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August 15, 2017

Mr. José A. Cedeño Maldonado, Project Manager
Department of the Army
Jacksonville District Corps of Engineers
Antilles Office
Fund. Angel Ramos Annex Bldg., Suite 202
383 F.D. Roosevelt Ave.
San Juan, Puerto Rico 00918

Re: SAJ-2004-12518 (SP-JCM) St. John Marina Yacht Club Rebuttal Response

Dear Mr. Cedeno:

Following is the response of Summers End Group, LLC to the correspondence dated October 22, 2015, in regard to SAJ-2004-12518 (SP-JCM) St. John Marina Yacht Club and the comments filed in regarding Summers End Group, LLC's application for a permit. We are very appreciative of the effort which was put forth to help organize the vast amount of correspondence which was received in regard to this project. In this letter, we have provided the information necessary to complete the documentation and procedures required by the National Environmental Policy Act (NEPA). Separate documents have been prepared which respond to the issues raised by:

- U.S. Environmental Protection Agency (EPA) August 19, 2015, EPA, National Marine Fisheries Service (NMFS) January 16, 2015 and July 18, 2015, U.S. Fish & Wildlife Service (FWS) August 4, 2015, U.S. Coast Guard (USCG) February 4, 2015 and October 17, 2015, and National Park Service (NPS), all contained at Appendix C;
- Manko, Gold, Katcher & Fox, LLP and Sive, Paget & Riesel, P.C. on behalf of the Coral Bay Community Council (CBCC), at Appendix L;
- we have addressed the form letters and the 113 specific comments selected from the public communications at Appendix M; and
- the summary of comments assembled by the Coral Bay Community Council in their October 13, 2015 correspondence is addressed at Appendix N.

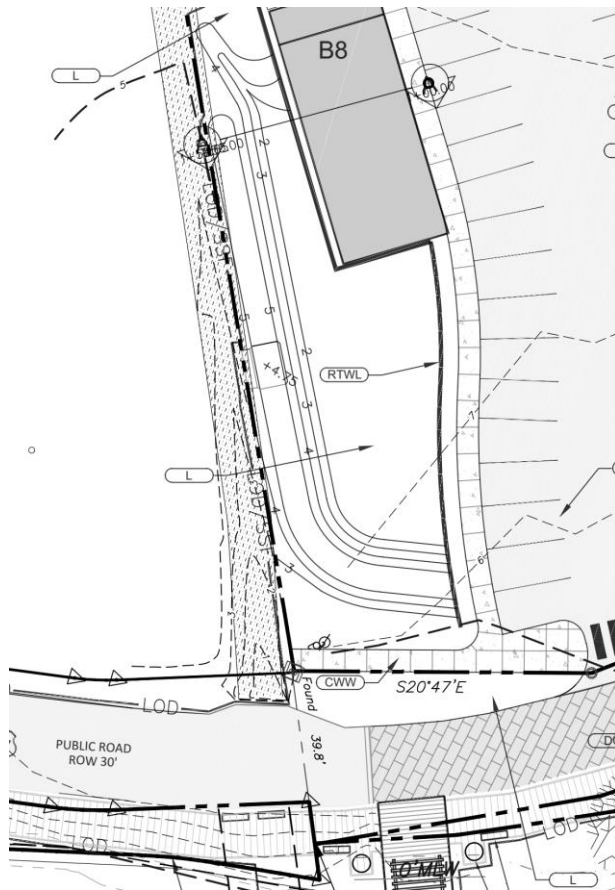
We have provided additional information regarding potential direct, indirect, and cumulative impacts of the proposed marina on the public interest and the aquatic environment in this document as well as in the responses below. To avoid repetition, we have responded to each issue once and when it is referred to in a separate document we have referenced that document and its location.

We understand the requirement to ensure that permitting the project not be contrary to the public interest pursuant to 33 CFR Part 320.4. We are providing video interviews with native St. Johnians who strongly support the project. Opponents of the project, as represented by the Coral Bay Community Council, consist generally of transplanted mainlanders living full or part time on St. John. Native St. Johnians have a very different view of what it means to “Save Coral Bay”.

Following the summary introduction below, this Rebuttal Response addresses below:

- Alternative Project Locations (pages 4-38);
- Alternative Designs and Layouts (pages 38-41);
- Federal Investment in Coral Bay (pages 41-43);
- Wind and Waves (page 43);
- Virgin Islands National Park and Virgin Island Coral Reef Monument (pages 43-46);
- Economic Impact and Market Study (page 46; pages 50-56) ;
- Infrastructure (pages 46-47);
- Size and Design of Docking Structure (pages 47-56);
- Impacts to Seagrass and Benthic Habitat (pages 56-61);
- Property and Littoral Rights (pages 61-64);
- Ambient an Underwater Noise (pages 65-67);
- Environmental Assessment v. Environmental Impact Statement (pages 67-69)
- Coastal Zone Management & Water Quality Certifications and Permits (pages 67-69);
- Cumulative Impacts (page 70);
- National Environmental Policy Act (NEPA)-Items not directly addressed in other section of the response (pages 70-71) .

The project has been modified due to restructuring of the upland parcels as discussed and shown below and the drainage way which was going to be altered is no longer with the proposed project site, and no filling or excavation in the drainage way within jurisdictional waters will be undertaken. An overflow will be created at the outer edge of the drainage way above the ordinary high-water mark so that in the event of overtopping, the water will be diverted into the catchment system rather than sheet flowing across the adjacent lots. There is no alteration of the riprap and no other dredging or filling is proposed. Accordingly, Section 404(b)(1) Guidelines pursuant to 40 CFR Part 230 should not apply.



Other changes resulting from the elimination of two parcels of land; Parcel 13A and Parcel 13B, Estate Carolina, Coral Bay Quarter (0.6acres, 18% of project area) include changes in parking, potable water demand and requirements for waste water treatment.

The reduction of the roughly 45,000 gallons of potable water cistern capacity within Parcel 13A has been offset by the addition of 5 ten thousand gallon cisterns located in the southern end of Parcel Remainder 13 West, Estate Carolina.

Additional water storage capacity of approximately 24,000 gallons has also been added with the increase of cistern size under building B8, located on Parcel 10-41 Remainder.

Storm water management changes include the addition of a diversion and retention pond on Parcel 10-41 Remainder, the addition of a 20' x 100' x 1.5' underground storm water storage tank located on Parcel 10-13 Remainder West, and an enlarged (55'x120'x1.5') underground storm water storage tank on Parcel 10-41 Remainder.

Backup generators were added to Parcels 10-13 Remainder West and 10-41 Remainder.

Approximately 300 linear feet of a 10' wide boardwalk has been added along Route 107 Parcel Remainder 10-13 Estate Carolina and on Parcel 10-19, Estate Carolina for pedestrian safety.

With the removal of the two parcels and their related structures there was an overall reduction in parking requirements and overall 6 parking spaces and 2 loading zones are no longer required. In order to meet the required parking for the project 10 spaces were added to Parcel 13 Remainder, 7 spaces and an ADA space were added to Parcel 10-41 Remainder and 3 loading spaces were removed, and 2 parking spaces were added to Parcel 10-19.

The new upland plans are found in Appendix A.

Additional information regarding ESA listed species and the Magnuson-Stevens Act (MSA) has been provided in Appendix C in the responses to National Marine Fisheries, Protected Resources and Habitat Conservation.

The revised plans including details on the number and mix of vessels expected and information regarding the grated decking is provided in Appendix B.

Project Location - Alternatives analysis

Below we have provided a more detailed alternative analysis of locations on St. John, where a marina could physically be located. On the island of St. John we identified 10 potential sites where marina could be developed. We evaluated the sites for compatibility with existing land uses and landscape; potential effects to existing business and local economy; compatibility with and potential effects to existing infrastructure; potential conflicts and adverse effects related with navigation; quantification of potential impacts to benthic habitats; and potential effects to protected or sensitive resources within or in the vicinity as a result of construction or vessels, and what avoidance and minimization measures could be undertaken at these alternate locations to obtain the same goals as the proposed project.

As with the previous alternative analysis which was presented in the Environmental Assessment Report, Enighed Pond was one of the sites which merit a closer inspection. We have not ruled out locations within the National Park since the park does on occasion enter into agreements with private parties for operation of facilities within the park.

The sites considered are the proposed project site, Enighed Pond, Cruz Bay, Caneel Bay, Haul Over, Hansen Bay, Johnston Bay, Lameshur Bay, Rendezvous Bay, and Northern Coral Bay.



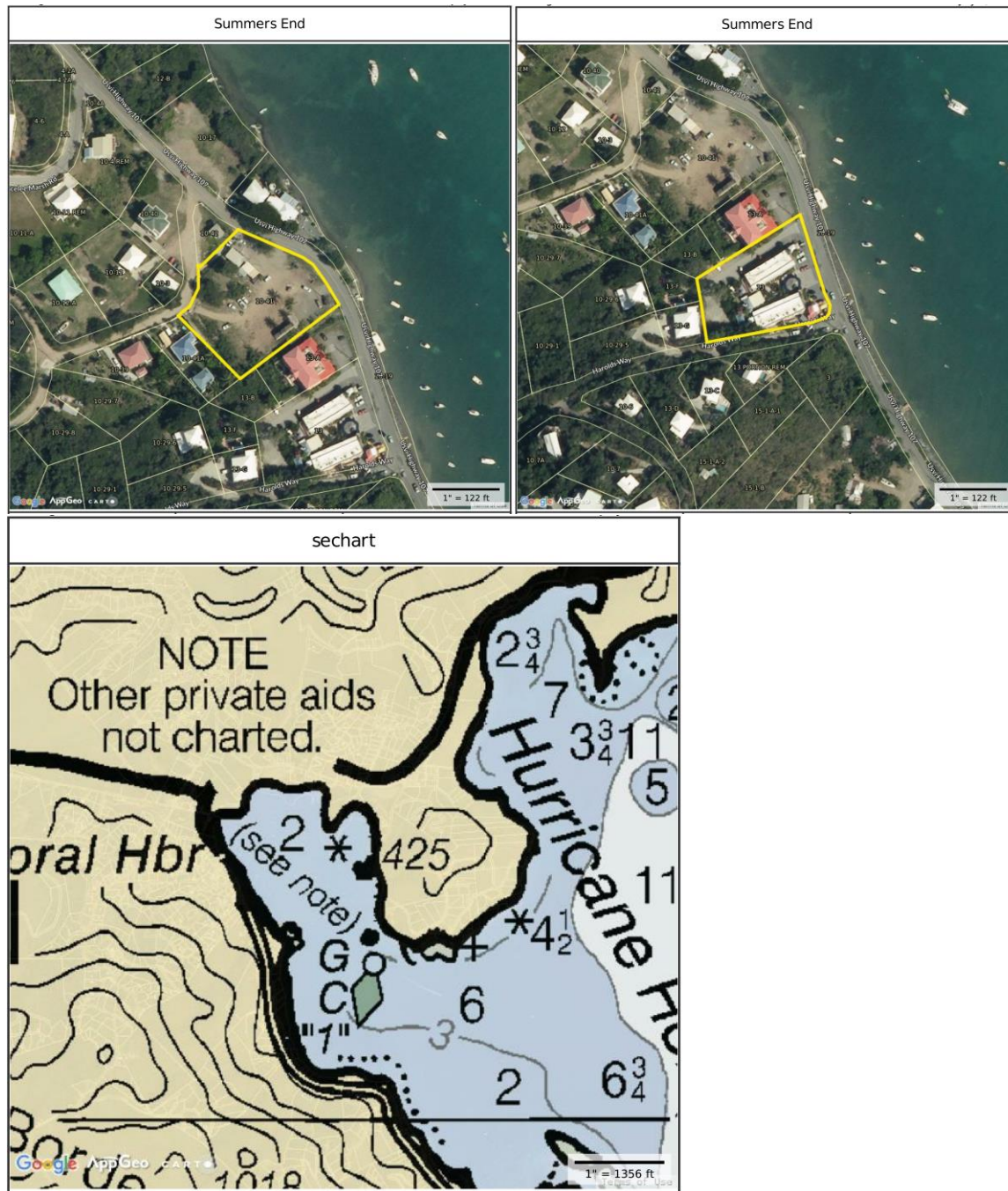
The evaluation is being done as a tiered approach first looking at the feasibility of developing the site into a marina. The following criteria are used to determine *first tier feasibility*;

1. Accessibility and Infrastructure– Level of Infrastructure needed to provide adequate infrastructure to the site.
2. Navigation – Can the site be developed into a marina without significant dredging or alteration to obtain safe access?
3. Is there adequate upland area to develop the necessary support facilities for the marina?
4. Is it a safe harbor?
5. Would the project be compatible with existing land uses and landscape?

FIRST TIER: FEASIBILITY EVALUATION

SITE EVALUATED: CORAL HARBOR (PROJECT SITE), ST. JOHN

The project site is on the southwestern side of inner Coral Harbor and consists of several plots along the waterfront. The project has been modified since the original submission and several parcels have been removed from the upland portion of the development.



Accessibility and Infrastructure:

This is the proposed site; the site has existing road access. The access road is one of the main roads on St. John and the site is easily accessible. Electricity is available on site and the VI WAPA and Power Authority has provided documentation (See also A\$6, supra and Appendix

E). The site does not have public water or sewer, but most sites in the Virgin Islands do not. Residents and businesses must rely on roof catchment, reverse osmosis, wells, and the purchase of water from private commercial haulers. The project is relying on roof catchment and has sufficient storage capacity to support projected occupancy. As a public drinking water supplier, water will be tested monthly to ensure compliance with US Safe Drinking Water Act requirements. If water runs low, the project can purchase water from a private hauler. The public water supply from V.I. Water and Power Authority (VIWAPA) has a stand pipe on St. John used by private haulers to obtain water. Water trucks are frequently seen on the roads on the east end of St. John during drier periods of the year. The project is utilizing batch WWTP and will dispose of greywater effluent on site. There is adequate area to irrigate with the effluent to prevent discharge into the bay. Discharge will be permitted through the TPDES program, which will also require regular water quality testing.

Navigation:

Coral Harbor is a Virgin Islands Department of Planning and Resources ("DPNR") designated mooring field and has existing navigational markers into the Harbor from the channel in Coral Bay. Access to the site is through Coral Bay, and no dredging would be required to achieve access to the site. The marina can also be built without dredging by positioning the dock structures further offshore in deeper water.

Availability of Upland Development Area:

There is an existing shopping area, restaurants and apartments and an undeveloped area which was previously used as a staging area for construction of the mixed income development Calabash Boom. These areas will be developed as the upland support and amenities for the marina. Over the course of permitting, the applicant has lost control of one of the parcels that was previously under contract and a part of the development plan. The amenities planned to be located on that parcel have been redesigned to be accommodated on the controlled parcels. The parcel that has been removed from the project contained the drainage way which was going to be altered and bridged. As the parcel has been removed from the application, no dredging/or filling is being done as a part of this project.

Safe Harbor:

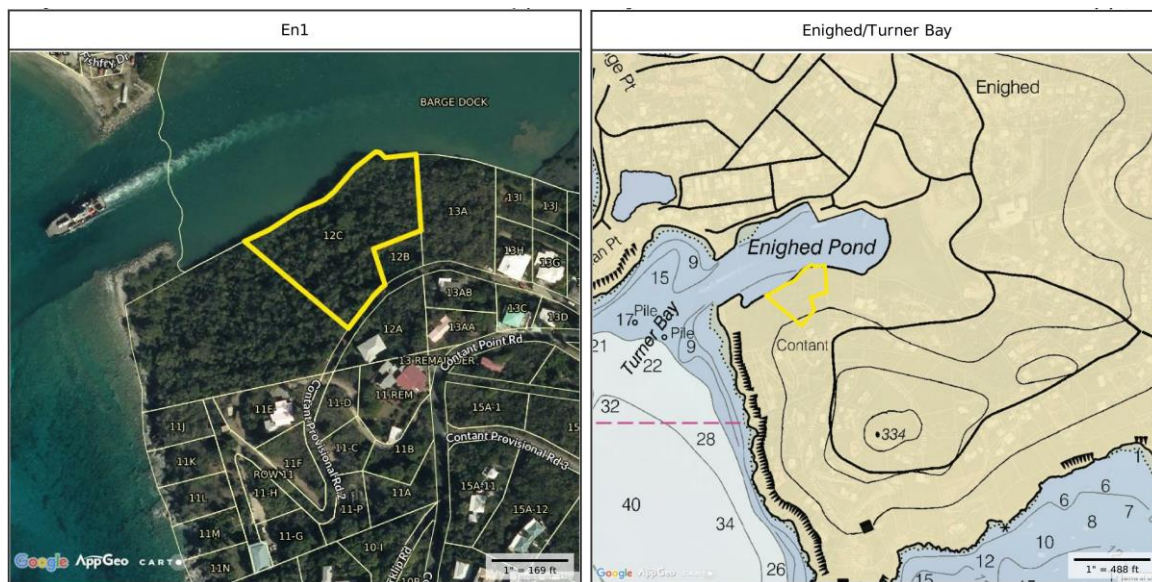
Coral Harbor is a safe harbor and has been designated by DPNR as a hurricane hole. The project site is used by numerous boats as a mooring and anchoring site. A detailed wind wave study was conducted and shows that the site is suitable for development of marina structures. The wind wave study is further discussed in Section A\$3 and is attached in Appendix D.

Compatibility:

The area is already in commercial use and the area is a heavily used harbor so it is a compatible use. The marina would be more organized and would provide services not currently available in the harbor such as fuel, pump out service, potable water and garbage disposal.

SITE EVALUATED: ENIGHED POND:

Enighed Pond was dredged in 1990 and the site was developed into the barge landing for the island of St. John. A marina was previously considered in the eastern portion of the pond. That area instead became the mitigation for impacting the mangroves and the pond ecosystem. The eastern area is now a fully developed mangrove forest. There is open land along the southern shoreline which could be purchased and a marina could be developed linearly along the southern portion of the pond.



Accessibility and Infrastructure:

There is road access to the site. This is a secondary road off the main road but access is available. The roadway would need some improvements and with other commercial operations already located along the road, this should be permittable. Power from VIWAPA is available, and the site could either use roof catchment with cistern storage and a batch WWTP and irrigate on site or could access public water and sewer, which are available in the area and could be brought to the location if the marina developer paid the costs of extending the service lines to the project area.

Navigation:

The location is on Enighed Pond which was dredged to create the marine ferry terminal. There is a wide open dredged channel into the site. The site will have to be designed to minimize conflict with ferries and cargo vessels, but several large ferries have been moored along the mangroves on the south side of the pond and there has been little impact on navigation.

Availability of Upland Development Area:

The area is undeveloped and lands are privately held so it is possible that they could be purchased. With 2.3 acres available and the possibility of a third plot to west sufficient land exists for the development of upland support and amenities.

Safe Harbor:

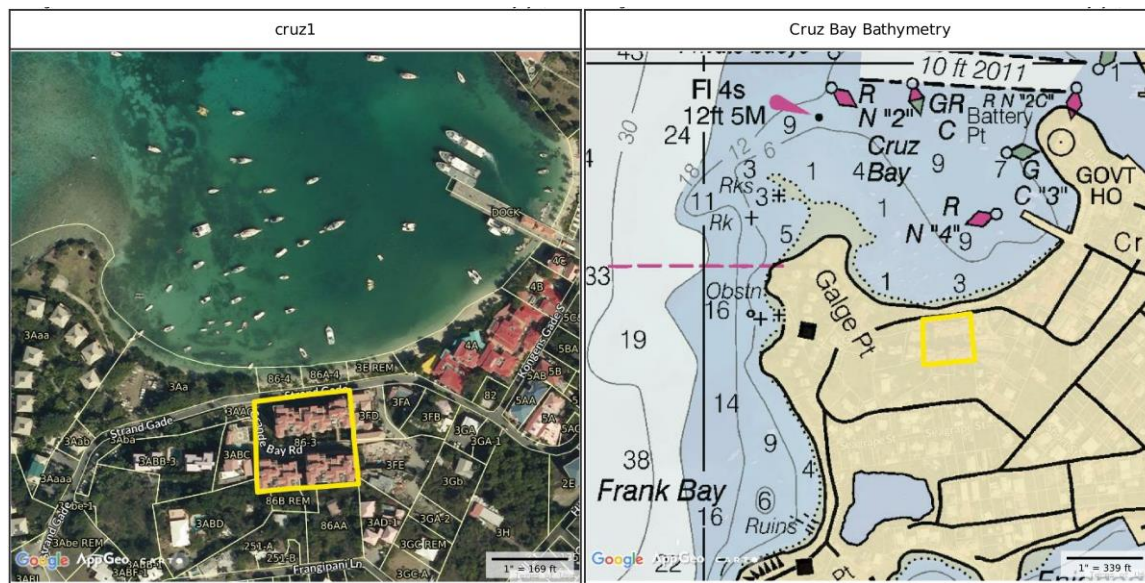
The site is extremely safe, located in the inland harbor and is not subject to impact by storm seas except under the most extreme conditions.

Compatibility:

Enighed Pond is a marine terminal so it is a compatible use. While there are residential properties to the south, many of the residences have been converted to business to the east, including the ferry operating business which frequently ties their barges to the southern side of the embayment to work on them.

SITE EVALUATED: CRUZ BAY: Shoreline Northeast of Grande Bay, Cruz Bay Town

There is a narrow strip of land to the southwest of town in front of Grande Bay Condominiums and the grave yard which would provide water access into Cruz Bay and has direct access to an area of adequate depth for a marina.



Accessibility and Infrastructure:

The site is on a main road and is easily accessible from town. The site has both public water and sewer available.

Navigation:

The site is located in the Cruz Bay mooring area and there is good access into the area. A marina could be constructed without dredging.

Availability of Upland Development Area:

The land area between the road and the sea is only a narrow strip and no development could be done between the road and the sea which is inundated during storm tides. There is no upland area available for development. A developer might be able to negotiate with surrounding business to sublet parking or maybe even some store space however this would severely impact development. This site is not a suitable site for development of a marina and no other water front in Cruz Bay is physically suitable for marina development.

Safe Harbor:

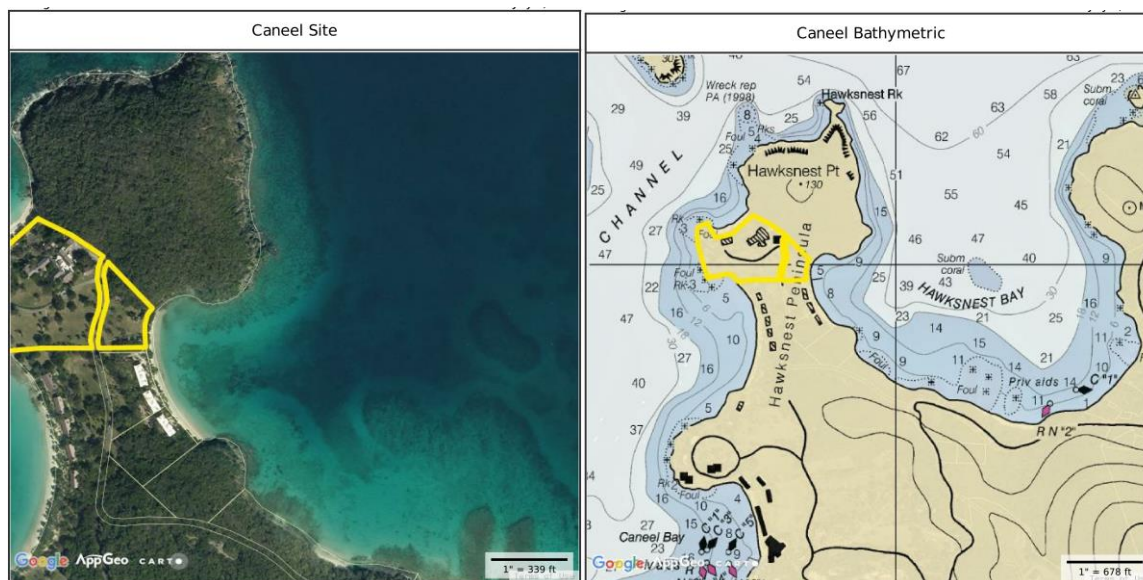
As with Coral Harbor this is a designated mooring area. This is a more open anchorage, but is fairly well protected under most seas conditions being open to the west.

Compatibility:

The area is an active commercial town and the harbor is heavily used for anchoring and mooring. This would be a compatible site for a marina if upland space were available for services.

SITE EVALUATED: HAWKSNEST BAY: Within the Caneel Bay Resort

This property is within the Caneel Bay Resort and the applicant would have to work out an agreement to lease or purchase property from the resort.



Accessibility and Infrastructure:

Access would be through Caneel Bay Resorts private roadways which come off the main roadway. There is available VIWAPA power to the site. Water could be purchased from Caneel Bay and an agreement could probably be reached to have the waste water treated at the existing plant as well.

Navigation:

A marina could be laid out with sufficient water depth to provide slip access without dredging and there is clear navigational access into the site.

Availability of Upland Development Area:

There is available land area to develop, if the resort would choose to allow such an operation within the resort.

Safe Harbor:

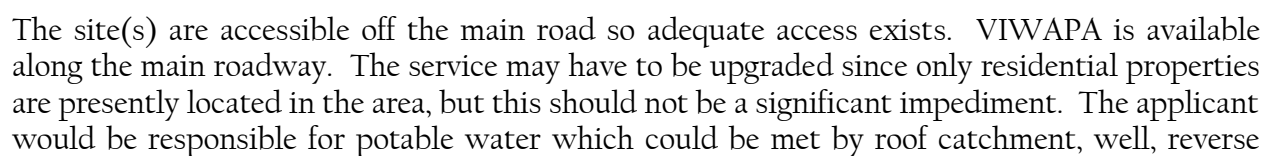
The site is open directly to the north which will present an issue during the winter when prevailing waves approach from the north. This would make marketing difficult because winter is high season for the largest vessels. A floating break water could be installed which could help alleviate this issue, but a breakwater would have environmental impacts and would add to the cost of development.

Compatibility:

The site is not suitable for a marina based on the other uses in the area. The embayment is the site of a very popular beach "Hawksbill" which is frequented by visitors and residents of St. John. The beach is used by the Caneel Bay guests and there are rental units on the beach. Marina use, which would interrupt beach use would not be compatible with the existing uses by the Caneel Bay resort, residents of St. John and visitors to St. John.

SITE EVALUATED: HAUL OVER:

Haul Over is located on the north side of St. John and there are two areas that are undeveloped and both have good access to open water in locations where there is sufficient room to build a marina.



osmosis or purchase from private haulers and the applicant would also be responsible for waste water disposal which could be met by installing a WWTP.

Navigation:

A marina could be located with access to sufficient water depth to allow slip access without dredging and there is clear navigational access into the site.

Availability of Upland Development Area:

There is available land area to develop, as noted by the two separate parcels.

Safe Harbor:

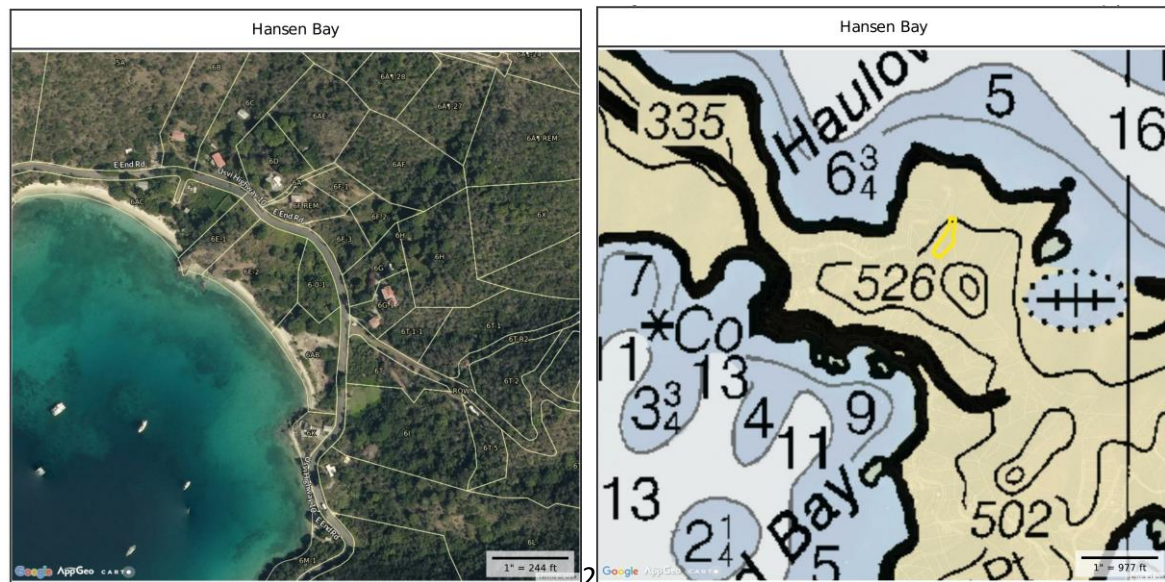
The sites are both open directly to the north however they are protected by Tortola and the limited fetch between the islands. The site would be subject to some rolling seas and waves from within the inner passage between the islands and it would probably be advisable to install a floating break water to offset this effect.

Compatibility:

The area is residential and is zoned as such. The properties could potentially be re-zoned but there are no commercial uses in the area, which might make rezoning challenging. Development of a commercial venture in this area would change the landscape significantly and impact the surrounding residential uses by introducing traffic and noise. Developing this area into a marina would not be a compatible use.

SITE EVALUATED: HANSEN BAY: HANSEN BAY EAST END QTR

The Hansen Bay parcels are in greater Coral Bay in Hansen Bay.



Accessibility and Infrastructure:

The site would be accessible off the main road so adequate access to the site exists to support a marina. VIWAPA is available along the main roadway. The service may have to be upgraded since only residential properties are found within the area, but this should not be a significant impediment. The applicant would be responsible for potable water which could be met by roof catchment, well, reverse osmosis or purchase and for waste water disposal which could be met by installing a WWTP.

Navigation:

The approach to the site is open, although there are shallow reefs in the vicinity which must be avoided, and a few boats are currently moored within the bay. A small marina could be designed which would minimize impact to natural resources. There is already marine use on the eastern end of site which has catamarans and boats pulled up all along a portion of the beach.



Availability of Upland Development Area:

There is undeveloped land adjacent to the land to the east which is currently being used for marine use.

Safe Harbor:

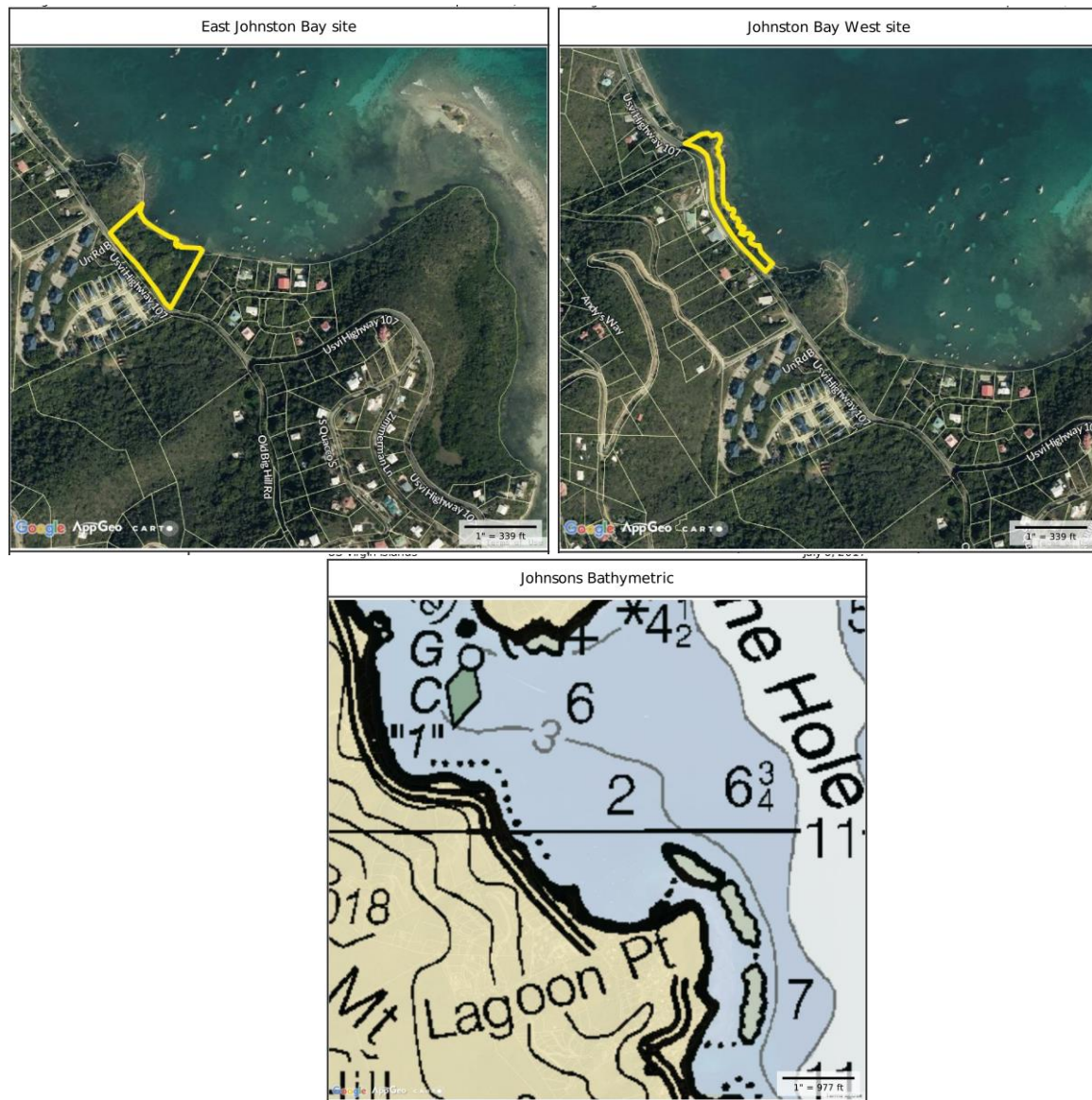
The site is partially protected due to its location with Coral Bay; it will be subject to seas approaching from the south, but this could be abated by a floating wave attenuator.

Compatibility:

The area is residential and is zoned as such. The property could potentially be re-zoned, but there are no commercial uses in the area and Coral Bay Community Council actively opposes development in Coral Bay and would likely oppose this rezoning application as well. There is the limited marine use to the east but no structures have been placed in the water. Development of a large commercial venture in this area would change the landscape significantly and impact residential uses located nearby by increasing traffic and noise. Developing this site into a marina would not be a compatible use with the surrounding residential community but is not totally out of character due to the existing marine uses and existing mooring in the bay.

SITE EVALUATED: JOHNSTON BAY (WEST AND EAST)

Johnston Bay is located along the southern shore of Coral Bay and is a site with numerous moored boats.



Accessibility and Infrastructure:

The site is accessible off the main road so adequate access exists. VIWAPA is available along the main roadway; the applicant would be responsible for costs associated with bringing lines onto private property. The applicant would be responsible for potable water which could be met by roof catchment, well, reverse osmosis or purchase and for waste water disposal which could be met by installing a WWTP.

Navigation:

There is adequate depth so that a marina could be laid out with to access sufficient water depth without dredging and there is clear navigational access into the site.

Availability of Upland Development Area:

There is available land area to develop if several parcels are combined.

Safe Harbor:

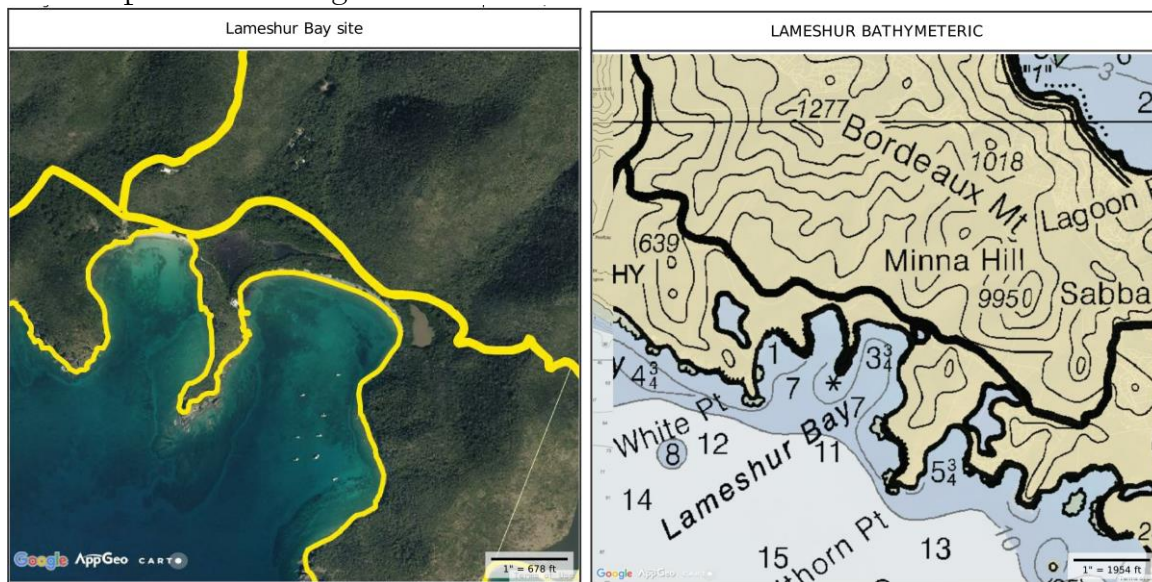
The site is well protected due to its location in Coral Bay and behind Johnson's Reef, as evidenced by the large number of boats on moorings and on anchor in the bay.

Compatibility:

The area is primarily residential but there are commercial properties along the roadway and western parcels are zoned Water Front Pleasure which is the appropriate zoning for a marina. The development of a marina in this area will not be an incompatible use. However, Coral Bay Community Council may oppose the project due to its location in Coral Bay.

SITE EVALUATED: LAMESHUR BAY: LAMESHUR ESTATE REEF BAY QTR.

Lameshur Bay is within the National Park and is zoned P, however the physical location could be suitable for a marina and vessels currently moor and anchor there. Summers End would have to develop a concession agreement with the Park to use such a location.



Accessibility and Infrastructure:

No serviceable public roads serve the area and access would have to be created. There is also limited electrical service available and service would have to be brought in. The remote location of the site and the difficulty to get site access over land makes it an unattractive site to consider.

Navigation:

There is adequate depth so that a marina could be laid out with to access sufficient water depth without dredging and there is clear navigational access into the site.

Availability of Upland Development Area:

There is available land area to develop if the Park Service would consider allow a concession over an area.

Safe Harbor:

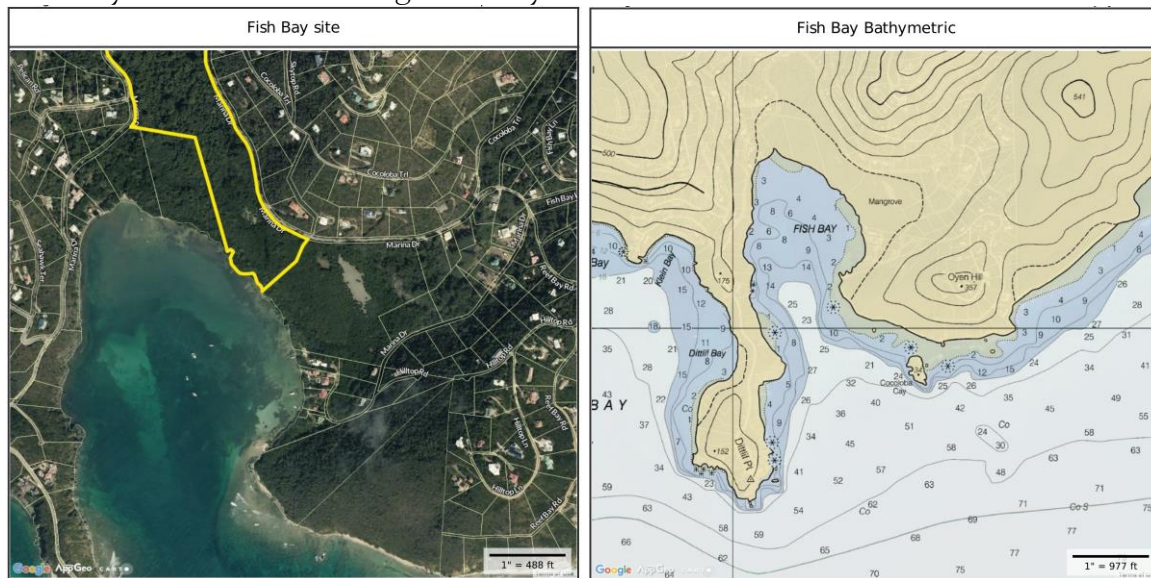
The site is open to the south and as such is affected by sea conditions during periods of southerly swells. A wave attenuator could be installed to address this issue.

Compatibility:

The site is within the National Park and the surrounding area is undeveloped. The development of a marina in this area will not be a compatible use because there is no supporting infrastructure.

SITE EVALUATED: FISH BAY:

Fish Bay lies on the south side of St. John and is a protected embayment where there are currently some vessels mooring in the bay.



Accessibility and Infrastructure:

The site is accessible off a main road way and VIWAPA power is developed near the site. Like most sites on St. John, the marina would have to be responsible for its own water through roof catchment and cisterns, wells, a reverse osmosis plant or through purchase or a combination of sources. The marina could also use a small WWTP to satisfy wastewater disposal needs.

Navigation:

There is adequate depth to access the site, however the marina would have to be designed with a long walkway out to reach a location with sufficient depth to prevent the need for dredging.

Availability of Upland Development Area:

There is available land area to develop if the current owners would consider selling. However, the owner is conservation minded group and probably will not be interested in selling the area since a large amount of the land is jurisdictional wetland.

Safe Harbor:

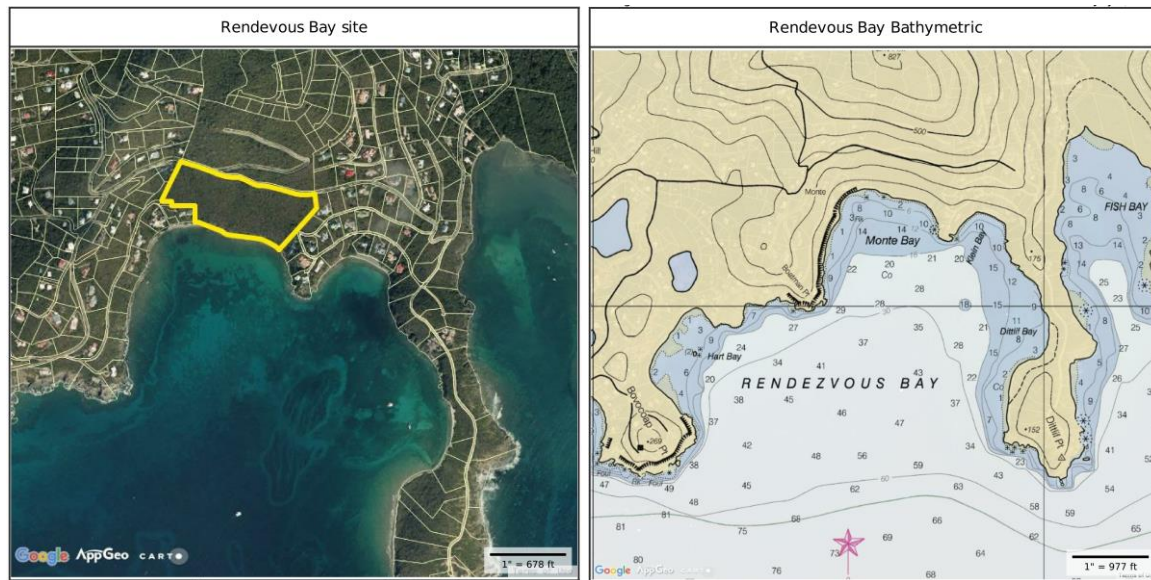
The site is open to the south and as such is affected by sea conditions during periods of southerly swells. A wave attenuator could be installed to address this issue.

Compatibility:

The area is residential in nature and the shoreline area has large wetland areas. Development of this area into a marina would not be a compatible use with existing residential nature of the area. There are no commercial uses within the vicinity and a marina would increase noise and traffic in a residential area. Further the wetland resources would limit development options or require impacts to natural resources.

SITE EVALUATED: RENDEZVOUS BAY:

There is a large area of open land within Rendezvous Bay in the Monte Bay embayment.



Accessibility and Infrastructure:

The site is accessible off a main road way and VIWAPA power is developed to the site. Like most sites on St. John, the marina would be responsible for its own water through roof catchment and cisterns, wells, a reverse osmosis plant or through purchase or a combination of sources. The marina could use a small WWTP to address wastewater disposal requirements.

Navigation:

There is adequate depth to access the site and sufficient water depth to create a marina without dredging.

Availability of Upland Development Area:

There is available land area to develop. There is a large parcel which is privately held.

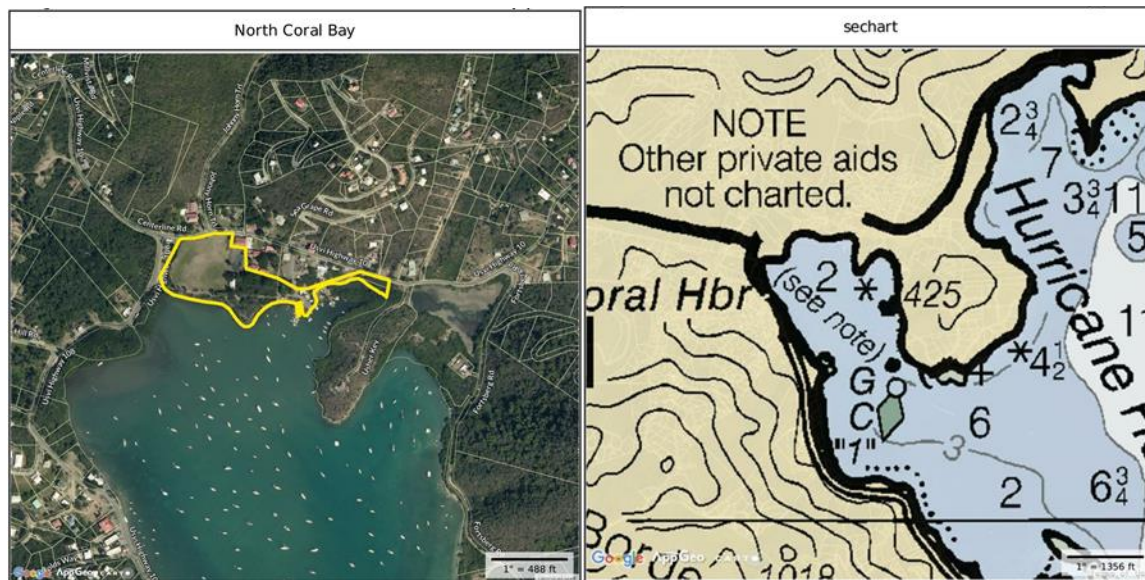
Safe Harbor:

The site is open to the south and as such is affected by sea conditions during periods of southerly swells. A wave attenuator could be installed to address this issue.

Compatibility:

The area is residential in nature and development of this area into a marina would not be a compatible use with existing residential uses. There are no commercial uses within the vicinity and therefore a marina would impact the area by increasing noise and traffic.

SITE EVALUATED: NORTHERN CORAL HARBOR



Accessibility and Infrastructure:

The site is accessible off a main road way and VIWAPA power is developed to the site. Like most sites on St. John, the marina would be responsible for its own water through roof catchment and cisterns, wells, a reverse osmosis plant or through purchase or a combination of sources. The marina could also use a small WWTP to manage its wastewater disposal needs. The site has the exact same access and infrastructure as the proposed site.

Navigation:

There is adequate depth to access the site and sufficient water depth to create a marina without dredging if the slips were placed well out into the bay similarly to the way the proposed marina is laid out. There is currently a marina proposed for the area which involves dredging of the site, which based on the environment impact of dredging in the enclosed embayment, has significant impact (see response to NPS and site alternatives).

Availability of Upland Development Area:

There is available land area to develop and there is currently a marina proposal on this property which has been submitted to CZM and the USACOE.

Safe Harbor:

The site like the proposed marina is well protected in Coral Harbor which his designated by DPNR as a mooring area and is designated as a hurricane hole.

Compatibility:

The area is already in commercial use and the area is a heavily used harbor so it is a compatible use. The Coral Bay Community Council would likely oppose approval of a marina in Coral Harbor.

Conclusions : First Tier of Analysis

Based on the analysis of accessibility and infrastructure, navigation, available land mass to develop, harbor safety, and compatibility, there are 5 sites including the proposed project site where marinas could be considered: the project site, Enighed Pond, Hansen Bay, Johnson Bay and Northern Coral Harbor.

CRITERIA	LOCATIONS CONSIDERED - FIRST TIER ANALYSIS										
	PROJECT SITE	ENIGHED POND	CRUZ BAY	CAMEEL BAY	HAULOVER	HANSEN BAY	JOHNSON BAY	JAMESHUR BAY	FISH BAY	RENDEZVOUS BAY	NORTHERN CORAL HARBOR
Accessibility and Infrastructure	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Navigation	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Availability of Upland	YES	YES	NO	MAYBE	YES	YES	YES	MAYBE	MAYBE	YES	YES
Safe Harbor	YES	YES	YES	W/ATTENUATOR	W/ATTENUATOR	YES	YES	W/ATTENUATOR	W/ATTENUATOR	W/ATTENUATOR	YES
Compatibility	YES	YES	YES	NO	NO	MAYBE	YES	NO	NO	NO	YES
Move on to Tier 2	YES	YES	NO	NO	NO	YES	YES	NO	NO	NO	YES

Second Tier Analysis

The second tier of the analysis considers whether sufficient upland and harborage exists within the area to create the type of facility proposed in the application. This doesn't have to be the exact number of slips proposed by the Applicant, but rather considers does sufficient area exist to create an economically viable marina to meet the proposed market. This tier will also consider quantification of potential impacts to benthic habitats; and potential effects to protected or sensitive resources within or in the vicinity of a site that, as a result of construction or vessels, could impact those resources. If potential impacts are identified, the analysis also considers what avoidance and minimization measures could be undertaken at this location and still develop a comparable marina to the proposed project.

SITE: CORAL HARBOR SOUTH (SELECTED ALTERNATIVE)

Available Area for Marina Development:

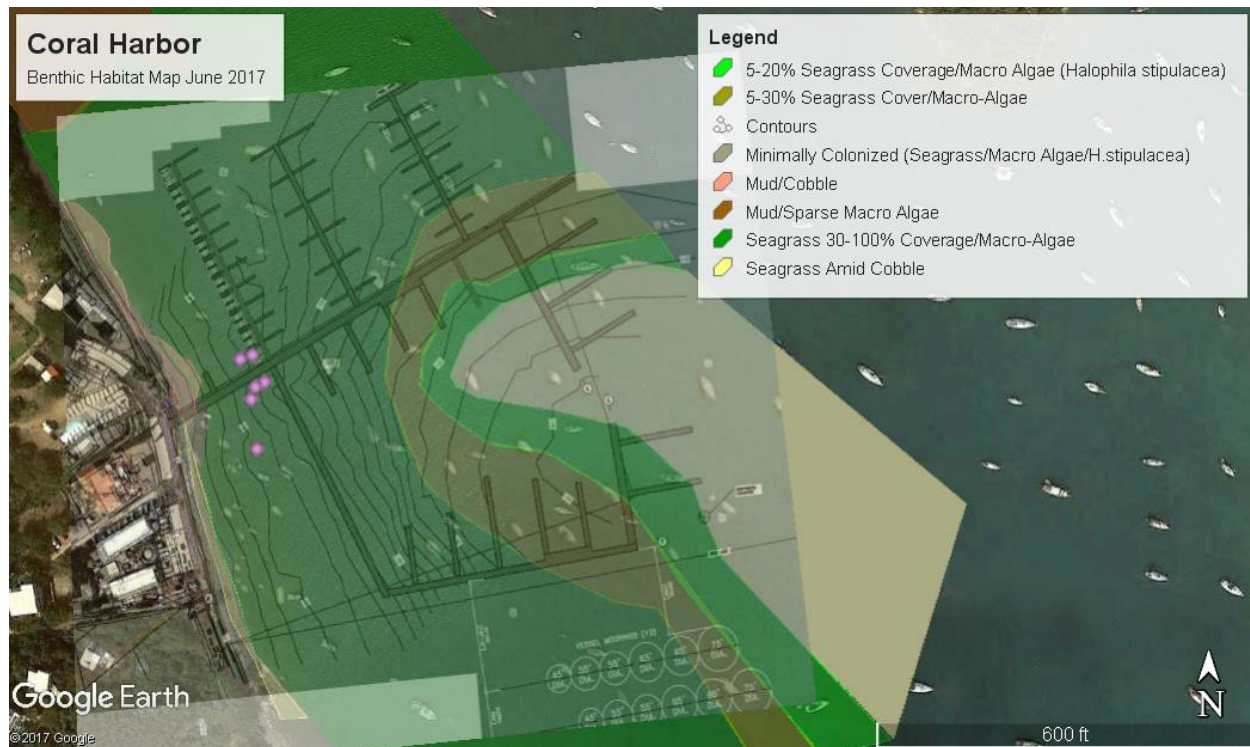
There is sufficient area offshore of the selected parcels without going beyond the extended property boundary lines and beyond the existing channel to construct the docks.

Environmental Resources:

There are dense grass beds offshore with a shoreline that is a mixture of muddy/cobble to the north and is riprapped to the south. There is a narrow band of muddy sand between the cobbly shore seagrass beds to the north and a mixture of seagrass and cobble to the south. There are a few large coral heads offshore of the culvert discharge in the middle of the property. Dense

seagrass, primarily *Thalassia testudinum*, are found in the offshore environment at a depth of between 1 ft. and 11 ft., at which point they begin to diminish and algal species become more prevalent. *Syringodium filiforme* also becomes more prevalent with depth. The exotic sea vine, *Halophila stipulacea* had recently colonized the bay and was noted in transects in 2016/2017.





Type	Habitat	Number	Acres	Sq. ft.
Moorings	30-100% Coverage Seagrass	9 (8 +0.5,0.5)		
Moorings	5-30% Coverage Seagrass	3 (1.5 + 1.5)		
	Total	12		
Docks			1.69	73,591.10
	Riprap (above MHW)		0.01	235.00
	Docks Less Above MHW		1.68	73,356.10
	Mud/Cobble		0.02	762.20
	30-100% Coverage Seagrass		0.90	39,258.18
	5-30% Coverage Seagrass		0.48	20,927.41
	5-20% Coverage Seagrass Macro-Algae		0.13	5,836.21
	Minimally Colonized		0.15	6,572.10
	Total		1.68	73,356.10

A total of 39,258.18sf of docks are over areas with SAV, the majority of which has densities between 20 and 100%. Based on a 46% survival due to shading since the Applicant is using grated decking, 21,199.42sf (0.487ac) of seagrass may be lost. At the maximum capacity and at the maximum size boat in each slip there will be 5.65 acres of shading due to vessels. It can be

assumed that 50% of this will be lost due to vessels being in place more than 2 weeks at a time. There will be some survival due to angle of the sun and vessel types and some available light. There will be impacts due to spudding impact during construction which will probably account for between a 900-1020sf of impact (6sf per spudding event and between 150 and 170 relocations. The operation of the marina will have an impact due to prop wash scour and you can assume another 10% loss. In total, approximately 3.75 acres of seagrass will probably be lost as a result of the project.

The application is using grated decking to reduce shading impacts, and will be transplanting seagrass within the piling foot prints to reduce impacts. As compensatory mitigation, a harbor cleanup plan is proposed, and maintenance of sediment control measures in the watershed to improve water quality. The applicant will also be conducting long-term monitoring of water quality and of the closest ESA listed coral species.

The project will be using impact pile driving during the placement of 960 piles which will create acoustic impacts within Coral Harbor. A vibratory hammer will be used where possible to reduce this impact. Bubble curtains will be used to help abate erosion, and turtle and marine mammal monitoring will be conducted during all impact pile driving.

Vicinity:

There is an open approach and vessels should be able to access the site without groundings. The number of boats through the area will increase, and thus the potential for groundings, unauthorized groundings and turtle strikes could occur.

SITE: ENIGHED POND

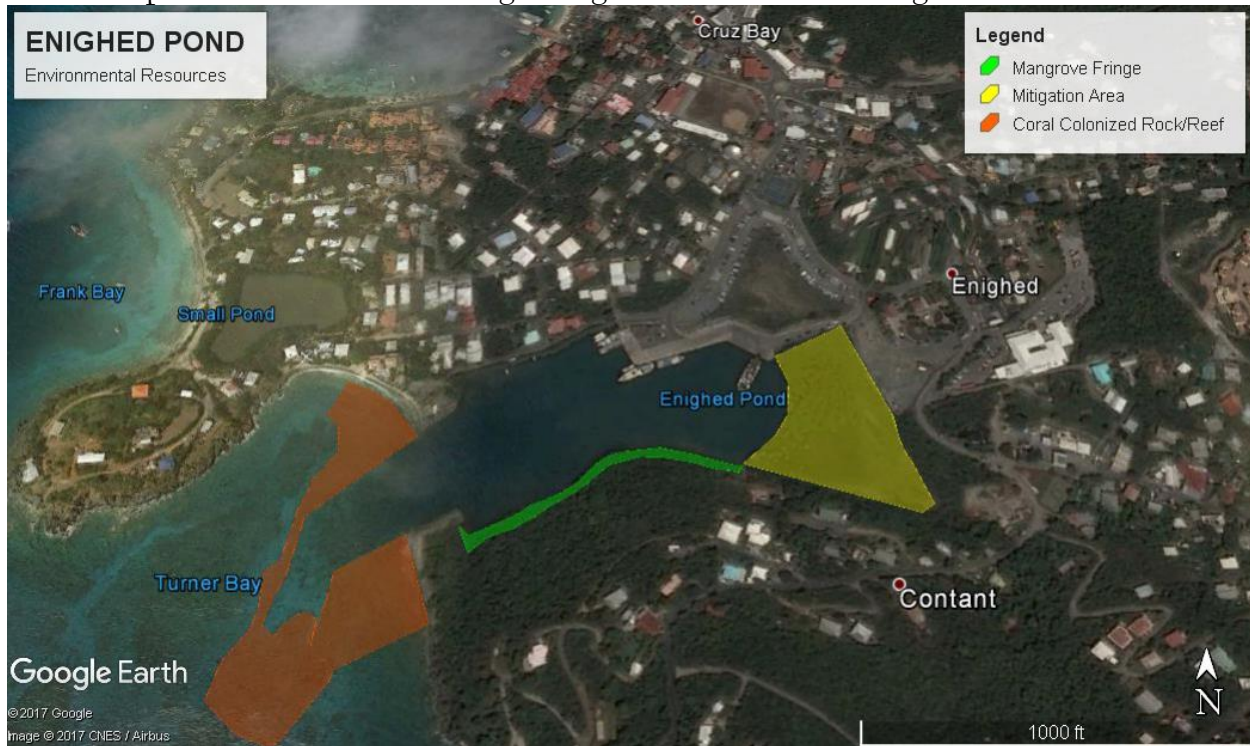
Available Area for Marina Development:

The geography of this site will limit the type and number of vessels which could be docked in a marina constructed at this location. In order to provide room for navigation, vessels longer than 50ft could not be docked without extending into the navigation area. Vessels could be docked parallel to the dock but this would limit the maximum number of vessels that could be serviced. While there is room for a marina, it would be limited to serving smaller vessels than the proposed marina at Coral Harbor and could not service the same market.

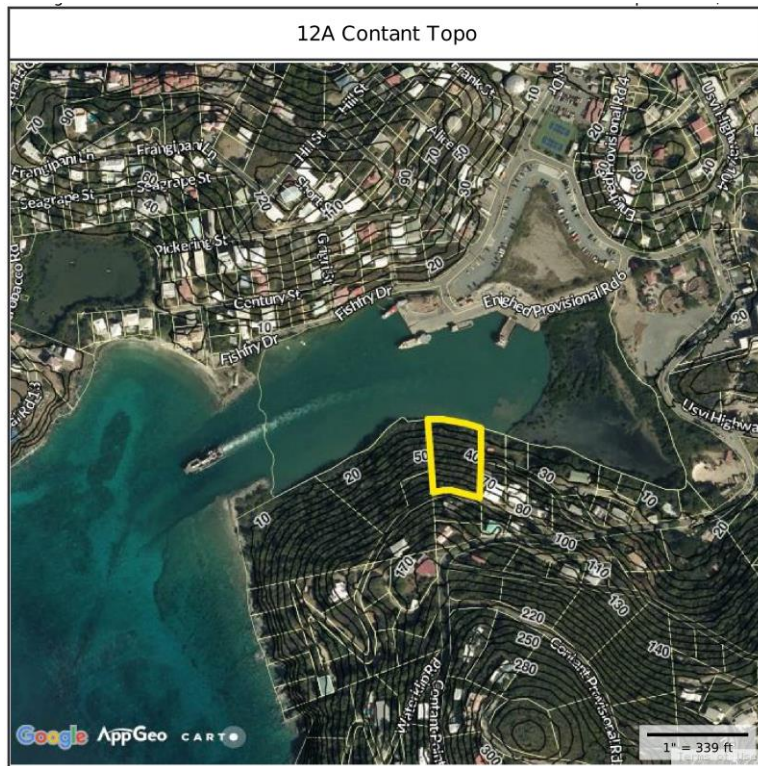
Environmental Resources:

Enighed Pond has been dredged but a dense mangrove fringe still exists along the perimeter. A marina could be built with a linear dock along the outside of the mangroves in the pond with only a couple of breaks through the mangroves to allow for access. It would be possible to provide adequate access with around 500 sq.ft. of mangrove/wetland impact. The amenities could then be built on the uplands behind the mangroves. The area is relatively steep but with proper sedimentation and erosion control and with development built in tiers on the slope, the project could be developed with limited environmental impact. Impacts would be limited

primarily to the mangrove fringe. Due to the prior dredging of the pond, there is no seagrass and coral within the pond and thus impacts to marine resources at the marina location could be avoided. Acoustic impacts would be minimal due to partial enclosure of the marine basin and soft nature of the sediment. Mangrove restoration could then be completed along the northern side of the pond where there is existing damage and breaks in the mangrove habitat.



Environmental Resources



Topography of the upland area



Potential Dock lay out

Vicinity Impacts:

The area is well traveled and there are existing aids to navigation to and from the site. The development and use of this area would not have significant impacts on the environment due to its previously altered state, nor on neighboring properties due to the heavy commercial usage in the area. Vessel traffic would be competing with large ferries and thus this might deter certain boaters from utilizing the marina.

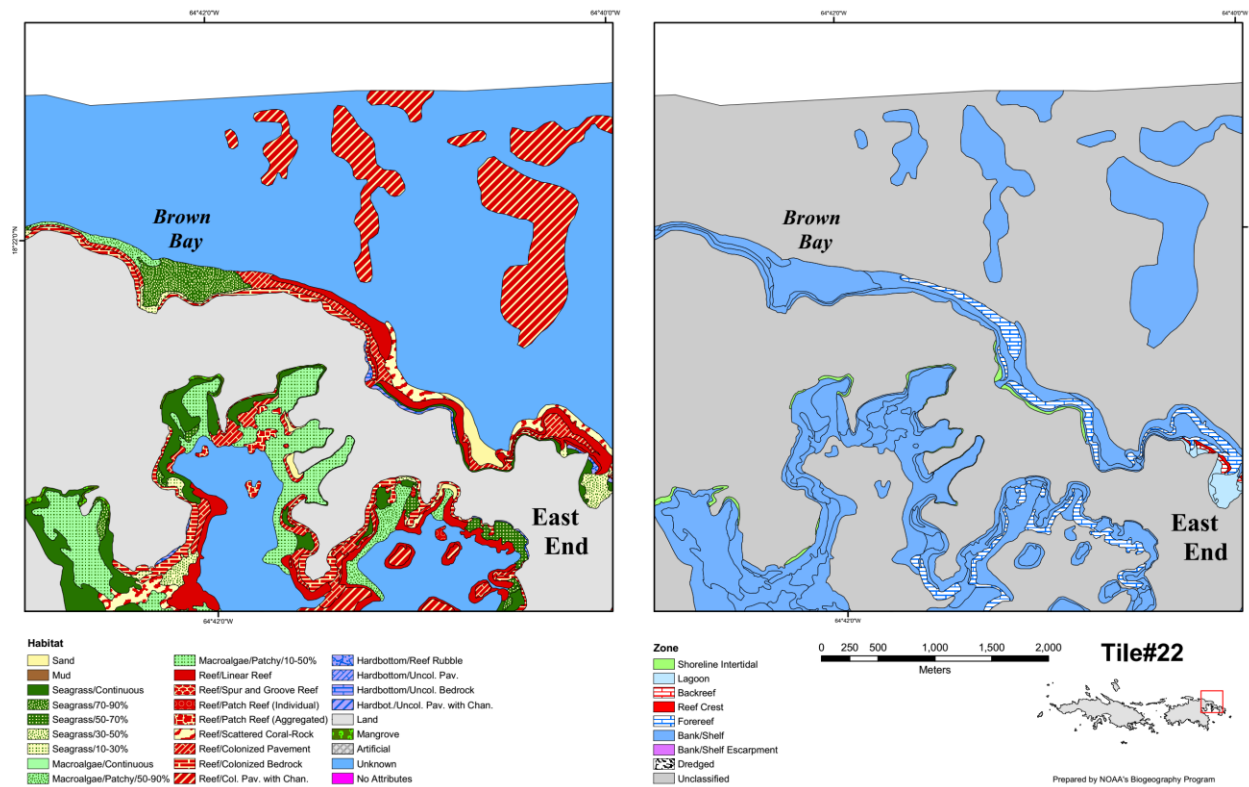
SITE: HANSEN BAY

Available Area for Marina Development:

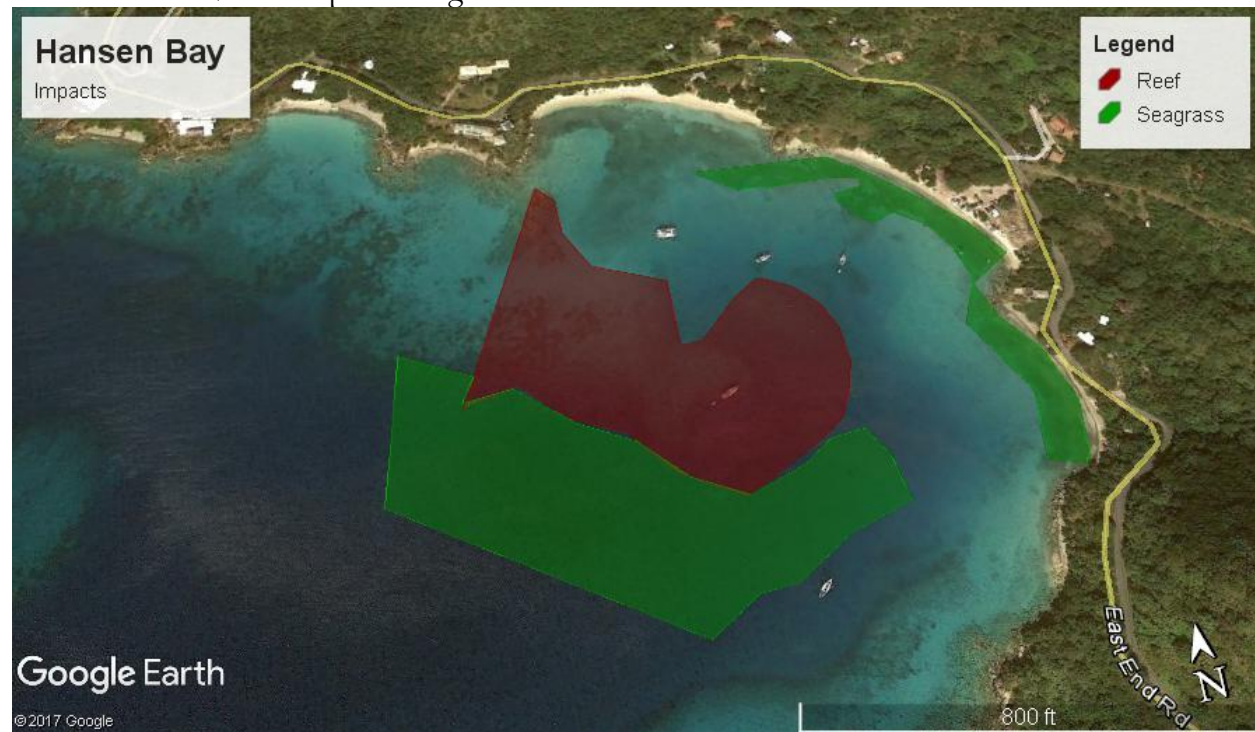
Between the bathymetry and the presence of the reef which extends offshore, there are only about 2 acres of water available for marina development. While a small marina or dock could be built in this area it would not be able to service the same type of vessels for which the project marina is being designed without destroying or severely impacting the reef.

Environmental Impacts:

There are corals on the reef and some of the corals are ESA listed *Orbicella* species. The marina could be designed to avoid this area and could be designed to minimize shallow resources by transplanting seagrass and moving corals from impacted areas. A small dock or extremely small marina could be constructed in this area with only minimal impacts, if mitigation were undertaken.



NOAA NOS Habitat Map showing entire area



Benthic Habitat Map



Areas a smaller marina/dock could be constructed with minimal impact.



Proposed Dock layout within Hansen Bay as a reference.

If a similarly sized marina were to be constructed in Hansen Bay it would result in more 3.75 acres of impact of reef area which has ESA listed corals as well as impacts to 1.2 acres shoreline and offshore seagrass.

Vicinity Impacts:

This site is adjacent to park waters and will have the same navigational issues as noted for the proposed marina. This site has a number of shallow coral reefs on the approach to the marina site, most of which have ESA listed corals species and would pose a grounding hazard. Informational buoys could be installed to minimize this impact.

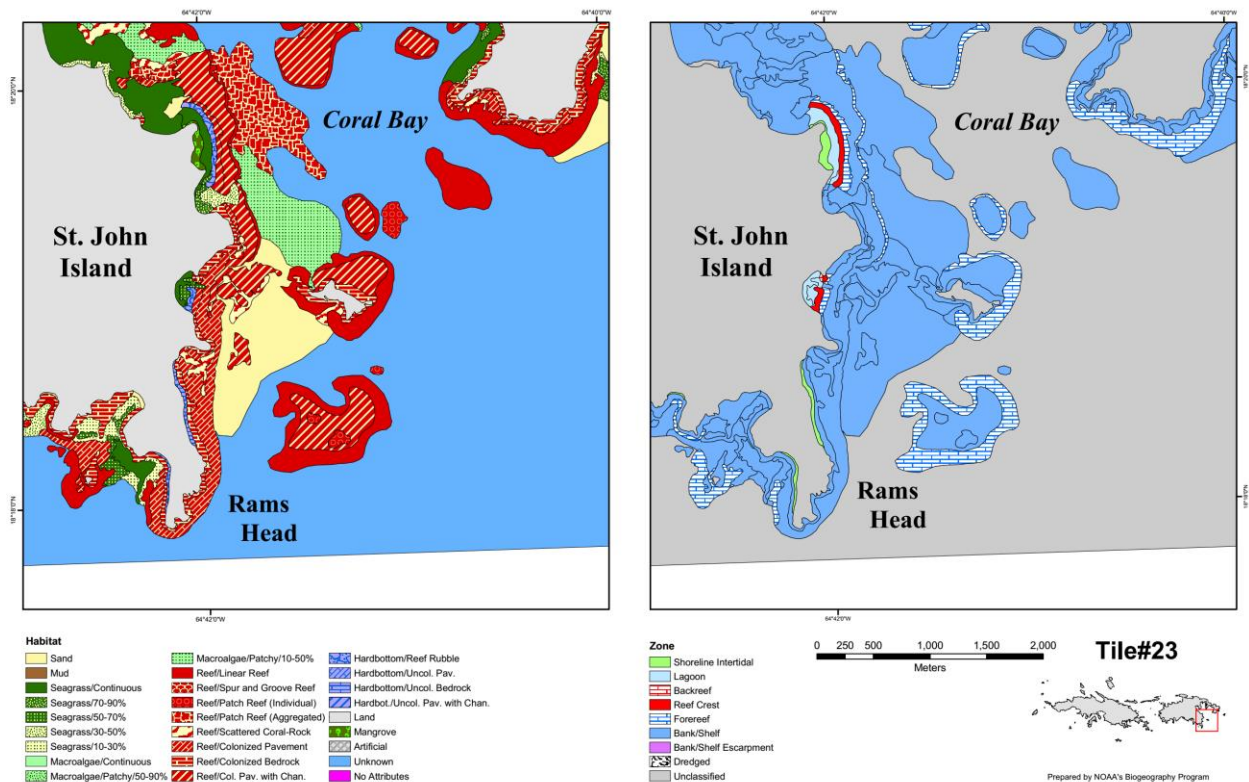
SITE: JOHNSONS BAY

Area Available for Marina Development:

The site is relative open and there is sufficient space to create a marina which could service the vessels envisioned in the proposed marina plan.

Environmental Resources:

Both embayments have very dense seagrass and there is coral colonized hard bottom between the two embayments. The seagrass is extremely dense and luxurious throughout most of both bays. The development of the marina at this site would have am much higher impact on seagrass than the proposed site and most of the 1.68 acres of dock would be over dense seagrass. The overall shading impact by vessels during high occupancy will impact an additional 3 acres of dense seagrass. Seagrass can be transplanted from the piling footprints and grate decking can be used to reduce impacts, but it will have greater impact on dense seagrass than will the proposed project.



Vicinity Impacts:

This site is adjacent to park waters and will have the same navigational issues as noted for the proposed site. Johnsons Reef would be on the approach to a marina at Johnsons Bay. ESA listed corals species grow on Johnson's Reef and the reef would pose a grounding hazard. Informational buoys could be installed to minimize this impact.

SITE: NORTHERN CORAL HARBOR

Availability:

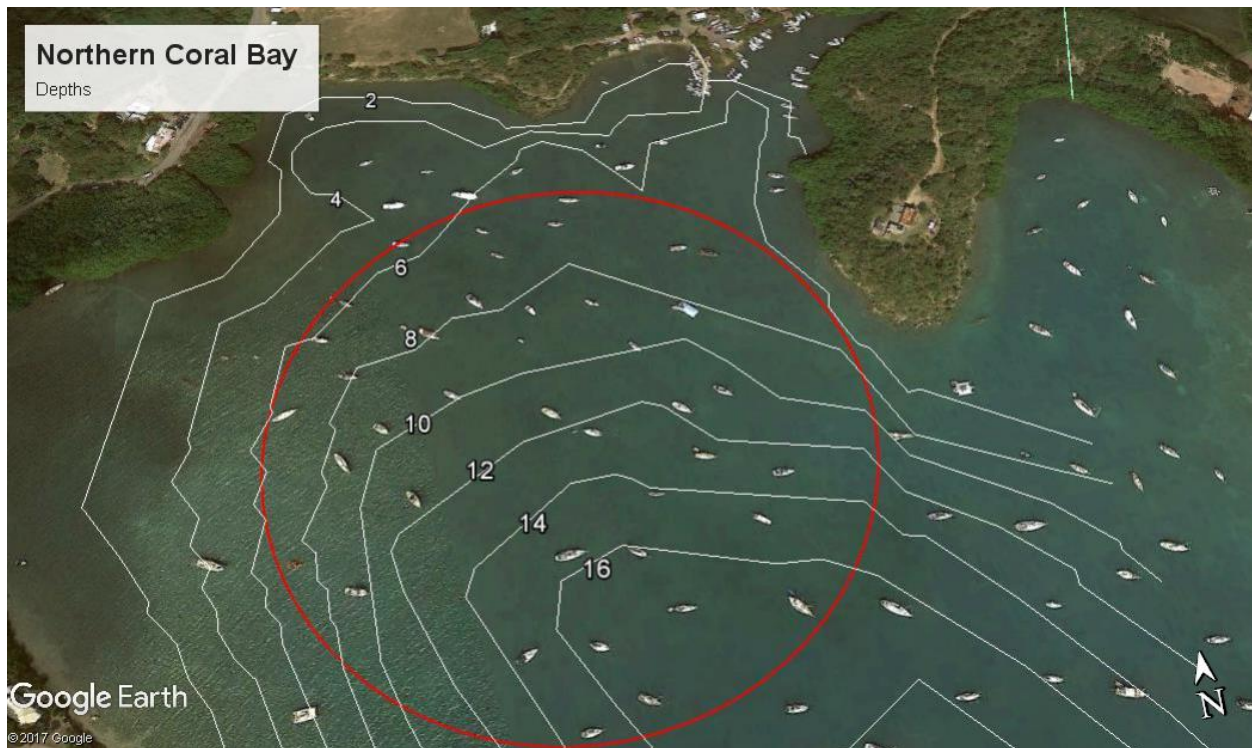
There is sufficient area to create a marina, and there is currently another marina proposed in the area which is proposed to service 92 vessels, of which most are a smaller class of vessels. This marina also included dredging to accommodate those vessels. The proposed northern marina only extends to a depth of approximately 9ft.



Proposed northern marina

YCSE proposes to service larger vessels with deeper drafts and in order to reach sufficient depth to service the deeper draft vessels, most of the St. John marina is designed to be constructed in

over 10ft of water, a depth not available on the northern side of the bay. Due to the shape of the shoreline and the bay, the Northern Coral Harbor marina would have to extend more linearly out into the bay. To service the same market, the northern marina would extend to the center of the bay, crossing and encompassing the traditional channel between Coral Harbor and Coral Bay. This would result in the area occupied by a similarly sized marina being around 30 acres (docks, navigation area and moorings) as opposed to the approximately 25.8 acres (docks, navigation area and moorings) YCSE is proposed to occupy and would occupy 45.5% of the navigable waters in the inner harbor rather than the 39.1% YCSE will occupy. The northern Coral Harbor site is better suited to service smaller vessels of than 70ft. in length. To service the same mix of vessels as proposed in the current application for that site the main area of the marina would have to be positioned as shown above. If constructed from the northern shore, a new channel into the bay would have to be developed and other boats within the embayment would be forced to anchor or moor in the areas with the densest seagrass.



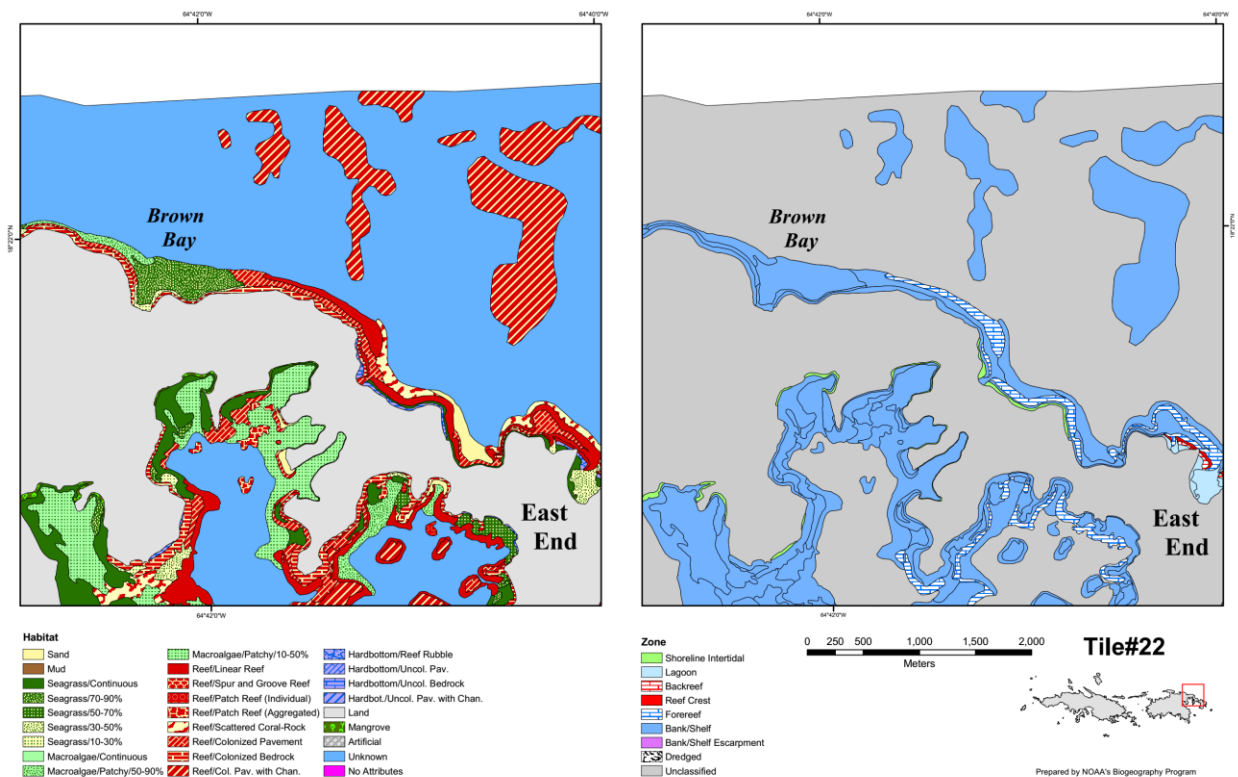
Location required to service a similar size and mix as the proposed St. John Marina.

Environmental Resources:

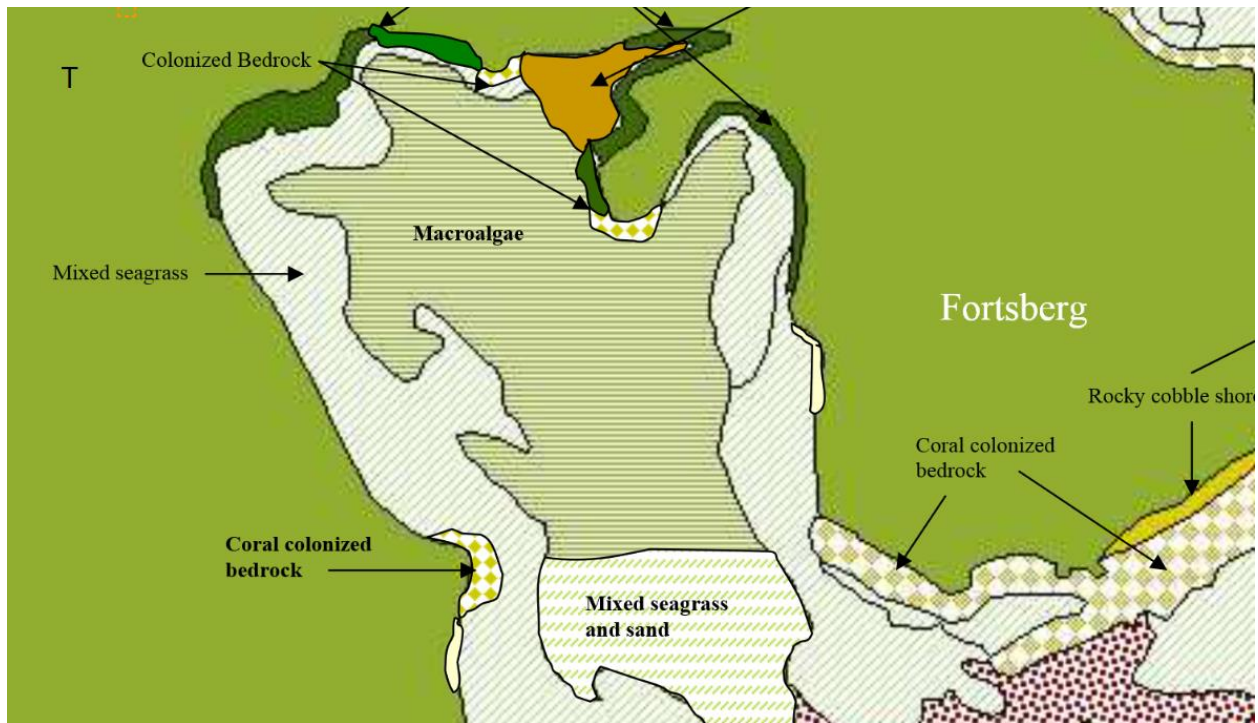
The northern portion of the inner harbor has been subject to heavy marine use. The area has also been impacted by terrestrial runoff depositing fine sediment. The NOAA Benthic habitat map shows the northern portion of the bay as primarily macro-algae with seagrass fringing the shallower areas. The Coral Bay Harbor Marine Survey compiled by Kimberly Myers in 2004 showed similar findings as does the Environmental Assessment Report done by Sirius Marina.

Surveys through the northern portions of the site in 2014 and then again in 2016 and 2017, showed a mix of macro algae, some *Halophila stipulacea* and widely scattered patches of *Syringodium filiforme* and *Thalassia testudinum* in the deeper areas and denser seagrass (primarily *Thalassia*) in shallower areas.

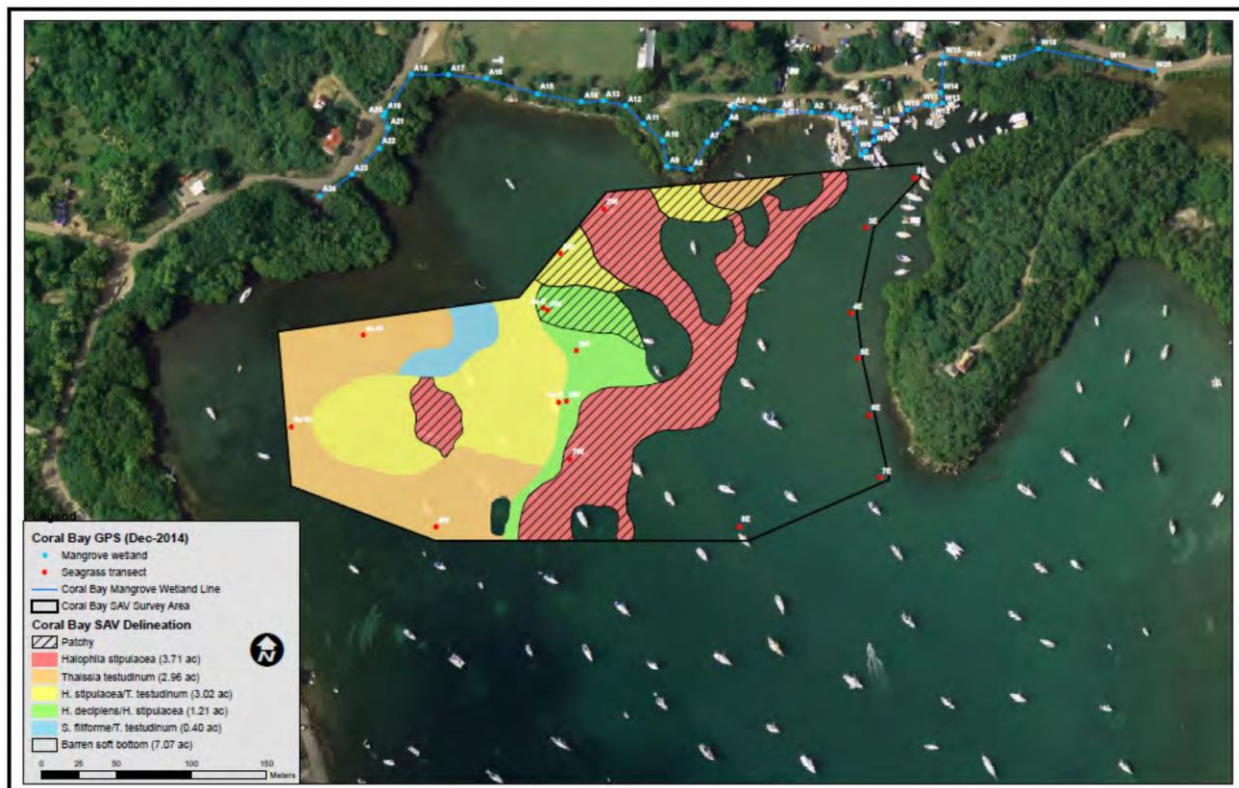
A similar size marina coming off of the northern shore would primarily be situated over areas of macro-algae with small percentage of intermixed seagrasses. Denser seagrass impacts would be limited due to its distribution in the bay. YCSE has a proposed square footage of 78,244.50 sf.. If a marina with the same square footage was constructed in the Northern Harbor the project would have fewer seagrass areas impacted through pile driving and shading, because there is less seagrass located on the northern side of the bay. Based on the Sirius Marina design, they estimated approximately a 0.5 acre loss of seagrass. To provide equivalent harborage to what is proposed by YCSE, the Northern Harbor marina would have to be close to 2.5 times the size proposed by Sirius to reach adequate water depths and service the equivalent number of vessels. This would result in approximately a one acre loss of seagrass (resources are sparser in the center of the bay). Like YCSE, grated decking and transplanting of seagrass from dock footprints could reduce overall impacts. Due to the finer sediments found in the northern part of the bay, the likelihood of resuspension of sediments would be higher during construction and operation of the marina. Thus, marina operations in the Northern Harbor would have a greater impact on water quality than the proposed YCSE marina.



NOAA Benthic Habitat Map showing Coral Harbor



Coral Harbor from Kimberly Myers compiled inventory.



Benthic Habitats as depicted in the EAR for Sirius Marina on the northern side of Coral Harbor.

Vicinity Impacts:

This is adjacent to park waters and will have the same navigational issues as noted for YCSE. Informational buoys could be installed to help abate this impact.

Conclusions: Second Tier Analysis

Of the alternatives considered, developing a marina in Enighed Pond would have the least amount of environmental impact of any of the alternatives considered. However the marina would be very limited in size and would not service the market for which YCSE has been designed, nor provide meaningful numbers of slips to answer the pent up demand for dock space in St. John.

All of the remaining alternatives will have equivalent acoustic impacts.

Hansen Bay is currently being used for some marine related activities and a small marina could probably be built in that location with moderate environmental impacts. Access to the site will require navigation near shallow coral resources and there will be a potential for accidental groundings. Although informational buoys could be employed to mitigate that risk, boat grounding can seriously harm coral reefs. There is not sufficient area to construct a marina comparable in size to the YCSE proposed marina without impacting the reef which does have ESA listed *Orbicella species* and *Dendrogyra cylindrus*. Thus, a Hansen Bay Marina would be unable to service the target market.

Developing a marina at Johnsons Bay would have the greatest environmental impact due to the lush seagrass resources within the bay. While seagrass could be transplanted the overall impact would be higher than the impacts projected for the YCSE marina.

A northern Coral Harbor could potentially have less direct and indirect seagrass impact. However, because of the finer sediments in that part of the harbor, it would probably have greater impact to water quality due to resuspension of sediments during construction and operations. In order to service the proposed market, the marina would have to utilize a much larger portion of the bay than proposed in the YCSE marina design, would displace far more moored boats and would interfere with navigation in the traditional channel. The marina which is currently proposed for the northern portion of the bay involves dredging, which would have a far greater impact on the bay due to the long-term suspension of sediment and degradation of water quality as well as impacts to the mangrove community along the shoreline.

CRITERIA	LOCATIONS CONSIDERED - FIRST TIER ANALYSIS				
	PROJECT SITE	ENIGHED POND	HANSEN BAY	JOHNSON BAY	NORTHERN CORAL HARBOR
Area for Marina Development	YES	NO	NO	YES	NO
Site Impact	3.75 ac SAV	500sf mangroves	3.5 Reef w/ESA corals 1.2 ac SAV	4.68 ac SAV	1.0 ac SAV

Based on the available alternative sites that could physically accommodate a marina, the YCSE proposed site is the best location for a marina serving varying size vessels and providing needed services and amenities to boaters. The unavoidable environmental impacts of YCSE can be mitigated through seagrass transplant, Coral Bay debris clean up and ongoing maintenance of storm water facilities in the vicinity of the project. The depth of the area is adequate to moor large vessels and the approach to YCSE is not impacted by existing reefs. YCSE is proposed in an existing commercial location, in an area that has long been used for mooring boats. Thus, it is the best alternative for constructing a marina in St. John.

ALTERNATIVE DESIGNS

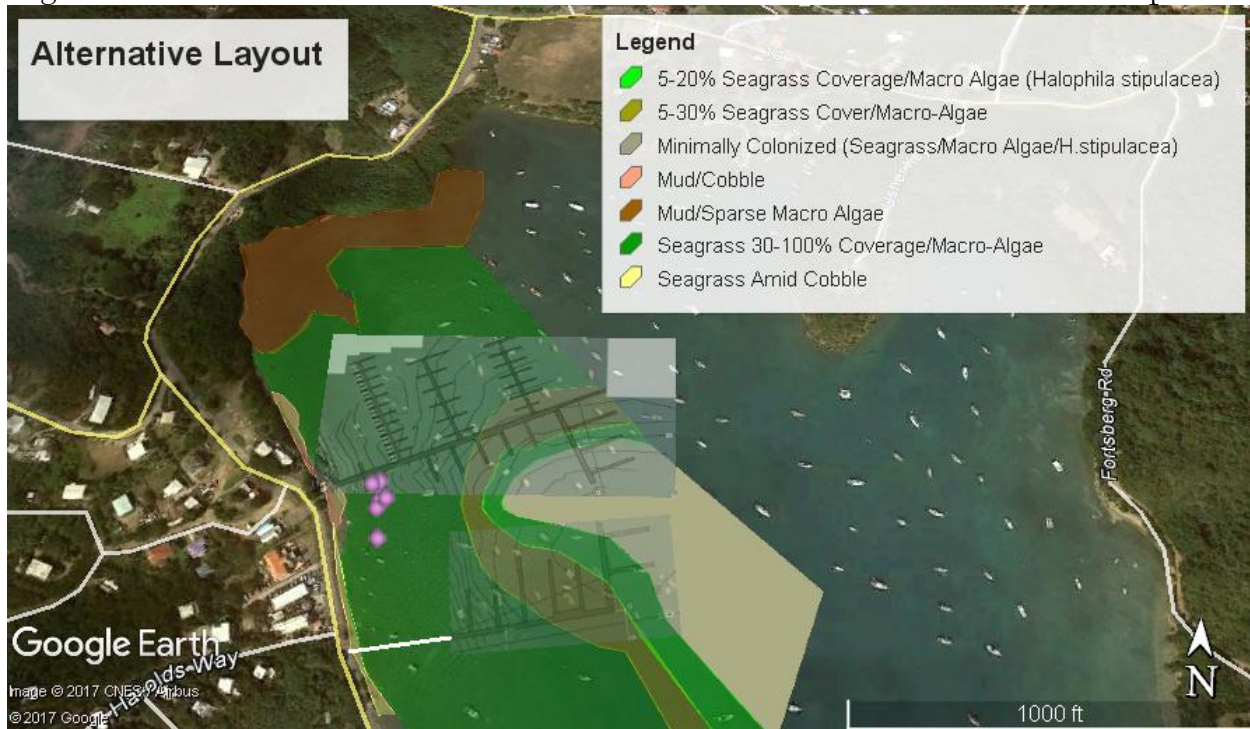
The developer who was looking at the northern area about 12 years ago considered dredging to move the marina closer to shore. One of the first things that was determined in this design was that no dredging would be undertaken. Due the very soft silty nature of much of the seafloor, and due to the constricted nature of Coral Harbor, any dredging would suspend sediments and keep finer particles in the water column for years. And as sediments finally did settle the heavy sediment would settle first leaving the lightest sediments to settle last leaving a fluff layer on the top which would be suspended again with the slightest water movement.

Much of the sediment in Coral Harbor is terrigenous in nature having eroded from the surrounding watershed and these sediments are finer than sands and most marine sediments. These very fine sediments would remain in suspension until the fluid velocity is insufficient for turbulent eddies to balance gravitational forces and the particles will settle out, depositing on the seabed (Masselink et al., 2014). In the inner harbor, tidal, surface wind effects, and even vessel movements will keep the finest sediments in suspension. Great Cruz Bay or Chocolate Hole in St. John, and Water Bay in St. Thomas all show the long-term effects dredging has had on water quality compared to similar bays which have not been dredged. Dredging activities potentially effects not only the site itself, but also surrounding areas, through a large number of impact vectors (e.g. turbid plumes, sedimentation, resuspension, release of contaminants, and bathymetric changes) (Wolanski and Gibbs, 1992). And sediment deposition can occur at distance from the dredging site depending on sea conditions and currents (Miller 2016). Therefore, the marina was sited farther offshore so that no dredging is required.

Floating docks could also be considered but these would greatly increase shading impacts. To service the proposed boat mixed these would require the same number of pilings proposed and would not result in less direct impact and because of the shading issue would have more indirect impact of 66,021sf of seagrass loss just from the docks. This would also result in the acoustic impacts of pile driving.

ALTERNATIVE LAYOUTS

There are limits on the alternatives that could be considered due to the limits of the property boundaries, the depth of water, the location of the channel and the proposed vessel mix. The larger boats must be in the southern area of the site in order to obtain sufficient water depth.



It would be possible to divide the marina into two separate docks which would reduce the square footage of the dock over seagrass by about 2000sf (0.046ac), which could reduce the loss due to shading by 1344sf (0.031ac). But this would result in the loss of three 75' vessel length slips and two 150' vessel length slips and these larger slips are critical for the economic viability of the marina. The division of the marina would also increase operational cost and would further adversely impact the financial viability of the project.

NO BUILD

The project could not be built and the impacts (environmental, economic, social) associated with the project would not be realized. However, this would not reduce all environmental impact, uncontrolled anchoring and mooring would continue within the 26.5 acre area of the submerged lands lease within Coral Harbor. This would result in continued seagrass loss and water quality impacts.

The economic impacts which will arise from the operation of the marina would not be realized and Coral Bay would continue to lose native St. Johnians due the lack of jobs and economic opportunity.

The remainder of the sunken vessels in Coral Bay would not be picked up and they would continue to damage seagrass. Even with the clean up being undertaken by Coral Bay Community Council there are still 14 vessels within in the bay that are derelict, these are impacting a minimum of 0.2 acres of benthic habitat.

The BMPs which have been placed with federal funds will continue to be poorly maintained and will continue to be inefficient in their catchment and hillside sediments will continue to detrimentally impact Coral Harbor.

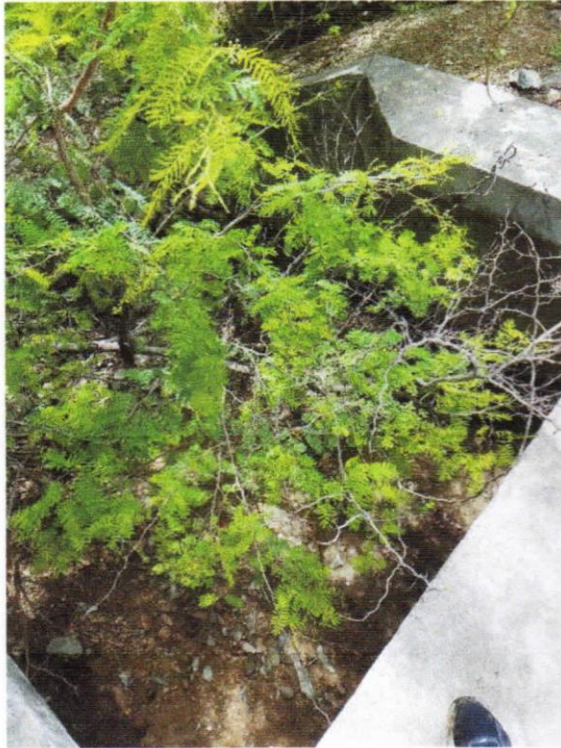
Federal Investment In Coral Bay

As noted in the rebuttal letter, several federal agencies and members of CBCC and the general public questioned the impact of the proposed project on the significant investments made by NMFS and EPA to support the development and implementation of watershed level management plans and actions directed to reduce land-based sources of pollution and improve water quality, seagrasses and corals within Coral Bay. Coral Bay Community Council has been involved in the development and implementation of a Watershed Management Program for Coral Bay and has received grants and awards from NMFS and EPA. These grants have been used to implement improvements in drainage with the aim to reduce sedimentation in to the bay.

The development of the marina will have impacts to submerged aquatic vegetation ("SAV") and to water quality through construction impacts and operational impacts. YCSE is proposing to abate these impacts to the greatest degree possible by not dredging, by transplanting seagrass from piling footprints and by using grated decking to reduce shading impacts. Strict pump out requirements will be enforced and the marina will make pump out services available to other vessels in the bay.

As mitigation YCSE will be transplanting seagrass into an uncolonized area in the northwest corner of the harbor which now receives less new sedimentation due to the work which was done by CBCC through their grants.

YCSE hopes to help advance the work which has been done by CBCC and others. The one thing that has been lacking in the implementation of the watershed management plan is the maintenance of the Best Management Practices for storm water facilities which have been installed by Coral Bay Community Council. As depicted below, because of lack of maintenance many of the installed devices have become inefficient and ineffective.



YCSE is proposing as one of the mitigation projects for YCSE to provide the needed maintenance on these storm water BMPs on an ongoing basis as well as make improvements onsite to improve water quality coming from upstream as it flows through the upland portion of

the property before it reaches the sea. YCSE has prepared a detailed Mitigation Plan (Appendix E) to help augment and help maintain the steps already taken through funding of the federal agencies.

YCSE is also proposing to set up long-term water quality monitoring stations which will track changes in water quality during operation of the marina, providing much needed data to help guide future efforts to abate the terrestrial and marine impacts to the system (Appendix E).

Exposure To Prevailing And Storm Winds And Waves

As noted in the rebuttal letter, several public comments questioned the safety of the suggested location. A detailed wave wind analysis was undertaken by Technomarine USA in 2016 and their wave models conclude that most of the wave energy is refracted towards the surrounding shorelines before reaching Coral Harbor, and the maximum modeled wave heights reaching the south side of the proposed marina are approximately 11 percent of the offshore wave height. They used SWAN (Simulating Waves Nearshore) models to estimate the extreme wind waves that can occur from wind wave growth over the fetch to the southeast of the project site during hurricane events. The report is provided in Appendix D.

Impacts to Virgin Islands National Park (VINP) and Virgin Islands Coral Reef National Monument (VICRNM)

As noted in the rebuttal letter, several federal agencies and members of CBCC and the general public raised concerns about potential negative impacts to VINP and VICRNM. The proposed project is within Coral Harbor which is at the northwest extreme of Coral Bay. The marina site is just under a mile from the Park waters in Hurricane Hole (0.94miles). Coral Harbor, in contrast to most of Coral Bay, which enjoys clear low turbidity waters and vast coral and seagrass resources, has been significantly impacted by man's poor practices. Upland runoff from development and unpaved roads has been well documented and has resulted in significant sediment and nutrient loading in the Coral Harbor's restricted embayment. Large numbers of vessels anchoring and mooring and live-a-boards dumping bilges and waste into the constricted waters has led to the continued degradation of water quality and the loss of seagrass which was once found in abundance within the bay. The proposed marina will be located in this area where impacts have already occurred. Mangroves still line much of the bay and the bay still serves as significant habitat and nursery for a number of fish and invertebrate species. The Applicant is not proposing to remove or alter any mangroves, and as discussed in further detail in the shoreline mitigation plan, is proposing to plant mangroves along the existing riprap and waterfront of the project.

The Applicant is also proposing to minimize construction impacts. As detailed in Section 5 of the Environmental Assessment Report (EAR) previously delivered as part of the application, the construction methods do not include dredging. During the course of the studies and design of the marina, one of the main focuses has been on minimizing the environmental impact on both the benthic environment and on marine water quality. One of the first things that was determined was that no dredging would be undertaken. Much of the sediment in Coral Harbor

is terrigenous in nature having eroded from the surrounding watershed and these sediments are finer than sands and most marine sediments. These very fine sediments would remain in suspension until the fluid velocity is insufficient for turbulent eddies to balance gravitational forces and the particles will settle out, depositing on the seabed (Masselink et al., 2014). Therefore, the marina was sited farther offshore so that no dredging is required.

Increased vessel movements will have the potential of re-suspending shallow sediments. The marina has been designed to keep the largest vessels with the deepest drafts in the deeper areas of the bay and the marina will be enforcing “No Wake” speeds within the marina. The marina will institute a strict no bilge pumping rule and will be providing pump out facilities for vessels both staying in the marina and for any other vessel wishing to pump out. YCSE will also prohibit any maintenance activities or work on vessels within the marina. These regulations will be memorialized in the marina operations manual and included in materials provided to boaters. These activities will help minimize potential impacts from marina operations on the harbor.

The Applicant acknowledges that due to the number of vessels in the marina, it is probable that there will be some increase in turbidity and pollutants introduced into the harbor. In order to help compensate for this impact, YCSE is proposing to assume maintenance of the storm water BMPs which were installed by CBCC in the Coral Bay water shed and will be installing new measures in two drainage ways which currently are introducing sediment and pollutants into the bay during rainfall events. The detail of the maintenance work and new sediment controls are found in Appendix E Mitigation Plans. These mitigation measures should help reduce the terrestrial input of sediments and pollutants and should offset the resuspension of existing seafloor sediments during construction or by vessels later during operation.

The turbidity within Coral Harbor is visible in aerial photographs as early as the 1990's and continues to be evident in aerial photographs up through this year (2017). The extent of the turbid water varies with sea condition, rainfall, and winds. Available aerials from google and NOAA (a sample of which are reproduced below) indicate that even in periods of heavy impact, the visible turbidity does not extend far beyond the narrow constriction into Coral Harbor at Harbor Point. Due to the shape of the embayment and the constricted nature of Coral Harbor and the limited water exchanges which occur, increases in turbidity as a result of the construction of the marina and its later operations should not affect the Park waters because they are almost a mile away from impacted waters as shown on the aerials. If increases were to occur, they would first impact the shallow corals to the southeast of the project only 0.10 miles away or those near Fortsberg, Harbor Point, 0.25 miles away. To monitor this potential impact, the applicant is proposing to monitor both locations as part of ongoing monitoring in association with marina operations.

The biggest potential environmental impact to the Park waters and to Coral Bay as a whole will be the increase in the number of vessels going into Coral Harbor. On the northern side of Coral Bay, Hurricane Hole and a portion of Round Bay enjoy the protection of being in Park waters. The limited development and protections offered by the park have protected these waters from the impacts of development. Hurricane Hole offers a very unique environment with both corals and mangroves in the same habitat, something rarely seen. In St. John, US Virgin Islands, over

30 species of scleractinian corals are growing on and under mangrove prop roots in small bays located along the perimeter of a large bay, Hurricane Hole, within the Virgin Islands Coral Reef National Monument. This has been proposed as a potential refuge for corals with the changes that are being brought on by climate change (Yates, 2014). On a whole, the limited development along the northern arm of St. John has protected the benthic resources in the area. The introduction of the marina will bring more boats through the area, increase the chances of groundings, animal strikes by vessels and potentially increased anchoring and damage to corals and seagrasses if anchors are thrown indiscriminately. Because vessels will be in Coral Harbor, and therefore Coral Bay, guests who would not otherwise venture into the Coral Bay area may choose to explore Hurricane Hole and Round Bay. Greater vessel traffic and higher numbers of visitors swimming, snorkeling and diving can result in seagrass loss and coral damage.

Additional visitors and vessels could exceed the number of moorings and services the park currently has available.

The applicant is proposing to work with the Park Service and other resource agencies to alleviate this increased strain and the potential increase in impacts. The Applicant is proposing the following measures to address impacts:

- 1) The applicant will add a fee to charges levied on each slip which will be dedicated to support of a third party independent research program on vessel strikes to sea turtles and marine mammals similar to the one NOAA is currently funding in St. Croix. Information gleaned from these studies and those in the future may one day help to minimize or alleviate strikes altogether.
- 2) The Applicant is proposing to install two informational buoys on the approach to Coral Bay as a means to help guide boaters and to prevent boaters from venturing into shallow waters and damaging seagrass and corals in park waters and within the National Monument.
- 3) The Applicant is proposing to fund, on an ongoing basis, a part time position within the Park Service for an interpretive park ranger to educate and provide programming for marina guests regarding park resources and visitor practices.
- 4) The Applicant is proposing to work with the Park Service to include a page on the Marina website, developed jointly with the Park Service to educate boaters in advance of visiting the marina about both the resources in the park and the rules and regulations governing activities in park waters.
- 5) The Applicant is proposing to work with the Park Service to develop and deploy a mobile application sharing information about park resources, and means visitors can utilize to protect those resources consistent with park rules and regulations. The goal of this application will be to provide boaters with real time access to park information while they are within park waters.

Economic Impact & Market Study

As noted in the rebuttal letter, many comments and questions relate to the economic impact of the proposed marina. Some comments, including letters from existing businesses in Coral Bay, have suggested that YCSE will cause economic harm to the area. Additional comments questioned the economic feasibility of the marina. **Contrary to the concerns raised, the overall economic impact of the project to the Coral Bay community and the USVI as a whole will be positive.** YCSE will create jobs for local residents, improve available public services and offer opportunities for artisan and food purveyors to sell their goods to marina customers. Likewise, the market study demonstrates that there is unmet demand in both the large yacht market and the local boating market. The developers of YCSE have received 50 unsolicited requests for monthly slips from boaters, and as data summarized in the market study demonstrates, there will be more than enough demand to generate the projected occupancies, which are conservative estimates of future use based on international and regional boat traffic in the USVI and around St. John, in particular, to support a marina with the size and amenities proposed by YCSE. Likewise, when those same projected occupancies are monetized, the project as currently sized is profitable and will be able to meet its ongoing financial obligations, including costs of mitigation. **The economic impact study and market analysis study are included in Appendix G.**

Infrastructure

As noted in the rebuttal letter, several comments questioned the impact of the proposed marina on public infrastructure. The marina is located on a main roadway, Hwy 107, which provides good access from all areas of St. John. The increased activity in the area will increase vehicle traffic to the area. A traffic study was conducted and was presented in the EAR for the project. The study concluded that there will be a minor increase in traffic in the area due to this project but the increase is not expected to overburden the existing road system (Appendix H).

Virgin Island Water and Power Authority (VIWAPA) agreed to provide the necessary power to the facility on June 20, 2012. There is adequate service in the area and VI WAPA is currently looking to increase their power production on St. John through the creation of satellite generation plants and increase the reliability of transmission to St. John by creating a redundant submarine power distribution system to Red Hook landing from which St. John is serviced (Application being submitted to COE July 2017). Documentation of VIWAPA's review and approval of the service request is provided in Appendix H).

The project will use roof catchment and cisterns and in periods of low rainfall they will purchase water from the VI WAPA stand pipe. Developers have also secured an agreement with Caneel Bay Resort to provide up to 90% of the marina's water demand if other sources are unavailable. This will require the trucking of water to the site. Water is already trucked to residences and businesses on the eastern end of St. John. This may result in an increase in delivery trucks utilizing the roads.

YCSE, in order to minimize potential environmental impacts associated with fuel spills created during boat fuel deliveries will also be receiving fuel delivery by truck rather than over sea. This

will also add traffic to the access roadways to the site but will not over burden the existing roadway system.

The Department of Planning and Natural Resource concluded in their Staff Recommendations approving the permit that the project would not pose a significant burden on the public infrastructure. DPNR's staff finding are found in Appendix H.

The St. John Marina will utilize individual WWTP for the different areas of the project and will only use the public wastewater treatment facility for the disposal of waste from the vessel pump outs. A 3000 gallon holding tank is proposed. The tank will be periodically pumped out by private haulers who will take the wastewater to the Mangrove Lagoon Plant in St. Thomas. A permit from VIWMA saying that they can accept this volume is found in Appendix H.

Based on data from similar marina facilities, the expected solid waste generation rate at the marina is 1.5 pounds/slip/day, for a weekly average generation rate of 1,500 pounds of solid waste. Solid waste generation rates from the upland operations, estimated from existing conditions, should average less than 1,500 pounds per week. Solid wastes will be collected daily throughout the marina as necessary and carried by private hauler to the Bovoni Landfill in St. Thomas. The project is projected to create an increase in the solid waste stream of approximately 3000 pounds per week.

There is a waste crisis in the Virgin Islands and the Virgin Islanders are struggling to solve this issue. Plastic bags have been banned and composting operations have begun in St. Croix. VI Waste Management Authority is currently looking at ways to address the solid waste issue. Waste to energy projects have been proposed but have not been well received by the public. VI Waste Management is currently looking into ways to reduce the waste stream and recycle. YCSE will participate in any regulated or voluntary programs which are developed for the disposal of waste. As soon as recycling facilities are available the marina will participate. The marina is not responsible for the waste crisis in the VI nor will the 3000 pounds per week materially impact landfill operations. On the positive side, the marina will be providing waste receiving services from vessels which will help alleviate the disposal of waste in the bay and at sea. A letter from VIWMA stating that they have adequate capacity to accept this volume of waste is found in Appendix H.

Size and Design of Proposed Docking Structure

The rebuttal requests that YCSE's response provide a justification of the proposed size of the marina, evaluate possible project modifications and measures, including reductions in the size or layout of the proposed project and structures, to prevent potential adverse effects on the aquatic resources, and the existing conditions and uses within Coral Bay. The rebuttal letter also requests a discussion of which measures would be implemented to mitigate (i.e., avoid, minimize and compensate) those potential impacts.

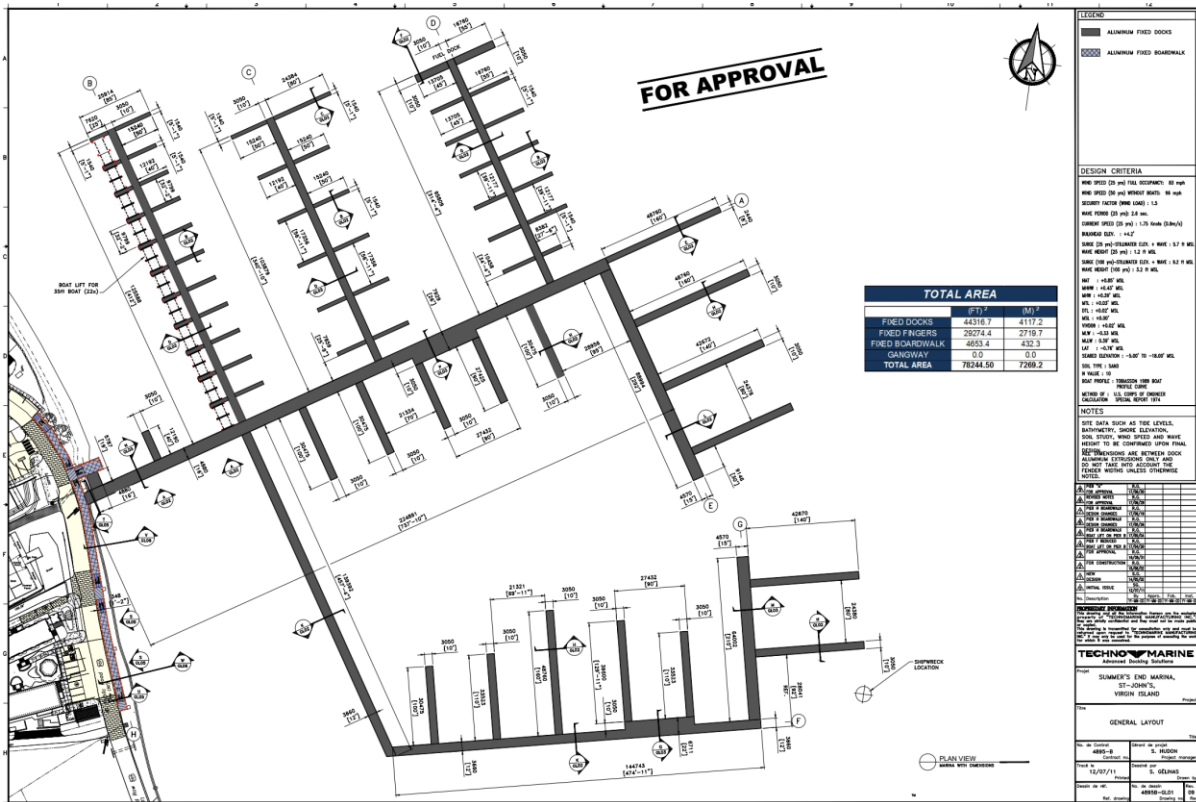
The dock permitted by CZM is 1.7 acres or 74,052sf, the new layout is 73,591.10sq.ft., a reduction of 460.9 sf. This has been accomplished through the narrowing of piers and removal of a finger pier.

The previous marina design directly impacted approximately 2,500 ft² of seagrass due to the placement of approximately 1,333 piles ranging from 12-17" in diameter. Due to wave turbulence, seagrass will also be lost surrounding the piles. The previous dock design occupied 1.7 acres, of which 181 sf would be over areas colonized with seagrass and coral rubble, 1,567 sf located over area of sparse seagrass, 41,546.37 sf would be located over areas with 30%-100% seagrass coverage, 27,072 ft² would be located over areas with 5-30% seagrass and algae coverage and 4,717 ft² would be located over areas with 5% seagrass/algae coverage. The dock would have resulted in a shading impact of 1.42 acres and with the use of the graded decking we assumed an approximate 46% survival rate based on NMFS studies, or stated differently, a 0.85 acre sea turtle foraging habitat loss due to shading (Landry, 2008).

The proposed slip count is now 144 and the dock design has been modified to reduce these impacts. The number of pilings has been reduced to 960 (a 28% reduction), reducing the piling footprints to 1350 sf (there will still be additional seagrass loss due to wave turbulence). However, the piling redesign resulted in a change to the total dock area calculation. The revised dock square footage is 73,591.1 sf or 1.69 acres (dock less on shore boardwalk). Of this 66,021.8 sf, or 1.51 acres has SAV. With a 46% survival rate, there will be a 0.81 acre loss of sea turtle foraging habitat loss due to shading.

	Previous	Current	Reduction
Dock Size	74052sf	73591.1sf	460.9sf
Slips	145	144	1
Pilings	1333	960	376
Direct Impact	2500sf	1350sf	1150sf
Shading	0.85acres	0.81acre	0.04acres

The dock, its associated moorings and navigation ways will occupy approximately 25.8 acres of the approximate 97.164 acres of the inner portion of Coral Harbor or 26.5 % of the entire harbor and 39% of the navigable waters (66 acres) of the harbor.



Proposed 2017 Marina Plan.



CZM Approved 2015 Marina Plan

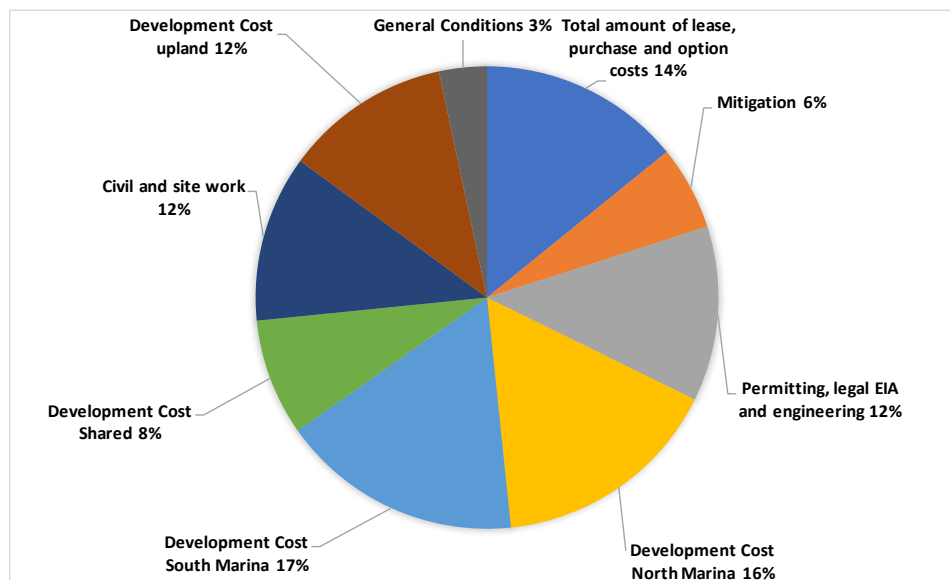
YCSE has retained Marine Management & Consulting, N.V., to prepare a market and financial analysis of the project. That analysis begins with identifying the marine market in the vicinity of St. John, then reviewing the design proposal to see if it properly addresses that market, and finally, reviewing the financial projections necessary to make this project a success. That analysis is attached as **Appendix G**,

St. John is the largest island in the Virgin Islands with no marina services. A majority of the bays are within the National Park, and consequently cannot be used by local boaters for permanent moorings. No dockage is available for local boats anywhere on St. John.

The estimated total project cost is \$43.4 Million with approximately \$5 million going for upland development, leaving some \$38 million for the marina. By industry standards this is in the upper range, for a 144 slip marina. There are several reasons:

- The docks are designed to allow sunlight to pass through, to minimize shading effects. This required a special aluminum grate type structure, supported by concrete piles.
- The location is expensive, with little construction infrastructure. St John does not have a significant cargo port, and uses small barges and landing craft to move supplies to the island.
- A large amount of mitigation is involved, both within the lease area, and outside, to deal with cleaning up many years of not having a managed marina.
- Proximity to a national park and sensitive eco-systems requires thorough engineering, planning and studies.

TOTAL DEVELOPMENT BUDGET		
Total amount of lease, purchase and option costs 14%	\$ 6,148,319	14%
Mitigation 6%	\$ 2,552,243	6%
Permitting, legal EIA and engineering 12%	\$ 5,316,597	12%
Development Cost North Marina 16%	\$ 6,982,459	16%
Development Cost South Marina 17%	\$ 7,335,915	17%
Development Cost Shared 8%	\$ 3,544,275	8%
Civil and site work 12%	\$ 5,063,205	12%
Development Cost upland 12%	\$ 5,039,088	12%
General Conditions 3%	\$ 1,449,843	3%
TOTAL	\$ 43,431,944	100%



The market driven design has accounted for the higher than average development costs, while addressing the problem that St John does not have a marina.

Using AIS arrival data, together Google Earth inventory of vessels moored and anchored around St John, there are typically between 200 and 300 vessels in the area. Weather conditions and seasonal demand can influence the number of vessels that St John can accommodate, as some of the bays are not that well protected from ocean swells.

Larger yachts can only anchor in very limited areas, with the upper size limit of 202 feet. The National Park Service maintains 189 moorings for <60 feet, and an additional 11 for vessels 60 to 100 feet. A further restriction is a limit on no more than three nights in one location, and 30 nights in one year.

The Google Earth count of 300 vessels was on Feb 5, 2017, and reflects the capacity of the island, which is two months before the actual peak of the season.

YCSE designed the St. John Marina to provide dockage for local boats and for transiting boats. Because the siting plan keeps the vessels in deeper water, in significant part for environmental reasons, the construction costs are higher per usable dock footage. In order to make the north portion of the marina more affordable, the southern portion which will host the larger mega-yachts must provide sufficient revenues. In addition, the south portion of the marina will accommodate vessels which at the present time can only stop at St. John by anchoring out. Finally, the marina will provide services not presently available on St. John (waste disposal, wastewater pump outs, fresh water refills, fuel services, etc.).

The overall size of the marina must be carefully considered. A marina has continuous expense once opened for business, with full time staff, utilities, mitigation projects, office expenses and 24/7 facility security. These expenses are incurred regardless of the time of year or occupancy

level. In addition, there are variable expenses that track with the amount of occupancy of the marina. In addition, the marina operation must retire the debt that capitalized the development and set aside adequate reserves of cash, in case of catastrophe or sudden economic turndown, so that the marina will survive economically.

A critical size or mass must be established, such that the marina will achieve economic self-sufficiency. The point where that operation has revenue that is equal to all expenses, including debt repayment and establishing cash reserves, is called the breakeven point.

It is well established that most small businesses should achieve breakeven within three to four years. Before this is achieved, the business will be losing money, and need cash infusions. This is usually planned in the financing, such, that once the breakeven is passed, the positive profits will pay back the losses. If the operation is undersized, then it will be unable to set aside reserves, accrue too many ongoing losses, and be very vulnerable to small market changes.

In designing this project, both physically and economically, the 144 slip mix of small slips and large mega yacht slips, was considered to be the critical mass for this location and market.

The models run tested not only the existing design, but also several alternate scenarios. The conclusion of those models is that any reduction of the size of the marina impairs the financial viability of the project. Most significantly, it substantially increases the losses in the first several years, and it pushes the break-even point out into the future to an extent that capital funding may simply not be available at reasonable rates.

For comparison, below are models which show the projected costs and revenues for the project as currently designed (with 144 slips), with an eleven percent reduction in slips (128 slips), and a twenty percent reduction (115 slips).

BREAKEVEN ANALYSIS 144 SLIPS

MARINA NORTH AND SOUTH

AMOUNTS SHOWN IN U.S. DOLLARS

SALES YEAR 1

BERTH REVENUE TOTAL NORTH	\$3,221,070
FUEL SALES COMMISSIONS NORTH	\$441,189
ELECTRIC SALES COMMISSIONS NORTH	\$159,794
WATER SALES COMMISSIONS NORTH	\$84,318
OTHER REVENUE	\$31,566
TOTAL NORTH SALES	\$3,937,938

BERTH REVENUE TOTAL SOUTH	\$2,749,757
FUEL SALES COMMISSIONS SOUTH	\$1,489,932
ELECTRIC SALES COMMISSIONS SOUTH	\$283,303
WATER SALES COMMISSIONS SOUTH	\$335,843
OTHER REVENUE	\$26,948
TOTAL SOUTH SALES	\$4,885,782

UPLAND REVENUE	\$385,800
TOTAL ALL SALES	\$9,209,519

VARIABLE COSTS

MANAGEMENT FEES	\$460,476
GROSS RECEIPTS TAX	\$460,476
ADMIN / SEC / ENVIRO on DOCK 9%	\$537,374
TOTAL VARIABLE COSTS	\$1,458,326

FIXED COSTS PER PERIOD

EMPLOYEE COMPENSATION	\$915,757
LAND LEASES	\$359,692
INSURANCE	\$106,818
UTILITIES	\$260,550
MITIGATION	\$213,000
MAINTENANCE	\$70,121
ADMINISTRATION	\$586,396
BANK FEES	\$554,189
DEBT SERVICE	\$3,288,791
RESERVE	\$2,460,000
TOTAL FIXED COSTS	\$8,815,312

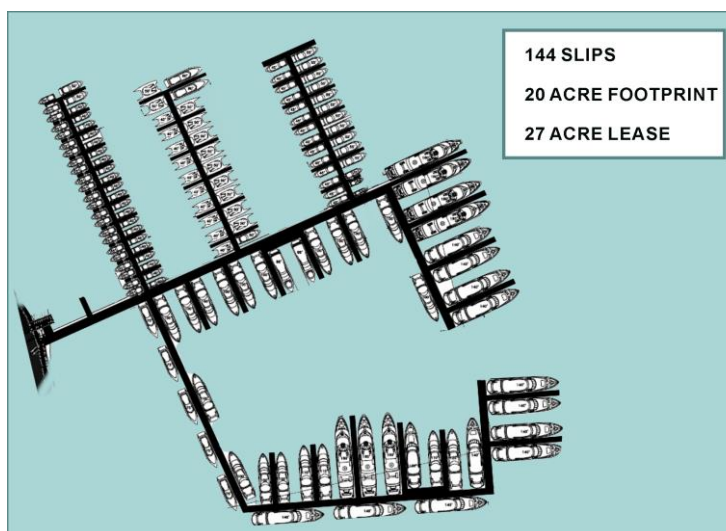
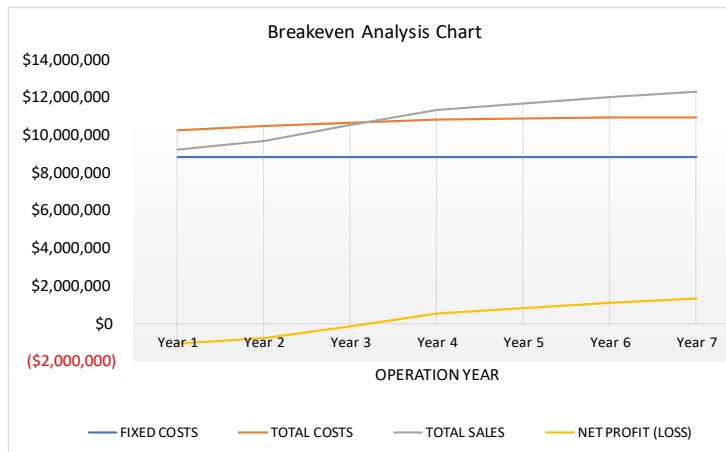
NET PROFIT (LOSS) (\$1,064,119)

INITIAL CAPITAL COST
\$43,431,944

RESULTS

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
FIXED COSTS	\$8,815,312	\$8,815,312	\$8,815,312	\$8,815,312	\$8,815,312	\$8,815,312	\$8,815,312
VARIABLE COSTS	\$1,458,326	\$1,537,487	\$1,666,195	\$1,796,144	\$1,848,062	\$1,901,058	\$1,945,297
ADDITIONAL INTEREST LOSS DEBT		\$113,989	\$194,733	\$210,109	\$210,109	\$210,109	\$210,109
TOTAL COSTS	\$10,273,639	\$10,466,788	\$10,676,239	\$10,821,565	\$10,873,483	\$10,926,479	\$10,970,718
TOTAL SALES	\$9,219,900	\$9,720,374	\$10,534,094	\$11,355,666	\$11,683,902	\$12,018,957	\$12,298,647
NET PROFIT (LOSS)	(\$1,053,739)	(\$746,414)	(\$142,146)	\$534,100	\$810,419	\$1,092,478	\$1,327,928

Accrued Profits Losses \$1,822,626
 Accrued Cash Reserve \$17,220,000



ANNUAL SALES , COSTS AND PROFIT

BREAKEVEN ANALYSIS 128 SLIPS, 11% Slip reduction

MARINA NORTH AND SOUTH

AMOUNTS SHOWN IN U.S. DOLLARS

SALES YEAR 1

BERTH REVENUE TOTAL NORTH	\$2,955,204
FUEL SALES COMMISSIONS NORTH	\$426,096
ELECTRIC SALES COMMISSIONS NORTH	\$151,811
WATER SALES COMMISSIONS NORTH	\$80,798
OTHER REVENUE	\$28,961
TOTAL NORTH SALES	\$3,642,871

BERTH REVENUE TOTAL SOUTH	\$2,157,077
FUEL SALES COMMISSIONS SOUTH	\$1,191,625
ELECTRIC SALES COMMISSIONS SOUTH	\$229,040
WATER SALES COMMISSIONS SOUTH	\$273,630
OTHER REVENUE	\$21,139
TOTAL SOUTH SALES	\$3,872,512

UPLAND REVENUE	\$385,800
TOTAL ALL SALES	\$7,901,183

VARIABLE COSTS

MANAGEMENT FEES	\$395,059
GROSS RECEIPTS TAX	\$395,059
ADMIN / SEC / ENVIRO on DOCK 9%	\$460,105
TOTAL VARIABLE COSTS	\$1,250,224

FIXED COSTS PER PERIOD

EMPLOYEE COMPENSATION	\$915,757
LAND LEASES	\$359,692
INSURANCE	\$90,526
UTILITIES	\$222,953
MITIGATION	\$213,000
MAINTENANCE	\$63,855
ADMINISTRATION	\$498,671
BANK FEES	\$466,464
DEBT SERVICE	\$3,133,113
RESERVE	\$1,975,619
TOTAL FIXED COSTS	\$7,939,651

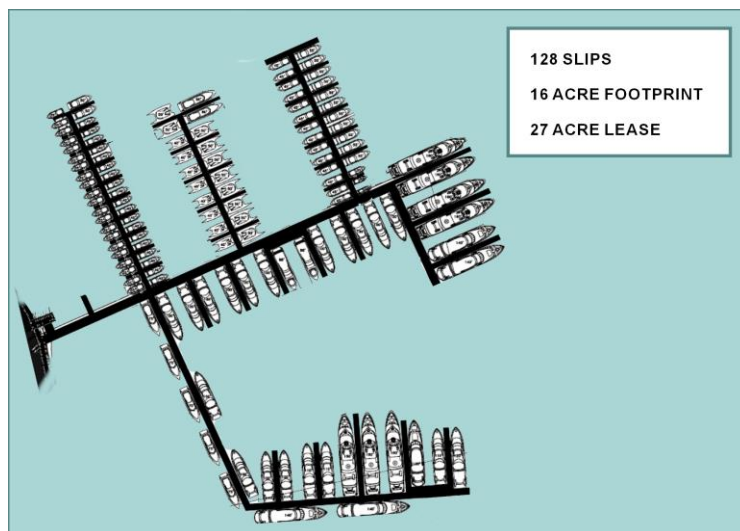
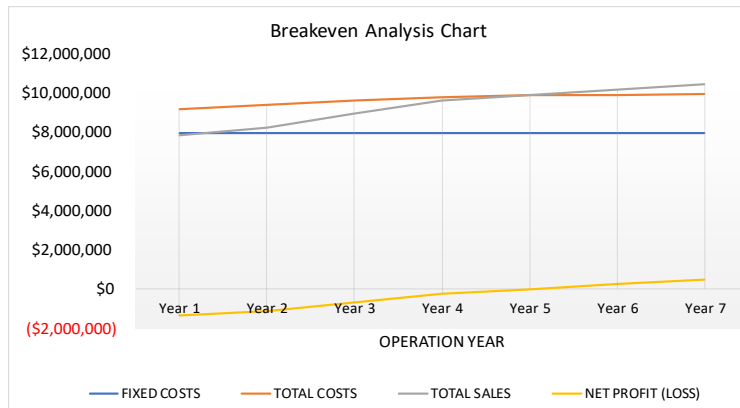
NET PROFIT (LOSS)

(\$1,288,692)

INITIAL CAPITAL COST

\$41,376,060

RESULTS



ANNUAL SALES, COSTS AND PROFIT

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
FIXED COSTS	\$7,939,651	\$7,939,651	\$7,939,651	\$7,939,651	\$7,939,651	\$7,939,651	\$7,939,651
VARIABLE COSTS	\$1,250,224	\$1,317,119	\$1,424,791	\$1,532,387	\$1,577,977	\$1,624,517	\$1,662,858
ADDITIONAL INTEREST LOSS DEBT		\$145,586	\$268,755	\$343,818	\$365,614	\$365,614	\$365,614
TOTAL COSTS	\$9,189,875	\$9,402,356	\$9,633,197	\$9,815,856	\$9,883,242	\$9,929,782	\$9,968,123
TOTAL SALES	\$7,844,045	\$8,263,751	\$8,939,298	\$9,614,370	\$9,900,405	\$10,192,406	\$10,432,958
NET PROFIT (LOSS)	(\$1,345,830)	(\$1,138,605)	(\$693,899)	(\$201,486)	\$17,163	\$262,624	\$464,836

Accrued Profits **Losses (\$2,635,197)**

Accrued Cash Reserve \$13,829,336

BREAKEVEN ANALYSIS 115 SLIPS, 20% Slip reduction

MARINA NORTH AND SOUTH

AMOUNTS SHOWN IN U.S. DOLLARS

SALES YEAR 1

BERTH REVENUE TOTAL NORTH	\$2,515,489
FUEL SALES COMMISSIONS NORTH	\$369,949
ELECTRIC SALES COMMISSIONS NORTH	\$129,931
WATER SALES COMMISSIONS NORTH	\$68,953
OTHER REVENUE	\$24,652
TOTAL NORTH SALES	\$3,108,974

BERTH REVENUE TOTAL SOUTH	\$2,243,298
FUEL SALES COMMISSIONS SOUTH	\$1,226,868
ELECTRIC SALES COMMISSIONS SOUTH	\$235,451
WATER SALES COMMISSIONS SOUTH	\$280,980
OTHER REVENUE	\$21,984
TOTAL SOUTH SALES	\$4,008,581

UPLAND REVENUE	\$385,800
TOTAL ALL SALES	\$7,503,355

VARIABLE COSTS

MANAGEMENT FEES	\$375,168
GROSS RECEIPTS TAX	\$375,168
ADMIN / SEC / ENVIRO on DOCK 9%	\$428,291
TOTAL VARIABLE COSTS	\$1,178,626

FIXED COSTS PER PERIOD

EMPLOYEE COMPENSATION	\$915,757
LAND LEASES	\$359,692
INSURANCE	\$88,034
UTILITIES	\$217,202
MITIGATION	\$213,000
MAINTENANCE	\$62,896
ADMINISTRATION	\$485,253
BANK FEES	\$453,046
DEBT SERVICE	\$3,073,370
RESERVE	\$1,948,777
TOTAL FIXED COSTS	\$7,817,027

NET PROFIT (LOSS) **(\$1,492,298)**

INITIAL CAPITAL COST

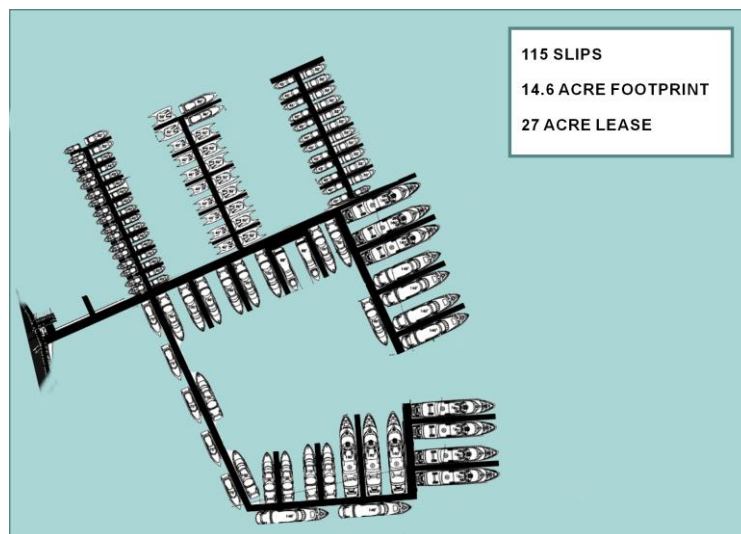
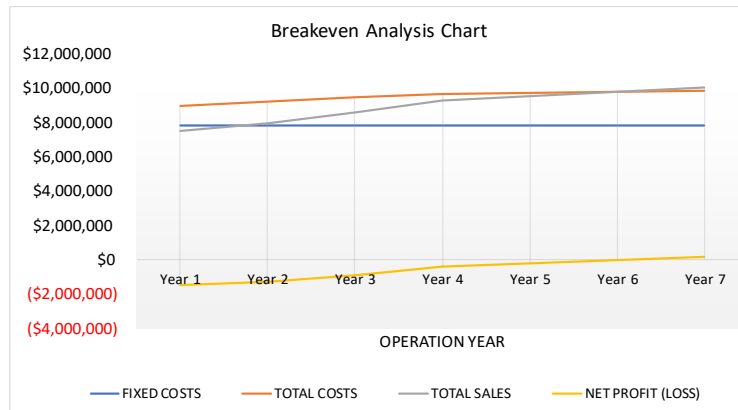
\$40,587,085

RESULTS

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
FIXED COSTS	\$7,817,027	\$7,817,027	\$7,817,027	\$7,817,027	\$7,817,027	\$7,817,027	\$7,817,027
VARIABLE COSTS	\$1,178,626	\$1,242,427	\$1,346,083	\$1,451,102	\$1,492,883	\$1,535,542	\$1,571,503
ADDITIONAL INTEREST LOSS DEBT		\$159,274	\$298,626	\$392,691	\$435,777	\$459,194	\$460,302
TOTAL COSTS	\$8,995,653	\$9,218,728	\$9,461,736	\$9,660,819	\$9,745,686	\$9,811,763	\$9,848,832
TOTAL SALES	\$7,523,285	\$7,930,529	\$8,592,178	\$9,262,522	\$9,529,214	\$9,801,514	\$10,031,056
NET PROFIT (LOSS)	(\$1,472,369)	(\$1,288,199)	(\$869,558)	(\$398,297)	(\$216,473)	(\$10,249)	\$182,224

Accrued Profits Losses **(\$4,072,920)**

Accrued Cash Reserve \$13,641,441



ANNUAL SALES , COSTS AND PROFIT

A reduction in size not only pushes the date at which the project would reach the “break even” point further into the future, but also increases the accrued losses up until that date. Those accrued losses would have to be financed and included in the upfront costs of the project. A reduction in size also increases the costs to local boaters, who would have to make up a portion

of the shortfall. Such an increase would be a substantial burden on St. John residents who already face many higher costs. A reduction in the marina size would also affect the employment opportunities, as the megayacht portion demands higher service levels, and affords the possibility of greater off-site revenues for the community.

Research indicates that in her first year of operation the Yacht Club at Summer's End will reach occupancy of 66% by non-seasonal users with boats up to 75', and 31% by seasonal guests whose yachts exceed 75', not including the facilities' 12 moorings. Painstaking effort has been spent to follow best use practices in the evaluation of the St. John market resulting in the proposed design of the St. John marina that best serve this ideal. The result is a combined marina project that maximizes the consideration for the environment, the recreational boating market and the people of St. John.

We should note at this point, that the Moravian Church/T-Rex has also conducted a market analysis for its own marina proposal, and it has reached the conclusion that there is sufficient demand for the full YCSE proposal *and* their own marina.

Support for this response is found in the agency responses, Market Analysis, Economic Impact Analysis and The Truth About Coral Bay video.

Impacts To Seagrass And Benthic Habitats

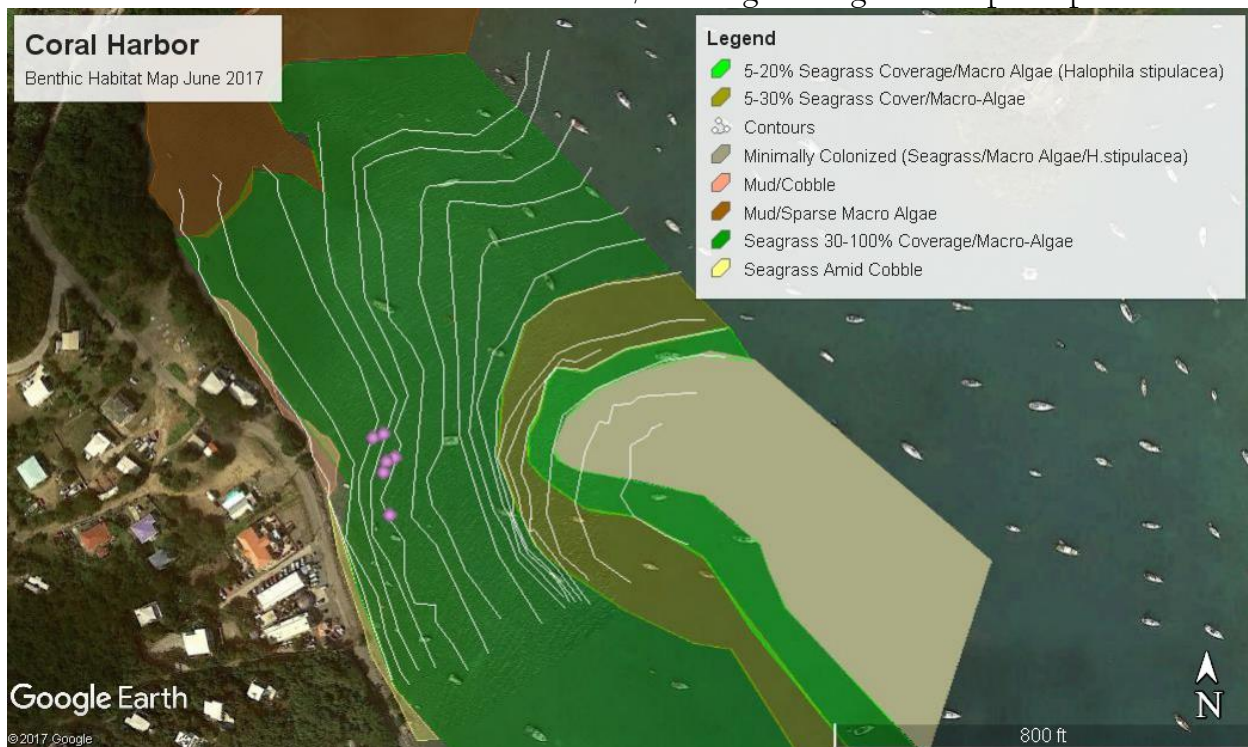
In addition to the seagrass survey information provided in the initial application, the site was resurveyed in 2015, 2016 and most recently in May and June of 2017. Transects previously undertaken were revisited. The entire site marina location, buoy locations and potential construction foot print and transit routes were surveyed. The changes noted included the appearance of *Halophila stipulacea* in the deepest areas with primarily macro-algal cover, regrowth in some areas where there were previously scars in seagrass beds from anchor and rope drags and new areas had been disturbed by anchor and rope drags. The benthic map prepared in 2014 still accurately depicts the abundance and distribution of species. North of the culvert, there is a narrow muddy band of uncolonized sand which varies in width between 10 ft. and 25 ft. along the shoreline and then *Syringodium filiforme* beds which grade into abundant *Thalassia testudinum*. The seagrass beds are dense and continuous offshore with occasional blow outs which have been predominantly caused by debris, anchoring, or poor mooring practices. To the south of the existing stormwater culvert, there is riprap revetment along the shoreline and there are cobble amid the seagrass at a distance of 10 ft.– 25 ft. from shore. *Thalassia* dominates the grass beds all the way into shore on the southern side of the property. These beds are extremely dense only broken by debris and anchor scars. There are six relatively large coral heads, *Solenastrea bournoni*, found offshore of the discharge point - all were found and are still healthy as of 2017. Small *Siderastrea radians* colonies found on scattered debris and cobbles in the area.

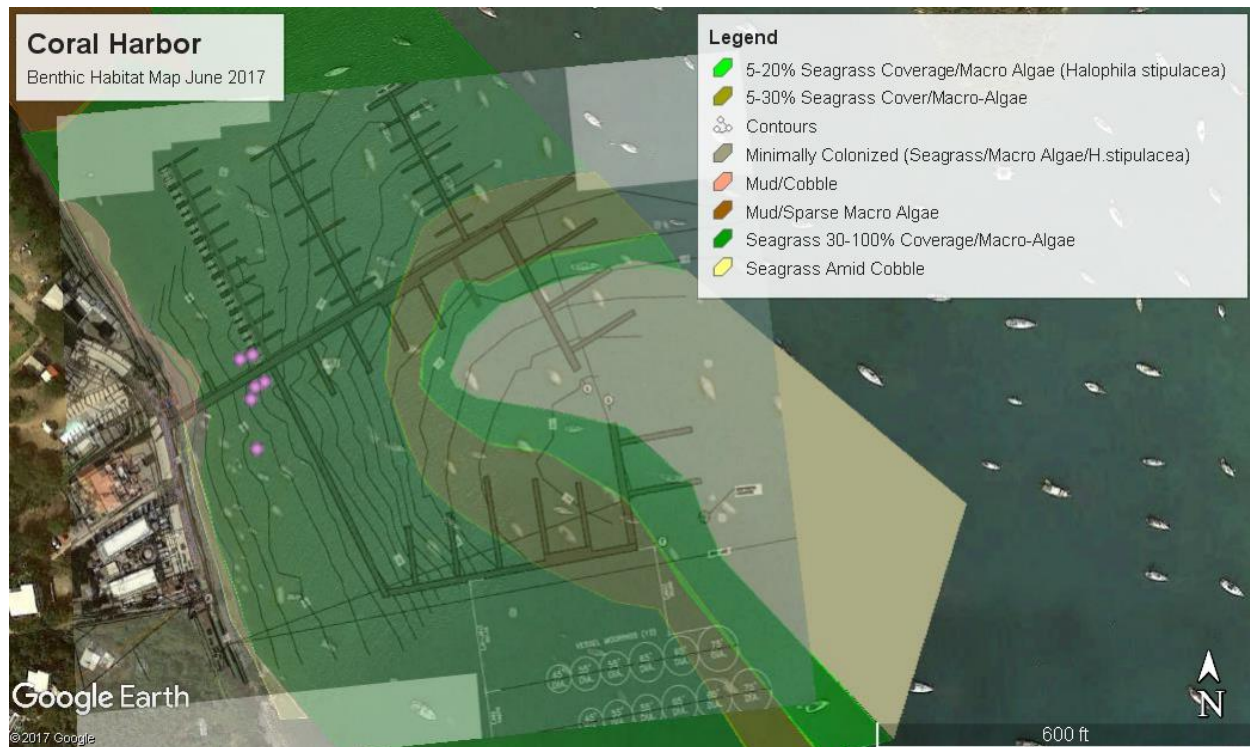
The seagrass densities between depths of 1 ft. and 11 ft. range from 30-100%. The lower densities are found primarily in areas that are recolonizing from previous disturbances. *Thalassia* represents 80% of the grass and *Syringodium* approximately 20%. *Halodule beaudettei* is present in areas of regrowth. As depth increases, seagrass densities decrease and *Syringodium* becomes more

abundant and represents a greater percentage of the seagrass present. At a depth of 11 ft. to 13 ft., the seagrass densities fall to 5% to 30% and at a depth of 13 ft. to 14 ft. the seagrass densities are no greater than 5% and macroalgae is the dominant colonizer. At 15 ft. of depth there is only an occasional *Thalassia* shoot, and macroalgae is the dominant colonizer and has colonized between 10% and 70% of the seafloor. *Halimeda* is the most common algae present. *Halophila stipulacea* is patchily abundant amid the algae. Also found are *Caulerpa*, *Udotea*, *Avrainvillea*, *Penicillus capitatus*, *Laurencia*, *Hypnea* and *Dictyota*. At a depth of greater 16-19ft. the macroalgae density decreases and only several small patches of *H. stipulacea* were present. The system is light limited at this depth. Beyond the inner harbor (Coral Harbor), dense seagrass is present in depths exceeding 25ft where there has been less human caused sedimentation and the water is clearer.



100% coverage of seagrass at depths up to 10ft.





Type	Habitat	Number	Acres	Sq. ft.
Moorings	30-100% Coverage Seagrass	9 (8 +0.5,0.5)		
Moorings	5-30% Coverage Seagrass	3 (1.5 + 1.5)		
	Total	12		
Docks			1.69	73,591.10
	Riprap (above MHW)		0.01	235.00
	Docks Less Above MHW		1.68	73,356.10
	Mud/Cobble		0.02	762.20
	30-100% Coverage Seagrass		0.90	39,258.18
	5-30% Coverage Seagrass		0.48	20,927.41
	5-20% Coverage Seagrass Macro-Algae		0.13	5,836.21
	Minimally Colonized		0.15	6,572.10
	Total		1.68	73,356.10

A total of 39,258.18sf of docks are over areas with SAV, the majority of which has densities between 20 and 100%. Based on a 46% survival due to shading since the Applicant is using grated decking, 21,199.42sf (0.487ac) of seagrass may be lost. At the maximum capacity and at the maximum size boat in each slip there will be 5.65 acres of shading due to vessels. It can be

assumed that 50% of this will be lost due to vessels being in placed more than 2 weeks at a time. There will be some survival due to angle of the sun and vessel types and some available light. There will be impacts due to spudding impact during construction which will probably account for between a 900-1020 sf of impact (6sf per spudding event and between 150 and 170 relocations. The operation of the marina will have an impact due to prop wash scour and you can assume another 10% loss. In total approximately 3.75 acres of seagrass will probably be lost as a result of the project.

In order to reduce potential impacts barges will not be used to deliver fuel. All seagrasses within the piling footprints will be transplanted. Boat lifts will be utilized in the shallowest slips to reduce shading impacts. BMPs within the Coral Harbor watershed will be maintained to improve water quality. Derelict and sunken vessels will be removed to allow recolonization by seagrasses. The mitigation plans to offset and compensate for these impacts are found in Appendix E.

A total of 1350sf. of seagrass will be impacted directly due to pile driving and due to shading, construction activities, and prop wash and scour from vessels using the marina it is probable that as much as 3.75 acres of seagrass will be lost. Every effort has been made to avoid impacts where possible. Impacts have been minimized through the reduction of the number piles, use of grated decking, placement of boat lifts in the shallowest slips where seagrass is the densest. No wake speeds will be required and enforced within the marina to minimize scour by engines, and bow thrusters.

YCSE is proposing a seagrass mitigation plan which includes the transplant of seagrass from the pilings and potential turbulence loss footprints into an uncolonized area in the northwestern corner of the bay. YCSE will also be completing the cleanup of derelict vessels and associated debris allow for the recolonization of seagrass into areas which were previously impacted. YCSE will also be implementing a maintenance plan for the storm water mitigation devices which were previously installed with funding from EPA and NOAA but have not been maintained (Also see Section 2 above and the response to EPA in Appendix C). YCSE will also be undertaking a long-term monitoring plan which will monitor water quality as well as the closest ESA corals species and the seagrass to the east of the project site to look for impacts. YCSE will also be installing 5 informational buoys, one to protect the transplant site and four to protect shallow seagrass and reef sites in the vicinity of the approach to Coral Harbor to help prevent future groundings and impacts to corals and seagrasses. YCSE will be providing information materials on their website and on a mobile application designed especially for Coral Bay, which will provide detailed National Park rules, regulations and procedures and will discuss the importance of not anchoring in seagrass beds or on coral resources. YCSE will be providing on-going funding to for a third-party study and sea turtle strikes and how to avoid them and will be planting a mangrove fringe along the shoreline of their property to restore the fringe which was removed years ago.

1. The rebuttal letter questioned the manner in which existing mooring buoys and moored boats would be relocated. There are currently 27 vessels anchored or moored within the footprint of the St. John Marina footprint, the majority of which are not on legal

moorings. The Department of Planning and Natural Resources has indicated that they will assist in the removal of the unauthorized vessels and will assist in identifying new locations for the legal vessels and permitting the relocation. YCSE will pay for the relocation of the mooring, including the placement of a new mooring in and removal of the old mooring tackle and any debris associated with the vessel. All new moorings will be properly installed helix anchor systems which will be installed so no chains or ropes drag the bottom, reducing the impacts the existing moorings have on the seagrass.

2. The rebuttal letter requested the applicant address impacts to navigation and recreational uses of Coral Harbor. There is an established channel leading in to Coral Bay and it is currently marked with green and red buoys. YCSE proposes to place new markers, properly anchored to avoid benthic impact, to facilitate easy entrance into the harbor. The marina and its navigation ways are outside the traditional unmarked channel within Coral Harbor. The marina and vessels maneuvering around its docks should not impact vessels navigating to other areas within Coral Harbor.

There are currently 27 vessels scattered throughout the project area. As a result it is not used as a sailing area by KATS. KATS vessels are occasionally seen sailing just outside Coral Harbor and within several locations in Coral Bay, but not within the project footprint. YCSE will be notifying vessels transiting to and from the marina to be aware of the program and to be on the lookout for novice sailors. YCSE will also post information on their website as well as on the mobile application to educate boaters visiting Coral Bay (discussed in Appendix C).

3. The rebuttal letter requested the applicant respond to questions and concerns raised by CBCC and others regarding potential impacts to water circulation and movement of aquatic species due to the marina design.

Since the applicant's initial application was submitted, the number of piles has been reduced from 1333 to 960, a 28% reduction.

Water movement in Coral Bay is sluggish with the circulation being both tidal and wind driven. Current measurements were made in the project footprint over the last 2 years and the studies show a sluggish exchange affected by tidal range (during spring and neap tides) and when strong consistent winds push water into the bay from the southeast. Circulation decreases to the north and this was also reported in Sirius Marina's EAR studies which showed the southern portion of the harbor (YCSE site) as well agitated (sic) (mixed). Currents were primary tidally influenced and influenced by the wind. The highest current recorded was 0.6ft/sec but the average was less than 0.3ft/sec.

As the cross-sectional drawings depict the pile bents are more than eleven feet apart and the pilings represent a cross sectional footprint of approximately 8.3% of the cross-sectional area. Due to the slow circulation, the presence of the round pilings will not create significant turbulence and there will be limited localized increases in velocity as the water mass moves around the obstructions. Due to the constricted nature of the

entrance to the bay there will be a head pressure pushed by the tide into and out of the bay and at times by the wind into the bay. The pilings which are primarily lined in a perpendicular direction to the noted current patterns may result in a negligible decrease in flow in the footprint of the marina. Where the docks are parallel to the direction of flow this may decrease marginally, but will result in an increase of flow around the marina as the same volume of water will still move in and out of the bay due to tidal action.

Many of the species which come into Coral Harbor do so to move into the shallows around the mangrove roots for protection and forage. The presence of pilings which will occupy approximately 8.3% in an area of 23% (docks less mooring field) of the bay should not result in the change of habitat of any of the fish species which use the area.

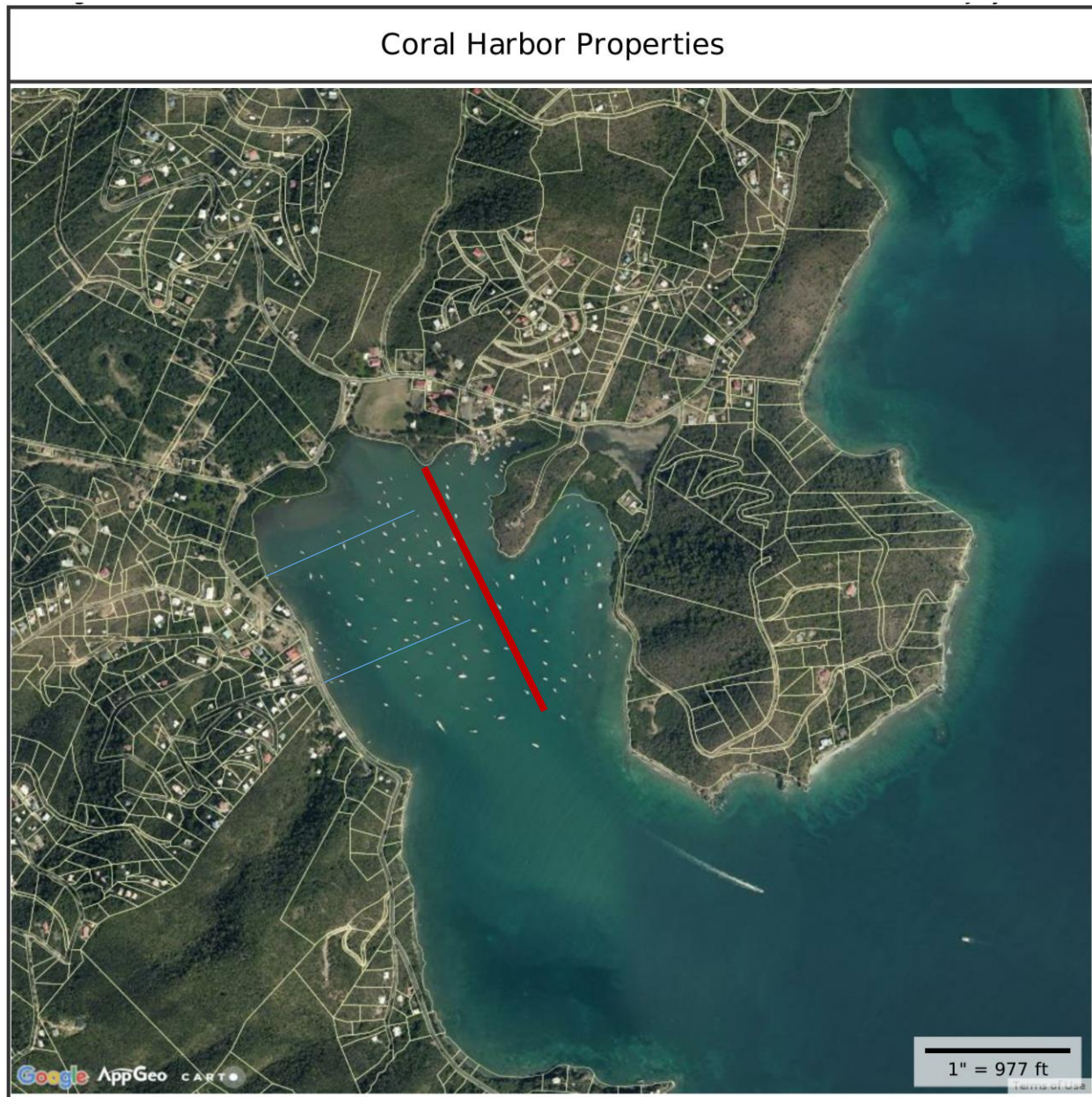
Property Ownership and Littoral Rights

The littoral rights issue was addressed both by CZM and the Board of Land Use Appeals and both were satisfied that the project did not impinge on the riparian rights of others, specifically Moravian Church and T-Rex. Attorney John Benham, addressed this issue (the response is provided in Appendix J).

“The ownership of littoral property incorporates numerous legal components incidental to such ownership, including;

- the right of unobstructed access to the water across the full frontage of his land;
- the right of access to the navigable portion of the water body, or deep water, and
- the right, subject to reasonable restrictions, to pier out to reach deep or navigable water.

Below is the aerial of the private property ownership within the area. The channel location has been marked and the marina should have no impact on properties on the far side of the channel since any dock permitted would not be allowed to extend beyond an established channel. Those property owners will continue to exercise their rights to have unobstructed access across the full frontage of their land, and will have access to the navigable channel.



The marina docks have been laid out so that it lies within the property boundaries of the property under Summers Ends Group, LLC control and does not extend beyond the existing channel (see diagram from Benham's response below. Please note the marina has been redesigned but docks do not exceed this footprint).



The other properties to the north of the project have unrestricted access to the water and all can reach water of sufficient depth to dock or moor a vessel.

Ambient And Underwater Noise

The rebuttal requested a response concerning project impacts on ambient and underwater noise. The project engineers have determined based on upland investigation and a review of the geology of the area that they will be able to use a vibratory hammer to set the piles, however it is probable that an impact hammer will be required to set the piles. In order to minimize acoustic impacts to species during any driving activities, bubble curtains will be installed and sea turtle and marine mammal monitoring will be implemented (Appendix F). It is estimated that each pile will require 200 strikes with the impact hammer and that 5 to 6 piles should be driven per day. This would result in 1000 to 1200 strikes a day. Pile driving should take no more than 192 days.

US Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration's (NOAA's) National Marine Fisheries Service (NMFS), have developed threshold values, values that elicit some response from a target species, for making effect determinations for Endangered Species Act (ESA) listed species as follows:

- Detectability threshold (where the noise is detectable, but reactions are not observable).
- Alert and disturbance threshold (alert is where the noise has been identified by the target species, interest is shown; disturbance is where the target species shows avoidance of the noise by hiding, moving, or postponing feeding).
- Harassment/injury threshold (where the target species is actually injured).

NMFS's current thresholds for impulse noises (ex. impact pile driving) and non-impulse noises (ex. vibratory pile driving, dredging, etc.) for marine mammals are listed in the table below.

Criterion	Criterion Definition	Threshold
Level A	PTS (injury) conservatively based on TTS	190 dB_{rms} for pinnipeds 180 dB_{rms} for cetaceans
Level B	Behavioral disruption for <u>impulsive</u> noise (e.g., impact pile driving)	160 dB_{rms}
Level B	Behavioral disruption for <u>non-pulse</u> noise (e.g., vibratory pile driving, drilling)	120* dB_{rms}
All decibels referenced to 1 micro Pascal (re: 1μPa). Note all thresholds are based off root mean square (rms) levels. * The 120 dB threshold may be slightly adjusted if background noise levels are at or above this level.		

Based on recommendations of the Fisheries Hydroacoustic Work Group (FHWG) in June of 2008, the current sound thresholds from impulse noises (such as pile driving) that cause injury to fish are:

- 206 dBPEAK

- 187 dB cSEL for fish > 2 grams
- 183 dB cSEL for fish < 2 grams
- The threshold for behavioral impacts for all fish is 150 dBRMS (FHWG 2008).

The designation cSEL indicates the “sound exposure level in octave C”. The in-water sound energy from pile driving occurs at lower frequencies between 100 Hz and 1 kHz. Typical sound levels from a single strike on a pile or hammer can range from 208 dBPEAK to 220 dBPEAK (Reyff 2003). The in-water sound is affected by hammer equipment and material (steel), the size of the hammer, the geotechnical conditions (e.g. driving resistances), and the water depth. This level is within the range of NOAA’s predicted injury to whales and dolphins and injury to fish. If an attenuation system is used (e.g. bubble curtains or similar performing system), the in-water sounds produced by the hammer may be reduced.

Pile driving is required in order to set the piles and it will create a significant vibration of the area. Bubble curtains will be installed around all pile driving.

Proposed Minimization Methods

The following measures will be implemented to minimize impacts to protected species of sea turtles, marine mammals and other marine organisms.

In order to minimize impacts on sea turtles and marine mammals a 500-meter protection zone will be established during pile driving.

Trained observers will be used to visually monitor the 500-meter safety zone for at least 30 minutes prior to beginning all noise creating in-water activities.

If at any time a sea turtle or marine mammal is observed in the safety zone the operation will be shut down until the animal has left the safety zone of its own volition.

Each time a pile driving hammer is started, dry-firing or ramping-up of the hammer will be conducted for at least 30 minutes to allow animals the opportunity to leave the area. Dry firing of a pile-driving hammer is a method of raising and dropping the hammer with no compression of the pistons, producing a lower-intensity sound than the full power of the hammer. Ramp-up involves slowly increasing the power of the hammer and noise produced over the ramp-up period. If bubble curtains will also be turned on at this time.

Observations for protected species will occur a throughout the day on all days when pile driving work is occurring to maintain watch for animals in the area. If at any time an animal is observed in the safety zone during the noise creating in-water activity, work shall cease until the animal has left the area of its own volition, or coordination with a DPNR representative has occurred, if the animal is injured. As part of the monitors’ job they will insure that all activities comply with NMFS’s Sea Turtle and Smalltooth Sawfish Construction Conditions during all in-water work and that expanded safety zone monitoring is undertaken during pile-driving. NMFS’s Sea

Turtle and Smalltooth Sawfish Construction Conditions are attached herewith and are a part of the monitoring requirements (Appendix E).

Prior to the start of construction, a meeting will be held with all construction personal and these conditions will be explained and that there are civil and criminal penalties for harming, harassing, or killing sea turtles or smalltooth sawfish, which are protected under the Endangered Species Act of 1973.

Records will be maintained of all sea turtle and marine mammal sightings in the area. This data will include; date and time, weather conditions, species identification if possible, approximate distance from the project area, direction and heading in relation to the project area, and behavioral observations. When animals are observed in the safety zone, additional information and corrective actions taken such as a shutdown of pile driving equipment, duration of the shutdown, behavior of the animal, and time spent in the safety zone will also be recorded. Reports will be provided to NMFS, COE, and CZM on a monthly basis.

There will also be acoustic impacts due to vessels transiting into and out of the marina. This will be an increase over the existing ambient noise levels in the harbor. Sound measurements were taken in Coral Bay utilizing a Sparton hydrophone. Reading varied over 6 months between 78dB and 112dB when a vessel was entering the harbor. It is probable that the noise level will increase to 113 dB (commercial and recreational traffic) as predicted in the study conducted by Andrew et al. 2002, McDonald et al. 2006. This is below the levels identified by NMFS as high enough to cause harm for species or behavioral disturbance.

Please see the response to the January 16, 2015 and July 18, 2015 NFMS - Protected Resources Division (NMFS-PRD) correspondence found in Appendix C which provides the requested submittal of additional information necessary to evaluate the proposed project potential acoustic impacts to sea turtles and marine mammals and the Nassau Grouper. A study spanning 24 months was conducted to assess turtle populations along routes into the project area.

Environmental Assessment (EA) vs Environmental Impact Statement (EIS) –

In its letter of August 19, 2015, the U.S. Environmental Protection Agency stated:

Finally, this project must be evaluated as a whole. Including all direct and indirect impacts on the entire surroundings, prior to reaching a permit decision. The regulations of the Council on Environmental Quality for the implementation of the National Environmental Policy Act (NEPA) urge agencies to consider both the context and the intensity of impacts. Specifically, 40 CFR 1508.27(b) states that officials must bear in mind that more than one agency may make decisions about partial aspects of a major action, and that the intensity of a project must be valued in terms of impacts that may be both beneficial and adverse; the degree to which the proposed action affects public health and safety; the unique characteristics of the geographic area, such as proximity to historic or cultural

resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas; the degree to which the effects on the quality on the quality of the human environment are highly uncertain or involve unique or unknown risks.) In view of the high degree of interest and controversy this project has generated, the unique characteristics of the area, its proximity to the Virgin Islands National Park, the uncertain risks associated with the proposed development, and the extent of the potential impact to aquatic resources EPA continues to advise that a full Environmental Impact Statement (EIS) be prepared for this project.

In making this statement, the EPA may have been unaware of some of the information that is before the ACOE in reviewing this project. The advice that an EIS should be prepared does not comport with the full regulations of the Council on Environmental Quality, and does not accurately reflect the existing conditions in Coral Harbor, does not accurately state the facts, representations, permits and plans of the project, and does not address the relatively narrow areas of environmental concern.

Starting with the CEQ's regulations, 40 CFR section 1500 sets for the purpose of NEPA. Those regulations require that documents focus on issues that are truly significant to the action in question, rather than amassing needless detail (40 CFR 1500.1 (b)), and which emphasize real environmental issues and alternatives (40 CFR 1500.2(b)). In this instance, every possible bay on St. John was considered as an alternative, as well as no action at all. CEQ regulations also require that NEPA processes be integrated with other planning and environmental review so that all procedures run concurrently rather than consecutively (40 CFR 1500.2(c)). In this instance, the original application was filed with the local government on April 2, 2014; it is now 3 ½ years into the process. After having completed the local Coastal Zone Committee process, with public hearings, and the appeals through the board of Land Use Appeals, and it has been more than 27 months since the submission of a revised application to the Corps of Engineers. It is the policy of the Council to reduce delay by "[e]mphasizing interagency cooperation *before* the environmental impact statement is prepared, rather than submission of adversary comments on a completed document." (40 CFR 1500.5(b).)

That emphasis on avoiding unnecessary delay is further emphasized by the Council:

§ 1502.5 Timing. (b) For applications to the agency appropriate environmental assessments or statements shall be commenced no later than immediately after the application is received. Federal agencies are encouraged to begin preparation of such assessments or statements earlier, preferably jointly with applicable State or local agencies.

The quoted paragraph from the EPA above urges "controversy" as a basis for the preparation of an EIS. Controversy is not an environmental impact. Although the EPA quotes extensively from 40 CFR 1508.27 in the above paragraph, it includes merely a partial definition of the term "significantly" but the EPA makes no direct statement that those issues are not adequately addressed in the myriad submissions and studies required by ACOE. Each of those topics which

the EPA has raised in its letter are addressed separately, and we will not repeat them in full here. Suffice to say that the EPA's letter makes a number of assumptions which are not valid (e.g., amount of wastewater to be transported; applicant has submitted a stormwater plan, applicant has received a TPDES; land and water permits at local level were and are treated as a single project, etc.) and applicant has addressed the primary issue of impact in the aquatic environment, with the necessary consideration of alternatives. Further, the EPA never addressed the actual current condition of Coral Harbor, which is unfortunately sadly degraded.

CEQ regulations succinctly identify alternatives, the affected environment, and environmental consequences as the heart of the NEPA process. (40 CFR 1502.14 through 1502.16). These requirements have been met by the studies and submissions made in the ACOE process and detailed throughout this response, as well as in the underlying process before the Virgin Islands Coastal Zone Commission. An EIS would be both late and unnecessarily duplicative of existing information available to the ACOE and the public.

The COE must issue a Finding of No Significant Impact (FONSI) through their EA preparation process. *Wetlands Action Network v. Army Corps of Engineers*, 222 F.3rd 1105 (9th Cir. 2000), the court held that the COE's decision to issue a FONSI for the development in question was not arbitrary and capricious. The COE took a "hard look" at the environmental consequences of allowing the developer to construct the freshwater wetlands system, and the COE based its decision to issue the FONSI on an evaluation of the relevant factors.

In order to issue the FONSI, the COE must find that the mitigation measures would render any environmental impact resulting from the permit activity insignificant. If the COE deems that the project will have significant unmitigated impacts an EIS could be required.

Coastal Zone Management and Water Quality Certifications or Permits

The CZM permit was approved on October 10, 2014 and issued on October 24, 2014. It was challenged by CBCC, among others, and the approval of the permit was upheld by the Board of Land Use Appeals on June 6, 2016. The opponents of the project have now filed a judicial appeal of the Board of Land Use Appeals decision to uphold the permit. No stay has been issued in the case, and during the pendency of the litigation, YCSE will continue to seek other required approvals to move the marina project forward.

The Water Quality Certificate has been issued and is attached as Appendix G.

Cumulative Impacts:

There is currently a proposal to construct another marina in the northern portion of Coral Bay, and the plans for that marina are shown in the section on Alternative Analysis. There is also a plan for the installation of a potable water system by the Virgin Islands Water and Power Authority which has been tabled for several years but is being revisited.

The development of two marinas in the harbor will minimize the mooring area available in the area and many of the vessels currently within the harbor will need to be relocated. The presence of both marinas would probably significantly reduce the amount of illegally moored and anchored vessels in the area.

There will be a net loss of seagrass within the bay with the construction of both marinas and it is probable that as much as 5 acres of seagrass will be lost due to shading and direct impacts. The northern marina is proposing dredging which will have a significant impact on water quality and due to the impact on light availability which occurs with increased turbidity it is probable that significantly more seagrass could be lost if dredging were to occur.

Both marinas would increase the number of boats to 241 vessels at dock and will result in a notable increase in vessels in and out of Coral Harbor.

The development of both marinas will result in a substantial increase in activity within the area and will most likely result in economic stimulation and the opening of additional businesses and services especially with the potential availability of potable water. With the marinas on both sides of the bay there is sufficient room surrounding the harbor for other small businesses and services to be developed. There is a dense mangrove fringe around almost the entire bay that is not encompassed by the two proposed marinas and it is unlikely that additional marine uses will be developed along the shoreline.

The development of both marinas and the introduction of potable water to the area would enhance the potential for future development.

National Environmental Policy Act (NEPA)-Items not directly address in other section of the response.

Avoidance and Minimization Statement: YCSE has avoided impacts by locating the marina so that no dredging is required and the dock extends into an area with fewer resources. The YCSE has proposed to relocate the seagrass within the piling foot prints, utilize bubble curtains to reduce acoustic impacts, conduct sea turtle and marine mammal monitoring, use stringent sediment and erosion control, and will conduct water quality and environmental monitoring during construction.

Compensatory Mitigation: YCSE will be completing the cleanup of derelict vessels and associated debris allow for the recolonization of seagrass into areas which were previously impacted. YCSE will also be implementing a maintenance plan for the storm water mitigation devices which were previously installed with funding from EPA and NOAA but have not been maintained (Also see Section 2 above and the response to EPA in Appendix C). YCSE will also be undertaking a long-term monitoring plan which will monitor water quality as well as the closest ESA corals species and the seagrass to the east of the project site to look for impacts. YCSE will also be installing 5 informational buoys, 1 to protect the transplant site and 4 to protect shallow seagrass and reef sites in the vicinity of the approach to Coral Harbor to help prevent future groundings and impacts to corals and seagrasses. Lastly YCSE will be providing

information materials on their website and on a mobile application designed especially for Coral Bay, which will provide detailed National Park rules, regulations and procedures and will discuss the importance of not anchoring in seagrass beds or on coral resources. YCSE will be planting a mangrove fringe along the shoreline of their property.

Water-dependency Determination: The proposed project is a marina and therefore is water dependent.

Threatened or Endangered Species: No ESA listed coral species occur in the footprint but ESA listed corals occur in the vicinity and along the navigation routes which will be used to access the property. ESA listed sea turtles have been noted in the project footprint. Forage habitat for these species occurs within the footprint and the project will impact approximately 3.75 acres of seagrass. The ESA listed Nassau grouper has been seen in the project footprint.

Wetlands: The project will have no impact on wetlands and will not negatively impact mangroves. The project will be planting mangroves along the shoreline as part of their compensatory mitigation.

Archeology and Historic Resources: A shipwreck has been identified during the course of the last two years investigations and the applicant has reached out to the State Historic Preservation Office (SHPO) and has taken measures to avoid and protect this resource. A finger pier has been removed from the marina which was SHPO's preferred method of addressing the issue and the Applicant is currently awaiting a new clearance letter from SHPO.

Clean Air: The project will initially result in a minor increase in exhaust from combustion engines due to heavy construction equipment and later during operation of the marina due to the vessels within the marina.

Environmental Justice: The proposed project would not use methods or practices that discriminate on the basis of race, color or national origin nor will it have a disproportionate effect on minority or low-income communities. It is hoped that the construction of the marina will help provide an economic stimulus and jobs for native St. Johnians who have been significantly impacted by the lack of jobs and opportunity within the area.

Sincerely,

Chaliese Summers

The Summer's End Group, LLC

By: Chaliese Summers

Managing Member