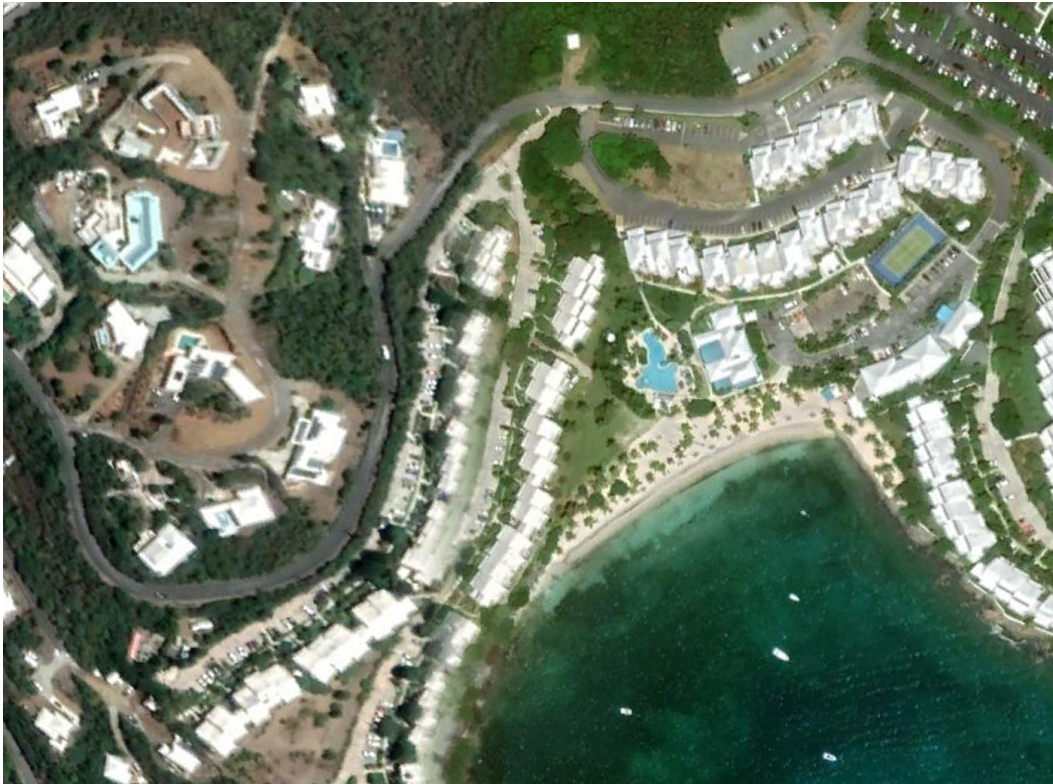


ENVIRONMENTAL ASSESSMENT REPORT FOR COWPET BAY WEST CONDOMINIUMS

Estate Nazareth, St. Thomas U.S. Virgin Islands



Prepared for:

**THE OFFICE OF COASTAL ZONE MANAGEMENT
DEPARTMENT OF PLANNING AND NATURAL RESOURCES,
AND THE GOVERNMENT OF THE VIRGIN ISLANDS**

Prepared by:

**BIOIMPACT, INC.
AND
EMILY BURTON ARCHITECTURE, LLC**

AUGUST 2023

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APPENDIX 1

BIOIMPACT, INC.

EMILY BURTON ARCHITECTURE, LLC

1.0 NAMES AND ADDRESS OF APPLICANT

Cowpet Bay West

Parcel 8-1-2 Estate Nazareth

St. Thomas, VI 00802

This application is for the permitting of the existing Cowpet Bay West Condominiums which were constructed prior to the establishment of U.S. Virgin Islands Coastal Zone Management Program.

2.00 LOCATION OF PROJECT

Cowpet Bay West is located on the eastern end of the island of St. Thomas on the northwest side of Cowpet Bay. The condominium is located at 18.317808°latitude and -64.845258°longitude. The Condominium is located on Parcels No. 8-1-2, 8-1-3, 8-1-4, 8-1-5 & 8-1-6 Estate Nazareth - No. 1 Red Hook Quarter, St. Thomas, U.S. Virgin Islands, St. Thomas, U.S. Virgin Islands.

The Location and Agency Review Map in Figure 2.00.1 below depicts the areas of Coastal Zone Management First Tier jurisdiction.

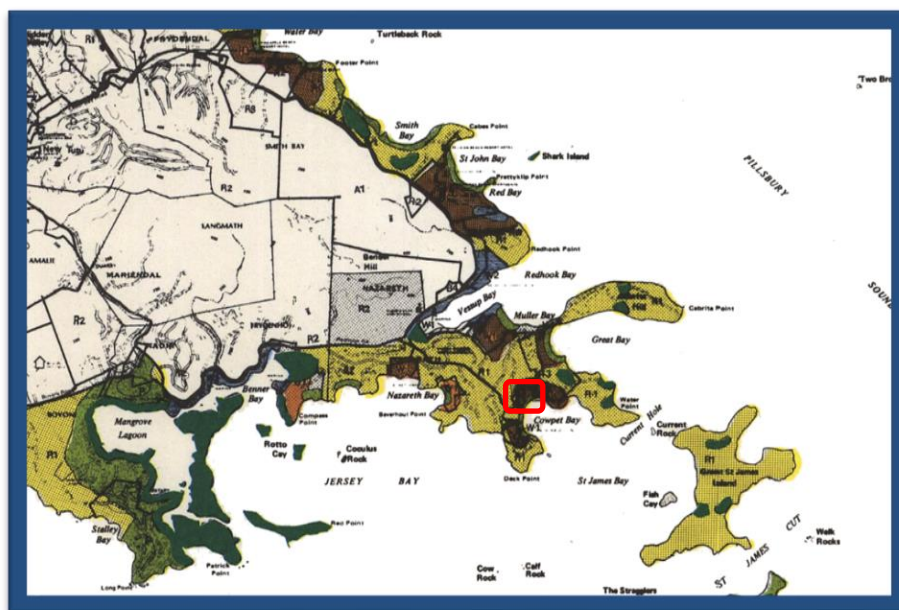


Figure 2.00.1 – Location and Agency Review Map. The areas in color, which include Cowpet Bay West are under the jurisdiction of D.P.N.R.'s Division of Coastal Zone Management.

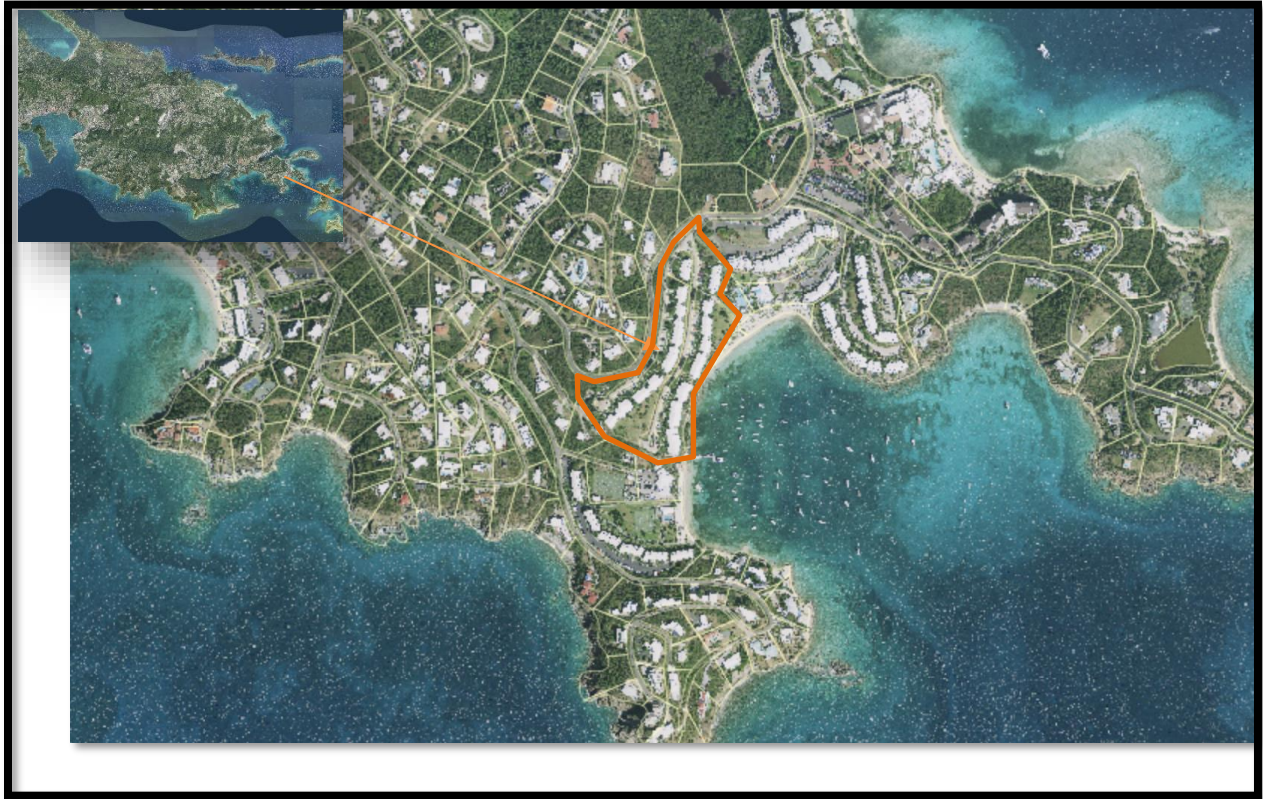


Figure 2.00.2 – Location of Cowpet Bay West

3.00 ABSTRACT

Cowpet Bay West was developed prior to the establishment of the U.S. Virgin Islands Coastal Zone Management Program. The purpose of this application is to permit the existing condominium complex and to allow for the upgrading of the existing wastewater treatment system and to allow for structural repairs to the ocean facing balconies.

4.00 STATEMENT OF OBJECTIVES SOUGHT BY THE PROPOSED APPLICATION

The objective of this application is to obtain a Major Coastal Zone Management Permit for the condominium complex which pre-dates the Coastal Zone Management Act in the U.S. Virgin Islands will facilitate permitting of modifications in the future.

5.0 DESCRIPTION OF PROJECT

5.01 Summary of Proposed Activity

The purpose of this application is to obtain a Major Coastal Zone Management permit for Cowpet Bay West and to allow for the upgrading of the existing wastewater treatment plant (WWTP) and to permit the structural repair of ocean front condominium balconies.

The 104-unit condominium is located on 9.07 acres (395,089.2 sq. ft.) which is zoned R-3, residential medium density. Seventeen buildings house the 104 condominiums which were constructed in the mid to early 1960s. There are 13 cisterns with 704,287 gallon total storage capacity. The living spaces are two stories with cisterns and some mechanical areas in the subfloor.

The WWTP consists of 8 storage tanks and Cowpet Bay is requesting to install a new Fluence Wastewater Treatment System to address the increase in volume and to improve treatment. The Fluence system is a package plant which is containerized and will go on a 40 ft. by 9 ft. concrete slab. The existing system will remain as a backup. Two storage containers 8 ft. by 20 ft. on slabs will also be constructed as well as a new 22 ft by 22 ft 30,000 gallon treatment tank. Cowpet also has a Reserve Osmosis Plant located at the southern end of the condominium complex. There is a well located behind the beach on the northern portion of the property which provides the intake water for the reverse osmosis plant.

5.01.a Purpose of Project

The purpose of this application is to obtain a Major Coastal Zone Permit for the Cowpet Bay West Condominiums and to allow for upgrading of the WWTP and structural repairs to the oceanfront balconies.

5.01.b Presence and Location of Any Critical Areas and Possible Trouble Spots

This is an existing condominium complex which was constructed in the 1960's which pre-dated the establishment of the Coastal Zone Management Project in the U.S. Virgin Islands in 1978. The project is heavily landscaped with both native and exotic species. There are ESA listed corals present in the bay including *Acropora palmata*, *Dendrogyra cylindrus*, *Orbicella annularis*, *Orbicella faveolata*, and *Orbicella franksi*, these species occur across the bay on the rocky shoreline. There are a few corals on the riprap revetment which are along the shoreline below the condominiums, but no ESA listed species. There are seagrass beds within the bay, primarily *Thalassia testudinum* and *Syringodium filiforme*.

All three federal rare and endangered sea turtle species are known to occur in the offshore waters and can be found within Cowpet Bay. These include hawksbill (*Eretmochelys imbricata*), leatherbacks (*Dermochelys coriacea*) and green turtles (*Chelonia mydas*). The project involves minimal earthwork and should not have any impact on these resources. The improvements to the wastewater treatment system will minimize the potential of nutrients entering the marine environment. Cowpet Bay West is aware of the presence of the ESA listed species and the environmental resources which surround the condominium and will continue to be diligent in protecting these resources.

The subject parcels are within the Vessup Bay/ East End Red Hook Area of Particular Concern (APC) (Figure 5.01.1). The Vessup Bay/Red Hook APC is located on the eastern end of St. Thomas and includes Nazareth, Muller, Vessup, Red Hook, Great Bay, Cowpet Bay, Cabrita, Beck and Water Point, Great St. James, Little St. James, and Dog Island.

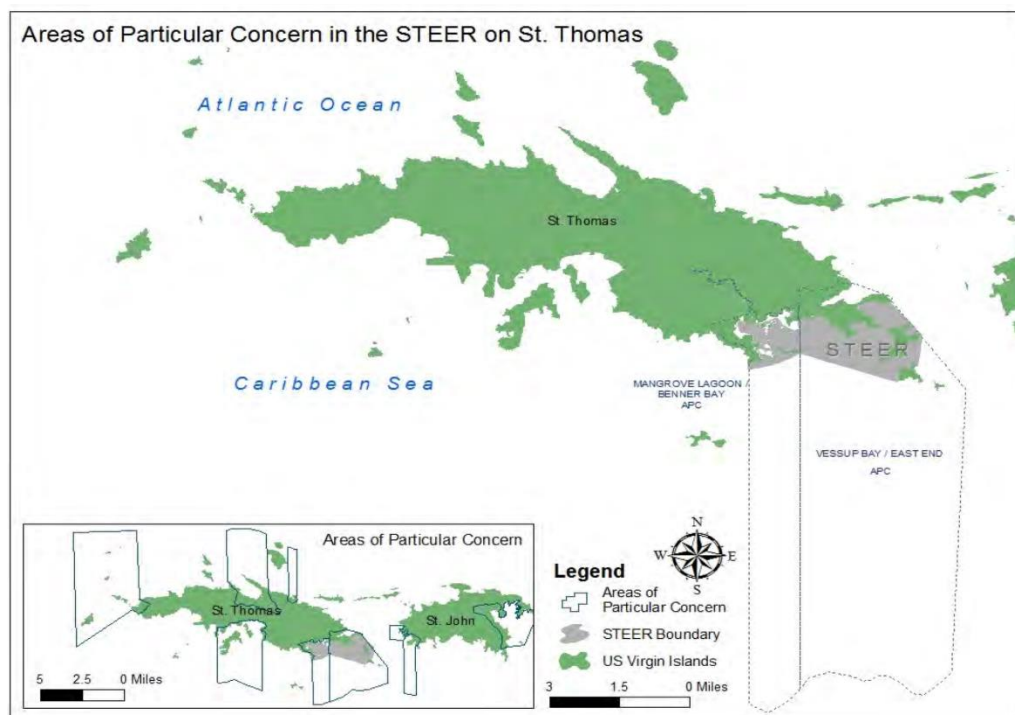


Figure 5.01.1 Areas of Particular Concern (STEER (2011) St. Thomas East End Reserve Management Plan. St. Thomas, USVI.

The condominiums also abut the St. Thomas East End Reverse (STEER). STEER was developed to help protect coastal resources including seagrass beds and coral reef communities. The condominiums abut area C of the reserve and is referred to as St. James (Figure 5.02).

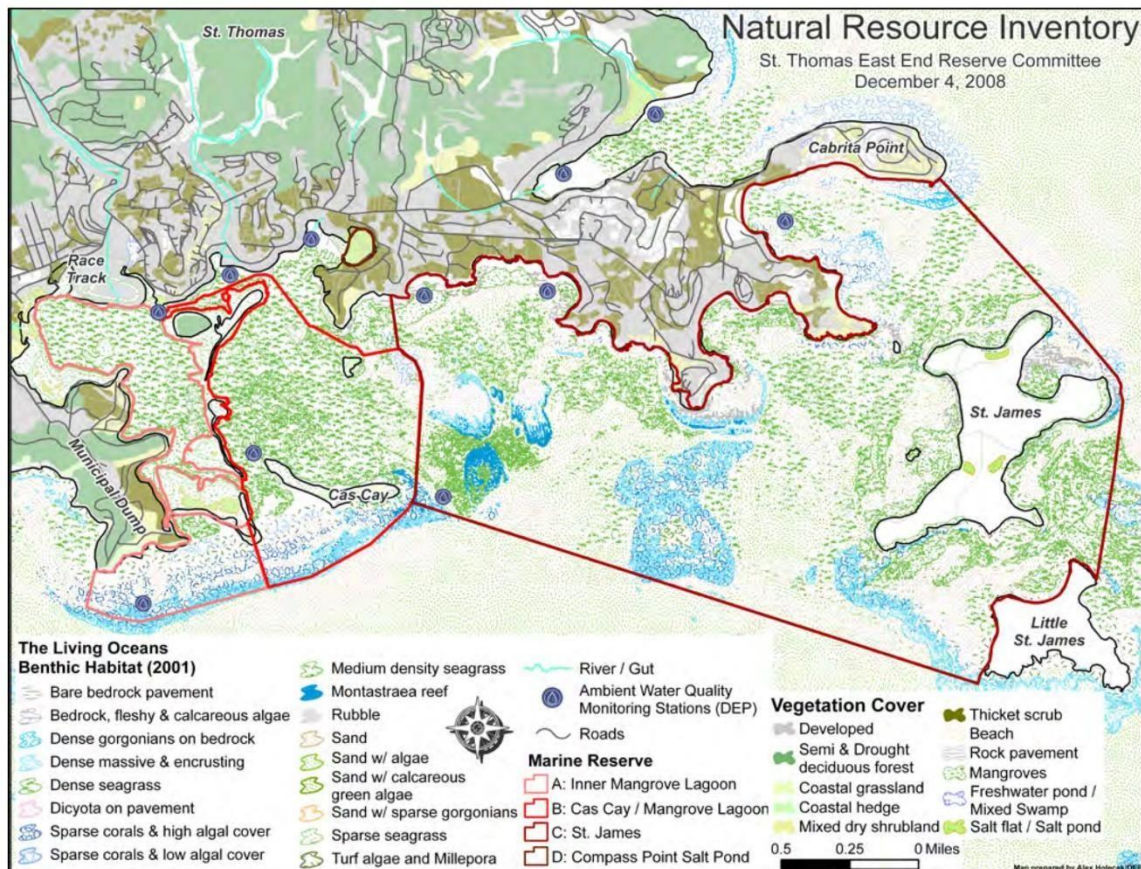


Figure 5.01.2 STEER boundaries. (STEER (2011) St. Thomas East End Reserve Management Plan. St. Thomas, USVI.

The regulations for the St. James are as follows:

St. James Marine Reserve and Wildlife Sanctuary	Subchapter 96, Section 96-3	<p><i>Prohibited Activities within the St. James MRWS:</i></p> <ul style="list-style-type: none"> It is unlawful to remove any marine or other wildlife without a permit or specific authorization from the Commissioner
	Subchapter 96, Section 96-4	<p><i>Permitted Activities within the St. James MRWS:</i></p> <p>Acts permitted, provided a permit is first obtained from the Commissioner:</p> <ul style="list-style-type: none"> Scientific collecting in support of and for use in a research project with an approved protocol The use of castnet with a minimum square mesh size of ¼ inch to capture baitfish (fry) within 50 feet of the shoreline, except for Cow and Calf rocks Fishing with hook and line

5.01.c Method of Land Clearing

Preliminary clearing for the expansion of the WWTP will be by hand. No trees will have to be removed for the improvements to the WWTP or the structural repairs to the oceanfront balconies.

5.01.d Provisions to Preserve Topsoil and Limit Site Disturbance

Any topsoil excavated will be saved in a protected stockpile to be used in the revegetation of the disturbed area. No trees will be removed as a part of this application.

5.01.e Erosion and Sediment Control Measures to be Implemented

Silt fencing will be installed at the lowest contour of the area of construction. Any stockpiles will be surrounded with silt fencing and covered if left more than 7 days. Once the construction is completed the area will be landscaped. Silt fencing will not be removed until all exposed soil is stabilized by vegetation or other means.

5.01.f Schedule for Earth Change Activities and Implementation of Erosion and Sediment Control Measures

All necessary permits will be obtained before any earth disturbance occurs. Re-enforced silt fencing will be installed prior to any earth disturbance. Earthen berms will be utilized to direct runoff around areas of exposed soil.

5.01.g Maintenance of Erosion and Sediment Control Measures

Erosion control measures will be checked daily and anytime when more than ¼ inch of rainfall occurs. Soil will be removed when it reaches ¼ the height of the silt fencing. Fencing must be repaired if it is found to

be damaged, has deteriorated or has proven to become ineffective. The fencing must be properly toed-in at all times.

5.01.h Method of Storm Water Management Post Construction

No change to existing stormwater drainage patterns is proposed as a part of this application. The improvements to the WWTP require minimal earth change and will not result in a change to existing drainage patterns.

5.01.i Maintenance Schedule for Storm Water Facilities

The condominium typically cleans storm water collection swales and storm drains after storms to ensure they do not become blocked and create flooding.























































































































































































































5.01.j Method of Sewerage Disposal










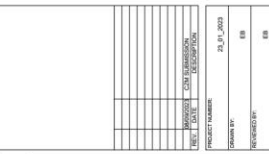




Cowpet Bay West is upgrading the WWTP and expanding its capacity. Overtime the treatment volume has increase due to more frequent occupancy and increase use by tourist who are not as conservation minded as most Virgin Islanders. Cowpet Bay West will be installing a new Fluence WWTP which will greatly improve the treatment.

5.02 Site Plans

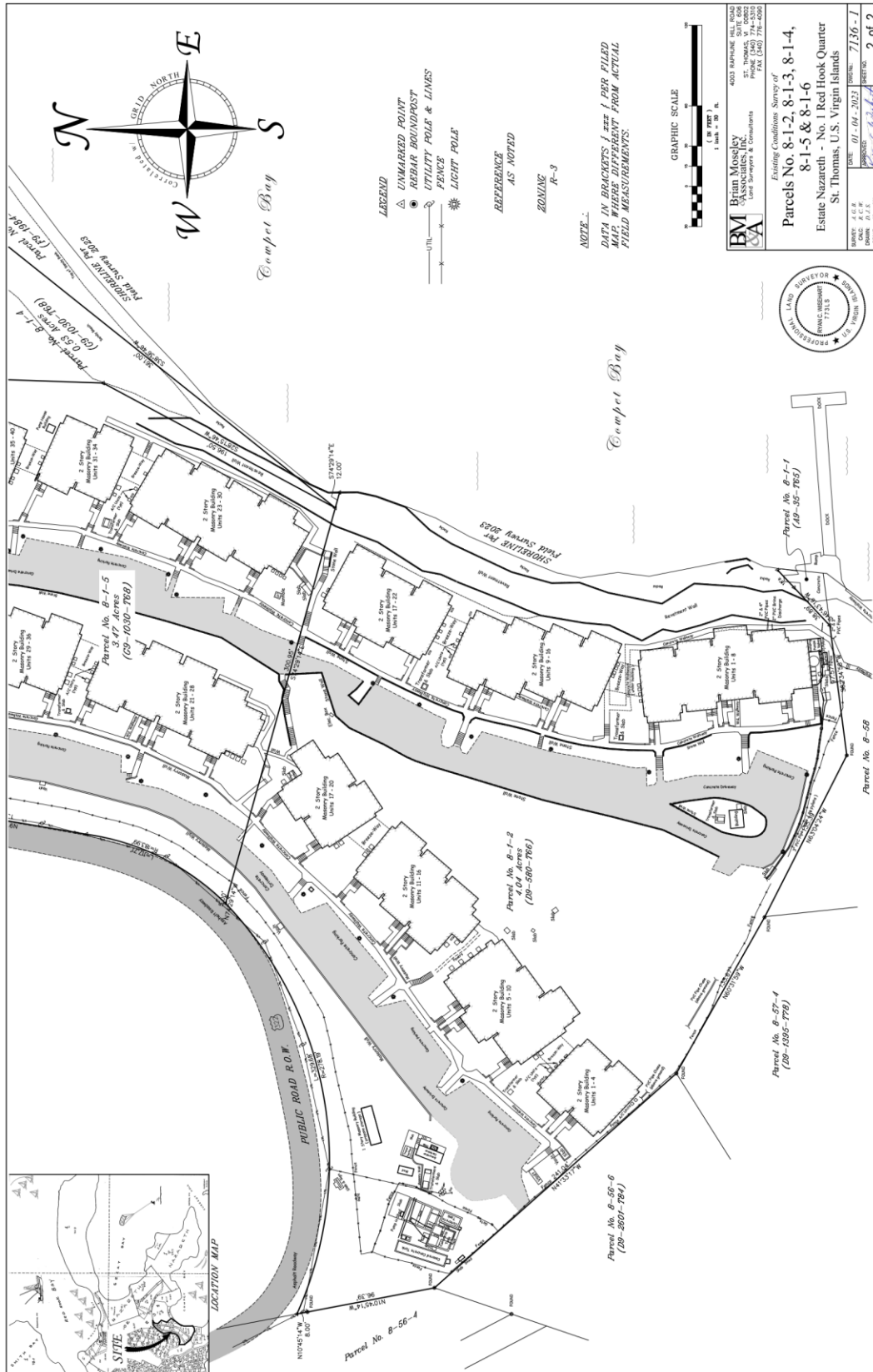
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DRAWING INDEX		ISSUED	
SHEET#	DESCRIPTION	DATE	BY
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AS-03	STRUCTURAL		
AS-04	ELECTRICAL		
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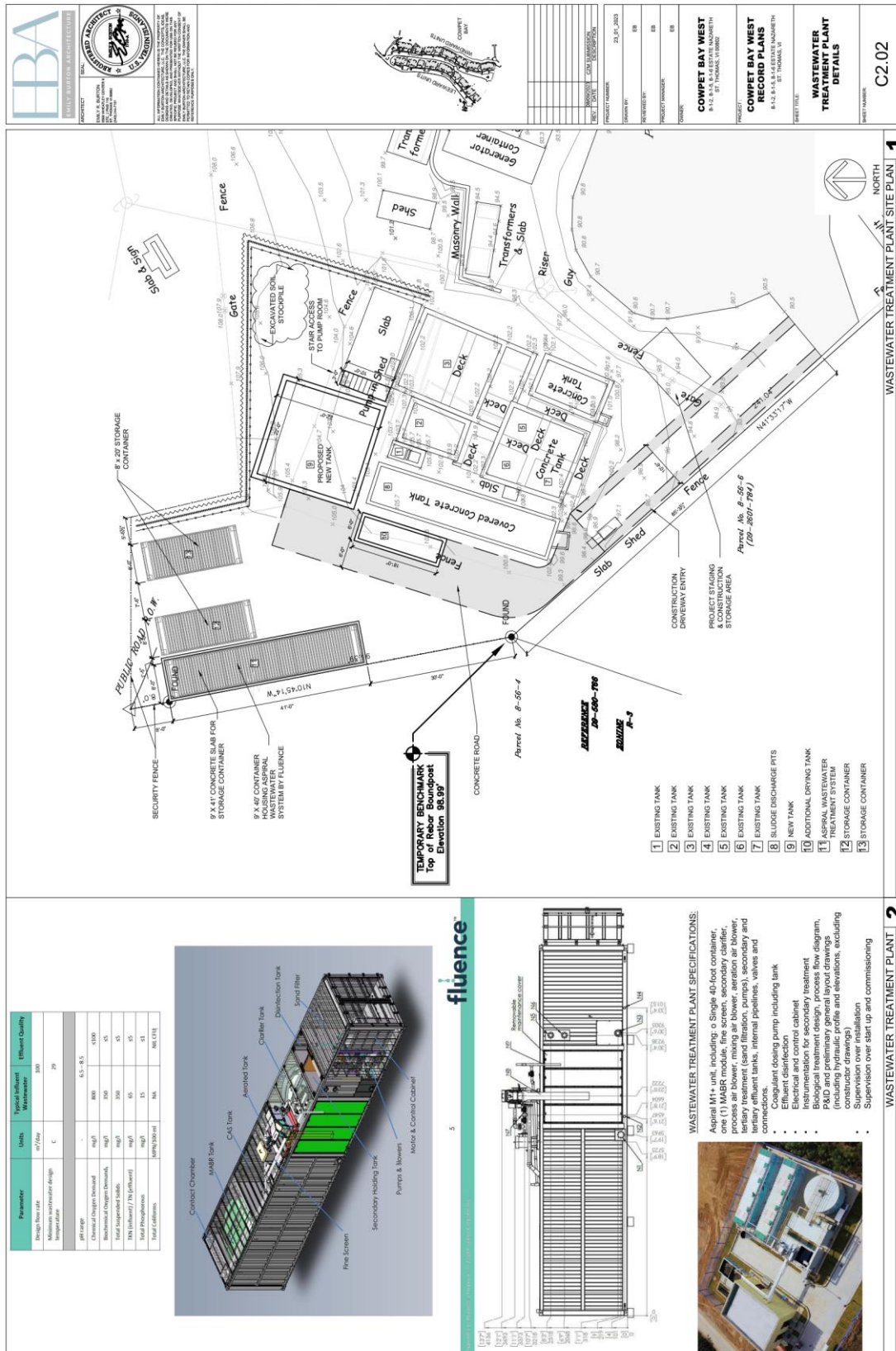
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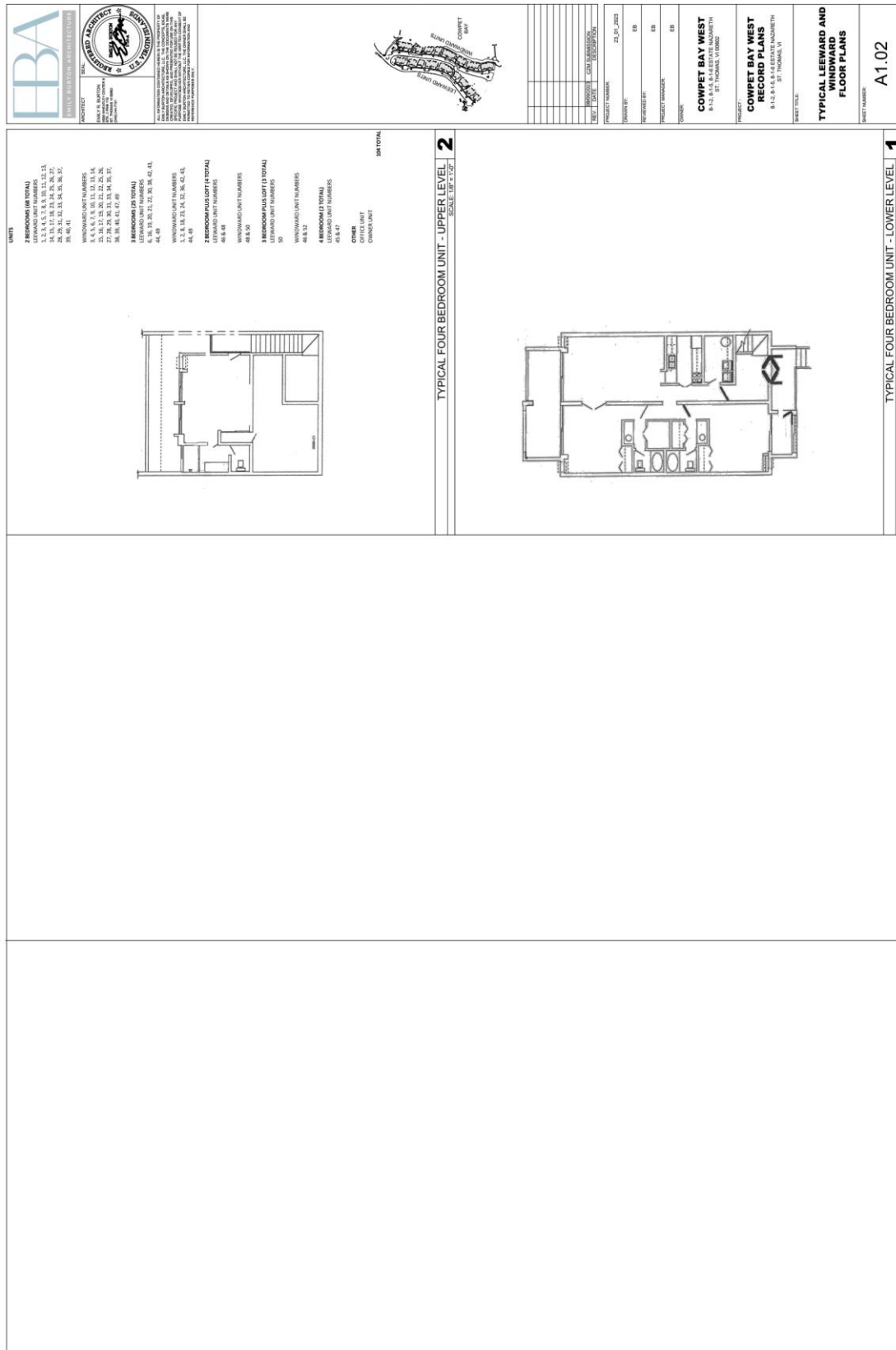












<p>UNIT NUMBERS 1-4 LEEWARD SCALE: 1/8" = 1'-0"</p> <p>8</p>	<p>UNIT NUMBERS 5-10 LEEWARD SCALE: 1/8" = 1'-0"</p> <p>7</p>	<p>UNIT NUMBERS 11-16 LEEWARD SCALE: 1/8" = 1'-0"</p> <p>6</p>	<p>COWPET BAY WEST SCALE: 1/8" = 1'-0"</p> <p>A2.01</p>
<p>UNIT NUMBERS 17-20 LEEWARD SCALE: 1/8" = 1'-0"</p> <p>5</p>	<p>UNIT NUMBERS 21-28 LEEWARD SCALE: 1/8" = 1'-0"</p> <p>4</p>	<p>UNIT NUMBERS 29-36 LEEWARD SCALE: 1/8" = 1'-0"</p> <p>3</p>	<p>UNIT NUMBERS 37-44 LEEWARD SCALE: 1/8" = 1'-0"</p> <p>2</p>
<p>UNIT NUMBERS 45-50 LEEWARD SCALE: 1/8" = 1'-0"</p> <p>1</p>	<p>COWPET BAY WEST SCALE: 1/8" = 1'-0"</p> <p>A2.01</p>		

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6.0 ECOLOGICAL SETTING AND PROBABLE PROJECT IMPACT ON THE NATURAL ENVIRONMENT

6.01 Climate and Weather

Prevailing Winds

The Virgin Islands lie in the "Easterlies" or "Trade Winds" that traverse the southern part of the "Bermuda High" pressure area, thus the predominant winds are usually from the east-northeast and east (IRF, 1977). These trade winds vary seasonally and are broadly divided into 4 seasonal modes: 1) December to February; 2) March to May; 3) June to August; and 4) September to November. Below are the characteristics of these modes as taken from Marine Environments of the Virgin Islands Technical Supplement No. 1 (IRF, 1977).

December - February

During the winter, the trade winds reach a maximum and blow with great regularity from the east-northeast. Wind speeds range from eleven to twenty-one knots about sixty percent of the time in January. This is a period when the Bermuda High is intensified with only nominal compensation pressure changes in the Equatorial Trough. The trade winds during this period are interrupted by "Northerners" or "Christmas Winds," which blow more than twenty knots from a northerly direction in gusts from one to three days. Such outbreaks average about thirty each year. They are created by strengthening of high-pressure cells over the North American continent, which, in turn, allow weak cold fronts to move southeastward over the entire Caribbean region. Intermittent rains, clouds and low visibility accompany these storms.

March - May

During the spring, the trade winds are reduced in speed and blow mainly from the east. Winds exceed twenty knots only thirteen percent of the time in April. The change in speed and direction is the result of a decrease of the Equatorial Trough.

June - August

Trade winds reach a secondary maximum during this period and blow predominantly from the east to east-southeast. Speeds exceed twenty knots twenty-three percent of the time during July. The trend for increasing winds results from the strengthening of the Bermuda High and a concurrent lowering of the pressure in the Equatorial Trough. Trade winds during this period are interrupted by occasional hurricanes.

September - November

During the fall, winds blow mainly from the east or southeast and speeds reach an annual minimum. Only seven percent of the winds exceed twenty knots in October. The low speeds result from a decrease in the Equatorial Trough. During this period, especially during late August through mid-October, the normal trade wind regime is often broken down by easterly waves, tropical storms and hurricanes.

Storm and Hurricane

There are numerous disturbances during the year, especially squalls and thunderstorms. These occur most frequently during the summer, lasting only a few hours and causing no pronounced change in the trade winds.

A tropical cyclone whose winds exceed 74 miles per hour is termed a hurricane in the northern hemisphere, and may significantly affect the area. These hurricanes occur most frequently between August and mid-October with their peak activity occurring in September. The annual probability of a cyclone is one in sixteen years (Bowden, 1974). However, in September of 2017, the U.S. Virgin Islands was hit by two category 5 hurricanes within a span of 2 weeks.

Climate

The climate is maritime tropical and is characterized by generally fair weather, steady winds, and slight but regular annual, seasonal, and diurnal ranges in temperature. Rain-producing weather systems generally move into St. Thomas from the east in summer and from the northwest in winter.

Major rainfall events are associated with weather systems that enhance the uplift of moist air in the region. Orographic lifting of moist air over hilly terrain is the most common cause of rainfall in St. Thomas. The amount of rainfall increases with increasing elevation. The total annual rainfall differs substantially at various locations throughout the island. The average annual rainfall on St. Thomas is approximately 45 inches, ranging from 35 inches toward the eastern end of the island to more than 55 inches at the higher elevation to the west. Leeward aspects receive greater amounts of rain because clouds develop over the slopes on a daily basis. In general, days have a higher incidence of rainfall than nights. St. Thomas's wettest period generally is from September to November, and the driest period is from January to June. Occasionally, intense rainfall occurs during the drier period (USGS 1998). Cowpet Bay West receives around 30 inches of rainfall annually (Jordan 1971). Rainfall data from 1981 to 2010 for the Red Hook (Closest Weather Station) is presented below, in Figure 6.01.7.

The difference between the mean temperatures of the coolest and warmest month is only 5 to 7 degrees F. The highest temperatures August or September and the lowest are in January or February.

The highest average daytime temperature in the warmest months is about 88 degrees F, and in the coolest months is in the low 80's. Nighttime lows are usually in the mid 70's during the warmer months and in the high 60's during the cooler months (USGS 1998). In general, air temperature in the Virgin Islands ranges between 77 degrees and 85 degrees.

The difference between the mean temperatures of the coolest and warmest month is only 5 to 7 °F. The highest temperatures occur in August or September and the lowest are in January or February. The highest average daytime temperature in the warmest months is about 88 ° F, and in the coolest months is in the low 80's. Nighttime lows are usually in the mid 70's during the warmer months and in the high 60's during the cooler months (USGS 1998).

CHARLOTTE AMALIE HAR, VIRGIN ISLANDS (678905)

Period of Record Monthly Climate Summary

Period of Record : 1/12/1972 to 4/30/2012

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	84.7	85.0	85.5	86.4	87.4	89.1	89.9	90.1	89.5	88.6	87.0	85.5	87.4
Average Min. Temperature (F)	72.3	72.2	72.7	74.2	76.3	77.7	78.0	78.1	77.6	76.6	75.1	73.3	75.3
Average Total Precipitation (in.)	2.03	1.45	1.46	2.74	3.35	2.75	2.66	3.83	5.42	5.94	5.54	2.84	40.01
Average Total Snowfall (in.)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average Snow Depth (in.)	0	0	0	0	0	0	0	0	0	0	0	0	0
Percent of possible observations for period of record.													
Max. Temp.: 84% Min. Temp.: 83.6% Precipitation: 80.9%													

Table 6.01-T.1 Monthly Climate Summary from 1972 to 2012

Month of year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
	01	02	03	04	05	06	07	08	09	10	11	12	1-12
Dominant wind direction	↖	↖	↗	↗	↗	↗	↖	↗	↗	↗	↖	↖	↗
Wind probability >= 4 Beaufort (%)	49	52	49	48	51	59	62	53	32	36	33	47	47
Average Wind speed (mph)	13	13	13	13	13	13	14	13	10	12	10	12	12
Average air temp. (°F)	79	81	79	81	84	84	86	86	86	84	82	81	82

Figure 6.01.1 Prevailing Winds and Temperatures St. Thomas, U.S. Virgin Islands, Statistics based on observations taken between 08/2003 - 09/2017 daily from 7am to 7pm local time. Windfinder (https://www.windfinder.com/windstatistics/st_thomas)

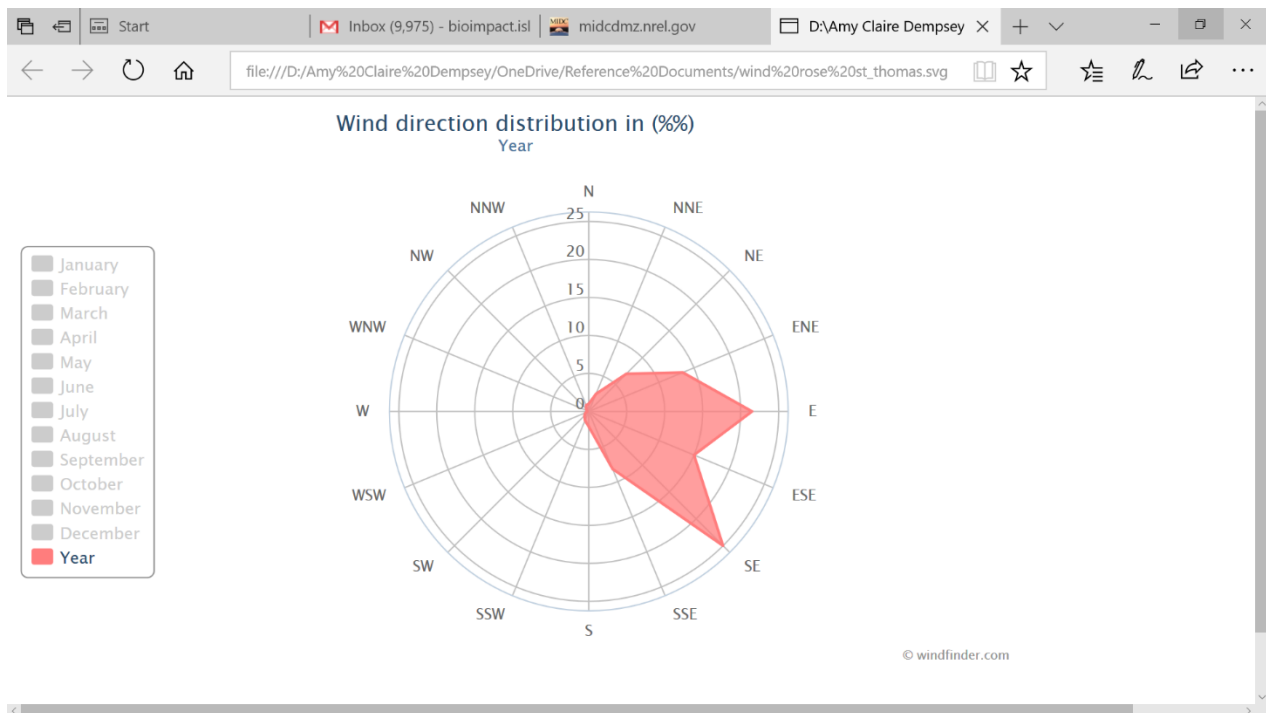


Figure 6.02. Windrose St. Thomas, U.S. Virgin Islands Windfinder (https://www.windfinder.com/windstatistics/st_thomas)

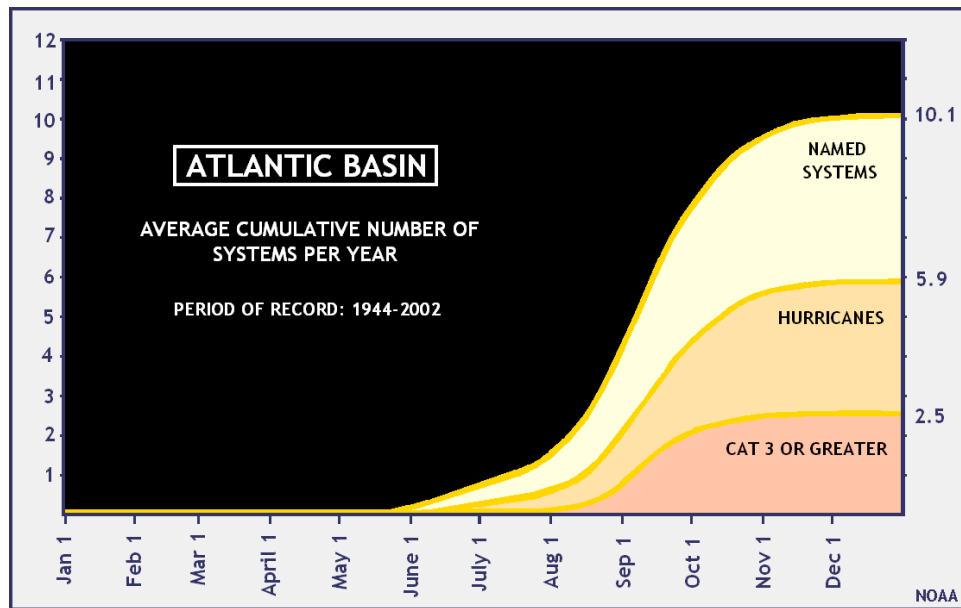
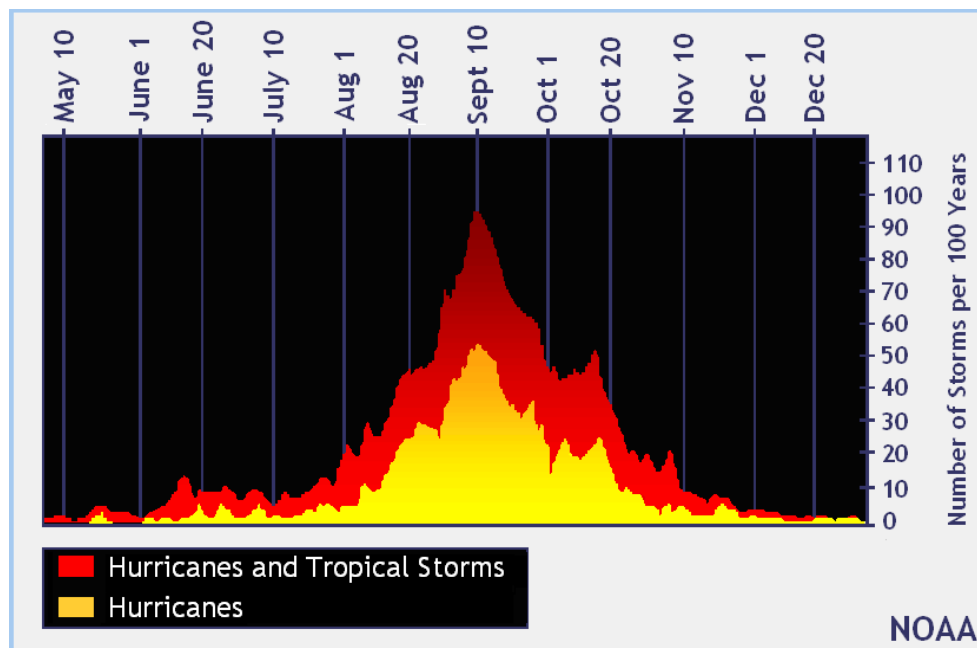
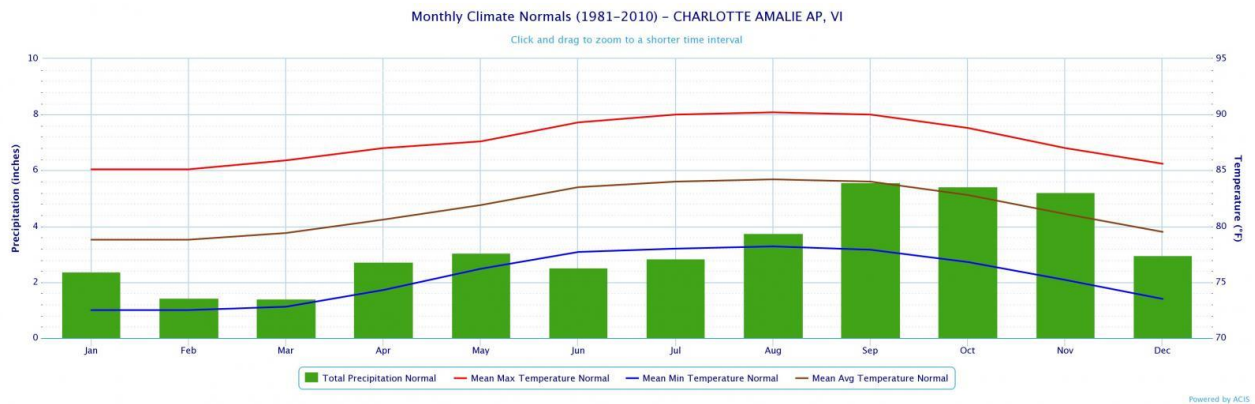


Figure 6.01.3 Tropical Cyclone Frequencies in the Atlantic (National Weather Service).



6.01.4 Tropical Storm and Hurricane Occurrences in the Atlantic (National Weather Service).



6.01.5 Climate Normals, National Weather Service (http://www.weather.gov/sju/climo_pr_usvi_normals)

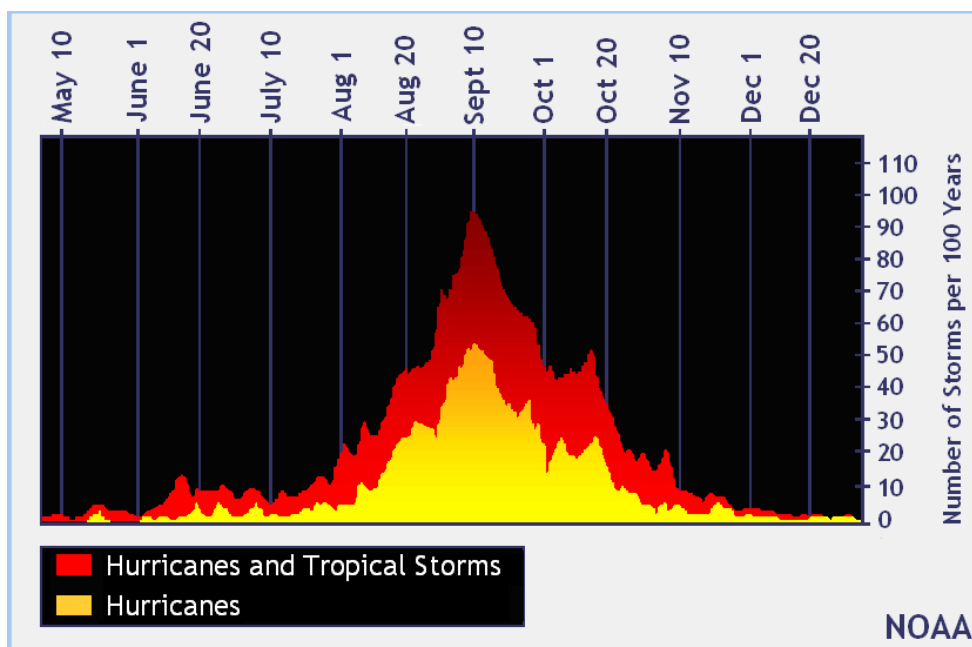


Figure 6.01.6. Tropical Storm and Hurricane Occurrences in the Atlantic (National Weather Service)

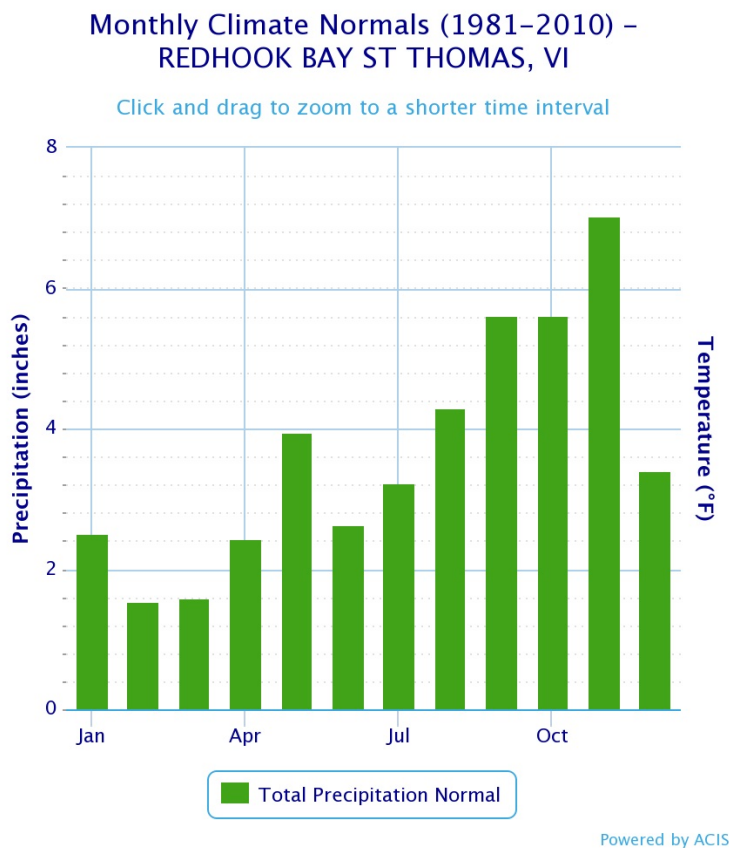


Figure 6.01.7 Rainfall Normals for Red Hook, St. Thomas.

https://www.weather.gov/sju/Interactive_Map/RedHookBay.jpg

6.02 Landform, Geology, Soils and Historic Land Use

Geology of St. Thomas

The Virgin Islands are near the northeastern corner of the present Caribbean Plate, a relatively small trapezoidal-shaped plate that is moving eastward relative to the North and South American continents carried on the American Plate. The arc of the Lesser Antilles is an active volcanic arc above a subduction zone in which the Atlantic oceanic crust of the American Plate is carried downward under the Caribbean Plate. The closest volcano to the Virgin Islands that is still active is Saba, about 160 km. to the east.

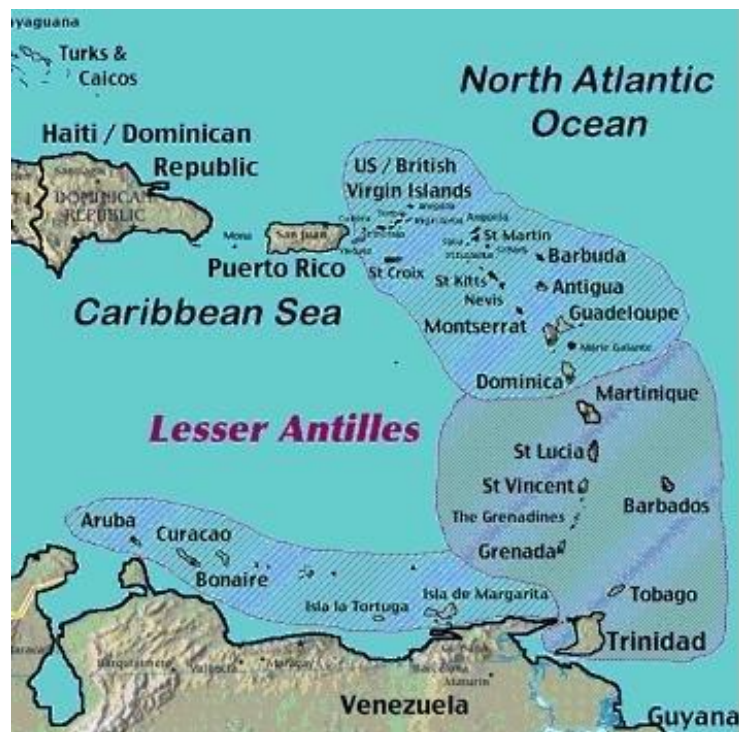


Figure 6.02-F.1 Lesser Antilles

St. Thomas is composed of stratified volcanic and volcanoclastic rocks with minor limestone of the Early Cretaceous (Albain) to possibly the late Cretaceous Age (Donnelly 1966). These rocks are granitic composition, some of which may be as young as Tertiary (Kesler and Sutter, 1979). The oldest rocks of St. John are submarine lavas (keratophyre and spilite), beds of volcanic debris and chert. Associated intrusive rocks of the Water Island Formation are overlain by andesitic volcanic and volcanoclastic rocks of the Louisenhoj Formation which underlies the island of St. Thomas to the east and much of the northwestern portion of St. John. Donnelly (1966) suggested that the Louisenhoj Formation was deposited unconformably on the Water Island Formation after a period of emergence, tilting and erosion, on the slopes and environs of a subaerial volcanic island located roughly between St. Thomas and St. John, an area now occupied by Pillsbury Sound. The youngest layered deposits on St. Thomas are volcanoclastic rocks of the Tutu Formation. Fossils contained in the Tutu Formation suggest that those deposits are of the Early Cretaceous (Albain) Age (Donnelly et. al. 1971). It appears that all of the volcanoclastic rocks of St. Thomas were deposited in a relatively short period of time spanning 10 to 15 million years approximately 100 million years ago (D. Rankin 1988).

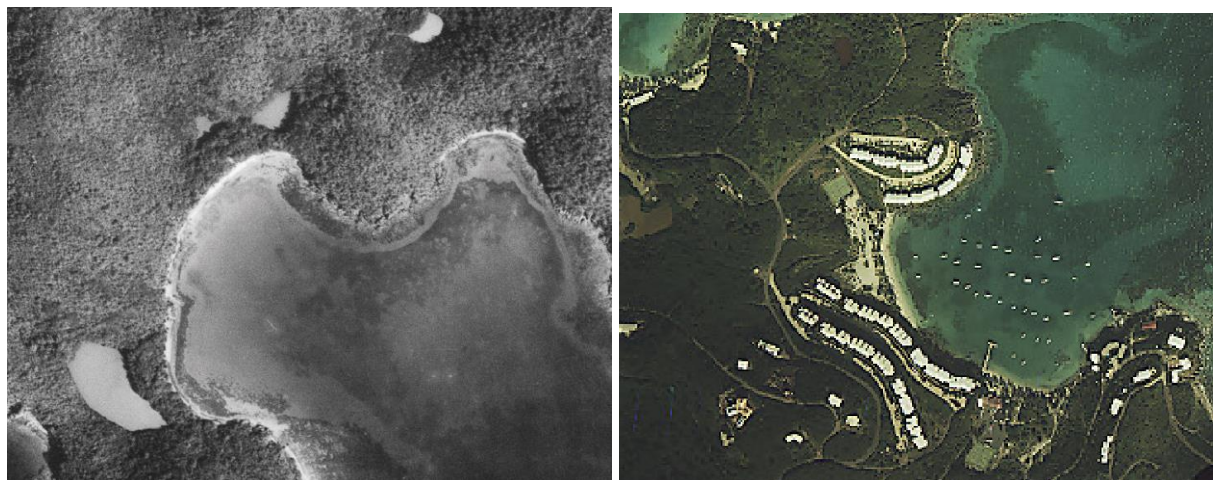
An irregular coastline, numerous bays, steep slopes, and small drainage areas characterize St. Thomas. For the most part, the topography is mountainous and coastal plains are absent.

Geology of Cowpet Bay West

Cowpet Bay West is on the northwestern side of Cowpet Bay. The site abuts a narrow beach on its northern extreme and has steep slopes to the sea towards the southern end of the property. The shoreline along the southern end of the property was revetted in the early 1990s.

History of the Project Site

The 1954 USGS aerial below show the area was heavily wooded before development and that were scattered ponds in the area, including within the Cowpet Bay West footprint.



The area was undeveloped in 1954 and construction on the condominiums started in the early 1960s (1972 aerial shown above) before Coast Zone Act was enacted in 1978 in the U.S. Virgin Island.

Figure 6.02 Historical Aerials of the Cowpet Bay West.

Soils of Krum Bay

Two soil types are associated with Cowpet Bay West according to the Custom Soil Survey of the United States Virgin Islands. Southgate-Rock outcrop complex (SrE), 20 to 40 percent slope, these soils are found on hillslopes, mountain slopes, and ridges and often have as much as 40% exposed rock outcroppings. This is the soil found throughout most of the property. Only a very small portion at the northern corner is Ustrothends (Us), soils that have been highly reworked. In this case the filling of a pond.



Figure 6.02.3 USDA-NRCS Soils Map

Adverse Site Conditions

The Cowpet Bay is protected from typical wave and wave patterns by Great St. James and Little St. James. The shoreline area, the edge of two buildings and offshore areas are in Zones VE12, areas where the 100-year coastal flooding has been determined to be 12ft with velocity (wave action). The vast majority of the complex is in Zone X where flooding is not expected (Figure 6.02.4 Flood Insurance Rate Map, Panel 30 of 94, revised April 16, 2007).

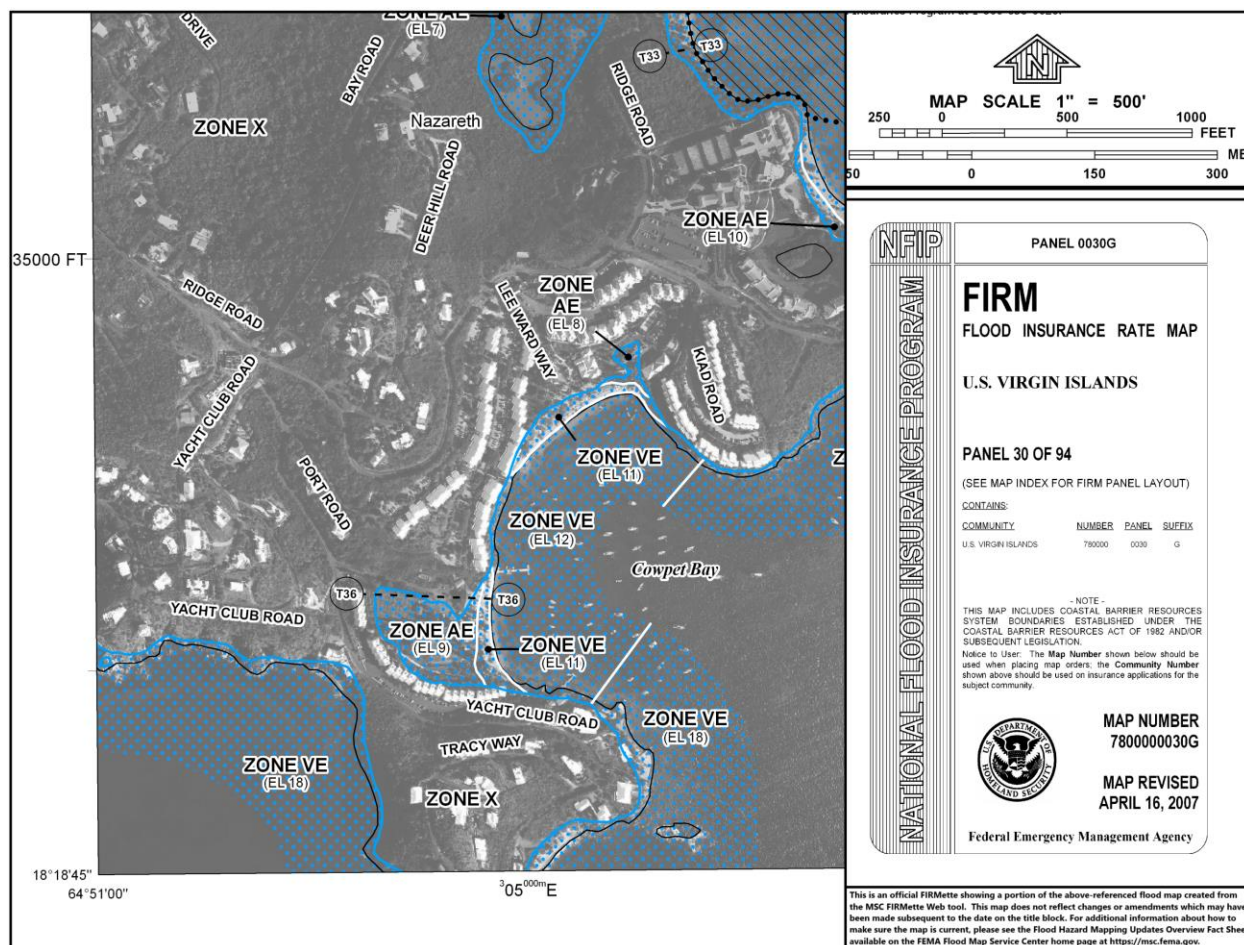


Figure 6.02.4 Flood Insurance Rate Map 30 of 94.

Seismic Activity

The U.S. Virgin Islands lie in one of the most earthquake prone areas of the world, and are susceptible to ground shaking, earthquake-induced ground failures, surface fault ruptures and tsunamis (tidal waves) (Hays, 1984). The activity is mostly associated with large-scale tectonic activity or faulting, originating in the Anegada Trough to the northeast of the islands. The trough and its related scarp apparently were thrown up by block faulting during the late Pliocene or early Pleistocene. It is oriented generally northeast to southwest, separating St. Croix from Puerto Rico and the other Virgin Islands. Based on willow focus earthquakes, the Anegada Fault Trough is estimated to be more than 400 miles in length. There are indications that strike slip movement is occurring, with St. Croix shifting northeast relative to Puerto Rico (Puerto Rico Water Authority 1970). Since the 1867 quake, there has been continuous low intensity activity all below 6.0 Richter. Over the last several years, numerous minor

tremors have been felt on the island. This increased activity is associated with the volcanic eruptions that have been occurring to the southeast on the island of Montserrat.

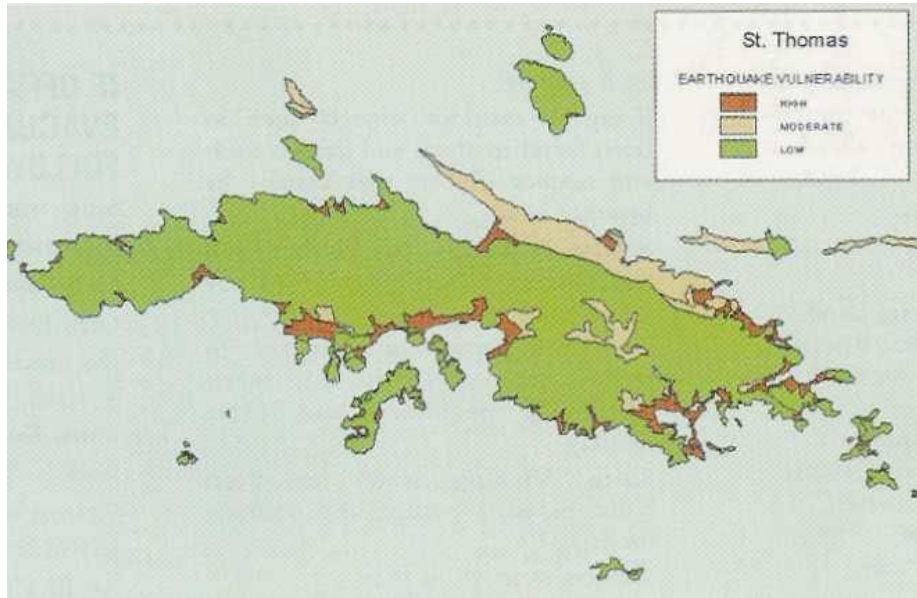


Figure 6.02.5 Earthquake Probability Map

6.03 Drainage, Flooding and Erosion Control

6.03.a Existing Drainage Patterns

The site is relatively steep and water would sheet flow to the sea but is intercepted by the driveways and park and is directed into small drainages. The most define drainage is along the northeastern property line.



Figure 6.02.1

6.03.b Proposed Alterations to Drainage Patterns

There will be no change to the existing drainage patterns of the site as a result of the proposed improvements to the WWTP or the structural repairs to the balconies.

6.03.c Relationship of the Project to the Coastal Flood Plain

The Cowpet Bay is protected from typical wave and wave patterns by Great St. James and Little St. James. The shoreline area, the edge of two buildings and offshore areas are in Zones VE12, areas where the 100-year coastal flooding has been determined to be 12ft with velocity (wave action). The vast majority of the complex is in Zone X where flooding is not expected (Figure 6.02.4 Flood Insurance Rate Map, Panel 30 of 94, revised April 16, 2007).

6.03.d Peak Storm Water Flow Calculations

No construction is proposed which will affect existing stormwater flows.

6.03.e Existing Storm Water Disposal Structures

No changes are proposed to the existing to the Storm Water disposal structures.

6.03.f Schedule of Maintenance of Storm water Facilities

No changes to current maintenance schedule is proposed.

6.03.h Proposed Method of Land Clearing

Preliminary clearing for the expansion of the WWTP will be by hand. No trees will have to be removed for the improvements to the WWTP or the structural repairs to the oceanfront balconies.

6.03.i Provisions to Preserve Topsoil and Limit Site Disturbance

Any topsoil excavated will be saved in a protected stockpile to be used in the revegetation of the disturbed area. No trees will be removed as a part of this application.

6.03.j Presence and Location of Any Critical Areas and Possible Trouble Spots

This is an existing condominium complex which was constructed in the 1960's which pre-dated the establishment of the Coastal Zone Management Project in the U.S. Virgin Islands in 1978. The project is heavily landscaped with both native and exotic species. There are ESA listed corals present in the bay including *Acropora palmata*, *Dendrogyra cylindrus*, *Orbicella annularis*, *Orbicella faveolata*, and *Orbicella franksi*, these species occur across the bay on the rocky shoreline. There are a few corals on the riprap revetment which are along the shoreline below the condominiums, but no ESA listed species. There are seagrass beds within the bay, primarily *Thalassia testudinum* and *Syringodium filiforme*.

All three federal rare and endangered sea turtle species are known to occur in the offshore waters and can be found within Cowpet Bay. These include hawksbill (*Eretmochelys imbricata*), leatherbacks (*Dermochelys coriacea*) and green turtles (*Chelonia mydas*). The project involves minimal earthwork and should not have any impact on these resources. The improvements to the wastewater treatment system will minimize the potential of nutrients entering the marine environment. Cowpet Bay West is

aware of the presence of the ESA listed species and the environmental resources which surround the condominium and will continue to be diligent in protecting these resources.

The subject parcels are within the Vessup Bay/ East End Red Hook Area of Particular Concern (APC) (Figure 5.01.1). The Vessup Bay/Red Hook APC is located on the eastern end of St. Thomas and includes Nazareth, Muller, Vessup, Red Hook, Great Bay, Cowpet Bay, Cabrita, Beck and Water Point, Great St. James, Little St. James, and Dog Island.

The condominiums also abut the St. Thomas East End Reverse (STEER). STEER was developed to help protect coastal resources including seagrass beds and coral reef communities. The condominiums abut area C of the reserve and is referred to as St. James (Figure 5.02).

The regulations for the St. James are as follows:

St. James Marine Reserve and Wildlife Sanctuary	Subchapter 96, Section 96-3	<p><i>Prohibited Activities within the St. James MRWS:</i></p> <ul style="list-style-type: none"> It is unlawful to remove any marine or other wildlife without a permit or specific authorization from the Commissioner
	Subchapter 96, Section 96-4	<p><i>Permitted Activities within the St. James MRWS:</i></p> <p>Acts permitted, provided a permit is first obtained from the Commissioner:</p> <ul style="list-style-type: none"> Scientific collecting in support of and for use in a research project with an approved protocol The use of castnet with a minimum square mesh size of ¼ inch to capture baitfish (fry) within 50 feet of the shoreline, except for Cow and Calf rocks Fishing with hook and line

6.03.k Erosion and Sediment Control Devices to be Implemented

Silt fencing will be installed at the lowest contour of the area of construction. Any stockpiles will be surrounded with silt fencing and covered if left more than 7 days. Once the construction is completed the area will be landscaped. Silt fencing will not be removed until all exposed soil is stabilized by vegetation or other means.

6.03.1 Maintenance of Erosion and Sediment Control Devices

Erosion control measures will be checked on a daily basis and anytime when more than ¼ inch of rainfall occurs. Soil will be removed when it reaches ¼ the height of the silt fencing. Fencing must be repaired if it is found to be damaged, has deteriorated or has proven to become ineffective. The fencing must be properly toed-in at all times.

6.03.m Impacts on Terrestrial and Shoreline Erosion

Because minimal earth disturbance and no change along the shoreline are proposed in connection with this application, there will be no erosion and no negative impact on terrestrial or marine environments. The shoreline is protected with riprap revetment.

6.04 Fresh Water Resources

St. Thomas, USVI is limited in the amount of fresh water resources to a few wells located around the island, and intermittent and ephemera streams and ponds which dry up during periods of limited rainfall. The majority of potable water is either captured by rooftops and stored in cisterns or is desalinated seawater. Cowpet Bay West utilizes a reverse osmosis plant and utilizes roof catchments and cisterns.

6.05 Oceanography

6.05.a Sea Bed Alteration

No alternation of the seabed is proposed.

6.05.b Tides and Currents

The Virgin Islands coastal areas are not subject to significant tidal ranges or tidal currents. Due to the small size of the islands, the sea flows around the island causing an average tidal height of only a few inches and maximum change of only a little over a foot. Only very narrow intertidal zones are found because of this lack of tidal amplitude and the steepness of the island rising out of the sea. The tides offshore are primarily semi-diurnal in nature, with two cycles of high and two of low water every 24 hours. The mean tides range from 0.8 feet to 1.0 feet and the spring tidal ranges reach up to 1.3 feet (IRF 1977). There are not locally driven tidal currents off the resort property due to the openness of the embayment.

NOAA has a tide gauge in Charlotte Amalie and has recorded water levels since 1975. The high tide recorded on September 18, 1989 (Hurricane Hugo) was +3.35ft. In 1995, during Hurricane Marilyn, the Charlotte Amalie tide station recorded the highest tide height 3.98' above Mean Lower Low Water. The lowest tide recorded was on February 6, 1985, and was -1.44ft.

The tidal ranges of the Charlotte Amalie station are as follows and as shown in Figure 6.01.1:

Mean Higher High Water	1.09'
Mean High Water	0.94'
Mean Tide Level	0.54'
Mean Sea Level	0.52'

Mean Low Water 0.13'

Mean Lower Low Water 0.0'

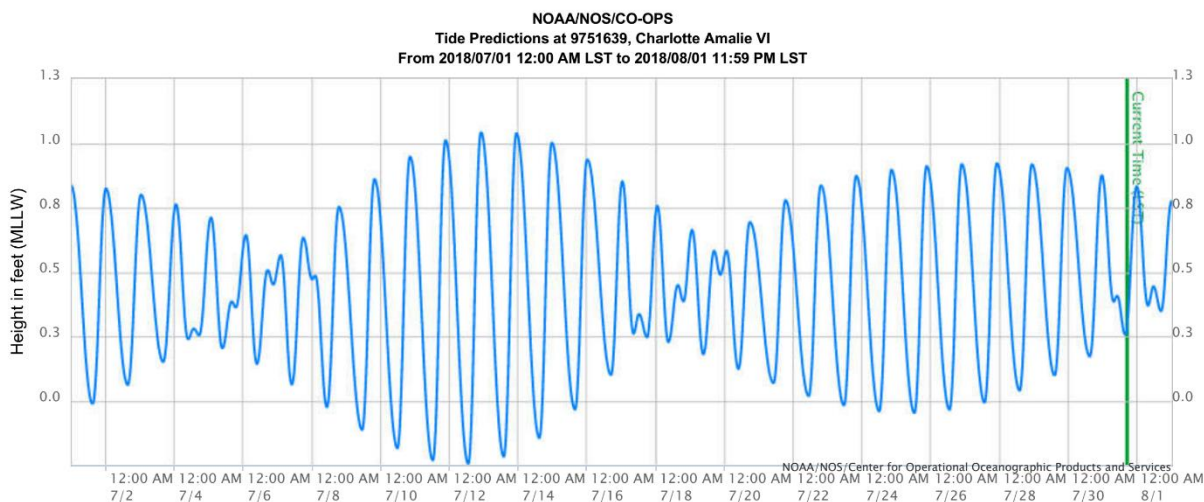


Figure 6.05.1 Tides in Charlotte Amalie, St. Thomas

Currents

The surface currents throughout the Caribbean are driven by the North Equatorial Current that runs through the islands west-northwest and then joins the Gulf Stream (Figure 6.01.2). These currents change very little from season to season with the currents coming more from the south during the summer months. Because of the shallowness of the Caribbean basin (less than 1000m), mainly surface water from the Atlantic flows through the islands. The westerly drift of the Caribbean current sweeps into Pillsbury Sound from the Southeast, seeking a way North through the barrier set up by the Cays to discharge along the North Shore of St. Thomas and out into the Atlantic (Figure 6.01.3). Currents off the south side of St. Thomas average 0.7 knots 23 percent of the time. The current flows along the south side of St. Thomas in a westerly direction.

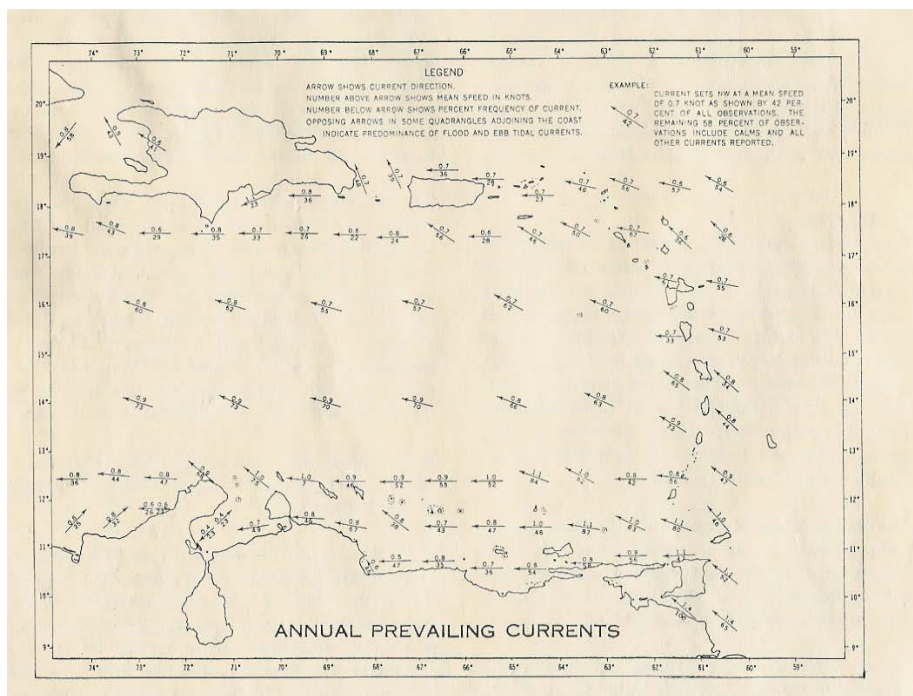


Figure 3. Annual prevailing currents in the Caribbean. From U.S. Naval Oceanographic Office, *Sailing Directions*, 1963.

Figure 6.05.2 Annual Prevailing Currents in the Caribbean

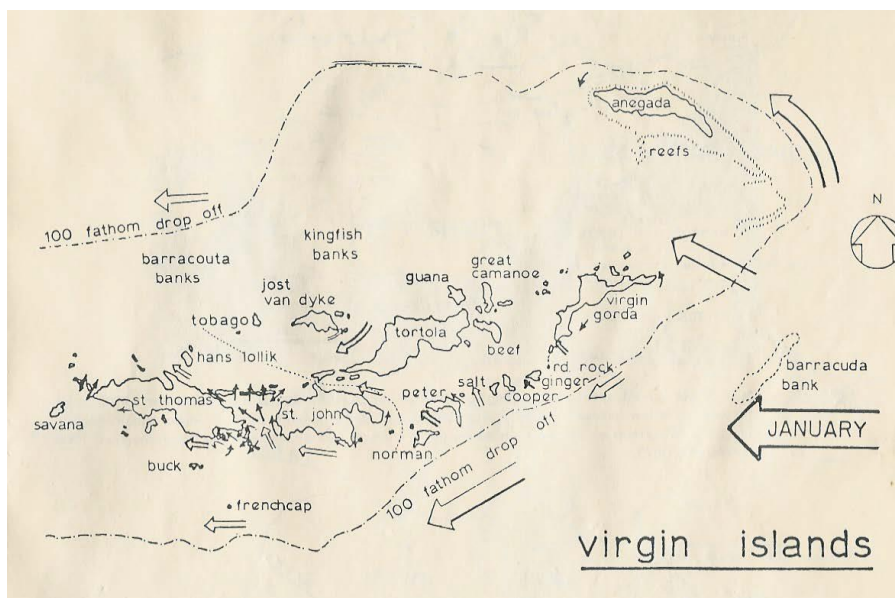


Figure 6.05.3 Currents in the Virgin Islands

6.05.c Waves and Wind

The deep-water waves off St. Thomas are primarily driven by the northeast trade winds that blow most of the year. Waves average from 1 to 3 feet from the east, 42% of the time throughout the year (IRF, 1977). For 0.6% of the time, easterly waves reach 12 ft. in height. The southeasterly swell with waves one to twelve ft. high become significant in late summer and fall when the trade winds blow from the east or when tropical storms and hurricanes pass the islands at a distance to the south. During the winter months, long length, long period northern swells develop to a height of 1 to 5 ft. The bay is a protected environment and is only affected by waves from the south.

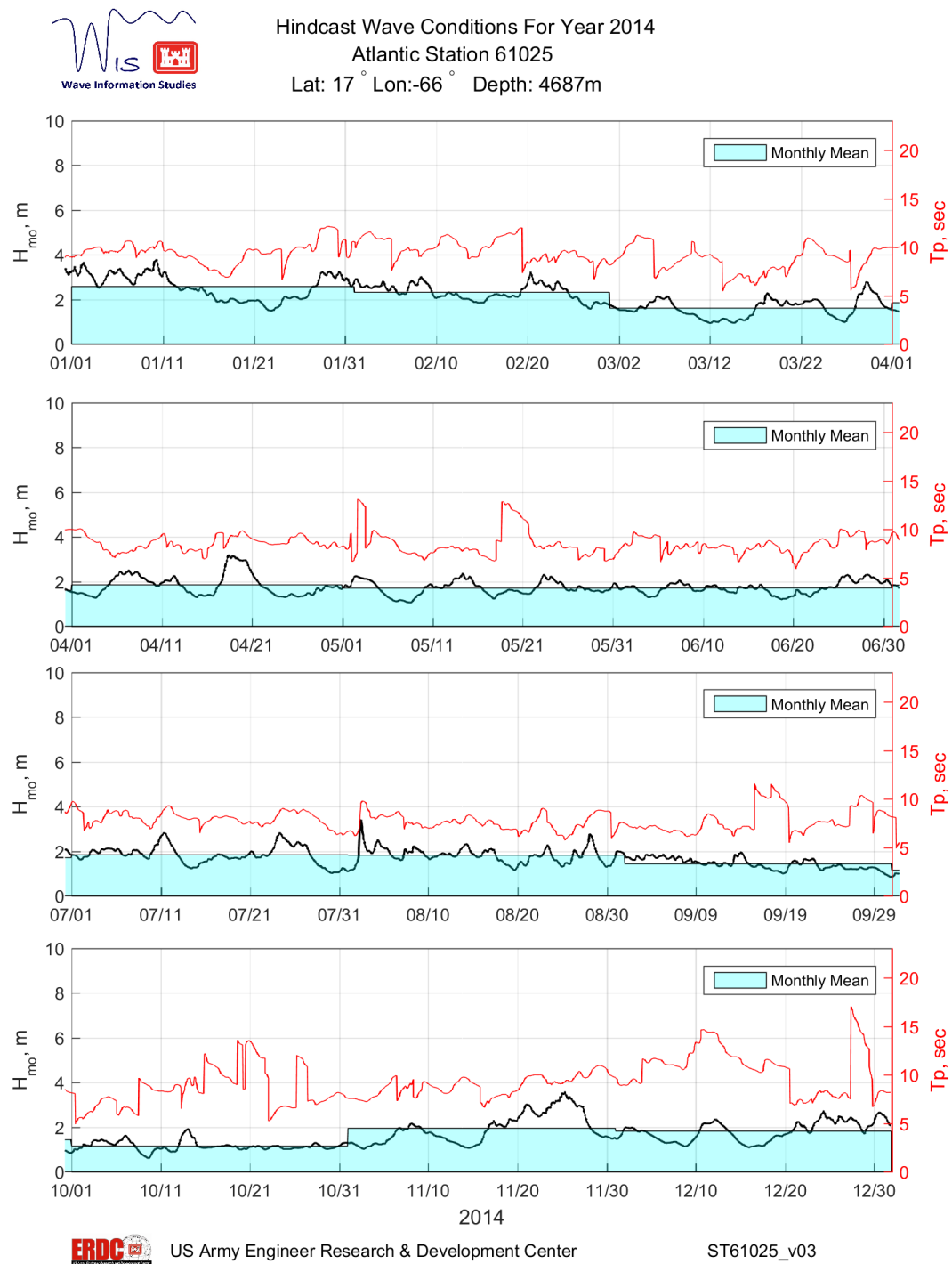
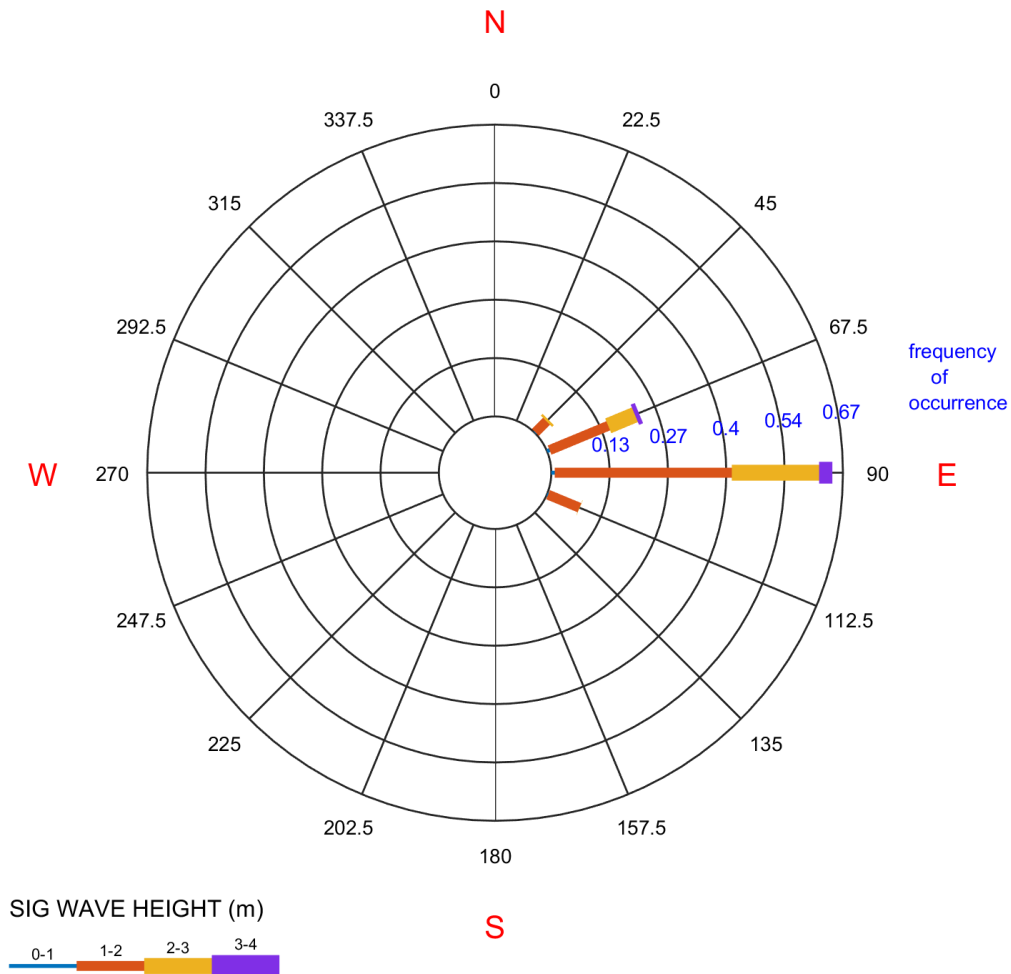


Figure 6.05.4 Significant wave height, ERDC, USACE WIS,
 (http://wis.usace.army.mil/data/atl/onlns/2014/stplots/TimePlt_ST61025_2014.png)



Atlantic WIS Station 61025
ANNUAL 2014
Long: -66° Lat: 17° Depth: 4687 m
Total Obs : 8756
WAVE ROSE



US Army Engineer Research & Development Center

ST61025_v03

Figure 6.05.5 Wave Rose Station 61025 (most direct approach to resort property) USACE WIS (http://wis.usace.army.mil/data/atl/onlins/2014/stplots/TimePlt_ST61025_2014.png)

6.05.d Marine Water Quality

The water is classified as Class B and the best usage of the water is listed as the propagation of desirable species of marine life and for primary contact recreation (swimming, water skiing, etc.). The quality criteria include dissolved oxygen not less than 5.5mg/l from other than natural conditions. The pH must not vary by more than 0.1 pH unit from ambient; at no time shall the pH be less than 7.0 or greater than 8.3. Bacteria (fecal coliform) cannot exceed 70 per ml, and turbidity should not exceed a maximum nephelometric turbidity unit of three (3) NTU. Water quality within Cowpet Bay West is usually excellent with good visibility.

Impact of the Proposed Project

The proposed project alteration should not result in any negative impact to offshore water quality. The installation of a new WWTP should minimize the potential of nutrient input from the condominiums.

6.06 Marine Resources and Habitat Assessment

No impacts to marine resources and habitat are anticipated in connection with this application.

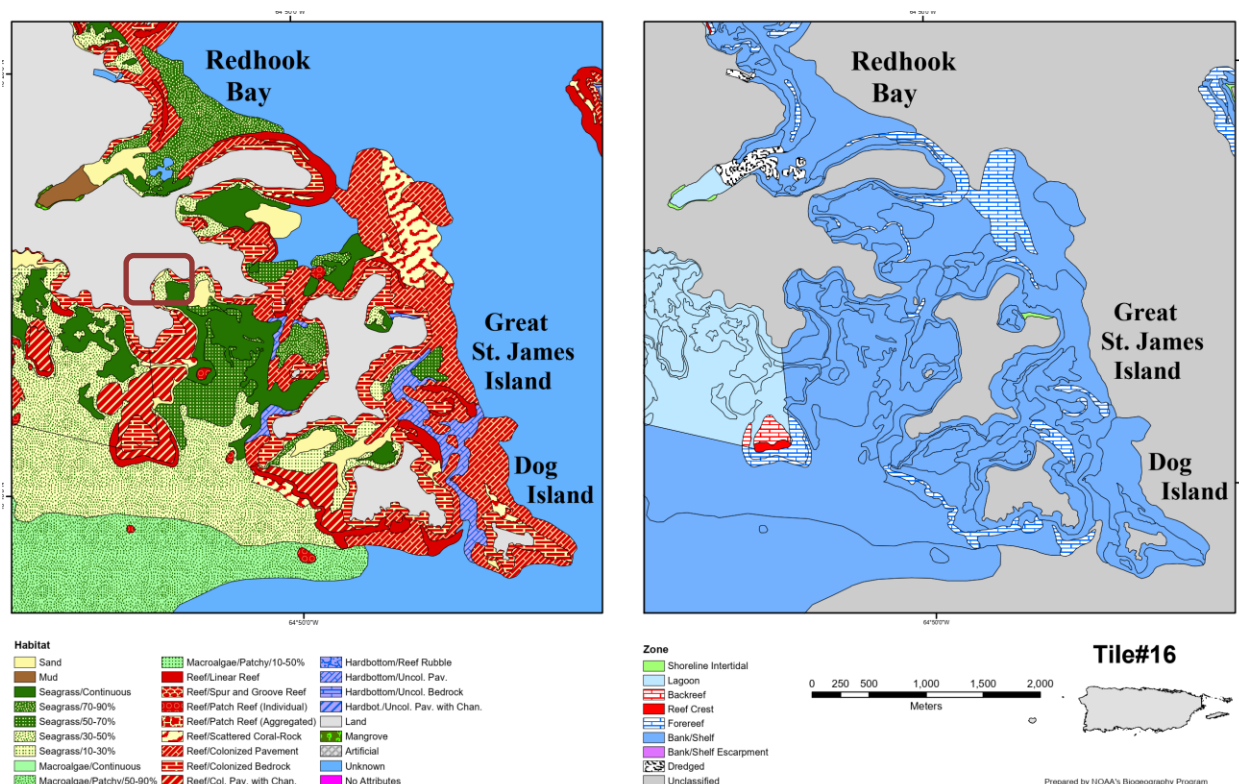


Figure 6.06-F.1 NOAA Benthic Habitat Map Tile #16

There are ESA listed corals present in the bay including *Acropora palmata*, *Dendrogyra cylindrus*, *Orbicella annularis*, *Orbicella faveolata*, and *Orbicella franksi*, these species occur across the bay on the

rocky shoreline. There are a few corals on the riprap revetment which are along the shoreline below the condominiums, but no ESA listed species. There are seagrass beds within the bay, primarily *Thalassia testudinum* and *Syringodium filiforme*.

All three federal rare and endangered sea turtle species are known to occur in the offshore waters and can be found within Cowpet Bay. These include hawksbill (*Eretmochelys imbricata*), leatherbacks (*Dermochelys coriacea*) and green turtles (*Chelonia mydas*). The project involves minimal earthwork and should not have any impact on these resources. The improvements to the wastewater treatment system will minimize the potential of nutrients entering the marine environment. Cowpet Bay West is aware of the presence of the ESA listed species and the environmental resources which surround the condominium and will continue to be diligent in protecting these resources.

6.07 Terrestrial Resources

All of the site is landscaped and there are no natural areas on the site. Within the landscaping are some water mampoo (*Pisonia subcordata*), pigeon berry (*Bourreria succulent*), *Citharexylum fruticosum*, black mampoo (*Guapira fragans*), , bougainvillea (*Bougainvillea glabra*), wedelia (*Wedelia trelobata*), seaside maho (*Thespesia populnea*), marble trees (*Cassine xylocarpa*), Spanish bayonet (*Yucca aloifolia*), century plant (*Agave missionum*), ginger Thomas (*Tecoma stans*), sessileleaf stopper (*Eugenia sessiliflora*), donkey cactus (*Agave angustifolia*), seagrapes (*Coccoloba uvifera*), coconut palms (*Cocos nucifera*) Christmas palms (*Adonidia merrilli*) and Royal palms (*Roystonea regia*).

An occasional brown pelican (*Pelecanus occidentalis*) was seen in the bay. Pearly eyed thrashers (*Margarops fuscatus*), blackfaced grassquits (*Tigris bicolor*) and a gray kingbird (*Tyrannus dominicensis*) were noted within the property. Several iguana (*Iguana iguana*) were seen as well as tree anoles (*Anolis cristatellus*), grass anoles (*Anolis pulchellus*), barred anoles (*Anolis stratulus*), dwarf geckos (*Thecadactylus* sp), and common ground lizards (*Sphaerodactylus macrolepis*) were seen within the condominium grounds. The St. Thomas tree boa, *Chilabothrus granti*, is probably present but was not seen during the survey.

Impact of Development

The improvements to the WWTP and the structural repairs to the balconies will not impact native fauna or flora.

6.08 Wetlands

The U.S. Army Corps of Engineers defines wetlands as "those areas that are periodically inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and under normal

circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, bogs, marshes and similar areas." (U.S. Army Corps of Engineers, 1986).

There are no terrestrial wetlands within the property.

6.09 Rare and Endangered Species

No rare or endangered species were seen within the condominium property, and the site is not critical habitat for any endangered species. .

There are ESA listed species in the surrounding marine environment. This includes 5 coral species including *Acropora palmata*, *Dendrogyra cylindrus*, *Orbicella annularis*, *Orbicella faveolata*, and *Orbicella franksi*. The *Orbicella spp.* species occur on the opposite side of the small embayment on the hardbottoms around the point.

The three rare and endangered sea turtle species are known to occur in the offshore waters in the region. These include: hawksbill (*Eretmochelys imbricata*), leatherbacks (*Dermochelys coriacea*) and green sea turtles (*Chelonia mydas*). Hawksbill sea turtles and green sea turtles have been seen with some frequency over the years during the surveys in the area.

The Nassau grouper, *Epinephelus striatus*, has been seen around the adjacent Yacht Club pier. The grouper has been listed as a threatened species.

The property is within the designated critical habitat for the St. Thomas Tree Boa (*Epicrates monensis granti* recently reclassified as *Chilabothrus granti*), a federally listed rare and endangered species.

Vegetation within the project footprint will be cleared by hand to limit impacts to the tree boas.

6.10 Air Quality

The project will have no impact on air quality.

6.0 IMPACT OF THE PROPOSED PROJECT ON THE HUMAN ENVIRONMENT

6.01 Land and Water Use Plans

The site is zoned R-3 which is the appropriate zoning for the condominiums. The minor renovations and structure repairs will not result in any change of use.

6.02 Visual Impacts

This is an existing condominium and the proposed WWTP improvement and the balcony structure repairs will have no visual impacts.

7.03 Impacts of Public Services and Utilities

7.03.a Water

This is an existing condominium and the proposed WWTP improvement and the balcony structure repairs will have no change on water demand. The property operates a reverse osmosis plant and utilizes roof catchments and cisterns. The reverse osmosis utilizes a beach well for its intake water.

7.03.b Sewage Treatment and Disposal

The application includes the expansion of the WWTP to include a new 30,000gallon tank and installation of a containerized Fluence WWT system. The existing treatment system will be kept as a backup.

7.03.c Solid Waste Disposal

This is an existing condominium and the proposed WWTP improvement and the balcony structure repairs will have no impact on solid waste disposal.

7.03d Roads, Traffic and Parking

This is an existing condominium and the proposed WWTP improvement and the balcony structure repairs will have no impact on roads, traffic and parking.

7.03.e Electricity

This is an existing condominium and the proposed WWTP improvement and the balcony structure repairs will have no impact on electrical demand.

7.03.f Schools

This is an existing condominium and the proposed WWTP improvement and the balcony structure repairs will have no impact on schools.

7.03.g Fire and Police Protection

This is an existing condominium and the proposed WWTP improvement and the balcony structure repairs will have no impact on fire and police protection.

7.03.h Health

This application will have no impact on the use of public health facilities.

7.04 Social Impacts

This permit application should not change the existing condominium.

7.05 Impacts on Historical and Archaeological Resources

No changes to facilities or the site are proposed which impact previously unaltered areas. The site has been highly altered in the past, and there are no archeological resources remaining within the condominium footprint.

7.06 Recreational Use

This is an existing condominium and the proposed WWTP improvement and the balcony structure repairs will have no impact on recreational use.

7.07 Waste Disposal

This is an existing condominium and the proposed WWTP improvement and the balcony structure repairs will have no impact on waste disposal.

7.08 Accidental Spills

No changes are proposed in connection with this application. Any spills which occur during construction will be cleaned up and materials properly disposed of.

7.09 Potential Adverse Effects that Can Not be Avoided

The actions proposed in this application do not create any potential adverse effects that may not be avoided.

8.00 MITIGATION PLANS

No mitigation plans are proposed as a part of this application since no adverse impacts are anticipated.

9.0 ALTERNATIVES TO PROPOSED ACTION

Cowpet Bay West has been asked to obtain a permit for the existing facility and permitting the condominiums will facilitate permitting in the future. The WWTP has to be upgraded to treat the increased volume of wastewater to EPA standards, and the balconies must be structurally repaired or they will become a safety hazard.

10.0 RELATIONSHIP BETWEEN SHORT AND LONG TERM USES OF MAN'S ENVIRONMENT

No changes significant changes are proposed to the existing condominiums; thus no impact, short or long term, to man's use of the environment will result from the actions proposed under this application.

11.0 REFERENCES

- Bucher, K.E., D.S. Littler, M.M. Littler, J.N. Norris. 1989. Marine Plants of the Caribbean A Field Guide From Florida to Brazil. Smithsonian Institution Press, Washington, D.C.
- Donnelly, T. 1966. Geology of St. Thomas and St. John, U.S. Virgin Islands. In: Hess, H. (ed.) Caribbean geological investigations. Geol Soc. Amer. Mem. 98:85-176.
- Donnelly, T., Rogers, J.J.W., Pushkar, P., Armstrong, R.L. 1971. Chemical evolution of the igneous rocks of the Eastern West Indies. In: Donnelly, t. (ed.) Caribbean geophysical, tectonic and petrologic studies. Geol. Soc. Amer. Mem. 130:181-224.

- Gill, I.P. and Hubbard, D.K. 1986. Subsurface Geology of the St. Croix Carbonate Rock System, Technical Report No. 26, Caribbean Research Institute, College of the Virgin Islands, 71 pp.
- Hays, W.W. 1984. Evaluation of the earthquake-shaking hazard in Puerto Rico and the Virgin Islands. Paper present at the earthquake hazards in the Virgin Islands Region Workshop, St.Thomas, April 9-10, 1984.
- Humann, P. 1993. Reef Coral Identification. New World Publications, Inc., Jacksonville, FL.
- Humann, P. 1989. Reef Fish Identification. New World Publications, Inc., Jacksonville, FL.
- Island Resources Foundation. 1977. Marine environments of the Virgin Islands. Technical Supplement No.1 1976. Prepared for the Virgin Islands Planning Office.
- U.S. Department of Agriculture Soil Conservation Service. 1970 Soil Survey Virgin Islands of the United States. U.S. Govt. Printing Office, Washington, D.C.

APPENDIX I

BIOIMPACT, INC.

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FAX NUMBER: (340) 718-3800

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QUALIFICATION STATEMENT

Bioimpact, Inc. is a Virgin Islands corporation that has been licensed to do business in the USVI since 1986.

Bioimpact, Inc. is qualified to conduct and prepare both terrestrial and marine Environmental Assessment Reports required by the U.S. Virgin Islands Department of Planning and Natural Resources (DPNR), Division of Coastal Zone Management (CZM), and the U.S. Army Corps of Engineers (USACE).

Bioimpact, Inc. has wetland delineators certified by the National Wetland Science Training Cooperative to establish wetland jurisdictional limits for the USACE.

Bioimpact, Inc. is experienced in the creation and implementation of wetland mitigation programs.

Bioimpact, Inc. is experienced in developing and implementing marine water quality monitoring programs and long-term monitoring of the benthic environment.

Bioimpact, Inc. has water samplers and analysts certified by the DPNR Division of Environmental Protection (DEP).

Bioimpact, Inc. has successfully designed and implemented large scale coral and seagrass transplant programs.

Bioimpact, Inc. is experienced in cable landfall studies and the establishment of routes for undersea cables and monitoring of cable installations to minimize impact.

Bioimpact, Inc. is experienced in conducting endangered species surveys including corals listed under the Endangered Species Act (ESA) and terrestrial flora and fauna species surveys.

Bioimpact, Inc. is experienced in preparing Biological Assessments for the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (FWS).

Bioimpact, Inc. is experienced in the transplant and monitoring of ESA-listed corals, as authorized under “Take Permits” from NMFS.

Bioimpact, Inc. is experienced in preparing Environmental Assessments for federal permitting and for federal issuance of a Finding of No Significant Impact (FONSI).

Bioimpact, Inc. is experienced in conducting Phase I Environmental Site Assessments as set forth in the ASTM International Standard Practice Designation E1527-21 and All Appropriate Inquires and Phase II Environmental Site Assessments as set for in ASTM E1903-11.

Bioimpact, Inc. is experienced in the development and implementation of sampling plans to detect and delineation hazardous materials and petroleum products.

Bioimpact, Inc. is experienced in conducting deep water remotely operated vehicle (ROV) surveys up to 1,250 feet and has all the necessary equipment to undertake these studies.

Bioimpact, Inc. has conducted environmental studies in the U.S. Virgin Islands, Puerto Rico, British Virgin Islands, as well as other parts of the Caribbean and in the Florida Keys.

PARTIAL JOB LIST
Updated March 31, 2022

MONITORING LARGE SCALE PROGRAMS

- 2021 – Present** Watershed and Stormwater Sampling on St. Croix and St. Thomas as a Subcontractor to Watershed Consulting Associates LLC.
- 2021 – Present** Development and Implementation of a Water Quality and Environmental Monitoring Plan for Construction of a Private Dock in Chocolate Hole, St. John.
- 2021 – Present** Development and Implementation of a Water Quality Monitoring Plan for the Reconstruction of the Marriott Frenchman’s Reef Dock and Minor Dredging.
- 2020 – Present** Monitoring for the Virgin Islands Tree Boa at the Donoe Housing Redevelopment Site.
- 2019 – Present** Development and Implementation of the Water Quality and Environmental Monitoring Plan for the Installation of a Single Point Mooring at Limetree Marine Terminals, St. Croix.
- 2013 – Present** U.S. Virgin Islands Ambient Water Quality Monitoring Program, Sampling for St. Croix.
- 2018 – 2021** Development and Implementation of the Water Quality and Environmental Monitoring Plan for the Construction of the Veterans Drive Project on St. Thomas for the U.S. Virgin Islands Department of Public Works (VIDPW).
- 2016** Development and Implementation of the Water Quality Monitoring Plan for the West Indian Company Limited (WICO) Emergency Bulkhead Replacement on St. Thomas.
- 2014 – 2018** Development and Implementation of the Environmental Monitoring Plans for the Conversion of U.S. Virgin Islands Water and Power Authority (VIWAPA) to Liquid Petroleum Gas (LPG) for Vitol on St. Croix and St. Thomas.
- 2014 – 2018** Development and Implementation of the Environmental Monitoring Plans for the Creation of a Dolphin Exhibit at Coral World (VI), Inc. on St. Thomas.
- 2013 – 2018** Development and Implementation of the Water Quality and Environmental Monitoring Related to the Dredging of the Crown Bay Marine Terminal and Turning Basin on St. Thomas.
- 2013 – Present** Development and Implementation of the Monitoring Plans for the VIDPW’s Improvements to Veterans Drive on St. Thomas.

- 2013 – 2018** Development and Implementation of the Monitoring Plans for the U.S. Virgin Islands Port Authority's (VIPA) Maintenance Dredging of Crown Bay Marina on St. Thomas.
- 2013 – 2018** Development and Implementation of Monitoring Plans for the Westin Resort's Dock Permit and Improvements of Stormwater Drainage on St. John.
- 2013 – 2015** Implementation and Monitoring of a Wetland Created as Mitigation for the Development of the U.S. Virgin Islands Waste Management Authority's (VIWMA) Transfer Station on St. Croix.
- 2012 – 2018** Development and Implementation of the Monitoring Plans for the Virgin Islands Next Generation Network's (viNGN) Fiber Optic Cable System in the USVI.
- 2011 – 2019** Development and Implementation of a Water Quality and Environmental Monitoring Plan to Assess Impacts of an Increase in Discharge from the Marriott Frenchman's Reef Hotel on St. Thomas.
- 2010 – 2012** Development of the Water Quality and Environmental Monitoring Program for the Development of Thatch Cay with a Special Emphasis on ESA-listed Corals.
- 2009 – 2015** Environmental Monitoring for the Development of Oil Nut Bay and the Yacht Club Costa Smeralda (YCCS) for Victor International on Virgin Gorda, British Virgin Islands (BVI).
- 2009 – 2010** Development and Implementation of a Water Quality Monitoring Plan for the Construction of the Dock at Frenchman's Cove for Marriott Vacation Club, Inc on St. Thomas.
- 2009** Establishment of the Baseline for the Dredging of Charlotte Amalie Harbor and Entrance Channel, and the and the Disposal of Dredged Materials in the Historic Dredging Hole in Lindbergh Bay, St. Thomas for WICO.
- 2008 – 2009** Environmental Monitoring of the Development of Scrub Island in the BVI for Mainsail Lodging and Development.
- 2007 – 2010** Water Quality Monitoring for the Development of the Calabash Boom Affordable Housing Complex for Reliance Housing in Estate Calabash Boom on St. John.
- 2007 – 2009** Water Quality and Environmental Monitoring for Flamboyant Real Estate of a Subdivision of Seventy-seven Acres in Hansen Bay, St. John.
- 2006 – 2008** Water Quality Monitoring for the Dredging of a Sand Channel in St. Croix for VIWAPA.

- 2006 – 2007** Water Quality Monitoring for the Renovations of the Ritz-Carlton Hotel on St. Thomas for the Ritz-Carlton.
- 2006 – 2010** Environmental Monitoring for the Placement of Undersea Cables at the Global Crossing Cable Station in St. Croix for Global Crossing Network, Alcatel, and Tyco Electronics Subsea Communications (now SubCom).
- 2005 – 2007** Water Quality Monitoring for the Dredging of Crown Bay, St. Thomas for VIPA.
- 2005 – 2006** Water Quality and Environmental Monitoring for Improvements to the Redhook Marine Terminal for VIPA.
- 2004 – 2011** Water Quality and Environmental Monitoring for the Construction of the Pond Bay Resort for First American Development Group on St. John.
- 2004** Benthic Habitat Survey of Crown Bay and Gregerie Channel to Supplement the USACE Feasibility Report for VIPA.
- 2003 – 2006** Water Quality Monitoring for the Construction of the Enighed Pond Marine Terminal on St. John for VIPA.
- 2003 – 2004** Water Quality Monitoring for the Development of the Crown Bay Marine Terminal on St. Thomas for VIPA.
- 2002 – 2008** Water Quality and Environmental Monitoring for the Development of Marine Amenities on the Island of Lovango for the Joseph Markus Trust.
- 2002 – 2005** Water Quality Monitoring for the Improvements to the Gallows Bay Marine Terminal on St. Croix for VIPA.
- 2001 – 2008** Coral Transplant Monitoring for the Enighed Pond Marine Terminal on St. John for VIPA.
- 2001 – 2006** Coral Transplant Monitoring for the Mangrove Lagoon Sewage Treatment Plant Outfall on St. Thomas for VIDPW.
- 2001 – 2002** Water Quality Monitoring for Improvements to the Tropical Shipping Dock in Crown Bay, St. Thomas for Meisner Marine.
- 2000 – 2006** Seagrass Transplant Monitoring of the Seagrass Transplanted for the Dredging of Charlotte Amalie Harbor on St. Thomas for VIPA.
- 2000 – 2003** Water Quality Monitoring for the Dredging of Charlotte Amalie Harbor on St. Thomas for VIPA.

- 1999 – 2006** Water Quality Monitoring for Repairs to the Frederiksted Pier on St. Croix for VIPA.
- 1999 – 2002** Water Quality Monitoring for the Construction of Cable Stations at Estate Northside on St. Croix for Global Crossings.
- 1997 – 2005** Development of a Water Quality Monitoring Program for the Construction of the Christiansted Boardwalk on St. Croix Prepared for the Government of the U.S. Virgin Islands.
- 1997 – 2005** Wetland Monitoring of the Tren Urbano, Puerto Rico (PR) 5 and PR 22 Mitigation Sites under Subcontract to Nutter & Associates, Inc. for the Puerto Rico Highway Authority.
- 1997 – 2002** Wetland Monitoring of the Airport Mitigation Site at the Henry E. Rohlsen Airport on St. Croix for VIPA.
- 1997 – 2002** Wetland Monitoring for the Fairplains Mitigation Site at the Henry E. Rohlsen Airport on St. Croix for VIPA.
- 1996 – 1998** Water Quality Monitoring for the Expansion of the Molasses Pier at the Third Port on St. Croix for the VIPA.
- 1996** Development and Implementation of a Water Quality Monitoring Program for the Expansion of, and Improvements to, the Redhook Marine Terminal on St. Thomas for VIPA.
- 1996** Development and Implementation of a Water Quality Monitoring Program for the Creation of the Enighed Pond Marine Terminal on St. John Prepared for the Maguire Group, Inc. and VIPA.
- 1995** Water Quality Monitoring for the Construction of the AT&T Cable Landing Facility in Estate Northside, St. Croix for AT&T Submarine Systems.
- 1992 – 1994** Development and Implementation of a Water Quality Monitoring Program for the Reconstruction of the Frederiksted Pier on St. Croix for VIPA.
- 1992 – 1993** Conducted a Baseline Assessment and Developed a Long-term Monitoring Plan for VIWAPA of the Benthic Community Potentially Impacted the Outfall from the Richmond Power Plant on St. Croix
- 1992 – 1993** Development and Implementation of a Monitoring Plan to Study Algal Blooms within the Alumina Cooling Pond Discharge and Strategies to Alleviate Runoff for V.I. Alumina Corporation LLC (VIALCO) on St. Croix.

1990 – 1992 Water Quality Monitoring for Dredging Christiansted Harbor on St. Croix for VIPA.

1989 Development and Implementation of a Turtle Monitoring Program for Manchineel Beach on St. Croix.

LARGE SCALE MITIGATION PROGRAMS

- 2021 – Present** Removal and Relocation of 209 Corals for the U.S. Coast Guard Aids to Navigation (ATON) Replacement Project on St. Croix and Routine Monitoring of a Subset of Corals.
- 2020 – Present** Development and Implementation of the Compensatory Mitigation Plan for the Transplant of 1,700 corals, the Repair of 500 Corals of Opportunity, and the Outplanting of 3,000 ESA-listed corals for Limetree Bay Terminal’s Single Point Mooring on St. Croix.
- 2018 – Present** Development and Implementation of a Compensatory Mitigation Plan for the Relocation of 1.25 Acres of Seagrass and 631 Corals from the Impact Footprint of the Veterans Drive Project on St. Thomas, and the Repair of Damaged Corals on Triangle Reef for VIDPW.
- 2016 – 2020** Development and Implementation of a 190-Coral Transplant for the Stabilization of the Seawater Intake Line for the Marriott Frenchman’s Reef Hotel on St. Thomas.
- 2016 – 2020** Development and Implementation of a Coral Transplant to Minimize the Impacts of Construction for LPG Improvements at VIWAPA Facilities on St. Croix and St. Thomas.
- 2015 – 2021** Development and Implementation of the Mitigation Plan for the Relocation of 10,000 Corals Off the WICO Bulkhead in Havensight for WICO on St. Thomas.
- 2014 – Present** Development and Implementation of a Coral and Seagrass Transplant for Coral World (VI), Inc. in Association with the Development of the Dolphin Exhibit on St. Thomas; 250 Corals were Transplanted and More Than 500 Corals were Repaired after the 2017 North Atlantic Hurricane Season.
- 2014 – 2019** Development and Implementation of the Mitigation Plans for VIPA’s Maintenance Dredging of Crown Bay Marina on St. Thomas.
- 2013 – 2018** Development and Implementation of the Mitigation Plans for the Westin Resort’s Dock Permit and Improvements of Stormwater Drainage on St. John.
- 2013 – 2015** Creation of a Herbaceous Wetland for VIWMA as Mitigation for the Construction of the Transfer Station at the Anguilla Landfill on St. Croix.
- 2009** Transplantation of 300 Corals for Victor International Coral for Impacts Associated with the Development of an Access Ramp and Dock at Oil Nut Bay in the BVI.

- 2008 – 2009** Transplantation of 3,000 Corals for Mainsail Lodging and Development for Impacts Associated with the Development of the Scrub Island Resort in the BVI.
- 2006 – 2011** Planting of 1 Acre of Mangrove Wetland for VIDPW as Mitigation for the Construction of the Mangrove Lagoon Sewage Treatment Plant on St. Thomas.
- 2003 – 2008** Planting of 2.8 Acres of Mangrove Wetland for VIPA as Compensatory Mitigation for the construction of the Enighed Pond Terminal on St. John.
- 2003 – 2008** Removal and Relocation of 3,000 Corals Outside the Area of Impact for the Development of the Crown Bay Marine Terminal on St. Thomas for VIPA.
- 2002 – 2007** Development and Implementation of the Mitigation Plans for VIPA's Dredging of Crown Bay Marine Terminal and Turning Basin on St. Thomas.
- 2002 – 2007** Transplantation of 50,000 Corals for VIPA Outside the Area of Impact for the Enighed Pond Marine Terminal Project on St. John.
- 2002** Creation of Artificial Coral Reefs and *Acropora spp.* Thickets for Joseph Markus Trust as Mitigation for the Construction of a Barge Landing Facility on the Island of Lovango.
- 2000 – 2005** Transplantation of 2 Acres of Seagrass for VIPA to an Area Outside the Dredging Footprint of the Charlotte Amalie Harbor on St. Thomas.
- 2000 – 2001** Transplantation of 7,000 Corals for VIDPW Outside of the Area of Impact for the Placement of the Mangrove Lagoon Sewage Treatment Plant Outfall on St. Thomas.
- 1999 – 2004** Transplantation of 300 Corals for VIPA Outside the Area of Impact for the Mooring Improvements to the Frederiksted Pier on St. Croix.
- 1997 – 2003** Planting of ½ Acres of Mangroves for VIPA/VIDPW as a Mitigation Project for the Construction of the Molasses Dock Road on St. Croix.
- 1997 – 2002** Creation of a 1-Acre Herbaceous Wetland for VIPA as Mitigation for Henry E. Rohlsen Airport Construction on St. Croix.
- 1997 – 2002** Development of a Mitigation Plan for VIPA for the Creation of a 16,000-square Foot Wetland at Manning Bay to Address the Impact Incurred in Fairplains Gut on St. Croix.
- 1996** Development of a Mitigation Plan for VIPA for the Creation of 4.1 Acres of Wetland as Mitigation of the South Shore Power Plant, Third Port on St. Croix.

1994 Development of a Mitigation Plan for Green Cay Resort for the 12 Acres of Wetland Impacted by the Construction of the Resort on St. Croix.

ENVIRONMENTAL ASSESSMENT REPORTS
2020– PRESENT

Water quality, monitoring and/or compensatory mitigation plans were developed to supplement most of the environmental assessment reports listed.

Water Island Development, Water Island Development Corporation, Environmental Assessment Report for the Development of a Resort and Marina, Water Island

Villa Olga Shoreline Revetment, Olga’s Fancy, Environmental Assessment Report for the Restoration and Revetment of the Shoreline, St. Thomas

Expansion of Yacht Haven Grande Marina, IGY, Environmental Assessment Report for the Expansion of the Existing Yacht Haven Grande Marina, St. Thomas

Sapphire Bay Marina Dredging and Installation of Sargassum Barriers and Shoreline Revetment, SBMCOA, LLC, Environmental Assessment Report for Dredging of the Marina, Revetment of the Shoreline, and Installation of Sargassum Barriers, St. Thomas

Ritz-Carlton Shoreline Preservation Plan, Ritz-Carlton Club, Assessment Report for the Installation of Sargassum Barriers and Geotubes, St. Thomas

St. Croix Yacht Club, St. Croix Yacht Club, Environmental Assessment Report to Permit the Existing Facility and to Allow for Repair and Maintenance, St. Croix

Container Port, Golden Grove and Midland Road Underground Projects, V.I. Water and Power Authority, Environmental Assessment Report for the Installation of Underground Power Systems to Improve Resiliency, St. Croix.

Flamingo Bay Eco-Resort, BBK Development, Environmental Assessment Report for the Development of the Small Eco-Resort, Water Island.

Pearl Landfill and Recycling Facility, V.I. Waste Management Authority, Environmental Assessment Report for the Development of a Solid Waste Facility in Estate Pearl, St. Croix.

Charlotte Amalie Harbor Dredging, V.I. Port Authority, Environmental Assessment Report and HUD Environmental Assessment for the Dredging of the Charlotte Amalie Harbor Channel, Turning Basin, and WICO Inner Berth, St. Thomas.

Crown Bay and East Gregory Channel Dredging, V.I. Port Authority, Environmental Assessment Report and HUD Environmental Assessment for the Dredging of Portions of Crown Bay and East Gregory Channel, St. Thomas.

Frenchman's Reef and Morningstar, Beach Enhancement and Shoreline Stabilization, CREF3 (Formerly Diamond Rock), Environmental Assessment Report for the Revetement of the Shoreline, the Installation of Offshore Breakwaters and Sand Renourishment, St. Thomas.

Emergency Response Dock and Shoreline Revetment at the Harley Plant, V.I. Water and Power Authority, Environmental Assessment Report for the Construction of an Emergency Fuel Spill Response Dock and the Revetment of the Eroded Shoreline, St. Thomas.

Consolidated Permit for Randolph E. Harley Power Plant, V.I. Water and Power Authority, Environmental Assessment Report to Bring All Components into Compliance including those Pre-dating CZM, St. Thomas.

Underwater Memorial Park, Virgin Islands Underwater Memorial Park, Environmental Assessment Report for the Creation of an Underwater Park to Intern Ashes into Reef Building Structures, St. Thomas.

Mooring and Operation of a Bar and Restaurant in the Pillsbury Sound, Cowgirl Bebop, LLP, Environmental Assessment Report for the Installation of Moorings for Vessels and Patrons in the Pillsbury Sound, St. John.

Cruz Bay Underground, V.I. Water and Power Authority, Environmental Assessment Report for the Installation of an Underground Power Cable System in Cruz Bay Feeder 7E, St. John.

Tropical Marine Expansion, Tropical Marine, Environmental Assessment Report to Combine Docks at Mangrove Marine and Off Plot 28 and the Expansion of the Existing Dock, St. Thomas.

Limetree Resort, Wyndham Bluebeard's Beach Club, Environmental Assessment Report for the Renovation and Expansion of the Existing Limetree Resort, St. Thomas.

Repair to Cruz Bay Visitor Center, Docks, and Surrounding Grounds Impacted by Hurricanes Irma and Maria, Croft Engineering/National Park Service, Environmental Assessment Report for Dredging the Basin and Repairs to the Bulkhead and Renovation and Upgrades to the Existing Visitor Center, St. John.

Latitude 18 Marina, Jack Rock EA-C LLC, Environmental Assessment Report for the Development of a Marina and Management of a Mooring Field and Dry Storage for Vessels, St. Thomas.

Green Cay Marina, St. Croix Financial Center, Environmental Assessment Report for the Expansion of the Existing Marina, Maintenance Dredging, and Beach and Shoreline Improvements, St. Croix.

King Christian Dock, USVI Opportunity Fund LLC, Environmental Assessment Report for the Reconstruction and Expansion of a Hurricane-Damaged Dock, St. Croix.

Renovations and Expansion of an Existing Dock, Inter-Island Ferry Service, Environmental Assessment Report for the Expansion and Extension of an Existing Dock to Better Accommodate Vessel Dockage, St. Thomas.

Repair of a Hurricane Damaged Dock, Margaritaville, Environmental Assessment Report for the Reconstruction of the Damaged Dock (modified to include a reverse osmosis line extension), St. Thomas.

Boat Building Facility and Dock, Gold Coast Yacht, Inc., Environmental Assessment Report for a Boat Building Warehouse and a Launch and Outfitting Dock, St. Croix.

Turquoise Bay Resort, VIPM LLC, Environmental Assessment Report for a Glamping Resort and Restaurant, St. Croix.

Christiansted National Historic Site Existing Wharf Replacement, HDR, Inc. and National Park Service, Environmental Assessment Report for the Replacement of the Failing Sheet Pile Wall and Bulkhead (and Acoustic Monitoring Plans), St. Croix.

Lovango Cay Beach Club and Resort, Lovango Island Holdings LLP, Environmental Assessment Report to Permit the Development of a Beach Club and Resort and Mooring Installation, Lovango Island.

Wave Attenuation System, LSJ LLC, Environmental Assessment Report for the Installation of Wave Attenuation Systems, Little St. James.

Installation of Access Docks, and Barge Landing Facility, Great St. James, Great St. Jim LLC. Environmental Assessment Report for the Development of a New Dock, the Renovation of an Existing Dock, and the Construction of a Barge Landing, Great St. James.

Installation of a Single Point Mooring at the Limetree Bay Terminal on St. Croix, Limetree Bay Terminals LLC, Environmental Assessment Report for the Installation of an Undersea Pipeline, Pipeline End Manifold (PLEM), and Buoy System at a Depth of 650 Feet, St. Croix.

St. Croix Sports Complex, Coastal Systems, Environmental Assessment Report for the Construction of the Paul. E. Joseph Stadium, Wetland Delineations, and Endangered Terrestrial and Marine Species Assessments (and Development of a Sea Turtle Lighting Mitigation Plan), St. Croix.

Installation of a Submarine Cable System, V.I. Water and Power Authority, Environmental Assessment Report for Submarine Cable Routing and Beach Landfall, St. Thomas.

Maintenance Dredging of Krause Lagoon Channel, V.I. Port Authority, Environmental Assessment Report for the Dredging of the Cross-Channel into the Container Port and Molasses Dock, St. Croix.

Installation of New Reverse Osmosis Discharge and Intake Line, Westin Resort, Environmental Assessment Report for the Installation of a Saltwater Intake Line Over 2000 Feet Offshore, St. John.

Shoreline Stabilization Project for Buccaneer Hotel, The Buccaneer, Environmental Assessment Report for the Placement of a Shoreline Stabilization Structure to Protect the Eroding Shoreline, St. Croix.

VIWAPA's Conversion to LPG, VITOL and V.I. Water and Power Authority, Environmental Assessment Report for the Installation of LPG conversion Equipment and Fuel Dock Expansion (and Offshore Deep-Water Buoy Permit for LPG Ships), St. Croix and St. Thomas.

ENVIRONMENTAL ASSESSMENT REPORTS 2014 – 2019

Water quality, monitoring and/or compensatory mitigation plans were developed to supplement many of the environmental assessment reports listed.

viNGN Submarine Cable Network, Alcatel-Lucent for viNGN, Environmental Assessment Report for the Installation of an Inter-Island Cable System (including a Cable Beach Routing and Landfall Study), U.S. Virgin Islands.

Improvements to the Frederiksted Pier, V.I. Port Authority, Environmental Assessment Report for the Installation of a New Tender Landing, St. Croix.

Improvements to the Red Hook Marine Terminal, V.I. Port Authority, Environmental Assessment Report for the Construction of a New Customs Building and Shoreline Improvements, St. Thomas.

Offshore Windmills, Ocean Energy, Inc., Environmental Assessment Report for the Installation of Offshore Turbines, a Submarine Cable, and Cable Landing (including a Bird Study), St. Thomas.

St. John Marina, Summers End Group, Environmental Assessment Report for the Development of a Marina and Associated Upland Facilities, St. John.

Maintenance Dredging of the Schooner Channel, V.I. Port Authority and HUD/V.I. Housing and Finance Authority (VIHFA), Environmental Assessment Report for the Dredging of the Schooner Channel (including an Evaluation of Alternative Alignments), St. Croix.

Remediation of Hydrocarbon Contamination at the V.I. Seaplane Ramp, V.I. Port Authority, Environmental Assessment Report for the Installation of Restorative Sheet Piles to Restore (and

the Containment of Hydrocarbon-contaminated Soil from a Leaking Underground Storage Tank [LUST]), St. Croix.

Maintenance of the Existing Bulkhead and Maintenance Dredging of Charlotte Amalie Harbor, CH2M Hill and WICO, Environmental Assessment Report for the Replacement of the Sheet Pile in the Inner Berth (including the Development of a Coral Transplant Mitigation Plan), St. Thomas.

ENVIRONMENTAL ASSESSMENT REPORTS

2009 – 2013

Water quality, monitoring and/or compensatory mitigation plans were developed to supplement each of the environmental assessment reports listed.

Dredging of Crown Bay Marine Terminal and Turning Basin, V.I. Port Authority, Environmental Assessment Report for the Dredging of the Crown Bay Marine Terminal and Basin, St. Thomas.

Maintenance Dredging of Crown Bay Marina, V.I. Port Authority, Environmental Assessment Report for the Dredging of Crown Bay Marina (including a Seagrass and Coral Mitigation Plan), St. Thomas.

Improvements to Bordeaux Road, V.I. Department of Public Works and Federal Highway Administration in Collaboration with Parsons Brinkerhoff, Environmental Assessment Report for a Finding of No Significant Impact, St. Thomas.

Improvement to Spring Gut Road, V.I. Department of Public Works and Federal Highways Administration in Collaboration with Stanley Engineer, Environmental Assessment Report for Improvements to Spring Gut Road for a Finding of No Significant Impact, St. Croix.

Coral World's Dolphin Exhibit, Coral World (VI), Inc., Environmental Assessment Report for the Construction of an Offshore Dolphin Pen and Viewing Dock (and ESA Corals Monitoring and Mitigation Plan), St. Thomas.

Expansion of the Spratt Bay Homeowners Dock (SBHOA), Spratt Bay Homeowner's Association, Environment Assessment Report for the Expansion of the SBHOA Dock, Water Island.

Expansion of Veterans Drive, V.I. Department of Public Works and Federal Highway Administration in Collaboration with Parsons Brinckerhoff, Environmental Assessment Report for a Finding of No Significant Impact and Drafting the USACE Statement of Findings, St. Thomas.

Chiller Cooling System, BaHaMar and HDR, Inc., Environmental Assessment Report for the Placement of a Saltwater Intake Line at the BaHaMar Resort, Grand Bahama.

Reverse Osmosis Facility, V.I. Water and Power Authority, Environmental Assessment Report for the Installation a New Reverse Osmosis Facility at the St. Thomas Power Plant, St. Thomas.

Submarine Power Cable, V.I. Water and Power Authority, Environmental Assessment Report for the Installation of a Submarine Power Cable between the Islands of St. Thomas and St. John, Pillsbury Sound, St. Thomas and St. John.

Chiller System and Dock Repairs at the Marriott Frenchman's Reef, Diamond Rock, Environmental Assessment Report for the Installation of Saltwater Intake Line and Dock Repairs (and Larval Study for Intake), St. Thomas.

Expansion of Heavy Materials Krum Bay Facility, Heavy Materials St. Thomas, Environmental Assessment Report for the Expansion of Heavy Materials Concrete Facility in Krum Bay, St. Thomas.

Thirty-three-Megawatt Waste-to-Energy Plant, Alpine Energy Group, Inc., Environmental Assessment Report for the Construction of a 33-Megawatt Waste-to-Energy Plant (including Conducting a Survey of Endangered V.I. Tree Boas in the Area), St. Thomas.

Eighteen-Megawatt Waste-to-Energy Plant, Alpine Energy Group, Inc., Environmental Assessment Report for the Construction of an 18-Megawatt Waste-to-Energy Plans (including a Wetland Delineation), St. Croix.

Reverse Osmosis Facility on St. John, V.I. Water and Power Authority, Environmental Assessment Report for the Construction of a Reverse Osmosis Facility, St. John.

Seven Hills Development, Robin Bay Partners, Environmental Assessment Report for the Development of Seven Hills Residential Community (including a Wetland Delineation), St. Croix.

Improvements to the Molasses Dock, V.I. Port Authority, Environmental Assessment Report for Dredging and Improvements to the Molasses Dock Roll-on Roll-off Facility (and Mitigation Plan for the Mangrove Shoreline), St. Croix.

Dredging of the Charlotte Amalie Harbor Channel and the Filling of Lindbergh Bay, The West Indian Company Limited, Environmental Assessment Report for the Dredging and Widening of the Charlotte Amalie Harbor to Accommodate Oasis Class Ships at WICO Docks and the Disposal of Dredged Materials in the Historic Dredging Hole in Lindbergh Bay, St. Thomas.

Fueling Station, V.I. Water and Power Authority, Environmental Assessment Report for the Installation of a Vehicle Fueling Station in the Richmond Plant Terminal Facility License, St. Croix.

ENVIRONMENTAL ASSESSMENT REPORTS
2005 – 2008

Water quality, monitoring and/or compensatory mitigation plans were developed to supplement each of the environmental assessment reports listed.

Port of Mandahl, MSJ Realty, Environmental Assessment Report for the Development of the Marina and Resort in Estate Mandahl, St. Thomas.

North Sound Yacht Club, Victor International, Environmental Assessment Report for the Development of a Marina and Yacht Club in North South, Virgin Gorda, BVI.

Reconstruction of the Frenchman's Cove Dock, Marriott Vacation Club, Environmental Assessment Report for the Reconstruction and Expansion of a Damaged Dock in Charlotte Amalie Harbor, St. Thomas.

Thatch Cay Development, Thatch Cay LLC, Environmental Assessment Report for the Development of a Resort Community and Marine Infrastructure on Thatch Cay, St. Thomas.

Smith Bay Development, Smith Bay Developers, Inc., Environmental Assessment Report for a Condominium Complex, St. Thomas.

Subdivision of Great St. James, Christian Kejer, Environmental Assessment Report for The Development of a Residential Community on Great St. James including Marine Access Infrastructure, Great St. James Island, St. Thomas.

Subdivision of Inner Brass, Green Island Developers, Environmental Assessment Report for the Development of a Residential Community on Inner Brass including Marine Access Infrastructure, Inner Brass Island, St. Thomas.

Subdivision of Inner Brass, Bryan Family, Environmental Assessment Report for the Subdivision of Lots for a Residential Community on Inner Brass and the Development of a Dock for Access. Inner Brass Island, St. Thomas.

Cabrita Point, Cabrita Point Partners and Lionstone LLC, Environmental Assessment Report for the Development of a Resort Community, a Mitigation and Monitoring Plan for the Endangered V.I. Tree Boa and a Monitoring Plan for a Reverse Osmosis Intake Line, Dock and Swimming Platform, St. Thomas.

Subdivision of 77 Acres in Hansen Bay, St. John Flamboyant Realty, Environmental Assessment Report for the Development of Roads and a Subdivision in Hansen Bay, St. John.

Subdivision of 14 Acres in Hansen Bay, St. John Hansen Bay Development Group, Environmental Assessment Report for the Development of Roads, and a Subdivision in Hansen Bay (including a Wetland Delineation), St. John.

Expansions and Improvements to the Ritz-Carlton Hotel, William Karr and Associates, Environmental Assessment Report for the Expansion and Renovation of the Ritz-Carlton Hotel, St. Thomas.

Modification to Carden Beach Condominiums, TK Properties, Inc., Environmental Assessment Report for the Development of Zero Lot Line Homes at the Carden Beach Property, St. Croix.

Development of Betty's Hope, V.I. Port Authority, Environmental Assessment Report and Wetland Delineations for the Development of the South Shore Property for Commercial and/or Residential Use, St. Croix.

Expansion of the Compass Point Marina, Margate Management, Environmental Assessment Report for the Addition of Docks at the Compass Point Marina in Benner Bay, St. Thomas.

Improvements, Expansions and Maintenance of HOVENSA Petroleum Refinery, HOVENSA LLC, Environmental Assessment Reports for the 1) Construction of Maintenance Buildings and Replacement of Existing Stacks, 2) Construction of a Low Sulfur Fuels (LSF) Facility, 3) Construction of Modular Buildings, and 4) Construction of Housing in Estate Blessing (including Permitting of an Existing Borrow Pit), St. Croix.

Installation of a Permanent Barge Landing Facility on Lovango Cay, Joseph Markus Trust, Environmental Assessment Report for the Development of a Permanent Barge Landing Facility (including a Compensatory Mitigation Plan for Endangered Coral Species), Lovango Cay.

Barge Landing, Swim Dock and Beach Enhancement on Little St. James, LSJ LLC, Environmental Assessment Report for the Relocation of the Existing Barge Landing and the Construction of a Swim Dock and Beach Enhancing Devices, Little St. James.

Development of Affordable Housing in Calabash Boom, Reliance Housing, Environmental Assessment Report for the Development of Affordable Housing in Calabash Boom (and Territorial Pollutant Discharge Elimination System [TPDES] Permits), St. John.

Demineralized Water System and Storage Tank Upgrades, V.I. Water and Power Authority, Environmental Assessment Report for the Installation of a New Storage Tank and Demineralizer, St. Croix.

Development of a Pizza Bar and Miniature Golf Course, Divi Carina Bay Resort, Environmental Assessment Report for the Development of Amenities at the Divi Carina Bay Resort and Casino, St. Croix.

Placement of Fuel Pipelines on the Ann E. Abramson Pier, Royal Caribbean Cruise Lines, V.I. Port Authority, Environmental Assessment Report for the Installation of Fuel Lines on the Frederiksted Pier, St. Croix.

Development of a Marina and Related Infrastructure, Coral Bay Marina LLC, Environmental Assessment Report for the Dredging and Development of a Marina in Coral Bay (including an Alternative Analysis to Reduce Impacts for the USACE), St. John

Development of a Marine Mammal Encountered Facility, Coral World (VI), Inc., Environmental Assessment Report for the Development of a Sealion Encounter Facility, St. Thomas.

Improvements to The Randall “Doc” James Racetrack, TRAXCO, Environmental Assessment Report for Improvements to the “Doc” James Racetrack Facility (including Wetland Delineations), St. Croix.

Maintenance Dredging and the Permitting of Permanent Moorings, Westin Resort, Environmental Assessment Report for Maintenance Dredging of the Existing Channel and around the Dock, and Mooring Installations, St. John.

ENVIRONMENTAL ASSESSMENT REPORTS

2000 – 2004

Water quality, monitoring and/or compensatory mitigation plans were developed to supplement each of the environmental assessment reports listed.

Compass Point Marina Expansion, Compass Point Marina in Collaboration with Springline Architects, Environmental Assessment Report for the Expansion of the Existing Compass Point Marina, St. Thomas.

Emergency Electrical Cable St. Thomas-St. John, V.I. Water and Power Authority, Environmental Assessment Report for the Placement of a New Submarine Power Cable between St. Thomas and St. John, St. Thomas.

Richmond Sand Channel Dredging, V.I. Water and Power Authority, Environmental Assessment Report for Maintenance Dredging of the Richmond Sand Channel, St. Croix.

Hassel Island Electrical Cable Replacement, V.I. Water and Power Authority Environmental Assessment Report for the Installation of a New Submarine Cable between St. Thomas and Hassel Island, St. Thomas.

Golden Resorts Golf Resort, Casino & Conference Center, Golden Resort, Environmental Assessment Report for the Development of Golden Resorts Golf Resort, Casino, and Conference Center (including a Wetland Delineation), St. Croix.

Crown Bay Marine Terminal Improvements, V.I. Port Authority in Collaboration with Adams, Inc., Environmental Assessment Report for Improvements to the Crown Bay Marine Terminal, St. Thomas.

Global Crossings Point of Presence, Global Crossings, Environmental Assessment Report for the Placement of a Point of Presence Communications Tower in Frederiksted, St. Croix.

Burial of Fiber Optic Cables, Innovative Telephone, Environmental Assessment Report for the Burial of Fiber Optic Cables on the North Shore, St. Croix.

Burial of Fiber Optic Cables on the West End of St. Croix, Innovative Telephone, Environmental Assessment Report for the Burial of Fiber Optic Cables on the West End, St. Croix.

Callaloo Club Blowing Point, Callaloo Club Peninsula, Environmental Assessment for the Development of a Marina on the Island of Anguilla, British West Indies.

Installation of a Waterline between St. Thomas and St. John, V.I. Water and Power Authority, Environmental Assessment Report for the Installation of a Waterline between St. Thomas and St. John, St. Thomas.

Installation of a Submarine Cable to Little St. James, V.I. Water and Power Authority, Environmental Assessment Report for the Installation of a Utility Line between St. Thomas and Little St. James, Little St. James.

South American Crossing Cable Station, Global Crossing, Environmental Assessment Report for the Construction of the South American Crossing Cable Station at Estate Northside, St. Croix.

Water Island Ferry Dock, V.I. Department of Public Works, Environmental Assessment Report for the Construction of a Ferry Dock on Water Island, Water Island.

CuisinArt Golf Resort & Spa Beach Enhancements, CuisinArt, Environmental Impact Assessment Report for Beach Renourishment, Anguilla, British West Indies.

Cinnamon Reef Resort, Cinnamon Reef, Environmental Impact Assessment Report for the Development of a Marine Facility, Anguilla, British West Indies.

Frederiksted Pier Improvements, V.I. Port Authority, Environmental Assessment Report for Improvements to the Existing Frederiksted Pier, St. Croix.

Construction of a Private Dock on Little St. James, LSJ LLC, Environmental Assessment Report for the Construction of a Private Dock on the Island of Little St. James, Little St. James.

Phase II of the Christiansted Boardwalk, Government of the Virgin Islands Environmental Assessment Report for Phase II of the Christiansted Boardwalk, St. Croix.

Construction of a Headquarters, Beal Aerospace, Environmental Assessment Report for the Construction of Beal Aerospace's World Headquarters in Estate Great Pond, St. Croix.

ENVIRONMENTAL ASSESSMENT REPORTS 1988 – 2000

Hurricane Damaged Dock Reconstruction, Divi Carina Bay Resort, Environmental Assessment Report for the Reconstruction of a Dock after Damage Associated with Hurricane Hugo at the Divi Carina Bay Resort and Casino, St. Croix.

Global Crossing Cable Terminal, Global Crossing, Environmental Assessment Report for the Construction of a Cable Terminal Building and Corridor for Eight Submarine Fiber Optic Cables (including a Landfall Study) in Frederiksted, St. Croix.

Construction of a Coker and Coker Dock at the HOVENSA Petroleum Refinery, HOVENSA LLC, Environmental Assessment Report for the Construction of a Coker and Coker Dock, St. Croix.

Frederiksted Pier Mooring Dolphin, V.I. Port Authority, Environmental Assessment Report for the Construction of a Mooring Dolphin at the Frederiksted Pier, St. Croix.

Seaplane Terminal, V.I. Port Authority, Environmental Assessment Report for the Development of a Seaplane Terminal at the Old Seaplane Ramp, St. Croix.

Forest Bay Marina, Forest Bay Group, Environmental Assessment Report for the Development of a Marina and Related Facilities in Forest Bay, Anguilla, British West Indies.

Dolphin Lagoon, META Resorts, Environmental Assessment Report for the Development of a Dolphin Lagoon at Meads Bay, Anguilla, British West Indies.

Construction of the Christiansted Boardwalk, Government of the Virgin Islands, Environmental Assessment Report for the Construction of a Boardwalk in Christiansted, St. Croix.

Runway Extension of the Henry E. Rohlsen Airport, V.I. Port Authority in Collaboration with LPA Group, Environmental Assessment Report for the Runway Extension at the Henry E. Rohlsen Airport, St. Croix.

Red Hook Marine Terminal Expansion, V.I. Port Authority, Environmental Assessment Report for the Expansion of the Red Hook Marine Terminal (including the Development and Implementation of Mitigation and Monitoring Plans), St. Thomas.

Enighed Pond Marine Terminal, V.I. Port Authority, Environmental Assessment Report for the Creation of the Enighed Pond Marine Facility (including the Development and Implementation of Mitigation and Monitoring Plans), St. John.

Submerged Land Renewal, Coral World (VI), Inc., Environmental Assessment Report for the Renewal of the Submerged Land Lease for the Coral World Facility, St. Thomas.

Construction of a Seawall, Cowpet Bay, Environmental Assessment Report for the Modification of an Existing Permit to Construct a Seawall, St. Thomas.

Riprap Revetment Installation, Watergate East Villas, Environmental Assessment Report for the Construction of a Rip-Rap Revetment, St. Thomas.

Improvements to the Fuel Dock, V.I. Water and Power Authority, Environmental Assessment Report for Improvements to the Fuel Dock at the Power Generating Facility, St. Thomas.

Subdivision of Estate Misgunst, La Domaine, Environmental Assessment Report for the Subdivision of 40 Acres of Land in Estate Misgunst, St. Thomas.

Expansion of the Alexander Hamilton Airport and Highway 64 Relocation, V.I. Port Authority, Environmental Assessment Report for the Expansion of the Alexander Hamilton Airport Terminal and Highway 64 Relocation (including a Wetland Delineation, and Development and Implementation of a Wetland Mitigation Plan), St. Croix.

AT&T Cable Landing Facility, AT&T, Environmental Assessment Report for the Cable Landing Facility at Estate Northside (including a Beach Landfall Study, a Cable Routing Study, and the Development of a Water Quality and Environmental Monitoring and Mitigation Plan), St. Croix.

Dredging of the Sand Channel, DEVCON, Environmental Assessment Report for the Dredging of the Christiansted Sand Channel, St. Croix.

Expansion of the Red Mud Storage Ponds, VIALCO, Environmental Assessment Report for the Expansion of the Red Mud Storage Ponds at the VIALCO Alumina Facility, St. Croix.

Stormwater Drainage System, VIALCO, Environmental Assessment Report for the Creation of a Stormwater Drainage System at the VIALCO Alumina Facility, St. Croix.

Permitting of a Caliche Mine, VIALCO, Environmental Assessment Report for the Mining of Caliche at the VIALCO Alumina Facility, St. Croix.

Molasses Dock Expansion, V.I. Port Authority Subcontracted by Frank Torrez, Environmental Assessment Report for the Molasses Dock Terminal at the Third Port Facility, St. Croix.

ENVIRONMENTAL ASSESSMENT REPORTS (SELECTED)
1988 – 1993

Beach Renourishment, St. Croix by the Sea, Environmental Assessment Report for a Beach Renourishment and Jetty Construction at St. Croix by the Sea, St. Croix.

Vieques Shrimp Farm, Vieques Shrimp Mariculture Project, Environmental Assessment Report for the Creation of a Shrimp Farm in Puerto Ferro, Vieques, Puerto Rico.

Marine Spill Response Corporation (MSRC) Dock, Hess Oil Virgin Islands (HOVIC) Petroleum Refinery, Environmental Assessment Report for the Construction of a Pier in the HOVIC West Turning Basin, St. Croix.

Construction of Eden Beach Hotel and Condominiums, Eden Beach, Environmental Assessment Report for the Proposed Construction of Eden Beach Hotel and Condominiums, St. Croix.

Expansion of the Tamarind Reef Hotel, Tamarind Reef, Environmental Assessment Report for the Proposed Reconstruction and Expansion of the Tamarind Reef Hotel, St. Croix.

Construction of Gas Turbines at the Third Port, V.I. Water and Power Authority, Environmental Assessment Report and USACE Application for the Construction of Two Gas Turbines at the Third Port Site, St. Croix.

Subdivision of Lovango Cay, Joseph Markus Trust, Environmental Assessment Report for the Creation of a Subdivision on Lovango Cay and Placement of a Private Dock, Lovango Cay.

Well Water Collection System, VIALCO, Environmental Assessment Report for the Construction of a Well Water Gathering System for Wells at the VIALCO Alumina Facility, St. Croix.

Crawl Cay, Monroe County, Environmental Assessment Report, Wetlands Delineation and Hammock Studies of Crawl Cay, Florida.

Jack's Bay Subdivision, Jack's Bay Development Company, Environmental Assessment Report for the Subdivision of Approximately 300 Acres into 64 Lots at Estate Jack Bay and Estate Isaac Bay, St. Croix.

Bauxite Building, VIALCO, Environmental Assessment Report for the Expansion of the Bauxite Building at the VIALCO Alumina Facility, St. Croix.

Carambola Beach Club Improvements, Danested, Environmental Assessment Report for the Repair and Improvement of the Carambola Beach Club Facilities, St. Croix.

Salt River National Park, National Park Service, Environmental Impact Statement for the Proposed National Park at Salt River, St. Croix.

Desalination Unit, V.I. Water and Power Authority, Environmental Assessment Report for the Construction of a Desalination Unit on St. John, St. John.

Construction of Estate Turner Hole Condominiums, Carmel by the Sea, Environmental Assessment Report for the Construction of a 95-unit Condominium at Estate Turner Hole, St. Croix.

Very Long Baseline Array (VLBA) Observation Station, NASA, Environmental Assessment Report and Landscaping Plan for the Construction of a VLBA, St. Croix.

Buccaneer Hotel Room Expansion, Buccaneer Hotel, Environmental Assessment Report for a 20-room Addition to the Buccaneer Hotel, St. Croix.

Construction of a Ritz-Carlton Hotel, Environmental Assessment Report and Zoning Application for a 350-room Ritz-Carlton Hotel in Estate Davis Bay, St. Croix.

Frederiksted Pier Expansion, V.I. Port Authority, Environmental Assessment Report for the Construction of a Second Pier in Frederiksted, St. Croix.

Construction of the Kingston Hotel, Kingston Hotel, Environmental Assessment Report for the Construction of a Hotel and Condominium in Kingston, Tortola, BVI.

Construction of an Airport Warehouse, V.I. Port Authority, Environmental Assessment Report for Construction of a Warehouse Facility at the Alexander Hamilton Airport, St. Croix.

Development of the Great Pond Resort, St. Croix, Environmental Assessment Report, for Golden Gaming, Zoning Application, and USACE Permit Application for a Hotel and Condominium Project at Estate Great Pond, St. Croix.

ENVIRONMENTAL ASSESSMENT REPORTS
1986 – 1988

St. Croix

St. Thomas

St. John

Columbus Landing, St. Croix	Blue Beards Beach, St. Thomas	Concordia, St. John
Grapetree Beach, St. Croix		
St. Croix by the Sea, St. Croix		
Ensenada, St. Croix		
Virgin Grand, St. Croix		
Sugar Bay, St. Croix		
Turtle Run, St. Croix		
Palm Shores, St. Croix		
Baobab, St. Croix		
Reflection Bay, St. Croix		
Coakley Bay, St. Croix		
Green Cay, St. Croix		
Turquoise Bay St. Croix		
Eagle Bay, St. Croix		
Granard, St. Croix		
Concordia, St. John		

Wider Caribbean

Southeast Peninsula, St. Kitts
Divi Dive Canal, Nassau, Bahamas

ENVIRONMENTAL CONTAMINATION ASSESSMENTS

1990 – PRESENT

2022 – Present Sampling for Heavy Metals Contamination of the Soil in Estate Donoe, St. Thomas.

2000 – Present Sampling for Chemical Contamination in Cisterns as a Result of a Hydrocarbon Release in the Air, St. Croix.

1994 – Present Periodic Sampling of the Leaking Underground Storage Tanks (LUSTs) at the V.I. Port Authority Seaplane Ramp, St. Croix.

2019 Sampling for Mold at the Renaissance Hotel, St. Thomas.

2016 – 2022 Sampling of Underground Storage Tanks (USTs) for Gasoline Service Stations on St. Thomas and St. Croix.

2012 – 2016 Sampling for Recognized Environmental Conditions in Estate Anna's Hope, St. Croix.

2006 – 2016 Sampling for Petroleum Product Contamination at Gasoline Stations and Industrial Sites, St. Croix.

1990 – 2002 Sampling of Residential and Commercial Properties on St. Croix, St. Thomas, St. John and Puerto Rico for Recognized Environmental Conditions.



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Services

Full Architectural Services
Schematic Design
As-Built Drafting
Floor Plans and 3D Renderings
Building Permit Documents
Construction Drawings
Project Management
Client Representation
Construction Estimating
Value Engineering
Construction Observation
Field Reporting

Certifications

NCARB National Council of Architectural
Registration Boards Certification
CSI Construction Documents Technologist
LEED Green Association Accredited
OSHA 30 Hour Certification
CPR and First Aid Certification
STCW Basic Crew Certification
PADI Advanced Open Water Scuba Diver

Skills

Drafting and Modeling: Autocad, Revit,
Sketchup, Rhinoceros 3D
Adobe Creative Cloud: Photoshop,
Illustrator, In-Design
Cost Estimating: BlueBeam, Xactimate
Project Management: Basecamp, Dropbox
Scheduling: Microsoft Project
MS Office Suite: Outlook, Word, Excel,
PowerPoint, Publisher

Experience

Produces residential and commercial building construction documents.

Works directly with client and contractor through all phases of work, including building permit application and weekly construction observations.

Skilled in site analysis, existing building documentation, and drafting as-builts.

Presented key-note lectures and workshops at The Young Architect Conferences 2021 and 2022.

Organized and hosted speakers and continuing education through AIA.

Companies

Emily Burton Architecture Principal
Gallery Camille Pissarro Main Street, St. Thomas, VI 00802
www.ebavi.com (340)244-7191

Springline Architects Project Manager 2016 - 2021
6346 Estate Smith Bay, St. Thomas, VI 00802
www.springlinearchitects.com (340)777-2345

The deJongh Group Designer 2009 - 2015
2200 Percy deJongh Drive St. Thomas, VI 00802
www.dejonghgroup.com (340)774-8035

The Bourne Group Designer 2015 - 2016
3004 Altona & Welgunst Ste. 1B, St Thomas 00802
www.thebournegroup.com (340)714-1430

Caribe Craft Shop Drawing CAD Manager 2015 - 2016
8262 Subbase, St Thomas 00802
www.caribecraft.com (340)514-5155

Projects

My Brother's Workshop, Inc
Virgin Islands Office of Disaster Recovery
Dudley Newman Feuerzeig Law Office Renovation
Wharfside Village Hotel Renovation
University of the Virgin Islands Medical School
The Westin St. John Resort Renovation
The Salvation Army Office and Major's Quarters
The Virgin Islands Children's Museum
Mandahl Convenience Center, VIWMA Office
Residential Projects, St. Thomas and St. John

Education

Southern California Institute of Architecture
Bachelors of Architecture
Thesis Exhibit for SCI-Arc's 40th Anniversary Gallery

Pierce College Associated Students Organization
Senator for the Math Department
Alpha Gamma Sigma Honors Club

University of California, Los Angeles
Introduction to Architecture Studies