



# **Northern Palm Beach County Improvement District**

## **Public Facilities Report**

**November 2020**

## District Engineer's Signature Page

These Public Facility Reports were prepared and assembled under my direct responsible charge. Arcadis U.S., Inc. has made reasonable efforts to determine that the information in these reports is true and accurate. However, much of the information provided herein was obtained from public record and other sources, and thus, there can be no assurances regarding the accuracy of such information. These reports were prepared for Northern Palm Beach County Improvement District for its' information and use, and to comply with Section 189.08(2), Florida Statutes.

These reports are for informational purposes only and are not intended or represented to be suitable for any other use, or use by others, without the specific verification and adaptation by Arcadis U.S., Inc. Any such use of the information provided in these reports will be at the user's sole risk and without liability or legal exposure to either Northern Palm Beach County Improvement District or Arcadis U.S., Inc.

## Public Facilities Report

Prepared for:  
Northern Palm Beach County  
Improvement District

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Our Ref.:  
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Date:  
November 2020

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## **INTRODUCTION**

### **Purpose**

The purpose of this Report is to satisfy the requirement of Section 189.08(2), Florida Statutes which states that independent special districts are required to submit a Public Facilities Report to each local general purpose government within which they are located. The Public Facilities Report may be used and relied upon by such local government for purposes of preparing or revising its comprehensive plans. For Northern Palm Beach County Improvement District (“Northern”), the local general purpose governments consist of Palm Beach County and nine municipalities – Town of Jupiter, Village of Tequesta, Town of Juno Beach, City of Palm Beach Gardens, City of Riviera Beach, Village of North Palm Beach, Village of Royal Palm Beach, Town of Lake Park, and City of West Palm Beach.

### **Scope**

Pursuant to the above cited Florida Statute, the Public Facilities Reports are required to include the following:

A) A description of all existing public facilities owned and/or operated by Northern. The description should include the capacity of, and demand placed upon each facility and its location.

B) A description of all public facilities Northern proposes to replace within the next ten years. The description should include the date the facility will be replaced and the existing and anticipated capacity and demand on the facility.

## **BACKGROUND**

### **General**

Northern was created in 1959 by a predecessor to Chapter 2000-467, Laws of Florida and operates according to Chapter 2000-467, Laws of Florida, as amended and supplemented, and applicable provisions of Chapter 298, Florida Statutes (together the “Act”). It was created to preserve and protect water resources for sanitary or agricultural purposes or when the same may be conducive to public health, convenience, or welfare. Subsequently, it was empowered to construct and maintain public works and utilities including water, sewer, drainage, irrigation, water management, parks, recreational facilities, roadway or related activities in areas more particularly described in Chapter 2000-467, Laws of Florida, as

amended and supplemented. Northern is located in the northeastern section of Palm Beach County and its boundaries extend to the Lake Worth Drainage District on the south, generally following the Florida East Coast railway on the east, the county line of Palm Beach County to the north and the South Florida Water Management District L-8 Canal to the west. Its jurisdictional limits are presented on attached **Exhibit A**.

Northern's administrative office is located in Palm Beach Gardens at 359 Hiatt Drive, Palm Beach Gardens, Florida, 33418. The telephone number is (561) 624-7830; the email address is Office@npbcid.org; and the website is www.npbcid.org.

The governing body of Northern is its Board of Supervisors (the "Board") which is comprised of five members. Currently the Supervisors for Seat Nos. 2, 3, 4 and 5 must be residents of the District, own real property within the District, and be an elector of the District. Supervisors holding the Seat Nos. 2, 3, 4 and 5 are elected in November of even numbered years by general election.

The Supervisor holding Seat No. 1 must be a resident of Florida and is elected by landowners within Northern, with owners of each acre or fraction thereof being entitled to one vote.

If there is a vacancy on the Board, the remaining Supervisors may fill such vacancy by appointment until the next election. Each Supervisor holds office for a four-year term, and their terms are staggered. The Board meets regularly on the fourth Wednesday of each month for the purpose of conducting Northern's business.

The present members of the Board, and the term of each member is as follows:

<b>Name</b>	<b>Position</b>	<b>Since</b>	<b>Term Ends</b>	<b>Seat</b>
Matthew J. Boykin	President	2016	2020	5
L. Marc Cohn	Vice-President	2018	2022	3
Gregory Block	Secretary	2018	2022	2
Adrian M. Salee	Treasurer	2018	2022	1
Ellen T. Baker	Supervisor	2020	2024	4

## Administration

Mr. O'Neal Bardin, Jr. is Northern's Executive Director and Assistant Secretary. He has served in that capacity since March 2003. Prior to becoming Northern's Executive Director, Mr. Bardin served as Deputy Director between 1999 and 2003, and as Technical Assistant between 1987 and 1999. Mr. Bardin holds a Bachelor's degree from Florida State University, and has extensive experience with storm water and property management.

The law firm of Caldwell Pacetti Edwards Schoech & Viator, LLP, West Palm Beach, Florida, is General Counsel for Northern, having served in that capacity since Northern's creation in 1959.

The Act provides that Northern shall retain the services of a District Engineer (Engineer) who shall have control of the engineering work within Northern's jurisdiction, and shall, among other things, file with certain Florida agencies a report outlining improvement plans for Northern and the costs thereof. The District Engineer for Northern is the firm of ARCADIS US, Inc. in Boynton Beach, Florida. The representatives for Arcadis US, Inc. in this capacity are Kimberly A. Leser, P.E. and Robert W. Lawson, P.E. Arcadis US, Inc. has served in this capacity since October 2007.

## Units of Development

The Act provides that the owners of a majority of acreage within a particular geographical area of Northern's jurisdictional boundaries may petition the Board to designate that area as a Unit of Development in order for Northern to implement public improvements for the benefit of said area. Northern has 46 active Units of Development whose boundaries and location are shown on **Exhibit B**.

Northern may issue bonds to finance public improvements for a Unit of Development, and only the lands within that particular Unit will be subject to the levy and collection of non-ad valorem taxes for the payment of principal and interest on that issue of bonds.

Northern's infrastructure and works must be implemented pursuant to a Plan of Improvement (the "Plan"). Northern must prepare and the Board adopt a Plan detailing the public improvements to be implemented for a Unit. Before adopting a Plan or Plan Amendment, the Board must adopt a resolution to consider adoption of the proposed Plan or Plan Amendment. Once the resolution proposing the adoption or amendment of a Plan has been filed with Northern's Secretary, the Board gives notice of a public hearing on the

proposed Plan or Plan Amendment by causing publication to be made once a week for three consecutive weeks in a newspaper of general circulation within Palm Beach County.

In conjunction with a Plan's adoption, the District's Engineer visits the Unit and identifies all property, within or without Northern's jurisdiction, to be acquired by gift, purchase or condemnation for construction of the improvements set out in the proposed Plan or Plan Amendment. The Engineer determines the amount of benefits and the amount of damages, if any, that will accrue to each parcel of land (according to ownership), from carrying out and putting into effect the proposed Plan or Plan Amendment. The Engineer determines only those benefits that are derived from the services that are to be provided and the construction of the public works and improvements set out in the proposed Plan or Plan Amendment. The Engineer has no power to change the proposed Plan or Plan Amendment without Board approval.

The Engineer prepares a report arranged in tabular form, the columns of which are headed as follows: column one, "Owner of Property"; column two, "Description of Property"; column three, "Number of Acres"; column four, "Amount of Determined Benefits"; column five, "Amount of Determined Damages"; column six, "Number of Acres to be Taken for Rights-of-Way, Northern's Works, etc." The Engineer also, by and with the advice of others, estimates the cost of the public works and services proposed in the Plan or Plan Amendment, including the cost of and the probable expense of organization and administration. A maintenance assessment recommendation must also be included in each Engineer's Report. However, the maintenance assessment is not considered as part of the costs of installation or construction specified by the proposed Plan or Plan Amendment in determining whether benefits exceed damages. The Engineer's report is signed by the Engineer and filed in the office of Northern's Secretary.

Upon the filing of the Engineer's Report, the Board gives notice by arranging the publication of Florida Statute specified parts of the report together with a geographical depiction of the acreage to be assessed, once a week for two consecutive weeks.

The approval and confirmation of the Engineer's Report by the Board establishes the amount and apportionment of assessments reflected therein. The assessments so established are final and conclusive as to all land assessed, unless within 30 days after approval and confirmation of the Engineer's Report, an action for relief is brought in a court of competent jurisdiction. If the assessment against any land is reduced or abated by the court, the Board shall amend the Engineer's Report accordingly, otherwise, the assessment set forth in the Engineer's Report is final and non-appealable as to such land.



Northern may issue bonds to pay the costs of a Plan provided the maximum principal amount of bonds that may be issued may not exceed 90% of the benefits assessed in the Engineer's Report against the lands within that Unit. Northern may levy Non-Ad Valorem assessments in an amount equal to 100% of the assessed benefits for the purpose of paying the principal of the bonds. There is no limit on the amount of Non-Ad Valorem assessments that may be levied for the purpose of paying interest on such bonds.

Northern is responsible for the construction of all works to be undertaken pursuant to a Plan, and for the maintenance of such works except in instances where the works (e.g. roadways, utilities, etc.) are conveyed to other governmental entities. Northern levies annual installments of maintenance assessments on each Unit of Development to pay for the maintenance of Northern facilities installed for that Unit, as well as its administrative costs.

#### **Acknowledgement**

Arcadis US Inc. would like to acknowledge the efforts of past District Engineers Mock, Roos & Associates, Inc. and SFRN, Inc. and the District's Staff for their provision of the information used during preparation of this Facilities Report.

NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
REPORT

**UNIT OF DEVELOPMENT NO. 1**

**Section 1. Lands in Unit**

Northern Palm Beach County Improvement District (Northern) Unit of Development No. 1 encompasses 1,727 acres, more or less, and is located in Palm Beach County. **Exhibits A and B** show the jurisdictional limits of Northern and the general location of Unit No. 1 in relation to Northern's boundaries and the northern region of Palm Beach County. Unit No. 1 is that area lying east of the West Palm Beach Water Catchment Area and west of I-95. It is bounded on the south by 45<sup>th</sup> Street and on the north by Unit No. 24 and the Seaboard Coastline Railroad (west of the Florida Turnpike) and the south lines of Sections 35 and 36, Township 42 South, Range 42 East and the south line of Section 31, Township 42 South, Range 43 East (east of the Florida Turnpike).

**Section 2. Water Management System**

2.1 General

The EPB-10 Canal serves as the major collector of runoff for Unit No. 1. The eastern extension of EPB-10 carries flow from the EPB-9 (Unit No. 7) and EPB-10 Canals to South Florida Water Management District (SFWMD) C-17 Canal. Palm Beach County Environmental Resource Management completed the infrastructure improvements for the Winding Waters Natural Area (WWNA) Park in 2010. As part of the improvements for the Park OS-1 (WWNA Structure No. 2) was installed within the EPB 10 Canal approximately 1500 feet east of the Florida Turnpike. The purpose of OS-1 was to raise the control elevation to 14.80' NGVD and redirect flow from its location west and then northward up the eastern turnpike canal and into the WWNA Park through a newly constructed Canal in Unit 7. The WWNA Park has its own surface water management system and discharges excess runoff above the 25 YR 3 Day stage into Northern's EPB 10 Canal just west of Haverhill Road. OS-1 has a fixed weir set at 14.8' NGVD and an operable gate should the stages in the turnpike canal warrant its use. The structure and its operation were approved by the South Florida Water Management District (SFWMD) under the WWNA permit, Application No.080912-18.

2.2 Off-site lands

Canal EPB-10 conveys discharge from Unit No. 1 and approximately 2,273 acres of off-site land. The off-site land includes 1,825 acres of Unit No. 7, Unit No. 24, and an additional 448 acres of land located east of the Florida Turnpike, west of I-95 and north of 45<sup>th</sup> Street.

**Section 3. Northern Facilities**

Lands within Unit No. 1 that have been granted to Northern in fee simple are shown on **Exhibits 1(1)** through **1(3)**. Easements, also shown on the Exhibits, have been provided for other Northern facilities. Northern’s responsibilities in the Unit include operation, inspection, and maintenance of the facilities. Maintenance includes biological and chemical aquatic weed control in the canal and right-of-way mowing. Facilities in this Unit owned and maintained by Northern are shown on the noted exhibits.

The service /demand area for Unit No. 1 is approximately 4000 acres.

Unit No. 1 lies entirely within SFWMD’s C-17 Drainage Basin which has an allowable discharge rate restriction of 62.7 csm (cubic feet per second per square mile) for the 25-year/3-day storm event.

Computer modeling efforts provide peak stage and peak flow information along the EPB-10 Canal for the design storm event. At certain crossings upstream and downstream (US/DS) stages are given. This data is published in the table below.

<b>*TABLE NO. 1: DESIGN INFORMATION</b>		
<b>Location</b>	<b>Design Discharge (CFS)</b>	<b>Design Stage (US/DS) (FT. NGVD)</b>
Structure W-1	330.5	16.55/17.30
East of Fl. Turnpike at Structure OS-1	19.9	16.63/14.81
Haverhill Road at WWNA CS#3	118.8	14.80
Military Trail	192	14.7/14.5
Confluence with EPB-9 Canal	216/462	14.0
I-95	445	14.0/13.8
West of Confluence with SFWMD C-17	444	12.6

\*Table No.1 was updated with Discharge and Stage information taken from the permitted WWNA Calculations per SFWMD Permit No. 50-05663-P, Application No.080912-18. Discharge/stage information east of Haverhill Road may be less than what is shown in Table No. 1.

**Section 4. Five – Year Improvement Plan**

There are no improvements anticipated within this unit by Northern during the next five years.

**Section 5. Ten – Year Replacement Plan**

Periodic inspection of Northern's facilities will be conducted to determine the need for future replacements. There are no Northern facilities within this Unit that are anticipated to require replacement within the next ten years.

NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
REPORT

**UNIT OF DEVELOPMENT NOS. 2/2A**

**Section 1. Lands in Unit**

Northern Palm Beach County Improvement District (Northern) Unit of Development No. 2/2A encompasses approximately 4,320 acres, more or less, and is located in Sections 25, 26, 27, 35, and 36, Township 41 South, Range 42 East and in Sections 29 and 30, Township 41 South, Range 43 East. Approximately 90% of the land area in Unit of Development No. 2/2A is currently within the corporate limits of the City of Palm Beach Gardens and the remaining lands are in unincorporated Palm Beach County. **Exhibits A** and **B** show the general location of Unit of Development No. 2/2A in relation to Northern's boundaries and the north region of Palm Beach County. The Unit is generally bounded by Donald Ross Road on the north, the Intracoastal Waterway on the east, PGA Boulevard on the south, and the Florida Turnpike on the west. Lands within Unit of Development No. 2/2A are developed as residential, commercial, and office type use as well as various Planned Unit Developments.

**Section 2. Water Management System**

2.1 General

Stormwater runoff from lands within the Unit are directed by sheet flow, stormwater pipes, and swales to lakes and/or canals that discharge into Northern's EPB-3, 3A, 3B, 3C, and 3D Canals. EPB-3, which runs parallel and adjacent to the F.E.C. Railroad, is the final collector. The EPB-3 discharges under Alternate A1A into the Frenchman's Creek development, via operable structure OS-2. Frenchman's Creek has a salinity weir at elevation 4.35 NGVD with ultimate discharge to the Intracoastal Waterway.

In 1991, a severe rainfall event compromised finished floors and property within the lands in this Unit which led to an overall surface water management plan being developed. A study was completed and indicated nineteen (19) individual improvements were necessary to improve the level of flood protection throughout the Unit. The majority of those improvements were conceptually approved under SFWMD permit 50-00610-S Application No. 991124-1 and approved for construction on June 24, 2002, under SFWMD Application No. 020308-3. In November 2003 the first major modification to the SFWMD permit was authorized revising the control elevation within the Old Palm North and East Development and adjusted the basin boundary relocating the Sable Ridge Structure from Basin 2C to Basin

1. Those improvements were permitted under Application No. 030911-15. Many modifications to SFWMD permit No. 50-00610-S have been made since 2003 to include construction of new developments within the Unit 2A SWM area.

## 2.2 Off-site lands

Approximately 124 acres of the Florida Turnpike drain into Unit No. 2/2A. Control Structure Site 11 was constructed to regulate flow from the turnpike into this Unit's surface water management system via a connection at the southwest corner of the Old Palm Project.

### **Section 3. Northern Facilities**

Lands within Unit of Development No. 2/2A that have been granted to Northern in fee simple are shown on **Exhibits 2(1)** through **2(7)** and **Exhibit 2B**. Easements, also shown on the Exhibits, have been provided for other Northern facilities. Facilities in this Unit owned and maintained by Northern are also shown on the Exhibits.

Northern's responsibilities in the Unit include operation, inspection, and maintenance of the facilities. Maintenance includes chemical aquatic weed control in the canals and right-of-way mowing along the canals.

The service/demand area for Unit No. 2 is approximately 4,444 acres.

Unit of Development No. 2/2A lies entirely within SFWMD's Intracoastal Drainage Basin. The allowable discharge rate restriction of 2.5 inches of runoff in 24 hours for the 25-year/3-day storm event was used to size the conveyance canals. SFWMD Permit App. No 991124-1 established the 10-year/1-day, 25-year/3-day and 100-year/3-day flood elevations throughout the Unit.

### **Section 4. Five – Year Improvement Plan**

There are no improvements anticipated within this unit by Northern during the next five years.

### **Section 5. Ten – Year Replacement Plan**

Periodic inspection of Northern's facilities will be conducted to determine the need for future replacements. There are no Northern facilities within this Unit that are anticipated to require replacement within the next ten years.

NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
REPORT

**UNIT OF DEVELOPMENT NO. 2C**

**Section 1. Lands in Unit**

Northern Palm Beach County Improvement District (Northern) Unit of Development No. 2C encompasses 681.54 acres, more or less, and is located in the City of Palm Beach Gardens. **Exhibits A and B** show the general location of Unit No. 2C in relation to Northern's boundaries and the northern region of Palm Beach County. The Unit lies on both sides of Interstate 95 and is generally bounded by Donald Ross Road on the North, Florida's Turnpike on the West, Hood Road on the South, and the western boundary of the San Michele, Benjamin School, and Legends at the Gardens developments. Unit No. 2C lands are located within a portion of Sections 26 and 36, Township 41 South, Range 42 East. The Unit was planned to include biotech, commercial, hotel, office, residential and retail uses and is known as Alton. A significant amount of the Community and Parcel improvements including the master water management system, on-site and off-site roadways, signalization, landscape, lighting, and required utilities are complete with the exception of the final lift on the Community and Parcel roadways, completion of lake excavation in Parcels A, B and D. Development of several residential neighborhoods and commercial, biotech and retail parcels are complete or nearly complete. The Plan of Improvements was amended in 2018 to reduce the size of the Community Park and converted the remaining area to residential use for development of Town Homes. The Park, which will be owned and maintained by Northern is expected to be open to the public in the near future.

**Section 2. Water Management System**

2.1 General

The project was conceptually approved to drain from west to east through the Unit 2A Surface Water Management system (SWMS) under SFWMD Application No. 991124-1. The allowable discharge rate from developed land within this Unit is restricted to the Unit 2 discharge rate for the basins as permitted by SFWMD.

The Unit 2C Water Management System was conceptually permitted under SFWMD Application No. 131119-5 and included the removal of the conceptually approved basin divide between the two eastern sub-basins resulting in the single combined sub-basin A1/B1E. The west and east sides of the Unit are connected via an existing 60" culvert under I-95 with the west Basin B1W having a control elevation of 13.5' NGVD and the combined eastern basin A1/B1E as 13.0' NGVD. The Unit 2C Water Management system includes a series of interconnected lakes and conveyance systems that collect, store, and discharge runoff through two control structures located on the east side of the Unit. Water quality treatment is provided within the Unit 2C property prior to discharge into the Unit 2A SWMS.

A modification to the two control structures located in Basins A1 and B1E was permitted and allowed the bleeder shape to be changed from a triangle, to a rectangle, reducing recovery time following storm events. Construction of the modifications was completed in 2019.

## 2.2 Off-Site Lands

Approximately 27.06 acres of offsite property as well as 6.53 acres of Hood Road Right of Way are expected to be routed through the Unit's Surface Water Management System.

## **Section 3. Northern Facilities**

Lands within Unit No. 2C are also shown on **Exhibit 2C**.

Maintenance and operational responsibilities by Northern will include exotic and aquatic weed control for the lakes and preserve areas, surface water management system, and maintenance of water control structures. Northern's responsibilities include maintenance and operation of the Community Infrastructure Park within the Unit. It is intended that major roadways, water and sewer facilities to be constructed by Northern will be turned over to the City of Palm Beach Gardens and Seacoast Utility Authority when complete. The service/demand area for Unit No. 2C is approximately 715.13 acres.

Unit of Development No. 2C lies entirely within SFWMD's Intracoastal Drainage Basin. The allowable discharge limit for the Unit 2A Master System which is equivalent to 2.5 inches per acre per day for the 25-year/3-day storm event was used to size the control structures A1 and B1. The SFWMD Permit established the minimum building pad elevation for Basins A1/B1E and B1W at 18.5' NGVD and 18.8' NGVD, respectively. The minimum road crown elevation for Basins A1/B1E and B1W are specified at 16.3' NGVD and 16.7' NGVD, respectively.



These elevations were set based on drainage calculations submitted for peak stages for the 100-year/3-day storm event (building pad) and the 10-year/1-day storm event (road crown). Design stages and discharge are presented in Table No. 2C.

<b>TABLE NO. 2C: DESIGN INFORMATION</b>	
Basin A1/B1E 10-Yr/1-Day Peak Stage	16.25' NGVD
Basin B1W 10-Yr/1-Day Peak Stage	16.56' NGVD
Basin A1/B1E 10-Yr/3-Day Peak Discharge	39 CFS
Basin A1/B1E 100-Yr/3-Day Peak Stage	18.09' NGVD
Basin B1W 100-Yr/3-Day Peak Stage	18.26' NGVD

Table 2C data obtained from SFWMD Permit 50-00610-S-24.

**Section 4. Five – Year Improvement Plan**

1. Final Lift of Asphalt on Community and Parcel Roadways.
2. Completion of Plan of Improvement facilities in Parcels B, D, and G

**Section 5. Ten – Year Replacement Plan**

Periodic inspection of Northern’s facilities will be conducted to determine the need for future replacements. There are no Northern facilities within this Unit that are anticipated to require replacement within the next ten years.

NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
REPORT

**UNIT OF DEVELOPMENT NO. 3**

**Section 1. Lands in Unit**

Northern Palm Beach County Improvement District (Northern) Unit of Development No. 3 encompasses 1,590 acres, more or less, and is located in the City of Palm Beach Gardens. **Exhibits A and B** show the general location of Unit No. 3 in relation to Northern's boundaries and the northern region of Palm Beach County. The Unit is located between Northlake Boulevard, Military Trail, Beeline Highway, Blue Heron Boulevard, and the Florida Turnpike in Sections 19, 22, 23, 24, 25, and 26, Township 42 South, Range 42 East. Some portions of Unit No. 3 are located east of Military Trail, West of I-95, north of Blue Heron Boulevard, and south of Northlake Boulevard. Lands within Unit No. 3 were developed as the Planned Unit Developments (PUD) known as Steeplechase, Hidden Hollow, Square Lake, Woodbine (Unit No. 3A), Horseshoe Acres, commercial areas along Military Trail, Holiday Country Club Phase III and Montecito (FKA the Gables). In 2015, 9.85 acres of Discovery Village at West Palm Beach located west of Jog Road and south of Northlake Blvd. was annexed into the Unit.

**Section 2. Water Management System**

2.1 General

Stormwater runoff from lands within the Unit is directed by sheet flow, swales, and stormwater pipe collections to on-site lakes and canals that have outfall structures controlling their discharge. The two collector canals used by the Unit are Northern's EPB-6 Canal and the EPB-7 Canal. The EPB-7 Canal joins EPB-6 Canal just upstream of the culverts under I-95. The EPB-6 Canal then continues eastward to its termination at the South Florida Water Management District (SFWMD) C-17 Canal. A joint use agreement with the Florida Department of Transportation (FDOT) exists for the FDOT's use of the EPB-7 Canal for drainage needs of I-95.

2.2 Off-site lands

The off-site lands that drain into the EPB-6 Canal include approximately 34 acres of State Road 710 (Beeline Highway); 19 acres from the Cypress Hollow PUD (in Unit No. 12) north of Northlake Boulevard; 196 acres from the Gables at Northlake Residential Development,

west of Steeplechase; 21 acres of City of West Palm Beach property west of the Gables Development; 20 acres of CXS Railway right-of-way; and, 85 acres of the FDOT Florida Turnpike interchange lands. Cypress Hollow discharges to Canal 7 (within the Unit) via culverts under Northlake Boulevard. The remainder of the off-site lands enters the Unit via a Florida Turnpike canal that connects to the EPB-6 Canal.

### **Section 3. Northern Facilities**

Lands within Unit No. 3 that have been granted to Northern in fee simple are shown on **Exhibits 3(1)** through **3(4)**. Easements, also shown on the Exhibits, have been provided for other Northern facilities. Northern's responsibilities in the Unit include operation, inspection, and maintenance of the facilities. Maintenance includes biological and chemical aquatic weed control in the canals, right-of-way mowing, and limited tree removal along the canals.

Facilities in this Unit owned and maintained by Northern are shown on **Exhibits 3(1)** through **3(4)**. There are three control structures on the EPB-6 Canal. The first structure, often referred to as the Woodbine structure, is shown as structure OS-1 on **Exhibit 3(2)**. This structure includes a fixed weir as well as an Emergency Structure designed to serve Horseshoe Acres, Steeplechase, and Square Lake. This emergency gate is operated in accordance with the SFWMD agreement for pre and post storm operation providing increased flood protection. The second structure (OS-2) is the EPB-6 discharge structure to the C-17 Canal. This structure has emergency gates and is operated consistent with the SFWMD agreement for pre and post storm events. The third, Structure ES-2 is located at the south side of the intersection of Northlake Boulevard and Canal No. 3, it is an Emergency Structure operated only under the conditions of the Agreement signed with SFWMD. Its purpose is to assist in managing surface waters in the Highland Pines development (Unit of Development No. 12) and Northlake Boulevard. For more information on this structure, reference the Public Facilities Report for Unit of Development No. 12.

The service/demand area for the Unit is approximately 1,965 acres.

Unit No. 3 lies entirely within SFWMD's C-17 Intracoastal Drainage Basin, which has an allowable discharge rate restriction of 62.7 csm (cubic feet per second per square mile) for the 25-year/3-day storm event.

Computer modeling efforts that include the Gables of Northlake improvements provide peak stage and peak flow information along the EPB-6 and EPB-7 Canals for the design storm event. This data is provided in the table below. This modeling assumes the emergency structure is not in operation.

<b>TABLE NO. 3.1: DESIGN INFORMATION FOR EPB – 6 CANAL</b>		
<b>Location</b>	<b>Design Discharge (CFS)</b>	<b>Design Stage (FT. NGVD)</b>
West of Garden Road (Confluence with C-17 Canal)	517	14.5
East of I-95	548	14.5
Confluence with EPB-7	405	14.9
East of Military Trail	344	15.0
West of Military Trail	344	15.3
East of Confluence with Canal No. 3	347	16.5
Confluence with Canal No. 7	375	17.5

<b>TABLE NO. 3.2: DESIGN INFORMATION FOR EPB – 7 CANAL</b>		
<b>Location</b>	<b>Design</b>	<b>Design Stage</b>
South of Confluence with EPB-6	163	14.5

**Section 4. Five – Year Improvement Plan**

There are no improvements anticipated within this unit by Northern during the next five years.

**Section 5. Ten – Year Replacement Plan**

Periodic inspection of Northern’s facilities will be conducted to determine the need for future improvements. No plans for any replacements exist at this time.

NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
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**UNIT OF DEVELOPMENT NO. 3A**

**Section 1. Lands in Unit**

The Northern Palm Beach County Improvement District (Northern) Unit of Development No. 3A encompasses approximately 152.15 acres, more or less, and is located in the City of Riviera Beach. **Exhibits A** and **B** show the general location of Unit No. 3A in relation to Northern's boundaries and the northern region of Palm Beach County. The Unit is located south of the EPB-6 Canal, approximately 1,400 feet north of Blue Heron Boulevard and west of Military Trail in a portion of Section 25, Township 42 South, Range 42 East. The Unit is entirely within the boundaries of Unit of Development No. 3. The lands within Unit No. 3A was developed as a 136.76-acre residential community know as Woodbine. Unit No. 3A also includes a 15.39-acre general commercial use site.

**Section 2. Water Management System**

Stormwater runoff from lands within the Unit is routed to the on-site lakes via sheet flow, swales, and stormwater pipe collection systems. Control structures W-1 and W-2 discharge flow from two of the lakes into the EPB-6 Canal. The EPB-6 Canal discharges into the South Florida Water Management District (SFWMD) C-17 Canal. The Unit No. 3 Control Structure OS-1 (referenced as the Woodbine Structure in Unit No. 3) is located within the EPB-6 Canal at the northwest corner of Unit No. 3A. The weir controls the water surface levels for lands within Unit No. 3 (Steeplechase, Horseshoe Acres, and Square Lake). This control structure benefits Unit No. 3A by restricting discharge from these other lands and keeping stages in the EPB-6 Canal lower than they would be otherwise.

**Section 3. Northern Facilities**

Lands within Unit No. 3A that have been granted to Northern in fee simple are shown on **Exhibit 3A**. Easements, also shown on the exhibits, have been provided for other Northern facilities. Northern's responsibilities in the Unit include operation, inspection, and maintenance of the facilities. Maintenance includes biological and chemical aquatic weed control in the canals and right-of-way mowing. Facilities in this Unit owned and maintained by Northern are shown on **Exhibit 3A**.

The service/demand area for the Unit is approximately 152 acres.

Unit No. 3A lies entirely within the SFWMD's C-17 Drainage Basin, which has an allowable discharge rate restriction of 62.7 csm (cubic feet per second per square mile) for the 25-year/3-day storm event.

The SFWMD permit for Woodbine Unit No. 3A (permit number 50-02777-S) specifies the minimum building pad elevation and minimum road crown elevation at 17.5' NGVD and 15.0' NGVD, respectively. These elevations were set based on drainage calculations submitted for peak stage for the 100-year/3-day storm event (building pad) and the 5- year/1-day storm event (road crown). Design stages and discharge are presented in Table No. 3A.

<b>TABLE NO. 3A: DESIGN INFORMATION</b>	
5-Yr/1-Day Peak Stage	15.0' NGVD
15-Yr/3-Day Peak Stage	16.7' NGVD
25-Yr/3-Day Peak Discharge	15.2 CFS
100-Yr/3-Day Peak Stage	17.4' NGVD

**Section 4. Five – Year Improvement Plan**

There are no improvements anticipated within this unit by Northern during the next five years.

**Section 5. Ten – Year Replacement Plan**

Periodic inspection of Northern's facilities will be conducted to determine the need for future improvements. No plans for any replacements exist at this time.

NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
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**UNIT OF DEVELOPMENT NO. 4**

**Section 1. Lands in Unit**

Northern Palm Beach County Improvement District (Northern) Unit of Development No. 4 encompasses 2840 acres, more or less, and is located in the City of West Palm Beach. **Exhibits A and B** show the location of Unit No. 4 in relation to Northern's boundaries and the northern region of Palm Beach County. The Unit is located east of the Florida Turnpike, west of I-95, south of 45<sup>th</sup> Street, and north of Okeechobee Boulevard in Sections 1 and 12, Township 43 South, Range 42 East, and in Sections 11, 12, 13, 14, and 24, Township 43 South, Range 42 East. Lands within Unit No. 4 are developed as a residential planned community development, with office, institutional, commercial, residential, and recreational uses.

**Section 2. Water Management System**

2.1 General

Stormwater runoff from lands within the Unit is routed to the canals and on-site lakes via sheet flow, swales, and stormwater pipe collection systems. Individual surface water management systems within the Unit discharge into the EPB-11, EPB-11 North, and EPB-11 South Canals. The EPB-11 South Canal joins the EPB-11 Canal prior to its discharge into Unit of Development No. 15 to the east. EPB-11 North also discharges to Unit No. 15 further north along the Unit divide. Unit No. 15 discharges to the City of West Palm Beach's Congress Avenue Canal, which becomes the South Florida Water Management District (SFWMD) C-17 Canal further north. A number of control structures within the Unit maintain lake and canal elevations. An operable gate has been added to structures F-4 and F-3 to allow for emergency operation. The gates may be opened before a significant storm event to increase storage capacity during the storm. The structure and its operating schedule have been approved by SFWMD. Two control structures in Unit No. 15 control the discharge from Unit No. 4.

## 2.2 Off-site lands

The off-site lands that drain through Unit No. 4 include approximately 224 acres from the area located north of Okeechobee Boulevard between Military Trail and Haverhill Road in Section 24 and 96 acres from north of Unit No. 4 within Section 12 south of the City of West Palm Beach Water Supply Canal (M Canal). Also included in the off-site lands are approximately 374 acres west of the Florida Turnpike, the project is known as Hamilton Bay/Mallory Square. The City of West Palm Beach, through an agreement with the landowners of Hamel Community Development District (Hamel CDD), allocated a maximum of 8 cfs to the project from the City's permitted discharge rate.

### Section 3. Northern Facilities

Lands within Unit No. 4 that have been granted to Northern in fee simple are shown on **Exhibits 4(1)** through **4(5)**. Easements, also shown on the Exhibits, have been provided for other Northern facilities. Northern's responsibilities in the Unit include operation, inspection, and maintenance of the facilities. Maintenance includes biological and chemical aquatic weed control in the canals and right-of-way mowing. Facilities in this Unit owned and maintained by Northern are also shown on the Exhibits.

The service/demand area for the Unit is approximately 3,160 acres.

Unit No. 4 lies entirely within SFWMD's C-17 Drainage Basin, which has an allowable discharge rate restriction of 62.7 csm (cubic feet per second per square mile) for the 25-year/3-day storm event.

Computer modeling efforts provide peak stage and peak flow information along the EPB-11 Canals for the design storm event. This data is provided in the tables below.

<b>Location</b>	<b>Design Discharge (CFS)</b>	<b>Design Stage (FT. NGVD)</b>
East of Haverhill Road	156	14.7
West of Military Trail	287	14.6
Confluence with EPB-11 South	340	14.6
Core Basin Unit No. 15	429	14.6



<b>TABLE NO. 4.2: DESIGN INFORMATION FOR EPB – 11 SOUTH CANAL</b>		
<b>Location</b>	<b>Design Discharge (CFS)</b>	<b>Design Stage (FT. NGVD)</b>
South of 72" Culverts at Garden Lake	89	14.8
Confluence with EPB-11	92	14.6

<b>TABLE NO. 4.3: DESIGN INFORMATION FOR EPB – 11 NORTH CANAL</b>		
<b>Location</b>	<b>Design Discharge (CFS)</b>	<b>Design Stage (FT. NGVD)</b>
West of F-1	155	14.2
East of W-2	156	14.2

**Section 4. Five – Year Improvement Plan**

There are no improvements anticipated within this unit by Northern during the next five years.

**Section 5. Ten – Year Replacement Plan**

Periodic inspection of Northern’s facilities will be conducted to determine the need for future improvements. No plans for any replacements exist at this time.

NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
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**UNIT OF DEVELOPMENT NO. 5**

**Section 1. Lands in Unit**

The Northern Palm Beach County Improvement District (Northern) Unit of Development No. 5 encompasses 4,304 acres, more or less, and is located in an unincorporated area of Palm Beach County and the City of West Palm Beach. **Exhibits A** and **B** show the general location of Unit No. 5 in relation to Northern's boundaries and to the central region of Palm Beach County. The Unit is located on the west side of the Florida Turnpike, north of Okeechobee Boulevard, and to the east of the 41/42 Range Line (extension of State Road No. 1) in Sections 10, 15, 16, 19, 20, 21, and 22, Township 43 South, Range 42 East. Unit Nos. 5A, 5B, 5C, and 5D are located within the boundary of Unit No. 5.

**Section 2. Water Management System**

2.1 General

The portions of Unit No. 5 located outside of 5A, 5B, 5C & 5D consists of residential and institutional uses along with a large portion of undeveloped land to the west. Runoff from the undeveloped lands within the Unit sheet flows to the CPB-22 Canal, running along the west side of the Florida Turnpike. The canal makes its way south to the South Florida Management District (SFWMD) C-51 Canal.

**Section 3. Northern Facilities**

A joint use agreement was executed between Northern and the Florida Turnpike Authority for the use and maintenance of the CPB-22 canal from the south line of Section 10, Township 43 South, Range 42 East, downstream to the confluence with the SFWMD C-51 Canal.

Northern maintains the west 100 feet of the Turnpike right-of-way containing the CPB-22 canal, as per the agreement with the Turnpike Authority.

The service/demand area for the system is approximately 4,304 acres.

Unit No. 5 lies within SFWMD’s C-51 Drainage Basin, which has an allowable discharge restriction of 27 csm (cubic feet per second per square mile) for the 10-year/3-day storm event. Design discharge and stages at various locations along CPB-22 are given in Table 5.

<b>TABLE NO. 5: DESIGN INFORMATION FOR CPB – 22 CANAL</b>		
<b>Location</b>	<b>Design Discharge (CFS)</b>	<b>Design Stage (FT. NGVD)</b>
SFWMD C-51 Canal Confluence	216	15.4
Southern Boulevard	216	15.4
Belvedere Road	203	15.5
Jog Road	195	15.6
Okeechobee Boulevard	189	15.8
South Line of Section 15	54	15.8
South Line of Section 10	27	15.8

Responsibilities of Northern include routine inspection and maintenance of approximately 4.6 miles of the CPB-22 Canal.

There are three (3) surface water quality sampling stations in Unit No. 5. The locations of the stations are shown on **Exhibit 5(1)**. All records are maintained at Northern’s office. The parameters are as follows:

Quarterly Parameters – Surface Water (12 samples per year):

- Alkalinity (Total & Phenyl)
- Oxygen, Chemical Demand
- Ph (laboratory or field)
- Phosphate (Ortho)
- Specific Conductance
- Total Organic Carbon
- Turbidity (NTU)

Annual Parameters (2 samples per year):

Arsenic  
Barium  
Cadmium  
Chromium  
Copper  
Hardness  
Iron  
Lead  
Manganese  
Mercury  
Nickel  
Selenium  
Silver  
VOCs  
Zinc

**Section 4. Five – Year Improvement Plan**

There are no improvements anticipated within this Unit by Northern during the next five years.

**Section 5. Ten – Year Replacement Plan**

There are no Northern facilities within this Unit that are anticipated to require replacement within the next 10 years. Periodic inspection of Northern's facilities will be conducted to determine the need for future improvements.

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**UNIT OF DEVELOPMENT NO. 5A**

**Section 1. Lands in Unit**

The Northern Palm Beach County Improvement District (Northern) Unit of Development No. 5A encompasses 500 acres, more or less, and is located in an unincorporated area of Palm Beach County. **Exhibit A** and **Exhibit B** show the general location of Unit No. 5A in relation to Northern's boundaries and the central region of Palm Beach County. The Unit is located on the west side of the Florida Turnpike and is north of Okeechobee Boulevard in a portion of Sections 15 and 22, Township 43 South, Range 42 East. The lands within Unit No. 5A are currently being developed incorporating commercial, industrial and residential uses known as Vista Center of Palm Beach.

**Section 2. Water Management System**

2.1 General

Unit No. 5A is essentially divided into two drainage basins – north and south. The north basin is controlled by two control structures (W-2 and W-3) discharging to the south basin. The south basin is controlled by a structure (W-1/C-1) discharging to the CPB-22 Canal and ultimately the South Florida Water Management District (SFWMD) C-51 Canal.

In 2015 the existing W-1 Control Structure with manual gate and existing 66-inch discharge culvert to the CPB 22 Canal was upgraded per SFWMD Permit 150123-4. The existing manual gate was replaced with a fixed plate and new single 66-inch outfall to the Canal. Replacement of the manual gate with a fixed plate reduced the annual cost of maintenance for the structure. At the request of the Vista Center Association, Inc. modifications to the fixed concrete weir were completed in 2018 per SFWMD 181023-11 to facilitate lowering water levels to the permitted control in a shorter time frame without increasing flow capacity during the design storm event. The current configuration of W-1 is one 15 ft wide weir with an invert at 16.2 NGVD and four (4) - 12-inch bleeders and a 1.7 ft by 4.9 ft notch at an elevation 14.5 NGVD.

2.2 Off-site Lands

Off-site lands passing through the Unit consist of the 602 acres making up Unit of Development No. 5B (Baywinds), 605.55 acres making up Unit of Development No. 5D (Andros Isle), and 561 acres making up Unit of Development No. 5C. All of these Units are located west of Unit No. 5A.

**Section 3. Northern Facilities**

Lands within Unit No. 5A that have been granted to Northern in fee simple are shown on **Exhibit 5A**. Easements, also shown on the Exhibit, have been provided for other Northern facilities. Facilities in this Unit owned and maintained by Northern are also shown on the Exhibit.

Northern’s responsibilities in the Unit include operation, inspection, and maintenance of the facilities. Maintenance includes a chemical aquatic weed control program for the lakes and canal, and an exotic plant control program for the created wetlands.

The service/demand area for the Unit is approximately 2,269 acres.

Unit No. 5A lies within the SFWMD’s C-51 Drainage Basin, which has an allowable discharge rate restriction of 27 csm (cubic feet per second per square mile) for the 10- year/3-day storm event.

The SFWMD permit for Vista Center, permit number 50-01329-S, specifies the minimum building pad elevation and minimum road crown elevation at 20.1’ NGVD and 18.0’ NGVD, respectively. These elevations were set based on drainage calculations submitted for peak stage for the 100-year/3-day storm event (building pad) and the 10- year/1-day storm event (road crown). Design stages and discharge are presented in Table No. 5A.

<b>TABLE NO. 5A : DESIGN INFORMATION</b>	
10-Yr/1-Day Peak Stage	17.9’ NGVD
10-Yr/3-Day Peak Stage	18.6’ NGVD
10-Yr/3-Day Peak Discharge	22 CFS
100-Yr/3D-Day Peak Stage	19.1’ NGVD

**Section 4. Five – Year Improvement Plan**

There are no improvements anticipated within this Unit by Northern during the next five years.

**Section 5. Ten – Year Replacement Plan**

1. Replacement of the Unit 5C -5A culvert connection
2. Upgrade of the Master Irrigation system
3. Upgrade of the LED Street Lighting

NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
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**UNIT OF DEVELOPMENT NO. 5B**

**Section 1. Lands in Unit**

The Northern Palm Beach County Improvement District (Northern), Unit of Development No. 5B encompasses 602 acres, more or less, and is located in the City of West Palm Beach. **Exhibits A and B** show the general location of Unit No. 5B in relation to Unit No. 5 boundaries and the northern region of Palm Beach County. The Unit is located west of Unit No. 5D (Andros Isle) and north of Okeechobee Boulevard in a portion of Sections 19, Township 43 South, Range 42 East. The land within the Unit is developed as a residential planned development known as Baywinds.

**Section 2. Water Management System**

2.1 General

The Unit No. 5B surface water management system is divided into two major drainage basins: the developed basin and the preserve area. Runoff from developed lands is directed via inlets and culverts to the on-site lakes for water quality treatment and attenuation. Stormwater is then pumped into the preserve area by the on-site pump station (PS-1). The preserve area is contiguous with the preserve area of Unit No. 5D (to the east). A pump station (PS-2), which is owned and maintained by the City of West Palm Beach in Unit No. 5D allows pumping from the preserve area into the West Palm Beach Water Catchment Area (WCA), also known as Grassy Waters Preserve, immediately to the north of the Unit No. 5B preserve area, when the stages in the WCA can accommodate it. When the stages in the WCA prohibit inflow from the pump station, a control structure (CS-1) within Unit No. 5D allows pass-through of the runoff from Unit No. 5B. Discharge flows through Unit Nos. 5C and 5A before discharging to the CPB-22 Canal and ultimate outfall to the South Florida Water Management District (SFWMD) C-51 Canal.



2.2 Pump Station PS-1

The developed area pump station (PS-1) consists of 1,250 gpm (gallon per minute) duty pump and two 17,200 gpm primary pumps. One primary pump serves as a backup to the other. The duty pump turns on at 16.6' and off at 16.5' NGVD. The primary pump turns on at 17.1' NGVD and off at 16.5' NGVD.

2.3 Pump Station PS-2

The preserve area pump station, maintained by the City of West Palm Beach, (PS-2) consists of three 13,000 gpm pumps. Pump 1 turns on at 17.6' NGVD and off at 17.5' NGVD. Pump 2 turns on at 18.1' NGVD and off at 17.5' NGVD. Pump 3 serves as a backup to the other two.

**Section 3. Northern Facilities**

Lands within Unit No. 5B that have been granted to Northern in fee simple are shown on **Exhibit 5B**. Easements, also shown on the Exhibit, have been provided for other Northern facilities. Facilities in this Unit owned and maintained by Northern are also shown on the Exhibit.

Northern's responsibilities in the Unit include operation, inspection, and maintenance of the Development Basin Pump Station (PS-1) facilities.

The service/demand area for the Unit is approximately 602 acres.

Unit No. 5B lies within the SFWMD's C-51 Drainage Basin, which has an allowable discharge rate restriction of 27 csm (cubic feet per second per square mile) for the 10- year/3-day storm event.

The SFWMD permit for Baywinds, permit number 50-03926-P, specifies the minimum building pad elevation and minimum road crown elevation at 20.5' NGVD and 19.0' NGVD, respectively. These elevations were set based on drainage calculations submitted for peak stage for the 100-year/3-day storm event (building pad) and the 10-year/1-day storm event (road crown). Design stages and discharge are presented in Table No. 5B.

<b>TABLE NO. 5B: DESIGN INFORMATION</b>		
	<b>Developed Area</b>	<b>Preserve Area</b>
10-Yr/1-Day Peak Stage	19.0' NGVD	17.93' NGVD
10-Yr/3-Day Peak Stage	19.22' NGVD	18.15' NGVD
10-Yr/3-Day Peak Discharge	41.1 CFS	50.5 CFS
100-Yr/3-Day Peak Stage	20.49' NGVD	18.86' NGVD

**Section 4. Five – Year Improvement Plan**

There are no improvements anticipated within this unit by Northern during the next five years.

**Section 5. Ten – Year Replacement Plan**

Periodic inspections of these facilities will be conducted to determine the need for future replacements. None are planned at this time.

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**UNIT OF DEVELOPMENT NO. 5C**

**Section 1. Lands in Unit**

The Northern Palm Beach County Improvement District (Northern) Unit of Development No. 5C encompasses 561 acres, more or less, and is located in the City of West Palm Beach. **Exhibit A** and **Exhibit B** show the general location of Unit No. 5C in relation to Unit No. 5 boundaries and the northern region of Palm Beach County. The Unit is located west of Unit No. 5A (Vista Center), east of Unit No. 5D (Andros Isle), and north of Okeechobee Boulevard in a portion of Section 21, Township 43 South, Range 42 East. The land within the Unit was developed as a Planned Unit of Development (P.U.D.) known as Riverwalk consisting of Single and Multifamily residences as well as a Community Center incorporating recreational and commercial uses.

**Section 2. Water Management System**

2.1 General

The Unit 5C Water Management System consists of drainage inlets, stormwater pipe and interconnected lakes designed to discharge through a control structure located just west of Jog Road into Northern's Unit No. 5A system. The Unit 5C control structure, lake system, and lake-to-lake interconnect pipes not only serve to equalize water levels within the Unit 5C lake system, but also to allow pass-through drainage from Units of Development 5B and 5D located to the west. Both Units 5B and 5D are pumped systems and stormwater from those Units is pumped into preserve areas owned and maintained by the City of West Palm Beach. There is an overflow weir located within the preserve area directly west of Unit 5C that allows stormwater to be transferred from the preserve into the Unit 5C lake system and ultimately to the Unit 5C control structure. In 2015, at the request of the Riverwalk Homeowner's Association the 2nd Amendment to the Plan of Improvements (POI) was completed and incorporated the ownership and maintenance of the stormwater control structure and lake-to-lake interconnects within the Unit.

The Homeowner's Association requested modification of the stormwater control structure from a fixed configuration to an operable structure allowing the adjustment of the control elevation during the dry season. The purpose was to provide the ability to raise the control elevation within the Development from 15 NGVD to 16 NGVD during the dry season to mitigate drawdown effects and provide the ability for additional storage for irrigation use within the Unit. Mock Roos and Associates designed and obtained a SFWMD permit modification to convert the existing fixed weir structure to a remotely operable adjustable structure in 2015 under application no. 150814-10 and the conversion was completed in 2018.

## 2.2 Off-site Lands

Off-site land passing through the Unit consists of the 602 acres making up Unit of Development No. 5B (Baywinds) and 605.55 acres making up Unit of Development No. 5D. Northern retains a flowage easement across Unit 5C to allow lands in Unit Nos. 5B and 5D to pass through to Unit No. 5A.

### **Section 3. Northern Facilities**

Easements within Unit No. 5C that have been granted to Northern are shown on **Exhibit 5C**. Facilities in this Unit owned and maintained by Northern are also shown on the Exhibit.

Northern's responsibilities in the Unit include operation, inspection, and maintenance of the operable control structure and associated telemetry, intake and discharge piping connected to the control structure, piping from the Unit of Development 5D preserve overflow weir, and the lake-to-lake interconnect pipes as described in this Second Amendment to the POI.

The service/demand area for the Unit is approximately 1,769 acres.

The Improvements authorized in the original Plan of Improvements (the "Plan") for Unit 5C included the construction of water distribution and wastewater collection and transmission facilities only. All authorized improvements included in the original Plan have been completed and have been turned over to the City of West Palm Beach for maintenance.

Unit No. 5C lies within the SFWMD's C-51 Drainage Basin, which has an allowable discharge rate restriction of 27 csm (cubic feet per second per square mile) for the 10- year/3-day storm event.

The SFWMD permit for Riverwalk, permit number 50-03425-S, specifies the minimum building pad elevation and minimum road crown elevation at 20.5' NGVD and 19.0' NGVD, respectively. These elevations were set based on drainage calculations submitted for peak stages for the 100-year/3-day storm event (building pad) and the 10-year/1-day storm event (road crown). Design stages and discharge are presented in Table No. 5C.

<b>*TABLE NO. 5C: DESIGN INFORMATION</b>	
*10-Yr/1-Day Peak Stage	17.3' NGVD
*10-Yr/3-Day Peak Stage	17.8' NGVD
*10-Yr/3-Day Peak Discharge	26.3 CFS
*100-Yr/3-Day Peak Stage	18.8' NGVD

\*Table 5C is updated with design information included in the SFWMD Permit 50-03425-S Modification Application no.150814-10 issued in 2015.

**Section 4. Five – Year Improvement Plan**

There are no improvements anticipated within this Unit in the next five years.

**Section 5. Ten – Year Replacement Plan**

Periodic inspections of these facilities will be conducted to determine the need for future replacements. None are planned at this time.

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**UNIT OF DEVELOPMENT NO. 5D**

**Section 1. Lands in Unit**

The Northern Palm Beach County Improvement District (Northern) Unit of Development No. 5D encompasses 605.55 acres, more or less, and is located in the City of West Palm Beach. **Exhibits A and B** show the general location of Unit No. 5D in relation to Unit No. 5 boundaries and the northern region of Palm Beach County. The Unit is located east of Unit No. 5B (Baywinds), west of Unit No. 5C Riverwalk), and north of Okeechobee Boulevard in a portion of Section 20, Township 43 South, Range 42 East. The land within the Unit is being developed as a residential planned development known as Andros Isle (a.k.a. Oakton Lakes).

**Section 2. Water Management System**

2.1 General

The Unit No. 5D surface water management system is divided into two major drainage basins: the developed basin and the eastern preserve area. Runoff from developed lands is directed via inlets and culverts to the on-site lakes for water quality treatment and attenuation. Stormwater is then pumped into the preserve area by the on-site pump station (PS-1). The eastern preserve area discharges to the east through a control structure (CS-1), to the stormwater management system of Unit No. 5C. Discharge flows through Unit Nos. 5C and 5A before discharge to the CPB-22 Canal and ultimate outfall to the South Florida Water Management District (SFWMD) C-51 Canal.

2.2 Pump Station

The pump station (PS-1) consists of 1,795 gpm (gallon per minute) duty pump and two 11,200 gpm primary pumps. One primary pump serves as a backup to the other. The duty pump turns on at 16.6' NGVD and off at 16.0' NGVD. The primary pump turns on at 17.25' NGVD and off at 16.6' NGVD.

2.3 Off-site Lands

Off-site land contributing to the Unit consists of the 602 acres making up Unit of Development No. 5B (Baywinds).

**Section 3. Northern Facilities**

Lands within Unit No. 5D that have been granted to Northern in fee simple are shown on **Exhibit 5D**. Easements, also shown on the Exhibit, have been provided for other Northern facilities. Facilities in this Unit owned and maintained by Northern are also shown on the Exhibit.

Northern’s responsibilities in the Unit include operation, inspection and maintenance of the pump station, PS-1.

The service/demand area for the Unit is approximately 1,208 acres.

Unit No. 5D lies within the SFWMD’s C-51 Drainage Basin, which has an allowable discharge rate restriction of 27 csm (cubic feet per second per square mile) for the 10- year/3-day storm event.

The SFWMD permit for Andros Isle (a.k.a. Oakton Lakes), permit number 50-03723-S, specifies the minimum building pad elevation and minimum road crown elevation for the developed area at 21.0’ NGVD and 18.5’ NGVD, respectively. These elevations were set based on drainage calculations submitted for peak stage for the 100-year/3-day storm event (building pad) and the 10-year/1-day storm event (road crown). Design stages and discharge are presented in Table No. 5D.

<b>TABLE NO. 5D: DESIGN INFORMATION</b>			
	<b>Developed Area</b>	<b>East Preserve Area</b>	<b>Internal Preserve Area</b>
10-Yr/1-Day Peak Stage	18.5	17.3	17.9
10-Yr/3-Day Peak Stage	N/A	18.4	N/A
10-Yr/3-Day Peak Discharge	N/A	0	N/A
100-Yr/3-Day Peak Stage	20.2	N/A	20.1

**Section 4. Five – Year Improvement Plan**

There are no improvements anticipated within this Unit by Northern during the next five years.

**Section 5. Ten – Year Replacement Plan**

Periodic inspections of these facilities will be conducted to determine the need for future replacements. None are planned at this time.



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**UNIT OF DEVELOPMENT NO. 7**

**Section 1. Lands in Unit**

Northern Palm Beach County Improvement District (Northern) Unit of Development No. 7 encompasses 1,472 acres, more or less, and is located in Palm Beach County. Parts of the Unit are within the cities of West Palm Beach and Riviera Beach, **Exhibits A and B** show the jurisdictional limits of Northern and the general location of Unit No. 7 in relation to Northern's boundaries and the northern region of Palm Beach County. Unit No. 7 is that area lying east of the Florida Turnpike, west of the Seaboard Coastline Railroad and the South Florida Water Management District's (SFWMD) C-17 Canal, and bounded on the south by the south lines of Sections 35 and 36, Township 42 South, Range 42 East, and the south line of Section 31, Township 42 South, Range 43 East.

**Section 2. Water Management System**

2.1 General

Stormwater runoff from lands within the Unit is routed to the EPB-9 and EPB-9A Canals via sheet flow, swales, stormwater pipes, and individual developments' stormwater management systems. The EPB-9A Canal discharges into the Winding Waters Natural Area Park (WWNA) onsite Stormwater Management System via WWNA CS#3 and then into the EPB-10 Canal (Unit No. 1). The EPB 9 Canal east of the WWNA Park discharges directly to the EPB 10 Canal. The EPB-10 Canal discharges through a control structure to the SFWMD C-17 Canal. A number of control structures within the Unit maintain lake and canal elevations.

Palm Beach County Environmental Resource Management (PBC ERM) completed the infrastructure improvements for the 572 acre Winding Waters Natural Area (WWNA) Park in 2010. As part of the Park's design the EPB 9A Canal within the Park area was backfilled and the discharge from EPB 9A Canal north of Dyer Blvd. was directed into the Park's onsite Stormwater Management System. The Park's Water Management System has three control structures. The ultimate discharge structure is WWNA CS#3 and is maintained by PBC ERM. WWNA CS#3 has a weir set at 13.5 NGVD and an operable gate with an invert at elevation 9.0 NGVD and was designed to meet the C-17 study criteria. WWNA CS#3 discharges into Northern's EPB 10 Canal just west of Haverhill Road within Unit 1. OS-1(WWNA Structure No. 2) was installed within the EPB 10 Canal in Unit 1 approximately 1500 feet east of the

Florida Turnpike. The purpose of OS-1 was to raise the control elevation to 14.8' NGVD and redirect flow from its location west and then northward up the eastern turnpike canal and into the WWNA Park through a newly constructed Canal referenced as NW WWNA Canal. OS-1 has a fixed weir set at 14.8' NGVD and an operable gate which opens via telemetry to allow flow through at elevation 9.44' NGVD should the stages in the turnpike canal warrant its use. The structure and its operation were approved by the South Florida Water Management District (SFWMD) under the WWNA permit, Application No.080912-18. The third structure is W-1 (WWNA CS#1) and is located in the NW WWNA Canal. W-1 is a fixed weir set at Elevation 13.0' NGVD and is maintained by NPBCID. The purpose of W-1 is to keep stored water within the Park during the dry season and when OS-1 is operated.

## 2.2 Off-site lands

Approximately 2,478 acres of off-site land drains through Unit No. 7. The drainage is associated with Unit No. 24, the Ironhorse development and the Solid Waste Authority's North County Resource Recovery Facility, Haverhill Industrial Park, and Dyer Park.

### **Section 3. Northern Facilities**

Lands within Unit No. 7 that have been granted to Northern in fee simple are shown on **Exhibits 7(1)** through **7(3)**. Easements, also shown on the Exhibits, have been provided for other Northern facilities. Northern's responsibilities in the Unit include operation, inspection, and maintenance of the facilities. Maintenance includes biological and chemical aquatic weed control in the canals and right-of-way mowing. Facilities in this Unit owned and maintained by Northern are shown on **Exhibits 7(1)** through **7(3)**.

The service/demand area for the Unit is approximately 3,950 acres.

Unit No. 7 lies entirely within SFWMD's C-17 Drainage Basin, which has an allowable discharge rate restriction of 62.7 csm (cubic feet per second per square mile) for the 25-year/3-day storm event.

Computer modeling efforts provide peak stage and peak flow information along the EPB-9 Canal for the design storm event. At certain crossings upstream and downstream (US/DS) stages are presented in Table 7.

<b>*TABLE NO. 7: DESIGN INFORMATION FOR EPB – 9 CANAL</b>		
<b>Location</b>	<b>Design Discharge (CFS)</b>	<b>Design Stage (FT. NGVD)</b>
Haverhill Road	*209	*15.5/15.3
Military Trail	*204	*15.2/15.0
FPL Crossing	*256	*14.6/14.3
Confluence with EPB-10	*284	*14.1

\*Tributary areas west of Haverhill Road are no longer directed through the EPB-9 Canal and therefore the discharge/stage information is less than what is shown in Table No. 7.

There is one (1) surface water quality monitoring station within this Unit. The location is shown on **Exhibit 7(3)**. All records are maintained at Northern's office. Water quality testing occurs for the following parameters:

Quarterly Parameters – Surface Water (4 samples per year):

Alkalinity (Phenyl and Total)  
 Ammonium-N  
 Arsenic  
 Barium  
 Calcium  
 Chlorides  
 Copper  
 Corrosivity  
 Hardness  
 Oxygen, Chemical Demand  
 Coliform Bacteria (Fecal and Total)  
 Lead  
 MBAS  
 Magnesium  
 Manganese  
 Mercury  
 Nitrate  
 Nitrite  
 pH (laboratory or field)  
 Phosphate (Ortho and Total)  
 Selenium  
 Silver  
 Sodium  
 Specific Conductance  
 Temperature  
 Total Kjeldahl Nitrogen  
 Total Organic Carbon  
 Turbidity (NTU)  
 Zinc

Annual Parameters (1 sample per year):

Pesticide Scan

Herbicide Scan

**Section 4. Five – Year Improvement Plan**

There are no improvements anticipated within this Unit by Northern during the next five years.

**Section 5. Ten – Year Replacement Plan**

Periodic inspections of these facilities will be conducted to determine the need for future replacements. None are planned at this time.

NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
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**UNIT OF DEVELOPMENT NO. 9**

**Section 1. Lands in Unit**

Northern Palm Beach County Improvement District (Northern) Unit of Development No. 9 encompasses 2,630 acres, more or less, and is located in Sections 13, 14, 23, and 24, Township 41 South, Range 42 East. All Unit No. 9 lands are within the corporate limits of the Town of Jupiter. **Exhibits A** and **B** show the general location of Unit No. 9 in relation to Northern's boundaries and the northern region of Palm Beach County. The Unit is bounded on the south by Donald Ross Road, to the east by Alternate A1A, on the west by the North Palm Beach Heights Water Control District, and on the north generally by Indian Creek Parkway. The north county Solid Waste Transfer Station, Jupiter Middle School, and portions of Unit No. 27B are also located within Unit No. 9 boundaries.

**Section 2. Water Management System**

Stormwater runoff from lands within the Unit is routed to on-site lakes via inlets and stormwater piping systems. Each development project within the Unit has its own surface water management system that discharges excess runoff into Northern's EPB-2, 2A, and 2B Canals. These canals discharge through control structures (W-1 and W-2) and culverts east into tidal canals in Admiral's Cove East that flow into the Intracoastal Waterway. Structure W-1 has two operable gates for use in lowering water surface elevations prior to a significant storm event. The gates may also be used after a storm event to draw down water surface elevations more quickly than would otherwise occur. These structures and their operation have been approved by the South Florida Water Management District (SFWMD).

**Section 3. Northern Facilities**

Lands within Unit No. 9 that have been granted to Northern in fee simple are shown on **Exhibit 9**. Easements, also shown on the Exhibit, have been provided for other Northern facilities. Facilities in this Unit owned and maintained by Northern are also shown on the Exhibit.

Northern’s responsibilities in the Unit include operation, inspection, and maintenance of the facilities. Maintenance includes chemical aquatic weed control in the canals and right-of-way mowing along the canals.

The service/demand area for the Unit is approximately 2,630 acres.

Unit No. 9 lies entirely within SFWMD’s Intracoastal Drainage Basin. The allowable discharge rate from developed land within this Basin is restricted to the rate determined for the land in the pre-developed condition.

Computer modeling provides peak stage and peak flow information along the EPB-2, 2A, and 2B Canals for the design storm event. This data is provided in the tables below.

<b>TABLE NO. 9.1: DESIGN INFORMATION FOR EPB – 2 CANAL</b>		
<b>Location</b>	<b>Design Discharge (CFS)</b>	<b>Design Stage (FT. NGVD)</b>
West of Alternate A-1-A (outflow of Intracoastal)	450	7.2
Confluence with EPB – 2A	450	7.3
Confluence with EPB – 2B	335	8.1

<b>TABLE NO. 9.2: DESIGN INFORMATION FOR EPB – 2A CANAL</b>		
<b>Location</b>	<b>Design Discharge (CFS)</b>	<b>Design Stage (FT. NGVD)</b>
Confluence with EPB – 2	84	7.4
East of Military Trail	84	7.5

<b>TABLE NO. 9.3: DESIGN INFORMATION FOR EPB – 2B CANAL</b>		
<b>Location</b>	<b>Design Discharge (CFS)</b>	<b>Design Stage (FT. NGVD)</b>
Confluence with EPB – 2	84	8.2
East of Military Trail	84	8.4

There are two (2) surface water quality sampling stations in Unit No. 9. The locations of the stations are shown on **Exhibit 9(1)**. All records are maintained at Northern's office. The parameters tested area as follows:

Quarterly Parameters – Surface water (8 samples per year):

Alkalinity (Phenyl and Total)  
Ammonia (Unionized)  
Ammonium-N  
Calcium  
Chloride  
Coliform (Fecal and Total)  
Conductivity, specific  
Copper  
Hardness  
Nitrate  
Magnesium  
Nitrite  
Phosphate (Ortho and Total)  
Oxygen, Biochemical Demand  
pH (laboratory or field)  
Sodium  
Suspended Solids  
Total Kjeldahl Nitrogen  
Total Organic Carbon  
Turbidity (NTU)

Annual Parameters (2 samples per year):

Pesticide Scan  
Herbicide Scan

#### **Section 4. Five – Year Improvement Plan**

There are no improvements anticipated within this Unit by Northern during the next five years.

#### **Section 5. Ten – Year Replacement Plan**

Periodic inspection of the facilities will be conducted to determine the need for future replacements. None are planned at this time.

NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
REPORT

**UNIT OF DEVELOPMENT NOS. 9A & 9B**

**Section 1. Lands in Unit**

Northern Palm Beach County Improvement District (Northern) Unit of Development Nos. 9A and 9B encompasses 2,054 acres, more or less, and are located in the Town of Jupiter. **Exhibits A** and **B** show the general location of Unit Nos. 9A and 9B in relation to Northern's boundaries and the northern region of Palm Beach County. The Units are essentially bounded on the north by Indian Creek Parkway, on the south by Donald Ross Road, on the east by Florida East Coast Railroad and Alternate A1A, and on the west by the eastern boundary of North Palm Beach Heights Water Control District. Unit Nos. 9A and 9B lands are located within portions of Sections 13, 14, 23, and 24, Township 41 South, Range 42 East. Unit No. 9A is generally located in the southern portion of Unit No. 9 and Unit No. 9B is generally located in the northern portion of Unit No. 9. Frederick Small Road is the approximate Unit divide between 9A and 9B. Unit Nos. 9A and 9B were developed as a planned Unit of Development called Abacoa. The bonded improvements were certified complete in March of 2011.

**Section 2. Water Management System**

2.1 General

The Surface Water Management System was designed to satisfy requirements of the South Florida Water Management District, the Treasure Coast Regional Planning Council, the Town of Jupiter, and other regulatory agencies. The Surface Water Management System for Unit Nos. 9A and 9B consists of seven drainage basins that cascade from west to east and discharge into Northern's EPB-2, 2A, and 2B Canals (in Unit of Development No. 9). Ultimate discharge is to the Intracoastal Waterway. The Surface Water Management System is shown on **Exhibit C** and includes greenways, upland preserve corridors containing wet and dry detention areas, culverts, and lakes.

The nine control structures within the Abacoa project maintain surface water levels in the seven drainage basins. Six are internal structures to the Abacoa project and three discharge into Unit No. 9 canals. All control structures have operable gates that are designed to lower the upstream basin approximately one foot in 24 hours for internal structures and two feet in 24 hours for outfall structures. All operable gates are operated in accordance with



an approved Memorandum of Understanding with the South Florida Water Management District.

## 2.2 Off-site lands

The off-site lands that drain into Unit Nos. 9A and 9B encompass approximately 91 acres and include portions of Indian Creek Parkway, Military Trail, Donald Ross Road, and the Solid Waste Authority.

### **Section 3. Northern Facilities**

Lands within Unit Nos. 9A and 9B that have been granted to Northern in fee simple are shown on **Exhibits 9A(1)** through **9A(8)** and **9B(1)**. Easements, also shown on the Exhibits, have been provided for other Northern facilities.

Northern's responsibilities in the Unit include operation, inspection, and maintenance of the facilities. Maintenance includes biological and chemical aquatic weed and nuisance vegetation control for lakes, canals, greenways, and dry detention areas, right-of-way mowing, mowing of existing greenway trails, maintenance of the lake liner for the lined lakes and maintenance of the greenway including bridges, overlooks, crossings, entrance ways, uplands, wetlands and signage. Facilities in these Units owned and maintained by Northern are shown on **Exhibits 9A** and **9B**.

The service/demand area for the Units is approximately 2,145 acres.

The South Florida Water Management District permit for the Abacoa project, 50-03651- P, specifies the minimum building pad elevation and minimum road crown elevations for the individual basins. These elevations were set based on drainage calculations submitted for peak stages for the 100-year/3-day storm event (building pad) and the 10-year/1-day storm event (road crown). Design and permit stages are presented in Table No. 9A/9B. The total discharge for Unit Nos. 9A and 9B is 334 cfs.

TABLE NO. 9A/9B: DESIGN INFORMATION							
Basin No.	1	2	3	4	5	6	7
Control Elevation (ft., NGVD)	10.00	9.00	8.50	6.00	11.00	6.00	6.00
Minimum Floor (ft., NGVD)	15.50	14.20	13.50	12.20	16.59	12.40	11.80
Minimum Road (ft., NGVD)	14.00	12.00	10.80	10.30	14.40	10.00	9.70
10-yr/1-day Peak Stage (ft., NGVD)	13.78	11.14	10.63	9.98	14.24	10.03	9.67
25-yr/3-day Peak Stage (ft., NGVD)	14.63	12.39	11.84	11.34	15.14	11.55	11.03
100-yr/3-day Peak Stage (ft., NGVD)	15.27	13.55	12.98	11.65	16.02	11.75	10.96

There are two (2) surface water quality sampling stations in Unit No. 9A. The locations of the stations are shown on **Exhibit 9A(1)**. All records are maintained at Northern’s office. The parameters tested area as follows:

Quarterly parameters – Surface Water (8 samples per year):

- Chlorophyll a
- Total Dissolved Solids
- Organic Phosphorus
- Nitrogen (Ammonia)
- pH (laboratory or field)
- Phosphate (Ortho and Total)
- Total Residual Chlorine
- Temperature

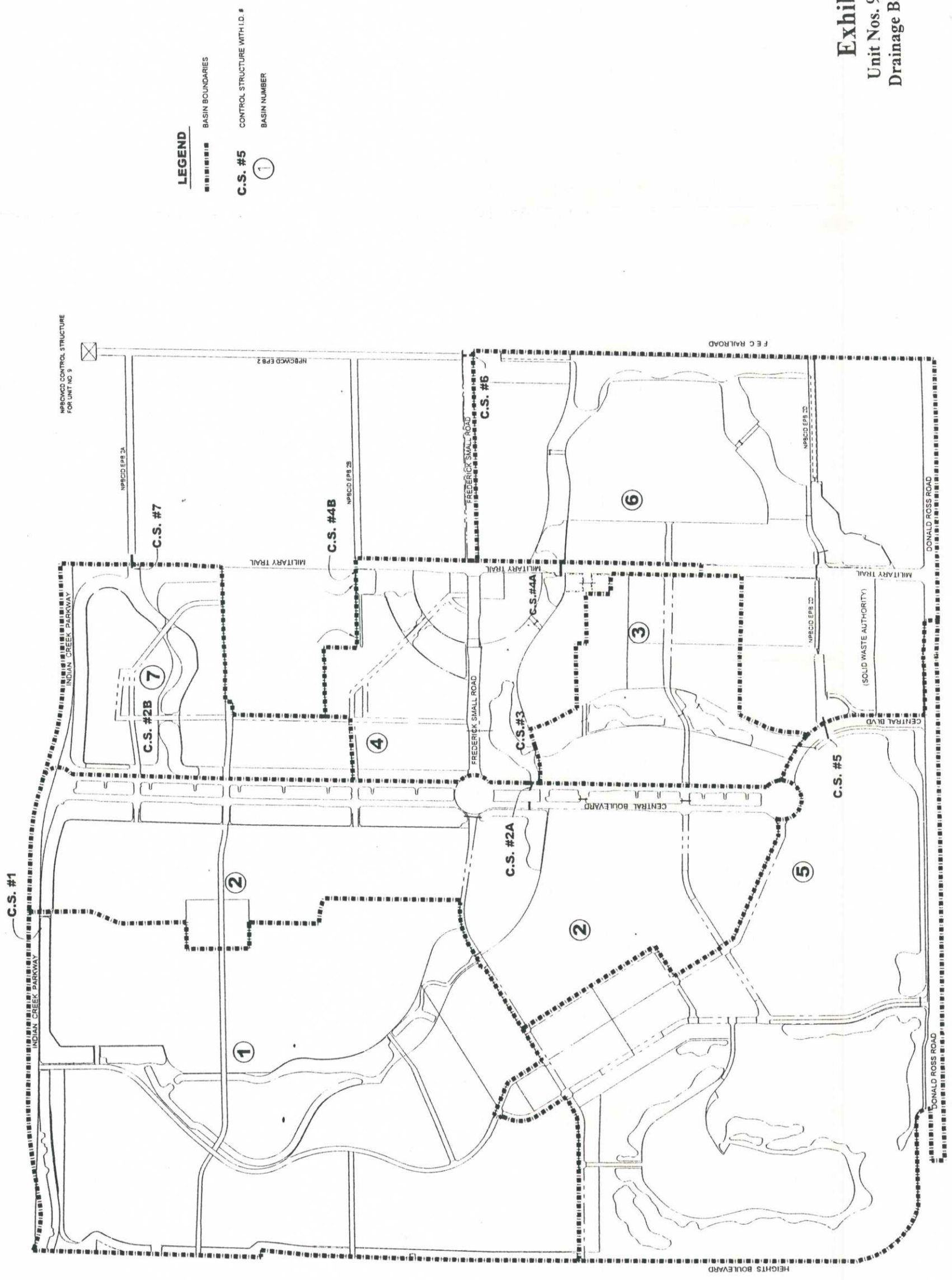
**Section 4. Five – Year Improvement Plan**

There are no improvements anticipated within this Unit by Northern during the next five years.

**Section 5. Ten – Year Replacement Plan**

Periodic inspection of Northern facilities will be conducted to determine the need for future improvements. No plans for replacement exist at this time.

**Exhibit C**  
 Unit Nos. 9A and 9B  
 Drainage Basins Maps



**LEGEND**

----- BASIN BOUNDARIES

C.S. #5 CONTROL STRUCTURE WITH I.D. #

① BASIN NUMBER

**DRAINAGE BASIN MAP**  
**UNITS OF DEVELOPMENT 9A & 9B**  
**EXHIBIT C**

NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
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**UNIT OF DEVELOPMENT NO. 11**

**Section 1. Lands in Unit**

Northern Palm Beach County Improvement District (Northern) Unit of Development No. 11 encompasses 2,341 acres, more or less, and is located in the City of Palm Beach Gardens. **Exhibits A and B** show the general location of Unit No. 11 in relation to Northern's boundaries and the northern region of Palm Beach County. Unit No. 11 is bounded on the east by the Florida Turnpike, on the north by PGA Boulevard, on the west by C-18 Canal, and on the south by the Beeline Highway and Northlake Boulevard.

Unit No. 11 lands are located in Section 8, 9, 10, 15, and 16, Township 42 South, Range 42 East. Lands within Unit No. 11 are developed as a Planned Unit Development (PUD) known as The PGA National Resort Community providing a mix of land use categories including residential, recreational, and commercial.

**Section 2. Water Management System**

2.1 General

Stormwater runoff from Unit No. 11 flows through a system of grassed swales and culverts to Northern canals and lakes. From the lakes, the stormwater is pumped to a 300-acre marsh retention area. Discharge from the marsh is to the South Florida Water Management District (SFWMD) C-18 Canal via control structures.

2.2 Off-site lands

The off-site lands that drain through Unit No. 11 consist of approximately 95 acres of Northlake Boulevard between the Beeline Highway and the Florida Turnpike and PGA Boulevard between the C-18 Canal and the Florida Turnpike.

### **Section 3. Northern Facilities**

Lands within Unit No. 11 that have been granted to Northern in fee simple are shown on **Exhibits 11(1)** through **11(10)**. Easements, also shown on the Exhibit, have been provided for other Northern facilities.

Northern's responsibilities in the Unit include operation, inspection, and maintenance of the facilities. Maintenance includes a biological, chemical and mechanical aquatic weed control program for the lakes, and an exotic plant control program for the created and preserved wetlands.

The service/demand area for the Units is approximately 2,436 acres.

Unit No. 11 lies entirely within the South Florida Water Management District's (SFWMD's) C-18 Drainage Basin, which has an allowable discharge rate restriction of 41.6 csm (cubic feet per second per square mile) for the 25-year/3-day storm event.

The PGA National Resort Community water management system is divided into two sub-basins, the developed portion and the marsh retention area. Three pump stations maintain the water surface elevation in the developed basin, by regulating discharge to the marsh retention area. The main pump station (PS-3) includes a duty pump that handles the first inch of runoff from the developed area. For events generating greater runoff amounts, all three pump stations may be used in a predetermined pumping schedule that is based on upstream and downstream water surface elevations. The discharge from the marsh retention area is through three control structures (W-1 through W-3). An operable gate on the W-2 structure allows for pre-storm operation to lower stages in the marsh retention area before an anticipated storm of 3" or more rainfall. In 2013 the hydraulic drive pumps were replaced with submersible electric pumps in both PS- 1 and PS-2. 250 kW generators were also installed to provide back-up power with the pump station renovations.

The SFWMD permit (#50-00617-S) specifies the minimum building pad elevation and minimum road crown elevation for the developed area at 19.0' NGVD and 17.0' NGVD, respectively. These elevations were set based on drainage calculations submitted for peak stages for the 100-year/3-day storm event (building pad) and the 10-year/1-day storm event (road crown). Design stages and discharges are presented in Table No. 11.

TABLE NO. 11: DESIGN INFORMATION		
Basin	Development Area	Marsh Retention Area
10-Yr/1-Day Peak Stage	17.2' NGVD	-----
25-Yr/3-Day Peak Stage	17.7' NGVD	18.7' NGVD
25-Yr/3-Day Peak Discharge	234 CFS	342 CFS
100-Yr/3-Day Peak Stage	18.8' NGVD	18.8' NGVD

There are five (5) surface water quality sampling stations in Unit No. 11. The locations of the stations are shown in **Exhibit 11(1)** through **11(10)**. All records are maintained at Northern's office. The parameters are as follows:

Quarterly Parameters – Surface Water (20 samples per year):

- Alkalinity (Phenyl and Total)
- Ammonia (Unionized and Total)
- Calcium
- Coliform Bacteria (Fecal and Total)
- Conductivity, specific
- Copper
- Hardness
- Lead
- Magnesium
- Nitrate
- Nitrite
- Oil & Grease
- Oxygen, Biochemical Demand
- Phosphate (Ortho and Total)
- pH (laboratory or field)
- Potassium
- Suspended Solids, total
- Total Kjeldahl Nitrogen
- Total Organic Carbon
- Turbidity (NTU)
- Zinc

Annual Parameters (5 samples per year):

- Pesticide Scan
- Herbicide Scan

**Section 4. Five – Year Improvement Plan**

There are no improvements anticipated within this Unit by Northern during the next five years.

**Section 5. Ten – Year Replacement Plan**

1. Maintenance and overlay of Northern owned roadways.

Periodic inspections of the facilities will be conducted to determine the need of future replacements and improvements. No plans for any other replacements exist at this time.

NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
REPORT

**UNIT OF DEVELOPMENT NO. 12**

**Section 1. Lands in Unit**

Northern Palm Beach County Improvement District (Northern) Unit of Development No. 12 encompasses 915 acres, more or less, and is located in the City of Palm Beach Gardens. **Exhibits A and B** show the general location of Unit No. 12 in relation to Northern's boundaries and the northern region of Palm Beach County. The Unit is located between Military Trail and the Florida Turnpike and is north of Northlake Boulevard in Section 14 including the west half of Section 13, Township 42 South, Range 42 East. Unit No. 12A, which is located within the boundary of Unit No. 12, was developed as a Planned Unit Development (PUD) known as The Gardens Hunt Club. Approximately 634 acres of this Unit has become a portion of Unit No. 31 (BallenIsles). Other developments within the Unit are Cypress Hollow, Garden Park, King Arthur Estates, Green Meadows, and Highland Pines.

**Section 2. Water Management System**

2.1 General

Stormwater runoff from lands within the Unit is routed to the canals and on-site lakes via sheet flow, swales, and stormwater pipe collection systems. Most of Unit No. 12 is drained primary through Unit No. 31 lakes and the Merrill Canal, which discharges east to the South Florida Water Management District (SFWMD) C-17 Canal. The exception is the Cypress Hollow development that drains south through culverts under Northlake Boulevard into Unit No. 3. During emergency operations, stormwater runoff from the Highland Pines area may also be directed south to Unit No. 3.

2.2 Off-site Lands

The off-site lands that drain through Unit No. 12 consist of approximately 22 acres adjacent to its southern boundary. This land is associated with the drainage of Northlake Boulevard between the Florida Turnpike and Military Trail.



### **Section 3. Northern Facilities**

Lands within Unit No. 12 that have been granted to Northern in fee simple are shown on **Exhibit 12**. Easements, also shown on **Exhibit 12**, have been provided for other Northern facilities. Northern's responsibilities in the Unit include operation, inspection, and maintenance of the facilities.

The service/demand area for the Unit is approximately 937 acres.

Unit No. 12 lies entirely within SFWMD's C-17 Drainage Basin, which has an allowable discharge rate restriction of 62.7 csm (cubic feet per second per square mile) for the 25- year /3-day storm event.

For the benefit of Highland Pines, two emergency structures were constructed to the west of that development. The ES-1 structure is located approximately 1420 feet north of Northlake Boulevard on the EPB-3 Canal. The ES-2 structure is located on the EPB-3 Canal just south of Northlake Boulevard (in Unit No. 3). These structures are operated before and after a significant storm event to relieve flooding in Highland Pines. Normally the ES-1 structure is open, and the ES-2 structure is closed and Highland Pines drainage goes north through Unit No. 31. In emergency operation conditions, ES-1 may be closed and the ES-2 may be opened to allow an alternative outflow for Highland Pines to the south. The specific operation of the structure is by agreement with SFWMD.

Water quality sampling and testing associated with waters in this Unit are contained in the Unit No. 31 Public Facilities Report.

### **Section 4. Five – Year Improvement Plan**

There are no improvements anticipated within this Unit by Northern during the next five years.

### **Section 5. Ten – Year Replacement Plan**

Periodic inspection of Northern facilities will be conducted to determine the need for future improvements. No plans for replacement exist at this time.

NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
REPORT

**UNIT OF DEVELOPMENT NO. 12A**

**Section 1. Lands in Unit**

Northern Palm Beach County Improvement District (Northern) Unit of Development No. 12A encompasses 44.3 acres, more or less, and is located in the City of Palm Beach Gardens. **Exhibits A** and **B** show the general location of Unit No. 12A in relation to Northern's boundaries and the northern region of Palm Beach County. The Unit is located between Military Trail and the Florida Turnpike and is north of Northlake Boulevard in a portion of Section 14 Township 42 South, Range 42 East. Land within Unit No. 12A was developed as a Planned Unit Development known as The Gardens Hunt Club, a single-family residential development. Unit No. 12A is entirely within Unit of Development No. 12.

**Section 2. Water Management System**

2.1 General

Stormwater runoff from lands within the Unit is directed by sheet flow, and a stormwater pipe collection system to a 3.5 acre on-site lake. In addition, off-site runoff from the west (Gibson Road) is also directed to the on-site lake via a stormwater collection system along Gibson Road. Excess runoff is discharged through a series of culverts and a control structure (W-1). The discharge is routed east through a culvert to Unit No. 31.

2.2 Off-site Lands

The off-site lands that drain through The Gardens Hunt Club consist of approximately 4.26 acres adjacent to the western boundary of Unit No. 12A. These lands are all associated with the drainage of Gibson Road north of Northlake Boulevard.

**Section 3. Northern Facilities**

Lands within Unit No. 12A that have been granted to Northern in fee simple are shown on **Exhibit 12A**. Easements, also shown on **Exhibit 12A**, have been provided for other Northern facilities.

Northern's responsibilities in the Unit include operation, inspection, and maintenance of the facilities. Maintenance includes a biological and chemical aquatic weed control program for the lake.

The service/demand area for the Unit is approximately 48.6 acres.

Unit No. 12A lies entirely within SFWMD's C-17 Drainage Basin, which has an allowable discharge rate restriction of 62.7 csm (cubic feet per second per square mile) for the 25-year /3-day storm event.

The SFWMD permit for The Gardens Hunt Club, permit number 50-01670-S, specifies the minimum building pad elevation and minimum road crown elevation at 18.2' NGVD and 16.0' NGVD, respectively. These elevations were set based on drainage calculations submitted for peak stages for the 100-year/3-day storm event (building pad) and the 10- year/1-day storm event (road crown). Modeled design stages are presented in Table No. 12A.

<b>TABLE NO. 12A: DESIGN INFORMATION</b>	
10-year/1-day Peak Stage	16.0' NGVD
25-year/3-day Peak Stage	17.6' NGVD
25-year/3-day Peak Discharge	5 CFS
100-year/3-day Peak Stage	18.2' NGVD

**Section 4. Five – Year Improvement Plan**

There are no improvements anticipated within this Unit by Northern during the next five years.

**Section 5. Ten – Year Replacement Plan**

Periodic inspection of Northern facilities will be conducted to determine the need for future improvements. No plans for replacement exist at this time.

NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
REPORT

**UNIT OF DEVELOPMENT NO. 14**

**Section 1. Lands in Unit**

Northern Palm Beach County Improvement District (Northern) Unit of Development No. 14 encompasses the same 637 acres, more or less, and are located in Sections 27 and 34, Township 41 South, Range 42 East in a presently unincorporated area of Palm Beach County. **Exhibits A** and **B** show the general location of Unit No. 14 in relation to Northern's boundaries and the northern region of Palm Beach County. Donald Ross Road, Hood Road, the Turnpike, and Jog Road abut Unit Nos. 14 and 26 on the northern, southern, eastern, and western boundaries, respectively. Lands within Unit No. 14 are developed as a Planned Unit Development known as Eastpointe Subdivision providing both single-family and multi-family dwelling units and golf course. Unit No. 26 was established for lining the lakes in Unit No. 14, but the lining program was discontinued.

**Section 2. Water Management System**

2.1 General

Stormwater runoff from lands within the Unit is routed to the canal and on-site lakes via sheet flow, swales, and stormwater pipe collection systems. Discharge from the lakes and canals is via a pump station (PS-1) to Northern's Unit of Development No. 21 (Old Marsh Golf Club) outfall canal, which discharges into Unit No. 43 (Mirasol). The pump station includes a duty pump (which maintains water surface at elevation 15.0' NGVD (on at 15.5', off at 15.0')). Should the lake elevations rise to 16.0' NGVD, the duty pump shuts off and the first primary pump turns on. At a lake elevation of 16.5' NGVD, the second pump also comes on and both primary pumps run until the lake elevations are drawn down to 14.9' NGVD. The ultimate receiving water body is the South Florida Water Management District (SFWMD) C-18 Canal.

2.2 Off-site lands

The off-site lands that drain through Unit Nos. 14 and 26 consist of approximately 9.4 acres, and is located in the northwest corner of Section 34, Township 41 South, Range 42 East, and is bounded on the north and east by Eastpointe, on the west by Jog Road, and on the south by Hood Road.

**Section 3. Northern Facilities**

Lands within Unit Nos. 14 and 26 that have been granted to Northern in fee simple are shown on **Exhibits 14(1)** and **14(2)**. Easements, also shown on these Exhibits, have been provided for other Northern facilities. No Northern facilities exist in Unit No. 26. Northern’s responsibilities in Unit No. 14 include operation, inspection, and maintenance of the facilities shown on the Exhibits. Maintenance also includes a chemical aquatic weed control program in the lakes and canals and right-of-way mowing along the canals.

The pump station includes two 30,000 gpm (gallon per minute) submersible electric pumps and one 2,000 gpm electric duty pump. In the event of a power failure the electric pumps can be powered by a 400-kW generator that is fueled by a 2,000-gallon steel above ground diesel fuel tank.

The service/demand area for the Unit is approximately 646.4 acres.

The SFWMD permit for Eastpointe (#50-00532-S) specifies the minimum building pad elevation and minimum road crown elevation for the developed area as 19.0’ NGVD and 16.8’ NGVD, respectively. These elevations were set based on drainage calculations submitted for peak stages for the 100-year/3-day storm event (building pad) and the 10-year/1-day storm event (road crown). (Nine homes that were constructed prior to issuance of the SFWMD permit were built with a finished floor elevation of 18.6’ NGVD). Design stages and discharges are presented in Table No. 14.

<b>TABLE NO. 14: DESIGN INFORMATION</b>	
10-Yr/1-Day Peak Stage	16.5’ NGVD
25-Yr/3-Day Peak Stage	17.9’ NGVD
25-Yr/3-Day Peak Discharge	134 CFS
100-Yr/3-Day Peak Stage	18.7’ NGVD

There are three (3) surface water quality sampling stations located in Unit No. 14. The locations of the stations are shown in **Exhibit 14**. All records are maintained at Northern's office. The parameters tested are as follows:

Quarterly Parameters – Surface Water (12 samples per year): Station #1, Alternate Stations #2 and #3:

Ammonium-N  
Ammonia, unionized  
Coliform Bacteria (Fecal and Total)  
Oxygen, Biochemical Demand  
Phosphate (Ortho and Total)  
pH (laboratory or field)  
Total Kjeldahl Nitrogen  
Total Suspended Solids  
Total Dissolved Solids  
Turbidity (NTU)

Annual Parameters (3 samples per year):

Pesticide Scan  
Herbicide Scan

#### **Section 4. Five – Year Improvement Plan**

There are no improvements anticipated within this Unit by Northern during the next five years.

#### **Section 5. Ten – Year Replacement Plan**

##### 1. C-1 Culvert Replacement

Periodic inspection of the facilities will be conducted to determine the need for future replacements. No other replacements are planned at this time.

NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
REPORT

**UNIT OF DEVELOPMENT NO. 15**

**Section 1. Lands in Unit**

Northern Palm Beach County Improvement District (Northern) Unit of Development No. 15 encompasses 1,300 acres, more or less, and is located in the City of West Palm Beach. **Exhibits A** and **B** show the general location of Unit No. 15 in relation to Northern's boundaries and the northern region of Palm Beach County. The Unit is located between I-95 and the western city limits of West Palm Beach, south of 45<sup>th</sup> Street and north of Palm Beach Lakes Boulevard in Sections 1 and 12, Township 43 South, Range 42 East and in Sections 6, 7, 18, and 19, Township 43 South, Range 43 East. Lands within Unit No. 15 are developed as a residential planned community development, with balanced business, commercial, and recreational uses including Bear Lakes Country Club Golf Course to support low to high density residential dwellings.

**Section 2. Water Management System**

2.1 General

The Unit is divided into a north and south portion by the City of West Palm Beach's water supply canal (M Canal). Stormwater runoff from each portion of the Unit is routed to a system of interconnected, on-site lakes via sheet flow, swales, and stormwater pipe collection systems. The lake system for the south portion discharges via culverts under I-95 to the City of West Palm Beach's Congress Avenue Canal, which becomes the South Florida Water Management District (SFWMD) C-17 Canal further north. The lake system for the north portion discharges under Village Boulevard to the Spencer Lakes on-site lake system, and ultimately to the City's Congress Avenue Canal.

The stormwater management system is further broken down into seven sub-basins. These sub-basins are delineated on **Exhibit C**. The "core" sub-basin is essentially the pass through for the EPB-11 and EPB-11 North Canals and the collector for all runoff to be discharged to the City's Canal.

## 2.2 Off-site lands

The off-site lands that drain through Unit No. 15 consist of approximately 2,815 acres from Unit of Development No. 4 and 35 acres from the commercial development between Palm Beach Lakes Boulevard and the southeast boundary of the Unit.

### **Section 3. Northern Facilities**

Lands within Unit No. 15 that have been granted to Northern in fee simple are shown on **Exhibits 15(1)** through **15(4)**. Easements, also shown on the Exhibit, have been provided for other Northern facilities. Facilities in this Unit owned and maintained by Northern are also shown on the Exhibits.

Two of the control structures (W-5 and W-7) within Unit No. 15 also serve as control for the surface water management system in Unit of Development No. 4. These structures include emergency gates that may be operated prior to a significant storm event to lower water levels thus creating additional storage. The control structure (W-1) serving the north portion of the Unit, also includes an emergency gate that may be used to lower stages before a storm. The gates may also be opened after a storm event to reduce stages in the Unit more quickly than the static structures would allow. These improvements and their operation schedule have been approved under SFWMD surface water management permit Nos. 50-00789-S and 50-00804-S.

Northern's responsibilities in the Unit include operation, inspection, and maintenance of the facilities. Maintenance includes a biological, chemical, mechanical, and aquatic weed control program for the lakes.

The service/demand area for the Unit is approximately 4,115 acres.

Unit No. 15 lies entirely within SFWMD's C-17 Drainage Basin, which has an allowable discharge rate restriction of 62.7 csm (cubic feet per second per square mile) for the 25-year/3-day storm event.

The SFWMD permit (#50-00025-S) for the water management system in Unit No. 15 specifies the minimum building pad elevation and minimum road crown elevation for the developed area as 17.0' NGVD and 14.5' NGVD, respectively. These elevations were set based on drainage calculations submitted for peak stages for the 100-year/3-day storm event (building pad) and the 10-year/1-day storm event (road crown). Design stages and discharges are presented in Table No. 15.



TABLE NO. 15: DESIGN INFORMATION							
BASIN NO.	PLAT 1	PLAT 2 SOUTH SECTION	NORTH SECTION	P-1	O-1	H-1	CORE
10-Yr/1-Day Peak Stage (ft., NGVD)	14.9	13.1	14.4	14.1	14.1	14.9	12.1
25-yr/3-Day Peak Discharge (cfs)	79	110	76	2	6	15	52
100-Yr/3-Day Peak Stage (ft., NGVD)	16.9	15.0	15.9	16.1	16.5	-	-

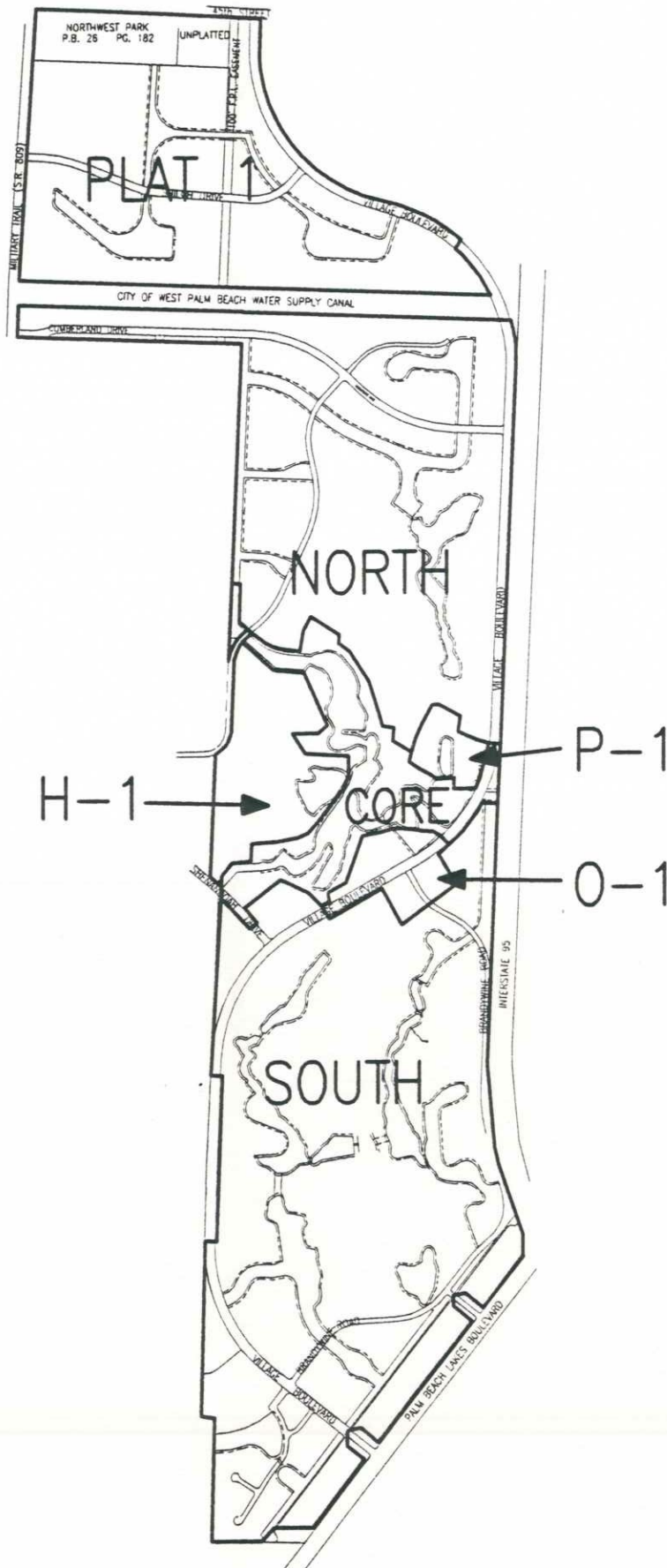
**Section 4. Five – Year Improvement Plan**

There are no improvements anticipated within this Unit by Northern during the next five years.

**Section 5. Ten – Year Replacement Plan**

1. The replacement of Control Structures W3 and W4 and associated culvert rehabilitation.

Periodic inspections of the facilities will be conducted to determine the need of future replacements and improvements. No plans for any other replacements exist at this time.



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5720 Corporate Way, West Palm Beach, Florida 33407  
(561) 683-3113, fax 478-7248

Drainage Basin Map  
Northern Palm Beach County Improvement District  
Unit of Development No. 15

Not to Scale  
DATE: 3/2002  
EXHIBIT C

NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
REPORT

**UNIT OF DEVELOPMENT NO. 16**

**Section 1. Lands in Unit**

Northern Palm Beach County Improvement District (Northern) Unit of Development No. 16 encompasses 1,248 acres, more or less, and is located in an unincorporated area of Palm Beach County. **Exhibits A and B** show the general location of Unit No. 16 in relation to Northern's boundaries and the northern region of Palm Beach County. The Unit is located on the north side of Beeline Highway (S.R. 710) and on the east side of S.R. 711 in Sections 17, 18, and 19, Township 41 South, Range 41 East. Lands within Unit No. 16 are currently being developed as a Planned Industrial Park Development known as Palm Beach Park of Commerce. Unit No.16 is located northwesterly of Unit No. 10. At this time construction of the Unit's stormwater management system is complete and the majority of roadway improvements contemplated in the Plan of Improvement and subsequent Amendments is nearly complete. Unit 16A was formed as a funding mechanism for Water and Sewer Improvements within Unit 16 and is currently inactive.

**Section 2. Water Management System**

2.1 General

Stormwater runoff from lands within the Unit is directed by sheet flow, stormwater pipes, and swales to the canal/lake network, natural preserve areas, and created wetland area. The surface water management system has been designed to provide the necessary stormwater detention for the anticipated development and to pass through off-site stormwater flows. The excess discharge is directed into the South Florida Water Management District (SFWMD) C-18 Canal through the Unit No. 10 Caloosa canal system.

The Unit No. 16 surface water management system is divided into two major drainage basins. Basin 1 includes the natural and created wetlands which discharge excess runoff into the main drainage collection system via rip-rap overflow water control structures (W-2 and W-4). The main stormwater collection system (Basin 2) includes the perimeter of the lake/canal areas and tributary canals which convey runoff from Unit No. 16 and off-site lands. This system discharges into Unit No. 10 via water control structure (W-1).

Off-site drainage to Unit No. 16 is controlled at the western property boundary by an overflow weir structure (W-3) which was replaced in 2018. Fixed weir control structures W-005 and W-006 were constructed within the north property Canals. A culvert (C-13) exists at the northwest corner of the project and also allows off-site discharge through the project.

## 2.2 Off-site lands

The off-site lands that drain through Unit No. 16 consist of approximately 5,758 acres located westerly and northerly of the Palm Beach Park of Commerce. These undeveloped lands are located in Section 1 through Section 4 and Sections 11 through 13, Township 41 South, Range 40 East and in Sections 5 through 9, Township 41 South, Range 41 East.

### **Section 3. Northern Facilities**

Lands within Unit No. 16 that have been granted to Northern in fee simple are shown on **Exhibits 16(1)** through **16(3)**. Easements, also shown on the Exhibits, have been provided for other Northern facilities. Facilities in this Unit owned and maintained by Northern are shown on the Exhibits.

Northern's responsibilities in the Unit include operation, inspection, and maintenance of the facilities. Maintenance also includes a chemical aquatic weed control program for the lakes and canals, an exotic plant control program for the preserve wetlands, a marsh maintenance program for the wetland/littoral zones, and wetland monitoring.

The service/demand area for the Unit is approximately 7,006 acres.

Unit No. 16 lies entirely within SFWMD's C-18 Drainage Basin, which has an allowable discharge rate restriction of 41.6 csm (cubic feet per second per square mile) for the 25-year/3-day storm event.

The SFWMD permit for Palm Beach Park of Commerce (#50-01161-S) specifies the minimum building pad elevation and minimum road crown elevation for the developed area as 24.0' NGVD and 22.5' NGVD, respectively. These elevations were set based on drainage calculations submitted for peak stages for the 100-year/3-day storm event (building pad) and the 25-year/3-day storm event (road crown). Roadways adjacent to the wetlands must be two feet above the wetland control elevation. Design stages and discharges for the Unit are presented in Table No. 16.

TABLE NO. 16: DESIGN INFORMATION	
25-Yr/3-day Peak Stage	22.0' NGVD
25-Yr/3-day Peak Discharge	427 CFS
100-Yr/3-day Peak Stage	23.2' NGVD

Presently, there are four (4) surface water quality sampling stations in Unit No. 16. The locations of these stations are shown on **Exhibits 16(1)** through **16(3)**. All records are maintained at Northern's office. The parameters are as follows:

Annual Parameters – Surface Water (4 samples per year):

Alkalinity (Phenyl and Total)  
 Ammonia (unionized)  
 Calcium  
 Chloride  
 Copper  
 Coliform Bacteria (Fecal and Total)  
 Hardness  
 Oxygen, Biochemical Demand-5  
 Nitrate  
 Nitrite  
 Phosphate (Ortho and Total)  
 pH (laboratory or field)  
 Sodium  
 Specific Conductivity  
 Total Kjeldahl Nitrogen  
 Total Suspended Solids  
 Turbidity (NTU)  
 Pesticide Scan  
 Herbicide Scan  
 Arsenic  
 Barium  
 Cadmium  
 Chromium  
 Iron  
 Lead  
 Mercury  
 Magnesium  
 Manganese  
 Nickel  
 Potassium  
 Silica  
 Silver  
 Selenium  
 Zinc

**Section 4. Five – Year Improvement Plan**

There are no improvements anticipated within this Unit by Northern during the next five years.

**Section 5. Ten – Year Replacement Plan**

1. Maintenance and overlay of Northern owned roadways.

Periodic inspections of the facilities will be conducted to determine the need of future replacements and improvements. No plans for any other replacements exist at this time.

NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
REPORT

**UNIT OF DEVELOPMENT NO. 18**

**Section 1. Lands in Unit**

Northern Palm Beach County Improvement District (Northern) Unit of Development No. 18 encompasses 1,957 acres, more or less, and is located in Sections 13, 24, 25, and 36, Township 42 South, Range 41 East in the City of West Palm Beach. The **Exhibits A and B** show the general location of Unit No. 18 in relation to Northern's boundaries and the northern region of Palm Beach County. Unit No. 18 is essentially bound on the north by Northlake Boulevard, on the south by the M Canal, and on the east by the City of West Palm Beach Water Catchment Area. Lands within Unit No. 18 are being developed as a Planned Unit of Development known as Ibis Golf and Country Club.

**Section 2. Water Management System**

2.1 General

The Unit is divided into two main basins. The north basin is comprised of approximately 1,602 acres of land developed or being developed for residential and golf course use. The south basin is approximately 355 acres of preserve area. Stormwater runoff from the north basin is routed to an on-site interconnected lake system via sheet flow, swales, and stormwater pipe collection systems. The northern most parcels of the north basin are controlled at elevation 16.5' NGVD by an intermediate pump station. The lower parcels of the north basin are controlled at 17.0' NGVD by two pump stations that discharge to the preserve area. A 29.5-foot-wide weir at crest elevation 18.5 feet National Geodetic Vertical Datum (NGVD) controls the discharge from the preserve area to the City of West Palm Beach Water Catchment Area.

2.2 Pump Stations

The two main pump stations (PS-1 and PS-2) each consist of three 22,500 gpm (gallon per minute) 24-inch diameter submersible electrical axial flow pumps. Two pumps in each station are operated on a routine basis while the third pump is used for emergency situations. A stand-by generator will provide emergency power to each facility, in the event of an electrical power outage. The generator is powered by diesel fuel from a 1,000 gallon above ground concrete-encased fuel storage tank. Operation of each pump station is activated

during emergency situations by a float control system. Pumping stops when the elevation of the water in the lakes returns to the control elevation.

The intermediate pump station (PS-3) consists of one 35,000 gpm submersible electrical axial flow vertical lift pump. The station included a 48-inch combination sluice/flap gate designed to allow only downstream flow. The sluice gate provides the ability to reverse flow if necessary. Pumping stops when the upstream lakes return to elevation 16.5' NGVD. A generator has been constructed to provide power to this pump station when electrical service is not available. This generator is a 150 KW above ground generator with a 300-gallon diesel fuel tank.

All three of the pump stations are monitored by telemetry stations that act as the primary control.

### 2.3 Preserve Area

A total of 355 acres of wetlands, located in the southern portion of the Unit have been preserved. The preserve area is enclosed by a large earthen berm with a height of 22.8' NGVD. In addition, a security fence has been constructed adjacent to the upland toe of the berm along the southern and eastern boundaries of the project. The City of West Palm Beach maintains these 355 acres of wetlands.

Within the developed area of Unit No. 18, approximately 48 acres of wet prairie and marsh habitat have been created along the shorelines of the lakes.

### **Section 3. Northern Facilities**

Lands within Unit No. 18 that have been granted to Northern in fee simple are shown on **Exhibits 18(1)** through **18(3)**. Easements, also shown on the Exhibits have been provided for other Northern facilities. Facilities in this Unit owned and maintained by Northern are shown on the Exhibit.

Northern's responsibilities in the Unit include operation, inspection, and maintenance of the facilities. Maintenance includes a chemical aquatic weed control program and control of undesirable exotic plants in the marshes and lakes.

The service/demand area for the Unit is approximately 1,957 acres.



Unit No. 18 lies entirely within the South Florida Water Management District's (SFWMD's) C-51 Drainage Basin, which has an allowable discharge rate restriction of 27 csm (cubic feet per second per square mile) for the 25-year/3-day storm event.

The SFWMD permit for Ibis Golf and Country Club surface water management system specifies the minimum building pad elevation and minimum road crown elevation for the developed area as 21.60' NGVD and 19.2' NGVD, respectively. These elevations were set based on drainage calculations submitted for peak stages for the 100-year/3-day storm event (building pad) and the 10-year/1-day storm event (road crown). Design stages and discharges for the Unit are presented in Table No. 18.

TABLE NO 18: DESIGN INFORMATION		
BASIN NO.	1	2
10-Yr/1-Day Peak Stage	19.2' NGVD	20.0' NGVD
25-Yr/3-Day Peak Stage	20.5' NGVD	20.4' NGVD
25-Yr/3-Day Peak Discharge	29 CFS	29 CFS
100-Yr/3-Day Peak Stage	21.4' NGVD	20.6' NGVD

Presently, there are twelve (12) surface water quality sampling stations within Unit No. 18. The lake locations are shown on **Exhibits 18(1)** through **18(3)**. All records are maintained at Northern's office. The parameters are as follows:

Monthly Parameters– Surface Water (144 samples per year):

Lakes: Ibis Preserve, M-Canal, 2, 21, 22A, 22N, 22S, 27, 27A, 30S, 30N, 33

Alkalinity (Phenyl and Total)

Copper

pH (laboratory or field)

Nitrate

Nitrite

pH (laboratory or field)

Phosphate (Ortho and Total)

Nitrogen (Total)

Total Kjeldahl Nitrogen

Turbidity (NTU)

Quarterly Parameters– Six (6) Stations Surface Water (24 samples per year):  
Lakes: 2, 21, 22, 27, 30 & 33

Dissolved Oxygen

Quarterly Parameters– Two (2) Surface Water (8 samples per year):  
Lakes: 27A, 30S

Chlorophyll a  
Total Suspended Solids  
Turbidity (NTU)  
Ammonia

**Section 4. Five – Year Improvement Plan**

Alum Application Treatment Project

**Section 5. Ten – Year Replacement Plan**

Periodic inspection of facilities will be conducted to determine the need for future replacements. No replacements are planned at this time.

NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
REPORT

**UNIT OF DEVELOPMENT NO. 19**

**Section 1. Lands in Unit**

Northern Palm Beach County Improvement District (Northern) Unit of Development No. 19 encompasses 458 acres, more or less, and is located in the City of Palm Beach Gardens. **Exhibits A and B** show the general location of Unit No. 19 in relation to Northern's boundaries and the northern region of Palm Beach County. The northern boundary is Atlantic Road (Cabana Colony), the western boundary is Alternate A1A, the southern boundary is PGA Boulevard, and the eastern boundary is Prosperity Farms Road. Unit lands are located in Sections 5 and 6, Township 42 South, Range 43 East with the drainage outfall located in Section 32, Township 41 South, Range 43 East. Lands within Unit No. 19 are developed as a Planned Unit Development (PUD) known as The Regional Center providing a mix of land use categories including commercial, office park, retail, and residential. The Palm Beach Gardens Mall is located within the above Unit.

**Section 2. Water Management System**

2.1 General

Stormwater runoff from lands within the Unit is routed to the on-site lakes via sheet flow, swales, and stormwater pipe collection systems. The project was permitted under SFWMD Permit No. 50-01480-S and the site is divided into four drainage basins as shown on **Exhibit C**. Basin 1 consists of 192 acres, Basin 2 of 56 acres, Basin 3 of 185.3 acres, and Basin 4 of 40 acres. Basin 3 accepts off-site drainage from a large area south of PGA Boulevard. Basin 4 accepts off-site drainage from the Meadows Mobile Home Park.

The control structure for Basin 1 consists of a concrete inlet with a weir plate. Basin 1 discharges to Basin 2 via reinforced concrete pipe. The Basin 2 control structure was replaced in 2016 and consists of a concrete structure with an integral weir wall and triangular bleeder. This Basin discharges to Basin 3 through a corrugated metal pipe. The Basin 3 control structure has a v- notch bleeder and a weir that discharge through a channel to the Cabana Colony Canal. Basin 4 also discharges to the Cabana Colony Canal but does so via a weir with a bleeder control structure and a culvert. The Cabana Colony Canal discharges to the Lake Worth Lagoon (Intracoastal Waterway). The control structures for Basins 3 and 4 also each include an operable gate for use in lowering water surface

elevations prior to a significant storm event. The gates may also be used after a storm event to draw down water surface elevations more quickly than would otherwise occur. These structures and their operation have been approved by the South Florida Water Management District (SFWMD). These facilities are all shown on **Exhibit 19**.

## 2.2 Offsite Lands

The off-site lands that drain through Unit No. 19 include approximately 244 acres lying south of PGA Boulevard, north of RCA Boulevard, and between Alternate A1A and Prosperity Farms Road. The runoff from this area discharges through the Royal American Industries Canal to Basin 3 via a culvert under PGA Boulevard. Off-site drainage is also accepted from approximately 19 acres of land known as the Meadows Mobile Home Park (Phase I and II). This area is located on the northwest corner of PGA Boulevard and Prosperity Farms Road. The drainage from this area also connects to the Prosperity Farms Road drainage system. A control structure has been constructed within the mobile home park to direct drainage to Basin 4.

## **Section 3. Northern Facilities**

Lands within Unit No. 19 that were granted to Northern in fee simple are shown on Exhibit 19. Easements, also shown on the Exhibit, have been provided for other Northern facilities. Northern's responsibilities in the unit include operation, inspection, and maintenance of the facilities, as well as chemical aquatic weed control in the lakes and canals, an exotic plant control program for the created wetlands, and a multi-faceted maintenance program for the upland areas. Facilities in this Unit owned and maintained by Northern are shown on **Exhibit 19**.

The service area/demand area for this system is approximately 721 acres. Unit No. 19 lies entirely within the SFWMD's Intracoastal Drainage Basin. The allowable discharge rate from developed land within this Basin is restricted to the rate determined for the land in the pre-developed condition.

The SFWMD permit for the Regional Center, permit number 50-01480-S, specifies the minimum building pad elevation and minimum road crown elevation for various basins within the development. These elevations were set based on drainage calculations submitted for peak stages for the 100-year/3-day storm event (building pad) and the 10-year/1-day storm event (road crown). Design stages and the permit minimum elevations for the basins within the Unit are presented in Table No. 19.

TABLE NO. 19: DESIGN INFORMATION				
BASIN NO.	1	2	3	4
Minimum Finished Floor	15.0' NGVD	14.3' NGVD	11.0' NGVD	8.5' NGVD
Minimum Road Crown	13.5' NGVD	12.0' NGVD	8.5' NGVD	6.5' NGVD
10-Yr/1-Day Peak Stage	13.1' NGVD	10.9' NGVD	8.2' NGVD	6.56' NGVD
25-Yr/3-Day Peak Stage	15.5' NGVD	12.9' NGVD	9.75' NGVD	7.94' NGVD
25-Yr/3-Day Peak Discharge	20.8 CFS	29.2 CFS	106 CFS	6.2 CFS
100-Yr/3-Day Peak Stage	16.1' NGVD	13.5' NGVD	10.5' NGVD	8.45' NGVD

There are four (4) surface water quality monitoring stations. Their locations are shown on **Exhibit 19**. Water quality testing occurs quarterly and annually for the four (4) surface water points only. All records are maintained at Northern's office. The parameters are as follows:

Quarterly Parameters - Surface Water (16 samples per year):

Alkalinity (Phenyl and Total)  
 Ammonia, (unionized)  
 Ammonia-N  
 Cadmium  
 Calcium  
 Chloride  
 Coliform Bacteria (Fecal and Total)  
 Chlorophyll a  
 Residual Chlorine (field)  
 Conductivity, specific  
 Copper  
 Hardness  
 Lead  
 Magnesium  
 Nitrate  
 Nitrite  
 Phosphate (Ortho and Total)  
 Oxygen, Biochemical Demand  
 pH (laboratory of field)  
 Sodium  
 Total Dissolved Solids  
 Total Suspended Solids  
 Total Kjeldahl Nitrogen  
 Total Organic Carbon  
 Turbidity (NTU)  
 Zinc

Annual Parameters: (4 samples per year):

Herbicide Scan

Pesticide Scan

**Section 4. Five – Year Improvement Plan**

There are no Northern improvements within the Unit anticipated to be completed within the next five years.

**Section 5. Ten – Year Replacement Plan**

Periodic inspections of these facilities will be conducted to determine the need for future replacements and improvements. None are planned at this time.

Prosperity Farms Road

Basin 4

Off-site Basin

Basin 3



Basin 2

Off-site Basin

Basin 1

Alternate A1A

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Drainage Basin Map  
Northern Palm Beach County Improvement District  
Unit of Development No. 19

Not to Scale  
DATE: 3/2002  
EXHIBIT C

NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
REPORT

**UNIT OF DEVELOPMENT NO. 19A**

**Section 1. Lands in Unit**

Northern Palm Beach County Improvement District (Northern) Unit of Development No. 19A encompasses 357.82 acres, more or less, and is located in the City of Palm Beach Gardens. **Exhibits A** and **B** show the general location of Unit No. 19A in relation to Northern's boundaries and the northern region of Palm Beach County. The northern boundary is Atlantic Road (Cabana Colony), the western boundary is Alternate A1A, the southern boundary is PGA Boulevard, and the eastern boundary is Prosperity Farms Road. The Unit is located in Sections 5 and 6, Township 42 South, Range 43 East with the drainage outfall located in Section 32, Township 41 South, Range 43 East. Lands within Unit No. 19A are developed as a Planned Unit Development (PUD), known as The Regional Center Irrigation, providing a mix of land use categories including commercial, office park, retail, and residential. The Palm Beach Gardens Mall is not located in the 19A Unit of Development.

**Section 2. Irrigation System**

Unit No. 19A was formed to provide an Irrigation System, serving the irrigation needs of the residential, commercial, and retail parcels of land within the Unit as well as the landscaped medians in the right-of-ways, common areas, and lake banks. The irrigation system was designed to increase irrigation capacity and adequately serve the irrigation needs of all parcels of land within the Unit.

The Unit No. 19A master irrigation system has three (3) main components. The first component consists of two (2) pump stations that pull water directly out of the lake system and deliver it to the irrigation distribution system. The second component is the recharge pump that pumps water from Basin No. 1 located on the eastern portion of the Unit to the lakes located on the western portion of the Unit. Basin No. 1 that is controlled at a lower level (4.5' NGVD) supplies irrigation water to the western basin that is controlled at 8.5' NGVD. During the dry season the control elevation cannot be maintained and Unit No. 19 experiences extremely low lake levels for a significant length of time. The third component of the system is the distribution system, consisting of pipes, valves, controls, and an operating system with remote telemetry.



**Section 3. Northern Facilities**

Lands within Unit No. 19A that were granted to Northern in fee simple are shown on **Exhibit 19**. Easements, also shown on the Exhibit, have been provided for other Northern facilities. Northern's responsibilities in the unit include operation, inspection, and maintenance of the facilities. Facilities in this Unit owned and maintained by Northern are shown on **Exhibit 19**.

The service area/demand area for this system is approximately 357 acres.

**Section 4. Five – Year Improvement Plan**

There are no improvements anticipated within this Unit by Northern during the next five years.

**Section 5. Ten – Year Replacement Plan**

1. Master Irrigation System Upgrade

Periodic inspection of the facilities will be conducted to determine the need for future replacements. No other replacements are planned at this time.

NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
REPORT

**UNIT OF DEVELOPMENT NO. 20**

**Section 1. Lands in Unit**

Northern Palm Beach County Improvement District (Northern) Unit of Development No. 20 encompasses 146 acres, more or less, and is located in an unincorporated area of Palm Beach County. **Exhibits A** and **B** show the general location of Unit No. 20 in relation to Northern's boundaries and the northern region of Palm Beach County. The Unit is located between the Intracoastal Waterway and US Highway 1, approximately one mile north of PGA Boulevard within portions of Section 32 and 33, Township 41 South, Range 43 East. Lands within Unit No. 20 are primarily residential and have been developed into a single-family development known as Juno Isles.

**Section 2. Water Management System**

2.1 General

The Unit is divided into two drainage basins, separated by Ellison Wilson Road. Stormwater runoff from the east basin is directed by swales, inlets, and culverts to 10.9 acres of lakes and canals. Discharge from this basin is directed through a salinity control structure (W-1), under Ellison Wilson Road, into the tidally influenced canal in the west basin. Stormwater runoff from the west basin is directed by swales, inlets, and culverts to the 2-acre, on-site, tidally influenced canal. The canal discharges to the Intracoastal Waterway at the western boundary of the Unit.

2.2 Offsite Lands

Approximately 11.57 acres of offsite property from the north drains through the Juno Isles lake system. The offsite property is limited to a maximum discharge rate of 18 CFS under a 25 year-3-day storm event and utilize exfiltration trenches for water quantity and quality control. The exfiltration trenches are owned by the Town of Juno Beach however, they are maintained by Northern per a high-level maintenance agreement.

**Section 3. Northern Facilities**

Lands within Unit No. 20 that have been granted to Northern in fee simple are shown on **Exhibit 20**. Easements, also shown on the Exhibit, have been provided for other Northern facilities. Facilities in this Unit owned and maintained by Northern are shown on the Exhibit.

Northern’s responsibilities in the Unit include a biological and chemical aquatic weed control program in the fresh water areas, periodic inspection and maintenance of the salinity control structure and dredging of the canal and lake system as necessary. Maintenance of the salinity control structure consists of visual inspection and testing of the cathodic protection system on a yearly basis.

The service/demand area for the Unit is approximately 158 acres.

Unit No. 20 lies entirely within the SFWMD’s Intracoastal Drainage Basin. However, the land was developed in the early 1960s, prior to the SFWMD surface water permit program.

The minimum finished floor elevation is approximately 8.0’ NGVD, which is above the FEMA Flood Insurance Rate Map elevation of 7.0’ NGVD. Minimum road crown elevation is approximately 6.5’ NGVD. Design information for the Unit is presented in Table No. 20.

<b>TABL NO. 20 : DESIGN INFORMATION</b>		
<b>BASIN NO.</b>	<b>EAST</b>	<b>WEST</b>
25-Yr/3-day Peak Stage	5.0’ NGVD	-----
25-Yr/3-day Peak Discharge	320 CFS	-----
100-Yr/3-day Peak Stage	5.4’ NGVD	-----
100-Yr/3-day Peak Discharge	469 CFS	7.0’ NGVD
FEMA Elevation	7.0’ NGVD	7.0’ NGVD

**Section 4. Five – Year Improvement Plan**

There are no improvements anticipated within this Unit by Northern during the next five years.

**Section 5. Ten – Year Replacement Plan**

1. Weir and Wing Wall Replacement (W-1)

Periodic inspection of the facilities will be conducted to determine the need for future replacements. No other replacements are planned at this time.

NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
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**UNIT OF DEVELOPMENT NO. 21**

**Section 1. Lands in Unit**

Northern Palm Beach County Improvement District (Northern) Unit of Development No. 21 encompasses 451.35 acres, more or less, and is located in an unincorporated area of Palm Beach County. **Exhibits A** and **B** show the general location of Unit No. 21 in relation to Northern's boundaries and the northern region of Palm Beach County. The Unit is located on the west side of Jog Road, and north of Hood Road in a portion of Sections 28 and 33, Township 41 South, Range 42 East. The lands within Unit No. 21 have been developed as a Planned Unit Development known as Old Marsh Golf Club.

**Section 2. Water Management System**

2.1 General

The stormwater management system for this Unit is divided into three sub-basins. It includes 225 acres of interconnected marshes and 42 acres of lakes.

The east sub-basin encompasses approximately 168.7 acres. It contains 23.8 acres of wetland marshes and 29 acres of lakes. Runoff from the lands in this sub-basin is directed through a series of culverts to a pump station (PS-1) that discharges to WMT A-2. The pump station controls the water surface elevations in the lakes and marshes of this sub-basin at 16.5' NGVD.

The west sub-basin is approximately 239.3 acres. It includes 100.9 acres of wetland marshes and 13 acres of lakes. The runoff from lands within this sub-basin is directed through a series of culverts to a second pump station (PS-2) that also discharges to WMT A-2. The water surface in this sub-basin is also controlled at 16.5' NGVD.

The south sub-basin contains approximately 43.35 acres. It includes WMT A-2 and the land area to its south. WMT A-2 is a canal with littoral shelves. Runoff from the land in this sub-basin is directed via culverts and inlets to a 0.3-acre dry detention area. The detention area discharges to WMT A-2 via a control structure consisting of a weir at 17.0' NGVD and a bleeder at invert 16.0' NGVD. WMT A-2 also receives approximately 636.8 acres of off-site drainage from the east. This runoff is delivered to the Unit through a 60,000 gpm (gallon

per minute) pump station. WMT A-2 discharges through a fixed concrete weir (W-1) to a canal discharging into Unit No. 43 (Mirasol) and eventually to SFWD's C-18 Canal.

## 2.2 Off-site Lands

The 636.8 acres of off-site lands that drain through this Unit consist of the subdivision known as Eastpointe (Unit of Development 14).

## 2.3 Pump Stations

PS-1: The east pump station consists of a 5,500 gpm 16-inch electric submersible axial flow pump. Emergency power is provided by electrical connection to a stand-by generator site. The generator is powered by diesel fuel from a 25-gallon tank within the generator building and a 1,000-gallon underground storage tank. Operation of the pump station is activated by a float control system when the surface water levels reach an elevation of 17.0' NGVD. Pumping continues until the elevation in the lake returns to 16.5' NGVD.

PS-2: The west pump station consists of a 7,500 gpm 16-inch electric submersible axial flow pump with emergency power. This pump station is connected to the stand-by generator as described above. Operation of the pump is the same as for PS-1.

## **Section 3. Northern Facilities**

Lands within Unit No. 21 that have been granted to Northern in fee simple are shown on **Exhibits 21(1)** through **21(3)**. Easements, also shown on the Exhibit, have been provided for other Northern facilities. Facilities in this Unit owned and maintained by Northern are also shown on the Exhibit.

Northern's responsibilities in the Unit include operation, inspection, and maintenance of the facilities. Maintenance includes chemical and mechanical aquatic weed control in the lakes and canals and an exotic plant control program for the created wetlands and preservation areas.

The service/demand area for the Unit is approximately 1,088 acres.

Unit No. 21 lies entirely within the SFWMD's C-18 Drainage Basin, which has an allowable discharge rate restriction of 41.6 csm (cubic feet per second per square mile) for the 25-year/3-day storm event.

The SFWMD permit for Old Marsh Golf Club (#50-01411-S) specifies the minimum building pad elevation and minimum road crown elevation for the developed area as 20.0' NGVD and 18.5' NGVD, respectively. These elevations were set based on drainage calculations submitted for peak stages for the 100-year/3-day storm event (building pad) and the 10-year/1-day storm event (road crown). Design information for the Unit is presented in Table No. 21.

TABLE NO. 21 : DESIGN INFORMATION			
BASIN NO.	EAST	WEST	SOUTH
10-Yr/1-Day Peak Stage	17.7' NGVD	17.4' NGVD	18.6' NGVD
25-Yr/3-Day Peak Stage	18.2' NGVD	17.8' NGVD	18.9' NGVD
25-Yr/3-Day Peak Discharge	12.2 CFS	16.7 CFS	0.8 CFS
100-Yr/3-Day Peak Stage	19.02' NGVD	18.65' NGVD	19.74' NGVD

There are three (3) surface water quality sampling stations within this Unit. The locations are shown on **Exhibit 21**. All records are maintained at Northern's office. Water quality testing occurs for the following parameters:

Quarterly Parameters – Surface Water (12 samples per year):

- Alkalinity (Phenyl and Total)
- Ammonia (unionized)
- Ammonium -N
- Biological Oxygen Demand–5
- Coliform Bacteria (Fecal and Total)
- Nitrate
- Nitrite
- pH (laboratory or field)
- Phosphate (Ortho and Total)
- Specific Conductance
- Total Kjeldahl Nitrogen
- Total Organic Carbon
- Total Suspended Solids
- Turbidity (NTU)

Annual Parameters (3 samples per year):

Herbicide Scan  
Pesticide Scan  
Barium  
Beryllium  
Cadmium  
Copper  
Cyanide  
Iron  
Lead  
Mercury  
Nickel  
Selenium  
Silver  
Zinc  
Hardness

**Section 4. Five – Year Improvement Plan**

There are no improvements anticipated within this Unit by Northern during the next five years.

**Section 5. Ten – Year Replacement Plan**

1. Pump Station Upgrades

Periodic inspection of the facilities will be conducted to determine the need for future replacements. No other replacements are planned at this time.



NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
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**UNIT OF DEVELOPMENT NO. 23**

**Section 1. Lands in Unit**

Northern Palm Beach County Improvement District (Northern) Unit of Development No. 23 encompasses 341 acres, more or less, and is located in the Town of Jupiter. **Exhibits A and B** show the general location of Unit No. 23 in relation to Northern's boundaries and the northern region of Palm Beach County. The Unit is located on the west side of Limestone Creek Road, north of Church Street, and east of the Loxahatchee River, in a portion of Sections 27, 34, and 35, Township 40 South, Range 42 East, and a portion of Section 3, Township 41 South, Range 42 East. A majority of the lands within Unit No. 23 were developed as a Planned Unit Development known as The Shores providing single family residential dwelling. Additional lands within the Unit include portions of Loxahatchee Garden Farms, a residential area known as Shorewood and Loxahatchee Estates.

**Section 2. Water Management System**

2.1 General

The stormwater management system for this Unit is divided into two sub-basins and includes 96 acres of interconnected lakes.

The north sub-basin (The Shores Plat 6) encompasses approximately 36.5 acres. It is located north of Winding Lake Drive and includes an 8.5 acre lake. Runoff from the lands in this sub-basin is directed through a series of swales, inlets, culverts, and a control structure (W-2) before discharging into Preservation Tract B.

The south sub-basin is approximately 304.5 acres and consists of the balance of the Unit that is not in the north sub-basin. The runoff from the lands in this sub-basin is directed by sheet flow, swales, inlets, and culverts to 87.2 acres of interconnected lakes. The water surface elevation is maintained in the lakes by a control structure (W-1) that consists of a weir with a crest at 6.0' NGVD. Discharge from the control structure is directed to the South Florida Water Management District (SFWMD) C-18 Canal via a spreader swale and sheet flow.

To provide operational flexibility for the south sub-basin, an emergency control structure (ES-1) was constructed and permitted with SFWMD. ES-1 is located near the W-1 structure

and consists of a concrete box containing a wall with a 5.5' x 5.5' opening and a 72-inch sluice gate, which gate is normally closed. In emergency situations, the gate is operated via a telemetry system that includes monitoring the lake levels in the south sub-basin. The operation of this gate is included in an operations pilot project with SFWMD.

Approximately 31 acres of preserved wetlands are incorporated into the water management system. Individual control structures are utilized to maintain water elevations and allow for overflow into the lake system. Around the perimeter of seven lakes, 12.6 acres of littoral zones are maintained. In addition, 11 acres of existing slough are preserved.

## 2.2 Off-site Lands

The off-site lands that drain through the south sub-basin consist of approximately 103 acres adjacent to the western and northern boundary, 19 acres from Limestone Creek Elementary School and 2.8 acres of the south sub-basin of Shorewood. The remaining 91 acres of Shorewood do not drain through this Unit and will be drained to the south directly to the C-18 Canal.

The off-site lands that drain through the north sub-basin consists of 101.3 acres (Unit No. 29-Norfolk), 37.3 acres (Unit No. 33-Cypress Cove), 6.5 acres (northern section of Shorewood), 14.7 acres (Unit No. 41-Mystic Cove), and approximately 148 acres (undeveloped area located northwest of Longshore Drive).

## **Section 3. Northern Facilities**

Lands within Unit No. 23 that have been granted to Northern in fee simple are shown on **Exhibit 23(1)** through **23(3)**. Easements, also shown on the Exhibits, have been provided for other Northern facilities. Facilities in this Unit owned and maintained by Northern are also shown on the Exhibits.

Northern's responsibilities in the Unit include operation, inspection, and maintenance of the facilities. Maintenance includes a chemical aquatic weed control in the lakes, an exotic plant control program in the created wetlands and preservation areas, right-of-way mowing along the perimeter of the Unit, and maintenance of the spreader swale outfall to the C-18 Canal.

The service/demand area for the Unit is approximately 820 acres.

Unit No. 23 lies entirely within the SFWMD's C-18 Drainage Basin, which has an allowable discharge rate restriction of 41.6 csm (cubic feet per second per square mile) for the 25-year/3-day storm event.

The SFWMD permits for the Unit (#50-01436-S and #50-01716-S) specify the minimum building pad elevation and minimum road crown elevation for the developed area. The elevations are presented in Table 23. These elevations were set based on drainage calculations submitted for peak stages for the 100-year/3-day storm event (building pad) and the 10-year/1-day storm event (road crown). Design information for the Unit is also presented in Table No. 23.

<b>TABLE . 23: DESIGN INFORMATION</b>		
<b>BASIN NO.</b>	<b>NORTH</b>	<b>SOUTH</b>
Minimum Floor	10.5' NGVD	10.0' NGVD
Minimum Road	9.0' NGVD	8.5' NGVD
10-Yr/1-Day Peak Stage	8.6' NGVD	7.5' NGVD
25-Yr/3-Day Peak Stage	9.5' NGVD	8.5' NGVD
25-Yr/3-Day Peak Discharge	14 CFS	42 CFS
100-Yr/3-Day Peak Stage	10.4' NGVD	9.7' NGVD

There is One (1) surface water quality sampling station within this Unit. The location is shown on **Exhibit 23(1)**. All records are maintained at Northern's office. Water quality testing occurs for the following parameters:

Monthly Parameters – Surface Water (12 samples per year): E-Coli

**Section 4. Five – Year Improvement Plan**

At this time there are no scheduled improvements for this Unit during the next five years.

**Section 5. Ten – Year Replacement Plan**

Periodic inspection of the facilities will be conducted to determine the need for future replacements. No replacements are planned at this time.

NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
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**UNIT OF DEVELOPMENT NO. 24**

**Section 1. Lands in Unit**

Northern Palm Beach County Improvement District (Northern) Unit of Development No. 24 encompasses 353.5 acres, more or less, and is located in Sections 22 and 27, Township 42 South, Range 42 East, in the City of West Palm Beach. The **Exhibits A and B** show the general location of Unit No. 24 in relation to Northern's Boundaries and the northern region of Palm Beach County. To the north of Unit No. 24 is the Seaboard Coastline Railroad and Beeline Highway; the western boundary is the City of West Palm Beach Water Catchment Area, and the eastern boundary is approximately 2,000 feet west of the Florida Turnpike. Lands within Unit No. 24 have been developed as a Planned Unit of Development, known as Ironhorse, a single-family residential and golf course community.

**Section 2. Water Management System**

2.1 General

The stormwater management system for this Unit is divided into two sub-basins: a developed area that includes 6.52 acres of wetland marshes and 4.07 acres of wetland fringe around the lakes and a 53.5 acre preserve area.

The developed area encompasses approximately 300 acres. Runoff from these lands is directed via sheet flow, swales, and a stormwater pipe collection system to a series of interconnected lakes. The lakes discharge to a canal/ditch along Beeline Highway via a bleeder and/or a pump station (PS-1) to a canal/ditch along Beeline Highway that flows into the Florida Turnpike Canal that then is directed into the Winding Waters Natural Area in Northern's Unit No. 7. The final receiving water is the South Florida Water Management District (SFWMD) C-17 Canal. Between lake elevations 15.0' NGVD and 15.4' NGVD, the lakes are controlled by the bleeder device. If lake elevations reach 15.4', the pump is activated, and a gate closes the bleeder slot opening. These operations are automated and can be monitored remotely by a telemetry system.

An earthen berm, constructed with a synthetic plastic liner to minimize seepage, separates the preserve area from the developed area. Three shallow ponds within the preserve area are planted with wetland plants. The preserve area connects to the developed area via two (2) control structures (W-2 and W-3) that allow runoff from the preserve area into the lakes of the developed area. The weir in each of the control structures has a crest elevation at 17.5' NGVD. Each of these structures has a 2' x 2' sluice gate that is operated according to the SFWMD Memorandum of Understanding (MOU). The western boundary of the preserve area abuts the City of West Palm Beach Water Catchment Area; however, they are separated by an earthen dike.

In 2012 the City of West Palm Beach constructed two pump stations within the Ironhorse Preserve to direct excess runoff from the Ironhorse lake system into the West Palm Beach Water Catchment Area. The South Pump Station replaced Control Structure W-1 and its Culvert C-1. The South Pump Station pumps water from the developed basin into the preserve basin when elevations in the developed basin reach 15.4 NGVD. The West Pump Station pumps water from the preserve basin into the West Palm Beach Water Catchment Area when elevations reach 17.7 NGVD. These pumps are owned and maintained by the City of West Palm Beach. The construction and operation of the Ironhorse Water Supply Pump Stations was permitted under SFWMD Application No. 071218-8.

## 2.2 Stormwater Pump Stations

The pump station consists of two 13,000 gpm (gallon per minute), 24-inch electric submersible axial flow pumps. Only one pump operates at a time; the second serves as a back-up. A stand-by generator provides emergency power to the facility in the event of an electrical power outage. The generator is powered by diesel fuel from an on-site above ground 2,000-gallon fuel storage tank. Operation of the pump station is activated by a float control system when the water level within the pump station reaches an elevation of 15.4' NGVD. Pumping stops when the elevation of the water in the lake systems returns to the control elevation of 15.0' NGVD. Operation of both pumps during emergency storm events is under the Operations Pilot Project of SFWMD.

**Section 3. Northern Facilities**

Lands within Unit No. 24 that have been granted to Northern in fee simple are shown on **Exhibits 24(1)** and **24(2)**. Easements, also shown on the Exhibit, have been provided for other Northern facilities. Facilities in this Unit owned and maintained by Northern are also shown on the Exhibits. Northern’s responsibilities in the Unit include operation, inspection, and maintenance of the facilities. Maintenance includes chemical and mechanical aquatic weed control in the lakes and canals, an exotic plant control program for the created wetlands and preservation areas, and the monitoring of the applesnail and Everglades kite population on the property.

The service/demand area for the Unit is approximately 353.5 acres.

Unit No. 24 lies entirely within the SFWMD’s C-17 Drainage Basin, which has an allowable discharge rate restriction of 62.7 csm (cubic feet per second per square mile) for the 25-year/3-day storm event.

The SFWMD permit for Unit No. 24 (Ironhorse) (#50-01347-S) specifies the minimum building pad elevation and minimum road crown elevation for the developed area as 18.9’ NGVD and 17.3’ NGVD, respectively. These elevations were set based on drainage calculations submitted for peak stages for the 100-year/3-day storm event (building pad) and the 10-year/1-day storm event (road crown). Design information for the Unit is presented in Table No 24.

<b>TABLE NO. 24: DESIGN INFORMATION</b>	
10-Yr/1-Day Peak Stage	17.3’ NGVD
25-Yr/3-Day Peak Stage	18.1’ NGVD
25-Yr/3-Day Peak Discharge	29 CFS
100-Yr/3-Day Peak Stage	18.9’ NGVD

**Section 4. Five – Year Improvement Plan**

There are no improvements anticipated within this Unit by Northern during the next five years.

**Section 5. Ten – Year Replacement Plan**

Periodic inspection of facilities will be conducted to determine the need for future replacements. No replacements are planned at this time.

NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
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**UNIT OF DEVELOPMENT NO. 27B**

**Section 1. Lands in Unit**

Northern Palm Beach County Improvement District (Northern) Unit of Development No. 27B encompasses 143.1 acres, more or less, and is located in the Town of Jupiter. **Exhibits A and B** shows the general location of Unit No. 27B in relation to Northern's boundaries and the northern region of Palm Beach County. The Unit is located west of Alternate AIA, north of Indian Creek Parkway, and east of Military Trail in Sections 12 and 13, Township 41 South, Range 42 East. The land within the Unit is being developed as a Planned Unit Development (PUD) called Botanica/Sea Plum consisting of single family and multi-family residential and commercial uses.

**Section 2. Water Management System**

2.1 General

Stormwater runoff from lands within Unit No. 27B is routed to preserves, wetlands, and interconnected on-site lakes by sheet flow and through a series of roadway inlets and culverts. The master surface water management system consists of a series of interconnected on-site lakes, lake interconnect culverts, and a control structure. The control structure located at the southeast corner of the site controls the runoff prior to discharging into the Northern Palm Beach County Improvement District's EPB-2 Canal.

2.2 Off-site lands

Off-site lands include the adjacent 16.0 acre Medical Manufacturing Facility located west of this Unit and east of Military Trail.

**Section 3. Northern Facilities**

Lands within Unit No. 27B that have been granted to Northern in fee simple are shown on **Exhibit 27B**. Easements, also shown on **Exhibit 27B**, have been provided for Northern facilities. Northern's responsibilities in the Unit include operation, inspection, and maintenance of the facilities. Northern's facilities within this Unit include the operation and

maintenance of the three (3) lakes, the 72" culverts interconnecting these lakes, the outfall structure, and the 56.47 acres of wetlands and upland preserves.

The service/demand area for Unit No. 27B is approximately 159 acres.

Unit No. 27B drains entirely into Northern Palm Beach County Improvement District's EPB-2 Canal, which has an allowable discharge rate of 16.5 cfs (cubic feet per second) for the 25-year/3-day storm event. The drainage basin for this Unit is the Intracoastal Waterway.

The SFWMD permit for Botanica/Sea Plum Development, permit number 50-01819-S-03, specifies the minimum building pad elevation and minimum road crown elevation for the development. These elevations were set based on drainage calculations submitted for peak stages for the 100-year/3-day storm event and the 10-year/1-day storm event. Design stages and the permit minimum elevations for sub-basins within the Unit are presented in Table No. 27B.

<b>TABLE NO. 27B: DESIGN INFORMATION</b>	
Minimum Finished Floor	10.0' NGVD
Minimum Road Crown	8.0' NGVD
10-Yr/1-Day Peak Stage	7.92' NGVD
25-Yr/3-Day Peak Stage	8.65' NGVD
25-Yr/3-Day Peak Stage Discharge	16.5 CFS
100-Yr/3-Day Peak Stage	9.29' NGVD
Control Elevation	6.0'
Control Structure – 2' w x 3.1' h rectangular bleeder @ Inv. Elevation 6.0.	

**Section 4. Five – Year Improvement Plan**

There are no improvements anticipated by Northern within this Unit in the next five years.

**Section 5. Ten – Year Replacement Plan**

No Northern facilities are anticipated to require replacement within the next ten years.



NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
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**UNIT OF DEVELOPMENT NO. 29**

**Section 1. Lands in Unit**

Northern Palm Beach County Improvement District (Northern) Unit of Development No. 29 encompasses 107.3 acres, more or less, and is located in the Town of Jupiter. **Exhibits A and B** show the general location of Unit No. 29 in relation to Northern's boundaries and the northern region of Palm Beach County. To the north and west of the Unit is Martin County, and the eastern boundary is approximately 2,000 feet west of the Loxahatchee River in Section 27, Township 40 South, Range 42 East. Land within Unit No. 29 is currently developed as a Planned Unit Development known as Northfork. It is a single family residential community.

**Section 2. Water Management System**

2.1 General

Stormwater runoff from land within the Unit is directed via sheet flow and a stormwater pipe collection system to four interconnected on-site lakes. Off-site drainage accepted by the system is directed to the lake system as well. The lakes discharge through a control structure (W-1) to a spreader swale (SS-1) to an on-site preserve area that includes an existing slough. The preserve area is 15.31 acres. Buffering the preserve area from the developed land is 1.17 acres of uplands. The slough discharges east into the Loxahatchee River.

There are 2.4 acres of Northfork Drive road right-of-way located in Unit No. 29 that do not drain through the on-site lake system. 1.7 acres of the southernmost portion of the road drain to Unit of Development No. 23 and 0.7 acres drain directly to the existing slough.

2.2 Off-site lands

Off-site lands that drain through the Unit consist of 46 acres of land in Martin County to the west and five (5) acres of land to the east (see note 1 on **Exhibit 29**).

**Section 3. Northern Facilities**

Lands within Unit No. 29 that have been granted to Northern in fee simple are shown on **Exhibit 29**. Easements, also shown on the Exhibit, have been provided for other Northern facilities. Facilities in this Unit owned and maintained by Northern are also shown on the Exhibit.

Northern’s responsibilities in the Unit include operation, inspection, and maintenance of the facilities. Maintenance also includes chemical weed control in the lakes and preserve, as well as environmental monitoring in the preserve area.

The service /demand area for Unit No. 29 is approximately 158.3 acres.

The SFWMD permit for Northfork (#50-01841-S) specifies the minimum building pad elevation and minimum road crown elevation at 11.6’ NGVD and 10.0’ NGVD, respectively. These elevations were set based on drainage calculations submitted for peak stages for the 100-year/3-day storm event (building pad) and the 10-year/1-day storm event (road crown). Design information for the Unit is presented in Table 29.

<b>TABLE NO. 29: DESIGN INFORMATION</b>	
10-Yr/1-Day Peak Stage	9.9’ NGVD
25-Yr/3-Day Peak Stage	10.6’ NGVD
25-Yr/3-Day Peak Discharge	22 CFS
100-Yr/3-Day Peak Stage	11.3’ NGVD

There is One (1) surface water quality sampling station within this Unit. The location is shown on **Exhibit 29**. All records are maintained at Northern’s office. Water quality testing occurs for the following parameters:

Monthly Parameters – Surface Water (12 samples per year): E-Coli

**Section 4. Five – Year Improvement Plan**

There are no improvements anticipated by Northern within the next five years for this Unit.

**Section 5. Ten – Year Replacement Plan**

Periodic inspections of the facilities will be conducted to determine the need for future replacements. None are planned at this time.

NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
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**UNIT OF DEVELOPMENT NO. 31**

**Section 1. Lands in Unit**

Northern Palm Beach County Improvement District (Northern) Unit of Development No. 31 encompasses 1,320 acres, more or less, and is located in the City of Palm Beach Gardens. **Exhibits A** and **B** show the general location of Unit No. 31 in relation to Northern's boundaries and the northern region of Palm Beach County. The Unit is bounded on the north by PGA Boulevard, on the south by Northlake Boulevard, on the east by Military Trail, and on the west by the Florida Turnpike. Unit No. 31 lands are located in Sections 11, 12, 13, and 14, Township 42 South, Range 42 East. The Unit No. 31 site known as BallenIsles Country Club of JDM is a Planned Unit Development consisting of single and multi-family housing, park areas, and golf courses. Most of the lands within Unit of Development No. 12 are also included in Unit No. 31.

**Section 2. Water Management System**

2.1 General

Stormwater runoff from land within the Unit is routed through swales and stormwater culverts to a system of interconnected lakes. The Unit is divided into 12 drainage basins. **Exhibit C** shows the basin delineations. Basin 1 and Basins 4A through 4C discharge to the Thompson Canal. Positive outfall for the rest of the basins is achieved by controlled discharge to the Merrill Canal. Both of these canals flow to the east where they join together before joining the South Florida Water Management District (SFWMD) C-17 Canal. Several control structures within the stormwater management system maintain varying control elevations among the basins.

2.2 Off-site lands

Unit No. 31 accepts the stormwater drainage from approximately 295 acres of Unit of Development No. 12 to the south, 22.2 acres from Northlake Boulevard to the south, and 48.4 acres from lands to the east.

### Section 3. Northern Facilities

Lands within Unit No. 31 that have been granted to Northern in fee simple are shown on **Exhibits 31(1)** through **31(3)**. Easements, also shown on the **Exhibit 31**, have been provided for other Northern facilities. Northern's responsibilities in the Unit include operation, inspection, and maintenance of the facilities.

The service/demand area for Unit No. 31 is approximately 1,686 acres.

Unit No. 31 lies entirely within SFWMD's C-17 Drainage Basin, which has an allowable discharge rate restriction of 62.7 csm (cubic feet per second per square mile) for the 25-year/3-day storm event.

The SFWMD permit for BallenIsles, permit number 50-01923-S specifies the minimum building pad elevation and minimum road crown elevation for various basins within the development. These elevations were set based on drainage calculations submitted for peak stages for the 100-year/3-day storm event (building pad) and the 10-year/1-day storm event (road crown). Design stages and the permit minimum elevations for sub-basins within the Unit are presented in Table No. 31. The sub-basin delineations are shown on **Exhibit D**.

SUB – BASIN NO.	1	2(2-A)	2(2-B)	2(2-C)	2(2-D)	2(2-E)	2(2-F)	2(2-G)
Minimum Floor (Ft., NGVD)	17.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
Minimum Road (Ft., NGVD)	14.4	15.0	15.0	15.0	15.0	15.0	15.0	15.0
10-Yr/1-Day Peak Stage	14.4	14.9	14.9	14.9	14.9	14.9	14.9	14.9
25-Yr/3-Day Peak Stage	15.6	16.0	16.0	16.0	15.9	14.9	16.0	16.0
25-Yr/3-Day Peak Discharge	6.1	21	6	1	28	7	18	14
100-Yr/3-Day Peak Stage	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0

BASIN NO.	2(2-H)	2(2-I)	3A(9)	3A(10)	3A(11)	3A(15)	3A(16)	3A(12)
Minimum Floor (Ft., NGVD)	18.0	18.0	17.7	17.7	17.7	17.7	17.7	17.0
Minimum Road (Ft., NGVD)	15.0	15.0	15.5	15.5	15.5	15.5	15.5	15.2
10-Yr/1-Day Peak Stage	14.9	14.9	15.9	15.5	15.5	16.2	16.1	15.1
25-Yr/3-Day Peak Stage	15.9	15.9	16.4	16.2	16.2	16.6	16.6	16.0
25-Yr/3-Day Peak Discharge	10	12	9	60	1	58	22	5
100-Yr/3-Day Peak Stage	17.0	17.0	17.6	17.6	17.6	17.6	17.6	16.3

TABLE NO. 31: DESIGN AND PERMIT INFORMATION								
SUB-BASIN NO.	3B(13)	3C(1)	3C(2)	3C(7)	3C(8)	3C(14)	3C(6A)	3D(3)
Minimum Floor (Ft., NGVD)	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0
Minimum Road (Ft., NGVD)	15.2	15.0	15.0	15.0	15.0	15.0	15.0	15.0
10-Yr/1-Day Peak Stage	15.1	14.8	14.8	14.8	14.8	15.2	15.2	14.7
25-Yr/3-Day Peak Stage	16.0	15.8	15.7	15.8	15.9	15.9	16.5	15.5
25-Yr/3-Day Peak Discharge	28	3	48	45	21	11	31	124
100-Yr/3-Day Peak Stage	16.3	16.8	16.8	16.8	16.8	16.8	16.8	16.3

TABLE NO. 31: DESIGN AND PERMIT INFORMATION								
SUB-BASIN NO.	3D(6B)	3E(4)	3E(5)	3F	4A	4B	4C	4D
Minimum Floor (Ft., NGVD)	17.0	17.0	17.0	16.7	18.0	18.6	16.6	16.0
Minimum Road (Ft., NGVD)	15.0	14.5	14.5	14.1	14.0	14.0	14.0	12.96
10-Yr/1-Day Peak Stage	14.8	14.5	14.4	15.1	13.6	13.5	13.8	12.2
25-Yr/3-Day Peak Stage	15.7	15.2	15.0	16.0	15.6	16.9	15.6	13.3
25-Yr/3-Day Peak Discharge	2	126	137	9	5.3	11.5	9	364
100-Yr/3-Day Peak Stage	16.3	16.3	16.3	16.3	17.6	18.6	16.6	15.8

The two (2) surface water quality sampling stations in Unit No. 31 are shown on **Exhibit 31**. All records are maintained at Northern's office. The parameters are as follows:

Quarterly Parameters – Surface Water: (8 Samples per year):

Alkalinity (Phenyl and Total)  
 Ammonium-N  
 Calcium  
 Chloride  
 Coliform Bacteria (Fecal and Total)  
 Copper  
 Conductivity, Specific  
 Hardness  
 Nitrate  
 Nitrite  
 Magnesium  
 Total Kjeldahl Nitrogen  
 pH (laboratory or field)  
 Dissolved Oxygen  
 Phosphate (Ortho and Total)  
 Suspended Solids, Total  
 Turbidity (NTU)  
 Temperature

**Section 4. Five – Year Improvement Plan**

There are no improvements anticipated within this Unit by Northern during the next five years.

**Section 5. Ten – Year Replacement Plan**

1. Roadway Modifications for PGA Entrance Guard house

Periodic inspection of the facilities will be conducted to determine the need for future replacements. No other replacements are planned at this time.

PGA Blvd.



Basin 4A

Basin 4C

Basin 4B

Basin 3F

Basin 3A

Basin 3B

Basin 1

Basin 2

Military Trail

Basin 3C

48.4 acres from the east

Basin 3D

Basin 3E

22 acres from Northlake Blvd.

295 acres from Unit 12

Northlake Blvd.

h:\npbc\npbcun31\un31ex08c.pdf

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ENGINEERS • SURVEYORS • PLANNERS

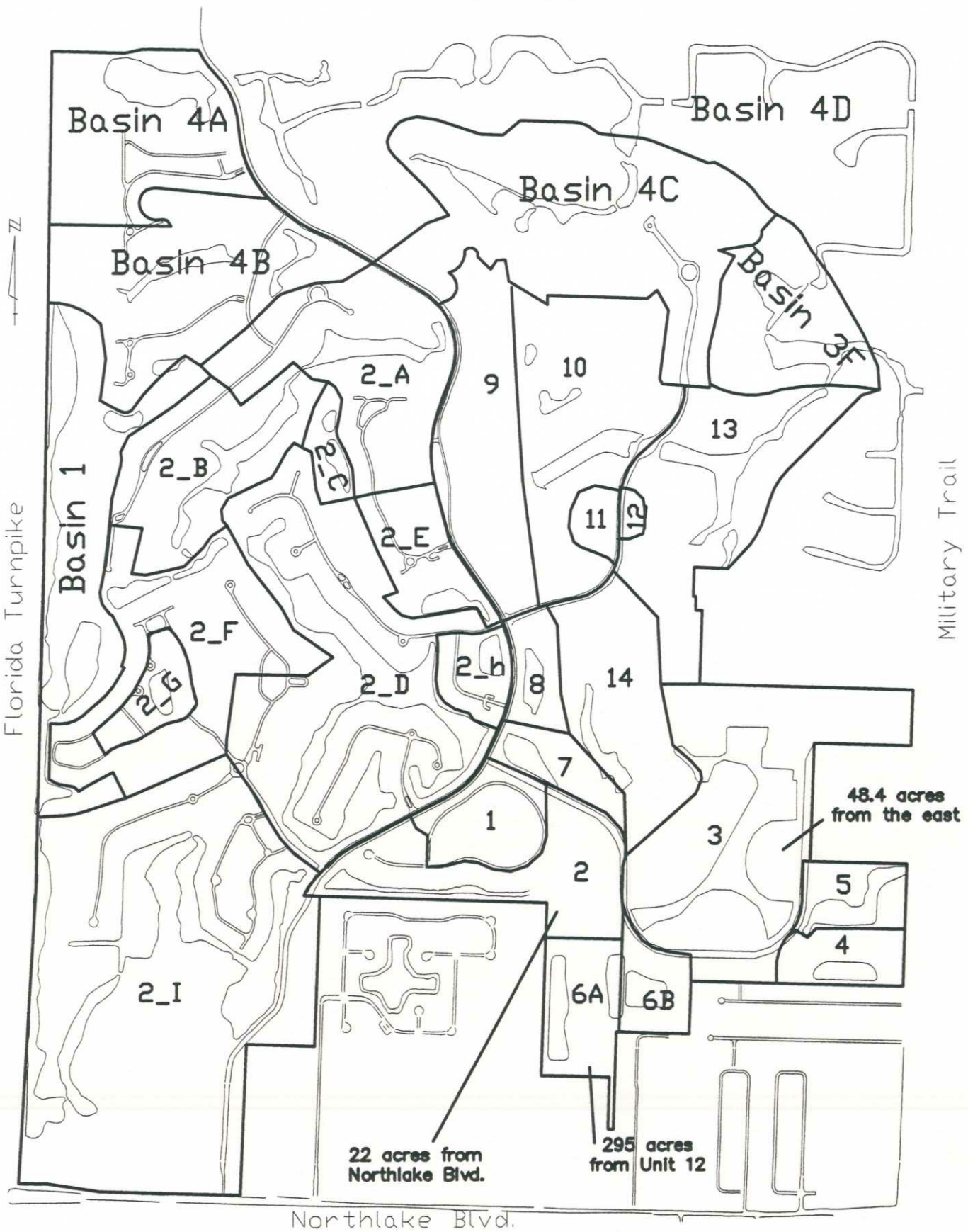
5720 Corporate Way, West Palm Beach, Florida 33407  
(561) 683-3113, fax 478-7248

Drainage Basin Map  
Northern Palm Beach County Improvement District  
Unit of Development No. 31

Not to Scale  
DATE: 3/2002  
EXHIBIT C



PGA Blvd.



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5720 Corporate Way, West Palm Beach, Florida 33407  
(561) 683-3113, fax 478-7248

Drainage Sub-Basin Map  
Northern Palm Beach County Improvement District  
Unit of Development No. 31

Not to Scale  
DATE: 3/2002  
EXHIBIT D



NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
REPORT

**UNIT OF DEVELOPMENT NO. 32**

**Section 1. Lands in Unit**

Northern Palm Beach County Improvement District (Northern) Unit of Development No. 32 encompasses 24.40 acres, more or less, and is located in an unincorporated area of Palm Beach County. **Exhibits A** and **B** show the general location of Unit No. 32 in relation to Northern's boundaries and the northern region of Palm Beach County. The Unit is composed of two single-family residential developments, Palm Cove (19.5 acres) and Loxahatchee Pines (4.9 acres), and the unplatted 4.82 acres of land east of Loxahatchee Pines to Loxahatchee River Road (LOA No. 1). Palm Cove is located on the north side of Roebuck Road approximately 1,200 feet west of Loxahatchee River Road within Section 34, Township 40 South, Range 42 East. Loxahatchee Pines is located on the south side of Roebuck Road approximately 600 feet west of Loxahatchee River Road within Section 35, Township 40 South, Range 42 East.

**Section 2. Water Management System**

2.1 General

Stormwater runoff from lands within the Unit is discharged to a 15-foot wide by 1,750-foot-long drainage ditch that runs from the south side of Roebuck Road to the C-18 Canal at the south fork of the Loxahatchee River. The Palm Cove development discharges through a control structure to the ditch (see Unit No. 32A Facilities Report).

2.2 Off-site Lands

Approximately 110 acres of off-site lands also discharge through the drainage ditch. The off-site lands consist of approximately 60 acres to the west of Palm Cove, 25 acres to the east of Palm Cove, 10 acres to the south of Palm Cove, 15 acres south of Loxahatchee Pines and the Roebuck Road right-of-way adjacent to these Developments.

### **Section 3. Northern Facilities**

Lands within Unit No. 32 that have been granted to Northern in fee simple are shown on **Exhibit 32**. Easements are also shown on the Exhibit. Northern does not own or operate any drainage structures within the Unit. However, the 15-foot wide drainage ditch is owned and maintained by Northern.

Northern's responsibilities in the Unit include a chemical aquatic weed control program and periodic maintenance of the drainage ditch.

The service/demand area for the Unit is approximately 149 acres.

Unit No. 32 lies within SFWMD's Loxahatchee River Drainage Basin, which discharges to the SFWMD C-18 Canal and the SFWMD C-18 Drainage Basin. The C-18 Canal has an allowable discharge rate restriction of 41.6 csm (cubic feet per second per square mile) for the 25-year/3-day storm event.

The SFWMD has exempted Loxahatchee Pines from permit requirements. Palm Cove received SFWMD permit #50-01957-S. The remainder of the Unit does not have a SFWMD surface water management permit. The facilities within the unpermitted, developed lands were constructed to satisfy the requirements of Palm Beach County. It is estimated that the 15-foot wide drainage ditch can convey 31 cfs (cubic feet per second) during the 25-year/3-day design event.

### **Section 4. Five – Year Improvement Plan**

There are no improvements anticipated by Northern within this Unit during the next five years.

### **Section 5. Ten – Year Replacement Plan**

There are currently no structural facilities within this Unit that are the responsibility of Northern.

NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
REPORT

**UNIT OF DEVELOPMENT NO. 32A**

**Section 1. Lands in Unit**

Northern Palm Beach County Improvement District (Northern) Unit of Development No. 32A encompasses 19.5 acres, more or less, and is located in unincorporated Palm Beach County. **Exhibits A and B** show the general location of Unit No. 32A in relation to Northern's boundaries and the northern region of Palm Beach County. The Unit is located on the north side of Roebuck Road approximately 1,200 feet west of Loxahatchee River Road in a portion of Section 34, Township 40 South, Range 42 East. Land within Unit No. 32A is developed as a Planned Unit Development known as Palm Cove. This Unit is within Unit of Development No. 32.

**Section 2. Water Management System**

2.1 General

Stormwater runoff from lands within the Unit is directed by roadway drainage, inlets and culverts to a 1.5 acre on-site lake. In addition, off-site runoff from the east and west is also directed to the on-site lake via drainage culverts (C-1 and C-2) located on the northern boundary for the Unit. Excess runoff from the Unit and off-site areas is directed through a series of outfall culverts and a control structure (W-1). The discharge is routed south through two 60-foot long, 19-inch by 30-inch, elliptical reinforced concrete pipe (ERCP) culverts located under Roebuck Road. Runoff ultimately discharges to the South Florida Water Management District (SFWMD) C-18 Canal via an existing 15-foot wide drainage ditch extending southward from Roebuck Road to the C-18 Canal. The drainage ditch is a facility of Unit of Development No. 32.

2.2 Off-site Lands

The off-site lands that drain through Palm Cove consist of approximately 60 acres adjacent to the western boundary of Palm Cove and 15 acres adjacent to the eastern boundary of Palm Cove. It is estimated that drainage from approximately 10 acres located east of Palm Cove along the north side of Roebuck Road joins Palm Cove's discharged runoff and drains through the two culverts under Roebuck Road.

**Section 3. Northern Facilities**

Lands within Unit No. 32A that have been granted to Northern in fee simple are shown on **Exhibit 32A**. Easements, also shown on the Exhibit, have been provided for other Northern facilities. Facilities in this Unit owned and maintained by Northern are also shown on the Exhibit.

Northern’s responsibilities in the Unit include operation, inspection, and maintenance of the facilities.

The service/demand area for Unit No. 32A is approximately 94.5 acres.

Unit No. 32A lies entirely within the SFWMD’s Loxahatchee River Drainage Basin that discharges to the SFWMD C-18 Canal which has an allowable discharge rate restriction of 41.6 csm (cubic feet per second per square mile) for the 25-year/3-day storm event.

The SFWMD permit for Northfork (#50-01957-S) specifies the minimum building pad elevation and minimum road crown elevation at 10.0’ NGVD and 8.5’ NGVD, respectively. These elevations were set based on drainage calculations submitted for peak stages for the 100-year/3-day storm event (building pad) and the 3-year/1-day storm event (road crown). Design information for the Unit is presented in Table No. 32A.

<b>TABLE NO. 32A: DESIGN INFORMATION</b>	
3-Yr/1-Day Peak Stage	8.5’ NGVD
25-Yr/3-Day Peak Stage	9.1’ NGVD
25-Yr/3-Day Peak Discharge	22 CFS
100-Yr/3-Day Peak Stage	9.8’ NGVD

There is One (1) surface water quality sampling station within this Unit. The location is shown on **Exhibit 32A**. All records are maintained at Northern’s office. Water quality testing occurs for the following parameters:

Monthly Parameters – Surface Water (12 samples per year): E-Coli

**Section 4. Five – Year Improvement Plan**

There are no improvements anticipated within the Unit during the next five years.

**Section 5. Ten – Year Replacement Plan**

Periodic inspection of Northern’s facilities will be conducted to determine the need for future replacements. None are planned at this time.

NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
REPORT

**UNIT OF DEVELOPMENT NO. 33**

**Section 1. Lands in Unit**

Northern Palm Beach County Improvement District (Northern) Unit of Development No. 33 encompasses 37.3 acres, more or less, and is located within the Town of Jupiter. **Exhibits A and B** show the general location of Unit No. 33 in relation to Northern's boundaries and the northern region of Palm Beach County. The Unit is located between Northfork Drive and the Palm Beach County/Martin County boundary line, 1.5 miles north of Indiantown Road in a portion of Section 27, Township 40 South, Range 42 East. Lands within Unit No. 33 are currently developed as a Planned Unit Development known as Cypress Cove of Jupiter. It is a single-family residential community.

**Section 2. Water Management System**

Stormwater runoff from lands within the Unit is directed by roadway curbs and gutters, inlets, and culverts to a 3.8 acre on-site lake. Excess runoff from the developed area is discharged through a series of outfall culverts and controlled by a weir before being routed north to an off-site lake located within a slough that outfalls to the Loxahatchee River. The offsite lake and slough are located within the preserve area of the Northfork development (Unit of Development No. 29). The on-site preserve area receives runoff from the rear of the adjacent lots and is connected to the rest of the water management system via an inlet and swales.

**Section 3. Northern Facilities**

Lands within Unit No. 33 that have been granted to Northern in fee simple are shown on **Exhibit 33**. Easements, also shown on the Exhibit, have been provided for other Northern facilities. Facilities in this Unit owned and maintained by Northern are also shown on **Exhibit 33**.

Northern's responsibilities in the Unit include operation, inspection, and maintenance of the facilities. Maintenance also includes chemical weed control in the lake and an exotic plant control and monitoring program in the preserve area.

The service/demand area for Unit No. 33 is approximately 37.3 acres.

The SFWMD permit for Cypress Cove of Jupiter (#50-02228-S) specifies the minimum building pad elevation and minimum road crown elevation at 11.0' NGVD and 9.5' NGVD, respectively. These elevations were set based on drainage calculations submitted for peak stages for the 100-year/3-day storm event (building pad) and the 10-year/1-day storm event (road crown). Design information for the Unit is presented in Table No. 33.

<b>TABLE NO. 33: DESIGN INFORMATION</b>	
10-Yr/1-Day Peak Stage	9.4' NGVD
25-Yr/3-Day Peak Stage	10.1' NGVD
25-Yr/3-Day Peak Discharge	6 CFS
100-Yr/3-Day Peak Stage	11.0' NGVD

There is One (1) surface water quality sampling station within this Unit. The location is shown on **Exhibit 33**. All records are maintained at Northern's office. Water quality testing occurs for the following parameters:

Monthly Parameters – Surface Water (12 samples per year): E-Coli

**Section 4. Five – Year Improvement Plan**

There are no improvements anticipated by Northern within the Unit during the next five years.

**Section 5. Ten – Year Replacement Plan**

Periodic inspection of Northern's facilities will be conducted to determine the need for future replacements. None are planned at this time.

NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
REPORT

**UNIT OF DEVELOPMENT NO. 34**

**Section 1. Lands in Unit**

Northern Palm Beach County Improvement District (Northern) Unit of Development No. 34 encompasses 39.3 acres, more or less, and is located in an unincorporated area of Palm Beach County with the exception of 1.3 acres in the southern portion on the Unit that are located in the City of Palm Beach Gardens. **Exhibit A** and **Exhibit B** show the general location of Unit No. 34 in relation to Northern's boundaries and the northern region of Palm Beach County. The Unit is located adjacent to the north side of PGA Boulevard (SR 703) and on the west side of the Intracoastal Waterway (Little Lake Worth). Unit No. 34 lands are located in a portion of Section 4, Township 42 South, Range 43 East. Approximately 38 acres of the Unit No. 34 site is known as Hidden Key and is developed as a single-family residential development. The remaining 1.3-acre portion of the site is located within the City limits of Palm Beach Gardens and is comprised of two multi-family residential tracts.

**Section 2. Water Management System**

The roadway drainage system consists of shallow swales that direct runoff to inlets that in turn direct runoff via culverts to an internal canal system discharging into Little Lake Worth and then into the Intracoastal Waterway.

**Section 3. Northern Facilities**

Lands within Unit No. 34 that have been granted to Northern in fee simple are shown on **Exhibit 34**. Easements are also shown on the Exhibit.

Northern's responsibilities in the Unit include maintenance of 4,340 linear feet of roadways and sidewalks, entrance feature landscaping, roadway drainage, and a security gate system.

The service/demand area for the Unit is approximately 39.3 acres.

Unit No. 34 lies entirely within SFWMD's Intracoastal Drainage Basin.



**Section 4. Five – Year Improvement Plan**

There are no improvements anticipated by Northern within the Unit during the next five years.

**Section 5. Ten – Year Replacement Plan**

Periodic inspections of Northern’s facilities will be conducted to determine the need for future improvements. None are planned at this time.

NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
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**UNIT OF DEVELOPMENT NO. 38**

**Section 1. Lands in Unit**

Northern Palm Beach County Improvement District (Northern) Unit of Development No. 38 encompasses 75.96 acres, more or less, and is located in the Village of North Palm Beach. **Exhibits A** and **B** show the general location of Unit No. 38 in relation to Northern's boundaries and the northern region of Palm Beach County. The Unit is located within a portion of Section 8, Township 42 South, Range 43 East. The land is a planned unit development (PUD) known as Harbour Isles. In 2016, the Board approved the transfer of road ROW from the Harbour Isles HOA to Northern via quit claim deed.

**Section 2. Water Management System**

Stormwater runoff from lands within the Unit is routed through gutters, catch basins, inlets, and a piped stormwater collection system to a series of exfiltration trenches with weirs. The exfiltration trenches discharge into a man-made tidal canal system that ultimately discharges to the Intracoastal Waterway.

**Section 3. Northern Facilities**

Lands within Unit No. 38 that have been granted to Northern in fee simple are shown on **Exhibit 38**. Easements, also shown on the Exhibit, have been provided for other Northern facilities. Facilities in this Unit owned and maintained by Northern are also shown on the Exhibit.

Northern's responsibilities in the Unit include operation, inspection, and maintenance of the facilities.

The service/demand area for the Unit is approximately 75.96 acres.

Unit No. 38 lies entirely within the SFWMD's Intracoastal Drainage Basin. The allowable discharge rate from developed land within this Basin is restricted to the rate determined for the land in the pre-developed condition for the 25-year/3-day storm event.

The Florida Department of Environmental Protection permit for Harbour Isles, permit number 50-2695789, specifies the minimum building pad elevation and minimum road crown elevation at 8.5' NGVD and 5.36' NGVD, respectively.

**Section 4. Five – Year Improvement Plan**

There are no Improvements anticipated by Northern within the Unit in the next five years.

**Section 5. Ten – Year Replacement Plan**

Periodic inspection of facilities will be conducted to determine the need for future replacements. None are planned at this time.

NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
REPORT

**UNIT OF DEVELOPMENT NO. 41**

**Section 1. Lands in Unit**

Northern Palm Beach County Improvement District (Northern) Unit of Development No. 41 encompasses 14.77 acres, more or less, and is located in the Town of Jupiter. **Exhibits A and B** show the general location of Unit No. 41 in relation to Northern's boundaries and the northern region of Palm Beach County. The Unit is located east of the Shores of Jupiter and north of Roebuck Road in a portion of Section 34, Township 40 South, Range 41 East. The land within Unit No. 41 is developed as a subdivision known as Mystic Cove.

**Section 2. Water Management System**

Stormwater runoff from lands within Unit No. 41 is routed to a system of interconnected on-site lakes via sheet flow, swales, and stormwater pipe collection systems. The lake system discharges via a control structure to the south basin of the Shores of Jupiter surface water management system. Northern owns and maintains the interconnected lakes and the outfall structure.

**Section 3. Northern Facilities**

Lands within Unit No. 41 that have been granted to Northern in fee simple are shown on **Exhibit 41**. Easements, also shown on the Exhibit, have been provided for other Northern facilities. Northern's responsibilities in the Unit include operation, inspection, and maintenance of the facilities shown on the Exhibit.

Northern constructed water and sewer improvements within Mystic Cove as authorized in the original Plan of Improvements (the "Plan") for Unit. Ownership and maintenance of water and sewer improvements has been turned over to the Town of Jupiter and the Loxahatchee River Environmental Control District, respectively.

The service/demand area for Unit No. 41 is approximately 14.77 acres.

Unit No. 41 lies entirely within the SFWMD's C-18 Drainage Basin, which has an allowable discharge rate restriction of 41.6 csm (cubic feet per second per square mile) for the 25-year/3-day storm event.

The SFWMD permit for Mystic Cove, permit number 50-03940-P specifies the minimum building pad elevation and minimum road crown elevation at 11.1' NGVD and 9.3' NGVD, respectively. These elevations were set based on drainage calculations submitted for peak stages for the 100-year/3-day storm event (building pad) and the 3-year/1-day storm event (road crown).

There is One (1) surface water quality sampling station within this Unit. The location is shown on **Exhibit 41**. All records are maintained at Northern's office. Water quality testing occurs for the following parameters:

Monthly Parameters – Surface Water (12 samples per year): E-Coli

**Section 4. Five – Year Improvement Plan**

There are no improvements anticipated within the Unit during the next five years.

**Section 5. Ten – Year Replacement Plan**

Periodic inspection of Northern's facilities will be conducted to determine the need for future replacements. None are planned at this time.

NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
REPORT

**UNIT OF DEVELOPMENT NO. 43**

**Section 1. Lands in Unit**

Northern Palm Beach County Improvement District (Northern) Unit of Development No. 43 encompasses 2254.6 acres, more or less, and is located in the City of Palm Beach Gardens. **Exhibits A and B** show the general location of Unit No. 43 in relation to Northern's boundaries and the northern region of Palm Beach County. The Unit is located west of the Florida Turnpike and north of PGA Boulevard in Sections 32 through 34, Township 41 South, Range 42 East and Sections 34 and 35, Township 42 South, Range 42 East. The land within the Unit is being developed as a Planned Community Development (PCD) called Mirasol (formerly known as Golf Digest) consisting of a residential golf course community, two golf courses, and commercial, and institutional parcels.

**Section 2. Water Management System**

2.1 General

Stormwater runoff from lands within the Unit No. 43 is routed to preserved wetlands and interconnected on-site lakes by sheet flow and through a series of inlets and culverts. The master surface water management system consists of a series of interconnected on-site lakes. The Mirasol Project is divided into east and west drainage basins. Two control structures along the east/west basin divide control flow from the east basin into the west basin. The west basin discharges via pumps into the Loxahatchee Slough lying east of the C-18 Canal. The slough discharges to the C-18 Canal via culverts. There is also an inter-basin transfer pump station that can direct water from the west basin back to the east basin, as needed.

There are approximately 175.8 acres of preserve and wetland that are within the Unit that are not included in the drainage area.

## 2.2 Off-site lands

Off-site lands include 25.7 acres from PGA Boulevard, 19.1 acres from Hood Road and the Bonnett out-parcel, 128 acres from the Seacoast Utility Authority, 24 acres from out-parcels in the southeast corner, and 128 acres from the Florida Turnpike. Additionally, 451 acres from Old Marsh (Unit No. 21) and 637 acres from Eastpointe (Unit No. 14) discharges into the west basin of the project.

### **Section 3. Northern Facilities**

Lands within Unit No. 43 that have been granted to Northern in fee simple are shown on **Exhibits 43(1)** through **43(4)**. Easements, also shown on **Exhibit 43**, have been provided for other Northern facilities. Northern's responsibilities in the Unit include operation, inspection, and maintenance of the facilities.

In addition to the surface water management system, Northern's facilities within this Unit also include 9,500 linear feet of a 6-foot high concrete screening wall; entry features including accent lighting at the two PGA Boulevard entrances and features in the two rotaries near PGA Boulevard; the irrigation system for Jog Road right-of-way and within the parkway, buffer; six-foot wide concrete sidewalks and twelve-foot wide concrete bike paths along Jog Road right-of-way and within the parkway buffer; approximately 450 feet of twelve-foot wide wood boardwalk in Preserve F; street lighting for Jog Road; and parkway buffer lighting for the bike paths.

The service/demand area for Unit No. 43 is approximately 3,540 acres.

Unit No. 43 lies entirely within SFWMD's C-18 Drainage Basin, which has an allowable discharge rate restriction of 41.6 csm (cubic feet per second per square mile) for the 25-year/3-day storm event.

The SFWMD permit for Mirasol, permit number 50-04118-P, specifies the minimum building pad elevation and minimum road crown elevation for various basins within the development. These elevations were set based on drainage calculations submitted for peak stages for the 100-year/3-day storm event (building pad) and the 10-year/1-day storm event (road crown). The minimum road crown elevation for roadways on the Palm Beach County Thoroughfare Plan for this project are set according to the peak stages during the 25-year/3-day storm event. Design stages and the permitted minimum elevations for sub-basins within the Unit are presented in Table No. 43.

<b>TABLE NO. 43: DESIGN INFORMATION</b>		
	<b>West Basin</b>	<b>East Basin</b>
Minimum Finished Floor	20.1' NGVD	20.1' NGVD
Minimum Road Crown	18.0' NGVD	18.8' NGVD
10-Yr/1-Day Peak Stage	16.92' NGVD	18.38' NGVD
25-Yr/3-Day Peak Stage	18.60' NGVD	18.15' NGVD
25-Yr/3-Day Peak Stage Discharge	287.5 CFS	N/A
100-Yr/3-Day Peak Stage	20.0' NGVD	20.0' NGVD

**Section 4. Five – Year Improvement Plan**

There are no improvements anticipated by Northern within this Unit in the next five years.

**Section 5. Ten – Year Replacement Plan**

1. Master Irrigation System Upgrade
2. Preserve Boardwalk Replacement

No other Northern facilities are anticipated to require replacement within the next ten years.



NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
REPORT

**UNIT OF DEVELOPMENT NO. 44**

**Section 1. Lands in Unit**

Northern Palm Beach County Improvement District (Northern) Unit of Development No. 44 encompasses 368.3 acres, more or less, and is located in the Town of Jupiter. **Exhibits A and B** show the general location of Unit No. 44 in relation to Northern's boundaries and the northern region of Palm Beach County. The Unit is located approximately  $\frac{3}{4}$  of a mile east of Alternate A1A and is bounded by Frederick Small Road on the north, Donald Ross Road on the south, and Palmwood Road on the east. Unit No. 44 lands are located within a portion of Sections 19 and 20, Township 41 South, Range 43 East. The land has been developed as a planned unit development (PUD) known as The Bear's Club.

**Section 2. Water Management System**

2.1 General

The Unit is made up of three drainage sub-basins plus 49 acres of un-named slough that runs roughly southeasterly through the middle of the Unit. The northwest drainage sub-basin is 52 acres, the northwest sub-basin is 163 acres, and the south sub-basin is 104 acres. Stormwater runoff from lands within the Unit is routed to the un-named slough via gutters, inlets, pipe collection systems, existing and created wetlands, on-site retention/detention ponds, and three final control structures. The un-named slough drains to the Frenchman's Creek development that discharges to the Intracoastal Waterway. A perimeter dike with a minimum elevation of 9.6 feet (the estimated 25-year/3-day peak stage) is constructed around the developed areas, which ensures that discharge to the un-named slough is made only through the three permitted control structures. Intermediate control structures maintain varying surface water elevations throughout the Unit.

## 2.2 Off-Site Lands

A small section (approximately 1.2 acres) of Frederick Small Road to the north drains through the Unit's Surface Water Management System. Historic flows from land adjacent to the western boundary, east of Alternate A1A (approximately 284 acres) and approximately 2.25 acres of Palmwood Road right-of-way also drain into the Unit.

### **Section 3. Northern Facilities**

Lands within Unit No. 44 that have been granted to Northern in fee simple are shown on **Exhibit 44**. Easements, also shown on the Exhibit, have been provided for other Northern facilities. Facilities in this Unit owned and maintained by Northern are also shown on the Exhibit.

Northern's responsibilities in the Unit include operation, inspection, and maintenance of the facilities shown on the Exhibit.

The service/demand area for Unit No. 44 is approximately 656 acres.

Unit No. 44 lies entirely within the SFWMD's Intracoastal Drainage Basin. The allowable discharge rate from developed land within this Basin is restricted to the rate determined for the land in the pre-developed condition for the 25-year/3-day storm event.

The SFWMD permit for The Bear's Club, permit number 50-04146-P specifies the minimum building pad elevation as 10.1' NGVD based on drainage calculations submitted for peak stages for the 100-year/3-day storm event. The permit specifies minimum road crown elevation at 8.6' NGVD for the north sub-basins and 8.3' NGVD for the south sub-basin. These elevations were set based on drainage calculations submitted for peak stages for the 10-year/1-day storm event.

### **Section 4. Five – Year Improvement Plan**

There are no improvements anticipated by Northern within this Unit in the next five years.

### **Section 5. Ten – Year Replacement Plan**

Periodic inspection of Northern's facilities will be conducted to determine the need for future replacements. None are planned at this time.

NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
REPORT

**UNIT OF DEVELOPMENT NO. 45**

**Section 1. Lands in Unit**

Northern Palm Beach County Improvement District (Northern) Unit of Development No 45 encompasses 162.04 acres, more or less, and is located in the Town of Jupiter. **Exhibits A** and **B** show the general location of Unit No. 45 in relation to Northern's boundaries and the northern region of Palm Beach County. The Unit is located west of Military Trail, north of Indian Creek Parkway, and south of Toney Penna Drive in Sections 12, 13, and 14, Township 41 South, Range 42 East. The land within the Unit is developed as a Planned Unit Development (PUD) called Paseos (a.k.a. Pines on Pennock Lane) consisting of single-family residential units. Improvements outlined in the Plan of Improvements were certified complete in July 2009.

**Section 2. Water Management System**

2.1 General

Stormwater runoff from lands within Unit No. 45 is routed to preserves and wetlands and interconnected on-site lakes by sheet flow and through a series of roadway inlets and culverts. The master surface water management system consists of a series of interconnected on-site lakes, lake interconnect culverts, and three (3) control structures. The control structures are located as shown on **Exhibit 45** (Sheets 1-4) as CS-1, CS-2, and CS-3 which controls the runoff via contiguous wetlands prior to discharging into the Jones Creek Drainage System.

2.2 Off-site lands

Approximately 23.13 acres of off-site lands drain into this Unit's surface water management system.

**Section 3. Northern Facilities**

Lands within Unit No. 45 that have been granted to Northern in fee simple are shown on **Exhibits 45(1)** through **45(4)**. Easements, also shown on **Exhibit 45**, have been provided for Northern facilities. Northern’s responsibilities in the Unit include operation, inspection, and maintenance of the facilities.

Northern’s facilities within this Unit include the operation and maintenance of the on-site lakes, the culverts interconnecting these lakes, the outfall structures, and approximately the 23.27 acres of wetland and upland preserves.

The service/demand area for Unit No. 45 is approximately 185.17 acres.

Unit No. 45 drains entirely into the Jones Creek Drainage System, which has an allowable discharge rate of 43.93 cfs (cubic feet per second) for the 25-year/3-day storm event. The drainage basin for this Unit is the Intracoastal Waterway.

The SFWMD permit (permit number 50-04989-P), specifies the minimum building pad elevation and minimum road crown elevation for the development. These elevations were set based on drainage calculations submitted for peak stages for the 100-year/3-day storm event and the 10-year/1-day storm event. Design stages and the permit minimum elevations for sub-basins within the Unit are presented in Table No. 45.

<b>TABLE NO. 45: DESIGN INFORMATION</b>	
Minimum Finished Floor	10.80' NGVD
Minimum Road Crown (10-Yr/1-Day Peak Stage)	9.0' NGVD
25-Yr/3-Day Peak Stage	9.90' NGVD
100-Yr/3-Day Peak Stage	10.80' NGVD
Control Elevation	6.0' NGVD

CONTROL STRUCTURES			
Designation	Type Dimensions	Control Elevation	Receiving Body
CS-1 Lakes # 4 & 5S	1-1.25' W Sharp crested weir at Elev. 7.0' NGVD 1-.83' W & 1'H Rectangular notch at Inv Elev. 6.0' NGVD	6.0' NGVD	Jones Creek
CS-2 Lakes # 6 & 7	1-1.25' W Sharp crested weir at Elev. 7.0' NGVD	6.0' NGVD	Jones Creek
CS-3 Lake # 8S	1-.83' W Sharp Crested weir at Elev. – 7.75' NGVD	6.0' NGVD	Jones Creek

There is One (1) surface water quality sampling station within this Unit. The location is shown on **Exhibit 45**. All records are maintained at Northern's office. Water quality testing occurs for the following parameters:

Monthly Parameters – Surface Water (12 samples per year): E-Coli

**Section 4. Five – Year Improvement Plan**

There are no improvements anticipated by Northern within this Unit in the next five years.

**Section 5. Ten – Year Replacement Plan**

Periodic inspection of Northern's facilities will be conducted to determine the need for future replacements. None are planned at this time.

NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
REPORT

**UNIT OF DEVELOPMENT NO. 46**

**Section 1. Lands in Unit**

Northern Palm Beach County Improvement District (Northern) Unit of Development No. 46 encompasses 164.74 acres more or less, and is located in the Town of Jupiter. **Exhibits A and B** show the general location of Unit No. 46 in relation to Northern's boundaries and the northern region of Palm Beach County. The Unit is bounded on the north by Indian Town Road on the east by the Florida Turnpike and on the south by the C-18 Canal. Unit No. 46 lands are located within a portion of Sections 4, 5, 8 & 9 Township 41 South and Range 42 East. The land has been developed as a planned unit development (PUD) known as Jupiter Country Club. The improvements included in the Plan of Improvement were certified complete in August of 2009.

**Section 2. Water Management System**

The Water Management System consists of on-site detention ponds interconnected via culverts and control structures with discharge to the C-18 Canal. The SFWMD permit for Jupiter Country Club, permit number 50-02993-S-05, Application No. 051207-11 specifies the minimum building pad elevation as 19.0' NGVD based on drainage calculations submitted for peak stages for the 100-year/3-day storm event. The permit specifies minimum road crown elevation shall be constructed above the peak stages for the 10-year/1-day storm event.

**Section 3. Northern Facilities**

Easements within Unit No. 46 that have been granted or dedicated to Northern are shown on **Exhibit 46**. Facilities in this Unit owned and maintained by Northern are also shown on the Exhibit.

Northern's responsibilities in the Unit include inspection, and maintenance of the facilities shown on the Exhibit.

The service/demand area for Unit No. 46 is approximately 165 acres.

**Section 4. Five – Year Improvement Plan**

There are no improvements anticipated by Northern within this Unit in the next five years.

**Section 5. Ten – Year Replacement Plan**

Periodic inspection of Northern's facilities will be conducted to determine the need for future replacements. None are planned at this time.

NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
REPORT

**UNIT OF DEVELOPMENT NO. 47**

**Section 1. Lands in Unit**

Northern Palm Beach County Improvement District (Northern) Unit of Development No. 47 encompasses 265.96 acres, more or less, and is located in the Town of Jupiter. **Exhibits A** and **B** show the general location of Units No. 47 in relation to Northern's boundaries and the northern region of Palm Beach County. The Unit is located west of Island Way, north of Indiantown Road, and east of the Florida Turnpike in Section 32 and 33, Township 40 South, Range 42 East. The land within the Unit was developed as Planned Unit Development (PUD) called Jupiter Isles and Loxahatchee Reserve consisting of single-family residential units.

**Section 2. Water Management System**

2.1 General

The Island Way master surface and stormwater management system conveys runoff from the 906-acre Island Way Corridor watershed which consists of parcels of land adjacent to the Island Way road right-of-way from Indiantown Road to the Martin County line. The system will outfall downstream of the South Florida Water Management District (SFWMD) S-46 structure located in the C-18 Canal at a rate of 2-in/acre/day. The main components of the system consist of approximately 10,250 linear feet of sixty (60) inch concrete culvert, 600 linear feet of 42" culvert, manholes, inlets, and three (3) operable control structures. The SFWMD permit for this Unit is referenced as the "Island Way Phase A & B", permit number 50-06087-P.

The first operable control structure is located on the downstream side of the SFWMD S-46 structure in the C-18 Canal and is the main control structure for the system. The second operable control structure is a 5 CFS pump station which discharges stormwater to the west into the Loxahatchee Slough at a rate of five (5) cubic feet per second in accordance with the permitted operating schedule as approved by SFWMD under application no 140613-7. The third operable control structure will be located on the upstream side of the SFWMD S-46 structure in the C-18 Canal and will have the capacity of recharging the Island Way Drainage Corridor Water Management System from water out of the L-18 Canal.



2.2 Off-site lands

Approximately 640 acres of lands drain into this Unit’s surface water management system.

**Section 3. Northern Facilities**

Lands within Unit No. 47 that have been granted to Northern in fee simple are shown on **Exhibit 47(1)** through **47(2)**. Easements, also shown on **Exhibit 47**, have been provided for Northern facilities. Northern’s responsibilities in the Unit include operation, inspection and maintenance of the sixty (60) culverts located in the Island Way Right-of-Way, control structure OS-1, and a 5 cfs pump discharging into the Loxahatchee Slough along the I-95 right-of-way.

The service/demand area for Unit No. 47 is approximately 906 acres.

The SFWMD permit for The Island Way Development, permit number 50-06087-P, specifies the minimum building pad elevation and minimum road crown elevation for the development. These elevations were set based on drainage calculations submitted for peak stages for the 100-year/3-day storm event and the 10-year/1-day storm event. Design stages and the permit minimum elevations for sub-basins within the Unit are presented in Table No. 47.

<b>TABLE NO. 47: DESIGN INFORMATION</b>	
Minimum Finished Floor	16.0' NGVD
Minimum Road Crown	14.1' NGVD
10-Yr/1-Day Peak Stage	13.21' NGVD
25-Yr/3-Day Peak Stage	14.4' NGVD
100-Yr/3-Day Peak Stage	15.17' NGVD
Control Elevation	10.0'Wet Season/12.0'Dry Season

<b>Control Structures</b>	<b>Description</b>
OS-1	2- Sharp crested weirs w/crest elev. = 13.70' 1- 5' +3" operable gates – Inv. Elev. = 10.0' 1- 6" circular orifice @ elev. 10.0' 1- 40" w + 33" h Rectangular orifice w/Inv. = 10.0'
5 CFS Pump PS-1	FLYGT Pump w/ 624 Imp. 10" Dia., 15 HP @ 1150 RPM
8 CFS Pump PS-2	N/A

There is One (1) surface water quality sampling station within this Unit. The location is shown on **Exhibit 47(1)**. All records are maintained at Northern's office. Water quality testing occurs for the following parameters:

Monthly Parameters – Surface Water (12 samples per year): E-Coli

**Section 4. Five – Year Improvement Plan**

There are no improvements proposed by Northern within this Unit in the next five years.

**Section 5. Ten – Year Replacement Plan**

Periodic inspection of Northern's facilities will be conducted to determine the need for future replacements. None are planned at this time.

NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
REPORT

**UNIT OF DEVELOPMENT NO. 49**

**Section 1. Lands in Unit**

Northern Palm Beach County Improvement District (Northern) Unit of Development No. 49 encompasses 102.18 acres more or less and is located in the Town of Lake Park. **Exhibits A and B** show the general location of Unit No. 49 in relation to Northern's boundaries and the northern region of Palm Beach County. The majority of land included in the Unit is located on the east side of Congress Avenue approximately 1/4 of a mile south of Northlake Boulevard and is bounded on the south side by Silver Beach Road. The Unit also includes a portion of land west of Congress Avenue between Park Avenue West and Silver Beach Road. Unit No. 49 lands are located within a portion of Section 19 Township 42 South, Range 43 East. The land has been developed as a planned unit development (PUD) known as Northern Palm Beach County Business Park.

**Section 2. Water Management System**

2.1 General

The Water Management System consists of 7.72 Acres of on-site retention/detention ponds interconnected via culverts and offsite preserves. A perimeter berm with a minimum elevation of 12.20 feet (the estimated 25-year/3-day peak stage) is constructed around the developed areas.

2.2 Off-Site Lands

The historical drainage of 230 areas and Congress Avenue were calculated into the Project's allowable discharge.

**Section 3. Northern Facilities**

Lands within Unit No. 49 that have been granted to Northern in fee simple are shown on **Exhibit 49(1)**. Easements, also shown on the Exhibit, have been provided for other Northern facilities. Facilities in this Unit owned and maintained by Northern are also shown on the Exhibit.

Northern's responsibilities in the Unit include operation, inspection, and maintenance of the facilities shown on the Exhibit as well as maintenance of the offsite preserve areas.

The service/demand area for Unit No. 49 is approximately 332 acres.

Unit No. 49 lies entirely within the SFWMD's C-17 Drainage Basin. The allowable discharge rate from developed land within this Basin is restricted to the C-17 discharge criteria for the 25-year/3-day storm event.

The SFWMD permit for Northern Palm Beach County Business Park, permit number 50-06082-P specifies the minimum building pad elevation as 13.0' NGVD based on drainage calculations submitted for peak stages for the 100-year/3-day storm event. The permit specifies minimum road crown elevation shall be constructed above the peak stages for the 3-year/1-day storm event

**Section 4. Five – Year Improvement Plan**

There are no improvements proposed by Northern within this Unit in the next five years.

**Section 5. Ten – Year Replacement Plan**

No Northern facilities are anticipated to be replaced or constructed within the next ten years.

NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
REPORT

**UNIT OF DEVELOPMENT NO. 51**

**Section 1. Lands in Unit**

Northern Palm Beach County Improvement District (Northern) Unit of Development No. 51 encompasses 76.29 acres, more or less, and is located eastern Palm Beach County. **Exhibits A** and **B** show the general location of Unit No. 51 in relation to Northern's boundaries and the northern region of Palm Beach County. The Unit is bounded by the Intracoastal Waterway on the west, Donald Ross Road on the north, Bert Winter's Park on the South, and Ellison Wilson Road on the east. Unit No. 51 lands are located within a portion of Section 29, Township 41 South, Range 43 East. The land has been developed as a Planned Unit Development (PUD) known as Frenchman's Harbor.

**Section 2. Water Management System**

2.1 General

The water management system consists of a constructed drainage/boat channel, dry storage areas, wetlands, and two areas totaling approximately 2.2 acres of undeveloped property that will be enhanced as mitigation areas on the south side of the project and adjacent to Donald Ross Road. The constructed drainage/boat channel is directly connected to the Intracoastal Waterway on the northwest and southwest sides of the property. The property is divided into six drainage basins. Drainage Basin's 1 and 2 drain to the constructed dry detention areas located between the residential homes and the Intracoastal Waterway (ICWW). Runoff from the dry storage areas is directed eastward into the drainage/boat channel and then into the ICWW. Runoff from Basins 3 and 4 is directed through exfiltration trenches and into dry detention areas before being directed into the drainage/boat channel. Basin 5 is a natural tidal wetland and is connected to the drainage/boat channel with flushing structures and culverts. Basin 6 is also a natural tidal wetland with flushing structures and culverts connected to the Juno Dunes Natural Area through culverts under Ellison Wilson Road. Basin 6 is also connected to the ICWW via a wetland flow way. The project was permitted under SFWMD Application No. 061208-26 in October of 2007.

## 2.2 Off-Site Lands

Approximately 214 acres of offsite property east of Ellison Wilson Road drains through the culverts under Ellison Wilson Road and through a flow way located within the Unit.

### **Section 3. Northern Facilities**

Lands within Unit No. 51 that have been granted to Northern in fee simple are shown on **Exhibit 51**. Easements, also shown on the Exhibit, have been provided for other Northern facilities. Major Facilities in this Unit owned and maintained by Northern are also shown on the Exhibit.

Northern's responsibilities within the Unit consist of maintenance of the surface water management facilities including dry retention areas, exfiltration trenches, inlets, culverts, control structures and the associated drainage piping, flow way culverts and bridges. Northern's facilities are located within easements granted to Northern and noted on the Exhibit. Maintenance of the Wetland/Upland conservation areas, box culvert and condominium yard drainage were removed from Northern's responsibility by Amendments to the Plan of Improvements in 2011 and 2019, resp.

The service/demand area for Unit No. 51 is approximately 290 acres.

Unit No. 51 lies entirely within the SFWMD's Intracoastal Drainage Basin. The allowable discharge rate from developed land within this Basin is restricted to the rate determined for the land in the pre-developed condition for the 25-year/3-day storm event.

The SFWMD permit for Frenchman's Harbor, permit number 50-06618-P, specifies the minimum building pad elevation as 9.0 NGVD for Basins 1,2 and 4 and 10 ' NGVD For Basin 3 based on drainage calculations submitted for peak stages for the 100-year/3-day storm event. The permit specifies minimum road crown elevation at 7.0' NGVD for Basins 1 and 2, 8.0' NGVD for Basin 3 AND 7.4' NGVD for Basin 4. These elevations were set based on drainage calculations submitted for peak stages for the 10-year/1-day storm event.

**Section 4. Five – Year Improvement Plan**

There are no improvements anticipated by Northern within this Unit in the next five years.

**Section 5. Ten – Year Replacement Plan**

Periodic inspection of Northern's facilities will be conducted to determine the need for future replacements. None are planned at this time.

NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT PUBLIC FACILITIES  
REPORT

**UNIT OF DEVELOPMENT NO. 53**

**Section 1. Lands in Unit**

Northern Palm Beach County Improvement District (Northern) Unit of Development No. 53 encompasses 1244.57 acres, more or less, and is located in unincorporated Palm Beach County. **Exhibits A** and **B** show the general location of Unit No. 53 in relation to Northern's boundaries and the northern region of Palm Beach County. The Unit is bounded on the south by S.R. 80 (Southern Blvd.) and on the west by the L-8 Canal. Unit No. 53 lands are located within a portion of Sections 21, 22, 27, 28, 33 & 34 Township 43 South and Range 40 East. The land is being developed as a planned unit development (PUD) known as Arden. At this time, construction of the Public Roadways, Water Management System and Water and Sewer utilities are nearing completion. Development of several residential parcels have been completed or are nearing completion. Phase 1 of the Linear Park has been completed, and Phase 2 is nearing completion. The required off-site Signalization and Intersection Improvements are complete. The requirement for off-site median landscape improvements has been satisfied through payment of a fee into the Palm Beach County OTIS landscape improvement program.

**Section 2. Water Management System**

2.1 General

The Water Management System consists of wet detention ponds and trunk drainage lines providing both water quality and quantity control with discharge to the C-51 Canal via a control structure and existing discharge connection under S.R.80. The project lies entirely within the C-51 Drainage Basin and received conceptual and construction approval from SFWMD in 2015.

2.2 Off-Site Lands

The Surface Water Management System is proposed to be designed to accommodate runoff from both S.R. 80 (2.82 acres) and future extension of Okeechobee Blvd. (28.65 acres) along the project's southern and northern frontage.



**Section 3. Northern Facilities**

Northern’s maintenance and operational responsibilities within the Unit will include exotic and aquatic weed control for the surface water management system, water control structures, trunk drainage piping, public roadways and the Linear Park along the western and northern boundaries of the Unit. Lands within Unit No. 53 that have been granted to Northern in fee simple are shown on **Exhibits 53(1)** through **53(6)**. Easements, also shown on the Exhibit, have been provided for other Northern facilities.

Public water and sewer utilities included in the Plan of Improvements are being constructed as neighborhoods are being constructed and are being turned over to Palm Beach County Water Utilities for ownership and maintenance once complete. Individual Parcels will connect to the Community Infrastructure Water and Sewer utilities to obtain service as they are developed.

The service/demand area for Unit No. 53 is approximately 1,276 acres.

The SFWMD Permit No. 50-10460-P specifies the minimum building pad elevation and minimum road crown elevation for the development. These elevations were set based on drainage calculations submitted for peak stages for the 100-year/3-day storm event and the 5-year/1-day storm event. Design stages and the permit minimum elevations within the Unit are presented in Table No. 53.

<b>TABLE NO. 53: DESIGN INFORMATION</b>	
Minimum Finished Floor	21.0' NAVD
Minimum Road Crown	19.0' NAVD
5-Yr/1-Day Peak Stage	13.51' NAVD
10-Yr/3-Day Peak Discharge and Stage	51.84 CFS\14.83' NAVD
100-Yr/3-Day Peak Stage	17.79' NAVD
Control Elevation	11.5' 'Wet Season

**Section 4. Five – Year Improvement Plan**

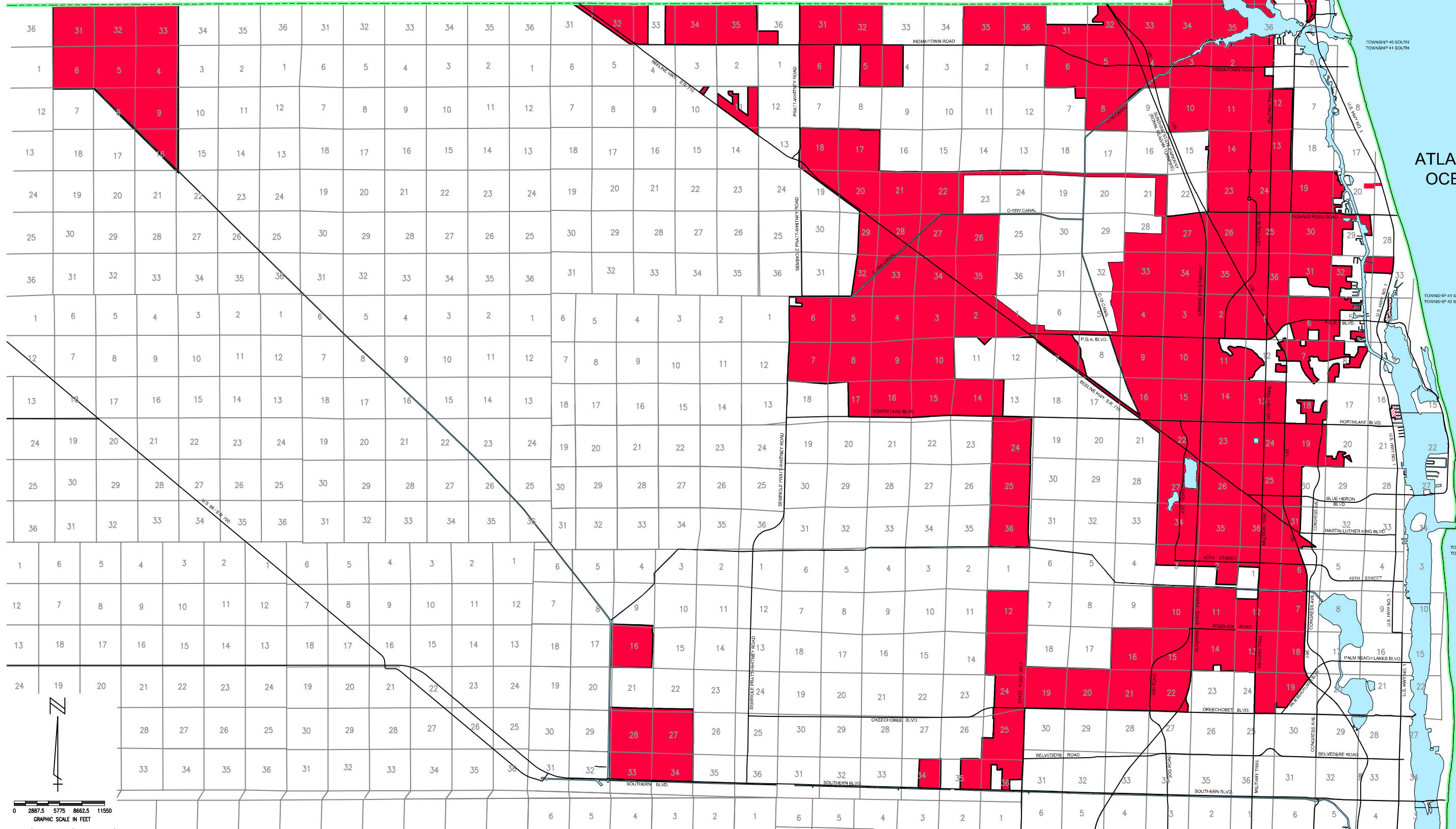
1. Completion of Plan of Improvement facilities in Parcels D, G, H, I and J.

**Section 5. Ten – Year Replacement Plan**

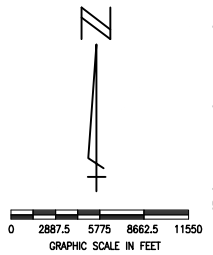
No Northern facilities are anticipated to be replaced within the next ten years.

MARTIN COUNTY

ATLANTIC OCEAN

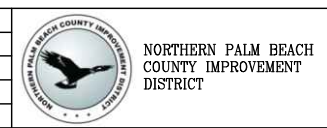


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INFORMATION SHOWN HEREON DOES NOT CONSTITUTE, NOR DOES IT REPRESENT, A SURVEY OF THE SUBJECT PREMISES.

FIELD: -  
 DRAWN: SFRN STAFF  
 DESIGNED: -  
 APPROVED: C.A.R.  
 SCALE: AS SHOWN



NORTHERN PALM BEACH COUNTY IMPROVEMENT DISTRICT  
 JURISDICTIONAL BOUNDARY MAP  
 NOVEMBER 2020  
 PALM BEACH COUNTY, FLORIDA

SHEET 1 OF 1  
 DATE: 11-18-20  
 EXHIBIT A

