

December 5, 2016

(a)(1) will be located in an officially designated wilderness area

Applicant provided insufficient information for the Commission's staff to determine whether the proposed facility satisfies §1.1307(a)(1).

Response: The proposed activity is not located within a designated Wilderness Area as depicted on the Department of Interior Wilderness Location Map provided on www.wilderness.net/map.cfm. There are no designated Wilderness Locations within Orange County, Florida and more specifically within Orlando.

(a)(2) will be located in an officially designated wildlife preserve.

Applicant provided insufficient information for the Commission's staff to determine whether the proposed facility satisfies §1.1307(a)(2).

Response: The proposed activity is not located within a designated Wildlife Preserve as depicted on the USFWS refuge locator map provided on www.fws.gov/refuges/refugeLocatorMaps/Florida.html. It should be noted that there are no designated Wildlife Preserves within Orange County, Florida or the city of Orlando.

(a)(3) may affect listed threatened or endangered species or designated critical habitats; or is likely to jeopardize the continued existence of any proposed endangered or threatened species or likely to result in the destruction or adverse modification of proposed critical habitats.

Applicant provided insufficient information for the Commission's staff to determine whether the proposed facility satisfies §1.1307(a)(3).

Response: The environmental consultant has conducted several wildlife surveys spanning from 2010 to 2016. To date no observation or evidence of use by threatened or endangered species has been identified. It is our position that the proposed site will not have an adverse effect on listed threatened or endangered species or their designated critical habitat. The applicant has not received any written correspondence from either the USFWS or the FFWCC regarding the presence/absence of threatened or endangered species as it relates to the proposed project site. Please find the attached Environmental Assessment Report prepared by Bio-Tech Consulting, Inc. as it relates to the subject property.

(a)(4) May affect districts, sites, buildings, structures, or objects significant in American history, architecture, archeology, engineering or culture, that are listed, or are eligible for listing, in the National Register of Historic Places.

Response: Please find a copy of the attached Cultural Resources Reconnaissance & Survey. Based upon the attached report it is unlikely that the site may affect districts, sites, buildings, structures, or objects significant in American History, architecture, archeology, engineering or culture, that are listed, or are eligible for listing, in the National Register of Historic Places.

(a)(5) may affect Indian religious sites

Provide an explanation of how the applicant determined that the proposed facility would not affect Indian religious sites. Provide documentation of the applicant's good faith efforts to determine whether the proposed antenna structure may affect any Indian religious sites, including any archeological effects on Indian burial mounds. Attach copies of any letters or studies completed by archeologists for the proposed antenna structure. Include reference to any databases, maps, or other resources consulted to identify Indian Tribes whose religious sites might be affected. Attach copies of all correspondence the applicant or its consultant sent to or received from an Indian Tribe regarding the proposed antenna structure, other than correspondence that the Tribe has asked to maintain confidential.

Response: The applicant conducted a Cultural Resources Survey to determine the potential presence of Indian religious sites. There were no records observed or anticipated to occur within the limits of the subject parcel.

(a)(6) Will be located in a floodplain.

If the proposed facility would not be located in a flood plain, provide a copy of the section of the relevant map from the Federal Emergency Management Agency (FEMA) showing that the proposed antenna structure will not be located in a flood plain.

If the proposed facility would be located in a flood plain, provide a copy of the section of the relevant map from the Federal Emergency Management Agency (FEMA) showing the location of the proposed antenna structure. In addition, provide a copy of the building permit from the local jurisdiction where the proposed antenna structure will be located that shows the proposed structure is at least one foot above the flood plain. If the local jurisdiction does not issue building permits, provide independent verification that shows the proposed structure is at least one foot above the flood plain.

Response: Please find the attached FEMA map indicating the presence of floodplain within the property. A copy of the proposed site plan has been attached for review and use. The engineer of record has indicated that the structure will be at least one foot above the flood plain.

(a)(7) Construction will involve significant change in surface features (e.g., wetland fill, deforestation, or water diversion)

Response: A portion of the site is identified as wetland and depicted on the attached environmental assessment report prepared by BTC. To date the applicant has not applied for a permit from the St. Johns River Water Management District or the United States Army Corps of Engineers. A copy of pertinent wetland permits will be provided upon receipt.

(a)(8) will be equipped with high intensity white lights which are to be located in residential neighborhoods, as defined by the applicable zoning law.

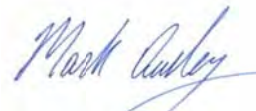
Provide documentation that the proposed antenna structure will not be located in a residential neighborhood, as defined by the applicable zoning law (relevant only where high intensity white lights are required by the Federal Aviation Administration (FAA)).

(b) would cause human exposure to levels of radiofrequency radiation in excess of Commission-adopted guidelines.

Response:

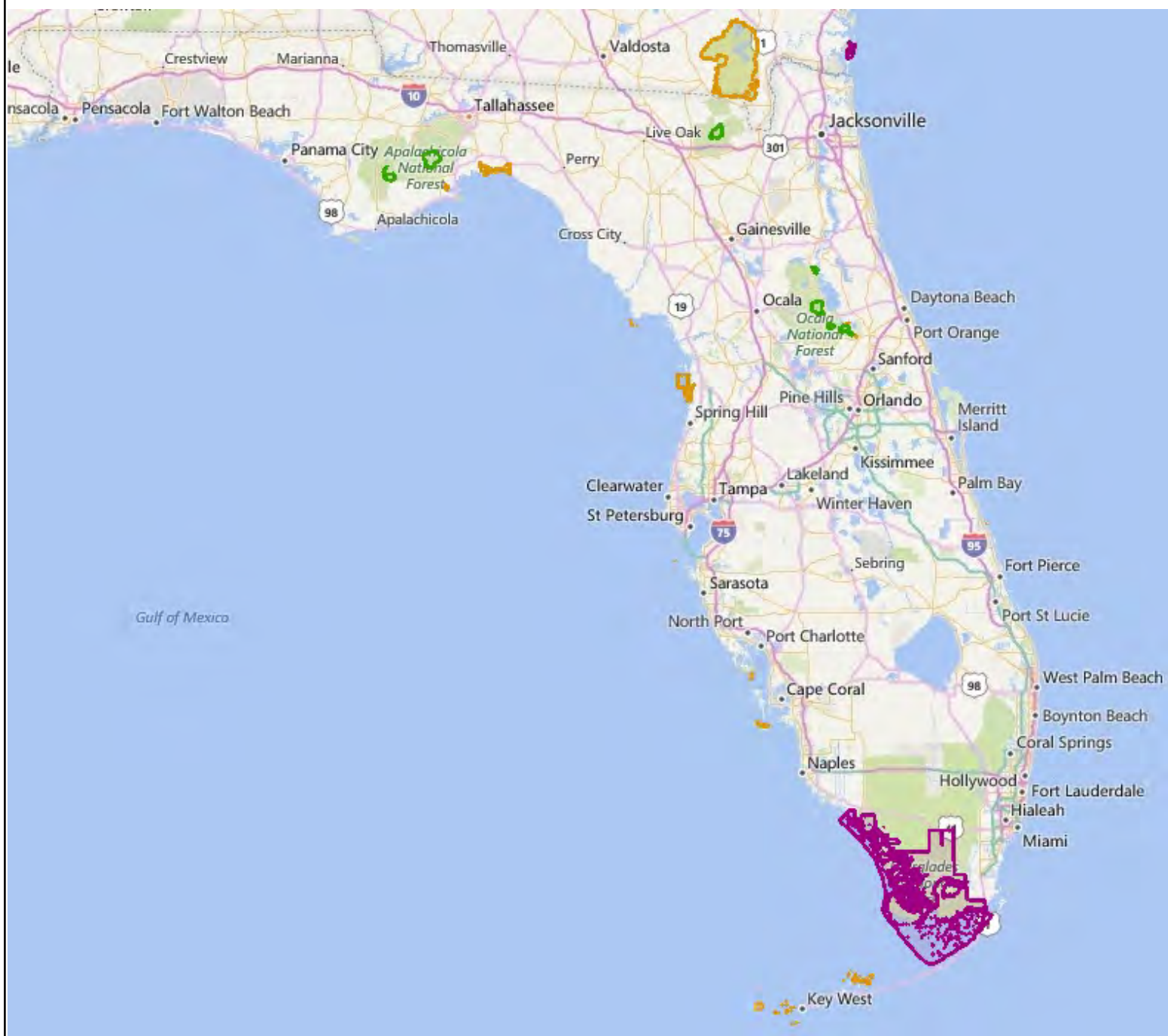
If you have any questions or require additional information in support of this request, please do not hesitate to contact me at (407) 894-5969.

Thanks



Mark A. Ausley

Project Manager



Wildernesses Managed By: ■ Bureau of Land Management ■ Fish and Wildlife Service ■ Forest Service ■ National Park Service





May 9, 2016

Carl Como Tuteria
Oates Creek, LLC
357 Ocean Shore Blvd.
Ormond Beach, FL 32716

Proj: Oates Creek; Orange County, Florida
Parcel ID: 21-22-29-5844-00-090
Section 21, Township 22 South, Range 29 East
(BTC File # 878-01)
Re: Preliminary Environmental Assessment

Dear Mr. Tuteria:

In November of 2015, Bio-Tech Consulting, Inc. (BTC) conducted an environmental assessment of the approximately 9.73-acre Oates Creek site. The site is located west of US-441 and north of SR 408, southwest of the intersection of John Young Parkway and Princeton Street, within Section 21, Township 22 South, Range 29 East, Orange County, Florida, (Figures 1, 2, and 3). This environmental assessment included the following elements:

- **review of soil types mapped within the site boundaries;**
- **evaluation of land use types/vegetative communities present;**
- **field review for occurrence of protected flora and fauna; and,**
- **overview of potential development constraints.**

SOILS

According to the Soil Survey of Orange County, Florida, prepared by the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), two (2) soil types occur within the subject property boundaries (Figure 4). These soil types include the following:

Orlando Office
2002 East Robinson St.
Orlando, FL 32803

Vero Beach Office
4445 N. A1A
Suite 221
Vero Beach, FL 32963

Jacksonville Office
2036 Forbes St.
Jacksonville, FL 32204

Tampa Office
6011 Benjamin Rd.
Suite 101 B
Tampa, FL 33634

Key West Office
1107 Key Plaza
Suite 259
Key West, FL 33040

**Aquatic & Land
Management Operations**
3825 Rouse Rd.
Orlando, FL 32817

Native Plant Nursery
DCC Farms
8580 Bunkhouse Rd.
Orlando, FL 32832

407.894.5969
877.894.5969
407.894.5970 fax

- **Basinger fine sand, depressional (#3)**
- **Samsula-Hontoon-Basinger association, depressional (#41)**

The following presents a brief description of each of the soil types mapped for the subject property:

Basinger fine sand, depressional (#3) is a poorly drained, nearly level sandy soil found mainly in depressions and in a few poorly drained waterways in the flatwoods and sandhills. Typically, the surface layer is gray fine sand about 5 inches. The water table is above the surface for several months in most years. The rest of the time it is within 30 inches except for very dry periods. Permeability is very rapid throughout.

Samsula-Hontoon-Basinger association, depressional (#41) are nearly level, very poorly drained soils found in freshwater swamps, depressions, sloughs and broad poorly defined drainageways. Typically the surface layer of Samsula soil is black and dark reddish brown muck about 34 inches thick. Typically the surface layer of Hontoon soil consists of black muck about 16 inches thick. Typically the surface layer of Basinger soil consists of black fine sand about 6 inches thick. During most years, the undrained areas of the soils in this map unit are ponded for 6 to 9 months or more except during extended dry periods. The permeability of Samsula and Hontoon soils is rapid. The permeability of Basinger soil is very rapid.

The Florida Association of Environmental Soil Scientists (FAESS) considers the main components of the Basinger fine sand, depressional (#3) and the Samsula-Hontoon-Basinger association, depressional (#41) soil types associated with the property to be hydric in nature. This information can be found in the Hydric Soils of Florida Handbook, Third Edition (March 2000).

LAND USE TYPES/VEGETATIVE COMMUNITIES

The Oates Creek site currently supports four (4) distinct land use types/vegetative communities within its boundaries (Figure 5). These areas were identified utilizing the Florida Land Use, Cover Forms Classification System, Level III (FLUCFCS, FDOT, January 1999). These land use types/vegetative communities include uplands and wetlands. The upland area consists of Upland Hardwood Forest (420) and Disturbed Lands (740). The wetland/surface water areas are classified as Streams and Waterways (Ditch) (510) and Wetland Forested Mixed (630). The following provides a brief description of these land use types/vegetative communities identified on the site:

Uplands:

420 Upland Hardwood Forest

The western portion of the subject site is comprised of upland forested community dominated by hardwoods and this land use type is best classified as Upland Hardwood Forest (420), per the FLUCFCS. Vegetative species identified within this community type include laurel oak (*Quercus laurifolia*), laurel cherry (*Prunus caroliniana*), Chinese tallow (*Triadica*



sebifera), camphor tree (*Cinnamomum camphora*), paper mulberry (*Broussonetia papyrifera*), water oak (*Quercus nigra*), laurel oak (*Quercus hemisphaerica*), slash pine (*Pinus elliottii*), saw palmetto (*Serenoa repens*), poison ivy (*Toxicodendron radicans*), American beautyberry (*Callicarpa americana*), muscadine grapevine (*Vitis rotundifolia*), caesarweed (*Urena lobata*), air potato (*Dioscorea bulbifera*), tuberous sword fern (*Nephrolepis cordifolia*), greenbrier (*Smilax* spp.), Virginia creeper (*Parthenocissus quinquefolia*) and blackberry (*Rubus cuneifolius*).

740 Disturbed Lands

There is one (1) area located along this eastern portion of the site which is comprised of glass bottles, concrete and other general trash items. This area appears to have been disturbed by past activities associated with historical dumping. The understory contains little vegetation and contains depressions and mounds of disturbed soils and this land use type is best classified as



Disturbed Lands (740), per the FLUCFCS. Vegetative species identified within this community type include ear-pod tree (*Enterolobium contortisliquum*), paper mulberry (*Broussonetia*

papyrifera), muscadine grapevine (*Vitis rotundifolia*), air potato vine (*Dioscorea bulbifera*), blackberry (*Rubus cuneifolius*), camphor tree (*Cinnamomum camphora*), saw palmetto (*Serenoa repens*) and greenbrier (*Smilax* spp.).

Wetlands/Surface Waters:

510 Streams and Waterways (Ditch)

One (1) ditch system exists along the southern boundary of the subject site. The primary ditch is named Fairvilla Canal, which has contributed significantly towards altering the hydrology and soils within the subject site, as well as adjacent sites. This surface water is best classified as Streams and Waterways (510), per the FLUCFCS. Vegetation observed within



this ditch includes water hyacinth (*Eichhornia crassipes*), duckweed (*Lemna minor*), nutsedge (*Cyperus rivularis*), smartweed (*Polygonum punctatum*), pennywort (*Hydrocotyle umbellata*), Peruvian primrosewillow (*Ludwigia peruviana*) and torpedograss (*Panicum repens*).

630 Wetland Forested Mixed

There is one (1) wetland system located in the central portion of the site which exhibits poor conditions with various exotic and invasive species present. This wetland system has been significantly altered due to the large drainage ditch that runs along the southern boundary of the subject site. The historic drainage of this system has deteriorated the hydrological conditions of the wetland. The wetland exhibits decaying cypress trees due to extensive soil subsidence (Approximately 2-4 feet). This wetland system is best classified as Wetland Forested



Mixed (630), per the FLUCFCS. Vegetation observed within this wetland includes red maple (*Acer rubrum*), bald cypress (*Taxodium distichum*), camphor tree (*Cinnamomum camphora*), Chinese tallow (*Triadica sebifera*), loblolly bay (*Gordonia lasianthus*), elderberry (*Sambucus canadensis*), broomsedge (*Andropogon virginicus*), tuberous sword fern (*Nephrolepis cordifolia*), swamp fern (*Blechnum serrulatum*), cinnamon fern (*Osmunda cinnamomea*), blackberry (*Rubus cuneifolius*), Peruvian primrosewillow (*Ludwigia peruviana*), poison ivy (*Toxicodendron radicans*), old world climbing fern (*Lygodium microphyllum*), air potato vine (*Dioscorea bulbifera*), caesarweed (*Urena lobata*), wild taro (*Colocasia esculenta*), greenbriar (*Smilax* spp.), muscadine grape (*Vitis rotundifolia*) and maidencane (*Panicum hemitomon*).

PROTECTED SPECIES

Using methodologies outlined in the Florida's Fragile Wildlife (Wood, 2001); Measuring and Monitoring Biological Diversity Standard Methods for Mammals (Wilson, et al., 1996); Wildlife Methodology Guidelines (1988); and Florida Fish and Wildlife Conservation Commission's Gopher Tortoise Permitting Guidelines (revised September 2015); an assessment for "listed" floral and faunal species was conducted at the site on November 30, 2015. This assessment, which covered approximately 100% of the subject site's developable area, included both direct observations and indirect evidence, such as tracks, burrows, tree markings and vocalizations which indicated the presence of species observed. The assessment focused on species that are "listed" by the FFWCC's Official Lists - Florida's Endangered Species, Threatened Species and Species of Special Concern (January 2013) that have the potential to occur in Orange County.

Reptiles and Amphibians

black racer (*Coluber constrictor*)
brown anole (*Norops sagrei*)
southern leopard frog (*Rana sphenoccephala*)
green anole (*Anolis caroliniana*)

Birds

Mourning Dove (*Zenaida macroura*)
Northern Mockingbird (*Mimus polyglottos*)
Red-bellied Woodpecker (*Melanerpes carolinus*)
Red-shouldered Hawk (*Buteo lineatus*)
Turkey Vulture (*Cathartes aura*)

Mammals

armadillo (*Dasypus novemcinctus*)
eastern gray squirrel (*Sciurus carolinensis*)
Virginia opossum (*Didelphis virginiana*)
raccoon (*Procyon lotor*)

None of the above wildlife species is identified in the FFWCC's Official Lists - Florida's Endangered Species, Threatened Species and Species of Special Concern (Updated January 2013).

Bald Eagle (*Haliaeetus leucocephalus*)
USFWS Listed as “Threatened”

In addition to the on-site review for “listed” species, BTC conducted a review of the FFWCC’s recorded Bald Eagle (*Haliaeetus leucocephalus*) nest sites on or in the vicinity of the subject property. This review revealed no Bald Eagle nests, through the 2014-2015 nesting season, within one (1.0) mile of the subject site. As such, there should be no further action pertaining to Bald Eagle nests and the subject property.

USFWS CONSULTATION AREAS

The U.S. Fish and Wildlife Service has established “consultation areas” for certain listed species. Generally, these consultation areas only become an issue if USFWS consultation is required, which is usually associated with permitting through the U.S. Army Corps of Engineers. The reader should be aware that species presence and need for additional review are often determined to be unnecessary early in the permit review process due to lack of appropriate habitat or other conditions. However, the USFWS makes the final determination.

Consultation areas are typically regional in size, often spanning multiple counties where the species in question is known to exist. Consultation areas by themselves do not indicate the presence of a listed species. They only indicate an area where there is a potential for a listed species to occur and that additional review might be necessary to confirm or rule-out the presence of the species. The additional review typically includes the application of species-specific criteria to rule-out or confirm the presence of the species in question. Such criteria might consist of a simple review for critical habitat types. In other cases, the review might include the need for species-specific surveys using established methodologies that have been approved by the USFWS.

The Oates Creek site is located within three (3) USFWS Consultation Areas which include the Everglade Snail Kite (*Rostrhamus sociabilis*), Florida Scrub-Jay (*Aphelocoma coerulescens*) and Sand Skink (*Neoseps reynoldsi*). The following provides a brief description of this respective species, its habitat and the potential for additional review:

Everglade Snail Kite (*Rostrhamus sociabilis*)
Federally Listed as “Endangered” by USFWS

The subject site falls within the USFWS Consultation Area for the Everglade Snail Kite. Currently the Snail Kite is listed as “Endangered” by the USFWS. Snail Kites are similar in size to Red-shouldered Hawks. All Snail Kites have deep red eyes and a white rump patch. Males are slate gray, and females and juveniles vary in amounts of white, light brown, and dark brown, but the females always have white on their chin. Kites vocalize mainly during courtship and nesting. They may occur in nearly all of the wetlands of central and southern Florida. They regularly occur in lake shallows along the shores and islands of many major lakes, including Lakes Okeechobee, Kissimmee, Tohopekaliga (Toho) and East Toho. They also regularly occur

in the expansive marshes of southern Florida such as Water Conservation Areas 1, 2, and 3, Everglades National Park, the upper St. John's River marshes and Grassy Waters Preserve.

No Snail Kites were observed within the subject site during the wildlife survey conducted by BTC. A formal survey may be required by the USFWS or another agency to determine if any Snail Kites utilize any portions of the site.

Florida Scrub-Jay (*Aphelocoma coerulescens*)
Federally Listed as "Threatened" by USFWS

Currently the Florida Scrub-Jay is listed as threatened by the USFWS. Florida Scrub Jays are largely restricted to scattered, often small and isolated patches of sand pine scrub, xeric oak, scrubby flatwoods, and scrubby coastal stands in peninsular Florida (Woolfenden 1978a, Fitzpatrick et al. 1991). They avoid wetlands and forests, including canopied sand pine stands. Optimal Scrub-Jay habitat is dominated by shrubby scrub, live oaks, myrtle oaks, or scrub oaks from 1 to 3 m (3 to 10 ft.) tall, covering 50% to 90 % of the area; bare ground or sparse vegetation less than 15 cm (6 in) tall covering 10% to 50% of the area; and scattered trees with no more than 20% canopy cover (Fitzpatrick et al. 1991).

No Scrub Jays were observed during the wildlife survey conducted by BTC and no suitable habitat exists on the subject property. As such, it is anticipated that no further action should be required pertaining to scrub Jays.

Sand Skink (*Neoseps reynoldsi*)
Federally Listed as "Threatened" by USFWS

The subject site falls within the Sand Skink Consultation Area for the United States Fish and Wildlife Service (USFWS). The sand skink is listed as "Threatened" by the USFWS. The sand skink exists in areas vegetated with sand pine (*Pinus clausa*) - rosemary (*Ceratiola ericoides*) scrub or a long leaf pine (*Pinus palustris*) - turkey oak (*Quercus laevis*) association. Habitat destruction is the primary threat to this species' survival. Citrus groves, residential, commercial and recreational facilities have depleted the xeric upland habitat of the sand skink. All properties within the limits of this consultation area that are located at elevations greater than 80' and contain suitable (moderate-to-well drained soils) soils are believed by USFWS to be areas of potential sand skink habitat.

The results of the pedestrian survey in November 2015 show no evidence (i.e. sinusoidal tracks) that indicate the presence of the sand skink. The site is within the USFWS Sand Skink Consultation Area and all of the uplands on the site remain 80 feet above sea level. However, the soils associated with the subject property do not contain suitable soils for the Sand Skink. As such, it is anticipated that no further action should be required pertaining to Sand Skinks.

DEVELOPMENT CONSTRAINTS

All wetlands and surface waters on the site have been delineated by BTC in accordance with local, state and federal guidelines utilizing pink “Bio-Tech Consulting” flagging tape (Figure 6). All wetland/surface water flag locations will need to be approved by the appropriate regulatory agencies. The on-site wetlands/surface waters are located within the Wekiva River Nested drainage basin. Development of the property is constrained by the presence of one (1) wetland system and one (1) surface water system on the subject site.

St. Johns River Water Management District

An Environmental Resource Permit (ERP) will be required through the St. Johns River Water Management District (SJRWMD) for all wetland and/or other surface water impacts (both direct and secondary). Impacts to the project’s wetland and/or other surface water communities would be permissible by SJRWMD as long as the issues of elimination and reduction of wetland impacts have been addressed and as long as the mitigation offered is sufficient to offset the functional losses incurred via the proposed impacts.

U.S. Army Corps of Engineers

Permitting may also be required for the project’s wetland and/or other surface water impacts by the US Army Corps of Engineers (USACOE). As the ERP is a joint application between the SJRWMD and the USACOE, the Corps will automatically be notified/copied upon submittal of the ERP application to the District. As with the District, it is anticipated that all impacts to the project’s wetlands and/or other surface water communities would be permissible by the USACOE as long as the issues of elimination and reduction of wetland impacts have been addressed and as long as the mitigation offered is sufficient to offset the functional losses incurred via the proposed impacts. It is our position based upon our preliminary review that the onsite wetlands are regulated by the Army Corps of Engineers (ACOE). Although, involvement by the ACOE will have to be resolved prior to site development.

City of Orlando

Coordination with the City of Orlando will be required pertaining to all on-site wetlands. A Q-WET rating system form was completed for the wetland system within the limits of the property. Please find these attached Q-WET form for the project site. Per the attached photographs and Q-WET forms, the on-site wetland (W-1) and surface water ditch (SW-1) rate low on the scale. This is due to the historically altered hydrology, proximity to major roadways, functional isolation, surrounding development and higher percent coverage of invasive/ exotic vegetation. The overall functionality of the on-site wetland and surface water systems are low according to the observations and results of the environmental assessment.

WETLAND ANALYSIS

A wetland analysis was performed during the Level C Environmental Assessment criteria. The on-site wetland area was analyzed by groundtruthing and soils sampling. A Q-WET rating system form was completed for the wetland area and for the surface water ditch on the southern boundary of the subject site. Please find the attached forms (Appendix A). Per the attached photographs and Q-WET Rating System Forms the on-site wetland rates low on the scale; with Wetland 1 achieving a total score of 3 out of 20 and Surface Water 1 achieving a total score of 4 out of 20. This is due to the relatively small size of the wetland and surface water, their altered hydrology (ditch), the adjacent development (industrial, residential, commercial), lack of significant connectivity (vegetative or hydrologic), vegetative characteristics (exotics and opportunistic species) and the lack of utilization by listed wildlife species (habitat, foraging, protection, nesting, etc.). Therefore, based on the above and the Q-Wet Rating System Forms, it can be stated that the overall functionality of the on-site wetland surface water systems are low according to the observations and results of the environmental assessment.

AQUIFER RECHARGE

Based upon a review of Section 63.234 of the City of Orlando's Code of Ordinances, more specifically "Figure III-19A: Primary Groundwater Recharge Areas", the subject site is not located within a primary groundwater recharge area (see attached Figure III-19A).

FLOODPLAIN

The property is located within the 100-year floodplain as identified by FEMA FIRM Map Panel 02354F. Any impacts to floodplain will be compensated at a 1:1 ratio as dictated by the St. Johns River Water Management District (SJRWMD).

The environmental limitations described in this document are based on observations and technical information available on the date of the on-site evaluation. This report is for general planning purposes only. The limits of any on-site wetlands/surface waters can only be determined and verified through field delineation and/or on-site review by the pertinent regulatory agencies. The wildlife surveys conducted within the subject property boundaries do not preclude the potential for any listed species, as noted on Table 1 (attached), currently or in the future. Should you have any questions or require any additional information, please do not hesitate to contact our office at (407) 894-5969. Thank you.

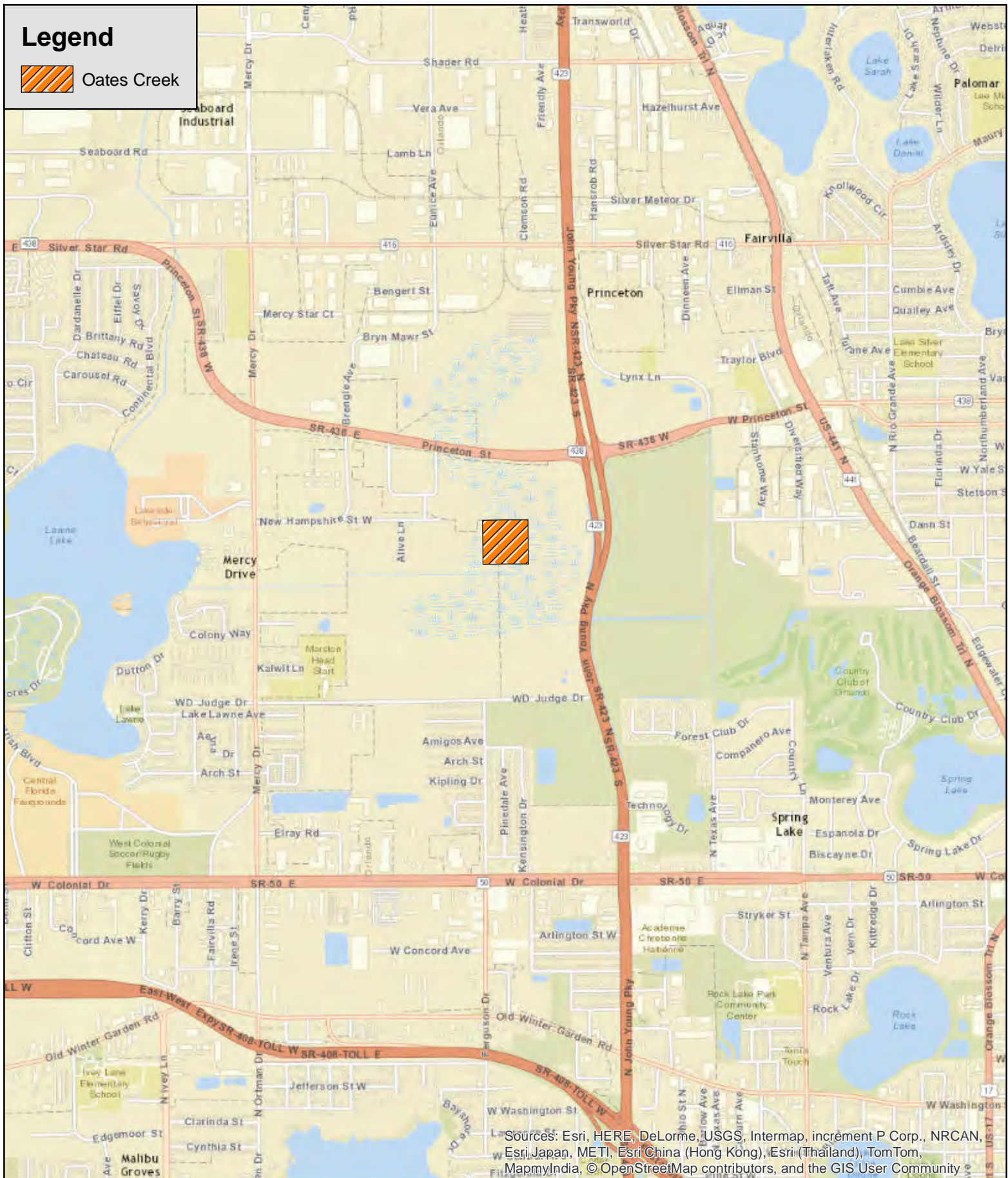
Regards,



Mark Ausley
Project Manager

Legend

 Oates Creek



Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community



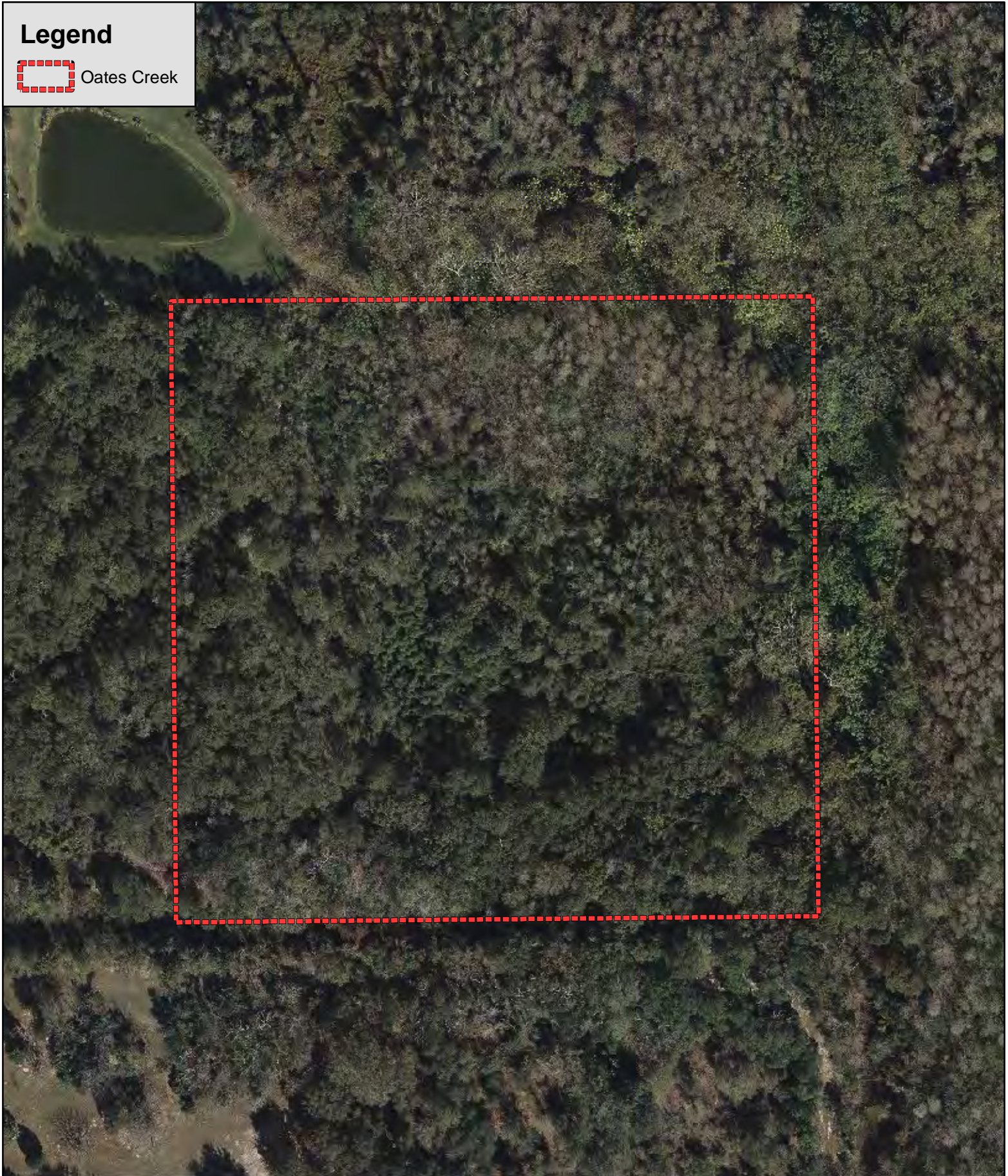
0 0.1 0.2
Miles

Project #: 878-01
Produced By: DPH
Date: 10/19/2015

Legend

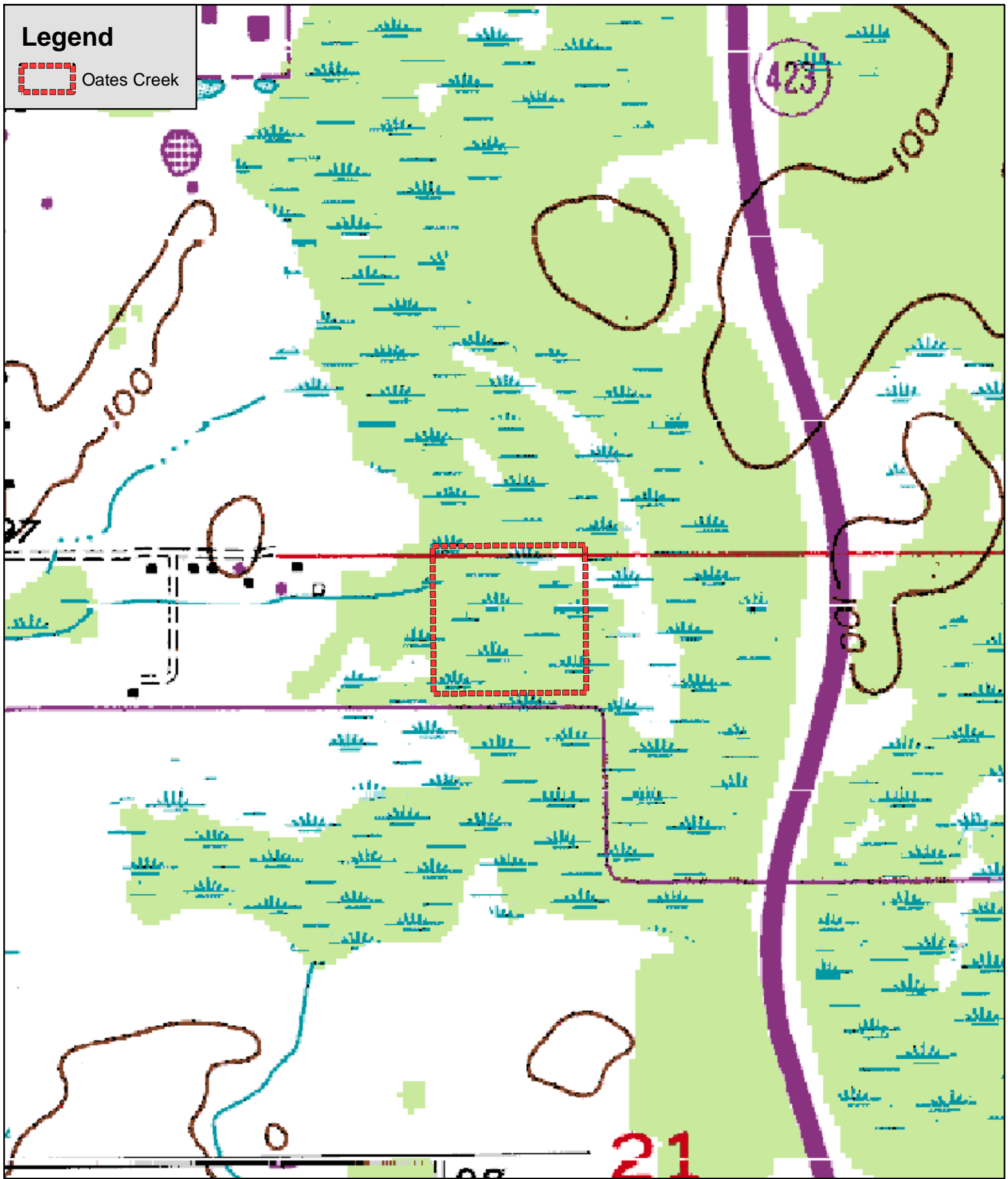


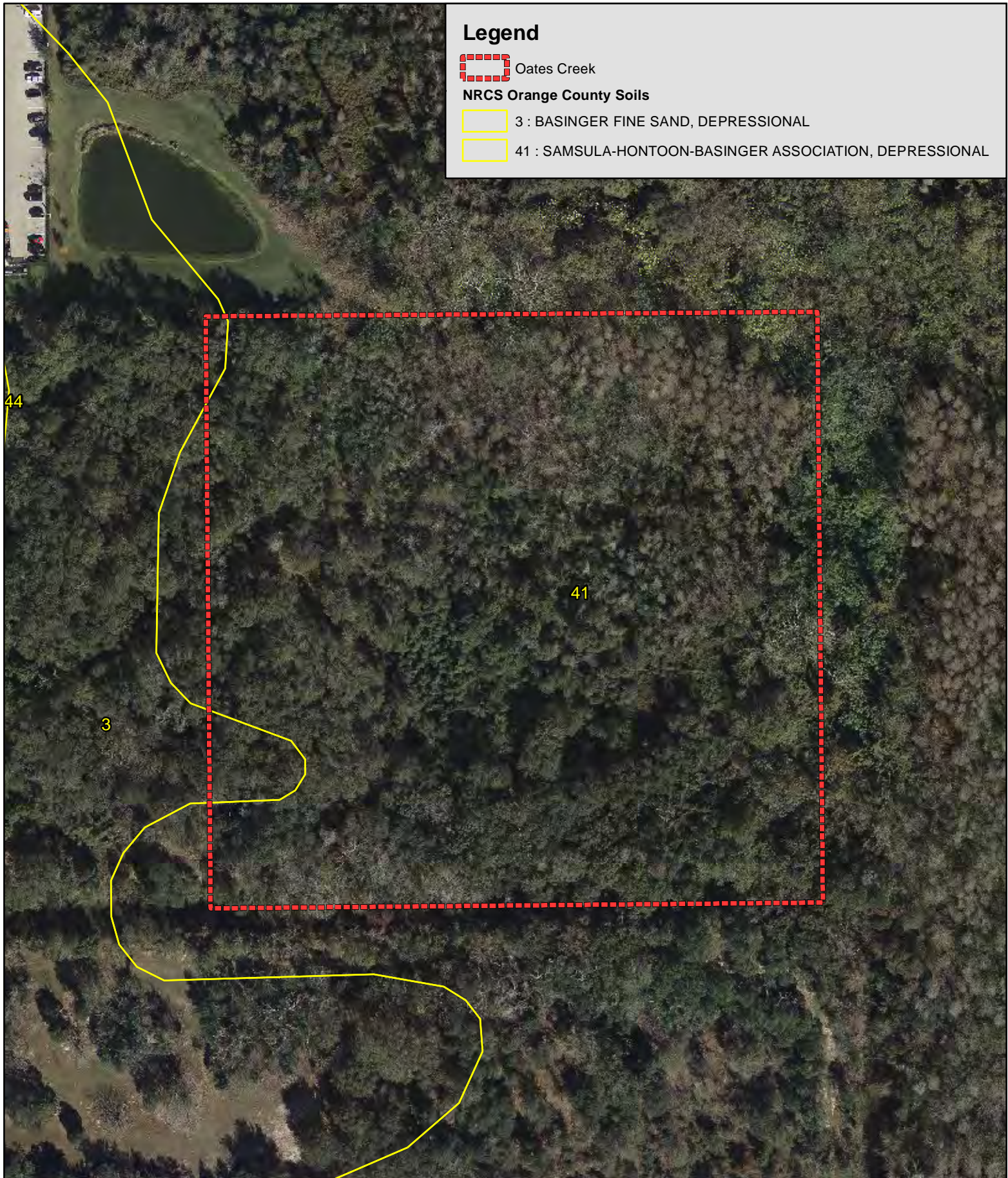
Oates Creek

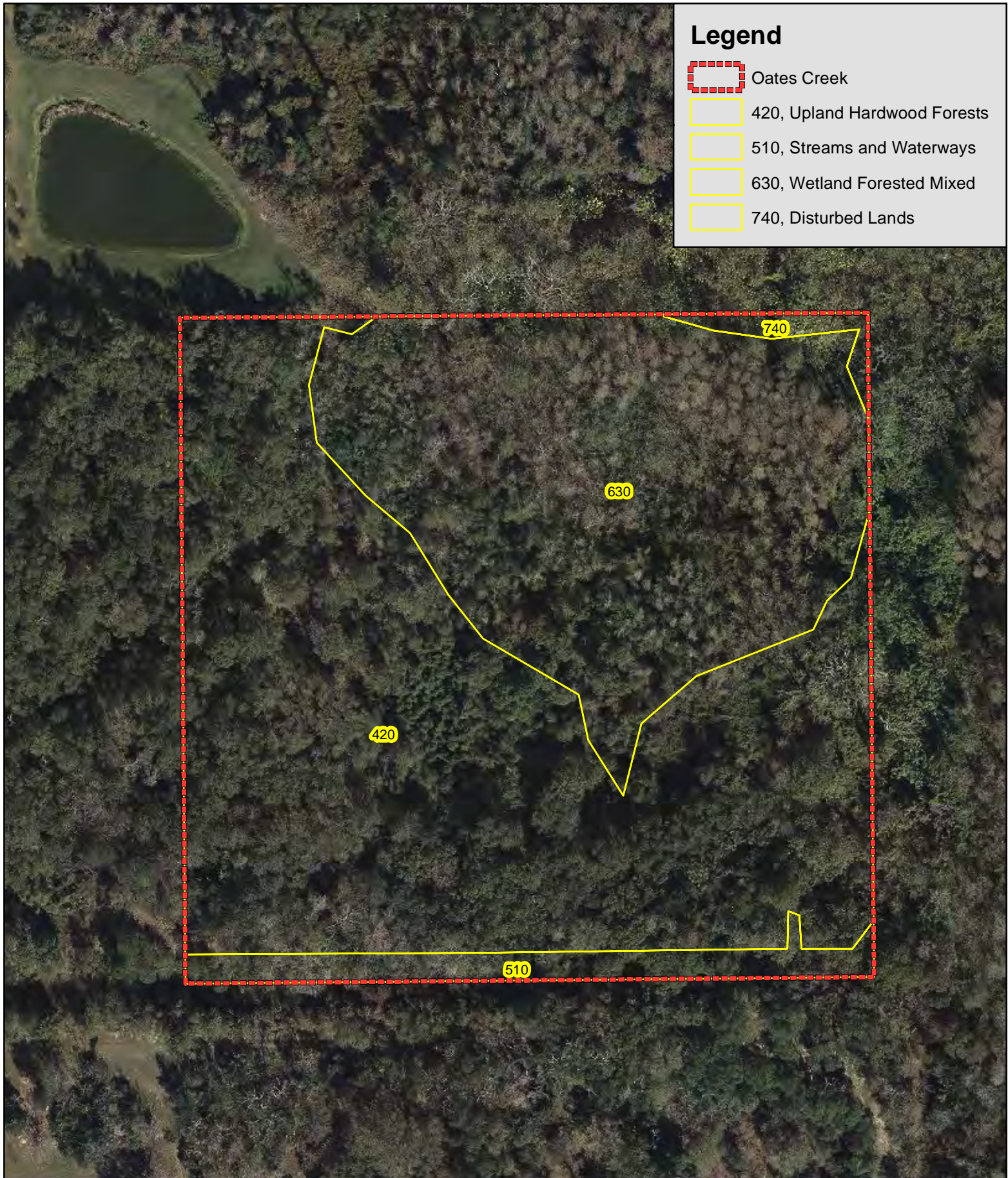


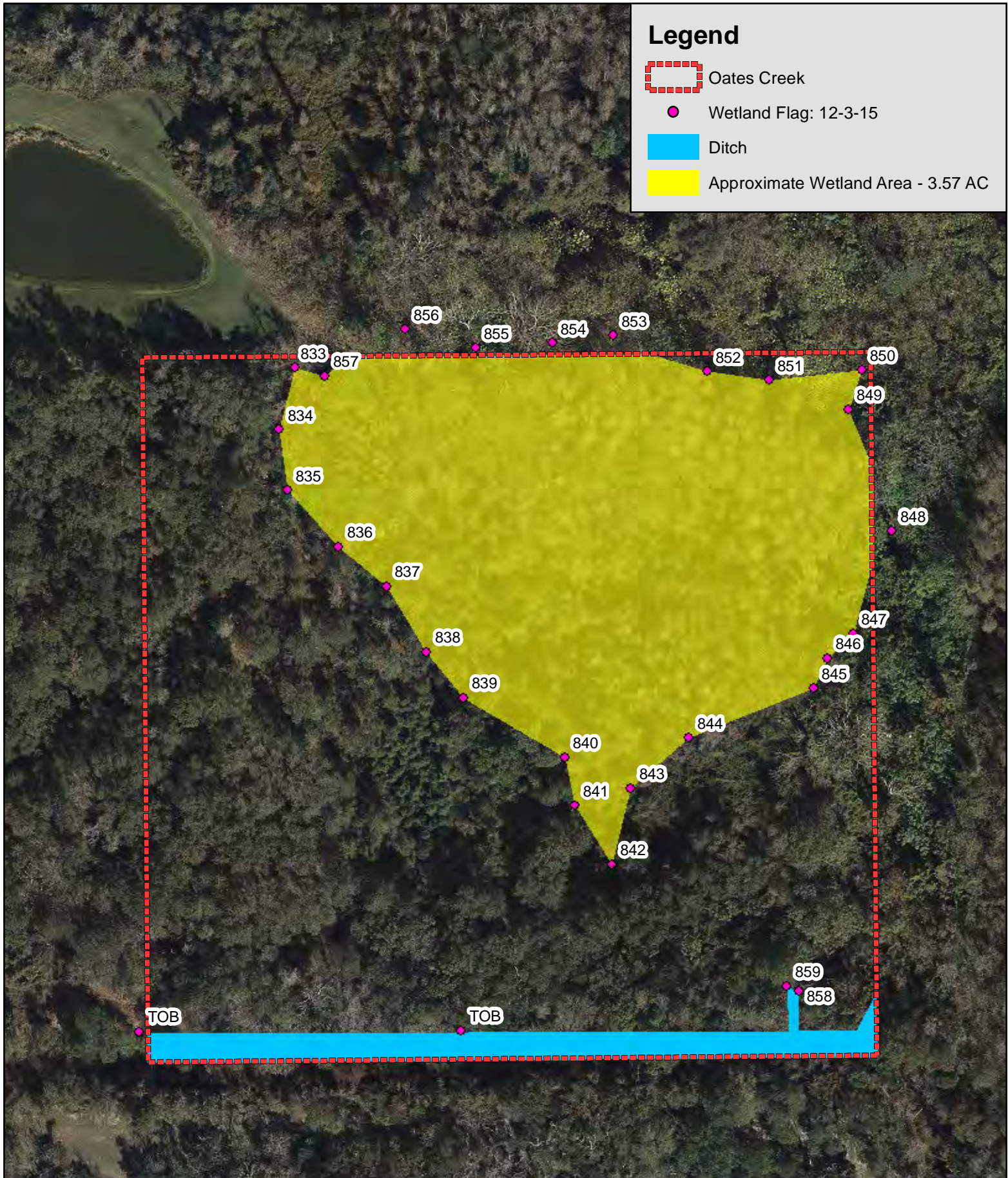
Legend

 Oates Creek







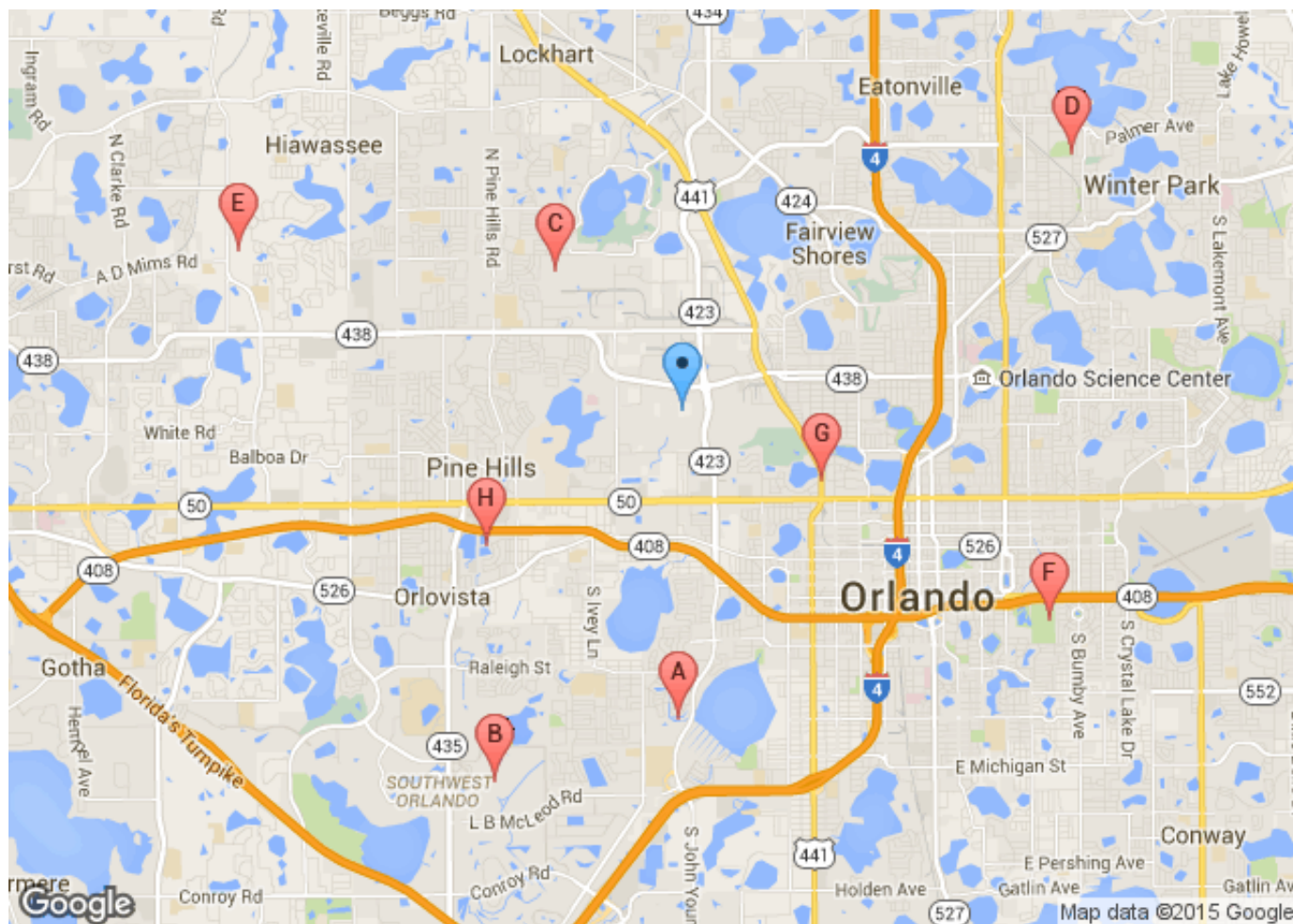


This report was generated using the bald eagle nest locator at
<https://public.myfwc.com/FWRI/EagleNests/nestlocator.aspx> on 12/7/2015 5:02:13 PM.

Search Entered: Within 5 miles of latitude 28.5663 and longitude -81.4193; All Search Results

8 record(s) were found; 8 record(s) are shown

Bald Eagle Nest Map:



Bald Eagle Nest Data Search Results:

Results per page:

All ▼

Letter	Nest ID	County	Latitude	Longitude	Township	Range	Section	Gaz Page	Last Known Active	Last Surveyed	Act 10	Act 11	Act 12	Act 13	Act 14	Dist. (Mi)
A	OR013	Orange	28 31.20	81 25.20	23S	29E	04	80	1987	2014	*	*	*	*	-	3.20
B	OR015	Orange	28 30.65	81 27.08	23S	29E	06	80	2011	2014	*	Y	*	*	-	4.29
C	OR021	Orange	28 35.22	81 26.45	22S	29E	08	80	2014	2014	*	Y	*	*	Y	1.94
D	OR023	Orange	28 36.28	81 21.18	22S	30E	06	80	2008	2014	*	-	*	*	-	4.81
E	OR034	Orange	28 35.40	81 29.70	22S	28E	10	80	1998	2014	*	-	*	*	-	4.87
F	OR042	Orange	28 32.10	81 21.42	22S	30E	31	80	2014	2014	*	Y	*	*	Y	4.35
G	OR076	Orange	28 33.35	81 23.75	22S	29E	22	80	2014	2014	*	*	Y	*	Y	1.60
H	OR082	Orange	28 32.77	81 27.17	22S	29E	30	80	2014	2014	-	*	*	Y	Y	2.46

"Y" denotes an active nest
 "N" denotes an inactive nest

"U" denotes a nest that was visited but status was undetermined
 "*" denotes a nest that was not surveyed

"-" denotes an unobserved nest

Table 1:	Potentially Occuring Listed Wildlife and Plant Species in Orange County, Florida		
Scientific Name	Common Name	Federal Status	State Status
FISH			
<i>Cyprinodon variegatus hubbsi</i>	Lake Eustis pupfish	N	SSC
AMPHIBIANS			
<i>Lithobates capito</i>	gopher frog	N	SSC
REPTILES			
<i>Alligator mississippiensis</i>	American alligator	SAT	FT(S/A)
<i>Drymarchon corais couperi</i>	eastern indigo snake	LT	FT
<i>Gopherus polyphemus</i>	gopher tortoise	C	FT
<i>Lampropeltis extenuata</i>	short-tailed snake	N	ST
<i>Pituophis melanoleucus mugitus</i>	Florida pine snake	N	SSC
<i>Plestiodon reynoldsi</i>	sand skink	LT	FT
BIRDS			
<i>Aphelocoma coerulescens</i>	Florida scrub-jay	LT	FT
<i>Aramus guarana</i>	limpkin	N	SSC
<i>Athene cunicularia floridana</i>	Florida burrowing owl	N	SSC
<i>Caracara cheriway</i>	Crested Caracara	LT	FT
<i>Egretta caerulea</i>	little blue heron	N	SSC
<i>Egretta thula</i>	snowy egret	N	SSC
<i>Egretta tricolor</i>	tricolored heron	N	SSC
<i>Eudocimus albus</i>	white ibis	N	SSC
<i>Falco sparverius paulus</i>	southeastern American kestrel	N	ST
<i>Grus canadensis pratensis</i>	Florida sandhill crane	N	ST
<i>Haliaeetus leucocephalus</i>	bald eagle	N	**
<i>Mycteria americana</i>	wood stork	LT	FT
<i>Pandion haliaetus</i>	osprey	N	SSC*
<i>Picoides borealis</i>	red-cockaded woodpecker	LE	FE
<i>Platalea ajaja</i>	roseate spoonbill	N	SSC
<i>Sterna antillarum</i>	least tern	N	ST
MAMMALS			
<i>Podomys floridanus</i>	Florida mouse	N	SSC
<i>Sciurus niger shermani</i>	Sherman's fox squirrel	N	SSC
VASCULAR PLANTS			
<i>Bonamia grandiflora</i>	Florida bonamia	LT	E
<i>Calopogon multiflorus</i>	Many-flowered Grass-pink	N	T
<i>Centrosema arenicola</i>	Sand Butterfly Pea	N	E
<i>Chionanthus pygmaeus</i>	Pygmy Fringe Tree	LE	E
<i>Centrosema arenicola</i>	sand butterfly pea	N	N
<i>Coelorachis tuberculosa</i>	piedmont jointgrass	N	N
<i>Deeringothamnus pulchellus</i>	beautiful pawpaw	LE	E
<i>Eriogonum longifolium</i> var <i>gnaphalifolium</i>	scrub buckwheat	LT	E
<i>Helianthus debilis</i> ssp <i>tardiflorus</i>	beach sunflower	N	N
<i>Ilex opaca</i> var <i>arenicola</i>	scrub holly	N	N
<i>Illicium parviflorum</i>	star anise	N	E
<i>Lechea cernua</i>	nodding pinweed	N	T
<i>Lupinus aridorum</i>	scrub lupine	LE	E
<i>Matelea floridana</i>	Florida spiny-pod	N	E
<i>Monotropa hypopithys</i>	pinemap	N	E
<i>Najas filifolia</i>	Narrowleaf Naiad	N	T
<i>Nemastylis floridana</i>	Celestial Lily	N	E
<i>Nolina atopocarpa</i>	Florida beargrass	N	T
<i>Nolina brittoniana</i>	Britton's beargrass	LE	E
<i>Ophioglossum palmatum</i>	hand fern	N	E
<i>Panicum abscissum</i>	cutthroat grass	N	E
<i>Paronychia chartacea</i> ssp <i>chartacea</i>	paper-like nailwort	LT	E
<i>Persea humilis</i>	scrub bay	N	N
<i>Pecluma plumula</i>	Plume Polypody	N	E
<i>Polygonella myriophylla</i>	Small's jointweed	LE	E
<i>Prunus geniculata</i>	scrub plum	LE	E
<i>Pteroglossaspis ecristata</i>	Giant Orchid	N	T
<i>Stylisma abdita</i>	scrub stylisma	N	E
<i>Warea amplexifolia</i>	clasping warea	LE	E
<i>Zephyranthes simpsonii</i>	redmargin lily	N	T

FEDERAL LEGAL STATUS

LE-Endangered: species in danger of extinction throughout all or a significant portion of its range.

LT-Threatened: species likely to become Endangered within the foreseeable future throughout all or a significant portion of its range.

SAT-Endangered due to similarity of appearance to a species which is federally listed such that enforcement personnel have difficulty in attempting to differentiate between the listed and unlisted species.

C-Candidate species for which federal listing agencies have sufficient information on biological vulnerability and threats to support proposing to list the species as Endangered or Threatened.

XN-Non-essential experimental population.

N-Not currently listed, nor currently being considered for listing as Endangered or Threatened.

STATE LEGAL STATUS - ANIMALS

FE- Listed as Endangered Species at the Federal level by the U. S. Fish and Wildlife Service

FT- Listed as Threatened Species at the Federal level by the U. S. Fish and Wildlife Service

FXN- Federal listed as an experimental population in Florida

FT(S/A)- Federal Threatened due to similarity of appearance

ST- State population listed as Threatened by the FFWCC. Defined as a species, subspecies, or isolated population which is acutely vulnerable to environmental alteration, declining in number at a rapid rate, or whose range or habitat is decreasing in area at a rapid rate and as a consequence is destined or very likely to become an endangered species within the foreseeable future.

SSC-Listed as Species of Special Concern by the FFWCC. Defined as a population which warrants special protection, recognition, or consideration because it has an inherent significant vulnerability to habitat modification, environmental alteration, human disturbance, or substantial human exploitation which, in the foreseeable future, may result in its becoming a threatened species. (SSC* for *Pandion haliaetus* (Osprey) indicates that this status applies in Monroe county only.)

N-Not currently listed, nor currently being considered for listing.

*** State protected by F.A.C. 68A-16.002 and federally protected by both the Migratory Bird Treaty Act (1918) and the Bald and Golden Eagle Protection Act (1940)*

STATE LEGAL STATUS - PLANTS

E-Endangered: species of plants native to Florida that are in imminent danger of extinction within the state, the survival of which is unlikely if the causes of a decline in the number of plants continue; includes all species determined to be endangered or threatened pursuant to the U.S. Endangered Species Act.

T-Threatened: species native to the state that are in rapid decline in the number of plants within the state, but which have not so decreased in number as to cause them to be Endangered.

N-Not currently listed, nor currently being considered for listing.

**CULTURAL RESOURCES RECONNAISSANCE & SURVEY OF
10 ACRE PARCEL AT 3604 NEW HAMPSHIRE ROAD,
IN ORLANDO, ORANGE COUNTY, FLORIDA**

**SUBMITTED TO:
STAR OVER ORLANDO, INC.
357 OCEAN SHORE BOULEVARD
ORMOND BEACH, FLORIDA 32176-9046
POC: CARL COMO TUERA**

By

**Ryan N. Clark, MA
And
L. Janice Campbell, MA**

**Prentice Thomas & Associates, Inc.
425 E. Hollywood Blvd., Ste D
Mary Esther, Florida**

**November 16, 2016
Report of Investigations #1488**



L. JANICE CAMPBELL, PRESIDENT

ABSTRACT

In November of 2016, Star Over Orlando, Inc. contracted Prentice Thomas and Associates, Inc. to provide an archaeological survey of a 10-acre private parcel located in the city of Orlando in Orange County, Florida. The purpose of the work was to determine if cultural resources of any kind were present on the property prior to the relocation and installation of two 199-foot self-support towers. The archaeological investigations included background and archival research, a pedestrian survey over the entire parcel, and subsurface excavations within the area of proposed effects on the subject property. Despite the intense effort, no cultural resources of any kind were identified within the proposed project area location. Based on these findings, we recommend that the ground disturbing activities will have no effect on historic properties. No further work is recommended

TABLE OF CONTENTS

ABSTRACT.....	iii
LIST OF FIGURES	vi
LIST OF TABLES.....	vi
CHAPTER ONE: INTRODUCTION.....	1
Report Organization.....	2
CHAPTER TWO: ENVIRONMENTAL SETTING.....	3
Geographical Location.....	3
Climate.....	3
Vegetation	4
Disturbance	4
Soils.....	6
CHAPTER THREE: CULTURAL HISTORY	7
Prehistoric Sequence.....	7
Paleoindian (12,000-7500BC)	7
Archaic (7500-500 BC).....	8
Formative (500 BC-AD 1513).....	11
Historic Overview	13
Exploration and Colonization (1513-1821)	14
American Period through the Civil War (1821 - 1861)	17
Civil War and Reconstruction (1861-1876).....	18
Post-Reconstruction through World War I (1876 to 1918)	20
Post World War I to World War II (1918 through 1940)	20
World War II (1941-1945).....	20
Post-World War II (since 1946).....	21
CHAPTER FOUR: FILE SEARCH AND PREVIOUS RESEARCH	23
Background and Archival Research.....	23
Previous Investigations	23
Records Review	24
Field Methods, Analytic Techniques, And Results	24

TABLE OF CONTENTS
(Continued)

CHAPTER FIVE: MANAGEMENT RECOMMENDATIONS.....	29
Unexpected Discoveries.....	29
REFERENCES CITED.....	31

LIST OF FIGURES

Figure 1. Portion of the Orlando West USGS quadrangle map, showing the location of the project area and APE.....	1
Figure 2. Map of Florida, showing Orange County.....	4
Figure 3. View of northern parcel boundary, facing north, from center of parcel between cell tower locations.	5
Figure 4. View of vegetation, facing south, at center of eastern cell tower.....	5
Figure 5. Modern debris from temporary camps, approximate center of parcel, facing north.....	6
Figure 6. View of 1022 North Fairvilla Road, facing west	23
Figure 7. View of 1919 West New Hampshire Street, facing North	24
Figure 8. Portion of the 1956 Orlando West USGS quadrangle, showing project area	25
Figure 9. Portion of 1954 aerial photograph, showing project area.....	26
Figure 10. Portion of Aerial Photograph showing APE and survey shovel tests	27
Figure 11. View of Shovel Test 2, facing north.....	28

LIST OF TABLES

Table 1. St. Johns Culture Sequence.....	12
Table 2. Summary of Previously Known Historic Properties Located Near Project Area.....	23
Table 3. Shovel test profile descriptions.....	26

CHAPTER ONE INTRODUCTION

In November of 2016, Star Over Orlando, Inc. contracted Prentice Thomas and Associates, Inc. (PTA) to provide an archaeological survey of a 10-acre private parcel located in the city of Orlando in Orange County, Florida (Section 21 of Township 22 South, Range 29 East [T22S-R29E]; Figure 1). The purpose of the work was to determine if cultural resources of any kind were present on the property prior to the relocation and installation of two 199-foot self-support towers (new locations identified as area of proposed effect [APE] in Figure 1). PTA conducted the archaeological survey and archival research of the proposed project area on November 16, 2016. Field investigations and archival research were performed by PTA archaeologists Ryan Clark, MA, and Zackery Cruze, MA.

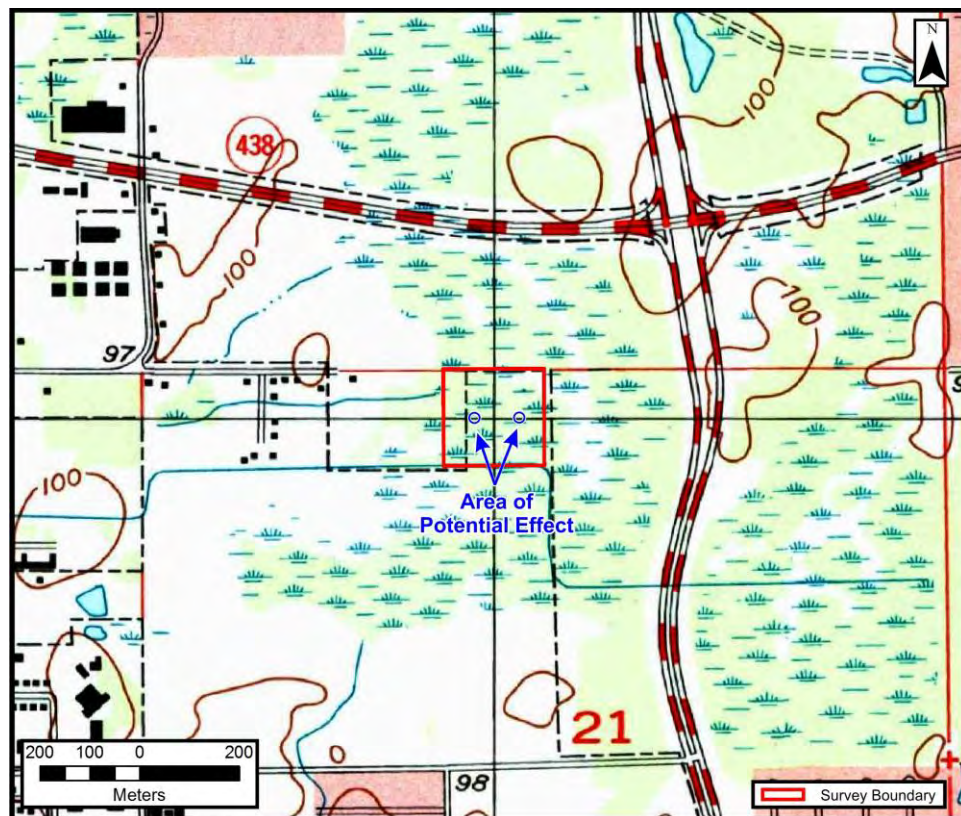


Figure 1. Portion of the Orlando West USGS quadrangle map, showing the location of the project area and APE

Archaeological investigations were designed to gather background information on previous cultural resource surveys/discoveries in the area, and to examine the proposed cell tower lease area via surface survey and subsurface testing. These investigations included an archival search for previous projects and known sites in the project area, followed by intensive pedestrian reconnaissance and 10 systematic subsurface testing with individual shovel tests at the center and four corners of each proposed cell tower location to determine the presence or absence of historic and/or prehistoric cultural materials.

Report Organization

Chapter Two presents a summary of the environmental setting in Orange County and the culture sequence is discussed in Chapter Three. Project methods and findings are presented in Chapter Four. Chapter Five provides closing comments and management recommendations. A list of references cited follows the text.

CHAPTER TWO ENVIRONMENTAL SETTING

Geographical Location

The project area is located within Orange County, Florida (Figure 2). Orange County exhibits two major physiographic divisions, the Central Highlands which occupy the western portion of the county and the Coastal Lowlands which accounts for the rest (United States Department of Agriculture [USDA] 1989). The project area is in the Coastal Lowlands province. The surface geology of the area is mapped as undifferentiated Quaternary Period¹ in the central third of the county and as Quaternary beach ridge and dunes; the Pliocene Epoch Cypresshead Formation is mapped as the surface unit in most of the western third of Orange County. The Quaternary units are typically siliclastics over 20 ft thick with surface elevation of less than 100 ft (Scott 2001). The county is largely underlain by Upper Eocene Epoch limestones of the Ocala Group. The lithologically diverse (sand, clayey sand, sandy clay, dolomite, limestone) deposits of the Hawthorne group of Miocene to Pliocene age sit on the Eocene limestones.

The surface expression of the Quaternary in Orange and Osceola counties is referred to as the Osceola Plain (USDA 1989). It is nearly level with a few gently sloping ridges, many intermittent ponds, a few perennial lakes, swamps, and marshes. Drainage is accomplished by wide, slow-moving streams and sloughs. Streams in the central part of the Osceola Plain flow into the Econlockahatchee River, Tootoosahatchee Creek, James Creek or other tributaries of the St. Johns River. The southern portion of the Osceola Plain is drained by the Kissimmee River and its tributaries. The Central Highlands comprises the Marion Upland, Mount Dora Ridge Orlando Ridge and Lake Wales Ridge.

Ground water is derived from artesian and non-artesian sources. The non artesian water is limited in quantity and was historically used for livestock or on lawns (USDA 1989). The main artesian water source is the Floridian aquifer.

Climate

The climate is classified as humid subtropical (Cfa) in the Köppen system. The summers are typically long, warm and humid, while winters are dry and quite moderate. The average January temperature is about 61°F and is 82 to 83°F July and August; however, the daily high normally exceeds 90°F in July and August (USDA 1989). Freezing temperatures generally occur only

¹ *Currently a formal geological System/Period comprising the Pleistocene and Holocene Epochs.*

between December 25 and January 12, if at all, with four days per year being the average. Precipitation is about 48 inches a year, almost all of which is rainfall.

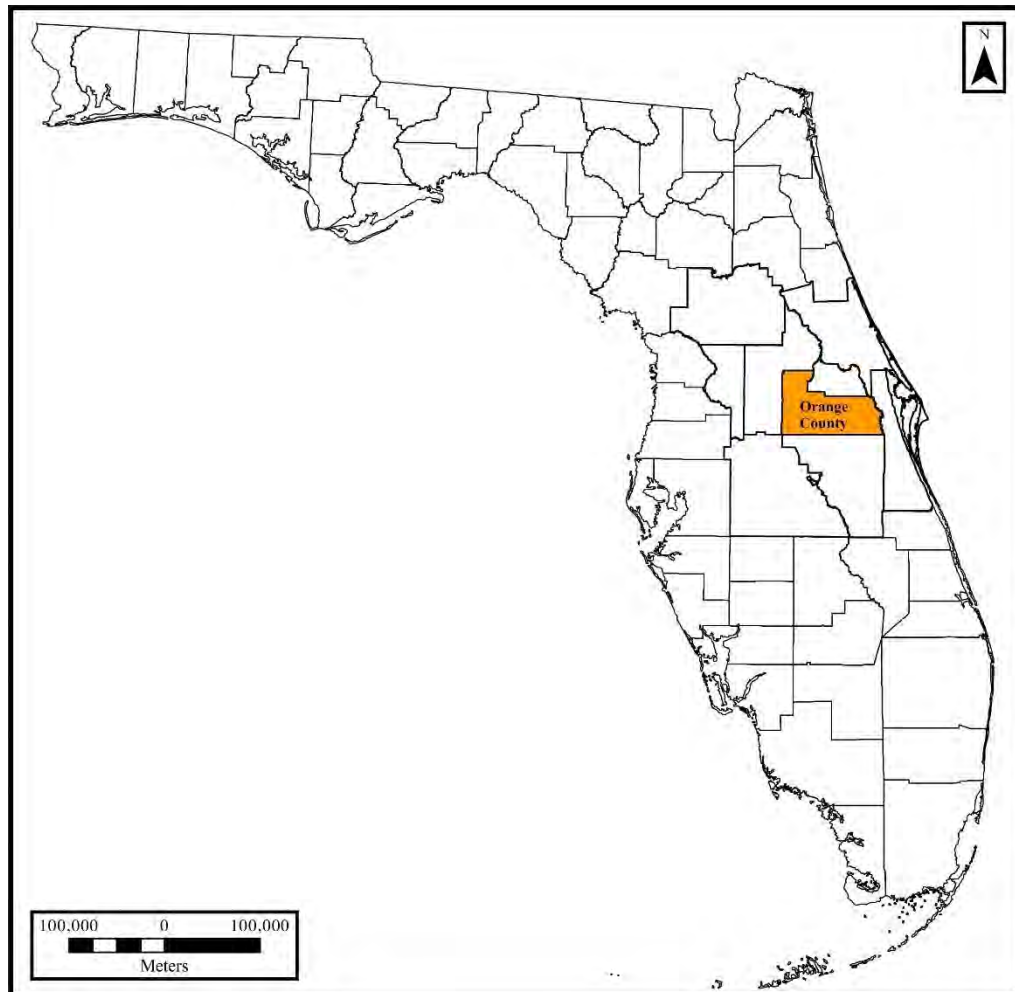


Figure 2. Map of Florida, showing Orange County

Vegetation

The vegetation is dominated by a moderate to closed canopy of bay, live and water oak, cypress and maple (Figure 3). The understory is moderate to open with scattered titi, green briar, muscadine and saplings of mesic hardwoods. The groundcover is defined by very dense leaf litter, beautyberry, brackenfern, sphagnum moss, nettle, blackberry, and ostrich fern (Figure 4).

Disturbance

The project area has a moderate level of disturbance, apparent by frequency and quantity of modern debris, including numerous, temporary camps by homeless individuals (Figure 5). There are numerous downed trees and an intermittent walking path that trends along the southern parcel boundary.



Figure 3. View of northern parcel boundary, facing north, from center of parcel between cell tower locations.



Figure 4. View of vegetation, facing south, at center of eastern cell tower.



Figure 5. Modern debris from temporary camps, approximate center of parcel, facing north

Soils

According to the USDA Web Soil Survey, the soil varies throughout the subject property. At the eastern end of the project area, the soil is classified as Samsula-Hontoon-Basinger association, a depressional sand, which slopes between 0 and 1% and is an very poorly drained soil. It is found in depressions and marine terraces and is derived from herbaceous organic material over sandy eolian deposits and/or marine deposits. The western portion of the project area consists of Basinger fine sand, a very poorly drained soil, with 0-1% slopes. It is found in depressions on marine terraces, and drainageways and is derived from sandy marine deposits. Throughout the project area, restrictive features are generally found over 80 cm deep.

CHAPTER THREE CULTURAL HISTORY

Prehistoric Sequence

Paleoindian (12,000-7500BC)

The earliest prehistoric cultural development dates from the time people first arrived in Florida when the late Pleistocene climate was considerably cooler and drier than at present with the sea level as much as 160 ft lower (Milanich 1994). Typical vegetation included xerophytic species with scrub oak, pine, open grassy prairies, and savannas covering wide swaths of land (Milanich 1994).

The greatest density of relocated Paleoindian sites is associated with the estuaries of north-central Florida where scattered finds of distinct, diagnostic lanceolate projectile points and bone pins have been found along the Santa Fe, Silver, and Oklawaha rivers (Dunbar and Waller 1983). Rising sea levels inundated and submerged many coastal sites dating to the Paleoindians and Early Archaic periods (e.g., Ruppe 1980; Goodyear and Warren 1972; Dunbar et al. 1988). Consequently, the exact dependence of Paleoindian groups on estuarine and littoral resources is difficult to determine.

Paleoindian components are recognized by diagnostic points, the chronological implications of which have been established in part by a compilation of radiocarbon dates made available on the SEAC website; although the ranges of these dates are, in some cases, broad and often overlapping. Morphological attributes have also been used as a basis for relative chronology (cf. Anderson and Sassaman 1996; Farr 2006; Faught and Waggoner 2012). Clovis points, representing the fluted point tradition, are the earliest Paleoindian diagnostics. More common are later types that fall into Farr's (2006) Dalton Cluster that includes Dalton and Suwannee/Simpson points, followed by the Transitional Side-Notched Cluster, an example of which is Hardaway. The Early Notched Cluster is made up of corner- and side-notched specimens, such as Bolen, Kirk, Wacissa, and Palmer types. Other characteristic lithics found in Paleoindian assemblages include cores, bifacial knives, unifacial scrapers of various sorts, spurred graters and drills, oval ground stone weights, and some bone tools, including pins (Purdy 1981). The Nalcrest Site on Lake Weohyakapka in Polk County produced an assemblage of microlithic tools, including scrapers and drills, as well as bone and shell artifacts (Bullen and Beilman 1973).

The prevailing theory of Paleoindian traditions is based on the existence of a uniform tool assemblage and the relatively small size of most known sites; the assemblage was likely much more diverse, but the lack of good preservation has eliminated some goods from archaeological

study. Paleoindians were organized into mobile bands with subsistence based on hunting and gathering strategies. In terms of distribution, earlier Paleoindian remains concentrate near karst sinkholes or spring caverns (Waller and Dunbar 1977; Dunbar and Waller 1983). This likely indicates that the restricted settlement patterns seen among other Paleoindian groups in eastern North America are reflected in Florida's populations close proximity to fresh water and cryptocrystalline lithic sources (Goodyear 1979). Later Paleoindian groups are found dispersed across the landscape. However, since the land mass of Florida was much larger and the climate different from later prehistoric times, the factors influencing settlement other than those noted above may not be directly recognizable without paleoenvironmental data.

Archaic (7500-500 BC)

This cultural period is further divided into three sequential periods: the Early Archaic (7500-5000 BC); the Middle Archaic (5000-3000 BC); and the Late Archaic (3000-500 BC) (Milanich 1994). The periods are distinguished primarily on stylistic changes in projectile points and assemblage traits, and the addition of fiber-tempered pottery in the Late Archaic (Milanich 1994; Milanich and Fairbanks 1980). Archaic sites are found throughout the state. Like some Paleoindian sites, many Archaic sites are now submerged, located on the continental shelf off the coast of Florida.

The Archaic era was characterized with a steady shift towards adaptive strategies due to the onset of the Holocene and an increase in consistently more modern climate and biota. Whereas the Paleoindians relied heavily on limited freshwater sources, Archaic populations were able to hunt smaller game and effectively exploit their changing environment with gradual environmental changes leading to the extinction of the Pleistocene fauna.

Throughout the Southeast, researchers recognize a marked increase in Early Archaic sites over those of the Paleoindian Period, which they suggest is a reflection of increasing population levels and decreasing group ranges (Anderson et al. 1990:198–201; Anderson and Sassaman 1996:160–163). Groups are believed at this time to have been organized into mobile bands oriented to either particular physiographic ranges, such as drainage basins (Anderson and Hanson 1988), and in Florida, sinks that offered good sources of potable water in an otherwise dry landscape (Dunbar et al. 1988), or tethered to certain raw material sources (Daniel 1998).

These bands, in turn, appear to have been loosely tied into larger networks of affiliation, or macrobands, to facilitate mating and information exchange (Anderson and Hanson 1988). In part, organizational changes since the Paleoindian Period are attributed to the increasing importance of generalist foraging strategies over the region in response to post-glacial warming, increasing human population levels, and the replacement of Late Pleistocene floral and faunal communities by essentially modern ones. The adaptive nature of the Archaic period resulted in an increase in the diversity and frequency of archaeological sites, such as marine and freshwater shell middens.

The Early Archaic (7500-5000 BC) is recognized by sites with Farr's (2006) Early Notched Cluster noted above, and Bullen (1975) includes Greenbriar, Kirk Stemmed, Hardee Beveled, Arredondo, Sumter and Thonotosassa points. Subsistence strategies of Early Archaic people were less constrained by surface water availability due to increases in precipitation and the accompanied rising sea levels and groundwater table. This was likely a period of transition with Early Archaic

peoples adapting from the more nomadic lifeways of Paleoindian subsistence strategies to the more sedentary coastal and riverine associated patterns seen later during the Middle Archaic period (Milanich 1994). Sites during the Early Archaic often overlap earlier Paleoindian sites. However, due to greater available surface water, Early Archaic peoples could remain in one area for a longer time and support a larger population.

The Early Archaic wetland site of Windover Pond near Titusville in Brevard County is an example of a site that does not have a Paleoindian component. This site is a cemetery with over 160 burials within the natural peat deposits of what was during the Early Archaic a woody marsh (Stone et al. 1990). It is one of few thoroughly excavated early sites in the East and Central archaeological area of Florida and produced normally perishable items such as cloth, wood artifacts, preserved brain and other soft tissues and samples of proteins and mitochondrial DNA. The radiocarbon dates for Windover indicate that the interments were made in discrete episodes of short duration between 6000 and 5000 BC. This would confirm that a single social group used the pond to bury their dead in one designated area. Later, another group, possibly descendants of the first group, again used the pond for burial. After 5000 BC, the increasingly wetter conditions likely made burial within the peat of the pond bottom too difficult (Doran and Dickel 1988).

During the Middle Archaic (5000-3000 BC), wetter conditions increased with sea level rises and pine forests and swamps beginning to emerge (Watts et al. 1996). The climate changed to more pronounced seasonality with warmer summers and colder winters through 4000 BC (Watts et al. 1996). With increased rainfall, but sea levels lower than modern times, brackish estuaries were restricted or non-existent and Lake Okeechobee was still in the early stages of growth (Brooks 1981). The period is characterized by gradually increasing human populations and a slow shift in diet towards shellfish, fish, and other food resources from fresh water and coastal wetlands with the first documented freshwater shell middens located along the St. Johns River and the Atlantic coastal lagoons (Watts and Hansen 1988:310; Milanich 1994:75-84).

The Middle Archaic lithic assemblage is characterized by varieties of stemmed, broad-blade projectile points characteristic of Farr's (2006) Archaic Stemmed Cluster, such as Hamilton, Arredondo, and Kirk Stemmed, along with the Newnan point (Bullen 1975); less common points were Alachua, Levy, Marion and Putnam points (Bullen 1968; Milanich 1994). The Middle Archaic lithic industry included the production of cores, true blades, modified and unmodified flakes, ovate blanks, hammerstones, "hump-back" unifacial scrapers, and sandstone "honing" stones (Purdy 1981; Clausen et al. 1975). In addition, silicified coral was more prevalent as a lithic tool raw material (Milanich 1994) and thermal alteration of the stone became more common.

Middle Archaic settlement patterns are thought to have followed the Early Archaic patterns until sometime around 3000 BC, when settlement patterns shift towards the coastal and riverine resources (Daniel 1985). Sites are found in a variety of locations including freshwater shell middens along the St. Johns River and the Atlantic Lagoon. Middle Archaic sites have been found in the Hillsborough River drainage northeast of Tampa Bay, along the southwestern Florida coast and in South Florida locales, such as Little Salt Spring in Sarasota County, and occurred throughout the forests of the interior of northern Florida (Avon Park Air Force Range 1999; Milanich 1994).

There are three common types of Middle Archaic sites in Florida (Bullen and Dolan 1959; Purdy 1975). The first are the small, special-use camps, which appear as scatters of lithic flakes and tools, such as scrapers, points, and knives. These small sites are often found in higher frequency along river basins and wetlands and likely represent sites of tool repair and food processing during hunting and gathering (Milanich 1994). These sites are quite frequent in Northern Florida. In South Central Florida, there is Riverbend Park #7 in northern Palm Beach County (Pepe and Carr 1996b). Other possible Middle Archaic campsites in South Florida appear on xeric sand hills near lowlands that may have once been wetlands during the time in which the area would have been utilized. Examples include the Medalist site in Martin County (Pepe and Carr 1996a) and Westridge on Pine Island ridge in Broward County (Carr et al. 1992).

The second common site type is the large base camp, which may cover several acres (ac) or more, and contains several thousand or more lithic waste flakes and tools; Senator Edwards is the type-site in Marion County (Purdy 1975; Purdy and Beach 1980). The implication is a greater variety of tools was being used in this period than in the preceding one with a more sedentary lifestyle leading to the development of more specialized tools. Some of the tools indicate woodworking activity, possibly related to the construction of more permanent houses (Milanich 1994).

The third common type of site is the quarry-related site that occurs in localities of chert outcrops, often found along rivers and/or around lakes and wetlands when erosion cuts through the soil to the underlying limestone bed. These outcrops provided opportunities for native peoples to remove this raw material for stone tool production. These sites produced evidence of late stage tool production, including large flake blanks, bifacial thinning flakes, blades, and unifacial and bifacial tools (Milanich 1994; Purdy 1975).

Other less common site types, at least in terms of the current inventory, include wetland cemeteries. Examples include slough burials at Little Salt Spring in Sarasota County (Clausen et al. 1979), the pond burials at the Bay West site in Collier County (Beriault et al. 1981), and the Republic Grove site in Hardee County (Beriault et al. 1981). Much like the Windover site, these sites provide a look at the range of objects used by the Middle Archaic people, such as antler, wood, and bone tools not found elsewhere.

The increase in marine resources that began in Middle Archaic continues through the Late Archaic, and there was a settlement shift, evidenced by the large shell middens constructed along the coasts and inland waterways of Florida (Warren 1970). The archaeological assemblage of the Late Archaic differs from the Middle Archaic in that the Late Archaic points are for the most part stemmed, side-notched, and smaller than their predecessors (Bullen 1975), stone vessels were used for cooking, and fiber-tempered pottery is developed at the end of the period (Milanich 1994; Powell 1990). These advancements in technology relate directly to the shift in the Late Archaic period to larger, permanent villages.

Cultural variation is recognized with the appearance of Orange fiber-tempered pottery around 1200 or 1000 to 500 BC, evidenced in the archaeological record as differences in ceramic styles and designs. The degree to which they represent other differences in lifeways is not clear. In fact, variation in ceramic decoration may not actually represent a cultural transition in eastern

Florida (Milanich 1994; Miller 1998). Milanich (1994) has recommended discarding the term “transitional” altogether.

The Orange phase of the Late Archaic is often discussed as a part of the Formative or Florida Transitional period, which is identified by ceramic changes rather than changes in subsistence or settlement patterns. People belonging to the Orange culture lived along the Atlantic Coast between southern South Carolina and northern Florida. Orange fiber-tempered pottery was made with naturally occurring clays that were collected from areas where creeks or rivers had cut down to the clay-bearing layers. Plant fibers were added to strengthen the paste, and pottery vessels were molded by hand.

Orange ceramics were first described by John Griffin (1945), and were among, if not the earliest pottery types in North America. While fiber-tempered pottery has been found throughout Florida, Orange wares are primarily recovered in the Eastern and Central Region of the state. They occur as far west as the Florida panhandle, but seem to be trade or exotic goods. The most common Orange pottery type is Orange Plain, but Orange Incised has also been found. The latter has a distinctive rectilinear incised and punctated design arranged in spirals and vertical diamonds that cover much of the exterior of the pot. Orange Plain is a variant that occurs on the same paste as Orange Incised, however, is undecorated.

Tick Island Incised was another fiber-tempered ceramic produced at the same time as Orange ceramics; it occurs in the Upper St. Johns River drainage area. The designs incised onto the exterior of Tick Island ware are curvilinear and incorporate small dashes or punctations. A typical design uses concentric circles and small dashes between the lines of the circle. This type is somewhat localized and is not typically found at sites outside of the Upper St. Johns area (Griffin 1945).

Formative (500 BC-AD 1513)

The early Formative is marked by changes in technology and local adaptations to varied ecological conditions. Coiling replaced hand molding as the manufacturing technique and new temper agents were added to clay, eventually replacing plant fibers altogether. These early sand and grit-tempered pottery were part of the Deptford series. The other dominant pottery type that followed the fiber-tempered tradition was the chalky paste St. Johns series, for which vessels were tempered with microscopic sponge spicules or exoskeletons with some sand added. Deptford and St. Johns pottery were produced at the same time and are often recovered in association with each other. Characteristic projectile points are basally notched, corner-notched, and stemmed.

St. Johns is the period from about 500 BC to AD 750, and divided into three sub-periods. Table 1 lists these sub-periods, dates, and characteristics (cf. Milanich 1994).

Early St. Johns has been divided into I (500 BC-AD 100), Ia (AD 100-500), and Ib (AD 500-750). Settlement patterns during this time were nearly identical to those seen during the Orange periods, with occupations focused along coastal estuaries and larger rivers, although there was a shift into the northern part of the St. Johns drainage (Milanich and Fairbanks 1980). Subsistence strategies focused on hunting, fishing, and collection. St. Johns I shell middens are common, often containing St. Johns Plain and Incised pottery, and occasional Deptford ceramics.

**Table 1. St. Johns Culture Sequence
(after Milanich 1994)**

Sub-Period	Dates	Characteristics
I	500 BC–AD 100	St. Johns Plain and Incised wares; Deptford pottery (or copies of); burial mounds; some semi-fiber-tempered ware; all pottery coiled, some punctated or pinched designs
Ia	AD 100–500	St. Johns Plain ware dominates; early (pre-AD 300) Hopewellian complex objects in mounds; Late Deptford and Swift Creek pottery traded, and copies locally manufactured; Weeden Island influences appear late
Ib	AD 500–750	Weeden Island, Dunns Creek Red (early), and St. Johns pottery in mounds; village ceramics virtually all St. Johns Plain; Weeden Island influences
IIa	AD 750–1050	St. Johns Check Stamped pottery first appears; large number of mounds and villages; late Weeden Island pottery in some mounds
IIb	AD 1050–1513	St. Johns Check Stamped pottery; some Ft. Walton and Safety Harbor pottery and Southeastern Ceremonial Complex objects in mounds; Mississippian influences
IIc	AD 1513–1565	St. Johns Check Stamped pottery; European artifacts in some middens and mounds; these are the Timucuan-speaking groups described by early European explorers

In St. Johns Ia (AD 100 to 500), St. Johns Plain and Incised pottery continued to be produced and a red-painted St. Johns variant called Dunns Creek Red was introduced. Deptford and Swift Creek ceramics were traded into northeast Florida from north-central Florida and the panhandle.

Much of the information on St. Johns I period burial practices have been obtained from the Ross Hammock Site in Volusia County (Bullen et al. 1967), which consists of two large burial mounds and an extensive village midden. There is evidence of continued use of burial mounds, with many burials found in large central pits, possibly secondary interments. The use of log tombs is associated with St. Johns Ia, as are the occasional inclusions of Hopewellian-Yent complex trade items (Milanich 1994), representing the first appearance of exotic materials in the St. Johns culture area (Miller 1998). High-status burials contained mica, galena, copper, animal jaws, ear spools, quartz, and animal effigies from the Hopewellian trade network (Milanich 1994). Weeden Island pottery has also been recovered from late St. Johns Ia sites.

St. Johns Ia people practiced year-round occupation of the coast and along the rivers, with special use-activity sites in various loci and short-term camps on the coast. Excavations at the Sligh (8SE1331) and Lake Jessup South (8SE580) sites on the south shore of Lake Jessup suggest village occupations or long-term encampments (Dickinson and Wayne 1996). A wide variety of tools and an abundance of ceramics imply a relatively sedentary group with spatial patterning of activities related to resource exploitation, food preparation, tool manufacture, etc. The basic site pattern consists of small, individual household midden deposits and posts set in shallow shell-filled fire pits (Dickinson and Wayne 1996:108).

About AD 750, the appearance of check stamped pottery marks the advent of St. Johns II, which has also been sub-divided into three sub-periods of IIa (AD 750-1050), IIb (AD 1050-1513),

and IIc (AD 1513-1565). St. Johns Check Stamped pottery remains the premier type in all three sub-periods (Goggin 1952).

Occupation of riverine and coastal shell middens continued with a relative increase in the number of non-riverine and non-coastal sites, possibly due to an increase in agriculturally suited locales indicating a possible increase in population (Miller 1998). There was an increase in the number and size of villages during St. Johns IIa, suggesting population expansion with a rank society. Deagan (1978) notes a population shift around AD 1000, from the more southern and southwestern areas into the northern areas, is evidenced by changes in relative frequencies of burial mounds in the area over time. Weeden Island pottery was occasionally found in St. Johns IIa burial mounds.

Some Fort Walton and Safety Harbor culture ceramics were traded into northeast Florida in St. Johns IIb, which is marked by the adoption of Mississippian-influenced cultural traits, including pyramidal mounds and certain iconographic motifs common in the Southeastern Ceremonial Complex (Milanich 1994). The Thursby Mounds in Volusia County, the Shields Mound in Duval County, and Mount Royal in Putnam County are examples of these large St. Johns IIb ceremonial sites along the St. Johns River. Of these, Mount Royal is the largest and most famous. It was at Mount Royal in the late nineteenth century that C. B. Moore found a copper plate with the "forked-eye" motifs of the Southeastern Ceremonial Complex of Mississippian period sites (Milanich 1994).

Hunting and gathering remained important, as well as seasonal utilization of coastal resources, but dependence upon cultivated crops, such as gourds, squash, and maize, increased during this sub-period (Milanich and Fairbanks 1980). Indirect evidence for agricultural practices were recovered from the Thursby Mound site—clay, gourd, squash and corncob effigies. Corncob-marked ceramics and cucurbit seeds and rind have also been recovered from Hontoon Island (Newsome 1987).

The St. Johns IIc period was characterized by the introduction of European artifacts in some of the mounds. Among these were trade beads, colonial ceramics, bells, iron chisels and axes, and mirrors. Copper, silver, and gold metal were also reworked by aboriginal artists into jewelry, interpreted as status items. The Hontoon Island site in Volusia County yielded Majolica ceramics and a copper coin dating to the sixteenth century.

Historic aboriginal occupants of the area during St. Johns IIc were Timucua, Mayaca, and possibly the Ais. While the Timucuans shared a common language, they cannot be considered a specific cultural group because the range of Timucuan language speakers was split into geographically separate areas divided by ceremonial, political, and technologically different communities (Deagan 1978).

Historic Overview

This section presents an overview of historic events in the culture region. A key aspect of the survey was extensive archival and records research on Orange County and Orlando.

Exploration and Colonization (1513-1821)

This era is marked by European efforts at exploration and colonization, and divided into three periods based on the colonial regimes: the First Spanish Period (1513 -1763), the British Period (1763-1783), and the Second Spanish Period (1783-1821). The first Spanish Period began with explorers seeking gold and other treasures purported in the New World.

The First Spanish Period began with the arrival of Juan Ponce de León to Florida in 1513. Ponce de León was serving as governor of Hispaniola, when he left that island in pursuit of a fountain of youth supposedly on Bimini, but instead landed in Florida. He returned to Hispaniola, believing Florida was Bimini, only to return in 1521. Arriving on the southwestern coast of peninsular Florida, Ponce de León brought a couple of hundred people, horses, and supplies with the intention of setting up a Spanish colony. His efforts failed quickly when attacked by indigenous people, one such encounter leaving Ponce de León fatally wounded.

Although Ponce de León did not survive, his travels raised awareness of rumored riches that abounded in the New World, including gold and silver. Others soon followed, such as the beleaguered expedition of Pánfilo de Narváez that landed near what is now Tampa Bay in 1528, and eventually headed across the Gulf of Mexico to the panhandle. In May of 1539, Hernando de Soto landed at Tampa Bay. His soldiers made forays through peninsular Florida, eventually setting up camp for the winter at a Native American village near present-day Tallahassee. The de Soto expedition wandered about what is now the Southeast for four years; its leader died in 1542 near the Mississippi River.

Although the expeditions failed to find the kind of treasure they sought, chronicles of their travels informed Europeans of the New World. Attempts at colonization were hampered by pirates preying on fleets coming up through the Florida straits, and hurricanes that destroyed ships and early settlements. Although Spain led in the exploration of the New World, there was interest by the French as well. Jean Ribault was one Frenchman who explored Florida in 1562, and in 1564, René Goulaine de Laudonnière established Fort Caroline at the mouth of the St. Johns River, near present-day Jacksonville.

In response to the French intrusion, Spain accelerated plans for colonization, dispatching Pedro Menéndez de Avilés across the Atlantic. Arriving in 1565, he established a permanent settlement at St. Augustine, and captured Fort Caroline, renaming it San Mateo. The Spanish Crown offered land grants to encourage loyalists to settle the New World, and people responded, with industrial activities focused on citrus, cattle, and timber.

Two years later, the French recaptured San Mateo under the leadership of Dominique de Gourgues, whose troops killed Spanish soldiers stationed at the fort. Such action only served to reinforce the Spanish resolve to dominate the New World. They established military enclaves and Catholic missions across Florida and up the Atlantic Coast around South Carolina.

The English also wanted a piece of the New World. In 1586, Sir Francis Drake and his British soldiers looted and torched the settlement at St. Augustine, but did not manage to take control over Spanish territory in Florida. The English established colonies to the north at Jamestown in 1607 in present-day Virginia, and in 1620 at Plymouth in present-day Massachusetts.

During the seventeenth century, they pushed further south, expanding their settlements into what are today the Carolinas, concomitant with French explorers moving down the Mississippi River Valley and along the Gulf Coast.

In 1702, an alliance of Carolina British colonists and Creek Indians led attacks on Spanish Florida under Colonel James Moore, which destroyed the town of St. Augustine, but an attempt to seize the fort at Castillo de San Marcos failed. Nevertheless, these Carolinian and Creek forces continued, in 1704, destroying Spanish Missions between Tallahassee and St. Augustine.

By the late 1600s, the French were beginning to gather their forces for possible military actions from and against both the British and Spanish. D'Iberville masterfully argued with the French government that in order to block possible westward movement on the part of the British (then confined to the Carolinas) and to limit Spanish expansion in Florida, it was necessary that the French have knowledge of the Gulf Coast.

Louis XIV approved the plan, and d'Iberville set out from France on December 31, 1698 to survey the Gulf Coast for good locations for possible future settlement, find the mouth of the Mississippi and establish a colony there (McWilliams 1981). Unknown to d'Iberville, the Spanish had re-colonized Pensacola earlier that year, but by January 1699 he was conducting a reconnaissance of Choctawhatchee Bay, in order to determine a possible location for a French outpost (ultimately erected at Mobile in 1702; see Spies and Rushing 1983 for details of the early Mobile settlement).

By 1715, waves of Creek Indians moved into Florida from the north to escape pressures from the expanding British colonies throughout the American frontier (Covington 1993). These immigrants began to develop their own tribal identity as Seminoles.

By 1733, England's settlements extended into present-day Georgia, and in 1740, British forces there headed south and laid siege to Castillo de San Marcos for nearly a month before beating a retreat back home. Finally, in 1763, the British gained control of Florida in exchange for Havana, Cuba, which they captured from Spain during the Seven Years' War (1756–63). When Spain evacuated Florida after the exchange, St. Augustine in east Florida was still a small, fortified community with less than 500 houses, and Pensacola, on the west, was a small garrison. In between, the territory was virtually unsettled.

The British decided to split Florida into East Florida, with its capital at St. Augustine, and West Florida, with its capital in Pensacola.² Although the British engaged in active trade with indigenous groups, they needed white settlers to establish a strong political and economic foothold, and so established the head-rights land grant system and the plantation system of commercial agriculture. Citrus farming, cattle, and timbering remained important to the economy, but sugar and indigo production also increased under British authority.

Within the project area, a Scottish physician named Andrew Turnbull established the New Smyrna Colony in 1768 in what is now New Smyrna Beach (Austin et al. 2005). The colony boasted about 1,500 settlers, a mix of people from Mediterranean countries focused initially on

² *The area of modern-day Orange County was part of East Florida.*

production of indigos. Later, they added sugarcane to the agricultural pursuits, apparently with an intention to use in the manufacture of rum (Austin et al. 2005).

The colony struggled with factors related to the climate, disease, and conflict with native groups, in addition to management problems resulting from Turnbull's leadership and compounded by his frequent absences. It eventually failed, with Turnbull abandoning the colony in 1777 to relocate to Charleston, South Carolina. Most of the settlers either relocated or returned home. A contingent of people, mostly from Minorca, remained in the area (Austin et al. 2005).

The British plan for colonization of Florida was ambitious, but short-lived when revolutionaries ignited the War for American Independence that waged from 1776 to 1783. Spain allied with France during the conflict. The British colonial occupation abruptly ended when defeat by the Spanish in 1781 led to the latter's capture of Pensacola. The single major exception to the enforced removal of British citizens by the Second Spanish colonial administration was the British Pantón, Leslie, and Company, a mercantile enterprise, which was granted almost exclusive charter by the Spanish to continue trading with the Indians (Coker 1995).

The Second Spanish Period began in 1783, when Britain returned Florida to Spain after the American Revolution. Most of the British settlers left, although some stayed under Spain's liberal immigration policy aimed at populating the virtually uninhabited territory between East and West Florida capitals. Spain again set up the land grant system, which lured not only Spanish colonists to Florida, but also settlers from the former British colonies, immigrants from the Caribbean, slaves who had escaped their masters and sought refuge beyond the legal jurisdiction of the newly formed United States, and Seminole Indians. The population made East Florida a culturally and racially heterogeneous area (Coker and Parker 1996:158-159).

Spain encouraged settlers, particularly Americans, by a royal order that authorized the governor, Quesada, to grant 100 ac to each head of a family and 50 ac to other members. Quesada added a requirement that the grantee be in continuous residence on the land for 10 years before the title was awarded. His successor, Enrique White, in 1803, reduced the land to 50 ac for the head, 25 ac for each child or servant over 16, and 15 ac for each child or servant between the ages of eight and 15 (Austin et al. 2005). There were other terms, one being cultivation of the land within a month of the grant, and the next governor required improvements as well in 1815 (Gold 1927:34). Title to much of the land in present-day Orange County is based on these old Spanish land grant concessions (Austin et al. 2005).

Despite the land grant program, the Spanish failed to gain a stronghold during the second colonial period, and the waning years of their administration in Florida were fraught with conflict, not the least of which were repeated US military expeditions, whether official or not. Noteworthy among the expeditions were several commanded by General Andrew Jackson, who also occupied Pensacola in West Florida twice in the early nineteenth century, once in 1814, and the second time in 1817. Dibble (1977) indicates that following Jackson's 1812 to 1814 campaign, the Indians of the Apalachicola (primarily Creeks) went into hiding further west around Choctawhatchee Bay, about 60 km east of Pensacola; Jackson sent troops into the interior to find the "renegades." On one of Jackson's military operations, in 1818, the general led an army against native people in Florida, a battle later known as the First Seminole War.

In summary, Spain staked claim to the Florida territory during much of the eighteenth century, but faced competition by France and England. The French attacked Pensacola in the early eighteenth century, but held the territory for only a few years. The English acquired Florida in trade for Cuba with the Treaty of Paris in 1763, and held it until 1784 when Spain regained control. Technically, Spain retained control of East and West Florida until 1821, but after the Revolutionary War, their mission to create a strong Spanish Florida never came to fruition. Contributing factors included US military incursions, skirmishes with aboriginal populations, and the newly formed Union's brash entry into the competitive sphere. The steady immigration of people from Virginia, North Carolina, and Georgia, and settlements established in the early nineteenth century made Florida more American than Spanish. The US intrusion into Florida intensified, exerting not so subtle pressure for Spain to make its exit. In truth, the colony was not at all profitable for Spain during the second administration, so there was little resistance when forcibly annexed by the US (Tebeau 1971). Pressed by the US government, Spain signed the Adams-Onis Treaty in 1819, an agreement that culminated in Florida becoming a US territory in 1821 (Tebeau 1971).

American Period through the Civil War (1821 - 1861)

On March 12, 1821, the US Secretary of State, John Quincy Adams, issued a commission to General Andrew Jackson as military governor of Florida. Jackson was a natural choice based on his knowledge of the region and military reputation. From the Spanish perspective, he was far from ideal because of those same reasons. The Spanish turned over control of Florida officially in July of 1821, with Jackson then responsible for sorting out conflicts between English and Spanish land claims, dealing with distrustful Spanish inhabitants, and ensuring that Spanish households would be vacated by December of that year.

The Spanish did not like nor trust Jackson, and did not believe they would be given fair market value for their property as agreed upon under the terms of the Adams-Onis Treaty. The Spanish regarded the new American settlers as unruly and untrustworthy. Juan Entralgo, the mayor of St. Augustine, simply refused to cooperate with Jackson, and the Spanish governor, Don Jose Callava, was thrown in jail when he opposed Jackson's policies. Although Spanish residents could elect to remain under the new American rule, few opted to do so. The hostile feelings ran so deep between the Spanish and Americans that the former often burned their homes and improvements rather than allow them to be settled by the latter.

To deal with the continued disputes with Seminoles, the 1823 Treaty of Moultrie Creek established a reservation of about four million ac in the interior middle of Florida, but the native population was displeased with the soils in that location, saying they were not suited for cultivation (Mahon 1985:50). The US issued several other treaties that were equally unpopular, and the strained relations led to constant conflict.

The conflicts came to a head in 1835, with the Seminole War, during which several large sugar plantations in the project area were destroyed and new settlement in the central part of the state was limited where Seminoles were entrenched. That war ended in 1842, at which time the native population had been substantially reduced because of deaths in battle and forced removal out west. Remaining Seminoles retreated to swamps in the southern portions of the peninsula.

The push for increased white settlement in Florida derived not only from the need to grow the economy, but also as defense against these native uprisings. To encourage white settlers, the Armed Occupation Act was passed in 1842, allowing single men 18 or older, or any head of house to apply for up to 160 ac of land to homestead through government land offices at Newnansville and St. Augustine. The conditions were clear: the applicant had to be able to bear arms, establish a home on the property within a year and reside there for five consecutive years, as well as clear and enclose at least five ac of the land. Those who met the conditions received title to the land free and clear. The act led to a surge in settlement in central Florida, including an influx of people from other parts of the territory, many of whom were veterans of the Seminole Wars.

To provide settlers with additional protection, the US established a series of forts, an action viewed by the remaining Seminoles as hostile. The Seminoles, led by Billy Bowlegs, continued to have disputes with the new settlements, and eventually led to the Third Seminole War or Billy Bowlegs War (Tebeau 1966). By the end of the Third Seminole War (1855 to 1858), most of the Seminoles had either been killed or removed to reservations in the west. Less than 200 Seminoles remained in Florida, most retreating into the Everglades.

On March 3, 1845, Florida became the 27th state, admitted as a slave state to maintain the balance between slave states and free states at that time. William D. Moseley was its first governor. By 1850, the population had grown to 87,445, including about 39,000 African-American slaves and 1,000 free blacks.

Although there were some large plantations, the Florida plantation system was typically smaller than southern neighboring states. It was also a closed system, with justice doled out by the owners/overseers. Slaves were trained in skills needed on the plantations, and these skills would later come in handy after emancipation. The lives of slaves depended entirely upon the benevolence or malevolence of the people in charge of each plantation. Florida history abounds with tales of mistreatment, yet documented rebellion, even on small scales, is sparse.

Many of the white pioneers in peninsular Florida were of Scotch-Irish descent and followed a Southern yeoman tradition, rugged individualists with close-knit families and a strong work ethic. They held on to control of their own farms, lives, and destinies, believing firmly in their being equal to any other white settler.

Politically, the slave issue was highly sensitive to white citizens of Florida. Most white men of voting age did not oppose slavery and were suspicious of the agenda of Abraham Lincoln when he announced his candidacy for president. At that time, a heavily Democratic bias characterized Florida politics, so there was a natural suspicion of Republicans in general.

Civil War and Reconstruction (1861-1876)

As indicated in the census figures of 1850, not all African-Americans in the state were slaves. Some were Creoles, free descendants of Spanish citizens of African heritage, and others had purchased their freedom. However, Florida entered the union as a slave state, and on January 10, 1861, became the third state to secede from that union.

Florida escaped the most intense fighting of the war, but two major battles are documented along with smaller skirmishes. In a good strategic move, northern ships were dispatched to blockade or occupy the Florida ports of St. Augustine, Jacksonville, Key West, and Pensacola, cutting off most commercial sea activities. Among the documented skirmishes were those that took place at Fort Pickens, Marianna, Natural Bridge, Gainesville, and Olustee.

Although the blockades kept out large ships, small ships slipped through and supplied goods to Confederate troops. In fact, Florida became known as a provider of supplies to Confederate troops, sending cattle, beef, pork, fish, and fruit, mostly by wagon since the railroad had not been completed state-wide. Florida also sent salt, which was imperative to preservation of food. Salt works were an important economic venue in Florida, two of the largest being at Apalachee Bay and St. Andrews in northern Florida. Conflicts arose with Union troops trying to seize the salt works periodically during the war.

Approximately 16,000 Floridians fought on the Confederate side, with 2,000 in the Union army. With men serving as soldiers, the task of keeping farms working fell to the women, assisted by children and slaves. The Civil War took a toll on lives and devastated the state's economy (Tebeau 1971).

When Federal troops left Florida around 1876, Democratic rule returned to power. Bent on minimizing changes brought by Reconstructionist policies, Democrats rewrote the state constitution to diminish the political power former slaves gained (Tebeau 1971).

The state was deeply in debt after the Civil War, but the ports of Jacksonville and Pensacola began to flourish again, in large measure stimulated by the demand for lumber and forest products needed to rebuild cities heavily impacted by the war. Agriculture remained the economic backbone, although the once-flourishing cotton industry suffered declines after the Emancipation Proclamation freed the African-American slaves who worked the fields. Eventually, subsistence farming took precedence, and other industries, such as timber, citrus production, and transportation increased in importance.

Recovery also got a boost from potential investors. Land played an important role in attracting investors, as did other resources. One of the most unusual focused on extraction of sponges from Tarpon Springs at Tampa. Existing industries, such as citrus production, also expanded. The Internal Improvement Act that initiated development of a better road system prior to the war also benefited Florida in the post-Civil War recovery. This act stimulated efforts to drain wetland areas to turn them into suitable farming land. Philadelphia manufacturer Hamilton Disston helped assuage the debt problem and economic recovery with his purchase of four million ac of mostly interior wetlands (Tebeau 1971).

Tourism was on the rise and seasonal residences were established in peninsular Florida by wealthy northerners. Companies owned by Henry Flagler and Henry Plant built railroads as well as lavish hotels at tourist-worthy stops on the lines. The railroads vastly expedited transportation of the state's products to ports for shipment by sea and out of state to urban hubs in the mid-Atlantic and northeast.

Post-Reconstruction through World War I (1876 to 1918)

In 1898, the port of Tampa served as the main staging area for US troops deployed to Cuba during the Spanish-American War. Overall, however, that war did not have a serious impact on Florida's recovering economy nor continued population growth. Timber, cigar manufacture, citrus production, and tourism continued to grow. As World War I began in Europe in 1914, the naval stores industry emerged in Florida, eventually becoming a viable economic force.

Perhaps the best economic stimulus at that time was World War I itself. Once again, Florida provided products to feed a wartime population, this time a united America. The favorable climate induced armed services to set up training areas, including naval bases, and army, air, and marine facilities. The war effort caused a peak in production, with industries like shipbuilding and agriculture leading the list of important industries (Tebeau 1971).

Post World War I to World War II (1918 through 1940)

The upswing in production during World War I led to continued economic expansion as well as an unprecedented land boom in the aftermath of the war. Land speculation began in state in the late nineteenth to early twentieth century, but peaked in the project area during this period. Everyone wanted to cash in on the potential of the "Sunshine State," and with cars becoming more common, Florida became a natural vacation destination for people from the landlocked areas of the country.

The real estate market soared and then became depressed by 1926, an economic downturn that preceded the depression that hit the nation three years later. Contributing factors included severe tropical storms that hit the state and inflated prices for land. The latter resulted from rapid buying and selling of land by developers. People were millionaires on paper, but eventually their credit ran out, as did the money, and the bubble burst.

By the time the Great Depression began in the rest of the nation in 1929, Floridians were already accustomed to economic hardship. That year, the Mediterranean fruit fly invaded the state, and the citrus industry suffered. A quarantine was established, and troops set up roadblocks and checkpoints to search vehicles for any contraband citrus fruit. Production of citrus crops declined by more than 50 percent, but oyster harvesting had begun as a viable economic avenue during this period.

Politically during this period, women in Florida gained the right to vote in 1920, and exercised it across the state. President Franklin D. Roosevelt's New Deal programs, the Works Progress Administration (WPA) and the Civilian Conservation Corps (CCC), helped stimulate Florida's economy in the 1930s (Tebeau 1971). In 1937, repeal of the poll tax, widely criticized for discriminating against the poor, enabled impoverished citizens an equal opportunity to vote.

World War II (1941-1945)

As the war clouds thickened over Europe and the Far East, the government was already making plans to step up military training and facilities. With the country's entry into the war after

the Japanese bombed Pearl Harbor in December of 1941, construction reached a fever pitch, the results of which forever changed the state.

Given the temperate climate, vast areas of rural land, and miles of coastline, Florida was a natural landscape to host the military machine needed for an Allied victory. A year after the bombing of Pearl Harbor, the state boasted over 172 military installations, including 40 airfields for active training of military personnel, naval stations at Pensacola and Jacksonville, and army installations, such as Camp Blanding near Starke.

Huge sums of money were funneled to Florida as part of the military build-up, giving the economy a well-needed surge. New jobs were created, many held by women proving they could do a “man’s” job, building planes, working in shipyards, welding, and serving in a broad range of capacities at military bases across the state.

The war effort changed the complexion of urban areas as well, with hotels being filled up with government employees and cities used as staging areas for troop deployment. Because of the shortage of supplies, Florida joined the rest of the nation in rationing, encouraging citizens to grow their own vegetables and raise their own livestock for meat.

Prisoner of War (POW) camps were established throughout the state. POWs were used to pick vegetables, process citrus, harvest sugarcane, and other tasks ironically supporting their enemy’s war effort. The enemy came to Florida as combatants as well in 1942 when German submarines initiated Operation Drumbeat, an offensive against the virtually undefended Allied shipping lanes on the east coast. In the end, the operation sunk almost 400 ships, and resulted in thousands of deaths. German spies actually landed at several places along the Atlantic Seaboard, but many were captured before causing harm. Coast Guard units began patrolling the Atlantic coastline of Florida. On May 5, 1945, fighting ended in Europe, and Japan surrendered on August 15, 1945, bringing World War II to a close and jubilant Allied victory.

Post-World War II (since 1946)

With the war over, prosperity returned to the country. Florida continued to enjoy a strong economy from the wartime buildup as many of the military installations expanded not only mission activities, but also their physical blueprint and personnel. Additionally, the acceleration in construction of highways and airports during the war left Florida with a modern transportation network.

Good times continued into the 1950s under the Eisenhower administration. On a national level, political and social change arrived with passage of *Brown v. the Board of Education* in 1954. On a state level, Governor Thomas LeRoy Collins was progressive and fostered a movement to end racial discrimination and strengthen the state’s public school system. Collins was the architect of the first community colleges in Florida, and he promoted economic growth for industry, agriculture, and tourism.

Since World War II, Florida's economy has become increasingly more diverse and dramatically expanded the job market. A wide array of defense contractors established offices in Florida to fulfill government contracts to support mission needs at military installations. The

economic stalwarts of cattle, citrus production, and agriculture have been joined by new industries, such as electronics, plastics, construction, real estate, and international banking. A number of major US corporations, such as CSX, moved their headquarters to urban centers in Florida.

The country's aeronautical program advanced by testing and development at military installations across Florida, but the state is best known for the "Space Coast," a stretch of land in Brevard County on the Atlantic Ocean. It is home to Kennedy Space Center and Cape Canaveral Air Force Station. Beginning with Project Mercury in 1961 and continuing to the end of the Space Shuttle program in 2011, Florida's Space Coast has been the scene of NASA-launched manned spaceflights.

Disney World, opened in central Florida in 1971, attracts millions of visitors from the US and around the globe. Its success spawned other theme parks, including Universal Studios, Lego Land, and more, along with the development of destination resorts.

Today, Florida enjoys a thriving economy, fueled by defense spending, tourism, and a range of other industries. It hosts cultural, racial, economic, religious, and ethnic diversity in the population, and is an important state in terms of national politics. The present and future of the "Sunshine State" appears sunny on all fronts.

CHAPTER FOUR FILE SEARCH AND PREVIOUS RESEARCH

Background and Archival Research

Previous Investigations

According the Florida Master Site File (FMSF), no historic properties are located within the project area. In fact, the only known resources identified within the one mile radius are two previously recorded structures (Table 2). 8OR7258 is documented as a 1930 frame vernacular structure at 1022 North Fairvilla Road. 8OR7259 is documented as a 1935 frame vernacular structure at 1919 West New Hampshire Street. Both structures are no longer present, whether they were moved to another location or destroyed is unknown (Figures 6 and 7).

Table 2. Summary of Previously Known Historic Properties Located Near Project Area

Site #	Contents	Eligibility
8OR7258	Structure: 1930 Frame Vernacular house	Not Evaluated
8OR7259	Structure: 1935 Frame Vernacular house	Not Evaluated

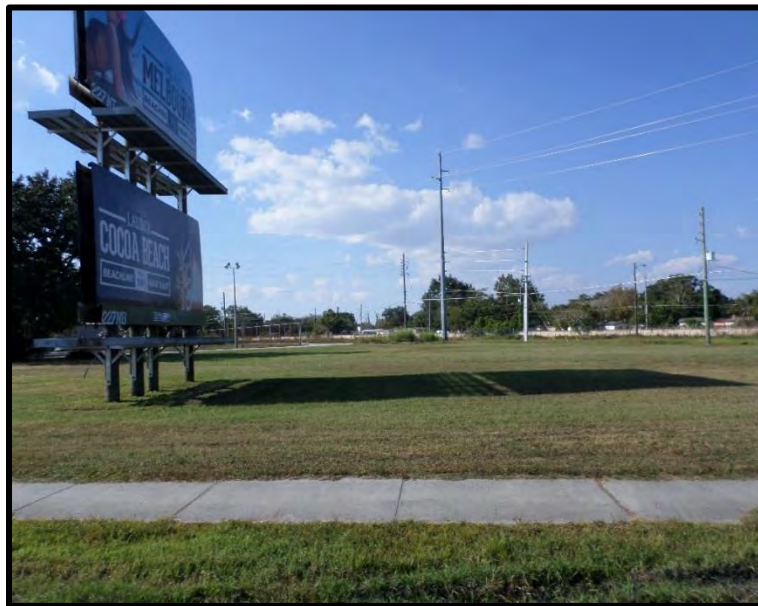


Figure 6. View of 1022 North Fairvilla Road, facing west



Figure 7. View of 1919 West New Hampshire Street, facing North

Records Review

The General Office Records (GLO) website with the Bureau of Land Management was included in the archival research for any former homesteads or entry claims within the proposed cell towers. As a result of this records search, no former homesteads or cash entries were listed for Section 21 in T22S-R29E. This township was surveyed and approved in 1846. No land claims were located for Section 21. As the section number is odd, it likely fell under railroad land claims. The earliest located quadrangle map is the 1956 Orlando West which illustrated improvements to the west and outside the survey boundary (Figure 8). Structures are located to the northwest of the project area, while the project area is designated as wetland. Topographic maps from 1970 show two additional structures within the developed area to the northwest, but the project location is undeveloped wetland. Historic aerial photography from 1954 also shows wetlands with nearby cultural activity but no development within the actual survey location.

In summary, there are no known historic properties within the project area. According to the GLO records, no land claims were identified in Section 21 in T22S-R29E, and no improvements were illustrated on the historic USGS maps. As the project area is located within a wetland and there are no indications of historic activity, the recovery of historic materials is not expected.

Field Methods, Analytic Techniques, And Results

The project area is in a wetland environment. The parcel is comprised of about 10 acres that extends southeast from an industrial complex and north from an east to west trending canal. The landform slopes gently to the south, ranging from 35 to 30 ft amsl.

The project area was located by PTA personnel with a GPS unit using roads and longitude and latitude coordinates. An intensive surface inspection was conducted across the entire parcel.

Ground surface visibility ranged from 0 to 80%. During this time, the archaeologist inspected all ground surface for exposed cultural resources of any kind as well as ornamental vegetation and/or changes landform that may host cultural remains. None were identified.

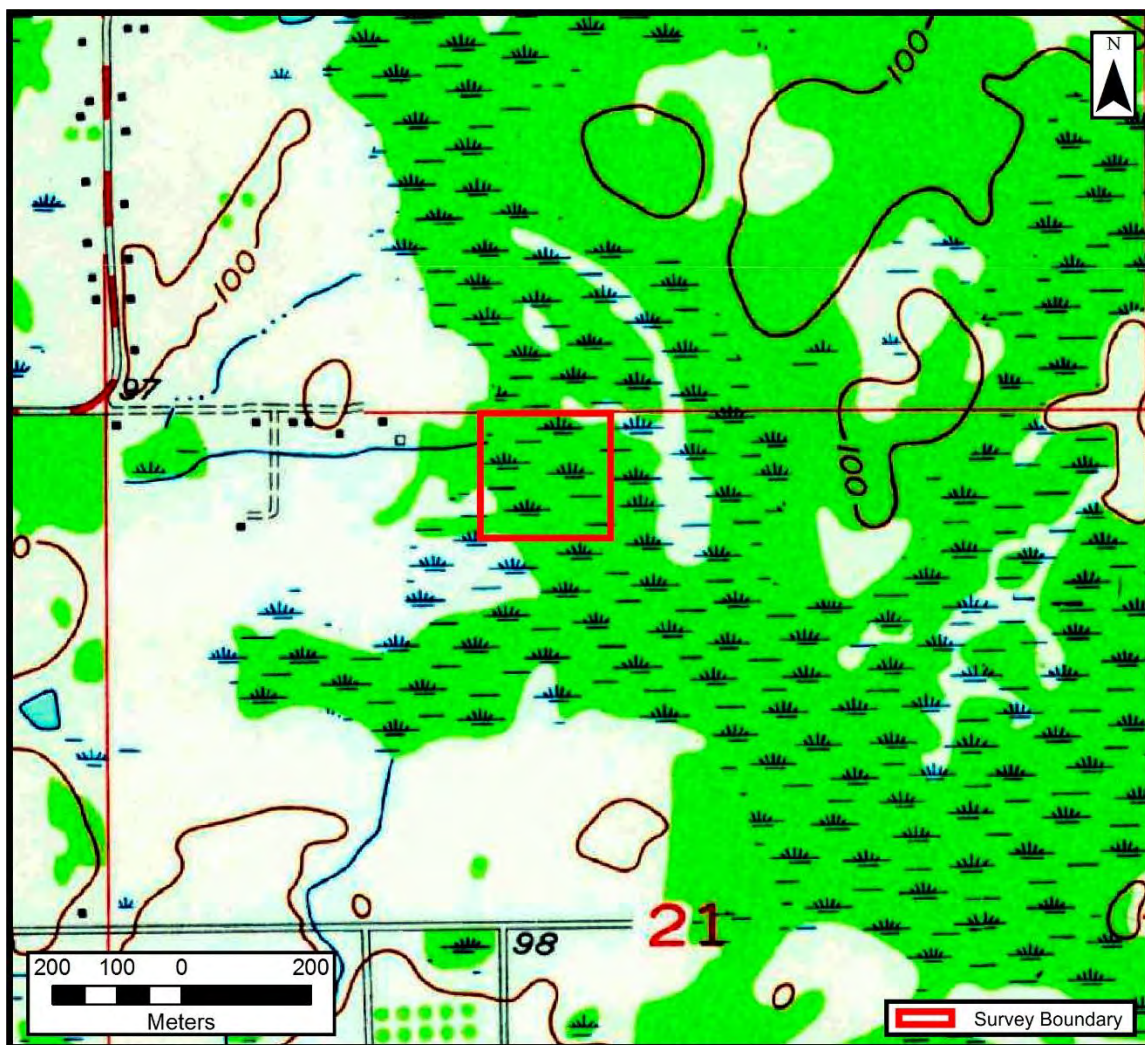


Figure 8. Portion of the 1956 Orlando West USGS quadrangle, showing project area

Since the only ground disturbing activities are limited to the two proposed locations of the radio towers, this area is designated the area of potential effect (APE). PTA focused the subsurface investigations in these areas. Ten shovel tests were excavated within the APE (Figure 10; Table 3). No historic or prehistoric artifacts were found in any of these subsurface investigations. Sediments were found to be markedly similar across the landscape. All shovel tests measured 40 cm by 40 cm, were excavated in arbitrary 10 cm levels to a depth of 100 cm (unless otherwise indicated), and all soils were passed through ¼-inch mesh screen (Figure 11). As mentioned previously, the project area is located within a wetland area and the soils are poorly drained. Surprisingly, due to the lack of rain in Orange County, most of the shovel tests were excavated to 100 cm. As a result of the current effort, ground disturbing activities will have no effect on historic properties.



Figure 9. Portion of 1954 aerial photograph, showing project area

Table 3. Shovel test profile descriptions

ST #	Size/Location	Soil Description	Contents
1	40 cm x 40 cm/East section	0-30 cm: very dark grayish brown medium sand	No cultural materials
		30-100 cm: light gray medium sand	No cultural materials
2	40 cm x 40 cm/East section	0-10 cm: very dark grayish brown medium sand	No cultural materials
		10-35 cm: grayish brown medium sand	No cultural materials
		35-100 cm: light gray medium sand	No cultural materials
3	40 cm x 40 cm/East section	0-10 cm: very dark grayish brown medium sand	No cultural materials
		10-20 cm: gray medium sand	No cultural materials
		20-100 cm: light gray medium sand	No cultural materials
4	40 cm x 40 cm/East section	0-20 cm: dark brown medium sand	No cultural materials
		20-30 cm: dark gray medium sand	No cultural materials
		30-70 cm: pale brown medium sand; encountered water at 70 cm	No cultural materials
5	40 cm x 40 cm/East section	0-20 cm: dark brown medium sand	No cultural materials
		20-80 cm: gray medium sand	No cultural materials
6	40 cm x 40 cm/West section	0-20 cm: dark brown medium sand	No cultural materials
		20-80 cm: pale brown medium sand	No cultural materials

Table 3. Shovel test profile descriptions (Continued)

ST #	Size/Location	Soil Description	Contents
7	40 cm x 40 cm/West section	0-15 cm: grayish brown medium sand	No cultural materials
		15-20 cm: light gray medium sand	No cultural materials
		20-100 cm: very pale gray medium sand	No cultural materials
8	40 cm x 40 cm/West section	0-15 cm: grayish brown medium sand	No cultural materials
		15-100 cm: very pale brown medium sand	No cultural materials
9	40 cm x 40 cm/West section	0-20 cm: grayish brown medium sand	No cultural materials
		20-100 cm: very pale brown medium sand	No cultural materials
10	40 cm x 40 cm/West section	0-20 cm: dark brown medium sand	No cultural materials
		20-100 cm: very pale yellowish brown medium sand	No cultural materials

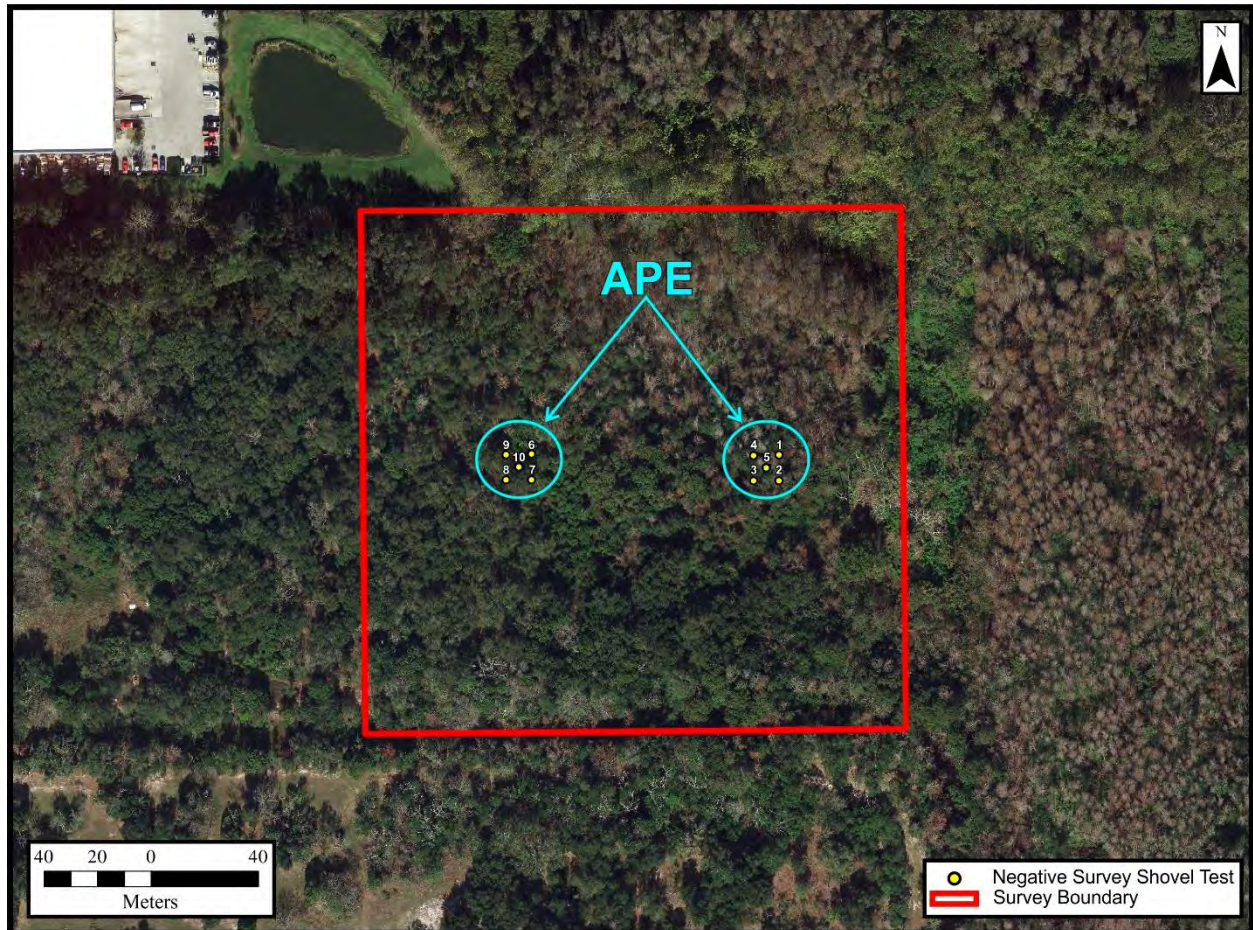


Figure 10. Portion of Aerial Photograph showing APE and survey shovel tests



Figure 11. View of Shovel Test 2, facing north

CHAPTER FIVE MANAGEMENT RECOMMENDATIONS

Cultural resource survey of the proposed relocation of two radio cell towers, conducted on the behalf of Star Over Orlando, Inc., at 3604 New Hampshire Road in Orlando, Florida, was completed by PTA archaeologist Ryan Clark in November of 2016. An intensive surface survey was conducted along with the excavation of 10 shovel tests in the proposed locations of the towers. Despite the intense effort, no cultural resources of any kind were identified. In addition, the background and archival research concluded that no eligible or potentially eligible historic properties are located within a mile of the project area.

As a result of the current effort, ground disturbing activities will have no effect on historic properties. No further work is recommended at this location.

FCC: There are no Archaeological or Historic sites at this location.

Unexpected Discoveries

In closing, the client is advised that if unexpected discoveries, such as Native American graves or lost historic cemeteries are encountered, guidelines set forth in Chapter 872, F.S. (Florida's Unmarked Burial Law) must be followed. If human remains or unexpected discoveries are encountered during construction activities, work should cease and the Florida SHPO should be contacted within 24 hours at (850) 245-6333 to begin procedures that are outlined in Chapter 872, F.S.

This page intentionally left blank.

REFERENCES CITED

Anderson, David G. and Glen T. Hanson

- 1988 Early Archaic settlement in the Southeastern United States: a case study from the Savannah River Valley. *American Antiquity* 53(2):262-286.

Anderson, David G. and Kenneth E. Sassaman

- 1996 Modeling Paleoindian and Early Archaic Settlement in the Southeast: A Historical Perspective. Chapter 2, pp 16-28, in *The Paleoindian and Early Archaic Southeast*, David G. Anderson and Kenneth E. Sassaman, eds. University of Alabama Press. Tuscaloosa.

Anderson, David G., R. Gerald Ledbetter and Lisa D. O'Steen

- 1990 *Paleoindian Period Archaeology of Georgia*. Georgia Archaeological Research Design Paper 6. Laboratory of Archaeology Series Report 28. Athens: University of Georgia.

Avon Park Air Force Range

- 1999 Cultural Resource Management Plan of Avon Park Air Force Range, Florida. OL A, DET 1, 3470G/CEV. Avon Park Air Force Range, Florida.

Austin, Robert, Roger Grange, and Dorothy Moore

- 2005 Archaeological Resources of the Eighteenth-Century Smyrna Settlement of Dr. Andrew Turnbull, Volusia County, Florida. A National Register of Historic Places Multiple Properties Nomination. Conducted for The City of Port Orange, Florida, The City of New Smyrna Beach, Florida, City of Edgewater, Florida, and Volusia County, Florida. By Southeastern Archaeological Research, Inc., Jonesville, Florida.

Beriault, J., R. S. Carr, J. Stipp, R. Johnson, and J. Meeder

- 1981 The Archaeological Salvage of the Bay West Site, Collier County, Florida. *The Florida Anthropologist* 34:39-58

Brooks, H. K.

- 1981 Guide to the Physiographic Divisions of Florida. Institute for Food and Agricultural Sciences, University of Florida, Gainesville

Bullen, Ripley P.

- 1968 *A Guide to the Identification of Florida Projectile Points*. First Edition. Florida State Museum.
- 1975 *A Guide to the Identification of Florida Projectile Points*. Revised Edition. Kendall Books. Gainesville, Florida.

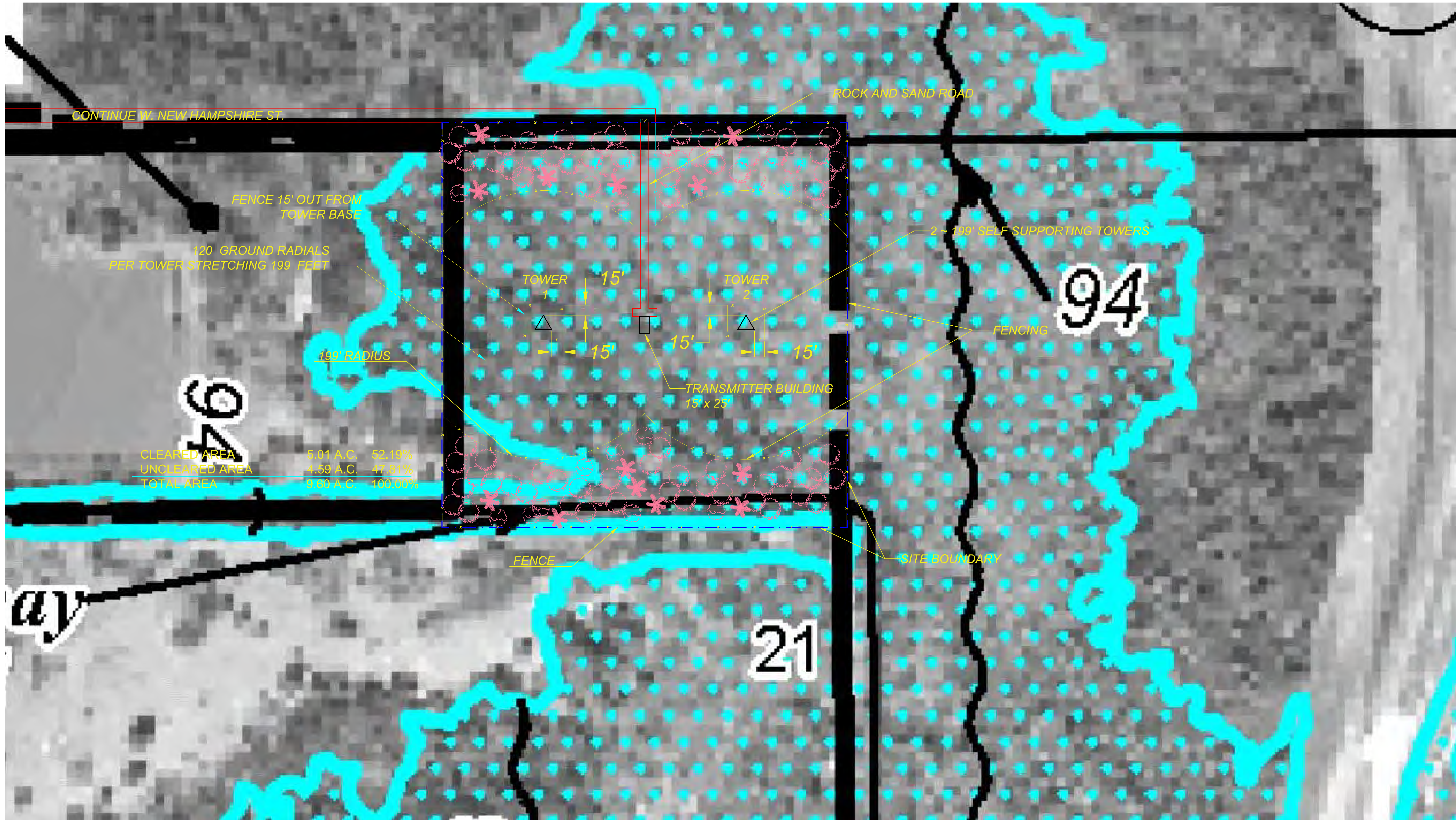
- Bullen, R.P., and L.E. Beilman
 1973 The Nalcrest Site, Lake Weohyakapka, Florida. *The Florida Anthropologist* 26:1-22.
- Bullen, Ripley P., and Edward M. Dolan
 1959 The Johnson Lake Site, Marion County, Florida. *The Florida Anthropologist* 12:77-99.
- Bullen, Ripley P., Adelaide K. Bullen, and William J. Bryant
 1967 Archaeological Investigations at Ross Hammock Site, Florida. *America Studies Report* 7. The William L. Bryant Foundation, Orlando.
- Carr, Robert S., Debra Sandler and Amy Felmley
 1992 An Archaeological Assessment of the Westridge Property, Broward County, Florida. AHC Technical Report #48, Archaeological and Historical Conservancy, Miami.
- Clausen, Carl J., H. R. Brooks, and A. B. Wesolowsky
 1975 Florida Spring Confirmed as 10,000-Year-Old Early Man Site. Florida Anthropological Society Publications 7. Gainesville.
- Clausen, C. J., A. D. Cohen, C. Emiliani, J. A. Jolman, and J. J. Stipp
 1979 Little Salt Spring, Florida: A Unique Underwater Site. *Science* 203:609-614.
- Coker, William S.
 1995 "The Papers & History of The Paton, Leslie, and Company and John Horbes and Company." *Florida Historical Quarterly* 73/3:353-358.
- Coker, William and Susan R. Parker
 1996 The Second Spanish period in the two Floridas In the *New History of Florida*. Edited by M. Gannon. Gainesville: University Press of Florida, pp. 150-166.
- Covington, J.W.
 1993 The Seminoles of Florida. University Press of Florida, Gainesville.
- Daniel, I. Randolph
 1985 A Preliminary Model of Hunter-Gatherer Settlement in Central Florida. *The Florida Anthropologist* 38:261-275
- Daniel, I. Randolph Jr.
 1998 *Hardaway Revisited: Early Archaic Settlement in the Southeast*. University of Alabama Press. Tuscaloosa.

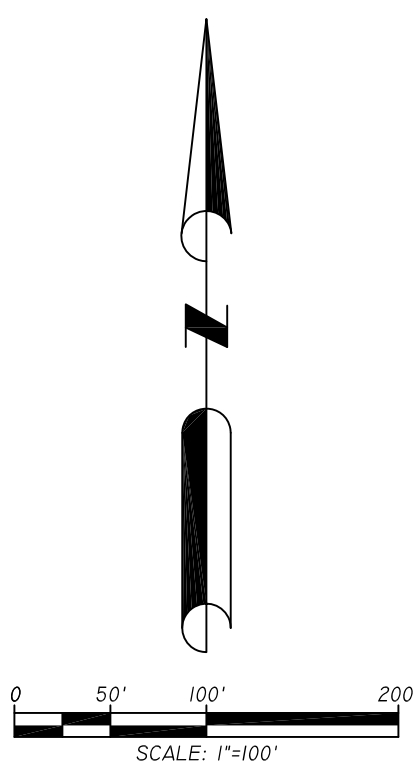
- Deagan, Kathleen A.
1978 Cultures in Transition: Assimilation and Fusion Among the Eastern Timucua. In *Tacachale: Essays on the Indians of Florida and Southeastern Georgia During the Historic Period*. Edited by J.T. Milanich and S. Proctor, pp. 89-119. University Press of Florida Gainesville.
- Dibble, Ernest Fl.
1977 "Captain Hugh Young and His Topographic Memoir to Andrew Jackson." *Florida Historical Quarterly* 55:336-346.
- Dickinson, Martin F. and Lucy B. Wayne
1996 The Sligh Site (8SE1332): Data Recovery Excavations on Lake Jessup, Winter Springs, Seminole County, Florida. SouthArc, Inc., Gainesville.
- Doran, Glen H. and David N. Dickel
1988 Multidisciplinary Investigations at the Windover Site. In *Wet Site Archaeology*.
- Dunbar, James and Ben I. Waller.
1983 A Distribution Analysis of the Clovis/Suwannee Paleoindian Sites of Florida—A Geographic Approach. *The Florida Anthropologist* 36(1-2):18–30.
- Dunbar, J. S., S. D. Webb, and M. Faught
1988 Page-Ladson (8JE591): An underwater Paleo-Indian Site in Northwestern Florida. *Florida Anthropologist* 41: 442-452.
- Farr, G. E.
2006 A Reevaluation of Bullen's Typology for Preceramic Projectile Points. Unpublished Master's Thesis, Department of Anthropology, Florida State University.
- Faught, Michael K. and James C. Waggoner, Jr.
2012 The Early Archaic to Middle Archaic Transition in Florida: An Argument for Discontinuity. *Florida Anthropologist* 65(3): 153-175.
- Goggin, John M.
1952 Space and Time Perspective in Northern St. Johns Archaeology, Florida. Yale University Publications in Anthropology 47, New Haven.
- Gold, Pleasant Daniel
1927 *History of Volusia County, Florida*. Painter Print Company, DeLand, Florida.
- Goodyear, Albert C.
1979 "A Hypothesis for the Use of Cryptocrystalline Raw Materials Among Paleo-Indian Groups of North America." Research Manuscript Series. Book 127.

- Goodyear, A.C., and L.O. Warren
 1972 "Further Observations on submarine oyster shell deposits of Tampa Bay." *The Florida Anthropologist* 25(2):52-66.
- Griffin, James B.
 1945 The Significance of the Fiber-Tempered Pottery of the St. Johns Area in Florida. *Journal of the Washington Academy of Sciences* 35 (7):218-233.
- McWilliams, Richebourg G.
 1981 Iberville's Gulf Journals. Alabama Press.
- Mahon, John K.
 1985 History of the Second Seminole War, 1835-1842. Revised Edition. University of Florida Press, Gainesville.
- Milanich, Jerald T.
 1994 *Archaeology of Precolumbian Florida*. The University Press of Florida. Gainesville.
- Milanich, Jerald T. and Charles H. Fairbanks
 1980 *Florida Archaeology*. Academic Press, New York
- Miller, James J.
 1998 An Environmental History of Northeast Florida. University Press of Florida, Gainesville.
- Newsome, Lee
 1987 "Analysis of Botanical Remains from Honton Island (8VO202) Florida:1980-85 Excavations." *Florida Anthropologist* 40(1):42-48.
- Pepe, James and Robert S. Carr
 1996a An Archaeological Survey of the Medalist II Golf Survey, Martin County, Florida. AHC Technical Report #164, Archaeological and Historical Conservancy, Miami.
 1996b A Phase II Archaeological Survey of the Jupiter Parcel, Palm Beach County, Florida.
- Purdy, Barbara A.
 1975 The Senator Edwards Chipped Stone Workshop Site (MR-122) in Marion County, Florida: a Preliminary Report of Investigations. *Florida Anthropologist* 28: 178-189.
 1981 *Florida's Prehistoric Technology*. University Presses of Florida. Gainesville.

- Purdy, Barbara A., and Laurie M. Beach
 1980 The Chipped Stone Tool Industry of Florida's Preceramic Archaic. *Archaeology of Eastern North America* 8:105–124.
- Ruppe, Reynold J.
 1980 The Archaeology of Drowned Terrestrial Sites: A Preliminary Report. *Florida Bureau of Historic Sites and Properties Bulletin* 6:35–45.
- Rutledge, A. T.
 1985 Ground-Water Hydrology of Volusia County, Florida, with Emphasis on Occurrence and Movement of Brackish Water. U.S. Geological Survey. Water-Resources Investigations Report 84-4206.
- Scott, Thomas M. P.G.#99
 2001 Text to Accompany the Geologic Map of Florida. Open-File Report 80. Florida Geological Survey. Tallahassee, Florida.
- Stone, Tammy T., David Dickel, and Glen H. Doran
 1990 The Preservation and Conservation of Waterlogged Bone from the Windover Site, Florida: A Comparison of Methods. *Journal of Field Archaeology* 17:177–186
- Tebeau, Carlton W.
 1966 Florida's Last Frontier: The History of Collier County. University of Miami Press, Coral Gables.
 1971 A History of Florida. Revised 1980. University of Miami Press, Coral Gables, Fl.
- USDA
 1989 Soil Survey of Orange County, Florida. United States Department of Agriculture, Soil Conservation Service.
- Waller, Benjamin I. and James Dunbar
 1977 Distribution of Paleo-Indian Projectiles in Florida. *The Florida Anthropologist* 30:79–80.
- Warren, Lyman O.
 1970 "The Kellogg fill from Boca Ciega Bay, Pinellas County, Florida." *The Florida Anthropologist* 23(4):163-167. Gainesville.
- Watts, W.A. and Barbara C.S. Hansen
 1988 Environments of Florida in the Late Wisconsin and Holocene. pp 307-323 in *Wet Site Archaeology*, Barbara A. Purdy, ed. Telford Press. Caldwell New Jersey.

Watts, William A., Eric C. Grimm, and T.C. Hussey
1996 Mid-Holocene Forest History of Florida and the Coastal Plain of Georgia and South Carolina. In *Archaeology of the Mid-Holocene Southeast*. Edited by K. E. Sassaman and D.G. Anderson, pp. 28-38. University Press of Florida, Gainesville.





SKETCH OF ANTENNA ELEMENT

[illegible]

REVISIONS						DAVE M. SCHMITT FLORIDA REG. NUMBER 48274
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	

SITE PLAN
NEW HAMPSHIRE TOWER
ORANGE COUNTY, FLORIDA

DATE: MARCH 2016
PROJECT NO.: NHT
DRAWN BY: JL
CHECKED BY: DSE
SCALE: 1"=100'
SHEET: 1 OF 1