

STAFF REPORT

DATE: April 25, 2016

RE: **Fort Zachary Taylor Historic Park**
(permit application # T16-7941)

FROM: Karen DeMaria, City of Key West Urban Forestry Manager

An application was submitted to the building department to build the new access road for Fort Zachary Taylor Historic Park (Ft. Zach). The new access road is part of the overall master plan for Truman Waterfront Park but the exact area where the new access road is to be located has never been reviewed by the Urban Forester or the Tree Commission. A review of the application determined that trees would be impacted by the creation of the new access road.

A site inspection on April 11, 2016 with Bert Bender, representative for the project, determined that there were many protected tree species located in the proposed work area. Mr. Bender was informed of the need for the project to be reviewed by the Tree Commission to include a complete tree survey of the proposed work area. An application with a complete tree survey was submitted on April 20, 2016.

Due to time constraints, representatives for the State are proceeding with a full tree removal permit application for the project. The work also has to comply with federal government standards for new work at the Truman Waterfront area that requires the removal of all shrubs and trees within 20 ft of the existing military base property line. Verbal communication with representatives for the project indicate the State plans on transplanting as many trees as possible to other areas within the park. The determination as to which trees are to be transplanted and which are to be removed will be done during the work process.

A complete existing tree survey has been done on the proposed access road area. The existing environment consist of two main areas, Area 1, a disturbed area consisting of rock/fill piles, and Area 2, an existing access road area. An existing condition report of the area has been submitted by SWC Inc.

Area 1: There are 83 protected trees identified in Area 1. The trees are growing primarily on fill piles.

Total diameter: 424.4"

Location: 20% (on fill piles-does not allow for trees to properly grow)

Species: 100% (on protected tree list)

Condition: 50% (fair)

Total Average Value = 56%

Value x Diameter = 237 replacement caliper inches

Area 2: There are 75 protected trees and 1 protected palm identified in Area 2.

Total diameter: 404.9"

Location: 50% (within military no tree zone)

Species: 100% (on protected tree list)

Condition: 50% (fair)

Total Average Value = 66%

Value x Diameter = 267 replacement caliper inches

TOTAL REQUIRED REPLACEMENTS FOR THE REMOVAL OF ALL 159 trees = 504 caliper inches and 1-native palm.

Recommendation: Recommend approval of the removal of (80) Gumbo Limbo, (46) Jamaican Dogwood, (21) Sea grape, (5) Blackbead, (3) Buttonwood, (1) Poisonwood, (1) Seven Year Apple, (1) Shortleaf Ficus, and (1) Coconut Palm with conditions.

1. If all trees are removed, required replacements to be planted anywhere on Ft. Zach park property are 504 caliper inches of dicot or fruit trees from approved list, FL#1,

and (1) Native palm, 4ft tall from the approve list.

2. Trees that are transplanted must be tagged with their tree identification number and their new locations marked on a map and transplant date noted. Transplanted trees must survive at least one year from the date of transplanting and the Urban Forester must be contacted in order to document the transplanting. The required replacements for the transplanted trees will be subtracted from the overall total.

Application



7941

Tree Permit Application

Date: April 20, 2016

Please Clearly Print All Information unless indicated otherwise.

Tree Address Fort Zachary Taylor Historic State Park
Cross/Corner Street Areas adjacent to Park entrance road as shown in attached Tree Survey
List Tree Name(s) and Quantity See attached Tree Survey with all information
Species Type(s) check all that apply () Palm () Flowering () Fruit () Shade () Unsure
Reason(s) for Application:
(X) REMOVE () Tree Health () Safety (X) Other/Explain below
(X) TRANSPLANT () New Location (X) Same Property (X) Other/Explain below
() HEAVY MAINTENANCE () Branch Removal () Crown Cleaning/Thinning () Crown Reduction
Additional Information and Explanation Trees are being removed to accommodate reorientation and reconstruction of entrance to Fort Taylor historic State Park to link with City redevelopment of Truman Waterfront. See attached Tree Survey for full information.

Property Owner Name Michael W. Foster Jr., P.E.
Property Owner eMail Address michael.foster@dep.state.fl.us
Property Owner Mailing Address 3900 Commonwealth Blvd.
Property Owner Mailing City Tallahassee **State** Florida **Zip** 32399
Property Owner Phone Number (850) 245 - 2694
Property Owner Signature [Signature]

Representative Name Project Manager Sandra Walters/Certified Arborist Erik Neugaard,
Representative eMail Address sandy@swcinc.net/neugaard@yahoo.com
Representative Mailing Address 6410 5th Street, Suite 2
Representative Mailing City Key West **State** FL **Zip** 33040
Representative Phone Number (305) 294 - 1238

NOTE: A Tree Representation Authorization form must accompany this application if someone other than the owner will be representing the owner at a Tree Commission meeting or picking up an issued Tree Permit.

Tree Representation Authorization form attached ()

<<<<< Sketch location of tree in this area including cross/corner Street >>>>>

Please identify tree(s) with colored tape

Please see attached Tree Survey, which includes maps showing all trees and a table with species, sizes and diameters.

If this process requires blocking of a City right-of-way, a separate ROW Permit is required. Please contact 305-809-3740.



Florida Department of Environmental Protection

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Rick Scott
Governor

Carlos Lopez-Cantera
Lt. Governor

Jonathan P. Steverson
Secretary

January 22, 2016

RE: Permit Applications on behalf of the Florida Division of Recreation and Parks

To: Building Officials,

Mr. Michael Foster, Bureau Chief and Mr. Philip Madden, Assistant Bureau Chief with the Bureau of Design and Construction have authorization to sign permit applications on behalf of the Division of Recreation and Parks effective until June 30, 2016.


Donald V. Forgione, Director
Department of Environmental Protection

STATE OF FLORIDA

COUNTY OF Leon

The foregoing instrument was acknowledged before me this 22nd day of January
20 16, by Donald Forgione.

☒ Personally Known OR () Produced Identification

Type of Identification Produced: _____

Signature of Notary Public: 

Name of Notary: Paula Knight

(SEAL)



Sandy Walters

From: Karen DeMaria [kdemaria@cityofkeywest-fl.gov]
Sent: Thursday, April 14, 2016 4:56 PM
To: Bert Bender; Sandy Walters
Subject: RE: Ft. Taylor Entry Station

A landscape plan is not required for my review since this is not a development plan project. Yes, replacements will be required for anything removed but they can go anywhere on the property including actual park property. Before the permit will be closed out (in 6 months or 1 year), a job completion form must be submitted showing the locations of where the replacement trees have been planted. Typically, tree removal/transplant permits are valid for 6 months. The property owner has the right to request a 6 month extension in writing and if needed, I can extend it for one more 6 month term.

Sincerely,

Karen

From: Bert Bender [mailto:bbender@benderarchitects.com]
Sent: Thursday, April 14, 2016 4:13 PM
To: Karen DeMaria <kdemaria@cityofkeywest-fl.gov>; Sandy Walters <sandy@swcinc.net>
Cc: Bert Bender <bbender@benderarchitects.com>
Subject: RE: Ft. Taylor Entry Station

Thank you Karen.

You have our landscape plan in the documents that we submitted. Are you saying that it isn't needed and we can plant whatever we want? I am under the impression that we need to replace with an equivalent number of caliper inches, whatever we remove.

I can't afford to delay this because of an incomplete application. I anticipated that Sandy's application would include all of our landscape and civil documents.

Please clarify.

Bert L. Bender, Architect
Address: 410 Angela Street, Key West FL 33040
Phone: 305-296-1347 Fax: 305-296-2727
Email: bbender@benderarchitects.com
Website: www.benderarchitects.com



From: Karen DeMaria [<mailto:kdemaria@cityofkeywest-fl.gov>]
Sent: Thursday, April 14, 2016 4:04 PM
To: Bert Bender; Sandy Walters
Subject: RE: Ft. Taylor Entry Station

Bert and Sandy:

FYI---to see a sample of what I am looking for and what I include in the staff report you might want to look at some of the previous Tree Commission agendas on legistar. Look at the March 8, 2016 meeting item number #5, 1664 Dunlap Drive-Poinciana Gardens project or the January 12, 2016 meeting item #9, 2319 N Roosevelt Blvd. These are two recent major development projects that show good examples of an existing tree map and you can see the corresponding staff report. You do not need a landscape plan for your project just the existing tree map.

Please be advised that I will be out of town for a week the end of April and therefore I have been telling everyone that I will have a shorter amount of time to review applications and write the staff reports. The more information including photos you can give me, the easier it will be to process the application.

Sincerely,

Karen

From: Bert Bender [<mailto:bbender@benderarchitects.com>]
Sent: Thursday, April 14, 2016 3:26 PM
To: Thaddeus L. Cohen <tcohen@cityofkeywest-fl.gov>; Karen DeMaria <kdemaria@cityofkeywest-fl.gov>; Ron Wampler <rwampler@cityofkeywest-fl.gov>; Ronald Ramsingh <rramsingh@cityofkeywest-fl.gov>
Cc: John O'Connor <joconnor@biltmoreconstruction.com>; Tony Jenkins <TJenkins@biltmoreconstruction.com>; Theresa.Carron@dep.state.fl.us; Albiona Balliu <aballiu@benderarchitects.com>; Sandy Walters <sandy@swcinc.net>; Bert Bender <bbender@benderarchitects.com>
Subject: Ft. Taylor Entry Station

Hello Thaddeus,

We are in the process of permitting the Ft. Taylor Entry Station.

I was advised by City Urban Forester Karen DeMaria that a tree survey and tree removal permitting through the City Tree Commission will be required for the Fort Taylor entrance area improvements that link to City Truman Waterfront improvements. I asked about a qualified consultant and she advised me to select a consultant from Monroe County's qualified list, which I have done. I chose Sandy Walters from that list because she was the only local firm listed, and she is able to expedite the required services. I have commissioned Sandra Walters Consultants, Inc. (dba SWC) to perform a tree survey and prepare and process the application for required tree removal or relocation.

We are working on a really tight schedule to meet the May 10 Tree Commission application deadline, which is 3 PM next Wednesday, so SWC staff will be in the field first thing next week. Sandy placed a call to Karen yesterday but has not yet received a return call. Therefore, I am sending this email to receive your confirmation on interpretation of City Code.

The following is our understanding of the City Code relevant to this project, including tree surveys required for applications to the City Tree Commission.

As defined in City Code Sec. 110-321, a tree removal permit approved by the Tree Commission is required for impacts to:

- "Specially protected" trees listed in City Code Sec. 110-253,
- Any monocot/palm tree taller than 10 feet in height as measured from the root ball, and
- Any dicot/canopy tree which is 4 inches or more in diameter at standard height.

As defined in City Code Sec. 110-322(a), no permit is required for removal of unprotected species of trees listed in City Code Sec. 110-254, which comprises primarily invasive exotics. In addition, no permit is required for removal of any Ficus tree 2 feet or smaller with the exception of strangler fig (*Ficus Aurea*) and shortleaf fig (*Ficus Citrofolia*).

As defined in City Code Sec. 110-323, applications for tree removal are required to be accompanied by an inventory of all existing trees in the area of the proposed construction impact. Inventories must state size, diameter and species of each tree. Consistent with City Code, we plan to utilize the following scope for the Fort Taylor tree survey:

- Trees will be identified, measured, and mapped using a sub-meter-accuracy Trimble GPS—
 - All "specially protected" trees to sizes as small as one inch in diameter or five feet in height and larger.
 - All palm trees greater than 10 feet in height.
 - All canopy trees larger than 4 inches in diameter.
 - All fig trees larger than 2 feet in diameter, and all strangler and shortleaf figs to sizes as small as one inch in diameter or five feet in height and larger.
- Representative ground-level photos of tree areas will be taken.
- A report will be prepared describing the area and proposed construction, survey methodology, and results.
- Report figures will include a location map, a current aerial photo of the site, a map or maps depicting the locations of trees, a table or tables providing the required information regarding the trees mapped cross-referenced to the tree location figure, and representative ground-level photos.

We do not intend to include in our field work or report unprotected species, canopy trees smaller than 4 inches in diameter not on the "specially protected" list, palm trees shorter than 10 feet in height, or figs other than strangler or shortleaf smaller than 2 feet in diameter, as these trees can be legally removed without a permit, as specified by the City Code.

I have directed Sandy to proceed on the above basis.

Please get back to me no later than tomorrow (Friday) with your concurrence regarding this scope of work or with any comments or corrections you have, as field work must commence first thing Monday. We appreciate your help to proceed expeditiously with this important project being conducted by the Florida Department of Environmental Protection in cooperation with the City's redevelopment of Truman Waterfront.

I have copied everyone who was included on previous correspondence related to this issue.

Thanks,

Bert

Bert L. Bender, Architect

Address: 410 Angela Street, Key West FL 33040

Phone: 305-296-1347 Fax: 305-296-2727

Email: bbender@benderarchitects.com

Website: www.benderarchitects.com

Karen DeMaria

From: Karen DeMaria
Sent: Friday, April 22, 2016 5:29 PM
To: 'Sandy Walters'
Subject: RE: Ft. Zach Tree Commission application

We can state at this time you are requesting all removals with the statement that the State will try to transplant what they can as the project gets developed. It is always best to request the worse case scenario. I just want to make a note in my staff report that there will be an attempt to transplant as many trees as possible. Please make sure you mention that at the meeting also.

Sincerely,

Karen

From: Sandy Walters [mailto:sandy@swcinc.net]
Sent: Friday, April 22, 2016 5:15 PM
To: Karen DeMaria <kdemaria@cityofkeywest-fl.gov>
Subject: RE: Ft. Zach Tree Commission application

We were under the impression from you emails that that could be addressed later. There has not been time to assess the individual trees to the point of determining which can and cannot be transplanted or determine where transplanted trees would go. Worst case scenario would be full removal, with the plan to transplant as feasible. I gather that may affect your mitigation assessment, and what with the time constraints, the client will have to go with whatever will move things along. Does that make sense? I am still at the office for a little bit if you want to call and discuss.

Sandy Walters, President

SWC

305-294-1238 Main office (TRY THIS NUMBER FIRST)

305-924-0195 Cell

sandy@swcinc.net



From: Karen DeMaria [mailto:kdemaria@cityofkeywest-fl.gov]
Sent: Friday, April 22, 2016 5:11 PM
To: Sandy Walters
Subject: Ft. Zach Tree Commission application

Sandy:

TREE SURVEY

for

City of Key West Tree Commission Application

**Fort Zachary Taylor Entry Redevelopment
Key West, FL**

Prepared by:



**Key West • Miami
Hollywood • Fort Myers**
www.swcinc.net

April 20, 2016

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1.0 PURPOSE

This report presents the results of a field assessment and survey of upland native and other trees protected by the City of Key West. These trees must be removed to accommodate the relocated entrance into Fort Zachary Taylor State Historic Park for accommodating the City's redevelopment of the Truman Waterfront property. Please see Attachment 1, Location Map, and Attachment 2, Project Demolition Plan. In addition, the report provides the required data for the permit application to the City of Key West Tree Commission for removal of the trees affected by proposed construction as set forth in City Code Sec. 110-321.

2.0 GENERAL SITE DESCRIPTION

The proposed construction site includes an upland vegetative community with both native and introduced plant species. The northern assessment area (see attachments 3A, 5A, and 5C) is a trapezoid approximately 40,000 square feet (sf) in size contained within fences to the east, west and south and currently only accessible from the Truman Waterfront construction area to the north. This area is comprised of foliage with varying degrees of density that has recolonized on a rubble mound.

The southern assessment area is approximately 30,000 sf in size and encompasses the current Park access road (see attachments 3B, 5B and 5C). Most of the area is paved except for a vegetated area along the western road edge. A service road accessing the Fort divides the two assessment areas.

3.0 METHODOLOGY

Field data on all City-regulated trees was collected on an April 18, 2016 site visit conducted by SWC Certified Arborist Eric Neugaard, MS (see Attachment 6, resume and CA certification) and Field Biologist Shawn Martin, MS. Species identification, as well as the use of common and scientific names are based on the Atlas of Florida Plants (<http://florida.plantatlas.usf.edu>), which is maintained by Dr. Richard Wunderlin at the University of South Florida.

Diameter at breast height (DBH, which correlates with Standard Breast Height or SBH) measurements were collected at a height of approximately 4.5 feet above grade, using a Forestry Suppliers Model #59768 tree caliper for trees with a DBH eight inches or less and a fiberglass tape measure for trees with a DBH greater than eight inches. The tree caliper is marked in quarter-inch increments, and the DBH was interpolated to the nearest 0.1 inch for trees with a DBH eight inches or less. The tape measure is marked in eighth-inch increments, and the DBH for trees with a DBH greater than eight inches was determined by measuring the circumference and dividing it by three (π rounded to the nearest whole number) and rounding the result to the nearest inch. Trees with a DBH greater than 12 inches were rounded to the

nearest five-inch increment. The DBH of a few trees with multiple trunks were measured below the point of divergence if above grade, or an aggregate value was estimated using professional judgment if the point of divergence appeared to be below grade. Tree height was estimated to the nearest of the following foot increments: 5, 6, 7, 8, 10, 12, 15, 20, 25, 30 and 40.

Location data was collected with a Trimble Model GeoXT Global Navigation Satellite System (GNSS) receiver using the built-in antenna. When a satellite signal could not be acquired under the tree canopy, the location data was collected where a signal could be acquired and the location of the tree was determined by offsetting the point using the bearing and distance to it.

The field visit included a visual assessment of the parcel and an inventory of all existing trees in the area of proposed construction impact. The data collected included size, diameter and species of each tree. Consistent with City Code Sec. 110-323, the following scope was implemented for the Fort Taylor tree survey:

- Trees were identified, measured, and mapped as described above.
 - All “specially protected” trees to sizes as small as one inch in diameter or five feet in height and larger.
 - All palm trees greater than 10 feet in height.
 - All canopy trees larger than 4 inches in diameter.
 - All fig trees larger than 2 feet in diameter, and all strangler and shortleaf figs to sizes as small as one inch in diameter or five feet in height and larger.
- Representative ground-level photos of tree areas were taken.
- This report was prepared, which describes proposed construction, the survey methodology, and results.
- Report figures include the Location Map (Attachment 1), Project Demolition Plan (Attachment 2), Northern and Southern Assessment Area Tree maps (attachments 3A and 3B), a Tree Survey Data Table (Attachment 4), Representative Site Photos (attachments 5A, B and C), the professional resume of SWC’s Certified Arborist (Attachment 6), and correspondence with Ms. DeMaria (Attachment 7).

Unprotected species, canopy trees smaller than four inches in diameter not on the “specially protected” list, palm trees shorter than 10 feet in height, or figs other than strangler or shortleaf smaller than two feet in diameter, were not included in the survey as these trees can be legally removed without a permit, as specified by the City Code Sec. 110-322(a).

4.0 REQUIRED TREE CLEARING AND MITIGATION

The Fort Taylor Entry Redevelopment Project requires removal of a total of 159 trees requiring a permit from the Tree Commission, as follows (see details in Attachment 4, Tree Survey Data Table):

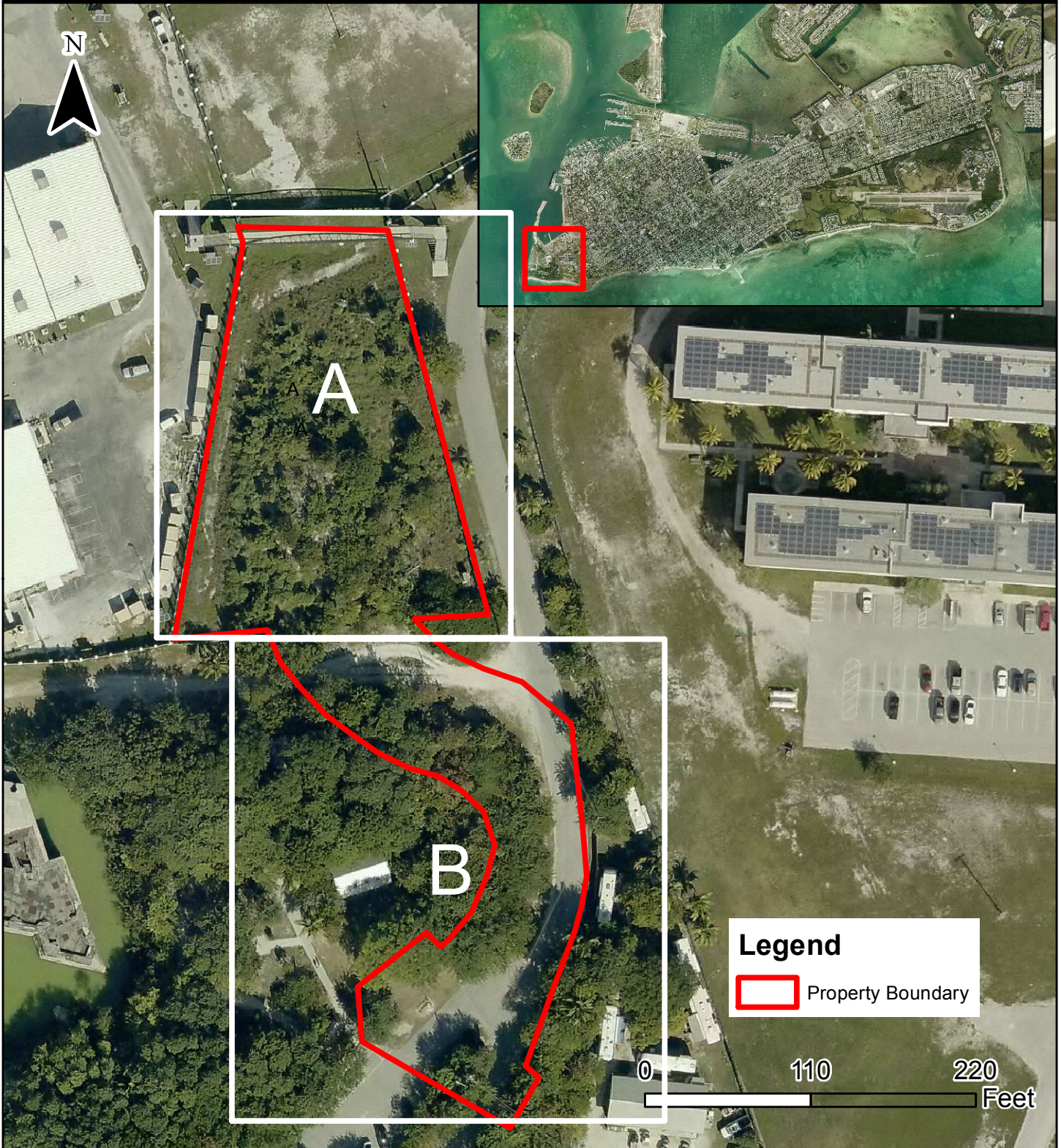
Buttonwood	3	ranging in size from 3.3 to 15 inches DBH, all 15 feet tall
Coconut Palm	1	10 inches DBH, 8 feet tall
Florida Keys blackbead	5	ranging in size from 2.3 to 9 inches DBH, 10-15 feet tall

Gumbo limbo	80	ranging in size from 1.0 to 20 inches DBH, 10-30 feet tall
Jamaica dogwood	46	ranging in size from 1.0 to 15 inches DBH, 8-30 feet tall
Poisonwood	1	1 inch DBH, 8 feet tall
Seagrape	21	ranging in size from 1.6 to 25 inches DBH, 15-30 inches tall
Seven year apple	1	4.5 inches DBH, 8 feet tall
Wild banyan	1	30 inches DBH, 40 feet tall
TOTAL	159	

Most of these trees are located in the northern trapezoidal area where vegetation has recolonized over and around a large pile of construction rubble. All trees will be replaced either as part of the landscape plan for the project or within the Park boundaries elsewhere. It is our understanding from email correspondence with City Urban Forester Karen DeMaria (see Attachment 7) that, since this is not a new development plan project, a landscape plan is not required at this time and that documentation of tree replacements will be required as part of the job completion form filing at the end of the project.

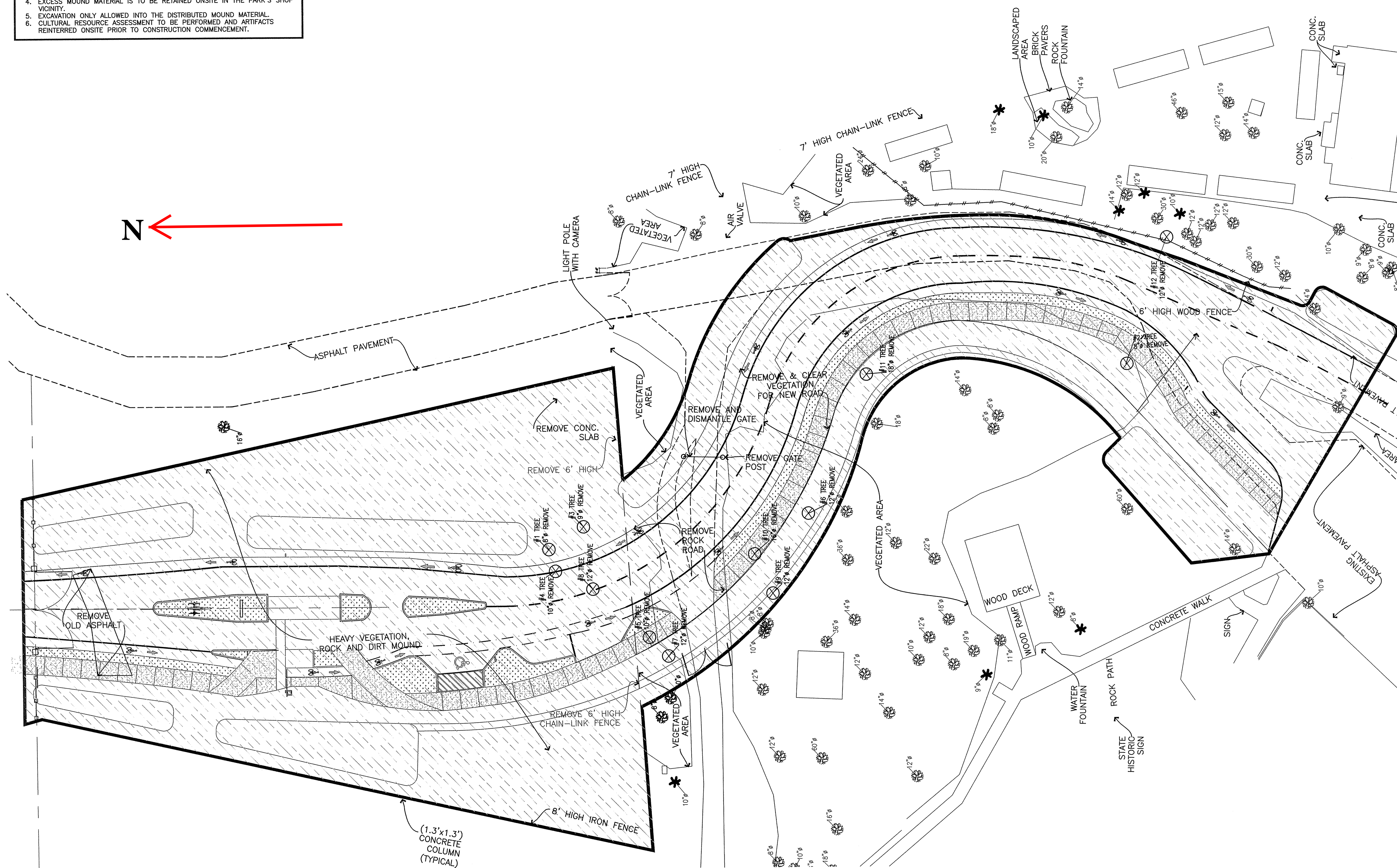


ATTACHMENT 1 Location Map



ATTACHMENT 2
Project Demolition Plan

- NOTE:
1. ALL STUMPS AND ROOTS TO BE REMOVED. PROVIDE FILL WHERE NEEDED TO RETURN TO EXISTING NATURAL GRADE.
 2. GRIND STUMPS 4" BELOW GRADE WHERE CALLED OUT ON PLAN-REMOVE ALL CHIPPING FROM PROCESS AND DISPOSE OFF-SITE
 3. REMOVE ALL MISCELLANEOUS SHRUBS AND GROUNDCOVER FROM SITE
 4. EXCESS MOUND MATERIAL IS TO BE RETAINED ONSITE IN THE PARK'S SHOP VICINITY.
 5. EXCAVATION ONLY ALLOWED INTO THE DISTRIBUTED MOUND MATERIAL.
 6. CULTURAL RESOURCE ASSESSMENT TO BE PERFORMED AND ARTIFACTS REINTERRED ONSITE PRIOR TO CONSTRUCTION COMMENCEMENT.



DATE	REVISION	SYMBOL	DATE	REVISION	SYMBOL
12/21/2015		(A)	12/21/2015		(B)
12/21/2015		(C)	12/21/2015		(D)

DESIGNER : BERT BENDER	ISSUE DATE: 12/21/2015	STATE PROJECT No. 60429	10. Jacobs Street Key West, Florida 33400 Phone: (305) 290-1527 Fax: (305) 290-1528 Florida License #00000222
DRAWN BY: ALBI BALLIU	COMP. FILE No.: 1407		
REVIEWED BY: [Signature]			
PROFESSIONAL REGISTRATION PROFESSIONAL NAME LICENSE NUMBER			

SHEET TITLE FORT ZACHARY TAYLOR LANDSCAPE DEMO PLAN	Department of Environmental Protection Office of Operations Bureau of Design and Construction 3800 Commonwealth Blvd., Tallahassee, FL 32399 (905) 425-2777
PROJECT TITLE FORT ZACHARY TAYLOR ENTRY	

SHEET NO. 10.1

ATTACHMENT 3A Northern Assessment Area Tree Map



ATTACHMENT 3B Southern Assessment Area Tree Map





ATTACHMENT 4 Tree Survey Data Table

ID	Scientific Name	Common Name	DBH (Inches)	Height (Feet)	ID
1	<i>Piscidia piscipula</i>	Jamaican dogwood	2.0	10	
2	<i>Piscidia piscipula</i>	Jamaican dogwood	4.7	20	
3	<i>Bursera simaruba</i>	Gumbo limbo	7.0	10	
4	<i>Conocarpus erectus</i>	Buttonwood	4.0	15	
5	<i>Piscidia piscipula</i>	Jamaican dogwood	10	25	
6	<i>Piscidia piscipula</i>	Jamaican dogwood	6.8	25	
7	<i>Bursera simaruba</i>	Gumbo limbo	5.9	10	
8	<i>Genipa clusiifolia</i>	Sevenyear apple	4.5	8	
9	<i>Piscidia piscipula</i>	Jamaican dogwood	3.8	15	
10	<i>Piscidia piscipula</i>	Jamaican dogwood	7.0	30	
11	<i>Piscidia piscipula</i>	Jamaican dogwood	5.0	15	
12	<i>Piscidia piscipula</i>	Jamaican dogwood	7.0	15	
13	<i>Piscidia piscipula</i>	Jamaican dogwood	3.6	20	
14	<i>Piscidia piscipula</i>	Jamaican dogwood	15	30	Multi-trunk
15	<i>Piscidia piscipula</i>	Jamaican dogwood	6.2	30	
16	<i>Piscidia piscipula</i>	Jamaican dogwood	6.3	30	
17	<i>Piscidia piscipula</i>	Jamaican dogwood	5.4	30	
18	<i>Piscidia piscipula</i>	Jamaican dogwood	6.7	30	
19	<i>Piscidia piscipula</i>	Jamaican dogwood	3.0	25	
20	<i>Piscidia piscipula</i>	Jamaican dogwood	5.8	30	
21	<i>Piscidia piscipula</i>	Jamaican dogwood	1.3	10	
22	<i>Piscidia piscipula</i>	Jamaican dogwood	3.1	30	
23	<i>Piscidia piscipula</i>	Jamaican dogwood	2.1	10	
24	<i>Piscidia piscipula</i>	Jamaican dogwood	5.4	20	
25	<i>Piscidia piscipula</i>	Jamaican dogwood	5.9	30	
26	<i>Piscidia piscipula</i>	Jamaican dogwood	10	30	
27	<i>Piscidia piscipula</i>	Jamaican dogwood	1.3	10	
28	<i>Piscidia piscipula</i>	Jamaican dogwood	6.8	30	
29	<i>Piscidia piscipula</i>	Jamaican dogwood	12	30	
30	<i>Piscidia piscipula</i>	Jamaican dogwood	12	30	
31	<i>Piscidia piscipula</i>	Jamaican dogwood	3.9	30	
32	<i>Piscidia piscipula</i>	Jamaican dogwood	4.0	25	
33	<i>Piscidia piscipula</i>	Jamaican dogwood	6.9	30	
34	<i>Piscidia piscipula</i>	Jamaican dogwood	8.0	30	
35	<i>Piscidia piscipula</i>	Jamaican dogwood	15	30	Multi-trunk
36	<i>Piscidia piscipula</i>	Jamaican dogwood	4.8	30	
37	<i>Piscidia piscipula</i>	Jamaican dogwood	1.5	8	
38	<i>Coccoloba uvifera</i>	Seagrape	5.3	40	



ID	Scientific Name	Common Name	DBH (Inches)	Height (Feet)	ID
39	<i>Coccoloba uvifera</i>	Seagrape	9.0	30	
40	<i>Piscidia piscipula</i>	Jamaican dogwood	7.9	30	
41	<i>Piscidia piscipula</i>	Jamaican dogwood	1.8	20	
42	<i>Bursera simaruba</i>	Gumbo limbo	1.8	30	
43	<i>Bursera simaruba</i>	Gumbo limbo	1.3	30	
44	<i>Coccoloba uvifera</i>	Seagrape	5.6	25	
45	<i>Coccoloba uvifera</i>	Seagrape	5.9	30	
46	<i>Coccoloba uvifera</i>	Seagrape	3.0	20	
47	<i>Coccoloba uvifera</i>	Seagrape	4.0	20	
48	<i>Coccoloba uvifera</i>	Seagrape	1.6	15	
49	<i>Coccoloba uvifera</i>	Seagrape	5.1	20	
50	<i>Piscidia piscipula</i>	Jamaican dogwood	2.9	25	
51	<i>Coccoloba uvifera</i>	Seagrape	9.0	30	
52	<i>Coccoloba uvifera</i>	Seagrape	3.0	15	
53	<i>Coccoloba uvifera</i>	Seagrape	3.8	20	
54	<i>Coccoloba uvifera</i>	Seagrape	2.2	20	
55	<i>Coccoloba uvifera</i>	Seagrape	6.0	20	
56	<i>Coccoloba uvifera</i>	Seagrape	3.2	15	
57	<i>Coccoloba uvifera</i>	Seagrape	25	30	Multi-trunk
58	<i>Coccoloba uvifera</i>	Seagrape	3.6	20	
59	<i>Coccoloba uvifera</i>	Seagrape	3.5	20	
60	<i>Conocarpus erectus</i>	Buttonwood	15	15	Multi-trunk
61	<i>Coccoloba uvifera</i>	Seagrape	12	30	Multi-trunk
62	<i>Conocarpus erectus</i>	Buttonwood	3.3	15	
63	<i>Bursera simaruba</i>	Gumbo limbo	3.3	8	
64	<i>Cocos nucifera</i>	Coconut palm	10	8	
65	<i>Bursera simaruba</i>	Gumbo limbo	4.3	20	
66	<i>Pithecellobium keyense</i>	Florida Keys blackbead	2.3	10	Multi-trunk
67	<i>Bursera simaruba</i>	Gumbo limbo	3.0	15	
68	<i>Piscidia piscipula</i>	Jamaican dogwood	1.0	8	
69	<i>Bursera simaruba</i>	Gumbo limbo	3.8	12	
70	<i>Metopium toxiferum</i>	Poisonwood	1.0	8	
71	<i>Bursera simaruba</i>	Gumbo limbo	6.0	20	Multi-trunk
72	<i>Bursera simaruba</i>	Gumbo limbo	1.8	12	
73	<i>Pithecellobium keyense</i>	Florida Keys blackbead	4.0	12	Multi-trunk
74	<i>Pithecellobium keyense</i>	Florida Keys blackbead	2.9	10	Multi-trunk
75	<i>Bursera simaruba</i>	Gumbo limbo	2.0	12	
76	<i>Pithecellobium keyense</i>	Florida Keys blackbead	9.0	15	Multi-trunk
77	<i>Piscidia piscipula</i>	Jamaican dogwood	1.0	8	



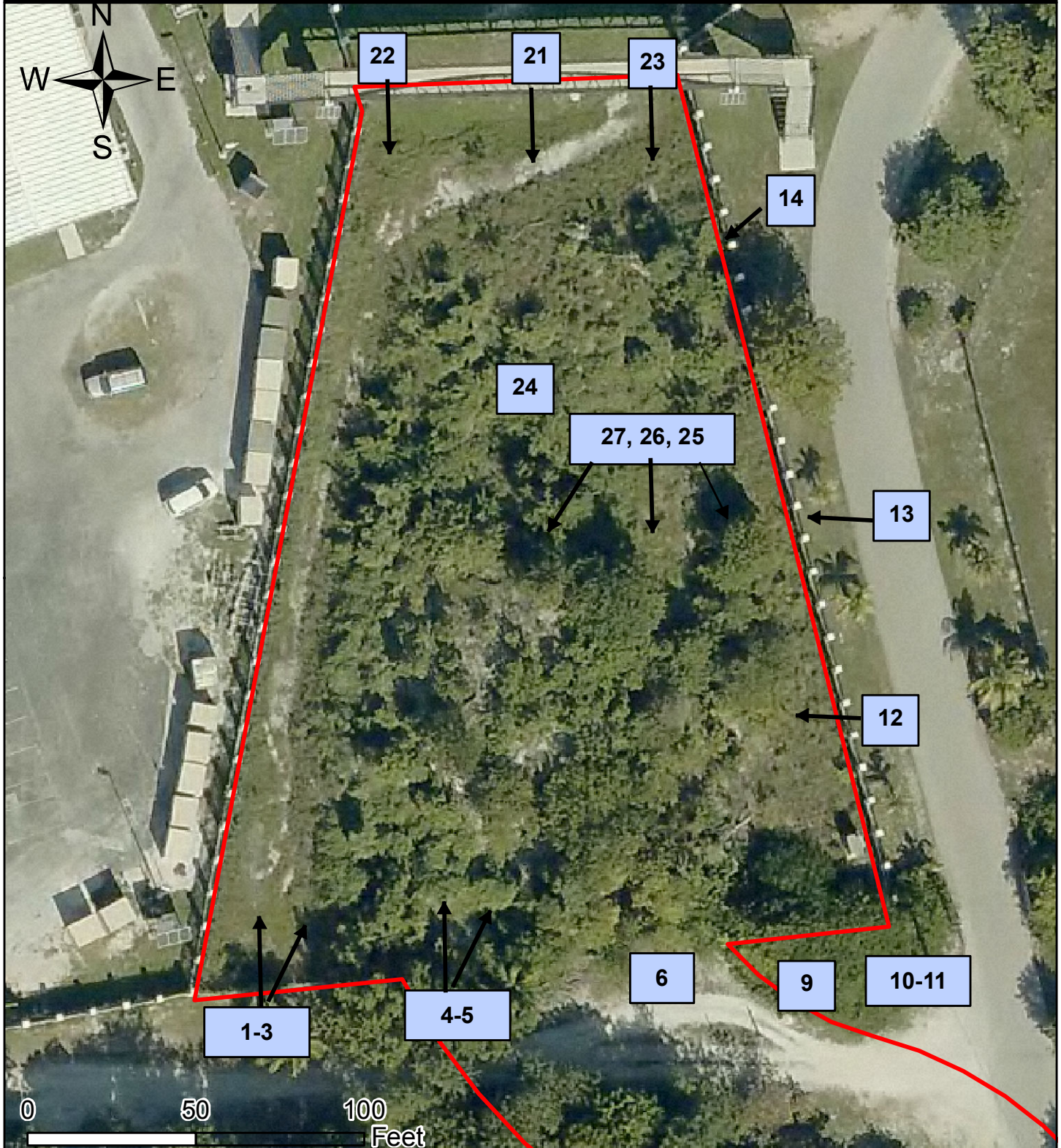
ID	Scientific Name	Common Name	DBH (Inches)	Height (Feet)	ID
78	<i>Pithecellobium keyense</i>	Florida Keys blackbead	4.0	12	Multi-trunk
79	<i>Bursera simaruba</i>	Gumbo limbo	20	30	Multi-trunk
80	<i>Coccoloba uvifera</i>	Seagrape	2.0	15	
81	<i>Bursera simaruba</i>	Gumbo limbo	12	15	Multi-trunk
82	<i>Coccoloba uvifera</i>	Seagrape	3.5	15	
83	<i>Bursera simaruba</i>	Gumbo limbo	4.0	12	
84	<i>Bursera simaruba</i>	Gumbo limbo	4.0	12	
85	<i>Bursera simaruba</i>	Gumbo limbo	7.9	30	
86	<i>Bursera simaruba</i>	Gumbo limbo	2.5	10	
87	<i>Bursera simaruba</i>	Gumbo limbo	2.8	25	
88	<i>Bursera simaruba</i>	Gumbo limbo	4.9	30	
89	<i>Bursera simaruba</i>	Gumbo limbo	6.0	15	
90	<i>Bursera simaruba</i>	Gumbo limbo	2.5	15	
91	<i>Bursera simaruba</i>	Gumbo limbo	7.2	20	
92	<i>Bursera simaruba</i>	Gumbo limbo	1.2	8	
93	<i>Bursera simaruba</i>	Gumbo limbo	4.0	15	Multi-trunk
94	<i>Bursera simaruba</i>	Gumbo limbo	3.8	15	
95	<i>Bursera simaruba</i>	Gumbo limbo	7.0	15	
96	<i>Bursera simaruba</i>	Gumbo limbo	3.0	15	Multi-trunk
97	<i>Bursera simaruba</i>	Gumbo limbo	2.0	10	
98	<i>Bursera simaruba</i>	Gumbo limbo	2.0	15	
99	<i>Bursera simaruba</i>	Gumbo limbo	4.3	15	
100	<i>Bursera simaruba</i>	Gumbo limbo	6.0	15	
101	<i>Bursera simaruba</i>	Gumbo limbo	4.6	15	
102	<i>Bursera simaruba</i>	Gumbo limbo	4.0	15	Multi-trunk
103	<i>Bursera simaruba</i>	Gumbo limbo	4.8	15	
104	<i>Bursera simaruba</i>	Gumbo limbo	5.2	15	
105	<i>Bursera simaruba</i>	Gumbo limbo	6.0	15	Multi-trunk
106	<i>Bursera simaruba</i>	Gumbo limbo	4.3	15	
107	<i>Bursera simaruba</i>	Gumbo limbo	3.6	15	
108	<i>Bursera simaruba</i>	Gumbo limbo	3.2	10	
109	<i>Bursera simaruba</i>	Gumbo limbo	4.7	15	
110	<i>Bursera simaruba</i>	Gumbo limbo	3.0	15	
111	<i>Bursera simaruba</i>	Gumbo limbo	5.3	10	
112	<i>Bursera simaruba</i>	Gumbo limbo	7.0	15	
113	<i>Bursera simaruba</i>	Gumbo limbo	2.3	8	
114	<i>Piscidia piscipula</i>	Jamaican dogwood	1.3	10	
115	<i>Bursera simaruba</i>	Gumbo limbo	9.0	12	
116	<i>Bursera simaruba</i>	Gumbo limbo	6.2	10	
117	<i>Bursera simaruba</i>	Gumbo limbo	6.1	20	
118	<i>Bursera simaruba</i>	Gumbo limbo	4.5	12	
119	<i>Bursera simaruba</i>	Gumbo limbo	2.0	8	



ID	Scientific Name	Common Name	DBH (Inches)	Height (Feet)	ID
120	<i>Bursera simaruba</i>	Gumbo limbo	2.3	15	
121	<i>Bursera simaruba</i>	Gumbo limbo	2.9	15	
122	<i>Coccoloba uvifera</i>	Seagrape	9.0	15	Multi-trunk
123	<i>Bursera simaruba</i>	Gumbo limbo	9.0	15	
124	<i>Bursera simaruba</i>	Gumbo limbo	2.7	12	
125	<i>Bursera simaruba</i>	Gumbo limbo	4.3	15	
126	<i>Bursera simaruba</i>	Gumbo limbo	2.5	12	
127	<i>Bursera simaruba</i>	Gumbo limbo	3.3	8	
128	<i>Bursera simaruba</i>	Gumbo limbo	2.5	12	
129	<i>Bursera simaruba</i>	Gumbo limbo	2.4	10	
130	<i>Bursera simaruba</i>	Gumbo limbo	2.4	8	
131	<i>Bursera simaruba</i>	Gumbo limbo	2.6	12	
132	<i>Ficus citrifolia</i>	Wild banyan tree	30	40	
133	<i>Bursera simaruba</i>	Gumbo limbo	7.0	15	
134	<i>Bursera simaruba</i>	Gumbo limbo	1.3	15	
135	<i>Bursera simaruba</i>	Gumbo limbo	3.8	15	
136	<i>Bursera simaruba</i>	Gumbo limbo	1.0	10	
137	<i>Bursera simaruba</i>	Gumbo limbo	4.0	25	
138	<i>Bursera simaruba</i>	Gumbo limbo	12	30	
139	<i>Bursera simaruba</i>	Gumbo limbo	5.3	15	
140	<i>Bursera simaruba</i>	Gumbo limbo	4.8	15	
141	<i>Bursera simaruba</i>	Gumbo limbo	4.2	15	
142	<i>Bursera simaruba</i>	Gumbo limbo	7.2	25	
143	<i>Bursera simaruba</i>	Gumbo limbo	4.9	12	
144	<i>Bursera simaruba</i>	Gumbo limbo	7.5	12	
145	<i>Bursera simaruba</i>	Gumbo limbo	1.2	10	
146	<i>Bursera simaruba</i>	Gumbo limbo	3.8	20	
147	<i>Bursera simaruba</i>	Gumbo limbo	2.0	12	
148	<i>Bursera simaruba</i>	Gumbo limbo	5.0	15	
149	<i>Piscidia piscipula</i>	Jamaican dogwood	5.9	12	
150	<i>Piscidia piscipula</i>	Jamaican dogwood	7.0	20	
151	<i>Bursera simaruba</i>	Gumbo limbo	7.4	10	
152	<i>Piscidia piscipula</i>	Jamaican dogwood	4.0	10	
153	<i>Bursera simaruba</i>	Gumbo limbo	7.8	12	
154	<i>Piscidia piscipula</i>	Jamaican dogwood	1.9	8	
155	<i>Piscidia piscipula</i>	Jamaican dogwood	3.8	10	
156	<i>Bursera simaruba</i>	Gumbo limbo	7.0	15	
157	<i>Bursera simaruba</i>	Gumbo limbo	4.0	15	
158	<i>Piscidia piscipula</i>	Jamaican dogwood	8.0	15	
159	<i>Piscidia piscipula</i>	Jamaican dogwood	4.6	12	



ATTACHMENT 5A Northern Assessment Area Photo Locations





ATTACHMENT 5B Southern Assessment Area Photo Location





ATTACHMENT 5C Representative Site Photographs

Photos taken by SWC staff on April 14, 2016



Photo 1: Figure 3A.



Photo 2: Figure 3A.



Photo 3: Figure 3A.



Photo 4: Figure 3A.



Photo 5: Figure 3A.



Photo 6: Figure 3A.



Photo 7: Figure 3A.



Photo 8: Figure 3A.



Photo 9: Figure 3A.



Photo 10: Figure 3A.



Photo 11: Figure 3A.



Photo 12: Figure 3A.



Photo 13: Figure 3B.



Photo 14: Figure 3B.



Photo 15: Figure 3B.



Photo 16: Figure 3B.



Photo 17: Figure 3B.



Photo 18: Figure 3A.



Photo 19: Figure 3A.



Photo 20: Figure 3A.



Photo 21: Figure 3A.



Photo 22: Figure 3A.



Photo 23: Figure 3A.



Photo 24: Figure 3A.



ERIK W. NEUGAARD, CA, CE, CFP, CHMM, CMS, CP, CWB, GISP, PWS
CHIEF ENVIRONMENTAL SCIENTIST

Specialized Professional Competence

Mr. Neugaard has extensive experience in all aspects of environmental project management, planning, permitting, mitigation, and science. He has specialized experience in habitat and tree surveys for many clients, as well as National Environmental Policy Act analyses and compliance, including Endangered Species Biological Assessments, Essential Fish Habitat Assessments, Wetland Evaluations, Environmental Justice/Community Impact/Sociocultural Effects Evaluations, Cultural Resource Assessments, Section 4(f) Evaluations, Noise Studies, Air Quality Studies, and Contamination Screening Evaluations. He has worked on numerous project development and environment (PD&E) projects, Environmental Impact Statements (EISs), Environmental Assessments (EAs), Categorical Exclusions (CatEx, Programmatic, Type I and Type II) and State Environmental Impact Reports for the Florida Department of Transportation (FDOT), Federal Highway Administration (FHA), Federal Transit Administration (FTA), Federal Aviation Administration (FAA), and U.S. Coast Guard. He has conducted Environmental Resource Permitting with the U.S. Army Corps of Engineers, Florida Department of Environmental Protection (DEP) and water management districts which have included wetland jurisdictional determinations, assessments, mitigation design and monitoring, listed species permitting, including burrowing owl (*Speotyto cunicularia floridana*) and gopher tortoise (*Gopherus polyphemus*) relocations with the Florida Fish and Wildlife Conservation Commission (FWC), U.S. Coast Guard bridge permitting and DEP Coastal Construction Control Line permitting. He has also worked on interchange justification reports, development of regional impact studies, traffic studies and other planning studies, pollutant storage system inspection and permitting, as well as contamination assessment, and remediation projects.

Mr. Neugaard has coordinated extensively with environmental regulators at the USACE, U. S. Coast Guard, U.S. Environmental Protection Agency (EPA), U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), DEP, FWC, water management districts, counties, and municipalities. He is adept in application of the USACE Wetland Evaluation Technique (WET) and Hydrogeomorphic Model (HGM), South Florida Water Management District Wetland (SFWMD) Rapid Assessment Procedure (WRAP), Estuarine WRAP (EWRAP) and Florida Uniform Mitigation Assessment Method (UMAM, Chapter 62-345 F.A.C.). He has been a professional SCUBA diver since 1981 and has performed many seagrass surveys, including the federally listed Johnson's seagrass (*Halophila johnsonii*), benthic community surveys, and fish surveys to depths of 300 feet using mixed-gas SCUBA. He has also performed specialized wildlife surveys for federally listed species such as the scrub jay (*Aphelocoma coerulescens*) and red-cockaded woodpecker (*Picoides borealis*), deltoid spurge (*Chamaesyce deltoidea ssp. deltoidea*) and Garber's spurge (*Chamaesyce garberi*), and wood stork (*Mycteria americana*) Suitable Foraging Area Biomass Impact Analyses. He is also very experienced in the use of Global Positioning Systems (GPS) and Geographic Information Systems (GIS) in performing these tasks.

Mr. Neugaard was previously a Hydrogeologist II with the Miami-Dade County Department of Environmental Resources Management (DERM) and an Environmental Project Manager (Scientific/Technical IV) with the Florida Department of Transportation.



Representative Tree Survey and Monroe County Project Experience

- **I-75 Corridor Design Consultant, SR-836 to I-595, FDOT, districts 4 and 6**
Managed all of the environmental issues for this \$800 million multilane capacity improvement study, including the Environmental Resource Permitting, Contamination Assessment, and Design Change Reevaluation. The project required delineating and assessing 977 acres of wildlife habitat, including the inventory and geographical information system (GIS) mapping of more than 3,700 trees and 323 individual jurisdictional wetlands. The wetland delineation and assessment required the identification of more than 150 species of hydrophytic vegetation, most of which were diminutive herbs and graminoids.
- **I-95 Corridor Design Consultant, Golden Glades Interchange to Linton Road, FDOT, District 4**
Managed several environmental issues for this multilane capacity improvement study, including inventory and GIS mapping of more than 17,600 trees and the Phase II Contamination Assessment.
- **I-595 Corridor Design Consultant, I-75 to US 441, FDOT, District 4**
Involved 10 miles in Broward County. Managed all environmental issues for \$1.8 billion multilane capacity improvement study including Tree Removal/Relocation Permitting for approximately 8,000 trees; the Design Change Reevaluation; Construction Advertisement Reevaluation; construction plan reviews; Contamination Screening Evaluation Report Update; Phase II Assessment Report; SFWMD North New River Canal Sediment Sampling Report; Sediment and Surface Water Sampling Reports for the Arrowhead, Lago Mar, and Pine Island Ridge Golf Courses; and. He was also delegated the responsibility of FDOT District Contamination Impact Coordinator for the project. The SFWMD North New River Canal sediment sampling involved collection of 258 samples from 43 locations at 1,000-foot intervals along canal centerline and providing to Jupiter Environmental Laboratories for laboratory analyses. Golf course sediment and surface water sampling involved collection of 594 additional sediment samples from 99 locations and 442 surface water samples from 34 locations to provide baseline conditions prior to implementing a joint-use stormwater management plan, and a stormwater filtration marsh was constructed at the Arrowhead Golf Course. During previous project development and environment phase of project, Mr. Neugaard also managed all environmental issues, including delineation and assessment of all wetlands, essential fish habitat assessment, and contamination screening evaluation.
- **US 1/Overseas Highway Turn Lanes PD&E Study, FDOT District 6**
Performed Quality Assurance/Quality Control review and finalized environmental reports. Significant impacts were avoided.
- **Andrews Avenue Extension. FDOT District 4, Broward County, Florida**
Conducted the tree survey for the 400 trees in the project corridor.
- **US 1 Final Design Project from SW 304th to SW 264th streets, FDOT, District 6**
Conducted tree survey and assisted with the identification of environmental concerns.
- **I-95/Copans Road Interchange Wetland Emulation Project, FDOT, District 4**
Conducted tree survey, evaluated feasibility of emulating wetland plant community in a stormwater retention pond, and provided list of appropriate hydrophytic plant species.
- **I-95 Exotic Vegetation Survey from McNab Road to Copans Road, FDOT, District 4**
Conducted an inventory of exotic vegetation.
- **US 1/South Dixie Highway Exclusive Bus Lanes Corridor PD&E Study from US 1 in Florida City to SW 112th Avenue, FDOT, District 6**
Responsible for overseeing all of environmental analyses. Project involved conversion of former Florida East Coast Railroad corridor into exclusive bus lanes and bicycle path.



Federally endangered deltoid spurge plant was found in corridor necessitating coordination with the USFWS, SFWMD, and Miami-Dade Dept. of Environmental Resource Management. In addition, more than 300 potential sources of contamination were identified in project corridor, including former Superfund site.

➤ **SR A1A/South Roosevelt Boulevard PD&E Study from Bertha Street to Overseas Highway, FDOT, District 6**

Responsible for overseeing all environmental analyses. The project resulted in unavoidable impacts to seagrass beds consisting of manatee grass (*Syringodium filiforme*), shoal grass (*Halodule wrightii*), turtle grass (*Thalassia testudinum*), and mangroves. The project was within a few inches of East Martello Tower, which is listed on National Register of Historic Places. Contaminated sites were identified in vicinity of the project. Compensatory mitigation for unavoidable seagrass and mangrove impacts were provided through hydrological restoration of Salt Ponds, located immediately inland of project.

➤ **US 1/North Roosevelt Boulevard PD&E Study, from Eisenhower Drive to Overseas Highway, FDOT, District 6**

Responsible for overseeing all environmental analyses. Project involved multilane reconstruction, including new promenade and seawall and resulted in unavoidable impacts to seagrass beds consisting of manatee grass, shoal grass, turtle grass, and mangroves.

Professional Credentials

- Master of Science in Marine Biology, Nova Southeastern University, 2003
- Bachelor of Science in Zoology/Natural Sciences, University of South Florida, 1986
- Certified Arborist, International Society of Arboriculture, 2004
- Certified Ecologist, Ecological Society of America, 2002
- Certified Environmental Professional, Academy of Board Certified Environmental Professionals, 2002
- Certified Geographic Information Systems Professional. GIS Certification Institute
- Florida Department of Environmental Protection, Biology/Habitat Field Sampling

Environmental Courses Taught

- University of Florida, Institute of Food and Agricultural Services, Florida Master Naturalist Program at the Keys Marine Laboratory in Layton and Mote Laboratory on Summerland Key
 - Habitat Evaluation (01/23-25/15)
 - Upland Systems (09/06-14/14)
 - Coastal Systems (07/12-08/03/14)
 - Conservation Science (10/17-19/14)
 - Freshwater Wetlands (11/08-23/14)
 - Wildlife Monitoring (02/20-22/15)
 - Environmental Interpretation (02/27-03/01/15)
- "Project Development and Environment," Guest Lecturer, CGN-5930, Florida International University, 2009
- "Environmental Law, MBA Program for Environmental Professionals," Guest Lecturer, GEB 6407, Florida Atlantic University
- Florida Fish and Wildlife Conservation Commission
 - Basic Hunter Safety