Preliminary Engineering Report

for the

North Indian River County Barrier Island Reuse Water Storage & Pumping Facilities

Indian River County, Florida

April 2019

Prepared for:

Indian River County Department of Utility Services
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Executive Summary

Schulke, Bittle & Stoddard, LLC has been authorized by the Indian River County Department of Utility Services (IRCDUS) to prepare a report determining the feasibility to provide irrigation quality re-claimed water (Reuse Water) for the North Indian River County barrier island vicinity, including the feasibility to run new reuse water mains south on SR A-1-A, from CR 510 to Old Winter Beach Road, and the report will provide preliminary recommendations for the size and location of the reuse water transmission main and distribution mains in SR A-1-A, and size of storage tanks and pumping station(s) to be located at the Sea Oaks WWTP site. The Reuse system infrastructure is generally located along approximately 2.4 miles (12,720 lf) of A-1-A, from CR 510 to Old Winter Beach Road.

Feasibility to provide irrigation quality re-claimed water (Reuse Water)

The reuse transmission and distribution mains contemplated with this preliminary engineering report and evaluation are proposed along SR A-1-A between CR 510 and Old Winter Beach Road. Right of way width is limited, and existing roadway and utility improvements limit the area available to install the reuse mains. **Therefore, a detailed evaluation of the constructability of the reuse main was prepared, and it was determined that adequate area is available to install the proposed reuse mains along the east side of SR A-1-A using the directional bore method of pipe installation.**

Preliminary Recommendations: System specifications, size and flow allocations

This report provides an estimate of the potential maximum demand for reuse water from all communities on the North barrier island, from Old Winter Beach Road north to Windsor. This estimate approaches 4.2 MGD. However, the likely demand will be lower. Considering that of the 4.2 MGD estimated demand, at least 2.25 MGD of this estimated demand comes from developments / communities within the COVB utility service area. Currently the COVB provides limited amounts of reuse water to several developments (including John's Island). Some existing developments, especially those lying in the city's service area who may be able to refuse service, may not want to connect to IRCDUS reuse water.

This report also models and estimates the reuse infrastructure capacity and has found that the reuse transmission system / pipe network could potentially deliver 4.34 MGD of reuse water (if available). However, actual capacity of the IRCDUS reuse system (the entire system) to deliver reuse water is likely lower. It will be many years before the requisite quantity of reuse water is available from the county's three WWTP's. In addition, the capacity of the Hobart reuse storage tank and pumping facility may be a limitation. The facility was designed to deliver 1.6 MGD with a 3.0 MG storage tank. Consider that if total barrier island demand reached 4.2 MGD, and existing mainland demand is 0.79 MGD (Redstick and JI West), the total demand from the Hobart facility could approach 5.0 MGD, or over 3 times its original design. Further, the transmission mains (double 12" parallel mains) that cross (and hang from) the Wabasso Bridge are older system components, and IRCDUS may not want these lines constantly running at peak capacity.

It is SBS recommendation that IRCDUS plan to construct facilities that will provide for the future demand of at least 3.116 MGD of reuse water to the North Barrier Island. This flow allocation is depicted and listed in **Scenario C** in the Hydraulic modeling and is summarized as follows:

-1.964 MGD - flow to north barrier island communities within IRCDUS service area
-1.0 MGD - to JI
-0.153 MGD - to COVB service area - the Shores and River Club
3.116 MGD total

Cost of Improvements:

The engineer's opinion of probable cost to construct the recommended improvements are as follows:

-16" Reuse Transmission Main:	$1,494,478.87
-12" Reuse distribution main/ services:	$2,134,399.40
-Sea Oaks Reuse water storage and pumping facilities:	$3,053,020.00
-Ext. of reuse main from OWBR to JI exist. pump station:	$ 218,730.00
-Surveying, engineering, permitting, administration, CAI:	$ 485,875.00
-Total Cost:	$7,386,503.27

Recommendation:

It is SBS recommendation that IRCDUS plan to construct facilities that will provide for the future demand of at least 3.116 MGD of reuse water to the North Barrier Island. This flow allocation is depicted and listed in **Scenario C** in the Hydraulic modeling and is summarized as follows:

-1.964 MGD - flow to north barrier island communities within IRCDUS service area
-1.0 MGD - to JI
-0.153 MGD - to COVB service area - the Shores and River Club
3.116 MGD total

Two system models (C-2 and C-3) that were proposed with this flow allocation are favorable

1. With storage and pumps: These flow allocations have been modeled and results indicate that the allocated flows are provided with consistently high pressures with the storage tank and pump capabilities (system model C-2).
2. Without storage and pumps: While pressures drop up to 30+- psi at the furthest demand nodes, the same flows can be provided without the tank and pump (system model C-3). This may not be a desirable long-term solution. The burden will be on the Hobart tank and pumping facilities to provide pressurized reuse water to the developments/ communities on the barrier island without a backup or fail safe that the proposed Sea Oaks 3.0 MG Reuse water storage tank provides.

The improvements can be phased utilizing both system models C-2 and C-3:.

- Phase 1: Limit the construction to just transmission main and distribution main system components (the pipe network) of system C-2 (and as provided in C-3).
- Phase 2: construction of the 3.0 MG reuse storage tank and pumping facilities. IRCDUS will monitor the future growth of the reuse water demand and decide when to implement Phase 2.

The specific system recommended are the systems modeled in C-3 and C-2, implemented as a phased project. The system consists of the following:

- Phase 1 (system C-3):
  All reuse to the barrier island is fed from Hobart Tank and pumps. There is not a new tank or pumps at Sea Oaks at this time. Existing 16" transmission line on CR 510 to A-1-A, which feeds the existing 8" line north to Windsor, and feeds both a new 16" line and existing 8" line south to Sea Oaks (parallel mains). These parallel lines feed into a new 12" line that runs from Sea Oaks south to Old Winter Beach Road.
- Phase 2 (system C-2)
  From the Hobart Tank and pumps, an existing 16" transmission line runs on CR 510 to A-1-A, which feeds an existing 8" line north to Windsor (and Orchid) and feeds a new 16" line south to Sea Oaks where reuse will be stored in a new tank (3 MG). A new pump facility will pump the reuse water into the distribution lines, including an existing 8" line which runs north to Disney, and a new 12" new line which routes south to Old Winter Beach Road to feed JI, the Shores and River Club.

System C-2 is recommended as a final solution because:

- It provides high and consistent pressures throughout its service area.
- It relies on the Hobart tank and pumping facilities to deliver pressurized water to Orchid/ Windsor (1.369 MGD), which reduces the volume of reuse water going to and pumped from the new Sea Oaks reuse storage tank and pumping facility to only 1.607 MGD.
- The 3.0 MG tank will provide ample storage and buffer for a system with tank capacity at 188% of daily flow (*recommended min. storage capacity is equivalent to 100% of daily flow requirement; Dept of Army – Tech manual no. 5-813-4).
- 1.607 MGD flow requires a min. 1115 GPM pump capacity (ADF). SBS recommends that the pumping facility mimics that at the existing Hobart reuse storage tank and pumping facility. This system has (1) 250 gpm (at 195 ft.) jockey pump and (3) 850 gpm (at 195 ft.) service pumps. The system is designed to have any two of the three 850 gpm pumps in operation at one time, with a total capacity of 1700 gpm (2.4428 MGD ADF). The additional pump capacity (1700 gpm vs 1115 gpm) provides a buffer for any unanticipated peak demands caused by multiple irrigation systems unexpectantly running simultaneously
- The system can provide additional capacity (up to 3.505 MGD - reference model D-2)

Introduction

Schulke, Bittle & Stoddard, LLC has been authorized by the Indian River County Department of Utility Services (IRCDUS) to prepare a report determining the feasibility to provide irrigation quality re-claimed water (Reuse Water) for the North Indian River County barrier island vicinity, including the feasibility to run new reuse water mains south on SR A-1-A, from CR 510 to Old Winter Beach Road, and the report will provide preliminary recommendations for the size and location of the reuse water transmission main and distribution mains in SR A-1-A, and size of storage tanks and pumping station(s) to be located at the Sea Oaks WWTP site. The Reuse system infrastructure is generally located along approximately 2.4 miles (12,700 lf) of A-1-A, from CR 510 to Old Winter Beach Road.

This Preliminary Engineering Report describes the manner in which proposed improvements to the IRCDUS reuse transmission and distribution systems could be integrated into the County's existing reuse water system. The Report provides an overview of the County's existing reuse water system and describes other reuse water system improvements that need to be completed in order to fully utilize the proposed improvements. The proposed improvements generally are described as follows:

1. A new utility connection will be made to at the intersection of CR 510 and SR A-1-A. A new 16" diameter reuse transmission main will replace the existing 8" transmission main along A-1-A south of CR 510. It will connect to the existing 16" transmission main at CR 510 and SR A-1-A and will run along the east side of SR A-1-A south 4,749 lf from CR 510 to the inactive North County (Sea Oaks) WWTP. The existing 8" reuse main running along SR A-1-A from CR 510 north to Windsor will remain connected to and fed from the existing 16" reuse main that runs along CR 510.

   The estimated cost of the transmission main is:
   $ 1,494,478.87 (see Appendix A)

2. A new reuse distribution network will consist of:
   a. Running north, from Sea Oaks: the existing 8" reuse transmission main that was re-placed by the new 16" main will be converted to a distribution main. This main is approximately 4,700 lf along SR A-1-A, from Sea Oaks to CR 510.
   b. Running south, from Sea Oaks: a new 12" reuse water distribution main will be installed from Sea Oaks and will run along the east side of SR A-1-A, south approximately 8,594 lf to Old Winter Beach Road, where it will connect to a recently constructed existing 16" reuse main in Old Winter Beach Road
   c. Along the length of the reuse water distribution mains, stub-outs with valves will be located at strategic locations for the future connection and distribution of reuse water to several communities, providing irrigation quality reuse water.

   The estimated cost of the distribution system is:
   $ 2,134,399.40 (see Appendix A)

3. A 3.0 MG Reuse Water Storage Tank and a pumping facility are proposed to be located at the Sea Oaks WWTP, to store reuse water that is delivered from the new larger diameter reuse transmission main. The pumping facility will pump from the storage tanks into a new

reuse main distribution network which will distribute reuse water to the north and south of Sea Oaks WWTP.

The estimated cost of the storage tank, pumps and related infrastructure is: $ 3,053,020.00 (see Appendix A)

Additional tasks, including surveying and engineering, permitting, construction observation and inspections, and construction administration are necessary to complete the project.

The estimated cost of these additional tasks and fees are: $ 485,875.00 (see Appendix A)

Background Information

Indian River County owns and operates wastewater treatment plants strategically located throughout the unincorporated areas of the County. These wastewater plants are referred to as the South WWTP, West WWTP, Central WWTP and North WWTP. Currently all of these plants are in operation with the exception of the North County WWTP. The North County WWTP currently functions as a re-pump station with all flows transmitted to the Central WWTP. The North WWTP may be re-activated in the future when warranted by the growth of wastewater flows in the North County area.

Analysis of Wastewater Treatment Plant Flows: Indian River County Utilities Department staff provided the following wastewater treatment plant flow information for the year ending November 30, 2018. The information provided indicated the following wastewater treatment plant flows:

	Design Plant Capacity	Actual Average Daily Flow (influent)
South WWTP	2.0 MGD	0.780 MGD
West WWTP	6.0 MGD	2.125 MGD
Central WWTP	4.0 MGD	2.222 MGD
North WWTP	1.0 MGD	0.000 MGD*
	13.0 MGD	5.1 MGD

*The North WWTP is currently a repump station and is not treating any flow.

Currently, the County disposes of treated effluent from its wastewater treatment plants via its reuse transmission system(s) to its artificial wetland system located at the County's West WWTP site (1.22 MGD), to various golf course and residential developments on the mainland (2.88 MGD), and to several residential developments and one golf course on the North barrier Island (0.58 MGD).

Current Reuse Water Demands Analysis: Indian River County Utilities staff provided the following reuse water usage summary for the year (December 2017 to November 30, 2018):

Existing Reuse Customer	Actual Use
A. Mainland	
Indian River Club Golf Course	0.62 MGD
Grand Harbor Golf Course	0.29 MGD
Hawk's Nest Golf Course	0.20 MGD
Sandridge (Dunes) Golf Course	0.61 MGD
Sandridge (Lakes) Golf Course	0.37 MGD
Red Stick Golf Course	0.57 MGD
John Island West Golf Course	0.22 MGD
Sub-total Reuse Water	**2.88 MGD**
B. Barrier Island	
Orchid Island	0.44 MGD
Disney Resort	0.05 MGD
Bermuda Bay	0.09 MGD
Sub-total Reuse Water	**0.58 MGD**
C. Manmade Wetlands	
Wetlands	**1.22 MGD**
Total Reuse Water	**4.68 MGD**

As described above, total flows to wastewater treatment plants for the year ending November 30, 2018 was 5.1 MGD, and total treated reuse water flows from the wastewater treatment plants was 4.68 MGD. (approx. 0.4 MGD is disposed of in the R.I.B. system at the West WWTP during wet weather). County Utilities Staff has advised Schulke, Bittle & Stoddard, LLC. that a minimum flow of 0.700 MGD needs to be delivered into the manmade wetland system to maintain the quality of its hydro period. Adjusting for the required 0.700 MGD treated effluent minimum that must be delivered into the manmade wetland system, the amount of reuse water currently available for reuse customers is 3.98 MGD.

It is the County's goal to decrease the amount treated effluent discharged into the manmade wetland system, and to implement reuse system improvements to allow for increasing the amount of treated effluent from the mainland (south, west and central wastewater treatment plants) that can be delivered to existing or new reuse water users on the North Barrier island.

The following background information describes more quantitatively the County's current reuse disposal locations and estimated what is currently available to the north barrier island:

IRCDUS Reuse Water Allocation

- ADF – All WWTPs: 5.102 MGD

(Less wet weather loss at RIB):	(0.420)	=	4.682 MGD
(Less wetlands):	(1.220)	=	3.462 MGD
Less			
o Indian River Club:	(0.622)	=	2.840 MGD
o Grand Harbor:	(0.292)	=	2.548 MGD
o Hawks Nest:	(0.196)	=	2.352 MGD
o SR Lakes:	(0.372)	=	1.980 MGD
o SR Dunes:	(0.613)	=	1.367 MGD

Average daily flow to Hobart Tank: = 1.367 MGD

Flow to Hobart tank:	1.367 MGD		
Less			
o JI West*:	(0.216)	=	1.151 MGD
o Red Stick*:	(0.574)	=	0.577 MGD

Current Average Daily flow to Barrier Island: = 0.577 MGD

*This allocation reflects current operation. However, IRCDUS has operational flexibility, and can re-route this flow allocation from either the Hobart facility, or direct distribution from the WWTP's distribution system (by-passing Hobart).

Current Flow to Barrier Island:	0.577 MGD		
Add			
o Reduce wetland flow: 1.22 MGD – 0.70* MGD =	+0.520	=	1.097 MGD
Total current flow available to Barrier Island:		=	1.097 MGD

*Minimum to sustain wetlands is 0.70 MGD

Available Average Daily Flow to Barrier Island:

ADF to Island:	1.097 MGD		
Less			
o Orchid Isle:	(0.441)	=	0.656 MGD
o Disney:	(0.054)	=	0.602 MGD

o Bermuda Bay:	(0.090)	=	0.512 MGD
Total current flow available to new customers:		=	0.512 MGD

Service Area Evaluation:

The County desires to increase reuse flows to add (in a phased approach) barrier island reuse water customers including but not limited to Windsor and Johns Island, and other surrounding communities. At John's Island and Windsor, irrigation systems exist for both golf course and property owner association (POA) landscape improvements. Many other communities along the North barrier island operate irrigation systems for common areas and in many locations, the developments have centralized irrigation systems for all the residential properties. It is expected that demand for reuse water from all the communities on the North barrier Island from Old Winter Beach Road to Windsor could approach 4.2 MGD

Wabasso Causeway to A-1-A	0.141 MGD
A-1-A, from CR 510 north to Windsor	1.369 MGD
A-1-A, from CR 510 south to Baytree (IRCDUS SA*)	0.454 MGD
A-1-A, from Marbrisa to Old Winter Beach Road (COVB SA*)	2.255 MGD
Total:	4.219 MGD

*SA = "service area"

Reference **Appendix B** "Service Area Evaluation – Estimated Reuse Water Demands" for a detailed evaluation of the potential service area on the North Barrier Island, including an estimate of the total demand for irrigation quality water for existing and proposed developments on the North Barrier Island.

Hydraulic Analysis:

A hydraulic analysis of the proposed IRCDUS North Barrier Island reuse transmission system / pipe network was modeled using WaterCAD to help determine system component requirements, including reuse main size and pump system capacity (Refence Appendix C).

Within the hydraulic models prepared to analyze the delivery of reuse water, the pumps at both the existing Hobart and proposed Sea Oaks storage and pumping facilities were modeled as a tank with a water elevation equivalent to 85 psi (195 ft. above grade). Essentially, the model assumes that the available reuse water is not limited and delivered at 85 psi from the pumping facility. The open-ended pipes at the delivery points were modeled based on the assumption that flow control was provided at all delivery points equivalent to the estimated average daily flow at each development / community. A peak demand factor was not used (PF = 1.0). It is acknowledged that individual irrigation systems are generally designed to deliver daily water needs in a much shorter time period (less than 24 hours). However, the delivery of reuse water is assumed to occur evenly throughout any given 24 hour day – due to proactive restrictions and scheduling controls by IRCDUS which ensure a nearly constant delivery of reuse water over each

and every 24 hour period. Further, it is understood that the potential customers with greatest irrigation needs (i.e. John's Island, Windsor, Sea Oaks, Orchid) have the capacity to store reuse water onsite, which will provide additional assurances that the system will not be burdened with significant periods of high peak demands.

Attached within **Appendix C** "WaterCAD Model Results" are results of several evaluations summarized as follows:

Scenario A: This models the current IRCDUS flow allocation (using data from December 2017 to November 2018. (Total flow allocation of **1.097 MGD**: current 0.585 MGD flow to north barrier island, and available 0.512 MGD, diverted from the manmade wetlands to JI):

A-1. (refer to Appendix C, p. EX-01). Existing 16" transmission line on CR 510 to A-1-A, which feeds a new 16" Transmission line south to Sea Oaks and a new tank (3 MG). New Pumps at Sea Oaks to distribution mains: 8" exist line north to Windsor, 12" new line south to Old Winter Beach Road

-(Tank delivery: 83.3 psi / Orchid : 75.4 psi / JI : 83.0 psi)

A-2. (refer to Appendix C, p. EX-02). Existing 16" transmission line on CR 510 to A-1-A, which feeds an existing 8" line north to Windsor, and a new 16" line south to Sea Oaks and a new tank (3 MG). New pumps to distribution mains: 8" exist line north to Disney, 12" new line south to Old Winter Beach Road.

-(Tank delivery: 83.7 psi / Orchid : 80.5 psi / JI : 83.0 psi)

A-3. (refer to Appendix C, p. EX-03). All reuse to island fed from Hobart Tank and pumps. No new tank or pumps at Sea Oaks. Existing 16" transmission line on CR 510 to A-1-A, which feeds the existing 8" line north to Windsor, and feeds both the new 16" line and existing 8" line south to Sea Oaks (parallel mains). The 16" reduces to a new 12" line from Sea Oaks south to Old Winter Beach Road.

-(No Tank / Orchid: 80.4 psi / JI : 82.5 psi)

Note All models provide nearly the same high delivered pressures. A-3 provides adequate flow and delivery pressure without a tank or pumps.

Scenario B: This models an estimated flow allocation for all current and potential future reuse customers within the IRCDUS service area and additional flow to the John's Island development. The basis of the flow allocation was estimated to be the sum of: the flow allocations of all developments with an existing SJRWMD CUP, plus an estimated flow allocation of 1.0 MGY per acre of irrigated area for developments without a SJRWMD CUP, plus 1.0 MGD flow allocation for John's Island development. (Total flow allocation of **2.964 MGD**: estimated 1.964 MGD flow to north barrier island communities within IRCDUS service area, and an additional 1.0 MGD to JI):

B-1. (refer to Appendix C, p. EX-04). Existing 16" transmission line on CR 510 to A-1-A, which feeds a new 16" Transmission line south to Sea Oaks and a new tank (3 MG). New Pumps at Sea Oaks to distribution mains: 8" exist line north to Windsor, 12" new line south to Old Winter Beach Road

-(Tank delivery : 53 psi / Windsor : 7.40 psi / JI : 79.2 psi)

B-2. (refer to Appendix C, p. EX-05). Existing 16" transmission line on CR 510 to A-1-A, which feeds an existing 8" line north to Windsor, and a new 16" line south to Sea Oaks and a new tank (3 MG). New pumps to distribution mains: 8" exist line north to Disney, 12" new line south to Old Winter Beach Road.

-(Tank delivery – 56 psi, Windsor – 16.7 psi, JI – 79.3 psi)

B-3. (refer to Appendix C, p. EX-06). All reuse to island fed from Hobart Tank and pumps. There is not a new tank or pumps at Sea Oaks. Existing 16" transmission line on CR 510 to A-1-A, which feeds the existing 8" line north to Windsor, and feeds both the new 16" line and existing 8" line south to Sea Oaks (parallel mains), which reduces to a new 12" line from Sea Oaks south to Old Winter Beach Road.

-(No Tank / Windsor : 16.7 psi / JI – 51.4 psi)

Note; B-2 provides the highest and most consistent pressures to all communities. B-3 provides adequate flow and low but acceptable delivery pressure without a tank or pumps.

Scenario C: This model is the same estimated flow allocation as Scenario B, plus an additional flow allocation into the COVB service area for the Shores and River Club developments (Total flow allocation of 3.116 MGD: estimated 1.964 MGD flow to north barrier island communities within IRCDUS service area, additional 1.0 MGD to JI, and an additional 0.153 MGD to COVB service area - the Shores and River Club):

C-1. (refer to Appendix C, p. EX-07). Existing 16" transmission line on CR 510 to A-1-A, which feeds a new 16" Transmission line south to Sea Oaks and a new tank (3 MG). New Pumps at Sea Oaks to distribution mains: 8" exist line north to Windsor, 12" new line south to Old Winter Beach Road

-(Tank delivery : 49 psi / Windsor : 7.40 psi / JI – 77.7 psi)

C-2. (refer to Appendix C, p. EX-08). Existing 16" transmission line on CR 510 to A-1-A, which feeds an existing 8" line north to Windsor, and a new 16" line south to Sea Oaks and a new tank (3 MG). New pumps to distribution mains: 8" exist line north to Disney, 12" new line south to Old Winter Beach Road.

-(Tank delivery : 53 psi / Windsor : 13.6 psi / JI : 77.8 psi)

C-3. (refer to Appendix C, p. EX-09). All reuse to island fed from Hobart Tank and pumps. There is not a new tank or pumps at Sea Oaks. Existing 16" transmission line on CR 510 to A-1-A, which feeds the existing 8" line north to Windsor, and feeds both the new 16" line and existing 8" line south to Sea Oaks (parallel mains), which reduces to a new 12" line from Sea Oaks south to Old Winter Beach Road.

-(No Tank / Windsor : 13.5 psi / JI : 46.6 psi)

Note: C-2 provides the highest and most consistent pressures to all communities. C-3 provides adequate flow and low but acceptable delivery pressure without a tank or pumps.

Scenario D: This model is the same estimated flow allocation as Scenario C, plus additional flow allocations into the COVB service area until the system failed. The purpose was to estimate the maximum capacity of the transmission and distribution system on the North barrier Island (Additional flows were incrementally increased in each version D-1, D-2 or D-3 below, until the system failed to deliver flows at adequate pressures. Failure was considered to be a pressure below the following: 10 psi at the top of the Wabasso bridge, 15 psi at the Sea Oaks tank, or 5 psi at Windsor). The total flow allocation varies per model below, and included an estimated 1.964

MGD flow to north barrier island communities within IRCDUS service area, additional 1.0 MGD to JI, an additional 0.153 MGD for the Shores and River Club, and additional flow allocation for the COVB service area determined below:

D-1. (refer to Appendix C, p. EX-10). Existing 16" transmission line on CR 510 to A-1-A, which feeds a new 16" Transmission line south to Sea Oaks and a new tank (3 MG). New Pumps at Sea Oaks to distribution mains: 8" exist line north to Windsor, 12" new line south to Old Winter Beach Road

*-(**Bridge : 10.6 psi / Tank delivery : 15.3 psi /** Windsor : 7.3 psi / JI : 64.8 psi)*
*-(**Max Capacity: 4.34 MGD**: 1.964 MGD IRCDUS SA, 1.0 MGD JI, 0.153 MGD Shores/ River Club, 1.22 MGD additional for COVB SA)*

D-2. (refer to Appendix C, p. EX-11). Existing 16" transmission line on CR 510 to A-1-A, which feeds an existing 8" line north to Windsor, and a new 16" line south to Sea Oaks and a new tank (3 MG). New pumps to distribution mains: 8" exist line north to Disney, 12" new line south to Old Winter Beach Road.

*-(Bridge : 27.5 psi / Tank delivery : 43 psi / **Windsor ; 5.0 psi / JI : 74.4 psi)***
*-(**Max Capacity: 3.51 MGD**: 1.964 MGD IRCDUS SA, 1.0 MGD JI, 0.153 MGD Shores/ River Club, 0.39 MGD additional for COVB SA)*

D-3. (refer to Appendix C, p. EX-12). All reuse to island fed from Hobart Tank and pumps. There is not a new tank or pumps at Sea Oaks. Existing 16" transmission line on CR 510 to A-1-A, which feeds the existing 8" line north to Windsor, and feeds both the new 16" line and existing 8" line south to Sea Oaks (parallel mains), which reduces to a new 12" line from Sea Oaks south to Old Winter Beach Road.

*-(Bridge : 27.5 psi / No Tank / **Windsor : 5.0 psi /** JI : 34.1 psi)*
*-(**Max Capacity: 3.51 MGD**: 1.964 MGD IRCDUS SA, 1.0 MGD JI, 0.153 MGD Shores/ River Club, 0.39 MGD additional for COVB SA)*

Note: D-1 provides the highest reuse capacity of 4.34 MGD. While D-2 and D-3 provide the same 3.51 MGD capacity, D-2 provides higher and more consistent delivered pressures. However, D-3 provides the relocated flow without a tank or pumps, but at very low pressures.

Comprehensive Reuse System Improvements

The ability for IRCDUS to deliver additional reuse water to the North Barrier Island will require meeting several system needs:

1. **Adequate available reuse water:** Currently the total available reuse water quantity is 4.68 MGD from all the IRCDUS wastewater treatment plants. With 0.52 MGD diverted from the artificial wetlands to the Hobart storage tank, under current operating conditions, there is **1.097* MGD available that can be pumped to the North barrier Island**. (Existing IRCDUS service area customers on the barrier island currently receive 0.577 MGD, which results in 0.512 MGD of unallocated flow that is available to John's Island or other potential customers on the island.

   There is an estimated 4.22 MGD maximum potential demand from existing and proposed communities on the North Barrier Island, but 1.097 MGD* available. IRCDUS may want to pursue the availability of other water sources, such as mixing surface waters with the reuse waters from the IRFWCD or other sources or re-allocating the distribution of reuse water.

*This allocation reflects current operation. However, IRCDUS has operational flexibility, and can re-allocate reuse water flows, sending more to the North Barrier Island and less to mainland recipients. Conversely, during wet-weather periods IRCDUS may need to evaluate other disposal options other than golf courses.

2. **Hobart Tank/ pump upgrades**: Currently the Hobart reuse water storage and pumping facilities has the capacity to deliver 1.6 MGD. The system was designed with (1) 250 gpm at 195 ft. jockey pump and (3) 850 gpm at 195 ft. service pumps. The system is designed to have any two of the three 850 gpm pumps in operation at one time, with a 16 hour per day cycle time.

   Currently, approximately 1.367 MGD of Reuse water is pumped to and pumped from the Hobart facility. The Hobart facility will require upgrades to meet any additional flow allocations to the North barrier island.

Scenario A:

-Total all current Reuse pumped from Hobart:	1.367 MGD
-1.097 MGD to island, 0.520 MGD diverted from wetlands:	0.520 MGD
Total Reuse	**1.887 MGD** > 1.60 MGD
300 gpm additional capacity needed	

Scenario B:

-Total all current Reuse pumped from Hobart:	1.367 MGD
-2.964 MGD to island, 2.387 MGD additional from Hobart):	+2.387 MGD
Total Reuse	**3.754 MGD** > 1.60 MGD
2250 gpm additional capacity needed	

Scenario C:

-Total all current Reuse pumped from Hobart:	1.367 MGD
-3.116 MGD to island, 2.539 MGD additional from Hobart:	+2.539 MGD
Total Reuse	**3.906 MGD >** 1.60 MGD
2400 gpm additional capacity needed	

Scenario D:

-Total all current Reuse pumped from Hobart:	1.367 MGD
-4.340 MGD to island, 3.763 MGD additional from Hobart:	+3.763 MGD
Total Reuse	**5.130 MGD >** 1.60 MGD
3680 gpm additional capacity needed	

3. **North Barrier Island Reuse system improvements:** The system improvements necessary include:

   a. Construct a new 16" diameter reuse transmission main south along SR A-1-A. This main will replace the existing 8" transmission main along A-1-A. It will connect to the existing 16" transmission main at CR 510 and SR A-1-A, and will run along the east side of SR A-1-A south 4749 lf from CR 510 to the inactive Sea Oaks WWTP located within the Sea Oaks community.

   b. Construct a new reuse distribution network, including:
      - Running north: the existing 8" reuse transmission main that was re-placed by the new 16" main will be converted to a distribution main. This main is approximately 4,700 lf along SR A-1-A, from Sea Oaks to CR 510.

- Running south: a new 12” reuse water distribution main will be installed from Sea Oaks and will run along the east side of SR A-1-A, south along SR A-1-A, approximately 8,594 lf to Old Winter Beach Road, where it will connect to a recently constructed 16” reuse main in Old Winter Beach Road

- Along the length of the reuse water distribution mains, stub-outs with valves will be located at strategic locations for the future connection and distribution of reuse water to several communities, providing irrigation quality reuse water.

c. Construct a 3.0 MG reuse storage tank and a pumping facility. Optional systems that were considered are.

Scenario A: Tank and Pump not needed
Scenario C - (C-2): 1.607 MGD flow. 1115 gpm min. / 195 ft. pump capacity
Scenario D – (D-1): 4.199 MGD flow. 2915 gpm min. / 195 ft. pump capacity
Scenario D – (D-2): 1.995 MGD flow. 1385 gpm min. / 195 ft. pump capacity

Constructability

The reuse transmission and distribution mains contemplated with this preliminary engineering report and evaluation are proposed along SR A-1-A between CR 510 and Old Winter Beach Road. Right of way width is limited, and existing roadway and utility improvements limit the area available to install the reuse mains. Therefore, a detailed evaluation of the constructability of the reuse main was prepared, and it was determined that adequate area is available to install the proposed reuse mains along the east side of SR A-1-A using the directional bore method of pipe installation. This evaluation included:

1. Obtained locates from all utility providers. This is was provided by painting and flagging the location of the utilities along the route.
2. Obtained available as-builts of record from all utility providers.
3. Prepared a detailed route survey of SR A-1-A from CR 510 to Old Winter Beach Road. (by a registered land surveyor). The survey included the location of the “location paint and flags” from utility providers, topography, location of any above ground utilities and other infrastructure.
4. The physical location of existing utility infrastructure on SR A-1-A ROW was obtained. After review of utility as-builts and utility field locates, it was determined that the east side of the ROW appeared to be the least congested and best location for a new reuse main. To confirm, a licensed utility contractor was retained to excavate a 6 ft. deep trench perpendicular to the road every 750 ft. +/- and other strategic locations, from the EOP to the ROW line, along the proposed A-1-A route. The utility contractor and surveyor recorded the location and depth of all utilities encountered with each excavation, and a cross section of every location was drawn depicting the existing grade, location, depth and elevation of each utility.
5. An Engineering base plan (CAD drawing) of existing conditions along the route of A-1-A was prepared, incorporating the information and drawings obtained or created via steps 1-4 above. The base plan was evaluated to **determine the best route** for the new reuse transmission and distribution mains. The east side of SR A-1-A was confirmed to be the least congested and easiest route to construct the new reuse main.

6. Geotechnical data was obtained (borings every 750' +/-) and results confirmed that there were no deleterious materials (rock, muck, etc.) that could cause constructability issues.
7. Preliminary **construction plans** were prepared depicting the new 16" reuse Transmission main and 12" reuse Distribution main, and the location of service laterals. Due to the ROW area constraints, the reuse mains were designed to be installed by the horizontal directional bore method. This method permits the installation of polyethylene reuse main piping via a method of drilling a horizontal shaft thru the soil (approximately 5' to 8' deep) and then pulling the pipe back thru the shaft. The pipe is heat fused / butt welded to provide a long continuous pipe. A Directional bore contractor and utility contractor the engineer has consulted with has advised that this method within the sandy soils encountered along the route can be accomplished in 750 ft. pulls. This method allows the installer to avoid potential conflicts with pavement improvements or existing utilities by allowing the installer to plan and selecting bore pit locations where adequate area is available, and by boring beneath and/ or around the conflicting facilities. **Preliminary construction plans are included as an attachment to this report.**
8. A Preliminary construction **cost estimate** for the placement of the mains along the route from CR 510 to Old Winter Beach Road was prepared. (see Appendix A)

-16" Reuse Transmission Main:	$1,494,478.87
-12" Reuse distribution main/ services	$2,134,399.40
-Sea Oaks Reuse water storage and pumping facilities:	$3,053,020.00
-Surveying, engineering, permitting, administration, CAI:	$ 485,875.00
-Total Project Cost:	$7,167,773.27

Conclusion of Preliminary Engineering Report

This report provides an estimate of the potential maximum demand for reuse water from all communities on the North barrier island, from Old Winter Beach Road north to Windsor. This estimate approaches 4.2 MGD. However, the likely demand will be lower. Considering that of the 4.2 MGD estimated demand, at least 2.25 MGD of this estimated demand comes from developments / communities within the COVB utility service area. Currently the COVB provides limited amounts of reuse water to several developments (including John's Island). Some existing developments, especially those lying in the city's service area who may be able to refuse service, may not want to connect to IRCDUS reuse water. Reasons vary, but one may be the significant costs that would be realized by any development to modify its irrigation system to take reuse water. Another obstacle may be the actual cost to purchase the reuse water from IRCDUS when the perception is that groundwater and/ or surface water is free.

This report also models and estimates the reuse infrastructure capacity and has found that the reuse transmission system / pipe network could potentially deliver 4.34 MGD of reuse water (if available). However, actual capacity of the IRCDUS reuse system (the entire system) to deliver reuse water is likely lower. It will be many years before the requisite quantity of reuse water is available from the county's three WWTP's. In addition, the capacity of the Hobart reuse storage tank and pumping facility may be a limitation. The facility was designed to deliver 1.6 MGD with a 3.0 MG storage tank. Consider that if total barrier island demand reached 4.2 MGD, and existing mainland demand is 0.79 MGD (Redstick and JI West), the total demand from the Hobart facility could approach 5.0 MGD, or over 3 times its original design. Further, the transmission mains (double 12" parallel mains) that cross (and hang from) the Wabasso Bridge are older system components, and IRCDUS may not want these lines constantly running at peak capacity.

Recommendation:

It is SBS recommendation that IRCDUS plan to construct facilities that will provide for the future demand of at least 3.116 MGD of reuse water to the North Barrier Island. This flow allocation is depicted and listed in **Scenario C** in the Hydraulic modeling and is summarized as follows:

-1.964 MGD - flow to north barrier island communities within IRCDUS service area
-1.0 MGD - to JI
-0.153 MGD - to COVB service area - the Shores and River Club
3.116 MGD total

Two system models (C-2 and C-3) that were proposed with this flow allocation are favorable

1. With storage and pumps: These flow allocations have been modeled and results indicate that the allocated flows are provided with consistently high pressures with the storage tank and pump capabilities (system model C-2).

2. Without storage and pumps: While pressures drop up to 30+- psi at the furthest demand nodes, the same flows can be provided without the tank and pump (system model C-3). This may not be a desirable long-term solution. The burden will be on the Hobart tank and pumping facilities to provide pressurized reuse water to the developments/ communities on the barrier island without a backup or fail safe that the proposed Sea Oaks 3.0 MG Reuse water storage tank provides.

The improvements can be phased utilizing both system models C-2 and C-3:.

- Phase 1: Limit the construction to just transmission main and distribution main system components (the pipe network) of system C-2 (and as provided in C-3).
- Phase 2: construction of the 3.0 MG reuse storage tank and pumping facilities. IRCDUS will monitor the future growth of the reuse water demand and decide when to implement Phase 2.

The specific system recommended are the systems modeled in C-3 and C-2, implemented as a phased project. The system consists of the following:

- Phase 1 (system C-3):
  All reuse to the barrier island is fed from Hobart Tank and pumps. There is not a new tank or pumps at Sea Oaks at this time. Existing 16" transmission line on CR 510 to A-1-A, which feeds the existing 8" line north to Windsor, and feeds both a new 16" line and existing 8" line south to Sea Oaks (parallel mains). These parallel lines feed into a new 12" line that runs from Sea Oaks south to Old Winter Beach Road.

- Phase 2 (system C-2)
  From the Hobart Tank and pumps, an existing 16" transmission line runs on CR 510 to A-1-A, which feeds an existing 8" line north to Windsor (and Orchid) and feeds a new 16" line south to Sea Oaks where reuse will be stored in a new tank (3 MG). A new pump facility will pump the reuse water into the distribution lines, including an existing 8" line which runs north to Disney, and a new 12" new line which routes south to Old Winter Beach Road to feed JI, the Shores and River Club.

System C-2 is recommended as a final solution because:

- It provides high and consistent pressures throughout its service area.
- It relies on the Hobart tank and pumping facilities to deliver pressurized water to Orchid/ Windsor (1.369 MGD), which reduces the volume of reuse water going to and pumped from the new Sea Oaks reuse storage tank and pumping facility to only 1.607 MGD.
- The 3.0 MG tank will provide ample storage and buffer for a system with tank capacity at 188% of daily flow (*recommended min. storage capacity is equivalent to 100% of daily flow requirement; Dept of Army – Tech manual no. 5-813-4).
- 1.607 MGD flow requires a min. 1115 GPM pump capacity (ADF). SBS recommends that the pumping facility mimics that at the existing Hobart reuse storage tank and pumping facility. This system has (1) 250 gpm (at 195 ft.) jockey pump and (3) 850 gpm (at 195 ft.) service pumps. The system is designed to have any two of the three 850 gpm pumps in operation at one time, with a total capacity of 1700 gpm (2.4428 MGD ADF). The additional pump capacity (1700 gpm vs 1115 gpm) provides a buffer for any unanticipated peak demands caused by multiple irrigation systems unexpectantly running simultaneously
- The system can provide additional capacity (up to 3.505 MGD - reference model D-2).

<u>Additional requirements:</u>

1. Obtaining and delivery of adequate reuse water. There is an estimated 3.116 MGD potential demand from existing and proposed communities on the North Barrier Island for this system recommendation, but only 1.097 MGD available under current operating conditions. Until and/ or in addition to the anticipated future Indian River County growth (with corresponding increases in wastewater generated), IRCDUS may want to pursue the availability of other water sources, such as mixing surface waters with the reuse waters

from the IRFWCD or other sources or re-allocating the distribution of reuse water.

2. Upgrading the Hobart reuse tank and pumping facilities: Currently, approximately 1.367 MGD of Reuse water is pumped to and pumped from the Hobart facility. The Hobart facility has a current pump capacity limited to 1.60 MGD. Only a minimal increase in reuse water demand will require the addition of pump(s) / pump capacity. The estimated existing and future demand from the barrier island for the recommended system is 3.116 MGD. Hobart will need the addition of another 2400 gpm of pumping capacity.

Appendix A

Cost estimate for the construction of the North Barrier Island Reuse System Improvements

Sea Oaks 3.0 MG Ground Reuse Water Storage Tank & Pumping Facilities
Construction Cost Estimate

16" Transmission Main (C.R. 510 to Sea Oaks)	UNIT	QUANTITY	UNIT PRICE	TOTAL
Mobilization	LS	1	$ 40,000.00	$ 40,000.00
M.O.T.	LS	1	$ 12,000.00	$ 12,000.00
S.W.P.P.P.	LS	1	$ 3,000.00	$ 3,000.00
Testing	LS	1	$ 5,000.00	$ 5,000.00
Construction Stake-Out/As-Builts	LS	1	$ 6,000.00	$ 6,000.00
Restoration (Compact, Grade & Sod)	LS	1	$ 10,010.00	$ 10,010.00
16" Directional Bore/HDPE Pipe	LF	4,749	$ 219.00	$ 1,040,031.00
16" PVC Pipe	LF	30	$ 175.00	$ 5,250.00
16"x16" Tapping Sleeve	EA	1	$ 8,500.00	$ 8,500.00
16" M.J.G.V. W/(2) MJ Adaptor, (2) Long Sleeve & PVC Pipe	EA	6	$ 18,212.00	$ 109,272.00
16" M.J. 45 BD W/(2) MJ Adaptor, (1) Long Sleeve & PVC Pipe	EA	2	$ 7,516.00	$ 15,032.00
16" M.J. 90 BD W/(2) MJ Adaptor, (1) Long Sleeve & PVC Pipe	EA	2	$ 7,516.00	$ 15,032.00
16" Plug	EA	1	$ 700.00	$ 700.00
Air Release Valve (Concrete, Pipe, Saddle & Gravel)	EA	2	$ 12,900.00	$ 25,800.00
Sidewalk Demo/Replacement	SF	286	$ 7.44	$ 2,127.84
Asphalt Patch	SY	56	$ 32.00	$ 1,792.00
			Subtotal	**$ 1,299,546.84**
Contingency 15%	LS	1	$ 194,932.03	$ 194,932.03
			Subtotal	**$ 1,494,478.87**

Distribution Main & Services	UNIT	QUANTITY	UNIT PRICE	TOTAL
A. Distribution Main				
Mobilization	LS	1	$ 50,000.00	$ 50,000.00
M.O.T.	LS	1	$ 20,000.00	$ 20,000.00
S.W.P.P.P.	LS	1	$ 3,500.00	$ 3,500.00
Testing	LS	1	$ 5,000.00	$ 5,000.00
Construction Stake-Out/As-Builts	LS	1	$ 10,000.00	$ 10,000.00
Restoration (Compact, Grade & Sod)	LS	1	$ 30,030.00	$ 30,030.00
12" Directional Bore/HDPE Pipe	LF	8,594	$ 162.00	$ 1,392,228.00
12" PVC Pipe	LF	80	$ 155.00	$ 12,400.00
12" M.J.G.V. W/ (2) MJ Adaptor, (2) Long Sleeve & PVC Pipe	EA	12	$ 7,582.00	$ 90,984.00
12" Plug	EA	2	$ 500.00	$ 1,000.00
Air Release Valve (Concrete, Pipe, Saddle & Gravel)	EA	3	$ 12,900.00	$ 38,700.00
12"x12" M.J. Tee W/ (3) MJ Adaptor, (2) Long Sleeve & PVC Pipe	EA	2	$ 7,640.00	$ 15,280.00
12" 90 Deg. Bend W/(2) MJ Adaptor, (1) Long Sleeve & PVC Pipe	EA	2	$ 5,280.00	$ 10,560.00
12" 45 Deg. Bend W/(2) MJ Adaptor, (1) Long Sleeve & PVC Pipe	EA	1	$ 5,280.00	$ 5,280.00
B. Distribution Services				
Short Service (Proposed) - Assume 6"	EA	1	$ 6,500.00	$ 6,500.00
Short Service (On Existing) - Assume 6"	EA	2	$ 8,000.00	$ 16,000.00
Long Service (Proposed) - Assume 6"	EA	2	$ 17,000.00	$ 34,000.00
Long Service (On Existing) - Assume 6"	EA	2	$ 18,500.00	$ 37,000.00
6" 90 Deg. Bend W/(2) MJ Adaptor, (1) Long Sleeve & PVC Pipe	EA	8	$ 4,350.00	$ 34,800.00
6" 45 Deg. Bend W/(2) MJ Adaptor, (1) Long Sleeve & PVC Pipe	EA	4	$ 4,350.00	$ 17,400.00
6" PVC Pipe	LF	225	$ 75.00	$ 16,875.00
Sidewalk Demo/Replacement	SF	1017	$ 7.44	$ 7,566.48
Asphalt Patch	SY	28	$ 32.00	$ 896.00
			Subtotal	**$ 1,855,999.48**
Contingency 15%	LS	1	$ 278,399.92	$ 278,399.92
			Subtotal	**$ 2,134,399.40**

Sea Oaks Tank & Pump Station	UNIT	QUANTITY	UNIT PRICE	TOTAL
Mobilization	LS	1	$ 60,000.00	$ 60,000.00
S.W.P.P.P.	LS	1	$ 5,000.00	$ 5,000.00
Testing	LS	1	$ 10,000.00	$ 10,000.00
Construction Stake-Out/As-Builts	LS	1	$ 15,000.00	$ 15,000.00
3.0 MG Pre-Stressed Concrete Tank & Foundation *	LS	1	$ 1,400,000.00	$ 1,400,000.00
Packaged Pump Station **	LS	1	$ 695,000.00	$ 695,000.00
Site Clearing & Preparation	LS	1	$ 62,780.00	$ 62,780.00
Yard Piping	LS	1	$ 148,300.00	$ 148,300.00
Drainage System & Final Grading	LS	1	$ 41,460.00	$ 41,460.00
Electrical	LS	1	$ 27,250.00	$ 27,250.00
Monitoring & Control	LS	1	$ 33,170.00	$ 33,170.00

Paved Parking & Driveway	LS	1	$ 51,170.00	$ 51,170.00
Landscape & Irrigation	LS	1	$ 14,810.00	$ 14,810.00
Project Documents & Closeout	LS	1	$ 5,100.00	$ 5,100.00
Misc./Incidental Construction	LS	1	$ 85,760.00	$ 85,760.00
			Subtotal	**$ 2,654,800.00**
Contingency 15%	LS	1	$ 398,220.00	$ 398,220.00
			Subtotal	**$ 3,053,020.00**

* 3.0 MG Pre-Stressed Concrete Tank & Foundation Includes:
- Pre-Stress/Shotcrete Walls
- 4" Membrane Slab
- Concrete Dome
- Standard Accessories
- Exterior Paint
- Excludes Site Work, Piping, Interior Coatings & Baffling

** Pump Station Package Includes:
- 41'x14' Enclosed Structure
- (1) 250 GPM Pump
- (3) 850 GPM Pumps
- Provisions to Add (Future) (2) 1700 GPM Pumps

Extension of Reuse Main - OWBR to JI Exist. Pump Station	**UNIT**	**QUANTITY**	**UNIT PRICE**	**TOTAL**
Mobilization	LS	1	$ 5,000.00	$ 5,000.00
MOT	LS	1	$ 2,350.00	$ 2,350.00
12" DB HDPE	LF	1000	$ 162.00	$ 162,000.00
12" MJGV*	EA	1	$ 7,582.00	$ 7,582.00
12" MJ PUG	EA	1	$ 500.00	$ 500.00
12" 90 MJ BD*	EA	1	$ 5,280.00	$ 5,280.00
Restoarion	LS	1	$ 3,000.00	$ 3,000.00
Sidewalk demo/repair	SF	200	$ 7.44	$ 1,488.00
Testing	LS	1	$ 1,500.00	$ 1,500.00
Survey / as-builts	LS	1	$ 1,500.00	$ 1,500.00
			Subtotal	**$ 190,200.00**
Contingency 15%	LS	1	$ 28,530.00	$ 28,530.00
			Subtotal	**$ 218,730.00** **

*Includes (2) MJ adaptors (2) long sleeves and PVC pipe

**This number does not include surveying, engineering design or permitting. It has been represented that JI has prepared a plan for this 12" reuse main extension. Cost for CAI is assumed to be covred in the estmated costs for the other reuse main improvements.

Construction Grand Total	**$ 6,900,628.27**

Engineering/Professional	**UNIT**	**QUANTITY**	**UNIT PRICE**	**TOTAL**
Engineering/Surveying Design	LS	1	$ 350,000.00	$ 350,000.00
Inspections/Certifications	LS	1	$ 50,000.00	$ 50,000.00
Permit Application/Costs	LS	1	$ 22,500.00	$ 22,500.00
			Subtotal	**$ 422,500.00**
Contingency 15%	LS	1	$ 63,375.00	$ 63,375.00
			Subtotal	**$ 485,875.00**

Transmission Main Sub-Total	$ 1,494,478.87
Distribution Main & Service Sub-Total	$ 2,134,399.40
Tank & Pump Sub-Total	$ 3,053,020.00
OWBR to JI Exist. Pump Station Extension	$ 218,730.00
Engineering/Professional Sub-Total	$ 485,875.00
Grand Total	$ 7,386,503.27

Appendix B

Service Area Evaluation

(Estimated Reuse Water Demands)

Appendix B
Service Area Evaluation
(Estimated Reuse Water Demands)

18-122 IRCDUS A1A Re-Use Main Analysis

CR 510 North to Windsor - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
270	4	Windsor	9/3/2013	10/11/2013	4/13/2019	Issued	230.78	98.5		241.4	416	142.9	34.4	1.69	0.6614	459.285	24
270	4	Windsor	9/3/2013	10/11/2013	4/13/2019	Issued	230.78	142.9	Surface								
260	9	Orchid Island	2/20/2013	3/20/2013	3/7/2020	Issued	278.2	100.4		258.2	436	278	63.8	0.93	0.7074	491.248	22
260	9	Orchid Island	2/20/2013	3/20/2013	3/7/2020	Issued	278.2	157.8	Surface								
									TOTAL	499.6							
										1.369	MGD						

CR 510 East to West - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
10001	4	Old Orchid Grove	10/25/2001	5/20/2002	5/20/2022	Issued	10.99	1.5		11.1	39.17	10.99	28.1	1.01	0.0304	21.119	150
10001	4	Old Orchid Grove	10/25/2001	5/20/2002	5/20/2022	Issued	10.99	9.6	Surface								
82406	2	Marsh Island	6/7/2012	7/10/2012	6/15/2022	Issued	8.57	4		12.52	27.2	8.52	31.3	1.47	0.0343	23.820	46
82406	2	Marsh Island	6/7/2012	7/10/2012	6/15/2022	Issued	8.57	8.52	Surface								
2373		Environmental Learning Center		7/30/2001				2.76		2.76	51	4.6	9.0	0.60	0.0076	5.251	139
N/A		Season's at Orchid								12.79	36.03	12.79	35.5	1.00	0.0350	24.332	15
N/A		Orchid Cove (fka Micahel Creek)								8.70	26.43	8.7	32.9	1.00	0.0238	16.553	148
N/A		Lewis Jungle Trail & 510								3.64	10.4	3.64	35.0	1.00	0.0100	6.925	155
									TOTAL	51.509							
										0.141	MGD						

CR 510 South to IRCDUS Southern Limit of Service - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
4459	3	Disney's Vero Beach Resort	5/23/2002	6/28/2002	6/28/2022	Issued	8	1.4	Surface	7	22	8	36.4	0.88	0.0192	13.32	17
4459	3	Disney's Vero Beach Resort	5/23/2002	6/28/2002	6/28/2022	Issued	8	5.6									
N/A		Disney West								9.10	26	9.10	35.0	1.00	0.0249	17.31	140
N/A		Coralstone								5.60	16	5.60	35.0	1.00	0.0153	10.65	141
N/A		North Shore Club								3.45	9.85	3.45	35.0	1.00	0.0094	6.56	143
N/A		Bermuda Club								12.67	36.2	12.67	35.0	1.00	0.0347	24.11	144
2351	4	Sea Oaks	1/28/2013	2/28/2013	2/18/2023	Issued	71	25.9	Surface	71.7	126	73	57.9	0.98	0.1964	136.42	16
2351	4	Sea Oaks	1/28/2013	2/28/2013	2/18/2023	Issued	71	45.8									
N/A		Grand Harbor Club								1.61	4.6	1.61	35.0	1.00	0.0044	3.06	146
67589	2	Island Club	10/29/2003	10/29/2003	2/6/2021	Issued	45.4	9.09		45.47	97.1	45.4	46.8	1.00	0.1246	86.51	13
67589	2	Island Club	10/29/2003	10/29/2003	2/6/2021	Issued	45.4	36.38	Surface								
2238	2	Baytree Condo	11/12/1998	12/30/1998	12/30/2018	Issued	9.7	9		9	28.6	9.7	33.9	0.93	0.0247	17.12	9
									TOTAL	165.5975							
										0.454	MGD						

IRCDUS = 1.964 MGD

CR 510 South to John's Island - COVB

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #	
5708	5	Marbrisa Homeowners Association	11/12/2014	11/19/2014	11/19/2024	Issued	35	36.6		36.6	71.5	35	49.0	1.05	0.1003	69.63	N/A	
N/A		Sea Colony West								1.40	4	1.40	35.0	1.00	0.0038	2.66	N/A	
N/A		Sea Colony East								3.08	8.8	3.08	35.0	1.00	0.0084	5.86	N/A	
N/A		Avalon								2.99	8.54	2.99	35.0	1.00	0.0082	5.69	N/A	
50295	3	Indian Trails	8/17/2018	8/28/2018	8/28/2038	Issued	13	3.2	Surface	35.5	76	16	21.1	2.22	0.0973	67.54	N/A	
50295	3	Indian Trails	8/17/2018	8/28/2018	8/28/2038	Issued	13	32.3										
N/A		Ocean Pearl East								4.53	12.95	4.53	35.0	1.00	0.0124	8.62	N/A	
N/A		Ocean Pearl West								3.48	9.94	3.48	35.0	1.00	0.0095	6.62	N/A	
N/A		The Strand								11.80	33.71	11.80	35.0	1.00	0.0323	22.45	N/A	
N/A		8050 Ocean								1.61	4.61	1.61	35.0	1.00	0.0044	3.07	N/A	
N/A		Palm Island Plantation								19.80	56.56	19.80	35.0	1.00	0.0542	37.66	N/A	
N/A		Carlton Vero Beach								5.30	15.13	5.30	35.0	1.00	0.0145	10.08	N/A	
70018	2	Carlton River Club	7/5/2017	7/20/2017	5/22/2022	Issued	28	9.8		28.5	135	28.19	20.9	1.01	0.0781	54.22	157	
70018	2	Carlton River Club	7/5/2017	7/20/2017	5/22/2022	Issued	28	18.7	Surface									
130735	1	The Shores	6/7/2012	7/9/2012	7/5/2032	Issued	38.2	10.74		27.31	71.2	38.20	53.7	0.71	0.0748	51.96	156	
130735	1	The Shores	6/7/2012	7/9/2012	7/5/2032	Issued	38.2	16.57	Surface									
2361	7	John's Island (Ltr Mod)	4/5/2011	10/15/2012	7/2/2030	Issued	625.2	39.87	Surface	386.23		625	#DIV/0!	0.62	1.0582	734.84	N/A	
2361	7	John's Island (Ltr Mod)	4/5/2011	10/15/2012	7/2/2030	Issued	625.2	136.66										
2361	7	John's Island (Ltr Mod)	4/5/2011	10/15/2012	7/2/2030	Issued	625.2	209.7										JI only
9665	9	Johns Island Club	3/9/2015	6/11/2015	6/9/2035	Issued	226.2	20		255.1		227	#DIV/0!	1.12	0.6989	485.35	N/A	1.76 MGD
9665	9	Johns Island Club	3/9/2015	6/11/2015	6/9/2035	Issued	226.2	55.89	Surface									
9665	9	Johns Island Club	3/9/2015	6/11/2015	6/9/2035	Issued	226.2	179.21	Surface									
									TOTAL	823.224								
										2.255	MGD							

IRCDUS + JI + COVB = 4.219 MGD

Notes & Legend:
- ASSUMED 35% GROSS AREA IRRIGATED
- ASSUMED 1.0 MGY/ACRE
- ASSUMED 1.0 MGY/AC * IRRIGATION AREA
- ASSUMED IRRIGATION AREA (SEASONS) = PERVIOUS AREA (SEE ATTACHED SITE PLAN BY KHA) * 70%
- ASSUMED IRRIGATION AREA (ORCHID COVE - SEE "MICHAEL CREEK" SITE PLAN BY SBS) = (LOTS * 40%) + RECREATION / LANDSCAPE / COMMON TRACTS

Appendix C

WaterCAD Model Results

Scenario A: This models the current IRCDUS flow allocation (using data from December 2017 to November 2018. (Total flow allocation of **1.097 MGD**: current 0.585 MGD flow to north barrier island, and available 0.512 MGD, diverted from the man made wetlands to JI):

System A-1: p. EX-01
System A-2: p. EX-02
System A-3: p. EX-03

Scenario B: This models an estimated flow allocation for all current and potential future reuse customers within the IRCDUS service area and additional flow to the John's Island development. The basis of the flow allocation was estimated to be the sum of: the flow allocations of all developments with an existing SJRWMD CUP, plus an estimated flow allocation of 1.0 MGY per acre of irrigated area for developments without a SJRWMD CUP, plus 1.0 MGD flow allocation for John's Island development. (Total flow allocation of **2.964 MGD**: estimated 1.964 MGD flow to north barrier island communities within IRCDUS service area, and an additional 1.0 MGD to JI):

System B-1: p. EX-04
System B-2: p. EX-05
System B-3: p. EX-06

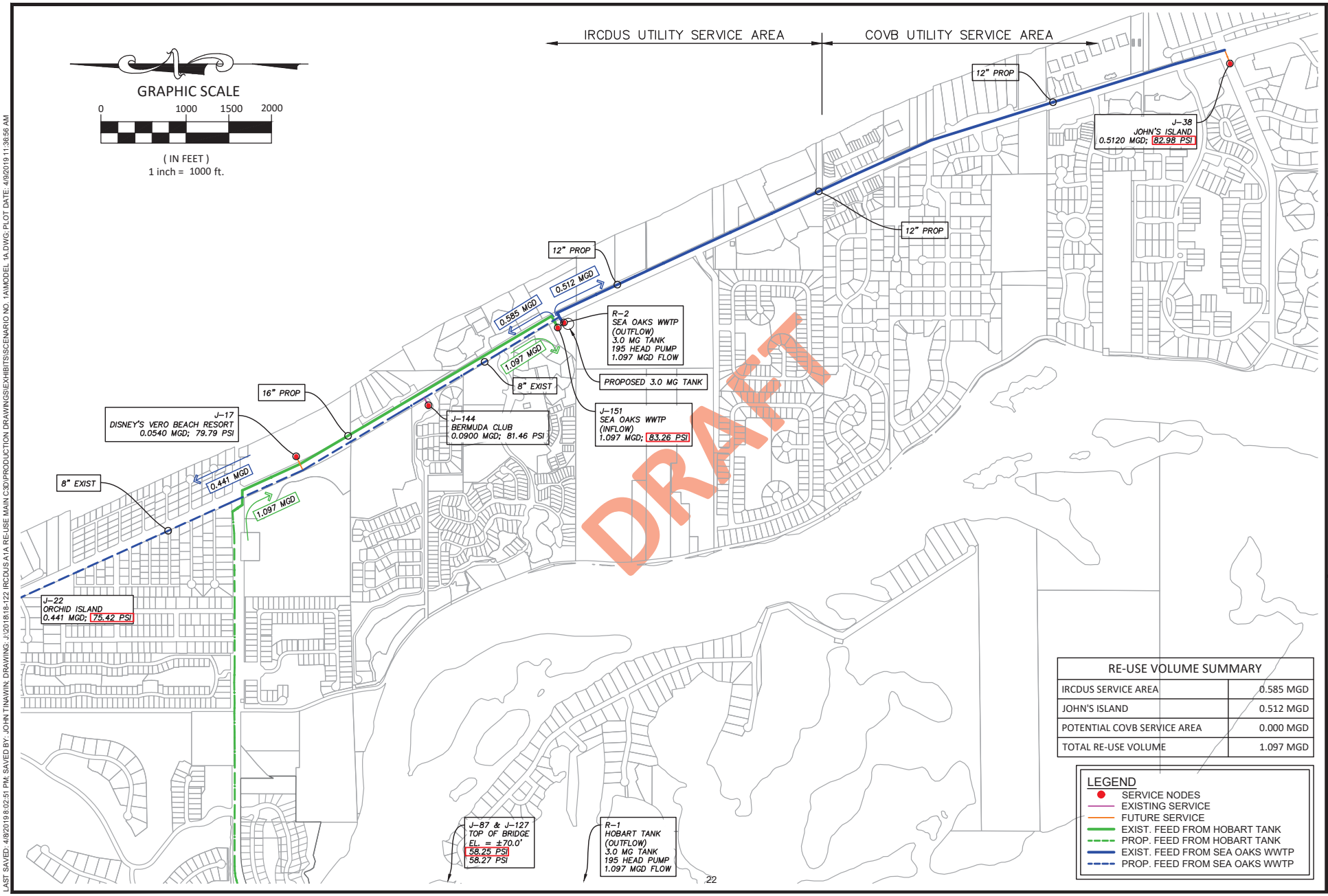
Scenario C: This models the same estimated flow allocation as Scenario B, plus an additional flow allocation into the COVB service area for the Shores and River Club developments (Total flow allocation of 3.116 MGD: estimated 1.964 MGD flow to north barrier island communities within IRCDUS service area, additional 1.0 MGD to JI, and an additional 0.153 MGD to COVB service area - the Shores and River Club):

System C-1: p. EX-07
System C-2: p. EX-08
System C-3: p. EX-09

Scenario D: This models the same estimated flow allocation as Scenario C, plus additional flow allocations into the COVB service area until the system failed. The purpose was to estimate the maximum capacity of the transmission and distribution system on the North barrier Island (Additional flows were incrementally increased in each version D-1, D-2 or D-3 below, until the system failed to deliver flows at adequate pressures. Failure was considered to be a pressure below the following: 10 psi at the top of the Wabasso bridge, 15 psi at the Sea Oaks tank, or 5 psi at Windsor). The total flow allocation varies per model below, and included an estimated 1.964 MGD flow to north barrier island communities within IRCDUS service area, additional 1.0 MGD to JI, an additional 0.153 MGD for the Shores and River Club, and additional flow allocation for the COVB service area determined below:

System D-1: p. EX-10
System D-2: p. EX-11
System D-3: p. EX-12

*See pp. 6-9 for detailed explanation of systems A-1 to A-3, B-1 to B-3, C-1 to C-3, and D-1 to D-1, and see applicable graphics on pp. EX-01 to EX-12 in this appendix.



SYSTEM A-1
W/ DISTRIBUTION SYSTEM
FROM WINDSOR TO J.I.

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A1A REUSE MAIN

EX-01

18-122 IRCDUS A1A Re-Use Main Analysis - APPLICABLE FOR SYSTEMS A-1, A-2 & A-3

CR 510 North to Windsor - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
260	9	Orchid Island								160.97					0.4410	306.250	22
									TOTAL	160.965							
										0.441	MGD						

CR 510 East to West - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
									TOTAL	0							
										0.000	MGD						

CR 510 South to IRCDUS Southern Limit of Service - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
		Disney's Vero Beach Resort								19.71					0.0540	37.50	17
		Bermuda Club								32.85					0.0900	62.50	144
									TOTAL	52.56							
										0.144	MGD						

IRCDUS: 0.585 MGD

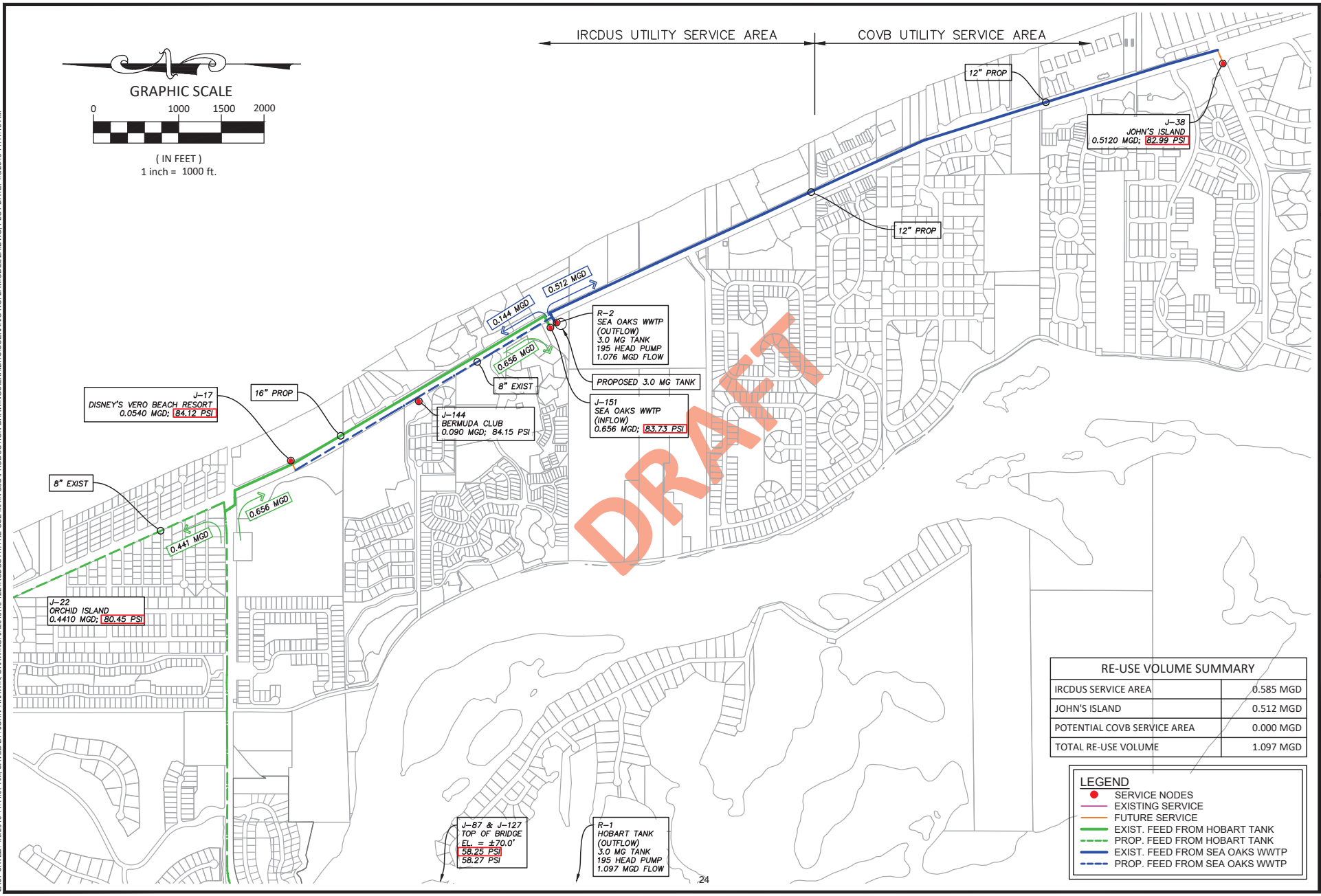
John's Island & COVB

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
		John's Island								186.88					0.5120	355.56	38
									TOTAL	186.88							
										0.512	MGD						

Notes & Legend:

1. ALL "ALLOCATIONS" ARE CURRENT / EXISTING DEMANDS

IRCDUS + JI: 1.097 MGD



SYSTEM A-2
W/ DISTRIBUTION SYSTEM
FROM DISNEY TO J.I.

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A1A REUSE MAIN

EX-02

18-122 IRCDUS A1A Re-Use Main Analysis - APPLICABLE FOR SYSTEMS A-1, A-2 & A-3

CR 510 North to Windsor - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
260	9	Orchid Island								160.97					0.4410	306.250	22
									TOTAL	160.965							
										0.441	MGD						

CR 510 East to West - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
									TOTAL	0							
										0.000	MGD						

CR 510 South to IRCDUS Southern Limit of Service - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
		Disney's Vero Beach Resort								19.71					0.0540	37.50	17
		Bermuda Club								32.85					0.0900	62.50	144
									TOTAL	52.56							
										0.144	MGD						

IRCDUS: 0.585 MGD

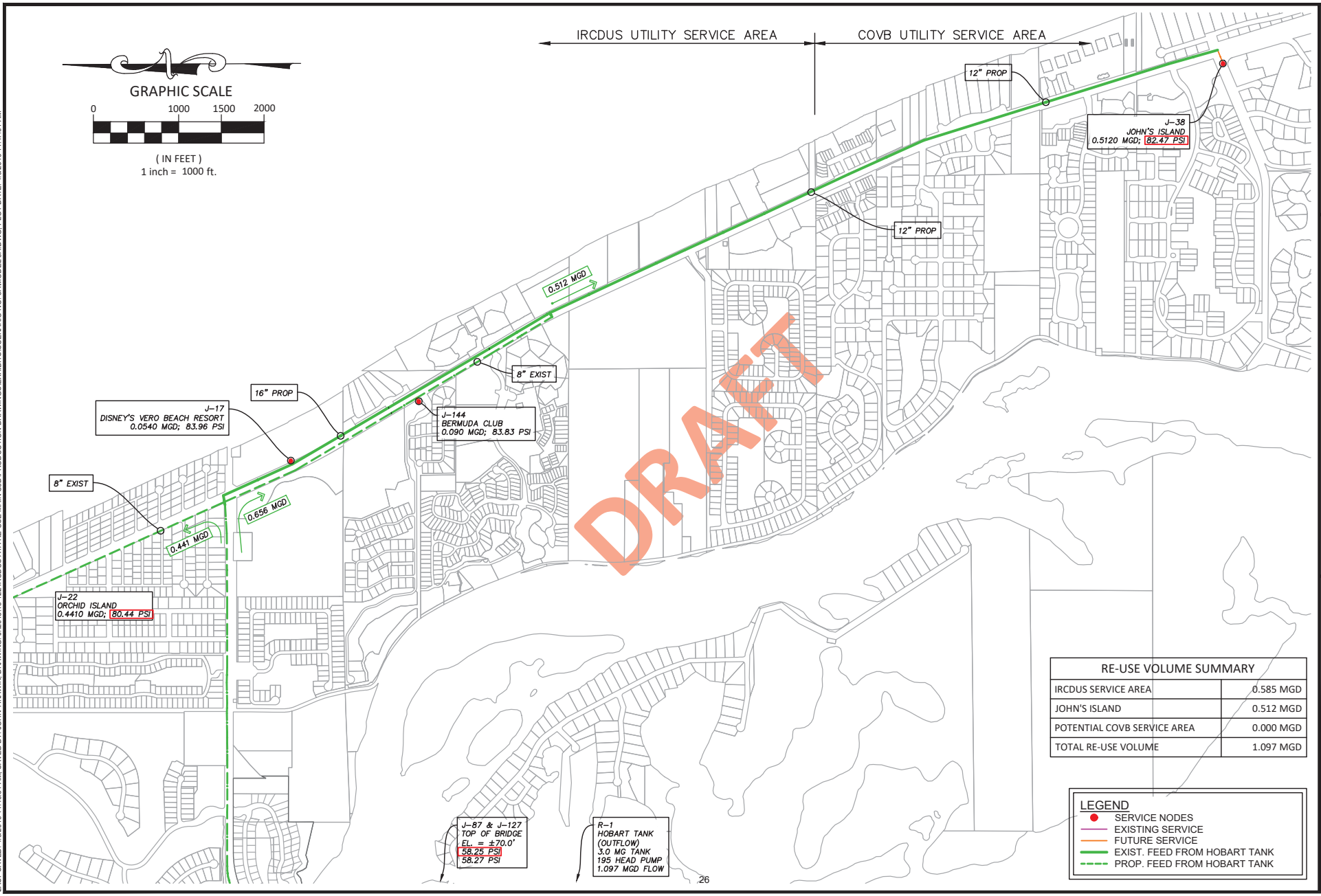
John's Island & COVB

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
		John's Island								186.88					0.5120	355.56	38
									TOTAL	186.88							
										0.512	MGD						

Notes & Legend:

1. ALL "ALLOCATIONS" ARE CURRENT / EXISTING DEMANDS

IRCDUS + JI: 1.097 MGD



SYSTEM A-3
W/O DISTRIBUTION SYSTEM
@ SEA OAKS

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A1A REUSE MAIN

EX-03

18-122 IRCDUS A1A Re-Use Main Analysis - APPLICABLE FOR SYSTEMS A-1, A-2 & A-3

CR 510 North to Windsor - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
260	9	Orchid Island								160.97					0.4410	306.250	22
									TOTAL	160.965							
										0.441	MGD						

CR 510 East to West - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
									TOTAL	0							
										0.000	MGD						

CR 510 South to IRCDUS Southern Limit of Service - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
		Disney's Vero Beach Resort								19.71					0.0540	37.50	17
		Bermuda Club								32.85					0.0900	62.50	144
									TOTAL	52.56							
										0.144	MGD						

IRCDUS: 0.585 MGD

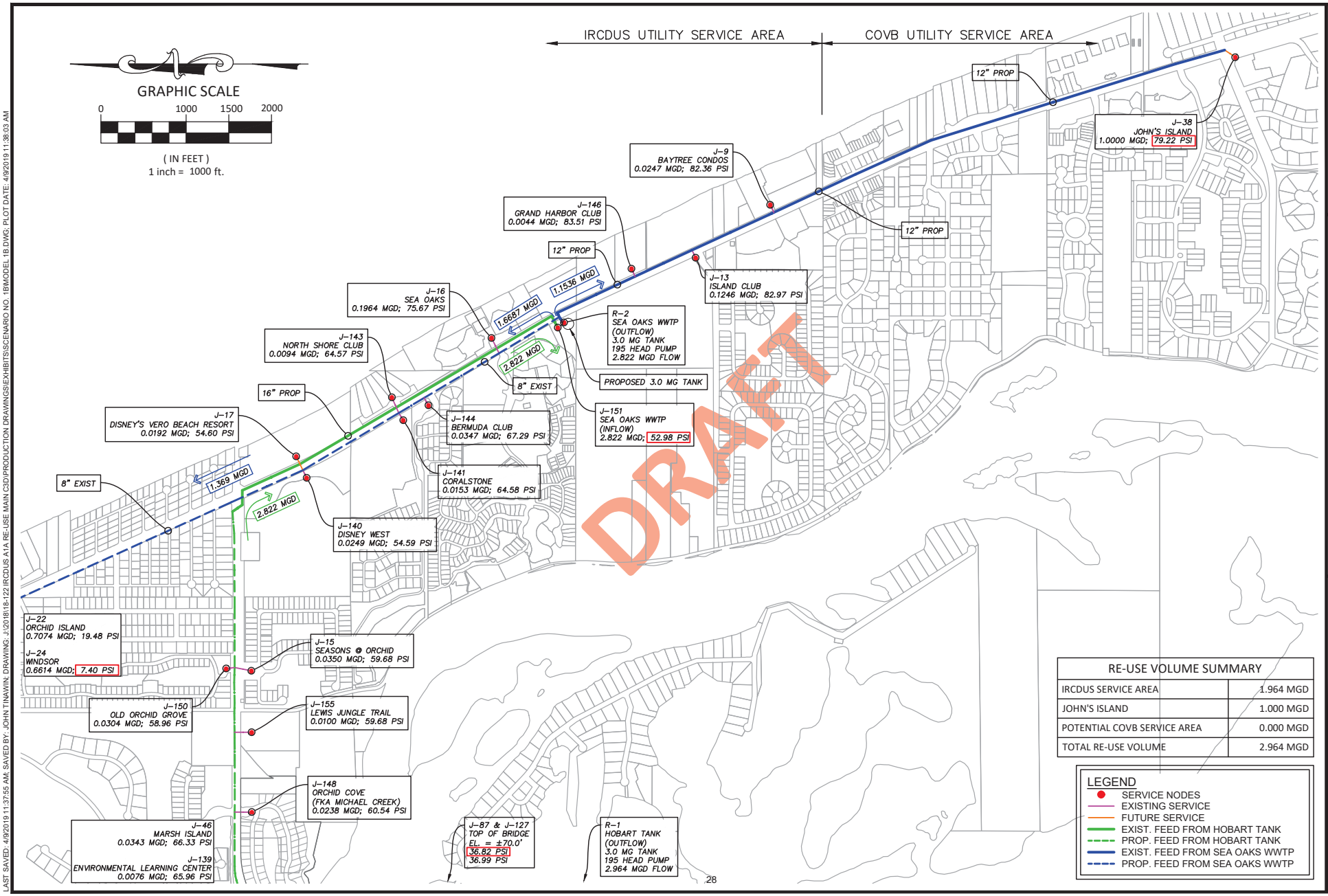
John's Island & COVB

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
		John's Island								186.88					0.5120	355.56	38
									TOTAL	186.88							
										0.512	MGD						

Notes & Legend:

1. ALL "ALLOCATIONS" ARE CURRENT / EXISTING DEMANDS

IRCDUS + JI: 1.097 MGD



RE-USE VOLUME SUMMARY	
IRCDUS SERVICE AREA	1.964 MGD
JOHN'S ISLAND	1.000 MGD
POTENTIAL COVB SERVICE AREA	0.000 MGD
TOTAL RE-USE VOLUME	2.964 MGD

LEGEND
- SERVICE NODES
- EXISTING SERVICE
- FUTURE SERVICE
- EXIST. FEED FROM HOBART TANK
- PROP. FEED FROM HOBART TANK
- EXIST. FEED FROM SEA OAKS WWTP
- PROP. FEED FROM SEA OAKS WWTP

SYSTEM B-1
W/ DISTRIBUTION SYSTEM
FROM WINDSOR TO J.I.

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A1A REUSE MAIN

EX-04

18-122 IRCDUS A1A Re-Use Main Analysis - APPLICABLE FOR SYSTEMS B-1, B-2 & B-3

CR 510 North to Windsor - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
270	4	Windsor	9/3/2013	10/11/2013	4/13/2019	Issued	230.78	98.5		241.4	416	142.9	34.4	1.69	0.6614	459.285	24
270	4	Windsor	9/3/2013	10/11/2013	4/13/2019	Issued	230.78	142.9	Surface								
260	9	Orchid Island	2/20/2013	3/20/2013	3/7/2020	Issued	278.2	100.4		258.2	436	278	63.8	0.93	0.7074	491.248	22
260	9	Orchid Island	2/20/2013	3/20/2013	3/7/2020	Issued	278.2	157.8	Surface								
									TOTAL	499.6							
										1.369	MGD						

CR 510 East to West - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
10001	4	Old Orchid Grove	10/25/2001	5/20/2002	5/20/2022	Issued	10.99	1.5		11.1	39.17	10.99	28.1	1.01	0.0304	21.119	150
10001	4	Old Orchid Grove	10/25/2001	5/20/2002	5/20/2022	Issued	10.99	9.6	Surface								
82406	2	Marsh Island	6/7/2012	7/10/2012	6/15/2022	Issued	8.57	4		12.52	27.2	8.52	31.3	1.47	0.0343	23.820	46
82406	2	Marsh Island	6/7/2012	7/10/2012	6/15/2022	Issued	8.57	8.52	Surface								
2373		Environmental Learning Center		7/30/2001				2.76		2.76	51	4.6	9.0	0.60	0.0076	5.251	139
N/A		Season's at Orchid								12.79	36.03	12.79	35.5	1.00	0.0350	24.332	15
N/A		Orchid Cove (fka Micahel Creek)								8.70	26.43	8.7	32.9	1.00	0.0238	16.553	148
N/A		Lewis Jungle Trail & 510								3.64	10.4	3.64	35.0	1.00	0.0100	6.925	155
									TOTAL	51.509							
										0.141	MGD						

CR 510 South to IRCDUS Southern Limit of Service - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
4459	3	Disney's Vero Beach Resort	5/23/2002	6/28/2002	6/28/2022	Issued	8	1.4	Surface	7	22	8	36.4	0.88	0.0192	13.32	17
4459	3	Disney's Vero Beach Resort	5/23/2002	6/28/2002	6/28/2022	Issued	8	5.6									
N/A		Disney West								9.10	26	9.10	35.0	1.00	0.0249	17.31	140
N/A		Coralstone								5.60	16	5.60	35.0	1.00	0.0153	10.65	141
N/A		North Shore Club								3.45	9.85	3.45	35.0	1.00	0.0094	6.56	143
N/A		Bermuda Club								12.67	36.2	12.67	35.0	1.00	0.0347	24.11	144
2351	4	Sea Oaks	1/28/2013	2/28/2013	2/18/2023	Issued	71	25.9	Surface	71.7	126	73	57.9	0.98	0.1964	136.42	16
2351	4	Sea Oaks	1/28/2013	2/28/2013	2/18/2023	Issued	71	45.8									
N/A		Grand Harbor Club								1.61	4.6	1.61	35.0	1.00	0.0044	3.06	146
67589	2	Island Club	10/29/2003	10/29/2003	2/6/2021	Issued	45.4	9.09		45.47	97.1	45.4	46.8	1.00	0.1246	86.51	13
67589	2	Island Club	10/29/2003	10/29/2003	2/6/2021	Issued	45.4	36.38	Surface								
2238	2	Baytree Condo	11/12/1998	12/30/1998	12/30/2018	Issued	9.7	9		9	28.6	9.7	33.9	0.93	0.0247	17.12	9
									TOTAL	165.5975							
										0.454	MGD						

IRCDUS: 1.964 MGD

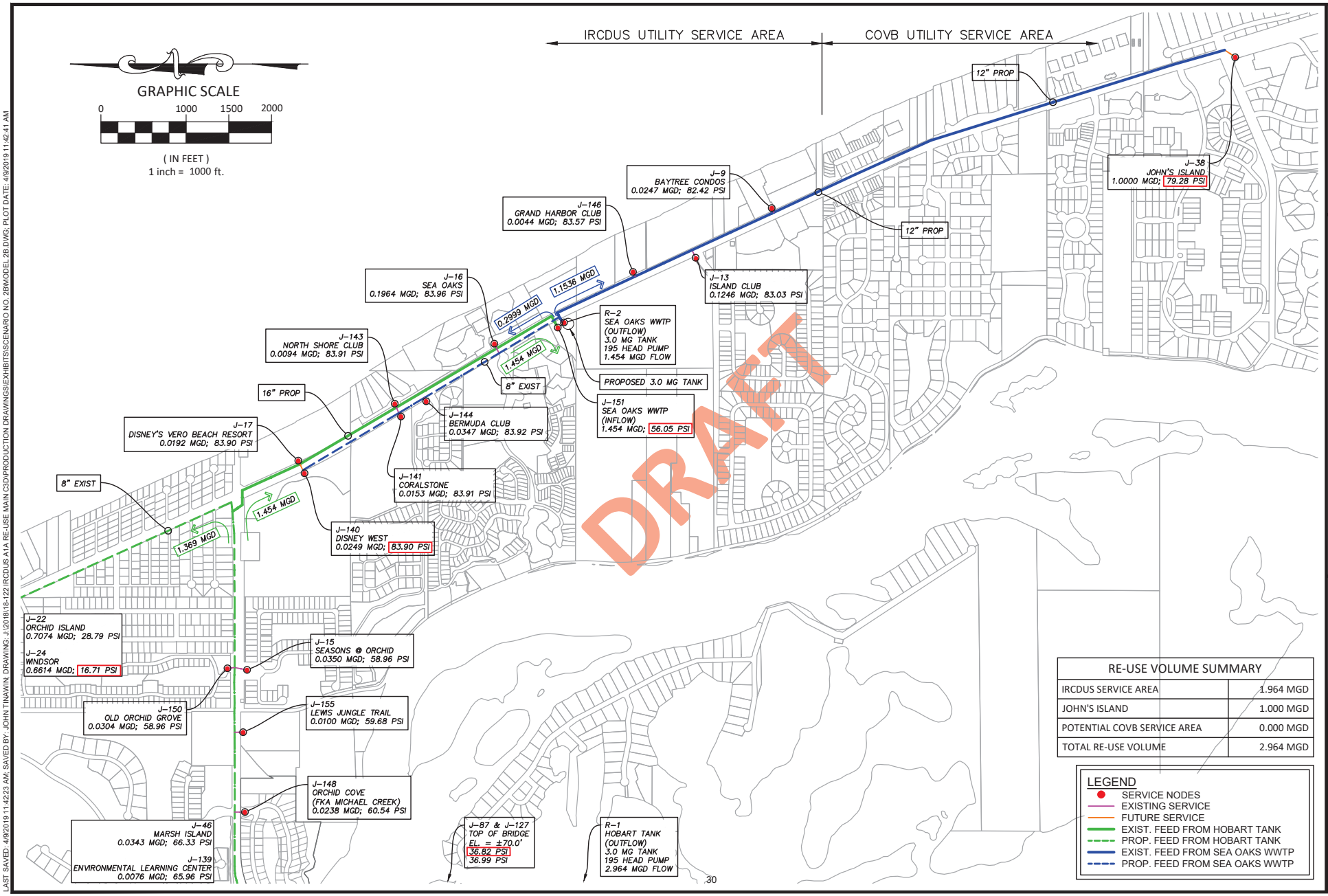
John's Island & COVB

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
		John's Island								365.00					1.0000	694.44	38
									TOTAL	365.00							
										1.000	MGD						

IRCDUS + JI: 2.964 MGD

Notes & Legend:

- ASSUMED 35% GROSS AREA IRRIGATED
- ASSUMED 1.0 MGY/ACRE
- = ASSUMED 1.0 MGY/AC * IRRIGATION AREA
- ASSUMED IRRIGATION AREA (SEASONS) = PERVIOUS AREA (SEE ATTACHED SITE PLAN BY KHA) * 70%
- ASSUMED IRRIGATION AREA (ORCHID COVE - SEE "MICHAEL CREEK" SITE PLAN BY SBS) = (LOTS * 40%) + RECREATION / LANDSCAPE
- 1.0 MGD ALLOCATION FOR JOHN'S ISLAND



SYSTEM B-2
W/ DISTRIBUTION SYSTEM
FROM DISNEY TO J.I.

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A1A REUSE MAIN

EX-05

18-122 IRCDUS A1A Re-Use Main Analysis - APPLICABLE FOR SYSTEMS B-1, B-2 & B-3

CR 510 North to Windsor - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
270	4	Windsor	9/3/2013	10/11/2013	4/13/2019	Issued	230.78	98.5		241.4	416	142.9	34.4	1.69	0.6614	459.285	24
270	4	Windsor	9/3/2013	10/11/2013	4/13/2019	Issued	230.78	142.9	Surface								
260	9	Orchid Island	2/20/2013	3/20/2013	3/7/2020	Issued	278.2	100.4		258.2	436	278	63.8	0.93	0.7074	491.248	22
260	9	Orchid Island	2/20/2013	3/20/2013	3/7/2020	Issued	278.2	157.8	Surface								
									TOTAL	499.6							
										1.369	MGD						

CR 510 East to West - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
10001	4	Old Orchid Grove	10/25/2001	5/20/2002	5/20/2022	Issued	10.99	1.5		11.1	39.17	10.99	28.1	1.01	0.0304	21.119	150
10001	4	Old Orchid Grove	10/25/2001	5/20/2002	5/20/2022	Issued	10.99	9.6	Surface								
82406	2	Marsh Island	6/7/2012	7/10/2012	6/15/2022	Issued	8.57	4		12.52	27.2	8.52	31.3	1.47	0.0343	23.820	46
82406	2	Marsh Island	6/7/2012	7/10/2012	6/15/2022	Issued	8.57	8.52	Surface								
2373		Environmental Learning Center		7/30/2001				2.76		2.76	51	4.6	9.0	0.60	0.0076	5.251	139
N/A		Season's at Orchid								12.79	36.03	12.79	35.5	1.00	0.0350	24.332	15
N/A		Orchid Cove (fka Micahel Creek)								8.70	26.43	8.7	32.9	1.00	0.0238	16.553	148
N/A		Lewis Jungle Trail & 510								3.64	10.4	3.64	35.0	1.00	0.0100	6.925	155
									TOTAL	51.509							
										0.141	MGD						

CR 510 South to IRCDUS Southern Limit of Service - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
4459	3	Disney's Vero Beach Resort	5/23/2002	6/28/2002	6/28/2022	Issued	8	1.4	Surface	7	22	8	36.4	0.88	0.0192	13.32	17
4459	3	Disney's Vero Beach Resort	5/23/2002	6/28/2002	6/28/2022	Issued	8	5.6									
N/A		Disney West								9.10	26	9.10	35.0	1.00	0.0249	17.31	140
N/A		Coralstone								5.60	16	5.60	35.0	1.00	0.0153	10.65	141
N/A		North Shore Club								3.45	9.85	3.45	35.0	1.00	0.0094	6.56	143
N/A		Bermuda Club								12.67	36.2	12.67	35.0	1.00	0.0347	24.11	144
2351	4	Sea Oaks	1/28/2013	2/28/2013	2/18/2023	Issued	71	25.9	Surface	71.7	126	73	57.9	0.98	0.1964	136.42	16
2351	4	Sea Oaks	1/28/2013	2/28/2013	2/18/2023	Issued	71	45.8									
N/A		Grand Harbor Club								1.61	4.6	1.61	35.0	1.00	0.0044	3.06	146
67589	2	Island Club	10/29/2003	10/29/2003	2/6/2021	Issued	45.4	9.09		45.47	97.1	45.4	46.8	1.00	0.1246	86.51	13
67589	2	Island Club	10/29/2003	10/29/2003	2/6/2021	Issued	45.4	36.38	Surface								
2238	2	Baytree Condo	11/12/1998	12/30/1998	12/30/2018	Issued	9.7	9		9	28.6	9.7	33.9	0.93	0.0247	17.12	9
									TOTAL	165.5975							
										0.454	MGD						

IRCDUS: 1.964 MGD

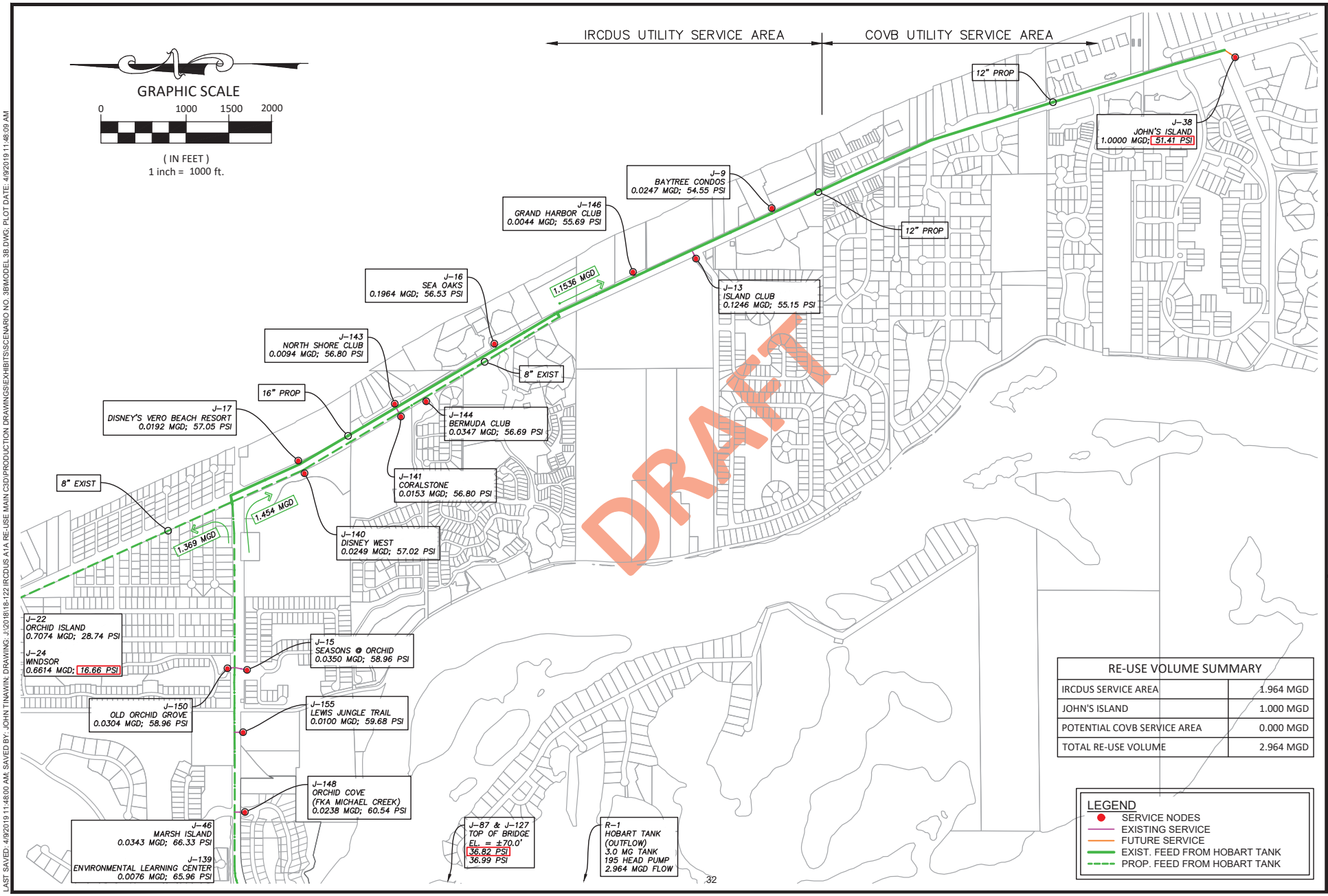
John's Island & COVB

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
		John's Island								365.00					1.0000	694.44	38
									TOTAL	365.00							
										1.000	MGD						

IRCDUS + JI: 2.964 MGD

Notes & Legend:

- ASSUMED 35% GROSS AREA IRRIGATED
- ASSUMED 1.0 MGY/ACRE
- = ASSUMED 1.0 MGY/AC * IRRIGATION AREA
- ASSUMED IRRIGATION AREA (SEASONS) = PERVIOUS AREA (SEE ATTACHED SITE PLAN BY KHA) * 70%
- ASSUMED IRRIGATION AREA (ORCHID COVE - SEE "MICHAEL CREEK" SITE PLAN BY SBS) = (LOTS * 40%) + RECREATION / LANDSCAPE
- 1.0 MGD ALLOCATION FOR JOHN'S ISLAND



SYSTEM B-3
W/O DISTRIBUTION SYSTEM
@ SEA OAKS

SCHULKE, BITTLE & STODDARD, L.L.C.
CIVIL & STRUCTURAL ENGINEERING • LAND PLANNING • ENVIRONMENTAL PERMITTING
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A1A REUSE MAIN

EX-06

18-122 IRCDUS A1A Re-Use Main Analysis - APPLICABLE FOR SYSTEMS B-1, B-2 & B-3

CR 510 North to Windsor - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
270	4	Windsor	9/3/2013	10/11/2013	4/13/2019	Issued	230.78	98.5		241.4	416	142.9	34.4	1.69	0.6614	459.285	24
270	4	Windsor	9/3/2013	10/11/2013	4/13/2019	Issued	230.78	142.9	Surface								
260	9	Orchid Island	2/20/2013	3/20/2013	3/7/2020	Issued	278.2	100.4		258.2	436	278	63.8	0.93	0.7074	491.248	22
260	9	Orchid Island	2/20/2013	3/20/2013	3/7/2020	Issued	278.2	157.8	Surface								
									TOTAL	499.6							
										1.369	MGD						

CR 510 East to West - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
10001	4	Old Orchid Grove	10/25/2001	5/20/2002	5/20/2022	Issued	10.99	1.5		11.1	39.17	10.99	28.1	1.01	0.0304	21.119	150
10001	4	Old Orchid Grove	10/25/2001	5/20/2002	5/20/2022	Issued	10.99	9.6	Surface								
82406	2	Marsh Island	6/7/2012	7/10/2012	6/15/2022	Issued	8.57	4		12.52	27.2	8.52	31.3	1.47	0.0343	23.820	46
82406	2	Marsh Island	6/7/2012	7/10/2012	6/15/2022	Issued	8.57	8.52	Surface								
2373		Environmental Learning Center		7/30/2001				2.76		2.76	51	4.6	9.0	0.60	0.0076	5.251	139
N/A		Season's at Orchid								12.79	36.03	12.79	35.5	1.00	0.0350	24.332	15
N/A		Orchid Cove (fka Micahel Creek)								8.70	26.43	8.7	32.9	1.00	0.0238	16.553	148
N/A		Lewis Jungle Trail & 510								3.64	10.4	3.64	35.0	1.00	0.0100	6.925	155
									TOTAL	51.509							
										0.141	MGD						

CR 510 South to IRCDUS Southern Limit of Service - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
4459	3	Disney's Vero Beach Resort	5/23/2002	6/28/2002	6/28/2022	Issued	8	1.4	Surface	7	22	8	36.4	0.88	0.0192	13.32	17
4459	3	Disney's Vero Beach Resort	5/23/2002	6/28/2002	6/28/2022	Issued	8	5.6									
N/A		Disney West								9.10	26	9.10	35.0	1.00	0.0249	17.31	140
N/A		Coralstone								5.60	16	5.60	35.0	1.00	0.0153	10.65	141
N/A		North Shore Club								3.45	9.85	3.45	35.0	1.00	0.0094	6.56	143
N/A		Bermuda Club								12.67	36.2	12.67	35.0	1.00	0.0347	24.11	144
2351	4	Sea Oaks	1/28/2013	2/28/2013	2/18/2023	Issued	71	25.9	Surface	71.7	126	73	57.9	0.98	0.1964	136.42	16
2351	4	Sea Oaks	1/28/2013	2/28/2013	2/18/2023	Issued	71	45.8									
N/A		Grand Harbor Club								1.61	4.6	1.61	35.0	1.00	0.0044	3.06	146
67589	2	Island Club	10/29/2003	10/29/2003	2/6/2021	Issued	45.4	9.09		45.47	97.1	45.4	46.8	1.00	0.1246	86.51	13
67589	2	Island Club	10/29/2003	10/29/2003	2/6/2021	Issued	45.4	36.38	Surface								
2238	2	Baytree Condo	11/12/1998	12/30/1998	12/30/2018	Issued	9.7	9		9	28.6	9.7	33.9	0.93	0.0247	17.12	9
									TOTAL	165.5975							
										0.454	MGD						

IRCDUS: 1.964 MGD

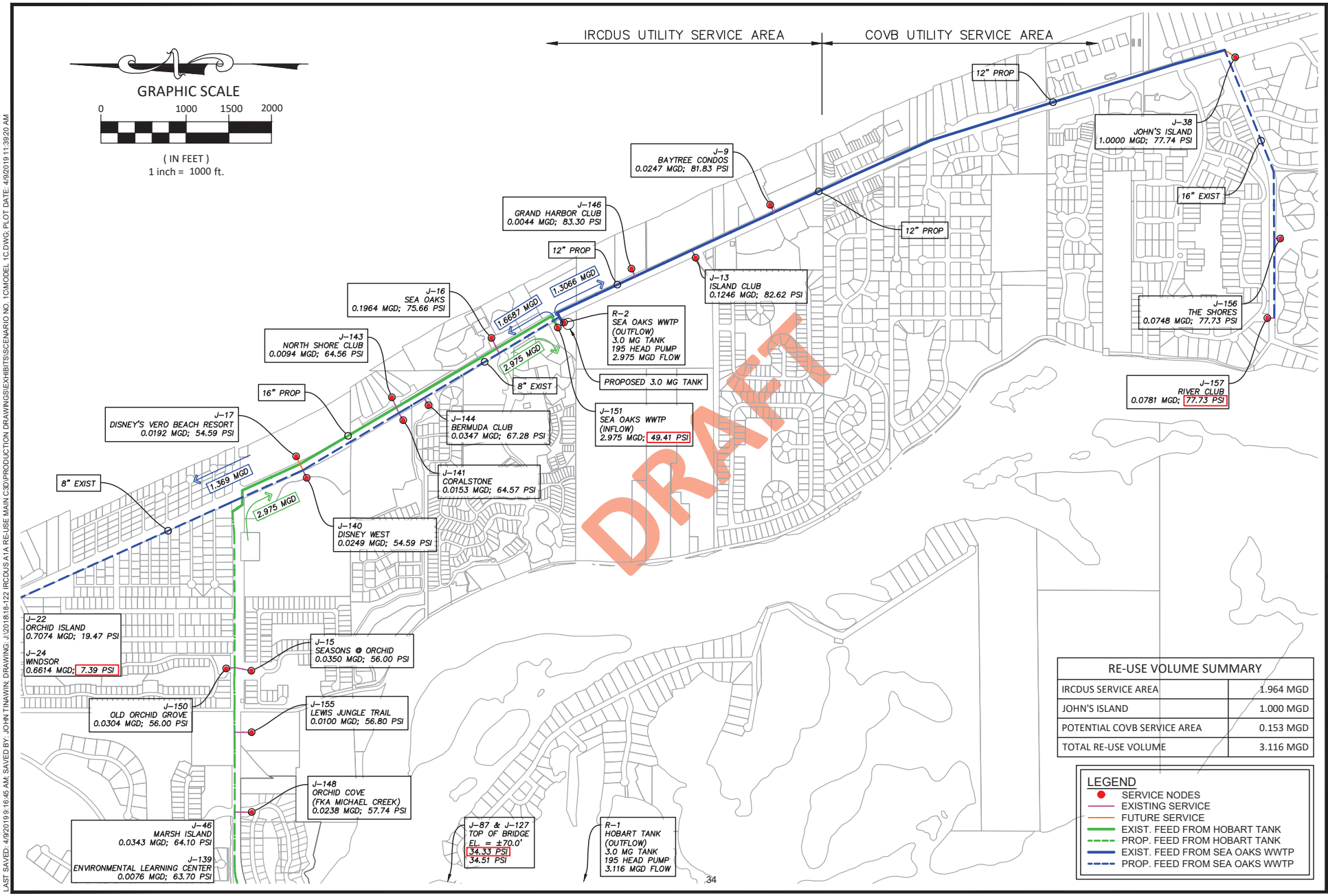
John's Island & COVB

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
		John's Island								365.00					1.0000	694.44	38
									TOTAL	365.00							
										1.000	MGD						

IRCDUS + JI: 2.964 MGD

Notes & Legend:

- ASSUMED 35% GROSS AREA IRRIGATED
- ASSUMED 1.0 MGY/ACRE
- = ASSUMED 1.0 MGY/AC * IRRIGATION AREA
- ASSUMED IRRIGATION AREA (SEASONS) = PERVIOUS AREA (SEE ATTACHED SITE PLAN BY KHA) * 70%
- ASSUMED IRRIGATION AREA (ORCHID COVE - SEE "MICHAEL CREEK" SITE PLAN BY SBS) = (LOTS * 40%) + RECREATION / LANDSCAPE
- 1.0 MGD ALLOCATION FOR JOHN'S ISLAND



RE-USE VOLUME SUMMARY	
IRCDUS SERVICE AREA	1.964 MGD
JOHN'S ISLAND	1.000 MGD
POTENTIAL COVB SERVICE AREA	0.153 MGD
TOTAL RE-USE VOLUME	3.116 MGD

LEGEND
- SERVICE NODES
- EXISTING SERVICE
- FUTURE SERVICE
- EXIST. FEED FROM HOBART TANK
- PROP. FEED FROM HOBART TANK
- EXIST. FEED FROM SEA OAKS WWTP
- PROP. FEED FROM SEA OAKS WWTP

SYSTEM C-1
W/ DISTRIBUTION SYSTEM
FROM WINDSOR TO J.I.

SCHULKE, BITTLE & STODDARD, L.L.C.
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A1A REUSE MAIN

EX-07

18-122 IRCDUS A1A Re-Use Main Analysis - APPLICABLE FOR SYSTEMS C-1, C-2 & C-3

CR 510 North to Windsor - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
270	4	Windsor	9/3/2013	10/11/2013	4/13/2019	Issued	230.78	98.5		241.4	416	142.9	34.4	1.69	0.6614	459.285	24
270	4	Windsor	9/3/2013	10/11/2013	4/13/2019	Issued	230.78	142.9	Surface								
260	9	Orchid Island	2/20/2013	3/20/2013	3/7/2020	Issued	278.2	100.4		258.2	436	278	63.8	0.93	0.7074	491.248	22
260	9	Orchid Island	2/20/2013	3/20/2013	3/7/2020	Issued	278.2	157.8	Surface								
									TOTAL	499.6							
										1.369	MGD						

CR 510 East to West - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
10001	4	Old Orchid Grove	10/25/2001	5/20/2002	5/20/2022	Issued	10.99	1.5		11.1	39.17	10.99	28.1	1.01	0.0304	21.119	150
10001	4	Old Orchid Grove	10/25/2001	5/20/2002	5/20/2022	Issued	10.99	9.6	Surface								
82406	2	Marsh Island	6/7/2012	7/10/2012	6/15/2022	Issued	8.57	4		12.52	27.2	8.52	31.3	1.47	0.0343	23.820	46
82406	2	Marsh Island	6/7/2012	7/10/2012	6/15/2022	Issued	8.57	8.52	Surface								
2373		Environmental Learning Center		7/30/2001				2.76		2.76	51	4.6	9.0	0.60	0.0076	5.251	139
N/A		Season's at Orchid								12.79	36.03	12.79	35.5	1.00	0.0350	24.332	15
N/A		Orchid Cove (fka Micahel Creek)								8.70	26.43	8.7	32.9	1.00	0.0238	16.553	148
N/A		Lewis Jungle Trail & 510								3.64	10.4	3.64	35.0	1.00	0.0100	6.925	155
									TOTAL	51.509							
										0.141	MGD						

CR 510 South to IRCDUS Southern Limit of Service - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
4459	3	Disney's Vero Beach Resort	5/23/2002	6/28/2002	6/28/2022	Issued	8	1.4	Surface	7	22	8	36.4	0.88	0.0192	13.32	17
4459	3	Disney's Vero Beach Resort	5/23/2002	6/28/2002	6/28/2022	Issued	8	5.6									
N/A		Disney West								9.10	26	9.10	35.0	1.00	0.0249	17.31	140
N/A		Coralstone								5.60	16	5.60	35.0	1.00	0.0153	10.65	141
N/A		North Shore Club								3.45	9.85	3.45	35.0	1.00	0.0094	6.56	143
N/A		Bermuda Club								12.67	36.2	12.67	35.0	1.00	0.0347	24.11	144
2351	4	Sea Oaks	1/28/2013	2/28/2013	2/18/2023	Issued	71	25.9	Surface	71.7	126	73	57.9	0.98	0.1964	136.42	16
2351	4	Sea Oaks	1/28/2013	2/28/2013	2/18/2023	Issued	71	45.8									
N/A		Grand Harbor Club								1.61	4.6	1.61	35.0	1.00	0.0044	3.06	146
67589	2	Island Club	10/29/2003	10/29/2003	2/6/2021	Issued	45.4	9.09		45.47	97.1	45.4	46.8	1.00	0.1246	86.51	13
67589	2	Island Club	10/29/2003	10/29/2003	2/6/2021	Issued	45.4	36.38	Surface								
2238	2	Baytree Condo	11/12/1998	12/30/1998	12/30/2018	Issued	9.7	9		9	28.6	9.7	33.9	0.93	0.0247	17.12	9
									TOTAL	165.5975							
										0.454	MGD						

IRCDUS: 1.964 MGD

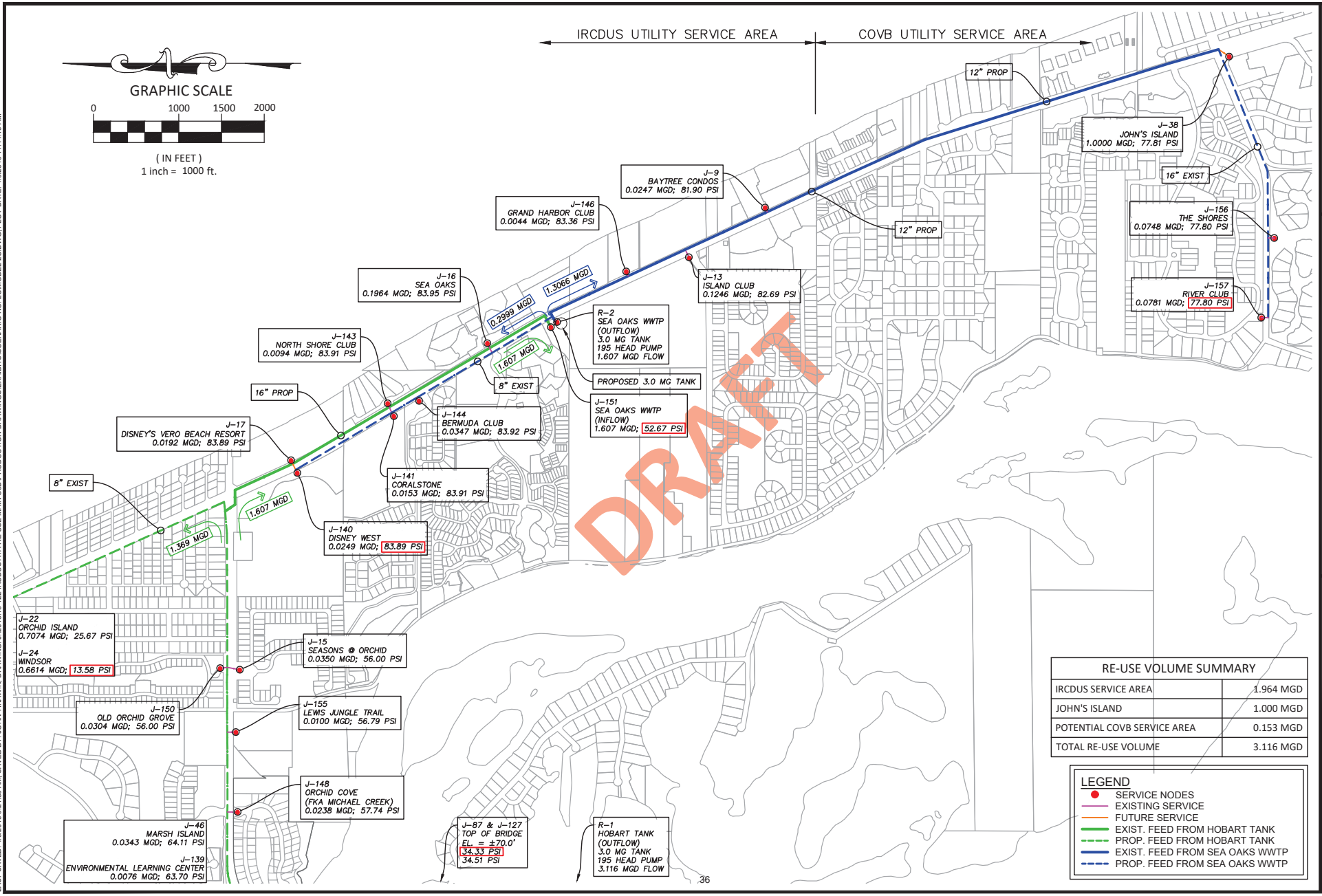
John's Island & COVB

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
		John's Island								365.00					1.0000	694.44	38
130735	1	The Shores	6/7/2012	7/9/2012	7/5/2032	Issued	38.2	10.74		27.31	71.2	38.20	53.7	0.71	0.0748	51.96	156
130735	1	The Shores	6/7/2012	7/9/2012	7/5/2032	Issued	38.2	16.57	Surface								
70018	2	Carlton River Club	7/5/2017	7/20/2017	5/22/2022	Issued	28	9.8		28.5	135	28.19	20.9	1.01	0.0781	54.22	157
70018	2	Carlton River Club	7/5/2017	7/20/2017	5/22/2022	Issued	28	18.7	Surface								
									TOTAL	420.81							
										1.153	MGD						

IRCDUS + COVB + JI: 3.116 MGD

Notes & Legend:

- ASSUMED 35% GROSS AREA IRRIGATED
- ASSUMED 1.0 MGY/ACRE
- = ASSUMED 1.0 MGY/AC * IRRIGATION AREA
- ASSUMED IRRIGATION AREA (SEASONS) = PERVIOUS AREA (SEE ATTACHED SITE PLAN BY KHA) * 70%
- ASSUMED IRRIGATION AREA (ORCHID COVE - SEE "MICHAEL CREEK" SITE PLAN BY SBS) = (LOTS * 40%) + RECREATION / LANDSCAPE
- 1.0 MGD ALLOCATION FOR JOHN'S ISLAND



RE-USE VOLUME SUMMARY	
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TOTAL RE-USE VOLUME	3.116 MGD

LEGEND
- SERVICE NODES
- EXISTING SERVICE
- FUTURE SERVICE
- EXIST. FEED FROM HOBART TANK
- PROP. FEED FROM HOBART TANK
- EXIST. FEED FROM SEA OAKS WWTP
- PROP. FEED FROM SEA OAKS WWTP

SYSTEM C-2
W/ DISTRIBUTION SYSTEM
FROM DISNEY TO J.I.

SCHULKE, BITTLE & STODDARD, L.L.C.
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A1A REUSE MAIN

EX-08

18-122 IRCDUS A1A Re-Use Main Analysis - APPLICABLE FOR SYSTEMS C-1, C-2 & C-3

CR 510 North to Windsor - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
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260	9	Orchid Island	2/20/2013	3/20/2013	3/7/2020	Issued	278.2	157.8	Surface								
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										1.369	MGD						

CR 510 East to West - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
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									TOTAL	51.509							
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CR 510 South to IRCDUS Southern Limit of Service - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
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2351	4	Sea Oaks	1/28/2013	2/28/2013	2/18/2023	Issued	71	25.9	Surface	71.7	126	73	57.9	0.98	0.1964	136.42	16
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N/A		Grand Harbor Club								1.61	4.6	1.61	35.0	1.00	0.0044	3.06	146
67589	2	Island Club	10/29/2003	10/29/2003	2/6/2021	Issued	45.4	9.09		45.47	97.1	45.4	46.8	1.00	0.1246	86.51	13
67589	2	Island Club	10/29/2003	10/29/2003	2/6/2021	Issued	45.4	36.38	Surface								
2238	2	Baytree Condo	11/12/1998	12/30/1998	12/30/2018	Issued	9.7	9		9	28.6	9.7	33.9	0.93	0.0247	17.12	9
									TOTAL	165.5975							
										0.454	MGD						

IRCDUS: 1.964 MGD

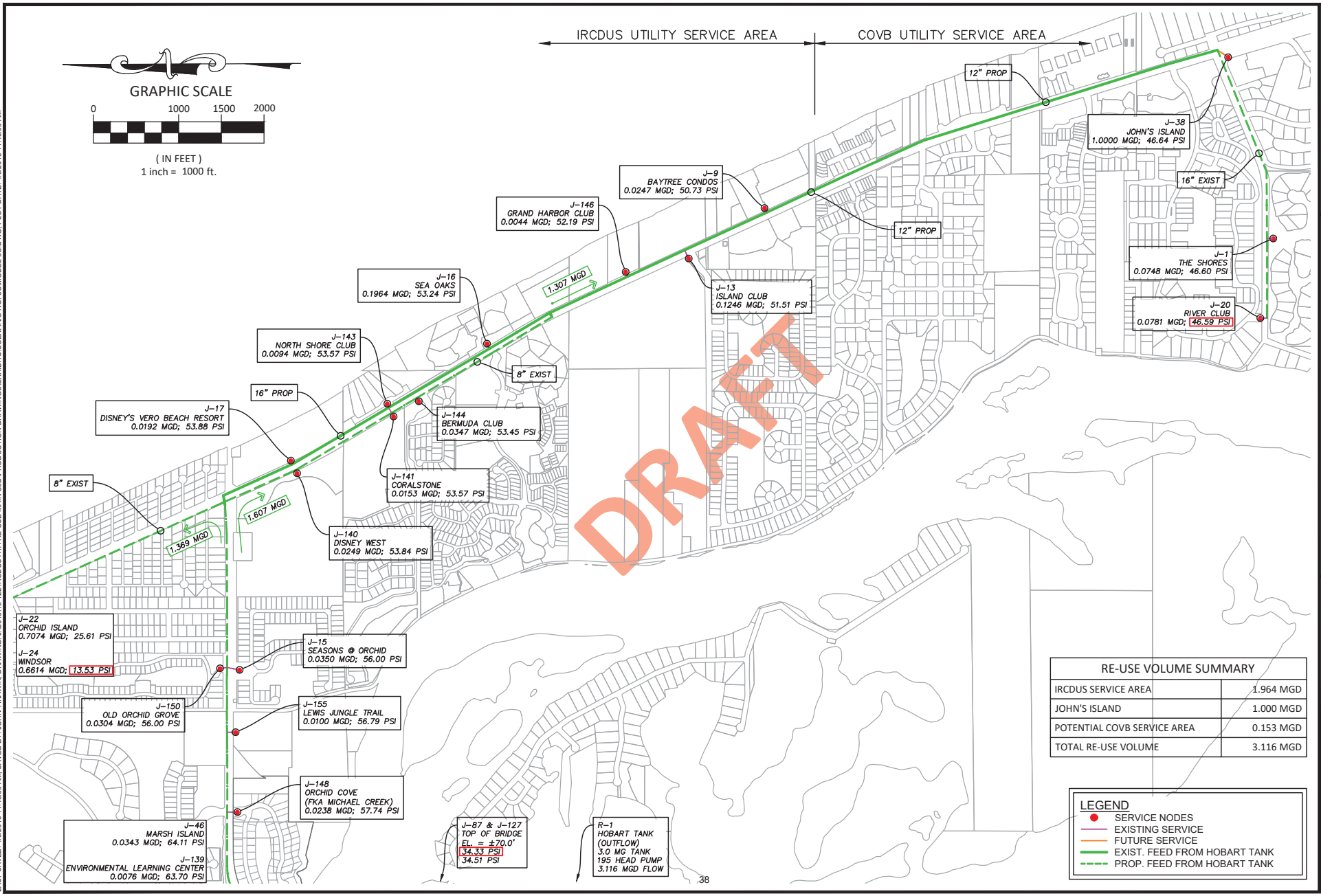
John's Island & COVB

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
		John's Island								365.00					1.0000	694.44	38
130735	1	The Shores	6/7/2012	7/9/2012	7/5/2032	Issued	38.2	10.74		27.31	71.2	38.20	53.7	0.71	0.0748	51.96	156
130735	1	The Shores	6/7/2012	7/9/2012	7/5/2032	Issued	38.2	16.57	Surface								
70018	2	Carlton River Club	7/5/2017	7/20/2017	5/22/2022	Issued	28	9.8		28.5	135	28.19	20.9	1.01	0.0781	54.22	157
70018	2	Carlton River Club	7/5/2017	7/20/2017	5/22/2022	Issued	28	18.7	Surface								
									TOTAL	420.81							
										1.153	MGD						

IRCDUS + COVB + JI: 3.116 MGD

Notes & Legend:

- ASSUMED 35% GROSS AREA IRRIGATED
- ASSUMED 1.0 MGY/ACRE
- = ASSUMED 1.0 MGY/AC * IRRIGATION AREA
- ASSUMED IRRIGATION AREA (SEASONS) = PERVIOUS AREA (SEE ATTACHED SITE PLAN BY KHA) * 70%
- ASSUMED IRRIGATION AREA (ORCHID COVE - SEE "MICHAEL CREEK" SITE PLAN BY SBS) = (LOTS * 40%) + RECREATION / LANDSCAPE
- 1.0 MGD ALLOCATION FOR JOHN'S ISLAND



RE-USE VOLUME SUMMARY	
IRCDUS SERVICE AREA	1.964 MGD
JOHN'S ISLAND	1.000 MGD
POTENTIAL COVB SERVICE AREA	0.153 MGD
TOTAL RE-USE VOLUME	3.116 MGD

LEGEND
- SERVICE NODES
- EXISTING SERVICE
- FUTURE SERVICE
- EXIST. FEED FROM HOBART TANK
- PROP. FEED FROM HOBART TANK

SYSTEM C-3
W/O DISTRIBUTION SYSTEM
@ SEA OAKS

SCHULKE, BITTLE & STODDARD, L.L.C.
CIVIL & STRUCTURAL ENGINEERING • LAND PLANNING • ENVIRONMENTAL PERMITTING
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A1A REUSE MAIN

EX-09

18-122 IRCDUS A1A Re-Use Main Analysis - APPLICABLE FOR SYSTEMS C-1, C-2 & C-3

CR 510 North to Windsor - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
270	4	Windsor	9/3/2013	10/11/2013	4/13/2019	Issued	230.78	98.5		241.4	416	142.9	34.4	1.69	0.6614	459.285	24
270	4	Windsor	9/3/2013	10/11/2013	4/13/2019	Issued	230.78	142.9	Surface								
260	9	Orchid Island	2/20/2013	3/20/2013	3/7/2020	Issued	278.2	100.4		258.2	436	278	63.8	0.93	0.7074	491.248	22
260	9	Orchid Island	2/20/2013	3/20/2013	3/7/2020	Issued	278.2	157.8	Surface								
									TOTAL	499.6							
										1.369	MGD						

CR 510 East to West - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
10001	4	Old Orchid Grove	10/25/2001	5/20/2002	5/20/2022	Issued	10.99	1.5		11.1	39.17	10.99	28.1	1.01	0.0304	21.119	150
10001	4	Old Orchid Grove	10/25/2001	5/20/2002	5/20/2022	Issued	10.99	9.6	Surface								
82406	2	Marsh Island	6/7/2012	7/10/2012	6/15/2022	Issued	8.57	4		12.52	27.2	8.52	31.3	1.47	0.0343	23.820	46
82406	2	Marsh Island	6/7/2012	7/10/2012	6/15/2022	Issued	8.57	8.52	Surface								
2373		Environmental Learning Center		7/30/2001				2.76		2.76	51	4.6	9.0	0.60	0.0076	5.251	139
N/A		Season's at Orchid								12.79	36.03	12.79	35.5	1.00	0.0350	24.332	15
N/A		Orchid Cove (fka Micahel Creek)								8.70	26.43	8.7	32.9	1.00	0.0238	16.553	148
N/A		Lewis Jungle Trail & 510								3.64	10.4	3.64	35.0	1.00	0.0100	6.925	155
									TOTAL	51.509							
										0.141	MGD						

CR 510 South to IRCDUS Southern Limit of Service - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
4459	3	Disney's Vero Beach Resort	5/23/2002	6/28/2002	6/28/2022	Issued	8	1.4	Surface	7	22	8	36.4	0.88	0.0192	13.32	17
4459	3	Disney's Vero Beach Resort	5/23/2002	6/28/2002	6/28/2022	Issued	8	5.6									
N/A		Disney West								9.10	26	9.10	35.0	1.00	0.0249	17.31	140
N/A		Coralstone								5.60	16	5.60	35.0	1.00	0.0153	10.65	141
N/A		North Shore Club								3.45	9.85	3.45	35.0	1.00	0.0094	6.56	143
N/A		Bermuda Club								12.67	36.2	12.67	35.0	1.00	0.0347	24.11	144
2351	4	Sea Oaks	1/28/2013	2/28/2013	2/18/2023	Issued	71	25.9	Surface	71.7	126	73	57.9	0.98	0.1964	136.42	16
2351	4	Sea Oaks	1/28/2013	2/28/2013	2/18/2023	Issued	71	45.8									
N/A		Grand Harbor Club								1.61	4.6	1.61	35.0	1.00	0.0044	3.06	146
67589	2	Island Club	10/29/2003	10/29/2003	2/6/2021	Issued	45.4	9.09		45.47	97.1	45.4	46.8	1.00	0.1246	86.51	13
67589	2	Island Club	10/29/2003	10/29/2003	2/6/2021	Issued	45.4	36.38	Surface								
2238	2	Baytree Condo	11/12/1998	12/30/1998	12/30/2018	Issued	9.7	9		9	28.6	9.7	33.9	0.93	0.0247	17.12	9
									TOTAL	165.5975							
										0.454	MGD						

IRCDUS: 1.964 MGD

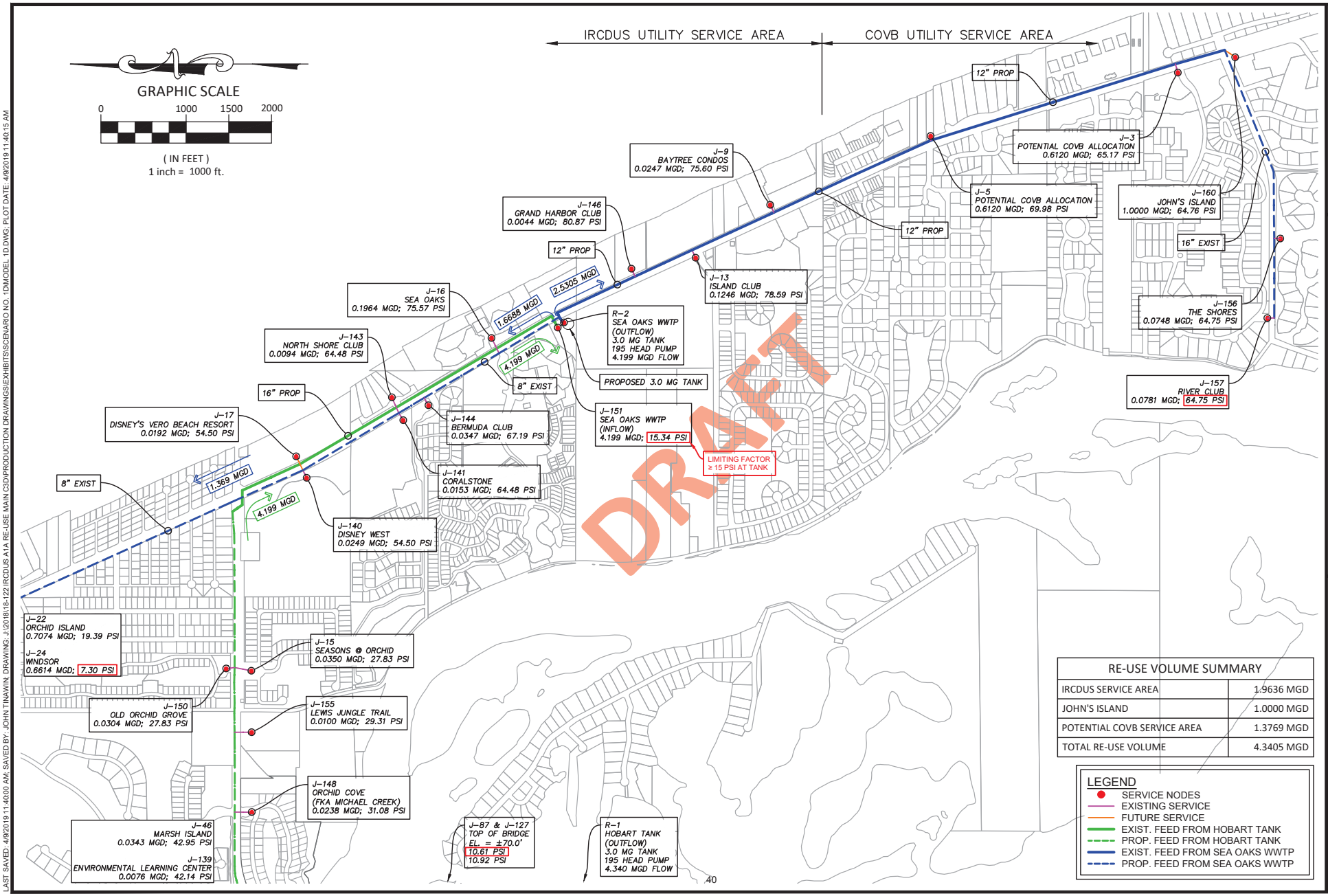
John's Island & COVB

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
		John's Island								365.00					1.0000	694.44	38
130735	1	The Shores	6/7/2012	7/9/2012	7/5/2032	Issued	38.2	10.74		27.31	71.2	38.20	53.7	0.71	0.0748	51.96	156
130735	1	The Shores	6/7/2012	7/9/2012	7/5/2032	Issued	38.2	16.57	Surface								
70018	2	Carlton River Club	7/5/2017	7/20/2017	5/22/2022	Issued	28	9.8		28.5	135	28.19	20.9	1.01	0.0781	54.22	157
70018	2	Carlton River Club	7/5/2017	7/20/2017	5/22/2022	Issued	28	18.7	Surface								
									TOTAL	420.81							
										1.153	MGD						

IRCDUS + COVB + JI: 3.116 MGD

Notes & Legend:

- ASSUMED 35% GROSS AREA IRRIGATED
- ASSUMED 1.0 MGY/ACRE
- = ASSUMED 1.0 MGY/AC * IRRIGATION AREA
- ASSUMED IRRIGATION AREA (SEASONS) = PERVIOUS AREA (SEE ATTACHED SITE PLAN BY KHA) * 70%
- ASSUMED IRRIGATION AREA (ORCHID COVE - SEE "MICHAEL CREEK" SITE PLAN BY SBS) = (LOTS * 40%) + RECREATION / LANDSCAPE
- 1.0 MGD ALLOCATION FOR JOHN'S ISLAND



SYSTEM D-1
W/ DISTRIBUTION SYSTEM
FROM WINDSOR TO J.I.

SCHULKE, BITTLE & STODDARD, L.L.C.
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A1A REUSE MAIN

EX-10

18-122 IRCDUS A1A Re-Use Main Analysis - APPLICABLE FOR SYSTEM D-1

CR 510 North to Windsor - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
270	4	Windsor	9/3/2013	10/11/2013	4/13/2019	Issued	230.78	98.5		241.4	416	142.9	34.4	1.69	0.6614	459.285	24
270	4	Windsor	9/3/2013	10/11/2013	4/13/2019	Issued	230.78	142.9	Surface								
260	9	Orchid Island	2/20/2013	3/20/2013	3/7/2020	Issued	278.2	100.4		258.2	436	278	63.8	0.93	0.7074	491.248	22
260	9	Orchid Island	2/20/2013	3/20/2013	3/7/2020	Issued	278.2	157.8	Surface								
									TOTAL	499.6							
										1.369	MGD						

CR 510 East to West - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
10001	4	Old Orchid Grove	10/25/2001	5/20/2002	5/20/2022	Issued	10.99	1.5		11.1	39.17	10.99	28.1	1.01	0.0304	21.119	150
10001	4	Old Orchid Grove	10/25/2001	5/20/2002	5/20/2022	Issued	10.99	9.6	Surface								
82406	2	Marsh Island	6/7/2012	7/10/2012	6/15/2022	Issued	8.57	4		12.52	27.2	8.52	31.3	1.47	0.0343	23.820	46
82406	2	Marsh Island	6/7/2012	7/10/2012	6/15/2022	Issued	8.57	8.52	Surface								
2373		Environmental Learning Center		7/30/2001				2.76		2.76	51	4.6	9.0	0.60	0.0076	5.251	139
N/A		Season's at Orchid								12.79	36.03	12.79	35.5	1.00	0.0350	24.332	15
N/A		Orchid Cove (fka Micahel Creek)								8.70	26.43	8.7	32.9	1.00	0.0238	16.553	148
N/A		Lewis Jungle Trail & 510								3.64	10.4	3.64	35.0	1.00	0.0100	6.925	155
									TOTAL	51.509							
										0.141	MGD						

CR 510 South to IRCDUS Southern Limit of Service - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
4459	3	Disney's Vero Beach Resort	5/23/2002	6/28/2002	6/28/2022	Issued	8	1.4	Surface	7	22	8	36.4	0.88	0.0192	13.32	17
4459	3	Disney's Vero Beach Resort	5/23/2002	6/28/2002	6/28/2022	Issued	8	5.6									
N/A		Disney West								9.10	26	9.10	35.0	1.00	0.0249	17.31	140
N/A		Coralstone								5.60	16	5.60	35.0	1.00	0.0153	10.65	141
N/A		North Shore Club								3.45	9.85	3.45	35.0	1.00	0.0094	6.56	143
N/A		Bermuda Club								12.67	36.2	12.67	35.0	1.00	0.0347	24.11	144
2351	4	Sea Oaks	1/28/2013	2/28/2013	2/18/2023	Issued	71	25.9	Surface	71.7	126	73	57.9	0.98	0.1964	136.42	16
2351	4	Sea Oaks	1/28/2013	2/28/2013	2/18/2023	Issued	71	45.8									
N/A		Grand Harbor Club								1.61	4.6	1.61	35.0	1.00	0.0044	3.06	146
67589	2	Island Club	10/29/2003	10/29/2003	2/6/2021	Issued	45.4	9.09		45.47	97.1	45.4	46.8	1.00	0.1246	86.51	13
67589	2	Island Club	10/29/2003	10/29/2003	2/6/2021	Issued	45.4	36.38	Surface								
2238	2	Baytree Condo	11/12/1998	12/30/1998	12/30/2018	Issued	9.7	9		9	28.6	9.7	33.9	0.93	0.0247	17.12	9
									TOTAL	165.5975							
										0.454	MGD						

IRCDUS: 1.964 MGD

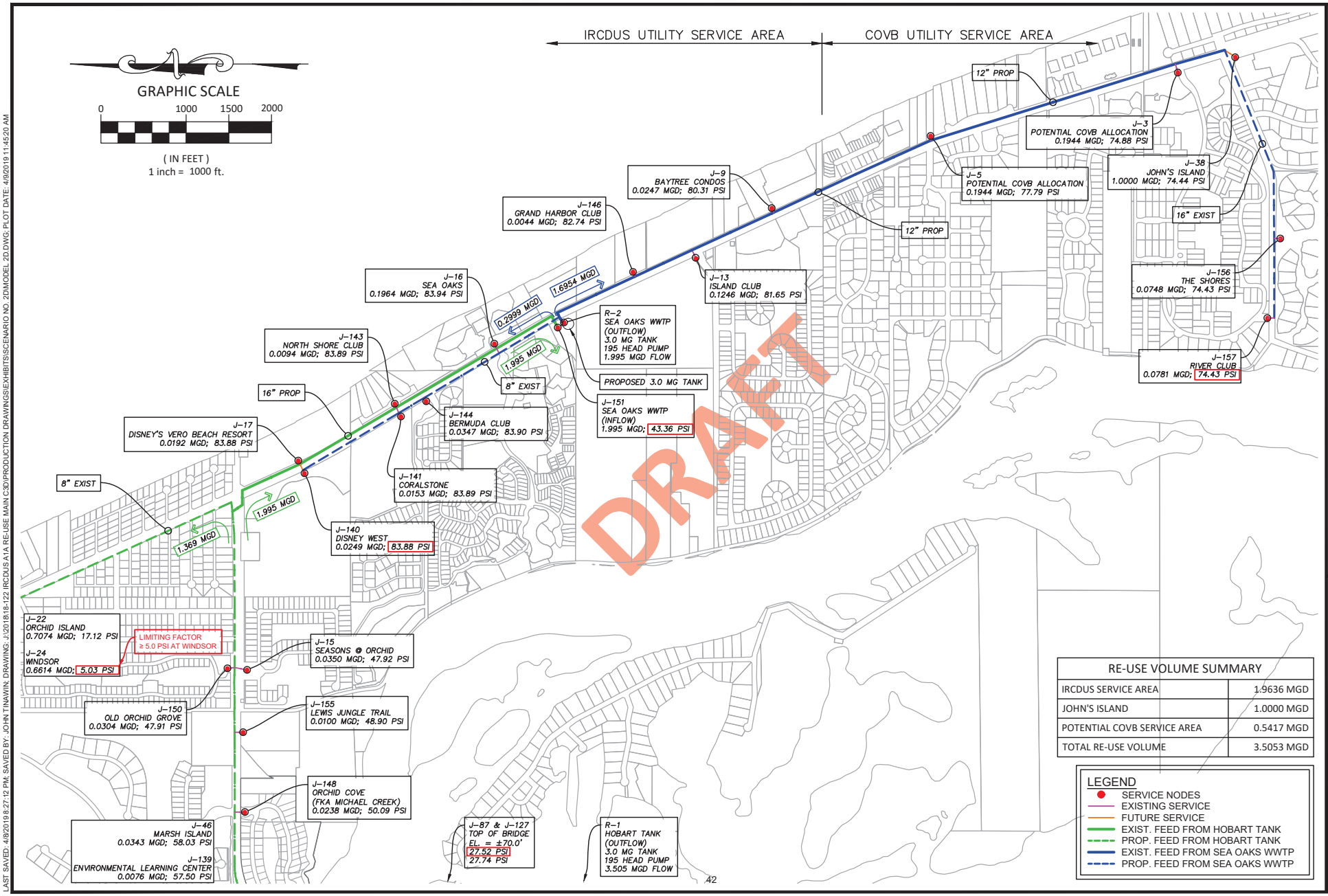
John's Island & COVB

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
		John's Island								365.00					1.0000	694.44	38
130735	1	The Shores	6/7/2012	7/9/2012	7/5/2032	Issued	38.2	10.74		27.31	71.2	38.20	53.7	0.71	0.0748	51.96	156
130735	1	The Shores	6/7/2012	7/9/2012	7/5/2032	Issued	38.2	16.57	Surface								
70018	2	Carlton River Club	7/5/2017	7/20/2017	5/22/2022	Issued	28	9.8		28.5	135	28.19	20.9	1.01	0.0781	54.22	157
70018	2	Carlton River Club	7/5/2017	7/20/2017	5/22/2022	Issued	28	18.7	Surface								
N/A		POTENTIAL COVB ALLOCATION								446.76					1.2240	850.00	3 & 5
									TOTAL	867.57							
										2.377	MGD						

IRCDUS + COVB + JI: 4.340 MGD

Notes & Legend:

- ASSUMED 35% GROSS AREA IRRIGATED
- ASSUMED 1.0 MGY/ACRE
- = ASSUMED 1.0 MGY/AC * IRRIGATION AREA
- ASSUMED IRRIGATION AREA (SEASONS) = PERVIOUS AREA (SEE ATTACHED SITE PLAN BY KHA) * 70%
- ASSUMED IRRIGATION AREA (ORCHID COVE - SEE "MICHAEL CREEK" SITE PLAN BY SBS) = (LOTS * 40%) + RECREATION / LANDSCAPE /
- POTENTIAL COVB ALLOCATION
- 1.0 MGD ALLOCATION FOR JOHN'S ISLAND



RE-USE VOLUME SUMMARY	
IRCDUS SERVICE AREA	1.9636 MGD
JOHN'S ISLAND	1.0000 MGD
POTENTIAL COVB SERVICE AREA	0.5417 MGD
TOTAL RE-USE VOLUME	3.5053 MGD

LEGEND
- SERVICE NODES
- EXISTING SERVICE
- FUTURE SERVICE
- EXIST. FEED FROM HOBART TANK
- PROP. FEED FROM HOBART TANK
- EXIST. FEED FROM SEA OAKS WWTP
- PROP. FEED FROM SEA OAKS WWTP

SYSTEM D-2
W/ DISTRIBUTION SYSTEM
FROM DISNEY TO J.I.

SCHULKE, BITTLE & STODDARD, L.L.C.
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A1A REUSE MAIN

EX-11

18-122 IRCDUS A1A Re-Use Main Analysis - APPLICABLE FOR SYSTEMS D-2 & D-3

CR 510 North to Windsor - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
270	4	Windsor	9/3/2013	10/11/2013	4/13/2019	Issued	230.78	98.5		241.4	416	142.9	34.4	1.69	0.6614	459.285	24
270	4	Windsor	9/3/2013	10/11/2013	4/13/2019	Issued	230.78	142.9	Surface								
260	9	Orchid Island	2/20/2013	3/20/2013	3/7/2020	Issued	278.2	100.4		258.2	436	278	63.8	0.93	0.7074	491.248	22
260	9	Orchid Island	2/20/2013	3/20/2013	3/7/2020	Issued	278.2	157.8	Surface								
									TOTAL	499.6							
										1.369	MGD						

CR 510 East to West - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
10001	4	Old Orchid Grove	10/25/2001	5/20/2002	5/20/2022	Issued	10.99	1.5		11.1	39.17	10.99	28.1	1.01	0.0304	21.119	150
10001	4	Old Orchid Grove	10/25/2001	5/20/2002	5/20/2022	Issued	10.99	9.6	Surface								
82406	2	Marsh Island	6/7/2012	7/10/2012	6/15/2022	Issued	8.57	4		12.52	27.2	8.52	31.3	1.47	0.0343	23.820	46
82406	2	Marsh Island	6/7/2012	7/10/2012	6/15/2022	Issued	8.57	8.52	Surface								
2373		Environmental Learning Center		7/30/2001				2.76		2.76	51	4.6	9.0	0.60	0.0076	5.251	139
N/A		Season's at Orchid								12.79	36.03	12.79	35.5	1.00	0.0350	24.332	15
N/A		Orchid Cove (fka Micahel Creek)								8.70	26.43	8.7	32.9	1.00	0.0238	16.553	148
N/A		Lewis Jungle Trail & 510								3.64	10.4	3.64	35.0	1.00	0.0100	6.925	155
									TOTAL	51.509							
										0.141	MGD						

CR 510 South to IRCDUS Southern Limit of Service - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
4459	3	Disney's Vero Beach Resort	5/23/2002	6/28/2002	6/28/2022	Issued	8	1.4	Surface	7	22	8	36.4	0.88	0.0192	13.32	17
4459	3	Disney's Vero Beach Resort	5/23/2002	6/28/2002	6/28/2022	Issued	8	5.6									
N/A		Disney West								9.10	26	9.10	35.0	1.00	0.0249	17.31	140
N/A		Coralstone								5.60	16	5.60	35.0	1.00	0.0153	10.65	141
N/A		North Shore Club								3.45	9.85	3.45	35.0	1.00	0.0094	6.56	143
N/A		Bermuda Club								12.67	36.2	12.67	35.0	1.00	0.0347	24.11	144
2351	4	Sea Oaks	1/28/2013	2/28/2013	2/18/2023	Issued	71	25.9	Surface	71.7	126	73	57.9	0.98	0.1964	136.42	16
2351	4	Sea Oaks	1/28/2013	2/28/2013	2/18/2023	Issued	71	45.8									
N/A		Grand Harbor Club								1.61	4.6	1.61	35.0	1.00	0.0044	3.06	146
67589	2	Island Club	10/29/2003	10/29/2003	2/6/2021	Issued	45.4	9.09		45.47	97.1	45.4	46.8	1.00	0.1246	86.51	13
67589	2	Island Club	10/29/2003	10/29/2003	2/6/2021	Issued	45.4	36.38	Surface								
2238	2	Baytree Condo	11/12/1998	12/30/1998	12/30/2018	Issued	9.7	9		9	28.6	9.7	33.9	0.93	0.0247	17.12	9
									TOTAL	165.5975							
										0.454	MGD						

IRCDUS: 1.964 MGD

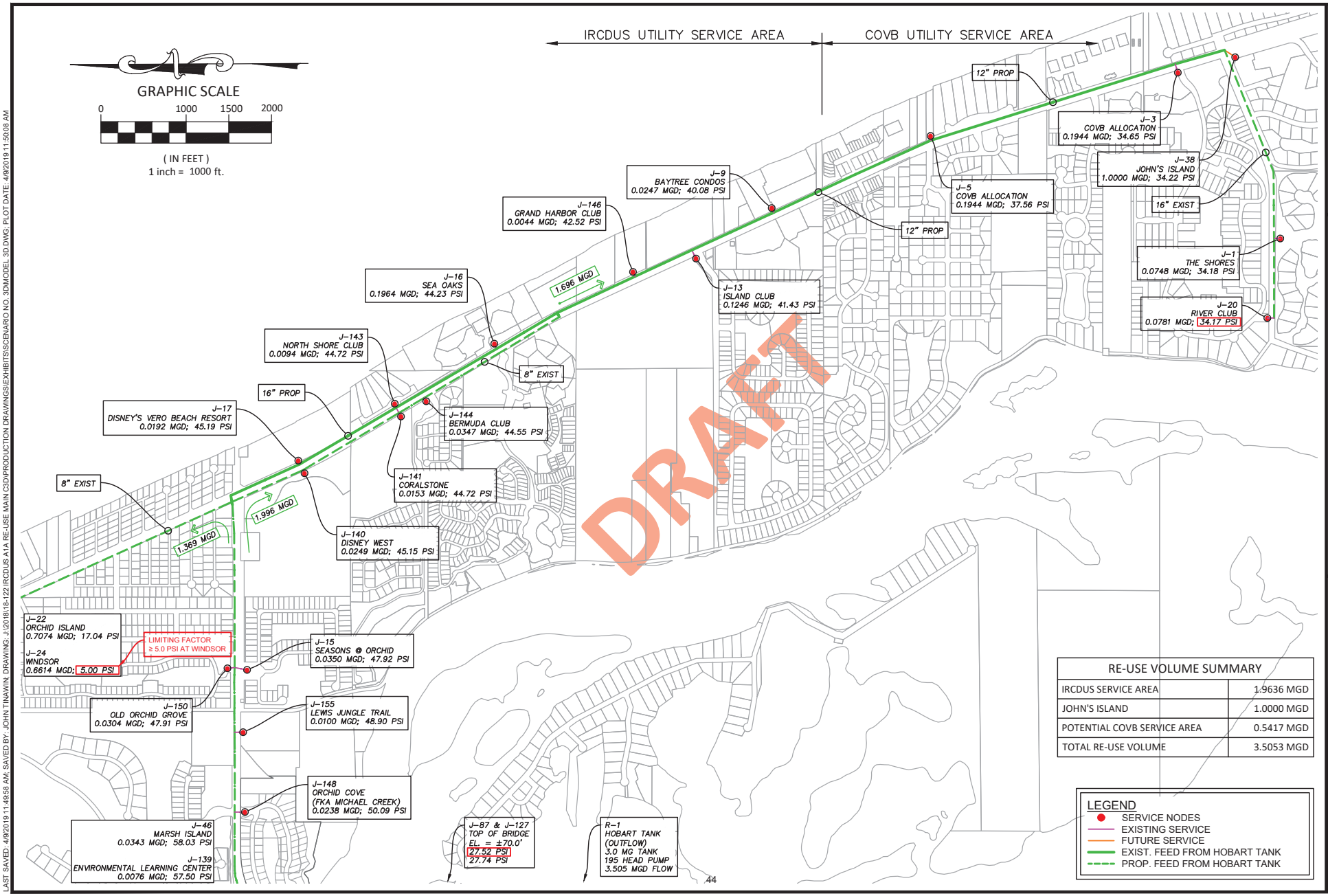
John's Island & COVB

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
		John's Island								365.00					1.0000	694.44	38
130735	1	The Shores	6/7/2012	7/9/2012	7/5/2032	Issued	38.2	10.74		27.31	71.2	38.20	53.7	0.71	0.0748	51.96	156
130735	1	The Shores	6/7/2012	7/9/2012	7/5/2032	Issued	38.2	16.57	Surface								
70018	2	Carlton River Club	7/5/2017	7/20/2017	5/22/2022	Issued	28	9.8		28.5	135	28.19	20.9	1.01	0.0781	54.22	157
70018	2	Carlton River Club	7/5/2017	7/20/2017	5/22/2022	Issued	28	18.7	Surface								
N/A		POTENTIAL COVB ALLOCATION								141.91					0.3888	270.00	3 & 5
									TOTAL	562.72							
										1.542	MGD						

IRCDUS + COVB + JI: 3.505 MGD

Notes & Legend:

- ASSUMED 35% GROSS AREA IRRIGATED
- ASSUMED 1.0 MGY/ACRE
- = ASSUMED 1.0 MGY/AC * IRRIGATION AREA
- ASSUMED IRRIGATION AREA (SEASONS) = PERVIOUS AREA (SEE ATTACHED SITE PLAN BY KHA) * 70%
- ASSUMED IRRIGATION AREA (ORCHID COVE - SEE "MICHAEL CREEK" SITE PLAN BY SBS) = (LOTS * 40%) + RECREATION / LANDSCAPE /
- POTENTIAL COVB ALLOCATION
- 1.0 MGD ALLOCATION FOR JOHN'S ISLAND



SYSTEM D-3
W/O DISTRIBUTION SYSTEM
@ SEA OAKS

SCHULKE, BITTLE & STODDARD, L.L.C.
CIVIL & STRUCTURAL ENGINEERING • LAND PLANNING • ENVIRONMENTAL PERMITTING
CERTIFICATION OF AUTHORIZATION NO.: 00008668
1717 INDIAN RIVER BLVD., SUITE 201 VERO BEACH, FLORIDA 32960
TEL 772 / 770-9622 FAX 772 / 770-9496 EMAIL info@sbsengineers.com

A1A REUSE MAIN

EX-12

18-122 IRCDUS A1A Re-Use Main Analysis - APPLICABLE FOR SYSTEMS D-2 & D-3

CR 510 North to Windsor - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
270	4	Windsor	9/3/2013	10/11/2013	4/13/2019	Issued	230.78	98.5		241.4	416	142.9	34.4	1.69	0.6614	459.285	24
270	4	Windsor	9/3/2013	10/11/2013	4/13/2019	Issued	230.78	142.9	Surface								
260	9	Orchid Island	2/20/2013	3/20/2013	3/7/2020	Issued	278.2	100.4		258.2	436	278	63.8	0.93	0.7074	491.248	22
260	9	Orchid Island	2/20/2013	3/20/2013	3/7/2020	Issued	278.2	157.8	Surface								
									TOTAL	499.6							
										1.369	MGD						

CR 510 East to West - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
10001	4	Old Orchid Grove	10/25/2001	5/20/2002	5/20/2022	Issued	10.99	1.5		11.1	39.17	10.99	28.1	1.01	0.0304	21.119	150
10001	4	Old Orchid Grove	10/25/2001	5/20/2002	5/20/2022	Issued	10.99	9.6	Surface								
82406	2	Marsh Island	6/7/2012	7/10/2012	6/15/2022	Issued	8.57	4		12.52	27.2	8.52	31.3	1.47	0.0343	23.820	46
82406	2	Marsh Island	6/7/2012	7/10/2012	6/15/2022	Issued	8.57	8.52	Surface								
2373		Environmental Learning Center		7/30/2001				2.76		2.76	51	4.6	9.0	0.60	0.0076	5.251	139
N/A		Season's at Orchid								12.79	36.03	12.79	35.5	1.00	0.0350	24.332	15
N/A		Orchid Cove (fka Micahel Creek)								8.70	26.43	8.7	32.9	1.00	0.0238	16.553	148
N/A		Lewis Jungle Trail & 510								3.64	10.4	3.64	35.0	1.00	0.0100	6.925	155
									TOTAL	51.509							
										0.141	MGD						

CR 510 South to IRCDUS Southern Limit of Service - IRCDUS

Permit No	Sequence No	Project Name	Received Date	Issue Date	Expiration Date	Permit Status	SJRWMD Project Acreage	Cur Year Water Alloc.(MGY)	Allocation Sources	Total Allocation MGY	Total Development Area	Irrigation Area	Irrigation %	Flow MGY/Acre	MGD	GPM	Junction Node #
4459	3	Disney's Vero Beach Resort	5/23/2002	6/28/2002	6/28/2022	Issued	8	1.4	Surface	7	22	8	36.4	0.88	0.0192	13.32	17
4459	3	Disney's Vero Beach Resort	5/23/2002	6/28/2002	6/28/2022	Issued	8	5.6									
N/A		Disney West								9.10	26	9.10	35.0	1.00	0.0249	17.31	140
N/A		Coralstone								5.60	16	5.60	35.0	1.00	0.0153	10.65	141
N/A		North Shore Club								3.45	9.85	3.45	35.0	1.00	0.0094	6.56	143
N/A		Bermuda Club								12.67	36.2	12.67	35.0	1.00	0.0347	24.11	144
2351	4	Sea Oaks	1/28/2013	2/28/2013	2/18/2023	Issued	71	25.9	Surface	71.7	126	73	57.9	0.98	0.1964	136.42	16
2351	4	Sea Oaks	1/28/2013	2/28/2013	2/18/2023	Issued	71	45.8									
N/A		Grand Harbor Club								1.61	4.6	1.61	35.0	1.00	0.0044	3.06	146
67589	2	Island Club	10/29/2003	10/29/2003	2/6/2021	Issued	45.4	9.09		45.47	97.1	45.4	46.8	1.00	0.1246	86.51	13
67589	2	Island Club	10/29/2003	10/29/2003	2/6/2021	Issued	45.4	36.38	Surface								
2238	2	Baytree Condo	11/12/1998	12/30/1998	12/30/2018	Issued	9.7	9		9	28.6	9.7	33.9	0.93	0.0247	17.12	9
									TOTAL	165.5975							
										0.454	MGD						

IRCDUS: 1.964 MGD

John's Island & COVB

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