February 2019

DRAFT ENVIRONMENTAL ASSESSMENT

TURPENTINE RUN
ST. THOMAS, U.S. VIRGIN ISLANDS
STUDY

SECTION 205 FLOOD RISK REDUCTION CONTINUING AUTHORITIES PROGRAM (CAP) CONVERSION

US Army Corps of Engineers
JACKSONVILLE DISTRICT

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Proposed Finding of No Significant Impact

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The U.S. Army Corps of Engineers, Jacksonville District (Corps) has conducted an Environmental Assessment (EA) in accordance with the National Environmental Policy Act of 1969, as amended (NEPA). The Corps assessed the effects of the proposed action in the Turpentine Run/Nadir Area, St. Thomas, U.S. Virgin Islands (USVI) Detailed Project Report (DPR) and Environmental Assessment (EA), dated November 1994. This 2019 EA updates that analysis and adopts the 1994 EA by reference where the information is valid and applicable to this evaluation.

The proposed 1994 Recommended Plan consists of the following:

- 460-foot long concrete “U” shape channel that transitions to a trapezoidal, earthen channel (1,385 feet long) lined with rip rap;
- Drop structure and 170-foot long sheetpile wall along the developed side of the channel;
- 260-foot levee along the northern edge of Nadir;
- 1,300-foot long levee starting south of the new Bovoni Road Bridge and ending at the Nadir racetrack with rip rap on the left side of the channel as it flows around the corner of the racetrack;
- Interior drainage conveyance from the existing small concrete channel by a 72-inch underground pipe (length of 1,745 feet) which run under the levee footprint and racetrack and ultimately discharge into Mangrove Lagoon.

Varying levels of flood risk reduction were evaluated in the alternative analysis, including the recommended plan and the “no action” alternative. The recommended plan was identified as the National Economic Development Plan and is the environmentally preferable alternative. All practicable means to avoid and minimize adverse environmental effects have been incorporated into the recommended plan.

The Recommended Plan may affect wetlands, and mitigation may be necessary. The project design minimizes the destruction, loss, and/or degradation of wetlands and preserves and enhances the natural and beneficial values of wetlands. If impacts to wetlands require mitigation, a plan will be developed, proposed, and refined during the project's Preconstruction Engineering and Design (PED) phase. The Corps and its contractors commit to avoiding, minimizing, and mitigating for adverse effects during construction activities.

Pursuant to Section 7 of the Endangered Species Act of 1973, as amended, the project was coordinated with National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Services (USFWS) through the 1994 and will be coordinated again during the public review of this NEPA document. The Corps has determined that the project may affect, but is not likely to adversely affect, listed species under USFWS and NMFS purview. Consultation will be completed prior to the signing of this EA's Finding of No Significant Impact (FONSI). Pertinent correspondence is found in Appendix A.

Pursuant to the Coastal Zone Management Act, a Federal Consistency Determination has been submitted to the Department of Planning and Natural Resources for the USVI's review and concurrence. The Corps has determined that the recommended plan is consistent with the USVI's Coastal Zone Management Program. Pertinent correspondence is found in Appendix A.

Pursuant to Section 401 of the Clean Water Act of 1972, as amended, water quality certification (WQC) will be obtained from the USVI prior to construction, if required. All appropriate conditions imposed by the WQC will be implemented in order to minimize adverse impacts to water quality. The Corps determined that the discharge or fill material associated with the Recommended Plan is compliant with Section 404(b)(1) Guidelines as required by the Clean Water Act.

The Corps has initiated consultation for the Recommended Plan with the USVI State Historic Preservation Officer (SHPO) pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended, and consideration given under NEPA. The Corps is currently coordinating a Programmatic Agreement with USVI (SHPO) and the Advisory Council on Historic Preservation. The Programmatic Agreement will outline the process in which the Corps will consult with the agencies to avoid, minimize, and mitigate adverse effects to historic properties and will be executed prior to the signing of this EA's FONSI. Pursuant to 54 U.S.C. 306108 § 800.14, the Corps is conducting a phased identification and evaluation of historic properties.

Technical and economic criteria used in the formulation of alternative plans were those specified in the Water Resource Council's 1983 Economic and Environmental Principles for Water and Related Land Resources Implementation Studies. All applicable laws, executive orders, regulations, and local government plans were considered in the evaluation of the alternatives.

It is my determination that the recommended plan does not constitute a major federal action that would significantly affect the human environment; therefore, preparation of an Environmental Impact Statement is not required.

_____	_____
Date	Andrew D. Kelly, Jr. Colonel, Corps of Engineers District Commander

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DRAFT ENVIRONMENTAL ASSESSMENT

TURPENTINE RUN
ST. THOMAS, U.S. VIRGIN ISLANDS STUDY
SECTION 205 FLOOD RISK REDUCTION
CONTINUING AUTHORITIES PROGRAM (CAP)

1 CONVERSION PROJECT PURPOSE AND NEED

1.1 PROJECT DESCRIPTION

The U.S. Army Corps of Engineers, Jacksonville District (Corps), proposes to replace the existing concrete channel with a new channel and levees having greater capacity for flows in Turpentine Run in St. Thomas in the U.S. Virgin Islands (USVI) to reduce adverse effects on developed areas due to flooding. The non-Federal sponsor (NFS) is the USVI Department of Public Works.

The study area is within Nadir development along Turpentine Run, located on the southeastern end of the island of St. Thomas, USVI. Turpentine Run is the largest watershed on St. Thomas. Nadir is a completely developed urban area. Turpentine Run in Nadir is an existing concrete channel with insufficient capacity to contain flood flows resulting in regular flooding of the developed area (*see* **Figures 1** and **2**).

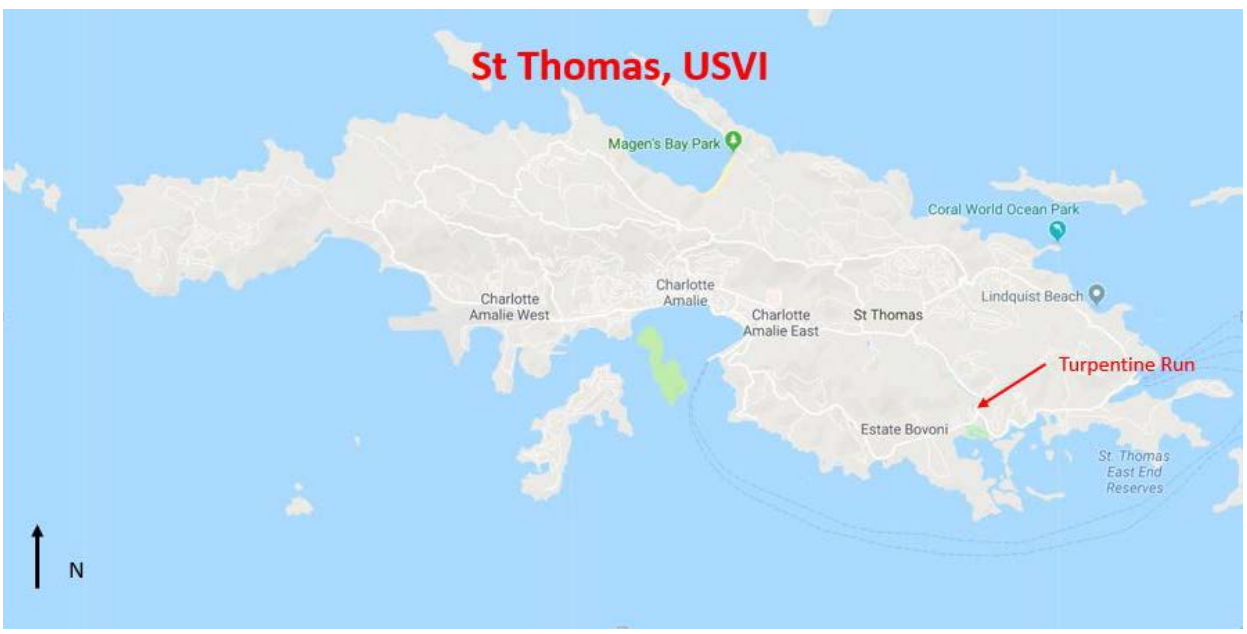

Figure 1. Project vicinity map.

Figure 2. Turpentine Run project area map.
(SOURCE: Corps 2018)

More detailed information on the project can be found in the documents listed in Section 1.4 of this report.

1.2 PROJECT AUTHORITY

The Turpentine Run Section 205 project was initially authorized under Continuing Authorities Program (CAP), Section 205 of the Flood Control Act of 1948, Public Law 80-858, as amended. No construction of this previously authorized Federal project has been initiated or completed due to the cost exceeding the statutory CAP funding limitations. The project is now being planned under the authority of Section 209 of the Flood Control Act of 1966, Public Law 89-789, authorizing studies for flood control in the United States and its territories. Division B, Subdivision 1, Title IV of the Bipartisan Budget Act (BBA) of 2018, Public Law 115-123, authorizes the Corps to conduct the Study at full Federal expense to the extent that appropriations provided under the investigations heading of the 2018 BBA are available and used for such purpose.

1.3 PROJECT NEED OR OPPORTUNITY

The purpose of the project is to reduce flood damage to the Nadir development along Turpentine Run. An existing concrete channel carries Turpentine Run past the developed area; however, the capacity of the channel is insufficient to carry flood flows, thereby causing flooding in the Nadir development. Flash floods from intense thunderstorms are a common event affecting this area and can occur anytime during the year. Effects from Hurricane Maria, which hit the island in September 2017, prompted the Corps to include the project for consideration for funding under the BBA. (Effects from the storm are discussed more in this EA's section 3.5 Hurricane Maria Storm Effects.)

This Environmental Assessment (EA) evaluates the Recommended Plan as described in detail in Section 2.2. This EA also completes the required analysis under the National Environmental Policy Act (NEPA) and adopts the 1994 EA by reference where the information is valid and applicable to this evaluation.

1.4 RELATED ENVIRONMENTAL DOCUMENTS

The Recommended Plan is detailed in the Turpentine Run/Nadir Area, St. Thomas, U.S. USVI Detailed Project Report (DPR) and EA, dated November 1994, and the 2019 CAP Conversion Addendum Report. These documents are available on the Corps' environmental website, under USVI, at the following link:

http://www.saj.usace.army.mil/About/Divisions-Offices/Planning/Environmental-Branch/Environmental-Documents/

(On that page, click on the "+" next to "U.S. Virgin Islands" and scroll down to the project name.)

1.5 DECISIONS TO BE MADE

This NEPA document will analyze whether the implementation of the project will result in significant effects on the human environment. The need for mitigation measures or best management practices (BMPs) to reduce any potentially adverse effects, particularly in regards to associated activities, will be further defined in the Preconstruction Engineering Design (PED) phase. The Corps will make the decision to sign the Finding of No Significant Impact (FONSI) and move forward with the Recommended Plan if no significant impacts on the human environment are identified. If significant impacts are identified, the Corps will choose to implement mitigation measures to reduce the impacts to a lower-than-significant threshold, proceed with the Notice of Intent to prepare an Environmental Impact Statement, or not implement the Recommended Plan.

This EA concludes that the project, as described in the Recommended Plan, is in the public interest and would not significantly affect the quality of the human environment. (See Chapter 4 for the effects of the Recommended Plan.) The Corps and its contractors commit to avoiding, minimizing, and mitigating for adverse effects during construction activities. Environmental commitments, as discussed in Section 6, will be included in the contract specifications.

1.6 SCOPING AND ISSUES

Pursuant to NEPA and Corps' regulations, the 1990 DPR/EA was circulated for comments in 1990. Comments received during the public and agency review period were incorporated into the EA prior to the signing of the FONSI. The 2019 EA, Proposed FONSI, and associated appendices will be released for a 60-day public and agency review and comment period.

1.6.1 RELEVANT ISSUES

The Corps identified the following considerations as relevant to the Recommended Plan and appropriate for further evaluation: vegetation, wetlands, endangered and threatened species, fish and wildlife resources, essential fish habitat (EFH), coastal barrier resource system (CBRS) units, water quality, hazardous, toxic, and radioactive waste (HTRW), air quality, noise, aesthetic resources, recreation resources, socioeconomic resources, cultural resources, unavoidable adverse environmental effects, and cumulative effects. The Corps analyzed many of these issues in the 1994 EA. The 2019 EA updates that analysis and adopts the 1994 EA by reference where the information is valid and applicable to this evaluation. Please see **Table 1** for additional information.

1.6.2 ISSUES ELIMINATED FROM FURTHER ANALYSIS

No issues were identified for elimination.

1.7 WATER QUALITY CERTIFICATION AND COASTAL ZONE MANAGEMENT ACT

Pursuant to Section 401 of the Clean Water Act of 1972, as amended, water quality certification (WQC) will be obtained from the USVI prior to construction, if required. Pursuant to the Coastal Zone Management Act, a Federal Consistency Determination has been submitted to the Department of Planning and Natural Resources for the USVI's review and concurrence. The Corps has determined that the recommended plan is consistent with the USVI's Coastal Zone Management Program. Pertinent correspondence is found in Appendix A.

2 ALTERNATIVES

This EA only evaluates changes from the 1994 Recommended Plan to ensure that any new potential environmental consequences on the human environment are fully analyzed and disclosed to the public. Section 4 (Environmental Effects) compares the alternatives in more detail, providing a clear basis for choice to the decision maker and the public. The project's Recommended Plan best meets the project objectives and constraints and is environmentally acceptable and economically justified.

2.1 NO ACTION ALTERNATIVE

NEPA regulations refer to the No Action Alternative as the continuation of existing conditions of the affected environment without implementation of, or in the absence of, the Recommended Plan, and 40 C.F.R. §6.205 requires an agency to assess the No Action Alternative in an EA. Under this alternative, existing and prospective flooding conditions would continue. Damages to infrastructure experiencing the flooding (e.g. residential houses, commercial businesses) would continue in these areas. Flooding, and its associated damages, may result in potential human health and safety issues.

2.2 1994 RECOMMENDED PLAN REPLACEMENT OF EXISTING CHANNEL WITH NEW CHANNEL AND LEVEES FOR 25-YEAR FLOOD

The 1994 Recommended Plan (*see* **Figure 3**), maximizes the National Economic Development benefits and consists of the replacement of the existing concrete channel with a new channel and levees having greater capacity for flows in Turpentine Run in St. Thomas in the USVI. Improvements would begin at the north end of the Nadir development and include an area to be excavated to transition the flow into a new channel. A small levee, approximately 260 feet long, would be constructed along the northern edge of the development. A sheetpile wall, approximately 170 feet long, would run along the development side of the channel between the levee and drop structure, which is approximately 60 feet long. From the drop structure, the channel will be concrete and U-shaped for approximately 460 feet before transitioning to a trapezoidal, earthen channel lined with rip rap for 1,385 feet. Where possible, the existing concrete channel wall along the Nadir development will be left intact. Just south of the Bovoni Road Bridge, a levee is proposed for the west side of the channel and will run approximately 1,300 feet long ending at the Nadir racetrack. Rip rap will be placed on the west side of the existing channel as it flows around the corner of the racetrack. Interior drainage is conveyed form the small existing concrete channel by a 72-inch underground pipe which runs under the levee footprint. The drainage line will run under the racetrack and discharge into Mangrove Lagoon. The total length of the line is 1,745 feet. A more detailed description of the project can be found in the 1994 DPR/EA as well as the 2019 CAP Conversion Addendum Report.

Figure 3. Recommended Plan features.
(SOURCE: Corps 2018)

2.2.1 2019 EVALUATION OF THE 1994 RECOMMENDED PLAN

In order to meet current Federal, state, and local laws, regulations, and policy, as well as Corps standards and guidelines, the 1994 Recommended Plan will be reviewed and potentially modified during the PED phase. If changes to the project result in effects that have not been previously evaluated, then if necessary, pursuant to NEPA, the Corps will prepare a separate NEPA document to address the changes and evaluate the associated effects. The Corps and its contractors commit to avoiding, minimizing, and mitigating for adverse effects during construction activities. The 1994 project did not include wetland mitigation; however, the Recommended Plan may affect wetlands, and mitigation may be necessary. The project design minimizes destruction, loss, and/or degradation of wetlands and preserves and enhances the natural and beneficial values of wetlands. If impacts to wetlands require mitigation, a plan will be developed, proposed, and refined during the project's PED phase.

2.3 ALTERNATIVES ELIMINATED FROM FUTURE EVALUATION

In addition to the 1994 Recommended Plan, excavation of a new channel from the entrance of the existing concrete channel along Nadir out to Mangrove Lagoon was also considered in the 1994 DPR/EA. This alternative would result in significant adverse environmental effects and was eliminated from detailed evaluation. Additional information on this alternative can be found in the 1994 DPR/EA.

2.4 RECOMMENDED PLAN AND BASIS FOR CHOICE

Table 1 in Section 4 lists the factors considered in the alternatives comparison process and provides the analysis of the major features and consequences of each alternative in comparison to one another. The No Action Alternative is not carried forward as it does not meet the mission. In consideration of applicable factors listed in 33 CFR section 320.4, the Corps has determined the 1994 Recommended Plan is not contrary to public interest and is therefore, carried forward as the preferred alternative. However, in order to meet current Federal, state, and local laws, regulations, and policy, as well as Corps standards and guidelines, the 1994 Recommended Plan will be reviewed and potentially modified during the PED phase.

3 EXISTING ENVIRONMENT

The Existing Environment Section describes the existing environmental resources of the areas that would be affected if any of the alternatives were implemented. This section describes only those environmental resources that are relevant to the decision to be made. It does not describe the entire existing environment, but only those environmental resources that will affect or that will be affected by the alternatives if they were implemented. This section, in conjunction with the description of the "No Action Alternative," forms the baseline conditions for determining the environmental effects of the reasonable alternatives.

A brief summary of existing conditions is included in this section; however, a full detailed analysis is provided within the 1994 DPR/EA and is hereby incorporated by reference within this EA. (The 1994 DPR/EA is available on the Corps' environmental website, under "U.S. Virgin Islands".)

3.1 NATURAL SETTING (VEGETATION, WETLANDS, ENDANGERED AND THREATENED SPECIES, FISH AND WILDLIFE RESOURCES, AND EFH)

Turpentine Run is divided into three sections: the uppermost section is a natural channel with a mud bottom and a high west bank and low east bank. The middle section is a 1,300 foot long unvegetated concrete channel along the eastern side of the Nadir development. The lowermost section has an almost flat grade and water movement is in response to tides as much as stream flow. The bottom is mud and the stream banks are heavily vegetated. The stream loops around the horse racetrack and empties into Mangrove Lagoon through a mangrove stand. The U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) identifies the following wetlands in the project area: riverine, freshwater emergent wetland, freshwater forested/shrub wetland, and estuarine and marine wetland. A freshwater swamp forest, which is rare and threatened ecosystem in the USVI that supports numerous bird fauna, is located upstream of the limits of tidal influence and downstream of the recently finished Bovoni Road Bridge. This resource was specifically identified through coordination with USFWS and was cited in the late 1980s as having "…about 1 acre, with 0.6 acre of dense, nearly pure stands of pond-apple and 0.4 acre of coconut palms and scattered pond-apple." Recent site visits and communications with USFWS and USVI staff indicate that the freshwater swamp may be used as a refuse site. The severe erosion and scouring of gut bed and banks have degraded the streambank wetlands. According to the USFWS 1987 Planning Aid Report, diversity of mammal, reptile, and amphibian species in the project area is limited; however, the federally listed endangered Virgin Island tree boa (*Epicrates monensis granti*) may be present in the project area. Mangrove Lagoon contains mangroves, seagrass beds and mud bottoms that are important habitats for fishes and other marine fauna and invertebrates.

3.2 PHYSICAL SETTING (CBRS, WATER QUALITY, HTRW, CLIMATE CHANGE, AIR QUALITY, NOISE)

Turpentine Run is an intermittent gut and is therefore classified by the USVI as Class I (IF) Inland surface waters. Per Title 12, Chapter 7, Sub-Chapter 186 of the USVI Water Quality Standards, designated uses of Class I (IF) waters include maintenance and propagation of desirable species of wildlife (including threatened, endangered species listed pursuant to section 4 of the Federal Endangered Species Act and threatened, endangered and indigenous species listed pursuant to Title 12, Chapter 2 of the Virgin Islands Code), and primary contact recreation.

Mangrove Lagoon, where Turpentine Run empties, is classified by the USVI as Class B Waters. Per Title 12, Chapter 7, Sub-Chapter 186 of the USVI Water Quality Standards, designated uses of Class B waters include maintenance and propagation of desirable species of aquatic life (including threatened and endangered species listed pursuant to Section 4 of the Federal Endangered Species Act and threatened, endangered and indigenous species listed pursuant Title 12, Chapter 2 of the Virgin Islands Code), primary contact recreation (swimming, water skiing, etc.). This Class allows for minimal changes in structure of the biotic community and in ecosystem function. Virtually all native taxa are maintained with some changes in biomass and/or abundance; ecosystem functions are fully maintained through redundant attributes of the system.

Turpentine Run is one of the few semi-permanent streams in the USVI with some of its flow consisting of wastewater discharges from sewage plants. Extensive nutrient inputs occur in the uppermost section of the stream due to agriculture and in the lowest section from horses at the racetrack. CBRS Unit VI-34 is located adjacent to, but not within, the project area (*see* **Figure 4**).

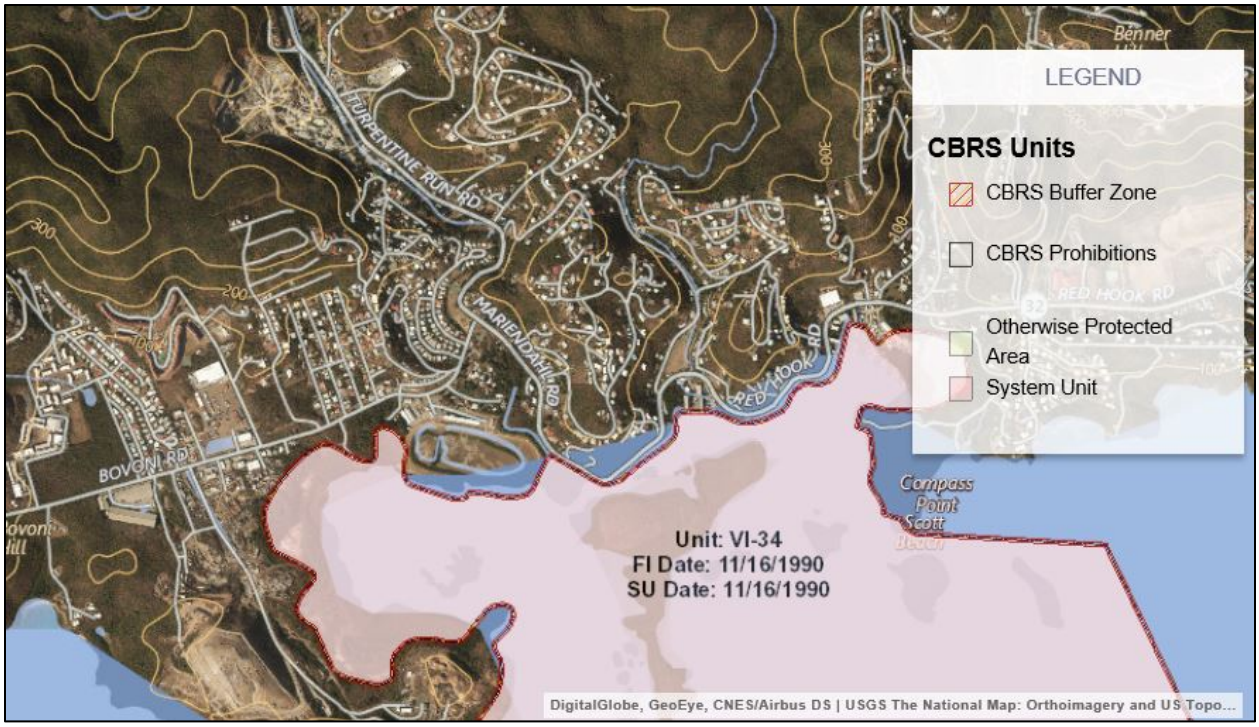

Figure 4. USFWS CBRS units in the project area.
(SOURCE: USFWS CBRS mapper)

The project area is highly developed; therefore, hazardous waste sources such as gas stations, dry cleaners, etc., exist in and around the project area. A review of the U.S. Environmental Protection Agency's (USEPA) EnviroMapper in November 2018 confirmed there are no documented superfund, toxic release, or brownfield sites in the project vicinity (*see* **Figure 5**); however, open channel areas are used as refuse dumping and sewage sites by nearby residents.

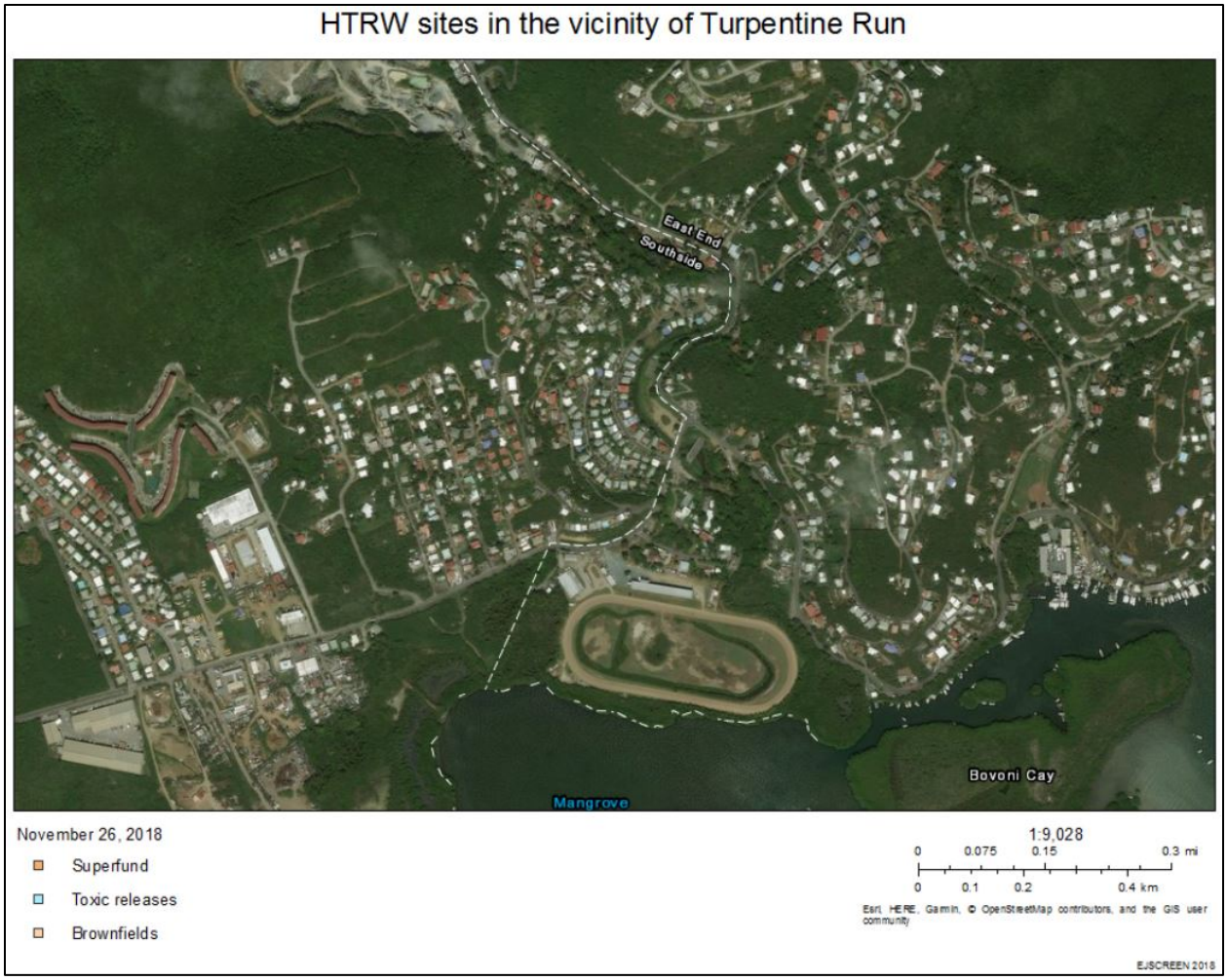

Figure 5. USEPA resource mapper HTRW sites.
(SOURCE: USEPA EnviroMapper)

The climate in this region is characteristically tropical. Flash floods from intense thunderstorms are a common event affecting this area and can occur anytime during the year. Climate change was not considered in the 1994 DPR/EA. Analysis of the effects of climate change will occur during the project's PED phase. Nadir is located in Air Quality Control Region "U.S. Virgin Islands", which is considered as being in attainment with the National Ambient Air Quality Standards. The project area is located in a highly urbanized environment, where sources of noise include recreational activities at the nearby horse track, vehicles, and natural sounds from the physical and biological environment.

3.3 SOCIOECONOMIC RESOURCES (ECONOMICS, AESTHETIC RESOURCES, RECREATION RESOURCES, NAVIGATION)

The neighborhoods appear to be houses with ground floor elevation equal to adjacent land. The houses are in various states of disrepair and appear to be the same housing inventory as was previous documented in the 1992 report. A majority of the structures appear to be inhabited and all show considerable signs of aging. There are numerous

vehicles (operational and abandoned) on every street in the study area. It appears that numerous residents also operate businesses out of their homes. The neighborhoods would not be a destination for tourists, but the adjacent recently renovated horse track (Clinton Phipps Racetrack) likely brings in local and regional USVI residents for the races.

Tourism, trade, and other services are the primary economic activities, accounting for nearly 60% of the USVI's gross domestic product (GDP) and about half of total civilian employment. Close to two million tourists per year visit the islands. The government is the single largest employer. In 2016, government spending (both federal and territorial together) accounted for about 27% of GDP while exports of goods and services, including spending by tourists, accounted for nearly 47%. The agriculture sector is small, with most food being imported. The manufacturing sector consists of rum distilling, electronics, pharmaceuticals, and watch assembly. Rum production is significant. Shipments during a six-month period of fiscal year 2016 totaled 8,136.6 million proof gallons.

3.4 CULTURAL RESOURCES

Previous consultation with the USVI Historic Preservation Office (SHPO) and a current review of the listing of the National Register of Historic Places (NRHP) indicates no historic properties listed or eligible for inclusion in the NRHP are located within the Turpentine Run Project's area of potential effect (APE). In a letter dated April 27, 1987 the USVI SHPO had recommended a reconnaissance level cultural resource investigation be conducted to identify significant prehistoric or historic cultural resources within the Turpentine Run Project's APE. In July 1988, Garrow and Associates, Inc. conducted the reconnaissance level cultural resources survey demonstrating the majority of the project APE (identified as Segments A and C) had been largely disturbed by previous construction activities and contained no cultural resources eligible for inclusion in the NRHP (Garrow 1989). During these investigations, Garrow and Associates, Inc. did not adequately investigate an area (identified as Segment B) due to the presence of an impenetrable cap of debris and overburden rendering manual shovel test investigations ineffectual; therefore, they recommended future mechanical backhoe investigations be conducted within Segment B to identify significant cultural resources in this area (Garrow 1989).

Subsequently, cultural resources investigations of Segment B were later conducted by Brockington and Associates, Inc. in February 1994. In their final report (1994) entitled: *Cultural Resources Survey of Segment B, Turpentine Run, St. Thomas, U.S. Virgin Islands*, Brockington and Associates Inc. describe the excavation of six mechanical backhoe trenches within Segment B. The results of their field investigations indicated that high energy flooding had occurred with the project area and no intact cultural deposits were present. The only artifacts identified, were recovered from disturbed contexts containing a mixture of modern, historic, and prehistoric materials; therefore no further cultural resources investigations were recommended for Segment B (Espenshade and Butler 1994).

Soon after these surveys were conducted, the construction footprint for the Turpentine Run project changed. The revised plan contained new APEs left uninvestigated by these

earlier surveys. These included a 1,200-foot corridor at the southern end of the project where a level would be constructed and riprap emplaced; a 900-foot corridor spanning the Bovoni Road Bridge; and a 1,745-foot corridor for placement of a 72-inch diameter concrete pipeline. Consequently, a Phase I cultural resources investigation of these areas will be required prior to implementation of the 2019 Revised Recommended Plan to identify cultural resources within this modified footprint. In addition, further consultation with the USVI SHPO is now needed to reevaluate structures previously identified as ineligible for inclusion in the NRHP. These structures may now be eligible due to potential changes in their significance related to the age of these properties since the Corps' initial determination of effects on these resources.

The Corps is currently coordinating a Programmatic Agreement with USVI Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation (ACHP). The Programmatic Agreement will outline the process in which the Corps will consult with the agencies to avoid, minimize, and mitigate adverse effects to historic properties and will be executed prior to the signing of this EA's FONSI. Dependent on further consultation/reevaluation with the USVI SHPO and the results of Phase I cultural resources investigations, project design modification may be necessary to avoid or minimize impact to historic properties. Phase II NRHP eligibility testing or mitigation may be required if impacts cannot be avoided.

3.5 HURRICANE MARIA STORM EFFECTS

Imagery prior to Hurricane Maria shows evidence that there was a home near or up against the Nadir Gut channel wall that was blown in, which caused the wall to fall into the channel. In addition, 640 feet downstream at the Bovoni Road Bridge culvert crossing the flood flows went over the channel wall, scouring a hole and undermining a house foundation. Remaining features of the channel in this area were in good condition (*see* **Figure 6** through **Figure 8**). The collapsed wall section had been repaired when a site visit was conducted on November 9, 2018.

Figure 6. Collapsed section of channel wall. House missing.
(SOURCE: Corps personnel site visit, October 2017)

Figure 7. Home no longer present at collapsed wall section.
(SOURCE: Corps personnel site visit, October 2017)

Figure 8. Erosion on the back side of the channel wall.
(SOURCE: Corps personnel site visit, October 2017)

In coordination with the USVI, Federal Emergency Management Agency (FEMA) is executing a long term recovery and resilience program in the USVI following the damaging 2017 hurricane season. The FEMA recovery mission my include upgrades and repairs in or around the project area. Coordination with the USVI Department of Public Works and USVI Waste Management Authority will occur to avoid potential conflicts during construction.

4 ENVIRONMENTAL EFFECTS

The anticipated changes to the existing environment (including direct and indirect effects) for the No Action Alternative and Recommended Plan are included in **Table 1**. Cumulative effects are also discussed in **Tables 2** and **3** of this section.

In order to meet current Federal, state, and local laws, regulations, and policy, as well as Corps standards and guidelines, the 1994 Recommended Plan will be reviewed and potentially modified during the PED phase. If changes to the project result in effects that have not been previously evaluated, then pursuant to NEPA, the Corps will prepare a separate NEPA document to address the changes and evaluate the associated effects. The Corps and its contractors commit to avoiding, minimizing, and mitigating for adverse effects during construction activities.

Table 1. Summary and comparison of the potential environmental consequences associated with the implementation of the No Action Alternative and Recommended Plan.

Environmental Factor / Resource	No Action Alternative	1994 Recommended Plan	2019 Evaluation of the 1994 Recommended Plan
Vegetation	No effect	No construction will occur south of the Bovoni Road Bridge to protect the freshwater swamp and resources in Mangrove Lagoon. Construction north of there would lethally affect vegetation through excavation or burial. Grasses and native plants would be planted on the levees to speed the recovery process.	Same as 1994 Recommended Plan
Wetlands	No effect	No long term adverse effect anticipated. No mitigation was proposed.	Debris and vegetation would be removed during the channelization, clearing, and grubbing activities. The earthen portion of the channel improvements would be restored and replanted with native vegetation. The Recommended Plan may affect wetlands, and mitigation may be necessary. The project design minimizes destruction, loss, and/or degradation of wetlands and preserves and enhances the natural and beneficial values of wetlands. If impacts to wetlands require mitigation, a plan will be developed, proposed, and refined during the project's PED phase.

Table 1. Summary and comparison of the potential environmental consequences associated with the implementation of the No Action Alternative and Recommended Plan.

Environmental Factor / Resource	No Action Alternative	1994 Recommended Plan	2019 Evaluation of the 1994 Recommended Plan
Endangered and Threatened Species	No effect	No effect on any federally listed endangered or threatened species. The 1987 USFWS Planning Aid Report recommends precautionary measures to adopt to protect the Virgin Island tree boa (*Epicrates monensis granti*).	Construction activities may affect, but are not likely to adversely affect, the Virgin Island tree boa. USFWS and Virgin Island Division of Fish and Wildlife (VIDFW) standard protection measures will be implemented to protect any boas that may occur in the area. Consultation with USFWS is ongoing.
Fish and Wildlife Resources	No effect	Temporary displacement of wildlife during construction due to noise and/or construction activities may occur; however, these effects are expected to be minor and will cease with the completion of construction. Repopulation by nearby species is expected to occur quickly.	Same as 1994 Recommended Plan
EFH	No effect	EFH is present in Mangrove Lagoon. The project does not include construction south of the Bovoni Road bridge in order to avoid potential effects to the lagoon resources. No effect on EFH is expected.	Same as 1994 Recommended Plan
CBRS	No effect	No analysis completed.	No effect. The project occurs outside of the CBRS unit boundaries.

Table 1. Summary and comparison of the potential environmental consequences associated with the implementation of the No Action Alternative and Recommended Plan.

Environmental Factor / Resource	No Action Alternative	1994 Recommended Plan	2019 Evaluation of the 1994 Recommended Plan
Water Quality	No effect	No significant effects to water quality, in the long term. There would be a temporary increase in suspended sediment in the stream during levee construction, sheet pile installation, and channel construction. After work is completed, sedimentation would return to pre-project levels. Provision of drop structure and bank rip rap would insure that streamflow velocities would be low enough to protect streambanks from erosion and Mangrove Lagoon from receiving turbid flow.	Same as 1994 Recommended Plan
HTRW	No effect	No effect	Same as 1994 Recommended Plan
Air Quality	No effect	Minor, temporary degradation of air quality will occur due to emissions during construction operations as well as heavy equipment and truck haul emissions.	Same as 1994 Recommended Plan
Noise	No effect	A temporary increase in the noise level in the project area would occur during construction operations; however noise levels would return to normal following completion of the construction.	Same as 1994 Recommended Plan

Table 1. Summary and comparison of the potential environmental consequences associated with the implementation of the No Action Alternative and Recommended Plan.

Environmental Factor / Resource	No Action Alternative	1994 Recommended Plan	2019 Evaluation of the 1994 Recommended Plan
Aesthetic Resources	No effect	The project area is highly urbanized. Equipment used for construction of the project will be visible and may be considered unsightly by members of the public, resulting in a temporary reduction in the aesthetic value in the construction area.	The project area is highly urbanized. The channelized portion of Turpentine Run along the Nadir development possesses very low visual aesthetic quality. Photo documentation reveal debris and other refuse dumped in the concrete ditch. Equipment used for construction of the project will be visible and may be considered unsightly by members of the public, resulting in a temporary reduction in the aesthetic value in the construction area.
Recreation Resources	No effect	Implementation of the Recommended Plan will result in the loss of the Nadir neighborhood park; however, to offset this loss a replacement park will be constructed. The park will be constructed in the vicinity of the racetrack and includes features such as nature walks, picnic pavilion with tables and board games, running water, security lighting, parking, and a multipurpose lighted court. The park facilities would be arranged so that they did not disrupt the current land use in the racetrack area.	Same as 1994 Recommended Plan

Table 1. Summary and comparison of the potential environmental consequences associated with the implementation of the No Action Alternative and Recommended Plan.

Environmental Factor / Resource	No Action Alternative	1994 Recommended Plan	2019 Evaluation of the 1994 Recommended Plan
Socioeconomic Resources	Taking no action would avoid any possible adverse impacts from proposed remedial plans but would result in continuation of, and potentially expanding, losses to property and threats to health and life from storm-induced flooding.	Implementation of the Recommended Plan would decrease flooding and reduce the requirement for emergency evacuation and the associated community disruption. Improvement to the overall health, safety, and general well-being of the community as a whole may be expected. Beneficial impacts would also be realized as a result of the new recreational facilities proposed under this plan.	Same as 1994 Recommended Plan

Table 1. Summary and comparison of the potential environmental consequences associated with the implementation of the No Action Alternative and Recommended Plan.

Environmental Factor / Resource	No Action Alternative	1994 Recommended Plan	2019 Evaluation of the 1994 Recommended Plan
Cultural Resources	No effect on cultural resources listed or eligible for listing in the NRHP.	Additional cultural resources surveys will be required for a 1,200-foot corridor at the southern end of the project where a levee will be constructed and riprap emplaced; a 900-foot corridor spanning the Bovoni Road Bridge; and a 1,745-foot corridor for a 72-inch diameter pipeline installation.	Cultural resources surveys will be required as identified in the 1994 Recommended Plan. The Corps is currently coordinating a Programmatic Agreement with USVI SHPO and the ACHP. The Programmatic Agreement will outline the process in which the Corps will consult with the agencies to avoid, minimize, and mitigate adverse effects to historic properties and will be executed prior to the signing of this EA's FONSI. Dependent on further consultation/reevaluation of effects on cultural resources, project design modifications may be necessary to avoid or minimize impacts to historic properties. Phase II eligibility testing or mitigation may be required if impacts cannot be avoided.
Unavoidable Adverse Environmental Effects	Continued degradation of low-grade wetlands in the southern portion of the project.	No analysis completed	Effects from the construction activities to fish and wildlife, including threatened and endangered species, are expected to be insignificant and temporary as the motile organisms are able to relocate and avoid direct effects. While construction will lethally affect existing vegetation in the footprint, native vegetation will be planted following completion of construction. These effects are expected to be short-term and minor.

4.1 CUMULATIVE EFFECTS

Cumulative effects are defined in 40 C.F.R. §1508.7 as those effects that result from "...the incremental effect of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time."

Past, present and reasonably foreseeable actions and plans are summarized below in **Table 2**. Section 1.4 of this EA contains more details on environmental reports completed in/around the project's vicinity. No other Federal projects exist in the project's immediate vicinity; however, channel improvements to Savan Gut (west of the project area near Charlotte Amalie) are planned for construction in 2020. In addition, it is expected that the public and local governments could have permitted activities in or around the project area. Activities completed by the Federal government are evaluated under NEPA directly for each project. Other projects that could result in a cumulative effect, occur in-water, or would affect wetlands are evaluated under a permit issued by the Corps' Regulatory Division and are incorporated by reference.

The implementation of the Turpentine Run Section 205 project, when considered with past projects in the area and potential future projects, has no significant cumulative impact on the environmental conditions of the project area. A summary of cumulative effects on environmental factors from past, present, and reasonably foreseeable actions and plans is provided in **Table 3**.

Table 2. Past, present, and reasonably foreseeable actions and plans affecting the project area.

Past Actions/Authorized Plans	Current Actions and Operating Plans	Reasonably Foreseeable Future Actions and Plans
- Wastewater treatment plant improvements - Horse racetrack - General urbanization	- FEMA recovery and resiliency efforts (e.g. utility upgrades)	- No known future actions or plans

Table 3. Summary of cumulative effects.

Natural Setting (Vegetation, Wetlands, Threatened and Endangered, Fish and Wildlife, and EFH)	
Past Actions	Construction of residential and commercial/public infrastructure has decreased the amount of habitat available for use by wildlife and threatened and endangered species potentially in the area.
Present Actions	Present actions focus on improving the already urbanized areas. No effects to the natural setting are expected.

Recommended Plan	Implementation of the 2019 Revised Recommended Plan could result in temporary effects to wildlife, and threatened and endangered species during construction due to noise and/or construction activities; however, these impacts are expected to be minor and will cease with the completion of construction. Non-motile species located in the levee, drainage channels, or new channel footprints would be lethally effected due to excavating or fill operations. These effects, although lethal, are expected to be minor and temporary as recolonization from adjacent communities will occur almost immediately. The Recommended Plan may affect wetlands, and mitigation may be necessary. The project design minimizes destruction, loss, and/or degradation of wetlands and preserves and enhances the natural and beneficial values of wetlands. If impacts to wetlands require mitigation, a plan will be developed, proposed, and refined during the project's PED phase.
Future Actions	Any Federal, state and/or local projects will be required to follow regulations to maintain and protect threatened and endangered species and their habitats within the area.
Cumulative Effect	Cumulative effects to the natural setting of this area are not anticipated.
Physical Setting (CBRS, Water Quality, HTRW, Air Quality, Noise)	
Past Actions	Ongoing erosion of the streambank, including debris, has likely contributed to the reduction of channel flow and degradation of water quality.
Present Actions	Present actions focus on improving the already urbanized areas. Improvements to utilities in the area would improve water quality by reducing or eliminating waste drainage into the gut.
Recommended Plan	Implementation of the 2019 Revised Recommended Plan could result in temporary minor turbidity impacts. Construction, including excavating or fill operations, of the levee/sheet pile, drainage channels, and/or new channel footprints could temporarily increase turbidity within the gut and in downstream waters within Mangrove Lagoon. Construction equipment may release negligible amounts of pollutants, including oils and grease. BMPs will be used to limit the possibility of adverse effects, and detailed pollution and turbidity control plans will be developed during the design phase.
Future Actions	Projects implemented would be required to meet and maintain regulated water quality standards within the area.
Cumulative Effect	Ongoing channel erosion/debris, seasonal weather, and storm event effects on water quality are unlikely to be eliminated; however, implementation of the 2019 Revised Recommended Plan will reduce and or minimize flooding impacts to adjacent neighborhoods. The Corps is committed to ensuring that projects will not result in violations of water quality standards. Cumulative effects to the physical setting of this area are not anticipated.

Socioeconomic Resources (Aesthetic Resources, Recreation Resources, Economic Resources)	
Past Actions	General urbanization of the region has increased the aesthetic, recreation, and economic resources in this area.
Present Actions	Present actions focus on improving the already urbanized areas. No effects to socioeconomic resources are expected.
Recommended Plan	By implementing the Recommended Plan, flood damage in the project area will be reduced which will positively affect socioeconomic resources in this area.
Future Actions	Continued urbanization and projects to increase benefits to the economy (e.g. tourism), recreation, and aesthetics are likely in this region.
Cumulative Effect	Continuation of benefits to socioeconomic resources may be anticipated when considering the cumulative effects of projects in this area.
Cultural Resources	
Past Actions	Construction of residential and commercial/public infrastructure has likely severely impacted known cultural resources within the area. In 1988 and 1994, cultural resources surveys conducted for the Corps identified no cultural resources eligible or potentially eligible for listing in the NRHP within the project footprint.
Present Actions	Present actions focus on improving the infrastructure and public utilities. No effects to cultural resources are expected.
Recommended Plan	The Corps is currently coordinating a Programmatic Agreement with USVI SHPO and the ACHP. The Programmatic Agreement will outline the process in which the Corps will consult with the agencies to avoid, minimize, and mitigate adverse effects to historic properties and will be executed prior to the signing of this EA's FONSI.
Future Actions	Any federal, state and/or local projects will be required to follow regulations to avoid, minimize, or mitigate impacts to historic properties.
Cumulative Effect	No cumulative effects are anticipated.

5 PUBLIC AND AGENCY COORDINATION

A Notice of Availability for the EA and Proposed FONSI will be coordinated with pertinent agencies and interested stakeholders for a 60-day review and comment period. The project will be in compliance with the NEPA of 1969, as amended, 42 U.S.C. 4321, *et seq*. Public Law 91-190.

5.1 COMMENTS RECEIVED AND CORPS' RESPONSES

Comments received during the 30-day agency review and public comment period will be addressed in the final EA. **Appendix C (Public and Agency Project Comments)** will include a list of the comments received and the Corps' responses.

6 ENVIRONMENTAL COMMITMENTS AND COMPLIANCE

The Corps will comply with all terms and conditions of agency consultations and/or permits. The Corps and its contractors also commit to avoiding and minimizing for adverse effects during construction activities by including the commitments in **Table 4** in the contract specifications:

Table 4. Corps' environmental commitments.

Environmental Commitment	Corps' Commitment
Protection of Fish and Wildlife Resources	Construction activities will be kept under surveillance, management, and control to minimize interference with, disturbance of, and damage to fish and wildlife. Prior to the start of construction, the Contractor will submit their Environmental Protection Plan (EPP) that will include protective measures for species that require specific attention.
Endangered and Threatened Species Protection	Adverse effects to endangered and threatened species will be avoided and/or minimized. USFWS standard protection measures will be implemented to protect any boas that may occur in the area. Endangered and threatened species protection criteria will be included in the Contractor's EPP.
Water Quality	Implementation of design and procedural controls will prevent oil, fuel, or other hazardous substances from entering the air or water and reduce turbidity impacts. All fill, wastes, and refuse generated by project construction will be removed and properly disposed. Contractors will implement a spill contingency plan for hazardous, toxic, or petroleum material. Conditions imposed by the exemption statute and/or water quality certification will be implemented in order to minimize adverse impacts to water quality.
Cultural Resources	Pursuant to 54 U.S.C. 306108 § 800.14, the Corps is conducting a phased identification and evaluation of historic properties. The Corps is currently coordinating a Programmatic Agreement with USVI SHPO and the ACHP. The Programmatic Agreement will outline the process in which the Corps will consult with the agencies to avoid, minimize, and mitigate adverse effects to historic properties and will be executed prior to the signing of this EA's FONSI. In addition, an unexpected cultural resources finds clause will be included in the project specifications. In the event of an archaeological resource discovery, work in the area will be suspended at the site until compliance with all federal and state regulations is successfully completed and Corps staff members provide further directive.

Protection of Migratory Birds	Standard migratory bird protection protocols will be incorporated into the project plans and specifications. The contractor will be required to abide by those protocols and all monitoring timeframes as specified by all applicable licenses and permits.

This EA has been prepared pursuant to NEPA and its implementing regulations. The status of the proposed project's compliance with environmental acts and E.O. are provided in **Table 5**:

Table 5. Proposed project's environmental act and E.O. compliance status.

Environmental Act or E.O.	Project Compliance Status
National Environmental Policy Act of 1969 (42 U.S.C. §4321 *et seq*.)	This EA has been prepared pursuant to NEPA and its implementing regulations. A Notice of Availability for the EA and Proposed FONSI will be coordinated with pertinent agencies and interested stakeholders for a 60-day review and comment period. In order to meet current Federal, state, and local laws, regulations, and policy, as well as Corps standards and guidelines, the 1982 Recommended Plan will be reviewed and potentially modified during the PED phase. If changes to the project result in effects that have not been previously evaluated, then pursuant to NEPA, the Corps will prepare a separate NEPA document to address the changes and evaluate the associated effects. The project complies with this Act.
Endangered Species Act of 1973 (16 U.S.C. §1531 *et seq*.)	The project was coordinated with NMFS and USFWS through the 1994 EA and will be coordinated again during the public review of this NEPA document. Coordination with the agencies to address project changes is ongoing. The Corps has determined that implementation of the 2019 Revised Recommended Plan may affect, but will not adversely affect the Virgin Island tree boa (*Epicrates monensis granti*). In addition, the Corps has determined that the project would have no effect on listed species under NMFS' purview. Pertinent correspondence is found in Appendix A. The project will comply with this Act prior to the signing of this EA's FONSI.

Environmental Act or E.O.	Project Compliance Status
Fish and Wildlife Coordination Act of 1958 (16 U.S.C. §661 *et seq*.)	The USFWS prepared a Planning Aid Report for the Turpentine Run Section 205 project in 1987. The Planning Aid Report listed the brown pelican (*Pelecanus occidentalis*), peregrine falcon (*Falco peregrinus*), and the Virgin Islands tree boa (*Epicrates monensis granti*) as being potentially present in the project area. The report also describes the presence of a freshwater swamp forest in the project area and recommended avoiding effects to the forest. The Corps incorporated the USFWS recommendations. The project was coordinated with USFWS through the 1994 EA with a no-effect determination for any federally listed endangered or threatened species. A Memorandum for the Record, found in Appendix A (Project Correspondence), will be signed by USFWS and the Corps to document an agreement between the agencies to use the NEPA review and endangered species act consultation processes to complete coordination responsibilities under the Fish and Wildlife Coordination Act. Funds may be sent to the USFWS during the PED phase to provide support during design refinements. The project will comply with this Act prior to the signing of this EA's FONSI.
National Historic Preservation Act of 1966 (*Inter Alia*)	The Corps has initiated consultation for the Recommended Plan with the USVI SHPO pursuant to Section 106 of the NHPA of 1966, as amended, and consideration given under NEPA. The Corps is currently coordinating a Programmatic Agreement with USVI SHPO and the ACHP. The Programmatic Agreement will outline the process in which the Corps will consult with the agencies to avoid, minimize, and mitigate adverse effects to historic properties and will be executed prior to the signing of this EA's FONSI.
Clean Water Act of 1972, Section 401 and Section 404(B) (33 U.S.C. §1341 *et seq*. and 33 U.S.C. §1344(b) *et seq*.)	The 1994 EA included a Section 404(b)(1) Guidelines Evaluation. The project was determined to be consistent with the program. The project will comply with the Clean Water Act and USVI territory standards in effect for the Clean Water Act.
Clean Air Act of 1972 (42 U.S.C. §7401 *et seq*.)	No air quality permits are required for this project. Because the project is located within an attainment area, USEPA General Conformity Rule to implement Section 176(c) of the Clean Air Act does not apply and a conformity determination is not required.
Coastal Zone Management Act of 1972 (16 U.S.C. §1451 *et seq*.)	A Federal Consistency Determination will be submitted to the Department of Planning and Natural Resources for the USVI's review and concurrence. The project will comply with this Act prior to the signing of this EA's FONSI.
Farmland Protection Policy Act of 1981 (7 U.S.C. §4201 *et seq*.)	No prime or unique farmland will be affected by implementation of this project. This Act is not applicable.

Environmental Act or E.O.	Project Compliance Status
Wild and Scenic River Act of 1968 (16 U.S.C. §1271 *et seq*.)	This project will not affect any designated wild and scenic river reaches. This Act is not applicable.
Marine Mammal Protection Act of 1972 (16 U.S.C. §1361 *et seq*.)	No marine mammals will be affected by this project. This Act is not applicable.
Estuary Protection Act of 1968 (16 U.S.C. §§1221-26)	No estuaries will be affected by this project. This Act is not applicable.
Federal Water Project Recreation Act (16 U.S.C. §460(L)(12)-460(L)(21) *et seq*.)	Recreational resources and opportunities are discussed in Section 4 of this report. The project complies with this Act.
Magnuson-Stevens Fishery Conservation and Management Act of 1976, as amended (16 U.S.C. §1801 *et seq*.)	The project was coordinated with NMFS through the 1994 EA and will be coordinated again during the public review of this NEPA document. The Corps does not anticipate any effects to EFH. The project complies with this Act.
Submerged Lands Act of 1953 (43 U.S.C. § 1301 *et seq*.)	No submerged navigable lands will be affected by implementation of the Recommended Plan. This Act is not applicable.
Coastal Barrier Resources Act and Coastal Barrier Improvement Act of 1990 (16 U.S.C. §3501 *et seq*.)	CBRS Unit VI-34 is located just south of the project area. This CBRS Unit will not be affected by the project. The project complies with this Act.
Rivers and Harbors Act of 1899, Section 10 (33 U.S.C. §403 *et seq*.)	The proposed work will not obstruct navigable waters of the U.S. The project complies with this Act.
Anadromous Fish Conservation Act (16 U.S.C. §§757A-757G)	The project will have no effect on anadromous fish species. The project complies with this Act.
Migratory Bird Treaty Act (16 U.S.C. §§703-712) and Migratory Bird Conservation Act (16 U.S.C. §§715-715D, 715E, 715F-715R)	The project plans and specifications will include migratory bird protection measures for construction activities. If nesting activities occur within the construction area, appropriate buffers will be placed around nests to ensure their protection. The project was coordinated with USFWS and complies with these Acts.
Marine Protection, Research, and Sanctuaries Act (16 U.S.C. §1431 *et seq*. AND 33 U.S.C. §1401 *et seq*.)	Ocean disposal is not a component of this project. This Act is not applicable.
Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 U.S.C. §4601 *et seq*.)	The NFS will be responsible for acquiring any real estate interests for the project. The Corps will work with the NFS to ensure compliance with this Act. The project will comply with this Act.

Environmental Act or E.O.	Project Compliance Status
E.O. 11988, Flood Plain Management	The Corps concludes that the proposed project will not result in harm to people, property, and floodplain values, will not induce development in the floodplain, and the project is in the public interest. The project will result in a reduction of flood damages. The project complies with this Order.
E.O. 11990, Protection of Wetlands	Project completion may affect wetlands and mitigation may be necessary. The project complies with this Order by minimizing the destruction, loss, and/or degradation of wetlands and preserve and enhance the natural and beneficial values of wetlands. If impacts to wetlands require mitigation, a plan will be developed, proposed, and refined during the project's PED phase.
E.O. 12898, Environmental Justice	Detailed analysis of the project's environmental justice status is found in Appendix B (Environmental Justice Analysis). The project will result in temporary impacts related to noise, air quality, water quality, and use of the project staging area during construction of the project. These effects are minor would cease with construction completion. The project will result in long-term positive effects to the project area. Benefits of the project include the elimination of existing and future flood damages to Nadir neighborhood and improved aesthetics and recreation resources due to the construction of a replacement park. This project will not cause any disproportionate and adverse effects to minority or low income populations. The project complies with this Order.
E.O. 13045, Protection of Children from Environmental Health Risks and Safety Risks	The proposed action does not affect children disproportionately from other members of the population and would not increase any environmental health or safety risks to children. The project complies with this Order.
E.O. 13089, Coral Reef Protection	No corals or hardbottom habitat exists within the project area. The project complies with this Order.
E.O. 13112, Invasive Species	The Recommended Plan will not introduce or promote the introduction of non-species to the region. Planting of native species will result in a decrease of habitat availability for invasive/exotic species. The project complies with this Order.

Environmental Act or E.O.	Project Compliance Status
E.O. 13186, Responsibilities of Federal Agencies to Protect Migratory Birds	This E.O. requires, among other things, a Memorandum of Understanding (MOU) between the Corps and USFWS concerning migratory birds. Neither the Department of Defense MOU nor the Corps' Draft MOU clearly address migratory birds on lands not owned or controlled by the Corps. For many Corps' civil works projects, the real estate interests are provided by the non-Federal Sponsor. Control and ownership of the Project lands remain with a non-Federal interest. Measures to avoid the destruction of migratory birds and their eggs or hatchlings are described in Section 4 of this EA and are incorporated by reference. The Corps will include standard migratory bird protection requirements in the project plans and specifications and will require the contractor to abide by those requirements. The project complies with this Order.

7 LIST OF PREPARERS

Name	Organization	Expertise	Role in Preparation
Kristen Donofrio, Biologist	Corps	NEPA	Primary Author
Richard Butler, Water Quality Specialist	Corps	Water Quality	Contributing Author
Marc Tiemann, Senior Archeologist	Corps	Cultural and Native American Resources	Contributing Author
George Ebai Economist	Corps	Socioeconomics	Contributing Author
Paul DeMarco, Senior Biologist	Corps	NEPA	Document Reviewer
Mike Hollingsworth, Senior Water Quality Specialist	Corps	Water Quality	Document Reviewer
Meredith Moreno, Senior Archeologist	Corps	Cultural and Native American Resources	Document Reviewer
Kevin Wittmann, Deputy Chief of Planning Jacksonville District/Chief of Economics South Atlantic Region	Corps	Socioeconomics	Document Reviewer
Jason Spinning, Coastal Section Chief	Corps	Supervisory Biologist	Document Reviewer
Dr. Gina Paduano-Ralph, Environmental Branch Chief	Corps	Supervisory Biologist	Document Reviewer
Rebecca Onchaga, Tech Writer/Editor	Corps	Technical Editor	Technical Edits

8 ACRONYM LIST

ACHP	Advisory Council on Historic Preservation
APE	Area of Potential Effect
BBA	Bipartisan Budget Act of 2018
BMPs	Best Management Practices
C.F.R.	Code of Federal Regulations
CAP	Continuing Authorities Program
CBRS	Coastal Barrier Resource System
CEQ	Council on Environmental Quality
Corps	U.S. Army Corps of Engineers
DPNR	Department of Planning and Natural Resources
DPR	Detailed Project Report
E.O.	Executive Order
EA	Environmental Assessment
EFH	Essential Fish Habitat
EJ	Environmental Justice
EPP	Environmental Protection Plan
FCD	Federal Consistency Determination
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
FWCA	Fish and Wildlife Coordination Act
GDP	Gross Domestic Product
HTRW	Hazardous, Toxic, and Radioactive Waste
MOU	Memorandum of Understanding
NED	National Economic Development
NEPA	National Environmental Policy Act
NFS	Non-Federal Sponsor
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
PED	Preconstruction Engineering and Design
SHPO	U.S. Virgin Islands State Historic Preservation Office
U.S.	United States
U.S.C.	United States Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USVI	U.S. Virgin Islands
VIDFW	U.S. Virgin Islands Division of Fish and Wildlife
WQC	Water Quality Certification

9 REFERENCES

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