CAPTEC ENGINEERING, INC.

PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18

WETLAND AND WILDLIFE ASSESSMENT REPORT (WWA)

October 2023

Prepared for:
Steven P. Marquart, P.E.
CAPTEC Engineering, Inc.
301 NW Flagler Ave
Suite 201
Stuart, Florida 34994
Via E-mail: smarquart@gocaptec.com

Prepared by:
Hobe Sound Environmental Consultants, Inc.
9512 SE Duncan St.
Hobe Sound, FL 33455
(772) 545-3676
E-Mail: bobhsenv@gmail.com

TABLE OF CONTENTS

LIST OF TABLES

LIST OF APPENDICES

CAPTEC ENGINEERING, INC.
PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18
WETLAND AND WILDLIFE ASSESSMENT REPORT (WWA)

1.00 INTRODUCTION

The following Wetland and Wildlife Assessment Report (WWA) of the City of Port St. Lucie (PSL) Watershed Control Structures A-16, A-17, and A-18 project sites has been prepared by Hobe Sound Environmental Consultants, Inc. (HSE). The purpose of this report is to provide the methodologies and results of a scientific wetland and wildlife assessment for these sites. This report addresses the following environmental issues: protected species, wildlife, vegetative communities, wetlands, soils, and topography. The report is based on field data collected on 10 October 2023. The project sites collectively consist of approximately ±1.85 acres of land located north of the C-23 Canal, south of SW Hawthorne Circle, east of SW Darwin Blvd and west of The Florida Turnpike. Individual site acreages are ±0.64 acres (A-16) , ±0.77 acres (A-17), and ±0.44 acres (A-18). The sites are situated in Sections 20, 21, and 28, Township 37S, Range 40E in St. Lucie County, Florida. The project sites's coordinates are as follows: A-16 at N27°14'24.215", W80°21'07.747", A-17 at N27°13'58.337", W80°20'45.683", and A-18 at N27°14'14.101", W80°20'42.139" (**Appendix A: Figures 1-6 of 38**).

2.00 METHODOLOGY

2.01 <u>Protected Species/Wildlife Survey</u>

2.01.1 Objective

Conduct a systematic survey for flora and fauna that may occur within the project site and note the presence of any protected species listed in *Florida's Official Endangered and Threatened Species List* Updated December 2022, Florida Fish and Wildlife Conservation Commission (FFWCC).

The state lists of animals are maintained by the FFWCC and categorized as

threatened in accordance with rule 68A-27.003 of the Florida Administrative Code (F.A.C.). The state lists of plants are categorized into endangered, threatened, and commercially exploited, and are maintained by the Florida Department of Agriculture and Consumer Services (DOACS) via Chapter 5B-40, F.A.C.

The federal agencies that share the authority to list species as Endangered and Threatened are the National Oceanic and Atmospheric Administration-National Marine Fisheries Service (NOAA-NMFS) and the U.S. Fish and Wildlife Service (USFWS). The NOAA-NMFS is responsible for listing most marine species. The federal list of animals and plants is administered by the USFWS, and is published in 50 CFR 17 (animals) and 50 CFR 23 (plants).

2.01.2 Methodology

Following are the methodologies biologists used to conduct the wildlife/protected species survey.

- Biologists conducted pedestrian transects throughout the project site.
- The transects meandered through areas of suitable habitat within the entire project area.
- Biologists recorded sightings, tracks, scat, tree markings, nests, cavities, and burrows.

2.02 Gopher Tortoise and Other Burrow Commensals

2.02.1 Objective

Conduct a 100% systematic survey within and around the boundaries of the project site to locate any gopher tortoise (*Gopherus polyphemus*) burrows and the eastern indigo snake (*Drymarchon corais couperi*).

2.02.2 Methodology

Biologists followed the survey protocol as recommended in *Ecology and Habitat Protection Needs of Gopher Tortoise (Gopherus polyphemus) Populations Found on Lands Slated for Large-scale Development in Florida*; Non-game Wildlife Program, Technical Report #4, Florida Game and Fresh Water Fish Commission (FGFWFC), now known as FFWCC, Tallahassee, Florida, December 1987, and *Gopher Tortoise Permitting Guidelines*, FFWCC, Tallahassee, Florida April 2008 (Updated April 2023).

- Biologists conducted pedestrian transects on 10 October 2023 **(Appendix A: Figures 7-10 of 38)**;
- All gopher tortoise burrows located were flagged as either abandoned or potentially occupied, if appropriate;
- All gopher tortoise burrows located were assigned an identification number and recorded, if appropriate;
- Biologists field located all gopher tortoise burrows on an aerial photograph, if appropriate (**Appendix A: Figures 11-14 of 38**);
- Additional data and notes were collected by biologists for the occurrence of the eastern indigo snake.

2.03 FWC Florida Land Cover Classification System (FLCCS)

2.03.1 Objective

To map vegetation within the boundaries of the project site according to the *Florida Land Cover Classification System* (FLCCS) and comparing it to the *Cooperative Land Cover Classification System* (CLC) map.

2.03.2 Methodology

Biologists used the following methodology to map vegetation found on the project site:

- Biologists used the *Cooperative Land Cover Classification System* (CLC).
- Biologists based vegetative community descriptions on field surveys,

United States Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS) soil maps, and aerial photograph interpretations.

- Numerical community designations were carried to Levels III or IV, as determined to be appropriate, according to CLC.

2.04 Jurisdictional Wetlands

2.04.1 Objective

To identify and locate State of Florida (South Florida Water Management District; SFWMD) and Federal (Florida Department of Environmental Protection; FDEP, State 404) jurisdictional wetlands that may occur within the boundaries of the project site.

2.04.2 Methodology

Biologists used the following methodologies to locate State of Florida and Federal jurisdictional wetlands on-site.

- Biologists delineated wetlands according to Florida Administrative Code (F.A.C.) 62-340, as appropriate.
- Biologists flagged the wetlands with consecutively numbered flagging tape marked "Wetland Delineation", as appropriate.
- Biologists marked the approximate wetland locations on a St. Lucie County aerial photograph, if appropriate.

2.05 Soils

2.05.1 Objective

To identify project soil types according to the NRCS.

2.05.2 Methodology

Biologists used the following methodology to identify soil types found on the project sites.

- The project site soils were mapped according to the *Natural Resources Conservation Service (NRCS), United States Department*

of Agriculture (USDA), Survey, http://websoilsurvey.sc.egov.usda.gov

2.06 Topography

2.06.1 Objective

To identify the topography of the project sites.

2.06.2 Methodology

Biologists used the following methodologies to identify the topography of the project site.

- Biologists used the *U.S. Geological Survey* (USGS) *Topographic Map, Palm City, FLA. Quadrangle* to determine on-site topography.

3.00 RESULTS

3.01 Protected Species/Wildlife Survey

3.01.1 Gopher Tortoise and Other Burrow Commensals

The gopher tortoise is designated as threatened (T) by the State of Florida. The eastern indigo snake is also designated as threatened (T) by the State of Florida and the USFWS. These species are protected under regulations set forth in the Florida Administrative Code (F.A.C.) of the State of Florida, Chapter 68 Fish and Wildlife Conservation Commission, Rule 68A-3.001 and 68A-25.002, as well as Chapter 68A-27. Zero (0) potentially occupied gopher tortoise burrows were located by biologists during the gopher tortoise and commensal species survey **(Appendix A: Figures 11-14 of 38).** The estimated gopher tortoise population is zero (0). Commensal species such as the eastern indigo snake were not observed on-site and suitable habitat does not exist. HSE biologists applied an Eastern Indigo Snake Determination key as follows, as per USFWS memo dated 25 January 2010, updated 13 August 2013 and revised 01 August 2017.

Eastern Indigo Snake Determination Key

A. Project is not located in open water or salt marsh.....go to B

Project is located solely in open water or salt marsh.....“no effect”

B. Permit will be conditioned for use of the Service’s *Standard Protection Measures for the Eastern Indigo Snake* during site preparation and project construction..... go to C

Permit will not be conditioned as above for the eastern indigo snake, or it is not known whether an applicant intends to use these measures and consultation with the Service is requested[2].....“may effect”

C. The project will impact less than 25 acres of eastern indigo snake habitat (eg., sandhill, scrub, pine flatwoods, pine rocklands, scrubby flatwoods, high pine, dry prairie, coastal prairie, mangrove swamps, tropical hardwood hammocks, hydric hammocks, edges of freshwater marshes, agricultural fields [including sugar cane fields and active, inactive or abandoned citrus groves], and coastal dunes).....go to D

The project will impact more than 25 acres of xeric habitat (eg., sandhill, scrub, pine flatwoods, pine rocklands, scrubby flatwoods, high pine, dry prairie, coastal prairie, mangrove swamps, tropical hardwood hammocks, hydric hammocks, edges of freshwater marshes, agricultural fields [including sugar cane fields and active, inactive or abandoned citrus groves], and coastal dunes).....“may affect”

D. The project has no known holes, cavities, active or inactive gopher tortoise burrows, or other underground refugia where a snake could be buried, trapped and/or injured.....NLAA

The project has holes, cavities, active or inactive gopher tortoise burrows, or other underground refugia where a snake could be buried, trapped and/or injured.....go to E

E. Any permit will be conditioned such that all gopher tortoise burrows, active and inactive, will be evacuated prior to site manipulation in the vicinity of the burrow[1]. If an eastern indigo snake is encountered, the snake must be allowed to vacate the area prior to additional site manipulation in the vicinity. Any permit will also be conditioned such that holes, cavities, and snake refugia other than gopher tortoise burrows will be inspected each morning before planned site manipulation of a particular area, and, if occupied by an eastern

indigo snake, no work will commence until the snake has vacated the vicinity of proposed work.....NLAA[2]

Permit will not be conditioned as outlined above.....may affect

End Key

[1] If excavating potentially occupied burrows, active or inactive, individuals must first obtain state authorization via Florida Fish and Wildlife Conservation Commission Authorized Gopher Tortoise Agent permit. The excavation method selected should also minimize the potential for injury of an indigo snake. Applicants should follow the excavation guidance provided within the most current Gopher Tortoise Permitting Guidelines found at http://myfwc.com/gophertortoise

[2] Please note, if the proposed project will impact less than 25 acres of vegetated eastern indigo snake habitat (not urban/human-altered) completely surrounded by urban development, and an eastern indigo snake has been observed on site, NLAA is not the appropriate conclusion. The Service recommends formal consultation for this situation because of the expected increased value of the vegetated habitat within the individual's home range.

No eastern indigo snakes were observed on-site by HSE biologists and there is no habitat for the EIS. The key has determined that the proposed project will have "no effect" on this species.

3.01.2 Other Protected Fauna

Various species of fauna were observed on-site during the pedestrian transect survey and are listed in **Table 1**. Protected species that potentially occur in St. Lucie County are listed in **Table 2**. Likelihood of these species occurrence within the project sites according to the Florida Natural Areas Inventory (FNAI) Biodiversity Matrix is also listed in **Table 2**.

The project sites are within the distribution area of the state protected Florida pine snake (*Pituophis melanoleucus mugitus*) **(Appendix A: Figure 15 of 38).** These snakes occupy a variety of upland habitats around the state, but they prefer dry habitats with moderate to open canopy cover and sandy, well-drained soils. It is HSE's professional opinion that no suitable habitat exists on-site for the Florida pine snake.

The sites are within the core foraging area of three (3) wood stork (*Mycteria americana*) colonies **(Appendix A: Figure 16 of 38)** and wood storks have been observed on-site. Wood stork habitat will not be negatively impacted due to the nature of this project. The wood stork key was utilized on page 13.

Table 1: Wildlife Observed on the PSL Watershed Control Structures A-16, A-17, and A-18 Sites

A. Fish & Aquatic Macro-invertebrates

Common Name	Scientific Name	Protected Species		Site Observed
		State	Federal	
Bluegill	*Lepomis macrochirus*	--	--	**A-16**
Blue tilapia	*Oreochromis aureus*	--	--	**A-17**
Armored catfish	*Pterygoplichthys sp.*	--	--	**A-18**
Island apple snail	*Pomacea maculata*	--	--	**A-17, A-18**

B. Reptiles & Amphibians

Common Name	Scientific Name	Protected Species		Site Observed
		State	Federal	
Brown anole	*Anolis sagrei*	---	---	**A-16, A-17, A-18**
Green iguana	*Iguana iguana*	--	--	**A-18**
Common agama	*Agama agama*	--	--	**A-18**
American alligator	*Alligator mississippiensis*	T	SAT	**A-16, A-17**

C. Birds

Common Name	Scientific Name	Protected Species		Site Observed
		State	Federal	
Great blue heron	*Ardea herodias*	--	--	**A-16**
Wood stork	*Mycteria americana*	T	T	**A-17**
Limpkin	*Aramus guarauna*	--	--	**A-18**
Blue-jay	*Cyanocitta cristata*	---	---	**A-16**
Anhinga	*Anhinga anhinga*	---	---	**A-17**
Little blue heron	*Egretta caerulea*	T	---	**A-17**
Snowy egret	*Egretta thula*	---	---	**A-17**
Tri-colored heron	*Egretta tricolor*	T	---	**A-17**

D. Mammals

Common Name	Scientific Name	Protected Species		Site Observed
		State	Federal	
--	--	--	--	--

*T = Threatened (State or Federal), C = Candidate for Endangered and/or Threatened, SAT = Threatened due to similarity of appearance

Table 2: PSL Watershed Control Structures A-16, A-17, and A-18 : 2022 Federal/State Listed Fauna and Flora Potentially Found in St. Lucie County, FL

A. Fish/ Aquatic Macroinvertebrates

COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS+	STATE STATUS++ (FLORIDA)	EXISTING HABITAT ON-SITE	LIKELIHOOD OF OCCURRENCE	NOTES	Site Observed
Opossum pipefish	*Oostethus brachyurus*	SC	N	Yes	not likely	not observed during preliminary pedestrian transects	N/A

B. Reptiles & Amphibians

COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS+	STATE STATUS++ (FLORIDA)	EXISTING HABITAT ON-SITE	LIKELIHOOD OF OCCURRENCE	NOTES	Site Observed
American alligator	*Alligator mississipiensis*	SAT	FT(S/A)	Yes	likely	observed during preliminary pedestrian transects	A-16, A-17
Loggerhead sea turtle	*Caretta caretta*	T	FT	No	not likely	not observed during preliminary pedestrian transects	N/A
Green sea turtle	*Chelonia mydas*	T	FT	No	not likely	not observed during preliminary pedestrian transects	N/A
Leatherback turtle	*Dermochelys coriacea*	E	FE	No	not likely	not observed during preliminary pedestrian transects	N/A
Eastern indigo snake	*Drymarchon corais couperi*	T	FT	No	not likely	not observed during preliminary pedestrian transects	N/A
Hawksbill sea turtle	*Eretmochelys imbricata*	E	FE	No	not likely	not observed during preliminary pedestrian transects	N/A
Gopher tortoise	*Gopherus polyphemus*	C	ST	No	not likely	not observed during preliminary pedestrian transects	N/A
Kemp's Ridley sea turtle	*Lepidochelys kempii*	E	FE	No	not likely	not observed during preliminary pedestrian transects	N/A
Pine snake	*Pituophis melanoleucus*	---	ST	No	not likely	not observed during preliminary pedestrian transects	N/A

C. Birds

COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS+	STATE STATUS++ (FLORIDA)	EXISTING HABITAT ON-SITE	LIKELIHOOD OF OCCURRENCE	NOTES	Site Observed
Florida scrub-jay	*Aphelocoma coerulescens*	T	FT	No	not likely	not observed during preliminary pedestrian transects	N/A
Florida burrowing owl	*Athene cunicularia floridana*	---	ST	No	not likely	not observed during preliminary pedestrian transects	N/A
Crested caracara	*Caracara cheriway*	T	FT	No	not likely	not observed during preliminary pedestrian transects	N/A
Little blue heron	*Egretta caerulea*	---	ST	Yes	likely	observed during preliminary pedestrian transects	A-17
Bald eagle*	*Haliaeetus leucocephalus*	--	N	Yes	not likely	not observed during preliminary pedestrian transects	N/A
Tri-colored heron	*Egretta tricolor*	---	ST	Yes	likely	observed during preliminary pedestrian transects	A-17
American oystercatcher	*Haematopus palliatus*	---	ST	No	not likely	not observed during preliminary pedestrian transects	N/A
Wood stork	*Mycteria americana*	T	FT	Yes	likely	observed during preliminary pedestrian transects	A-17
Snail kite	*Rostrhamus sociabilis plumbeus*	E	FE	Yes	not likely	not observed during preliminary pedestrian transects	N/A
Black skimmer	*Rynchops niger*	--	ST	No	not likely	not observed during preliminary pedestrian transects	N/A
Roseate spoonbill	*Ajaia ajaja*	--	ST	Yes	likely	not observed during preliminary pedestrian transects	N/A
Least tern	*Sterna antillarum*	N	ST	No	not likely	observed during preliminary pedestrian transects	N/A

D. Mammals

COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS+	STATE STATUS++ (FLORIDA)	EXISTING HABITAT ON-SITE	LIKELIHOOD OF OCCURRENCE	NOTES	Site Observed
Southeastern beach mouse	*Peromyscus polionotus niveiventris*	T	FT	No	not likely	not observed during preliminary pedestrian transects	N/A
West Indian manatee	*Trichechus manatus*	T	FT	No	not likely	not observed during preliminary pedestrian transects	N/A

E. Plants and Lichens

COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS+	STATE STATUS++ (FLORIDA)	EXISTING HABITAT ON-SITE	LIKELIHOOD OF OCCURRENCE	NOTES	Site Observed
Sand-dune spurge	*Chamaesyce cumulicola*	--	E	No	not likely	not observed during preliminary pedestrian transects	N/A
Piedmont jointgrass	*Coelorachis tuberculosa*	--	T	No	not likely	not observed during preliminary pedestrian transects	N/A
Many-flowered grass-pink	*Calopogon multiflorus*	--	T	No	not likely	not observed during preliminary pedestrian transects	N/A
Perforated reindeer lichen	*Cladonia perforata*	E	E	No	not likely	not observed during preliminary pedestrian transects	N/A
Large-flowered rosemary	*Conradina grandiflora*	--	T	No	not likely	not observed during preliminary pedestrian transects	N/A
Lakela's mint	*Dicerandra immaculata*	E	E	No	not likely	not observed during preliminary pedestrian transects	N/A
Coastal vervain	*Glandularia maritima*	--	E	No	not likely	not observed during preliminary pedestrian transects	N/A
Johnson's seagrass	*Halophila johnsonii*	DL	E	No	not likely	not observed during preliminary pedestrian transects	N/A
Sea rosemary	*Heliotropium gnaphalodes*	--	E	No	not likely	not observed during preliminary pedestrian transects	N/A
Burrowing four-o'clock	*Okenia hypogaea*	--	E	No	not likely	not observed during preliminary pedestrian transects	N/A

Hand fern	*Ophioglossum palmatum*	--	E	No	not likely	not observed during preliminary pedestrian transects	N/A
Terrestrial peperomia	*Peperomia humilis*	--	E	No	not likely	not observed during preliminary pedestrian transects	N/A
Blunt-leaved peperomia	*Peperomia obtusifolia*	--	E	No	not likely	not observed during preliminary pedestrian transects	N/A
Tiny polygala	*Polygala smallii*	E	E	No	not likely	not observed during preliminary pedestrian transects	N/A
Giant orchid	*Pteroglossaspis ecristata*	--	T	No	not likely	not observed during preliminary pedestrian transects	N/A
Coastal hoary-pea	*Tephrosia angustissima var. curtissii*	--	T	No	not likely	not observed during preliminary pedestrian transects	N/A
Savanna balm	*Dicerandra immaculata var. savannarum*	E	E	No	not likely	not observed during preliminary pedestrian transects	N/A
Fragrant prickly apple	*Harrisia fragrans*	E	E	No	not likely	not observed during preliminary pedestrian transects	N/A
Scrub bluestem	*Schizachyrium niveum*	--	E	No	not likely	not observed during preliminary pedestrian transects	N/A

+Federal Status: U.S. Fish and Wildlife Service (USFWS)

E - Endangered
PE - Proposed for Endangered
T - Threatened
PT - Proposed for Threatened
C - Candidate for Endangered and/or Threatened
E (S/A) - Endangered due to similarity of appearance
T (S/A) - Threatened due to similarity of appearance

++State of Florida Status: Florida Fish and Wildlife Conservation Commission (FFWCC)

Animals:
E - Endangered
T - Threatened
SSC - Species of Special Concern
N - Not currently listed
FT - Federally threatened
ET - Federally endangered

Plants:
E- Endangered
T- Threatened
N- Not currently listed

***** Protected under the Bald and Golden Eagle Protection Act.

There is one (1) known bald eagle (*Haliaeetus leucocephalus*) nest within one (1) mile of the project sites for A-17 and A-18 (**Appendix A: Figures 17-20 of 38**). Bald eagles have not been observed and there is little suitable forging habitat on-site for this species. Due to the nature of this project, it is HSE's opinion that the proposed project will not adversely impact any suitable foraging habitat.

The sites are not within any nesting areas or critical habitat for the Everglade snail kite (*Rostrhamus sociabilis*). No snail kites were observed on-site, there is little suitable habitat, and it is HSE's opinion that the proposed project is not likely to adversely affect the Everglade snail kite **(Appendix A: Figure 21 of 38)**.

The sites are not within any known locations of the red-cockaded woodpecker (*Dryobates borealis*) and do not contain suitable habitat for this species (**Appendix A: Figure 22 of 38**).

Wood Stork Key for South Florida

A. Project within 0.76 km (0.47 mile)[2] of an active colony site[3]..... may affect[4]

Project impacts Suitable Foraging Habitat (SFH) at a location greater than 0.76 km (0.47 mile) from a colony site....."go to B"

Project does not affect SFH [5]..... "no effect.[1]"

B. Project impact to SFH is less than 0.20 hectare (0.5 acre)[6]....."NLAA[1]"

Project impact to SFH is greater in scope that 0.20 hectare (one-half acre)....."go to C"

C. Project impacts to SFH not within the CFA (29.9 km, 18.6 miles) of a colony site ..... "go to D"

Project impacts to SFH within the CFA of a colony site....."go to E"

D. Project impacts to SFH have been avoided and minimized to the extent practicable, and compensation (Service approved mitigation bank or as

provided in accordance with Mitigation Rule 33 CFR Part6 332) for unavoidable impacts is proposed in accordance with the CWA section 404(b)(1) guidelines and habitat compensation replaces the foraging value matching the hydroperiod[7] of the wetlands affected and provides foraging value similar to, or higher than, that of impacted wetlands. See Appendix 3 for a detailed discussion of the hydroperiod foraging values, an example, and further guidance[8]..... "NLAA"

Project not as above..... "may affect[4]"

E. Project provides SFH compensation in accordance with the CWA section 404(b)(1) guidelines and is not contrary to the HMG; habitat compensation is within the appropriate CFA or within the service area of a Service-approved mitigation bank; and habitat compensation replaces foraging value, consisting of wetland enhancement or restoration matching the hydroperiod[6] of the wetlands affected, and provides foraging value similar to, or higher than, that of impacted wetlands. See Appendix 3 for a detailed discussion of the hydroperiod foraging values, as example, and further guidance[8]..... "NLAA"

Project does not satisfy these elements..... "may affect"

End Key

***** This Wood Stork Key does not apply to Comprehensive Everglades Restoration Plan projects, as they will require project-specific consultations with the Service.

[1] With an outcome of "no effect" or "NLAA" as outlined in this key, and the project has less than 20.2 hectares (50 acres) of wetland impacts, the requirements of section 7 of the Act are fulfilled for the wood stork and no further action is required. For projects with greater than 20.2 hectares (50 acres) of wetland impacts, written concurrence of NLAA from the Service is necessary.

[2] Within the secondary zone (the average distance from the border of a colony to the limits of the secondary zone is 0.76 km (2,500 feet, or 0.47 mi).

[3] An active colony is defined as a colony that is currently being used for nesting by wood storks or has historically over the last 10 years been used for nesting by wood storks.

[4] Consultation may be concluded informally or formally depending on project impacts.

[5] Suitable foraging habitat (SFH) are wetland that typically have shallow-open water areas that are relatively calm and having a permanent or seasonal water depth between 5 to 38 cm (2 to 15 inches) deep. Other shallow non-wetland water bodies are also SFH. SFH supports and concentrates, or is capable of supporting and concentrating small fish, frogs, and other aquatic prey. Examples of SFH include, but are not limited to freshwater marshes, small ponds, shallow, seasonally flooded roadside or agricultural ditches, seasonally flooded pastures, narrow tidal creek or shallow tidal pools, managed impoundments, and depressions in cypress heads and swamp sloughs.

[6] On an individual basis, SFH impacts to wetlands less than 0.20 hectares (one-half acre) generally will not have a measurable effect on wood storks, although we request that the Corps require mitigation for these losses when appropriate. Wood storks are a wide ranging species, and individually, habitat change form impacts to SFH less than one-half acre are not likely to adversely affect wood storks. However, collectively they may have an effect and therefore regular monitoring and reporting of these effects are important.

[7] Several researchers (Fleming et al. 1994; Ceilley and Bortone 2000) believe that the short hydroperiod wetlands provide a more important pre-nesting foraging food source and a greater early nestling survivor value for wood storks than the foraging base (grams of fish per square meter) that short hydroperiod wetlands provide. Although the short hydroperiod wetlands may provide less fish, these prey bases historically were more extensive and met the foraging needs of the pre-nesting storks and the early-age nestlings. Nest productivity may suffer as a result of the loss of short hydroperiod wetlands. We believe that most wetland fill and excavation impacts permitted in south Florida are in short hydroperiod wetlands. Therefore, we believe that it is especially important that impacts to these shore hydroperiod wetlands within CFAs are avoided, minimized, and compensated fro by enhancement/restoration of short hydroperiod wetlands.

[8] For this Key, the Service requires an analysis of foraging prey base losses and enhancements from the proposed action as shown in the examples in Appendix 3 for projects with greater that 2.02 hectares (5 acres) of wetland impacts. For projects with less that 2.02 hectares (5 acres) of wetland impacts, an individual foraging prey base analysis is not necessary although type for type wetland compensation is still a requirement of the Key.

Due to the nature of this project, the replacement of the water control structures will only temporarily affect wood stork habitat. The amount of SFH will be the same after completion compared to the amount before, so total acreage will not change. In addition, the amount of acreage affected will be, in total, less than half an acre. Therefore, a determination of "no effect" is made for this species.

The sites are not within any known locations of the Florida scrub-jay (*Aphelocoma coerulescens*) and do not contain suitable habitat. No scrub-jays were observed on-site (**Appendix A: Figure 23 of 38**), so a Florida scrub-jay survey will not be necessary.

The sites are not within 1,500 meters of any crested caracara (*Caracara cheriway*) nests (**Appendix A: Figure 24 of 38**). No crested caracara have been observed and these sites do not contain suitable nesting habitat.

The project sites are not within the vicinity of a known burrowing owl (*Athene cunicularia*) location (**Appendix A: Figure 25 of 38**). These birds tend to live in treeless areas such as open prairies, agriculture fields, and airports where they feed primarily on insects and small lizards. Based on the habitat and observations made during the site visit, it is HSE's opinion that the proposed project will not impact the burrowing owl.

3.02 FWC Florida Land Cover Classification System (FLCCS)

Vegetation associations present on-site were mapped using the *Florida Land Cover Classification System* and comparing it to the *Cooperative Land Cover* (CLC) map. The classifications used to represent the closest facsimile possible to the natural community present. The vegetation maps are depicted in **Appendix A: Figures 26-29 of 38.**

1860 - <u>Utilities (±1.09 acres)</u>

Each site has a water control structure that controls the amount of water flowing in and out of the OSWs on and off site. These structures are to be replaced in order to maintain the integrity of the water management system and to prevent anymore irreversible deterioration. The area around these structures consists of mowed grasses such as bahia (*Paspalum notatum*), Bermuda (*Cynodon dactylon*), and St. Augustine (*Stenotaphrum secundatum*). Along the edge of the property lines of each parcel the following species were observed: slash pine (*Pinus elliottii*), Brazilian pepper (*Schinus terebinthifolia*), earleaf acacia (*Acacia auriculiformis*), live oak (*Quercus virginiana*), and cabbage palm (*Sabal palmetto*).

4220 - <u>Ditch/ Artificial Intermittent Stream (±0.76 acres)</u>

There is one ditch/OSW at each site. A-16 and A-17's ditches flow under SW Paar Drive and both are populated by lance-leaved arrowhead (*Sagittaria lancifolia*), water hyssop (*Bacopa monnieri*), and jointed spikerush (*Eleocharis interstincta*). A-18 is located just west of Florida's turnpike and is populated by water lettuce (*Pistia stratiotes*), wild taro (*Colocasia esculenta*), and spatterdock (*Nuphar lutea*).

3.02.1 <u>Tree Protection</u>

The City of Port St. Lucie Landscape and Land Clearing Code, Chapter 154, Article II, states that no person shall remove or alter protected vegetation from or on any lot or parcel of land within the City of Port St. Lucie without first obtaining a Tree Removal Permit. No permit is required to remove non-native invasive or undesirable species Section154.03(L). All native trees are protected. The term "protected tree" shall apply to any tree having a D.B.H. of 12 inches or greater, any replacement tree, and any tree that is represented in a landscape plan, street tree planting plan, or other planning document for the purposes of securing an approved building permit, clearing permit, or certificate of occupancy. Section 154.16. states that any tree removal permit shall require a mitigation plan. Any tree which is the

subject of a mitigation plan shall be replaced at a ratio of one inch D.B.H. for each inch of D.B.H. removed. It is HSE's opinion that there are protected trees adjacent to the sites, but they will not be affected by this project.

3.03 Jurisdictional Wetlands

It is HSE's professional opinion that there are zero (0) jurisdictional wetlands and three (3) "Other Surface Waters" (OSWs) that occur on the project site **(Appendix A: Figures 30-33 of 38)**. OSW A is ±0.18 acres, OSW B is ±0.25 acres, and OSW C is ±0.33 acres. All construction shall be conducted utilizing Best Management Practices (BMP) to prevent any and all potential impacts to OSWs. Silt fences and turbidity curtains will be utilized wherever necessary to prevent turbid conditions from impacting adjacent waterways. Due to the replacement of the water control structures, the OSWs will only be temporarily affected by construction. The wetlands and OSWs have not yet been verified by State or Federal agencies.

3.04 Soils

NRCS soil types are mapped in **Appendix A: Figures 34-37 of 38** and **Table 3** below. The USDA, NRCS, has mapped the surficial soil types within the project site. The resulting soil delineations were published in the *Soil Survey of St. Lucie County Area, Florida*, 30 September 2023. Detailed and complete descriptions of each of these soil communities are presented in the St. Lucie County Soil Survey, and therefore are not included herein. However, a general description of the soils is included in **Table 3**. This table also lists associated plants as excerpted from the NRCS published data. Soil types mapped by the NRCS are generally limited to the upper 60 to 72 inches of the soil profile and are distinguished by several factors. These factors include soil drainage, topography, presence or absence of restrictive or clayey hardpan type soils, and the depth and range in fluctuation of the groundwater table associated with each soil type.

Table 3: Soil Descriptions*

A-16 Soil Table

Map Unit #	Map Unit Name	Order	Suborder	Drainage	Hydric Rating	Hydric Group	Associated Plants	
							Scientific Name	Common Name
08	Basinger sand, 0 to 2 percent slopes	Entisols	Aqents	Poorly drained	Yes	A/D	*Aristida stricta*	pineland threeawn
							Andropogon virginicus var. glaucus	chalky bluestem
							Amphicarpum muehlenbergianum	blue maidencane
							Panicum tenerum	bluejoint panicum
							Spartina bakeri	sand cordgrass
50	Waveland and Immokalee fine sands	Spodosols	Aquods	Poorly drained	No	C/D	*Quercus pumila*	running oak
							Ilex glabra	inkberry
							Aristida stricta	pineland threeawn
							Morella cerifera	wax myrtle
							Serenoa repens	saw palmetto
99	Water							

A-17 Soil Table

Map Unit #	Map Unit Name	Order	Suborder	Drainage	Hydric Rating	Hydric Group	Associated Plants	
							Scientific Name	Common Name
29	Pendarvis and Pomello sands, 0 to 5 percent slopes	Spodosols	Orthods	Moderately well drained	No	A	*Paspalum*	paspalum
							Panicum	panicum
							Aristida stricta	pineland threeawn
							Psnicum virgatum	switchgrass
							Serenoa repens	saw palmetto
50	Waveland and Immokalee fine sands	Spodosols	Aquods	Poorly drained	No	C/D	*Quercus pumila*	running oak
							Ilex glabra	inkberry
							Aristida stricta	pineland threeawn
							Morella cerifera	wax myrtle
							Serenoa repens	saw palmetto
99	Water							

Table 3. Soil Descriptions*

A-18 Soil Table

Map Unit #	Map Unit Name	Order	Suborder	Drainage	Hydric Rating	Hydric Group	Associated Plants	
							Scientific Name	Common Name
39	Salerno and Punta sands	Spodosols	Aquods	Poorly drained	No	A/D	*Aristida stricta*	pineland threeawn
							Lyonia lucida	fetterbush lyonia
							Serenoa repens	saw palmetto
							Panicum	panicum
							Schizachyrium stoloniferum	creeping bluestem
99	Water							

*Source: U.S. Department of Agriculture, Soil Conservation Service, Soil Survey of St. Lucie County Area, Florida; September 2023.

3.05 Topography

According to the *United States Geographical Survey (USGS)* website *(*https://ngmdb.usgs.gov/topoview/ *)* and Betsy Lindsay, Inc., A-16, A-17, and A-18 range from 10'-17', 9'-15', and 4'-18' NGVD, respectively. **Appendix A: Figure 38 of 38** depicts the USGS Topographic Map for the project site.

4.00 CONCLUSIONS

- There are zero (0) potentially occupied gopher tortoise burrows located during the pedestrian transects. The estimated gopher tortoise population is zero (0).
- No eastern indigo snakes were observed on-site by HSE biologists and there is no suitable habitat. The key has determined that the proposed project will have "no effect" on this species.
- The project site is within the core foraging area of three (3) wood stork colonies. However, the proposed project will only replace the existing water control structures and will not have a negative affect on suitable foraging habitat. It is therefore HSE's professional opinion that this project will have "no effect" on this species.
- There is one (1) known bald eagle nest within a one (1) mile radius of the A-17 and A-18 structures. It is HSE's opinion that the proposed project will not adversely affect any eagle nests or foraging activities during the proposed project.
- It is HSE's opinion that the proposed project is not likely to adversely affect the Florida pine snake, Everglade snail kite, crested caracara, nor the red-cockaded woodpecker. There is little to no suitable habitat on-site for these any of these species, and none were observed on-site.
- No Florida scrub-jays were observed on-site and suitable habitat does not exist, so a scrub-jay survey is not recommended.
- Vegetation associations present on-site were mapped using the *Cooperative Land Cover* map and the *Florida Land Cover Classification System.*
- Protected trees are not slated to be affected by the proposed project, but if they are, then a vegetation removal permit will be needed.
- Zero (0) jurisdictional wetlands and three (3) OSWs occur within the project boundaries. This site has not yet been verified by State or Federal agencies.
- The surficial soils within the project site were mapped according to the NRCS.
- Site elevations range from 8'-18' NGVD according to the USGS.
- Site photographs can be found in **Appendix B**.

APPENDIX A

PROJECT FIGURES

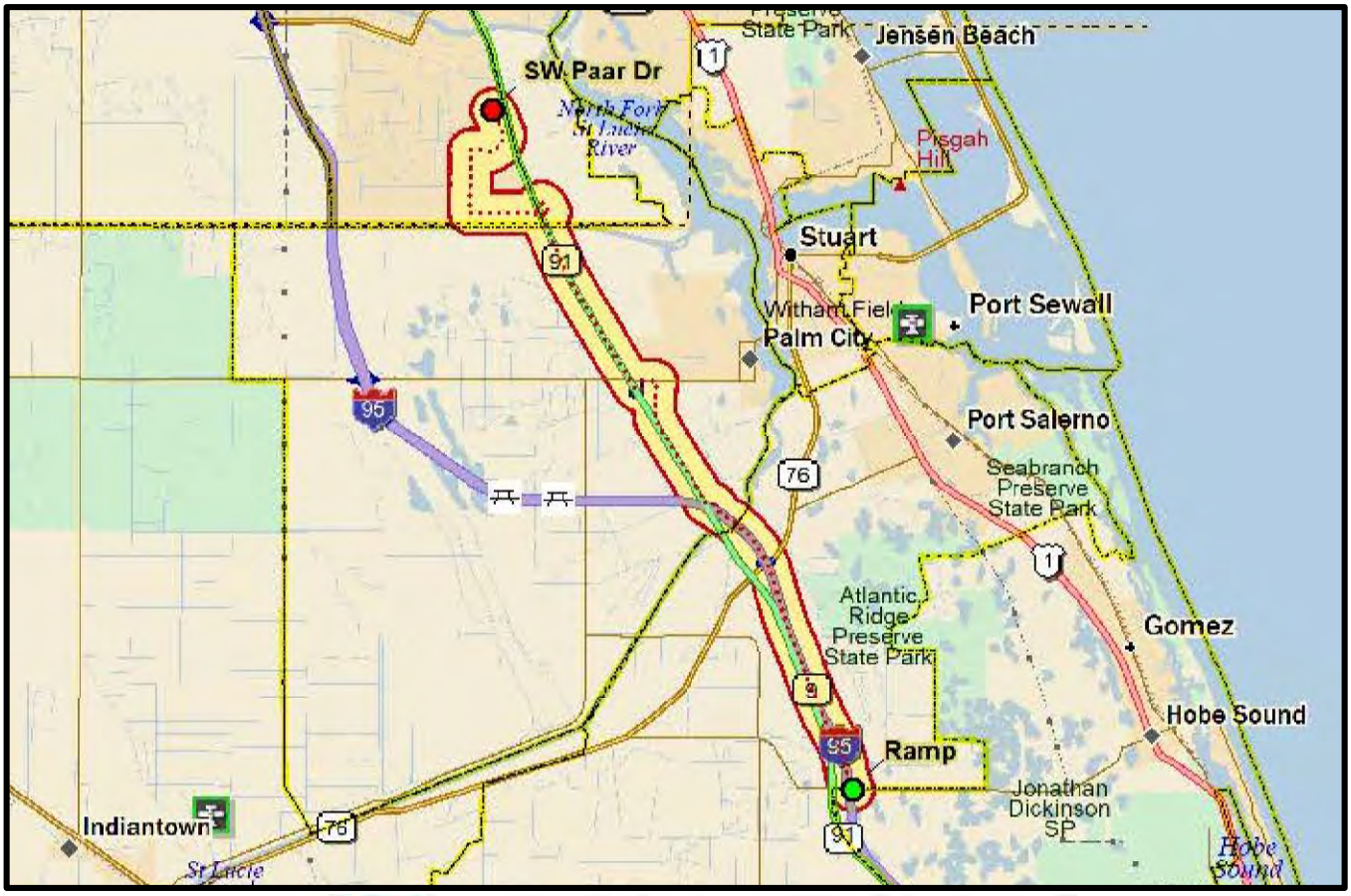
NOT A LAND BOUNDARY SURVEY

CAPTEC Engineering, Inc.
Civil Engineering Professionals
• 300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business
No. EB-0007657

NORTH

0' 10,000' 20,000' 40,000' 80,000'

SCALE: 1" = 20,000'



DeLorme — Ramp to SW Paar Dr - Directions — DeLorme Street Atlas USA® 2014

	Dist	Turn		Road	Exit	Total Time	Total Dist
●		Start	at	Ramp		00:00:00	0.00 mi
		Go straight (W)	on	CR 708 (SE Bridge Rd)		00:00:00	0.00 mi
	In 0.02 mi	Turn right (N)	on to	I-95 N (SR 9) ramp		00:00:01	0.02 mi
	In 0.04 mi	Keep left (NNW)	on	I-95 N (SR 9) ramp		00:00:04	0.06 mi
	In 6.15 mi	Keep right (NW)	on to	CR 713 (SW High Meadows Ave) ramp	102	00:06:20	6.20 mi
	In 0.43 mi	Keep right (NNW)	on to	CR 713 (SW High Meadows Ave)		00:06:58	6.64 mi
	In 1.33 mi	Go straight (NNW)	on to	SW High Meadows Ave		00:10:08	7.97 mi
	In 1.33 mi	Turn left (W)	on to	CR 714 (SW Martin Hwy)		00:13:16	9.30 mi
	In 0.27 mi	Turn left (S)	on to	Florida's Tpke (SR 91) ramp		00:13:58	9.57 mi
	In 0.15 mi	Keep right (NNW)	on	Florida's Tpke (SR 91) ramp		00:14:21	9.72 mi
	In 4.22 mi	Keep right (ESE)	on to	SE Becker Rd ramp	138	00:18:52	13.94 mi
	In 0.41 mi	Turn right (W)	on to	SE Becker Rd		00:19:28	14.35 mi
	In 0.20 mi	Go straight (W)	on to	SW Becker Rd		00:19:48	14.55 mi
	In 1.38 mi	Turn right (N)	on to	SW Darwin Blvd		00:23:32	15.93 mi
	In 1.25 mi	Turn right (NNE)	on to	SW Paar Dr		00:26:55	17.18 mi
●	In 1.40 mi	Finish	at	SW Paar Dr		00:32:30	18.58 mi

Total Time: 00:32:30 Total Distance: 18.58 mi

SOURCE: DELORME STREET ATLAS USA, 2015

PARCEL ID #:4420-800-0003-000-9, 3420-680-0006-010-4, 3420-680-0003-000-0

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 23 - 036.01	DRAWING NAME: 01 - VIC MAP.DWG	DATE: 05 OCTOBER 2023	APPENDIX A FIGURE: 1 OF 38
	20,21,28	37S	40E				
LATITUDE: 27°14'24.215" (NORTH) TO LATITUDE: 27°13'58.337" (SOUTH)		LONGITUDE: -80°21'07.747" (NORTH) TO LONGITUDE: -80°20'45.683" (SOUTH)			DESIGNED BY: RLW	DRAWN BY: RLM	CHECKED BY: FRP

CAPTEC ENGINEERING, INC.
PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18
WETLAND AND WILDLIFE ASSESSMENT (WWA)
PROJECT VICINITY MAP

HSE Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

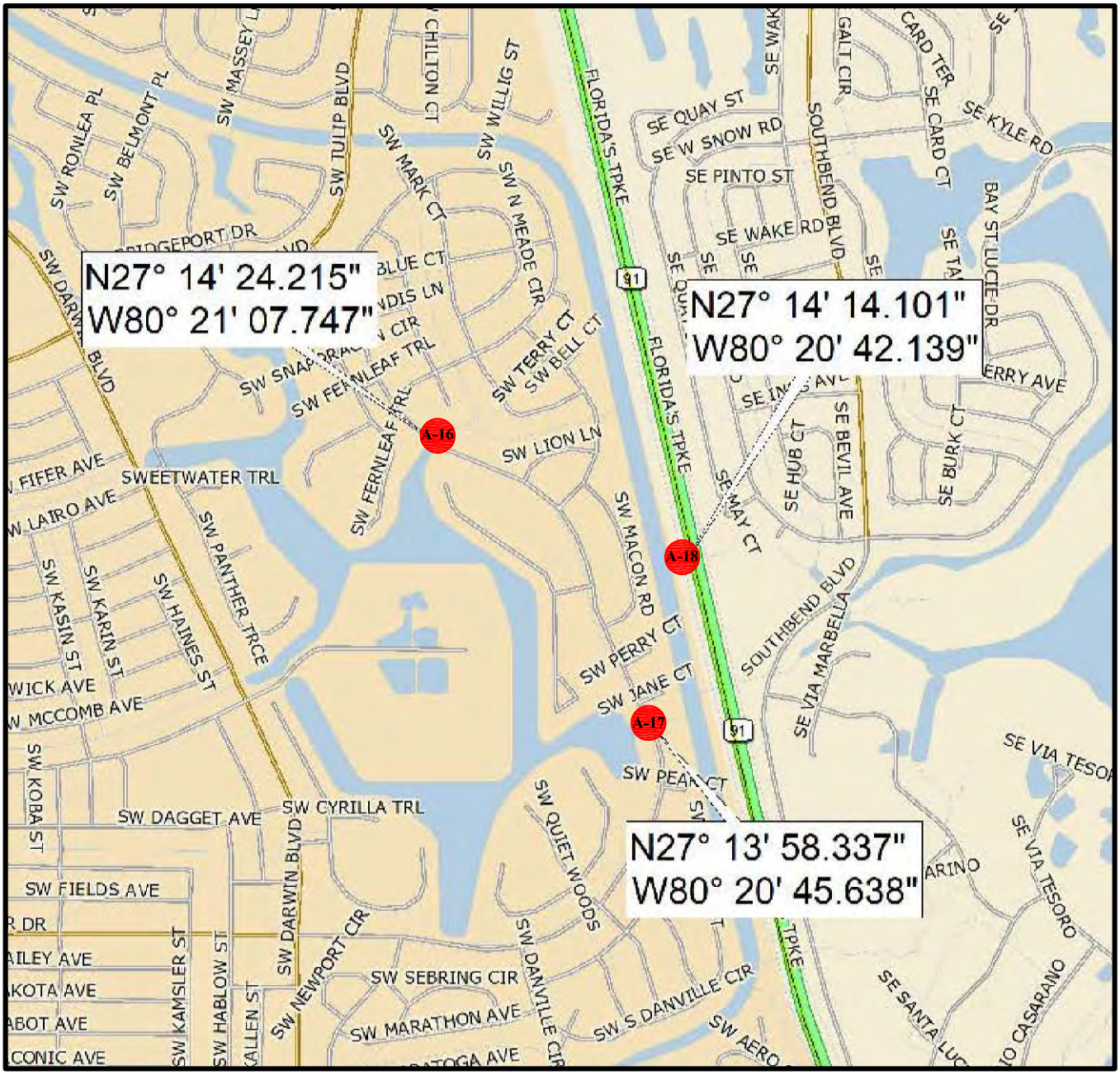
NOT A LAND BOUNDARY SURVEY

CAPTEC Engineering, Inc.
Civil Engineering Professionals
300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business No. EB-0007657

NORTH

0' 750' 1,500' 3,000' 6,000'

SCALE: 1" = 1,500'



SOURCE: DELORME STREET ATLAS USA, 2015

PARCEL ID #:4420-800-0003-000-9, 3420-680-0006-010-4, 3420-680-0003-000-0

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 23 - 036.01	DRAWING NAME: 02 - LOC MAP.DWG	DATE: 05 OCTOBER 2023	APPENDIX A FIGURE: 2 OF 38
	20,21,28	37S	40E				
LATITUDE: 27°14'24.215" (NORTH) TO LATITUDE: 27°13'58.337" (SOUTH)		LONGITUDE: -80°21'07.747" (NORTH) TO LONGITUDE: -80°20'45.683" (SOUTH)			DESIGNED BY: RLW	DRAWN BY: RLM	CHECKED BY: FRP

CAPTEC ENGINEERING, INC.
PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18
WETLAND AND WILDLIFE ASSESSMENT (WWA)
PROJECT LOCATION MAP

HSE Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

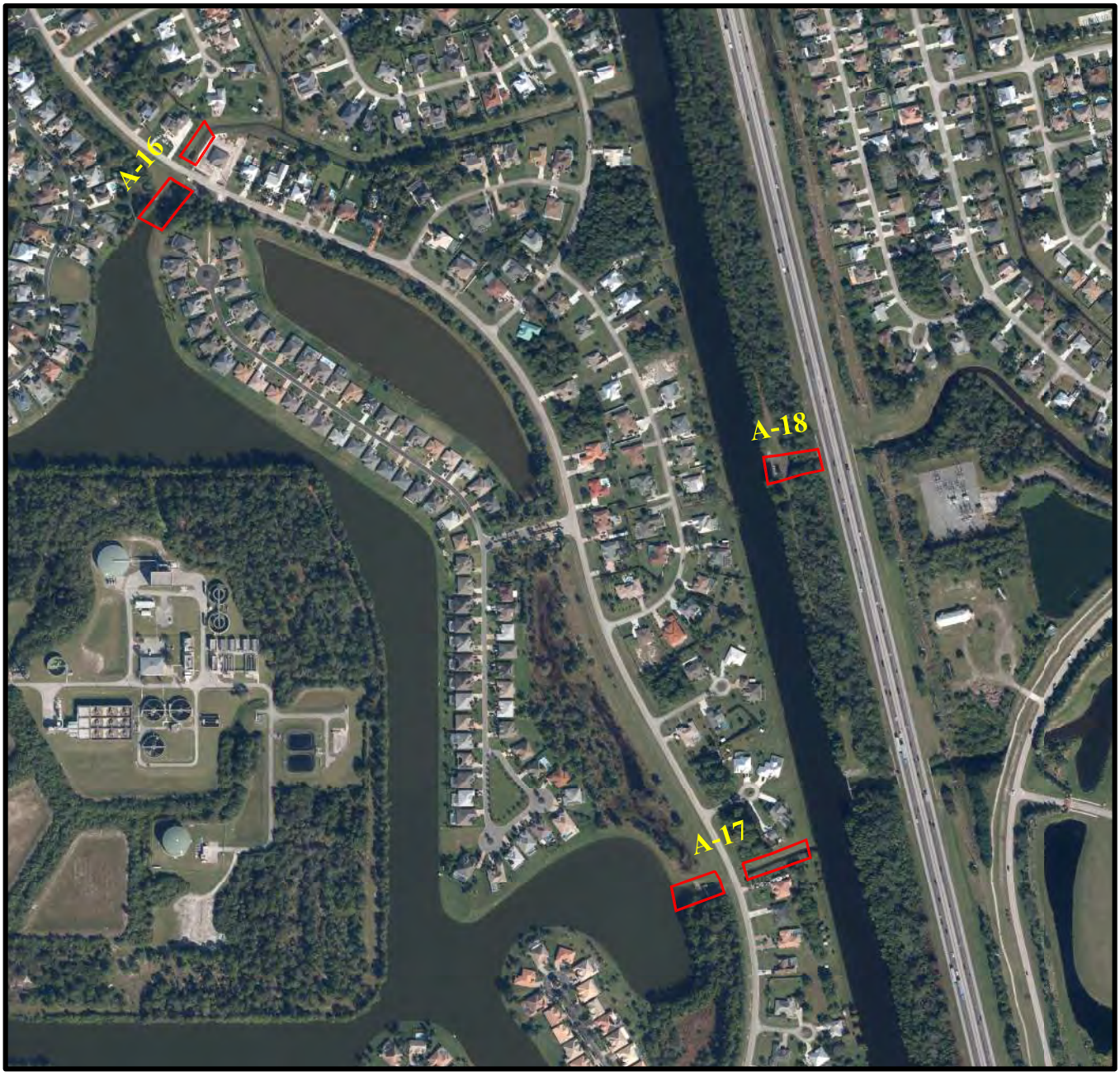
NOT A LAND BOUNDARY SURVEY

CAPTEC Engineering, Inc.
Civil Engineering Professionals
300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business
No. EB-0007657

NORTH

0' 300' 600' 1,200' 2,400'

SCALE: 1" = 600'



SOURCE: 2023 FDOT AERIAL PHOTOGRAPH

PARCEL ID #:4420-800-0003-000-9, 3420-680-0006-010-4, 3420-680-0003-000-0

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 23 - 036.01	DRAWING NAME: 03 - 2023 AERIAL.DWG	DATE: 05 OCTOBER 2023	APPENDIX A FIGURE: 3 OF 38
	20,21,28	37S	40E				
LATITUDE: 27°14'24.215" (NORTH) TO LATITUDE: 27°13'58.337" (SOUTH)	LONGITUDE: -80°21'07.747" (NORTH) TO LONGITUDE: -80°20'45.683" (SOUTH)				DESIGNED BY: RLW	DRAWN BY: DMB	CHECKED BY: FRP

CAPTEC ENGINEERING, INC.
PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18
WETLAND AND WILDLIFE ASSESSMENT (WWA)
FDOT 2023 AERIAL PHOTOGRAPH KEY MAP

HSE
Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

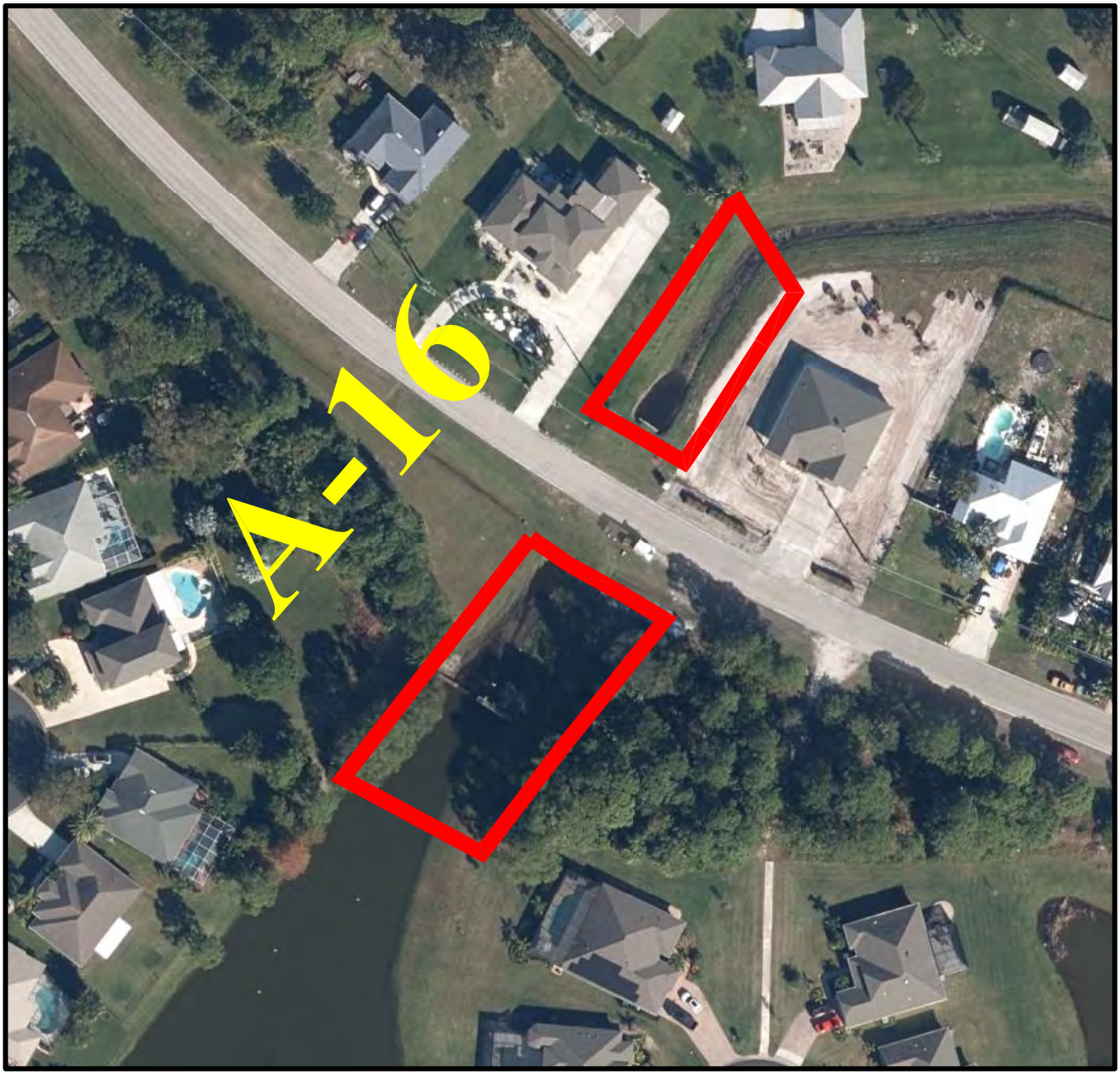
NOT A LAND BOUNDARY SURVEY

CAPTEC Engineering, Inc.
Civil Engineering Professionals
300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business No. EB-0007657

NORTH

0' 50' 100' 200' 400'

SCALE: 1" = 100



SOURCE: 2023 FDOT AERIAL PHOTOGRAPH

PARCEL ID #:4420-133-0001-000-8

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 23 - 036.01	DRAWING NAME: 04 - 2023 AERIAL.DWG	DATE: 05 OCTOBER 2023	APPENDIX A FIGURE: 4 OF 38
	20	37S	40E				
LATITUDE: 27°14'24.215"	LONGITUDE: -80°21'07.747"				DESIGNED BY: RLW	DRAWN BY: DMB	CHECKED BY: FRP

CAPTEC ENGINEERING, INC.
PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18
WETLAND AND WILDLIFE ASSESSMENT (WWA)
A - 16 FDOT 2023 AERIAL PHOTOGRAPH

HSE
Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

NOT A LAND BOUNDARY SURVEY

CAPTEC Engineering, Inc.
Civil Engineering Professionals
300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business No. EB-0007657

NORTH

0' 50' 100' 200' 400'

SCALE: 1" = 100'

SOURCE: 2023 FDOT AERIAL PHOTOGRAPH

PARCEL ID #:3420-680-0006-010-4

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 23 - 036.01	DRAWING NAME: 05 - 2023 AERIAL.DWG	DATE: 05 OCTOBER 2023	APPENDIX A FIGURE: 5 OF 38
	28	37S	40E				
LATITUDE: 27°13'58.337"		LONGITUDE: -80°20'45.683"			DESIGNED BY: RLW	DRAWN BY: DMB	CHECKED BY: FRP

CAPTEC ENGINEERING, INC.
PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18
WETLAND AND WILDLIFE ASSESSMENT (WWA)
A - 17 FDOT 2023 AERIAL PHOTOGRAPH

HSE Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

NOT A LAND BOUNDARY SURVEY

CAPTEC Engineering, Inc.
Civil Engineering Professionals
300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business
No. EB-0007657

NORTH

0' 50' 100' 200' 400'

SCALE: 1" = 100'

SOURCE: 2023 FDOT AERIAL PHOTOGRAPH

PARCEL ID # 3420-680-0003-000-0

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 23 - 036.01	DRAWING NAME: 06 - 2023 AERIAL.DWG	DATE: 05 OCTOBER 2023	APPENDIX A FIGURE: 6 OF 38
	21	37S	40E				
LATITUDE: 27°14'14.101"	LONGITUDE: -80°20'42.139"				DESIGNED BY: RLW	DRAWN BY: DMB	CHECKED BY: FRP

CAPTEC ENGINEERING, INC.
PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18
WETLAND AND WILDLIFE ASSESSMENT (WWA)
A - 18 FDOT 2023 AERIAL PHOTOGRAPH

HSE
Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

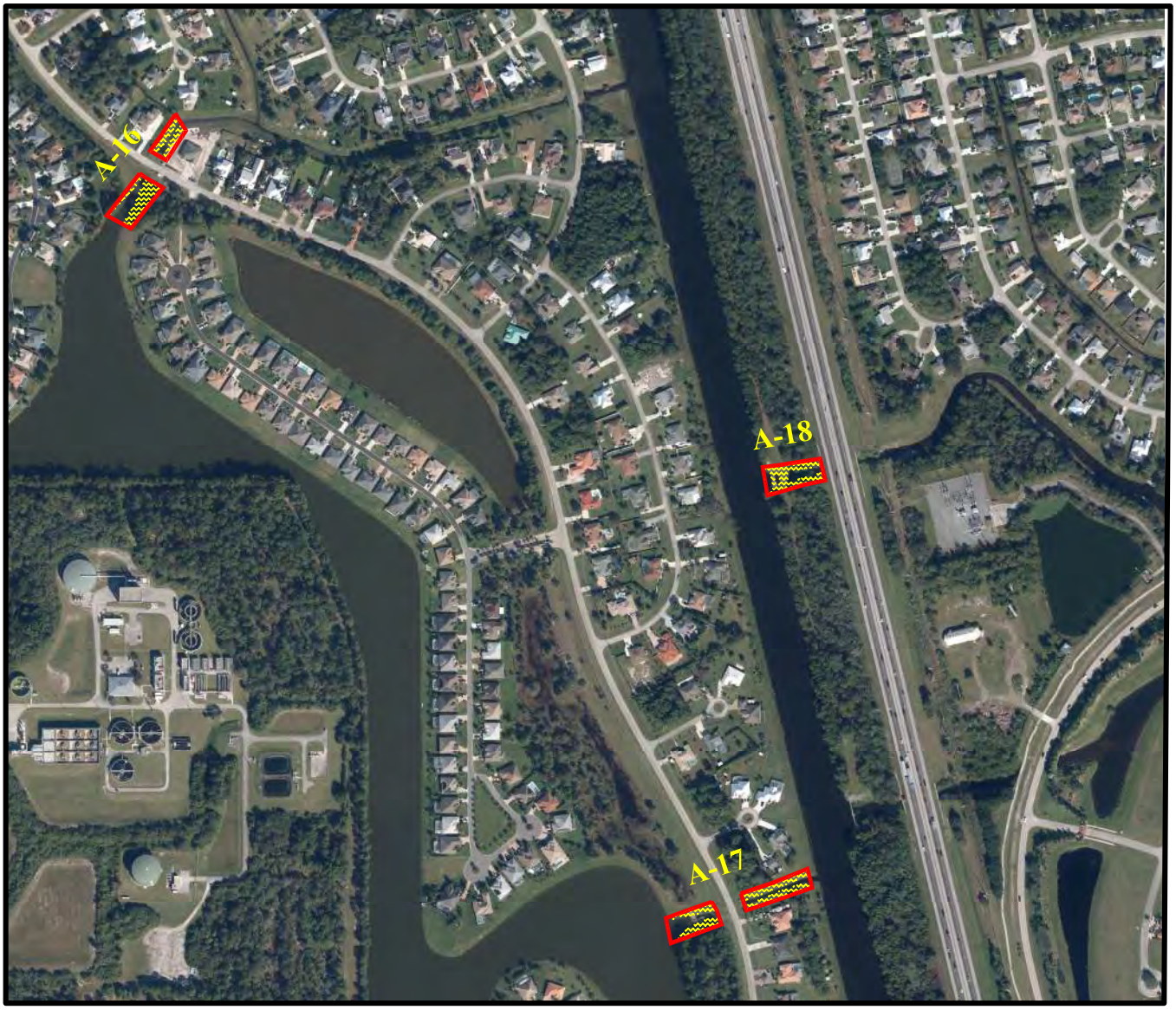
NOT A LAND BOUNDARY SURVEY

CAPTEC Engineering, Inc.
Civil Engineering Professionals
300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business
No. EB-0007657

NORTH

0' 300' 600' 1,200' 2,400'

SCALE: 1" = 600'



LEGEND:

- PEDESTRIAN SERPENTINE TRANSECTS

SOURCE: 2023 FDOT AERIAL & HSE

PARCEL ID #:4420-800-0003-000-9, 3420-680-0006-010-4, 3420-680-0003-000-0

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 23 - 036.01	DRAWING NAME: 07 - PED TRANS.DWG	DATE: 05 OCTOBER 2023	APPENDIX A FIGURE: 7 OF 38
	20,21,28	37S	40E				
LATITUDE: 27°14'24.215" (NORTH) TO LATITUDE: 27°13'58.337" (SOUTH)				LONGITUDE: -80°21'07.747" (NORTH) TO LONGITUDE: -80°20'45.683" (SOUTH)	DESIGNED BY: RLW	DRAWN BY: DMB	CHECKED BY: FRP

CAPTEC ENGINEERING, INC.
PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18
WETLAND AND WILDLIFE ASSESSMENT (WWA)
PEDESTRIAN SERPENTINE TRANSECT KEY MAP

HSE
Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

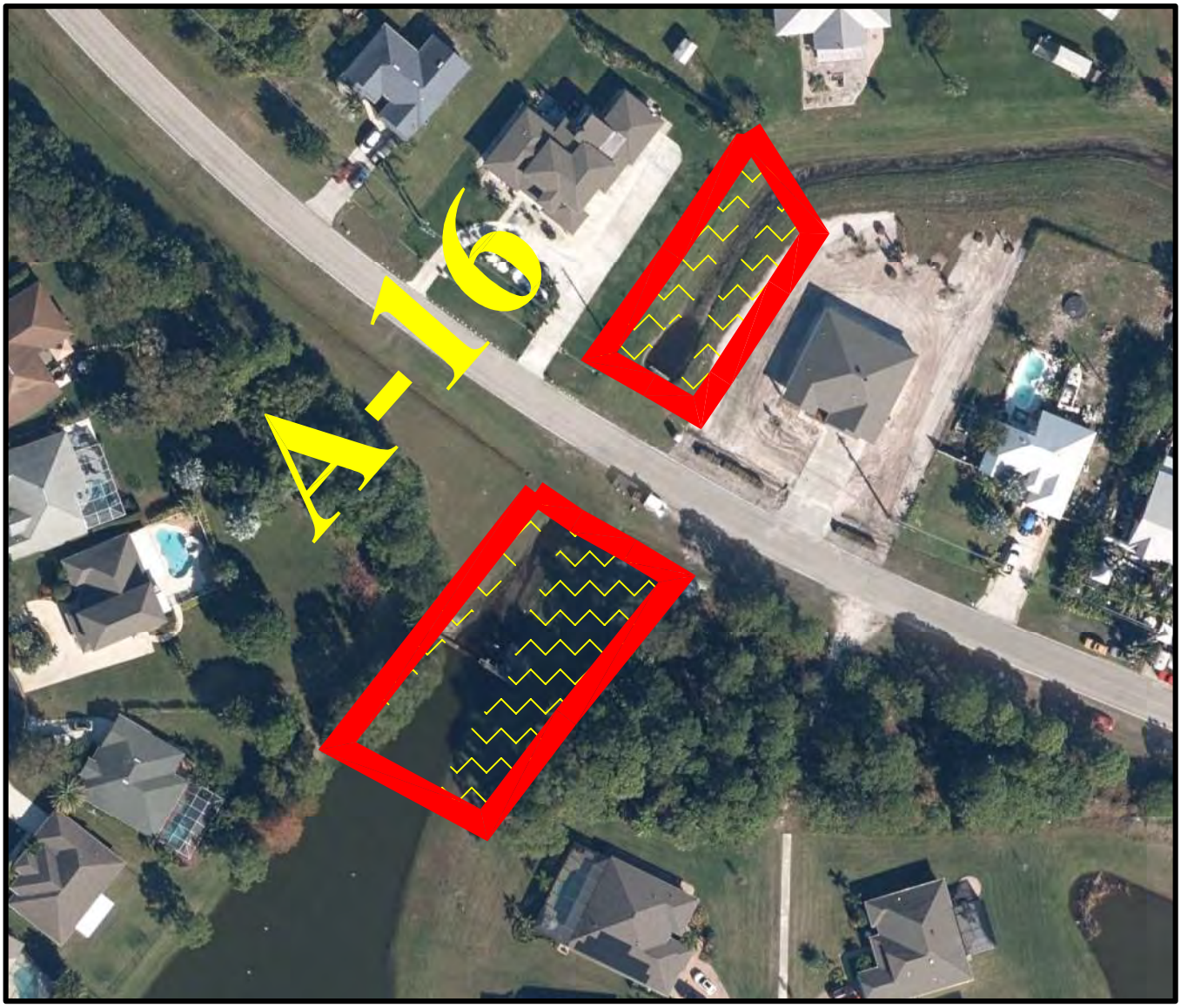
NOT A LAND BOUNDARY SURVEY

CAPTEC Engineering, Inc.
Civil Engineering Professionals
300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business No. EB-0007657

NORTH

0' 50' 100' 200' 400'

SCALE: 1" = 100'



LEGEND:

- PEDESTRIAN SERPENTINE TRANSECT

SOURCE: 2023 FDOT AERIAL & HSE

PARCEL ID #:4420-133-0001-000-8

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 23 - 036.01	DRAWING NAME: 08 - PED TRANS.DWG	DATE: 05 OCTOBER 2023	APPENDIX A FIGURE: 8 OF 38
	20	37S	40E				
LATITUDE: 27°14'24.215"		LONGITUDE: -80°21'07.747"		DESIGNED BY: RLW	DRAWN BY: DMB	CHECKED BY: FRP	

CAPTEC ENGINEERING, INC.
PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18
WETLAND AND WILDLIFE ASSESSMENT (WWA)
A - 16 PEDESTRIAN SERPENTINE TRANSECT MAP

HSE
Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

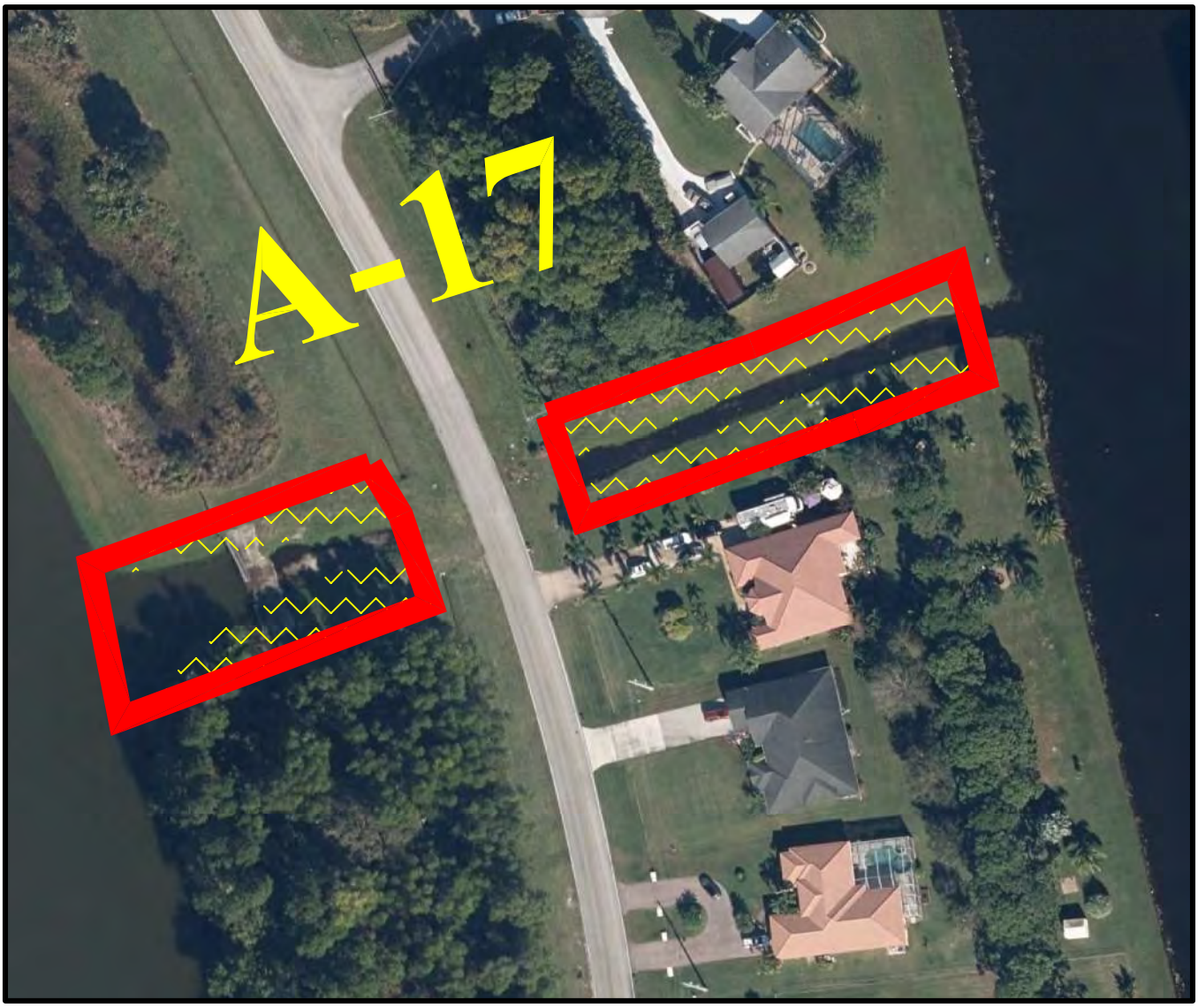
NOT A LAND BOUNDARY SURVEY

CAPTEC Engineering, Inc.
Civil Engineering Professionals
300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business
No. EB-0007657

NORTH

0' 50' 100' 200' 400'

SCALE: 1" = 100'



LEGEND:

- PEDESTRIAN SERPENTINE TRANSECT

SOURCE: 2023 FDOT AERIAL & HSE

PARCEL ID #:3420-680-0006-010-4

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 23 - 036.01	DRAWING NAME: 09 - PED TRANS.DWG	DATE: 05 OCTOBER 2023	APPENDIX A FIGURE: 9 OF 38
	28	37S	40E				
LATITUDE: 27°13'58.337"		LONGITUDE: -80°20'45.683"		DESIGNED BY: RLW	DRAWN BY: DMB	CHECKED BY: FRP	

CAPTEC ENGINEERING, INC.
PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18
WETLAND AND WILDLIFE ASSESSMENT (WWA)
A - 17 PEDESTRIAN SERPENTINE TRANSECT MAP

HSE
Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

NOT A LAND BOUNDARY SURVEY

CAPTEC Engineering, Inc.
Civil Engineering Professionals
300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business No. EB-0007657

NORTH

0' 50' 100' 200' 400'

SCALE: 1" = 100'

LEGEND:

- PEDESTRIAN SERPENTINE TRANSECT

SOURCE: 2023 FDOT AERIAL & HSE

PARCEL ID # 3420-680-0003-000-0

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 23 - 036.01	DRAWING NAME: 10 - PED TRANS.DWG	DATE: 05 OCTOBER 2023	APPENDIX A FIGURE: 10 OF 38
	21	37S	40E				
LATITUDE: 27°14'14.101"	LONGITUDE: -80°20'42.139"				DESIGNED BY: RLW	DRAWN BY: DMB	CHECKED BY: FRP

CAPTEC ENGINEERING, INC.
PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18
WETLAND AND WILDLIFE ASSESSMENT (WWA)
A - 18 PEDESTRIAN SERPENTINE TRANSECT MAP

HSE
Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

NOT A LAND BOUNDARY SURVEY

CAPTEC Engineering, Inc.
Civil Engineering Professionals
300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business
No. EB-0007657

NORTH

0' 300' 600' 1,200' 2,400'

SCALE: 1" = 600'

LEGEND:

- ACTIVE (0) POTENTIALLY OCCUPIED
- INACTIVE (0) POTENTIALLY OCCUPIED
- ABANDONED (0)

I HEREBY CERTIFY THAT:
A 100% SURVEY FOR GOPHER TORTOISES WAS CONDUCTED ON 10 OCTOBER 2023, ACCORDING TO FWC GUIDELINES.
ZERO (0) POTENTIALLY OCCUPIED GOPHER TORTOISE BURROWS WERE LOCATED DURING THE SURVEY. THE ESTIMATED GOPHER TORTOISE POPULATION IS 0.
DYLAN M. BARBER, GTA-21-00011A

SOURCE: HSE GOPHER TORTOISE SURVEY DATE: 10 OCTOBER 2023

PARCEL ID #:4420-800-0003-000-9, 3420-680-0006-010-4, 3420-680-0003-000-0

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 23 - 036.01	DRAWING NAME: 11 - GT BURROW.DWG	DATE: 05 OCTOBER 2023	APPENDIX A FIGURE: 11 OF 38
	20,21,28	37S	40E				
LATITUDE: 27°14'24.215" (NORTH) TO LATITUDE: 27°13'58.337" (SOUTH)				LONGITUDE: -80°21'07.747" (NORTH) TO LONGITUDE: -80°20'45.683" (SOUTH)	DESIGNED BY: RLW	DRAWN BY: DMB	CHECKED BY: FRP

CAPTEC ENGINEERING, INC.
PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18
WETLAND AND WILDLIFE ASSESSMENT (WWA)
100% GOPHER TORTOISE (Gopherus polyphemus) SURVEY
BURROW LOCATION KEY MAP

HSE
Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

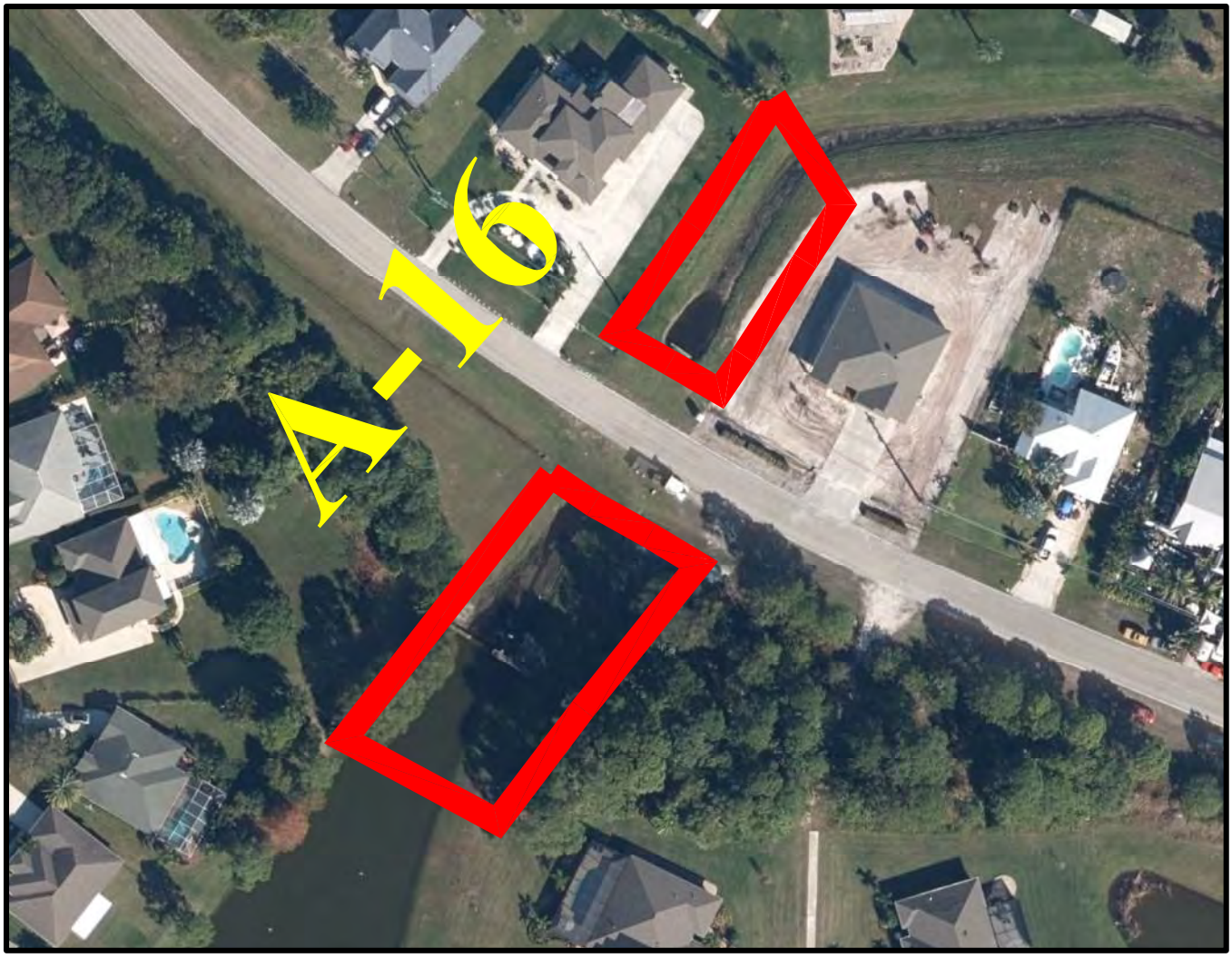
NOT A LAND BOUNDARY SURVEY

CAPTEC Engineering, Inc.
Civil Engineering Professionals
• 300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business
No. EB-0007657

NORTH

0' 50' 100' 200' 400'

SCALE: 1" = 100'



LEGEND:

- ACTIVE (0) POTENTIALLY OCCUPIED
- INACTIVE (0) POTENTIALLY OCCUPIED
- ABANDONED (0)

I HEREBY CERTIFY THAT:
A 100% SURVEY FOR GOPHER TORTOISES WAS CONDUCTED ON 10 OCTOBER 2023, ACCORDING TO FWC GUIDELINES.
ZERO (0) POTENTIALLY OCCUPIED GOPHER TORTOISE BURROWS WERE LOCATED DURING THE SURVEY. THE ESTIMATED GOPHER TORTOISE POPULATION IS 0.
DYLAN M. BARBER, GTA-21-00011A

SOURCE: HSE GOPHER TORTOISE SURVEY DATE: 10 OCTOBER 2023

PARCEL ID #:4420-133-0001-000-8

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.:	DRAWING NAME:	DATE:	APPENDIX A FIGURE:
	20	37S	40E	23 - 036.01	12 - GT BURROW.DWG	05 OCTOBER 2023	12 OF 38

LATITUDE: 27°14'24.215"	LONGITUDE: -80°21'07.747"	DESIGNED BY: RLW	DRAWN BY: DMB	CHECKED BY: FRP

CAPTEC ENGINEERING, INC.
PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18
WETLAND AND WILDLIFE ASSESSMENT (WWA)
100% GOPHER TORTOISE (Gopherus polyphemus) SURVEY
A - 16 BURROW LOCATION MAP

HSE Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

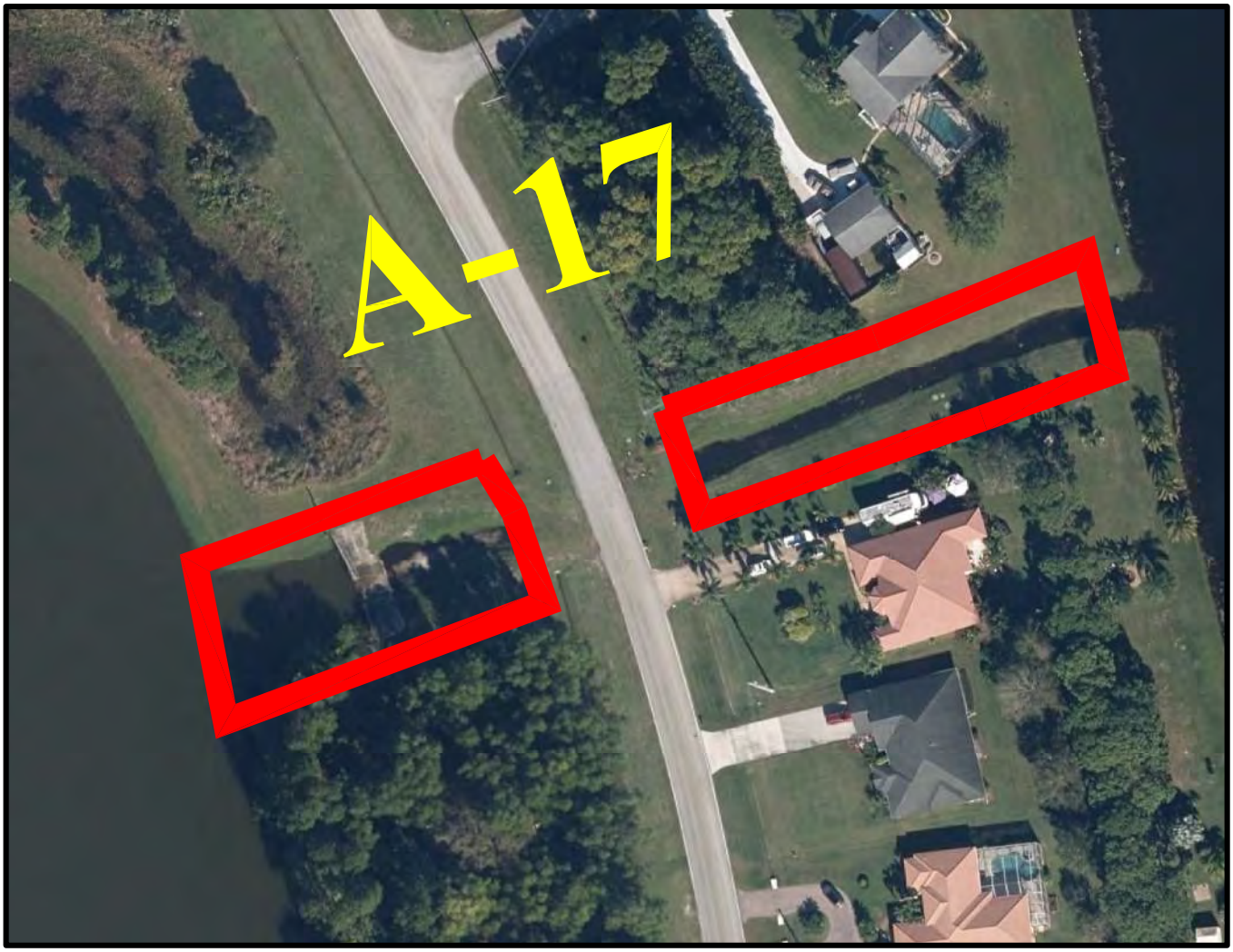
NOT A LAND BOUNDARY SURVEY

CAPTEC Engineering, Inc.
Civil Engineering Professionals
300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business
No. EB-0007657

NORTH

0' 50' 100' 200' 400'

SCALE: 1" = 100'



LEGEND:

- ACTIVE (0) POTENTIALLY OCCUPIED
- INACTIVE (0) POTENTIALLY OCCUPIED
- ABANDONED (0)

I HEREBY CERTIFY THAT:
A 100% SURVEY FOR GOPHER TORTOISES WAS CONDUCTED ON 10 OCTOBER 2023, ACCORDING TO FWC GUIDELINES.
ZERO (0) POTENTIALLY OCCUPIED GOPHER TORTOISE BURROWS WERE LOCATED DURING THE SURVEY. THE ESTIMATED GOPHER TORTOISE POPULATION IS 0.
DYLAN M. BARBER, GTA-21-00011A

SOURCE: HSE GOPHER TORTOISE SURVEY DATE: 10 OCTOBER 2023

PARCEL ID #:3420-680-0006-010-4

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 23 - 036.01	DRAWING NAME: 13 - GT BURROW.DWG	DATE: 05 OCTOBER 2023	APPENDIX A FIGURE: 13 OF 38
	28	37S	40E				
LATITUDE: 27°13'58.337"		LONGITUDE: -80°20'45.683"		DESIGNED BY: RLW	DRAWN BY: DMB	CHECKED BY: FRP	

CAPTEC ENGINEERING, INC.
PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18
WETLAND AND WILDLIFE ASSESSMENT (WWA)
100% GOPHER TORTOISE (Gopherus polyphemus) SURVEY
A - 17 BURROW LOCATION MAP

HSE
Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

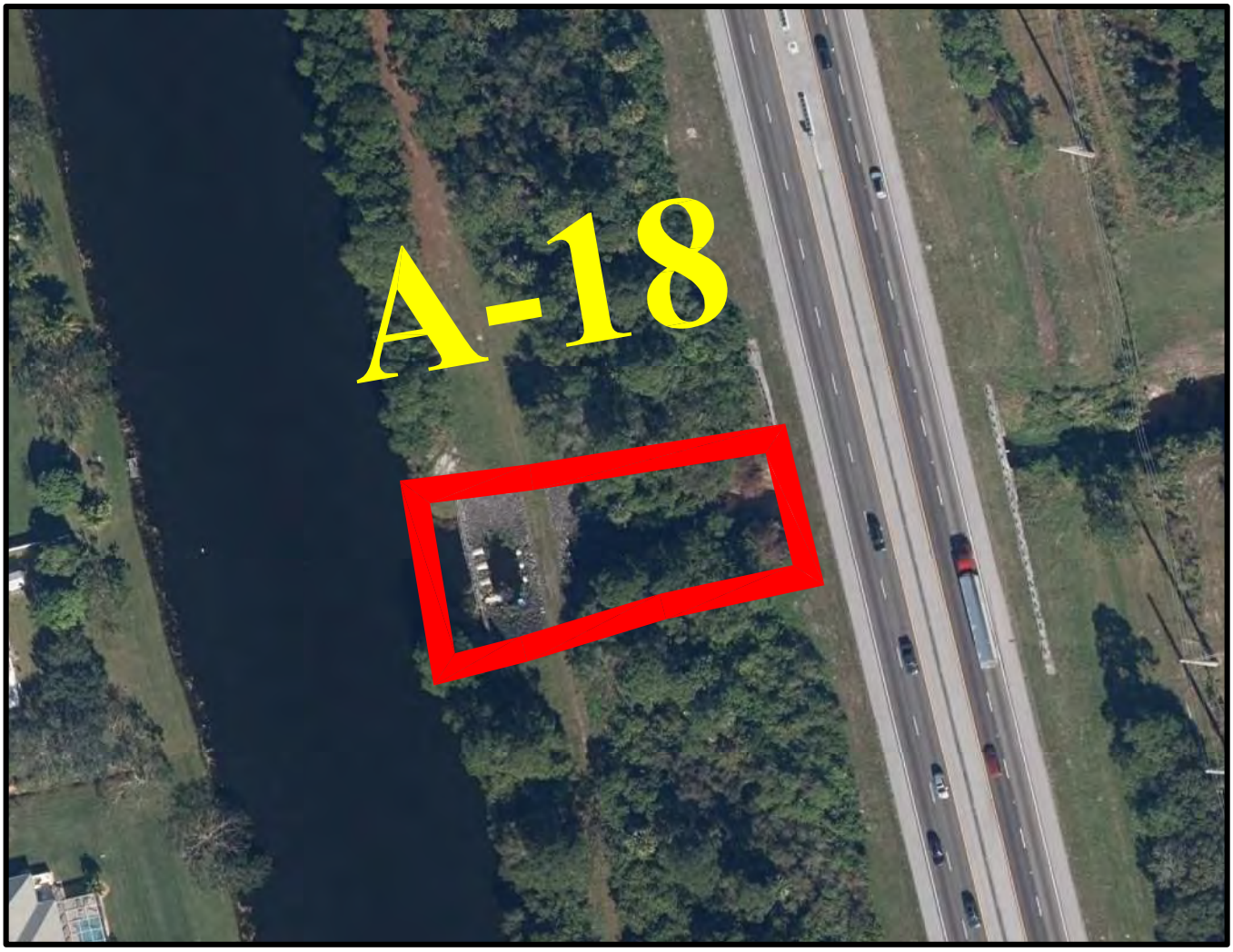
NOT A LAND BOUNDARY SURVEY

CAPTEC Engineering, Inc.
Civil Engineering Professionals
300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business No. EB-0007657

NORTH

0' 50' 100' 200' 400'

SCALE: 1" = 100'



LEGEND:
- ACTIVE (0) POTENTIALLY OCCUPIED
- INACTIVE (0) POTENTIALLY OCCUPIED
- ABANDONED (0)

I HEREBY CERTIFY THAT:
A 100% SURVEY FOR GOPHER TORTOISES WAS CONDUCTED ON 10 OCTOBER 2023, ACCORDING TO FWC GUIDELINES.
ZERO (0) POTENTIALLY OCCUPIED GOPHER TORTOISE BURROWS WERE LOCATED DURING THE SURVEY. THE ESTIMATED GOPHER TORTOISE POPULATION IS 0.
DYLAN M. BARBER, GTA-21-00011A

SOURCE: HSE GOPHER TORTOISE SURVEY DATE: 10 OCTOBER 2023

PARCEL ID # 3420-680-0003-000-0

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 23 - 036.01	DRAWING NAME: 14 - GT BURROW.DWG	DATE: 05 OCTOBER 2023	APPENDIX A FIGURE: 14 OF 38
	21	37S	40E				
LATITUDE: 27°14'14.101"		LONGITUDE: -80°20'42.139"		DESIGNED BY: RLW	DRAWN BY: DMB	CHECKED BY: FRP	

CAPTEC ENGINEERING, INC.
PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18
WETLAND AND WILDLIFE ASSESSMENT (WWA)
100% GOPHER TORTOISE (Gopherus polyphemus) SURVEY
A - 18 BURROW LOCATION MAP

HSE
Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

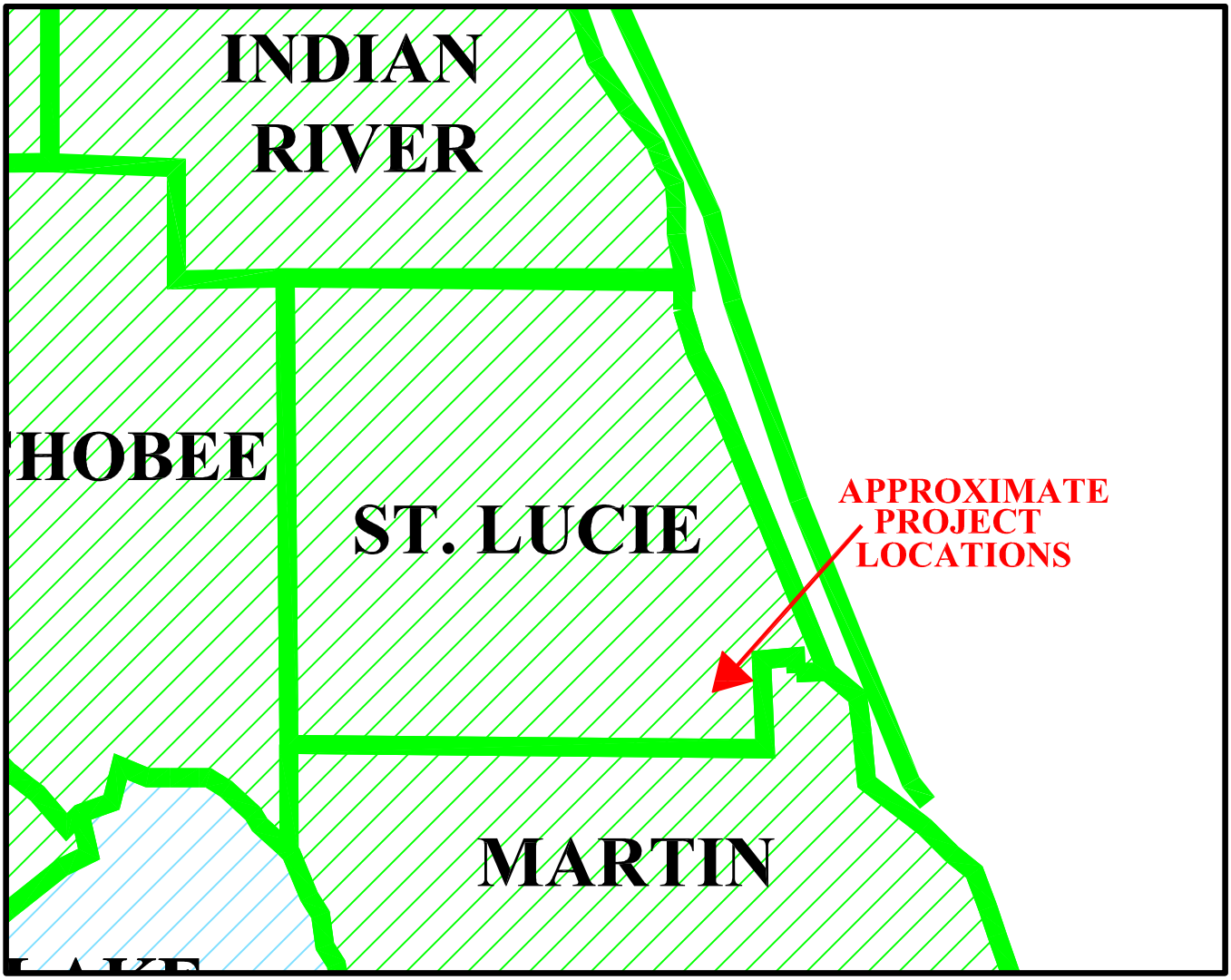
NOT A LAND BOUNDARY SURVEY

CAPTEC Engineering, Inc.
Civil Engineering Professionals
300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business No. EB-0007657

NORTH

0' 25,000' 50,000' 100,000' 200,000'

SCALE: 1" = 50,000'



FLORIDA PINE SNAKE
Pituophis melanoleucus mugitus

- DISTRIBUTION

PRINCIPLE GEOGRAPHIC RANGE OF THE FLORIDA PINE SNAKE, INCLUDING INTERVENING AREAS OF UNOCCUPIED HABITAT. THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY AND NOT FOR REGULATORY USE.
COUNTIES: ALL EXCEPT FOR MONROE, COLLIER, AND HENDRY.

FLORIDA FISH AND WILDLIFE CONSERVATION SERVICE
DATE: 28 JUNE 2014
SOURCE: FWC

SOURCE: FWC 2014

PARCEL ID #:4420-800-0003-000-9, 3420-680-0006-010-4, 3420-680-0003-000-0

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 23 - 036.01	DRAWING NAME: 15 - FL PINE SNAKE.DWG	DATE: 05 OCTOBER 2023	APPENDIX A FIGURE: 15 OF 38
	20,21,28	37S	40E				
LATITUDE: 27°14'24.215" (NORTH) TO LATITUDE: 27°13'58.337" (SOUTH)				LONGITUDE: -80°21'07.747" (NORTH) TO LONGITUDE: -80°20'45.683" (SOUTH)	DESIGNED BY: RLW	DRAWN BY: MAR	CHECKED BY: FRP

CAPTEC ENGINEERING, INC.
PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18
WETLAND AND WILDLIFE ASSESSMENT (WWA)
FLORIDA PINE SNAKE (Pituophis melanoleucus mugitus)
DISTRIBUTION MAP

HSE Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

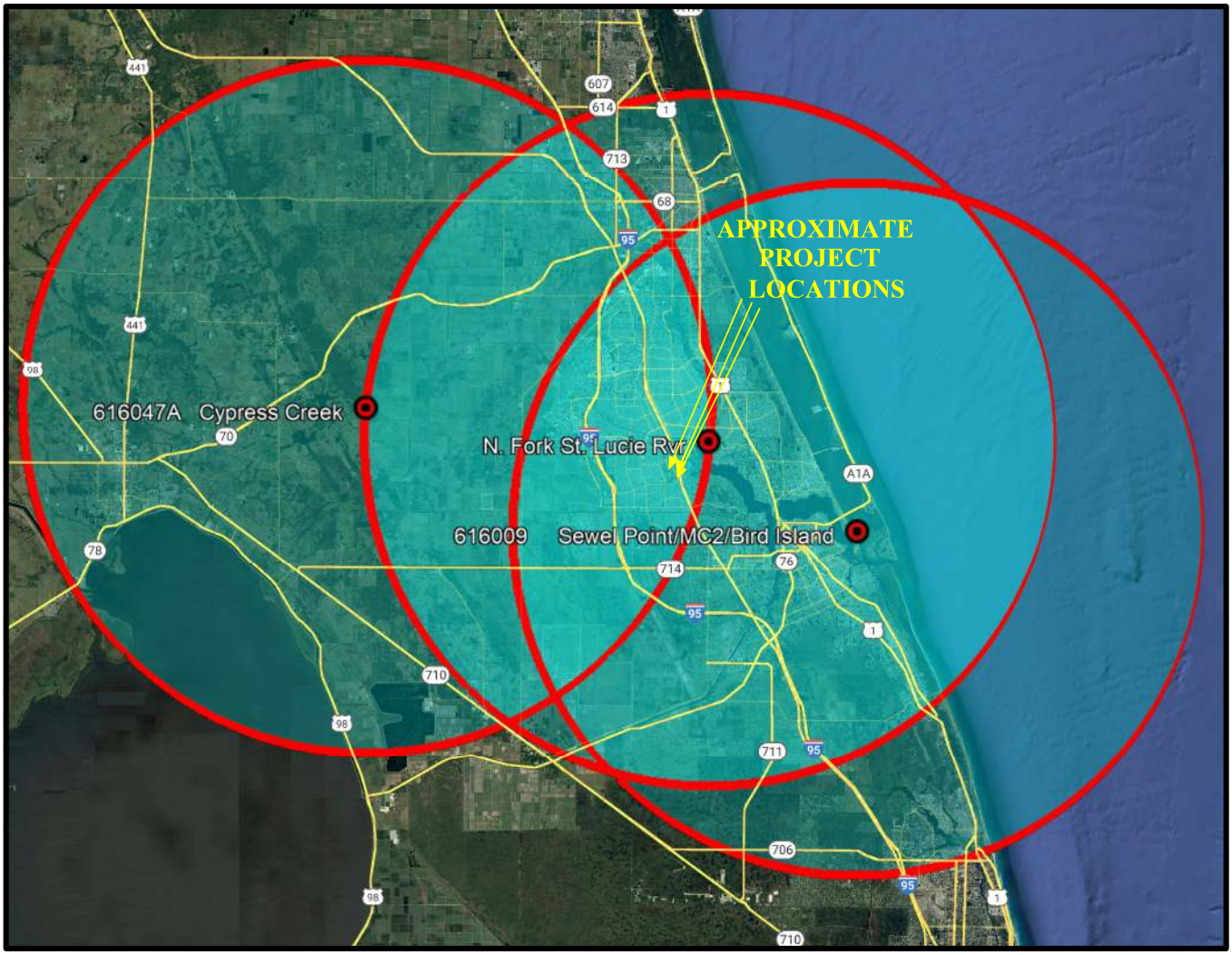
NOT A LAND BOUNDARY SURVEY

CAPTEC Engineering, Inc.
Civil Engineering Professionals
300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business No. EB-0007657

NORTH

0' 25,000' 50,000' 100,000' 200,000'

SCALE: 1" = 50,000'



LEGEND:

- WOOD STORK NEST
- CORE FORAGING AREA

WOOD STORK (Mycteria americana) NESTING COLONIES

NOTES:
COUNTY INFORMATION ACQUIRED FROM THE FLORIDA GEOGRAPHIC DATA LIBRARY WEBSITE.

WOOD STORK NESTING COLONIES WERE ACQUIRED FROM USFWS NOVEMBER 2018 AND ARE CURRENT TO 2017.

SOURCE: USFWS

PARCEL ID #:4420-800-0003-000-9, 3420-680-0006-010-4, 3420-680-0003-000-0

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 23 - 036.01	DRAWING NAME: 16 - WOOD STORK.DWG	DATE: 05 OCTOBER 2023	APPENDIX A FIGURE: 16 OF 38
	20,21,28	37S	40E				
LATITUDE: 27°14'24.215" (NORTH) TO LATITUDE: 27°13'58.337" (SOUTH)	LONGITUDE: -80°21'07.747" (NORTH) TO LONGITUDE: -80°20'45.683" (SOUTH)				DESIGNED BY: RLW	DRAWN BY: MAR	CHECKED BY: FRP

CAPTEC ENGINEERING, INC.
PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18
WETLAND AND WILDLIFE ASSESSMENT (WWA)
WOOD STORK (Mycteria americana)
NESTING COLONIES & CORE FORAGING AREAS FOR A-16,17,18

HSE
Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

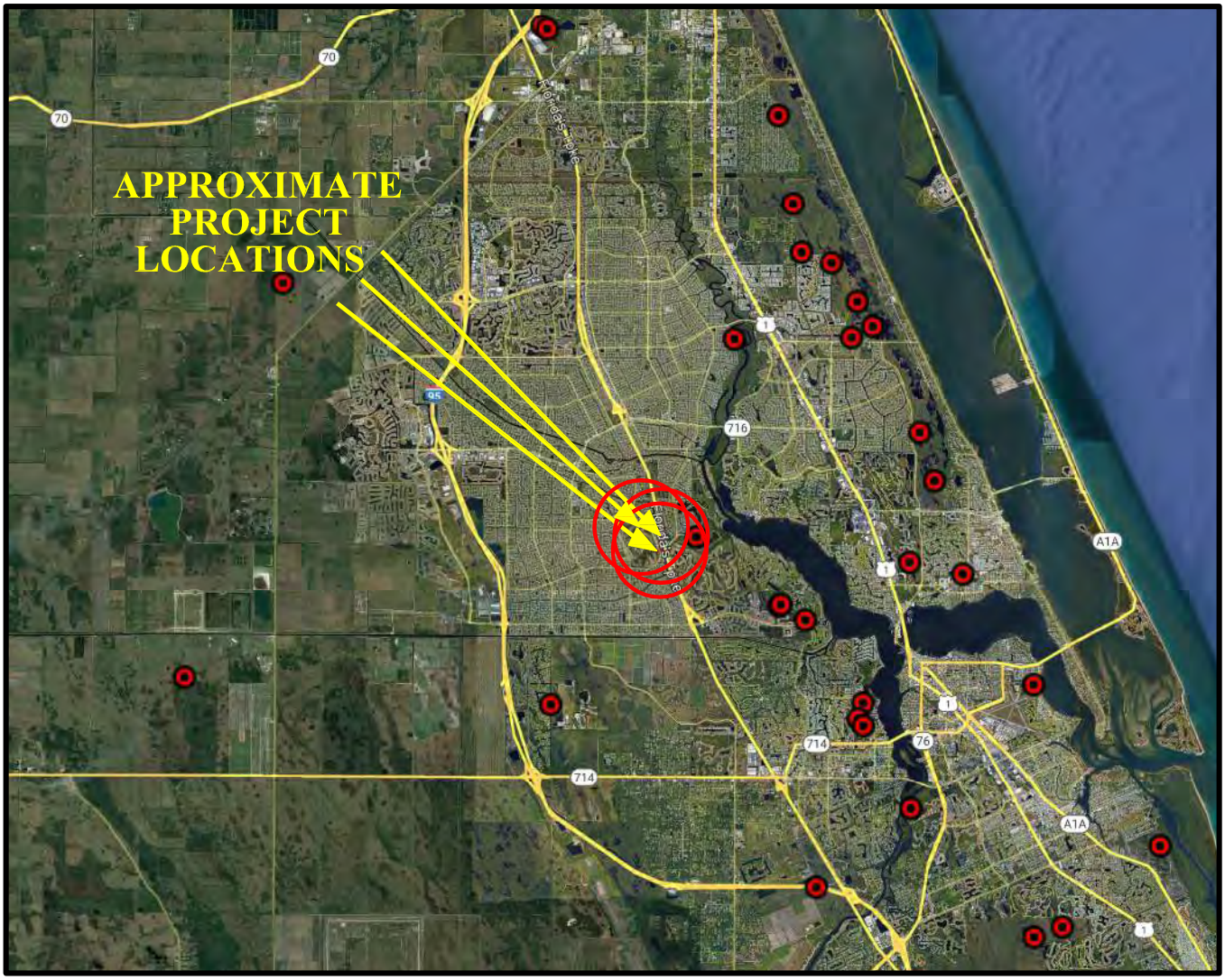
NOT A LAND BOUNDARY SURVEY

CAPTEC Engineering, Inc.
Civil Engineering Professionals
300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business No. EB-0007657

NORTH

0' 10,000' 20,000' 40,000' 80,000'

SCALE: 1" = 20,000'



LEGEND:

- EAGLE NEST
- 1 MILE RADIUS

AMERICAN BALD EAGLE (Haliaeetus leucocephalus) NESTS

NOTE:
COUNTY INFORMATION WAS ACQUIRED FROM THE FLORIDA GEOGRAPHIC DATA LIBRARY WEBSITE.

EAGLE NEST LOCATIONS WERE ACQUIRED FROM THE USFWS 2007

SOURCE: USFWS

PARCEL ID #:4420-800-0003-000-9, 3420-680-0006-010-4, 3420-680-0003-000-0

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.:	DRAWING NAME:	DATE:	APPENDIX A FIGURE:
	20,21,28	37S	40E	23 - 036.01	17 - EAGLE NEST KEY.DWG	05 OCTOBER 2023	17 OF 38
LATITUDE: 27°14'24.215" (NORTH) TO LATITUDE: 27°13'58.337" (SOUTH)				LONGITUDE: -80°21'07.747" (NORTH) TO LONGITUDE: -80°20'45.683" (SOUTH)	DESIGNED BY: RLW	DRAWN BY: MAR	CHECKED BY: FRP

CAPTEC ENGINEERING, INC.
PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18
WETLAND AND WILDLIFE ASSESSMENT (WWA)
AMERICAN BALD EAGLE (Haliaeetus leucocephalus)
NEST LOCATIONS FOR A-16,17,18

HSE
Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

NOT A LAND BOUNDARY SURVEY

CAPTEC Engineering, Inc.
Civil Engineering Professionals
300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business No. EB-0007657

NORTH

0' 1,000' 2,000' 4,000' 8,000'

SCALE: 1" = 2,000'

LEGEND:

- EAGLE NEST

- 1 MILE RADIUS

AMERICAN BALD EAGLE (Haliaeetus leucocephalus) NESTS

NOTE:
COUNTY INFORMATION WAS ACQUIRED FROM THE FLORIDA GEOGRAPHIC DATA LIBRARY WEBSITE.

EAGLE NEST LOCATIONS WERE ACQUIRED FROM THE USFWS 2007

SOURCE: USFWS

PARCEL ID #:4420-133-0001-000-8

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.:	DRAWING NAME:	DATE:	APPENDIX A FIGURE:
	20	37S	40E	23 - 036.01	18 - EAGLE NEST 16.DWG	05 OCTOBER 2023	18 OF 38
LATITUDE: 27°14'24.215"		LONGITUDE: -80°21'07.747"		DESIGNED BY: RLW	DRAWN BY: MAR		CHECKED BY: FRP

CAPTEC ENGINEERING, INC.
PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18
WETLAND AND WILDLIFE ASSESSMENT (WWA)
AMERICAN BALD EAGLE (Haliaeetus leucocephalus)
NEST LOCATION FOR A-16

HSE
Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

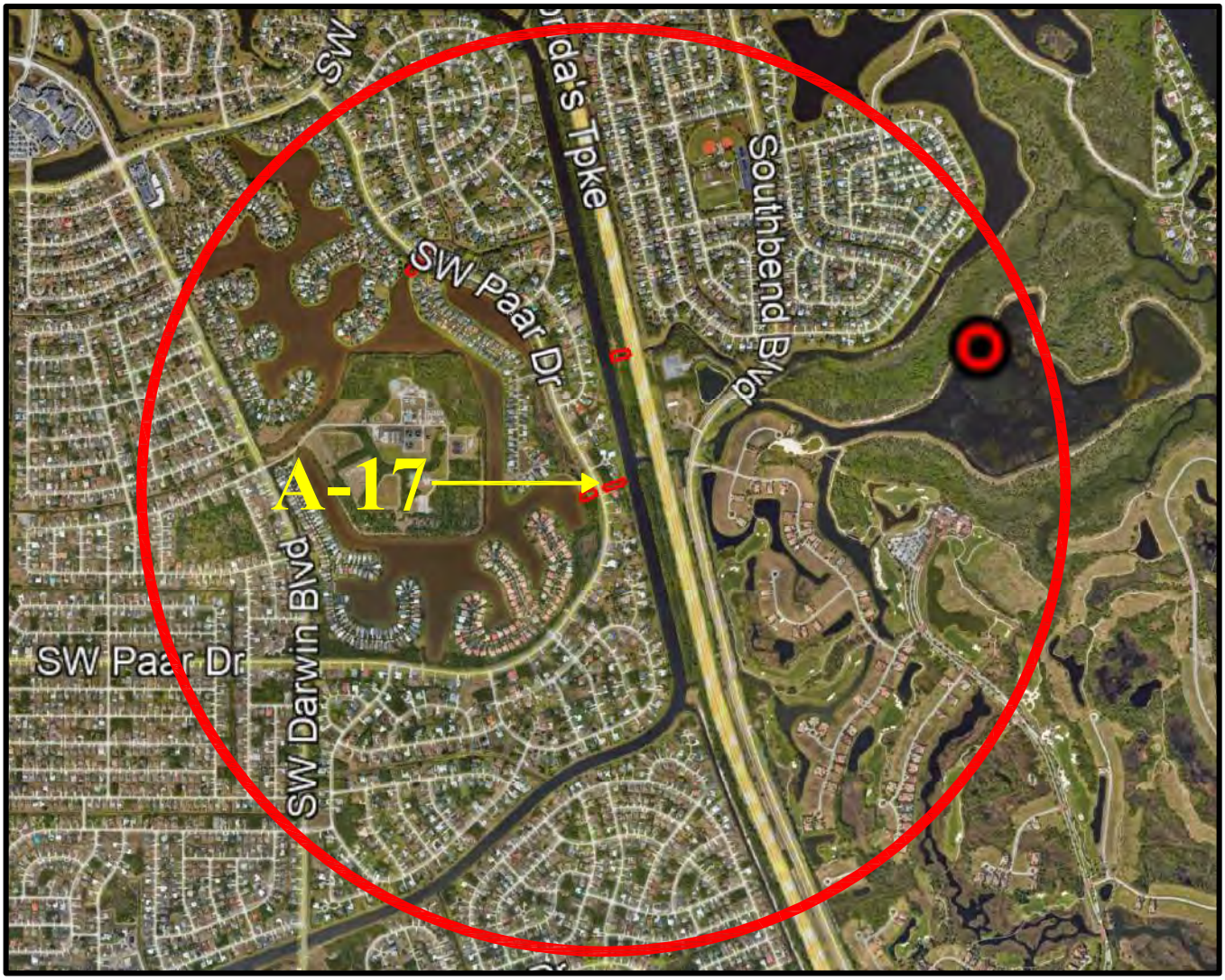
NOT A LAND BOUNDARY SURVEY

CAPTEC Engineering, Inc.
Civil Engineering Professionals
300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business No. EB-0007657

NORTH

0' 1,000' 2,000' 4,000' 8,000'

SCALE: 1" = 2,000'



LEGEND:

- EAGLE NEST

- 1 MILE RADIUS

AMERICAN BALD EAGLE (Haliaeetus leucocephalus) NESTS

NOTE:
COUNTY INFORMATION WAS ACQUIRED FROM THE FLORIDA GEOGRAPHIC DATA LIBRARY WEBSITE.

EAGLE NEST LOCATIONS WERE ACQUIRED FROM THE USFWS 2007

SOURCE: USFWS

PARCEL ID #:3420-680-0006-010-4

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.:	DRAWING NAME:	DATE:	APPENDIX A FIGURE:
	28	37S	40E	23 - 036.01	19 - EAGLE NEST 17.DWG	05 OCTOBER 2023	19 OF 38
LATITUDE: 27°13'58.337"		LONGITUDE: -80°20'45.683"		DESIGNED BY: RLW	DRAWN BY: MAR	CHECKED BY: FRP	

CAPTEC ENGINEERING, INC.
PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18
WETLAND AND WILDLIFE ASSESSMENT (WWA)
AMERICAN BALD EAGLE (Haliaeetus leucocephalus)
NEST LOCATION FOR A-17

HSE
Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

NOT A LAND BOUNDARY SURVEY

CAPTEC Engineering, Inc.
Civil Engineering Professionals
300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business No. EB-0007657

NORTH

0' 1,000' 2,000' 4,000' 8,000'

SCALE: 1" = 2,000'

LEGEND:

- EAGLE NEST
- 1 MILE RADIUS

AMERICAN BALD EAGLE (Haliaeetus leucocephalus) NESTS

NOTE:
COUNTY INFORMATION WAS ACQUIRED FROM THE FLORIDA GEOGRAPHIC DATA LIBRARY WEBSITE.

EAGLE NEST LOCATIONS WERE ACQUIRED FROM THE USFWS 2007

SOURCE: USFWS

PARCEL ID # 3420-680-0003-000-0

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.:	DRAWING NAME:	DATE:	APPENDIX A FIGURE:
	21	37S	40E	23 - 036.01	20 - EAGLE NEST 18.DWG	05 OCTOBER 2023	20 OF 38
LATITUDE: 27°14'14.101"	LONGITUDE: -80°20'42.139"			DESIGNED BY: RLW	DRAWN BY: MAR	CHECKED BY: FRP	

CAPTEC ENGINEERING, INC.
PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18
WETLAND AND WILDLIFE ASSESSMENT (WWA)
AMERICAN BALD EAGLE (Haliaeetus leucocephalus)
NEST LOCATION FOR A-18

HSE
Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

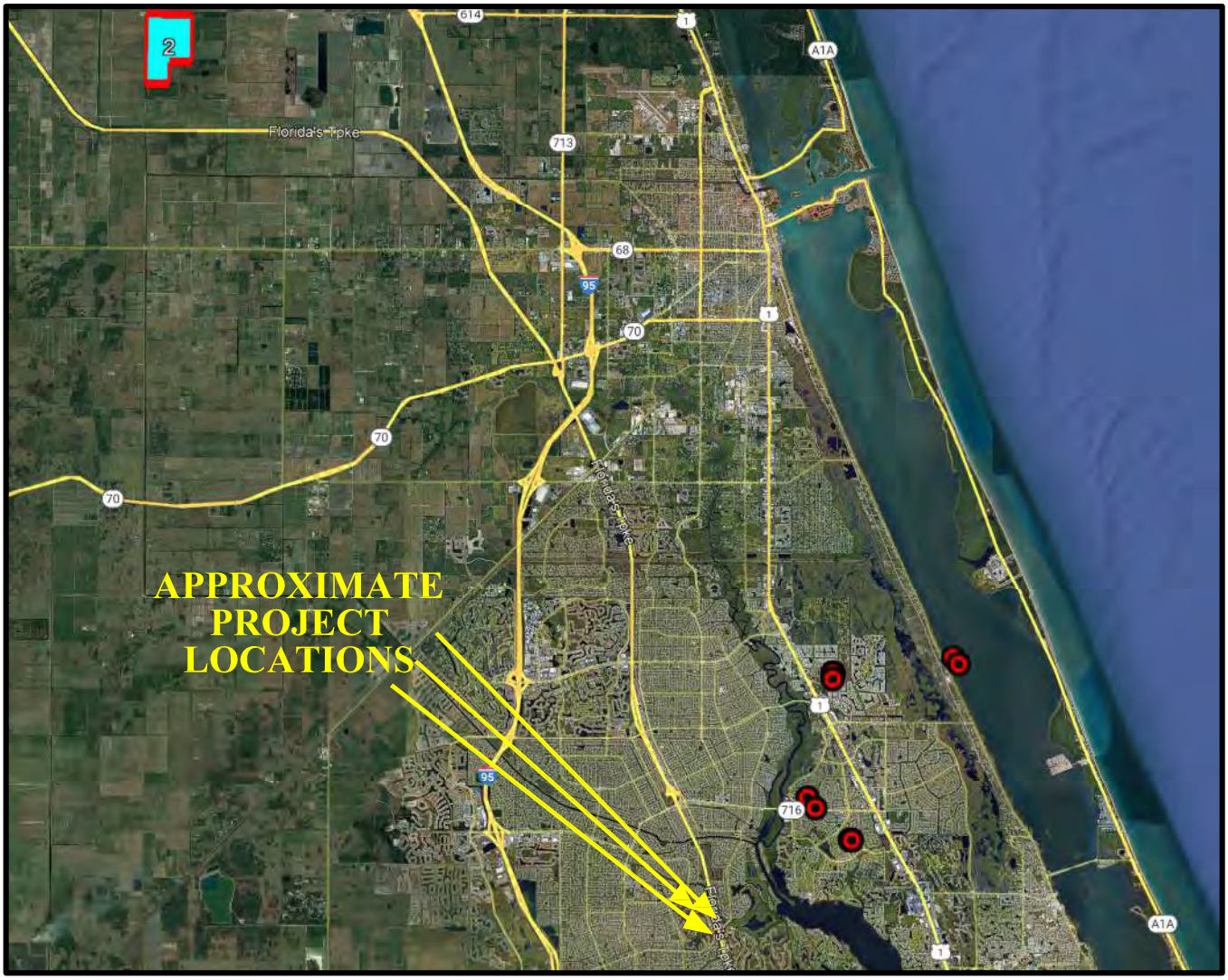
NOT A LAND BOUNDARY SURVEY

CAPTEC Engineering, Inc.
Civil Engineering Professionals
300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business No. EB-0007657

NORTH

0' 10,000' 20,000' 40,000' 80,000'

SCALE: 1" = 20,000'



LEGEND:

- SNAIL KITE NEST
- SNAIL KITE CRITICAL HABITAT

EVERGLADE SNAIL KITE (Rostrhamus sociabilis plumbeus) CRITICAL HABITAT AND NEST LOCATIONS

NOTE:
COUNTY INFORMATION WAS ACQUIRED FROM THE FLORIDA GEOGRAPHIC DATA

SNAIL KITE HABITAT LOCATIONS WERE ACQUIRED FROM THE USFWS 2007

SOURCE: USFWS

PARCEL ID #:4420-800-0003-000-9, 3420-680-0006-010-4, 3420-680-0003-000-0

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.:	DRAWING NAME:	DATE:	APPENDIX A FIGURE:
	20,21,28	37S	40E	23 - 036.01	21 - SNAIL KITE NEST.DWG	05 OCTOBER 2023	21 OF 38

LATITUDE: 27°14'24.215" (NORTH) TO LATITUDE: 27°13'58.337" (SOUTH)	LONGITUDE: -80°21'07.747" (NORTH) TO LONGITUDE: -80°20'45.683" (SOUTH)	DESIGNED BY: RLW	DRAWN BY: MAR	CHECKED BY: FRP

CAPTEC ENGINEERING, INC.
PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18
WETLAND AND WILDLIFE ASSESSMENT (WWA)
EVERGLADE SNAIL KITE (Rostrhamus sociabilis plumbeus)
NESTS AND CRITICAL HABITAT MAP FOR A-16,17,18

Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

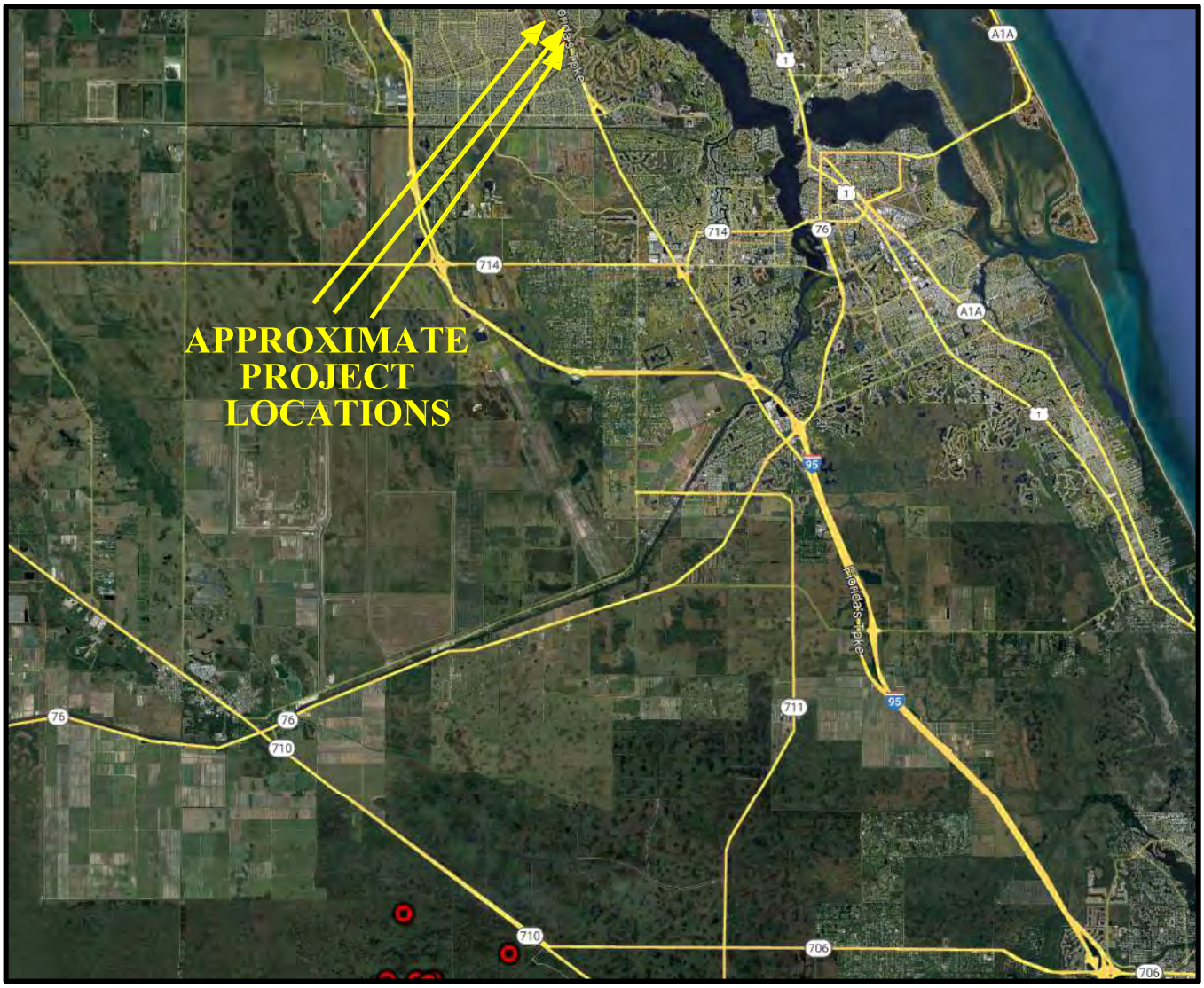
NOT A LAND BOUNDARY SURVEY

CAPTEC Engineering, Inc.
Civil Engineering Professionals
300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business No. EB-0007657

NORTH

0' 10,000' 20,000' 40,000' 80,000'

SCALE: 1" = 20,000'



LEGEND:

- RED-COCKADED WOODPECKER

RED-COCKADED WOODPECKER (Dryobates borealis) LOCATIONS

NOTES:
COUNTY INFORMATION ACQUIRED FROM THE FLORIDA GEOGRAPHIC DATA LIBRARY WEBSITE.

RED-COCKADED WOODPECKER LOCATIONS WERE ACQUIRED FROM THE USFWS 2005

SOURCE: USFWS

PARCEL ID #:4420-800-0003-000-9, 3420-680-0006-010-4, 3420-680-0003-000-0

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 23 - 036.01	DRAWING NAME: 22 - RED COCK WP.DWG	DATE: 05 OCTOBER 2023	APPENDIX A FIGURE: 22 OF 38
	20,21,28	37S	40E				
LATITUDE: 27°14'24.215" (NORTH) TO LATITUDE: 27°13'58.337" (SOUTH)		LONGITUDE: -80°21'07.747" (NORTH) TO LONGITUDE: -80°20'45.683" (SOUTH)			DESIGNED BY: RLW	DRAWN BY: MAR	CHECKED BY: FRP

CAPTEC ENGINEERING, INC.
PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18
WETLAND AND WILDLIFE ASSESSMENT (WWA)
RED-COCKADED WOODPECKER (Dryobates borealis)
WOODPECKER LOCATIONS FOR A-16,17,18

HSE
Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

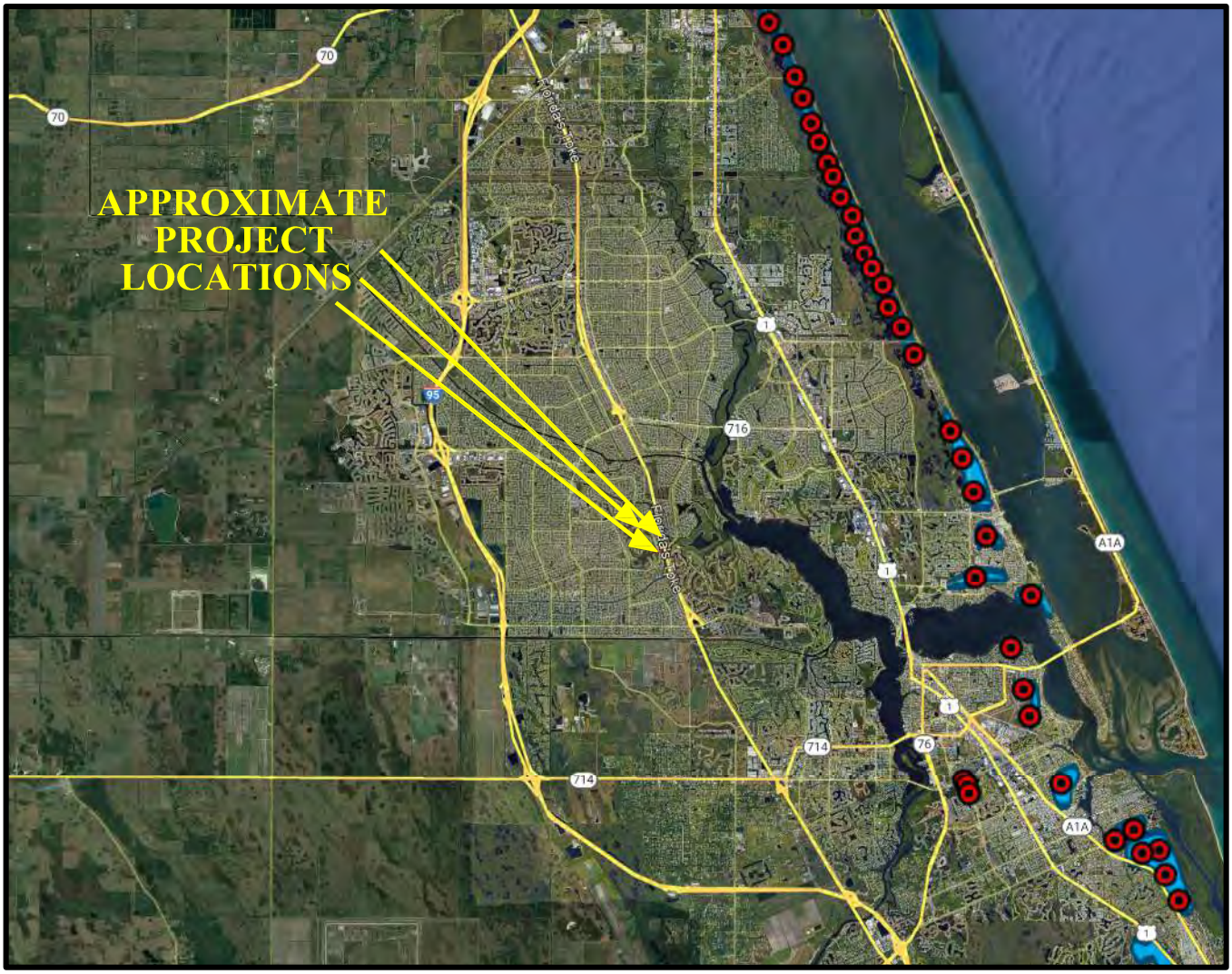
NOT A LAND BOUNDARY SURVEY

CAPTEC Engineering, Inc.
Civil Engineering Professionals
• 300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business
No. EB-0007657

NORTH

0' 10,000' 20,000' 40,000' 80,000'

SCALE: 1" = 20,000'



LEGEND:

- SCRUB-JAY OBSERVATION

- SCRUB-JAY HABITAT

SOURCE: USFWS

FLORIDA SCRUB-JAY (Aphelocoma coerulescens) LOCATIONS

NOTES:
COUNTY INFORMATION ACQUIRED FROM THE FLORIDA GEOGRAPHIC DATA LIBRARY WEBSITE.

FLORIDA SCRUB-JAY LOCATIONS WERE ACQUIRED FROM THE USFWS AUGUST 2017

PARCEL ID #:4420-800-0003-000-9, 3420-680-0006-010-4, 3420-680-0003-000-0

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.:	DRAWING NAME:	DATE:	APPENDIX A FIGURE:
	20,21,28	37S	40E	23 - 036.01	23 - SCRUB-JAY.DWG	05 OCTOBER 2023	23 OF 38
LATITUDE: 27°14'24.215" (NORTH) TO LATITUDE: 27°13'58.337" (SOUTH)				LONGITUDE: -80°21'07.747" (NORTH) TO LONGITUDE: -80°20'45.683" (SOUTH)	DESIGNED BY: RLW	DRAWN BY: MAR	CHECKED BY: FRP

CAPTEC ENGINEERING, INC.
PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18
WETLAND AND WILDLIFE ASSESSMENT (WWA)
FLORIDA SCRUB-JAY (Aphelocoma coerulescens)
SCRUB-JAY LOCATIONS AND HABITAT FOR A-16,17,18

HSE Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

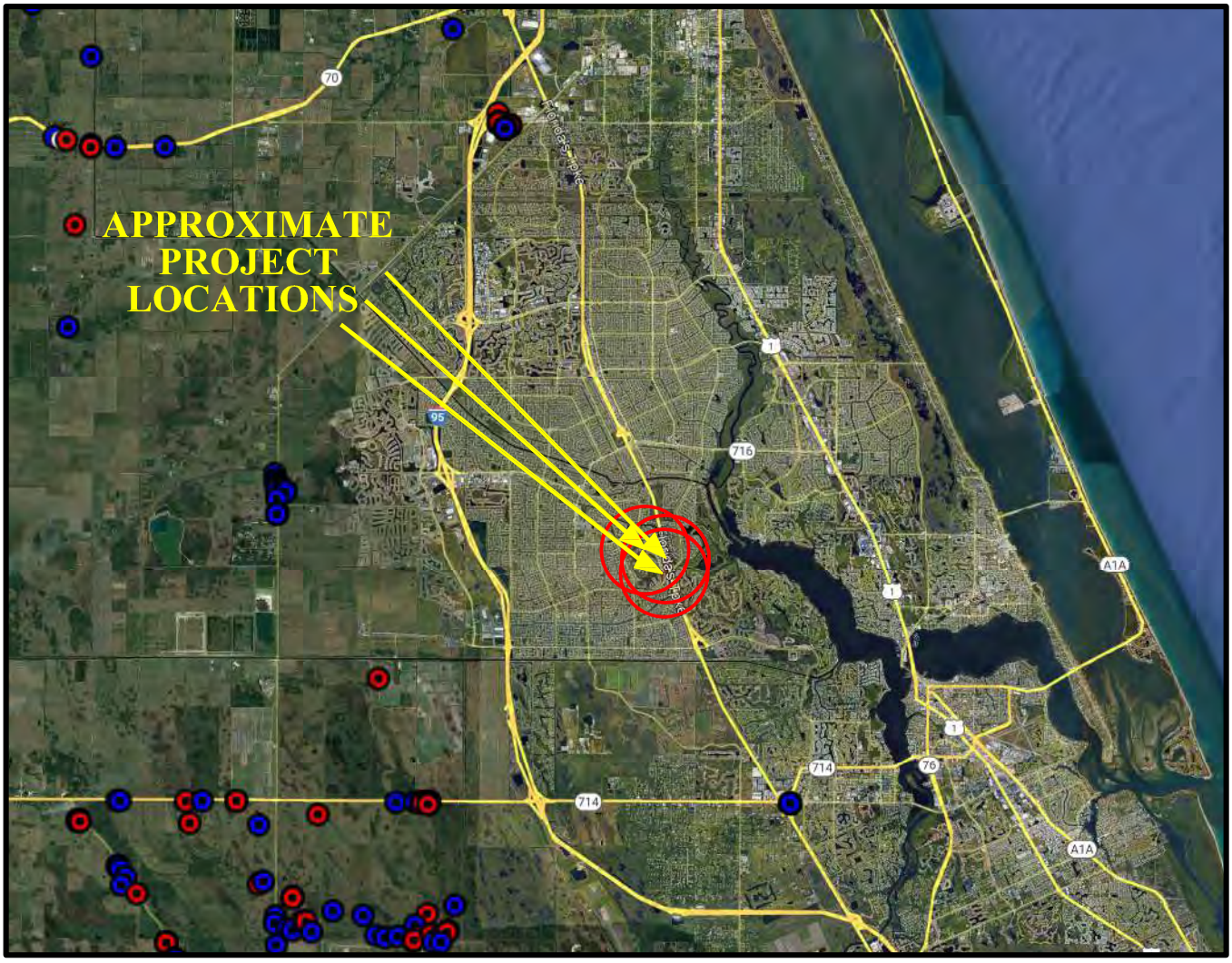
NOT A LAND BOUNDARY SURVEY

CAPTEC Engineering, Inc.
Civil Engineering Professionals
300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business No. EB-0007657

NORTH

0' 10,000' 20,000' 40,000' 80,000'

SCALE: 1" = 20,000'



LEGEND:

- CARACARA NEST
- CARACARA OBSERVATION
- 1,500 METER RADIUS

SOURCE: USFWS

CRESTED CARACARA (Polyborus plancus audubonii) NEST AND OBSERVATION LOCATIONS

NOTE:
COUNTY INFORMATION WAS ACQUIRED FROM THE FLORIDA GEOGRAPHIC DATA LIBRARY WEBSITE.

CRESTED CARACARA LOCATIONS WERE ACQUIRED FROM THE USFWS 2007

PARCEL ID #:4420-800-0003-000-9, 3420-680-0006-010-4, 3420-680-0003-000-0

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 23 - 036.01	DRAWING NAME: 24 - CARACARA.DWG	DATE: 05 OCTOBER 2023	APPENDIX A FIGURE: 24 OF 38
	20,21,28	37S	40E				
LATITUDE: 27°14'24.215" (NORTH) TO LATITUDE: 27°13'58.337" (SOUTH)				LONGITUDE: -80°21'07.747" (NORTH) TO LONGITUDE: -80°20'45.683" (SOUTH)	DESIGNED BY: RLW	DRAWN BY: MAR	CHECKED BY: FRP

CAPTEC ENGINEERING, INC.
PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18
WETLAND AND WILDLIFE ASSESSMENT (WWA)
CRESTED CARACARA (Polyborus plancus audubonii)
CARACARA NESTS AND OBSERVATIONS FOR A-16,17,18

HSE
Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

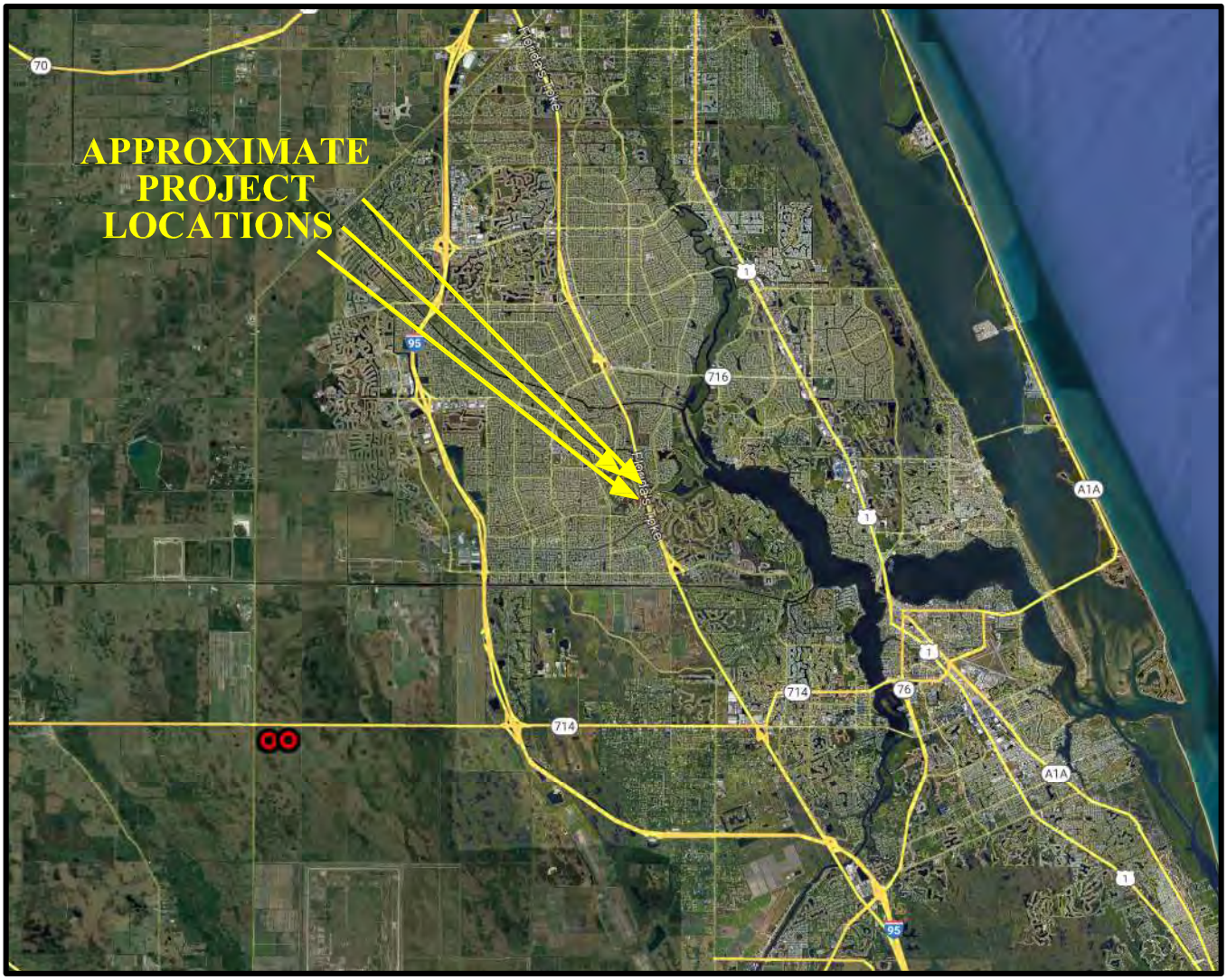
NOT A LAND BOUNDARY SURVEY

CAPTEC Engineering, Inc.
Civil Engineering Professionals
300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business No. EB-0007657

NORTH

0' 10,000' 20,000' 40,000' 80,000'

SCALE: 1" = 20,000'



LEGEND:

- BURROWING OWL LOCATION

BURROWING OWL (Athene cunicularia) NEST LOCATIONS

NOTE:
COUNTY INFORMATION WAS ACQUIRED FROM THE FLORIDA GEOGRAPHIC DATA LIBRARY WEBSITE.

BURROWING OWL LOCATIONS WERE ACQUIRED FROM THE USFWS 2006

SOURCE: USFWS

PARCEL ID #:4420-800-0003-000-9, 3420-680-0006-010-4, 3420-680-0003-000-0

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 23 - 036.01	DRAWING NAME: 25-BUROWL.DWG	DATE: 05 OCTOBER 2023	APPENDIX A FIGURE: 25 OF 38
	20,21,28	37S	40E				
LATITUDE: 27°14'24.215" (NORTH) TO LATITUDE: 27°13'58.337" (SOUTH)				LONGITUDE: -80°21'07.747" (NORTH) TO LONGITUDE: -80°20'45.683" (SOUTH)	DESIGNED BY: RLW	DRAWN BY: MAR	CHECKED BY: FRP

CAPTEC ENGINEERING, INC.
PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18
WETLAND AND WILDLIFE ASSESSMENT (WWA)
BURROWING OWL (Athene cunicularia)
FL BURROWING OWL MAP FOR A-16,17,18

HSE
Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

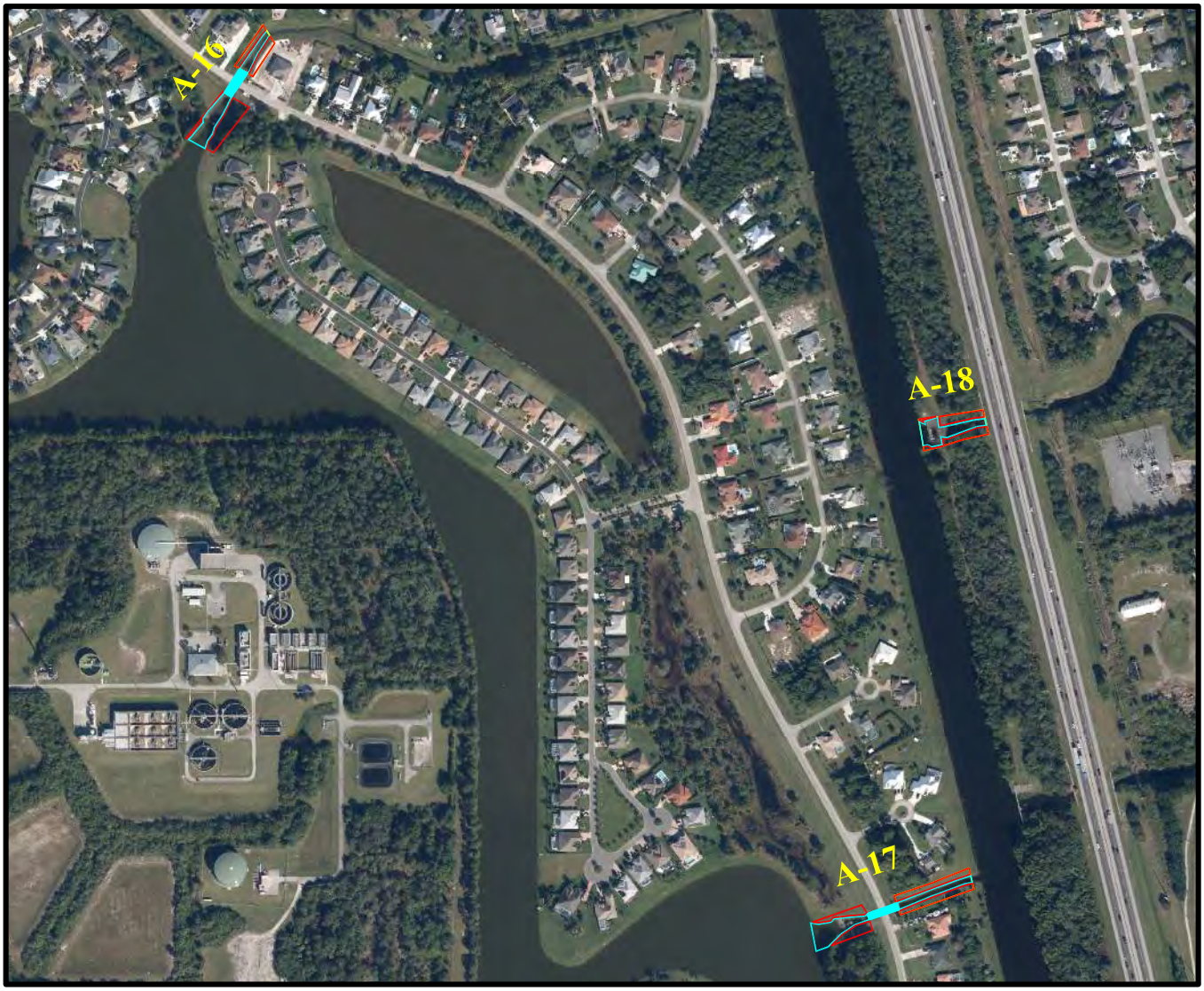
NOT A LAND BOUNDARY SURVEY

CAPTEC Engineering, Inc.
Civil Engineering Professionals
300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business No. EB-0007657

NORTH

0' 275' 550' 1,100' 2,200'

SCALE: 1" = 550'



LEGEND:

- (4220) DITCH/ARTIFICIAL INTERMITTENT STREAM: ±0.76 ACRES
- (1860) UTILITIES: ± 1.09 ACRES

TOTAL: ± 1.85 ACRES

SOURCE: FLORIDA LAND COVER CLASSIFICATION SYSTEM

PARCEL ID #:4420-800-0003-000-9, 3420-680-0006-010-4, 3420-680-0003-000-0

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 23 - 036.01	DRAWING NAME: 26-CLC.DWG	DATE: 05 OCTOBER 2023	APPENDIX A FIGURE: 26 OF 38
	20,21,28	37S	40E				
LATITUDE: 27°14'24.215" (NORTH) TO LATITUDE: 27°13'58.337" (SOUTH)				LONGITUDE: -80°21'07.747" (NORTH) TO LONGITUDE: -80°20'45.683" (SOUTH)	DESIGNED BY: RLW	DRAWN BY: MAR	CHECKED BY: FRP

CAPTEC ENGINEERING, INC.
PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18
WETLAND AND WILDLIFE ASSESSMENT (WWA)
VEGETATION (CLC) KEY MAP

HSE Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

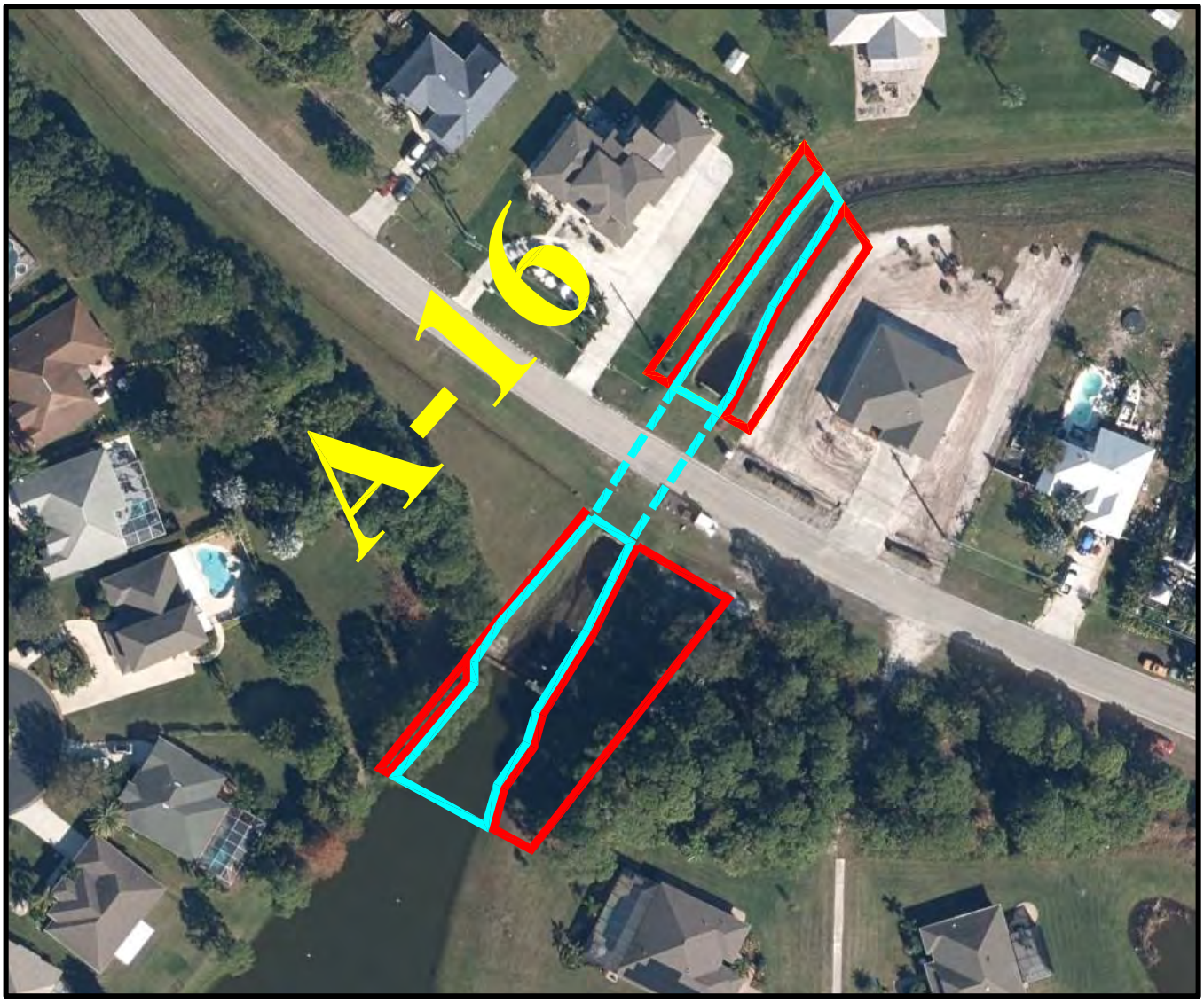
NOT A LAND BOUNDARY SURVEY

CAPTEC Engineering, Inc.
Civil Engineering Professionals
300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business No. EB-0007657

NORTH

0' 50' 100' 200' 400'

SCALE: 1" = 100'



LEGEND:

- (4220) DITCH/ARTIFICIAL INTERMITTENT STREAM: ±0.18 ACRES
- (1860) UTILITIES: ±0.46 ACRES

TOTAL: ± 0.64 ACRES

SOURCE: FLORIDA LAND COVER CLASSIFICATION SYSTEM

PARCEL ID #:4420-133-0001-000-8

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 23 - 036.01	DRAWING NAME: 27-A16CLC.DWG	DATE: 05 OCTOBER 2023	APPENDIX A FIGURE: 27 OF 38
	20	37S	40E				
LATITUDE: 27°14'24.215"	LONGITUDE: -80°21'07.747"			DESIGNED BY: RLW	DRAWN BY: MAR	CHECKED BY: FRP	

CAPTEC ENGINEERING, INC.
PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18
WETLAND AND WILDLIFE ASSESSMENT (WWA)
A - 16 VEGETATION (CLC) MAP

HSE Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

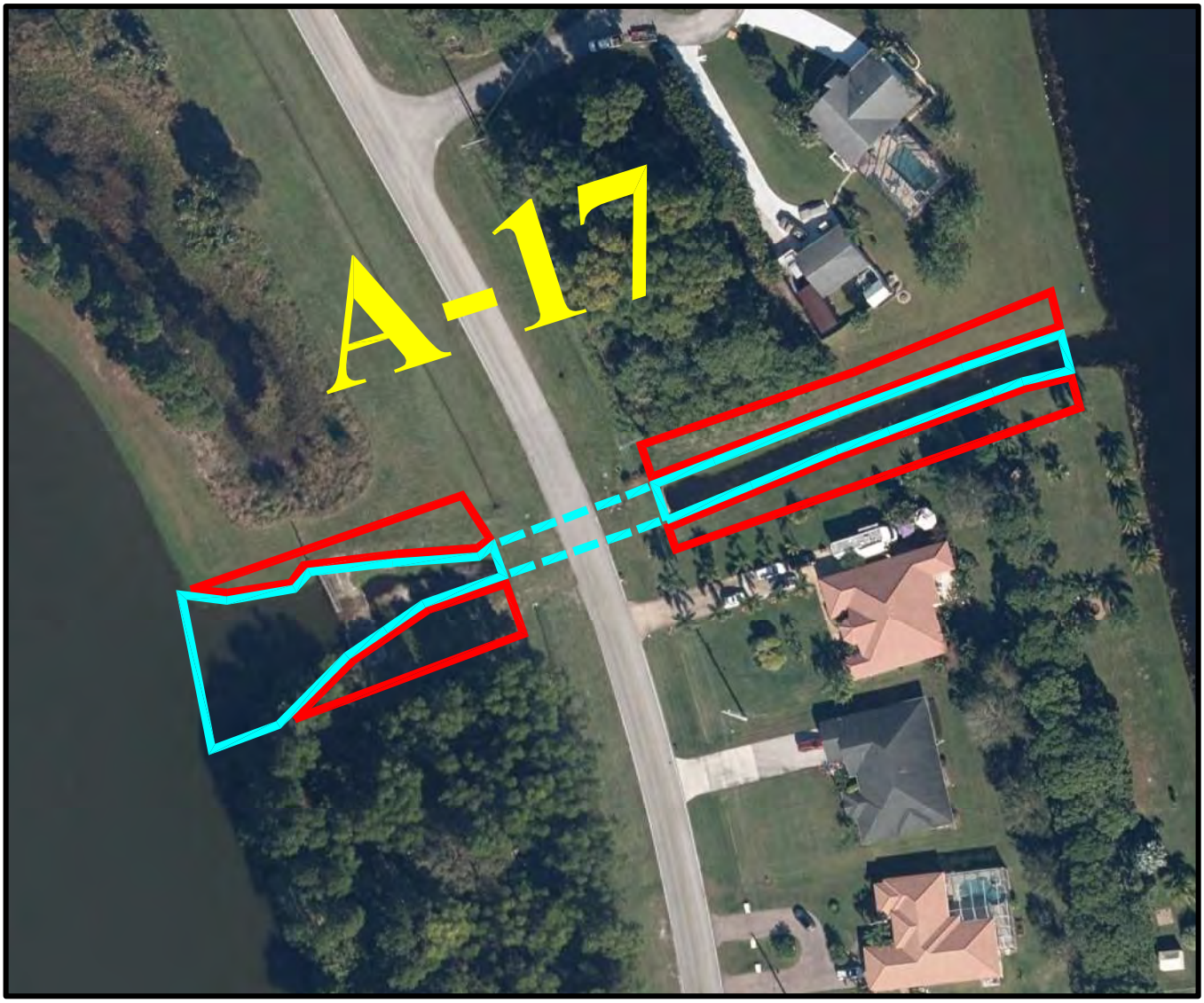
NOT A LAND BOUNDARY SURVEY

CAPTEC Engineering, Inc.
Civil Engineering Professionals
300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business No. EB-0007657

NORTH

0' 50' 100' 200' 400'

SCALE: 1" = 100'



LEGEND:

- (4220) DITCH/ARTIFICIAL INTERMITTENT STREAM: ±0.25 ACRES
- (1860) UTILITIES: ±0.52 ACRES

TOTAL: ± 0.77 ACRES

SOURCE: FLORIDA LAND COVER CLASSIFICATION SYSTEM

PARCEL ID #:3420-680-0006-010-4

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 23 - 036.01	DRAWING NAME: 28-A17CLC.DWG	DATE: 05 OCTOBER 2023	APPENDIX A FIGURE: 28 OF 38
	28	37S	40E				
LATITUDE: 27°13'58.337"		LONGITUDE: -80°20'45.683"		DESIGNED BY: RLW	DRAWN BY: MAR	CHECKED BY: FRP	

CAPTEC ENGINEERING, INC.
PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18
WETLAND AND WILDLIFE ASSESSMENT (WWA)
A - 17 VEGETATION (CLC) MAP

HSE Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

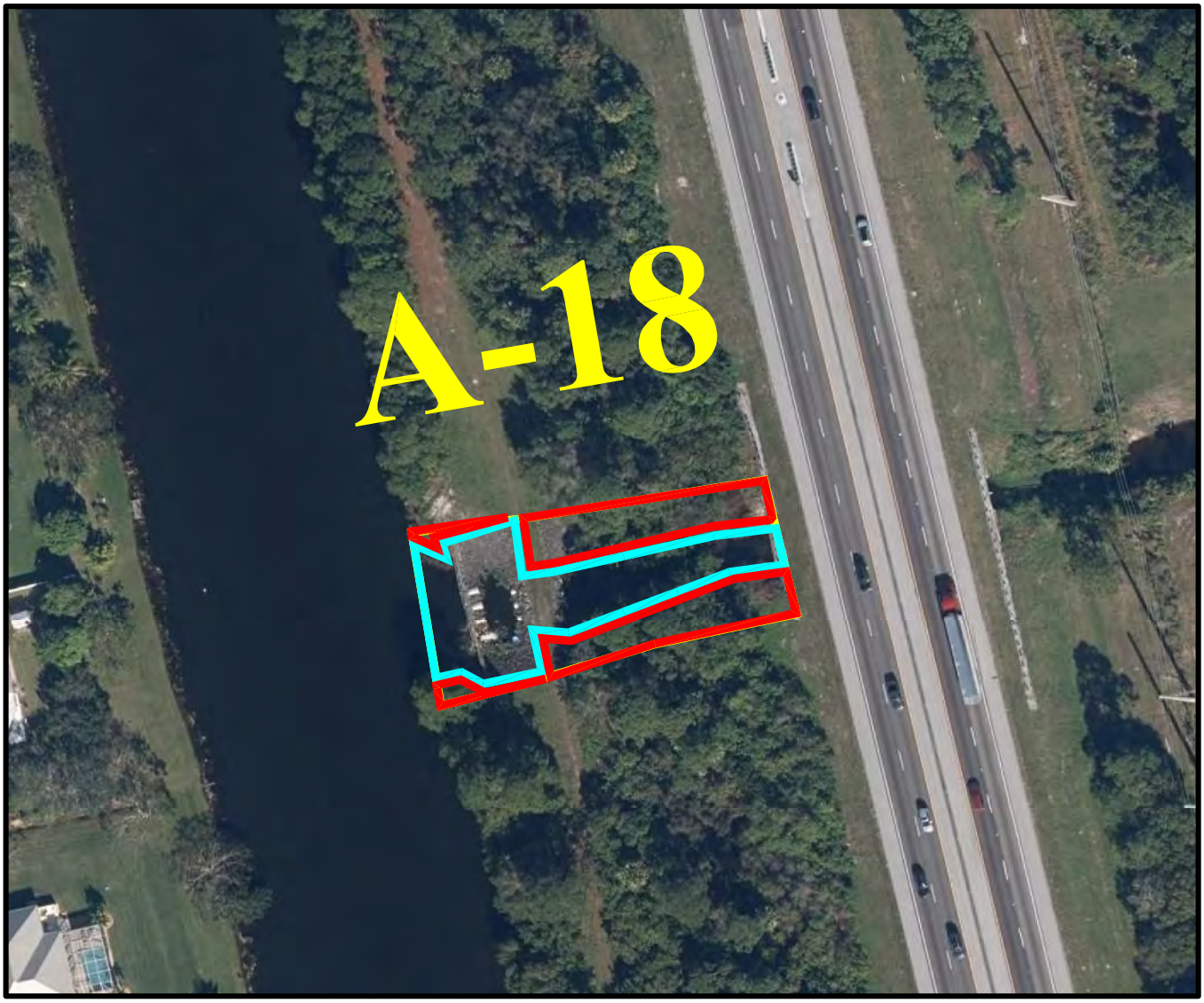
NOT A LAND BOUNDARY SURVEY

CAPTEC Engineering, Inc.
Civil Engineering Professionals
300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business No. EB-0007657

NORTH

0' 50' 100' 200' 400'

SCALE: 1" = 100'



LEGEND:

- (4220) DITCH/ARTIFICIAL INTERMITTENT STREAM: ±0.33 ACRES
- (1860) UTILITIES: ± 0.11 ACRES

TOTAL: ± 0.44 ACRES

SOURCE: FLORIDA LAND COVER CLASSIFICATION SYSTEM

PARCEL ID # 3420-680-0003-000-0

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 23 - 036.01	DRAWING NAME: 29-A18CLC.DWG	DATE: 05 OCTOBER 2023	APPENDIX A FIGURE: 29 OF 38
	21	37S	40E				
LATITUDE: 27°14'14.101"	LONGITUDE: -80°20'42.139"			DESIGNED BY: RLW	DRAWN BY: MAR	CHECKED BY: FRP	

CAPTEC ENGINEERING, INC.
PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18
WETLAND AND WILDLIFE ASSESSMENT (WWA)
A - 18 VEGETATION (CLC) MAP

HSE Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

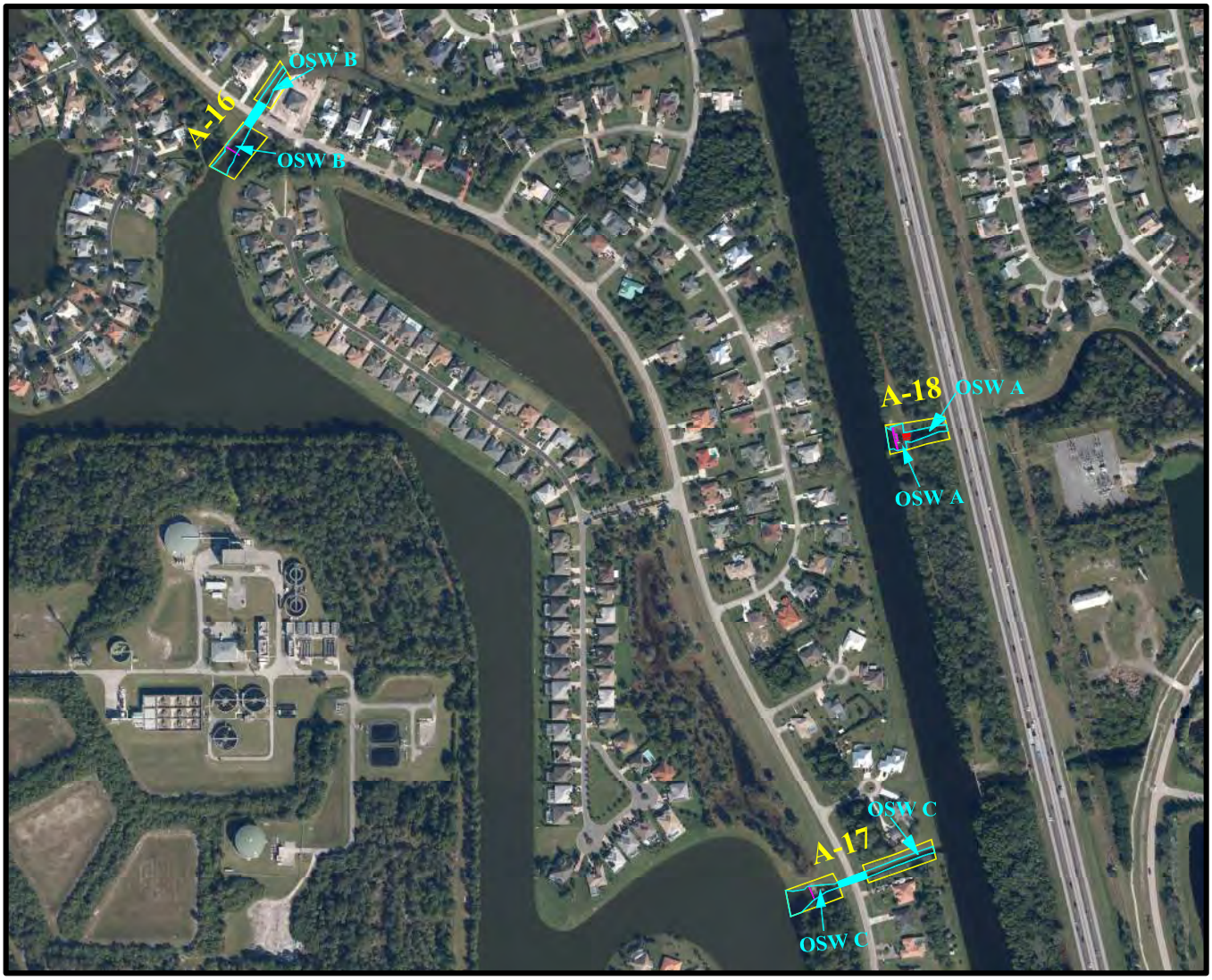
NOT A LAND BOUNDARY SURVEY

CAPTEC Engineering, Inc.
Civil Engineering Professionals
300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business No. EB-0007657

NORTH

0' 300' 600' 1,200' 2,400'

SCALE: 1" = 600'



LEGEND:

- OSWs (OSW A ±0.18 ACRES), (OSW B ±0.25 ACRES), (OSW C ±0.33 ACRES)
- CPSL WATER CONTROL STRUCTURES
- CULVERT CONNECTION

*** IT IS HSE'S OPINION THAT THERE ARE ZERO (0) JURISDICTIONAL WETLANDS AND THREE (3) OSWs WITHIN THE BOUNDARIES OF THE PROJECT SITE.**

**** THIS SITE HAS NOT YET BEEN REVIEWED BY STATE OR FEDERAL AGENCY PERSONNEL.**

SOURCE: 2023 FDOT AERIAL, HSE SITE VIST

PARCEL ID #:4420-800-0003-000-9, 3420-680-0006-010-4, 3420-680-0003-000-0

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 23 - 036.01	DRAWING NAME: 30 - WETKEY.DWG	DATE: 05 OCTOBER 2023	APPENDIX A FIGURE: 30 OF 38
	20,21,28	37S	40E				
LATITUDE: 27°14'24.215" (NORTH) TO LATITUDE: 27°13'58.337" (SOUTH)		LONGITUDE: -80°21'07.747" (NORTH) TO LONGITUDE: -80°20'45.683" (SOUTH)			DESIGNED BY: RLW	DRAWN BY: DMB	CHECKED BY: FRP

CAPTEC ENGINEERING, INC.

PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18

WETLAND AND WILDLIFE ASSESSMENT (WWA)

PROJECT KEY: WETLAND AND OSW MAP

HSE
Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

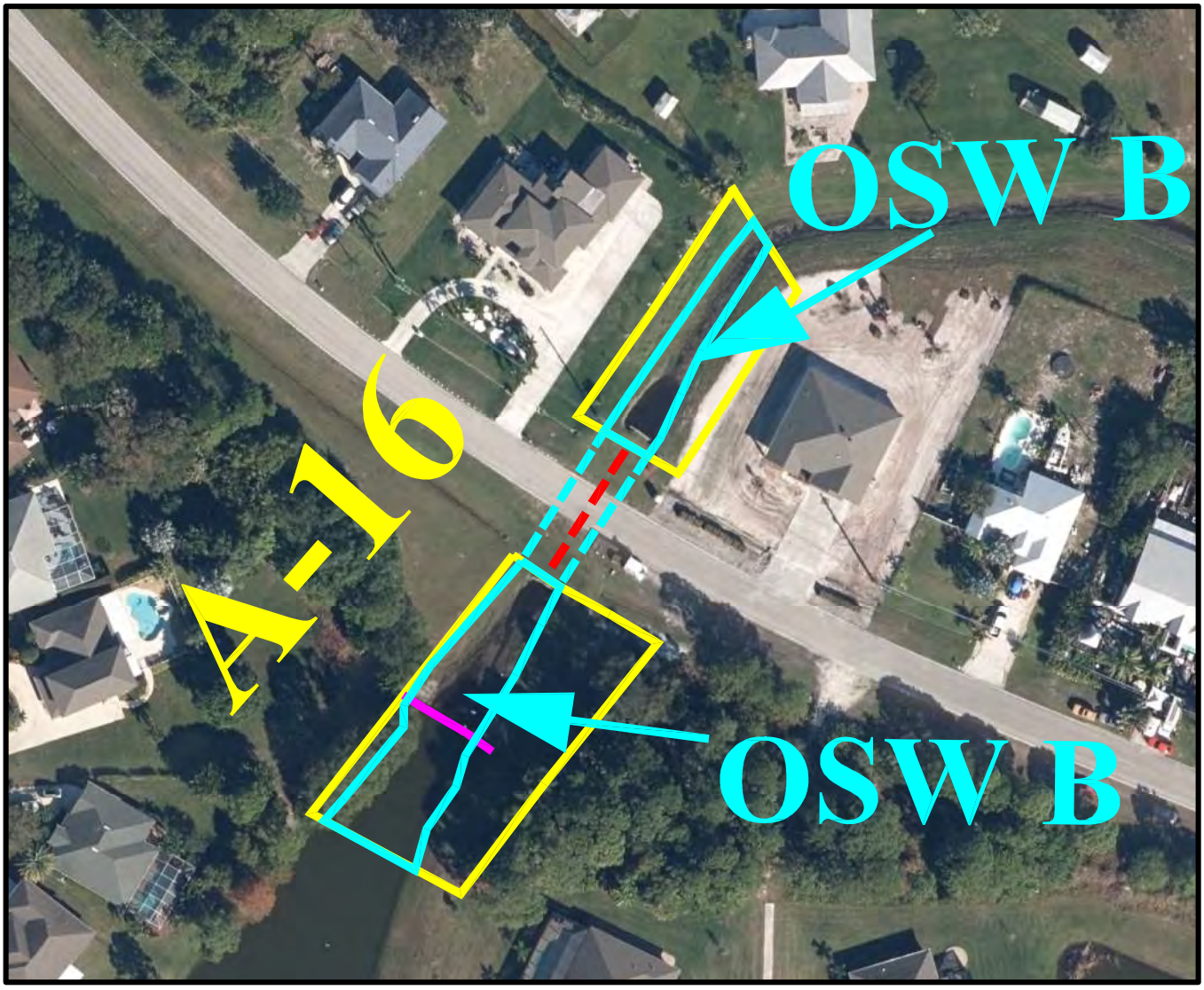
NOT A LAND BOUNDARY SURVEY

CAPTEC Engineering, Inc.
Civil Engineering Professionals
300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business No. EB-0007657

NORTH

0' 50' 100' 200' 400'

SCALE: 1" = 100'



LEGEND:

- OSW B (±0.25 ACRES)
- CPSL WATER CONTROL STRUCTURES
- CULVERT CONNECTION

*** IT IS HSE'S OPINION THAT THERE ARE ZERO (0) JURISDICTIONAL WETLANDS AND ONE (1) OSW WITHIN THE BOUNDARIES OF THE PROJECT SITE.**
**** THIS SITE HAS NOT YET BEEN REVIEWED BY STATE OR FEDERAL AGENCY PERSONNEL.**

SOURCE: 2023 FDOT AERIAL, HSE SITE VIST

PARCEL ID #:4420-133-0001-000-8

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 23 - 036.01	DRAWING NAME: 31 - WET MAP.DWG	DATE: 05 OCTOBER 2023	APPENDIX A FIGURE: 31 OF 38
	20	37S	40E				
LATITUDE: 27°14'24.215"		LONGITUDE: -80°21'07.747"		DESIGNED BY: RLW	DRAWN BY: DMB	CHECKED BY: FRP	

CAPTEC ENGINEERING, INC.
PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18
WETLAND AND WILDLIFE ASSESSMENT (WWA)
A - 16 WETLAND AND OSW MAP

HSE
Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

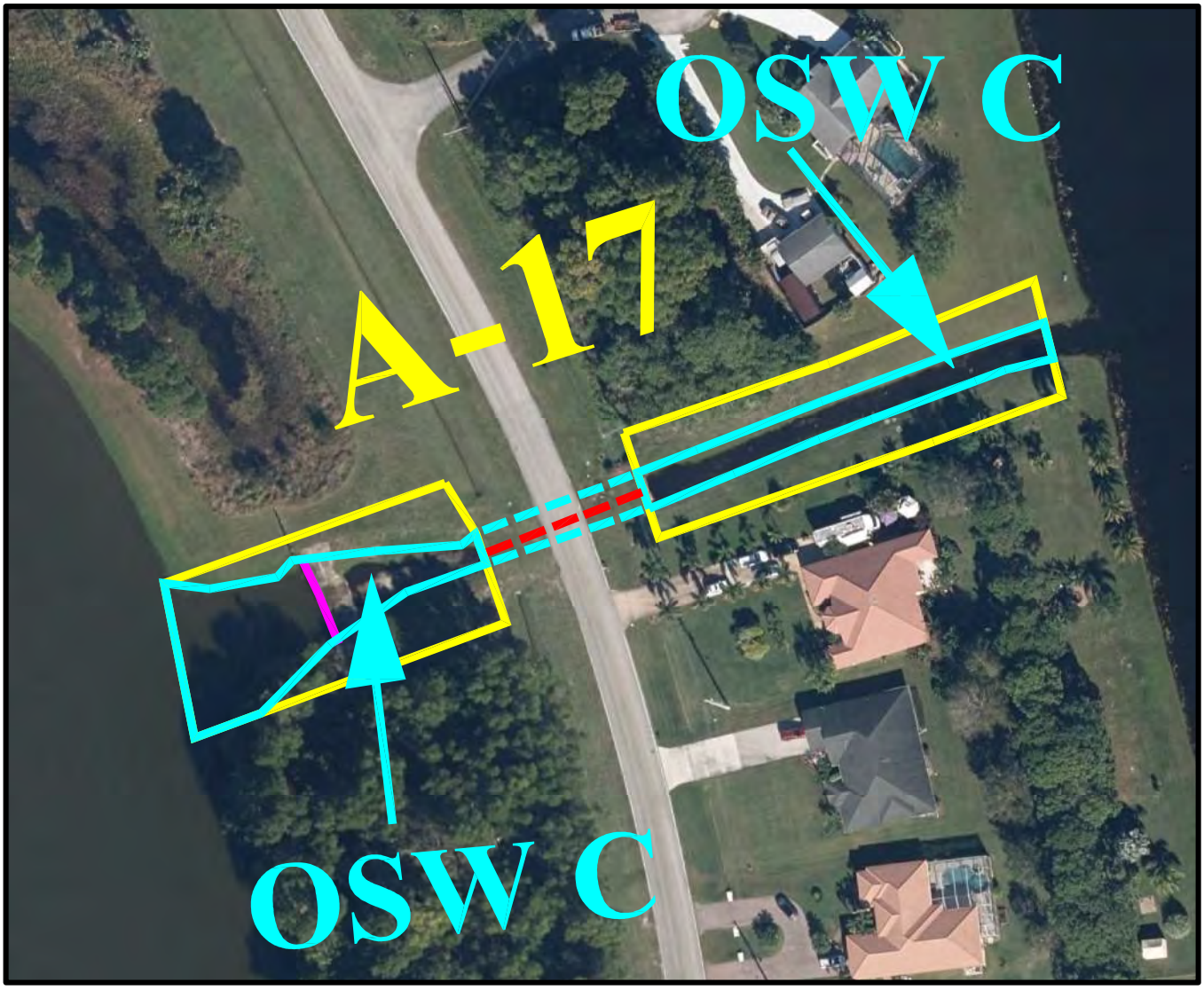
NOT A LAND BOUNDARY SURVEY

CAPTEC Engineering, Inc.
Civil Engineering Professionals
300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business No. EB-0007657

NORTH

0' 50' 100' 200' 400'

SCALE: 1" = 100'



LEGEND:

- OSW C (±0.33 ACRES)
- CPSL WATER CONTROL STRUCTURES
- CULVERT CONNECTION

*** IT IS HSE'S OPINION THAT THERE ARE ZERO (0) JURISDICTIONAL WETLANDS AND ONE (1) OSW WITHIN THE BOUNDARIES OF THE PROJECT SITE.**
**** THIS SITE HAS NOT YET BEEN REVIEWED BY STATE OR FEDERAL AGENCY PERSONNEL.**

SOURCE: 2023 FDOT AERIAL, HSE SITE VIST

PARCEL ID #:3420-680-0006-010-4

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 23 - 036.01	DRAWING NAME: 32 - WET MAP.DWG	DATE: 05 OCTOBER 2023	APPENDIX A FIGURE: 32 OF 38
	28	37S	40E				
LATITUDE: 27°13'58.337"		LONGITUDE: -80°20'45.683"		DESIGNED BY: RLW	DRAWN BY: DMB	CHECKED BY: FRP	

CAPTEC ENGINEERING, INC.
PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18
WETLAND AND WILDLIFE ASSESSMENT (WWA)
A - 17 WETLAND AND OSW MAP

HSE
Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

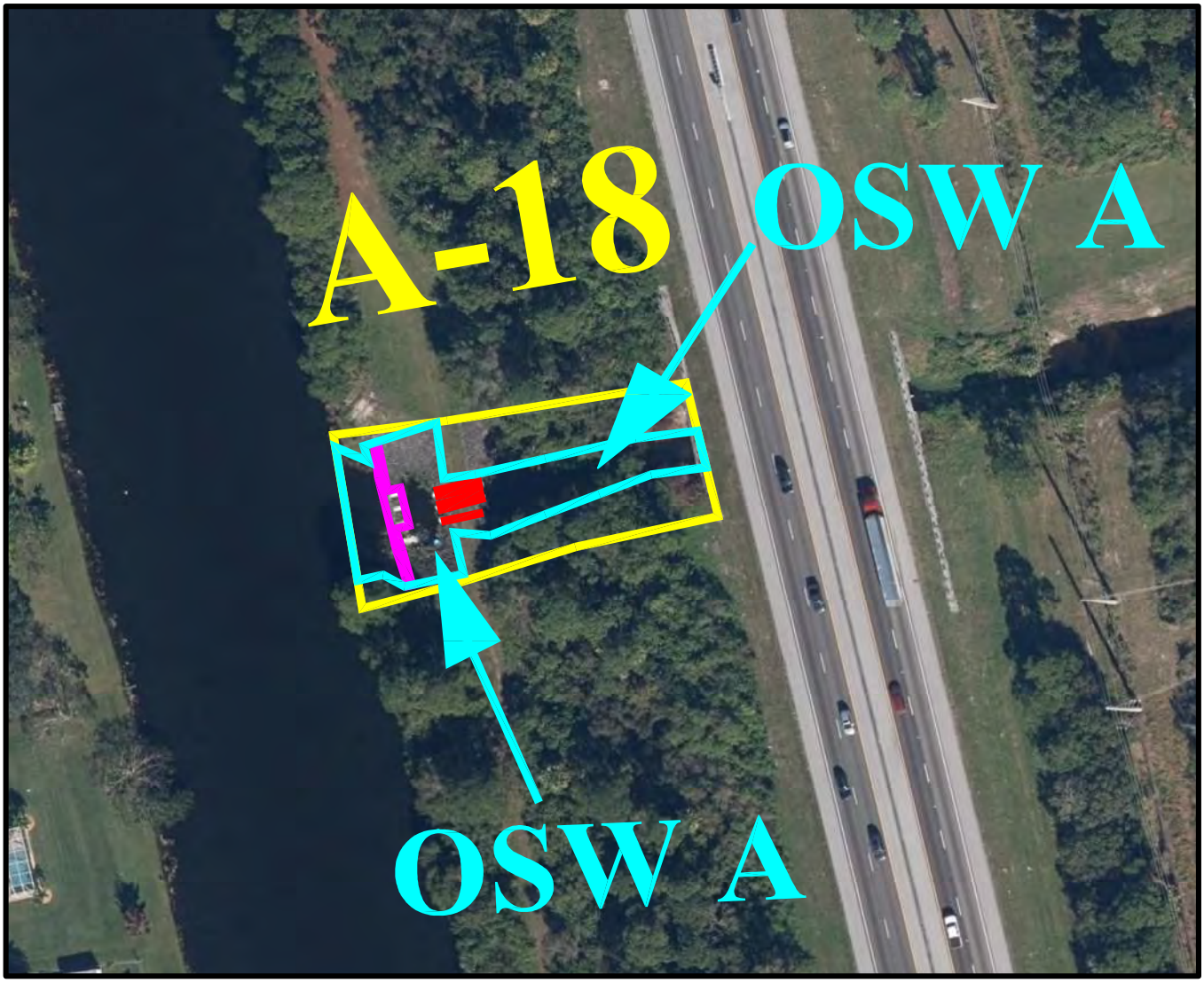
NOT A LAND BOUNDARY SURVEY

CAPTEC Engineering, Inc.
Civil Engineering Professionals
300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business No. EB-0007657

NORTH

0' 50' 100' 200' 400'

SCALE: 1" = 100'



LEGEND:

- OSW A (±0.18 ACRES)
- CPSL WATER CONTROL STRUCTURES
- CULVERT CONNECTION

*** IT IS HSE'S OPINION THAT THERE ARE ZERO (0) JURISDICTIONAL WETLANDS AND ONE (1) OSW WITHIN THE BOUNDARIES OF THE PROJECT SITE.**
**** THIS SITE HAS NOT YET BEEN REVIEWED BY STATE OR FEDERAL AGENCY PERSONNEL.**

SOURCE: 2023 FDOT AERIAL, HSE SITE VIST

PARCEL ID # 3420-680-0003-000-0

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 23 - 036.01	DRAWING NAME: 33 - WET MAP.DWG	DATE: 05 OCTOBER 2023	APPENDIX A FIGURE: 33 OF 38
	21	37S	40E				
LATITUDE: 27°14'14.101"		LONGITUDE: -80°20'42.139"		DESIGNED BY: RLW	DRAWN BY: DMB	CHECKED BY: FRP	

CAPTEC ENGINEERING, INC.
PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18
WETLAND AND WILDLIFE ASSESSMENT (WWA)
A - 18 WETLAND AND OSW MAP

HSE
Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

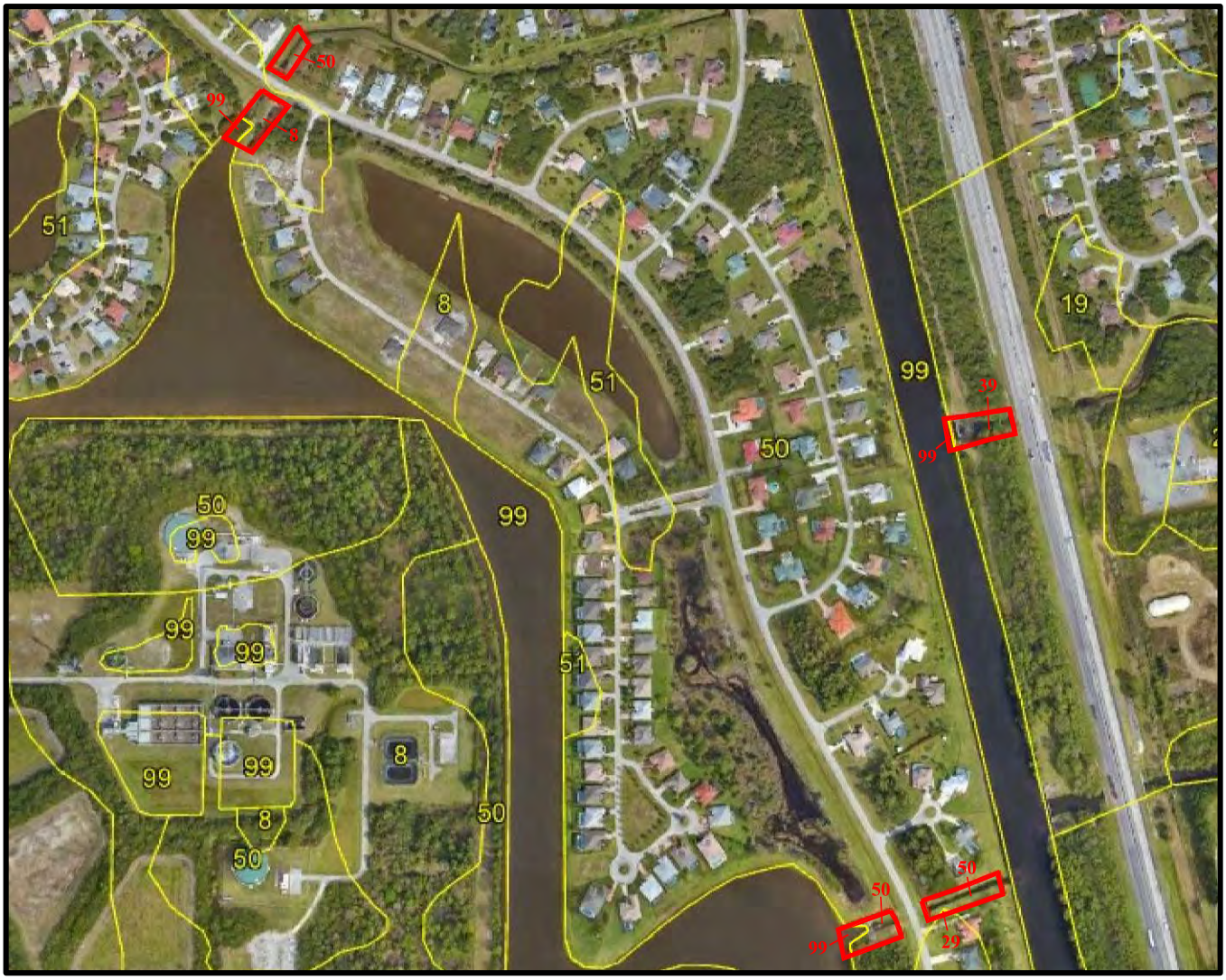
NOT A LAND BOUNDARY SURVEY

CAPTEC Engineering, Inc.
Civil Engineering Professionals
300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business No. EB-0007657

NORTH

0' 275' 550' 1,100' 2,200'

SCALE: 1" = 550'



LEGEND

8 - BASINGER SAND, 0 TO 2 PERCENT SLOPES
29 - PENDARVIS AND POMELLO SANDS, 0 TO 5 PERCENT SLOPES
39 - SALERNO AND PUNTA SANDS
50 - WAVELAND AND IMMOKALEE FINE SANDS
99 - WATER

SOURCE: https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

PARCEL ID #:4420-800-0003-000-9, 3420-680-0006-010-4, 3420-680-0003-000-0

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 23 - 036.01	DRAWING NAME: 34-SOILKEY.DWG	DATE: 05 OCTOBER 2023	APPENDIX A FIGURE: 34 OF 38
	20,21,28	37S	40E				
LATITUDE: 27°14'24.215" (NORTH) TO LATITUDE: 27°13'58.337" (SOUTH)		LONGITUDE: -80°21'07.747" (NORTH) TO LONGITUDE: -80°20'45.683" (SOUTH)			DESIGNED BY: RLW	DRAWN BY: MAR	CHECKED BY: FRP

CAPTEC ENGINEERING, INC.
PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18
WETLAND AND WILDLIFE ASSESSMENT (WWA)
NRCS SOIL KEY MAP

HSE Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

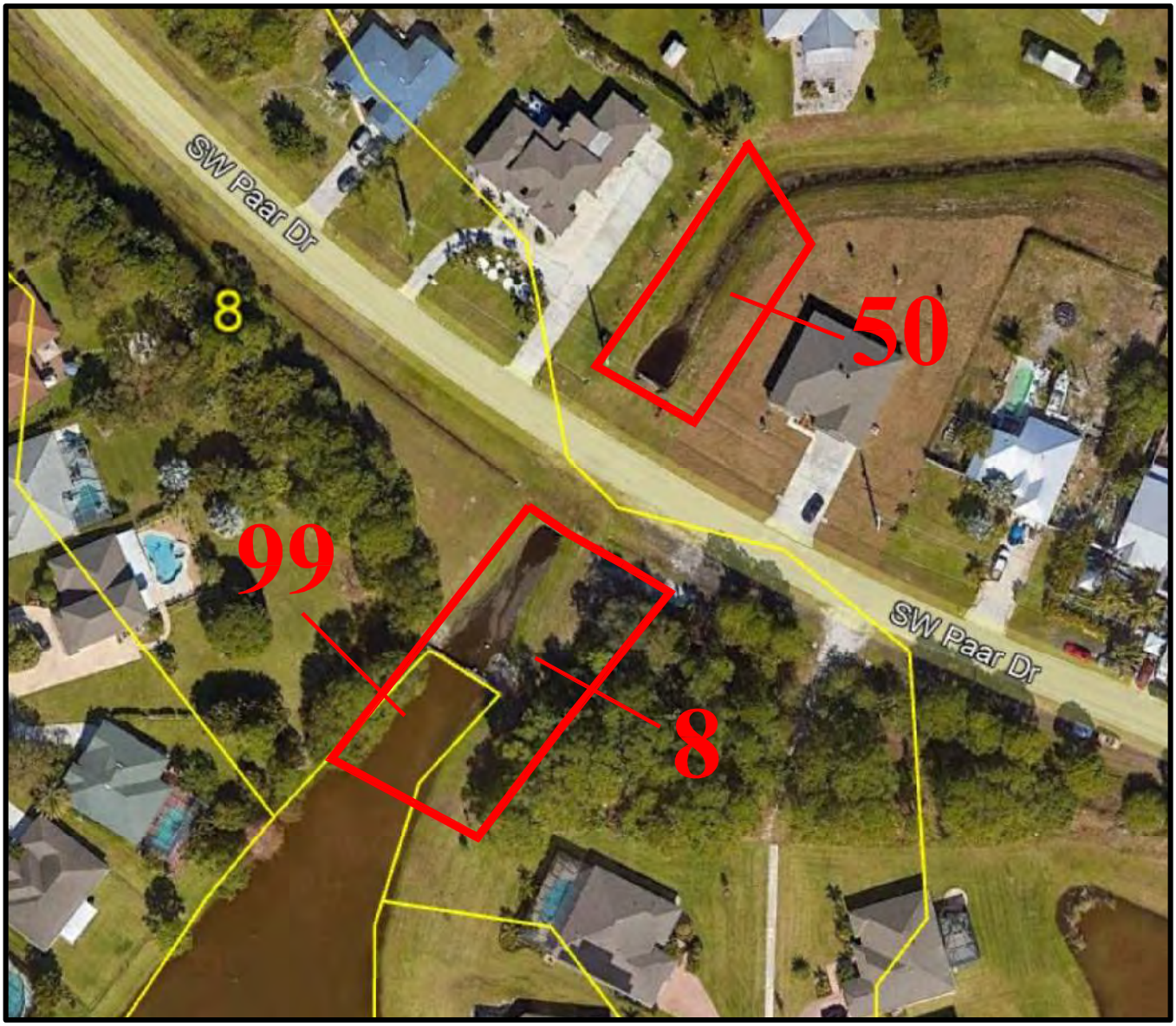
NOT A LAND BOUNDARY SURVEY

CAPTEC Engineering, Inc.
Civil Engineering Professionals
300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business No. EB-0007657

NORTH

0' 50' 100' 200' 400'

SCALE: 1" = 100'



LEGEND

8 - BASINGER SAND, 0 TO 2 PERCENT SLOPES
50 - WAVELAND AND IMMOKALEE FINE SANDS
99 - WATER

SOURCE: https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

PARCEL ID #:4420-133-0001-000-8

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 23 - 036.01	DRAWING NAME: 35-A16SOIL.DWG	DATE: 05 OCTOBER 2023	APPENDIX A FIGURE: 35 OF 38
	20	37S	40E				
LATITUDE: 27°14'24.215"		LONGITUDE: -80°21'07.747"		DESIGNED BY: RLW	DRAWN BY: MAR	CHECKED BY: FRP	

CAPTEC ENGINEERING, INC.
PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18
WETLAND AND WILDLIFE ASSESSMENT (WWA)
A - 16 NRCS SOIL MAP

HSE Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

NOT A LAND BOUNDARY SURVEY

CAPTEC Engineering, Inc.
Civil Engineering Professionals
300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business No. EB-0007657

NORTH

0' 50' 100' 200' 400'

SCALE: 1" = 100'

LEGEND

29 - PENDARVIS AND POMELLO SANDS, 0 TO 5 PERCENT SLOPES
50 - WAVELAND AND IMMOKALEE FINE SANDS
99 - WATER

SOURCE: https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

PARCEL ID #:3420-680-0006-010-4

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 23 - 036.01	DRAWING NAME: 36-A17SOIL.DWG	DATE: 05 OCTOBER 2023	APPENDIX A FIGURE: 36 OF 38
	28	37S	40E				
LATITUDE: 27°13'58.337"		LONGITUDE: -80°20'45.683"		DESIGNED BY: RLW	DRAWN BY: MAR	CHECKED BY: FRP	

CAPTEC ENGINEERING, INC.
PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18
WETLAND AND WILDLIFE ASSESSMENT (WWA)
A - 17 NRCS SOIL MAP

HSE Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

NOT A LAND BOUNDARY SURVEY

CAPTEC Engineering, Inc.
Civil Engineering Professionals
300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business No. EB-0007657

NORTH

0' 50' 100' 200' 400'

SCALE: 1" = 100'

LEGEND

39 - SALERNO AND PUNTA SANDS
99 - WATER

SOURCE: https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

PARCEL ID # 3420-680-0003-000-0

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 23 - 036.01	DRAWING NAME: 37-A18SOIL.DWG	DATE: 05 OCTOBER 2023	APPENDIX A FIGURE: 37 OF 38
	21	37S	40E				
LATITUDE: 27°14'14.101"		LONGITUDE: -80°20'42.139"		DESIGNED BY: RLW	DRAWN BY: MAR	CHECKED BY: FRP	

CAPTEC ENGINEERING, INC.
PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18
WETLAND AND WILDLIFE ASSESSMENT (WWA)
A - 18 NRCS SOIL MAP

HSE Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

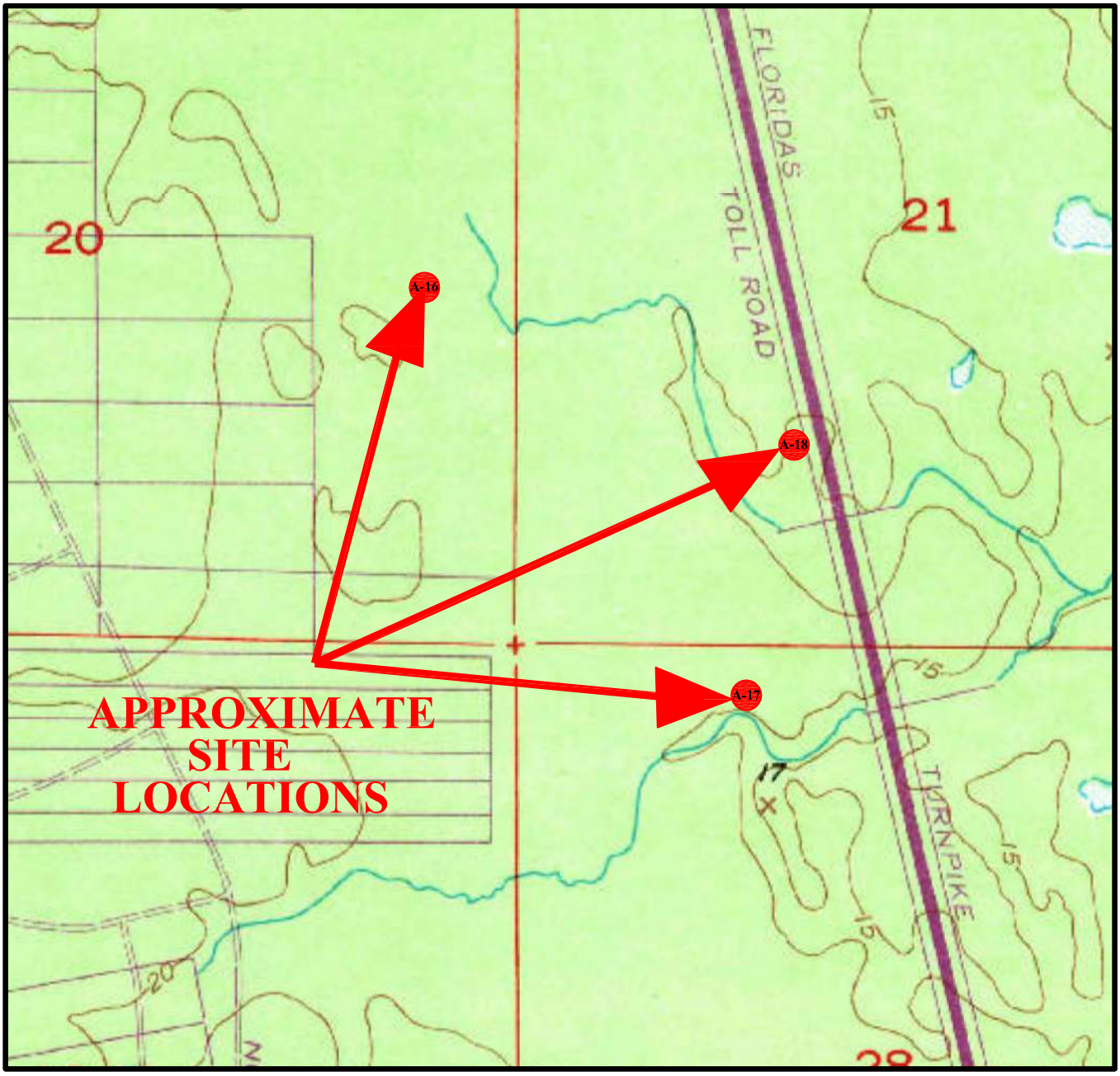
NOT A LAND BOUNDARY SURVEY

CAPTEC Engineering, Inc.
Civil Engineering Professionals
300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business No. EB-0007657

NORTH

0' 500' 1,000' 2,000' 4,000'

SCALE: 1" = 1,000'



SOURCE: https://ngmdb.usgs.gov/topoview/

PARCEL ID #:4420-800-0003-000-9, 3420-680-0006-010-4, 3420-680-0003-000-0

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 23 - 036.01	DRAWING NAME: 38-TOPO.DWG	DATE: 05 OCTOBER 2023	APPENDIX A FIGURE: 38 OF 38
	20,21,28	37S	40E				
LATITUDE: 27°14'24.215" (NORTH) TO LATITUDE: 27°13'58.337" (SOUTH)				LONGITUDE: -80°21'07.747" (NORTH) TO LONGITUDE: -80°20'45.683" (SOUTH)	DESIGNED BY: RLW	DRAWN BY: DMB	CHECKED BY: FRP

CAPTEC ENGINEERING, INC.
PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18
WETLAND AND WILDLIFE ASSESSMENT (WWA)
USGS TOPOGRAPHIC MAP

HSE
Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

APPENDIX B

SITE PHOTOGRAPHS

NOT A LAND BOUNDARY SURVEY

SCALE = NTS

CAPTEC Engineering, Inc.
Civil Engineering Professionals
300 SW St. Lucie Ave
Stuart, Florida 34994
Phone: (561) 692-4344
Fax: (561) 692-4341
E-mail: Captec1@aol.com
Engineering Business No. EB-0007657

PHOTOGRAPH #01: A-17 WATER CONTROL STRUCTURE, FACING WEST

PHOTOGRAPH #02: INVASIVE GREEN IGUANA (*Iguana iguana*) ON CPSL WATER CONTROL STRUCTURES AT A-16

PHOTOGRAPH #03: A-18 CULVERTS, FACING EAST

PHOTOGRAPH #04: A-18 DITCH, FACING EAST

PHOTOGRAPH #05: A-16 DITCH, FACING NORTH

PHOTOGRAPH #06: WOODSTORK (*Mycteria americana*) FORAGING NEAR A-17 WATER CONTROL STRUCTURE

SOURCE: HSE SITE VISIT

PARCEL ID #:4420-800-0003-000-9, 3420-680-0006-010-4, 3420-680-0003-000-0

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 23 - 036.01	DRAWING NAME: APP B -PHOTOS.DWG	DATE: 05 OCTOBER 2023	APPENDIX B: FIGURE: 1 OF 1
	20,21,28	37S	40E				
LATITUDE: 27°14'24.215" (NORTH) TO LATITUDE: 27°13'58.337" (SOUTH)				LONGITUDE: -80°21'07.747" (NORTH) TO LONGITUDE: -80°20'45.683" (SOUTH)	DESIGNED BY: RLW	DRAWN BY: MAR	CHECKED BY: FRP

CAPTEC ENGINEERING, INC.

PSL WATERSHED CONTROL STRUCTURES A-16, A-17, A-18

WETLAND AND WILDLIFE ASSESSMENT (WWA)

PROJECT SITE PHOTOGRAPHS

HSE
Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com