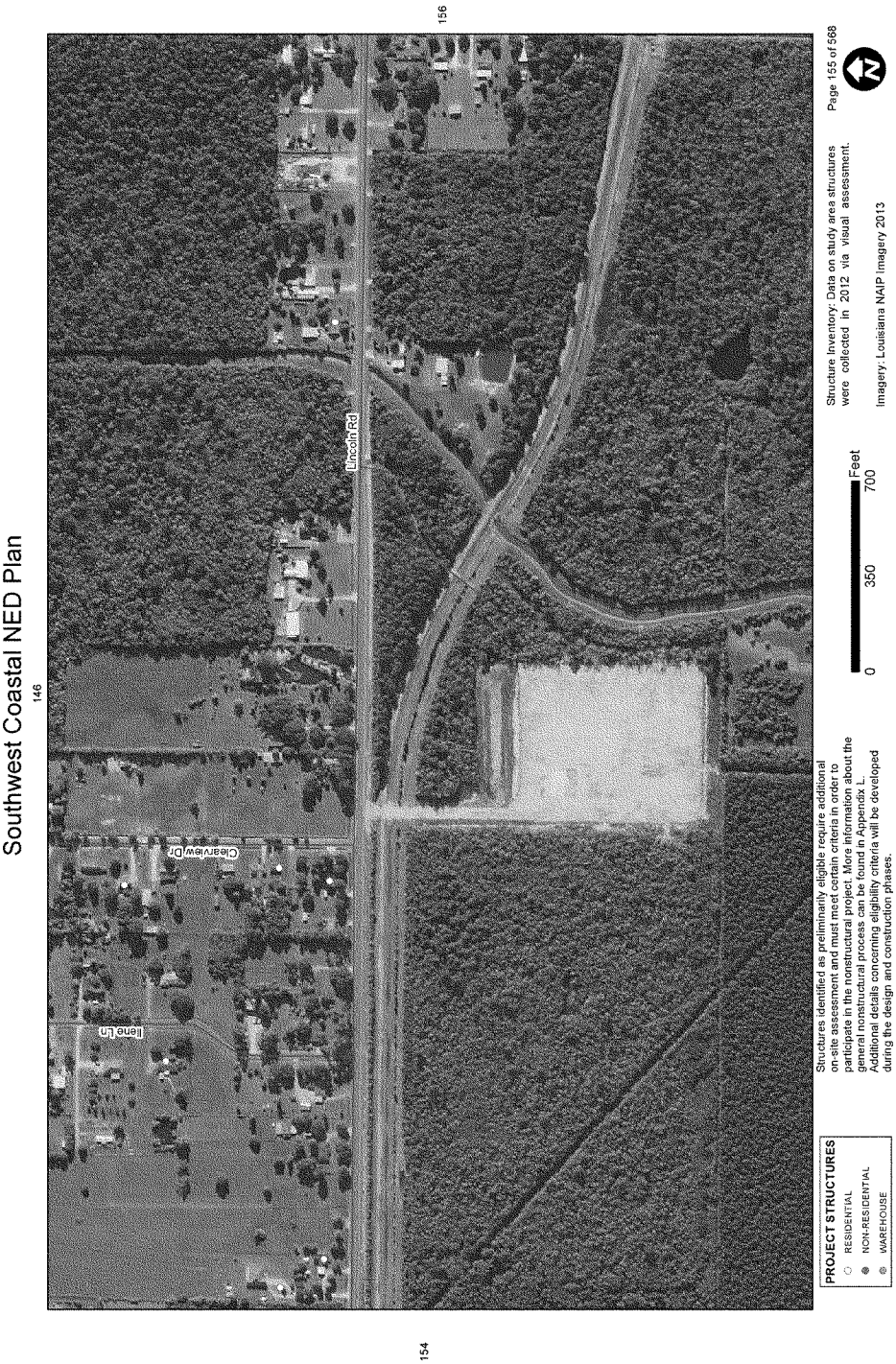
Southwest Coastal NED Plan

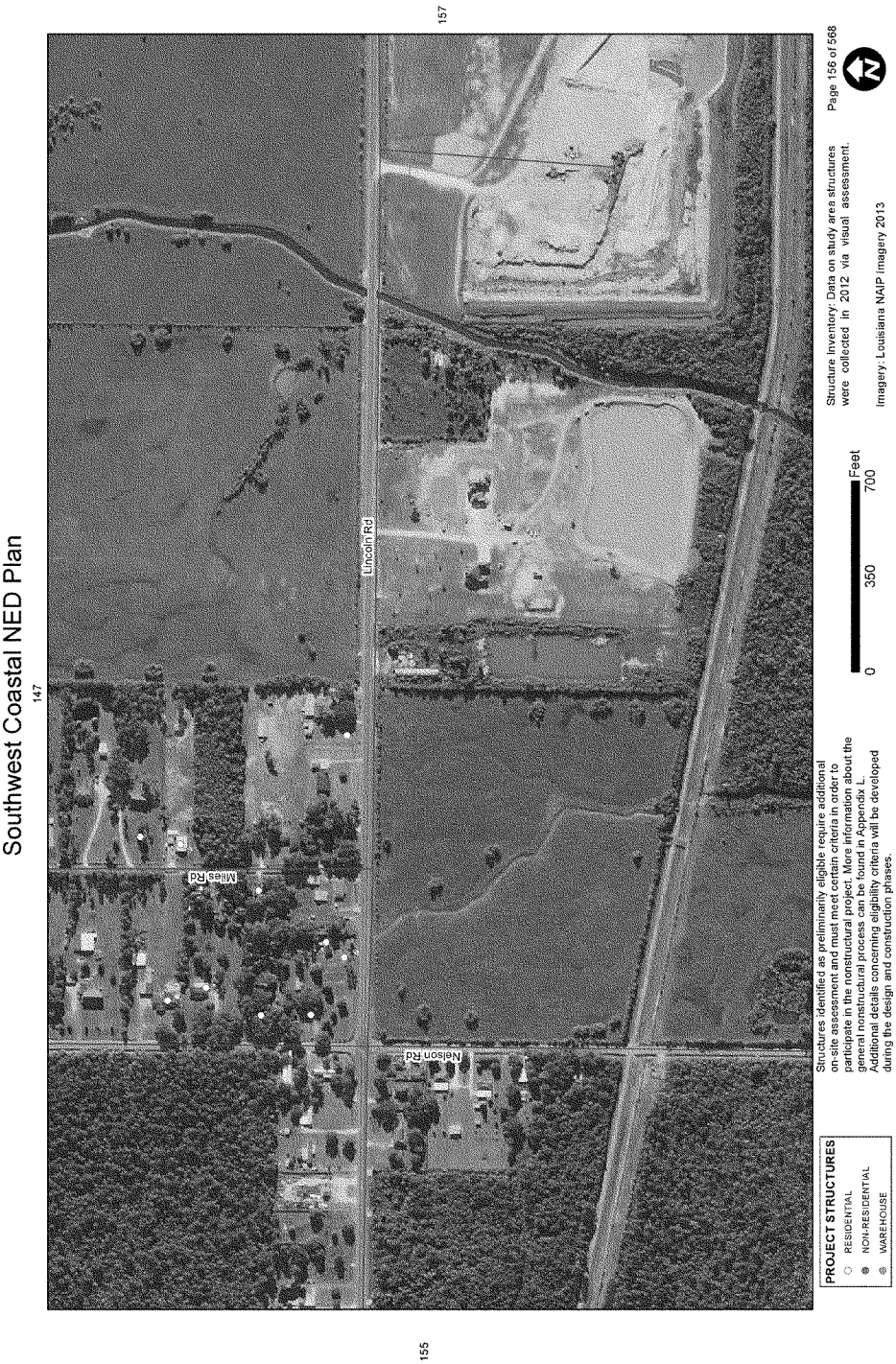


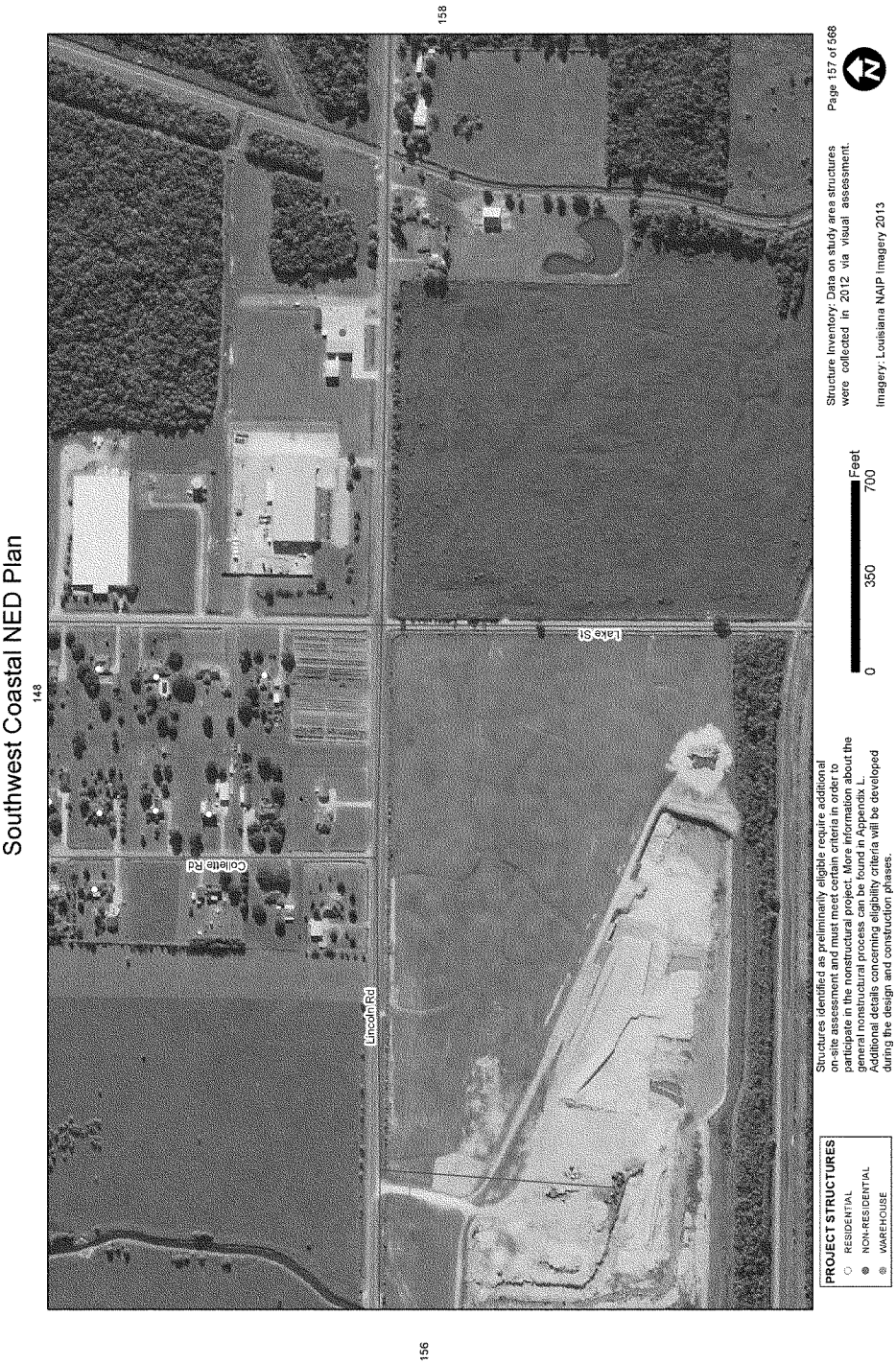
Southwest Coastal NED Plan
Halverson Rd
Dogwood Rd
Driftwood Rd
Property Rd
Trask Ln
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 152 of 568
151

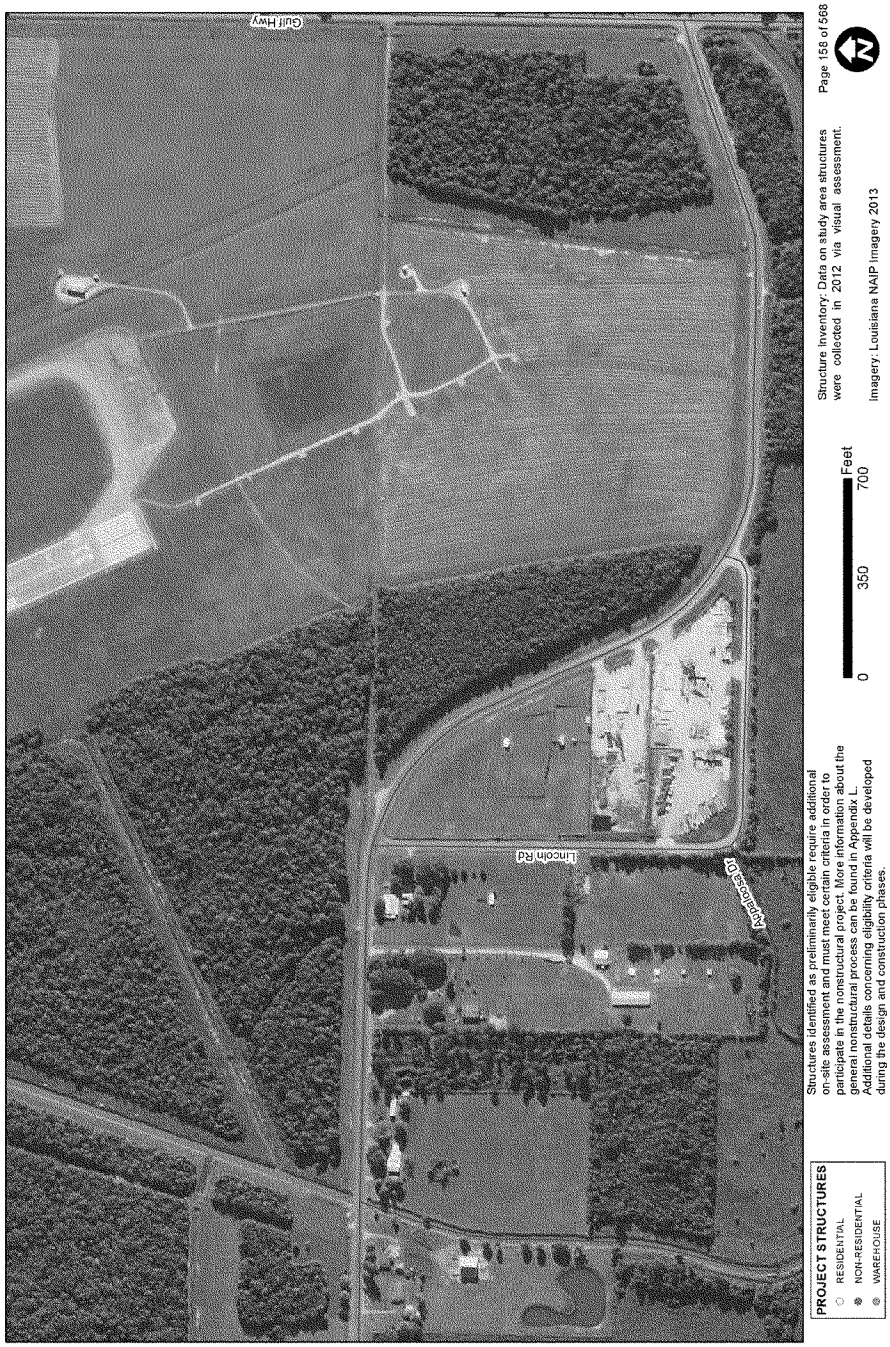
Southwest Coastal NED Plan
154
Big Lake Rd
Lincoln Rd
Joe Ladoux Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 153 of 568

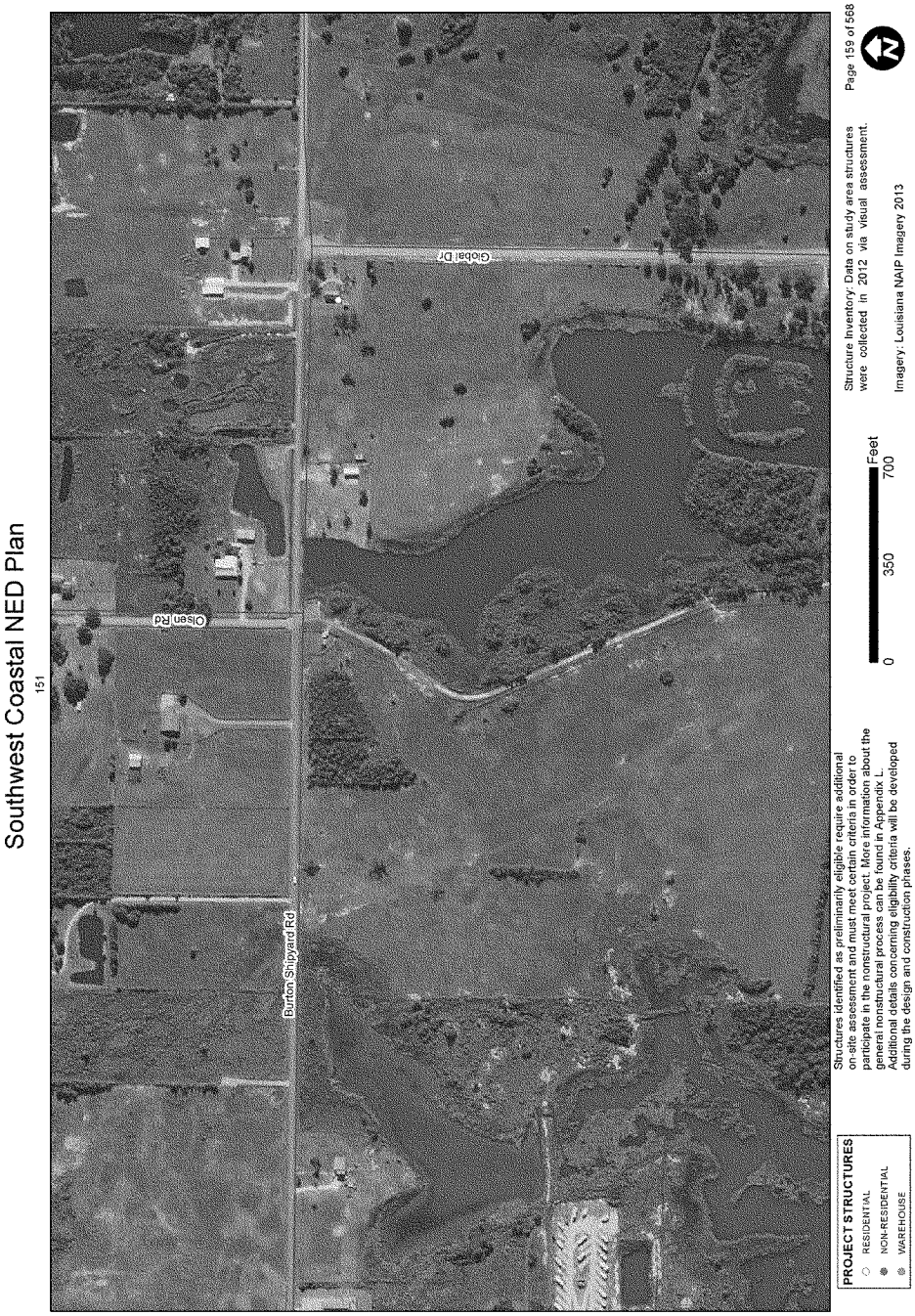
Southwest Coastal NED Plan
145
155
153
160
Lincoln Rd
Elliott Rd
Jose Ledoux Rd
Ilene Ln
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
0
350
700
Feet
Page 154 of 568

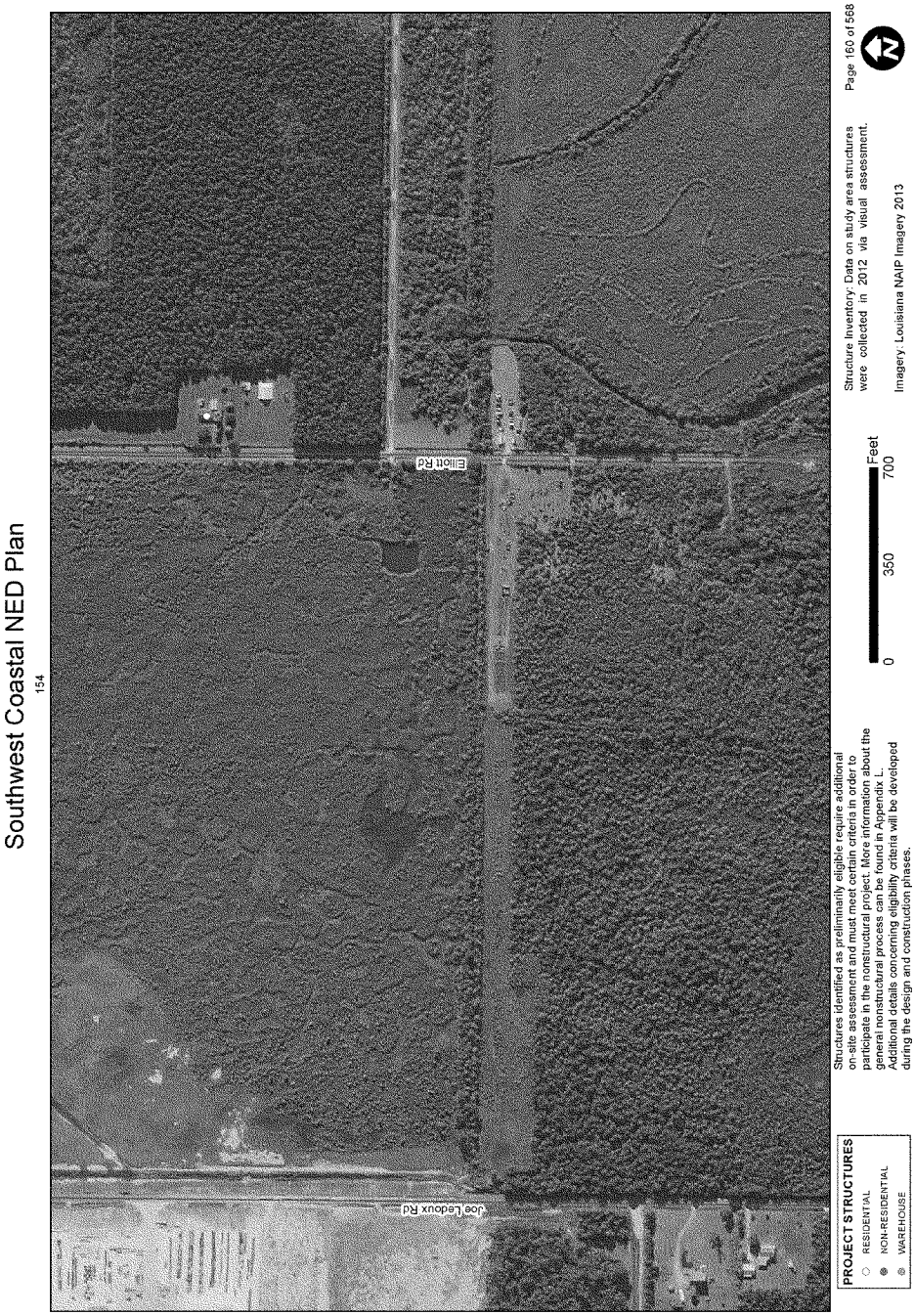

Southwest Coastal NED Plan
146
156
154
Lincoln Rd
Clearview Dr
Ilene Ln
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 155 of 568


Southwest Coastal NED Plan
147
157
155
Miles Rd
Lincoln Rd
Nelson Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 156 of 568

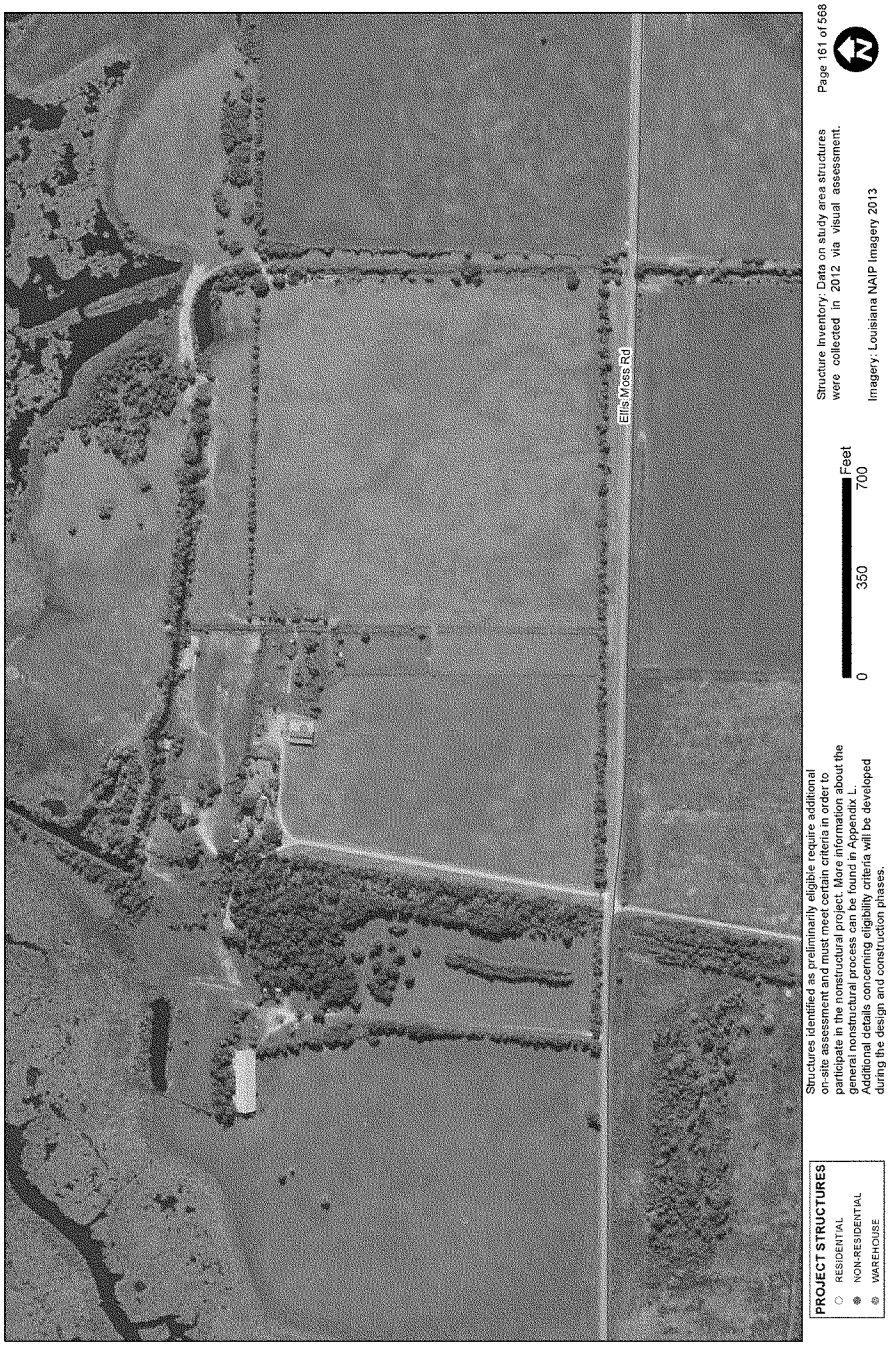

Southwest Coastal NED Plan
148
158
156
Colette Rd
Lincoln Rd
Lake St
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 157 of 568


Southwest Coastal NED Plan
Gulf Hwy
Lincoln Rd
Hopkins Dr
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 158 of 568
157


Southwest Coastal NED Plan
151
Olsen Rd
Burton Shipyard Rd
Global Dr
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 159 of 568

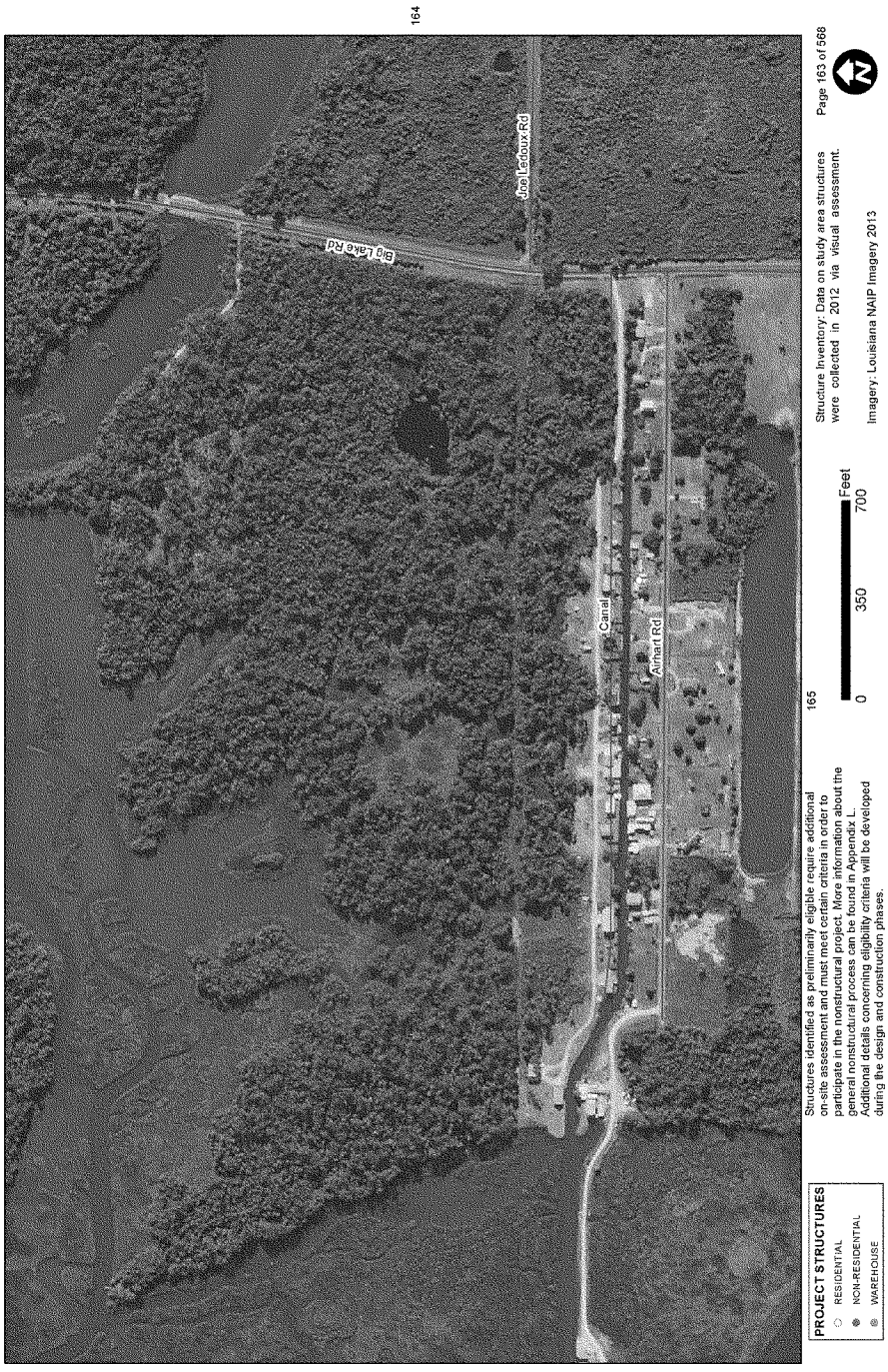

Southwest Coastal NED Plan
154
Joe Ledoux Rd
Elliott Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 160 of 568

Southwest Coastal NED Plan



Southwest Coastal NED Plan

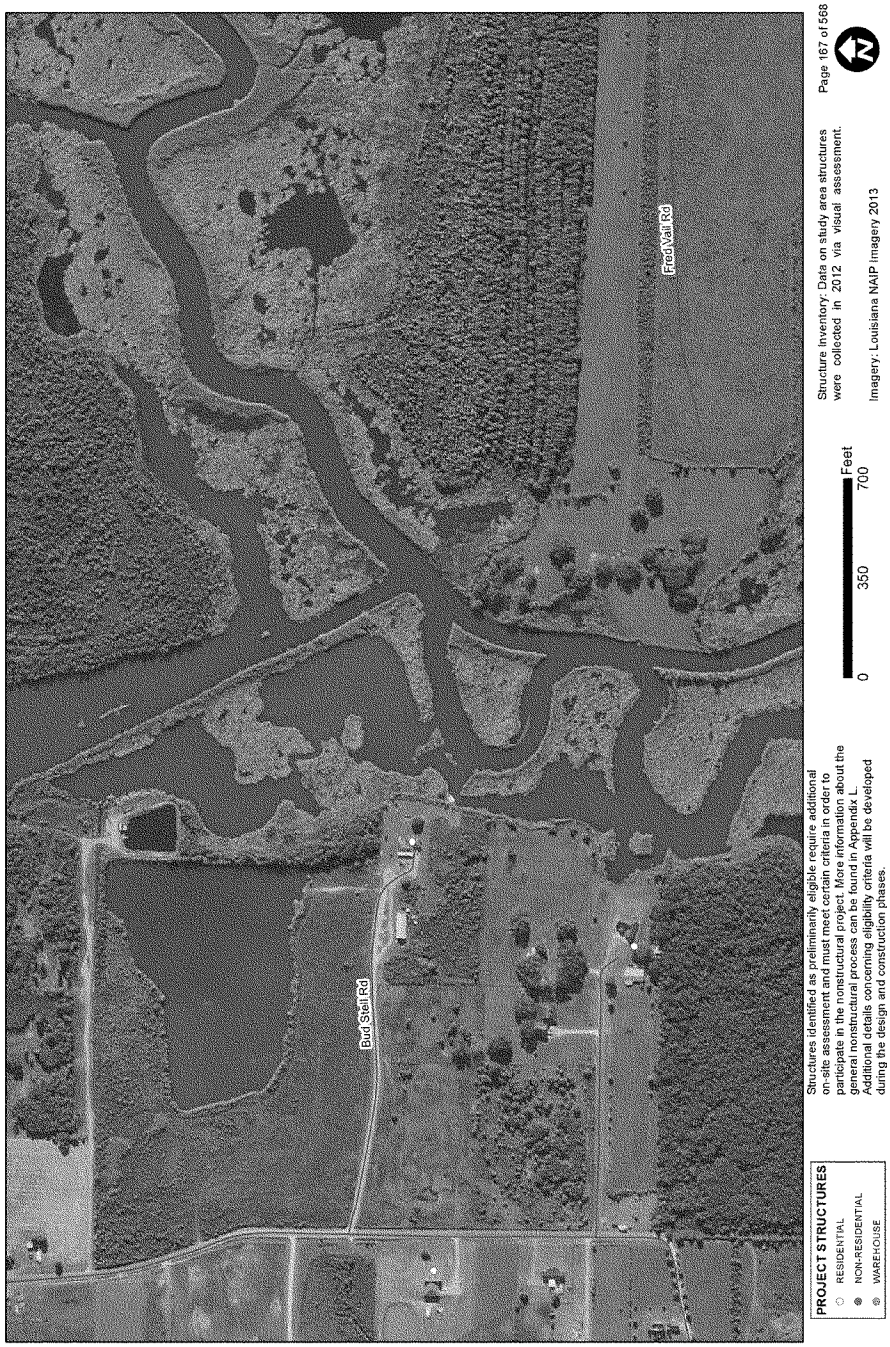
Southwest Coastal NED Plan



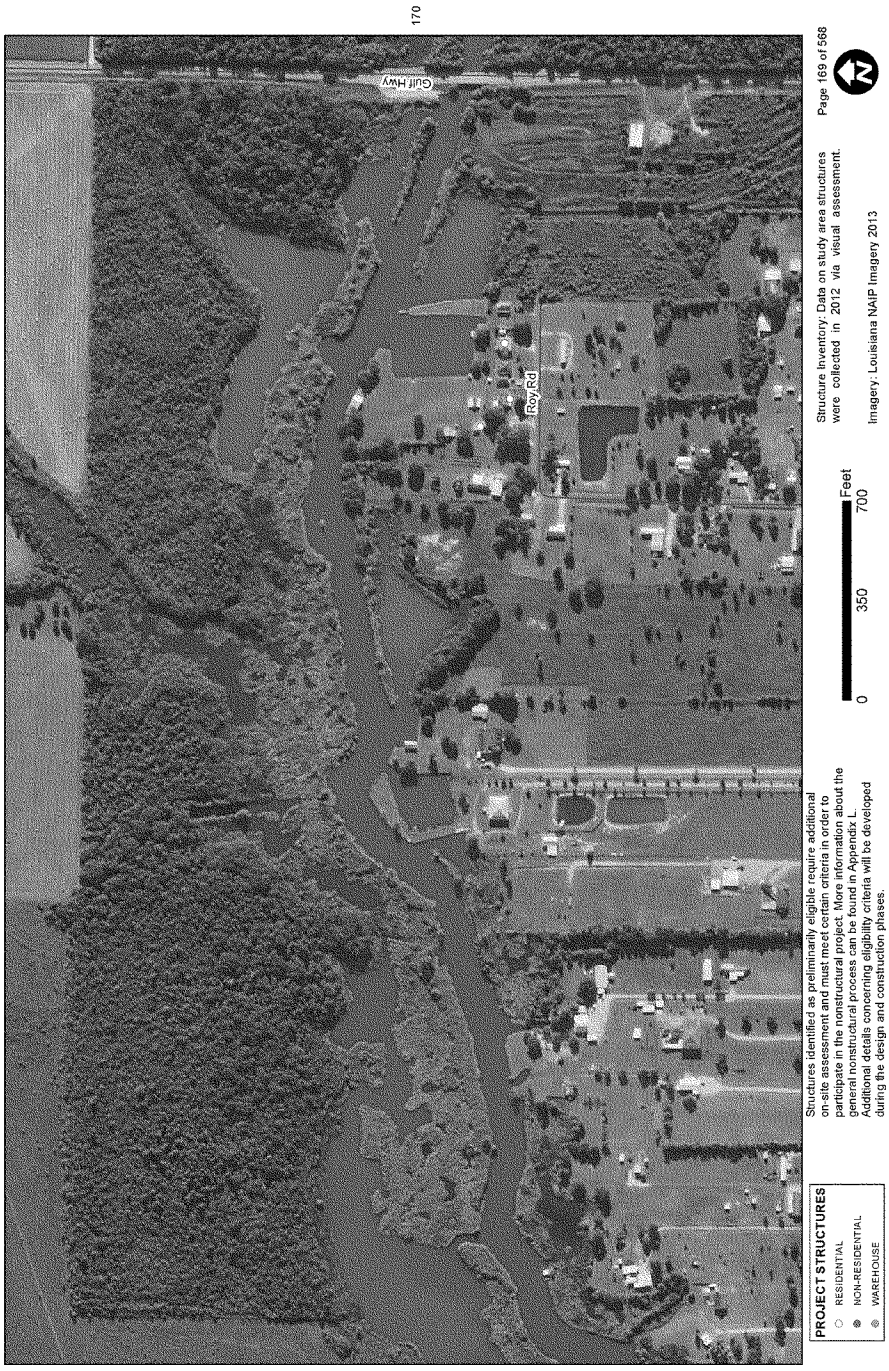
Southwest Coastal NED Plan
Big Lake Rd
Joe Ledoux Rd
Bud Stell Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
166
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 164 of 568
163

Southwest Coastal NED Plan
163
166
Airhart Rd
Big Lake Rd
Bazile Rd
Cut Off Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 165 of 568
N

Southwest Coastal NED Plan
164
165
167
Bud Stell Rd
Big Lake Rd
Bazile Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 166 of 568


Southwest Coastal NED Plan
Bud Stell Rd
Fred Vail Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 167 of 568
166

Southwest Coastal NED Plan


Southwest Coastal NED Plan
170
Gulf Hwy
Roy Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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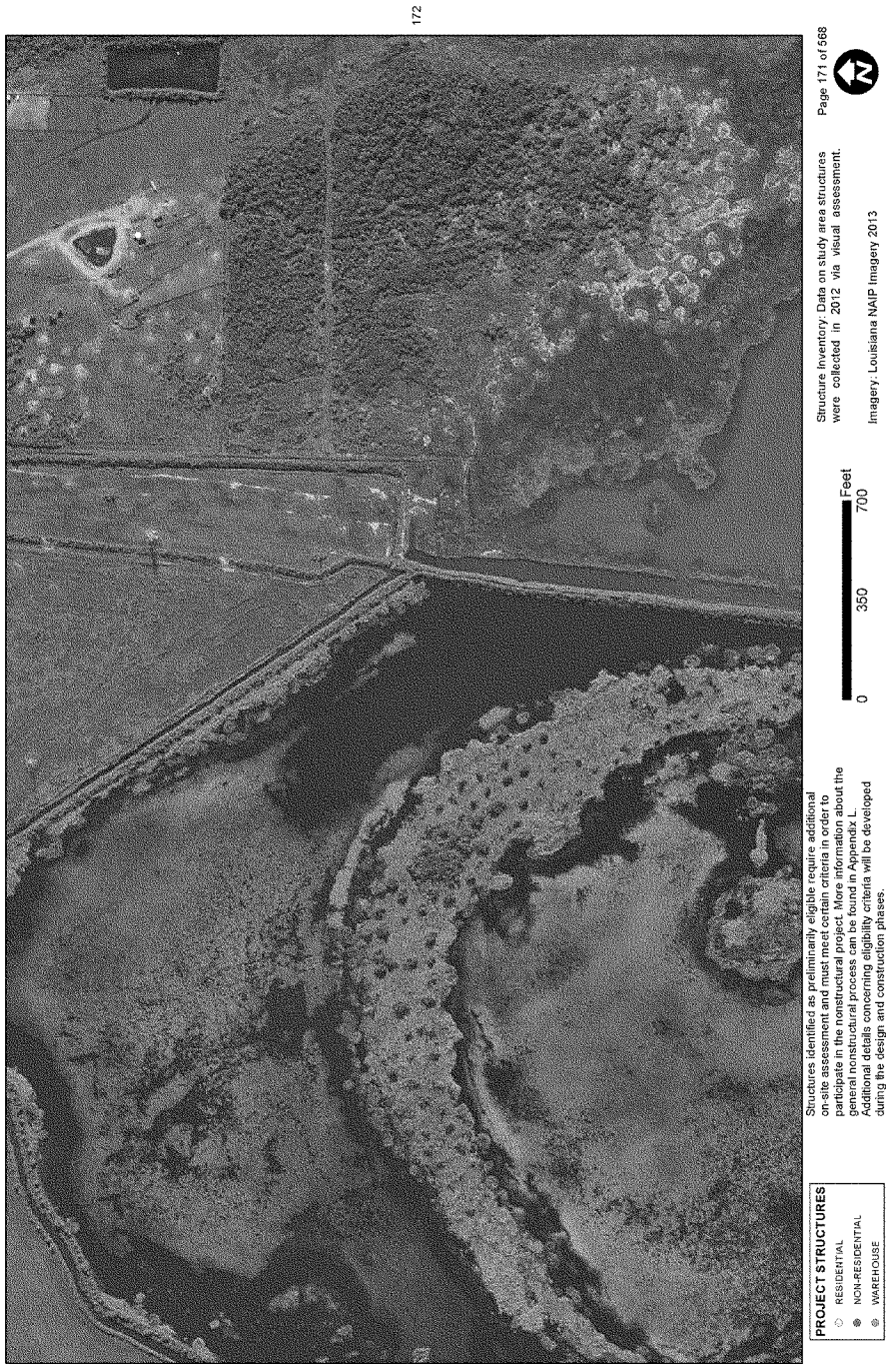
Southwest Coastal NED Plan
Rod Bud Ln
Gulf Hwy
Bugas Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 170 of 568
169


172
Southwest Coastal NED Plan
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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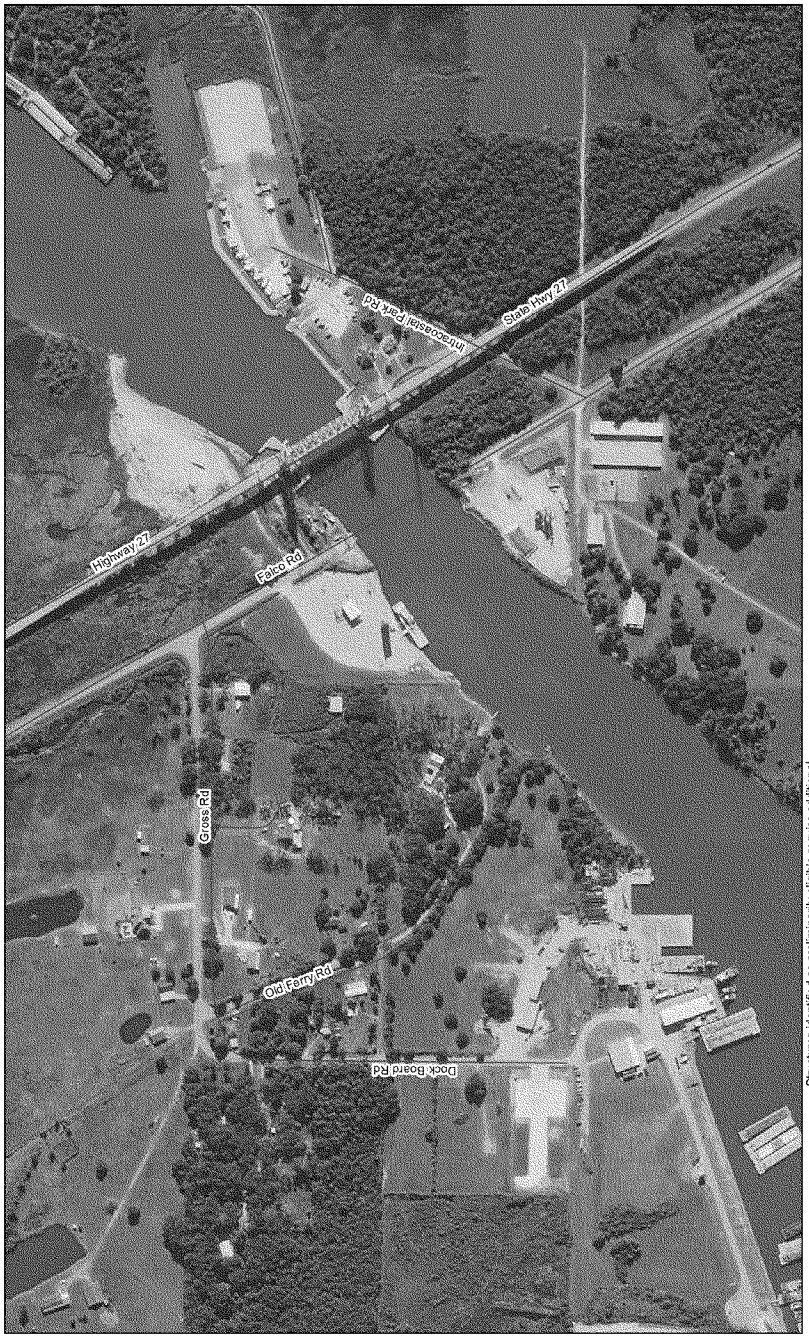
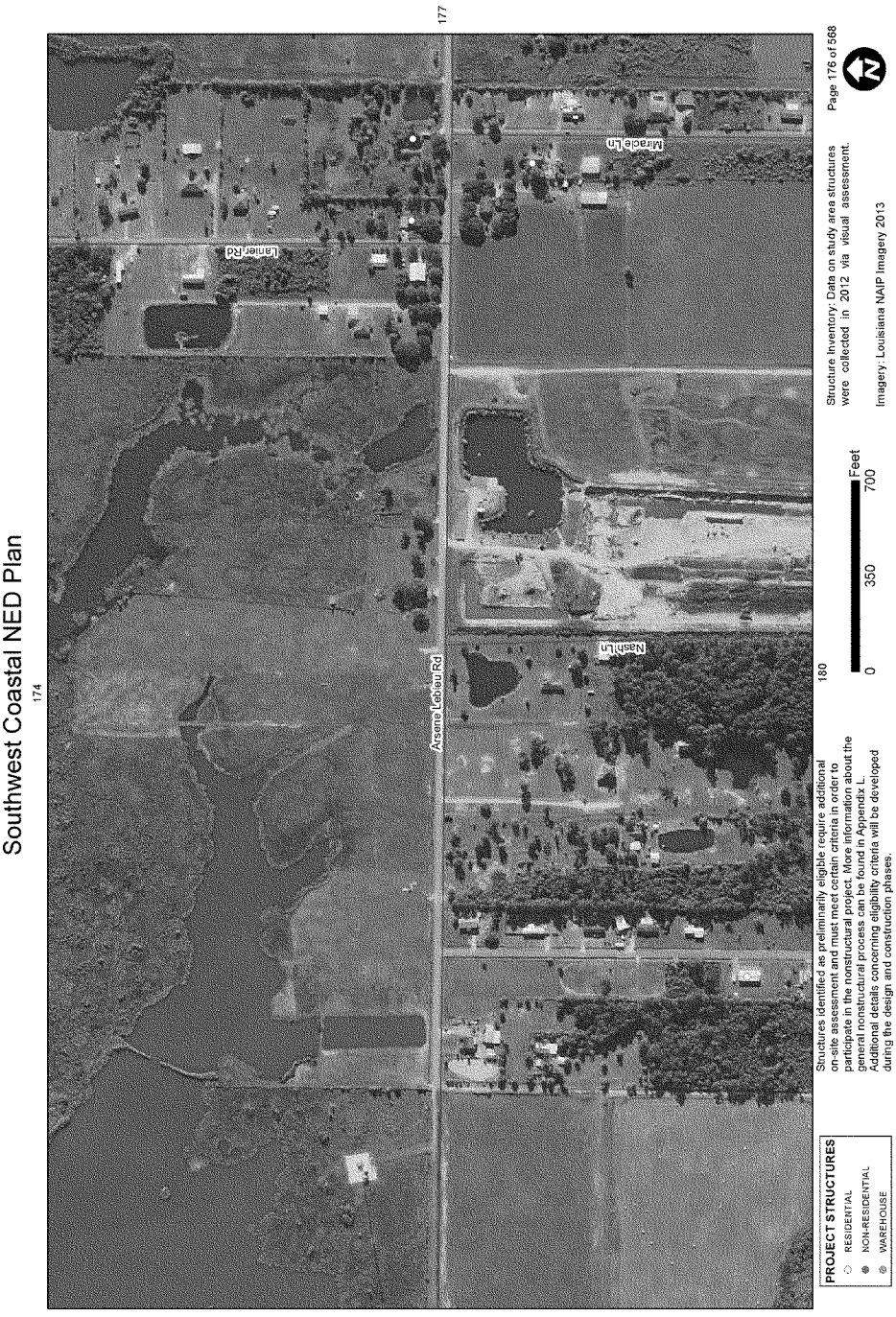
Southwest Coastal NED Plan
Highway 27
Gull Penny Rd
Barbonne Rd
Landry Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 172 of 568
171

Southwest Coastal NED Plan

Southwest Coastal NED Plan

Southwest Coastal NED Plan




Southwest Coastal NED Plan
174
177
180
Lamer Rd
Arsene Lebleu Rd
Nash Ln
Mirade Ln
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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Southwest Coastal NED Plan

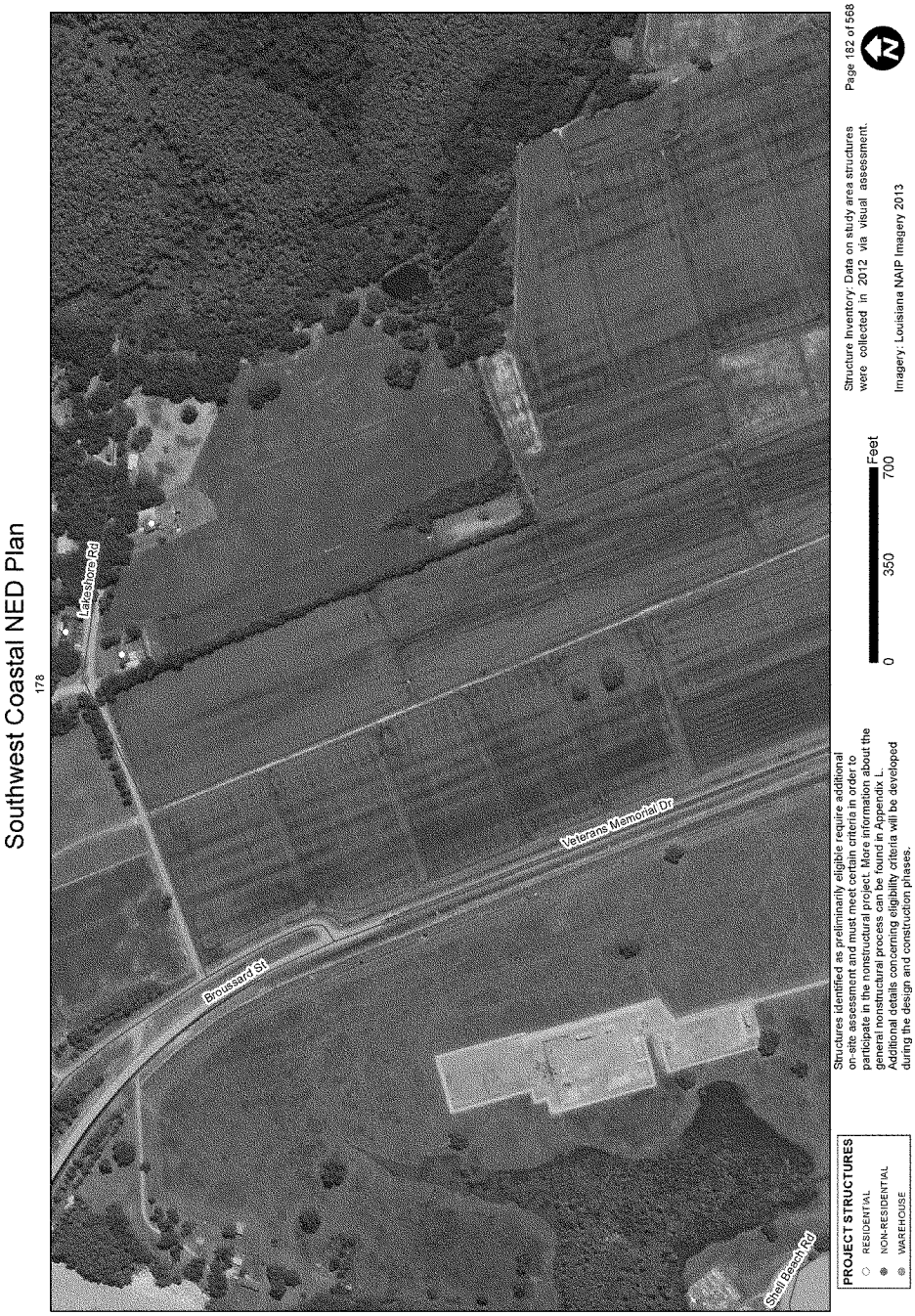
176

Southwest Coastal NED Plan

Southwest Coastal NED Plan

Southwest Coastal NED Plan
176
184
Nash Ln
Mirage Ln
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 180 of 568

Southwest Coastal NED Plan


Southwest Coastal NED Plan
178
Lakeshore Rd
Broussard St
Veterans Memorial Dr
Shell Beach Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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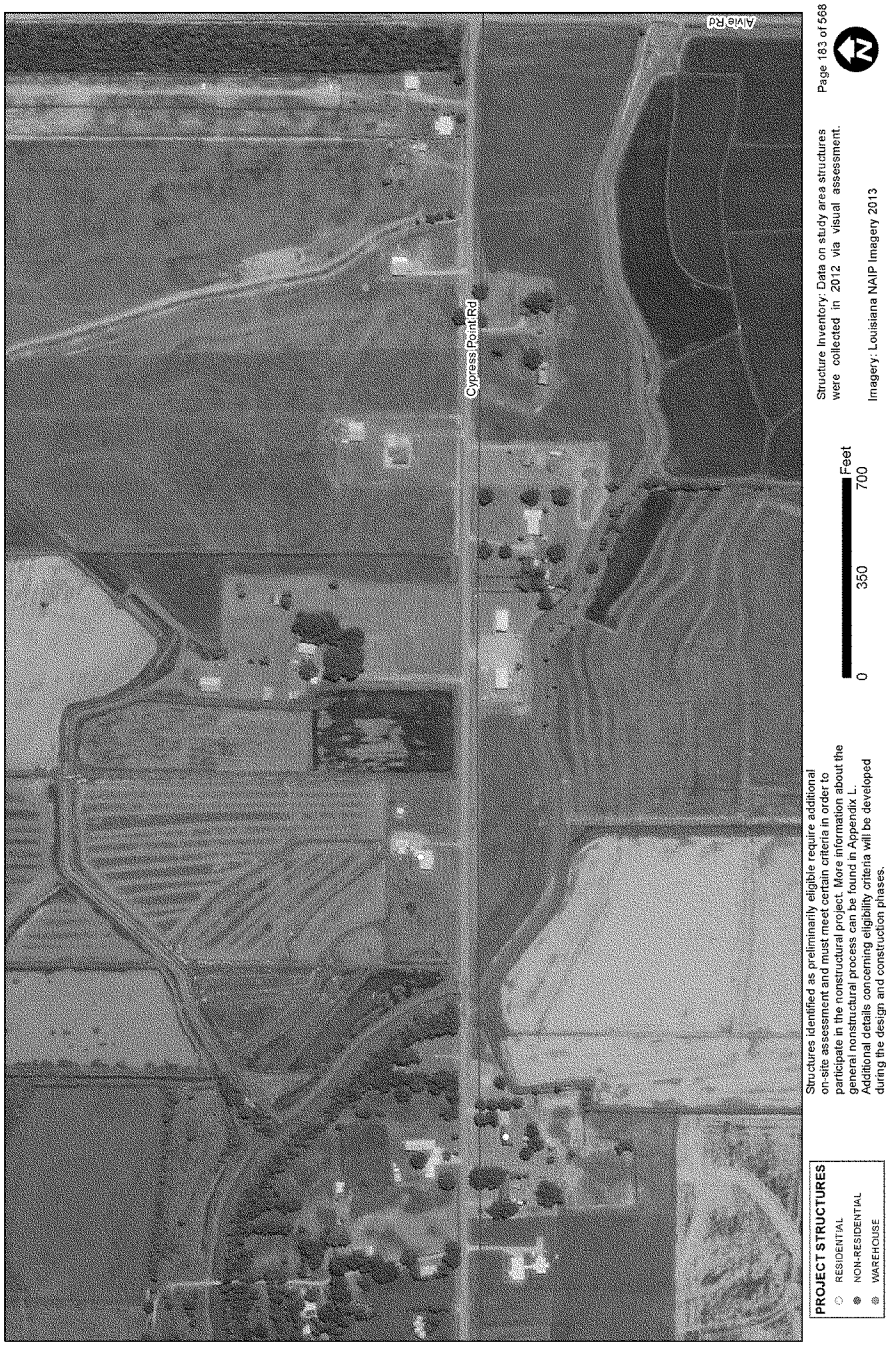
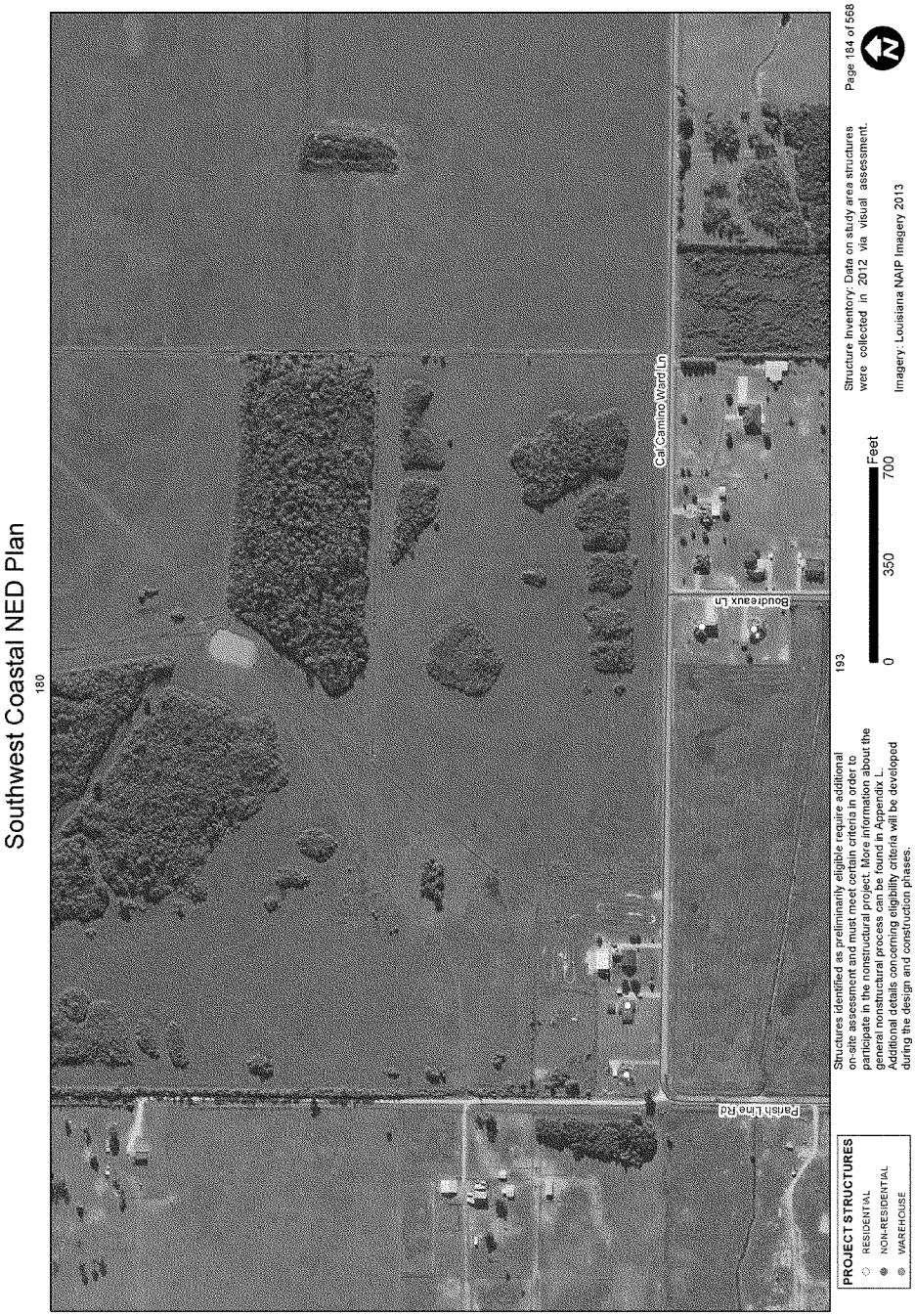
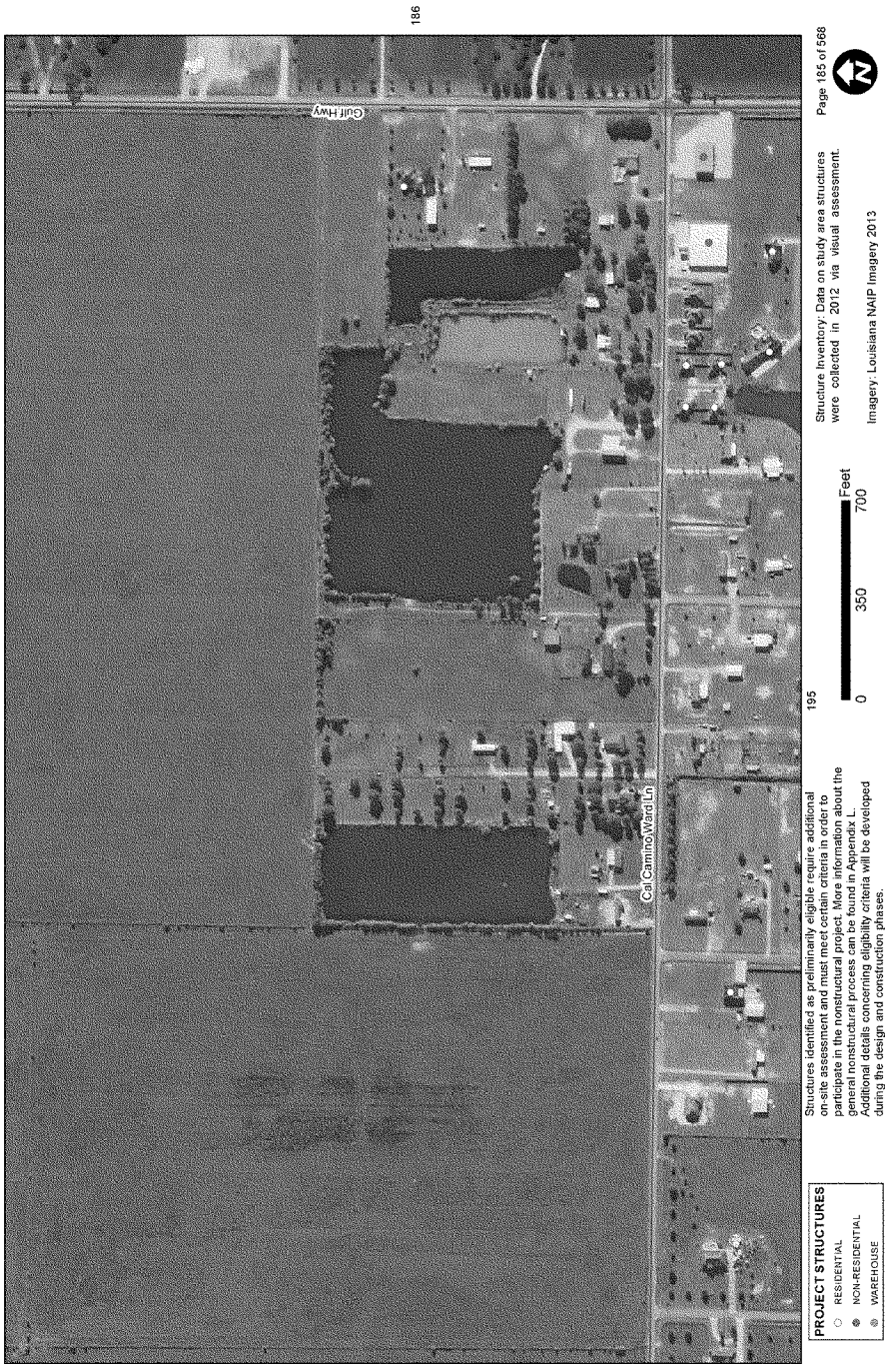
Southwest Coastal NED Plan




Southwest Coastal NED Plan
180
193
Cal Camino Ward Ln
Boudreaux Ln
Parish Line Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 184 of 568


Southwest Coastal NED Plan
186
195
Gulf Hwy
Cal Camino Ward Ln
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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Southwest Coastal NED Plan

Southwest Coastal NED Plan

188

PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

64

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

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Southwest Coastal NED Plan
Shell Beach Rd
Price Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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187

Southwest Coastal NED Plan
Winbeck Rd
Cypress Point Rd
Corps Rd
Zwan Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
67
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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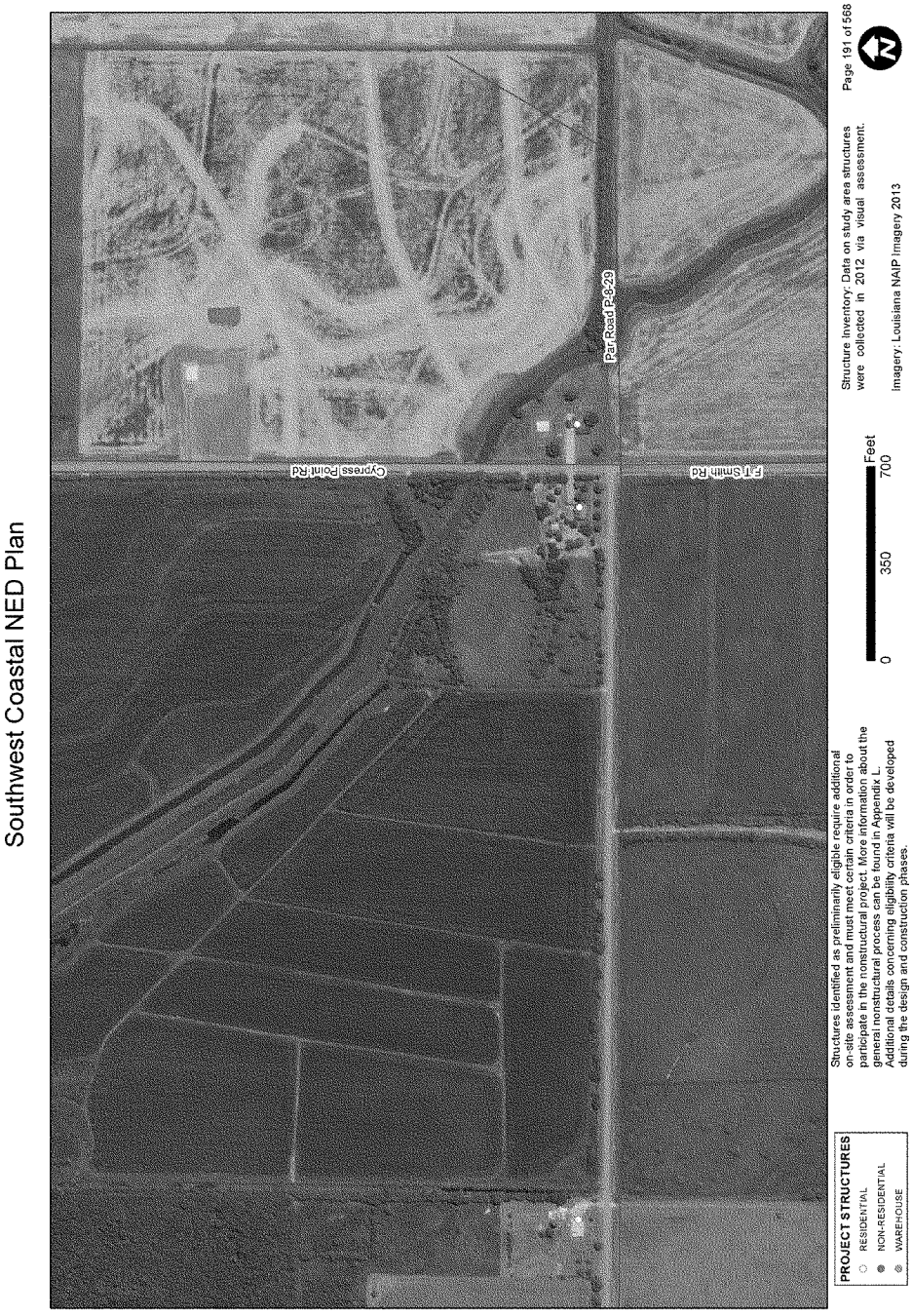
191
Southwest Coastal NED Plan
Willie Rd
Cheneys Rd
Cypress Point Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 190 of 568


Southwest Coastal NED Plan
Cypress Point Rd
Par Road P-29
Ft Smith Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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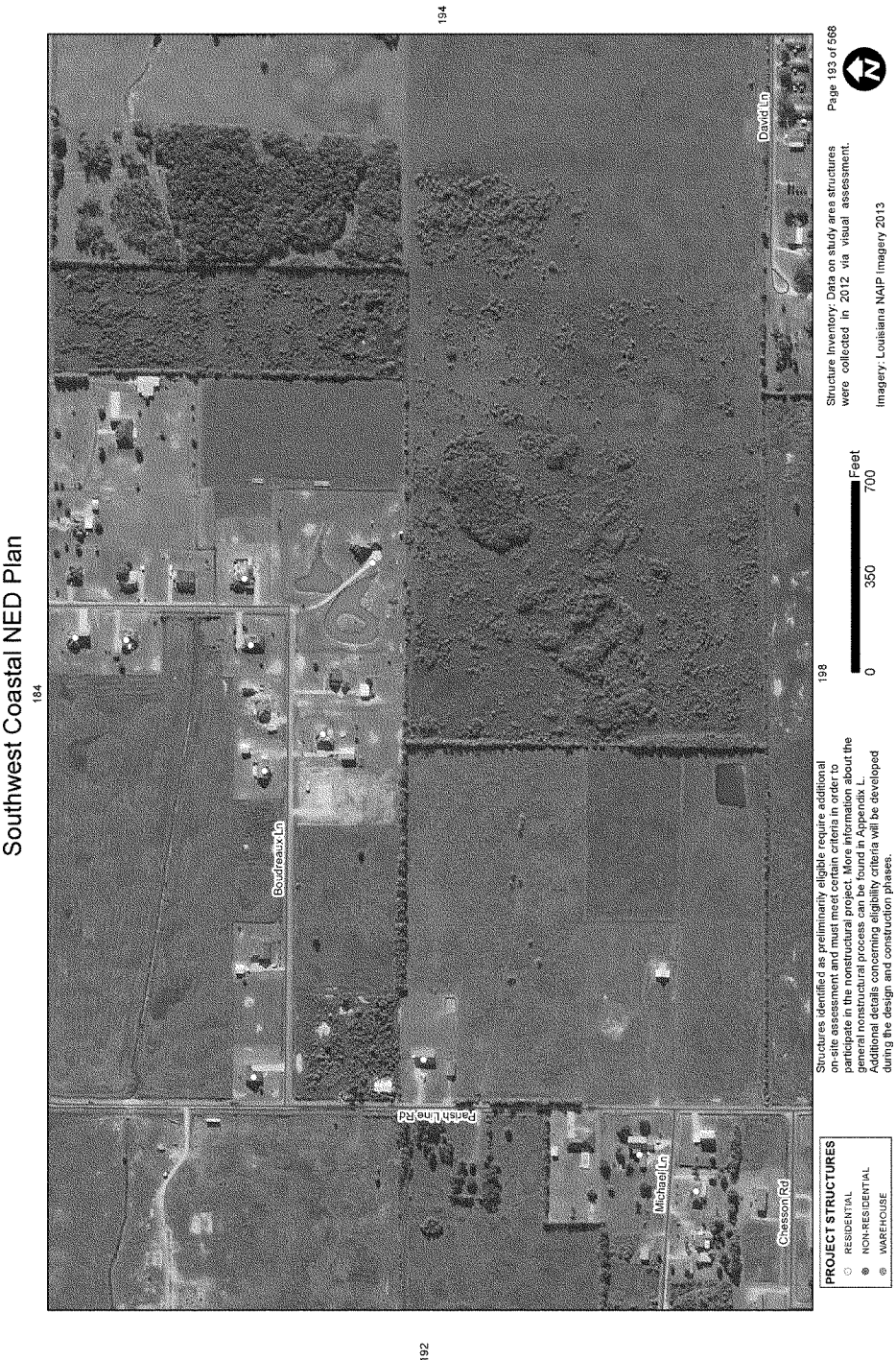
190

Southwest Coastal NED Plan


Southwest Coastal NED Plan
184
194
192
198
Boudreaux Ln
Parish Line Rd
Michael Ln
Chesson Rd
David Ln
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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Southwest Coastal NED Plan
195
193
199
Granger Ln
Parish Road 403
David Ln
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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Southwest Coastal NED Plan
185
196
194
Cal Camino Ward Ln
Gulf Hwy
Parish Road 403
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
200
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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Southwest Coastal NED Plan

186

195

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

201

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

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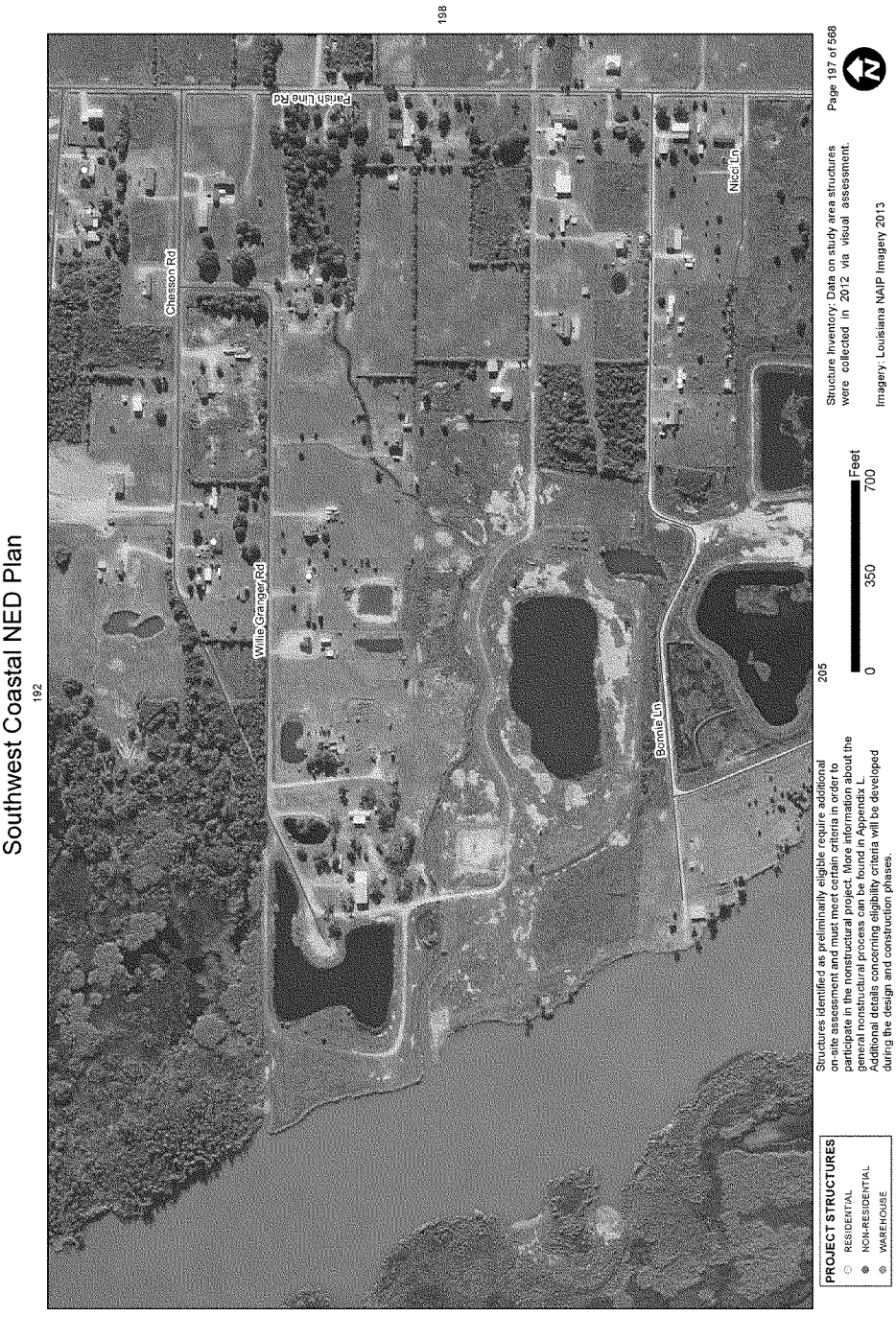
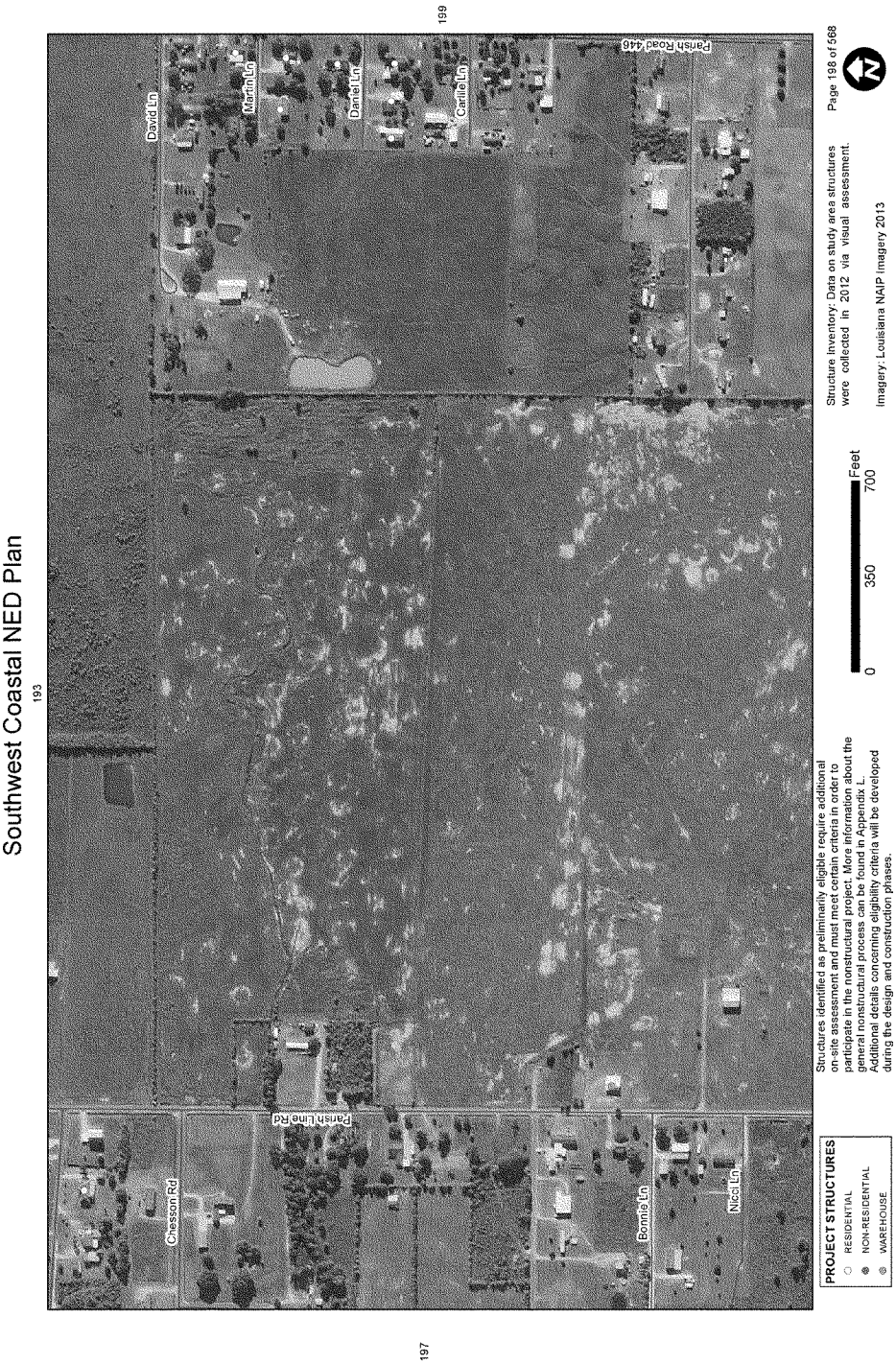

Southwest Coastal NED Plan
192
198
205
Parish Line Rd
Chesson Rd
Willie Granger Rd
Bomb Ln
Nicci Ln
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 197 of 568


Southwest Coastal NED Plan
193
199
197
David Ln
Martin Ln
Daniel Ln
Carrie Ln
Parish Road 446
Chesson Rd
Parish Line Rd
Bonnie Ln
Nicol Ln
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 198 of 568

Southwest Coastal NED Plan
200
194
206
198
Parish Road 403
Granger Ln
David Ln
Parish Road 4102
Borne Ln
Ida Ln
Martin Ln
Daniel Ln
Carlie Ln
Parish Road 448
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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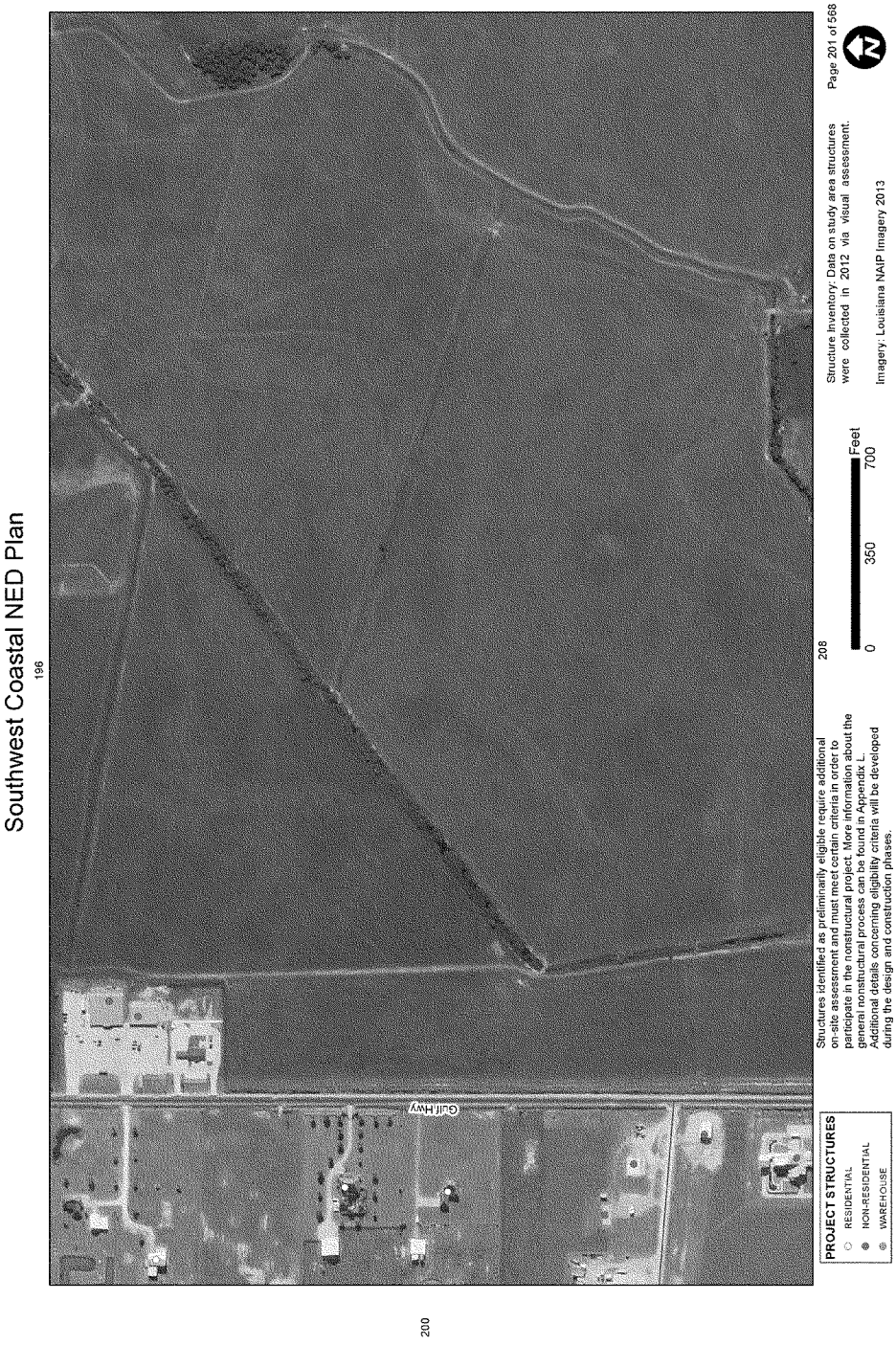
Southwest Coastal NED Plan
195
201
199
207
Parish Road 403
Gulf Hwy
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 200 of 568


Southwest Coastal NED Plan
196
200
208
GUIT HWY
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 201 of 568

Southwest Coastal NED Plan
64
Highway 27
Laurent Rd
Fisher Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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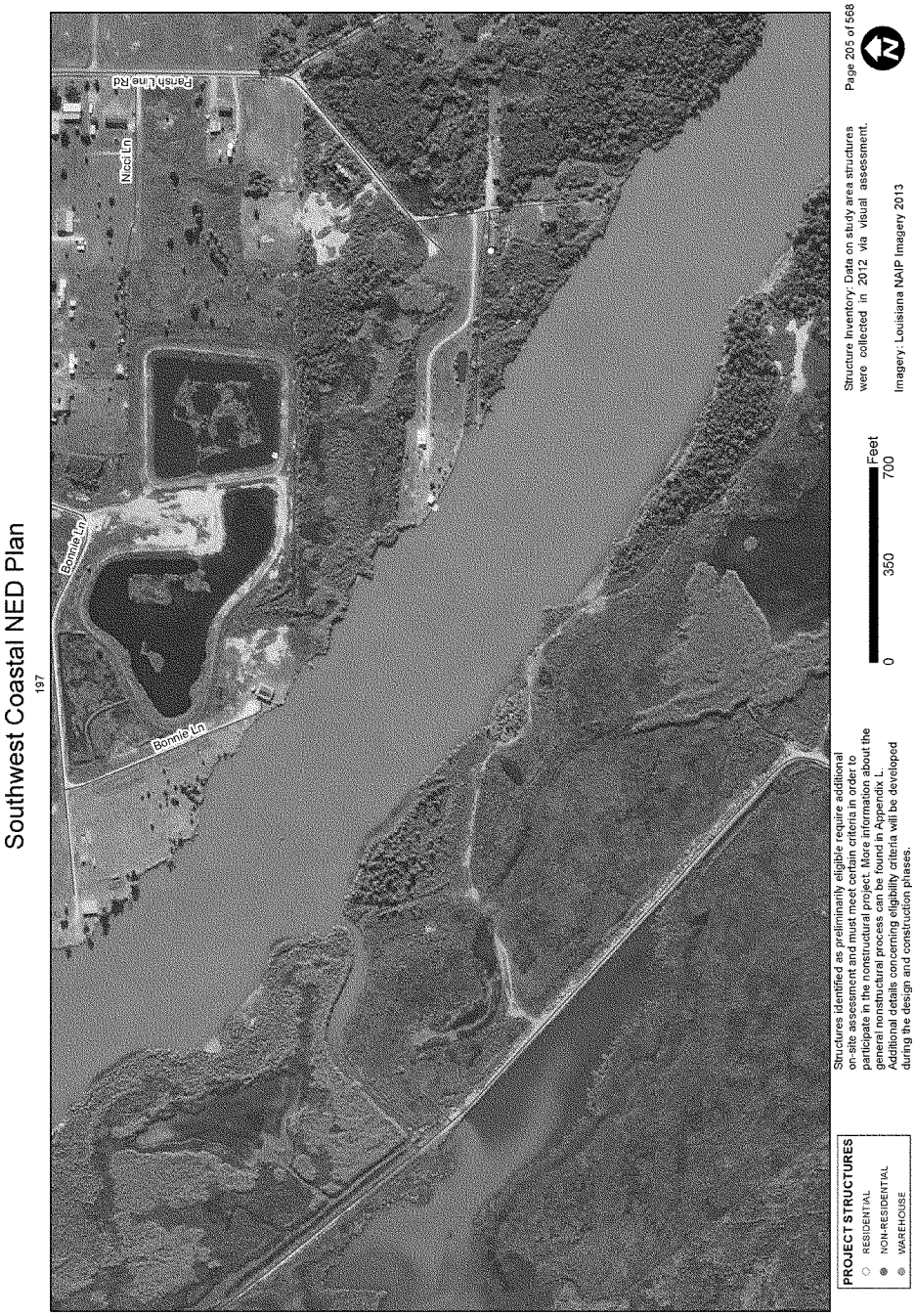
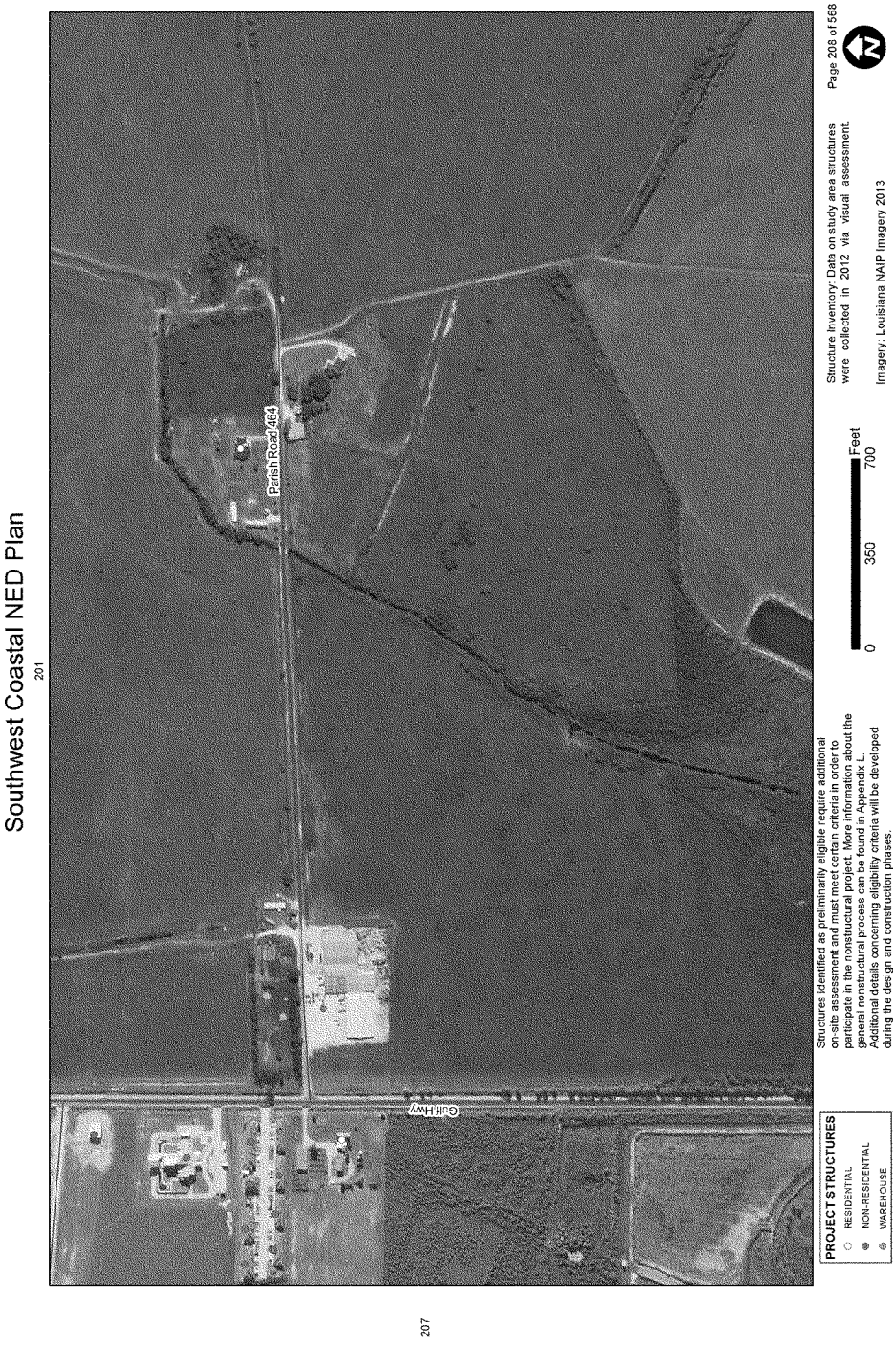
Southwest Coastal NED Plan
65
Cypress Point Rd
Highway 317
Veterans Memorial Dr
Nolan Rd
Elie Benoit Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
211
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 203 of 568

Southwest Coastal NED Plan


Southwest Coastal NED Plan
197
Parish Line Rd
Nicol Ln
Bonnie Ln
Bonnie Ln
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 205 of 568

Southwest Coastal NED Plan
199
207
Bomg Ln
Parish Road 446
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 206 of 568

Southwest Coastal NED Plan
200
208
206
Gulf Hwy
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 207 of 568
N


Southwest Coastal NED Plan
201
207
Parish Road 404
GUIF HWY
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 208 of 568

Southwest Coastal NED Plan
210
215
Lakeside Rd
Domino Camp Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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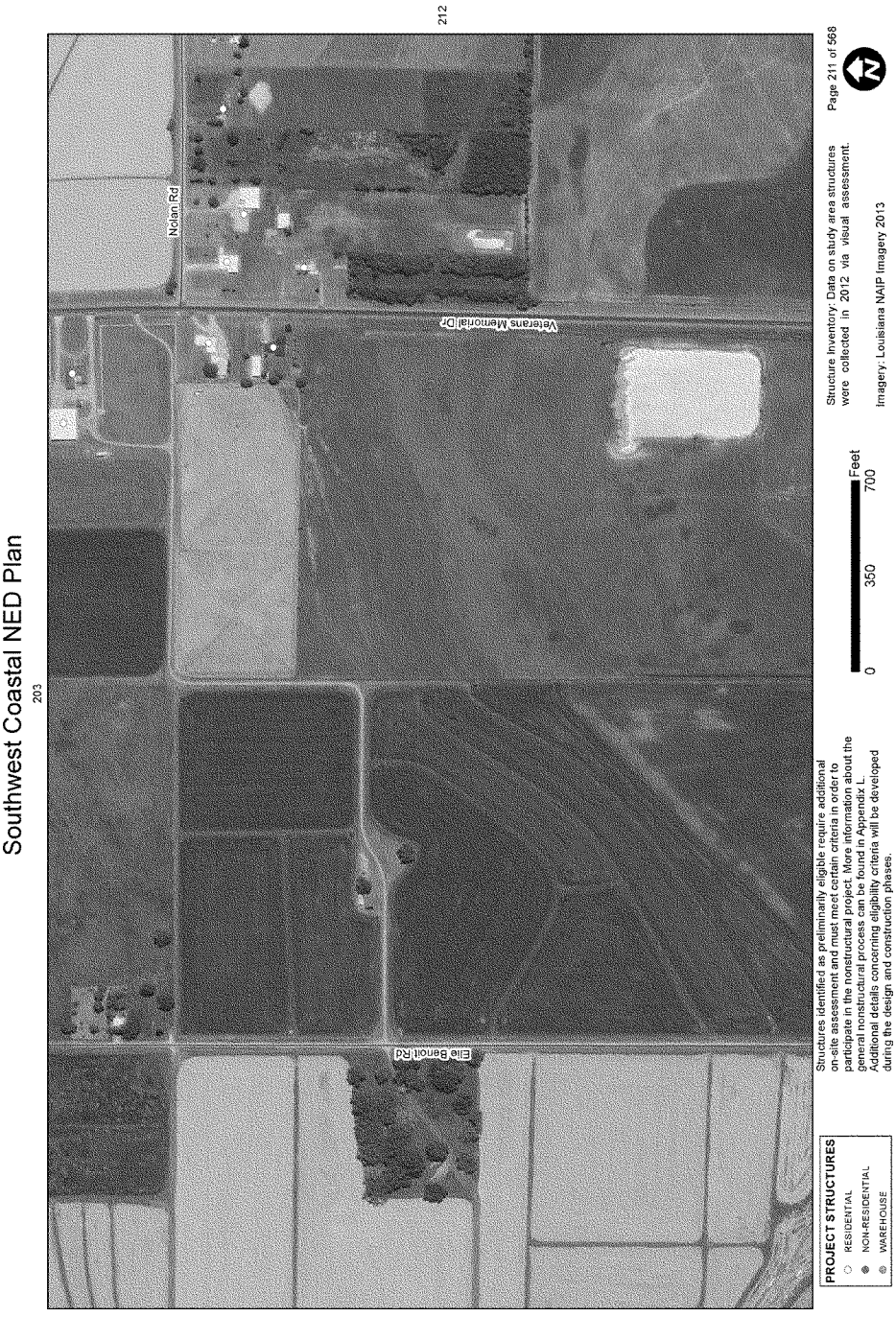
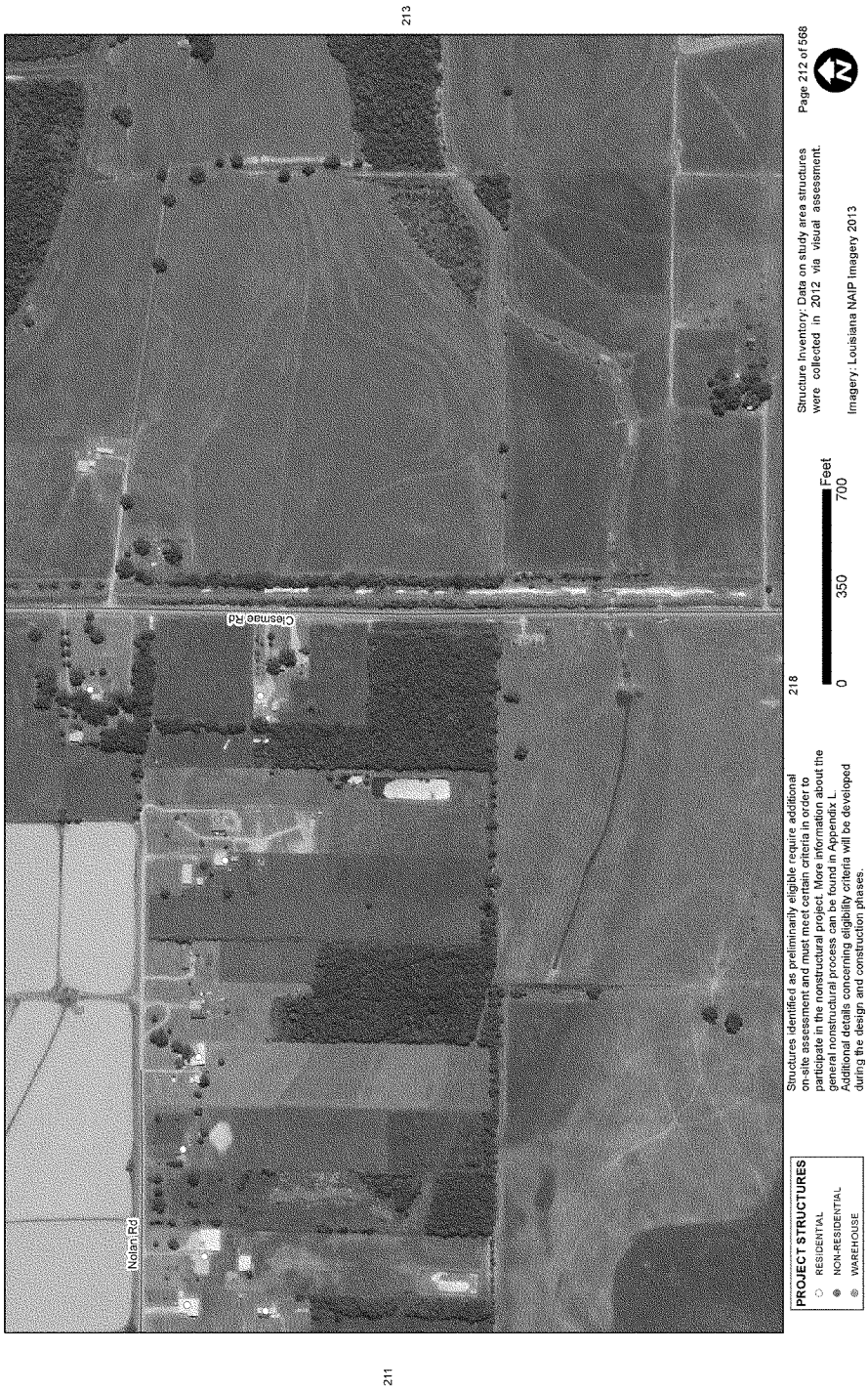
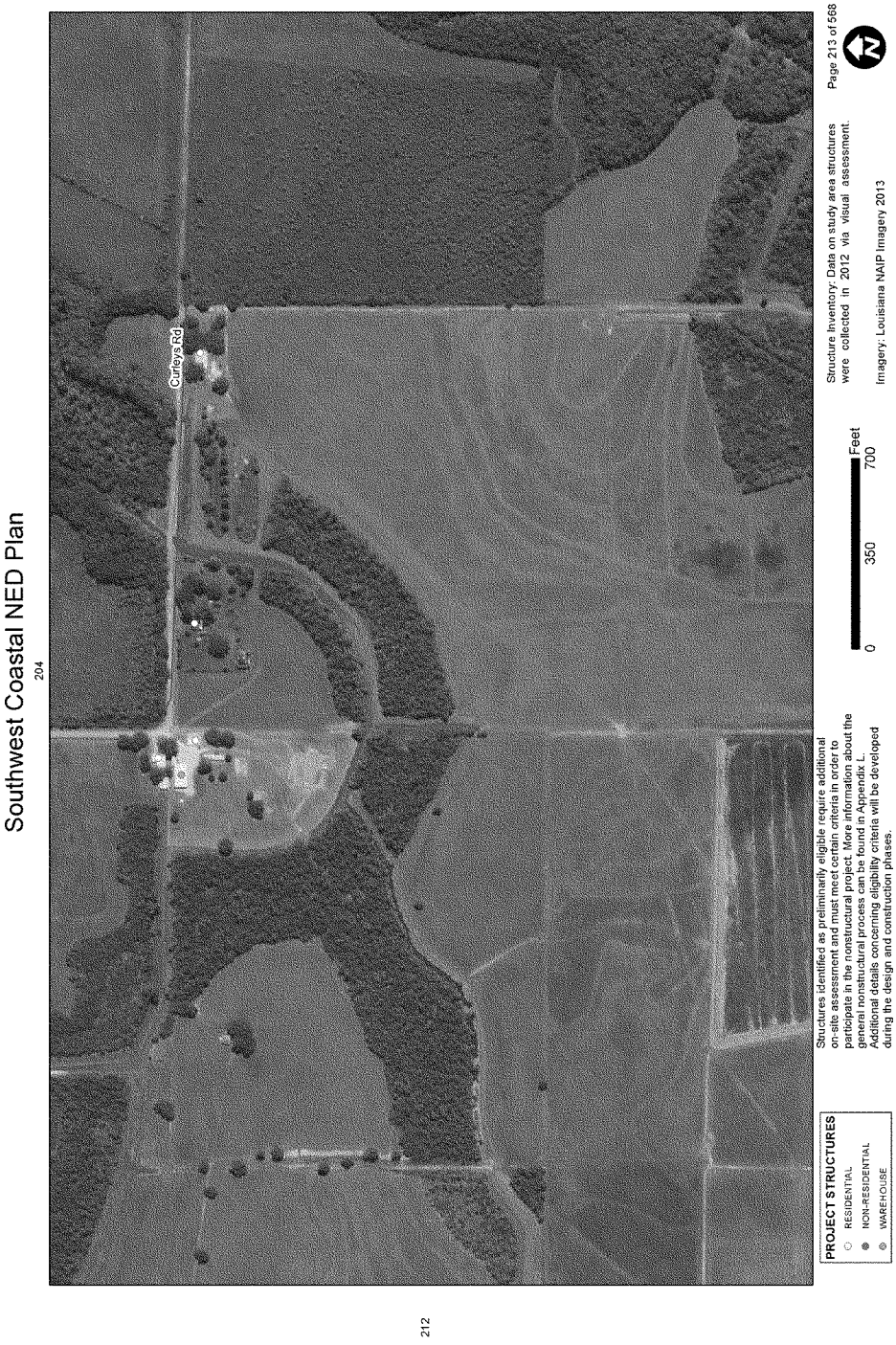
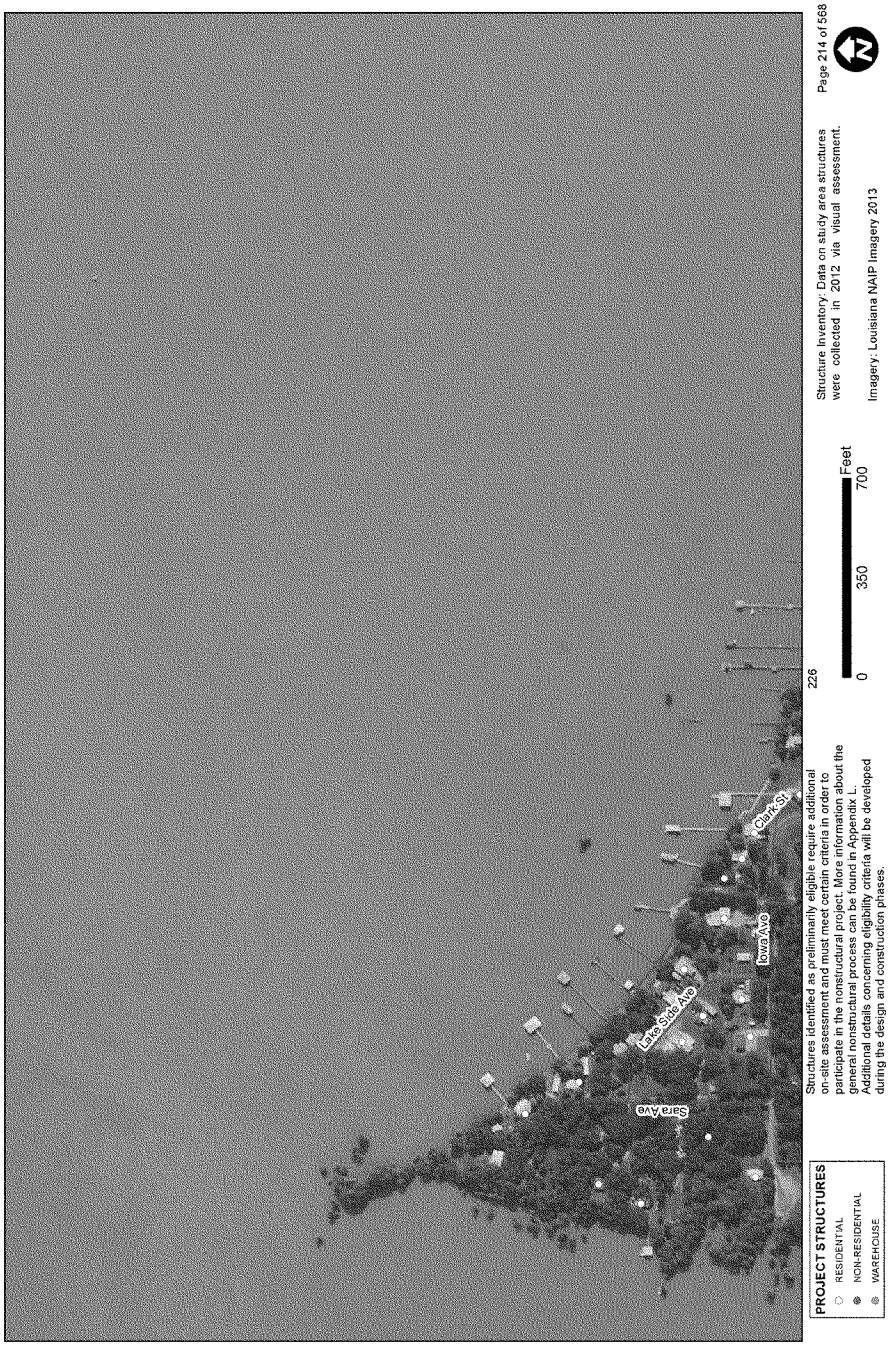
Southwest Coastal NED Plan
Parish Road P-8-64
Highway 171
Lakeside Rd
Core Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
216
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 210 of 568
209

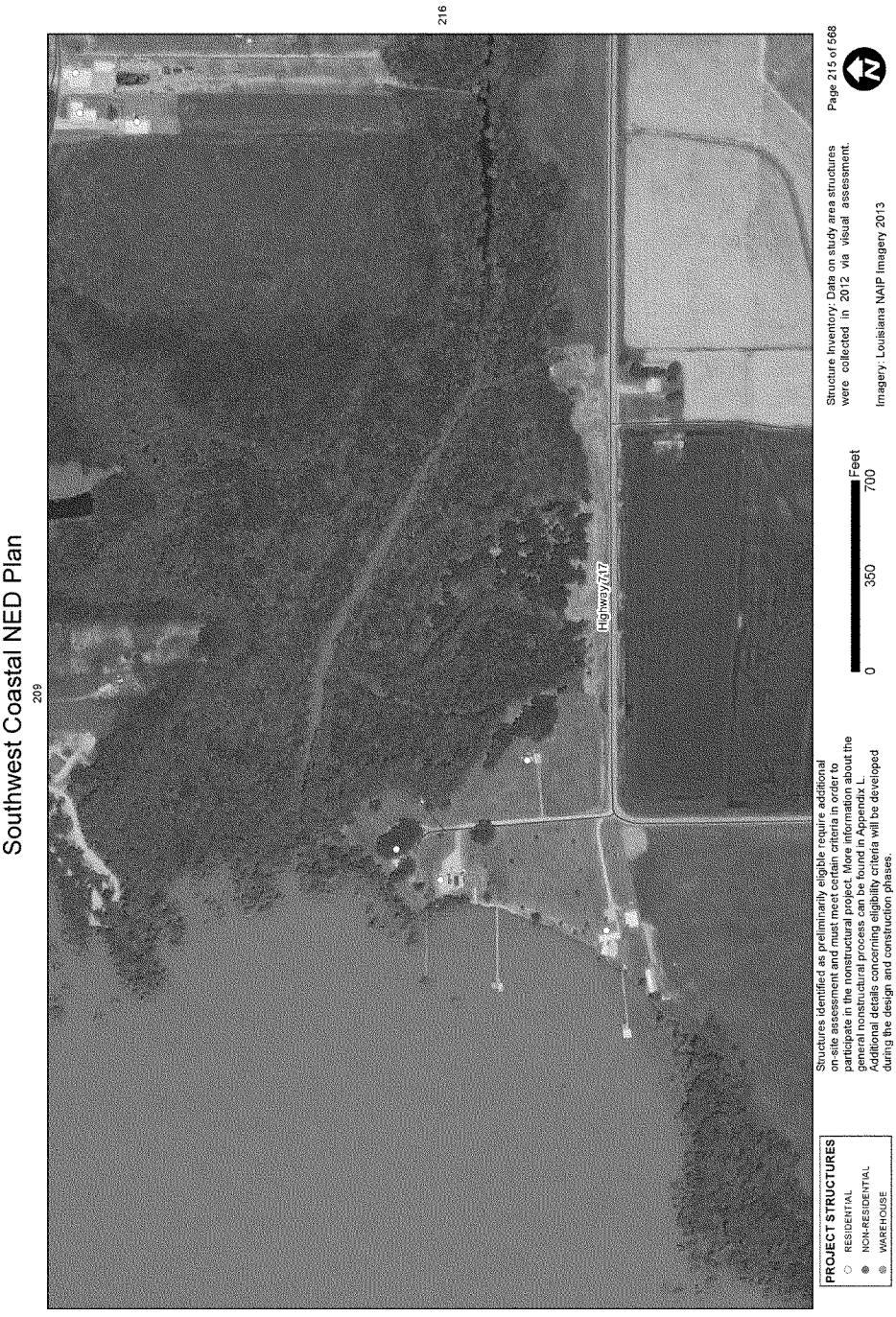

Southwest Coastal NED Plan
203
212
Nolan Rd
Veterans Memorial Dr
Elle Benoit Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 211 of 568

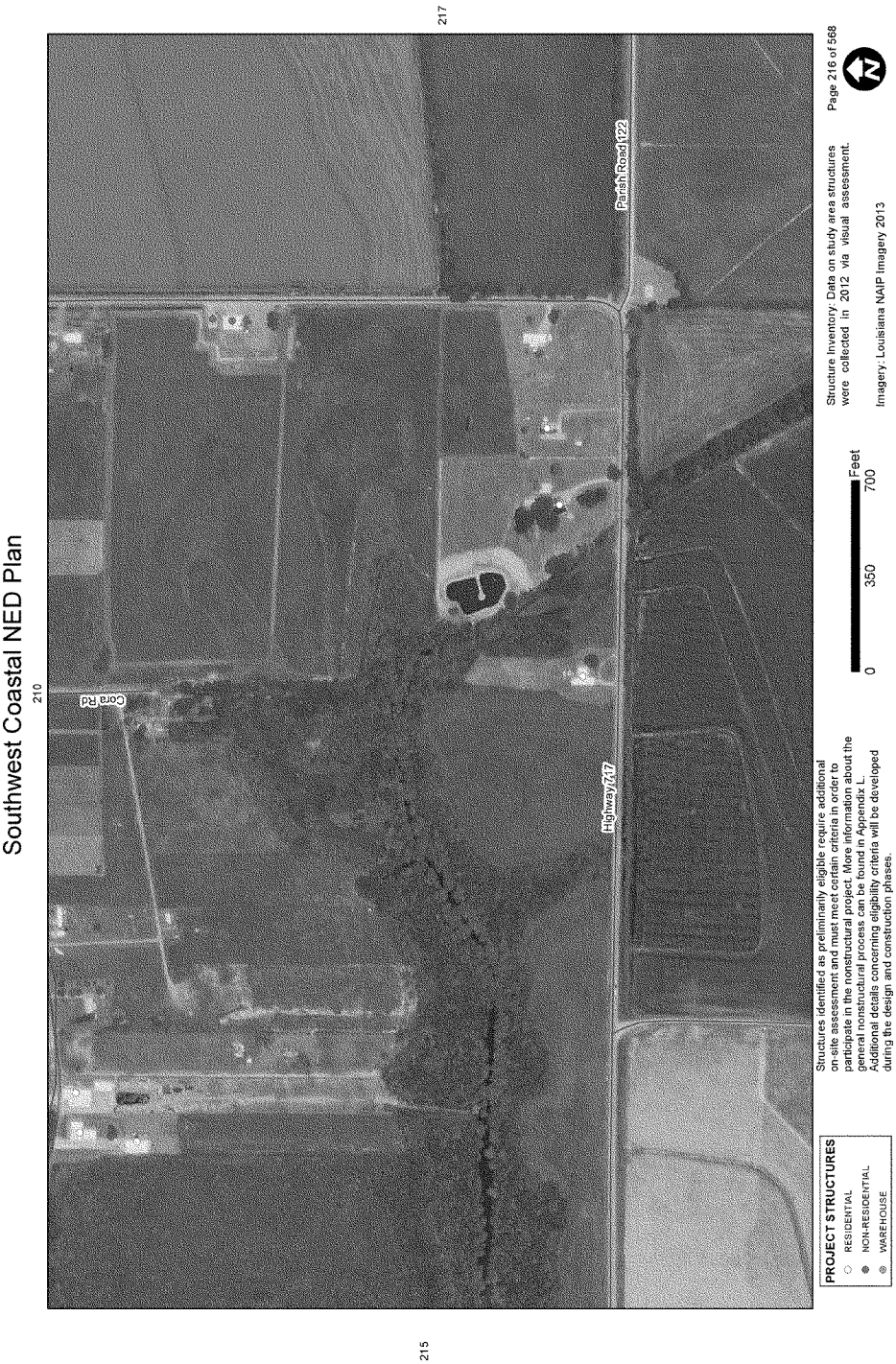

Southwest Coastal NED Plan
213
211
218
Nolan Rd
Closmae Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 212 of 568


Southwest Coastal NED Plan
204
212
Curleys Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 213 of 568

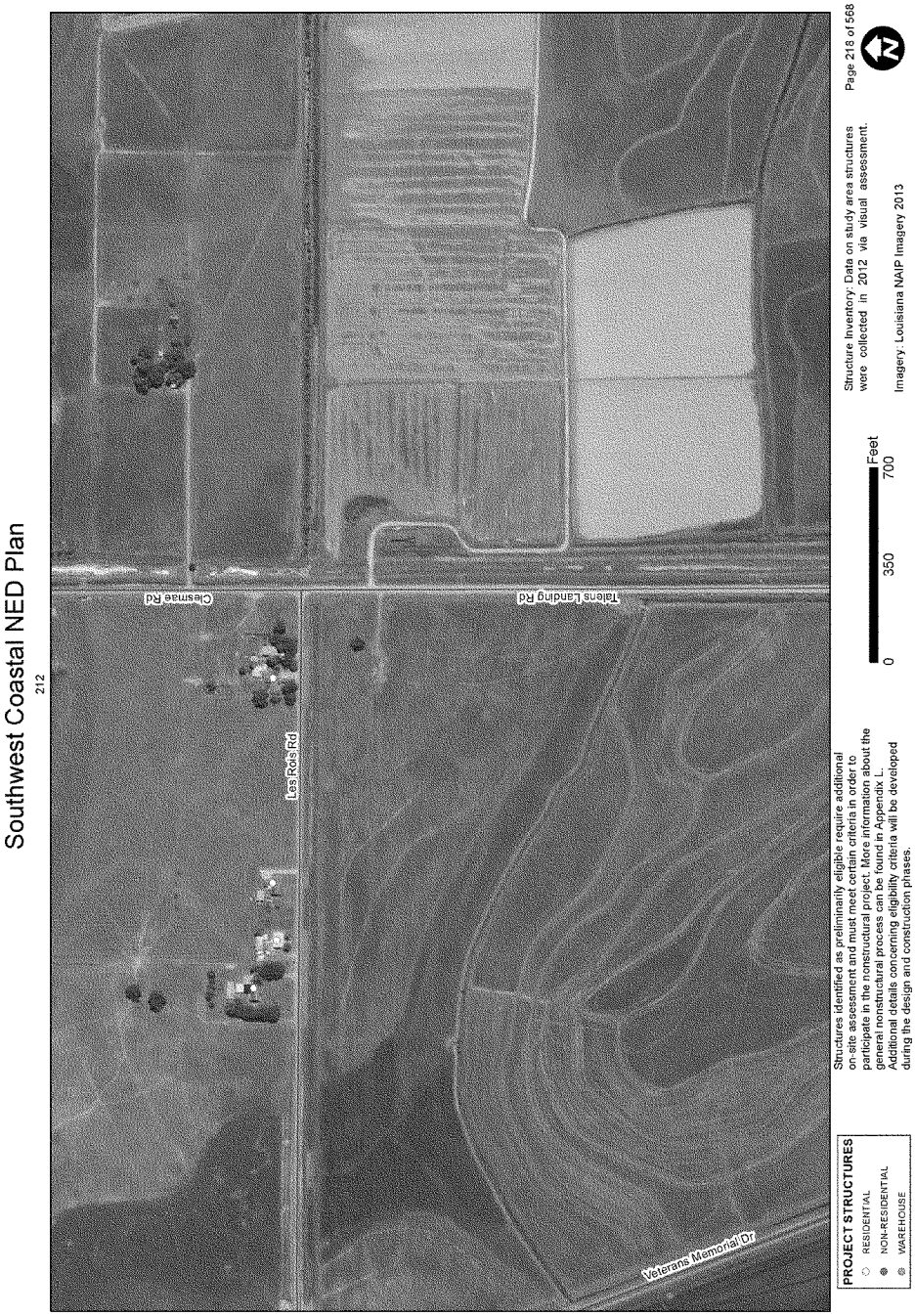
Southwest Coastal NED Plan



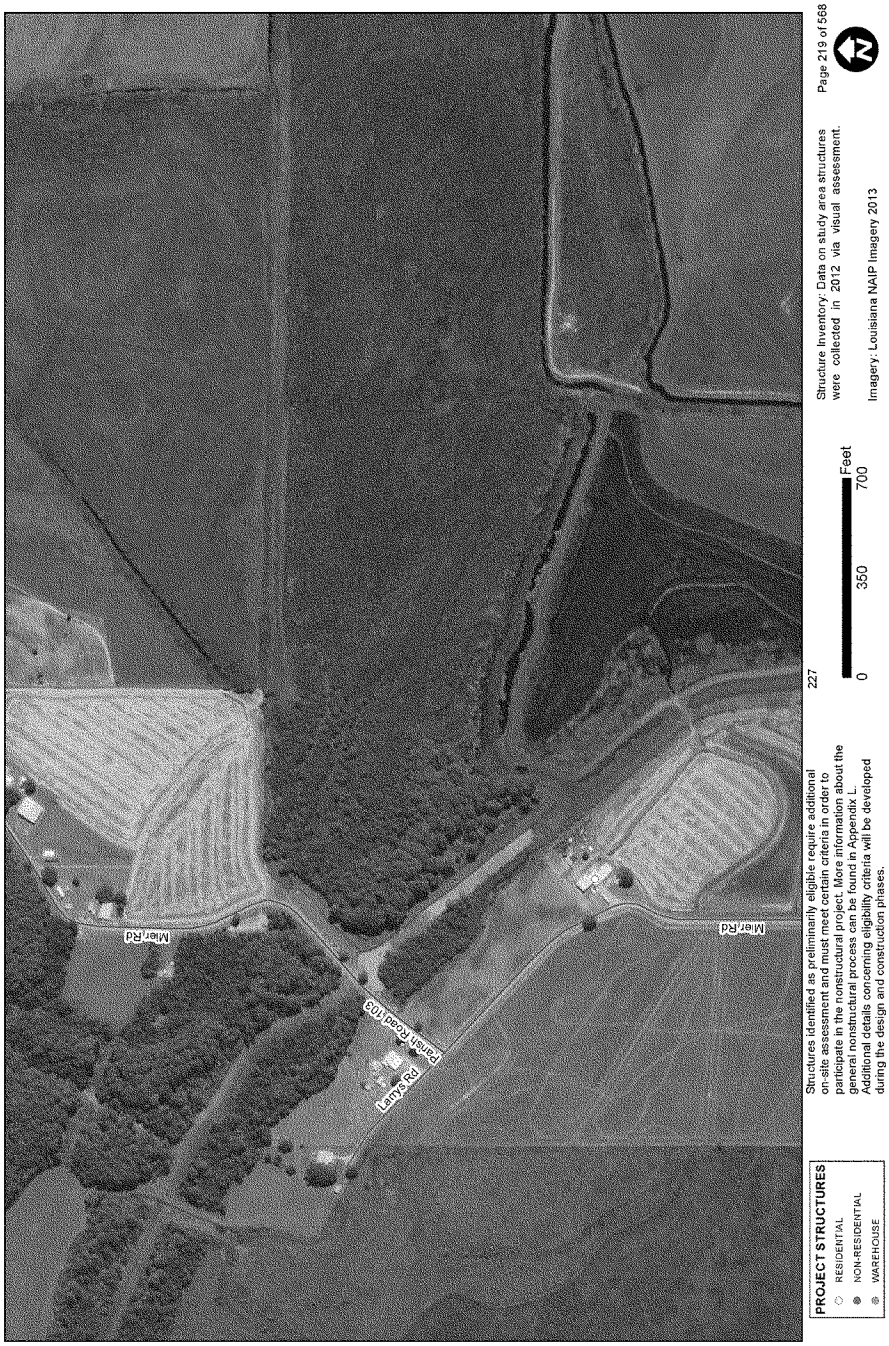

Southwest Coastal NED Plan
209
216
Highway 717
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 215 of 568

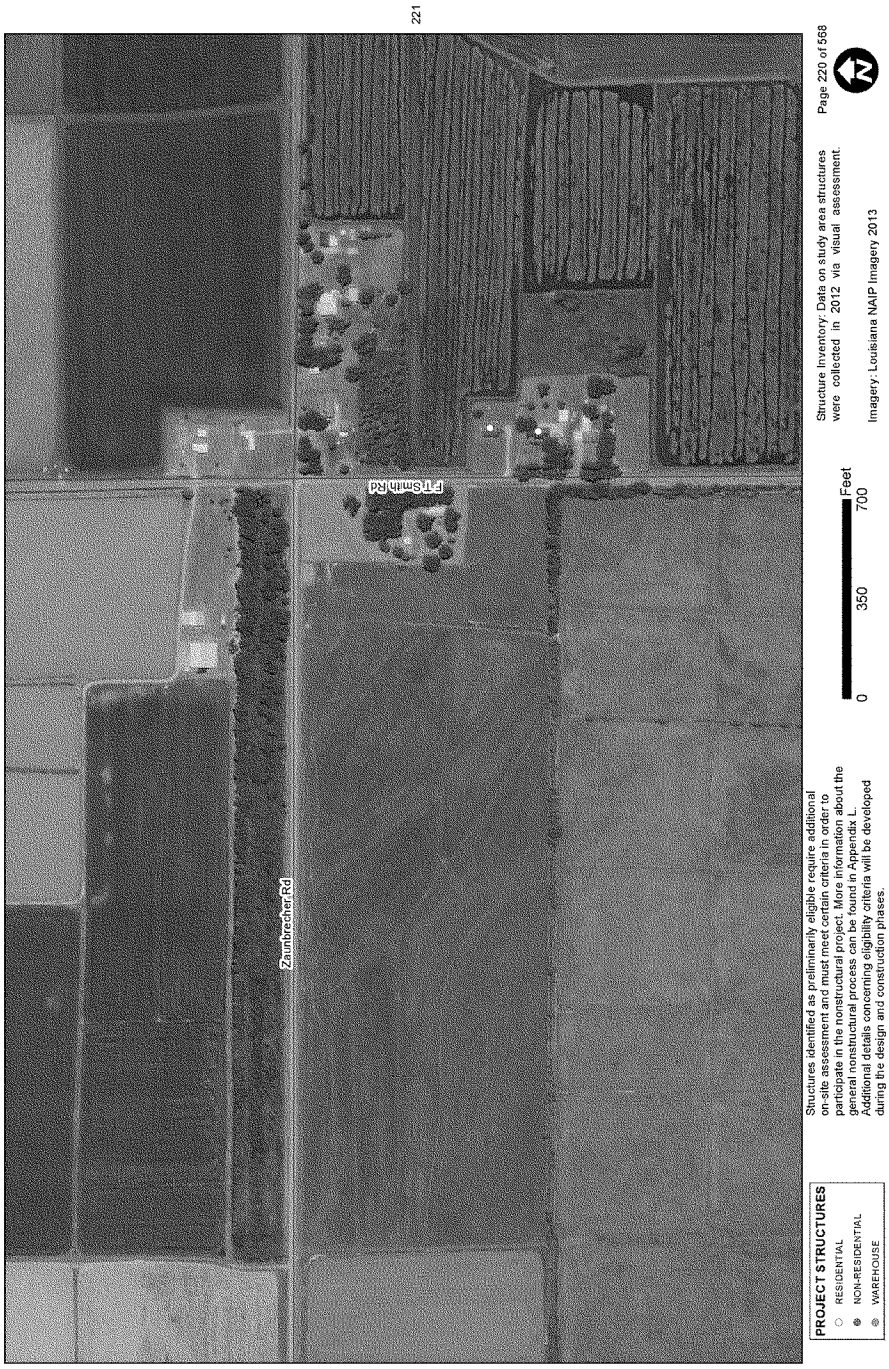

Southwest Coastal NED Plan
210
215
217
Cora Rd
Highway 317
Parish Road 122
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 216 of 568

Southwest Coastal NED Plan
Parish Road 122
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 217 of 568
216


Southwest Coastal NED Plan
212
Clesmae Rd
Tas Rds Rd
Talons Landing Rd
Veterans Memorial Dr
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 218 of 568

Southwest Coastal NED Plan




Southwest Coastal NED Plan
221
Zaunbrecher Rd
Ft Smith Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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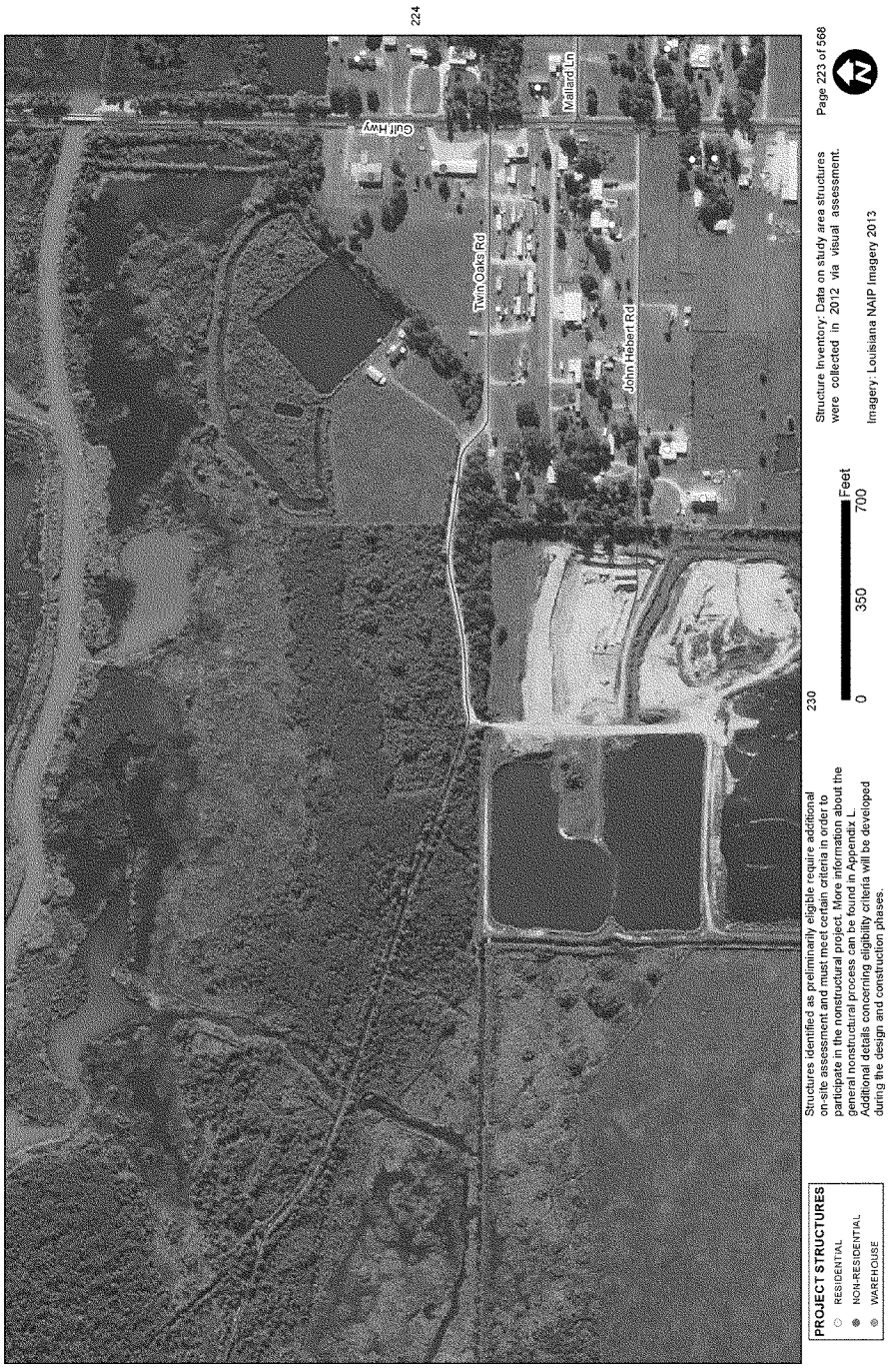
Southwest Coastal NED Plan
222
Alvis Rd
Zaunbrecher Rd
220
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 221 of 568

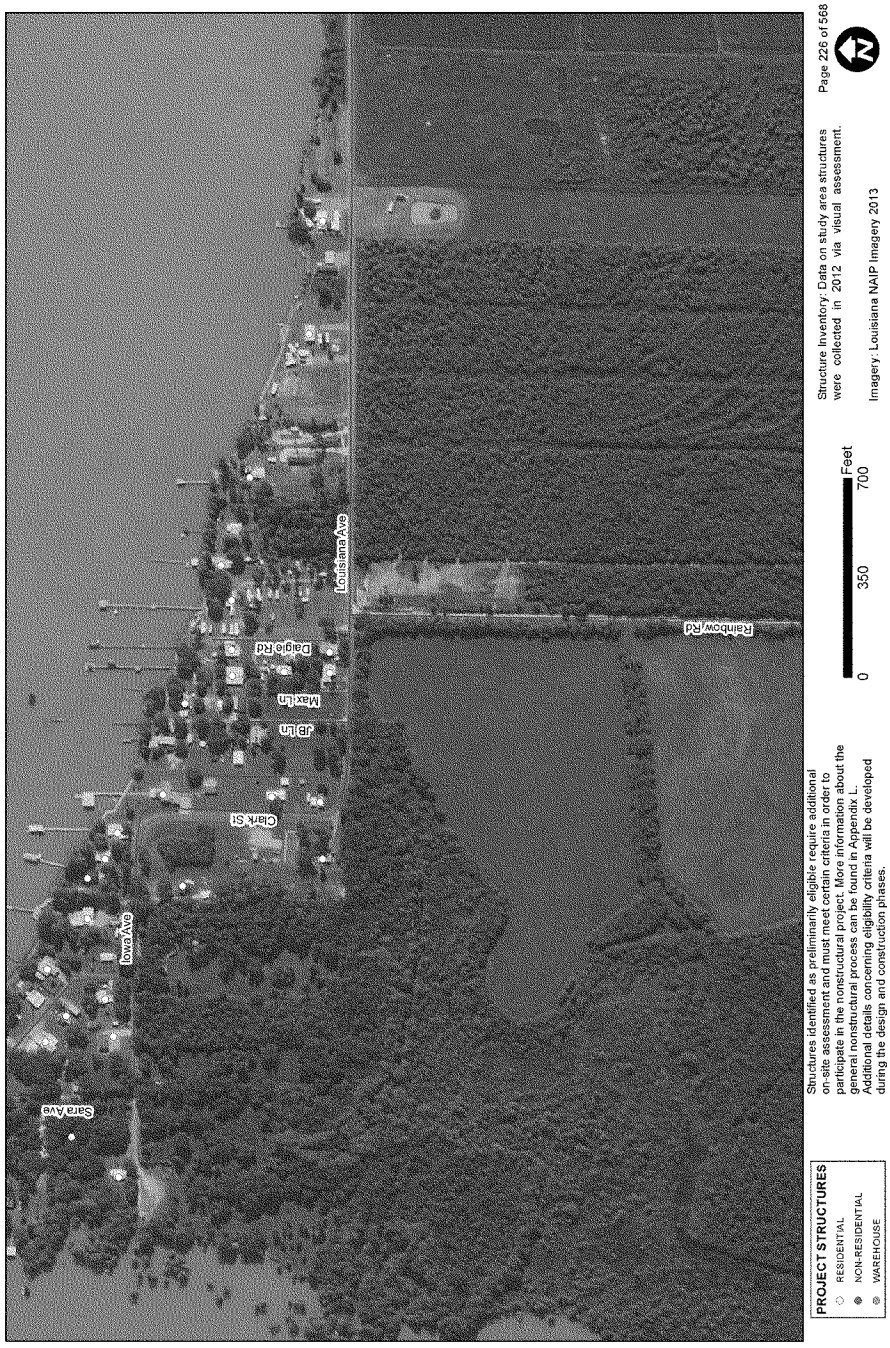
Southwest Coastal NED Plan
Zaunbrecher Rd
Alvic Rd
Alvic Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 222 of 568
221

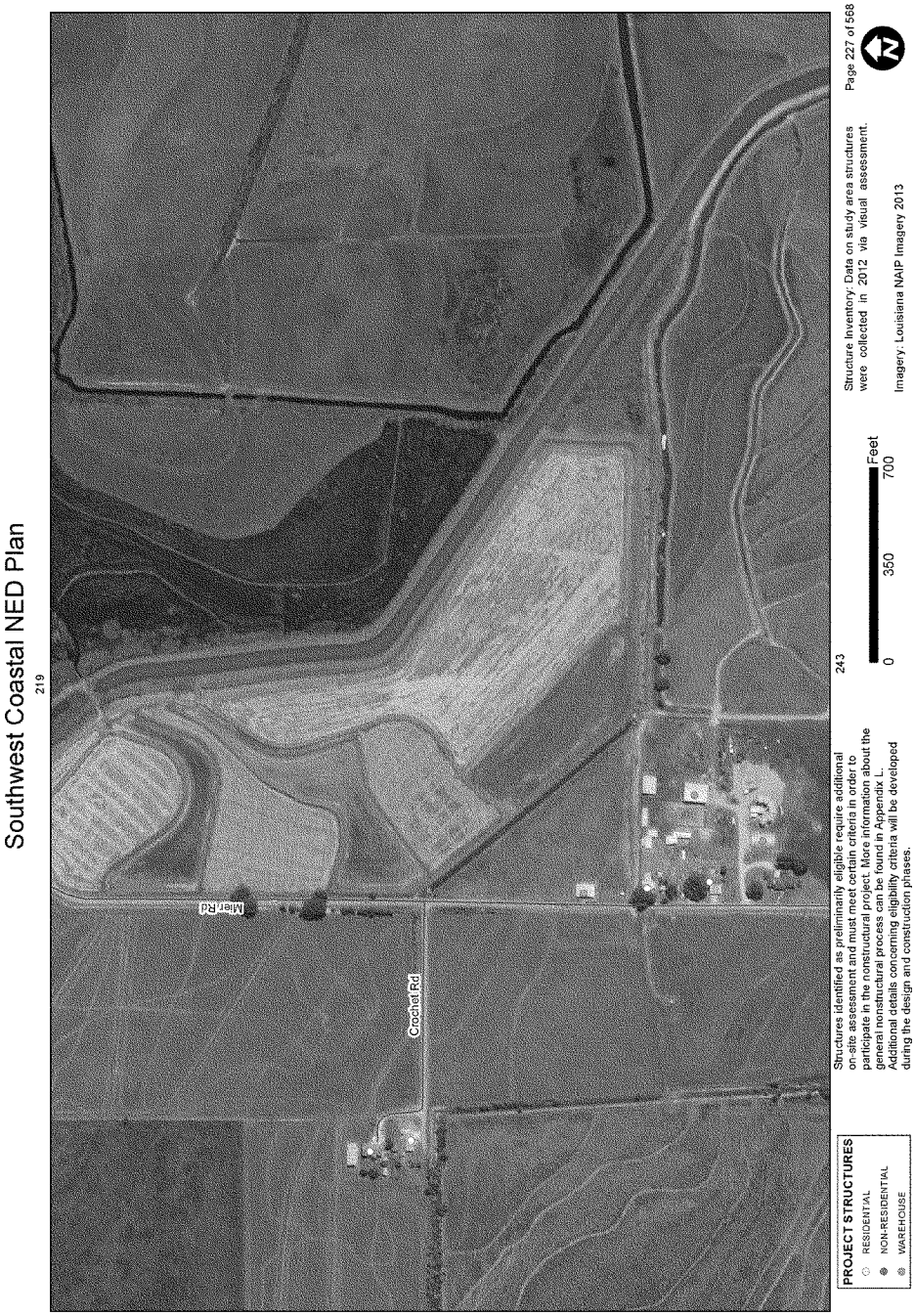
Southwest Coastal NED Plan



Southwest Coastal NED Plan
225
223
231
Gulf Hwy
Twin Oaks Rd
Mallard Ln
John Hebert Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 224 of 568

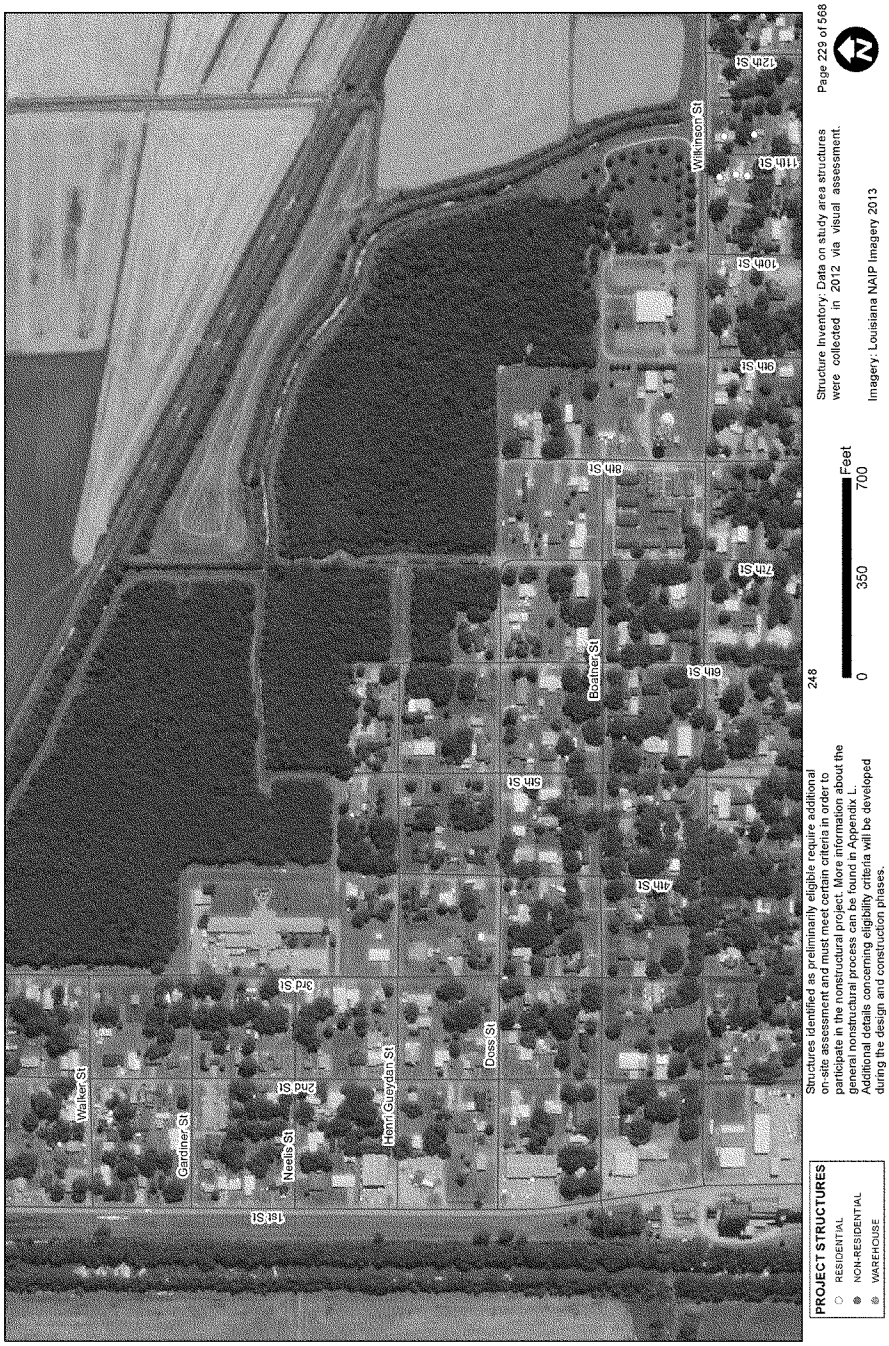
Southwest Coastal NED Plan
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
Kathy Rd
Paul Rd
224
232
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 225 of 568

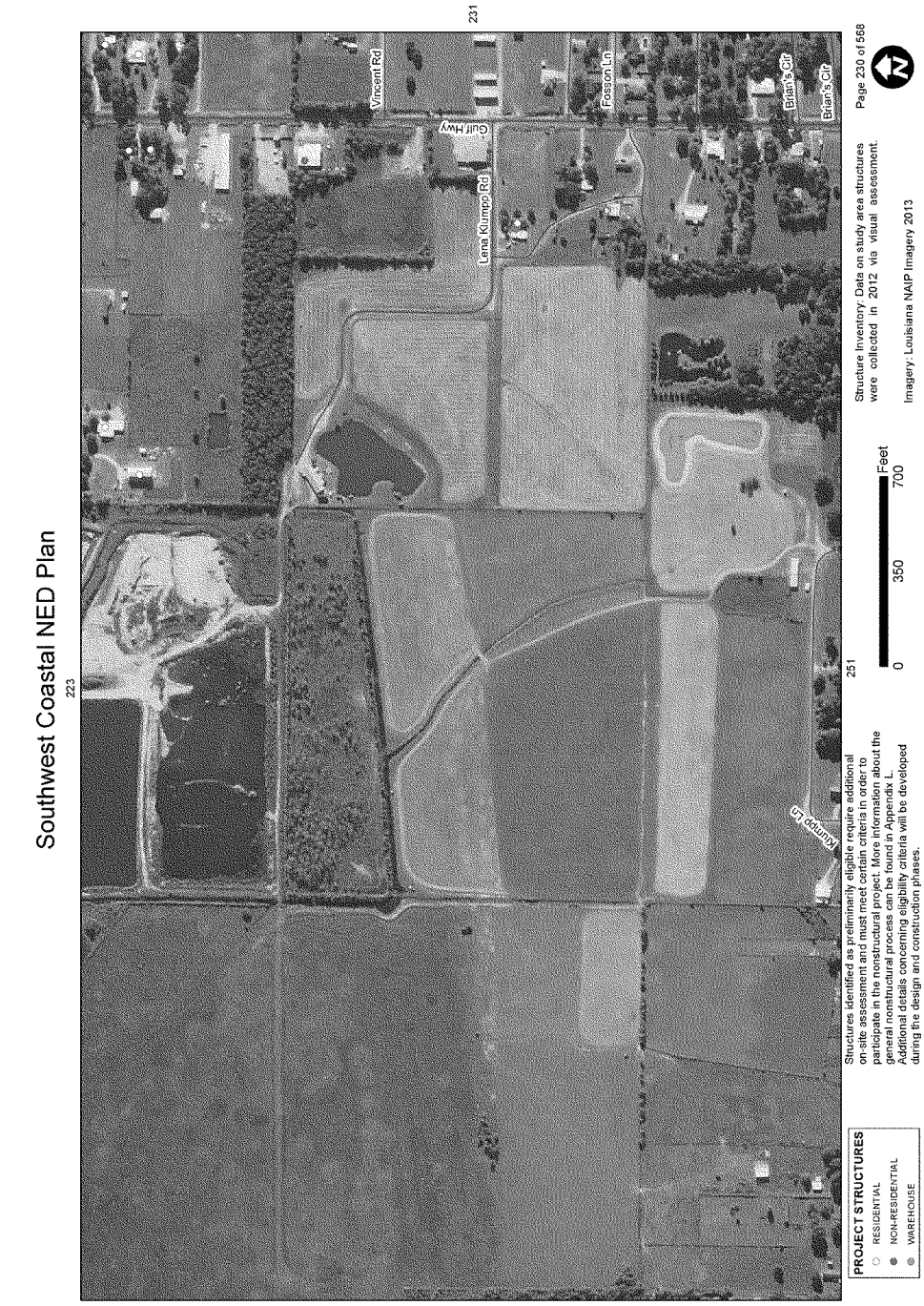

Southwest Coastal NED Plan
214
Sara Ave
Iowa Ave
Clark St
JB Ln
Max Ln
Dalgo Rd
Louisiana Ave
Rainbow Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 226 of 568

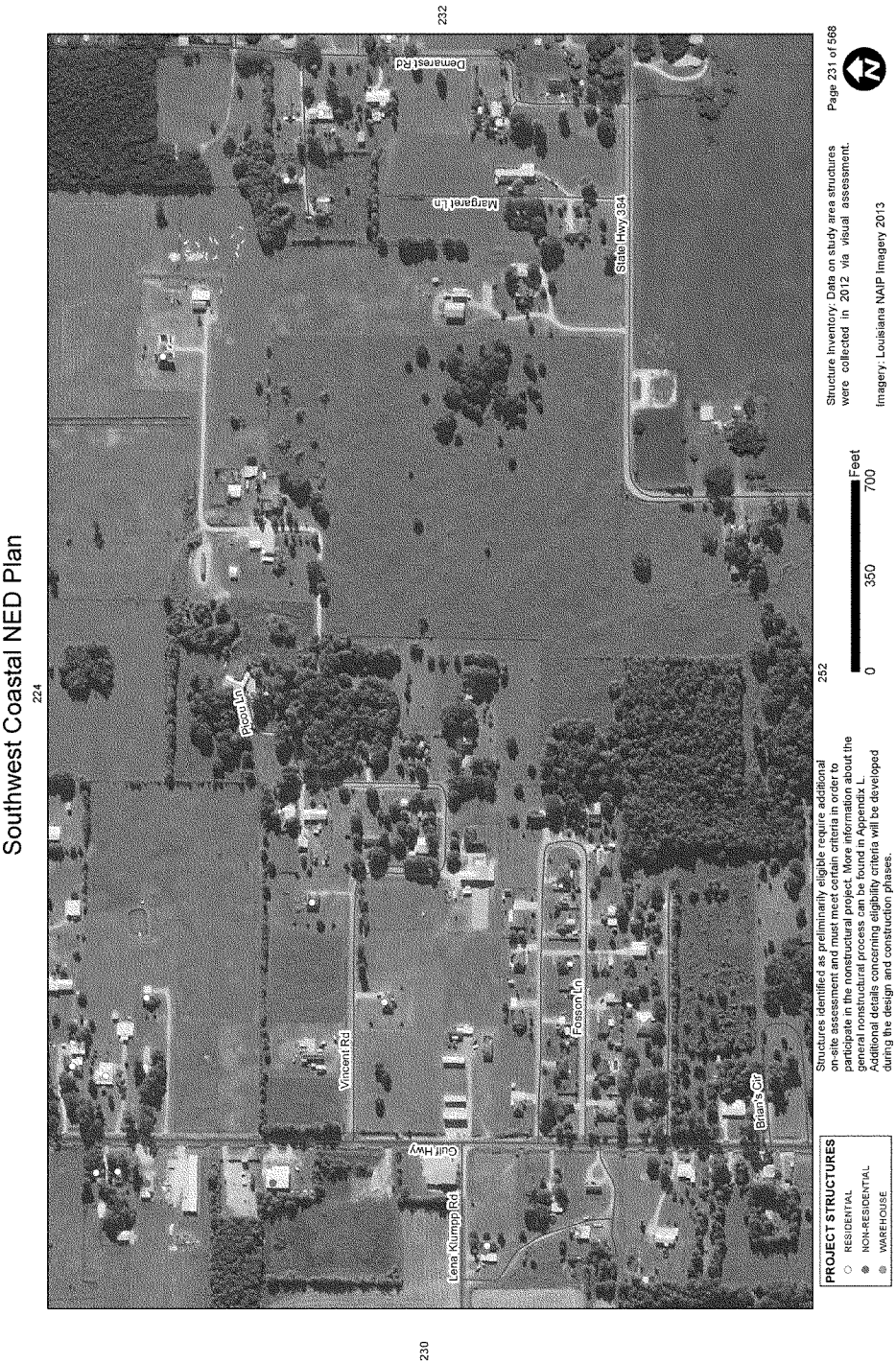

Southwest Coastal NED Plan
219
Crochet Rd
Mier Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
243
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 227 of 568

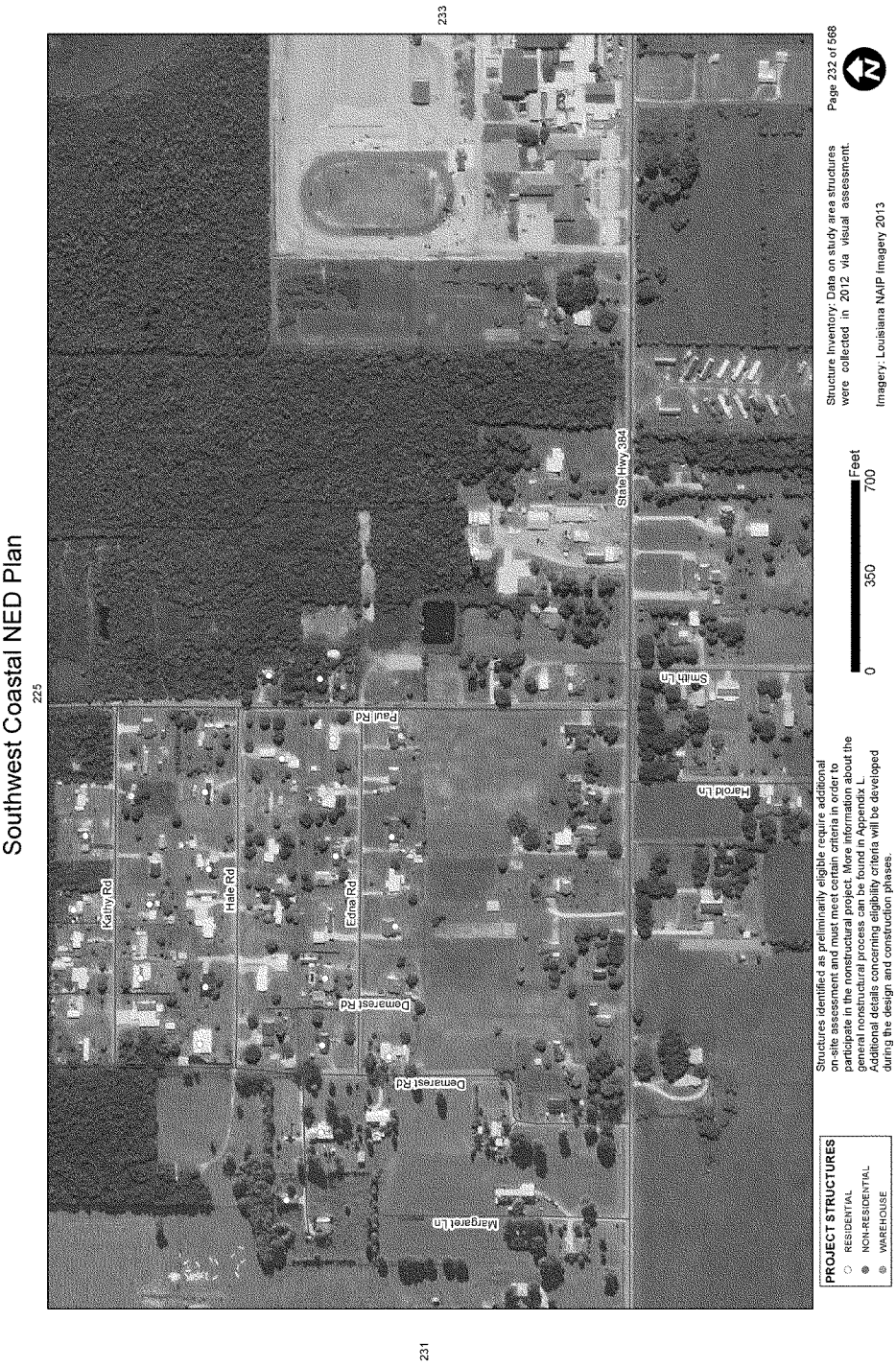
Southwest Coastal NED Plan

Southwest Coastal NED Plan




Southwest Coastal NED Plan
223
231
251
Vincent Rd
Gulf Hwy
Lena Klumpp Rd
Fosson Ln
Brian's Cir
Brian's Cir
Klumpp Ln
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 230 of 568


Southwest Coastal NED Plan
224
232
230
252
Demarest Rd
Margaret Ln
State Hwy 334
Poson Ln
Vincent Rd
Poisson Ln
Gulf Hwy
Lena Klumpp Rd
Brian's Cir
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 231 of 568


Southwest Coastal NED Plan
225
233
231
Kathy Rd
Hale Rd
Edna Rd
Demarest Rd
Demarest Rd
Paul Rd
Margaret Ln
Harold Ln
Smith Ln
State Hwy 384
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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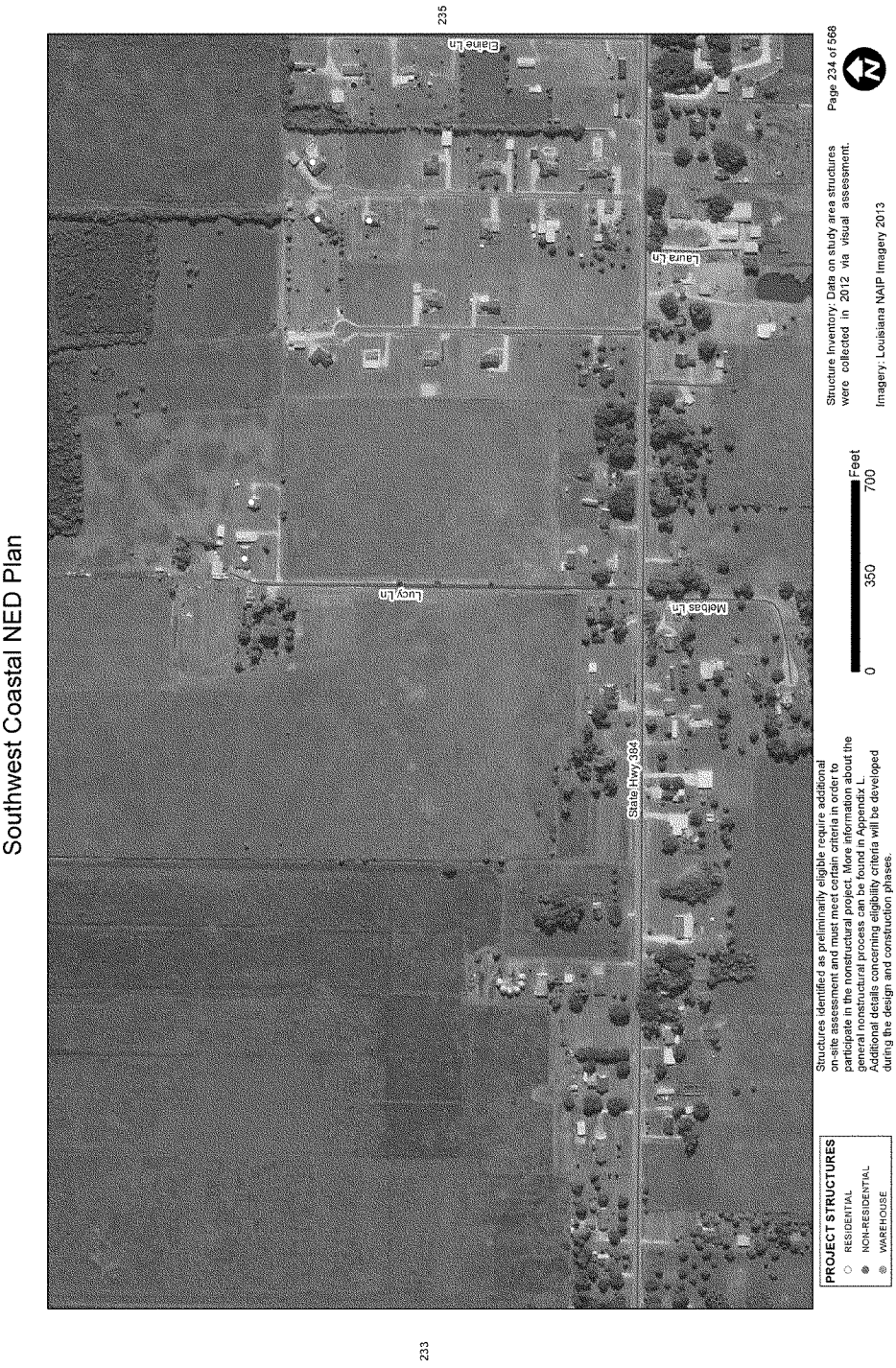
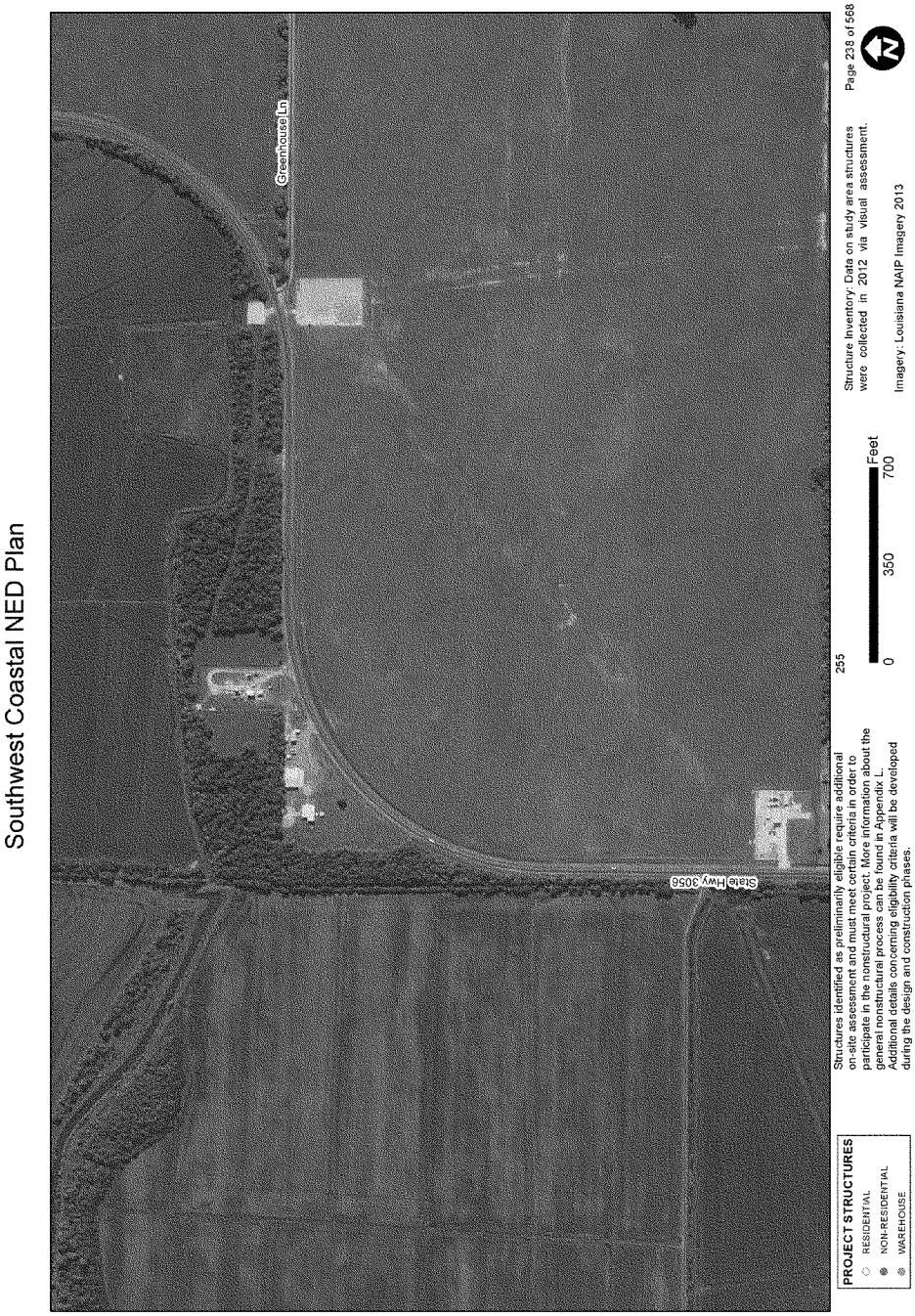
Southwest Coastal NED Plan
234
232
253
Big Diamond Disposal Rd
State Hwy 384
McCain Rd
Long Acre Dr
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 233 of 568


Southwest Coastal NED Plan
235
233
Elaine Ln
Laura Ln
Lucy Ln
Melbas Ln
State Hwy 384
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 234 of 568

Southwest Coastal NED Plan
236
234
254
Alfred Dunon Rd
Elaine Ln
Blanchard Rd
Newell Rd
State Hwy 384
Tans Rd
Laura Ln
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 235 of 568

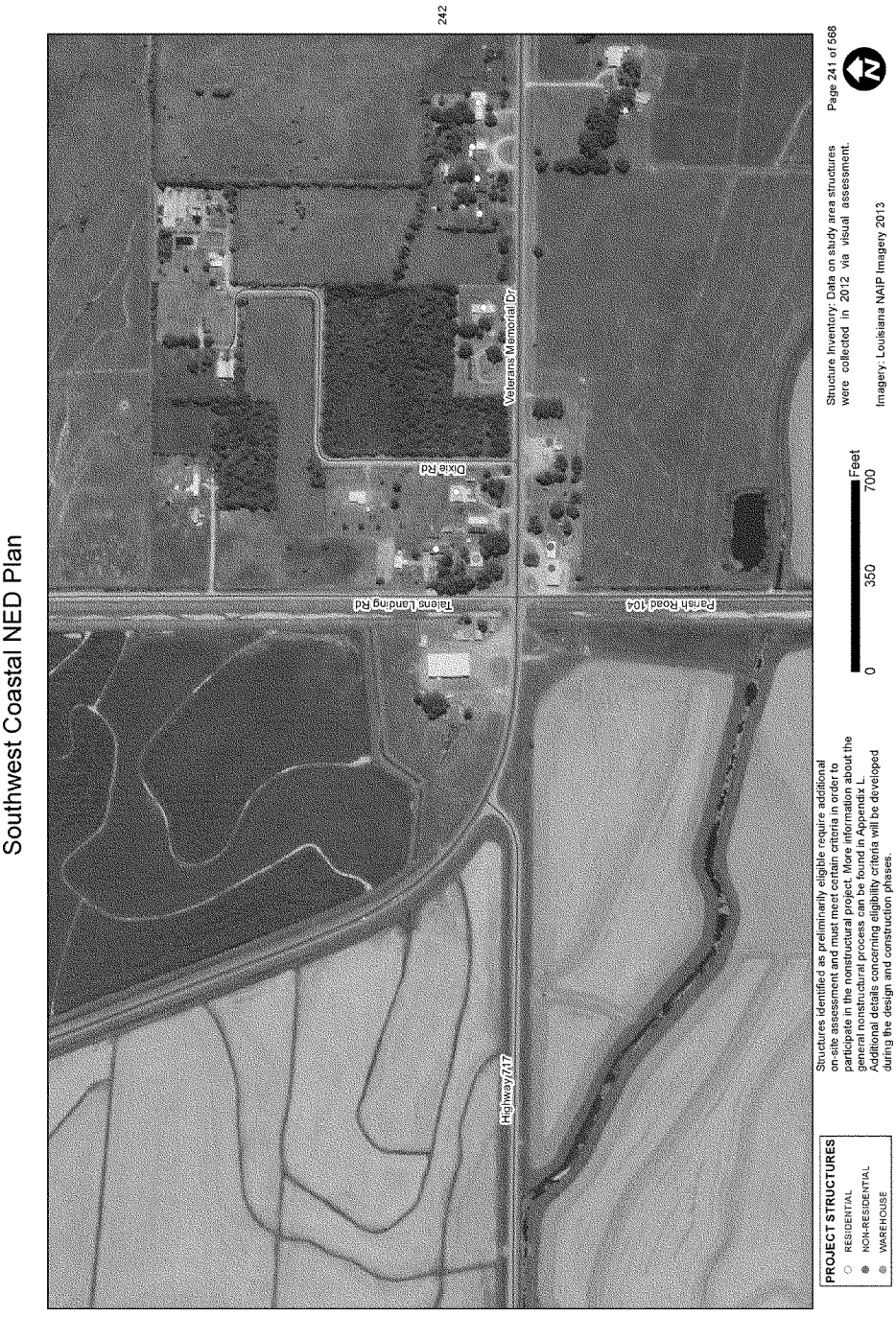
Southwest Coastal NED Plan
Parish Road 486
Parish Road 429
Peach Rd
Alfred Dunon Rd
State Hwy 384
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 236 of 568
235

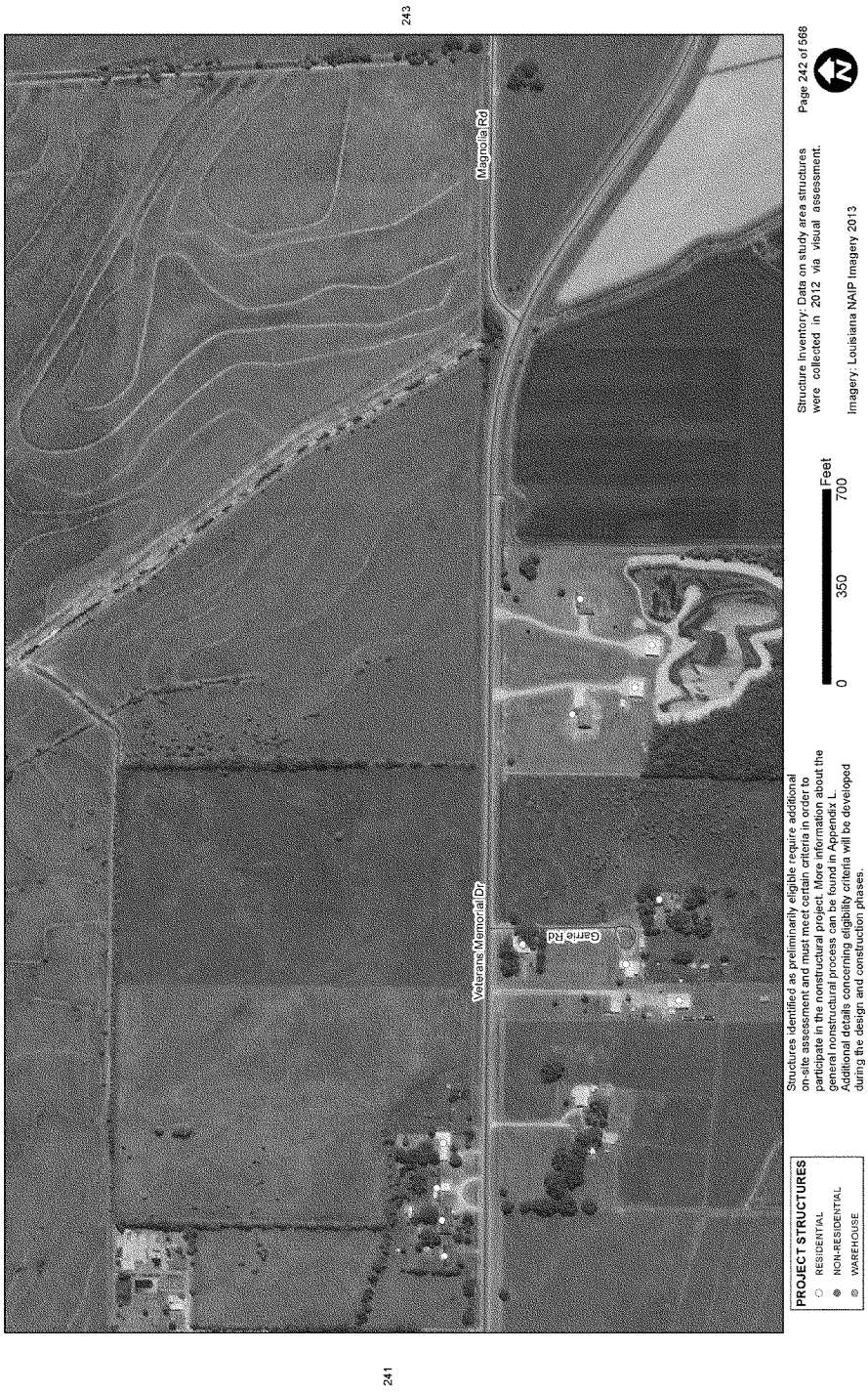
Southwest Coastal NED Plan


Southwest Coastal NED Plan
Greenhouse Ln
State Hwy 3056
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
255
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 238 of 568

Southwest Coastal NED Plan

Southwest Coastal NED Plan


Southwest Coastal NED Plan
242
Trains Landing Rd
Dixie Rd
Veterans Memorial Dr
Parish Road 104
Highway 317
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 241 of 568


Southwest Coastal NED Plan
241
243
Magnolia Rd
Veterans Memorial Dr
Garrie Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 242 of 568

Southwest Coastal NED Plan
227
244
242
Mae Rd
Magnolia Rd
Veterans Memorial Dr
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 243 of 568

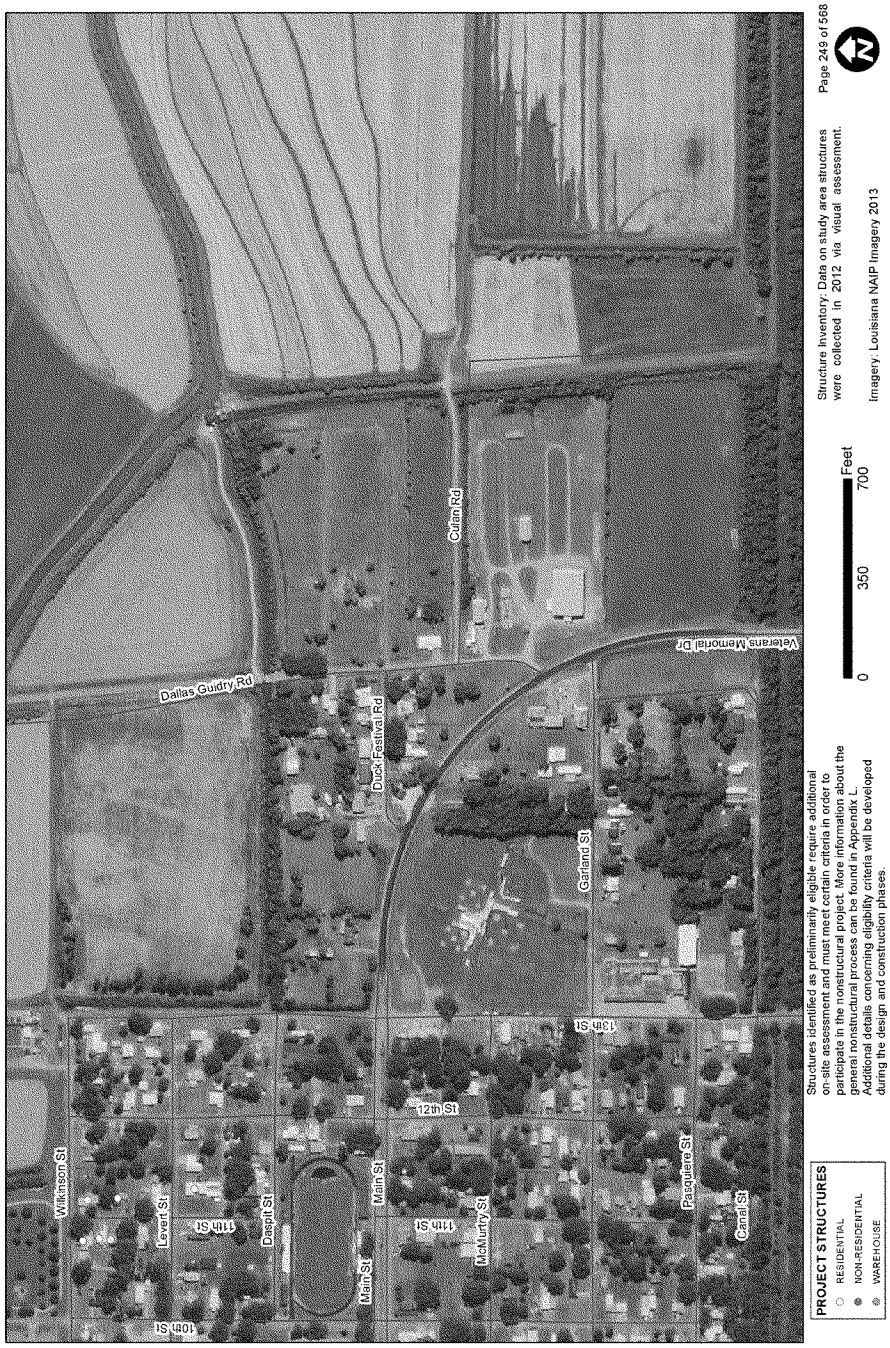
Southwest Coastal NED Plan
Zwan Rd
Veterans Memorial Dr
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 244 of 568
243
258

Southwest Coastal NED Plan

Southwest Coastal NED Plan
247
Alvie Rd
Veterans Memorial Dr
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
260
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 246 of 568

Southwest Coastal NED Plan
246
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
261
Elliott Rd
Veterans Memorial Dr
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 247 of 568

Southwest Coastal NED Plan
229
249
263
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
0
350
700
Feet
Page 248 of 568
12
Wilkinson St
Lewert St
Daspit St
12th St
11th St
10th St
9th St
8th St
7th St
6th St
5th St
4th St
3rd St
2nd St
1st St
Short St
Main St
McMurtry St
Canal St
Garland St
Pasquiere St
Canal


Southwest Coastal NED Plan
Dallas Guidry Rd
Duck Festival Rd
Cutlan Rd
Veterans Memorial Dr
Garland St
Wilkinson St
Levert St
Daspit St
10th St
11th St
Main St
12th St
McMurtry St
13th St
Pasquiere St
Canal St
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 249 of 568
248

Southwest Coastal NED Plan

Southwest Coastal NED Plan
230
252
Brian's Cir
Brian's Cir
Gulf Hwy
4 Pines Ln
Murphy Ln
Grand Lake Cemetery Rd
Hebert Camp Rd
Hebert Rd
State Hwy 384
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 251 of 568

Southwest Coastal NED Plan
231
251
Brian's Cir
Gulf Hwy
State Hwy 384
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 252 of 568

Southwest Coastal NED Plan
233
266
McCain Rd
Long Acre Dr
Muskrat Trail Rd
Cripple Creek Rd
Country Ln
Briar Ln
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 253 of 568

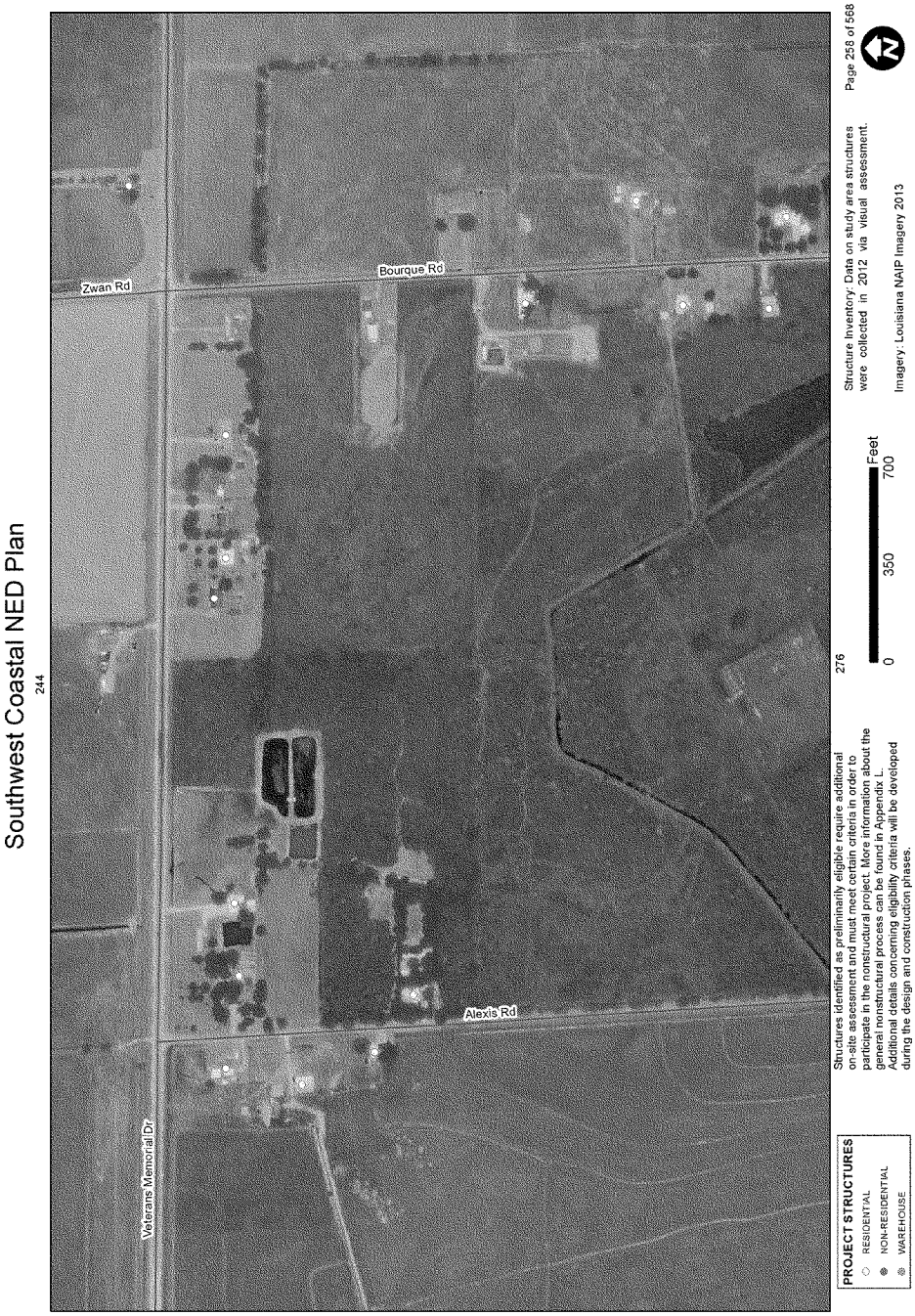
Southwest Coastal NED Plan
235
Laura Ln
Tans Rd
Clydes Ln
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
268
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 254 of 568

Southwest Coastal NED Plan
238
Parish Road 123
Miller Rd
State Hwy 3056
Streeter Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
272
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 255 of 568

Southwest Coastal NED Plan

Southwest Coastal NED Plan

256

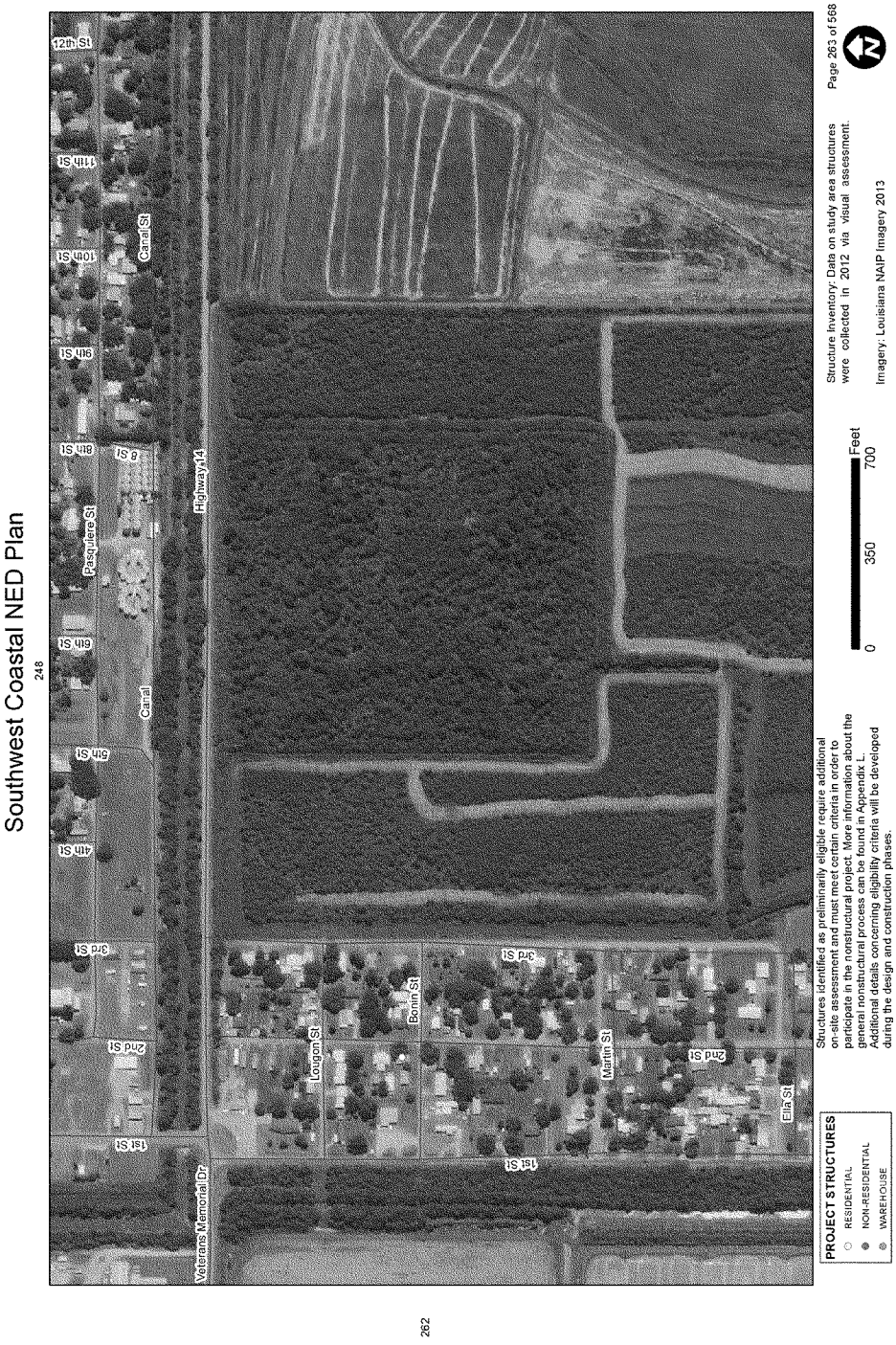

Southwest Coastal NED Plan
244
Zwan Rd
Bourque Rd
Alexis Rd
Veterans Memorial Dr
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
276
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 258 of 568

Southwest Coastal NED Plan
245
Veterans Memorial Dr
Ft Smith Rd
Big Four Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 259 of 568
12

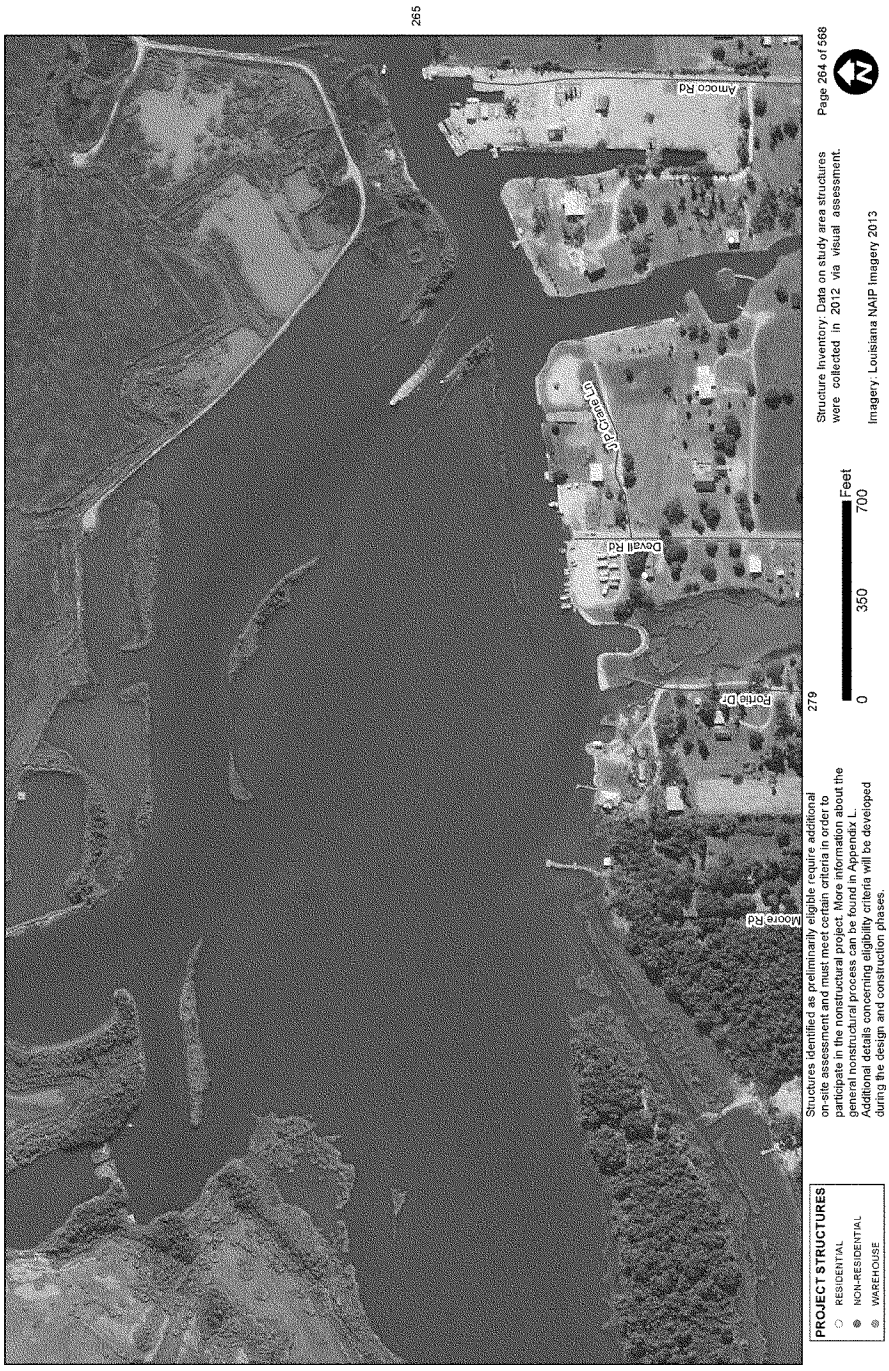
Southwest Coastal NED Plan
246
261
Veterans Memorial Dr
Alvio Rd
Alvio Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 260 of 568

Southwest Coastal NED Plan
247
262
260
Veterans Memorial Dr
Elliott Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 261 of 568

Southwest Coastal NED Plan


Southwest Coastal NED Plan
248
262
12th St
11th St
10th St
9th St
8th St
7th St
6th St
5th St
4th St
3rd St
2nd St
1st St
Canal St
Pasquiere St
Canal
Highway14
Veterans Memorial Dr
Lougon St
Bonin St
Martin St
Ella St
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 263 of 568

Southwest Coastal NED Plan



Southwest Coastal NED Plan

264

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

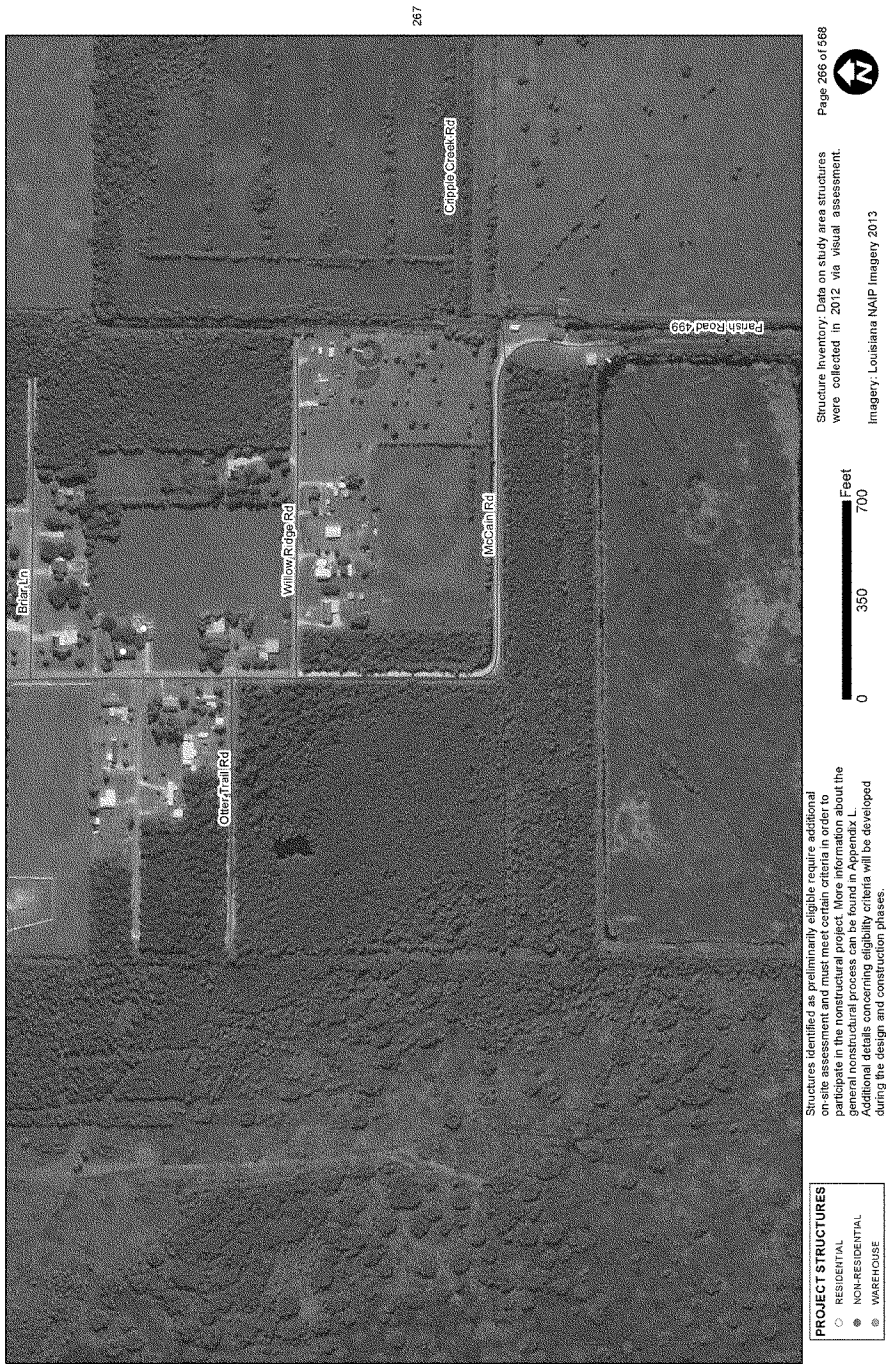
280

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Page 265 of 568


Southwest Coastal NED Plan
253
267
Briar Ln
Willow Ridge Rd
Otter Trail Rd
McCain Rd
Cripple Creek Rd
Parish Road 499
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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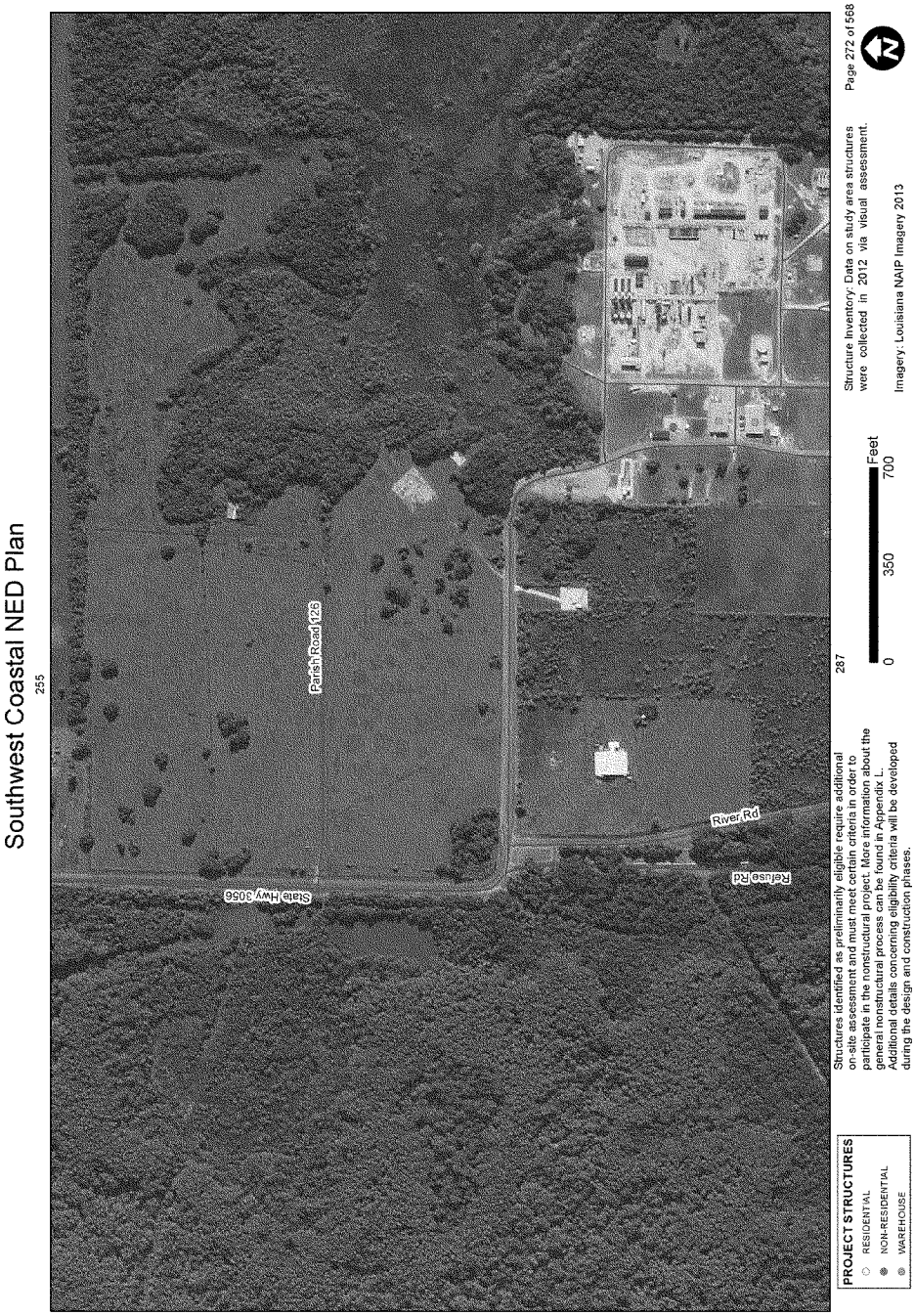
Southwest Coastal NED Plan
Clyde's Ln
Clyde Olivers Ln
Parish Road 4105
Cripple Creek Rd
Eric Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 267 of 568
266
268

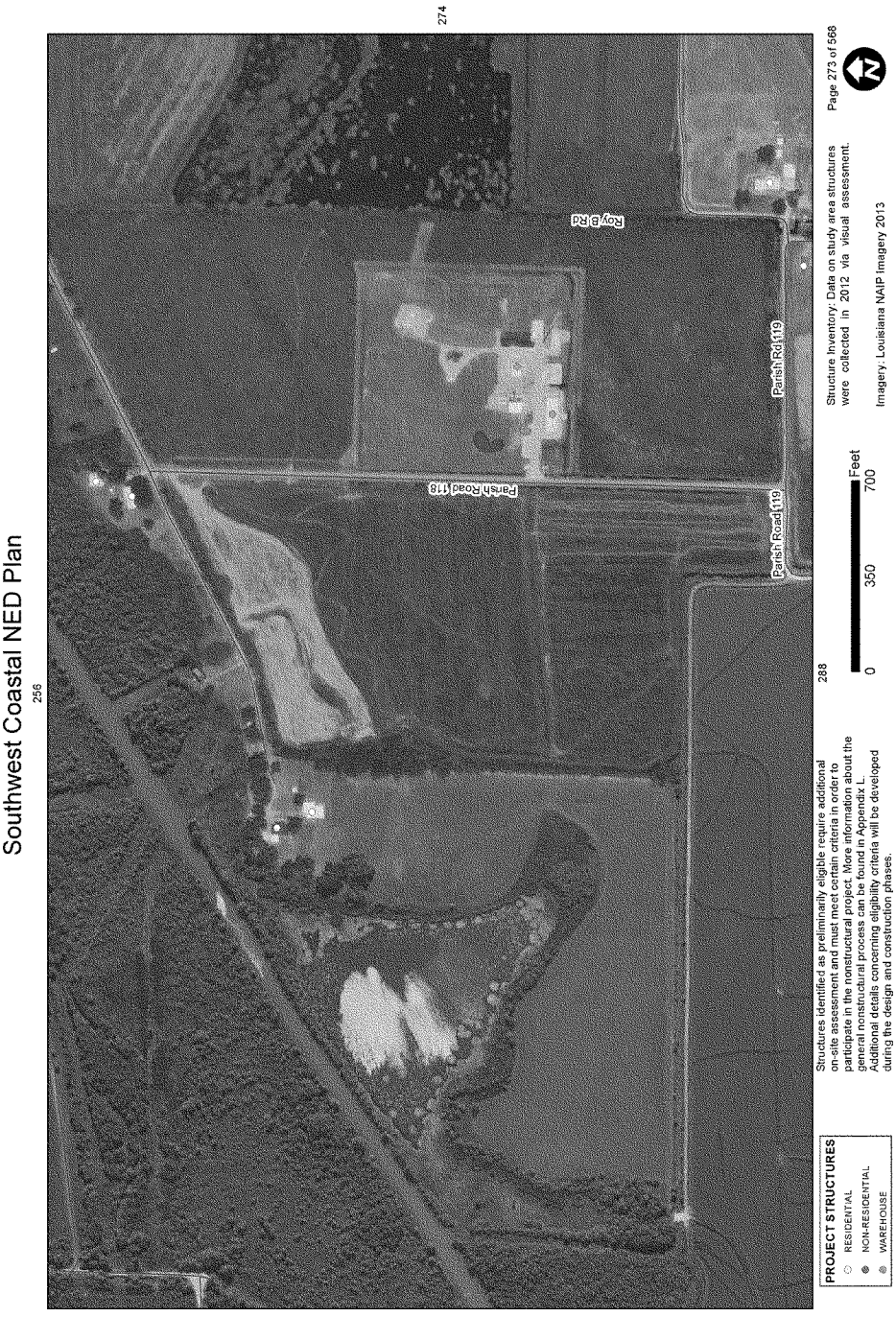
Southwest Coastal NED Plan
254
267
Clydes Ln
Clyde Olivers Ln
Parish Road 4105
Tans Rd
Eric Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 268 of 568

Southwest Coastal NED Plan

Southwest Coastal NED Plan
State Hwy 384
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
284
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 270 of 568
269

Southwest Coastal NED Plan


Southwest Coastal NED Plan
255
State Hwy 3056
Parish Road 126
River Rd
Refuse Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
287
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 272 of 568


Southwest Coastal NED Plan
256
274
288
Roy B Rd
Parish Road 118
Parish Road 119
Parish Rd 119
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 273 of 568

Southwest Coastal NED Plan
257
273
Parish Road 113
Roy B Rd
Parish Rd 119
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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Southwest Coastal NED Plan

Southwest Coastal NED Plan
258
Bourque Rd
Alexis Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
291
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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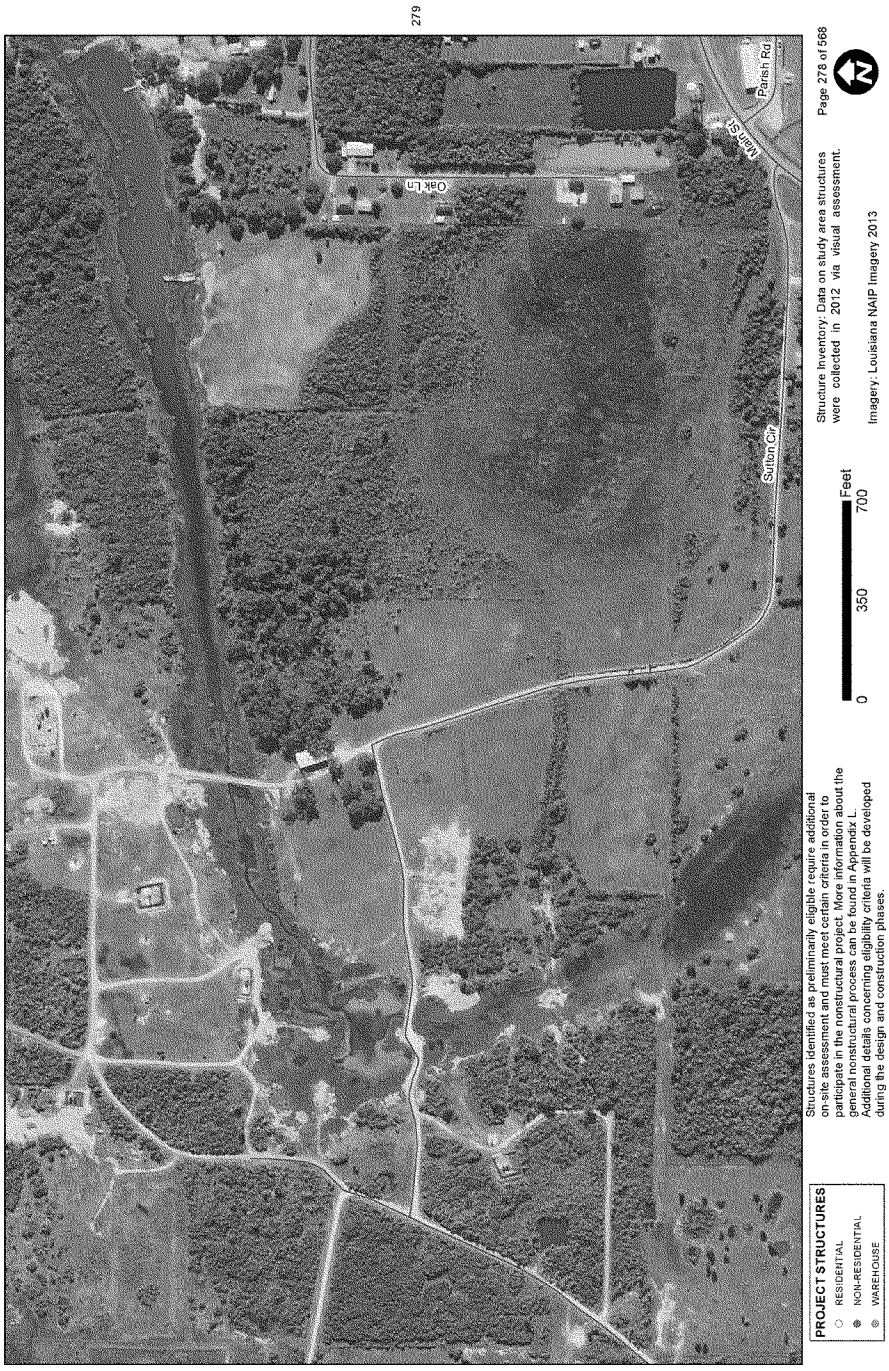
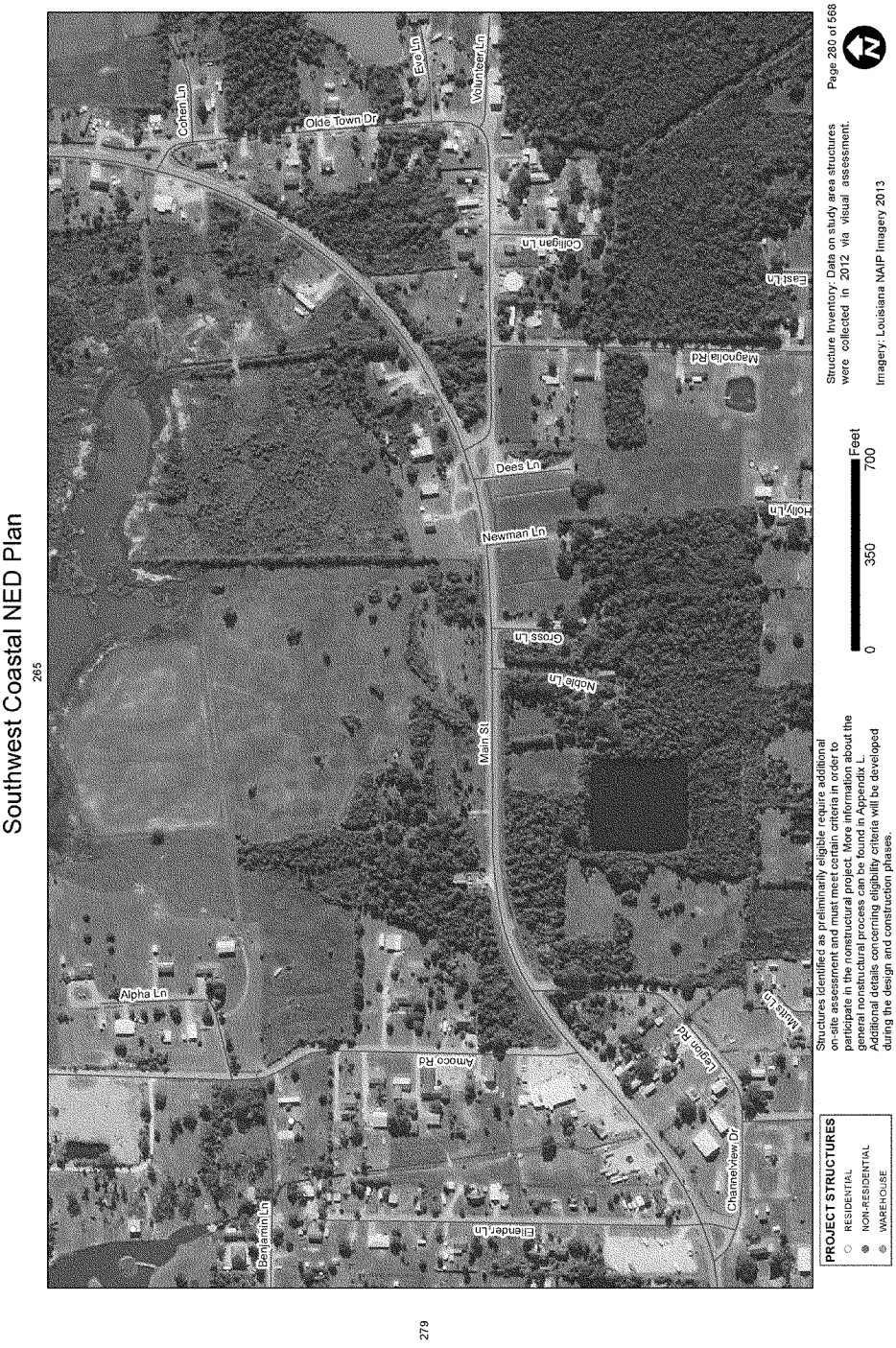
Southwest Coastal NED Plan
262
2nd St
Ella St
1st St
Verde St
Highway 91
Gladys Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 277 of 568

Southwest Coastal NED Plan



Southwest Coastal NED Plan
264
280
278
295
Moore Rd
Oak Ln
Sutton Cir
Parish Rd
Riggs Dr
Area Ln
Portie Dr
Main St
Bryant Cir
Benjamin Ln
Deval Rd
Elender Ln
Amoco Rd
Welch Dr
Channelview Dr
Legon Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 279 of 568


Southwest Coastal NED Plan
265
279
Olde Town Dr
Cohen Ln
Eve Ln
Volunteer Ln
Colligan Ln
East Ln
Magnolia Rd
Dees Ln
Holly Ln
Newman Ln
Gross Ln
Nobb Ln
Main St
Alpha Ln
Amoco Rd
Legion Rd
Maple Ln
Channelview Dr
Elendar Ln
Benjamin Ln
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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Southwest Coastal NED Plan

Southwest Coastal NED Plan

283

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

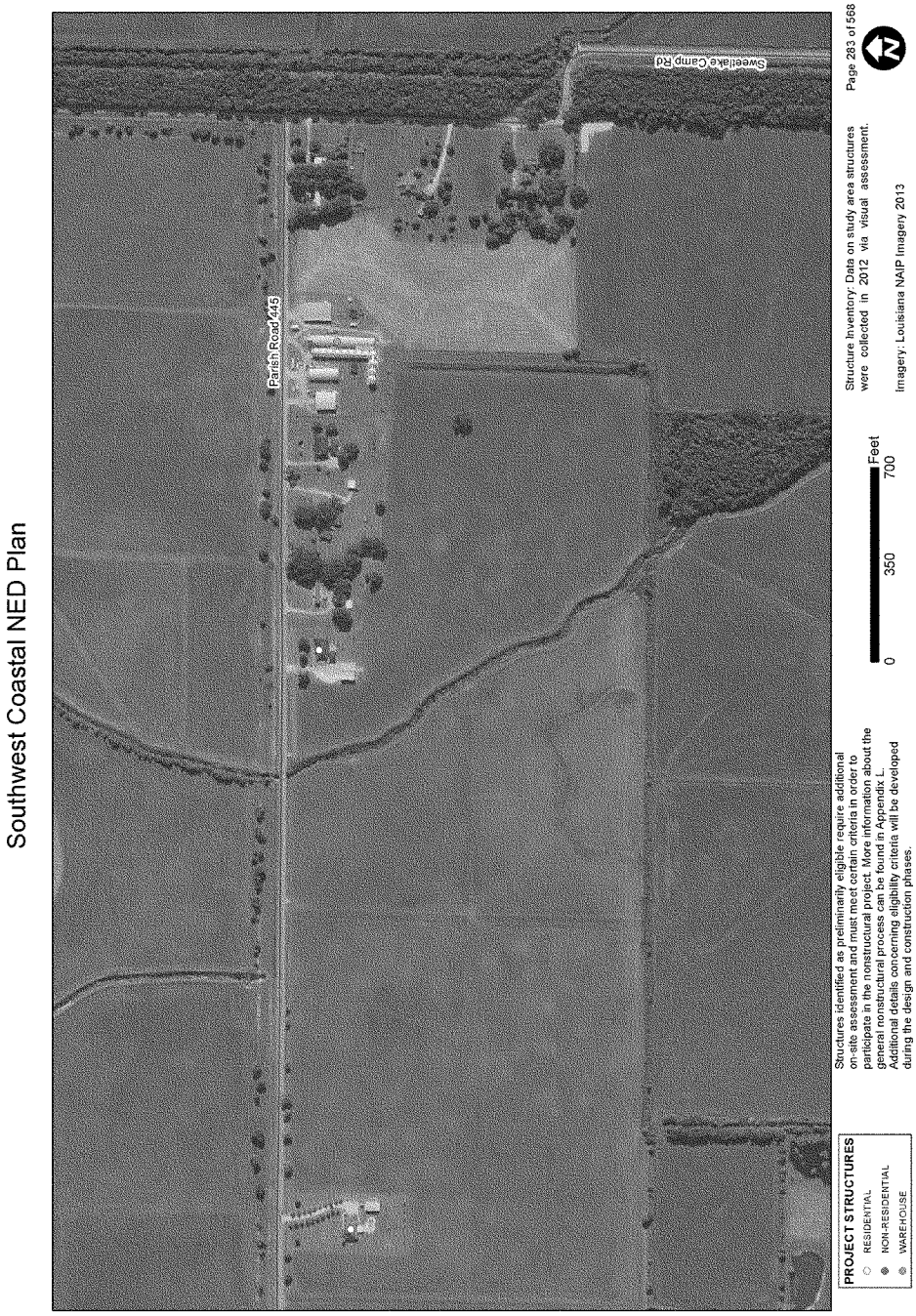
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Page 282 of 568


Southwest Coastal NED Plan
Parish Road 445
Sweetlake Camp Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 283 of 568
282

Southwest Coastal NED Plan
270
285
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 284 of 568

Southwest Coastal NED Plan

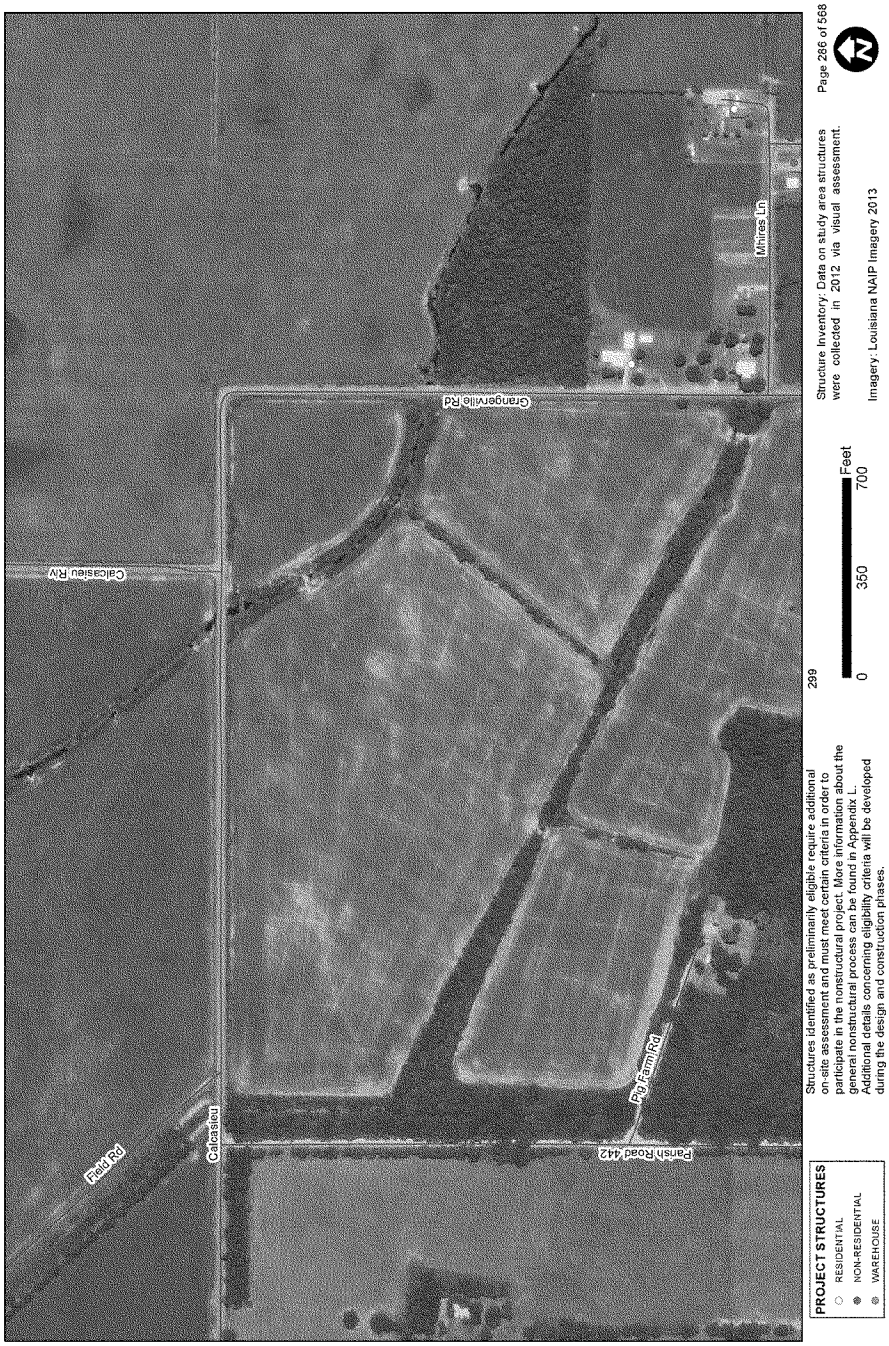
PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

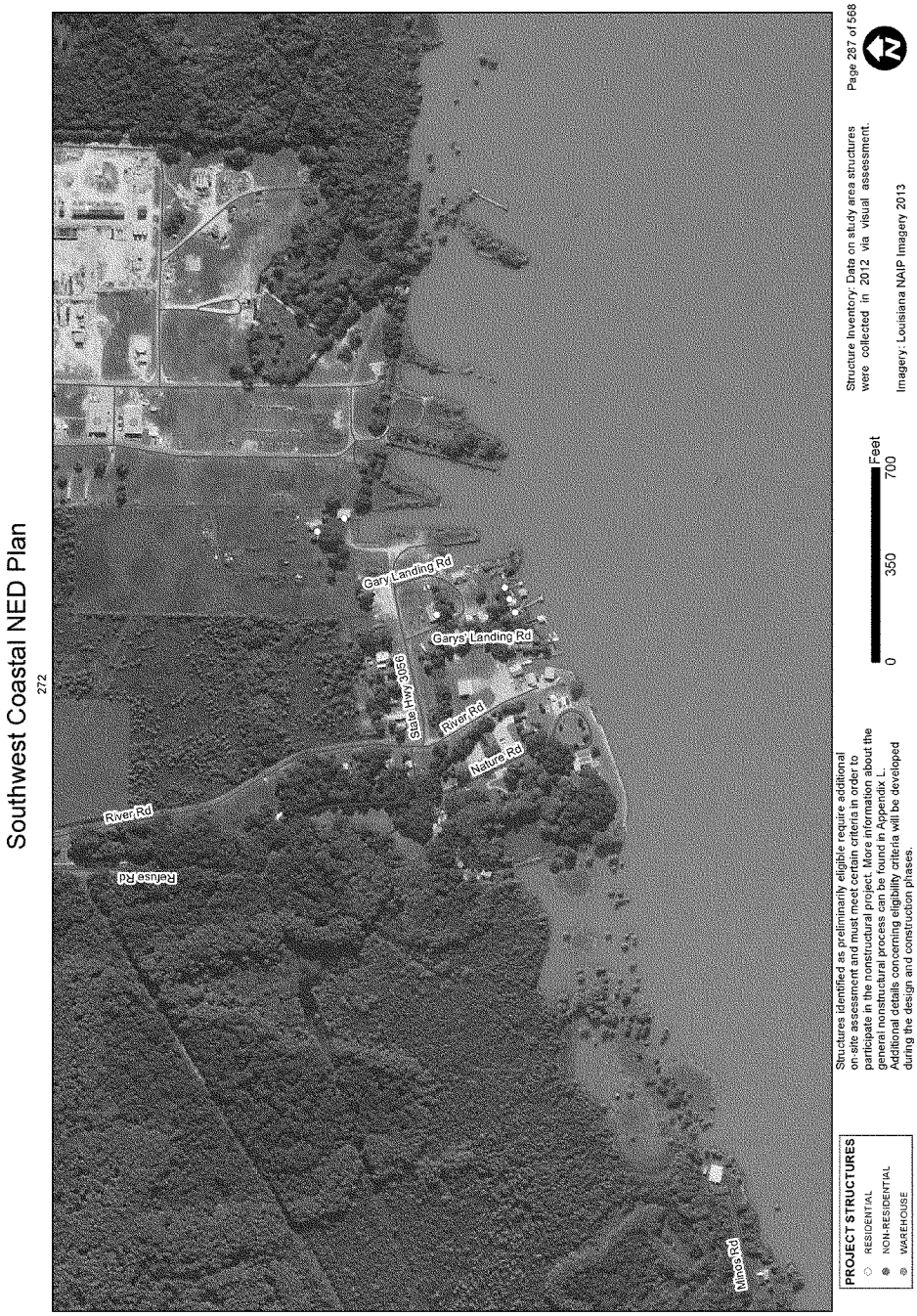
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

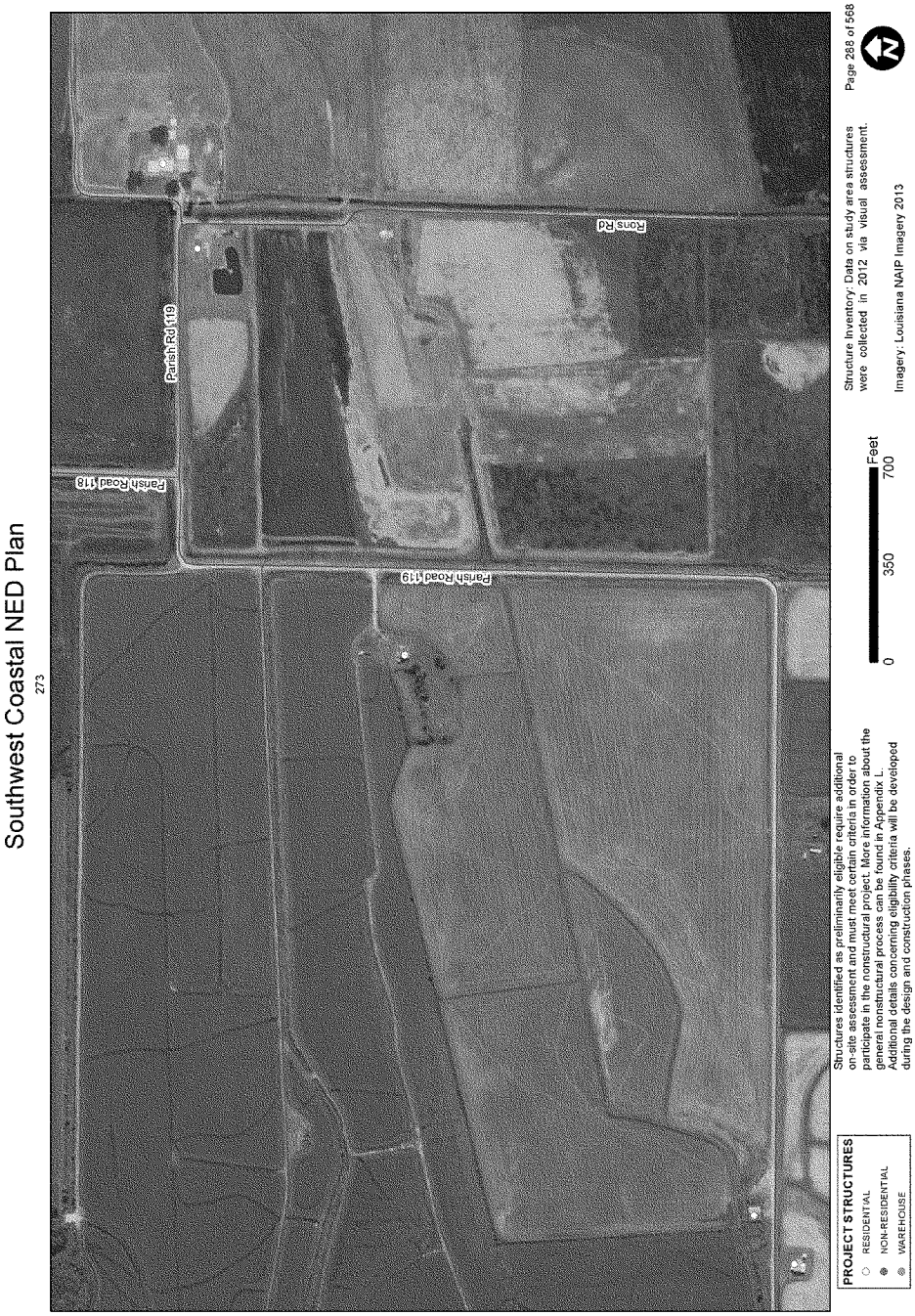
0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013


Southwest Coastal NED Plan
Field Rd
Calcasieu
Calcasieu Rv
Parish Road 442
Pig Farm Rd
Grangerville Rd
Mhires Ln
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
299
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 286 of 568


Southwest Coastal NED Plan
272
River Rd
Refuse Rd
Gary Landing Rd
Gary's Landing Rd
State HWY 3090
River Rd
Nature Rd
Minos Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 287 of 568


Southwest Coastal NED Plan
273
Parish Road 118
Parish Rd 119
Parish Road 119
Rons Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 288 of 568

Southwest Coastal NED Plan
275
Drake Rd
Rice Rd
Parish Road 111
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 289 of 568

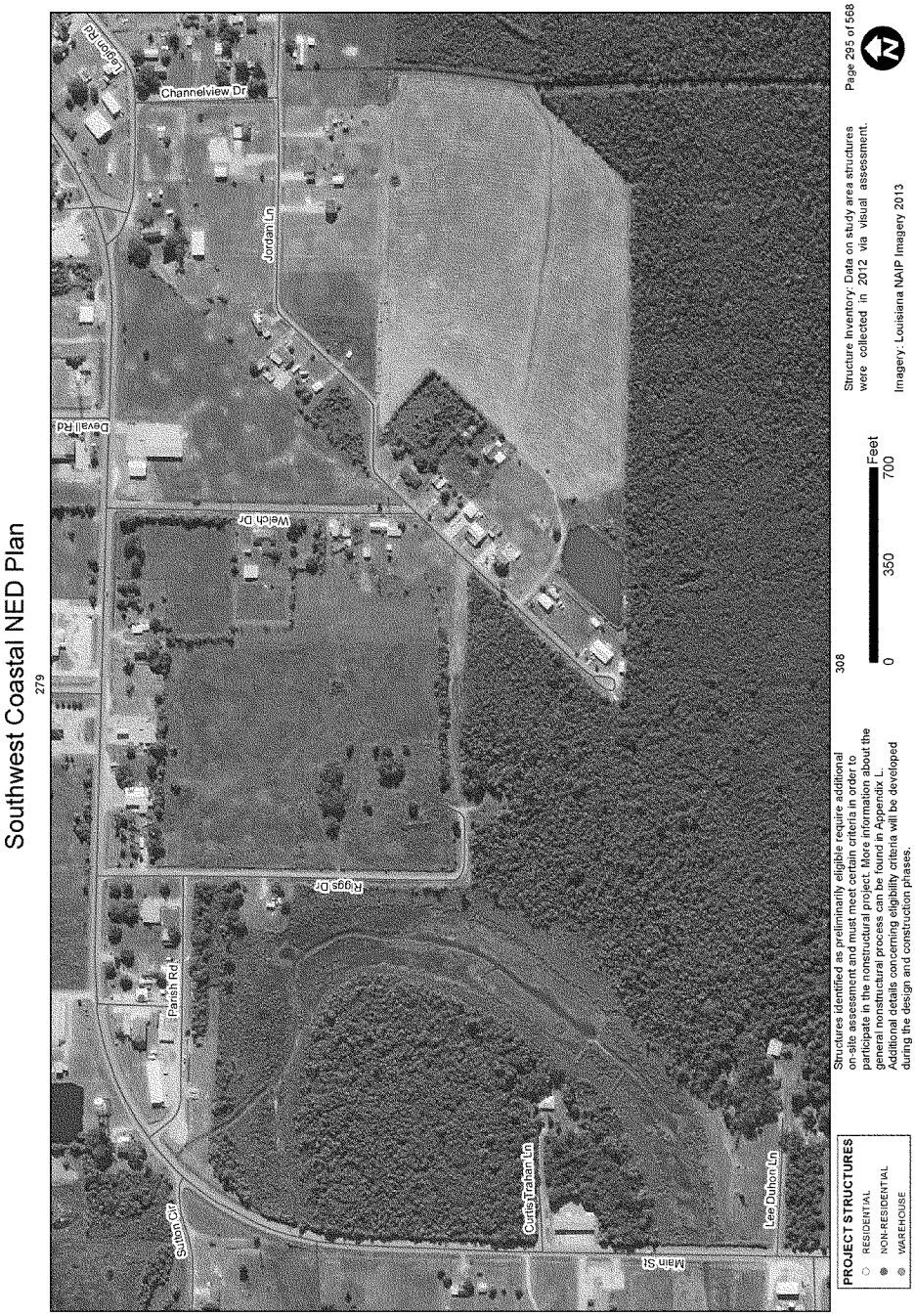
Southwest Coastal NED Plan

Southwest Coastal NED Plan
276
Bourque Rd
Alexis Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
306
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 291 of 568

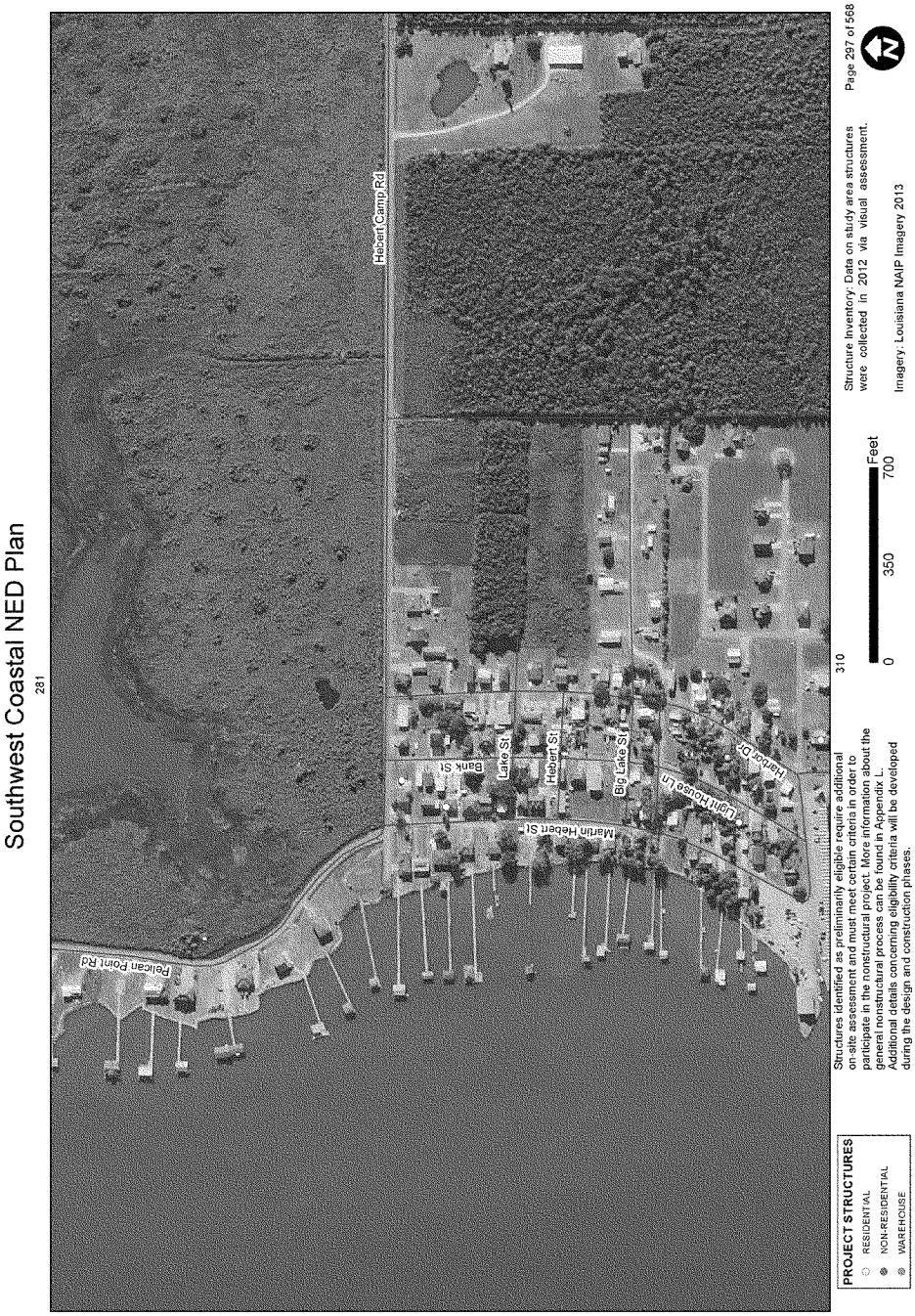
Southwest Coastal NED Plan

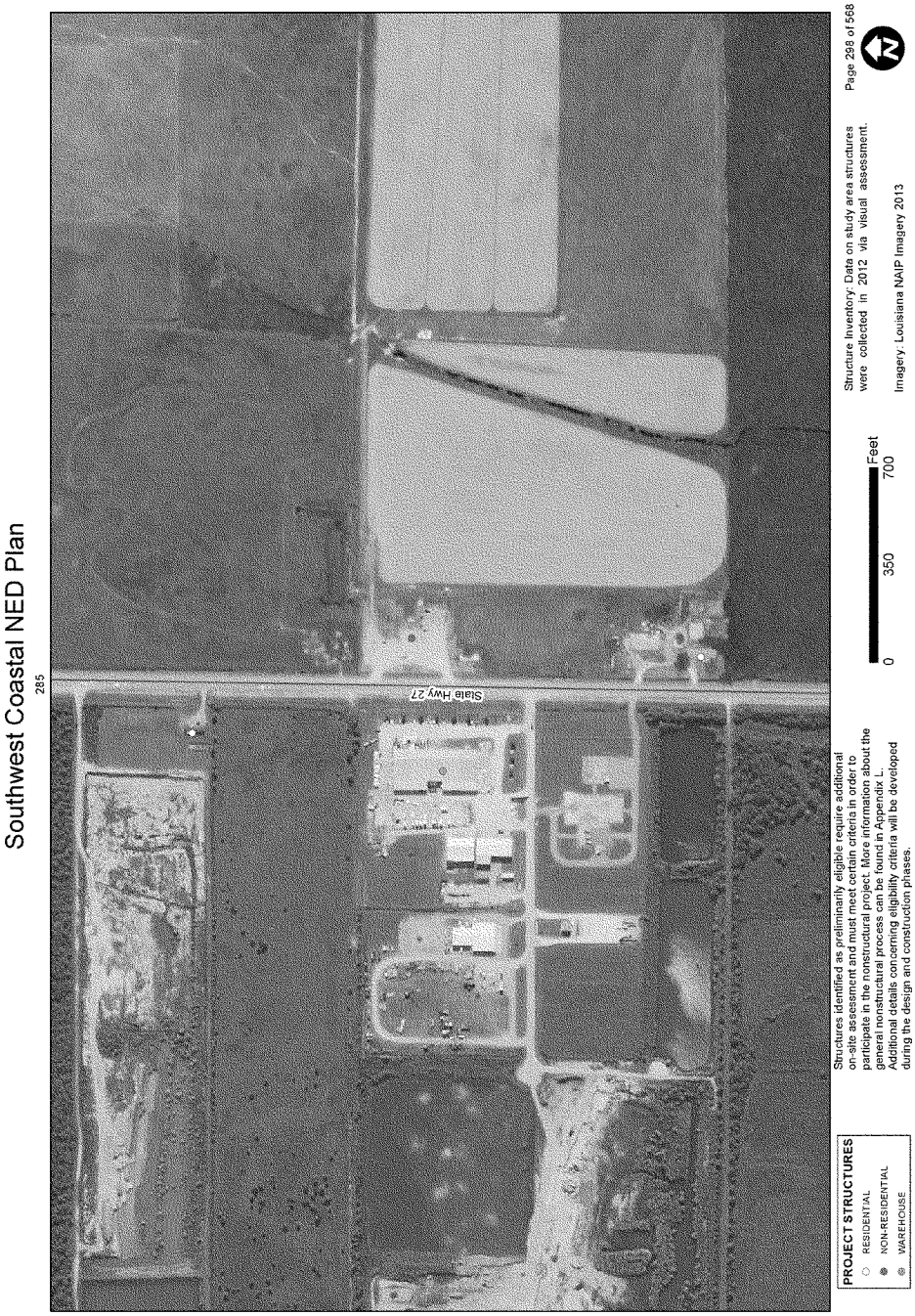
Southwest Coastal NED Plan

Southwest Coastal NED Plan


Southwest Coastal NED Plan
279
Channelview Dr
Jordan Ln
Welch Dr
Parish Rd
Curtis Trahan Ln
Lee Duhon Ln
Main St
Gahon Cir
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
308
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 295 of 568

Southwest Coastal NED Plan


Southwest Coastal NED Plan
281
Pelican Point Rd
Hebert Camp Rd
Bank St
Lake St
Hebert St
Big Lake St
Martin Hebert St
Light House Ln
Harbor Dr
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
310
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 297 of 568


Southwest Coastal NED Plan
285
State Hwy 27
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 298 of 568

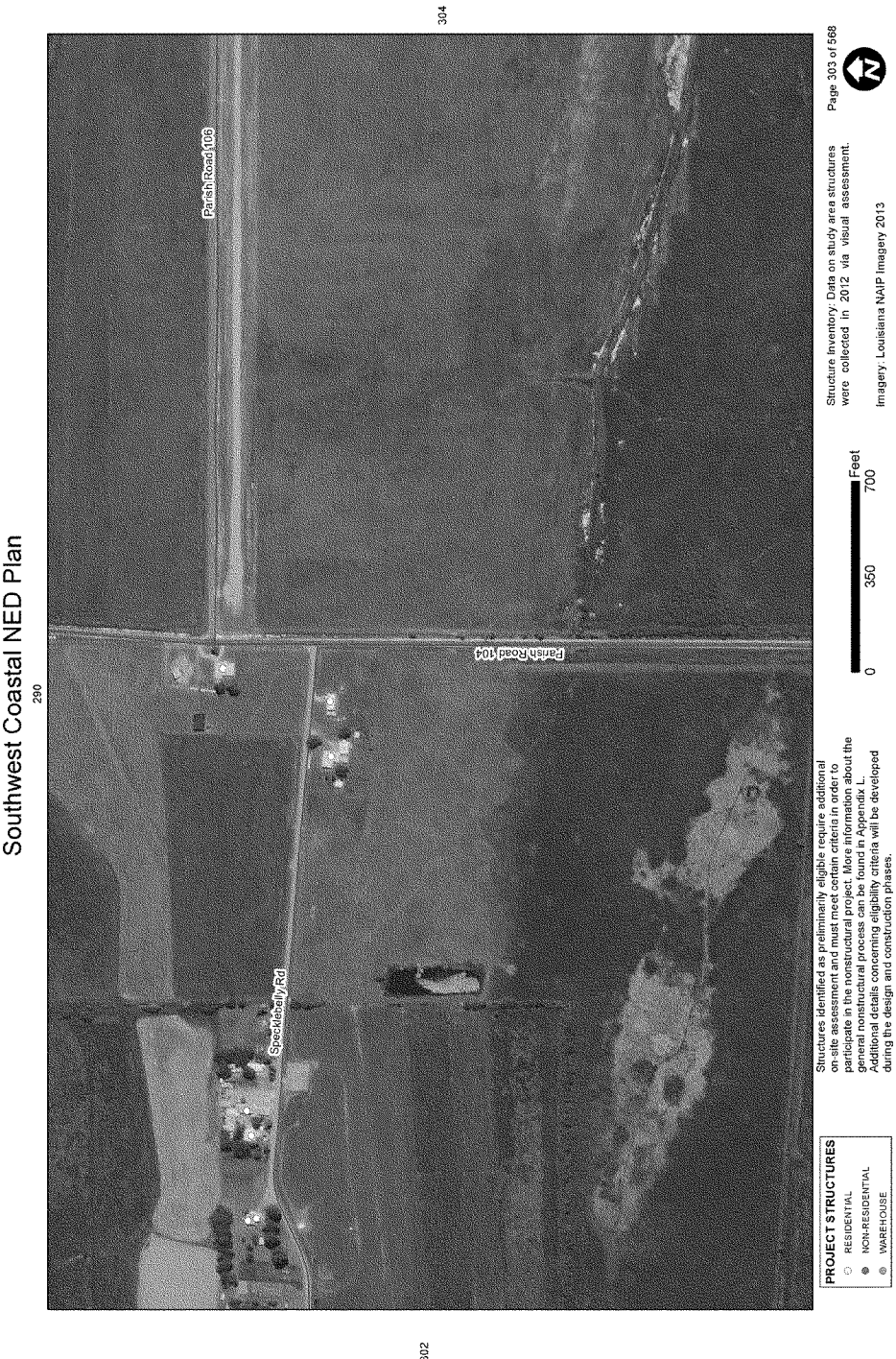
Southwest Coastal NED Plan
286
300
Parish Road 442
Pig Farm Rd
Orangerille Rd
Mhires Ln
Betty Mhires Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 299 of 568

Southwest Coastal NED Plan
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 300 of 568
Mhires Ln
Betty Mures Rd
Grangerville Rd
299

Southwest Coastal NED Plan
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 301 of 568

303

Southwest Coastal NED Plan


Southwest Coastal NED Plan
290
304
302
Parish Road 106
Parish Road 104
Speck Melly Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 303 of 568

Southwest Coastal NED Plan

303

305

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Southwest Coastal NED Plan

304

306

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

312

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Southwest Coastal NED Plan
291
305
313
Bourque Rd
Alexis Rd
Monceaux Rd
Andy Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 306 of 568

Southwest Coastal NED Plan
292
316
Elliott Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 307 of 568

Southwest Coastal NED Plan
295
309
320
Lee Dunton Ln
Austin Rd
Main St
Albert Little Rd
Reeves Ln
Meyers Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 308 of 568

Southwest Coastal NED Plan
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Meyers Rd
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
321
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 309 of 568
308

Southwest Coastal NED Plan

297

Southwest Coastal NED Plan

Southwest Coastal NED Plan

305

313

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

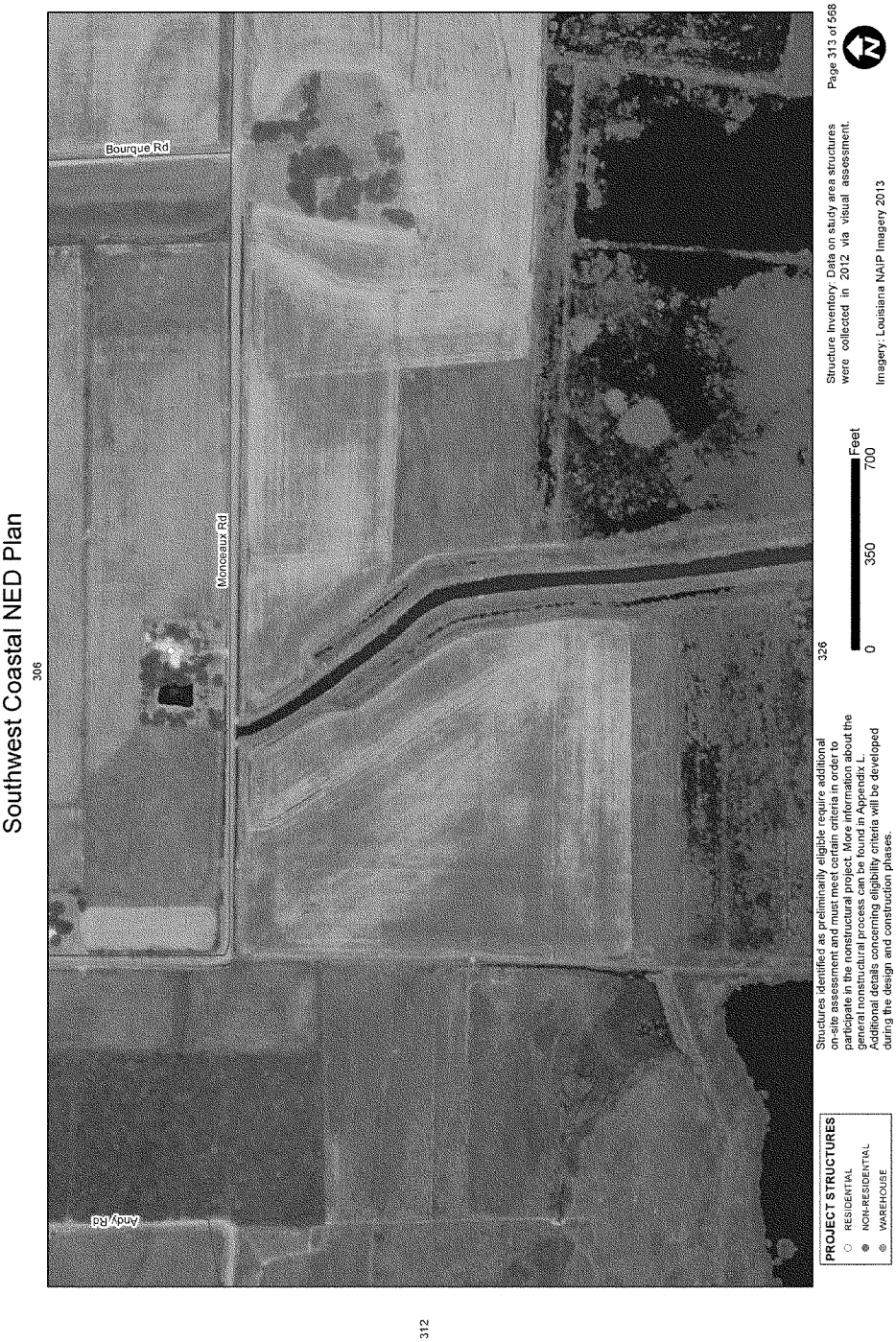
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

325

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013


Southwest Coastal NED Plan
306
312
326
Bourque Rd
Monceaux Rd
Andy Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 313 of 568

Southwest Coastal NED Plan

Southwest Coastal NED Plan
316
314
329
Highway 332
Scanlan Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 315 of 568

Southwest Coastal NED Plan

307

315

317

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

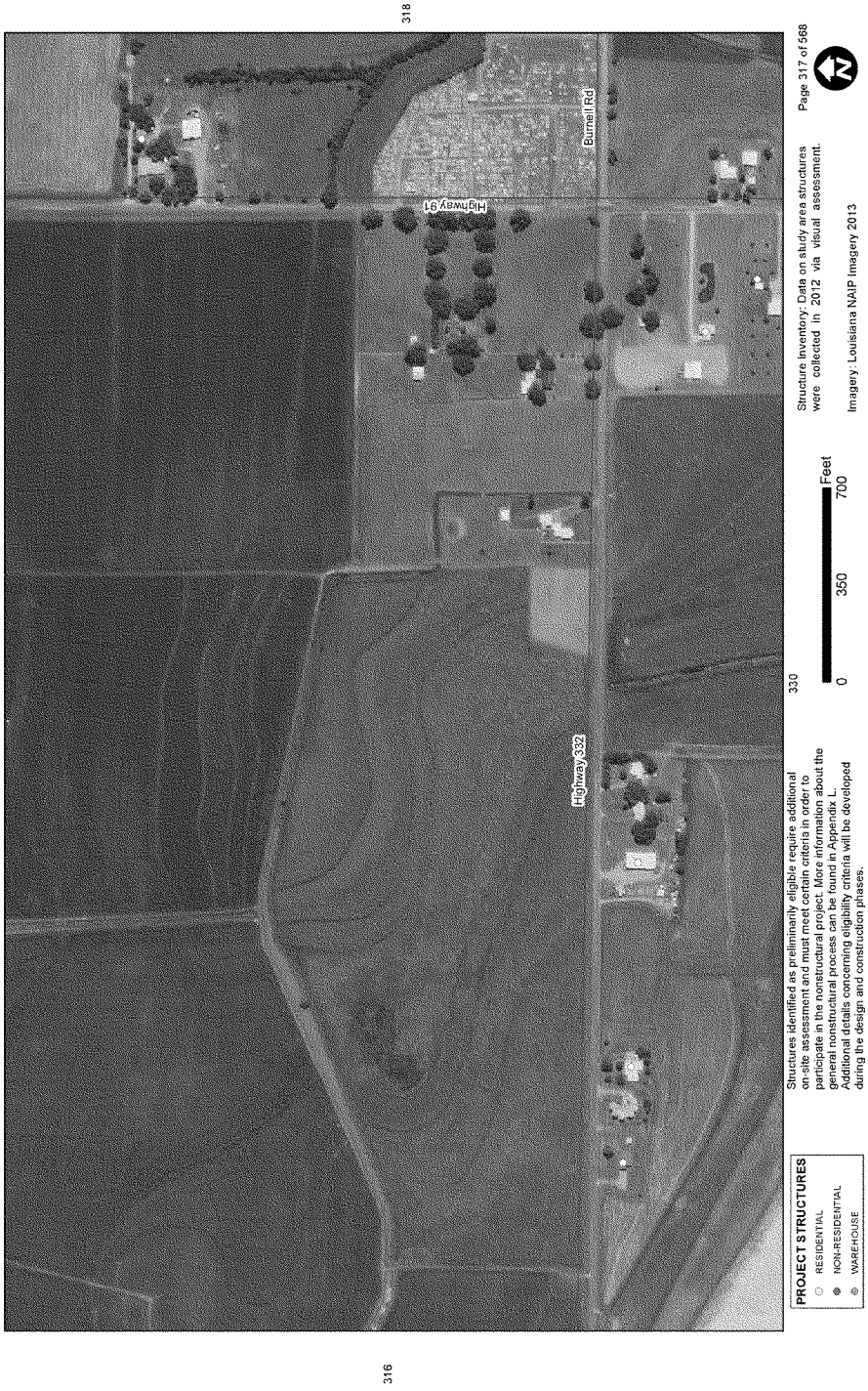
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

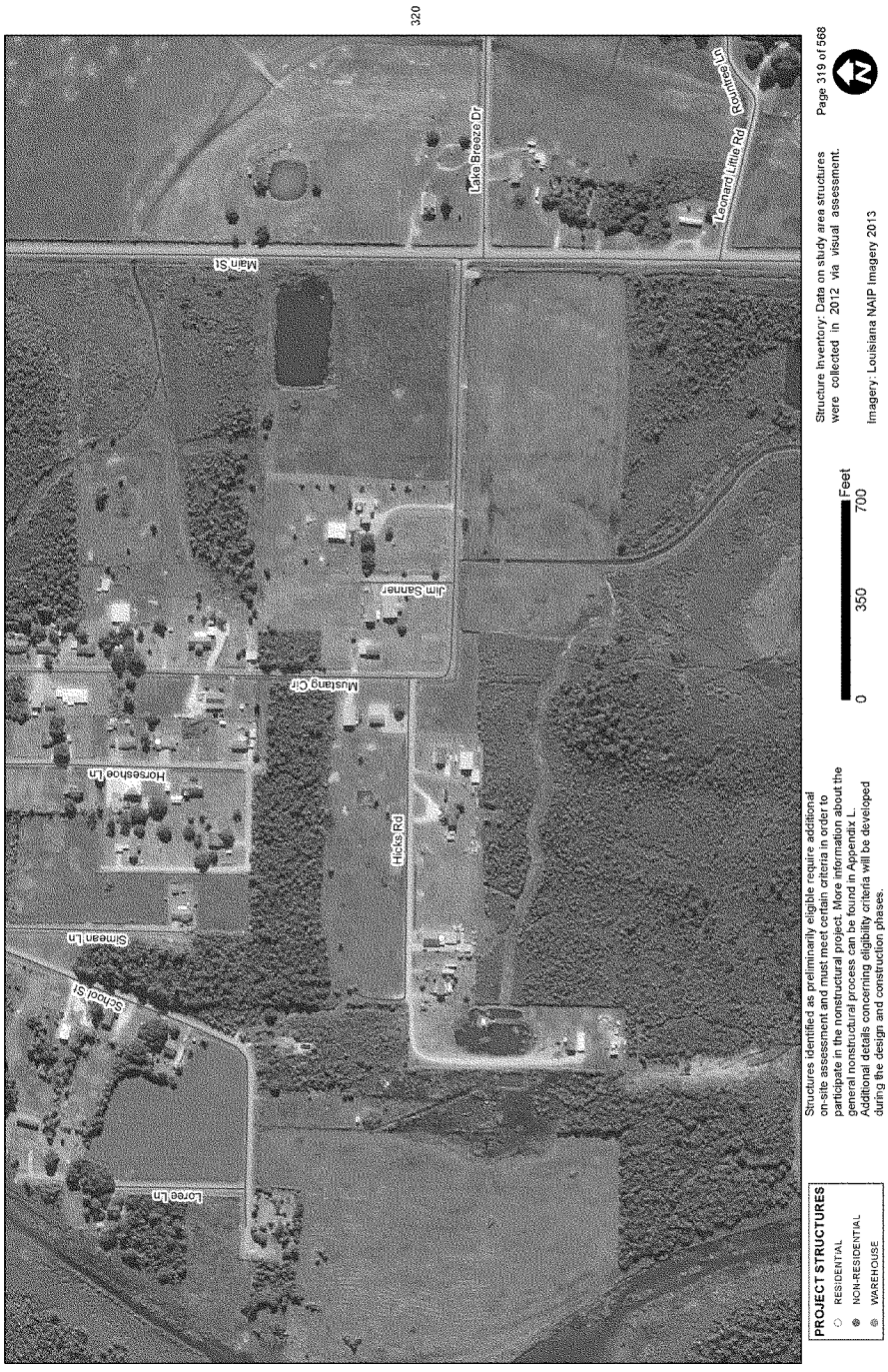
Southwest Coastal NED Plan



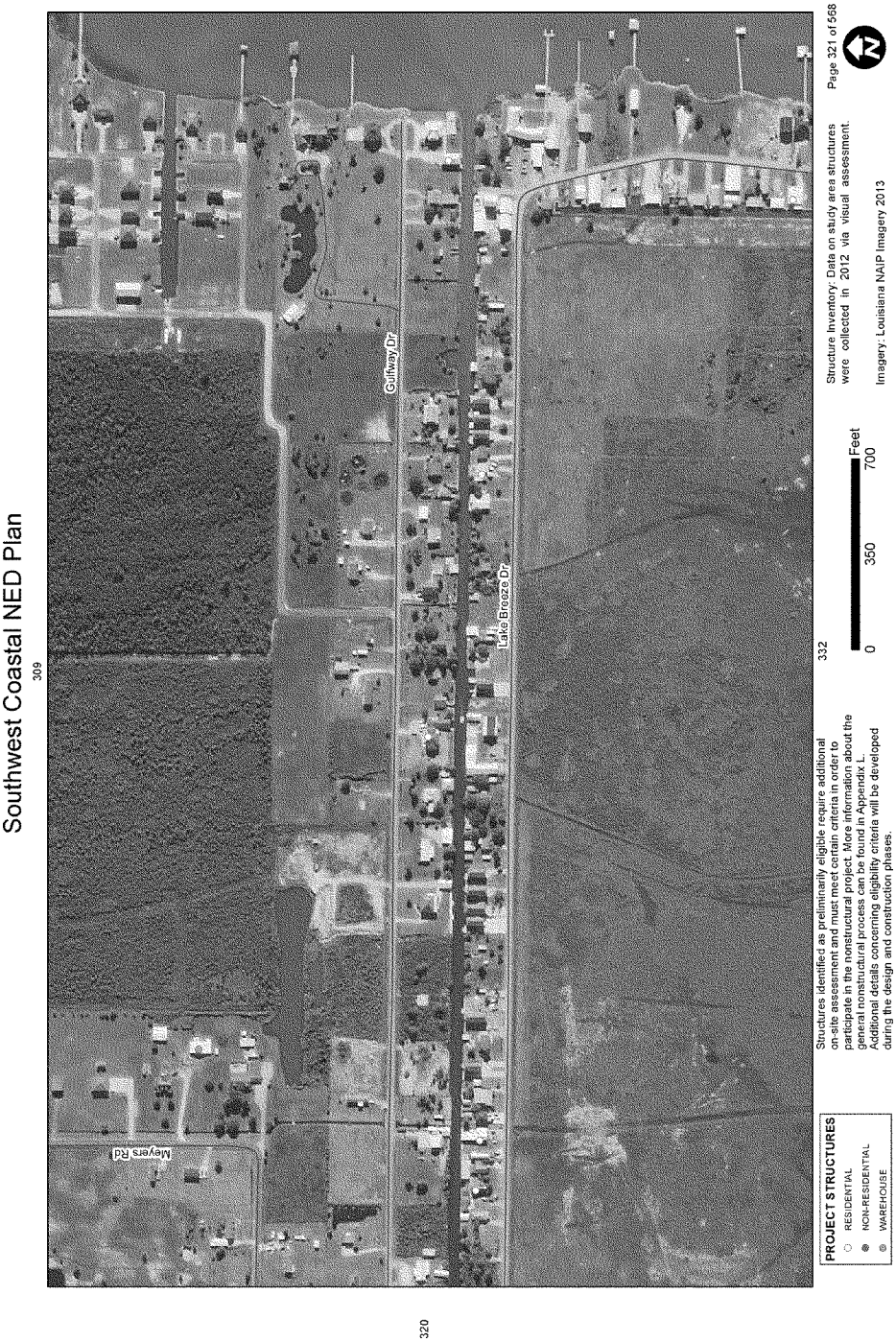
Southwest Coastal NED Plan
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 318 of 568
Highway 91
Highway 332
Burnell Rd

317

Southwest Coastal NED Plan



Southwest Coastal NED Plan
308
321
319
Meyers Rd
Gulfway Dr
Lake Breeze Dr
Main St
Rountree Ln
Leonard Little Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 320 of 568
12


Southwest Coastal NED Plan
309
320
332
Meyers Rd
Gulfway Dr
Lake Breeze Dr
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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Southwest Coastal NED Plan

Southwest Coastal NED Plan
324
Antlers Ln
Bozo Rd
Sweetlake Camp Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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Southwest Coastal NED Plan
Annies Ln
William Young Rd
Sweetlake Camp Rd
Bozo Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 324 of 558
323

Southwest Coastal NED Plan
312
326
Oliver Rd
Parish Road 110
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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Southwest Coastal NED Plan

313

325

327

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Southwest Coastal NED Plan

326

328

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

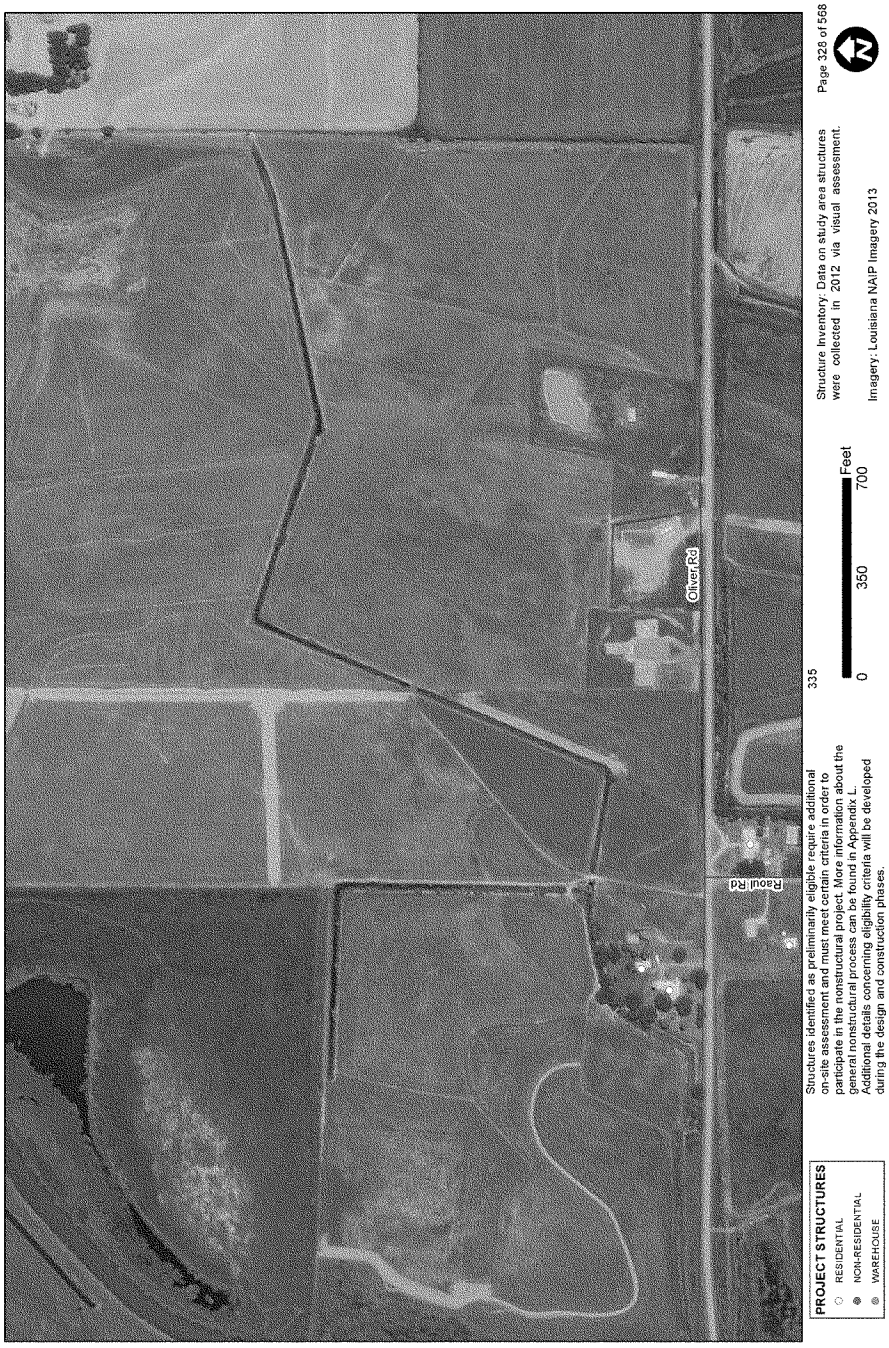
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

334

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013


Southwest Coastal NED Plan
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
335
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 328 of 568
Oliver Rd
Raoul Rd

327

Southwest Coastal NED Plan
315
Scanlan Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 329 of 568

Southwest Coastal NED Plan
317
Highway 91
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
336
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 330 of 568

Southwest Coastal NED Plan

Southwest Coastal NED Plan
321
341
Lake Breeze Dr
Delta Hardin Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 332 of 568

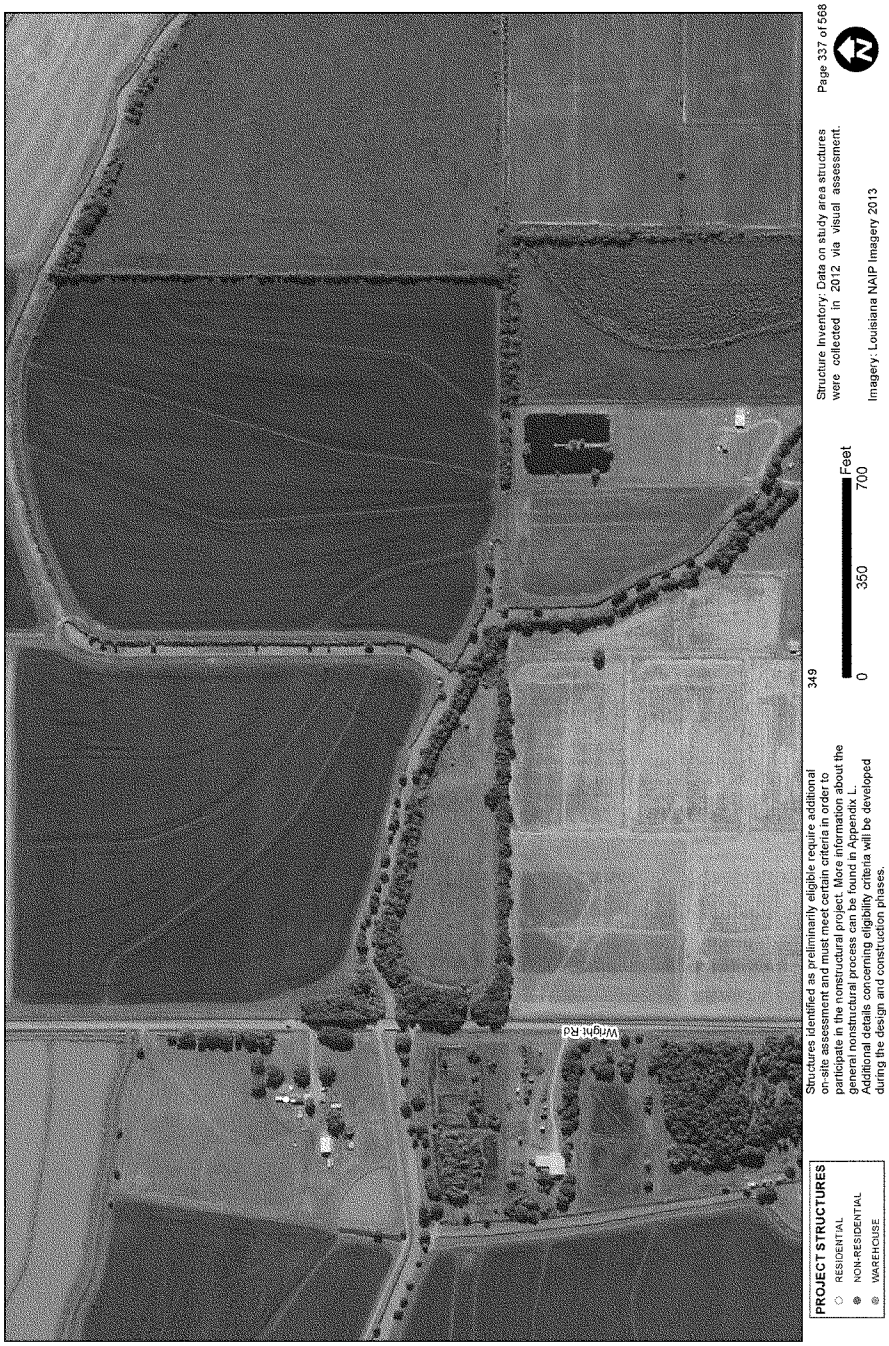
Southwest Coastal NED Plan

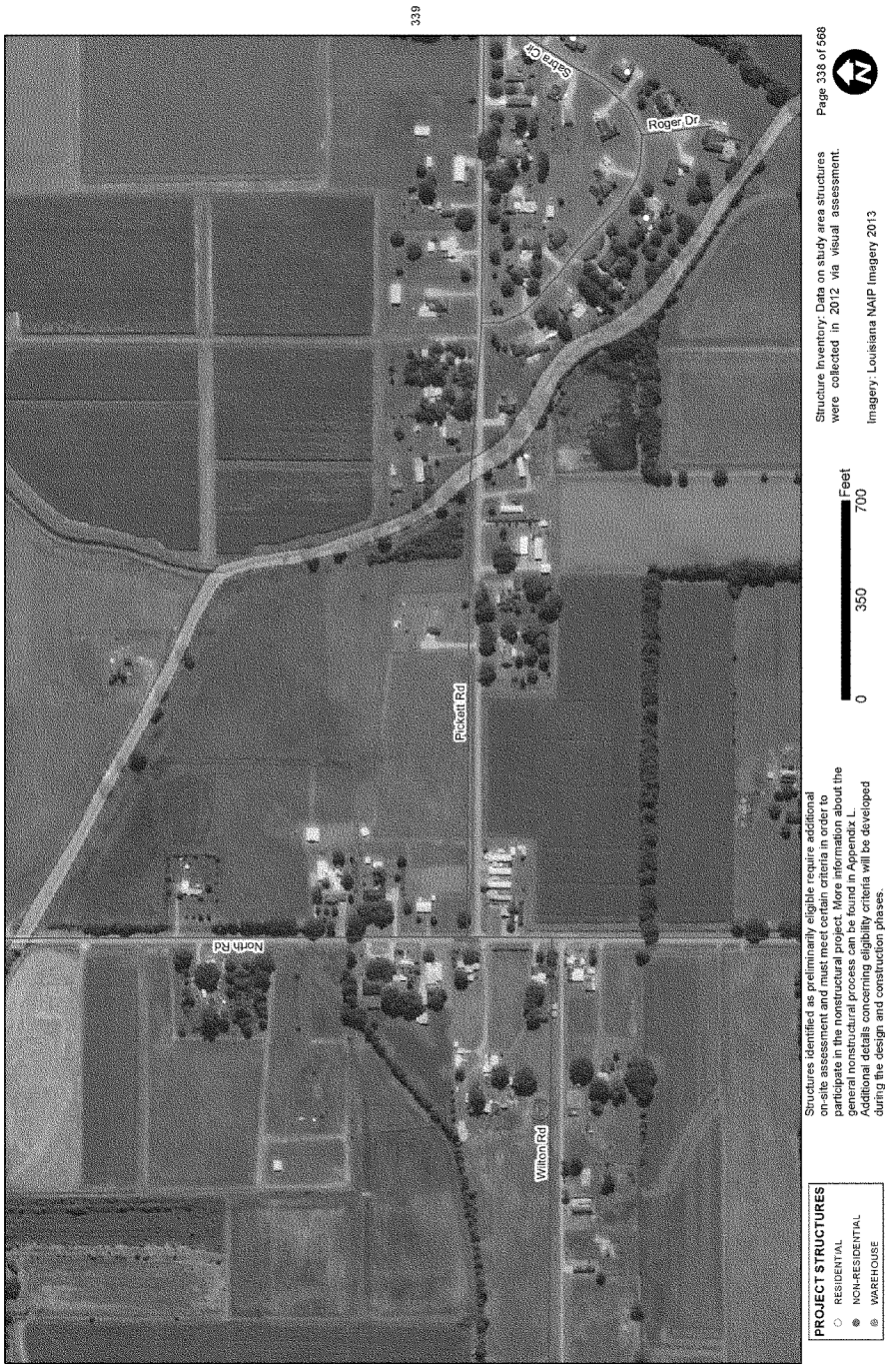
Southwest Coastal NED Plan
327
335
Oliver Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 334 of 568

Southwest Coastal NED Plan
328
334
Oliver Rd
Raoul Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 335 of 558

Southwest Coastal NED Plan
330
345
Highway 91
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 336 of 568

Southwest Coastal NED Plan




Southwest Coastal NED Plan
339
North Rd
Pickett Rd
Wilton Rd
Roger Dr
Schira Cir
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 338 of 568

Southwest Coastal NED Plan

338

340

350

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

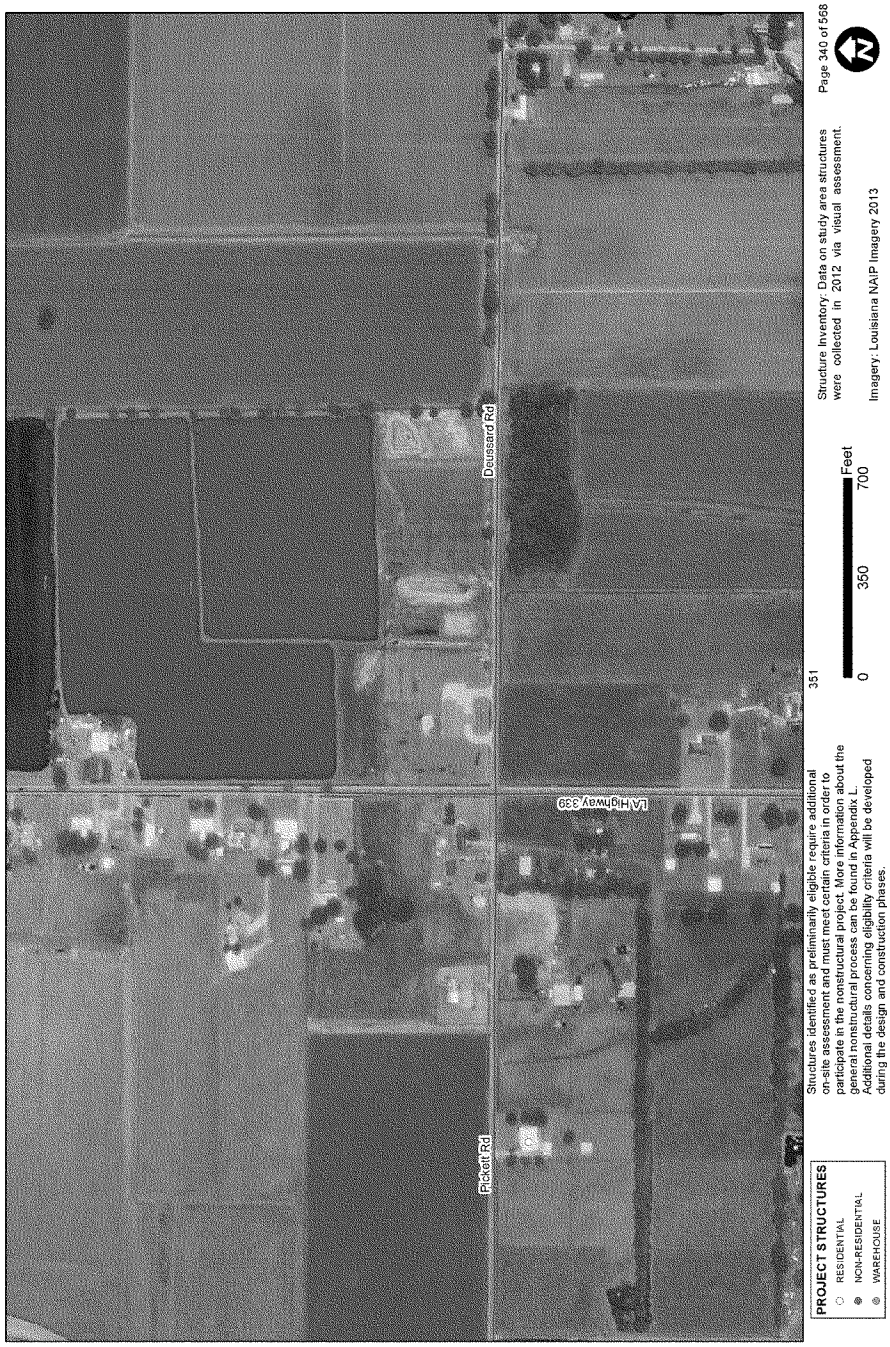
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Page 339 of 568


Southwest Coastal NED Plan
339
Pickett Rd
LA Highway 339
Deussard Rd
351
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 340 of 568

Southwest Coastal NED Plan
332
Delta Hardin Rd
Alvin Guidry Cir
Joe Dugas Rd
Alvin Guidry Cir
Julia Ln
Kay Ln
Claiborne Ln
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 341 of 568

Southwest Coastal NED Plan

Southwest Coastal NED Plan

Southwest Coastal NED Plan
Ellis Bridge Rd
Scanlan Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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343

Southwest Coastal NED Plan
336
346
357
Highway 3143
Highway 91
Ellis Bridge Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 345 of 568

Southwest Coastal NED Plan
347
345
Highway 3143
Highway 91
Ellis Bridge Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 346 of 568

Southwest Coastal NED Plan

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

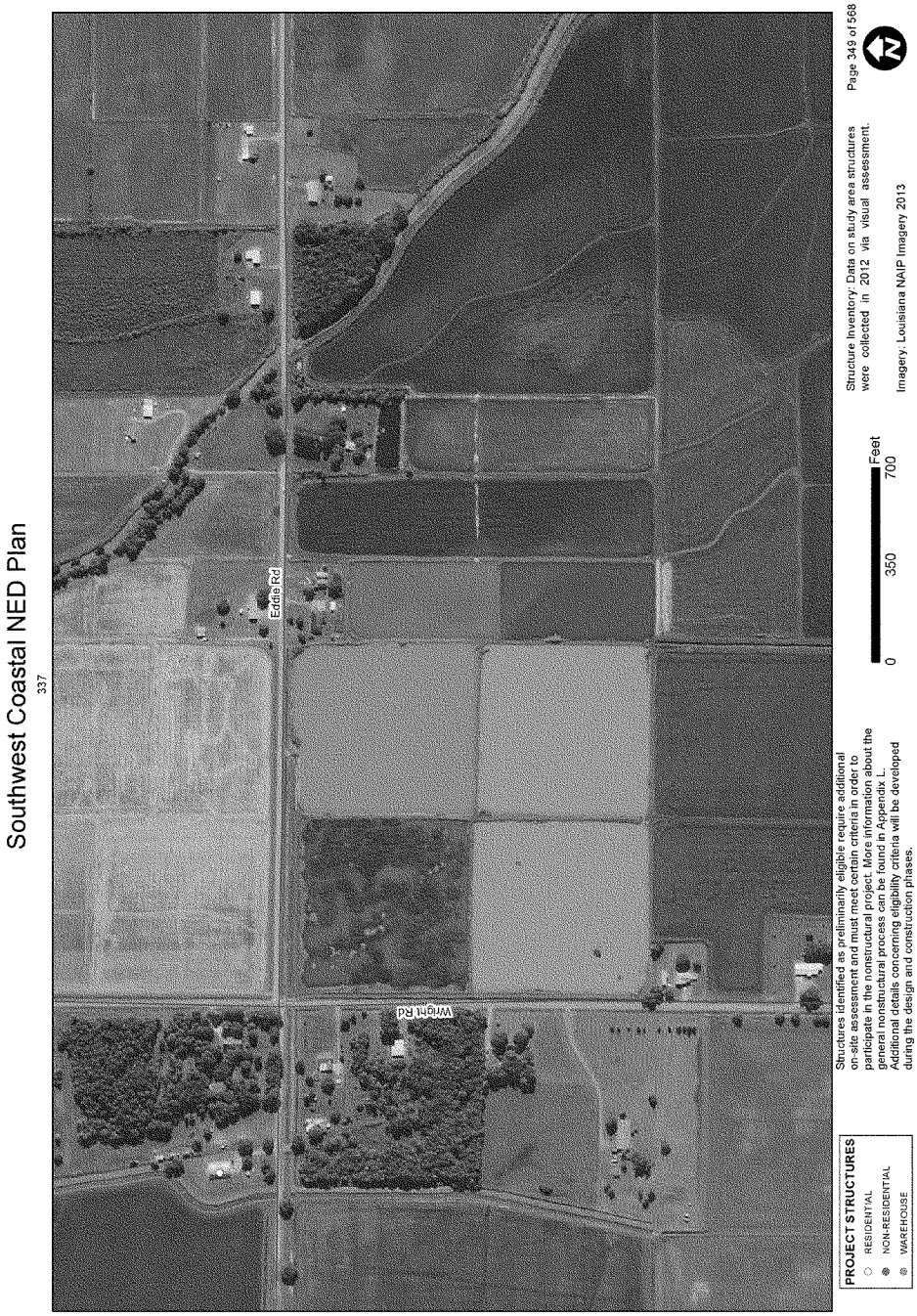
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Southwest Coastal NED Plan
Highway 3143
Floyd Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 348 of 568
347


Southwest Coastal NED Plan
337
Wright Rd
Eddie Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 349 of 568

Southwest Coastal NED Plan

339

351

363

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

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Southwest Coastal NED Plan
340
350
364
LA Highway 339
Elias Rd
Broadview Dr
Quail Dr
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 351 of 568

Southwest Coastal NED Plan
Robert Rd
Conrad Rd
Collins Rd
LA Highway 69
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 352 of 568

Southwest Coastal NED Plan

Southwest Coastal NED Plan

Southwest Coastal NED Plan

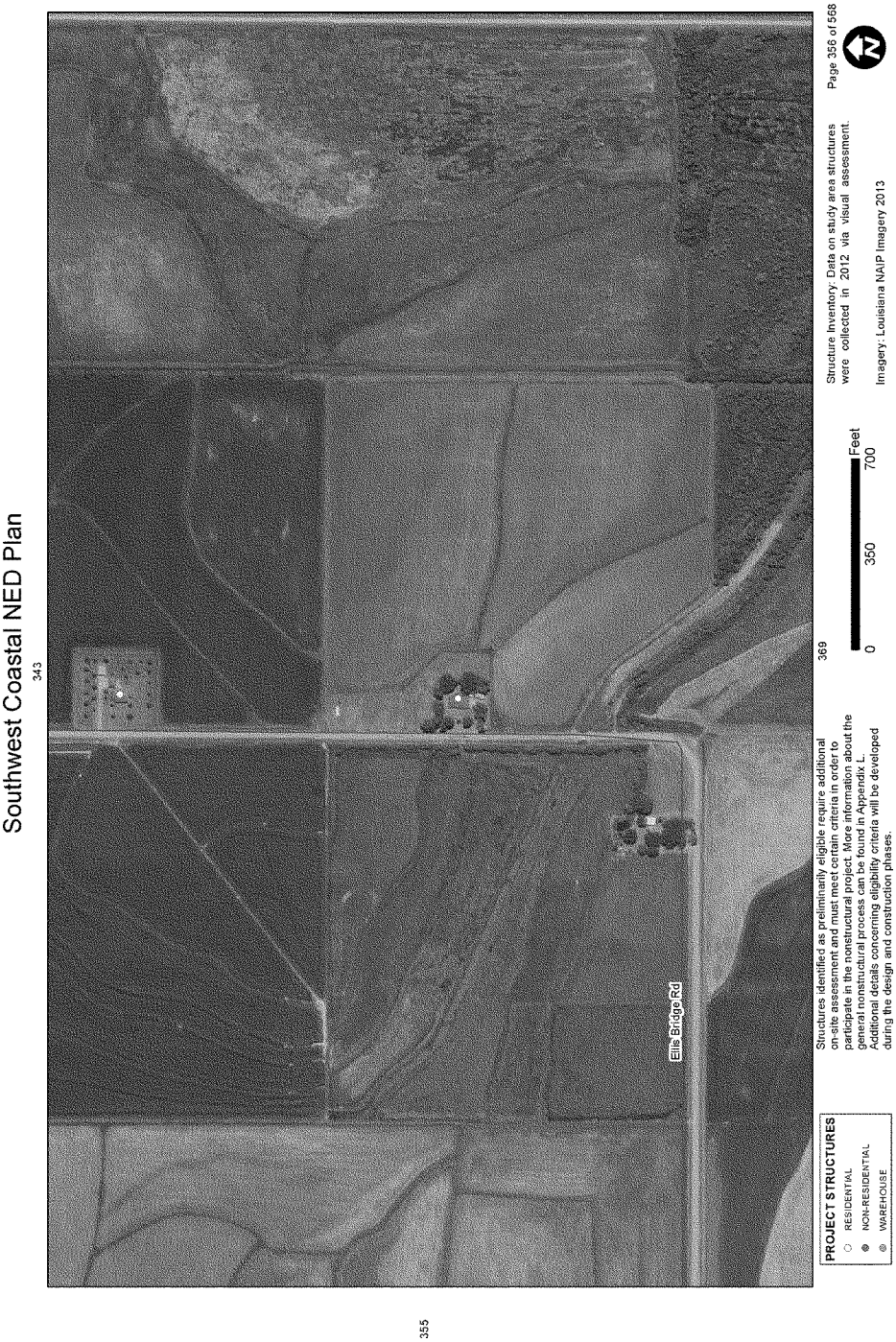
PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

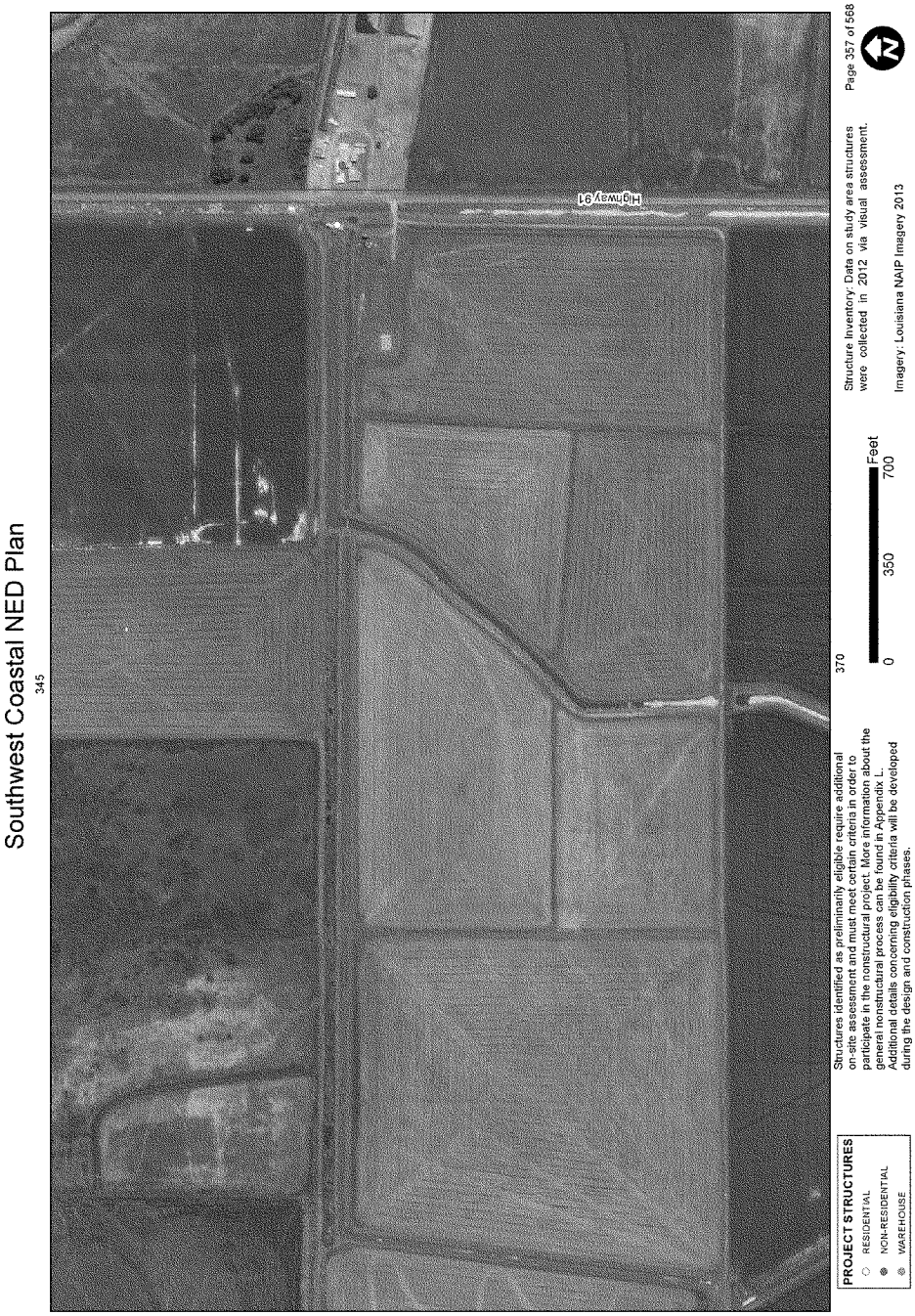
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013


Southwest Coastal NED Plan
343
355
369
Ellis Bridge Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 356 of 568


Southwest Coastal NED Plan
345
Highway 91
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
370
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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Southwest Coastal NED Plan

Southwest Coastal NED Plan

Southwest Coastal NED Plan

Southwest Coastal NED Plan

362

PROJECT STRUCTURES

- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

375

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

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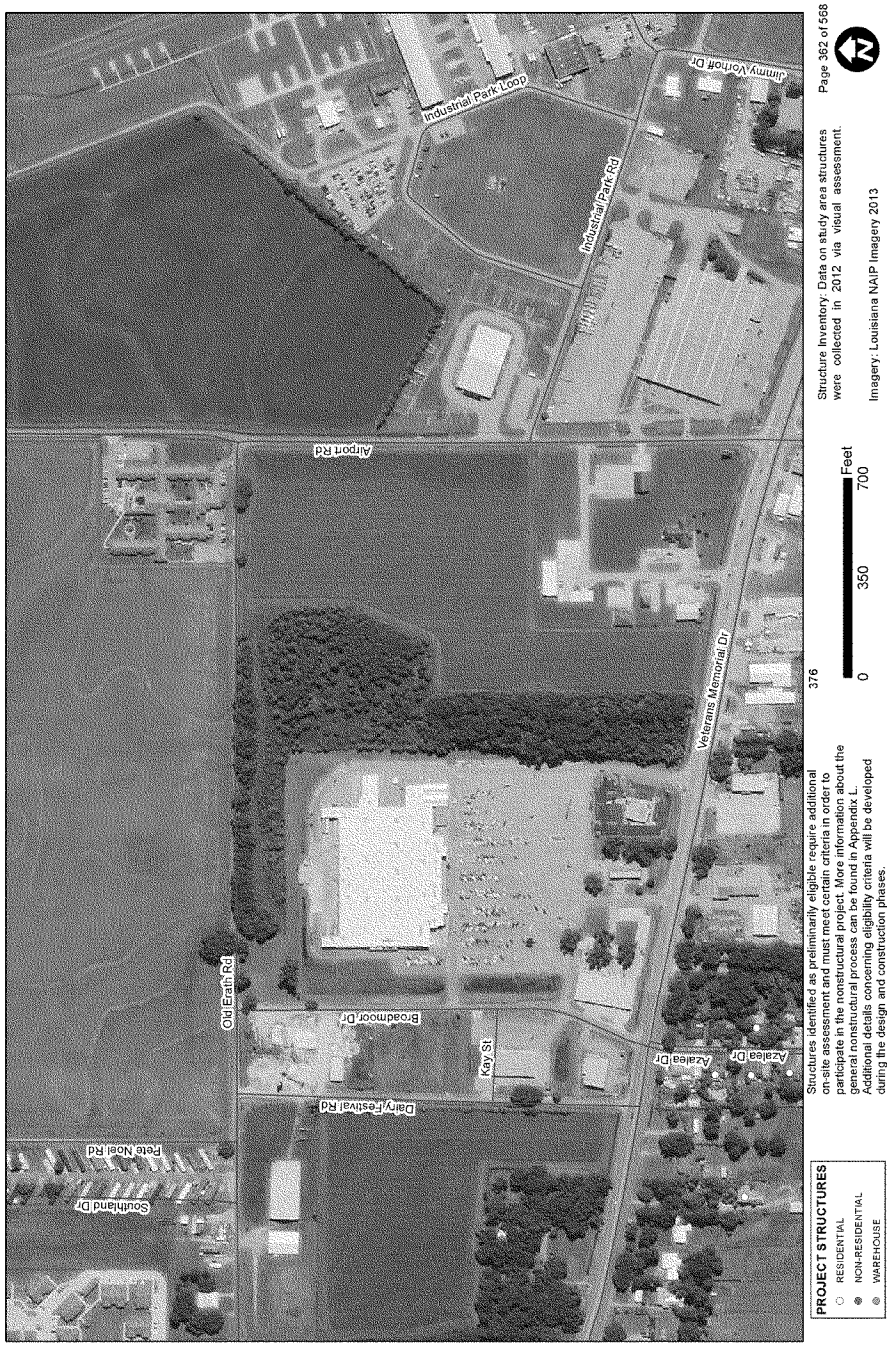
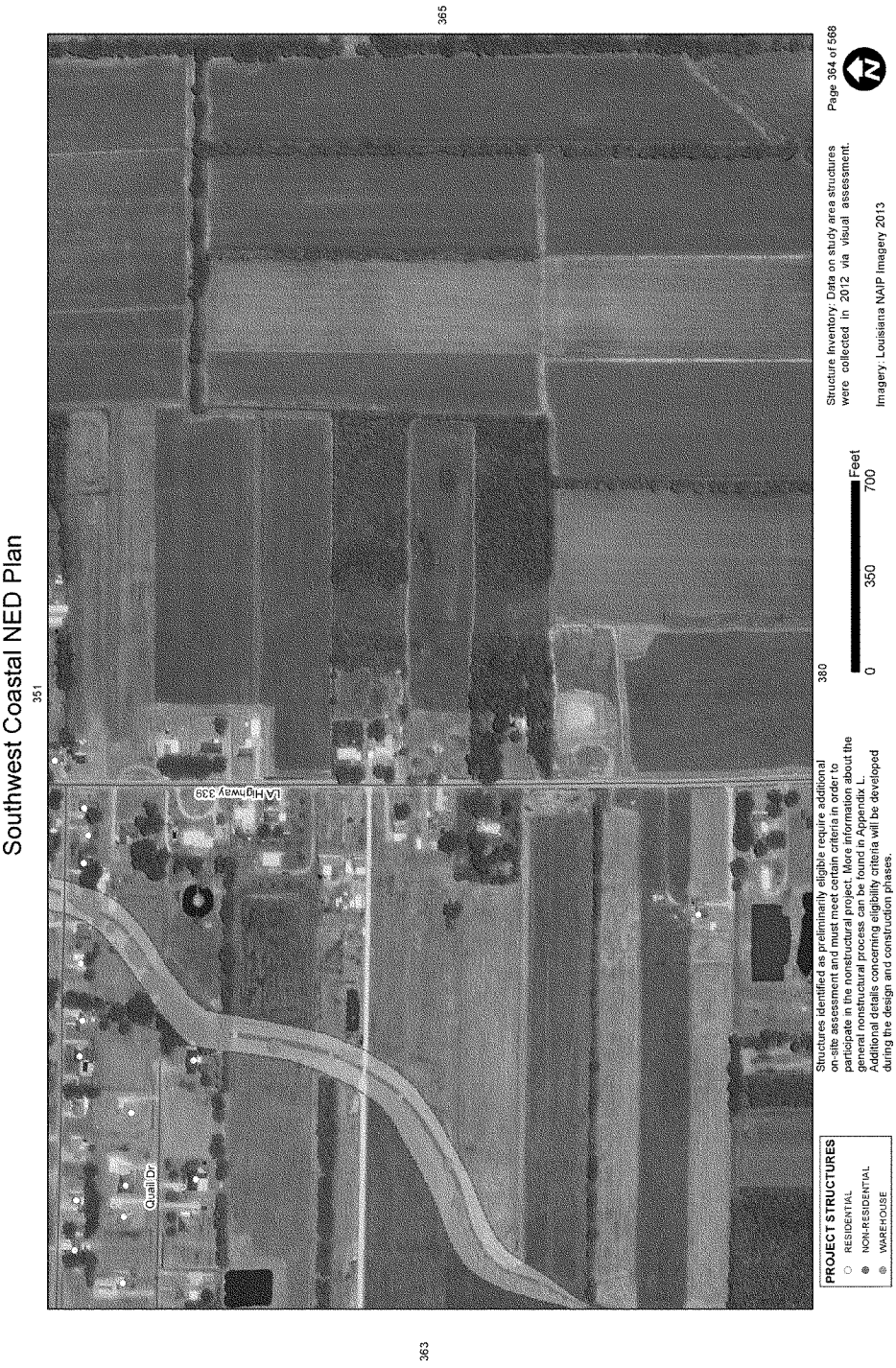
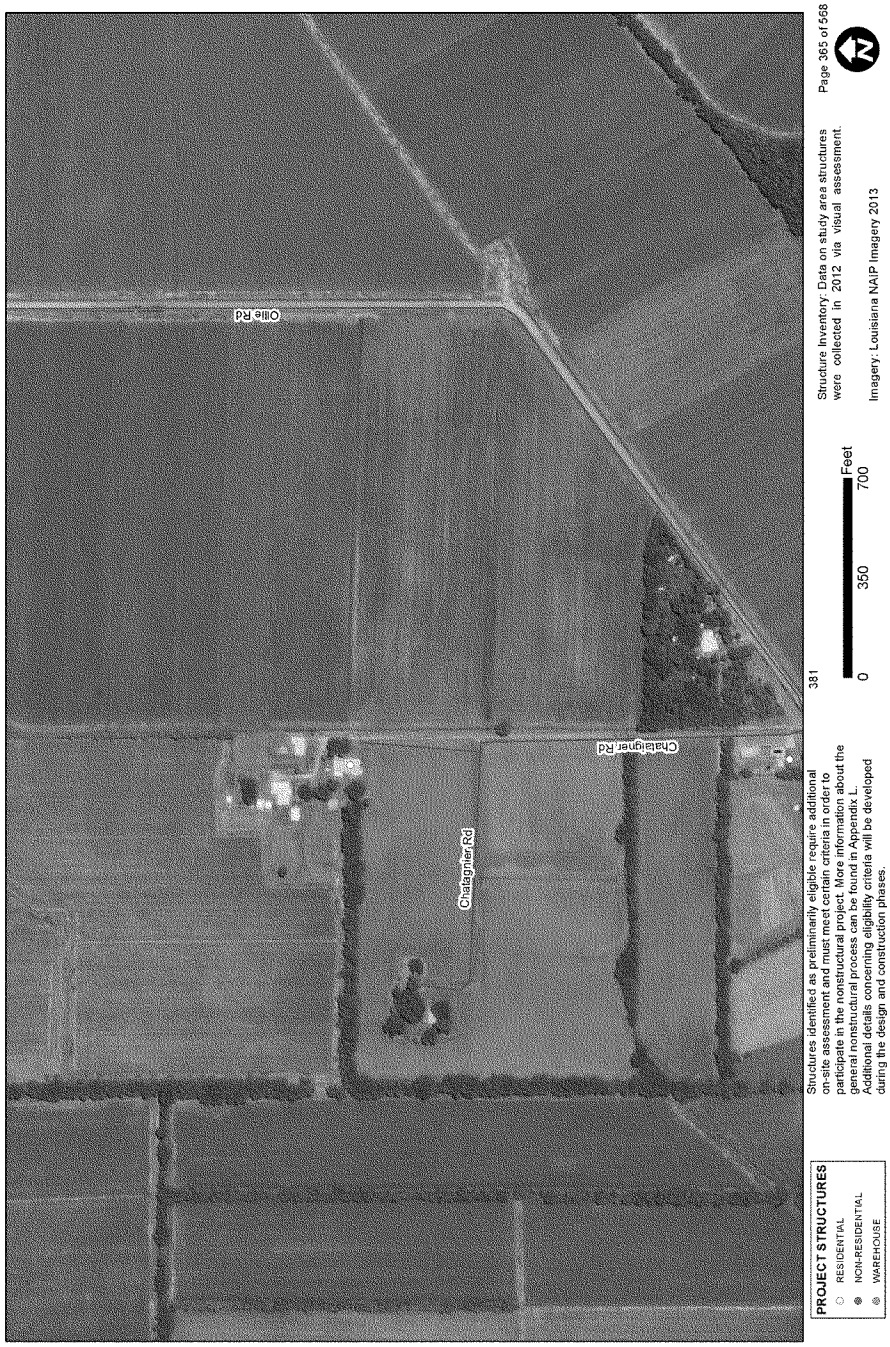
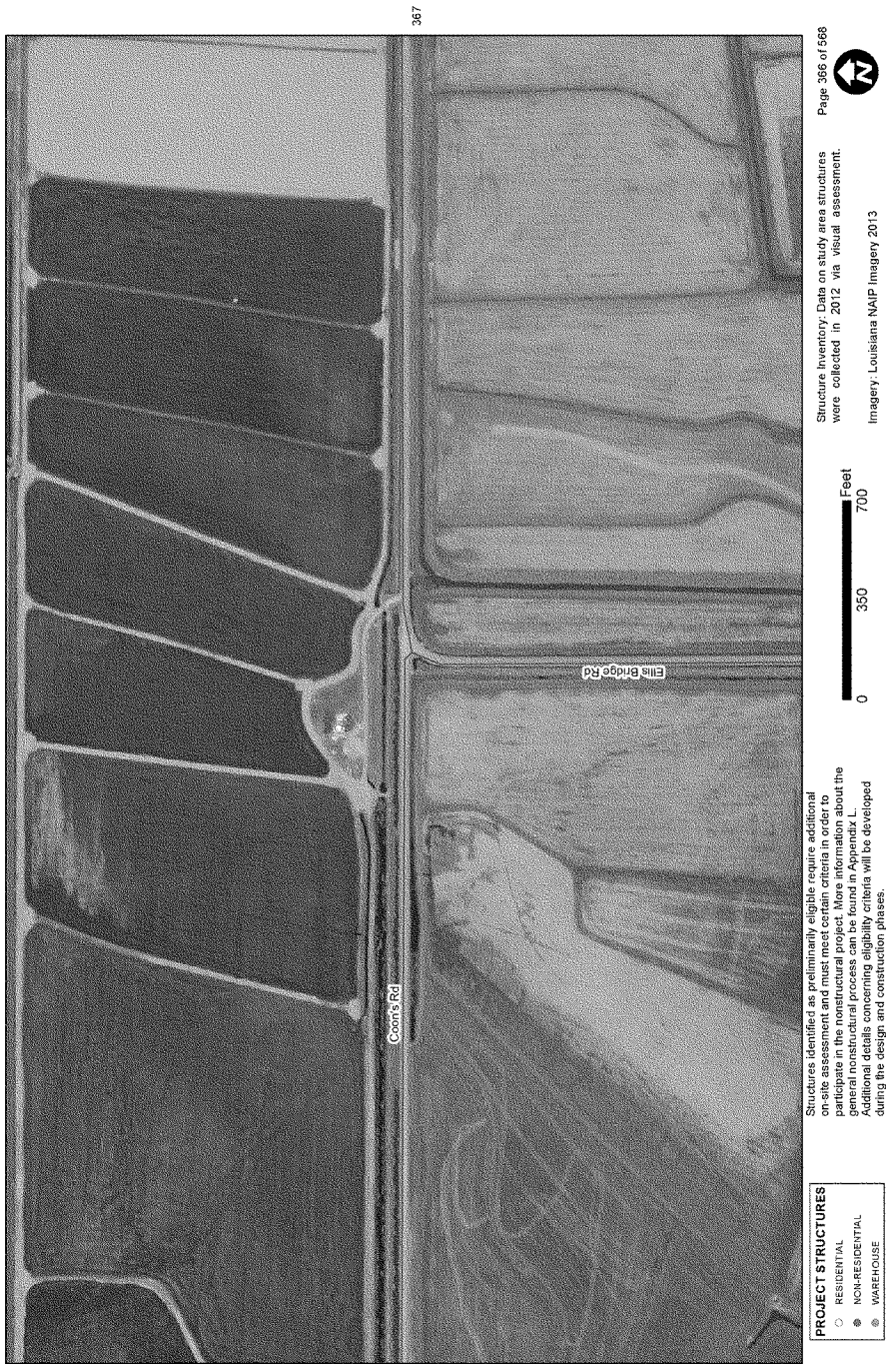

Southwest Coastal NED Plan
Airport Rd
Industrial Park Loop
Industrial Park Rd
Jimmy Vorhoff Dr
Veterans Memorial Dr
Old Erath Rd
Broadmoor Dr
Kay St
Dairy Festival Rd
Azalea Dr
Azalea Dr
Southland Dr
Pete Noel Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
376
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 362 of 568
361

Southwest Coastal NED Plan
350
364
379
Severin Rd
Quail Dr
Segura St
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 363 of 568


Southwest Coastal NED Plan
351
365
363
LA Highway 339
Quail Dr
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
380
0
350
700
Feet
Structure Inventory Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 364 of 568
12


Southwest Coastal NED Plan
Olla Rd
Chataignier Rd
Chataignier Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
381
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 365 of 568
364


Southwest Coastal NED Plan
367
Coon's Rd
Ellis Bridge Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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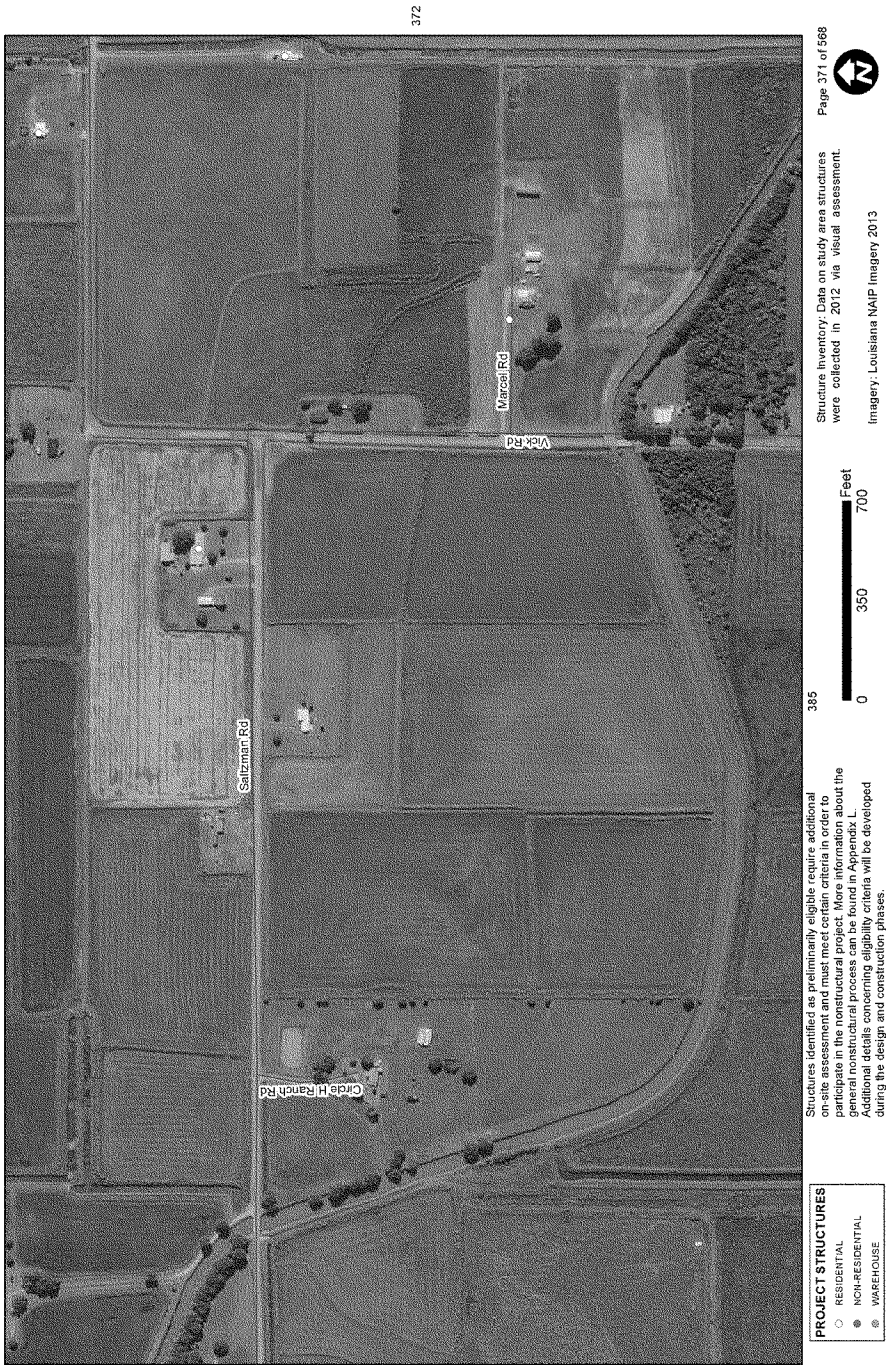
Southwest Coastal NED Plan
354
368
366
Raoul Rd
Coombs Rd
Ernest Faulk
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 367 of 568

Southwest Coastal NED Plan
355
369
367
Ellis Bridge Rd
Ernest Ln
Coon's Rd
Spencer Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 368 of 568
12

Southwest Coastal NED Plan
356
368
Ellis Bridge Rd
Spencer Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 369 of 568

Southwest Coastal NED Plan
357
Highway 91
Spencer Rd
Tony Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
384
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 370 of 568

Southwest Coastal NED Plan



Southwest Coastal NED Plan
359
373
371
Saltzman Rd
Grettle Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 372 of 568

Southwest Coastal NED Plan
374
372
Saltzman Rd
Cemetery Rd
Wright Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 373 of 568

Southwest Coastal NED Plan
LA Highway 3093
Meridian Line Rd
Juniper Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
386
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 374 of 568
373

Southwest Coastal NED Plan
361
376
390
Cedar St
Pine St
Cypress St
Hospital Dr
Green Briar Ln
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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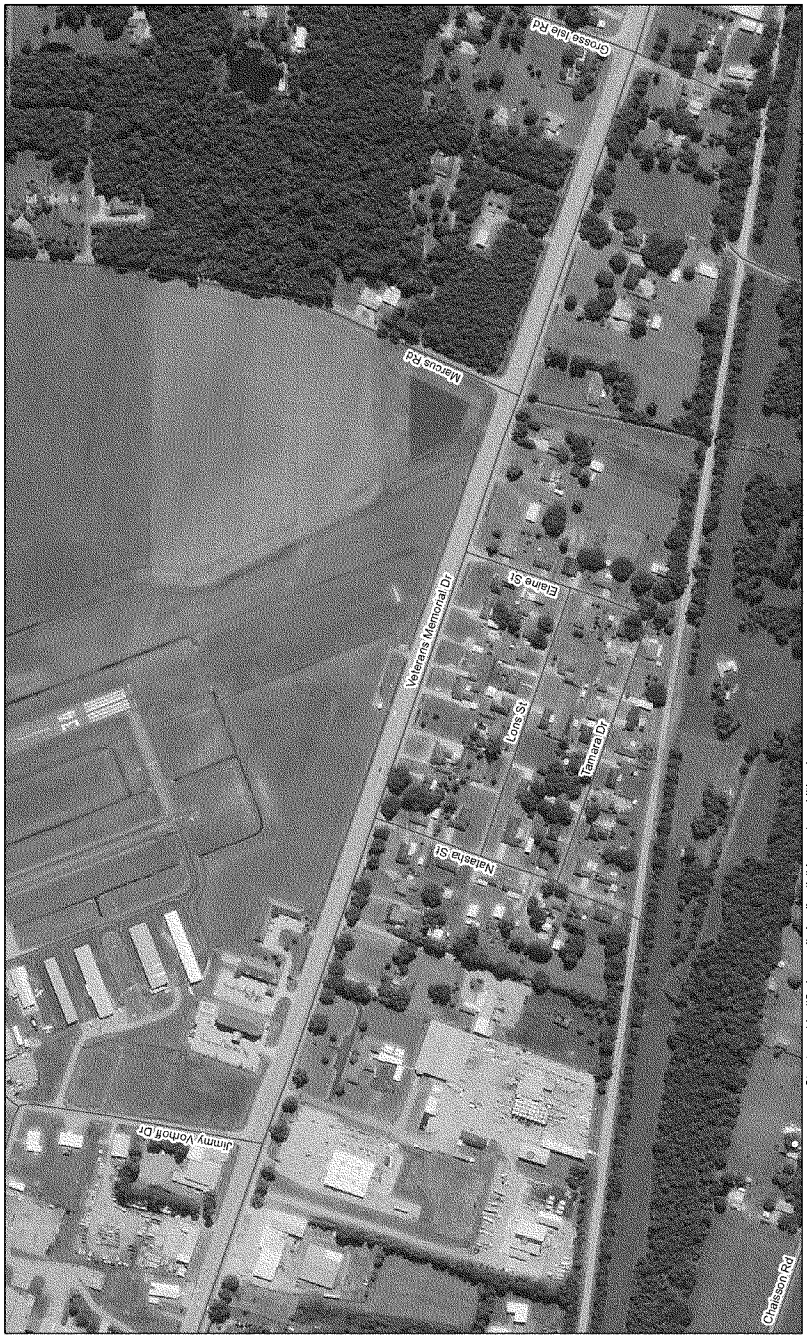
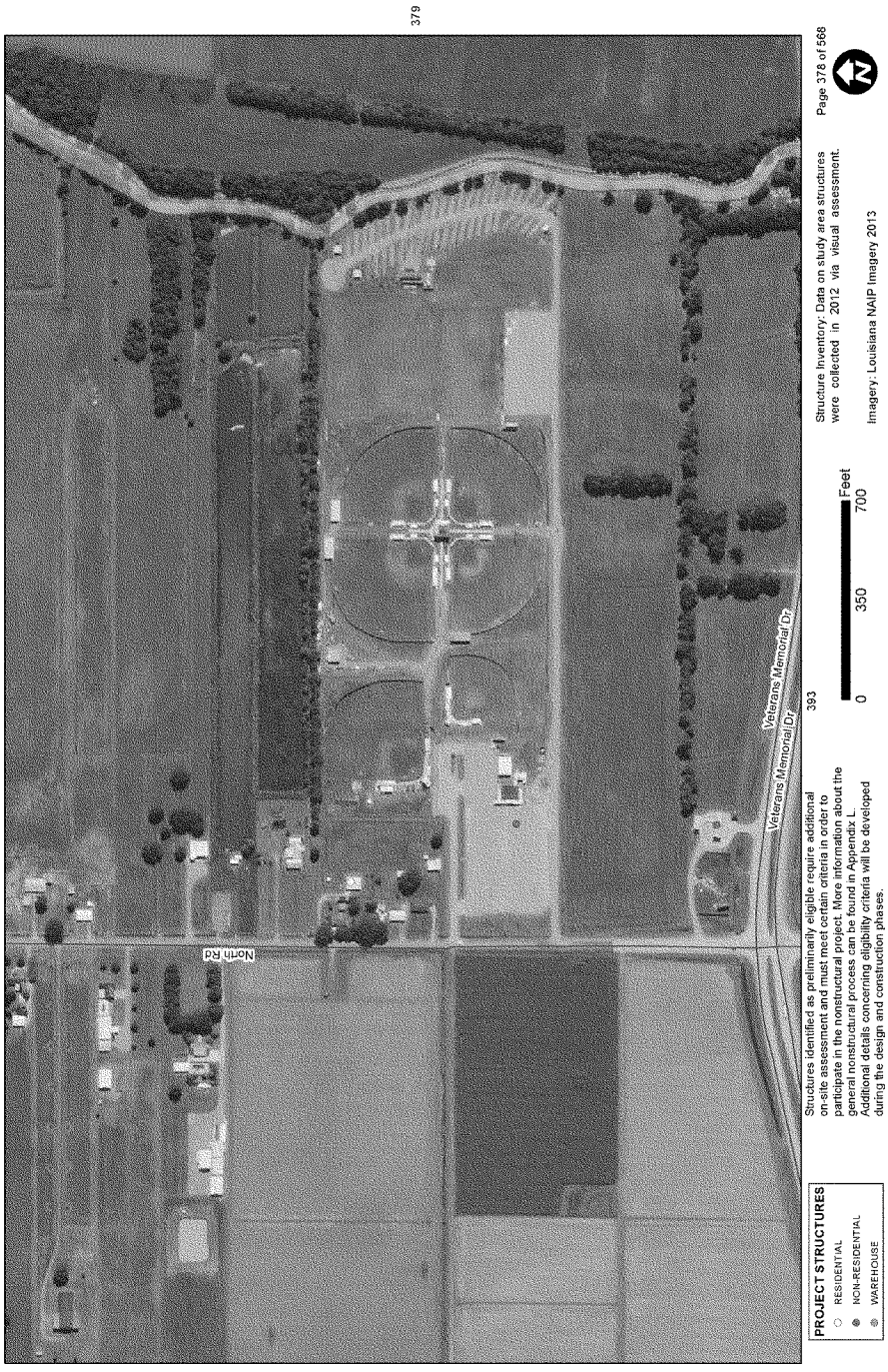
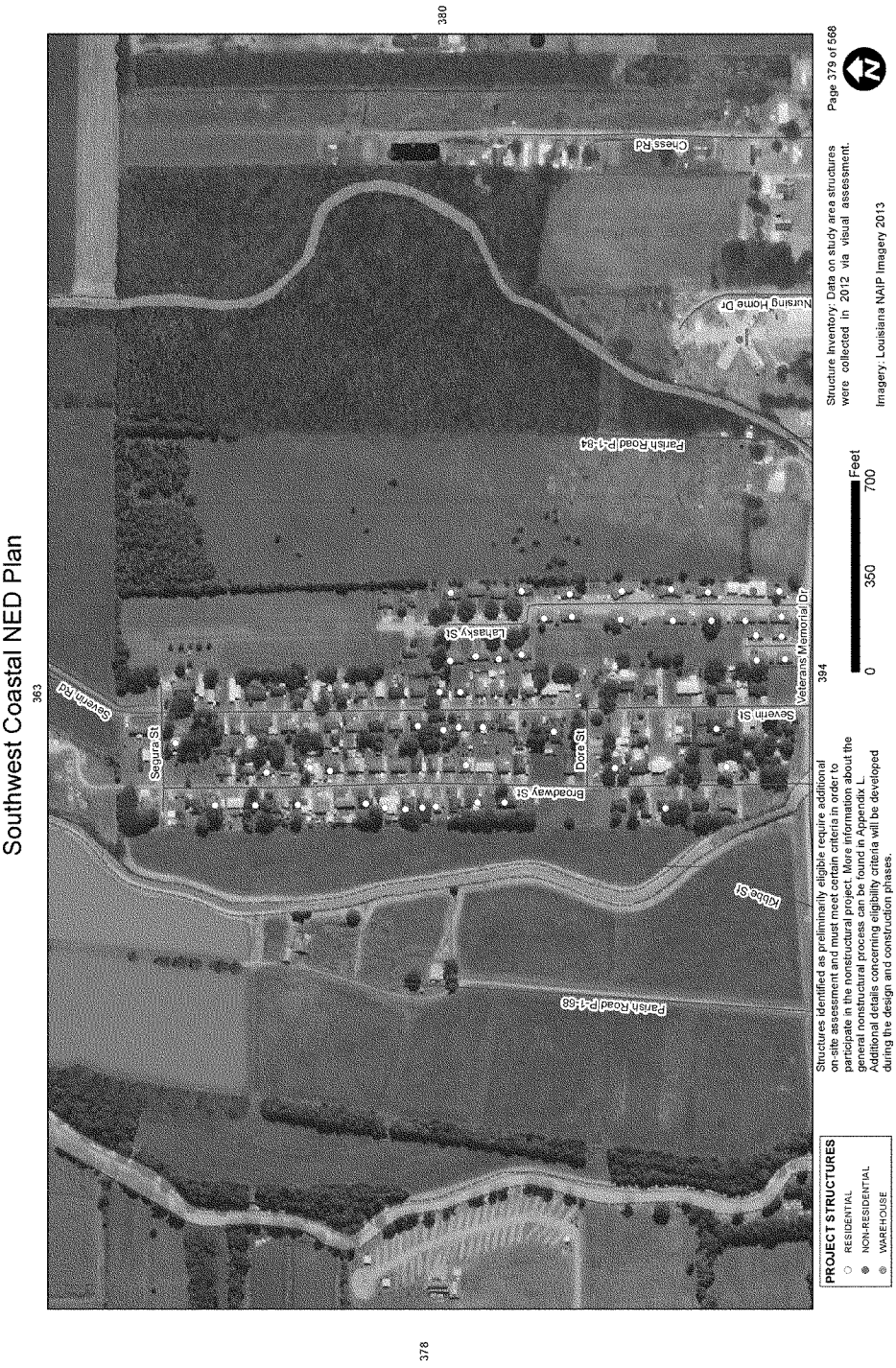
Southwest Coastal NED Plan
362
377
375
391
Azalea Dr
Cypress St
Central St
Hickory St
Pine St
Texas St
Jackie Dr
Karl St
Airport Rd
Veterans Memorial Dr
Jimmy Vomott Dr
Chatsson Rd
Green Briar Ln
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 376 of 568

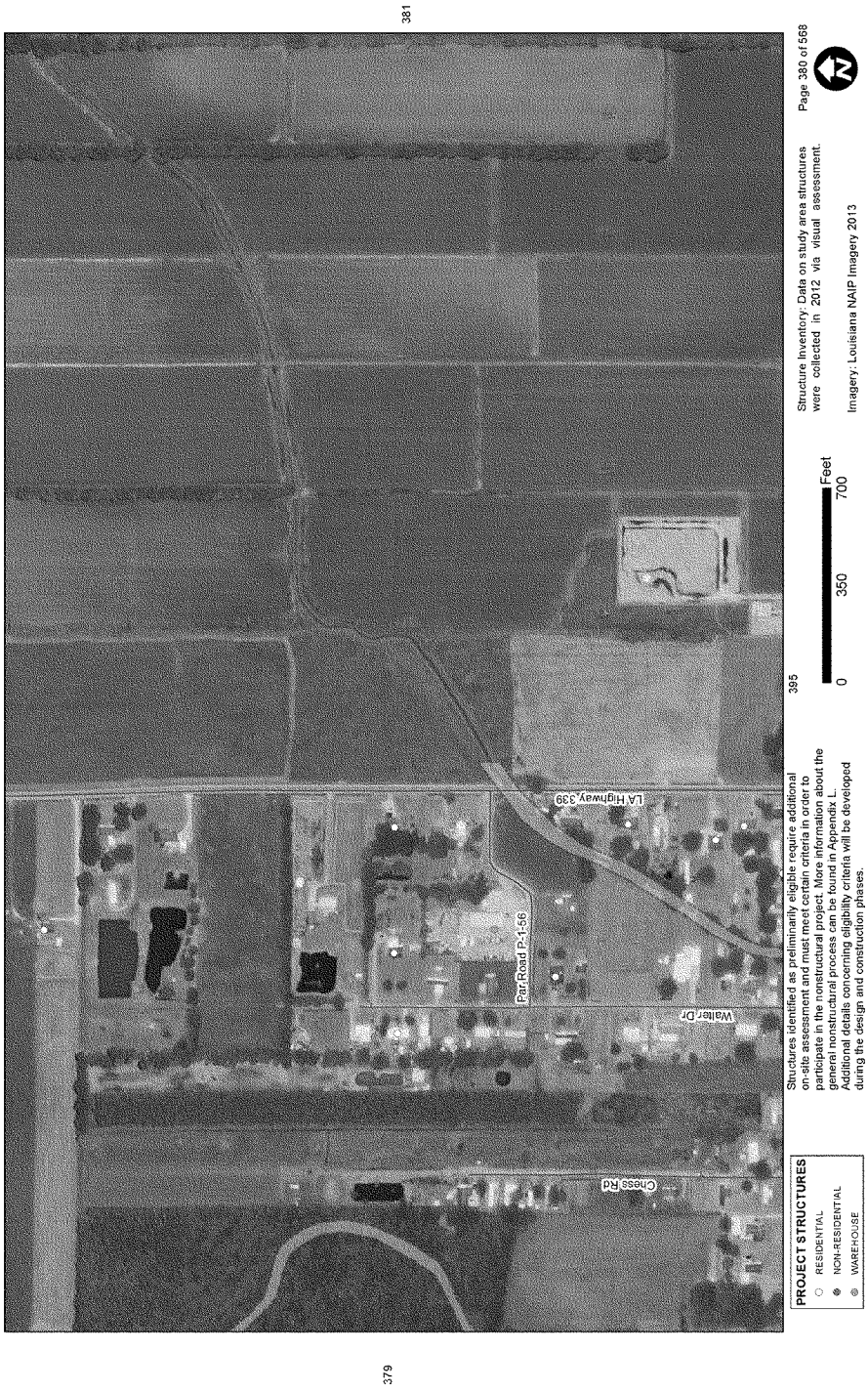
Southwest Coastal NED Plan



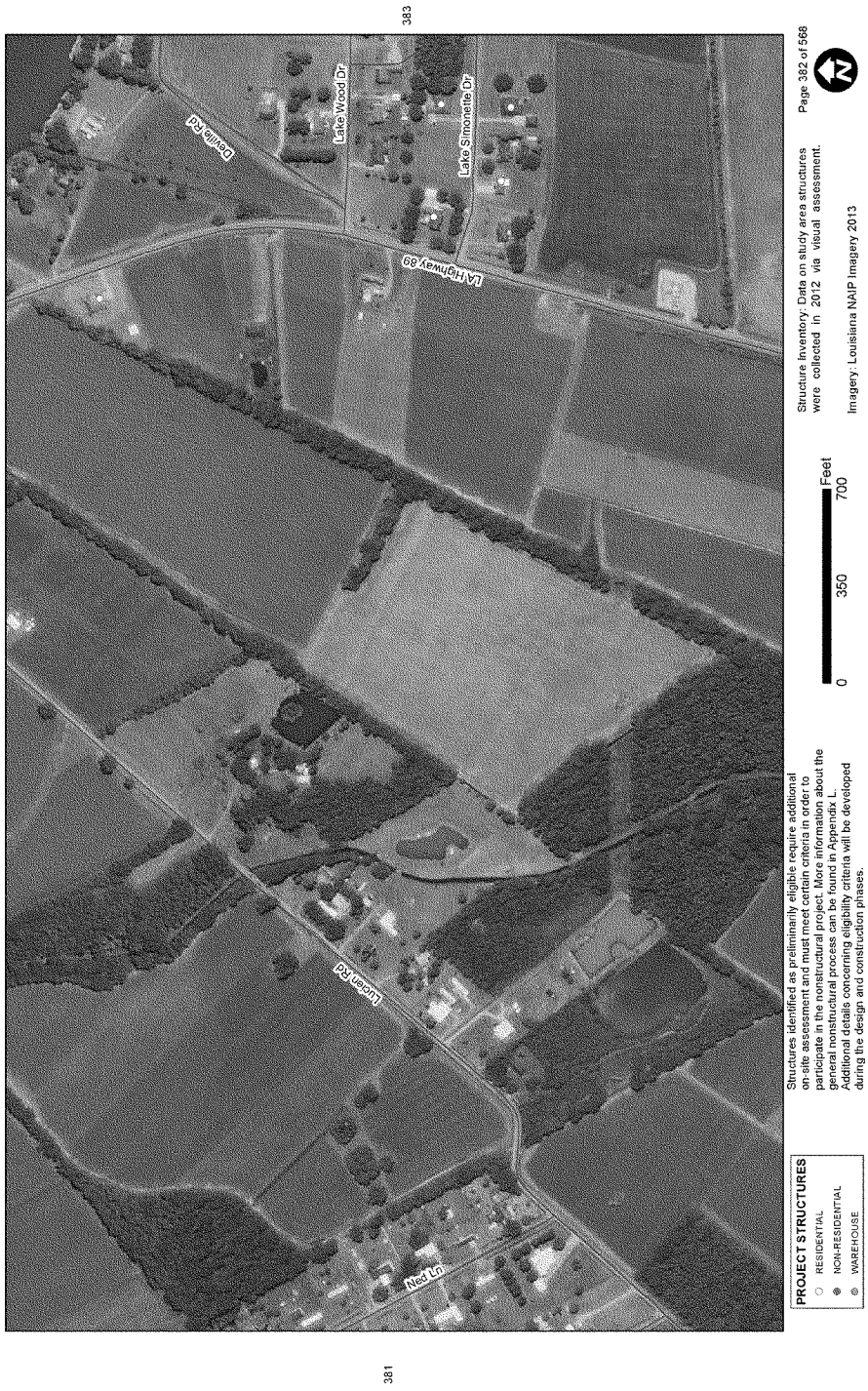
Southwest Coastal NED Plan




Southwest Coastal NED Plan
363
380
378
394
Severn Rd
Segura St
Broadway St
Dora St
Lahasky St
Severn St
Veterans Memorial Dr
Parish Road P-1-84
Nursing Home Dr
Chase Rd
Parish Road P-1-68
Idaho St
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 379 of 568


Southwest Coastal NED Plan
364
381
379
395
Chase Rd
Par Road P-1-56
Walter Dr
LA Highway 339
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 380 of 568

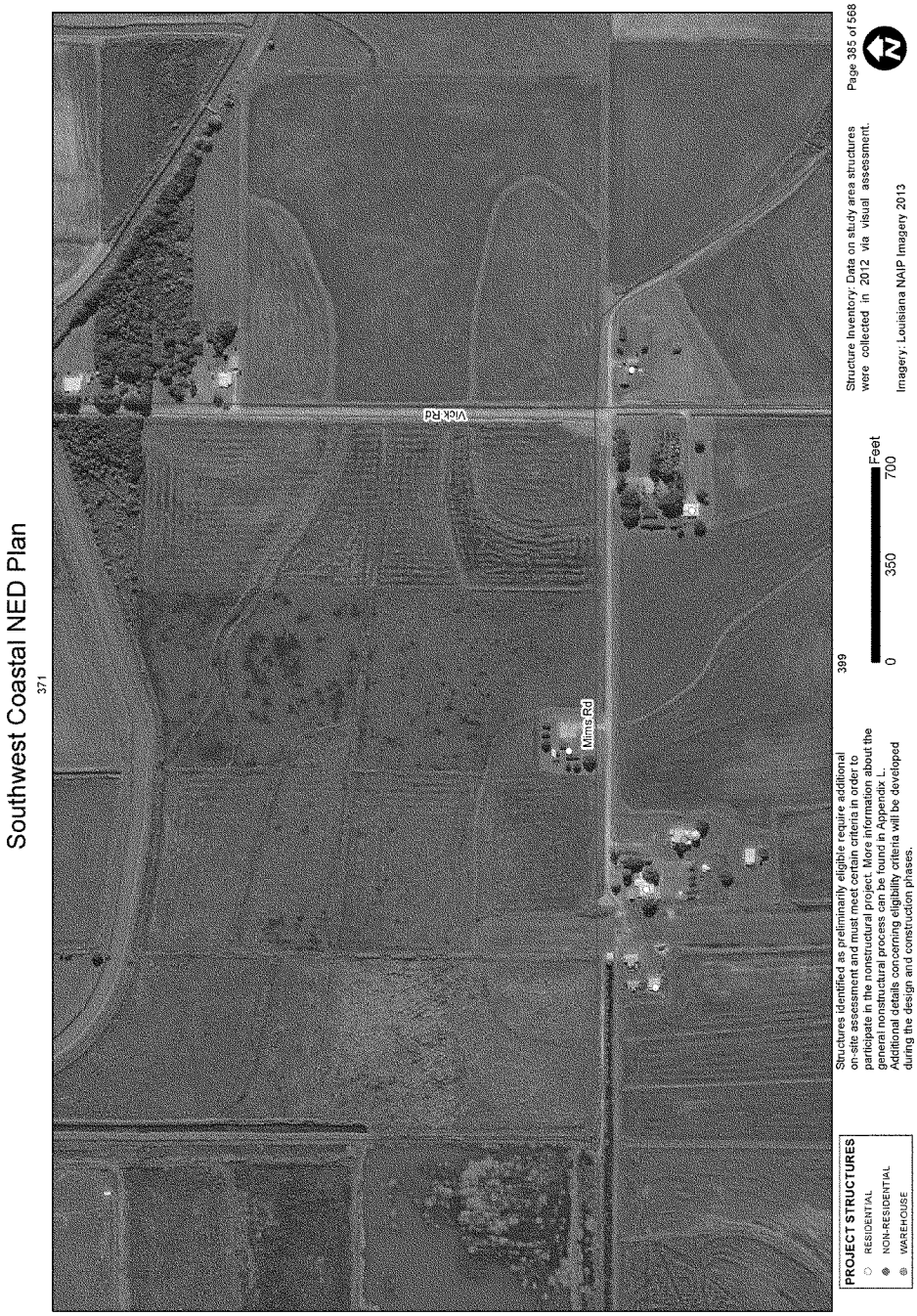
Southwest Coastal NED Plan
382
365
396
380
Ned Ln
Tupelo Cir
Glenn Rd
Hudson Rd
Ollie Rd
Chataigner Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 381 of 568


Southwest Coastal NED Plan
383
381
Ned Ln
Lucien Rd
Deville Rd
Lake Wood Dr
Lake Simonette Dr
LA Highway 69
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 382 of 568
N

Southwest Coastal NED Plan
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 383 of 568
Pelican Cv
Debuse Rd
Lake Wood Dr
Lillie Mae Dr
Lake Simonette Dr
LA Highway 89
Deville Rd

382

Southwest Coastal NED Plan
370
Tony Rd
Highway 91
398
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 384 of 568


Southwest Coastal NED Plan
371
Vick Rd
Mims Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
399
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 385 of 568

Southwest Coastal NED Plan
374
Meridian Line Rd
Cemetery Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 386 of 568

Southwest Coastal NED Plan

Southwest Coastal NED Plan

387

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

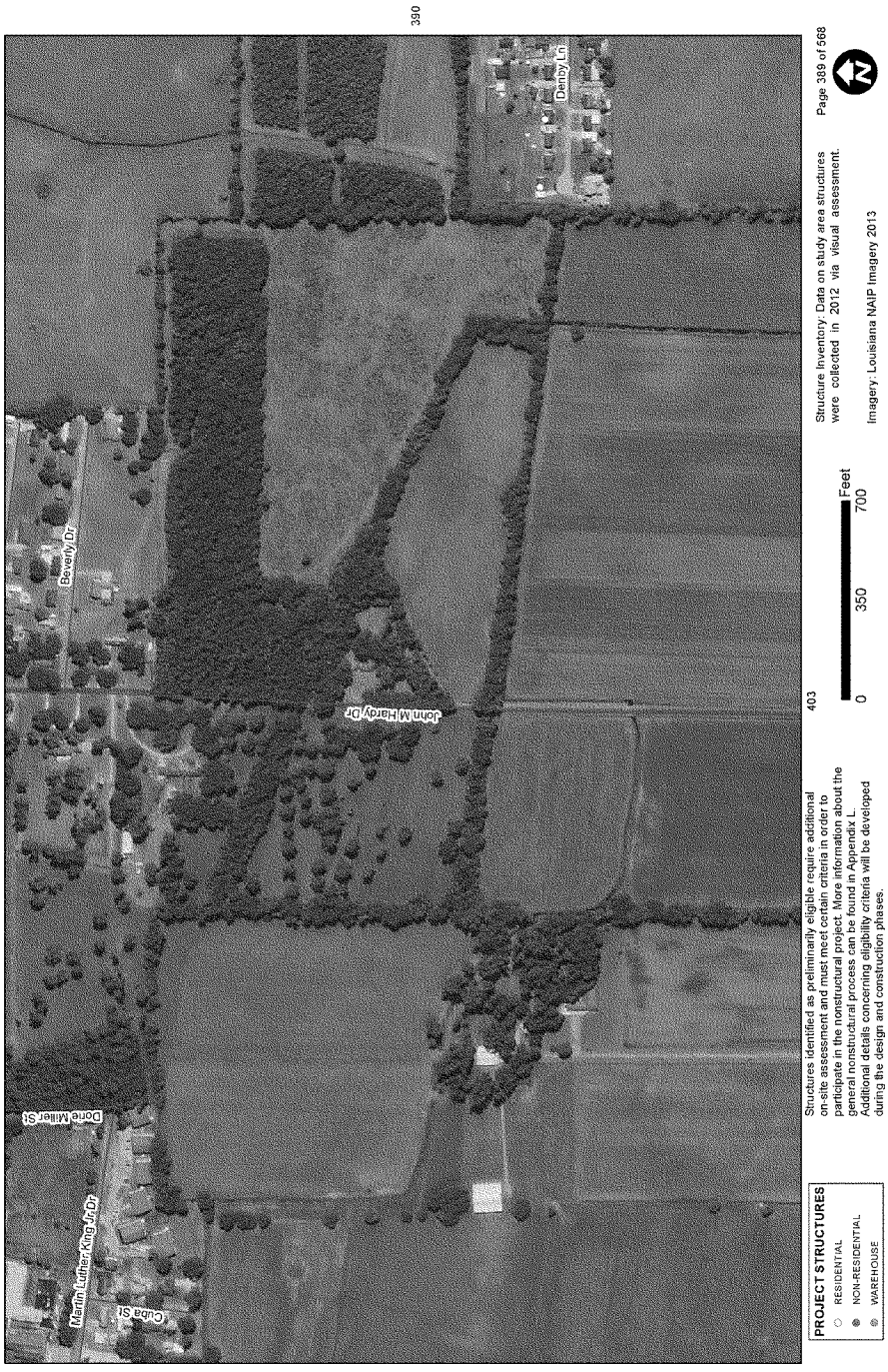
402

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Page 388 of 568


Southwest Coastal NED Plan
390
403
Beverly Dr
John M Hardy Dr
Denby Ln
Dorie Miller St
Martin Luther King Jr Dr
Cuba St
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 389 of 568

Southwest Coastal NED Plan

375

389

391

404

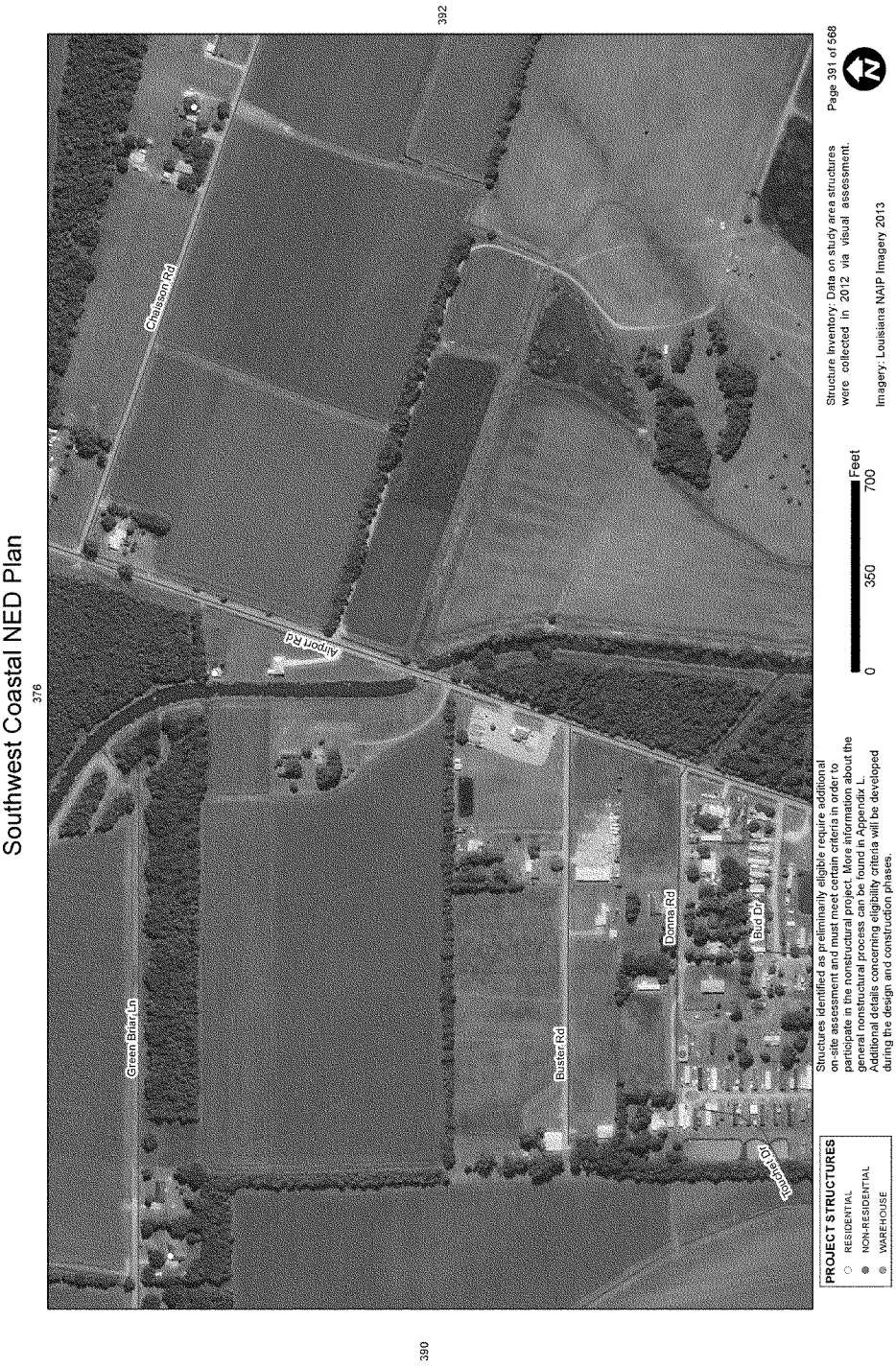
PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013


Southwest Coastal NED Plan
376
392
390
Green Briar Ln
Chateau Rd
Airport Rd
Buster Rd
Donna Rd
Bud Dr
Tompkins Dr
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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Southwest Coastal NED Plan

377

391

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Southwest Coastal NED Plan
394
378
405
Veterans Memorial Dr
Lastie Ave
Ivy Melancon Ln
North Rd
Pine St
Beau Chene St
Lastie St
Myrtle St
Parish Road 1-24
Myrtle St
Blanchette St
Charrie Field Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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Southwest Coastal NED Plan

379

393

395

406

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

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Southwest Coastal NED Plan

380

394

396

407

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

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Southwest Coastal NED Plan

381

395

408

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Southwest Coastal NED Plan
Spencer Rd
Ellis Bridge Rd
Kirby Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
412
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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Southwest Coastal NED Plan
384
Highway 91
Tony Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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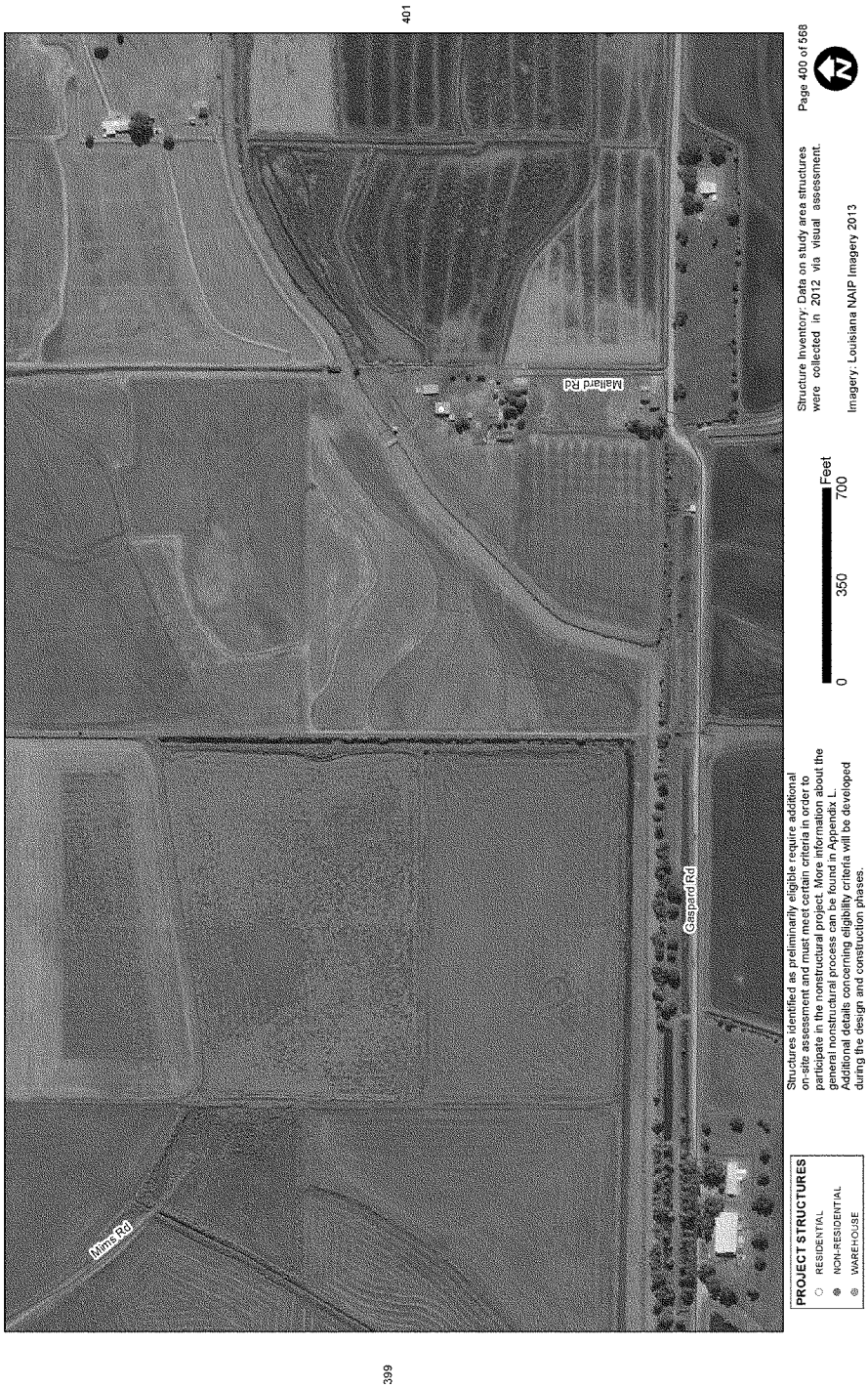
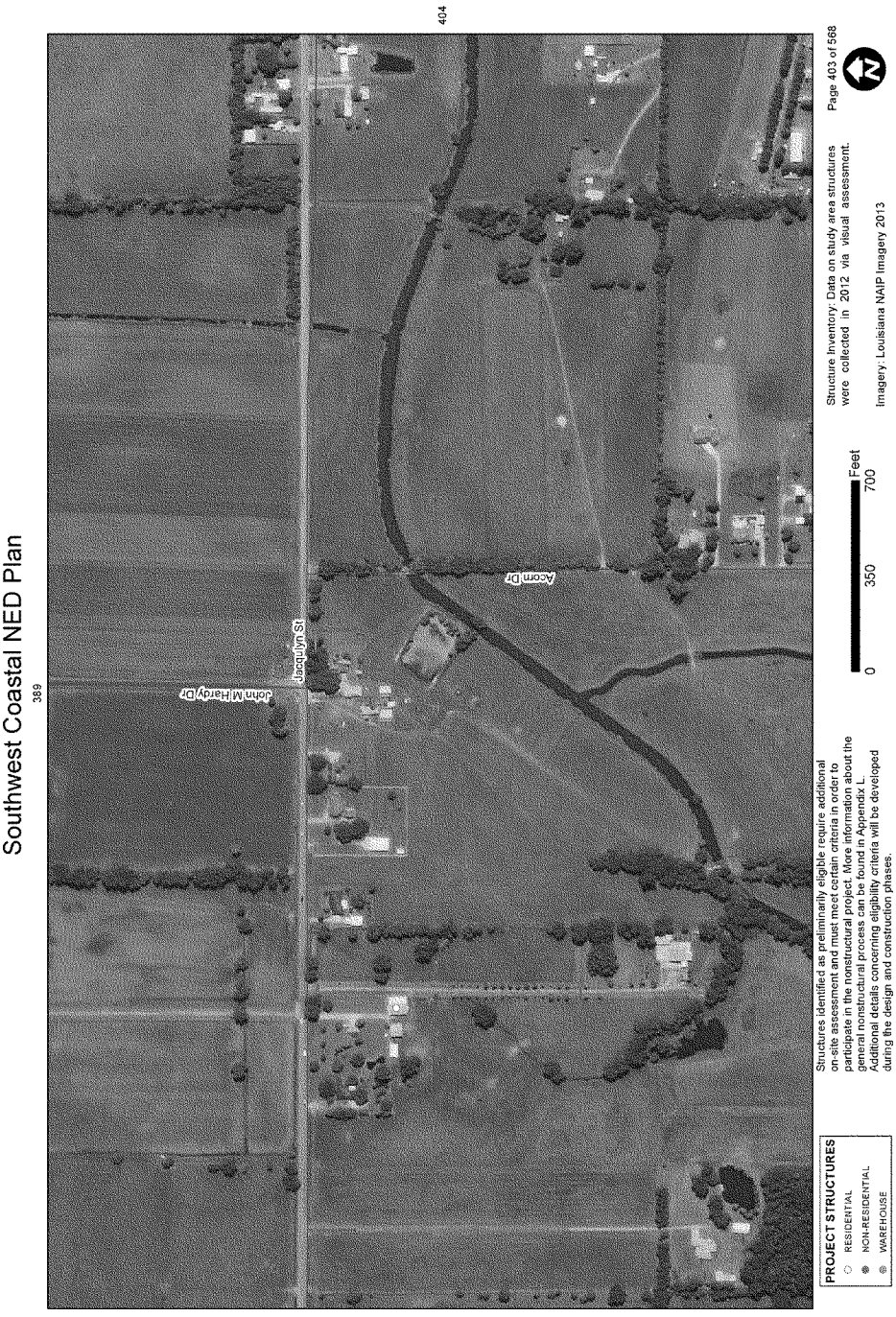
Southwest Coastal NED Plan
385
400
Mims Rd
Vick Rd
Emick Rd
Gaspard Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 399 of 568


Southwest Coastal NED Plan
401
399
Myres Rd
Gaspard Rd
Mallard Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 400 of 568

Southwest Coastal NED Plan
Wright Rd
Gaspard Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 401 of 568
400

Southwest Coastal NED Plan
388
Jacqulyn St
Elina
Gabriel St
Shale St
Maine St
Suzanne St
Laura St
Graham St
Lovers Ln
LA Highway 330
Leonie St
Perry Dr
Emile St
Elis St
Celeste St
Eliza St
Orange Dr
Baxter St
Maple St
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 402 of 568


Southwest Coastal NED Plan
389
404
John M Hardy Dr
Jacquelyn St
Acorn Dr
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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Southwest Coastal NED Plan
390
403
Derby Ln
Hospital Dr
Hillside Dr
Jacquelyn St
Toucan Dr
Bud Dr
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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Southwest Coastal NED Plan

393

406

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

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Southwest Coastal NED Plan

394

405

407

417

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Southwest Coastal NED Plan
395
408
406
418
LA Highway 339
Veterans Memorial Dr
Veterans Memorial Dr
Broussard St
Putnam St
Barras St
Lastie St
Suire St
Edward St
Bourque St
Pearl St
Paul St
Kim Dr
Anna Dr
Jude Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 407 of 568

Southwest Coastal NED Plan
396
409
407
419
Ollie Rd
Veterans Memorial Dr
Timmy Rd
Veterans Memorial Dr
Eustice Blvd
Saint Elmo Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 408 of 568

Southwest Coastal NED Plan

408

410

420

PROJECT STRUCTURES

- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Southwest Coastal NED Plan

409

421

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Southwest Coastal NED Plan

Southwest Coastal NED Plan
397
Kirby Rd
Ellis Bridge Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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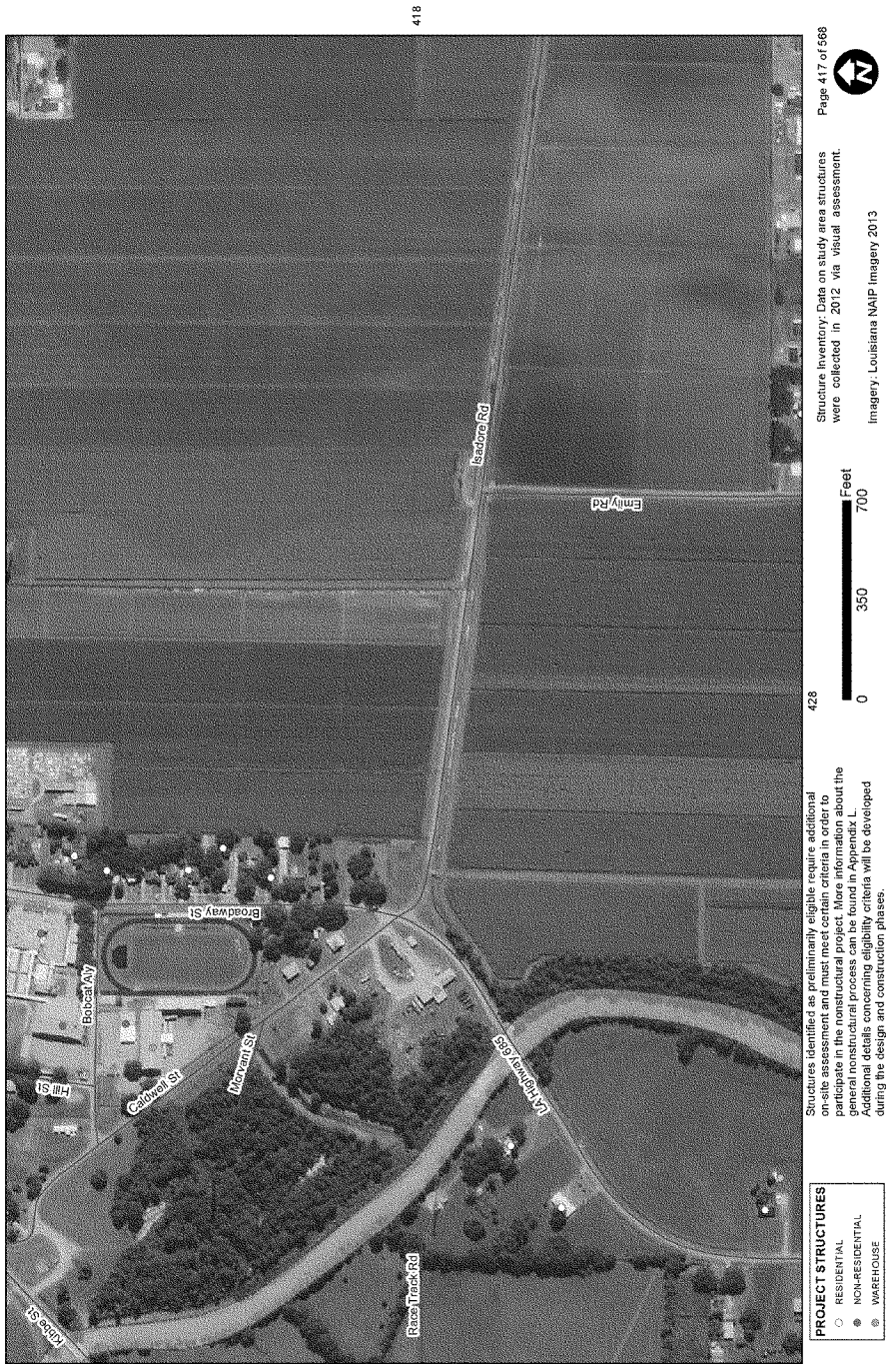
Southwest Coastal NED Plan

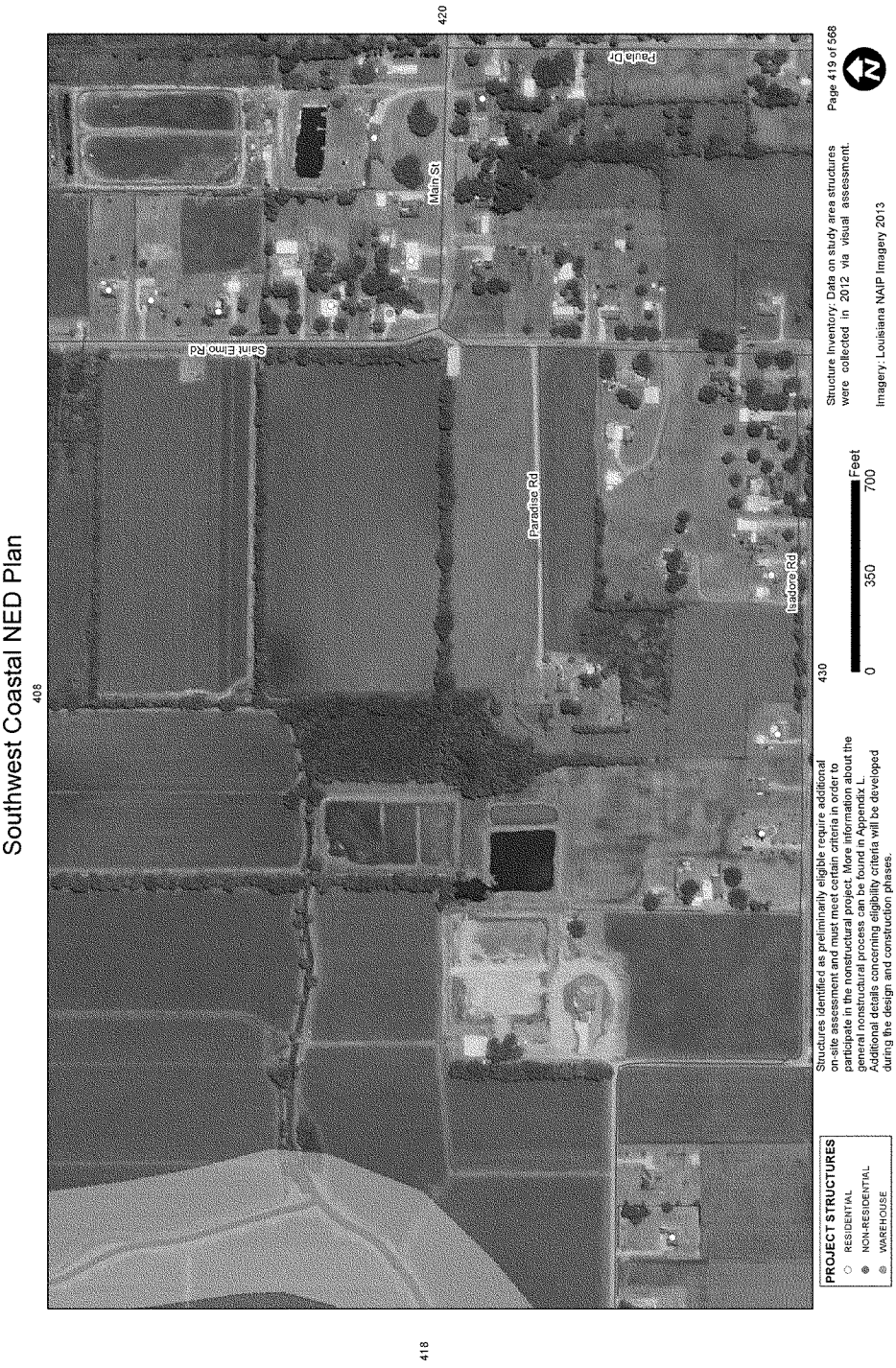
Southwest Coastal NED Plan

Southwest Coastal NED Plan
416
414
Dove Rd
Rice Cove Rd
Judge Doucet Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 415 of 568

Southwest Coastal NED Plan
Boat Shop Rd
Hamilton Rd
Rice Cane Rd
Dover Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 416 of 568
415


Southwest Coastal NED Plan
406
418
428
Hill St
Bobcat Aly
Broadway St
Caldwell St
Morvant St
Race Track Rd
LA Highway 665
Sadore Rd
Emily Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 417 of 568

Southwest Coastal NED Plan
407
419
417
429
Jude Rd
Isadore Rd
Isadore Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 418 of 568


Southwest Coastal NED Plan
408
420
418
430
Saint Elmo Rd
Main St
Paradise Rd
Isadore Rd
Paula Dr
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
0
350
700
Feet
Page 419 of 568

Southwest Coastal NED Plan

409

419

421

431

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Southwest Coastal NED Plan

410

420

432

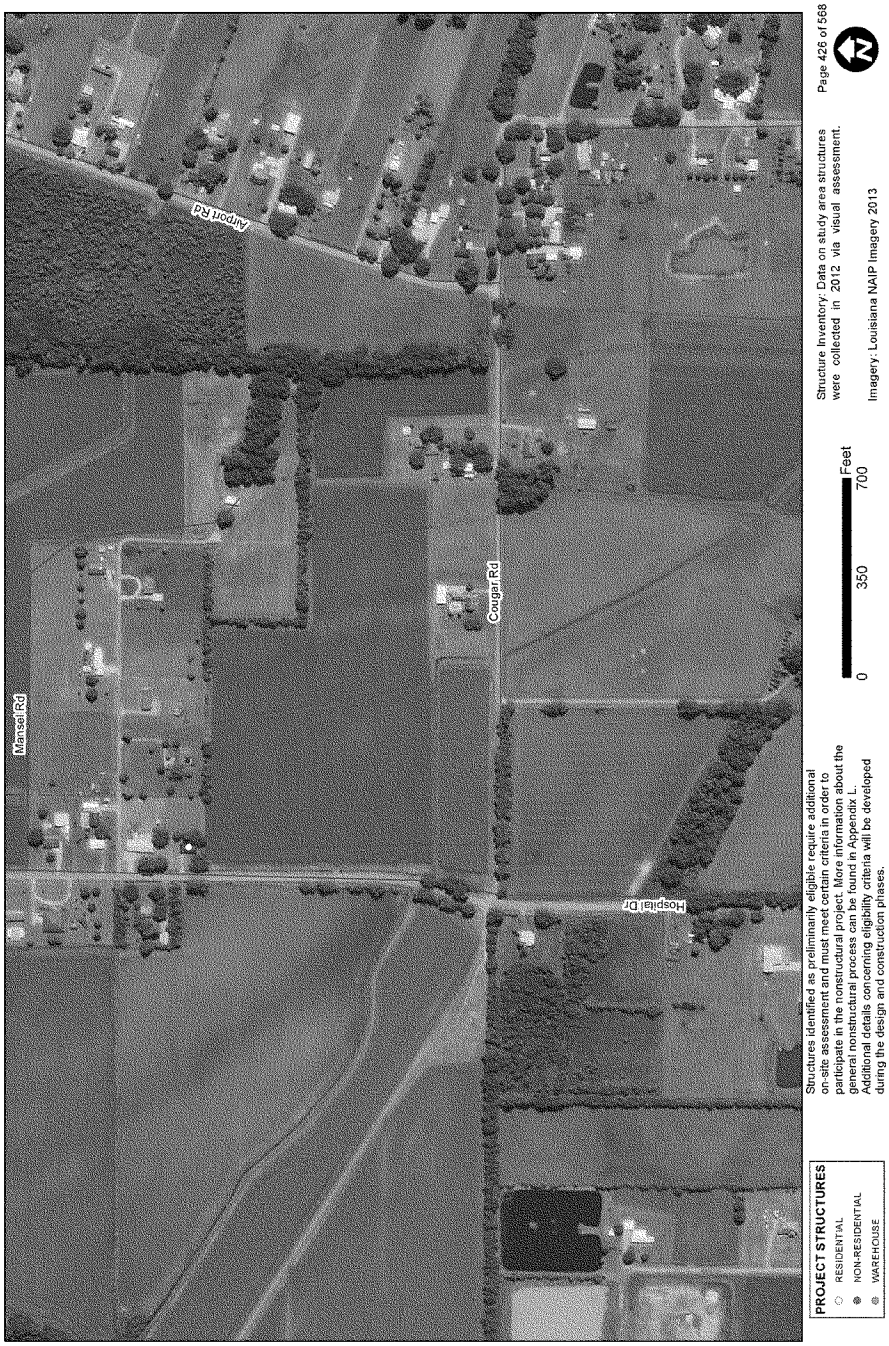
Southwest Coastal NED Plan

Southwest Coastal NED Plan

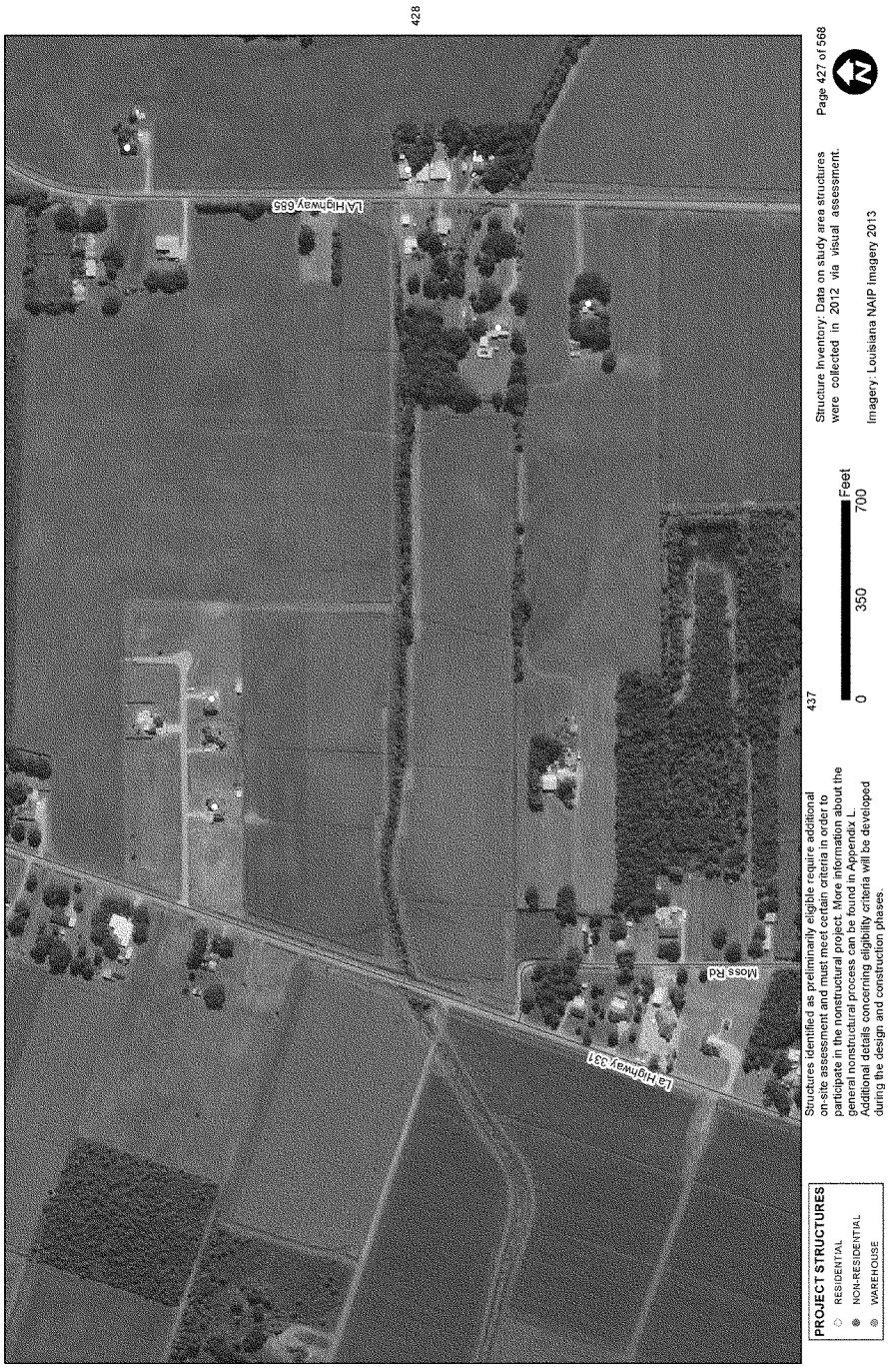
Southwest Coastal NED Plan
411
433
Spencer Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 424 of 568

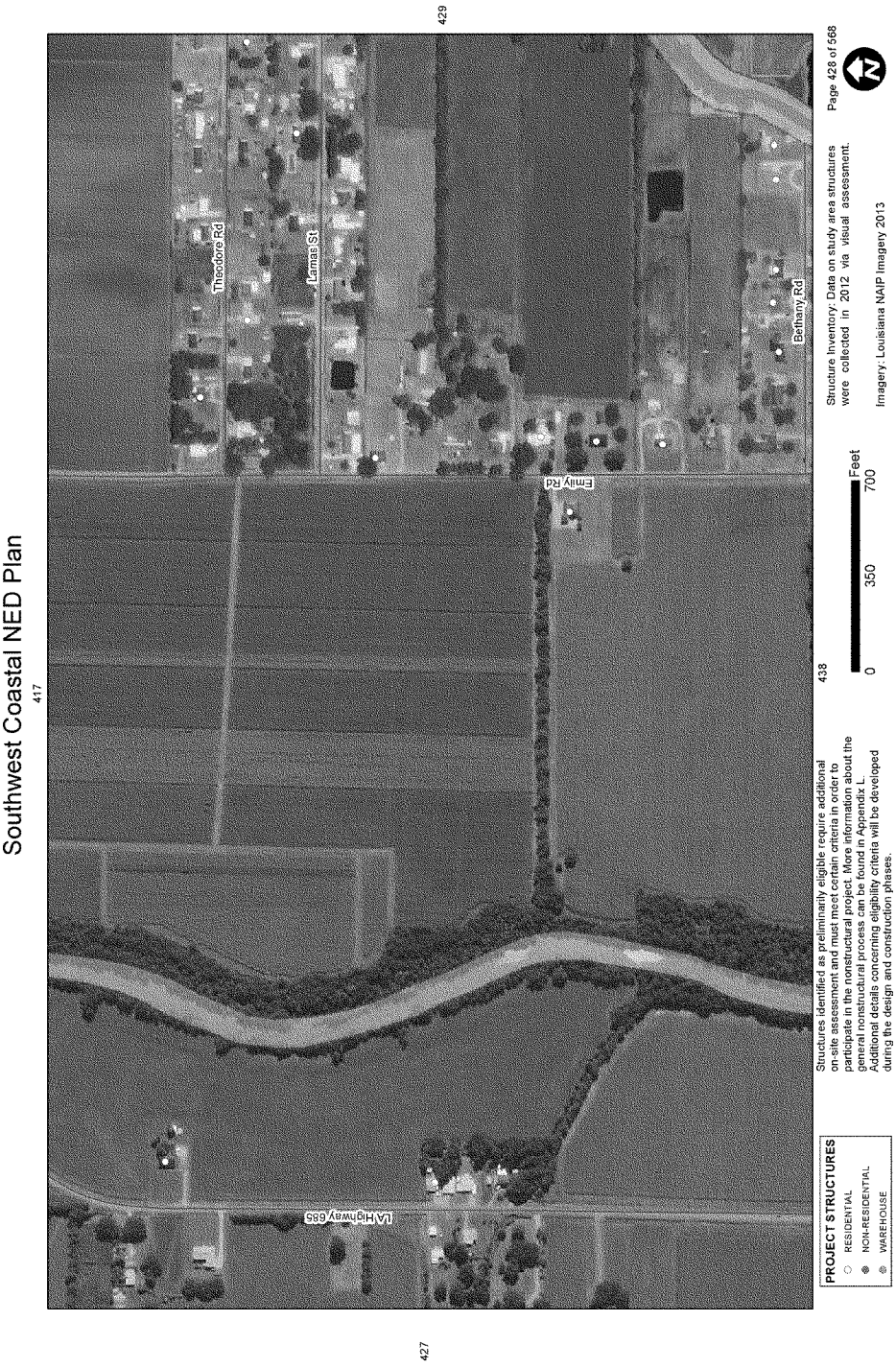
Southwest Coastal NED Plan

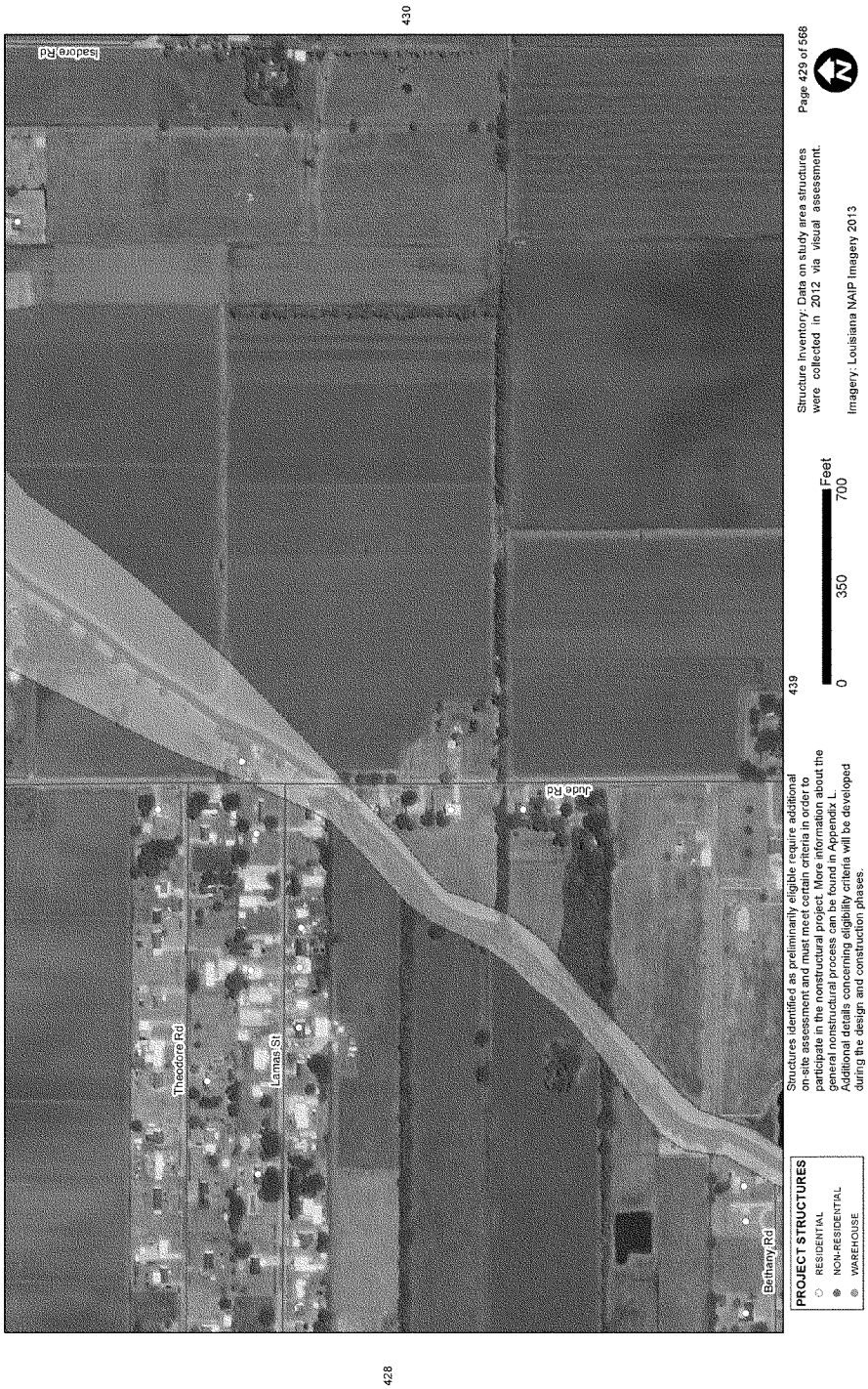
Southwest Coastal NED Plan



Southwest Coastal NED Plan




Southwest Coastal NED Plan
417
429
427
438
LA Highway 684
Theodore Rd
Lamar St
Emily Rd
Bethany Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 428 of 568


Southwest Coastal NED Plan
418
430
428
439
Isadore Rd
Theodore Rd
Lamas St
Jude Rd
Bethany Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 429 of 568

Southwest Coastal NED Plan

419

429

431

440

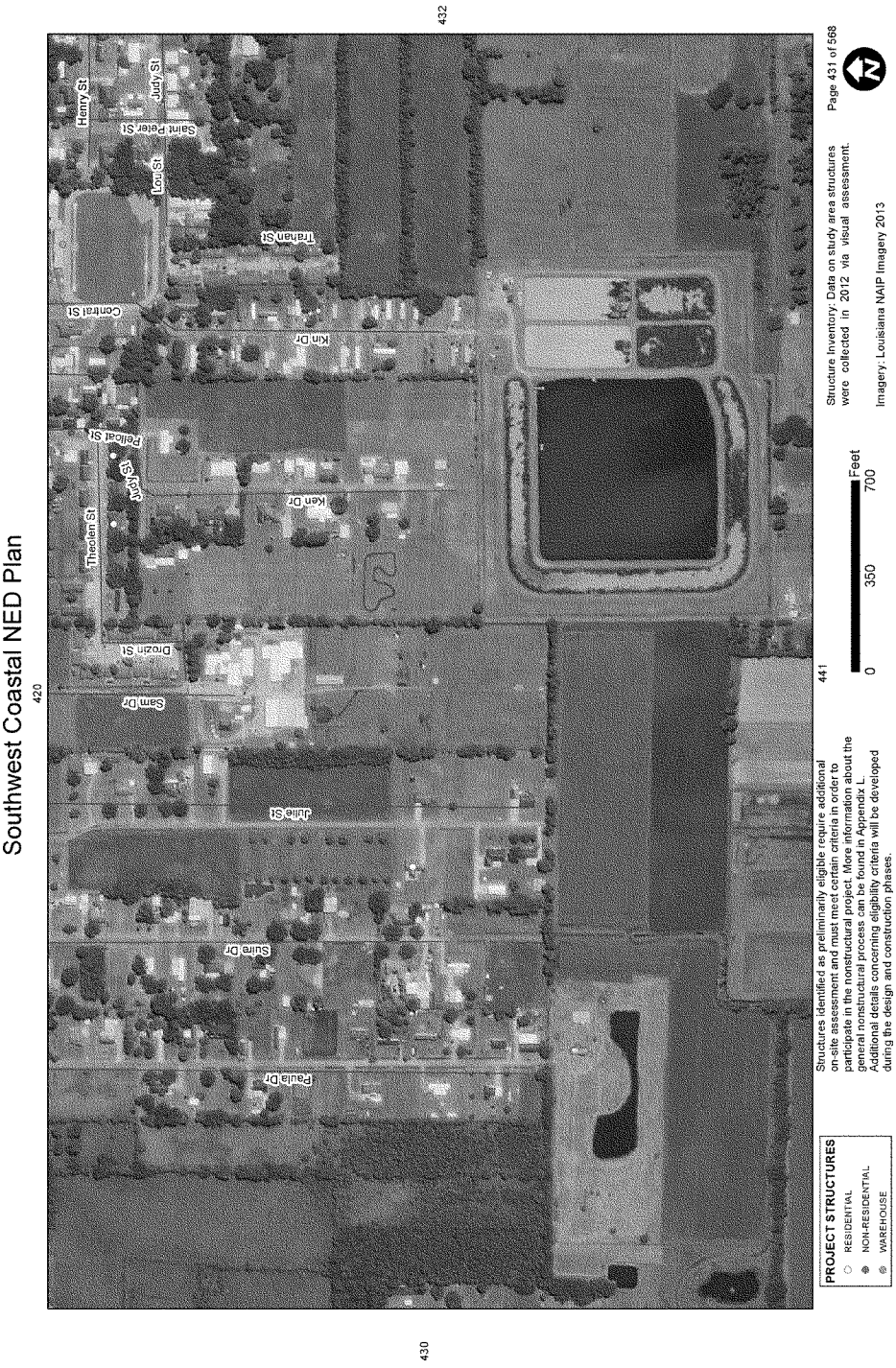
PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013


Southwest Coastal NED Plan
420
430
432
441
Henry St
Judy St
Saint Peter St
Lou St
Tahan St
Central St
Kin Dr
Pellcat St
Ken Dr
Theolen St
Judy St
Dozin St
Sam Dr
Julie St
Sulfe Dr
Paula Dr
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 431 of 568

Southwest Coastal NED Plan
421
431
442
Twin Fort Rd
Isadore St
Pitre St
President St
Wilfred Landry St
Laurence St
Charity St
Dooley St
Short St
Henry St
Judy St
Saint Peter St
Low St
Tahan St
Charles Rd
Railroad St
Par Road P-195
Delcambre Park Rd
Delcambre St
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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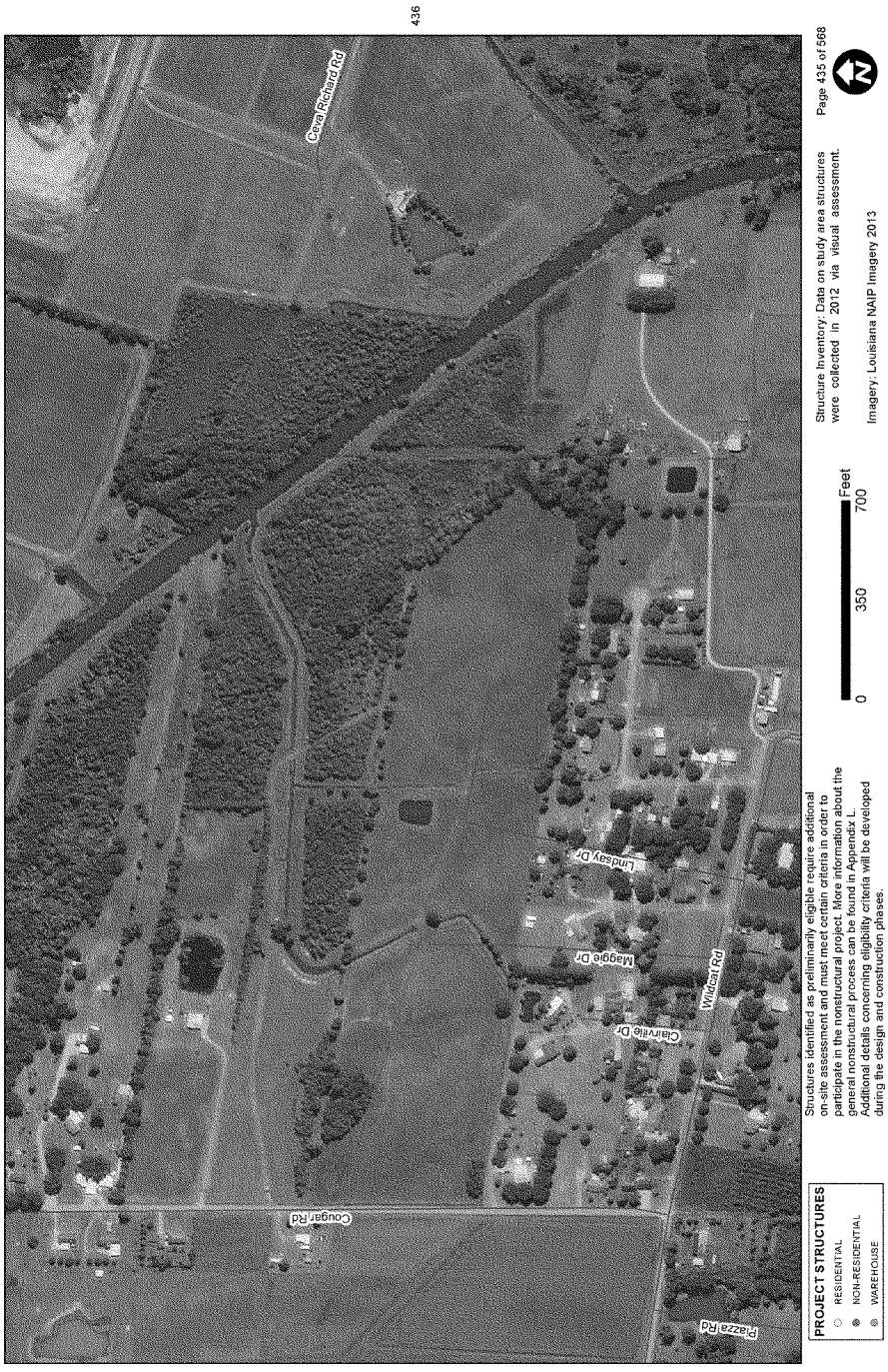
Southwest Coastal NED Plan
424
Spencer Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 433 of 568

Southwest Coastal NED Plan
Meridian Line Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 434 of 568


436
Southwest Coastal NED Plan
Cajun Richard Rd
Cougar Rd
Plazza Rd
Lindsey Dr
Maggie Dr
Clairville Dr
Wildcat Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 435 of 568

Southwest Coastal NED Plan

435

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Southwest Coastal NED Plan

427

438

447

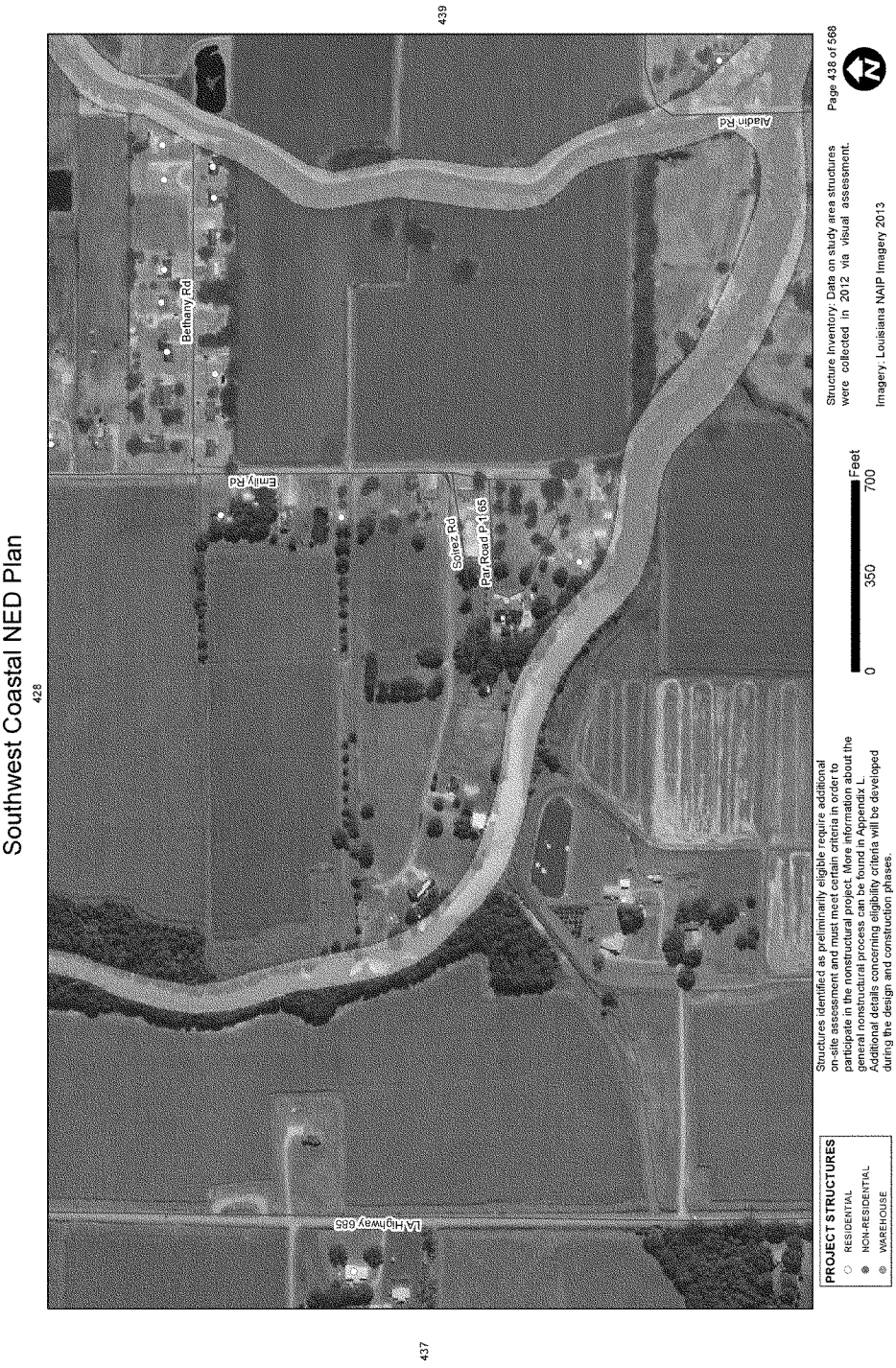
PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

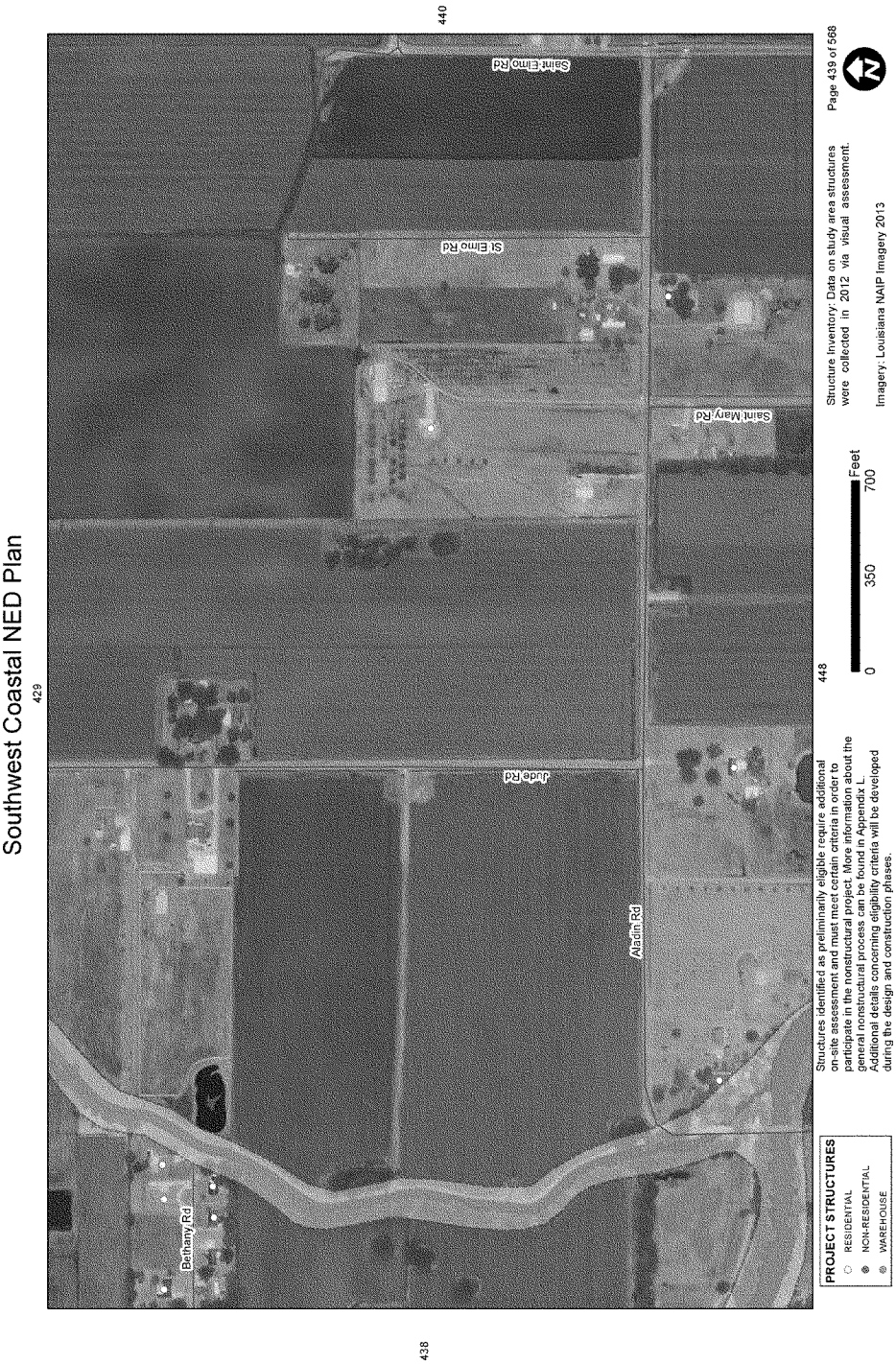
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

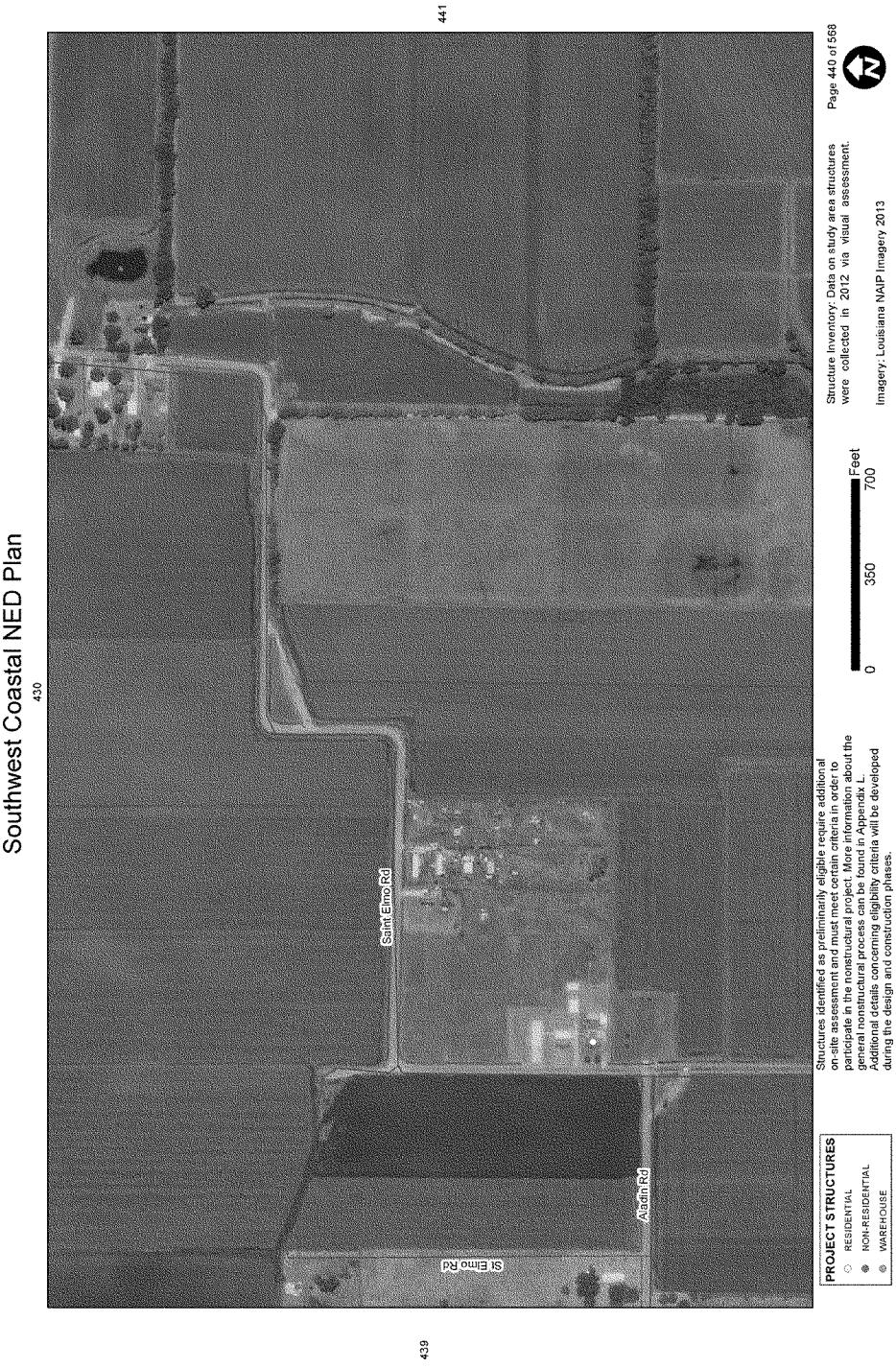
0 350 700 Feet

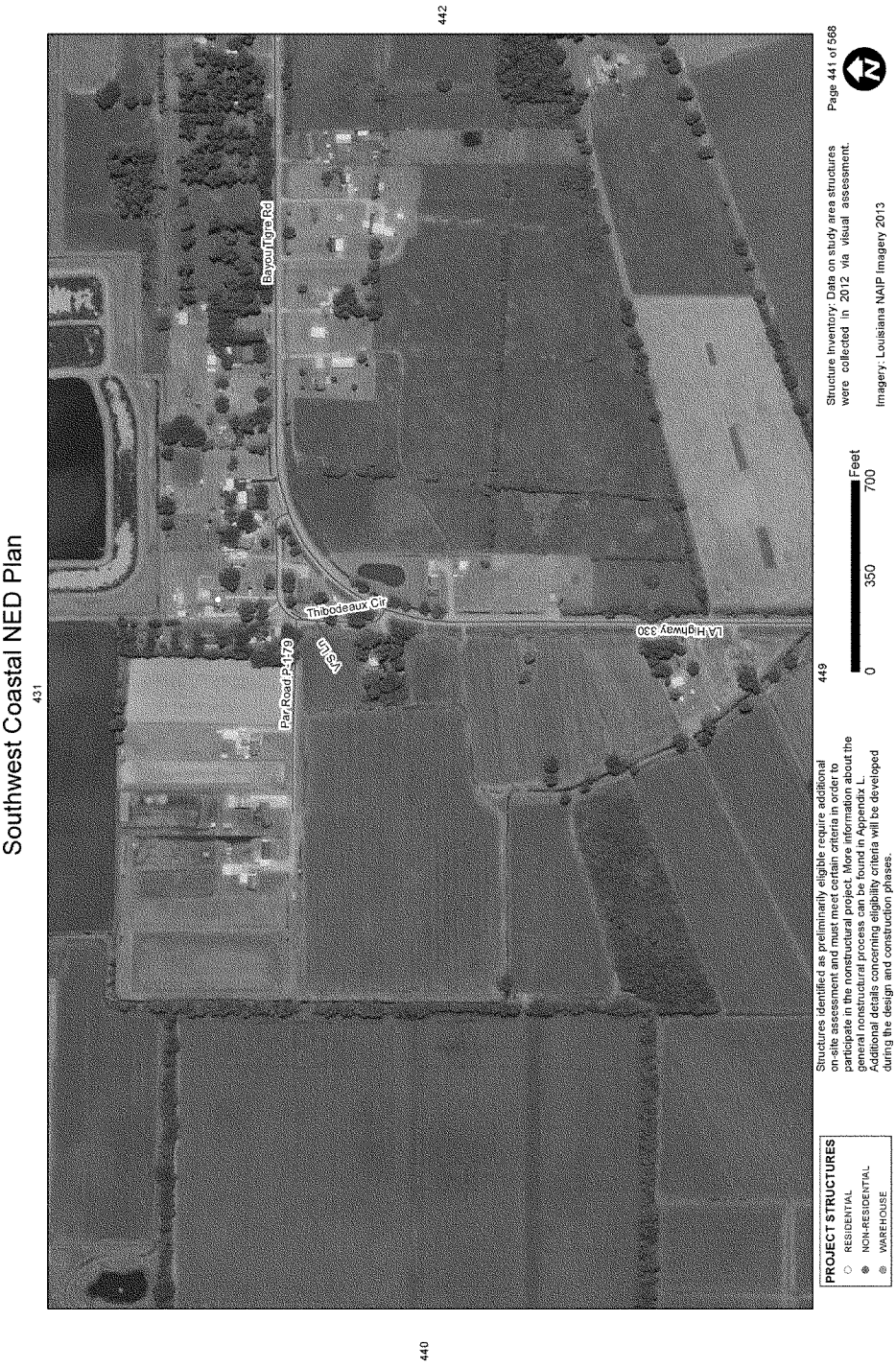
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

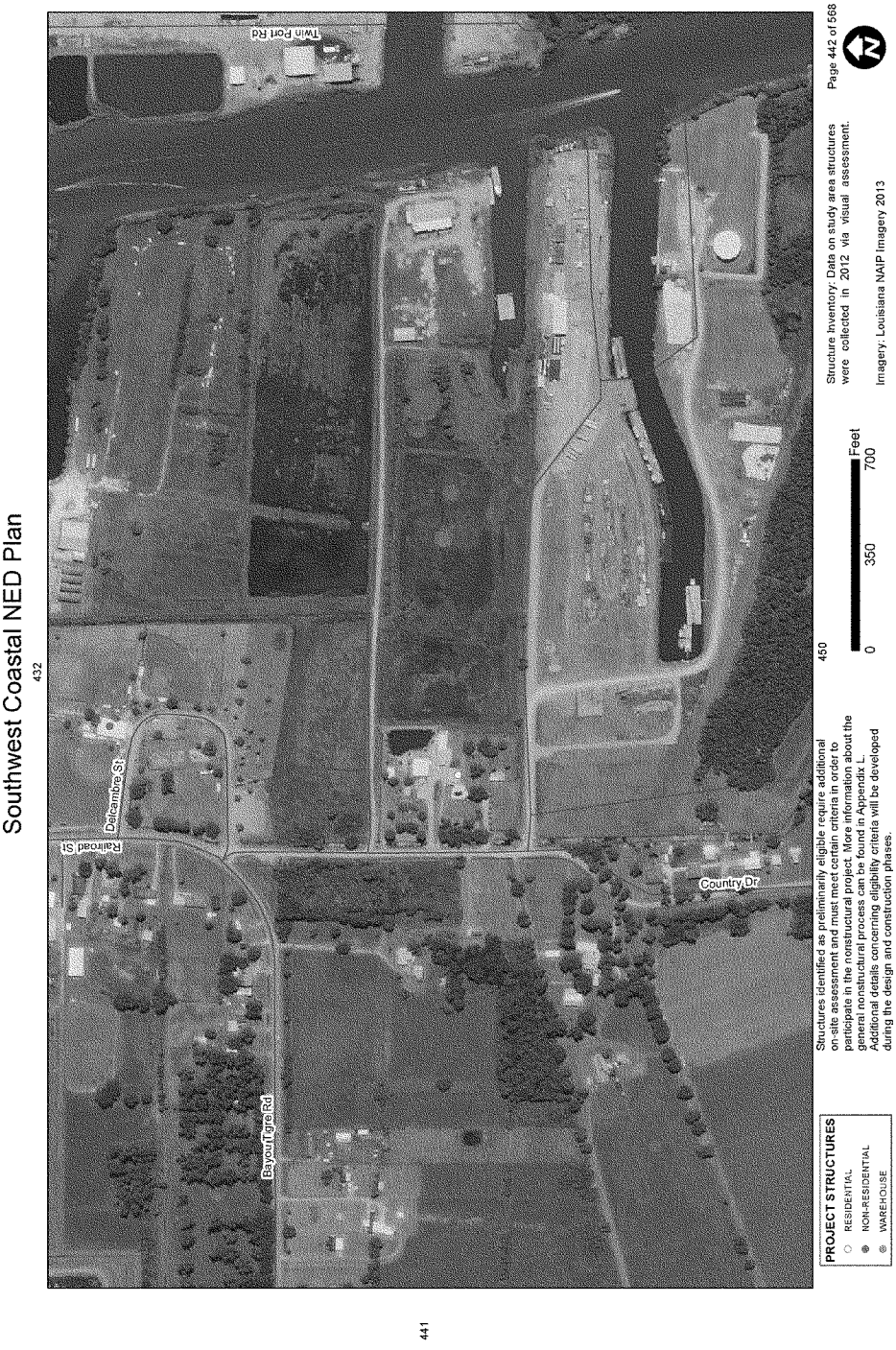
Imagery: Louisiana NAIP Imagery 2013


Southwest Coastal NED Plan
428
439
437
Bethany Rd
Emily Rd
Soniez Rd
Pan Road P1165
LA Highway 685
Aladin Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 438 of 568


Southwest Coastal NED Plan
429
440
438
448
Bethany Rd
Aladin Rd
Jade Rd
St Elmo Rd
Saint Elmo Rd
Saint Mary Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 439 of 568


Southwest Coastal NED Plan
430
441
439
Saint Elmo Rd
St Elmo Rd
Aladin Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assesment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 440 of 568


Southwest Coastal NED Plan
431
442
440
Bayou Tigre Rd
Thibodeaux Cir
Par Road P-1179
LA Highway 330
449
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 441 of 568


Southwest Coastal NED Plan
432
441
Twin Port Rd
Railroad St
Delcambre St
Bayou Tigre Rd
Country Dr
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
450
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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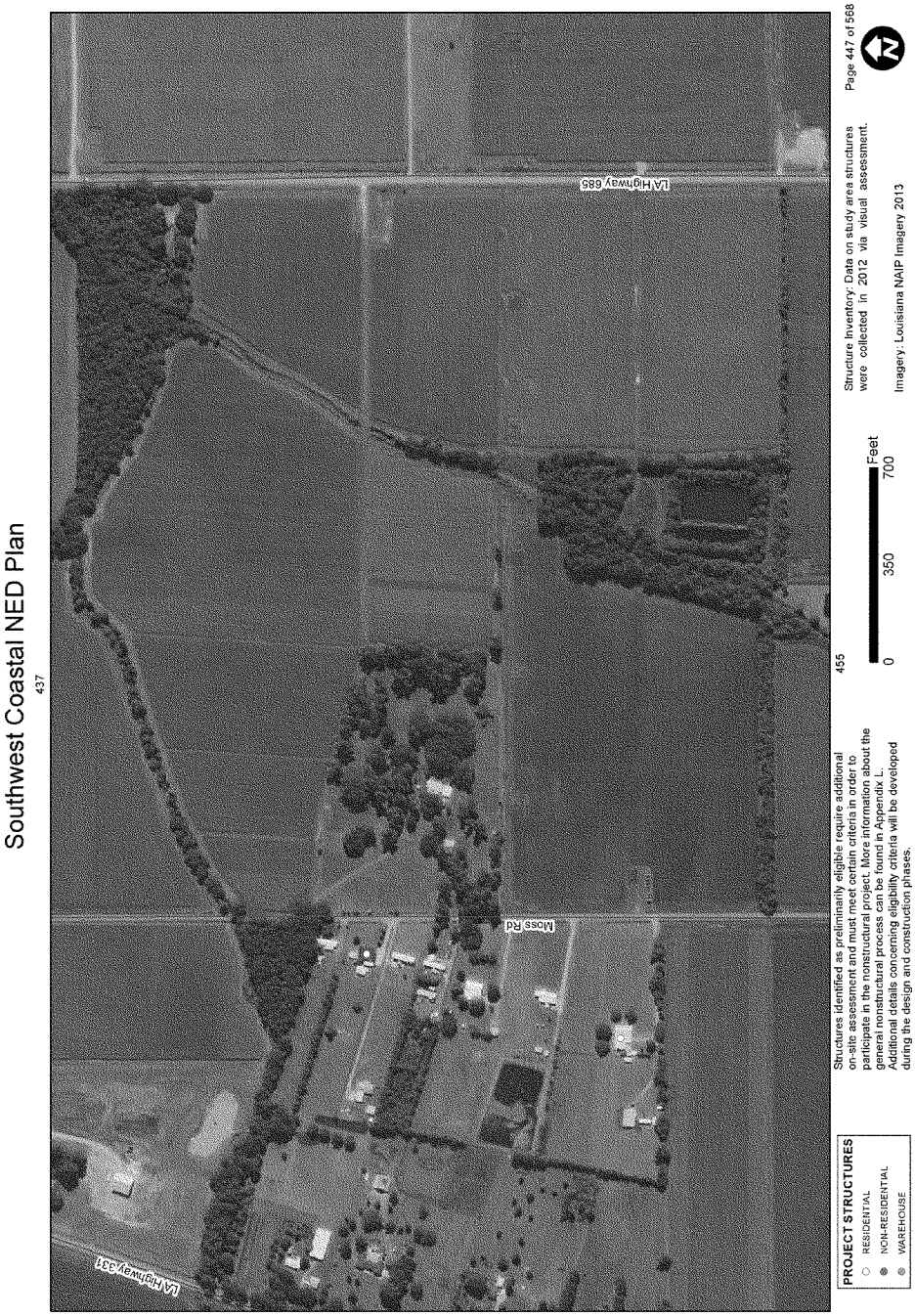
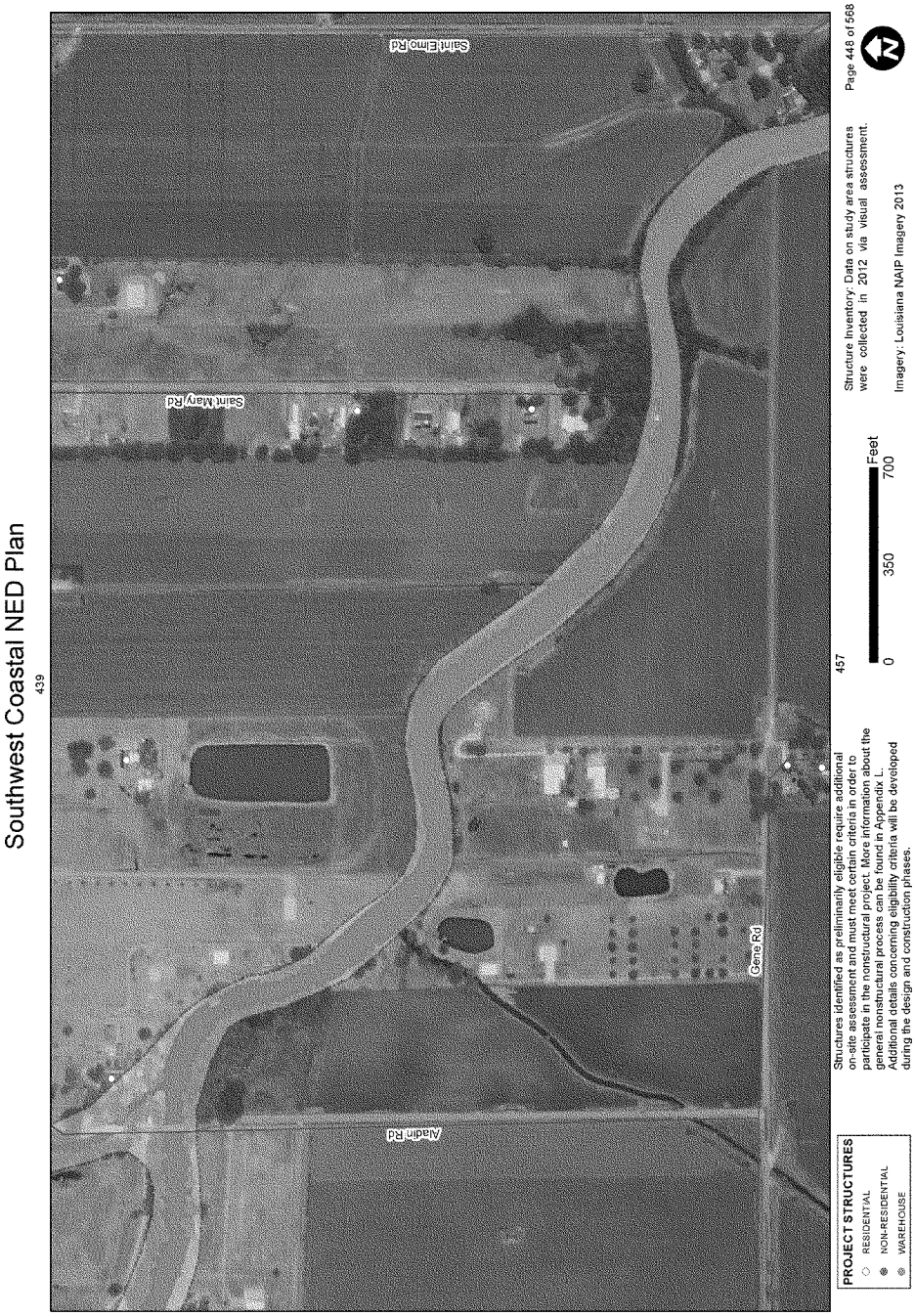
Southwest Coastal NED Plan

Southwest Coastal NED Plan
Sweetbay Rd
Ricebird Rd
Evergreen Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 444 of 568

Southwest Coastal NED Plan

Southwest Coastal NED Plan


Southwest Coastal NED Plan
437
455
LA Highway 685
LA Highway 331
Moss Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 447 of 568


Southwest Coastal NED Plan
439
457
Saint Elmo Rd
Saint Mary Rd
Aladin Rd
Gene Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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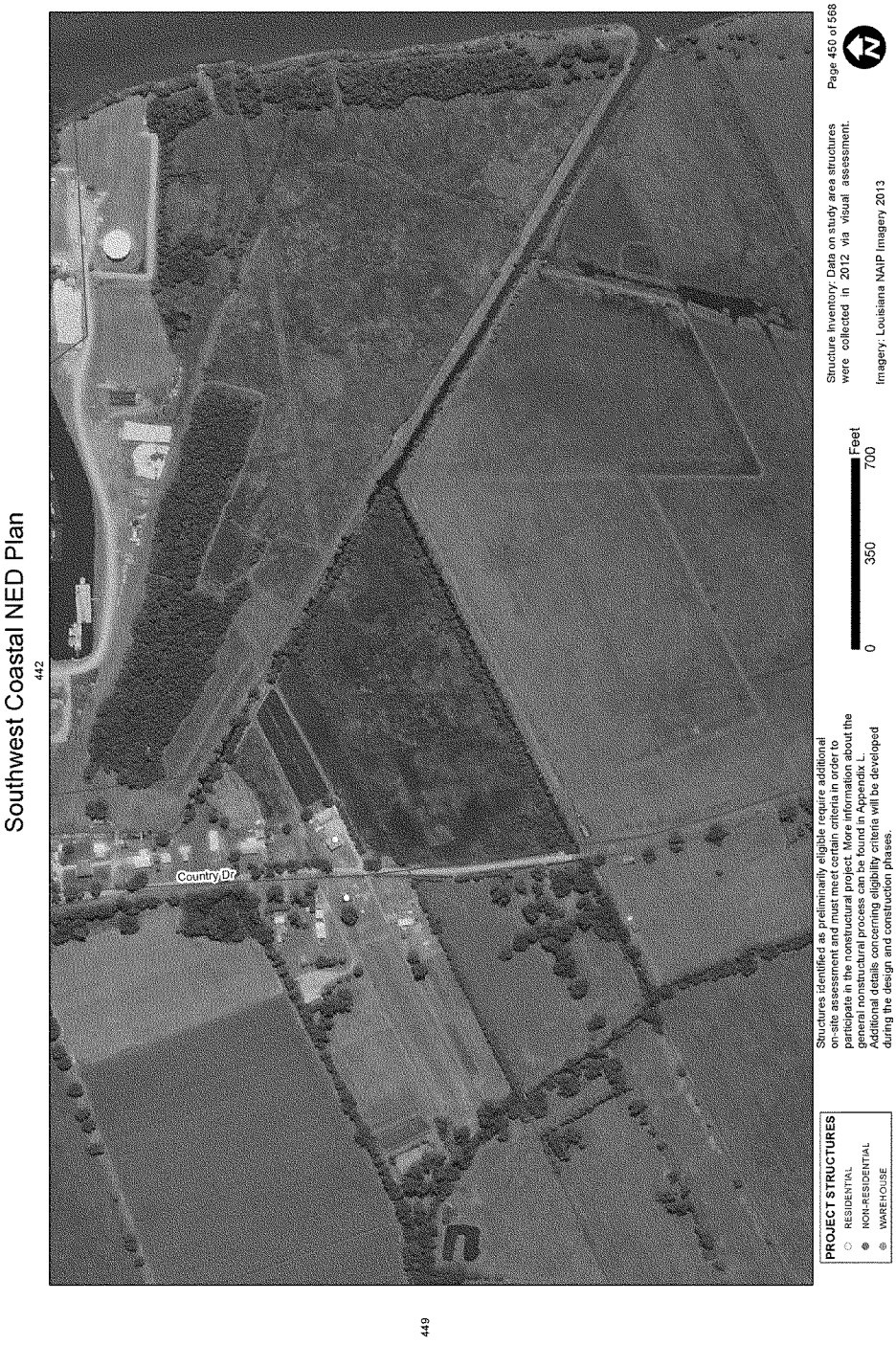
Southwest Coastal NED Plan
441
450
LA Highway 330
Silverlay Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 449 of 568


Southwest Coastal NED Plan
442
449
Country Dr
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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Southwest Coastal NED Plan

Southwest Coastal NED Plan
Corporal Marceaux Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 452 of 568

Southwest Coastal NED Plan

445

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

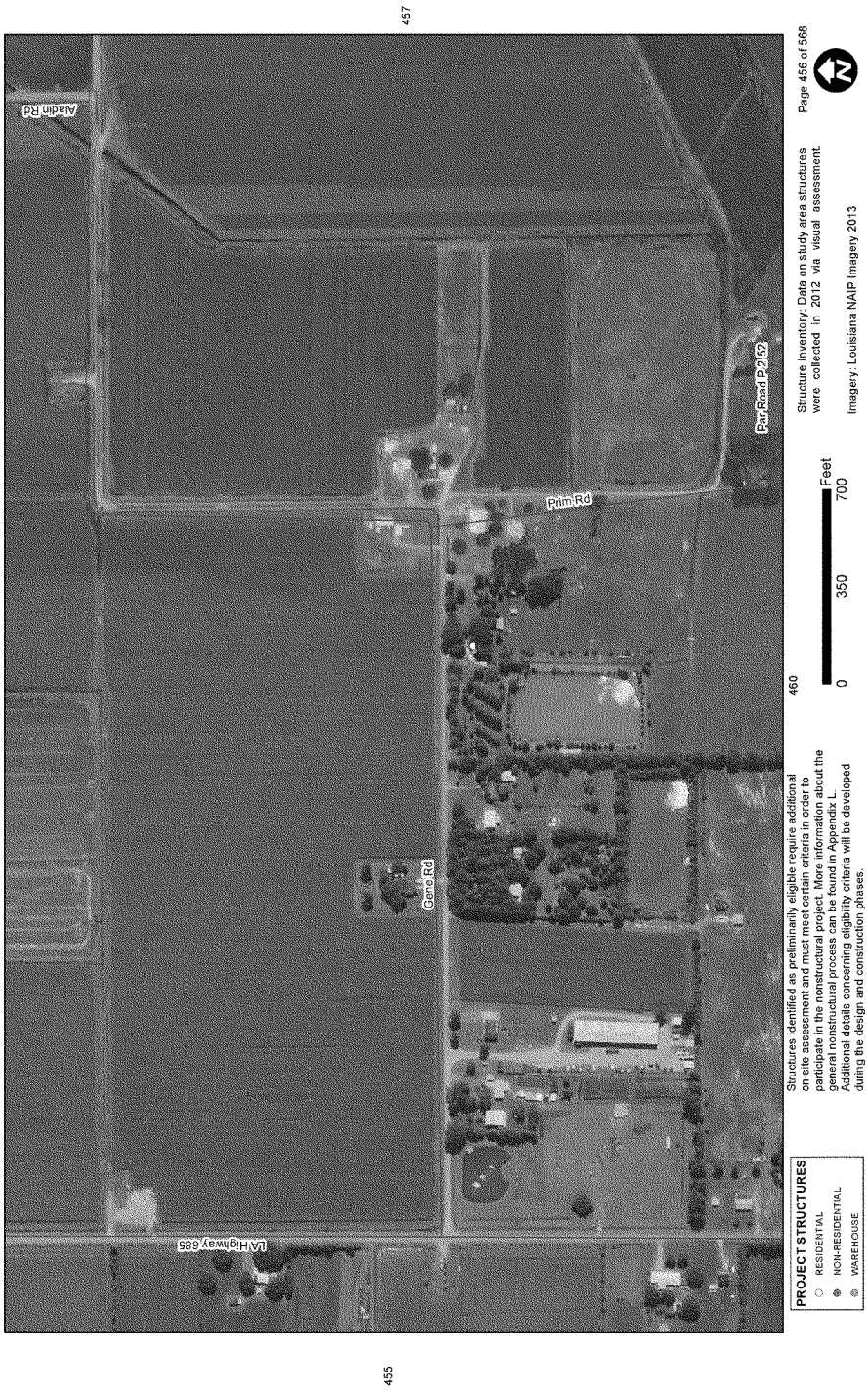
0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Southwest Coastal NED Plan
Quegnon St
Quegnon St
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
459
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 454 of 568

Southwest Coastal NED Plan
447
456
LA Highway 685
Gene Rd
Moss Rd
Shaejyn Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 455 of 568


Southwest Coastal NED Plan
457
455
460
Aladin Rd
LA Highway 685
Gene Rd
Prim Rd
Parl Road P 202
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 456 of 568

Southwest Coastal NED Plan
448
456
461
Alcalin Rd
Saint Elmo Rd
Cens Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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Southwest Coastal NED Plan
459
465
Queens Rd
LA Highway 330
Agnes Plantation Rd
Wilfred Dr
Hidden Lake Dr
Langlinais Ln
Glenwood Blvd
Boussel Dr
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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Southwest Coastal NED Plan

454

458

466

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Southwest Coastal NED Plan

456

461

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Southwest Coastal NED Plan
457
462
460
Gene Rd
Destrehan Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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Southwest Coastal NED Plan

461

463

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

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Southwest Coastal NED Plan
Parish Road P1-72
Alex Rd
Boyance Rd
LA Highway 330
Parish Road P2-22
Bowman Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
0
350
700
Feet
Page 463 of 568
462
464
468

Southwest Coastal NED Plan
Parish Road P-1-72
Bayance Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
0
350
700
Feet
Page 464 of 568
463
469

Southwest Coastal NED Plan

458

466

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Southwest Coastal NED Plan
459
467
465
Langlinais Ln
LA Highway 330
Bronco Rd
Wiley Rd
Agnes Plantation Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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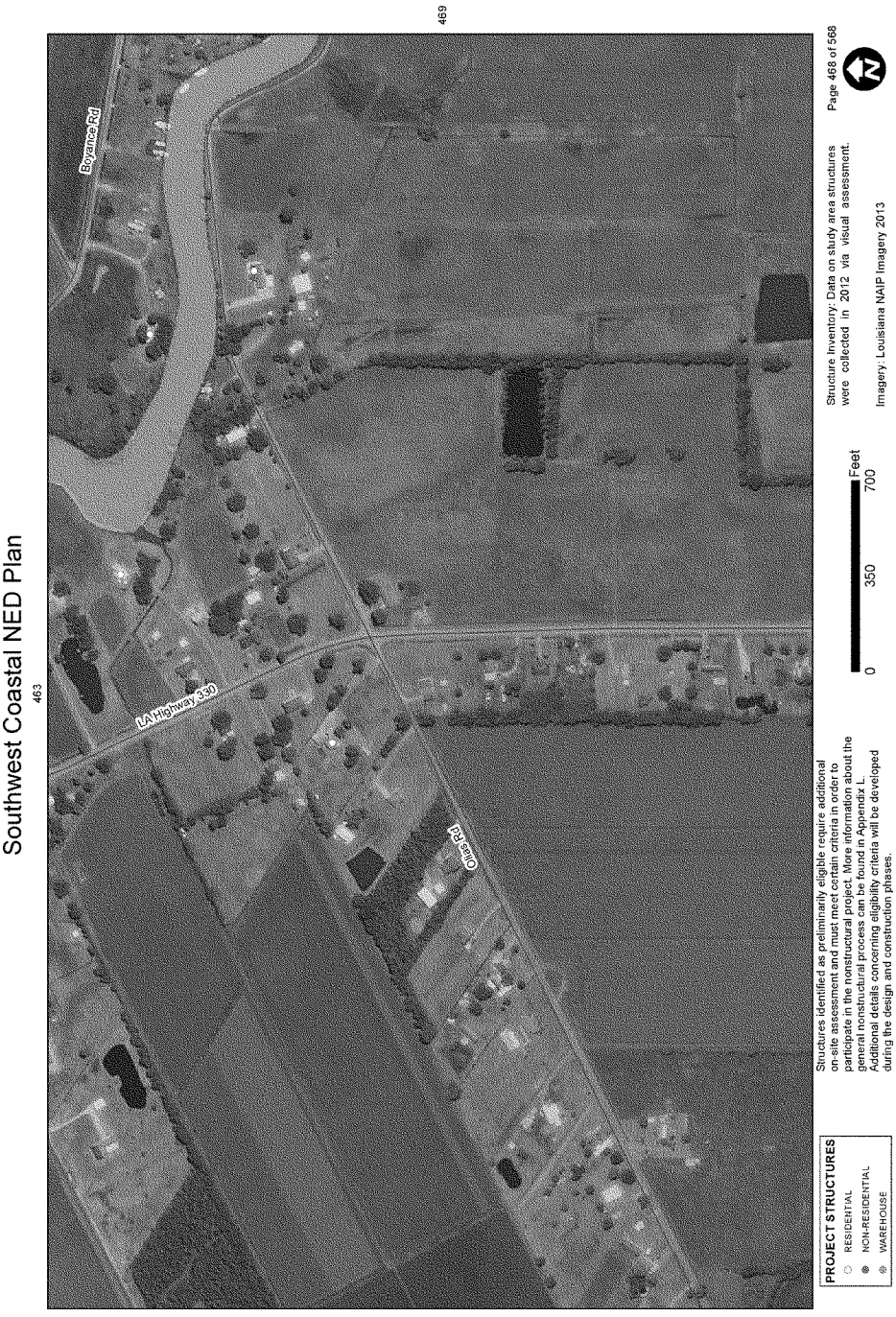
Southwest Coastal NED Plan
Branco Rd
LA Highway 330
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 467 of 568
466


Southwest Coastal NED Plan
463
469
Boyance Rd
LA Highway 330
Oliver Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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Southwest Coastal NED Plan
464
468
Bayance Rd
Oliver Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 469 of 568

Southwest Coastal NED Plan
Gulfport Dr
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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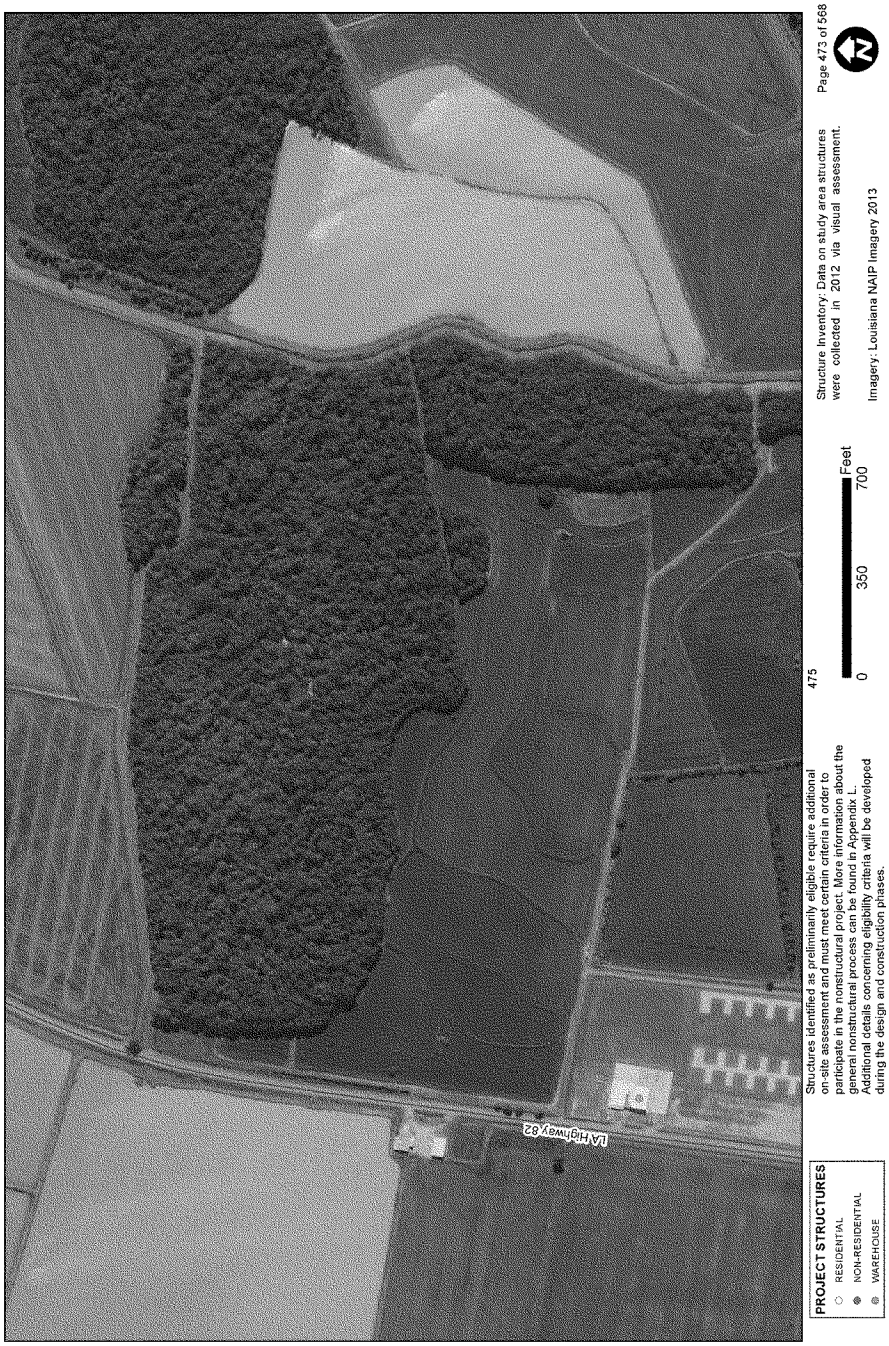
Southwest Coastal NED Plan
Rivers Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 471 of 568

Southwest Coastal NED Plan

Southwest Coastal NED Plan



Southwest Coastal NED Plan

Southwest Coastal NED Plan

473

Southwest Coastal NED Plan

Southwest Coastal NED Plan
Community Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 477 of 568

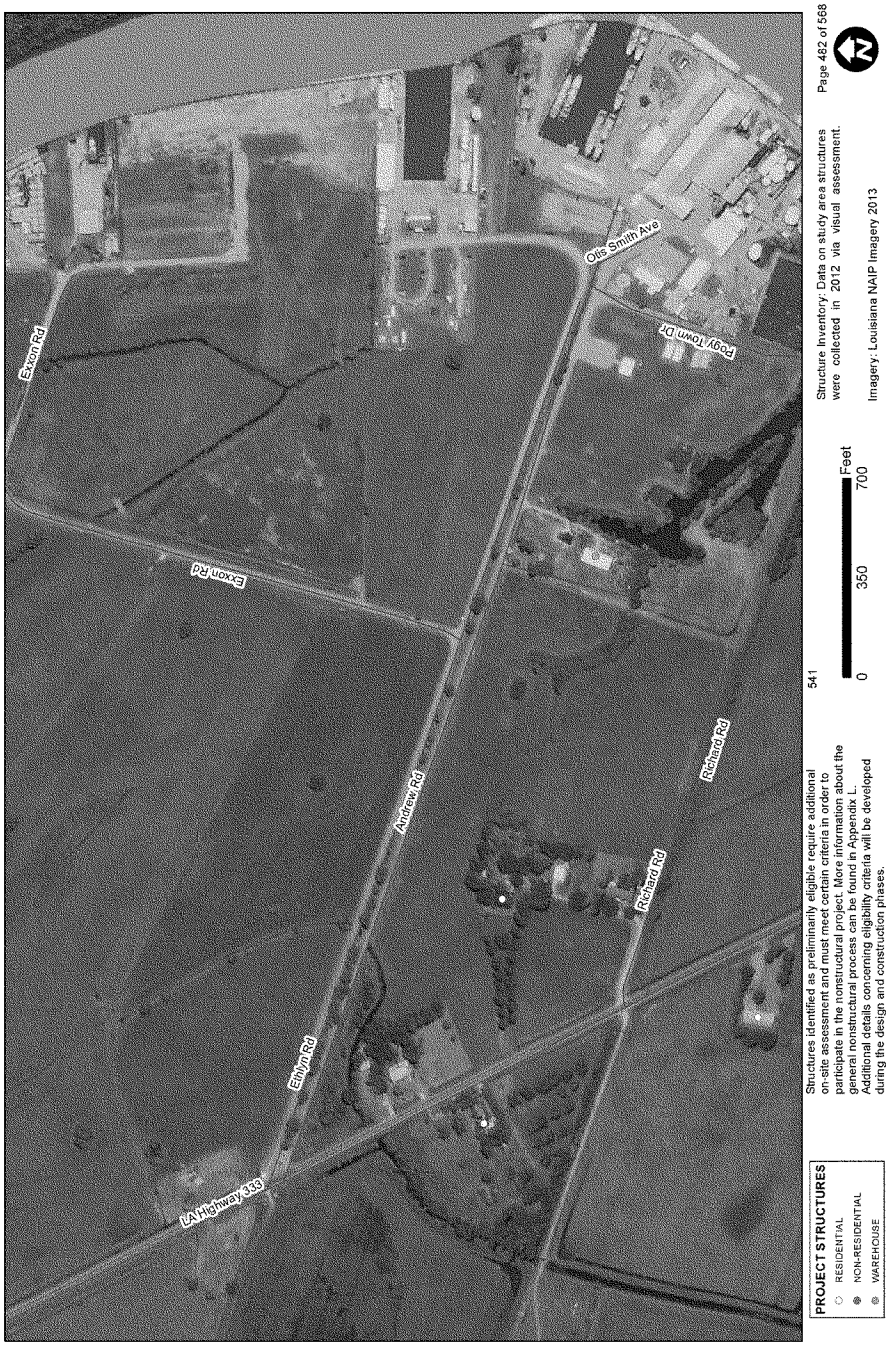
Southwest Coastal NED Plan

Southwest Coastal NED Plan

Southwest Coastal NED Plan

Southwest Coastal NED Plan

Southwest Coastal NED Plan

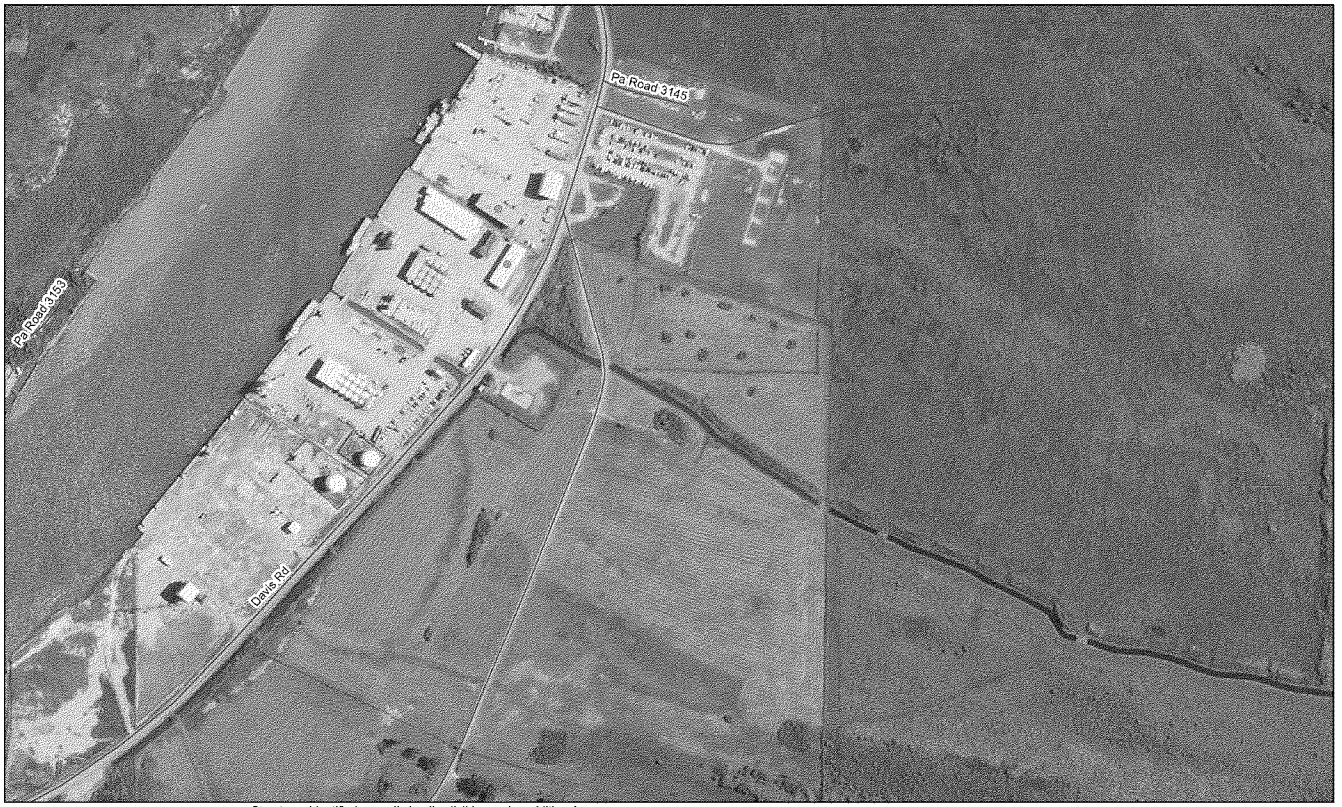


Southwest Coastal NED Plan

531

Southwest Coastal NED Plan

547



485

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

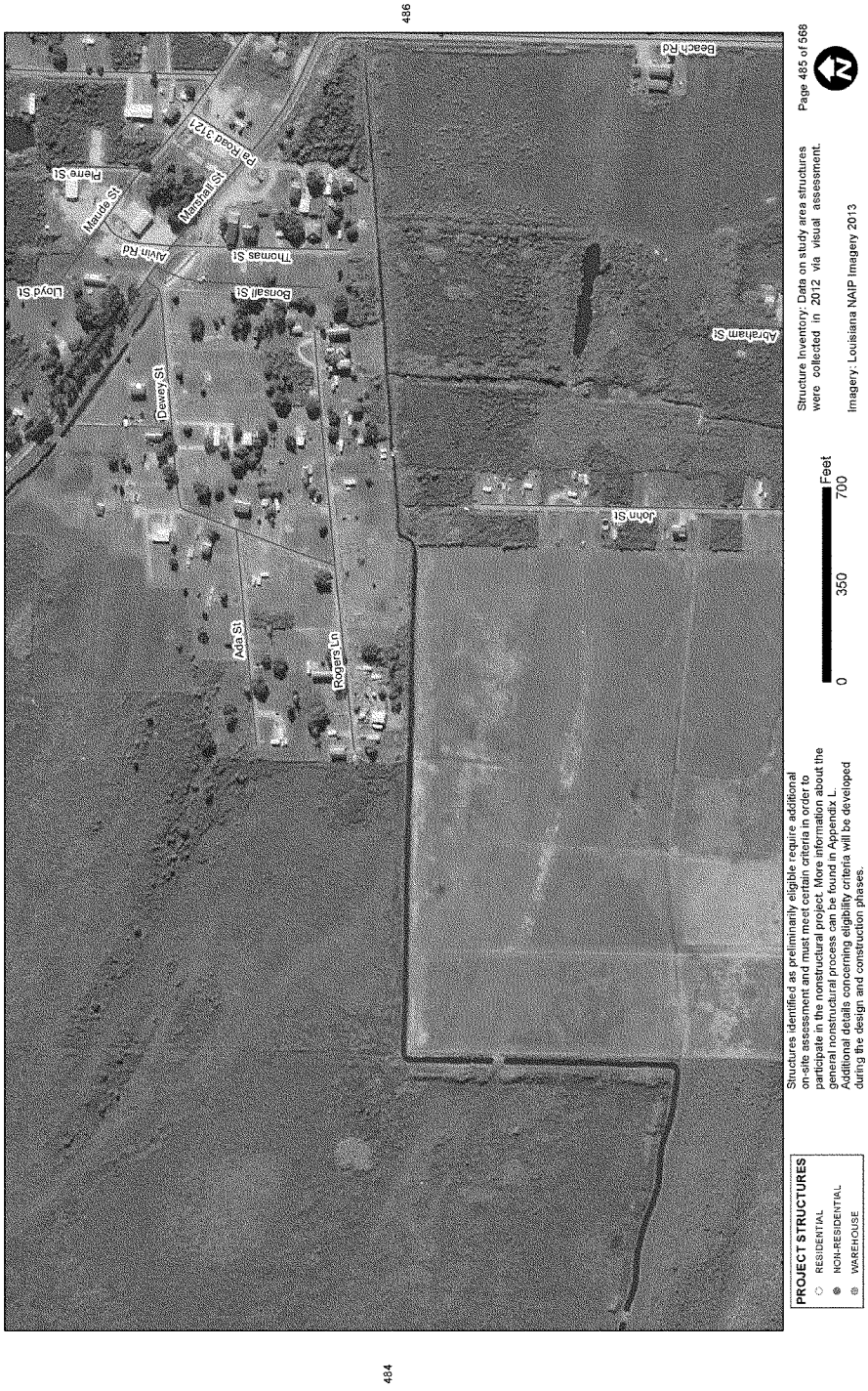
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

Southwest Coastal NED Plan



Southwest Coastal NED Plan
Lloyd St
Thomas St
Alvin Rd
Maude St
Fiere St
Pa Road 3121
Velay St
Beach Rd
Pa Road 3108
Our Lady Rd
Rosalie Ln
Fulton St
Marshall St
Rosalie Ln
Fulton St
Pa Road 3106
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 486 of 568
485

Southwest Coastal NED Plan

Southwest Coastal NED Plan

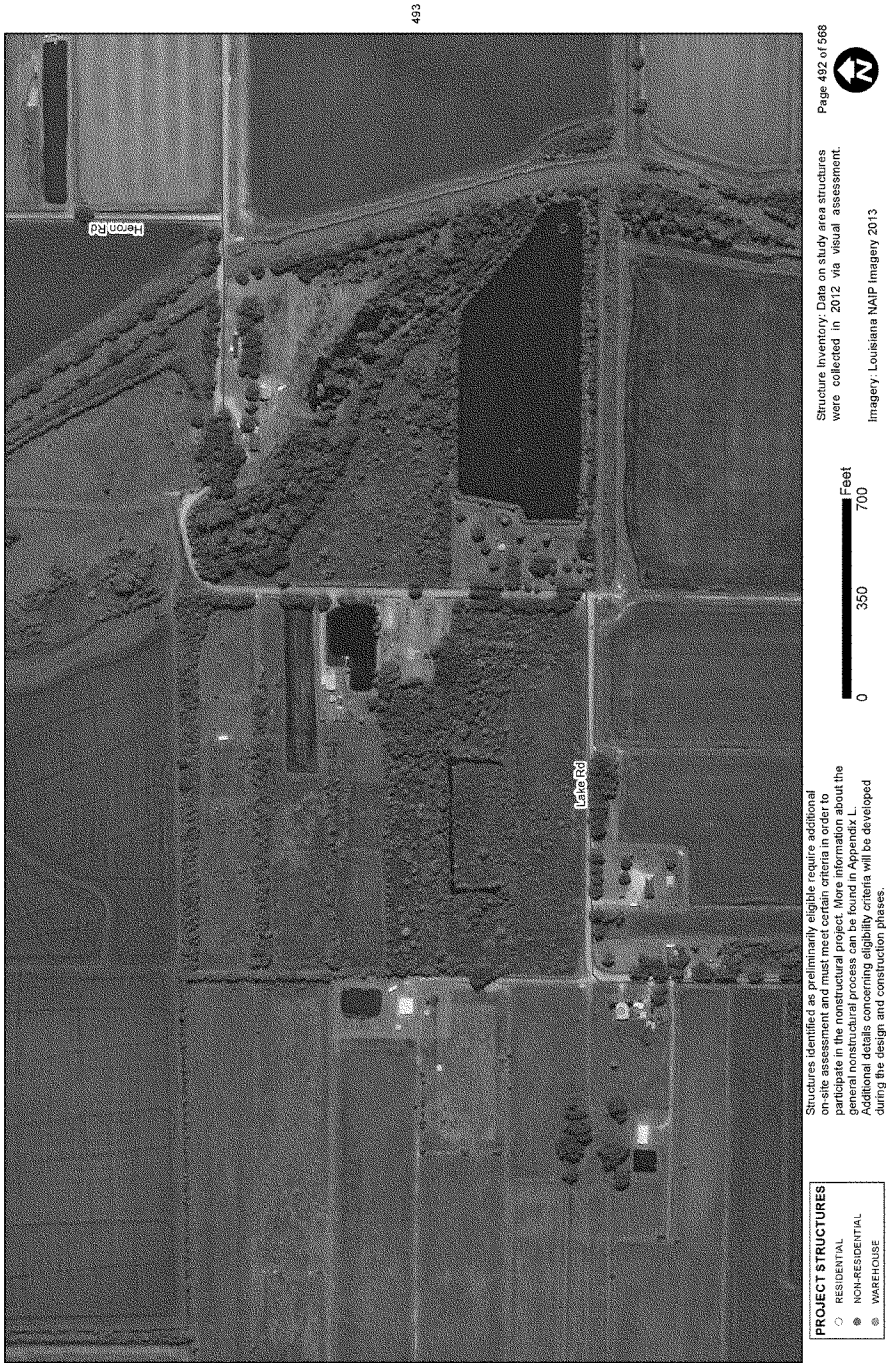
487

Southwest Coastal NED Plan

Southwest Coastal NED Plan

Southwest Coastal NED Plan

Southwest Coastal NED Plan



Southwest Coastal NED Plan
Lake Rd
Theall Rd
Heron Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 493 of 568
492

Southwest Coastal NED Plan
480
495
498
Cheryl Rd
Audubon Rd
Francois
LA Highway 82
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
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Southwest Coastal NED Plan
Cherry Rd
Bohart Rd
Audubon Rd
Falcon Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 495 of 568
494

Southwest Coastal NED Plan

Southwest Coastal NED Plan

Southwest Coastal NED Plan
494
LA Highway 82
Rue Baptiste Rd
Horseshoe Rd
Wildwood Way
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 498 of 568

Southwest Coastal NED Plan
Little Chenier Rd
PROJECT STRUCTURES
RESIDENTIAL
NON-RESIDENTIAL
WAREHOUSE
Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.
0
350
700
Feet
Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.
Imagery: Louisiana NAIP Imagery 2013
Page 499 of 568

Southwest Coastal NED Plan

PROJECT STRUCTURES
- RESIDENTIAL
- NON-RESIDENTIAL
- WAREHOUSE

Structures identified as preliminarily eligible require additional on-site assessment and must meet certain criteria in order to participate in the nonstructural project. More information about the general nonstructural process can be found in Appendix L. Additional details concerning eligibility criteria will be developed during the design and construction phases.

506

0 350 700 Feet

Structure Inventory: Data on study area structures were collected in 2012 via visual assessment.

Imagery: Louisiana NAIP Imagery 2013

CLIMATE PREPAREDNESS AND RESILIENCE REGISTER

Background

The Southwest Coastal Louisiana Project (SWC) is a combined coastal storm damage risk reduction, flood damage risk reduction, and ecosystem restoration project. Because the project area is in the coastal zone, its performance over time is expected to be affected by sea level change among other climate changes. This Climate Preparedness and Resilience Register (CPRR) documents the robustness of the project alternative selection process to climate change, how the selected plan's performance might be expected to change over time, and how the plan might be adapted to continue to deliver performance in a changing climate.

The intent of USACE climate policy is to plan and build projects that are robust and/or adaptable to the full range of feasible future climates. An individual project's climate preparedness and resilience can therefore be summarized in three questions, which will be addressed in this Register:

1) What is the reasonable extent of potential future climate change (particularly sea level change) in this area?
2) Is the selected plan the best alternative under all reasonable future climate scenarios?
3) How does the selected plan balance initial investment with adaptation cost to optimize performance in consideration of future climate change?

Extent of Potential Future Sea Level Change

To put an upper bound on the reasonable potential future extent of sea level change in this area during the project planning horizon, the high rate sea level rise scenario was used to project sea level in the year 2125, which is 100 years after the assumed project start date. In this area, this equates to an increase of 8.8 feet relative to 1992 sea level, or an elevation of 9.57 feet relative to NAVD88 [2004.65]. The resulting inundation map is shown as Figure 1.

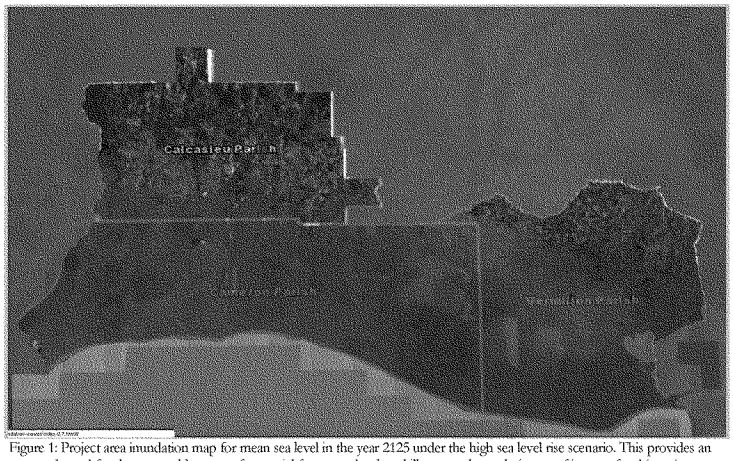


Figure 1: Project area inundation map for mean sea level in the year 2125 under the high sea level rise scenario. This provides an upper bound for the reasonable range of potential future sea level, and illustrates the analysis area of interest for this register.

Part 1: NED Plan

Plan Selection

As with other coastal storm damage risk reduction projects, the starting water surface elevation is critical to the probability of flooding and therefore the annualized flood damages reduced by the SWC project. By policy, the project alternative that performs the best regardless of the future sea level should be chosen, even if this alternative does not perform the best under any particular future sea level scenario. The NED Focused Array included nine alternatives (including no action), the eighth of which, after further analysis and optimization, was ultimately identified as the Recommended Plan (RP):

0. No Action	1. Delcambre/Erath
2. Lake Charles Eastbank	3. Abbeville to Delcambre
4. Lake Charles Westbank Sulphur Extended	5. Abbeville
6. Lake Charles Westbank Sulphur South	7. Nonstructural Justified Reaches Plan
8. 100-year Floodplain [1% Annual Chance Exceedance (ACE)] Nonstructural Plan*	

**Plan 8 evolved into 'Modified Plan 8' which focuses on the 0-25-year floodplain and is the RP. See Chapter 2 of the Main Report for more information.*

Table 1: Focused Array of NED Plan Alternatives

Plan Selection Sensitivity to Sea Level Rise

Engineering Regulation 1100-2-8162 "Incorporating Sea Level Change in Civil Works Programs" signed 31 Dec 2013, gives three possible approaches for determining the sensitivity of alternative plans to sea level rise (page 3). Option (1), working within a single sea level rise scenario and determining the preferred alternative under that scenario before evaluating its performance under the other scenarios, was chosen in this case. Per the Regulation, "this approach may be most appropriate when local conditions and plan performance are not highly sensitive to the rate of SLC." The Southwest Coastal project does not fit that description, so the question arises whether any superior alternatives could have been inadvertently screened out due to the reliance on a single seal level rise scenario.

A close examination of the other, eliminated alternatives reveals that this is highly unlikely to be the case. Whereas the selected plan has an estimated benefit-to-cost ratio of approximately 7:1 (based on the screening-level analysis permitted under SMART planning), the other alternatives all have ratios at or below unity (all alternatives were assessed using the intermediate rate of sea level rise over a 50-year economic analysis window). This is due to the fact that the chosen nonstructural plan allocates risk reduction measures only to those structures that are economically justified, whereas the structural alternatives (plans 1 through 6 in Table 1 above) provide risk reduction to both justified and unjustified (i.e. already lower-risk) structures. Furthermore, construction of structural measures such as levees and floodwalls in an area currently without such infrastructure would significantly impede stormwater drainage, necessitating major investment in drainage pumps and canals. Widespread modifications and relocations of roads, railroads, pipelines, and other infrastructure would also be required. It is therefore unlikely that consideration of a different sea level scenario could have changed the economics of plan selection sufficiently to have caused a structural alternative to be chosen.

In addition to the economic considerations described above, the structural alternatives considered have another drawback compared to the selected nonstructural plan: the potential to induce flood risk. Constructing levees in an area where they did not previously exist could encourage people to move into the leveed area. Under certain circumstances this could actually increase overall flood risk as compared to the no action alternative. An increased population inside the leveed area could also constrain future adaptation options, for example by encroaching on the real estate footprint needed to perform a future levee lift. Since a nonstructural plan does not suffer from the possibility of induced risk, this makes it even less likely that a structural plan was truly the best performing under all climate scenarios but was erroneously eliminated from consideration due to the reliance on a single scenario.

The other nonstructural plan that was considered (plan 7 in Table 1) evolved into Plan 8 based on policy review from HQUSACE. Briefly, Plan 7 considered all structures in hydraulic reaches with above a certain probability of flooding to be justified. Plan 8 considers each structure on the basis of its particular risk and further evolved to focus on the most at-risk structures in the study area. This optimization of addressing risk within the 100-year floodplain, which includes additional economic justification for individual structures, resulted in refinements to Plan 8. These led to the alternative being known as 'Modified Plan 8', which focuses on structures in the 0-25-year floodplain. Modified Plan 8 is the RP. Because this plan was modified based on policy review rather than plan performance, the question of appropriate sea level is not relevant to the decision to eliminate it.

In summary, **it is very likely that the RP (Modified Plan 8) is the best alternative** under all reasonable future sea level scenarios. Although the planning process did not consider all three scenarios, it is highly unlikely that such consideration would have resulted in a different plan being chosen.

Plan Sensitivity to Inland Hydrology Non-Stationarity

Much of the flood damage reduced by this project is not strictly coastal flooding, but the combination of elevated coastal water levels and heavy rains that are common in a hurricane. With receiving areas raised by storm surge, drainage is impaired. The resulting backwater flooding can be highly damaging, even during a relatively small storm surge. The probability of this phenomenon occurring is clearly affected by sea level as outlined above, but also by rainfall intensity. If the intensity of rainfall can be expected to change in the future, then the project performance could also be affected, for the better or for worse. Because this possibility was not investigated during plan selection, it is possible that an inferior plan was chosen.

To investigate the possibility of changing rainfall intensities, 38 years of hourly rainfall data from the meteorological station at Jennings, LA were downloaded from the website of the National Centers for Environmental Information (formerly the National Climatic Data Center). The Jennings rain gage is located in a flat farm and pasture area with scattered tree growth. While it is not located in the project area, it is the nearest NCEI rain gage to the project (the next closest being in Galveston, TX).

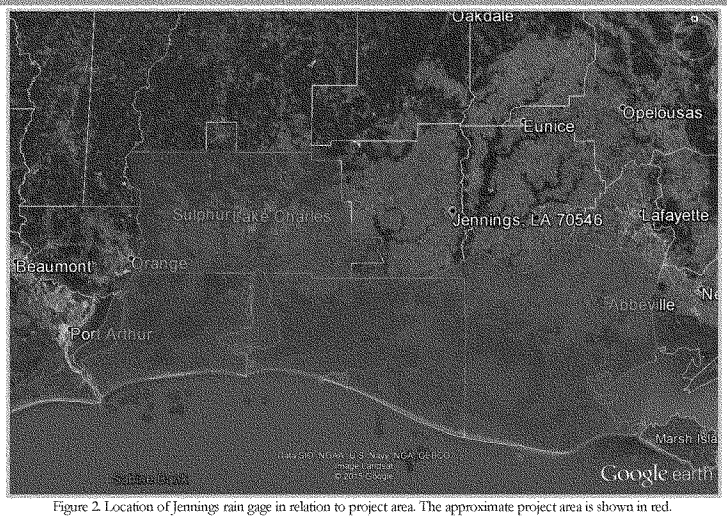


Figure 2. Location of Jennings rain gage in relation to project area. The approximate project area is shown in red.

Because the plan formulation assessed surge in conjunction with the 1% annual chance, 24-hour rainfall, the hourly rain data were summed to daily totals, from which the annual maxima were then extracted. These maxima were then assessed for trends using the trend line tool in Tableau (see Figure 3). The detected trend line had a slight negative slope, but with a p-value of 0.68 the trend is far from significant.

Annual maximum 24-hour rainfall was also assessed for change points using a series of statistical tests in the Tableau and R software packages. The specific tests used were the Pettit test, the Kolmogorov-Smirnoff test (using the CPM package in R), the Barry and Hartigan partitioning model approach to Bayesian change point analysis (using the BCP package in R), and the energy statistic of Székely and Rizzo[1] (using the ECP package in R). As shown in Figure 3, none of these methods detected any change points in the annual maximum 24-hour rainfall data with the exception of the Pettit test. That test detected a difference in means before and after the year 1998, though with a p-value of 0.29 the finding is not statistically significant. The annual maximum 24-hour rainfall in this dataset averages 4.57 inches before 1998 and 2.95 inches after. Therefore, it appears **there is little evidence for a change in rainfall** at this location, though there is some indication that rainfall in this area may have become less intense over time. As a result, the assumption of stationarity of rainfall intensity used in plan formulation appears to be defensible.

[1] Szekely, Gabor J., and Maria L. Rizzo. "Hierarchical clustering via joint between-within distances: Extending Ward's minimum variance method." *Journal of classification* 22.2 (2005): 151-183.

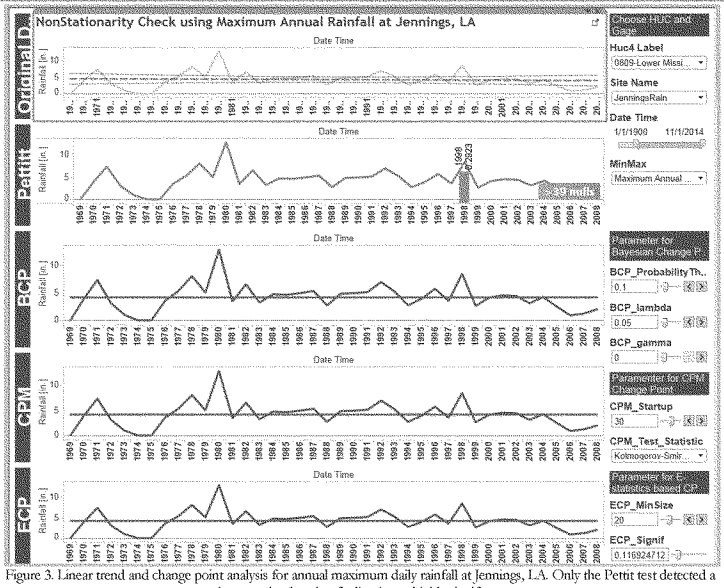


Figure 3. Linear trend and change point analysis for annual maximum daily rainfall at Jennings, LA. Only the Pettit test detected a change point, but that finding is not highly significant.

In addition to past stationarity, it is important to consider potential future changes to rainfall intensity in this area. According to the 2014 National Climate Assessment, precipitation in the southeastern United States may be expected to decrease slightly in a warmer climate, though intense rainfall events may increase in frequency. In other words, mean rainfall may decrease while variance increases. However, projections of future precipitation change are especially uncertain in this region because it is located in a transition zone between projected drier conditions to the south and projected wetter conditions to the north[2]. In light of these uncertainties, **the assumption that future precipitation will be roughly similar to past precipitation appears to be justified**.

Plan Performance

Even if the selected plan is the best of the available options, in order to be compliant with policy it must also perform well into the future either through a robust design or adaptive capacity. If the project is adaptable, it must balance adaptation cost and against initial investment cost. By utilizing the multiple future scenarios approach, the robustness of the plan to potential climate change can be assessed in two main ways: the expected duration of project performance at the desired level, and the level of project performance at a given point in the future. In addition, the potential adaptation pathways (and the triggers, lead times, and expected dates for these adaptations) help inform the adaptability of the plan.

[2] http://nca2014.globalchange.gov/report/regions/southeast

NED Plan Performance: Duration of Desired Performance

Of the two methods of assessing performance over time, the duration of performance at (or above) a desired level is the preferred approach. This "when, not if" approach recognizes that future climate change (particularly sea level change) is inevitable. Though the exact date of occurrence may be unknown, a scenario analysis can bracket when performance can be expected to fall below the desired level. For this project, the main criterion controlling project performance is a design total water level[3] that varies across the project area. This water level is caused by a combination of rainfall and storm surge that varies in space and also transitions from rainfall-controlled to surge controlled over time as the sea level rises. The project planning team optimized this design water level and the project participation criteria to maximize net economic benefits to the nation, resulting in a design that reduces the residual risk of flooding to a 1% chance annually in the year 2075 for all structures within the 4% annual probability floodplain in 2025, both based on the intermediate sea level rise scenario. Basing the inclusion criteria on the future sea level in the year 2025 rather than on present conditions provides an additional level of robustness in anticipation of the federal flood risk management standard established in executive order 13690 ("The Federal Flood Risk Management Standard"), using Engineering and Construction Bulletin 2013-33 ("Application of Flood Risk Reduction Standard for Sandy Rebuilding Projects") as a guide.

At any point in time, a project's performance can be said to equal the probability of a water level that meets or exceeds the design water level. For any higher water level (lower probability), the project would be considered non-performing. For example, if the design water level corresponds to a 0.5% annual chance (i.e. 200-year) water level, the project can be said to be performing at the 0.5% chance level (and the 1%, and any higher frequency) but not at the 0.2% level or any lower frequency. Selecting a given performance level of interest allows us to bracket the duration of performance at that level under the "when, not if" approach. In this example we will use the 1% annual chance level of performance. Following the example used in the Climate Performance and Resilience Register for the Stamford Hurricane Barrier (O'Brien et al., in preparation), the principle of linear superposition is used to simplify the computations for future total water levels. This simplifying assumption presupposes that as mean sea level changes, the magnitudes of all other components remain unchanged, so the total water level changes by the same amount as the mean sea level. This is not true in reality, as surges and waves can be either amplified by deeper water or reduced as the obstructions that push them upward become submerged. However, these nonlinear interactions are frequently too complex to be modeled with confidence, so the linear superposition principle is considered defensible within the range of uncertainty surrounding hydrodynamic modeling in a future climate.

NED plan formulation was based on the Intermediate sea level rise curve (NRC Curve I) using a historical rate of 4.18 mm/yr (note that this has been updated to 5.2 mm/yr in the most recent version of the project reports, but this was still the value used in formulation). This results in a relative sea level rise of 1.2 feet in 2075 as compared to 2025 (the project start date). This 1.2 foot relative sea level rise occurs in the year 2051 under the high scenario, and the year 2111 under the low sea level rise scenario. Under the principle of linear superposition used here, the mean sea level is the only component of total water level that will change over time and affect project performance. Therefore, this project can be expected to perform until sometime between the years 2051-2111, a 60 year range centered on the year 2081. While no sea level scenario can be considered more likely than any other, the project does perform slightly longer on average (2081) when all sea level scenarios are considered than it does under the single scenario used for plan formulation (2075). This amount of robustness to future sea level change will provide a certain amount of buffer to allow for future adaptations when they become necessary.

[3] A total water level is the peak water level in a storm event, including the effects of mean sea level, seasonal sea level variation, astronomical tide, rainfall, storm surge (i.e. pressure deficit effect and large-scale wave setup), and local wave setup and runup.

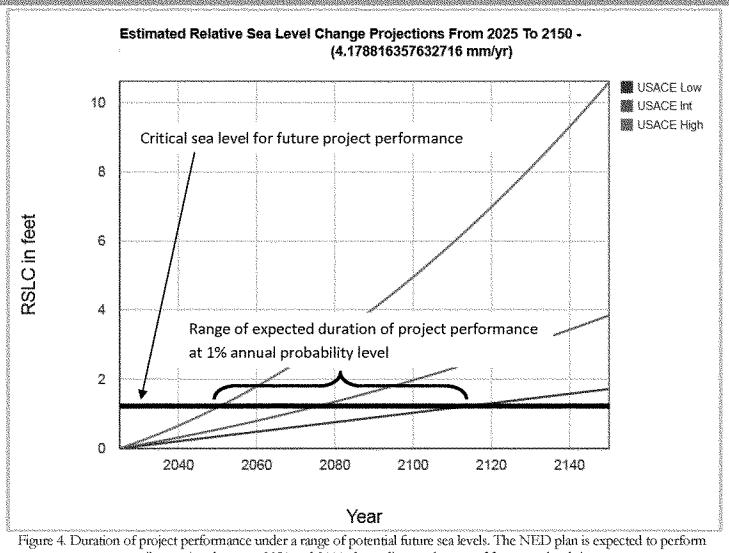


Figure 4. Duration of project performance under a range of potential future sea levels. The NED plan is expected to perform until sometime between 2051 and 2111, depending on the rate of future sea level rise.

While actual design water levels vary across the project area, the duration of performance is the same in every storage area: the project performs at the 1% annual probability level until relative sea level rise reaches 1.2 feet. The following plot illustrates this concept for a single storage area, SA-048.

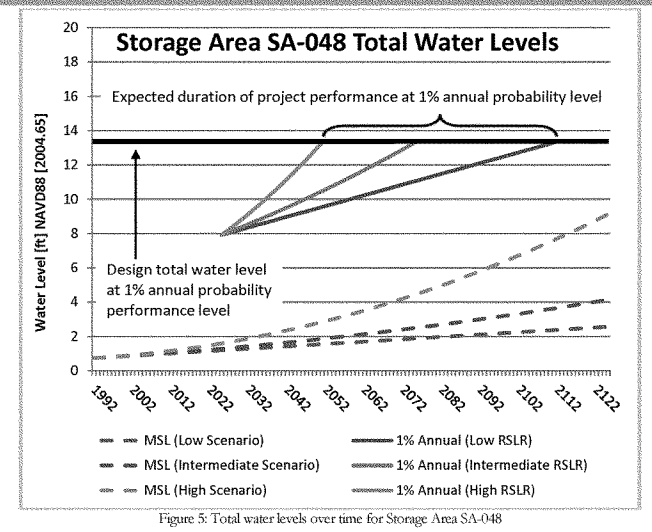


Figure 5: Total water levels over time for Storage Area SA-048

As Figure 5 confirms, the project can be expected to perform at the 1% annual probability level until sometime between the years 2051 and 2111, depending on the rate of future relative sea level rise.

NED Plan Performance: Level of Future Performance

The other way to assess future project performance is in terms of the level of performance delivered at a particular time in the future. In contrast to "when, not if," this approach could be called "if, how much?" It is particularly informative to investigate plan performance 100 years after construction, when future sea level scenarios are highly differentiated.

The Southwest Coastal project has a very large project area, with approximately 4,568 square miles divided into 182 hydraulic reaches. To represent the effects of sea level on total water levels in the year 2125, thirteen sample reaches were chosen for further investigation. While these thirteen reaches contain approximately 4,500 of the approximately 52,000 structures in the project area, they contain a large fraction of the 3,961 structures that will be included in the nonstructural project. For each of the thirteen sample reaches, an annual stage-frequency curve was projected for each of the three sea level rise scenarios. This again required the simplifying assumption of linear superposition of total water level components. While this assumption is not technically justified in this case due to flood stages being a combination of rainfall and storm surge, it is a necessary concession given the limited scope of this report and the resources of SMART Planning. Figures 6-8 show how project performance evolves over time for storage area SA-048, depending on the rate of future sea level rise.

Year	Storage Area SA-048 Total Water Levels [NAVD88 2004.65] (Low RSLR)						
2025	5.43	6.28	7.23	7.50	7.92	8.12	8.60
2030	5.45	6.30	7.31	7.70	8.23	8.48	9.03

2035	5.46	6.33	7.39	7.90	8.55	8.84	9.46
2040	5.48	6.35	7.46	8.10	8.86	9.21	9.89
2045	5.50	6.37	7.54	8.30	9.17	9.57	10.32
2050	5.52	6.40	7.62	8.50	9.48	9.93	10.75
2055	5.53	6.42	7.70	8.70	9.80	10.29	11.18
2060	5.55	6.44	7.78	8.90	10.11	10.66	11.61
2065	5.57	6.47	7.85	9.10	10.42	11.02	12.04
2070	5.59	6.49	7.93	9.30	10.74	11.38	12.47
2075	5.60	6.51	8.01	9.50	11.05	11.74	12.90
2080	5.62	6.54	8.09	9.70	11.36	12.10	13.33
2085	5.64	6.56	8.16	9.90	11.67	12.47	13.76
2090	5.66	6.58	8.24	10.10	11.99	12.83	14.19
2095	5.67	6.61	8.32	10.30	12.30	13.19	14.62
2100	5.69	6.63	8.40	10.50	12.61	13.55	15.05
2105	5.71	6.65	8.48	10.70	12.92	13.92	15.48
2110	5.73	6.68	8.55	10.90	13.24	14.28	15.91
2115	5.78	6.73	8.62	10.99	13.35	14.40	16.05
2120	5.85	6.80	8.69	11.06	13.42	14.47	16.12
2125	5.92	6.87	8.76	11.13	13.49	14.54	16.19
	20%	**10%**	**4%**	**2%**	**1%**	**0.50%**	**0.20%**
	Performance Level [ACE at Design Total Water Level]						

Figure 6: Performance-time table for storage area SA-048 under the low relative sea level rise scenario. Shaded cells indicate non-performance at that combination of time and performance level.

Year	Storage Area SA-048 Total Water Levels [NAVD88 2004.65] (Int. RSLR)						
2025	5.43	6.28	7.23	7.50	7.92	8.12	8.60
2030	5.46	6.31	7.34	7.79	8.37	8.64	9.22
2035	5.48	6.35	7.46	8.09	8.84	9.18	9.86
2040	5.51	6.38	7.58	8.40	9.32	9.75	10.53
2045	5.54	6.42	7.71	8.72	9.83	10.34	11.23
2050	5.57	6.46	7.84	9.06	10.36	10.95	11.96
2055	5.60	6.50	7.97	9.41	10.91	11.58	12.71
2060	5.63	6.54	8.12	9.77	11.48	12.24	13.49
2065	5.66	6.59	8.26	10.15	12.06	12.92	14.30
2070	5.70	6.63	8.41	10.54	12.67	13.62	15.14
2075	5.73	6.68	8.57	10.94	13.30	14.35	16.00
2080	5.87	6.82	8.71	11.08	13.44	14.49	16.14
2085	6.02	6.97	8.86	11.23	13.59	14.64	16.29
2090	6.18	7.13	9.02	11.39	13.75	14.80	16.45
2095	6.33	7.28	9.17	11.54	13.90	14.95	16.60
2100	6.50	7.45	9.34	11.71	14.07	15.12	16.77
2105	6.66	7.61	9.50	11.87	14.23	15.28	16.93
2110	6.84	7.79	9.68	12.05	14.41	15.46	17.11
2115	7.01	7.96	9.85	12.22	14.58	15.63	17.28
2120	7.19	8.14	10.03	12.40	14.76	15.81	17.46
2125	7.38	8.33	10.22	12.59	14.95	16.00	17.65
	20%	**10%**	**4%**	**2%**	**1%**	**0.50%**	**0.20%**
	Performance Level [ACE at Design Total Water Level]						

Figure 7: Performance-time table for storage area SA-048 under the intermediate relative sea level rise scenario. Shaded cells indicate non-performance at that combination of time and performance level.

Year	Storage Area SA-048 Total Water Levels [NAVD88 2004.65] (High RSLR)						
2025	5.43	6.28	7.23	7.50	7.92	8.12	8.60
2030	5.48	6.34	7.45	8.05	8.79	9.12	9.79
2035	5.53	6.41	7.68	8.66	9.73	10.22	11.09
2040	5.59	6.49	7.94	9.32	10.76	11.41	12.51
2045	5.65	6.57	8.21	10.02	11.87	12.69	14.03
2050	5.72	6.66	8.51	10.78	13.05	14.06	15.66
2055	5.97	6.92	8.81	11.18	13.54	14.59	16.24
2060	6.28	7.23	9.12	11.49	13.85	14.90	16.55
2065	6.61	7.56	9.45	11.82	14.18	15.23	16.88
2070	6.96	7.91	9.80	12.17	14.53	15.58	17.23
2075	7.32	8.27	10.16	12.53	14.89	15.94	17.59
2080	7.71	8.66	10.55	12.92	15.28	16.33	17.98
2085	8.11	9.06	10.95	13.32	15.68	16.73	18.38
2090	8.53	9.48	11.37	13.74	16.10	17.15	18.80
2095	8.98	9.93	11.82	14.19	16.55	17.60	19.25
2100	9.44	10.39	12.28	14.65	17.01	18.06	19.71
2105	9.91	10.86	12.75	15.12	17.48	18.53	20.18
2110	10.41	11.36	13.25	15.62	17.98	19.03	20.68
2115	10.93	11.88	13.77	16.14	18.50	19.55	21.20
2120	11.46	12.41	14.30	16.67	19.03	20.08	21.73
2125	12.01	12.96	14.85	17.22	19.58	20.63	22.28
	20%	**10%**	**4%**	**2%**	**1%**	**0.50%**	**0.20%**
	Performance Level [ACE at Design Total Water Level]						

Figure 8: Performance-time table for storage area SA-048 under the high relative sea level rise scenario. Shaded cells indicate non-performance at that combination of time and performance level.

These tables show how flood risk can transition over time in this area. Depending on the rate of sea level rise, a total water level elevation with a 1% annual exceedance probability in 2025 will represent a more frequent event, between a 4% to 10% annual exceedance probability, by 2075 due to relative sea level change. These projections assume that the stage-frequency curve gradually changes shape over the 50 years between 2025 and 2075 in accordance with the acceleration factors corresponding to each sea level rise scenario, then continues to project into the future at the same rate as the rise of mean sea level under that scenario. These evolving performance levels will be important as future decision-makers decide how best to balance further investment against appropriate levels of risk.

Of the thirteen sample reaches investigated, only one (SA-034) would require a structure located on its average elevation to be relocated rather than elevated, under the 1% 2075 flood assuming an intermediate rate of sea level. In practice, the need to relocate structures will depend on their actual elevations and locations within each storage area. Likewise, future project performance will vary across storage areas depending on ground elevation and proximity to the coast.

NED Plan Adaptability

In addition to robustness, plans can be assessed for their adaptability to climate change. By balancing initial investment and adaptation, projects can perform cost-effectively well into the future. As a nonstructural project, adaptation for this plan is somewhat different than for a structural project. A structural project such as a levee or rock structure includes a planned maintenance period with a schedule for future lifts to compensate for subsidence and sea level rise. A non-structural plan does not include such provisions for additional future raises

due to the particularities of measures that are applied to individual properties and incrementally justified on a per-structure basis. For example, any additional lifts applied to properties in the future as an adaptation to sea level would first have to be applied to those structures that were not raised initially, since these would now be the most justified. As a result these additional lifts would take on the effect of a new project affecting new structures rather than an adaptation for those properties where the investment was made previously.

Instead of a gradual modification of the project over time as with a structural project, adaptations for non-structural projects like this one occur during implementation. This project will be implemented incrementally over time as funding is appropriated. This allows the project to monitor sea level and adapt implementation accordingly by re-programming funds to focus on areas and structures where elevation is needed and the investment will be lasting. Adaptive implementation can also be used to shift strategies from raises to relocations if indicated by sea level change (though no relocations are recommended in the NED RP. These future investments will be made in consideration of future sea level and compared to structure elevations in the latest geodetic datum issued by NGS. In fact, by the time project implementation begins in 2025, a new geodetic datum (GRAV-D) will be issued to replace NAVD88 (by 2022) and a new sea level will be published corresponding to the end of the present National Tidal Datum Epoch (ending in 2019). Both of these new datums will be critical to guiding project implementation.

Project implementation will also be adapted in consideration of community cohesion and the viability of supporting infrastructure such as roads, water supply lines, wastewater treatment and ecosystem services. Even though a non-structural measure may be technically achievable, it will not be successful if this supporting infrastructure cannot make the area safe and accessible for residents. Furthermore, investments will not be lasting if the surrounding community is not sufficiently intact. Careful consideration of these factors, and how they are changing with the sea level, will be made as the project is implemented over time.

In addition to having an adaptable implementation plan, non-structural projects such as this one offer the additional advantage of not failing catastrophically in the event they are overwhelmed. Unlike a structural solution such as a levee or wall, the nonstructural solution will not suddenly collapse when the loading water level exceeds the project performance level. Even when the project non-performs, it will return to performance when the water recedes again. This is an especially valuable feature when future loading is uncertain due to future sea level rise.

Part 2: NER Plan

Plan Selection

Initial data collection for the NER plan resulted in over 200 features, which were screened and organized into a focused array of 27 plans. These were evaluated using the Wetland Value Assessment (WVA) model and compared against cost in a Pareto optimization. Twelve plans were identified as cost-effective, with eight being best-buy (Pareto optimal) plans. Ultimately, plan CM-4 was chosen as the RP on the basis of being the cost-effective plan with the lowest cost among comprehensive plans (plans where features are distributed across the study area's hydrologic basins). Plan CM-4 includes 49 features, of which nine are marsh restoration through dredged material placement (either beneficial use of navigation dredging or dedicated dredging), five are shoreline protection features (rock dikes), and 35 are chenier reforestation (vegetative plantings and invasive species control). Two hydrologic/salinity control features are also recommended for long-term study (Calcasieu Ship Channel Salinity Control Structure and Cameron-Creole Spillway).

As with the NED plan, the NER plan was formulated using only the intermediate sea level rise scenario. It is therefore necessary to ask whether another plan might have been chosen, had all three scenarios been considered. This is a difficult question to answer due to the inherent uncertainty around the performance of ecosystem restoration projects, which may be larger than uncertainties connected to future sea level. In addition, lack of knowledge around the importance of nonlinear interactions between water level, salinity, and temperature (all influenced by sea level) on marsh health complicates comparisons of plan performance across sea level scenarios. **Nevertheless, it appears unlikely that consideration of all scenarios would have**

resulted in a different plan being chosen. Any of the Pareto-optimal plans could be considered "best;" the choice of plan CM-4 was based on its comprehensiveness and relatively low cost, factors not influenced by sea level change. If a future sea level higher than envisioned in the intermediate scenario had been used in formulation, both project costs and benefits would be correspondingly increased (with the opposite effect occurring in the case of a lower sea level). For another plan to be chosen over plan CM-4, the performance of these plans would have to be differently sensitive to sea level such that costs and benefits would not be changed equally across plans. This appears unlikely as the considered plans were all various formulations of the same features.

One environmental feature that would perform differently under various sea level scenarios is the Calcasieu Ship Channel Salinity Barrier, a movable, navigable barrier that would reduce salinity intrusion into the Calcasieu-Sabine Basin while opening to allow ship traffic to enter and exit the ship channel. The complex engineering considerations, and potential environmental and navigational impacts of this barrier could not be studied adequately within the scope of this SMART planning study Therefore it is recommended for inclusion in the RP as a separate study. An additional feature in the RP, the Cameron-Creole Spillway Structure is also recommended for additional study. Like the Salinity Barrier, it will be highly susceptible to the effects of sea-level change.

Unlike the NED plan, the NER plan is not impacted by altered rainfall patterns, so there is no need to assess the plan's preparedness and resilience to changes in rainfall.

Plan Performance

Under the same assumptions around linear superposition of total water level components that were used in the NED analysis above, the NER plan can be expected to perform for the same duration that the NED plan will provide performance at the 1% annual probability level. Therefore, Figure 4 can be used again to describe future NER plan performance. As long as sea level is the only component of total water level that changes in the future, the NER plan will perform as designed until mean sea level rises 1.2 feet above 2025 sea level, which can be expected to occur sometime between the years 2051 and 2111.

In contrast to the adaptable implementation of the NED plan, **the NER plan provides the opportunity to modify the project over time to adapt to future sea level change**. The marsh restoration (dredged material placement) and shoreline protection (rock/rip-rap structures) features include a schedule for additional future lifts of material to compensate for subsidence and settlement. If future sea level rise is faster or slower than that envisioned in the intermediate scenario, then this schedule can simply be accelerated or decelerated as necessary. The vast majority (35/49) of features in plan CM-4 are chenier restoration features consisting of planting seedlings, protecting these seedlings from herbivores through the use of exclosures, and invasive species control. While these low-cost features are not highly adaptable to changes in sea level, their performance does not exert a strong influence on the overall cost-effectiveness of the RP. In keeping with the "when, not if" approach to sea-level adaptation, the chenier restoration features help these unique coastal environments perform for as long as possible, though their ultimate longevity in the face of rising seas is unknown.

PARISH PRIORITY ECOSYSTEM RESTORATION PROJECTS

Though not an endorsement of any project under this study effort, Parish Priority Projects that would be provided by the Parishes to the State for consideration as deemed necessary by the Coastal Master Plan for Louisiana are included in this Appendix only as a reference for future planning under other study authorities.

CALCASIEU PARISH PRIORITY ECOSYSTEM RESTORATION PROJECTS

Calcasieu Parish's priority project is the Rabbit Island Project and then the entire Cameron Parish Project list at this time. Calcasieu Parish believes that protecting Cameron Parish will protect Calcasieu Parish. Calcasieu Parish anticipates updating their coastal plan which will include a priority projects list. Those projects will be viable projects for consideration of funding for protecting Lake Charles to the 500-year level of protection as deemed necessary by the Coastal Master Plan for Louisiana (anticipated to be updated in 2017).

Rabbit Island Restoration Project

Purpose

The purpose is to provide improved habitat for nesting birds on this important established rookery. Rabbit Island is the westernmost nesting ground in Louisiana for brown pelicans. The island has historically been a rookery for a large number of pelicans and colonial birds.

Funding and Participants

The project is funded by the Coastal Impact and Assistance Program (CIAP), part of the Energy Act of 2005. Environmental, engineering and design, and construction of the project will be completed in 2014. Participants include:

- Louisiana Department of Natural Resources, Office of Coastal Protection
- Calcasieu Parish Police Jury
- Cameron Parish Police Jury
- Louisiana Department of Wildlife and Fisheries (LDWF)
- US Army Corps of Engineers, New Orleans District (USACE)
- Port of Lake Charles
- Port of Cameron

Rabbit Island Description

Rabbit Island is centrally located along the Chenier Plain in Calcasieu Lake between Grand and Sabine Lakes. Specifically, it is situated in the southwest portion of Calcasieu Lake, in West Cove, approximately 1 mile from the southern shore of the lake. Calcasieu River, the tidal pass that historically was the natural drainage for the lake, and the Calcasieu Ship Channel are located approximately 2 miles to the southeast of Rabbit Island.

The island is approximately 220 acres in size. Much of the island at or below sea level, with its highest point reaching approximately 2 feet above sea level.

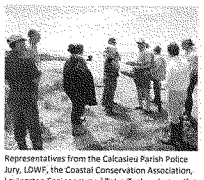
Tidal channels, and open ponds dissect the interior portion of Rabbit Island and fully cover approximately ½ of the island. There is only 1 main channel located in the southeast quarter of the island that feeds the 3 interior ponds, 2 of which are north and 1 south of the main channel. At its mouth the channel is approximately 2 feet deep but in the interior portions of the island the channel narrows and deepens to approximately 4 feet deep. The 2 ponds north of the main channel are approximately 1 ½ feet deep. The eastern pond on the north side has only a narrow rim, approximately 20 feet wide protecting the pond from the open waters of West Cove. The pond on the south side of the main channel is less well defined and shallower than the northern ponds. The edges of the south pond are formed by broken, deteriorating marsh.

Rabbit Island Restoration

In 2003 it was observed that there were 8 nests of pelicans on Rabbit Island that resulted in 5 young birds. In 2010, 500 nests produced over 1,000 young. Over 100 rehabilitated pelicans impacted by the Deepwater Horizon Incident have been relocated to Rabbit Island. Daily morning monitoring of the status of these rehabilitated birds indicate that 1,000 to 3,000 pelicans are using the island for refuge. Thousands of shoreline and colonial birds also benefit from the refuge and habitat provided by Rabbit Island.

During recent times, it has been observed that nests on Rabbit Island frequently fail from flooding by tides and waves. Higher tidal amplitudes from larger volumes of water coming up the Calcasieu Ship Channel are a primary cause for the more frequent flooding on Rabbit Island. Part of the flooding is also due to larger wind-generated waves caused by increased fetch as more marsh is lost along the fringe of West Cove. The low elevation and lack of shrubbery on the island causes pelicans to nest on the ground and periodic high water drowns the nests, resulting in failed breeding attempts.

By using dredged spoil from the Calcasieu Ship Channel, elevations on the island can be raised and the topography can be sculpted to enhance the nesting areas and build a world class rookery for colonial birds and the brown pelican. Restoration of the island adds an important dimension to the resources of the Calcasieu Lake, helps



Representatives from the Calcasieu Parish Police Jury, LDWF, the Coastal Conservation Association, Levingston Engineers, and Tetra Tech arrive on the north shore of Rabbit Island for a site reconnaissance. David Richard of Streami Properties, originator of the Rabbit Island Restoration project, provides information to the team.

Top: Rehabilitated pelicans impacted by the oil spill from the Horizon Deepwater Incident are released at Rabbit Island by LDWF representatives. **Bottom:** An estimated 1,500 pelicans are currently using the island for refuge right now.

2005 aerial photograph of Rabbit Island Note in 2005 photograph the extent of interior ponds; the ponds are fed by a shallow channel approximately 100 feet wide; the channel mouth is located on the southeastern quarter of the island.

broaden the range of nesting areas for the brown pelican, and is an excellent example of the beneficial use of dredged material. With many barrier island nesting grounds under attack due to coastal erosion and environmental impacts, the Rabbit Island rookery will be even more important. Distant from human disturbance and potential predators, the island will provide a quiet respite for the once-endangered birds.

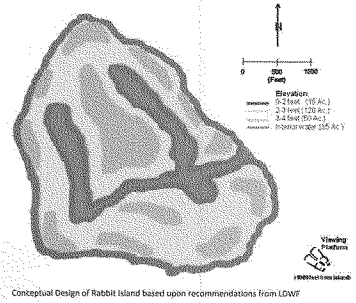
Rabbit Island Restoration will be based upon the guidance provided by Visser (2005) and in consultation with LDWF. Features will include: nearness to open water; separation from the mainland; approximately 20% of nesting area with dune/shrub habitat; and a wide beach for loafing habitat. Additionally it is proposed that a viewing platform located a minimum of 1000 feet from the island be constructed to provide viewing access of the rookery without disturbing the nesting colonies.

The topography of the island will be elevated and contoured to include those features critical to successful nesting of pelican and colonial birds. This habitat will add an important dimension to the resources of the lake, and will help to broaden the range of nesting areas for the brown pelican. When the restoration is complete, Rabbit Island will be not only the western-most rookery but also the premier rookery for the brown pelican in the state of Louisiana, adding significant habitat for the pelican and other colonial birds and helping to preserve these valuable resources.

Currently, environmental and survey work are being performed. A topographic survey of the island will determine the quantity of fill required to restore the island for ideal nesting conditions. A side-scan-sonar survey between the island and the Calcasieu Ship Channel will be performed to determine the best route for a dredge pipeline and small barge access to minimize impact oyster reefs and seed grounds which are bountiful in West Cove.

It is estimated that between 1 to 1 ½ million cubic yards of material will be required to elevate the topography of Rabbit Island to the conceptual design's specification. The engineering design and a bid package for construction will be completed and delivered to the USACE by September 2011. Rabbit Island restoration is an excellent example of the positive impact of beneficial use of dredged material.

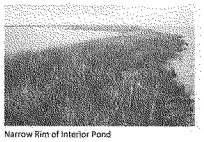
Total estimated costs for Rabbit Island restoration are approximately $6 to $7 million. Currently, the CIAP funds have $2 million dedicated to the project. Considering the importance of this rookery in preserving a diversity of habitat for pelicans and migratory colonial birds in Louisiana, the disappearance of rookeries due to land loss particularly in southeast Louisiana, impacts to rookeries from natural disasters such as hurricanes and manmade disasters such as the Horizon Deepwater Incident, and for other reasons to build and preserve our natural resources in Louisiana, it is critical that additional funds be obtained to complete the Rabbit Island Restoration project.



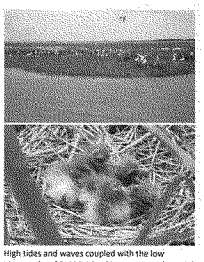
Conceptual Design of Rabbit Island based upon recommendations from LDWF

Interior Channel

Interior Pond



Narrow Rim of Interior Pond



High tides and waves coupled with the low topography of Rabbit Island is a constant threat to the rookery. Increasing the elevation and incorporating features that are known to enhance successful hatchings will help diversify the habitat available to the shoreline birds and brown pelicans.

CAMERON PARISH PRIORITY ECOSYSTEM RESTORATION PROJECTS

CAMERON PARISH POLICE JURY

Cameron Parish Master Plan

Coastal Restoration & Protection Project Development

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Cameron Parish is the Louisiana Parish with the most land area. The parish has a total area of 1,932 square miles, of which, 1,313 square miles of it is land and 619 square miles of it is water. The Cameron Parish Police Jury has realized the undeniable connection between its citizenry and the land on which those individuals work, play, worship, and live. In that vein, the Police Jury has compiled this submission to assist in the further protection and restoration of this area's marshes, cheniers, and bayous.

Through the merits of this proposal, the Cameron Parish Police Jury is intending to identify, develop, and implement coastal restoration and protection processes and projects for Cameron Parish. With the assistance of the Parish's Coastal Restoration Committee (CRC), Cameron Parish has positioned itself to become proactive in the battle against the degradation and eventual loss of the Parish's once thriving wetland habitat, marshes, and cheniers. This Committee has a diverse collection of individuals that provided a holistic purview of the interests and concerns of the many stakeholders in the future of Cameron Parish. This Committee is made up of Parish local elected officials, State elected officials, gravity drainage district members, landowners, State & Federal agencies, engineers, and wetland scientists.

Scientific data and historical trends have been discussed at length by local residents, elected officials, and State & Federal agencies. In this proposal, the CRC attempts to enumerate specific goals in which the main facet will be the development and implementation of a common-sense approach to the realization and eventual construction of these coastal restoration and protection measures for Cameron Parish.

The project area for this Comprehensive Plan is the entirety of Cameron Parish. The value of this proposal as it pertains to the well-being of the variety of ecological and physical land areas of this Parish cannot be understated.

Louisiana's Comprehensive Master Plan for a Sustainable Coast (effective May 2012) included projects located in Cameron Parish. Generally speaking, the overwhelming types of construction project for the Parish are hydrologic restoration and marsh creation. According to the Master Plan, of the thirty-five (35) projects listed with seven (7) different project types under the 1st Implementation Period (2012-2032), nineteen (19) were either hydrologic restoration or marsh creation projects (54%). The breakdown of other project types for the Parish is as follows: Bank Stabilization (5), Ridge Restoration (4), and Shoreline Protection (6).

As a result of the project development efforts of the drainage boards, landowners, and Parish engineer, the following types of projects were proposed for inclusion in the plan:

- Beneficial Use/Marsh Creation (17)
- Canal Maintenance (75)
- Hydrologic Restoration (150)

- Oyster Reef Preservation (2)
- Shoreline Protection/Embankment Maintenance (9)

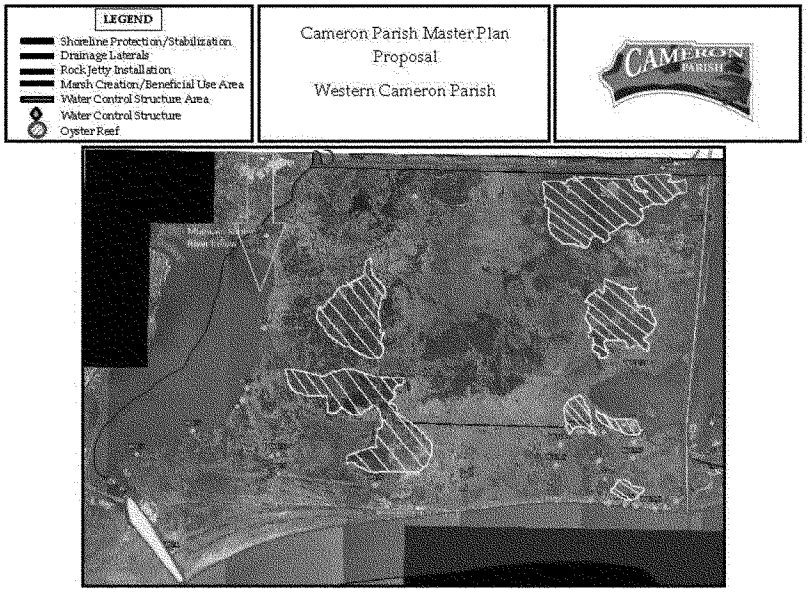
The dominant feature of the proposed projects is hydrologic restoration based projects which constitute 59% of all projects listed, followed by: canal maintenance projects at 30%, beneficial use/marsh creation projects at 7%, shoreline/embankment maintenance projects at 4%, and oyster reef preservation projects at 1%.

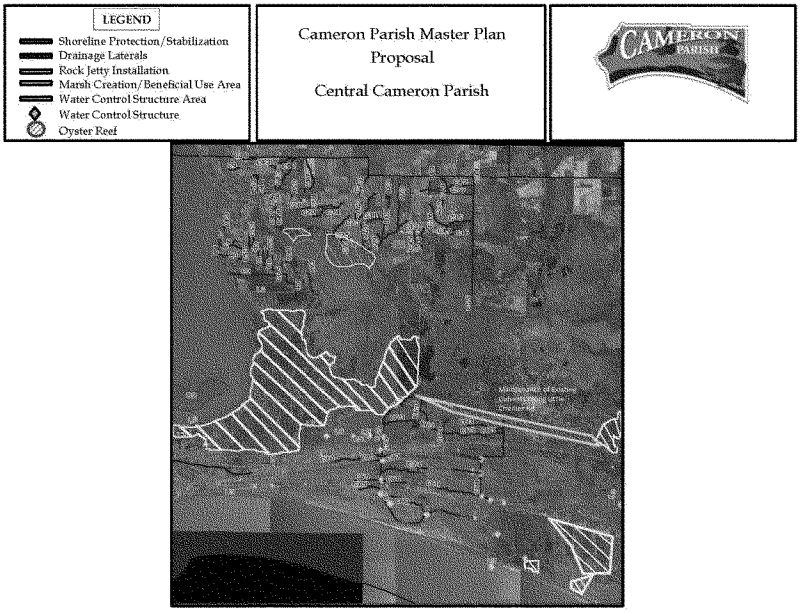
As with the previous list of projects, the projects proposed by the sub-committee have a varying current status from the conceptual stage to some projects that have been constructed but now need repair and maintenance on either a water control structure or existing drainage laterals. One nuance to the list developed by the sub-committee that clearly expounded the previous list was the new classification of "canal maintenance". Canal maintenance will include dredging existing canals, improvements to damaged spoil banks, and removal of all debris and foreign matter from the canals. This will allow for increased control of efficiently managing water levels in the Parish's marshes.

The 2012 State Master Plan omitted several viable projects for a variety of reasons. At a minimum, those projects should be included in the Master Plan, even if only noted in an appendix. If not, potential projects and planning efforts for coastal restoration initiatives in Cameron Parish could be discarded from consideration for future funding sources.

The Coastal Restoration Committee felt that the more feasible solution would be for the Parish to submit its projects as one, comprehensive effort. The modeling efforts referenced in several meetings since the inception of the 2012 State Master Plan was stated to be the technical justification for the approval or dismissal of projects. It is our intent through this proposal to have our projects looked at in a holistic way to determine the impacts of each facet of the project on the Parish. The Parish does not have the capacity or expertise to analyze the data to determine those ideal project types/areas that would be sufficient to the CPRA's standards. Therefore, it is our hope that the results of the modeling efforts will be provided to the Parish for comment prior to the finalization of the 2017 State Master Plan in order for the Parish to develop a more thorough path forward in implementing Coastal Restoration & Protection projects in Cameron Parish.

	HYDROLOGIC RESTORATION						MARSH CREATION	
1	LIGHT HOUSE BAYOU STRUCTURE	65	GDM-29	129	GDS-19	13	GDDB LATERAL 6	
2	SABINE PASS CONSTRICTION STRUCTURE	66	GDM-30	130	GDS-20	12	GDDB LATERAL 8	
3	JOHNSON'S BAYOU SALINITY CONTROL STRUCTURE	67	GDM-31	131	GDS-21	13	GDDB LATERAL 8A	
4	DEEP BAYOU SALINITY CONTROL STRUCTURE	68	GDMB-2	132	GDS-22	14	GDDB LATERAL 9	
5	SHALLOW PRONG STRUCTURE MAINTENANCE	69	GDM-32	133	GDS-23	15	GDDB LATERAL 9A	
6	DRAINAGE DIST. 7 STRUCTURE MAINTENANCE ALONG HAMILTON LAKE	70	GDM-33	134	GDS-24	16	GDDB LATERAL 10	
7	SABINE LAKE HYDROLOGICAL RESTORATION	71	GDM-34	135	GDS-25	17	GDDB LATERAL 11	
8	BIGHT PRONG STRUCTURE	72	GDM-35	136	GDS-26	18	GDDB LATERAL 12	
9	BLACK BAYOU STRUCTURE	73	GDM-37 & 38	137	GDS-27	19	GDDB LATERAL 12A	
10	CS-22, 24, 27 HYDROLOGIC RESTORATION	74	GDM-36	138	GDS-28	20	GDDB LATERAL 13	
11	SALT DITCH STRUCTURE	75	GDM-39	139	GDS-29	21	GDDB LATERAL 14	
12	BROWNS LAKE STRUCTURE	76	GDM-89	140	GDS-30	22	GDDB LATERAL 15	
13	WEST COVE STRUCTURE ON SWWR	77	GDM-41	141	GDS-31	23	GDDB LATERAL 16	
14	HIGHWAY 27 BACKFLOW STRUCTURE	78	GDM-42	142	GDS-32	24	GDDB LATERAL 17	
15	FIRST BAYOU STRUCTURE	79	GDM-43	143	GDS-33	25	GDDB LATERAL 17A	
16	DRAINAGE DIST. 7 STRUCTURE MAINTENANCE FROM HB 122 CAMERON	80	GDM-44	144	GDS-34	26	GDDB LATERAL 18	
17	NO NAME STRUCTURE MAINTENANCE	81	GDM-45	145	GDS-35	27	GDDB LATERAL 18A	
18	NO NAME BAYOU HYDROLOGIC RESTORATION WEIR	82	GDM-46	146	GDS-36	28	GDDB LATERAL 19	
19	LAMBERT SOUTH STRUCTURE HYDROLOGIC RESTORATION	83	GDM-47	147	GDS-37	29	GDDB LATERAL 19A	
20	LAMBERT STRUCTURE MAINTENANCE	84	GDM-48	148	GDS-38	30	GDDB LATERAL 19B	
21	LAMBERT NORTH STRUCTURE HYDROLOGIC RESTORATION	85	GDM-49	149	WATERMELON RIVER RESTRICTION STRUCTURE	31	GDDB LATERAL 19B1	
22	GRAND BAYOU SOUTH STRUCTURE HYDROLOGIC RESTORATION	86	GDM-50	150	HOG BAYOU SALINITY CONTROL STRUCTURE	32	GDDB LATERAL 19B2	
23	GRAND BAYOU STRUCTURE MAINTENANCE	87	GDMB-3		BENEFICIAL USE/BARRIER ISLAND RESTORATION	33	GDDB LATERAL 19C	
24	GRAND BAYOU NORTH STRUCTURE HYDROLOGIC RESTORATION	88	GDM-51	1	BENEFICIAL USE OF DREDGE MATERIAL FROM THE SABINE RIVER	34	GDDA LATERAL 20	
25	MANGROVE SOUTH STRUCTURE HYDROLOGIC RESTORATION	89	GDM-52	2	CS-66 BENEFICIAL USE IMPLEMENTATION	35	GDDB LATERAL 20B	
26	MANGROVE BAYOU STRUCTURE MAINTENANCE	90	GDM-53	3	DOUBLE ISLAND BENEFICIAL USE IMPLEMENTATION	36	GDDA LATERAL 20C	
27	MANGROVE NORTH STRUCTURE HYDROLOGIC RESTORATION	91	GDM-54	4	GREENS LAKE BENEFICIAL USE IMPLEMENTATION	37	GDDB LATERAL 20D	
28	PECORI SOUTH STRUCTURE HYDROLOGIC RESTORATION	92	GDM-55	5	BLACK LAKE BENEFICIAL USE IMPLEMENTATION AND TERRACING	38	GDDB LATERAL 20D1	
29	PECORI BAYOU STRUCTURE MAINTENANCE	93	GDM-56	6	BROWN LAKE BENEFICIAL USE IMPLEMENTATION	39	GDDB LATERAL 20D2	
30	GUILLOTINE GATE MAINTENANCE	94	GDM-57	7	WILD COW LAKE BENEFICIAL USE IMPLEMENTATION	40	GDDB LATERAL 20D3	
31	SWEET LAKE SOUTH IMPOUNDMENT STRUCTURES	95	GDM-58	8	BIVIO LAKE BENEFICIAL USE IMPLEMENTATION	41	GDDB LATERAL 20D3A	
32	CAMERON CREOLE WATERSHED BORROW CANAL PLUG	96	GDM-59	9	BENEFICIAL USE OF DREDGE MATERIAL FROM THE CALCASIEU RIVER	42	GDDB LATERAL 20E	
33	AMOCO DITCH STRUCTURE MAINTENANCE	97	GDM-60	10	McCALL MARSH CREATION	43	GDDB LATERAL 21	
34	CONWAY POINT DRAINAGE STRUCTURE MAINTENANCE	98	GDM 61 & 62	11	CAMERON PRAIRIE MARSH CREATION	44	GDDB LATERAL 22	
35	SOUTH HEBERT LANDING STRUCTURE MAINTENANCE	99	GDM-63	12	CAMERON CREOLE WATERSHED MARSH CREATION	45	GDDB LATERAL 23	
36	GDM-1	100	GDM-64	13	SOUTH GRAND CHENIER MARSH CREATION	46	GDDB LATERAL 24	
37	GDM-2	101	GDM-65	14	MILLER MARSH CREATION	47	GDDB LATERAL 26	
38	GDM-3	102	GDM-66	15	NORTH GRAND CHENIER MARSH CREATION	48	GDDB LATERAL 27	
39	GDM-4	103	GDM-67	16	ROCKEFELLER REFUGE 107 ACRE MARSH CREATION	49	GDDB LATERAL 28	
40	GDMB-1	104	GDM-68	17	SHALLOW LAKE MARSH CREATION	50	GDDB LATERAL 29	
41	GDM-5	105	GDM-69		OYSTER REEF PRESERVATION	51	GDDB LATERAL 30	
42	GDM-6	106	GDM-70	1	SABINE LAKE OYSTER REEF	52	GDDB LATERAL 31	
43	GDM-7	107	GDM-71	2	CALCASIEU LAKE OYSTER	53	GDDB LATERAL 32	
44	GDM-8	108	GDM-72		OTHER RELATED MEASURES	54	GDDB LATERAL 33	
45	GDM-9	109	GDM-73	1	SABINE LAKE BANK MAINTENANCE	55	NORTH CANAL	
46	GDM-10	110	GDM-74	2	SHIPLINE PROTECTION OF THE GIWW	56	COUTHOUSE PUMP LATERAL	
47	GDM-11	111	GDS-1	3	SAND ENHANCEMENT & ROCK BREAKWATERS	57	TW-1 WEST LATERAL	
48	GDM-12	112	GDS-2	4	BLACK LAKE LEVEE MAINTENANCE	58	HIGH ISLAND DRAINAGE LATERAL	
49	GDM-13	113	GDS-3	5	CAMERON CREOLE WATERSHED LEVEE MAINTENANCE	59	CREOLE CANAL	
50	GDM-14	114	GDS-4	6	SWEET LAKE IMPOUNDMENT MAINTENANCE	60	KINGS BAYOU	
51	GDM-15	115	GDS-5	7	NL CAMERON LEVEE EXTENSION	61	LITTLE CHENIER CANAL	
52	GDM-16	116	GDS-6	8	HIGH ISLAND RIDGE RESTORATION	62	LABOVE BAYOU	
53	GDM-17	117	GDS-7	9	GDDS SALINITY PROTECTION LEVEE SYSTEM	63	NORTH CREOLE DRAINAGE TRENACES	
54	GDM-18	118	GDS-8		GDDB SALINITY PROTECTION	64	OLD MERMENTAU RIVER DRAINAGE OUTLET	
55	GDM-19	119	GDS-9	1	SOUTH LINK CANAL MAINTENANCE	65	SWEET LAKE LATERAL A	
56	GDM-20	120	GDS-10	2	SWEET LAKE BORD DITCH	66	JOWEN LATERAL	
57	GDM-21	121	GDS-11	3	MCCORD SOUTH DITCH	67	SWEET LAKE LATERAL B	
58	GDM-22	122	GDS-12	4	S HEBERTS LANDING DITCH	68	GDDA CHANNEL B	
59	GDM-23	123	GDS-13	5	MCCORD NORTH DITCH	69	GDDA CHANNEL C	
60	GDM-24	124	GDS-14	6	GDDB LATERAL 1	70	GDDA CHANNEL D	
61	GDM-25	125	GDS-15	7	GDDB LATERAL 2	71	GDDA CHANNEL E	
62	GDM-26	126	GDS-16	8	GDDB LATERAL 3	72	GDDA CHANNEL F	
63	GDM-27	127	GDS-17	9	GDDB LATERAL 4	73	GDDA CHANNEL G	
64	GDM-28	128	GDS-18	10	GDDB LATERAL 5	74	SWWR BAYOU DITCH	
						75	NUNEZ STRUCTURE DITCH	


LEGEND
Shoreline Protection/Stabilization
Drainage Laterals
Rock Jetty Installation
Marsh Creation/Beneficial Use Area
Water Control Structure Area
Water Control Structure
Oyster Reef
Cameron Parish Master Plan
Proposal
Western Cameron Parish
CAMERON
PARISH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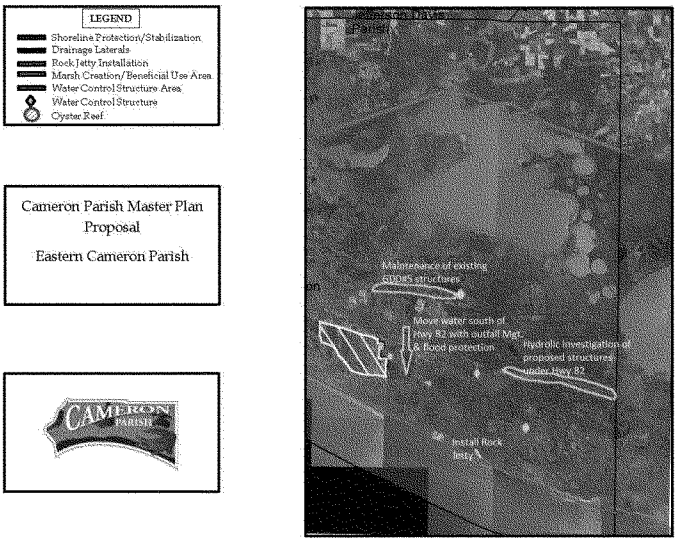
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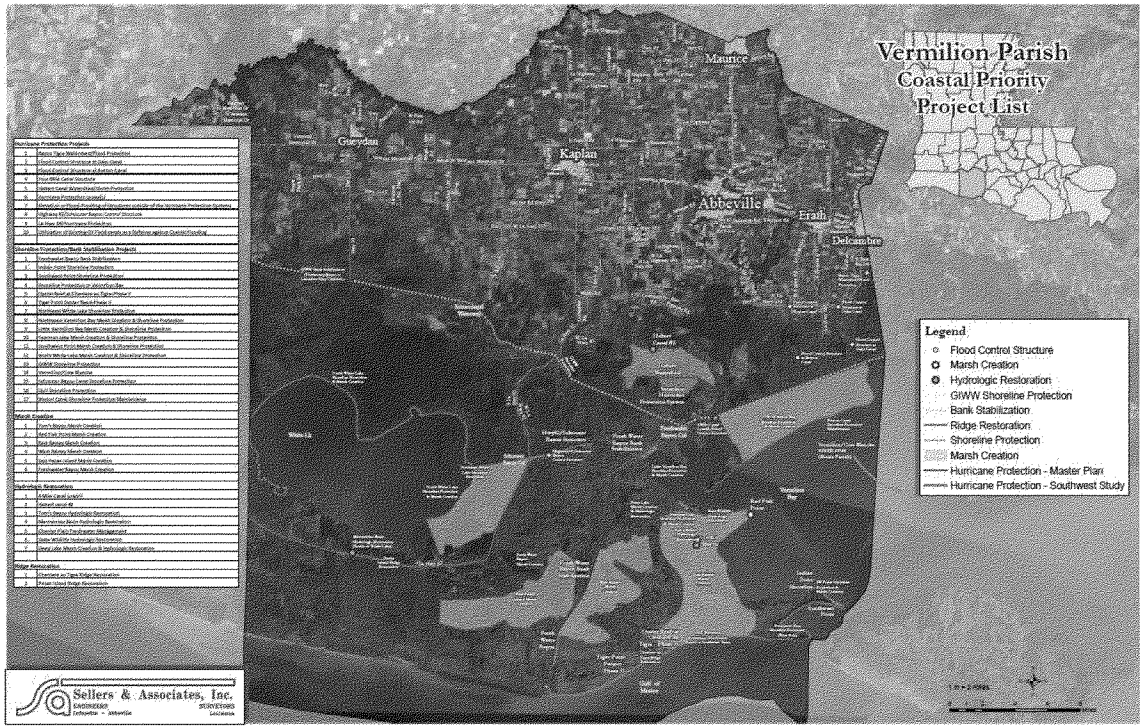
Eastern Cameron Parish
CAMERON PARISH
Maintenance of existing GIWW structures
Move water south of Hwy 82 with outfall Mgt. & flood protection
Hydrolic investigation of proposed structures under Hwy 82
Install Rock Jetty

VERMILION PARISH PRIORITY ECOSYSTEM RESTORATION PROJECTS



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10/04/2019