

July 28, 2020

HAND DELIVERY

Peter Walden, Principal Planner Martin County Growth Management Department 2401 S.E. Monterey Road Stuart, FL 34996

RE: Second Resubmittal in Response to Staff Report Issued July 7, 2020 BANYAN BAY PUD, 9th PUD Amendment & Phase 2C Final Site Plan Application -(MC Project #B082-039; Lucido #18-387)

Dear Pete:

materials and an additional set of 24x36 plans. The enclosed revised materials are listed as follows containing the revised documents and plans referenced below, a CD with PDF copies of the resubmitted In response to the above-referenced staff report, please find enclosed the original resubmittal packet

- Phase 2C final site plan (no changes needed);
- Phase 2C landscape plan;
- Reduced copy of stamped-approved copy of Revised Master Plan dated May 19, 2009;
- Reduced copy of stamped-approved copy of revised Phasing Plan dated May 19, 2009;
- Hurricane surge map exhibit (previously submitted);
- Stormwater report; and
- Construction plans including land clearing page.

to the staff report for the entire comment within each section. portions of the staff report have been repeated in **bold type.** Our responses follow in *italics*. Please refer Please note that only the section headings, unresolved issues and remedy/suggestion/clarification discussion at the workshop and as outlined in the following itemized responses to the staff comments. The above-referenced application materials have been provided and/or revised in accordance with our

Itemized Responses to Staff Report

A. Application information

Agree.

- B. Project description and analysis Agree.
- **C. Staff recommendation** See responses to the non-comply comments below.
- D. Review Board/Committee action
- E. Location and site information

Agree

Agree.

Lucido & Associates 701 SE Ocean Boulevard Stuart, Florida 34994 tel 772.220.2100 fax: 772.223.0220 web: www.lucidodesign.com

Peter Walden July 28, 2020 Page 2 of 5

団 **Unresolved Issues:** Determination of compliance with Comprehensive Growth Management Plan requirements

Item #1: Generic Comp. Plan Compliance

Agree

ຸດ requirements Determination of compliance with land use, site design standards, zoning and procedural

Findings of Compliance:

use, zoning or procedural requirements issues associated with this application. application and finds it in compliance with the applicable regulations. There are no unresolved land The Growth Management Department Development Review Division staff has reviewed the

Agree.

- H Not applicable requirements Determination of compliance with urban design and community redevelopment
- Ϊ. Not applicable. Determination of compliance with property management requirements
- J. Environmental Determination of compliance with environmental and landscaping requirements

Finding of Compliance:

and finds it in compliance with the applicable land development regulations. The Growth Management Department Environmental Division staff has reviewed the application

Agree.

Landscape

Unresolved Issues: Turfgrass and groundcover

Remedy/Suggestion/Clarification:

established and no existing vegetation can be preserved. Please revise clearing plans to protect this width of this area varies between 40 and 80 feet, please explain why this berm elevation cannot be existing grade is elevation 10.2 to10.5: the perimeter berm is shown to be at elevation 10.8. The established so the area must be cleared and no existing vegetation can be preserved. However, vegetation. Area to the north of the DOT lake is now shown as protecting existing native vegetation, especially on the north side where there is existing dense native vegetation, please provide a preservation of any existing native vegetation, however there is also a label that indicates bahia sod, however adjacent and south of lot 33 the response letter states that a perimeter berm must be has been previously cleared but between the two wetlands it appears there is existing native delineation for limits of sod proposed. vegetation to the extent feasible. Common areas around the DOT lake are hatched to indicate There is a common area south of Lot #33 shown to be cleared and sodded. Further south the area

See revised clearing limits on landscape plans and construction plans enclosed

Item #2: Landscape Native Tree Protect & Survey Remedy/Suggestion/Clarification:

fence running through the trees. Provide tree barricade to protect sufficient protection area around Tree #31 and 34 are now shown as being protected, however the construction plans show the silt these trees.

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See revised clearing limits on landscape plans and construction plans enclosed.

K **Findings of Compliance:** Determination of compliance with transportation requirements

Agree.

L. Determination of compliance with county surveyor Findings of Compliance:

Agree.

N. requirements Determination of compliance with engineering, stormwater and flood management

Unresolved Issues:

Item #1: Stormwater Management Report

consistent with the previously permitted Basin A. Please provide a more detailed breakdown that The Site Data breakdown in the stormwater management report is inconsistent with the proposed proposed Final Site Plan. compares the permitted impervious and pervious areas to the proposed site data shown on the Final Site Plan. Staff is unable to determine that the proposed pervious and impervious areas are

The enclosed stormwater report has been revised as requested.

Z Determination of compliance with addressing and electronic file requirements

Addressing Findings of compliance: Agree. Electronic File Submittal

Electronic File Submittal Findings of compliance: Agree.

O. Determination of compliance with utilities requirements Water & Wastewater Service Unresolved Issues: Item #1: Drawings Must Be Approved

sign off by the Department of permit applications and agreements. [ref. Code, LDR, s.10.2.B.5 Code, LDR, Art.10] The construction drawings must be approved by the Utilities and Solid Waste Department prior to

submittal to FDEP. The engineer of record will continue to work directly with utilities staff to finalize permit plans for

agreement to the Growth Management Department for review by the Legal and Environmental Agreement' must be executed and the applicable fees paid within sixty 60 days of final Martin Services departments prior to approval of the final site plan. The 'Water and Wastewater Service Item #2: The applicant must submit an executable, final draft water and wastewater service County's water and wastewater requirements. County approval of the request. This development application is in noncompliance with Martin

The engineer of record will continue to work directly with utilities staff to finalize the service agreement

Peter Walden July 28, 2020 Page 4 of 5

Wellfield and Groundwater Protection Findings of Compliance: Agree.

P. requirements Determination of compliance with fire prevention and emergency management

Fire Prevention

reviews. Initial approval included an emergency access located near the DOT storm water lake. Is governing construction and life safety standards of the Florida Fire Prevention Code and there another proposed area for the egress. codes whether implied or not in this review, in addition to all previous requirements of prior referenced publications. This occupancy shall comply with all applicable provisions of governing The Fire Prevention Bureau finds this submittal not in compliance with the applicable provisions **Finding of Non-Compliance**

road. provision in Phase 2C. None of them identified an emergency access and none of the previous staff pond, allowed 64 duplex units with no emergency access. The FDOT's taking reduced the number of and phasing plan dated May 19, 2009, which existed prior to the FDOT's construction of the retention reports indicated a need for an emergency access in Phase 2C. The enclosed stamped-approved master All previous master plans have been reviewed to determine if any of them had an emergency access 48 to 36 units, which decreases the potential need for an emergency access in this phase of the project. duplex units from 64 to 48 and left no room for an emergency access or even a temporary construction The proposed revision to single family homes further reduces the number of units in Phase 2C from

Emergency Preparedness

Findings of Compliance: The Emergency Management Ag

recommends approval of the application, subject to the following: applicable with applicable statutes and ordinances and has determined that it is in compliance with the The Emergency Management Agency staff has reviewed this development application for compliance standards and restrictions of the Land Development Regulations. This agency

Exhibit 1 to this report and attach it to the project's hurricane plan required to evacuate. Please outline the project boundaries on the Storm Surge Map provided as surge evacuation zones be added to the plan in order to property identify residents who may be As previously requested, Emergency Management staff recommends that a map showing the storm

previous submittal. See enclosed hurricane storm surge map overlaid on the master plan, which was submitted with the

Q. Determination of compliance with ADA requirements Findings of Compliance

Agree.

R **Martin County Health Department Requirements:** Determination of compliance with Martin County Health Department and School Board

Martin County Health Departme Not applicable. Agree.

Peter Walden July 28, 2020 Page 5 of 5

Martin County School Board Findings of Compliance. Agree.

- S. Determination of compliance with legal requirements Review Ongoing. Acknowledged.
- T. Acknowledged. Determination of compliance with adequate public facilities requirements
- U. Post-approval requirements Acknowledged.
- V. Local, State and Federal Permits Acknowledged.
- W. Fees Acknowledged.
- X. General application information *Noted.*
- Y. Acronyms Noted.
- Z. Attachments
- Noted.

report and allow the project to move forward to the next available County Commission meeting. I trust these responses and the revised plans satisfactorily address the comments contained in the staff

additional information. Please feel free to contact me or my assistant, Shirley Lyders, if you have any questions or need

Sincerely,

Encl. Senior Vice President Morris A. Crady, AICP

Encl. Copy To: Client

Development Team Members



NOT TO SCALE





Lucido & Associates

 Land Planning / Landscape Architecture

 701 E Coan Bed. Suid. Fields 3494

 00 Avenue A Sale 2A, For Herce, Fields 3490

 00 Hydinal Avenue, Chinda, Fields 3303

 (60) Hydinal Avenue, Chinda, Fields 3303



Data Source: http://geoweb.martin.fl.us/maps/ Martin County Storm Surge Evacuation Zones The purpose of the storm surge evacuation map is to highlight the County's areas which may potentially be inundated with storm surge (flooding), or whose evacuation routes may be impacted by storm surge. This provides residents with the opportunity to evacuate to a slety ahead of a huricane. To navigate to a specific address, you can either zoom to a location or use the search box to enter an address. (Ex. 2401 SE Montrery RG, Staurt, FL). Evacuation orders will be issued by zone(s) based upon the storm surge threat, and evacuation orders will always include mobile or manufactured homes for the entire county based on the wind threat. The highlighted areas correspond to the colors and evacuation zones listed below:

EVACUATION GUIDELINE'S (Mobile Homes IIUST Always Evacuate) vacuation Orders Will be determined based on forecasted storm surge for Martin County AB CD E. Areas that are not in a colored zone are nonevacuation areas

To report an ADA accessibility issue or request accessibility assistance, please contact the County ADA Coordinator (772) 320-3131, Florida Relay 711, or complete our accessibility feedback form at www.martin.fl.us/accessibilityfeedback



Banyan Bay PUD Hurricane Storm Surge Martin County, Florida





Drainage Analysis and Calculations

BANYAN BAY PHASE 2C Martin County, Florida

Prepared for:

CHESAPEAKE REALTY PARTNERS, LLC

Prepared by:

Kimley-Horn and Associates, Inc. CA No. 00000696

THIS IS TO CERTIFY THAT THE ENCLOSED ENGINEERING CALCULATIONS WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION.

BLAINE BERGSTRESSER, P.E. Florida Registration Number #84598 CA No. 00000696 Date:

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- 3.2 Water Quality
- 3.3 Control Structures
- 3.4 Stage Storage

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- C. Basin Map
- D. Phasing Plan
- E. Geotechnical Report
- F. Land Use
- G. Curve Numbers
- H. Time of Concentration
- I. Water Quality Calculations
- J. Permanent Pool Volume
- K. Bleeder Size
- L. ICPR Results
- M. Stage Storage

Prepared Using: Interconnected Channel and Pond Routing Model (ICPR) ©2002 Streamline Technologies, Inc. Design prepared in compliance with South Florida Water Management District and Martin County design standards.

1.0 INTRODUCTION

State Road 76 (Kanner Highway). ±254 acre parcel located in central Martin County, 2 miles north of Interstate 95 along project in Martin County, Florida. The Banyan Bay project consists of an approximately Construction Plans for Phase 2C (12.93 ac) of the Banyan Bay residential development The purpose of this report is present the surface water management system and the

Currently, the site for Phase 2C is undeveloped land adjacent to the existing Phase 1 of the project. There is a 1.5-acre conservation easement which contains 0.6 acres of a FDOT stormwater pond. wetlands. The previously approved area has been altered by the removal of 1.62 acres for

approved under Application No. 070615-10. system. The Phase 2C project area (12.93 acres) lies in Basin A and its land use was and conveyance piping which will discharge to the Phase 1 stormwater management family homes. Project grading will direct stormwater runoff to a series of catch basins The proposed project consists of construction and operation authorization for 36 single-

attached construction plans reflect the datum change. by converting all elevations using a factor of (-)1.46'. The below calculations and comply with Martin County criteria, the datum has been changed from NGVD to NAVD permit. An extension was granted on October 31, 2016 (Application No. 161024-27). To No. 070615-10). Please see Appendix SFWMD Permit History for a copy of the approved Phase 2C was previously approved by SFWMD under (Permit 43-00258-S, Application

2.0 BACKGROUND

2.1 Project Location

central Martin County. Condominiums and north of Evans Estates along the western right of way of SR 76 in Please see Appendix Location Map. The project is located south of the South River

2.2 **Project Description**

Primary access to the project will be via SR 76. areas and direct it to the storm water management areas for treatment and attenuation. and planted with vegetation. The proposed design will collect runoff from developed constructed as shallow lakes excavated to two feet below the seasonal high-water table includes nine lakes and three flow-through marshes. The flow- through marshes will be wetland sloughs through which the property currently drains. The total project area for all phases is approximately $254 \pm acres$ and is proposed for development as a single-family residential project. The site currently contains three development as a single-family residential project. The proposed design

minimum 50-foot upland buffer. into the storm water management system. Pursuant to Martin County code, the on-site wetlands will be preserved and integrated In addition, each wetland will have a

2.3 SFWMD Surface Water Permit History

1982. recreational lands on this site based upon a previously approved Conceptual Permit A) was issued by SFWMD on September 8, 1983 to serve Banyan Bay residential and (Permit No. 43-00258-S, Application No. 05132-A) that was issued on December 09, A Surface Water Management Permit (Permit No. 43-00258-S, Application No. 05173-

detention lakes and residential development on eight lots within Phase 1B. parcel of residential development known as Banyan Bay Phase 1A and 1B within Basin Application No. 040326-13) was issued on September 02, 2004 to serve a 6.33-acre Permit, an Environmental Resource Standard General Permit (Permit No. 43-00258-S, System for the residential development was permitted by SFWMD (Permit No. 43-00258-S, Application No. 030429-7) on March 10, 2004. Based on the Conceptual The Banyan Bay project was redesigned and the Conceptual Surface Water Management A, a temporary sales trailer facility in Phase 1A, and construction of 4.95 acres of wet

06/20/08. Phase 1 storm water system. Phase 1 storm water system was certified by SFWMD on Management Permit and the construction and operation authorization for the 33.56-acre consisting of the conceptual modification of the previous Conceptual Surface Water On August 10, 2005 Permit No. 43-00258-S, Application No. 050412-15 was approved,

22, 2016 (Application No. 160712-13). permit. The permit expired on August 28, 2012 and an extension was granted on August No. 070615-10). Please see Appendix SFWMD Permit History for a copy of the approved Phase 2C was previously approved by SFWMD under (Permit 43-00258-S, Application

Basin A Total =	Offsite SR-76	Wetland Area	Pervious Area	Pavement Area	Lake Area	Building Area	Basin A - Permitted Land
19.2	0.5	0.6	6.7	5.0	3.4	3.0	Uses
Basin A Total =	Offsite SR-76	Wetland Area	Pervious Area	Pavement Area	Lake Area	Building Area	Basin A - Total Land Use Break
19.2	0.50	0.60	7.14	2.54	4.19	4.22	down

Basin A - Phase 1 Building Area Lake Area Pavement Area Pervious Area Wetland Area	0.1 3.2 1.4	Basin A - Phase 2C Building Area Lake Area Pavement Area Pervious Area Wetland Area
Lake Area	3.2	Lake Area
Pavement Area	1.4	Pavement Area
Pervious Area	1.1	Pervious Area
Wetland Area	0.0	Wetland Area
Offsite SR-76	0.50	Offsite SR-76
Basin A Total =	6.26	Basin A Total =

3.0 Surface Water Management System Design

3.1 **Proposed Drainage and Peak Discharge Rate**

(Wetland 5) via a control structure in Lake A2. and Wetland 19. Storm water runoff will discharge to the northern wetland slough 76. Included in this basin are 36 single-family homes and a clubhouse, Lakes A1 and A2 on the northeastern corner of the project adjacent to South River Condominiums and SR As previously defined (Permit No. 43-00258-S, Application No. 030429-7), Basin A lies

results can be found in Appendix ICPR Results. Interconnected Chanel and Pond Routing Model (ICPR). Detailed ICPR inputs and be found in Appendix Time of Concentration. The rainfall events were modeled using Numbers. The Time of Concentration for each basin was calculated using TR-55 and can original geotechnical report. The curve numbers can be found in Appendix Curve Curve Numbers for each basin were calculated using TR-55 based off conditions in the

3.97 cfs. agency action (Permit 43-00258-S, Application No. 060823-16) Basin A is permitted or previous agency action, or specific SFWMD basin criteria. According to the previous based on the pre-development runoff rates resulting from the 25-year 72-hour storm event Pursuant to SFWMD and Martin County criteria, the allowable peak discharge rate is

3.2 Water Quality

A for detailed calculations by basin. times percent impervious. Please see the Appendix Water Quality Calculations for Basin stringent than SFWMD's criteria of the greater of 1" over the drainage basin area and 2.5 4.5 times the percent impervious for wet detention. Martin County requirements are more The detained water quality volume in the lakes complies with Martin County's criteria of

А	Basin	
Wet Detention	Treatment Method	
2.7 ac-ft	Vol. Req.	
3.1 ac-ft	Vol. Provided	

residence time is met in each pond. order to qualify for water quality. Please see Appendix Permanent Pool Volume to see the Martin County requires a 14-day wet season residence time in wet detention ponds in

3.3 <u>Control Structures</u> The control structu

during Phase 1: water quality elevations. Below is a breakdown of the CS-A which was constructed bleeders set at the water control elevation for each lake. Weir notches were set at the The top of the structures are set at the 25-year 72-hour storm event elevation with surrounding wetlands with an ultimate discharge to the South Fork of the St. Lucie River. control structures for the wet detention ponds were designed to discharge to

8.99' NAVD, and a 4.5" bleeder at invert 8.04' NAVD. CS-A: Type "E" Inlet with grate at 11.00' NAVD, a 4.75" rectangular weir at invert

3.4 Stage Storage

inputs: for individual basin storage and Appendix ICPR Results for detailed ICPR results and Below are the different design criteria for each basin. Please see Appendix Stage Storage

The 10-year 24-hour storm (6.8") was used to set the proposed minimum road crown.

A	Basin
9.86'	Peak Stage
9.86'	Min. Road Crown

peak discharge. The 25-year 72-hour storm (11.2") was used to set the perimeter berm and the allowable

A		Basin
4.03 cfs	Discharge	Allowable
Previously Permitted	Determination	Method of
3.53 cfs		Peak Discharge
10.80'	(NAVD)	Peak Stage

finished floor elevation. The 100 year 72-hour storm (14") with zero discharge was used to set the minimum

4.0 RESULTS AND CONCLUSIONS

previously approved permit. meets or exceeds Martin County requirements and meets the SFWMD criteria from the were updated reflect the datum change from NGVD to NAVD. The proposed design existing ponds in Phase 1. The drainage calculations, ICPR model, and construction plans both SFWMD and Martin County are met, and the storage requirements are met in the the change in land use, the pervious area is increased, the water quality requirements for of lake, 2.54 ac of impervious area, 0.6 ac of wetland and 7.14 ac of pervious area. With removes 1.62 ac for the FDOT stormwater pond and contains 4.22 ac for building, 3.2 ac impervious area, 0.6 ac of wetland and 6.70 ac of pervious area. The proposed Phase 2C No. 070615-10) to have a land use of 3.0 ac of building, 3.4 ac of lake, 5.0 ac of Phase 2C was previously approved by SFWMD under (Permit 43-00258-S, Application

APPENDICES

APPENDIX A Location Map



APPENDIX B SFWMD Permit History

BEG a dallando APPLICATION NUMBER: MANAGEMENT DISTRICT SOUTH FLORIDA WATER PERMIT NUMBER: a sed and 1 E. 6 Ø 500

APPLICATION/PERMIT FILE RECORD & ACTION SHEET

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Name: Danyan 50 Application No. 030499- 7 Permit No.

43-

Cogse-S

Ϊί..s file contains;

D STAFF CALCULATION SHEET(S) D ORIGINAL APPLIC NON

D DRAWING(S) D PERAIIT

D SPECIAL CONDITION SHEET

Chronological Correspondence/Action Record

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FAGE 1 OF B	PERMIT MODIFICATION APPROVED BY THE GOVERNING BOARD OF THE SOUTH FLORIDA WATER MANAGEMENT DISTRICT SOUTH FLORIDA WATER MANAGEMENT DISTRICT ONORIGINAL SIGNED BY: BYELIZABETH VEGUILLA BYBYGARRETT WALLACE JR. DEPUTY CLERKASSISTANT SECRETARY	Governing Poard, The Application, and Environmental Resource Permit Staff Review Summary of the Application, including all conditions incorporated by reference, are a part of this Permit Staff Review Summary of the Application, including all conditions permittee shall submit a written statement of completion and certifications, and performance criteria as set forth and incorporated in the appropriate provisions of Chapter 373, F.S. and Sections 40E-4.361, F.A.C., unless waived or modified by the In the event the property is sold or otherwise conveyed, the Permittee with and the District pursue-++ to Rule 40E-1.6 ±0.7, F.A.C. SPECIAL AND GENERAL CONDITIONS ARE AS FOLLOWS: SEE PAGES 2 - 6 0F 9 (12 SPECIAL CONDITIONS), 12 SPECIAL CONDITIONS), 13 GENERAL CONDITIONS), 14 GENERAL CONDITIONS).	arise by reason of the construction, management District and its successo 1 barnless from any and all damages, claims or liabilities which may the provisions of Chapter 373, Part IV Florida Statutes[2:S], as if the Operating Agreement Concerning Regulation Under Permit constitutes certification of compliance with state water quality standards where necessary pursuant to Section 1341, unless this Permit is issued pursuant to the net improvement provisions of Chapter 373, F.S., but the state water quality standards where necessary pursuant to Section 401, Public, Law This Permit Modification may be revoked, suspended, or modified at any time pursuant to the appropriate provisions of Chapter 373, F.S., and Sections 40E-4.351(1), (2), and (4), Florida Administrative Code (F.A.C.). This Permit Modifications of Chapter 373, F.S., and Sections 40E-1.6107(1) and (2), and 40E-4.351(1), (2), and (4), Florida Administrative Code (F.A.C.). This Permit Modifications of Chapter 373, F.S., and Sections 40E-1.6107(1) and (2), and 40E-4.351(1), (2), and (4), F.S., appropriate provisions of Chapter 373, F.S., and Sections 40E-1.6107(1) and 40, and 40E-4.351(1), (2), and (4), F.A.C., A ¹ specifications, remain in effect.	Information Bary 2018/16/14/14/16/19 ACIR 2018/16/14/14/16/16/14/16/16/14/16/14/16/16/14/16/16/14/16/16/14/16/1	PERMITTE: BANYAN BAY DEVELOPMENT CORPORATION	
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PAGE PERMIT NO: N 0Ę 43-00258-s ە

SPECIAL CONDITIONS

The conceptual phase of this permit shall expire

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 N Operation Banyan Bay certificate restrictions, whichever concurrent Bay comes 0 F, P H Property with the incorporation copy first, surface the Owner' ß the engineering the Water permi ter management system Association. Within, neering certification tee articles shall 0 Submit incorporation, on March 11, shall be one year 0fi сору Year of permit construction opy of the the 2006. responsibility of ermit issuance or recorded completion,

ω Discharge Facilities;

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Basin: 7 Structure: CS-A

Receiving hody Control elev : 1-4.5" WIDE SHARP CRESTED weir with 1-3.25" dia. CIRCULAR ORIFICE with j 9.5 feet N ¹ Crest at elev. invert at elev. 10.58' NGVD 9.5' NGVD NGVD.

Basin: в, e wetland NGVD.

Structure: CS-B

Receiving body : On-site Control elev : 9.9 feet N 1-4.75" WIDE SHARP 1-3" dia. CIRCULAR DE SHARP CRESTED weir CIRCULAR ORIFICE with wetland : with crest i invert at e elev. с, гт elev. 10.88' NGVD.

NGVD.

Basin; Cl, Structure: CS-C1

1 28' WIDH 1-3" dia. Receiving body : I Control elev : 10 WIDE SHARP CRESTED weir with crest a dia. CIRCULAR ORIFICE with invert at Lake ß at elev. 12.15' NGVD. 5 elev. 10' NGVD.

feat NGVD.

Basin: C2, Structure: CS-C2

Receiving 1-4.25" WIDE 1-3.5" dia. (dia. SHARP CRESTED weir with crest a CIRCULAR ORIFICE with invert at at elev, elev. 10.95' NGVD. lev. 10' NGVD.

Control elev lev:10 On~site wetland D feet NGVD.

Basin: С2,

Structure: CS-C3

1-4.25" WIDE

SHARP CRESTED weir with crest

at elev.

Receiving body : C Control elev : 10 On-site wetland 0 feet NGVD. 10.95'

NGVD.

Basin: Dl,

Structure: CS-D1

1-12" 1-3" d dia. WIDE ² SHARP CRESTED weir with crest at CIRCULAR ORIFICE with invert at e at elev. 9.67' NGVD. elev. 8.5' NGVD.

Receiving

Control elev wody : Lake D2 ev : 8.5 feet feet NGVD.

The permittee shall be responsible water quality problems that resuls surface water management system. Basin: Receiving body : Lake El Control elev : 7 feet NGVD. 1-30" 1-3" (1~20" WIDE 1-3" dia. Basin: E2, Structure: CS-E2 Receiving body Control elev : Basin: El, Receiving body : On-site Wetland Control elev : 7 feet NGVD. Basin: D3, 1-14.5" WIDE 1-4.25" dia. Receiving body : On-site n. Control elev : 6.5 Fet N. 1-2" WIDE SHARP CRESTED weir with crest 1-3" dia. CIRCULAR ORIFICE with invert 1-2" 1~3" Receiving body : On-site Wetland Control elev : 6.5 feet NGVD. dia. WIDE SHARP CRESTED weir with crest at elev. 9.35' NGVD. dia. CIRCULAR ORLFICE with invert at elev. 7' NGVD. E3, Structure: WIDE SHARP CRESTED weir with crest at elev. dia. CIRCULAR ORIFICE with invert at elev. 9. WIDE dia. Structure: (S-E1 Structure: CS-D3 SHARP CRESTED weir with crest CIRCULAR ORIFICE with invert a SHARP CRESTED weir with CIRCULAR ORIFICE with 1 9.2 feet 1 CS-E3 NGVD. sible for the result from land invert : t at elev. 7,57' NGVD at elev. 6.5' NGVD. at correction of any the construction at at elev. elev. elev. elev. 8.04' NGVD. 6.5' 11.17' NGVD. NGVD. NGVD. erosion, shoaling or operation of the

Basin: D2,

Structure: CS-D2

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PAGE PERMIT

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Facilities other than those approved modification of this stated herein shall permit. not be constructed without an

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- All

7.

Lake side siore

slopes st.

shall be no control e
to 1 foot plans.

from

unless

2 feet shown

below to g

elevation. Si above control

steeper than 4:1 (horizontal:vertical) to alevation. Side slopes shall be nurtured above control elevation to insure vegetation

vegetative

depth of r planted growth,

the

б.

The District methods be in

t reserves the right to require that a incorporated into the drainage system

additional water quality treatment m if such measures are shown to be

necessary.

сı ,

Measures s turbidity

shall be taken during construction to insure , violations do not occur in the receiving water.

that

sedimentation and/or

4.

PERMIT

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PAGE 4 NO: QF 43-00258-s 9

9 A stable, within one the reference must be submission of one permanent -ed (100) noted on or and accessible elevation reference shall be feet of all permitted discharge struct certification report. The location ification report. Th with the certification small be established on or ge structures no later than location of the elevation

report

- 10 The A11 The permittee surface water materials management shall be shall provide system in routine order to remove o remuve all all trapped ired by of the components of the d sediments/debris, Failure to
- 11. This reasonably properly permit maintain the demonstrates ŝ issued be properly system may i based 9 y disposed of as required by law. result in adverse flooding conditions. the applicant's submitted
- management system, party. permittee completed caused by The surface the completed 5 District stem, if r provide Jeted permit Water man-ide necessary, appropriate will requi management require adverse activity. to eliminate mit system tigation to the permittee water Should any occur, ... resource the cause of the adverse the District to modify adverse impacts he District wil related impacts information mpacts will p the ß will other surface caused impacts. require impacted not Å which lot be water the the

12.

- Minimum building floor elevation: BASIN: BASIN: BASIN: BASIN BASIN: BASIN: BASIN: BASIN: BAS BASIN: t i 1 14.00 12.2 10. 2 13.39 0. 9 .3.48 94 94 58 67 feet feet feet feet feet feet feet feet NGVD. NGVD. NGVD. NGVD. NGVD. NGVD.
- 13. Minimum road Crown elevation: Basin:
- Basin: Basin: Basin: Basin: Basin: Basin: Basin: Basin: E2 E3 D2 C2 BA 1 1 111111 t I. 11.50 f 11.50 f 12.87 12.00 10.50 8.50 8.50 9.00 11.51 10.17 feet fe',t fest feet feet reet feet feet NGVD. NGVD. NGVD. NGVD. NGVD. NGVD. NGVD. NGVD
- shall Endangered species, observed onsite and be the permittee's : and/or threatened species /or the project cont these

Basin:

feet

14.

appropriate gui listed species. Wildlife Conservation guidance, >> the projectes and/or ;
>>> the project contains suj
ee's responsibility to co
1 Commission and/or the U
recommendation recommendations and/or necessary permits to //or species of special c
is suitable habitat for t
co coordinate with the F
the U.S. Fish and Wildl Wildlife avoid im-Florida concern have species. Fish been s. It and

2 5

- 15 The wetland conservation areas and upland buff areas shown on Exhibit(s) 2 and 4G may in no wa permitted state. Activities prohibited within are not limited to: construction or placing of and upland buffer placing of no way be altered from their natural ithin the conservation areas include, zones and/or upland preservation om their natural or impacts but 0r ç
- preservation. conservation, and removal; dumping or of trees, trees, any is, sime i excavation, arease other activities ontro ontro r placing shrubs, soil , dredging, or , inities detrimental , fish or other vegetation substances removal with and оf ö such the drainage, wildlife soil buildings as except. materials; rrash; habitat 5 g removal or ę, ß diling or f exctic above the conservation the ground; destruction c regetation or fencing wate 2

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5 NO: Q 43~00258-s ø

- 16 A mitigation Exhibit Nos. : 5.2 according acres of upland program 3 and 4. and 4. The permittee compensation areas. 4 for 1 The Banyan Вау shall shall preserve be implemented in rve 78.11 acres accordance of wetland wetlands with and
- 17 exotic/r uisance plant areas 5 immediately defined the areas annua l \mathbf{P} Exhibit monitoring addition, the permittee conservation as permitted. Will wo. 4. The monitoring program shall be implemented in accordance with reports submitted to District staff. Maintenance for the preserved wethand as permitted. Maintenance shall be conducted in permittion area is maintained to ensure the integrity and viability of those the preserved wethand the preserved we Уq the following and Florida maintenance permittee ù is maintained free Exotic Pest Plant (maintenance shall manage the do not dominate any ŝ of total co Council conducted in perpetuity to ensure from Category 1 exotic vegetation Council at the time of permit issua cover Coverage of exotic and nuisance ir between maintenance activities. a conservation areas such that exotic and issuance) that (as
- 18. Upon shall shall submit a work l supmittal of the dates ilrit application schedule, subject firgt for each subject mitigation, t or District construction nstruction approval, the pe trict staff review and ap mcnitoring and maintenance permittee approval,

plant

species

one section of those

areas

- **1**9 At the t: sketches buffer zc time and of application Tegar descriptions for construction of all the w approval, shall task.
- Prior ç zones the for review. the wetlanc. 1, the applicant sp preservation areas and submit upland

permittee shall commencement

NAD83, ŗ disk Florida for the ш the mitigation digital CAD (3, HARN with the map units and be submitted to the Dj HARN service area office where State with Plane submit n areas and associated burrees... (.dxf) or GIS (ESRI Coverage) form (.dxf) areas system, East Zone ament of construction re two certified copies of t as and associated buffers. ---- in feet. This data should reside on District's Environmental Resource on here the application of the format. The data should also be Resource Compliance The Ę files wetland also be should ມ data 9 impacts, о К be or floppy Division datum supplied 5 the the ß

proposed from the the such uncumbrances easem∈nt, easemer.t the event easement the recorded which modifications District. The the it is which which the District permittee shall be easement the ĝ District later interests. easement shall to the determined determines be approved must be required to provide Ļ. determines substantial that there are contrary free form are must ary o the intent of the easement. are encumbrances or interests in encumbrances conformance contrary to the ride release or s receive ò prior 0 with subordination interests Written intent Exhibit interests ntent of t consent ł s in the n of the

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Professional man Preservation Act staff and Fork of the At the the time of application for of the St. Lucie River, t monitoring plan. The pl All mangrove trimming mangrove (Sections trimmer and in accordance wi ons 403.9321-403.9333 Florida for construction a r, the permittee s plan is subject an is subject to activities shall shall approval review be submit with the for accomplished any phase along the a draft mangrove tr and approval by Di Mangrove ЪУ Trimming വ certified trimming District South and

07

- 21. The District reserves the permittee if monitoring or onsite or offsite wetlands, right to require of the information Statutes) taken by the
- waters have or curred due ĉ other information demonstrates that adverse upland conservation areas or buffers, or other project related activition related activities. or other surfa surface ö
- 22. The permittee shall instruct all personnel 235.2
- construction personnel are presence of manatees and the on personnel are responsible the need to ated with the with manatees. of

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need to avoid collisions wi for userving water-related activities f the . All for

PAGE PERMIT თ NO: ĝ 43-ം '0258-S

the presence of manatee(s).

under 1973, The criminal permittee and the penalties f the Marine Florida Manatee Sanctuary Mamma 1 for harming, advise Protection all / harassing, or Act of construction Act. ß ¹ personnel that there a r killing manatees which 1972, The Endangered S_I Species are are protected CIVIL Act f

entangled, entrapment. habitat. Siltation barriers are Barriers properly shall must secured, and st not block pe made of material in wi l are regularly c manatee entry ularly monitored to entry to or exist which manatees ťo from cannot avoid essential manatee become

where bottom A1] wake/idle" vess the All els draft speeds vessels will associated 0f at t the a11 vessel with times times while in the construction area and while essel provides less than a four-foot clearance follow routes of deep water whenever process. operate from the at "no in water

If manatee(s) operation or v project equipment that equip of ensure all moving equipment area closer of its vessel equipment ser than 50 are Activities seen within 100 umo movement, the 50 feet volition no manatee. et to will closer TTP р a manatee not resum appropriate precautions yards of the than These resume e precautions 50 feet of a shall until the manatee(s) active of a manatee. necessitate im shall include daily shall immediate construction/dredging 'nas Operation the departed shutdown operation ion of any any the of

the U.S Florida FWC Any Hotline collision U.S. 0 K Fish Vero on with and/or injury to a r at 1-888-404-FWCC. Collis. ish and Wildlife Service : /ero Beach (1-561-562-3909) injury to a manatee shall be reported immediately to the WCC. Collision and/or injury should also be reported to ife Service in Jacksonville (1~904-232-2580) for north in south Florida.

Sfrvice Florida coeration. immediately ĉrea. Manatee operator. associated water upon completion of the project. Temporary reads completion s Caution: N related C H A11 Habitat. should in Vero Beach The second signs with đ Any equipment construction crews. n of the Manatee the also the collision Idle speed EWC construction, and a sign should be at be must project. A s Area will be (1~561-562-3909) Hotline contacted with be is required manatees shutdown at All s A sign and/or A second and shoul /or injury 1-888-404-2 posted shall signs are Jacksojville should j. measuring sted in a lo д, لوast 81/2" hv f nnoperating a be μ sign should be ZWCC. nanatee đ posted location ,† ۵ at The pe be î manatee least vessel prior -904d visible 11" which comes removed U. S prominent posted З ft. 232-2580) Ľ, within ö shall Уq the and Уq ö reads Caution: the and Wildlife be ÷ construction 50 ъ vessels are during the for visible ĥ permittee feet vessel which all g ç

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7 NO: 0Å 43-00258-s ¢

GENERAL CONDITIONS

- ÷ activity F.S. All a plans deviation activities authorized by this ns specifications and perform intion from the permitted act shall the permitted activity constitute a vinlation permit criteria a ty and the n of this p shall be as permit conditions implemented approved and by for tt ឧន as set this p IV, undertaking permi Chapter forth Ę that 373. the Any
- \sim activity. request b the permit This permit exhibits, ar Thi complete ЪУ nit or a copy there and modifications st The complete permit y District staff. The permit prior to thereof, The shall shall be commencement permittee shall be complete available kept 0f at with tha the require for all activity work review at the work lre the contractor conditions, site authorized the work e H the attachments, permitted ç Уq review this
- ω suspended Turbidity responsible control Water reference in practices shall completed installed prior of best Cause completed Activities Chapter State Management Violations of plan witnin 7 days of any and and barriers solids ი for Rule 40E-4.091, F.A is approved as part for the removal of 0 fi soils a l be in maintained at the Florida into the (Department of shall by this permit State water qu are stabilized accordance with the guidelines remain receiving Land Development all locations where the Þ e osion and pollution of the permit. the barriers. Environmental C Ę quality s locations vironmental Regulation, 19 unless a project-specific the permit. Thereafter the Temporary place barriers. waterbody and standards be at where permanent conducted indards. The all erosion Manual; exists the locations has and control control possibility A Guide to Source Turbidity barriers possibility of trar control due to the ŗ permittee t∍en a manner in erosion and sediment the permittee shall be tee shall correct any , (8861 until shall ö measures established prevent incorporated construction permitted shall Sound Land and which be implemented trans implement shall violation shall does d work. A11 Åq be 51 be

ic.

4 Form completion commencement the District vithin 30 day The Number 30 days date. 0960 e shall notify the District of the anticipate ys of the date that this permit is issued. J of activity authorized by this permit, the an Environmental Resource Permit Construct indicating the esource Permit actual start c the anticipated construction is issued. At loast 40 hour date Construction Commenceme and the expected construction Commencement hours star submit prior date ĉ 5

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The permittee

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- <u>ა</u> When the duration of status f construction i reports to the will exceed one e District on an
- each construction status report year. form. Status report forms shall be be year, the permittee shall submit annual basis utilizing an annual submitted the following June of following June annual June of
- б. deviation not brocess, as-built law, utilizing the Completion/Certification compliance with permitee Within registered ify the 30 drawings shall from days professional District permitted plans submit after for completion the ۵ engineer supplied based on Form written purpose system drawings Number and onsite se of (ß 0 Ifi statement Environmental specifications other appropriate individual ц. S construction of t tement of complet 0881. determining ĺs observation of control ready ons. This submittal for inspection. Ad ..esource if the the ч 95 construction or permitted and work Permit 0 H certification was as authorized by hit Construction Additionally, completion shall activity, completed review serve Åq and the <u>1</u> р Ю rt ŕ'n 0 01

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dra.rings With the strict that the sy om the approved d certification must deviations noted. þe Both the accompanied origin; l discovered Ř and മ copy of the approved p revised specifications during the certification permit

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PAGE PERMIT œ NO: ĝ 43-00258-s 9

drawing. registered clearly surveyor All shown. The plans must be surveyed dimensions The and clearly elevations labeled shall as "As-built" be certified ĥ "Record" уд ц Ц

٦. system. The permit shall not be transformer for Following insport operating permittee Environmental Resou Management District, the compliance Operation for has The District complied operation con ersion entity if different inspecti Phase, shall with in with phase -n the of the permitted accordance with Sections 9.0 and 10.0 tesource Permit Applications ty until the operati tion and approval of initiate transfer o: Form °£ Environmental requirements this permit No transfer 0920; from the permit from the permittee. [107, F.A.C., the permit ponsibility for operation and maintenance of be transferred to such approved and maintenance of the Resource Per the District shall not become of condition (6) G, the phase of permitted Permit within determines the system to be ations; and the enuity approved d 10.0 of the Basis of Review f t to the Until the the pe ť ibove, from effective: system by cn approved operation permit becomes effect and submitted Construction approved becomes until the District, the effective. strict, the responsible a request Phase request ew for Water and γď ÷ đ

œ portion accordance with the permitted plans and permitted system must be compl of the permitted use of site infrastructure located within the area served portion or phase of the system. Each phase or independent portion of the must be completed in accordance with the permitted plans and permit cor prior to transfer of responsibility for the permitted plans and permit cor Each phase transfer of tc Section 40E-1.6107,
with the terms of the p 0 H independent portion f the system. Each in accordance with if responsibility for permit. of the for shall permit be completed in the initiation served by that transferred liable for conditions the system

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9 ß For require maintain those ц Ц of the systems easement the system in system that or deed W111 local government conformance restriction in be operated with this he permitted plans and permi operation and maintenance of 0r ß maintained by der to enable other responsible entity у that an entity entity the phase ß

entity. permittee permitted maintenance operation must Other along applications within units Sections restriction must be recorded 00 documents sales or with ales or prior to the completion of the system, whichever comes incuments concerning the establishment and authority of the operating n and maintenance documents must be received undicipal entities Failure to of the system. ce and Failure system and any remaining any operation e to submit other submit the appropri-liable for carrying any other permit cond final in the ine public records operation and main this passes of the second state of the second st appropriate conditions. out county or municipal entities. Firms be received by the printities. final maintenance accepted by permit, such e s and submitted documents by the and will operation local easement prior to lot to result ity that will ity to operate ement or deed the District required government ŝf Permit the the ĝ Å

s permit∵ee Should mplementation so required any other shall regulatory agency require changes notify the District in writing that a determination can be made pul ť g or the whether a of the permitted system, peimit m es prior to modification the

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11. This state, permit local does and not special eriminate the necessity ď obtain required

create does activity this permit. any property district This authorizations right permit or any interest in prior any to ö the the start permittee federai, 20 any 0

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or co those tivity approved by this eate in the permittee a es it authorize any en controlled by the pe specified in the permittee, entrance nodn OF. ĝ convey activities any rights or or Chapter 9 interest property ţ which real property, ч s not owned nor

permittee is hereby advised that and Chapter 40E-4 Section 253.77, F.S. states that a 40E-4C, privileges ot 40E-4(, F.A.C.

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PERMIT NO: 43~00258-S PAGE 9 OF 9

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Therefore, from the a of Trus other sovereign not ease commence any excavation, ereign or other lands of Trus ees of the Internal state-owned icen;e, cense, easement, or othe , the permittee is respon doard of Trustees prior lands. responsible The State, the title to which is vested in the Board Improvement Trust Fund without obtaining the required c uther form of consent authorizing the proposed use. responsible for obtaining any necessary authorizations prior to commencing activity on sovereignty lands or the State, construction or other title to activity involving the ß õ 0 H

- 13. unless the work 20.302(3), F.A.C., The permittee ee must work qu ust obtain a 1 c qualifies f. ., also known . ¹ Water Use permit prior for a general permit p n as the "No Notice" Rule. r to construction dewate pursuant to Subsection dewatering, ection 40E~
- 14. The permittee shall hold and save the District harmless claims, or liabilities which may arise by reason of the operation, maintenance, removal, abandonment or use of the permit. The or use of from any and all damages, construction, alteration, any system authorized by
- 15. Any part formal shall delineation delineation of the extent of a wetland or other surface water submitted as of the permit application, including r¹ans or other supporting documentation, 1 not be considered binding, unless a specific condition of this permit or a al determination under Section 373.421(2), F.S., provides otherwise.

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- ٠6. The prior 1.6105 and 40E-1.6107, liable for corrective real conveyance, ownership pern'ttee ő property the sale, ß 0r r shall notify the urscall of a constant of transfers shall conveyance or F.A.C.. The peri actions that may other are subject to the rec permittee transferring transfer of the be system in v required as 0r control em is 1 Ling of a permitted s located. system. requirements of ring the permit sh a result of any ព្រ any system shall 0f transfers Rules violations any y sale, or the remain 40E-0 H
- 17. Upon ő Jpon reasonable dentification s insure conformity shall notice to have permission to with the plans and the permittee, District succession to enter, inspect, sample a he plans and specifications approved and by staff with d test the synthesis system?
- 18. project serv.ce ΪĒ historical center site, the ß archaeological permittee shall artifacts are l immediately discovered notify the at any tim arpropriate time e on the District
- 19. submitted information that is The permittee shall immediately notify the District n that is later discovered to be inaccurate. in writing of an" previously

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Specific authority 373.044, 373.113 F.S. Law Implemented 373.413, 373.416, 373.419, 373.426 F.S. History—Now 9-3-81 Amended 1-31-82, 12-1-82, Formerly 15K-4.07(4), American J-1-88, 4/20/94, Amendicd 7-1-82, 4/20/94, 10-3-95

40E-4.321 (a ENVIRONMENTAL RESOURCE PERMIT Duration of Permits

(1) Unless revoked or otherwise modified the duration of an environmental resource permit issued under this chapter or Chapter 40E-40, F.A.C. is as follows:

general environmental resource permit applications filed for a period of two years shall expire from the date of issuance of the permit. then the conceptual approval remains valid until final action is taken on the environmental resour a permi condition of the permit, unless within that period an application for an individual or standard general permit is filed for any portion of the project the application is granted, then the conceptual approval is valid for an additional two years of issuance of the permit. Conceptua' - provals which have no individual or standard For a conceptual approval, two years from the date of issuance or the date specified as a If an application for an environmental resource permit is filed,

automatically at the end of the two year period G

duration of the conceptual approval shall be two years from whichever one of the following occurs at the fatest date: application for development approval (ADA) and a local government comprehensive plan amendment, For a conceptual approval filed concurrently with a development of regional impact (DRI) 댦

the effective date of the local government's comprehensive plan amendment,

or other legal appeals. the effective date of the local government development order. the date on which the District issues the conceptual approval, or the latest date of the resolution of any Chapter 120.57, F.A.C., administrative proceeding

date of issuance or such amount of time as made a condition of the permit. G For an individual or standard general environmental resource permit, five yaars from the

the date a the notice of intent to use the permit is provided to the District. For a noticed general permit issued pursuant to chapter 40-E-4C0, F.A.C., five years from

<u></u> (2)(a) Unless prescribed by special permit condition, permits expire sutomatically according to the timeframes ir dicated in this rule. It application for extension is made in writing pursuant to subsection

9 the permit shall remain in full force and effect until: the Governing Board takes action on an application for extension of an individual permit,

2. staff takes action on an application for extension of a standard general permit.
(b) Installation of the project outfall structure shall not constitute a vesting of the permit.
(3) The permit extension shall be issued provided that a permittee illes a written request with the District showing good cause prior to the expiration of the permit. For the purpose of this rule, good cause shall mean a set of extenualing circumstances outside of the cort of the permittee. Requests for

delayed this project, will not be accepted more than 180 days print to the expiration date extensions, which shall include documentation of the extenuating circumstances and how they have A

Conceptual Approval for two years from the date of issuance of "he modification. For the purposes of this section, the term "substantial modification" shall mean a modification which is reasonably expected to lead to substantially different water resource or anvironmental impacts which require a detailed review Substantial modifications to Conceptual Approvals will extend the duration of the

Substantial modifications to individual or standard general environmental rosource

modifications do not extend the duration of a conceptual approval. permits issued pursuant to a permit application extend the curation of the permit for three years from the date of issuance of the modification. Individual or standard general environmental resource permit

modifications) do not extend the duration of a permit. 6 Permit modifications issued pursuant to st bsection 40E-4.331(2)(b), F.A.C. (letter

and obtain operation phase approval from the District within the permit duration shall require a new permit authorization in order to continue construction unless a permit extension is granted. 3 Failure to complete construction or alteration of the surface water management system

CHAPTER 40E-4 (10/95)

Revised August, 2000

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different from the position taken by it previously. Persons where substantial interests may be affected by 2. Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the SFWMD's final action may be

Petitions must substantially comply with the requirements of either subsection a. or b. above. Complaint and Order may file a petition for a hearing no later than 14 days after the date such order is served.

Complaint and Order, pursuant to Section 373.119,

the person named

in the Administrative

Administrative

Fla

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Respondent

c. <u>Administrative Complaint and Order</u> ident objects to a SFWMD Adminis

which is attached to this Notice of Rights. of Rula 28-107.004(3), Ffa, Admin. Code, a copy of the

<u>Annulment</u> <u>and Withdrawal:</u> <u>Suspension</u>, <u>Revocation</u>, administrative complaint to suspend, revoke, annul, or be conducted in accordance with Sections 120.569 and through mail or posting or publication of notice that the SFWMD has or intends to take final agency action.

Code, copies of which are attached to this Notice or Hights, and Section 373,119(3), Fla. Stat., for a hearing on the Order. Any subsequent agency action or proposed agency action to initiate a formal revocation proceeding shall be separately noticed pursuant to section g. below.

provided in subsections c. and d. below, of either written notice through mail or posting or publication of notice that the SFWMD has or intends to take final agency acion. of Rule 28-105.301(2), Fla. Admin, Code, a copy of the which is attached to this Notice of Rights, person seeking an informal hearing on a SFWMD decision which does or may determine their substantial intel sets shall file a petition for hearing pursuant to Sections t20 569 and 120.57(2), Fla. Stat or for mediation pursuan to 120.57(2), Fla. Stat or for mediation p ion 120.573, Fla. Stat. within 21 days, Informal Administrative Hearing: of material fact in dispute, the for mediation pursuan If there đ whose substantial interests are affected by a SFWMD Order for Emergency Action has a right to file a petition pursuant to Rules 28-107.005 and 40E-1.611, Fia. ^r/min.

are no issues which is attached to this Notice of Flights, notice through mail or posting or publication of notice that the SFWMD has or intends to take final agency action. Petitions must substantially comply with the requirements u, Rule 28-106.201(2), Fla. Admin, Code, a copy of the provided in subsections c. and d. below, of either written p

a. <u>Formal Administrative Hearing:</u> If a person seeking a formal hearing on a SFWMD decision shall file a petitic, nor hearing pursuant to Sections 120.57(1), Fla. Stat. or for mediation pursuant to Section 20.573, Fla. Stat. within 21 days, except as

(also published as an exception to the Uniform Rules of Procedure as Rule 40E-0.109), as set forth below. Petitions are deemed filed upon receipt of the original documents by the SFWMP Clerk.

point of entry into administrative proceedings is governed ty Rules 28-106.111 and 40E-1.511, Fla. Admin. Code,

either a formal or an informal hearing, as set forth below. A 1. A person whose substritial interests are affected by the South Florida Water Management District's (SFWMD) action has the right to request an administrative The affected person may request Environmental Resource Permits and Use of Sovereign Submerged Lands (SLERPS), must be filed within 14 days SLERP. Pelitions must substantially comply with the requirements of either substantially. 0.109(2)(c)), a petition objecting to the SFWMD's agency action regarding consolidated applications for d. <u>State Lands Environmental Resource</u> 40E-1.511(2), Fla. Admin. Code (also published as an exception to the Uniform Rules of Procedure as Rule 40E-

conditions shall take whatever action necessary to cause above. However, the person, or the agent of the person responsible for causing or contributing to the emergency to file a petition under Sections 120.563, 120.57(1), and 120.57(2), Fla. Stat., as provided in subsections a. and b. A person whose substantial interests are affected SFWMD Emergency Authorization and Order, has a

œ. Emergency Authorization and Order; has a right the

Authonization and Order. immediate convulance with the terms of the Emergency

Order for Emergency Action:

requirements of either subsection a. or b. above

Petition for Administrative Proceedings

Section 120.569(1), Fla. Stat. (1999), requires that "each notice shall inform the recipient of any administrative hearing or judicial review that is available under this section, s. 120.57, or s. 120.68; shall indicate the procedure which must be followed to obtain the hearing or judicial review, and shall state the time limits which apply." Please nots that this Notice of Plights is not intended to provide legal advice. Not all the legal proceedings detailed below may be an applicable or

MCTICE OF RIGHTS

published as an exception to the Uniform Rules of Procedure as Rule 40E-0.109(2)(c)), an additional 21 days from the fate of receipt of notice of said decision to request ar, administrative hearing. However, the scope of the administrative hearing shall be limited to the substantial doviation. any such final decision of the SFWMD snall nave, pursuant to Rule 40E-1.511(2), Fla. Admin. Code (also of number of an exception to the Uniform Rules of

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8. Pursuant to Section 120.68, Fla. Stat., a party or is adversely affected by final SFWMD action may of judicial review of the SFWMD's final decision by filing

DISTRICT SOURT CF APPEAL

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Governing Board, right to such a hearing and request an informal hearing before the Governing Board pursuant to Section 120.57(2), pursuant to Section 120.57(1), Fla. Stat., may waive their Code, Stat., substantially affected persons ω which may be granted at the option Pursuant to Rule 40E-1.511(4), Fla. Admin, antially affected persons entitled to a hearing g θď

review by the Land and Water Adjudicatory Commission (FLAWAC) of SFWMD's final agency action to determine if such action is consistent with the provisions and purposes of Chapter 373, Fla. Stat. Pursuant to Section 373,114,

LAND AND WATER ADJUDICATORY COMMISSION days of rendering of the final SFWMD action.

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the appellate district where a party resides and filing a second copy of the notice with the SFWMD Clerk within 30 a notice of appeal pursuant to Florida Rule of Appellate Procedure 2.110 in the Fourth District Court of Appeal or in

of Chapter 373, Fia. Stat. Pursuant to Section 3 Fia. Stat., and Rules 42-2.013 and 42-2.0132, Fia.

Admin,

Code, a request for review

to the extension extension and that the SFWMD and all other parties agree hes consulted with all other parties, if any, concerning the for extension must contain a certificate that the petitioner extension of Code, persons may file with the SFWMD a good cause shown, 4 time for filing a patition. The SFWMD, a request Pursuant to Rule 28-106.111(2), Fla. Admin. may grant une extension. The request đ ģ

> rendition of the order or adoption of the rule sought to be reviewed; (b) an order of the Department of Environmental Code, a request for reviev of (a) an order u rule of the SFWMD must be filed with FL, WAC within 20 days after

amendment or repeal of

CIRCUIT COURT

witiain agency actior just compansation may seek judicial review of the action in circuit court by filing a civil action in the circuit court in the constitutes an unconstitutional taking of property without judicia. action of 5. Pursuant to Section 373.617, Fla. Stat., any substantially affected person who claims that final agency 8 circuit in which the affected days of the rendering of the 2-WMD's the SFWMD relating đ permit decisions õ final led

Clerk a verified complaint setting forth the facts upon which the complaint is based and the manner in which the complaining party is affected. If the SFWMD does not take cilizen of Florida may bring an action for injunctive relision against the SFWMD to compet the SFWMD to enforce the laws of Chapter 373 Fla Station and Table 2014 laws of Chapter 373, Fla. Stat., and Title 40E, Fla. Admin. Code. The complaining party must file with the SFWMD ġ, action on the complaint within 30 days Pursuant to Section 403.412, Fla. Stat., Circuit in and for Palm ្ម

works that viciate the provisions of Chapter 373, Fia. Stat require the abatement of any stomwater management system, dam, impoundment, reservoir, appuntmant work or 7. Pursuant to Section 373.433, Fla. Stat., a private citizen of Florida may file suit in circuit court to Pursuant to

cause of action allegedir occurred. receipt, the complaining party may then file a civil suit for injunctive row in the 15" Judicial Circuit in and for Palm Beach County or circuit court in the county where the appropriate

Simultaneous with filing, a copy of the request for review must be served on the DEP Secretary, any person named in the SFWMD or DEP final order, and all parties to the proceeding below. A copy of Rule 42-2.013, Fla. Admin. Code is attached to this Notice of Right.. entered pursuant to a formal administrative hearing under Section 1_0.57(1), Fla. Stat., must be filed no later than 20 days after rendition of the SFWMD's final order. rendition of the DEP's order, and (c) a SFWMD order SFWMD rule must be filed with FLAWAC within 30 days of rendition of the DEP's order Protection (DEP) requiring ≻

PRIVATE PROPERTY RIGHTS PROTECTION ACT

70.001(4)(a), Fla. Stat. action pursuant to the procedures set forth in Subsection the real property is located within 1 year of the SFWMD of the SFWMD has inordinately burdened an existing use of the real property, or a vesteu right to a specific use of the real property, may file a claim in the circuit court where property owner who alleges a specific action

LAND USE AND ENVIRONMENTIAL DISPUTE RESOLUTION

the use of the real property, may file a request for reliet with the SFWMD within 30 days of receipt of the SFWMD's order or nulce of agercy action pursuant to the procodures set forth in Subsections 70.51(4) and (6), Fia. Stat. 11. A property owner who alloges that α SFWMD development order (as that term is defined in Section 70.51(2)(a), Fla, Stat. to includa permits) or SFWMD enforcement action is unreasonable, or unfairly burdens

MEDIATION

12. A person whose substantial interests are, or may be, affected by the "FWMD's action may choose 12

days of either writton mediation as an alternativo remody under Section 120,573, hat. Pursuant to Rulo 28-106,1 1(2), the polition for mediation shall be file notice through mail or posting filod within Fla. Admin. <u>N</u> q

Code Fla. Stat.

Hevised August, 2000

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ø 45 . 0 ି modified agency decision have a right to petition for hearing within 21 days of receipt of the final order in accordance with the requirements of Sections 120.569 and Admith. Code. If mediation terminates without settlement of the dispute, the SFWMD shall notify all parties in writing that the administration terminates without settlement of SFWMD that the purpose of the underlying statute will be Subsection 120.542(2), principles of fairness 13, A person who is subject to regulation pursuant to a SFWMD rule and believes the application of VARIANCES AND WAIVERS deadlines that then will apply for challenging the agency 120.569 and 120.57, Fla, Stat., remain availabls for disposition of the dispute, and the notice will specify the order incorporating the agreement of the parties, whose substantial interest will be affected by modified agency decision have a right to pe execution of the agreement. If mediation results in setti-ment of the dispute, the SFWMD must enter a final mediation timely agreement of all the parties to mediate will toil the time limitations imposed by Sections 12:\.569 and 120.57, Fla. Stat., for requesting and holding an administrative hearing. Unless otherwise agreed by the parties, the As determination; and an e) substratial interests action; number of the person requires person's representative, if any; following information; Pursuant containts of the petition for mediation provided in Section the right to an administrative hearing if mediation doas not publicer in of notice that the SFWMD has or intends to take final agency action. Choosing mediation will not affect administrative hearing process under Sections and 120.57, Fla, Stat, remain available for 4 must the concluded within 60 days Ξ ថ a statement of relief sought Rule 28-106,402, a staternent ιhe explanation Will requesting be affected by the of the preliminary agency ad 1ress, of how mudiation and the parties, 60 days of Admin. sha// and ٩<u>ر</u> Persons contain the telaphorie Code, person's agency

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petition must include the following information; administrative hearing or exercising any other right that a person may have corterning the SFWMD's action. Pursuant to Hule 28-104.002(2), Fla. Admin. Code, the SFWMD rule. Applying for a valance or waiver does not substitute or extend the time for filing a petition for an SFWMD Clerk requesting a variance from a petition with the rule will create a substantial hardship or will violate siples of fairness (as those terms are defined in Clerk requesting a variance from or waiver of the Stat.) and can demonstrate

Petition for (Varianne from) or (Waiver of) Rule (Citation) (b) The riame, address, telephone numb (a) the caption shall read:

and any facsimile number of the petitioner; address, telephone number

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and any 0 c) The name, address facsimile number of the at telep!ione

representative of the petitioner, (if any); ً the applicable rule or portion of the rule; attorney g qualified number

the

implementing; Ξ citation io the statue the rule 5

9 the type of action requested;

that

substantial hardship specific facts or violation of principals of fairness that demonstrate

requested would serve the purposes that would justify a waiver or variance for the petitioner; the reason why the variance or the waiver

statute; and S a statement of whether the variance or of the underlying

indicating the duration of the requested variance or waiver. waiver is permanent or temporary, if the variance or waiver is temporary, the petition shall include the dates

Section of the petition. In a Section 120,542(5), Fla. (104.004(2), Fla. Admir. C Waiver person requesting an ernergency va a SFWMD rule must clearly In addition to the requirements Code the petition must ernergency variance from pursuant to so state in Rule the the ŝ 2 0

emergency; and a) the specific facts that make the situation an also

5 the specific facts to show that the petitioner will

the applicable timeirames set forth in Sention 120.542, Fia. sufter immediate adverse effect unless the variance or walver is issued by the SFWMD more expeditiously than

WAIVER OF RIGHTS 4

frames presuibed above will constitute a waiver Failure to relevant ant time

28-106.201 INITIATION OF PROCEEDINGS

(INVOLVING DISPUTED ISSUES OF MATERIAL FACT)

5 (a) All petitions filed under these rules shall contain: The name and address of each agency affected

proceeding, determination; the petitioner's representative, if any, which shall address for service purposes during the course the petitioner's representative, and cach agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner; the name, address, and telephone number of ubstantia 0 Þ interests and an expl ination of how Will be affected by the course of the the petitioner's agency BG the

received notice of the agency decision; statement of when and how the petitioner

(d) A statement of all disputed issues of material fact

If there are none, the petition must so Indicate; concise statement of the ultimate facts alleged,

as well as the rules and statutes which entitle the petitioner

A demand for relief.

Revised August, 2000

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28-106.301 (NOT INVOLVING DISPUTED ISSUES OF MATERIAL FACT) INITIATION OF PROCEEDINGS

2 All petitions filed under these rules shall contain: The name and address of each agency affect

and each agency's file or identification number, if known; Ē (e) The name, address, and telephone number of the and address of each agency affected

determination; substantial address for service proceeding, and an eur petitioner; the name, address, and telephone number of petitioner's ropresentative, Interests purposes during the course explanation of how the petit × 6 affected if any, which shall be the Ъ the petitioner's agency of the

(c) A statement of when and how the petitioner received notice of the agency decision;

as well as the rules and statutes which entitle the petitioner to relief; and a A concise statement of the ultimate facts alleged

9 A demand for relief.

28-107.004 SUSPENSION, REVOCATION, ANNULMENT, OR WITHDRAWAL

rule shall ω Requests for hearing filed in accordance with this include:

request, for purposes of service; <u></u> (a) The name and address of the party making the

involving disputed issues of manyial fact, or a hearing not A statement that the party is requesting a hearing

party has received from the agency. administrative complaint, or other communication that the Involving disputed issues of material fact; and (c) A reference to the notice, order to show cause,

42-2.013 SECTION 373.114 GH 373.217 REQUEST FOR REVIEW FURSUANT 5

period provided in Rule 42-2.0132 shall result in dismissal of the request for review. which resulted in the order sought to be reviewed, Commission and serving a copy on any person named in the rule or Jrder, and on all parties to the proceeding ofile maulred by this certificate Commission may be initiated by the Department or a party by filing a request for such review with the Santary of the review pertificate of service showing completion of service as inquired by this subsection shall a requirement for a sermination of sufficiency under Rule 42-2.0132. Failure (1) In anÿ the request with the Commission within 2 proceeding arising under Chauter 373, F.S., the Florida Land and Wa'er Adjudicatory Adjudicatory the time Þ

particularity: or order was entered and the nature of the rule or order, copy of the rule or order sought to be reviewed shall attached. requested to be reviewed, the proceeding in which the rule 2 The request for review shall identify the rule or order The request đ review reviewed shall be shali STATE with ⊳

re-uirements, provisions and purposes F.S., or rules dui adopted thereunder; æ How the order q rule conflicts of Chapter 373, with eq.

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affects the interests of the party seeking review; (c) The oral or written statement, swom or unsworn, (b) How the rule or order sought to be reviewed

ð if the individual or entity requesting the review has not participated in a proceeding previously instituted pursuant sought to be reviewed and the date and location of the statement, which was submitted to the agency concerning the matter Chapter 120 .s.ج on the or ver for which review ŝ

record determination(s); and have regional or statewide significance from a standpoint of agency precedent, and all the factual bases in the how regional significance, or whether the order raises issues substantially policy, a the statutory which If review of an order is being sought, whether and activity affect the interpretation, or rule interpretation that natural resources authorized petitioner claims 2 the 으 support order statew/de would such <u>q</u> q

management district for further action, or to require the water management district to initiate rulemaking to adopt, amend or repeat a rule. modily the order, or remand the proceeding to the water Commission as a result of the review, whether to 0 The action requested õ be taken rescind or \$ the

28-107.005 **EMERGENCY ACTION**

action (1) If the agency incis that immediate serious danger to the public health, safety, or welfare requires emergency restrict a license. the agency shall summarily suspend, limit, q

practicable upon request of an aggrieved party. construed (N) 2) the 14-day 20.569(2)(b), F. S., õ prevent a hearing does not apply and shail it a hearing at the earlie notice reguirement earliest 옃 not Section time Be

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revocation this rule, after emergency action taken pursuant to paragraph (1) 120.569, 120.57. and 120.60, F.S. Unless otherwise provider by law, within 20 days nergency action taken pursuant to paragraph (1) of the agency shall initiate a formal suspension or for proceeding in compliance with Sections

40E-1.611 EMERGENCY ACTION

industrial, agricultural or other reasonable used of land and District; a public water supply, or recreational, commercial necessary to protect public health, safety or welfare; health of animals, fish or aquatic life; the works of Ξ An emergency exists when immediate action is the the

water resources.

for complianse with that order. of an emergency order, or in the event an emergency order has been issued, after the expiration of the requisite time 9. N to alleviate the emergency condition without the issuance the District to take whatever remedial action necessary The Executive Director may employ the resources

Revised August, 2000



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SOUTH FLORIDA WATER MANAGEMENT DISTRICT

3301 Cun Club Road, West Palm Beach, Florida 33406 • (561) 686-8800 • FL WATS 1-800-432-2045 • TDD (561) 697-2574 Maliling Address: P.O. Box 24680, West Palm Beach, FL 33416-4680 • www.sfwmd.gov

March 2, 2004

Banyan Bay Development Corporation 201 Alhambra Circle – 12th Floor Coral Gables, FL 33134

Subject: Application No. 030429-7, Banyan Bay Mortin County, S28,29,32,33/T38S/R41E

Enclosed is a copy of the South Florida Water Management District's staff report covering the permit application referenced therein. It is requested that you read this staff report thoroughly and understand its contents. The recommendations as stated in the staff report will be presented to our Governing Board for consideration on Wednesday, March 10, 2094 beginning at 8:30am at Parrot Jungle Island, 1111 Parrot Jungle Island Trail, Mignu.

Should you wish to object to the staff recommendation or file a petition, please provide written objections, petitions and/or waivers (refer to the attached "Notice of Rights") to:

Elizabeth Veguilia, Deputy Clerk South Florida Water Management District Post Office Box 24680 West Palm Fleach, Florida 33416-4680

re Governing Board commendation, as the The "Nutive of Rights" addresses the procedures to be hearing or other review of the proposed agency action. as the addresses the procedures to be followed if you desire a public of the proposed agency action. You are advised, however, to be position regarding the permit application when it is considered by for final agency action, even if you agree with the staff Governing Board may take final agency action which differs

Please contact the District if you have any questions concerning this matter. naterially from the proposed agency action.

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a "Notice of Rights" has been mailed to the addressee this 2nd day of March, 2004 in accordance with Section 120.60 (3), Florida Statutes.

Sincerely,

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Damon Meiers, P.E., Deputy Director Environmental Resource Regulation Department

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CERTIFIED #7002 3150 0003 3738 9313 RETURN RECEIPT REQUESTED

GUVERNING BOARD

Nicolás J. Gutiérrez, Jr., Esq., Chan Pamela Brooks-Thomas, Vice-Chair f∘eta M. Bagué

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Kevin McCarty Harkley R. Thornton Trudi K. Williams, P.E.

EXECUTIVE OFFICE

Michael Collins Hugh M. English Lennart E. Lindahl, P.E.

Henry Dean, Executive Director
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Last Date For Agency Action: 11-MAR-2004

INDIVIDUAL ENVIRONMENTAL RESOURCE PERMIT STAFF REPORT.

2

Conservation Easement To District : Total Acres Presv/Mit Compensation Onsite: Total Acres Impacted Onsite : Total Acres Wetland Preserved Onsite: Total Acres Wetland Onsite: Special Drainage District: NA Receiving Body: Drainage Basin: Project Land Use: Residential Project Area: 252 acres Operating Entity: Banyan Bay Homeowners Association Permittee : Location: Application Type: Environmental Resource (Conceptual Approval Modification) Application No.: Permit No.: Project Name: Banyan Bay Development Corporation Martin County, South Fork of the St, Lucie River TIDAL ST LUCIE 030429-7 Banyan Bay 43-00258-S S28,29,32,33/T38S/R41E Yes 85.52 84.41 83.31 1.11 Subject to Governing Board Approva Class: CLASS III

Sovereign Submerged Lands: Yes

Type: Consent Of Use

PROJEC PURPOSE:

authorization is requested. Staff recommends approval with conditions. This application is a request for an Environmental Resource Permit to authorize conceptual authorization for a surface water management system to serve 252 acres of residential development. Authorization to use Sovereigr Submerged Lands (Consent of Use) is also included with this permit. No construction

Page 1 of 20

App.no. :

030429-7

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Арр.ло.: 030429-7	Building Coverage 1.30 Lal.a 1.70	Total Bright	Basin : B	Total: 18.70	Wetland .60	Pervious 6.70	Pavement 5.00	Building Coverage 3.00	Total Basi	busin: A	Construction:	vessels, as shown on Exhibit z. Based on th boating facilities will be limited to residents/ow proposed to serve the 6 single-family residenti immediately south of the boat ramp. Applicat three docks, boat ramp, parking and vessel sto	A permit modification will be required prior to Please refer to Exhibits 2A and 2B for the conc	project site has been divided into 10 individed	to serve the 252-acre (104.8-acres develop Banyan Bay. The SWM system is to consist of	The proposed and	8.52 acres of wetlands. Approximately 1. areas of the site. Natural communities onsit mangrove forest, pine flatwoods, xeric oak ar	The site is located west of S.R. 76 (Kanner South Fork of the St. Lucie River in Martin C	PROJECT SITE DESCRIPTION:	PROJECT EVALUATION:	0
2 of 20	acres	•			acies	acres	acres	acres				al of a boat ramp and boat storage facility for up to 88 e submitted Property Owner's Association documents, the ners of Banyan Bay. In addition, three dock structures are al lots along the South Fork of the St. Lucie River, located ion 030523-11 has been submitted for construction of the rage facility.	o the construction of facilities associated with this project. septual site plan and details information.	idual basins. Discharge from each basin is either o another ad throughout the project site. Uitimate discharge from the a River.	ual בבירים אוון בארים אוון באריים אוון ספל area) single and multi-, residential development, si wet and dry detention areas.		agement facilities within the croject area. The site contains 1 acres of impact are proposed to provide access to upland e include wet prairie, freshwater marsh, sloughs, bay swamp, nd sand pine scrub.	Highway), between Indian Street and Salerno Road, along the ounty. See Exhibit 1 for a location map.			

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	Total 🖸	asin
Pavement		
Pervious	4.50	acres
W etland	1.10	acres
Total:	10.50	
Basin: C1		
	Total Ba	Isin
Building Coverage	1.60	acres
Penvious	1.30	acres
Water Mont Acreane	.70	acres
	.40	acres
Total:	4.00	
Basin: C2		
	Total Bas	in
Buliuing Coverage	6.20	acres
Pavement	5.70 4.80	dores acres
9	4.50	acres
Toi al:	21.20	
Basin D1		
Т	otal Basi	
Building Coverage	.70	acres
Pervious	.30	acres
Water Mgnt Acreage	.50	acres
Total:	1 20	acres
Basin: D2		
То	ıtal Basin	
Building Coverage Pavement	1.60	acres
Pervious	1.20	acres
Water Mgnt Acreage	1.30	acres
Total:	5.60	
Basin : D3		

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App.no. :

030429-7

Basin :

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App.no. : 030429-7

Basin

Design Rainfall: 11.2 inches

As shown in the table below, the proposed project discharge is within the allowable limit for the area.

Discharge Storm Frequency : 25 YEAR-3 DAY

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WATER CUANTITY :

Building Coverage Pavement

Basin :

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Total Basin

Pervious Pavement Lake

Total:

4.80

acres acres acres acres

1.90 .60 1.30

Building Coverage

Total Basin

Basin :

E2

Total:

28.50

1.50 6.00 5.70 7.00 8,30

acres acres

acres acres acres

Pavement Pervious Wetland

Lake

Building Coverage

Total Basin

Basin :

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Total:

4.10

acres acres acres acres

Building Coverage Pavement Pervious Water Mgnt Acreage

.60 1.30 1.60

Basin :

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Total Basin

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Water Mgnt Acreage

Total:

5.60

Pervious

2.50 1.70 .90

acres acres acres acres

Discharge Rate :

0

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<u>ш</u> 8 8 8 8 8 8 8	Basin
7.9 3.7 7.9	Allow Disch (cfs)
Pre Vs Post Pre Vs Post Pre Vs Post Pre Vs Post Pre Vs Post Pre Vs Post	Method Of Determination
3.7 5 1.3 7.8	Peak Disch (cfs)
12.54 12.1 12.51 9.02 8.93 9.53	Peak Stage

Finished Floors ;

Building Storm rrequency: 100 YEAR-3 DAY

00 00 00 00 00 00 00 00 00 00 00 00 00	Basin
12.94 13.48 10.67 10.58 9.75 10.77 10.94	Peak Stage (ft, NGVD) 14
.4 12.94 13.48 13.39 10.67 10.58 9.75 10.77 12.27 10.94	Proposed Min. Finished Floors (ft, NGVD)
N/A N/A N/A N/A N/A	FEMA Elevation (ft, NGVD)

Road Design :

As shown in the following table and the attached exhibits, minimum road center lines have been set at or above the calculated design storm flood elevation.

00000000000000000000000000000000000000	Road Storm Fre Basin
11.51 11.28 12.87 11.66 9.86 8.18 8.18 8.16 11.51 11.51	quency : 10 YEAR-1 DAY Peak Stage (ft, NGVD)
11.51 11.9 12.87 12 10.5 8.5 8.5 8.5 9 11.51 10.17	Design Rainfall: 6.8 inches Proposed Min. Road Crown (ft, NGVD)

030429-7 Page 5 of 20

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App.no. ;

	A CS-A	Basin Str# Co	Bleeders:	Water Origitte CS-E3		E1 CS-D3	D2 CS-D2	D1 CS-D1	C2 CS-C2	CS-C1 CS-B	A CS-A	Basin Str#	Weirs:	Discharge Structure	[] []		I D3	D2	קנ	ς Ω	<u>0</u> ¤	D A	Basin	Receiving Body :		E3	E2	Ψ	D3	D2	Di	02	C1	œ	A	Bacin	Control Elevation :	
	1 Circular Orition	unt Type	Note: The units for	1 Sharp C	1 Sharp C	1 Sharp C	Sharp (1 Sharp (1 Sharn	1 Sharp	1 Char		Note: The units for a	CS-E3	03-62	CS-E1	CS-D2	CS-D1	CS-C3	CS-C1	CS-B	00 1	Str.#		5.60	4,80	28.50	4.10	5.60	1.80	21.20	4.00	10.50	18.70	(colory)	Area		
Φ		Winth	r all the elevation val	rested 20"	rested 14.5"	Prested 2"	Crested 12"	Crested 4.25	Crested 28'	Crested 4.5	ype Wit.		all the elevation value	Lake E1	Lake E1	On-site Wetlan	On-site Wetlan	Lake Do	On-site wetlan	Lake C2	On-site wetlar	Heceiving Bo			7	9.2	7	6.5	o,5	8,5	10	10	9.9	9.5	(ft, NGVD)	Ctrl Elev		
3	Height Length [ues of structures are							-	- deight Lenoth	e of other area are	as of structures and		<u>u</u>	d	đ	4	. a.	2	20	dy			7.00 Wet S	9.20 Wet S		6.50 Wets		8.50 Wet 8		10.00 Wet		9.50	(ft, NGVD)	WSWT Ctrl Elev		
25 Angle 9.5	lia. invert Invert Ele		9.35 (crest)	8.04 (crest)	7.5 (crest)	9.67 (crest)	10.95 (crest)	12.15 (crest	10.88 (crest	10.58 (crest		(it, NGVD)												sasuti soli Borings	eason Soil Borings	eason Soil Borings	eason Soil Borings	eason Soil Borings	season Soil Borirgs	Season Suil Borings	Season Soil Bcrings	Season Soil Borings	Season Soil Borings	Concentration	Determination			

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030429-7

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App.no. : 030429-

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The wetlerids will be preserved on site with 50- foot or 75-foot upland buffers and incorporated into the water inanagement system as shown on Exhibit 2. The proposed takes will be controlled at or near the scasonal high water elevation of the surrounding wetlands, thus meeting the District's take-wetland separation criteria. With any future application for construction, a restoration plan for temporary impacts

The internal marshes and wet prairies are of fair to good quality but have experienced much damage due to off-road vehicles. Natural recruitment of desirable vegetation is expected once these activities have

damage and a minor presence of invasive exotic vegetation. There are twenty-four wetlands located on the project site, totaling 85.52 acres (see Exhibit 2). The majority of this acreage is in the large bay swamps (Wetlands 1, 5, 16A- 43.83 acres) that slope toward the South Fork of the St. Lucie River and a large freshwater marsh at the southern end of the project the southern end of the project site. These wetlands are of good quality, with some areas of off-road

Within the eastern e project vehicle

portion of the site, along SR 75,

melaleuca, likely due to hydrologic alteration, and 1s a result are of very poor quality. Portions of the eastern end of Wetland 5 have been reduced to ditcnes.

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Basin CS-E2 CS-E3 Circular Orifice

Circular Orifice Circular Orifice Circular Orifice

WATER QUALITY : 53 C

E1 02

Treatment Method

Vol Req.d (ac-ft)

Vol Prov'd (ac-ft)

Water quality treatment equivalent try ther 1-inch over the project site area or 2.5-inches over the impervious site area (Basins C1, C2, D2, E1, E2, and E3) is required in either wet or dry detention facilities as indicated in the table below. The Volume Provided column shows the water quality treatment volume provided to meet Martin County requirements which exceed District requirements. Water quality treatment for Basins C1, D1, and E3 will be provided in the Basin C2, D2 and E1 wet detention crea,

Eleeders: B C1 C2 D1 CS-8 CS-C1 CS-C2 CS-D1 CS-D1 CS-D2 CS-D3 CS-E1

Water Quality Structures:

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7.2 9.9 6.5 7

Circular Orifice Circular Orifice

Circular Orifice Circular Orifice Circular Orifice

5.7 acres 1.2 acres 1.7 acres

.6 acres .8 .3 ò 6.6 1.8 **`** 1.7

Wet Detention .6 acres

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П Ц С С С В

Treatment Treatmont

Wet Detention

7 acres

.6 .6

1.4 8.9 Wet Detention Wet Detention

Wet Detention Wet Detention

3.4 acres

1.6

3.8

Dry Detention

Treatment Treatment Treatment Treatment Treatment

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WETLANDS:

Page 8 of 20

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Арр.по. :

Pre-Development			Post-Develo	opment	
	Total Existing	Impacted	Undisturbed Enl	hanced Preserv	ed Restored/ Created
Fresh Water Forested	į	1.11	4,80	46	.89
⁻ resh Water Herbaceous Jpland	32.72		1.50	5.5	20 22
Total:	85.52	1.11	6.30	83	.31

Wetland Inventory :

CONCEPTUAL NEW

-BANYAN BAY

ONSITE

sociated with the construction of water management structures must be provided. treatment swales will be provided where lots are adjacent to wetland preserves.

In addition, pre-

Wetland Impacts:

graded slopes. crossings have been located to minimize impacts to wetlands. In addition, culverts will be installed under each crossing to maintain flow within the wetland areas (see cross sections B and C on Exhibit 2B). The crossing of Wetland 1 will be further minimized by the installation of a retaining wall, rather than using The 1.11 acres of proposed impacts are due to the need to cross over or through wetland areas to reach upland areas to be developed. Secondary impacts have been included in the calculated impacts and will be fully offsot by the mitigation proposal. Exhibit 3 details the wetland impacts and preservation. The

Mitigation Proposal:

and cover for wildlife and are of generally good quality. The melaleuca - dominated wetlands (totaling 6.3 acres) were not included in the mitigation calculation. However, these areas will be included in the conservation easement and all exotic vegetation removed under the Preserve Area Management Plan required by Martin County. As mitigation, the applicants propose preservation of 78.11 acres of fair to good que ity wetlands and an additional 5.2 acres of upland buffers (see Exhibits 3 and 4). The upland areas of the site provide forage

Mon 'ing/Maintenance:

Exhibit 4 is the mitigation, monitoring and maintenance plan for the proposed development. After initial exotic vegetation removal, the wetlands and upland buffers will be maintained to prevent exotic and nuisance vegetation from reaching 5% cover. Monitoring will consist of semi-annual data collection from transects, photostations and staff gauges as shown on Exhibit 4G. A monitoring and maintenance schedule will be submitted at the time of permit application for the first construction authorization. In addition, a restoration plan for the areas affected by installation of the proposed outfall structures will be required with the application for construction approval. Maintenance of the wetlands and upland buffers will be required in perpetuity.

This project will also be subject to a Martin County Preserve Area Management Plan, which requires preservation and management of wetlands and certain upland areas, with requirements for signage, exotic control, etc

030429-7

Арр.ло.: 030428-7 Раде 9 оf 20	alternate lot lines to proved out exhibit 6 are considered riparian. Three plens will be constructed along storage facility will be constructed by the permittee for these 6 residential lots. Because a boat launching and wetlands and buffers will be preserved under a standard conservation easternant, no other residential docking facilities are to be constructed on this site. Language has been included in the draft Covenants and Restrictions for the Banyan Bay Community that prohibits the construction of other boating facilities.	The proposed boat ramp and three piers are located in and/or over sovereign submerged lands. Although South Fork to connect the ramp to the waterway. Based on Ch. 18-21.005(1)(a)(2) and the proposed from the ampted area, the proposed activities (piers, ramp and dredging) quality for a consent of use. Only the six lots shared on many the materway.	Banyan Bay Homeowners and Declaration of Easements, Covenants and Restrictions for the proposed The proposed association shall be responsible for the operation and maintenance of the proposed into the permit file, management system and the monitoring and perpetual maintenance of the conservation easement areas. SOVEREIGN/SUBMERGED LANDS:	A draft conservation easement (Exhibit 5) for the wetlands and upland ! uffers has been prepared. As this application is for conceptual approval only, recordation of the easement is not required at this time. During conservation easements will be submitted for review and approval. After constructions for the proposed granted, the easement will be recorded prior to commencement of construction, authorization. Draft Articles of Incorporation of the prior to commencement of construction.	Observed Preferred Habitat Foraging	White Ibis	Gopher Tortuises Construction C	Species	The applicant is working with the Florida Fish and Wildlife Conservation Commission (FFWCC) under SFWMD application 030523-11, which has been submitted for construction Commission (FFWCC) under that the standard manatee special conditions be generated by this project. The FFWCC has requested in-water work, and that any pipes or culverts proposed approximation application application that requested	wetland-dependant wildlife are anticipated to be minimal. The applicant will coordinate minor, impacts to and the USFWS regarding the taking and or relocation or the applicant will coordinate with the FFWCC on site. Commensal species, such as the federally-listed eastern indigo snake, may be found to association with these burrows.	Endangered Species; This site is inhabited by a variety of wildlife, including listed wading birds and gopher to totoises, which were observed during site visits. In addition, manatees are known to use the adjacent South Fork of the St Lucle River.		
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Арр.ло.; 030428-7 Радо 10 at 20	There has been no enforcement activity associated with this ar plication.	Third Party interest: No third party has contacted the District with concerns about this application, Enforcement:	Historical/Archeological Resources: The District has received correspondence from the Florida Department of State, Division of Historical Resources indicating that the agency has no objections to the issuance of this permit. Df:A/CZM Consistency Review: Th * District has not received a finding of inconsistency from the termine of the second state.	A Right-of-Way Permit is not required for this project. DRI Status: This project is not a DRI.	Potable water for the project site will be served by Martin County Utilities, a letter of commitment will be provided at the time of application for construction authorization is submitted. Waste Water System/Supplier: Waste water services for the project site will be served by Martin County Utilities, a letter of commitment will be provided at the time of application for construction authorization is submitted. Right-Of-Way Permit Status:	The applicant has indiceted that the surface water lakes will be used as a source for irrigation water for project, yet cannot be issued until a permit application number 030505-16 has been -ubmitted for this needed for construction, a dewatering permit will also be rejuired. This permit does not release the permittee from obtaining all necessary Water Use authorization(s) prior and irrigation, unless the work qualifies for a general permit issued pursuant to Section 40E-20 FAC. Potable Water Supplier:	RELATED CONCERNS: Water Use Permit Status:	

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0,0 0 0 210 App.no. DIVISION D ENGINEERING, EVALUATION SURF, CE WATER MANAGEMENT DIVISION APPROVAL dmond A. Palmowski **DIVISION DIRECTOR :** obert G. Robbins ENVIRONMENT ... EVALUATION NATLYCAL RESOURCE MANAGEMENT DIVISION APPROVAL Velinga STAFF REVIEW: 030429-7 General and Spect il Conditions. Staff recommendation is for approval subject to the attached Based on the information provided, District rules have "een adhered to. The Staff recommends that the following be issued : STAFF RECOMMENDATION; Conceptual authorization of a surface water management system to serve a 252- acre residential development known as Banyan Eay. Consent of Use authorization for facilities to be constructed within sovereign submerged lands is included. Parrott 16 RECTOR : р іп ં રં \bigcirc Page 11 of 20 DATE: SUPERY Hug DA'IE: Donald L. Medellin SUPERVISOR mala Siter, P.E 27/04 Subject to Gomerning Board Approval X V DRAFT

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App.no. ; 030429-7

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the requirements of condition (6) above, and submitted a request for conversion of E Flesource Permit from Construction Phase to Operation Phase, Form No. 0920 determines the system to be in compliance with the permitted stans and specifications; approved by the District in accordance with Sections 9.0 and 10.0 of the Basis of Environmenial Resource Perrnit Applications within the South Florida Water Management District, Basis of Review 0920; the of Environmental and the entity District

7 The operation phase of this permit shall not become effective: ur ill the permittee has complied with by a

or "Record" drawing. All surveyed dimensions and elevations shall we certified

purpose of content in a statistic of the work was completed in compliance with permitted plans and specifications. This submittal shall serve to notify the District that the system is ready for inspection. Additionally, if viviation from the approved drawings is discovered during the certification process, the Both the original and revised specifications must be clearly shown. The plans must be clearly deviations must be clearly shown. The plans must be clearly labeled as "As-built" or "Record" drawing. All surveyed dimensions and elevations must be clearly labeled dimensions and elevations for the plans must be clearly shown. of cotermining hall be based on onsite observation of construction or review of as-built drawings for the

Within 50 days arter completion of construction of the permitted activity, the permittee shall submit a written statement of completion and certification by a registered professional enginee, or other appropriate individual as authorized by law, utilizing the supplied Environmental Resource Permit The statement of completion and

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When the duration of construction will exceed one year, the permittee shall submit construction status reports to the District on an annual basis utilizing an annual status report form. Status report form

construction completior, date. Number 0960 indic ting the actual start date and the

expected

completed within 7 days of any construction activity. Turbidity barriers shall be installed and meintained at all locations where the possibility of transferring suspended solids into the receiving waterbody exists due to the permitted work. Turbidity barriers shall remain in place at all locations ¹¹ To prevent Violation of State water quality standards. Temporary erusion control iented prior to and during construction, and permanent control measures shall be in 7 days of any construction activity. Turbidity barriers shall be installed and and the stalled an

The permittee shall notify the District of the anticipated construction start date within 30 days of the date that this permit is issued. At least 48 hours prior to commencement of activity authorized by this permit, the permittee shall submit to the District c. Environmental Resource Permit Construction start date within 30 days of the District c. Environmental Resource Permit Construction start date within 30 days of the District c. Environmental Resource Permit Construction start date within 30 days of the District c. Environmental Resource Permit Construction start date within 30 days of the District c. Environmental Resource Permit Construction start date within 30 days of the District c. Environmental Resource Permit Construction start date within 30 days of the District c. Environmental Resource Permit Construction start date within 30 days of the District c. Environmental Resource Permit Construction start date within 30 days of the District c. Environmental Resource Permit Construction start date within 30 days of the District c. Environmental Resource Permit Construction start date within 30 days of the District c. Environmental Resource Permit Construction start date within start st project-specific erosion and sediment curtrol plan is approved as part of the permit. Thereafter the permittee shall be responsible for the removal of the barriers. The permittee shall correct any erosion until ecristruction is completed and soils are stabilized and vegetation has been established. All practices shall be in accordance with the guidelines and specifications described in Chapter 6 of the Environmental Regulation, 1988), uncorporated by reference in Rule 40E-4.091, F.A.C. unless a

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State water Activities ap pollution

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This permit or a copy thereof, complete with all conditions, attachments, exhibits, and modifications shall be kept at the work site of the permitted activity. The complete permit shall be available for review at the site upon request by District staff. The permittee shall require the contractor to · permit prior to commencement of the activity authorized by this permit.

by this permit shall be conducted in a manner whit - does not cause violations of standards. The permittee shall implement hest high gement practices for erosion

All sotivities authorized by this parmit shall be implemented as set forth in the plans, specifications and performance oriteria as approved by this permit. Any deviation from the permitted activity and the 373, F.S.

GENERAL CONDITIONS

GENERAL CONDITIONS

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from the permitice. Until the permit is transferred pursuant to permittee shall be liable for compliance with the terms of the permit. transferred to such approved operation and maintenance entity until the operation phase of the permit becomes effective. Following inspection and approval of the permitted system by the District, the permittee shall initiate transfer of the permit to the approved responsible operating entity if different from the permittee. Until the permit is transferred pursuant to Section 40E-1.6107, F.A.C., the accepts responsibility for onerction and maintenance of the system. The permit shall not be

- œ portion of the system must be completed in accordance with the parmitted plans and permit conditions prior to transfer of responsibility for operation and maintenance of the phase or portion of the system to a local government or other responsible entity. Each phase or Independent portion of the permitted system must be completed in accordance with the permitted plans and permit conditions prior to the initiation of the permitted use of site infrastructure located within the area served by that portion or phase of the system. Each phase or independent
- 9 to the District along with any other final operation and maintenance documents required by Sections 9.0 and 10.0 of the Basis of Review for Environmental Resource Permit applications within the South Florida Water Manageme, "Strict, prior to lot or units sales or prior to the completion of the system, whichever comes first. Other occurrents concerning the estal shment and authority of the operating entity must be filed with the S veretary of State, county or municipal entities. Final operation and system and any other permit condit ons. will result in the permittee remainin ; liable for carrying out maintenance and maintenance docuntents must by received by the District when maintenance and operation of the system is accepted by the local government entity. Failure to submit the appropriate final documents For those systems that will be operated or maintained by un entity that will require an easement or deed restriction in order to enable that entity to operate or maintain the system in conformance with this permit, such easement or deed restriction must be recorded in the public records and submitted operation of the permitted
- 10. Should any other regulatory agency require changes to the permitted system, the permittee shall notify the District in writing of the changes prior to implementation so that a determination can be made whether a permit modification is roquired.
- 1 district authorizations prior to the start of any activity approved by this parmit. This permit does not convey to the permittee or create in the permittee any property right, or any interest in real property, nor does it authorize any entrance upon or activities on property which is not owned or controlled by the permittee, or convey any rights or privileges other than those specified in the permit and Chapter 40E-4 or Chapter 40E-40, F.A.C. This permit does not eliminate the necessity to obtain any required federal, state, local and specia
- 12 any excavation, construction, or other activity involving the use of sovereign or other lands of the State, the title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund without obtaining the required lease, license, easement, or other form of consent authorizing the The permittee is hereby adviced that Section 253.77, F.S. states that a person may not commence without obtaining the required lease, license, easement, or other form of consent authorizing the proposed use. Therefore, the permittee is respondible for obtaining any necessary cuthorizations from the Board of lands Trustees prior to commencing activity on sovereignty lands or other state-owned
- <u>.</u> The permitse must obtain a Water Use permit prior to construction dewatering, unless the work qualifies for a general permit pursuant to Subsection 40E-20.302(3), F.A.C., also known as the "No Notice" Rule,
- 14. The permittee shall hold and save the District harn less from any and all damages, claims, or liabilities which may arise by reason of the construction, alteration, operation, maintenance, removal, which may arise by reason of the construction, abandomment or use of any system authorized of the / ປ້າອ permit. alteration, operation, maintenance,

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GENERAL CONDITIONS

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- ថ្ងា Any delineation of the extent of a wetland or other surface water submitted in part of the permit application, including plans or other supporting documentation, share not be considered binding, unless a specific condition of this permit or a formal determination under Section 373.421(2), F.S., provides
- 6 The permittee shall notify the District in writing within 30 days of any sale, conveyance, or other transfer of ownership or control of a permitted system or the real property on which the permitted system is located. All transfers of ownership or transfers of a permit are subject to the requirements and 40E-1.6107, F.A.C.. The permittee transferring the permit shall remain liable for corrective actions that may be required as a result of any violations prior to the sale, conveyance or other transfer of the system.
- 17. Upon reasonable notice to the permittee, District authorized staff with proper identification shall Fave permission to enter, inspect, sample and test the system to insure conformity with the plans and specifications approved by the permit.
- 18. If historical or archaeological artifacts are discovered at any time on the project site, the permittee shall immediately notify the appropriate District service center.
- <u>19</u> The permittee shall immediately notify the District in writing of any previously submitted information that is later discovered to be inaccurate.

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1-12" WIDE SHARP CRESTED weir with crest at elev. 9.67' NGVD 1-3" dia. CIRCULAR ORIFICE with Invert at elev. 8.5' NGVD.

Basin: D1, Structure: CS-D1

Receiving body : On-site wetland Control elev : 10 feet NGVD.

1-4.25" WIDE SHARP CRESTED weir with crest at elev. 10.95' NGVD

Basin: C2, Structure: CS-C3

Receiving body : On-site wetland Control elev : 10 feet NGVD,

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Operation of the surface water management system shall be the responsibility of Banyan Bay Property Owner's Association. Within one year of permit issuance or concurrent with the engineering certification of construction completion, whichever comes first, the permittee shall submit a copy of the filed articles of incorporation, and a copy of the certificate of incorporation for the association.

Discharge Facilities:

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The conceptual phase of this permit shall expire on March 11, 2006.

SPECIAL CONDITIONS

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Basin: A, Structure: CS-A

1-4.5" WIDE SHARP CRESTED weir with crest at elev. 10.58' NGVD. 1-3.25" dia. CIRCULAR ORIFICE with invert at elev. 9.5' NGVD.

Receiving body : On-site wetland Control elev : 9.5 feet NGVD.

Basin: B, Structure: CS-B

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1-4.75" WIDE SHARP CRESTED weir with crest at elev, 10.88' NGVD, 1-3" día. CIRCULAR ORIFICE with invε rt at elev, 9.9' NGVD,

Receiving body : On-site wetland Control elev : 9.9 feet NGVD,

Basin: C1, Structure: CS-C1

1-28' WIDE SHARP CRESTED weir with crest at elev. 12.15' NGVD. 1-3" dia. CIRCULAR CRIFICE with invert at elev. 10' NGVD.

Receiving body : Lake C2 Control elev : 10 feet NGVD.

Basin: C2, Structure: CS-C2

1-4.25" WIDE SHARP CRESTED weir with crest at elev. 10 95' NGVD. 1-3.5" dia. CIRCULAR ORIFICE with invert at elev. 10' NGVD.

App.no.: 030429-7	 The permittee shall be resproblems that result from the Measures shall be taken duri not occur in the receiving wat The District reserves the r incorporated into the drainage Lake side slopes shall be no control elevation. Side slopes elevation to insure vegetative y 	Control elev : 9.2 feet NGV Basin: E3, Structure: CS-E3 1-30" WIDE SHARP CRES 1-3" dia. CIRCULAR ORIFI Receiving body : Lake E1 Control elev : 7 feet NGVD.	1-14.5" W.JE SHARP C 1-4.25" dia. CIRCULAR C Receiving body : On-site Control elev : 7 feet NGV Basin: E2, Structure: CS-E 1-20" WIDE SHARP CRE 1-3" dia. CIRCULAR ORIF Receiving body : Lake E1	1-3" dia, CIRCULAR C Receiving body : On-sit Control elev : 6.5 feet M Basin: D3, Structure: CS 1-2" WIDE SHARP CRI 1-3" dia, CIRCULAR OF Receiving body : On-site Control elev : 6.5 feet M	Receiving body : Lake Control elev : 8.5 feet Basin: D2, Structure: C	
Page 16 of 20	onsible for the correction of any erosion, shoaling or water quality onstruction or operation of the surface water management system. I construction to insure that sedimentation and/or turbidity violations do ht to require that additional water quality treatment methods be system if such measures are shown to be necessary. teeper than 4:1 (horizontal:vertical) to a depth of two feet below the shall be nurtured or planted from 2 feet below to 1 foot above contru- owth, unless shown on the planc	ED weir with crest at elev. 9.35' NGVD. E with invert at elev. 7' NGVD.	T ESTED weir with crest at elev. 8.04' NGVD, HFICE with invert at elev. 7' NGVD, 'etland FED weir with crest at elev. 11.17' NGVD, SE with invert at elev. 9.2' NGVD.	IFICE with invert at elev. 7.5?' NGVD. Wetland VD, D3 FICE with crest at elev. 7.5' NGVD. FICE with invert at elev. 6.5' NGVD. Vetland VD,	SPECIAL CONDITIONS GVD. -D2 -D2	

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A mitigation program for Banyan Bay shall be implemented in accordance with Exhibit Nos. 3 and 4. or fish and wildlife habitat

- conservation or preservation. detrimental to drainage, flood control, water conservation, erosion control, excavation, The wetland conservation areas and upland buffer zones and/or upland preservation areas shown on Exhibit(s) 2 and 4G may in no way be altered from their ratural or permitted state. Activities prohibited within the conservation areas include, but are not limited to: construction or placing of the construction of the construction or placing of the construction of the construction or placing of the construction of the constructin of the construction of the construction of buildings on or above the ground; dumping or placing soil or other substances such as trash; removal or removal with the exception of exotic vegetation removal; is; diking or fencing; and any other activities
- 5 Endangered species, threatened species and/or species of special concern have been observed onsite and/or the project contains suitable habitat for these species. It shall be the permittee's U.S. Fish and Wildlife Service for appropriate guidance, recommendations and/or necessary permits

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SPECIAL CONDITIONS

- œ Facilities other than those stated herein shall not be constructed without an approved modification of
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- .t The permittee shall provide routine maintenary of all of the components of the surface water A stable, permanent and accessible elevation reference shall be established on or within one hundred (100) feet of all permitted discharge structures no later than the submission of the certification report. The location of the elevation reference must by noted on or with the certification report.
- management system in order to remove all trapped sediments/debris. All materials shall be properly disposed of as required by law. Failure to properly maintain the system may result in adverse flooding
- This permit is issued based on the applicant's submitted information which reasonably demonstrates

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- 5 necessary, to eliminate the cause of the adverse impacts. Should any adverse impacts caused by the completed surface water management system occur, the District will require the perruittee to provide appropriate mitigation to the District or other impacted party. The District will require the permittee to modify the surface water management system, if
- Minimum building floor elevation: BASIN: A -14.00 feet NGVD

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- 13.39 feet NGVD. 10.67 feet NGVD. 12.94 feet NGVD. 13.48 feet NGVD
- BASIN: B 12 BASIN: C1 14 BASIN: C1 14 BASIN: D1 1 BASIN: D2 1 BASIN: D2 1 BASIN: E1 1 BASIN: E1 1 10.58 feet NGVD
- 9.75 feet NGVD.
- BASIN: ü 12.27 feet NGVD 10.77 feet NGVD
- 13. Minimum road crown elevation: Basin: A 11.51 feet NGVD. 10.94 feet NGVD

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- Basin: Basin: B -<u>0</u> 11.50 feet NGVD 12.87 feat NGVD
- Basin: Basin: 2. 02 -12.00 feet NGVD. 10.50 feet NGVD.
- D2 -
- Basin:

- 8.50 feet NGVD. 8.50 feet NGVD.
- Basin: D3 -Basin: E1 -
- Basin:
- m No
- 9.00 feet NGVD, 11.51 feet NGVD

- feet NGVD.
- Basin: ш Ш 10.17 feet NGVD.
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SPECIAL CONDITIONS

17. The permittee shall preserve 78.11 acres of wetlands and 5.2 acres of upland compensation areas

Exotic Pest Plant Council ¿t the time of permit issuance) immediately following a maintenance activity. Coverage of exotic and nuisance plant species shall not exceed 5% of total cover between maintenance activities. In addition, the permittee shall manage the conservation areas such that exotic/nuisance plant species do not dominate any one section of those areas. monitoring program shall a sind for a period of 5 years with annual reports submitted to District staff. Maintenance for the preserved wetland areas will occur on a regular basis to ensure the integrity and viability of those areas as permitted. Maintenance shall be conducted in persetuity to ensure that the conservation area is maintained free from Category 1 exotic vegetation (as defined by the Florida A monitoring and mainter * ce program shall be implemented in accordance with Exhibit No. 4. The

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18. schedule, subject to District staff review and approval, specifying completion dates for each mitigation, Upon submittal of the first application for construction approval, the permittee shall submit a work

19 At the time of application for construction approval, the applicant shall submit sketches and legal descriptions of all the wetlands preservation areas and upland buffer zones for review.

where the application was submitted two certified copies of the recorded conservation easement for the mitigation areas and associated buffers. The data should also be supplied in a digital CAD (.dxf) or GIS (ESRI Coverage) format. The files should be in the Florida State Plane coordinate system, East Zone (3601) with a data datum of NADS3, HARN with the map units in feet. This data should reside on a CD or floppy disk and be be Prior to the commencement of construction resulting in wetland impacts, the permittee shall submit District's Environmental Resource Compliance Division in the service area office

The recorded casement shall be in substantial conformance with Exhibit 5. Any proposed modifications to the approved form must receive prior written consent from the District. The easement must be free of encumbrances or interests in the easement which the District determines are contrary to the intent of the easement, in the event it is later determined that there are encumbrances or interests in the District determines are contrary to the intent of the easement, the determines are contrary to the intent of the easement, the determines are contrary to the intent of the easement, the determines are contrary to the intent of the easement, the

permittee shall be required to provide release or subordination of such encumbrances or interests

20. At the time of application for construction approval for any phase along the South Fork of the St. t.ucie River, the permittee shall submit a draft mangrove trimming and monitoring plan. The plan is subject to review and approval by District staff. All mangrove trimming activities shall be accomplished by a certified professional mangrove trimmer and in accordance with the Mangrove Trimming and Preservation Act (Sections 403.9321-403.9333 Florida Statutes).

- 21. Trimming and
- The District reserves the right to require remedial measures to be taken by the permittee 'f monitoring or other information demonstrates that adverse impacts to onsite or offsite wetlands, upland
- 22 conservation areas or buffers, or other surface waters have occurred due to project related activities.
- The permittee shall instruct all personnel associated with the project of the potential presence of manatees and the need to avoid collisions with manatees. All construction personnel are responsible for observing water-related activities for the presence of manatee(s).

The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act of 1972, The Endangered Species Act of 1973, and the Florida Manatee Sanctuary Act.

Siltation barriers shall be made of material in which manatees cannot become entangled, are properly

secured, and are regularly monitored to avoid manatee entrapment. Barriers must not block manatee

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SPECIAL CONDITIONS

All vessels associated with the construction project shall cperate at "no wake/idle" speeds at all times while in the construction area and while in water where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.

If manatee(s) are seen within 100 yards of the active daily construction/dredging operation or vessel

movement, all appropriate precautions shall be implemented to ensure protection of the manatee. These precautions shall include the operation of all moving equipment no closer than 50 feet of a manatee. Operation of any equipment closer than 50 feet to a manatee shall necessitate immediate shutdown of that equipment. Activities will not resume until the manatee(s) has departed the project

Any collision with and/or injury to a manatee shall be reported immediately to the FWC , otline at 1-888-404-FWCC. Collision and/or injury should also be reported to the U.S. Fish and Wildlife Service in Jacksonville (1-904-232-2580) for north Florida or Vero Beach (1-561-562-3909) in south Florida.

within 50 feet of operation. Any collision with and/or injury to a manatee shall be reported immediately to the FWC Hotline at 1-888-404-FWCC The U.S. Fish and Wildlife Service should also be contacted prominently visible to water related construction crews. A second sign should be posted if vessels are associated with the construction, and should be placed visible to the vessel operator. The second sign should be at least 81/2" by 11" which reads Caution: Manatee Habitat. Idle speed is required if Temporary signs concerning manatees shall be posted prior to and using a sign activities. All signs are to be removed by the permittee upon completion of the project. A sign measuring at least 3 ft. by 4 ft. which reads Caution: Manatee Area will be posted in a location crews. A second sign should be posted if 'lessels to make the vessel operator. The second visible to water related construction crews. The U.S. Fish and Wildlife Service should also be contacted

Beach (1-561-562-3909) for south

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CONSENT OF USE CONDITIONS

- N No activities other than those set forth in Application No. 030429-7 and in this permit are authorized. Any additional activities on state-owned sovereignty submerged lands must receive further consent from the Governor and Cabinet, sitting as the Board of Trustees of the Internal Improvement Trust Fund (hereinafter the "Board") or their properly designated agent.
- دن Grantee agrees that all title and interest to .ill lands lying below the historical mean high water line or ordinary high water line are vested in the Board, and shall make no claim of title or interest in said
- 4 or knowingly permit or suffer any nuisances or illegal operations of any kind of the premises. Grantee agrees to use or occupy the subject premises for those purposes specified herein, and grantee shall not permit the premises or any part thereof to be used or occupied for any other purpose
- σı Grantee agrees to maintain the premises in good condition in the interest of the public health, and welfare. The premises are subject to inspection by the Board or its designated agent (Board or its designated agent at any safety
- ŋ claims, actions, lawsuits and demands arising out of this consent. Grantee agrees to indemnify, defend and hold harmless the Board and the State of Florida from all
- No failure, or successive failures, on the part of the Board to enforce any provision, waiver or successive waivers on the part of the Board of any provision herein, shall operate as a discharge thereof or render the same inoperative or impair the right of the Board to enforce the same in the event
- herein. In the event grantee fails or refuses to comply with the provisions and conditions consent, the consent of use may be terminated by the Board after written notice to the grantee. receipt of such notice, the grantee shall have thirty (30) days in which to correct the violation. Failed after written notice to the grantee shall have the state of t Grantee binds itself and its successors and assigns to abide by the provisions and conditions set forth comply with the provisions and conditions of this
- 8 All costs, including attorneys' fees, incurred by the Board in enforcing the terms and conditions of this correct the violation(s) within this period shall result in the automatic revocation of this consent of use. Failure to Upon
- 9 required by Chapter 18-14, Fiorida Administrative Code, at the address shown on page one of this required by Chapter 18-14, Fiorida Administrative Code, at the address shown on page one of this field the address shown of address at least ten days of address at least ten days
- Grantee agrees to assume responsibility for all liabilities that accrue to the sovereignty submerged land or to the improvements thereon, including any and all drainage or special assessments or taxes of every kind and description which are now or may be hereafter lawfully assessed and levier against the
- 10 Gran ee agrees that any dispute arising from matters relating to this consent shall be governed by the
- <u>,</u>
- The consent of use associated with these general consent conditions as well as these conditions the mselves are subject to modification after 5 years in order to reflect any applicable changes in
- ŝ In the event that any part of the structure(s) consented to herein is determined by a final adjudication

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Issued by a court of competent jurisdiction to encroach on or interfere with adjacent riparian rights, grantee agrees to either obtain written consent for the offending structure from the affected riparian owner or to remove the interference or encroachment within 60 days from the date of the adjudication. consent and shall be grounds

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APPENDIX C Basin Map



APPENDIX D Phasing Plan



APPENDIX E Geotechnical Report

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Geophysical Services • Construction Materials Testing • Threshold Inspection Building Inspection • Dian Baview • Building Code Administration	ENGINEERING SCIENCES	UNIVERSAL

November 21, 2016

2005 Vista Parkway, Suite 102 West Palm Beach, FL 33411 Market Land Manager Mr. Michael DeBock Ryan Homes

Reference: UES Report No. 14080 UES Project No. 0630.1600096 Stuart, Martin County, Florida Kanner Highway and SW Pomeroy Street Surface Soil Survey Report for Banyan Bay

Dear Mr. DeBock:

our exploration for the of the approximate 240 acre site. assessment for Banyan Bay in Stuart, Martin County, Florida. This letter contains the results of Universal Engineering review and analysis Sciences, of the Natural Resources Inc. (UES) has completed Conservation Service മ limited subsurface (NRCS) data soil

or about 10 percent of the total site area. A majority of the muck areas are in wetland areas, as 2) Wulfert and Durbin mucks; and 3) Samsula muck. be located. The three muck types that identified in the soil survey include: 1) Okeelanta muck; shown on the supplied site plan, and in the southwestern portion of the site where homes are to percent of the total site is designated as sand, with muck designated for the remaining 20 acres From the NRCS Soil Survey Map, found in the attachments, about 220 acres or about 90

details. Should you have any questions please feel free to contact UES define the subsurface soil profile for development areas. muck and other undesirable soils in locations indicated by the NRCS Soil Survey. roadway areas are field staked and cleared for access, soil borings can be advanced to further by Lucido & Associates that was provided to us. This map indicates the possible encounter of Attached is a map of the approximate muck locations as it pertains to the site layout prepared Please see attachments for further Once the

Universal Engineering Sciences, Inc. Certificate of Authorization No. 549 Respectfully submitted,

Staff John A. Gentile Jr., E.I Engineer

Attachments:

NRCS Soil Map, NRCS Map Legend

Regional Manager Peter G. Read, PE

1818 7th Avenue North • Lake Worth, Florida 33461 • (561) 540-6200 • Fax (561) 540-6242 Approximate Muck Location Map

LOCATIONS Atlanta, GA Daytona Beach, FL

- Fort Myers, FL Fort Pierce, FL Gainesville, FL Jacksonville, FL Ocala, FL Orlando, FL (Headquarters) Palm Coast, FL Panama City, FL Pensacola, FL Sarasota, FL Sarasota, FL
- Sarasota, FL Tampa, FL Tifton, GA West Palm Beach, FL



otals for Area of Interest		238.5	%0°001
6	Water	2.0	%1.0
3	Samsula muck, frequently ponded, 0 to 1 percent slopes	5.21	%1.8
l	Hobe fine sand, 0 to 5 percent slopes	0.4.0	%Z`l
0	Wulfert and Durbin mucks, tidal	13.1	%5.2
z	Okeelanta muck, depressional, 0 to 1 percent slopes	¢.0	%Z [°] 0
3	Paola and St. Lucie sands, 0 to 8 percent slopes	8.er	%Z`8
	Waveland and Lawnwood fine sands, depressional	2.21	% ⊅ `∠
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STUART, ΜΑRΤΙΝ COUNTY, FLORIDA
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UNIVERSAL ENGINEERING SCIENCES

PRELIMINARY GEOTECHNICAL ENGINEERING REPORT BANYAN BAY – PHASE 1 KANNER HIGHWAY AND SW POMEROY STREET STUART, FLORIDA

UES PROJECT NO. 0630.1600096 UES REPORT NO. 13980

Prepared For:

Mr. Michael DeBock Market Land Manager Ryan Homes 2005 Vista Parkway, Suite 102 West Palm Beach, FL 33411

Prepared By:

Universal Engineering Sciences 1818 7th Avenue North, Unit 1 Lake Worth, Florida 33461 (561) 540-6200

Consultants in: Geotechnical Engineering • Environmental Engineering • Construction Materials Testing • Threshold Inspection • Private Provider Inspection Offices in: Atlanta • Daytona Beach • Fort Myers • Gainesville • Jacksonville• Miami • Ocala • Orlando • Palm Coast Panama City• Pensacola • Rockledge • Sarasota • Tampa • Tifton • West Palm Beach

APPENDIX A



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DATE: 09/27/16 CHECKED BY: P.G.R. DATE: PROJECT NO: 0630.1600096 REPORT NO: 13980 PAGE	OTECHNICAL EXPLORATION SERVICES ANYAN BAY - PHASES 1, 2A, 2B, 2C, & 3 STUART, MARTIN COUNTY, FLORIDA SITE LOCATION MAP	
09/27/16 No: A-1		



APPENDIX B





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CLIENT:			PROJECT:
Ryan Homes	Stuart, Florida	Kanner Highway and SW Pomeroy Street	Banyan Bay - Phases 1, 2A, 2B, 2C, & 3

Ryan Homes

LOCATION: REMARKS: See Boring Location Plan

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9/26/16

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Loose, light brown sand with trace clayey sand [SP] Boring terminated @ 15 feet

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	10-10-15-17	25			medium dense						
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							∙o¤≤≺∾			2C, & 3 yy Street
Loose, grayish brown clayey sand [SC] Boring terminated @ 15 feet	Medium dense, dark brown weakly cemented sand with trace roots [SP]	Medium dense, very light gray sand trace roots [SP]	Medium dense, gray to light gray sand with trace roots [SP]	Medium dense, light brown to gray sand and clayey sand lenses [SP]	Medium dense, brown to light brown clayey sand [SP]		DESCRIPTION	DATE OF READING EST. W.S.W.T. (ft):	WATER TABLE (ft):	BORING DESIGNAT SECTION:
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PROJECT NO .:	0630.1500096
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REMARKS:	LOCATION: See Boring Location Plan	CLIENT: Ryan Homes	PROJECT: Banyan Bay - Phases 1, 2A, 2B, 2C, & 3 Kanner Highway and SW Pomeroy Street Stuart, Florida

SECTION:	BORING DESIGNATION:
TOWNSHIP:	B-13
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	of 1

EST. W.S.W.T. (ft):	DATE OF READING:	WATER TABLE (ft):	G.S. ELEVATION (ft):
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	4-5-7-7	3-3-4-6	7-6-6-8	9-10-12-12	3-3-6-10	6-8-7-6	PER 6" INCREMENT	
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Boring terminated @ 15 feet	Medium dense, light grayish brown silty sand [SM]	Loose, light gray silty sand [SM]	Medium dense, dark brown weakly cemented sand with trace roots [SP]	Medium dense, very light gray sand with trace roots [SP]	Loose, gray to light gray sand with trace roots [SP]	Medium dense, light brown to brown sand with silt [SP-SM]	DESCRIPTION	
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PAGE:	REPORT NO .:	PROJECT NO .:

PROJECT NO .:	0630.1500096
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Rvan Homes	Stuart, Florida	Kanner Highway and SW Pomeroy Street	Banyan Bay - Phases 1, 2A, 2B, 2C, & 3	

4

LOCATION: CLIENT: REMARKS: See Boring Location Plan

> G.S. ELEVATION (ft): BORING DESIGNATION: SECTION: **B-14** TOWNSHIP:

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1 of 1

DATE OF READING: WATER TABLE (ft): ယ သ 9/28/16 4.3 DATE STARTED: DATE FINISHED: DRILLED BY: TYPE OF SAMPLING: SPT CG/BR 9/28/16 9/28/16

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Loose, gray sand with trace clay [SP] Boring terminated @ 15 feet	Gray clayey sand [SC]	Medium dense, dark brown weakly cemented sand trace roots [SP]	Dense, very light gray sand with trace roots [SP]	Medium dense, gray to light gray sand with trace roots [SP]	loose	Medium dense, brown to dark brown sand and clayey sand [SP]		DESCRIPTION	EST. W.S.W.T. (ft):
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	See Boring Location Plan	Ryan Homes	Banyan Bay - Phases 1, 2A, 2B, 2C, & 3 Kanner Highway and SW Pomercy Street Stuart, Florida	UNIVERSAL ENGINEERING BORING LOG	
DATE OF READING:	WATER TABLE (ft):	G.S. ELEVATION (ft):	BORING DESIGNATIO SECTION:	SCIENCES	
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DATE STARTED: DATE FINISHED:

9/28/16 9/28/16 B-15

SHEET: RANGE:

1 of 1

PAGE:

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PROJECT NO.: REPORT NO.:

0630.1500096 13980

DATE OF READING EST. W.S.W.T. MENT ST. W.S.W.T. (ft): EST. W.S.W.T. (ft): VENT F.F., F.F., W.T. Losse, brown dense, dark brown sand with trace clayey sand lenses [SP] DESCRIPTION 5-9 9 • • • 5-9 9 • • 5-9 9 • • 5-9 9 • • 6-7 34 • Dense, light gray sand with trace roots [SP] 0 Dense, dark brown weakly cemented sand with trace roots [SP] 6-7 9 •	15	4 1	10	8-17-1	5 12-14-	5-4-	3-4-	0	CEPTH M PER (FT.) L INCREI	REMARKS:
W.T. Medium dense, dark brown sand with trace daysey sand lenses [SP] DESCRIPTION V Medium dense, dark brown sand with trace daysey sand lenses [SP] Loose, brown clayey sand [SC] Dense, light gray sand with trace roots [SP] Dense, dark brown weakly cemented sand with trace roots [SP] Dense, dark brown weakly cemented sand with brace roots [SP] Dense dark brown weakly cemented sand with trace roots [SP] Boring terminated @ 15 feet Boring terminated @ 15 feet		4- 5 8	6-7 9	17-17 34	17-21 31	5-9 9	 7-7		MENT FT.)	
Medium dense, dark brown sand with trace dayey sand lenses [SP] Loose, brown clayey sand [SC] Dense, light gray sand with trace roots [SP] Dense, cark brown weakly cemented sand with trace roots [SP] Boring terminated @ 15 feet					-	•			W.T.	
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	Boring terminated @ 15 feet	Loose, gray clayey sand [SC]		Dense, dark brown weakly cemented sand with trace roots [SP]	Dense, light gray sand with trace roots [SP]	Loose, brown clayey sand [SC]	Medium dense, dark brown sand with trace clavey sand lenses [SP]		DESCRIPTION	DATE OF READING EST. W.S.W.T. (ft):
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F		UN	IVE	RS/	AL ENGINEERING SCIENCES BORING LOG		REF	PORT NO.:	13980	ď
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DEPTH A (FT.) P E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	romz≺∾	DESCRIPTION	-200 (%)	MC (%) (Term)	ATTERBERG LIMITS	(FT / DAY)	ORG. CONT. (%)
0					Gray to dark brown sand with trace roots [SP]					
n 					Very light gray sand [SP]					
					Brown dayey sand [SC]					
					Gray silty sand trace clay [SM]					
й 				ingen og henre og henre Det af attendet af attendet H						
					Boring terminated @ 15 feet					

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			BORING LOG	PAGE: B-18
PROJECT: B: K: SI	anyan Bay - Phases anner Highway and S tuart, Florida	1, 2A, 2B, 2C W Pomeroy	C, & 3 / Street SECTION:	AB-2 SHEET: 1 of 1 TOWNSHIP: RANGE
CLIENT: R LOCATION: S: REMARKS:	yan Homes ee Boring Location P	an	G.S. ELEVATION (ft): WATER TABLE (ft): 5 DATE OF READING: 9 EST. W.S.W.T. (ft): 4	DATE STARTED: 9/28/16 5 DATE FINISHED: 9/28/16 28/16 DRILLED BY: CG/BR 5 TYPE OF SAMPLING: AUGER
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			Gray to dark brown sand with trace roots [SP]	
		 	Very light gray sand [SP]	
		VIIIII	Brown clayey sand [SC]	
		ante e ante e ante	Gray silty sand trace clay [SM]	
ວ່າ ອີງ			Boring terminated @ 15 feet	

E		UN	IVE	RS	AL ENGINEERING SCIENCES BORING LOG		REPORT NO.:	13980	
							PAGE:	B-19	
PROJECT:	Banyan Bay - Kanner Highw Stuart, Florida	Phases 1, 2/ ay and SW F	A, 2B, 2 Pomeroj	C, & 3 y Stree	BORING DESIGNATION: T SECTION: T		RAN	IGE: 1 of	<u>د</u>
CLIENT: LOCATION:	Ryan Homes See Boring Lo	cation Plan			G.S. ELEVATION (ft): WATER TABLE (ft): 4.4		DATE STARTED: DATE FINISHED:	9/28/16 9/28/16	
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n 					Gray to very light gray sand with trace roots [SP]	- 			
					Dark brown weakly cemented sand with trace roots [SP]				
5 					Gray clayey sand [SC]	- 			
			<u> </u>						
<u>,</u>									
					Boring terminated @ 15 feet				
BL3									

F		UN	IVE	RS	AL ENGINEERING SCIENCES BORING LOG			PORT NO.:	13980	ď
PROJECT:	Banyan Bay - I	^o hases 1, 2/	A, 2B, 2	C, & 3	BORING DESIGNATION			SHE		-
CLIENT:	Stuart, Fiorida Ryan Homes				G.S. ELEVATION (ff):		DA	TE STARTED:	9/28/16	
LOCATION: REMARKS:	See Boring Lo	cation Plan			WATER TABLE (ft): DATE OF READING: EST. W.S.W.T. (ft):	4.4 9/28/16 3.4	DR TY	te finished: Illed by: Pe of Samplin	9/28/16 CG/BR IG: AUGER	
DEPTH A (FT.) P E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	rom≤≺∾	DESCRIPTION	200 %)	MC (%) (Term)	ATTERBERG LIMITS	K (FT / DAY)	ORG. CONT. (%)
					Brown to gray sand with clayey sand and trace roots [SP]					
ъ 					Gray to very light gray sand with trace roots [SP]	-				
					Dark brown weakly cemented sand with trace roots [SP]					
					Gray clayey sand [SC]					
					Boring terminated @ 15 feet					

		UN	IVE	RS	AL ENGINEERING SCIENCES		RE	PORT NO.:	13980	
					BURING LUG		PA	GE	B-22	
PROJECT:	Banyan Bay - Kanner Highv Stuart, Florida	Phases 1, 2 vay and SW	A, 2B, 2 Pomero	IC, & 3 y Stree	BORING DESIGNATION SECTION:	TOWN	AB-6	RAI	iet: Ige: 1 o	- - -
CLIENT: LOCATION:	Ryan Homes See Boring Lo	ocation Plan			G.S. ELEVATION (ft): WATER TABLE (ft):	4.3	DA.	te started: Te finished:	9/28/16 9/28/16	
REMARKS:					DATE OF READING: EST. W.S.W.T. (ft):	9/28/16 3.3	DR TYI	illed by: Pe of Samplin	CG/BR IG: AUGER	
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					Gray to brown sand with clayey sand lenses [SP]					
თ 			 		Gray to very light gray sand with trace roots [SP]					
					Dark brown weakly cemented sand with trace roots [SP]					
					Gray dayey sand [SC]					
n										
					Boring terminated @ 15 feet					

* IN ACCORDANCE WITH ASTM D 2487 - UNIFIED SOIL CLASSIFICATION SYSTEM. ** LOCALLY MAY BE KNOWN AS MUCK. The second % PASSING NO.200 SIEVE 100 85 20 50 12 CLAYEY SANDS [SC] SILTY SANDS [SM] POORLY-GRADED SANDS WITH CLAY [SP-SC] WELL-GRADED SANDS [SW] SILTY CLAYEY SANDS [SC-SM] [SP-SM] POORLY-GRADED SANDS WITH SILT POORLY-GRADED SANDS [SP] **COARSE GRAINED SOILS** Silt or Clay [ML,CL-ML,CL,MH,CH,OL,OH] Sand or Gravel with Silt or Clay [SP-SM,SP-SC] Silt or Clay with Sand or Gravel [ML,CL-ML,CL,MH,CH,OL,OH] Sandy or Gravelly Silt or Clay [ML,CL-ML,CL,MH,CH,OL,OH] Silty or Clayey Sand or Gravel [SM,SC,GM,GC] por WELL-GRADED GRAVELS [GW] SILTY GRAVELS [GM] POORLY-GRADED GRAVELS WITH CLAY [GP-GC] [GP-GM] CLAYEY GRAVELS [GC] POORLY-GRADED GRAVELS WITH SILT POORLY-GRADED GRAVELS [GP] GROUP NAME AND SYMBOL VERY LOOSE - 0 to 4 Blows/ft. LOOSE - 5 to 10 Blows/ft. MEDIUM DENSE - 11 to 30 Blows/ft. DENSE - 31 to 50 Blows/ft. VERY DENSE - more than 50 Blows/ft. **RELATIVE DENSITY** FINE GRAINED SOILS (SAND AND GRAVEL) PLASTICITY INDEX INORGANIC CLAYS LOW TO MEDIUM PLASTICITY [CL] INORGANIC CLAYS HIGH PLASTICITY [CH] [CL-ML] INORGANIC SILTS HIGH PLASTICITY [MH] M INORGANIC SILTS SLIGHT PLASTICITY INORGANIC SILTY CLAY 10 20 30 40 50 60 0 0 10 20 8 ML/OL CL/OL PLASTICITY CHART SCIENCES, INC ENGINEERING ĸ 4 LIQUID LIMIT [< F VERY SOFT - 0 to 2 Blows/ft. SOFT - 3 to 4 Blows/ft. FIRM - 5 to 8 Blows/ft. STIFF - 9 to 16 Blows/ft. VERY STIFF - 17 to 30 Blows/ft. HARD - more than 30 Blows/ft. 50 HIGHLY ORGANIC SOIL ORGANIC SILTS/CLAYS MEDIUM TO HIGH PLASTICITY [OH]** ORGANIC SILTS/CLAYS LOW PLASTICITY [OL]** PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS [PT]** 6 фн/он CONSISTENCY (SILT AND CLAY) 20 MH/OF 80 8 100

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Sand or Gravel [SP,SW,GP,GW]

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BORING

LOGS

SOIL CLASSIFICATION CHART*

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

•						
	M.	AJOR DIVISI	ONS	SYMI GRAPH	BOLS LETTER	TYPICAL DESCRIPTIONS
		GRAVEL	GRAVELS		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		AND GRAVELLY SOILS	(LITTLE OR NO FINES)		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
al an	COARSE GRAINED	MORE THAN 50%	GRAVELS WITH FINES		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
		FRACTION RETAINED ON NO. 4 SIEVE	APPRECIABLE AMOUNT OF FINES)		GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
		SAND	CLEAN SANDS		WS	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
	MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	AND SANDY SOILS	(LITTLE OR NO FINES)		SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		MORE THAN 50% OF COARSE	SANDS WITH FINES		SM	SILTY SANDS, SAND - SILT MIXTURES
		FRACTION PASSING ON NO. 4 SIEVE	APPRECIABLE AMOUNT OF FINES)		SC	CLAYEY SANDS, SAND - CLAY MIXTURES
					ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
	GRAINED	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
	SOILS				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	MORE THAN 50% OF MATERIAL IS				MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
	SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		СН	INORGANIC CLAYS OF HIGH PLASTICITY
ID 10/02/07					ОН	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
USCS_LEGEN	H	GHLY ORGANIC S	OILS		PT	PEAT. HUMUS. SWAMP SOILS WITH HIGH ORGANIC CONTENTS

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SOIL CLASSIFICATION CHART

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

APPENDIX C



Geotechnical Engineering Keport Important Information about Your

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Specific Purposes, Persons, and Projects Geotechnical Services Are Performed for

their clients. A geotechnical engineering study conducted for a civil engitirst conterring with the geotechnical engineer who prepared it. And no one one except you should rely on your geotechnical engineering report without civil engineer. Because each geotechnical engineering study is unique, each neer may not fulfill the needs of a construction contractor or even another except the one originally contemplated geotechnical engineering report is unique, prepared *solely* for the client. No Geotechnical engineers structure their services to meet the specific needs of not even you — should apply the report for any purpose or project

Read the Full Report

engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only. Serious problems have occurred because those relying on a geotechnical

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

nature of the structure involved, its size, and configuration; the location of erwise, do not rely on a geotechnical engineering report that was: geotechnical engineer who conducted the study specifically indicates othsuch as access roads, parking lots, and underground utilities. Unless the the structure on the site; and other planned or existing site improvements client's goals, objectives, and risk management preferences; the general tors when establishing the scope of a study. Typical factors include: the Geotechnical engineers consider a number of unique, project-specific fac-

- not prepared for you, not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made

engineering report include those that affect Typical changes that can erode the reliability of an existing geotechnical

٠ to a retrigerated warehouse parking garage to an office building, or from a light industrial plant the function of the proposed structure, as when it's changed from a

- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- ٠ project ownership.

changesthey were not informed. that occur because their reports do not consider developments of which Geotechnical engineers cannot accept responsibility or liability for problems As a general rule, always inform your geotechnical engineer of project -even minor ones—and request an assessment of their impact.

Subsurface Conditions Can Change

analysis could prevent major problems. to determine if it is still reliable. A minor amount of additional testing or tions. Always contact the geotechnical engineer before applying the report or by natural events, such as floods, earthquakes, or groundwater fluctuatime; by man-made events, such as construction on or adjacent to the site ing report whose adequacy may have been affected by: the passage of the time the study was performed. Do not rely on a geotechnical engineer-A geotechnical engineering report is based on conditions that existed at

Most Geotechnical Findings Are Professional Opinions

conditions most effective method of managing the risks associated with unanticipated who developed your report to provide construction observation is the from those indicated in your report. Retaining the geotechnical engineer site. Actual subsurface conditions may differ—sometimes significantly judgment to render an opinion about subsurface conditions throughout the neers review field and laboratory data and then apply their professional subsurface tests are conducted or samples are taken. Geotechnical engi-Site exploration identifies subsurface conditions only at those points where

A Report's Recommendations Are *Not* Final

engineers can finalize their recommendations only by observing actual neers develop them principally from judgment and opinion. Geotechnical report. Those recommendations are not final, because geotechnical engi-Do not overrely on the construction recommendations included in your

subsurface conditions revealed during construction. The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk*.

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors that share some of the financial responsibilities stemming from unanticipated conditions*.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that

have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geotechnical study*. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures*. If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else*.

Obtain Professional Assistance To Deal with Mold

are conveyed in this report, the geotechnical engineer in charge of this addressed as part of the geotechnical engineering study whose findings While groundwater, water infiltration, and similar issues may have been moisture can lead to the development of severe mold infestations, a nummold prevention consultant. Because just a small amount of water or prehensive plan, and executed with diligent oversight by a professional growing on indoor surfaces. To be effective, all such strategies should be operation, and maintenance to prevent significant amounts of mold from Diverse strategies can be applied during building design, construction, from growing in or on the structure involved project is not a mold prevention consultant; none of the services perber of mold prevention strategies focus on keeping building surfaces dry. devised for the express purpose of mold prevention, integrated into a comin this report will not of itself be sufficient to prevent mold tion. Proper implementation of the recommendations conveyed were designed or conducted for the purpose of mold prevenformed in connection with the geotechnical engineer's study

Rely, on Your ASFE-Member Geotechncial Engineer for Additional Assistance

Membership in ASFE/THE BEST PEOPLE ON EARTH exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.

ASFC THE GEOPROFESSIONAL BUSINESS ASSOCIATION

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CONSTRAINTS AND RESTRICTIONS

WARRANTY

UES has prepared this report for our client for his exclusive use, in accordance with generally accepted soil and foundation engineering practices, and makes no other warranty either expressed or implied as to the professional advice provided in the report.

UNANTICIPATED SOIL CONDITIONS

The analysis and recommendations submitted in this report are based upon the data obtained from soil borings performed at the locations indicated on the Boring Location Plan. This report does not reflect any variations which may occur between these borings.

on-site observations and noting the characteristics of any variations. begins. If variations appear, we may have to re-evaluate our recommendations after performing The nature and extent of variations between borings may not become known until excavation

CHANGED CONDITIONS

We recommend that the specifications for the project require that the contractor immediately notify Universal Engineering Sciences, as well as the owner, when subsurface conditions are encountered that are different from those present in this report.

work and site improvements be observed by a representative of UES to monitor field conditions the owner and UES of such changed conditions. Further, we recommend that all foundation specifications, and those found in this report, should be allowed unless the contractor notifies No claim by the contractor for any conditions differing from those anticipated in the plans, modifications to this report. and changes, to verify design assumptions and to evaluate and recommend any appropriate

MISINTERPRETATION OF SOIL ENGINEERING REPORT

recommendations based upon the data presented are made by others, those conclusions or recommendations are not the responsibility of UES. data relating only to the specific project and location discussed herein. UES is responsible for the conclusions and opinions contained within this report based upon the If the conclusions or

CHANGED STRUCTURE OR LOCATION

shall not be considered valid unless the changes are reviewed and the conclusions modified or This report was prepared in order to aid in the evaluation of this project and to assist the architect or engineer in the design of this project. If any changes in the design or location of the approved by UES are not discussed in the report, the conclusions and recommendations contained in this report structure as outlined in this report are planned, or if any structures are included or added that

USE OF REPORT BY BIDDERS

operations. Bidders are urged to make their own soil borings, test pits, test caissons or other Bidders who are examining the report prior to submission of a bid are cautioned that this report was prepared as an aid to the designers of the project and it may affect actual construction with regard to their adequacy in reflecting subsurface conditions which will affect construction cannot be responsible for any interpretations made from this report or the attached boring logs investigations to determine those conditions that may affect construction operations. operations UES

STRATA CHANGES

Strata changes are indicated by a definite line on the boring logs which accompany this report. However, the actual change in the ground may be more gradual. Where changes occur between soil samples, the location of the change must necessarily be estimated using all available information and may not be shown at the exact depth.

OBSERVATIONS DURING DRILLING

unusual sample recovery, variation of driving resistance, obstructions, etc.; however, lack of mention does not preclude their presence. water level, boulders, zones of lost circulation, relative ease or resistance to drilling progress, Attempts are made to detect and/or identify occurrences during drilling and sampling, such as:

WATER LEVELS

assumptions of variations the probability of such variations is anticipated, design drawings and specifications should tides, and other factors not evident at the time measurements were made and reported. fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature, occurring conditions. Water levels may not have been stabilized at the last reading. Water level readings have been made in the drill holes during drilling and they indicate normally accommodate such possibilities has been reviewed and interpretations made in this report. and construction planning should be However, it must be noted that based upon such This data Since

LOCATION OF BURIED OBJECTS

any man-made buried objects during the course of this exploration and that no attempt was discussed within the text of this report. man-made objects which are subsequently encountered during construction that are not made by UES to locate any such buried objects. All users of this report are cautioned that there was no requirement for UES to attempt to locate UES cannot be responsible for any buried

TIME

may be required. This report reflects the soil conditions at the time of investigation. If the report is not used in a reasonable amount of time, significant changes to the site may occur and additional reviews

APPENDIX D



Universal Engineering Sciences, GENERAL CONDITIONS Inc

1.1 1: RESPONSIBILITIES

- Universal Engineering Sciences, Inc., ("UES"), has the responsibility for providing the services described under the Scope of Services section. The work is to be performed according to accepted standards of care and is to be completed in a timely manner. The term "UES" as used herein includes all of Universal Engineering Sciences, Inc's agents, employees, professional staff, and subcontractors.
- ì The Client or a duly authorized representative is responsible for providing UES with a clear understanding of the project nature and scope. The Client shall supply UES with sufficient and adequate information, including, but not limited to, maps, site plans, reports, surveys and designs, to allow UES to properly complete the specified services. The Client shall also communicate changes in the nature and scope of the project as soon as possible during performance of the work so that the changes can be incorporated into the work product.
- services so described, unless otherwise agreed upon by both parties. Universal will not be responsible for scheduling our services and will not be responsible for tests or inspections that are not performed due to The Client acknowledges that UES's responsibilities in providing the services described under the Scope of Services section is limited to those services described therein, and the Client hereby assumes any collateral or affiliated duties necessitated by or for those services. Such duties may include, but are not limited to, reporting requirements imposed by any third party such as federal, state, or local entities, the provision of any required notices to any third party, or the securing of necessary permits or permissions from any third parties required for UES's provision of the
- -4 failure to schedule our services on the project or any resulting damages.

PURSUANT AGENT OF UES О MAY NOT BE HELD INDIVIDUALLY LIABLE FOR NEGLIGENCE FLORIDA STATUTES §558.0035, ANY INDIVIDUAL EMPLOYEE OR

2: STANDARD OF CARE

- 2.1 SECTION Services performed by UES under this Agreement will be conducted in a manner consistent with the level of care and skill ordinarily exercised by members of UES's profession practicing contemporaneously under similar conditions in the locality of the project. No other warranty, express or implied, is made
- 2.2 The Client recognizes that subsurface conditions may vary from those observed at locations where borings, surveys, or other explorations are made, and that site conditions may change with time. Data, interpretations, and recommendations by UES will be based solely on information available to UES at the time of service. UES is responsible for those data, interpretations, and recommendations, but will not be responsible for
- 2.3 which the services are to be performed, or correlated personal observations with the requirements of the Scope of Services. It is the responsibility to provide UES with all information necessary for UES to provide the services described under the Scope of Services, and assumes all liability for information not provided to UES that may affect the quality or sufficiency of the services so described. other parties' interpretations or use of the information developed. Execution of this document by UES is not a representation that UES has visited the site, become generally familiar with local conditions under It is the Client's the Client
- 2.4 thereunder do not constitute a guarantee that the construction in question has been properly designed or constructed, and UES's services do not replace any of the obligations or liabilities associated with any architect, contractor, or structural engineer. Therefore it is explicitly agreed that the Client will not hold UES responsible for the proper performance of service by any architect, contractor, structural engineer or any other entity associated with the project. Should UES be retained to provide threshold inspection services under Florida Statutes §553.79, Client acknowledges that UES's services

SITE ACCESS AND SITE CONDITIONS

- **SECTION 3:** 3.1 The Client will notify any and all possessors of the project site that Client has granted UES free access to the site. UES will take reaprecautions to minimize damage to the site, but it is understood by Client that, in the normal course of work, some damage may occur, correction of such damage is not part of this Agreement unless so specified in the Proposal. Client will grant or obtain free access to the site for all equipment and personnel necessary for UES to perform the work set forth in this Agreement. The Client will notify any and all possessors of the project site that Client has granted UES free access to the site. UES will take reasonable and the
- . 3 claim or liability for injury or loss, including costs of defense, arising from damage done to subterranean structures and utilities not identified or accurately located. In addition, Client agrees to compensate UES for any time spent or expenses incurred by UES in defense of any such claim The Client is responsible for the accuracy of locations for all subterranean structures and utilities. UES will take reasonable precautions to avoid known subterranean structures, and the Client waives any claim against UES, and agrees to defend, indemnify, and hold UES harmless from any with compensation to be based upon UES's prevailing fee schedule and expense reimbursement policy

SECTION 4: 4.1 Soil SAMPLE OWNERSHIP AND DISPOSAL

- 4.2 Soil or water samples obtained from the project during performance of the work shall remain the property of the Client. UES will dispose of or return to Client all remaining soils and rock samples 60 days after submission of report covering those samples. storage or transfer of samples can be made at Client's expense upon Client's prior written request. Further
- 4.3 all appropriate federal, state, or local regulations Samples which are contaminated by petroleum products or other chemical waste will be returned to Client for treatment or disposal, consistent with

<u>5</u> BILLING AND PAYMENT

- 5.1 classifications ×= submit invoices ರ Client monthly or upon completion of services. Invoices will show charges for different personnel and expense
- 5.2
- с 3 Payment is due 30 days after presentation of invoice and is past due 31 days from invoice date. Client agrees to pay a finance charge of one and one-half percent (1 ½ %) per month, or the maximum rate allowed by law, on past due accounts. If UES incurs any expenses to collect overdue billings on invoices, the sums paid by UES for reasonable attorneys' fees, court costs, UES's time, UES's expenses, and interest will be due and owing by the Client.

ECTION <u>ල</u> OWNERSHIP AND USE OF DOCUMENTS

- 6.1 of service, shall remain the property of UES reports, boring logs, field data, field notes, laboratory test data, calculations, estimates, and other documents prepared by UES as instruments
- 6.2 Client agrees that all reports and other work furnished to the Client or his agents, which are not paid for, will be returned upon demand and will not
- 6.3 be used by the Client for any purpose. UES will retain all pertinent records r
- 6.4 UES will retain all pertinent records relating to the services performed for a period of five years following submission of the report, during which period the records will be made available to the Client at all reasonable times. All reports, boring logs, field data, field notes, laboratory test data, calculations, estimates, and other documents prepared by UES, are prepared All reports.
- written consent for the sole and t of UES. exclusive use of Client, and may not be given to any other party or used or relied upon by any such party without the express

	SECT 14.1 14.2	<u>SECT</u> 13.1 13.2	<u>SECT</u> 12.1	11.2	SECTI		10.2	<u>SECT</u> 10.1	9.1	8.1	7.5	7.4	7.3	SECT 7.1 7.2
modification or amendment is sought.	ON 14. INTEGRATION CLAUSE This Agreement represents and contains the entire and only agreement and understanding among the parties with respect to the subject matter of this Agreement, and supersedes any and all prior and contemporaneous oral and written agreements, understandings, representations, inducements, promises, warranties, and conditions among the parties. No agreement, understanding, representation, inducement, promises, warranties, and conditions among the parties. No agreement, understanding, representation, inducement, promise, warranty, or condition of any kind with respect to the subject matter of this Agreement shall be relied upon by the parties unless expressly incorporated herein. This Agreement may not be amended or modified except by an agreement in writing signed by the party against whom the enforcement of any	ON 13. GOVERNING LAW AND SURVIVAL The laws of the State of Florida will govern the validity of these Terms, their interpretation and performance. If any of the provisions contained in this Agreement are held illegal, invalid, or unenforceable, the enforceability of the remaining provisions will not be impaired. Limitations of liability and indemnities will survive termination of this Agreement for any cause.	ON 12: ASSIGNS Neither the Client nor UES may delegate, assign, sublet or transfer their duties or interest in this Agreement without the written consent of the other party.	perform in accordance with the terms hereof. Such termination shall not be effective if that substantial failure has been remedied before expiration of the period specified in the written notice. In the event of termination, UES shall be paid for services performed to the termination notice date plus reasonable termination expenses. In the event of termination, or suspension for more than three (3) months, prior to completion of all reports contemplated by the Agreement, UES may complete such analyses and records as are necessary to complete its files and may also complete a report on the services performed to the date of notice of termination or suspension. The expense of termination or suspension shall include all direct costs of UES in completing such analyses, records and reports.	ON 11: TERMINATION This acreament may be terminated by either party mon seven (7) days written notice in the event of substantial failure by the other party to	 (a) the claim will be brought and tried in judicial jurisdiction of the count of the county where UES's principal place of business is located and Client waives the right to remove the action to any other county or judicial jurisdiction, and (b) The prevailing party will be entitled to recovery of all reasonable costs incurred, including staff time, court costs, attorneys' fees, and other claim related expenses. 	by law, including the commencement of litigation. If a dispute arises related to the services provided under this Agreement and that dispute requires litigation instead of ADR as provided above, then:	ON 10: DISPUTE RESOLUTION All claims, disputes, and other matters in controversy between UES and Client arising out of or in any way related to this Agreement will be submitted to alternative dispute resolution (ADR) such as mediation or arbitration, before and as a condition precedent to other remedies provided	ON 9: INSURANCE UES represents and warrants that it and its agents, staff and consultants employed by it, is and are protected by worker's compensation insurance and that UES has such coverage under public liability and property damage insurance policies which UES deems to be adequate. Certificates for all such policies of insurance shall be provided to Client upon request in writing. Within the limits and conditions of such insurance, UES agrees to indemnify and save Client harmless from and against loss, damage or liability arising from negligent acts by UES, its agents, staff, and consultants employed by it. UES shall not be responsible for any loss, damage or liability beyond the amounts, limits, and conditions of such insurance or the limits described in Section 8, whichever is less. The Client agrees to defend, indemnify and save UES harmless for loss, damage or liability arising from acts by Client, Client's agent, staff, and other UESs employed by Client.	ON 8: RISK ALLOCATION Client agrees that UES's liability for any damage on account of any breach of contract, error, omission or other professional negligence will be limited to a sum not to exceed \$50,000 or UES's fee, whichever is greater. If Client prefers to have higher limits on contractual or professional liability, UES agrees to increase the limits up to a maximum of \$1,000,000.00 upon Client's written request at the time of accepting our proposal provided that Client agrees to pay an additional consideration of four percent of the total fee, or \$400.00, whichever is greater. The additional charge for the higher liability limits is because of the greater risk assumed and is not strictly a charge for additional professional liability insurance.	disclosures made by UES which are required by governing law. In the event the project site is not owned by Client, Client recognizes that it is the Client's responsibility to inform the property owner of the discovery of unanticipated hazardous materials or suspected hazardous materials. Notwithstanding any other provision of the Agreement, Client waives any claim against UES, and to the maximum extent permitted by law, agrees to defend, indemnify, and save UES harmless from any claim, liability, and/or defense costs for injury or loss arising from UES's discovery of unanticipated hazardous materials or suspected hazardous materials including any costs created by delay of the project and any cost associated with possible reduction of the property's value. Client will be responsible for ultimate disposal of any samples secured by UES which are found to be contaminated.	hazardous waste. UES agrees to notify Client when unanticipated hazardous materials or suspected hazardous materials are encountered. Client agrees to make any disclosures required by law to the appropriate governing agencies. Client also agrees to hold HES harmless for any and all consequences of	Hazardoux materials may exist at a site where there is no reason to believe they could or should be present. UES and Client agree that the discovery of unanticipated hazardous materials constitutes a changed condition mandating a renegotiation of the scope of work. UES and Client also agree that the discovery of unanticipated hazardous materials may make it necessary for UES to take immediate measures to protect health and safety. Client agrees to compensate UES for any equipment decontamination or other costs incident to the discovery of unanticipated	ON 7: DISCOVERY OF UNANTICIPATED HAZARDOUS MATERIALS Client warrants that a reasonable effort has been made to inform UES of known or suspected hazardous materials on or near the project site. Under this agreement, the term hazardous materials include hazardous materials (40 CFR 172.01), hazardous wastes (40 CFR 261.2), hazardous subtrances (40 CFR 300.6) netroleum products polychloringted bibbenvils and scheeting

Rev. 06/10/2015

1818 7 th Avenue North • Lake Worth, Florida 33461 • (561) 540-6200 • Fax (561) 540-6242 <u>www.UniversalEngineering.com</u> i	Dist: Client (PDF)	Allan G. Abubakar, P.E. Project Engineer Regional Manager	UNIVERSAL ENGINEERING SCIENCES, INC. Certificate of Authorization No. 549	We appreciate the opportunity to work with you on this project and look forward to a continued association. If you have any questions, or when preliminary or final project design plans are available for our recommended review, please contact the undersigned.	The following report presents the results of the field exploration, and our interpretation of those results with respect to the proposed development. Preliminary recommendations have been included for site preparation procedures and foundation design parameters, pavement design, groundwater considerations and other concerns as appropriate.	Universal Engineering Sciences, Inc. (UES) has completed the additional geotechnical exploration and engineering report at the above referenced site in Stuart, Martin County, Florida. The scope of this exploration was conducted in general accordance with UES Opportunity No. 0630.0816.00007 authorized August 15, 2016. This exploration was performed in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made.	Dear Mr. DeBock:	 Reference: Preliminary Geotechnical Engineering Report Banyan Bay - Phase 1 Kanner Highway and SW Pomeroy Street Stuart, Martin County, Florida UES Project No. 0630.1600096 UES Report No. 13980 	2005 Vista Parkway, Suite 102 West Palm Beach, FL 33411	Mr. Michael DeBock • Sarasota, FL Market Land Manager • Tampa, FL Ryan Homes • West Palm Beach, FL	 Palm Coast, FL Panama City, FL Panama City, FL Pensola, FL Recipiente FL Recipiente FL 	ENGINEERING SCIENCES Consultants In: Geotechnical Engineering • Environmental Sciences Geophysical Services • Construction Materials Testing • Threshold Inspection Fort Myers, FL Building Inspection • Plan Review • Building Code Administration Unami, FL Jacksonville, FL Orlando, FL (Headquarters) Orlando, FL (Headquarters)	
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1.0 INTRODUCTION

1.1 GENERAL

professional, contractors, or any other parties, and the use of this report by them without the guidance of UES may lead to erroneous assumptions, faulty conclusions and other questions posed by you. This report has not been prepared to meet the needs of design note, this is a preliminary report only, based upon limited exploration to answer specific problems. This report includes the following sections: Phase 1 of the proposed residential development in Stuart, Martin County, Florida. Please This report contains the results of the additional subsurface exploration conducted for

- SCOPE OF SERVICES Defines what services were completed
- FINDINGS Describes what was encountered
- RECOMMENDATIONS Describes what we encourage you to do
- LIMITATIONS Describes the restrictions inherent in this report
- SUMMARY Reviews the material in this report
- APPENDICES Presents support materials referenced in this report.

1.2 PROJECT DESCRIPTION

units), three (3), 3-story multifamily buildings (72 units), boat ramp, dock facilities, and site of the proposed single-family residential buildings, and driveways. the proposed construction was based on review of overall site plan provided by Ryan amenities located at Kanner Highway and SW Pomeroy Street in Stuart, Martin County, consisting of one hundred eighty-five (185) single-family lots, twenty-four (24) twin villas (48 We understand that this project will include the construction of residential community Homes. The site plan showed the property boundary limits, adjacent roadways, and layout Florida. A Site Location Map is included as Page A-1 in Appendix A. Our understanding of

development. We used this information in preparing this exploration. construction. We were provided with a site plan which depicts the layout of the proposed We anticipate the planned buildings will be comprised of concrete block and wood frame

Specific structural loading information was not available at the time this report was prepared. We have assumed that the column and wall loads will not exceed 100 kips and 5 Plan, Page B-1 in Appendix B kips per linear foot, respectively. The proposed site layout is shown on the Boring Location

ground surface to achieve planned subgrade elevations at the site. thickened edge monolithic slabs and that 2 feet of fill will be placed across the existing We anticipate the proposed buildings to be supported by either shallow foundations or



Engineering Sciences so that we may review our recommendations Our preliminary recommendations are based upon the above considerations. If any of this information is incorrect, or if you anticipate any changes, please inform Universal

2.0 SCOPE OF SERVICES

2.1 PURPOSE

The purposes of this preliminary geotechnical exploration were:

- basis for conceptual planning and preliminary design; and to explore and evaluate the shallow subsurface conditions at the site on a limited
- considerations, foundation design, and site preparation. to provide preliminary geotechnical engineering recommendations for groundwater

procedures for site characterization. The recovered samples were not examined, either pleased to perform these services, if you desire. visually or analytically, for chemical composition or environmental hazards. This report presents an evaluation of site conditions on the basis of traditional geotechnical UES would be

2.2 FIELD EXPLORATION

Plan. designated as AB-1 through AB-6 drilled to a depth of 15 feet below existing grade. The approximate locations of the soil borings are presented in Appendix B. Boring Location drilled to a depth of 15 feet below existing grade and a total of six (6) auger borings The subsurface conditions at the site for the Phase 1 portion was explored with a total of fifteen (15) Standard Penetration Test (SPT) borings designated as B-16 through B-15

obvious landmarks. Consider the indicated locations and depths to be approximate Our drilling crew located the borings based upon estimated distances and relationships to

driving a standard split-barrel sampler (split-spoon) into the subsurface using a 140-pound hammer free-falling 30 inches. The number of hammer blows required to drive the sampler completed the SPT in general accordance with ASTM D-1586 guidelines, with continuous sampling from 0 to 10 feet, and then at 5-foot sampling interval. The SPT test consists of wash method; samples were collected while performing the SPT at regular intervals. We value. This value is used as an index to soil strength and consistency. 12 inches, after first seating it 6 inches, is designated the penetration resistance, or SPT-N hammer free-falling 30 inches. The SPT borings were advanced to their respective termination depths using the rotary



discarded unless we are otherwise notified. geotechnical engineering staff in accordance with ASTM D-2488. be held in our laboratory for your inspection for 90 days, after which time they will be transported to our laboratory Soil samples collected during the SPT were placed in clean sample containers where they were visually classified by a member of our These soil samples will and

2.3 LABORATORY TESTING

a member of our geotechnical staff visually classified them, reviewed the field descriptions, and selected representative samples for laboratory tests. The soil samples recovered from the soil test borings were returned to the laboratory where

Tests were performed to aid in classifying the soils and to help evaluate the general engineering characteristics of the site soils. The tests performed included a total of three (3) Logs, Key to Boring Logs, for further data and explanations No. 200 wash analyses, and three (3) moisture content tests. See Appendix B: Boring

3.0 FINDINGS

3.1 SOIL SURVEY

soils Natural Resources Conservation Service (NRCS), the predominant soil type at the site are identified as Waveland sand and Samsula muck. The published general description of these groundwater levels, are presented in Table 1 below. The Soil Survey Map for the site is Soil Survey for Martin County, Florida, as prepared by the US Department of Agriculture, At the time of exploration, the site was cleared vacant parcel of land. Based on the 1981 included in Appendix A. with depth, range of permeability characteristics, and range of seasonal high




Sam	<		
nsula muo	Vaveland	Soil Typ	
k (73)	(4)	Ø	
0" – 34" 34" – 65"	0 - 18" 18" - 43" 43" - 91" 91" - 99"	Col	
muck Sand, fine sand, loamy sand	Sand, fine sand Sand, fine sand, loamy sand Sand, fine sand, loamy fine sand	nstituents	Summar
A/D	B/D	Hydrologic Group	TABLE y of NRCS Soil \$
Very Poorly Drained	Poorly Drained	Natural Drainage	1 Survey Informa
0" – 34" 34" – 65"	0 – 18" 18" – 43" 43" – 91" 91" – 99"	Soil Peri (Inch	tion
6 – 20 6 – 20	>6.0 >6.0 <0.2 2.0 - 20.0	meability es/Hr)	
+2 - 1.0	0 – 1.0	Seasonal High Water Table (Depth in Feet)	

3.2 SUBSURFACE CONDITIONS

actual soil boundaries may be more transitional than depicted. A generalized profile of the soils found at our boring locations is presented in Table 2. The soil profile was prepared geotechnical staff. from field logs after the recovered soil samples were visually classified by a member of our on the boring logs included in Appendix B. SPT borings, such as soil profiles, penetration resistance and groundwater levels are shown Appendix B. The stratification lines shown on the boring logs represent the approximate boundaries between soil types, and may not depict exact subsurface soil conditions. The The results of our field exploration, together with pertinent information obtained from the The Key to Boring Logs is also included in

	TABLE 2: GENERAL SOIL PROFILE
Typical	
Depths	Soil Description
Below Grade (feet)	
0 – 8	Loose to dense, light gray to brown sand with trace roots, sand with clayey sand lenses, clayey sand [SP, SC]
8 - 15*	Loose to medium dense, light brown to dark brown sand, weakly cemented sand, silty sand, clayey sand [SP, SM, SC]
* Boring Terminati	on depth

difference in ground surface elevations. in the test borings. The difference in groundwater levels can most likely be attributed to the Groundwater was measured at approximately 3 to 5.5 feet below the existing land surface

4.0 PRELIMINARY RECOMMENDATIONS

4.1 GENERAL

settlements, and foundation design must be made after completion of a final geotechnical geotechnical scope of exploration. Final recommendations regarding the bearing capacity, we recommend you to contact our office to review these items and propose a similar projects and subsurface conditions. When the grading and site plans are formalized soil test data, our stated understanding of the proposed construction, and experience with exploration program. The following preliminary recommendations are made based upon a review of the attached tinal

considerations, building foundations, pavement design, and site preparation. In this section of the report, preliminary recommendations are presented for groundwater

4.2 GROUNDWATER CONSIDERATIONS

data, a reasonable estimate for the seasonal high groundwater table is approximately 2 to season in South Florida is normally between May and October. Based upon the test boring at each location appears on the boring logs in Appendix B. 4.5 feet below existing grade. The existing and estimated seasonal high groundwater table The groundwater table will fluctuate seasonally depending upon local rainfall. The rainy

seasonal high estimate quantities exceed those normally anticipated, then groundwater levels will likely exceed the during any given does not provide any assurance that groundwater levels will not exceed the estimated level Note that our estimate of seasonal high groundwater level is based on limited data and year in the future. If the rainfall intensity and duration or total rainfall

estimate of the seasonal high groundwater table. may affect the local seasonal high groundwater table. Universal makes no warranty on the Future development of adjoining or nearby properties and development on a regional scale The estimate of seasonal high groundwater level is made for the site at the present time.

seasonal high groundwater condition. We recommend that positive drainage be established and maintained on the site during construction. UES further recommends that permanent measures be implemented to maintain positive drainage throughout the life of the project. UES recommends that all foundation and pavement design incorporate assumption of the



4.3 BUILDING FOUNDATIONS

4.3.1 SHALLOW FOUNDATIONS

slab to exert a maximum allowable net soil bearing pressure of 2,500 pounds per square bearing level in excess of the natural overburden pressure at that level. foot (psf). Net bearing pressure is defined as the soil bearing pressure at the foundation most likely be able to be supported on shallow foundations or thickened edge monolithic After successful completion of the site preparation procedures, The anticipated buildings will

allowable soil bearing pressure may not be developed in all cases. We estimate foundations will have a minimum factor of safety of two against bearing capacity failure. Shallow foundations should be embedded at least 18 inches below lowest adjacent grade (finished surrounding grade, for example). Further, maintain minimum foundation widths of 18 and 24 inches for strip and square footings, respectively, even though the maximum We estimate the

of this report. Any deviation from these recommendations could result in an increase in the contractor. Our settlement estimates for the structure are based on the use of foundations; and (3) site preparation and earthwork construction techniques used by the footing size, bearing level, applied loads, and resulting bearing pressures beneath the estimated post-construction settlements of the structure. preparation/earthwork construction techniques as recommended above and in Section 4.5 factors, including: (1) strength and compressibility characteristics of the subsurface; (2) Post-construction settlements of the structure will be influenced by several interrelated site

pressure, maximum structural loads and the field data (which were correlated to geotechnical strength and compressibility characteristics of the subsurface soils), we estimate that total post construction settlements of the structure will be 1 inch or less. Assuming all soils are properly prepared and using the recommended maximum bearing

followed, differential settlements of $\frac{1}{2}$ inch or less should be anticipated. preparation and earthwork construction techniques outlined above and in Section 4.5 are Differential settlements result from differences in applied bearing pressures and variations in the compressibility characteristics of the subsurface soils. If the recommended site

4.3.2 STANDARD FLOOR SLAB

soils and should be structurally isolated from other foundation elements or adequately assuming the slab is supported on compacted structural fill or compacted existing subgrade modulus of subgrade reaction of 150 pounds per cubic inch (pci) can be used for design, compressive strength (f'c) of at least 3,000 pounds per square inch (psi) should be used. A reinforced to prevent distress due to differential movements. welded wire For floor slabs, we recommend using a standard concrete slab-on-grade, reinforced with mesh to control cracking. Normal weight concrete having മ 28-day



4.3.3 FLOOR SLAB MOISTURE CONTROL

control moisture. We recommend using a minimum 10-mil, rolled plastic (Visqueen) vapor barrier between the bottom of the floor slab and the top of the subgrade. This will help to should be exercised during construction to prevent tearing or punching of the vapor barrier minimize floor dampness and moisture intrusion into the structure through the slab. prior to slab placement. Any tears must be repaired immediately. The Florida Building Code requires the use of a vapor barrier beneath the floor slab to Care

4.4 PAVEMENTS

4.4.1 GENERAL

the strength and durability of several layer components to produce an appropriate and costautos, pickup trucks and smaller delivery vehicles will travel. effective combination of available materials. UES recommends using a flexible pavement section on this project in areas where light Flexible pavements combine

4.4.2 FLEXIBLE PAVEMENTS

consisting of stabilized subgrade, base course, and surface course, placed on top of existing subgrade or a compacted structural fill be used. Because traffic loadings are a structural number analysis with the stated estimated daily traffic volume for a 15-year commonly unavailable, we have generalized our pavement design into groups. pavement design should be made for the projected traffic data. placement design life. For loading conditions greater than those presented in Table 3, a Pavement Component Recommendations. The structural numbers in Table 3 are based on descriptions and the recommended component thicknesses are presented in For preliminary pavement designs, we recommend that a three-layer pavement section The group Table ω

1			
Traffic Group			TABLE 3: PAV
Number	Structural		/EMENT CON
Subgrade	Stabilized	Compo	MPONENT REC
Base	Limerock	nent Thickne	OMMENDAT
Course	Asphalt	ss (inches)	IONS
	Traffic Group Number Subgrade Base Course	StructuralStabilizedLimerockAsphaltTraffic GroupNumberSubgradeBaseCourse	Component Thickness (inches)StructuralStabilizedLimerockAsphaltTraffic GroupNumberSubgradeBaseCourse

trucks; and suitable for the internal roadways for this project. Auto parking areas; over eighty cars; light panel and pickup

Parking lots - light duty:



4.4.3 STABILIZED SUBGRADE

requirements in the "Site Preparation" section of this report. The stabilized subgrade should be compacted to at least 98 percent of the modified Proctor maximum dry density [American Association of State Highway and Transportation Officials (AASHTO)T-180]. ∀e recommend that subgrade materials be compacted in place according to the

to find the optimum mix proportions materials. If a blend is proposed, we recommend that the contractor perform a mix design The stabilized subgrade can be imported material or a blend of on-site soils and imported

4.4.4 BASE COURSE

crushed concrete should have a minimum LBR of 100 percent. Place limerock in maximum 6-inch lifts and compact each lift to a minimum density of 98 percent of the modified Proctor maximum dry density (AASHTO T-180). The base course can also be a crushed concrete meet the current requirements for graded aggregate base per Section 204, FDOT "Standard have an average LBR value of not less than 100. The gradation for crushed concrete should at a minimum of two test locations, whichever is greater. for either limerock or crushed concrete at a frequency of one test per 10,000 square feet, or Specifications for Roadway and Bridge Construction" (SSRBC). Perform compliance testing material supplied by an FDOT approved plant with quality control procedures and should UES recommends the base course be either limerock or crushed concrete. Limerock or

4.4.5 SURFACE COURSE

lifts. In light duty areas where there is occasional truck traffic, but primarily passenger cars, we recommend using an asphaltic concrete, FDOT Type S-III or equivalent, which has a stability of 1,200 pounds. The asphaltic concrete course can be applied in a two, 1-inch

that the aggregate gradation and asphalt content satisfies the mix design requirements. Asphaltic concrete mixes should be a current FDOT approved design for the materials 3,000 square feet of placed pavement or a minimum of two cores per day's production. and to perform laboratory densities. placement and field compaction, core the wearing surface to evaluate material thickness Compact the asphalt to a minimum of 95 percent of the Marshall design density. After actually used. Samples of the materials delivered to the project should be tested to verify Obtain cores at frequencies of at least one core per

ultraviolet light and automobile liquid spillage. Please note that applying the seal coat prior to six months after placement may hinder the "curing" of the surface course, leading to its seal coat will help to patch cracks and voids, and protect the surface from damaging a coal tar emulsion sealer at least six months after placement of the surface course. early deterioration For extended life expectancy of the surface course in parking lots, we recommend applying The



4.4.6 EFFECTS OF GROUNDWATER

bond. water level and the bottom of base rock be separated by at least 18 inches level is critical for long-term pavement performance. Many roadways and parking areas have been destroyed as a result of deterioration of the base and the base/surface course Adequate separation between the pavement subgrade and the seasonal high groundwater Regardless of the type of pavement base selected, we recommend that the control

4.5 SITE PREPARATION

with engineered fill. A general outline of the anticipated earthwork is as follows: deleterious material, proof-rolling, and proof-compacting the subgrade, and filling to grade We recommend normal, good practice site preparation procedures for the building pavement areas. These procedures include: stripping the site of vegetation, topsoil, and and

- <u>.</u> If required, perform remedial dewatering prior to any earthwork operations
- \mathbf{N} settlement of overlying structures. utilities. Note that if underground pipes are not properly removed or plugged, they located and removed if required. Provisions should be made to relocate interfering pavements and underground utility lines within the construction area should be Prior to construction, remnants of previous development, including foundations, may serve as conduits for subsurface erosion which may lead đ excessive
- ယ and pavement areas. deleterious materials within and 5 feet beyond the perimeter of the proposed building Strip the proposed construction limits of vegetation, topsoil, organics, and
- 4 project. areas. The site should be graded to direct surface water runoff away from the construction Positive drainage must be maintained throughout the design life of the
- S or his representative to locate any surficial deposits of organic soils, vegetation, outside the building areas should be observed by a qualified geotechnical engineer After clearing and stripping of the site is completed, the prepared subgrade soils
- backfilled according to the fill placement procedures provided later in this section. excessive roots or debris. Organic soils, vegetation, or deleterious material should be undercut until clean natural soils are encountered, and the resulting excavations
- <u>റ</u> Modified Proctor optimum moisture content (ASTM D-1557) during the compaction passes with the second set of 4 passes perpendicular to the first set of 4 passes. drum diameter on the order of 3 to 4 feet making a minimum of eight overlapping static mode, having a minimum static, at-drum weight on the order of 10 tons and a Typically, The subgrade should be compacted using a smooth drum vibratory roller in the the material should exhibit moisture content within +/- 2 percent of the

Page 9 of 11

within the upper 12 inches of the compacted natural soil surface. operations. Compaction should continue until densities of at least 95 percent of the Modified Proctor maximum dry density (ASTM D-1557) have been uniformly achieved

- 7 density (ASTM D1557). to a minimum density of at least 95 percent of the Modified Proctor maximum dry Place fill material, as required. percent soil fines. Place fill in uniform 10- to 12-inch loose lifts and compact each lift The fill should consist of sand with less than 12
- <u></u> not less than one test per 2,500 square feet in the building areas and one test per Complete in-situ density tests on the subgrade and each lift of fill at a frequency of 10,000 square feet in paved areas
- <u>9</u> In the building areas, test all footing cuts for compaction to a depth of 1 foot. We feet of wall footing. recommend you test every column footing, and conduct one test for every 50 lineal
- 10. material needs to be over-excavated and replaced. exposed subgrade to determine if additional compaction is warranted or if any compaction efforts should stop and the geotechnical engineer should be contacted. If difficult compaction conditions are encountered during the site work operations, the The geotechnical engineer or his representative should observe proof-rolling of the

contractor should practice wet weather means and methods for earthwork during the "dry" season as well. Groundwater and surface water control, use of granular fill material and during the "dry" season. Such events can raise water tables to levels above seasonal highs without the associated high temperatures to evaporate ponded water. Therefore, the care should be taken to maintain positive drainage from the building pad and paved areas to drains or ditches around the site. Unexpected wet periods can also occur in Florida If site preparation work is performed during the rainy season (May through October), special aeration are typical means to accomplish wet weather grading.

5.0 LIMITATIONS

will not be responsible for any extrapolation or use of our data by others beyond the presence of anomalous materials or for estimation of material quantities. Therefore, UES subsurface conditions, or reliably estimating unsuitable or suitable material quantities occurrence. The test borings completed for this report were widely spaced and are not purpose(s) for which it is applicable or intended. Accordingly, UES does not recommend relying on our boring information to negate the considered Our field exploration did not find unsuitable or unexpected materials at the sufficient for reliably detecting the presence of isolated, anomalous surface or time of



issues. subsurface, it is not possible for a geotechnical engineer to predict and address all possible During the early stages of this construction project, geotechnical issues not addressed in this report may arise. Because of the natural limitations inherent in working with the Engineering Report" appears in Appendix C, and will help explain the nature of geotechnical problems. An (ASFE) publication, "Important Information About Your Geotechnical

report. your attention the potential concerns and the basic limitations of a typical geotechnical Further, we present documents in Appendix C: Constraints and Restrictions, to bring to

6.0 SUMMARY

engineering recommendations for foundation and pavement design, and site preparation. Martin County, Florida. Field tests have been performed to provide preliminary geotechnical In summary, we understand that you propose to construct a residential community in Stuart,

The soils encountered generally consist of loose to dense, light gray to brown sand with trace roots, sand with clayey sand lenses, clayey sand [SP, SC] to a depth of 8 feet below land surface (bls) underlain by loose to medium dense, light brown to dark brown sand, weakly cemented sand, silty sand, clayey sand [SP, SM, SC] to the maximum explored depth of 15 feet (bls).

table is approximately 2 to 4.5 feet below land surface (bls). in the test borings. A reasonable estimate for an average wet seasonal high groundwater Groundwater was measured at approximately 3 to 5.5 feet below the existing land surface

with an allowable soil bearing pressure of 2,500 psf provided the site is prepared as We believe the proposed structures can be supported on a conventional shallow foundation recommended and the structural loads anticipated by our firm are not exceeded

UES subgrade to support the structures and pavements recommends normal, good practice site preparation procedures to prepare the





APPENDIX F Land Use

Cumulativa Sita Data.		Racin A Land Heat	
Description	Acres	Description	Acres
Total Basin Area	100.6	Total Basin A Area	19.2
Roof Area	20.3	Phase 1 Roof Area	0.11
Pavement	19.4	Phase 1 Impervious	1.35
Lake	19.5	Phase 1 Pervious	1.10
Wetland	2.6	Lake	3.20
Flow Through Marsh	2.2	Offsite SR 76(Impervious)	0.50
Lake/FTM Bank	7.0	Phase 1 Total =	6.26
Open Space	31.0		
Offsite SR 76	0.5	Phase 2C Impervious	1.19
		Phase 2C Roof Area	4.11
		Phase 2C Pervious	3.75
		Upland Preserve	0.90
		Wetland Preserve	0.60
		FDOT Pond-Open Water	0.99
		FDOT Pond-Pervious	0.63
		2C Landscape Buffer	0.76
		Phase 2C Total =	12.93
Basin A - Permitted Land U	Jses	Basin A - Total Land Use Breakdo	own
Building Area	3.0	Building Area	4.22
Lake Area	3.4	Lake Area	4.19
Pavement Area	5.0	Pavement Area	2.54
Pervious Area	6.7	Pervious Area	7.14
Wetland Area	0.6	Wetland Area Offsite SR-76	0.60
Basin A Total =	18.7	Basin A Total =	19.2

BANYAN BAY

APPENDIX G Curve Numbers

	BASIN	ROOF	WMA	WETLAND	TOTAL	IMP	PERVIOUS	PERVIOUS	BASIN
BASIN	AREA	& PAVT	AREA	AREA	IMP	CN	AREA	CN	CN
	(Ac)	(Ac)	(Ac)	(Ac)	(Ac)		(Ac)		
Α	19.2	6.8	3.2	0.6	10.6	98	8.6	70	85
В	10.5	3.2	2.4	1.1	6.7	98	3.8	70	88
C1	4.0	2.4	0.3	0.0	2.7	98	1.3	70	89
C2	21.2	7.7	5.4	0.0	13.1	98	8.1	70	87
D	6.9	3.2	1.4	0.0	4.6	98	2.3	70	89
E1	27.0	11.3	4.9	1.5	17.7	98	9.3	70	88
E2	3.0	1.4	0.6	0.0	2.0	98	1.0	70	89
E3	5.8	3.5	1.9	0.0	5.4	98	0.4	70	96
IQ Lake	3.0	0.2	1.8	0.0	2.0	98	1.0	70	89
NE-WL	44.5	0.0	0.0	25.2	25.2	98	19.3	70	86
SE-WL	39.6	0.0	0.0	20.2	20.2	98	19.4	70	84

BANYAN BAY Curve Number

APPENDIX H Time of Concentration

BANYAN BAY Time of Concentration

Post Development Time of Concentration TR-55, Tc (min)

BASIN		SHI	EET FLO	W		SHALL	OW CO	NCENTF	RATED	FLOW				CUL	VERT F	LOW					IME OF ENTRATION
		Flow	2-Year	Land		Paved	Flow	Water-	Avg.		Culvert	Cross-	Wetted	Hydraul.	Channel		Avg.	Flow			
ID #	Manning	Length	24-Hour	Slope	Tt ₁	or	Length	course	Velocity	Tt ₂	Diam.	Section	Perim.	Radius	Slope	Manning	Velocity	Length	Tt ₃	Тс	Тс
	n	L	Rain, P2	s		Unpvd.	L	Slope, s	V		D	Area, a	Pw	r	s	n	V	L			
	()	(ft)	(in)	(ft/ft)	(hr)	(P or U)	(ft)	(ft/ft)	(ft/s)	(hr)	(ft)	(ft^2)	(ft)	(ft)	(ft/ft)	()	(ft/s)	(ft)	(hr)	(hr)	(min)
Α	0.450	100	5.25	0.05	0.21	Р	200	0.005	1.44	0.04	3.00	7.07	9.42	0.75	0.0001	0.012	1.02	1000	0.27	0.52	31
В	0.450	100	5.25	0.05	0.21	Р	200	0.005	1.44	0.04	2.00	3.14	6.28	0.50	0.0001	0.012	0.78	750	0.27	0.52	31
C1	0.450	100	5.25	0.05	0.21	Р	200	0.005	1.44	0.04	2.00	3.14	6.28	0.50	0.0001	0.012	0.78	300	0.11	0.36	21
C2	0.450	100	5.25	0.05	0.21	Р	200	0.005	1.44	0.04	2.00	3.14	6.28	0.50	0.0001	0.012	0.78	500	0.18	0.43	26
D	0.450	100	5.25	0.05	0.21	Р	150	0.005	1.44	0.03	2.00	3.14	6.28	0.50	0.0001	0.012	0.78	500	0.18	0.42	25
E1	0.450	100	5.25	0.05	0.21	Р	200	0.005	1.44	0.04	2.00	3.14	6.28	0.50	0.0001	0.012	0.78	150	0.05	0.30	18
E2	0.450	100	5.25	0.05	0.21	Р	200	0.005	1.44	0.04	2.00	3.14	6.28	0.50	0.0001	0.012	0.78	250	0.09	0.34	20
E3	0.450	100	5.25	0.05	0.21	Р	200	0.005	1.44	0.04	2.00	3.14	6.28	0.50	0.0001	0.012	0.78	350	0.12	0.38	23

Sheet Flow,	$Tt_1 = (0.007(n*L)^0.8)/((P_2)^0.5 * s^0.4)$
X X 71	

Where:

- Tt = travel time (hr) n = manning's coefficient
- L = flow length (ft)
- $P_2 = 2$ -year, 24 hour rainfall (in)
- s= land slope (ft/ft)

- Shallow Concentrated Flow , $Tt_2 = L/(3600*V)$ Where:
 - Tt = travel time (hr)
 - L = flow length (ft)
 - V = velocity (ft/s)

Channel Flow , $Tt_3 = L/(3600*V)$

Where:

Tt = travel time (hr)L = flow length (ft)

V = velocity (ft/s) = $(1.49*r^{2/3}*s^{1/2})/n$

n = manning's roughness coefficient

- s= slope of hrdraulic grade line (ft/ft)
- r= hydraulic radius (ft)= a/Pw
- a= cross sectional area of flow (ft^2)
- Pw= wetted perimeter (ft)

APPENDIX I Water Quality Calculations

Requirement = Provide a minimum of 3 inches of water quality treatment volume (WQTV) Provide 14 day residence time of the permanent pool volume for wet detention .

Martin County code determines the treatment volume based on the method used as follows

Wet Detention = 4.5" times % Impervious times Basin Area (less preserves, lakes, and wetlands) Dry Detention = 3.75" times % Impervious times Basin Area (less preserves, lakes, and wetlands)

4.5 inches times % Impervious Area for Water Quality:

Site Area for Water Quality = Site Area for Water Quality = Site Area for Water Quality = (Basin Area - Preserve - Water Management Areas - FDOT Pond - Wetlands) 19.2 ac - 0.0 ac - 3.2 ac- 0.99 ac - 0.60 ac 14.41 ac

Impervious Area for Water Quality = (Phase 1 + Offsite Imp + Phase 2C Impervious Area) Impervious Area for Water Quality = Impervious Area for Water Quality = (1.46 ac + 0.5 ac + 5.30 ac)7.26 ac

% Impervious Area for Water Quality = (7.26 ac / 14.46 ac) % Impervious Area for Water Quality = (imp. area for water quality / site area for water quality)

% Impervious Area for Water Quality = 50%

Wet Detention = (4.5 in * 0.50 * 14.46 ac) / (12 in / 1 ft) = Wet Detention = (4.5 in * % Imp Water Quality * Site Area for Water Quality)

2.7 ac-ft

MCC Required Water Quality Treatment Volume =

2.7 ac-ft

Provided Water Quality Treatment Volume:

Martin County criteria for water quality exceed SFWMD criteria. Therefore, Martin County criteria calculations. was used to set the water quality treatment elevation. Please see the enclosed stage storage

Provided Water Quality Treatment Volume = 3.1 ac-ft

WATER QUALITY TREATMENT VOLUME (SFWMD Vol. IV **BASIN A**

Requirement = Provide water quality treatment volume (WQTV) equivalent to the first inch of rain or 2.5 inches times the percent imperviousness which ever is greater

First Inch:

Volume = (1 inch * Drainage Basin Area) Volume =(1 inch * 19.2 ac)* (1 ft/12 in)

First inch =	
1.6	
ac-ft	

2.5 inches times % Impervious Area for Water Quality:

Site Area for Water Quality = Site Area for Water Quality = Site Area for Water Quality = (Basin Area - Building - Water Management Area - FDOT Pond - Wetlands) 19.2 ac - 4.22 ac - 3.2 ac - 0.99 - 0.60 ac 10.19 ac

Impervious Area for Water Quality = Impervious Area for Water Quality = 9.61 ac - (1.10 ac + 3.75 ac + 0.90 ac + 0.63 ac + 0.76 ac)Impervious Area for Water Quality = (Site Area for Water Quality - Pervious Area) 3.05 ac

% Impervious Area for Water Quality = (imp. area for water quality / site area for water quality) % Impervious Area for Water Quality = $\frac{1000}{1000}$ // Mater Quality = (3.05 ac / 10.19 ac) 30%

Wet Detention = (2.5 in * 0.30 * 10.19 ac) / (12 in / 1 ft) = Wet Detention = 2.5 in * % Imp Water Quality * (Basin Area - Lake Area - Wetlands) = 0.6 ac-ft

Therefore, first inch governs,

Required Water Quality Treatment Volume = 1.6 ac-ft

Provided Water Quality Treatment Volume:

calculations. Martin County criteria for water quality exceed SFWMD criteria. Therefore, Martin County criteria was used to set the water quality treatment elevation. Please see the enclosed stage storage

Provided Water Quality Treatment Volume = 3.1 ac-ft

APPENDIX J Permanent Pool Volume

BANYAN BAY PERMANENT POOL VOLUME (MARTIN COUNTY)

Martin County Required Permanent Pool Volume for Wet Detention Water Quality Treatment (ac-ft)

$$PPV = \frac{DA * C * R * RT}{WS * CF}$$

Where:

PPV = Permanent pool volume (ac-ft)

DA = Drainage Area (ac)

RT = Residence Time (days)

C = Manning Overland Flow Runoff Coefficient

R = Wet Season Rain Fall Depth (in)

WS = Length of Wet Season (days)

CF = Conversion Factor (12in/ft)

Basin	Basin Area (A) (ac)	Runoff Coeff. (C)	Rain Fall Depth (R) (in)	Residence Time (RT) (days)	Wet Season (WS) (days)	Required (PPV) (ac-ft)	Lake Mean Depth (ft)	Lake Area @ SHW (ac)	Provided (PPV) (ac-ft)
Α	19.2	0.45	32	14	153	2.1	11.0	3.2	35.2
В	10.5	0.45	32	14	153	1.2	11.0	2.4	26.4
C2	21.2	0.45	32	14	153	2.3	11.0	5.4	59.4
D	6.9	0.45	32	14	153	0.8	11.0	1.2	13.2
E 1	27.0	0.45	32	14	153	3.0	11.0	4.9	53.9
E2	3	0.45	32	14	153	0.3	11.00	0.60	6.6

APPENDIX K Bleeder Size

Bleeder Design:

The bleeder design is based on both MCC and SFWMD Vol IV criteria

Martin County Code:

MCC requires recovery of 90 percent of the treatment volume within 12 days of the design storm.

SFWMD Water Quality Rate:

The Water Quality Rate (SFWMD) = 1/2" over the basin area minus lake areas divided by 24 hours

Compliance with the required discharge rates and recovery criteria can be seen in the following calculations and storm water routings.

Basin A

Water Quality Rate (Q) = (0.5/12) * (19.2-3.2)Water Quality Rate (Q) = 0.7 ac-ft/day

The weir elevation is 10.45 and the bleeder invert is 9.50. A circular bleeder is proposed.

Converting the Water Quality Rate (Q) from ac-ft/day to cfs:

Q = (0.7 ac-ft/day * 43,560 ft² / ac) / (84600 sec / day) Q = 0.3 cfs

Orifice flow, $Q = 4.8 \text{ AH} \wedge 1/2$

Where : A = Area, (sf) H = Head at Centroid, (ft) Q = Flow, (cfs)

Solving the Orifice flow equation for the diameter of a circle:

A =A = ▶ = A =0.3 / (4.8 * (0.95)^(1/2)) 0.06 sf Q/(4.8 * H^1/2) 9 sq inches 3.43 inch diameter allowable

Therefore, a circular orifice with a diameter of 3.25 inches is proposed

APPENDIX L ICPR Results

Banyan Bay Input

<u>Nodes</u> A Stage/Area

V Stage/Volume T Time/Stage

M Manhole

Basins O Overland Flow U SCS Unit CN S SBUH CN Y SCS Unit GA

Z SBUH GA

<u>Links</u> P Pipe W Weir

- C Channel
- D Drop Structure
- B Bridge
- R Rating Curve H Breach
- E Percolation
- F Filter X Exfil Trench



7/24/2019 10:23				9 2C	Banyan Bay Phase
	I	I	I	: C2	Manual Basin:
					Comment:
Station	alinz	Sfwmd72		000 C1 C1	4.0
Reference ET	Crop Coeficient	Rainfall Name	ll Zone	Land Cover Zone So	Area [ac]
		rban Hydrograph	C1 Santa Barbara U Curve Number 21.0000 min 999999.00 cfs 0.0000 hr	Node: Hydrograph Method: Infiltration Method: Time of Concentration: Max Allowable Q: Time Shift:	
	l	l	Icpr3	: CI Scenario:	Manual Basin:
					Massial Danis.
			OUTHEAST	ULTI-FAMILY PARCEL TO THE S	Comment: ML
		(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
		Sfwmd72		000 B B	10.5
Reference ET	Crop Coeficient	Rainfall Name	il Zone	Land Cover Zone So	Area [ac]
		rban Hydrograph	Santa Barbara U Curve Number 31.0000 min 999999.00 cfs 0.0000 hr	Hydrograph Method: Infiltration Method: Time of Concentration: Max Allowable Q: Time Shift:	
			Icpr3 B	Scenario:	
					Manual Basin:
			Ψ	ORTHERN MULIT-FAMILY PARC	Comment: NC
		Sfwmd72		A A	17.5
Reference ET Station	Crop Coeficient Zone	Rainfall Name	ll Zone	Land Cover Zone So	Area [ac]
			Curve Number 31.0000 min 999999.00 cfs 0.0000 hr	Infiltration Method: Time of Concentration: Max Allowable Q: Time Shift:	
		rban Hydrograph	A Santa Barbara U	Node: Hydrograph Method:	
			Icpr3	Scenario:	
				A	Input Manual Basin:

Input	Scenario	Innra			۵
	Node:	C2 C2 Canta Barbara IIr	han Hidrograph		
	Hydrograph Method: Infiltration Method:	Santa Barbara Ur Curve Number	ban Hydrograph		
	Time of Concentration: Max Allowable Q:	26.0000 min 9999999.00 cfs			
Area [ac]	Land Cover Zone Sc	il Zone	Rainfall Name	Crop Coeficient Zone	Reference ET Station
21.2000	C2		Sfwmd72		
Comment:					
1					I
Manual Basin: D	2	The second secon	l		
	Scenario: Node:	Icpr3 D			
	Hydrograph Method:	Santa Barbara Ur	ban Hydrograph		
	Infiltration Method: Time of Concentration:	Curve Number 25.0000 min			
	Max Allowable Q:	9999999.00 cfs 0.0000 hr			
Area [ac]	Land Cover Zone	il Zone	Rainfall Name	Crop Coeficient Zone	Reference ET Station
6.9000	D		Sfwmd72		
Comment:					
Manual Basin: E1	l	l	l	l	
	Scenario:	Icpr3			
	Hydrograph Method:	Santa Barbara Ur	ban Hydrograph		
	Infiltration Method:	Curve Number			
	Max Allowable Q: Time Shift:	10.0000 mm 9999999.00 cfs 0 0000 hr			
Area [ac]	Land Cover Zone Sc	il Zone	Rainfall Name	Crop Coeficient Zone	Reference ET Station
27.0000	E1 E1		Sfwmd72		
Comment:					
Manual Basin: E2	Copperio	Topr 2	l		
	Scenario:	Icpr3			
Banyan Bay Phase 2C					7/24/2019 10:23

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0:23

Scenario: Node: Icpr3 NE-WL

Manual Basin: NE-WL

omment:	3.0000 IQ		rea [ac] Lan
	BASIN		id Cover Zone
	IQ BASIN		Soil Zone
	Sfwmd72		Rainfall Name
		Zone	Crop Coeficient
		Station	Reference ET

		ea [ac]							
3.0000									
IQ BASIN		Land Cover Zone	Time Shi	Max Allowable	Time of Concentratic	Infiltration Methc	Hydrograph Methc	Noc	Scenar
IQ BASIN		Soil Zone	ft: 0.0000 hr	Q: 999999.00 cfs	n: 10.0000 min	d: Curve Number	d: Santa Barbara U	le: IQ LAKE	io: Icpr3
Sfwmd72		Rainfall Name					rban Hydrograph		
	Zone	Crop Coeficient							
	Station	Reference ET							

Manual Basin: IQ BASIN

Ī	Comment:	5.8000		Area [ac]			
		E3		Land Cover Zone	Time Sh	Max Allowable	Time of Concentration
		E3		Soil Zone	ift: 0.0000 hr	Q: 999999.00 dfs	on: 23.0000 min
		Sfwmd72		Rainfall Name			
			Zone	Crop Coeficient			
			Station	Reference ET			

Manual Basin: E3	Scenario: Node:	Icpr3 E3		
	Hydrograph Method:	Santa Barbara U	rban Hydrograph	
	Infiltration Method:	Curve Number		
	Time of Concentration:	23.0000 min		
	Max Allowable Q:	999999.00 cfs		
	Time Shift:	0.0000 hr		
Area [ac]	Land Cover Zone Sc	il Zone	Rainfall Name	Crop Coeficien
				Zone

Sfwmd72 Crop Coeficient Zone Reference ET Station

Input

Area [ac]

Soil Zone

Rainfall Name

0.0000 hr

Node: Hydrograph Method: Infiltration Method: Time of Concentration: Max Allowable Q: Time Shift:

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Santa Barbara Urban Hydrograph
Curve Number
20.0000 min
999999.00 cfs

Comment:

3.0000 E2

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7/24/2019 10:23				Banyan Bay Phase 2C
	1746756	40.10	13.54	
	1424412	32.70	13.04	
	1136916	26.10	12.54	
	884268	20.30	12.04	
	679536	15.60	11.54	
	509652	11.70	11.04	
	383328	8.80	10.54	
	291852	6.70	10.04	
	217800	5.00	9.54	
	143748	3.30	9.04	
	135036	3.10	8.99	
	6969	1.60	8.54	
	0	0.00	7.54	3- FJ
	e [ft3]	-ft] Volume	Volume Fac	Stage [ft]
			וווט אמטה: היחה ור	Wdrn
			ase Flow: 0.00 cfs	
		me	Type: Stage/Volu	
			Scenario: Icpr3	
				Node: A
		ΈM	ASTERN WETLAND SYST	Comment: SOUTHE
	2	WL Stwma/.	SE-WL	39.6000
รเสบขา				
nt Reference ET	Name Crop Coeficien	il Zone Rainfall I	and Cover Zone Sc	Area [ac] L
-	-	0.0000 hr	Time Shift:	
		999999.00 dts	Max Allowable Q:	
		30.0000 min	Time of Concentration:	
		Curve Number	Infiltration Method:	
	ograph	Santa Barbara Urban Hydr	Hydrograph Method:	
	-			
		Icpr3	Scenario:	
				Manual Basin: SE-WI
				Ī
			AST WETLAND BASIN	Comment: NORTHE/
	2	E-WL Sfwmd7:	VE-WL NI	44.5400 N
Station	Zone			ת כמ [מר]
ht Deference ET	Name Cron Coeficien	vil Zona Dainfall I	and Cover Zone C	
		999999.00 dfs	Max Allowable Q:	
		30.0000 min	Time of Concentration:	
		Curve Number	Infiltration Method:	
	oqraph	Santa Barbara Urban Hydr	Hydrograph Method:	-
4				Input

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												Stage [ft]
14.04	13.54	13.04	12.54	12.04	11.54	11.04	10.54	10.04	9.54	9.04	8.54	
8.70	7.30	6.00	4.60	3.30	2.00	1.10	0.70	0.50	0.30	0.20	0.00	Volume [ac-ft]
378972	317988	261360	200376	143748	87120	47916	30492	21780	13068	8712	0	Volume [ft3]

Warning Stage:	Initial Stage:	Base Flow:	iype.
0.00 ft	8.54 ft	0.00 cfs	טרמשבו איטו

Type: ŝ R

≥/Volume

Scenario:

Icpr3

Node: C1

Comment: LAKES B1, B2 and B3

Initial Stage: Warning Stage: Scenario: Type: Base Flow: Icpr3 Stage/Volume 0.00 cfs 8.44 ft 0.00 ft

Node: B

Stage [ft] 8.44 8.54 9.04 9.54 10.04 10.54 11.04 11.54 11.54 12.54 13.04 Volume [ac-ft] 10.40 13.80 17.50 21.50 25.70 0.00 0.40 2.10 4.00 5.90 7.90 Volume [ft3] 91476 174240 257004 344124 453024 601128 762300 936540 1119492 17424 0

σι

Input

Comment: LAKES A1 AND A2

7/24/2019
10:23

Type: Base Flow: Initial Stage: Warning Stage: Icpr3 Stage/Volume 0.00 cfs 7.04 ft 0.00 ft

Scenario:

Node: D

Comment:

2609244	59.90	14.04
2217204	50.90	13.54
1838232	42.20	13.04
1485396	34.10	12.54
1158696	26.60	12.04
879912	20.20	11.54
657756	15.10	11.04
496584	11.40	10.54
365904	8.40	10.04
239580	5.50	9.54
117612	2.70	9.04
0	0.00	8.54
Volume [ft3]	Volume [ac-ft]	Stage [ft]

Input Comment:

Node: C2

Scenario: Type: Base Flow: Initial Stage: Warning Stage: Icpr3

Stage/Volume 0.00 cfs 8.54 ft 0.00 ft

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	1 10	11 5/
	3.20	11.04
	2.30	10.54
	1.60	10.04
	1.20	9.54
	0.80	9.04
	0.50	8.54
	0.20	8.04
	0.00	7.74
Volume [ft3]	Volume [ac-ft]	Stage [ft]

Type: Stage/Volume Base Flow: 0.00 cfs Initial Stage: 7.74 ft Warning Stage: 0.00 ft T.74 Volume [ac-ft] Volume [ft3] 7.74 0.00 8.04 0.20		0.50	8.54
Type: Stage/Volume Base Flow: 0.00 cfs Initial Stage: 7.74 ft Warning Stage: 0.00 ft t] Volume [ac-ft] Volume [ft3] 7.74 0.00		0.20	8.04
Type: Stage/Volume Base Flow: 0.00 cfs Initial Stage: 7.74 ft Warning Stage: 0.00 ft Volume [ac-ft] Volume [ft3]		0.00	7.74
Type: Stage/Volume Base Flow: 0.00 cfs Initial Stage: 7.74 ft Warning Stage: 0.00 ft	Volume [ft3]	Volume [ac-ft]	Stage [ft]
Type: Stage/Volume Base Flow: 0.00 cfs Initial Stage: 7.74 ft Warning Stage: 0.00 ft			
Type: Stage/Volume Base Flow: 0.00 cfs Initial Stage: 7.74 ft		0.00 ft	Warning Stage:
Type: Stage/Volume Base Flow: 0.00 cfs		7.74 ft	Initial Stage:
Type: Stage/Volume		0.00 cfs	Base Flow:
		Stage/Volume	Туре:

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ğ	
<u>.</u>	
E	l

Scenario:

Icpr3

Comment:	12.54	12.04	11.54	11.04	10.54	10.04	9.54	9.04	8.54	8.04	7.54	7.04	6.54	6.04	5.54	Stage [ft]
	85.10	74.60	64.50	55.30	46.80	39.20	32.40	26.40	21.30	17.00	13.30	9.90	6.50	3.20	0.00	Volume [ac-ft]
	3706956	3249576	2809620	2408868	2038608	1707552	1411344	1149984	927828	740520	579348	431244	283140	139392	0	Volume [ft3]

Input

Comment:

Node: E1 Scenario: Type: Base Flow: Initial Stage: Warning Stage:

Icpr3 Stage/Volume 0.00 cfs 5.54 ft 0.00 ft

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Banyan Bay Phase 2C

39204	0.90	6.04
0	0.00	5.54
Volume [ft3]	Volume [ac-ft]	Stage [ft]
	10.00 ft	Warning Stage:
	5.54 ft	Initial Stage:

			Node: IQ LAKE
Base Flow:	Type:	Scenario:	
0.00 cfs	Stage/Volume	Icpr3	

Stage [ft]		Volume [ac-ft]	Volume [ft3]
	5.54	0.00	0
	6.04	0.20	8712
	6.54	0.30	13068
	7.04	0.50	21780
	7.54	0.70	30492
	8.04	0.90	39204
	8.54	1.50	65340
	9.04	2.30	100188
	9.54	3.40	148104
	10.04	4.80	209088
	10.54	6.50	283140
	11.04	8.50	370260
	11.54	10.60	461736
	12.04	12.70	553212
	12.54	14.90	649044

Input		
Stage [ft]	Volume [ac-ft]	Volume [ft3]
12.04	5.10	222156
12.54	6.20	270072
13.04	7.40	322344
13.54	8.50	370260
14.04	9.70	422532
14.54	10.80	470448
Commont		

Comment:

Node: E3

Base Flow:	Туре:	Scenario:	
0.00 cfs	Stage/Volu	Icpr3	

Initial Stage: 5.54 ft Warning Stage: 0.00 ft Ime

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<u>+</u>	2.90	126324
	3.90	169884
-	4.90	213444
-	6.00	261360
	7.10	309276
	8.30	361548
	9.50	413820
	10.70	466092
	12.00	522720
	13.40	583704
	14.80	644688
	16.20	705672
: Icpr3 : Stage/Area		
: 0.00 cfs		
: 5.54 ft		
: 8.54 ft		
Area [ac]		
	Area [ft2]	
	Area [ft2]	4
	Area [ft2] 1.0001 1.0002	4 0
anhole to stage/area node)	Area [ft2] 1.0001	4 0
anhole to stage/area node)	Area [ft2] .0001	4 0
anhole to stage/area node)	Area [ft2] .0001 .0002	4 U
anhole to stage/area node)	Area [ft2] ,0002	4 0
anhole to stage/area node)	Area [ft2] ,0002	4 U
anhole to stage/area node)	Area [ft2] ,0002	4 U
anhole to stage/area node) : Icpr3 : Stage/Volume : 0.00 cfs	Area [ft2]	4 Q
anhole to stage/area node) Icpr3 Stage/Volume 0.00 cfs 4.54 ft	Area [ft2] .0002	4 U
anhole to stage/area node) Icpr3 Stage/Volume 0.00 cfs 4.54 ft 0.00 ft	Area [ft2] ,0002	4 U
anhole to stage/area node) : Icpr3 : Stage/Volume : 0.00 cfs : 4.54 ft : 0.00 ft Volume [ac-ft]	Area [ft2] ,0002 Volume [ft3]	4 υ
anhole to stage/area node) Icpr3 Stage/Volume 0.00 cfs 4.54 ft 0.00 ft Volume [ac-ft]	Area [ft2] .0002 Volume [ft3]	4 v
anhole to stage/area node) Icpr3 Stage/Volume Stage/Volume 4.54 ft 0.00 ft Volume [ac-ft]	Area [ft2] .0001 Volume [ft3]	<u>1156816</u> 0
anhole to stage/area node) : Icpr3 : Stage/Volume : 4.54 ft : 0.00 ft Volume [ac-ft]	Area [ft2] .0002 .0002 Volume [ft3] 	4 9 156816 588060
anhole to stage/area node) : Icpr3 : Stage/Volume : 0.00 cfs : 4.54 ft : 0.00 ft Volume [ac-ft] 4	Area [ft2] .0001 Volume [ft3] 3.60 13.50	4 9 11667220
anhole to stage/area node) Icpr3 Stage/Volume 0.00 cfs 4.54 ft 0.00 ft Volume [ac-ft] Volume [ac-ft]	Area [ft2] .0001 .0002 Volume [ft3] .000 24.50 .24.50	4 9 156816 1067220 2160576
	Icpr3 Stage/Area 8.54 ft	1.90 1.90 2.90 2.90 4.90 4.90 5.10 7.10 8.30 9.50 10.70 12.00 12.00 12.00 13.40 14.80 16.2

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Bou	Indary Stage:			
Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	-0.36
0	0	0	9999.0000	-0.36
Comment: BOUNI	DARY NODE			

Warning Stage:	Initial Stage:	Base Flow:	Type:	
0.00 ft	-0.36 ft	0.00 cfs	Time/Stage	-

itial Stage:	Base Flow:	Type:	Scenario:
-0.36 ft	0.00 cfs	Time/Stage	Icpr3

Type:	Scenario:	
Time/9	Icpr3	

Base Flow:	Туре:	Scenario:
0.00 cfs	Time/Stage	Icpr3

	ST.LUCIE
	RIV
Scenario:	Ŗ
Icpr	

Scenario:	Node: ST.LUCIE RIVER	
Icpr3		

		Comment:
4543308	104.30	10.54
3680820	84.50	10.04
2818332	64.70	9.54
2003760	46.00	9.04
1285020	29.50	8.54
670824	15.40	8.04
169884	3.90	7.54
0	0.00	7.04

90 169 40 670 50 1285 50 2003 70 2818 50 3680 30 3680 4543	3.9 15.4 29.5 46.0 64.7 84.5 104.3	7.54 8.04 9.04 9.54 10.04 10.54
00	0.0	7.04

External Hydrograph NE-WL#1

Comment: NORTHERN WETLAND SLOUGH

Node: SE-WL	ario. Topr
Scena	ario: Icpr
Ţ	ype: Stag
Base F	low: 0.00
	VU L .020

Initial Stage: 7.04 ft Warning Stage: 0.00 ft

Stage [ft]

Volume [ac-ft]

Volume [ft3]

10

Input Stage [ft]

Volume [ac-ft]

Volume [ft3]

8.04 8.54 9.04 10.04 10.54

81.70 100.20 120.60 142.10 164.00 186.00

3558852 4364712 5253336 6189876 7143840 8102160

					Banyan Bay Phase 2C
	Ref Node:		Ref Node:	1	Pipe Count:
	Op Table:		Op Table:	10	Increments:
0.00 ft	Default:	0.00 ft	Default:	Combine	Solution:
	Bottom Clip			Both	Flow Direction:
2.50 ft	Max Depth:	2.50 ft	Max Depth:		Link Count:
· Circular	Geometry	" Circular	Geometry		To Node:
1.54 IL		0 01 20			
am Pipe	Downstre	Im Pipe	Upstrea	Tope 2	Drop Structure Link: A
			rland 12	LOW FROM WET	Comment: OFFSITE F
	Orifice Table:		ft	Fillet: 0.00	
	Orifice Default: 0.600		00 ft	x Width: 200.0	Ма
	Weir Table:		.25 ft	x Depth: 8333	Ma
	Weir Default: 3.200		ft _	levation: 7.34	Control E
	Discharge Coefficients		ft	Invert: 7.34	
	Ref Node:		angilar	nv Type: Silai	Geomet
	On Table:		n Crested Vertical	airipilig: 0.000	
		l		amping: 0.000	
	Ton Clin			N Courres I	
	Ref Node:			k Count: 1	lin _
			ICTE DIVED	O Nodo: SE-W	
	Bottom Clip			m Nodo: CE-W	
	2			4	Weir Link: 2-SLR
	dal wetlands (Wetland 1)	and 5) and Ti	n Northern Wetlands (Wetl	e Swale betwee	Comment: Conveyanc
0.0350	Manning's N:	0.0350	Manning's N:		
	Ref Node:		Ref Node:		
	Op Table:		Op Table:		
0.00 ft	Top Cip Default:	0.00 ft	Default:	спетду	chergy switch:
0.0350	Manning's N:	0.0350	Manning's N:	0.00 ft	Bend Location:
	Ref Node:))]	Ref Node:	0.00	Bend Loss Coet:
	Op Table:		Op Table:	0.00	Exit Loss Coef:
0.00 ft	Default:	0.00 ft	Default:	0.00	Entr Loss Coef:
	Bottom Clip			0.00	Expansion Coef:
4.000 (h:v)	Right Slope:	4.000 (h:v)	Right Slope:	0.00	Contraction Coef:
4.000 (h:v)	Left Slope:	4.000 (h:v)	Left Slope:	315.00 ft	Length:
10.00 ft	Bottom Width:	10.00 ft	Bottom Width:	0.0000 ft	Damping:
Normal	Extrapolation:	Normal	Extrapolation:	Both	Flow Direction:
9999.00 ft	Max Depth:	9999.00 ft	Max Depth:	1	Link Count:
rapezoidal	Geometry: 1	Trapezoidal	Geometry:	ST.LUCIE RIVER	To Node:
0.0350	Manning's N:	0.0350	Manning's N:	NE-WL	From Node:
य तया। २ त4 ft	Invert:	4 84 ft	Invert:	ไกทาวิ	Scenario:
meor	Downs	mcom	Linst		Channel Link: 1-SLR

Input			12
Damping: 0.0000 ft	Manning's N:	0.0120 Manning's N:	0.0120
ΕΗΜΔ Γολει 1	Default:	n nn ft I op ciip Default:	0 00 1
Entr Loss Coef: 0.00	Op Table:	Op Table:	
Fyit Loss Coef: 0.00		Ref Node:	
Bend Loss Coef: 0.00	Manning's N:	0.0120 Manning's N:	0.0120
Bend Location: 0.00 ft	c	,	
Energy Switch: Energy			
Pipe Comment:			
Weir:	1	Bottom Clip	
Weir Count:		Default: 0.00 ft	
Weir Flow Direction:	Positive	Op Table:	
Damping:	0.0000 ft	Ref Node:	
Weir Type:	Sharp Crested Vertical	Top Clip	
Geometry Type:	Circular	Default: 0.00 ft	
Invert:	8.04 ft	Op Table:	
Control Elevation:	8.04 ft	Ref Node:	
Max Depth:	0.27 ft	Discharge Coefficient	S
		Weir Default: 3.200	
		Weir Table:	
		Orifice Table:	
Weir Comment:			
Woir Com			
Weir:	2	Bottom Clip	
Weir Count:	1	Default: 0.00 ft	
Weir Flow Direction:	Positive	Op Table:	
Damping:	0.0000 ft	Ref Node:	
Weir Type:	Sharp Crested Vertical	Top Clip	
Geometry Type:	Rectangular	Default: 0.00 ft	
Control Elevation	8.99 IT	Op Table:	
Max Depth:	83.25 ft	Discharge Coefficient	S
Max Width:	0.40 ft	Weir Default: 3.200	
Fillet:	0.00 ft	Weir Table:	
		Orifice Default: 0.600	
Weis Commont.		Urifice Table:	
weir comment:			
Drop Structure Comment:			
Weir Link: B1-1			
Scenario:	Icpr3	Bottom Clip	
From Node:	в	Default: 0.00 ft	
To Node:	SE-WL	Op Table:	
Link Count:		Ref Node:	
Banyan Bay Phase 2C			7/24/2019 10:23

7/24/2019 10:23				Banyan Bay Phase 2C	
				Pipe Comment:	
				Energy Switch: Energy	
				Bend Location: 0.00 ft	
0.0120	Manning's N:	0.0120	Manning's N:	Bend Loss Coef: 0.00	
	Ref Node:		Ref Node:	Exit Loss Coef: 0.00	
	Op Table:		Op Table:	Entr Loss Coef: 0.00	
0.00 ft	Default:	0.00 ft	Default:	FHWA Code: 1	
	Top Clip			Length: 1028.00 ft	
0.0120	Manning's N:	0.0120	Manning's N:	Damping: 0.0000 ft	
	Ref Node:		Ref Node:	Pipe Count: 1	
	Op Table:		Op Table:	Increments: 10	
0.00 ft	Default:	0.00 ft	Default:	Solution: Combine	
	Bottom Clip			Flow Direction: Both	
2.50 ft	Max Depth:	2.50 ft	Max Depth:	Link Count: 1	
: Circular	Geometry	": Circular	Geometry	To Node: C2	
0.0120	Manning's N:	0.0120	Manning's N:	From Node: C1	
4.04 ft	Invert:	4.04 ft	Invert:	Scenario: Icpr3	
am Pipe	Downstre	ım Pipe	Upstrea	Drop Structure Link: C1	
				Comment:	
			0:00 10	Comment:	
	Orifice Table:				
	Orifice Default: 0.600		0 38 ft	Max Width:	
	Weir Table:		83,25 ft	Max Depth:	
	Weir Default: 3.200		8.94 ft	Control Elevation:	
	Discharge Coefficients		8.94 ft	Invert:	
	Ref Node:		Rectangular	Geometry Type:	
	Op Table:		Sharp Crested Vertical	Weir Type:	
	Default: 0.00 ft		0.0000 ft	Damping:	
	Top Clip		Both	Flow Direction:	
	Ref Node:		1	Link Count:	
	Op Table:		SE-WL	To Node:	
	Default: 0.00 ft		В	From Node:	
	Bottom Clip		Icpr3	Scenario:	
				Weir Link: B1-2	
				Comment:	
	Urifice Table:				
	Orifice Default: 0.600				
	Weir Table:				
	Weir Default: 3.200		0.25 ft	Max Depth:	
	Discharge Coefficients	l	8,44 ft	Control Elevation:	
	Ref Node:		8.44 ft	Invert:	
	Op Table:		Circular	Geometry Type:	
	Default: 0.00 ft		Sharp Crested Vertical	Weir Type:	
	Top Clip		0.0000 ft	Damping:	
			Both	Flow Direction:	
13				Input	
7/24/2019 10:23					Banyan Bay Phase 2C
------------------------	------------	--------------	-------------------	------------	----------------------
Weir Default: 3.200				-	
Discharge Coefficients			0.35 ft	ax Depth:	M
Ref Node:			8 л4 (Flevation.	Control
Delauli: 0.00 It			8 54 ft	Tnyert:	Geon
	l		Sharb C	ver type:	
Ref Node:				Damping:	-
		-	BOTH	Direction:	weir riow
Default: 0.00 ft				eir Count:	W
Bottom clip	l		· –	weir:	:
			mponent	Weir Co	
	l				
					Pipe Comment:
				Energy	Energy Switch:
				0.00 ft	Bend Location:
Manning's N: 0.0120	0.0120	Manning's N:		0.00	Bend Loss Coef:
Ref Node:		Ref Node:		0.00	Exit Loss Coef:
Op Table:		Op Table:		0.00	Entr Loss Coef:
Default: 0.00 ft	0.00 ft	Default:		1	FHWA Code:
Top Clip				147.00 ft	Length:
Manning's N: 0.0120	0.0120	Manning's N:		0.0000 ft	Damping:
Ref Node:		Ref Node:		1	Pipe Count:
Op Table:		Op Table:		10	Increments:
Default: 0.00 ft	0.00 ft	Default:		Combine	Solution:
Bottom Clip				Both	Flow Direction:
Max Depth: 2.50 ft	2.50 ft	Max Depth:		1	Link Count:
Geometry: Circular	: Circular	Geometry		SE-WL	To Node:
Manning's N: 0.0120	0.0120	Manning's N:		2	From Node:
Invert: 3.31 ft	3.31 ft	Invert:		Icpr3	Scenario:
Downstream Pipe	m Pipe	Upstrea		2	Drop Structure Link:
				ment:	Drop Structure Com
					Weir Comment:
Orifice Table:					
Orifice Default: 0.600			0.00 It	rillet:	
Weil Delault. 3.200			1.00 F		-
More Discription 2 200		_	י בט 1		< 2
Discharge Coefficients					
Op Table: Bof Nodo:			0.04 IL	Elouation:	Control
Default: 0.00 ft		ular	Rectangu	etry Type:	Geom
Top Clip	l	_ <u>a</u>	Horizont	Veir Type:)
Ref Node:			0.0000 fi	Damping:	
Op Table:			Both	Direction:	Weir Flow
Default: 0.00 ft			1	eir Count:	×
Bottom Clip				Weir:	
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7	2		
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Orifice Delaur. 0.000			
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Input

7/24/2019 10:23					Banyan Bay Phase 2C
m Pipe 	Downstrea Invert: 2 Manning's N: 0 Geometry: 1 Max Depth: 2 Bottom Clip Default: 0 Op Table: Ref Node: Ref Node: Ref Node: Ref Node: Ref Node: Ref Node: Nanning's N: 0	am Pipe 2.24 ft 0.0120 y: Circular 2.50 ft 0.00 ft 0.0120 0.0120	Upstre Invert: Manning's N: Geometr Max Depth: Default: Op Table: Ref Node: Ref Node: Ref Node: Ref Node: Ref Node:	E2 Icpr3 E2 Manhole 1 Combine 10 1 0.0000 ft 178.00 ft 1 0.00 0.00 0.00	Drop Structure Link: Scenario: From Node: To Node: Link Count: Flow Direction: Solution: Increments: Pipe Count: Damping: Length: FHWA Code: Entr Loss Coef: Exit Loss Coef:
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18			_		Input

7/24/2019 10:23		Banyan Bay Phase 2C
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		Bend Location: 0.00 ft
19		Input

7/24/2019 10:23				C	Banyan Bay Phase 20
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		Output Time Increments		
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-1.46 ft	Invert:	Invert: 1.94 ft		Scenario: Icpr3
nstream	Dowr	Upstream	l	Pipe Link: P1
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21				Input

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Hydrology Hydrology Time Increment [min] Year Month Day Hour [hr] Time Increment [min] 0 0 0 0.0000 60.0000 0 0 0 30.0000 30.0000 0 0 0 50.0000 15.0000 0 0 0 50.0000 15.0000 0 0 0 30.0000 30.0000 Surface Hydraulics Vear Hour [hr] Hour [hr] Time Increment [min]	60.0000	0.0000	0	0	0
Hydrology Hydrology Year Month Day Hour [hr] Time Increment [min] 0 0 0 0.0000 60.0000 0 0 0 30.0000 30.0000 0 0 0 30.0000 30.0000 0 0 0 50.0000 15.0000 0 0 0 30.0000 30.0000	Time Increment [min]	Hour [hr]	Day	Month	Year
Hydrology Hour [hr] Time Increment [min] Year Month Day Hour [hr] Time Increment [min] 0 0 0 0.0000 60.0000 0 0 0 30.0000 30.0000 0 0 0 50.0000 15.0000 0 0 0 70.000 30.0000				lydraulics	Surface H
Hydrology Time Increment [min] Year Month Day Hour [hr] Time Increment [min] 0 0 0 0.0000 60.0000 0 0 0 30.0000 30.0000 0 0 0 15.0000 15.0000	30.0000	70.0000	0	0	0
Hydrology Time Increment [min] Year Month Day Hour [hr] Time Increment [min] 0 0 0 0.0000 60.0000 0 0 0 30.0000 30.0000	15.0000	50.0000	0	0	0
Hydrology Time Increment [min] Year Month Day Hour [hr] Time Increment [min] 0 0 0 60.0000 60.0000	30.0000	30.0000	0	0	0
Hydrology Time Increment [min] Year Month Dav Hour [hr] Time Increment [min]	60.0000	0.0000	0	0	0
Hydrology	Time Increment [min]	Hour [hr]	Day	Month	Year
				γμοιο	nyur

Input

7/2	
4/2019	
10:23	

360.0000	0.0000	0	0	0
Time Increment [min]	Hour [hr]	Day	Month	Year
			oundwater	Gro
30.0000	15.0000	0	0	0
15.0000	5.0000	0	0	0
30.0000	0.0000	0	0	0
Time Increment [min]	Hour [hr]	Day	Month	Year
			ce Hydraulics	Surfac

30.0000	15.0000	0	0	0
15.0000	5.0000	0	0	0
30.0000	0.0000	0	0	0
Time Increment [min]	Hour [hr]	Day	Month	Year
			ology	Hydru

		Min Calculation Time: Max Calculation Time:		Start Time: End Time:		Run Mode:		Scenario: Run Date/Time: Program Version:	Simulation: 10YR		100 YR, 72 HR STORM SE
		60.0000	Hydrology [sec]	0 0	Year	Normal		Icpr3 7/24/2019 9:44:37 AM ICPR4 4.04.00			ETS MIMIMUM FINISHED F
-	Output Time Increments	0.1000 60.0000	Surface Hydraulics [sec]	0 0	Month		General				LOOR ELEVATIONS
		900.0000	Groundwater [sec]	0 0	Day						
				0.0000 30.0000	Hour [hr]						

23

Storm Duration:

72.0000 hr

Input Edge Length Option: Automatic

Dflt Damping (2D): Min Node Srf Area (2D): Energy Switch (2D):

Dflt Damping (1D): Min Node Srf Area (1D): Energy Switch (1D):

0.0050 ft 113 ft2

Energy

0.0050 ft 1 ft2

Comment: MINIMUM CRITERIA FOR FINISHED FLOORS

Energy

7/24/2019 10:23				Banyan Bay Phase 2C
Hour [hr]	Day	ar Month	Yea	
			Normal	Run Mode:
		General		
		:45:32 AM 10	Icpr3 7/24/2019 9: ICPR4 4.04.0	Run Date/Time: Program Version:
				Simulation: 25VB
	WAY	HE MINIMUM ELEVATION FOR ROAD	ORM SETS TH	10-YR, 24-HR DESIGN ST
		OAD CROWN	TERIA FOR R	Comment: MINIMUM CRI
Energy	(1D): Energy Switch (1D):		Energy	(کتل): Energy Switch (2D):
0.0050 ft 113 ft2	Dflt Damping (1D): Min Node Srf Area		0.0050 ft 1 ft2	Dflt Damping (2D): Min Node Srf Area
6.80 In 24.0000 hr	Kaintali Amount: Storm Duration:		Automatic	Edge Length Option:
Global Global Flmod	Manual Basin Rain Opt: OF Region Rain Opt: Rainfall Name:		0.0010 ft 1.0000 ft 0.0001 ft	dZ Tolerance: Max dZ: Link Optimizer Tol:
24.0000 hr False	IA Recovery Time: ET for Manual Basins:		SAOR 6 0.5 dec	Time Marching: Max Iterations: Over-Relax Weight Fact:
		Tolerances & Options		
ICPR3	Green-Ampt Set: Vertical Layers Set: Impervious Set: Roughness Set: Crop Coef Set: Fillable Porosity Set: Conductivity Set: Leakage Set:			
Tables ICPR3	Lookup Boundary Stage Set: Extern Hydrograph Set: Curve Number Set:		urces ICPR3 ICPR3	Rainfall Folder: Raference ET Folder: Unit Hydrograph Folder:
	les	Resources & Lookup Tab		
24			rt File False	Input Restai Save Restart:

7/24/2019 10:23				Banyan Bay Phase 2C
	l	Tolerances & Options	l	
ICPR3	Vertical Layers Set: Impervious Set: Roughness Set: Crop Coef Set: Fillable Porosity Set: Conductivity Set: Leakage Set:			
Tables ICPR3 ICPR3	Lookup Boundary Stage Set: Extern Hydrograph Set: Curve Number Set: Green-Ampt Set:		ICPR3 ICPR3 ICPR3	Resou Rainfall Folder: Reference ET Folder: Unit Hydrograph Folder:
	US IS	Resources & Lookup Table		
			t File False	Restar Save Restart:
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			lwater	Ground
60.0000	70.0000	00		
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			ydraulics	Surface H
60.0000	70.0000	0	0	0
30.0000 15.0000	30.0000 50.0000	0 0	0 0	00
Time Increment [min] 60.0000	Hour [hr] 0.0000	Day 0	Month 0	Year 0
			ygolc	Hydro
		Output Time Increments		
	900.0000	0.1000 60.0000	60.0000	Min Calculation Time: Max Calculation Time:
	Groundwater [sec]	Surface Hydraulics	Hydrology [sec]	
0.0000 360.0000	0 0	0 0	0 0	Input Start Time: End Time:

7/24/2019 10:23

Comment: MINIMUM CRI	Dflt Damping (2D): Min Node Srf Area (2D): Energy Switch (2D):	Time Marching: Max Iterations: Over-Relax Weight Fact: dZ Tolerance: Max dZ: Link Optimizer Tol: Edge Length Option:
TERIA FOR SITE PERIMETER BERM	0.0050 ft 1 ft2 Energy	SAOR 6 0.5 dec 0.0010 ft 1.0000 ft 0.0001 ft Automatic
	Dflt Damping (1D): Min Node Srf Area (1D): Energy Switch (1D):	IA Recovery Time: ET for Manual Basins: Manual Basin Rain Opt: OF Region Rain Opt: Rainfall Name: Rainfall Amount: Storm Duration:
	0.0050 ft 113 ft2 Energy	24.0000 hr False Global Global Sfwmd72 11.20 in 72.0000 hr

25 YR, 72-HR DESIGN STORM SETS MINIMUM CRITERIA FOR SITE PERIMETER BERM

Input

Dasili						עורמ [מר]	Lynnaicht	ע דוווסבוע	
Name		[cfs]	Max Flow [hrs]	Rainfall [in]	Runoff [in]		Curve Number		
A	100YR	78.59	60.0000	14.00	11.95	17.5800	84.0	0.00	0.00
В	100YR	47.70	60.0000	14.00	12.49	10.5000	88.0	0.00	0.00
CI	100YR	21.70	60.0000	14.00	12.62	4.0000	89.0	0.00	0.00
ß	100YR	104.42	60.0000	14.00	12.35	21.2000	87.0	0.00	0.00
D	100YR	34.82	60.0000	14.00	12.62	6.9000	89.0	0.00	0.00
E1	100YR	154.35	60.0000	14.00	12.49	27.0000	88.0	0.00	0.00
E2	100YR	16.58	60.0000	14.00	12.62	3.0000	89.0	0.00	0.00
E	100YR	30.76	60.0000	14.00	13.51	5.8000	96.0	0.00	0.00
IQ BASIN	100YR	19.73	60.0000	14.00	12.62	3.0000	89.0	0.00	0.00
NE-WL	100YR	204.16	60.0000	14.00	12.22	44.5400	86.0	0.00	0.00
SE-WL	100YR	179.97	60.0000	14.00	11.95	39.6000	84.0	0.00	0.00
A	10YR	42.12	12.0167	6.80	4.95	17.5800	84.0	0.00	0.00
в	10YR	27.14	12.0167	6.80	5.40	10.5000	88.0	0.00	0.00
CI	10YR	12.79	12.0167	6.80	5.51	4.0000	89.0	0.00	0.00
ß	10YR	59.18	12.0167	6.80	5.29	21.2000	87.0	0.00	0.00
D	10YR	20.31	12.0167	6.80	5.51	6.9000	89.0	0.00	0.00
	10YR	90.79	12.0167	6.80	5.40	27.0000	88.0	0.00	0.00
E2	10YR	9.80	12.0167	6.80	5.51	3.0000	89.0	0.00	0.00
Ω	10YR	19.29	12.0167	6.80	6.32	5.8000	96.0	0.00	0.00
IQ BASIN	10YR	12.50	12.0000	6.80	5.51	3.0000	89.0	0.00	0.00
NE-WL	10YR	113.10	12.0167	6.80	5.17	44.5400	86.0	0.00	0.00
SE-WL	10YR	96.64	12.0167	6.80	4.95	39.6000	84.0	0.00	0.00
A	25YR	61.84	60.0000	11.20	9.20	17.5800	84.0	0.00	0.00
в	25YR	37.79	60.0000	11.20	9.71	10.5000	88.0	0.00	0.00
C	25YR	17.22	60.0000	11.20	9.84	4.0000	89.0	0.00	0.00
ß	25YR	82.61	60.0000	11.20	9.59	21.2000	87.0	0.00	0.00
D	25YR	27.63	60.0000	11.20	9.84	6.9000	89.0	0.00	0.00
E	25YR	122.36	60.0000	11.20	9.71	27.0000	88.0	0.00	0.00
Ę	25YR	13.16	60.0000	11.20	9.84	3.0000	89.0	0.00	0.00
8	25YR	24.58	60.0000	11.20	10.72	5.8000	96.0	0.00	0.00
IQ BASIN	25YR	15.67	60.0000	11.20	9.84	3.0000	89.0	0.00	0.00
NE-WL	25YR	161.24	60.0000	11.20	9.46	44.5400	86.0	0.00	0.00

Basin Max
Manual Basin Runoff Summary [Icpr3]
Basin Sim Name Max Flow Tir

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SE-WL

25YR

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11.20

9.20 39.6000

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Node Max							
Node Max Con	ditions [Icpr3]						
Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
A	100YR	0.00	11.23	0.0008	78.59	4.72	325657
в	100YR	0.00	10.59	0.0007	47.70	2.88	202307
C1	100YR	0.00	11.32	0.0009	21.70	6.61	78642
2	100YR	0.00	11.31	0.0008	110.99	6.53	447359
D	100YR	0.00	9.71	0.0008	34.82	5.19	133999
E1	100YR	0.00	8.85	0.0009	169.57	19.29	455823
E2	100YR	0.00	9.41	0.0007	16.58	9.81	33709
Ω	100YR	0.00	8.88	0.0010	30.76	9.34	75963
IQ LAKE	100YR	10.00	7.18	0.0005	19.72	0.00	87120
Manhole	100YR	8.54	8.87	0.0015	16.30	16.26	113
NE-WL	100YR	0.00	6.08	0.0005	209.28	45.88	1014761
SE-WL	100YR	0.00	7.68	0.0002	183.42	128.54	797851
ST.LUCIE	100YR	0.00	-0.36	0.0000	171.02	0.00	0
Þ	10YR	0.00	9.86	0.0009	42.11	1.38	161170
В	10YR	0.00	9.53	0.0005	27.14	0.78	187308
C1	10YR	0.00	10.09	0.0010	12.79	7.47	21780
2	10YR	0.00	10.09	0.0008	65.72	2.15	260502
D	10YR	0.00	8.69	0.0009	20.31	0.71	73590
Ш	10YR	0.00	7.49	0.0010	103.80	2.73	307937
E2	10YR	0.00	8.93	0.0009	9.80	2.58	30492
8	10YR	0.00	7.49	0.0010	19.28	13.50	21780
IQ LAKE	10YR	10.00	6.29	0.0003	12.49	0.00	84929
Manhole	10YR	8.54	7.49	0.0014	13.72	13.68	113
NE-WL	10YR	0.00	5.53	0.0005	113.45	15.34	911161
SE-WL	10YR	0.00	7.57	0.0002	97.04	69.31	694993
ST.LUCIE RIVER	10YR	0.00	-0.36	0.0000	79.63	0.00	0
A	25YR	0.00	10.80	0.0010	61.83	3.53	258490
в	25YR	0.00	10.20	0.0007	37.79	2.00	187308
Q	25YR	0.00	10.93	0.0009	17.22	7.48	50147
ß	25YR	0.00	10.93	0.0009	89.62	4.98	362670
D	25YR	0.00	9.47	0.0009	27.63	1.47	116481
E	25YR	0.00	8.48	0.0010	138.63	7.20	402426
E2	25YR	0.00	9.29	0.0006	13.15	6.44	32643
8	25YR	0.00	8.49	0.0010	24.58	11.71	58438
IQ LAKE	25YR	10.00	6.83	0.0004	15.67	0.00	87120
Manhole	25YR	8.54	8.49	0.0025	16.76	16.72	113
NE-WL	25YR	0.00	5.88	0.0004	164.38	32.55	977264
SE-WL	25YR	0.00	7.63	0.0002	143.88	99.76	750468
ST.LUCIE	25YR	0.00	-0.36	0.0000	128.68	0.00	0
RIVER							

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0.00	0.00	0.00	0.00	0.00	0.29	10YR	D - Weir: 1
0.00	0.00	0.00	0.00	0.00	0.71	10YR	D - Pipe
3.04	3.04	3.04	0.00	0.00	0.80	10YR	C2-3
3.04	3.04	3.04	0.00	0.00	0.80	10YR	C2 - Weir: 2
5.64	5.64	5.64	0.00	0.00	0.56	10YR	C2 - Weir: 1
0.00	0.00	0.00	0.00	0.00	1.35	10YR	C2 - Pipe
0.55	0.55	0.55	0.02	0.00	7.47	10YR	C1 - Weir: 1
0.00	0.00	0.00	0.01	0.00	7.47	10YR	C1 - Pipe
2.46	2.46	2.46	0.00	0.00	0.54	10YR	B1-2
0.00	0.00	0.00	0.00	0.00	0.23	10YR	B1-1
2.98	2.98	2.98	0.00	0.00	1.02	10YR	A - Weir: 2
6.24	6.24	6.24	0.00	0.00	0.36	10YR	A - Weir: 1
0.00	0.00	0.00	0.00	0.00	1.38	10YR	A - Pipe
1.53	1.53	1.53	0.08	0.00	69.31	10YR	2-SLR
2.54	3.34	1.73	0.04	0.00	15.34	10YR	1-SLR
1.69	1.69	1.69	2.60	-0.17	16.26	100YR	P1
0.00	0.00	0.00	0.00	0.00	0.00	100YR	IQ Overflow
0.09	0.09	0.09	1.27	0.00	۶. ₂ 4	TUOTK	Weir: 1
0.00	0 00	0.00	1 17	000	0	10000	Pipe
0.00	0.00	0.00	1.51	0.00	9.34	100YR	E3/S-2-33 -
1.10	1.10	1.10	0.01	0.00	1.98	100YR	E2 - Weir: 3
2.96	2.96	2.96	0.02	0.00	7.66	100YR	E2 - Weir: 2
0.00	0.00	0.00	0.00	0.00	0.25	100YR	E2 - Weir: 1
0.00	0.00	0.00	0.04	0.00	9.81	100YR	E2 - Pipe
1.90	1.90	1.90	0.01	0.00	10.06	100YR	E1 - Weir: 3
4.79	4.79	4.79	0.00	0.00	8.29	100YR	E1 - Weir: 2
8.51	8.51	8.51	0.00	0.00	0.94	100YR	E1 - Weir: 1
0.00	0.00	0.00	0.02	0.00	19.28	100YR	E1 - Pipe
1.33	1.33	1.33	0.01	0.00	3.44	100YR	D - Weir: 3
4.38	4.38	4.38	0.00	0.00	1.37	100YR	D - Weir: 2
0.00	0.00	0.00	0.00	0.00	0.38	100YR	D - Weir: 1
0.00	0.00	0.00	0.01	0.00	5.19	100YR	D - Pipe
4.66	4.66	4.66	0.00	0.00	2.89	100YR	C2-3
4.66	4.66	4.66	0.00	0.00	2.89	100YR	C2 - Weir: 2
7.75	7.75	7.75	0.00	0.00	0.76	100YR	C2 - Weir: 1
0.00	0.00	0.00	0.00	0.00	3.65	100YR	C2 - Pipe
0.20	0.20	0.20	-0.01	0.00	6.61	100YR	C1 - Weir: 1
0.00	0.00	0.00	0.01	0.00	6.61	100YR	C1 - Pipe
4.11	4.11	4.11	0.00	0.00	2.55	100YR	B1-2
0.00	0.00	0.00	0.00	0.00	0.34	100YR	B1-1
4.79	4.79	4.79	0.00	0.00	4.24	100YR	A - Weir: 2
8.41	8.41	8.41	0.00	0.00	0.48	100YR	A - Weir: 1
0.00	0.00	0.00	0.00	0.00	4.72	100YR	A - Pipe
1.87	1.87	1.87	0.12	0.00	128.54	100YR	2-SLR
3.50	4.52	2.48	0.08	0.00	45.88	100YR	1-SLR
Velocity [fps]	Velocity [fps]	Velocity [fps]	ייוווי/ויומא Delta Flow [cfs]	זיווז רוטא [כוצ]	[cfs]		
Max Ave	Max Da	Modello					
							Link Max

Link Max							
Link Name	Sim Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Max Avg Velocity [fps]
D - Weir: 3	10YR	0.00	0.00	0.00	0.00	0.00	0.00
E1 - Pipe	10YR	2.73	0.00	0.00	0.00	0.00	0.00
E1 - Weir: 1	10YR	0.71	0.00	0.00	6.38	6.38	6.38
E1 - Weir: 2	10YR	2.03	0.00	0.00	3.00	3.00	3.00
E1 - Weir: 3	10YR	0.00	0.00	0.00	0.00	0.00	0.00
E2 - Pipe	10YR	2.58	0.00	0.01	0.00	0.00	0.00
E2 - Weir: 1	10YR	0.24	0.00	0.00	0.00	0.00	0.00
E2 - Weir: 2	10YR	2.34	0.00	0.01	2.00	2.00	2.00
E2 - Weir: 3	10YR	0.00	0.00	0.00	0.00	0.00	0.00
E3/S-2-33 -	10YR	13.50	0.00	1.18	0.00	0.00	0.00
E3/S-2-33 -	10YR	13.50	0.00	1.06	0.88	0.88	0.88
Weir: 1							
IQ Overflow	10YR	0.00	0.00	0.00	0.00	0.00	0.00
P1	10YR	13.68	-0.11	2.26	1.42	1.42	1.42
1-SLR	25YR	32.55	0.00	0.05	2.22	4.11	3.16
2-SLR Δ - Pine	25YR 25YR	א 53 99.76	0.00	0.09	1.72 0.00	1.72 0.00	1.72
A - Weir: 1	25YR	0.45	0.00	0.00	7.79	7.79	7.79
A - Weir: 2	25YR	3.08	0.00	0.00	4.30	4.30	4.30
B1-1	25YR	0.30	0.00	0.00	0.00	0.00	0.00
B1-2	25YR	1.70	0.00	0.00	3.59	3.59	3.59
C1 - Pipe	25YR	7.48	0.00	-0.02	0.00	0.00	0.00
C1 - Weir: 1	25YR	7.48	0.00	-0.03	0.25	0.25	0.25
C2 - Pipe	25YR	2.84	0.00	0.00	0.00	0.00	0.00
C2 - Weir: 1	25YR 25YR	0.70	0.00	0.00	7.15	7.15	7.15
()-3	25YR	2.14	0.00	0.00	4.22	4.22	4.22
D - Pipe	25YR	1.47	0.00	0.00	0.00	0.00	0.00
D - Weir: 1	25YR	0.36	0.00	0.00	0.00	0.00	0.00
D - Weir: 2	25YR	1.11	0.00	0.00	4.09	4.09	4.09
D - Weir: 3	25YR	0.00	0.00	0.00	0.00	0.00	0.00
E1 - Pipe	25YR	7.20	0.00	0.01	0.00	0.00	0.00
E1 - Weir: 1	25YR	0.88	0.00	0.00	7.99	7.99	7.99
E1 - Weir: 2	25YR	6.32	0.00	0.00	4.38	4.38	4.38
E1 - Weir: 3	25YR	0.00	0.00	0.00	0.00	0.00	0.00
E2 - Pipe	25YR	6.44	0.00	0.01	0.00	0.00	0.00
E2 - Weir: 1	25YR	0.27	0.00	0.00	0.00	0.00	0.00
E2 - Weir: 2	25YR	6.20	0.00	0.01	2.77	2.77	2.77
E2 - Weir: 3	25YR	0.00	0.00	0.00	0.00	0.00	0.00
E3/S-2-33 - Pipe	25YR	11.71	0.00	1.49	0.00	0.00	0.00
E3/S-2-33 -	25YR	11.71	0.00	-1.25	0.87	0.87	0.87
Weir: 1							
IQ Overflow	25YR	0.00	0.00	0.00	0.00	0.00	0.00
P1	25YR	16.72	-0.14	2.37	1.74	1.74	1.74

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APPENDIX M Stage Storage

Name	Site	Lake Bank	Roadway	Offsite S.R 76	Lake A1	Lake A2	Wetland 19	
Area S. Elev	7.5 10.14	0.5 8.04	2.7 10.14	0.5 11.54	2.3 8.04	0.9 8.04	0.6 10.04	
E. Elev	13.54	11.04	13.04	12.54				
Stage	Linear	Linear	Linear	Linear	Vert.	Vert.	Vert.	Ŵ
	Storage	Storage	Storage	Storage	Storage	Storage	Storage	Stora
NAVD	ac-ft	ac-ft	ac-ft	ac-ft	ac-ft	ac-ft	ac-ft	ac
7.54	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8.04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8.54	0.0	0.0	0.0	0.0	1.2	0.5	0.0	1.6
8.99	0.0	0.1	0.0	0.0	2.2	0.9	0.0	3.1
9.04	0.0	0.1	0.0	0.0	2.3	0.9	0.0	3.3
9.54	0.0	0.2	0.0	0.0	3.5	1.4	0.0	5.0
10.04	0.0	0.3	0.0	0.0	4.6	1.8	0.0	6.7
10.54	0.2	0.5	0.1	0.0	5.8	2.3	0.3	8.8
11.04	0.9	0.8	0.4	0.0	6.9	2.7	0.6	11.0
11.54	2.2	1.0	0.9	0.0	8.1	3.2	0.9	15.:
12.04	4.0	1.3	1.7	0.1	9.2	3.6	1.2	19.8
12.54	6.3	1.5	2.7	0.3	10.4	4.1	1.5	25.
13.04	9.2	1.8	3.9	0.5	11.5	4.5	1.8	31.
13.54	12.7	2.0	5.3	0.8	12.7	5.0	2.1	38.

BASIN A STAGE STORAGE DATA

Wetland areas are not included within water quality volume calculations.