COASTAL PLANNING & ENGINEERING, INC.

Town of Longboat Key Comprehensive Beach Management Plan 2008 Update

Prepared for:
Town of Longboat Key

Submitted: February 2008

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TOWN OF LONGBOAT KEY
COMPREHENSIVE BEACH MANAGEMENT PLAN
2008 UPDATE

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TOWN OF LONGBOAT KEY
COMPREHENSIVE BEACH MANAGEMENT PLAN

A. Introduction.

The 1995 Comprehensive Beach Management Plan and 1999 Beach Comprehensive Plan Update were developed by Coastal Planning & Engineering, Inc. (CPE) to provide a framework for the Town's decision making process regarding their beach resources. Since 1995, the Town has proactively managed their resources and implemented many of the recommendations of the plan and the plan update. This document updates and builds upon the 1999 beach comprehensive plan update. This update reflects the beach conditions measured during September 2007 and recommends strategies toward future management of the beach with emphasis on the proposed 2014 nourishment and on the limited application of coastal structures.

B. History.

The beaches of Longboat Key were critically eroded in the late 1980's and early 1990's. Seawalls and revetments were used along most of the Key to protect homes and roads. Groins were used to hold sand along portions of the Key.

In 1993, a major beach nourishment was constructed along the island with over 3 million cubic yards of fine white sand taken from the ebb shoals of Longboat Pass and New Pass. As part of this project, most groins were removed from Longboat Key as a permit condition.

This first project provided enough sand to widen the beach about 100 feet. Soon after the construction (1994-1995 timeframe), however, some sections of the beach narrowed significantly. At the Bayport Condominium property the dry beach reduced to 25 feet as much of the fine sand moved offshore. In Section 2 (Figure 1) and at the Islander Club Condominium property (section 4) the sand moved south leaving those sections of beach narrower than desired.

In 1995, a beach management program was developed to address these problems and improve long-term management of the beach. During the 1996/1997 renourishment, coarser gray sand was placed along portions of Section 3 and all of Section 4. Sand filled tubes were also employed to slow the movement of sand offshore at Bayport and alongshore at the Diplomat Condominium, Portobello, and Mark IV properties and at the Islander Club Condominium.

The coarser gray sand stayed up on the beach at Bayport solving the offshore loss problem. Longshore losses were slowed at the Islander but not eliminated. However, public reaction to the coarse gray sand was mixed as many did not like the color and texture. To address public concern, the 2005/2006 beach nourishment was planned primarily as a white sand project along the entire Key with a gray sand underlayer in three high erosion areas (40% of the Key).

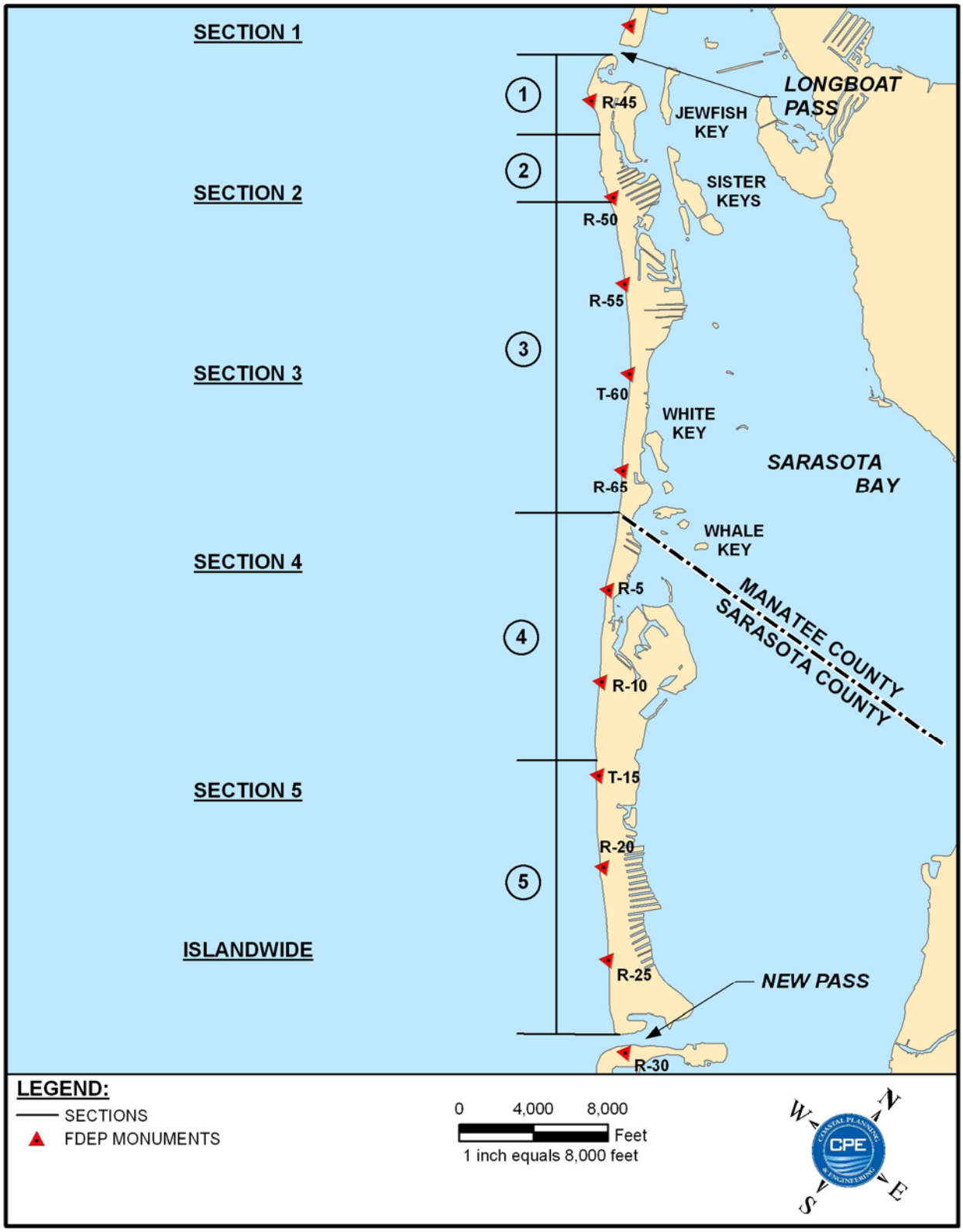

Figure 1. Longboat Key Beach Section Location Map.

This project was constructed in 2005/2006 and is currently being monitored for performance. In 2007-2008, some gray sand has moved into white sand areas causing public concern. Based on monitoring and performance, three new initiatives are being pursued:

1. Permeable/adjustable groins at the Islander
2. White sand search
3. North end structures/inlet evaluations

The history of beach construction activities is summarized in Table 1.

C. Design Beach Standards.

In 1995, the Town adopted a 130-foot wide beach design. This design consisted of a 40-foot wide horizontal berm at elevation + 5.0 NAVD and a 90-foot wide sloping beach section from the berm to -1 NAVD. The design section of the beach was based on the volume of sand and shape of a natural beach that would protect upland property from the storm impacts of a 10 year return period storm. The design beach is the minimum beach that the Town desires at all locations and at all times during the nourishment cycle. The beach design lies seaward of the project baseline that was taken as the dune vegetation line or line of coastal armoring as depicted on the aerial photographs. The baseline and the 130-foot wide beach were presented in the Town of Longboat Key Comprehensive Beach Management Plan, November 1995.

For this report, the project baseline and the design have been reproduced on Sheets 1-10. The baseline and design beach have been modified slightly to better reflect the needs of the Town and the practicality of managing certain sections of the beach. These minor modifications include the following:

1. During the 2005/2006 renourishment project, the continued erosion of sand from the North Shore Road area prompted the Town to nourish the beaches in that area. Erosion forced the closure of the public access at that location. A 90-foot wide design beach was established to provide the minimum beach width seaward of the seawall to allow safe public access to the beach. This is shown on Sheet 1. The width of the design beach transitions from 90 feet at North Shore Road to 130 feet at Whitney Beach (R-47) (Sheets 1 and 2).

Table 1
Town of Longboat Key Beach Construction Activities

Date and Project Titles	Activity	Range (FDEP monuments)	Fill Volume (cubic yards)
1993	Initial restoration of 9.28 miles of beach with fine white sand from the ebb shoals at New Pass and Longboat Pass. Derelict groins and seawalls were removed. Two artificial reefs were created.	R-47 to R-29	3,336,000
November 1996 to March 1997 (1996/1997 Renourishment)	Interim nourishment of coarse gray sand from offshore borrow areas in portions of Section 3 and all of Section 4. Three Longard tube groins constructed at the Portobello, Diplomat, and Mark III Condominiums. Two Longard tube groins constructed at the Islander Club Condominium. One Longard tube sill was constructed at Bayport.	R-65 to R-14	891,000
July 1997	USACE maintenance dredging of Longboat Pass channel and placement of fine white sand on the north end of Longboat Key.	R-45, R-48 to R-51	109,000
August to September 1997	USACE maintenance dredging of New Pass channel and placement of fine white sand on the south end of Longboat Key.	R-25 to R-29	171,200
September 1997 to January 1998	Terminal groin at New Pass reinforced and extended 120 feet to stabilize the southern end of the beach.	R-29 vicinity	NA
January 1998	Maintenance dredging of Greer Island Beach Park channel and fill placement north of North Shore Drive.	R-45 vicinity	2,000
April to May 2001	Interim beach nourishment from the Beachcomber to the Villa di Lancia with coarse gray sand.	R-10.5 to R-14	105,300
December 2001 to January 2002	Replacement of the two Longard tube groins constructed near the Islander Club Condominium.	R-13.5 vicinity	NA
March 2003	Maintenance dredging of New Pass channel.	T-22 to R-28	99,800
2005/2006 Renourishment	Beach nourishment using fine white sand along the entire island (9.8 miles). Coarse sand was placed as an underlayer at three locations comprising about 40% of the island to control high erosion rates. A geotextile groin was removed near the Islander Club Condominium.	R-44 to R-29	1,790,000
July 2005 to July 2006	Three modules of stone were placed offshore of Gulfside Road to form an artificial reef.	R-50.5 vicinity	NA
		Total Fill Placed (1993 to Present):	**6,504,300**

2. At the Islander Club Condominium, the baseline was redrawn to follow the seawall. Additional discussion regarding the ability to maintain the beach in this area is provided later in the report.

3. When the baseline and initial design beach were established in 1995, the baseline was set at each Florida Department of Environmental Protection (FDEP) beach monument. One such monument lies in front of the Privateer Condominium. The Condominium property has a seawall, which extends seaward of its adjacent properties. In 1995, the design shoreline was established 130 feet west of the seawall. Maintaining the design beach at the Privateer Condominium at this location for a short distance (a few hundred feet) has not and will not be feasible. On Sheet 8, the design shoreline has been modified by locating the position of the design shoreline 130 feet from the baseline on the adjacent properties and not from baseline at the Privateer's seawall. Considering the presence of the seawall, there is no decrease in the Privateer Condominium's overall storm protection relative to their adjacent properties.

D. 2007 Beach Update Summary.

As required by State permits and to assist in management of the beach, the beach is surveyed annually to determine project performance. The most recent survey occurred in September 2007, and the results are described in CPE (December 2007). Pertinent results are repeated in Table 2 to assist in updating the comprehensive beach management plan. To determine the recent shoreline retreat rates, the 2007 shoreline is compared to the July 2006 shoreline. The performance of each section is described in the following paragraphs.

The following analysis describes the performance of each section of beach and includes some discussion of historic and recent changes.

1. Section 1 (Longboat Pass to Beach Walk)

The Town-managed beach in this area is presently 125 feet wider than the design beach. The beach lost 71,000 cubic yards between July 2006 and September 2007. This represented approximately 64% of the volume placed in 2006. The beach at the end of North Shore Road receded the most from 2006 to 2007 (103 feet) and was only 69 feet seaward of the design shoreline in 2007.

The Section 1 beach area has historically experienced significant fluctuation caused by erosion accretion cycles as a result of the interaction between the ebb shoal and the beach. Since 2004, the beach has receded significantly with sand moving toward and into Longboat Pass.

Table 2
Post Construction Beach and Shoreline (MHW) Changes

Profile Line	Beach Length (feet)	Volumetric Change (CY)	Shoreline Change (feet)	
		Post-Con. July 2006 to Sept. 2007	Post-Con. July 2006 to Sept. 2007	Design Shoreline to Sept. 2007
Reach 1 R-42 to R-47	3,749	-71,000	-28.6	125.0
Reach 2 R-47 to R-50.5	3,877	-36,000	-29.9	35.6
Reach 3 R-50.5 to R-67	16,311	33,000	-2.0	58.1
Reach 4 R-67 to R-14	13,484	-39,000	-20.0	74.1
Reach 5 R-14 to R-29	14,801	-31,000	5.0	97.3

Notes: 1. MHW = +0.1' NAVD = +1.1' NGVD.
2. + advance or accrete, - retreat or erode.

Renourishment of the beach in 2005/2006 was necessary to maintain the public access at North Shore Road and maintain the beach in this section. A small portion of the northerly directed sediment transport has deposited in the re-curved spit along the northeast shoreline of Greer Island Beach Park. The spit now reaches the foundation of the Longboat Pass Bridge (Sheet 1).

2. Section 2 (Beach Walk to South End of Gulfside Road)

The beach in this section of the Key has experienced historically high recession rates. The beach has receded approximately 30 feet since the 2005/2006 renourishment (Table 2), and this section of beach lost 36,000 cubic yards between July 2006 and September 2007. The average beach in this section is 36 feet wider than the design shoreline (Sheets 1 and 2). The high rates are due to the shoreline orientation relative to the Gulf of Mexico wave climate and the net sediment transport reversal that occurs in the northern portion of this section. When this beach erodes further, the seawall at 6633 Gulf of Mexico Drive (GMD) becomes exposed and further isolates the beaches to the north and south from sharing sand with each other.

3. Section 3 (South end of Gulfside Road to Sarasota County Line)

Sheets 2 through 5 show that the majority of the beach widths within Section 3 are in excess of the design shoreline or within a few feet of the design shoreline. This section of beach is historically stable to accretional. On average the beach recession was less than two feet immediately after construction, and the beach section gained 33,000 cubic yards of sand (Table 2). The beach, on average, is 58 feet wider than the design shoreline.

4. Section 4 (Sarasota County Line to Longboat Key Beach Club)

The average beach in this section is currently 74 feet wider than the design shoreline (Sheets 5 through 7). The recent shoreline recession in this area is approximately 20 feet (Table 2). It is likely that a deficiency in the design shoreline in the vicinity of the Islander Club Condominium will occur in 2008. Section 4 lost 39,000 cubic yards between July 2006 and September 2007.

5. Section 5 (Longboat Key Beach Club to New Pass)

The beach in Section 5 is wider than the design shoreline at all areas except in front of the Privateer Condominium. The recent shoreline advanced approximately five feet (Table 2), but lost 31,000 cubic yards from the beach profiles. The shoreline advancement immediately after nourishment is typical for this section. Later in the nourishment cycle, this shoreline is expected to recede as the volume of sand that reaches Section 5 from Section 4 decreases.

6. Summary

While the Town's nourishment program has been successful in maintaining the design shoreline throughout the majority of Longboat Key, three erosional areas are present that may require additional management. These areas include Section 1 north of R-45 (Long Beach Village), all of Section 2 (Beachwalk to Gulfside Road), and the beach in the vicinity of the Islander Club Condominium. The additional management options include structural stabilization and/or more frequent placement of nourishment sand.

E. 2014 Nourishment Design.

1. Beach Nourishment

The Town should continue to nourish the beach as needed with sand on an eight year program schedule with the next nourishment planned for 2014. More frequent nourishment may be required in hot spot areas if fine sand is used. The source of the sand will be primarily from offshore sand deposits although upland sources can be considered for small placements and in emergency conditions following storms. To the extent possible, the color of the sand should be light gray to white in color and be

the coarsest sand that is economically and reasonably available at the time of each renourishment.

A secondary and possibly less desirable option (considering economics and availability) would be to use coarse shell hash sand to control high erosion areas along limited sections of the Key. This sand could be used in layered or full cross section to reduce erosion of high erosion areas. This option should only be considered if the performance and/or availability of white (or light gray) sand have shown to be unfeasible.

In Section 2 and portions of Section 3, the amount of fill is limited by the existence of nearshore rocky outcrop habitats which would be covered if too much sand is used. These areas would benefit from the use of coarser sand since these sands would primarily stay on the dry beach with less sand moving offshore affecting the rocky outcrop habitats. If finer sand were to be used in this area, less sand placed more frequently would be needed to accomplish the same goal without covering the rocks.

2. Coastal Structure Considerations

While the next nourishment is not scheduled till 2014, two existing high erosion areas warrant the addition of coastal structures so that the existing nourishment lasts until 2014. These coastal structures are described below.

Structures should be considered to limit losses in high erosion areas to reduce erosion rates and enable uniform storm protection throughout the Key for a full post-nourishment interval currently planned at eight years. The terminal groin at New Pass at the south end of the Key should be maintained as a leaky rock structure to retain sand on the beach while allowing some sand to move into the Pass and along the north shore of New Pass.

Two permeable adjustable groins planned for the Islander Club Condominium property should be constructed and monitored closely to determine the effects on the adjacent beaches. It has been determined that these proposed minimum actions are necessary to protect the health, safety and welfare of the community in this area. The 2014 nourishment program should be adjusted to consider the measured effects of these structures and to achieve uniform levels of protection along adjacent beaches. The structures should be adjusted if the modified nourishment program does not adequately address the observed performance in compliance with the requirements of the FDEP permits.

Structures should be considered at the north end of the island to control existing high erosion rates. Groins and/or a terminal structure may be needed to slow the erosion of this area. The Town should reinitiate the permit application process with the FDEP and USACE regarding the use of structures to complement the beach fill at the north end. Coordination is required with Manatee County to enable construction on portions of the County park (Greer Island Beach Park) if needed. An inlet management study with coastal modeling may be required by the FDEP and other

regulatory agencies to demonstrate the expected performance of the proposed structures. The structures at the north end of the Island combined with periodic nourishment with sand are the minimum actions required to protect the health, safety and welfare of the public in this area.

F. Sand Source Options.

1. History

The 1993 beach nourishment program was constructed with sands from portions of the ebb shoals at New Pass and Longboat Pass. Based on post-construction sampling and analysis, the sand appeared to be slightly finer than the native beach sands (CPE, 1995). In response to several storm events, the beach narrowed and deflated along several sections of the Key. For the 1996 Mid Key nourishment, coarse gray sediment was placed that provided greater storm protection and erosion resistance than the sand from the ebb shoals.

After much discussion, the Town in 1999 directed CPE to design and permit a project that would consist of a coarse layer of sand in the highest erosion areas and a finer white sand on the remainder of the Key. A white sand layer was to be placed on all coarse sand. The coarse sand was obtained from areas northwest of Longboat Key and the fine white sand was obtained from areas offshore of Passage Key. These borrow areas were utilized in the 2005/2006 project.

2. Sand Investigations

A detailed review of the 1993 beach restoration project indicated that the use of fine-grained sand in beach nourishment projects on Longboat Key resulted in a large offshore transport during storms. To avoid encountering similar problems in future beach restoration projects, the Town has acknowledged that highly erosive areas should be nourished with beach compatible sand that is coarser than the native beach (approximately 0.20 mm).

For the sand search investigations, the mean grain size should be coarser than the ebb shoal sands previously placed. There are several known deposits that meet this requirement offshore of Longboat Key. However, the Town has directed their consultants to conduct an offshore investigation to identify similar coarse-grained deposits that are lighter in color (ideally, white) to address the public's sand color and texture preference.

In order to provide a comprehensive overview of sand resources located offshore of Sarasota, Manatee and Hillsborough Counties, reconnaissance level investigations will be conducted in 2008. The investigation will include a desktop feasibility study, a geophysical survey, and a geotechnical survey.

Depending on the results of the investigation, such as available grain size, the volume and nourishment interval will be estimated. Coarser sands require less volume and allow for longer nourishment intervals. The distance from Longboat Key to the sand deposits will affect the costs of the sand; sand costs will be incorporated into the economics of the nourishment program.

G. Sections 1 and 2 Beach Management Program.

1. Section 1

The 1995 Comprehensive Beach Management Plan reviewed and extended previous analyses of the erosion patterns, threats to upland development, and recommended solutions at the northern end of Longboat Key (Longboat Pass to Beachwalk, Section 1). At that time, the erosion threat was near the end of North Shore Drive and the Long Beach Village Condominium. The 1995 beach comprehensive plan recommended the following:

Option 1 Placement of 25,000-50,000 cubic yards of sand from the Longboat Pass dredging between R-44.5 and R-46 (in front of Long Beach Village).

Option 2 Consider the installation of two sand filled geotextile groins to stabilize a beach in front of the Long Beach Village condominiums.

Option 3 Consider working with Manatee County to develop a groin field in Section 1.

The beach in Section 1 is heavily influenced by the dynamics of the Longboat Pass ebb shoal. Within a year after the 1995 report was written, the severe erosion at Long Beach Village diminished and the beach advanced 304 feet at R-45 between 1995 and 1998. As a result of the accretion, action on Options 2 and 3 were held in abeyance. Between 1998 and 1999, the beach receded 97 feet at R-45. As a result of the erosion, the 1999 Beach Management Plan Update recommended that Options 2 and 3 should be carried forward if erosion continues and threatens the Long Beach Village development.

Between 1999 and 2003, the beaches of Section 1 were erosional, but at a manageable rate (CPE, 2004). Nevertheless, the following recommendations were made in the 2004 study:

a. Continue monitoring of the beaches.
b. Removal of Australian Pine trees due to the potential safety hazard and to maintain public access along the shoreline.
c. Renourish the beach between R-43 (Greer Island Beach Park) and R-46a (Beach Walk).

After the 2004 study, the erosion rate of Section 1 accelerated. Erosion exposed the seawall at North Shore Road that prompted closing the public access. The Town modified the FDEP and the United States Army Corps of Engineers (USACE)

2005/2006 beach nourishment project permits to include nourishment of 110,000 cubic yards in this area. Even with this significant nourishment volume, the life of the beach fill was expected to be short as a result of the high erosion rates. Concurrent with the nourishment, the Town initiated design and permitting for two groins. The main purpose for the two groins was to maintain the public access and preserve the beach in front of the 360 North Condominium property. FDEP expressed concerns over impacts to the remainder of Greer Island Beach Park and suggested a terminal groin structure should be evaluated. The application was withdrawn by the Town.

The 2007 monitoring study indicates that the beach is continuing to erode in Section 1 with erosion rates similar to those experienced between 2004 and 2006. The placement of approximately 110,000 cubic yards of sand during the 2005/2006 project cost approximately $1,026,000. Based on the high unit cost of sand and continued high erosion rates as a result of the inlet and ebb shoal interactions with the beach, structural control of the littoral transport is recommended. It is likely several groins or one long terminal groin will be necessary to reduce the erosion rates of Section 1. Inclusion of some form of a terminal groin near the north limit of the Key may be required to obtain FDEP approval. As Greer Island Beach Park is a Manatee County park, the structural improvements should be coordinated with Manatee County. The structures at the north end of the Island combined with periodic nourishments are the minimum actions required to protect the health, safety and welfare of the public in this area.

2. Section 2

Section 2 has been a highly erosive section of beach (CPE, 1999). One of the reasons for the high erosion rate in this section is the divergence of the net littoral transport at a nodal point. The location of the nodal point varies both seasonally and annually, but it is usually between Whitney Beach and 6633 GMD where a seaward protruding seawall exists.

In 1997, the Town requested the USACE to place Longboat Pass maintenance dredging sand in this section. An existing construction easement for Federal maintenance dredging extends to the south end of Gulfside Road. The 2005/2006 project was the first time since 1993 that the Town placed sand in this section of the beach. In 2005/2006, this section of the beach was one of several in the Town to receive the coarse sand under layer to reduce the rate of erosion and to limit the seaward extent of the equilibrium toe of fill.

This section of the beach should be renourished on an as needed basis. Continued monitoring of the beach is recommended. If coarse sand (white or gray) is not used in the future, more frequent nourishments or structural stabilization may be required to slow the erosion of this section.

3. North Beach (Sections 1 and 2) Management Program Summary

The following recommendations are made for the north end of Longboat Key:

a. Coordinate with the USACE to plan the Town's share of any future Longboat Pass maintenance dredging to provide sand in locations that best meets the Town's and Manatee County's needs.
b. Continue to monitor the beaches to evaluate if minimum beach widths are maintained.
c. Place sand in Sections 1 and 2 during future nourishments, as needed.
d. Implement structural stabilization of beach areas in the vicinity of Long Beach Village, 360 North Condominium, and Greer Island Beach Park. Inclusion of a terminal groin should be considered.
e. Work with Manatee County to remove the Australian Pine tree stumps from Greer Island Beach Park for safety reasons and to maintain public access.
f. Consider structural stabilization measures for Section 2 if nourishment options do not adequately address needs in this area.

H. Section 3 Beach Management Program.

Section 3 has been historically stable to minimally erosional due to its orientation to the average Gulf of Mexico wave climate. The section benefits from some of the erosion from Section 2. When the majority of Section 3 received its first renourishment in 2005/2006, only fine white sand was placed. It is recommended that the beach be monitored annually and be nourished at the next nourishment interval.

I. Section 4 Structural Enhancements to the Beach Nourishment Program.

1. History of Nourishment Efforts

After the initial nourishment in 1993, the beaches within Section 4 have been nourished three times. Based on the 1999 beach comprehensive plan update, the Town elected to place an additional 100,000 cubic yards of sand at each nourishment interval to maintain the beach in this section. This effort has been only partially successful in maintaining the design beach even with the presence of the geotextile tube groins constructed in 1997.

2. Previous Structural Evaluations

While high volumetric erosion has occurred within the majority of Section 4, the erosion has been most evident at the Islander Club Condominium property. Since 1993, the beach at the Islander Club Condominium property has, at times, temporarily eroded back to the seawall and revetment obstructing lateral beach access. While some beach recovery has occurred, the recovery has not always been complete. During the 2005/2006 project, the geotextile tube groin in front of the Villa di Lancia was removed after sections of the tube deteriorated.

The Town has on several occasions authorized engineering studies to evaluate alternative groin designs to better maintain the design shoreline and lateral beach access in front of the Islander Club Condominium. The groins have been designed to be the minimum structures necessary to protect health, safety and welfare.

3. Program Recommendations

In order to improve the condition of the beach in the general vicinity of the Islander Club Condominium over the entire nourishment cycle and to do so in a cost effective manner, the following actions should be undertaken by the Town:

a. Design and permit two permeable adjustable groins to better retain the sand on the beaches at the south end of Section 4, specifically at the Islander Club Condominium.
b. Monitor the beaches within and adjacent to the coastal structures upon their completion. Verify compliance with all monitoring requirements and determine any impacts to adjacent beaches.
c. Modify the coastal structures as necessary to optimize their performance or to offset adjacent beach impacts.
d. Nourish the beach, as necessary, upon construction of the coastal structures.
e. Nourish the beach at the next renourishment interval.

It has been determined that the above described actions are the minimum necessary to protect the health, safety and welfare of the community in this area of the Town.

J. Section 5 Beach Management Program.

The beach in Section 5 has fluctuated between accretion and erosion over previous nourishment intervals. While the net trend is erosion, the loss of sand from Section 4 has at times caused widening of the beaches in the northern third of Section 5. The terminal groin at New Pass, constructed in 1997, has stabilized the beach immediately to the north of New Pass. The USACE has also placed sand from New Pass on the beaches in this section. To best manage the beaches in this section, the following actions should be taken by the Town:

1. Monitor the beaches annually.
2. Coordinate the placement of any USACE maintenance dredging placement on the Town's beach for optimal benefit.
3. Nourish the beach at the next renourishment interval.

K. Funding Options.

1. Eligibility for Florida Beach Erosion Control Trust Fund

The Town qualifies for and receives State funding for its beach management activities. The Town currently receives approximately 22% of eligible expenses from the Florida Beach Erosion Control Trust Fund.

2. Federal Funding Programs

a. Sarasota County Beach Erosion Control Projects.

The Town of Longboat Key has an option to pursue federal funding for a portion of their beach nourishment projects. The USACE could fund up to an estimated 52% of the 2.4 mile Sarasota County portion of the Longboat Key renourishment projects proposed from the county line south to about the Islander Club Condominium (CPE, 1999). The Town has historically not pursued these funds because of additional design documentation and justification requirements, and the uncertainty of federal funds availability. The federal funds are dependent on administration budgeting, and congressional appropriation.

b. Longboat Pass and New Pass Federal Navigation Channel Maintenance Dredging.

The Federal Navigation Projects for New Pass and Longboat Pass provide for 12 foot by 150 foot and 10 foot by 150 foot channels, respectively, along specified alignments at the two passes. The federally authorized navigation channel at Longboat Pass was initially dredged in 1977. The federally authorized navigation channel at New Pass was initially dredged in 1964. Since the initial dredging, maintenance dredging has been periodically performed at each of the inlets.

The Town has benefited from the continued federal participation in the dredging of New Pass and Longboat Pass. These pass maintenance projects place a portion of the dredged sand on Longboat Key. It is of continued benefit to the Town to support the pass maintenance projects and receive periodic volumes of sand at the north and south disposal areas.

c. Federal Emergency Management Agency (FEMA) Funds

FEMA funding eligibility is received because the Town's beach program does not receive federal funding, has a design basis, is actively monitored, and maintained. The funding is available to the Town for repair of the beach nourishment project due to storm damages. Such funds were received by the Town as a result of damages due to the following storm events; the "No Name" storm March 1993, Tropical Storm Josephine in 1997, Tropical Storm

Gabrielle September 2001, and the 2004 hurricane season storms including, Charlie, Ivan, Frances and Jeanne, and Hurricane Wilma October 2005. The Town has been reimbursed approximately $4 million as a result of documenting sand losses after these events. The FEMA funds should be pursued at each opportunity in the future.

3. Tourist Development Council

The Town presently receives funding from the Tourist Development Councils (TDC) of Manatee and Sarasota Counties under the auspices of agreements and/or ordinances negotiated with each council. The current appropriations are approximately $227,732 and $360,000 for Manatee County and Sarasota County, respectively. Future appropriations may fluctuate with tourism activities. These funds, at the discretion of the Town, may be used for beach nourishment activities.

4. Town Funding

The Town has been funding the majority of the beach program with bonds. The bonds are paid back through special assessments that are approved by referendum votes. The special assessments are based on two taxing districts that are divided geographically by Gulf of Mexico Drive. As evidenced by continued voter support of the referendums, the bonding and special assessments are recommended for future use.

L. Longboat Key Monitoring.

1. Physical Monitoring

The FDEP permits require the beach be monitored annually for three years and then biannually thereafter in accordance with the beach monitoring plan. This monitoring includes surveying the FDEP established profiles (approximately every 1,000 feet along the shore) out to a depth of water of 15 feet. These surveys are used to evaluate the erosion trends along the island and forecast the need for future beach renourishments.

Additional survey profile lines are required in the vicinity of the four remaining geotextile tube groins and one geotextile tube sill, and the buried storm water drain at North Shore Road. These provide additional data to quantify the structures performance and associated impacts (if any). These surveys are also required by the FDEP permit.

We recommend continued annual beach profiling described above to assist the Town in managing its beach resources.

2. Turtle Monitoring

Beach nourishment activities have the potential to modify marine sea turtle nesting habitat. As a result, FDEP requires that nesting activities be monitored on an annual basis after the construction of a beach nourishment project.

The turtle monitoring includes the following elements:

a. Daily nest and false crawl surveys.
b. Artificial lighting documentation.
c. Nest monitoring for hatching activity.
d. Hatching success determination.
e. Data analysis and reporting.

We recommend that the minimum monitoring, above, be continued annually to provide a continuous baseline of data.

3. Environmental Monitoring of Natural and Artificial Habitats

As required by State and Federal permits, environmental monitoring of natural and artificial habitats should continue.

M. Updated Comprehensive Beach Management Plan Summary.

The comprehensive beach management plan is briefly summarized in Figure 2 and outlined as follows:

1. Continue to manage any sand placement from the USACE New Pass and Longboat Key Pass maintenance dredgings.
2. Initiate sand source investigations to determine if coarse white sand and/or white sand is available for the next nourishment.
3. Implement structural control of high erosion areas (Greer Island Beach Park, Long Beach Village, and Islander Club Condominium).
4. Continue the beach monitoring and sea turtle monitoring programs.

It has been determined that the above program constitutes the minimum actions necessary to protect the health, safety and welfare of the community.

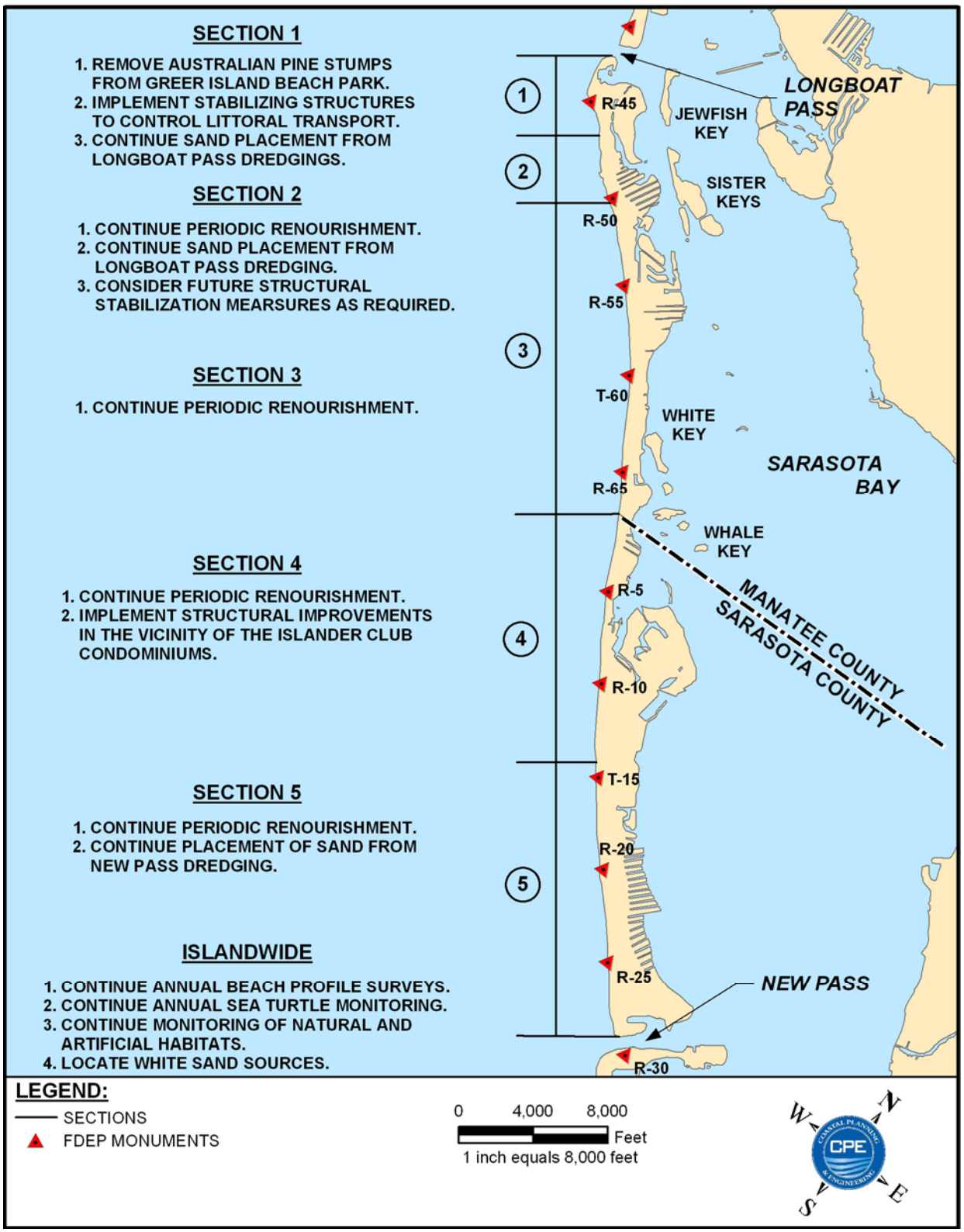

Figure 2 Comprehensive Beach Management Plan Recommendation Summary

N. References.

Coastal Planning & Engineering, Inc., "Town of Longboat Key Comprehensive Beach Management Plan," November 1995.

Coastal Planning & Engineering, Inc., "Town of Longboat Key Beach Comprehensive Plan, 1999 Update," report to the Town of Longboat Key, October 1999.

Coastal Planning & Engineering, Inc., "Greer Island Beach Park Erosion Analysis Longboat Key, Florida," report to the Town of Longboat Key, 2004.

Coastal Planning & Engineering, Inc. "2005/2006 Longboat Key Beach Nourishment Project, 2007 Annual Beach Survey and Analysis," report to the Town of Longboat Key, December 2007.

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DESIGN

- BASELINE
- DESIGN WIDTH TRANSITION
- SECTION LIMIT
- PUBLIC ACCESS
- FDEP MONUMENTS

0 200 400 Feet

1 inch equals 400 feet

TITLE:

TOWN OF LONGBOAT KEY
BASELINE AND DESIGN SHORELINE

COASTAL PLANNING & ENGINEERING, INC
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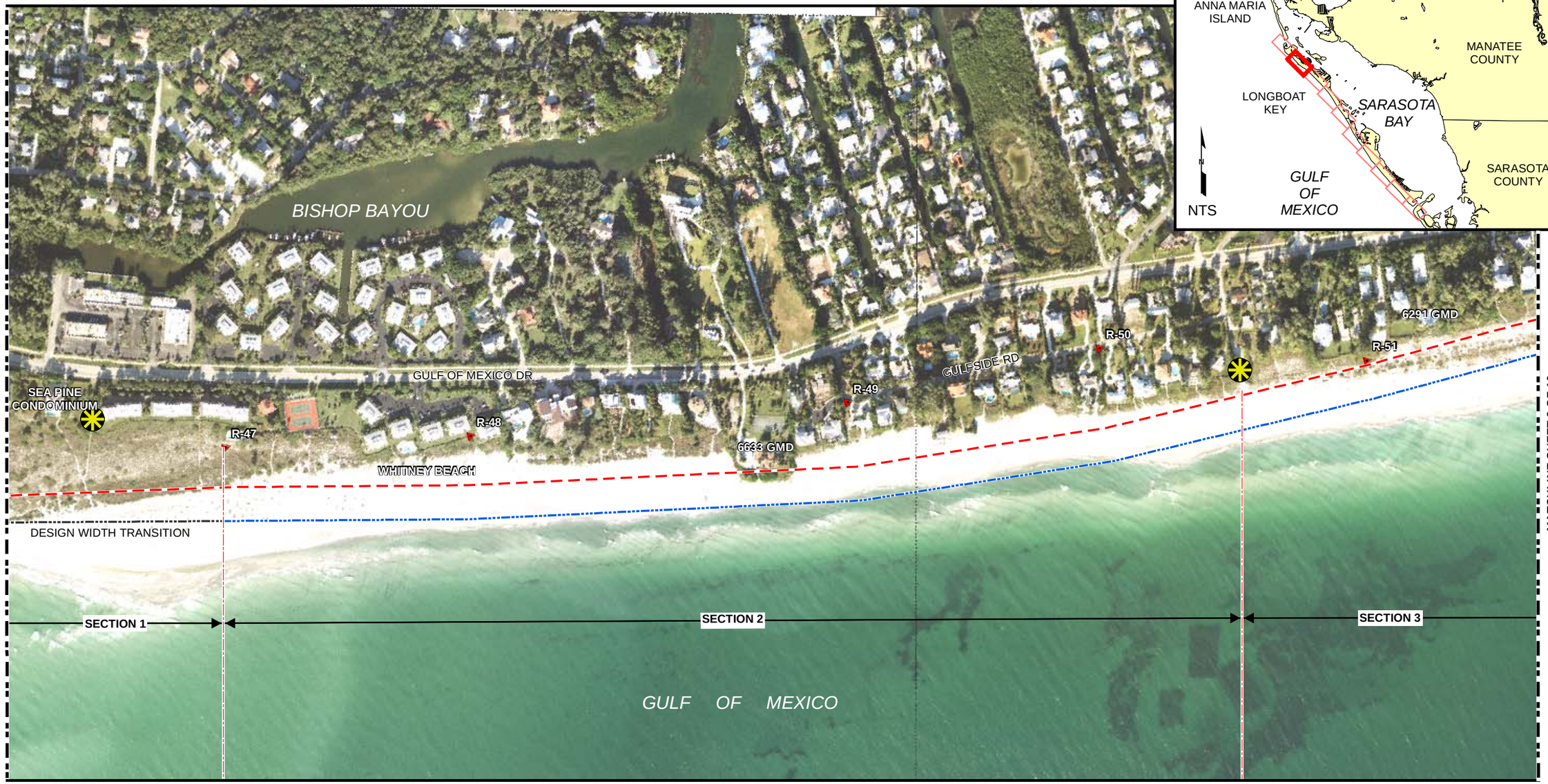

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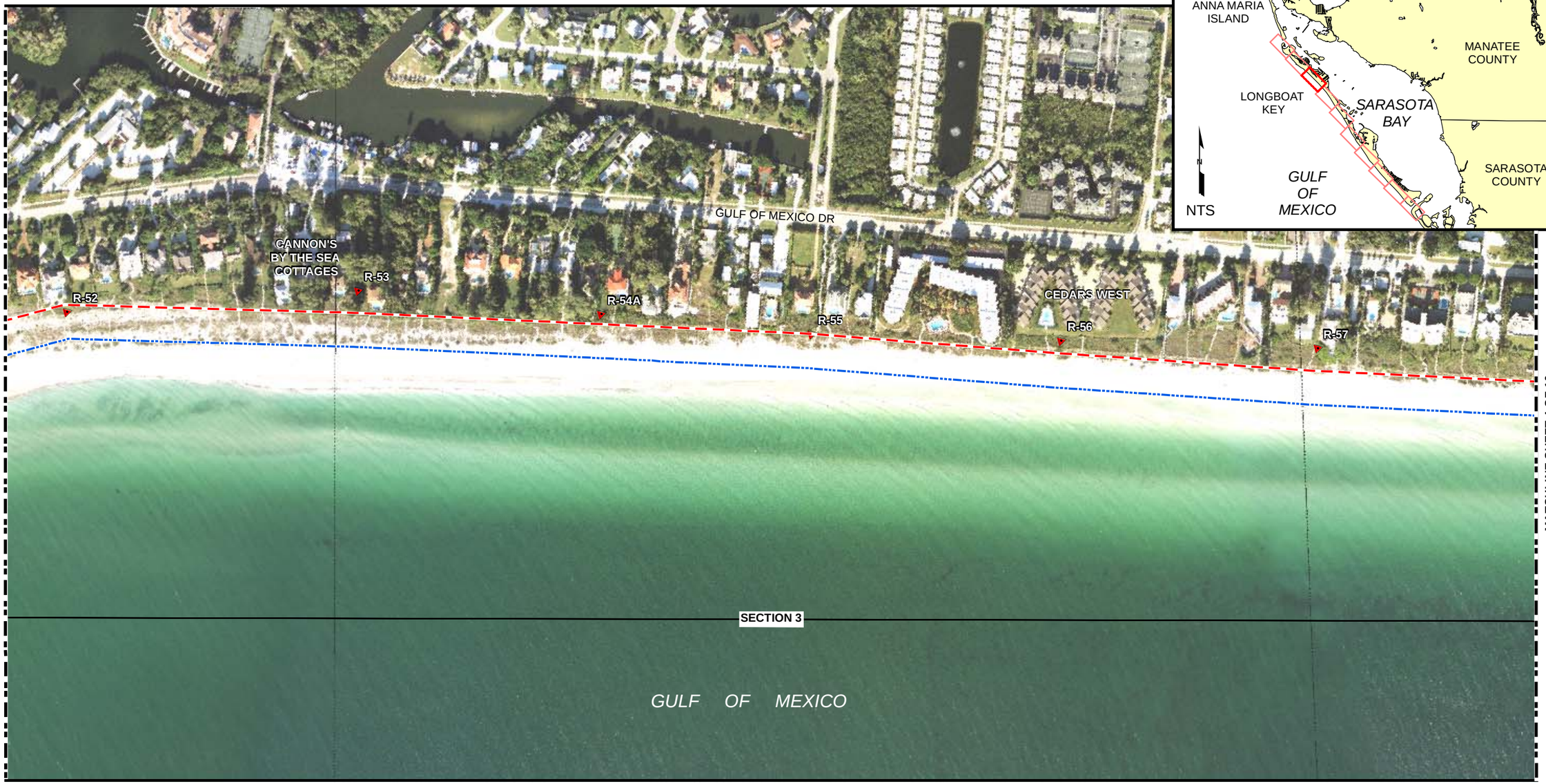

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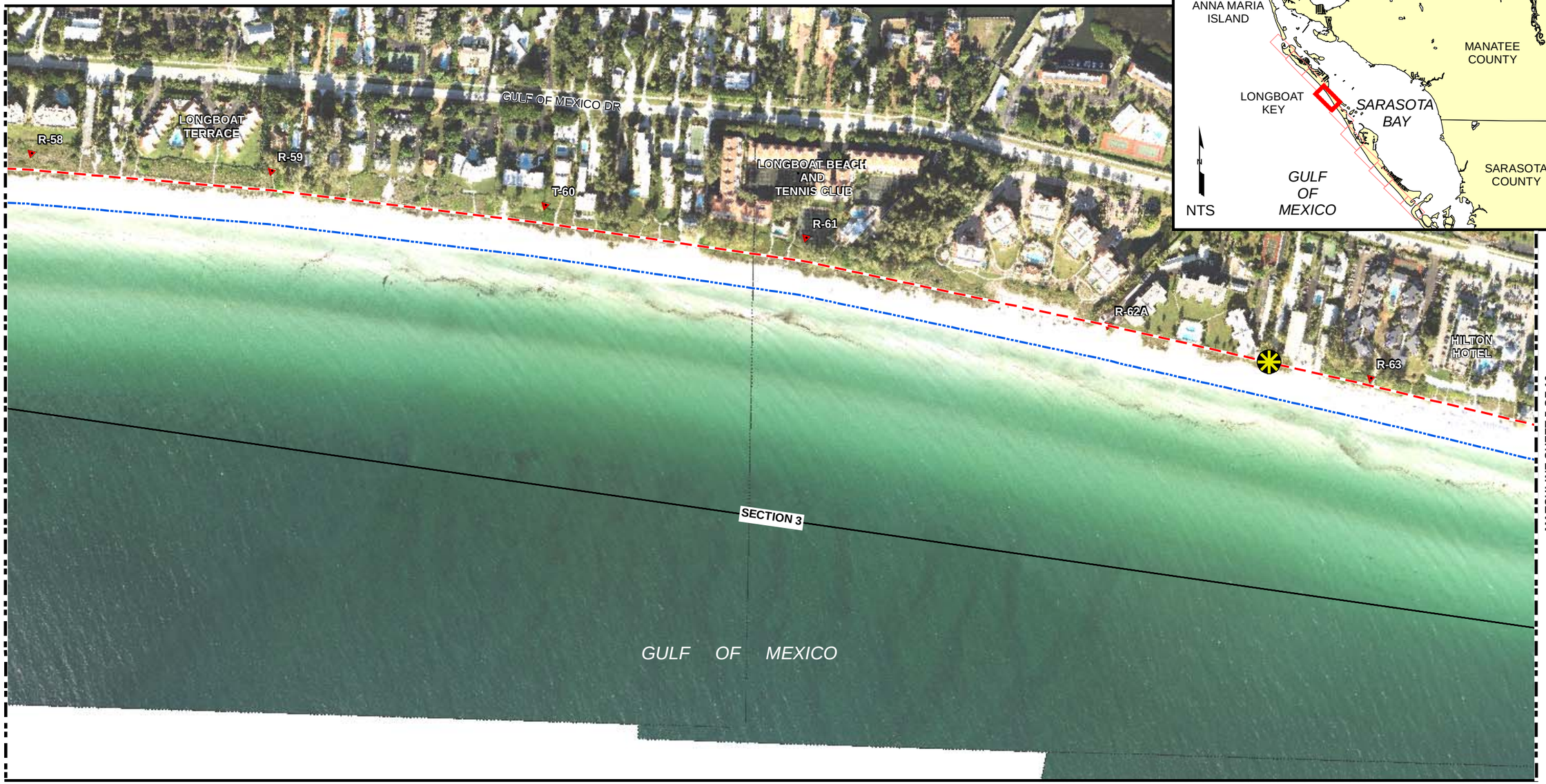

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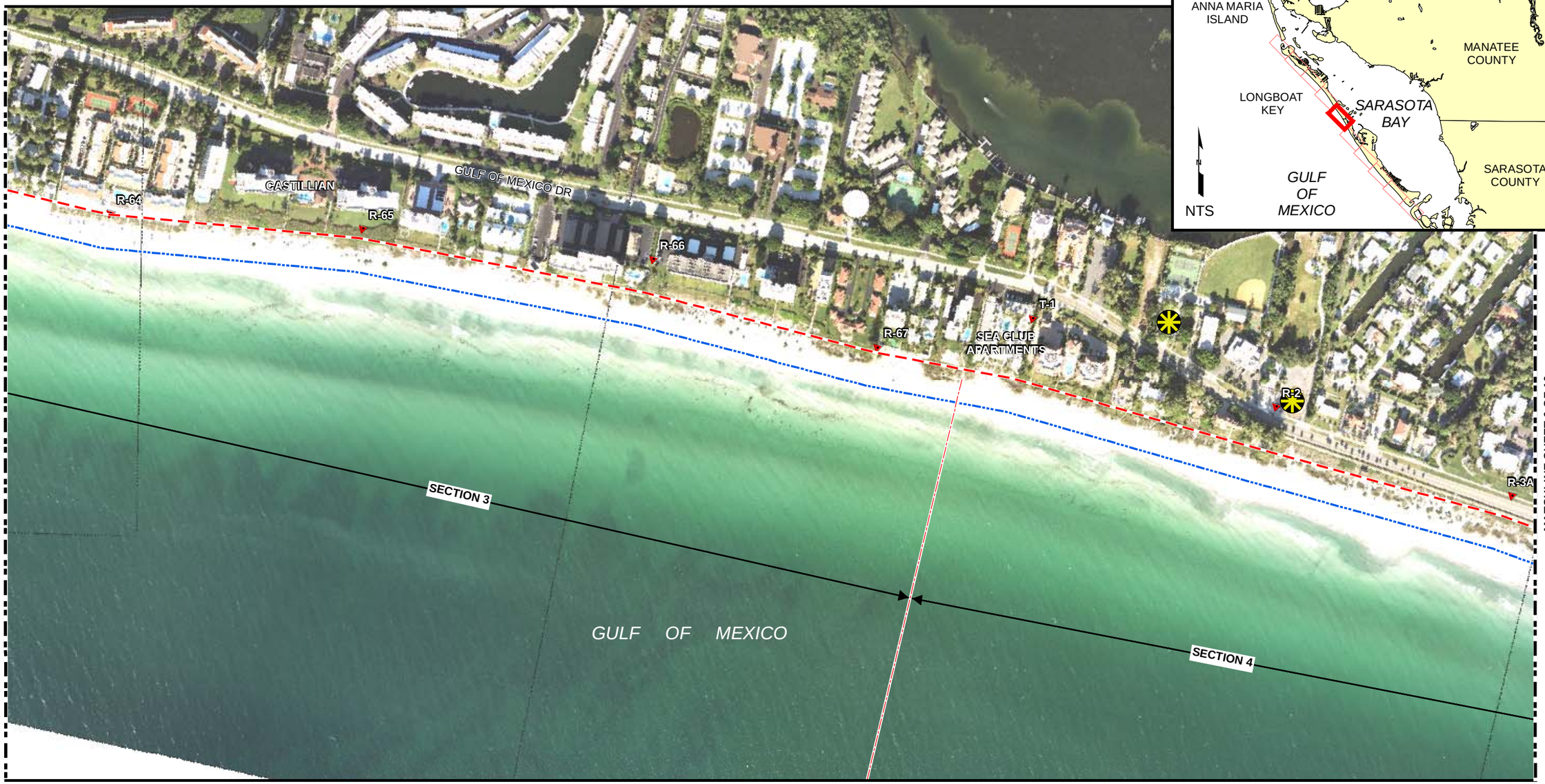

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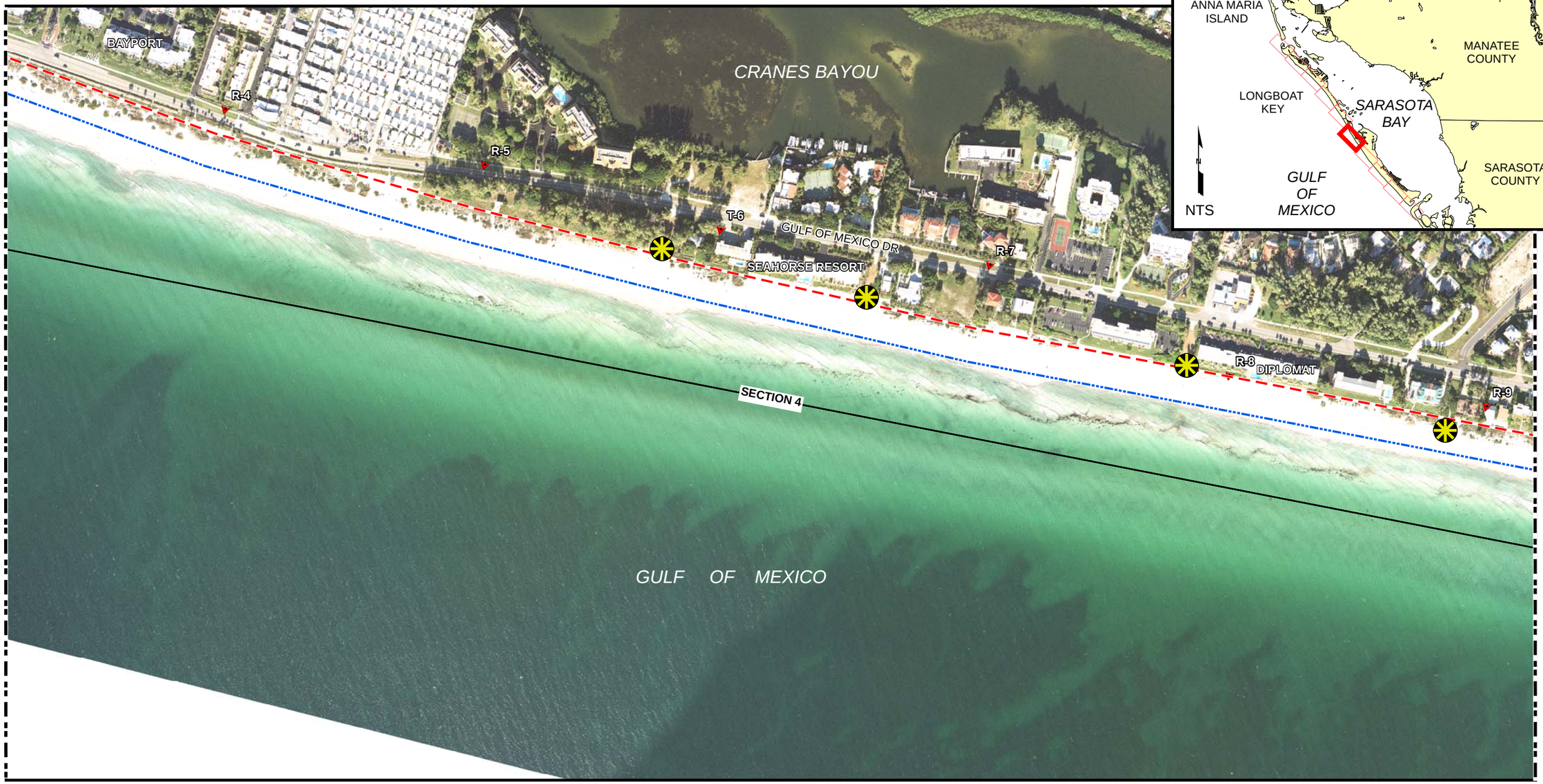

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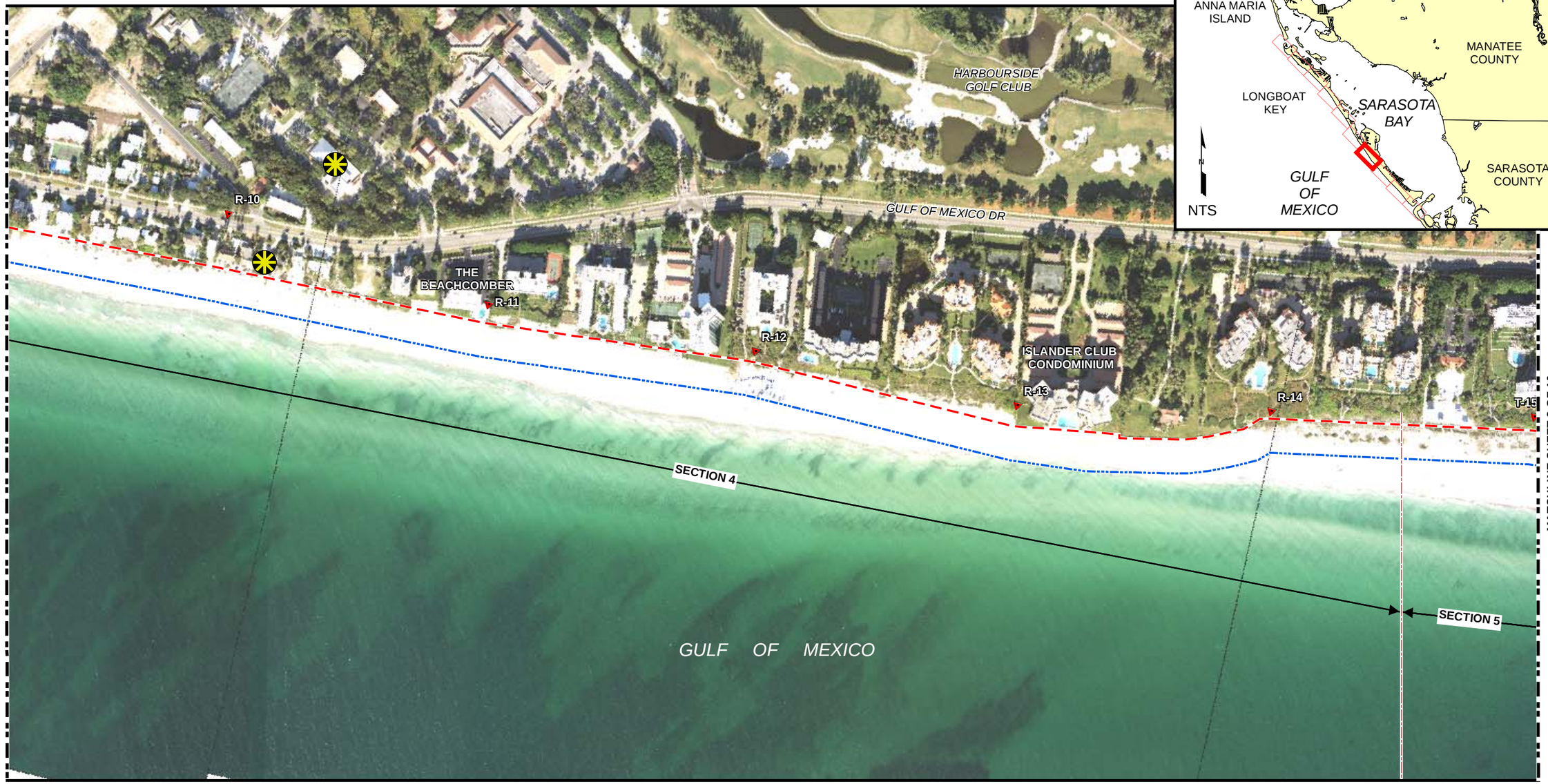

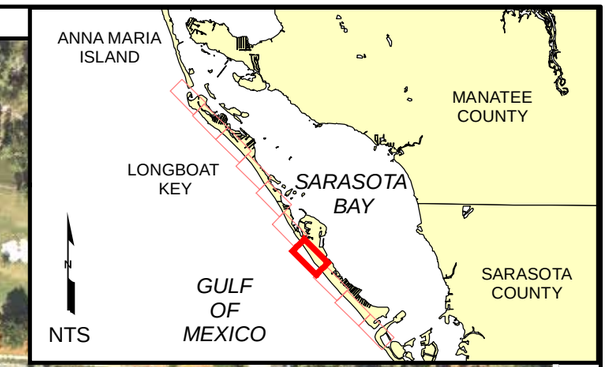

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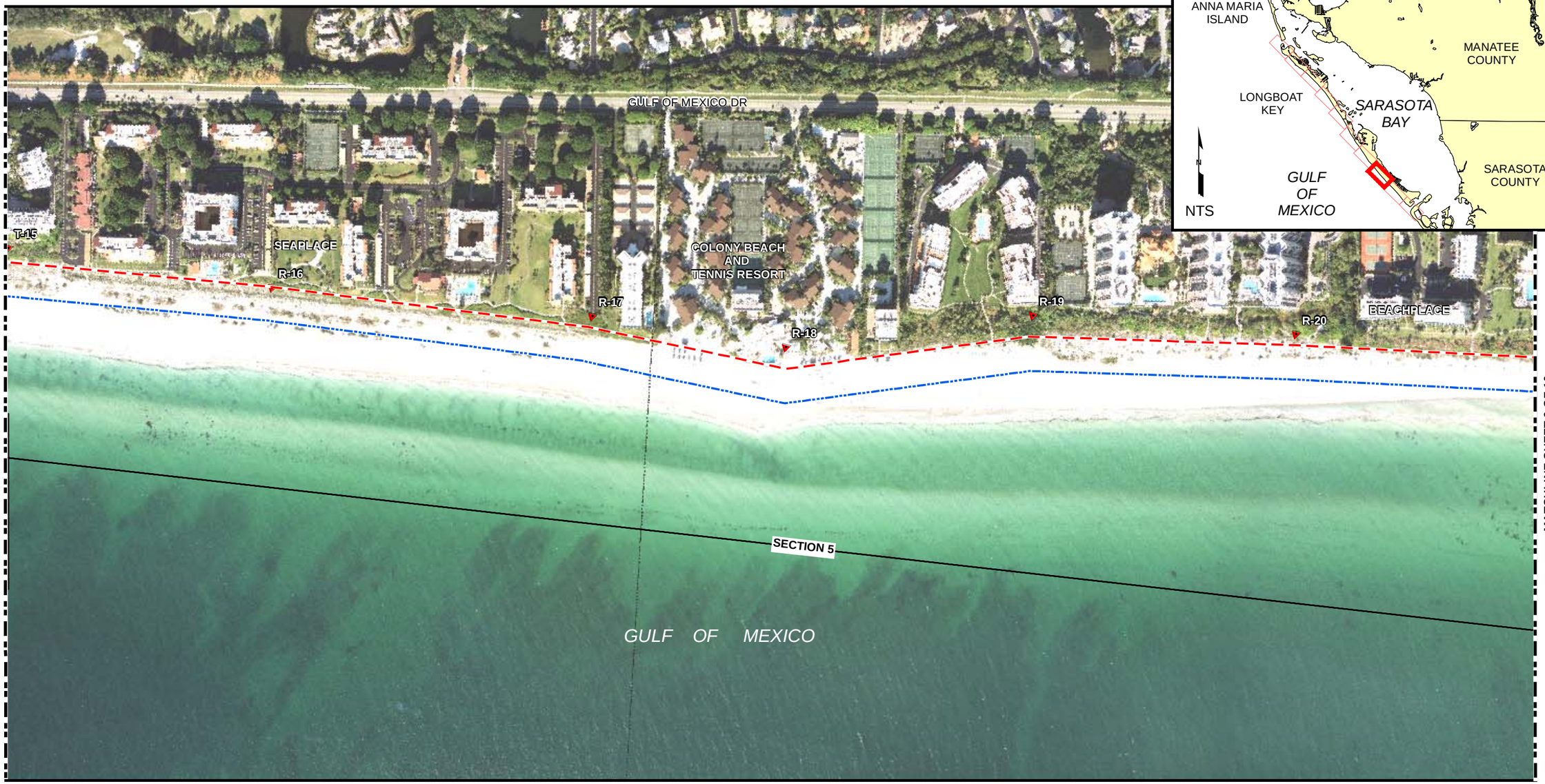

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