

REGULAR WORKSHOP - MARCH 18, 1999
AGENDA ITEM # 9

Agenda Item: Canal Dredging Update

Presenter: Town Manager and Staff

Summary: In follow-up to Town Commission authorization to review alternative sites to the Lyons Lane property, staff has re-examined potential sites for accommodating the dewatering process for the canal dredging concept program. The summary report is attached.

The issue of project financing is also being reintroduced in the event the Town Commission wishes to include it in the upcoming budget.

Should the Town Commission reach a policy consensus on an alternative North Island dewatering strategy and on a funding mechanism, authorization will be required for proceeding with final design and permitting of the canals.

Attachments: 3-12-99 Memo, Manager to Commission;
3-8-99 Memo with attachments, Community Services Director to Manager;
Financing Options.

Recommended

Action: Pending Town Commission decisions, direct staff and the consultant team to proceed with permit drawings.

MEMORANDUM

DATE: March 12, 1999

TO: Town Commission
FROM: Bruce St. Denis, Town Manager
SUBJECT: Dredging Update

Introduction

There are three major components of the canal dredging program that are still to be decided. They are:

1. Finalizing spoil dewatering sites
2. Financing
3. Issues related to including St. Judes, Tarawitt, Jungle Queen area

Each of these are addressed in this memo.

Spoil Disposal Sites

At the January 21, 1999 Workshop the Town Commission asked staff to investigate other possibilities for spoil dewatering sites other than Lyons Lane. As outlined in the attached memo from Community Services Director Marty Black, the following sites were investigated:

A. Manatee County Coquina Beach Area

This area was rejected after conversations with County Administrator Ernie Padgett.

B. Bayfront/Joan M. Durante Community Park Overflow Parking Area

This would add between \$82,000 and \$164,000 to the project as well as an additional three months in construction time.

C. Proposed Joan M. Durante Community Park Expansion Area (Ansel South)

This would add approximately \$55,500 in additional dredging costs without an extension in construction time.

While Option C has a lower cost and no time impact, it would stop the park expansion and the Town would stand to lose at least \$400,000 in grants.

BECAUSE OF THE BROAD RANGE IN THE PRELIMINARY NUMBERS

A suggested solution that would allow the project to proceed into the design phase is to continue to consider both Lyons Lane and Joan M. Durante Community Park overflow parking as potential sites.

This hybrid option would yield more definitive cost and schedule information for future consideration, and allow time to determine whether or not the Tarawitt/St. Judes/Jungle Queen area property owners will have opted into the program.

The cost of this option would add approximately \$10,000 to the design cost.

Financing

Staff is in the process of developing the FY99/00 budget. One of the financing options that seemed to receive consideration by the Town Commission was to collect the cost for the dredging project on an ad valorem basis over one or two years.

If this is still a viable option and the Town Commission wishes to start in the upcoming fiscal year, then this decision needs to be made as soon as possible.

In order to expedite this discussion, the information that was previously supplied regarding financing is being redistributed and will be re-presented at the workshop.

Tarawitt/St. Judes/Jungle Queen Canals

A plan has been proposed that would provide for dredging of these canals subject to several conditions. The project would start at the Bay and continue westward for as far as all property owners agree to the following:

1. An easement to allow the Town to dredge
2. Waiver of Liability from the property owner and lender
3. Determination that the seawall is in satisfactory condition in the opinion of the Town or has been replaced

Staff has proposed the concept of a financing program that would allow residents to get their seawalls replaced and pay for the work over twenty (20) years.

The cost for dredging the entire length of these canals is included in the project budget. The cost for seawall replacement and loan payment programs have been calculated but are not included in the project budget as they are seen as the responsibility of the property owner.

Staff has held off on meeting with the residents of this area until a determination of how the dredging portion of the project will be financed so that a total cost can be presented to the property owners.

Summary

From a technical standpoint, most of the issues that have stood in the way of the project have been resolved and staff is prepared to work with the consultant through a design and permitting phase. We are also standing by to start working with the Tarawitt/St. Judes/Jungle Queen neighborhoods to develop a plan that would place them in a position of having their canals dredged which would result in a significant increase in their property values.

The two issues that need to be resolved prior to this work commencing on both policy issues. They are:

1. Determination of spoil dewatering sites
2. Financing methodology

Staff recognizes that these are both extremely difficult issues and we stand ready to provide any information or assistance required by the Town Commission. Please contact me if there is information not included here that you require.

BSD/dhs

Attachments

cc: Marty Black, Community Services Director

MEMORANDUM

DATE: March 12, 1999

TO: Bruce St. Denis, Town Manager

FROM: Martin P. Black, AICP, Community Services Director

SUBJECT: CANAL DREDGING UPDATE

In follow-up to Town Commission authorization to review alternative sites to the Lyons Lane property, staff requested the Town's consultant team to re-examine potential sites for accommodating the dewatering process for the canal dredging concept program. The following items are summarized for Town Commission consideration:

1. Tarawitt - St. Judes (Canals #16 - 19)

Phasing of the Tarawitt to St. Judes canals (#16 - 19) is recommended to reflect the additional thresholds required to be addressed as a result of the private ownership of these canals. Staff proposes that this portion of the project be included as the final phase of the overall program as a means of allowing the longest possible time frame for owners to provide required consents and releases of liability. Dewatering of this material is recommended by the Town's engineer to be accommodated at the overflow parking area of Joan M. Durante Community Park.

2. North Island Alternative Dewatering Strategies

A. Manatee County Coquina Beach Area

Low probability of approval has been ascertained based upon conversation with Manatee County Administration concerns for impact to recreational and environmental resources. Notwithstanding, use of this area would likely result in increased costs of approximately \$92,500 as compared to the use of Lyons Lane.

Option A: \$92,500 increase in dredge costs and unquantifiable permitting and mitigation impacts.

B. Bayfront/Joan M. Durante Community Park Overflow Areas

Reallocation of approximately 2,100 cubic yards projected from dredging of canals #11-15 to the vacant C-1 zoned tract adjoining the Bayfront Recreation Center is recommended to reduce material volume originally assessed for the Lyons Lane parcel. Utilization of this strategy is projected to result in an increase in cost of approximately \$12,600 with one additional week of construction time due to increased pumping distances.

While the overflow parking area at Joan M. Durante Community Park is relatively small, it is feasible to utilize this site for dewatering of dredge material from Canals #1 - 10 (16,400 cubic yards) at an additional projected cost of between \$82,000 and \$164,000. Anticipated increase in construction time is three months under this strategy.

Option B: \$94,600 - \$176,600 increase in dredge costs and increase in construction time of three months.

C. Proposed Joan M. Durante Community Park Expansion Area

An option previously rejected by the Town would be to utilize upland area at the proposed next phase of Joan M. Durante Community Park. This option was rejected since it would require the Town to notify Mr. James Durante, the Florida Department of Environmental Protection, the U.S. Fish and Wildlife Service and the Sarasota Bay National Estuary Program of the Town's desire to rescind the Town Commission's prior commitment to accept donations and in-kind services from these individual(s)/agencies.

Setting aside these factors for a moment, the Town's consulting engineer has determined that use of this area in lieu of Lyons Lane would result in an increase of approximately \$55,500 due to increased pumping distances. Other factors related to engineering, design and site restoration of each site remain constant.

Option C: \$55,500 increase in dredge costs, no increase in construction time, potential loss of portion of Durante gift, loss of state and federal mitigation funds and unquantifiable permitting/regulatory agency "good will" impacts.

D. Elimination/Indefinite Postponement of North Island Dredging

During the Town Commission's last Workshop discussion, there was some suggestion that elimination or indefinite postponement of the north island dredging could be considered as an option of "last resort".

Review of this strategy indicates that it would be possible to eliminate or otherwise indefinitely postpone dredging of canals #1-10 and reduce overall program costs by \$400,000. Implementation of this strategy could be facilitated through reallocation of 2,100 cubic yards projected from the dredging of canals #11-15 to the vacant C-1 zoned tract adjoining the Bayfront Recreation Center (+ \$12,600) and through including the Tarawitt to St. Judes canals (#16-19) as a final phase with dewatering occurring in the overflow parking area at Joan M. Durante Community Park (no change in cost).

Option D: \$387,400 decrease in dredge costs, elimination or indefinite postponement of dredging of canals #1-10, loss of potential West Coast Inland Navigation Funding for north-key access channels (\$144,704).

3. Oscar Parsons' Bayfront Boat Slips

In follow-up to Town Commission direction from the last Workshop, the Town's engineering consultant has determined that the Oscar Parsons' boat slips just north of Bayfront Park be considered for inclusion in the project design, subject to confirmation of low dredge volume (<100 cubic yards) and documentation that this dredging will qualify by the regulatory agencies as a maintenance project.

4. Next Phase Authorization

In the event that the Town Commission reaches a policy consensus on an alternative North Island dewatering strategy and on a funding mechanism, authorization will be required for proceeding with final design and permitting of the canals excluding Tarawitt to St. Judes. Anticipated costs for this phase are approximately \$115,000 (inclusive of all permitting and engineering/design fees). Initiation of this phase is recommended to occur at least twelve months in advance of desired construction/availability of construction funding.

- Attachments: 1. Attachment "A" Dewatering Alternatives Table
2. Memo, CPE to Truitt, 2/15/99
3. Letter, CPE to Truitt, 1/8/99 (revised 2/10/99)
4. Memo, Black to Truitt, 1/29/99
5. Listing of Canals/Numbering

MPB/cg

MEMORANDUM

To: Cliff Truitt
From: ✓ Doug Mann, P.E. *DM*
Date: February 15, 1999
RE: Canal Dredging Program

1. This memo is in response to your request of February 5, 1999 and is a continuation of my response of December 4, 1998 regarding alternatives to the Lyons Lane disposal site. The Lyons Lane disposal site could be removed from the program, but the remaining dewatering sites are either small in size, limited in time availability, or distant. This will result in increased costs and/or construction time. The 25,000 cubic yards of dredge spoil, identified in the feasibility study, will have to be redistributed to other disposal areas. The following options could be used and are compared to the existing Lyons Lane plan:
 - A. Separation of the Tarawitt to St. Judes Canals (16-19) from the remainder of the Town project. This would reduce the disposal need by 4,000 to 6,000 cubic yards.
 - B. Offsite disposal or dewatering which could include the vacant Manatee County land east of Coquina Beach. This was not previously evaluated since inter-government approvals would be required, and adequate sites were available within the Town. Use of this site may increase the cost by \$5/cubic yard as a result of increased pumping distance of 2 miles. No increase in construction time is anticipated because the site is relatively large.
 - C. Disposal of approximately 2,100 cubic yards from Canals 11-15 at Bayfront Park. An additional cost of \$6/cubic yard may be required to account for the increase of 2 miles of pumping distance and a nominal increase in construction time (a week). Disposal of this spoil at the north side of Durante Park could be accomplished at a \$5 to \$10/cubic yard increase in cost and an increase in construction time of one month.
 - D. Utilization of the north side of the existing Durante Park for Canals 1-10 (16,400 c.y.) may be restrictive. The site is approximately 0.6 acres and could accept several hundred cubic yards of dredge spoil prior to dewatering. Due to the small size of the site, the site will not be efficient to use as a dewatering area for large quantities of spoil. Frequent shut down for dewatering will be imposed on the contractor. An increase in construction time of three months should be

anticipated. A resulting increase in cost of \$5 to \$10 per cubic yard should be planned for.

- E. Disposal of 18,500 cubic yards from Canals 1-16 could be accomplished at the Durante Park (Phase IV) site. The two acre upland area has road access from Gulf Bay Road and pipe access through Canal 20. No increase in construction time would be required. An increase in cost of \$3/cubic yard which reflects the increase in the average pumping distance, should be anticipated.

2. Tarawitt St. Judes and Canals 20 and 21

Canals 16-19 (Tarawitt to St. Judes) are proposed to be designed by the owners who will also be responsible for their bulkheads. Using the triangular cross section, an approximate dredge volume of 4,000 c.y. is proposed for the four canals. Due to the close proximity of the Durante Park north dewatering area, we would recommend using this site. If constructed apart from the remainder of the Town program, the following construction cost breakdown could be anticipated:

Mobilization:	\$ 50,000
Dredging @\$10/cy	\$ 40,000
Small Site Disposal Inefficiencies @ \$7.50/cy	\$ 30,000
Offsite Disposal @\$15/cy	\$ 60,000
Site Restoration	\$ 75,000
Contingency (15%)	\$ <u>38,000</u>
Construction Total	\$293,000

The privately owned parcel at 875 Tarawitt could be utilized but the parcel is smaller than the north side of Durante Park. More frequent shut downs for dewatering would occur.

Canals 20 and 21 were not included in the proposed project in our November 1998 report (see Table 9).

3. Phase III Proposal

Our proposal has been revised as requested. The phase 3 project schedule addresses only those items in phase 3. A time estimate of the contract development and construction phases was not made because the final design(s) have not been completed, the permits have not been received, and the final dewatering areas have not been identified. If phase 3 follows according to the enclosed time schedule, construction could begin this coming winter (99/00).

4. Oscar Parsons Bay Front Boat Slips

I reviewed our 1998 hydrographic survey in the vicinity of Oscar Parsons' boat slips, just north of Bayfront Park. The survey showed water deeper than 5 feet MLW where our boat transitted the area. Oscar Parsons has reported a small "shoal" east of the boat slips. A review of the 1995 aerial photographs did not indicate any visually identifiable shallow areas. We recommend, that during phase 3, that the Town authorize us to survey this area adjacent to the boat slip. Upon documenting the shoal, we recommend inclusion of this area into the Town's program because

1. The slips serve more than one person.
2. A bay access is immediately adjacent to the dredge area.
3. The potential dredge volume is small (approximately 100 c.y.).

While inclusion in the Town's program is warranted, obtaining regulatory approval will require documentation that this dredging is a maintenance project and not new dredging in Sarasota Bay.

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COASTAL PLANNING & ENGINEERING, INC.

2481 N.W. BOCA RATON BOULEVARD, BOCA RATON, FL 33431

COASTAL & OCEAN ENGINEERING
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E-mail: mail@cpe.dynip.com

January 8, 1999
Revised February 10, 1999

Cliff Truitt, P.E.
Town of Longboat Key
501 Bay Isles Road
Longboat Key, FL 34228

Re: Canal Dredging – Phase III Engineering Services

Dear Cliff:

This proposal is in response to the Town's request to proceed with preliminary design and permitting services for the dredging of the canals considered in Phase II. It is understood that canals 16-19 will be excluded from the work at this time and that canals 20 and 21 are not being considered for dredging.

The following services are proposed:

A. Permitting

1. Determination of Exemption Eligibility

A search and review of historical documents will be made to determine which of the canals can be documented to have been dredged previously and which canals cannot be documented. While proof of dredging can sometimes be accomplished through soil sampling, no field investigation is proposed at this time.

2. Environmental Assessment

An underwater inspection of the proposed dredge area will be supervised by CPE biologists to determine the existence of any seagrasses or oyster bars. A diver narrated videotape(s) will be created for submission to the permitting agencies. Seagrass bed edges and oyster bars will be located with our survey boat. Industrial Divers Corp. will be a subconsultant to us for this phase of the work. Locations of mangrove encroachment will be documented and photographed. A property by property shoreline assessment (mangrove, revetment, seawall) will be made.

3. Initial Application(s)

We will submit permit application(s) to the FDEP and USACE for the proposed dredge and fill operations. Multiple applications will be submitted if separating those activities which qualify for an exemption from those that do not qualify would expedite the processing. The application will contain preliminary designs for the dredge and fill activities, bathymetric maps, and the results of our historical document review.

Cliff Truitt, P.E.
Phase III Canal Dredging
January 8, 1999
Revised February 10, 1999
Page 2

4. Permit Processing

We will respond to agency requests for additional information based on existing information. If additional field investigations, including chemical analyses of the dredge material, are required, separate authorization will be obtained.

B. Dewatering Area Surveying and Design

Topographic and boundary surveys will be made of the Bayfront and Overlook Park dewatering sites. Topographic surveys of the water tank dewatering area will be performed. The existing wetland delineation that the Town provided for the Lyons Lane site will be utilized for preliminary design purposes. Preliminary dewatering dike designs will be created for permit processing.

C. Meetings

We will attend three (3) meetings with the Town staff either in Longboat Key, or in Tampa at FDEP's office in support of this work.

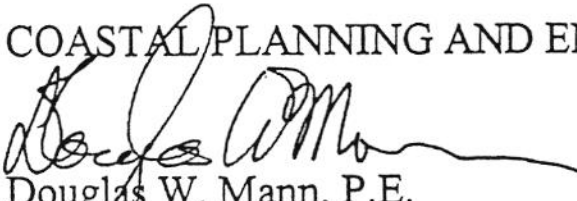
D. Compensation

The cost of these services is \$107,000 and is exclusive of permit fees. A detailed breakdown is attached with task subtotals.

Please authorize us to begin this work. It is understood that the Town may authorize this work by task. If you have any questions please call me or Tom Campbell.

Very truly yours,

COASTAL PLANNING AND ENGINEERING, INC.


Douglas W. Mann, P.E.
Sr. Coastal Engineer

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cc: Tom Campbell

TOWN OF LONGBOAT KEY
CANAL DREDGING PROGRAM-PHASE 3
ENGINEERING SERVICES

TASK	CHIEF ENG	COASTAL ENG II	COASTAL ENG I	MARINE BIOLOGIST II	DRAFTER	WORD PROC.	SUBTOTAL (ATTACHE	DIRECT EXPENSES	TASK SUBTOTAL
A.1. RESEARCH AND REVIEW		40	80		40	16	0	\$100	\$10,630
A.2. ENVIRONMENTAL ASSESSMENT							\$36,569		\$36,569
A.3. PERMIT APPLICATIONS	2	24	60	16	60	24	0	\$300	\$11,340
A.4. PERMIT PROCESSING		80	120	40	40	40	0	\$100	\$19,790
B.1. FIELD SURVEYS							\$11,727		\$11,727
B.2. DEWATERING DESIGNS	4	40	80		40	16	0	\$100	\$11,210
C. MEETINGS	8	36	6		6		0	\$929	\$5,734
							0		
SUBTOTAL HOURS	14	220	346	56	186	96	\$48,296	\$1,529	
BILLABLE RATE	\$145	\$80	\$55	\$70	\$57	\$40	\$1	1.1	
SUBTOTAL \$	\$2,030	\$17,600	\$19,030	\$3,920	\$10,602	\$3,840	\$48,296	\$1,682	

TOTAL \$	\$107,000
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TASK	LABOR COST						EQUIPMENT COST						DIRECT COST		
	Chief Engineer (Hours)	Project Engineer (Hours)	Certified Inshore Hydrographer (Hours)	Marine Biologist (Hours)	CADD Drafter (Hours)	Word Processor (Hours)	Truck (Miles)	Survey Boat (Day)	Navigation System (Day)	DGPS (Day)	Land Camera (Day)	Underwater Camera (Day)	Diving Sub-Consultant (11 Days)	Per Diem (Day)	Lodging (Day)
A. ADMINISTRATION	2	4													
B. ENVIRONMENTAL ASSESSMENT															
1. MOBILIZATION / DEMOBILIZATION / TRAVEL		2	8	8			440								
2. CONDUCT ENVIRONMENTAL ASSESSMENT			36	36			200	9	9	9	2	9	\$11,000	9	9
3. DATA REDUCTION		2	4	8	4										
4. EVALUATE ENVIRONMENTAL IMPACTS		4		16											
5. PREPARE LETTER REPORT FOR PERMIT APPLICATION	2	4	4	12	4	4									
Total =	4	16	52	80	8	4	640	9	9	9	2	9	\$11,000	9	9
Rate =	\$145	\$118	\$85	\$70	\$57	\$40	\$0.50	\$400	\$250	\$400	\$10	\$25	1.1	\$50	\$100
Cost =	\$580	\$1,888	\$4,420	\$5,600	\$456	\$160	\$320	\$3,600	\$2,250	\$3,600	\$20	\$225	\$12,100	\$450	\$900
TOTAL LABOR COST =	\$13,104														
TOTAL EQUIPMENT COST =	\$10,015														
TOTAL DIRECT COST =	\$13,450														
TOTAL COST =	\$36,569														

01/08/99

01/08/99

TASK	LABOR COST							EQUIPMENT COST			DIRECT COST		
	Chief Engineer (Hours)	Project Engineer (Hours)	Professional Surveyor & Mapper (Hours)	Surveyor (CHH) (Hours)	Survey Tech. 1 (Hours)	Survey Tech. 2 (Hours)	CADD Designer/ System (Hours)	Level (Days)	Truck (Per Mile)	Total Station (Days)	Per Diem (Days)	Hotel (Days)	Monuments (Each)
I. TOPO. AND BOUNDARY SURVEY													
A. ADMINISTRATION	1	2	4	2			4						
B. LOCATE AND REVIEW PLATS		1	12		8								
C. TOPO AND BOUNDARY SURVEY													
1. MOBILIZE / DEMOBILIZE / TRAVEL			16		16	16			440		3	1	
2. TOPO AND BOUNDARY SURVEY			24		24	24		1	50	2	6	4	8
D. DATA ANALYSIS AND PLOTTING													
1. DATA REDUCTION			16		16								
2. PLOTTING / CADD							16						
3. REVIEW DATA		1	2	8									
Total =	2	5	80	2	64	40	20	1	490	2	9	5	8
Rate =	\$145	\$80	\$60	\$85	\$35	\$35	\$57	\$10	0.30	\$120	\$35	\$75	\$25
Cost =	\$290	\$400	\$4,800	\$170	\$2,240	\$1,400	\$1,140	\$10	\$147	\$240	\$315	\$375	\$200
TOTAL LABOR COST =	\$10,440												
TOTAL EQUIPMENT COST =	\$397												
TOTAL DIRECT COST =	\$890												
TOTAL COST =	\$11,727												


CANAL DREDGING PHASE 3 SCHEDULE

TASK	MONTHS							
	1	2	3	4	5	6	7	8
A1. DETERMINATION OF EXEMPTION ELIGIBILITY	X							
A2. ENVIRONMENTAL ASSESSMENT	X	X						
A3. INITIAL APPLICATION	X	X						
A4. PERMIT PROCESSING			X	X	X	X	X	X
A4. PERMIT EXEMPTION PROCESSING			X	X				
B. DEWATERING AREAS SURVEYING	X	X						
B. DEWATERING AREAS DESIGN			X					
C. MEETINGS (AS REQUESTED)								

MEMORANDUM

DATE: January 29, 1999

TO: Cliff Truitt, P.E., PhD.

FROM: Martin P. Black, AICP, Community Services Director 

SUBJECT: CANAL DREDGING PROGRAM

In follow-up to Town Commission review of the Canal Dredging Program, please provide a conceptual review of the costs and feasibility of modifying the program with these conditions:

1. Elimination of the Lyons Lane property as a dewatering site.
2. Re-distribution of material for dewatering to:
 - a. C-1 tract adjoining the Bayfront Recreation Center.
 - b. The open field at Joan M. Durante Community Park north.
3. An assessment of alternative private property sites which have been offered for consideration for dewatering by property owners.
4. Confirming volume and cost impacts of proceeding with canals 16 - 19 as a subsequent phase (with identification of dewatering site) and eliminating dredging of canals 20 and 21 from consideration.

Property boundary maps with highlighted aerial photography of each site have been attached to facilitate your review. In addition, please revise the proposed Phase III Engineering Services so that we may explore a staging of this phase into the following sub-components:

- I. Task A.1 and 2
- II. Task B
- III. Task A.3 and 4

Please also provide a proposed/expected timeline of activities reflecting each of the following activities along two general tracts:

1. Exemption Permitting (canal maintenance dredge)
2. Non-Exemption Permitting

Cliff Truitt, P.E., PhD
January 29, 1999

Specific activities to be defined for the timeline (with allocated costs) are:

1. Determination of Exemption Eligibility
2. Environmental Assessment
3. Dewatering Area Surveying and Design
4. Permitting
5. Bid Development
6. Contract Award
7. Dewatering Site Restoration
8. Dredging
9. Dewatering
10. Dewatering Site Restoration
11. Mitigation (if applicable)
12. Monitoring (if applicable)

MPB/cg

xc: Bruce St. Denis, Town Manager

LONGBOAT KEY CANAL SURVEY FIELD NOTES

CPE CANAL NO.	BETWEEN (STREET)	AND (STREET)	NORTH BANK PROTECTION	SOUTH BANK PROTECTION	GENERAL SEAWALL CONDITION	NO. OF OBSERVED OUTFALLS	FREE FACE ON WALL (EST IN FT)	NOTES
1	GULF OF MEXICO DRIVE	LONGBOAT DRIVE	NORTH MANGROVE	SEAWALL	GOOD	2		SHALLOW BAR WITH SEAGRASSES NORTH OF ENTRANCE.
2	LONGBOAT DRIVE	SOUTH PALM DRIVE	MANGROVE/WALL	MANGROVE/WALL	GOOD	1	4 TO 5	SHALLOW ADJACENT TO SHOPPING CENTER CANAL NARROWS TO 8 FEET WIDE DUE TO MANGROVES. SURVEY TERMINATED DUE TO BOATS IN CANAL.
3	SHINBONE ALLEY	JUAN ANASCO DRIVE	MANGROVE	MANGROVE/WALL	GOOD	0		
4	JUAN ANASCO DRIVE	DE NARVAEZ DRIVE	SEAWALL	SEAWALL	GOOD	2	5	WALLS ARE CONCRETE EXCEPT 1 ALU MINUM WALL.
5	DE NARVAEZ DRIVE	BAYVIEW DRIVE	MANGROVE/WALL	SEAWALL	GOOD	0	5	SURVEY TERMINATED DUE TO BOATS IN CANAL. ONE CONCRETE BAG SEAWALL
6	BAYVIEW DRIVE	LYONS LANE	SEAWALL	MANGROVE	GOOD	0	4 TO 5	GULL BAYOU SHALLOW WITH SEAGRASS. CHANNEL ADJACENT TO NORTH SEAWALL.
7	LYONS LANE	NORTON STREET	SEAWALL	SEAWALL	GOOD	1		1 EMPTY LOT NORTH SIDE. TWO EMPTY LOTS SOUTH SIDE.
8	NORTON STREET	MARBURY LANE	SEAWALL	SEAWALL	GOOD	0	4 TO 5	2 EMPTY LOTS NORTH SIDE. 1 EMPTY LOT SOUTH SIDE. SOME WALLS ARE OLDER THAN REMAINDER OF WALLS.
9	MARBURY LANE	PENFIELD STREET	MANGROVE/WALL	MANGROVE/WALL	GOOD	0	5 TO 6	
10	PENFIELD STREET	MANGROVES(WAKE ISL.)	REVTMENT	MANGROVES	N/A	0	N/A	NARROW CANAL WITH ENCROACHING MANGROVES.
11	HIDEAWAY BAY	BUCCANEER INN	MANGROVE/WALL	MANGROVE/WALL	GOOD	0		LARGE YACHTS AT BUCCANEER INN MARINA.
12	DREAM ISLAND ROAD	EMERALD HARBOR DRIVE	MANGROVE/WALL	SEAWALL	GOOD	0		A.K.A. CANNON'S MARINNA CHANNEL.
13	EMERALD HARBOR DRIVE	OLD COMPASS ROAD	SEAWALL	SEAWALL	GOOD	0		DEEP WIDE CANAL.
14	OLD COMPASS ROAD	BINNACLE POINT DRIVE	SEAWALL	SEAWALL	GOOD	1		DEEP WIDE CANNAL.
15	NBUCCANEER INN	GULF OF MEXICO DRIVE	MANGROVE	MANGROVE/DOCK	N/A	0		N/A DEEP WIDE CANAL.
15	SEMERALD HARBOR DRIVE	GULF OF MEXICO DRIVE	SEAWALL	SEAWALL	GOOD	1	4 TO 5	ONE EMPTY LOT.
16	EVERGREEN WAY	JUNGLE QUEEN WAY	MANGROVE	MANGROVE	N/A	0		N/A SURVEY TERMINATED DUE TO SHALLOW BAR AT MOUTH.
17	JUNGLE QUEEN WAY	TARAWITT DRIVE	SEAWALL	SEAWALL	FAILURES(4)	0	4 TO 5	4 WALLS FAILED AT TOE OF WALL. NARROW CANAL. WALLS AT ENTRANCE FAILED BY TIEROD AND PANEL FAILURE.
18	TARAWITT DRIVE	ST JUDES NORTH	SEAWALL	MANGROVE/WALL	GOOD	1	4 TO 5	3 VACANT LOTS. NARROW CANAL. MANGROVE ENCROACHES ON WEST END OF CANAL.
19	ST JUDES NORTH	ST JUDES SOUTH	SEAWALL	SEAWALL	FAILURE(1)	1	4 TO 5	1 TIEBACK FAILURE. NARROW CANAL. SOUTH ENTRANCE WALL DETERIORATING.
20	GULF BAY ROAD(END OF)	N/A	MANGROVE	MANGROVE	N/A	0	N/A	SURVEY TERMINATED DUE TO SHALLOW BAR AT MOUTH.
21	SANDHAMN PLACE	N/A	MANGROVE	MANGROVE	N/A	0		CANAL NOT FOUND DURING SURVEY.
22	5056 GULF OF MEXICO	DF5050 GULF OF MEXICO	DFSEAWALL	SEAWALL	GOOD	0		CANAL TO 3 PRIVATE RESIDENCES.
23	5000 GULF OF MEXICO	DFLONGBOAT HARBOR	NORSEAWALL	SEAWALL	FAILURE(1)	0		TIEBACK FAILURE ON NORTH SEAWALL.
24	LONGBOAT HARBOR	NOR NORTH BOAT BASIN	SEAWALL	MANGROVE	GOOD	0	7	ENTRANCE TO BOAT BASIN.
25	LONGBOAT HARBOR	NOR SOUTH BOAT BASIN	MANGROVE	SEAWALL	GOOD	0	7	ENTRANCE TO BOAT BASIN.
26	EXETER DRIVE	CHATHAM & FALMOUTH	DSEAWALL	SEAWALL	GOOD	2		ROCKS ALONG SOUTH ENTRANCE WALL.
26	ASUTTON PLACE	N/A	SEAWALL	SEAWALL	GOOD	0		NO BATHYMETRY REQUIRED. DEEP WATER.
27	LBK RECREATION CENTE	IJESSMYTH WAY	SEAWALL	SEAWALL	GOOD	0		NO BOATS OR DOCKS PRESENT. SURVEY TERMINATED DUE TO MANGROVES.
28	JESSMYTH WAY	JESSMYTH DRIVE	SEAWALL	SEAWALL	FAILURE(1)	0		WOOD WALL ON SOUTH SIDE DETERIORATED.
29	JESSMYTH DRIVE	ROUNDTREE DRIVE	SEAWALL	SEAWALL	GOOD	1	6 TO 7	SOME REPAIRS TO SEAWALLS PRESENT.
30	ROUNDTREE DRIVE	KINGFISHER LANE	SEAWALL	SEAWALL	GOOD	1	6 TO 7	MOST WALLS HAVE BEEN REPAIRED WITH NEW CAPS.
31	GULF OF MEXICO DRIVE	BUTTONWOOD HARBOR	MANGROVE/WALL	MANGROVE/WALL	GOOD	0		MARKED CHANNEL IS DEEP.
32	BUTTONWOOD DRIVE	LONGVIEW DRIVE	SEAWALL	SEAWALL	GOOD	1	6 TO 7	SOME NEW CAPS ON SEAWALLS.
33	HARBOR COVE CIRCLE	PUTTER LANE	SEAWALL	SEAWALL	GOOD	0	7 TO 8	
34	PUTTER LANE	GOLF LINKS LANE	SEAWALL	SEAWALL	GOOD	0	8	
35	GOLF LINKS LANE	CHIPPING LANE	SEAWALL	SEAWALL	GOOD	1	8	EXTERNAL PATCHES ON SOME JOINTS.
36	CHIPPING LANE	WEDGE LANE	SEAWALL	SEAWALL	GOOD	1	8	SOME NEW CAPS AND TIEROD BOLTS EXPOSED.
37	WEDGE LANE	BIRDIE LANE	SEAWALL	SEAWALL	GOOD	2	8	
38	BIRDIE LANE	PUTTING GREEN LANE	SEAWALL	SEAWALL	GOOD	2	8	
39	PUTTING GREEN LANE	YARDARM LANE	SEAWALL	SEAWALL	GOOD	0	8	
40	YARDARM LANE	BOWSPRIT LANE	SEAWALL	SEAWALL	GOOD	1	8	EXTERNAL PATCHES ON SOME JOINTS.
41	BOWSPRIT LANE	RANGER LANE	SEAWALL	SEAWALL	GOOD	1	7	SOME NEW CAPS. SOME CORROSION ON PANELS.
42	RANGER LANE	HALYARD LANE	SEAWALL	SEAWALL	GOOD	2	8	BREAKWATER AT ENTRANCE TO CANAL. EXTERNAL PATCHES ON SOME JOINTS.

43 HALYARD LANE	SPINAKER LANE	SEAWALL	SEAWALL	GOOD	0	7 TO 8	SOME CORROSION ON PANELS. SOME NEW TIERODS. SOME NEW TIERODS. SOME NEW CAPS. EXTERNAL PATCHES ON SOME JOINTS.
44 SPINAKER LANE	HORNBLOWER LANE	SEAWALL	SEAWALL	GOOD	0	7.5 TO 8	MANY EXTERNAL JOINT REPAIRS. SMALL AREA OF SEAGRASS OBSERVED.
45 HORNBLOWER LANE	GUNWALE LANE	SEAWALL	SEAWALL	GOOD	1	6	SOME NEW TIEBACK RODS. SOME EXTERNAL JOINT REPAIRS.
46 GUNWALE LANE	OUTRIGGER LANE	SEAWALL	SEAWALL	GOOD	0	7	MANY EXTERNAL JOINT REPAIRS. SOME NEW TIERODS. ALGAE OBSERVED ON BOTTOM.
47 OUTRIGGER LANE	CUTTER LANE	SEAWALL	SEAWALL	GOOD	0	6	ALGAE OBSERVED ON BOTTOM. MOST JOINTS HAVE BEEN PATCHED EXTERNALLY. WATER COLOR IS TURBID AND LIGHT GREEN.
48 CUTTER LANE	YAWL LANE	SEAWALL	SEAWALL	GOOD	1	6.5 TO 7	ALGAE OBSERVED ON BOTTOM. MOST JOINTS HAVE BEEN PATCHED EXTERNALLY. SOME NEW CAPS. ONE WALL HAS TOE PILE DRIVEN.
49 YAWL LANE	SCHOONER LANE	SEAWALL	SEAWALL	GOOD	1	6	MOST JOINTS HAVE BEEN PATCHED EXTERNALLY. ALGAE OBSERVED ON BOTTOM. CANAL IS SHALLOW. ONE WALL HAS TOE PILE DRIVEN. BOTTOM IS SAND, SHELL, AND SMALL ROCK.
50 SCHOONER LANE	KETCH LANE	SEAWALL	SEAWALL	GOOD	1	7	MOST JOINTS HAVE BEEN PATCHED EXTERNALLY. SOME NEW TIEBACK RODS. ALGAE OBSERVED ON BOTTOM. BOTTOM IS SAND, SHELL, AND SMALL ROCK. ALGAE PRESENT.
51 KETCH LANE	SLOOP LANE	SEAWALL	SEAWALL	GOOD	2	5.5	MOST JOINTS HAVE BEEN PATCHED EXTERNALLY. ONE WALL HAS NEW TIEBACK RODS. ONE WALL HAS TWO ACTIVE SOIL LOSSES. BOTTOM IS SAND, SHELL, AND SMALL ROCK. ALGAE PRESENT.
52 SLOOP LANE	BAY HARBOR APTS.	SEAWALL	SEAWALL	GOOD	0	8	MOST JOINTS HAVE BEEN EXTERNALLY PATCHED. NORTH SIDE CAP IS SPALLED ON BOTTOM EDGE.
53 MARINA BOATHOUSE	N/A	SEAWALL	SEAWALL	GOOD	0	7	ACCESS TO DRY STORAGE UNIT ONLY.

NOTES SEAWALL CONDITION IDENTIFIED AS GOOD IS AN INDICATION OF NO OBSERVABLE FAILURES.
IT DOES NOT REPRESENT THE STABILITY OR ADEQUACY OF THE WALL UNDER EXISTING OR PROPOSED CONDITIONS.

CANAL DREDGING PROJECT

FINANCING

FINANCING 1

This option shows a town wide, one-time tax. For illustration purposes several levels of project and taxable values are shown.

PROJECT COST	SINGLE YEAR MILLAGE	ONE-TIME COST PER HOME WITH TAXABLE VALUE OF:		
		100K	200K	300K
500,000	0.2051	20.51	41.02	61.53
1,000,000	0.4102	41.02	82.03	123.05
1,500,000	0.6153	61.53	123.05	184.58
2,000,000	0.8203	82.03	164.07	246.10

FINANCING 2

This shows issuance of bonds for the same project for 20 or 30 years.

PROJECT COST	DEBT SERVICE 20 YR BOND	20 YR 100K	20 YR 200K	20 YR 300K
1,000,000	82,062	\$3.37	\$6.73	\$10.10
1,500,000	123,094	\$5.05	\$10.10	\$15.15
2,000,000	164,126	\$6.73	\$13.46	\$20.20

PROJECT COST	DEBT SERVICE 30 YR BOND	30 YR 100K	30 YR 200K	30 YR 300K
1,000,000	66,648	\$2.73	\$5.47	\$8.20
1,500,000	99,972	\$4.10	\$8.20	\$12.30
2,000,000	133,296	\$5.47	\$10.93	\$16.40

FINANCING 3

In 1993 it was suggested reversing the percentages between Beach District A and Beach District B to create two Dredging Districts. This shows the project paid in a single year.

PROJECT COST	MILLAGE	DIST A 100K	DIST B 100K
1,000,000	0.7313/.1828	\$18.28	\$73.13
1,500,000	1.0969/.2742	\$27.42	\$109.69
2,000,000	1.4625/.3656	\$36.56	\$146.25

FINANCING 4

This show issuance of bonds for these two Dredging Districts over 20 and 30 years.

DEBT SERVICE	20 YR BOND	DIST A	DIST B
	DEBT/MILLAG	100K	100K
1,000,000	82,063		
	0.06/.015	\$1.50	\$6.00
1,500,000	123,094		
	0.09/.0225	\$2.25	\$9.00
2,000,000	164,125		
	0.12/.03	\$3.00	\$12.00

DEBT SERVICE	30 YR BOND	DIST A	DIST B
		100K	100K
1,000,000	66,648		
	0.0487/.0122	\$1.22	\$4.87
1,500,000	99,972		
	0.0731/.0183	\$3.66	\$14.62
2,000,000	133,296		
	0.0975/.0244	2.44	9.75

FINANCING 5

This option is based on financing for a dependent special district for properties tentatively identified as directly benefiting from this project. The estimated taxable value is approximately \$200 million.

PROJECT COST	20 YR BOND	ANNUALLY 100K
500,000	41,032	\$20.57
1,000,000	82,062	\$41.15
1,500,000	123,094	\$61.72
2,000,000	164,126	\$82.30

PROJECT COST	30 YR BOND	ANNUALLY 100K
500,000	33,324	\$16.71
1,000,000	66,648	\$33.42
1,500,000	99,972	\$50.13
2,000,000	133,296	\$66.84

FINANCING 6

The new Dredging District has approximately 880 directly benefitted parcels. This option shows the debt service divided by parcel.

PROJECT COST	DEBT SERVICE 20 YR BOND	PER PARCEL
1,000,000	\$82,062.00	\$93.25
1,500,000	\$123,094.00	\$139.88
2,000,000	\$164,126.00	\$186.51

PROJECT COST	DEBT SERVICE 30 YR BOND	PER PARCEL
1,000,000	\$66,648.00	\$75.74
1,500,000	\$99,972.00	\$113.60
2,000,000	\$133,296.00	\$151.47

FINANCING 1A

This option shows a town wide, two-year tax. For illustration purposes several levels of project and taxable values are shown.

PROJECT SIZE	TWO YEAR MILLAGE	TWO YEAR FUNDING PER HOME WITH TAXABLE VALUE OF:		
		100K	200K	300K
500,000	0.1025	\$10	\$21	\$31
1,000,000	0.2051	\$21	\$41	\$62
1,500,000	0.3076	\$31	\$62	\$92
2,000,000	0.4102	\$41	\$82	\$123

* BASED ON TAX VALUE OF

2,438,010,614

SEAWALL CALCULATIONS

- The cost to upgrade the seawalls is approximately \$225 per lineal foot.
- For example, seawalls in this area average 125 foot per lot making the projected seawall cost approximately \$28,125.
- The cost could be financed over 20 years for \$2,300 per year or \$1,850 per year for 30 years.