DUNE PROTECTION

AND

BEACH ACCESS PLAN

COUNTY OF BRAZORIA

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SECTION 1. DEFINITIONS.

The following words and terms, when used in this order, shall have the following meanings, unless the context clearly indicates otherwise.

AFFECT - In regard to dunes, dune vegetation, and the public beach, "affect" means to produce an effect upon dunes, dune vegetation, or public beach use and access.

AMENITIES - Any non-habitable major structures including swimming pools, bathhouses, detached garages, cabanas, pipelines, piers, canals, lakes, ditches, artificial runoff channels and other water retention structures, roads, streets, highways, parking areas and other paved areas (exceeding 144 square feet in area), underground storage tanks, and similar structures.

APPLICANT - Any person applying to a local government for a permit and/or certificate for any construction or development plan.

BACKDUNES - The dunes located landward of the foredune ridge which are usually well vegetated but may also be un-vegetated and migratory. These dunes supply sediment to the beach after the foredunes and the foredune ridge have been destroyed by natural or human activities.

BEACH ACCESS - The right to use and enjoy the public beach, including the right of free and unrestricted ingress and egress to and from the public beach.

BEACH DUNE RULES – 31 TAC §§15.1-15.12.

BEACH/DUNE SYSTEM - The land from the line of mean low tide of the Gulf of Mexico to the landward limit of dune formation.

BEACHFRONT CONSTRUCTION CERTIFICATE OR CERTIFICATE – The document issued by a local government that certifies that the proposed construction either is consistent with the local government's dune protection and beach access plan or is inconsistent with the local government's dune protection and beach access plan. In the latter case, the local government must specify how the construction is inconsistent with the plan, as required by the Open Beaches Act, Section 61.015

BEACH MAINTENANCE - The cleaning or removal of debris from the beach by handpicking, raking, or mechanical means.

BEACH PROFILE - The shape and elevation of the beach as determined by surveying a cross section of the beach.

BEACH-RELATED SERVICES - Reasonable and necessary services and facilities directly related to the public beach which are provided to the public to ensure safe use of and access to and from the public beach, such as vehicular controls, management, parking (including acquisition and maintenance of off-beach parking and access ways); sanitation and litter control; life guarding and lifesaving; beach maintenance; law enforcement; beach nourishment projects; beach/dune system education; beach/dune protection and restoration projects; providing public facilities such as

restrooms, showers, lockers, equipment rentals, and picnic areas; recreational and refreshment facilities; liability insurance; and staff and personnel necessary to provide beach-related services. Beach related services and facilities shall serve only those areas on or immediately adjacent to the public beach.

BEACH USER FEE – A fee collected by a local government in order to establish and maintain beach-related services and facilities for the preservation and enhancement of access to and from and safe and healthy use of public beaches by the public.

BLOWOUT - A breach in the dunes caused by wind erosion.

BREACH - A break or gap in the continuity of a dune caused by wind or water.

BULKHEAD - A structure or partition built to retain or prevent the sliding of land. A secondary purpose is to protect the upland against damage from wave action.

COASTAL AND SHORE PROTECTION PROJECT - A project designed to slow shoreline erosion or enhance shoreline stabilization, including, but not limited to, erosion response structures, beach nourishment, sediment bypassing, construction of man-made vegetated mounds, and dune re-vegetation.

COMMERCIAL FACILITY - Any structure used for providing, distributing, and selling goods or services in commerce including, but not limited to, hotels, restaurants, bars, rental operations, and rental properties.

CONSTRUCTION - Causing or carrying out any building, bulk heading, filling, clearing, excavation, or substantial improvement to land or the size of any structure. "Building" includes, but is not limited to, all related site work and placement of construction materials on the site. "Filling" includes, but is not limited to, disposal of dredged materials. "Excavation" includes, but is not limited to, removal or alteration of dunes and dune vegetation and scraping, grading, or dredging a site. "Substantial improvements to land or the size of any structure" include, but are not limited to, creation of vehicular or pedestrian trails, landscape work that adversely affects dunes or dune vegetation, and increasing the size of any structure.

COPPICE MOUNDS - The initial stages of dune growth formed as sand accumulates on the downwind side of plants and other obstructions on or immediately adjacent to the beach seaward of the foredunes. Coppice mounds may be un-vegetated.

CRITICAL DUNE AREAS - Those portions of the beach/dune system as designated by the General Land Office that are located within 1,000 feet of mean high tide of the Gulf of Mexico that contain dunes and dune complexes that are essential to the protection of public beaches, submerged land, and state-owned land, such as public roads and coastal public lands, from nuisance, erosion, storm surge, and high wind and waves. Critical dune areas include, but are not limited to, the dunes that store sand in the beach/dune system to replenish eroding public beaches.

CUMULATIVE IMPACT - The effect on beach use and access, on a critical dune area, or an area seaward of the dune protection line which results from the incremental effect of an action

when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.

DUNE - An emergent mound, hill, or ridge of sand, either bare or vegetated, located on land bordering the waters of the Gulf of Mexico. Dunes are naturally formed by the windward transport of sediment, but can also be created via man-made vegetated mounds. Natural dunes are usually found adjacent to the uppermost limit of wave action and are usually marked by an abrupt change in slope landward of the dry beach. The term includes coppice mounds, foredunes, dunes comprising the foredune ridge; back dunes, swales, and man-made vegetated mounds.

DUNE COMPLEX - Any emergent area adjacent to the waters of the Gulf of Mexico in which several types of dunes are found or in which dunes have been established by proper management of the area. In some portions of the Texas coast, dune complexes contain depressions known as swales.

DUNE PROTECTION ACT - Texas Natural Resources Code, §§63.001, et seq.

DUNE PROTECTION AND BEACH ACCESS PLAN OR PLAN - A local government's legally enforceable program, policies, and procedures for protecting dunes and dune vegetation and for preserving and enhancing use of and access to and from public beaches, as required by the Dune Protection Act and the Open Beaches Act.

DUNE PROTECTION LINE – A line established by the County Commissioners Court for the purpose of preserving, at a minimum, all critical dune areas identified by the General Land Office pursuant to the Dune Protection Act, Section 63.011, and Title 31, Texas Administrative Code, Section 15.3. A municipality is not authorized to establish a dune protection line unless the authority to do so has been delegated to the municipality by Brazoria County.

DUNE PROTECTION PERMIT OR PERMIT – The document issued by a local government to authorize construction or other regulated activities in a specified location seaward of a dune protection line or within a critical dune area, as provided in the Texas Natural Resources Code, Section 63.051.

DUNE VEGETATION - Flora indigenous to natural dune complexes, and growing on naturally-formed dunes or man-made vegetated mounds on the Texas coast and can include coastal grasses and herbaceous and woody plants.

EFFECT OR EFFECTS - " Effects" include: direct effects -- those impacts on public beach use and access, on critical dune areas, or on dunes and dune vegetation seaward of a dune protection line which are caused by an action and occur at the same time and place; and indirect effects -- those impacts on beach use and access, on critical dune areas, or on dunes and dune vegetation seaward of a dune protection line which are caused by an action and are later in time or farther removed in distance than a direct effect, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate, and related effects on air and water and other natural systems, including ecosystems. "Effects" and "impacts" as used in this order are synonymous.

"Effects" may be ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative.

ERODING AREA - A portion of the shoreline which is experiencing a historical erosion rate of greater than two feet per year based on published data of the University of Texas at Austin, Bureau of Economic Geology. Local governments may establish an "eroding area boundary" in beach/dune plans; this boundary shall be whichever distance landward of the line of vegetation is greater: 200 feet, or the distance determined by multiplying 50 years by the annual historical erosion rate (based on the most recent data published by the University of Texas at Austin, Bureau of Economic Geology).

EROSION - The wearing away of land or the removal of beach and/or dune sediments by wave action, tidal currents, wave currents, drainage, or wind. Erosion includes, but is not limited to, horizontal recession and scour and can be induced or aggravated by human activities.

EROSION RESPONSE STRUCTURE - A hard or rigid structure built for shoreline stabilization which includes, but is not limited to, a jetty, retaining wall, groin, breakwater, bulkhead, seawall, rip-rap, rubble mound, revetment, or the foundation of a structure which is the functional equivalent of these specified structures.

FEMA - The United States Federal Emergency Management Agency. This agency administers the National Flood Insurance Program and publishes the official flood insurance rate maps.

FOREDUNES - The first clearly distinguishable, usually vegetated, stabilized large dunes encountered landward of the Gulf of Mexico. On some portions of the Texas Gulf Coast, foredunes may also be large, un-vegetated, and unstabilized. Although they may be large and continuous, foredunes are typically hummocky and discontinuous and may be interrupted by breaches and washover areas. Foredunes offer the first significant means of dissipating storm-generated wave and current energy issuing from the Gulf of Mexico. Because various heights and configurations of dunes may perform this function, no standardized physical description applies. Foredunes are distinguishable from surrounding dune types by their relative location and physical appearance.

FOREDUNE RIDGE - The high continuous line of dunes which are usually well vegetated and rise sharply landward of the foredune area but may also rise directly from a flat, wave-cut beach immediately after a storm.

HABITABLE STRUCTURE PERIMETER OR FOOTPRINT – The area of a lot covered by a structure used or usable for habitation. The habitable structure perimeter or footprint does not include incidental projecting eaves, balconies, ground-level paving, landscaping, open recreational facilities (for example, pools and tennis courts), or other similar features.

HABITABLE STRUCTURES - Structures suitable for human habitation including, but not limited to, single or multi-family residences, hotels, condominium buildings, and buildings for commercial purposes. Each building of a condominium regime is considered a separate habitable structure, but if a building is divided into apartments, then the entire building, not the individual apartments, is considered a single habitable structure. Additionally, a habitable structure includes porches, gazebos, and other attached improvements.

INDUSTRIAL FACILITIES - Include, but are not limited to, those establishments listed in Part 1, Division D, Major Groups 2039 and Part 1, Division E, Major Group 49 of the Standard Industrial Classification Manual as adopted by the Executive Office of the President, Office of Management and Budget (1987 ed.). However, for the purposes of this order, the establishments listed in Part 1, Division D, Major Group 20, Industry Group Number 209, Industry Numbers 2091 and 2092 are not considered "industrial facilities."

LARGE SCALE CONSTRUCTION - Construction activity greater than 5,000 square feet or habitable structures greater than two stories in height. Both the area beneath the lowest habitable level of an elevated structure and a cupolia (i.e. "widow's walk") with an area of 400 square feet or less on the top of the second habitable story are not considered stories for the purpose of this section. Multiple-family habitable structures are typical of this type of construction.

LINE OF VEGETATION - The extreme seaward boundary of natural vegetation which spreads continuously inland typically used to determine the landward extent of the public beach. Where there is no natural vegetation line, the landward extent of the public beach may be determined as provided by Sec. 61.016 and Sec. 61.017, Texas Natural Resources Code and 31 TAC §15.3(b).

LOCAL GOVERNMENT - A municipality, County, any special purpose district, any unit of government, or any other political subdivision of the state.

MAN-MADE VEGETATED MOUND - A mound, hill, or ridge of sand created by the deliberate placement of sand or sand trapping devices including sand fences, trees, or brush and planted with dune vegetation.

MASTER PLAN - A plan developed by the applicant in consultation with the General Land Office, the Office of the Attorney General, the applicant or applicants, and the local government, for the development of an area subject to the beach/dune rules, as identified in 31 TAC §15.3. The master plan shall fully describe in narrative form the proposed development and all proposed land and water uses, and shall include maps, drawings, and tables, and other information, as needed. The master plan must, at a minimum, fully describe the general geology and geography of the site, land and water use intensities, size and location of all building, structures, and improvements, all vehicular and pedestrian access ways, and parking or storage facilities, location and design of utility systems, location and design of any erosion response structures, retaining walls, or stormwater treatment management systems, and the schedule for all construction activities described in the master plan. The master plan shall comply with the Open Beaches Act and the Dune Protection Act. The master plan shall provide for overall compliance with the beach/dune rules, but may vary from the specific standards, means and methods provided in the beach/dune rules if the degree of dune protection and the public's right to safe and healthy use of and access to and from the public beach are preserved. If all impacts to dunes, dune vegetation and public beach

use and access are accurately identified, local governments shall not require permits or certificates for construction on the individual lots within the master plan area. Master plans are intended to provide a comprehensive option for planning along the Texas coast.

MATERIAL CHANGES - Changes in project design, construction materials, or construction methods or in the condition of the construction site which occur after an application is submitted to a local government or after the local government issues a permit or certificate. Material changes are those additional or unanticipated changes which have caused or will cause adverse effects on dunes, dune vegetation, or beach access and use, or exacerbation of erosion on or adjacent to the construction site.

MITIGATION SEQUENCE - The series of steps, which must be taken if dunes and dune vegetation will be adversely affected. First, such adverse effects shall be avoided. Second, adverse effects shall be minimized. Third, the dunes and dune vegetation adversely affected shall be repaired, restored, or replaced. Fourth, the dunes and dune vegetation adversely affected shall be replaced or substituted to compensate for the adverse effects.

MOTOR VEHICLE OR VEHICLE - A vehicle as defined by the Texas Transportation Code, Section 541.201.

NATIONAL FLOOD INSURANCE ACT - National Flood Insurance Act, 42 United States Code §§4001, et seq.

NATURAL RESOURCES - Land, fish, wildlife, insects, biota, air, surface water, groundwater, plants, trees, habitat of flora and fauna, and other such resources.

OPEN BEACHES ACT - Texas Natural Resources Code, §§61.001, et seq.

OWNER OR OPERATOR - Any person owning, operating, or responsible for operating commercial or industrial facilities.

PERMIT OR CERTIFICATE CONDITION - A requirement or restriction in a permit or certificate necessary to assure protection of life, natural resources, property, and adequate beach use and access rights (consistent with the Dune Protection Act) which a permittee must satisfy in order to be in compliance with the permit or certificate.

PERMITTEE - Any person authorized to act under a permit or a certificate issued by a local government.

PERSON - An individual, firm, corporation, association, partnership, consortium, joint venture, commercial entity, the United States Government, the state, a municipality, commission, political subdivision, or any international or interstate body or any other governmental entity.

PIPELINE - A tube or system of tubes used for the transportation of oil, gas, chemicals, fuels, water, sewerage, or other liquid, semi-liquid, or gaseous substances.

PRACTICABLE - In determining what is practicable, the Commissioners Court shall consider the effectiveness, scientific feasibility, and commercial availability of the technology or technique. The Commissioners Court shall also consider the cost of the technology or technique.

PRODUCTION AND GATHERING FACILITIES - The equipment used to recover and move oil or gas from a well to a main pipeline, or other point of delivery such as a tank battery, and to place such oil or gas into marketable condition. Included are pipelines used as gathering lines, pumps, tanks, separators, compressors, and associated equipment and roads

PUBLIC BEACH - As used in this order, "public beach" is defined in the Texas Natural Resources Code, Sec. 61.013(c).

RECREATIONAL ACTIVITY - Includes, but is not limited to, hiking, sunbathing, and camping for less than 21 days. For purposes of permits, recreational activities are limited to the private activities of the person owning the land and the social guests of the owner. Operation of recreational vehicles is not considered a recreational activity, whether private or public.

RECREATIONAL VEHICLES - A dune buggy, marsh buggy, minibike, trail bike, jeep or any other mechanized vehicle used for recreational purposes.

RESTORATION - The repair or replacement of dunes or dune vegetation.

RETAINING WALL - A structure designed to contain or which primarily contains material or prevents the sliding of land. Retaining walls may collapse under the forces of normal wave activity.

SAND BUDGET- The amount of all sources of sediment, sediment traps, and transport of sediment within a defined area. From the sand budget, it is possible to determine whether sediment gains and losses are in balance.

SEAWALL - An erosion response structure that is specifically designed to withstand wave forces.

SEAWARD OF A DUNE PROTECTION LINE - The area between a dune protection line and the line of mean high tide.

SMALL-SCALE CONSTRUCTION - Construction activity less than or equal to 5,000 square feet or habitable structures less than or equal to two stories in height. Both the area beneath the lowest habitable level of an elevated structure and a cupolia (i.e. "widow's walk") with an area of 400 square feet or less on the top of the second habitable story are not considered stories for the purpose of this section. Single-family habitable structures are typical of this type of construction.

STRUCTURE - Includes, without limitation, any building or combination of related components constructed in an ordered scheme that constitutes a work or improvement constructed on or affixed to land.

SWALES - Low areas within a dune complex located in some portions of the Texas coast, which function as natural rainwater collection areas and are an integral part of the dune complex.

UNIQUE FLORA AND FAUNA – Endangered or threatened plant or animal species listed pursuant to 16 United States Code Annotated, §1531 et seq., the Endangered Species Act of 1973, and/or the Parks and Wildlife Code, Chapter 68, or any plant or animal species that a local government has determined in their local beach/dune plan are rare or uncommon.

WASHOVER AREAS - Low areas that are adjacent to beaches and are inundated by waves and storm tides from the Gulf of Mexico. Washovers may be found in abandoned tidal channels or where foredunes are poorly developed or breached by storm tides and wind erosion.

SECTION 2. ADMINISTRATION.

I. Adoption, Compliance, and Modification.

A. This order is adopted pursuant to the authority granted local governments under the Open Beaches Act, Chapter 61, Texas Natural Resources Code, the Dune Protection Act, Chapter 63, Texas Natural Resources Code, Subchapter I of Chapter 16, Texas Water Code, Title 31, Texas Administrative Code, Chapter 15, and other statutes and rules of general applicability.

B. All County officers, employees, and contractors shall comply with this order in authorizing or undertaking any activity affecting dunes seaward of the dune protection line or public use of and access to and from the public beach.

C. Amendments to this order shall be effective only upon approval by the General Land Office.

II. Areas Exempt.

A. This order applies to all private and public land within the County that lies seaward of the dune protection line and the beachfront construction line except state or national parks, wildlife refuges, preserves, or similar state or federal areas and any municipality located in Brazoria County that has its own Dune Protection and Beach Access Plan approved by the General Land Office.

B. Other than state or national parks, wildlife refuges, preserves, and similar areas, this order applies to land owned by state agencies, subject to the provisions of the Texas Natural Resources Code, Sec. 31.161 et seq.

III. Dune Protection Line & Beachfront Construction Line.

A. The Commissioners Court establishes the following line as the dune protection line for the purpose of protecting critical dune areas: along the seaward boundary of the right-of-way of the first public road which is generally parallel to the beach being County Road 257 (Bluewater Highway).

B. The Commissioners Court establishes the following as the beach front construction line for the purpose of delineating areas in which construction is likely to affect beach access and use: along the seaward boundary of the right-of-way of the first public road which is generally parallel to the beach being County Road 257 (Bluewater Highway).

C. The dune protection line and beachfront construction line are depicted on the map attached to this order as Appendix I.

D. The Commissioners Court shall review the location of the dune protection line and beachfront construction line at least once every five years to determine whether the lines are adequately located to achieve their stated purposes. In addition, the Commissioners Court shall review the adequacy of the location of the lines within 90 days after a tropical storm or hurricane affects the portion of the coast lying within the County's jurisdiction. The Commissioners Court shall amend this order to adjust the lines whenever necessary to achieve there stated purposes.

E. Prior to acting on any amendment to this order that would modify either line, the Commissioners Court shall hold a public hearing to consider the modifications. Not less than one week nor more than three weeks before the date of the hearing, the Commissioners Court shall both publish notice of the hearing at least three times in the newspaper with the largest circulation in the County and notify the General Land Office in writing. The notice to the General Land Office shall include a map or drawing of the proposed line, a written description of the line, or both (including Texas State Plane Coordinates).

IV. Alteration of Dunes Prohibited Without Permit.

A. Unless the Commissioners Court properly issues a dune protection permit authorizing the conduct, no person shall damage, destroy, or remove a sand dune or a portion of a sand dune seaward of the dune protection line, or kill, destroy, or remove in any manner any vegetation growing on a sand dune seaward of the dune protection line.

B. The following activities are exempt from the requirement for a permit, but may nevertheless require a beach front construction certificate or a permit pursuant to other County orders:

1. exploration for and production of oil and gas and reasonable and necessary activities directly related to such exploration and production, including construction and maintenance of production and gathering facilities seaward of the dune protection line which serve wells located outside the dune protection line, provided that such facilities are located no farther than two miles from the well being served;

2. grazing livestock and reasonable and necessary activities directly related to grazing; and recreational activities other than operation of a recreational vehicle.

3. placing of Christmas trees and/or other plants to help create more dunes or establishing vegetation, done on an annual basis in cooperation with the County's Parks Department and Marine Extension Service.

V. Construction Affecting Beach Access Prohibited Without Certificate.

Unless the Commissioners Court properly issues a beach front construction certificate authorizing the conduct, no person shall cause, engage in, or allow construction seaward of the beachfront construction line. Construction not affecting public beach access and use may nevertheless require a dune protection permit or a permit pursuant to other County orders.

VI. Master Planned Developments.

A. "Master planned development" means proposed development for which approval is requested by submission of a comprehensive plan containing maps, drawings, narrative, tables, and other information about the proposed use of specific land and/or water including descriptions of uses and use intensities, building and/or site improvement locations and sizes, relationships between buildings and improvements, vehicular and pedestrian access and circulation systems, parking, utility systems, stormwater management and treatment systems, geography, geology, impact assessments, regulatory-approved checklist, and phasing. Information in the master plan may be conceptual or detailed depending on the status of its regulatory approval.

B. At least 60 days prior to acting on a request for approval of a master planned development within the area subject to this order the Floodplain Administrator shall send the plan to the General Land Office for review.

C. When acting on a request for approval of a master planned development, the Commissioners Court shall consider:

1. the development's potential effects on dunes, dune vegetation, public beaches use and access, and the applicant's proposal to mitigate for such effects throughout the construction;

2. the contents of the plan; and

3. whether any component of the development, such as installation of roads or utilities, or construction of a structure seaward of a dune protection line, will subsequently require a permit or a certificate.

D. If the Commissioners Court determines that all development contemplated by the plan complies with all requirements of this order; a permit and/or certificate for the development may be issued.

E. If the Commissioners Court determines that any development contemplated by the plan does not comply with the requirements of this order and therefore can not be approved without an amendment to this order, the Commissioners Court shall not issue a permit and/or certificate, but shall submit the plan to the General Land Office for approval as an amendment to this order.

VII. Procedure and Review of Application.

The County has established procedures and requirements governing the review of dune permit applications by the Floodplain Administrator prior to submittal to Commissioners Court for approval.

A. Floodplain Administrator will make a determination whether the proposed construction requires a permit or certificate.

B. If proposed construction requires a permit or certificate, an application shall be submitted and reviewed for completeness and meeting all requirements.

C. The Floodplain Administrator shall provide to the General Land Office all required information as required by Section IX, F, 1, 2, 3, and 4 in addition to application requirements.

D. Once comment letter is received from the General Land Office, the Floodplain Administrator shall forward required application materials and other associated materials along with comment letter from the General Land Office to Commissioners Court for review and consideration.

VIII. Application Process.

A. Potential applicants may submit descriptions of proposed construction to Floodplain Administrator for a determination of whether a permit or certificate would be required for the construction. If the potential applicant seeks to establish that no permit or certificate is required, the description shall demonstrate that the proposed construction will not adversely affect dunes or public beach use and access. The Floodplain Administrator shall send notice of any proposed determination that the construction does not require a permit or certificate to the General Land Office for review at least 10 working days before the determination is made. Upon making the determination, the Floodplain Administrator shall notify the potential applicant whether the proposed construction requires a permit or certificate.

1. Applicant shall provide the following information to demonstrate that no adverse affect will be done to dunes or public beach use and access. (This will refer to mainly the property northeast of County Road 257)

   i. Provide information in letter form with description of work to be done and state that no adverse affect will be done to dunes or public beach use and access.

   ii. Survey plat from a Texas Registered Land Surveyor and/or Engineer indicating elevations in reference to mean sea level and location of proposed construction, line of vegetation, mean high tide, and mean low tide.

   iii. Property shall be staked off with proper survey materials for an on-site visit by the Floodplain Administer.

B. If proposed construction requires a permit or certificate, an application shall be submitted to Floodplain Administrator who shall review and submit to Commissioners Court per procedures outlined in Section 2, VII above.

C. Any applicant that has property within the 1,000-foot dune protection line shall furnish a letter of determination from the Corps of Engineer pertaining to wetlands.

IX. Contents of Applications.

A. "Large scale construction" means construction activity greater than 5,000 square feet in area and habitable structures greater than two stories in height. Multiple family habitable structures are typical of this type of construction. *See definitions.*

B. "Small scale construction" means construction activity less than or equal to 5,000 square feet and habitable structures less than or equal to two stories in height. Single family habitable structures are typical of this type of construction. *See definitions.*

C. For all proposed construction (large and small scale), applicants shall submit the following items and information:

1. the name, address, phone number, and, if applicable, fax number of the applicant, and the name of the property owner, if different from the applicant;

2. a complete legal description of the tract and a statement of its size in acres or square feet;

3. the number of proposed structures and whether the structures are amenities or habitable structures;

4. the number of parking spaces;

5. the approximate percentage of existing and finished open spaces (those areas completely free of structures);

6. and elevation view of the structure proposed to be constructed or expanded;

7. the approximate duration of the construction;

8. a description (including location) of any existing or proposed walkways or dune walkovers on the tract;

9. a grading and layout plan identifying all elevations (in reference to the National Oceanic and Atmospheric Administration datum), existing contours of the project area (including the location of dunes and swales), and proposed contours for the final grade;

10. of the site which clearly show the current location of the vegetation line and the existing dunes on the tract;

11. the effects of the proposed activity on the beach/dune system which cannot be avoided should the proposed activity be permitted, including, but not limited to, damage to dune vegetation, alteration of dune size and shape, and changes in dune hydrology;

12. a comprehensive mitigation plan which includes a detailed description of the methods which will be used to avoid, minimize, mitigate and/or compensate for any adverse effects on dunes or dune vegetation;

13. proof of financial capability to mitigate or compensate for adverse effects on dunes and dune vegetation (i.e., an irrevocable letter of credit or a performance bond) or, if required by Section 5(IV)(B)(4) of this order (Special Requirements for Eroding Areas), to fund eventual relocation or demolition of structures for all construction, not just structures built in eroding areas. (i.e., Upton Jones coverage in the National Flood Insurance Program);

14. an accurate map or plat of the site identifying:

    (a) the site by its legal description, including, where applicable, the subdivision, block, and lot;

b. the location of the property lines and a notation of the legal description of adjoining tracts,

c. the location of the structures, the footprint or perimeter of the proposed construction on the tract;

d. proposed roadways and driveways and proposed landscaping activities on the tract;

e. the location of any sea walls or any other erosion response structures on the tract and on the properties immediately adjacent to the tract; and

f. if known, the location and extent of any manmade vegetated mounds, restored dunes, fill activities, or any other pre-existing human modifications on the tract.

D. For all proposed large scale construction, applicants shall submit the following additional items and information:

1. if the tract is located in a subdivision and the applicant is the owner or developer of the subdivision, a certified copy of the recorded plat of the subdivision, or, if not a recorded subdivision, a plat of the subdivision certified by a licensed surveyor, and a statement of the total area of the subdivision in acres or square feet;

2. in the case of multiple unit dwellings, the number of units proposed;

3. alternatives to the proposed location of construction on the tract or to the proposed methods of construction which would cause fewer or no adverse effects on dunes and dune vegetation or less impairment of beach access; and

4. the proposed activity's impact on the natural drainage pattern of the site and the adjacent lots.

E. For all proposed construction (large- and small-scale) if applicants already have the following items and information, local governments shall require them to be submitted in addition to the other information required:

1. a copy of a floor plan and exterior view of the proposed construction;

2. a copy of a topographical survey of the site;

3. the most recent local historical erosion rate data (as) determined by the University of Texas at Austin, Bureau of Economic Geology) and the activity's potential impact on coastal erosion; and

4. a copy of the FEMA "Elevation Certificate."

F. For all proposed construction (large and small scale), the Floodplain Administrator shall provide to the state the following information:

1. a copy of the community's most recent flood insurance rate map identifying the site of the proposed construction;

2. a preliminary determination as to whether the proposed construction complies with all aspects of the local government's dune protection and beach access plan;

3. the activity's potential impact on the community's natural flood protection and protection from storm surge; and

4. how the proposed beachfront construction complies with and promotes the local government's beach access policies and requirements, particularly, the dune protection and beach access plan's provisions relating to public beach ingress/egress, off beach parking, and avoidance of reduction in the size of the public beach due to erosion.

X. State Agency Comments.

The Floodplain Administrator shall forward the complete application, including any associated materials, to the General Land Office. After receipt by the General Land Office, a review period for comments consists of 10 working days for small scale construction and 30 working days for large scale construction. The Commissioners Court may not act on the application until the appropriate deadline has passed. Thereafter, the permit or certificate may be issued or denied regardless of whether the state agency submits comments on the application.

XI. Issuance or Denial of Permit/Certificate.

A. To determine whether to issue or deny a permit or certificate, the Commissioners Court shall review and consider:

1. the information in the permit or certificate application;

2. the proposed activity's consistency with the beach/dune rules and this Court Order.

3. any other law relevant to dune protection and public beach use and access that affects the activity under review;

4. the comments of the General Land Office;

5. with respect to dunes and dune permits:

a. cumulative and indirect effects of the proposed construction on all dunes and dune vegetation seaward of a dune protection line;

b. cumulative and indirect effects of other activities on dunes and dune vegetation on the proposed construction site;

c. the pre-construction type, height, width, slope, volume, and continuity of the dunes, the pre-construction condition of the dunes, the type of dune vegetation, and percent of vegetative cover on the site;

d. the local historical erosion rate as determined by the University of Texas at Austin, Bureau of Economic Geology, and whether the proposed construction may alter dunes and dune vegetation in a manner that may aggravate erosion;

e. all practicable alternatives to the proposed activity, proposed site, or proposed methods of construction;

f. the applicant's mitigation plan for any unavoidable adverse effects on dunes and dune vegetation and the effectiveness, feasibility, and desirability of any proposed dune reconstruction and re-vegetation;

g. the impacts on the natural drainage patterns of the site and adjacent property;

h. any significant environmental features of the potentially affected dunes and dune vegetation such as their value and function as floral or faunal habitat or any other benefits the dunes and dune vegetation provide to other natural.

i. wind and storm patterns including a history of wash over patterns;

j. location of the site on the flood insurance rate map;

k. success rates of dune stabilization projects in the area; and any other information the Commissioners Court considers useful, including resource information made available to them by federal and state natural resource entities.

B. The Commissioners Court shall not issue a permit or certificate that is inconsistent with this order, General Land Office rules for Management of the

Beach/Dune Rules (18 Texas Reg. 661 (1993), CODE Sec. 15.1, 15.10), the Open Beaches Act (Chapter 61, Texas Natural Resources Code), the Dune Protection Act (Chapter 63, Texas Natural Resources Code), and other state, local, and federal laws related to the requirements of the Dune Protection Act and the Open Beaches Act, the requirements of which are incorporated into this order by reference.

XII. Terms and Renewal of Permits/Certificates.

A. Activity authorized by the permit or certificate permit shall begin within six (6) months, but in no event shall permit be valid beyond three (3) years from date of issuance.

B. The Commissioners Court may renew a permit or certificate for a period not exceeding 90 days if the activity as proposed in the application for renewal complies with this order and the permittee supplements the original application materials with additional information indicating any changes to the activity or information. The Commissioners Court shall issue only two renewals for each permit or certificate. Thereafter, the permittee must apply for a new permit or certificate.

C. If the proposed construction is changed in any manner which causes or increases adverse effects on dunes, dune vegetation, and public beach use and access, the permit shall be VOID and applicant shall apply for a new permit.

XIII. Termination of Permits/Certificates.

A. The Commissioners Court may void a permit or certificate if:

1. a material change occurs after the permit or certificate is issued; or

2. a permittee fails to disclose any material fact in the application; or

3. a permit or certificate that is inconsistent with the beach/dune rules on the County's plan at the time issuance is voidable.

B. "Material change" includes human or natural conditions which have adversely affected dunes, dune vegetation, or beach access and use that either did not exist at the time of the original application, or were not considered by the Commissioners Court in making the permitting decision because the permittee did not provide information regarding the site condition in the original application.

C. A permit or certificate automatically terminates if construction comes to lie within the boundaries of the public beach by artificial means or by natural causes.

XIV. Administrative Record.

A. The Floodplain Administrator shall compile and maintain an administrative record, which demonstrates the basis for each final decision regarding issuance or denial of a permit or certificate. The administrative record shall include copies of the following:

1. all materials received from the applicant as part of or regarding the permit or certificate application;

2. the transcripts, if any, or the minutes and/or tape of the Commissioners Court meeting during which a final decision regarding the permit or certificate was made; and

3. all comments received regarding the permit or certificate.

B. The Floodplain Administrator shall keep the administrative record for three years from the date of a final decision on a permit or certificate. The Floodplain Administrator shall send to the General Land Office, upon request by the agency, a copy of those portions of the administrative record that were not originally sent to the General Land Office for review and comment. The Floodplain Administrator shall provide to the permittee upon request copies of any materials in the administrative record regarding the permit or certificate not submitted to the Floodplain Administrator by the permittee in the application.

SECTION 3. REQUIREMENTS FOR DUNE PROTECTION PERMITS.

I. Required Findings.

Before issuing a permit, the Commissioners Court must find that:

A. the proposed activity is not a prohibited activity as defined in Subsection II of this section (Prohibited Activities);

B. the proposed activity will not materially weaken dunes or materially damage dune vegetation seaward of the dune protection line based on substantive findings under Subsection III of this section (Material Weakening);

C. there are no practicable alternatives to the proposed activity and adverse effects cannot be avoided as provided in Subsection IV of this section (Mitigation of Adverse Effects);

D. the applicant's mitigation plan will adequately minimize, mitigate, and/or compensate for any unavoidable adverse effects, as provided in Subsection IV of this section (Mitigation of Adverse Effects); and

E. the proposed activity complies with any applicable requirements of Section 4 (Requirements for Beachfront Construction Certificates), Section 5 (Concurrent Requirements for Both Dune Protection Permits and Beachfront Construction Certificates), and Section 6 (Management of the Public Beach) of this order.

II. Prohibited Activities.

The Commissioners Court shall not issue a permit authorizing the following actions seaward of the dune protection line:

A. Activities that are likely to result in the temporary or permanent removal of sand from the portion of the beach/dune system located on or adjacent to the construction site; including:

1. moving sand to a location landward of the dune protection line; and

2. temporarily or permanently moving sand off the site, except for purposes of permitted mitigation, compensation, or an approved dune restoration or beach nourishment project and then only from areas where the historical accretion rate is greater than one foot per year, and the project does not cause any adverse effects on the sediment budget;

B. Depositing sand, soil, sediment, or dredged spoil which contains any of the toxic materials listed in Volume 40 of the Code of Federal Regulations, Part 302.4, in concentrations which are harmful to people, flora, and fauna as determined by applicable, relevant, and appropriate requirements for toxic-County standards established by the local, state, and federal governments;

C. Depositing sand, soil, sediment, or dredged spoil which is of an unacceptable mineralogy or grain size when compared to the sediments found on the site (this prohibition does not apply to materials related to the installation or maintenance of public beach access roads running generally perpendicular to the public beach);

D. Creating dredged spoil disposal sites, such as levees and weirs, without the appropriate local, state, and federal permits;

E. Constructing or operating industrial facilities not in full compliance with all relevant laws and permitting requirements prior to the effective date of this order;

F. Operating recreational vehicles;

G. Mining dunes;

H. Constructing concrete slabs or other impervious surfaces within 200 feet landward of the vegetation line;

I. Paving or altering the ground below the lowest habitable floor in the area between the line of vegetation and 25 feet landward of the north toe of the dunes.

J. Depositing trash, waste, or debris including inert materials such as concrete, stone and bricks that are not part of the permitted on-site construction.

K. Constructing cisterns, septic tanks, and septic fields seaward of any structure serviced by the cisterns, septic tanks, and septic fields; or

L. Detonating bombs or explosives.

III. No Material Weakening.

The Commissioners Court may issue a permit only if it finds as a fact, after a full investigation, that the particular conduct proposed will not materially weaken any dune or materially damage dune vegetation or reduce the effectiveness of any dune as a means of protection against erosion and high wind and water. To find that there will be no such material weakening or damage, the Commissioners Court must find that the activity will not:

A. result in the potential for increased flood damage to the proposed construction site or adjacent property;

B. result in runoff or drainage patterns that aggravate erosion on or off the site;

C. result in significant changes to the natural permeability of a dune or its ability to transmit rainwater to the water table;

D. disturb unique flora or fauna or result in adverse effects on dune complexes or dune vegetation; or

E. significantly increases the potential for washovers or blowouts to occur.

IV. Mitigation of Adverse Effects.

A. If the Commissioners Court finds that no material weakening of dunes or material damage to dunes will occur, the Commissioners Court shall then determine whether any adverse effects will result from the activity. If the Commissioners Court finds there will be adverse effects on dunes or dune vegetation seaward of the dune protection line, the Commissioners Court may issue a permit only if the applicant demonstrates that adverse effects can be mitigated as required by the mitigation sequence. If the Commissioners Court issues a permit, it shall include appropriate permit conditions incorporating the requirements of this section.

B. The mitigation sequence consists of the following requirements.

1. Avoidance.

   (a) Avoidance means avoiding adverse effects altogether by not taking a certain action or part of an action. The Commissioners Court shall not issue a permit allowing any adverse effects on dunes or dune vegetation seaward of the dune protection line unless the applicant proves there is no practicable alternative to the proposed activity, proposed site, or proposed methods for conducting the activity.

   (b) To avoid adverse effects on dunes and dune vegetation seaward of the dune protection line as required by Subdivision (B)(l)(a) of this section, permittees shall not:

      i. contract a non-exempt pipeline unless there is no practicable alternative;

      ii. engage in any construction unless it is located as far landward of dunes as practicable, except construction providing access to and from a public beach;

      iii. construct any road parallel to the beach within 200 feet landward of the vegetation line, nor construct any other road parallel to the beach unless it is located as far landward of dunes as practicable;

      iv. construct new artificial channels, including stormwater runoff channels, unless there is no practicable alternative; or

      v. cause any such adverse effects for which the Commissioners Court determines there is a practicable alternative that would avoid adverse effects.

2. Minimization.

   (a) Minimization means minimizing adverse effects by limiting the degree or magnitude of the action and its implementation. If the Commissioners Court determines that there is no practicable alternative that would have fewer adverse effects on dunes or dune vegetation seaward of the dune protection line, it shall set appropriate permit conditions requiring the permitter to minimize such adverse effects to the greatest extent practicable.

   (b) To minimize unavoidable adverse effects as required by subdivision (B) (2) (a) of this section, permittees shall:

i. locate non-exempt pipelines across previously disturbed areas, such as blowout areas, and minimize disturbance of dune surfaces where use of previously disturbed areas is not practicable;

ii. minimize construction and pedestrian traffic on or across dune areas to the greatest extent practicable, accounting for trends of dune movement and beach erosion in that area;

iii. route all pedestrian access to and from beaches through washover areas or over elevated walkways, and conspicuously mark all such access that is public with permanent signs so indicating;

iv. minimize the number of private access ways from any proposed subdivision, multiple dwelling, or commercial facility. In some cases, the minimum beach access may be only one access way. In determining the appropriate grouping of access ways, the Commissioners Court shall consider the size and scope of the development;

v. post signs in an area where pedestrian traffic is high explaining the functions of dunes and the importance of vegetation in preserving dunes;

vi. where practicable, provide vehicular access to and from beaches by using existing roads or from roads constructed in accordance with Subdivision (B)(l)(b)(iii) of this subsection, unless public beach access is restricted, and where possible, improve existing access roads with elevated berms near the beach that prevent channelization of floodwaters;

vii. where practicable, locate new beach access roads in washover areas, blowout areas or other areas where dune vegetation has already been disturbed, construct such roads along the natural land contours, and minimize their width;

viii. where practicable, locate new beach access roads at an oblique angle to the prevailing wind direction;

ix. prohibit persons from using or parking any motor vehicle on, through, or across dunes outside designated access ways;

x. maximize use of natural or existing drainage patterns when providing for storm water runoff and retention;

xi. locate and construct new artificial storm water runoff channels and retention basins so as to avoid erosion and unnecessary construction of additional channels and to direct all runoff inland and not to the Gulf of Mexico through dune areas; and

xii. not cause any adverse effects that the Commissioners Court finds can be minimized.

3. Mitigation.

(a) Mitigation means repairing, rehabilitating, or restoring affected dunes and dune vegetation. Where adverse effects on dunes and dune vegetation can not be avoided or minimized, the Commissioners Court shall set appropriate permit conditions requiring that permittees repair, rehabilitate, or restore affected dunes to the same volume as the pre-existing dunes and dune vegetation so that will be superior or equal to the pre-existing dunes in their ability to protect adjacent public and private property from potential flood damage, nuisance, and erosion and to protect natural resources.

(b) Permittees may mitigate adverse effects on dunes using vegetative or mechanical means. Permittees shall:

i. restore dunes to approximate the naturally formed dune position or location, contour, volume, elevation, vegetative cover, and sediment content in the area;

ii. allow for the natural dynamics and migration of dunes;

iii. use discontinuous or continuous temporary sand fences or a Commissioners Court approved method of dune restoration, where appropriate, considering the characteristics of the site; and

iv. restore or repair dunes using indigenous vegetation that will achieve the same protective capability as or greater capability than the surrounding natural dunes.

(c) In authorizing or requiring restoration of dunes, the Commissioners Court shall give priority to stabilization of blowouts and breaches. Before permitting stabilization of wash over areas, the Commissioners Court shall;

i. assess the overall impact of the project on the beach/dune system;

ii. consider any adverse effects on hydrology and drainage which will result from the project; and

iii. require that equal or better public beach access is provided to compensate for impairment of any public beach access previously provided by the wash over area.

4. Compensation.

(a) Compensation means compensating for adverse effects on dunes and dune vegetation by replacing or providing substitute dunes and dune vegetation. The Commissioners Court shall set appropriate permit conditions requiring permittees to compensate for all adverse effects on dunes and dune vegetation that can not be avoided, minimized, or otherwise mitigated. In setting appropriate conditions, the Commissioners Court shall consider the recommendations of the General Land Office, federal and state natural resource agencies, and dune vegetation experts.

(b) Permittees shall follow the requirements of Subdivisions (3)(b, c) and (4)(e)(iii, v) of this section when replacing dunes or dune vegetation.

(c) Onsite compensation consists of replacing or restoring the affected dunes or dune vegetation on the site where the dunes and dune vegetation were originally located. Permittees shall locate compensation work on the construction site, where practicable

(d) A permittee may locate compensation efforts off the construction site if the permittee demonstrates that:

i. on-site compensation is not practicable;

ii. the off-site compensation will be located as close to the construction site as practicable;

iii. the off-site compensation has achieved a 1:1 ratio of proposed adverse effects on successful, completed, and stabilized restoration prior to beginning construction; and

iv. the permittee has notified FEMA, Region 6, of the proposed off-site compensation.

(e) Permittees shall provide the following information when proposing off-site compensation:

i. the name, address, phone number, and fax number, if applicable, of the owner of the property where the off-site compensation will be located;

ii. a legal description of property intended to be used for the proposed off-site compensation;

iii. the source of the sand and dune vegetation to be used;

iv. all information regarding permits and certificates issued for the restoration of dunes on the compensation site;

v. all relevant information regarding the success, current status, and stabilization of the dune restoration efforts on the compensation site;

vi. any increase in potential flood damage to the site where the adverse effects on dunes and dune vegetation will occur and to the public and private property adjacent to that site; and

vii. the proposed date of initiation of the compensation.

(f) Permittees shall compensate for adverse effects on dune vegetation by planting indigenous vegetation on the affected dunes. Permittees may not remove existing vegetation from property not owned by the permittee unless the permittee includes in the permit application written permission from the property owner. The permit application must identify the source of any sand and vegetation, which will be used in compensation.

(g) Permittees shall begin compensation prior to or concurrently with the commencement of construction. If compensation is not to be completed prior to commencement of construction, the permittee shall provide proof of financial responsibility in an amount necessary to complete the compensation, in the form of an irrevocable letter of credit, performance bond, or any other instrument acceptable to the Commissioners Court.

(h) Permittees shall notify the Flooplain Administrator in writing of the actual date of initiation within 10 working days after compensation is initiated. If the permittee fails to begin compensation on the date proposed in the application, the permittee shall state the reason for the delay. The Commissioners Court shall take this reason into account when determining whether a permittee has violated the compensation deadline.

(i) Permittee's shall conduct compensation efforts continuously until the repaired, rehabilitated, and restored dunes and dune vegetation are equal or superior to the pre-existing dunes and dune vegetation. These efforts shall include preservation and maintenance pending completion of compensation.

(j) A compensation project is deemed complete when the position, contour, volume, elevation, and vegetative cover of the restored dunes have reached a level that matches or exceeds the pre-existing dunes.

(k) The Floodplain Administrator shall provide written notification to the General Land Office upon determining that the compensation is complete. If the Floodplain Administrator does not receive an objection from the General Land Office regarding the completion of compensation within 30 working days after the General Land Office is notified in writing, the Floodplain Administrator may certify to the permittee that the compensation is complete.

(l) The permittee shall be deemed to have failed to achieve compensation if a 1:1 ratio has not been achieved within three years after the beginning of compensation efforts.

SECTION 4. REQUIREMENTS FOR BEACHFRONT CONSTRUCTION CERTIFICATES.

I. Required Findings.

Before issuing a certificate authorizing proposed construction, the Commissioners Court must find that the construction is consistent with this order. Construction is inconsistent with this order if it:

A. reduces the size of the public beach or encroaches on the public beach in any manner, except for man-made vegetated mounds and dune walkovers constructed in compliance with the requirements of this order;

B. functionally supports or depends on or is otherwise related to proposed or existing structures that encroach on the public beach, regardless of whether the encroaching structure is on land that was previously landward of the public beach;

C. closes any existing public beach access or parking area, unless equivalent or better public access or parking is established as required in Subsection II of this section (Dedication of Equivalent or Better Access);

D. cumulatively or indirectly impairs or adversely affects public use of or access to and from a public beach, including failure to comply with any requirements of

Section 6 of this order (Management of the Public Beach) unless equivalent or better access or parking is established as required in Subsection II of this section (Dedication of Equivalent or Better Access); or

E. fails to comply with any requirements of Section 3 of this order (Requirements for Dune Protection Permits) or Section 5 of this order (Concurrent Requirements for Dune Protection Permits and Beachfront Construction Certificates).

II. Dedication of Equivalent or Better Access.

A permittee shall dedicate to the public new public beach access or parking areas if the permittee's activities will close any existing public beach access or parking area, will impair or adversely affect public use of or access to and from the beach, or if dedication is necessary to comply with any requirements of Section 6 of this order. The area dedicated shall provide access or parking equivalent to or better than the access or parking impaired and shall be consistent with the provisions of this order regarding beach access and use, vehicular controls, and beach user fees. Dedication shall be by restrictive covenant, permanent easement, or fee simple conveyance.

SECTION 5. CONCURRENT REQUIREMENTS FOR BOTH DUNE PROTECTION PERMITS AND BEACHFRONT CONSTRUCTION CERTIFICATES.

I. General Erosion and Flood Protection Requirements.

A. locate all construction as far landward as is practicable;

B. not allow any construction which may aggravate erosion;

C. not construct any new erosion response structure, except a retaining wall located greater than 200 feet landward of the line of vegetation;

D. not maintain or repair an existing erosion response structure located on the public beach;

E. not issue a permit or certificate allowing any person to maintain or repair an existing erosion response structure.

F. not maintain or repair an existing erosion response structure located less than 200 feet landward of the vegetation line that is more than 50% damaged, except:

1. when failure to repair the damaged structure will cause unreasonable hazard to a public building, public road, public water supply, public sewer system, or other public facility immediately landward of the structure, or

2. when failure to repair the damaged structure will cause unreasonable flood hazard to habitable structures because adjacent erosion response structures will channel floodwaters to the habitable structure.

G. Unreinforced fibercrete in 4 feet by 4 feet sections may be used between 25 feet landward of the north toe of the dunes to 200 feet landward of the line of vegetation.

1. Paving used under the habitable structure and for a driveway connecting the habitable structure and the street is limited to the use of unreinforced fibercrete in 4 feet by 4 feet sections, which shall be a maximum of 4" thick with sections separated by expansion joints, or pervious materials approved by the Floodplain Administrator and the driveway width shall be limited to no more than the width necessary to service two vehicles, in that area 25 feet landward of the north toe of the dune to 200 feet landward of the line of vegetation.

2. Use of the unreinforced 4 feet by 4 feet fibercrete will require a $200.00 beachfront cleanup fee to pay for the cleanup of fibercrete from the public beaches should the need arise.

3. The property owner is responsible for clean-up of fibercrete from the public beach easement.

4. The property owner will be required to execute a Beachfront Construction and Dune Protection Permit, which requires the property owner to clean up any debris, including any fibercrete, deposited on the public beach.

II. General Flood Protection Requirements.

A. not engage in construction that does not comply with FEMA's regulations governing construction in flood hazard areas;

B. design construction so as to minimize impacts on natural hydrology. Construction shall cause no erosion to adjacent properties, critical dune areas, or the public beach.

III. Variances from Federal Requirements.

The Floodplain Administrator shall inform the General Land Office and FEMA Region 6 before Commissioners Court issues any variance from FEMA's regulations found in Volume 44 of the Code of Federal Regulations, Parts 59-77.

IV. Special Requirements for Eroding Areas.

A. "Eroding areas" are portions of the shoreline experiencing a historical erosion rate of greater than one foot per year based on published data of the University of Texas at Austin, Bureau of Economic Geology.

B. In addition to the other requirements of this order, in eroding areas, permittees shall:

1. elevate all structures on pilings in accordance with FEMA minimum standards or above the natural elevation (whichever is greater).

2. design structures located on property adjacent to the public beach so that they can be relocated;

3. not pave or alter the ground below the lowest habitable floor, except stabilization of driveways using gravel, crushed limestone, pavers; and

4. demonstrate and assure financial ability to find eventual relocation or demolition of the proposed structure.

C. If there is any conflict between the requirements of this subsection and the requirements of any other provision of this order, this subsection controls.

SECTION 6. EROSION RESPONSE PLAN

Brazoria County has adopted an Erosion Response Plan to reduce public expenditures for erosion and storm damage losses to public and private property, including public beaches. The plan establishes a building set-back line, explains criteria for construction seaward of the set-back line, identifies opportunities for mitigation and preservation of public beach access areas and dune system, describes criteria for acquiring property seaward of the set-back line, and identifies measures for post-storm damage assessment to beach access infrastructure and critical dune areas. Brazoria County hereby implements the Erosion Response Plan attached hereto and incorporated herein by reference.

SECTION 6 7. MANAGEMENT OF THE PUBLIC BEACH.

I. General Access Standards.

The Commissioners Court shall comply with the following standards when authorizing activities affecting or relating to public beach access and use.

A. Parking areas on or adjacent to the beach shall accommodate one car for each 15 linear feet of beach.

B. Where vehicles are prohibited from driving on and along the beach, access ways providing both ingress and egress shall be no farther apart than 1/2 mile.

C. Signs shall be posted which conspicuously explain the nature and extent of vehicular controls, parking areas, and access points.

II. Designation of Access Ways, Parking Areas, and Beaches Closed to Motor Vehicles.

SURFSIDE JETTY COUNTY PARK

A. The following areas shall be maintained as public vehicular access ways to and from the public beach:

- This Park does not have public vehicular access ways to and from the public beach. The beach is located within the Village of Surfside and is maintained by the Village. The Park is located adjacent to the beach.

B. The following areas shall be maintained as public pedestrian access ways to and from the public beach:

- ~~A walk-over is proposed to be provided for pedestrian access that will be wheelchair/golf cart accessible. Signs shall be posted which conspicuously explain the nature and extent of access points.~~

- The public beach is accessed through the Village of Surfside via vehicle. The Park is a stand-alone park which is maintained by the County.

C. The following areas shall be maintained as public beach access parking areas:

- The public beach access parking is located along Park View Road, Surfside, Texas. Brazoria County provides 186 parking spaces, including 4 ADA parking spots, for the public in the seaward parking lot. The day park has 81 parking spaces, including 4 ADA parking spots for the public.

- Public restrooms provided at two locations in this park.

- Walkover is proposed to provide access from the seaward parking lot to the day park area.

D. Provisions facilitating access to the beach for disabled persons shall be maintained at the above areas as needed to comply with the Americans with Disabilities Act.

- Signs shall be posted which conspicuously explain the nature and extent of access points, parking areas, and extent of vehicular controls

- Ingress and egress access ways will not be located farther than ½ mile apart

- ~~Temporary pathways such as removable mats will be available to accommodate access from the terminus of the walkover to compacted portions of the beach.~~

E. The following areas of the public beach are closed to vehicles:

- This beach is accessible through the Village of Surfside

F. The areas set out in this subsection are shown on the maps attached to this order.

- See Exhibit "A"

FOLLETT'S BEACH

A. The following areas shall be maintained as public vehicular access ways to and from the public beach:

1. BEACH ACCESS #7 - 0.0 mile northwest of San Luis Pass Bridge. (reference mark). All weather access maintained by County.

2. BEACH ACCESS #6 - 3.0 miles southwest of San Luis Pass Bridge. All weather access maintained by County.

3. BEACH ACCESS #5 -5.0 miles southwest of San Luis Pass Bridge. All weather access maintained by County.

4. BEACH ACCESS #4 - 7.6 miles southwest of San Luis Pass Bridge. All weather access maintained by County.

5. BEACH ACCESS #3 - 8.7 miles southwest of San Luis Pass Bridge. All weather access maintained by County.

6. BEACH ACCESS #2 - 9.0 miles southwest of San Luis Pass Bridge. All weather access maintained by County.

7. BEACH ACCESS #1 - 10.3 miles southwest of San Luis Pass Bridge. All weather access maintained by County.

- Signs shall be posted which conspicuously explain the nature and extent of vehicular controls and access points.

B. The following areas shall be maintained as public pedestrian access ways to and from the public beach:

- ~~The U.S. Fish and Wildlife Conservation Park located west of Treasure Island directly off of County Road 257 (Bluewater Highway):~~
  - ~~Pedestrian access way to be provided to the public beach~~
  - ~~11 parking spaces containing 1 parking space designated ADA parking~~
  - ~~Wooden pedestrian access will be wheelchair accessible.~~
  - ~~Access way will open to vehicular accessible beach.~~

- This Beach does not have a public pedestrian only beach. All vehicles may park on the public beach.

C. The following areas shall be maintained as public beach access parking areas:

- All vehicles may park on the public beach and the beach is fully accessible by vehicle.

D. Provisions facilitating access to the beach for disabled persons shall be maintained at each of the above areas as needed to comply with the Americans with Disabilities Act.

- Vehicles are permitted to park and drive on the beach.

E. The following areas of the public beach are closed to vehicles:

- ~~At the end of Follett Beach adjoining the west end of Treasure Island, 1500 feet of beach will be closed to vehicular traffic and create a pedestrian-only beach.~~
  - ~~60 parking spaces on unimproved beach~~
  - ~~40 parking spaces within the existing 70' road right-of-way of Jolly Roger Drive in Treasure Island~~
  - ~~The areas set out for this pedestrian only beach is shown on the map attached to this order as Exhibit "B".~~

F. The areas set out in this subsection for the entire Follett Beach are shown on the maps attached to this order.

- See Exhibit ~~"C".~~ "B".

~~TREASURE ISLAND~~

~~A. The following areas shall be maintained as public vehicular access ways to and from the public beach:~~

- ~~The streets within Treasure Island provide access to the walk-overs to the beach.~~

~~B. The following areas shall be maintained as public pedestrian access ways to and from the public beach:~~

- ~~From parking along Palm Boulevard, Jolly Roger and Gulf Beach Drive.~~
- ~~A walk-over is provided at the end of Palm Boulevard and Jolly Roger.~~
- ~~All walkovers are provided for pedestrian access and are wheelchair accessible. Signs shall be posted which conspicuously explain the nature~~

~~and extent of access points.~~

~~C. The following areas shall be maintained as public beach access parking areas:~~

- ~~2430 Linear feet of Beach will require 162 parking spaces which will be available on one side of the streets of Palm Boulevard, Jolly Rogers Drive, and Gulf Beach Drive. See Exhibit "D"~~

- ~~Signs shall be posted which conspicuously explain the nature and extent of vehicular controls, parking areas, and access points.~~

~~D. Provisions facilitating access to the beach for disabled persons shall be maintained at each of the above areas as needed to comply with the Americans with Disabilities Act.~~

- ~~Signs shall be posted which conspicuously explain the nature and extent of access points, parking areas, and extent of vehicular controls~~

- ~~Ingress and egress access ways will not be located farther than ½ mile apart~~

- ~~Temporary pathways such as removable mats will be available to accommodate access from the terminus of the walkover to compacted portions of the beach.~~

~~E. The following areas of the public beach are closed to vehicles:~~

- ~~The areas between San Luis Bridge and the area that Gulf Beach Drive ends in the Gulf of Mexico. See Exhibit "D"~~

~~F. The areas set out in this subsection are shown on the maps attached to this order.~~

- ~~See Exhibit "D"~~

SAN LUIS PASS COUNTY PARK

A. The following areas shall be maintained as public vehicular access ways to and from the public beach:

- BEACH ACCESS #7 – 0.0 mile northwest of San Luis Pass Bridge. (reference mark). All weather access maintained by County.

B. The following areas shall be maintained as public pedestrian access ways to and from the public beach:

- At the end of the Park approximately northwest located along the Pass. See Exhibit "~~E~~" "C".

- Walkovers will be provided in two locations:

  1. at the parking lot, and

  2. provided behind the main building. See Exhibit "~~B~~" "C".

- All walkovers are provided for pedestrian access and are wheelchair accessible.

- Signs shall be posted which conspicuously explain the nature and extent of access points.

- This County Park will also have a "beach Wheelchair" that floats and is useful in the sand.

C. The following areas shall be maintained as public beach access parking areas:

- The public beach access parking is located adjacent to the Pavilion/Building with 140' of parking and another 120' of parking in the parking lot providing approximately 65 parking spaces plus 20 over-flow parking, 4 spaces are ADA compliant;

- Some parking will be allowed along the bollards placed at the pedestrian beach point. This parking will be available anytime that tide permits.

D. Provisions facilitating access to the beach for disabled persons shall be maintained at each of the above areas as needed to comply with the Americans with Disabilities Act.

- Signs shall be posted which conspicuously explain the nature and extent of access points, parking areas, and extent of vehicular controls

- Ingress and egress access ways will not be located farther than ½ mile apart

- Temporary pathways such as removable mats will be available to accommodate access from the terminus of the walkover to compacted portions of the beach.

E. The following areas of the public beach are closed to vehicles:

- 400' is designated as pedestrian beach and closed to vehicles. Bollards are in place perpendicular to the beach to designate the pedestrian beach.

F. The areas set out in this subsection are shown on the maps attached to this order.

- See Exhibit "~~B~~" "C".

QUINTANA BEACH COUNTY PARK

A. The following areas shall be maintained as public vehicular access ways to and from the public beach:

- This Park does not have public vehicular access ways to and from the public beach.

B. The following areas shall be maintained as public pedestrian access ways to and from the public beach:

- A walk-over is provided for pedestrian access that is wheelchair accessible. Signs shall be posted which conspicuously explain the nature and extent of access points. Proposed golf cart access dependent on funding.

C. The following areas shall be maintained as public beach access parking areas:

- Brazoria County provides 80 parking spaces located in front of the buildings with 75 over flow parking spaces.

D. Provisions facilitating access to the beach for disabled persons shall be maintained at each of the above areas as needed to comply with the Americans with Disabilities Act.

- Signs shall be posted which conspicuously explain the nature and extent of access points, parking areas, and extent of vehicular controls

- Ingress and egress access ways will not be located farther than ½ mile apart

- Temporary pathways such as removable mats will be available to accommodate access from the terminus of the walkover to compacted portions of the beach.

E. The following areas of the public beach are closed to vehicles:

- This beach is closed to all vehicles.

F. The areas set out in this subsection are shown on the maps attached to this order.

- See Exhibit ~~"F"~~ "D"

III. Texas TDLR Access Guidelines

A. To ensure access for persons with disabilities, Brazoria County will have:

1. Signs posted which conspicuously explain the nature and extent of access points, parking areas, and extent of vehicular controls;

2. Ingress and egress access ways will not be located farther than ½ mile apart;

3. Temporary pathways such as removable mats will be available to accommodate access from the terminus of the walkover to compacted portions of the beach;

4. Beach wheelchairs are available at County Parks;

5. Golf carts, as defined by Section 502.001 of the Texas Transportation Code, are allowed to be operated on public beaches regardless of local vehicular restrictions as long as they conspicuously display a disabled parking placard issued by the State of Texas, pursuant to Section 681.004 of the Texas Transportation Code; and

6. Walkovers to accommodate said golf carts displaying the appropriate disabled parking placard issued by the State of Texas.

B. All-terrain vehicles, neighborhood electric vehicles, and recreational off-highway vehicles are not considered golf carts and may not be used to transport persons with disabilities on vehicular-restricted beaches.

IV. Abandonment's of Public Access or Parking Areas Prohibited.

The County shall not abandon, relinquish, or convey any right, title, easement, right way, street, path, or other interest that provides existing or potential beach access or parking area, unless an equivalent or better beach access or parking area is first provided consistent with this order.

V. Interfering with Access Prohibited.

A. No person shall create, erect, construct or maintain any obstruction barrier or restraint on or within a public beach or public access way to and from the beach that will interfere with free and unrestricted right of the public to use any public beach.

B. No person shall display or cause to be displayed on or adjacent to any public beach any sign, marker, or warning, or make or cause to be made any written or oral communication or other representation that the public beach, or a public access way to and from the public beach, is private property not subject to use by the public. This provision does not prohibit signs or other written or oral communications those areas landward of the vegetation line and access ways thereon, other than public access ways, are private property.

VI. Post Storm Assessment.

The Commissioners Court shall assess the status of the public beach boundary within 30 days after a major storm or other event causing significant landward migration of the public beach.

After the assessment, the County shall inform the General Land Office of any encroachments on the public beach within 10 days of completing the assessment.

VII. Beach Closures.

A. The Commissioners Court may by order close areas of the public beach in cases of public necessity. "Public necessity" shall be limited to environmental emergencies, public health and safety emergencies, and government entities' performance of government functions whose importance justifies the restriction of public access. The Commissioners Court shall limit the closure to the smallest possible area and the shortest possible time necessary.

B. This order does not restrict the ability of any peace officer or other official in any extraordinary emergency to protect safety or property by exercising powers or carrying out duties conferred on the officer under generally applicable law.

C. The Commissioners Court may by order close part of the public beach for a maximum of three days each year to allow a nonprofit organization to hold an event on the beach to which the public is invited and to which the organization charges no more than a nominal admission fee.

VIII. Littering Prohibited.

No person shall litter any public beach. "Litter" includes leaving unattended at any place other than proper disposal receptacle any trash or debris of any character, including food or vegetable material or any remnant or residue thereof, used containers or packaging, or other refuse such as glass, metal, wood, paper, or plastic materials.

IX. Camping.

No person shall camp on any public beach for a period greater than 14 consecutive days. "Camp" means to use for habitation any tent, lean-to, sleeping bag, blanket, automobile, trailer, camper, or other means of shelter.

X. Animal Control.

A. No person shall intentionally, knowingly, or recklessly allow a dog or other animal to attack or threaten any other animal or any person on a public beach.

B. No person shall possess a horse, pony, mule, or donkey on a public beach unless it is controlled by means of a headstall, bridle, lead rope, reins, or similar device. No person shall allow a horse, pony, mule, or donkey to run at large on a public beach or ride it on a public beach in willful and wanton disregard for the safety of persons or property or if the person is under the influence of alcohol. No person shall ride a horse, pony, mule or donkey on or across any dunes.

XI. Monitoring.

The Commissioners Court may, or at the request of the General Land Office shall, require a permittee to conduct or pay for a monitoring program to study the effects on the public beach of the permittee's coastal and shore protection project, and shall require the permittee to notify the General Land Office and the Floodplain Administrator discernible change in the erosion rate caused by the project.

XII. Beach Nourishment Standards.

The Commissioners Court shall not authorize a beach nourishment project unless it finds and the project sponsor demonstrates that:

A. the project is consistent with all applicable requirements of this order;

B. the sediment to be used is of effective grain size, mineralogy, and quality or is the same as the existing beach material;

C. the proposed nourishment material does not contain any hazardous substances listed in Volume 40 of the Code of Federal Regulations, Part 300, in concentrations which are harmful to human health or the environment as determined by applicable, relevant, and appropriate requirements established by the local, state, and federal governments;

D. there will be no adverse environmental effect on the property surrounding the area from which the sediment will be taken or to the site of the proposed nourishment;

E. the removal of sediment will not have any adverse impacts on flora and fauna; and

F. there will be no adverse effects from transporting the nourishment material.

XIII. Dune Restoration Standards.

Except as otherwise expressly provided in this order, the Commissioners Court shall not authorize restoration of dunes on a public beach unless it finds and the project sponsor demonstrates that the following requirements are met.

A. Except as provided in Subdivision (B) of this subsection, restored dunes:

1. shall extend no more than 20 feet seaward of the vegetation line and shall follow the natural migration of the vegetation line; and

2. shall not restrict or interfere with public use of the beach at normal high tide.

B. Restored dunes may be located farther seaward than 20 feet of the vegetation line only upon:

1. an affirmative demonstration by the sponsor that substantial dunes would likely form farther seaward naturally; and

2. prior written approval of the General Land Office.

C. All restored dunes shall be continuous with any surrounding naturally formed dunes; shall approximate the natural position, contour, volume, elevation, vegetative cover, and sediment content of any naturally formed dunes in the proposed dune restoration area; and shall be planted with indigenous vegetation that will achieve the same protective capability as the surrounding natural dunes.

D. The following methods or materials may be used to restore:

1. piles of sand having similar grain size and mineralogy as the surrounding beach;

2. Sixty (60) percent sand and forty (40) percent fine, clayey, or silty sediment can be used for the core of a dune with a minimum of two (2) feet of sand placed on top.

3. temporary sand fences conforming to General Land Office guidelines;

4. organic brushy materials such as used Christmas trees; and

5. sand obtained by scraping accreting beaches only if the local government approves the scraping and the project is monitored to determine any changes that may increase erosion of the public beach.

E. The following methods or materials shall not be used to restore dunes:

1. hard or engineered structures;

2. materials such as bulkheads, riprap, concrete, or asphalt rubble, building construction materials, and any non-biodegradable items;

3. fine, clayey, or silty sediments except the 60/40 percent allowed in Section 7.XIII.D.2.;

4. sediments containing the toxic materials listed in Volume 40 of the Code of Federal Regulations, Part 302.4 in concentrations which are harmful to people, flora, and fauna as determined by applicable, relevant, and appropriate requirements for toxicity standards established by the local, state, and federal governments; and

5. sand obtained by scraping or grading dunes or the beach.

F. Activities affecting restored dunes shall be subject to the requirements of this order. Permittees shall not construct or maintain private structures on restored dunes, except for dune walkovers or similar access ways meeting the requirements of this order.

G. All applications or proposals for reconstructing dunes on the public beach shall be forwarded to both the General Land Office at least 10 working days prior to the decision on the application, unless the dune area is greater than 5,000 square feet in which the review period will be 30 days.

XV. Dune Walkover Standards.

The Commissioners Court shall not authorize construction of dune walkovers or other beach access mechanisms unless it finds and the project sponsor demonstrates that the following requirements are met.

A. The walkover is restricted, to the greatest extent possible, to the most landward point of the public beach and extends into the beach beyond the foredune ridge and coppice mounds. The seaward terminus of a dune walkover should be located far enough landward to prevent regular destruction from wave action and accommodate projected shoreline changes.

B. The walkover is constructed and located in a manner that will not interfere with or otherwise restrict public use of the beach at normal high tides.

C. The walkover deck should be constructed a height above the dunes or at a three-foot minimum height above the dunes to allow rain and sunlight to reach underlying dune vegetation and to accommodate dune migration or any increase in dune height. To prevent sand from accumulating and hindering access, the seaward terminus should be oriented at an angle away from the prevailing wind direction.

D. The slats that form the walkover deck must run perpendicular to the direction of travel and have a space no greater than ½-inch apart. Support posts should be implanted at least five feet in the ground and placed at intervals no closer than six feet. Concrete or other similar fills should not be used to stabilize support posts.

E. Permittees shall relocate walkovers to follow any landward migration of the public beach or seaward migration of dunes using the following procedures and standards.

1. After a major storm or any other event causing significant landward migration of the landward boundary of the public beach, permitters shall

shorten any dune walkovers encroaching on the public beach to the appropriate length for removal of the encroachment.

2. In cases where the migration of the landward boundary of the public beach occurs slowly over a period of time or where a dune walkover needs to be lengthened because of the seaward migration of dunes, the permittee shall apply for a permit or certificate authorizing the modification of the structure.

XVI. Standards for Beach Maintenance and Other Activities.

A. The Commissioners Court shall not authorize or undertake any beach management activities that materially weaken dunes or dune vegetation, reduce the protective functions of dunes, result in significant redistribution of sand, or significantly alter the beach profile. All sand moved or redistributed due to beach maintenance activities of the County shall be returned to a location seaward of the dune protection line. "Beach maintenance" means the cleaning or removal of debris from the beach by hand-picking, raking, or mechanical means.

B. The Commissioners Court authorizes the following beach maintenance and management measures:

1. Seaweed, tree limbs and organic debris will be raked as needed to maintain safe conditions for public use from the beach and deposited in the 20 foot buffer area seward of the dunes in the following areas:

(a) The entire beach between the Surfside City limits and the Number 6 access road at the San Luis subdivision, excluding the Freeport City Limits.

(b) The entire pedestrian beach at Quintana Beach County Park, from the jetties to the County fishing pier.

(c) Beach areas immediately adjacent to all beach access roads from the San Luis Beach Subdivision to the Brazoria County line at San Luis Pass.

(d) All of the beach area from beach access road 6 to the Brazoria County line.

~~e. Quintana Beach areas immediately adjacent to the beach access roads from FM 1495 to the Quintana Beach County Park fishing pier.~~

2. In areas of heavy erosion, seaweed and tree limbs deposited by the surf will be allowed to remain on the beach to build sand deposits and naturally enrich the beach. In these areas the County will maintain vehicular access by grading a portion of the natural debris seaward to create a traffic lane for

vehicles.

3. The area of natural beach enrichment will include the following areas:

   (a) The section of beach between the County fishing pier and FM 1495 (Freeport City Limits).

   (b) That portion of the beach 200 feet of 1 access road and the Brazoria County line at San Luis Pass, excluding the City of Freeport city limits.

4. Trash containers will be placed on the beach and emptied weekly in the following areas:

   (a) From the Brazoria County line at San Luis Pass to the Surfside City limits at Mile 11, excluding the City of Freeport city limits.

   (b) From the jetties at Mile 15 to the beach access road at FM 1495 – the City of Freeport city limits.

5. Chemical toilets will be maintained on the beach at the following locations:

   (a) From the Surfside City limits to the San Luis Beach Subdivision, excluding the City of Freeport city limits.

   (b) At the access road adjacent to the County fishing pier at Quintana Beach County Park.

   (c) On County beach at the beach access road adjacent to the Freeport City Limits.

6. Beach access roads will be kept free of sand and seaweed that washes into them during extreme high tides by grading the sand and/or seaweed back onto the beach.

~~6~~ 7. Brazoria County will act as a local coordinator for the General Land Office Adopt A Beach Program.

SECTION 8 BEACH USER FEE PLAN

Brazoria County has adopted a Beach User Fee Plan to preserve and enhance access to and from and for the safe and healthy use of public beaches by the public.

I. Legal Authority Authorizing Collection of Fees

Section 63.053(b) of the Texas Natural Resource Code allows a Commissioners Court to charge reasonable fees that do not exceed the cost for the provision and maintenance of public beach related facilities and services necessary to implement such plans, including but not limited to

parking, public health and safety, environmental protection and matters contained in the certified beach access plans, and that do not unfairly limit access to and use of such beaches.

Title 31, Texas Administrative Code, Rule 15.8 sets forth requirements to be met for Beach User Fees.

II. Fee is Consistent with State Standards

In order to establish and maintain beach related services and facilities for the preservation and enhancement of access to and from and safe and healthy use of public beaches by the public, the County may charge a fee of $5.00 per car or a $25.00 per year season pass at Quintana Beach County Park and San Luis Pass County Park. Both parks have public restroom facilities, asphalt parking, increased litter dispensers, beach wheelchairs, wooden boardwalks, handicap accessibility, beach cleaning, and provide pedestrian only access. The beach user fee will not exceed the necessary and actual cost of providing reasonable beach related public facilities and services.

The Beach User Fee will primarily be collected during peak visitation periods from Memorial Day to Labor Day when the cost of maintenance is impacted the most. At other times, parking is available for free and no attendants are on the premises. The annual pass will provide access to both parks. The Beach User Fee will not unfairly limit public use to and from the public beaches. Brazoria County has over 11 miles of public beaches that are free, allow vehicular traffic, and are available to the public at all times. The beach user fee does not discriminate on the basis of residence and is consistent with Title 31, Texas Administrative Code, Rule §15.8 and the Open Beaches Act.

III. Beachfront Construction, Vehicular Controls, Parking, Dune Protection

The beach user fee will allow Brazoria County to maintain dune protection at Quintana Beach County Park and San Luis Pass County Park where both have numerous dunes. By providing pedestrian only access with wooden boardwalks, the dunes will be better protected. Keeping vehicles from encroaching on the dune boundaries assist in preserving the natural vegetation and frontal dune line. It will also allow better vehicular controls at these two parks. The beach user fee will help maintain these added amenities that better protect the natural vegetation and dunes while also allowing the beach user a more enjoyable experience at the beach.

IV. Signage

The County will mark fee beach areas with signs conspicuously posted that clearly indicate, at minimum, the location of the fee areas and the identity of the County as the entity collecting the fee.

V. Other Governmental Entities Beach User Fees

The Village of Surfside charges a beach user fee of $10.00/yr. for access to three miles of its public beach. The Village has been charging an access fee since approximately 1992. The

County has entered into an Interlocal Agreement with the Village of Surfside as it relates to user fees. *Said agreement is attached hereto as Exhibit "___".*

SECTION ~~7~~ 9. MOTOR VEHICLES CONTROL PLAN.

Brazoria County is consistent with the state standards for preserving and enhancing public beach access.

The majority of Brazoria County beaches are accessible by vehicle thus enhancing the public's right to access the beach. Brazoria County is also providing approximately ~~4~~ two (2) sections of its beaches that are accessible only to pedestrians to enhance the enjoyment of the beach free of vehicles. All pedestrian-only beach accesses provide sufficient parking for visitors by providing 1 parking space for every 15 feet of beach restricted to vehicular access. Brazoria County also provides conspicuous signage all along the beach and beach access points that explains the nature of the vehicular controls and where public parking and access ways are located. Brazoria County also provides parking spaces at of the Surfside Jetty County Park that joins the Village of Surfside's beach ~~and provides a walkover to enhance the accessibility to the beach~~. Brazoria County will also provide maps at Quintana Beach County Park, San Luis Pass County Park and on the internet that clearly identifies parking spaces and access ways for all of Brazoria County's Beaches.

I. Operation of Motor Vehicles.

A. No person shall operate or cause to be operated any vehicle at a speed in excess of 15 miles per hour on any public beach.

B. No vehicle shall travel or park closer than ten (10) feet to any dune or closer than 25 feet to the water's edge, provided that a vehicle may travel and temporarily park at or near the water's edge for the purpose of launching a boat. These restrictions do not apply if erosion has caused physical damage to certain areas. However, in any event, driving on dunes is prohibited.

C. Pedestrians shall have the right of way and vehicles shall stop and allow pedestrians to cross to and from the beach.

D. No person shall operate or cause to be operated any vehicle on any beach designated in this order as closed to vehicular traffic.

E. No person shall drive or operate for recreational purposes any dune buggy, marsh buggy, minibike, trail bike' jeep, or any other mechanized vehicle on a dune seaward of the dune protection line.

F. No person shall operate vehicles not licensed for street use on the beach.

II. Beach Traffic Control

A. A traffic control plan will alleviate automobile congestion on the public beaches will create a safer area for pedestrians, and will allow faster access to all points on the beach by emergency vehicles.

B. One way traffic on the beach to be established on major holidays and weekends as determined by the Sheriff's Department.

III. Legal Authority to Impose Existing Vehicular Controls

A. Section 61.122(a) of the Texas Natural Resource Code allows a Commissioners Court of a county bordering on the Gulf of Mexico or its tidewater limits, by order, may regulate motor vehicle traffic on any beach within the boundaries of the county, including prohibiting motor vehicle traffic on any natural or man-made sand dune or other form of shoreline protection.

B. Section 61.126 of the Texas Natural Resource Code requires the Beach and Dune Order shall provide for signs that are designed and posted in compliance with the current provisions of the Texas Manual on Traffic Control Devices for Streets and Highways, stating the applicable speed limit, parking requirement, or that vehicles are prohibited.

C. Title 31, Texas Administrative Code, Rule 15.7 sets forth requirements to be met for vehicular beach access, traffic and parking on the beach.

IV. Emergency Vehicles.

The prohibitions in this section do not apply to an authorized emergency vehicle, beach patrol, police, safety, or maintenance vehicle operating within the scope of official duties.

V. Short-Term and Long-Range Goals for Restricting Vehicular Access and Use

Short term goals relating to restricting vehicular access and use would be to provide a safe recreational area for beach goers while protecting the natural resources and habitat of the coastline.

Long term goals relating to restricting vehicular access and use would be to protect piping plover habitat, as well as sea turtle nesting and all other natural resources along the Brazoria County Coastline.

VI. Vehicular Management relating to the Beach

Providing pedestrian only beaches increases the tax revenue and boosts the economy by enhancing the adjoining land for future development;

Beach user fees increase the maintenance capabilities thus resulting in increased public safety and enhances the beach environment, provides amenities to the beach and ultimately provides further protection for the natural resources of the coastline;

Controlling the vehicle traffic and prohibiting vehicles from the dunes enhances the protection of the dunes resulting in protection of the natural resources.

SECTION ~~8~~ 10. PENALTIES.

Any person who violates either the Dune Protection Act, the Open Beaches Act, this order, or a permit or certificate condition is liable for a civil penalty of not less than $50 nor more than $2,000 per violation per day. Each day the violation occurs or continues constitutes a separate violation. Violations of the Dune Protection Act, the Open Beaches Act, and the rules adopted pursuant to those statutes are separate violations. The assessment of penalties under one Act does not preclude another assessment of penalties under the other Act for the same act or omission. Conversely, compliance with one statute and the rules adopted thereunder does not preclude penalties under the other statute and the rules adopted pursuant to that statute. The Commissioners Court shall consider the following mitigating circumstances when referring violations for assessment of penalties: acts of God, war, public riot, or strike; unforeseeable, sudden, and natural occurrences of violent nature; and willful misconduct by a third party not related to the permittee by employment or contract.

If it appears that a person has violated, is violating or is threatening to violate these Regulations, State Statutes or State Rules, in any manner, the County may institute a civil suit in the appropriate court for temporary or permanent court order or injunction, either prohibitory or mandatory, to remove or prevent any improvement, maintenance, obstruction, barrier, or other encroachment on a public beach or to prohibit any unlawful restraint on the public's right to access to and use of a public beach or other activity that violates Chapters 61 and/or 63 of the Texas Natural Resource Code. The County may recover penalties and costs of removing any improvement, obstruction, barrier, or other encroachment if it is removed by public authorities pursuant to a court order.

The County may bring a suit for declaratory judgment to try any issue affecting the public's right of access to or use of the public beach.

SECTION ~~9~~ 11. GENERAL PROVISIONS.

I. Construction.

A. This order and all orders, resolutions, or other enactment's related or pursuant this order shall be read in harmony with County orders of general applicability. If there is any conflict between them, which cannot be reconciled by ordinary rules of legal interpretation, this order controls.

B. This order and all orders, resolutions, or other enactment's related or pursuant to this order shall be read in harmony with the Open Beaches Act, the Dune Protection Act, and General Land Office rules implementing them. If there is

any conflict between them which cannot be reconciled by ordinary rules of legal interpretation, state law provisions control.

II. Boundary Determinations.

The General Land Office shall make determinations on issues related to the location of the boundary of the public beach and encroachments on the public beach pursuant to the requirements of the Open Beaches Act, Sec. 61.016 and Sec. 61.017. The County shall consult with the General Land Office whenever questions of encroachment and boundaries arise with respect to the public beach.

III. Beaches Presumed to be Public.

The Commissioners Court shall presume that any beach fronting the Gulf of Mexico is a public beach unless the owner of the adjacent land obtains a declamatory judgment otherwise under the Open Beaches Act, Sec. 61.019. That section provides that any person owning property fronting the Gulf of Mexico whose rights are determined or affected by this order may bring suit for a declamatory judgment against the state to try the issue or issues.

IV. General Prohibition.

No person shall violate any provision of this order or any permit or certificate or the conditions contained therein.

V. Appeals.

The Dune Protection Act, Sec. 63.151, and the Open Beaches Act, Sec. 61.019, contain the provisions for appeals related to this order.

CERTIFIED COPY
BRAZORIA COUNTY COMMISSIONERS' COURT

ORDER NO. VIII.B.3.c. RE: ADOPT DUNE PROTECTION AND BEACH ACCESS PLAN

Pursuant to the Texas Natural Resource Code, Section 61.015, hereby adopts the attached Dune Protection and Beach Access Plan.

Further that a certified copy of this Order will be submitted to the General Land Office by the Floodplain Administrator for review and approval.

Motion to Approve by Commissioner Stanley, seconded by Commissioner Payne that the above action be taken by the Court.

Passed: 5-0

Aye: Judge King, Commissioner Payne, Commissioner Sebesta, Commissioner Adams, Commissioner Stanley
Nay: (None)

STATE OF TEXAS §

COUNTY OF BRAZORIA §

I, Joyce Hudman, Clerk County Court and Ex-Officio Clerk of the Commissioners' Court of Brazoria County, Texas, do hereby certify that the foregoing is a true and correct copy of that certain:

ORDER NO. VIII.B.3.c. RE: ADOPT DUNE PROTECTION AND BEACH ACCESS PLAN

as passed by the Commissioners' Court on the 26th day of June, A.D., 2012, SPECIAL Term of Commissioners' Court and as the same appear(s) in the Commissioners' Court Records of Brazoria County, Texas.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the 3rd DAY OF JULY A. D., 2012.

JOYCE HUDMAN, Clerk County Court
and Ex-Officio Member of the Commissioners' Court of Brazoria County, Texas

By: N Bartek Deputy
N. Bartek

CERTIFIED COPY
BRAZORIA COUNTY COMMISSIONERS' COURT

ORDER NO. VIII.B.3.f. RE: ADOPT THE EROSION RESPONSE PLAN

Pursuant to the Texas Natural Resource Code and the Texas Administrative Code, the Court hereby adopts the attached Erosion Response Plan.

Further that a certified copy of this Order will be submitted to the General Land Office by the Floodplain Administrator.

Motion to Approve by Commissioner Stanley, seconded by Commissioner Payne that the above action be taken by the Court.

Passed: 5-0

Aye: Judge King, Commissioner Payne, Commissioner Sebesta, Commissioner Adams, Commissioner Stanley
Nay: (None)

STATE OF TEXAS §

COUNTY OF BRAZORIA §

I, Joyce Hudman, Clerk County Court and Ex-Officio Clerk of the Commissioners' Court of Brazoria County, Texas, do hereby certify that the foregoing is a true and correct copy of that certain:

ORDER NO. VIII.B.3.f. RE: ADOPT THE EROSION RESPONSE PLAN

as passed by the Commissioners' Court on the 26th day of June, A.D., 2012, SPECIAL Term of Commissioners' Court and as the same appear(s) in the Commissioners' Court Records of Brazoria County, Texas.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the 3rd DAY OF JULY A. D., 2012.

JOYCE HUDMAN, Clerk County Court
and Ex-Officio Member of the Commissioners' Court of Brazoria County, Texas

By: N. Bartek Deputy
N. Bartek

CERTIFIED COPY
BRAZORIA COUNTY COMMISSIONERS' COURT

ORDER NO. VIII.B.3.i. RE: ADOPTING BEACH USER FEE PLAN

Pursuant to the Texas Natural Resource Code and the Texas Administrative Code, the Court hereby adopts the attached Beach User Fee Plan.

Further that a certified copy of this Order will be submitted to the General Land Office by the Floodplain Administrator.

Motion to Approve by Commissioner Stanley, seconded by Commissioner Payne that the above action be taken by the Court.

Passed: 5-0

Aye: Judge King, Commissioner Payne, Commissioner Sebesta, Commissioner Adams, Commissioner Stanley
Nay: (None)

STATE OF TEXAS §

COUNTY OF BRAZORIA §

I, Joyce Hudman, Clerk County Court and Ex-Officio Clerk of the Commissioners' Court of Brazoria County, Texas, do hereby certify that the foregoing is a true and correct copy of that certain:

ORDER NO. VIII.B.3.i. RE: ADOPTING BEACH USER FEE PLAN

as passed by the Commissioners' Court on the 26th day of June, A.D., 2012, SPECIAL Term of Commissioners' Court and as the same appear(s) in the Commissioners' Court Records of Brazoria County, Texas.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the 3rd DAY OF JULY A. D., 2012.

JOYCE HUDMAN, Clerk County Court
and Ex-Officio Member of the Commissioners' Court of Brazoria County, Texas

By: N. Bartek Deputy
N. Bartek

Revision 1

BRAZORIA COUNTY EROSION RESPONSE PLAN

An Amendment to the Dune Protection and Beach Access Plans for:

BRAZORIA COUNTY
VILLAGE OF SURFSIDE BEACH
TOWN OF QUINTANA
CITY OF FREEPORT

April 16, 2012

Prepared by:
COAST & HARBOR ENGINEERING, INC.
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Submitted to:

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APPENDICES

Erosion Response Plan – County of Brazoria

Revision 1

April 16, 2012

1 INTRODUCTION

This Erosion Response Plan (ERP) was developed by Coast & Harbor Engineering, Inc. (CHE) under Brazoria County Contract No. 11-022-000-4320, pursuant to the authority granted by Texas Natural Resources Code, §33.607 for reducing public expenditures for erosion and storm damage losses to public and private property, including public beaches. It was developed in consultation with the Texas General Land Office (GLO) and establishes a building set-back line, explains criteria for construction seaward of the set-back line, identifies opportunities for mitigation and preservation of public beach access areas and dune system, describes criteria for acquiring property seaward of the set-back line, and identifies measures for post storm damage assessment to beach access infrastructure and critical dune areas. By implementing an ERP, Brazoria County and its coastal municipalities are in compliance with the GLO requirements and will continue to be eligible for GLO funding for Coastal Restoration and Protection Projects.

Brazoria County consists of approximately 30 miles of Gulf Coast shoreline, as shown in Figure 1. Three local governments have coastal jurisdiction within Brazoria County including the Village of Surfside Beach, Town of Quintana, and City of Freeport. Brazoria County has coastal jurisdiction for shoreline not included within these local communities. This ERP shall serve as an amendment to each of these local government's Dune Protection and Beach Access Plans.

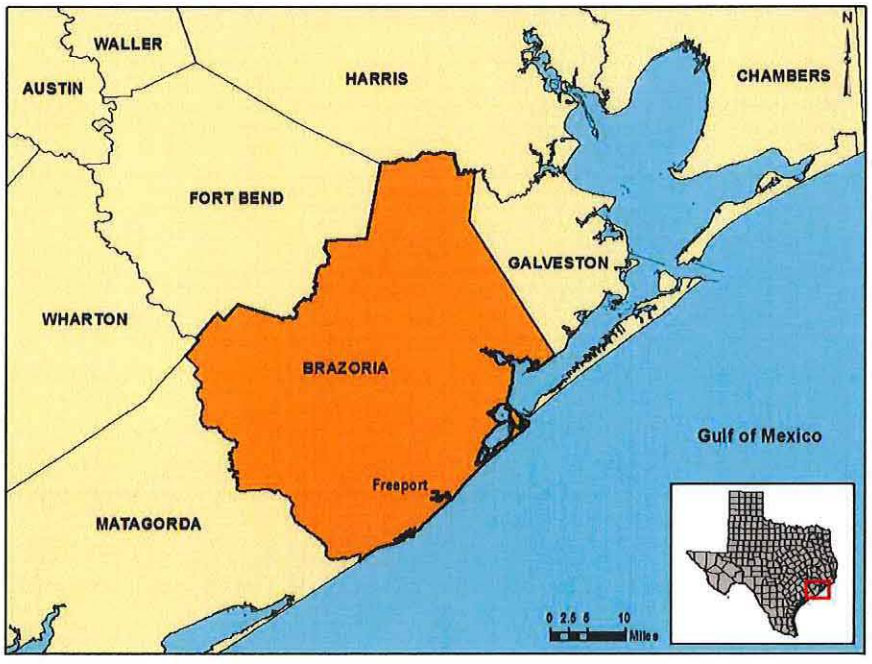

Figure 1. Vicinity Map of Brazoria County, Texas.

2 LOCAL GOVERNMENT JURISDICTION

The Village of Surfside Beach is located on the northeast side of the Freeport Channel, the Town of Quintana is located on the southwest side of the Freeport Channel, and City of Freeport has coastal Extraterritorial Jurisdiction (ETJ) located southwest of Bryan Beach Road and a small section northeast of the Village of Surfside Beach as shown in Figure 2. Brazoria County has coastal jurisdiction for shoreline not included within these local communities with the exception of shoreline within the Aransas National Wildlife Refuge and Justin Hurst Wildlife Management Area which is managed by the Texas Parks and Wildlife Department.

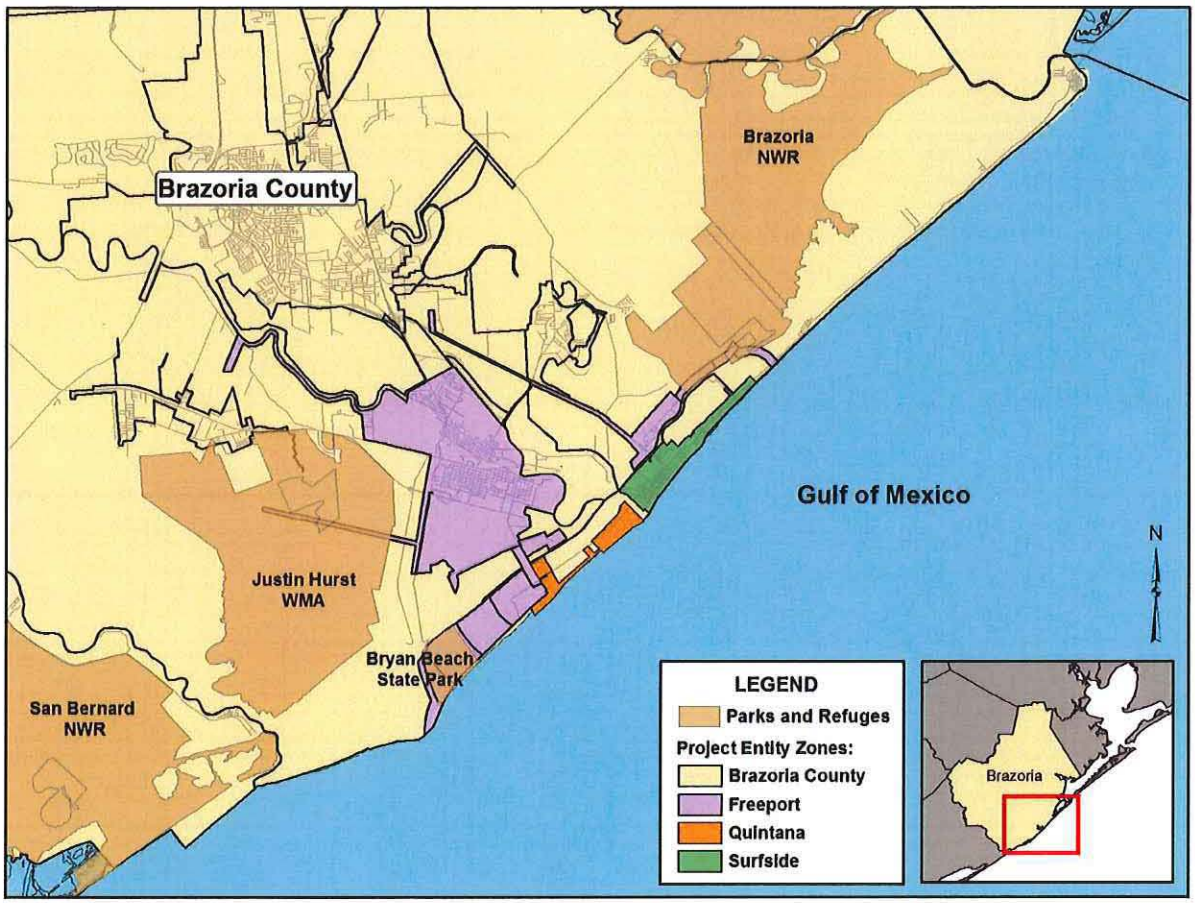

Figure 2. Coastal Jurisdiction within Brazoria County.

3 GEOMORPHOLOGY

3.1 Geomorphology

Regionally, the coastal area is composed of fluvial deltaic headlands (McGowen and others, 1976) with a series of marginal marine embayments separated from the Gulf by a system of sandy barrier islands and peninsulas (Lankford and Rehkemper, 1969). The southeastern shore of Texas is a microtidal, wave-dominated coast (Hayes 1979).

Coastal Brazoria is characterized as Quaternary (recent and Holocene) Alluvium containing thick deposits of clay, silt, sand, and gravel (Barnes et al., 1975, 1982) overlying the Pleistocene-age Beaumont Formation which is composed mostly of clay with silt, sand and gravel. The Alluvium outcrops in a belt approximately 70 to 90 miles wide paralleling the coastline.

Previous geotechnical investigations in the vicinity of the Freeport Jetties indicate that the sand on the upper beach is approximately 18 – 20 ft thick and is underlain by mud or the Beaumont Clay formation. The sand layer thins offshore to about 6 ft thick at the end of the jetties. Just offshore of the jetties, the sand layer disappears completely and the bottom is composed of silt and stiff Beaumont Clay.

The majority of the Brazoria County coast has experienced a general erosional trend over at least the past 100 years leading to shoreline retreat throughout most of the County shoreline with the exception of the shoreline southwest of the Brazos River mouth which has in general advanced.

The three main features influencing the shoreline morphology along the Brazoria County shoreline are the relic Brazos River Delta, the Freeport Jetties, and Freeport Channel. The Freeport Channel was the mouth of the Brazos River until the mouth was relocated 8 miles southwest in 1929 as the sediment carried by the river made maintenance of the Freeport Channel too expensive. Since the river mouth was relocated, the delta bottom (the sea bed offshore of the Brazoria County shoreline) has eroded and dropped more than 12 ft in the last 75 years; erosion is continuing and is expected to continue in the future. This lowering of the bottom allows higher wave energy to propagate closer to the shoreline which increases erosion and sediment transport along the shoreline.

The shape of the relic Brazos River Delta and the local wave climate cause a divergent node in the longshore transport at the Freeport Channel so the net sediment transport is away from the Channel. Net sediment transport moving along the Surfside shoreline is to the northeast, and net sediment transport along the Quintana shoreline is to the southwest. Due to these transport patterns and the presence of the Freeport Channel and Jetties, a deficit in the littoral system is present along the majority of the central Brazoria County shoreline which leads to erosion and shoreline retreat. Any increase in wave energy from the eroding offshore bottom (relic delta) will increase the volume of sediment being transported along the shoreline causing further erosion due to a lack of sediment supply.

At the same time, maintenance of the Freeport Channel removes approximately 2.6 million cy/yr from the channel, which is estimated to be composed of approximately 10% sand. The maintenance material is being permanently removed from the Brazoria County littoral system through deepwater disposal.

On the northern end of the County shoreline, San Luis Pass acts a sediment sink accumulating approximately 100,000 cy/yr and trapping sediment that would otherwise be available for transport along Follet's Island, which leads to shoreline retreat along most of that reach of shoreline. South of the Brazos River mouth, the shoreline is supplied with sediment from the Brazos River, and is generally stable or accretional, except the shoreline west of the San Bernard River.

The cumulative effects from relocation of the Brazos River, dams trapping sandy sediment inland, Freeport Channel improvement projects, and continued dredging of the navigation channel all lead to the two main causes of erosion: 1) an overall loss of sediment from the littoral system and 2) erosion of the relic delta which translates into shoreline erosion. These causes have worked together to form a positive feedback loop which accelerates the erosion and associated shoreline retreat along most of the Brazoria County shoreline. This system will continue to accelerate for the foreseeable future. Additionally, future efforts to deepen and/or widen the Port of Freeport Channel

are likely to have additional impact (increase) on the morphological system inertia and shoreline retreat (CHE 2008).

3.2 Erosion Rates

Texas has some of the highest erosion rates in the country. When the Texas coast erodes, homes are lost, property values decrease, tourism suffers, and local economies are negatively impacted. Additionally, without a healthy beach/dune system to protect the coast, the impact of major storms is more severe. Sixty-four percent of the Texas coast is eroding at an average (mean) rate of 5.9 feet/year with some areas experiencing greater than 30 feet/year (McKenna 2009).

Of the communities studied, average erosion rates are among the highest at West Galveston Island, Village of Surfside Beach, and in the City of South Padre Island, and these communities are the top three with the greatest value in land lost and structure damage (McKenna 2009).

In April 2011, the Bureau of Economic Geology (BEG) published long-term erosion rates for Brazoria County which are shown in Appendix A. These average erosion rates were calculated based on aerial photography from the 1930's to 2007, prior to Hurricane Ike. While these rates show the long-term erosion trends along the Gulf of Mexico shoreline in Brazoria County, they do not reflect accelerated erosion experienced along some sections of shoreline such as in Surfside Beach adjacent to the Freeport Jetties.

3.2.1 Village of Surfside Beach

The average long-term coastal erosion rate for the shoreline along the Village of Surfside Beach ranges from stable to 8 ft/yr with the most severe erosion within the pedestrian beach portion of the shoreline near the Freeport Jetties.

3.2.2 Town of Quintana

The average long-term erosion rate for the shoreline along the Town of Quintana is 6 to 15 ft/yr with erosion rates over the majority of the shoreline greater than 10 ft/yr.

3.2.3 City of Freeport

The average long-term erosion rate for the shoreline along the City of Freeport is 8 to 19 ft/yr with the highest erosion rates near the Brazos River mouth where washover and blowouts have occurred during recent hurricane events such as Rita and Ike.

3.2.4 Brazoria County

The average long-term erosion rate for the shoreline along the remainder of the county ranges from stable to 16 ft/yr with the most severe erosion rates on the northeast end of the county around Treasure Island.

4 Development of Building Set-Back Line

The ERP, including the building set-back line, was developed in anticipation of coastal erosion and is intended to restore and enhance the critical dune system, protect and restore beach access infrastructure, and minimize loss to private and public infrastructure during storm events. The set-back line was established to provide guidelines for new construction seaward of the set-back line and reduce damage to these structures during storm events. Additionally, the building set-back line

may not be located further landward than the Dune Protection Line (DPL) and must encompass as much of the critical dune area as practicable. The criteria evaluated and utilized in the establishment of the building set-back are described below.

4.1 Criteria Considered

CHE collected data from the GLO, BEG, Texas Natural Resources Information System (TNRIS), as well as local governments in Brazoria County. A list of collected data is presented in Table 1.

Table 1. Data Collected and Used for Set-Back Line Development.

DATA	DETAILS	SOURCE
Aerial Photography	May 2010 Aerial Photography in UTM83z10m Coordinate System	Downloaded from Texas Natural Resources Information System (TNRIS).
Historical Erosion Rates	Analysis spans 1930 to September of 2007 (Pre-Ike). Results are Feet per Year Erosion	Bureau of Economic Geology: Shoreline Change Study Historical Erosion Results Released in April 2011.
Beach Access Plans	Brazoria County, Surfside, Quintana, & Freeport	Acquired from entity.
Dune Protection Line (DPL)	Brazoria County, Surfside, Quintana, & Freeport	CHE digitized the DPL based on each local government's Beach Access Plans.
Approximate Line of Vegetation	Based on May 2010 Aerial Photography	CHE delineated vegetation line.
Base Flood Elevation (BFE) Zones	Based on May 1992 Flood Insurance Rate Maps (FIRMS).	CHE received rectified FIRMS from Michael Baker Jr., Inc. (c/o Brazoria County) and digitized the BFE Zones
Mean Higher High Water (MHHW)	Based on April 2010 Lidar Data (NAVD88 Feet).	General Land Office (GLO)
Coastal Boundary Surveys (CBS)	Coverage Years varied from 2002 to 2010.	General Land Office (GLO)
Public Beach Access	Vehicular and Pedestrian Beach Access Points.	Verified by CHE on May 3 and May 24, 2011 Site Visit

4.1.1 Historical Erosion Rates

Historical erosion rates, as determined by the BEG Shoreline Change Study (2011), in conjunction with onsite observations by CHE coastal engineers, were reviewed and considered in the development of the set-back line. It should be noted that although the Shoreline Change Study is a recent release, erosion rates provided by the BEG in this study do not include data from Hurricane Ike or any data post-Ike. See Appendix A for the 2011 BEG long-term erosion rates for Brazoria County; erosion rates are given at approximately 175ft intervals along the shoreline.

4.1.2 Line of Vegetation

The Line of Vegetation (LOV) is the extreme seaward boundary of natural vegetation, which spreads continuously inland and is typically used to determine the landward extent of the public beach. A natural vegetation line, seen in Figure 3 and shown in Appendix A, is visible through portions of Brazoria County. CHE used ArcMap to manually delineate the visible vegetation line from the 5/3/2010 rectified aerial photography that was acquired by the National Agriculture Imagery Program (NAIP). In areas where the LOV was not present, the line was extrapolated from one existing point of vegetation to another and for the purposes of this plan will be referred to as the approximate LOV. The approximate LOV was visually verified during a site visit conducted in May of 2011. The approximate LOV presented in the maps of Appendix A is not intended to be used to identify, delineate, or fix the landward boundary of the public beach, but merely to be used as a reference point in determining the location of the building set-back line.

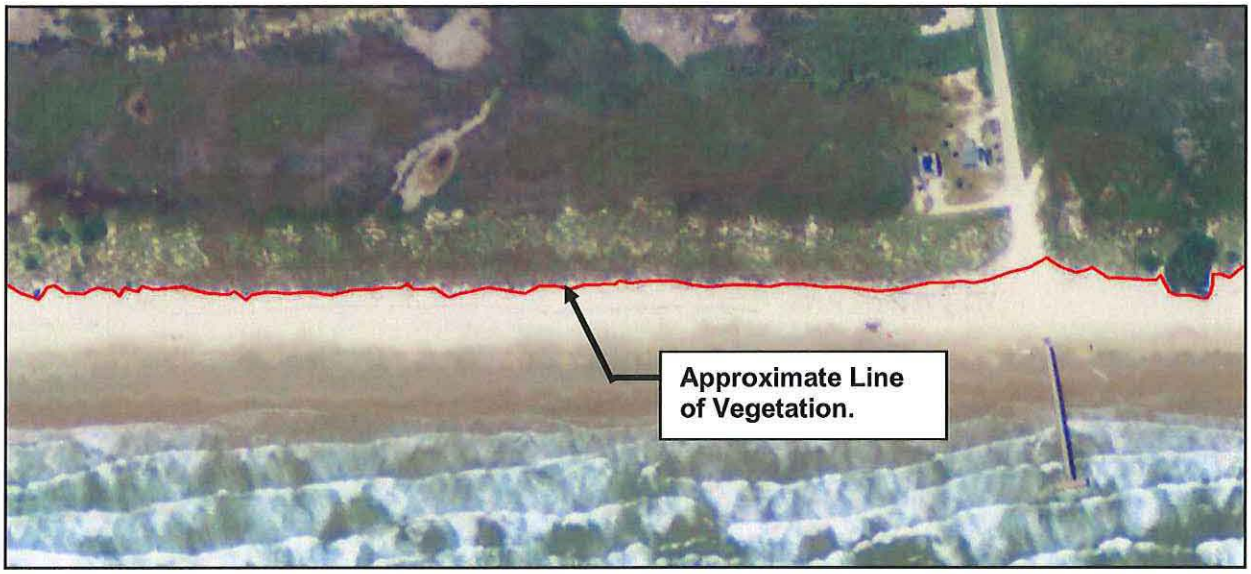

Figure 3. Approximate Vegetation Line based on 2010 Aerial Photography.

4.1.3 Mean High Tide

The Texas Gulf Coast experiences approximately two tidal cycles per solar day, referred to as a semidiurnal tide. The tide cycles through a high and low twice each day, with one of the two high tides being higher than the other and one of the two low tides being lower than the other. For the purpose of developing a set-back line, CHE used the Mean High Tide datum which is considered the average of the highest tide level in each day observed over the most recent National Tidal Datum Epoch, a 19 year period from 1983 to 2001. The name for this tidal mean (Mean High Tide) according to NOAA is the Mean Higher High Water or MHHW.

The MHHW line for Brazoria County was delineated on a 2010 topographic contour map provided by the GLO. The 2010 topographic contour map was created by the GLO from 2010 Lidar data which was collected in April 2010 by the BEG with Vertical Datum: NAVD88 Feet. CHE imported the 2010 GLO contours into AutoCAD and created a Surface and then extracted the 1.90ft MHHW contour line. See Appendix A for the location of MHHW along Brazoria County.

4.1.4 Coastal Boundary Surveys

Coastal Boundary Surveys (CBS) for Brazoria County were purchased from the GLO on March 22, 2011, but were not used for establishing the set-back line due to the following reasons:

- CBS were not available for the entire county.
- The CBS published dates were not consistent and varied from 2002 to 2010.
- The CBS coverage areas were not continuous from one area to the next for the entire County.

4.1.5 Dune Protection Line

Brazoria County and its local governments have established a DPL for the purpose of protecting critical dune areas. This line runs parallel and adjacent to the Gulf of Mexico and extends a distance landward of the MHHW. The DPLs within each entity are described below and depicted in Appendix A.

Village of Surfside

From the easterly town limit, the DPL follows Bluewater Highway west to HWY 332, then south on HWY 332 to Surf Drive, then west on Surf Drive to Whelk St., then south on Whelk St. to Seashell Dr., then west on Seashell Dr. to Texas St., then north on Texas St. to Surf Dr., and west on Surf Dr. to the westerly town limit.

Town of Quintana

The DPL in Quintana is a line running parallel to the beach 1,000ft landward of MHHW. The DPL was recently updated by the Town of Quintana in 2011 and is shown on the Appendix A maps.

City of Freeport

The DPL in the City of Freeport is a line running in a southwesterly direction parallel and adjacent to the Gulf of Mexico and 1,000ft landward of the MHHW between the northeasterly right-of-way of FM HWY 1495 and the bank of the Brazos River Diversion Channel.

Brazoria County

The Brazoria County DPL runs along the centerline of County Road 257, also known as Bluewater Highway. The location of this DPL was coordinated with Brazoria County and will be reflected in their newly updated Dune Protection and Beach Access Plan.

4.2 Established Set-Back Line

Shoreline retreat along the Brazoria County Gulf of Mexico shoreline is one of the highest in the state of Texas with the average long-term erosion rate ranging from stable to 19 feet per year (see Section 4.1.1). Based on the assessment of the high shoreline retreat rates and the location of the critical dune areas, the set-back line was established as far inland as allowed by the Texas Natural Resources Code, §33.607 which is the existing DPL for the entire County (See Appendix A for location of DPL/Set-Back Line). Additionally, site visits by CHE coastal engineers were performed to verify that the location of all dunes is seaward of the DPL. As a result, it was determined that all dunes 1,000 feet from mean high tide are included in the Critical Dune Area (seaward of the established DPL). A set-back line was not delineated along the San Bernard National Wildlife Refuge or along the shoreline adjacent to the Justin Hurst Management Area.

5 NEW CONSTRUCTION GUIDELINES

Guidelines for new construction shall be the same for all of Brazoria County including each local entity, except where noted within this section. To the maximum extent practicable, all structures should be constructed landward of the set-back line. Construction of structures landward of the set-back line must comply with mitigation sequence requirements for avoidance and minimization of effects on dunes and dune vegetation as specified in Texas Administrative Code (TAC) §15.4(f) Mitigation. The permittee is not exempt from compliance with compensatory mitigation requirements for unavoidable adverse effects on dunes and dune vegetation.

All jurisdictions will implement the new construction standards through the local Beach/Dune Plan and the local Dune/Beach Plan will be modified to reference the ERP as an appendix, thereby connecting both documents in the permitting process. Additionally, all jurisdictions within Brazoria County will ensure that public facilities are constructed landward of the set-back line or constructed in accordance with the requirements for exempt structures.

5.1 Exemption Considerations

Exemption from prohibition of construction seaward of the set-back line shall be the same for all of Brazoria County including each local entity, except as noted herein. Dune walkovers, beach access roadways, public parking, and associated public facilities constructed seaward of the set-back line shall be constructed in accordance with the GLO construction standards.

Brazoria County may consider exemptions from the prohibition of residential and commercial construction seaward of the set-back line for:

1. Properties for which the owner has demonstrated to the satisfaction of the local government that no practicable alternatives to construction seaward of the building set-back line exist. For purposes of this section, practicable means available and capable of being done after taking into consideration existing building practices, siting alternatives, and the footprint of the structure in relation to the area of the buildable portion of the lot, and considering the overall development scheme for the property;
2. Properties for which construction is permitted under a dune protection and beach access plan establishing a building set-back line certified by the General Land Office prior to the effective date of this section and if there are no changes from the originally permitted construction plans; and
3. Structures located seaward of the building set-back line prior to the effective date of this section for which modifications are sought that do not increase the footprint of the structure. However, structures seaward of the building set-back line that are damaged more than 50% or destroyed should be subject to ~~this section~~ before any repairs or reconstruction may be conducted.

new construction guide lines?

5.2 Construction Requirements for Exempt Properties

Where the local government allows an exemption from the prohibition for building seaward of the building set-back line, it should require the following conditions of construction:

1. Plans and certifications for the structure shall be sealed by a registered professional engineer licensed in the State of Texas providing evidence of the following:

a. A minimum two-foot freeboard above the Federal Emergency Management Agency (FEMA)'s Base Flood Elevation (BFE);
b. No enclosures below BFE;
c. Consistency with the latest edition of specifications outlined in American Society of Civil Engineers, Structural Engineering Institute, Flood Resistant Design and Construction, ASCE 24-05;
d. That habitable structure will be feasible to relocate;
e. All construction will be designed to minimize impacts on natural hydrology.

2. Location of all construction should be landward of the landward toe of the foredune ridge, where practicable.

5.3 Variances of Construction Requirements for Exempt Properties

The following variances were developed by Brazoria County and the Village of Surfside. These variances are developed with the intent of reducing public expenditures due to erosion and storm damage losses and are described and justified below. There are no variances proposed by the City of Freeport or the Town of Quintana.

The Village of Surfside has developed the following variances to Section 5.2 of this document:

1. Owners of all front row construction, adjacent to the beach, will build their structure as landward as possible on the lot and provide a map delineating the location of the dune system within the property. If no dune exists on the property, the owner will submit a dune construction plan to be approved by the Village of Surfside as part of the permitting process. The dune plan must propose a 30ft base dune construction project that lies between the ~~proposed~~ property and the beach along the entire seaward edge of the property. The Village of Surfside will ensure that all construction seaward of the set-back line is not located within the public beach easement, including dune restoration projects. The proposed dune restoration requirements must identify a maximum seaward distance from the natural LOV (the rules require no farther than 20 feet seaward), but shall not interfere with the public's ability to use the beach at normal high tides.

2. The Village of Surfside proposes to lower the minimum two-foot freeboard above the BFE to a minimum one-foot freeboard above the BFE. The Village of Surfside is currently negotiating an insurance rate reduction with FEMA and has decided to use a minimum one-foot freeboard elevation for all construction within the city limits. By setting this requirement on all new construction within the city limits, a greater reduction of public expenditures for erosion and storm damage losses will be achieved.

3. Under FEMA construction guidelines, enclosures below the BFE are allowed as long as all walls for the enclosure are designed to breakaway under wind, surge, and wave impact to reduce impacts on water movement underneath and around the structure. Therefore, the Village of Surfside will allow a variance to the no enclosures below BFE rule as long as all walls of the enclosure are designed and constructed to breakaway under flood and wave action while minimizing impacts to hydrology. The Village of Surfside will limit the area of enclosures below BFE to 299 square feet.

Allowing enclosures below the BFE, with breakaway wall construction seaward of the set-back line, is a reasonable alternative in view of the fact that the set-back line for the entire County is located at the most landward point (the DPL) allowed by the rules and that this variance satisfies federal requirements by the NFIP. Allowing this variance will reduce the total footprint of structures thus reducing the potential impact to critical dune and natural ground cover.

Enclosures below BFE shall consist of breakaway construction to meet the requirements of the NFIP regulations for V zone construction codified in Title 44 Section 60.3(a)(3) of the Code of Federal Regulations. As defined by FEMA, a breakaway wall is not part of the structural support of the building and is intended through its design and construction to collapse under specific lateral loading forces without causing damage to the elevated portion of the building or supporting foundation system. Any walls below the lowest floor in a building in a V Zone should give way under wind and water loads without causing collapse, displacement, or other damage to the elevated portion of the building or the supporting pilings or columns.

4. Lots which span the set-back line will be considered as two separate lots with all of the construction requirements for exempt property listed in Section 5.2 and variances listed in Section 5.3 applying to the seaward portion of the lot.

Brazoria County has developed the following variances to Section 5.2 of this document:

1. Under FEMA construction guidelines, enclosures below the BFE are allowed as long as all walls for the enclosure are designed to breakaway under wind, surge, and wave impact to reduce impacts on water movement underneath and around the structure. Therefore, the County will allow a variance to the no enclosures below BFE rule as long as all walls of the enclosure are design and constructed to breakaway under flood and wave action while minimizing impacts to hydrology. The County will limit the area of enclosures below BFE to 299 square feet.

   Allowing enclosures below the BFE, with breakaway wall construction, seaward of the set-back line is a reasonable alternative in view of the fact that the SBL for the entire County is located at the most landward point (the DPL) allowed by the rules and that this variance satisfies federal requirements by the NFIP. Allowing this variance will reduce the total footprint of structures thus reducing the potential impact to critical dune and natural ground cover.

   Enclosures below BFE shall consist of breakaway construction to meet the requirements of National Flood Insurance Program (NFIP) regulations for V zone construction codified in Title 44 Section 60.3(a)(3) of the Code of Federal Regulations. As defined by FEMA a breakaway wall is not part of the structural support of the building and is intended through its design and construction to collapse under specific lateral loading forces, without causing damage to the elevated portion of the building or supporting foundation system. Any walls below the lowest floor in a building in a V Zone should give way under wind and water loads without causing collapse, displacement, or other damage to the elevated portion of the building or the supporting pilings or columns.

2. Lots which span the set-back line will be considered as two separate lots with all of the construction requirements for exempt property listed in Section 5.2 and variances listed in Section 5.3 applying to the seaward portion of the lot. This variance is considered reasonable in view of the fact that Brazoria County currently requires that all new construction within their coastal jurisdiction, seaward and landward of the set-back line, comply with a minimum two-foot freeboard above the FEMA's BFE.

6 PRESERVATION & RESTORATION

This section presents procedures for 1) preserving and enhancing the public's right of access to and use of the public beach from losses due to erosion and storm damage and 2) preserving, restoring, and enhancing critical dunes for natural storm protection and conservation purposes.

On May 3rd and 24th of 2011, a conditions assessment was performed to determine the existence, location, and condition of all vehicular and pedestrian beach access points along the Brazoria County shoreline. The beach access points were evaluated to determine their functionality, condition, and need for protection, enhancement, or restoration. A similar assessment was also performed for the existing dune system along the Gulf of Mexico shoreline in Brazoria County.

6.1 Evaluation of Beach Access Points

As erosion continues along most of the Brazoria County Gulf shoreline, damage to beach access points is expected. The assessment of beach access points performed by CHE in May 2011 gives a snapshot of the condition, location, and functionality of the accesses and serves as a starting point for planning the preservation and enhancement measures to be implemented by the County and local governments as funding becomes available. All local governments presently perform continual monitoring of beach access points and maintenance of these accesses was evident in the conditions assessment.

The conditions assessment consisted of a site visit by a CHE coastal engineer who evaluated, prioritized, indexed, and photographed all vehicular and pedestrian beach access points in Brazoria County. Table 2 lists all of the existing beach access points, jurisdiction, type of access, and location of site visit photograph within Appendix C. Appendix B shows the exact location in plan view of the access point.

The following section summarizes the conditions assessment of all access points within each local government jurisdiction and describes measures to improve and protect beach access in view of the ongoing erosion along Brazoria County. Improvements identified herein will be designed and constructed using methods that will reduce costs associated with repair, rebuilding, or replacement due to storm damage and erosion.

6.1.1 City of Freeport

There are two vehicular access points within the City of Freeport jurisdiction. Beach Access #2 at CR 241 is in good working condition and vehicular access onto the beach was easy. Beach Access #2 is angled to the beach and to the prevailing wind direction which may help reduce storm surge propagation inland during a storm. Beach Access #1 at CR 750 needs some improvement and will benefit from additional crushed limestone road base at the entrance to the beach. Additionally, this entrance is not perpendicular to the beach which helps reduce storm surge propagation. However,

Beach Access #1 could be improved to reduce potential storm surge propagation by increasing the elevation of the road at the dune location by an elevation of 4 feet. Any improved protection project would be subject to available funding.

6.1.2 Town of Quintana

There are two vehicular access points within the Town of Quintana. These access points are in good condition, allow easy driving onto the beach, and do not need any improvements at the present time. However, these roads are aligned to the prevailing wind direction and beach and could be avenues for storm surge propagation during a storm. These vehicular access points can be improved by increasing the elevation of the road by 4 feet at the dune location. Any improved protection project would be subject to available funding.

6.1.3 Village of Surfside Beach

There are five vehicular beach access points and twenty pedestrian beach access points within the Village of Surfside Beach.

Each of these access points were evaluated and it was determined that they are all in good condition and functioning properly. All pedestrian access points, which are dune walkovers, have a good entrance on the back of the dune and avoid impacts to the existing dune. The dune walkovers land on the upper beach just on the front toe of each dune without impacting the dune and on the upper beach as landward as possible so as to reduce interaction with the highest tide levels. Vehicular access points were determined to be in good condition and allow easy access for vehicles on to the beach. Access points in the Village of Surfside are optimally placed to eliminate impact to the dune and minimize damage from erosion. However, due to their orientation (perpendicular to the beach), the roads could act as avenues for storm surge propagation during a storm if the winds were in the direction of road alignment. All five vehicular access points in the Village of Surfside could benefit by increasing the elevation of the road by 4 feet at the location of the dune. Changing the alignment of the roads would require purchase of adjacent property and is therefore cost prohibitive. All of the access points were improved after Hurricane Ike with raised road elevation and increased road base

Stahlman Park, a publicly funded existing amenity in the Village of Surfside Beach, was completely rebuilt after Hurricane Ike and consists of a 4,000 sq ft conference center and wheelchair accessible beach access. These facilities are in good condition.

Note: Vehicular access at Hwy 332 will benefit from additional crushed limestone road base at the entrance to the beach. Due to its heavy use by the public, this entrance is in continual need of monitoring and maintenance to allow easy access onto the beach.

6.1.4 Brazoria County

There are seven vehicular beach access points and three pedestrian access points within the Brazoria County jurisdiction. Each of these access points were evaluated and is functioning properly. Based on the limitations of space and few alternatives available for protection, these access points are optimally placed to minimize their damage from erosion and storm surge; however, Beach Access #1 and #3 will benefit from additional crushed limestone road base at the entrance to the beach and raising their elevation by 4 feet at the dune location will mitigate storm surge propagation. Beach Access #4 has deep scour holes on each side of the road caused by Hurricane Ike. These scour holes

should be filled and stabilized with vegetation to improve safety to vehicles entering the beach through this road. Vehicular Beach Access points 1-6 are perpendicular to the beach and could be realigned to reduce storm damage. However, changing the angle of the roads to the beach would require the purchase of private property and may impact the secondary dune at some of the locations. Therefore, raising the elevation of the roads at the dune location as stated is the best solution to reduce storm surge propagation.

The pedestrian access point located at the Quintana Beach County Park is in adequate working conduction. Some repairs were being implemented at the time of the site visit to give higher elevation to the dune walkover which will improve access to the beach by pedestrians and will allow for natural development of the dune underneath the structure. These improvements were completed within a couple of months of the site visit.

Table 2. Beach Access Locations in Brazoria County.

INTERSECTION ROAD	TYPE	SITE PHOTOGRAPH
CITY OF FREEPORT		
Beach Access #2 at CR 241	Vehicular	Appendix C, Page 1, **A**
Beach Access #1 at CR 750	Vehicular	Appendix C, Page 1, **B**
TOWN OF QUINTANA		
16th Street	Vehicular	Appendix C, Page 2, **C**
8th Street	Vehicular	Appendix C, Page 2, **D**
VILLAGE OF SURFSIDE BEACH		
Jettyview Road	Vehicular & *Pedestrian	Appendix C, Page 3, **F**
Thunder Road	Pedestrian	n/a
Texas Street	Pedestrian	Appendix C, Page 4, **G**
Beach Drive	Pedestrian	Appendix C, Page 4, **H**
Oyster Street	Pedestrian	Appendix C, Page 5, **I**
Starfish Street	Vehicular & *Pedestrian	n/a
Hwy 332	Vehicular & *Pedestrian	Appendix C, Page 5, **J**
Francis Cove	Pedestrian	Appendix C, Page 6, **K**
Ocean Ave	Vehicular & *Pedestrian	Appendix C, Page 6, **L**
Driftwood Ct	Pedestrian	Appendix C, Page 7, **M**
Sand Dune Ct	Pedestrian	Appendix C, Page 7, **N**
Coral Ct	Pedestrian	Appendix C, Page 8, **O**
Gulfway Ct	Pedestrian	Appendix C, Page 8, **P**
Carlton Ave	Pedestrian	Appendix C, Page 9, **Q**
Howard Ave	Pedestrian	Appendix C, Page 9, **R**
Belanger Ave	Pedestrian	Appendix C, Page 10, **S**
Saltgrass Ave	Pedestrian	Appendix C, Page 10, **T**
Detenbech Ave	Pedestrian	Appendix C, Page 11, **U**
Yucca Ave	Vehicular	Appendix C, Page 11, **V**
Sandpiper Ave	Pedestrian	Appendix C, Page 12, **W**
Seagull Ave	Vehicular & *Pedestrian	Appendix C, Page 12, **X**
BRAZORIA COUNTY		
5th Street	Pedestrian	Appendix C, Page 3, **E**
Beach Access #1 at Seagull Ave.	Vehicular	Appendix C, Page 12, **X**
Beach Access #2 at CR257 (side)	Vehicular	Appendix C, Page 13, **Y**
Beach Access #3 at CR257E	Vehicular	Appendix C, Page 13, **Z**
Beach Access #4 at Nacal Drive	Vehicular	Appendix C, Page 14, **AA**
Beach Access #5 at CR 257R	Vehicular	Appendix C, Page 14, **BB**
Beach Access #6 at CR 257S	Vehicular	Appendix C, Page 15, **CC**
Pedestrian #1 at Treasure Island	Pedestrian	Appendix C, Page 15, **DD**
Pedestrian #2 at Treasure Island	Pedestrian	n/a
Beach Access #7 at SLP Bridge	Vehicular	n/a

** Indicates Wheelchair Access*

The prioritized improvements/repairs, location, and type of repair are listed in Table 3. The Table lists the projects in order of priority for construction, with the highest priority listed as number 1.

Priority levels for the access points were based upon usage, need of repair, and inability to provide safe access to the beach.

Table 3. Beach Access Locations in need of Repair.

PRIOIRTY	LOCATION	REPAIR
1	*Surfside:* Access at Hwy 332	Additional crushed limestone road base at the entrance to the beach and raising elevation by 4 ft.
2	*Brazoria County/Surfside:* Beach Access #1 at Seagull Ave	Additional crushed limestone road base at the entrance to the beach and raising elevation by 4 ft.
3	*Freeport:* Beach Access #1 at CR 750	Additional crushed limestone road base at the entrance to the beach and raising elevation by 4 ft.
4	*Brazoria County:* Beach Access #3 at CR257E	Additional crushed limestone road base at the entrance to the beach and raising elevation by 4 ft.
5	*Brazoria County:* Beach Access #4 at Nacal Drive	Scour holes need to be filled and stabilized with vegetation

6.1.5 Post-Storm Assessment Procedures

All publicly funded existing amenities and access points were inventoried to qualify for FEMA post-storm funding. Post-storm monitoring of the access points will be conducted by Brazoria County and local governments on a routine basis and within 72 hours after meteorological events of significance for compliance with the Dune Protection and Beach Access Plan and rules. A report will be generated detailing noncompliance and required repairs/replacements of parking, pedestrian and vehicular access, signage, etc. along with schedules for repair/replacement based on available local funding, claims, and grants.

Following a meteorological event, County staff will conduct the following measures to ensure public access to and use of the public beach:

- Conduct inspections of all designated beach access points to determine whether the public is able to access the beach.
- Compile a list of required repairs and replacements, including but not limited to parking areas, pedestrian pathways, vehicular access ways, and signage.
- Create schedules for access area repairs and replacements based on local funding and grant requests.

6.1.6 Beach Access Goals and Implementation Schedule

Short-term goals include addressing concerns listed in Table 3, as funding becomes available and to continually monitor and maintain existing accesses.

Long-term goals include upgrading access points as needed to adapt to changing environmental conditions, increases in localized erosion, increases in storm activity, and changes in development

in an attempt to mitigate impacts from erosion, minimize storm damage, and continue to provide realizable and safe beach accesses to the public.

As part of Brazoria County's continual commitment to public access, the County plans to construct a beach access park from CR 257 to the gulf beach on a 5 acre tract about 2 miles southwest of Treasure Island.

6.1.7 Publicly Funded Existing Amenities

The following is a list of publicly funded existing amenities included in the jurisdiction of Brazoria County and the Village of Surfside.

1. Surfside Jetty County Park - Jetty Park consists of paved parking, picnic areas, restrooms, jetty walkway, playground and a trail. The cost to replace this facility if it was destroyed by a tropical storm is approximately $1,200,000. This estimate is based on current prices which can fluctuate depending on market conditions. Over the next several years, there will be additional facilities and improvements added at this location that could increase the cost of replacement by several thousand dollars.

2. Quintana Beach County Park - Quintana Beach County Park is a 51-acre beachfront park with paved full-service RV campsites, cabins, restrooms/showers, a day house, five covered pavilions, one covered screened pavilion, picnic tables, playground, volleyball court, horseshoe pits, paved trail, wooden lighted fishing pier, and paved parking. The cost to replace this facility if it was destroyed by a tropical storm is approximately $2,500,000. This estimate is based on current prices which can fluctuate depending on market conditions. Over the next several years, there will be additional facilities and improvements added at this location that could increase the cost of replacement by several thousand dollars.

3. San Luis Pass County Park – San Luis Pass County Park is a 15-acre bay park with both day-use amenities and overnight facilities. The park features paved full service RV camping, cabins, a meeting room with kitchenette, interpretive center, restrooms, a playground, fish cleaning stations, paved parking, and a boat launch. The cost to replace this facility if it was destroyed by a tropical storm is approximately $1,750,000. This estimate is based on current prices which can fluctuate depending on market conditions. Over the next several years there will be additional facilities and improvements added at this location that could increase the cost of replacement by several thousand dollars.

4. Stahlman Park - Stahlman Park is a Community Center that overlooks the beach. It is available to the public for rental for all sorts of functions and is typically booked a year in advance. Underneath the elevated structure is an area with picnic tables, shelter from the sun as well as restrooms and with a public shower for beach goers. The facility has a new parking lot open to the public as well as an area for volleyball. Attached to the building are walkovers that lead to the beach. The replacement cost on this is set at $850,000.00. This was just recently assessed by a TML actuary.

In addition to the large facilities listed above, the amenities shown in Table 4 are also maintained by the jurisdictions within Brazoria County for beach users.

Table 4. List and Cost Breakdown of Amentities Within Each Jurisdiction.

JURISDICTION	AMENITY	COST
City of Freeport	2 Portable Toilets	$500 each for a total of $1,000
Town of Quintana	50 Disposable Receptacles	$145 each for a total of $7,205
	2 Dune Walkovers	$1,750 each for a total of $3,500
	6 Beach Signs	$25 each for a total of $150
	1 Portable Toilet	$113
Village of Surfside	30 Disposable Receptacles	$125 each for a total of $3,750
	30 Picnic Tables/Cabanas	$200 each for a total of $6,000
	Crabbing Pier	$10,000
	2 Public Restrooms/Showers	$2,500 each for a total of $5,000
	12 Walkovers	$2,750 each for a total of $33,000
Brazoria County	200 Disposable Receptacles	$225 each for a total of $45,000
	Beach Access Park Trails	$200,000

6.2 Evaluation of Critical Dunes

Coastal dunes are an important component along of the Texas Gulf of Mexico shoreline and protect public and private property by serving as natural barriers from storm surge and waves, and serve as a sediment supply that reduces the impact of erosion on beachfront infrastructure. Wide beaches and high continuous dunes are a good defense against coastal storms. High and continuous dunes tend to block storm surge whereas lower and discontinuous dunes can be overtopped and breached by waves and storm surge and as a result flooding of low-lying areas occurs. (McKenna 2009). In Texas, critical dunes are those located within 1,000ft from the MHHW. In Brazoria County, the majority of coastal topography is composed of overwash terrace deposits and the dune system is classified as discontinuous to absent. The assessment of the condition of dunes, including prioritizing areas with the greatest need for restoration and/or revegetation are discussed below by jurisdiction and shown in Appendix B. See Appendix D for actual site photographs of each location.

6.2.1 City of Freeport

The dune system within the City of Freeport's jurisdiction is classified as discontinuous with numerous overwash terraces. All of the shoreline within the City of Freeport jurisdiction, such as Bryan Beach, is undeveloped. Locations along this length of shoreline that could benefit from filling in the gaps and restoring the critical dune where overwash and/or blowouts have occurred are depicted in Appendix B. All of the short-term dune restoration components for this shoreline are classified as low priority.

6.2.2 Town of Quintana

The dune system within the Town of Quintana is classified as discontinuous with numerous overwash terraces and the area is considered low-density development. Due to the high erosion rate and the location of infrastructure along the shoreline, high priority critical dune restoration elements are identified at South Lake Drive, the dune system west of Cortez Dr., and an overwash area between 16th Street and 8th Street. These locations are depicted in Appendix B. Several other locations along this length of shoreline could also benefit from filling in the gaps and restoring the critical dune where overwash and/or blowouts have occurred and are displayed as low priority.

6.2.3 Village of Surfside Beach

A dune system within the Village of Surfside Beach is mostly absent, particularly to the west of Hwy 332. The Village of Surfside is considered a high-density development area and due to the lack of dune, all public and private infrastructures are considered at high risk from storm and erosion impacts. The shoreline west of Hwy 332 does not have an active system and therefore; a dune restoration project along this section of shoreline is considered an immediate need. Since the Village of Surfside shoreline is critically eroding with historical erosion rates up to 8 ft/yr and the Gulf is continually encroaching on existing infrastructure, there is very limited space for dunes. Any dune restoration effort has to be accompanied by beach nourishment. East of Hwy 332, the shoreline is stable when looking at the long-term erosion rates. However, the dune system was severely damaged during Hurricane Ike and should be enhanced to protect infrastructure from future storms. The restoration of the dune system along this section of shoreline is considered a medium priority and short-term objective.

6.2.4 Brazoria County

The dune system along Brazoria County jurisdiction is discontinuous to absent. The dune restoration from Matagorda County in the southwest moving northeast up to the new Brazos River mouth is not a priority because it is undeveloped and not accessible by public road or ferry. The next section of dunes from the Village of Surfside Beach on Follett's Island northeast to Treasure Island has low to moderate density of development and is considered high priority for critical dune restoration due to the high erosion rates along this section of shoreline. Treasure Island on the northeastern end of the County is a medium to high priority for critical dune restoration. Locations along this length that could benefit from filling in the gaps and restoring the critical dune where overwash and/or blowouts have occurred are depicted in Appendix B. These areas were prioritized based the proximity of CR257 to the active beach system.

6.2.5 Dune Material Properties

Due to the lack of sand borrow areas near the Brazoria County shoreline and the estimated quantity of material needed for the execution of short and long-term dune restoration projects, the County will allow the use of a mixture of 60% sand and 40% fines for the construction of the core of the

dune protection projects proposed within this ERP. The proposed dunes will also have a minimum one-foot sand cover over the core.

This allowance will reduce the costs of implementing dune restoration projects and increase the potential for larger and longer dune construction projects. For example, if it cost $25/cy to bring in sand with less than 10% fines to construct a 1,000 ft dune that contains 5cy of sand per linear foot, the total cost for the dune restoration project would be $125,000. However, the cost for a 60/40 mixture per cubic yard is approximately $15 due to its availability and proximity to the Gulf of Mexico shoreline. Therefore, the same dune project would cost $75,000. Alternatively, a longer dune project could be constructed with a budget of $125,000 if the 60/40 mix was allowed; the length of this project would be 1,667 ft. Execution of longer dune restoration projects due to the cost savings will provide better protection of public and private infrastructure and create more habitat for endangered species.

6.2.6 Vegetation Requirements

Vegetation is a critical component to the dune system. Mowing/cutting of dune vegetation seaward of the set-back line will not be allowed. Mitigation projects requiring dune vegetation shall include:

- bitter panicum (Panicum amarum),
- sea oats (Uniola paniculata), and
- marshhay cordgrass (Spartina patens).

Bitter panicum has proved to be the best species for dune stabilization on the Texas coast. This native beach plant has a higher salt tolerance than many other coastal species and is a hardy grower. Sea oats are less tolerant of salt spray than bitter panicum but grow rapidly enough to avoid being smothered in rapidly shifting sand. Interplanting sea oats and bitter panicum will reduce the risk of disease or pest infestation. Marshhay cordgrass is a small, wiry perennial, which spreads by rhizomes. This grass shall be planted on the landward side of dunes.

Beach morning glory and seagrape vines can form a dense cover on the seaward side of dunes within a few growing seasons. Low-growing plants and shrubs to be used on the backside of the dune include seacoast bluestem, cucumber leaf sunflower, rose ring gallardia, partridge pea, prickly pear, and lantana. The optimum time for transplanting in Brazoria County is February, March, or April. Standard slatted wood sand fencing is ideal for dune-building structures because it is inexpensive, readily available, easy to handle, and can be erected quickly.

6.2.7 Post-Storm Assessment Procedures

All critical dune areas were inventoried to qualify for FEMA post-storm funding. Post-storm monitoring of the dune system will be conducted by the County and local governments on a routine basis and within 72 hours after meteorological events of significance. A report will be generated detailing dune restoration needs along with schedules for repair based on available local funding, claims, and grants.

Each jurisdiction within Brazoria County will review the location of the DPL at least once every five years to determine whether the lines are adequately located to achieve their stated purposes. In addition, each jurisdiction will review the adequacy of the location of the DPL within 90 days after a tropical storm or hurricane affects the Brazoria County Gulf shoreline. Each jurisdiction will amend the dune and beach plan and ERP whenever necessary to achieve their stated purposes.

6.2.8 Critical Dune Goals and Implementation Schedule

Procedures and implementation priorities for restoring and enhancing critical dunes for natural storm protection and conservations purposes are presented in this section. Short-term and long-term implementation goals were developed to address immediate needs. The overall goal of dune restoration for the County is to have a continuous foredune ridge along the entire County. Since dunes along Brazoria County are very small or non-existent, the short-term goals focus on filling gaps in the existing dune system to match adjacent areas; these projects will be less costly and easier to implement than the long-term projects. The long-term projects will require identification of sand sources, acquisition of permits, and large-scale funding. All dune projects to be constructed in Brazoria County will follow the guidelines for dune construction presented in the Dune Protection and Improvement Manual for the Texas Gulf Coast, 5th Edition.

Short-Term Goals

Short-term goals include filling in gaps and blowouts in the foredune ridge and re-vegetating these areas. Gaps should be filled to match existing dune height and width. Appendix B illustrates the areas that would benefit from immediate restoration. Many areas along Brazoria County are devoid of a dune system altogether. Prioritization of these critical areas was based on the rate of erosion and the need to protect public and private property and infrastructure from erosion and storm damage. As illustrated in Appendix B, the highest priority levels for proposed dune restoration elements include dune areas located within the Town of Quintana, the Village of Surfside and Treasure Island, as well as portions along Follet's Island in Brazoria County such as those near private infrastructures and where CR 257 is in close proximity to the MHHW. Medium priority dune restoration components are identified along the most eastern portion of the Village of Surfside and some sections of dune along Follet's Island, Brazoria County jurisdiction, which received severe damage during Hurricane Ike. The critical areas within the City of Freeport are considered lowest priority.

Long-Term Goals

Long-term goals include promoting the formation of a continuous foredune ridge throughout the length of the County. The dune shall be 10.5 - 13.5ft in height (75% of the BFE depending on location), with a minimum base width of 100-ft measured perpendicular to the gulf beach and which contains at least 85% of vegetative cover. FEMA, thru the NFIP, has created flood zone determination maps that indicate a Velocity Zone or V- Zone. A V-Zone is an area predicted by FEMA that contains high velocity flowing floodwater during meteorological events. BFEs have been designated for coastal zones and the BFEs for Brazoria County are depicted in Appendix E. BFEs in Brazoria County range from 12 to 18 ft above mean sea level. The minimum dune height shall exceed 75% of the BFE height from mean sea level for all of the V-Zones in Brazoria County. It is recommended that dune restoration projects be designed to meet USACE standards as defined in Chapter 4 of the Coastal Engineering Manual (USACE, 2008).

Schedule

A schedule for implementation of goals is dependent upon the availability of funding and the procurement of grants. The County is continually pursuing opportunities and has identified current and potential projects to help meet these goals.

Current Dune Restoration Projects

- Dune Day – Brazoria County and Save Our Beach Association along with volunteers place Christmas trees in January of each year along the Brazoria County coastline in Quintana, Surfside, and along Follet's Island to trap sand to initiate dune creation. The County supplements this effort with sand fencing.

- Dune Revegetation – Brazoria County has planted 100,000 dune plants on the county beaches on Follett's Island and in front of the Quintana County Park with funds from a CMP grant.

Potential Dune Restoration Projects

- CR 257 Dune Restoration – Reconstruction of dunes along CR 257 will be completed with CIAP FY 09 funds.
- Quintana Beach and Dune Restoration – FEMA claims are pending from Hurricane Rita and Hurricane Ike for restoration of the Beach/Dune System.

Potential Funding Sources for Dune Restoration Projects

The following grant opportunities and funding programs were identified and are listed below. Some of these programs such as CMP, CIAP, and FEMA are currently being engaged to execute dune restoration projects in Brazoria County. Additional funds will be pursued from future funding cycles for CEPRA and CMP for long-term dune restoration projects.

- Coastal Impact Assistance Program (CIAP) 2010 Funding Cycle
- Coastal Management Program (CMP)
- Coastal Erosion Planning and Response Act (CEPRA)
- Federal Emergency Management Agency (FEMA)

7 Acquisition of Property Seaward of the Set-back Line

Brazoria County developed criteria for identifying properties for voluntary acquisition of fee simple title or a lesser interest acquisition. These properties have structures located entirely seaward of the building set-back line that experience severe damage during storms, impedes the development of a natural dune system and restrict/impact the public's ability to use the public beach. Criteria for acquisition includes:

- A structure that is entirely seaward of the building set-back line.
- Structures that impede beach access or impact the public's ability to use the public beach.
- A structure that is more than 25% on the public beach.
- A structure that affects hydrology of the public beach, adjacent property or along dune system, as determined by a registered professional geologist/engineer licensed in the State of Texas.
- A structure that is deemed a hazard to health and safety.
- A structure that is causing erosion of adjacent property, dunes, or public beach.
- A structure that affects public health and increases safety risks on the public beach, as stated in the Beach/Dune rules.

Property will be prioritized based on severity and amount of criteria met. Brazoria County or local government can implement a removal strategy on the most prioritized property. Acquisition strategy will consist of:

- Identification of potential property.
- Negotiation of acquisition.
- Funding procurement.
- Agreement execution
- Removal or relocation of structure.

8 PUBLIC OUTREACH

Brazoria County, Village of Surfside Beach, Town of Quintana, and City of Freeport conducted educational meetings to discuss the ERP prior to submitting this document to the GLO. These meetings were held at the date and times listed below. See Appendix F for the meeting attendee lists.

- Brazoria County - May 23, 2011, 5:00 PM, Public Meeting at Stalhman Park.
- Village of Surfside Beach and Town of Quintana - May 24, 2011, 6:30 PM, Public Meeting at Stalhman Park.
- City of Freeport – May 5, 2011, 9:00 AM, Conference Call/Meeting.

In accordance with TAC Title 31 Chapter 15 Rule §15.17, the local government's governing body will formally approve the ERP at formal hearings. The date, time, and location of these hearings have not been determined and will be finalized once comments from the GLO have been received and implemented into the final ERP.

9 REFERENCES

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Appendix A

Brazoria County Base Maps

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LEGEND

BEG Erosion Rates [FT/YR] Released 04/2011

- -15' to -20'
- -10' to -15'
- -5' to -10'
- 0 to -5'
- 0 to +5'
- +5' to +10'
- +10' +

- Set-Back Line / Dune Protection Line
- MHHW [Elv.+1.90FT NAVD88]
- Approximate Line of Vegetation [2010]
- Brazoria County Line

Coordinate System: NAD 1983 UTM Zone 15N

Aerial Photography Shown was acquired on 5/3/2010 by the National Agriculture Imagery Program (NAIP)

0 1,000 2,000 Feet

COAST & HARBOR ENGINEERING
3410 Far West Blvd, Suite 210, Austin, Texas 78731
TEL: 512.342.9705 FAX: 512.342.9708

Brazoria County
111 East Locust Street
Angleton, Texas 77515

Brazoria County Erosion Response Plan

Date: 6/2/2011

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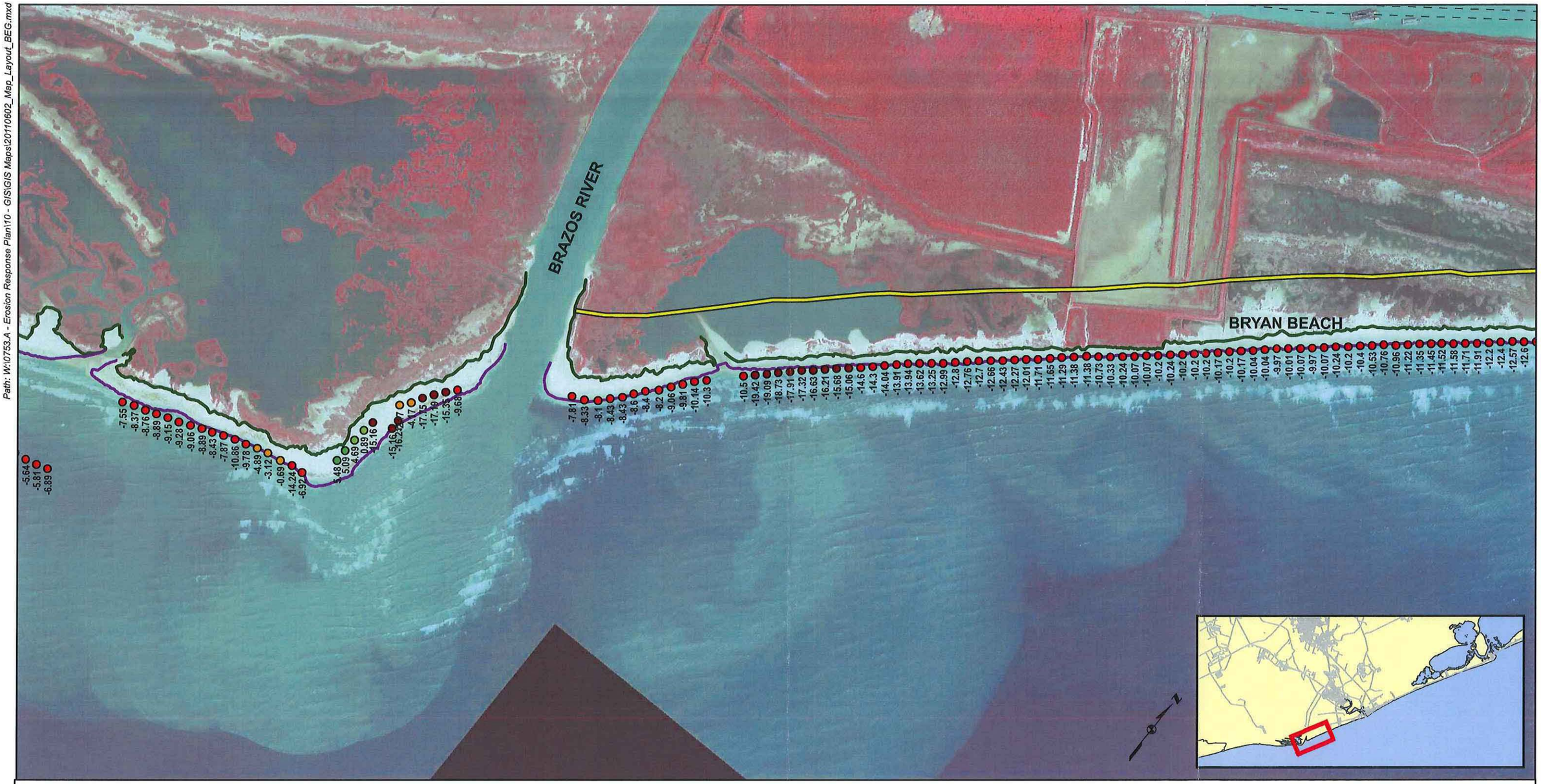

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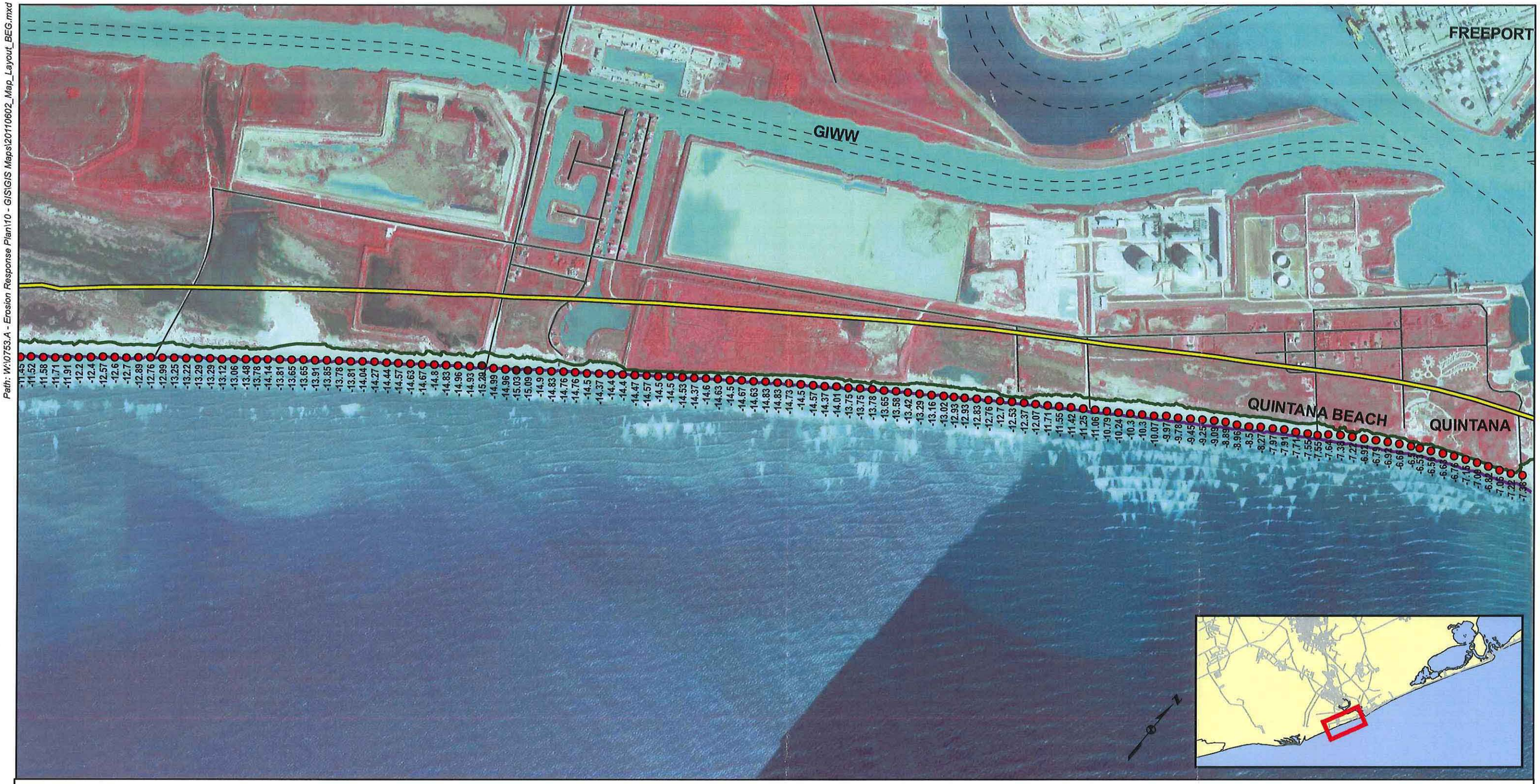

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FREEPORT

SURFSIDE

SWAN LAKE

332

CR 257

QUINTANA

FREEPORT CHANNEL

-7.55 -7.19 -6.86 -6.56 -6.27 -6.1 -5.94 -5.64 -5.38 -5.09 -4.99 -4.92 -4.82 -4.95 -4.89 -4.82 -4.69 -4.49 -4.3 -3.61 -3.48 -3.67 -3.35 -3.22 -3.12 -3.08 -3.22 -3.12 -3.02 -2.92 -2.79 -2.59 -2.49 -2.3 -2.17 -2 -1.8 -1.71 -1.74 -1.57 -1.57 -1.48 -1.41 -1.38 -1.44 -1.48 -1.41 -1.25 -0.89 -0.75 -0.95 -1.08 -1.02 -1.18 -1.05 -0.75 -0.43 -0.26 -0.13 -0.07 -0.1 0.46 0.43 0.43 0.43 0.33 0.52 0.73 0.52 0.61 0.55 0.56 0.61 0.56 0.52 0.46 0.52 0.59 0.66 0.58 0.66 0.72 0.69 0.82 0.77 0.88 0.88 0.88 0.92 0.96 0.95 1.02 1.02 0.95 1.02 0.82 0.73 0.61 0.62 0.51 0.45 0.2 0.16 0.13 0.13 0.1 -0.01 -0.03 -0.03 0.01 0.1 0.1

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- -15' to -20'
- -10' to -15'
- -5' to -10'
- 0 to -5'
- 0 to +5'
- +5' to +10'
- +10' +

- Set-Back Line / Dune Protection Line
- MHHW [Elv.+1.90FT NAVD88]
- Approximate Line of Vegetation [2010]
- Brazoria County Line

Coordinate System: NAD 1983 UTM Zone 15N

Aerial Photography Shown was acquired on 5/3/2010 by the National Agriculture Imagery Program (NAIP)

0 1,000 2,000 Feet

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Brazoria County Erosion Response Plan

Date: 6/2/2011

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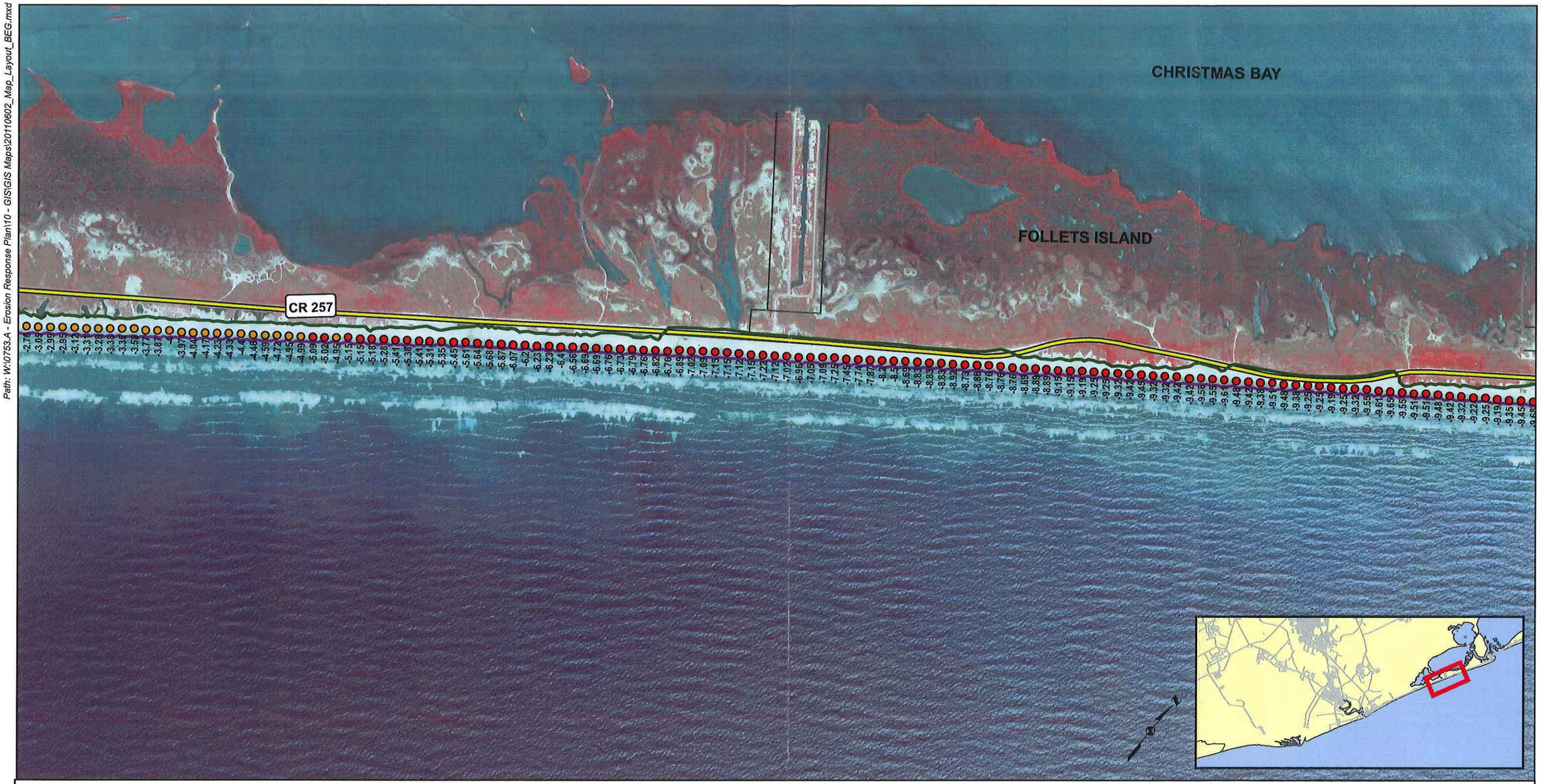

LEGEND

BEG Erosion Rates [FT/YR] Released 04/2011

- -15' to -20'
- -10' to -15'
- -5' to -10'
- 0 to -5'
- 0 to +5'
- +5' to +10'
- +10' +

- Set-Back Line / Dune Protection Line
- MHHW [Elv.+1.90FT NAVD88]
- Approximate Line of Vegetation [2010]
- Brazoria County Line

Coordinate System: NAD 1983 UTM Zone 15N

Aerial Photography Shown was acquired on 5/3/2010 by the National Agriculture Imagery Program (NAIP)

0 1,000 2,000 Feet

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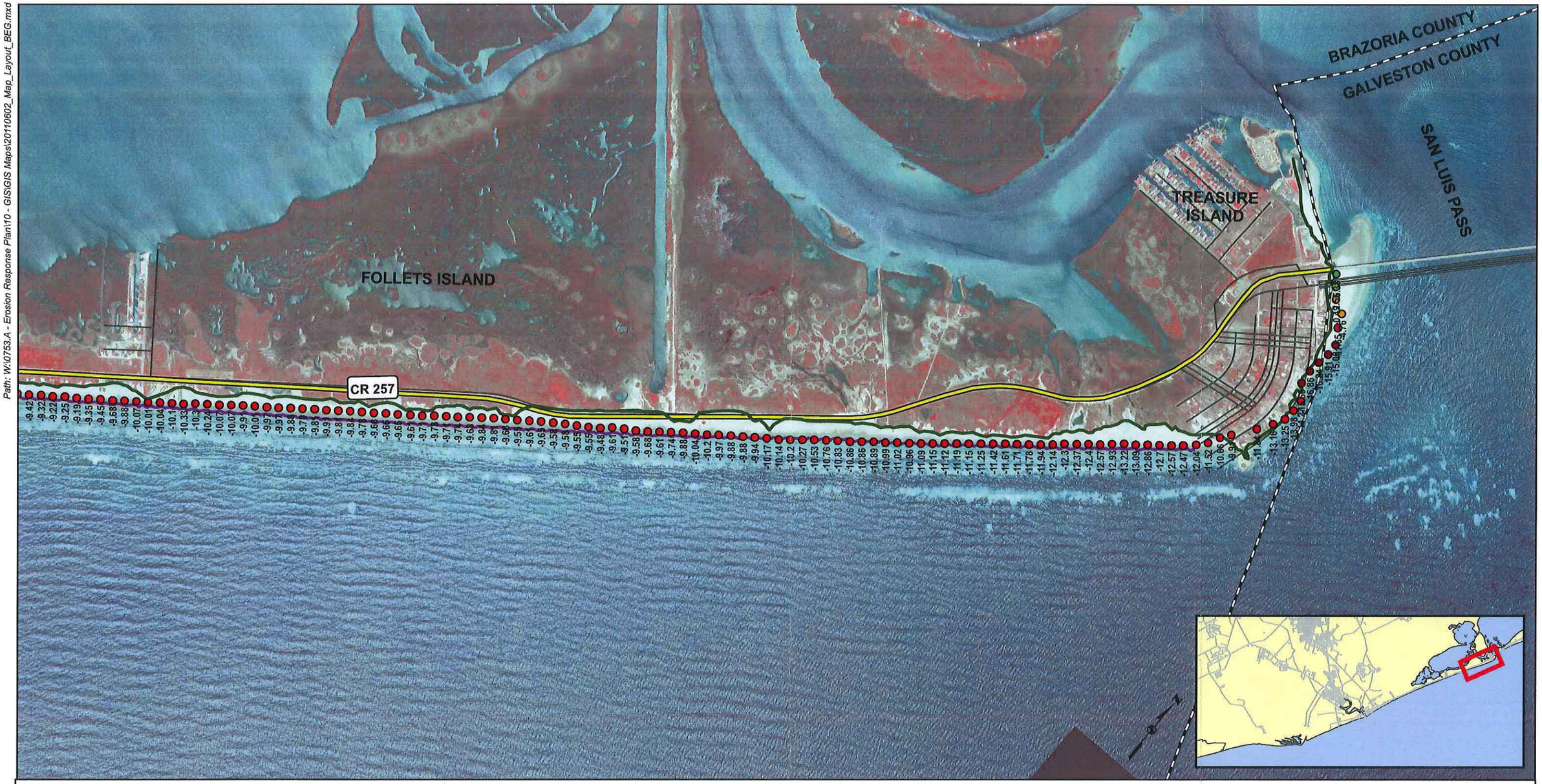

LEGEND

BEG Erosion Rates [FT/YR] Released 04/2011

- -15' to -20'
- -10' to -15'
- -5' to -10'
- 0 to -5'
- 0 to +5'
- +5' to +10'
- +10' +

- Set-Back Line / Dune Protection Line
- MHHW [Elv.+1.90FT NAVD88]
- Approximate Line of Vegetation [2010]
- Brazoria County Line

Coordinate System: NAD 1983 UTM Zone 15N

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0 1,000 2,000 Feet

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Date: 6/2/2011

Appendix B

Beach Access, Dune Enhancements, & Site Visit Photo Locations

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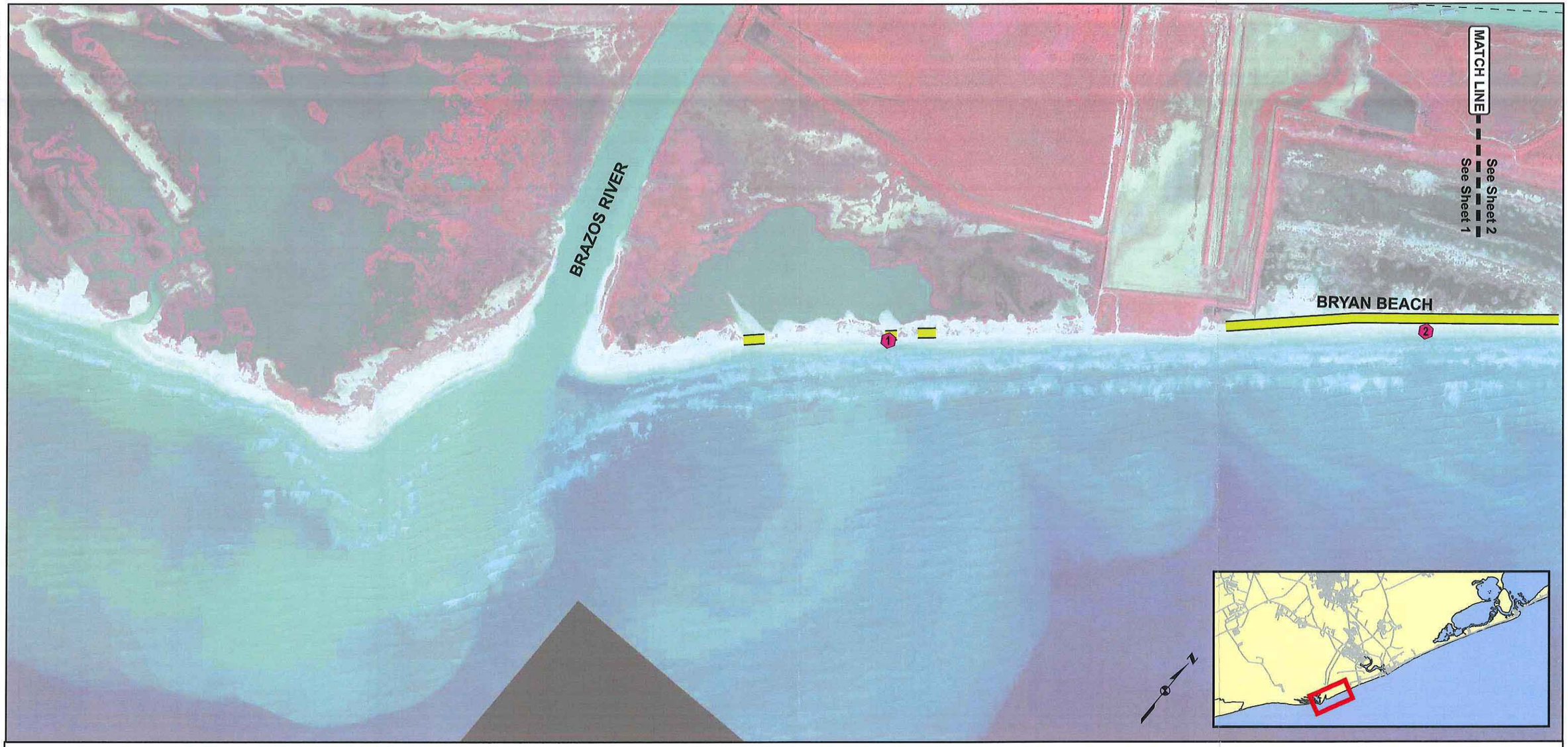

LEGEND	
May 3, 2011 Site Photographs:	
A	Pedestrian Beach Access Points
A	Vehicular Beach Access Points
1	Potential Dune Enhancement Locations
Potential Short-Term Dune Enhancements	
	High Priority
	Medium Priority
	Low Priority

Site Visit Photographs were taken on May 3, 2011 and shown in Appendix C and D.
Aerial Photography Shown was acquired on 5/3/2010 by the National Agriculture Imagery Program (NAIP)

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BRAZORIA COUNTY EROSION RESPONSE PLAN

Beach Access & Dune Enhancement Areas

Date: 6/9/2011

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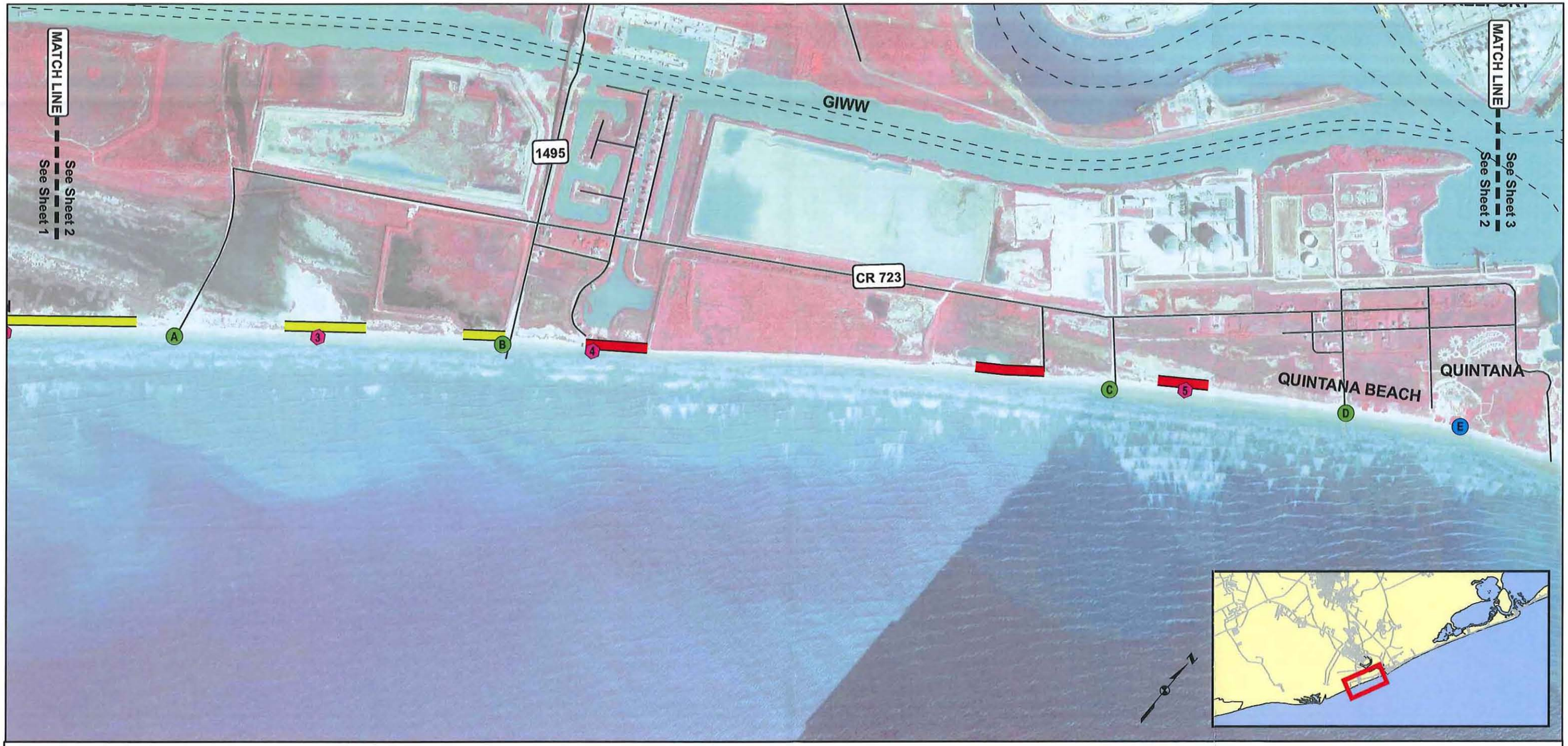

LEGEND

May 3, 2011 Site Photographs:

- (A) Pedestrian Beach Access Points
- (A) Vehicular Beach Access Points
- (1) Potential Dune Enhancement Locations

Potential Short-Term Dune Enhancements

- High Priority
- Medium Priority
- Low Priority

Site Visit Photographs were taken on May 3, 2011 and shown in Appendix C and D.
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Beach Access & Dune Enhancement Areas

Date: 6/9/2011

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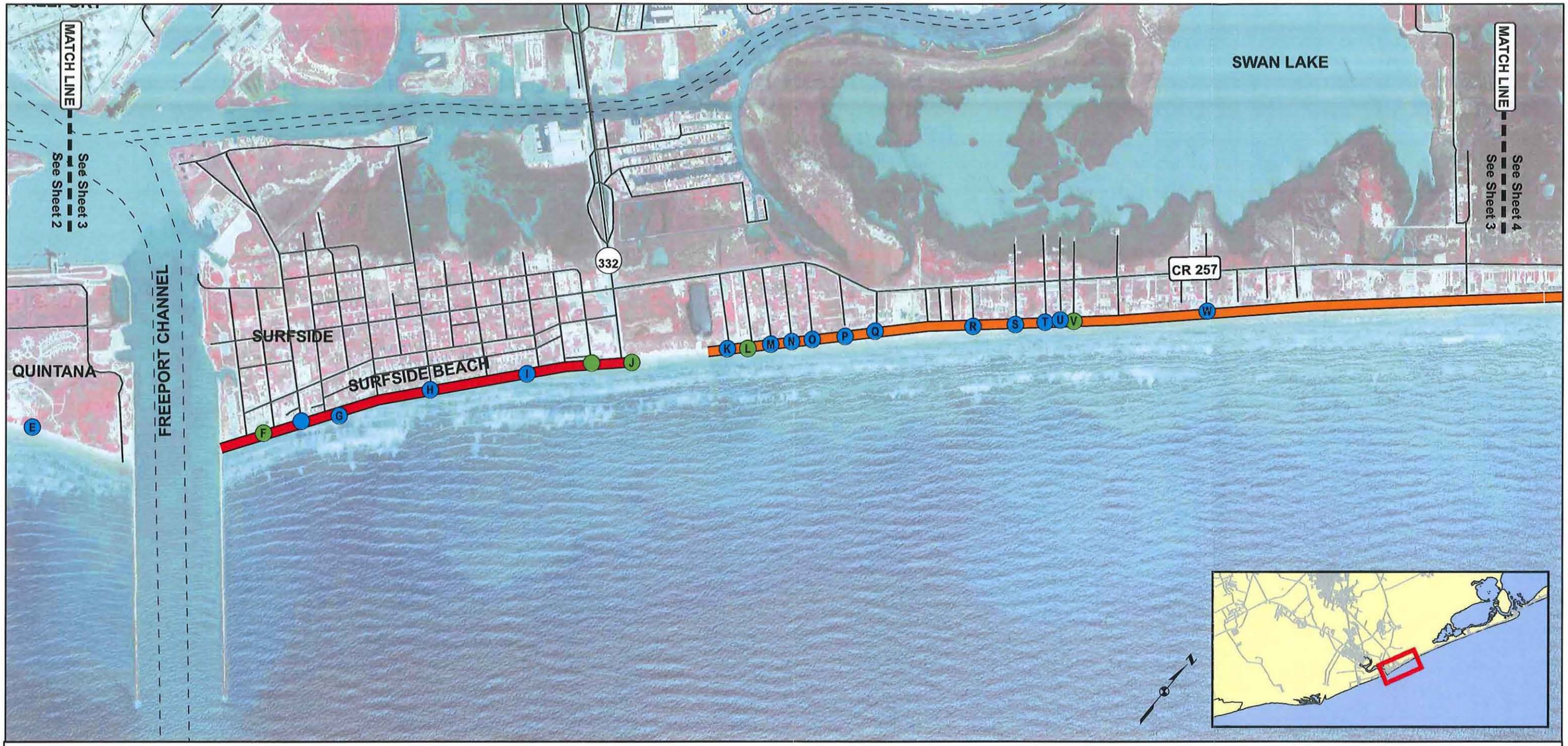

LEGEND

May 3, 2011 Site Photographs:

- A — Pedestrian Beach Access Points
- A — Vehicular Beach Access Points
- 1 — Potential Dune Enhancement Locations

Potential Short-Term Dune Enhancements

- High Priority
- Medium Priority
- Low Priority

Site Visit Photographs were taken on May 3, 2011 and shown in Appendix C and D.
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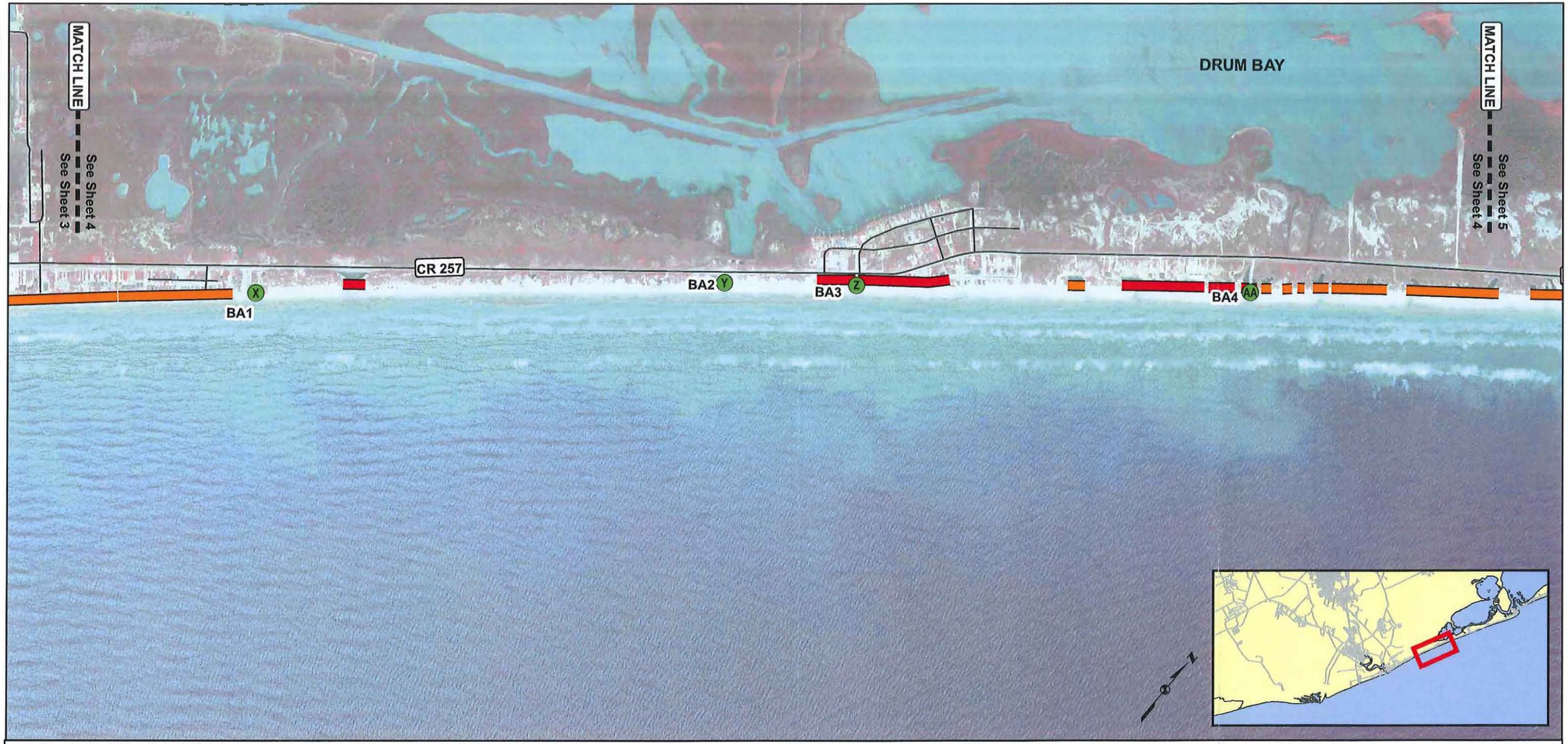

LEGEND

May 3, 2011 Site Photographs:

- Pedestrian Beach Access Points
- Vehicular Beach Access Points
- Potential Dune Enhancement Locations

Potential Short-Term Dune Enhancements

- High Priority
- Medium Priority
- Low Priority

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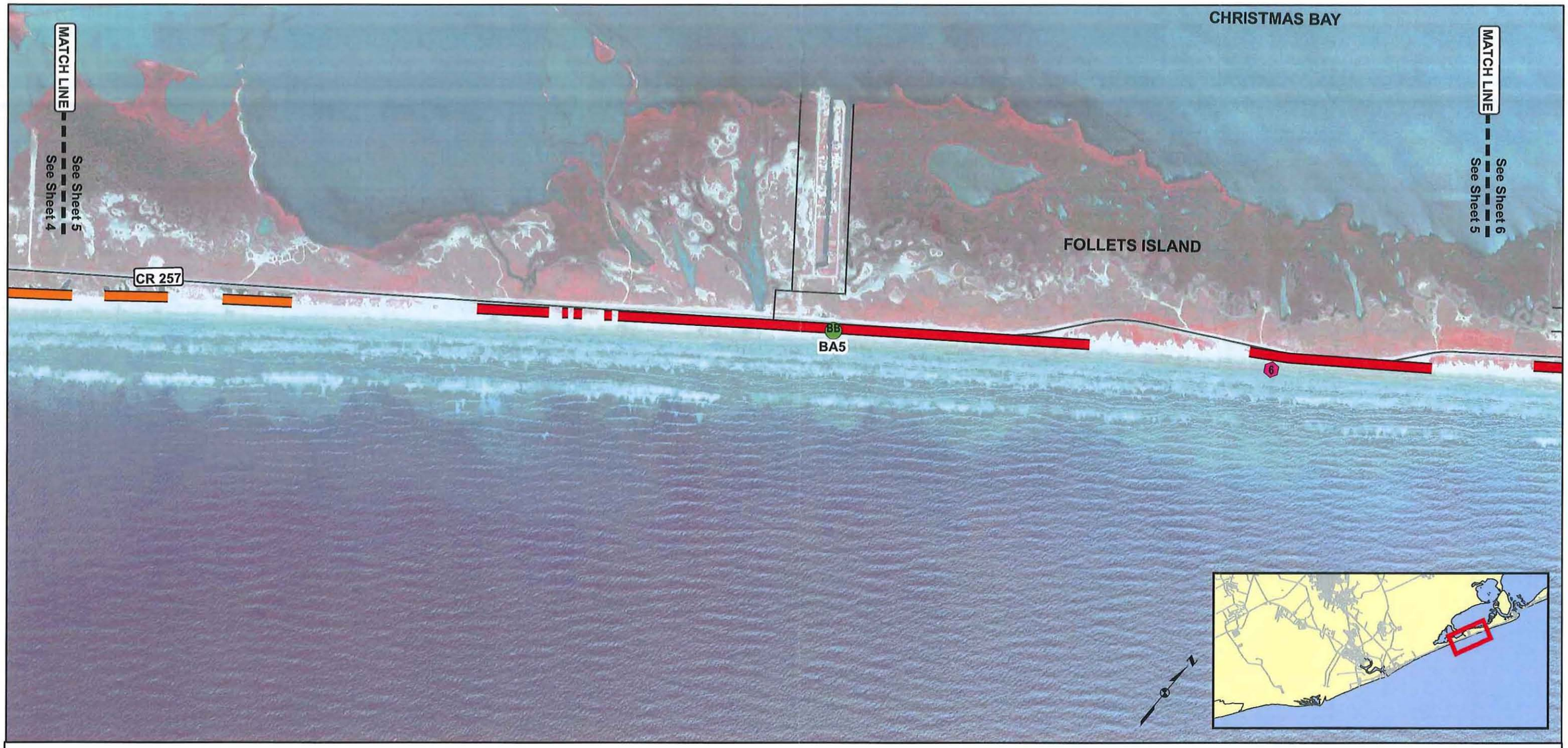

LEGEND
May 3, 2011 Site Photographs:
A — Pedestrian Beach Access Points
A — Vehicular Beach Access Points
1 — Potential Dune Enhancement Locations
Potential Short-Term Dune Enhancements
High Priority
Medium Priority
Low Priority

Site Visit Photographs were taken on May 3, 2011 and shown in Appendix C and D.
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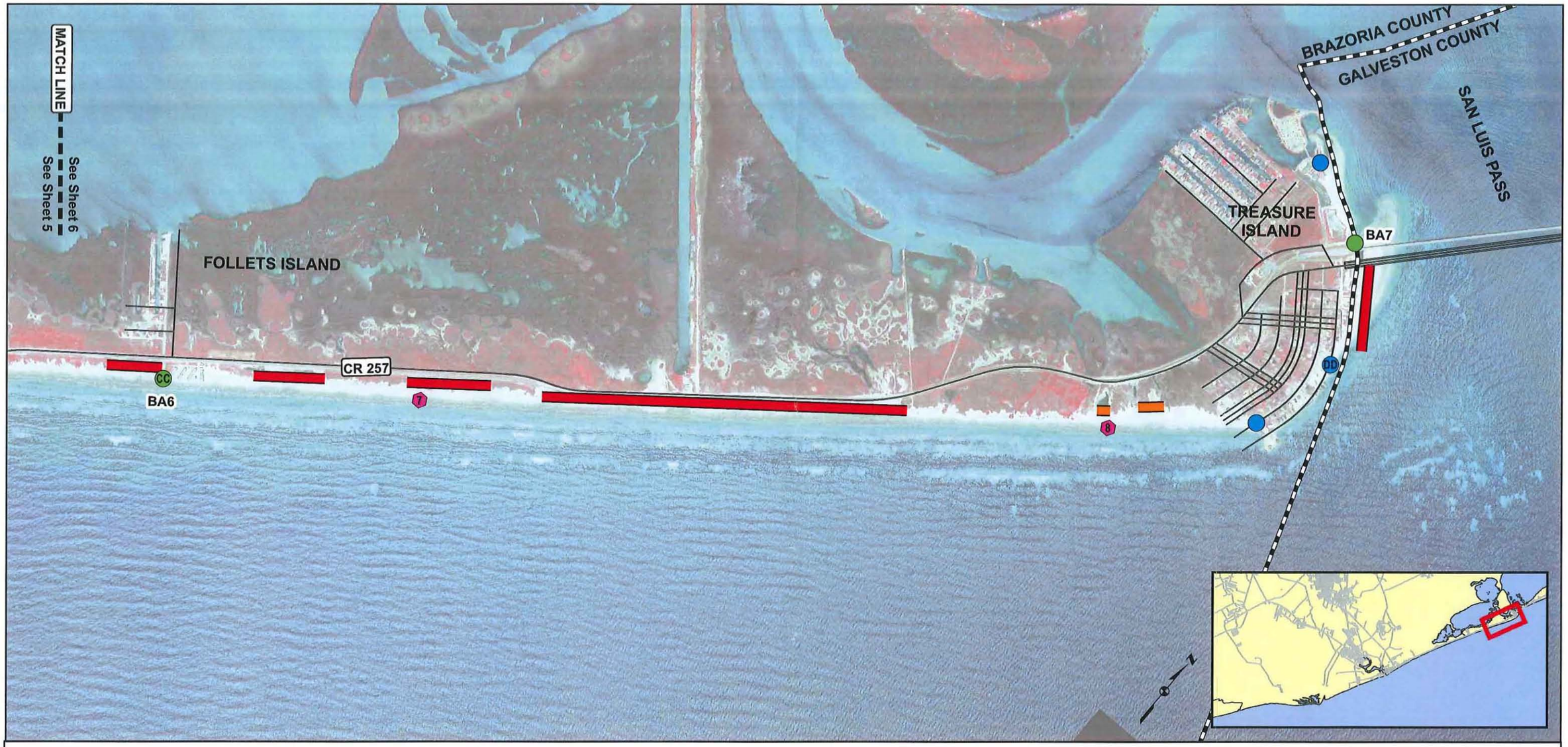
Beach Access & Dune Enhancement Areas

Date: 6/9/2011



LEGEND

May 3, 2011 Site Photographs:

- A — Pedestrian Beach Access Points
- A — Vehicular Beach Access Points
- 1 — Potential Dune Enhancement Locations

Potential Short-Term Dune Enhancements

- High Priority
- Medium Priority
- Low Priority

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BRAZORIA COUNTY EROSION RESPONSE PLAN

Beach Access & Dune Enhancement Areas

Date: 6/9/2011

Appendix C

Site Visit Photographs: Beach Access Areas

(A.) **City of Freeport: Vehicle Beach Access Point at CR 241.** *(DSCF0101.JPG)*

(B.) **City of Freeport: Vehicle Beach Access Point at CR 750.** *(DSCF0107.JPG)*

(C.) **Town of Quintana: Vehicle Beach Access Point at 16th Street.** *(DSCF0110.JPG)*

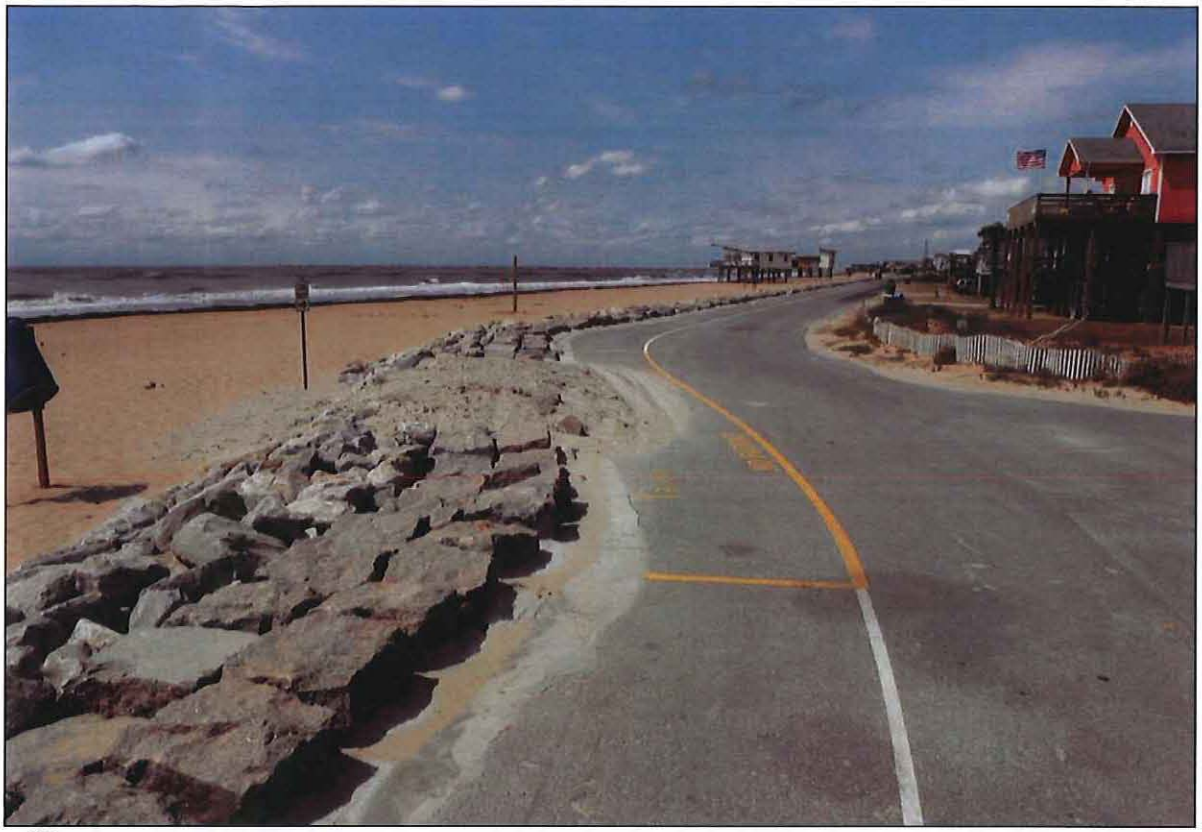
(D.) **Town of Quintana: Vehicle Beach Access Point at 8th Street.** *(DSCF0087.JPG)*

E. **Town of Quintana: Pedestrian Beach Access Point.** *(DSCF0089.JPG)*

F. **Village of Surfside Beach: Vehicle Beach Access Point at Jettyview Road.** *(DSCF0158.JPG)*

(G.) **Village of Surfside Beach: Pedestrian Beach Access Point at Texas Street.** *(DSCF0161.JPG)*

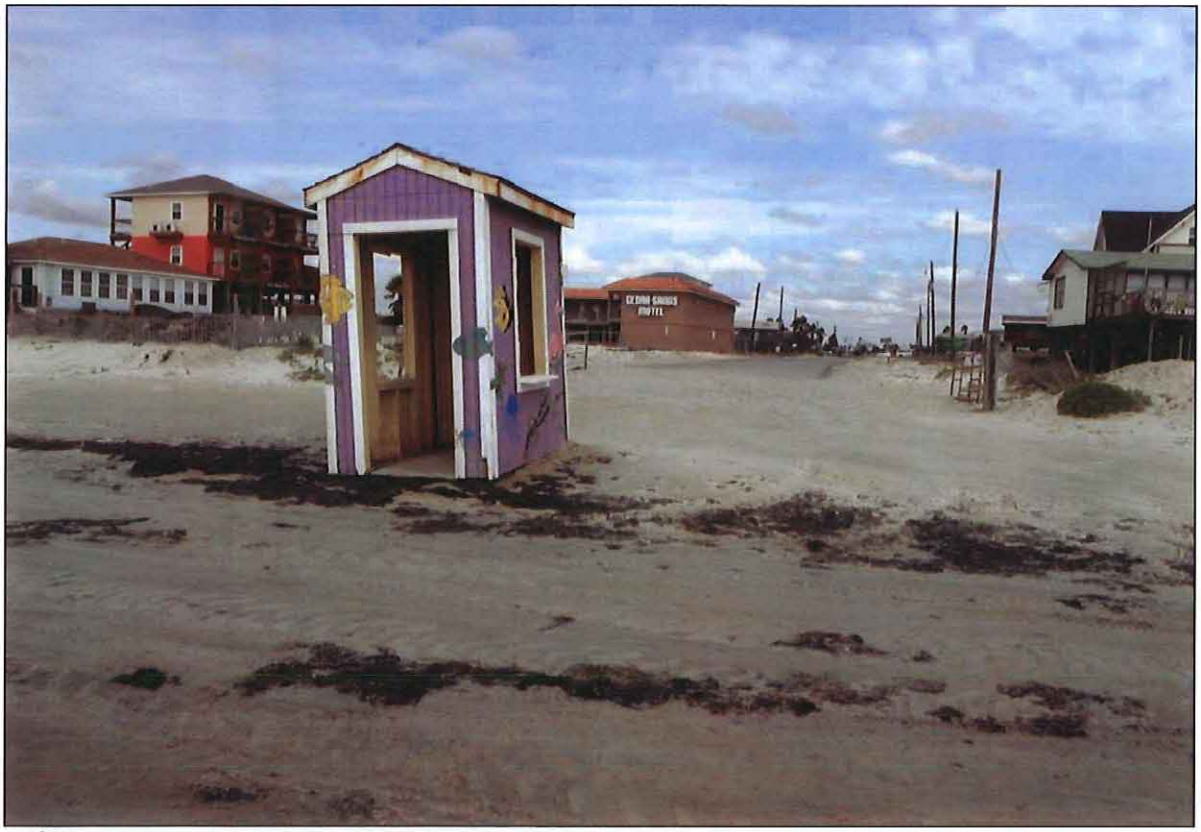
(H.) **Village of Surfside Beach: Pedestrian Beach Access Point at Beach Drive.**



I. **Village of Surfside Beach: Pedestrian Beach Access Point at Oyster Street.** *(DSCF0142.JPG)*

J. **Village of Surfside Beach: Vehicle Beach Access Point at Hwy 332.** *(DSCF0141.JPG)*

(K.) **Village of Surfside Beach: Pedestrian Beach Access Point at Francis Cove.** *(IMG_0664.JPG)*



(L.) **Village of Surfside Beach: Vehicle Beach Access Point at Ocean Ave.** *(DSCF0138.JPG)*

(M.) **Village of Surfside Beach: Pedestrian Beach Access Point at Driftwood Ct.** *(IMG_0668.JPG)*

(N.) **Village of Surfside Beach: Pedestrian Beach Access Point at Sand Dune Ct.** *(IMG_0670.JPG)*

(O.) **Village of Surfside Beach: Pedestrian Beach Access Point at Coral Ct.** *(IMG_0672.JPG)*

(P.) **Village of Surfside Beach: Pedestrian Beach Access Point at Gulfway Ct.** *(IMG_0674.JPG)*

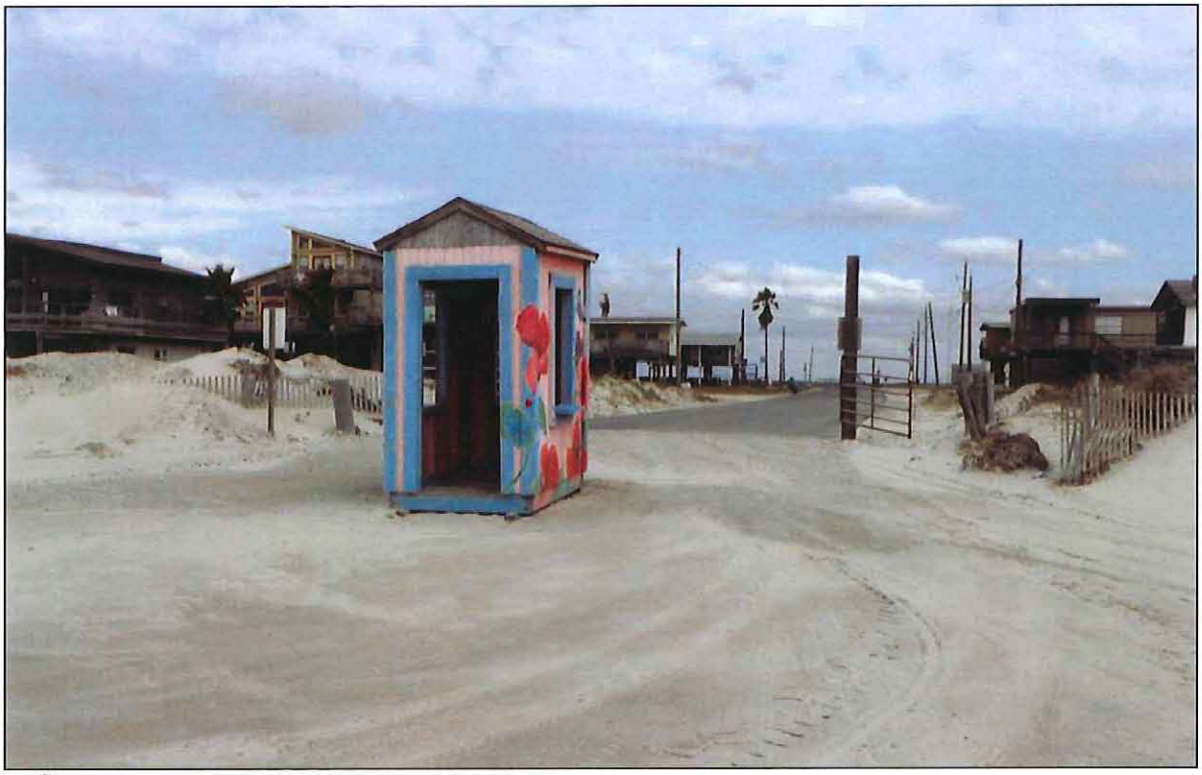
Q. **Village of Surfside Beach: Pedestrian Beach Access Point at Carlton Ave.** *(IMG_0678.JPG)*

R. **Village of Surfside Beach: Pedestrian Beach Access Point at Howard Ave.** *(IMG_0680.JPG)*

S. **Village of Surfside Beach: Pedestrian Beach Access Point at Belanger Ave.** *(IMG_0682.JPG)*

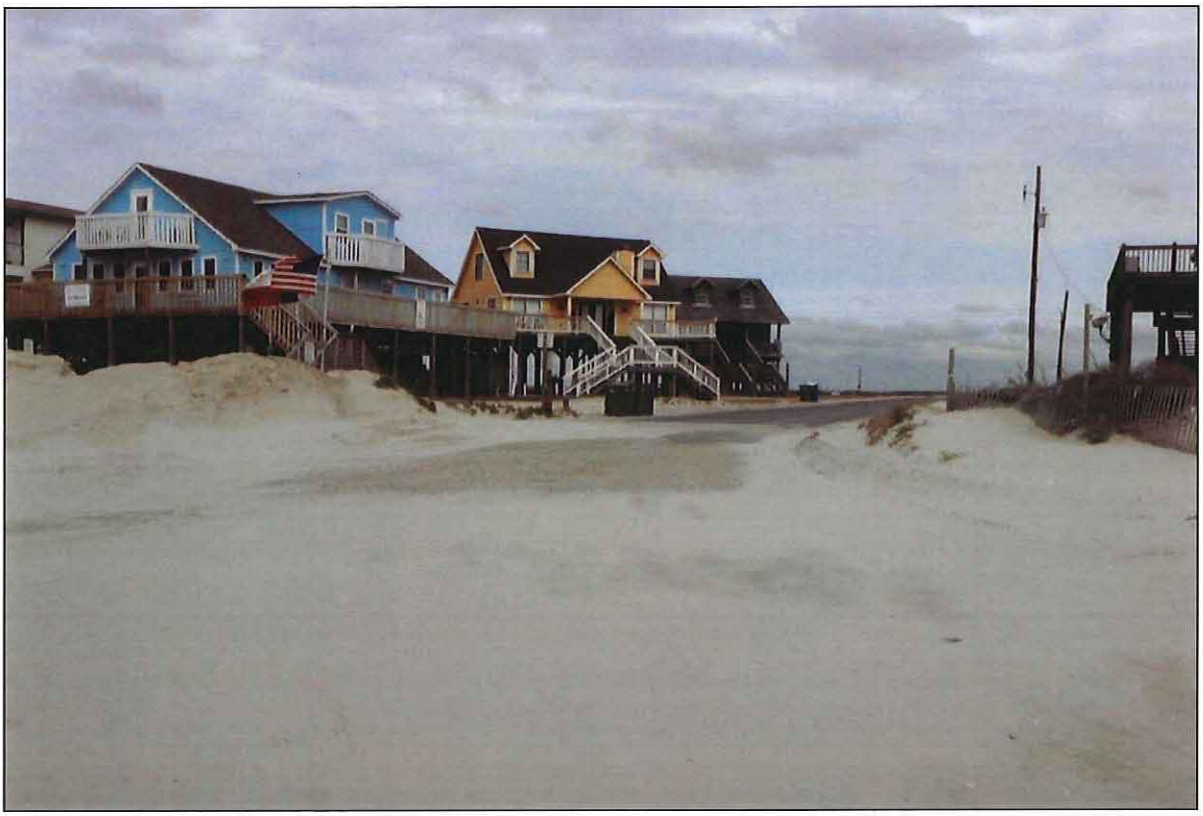
T. **Village of Surfside Beach: Pedestrian Beach Access Point at Saltgrass Ave.** *(IMG_0684.JPG)*

(U.) **Village of Surfside Beach: Pedestrian Beach Access Point at Detenbeck Ave.** *(IMG_0686.JPG)*



(V.) **Village of Surfside Beach: Vehicle Beach Access Point at Yucca Ave.** *(DSCF0137.JPG)*

(W.) **Village of Surfside Beach: Vehicle Beach Access Point at Sandpiper Ave.** *(IMG_0688.JPG)*



(X.) **Brazoria County: Vehicle Beach Access – BA Point #1 at Seagull Drive.** *(DSCF0134.JPG)*

(Y.) **Brazoria County: Vehicle Beach Access –BA Point #2 at CR257 side street.** *(DSCF0132.JPG)*

(Z.) **Brazoria County: Vehicle Beach Access – BA Point #3 at 2nd Street/CR257E.** *(DSCF0128.JPG)*

(AA.) **Brazoria County: Vehicle Beach Access – BA Point #4 at Nacal Drive/257K.** *(DSCF0131.JPG)*

(BB.) **Brazoria County: Vehicle Beach Access – BA Point #5 at CR257R.** *(DSCF0123.JPG)*

(CC) **Brazoria County: Vehicle Beach Access – BA Point #6 at Amigo Ln/257S.** (*DSCN4447.JPG*)

(DD) **Pedestrian Beach Access Point.** *(DSCF0113.JPG)*

Appendix D

Site Visit Photographs: Potential Dune Enhancement Areas

(1.) **Potential Short-term Dune Enhancement Area.** *(DSCF0097.JPG)*

(2.) **Potential Short-term Dune Enhancement Area.** *(DSCF0099.JPG)*

3. **Potential Short-term Dune Enhancement Area.** *(DSCF0104.JPG)*

4. **Potential Short-term Dune Enhancement Area.** *(DSCF0109.JPG)*

5. **Potential Short-term Dune Enhancement Area.** *(DSCF0079.JPG)*

6. **Potential Short-term Dune Enhancement Area.** *(DSCF0122.JPG)*

(7.) **Potential Short-term Dune Enhancement Area.** *(DSCF0121.JPG)*

(8.) **Potential Short-term Dune Enhancement Area.** *(DSCF0117.JPG)*

Appendix E

FEMA BFE Zones & Long-Term Critical Dune Typical Sections

Path: W:\0753.A - Erosion Response Plan\10 - GIS\GIS Maps\20110520_BFE_zones.mxd

ZONE VE (ELV. +12')

CEDAR LAKES

ZONE VE (ELV. +13')

ZONE VE (ELV. +15')

ZONE VE (ELV. +14')

MATAGORDA COUNTY

BRAZORIA COUNTY

N

LEGEND

FEMA BFE Zones

- VE (ELV. +11')
- VE (ELV. +12')
- VE (ELV. +13')
- VE (ELV. +14')
- VE (ELV. +15')
- VE (ELV. +16')
- VE (ELV. +17')
- VE (ELV. +18')

0 1,000 2,000 Feet

NOTE: BFE Zones Digitized from FEMA Flood Insurance Rate Maps (FIRMS) dated May, 1992.
Elevations are Referenced to the National Geodetic Vertical Datum of 1929.

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BRAZORIA COUNTY EROSION RESPONSE PLAN

FEMA BFE Zones

Date: 5/20/2011

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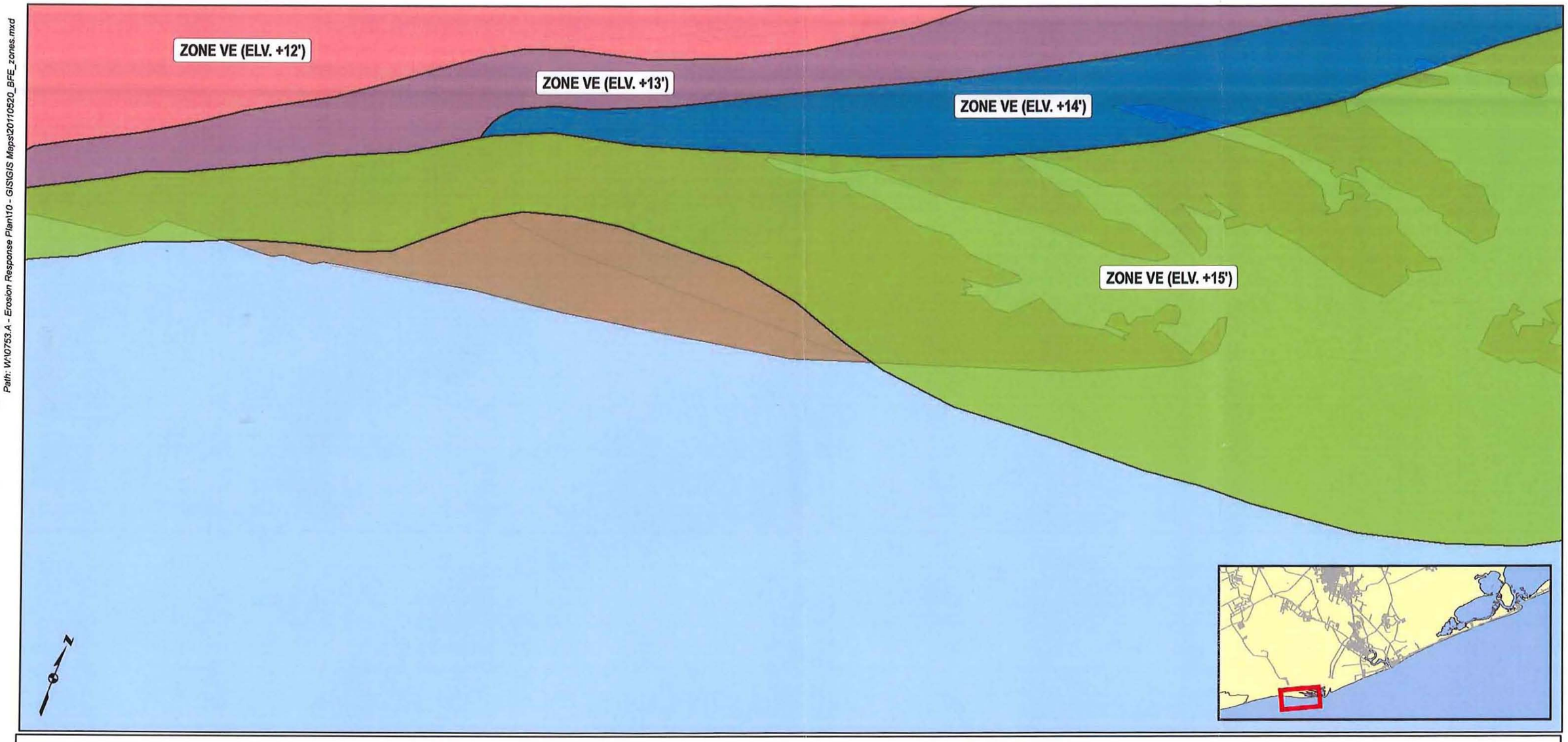

LEGEND

FEMA BFE Zones

- VE (ELV. +11')
- VE (ELV. +12')
- VE (ELV. +13')
- VE (ELV. +14')
- VE (ELV. +15')
- VE (ELV. +16')
- VE (ELV. +17')
- VE (ELV. +18')

0 1,000 2,000 Feet

NOTE: BFE Zones Digitized from FEMA Flood Insurance Rate Maps (FIRMS) dated May,1992.
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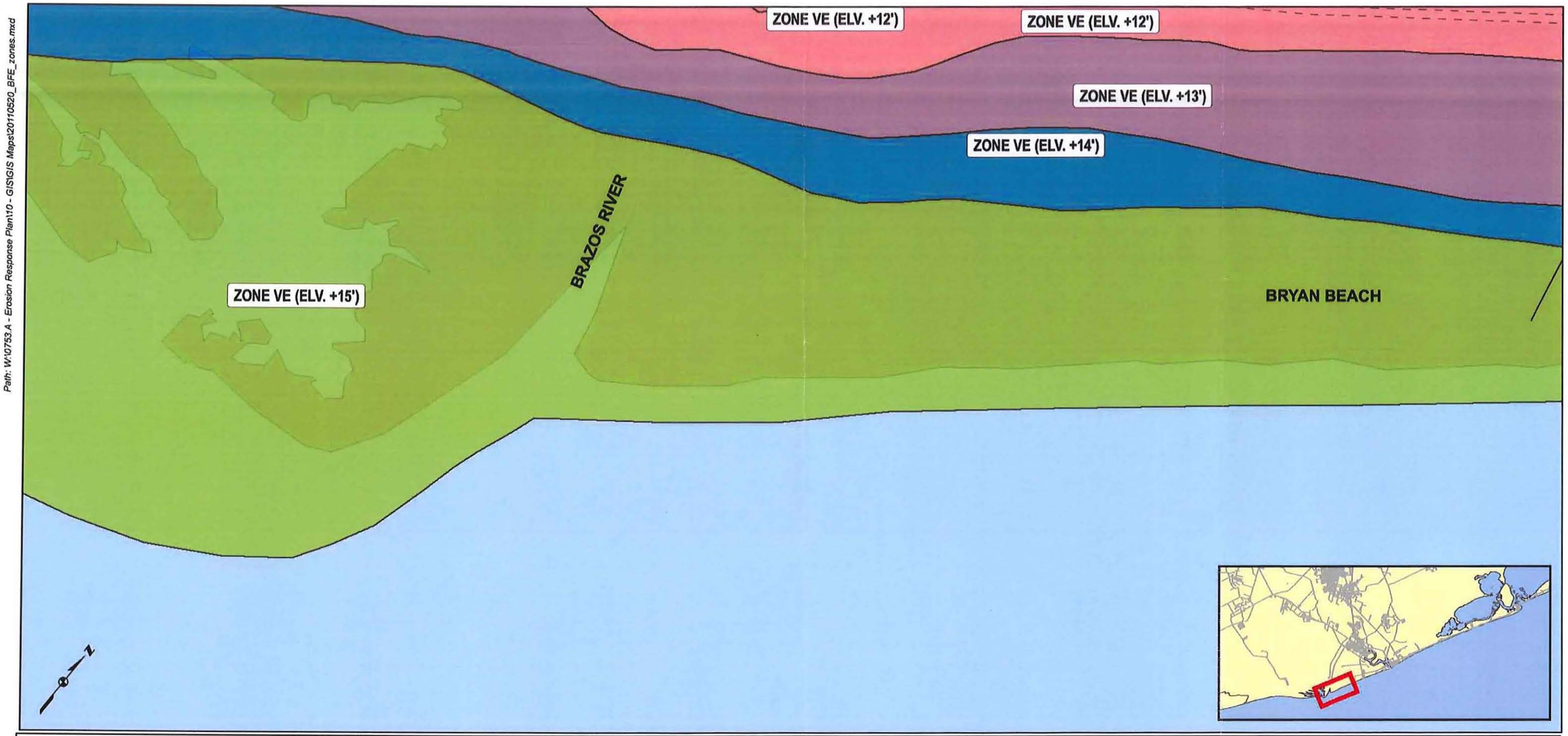

LEGEND

FEMA BFE Zones

- VE (ELV. +11')
- VE (ELV. +12')
- VE (ELV. +13')
- VE (ELV. +14')
- VE (ELV. +15')
- VE (ELV. +16')
- VE (ELV. +17')
- VE (ELV. +18')

0 1,000 2,000 Feet

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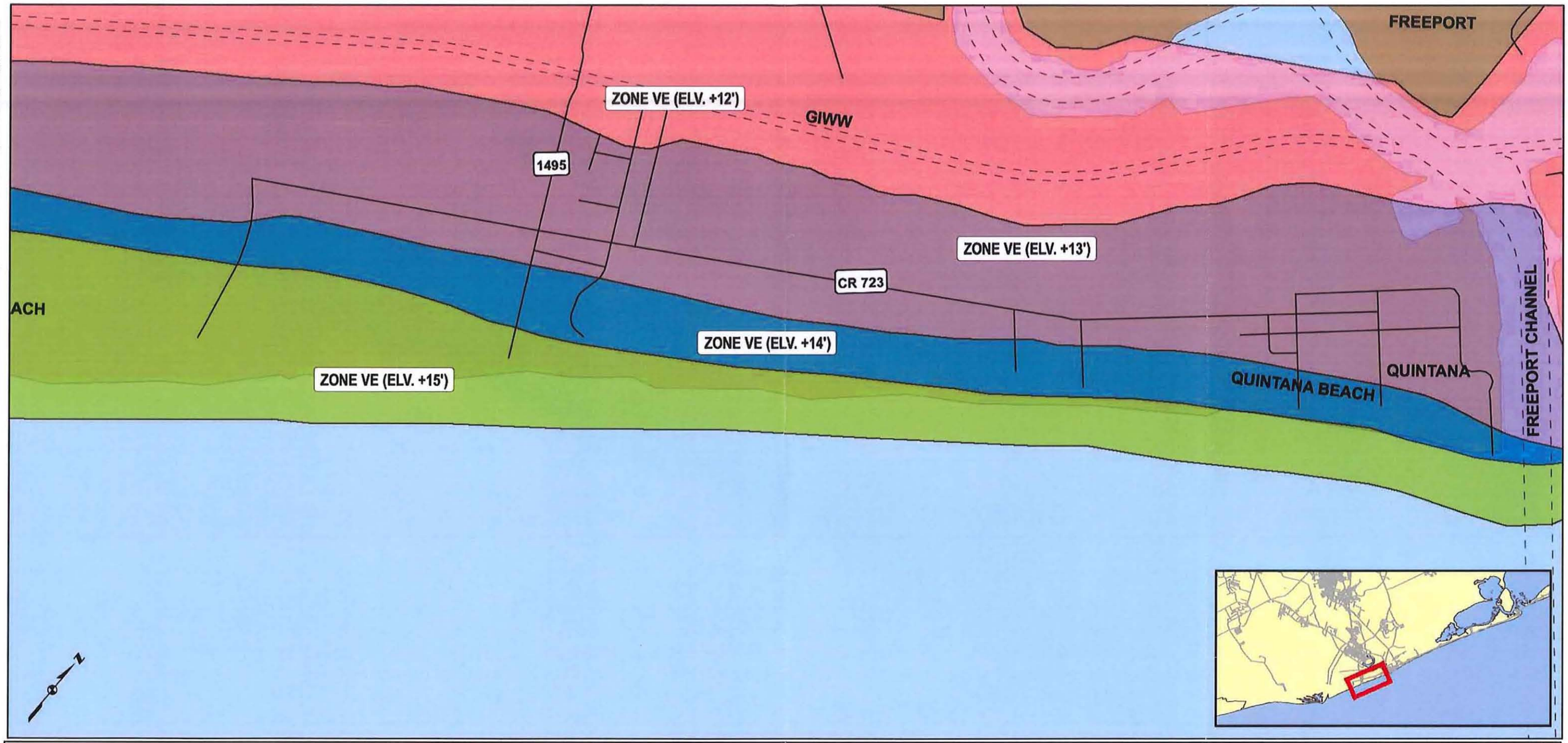

LEGEND

FEMA BFE Zones

- VE (ELV. +11')
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- VE (ELV. +14')
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- VE (ELV. +17')
- VE (ELV. +18')

0 1,000 2,000 Feet

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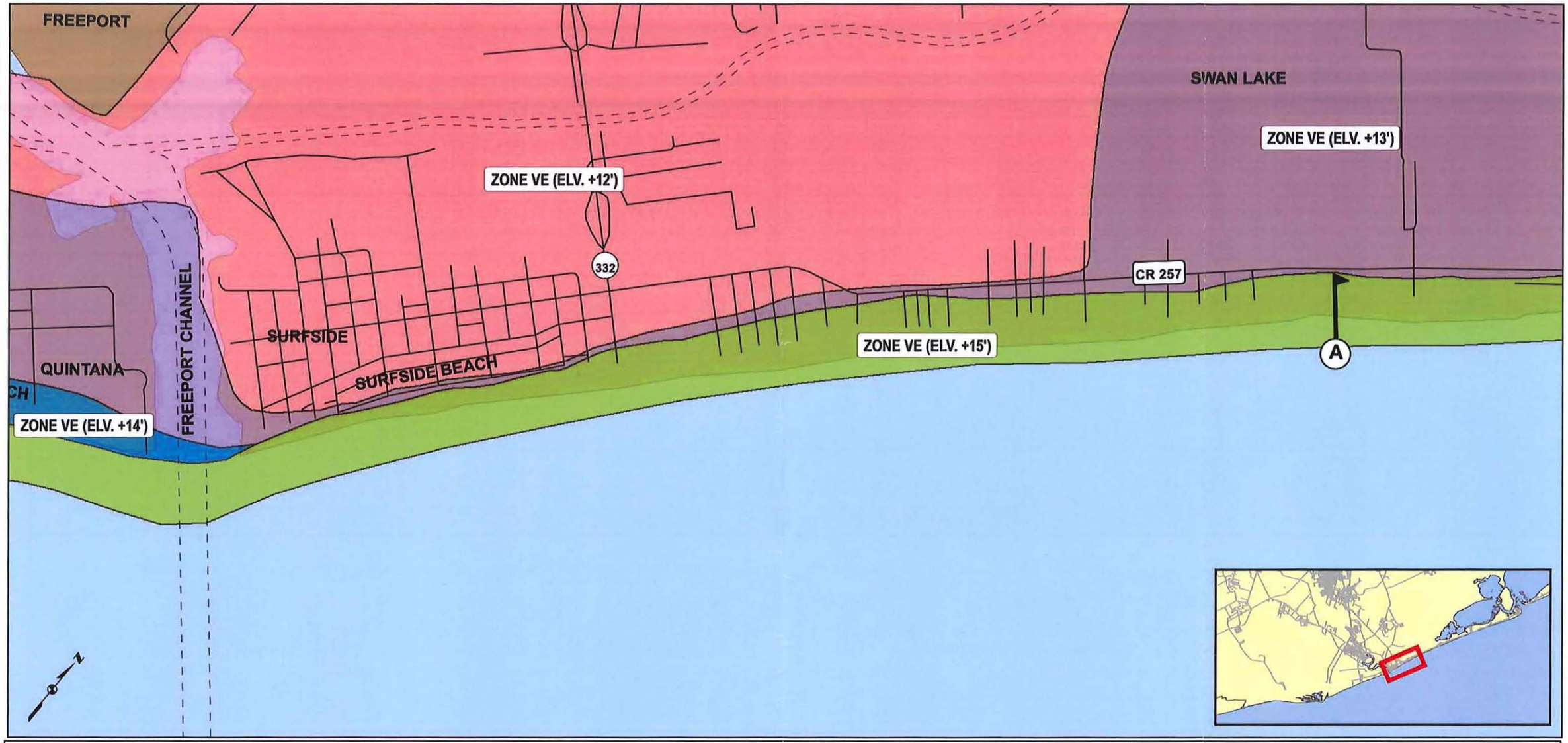

LEGEND

FEMA BFE Zones

- VE (ELV. +11')
- VE (ELV. +12')
- VE (ELV. +13')
- VE (ELV. +14')
- VE (ELV. +15')
- VE (ELV. +16')
- VE (ELV. +17')
- VE (ELV. +18')

0 1,000 2,000 Feet

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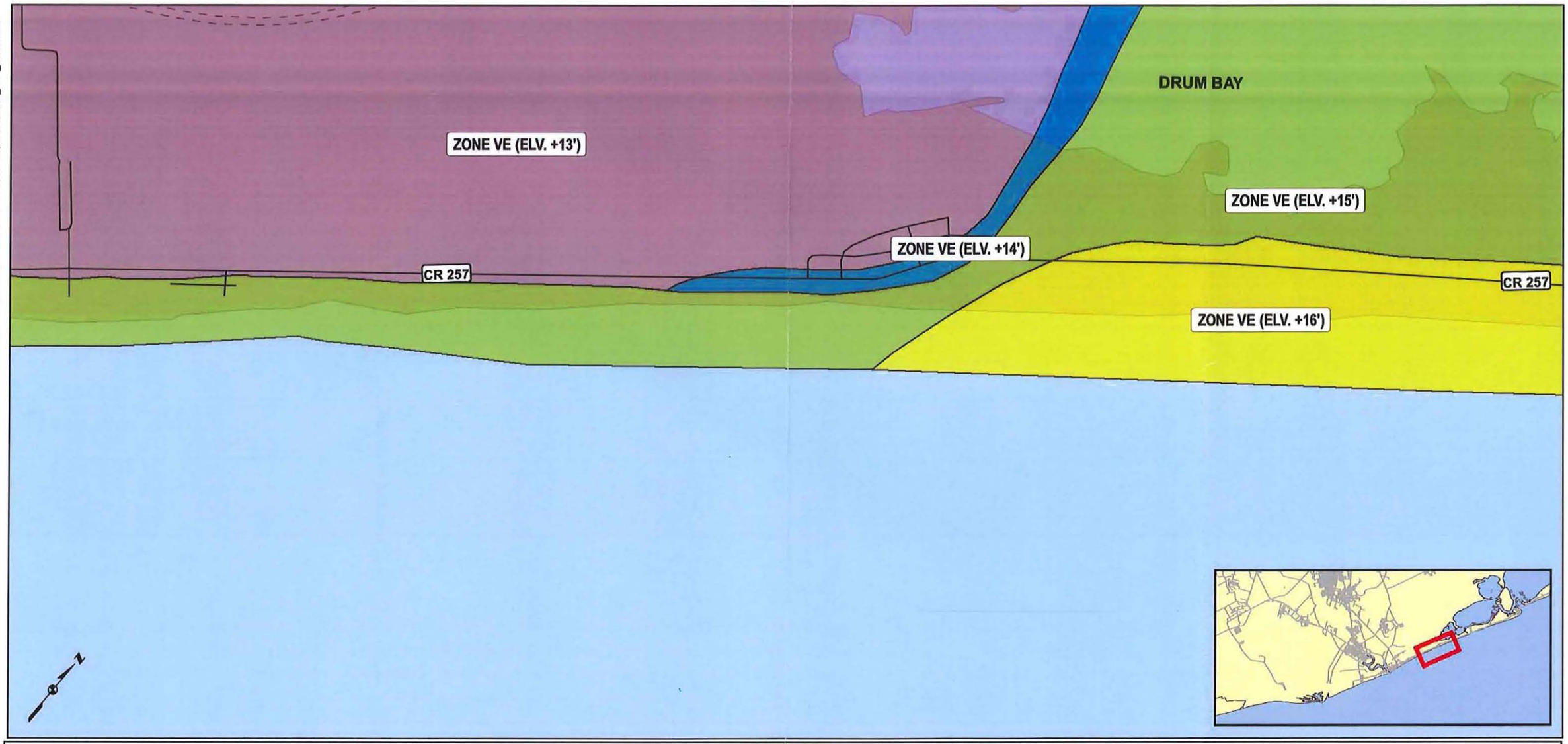

LEGEND

FEMA BFE Zones

- VE (ELV. +11')
- VE (ELV. +12')
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- VE (ELV. +14')
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- VE (ELV. +17')
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0 1,000 2,000 Feet

NOTE: BFE Zones Digitized from FEMA Flood Insurance Rate Maps (FIRMS) dated May,1992.
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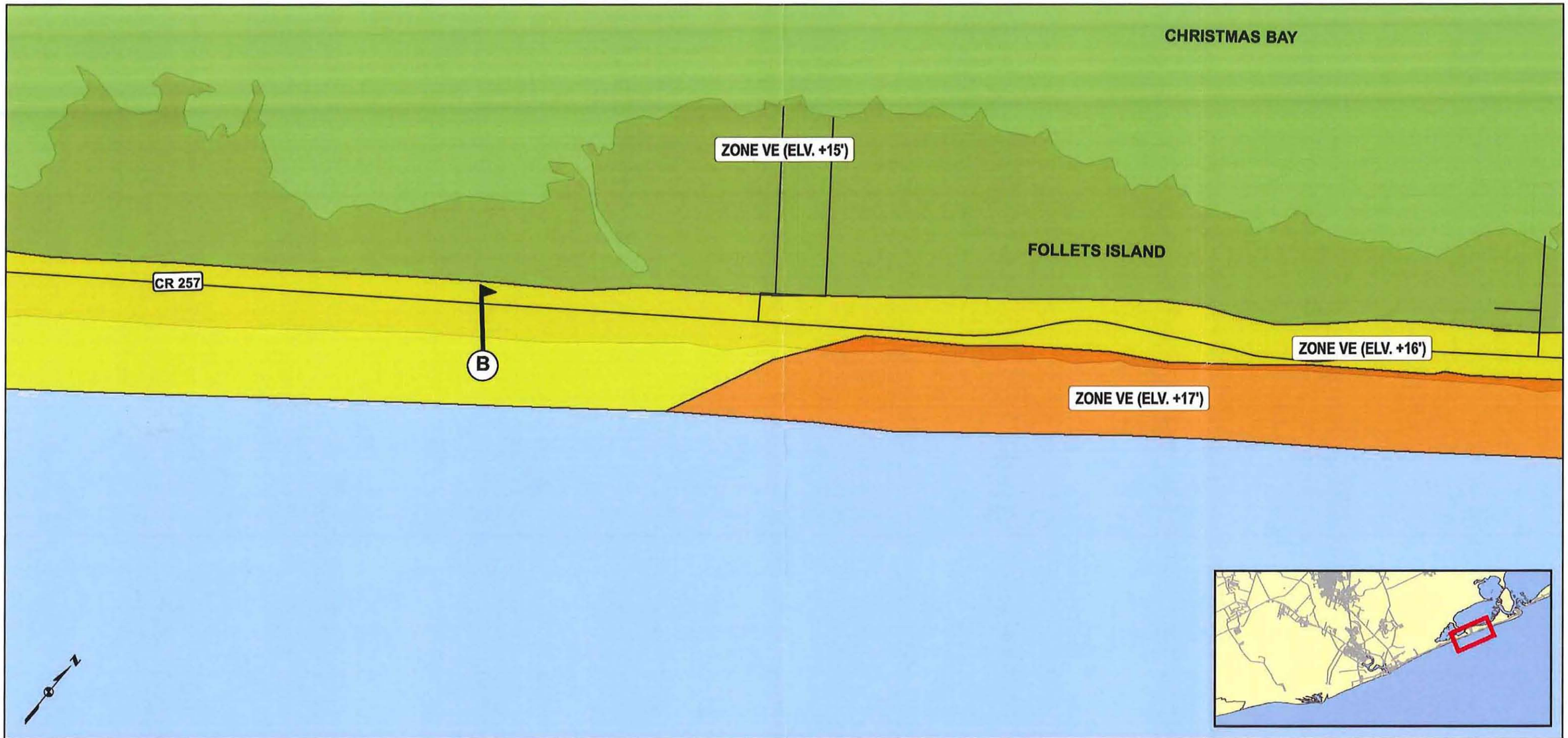

LEGEND

FEMA BFE Zones

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Elevations are Referenced to the National Geodetic Vertical Datum of 1929.

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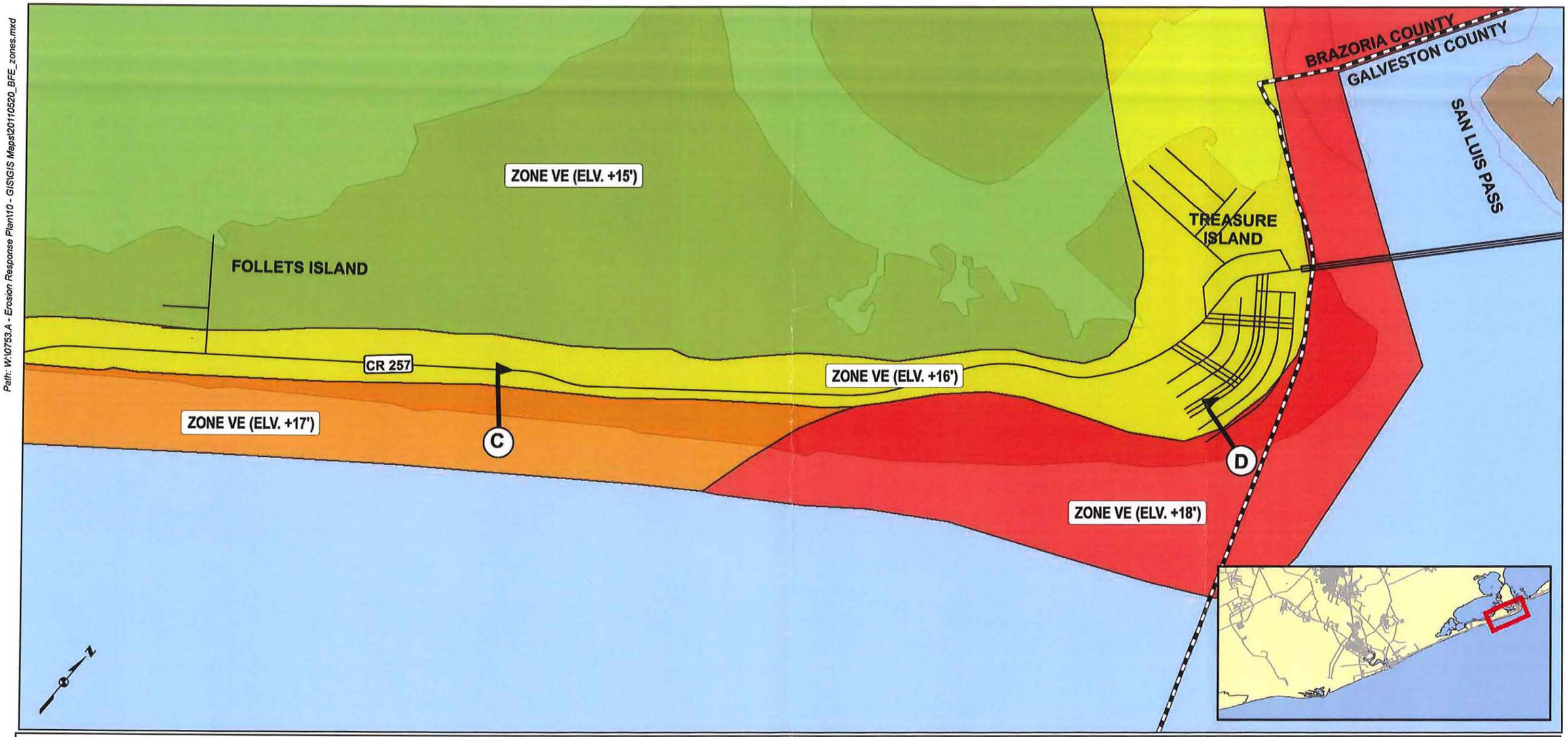
Brazoria County
111 East Locust Street
Angleton, Texas 77515

BRAZORIA COUNTY EROSION RESPONSE PLAN
FEMA BFE Zones

Date: 5/20/2011 |

Path: W:\10753.A - Erosion Response Plan\10 - GIS\GIS Maps\20110520_BFE_zones.mxd



LEGEND

FEMA BFE Zones

- VE (ELV. +11')
- VE (ELV. +12')
- VE (ELV. +13')
- VE (ELV. +14')
- VE (ELV. +15')
- VE (ELV. +16')
- VE (ELV. +17')
- VE (ELV. +18')

0 1,000 2,000 Feet

NOTE: BFE Zones Digitized from FEMA Flood Insurance Rate Maps (FIRMS) dated May,1992.
Elevations are Referenced to the National Geodetic Vertical Datum of 1929.

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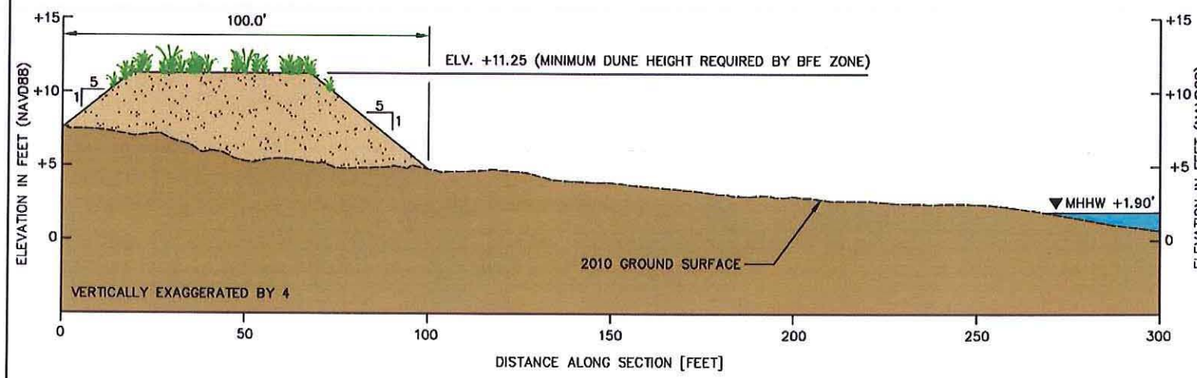
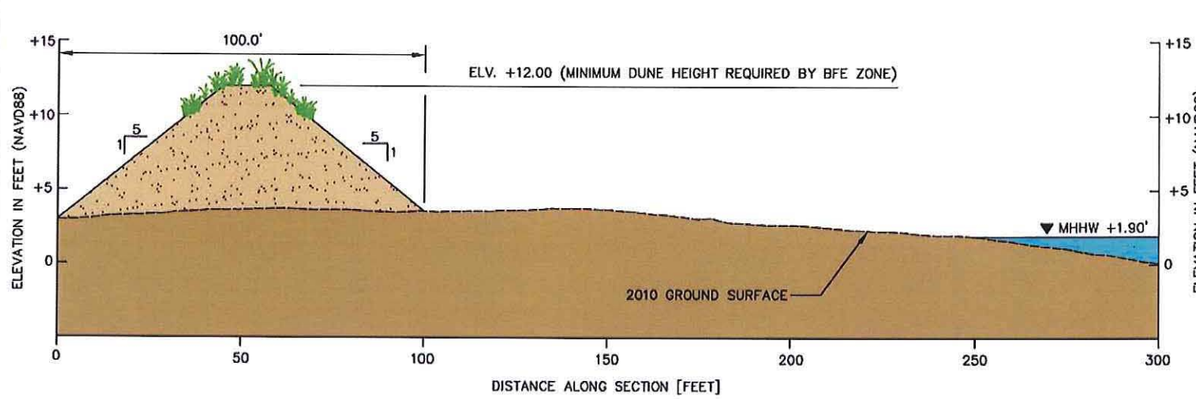
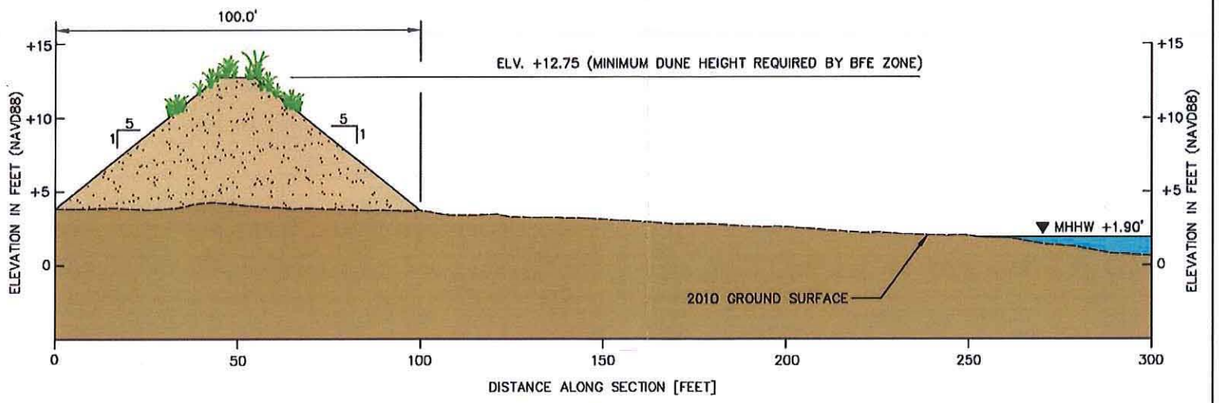


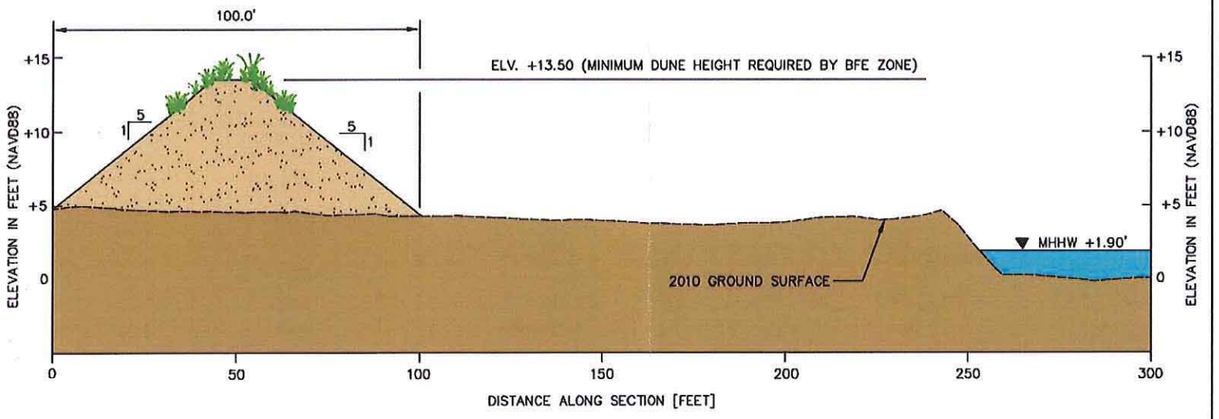
SECTION A
TYPICAL FEMA BFE ZONE VE
(ELV. +15')



SECTION B
TYPICAL FEMA BFE ZONE VE
(ELV. +16')



SECTION C
TYPICAL FEMA BFE ZONE VE
(ELV. +17')



SECTION D
TYPICAL FEMA BFE ZONE VE
(ELV. +18')

HORIZ. 0 20 40
VERT. 0 5 10
SCALE IN FEET

NOTES:

1. MINIMUM DUNE HEIGHT SHOULD BE BASED ON MINIMUM OF 75% OF THE BFE HEIGHT ESTABLISHED BY THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAPS.
2. DUNE SHALL HAVE A MINIMUM WIDTH OF 100 FEET MEASURED PERPENDICULAR TO THE GULF BEACH AND HAVE 85% VEGETATIVE COVER.
3. BFE ZONE ELEVATIONS ARE REFERENCED TO NAVD 1929.
4. 2010 GROUND SURFACES SHOWN ABOVE WERE DERIVED FROM LIDAR DATA THAT WAS COLLECTED IN APRIL 2010 BY THE BUREAU OF ECONOMIC GEOLOGY AND IS IN VERTICAL DATUM NAVD88.

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BRAZORIA COUNTY EROSION RESPONSE PLAN

FEMA BFE Zones

Date: 5/20/2011

Appendix F

Meeting List of Attendees

BRAZORIA COUNTY "EROSION RESPONSE PLAN" PUBLIC MEETING

May 23, 2011 Meeting – **SIGN IN SHEET**

Name	Organization	Email
GLORIA MILLSAP ON BEHALF OF SENATOR HUFFMAN		
DUDE PAYNE	BRAZORIA Co. Comm. Pct. 1	dudep@brazoria-county.com
LARRY WURN	self (land owner)	LWURN@AOL.COM
BUDDY ORTEGO	COASTAL RESOURCES BIOLOGIST	BUDCORETBIOS@gmail.com
Lawrence Wilkerson	Capital Resources Prop. LLC	LVWINSVR@Yahoo.com
MARK FUQUA	TREASURE ISLAND	MFUQUA@LASERMIDSTREAM.COM
JEAN Rippert	PROPERTY OWNER	JEANANN5C@swbell.net
Mary Shene	D.A - Brazoria Cnty	
~~Kelly Hamby~~	B.C. - Floodplain	

VILLAGE OF SURFSIDE BEACH and TOWN OF QUINTANA
EROSION RESPONSE PLAN – Public Meeting – 6:30 pm Stahlman Park – 2211 Bluewater Highway, Surfside

May 24, 2011 Meeting – **SIGN IN SHEET**

Name	Organization	Email
Gregg D. Bisso	Resident Surfside	GBisso@aol.com.
Harold Daty	111 S. Lake Dr.	
Dee Kimbrell	111 S. Lake Dr.	
Leon Contreras	162 Contrez	
Gary Wilson	2503 Compass Ct.	gwilson@dialup4less.com
Kathy Wilson	2503 Compass Ct.	
Jimmy Hall	2550 Deep Sea Dr Quintana	
Michael Johns	1500 Lamar Street	mjohns@freeportlng.com
Llewellyn	614 Seashell Surfside	
Brooks Porter	Property Owner	
Erminia Minard	115 Santar Loop Surfside	erminiard@erfw.net
Dennis Carroll	115 Santar Loop Surfside	erminiel@peoplepc.com
Andrew Moody	Village of Surfside	andy@surfsidetx.org
Linda Sebesta/Bob Eastman	307 Seashell	
Vera Vermillion	Quintana Tackle Shop	

VILLAGE OF SURFSIDE BEACH and TOWN OF QUINTANA
EROSION RESPONSE PLAN – Public Meeting – 6:30 pm Stahlman Park – 2211 Bluewater Highway, Surfside

May 24, 2011 Meeting – **SIGN IN SHEET**

Name	Organization	Email
LARRY DAVIDSON	Surfside city	
Chris Jeannott	Surfside City	
Jim & Linda Martin	Quintana 910 Dewey St.	martinjim48@yahoo.com
Dortha Pekar	Surfside	dortha@pekar.net
Henry Pekar	Surfside	Henry@pekar.Net
Amelia Colvin	Surfside	mozart@fiddle.demon.co.uk
Harry Bland	Quintana	Harry.bland@Aol.com
Dorothy Bland	"	"
Bob Petty	Surfside	BobPetty01@Aol.com
Jeff MOHR	QUINTANA	JeffMOHR57@GMAIL.COM
Brenda Lamott	Surfside Beach	Surfsidebrenda@yahoo.com
Kelly Hamby	BC - Floodplain	