



**Memorandum**

To: Roland DeBlois, Chief, Environmental Planning  
Indian River County

From: Lynn Kiefer  
Kimley Horn & Associates, Inc.

Date: April 9, 2018

RE: Data and Field Review  
Lot 5 Indian River Mall Subdivision and  
Potential Replacement Properties - Siew and Kinner Parcels  
Indian River County, FL

Kimley-Horn and Associates, Inc. (Kimley-Horn) conducted field reconnaissance on November 15, 2016 at the Lot 5 Indian River Mall parcel to assess the current ecological condition of the parcel. Following several months of coordination with the County regarding the potential release of the conservation easement on this property, two parcels, Siew and Kinner properties, were identified as potential replacement property if the conservation easement was released. Kimley-Horn conducted field reconnaissance on March 2, on the Siew and Kinner Properties. The results of the field reviews are presented herein.

**Project Background**

Lot 5 is an approximately 4.7-acre site that was placed into a conservation easement as part of the Indian River Mall Development Order (DO). The primary purpose of the easement was to preserve wildlife habitat, protect the hand fern (*Ophioglossum palmatum*), which at the time was present on site, and to provide green space within the Development of Regional Impact (DRI) for the Mall.

As you are aware, our client is proposing to develop Lot 5 and has been working with the County to determine if the conservation easement can be modified. Based on the field review at Lot 5, no hand fern was observed and the ecological value of the property was considered low due to onsite disturbance and lack of maintenance. To develop Lot 5 and release the easement, Indian River County requested that our client purchase and then donate a property within the County with a higher ecological value than Lot 5. Indian River County provided the Siew parcel as a potential site because it is located adjacent to existing County conservation lands associated with Round Island and has been considered in the past for acquisition by the County. Indian River Land Trust identified the Kinner Property as another potential option, and it too is located adjacent to existing conservation areas.

Typically, when evaluating replacement property, “like for like habitat replacement” is preferred. However, in some cases if the property to be replaced is of low quality, common in a geographical area or does not exhibit any unique characteristics, replacement property can be of a different type if greater ecological value is achieved. Generally, replacement is defined by a mitigation ratio or some other type of assessment that provides for replacement acreage. But based on discussions with the County, the consideration for releasing the easement on Lot 5 is not strictly based on a mitigation ratio or a given acreage amount. Several other factors are being considered by the County to determine if the Lot 5 conservation easement can be released. For the purposes of this memo, an ecological assessment Lot 5, Siew and Kinner properties has been performed to determine if there is an ecological lift with the replacement properties.

In evaluating ecological value for the parcels, the following was considered:

- Geographic location and setting
- Location and size of other conservation areas near the site
- General description and condition of the exiting habitat
- Presence of exotic or nuisance vegetation

### **Field Reconnaissance**

#### Lot 5 Property - Parcel No. 33-39-05-00007-0000-005.0

Field reconnaissance included walking transects throughout the subject property searching for the hand fern and assessing the overall quality of the parcel. Photographs were taken of the property and are included in **Appendix A**. Canopy vegetation included cabbage palm (*Sabal palmetto*), laurel oak (*Quercus laurifolia*), live oak (*Q. virginiana*), sweetgum (*Liquidambar styraciflua*), Brazilian pepper (*Schinus terebinthifolius*), and Queensland umbrella tree (*Schefflera actinophylla*). The mid-story was mostly comprised of young cabbage palm. The understory was comprised of wild coffee (*Psychotria nervosa*), muscadine (*Vitis rotundifolia*), American beautyberry (*Callicarpa americana*), air potato (*Dioscorea bulbifera*), Caesar’s weed (*Urena lobata*), poison ivy (*Toxicodendron radicans*), and sword fern (*Polystichum* spp.). The stormwater pond to the south of Lot 5, adjacent to SR 60, was comprised of Carolina willow (*Salix carolinana*), primrose willow (*Ludwigia* spp.), and cattail (*Typha* spp.), and had an edge of saw palmetto (*Sabal palmetto*) and wax myrtle (*Myrica cerifera*).

Based on the most current list of invasive plant species (Florida’s Exotic Pest Plant Council’s 2015 List of Invasive Plant Species) Brazilian pepper, Queensland umbrella tree, air potato and Caesar’s weed are considered Category I invasive exotic species. Category I is defined as “invasive exotics that are alternating native plant communities by displacing native species, changing community structures or ecological functions or hybridizing with natives”. The exotic species were observed not only along the

disturbed edges, but also scattered throughout the site. Without maintenance, it is expected these exotic species will continue to increase in percent coverage.

Overall, the canopy appeared unhealthy due to several trees having little new leaf growth and lacking full crowns. This is likely due to this parcel being unmaintained and surrounded by commercial development. There was also limited understory growth due to a high percentage of the ground being covered by cabbage palm fronds. A native cabbage palm hammock typically encounters wildfires, which helps to deplete the ground cover of palm fronds.

As part of the review, we also evaluated if there were some large diameter trees that may be saved as part of the development. During field reconnaissance, a few live oaks and laurel oaks were observed and may be considered a specimen tree under the County’s code of ordinances, therefore DBH was measured and are shown in **Table 1**. *Figure 1* shows the location of the specimen trees. Many of these trees have been incorporated into the concept plan previously presented to the County.

**Table 1: Diameter at breast height (DBH) of Specimen Trees within Lot 5**

Tree #	DBH	Species	GPS Coordinates of Tree (decimal degrees)
1	28	Laurel Oak	27.6405, -80.4563
2	26	Laurel Oak	27.6404, -80.4562
3	16.5	Laurel Oak	27.6398, -27.4559
4	19.5	Laurel Oak	27.6398, -80.4559
5	19	Laurel Oak	27.6395, -80.4555
6	26.5	Live Oak	27.6398, -80.4553
7	26	Laurel Oak	27.6402, -80.4554

No hand ferns were observed throughout the property. The preferred habitat for this species is in the boots of cabbage palms in maritime and wet hammocks. Although Lot 5 contains a large amount of cabbage palms, this habitat would not be considered a maritime or wet hammock. When the Indian River Mall was constructed, this area became isolated from natural drainage patterns and most likely affected the drainage in this area. One of the identified causes to loss of this species is the change in drainage.

The fencing was down in a few areas and evidence of dumping and potentially human occupancy of the area was observed though this was not throughout the preserve or severe in nature.

Wildlife, or evidence of wildlife, seen during field reconnaissance included grey squirrels, two armadillo burrows, and possible bobcat scat. However, due to the small size of the parcel, the change

in natural drainage patterns, the lack of management or ability to manage the preserve, the lack of connectivity with other natural areas and the urban environment surrounding this area, wildlife utilization and ecological vitality is considered low. It is anticipated that this area will continue to degrade over time with no management.

Siew Property – Parcel Id #s 33402700000004000007.0, 33402800000004000008.0, 33402800000004000007.0 and 33402800000004000006.0

This property consists of four undeveloped parcels totaling approximately 9.17 acres (see **Figure 2 – Siew Property Location Map** and **Figure 3 – Siew Property Aerial with Habitat Types Map**) in the Oyster Bay Subdivision. The Florida Land Use, Cover, and Forms Classification System (FLUCFCS) was used to delineate the different habitat types within the property, as shown on **Figure 3**. The property is located at the end of Hidden Pearl Place and is the last single-family, undeveloped lot in the subdivision. The property is bordered to the south by land owned by Indian River County, to the north and west by the Indian River Lagoon and to the east by single family residences in Oyster Bay. Most of the site and the County lands to the south consists of mangrove marshes and are part of the Oyster Bar Impoundment. These impoundment areas are treated and managed for mosquito control and have been reconnected via culverts and pumps to the Indian River Lagoon allowing for water exchange between the lagoon and the marshes. A man-made berm is located along the lagoon edge of the property.

A majority of the 9.17 acres consists of a mangrove swamp wetland comprised of 90% red mangrove and 10% black mangrove. There was a small area adjacent to Oyster Bay Drive which would be classified as upland hardwood forest. The upland hardwood forest included some Brazilian pepper (an exotic), seagrape, cabbage palm, and wild coffee. Wildlife, or evidence of wildlife, seen during field reconnaissance included brown pelican, osprey, northern cardinal, tree swallows, and blue land crabs.

Even though the site has some exotic vegetation, the overall condition of the site is good and provides high quality habitat. From a geographic location and setting, the site is somewhat secluded and removed from roads or other development. This provides greater diversity of potential wildlife usage and less impact from roads, cars, and other human disturbances. The site is almost twice the acreage of Lot 5, but the site if acquired would be part of a larger conservation area. Though not all the Oyster Bay impoundment is in public ownership, approximately 129 acres is owned by either Indian River County or Indian River Land Trust for conservation. The remaining areas in private ownership consists of mostly mangrove marsh and thus would most likely remain undeveloped. Having larger contiguous conversation areas adds to the overall higher quality of this site as compared to Lot 5.

Kinner Property – Parcel Id # 32391100000003000003.0

This property consists of one parcel totaling approximately 10.3 acres (see **Figure 4 – Kinner Property Location Map** and **Figure 5 – Kinner Property Aerial with Habitat Types Map**). FLUCFCS was used to delineate the different habitat types within the property, as shown on **Figure 5**. The property is located south of Quay Dock Road and north of 63<sup>rd</sup> Street. The property is adjacent to a single-family home and additional mangrove marsh to the north, fallow grove to the west, mangrove marsh owned by Indian River Land Trust to the South and the Indian River Lagoon to the east. A majority of the property can be classified as mangrove swamp consisting of approximately 50% red mangrove and 50% black mangrove. There was a small area located in the western portion of the property which consisted of a stand of Brazilian pepper, however this area was isolated and Brazilian pepper was not found in other parts of the property. Wildlife, or evidence of wildlife, seen during field reconnaissance included turkey vultures, northern cardinal, red-shouldered hawks, and a black racer.

Even though the site has some exotic vegetation, the property can be considered high quality habitat. Furthermore, unlike the Siew property, this system is directly connected to the Indian River lagoon and subject to daily tidal fluctuations. This allows for potentially greater vegetative and wildlife diversity. From a geographic location and setting, the site is secluded and removed from roads or other development. This also can enhance the diversity of potential wildlife usage by reducing the potential effects from roads, cars, and other human disturbances. The site is twice the acreage of Lot 5, but the site if acquired would be part of a larger conservation area. Approximately, 49 acres south of the site are owned by the Indian River Land Trust for conservation. However, the area to the west is in private ownership and could potentially be developed in the future. The future influence or disturbance and its effect on the ecological condition of the Kinner property is unknown. The Future Land Use on the property is L-1, single family low density and the zoning is RS-1 (residential, 1 dwelling unit per acre) and RS-3 (residential, 3 dwelling units per acre). Thus, future development would be expected to be low intensity.

See **Appendix B** for a photographic log of Lot 5, Siew and Kinner properties.

**Conclusion**

In comparing the Kinner or Siew properties to Lot 5 Indian River Mall Parcel, either property provides greater ecological value than Lot 5. Both the Kinner and Siew parcels are larger in size and have more diverse habitats and potential for wildlife utilization; however, one is not preferable over the other.

**Figures**



K:\VRB\_Environmental\147022001 Lot 5 IR Mall\ENVG\SMXD\DBH Map.mxd

**Legend**

- Project Limits
- DBH

Source: Aerial courtesy of ESRI; DBH data courtesy of KHA

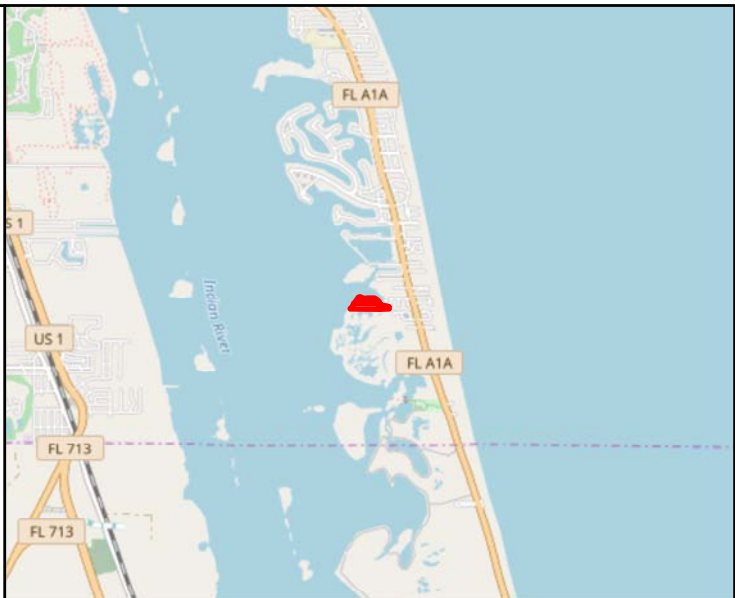
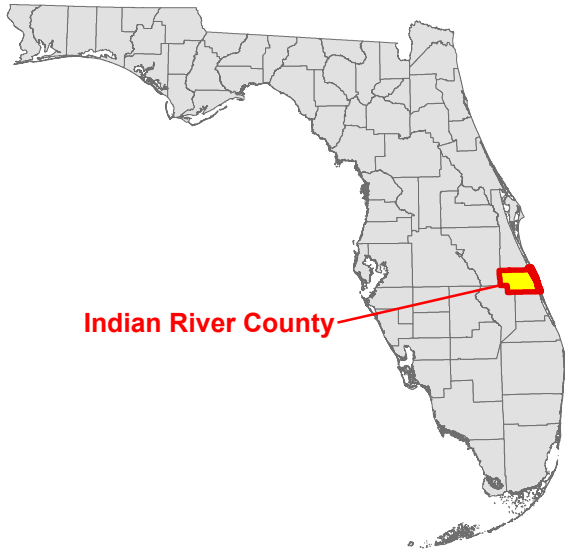
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**Diameter at Breast Height (DBH) Tree Map**

**Lot 5 Indian River Mall  
 Indian River County, Florida**

1 inch = 100 feet	PROJECT NUMBER: 147022001	DECEMBER 2016	FIGURE 1
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**Legend**  
 Siew Property

0 125 250  
 Feet



K:\IVRB\_Environmental\147022001 Lot 5 IR Main\ENV\GIS\MXD\Location map\_Siew Property.mxd

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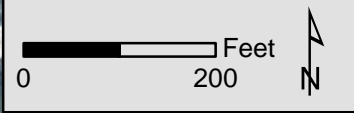
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**Siew Property Location Map**

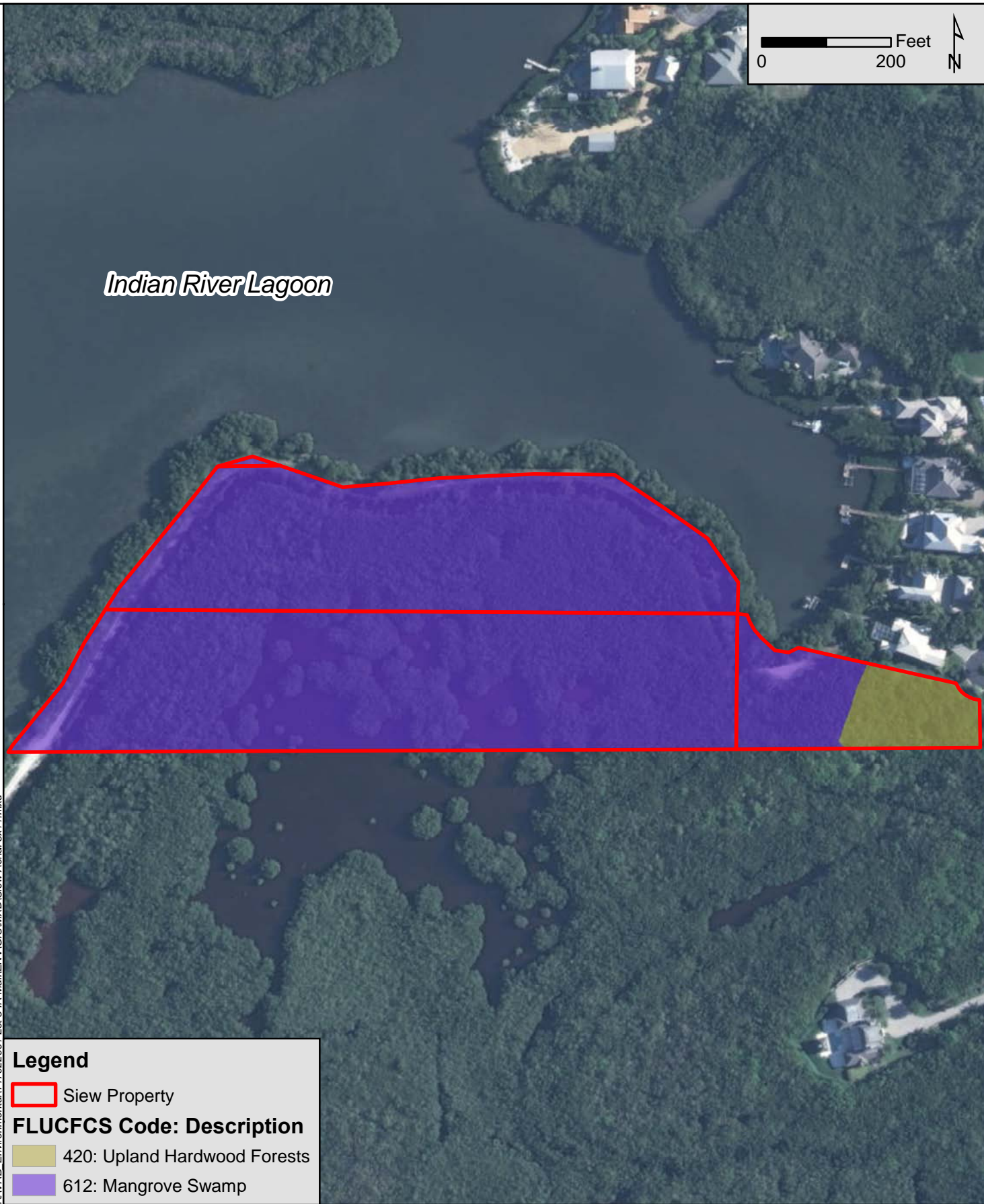
**Ecological Assessments for Indian River County Properties  
 Indian River County, Florida**

1 inch = 500 feet	PROJECT NUMBER: 147022001	MARCH 2018	FIGURE 2
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*Indian River Lagoon*



K:\IVRB\_Environmental\147022001\_Lot 5 IR Main\ENV\GIS\MXD\Stew Aerial 8x11.mxd

**Legend**

Siew Property

**FLUCFCS Code: Description**

420: Upland Hardwood Forests

612: Mangrove Swamp

Source: Aerials courtesy of ESRI



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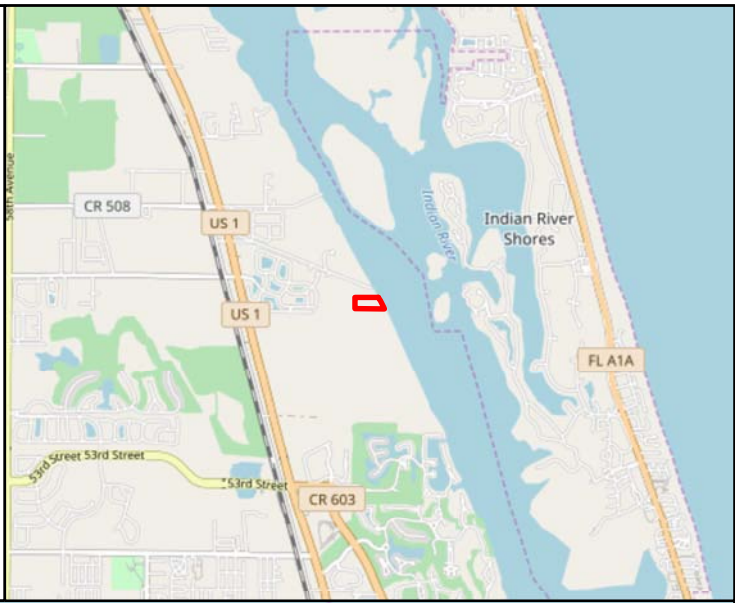
**Siew Property Aerial with Habitat Types**

**Ecological Assessments for Indian River County Properties  
 Indian River County, Florida**

1 inch = 200 feet	PROJECT NUMBER: 147022001	MARCH 2018	FIGURE 3
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Indian River County



**Legend**

Kinner Property

0 250 500 Feet

K:\VRB\_Environmental\147022001 Lot 5 IR Main\ENV\GIS\MXD\Location map\_Kinner\_Property.mxd

Service Layer Credits: Location data courtesy of ESRI (2018);

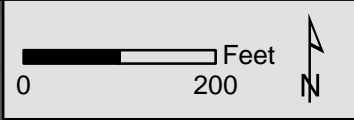


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**Kinner Property Location Map**

**Ecological Assessments for Indian River County Properties  
 Indian River County, Florida**

1 inch = 700 feet	PROJECT NUMBER: 147022001	MARCH 2018	FIGURE 4
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*Indian River Lagoon*

K:\IVRB\_Environmental\147022001\_Lot 5 IR Main\ENV\GIS\MXD\Kinner\_Aerial 8x11.mxd



**Legend**

Kinner Property

**FLUCFCS Code: Description**

422: Brazilian Pepper

612: Mangrove Swamp

Source: Aerials courtesy of ESRI (2018);



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***Kinner Property Aerial with Habitat Types***

***Ecological Assessments for Indian River County Properties  
 Indian River County, Florida***

1 inch = 200 feet

PROJECT NUMBER: 147022001

MARCH 2018

FIGURE 5

**Appendices**



**Photos of interior portion of Lot 5**

**SITE RECONNAISSANCE PHOTOS**  
**Lot 5 Indian River Mall Subdivision**  
**Parcel No. 33-39-05-00007-0000-00005.0**  
**Indian River County, FL**

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Photos of interior portion of Lot 5

**SITE RECONNAISSANCE PHOTOS**  
Lot 5 Indian River Mall Subdivision  
Parcel No. 33-39-05-00007-0000-00005.0  
Indian River County, FL

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Photos of stormwater pond along SR 60, southern edge of property

**SITE RECONNAISSANCE PHOTOS**  
Lot 5 Indian River Mall Subdivision  
Parcel No. 33-39-05-00007-0000-00005.0  
Indian River County, FL

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**Siew Property – Upland Hardwood Forest**

**FIELD RECONNAISSANCE PHOTOS**

**Siew and Kinner Properties  
Indian River County, FL**

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Siew Property - Interior portion of mangrove swamp

FIELD RECONNAISSANCE PHOTOS

Siew and Kinner Properties  
Indian River County, FL

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**Siew Property – Photo of berm and water control structure**

**FIELD RECONNAISSANCE PHOTOS**

**Siew and Kinner Properties  
Indian River County, FL**

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**Kinner Property – Brazilian Pepper and Black Mangrove areas**

**FIELD RECONNAISSANCE PHOTOS**

**Siew and Kinner Properties  
Indian River County, FL**

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**Kinner Property – Interior portion of mangrove swamp**

**FIELD RECONNAISSANCE PHOTOS**

**Siew and Kinner Properties  
Indian River County, FL**

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