ENVIRONMENTAL ASSESSMENT REPORT FOR ST. CROIX BOUTIQUE HOTEL CHRISTIANSTED, ST. CROIX U. S. VIRGIN ISLANDS

SUBMITTED TO

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

SUBMITTED BY

Z PROPERTY VI LLC

PREPARED BY

BIOIMPACT, INC.

JUNE 2024

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1.00 NAME AND ADDRESS OF APPLICANT

Z Property VI LLC
114 King Street, 2nd Floor, Christiansted, VI 00820

2.00 LOCATION OF PROJECT

The St. Croix Boutique Hotel will be constructed on Parcels 7-b and 8-b Hospital Street, Christiansted, St. Croix and will be connected to historic building which is currently being reconstructed on Parcel 7-a Hospital Street. Parking will be placed on Parcel 8-a which is leased by Z Property VI LLC.

The St. Croix Boutique Hotel will be located at Latitude 17.745510°N and Longitude -64.700297°W.

The following location map and agency review map depicts the project in reference to adjacent properties and island features as well as the jurisdiction line of the Department of Planning and Natural Resources, Division of Coastal Zone Management. The vicinity map is also attached showing the regional context and vicinity in the U.S. Virgin Islands.

Figure 1. Location St. Croix Boutique Hotel

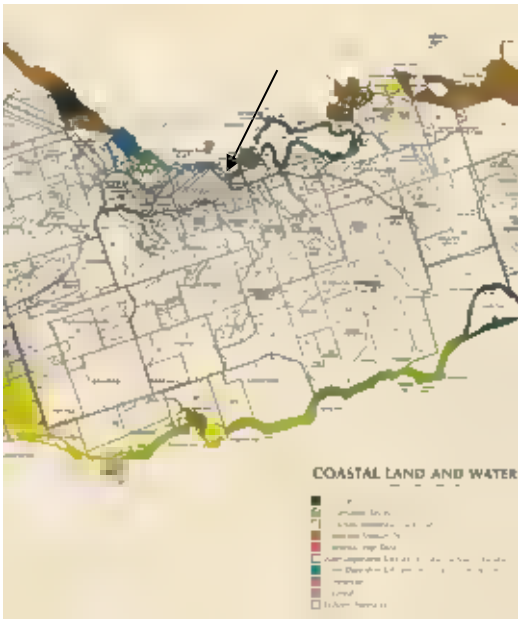


Figure 2. Location of project within the Coastal Zone Management Jurisdiction which is shown in color on this map.

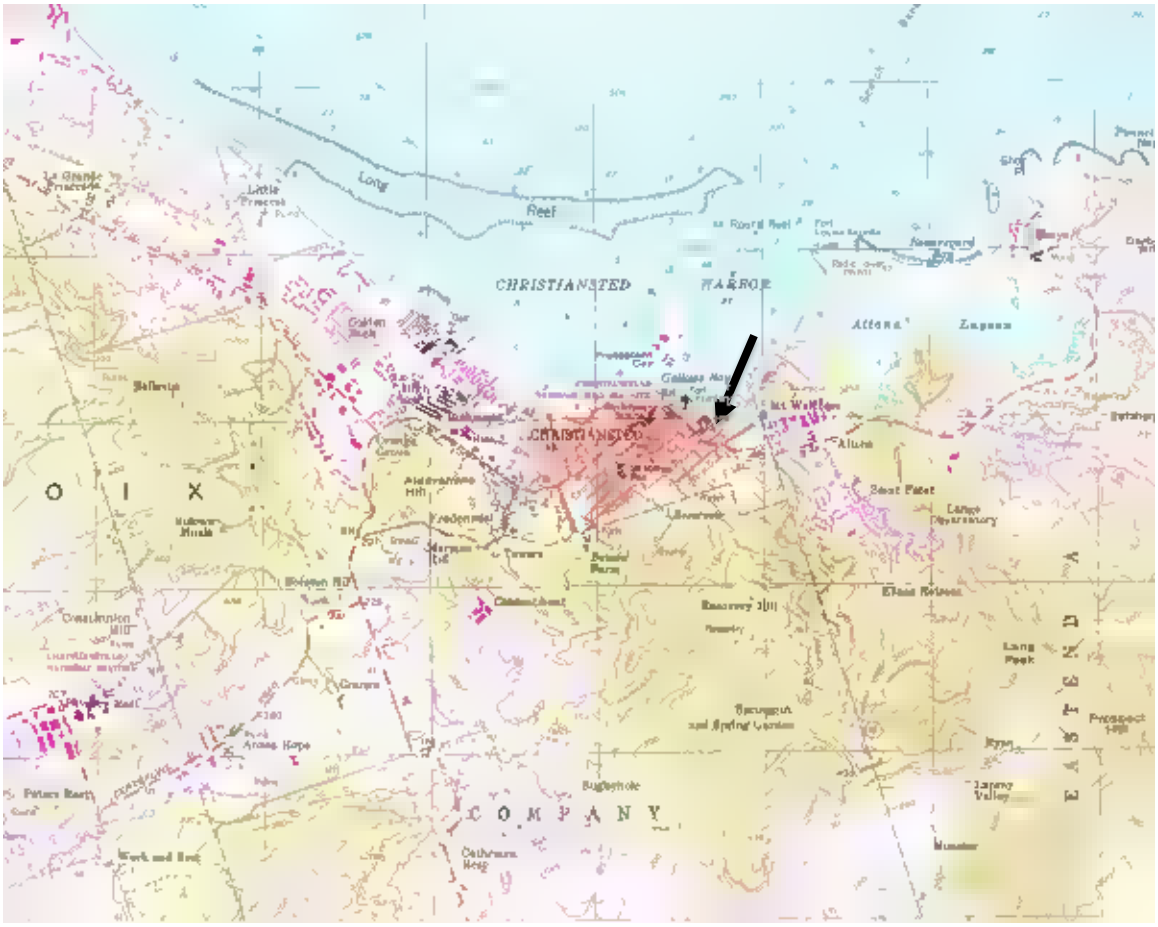


Figure 3. Vicinity Map showing the property in relationship to other island features.

3.00 ABSTRACT

Z Property VI LLC is developing a 64-room boutique hotel in the town of Christiansted. This current application is for the permitting of 58 rooms, a restaurant/café and an art gallery which will be connected to the structure on Parcel 7-a Hospital Street which is currently permitting and under construction. The structure will have four levels and consist of 4 buildings constructed around a central bricked courtyard. Parcel 8a is under lease for parking.

4.00 STATEMENT OF OBJECTIVES SOUGHT BY THE PROPOSED PROJECT

The objective of the application is to create a 58-room boutique hotel in downtown Christiansted. The properties will be connected to the building currently being renovated on Parcel 7-a Hospital Street to create a 66-room boutique hotel with shops, a restaurant/café and an art gallery.

5.00 DESCRIPTION OF PROJECT

5.01 Summary of Proposed Activity

The St. Croix Boutique Hotel will be a 66-room hotel. This application is for the permitting of 58 rooms, a restaurant/café, shops and an art gallery which will be connected to an existing structure currently under construction which houses 8 additional hotel rooms. The hotel will have 33 parking spaces including 2 handicap spaces. The hotel will have a brick paved courtyard and a clubhouse. Runoff will be handled by a Stormtech system which will allow for infiltration. The hotel will be connected to both the public potable water supply and the public sewer system.

5.01a Purpose of Project

The purpose of the project is to create a boutique hotel in the town of Christiansted.

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

The proposed hotel is in the historically developed town of Christiansted and the development on Parcels 7-b and 8-b will connect to a historic building on 7-a Hospital Street which is currently permitted and is being renovated.

The parcel has been developed in the past and there are only a few trees along the southern side of the property. The property is within the 100-year flood zone and the finished floor elevation will be an 8ft.

5.01c Method of Land Clearing

Parcels 7-b, 8-b and 8-a Hospital Street are almost completely cleared, only a small amount of vegetation will have to be removed along the southern property line.

5.01d Provisions to Preserve Topsoil and Limit Site Disturbance

The property has been developed in the past and there are limited environmental resources

remaining on the property. The property will be maintaining a 20ft set back from the shoreline.

5.01e Sediment Control Methods to be Implemented

Type III Silt fencing will be installed prior to any earth disturbance on the parcels and a construction entrance will be installed.

5.01f Schedule for Construction Activities and Implementation of Sediment Control Measures

Type III Silt fencing and the construction entrance will be installed prior to any earth work. The remaining site vegetation will be removed and then excavation will commence for the Stormtech System and building footings.

5.01g Maintenance of Sediment and Erosion Control Measures

The silt fences and construction entrance will be maintained throughout the construction as necessary. If deficiencies or damage is noted, they will be repaired immediately.

5.01h Method of Stormwater Management

Stormwater will be collected by drains within the courtyard and conducted into a buried Stormtech System given that there is no room on the site for the 0.13 ac-ft of stormwater retention needed. The underground storage chambers will be buried under the parking lot.

5.01i Maintenance of Stormwater Management System

The Stormtech System will be maintained as per the manufacturer's guidelines. Storm drains will be cleaned out after all major rainstorms.

5.01j Method of Sewerage Disposal

The proposed boutique hotel will tie into the public sewer system which is available along Hospital Street.

5.02 Exhibits and Drawings

5.03 Project Workplan

- Install silt fencing and construction entrance.
- Remove existing vegetation from the site.
- Excavate the site for footings and Stormtech System
- Installation of Utilities
- Construction of Buildings

6.0 ENVIRONMENTAL SETTING AND PROBABLE PROJECT MODIFICATIONS

6.02 Climate and Weather

Prevailing Winds

The Virgin Islands lie in the "Easterlies" or "Trade Winds" which 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 (Figure 6.01.1) 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 gust 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, allows weak cold fronts to move, southeastward over the entire Caribbean region. These storms are accompanied by intermittent rains and by clouds and low

visibility for mariners.

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 Hurricanes

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 significantly affects the area. These hurricanes occur most frequently between August and mid-October (Figure 6.01.2) with their peak activity occurring in September. The annual probability of a cyclone is one in sixteen years (Bowden, 1974). Hurricane Irma hit St. Croix on September 6th of 2017, and two weeks later hurricane Maria hit St. Croix September 19th-20th, 2017.

Climate

The average annual rainfall on St. Croix is approximately 40 inches, ranging from 30 inches toward the eastern end of the islands to more than 50 inches at the higher elevations to the west. The Limetree Bay Terminal area receives less than 40 inches of rainfall per year on average. Rainfall usually occurs in brief, intense showers of less than a few tenths of an inch and major rainfall events are associated with weather systems (USGS 1998). The Virgin Islands have no sharply defined wet season. The wettest period generally is from September to November, and the driest period is from January to June (USGS 1998).

Annual temperatures average 79 degrees Fahrenheit (F), with the winter low averaging 76 degrees F. and the summer high reaching an average of 84 degrees F. Occasionally, maximum daily temperatures will exceed 90 degrees F. and minimum temperatures will drop below 70 degrees F. (Jordan, 1975).

Table 1 Monthly Climate Summary from 1972 to 2012

CHRISTIANSTED FORT, VIRGIN ISLANDS (671740)
Period of Record Monthly Climate Summary
Period of Record: 1/1/1972 to 4/30/2012

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	82.8	83.1	83.2	84.4	86.1	87.0	87.0	87.4	87.8	87.5	85.7	83.5	85.5
Average Min. Temperature (F)	71.7	71.7	72.7	74.2	75.8	77.1	77.3	77.3	76.6	76.3	75.1	73.2	74.9
Average Total Precipitation (in.)	1.93	1.42	1.81	2.41	4.38	2.70	3.32	3.82	5.43	5.50	6.28	3.07	42.07

Percent of possible observations for period of record.
Max. Temp.: 80.9% Min. Temp.: 82.9% Precipitation: 93.2%

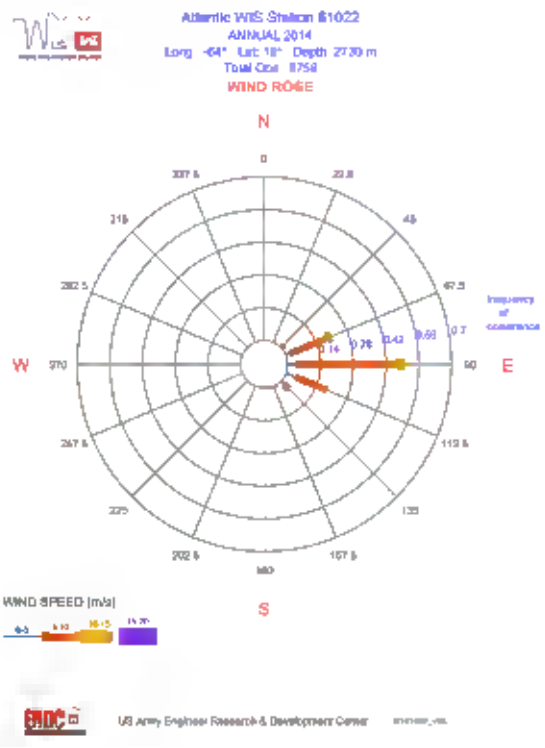


Figure 4. A wind rose from Station ST61022 showing the frequency f occurrence of wind speed and direction in 2014. (ERDC, USACE Research and Development Center wis.usace.army.mil/hindcasts.html?dmn=atlantic)

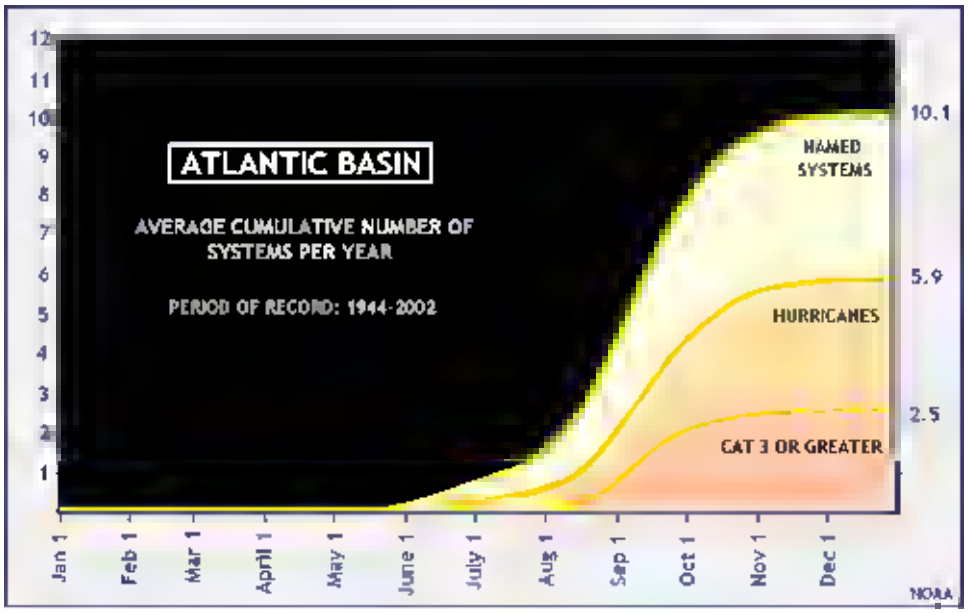


Figure 5. Tropical Cyclone Frequency in the Atlantic (National Weather Service)

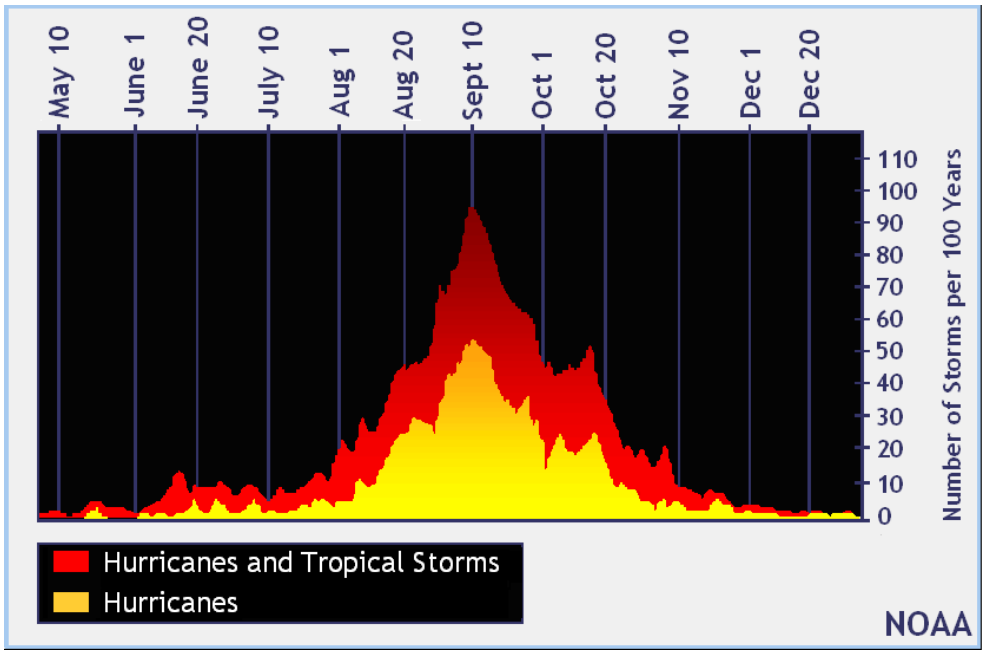


Figure 6. Tropical Storm and Hurricane Occurrences in the Atlantic (National Weather Service)

6.02 Landforms, Geology, Soils, and Historic Use

GEOLOGY OF ST. CROIX

The Virgin Islands are near the northeastern corner of the present Caribbean Plate, a relatively small trapezoidal-shaped plate which 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, which is still active, is Saba, about 160 km to the east.

The island of St. Croix consists geologically of two predominant mountainous areas (the North side and the East End ranges), with a central sediment filled valley in between. The oldest rock underlying both ranges, and probably in the valley as well, is from the Cretaceous period, 80 million years ago. These sedimentary rocks which were formed from the erosion of volcanic ash and debris, and are beset with igneous intrusions, underwent a period of orogeny lifting them up from the ocean floor and forming two islands with a channel in between. Oligocene clay and mud was deposited in this channel forming what is known as the Jealousy formation. Next, tertiary limestone was deposited when this channel area became a lagoon encircled by coral reef. The limestone and marls that overlay the Jealousy formation are known as the Kingshill formation. After these formations were deposited, the area underwent another period of uplifting, the two islands became connected by the newly emergent filled-in area, and the island of St. Croix was formed. Since that time, geologic activity has been limited primarily to the erosion of sediments and the formation of ponds, beaches, reefs, and beach rock coast.
Two large basins, the Virgin Islands Basin and the St. Croix Basin, separate St. Croix from the other Virgin Islands. Within the distance between St. Croix and St. Thomas, about 40 nautical miles, hydrographic charts show that the ascent from the sea floor north of St. Croix is as much as 70º. Frasetto and Northrop (1057) indicate that this northern topographic slope extends downward to the Virgin Islands Basin at a gradient up to 43º. There is an ascent of 13,656 feet within a horizontal distance of 25,800 feet, terminating with the steep north coast in the vicinity of Hams Bluff. The area has been described as the south side of the Anegada Trough and its related fault scarp (Taber 1922). Meyerhoff (1927) suggested that this block faulting took place during the late Pliocene or early Pleistocene, prior to which St. Croix was physically attached to the northern Virgin Islands. The southern and eastern portions of the St. Croix Platform, differing greatly from the northern and western regions, have a gradient of much less amplitude and therefore, a wider shelf area.

The island of St. Croix has been subject to major periods of human disturbance. The introduction of intensive agriculture began during the early 18th century, the disturbance of the native flora and fauna were so severe that the biological communities present prior to 1700 cannot be specifically determined.

The town of Christiansted has been developed since the 18th century and it harbor used for marine commerce. The shoreline has been filled and altered over time including the project site.

GEOLOGY OF THE GALLOWS BAY

The site is relatively flat with elevations of 10ft and 11ft along Hospital Street and sloping gentle towards sea level along the shoreline. There is a shallow drainage across Parcel 8-b.

HISTORIC USES OF THE PROPERTY

The property has been developed since historic times. And the ruins of a historic building stand on Parcel 7-a to which the project will connect. In 1954 the building is still present and there are two piers extending from the property which had a rail system, the rails are still present today.

Figure 7. 1954 Aerial Service Map of the Project Area

Figure 8. The site after Hurricane Hugo in 1989

ADVERSE SITE CONDITIONS

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 year 2024 marks the 157th anniversary of the last major earthquake in the islands. This quake, which occurred in 1867, had an identified intensity of VIII on the Modified Mercalli Scale. Earthquakes of this magnitude have generally been associated with epicentral ground accelerations of between 0.05 and 0.35 gravities. Over the last several years numerous minor tremors have been felt on the island. Many feel that this increased activity is associated with the volcanic eruptions that have been occurring to the southeast on the island of Montserrat. Below is the earthquake probability map for St. Croix produced by UVI Conservation Data Center. The hotel is in the high probability area for St. Croix.

Figure 9. Earthquake probability map, UVI Conservation Data Center

IMPACT OF THE PROPOSED PROJECT

The construction of the boutique hotel will not have an impact on the geology of the site, nor will the geology of the hotel affect the construction of the boutique hotel.

6.03 Drainage, Flooding and Erosion Control

6.03a Existing Drainage Patterns

A hydrology study was conducted of the site by Buildtec (Appendix C). The site in its pre-development state primarily sheet flows towards the sea. There is a vaguely defined drainage which crosses Parcels 8-a and 8-b from mid parcel to the northeastern corner where it discharges into the sea.

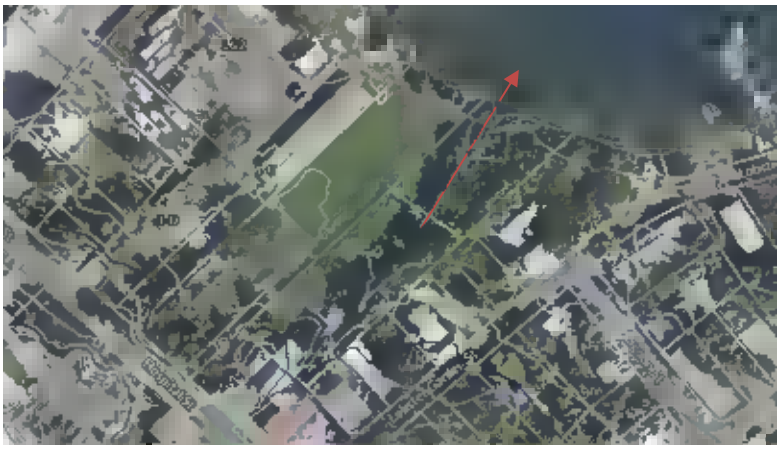


Figure 10. Existing drainage patterns

6.03b. Proposed Alterations to Drainage Patterns

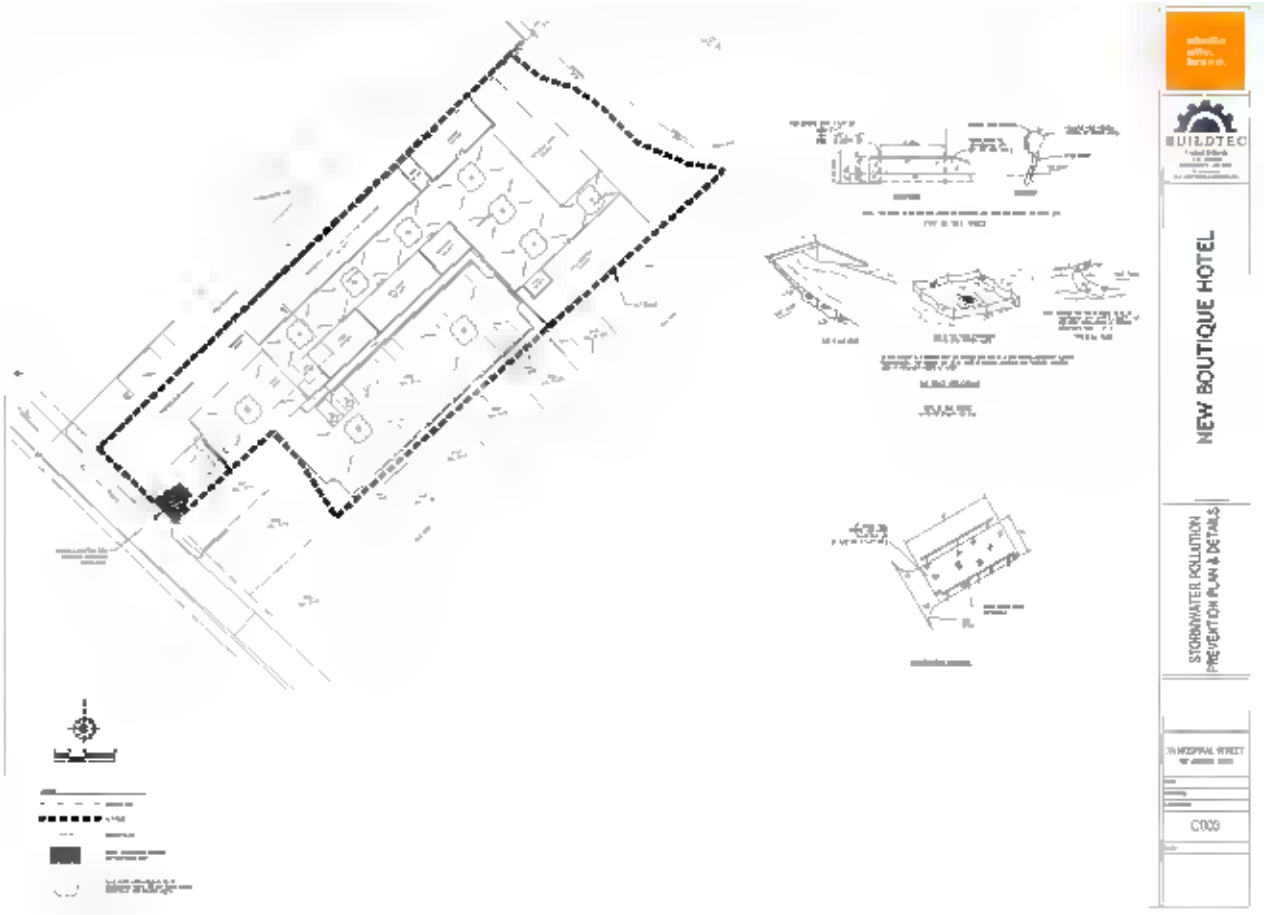


Figure 11. Proposed drainage pattern - installation of Stormtech System

The property does not have the area available to create a detention pond, therefore a Stormtech system is being installed. It requires multiple inlets therefore the site will be divided up.

6.03c. Discuss the relationship of the project to the coastal floodplain

The property lies in multiple 100-year flood zones as shown in the FEMA FIRM 72 of 94, April 16, 2007.

The offshore area is within Flood Zones VE El 17, VE El 16, VE El 15, where the 100-year flooding is expected to be 17ft, 16ft and 15ft with velocity respectfully. And Flood Zones AE El 14 and AE El 13 where the 100-year flooding is expected to be to elevation14ft and 13ft respectively. These zones are found in bands moving landward from the coast as the elevation rises.

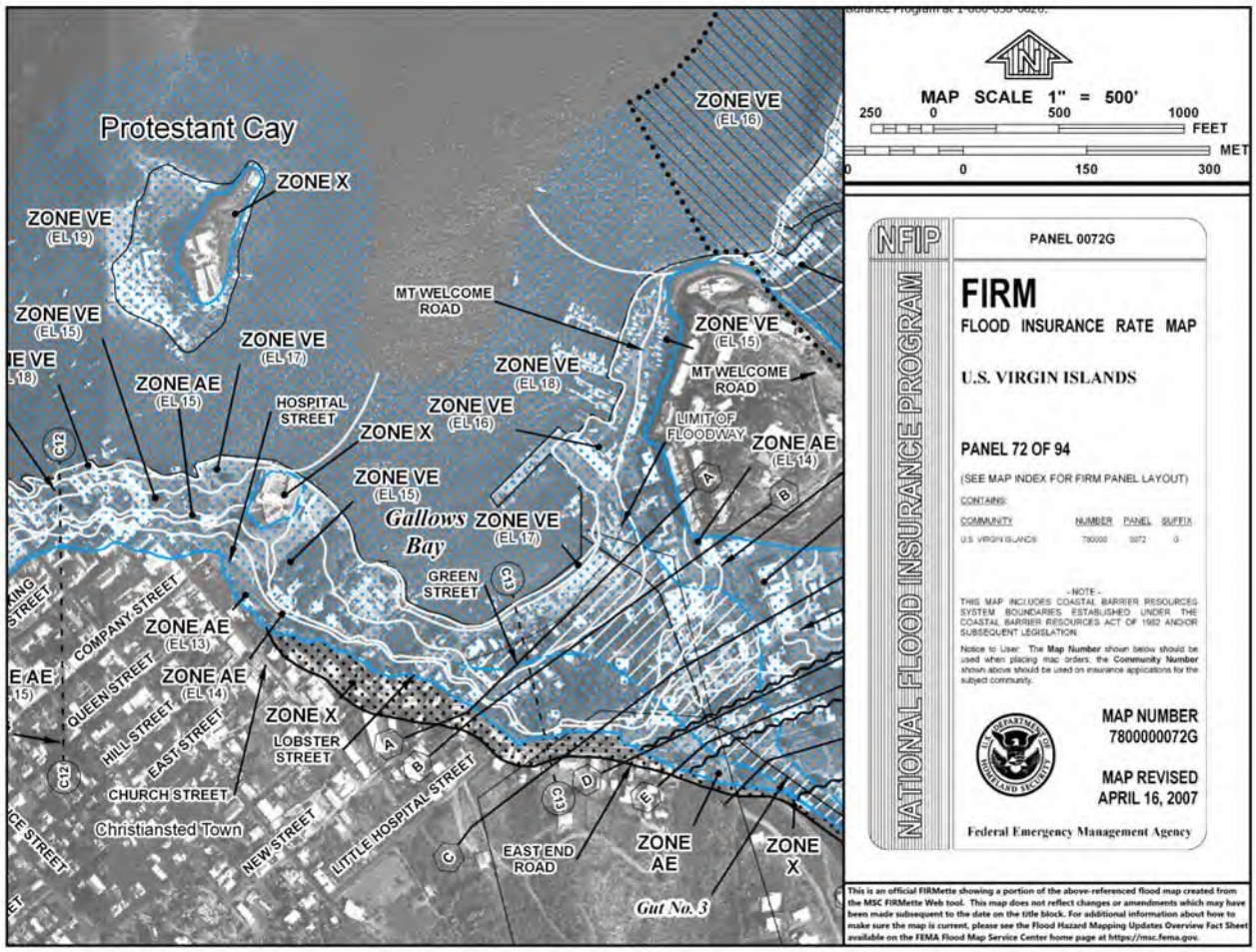


Figure 12. FIRM FEMA Map 72 of 94, April 16, 2007

6.03d. Peak stormwater flow calculations

Prepared the peak stormwater flow calculations and the Hydrology Report is found in Appendix C. The peak stormwater flows pre-construction were determined to be 0.16 (ac-ft) and the peak flows post-construction were determined to be 0.28 (ac-ft). The proposed improvements result in a net increase in building and impervious areas over the existing condition which is evident in the pre vs. post runoff coefficient increasing from 75 to 91. The storage required for 1" over the entire site area = 0.10 ac-ft. The storage required from a pre vs. post analysis of the 2yr – 24-hour storm (0.29 ac-ft – 0.16 ac-ft) = 0.13 ac-ft. Based on the above results, the pre-post analysis for the 2yr – 24-hour storm controls.
Given that the site has no available room for any retention areas, the required storage of 0.13 ac-ft will be accounted for by utilizing Stormtech Underground Storage Chambers. These chambers will be placed beneath the new gravel parking lot as illustrated on Plan Sheet C006 as found in Section 5.02.

6.03e. Existing stormwater disposal structures

There are no existing stormwater disposal structures on Parcel 7-b, Parcel 8-a and Parcel 8-b.

6.03f. Proposed stormwater control facilities

Based on the above results, the pre-post analysis for the 2yr – 24-hour storm controls.

Given that the site has no available room for any retention areas, the required storage of 0.13 ac-ft will be accounted for by utilizing Stormtech Underground Storage Chambers. These chambers will be placed beneath the new gravel parking lot as illustrated on Plan Sheet C006 as found in Section 5.02. The calculation of the required size on the chambers are found the Hydrology Report in Appendix C. There will be two buried chambers each capable of handling 0.0019ac-ft.

6.03g. Maintenance schedule for stormwater facilities

The silt fences and construction entrance will be maintained throughout the construction as necessary. If deficiencies or damage is noted, they will be repaired immediately.

6.03h. Proposed method of land clearing

Parcels 7-b, 8-a, and 8-b Hospital Street are almost completely cleared, only a small amount of vegetation will have to be removed along the southern property line.

6.03i. Provisions to preserve topsoil and limit site disturbance

The property has been developed in the past and there are limited environmental resources remaining on the property. The property will be maintaining a 20ft set back from the shoreline.

6.03j. Presence and location of any critical area(s) and possible trouble spot(s)

The proposed hotel is in the historically developed town of Christiansted and the development on Parcels 7-b and 8-b will connect to a historic building on 7-a Hospital Street which is currently permitted and is being renovated.

The parcel has been developed in the past and there are only a few trees along the southern side of the property. The property is within the 100-year flood zone and the finished floor elevation will be an 8ft.

6.03k. Erosion and sediment control devices to be implemented

Type III Silt fencing will be installed prior to any earth disturbance on the parcels and a construction entrance will be installed.

6.03l. Maintenance of erosion and sediment control devices

The Stormtech System will be maintained as per the manufacturer's guidelines. Storm drains will be cleaned out after all major rainstorms.

6.03m. Impacts of terrestrial and shoreline erosion

The development of the property will increase the amount of impervious surface on the parcel, but a Stormtech system will be installed which will handle the increase runoff. The site will primarily be hard scape and therefore there will be limited terrestrial erosion. There will be no impact on shoreline erosion as the result of the project.

6.04 Fresh Water Resources

There are no freshwater resources associated with Parcels 7-b, 8-a and 8-b Hospital Street. The property has no groundwater wells. The project will rely on the public potable water system.

6.05 Oceanography

6.05a Seabed Alteration

The project involves no seabed alteration.

6.05B 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 a maximum change of only a little over one 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. Normal tidal ranges may be greatly exceeded during storm conditions, when a combination of lower barometric pressure at the ocean surface and storm winds amplifies the tidal crest. The tides on the north coast of St. Croix are primarily diurnal in nature. There is a sight secondary cycle (semi-diurnal), but this is almost indistinguishable and is reduced to very small ebbs and floods. The mean tides range from 0.8 feet to feet and the spring tidal ranges reach up to 1.3 feet. The tidal zone is visible on the rubble shoreline during periods of low tide.

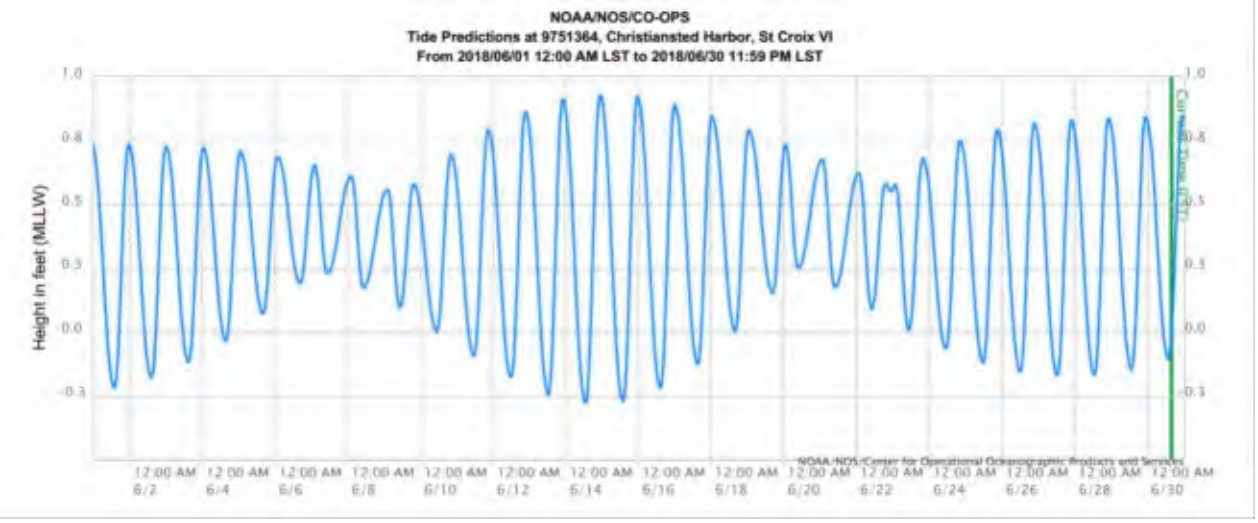
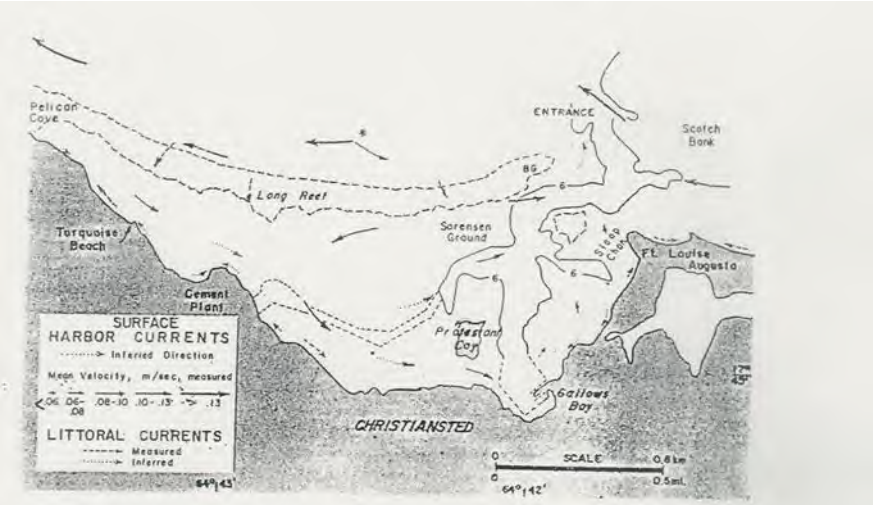


Figure 13. Tide Predictions Christiansted Harbor (https://tidesandcurrents.noaa.gov/noaatidepredictions.html)

The surface currents throughout the Caribbean are driven by the North Equatorial Current which runs through the islands west northwest and then joins the Gulf Stream. These currents change very little from season to season with the currents originating more from the south during the summer months. Because of the shallowness of the Caribbean basin, it is less than 1000m, mainly surface water from the Atlantic flows through the islands.

The current movements in Christiansted Harbor have been well documented. Waves approaching from the northeast break on Long Reef and drive water into the harbor. The water mass then moves to the east and flows out of the harbor on either side of Round Reef. Out flow velocities have been measured between 5 and 18 cm/sec under normal conditions. Point Louise Augusta tends to protect the entrance channel into the harbor and allows for outward flow even during periods of high wave action. Figure 14 indicates current movements recorded by Nichols, et. al, in 1972. This diagram shows the complexity of the currents within the harbor. Currents during field work on the parcels were to the north related to the falling tide.



Mean surface current, speed and direction for harbor currents and for littoral currents, August, 1971. Length and width of arrow indicates speed in meters per second. Harbor currents based on anchor station measurements; littoral currents on dye patch measurements. * indicates two alternating predominate directions. From Nichols, *et al*, 1972.

Figure 14. Complex currents within Christiansted Harbor, Nichols, et.al, 1972

6.05C Waves

The deep-water waves off St. Croix are primarily driven by the northeast trade winds, which blow most of the year. Waves average from 1 to 3 feet from the east, 42% of the time throughout the year. For 0.6% of the time, easterly waves reach 12 feet in height. The southeasterly swells, with waves one to twelve feet 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 feet. The roughest sea conditions prevail between June and August, and the second highest seas occur from December through February. September through November is the calmest period for waves.

Wave conditions are strongly affected by the shape of Scotch Bank located northeast of the harbor. The shelf orientation effectively precludes many wave conditions from affecting the harbor entrance and the harbor. Waves traveling through the Anegada Passage approach St. Croix at directions ranging from 020˚ to 060˚, but only those waves approaching from north of 030˚ effect the harbor entrance. Due to the position of the property is protected by not only by Long Reef but also by Protestant Cay, and the Gallows Bay Pier and is not affected by waves during

normal sea condition but can been affected by wind chop approaching through the channel east of Protestant Cay coming into Gallows Bay.

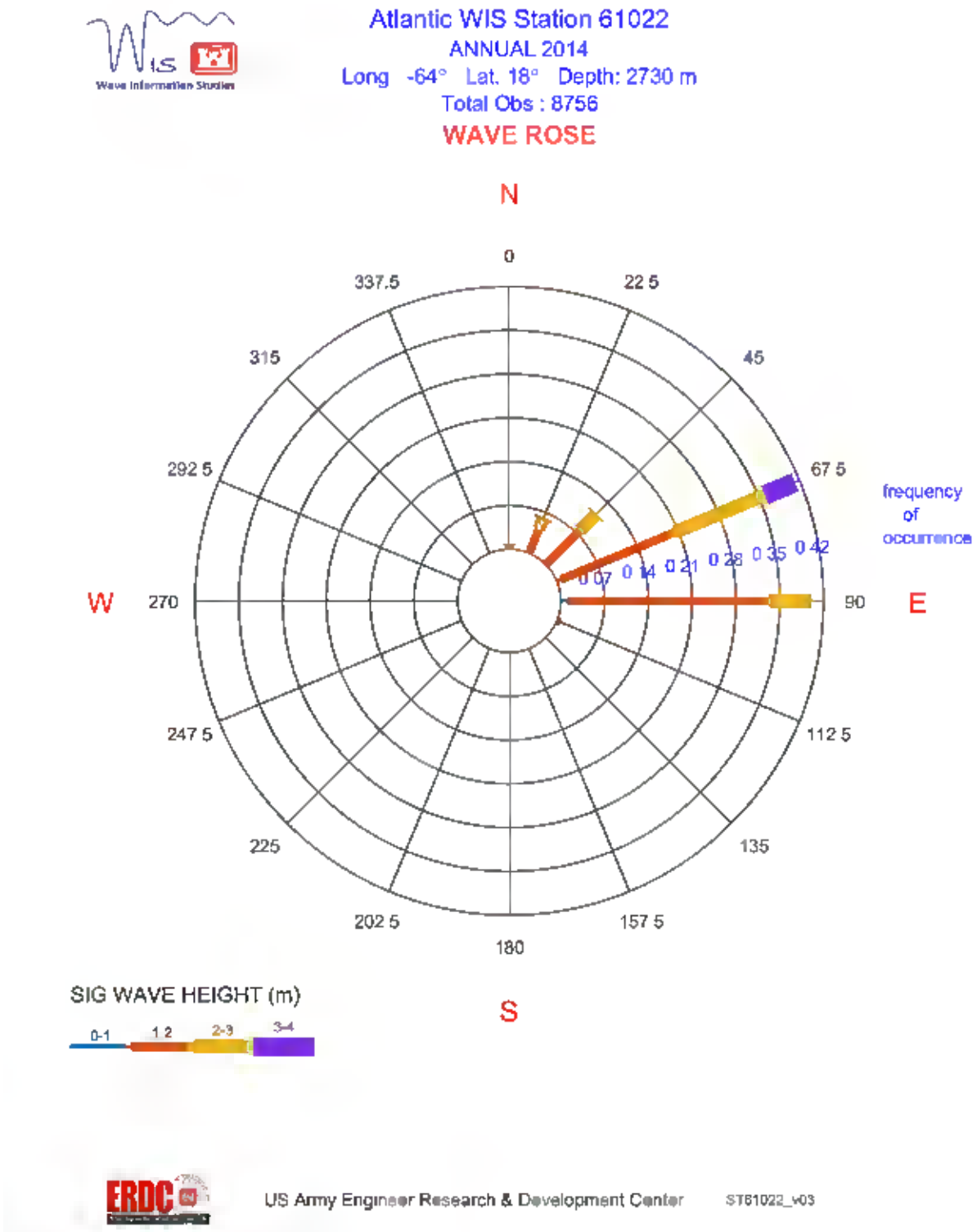


Figure 15. Wave Rose for Station 61022 which is most applicable for the Gallows Bay area. (wis.usace.army.mil/hindcasts.html?dmn=atlantic)

6.05D Marine Water Quality

The VI Ambient Water Quality Monitoring Program (VIAWQMP) has an ambient monitoring station 390ft. to the east. The data for monitoring station 41 is summarized in Table 2. A map of the VIAWQMP water quality monitoring stations in Christiansted Harbor is provided (Figure 16) showing its relationship with the project site.

Table 2. Ambient Data from Station 41

Date	Station ID	Time (hh:mm)	Total Depth (m) xx.x	Sample Depth (m) xx.x		Temp (°C) xx.xx	Salinity (ppt) xx.xx	DO (mg/L) xx.xx	pH (s.u.) xx.xx	Turbidity (NTU) xx.x	Secchi (m) xx.x
2.15.2027	STC 41	13:10	2.5	Surface	0.5	26.95	35.28	6.17	8.11	1.47	2.5
				Bottom	2.0	26.70	35.82	6.09	8.11	1.70	
5.20.2018	STC-41	11:19	9.1	Surface	0.5	27.40	36.20	6.17	8.27	0.8	3.0
				Bottom	8.6	27.32	35.90	6.22	8.26	0.9	
8.16.2018	STC-41	12:02	9.0	Surface	0.5	28.92	35.17	6.06	8.34	0.7	3.0
				Bottom	8.5	28.75	35.22	6.32	8.38	2.2	
9.19.2019	STC-41	12:22	9.1	Surface	0.5	25.94	35.47	6.37	8.17	0.6	3.0
				Bottom	8.6	25.92	35.47	6.30	8.15	0.6	

Figure 16. Location of property in relationship with VIAWQMP Station #42.

The offshore waters within Christiansted Harbor are classified as Class B, and the best usage of these waters 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 5.5 mg/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 such that a secchi disc is not visible at minimum depth of one meter.

IMPACT OF PROPOSED PROJECT

The project proposes no in-water work. The project will implement BMPs during construction to minimize the introduction of sediment laden runoff into the surrounding marine waters. Once complete the site will install a Stormtech Storm water system which will help control stormwater coming of the site.

6.06 Marine Resources and Habitat Assessment

The project involves no in-water work.

METHODS

In-water surveys were conducted during the month of March (offshore) and June 2024 (inshore). Surveys were conducted on SCUBA. Figure 17 depicts the benthic habitats which occur in the area as shown on the Benthic Habitat Map prepared by NOS, NOAA. The NOS habitat map shows the project area as seagrass 10-30% offshore and seagrass continuous along the shoreline. There is colonization by the seagrass *Thalassia testudinum* which is intermixed with *Halophila stipulacea* in the deeper areas of the bay and there is scattered sparse seagrass scattered along the shoreline, also intermixed with *H. stipulacea*. There are scattered rocks and cobble with some coral colonization in the area, mostly *Porites porites* and *Porites astreoides* with a few *Siderastrea siderea* and *S. radians*.

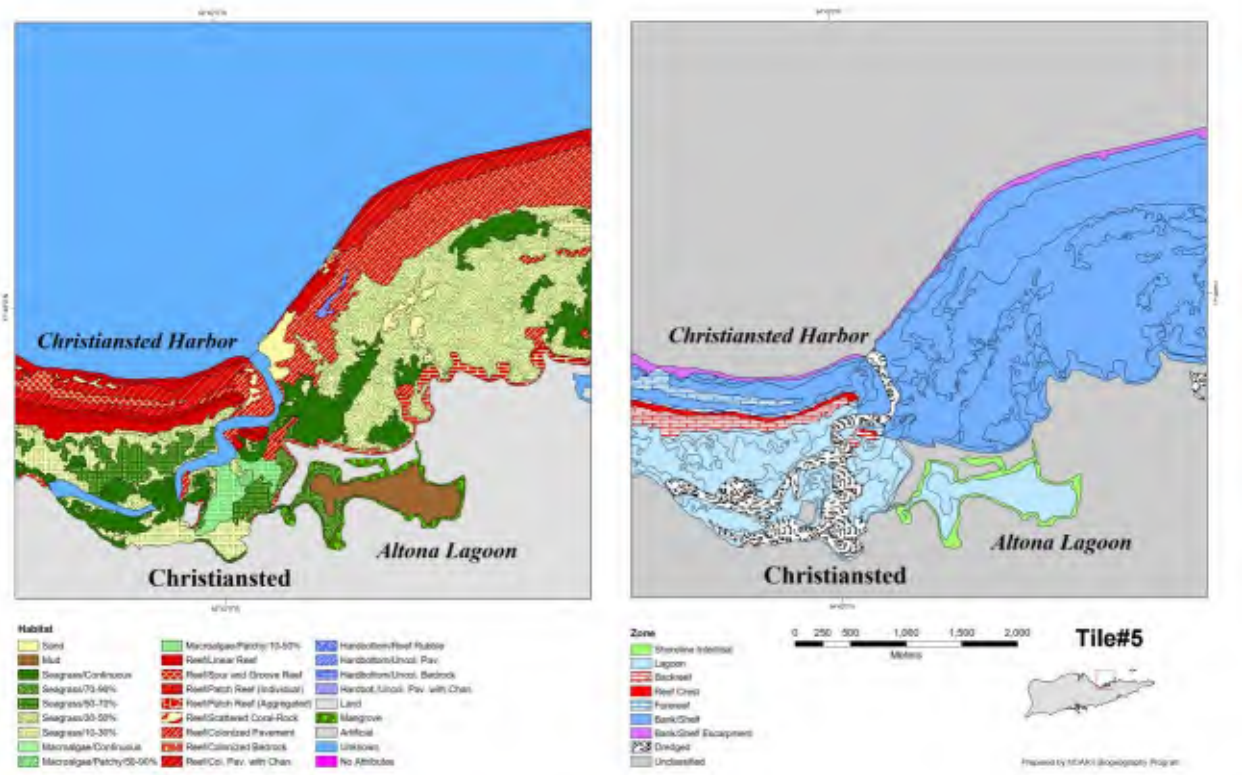


Figure 17. Tile #5 Benthic Habitat Map prepared by NOS, NOAA

The offshore areas were surveyed in March of 2024 as part of benthic surveys for the USACE to determine the potential required mitigation for dredging. Those surveys found the offshore areas dominated by the invasive seavine *H. stipulacea*.

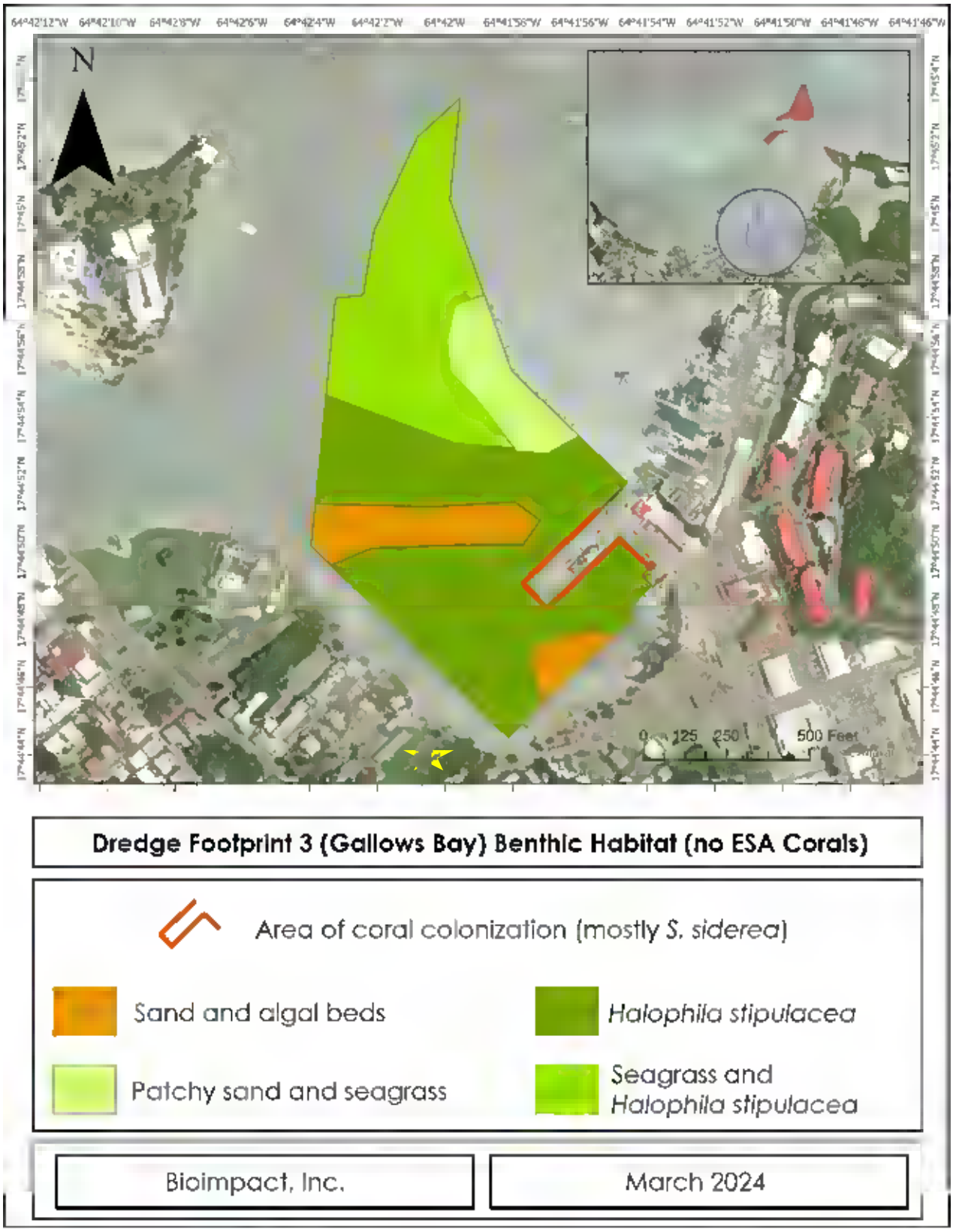


Figure 18. Offshore Benthic Habitats, the project area is highlighted with a yellow star.

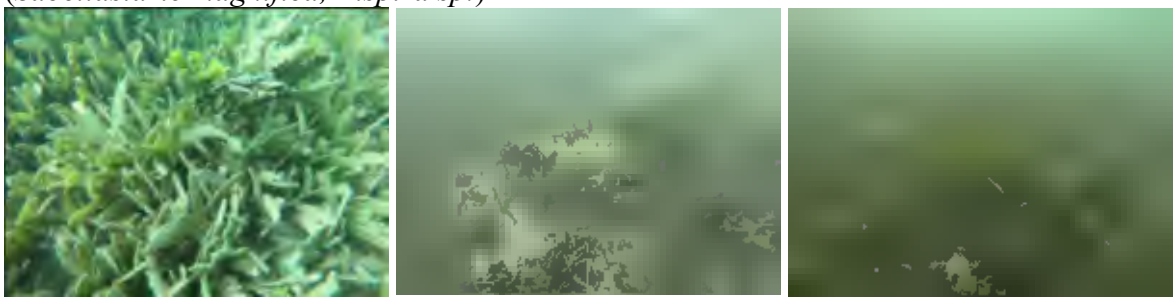
FINDINGS

Like most port area H. stipulacea has become the dominant colonizer. There is some macro-algae colonization and a small amount of *Thalassia testudinum* remaining in the bay. There are large amounts of drift algae within the deeper bay, primarily drift *Dictyota*. There is scattered debris include ropes, anchors, tires, branches, cans, bottles and boat debris. Within the drift algae there is *Laurencia, Hypnea sp. and Enteromorpha sp.*

The nearshore is a mix of cobble and soft bottom and again is a mixture of *H. stipulacea* and macro-algae, including *Caulerpa, Udotea, Penicillus capitatus, Avrainvillea, Laurencia,* and *Dictyota.*

Several of the larger rocks, rail debris and cobbles had small coral colonization including *Porites porites, Pseudodiploria strigosa, Porites astreoides Siderastrea siderea* and *S. radians* colonies.

Several juvenile lobsters (*Panularis argus*) were seen around the debris and feather duster worms (*Sabellastarte magnifica, Bispira sp.*) were abundant.



Offshore is dominated by *H. stipulacea* with scattered macro-algae and some very sparse *T. testudinum*.

The near shore is a mix of macro-algae, and *H. stipulacea*.

IMPACT OF DEVELOPMENT

The project involves no in-water work. The project will be implementing sedimentation and erosion control and will be implementing long-term stormwater control, therefore there will be no

impact on offshore resources.

6.07 Terrestrial Resources)

Parcels 7-b, 8-a and 8-b are partially clear and are being used to store materials for the construction on Parcel 7-a. Much of the vegetative grow is secondary growth including tan tan (*Leucaena leucocephala*), papaya (*Carica papaya*), bay-bean vine (*Canavillea rosa*), coral vine (*Antigonon leptopus*), guinea grass (*Urochloa maxima*) and casha (*Acacia tortuosa*).

There are a few larger genips (*Melicoccus bijugatus*), Tibet (*Albizia lebbeck*) some seaside maho (*Thespesia populnea*) along the coastline, Christmas palms (*Adonidia merrillii*), guinea grass (*Urochloa maxima*), a flamboyant (*Delonix regia*), white manjack (*Cordia alba*), West Indian almond (*Terminalia catappa*), and coconut palm (*Cocos nucifera*).

Most of the vegetation on the site will be removed accept for the trees immediately along the shoreline.

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 in the project area.

6.09 Rare and Endangered Species

Four rare or endangered sea turtle species: hawksbill turtles (*Eretmochelys imbricata*), green turtles (*Chelonia mydas*), loggerhead turtle (*Caretta caretta*) and leatherback turtles (*Ermochelys coriacea*), occur in the offshore area. Green turtles, and hawksbills turtles have been seen repeatedly in the area over the last 35 years.

No ESA coral species were noted within the project area. These corals do occur on the barrier reef well to the north and on hardbottom areas at the mouth of the harbor.

The Nassau Grouper, *Epinephelus striatus* was seen during a previous survey of the area but not during this survey.

Queen conch (*Aiger gigas*) have been seen in the bay in the past.

None of these ESA listed species will be impacted by the project.

6.10 Air Quality

All of St. Croix is designated Class II by the Environmental Protection Agency in compliance

with National Ambient Air Quality Standards. In Class II air quality regions, the following air pollutants are regulated: open burning, visible air contaminants, particulate matter emissions, volatile petroleum products, sulfur compounds, and internal combustion engine exhaust (Virgin Islands Code Rules and Regulations).

There will be minor increases in emissions during construction due to the use of heavy machinery. Once the construction is complete air emissions will return to ambient.

7.00 IMPACTS ON THE HUMAN ENVIRONMENT

7.01 Land and Water Use Plans

The parcel is appropriately zoned for the proposed use B-1.

7.02 Visual Impact

The development of the Boutique Hotel will greatly improve the visual character of the area. The blighted property has been in ruin for more than 30 years and the revitialzation of the site will greatly improve the asthetics of the area.

7.03 Impact on Public Services

7.03a Water

The Boutique Hotel will be connected to the public water supply.

7.03b Sewage Treatment and Disposal

The Boutique Hotel will be connected to the public sewerage system.

7.03c Solid Waste Disposal

Debris collected prior and during to construction will be disposed of at the Anguilla Landfill. Proper permits for the disposal of the waste will be obtained by the contractor. Once complete, the hotel will rely on a private hauler to dispose of waste generated by the boutique hotel.

7.03d Roads, Traffic and Parking

The hotel will have an impact on local traffic while bringing materials to the site and for worker access. This project will have hotel rooms, shops and a restaurant/café and will result in an increase in traffic to the area. The site will have 33 parking spaces which include 2 handicapped spaced. The parking sites should be adequate for the uses at the site.

7.03e Electricity

The electricity will be supplied by the public service (VI WAPA).

7.03f Schools

The construction of the hotel will not impact on public or private schools the construction workers and hotel works will be drawn through the local work force.

7.03g Fire and Police Protection

The construction should have a minimal impact on fire and police protection. Once complete the hotel will rely on the local fire and police protection.

7.03h Health

The construction and operation of the hotel should not increase the use of the public health facilities as that the workers will be come from the local work force. If guest have a medical emergency, they will utilize the public emergency facilities or the small private clinics. For more long-term medical care they will return home for care.

7.04 Social Impacts

The construction of the hotel should have a positive social impact. Once complete the Boutique hotel will improve a blighted area of downtown Christiansted and will improve the atmosphere of downtown Christiansted and promote economic growth of downtown as described below.

7.05 Economic Impact

A Financial and Economic Impact Study was made for the 66-Room Hotel with a 10,000 sq ft. Gym and Restaurant on Hospital Street in Christiansted. The financial and economic impact study evaluated the projected economic contributions of a new boutique hotel, equipped with a 10,000 sq ft gym and restaurant, set to open in 2028. The establishment is projected to employ approximately 45 individuals and contribute significantly to the local economy through employment, operational spending, and tax revenue.

Employment and Wages

The hotel will provide approximately 45 jobs by 2028, ranging from management positions to front-line service roles in hospitality, fitness, and food and beverage sectors. The anticipated annual payroll expenditure is approximately $1,938,000. This substantial wage investment will support local families and contribute to the overall economic stability of the community. Employees will benefit from stable employment opportunities and comprehensive job. training, enhancing local workforce skills and reducing unemployment rates.

Hotel Room Tax Contributions

By 2028, the hotel is projected to pay approximately $627,135 in hotel room taxes. This significant tax revenue will contribute to local government funds, which can be used for

community development projects, infrastructure improvements, and public services. The hotel room tax revenue is a crucial element of the fiscal benefits the hotel brings to the local economy, ensuring sustainable community growth and enhanced public amenities.

Operating Expenses and Local Vendor Support

The hotel is expected to spend around $1,668,425 annually on operating expenses with local. vendors by 2028. This expenditure includes purchasing supplies, services, and maintenance. required to keep the hotel, gym, and restaurant running efficiently. This consistent financial injection into local businesses will stimulate the local economy, fostering the growth of small. and medium enterprises (SMEs), and creating a multiplier effect as these businesses, in turn, invest back into the community.

Economic Revitalization

The hotel's development will significantly contribute to the revitalization of the surrounding. area. The establishment of a modern, full-service hotel, along with a state-of-the-art gym and a high-quality restaurant, will attract tourists and business travelers, increasing local tourism. and business activity. The influx of visitors will lead to higher spending in the local economy, benefiting retail stores, entertainment venues, and other service-oriented businesses.

Long-term Benefits

The projected financial contributions in the form of wages, taxes, and operating expenses highlight the hotel's role as a key economic driver. Over the years, the cumulative effect of these financial flows will result in sustained economic growth. The hotel's presence will likely lead to additional investments in the area, spurring further economic development and improving the overall quality of life for residents.

7.06 Impacts on Historical and Archeological Resources

There is a historic building on Parcel 7-a to which this project will be connected. The applicant worked with the State Historic Preservation Office (SHPO) and VI Historic Preservation Commission (VIHPC). A letter has been transmitted to SHPO requesting a clearance for Parcel 7-b, 8-a and 8-b Hospital Street.

7.07 Recreational Use

The Parcels are not used for recreational activities. The construction of this hotel will not impact and recreational activities. Shoreline access will be maintained.

7.07 Waste Disposal

The debris collected prior to the construction will be disposed of at the Anguilla Landfill. Solid Waste will be collected in a waste bin and disposed of by a licensed private hauler.

7.08 Accidental Spills

The project is for the construction of a boutique hotel all equipped will be kept in good condition and no fueling will be allowed on site. If any spills occur the soil will be cleaned up and disposed of properly.

7.08 Potential Adverse Effects Which Cannot Be Avoided

The site is site has been completely disturbed in the past. There are minimal resources in the area and therefore there is no significant impact to any resources.

8.00 Mitigation Plans

The project will have a negligible impact on the environmental and will have no mitigation is proposed.

9.00 Alternatives to Proposed Action

The project could not be built, and the site would remain in blight.

10.00 Relationship Between Short Term and Long-Term Uses of Man's Environment

The redevelopment of a previously impacted site is the best use of the environment rather than develop an undeveloped greenfield site.

11.00 Literature Cited

Bowden, M.J. et. al., 1969. Climate, water balance and climatic change in the north-west Virgin Islands. Caribbean Research Institute, CVI, St. Thomas, Virgin Islands.

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., et al. 1971. Chemical evolution of the igneous rocks of the Eastern West Indies. In: Donnely, t. (ed.) Caribbean geophysical, tectonic and petrologic studies. Geol. Soc. Amer. Mem. 130:181-224.

Gill, Ivan P. and D.K. Hubbard. 1986. Subsurface Geology of the St. Croix Carbonate Rock System, Technical Report No. 26, Caribbean Research Institute, College of the Virgin Islands, 71 pp.

Humann, Paul. 1992. Reef Creature Identification. New World Publications, Inc., Jacksonville, FL.

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Island Resources Foundation. 1977. Marine environments of the Virgin Islands. Technical Supplement No.1 1976. Prepared for the Virgin Islands Planning Office.

APPENDIX A

P.O. BOX 132
KINGSHILL, ST. CROIX
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EMAIL: bioimpact@islands.vi, bioimpact.islands.vi@gmail.com

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 PLANNING AND STUDIES

A Foundational Blueprint For The Development Of A Comprehensive Pelagic Sargassum Management Plan For The United States Virgin Islands. The U.S. Virgin Islands Department of Planning and Natural Resources Division of Coastal Zone Management. (2023)

Ecosystem Risk Assessment Framework for the Caribbean Marine Fisheries Management Council (in progress).

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.

APPENDIX B

GROUND LEASE

THIS GROUND LEASE (this "Lease") made this 25 day of Jan, 2024, by and between Gina Dyer-Cintron of P.O. Box 861, Christiansted, VI 00821 (herein "Landlord") and Z Property VI, LLC of P O. Box 25421, Christiansted, VI 00821 (herein "Tenant") (Landlord and Tenant may be referred to in this Agreement individually as a "Party" and collectively as the "Parties").

WHEREAS, Landlord owns and desires to lease to Tenant, and Tenant desires to lease, the Premises (as defined herein); and

WHEREAS, Landlord and Tenant wish to enter into this Agreement for the lease of the Premises for use by Tenant as per the terms of this Agreement.

NOW THEREFORE, WITNESSETH that for and in consideration of the mutual promises, undertakings, representations, warranties, covenants, acknowledgments and agreements set forth herein, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties, intending to be legally bound, hereby agree as follows:

1 0 **PREMISES**. In consideration of the rents to be paid and the covenants and agreements to be performed by the Parties, Landlord does hereby lease to Tenant, and Tenant does hereby lease from Landlord the following described premises:

> Plot No. 8-A Hospital Street, Downtown Christiansted, St. Croix U S Virgin Islands, except that portion of a storage room that encroaches onto Plot 8-A Hospital Street

all as more fully shown on Exhibit "A" attached hereto and made a part hereof, and all of which are collectively referred to as the "Premises". The portion of the storage room that encroaches onto Plot 8-A Hospital Street that is depicted in Exhibit "A" is titled "Storage".

1 1 Present Condition. The taking of possession of the Premises by Tenant shall be conclusive evidence that Tenant accepts the same in its present condition and that the Premises is in good and satisfactory condition for the use intended at the time such possession is taken Tenant is leasing the Premises "As Is" with faults and defects whether latent or apparent. Tenant acknowledges and agrees that, except as may be specifically set forth in this Lease, Landlord (and or any employee or agent of Landlord) has not made and does not make, and Landlord specifically disclaims, any representations, warranties, promises, guarantees, covenants, or agreements of any kind or character whatsoever, whether express or implied, oral or written, past, present or future, of, as to, concerning or with respect to the condition of the Premises or as to the use or occupancy which may be made thereof Tenant acknowledges that Tenant is relying solely on Tenant's own inspection, examination, research, tests, investigation and other acts of due diligence concerning the Property and not on any information provided or to be provided by

Landlord. Tenant's occupancy of the Premises acknowledges Tenant's acceptance of the Premises in its present condition.

2 0 TERM, RENT, SECURITY DEPOSIT, LATE FEE:

2.1 Term: The term of this Lease shall be for a period of four (4) years and five (5) months commencing on February 01, 2024 (the "Commencement Date") and expiring on July 31, 2028. This Lease shall be effective and enforceable between Landlord and Tenant upon its execution and delivery, whether such execution and delivery occurs on, prior to, or after the Commencement Date. Lessee shall be entitled to possession and occupancy of the leased premises provided that: this Lease has been executed by all parties; the payment of the first month's rental rate has been made by Tenant; and a copy of the insurance policy pursuant to section 17.3 has been given to Landlord.

2.2 Rent: Tenant shall pay Landlord a monthly rent due on the first (1st) day of each month without demand, deduction, or offset (the "Monthly Rent") as follows:

Lease Year	Monthly Rent
February 01, 2024-December 31, 2025	$1,000
January 01, 2026-July 31, 2028	$3,500

2.2.1 All rent payments shall be made payable to Landlord and mailed to Landlord's address set forth in the introductory paragraph of this Lease or to such other address as Landlord may designate upon reasonable notice to Tenant.

2.2.2 Any partial payments of rent or any other amount due from Tenant shall be applied to the earliest installment due, and no endorsement or statement on any check or any letter accompanying any check or payment as to same shall be deemed an accord and satisfaction, and Landlord may accept such check or payment without prejudice to Landlord's right to recover the balance of such installment and any other amounts then due or to pursue any other remedy of Landlord set forth herein.

2 3 Late Fee If any installment of Monthly Rent, Additional Rent or any other amount due from Tenant to Landlord shall not be paid and actually received by Landlord within seven (7) days after the date such payment is due as provided hereunder, then Tenant shall immediately pay to Landlord a late charge in the amount of five percent (5%) of the amount due, plus any attorney's fees incurred by Landlord resulting from Tenant's failure to pay such rent or other amount when due. Landlord and Tenant agree that such late charge represents a fair and reasonable estimate of the costs to be incurred by Landlord and does not constitute a penalty Acceptance of such late charge by Landlord shall not constitute a waiver of Tenant's default with respect to such overdue amount and shall not prevent Landlord from exercising any other rights and remedies available to Landlord.

2.4-Right of First Refusal- Provided that Tenant is not in default of any of Tenant's obligations hereunder and an Event of Default as set forth in Section 24 0 has not occurred within the prior twelve (12) months, Tenant shall have a First Right of Refusal to renew this lease and to lease Plots 8D and 9A Hospital Street after the current lease expires, or is surrendered back to the Landlord before its expiration on July 31, 2028. In this regard, if Landlord receives a written offer by a willing third party to lease Plots 8-A, 8-D, and/or 9-A Hospital Street that Landlord intends to accept, Landlord shall communicate said offer in writing to Tenant who shall have 15 business days to agree to match the offer. If Tenant fails to exercise its First Right of Refusal within the time stated herein, this First Right of Refusal shall have no more force and effect. Additionally, if no such offers are received from any third party during the term of this lease or within 90 days after the expiration of the term of this lease on July 31, 2028, as set forth in Section 2.1, this First Right of Refusal shall terminate. This first right of refusal is not assignable.

2.4 Security Deposit: There is no security deposit.

3.0 **USE**: Tenant acknowledges that the rental rate negotiated and fixed herein is in part based on Tenant's commitment to restrict Tenant's usage of the Premises as hereinafter defined. Tenant covenants and agrees that the Premises shall be used and occupied for the purpose of conducting the following, AND ONLY THE FOLLOWING PURPOSE:

Parking Lot
Storage

ANY UNAUTHORIZED USE OF THE PREMISES SHALL BE A MATERIAL DEFAULT BY TENANT UNDER THIS LEASE, except with the prior written consent of the Landlord. Landlord shall have the absolute right, in Landlord's sole discretion, to refuse to consent to Tenant's use and occupancy of the Premises for any activity other than as set forth herein.

4.0 **ASSIGNMENT, SUBLEASE, OTHER TRANSFER OF INTEREST**: Tenant covenants not to assign, transfer, sublet, hypothecate or mortgage this Lease or the Premises nor may this Lease or the Premises be transferred by operation of law, whether voluntary or involuntary (collectively "Transfer") without the express written consent of Landlord. Landlord shall have the absolute right, in Landlord's sole discretion, to refuse to consent to any Transfer. The term "sublet" shall be deemed to include but not limited to the granting of licenses, concessions and any other rights of occupancy for any portion of the Premises. Such consent shall not be deemed to be a consent to, nor waive Landlord's right to consent to, any further assignment, sublease or transfer of interest.

Notwithstanding any assignment or subletting, Tenant shall at all times remain directly, primarily and fully responsible and liable for the payment of the rent herein specified and for compliance with all of its other obligations under the terms, provisions and covenants of this Lease. Upon the occurrence of an Event of Default as hereinafter defined, if the Premises or any part hereof are then assigned or sublet, the Landlord, in addition to any other remedies herein provided or provided by law, may at its option collect directly from such assignee or sub-Tenant all rents becoming due

to Tenant under such assignment or sublease and apply such rent against any sums due to Landlord from Tenant hereunder, and no such collection shall be construed to constitute a novation or a release of Tenant from the further performance of Tenant's obligations hereunder. In the event of any Transfer without said written consent, Landlord, in addition to any other remedies available, shall have the right to terminate this Lease, and to re-enter and repossess the Premises. No Transfer shall relieve Tenant of Tenant's obligations hereunder.

5.0 Intentionally omitted.

6.0 **TAX ESCALATION:** If the Real Estate Taxes for the Premises for any Lease Year or Partial Lease Year during the Term of this Lease is greater than the Base Real Estate Taxes (reduced proportionately to correspond to the duration of periods less than a Lease Year), then Tenant will pay to Landlord as Additional Rent, Tenant's Percentage of all such excess Real Estate Taxes

7.0 **RESERVED USE:** Landlord reserves the exclusive use of one (1) reserved parking space on the Premises at all times which parking space may be used by Landlord or any person authorized by Landlord.

8.0 **SUBORDINATION AND ESTOPPEL CERTIFICATE**

8.1 Subordination: This Lease is subject and subordinate to any mortgage or encumbrance that may now or hereafter encumber the Landlord's interest in the Premises and to all renewals, modifications, consolidations, replacements and extensions thereof. This clause shall be self-operative and no further instrument of subordination need be required by any mortgagee. In confirmation of such subordination, however, Tenant shall within ten (10) days of Landlord's request, execute, acknowledge and deliver to Landlord any appropriate certificate or instrument that Landlord may request evidencing such subordination. In the event of the enforcement by the holder of any such mortgage or encumbrance of the remedies provided for by law or by such mortgage or encumbrance, Tenant will, upon request of any person or party succeeding to the interest of Landlord as a result of such enforcement, automatically become the Tenant of such successor in interest without change in the terms or other provisions of this Lease, provided, however, that such successor in interest shall not be bound by (a) any payment of rent or Additional Rent for more than one (1) month in advance except prepayments in the nature of security for the performance by Tenant of its obligations under this Lease or (b) any amendment or modification of this Lease made at a time that such holder or such successor in interest had an interest in Premises without the written consent of such holder or such successor in interest. Upon request by such successor in interest, Tenant shall execute and deliver an instrument or instruments confirming the attornment herein provided for. Notwithstanding the forgoing, the Tenant's obligation to subordinate the Tenant's interest in the Premises to any mortgage(s) hereafter placed upon Landlord's interest in the Premises is conditioned on such mortgagee(s) executing and delivering a non-disturbance agreement which shall provide that in the event of foreclosure of the mortgage(s), Tenant shall be permitted to remain in occupancy of the Premises subject to the terms of this Lease, as limited hereby, unless or until the Tenant is in default hereunder.

8.2 Estoppel Certificate. At any time during the Term of this Lease, Tenant shall, within ten (10) days of the request by Landlord, execute, acknowledge and deliver to Landlord,

any mortgagee, prospective mortgagee, or any prospective purchaser of the Premises, an estoppel certificate in recordable form or in such other form as Landlord may from time to time require, evidencing whether (a) this Lease is in full force and effect, (b) this Lease has been amended in any way; (c) Tenant has accepted and is occupying the Premises; (d) there are any existing defaults on the part of Landlord hereunder or any defenses or setoffs against the enforcement of this Lease to the knowledge of Tenant (and specifying the nature of any such defaults, defenses or offsets, if any); (e) the date to which rents and other amounts due hereunder, if any, have been paid, and (f) any other information as may be reasonably requested by Landlord. Each certificate delivered pursuant to this Section may be relied upon by Landlord or any other Party to whom the certificate is addressed.

9.0 **QUIET ENJOYMENT**. Upon payment by Tenant of the rents herein provided, and upon the observance of all of the covenants, terms and conditions on the Tenant's part to be observed and performed, the Tenant shall peaceably and quietly enjoy the Premises for the Term of this Lease without hindrance or interruption by the Landlord or any other person or persons lawfully or equitably claiming by, through or under the Landlord, subject, nevertheless, to the terms of this Lease.

10.0 **IMPROVEMENTS.**

10.1 Approvals. The Tenant shall deliver to Landlord all plans and specifications for any proposed alterations, additions, or improvements to the Premises. Except for the installation of unattached moveable trade fixtures which may be installed without drilling, cutting, or otherwise defacing the Premises, Landlord shall have the absolute right, in Landlord's sole discretion, to refuse to consent any alterations, additions, or improvements to the Premises. Any alterations, additions or improvements to the Premises by Tenant shall be done in accordance with all requirements of law, including any building, zoning and CZM laws and local regulations. Prior to commencement of any alterations, additions or improvements to the Premises, Tenant must present Landlord with proof of approval from all governmental agencies and authorities having jurisdiction and establish to the reasonable satisfaction of Landlord that the alterations, additions or improvements to the Premises comply with all applicable Americans With Disabilities Act (the "ADA") rules and regulations. All alterations, additions or improvements by Tenant and any modifications to the Premises occasioned by the alterations, additions or improvements and required by the ADA shall be at Tenant's sole expense and not at the expense of Landlord. All such construction work shall be performed in a good and workmanlike manner. Any structural alterations must be made under the supervision of a licensed engineer.

10.2 Construction or Other Liens LANDLORD OR ITS PROPERTY SHALL NOT BE LIABLE FOR CONSTRUCTION LIENS, MATERIALMEN'S LIENS, OR MECHANICS LIENS and the approval of any alterations, additions or improvements shall not be deemed a consent to the imposition of any such liens. Tenant shall neither cause nor permit any lien to be placed or filed against the Premises. Any mechanics' lien, construction lien or materialmen's lien filed against the Premises or the Property, for work claimed to have been done for, or materials claimed to have been furnished to Tenant, shall be discharged or bonded over by Tenant within ten (10) days thereafter, at Tenant's expense.

10.3 Improvements Landlord's Property: All alterations, additions and improvements on or in the Premises on the Commencement Date and that may be erected or installed during the Term of this Lease, are or shall become part of the Premises and the sole property of Landlord, except that all movable trade fixtures installed by Tenant shall be and remain the property of Tenant.

10.4 Landlord's Election: Notwithstanding anything herein to the contrary, at the termination of this Lease, for any reason, Landlord may require the Tenant to remove any or all alterations, installations, additions or improvements made by Tenant upon the Premises and, in such event, Tenant shall remove such selected alterations, installations, additions or improvements and Tenant shall restore the Premises to the original condition, at Tenant's own cost and expense.

11.0 **REPAIRS AND MAINTENANCE:** The repair and maintenance obligations of the Landlord and of the Tenant with regard to the Premises are as follows:

11.1 Landlord's Obligation: Landlord has no obligation to repair or maintain the premises.

11.2 Tenant's Obligation: Tenant shall maintain and repair the Premises in good repair and in a neat, safe, clean and sanitary condition during the Term of this Lease and shall also maintain the parking area in a neat, safe, clean and sanitary condition including lawn maintenance. If Landlord determines that cleaning, maintenance, or repairs which are the obligation of the Tenant to make pursuant to this Lease have not been made, then Landlord may demand that Tenant make them, and if Tenant refuses or neglects forthwith to commence such repairs or cleaning within ten (10) days after notice and complete the same with reasonable dispatch, Landlord at its option may make or cause them to be done and shall not be responsible to Tenant for any loss or damage that may accrue to its stock or business by reason thereof. If the Landlord makes or causes to be made such repairs or cleaning, Tenant agrees to pay the cost thereof as follows: Landlord at its option can either pay same for which Tenant shall fully reimburse Landlord, such costs and expenses incurred by Landlord being added as Additional Rent to the next installment of rent or present Tenant directly with a bill for same which Tenant shall pay within fifteen (15) days of presentation, failing either of which, Landlord may treat as an Event of Default under Section 25.1.

12.0 **CONDEMNATION**: If the whole or a substantial part of the Premises shall be taken for any public or quasi-public use, under any statute, or by right of eminent domain or private purchase in lieu thereof, by a public body vested with the power of eminent domain, then, when possession shall be taken thereunder of the Premises, or a substantial part thereof, the term and options hereby demised and all rights and obligations of Tenant hereunder shall immediately cease and terminate and the rent shall be adjusted as of the time of such termination, and Tenant shall have no claim against the Landlord for the value of the unexpired Term of this Lease. All damages awarded for such taking shall belong to and be the property of Landlord, whether such damages shall be awarded as compensation for diminution in value to the leasehold or the fee of the Premises herein leased; provided, however, that Landlord shall not be entitled to any portion of the award made to Tenant for loss of business. A sale by Landlord to any authority having the power of eminent domain, either under threat of condemnation or while condemnation proceedings

are pending, shall be deemed a taking under the power of eminent domain for all purposes under this section.

13.0 NUISANCE, ENVIRONMENTAL COMPLIANCE AND COMPLIANCE WITH LAW.

13.1 Nuisance: Tenant covenants that Tenant shall not perform any acts or carry on any practices that may injure the Premises, or be a nuisance or menace to Landlord or its business invitees or to any neighboring businesses. Tenant shall, at Tenant's own expense, comply with all laws and all orders, regulations or ordinances of all governmental agencies and authorities affecting the Premises.

13.2 Compliance with Law: Tenant covenants and agrees to use and operate the Premises in strict conformance with the laws, rules, regulations and ordinances of the Government of the Virgin Islands, the United States Federal Government and of any other applicable government unit which are now or hereafter in effect, subject, however, to the right of Tenant, at its option, to contest the validity of any unreasonable rule or regulation, and so long as such contest does not threaten or impair Landlord's property or business and is pursued diligently, no default under this Lease shall be declared

13 3 Hazardous Substances:

13.3.1 With regard to the Premises, Tenant shall at all times during the Term of this Lease comply with all applicable federal, territorial, and local laws, regulations, administrative rulings, orders, ordinances, and the like, pertaining to the protection of the environment, including but not limited to, those regulating handling and disposal of Hazardous Substances. Tenant shall not cause nor permit any Hazardous Substance to be spilled, leaked, disposed of, or otherwise released on or under the Premises. Tenant may use or otherwise handle on the Premises only those Hazardous Substances typically used or sold in the prudent and safe operation of the business specified herein. Tenant may store such Hazardous Substances on the Premises only in quantities necessary to satisfy Tenant's reasonably anticipated needs. Tenant shall comply with all Environmental Laws and exercise the highest degree of care in the use, handling, and storage of Hazardous Substances and shall take all practicable measures to minimize the quantity and toxicity of Hazardous Substances used, handled, or stored on the Premises. Upon the expiration or termination of this Lease, Tenant shall remove all Hazardous Substances that Tenant has used during the Lease Term from the Premises. The term Environmental Law shall mean any federal, territorial or local statute, regulation, or ordinance or any judicial or other governmental order pertaining to the protection of health, safety or the environment. The term Hazardous Substance shall mean any hazardous, toxic, infectious or radioactive substance, waste, and material as defined or listed by any Environmental Law and shall include, without limitation, petroleum oil and its fractions.

13.3 2 Tenant shall fully and promptly pay, perform, discharge, defend, indemnify and hold harmless Landlord from any and all claims, orders, demands, causes of action, proceedings, judgments, or suits and all liabilities, losses, costs or expenses (including, without limitations, technical consultant fees, court costs, expenses paid to third parties and reasonable legal fees) and damages arising out of, or as a result of any actions of Tenant comprising of (i) any

"release" as defined in Section 101(22) of CERCLA, of any Hazardous Substances placed into, on or from the Premises at any time after the date of this Lease by Tenant; (ii) any contamination by Tenant of the Premises' soil or groundwater or damage to the environment and natural resources of the Premises the result of actions of Tenant occurring after the date of this Lease, whether arising under CERCLA or other statutes and regulations, or common law; and (iii) any toxic, explosive or otherwise dangerous materials or Hazardous Substances which have been buried beneath, concealed within or released on or from the Premises after the date of this Lease by Tenant.

14.0 **LANDLORD NOT LIABLE**: Tenant shall occupy the Premises at Tenant's own risk. Tenant will not hold Landlord liable for any loss or interruption of business. To the fullest extent permitted by law, Tenant agrees that Landlord and Landlord's agents and employees shall not be liable for, and Tenant waives all claims for, damage to person or property and inconvenience, annoyance or injury to business sustained by Tenant or any person claiming through Tenant resulting from any accident or occurrence in or upon the Premises, including but not limited to claims for damage resulting from: (a) any equipment or appurtenances being repaired; (b) injury done or occasioned by wind; (c) any defect in or failure of plumbing or air conditioning equipment, electric wiring or installation thereof; (d) broken glass; (e) the backing up of any sewer pipe or downspout; (f) the bursting, leaking or running of any tank, tub, washstand, water closet, waste pipe, drain or any other pipe or tank in, upon or about such building or Premises; and/or (g) the falling of any fixture, plaster, tile or stucco. No such damages shall entitle Tenant to a reduction or abatement of rent.

15.0 **OBLIGATION TO PAY RENT**: This Lease and the obligation of Tenant to pay rent hereunder and perform all of the other covenants and agreements hereunder on the part of Tenant to be performed shall in no way be affected, impaired or excused because Landlord is unable to fulfill any of its obligations under this Lease.

16.0 **INDEMNIFICATION**. To the fullest extent permitted by law, Tenant hereby indemnifies Landlord (as well as Landlord's officers, directors, employees, agents and affiliates, all of whom are referred to as Landlord for purposes of this Section 16) and holds Landlord harmless of and from all claims by any person or entity including, but not limited to, Tenant and or Tenant's employees, agents, shareholders, directors and business invitees: arising from the conduct or management of, or from, any work or thing whatsoever done in or about, the Premises, the Building, the Property or the equipment thereof during the Term of this Lease; arising during the Term of this Lease from any condition of any street or area adjoining the Premises; arising from any act or negligence of Tenant or any of its agents, contractors, employees, guests or business invitees, or arising from any accident, injury or damage whatsoever, however caused, to any person or persons or to the property of any person, persons, business entity, or business entities, occurring during the Term of this Lease on, in, or about the Premises, the Property or on or under the streets or areas adjacent thereto. Tenant hereby also indemnifies Landlord against and holds Landlord harmless from all costs, counsel fees, and liabilities incurred in or about any such claim or in or about any action or proceeding brought thereon, and in case any action or proceeding be brought against Landlord by reason of any such claim, Tenant shall, on notice from Landlord, resist or defend such action or proceeding by counsel satisfactory to Landlord

17.0 **INSURANCE**.

17.1 Insurance: During the Term of this Lease, Tenant, at its own expense, will maintain with admitted insurers authorized to do business in the U.S. Virgin Islands:

(1) Commercial general liability of at least $1,000,000.00 per occurrence for death, bodily injury and property damage ("CGL Insurance"). Such CGL Insurance policy shall name Landlord as an additional insured on an ISO form CG20 11 01 96, or equivalent form. The CGL Insurance policy shall be endorsed to include a waiver of subrogation by the insurer as to Landlord. This insurance shall be endorsed to provide primary and not requiring contribution by an insurance maintained by the Landlord It is the specific intent of the parties to this Lease that all liability insurance held by Landlord shall be excess above the liability insurance required to be obtained by Tenant by this Lease. Tenant's CGL Insurance coverage shall include contractual indemnity coverage for Tenant's indemnity obligations to Landlord under Section 16 of this Lease.

(2) Workers' Compensation and employee insurance in an amount not less than the amount required by law.

17.2 Form of Insurance: All insurance provided for in this Lease shall be effected under enforceable policies issued by insurers licensed to do business in the U.S. Virgin Islands and approved by Landlord. Tenant shall inform such person as may be designated by Landlord of all transactions concerning the insurance to be purchased by Tenant pursuant to this Lease. Tenant shall cause the Landlord to be named as an "Additional Insured" on the Public Liability Insurance policy. To the extent obtainable, all policies shall contain an agreement by the insurers: that such policies shall not be canceled except upon ten (10) days prior written notice to Landlord and that the coverage afforded thereby shall not be affected by the performance of any work in or about the Premises

17.3 Delivery of Policies/Landlord's Right to Purchase Insurance: Tenant shall deliver said policies of insurance to Landlord prior to the commencement of the Term of this Lease and shall provide Landlord with satisfactory proof of the timely renewal and/or replacement of such policies of insurance; and upon Tenant's failure to do so, Landlord may, at Landlord's option, obtain such insurance, and the cost thereof shall be paid as Additional Rent due and payable upon the next ensuing rent day.

17.4 No Representations. Landlord and its agents and employees make no representations that the limits of liability specified to be carried by Tenant pursuant to this Section 17 are adequate to protect Tenant If Tenant believes that any such insurance coverage is inadequate, then Tenant should obtain, at Tenant's sole expenses, such additional insurance coverage as Tenant deems appropriate.

18.0 **DAMAGE TO PREMISES/BUILDING; REPAIRS**. As the premises are being leased where is, as is, without any current habitable structure, the only obligation of the Parties is

for the Tenant to repair any damage to any building that occurs if any improvements are made to it the Tenant, which is solely within the Tenant's discretion to do or not do.

19.0 **SIGNS**. Tenant shall have the right to install and maintain a sign or signs advertising Tenant's business at the Premises, provided said signs are in keeping with the character of the building and its surroundings and comply with all applicable laws, ordinances, rules and regulations. All necessary permits or licenses shall be obtained by Tenant. Tenant shall maintain all permitted signs in good condition and repair at all times, and shall save Landlord harmless from any injury to person or property arising from the erection and maintenance of said signs. Upon vacating the Premises, Tenant shall remove all signs and repair all damage caused by such removal.

20.0 **RIGHT OF ENTRY**: Landlord, its agents and/or representatives, shall have the right to enter upon the Premises at all reasonable hours for the purpose of showing the Premises to prospective purchasers, lenders or tenants; or to make any repairs, improvements or alterations which may be deemed by Landlord necessary, desirable, or essential to the Building, or to examine or inspect the Premises, including inspections which are structural and/or invasive in nature, provided Landlord returns the Premises to their original condition thereafter. Landlord shall also have the right, when reasonably necessary, to make such repairs and/or inspections, including termite extermination, without rent abatement notwithstanding brief interruption in the Tenant's ability to use or occupy the Premises during such repairs, so long as such interruption does not exceed three (3) consecutive days. Landlord shall at all times have keys to access all doors of the Premises. If Tenant changes locks or installs other locks on any doors of the Premises or Building, Tenant shall provide Landlord with a copy of keys to said locks.

21.0 **ABANDONMENT**. Tenant shall not abandon the Premises at any time during the Term of this Lease. In the event that the Premises shall be left unoccupied for more than seven (7) days while Tenant is in default of any of the Tenant's obligations hereunder, Tenant shall be deemed for all purposes to have abandoned the Premises and Landlord may take possession of the Premises by force or otherwise and dispossess Tenant, other occupants, and their effects.

22.0 **EQUIPMENT TO BE REMOVED**: Upon the termination of this Lease, Tenant shall remove all equipment, goods and movable trade fixtures as instructed by Landlord, and shall deliver the Premises to the Landlord in a clean condition. In the event that Tenant fails to remove the equipment, goods, and trade fixtures as directed by Landlord, Landlord shall be entitled to take title to said equipment, goods and trade fixtures at Landlord's sole option. Landlord may have said equipment, goods and trade fixtures removed at Tenant's cost

If Tenant vacates or abandons the Premises in violation of this Lease, any property that Tenant leaves on the Premises shall be deemed to have been abandoned and may either be retained by Landlord as the property of Landlord or may be disposed of at public or private sale as Landlord sees fit.

Any property of Tenant sold at public or private sale or retained by Landlord shall, at the value of the proceeds of any such sale, or the then current fair market value of such property as may be retained by Landlord, be applied by Landlord against:

(a) The expense of Landlord for removal, storage, or sale of the property;

(b) The arrears of rent or future rent payable under this Lease; and

(c) Any other damages to which Landlord may be entitled hereunder.

The balance of such amounts, if any, shall be given to Tenant.

23.0 **TENANT'S HOLDING OVER**. If Tenant remains in possession of the Premises after the expiration of the Term of this Lease or after any permitted termination of this Lease by Landlord, without the prior written consent of Landlord, then such possession shall be subject to all of the obligations imposed upon Tenant by this Lease except that the tenancy shall be from week to week and the amount of rent shall be Two Thousand Five Hundred Dollars ($2,500.00) per week There shall be no renewal of this Lease by operation of law. Nothing contained in this Section shall be construed as a consent by Landlord to the possession of the Premises by Tenant after the expiration of the Term of this Lease or any permitted termination of the Lease by Landlord. Tenant shall indemnify and hold harmless Landlord from and against any and all claims for damages by any other tenant to whom Landlord shall have leased all or any part of the leased Premises effective upon the expiration or termination of this Lease. Any holdover with the express written consent of Landlord shall thereafter constitute this Lease to be a Lease from month to month at a rent equal to Seven Thousand Dollars ($7,000.00) per month or such other amount as has been agreed upon by Landlord and Tenant.

24.0 **DEFAULT BY TENANT**

24 1 Event of Default: The following shall be deemed an Event of Default by Tenant

24.1.1 Tenant's failure to pay any rent or Additional Rent due hereunder within fifteen (15) days of its due date;

24.1.2 Tenant's failure to maintain any insurance required hereunder;

24 1.3 Tenant's failure to cure the non-compliance of any of the other conditions or covenants of the Lease for more than thirty (30) days after written notice from Landlord to Tenant of such non-compliance; or

24.1 4 The filing by or against Tenant under any section or chapter of the Federal Bankruptcy Act or any other applicable Federal, State or Territory bankruptcy, insolvency or other similar law, and, in the case of a petition filed against Tenant, such petition is not dismissed within thirty (30) days after the date of such filing, if Tenant shall become insolvent or transfers property to defraud creditors; if Tenant shall make an assignment for the benefit of creditors, or if a receiver or trustee is appointed for all or substantially all of Tenant's assets.

24.2 Cure: To the extent that a cure period is provided, an Event of Default shall be deemed cured hereunder only upon the occurrence of the following:

24.2.1 Payment of the sum and/or performance of the obligation for which the Notice of Default was given;

24.2.2 Payment of all reasonably costs and attorney's fees incurred by Landlord as a result of the occurrence of the Event of Default; and

24.2.3 Payment of all sums (including late fees and subsequent monthly installments) and/or performance of all obligations that have become due as of the date of cure.

25.0 **LANDLORD'S REMEDIES**. Upon the occurrence of an Event of Default, Landlord shall have the following remedies:

25.1 Landlord, in addition to all other rights and remedies it may have, shall have the right to seek restitution of the Premises by virtue of the summary eviction proceedings provided in 28 VIC §781, et seq. TENANT HEREBY WAIVES ANY STATUTORY RIGHT THAT MAY EXIST TO THIRTY (30) DAY NOTICE TO QUIT PRIOR TO COMMENCEMENT OF SUCH SUMMARY EVICTION PROCEEDINGS.

25.2. Landlord may terminate this Lease by sending written notice to Tenant, in which event Tenant shall immediately surrender the Premises to Landlord. If Tenant fails to do so, Landlord may by any lawful means enter upon the Premises and expel or remove Tenant and Tenant's effects without being liable to prosecution or any claim for damages therefor. Tenant indemnifies Landlord and holds Landlord harmless from and against any loss, cost, damage or expense (including, but not limited to, attorneys' fees) which Landlord may suffer by reason of such termination, whether through inability to re-lease the Premises, decrease in rent, or otherwise. Landlord shall be entitled to recover from the Tenant all past due rents, and all rents due and payable during the remainder of the Term of this Lease; the expenses of re-letting the Premises including necessary renovation and alteration of the Premises, reasonable attorneys' fees; Unpaid installments of rent or other sums shall bear interest from the date due at the rate of ten percent (10%) per annum or the maximum rate allowed by law, whichever is less.

25.3 No act or thing done by Landlord or Landlord's employees or agents during the Term of this Lease shall be deemed an acceptance of a surrender of the Premises, except for an express written acceptance of surrender signed by Landlord. Neither the mention in this Lease of any particular remedy, nor the exercise by Landlord of any particular remedy hereunder, at law or in equity, shall preclude Landlord from any other remedy Landlord might have under this Lease, at law or in equity . The receipt by Landlord of rent with knowledge of the breach of any covenant in this Lease shall not be deemed a waiver of such breach.

25.4 Tenant shall pay Landlord for all reasonably costs and attorney's fees incurred by Landlord as a result of the occurrence of an Event of Default.

26.0 **ADDITIONAL RENT DEFINED**. All costs and expenses that Tenant assumes or agrees to pay pursuant to this Lease shall be deemed Additional Rent and, in the event of non-payment, Landlord shall have all the rights and remedies herein provided for in case of non-payment of rent. If Tenant shall default in making any payment required to be made by Tenant, other than the payment of the Monthly Rent or shall default in performing any term, covenant, or condition of this Lease on the part of Tenant to be performed which shall involve the expenditure of money by Tenant, Landlord, at Landlord's option may, but shall not be obligated to, make such payment or, on behalf of Tenant, expend such sums as may be necessary to perform and fulfill such term, covenant, or condition, and any and all sums so expended by Landlord, with interest thereon at the rate of nine percent (9%) per annum from the day of such expenditure, shall be Additional Rent and shall be repaid by Tenant to Landlord on demand, but no such payment, or expenditure by Landlord shall be deemed a waiver of Tenant's default nor shall it affect any other remedy of Landlord by reason of such default.

27.0 **NOTICES**: Whenever under this Lease a provision is made for notice of any kind, such notice shall be in writing and shall be determined to have been given and received if such notice is, in the case of the Tenant, delivered to the Premises, or in the case of either Party, if the notice is personally delivered or if the notice is placed in an envelope with sufficient postage affixed and sent by certified mail, return receipt requested, addressed to the party to receive such notice, at such address below:

LANDLORD:	Gina Dyer-Cintron P.O. Box 861 Christiansted, V.I. 00821 e-mail: usvigina@gmail.com
TENANT:	Peter Zielke Z Property VI, LLC P.O. Box 25421 Christiansted, VI 00821 e-mail: peterz@exigo.com

The return of such notice as "unclaimed" or "refused" shall be the equivalent of receipt thereof by the addressee.

Notice shall also be determined to have been given and received if such notice is sent to either Party by e-mail, at the e-mail address listed above, and the recipient of the notice acknowledges receipt by e-mail within 3 business days of the notice being sent

28.0 **COVENANTS BINDING**: The covenants, conditions and agreements made and entered into by the Parties hereto are declared binding on their respective heirs, successors, representatives and assigns

29.0 WAIVER OF JURY TRIAL: It is mutually agreed by and between Landlord and Tenant that the respective Parties hereto shall and hereby do waive trial by jury in any action, proceeding or counterclaim brought by either of the Parties hereto against the other on any matter

whatsoever arising out of or in any way connected with this Lease, the relationship of Landlord and Tenant, Tenant's use of or occupancy of the Premises, and any emergency statutory or any other statutory remedy.

30.0 **RIGHTS CUMULATIVE:**. It is agreed that each and every of the rights, remedies, and benefits provided by this Lease shall be cumulative, and shall not be exclusive of any other said rights, remedies and benefits allowed by law.

31.0 **NON-WAIVER:** The failure of the Landlord to insist in any one or more instances upon a strict performance of any of the covenants of this Lease, or to exercise any option herein contained, shall not be construed as a waiver or a relinquishment for the future of such covenant or option, but the same shall continue and remain in full force and effect. No waiver by the Landlord of any provision hereof shall be deemed to have been made unless expressed in writing and signed by the Landlord.

32.0 **INTERPRETATIONS:** It is agreed that if any provision of this Lease shall be determined to be void or unenforceable by any court of competent jurisdiction, then such determination shall not affect any other provision of this Lease, all of which other provisions shall remain in full force and effect, and it is the intention of the Parties hereto that this Lease be enforced to the greatest extent permitted by law and if any provision of this Lease is capable of two constructions, one of which would render the provision void, and the other of which would render the provision valid, then the provision shall have the meaning which renders it valid.

33.0 **MISCELLANEOUS**:

(a) The words "Landlord" and "Tenant" when used herein shall be taken to mean either the singular or the plural and shall refer to male or female, to corporations or partnerships, as the case may be, or as grammatical construction shall require.

(b) The headings or captions of the various Sections of this Lease are intended only for convenience and are not intended to limit, define, or construe the scope of any article of this Lease, nor offset the provisions thereof.

(c) The covenant to pay rent whether fixed, earned or additional, is hereby declared to be an independent covenant on the part of Tenant to be kept and performed and no offset thereto shall be permitted or allowed except as specifically stated in this Lease.

(d) Should Tenant install an alarm system, Tenant shall insure that Landlord has the current alarm access code in order that Landlord may enter the leased premises for the purposes contemplated by this Lease, and Tenant shall provide such code to Landlord upon request at any time

(d) In case of an emergency (the existence of which shall be determined solely by Landlord) if Tenant shall not be present to permit entry, Landlord or its representatives may enter the same forcibly without rendering Landlord or its representatives liable therefor or affecting Tenant' obligations under this Lease.

(e) Neither the method of computation of rent nor any other provision of this Lease shall be deemed to create any relationship between the Parties hereto other than that of Landlord and Tenant.

(f) This Lease contains the entire agreement between the Parties hereto, and no agent, representative, salesman, or officer of Landlord has authority to make, or has made, any statement, agreement, or representation, either oral or written, in connection herewith, modifying, adding, or changing the terms and conditions herein set forth Further, Tenant acknowledges and agrees that neither Landlord nor any agent or representative of Landlord has made, and Tenant has not relied on, any representations or assurances to Tenant's projected or likely sales volume, customer traffic, or profitability. Tenant also acknowledges and agrees that, to the extent any projections, materials, or discussions have related to Tenant's projected or likely sales volume, customer traffic, or profitability, Tenant understands that any such discussions shall not be construed as a promise or guarantee that Tenant will realize the same or similar results. No modification of this Lease shall be binding unless such modification shall be in writing and signed by the Parties hereto. Tenant hereby further recognizes and agrees that the submission of this Lease for examination by Tenant does not constitute an offer or an option to Lease the Premises, nor is it intended as a reservation of the Premises for the benefit of Tenant, nor shall this Lease have any force or validity until and unless a copy of it is returned to Tenant duly executed by Landlord.

(g) This Lease may be executed in two or more counterparts, each of which together shall be deemed an original, but all of which together shall constitute one and the same instrument. In the event that any signature is delivered by facsimile transmission or by e-mail delivery of a \".pdf\" format data file, such signature shall create a valid and binding obligation of the party executing with the same force and effect as if such facsimile or \".pdf\" signature page were an original thereof.

(h) This Lease shall not be recorded.

(i) TIME IS OF THE ESSENCE HEREIN.

LANDLORD:

By. _____
Print Name: Gina Dyer-Cintron
Dated: _____

TENANT:

By:
Print Name: Peter Zielke
Title:
Dated: 1-25-24

EXHIBIT A
THE PREMISES

APPENDIX C

HYDROLOGY STUDY REPORT
66 ROOM BOUTIQUE HOTEL

PROJECT SITE:

7A HOSPITAL STREET
CHRISTIANSTED, ST. CROIX, USVI 00820

PREPARED BY:

BUILDTEC

7-1 BONNE ESPERANCE
P.O. BOX 8269
CHRISTIANSTED, ST. CROIX USVI 00823

TABLE OF CONTENTS

INTRODUCTION

This site is mostly vacant except for a dilapidated structure at the front that is currently being renovated. The proposed improvements encompass a completed renovation of the existing building and the addition of a new sixty-six (66) room hotel building comprising of 4 levels, a total of approximately 45,000 square feet.

This hydrology study will focus on a pre-development vs. a post-development analysis to ensure that the proposed improvements do not adversely impact stormwater quality and quantity beyond the pre-existing condition. Any additional impacts will be quantified and properly mitigated in accordance with the Department of Planning and Natural Resources (DPNR) requirements.

SOILS CLASSIFICATION

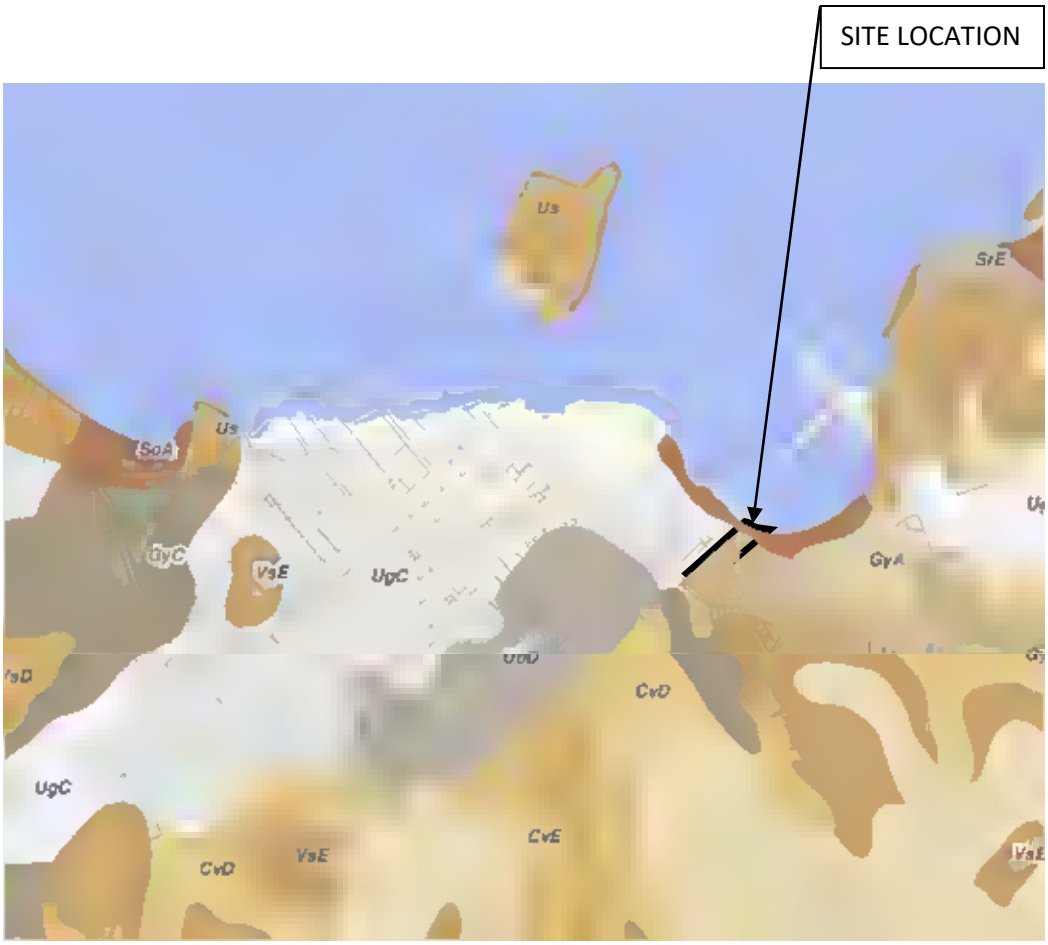
For Curve Number (CN) determination, there are four (4) main types of Hydrologic Soils Classification which are as follows:

Group A – Soils that have low runoff potential when thoroughly wet. These soils typically have less than 10% clays and more than 90% sand or gravel.

Group B – Soils that have moderately low runoff potential when thoroughly wet. These soils typically have between 10% - 20% clays and 50% - 90% sand.

Group C – Soils that have moderately high runoff potential when thoroughly wet. These soils typically have between 20% - 40% clays and less than 50% sand.

Group D – Soils that have high runoff potential when thoroughly wet. These soils typically have greater than 40% clays and less than 50% sand.



St. Croix Hydrologic Soils Classification (Source: *https://usvi.mapgeo.io*)

Based on the above, the Hydrologic Soils Classification for the Site is ***Group A*** *and* ***Group B***. This soil classification type is synonymous with Group A and Group B in Table 3.6 below.

CURVE NUMBER (CN) CLASSIFICATION

The curve number classification is determined based on land use type and hydrologic soil type. The table below indicates CN values for various land uses and hydrologic soil types.

Table 3-6. Typical Curve Number Values for Urban Areas (SCS 1986)

Cover description: Cover type and hydrologic condition	Average percent impervious area[2]	Curve numbers for hydrologic soil group: A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.)[3]:					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved, curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved, open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only)[4]		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82
Developing urban areas					
Newly graded areas (pervious areas only, no vegetation)[5]		77	86	91	94
Idle lands (CN's are determined using cover types similar to those in table 2-2c).					

[1] Average runoff condition, and $I_a = 0.2S$.

[2] The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.

[3] CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

[4] Composite CN's for natural desert landscaping should be computed using figure 2-3 or 2-4 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.

[5] Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4 based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

Based on the above, the site falls into three (3) distinct classifications listed as follows:

Poor Condition (grass cover < 50%) – this accounts for the grass/vegetative cover/sand within the property.

Paved; open ditches (including right-of-way) – this accounts for the paved surfaces and buildings within the property.

Gravel – this accounts for the gravel stone ground cover within the property.

BASIN CHARACTERISTICS

The disturbed area of the site is approximately 1.16 acres broken down into three (3) major ground cover types. The table below shows the breakdown along with a Weighted Curve Number for each category and ultimately for the entire site.

- **PRE-DEVELOPMENT**

TABLE 1 - PRE-DEVELOPMENT BASIN CHARACTERISTICS			
DESCRIPTION	AREA	UNITS	WEIGHTED CURVE NUMBER (CN)
BUILDINGS	0.09	AC	98
VEGETATIVE GROUND COVER	1.07	AC	73.5
TOTAL AREA	1 16	AC	
WEIGHTED CN VALUE			75

- **POST-DEVELOPMENT**

TABLE 2 - POST-DEVELOPMENT BASIN CHARACTERISTICS			
DESCRIPTION	AREA	UNITS	WEIGHTED CURVE NUMBER (CN)
BUILDINGS	0 41	AC	98 0
CONCRETE SIDEWALK	0 002	AC	98.0
CONCRETE/BRICK PAVEMENT	0.35	AC	98 0
GRAVEL	0 23	AC	80 5
VEGETATIVE GROUND COVER / SAND	0.17	AC	73 5
TOTAL AREA	1.16	AC	
WEIGHTED CN VALUE			91

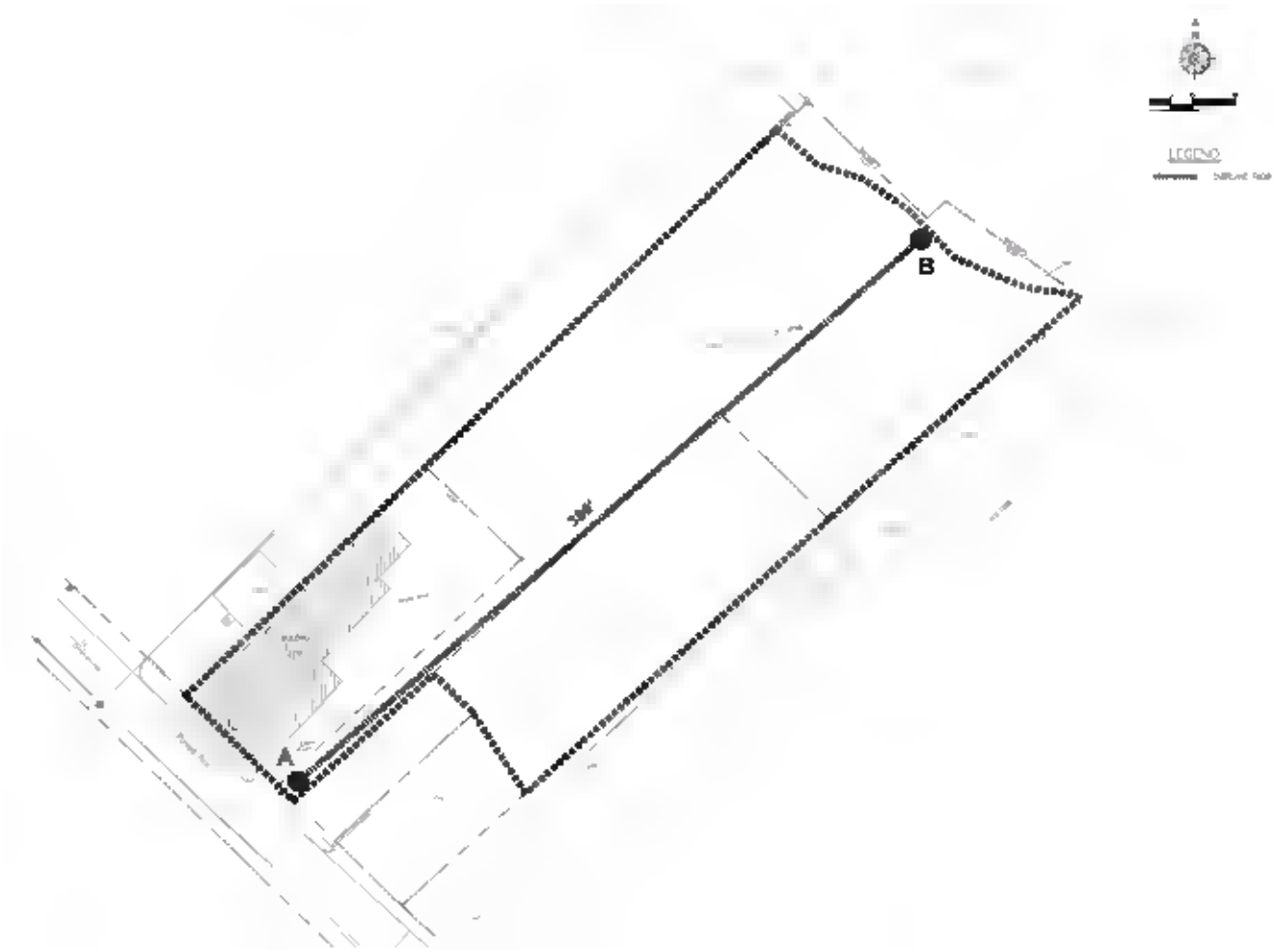
TIME OF CONCENTRATION (Tc)

The time of concentration is necessary to estimate peak discharge and is dependent upon the watershed characteristics. To accurately determine Tc, the hydraulics of each part of the flow path must be considered separately.

- **PRE-DEVELOPMENT**

In the pre-development, the site has one distinct flow path, which is **overland** flow as follows:

- A-B (Overland Flow) – 380 ft. travel distance @ average slope of 3.2%



The flow pattern will be evaluated to determine the Time of Concentration (Tc) which will be used to determine the stormwater water runoff volume.

P_{24} = 4 IN (2yr_24 HOUR CUMMULATIVE RAINFALL AMOUNT)

$$T_t = \frac{(.007)(nL)^{.8}}{(P)^{.5}(S)^{.4}}$$ (OVERLAND FLOW)

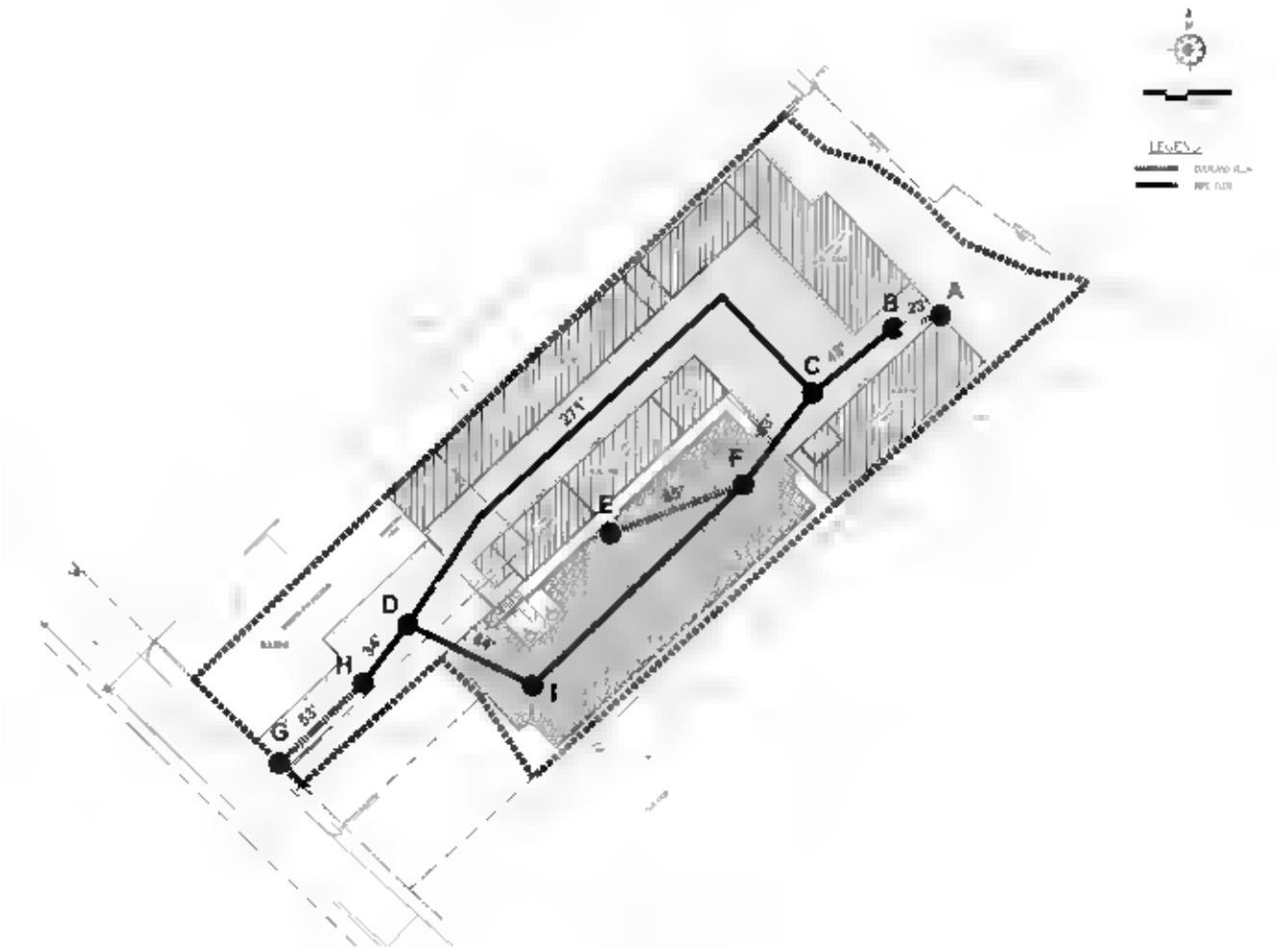
TABLE 3 - PRE-DEVELOPMENT TIME OF CONCENTRATION Tc (2yr - 24 HOUR STORM)				
SEGMENT DESCRIPTION	SLOPE (S)	LENGTH (L)	MANNING S COEF. (n)	Tt (hrs)
A-B (OVERLAND FLOW)	0 021	380	0 03	0 115

Tc = ∑Tt = 0 115 hrs (2YR - 24HR STORM)

- **POST-DEVELOPMENT**

In the post-development, the site has one critical distinct flow path, which include a combination of **overland and pipe** flow as follows:

- A-B (Overland) – 23 ft. travel distance @ average slope of 1.5%
- B-C (Pipe Flow) – 48 ft. travel distance @ average slope of 0.5%
- C-D (Pipe Flow) – 271 ft. travel distance @ average slope of 0.5%
- D-I (Pipe Flow) – 64 ft. travel distance @ average slope of 0.5%



The flow pattern will be evaluated to determine the Time of Concentration (Tc) which will be used to determine the stormwater water runoff volume.

P_{24} = 4 IN (2yr_24 HOUR CUMMULATIVE RAINFALL AMOUNT)

$$T_t = \frac{(.007)(nL)^{.8}}{(P)^{.5}(S)^{.4}}$$ (OVERLAND FLOW)

$$T_t = \frac{L}{v}$$ (PIPE FLOW)

$$v = \frac{1.49}{n}(D/4)^{2/3} s^{1/2}$$ (PIPE VELOCITY)

TABLE 4 - POST-DEVELOPMENT TIME OF CONCENTRATION Tc (2yr 24 HOUR STORM)

SEGMENT DESCRIPTION		SLOPE (S)	LENGTH (L)	PIPE DIA (FT)	PIPE VELOCITY (FT /S)	MANNING'S COEF (n)	Individual Tt (hrs)	Cumulative Tt (hrs)
A-B-C-D (OVERLAND & PIPE FLOW)	A-B (OVERLAND)	0.015	29	N/A	N/A	0.03	0.014	0.051 CONTROLS
	B-C (PIPE)	0.005	46	1	2.79	0.015	0.005	
	C-D (PIPE)	0.005	271	1	2.79	0.015	0.027	
	D-I (PIPE)	0.005	64	1.5	3.65	0.015	0.005	
A-B-C-F (OVERLAND & PIPE FLOW)	A-B (OVERLAND)	0.015	23	N/A	N/A	0.03	0.014	0.024
	B-C (PIPE)	0.005	46	1	2.79	0.015	0.005	
	C-F (PIPE)	0.005	53	1	2.79	0.015	0.005	
E-F (OVERLAND FLOW)	C-D (OVERLAND)	0.015	65	N/A	N/A	0.03	0.032	0.032
G-H-D-I (OVERLAND & PIPE FLOW)	G-H (OVERLAND)	0.015	53	N/A	N/A	0.03	0.027	0.057
	H-D (PIPE)	0.005	34	1	2.79	0.015	0.003	
	D-I (PIPE)	0.005	64	1	2.79	0.015	0.006	

Tc = ΣTt = 0.051 hrs (2YR 24HR STORM)

Use Tc = 0.40 hrs (MINIMUM ALLOWED PER CODE)

RUNOFF (Q) AND STORAGE VOLUME (V)

DPNR Runoff Onsite Storage Requirements as per the ***Territorial Pollutant Discharge Elimination System - General Permit Number VIGSA0000*** is as follows:

1) 3600 cubic feet per acre (1" over 1 acre) or,
2) 2yr – 24 hours storm; whichever is greater

➢ PRE-DEVELOPMENT

PRE-DEVELOPMENT – RUNOFF (Q) AND TOTAL VOLUME (V)

Runoff equation

$$Q = \frac{\left[P - 0.2\left(\frac{1000}{CN} - 10\right)\right]^2}{P + 0.8\left(\frac{1000}{CN} - 10\right)}$$

where
Q = runoff (in)
P = rainfall (in)
CN = runoff curve number

Volume Equation

$$V = QA$$

where

Q = runoff (ft)

A = Area (ac)

DPNR Runoff Onsite Storage Requirements
(Territorial Pollutant Discharge Elimination System - General Permit Number VIGSA0000)

1) 3600 cubic feet per acre (1" over 1 acre), or

2) 2 yr - 24 hour storm, whichever is greater

1) 3600 CUBIC FEET PER ACRE

Disturbed Site Acreage = 1.16 ac

V= 0.10 ac-ft

2) 2 YR – 24 HOUR STORM

STORM EVENT	P (in)	CN	Q (in)	Area (ac)	V (ac ft)
2 - YEAR	4	75	1.67	1.16	0.16

- **POST-DEVELOPMENT**

POST-DEVELOPMENT - RUNOFF (Q) AND TOTAL VOLUME (V)

Runoff equation

$$Q = \frac{\left[P - 0.2\left(\frac{1000}{CN} - 10\right)\right]^2}{P + 0.8\left(\frac{1000}{CN} - 10\right)}$$

where:
Q = runoff (in)
P = rainfall (in)
CN = runoff curve number

Volume Equation

$$V = QA$$

where

Q = runoff (ft)

A = Area (ac)

DFNR Runoff Onsite Storage Requirements
(Territorial Pollutant Discharge Elimination System General Permit Number VIGSA0000)

1) 3600 cubic feet per acre (1" over 1 acre), or

2) 2 yr 24 hour storm, whichever is greater

1) 3600 CUBIC FEET PER ACRE

Disturbed Site Acreage = 1.16 ac

V= 0.10 ac ft

2) 2 YR 24 HOUR STORM

STORM EVENT	P (in)	CN	Q (in)	Area (ac)	V (ac-ft)
2 - YEAR	4	91	3.02	1.16	0.29

CONCLUSION

The proposed improvements result in a net increase in building and impervious areas over the existing condition which is evident in the pre vs. post runoff coefficient increasing from 75 to 91.

The storage required for 1" over the entire site area = 0.10 ac-ft.

The storage required from a pre vs. post analysis of the 2yr – 24 hour storm (0.29 ac-ft – 0.16 ac-ft) = **0.13 ac-ft.**

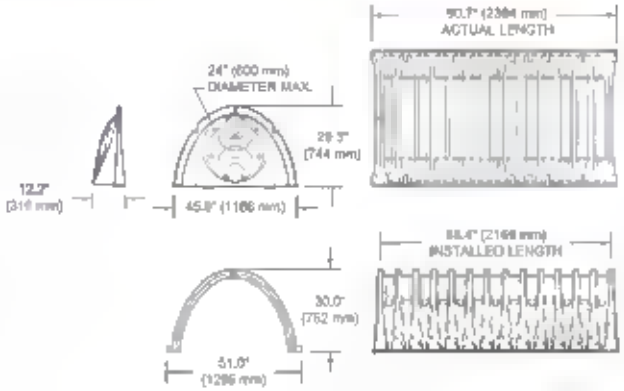
Based on the above results, the pre-post analysis for the 2yr – 24 hour storm controls.

Given that the site has no available room for any retention areas, the required storage of 0.13 ac-ft will be accounted for by utilizing Stormtech Underground Storage Chambers. These chambers will be placed beneath the new gravel parking lot as illustrated on Plan Sheet C006.

66 ROOM BOUTIQUE HOTEL
STORMTECH UNDERGROUND STORAGE CHAMBERS CALCULATIONS

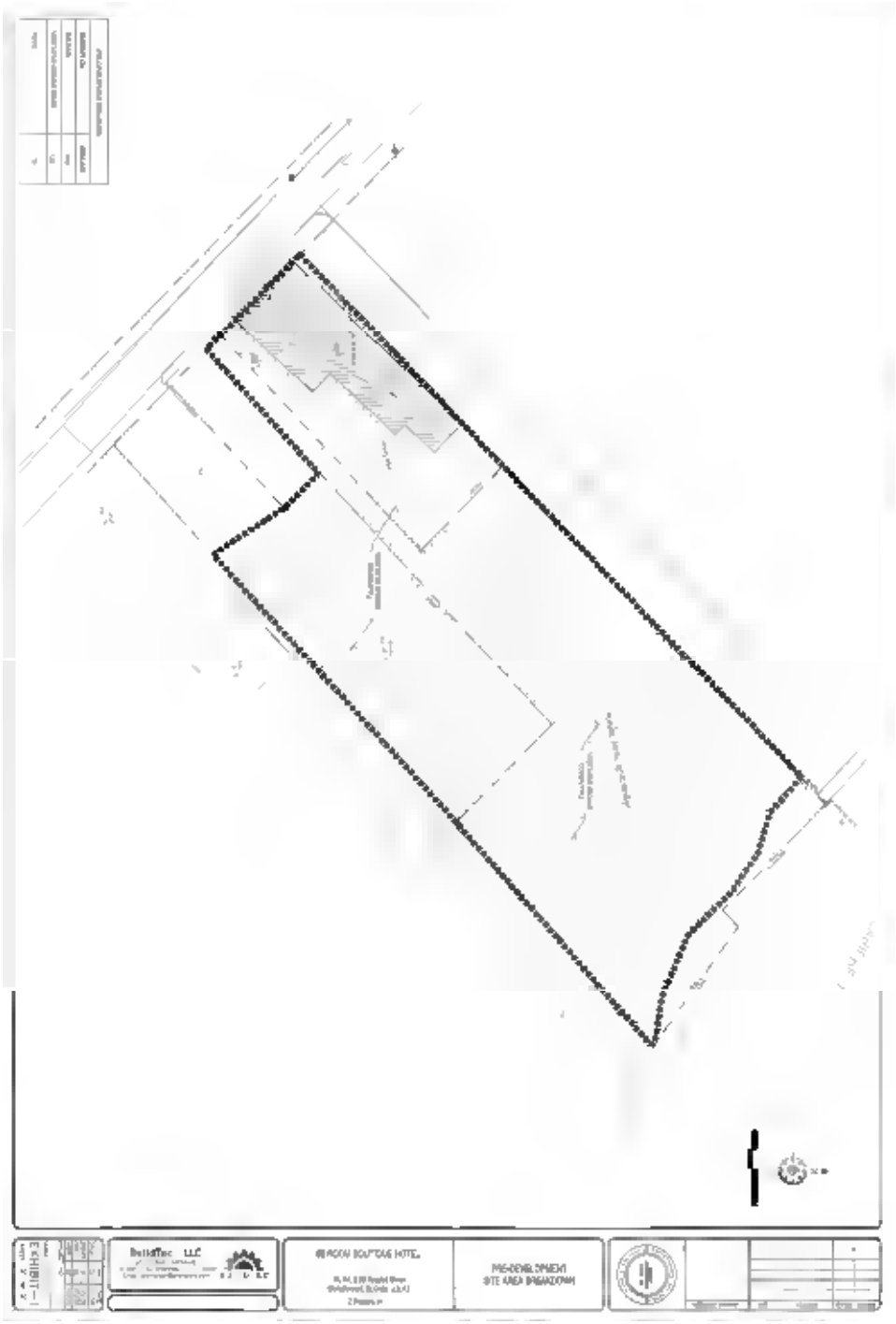
StormTech Underground Storage Chambers Calculations

Required Storage =	0.29 ac ft 0.16 ac Ft =	0.13	ac-ft
System Invert Elevation =		2.00	ft
System Top Elevation =		5.00	ft
Depth of Water in System =		3.00	ft
Storage Volume Per Chamber =		31.7	ft³
		0.0019	ac-ft
No. of Required Chambers =		70.00	each
No. of Chambers Provided =		77.00	each OK!
Length of Required Chambers		530.00	linear feet
Length of Chambers Provided		581.00	linear feet OK!
Chamber Dimensions =			ac-ft

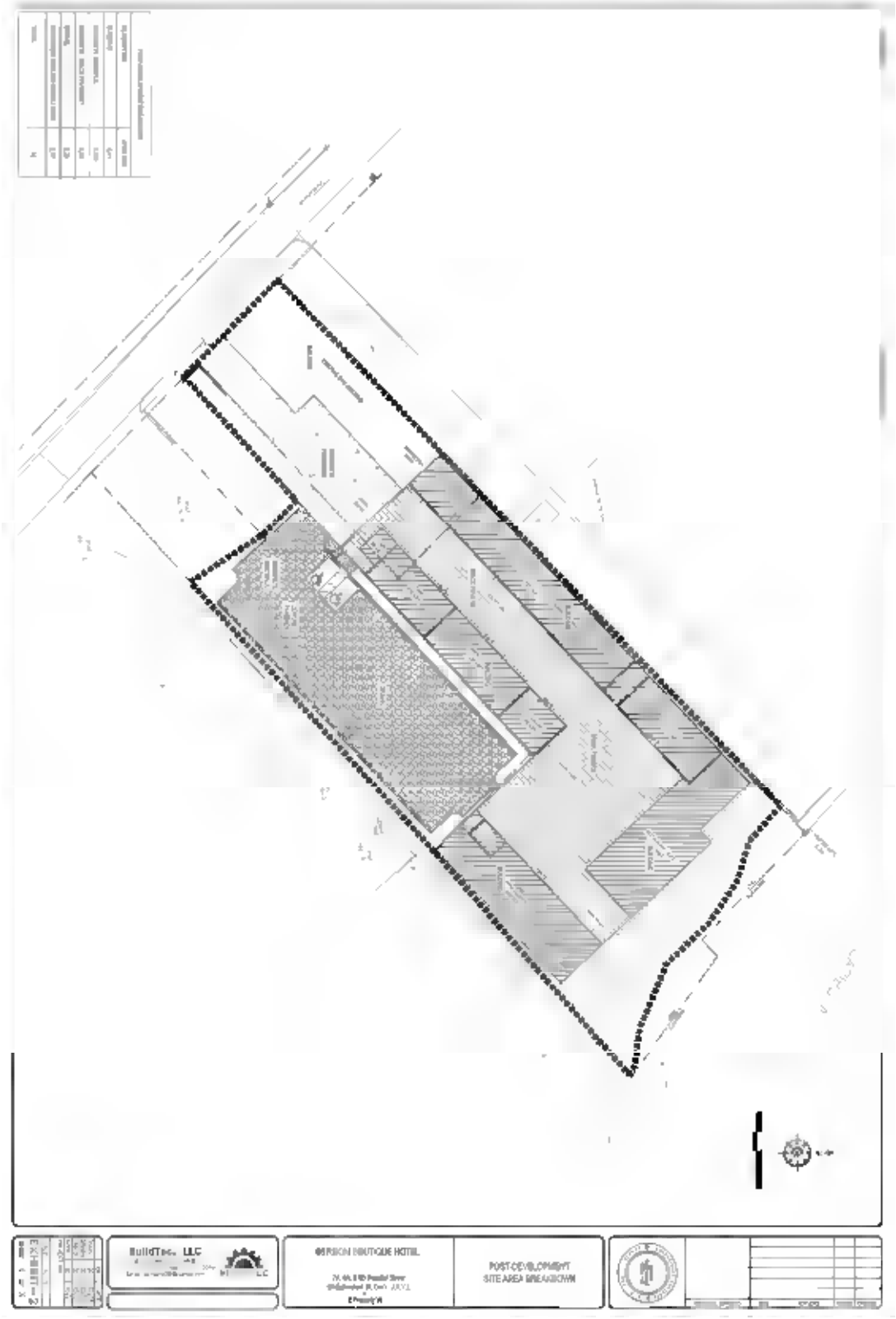


In addition to runoff storage calculations, pipe flood routing calculations were also performed to ensure that the piping network is adequately sized to convey the runoff to the retention storage areas. These calculations are included in the attached Appendices.

APPENDICES



PRE-DEVELOPMENT SITE AREA BREAKDOWN



POST-DEVELOPMENT SITE AREA BREAKDOWN

BUILDTEC, LLC

7-1 Bonne Esperance, P.O. Box 8269, Christiansted, USVI 00823

66 ROOM BOUTIQUE HOTEL

7A Hospital Street, C'sted, St. Croix, USVI 00820

PIPE FLOOD ROUTING SIZING ANALYSIS

CURRENT ISSUE DATE: 06/01/24

PREPARED BY: DAMIAN CARTWRIGHT, P.E.

BUILDTEC
7-1 Bonne Esperance, P.O. Box 8269, Christiansted, USVI 00823

Project Name:	66 ROOM BOUTIQUE HOTEL	**Date:**	June 1, 2024
Project Location:	7A Hospital Street, C'sted, St. Croix, USVI 00820	**Activity:**	Drainage Design_Pipe Flood Routing
Project #:		**Sheet #:**	
Engineer:	DC	**Drawing Ref.:**	

DESIGN OBJECTIVE: Determine runoff and pipe sizing for sub catchments in the 66 Room Boutique Hotel Development

DESIGN REFERENCE
***Standard Handbook for Civil Enginers*, Merritt/Lofton/Ricketts**
***Design & Constr. Of Urban Stormwter Management Systems,* ASCE**
***Drainage Handbook-Hydrology,Oct. 2000,* Florida Dept. of Transportation**
***Drainage Handbook-Storm Drains, Aug. 2000,* Florida Dept. of Transportation**
***Drainage Manual, Oct. 2000,* Florida Dept. of Transportation**

DESIGN PARAMETERS:

1. Divide area into subcatchments
2. Use Rational formula to determine peak discharge for each sub-catchment

Storm Design Period	**yrs**	**5**	
Storm Duration	**hrs**	**6**	
FDOT Design Zone		**10**	Figure F-21, Drainage Handbook-Hydrology
Rainfall Intensity	**in/hr**	**4**	IDF Curve, Figure F-31, Drainage Handbook-Hydrology
Average Slope	**%**	**0 to 2**	Runoff Coeff., Table T-4, Drainage Handbook-Hydrology
Minimum Pipe Flow Velocit	**ft/s**	**2**	Sec. 3.6.1 Drainage Manual
C_1 (Woodlands)		**0.15**	Runoff Coeff., Table T-4, Drainage Handbook-Hydrology
C_2 (Pasture, Grass, and Farmland)		**0.20**	Runoff Coeff., Table T-4, Drainage Handbook-Hydrology
C_3 Bare Earth / Gravel		**0.50**	Runoff Coeff., Table T-4, Drainage Handbook-Hydrology
C_4 Rooftops & Pavements		**0.95**	Runoff Coeff., Table T-4, Drainage Handbook-Hydrology
C_5 Impervious Pavements		**0.95**	Runoff Coeff., Table T-4, Drainage Handbook-Hydrology
C_6 SFR		**0.45**	Runoff Coeff., Table T-4, Drain. Hndbk-Hydrology (lots < 1/2 Acre)
C_7 MFR		**0.75**	Runoff Coeff., Table T-4, Drainage Handbook-Hydrology
C_8 Commercial & Industrial		**0.95**	Runoff Coeff., Table T-4, Drainage Handbook-Hydrology

BUILDTEC

7-1 Bonne Esperance, P.O. Box 8269, Christiansted, USVI 00823

Project Name:	66 ROOM BOUTIQUE HOTEL	**Date:**	June 1, 2024
Project Location:	7A Hospital Street, C'sted, St. Croix, USVI 00820	**Activity:**	Drainage Design_Pipe Flood Routing
Project #:		**Sheet #:**	
Engineer:	DC	**Drawing Ref.:**	

Sub Catchment Number		**CA-1**		
Total Catchment Area, A	acres	**0.04**		
Land Use Percentages				
A_1 (Woodlands)		**0**		
A_2 (Pasture, Grass, and Farmland)		**0**		
A_3 Bare Earth / Gravel		**0**		
A_4 Rooftops		**60**		
A_5 Impervious Pavements		**40**		
A_6 SFR		**0**		
A_7 MFR		**0**		
A_8 Commercial & Industrial		**0**		
Total		100	**OK**	
Weighted Average Runoff Coeff.		0.95		$C = \Sigma C_i A_i / A$
Rainfall Intensity	in/hr	4		
Peak Flow, Q	ft^3/s	**0.15**		Q = CIA
Total Rainfall Volume	ft^3	**3283.20**		
Drainage Pipe Sizing				
Pipe Material		**HDPE**		
Mannings No., n		0.012		Sec. 3.6.4, Drainage Manual
Pipe Dimension, D	in	12.00		
Pipe Slope, S	ft/ft	0.005		
Flow Velocity	ft/s	3.48	**OK**	$V = 0.590/n \times D^{2/3} \times S^{1/2}$, eqn. 21.33b, SHCE
Full Flow Pipe Capacity	ft^3/s	**2.73**	**OK**	$Q = 0.463/n \times D^{8/3} \times S^{1/2}$, eqn. 21.33c, SHCE

BUILDTEC

7-1 Bonne Esperance, P.O. Box 8269, Christiansted, USVI 00823

Project Name:	66 ROOM BOUTIQUE HOTEL	**Date:**	June 1, 2024
Project Location:	7A Hospital Street, C'sted, St. Croix, USVI 00820	**Activity:**	Drainage Design_Pipe Flood Routing
Project #:		**Sheet #:**	
Engineer:	DC	**Drawing Ref.:**	

Sub Catchment Number		**CA-2**		
Total Catchment Area, A	acres	**0.123**	***(includes contributing area from CA-1)***	
Land Use Percentages				
A_1 (Woodlands)		**0**		
A_2 (Pasture, Grass, and Farmland)		**0**		
A_3 Bare Earth / Gravel		**0**		
A_4 Rooftops		**53.7**		
A_5 Impervious Pavements		**46.3**		
A_6 SFR		**0**		
A_7 MFR		**0**		
A_8 Commercial & Industrial		**0**		
Total		100	**OK**	
Weighted Average Runoff Coeff.		0.95		$C = \Sigma C_i A_i / A$
Rainfall Intensity	in/hr	4		
Peak Flow, Q	ft^3/s	**0.47**		Q = CIA
Total Rainfall Volume	ft^3	**10095.84**		
Drainage Pipe Sizing				
Pipe Material		**HDPE**		
Mannings No., n		0.012		Sec. 3.6.4, Drainage Manual
Pipe Dimension, D	in	12.00		
Pipe Slope, S	ft/ft	0.005		
Flow Velocity	ft/s	3.48	**OK**	$V = 0.590/n \times D^{2/3} \times S^{1/2}$, eqn. 21.33b, SHCE
Full Flow Pipe Capacity	ft^3/s	**2.73**	**OK**	$Q = 0.463/n \times D^{8/3} \times S^{1/2}$, eqn. 21.33c, SHCE

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7-1 Bonne Esperance, P.O. Box 8269, Christiansted, USVI 00823

Project Name:	66 ROOM BOUTIQUE HOTEL	**Date:**	June 1, 2024
Project Location:	7A Hospital Street, C'sted, St. Croix, USVI 00820	**Activity:**	Drainage Design_Pipe Flood Routing
Project #:		**Sheet #:**	
Engineer:	DC	**Drawing Ref.:**	

Sub Catchment Number		**CA-3**		
Total Catchment Area, A	acres	**0.196**		***(includes contributing area from CA-1 & CA-2)***
Land Use Percentages				
A_1 (Woodlands)		**0**		
A_2 (Pasture, Grass, and Farmland)		**0**		
A_3 Bare Earth / Gravel		**0**		
A_4 Rooftops		**49.5**		
A_5 Impervious Pavements		**50.5**		
A_6 SFR		**0**		
A_7 MFR		**0**		
A_8 Commercial & Industrial		**0**		
Total		100	**OK**	
Weighted Average Runoff Coeff.		0.95		$C = \Sigma C_i A_i / A$
Rainfall Intensity	in/hr	4		
Peak Flow, Q	ft^3/s	**0.74**		Q = CIA
Total Rainfall Volume	ft^3	**16087.68**		

Drainage Pipe Sizing

Pipe Material		**HDPE**		
Mannings No., n		0.012		Sec. 3.6.4, Drainage Manual
Pipe Dimension, D	in	12.00		
Pipe Slope, S	ft/ft	0.005		
Flow Velocity	ft/s	3.48	**OK**	$V = 0.590/n \times D^{2/3} \times S^{1/2}$, eqn. 21.33b, SHCE
Full Flow Pipe Capacity	ft^3/s	**2.73**	**OK**	$Q = 0.463/n \times D^{8/3} \times S^{1/2}$, eqn. 21.33c, SHCE

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7-1 Bonne Esperance, P.O. Box 8269, Christiansted, USVI 00823

Project Name:	66 ROOM BOUTIQUE HOTEL	**Date:**	June 1, 2024
Project Location:	7A Hospital Street, C'sted, St. Croix, USVI 00820	**Activity:**	Drainage Design_Pipe Flood Routing
Project #:		**Sheet #:**	
Engineer:	DC	**Drawing Ref.:**	

Sub Catchment Number		**CA-4**		
Total Catchment Area, A	acres	**0.305**		***(includes contributing areas from CA-1, CA-2 & CA-3)***
Land Use Percentages				
A_1 (Woodlands)		**0**		
A_2 (Pasture, Grass, and Farmland)		**0**		
A_3 Bare Earth / Gravel		**0**		
A_4 Rooftops		**53.8**		
A_5 Impervious Pavements		**46.2**		
A_6 SFR		**0**		
A_7 MFR		**0**		
A_8 Commercial & Industrial		**0**		
Total		100	**OK**	
Weighted Average Runoff Coeff.		0.95		$C = \Sigma C_i A_i / A$
Rainfall Intensity	in/hr	4		
Peak Flow, Q	ft^3/s	**1.16**		Q = CIA
Total Rainfall Volume	ft^3	**25034.40**		

Drainage Pipe Sizing

Pipe Material		**HDPE**		
Mannings No., n		0.012		Sec. 3.6.4, Drainage Manual
Pipe Dimension, D	in	12.00		
Pipe Slope, S	ft/ft	0.005		
Flow Velocity	ft/s	3.48	**OK**	$V = 0.590/n \times D^{2/3} \times S^{1/2}$, eqn. 21.33b, SHCE
Full Flow Pipe Capacity	ft^3/s	**2.73**	**OK**	$Q = 0.463/n \times D^{8/3} \times S^{1/2}$, eqn. 21.33c, SHCE

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7-1 Bonne Esperance, P.O. Box 8269, Christiansted, USVI 00823

Project Name:	66 ROOM BOUTIQUE HOTEL	**Date:**	June 1, 2024
Project Location:	7A Hospital Street, C'sted, St. Croix, USVI 00820	**Activity:**	Drainage Design_Pipe Flood Routing
Project #:		**Sheet #:**	
Engineer:	DC	**Drawing Ref.:**	

Sub Catchment Number		**CA-5**		
Total Catchment Area, A	acres	**0.386**		***(includes contributing areas from CA-1, CA-2, CA-3 & CA-4)***
Land Use Percentages				
A_1 (Woodlands)		**0**		
A_2 (Pasture, Grass, and Farmland)		**0**		
A_3 Bare Earth / Gravel		**0**		
A_4 Rooftops		**56**		
A_5 Impervious Pavements		**44**		
A_6 SFR		**0**		
A_7 MFR		**0**		
A_8 Commercial & Industrial		**0**		
Total		100	**OK**	
Weighted Average Runoff Coeff.		0.95		$C = \Sigma C_i A_i / A$
Rainfall Intensity	in/hr	4		
Peak Flow, Q	ft^3/s	**1.47**		Q = CIA
Total Rainfall Volume	ft^3	**31682.88**		

Drainage Pipe Sizing

Pipe Material		**HDPE**		
Mannings No., n		0.012		Sec. 3.6.4, Drainage Manual
Pipe Dimension, D	in	12.00		
Pipe Slope, S	ft/ft	0.005		
Flow Velocity	ft/s	3.48	**OK**	$V = 0.590/n \times D^{2/3} \times S^{1/2}$, eqn. 21.33b, SHCE
Full Flow Pipe Capacity	ft^3/s	**2.73**	**OK**	$Q = 0.463/n \times D^{8/3} \times S^{1/2}$, eqn. 21.33c, SHCE

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7-1 Bonne Esperance, P.O. Box 8269, Christiansted, USVI 00823

Project Name:	66 ROOM BOUTIQUE HOTEL	**Date:**	June 1, 2024
Project Location:	7A Hospital Street, C'sted, St. Croix, USVI 00820	**Activity:**	Drainage Design_Pipe Flood Routing
Project #:		**Sheet #:**	
Engineer:	DC	**Drawing Ref.:**	

Sub Catchment Number		**CA-6**		
Total Catchment Area, A	acres	**0.466**		***(includes contributing areas from CA-1, CA-2, CA-3, CA-4 & CA-5)***
Land Use Percentages				
A_1 (Woodlands)		**0**		
A_2 (Pasture, Grass, and Farmland)		**0**		
A_3 Bare Earth / Gravel		**0**		
A_4 Rooftops		**57.5**		
A_5 Impervious Pavements		**42.5**		
A_6 SFR		**0**		
A_7 MFR		**0**		
A_8 Commercial & Industrial		**0**		
Total		100	**OK**	
Weighted Average Runoff Coeff.		0.95		$C = \Sigma C_i A_i / A$
Rainfall Intensity	in/hr	4		
Peak Flow, Q	ft^3/s	**1.77**		Q = CIA
Total Rainfall Volume	ft^3	**38249.28**		

Drainage Pipe Sizing

Pipe Material		**HDPE**		
Mannings No., n		0.012		Sec. 3.6.4, Drainage Manual
Pipe Dimension, D	in	12.00		
Pipe Slope, S	ft/ft	0.005		
Flow Velocity	ft/s	3.48	**OK**	$V = 0.590/n \times D^{2/3} \times S^{1/2}$, eqn. 21.33b, SHCE
Full Flow Pipe Capacity	ft^3/s	**2.73**	**OK**	$Q = 0.463/n \times D^{8/3} \times S^{1/2}$, eqn. 21.33c, SHCE

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7-1 Bonne Esperance, P.O. Box 8269, Christiansted, USVI 00823

Project Name:	66 ROOM BOUTIQUE HOTEL	**Date:**	June 1, 2024
Project Location:	7A Hospital Street, C'sted, St. Croix, USVI 00820	**Activity:**	Drainage Design_Pipe Flood Routing
Project #:		**Sheet #:**	
Engineer:	DC	**Drawing Ref.:**	

Sub Catchment Number		**CA-7**		
Total Catchment Area, A	acres	**0.549**		***(includes contributing areas from CA-1, CA-2, CA-3, CA-4, CA-5 & CA-6)***
Land Use Percentages				
A_1 (Woodlands)		**0**		
A_2 (Pasture, Grass, and Farmland)		**0**		
A_3 Bare Earth / Gravel		**0**		
A_4 Rooftops		**57.4**		
A_5 Impervious Pavements		**42.6**		
A_6 SFR		**0**		
A_7 MFR		**0**		
A_8 Commercial & Industrial		**0**		
Total		100	**OK**	
Weighted Average Runoff Coeff.		0.95		$C = \Sigma C_i A_i / A$
Rainfall Intensity	in/hr	4		
Peak Flow, Q	ft^3/s	**2.09**		Q = CIA
Total Rainfall Volume	ft^3	**45061.92**		

Drainage Pipe Sizing

Pipe Material		**HDPE**		
Mannings No., n		0.012		Sec. 3.6.4, Drainage Manual
Pipe Dimension, D	in	12.00		
Pipe Slope, S	ft/ft	0.005		
Flow Velocity	ft/s	3.48	**OK**	$V = 0.590/n \times D^{2/3} \times S^{1/2}$, eqn. 21.33b, SHCE
Full Flow Pipe Capacity	ft^3/s	**2.73**	**OK**	$Q = 0.463/n \times D^{8/3} \times S^{1/2}$, eqn. 21.33c, SHCE

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7-1 Bonne Esperance, P.O. Box 8269, Christiansted, USVI 00823

Project Name:	66 ROOM BOUTIQUE HOTEL	**Date:**	June 1, 2024
Project Location:	7A Hospital Street, C'sted, St. Croix, USVI 00820	**Activity:**	Drainage Design_Pipe Flood Routing
Project #:		**Sheet #:**	
Engineer:	DC	**Drawing Ref.:**	

Sub Catchment Number		**CA-8**		
Total Catchment Area, A	acres	**0.658**		***(includes contributing areas from CA-1, CA-2, CA-3, CA-4, CA-5, CA-6 & CA-7)***
Land Use Percentages				
A_1 (Woodlands)		**0**		
A_2 (Pasture, Grass, and Farmland)		**0**		
A_3 Bare Earth / Gravel		**0**		
A_4 Rooftops		**54.3**		
A_5 Impervious Pavements		**45.7**		
A_6 SFR		**0**		
A_7 MFR		**0**		
A_8 Commercial & Industrial		**0**		
Total		100	**OK**	
Weighted Average Runoff Coeff.		0.95		$C = \Sigma C_i A_i / A$
Rainfall Intensity	in/hr	4		
Peak Flow, Q	ft^3/s	**2.50**		Q = CIA
Total Rainfall Volume	ft^3	**54008.64**		
Drainage Pipe Sizing				
Pipe Material		**HDPE**		
Mannings No., n		0.012		Sec. 3.6.4, Drainage Manual
Pipe Dimension, D	in	12.00		
Pipe Slope, S	ft/ft	0.005		
Flow Velocity	ft/s	3.48	**OK**	$V = 0.590/n \times D^{2/3} \times S^{1/2}$, eqn. 21.33b, SHCE
Full Flow Pipe Capacity	ft^3/s	**2.73**	**OK**	$Q = 0.463/n \times D^{8/3} \times S^{1/2}$, eqn. 21.33c, SHCE

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7-1 Bonne Esperance, P.O. Box 8269, Christiansted, USVI 00823

Project Name:	66 ROOM BOUTIQUE HOTEL	**Date:**	June 1, 2024
Project Location:	7A Hospital Street, C'sted, St. Croix, USVI 00820	**Activity:**	Drainage Design_Pipe Flood Routing
Project #:		**Sheet #:**	
Engineer:	DC	**Drawing Ref.:**	

Sub Catchment Number		**CA-9**		
Total Catchment Area, A	acres	**0.087**		
Land Use Percentages				
A_1 (Woodlands)		**0**		
A_2 (Pasture, Grass, and Farmland)		**0**		
A_3 Bare Earth / Gravel		**0**		
A_4 Rooftops		**48.3**		
A_5 Impervious Pavements		**51.7**		
A_6 SFR		**0**		
A_7 MFR		**0**		
A_8 Commercial & Industrial		**0**		
Total		100	**OK**	
Weighted Average Runoff Coeff.		0.95		$C = \Sigma C_i A_i / A$
Rainfall Intensity	in/hr	4		
Peak Flow, Q	ft^3/s	**0.33**		Q = CIA
Total Rainfall Volume	ft^3	**7140.96**		
Drainage Pipe Sizing				
Pipe Material		**HDPE**		
Mannings No., n		0.012		Sec. 3.6.4, Drainage Manual
Pipe Dimension, D	in	16.00		
Pipe Slope, S	ft/ft	0.0125		
Flow Velocity	ft/s	6.66	**OK**	$V = 0.590/n \times D^{2/3} \times S^{1/2}$, eqn. 21.33b, SHCE
Full Flow Pipe Capacity	ft^3/s	**9.29**	**OK**	$Q = 0.463/n \times D^{8/3} \times S^{1/2}$, eqn. 21.33c, SHCE

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7-1 Bonne Esperance, P.O. Box 8269, Christiansted, USVI 00823

Project Name:	66 ROOM BOUTIQUE HOTEL	**Date:**	June 1, 2024
Project Location:	7A Hospital Street, C'sted, St. Croix, USVI 00820	**Activity:**	Drainage Design_Pipe Flood Routing
Project #:		**Sheet #:**	
Engineer:	DC	**Drawing Ref.:**	

Sub Catchment Number		**CA-10**		
Total Catchment Area, A	acres	**0.325**		***(includes contributing areas from CA-1, CA-2 & CA-3)***
Land Use Percentages				
A_1 (Woodlands)		**0**		
A_2 (Pasture, Grass, and Farmland)		**7.4**		
A_3 Bare Earth / Gravel		**32.6**		
A_4 Rooftops		**29.8**		
A_5 Impervious Pavements		**30.2**		
A_6 SFR		**0**		
A_7 MFR		**0**		
A_8 Commercial & Industrial		**0**		
Total		100	**OK**	
Weighted Average Runoff Coeff.		0.75		$C = \Sigma C_i A_i / A$
Rainfall Intensity	in/hr	4		
Peak Flow, Q	ft^3/s	**0.97**		Q = CIA
Total Rainfall Volume	ft^3	**20998.22**		

Drainage Pipe Sizing

Pipe Material		**HDPE**		
Mannings No., n		0.012		Sec. 3.6.4, Drainage Manual
Pipe Dimension, D	in	12.00		
Pipe Slope, S	ft/ft	0.01		
Flow Velocity	ft/s	4.92	**OK**	$V = 0.590/n \times D^{2/3} \times S^{1/2}$, eqn. 21.33b, SHCE
Full Flow Pipe Capacity	ft^3/s	**3.86**	**OK**	$Q = 0.463/n \times D^{8/3} \times S^{1/2}$, eqn. 21.33c, SHCE

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7-1 Bonne Esperance, P.O. Box 8269, Christiansted, USVI 00823

Project Name:	66 ROOM BOUTIQUE HOTEL	**Date:**	June 1, 2024
Project Location:	7A Hospital Street, C'sted, St. Croix, USVI 00820	**Activity:**	Drainage Design_Pipe Flood Routing
Project #:		**Sheet #:**	
Engineer:	DC	**Drawing Ref.:**	

Sub Catchment Number		**CA-11**		
Total Catchment Area, A	acres	**0.907**		***(includes contributing areas from CA-1, CA-2, CA-3, CA-4, CA-5, CA-6, CA-7, CA-8 & CA***
Land Use Percentages				
A_1 (Woodlands)		**0**		
A_2 (Pasture, Grass, and Farmland)		**3.6**		
A_3 Bare Earth / Gravel		**13.9**		
A_4 Rooftops		**44**		
A_5 Impervious Pavements		**38.5**		
A_6 SFR		**0**		
A_7 MFR		**0**		
A_8 Commercial & Industrial		**0**		
Total		100	**OK**	
Weighted Average Runoff Coeff.		0.86		$C = \Sigma C_i A_i / A$
Rainfall Intensity	in/hr	4		
Peak Flow, Q	ft^3/s	**3.12**		Q = CIA
Total Rainfall Volume	ft^3	**67428.99**		
Drainage Pipe Sizing				
Pipe Material		**HDPE**		
Mannings No., n		0.012		Sec. 3.6.4, Drainage Manual
Pipe Dimension, D	in	18.00		
Pipe Slope, S	ft/ft	0.01		
Flow Velocity	ft/s	6.44	**OK**	$V = 0.590/n \times D^{2/3} \times S^{1/2}$, eqn. 21.33b, SHCE
Full Flow Pipe Capacity	ft^3/s	**11.38**	**OK**	$Q = 0.463/n \times D^{8/3} \times S^{1/2}$, eqn. 21.33c, SHCE

LEGEND

- BUILDINGS
- CONCRETE PAVEMENT
- CONCRETE SIDEWALK
- GRAVEL/PERVIOUS PAVEMENT
- BRICK PAVERS
- VEGETATIVE GROUND COVER / SAND

DESCRIPTION	BASIN AREA (AC)										
	CA-1	CA-2	CA-3	CA-4	CA-5	CA-6	CA-7	CA-8	CA-9	CA-10	CA-11
BUILDING	0.024	0.042	0.031	0.067	0.052	0.052	0.047	0.042	0.042	0.00	0.00
PAVEMENT	0.016	0.041	0.041	0.042	0.029	0.028	0.036	0.067	0.036	0.00	0.013
GRAVEL/PERVIOUS PAVEMENT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.106	0.126
VEGETATIVE GROUND COVER/SAND	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.023	0.023
TOTAL AREA	0.04	0.083	0.073	0.109	0.081	0.080	0.083	0.109	0.087	0.129	0.162

DATE	REVISIONS	REVISED	CHECKED

REFERENCE DRAWINGS

PROFESSIONAL ENGINEER
U.S. VIRGIN ISLANDS
DAMIAN CARTWRIGHT
28851-1B

DRAINAGE BASIN DELINEATION

66 ROOM BOUTIQUE HOTEL

7A, 8A, & 8B Hospital Street
Christiansted, St. Croix, U.S.V.I.
Z Property VI

BuildTec, LLC
#7-1 BONNE ESPERANCE
BOX 5342, KINGSHILL, U.S.V.I. 00851
P.O. Email: damianc2011@hotmail.com
BUILDTEC

	BY	DATE
DSGN	DC	05/24
DRAWN	DC	05/24
CHK'D	DC	05/24
APPR.	DC	05/24
PROJECT NO.		
SCALE	N.T.S.	

EXHIBIT–5

SHEET X OF X