TOWN OF LOXAHATCHEE GROVES

SURFACE WATER POLICY REVIEW

& LAND DEVELOPMENT PERMITTING

An Informational Presentation for

Anita Kane	–	Mayor
Margaret Herzog	–	Vice Mayor
Phillis Maniglia	–	Councilmember
Laura Donowski	–	Councilmember
Robert Shorr	–	Councilmember

July 16, 2024 Workshop

SUMMARY OF TOPICS

1. **Introduction and background**

2. **State Rules**

3. **National Flood Insurance Program (NFIP)**

4. **Town Rules**

5. **Land Development Permitting**

6. **Proposed Suggestions**

1. INTRODUCTION AND BACKGROUND

INTRODUCTION

Floodplain management is a complicated issue with diverse effects across many levels of administrative focus and the daily lives of residents.

To obtain more specific information and more informed guidance, consider consultation with the following partial list of professionals before making a final determination, including but not limited to:

- Insurance Broker/ Agent - regarding insurance options for properties in the floodplain and cost comparison of flood insurance quotes from private insurance providers
- Realtor/ Real Estate Agent – regarding market impacts for properties with vs. without NFIP enrollment, and loan implications for potential property buyers, sellers, or builders
- Building Official – regarding flood protection requirements and procedures for building construction
- Planner – regarding connections to Comprehensive Plan, Development Review and Approval process, Land Use, applicable County development standards, projections for future development and traffic
- Legal – regarding liability, responsibility, and requirements for municipalities
- Public Opinion – regarding online polling and data collection from the public on various potential procedural and policy alternatives

INTRODUCTION

Residents daily lives are enhanced by many services that are subject to regulation. The extent of effort required to create, implement, continually monitor, update, and manage these regulations can often be taken for granted.

Energy (Gas and Electric)	Roadways	Fire and Emergency Medical Response
Products that use energy	ADA accommodations	Law Enforcement
Communications	Banking	Legal Practices
Utility Lines	FDA food safety	Commercial Product Safety
Ground Water	Automotive Manufacturing	etc…….

Regulation can promote consistency in services, safety guidelines, and industry standards of practice.

Drainage is a similar service that can be easily taken for granted by end users.

BACKGROUND

FEMA was established in 1979.

The original Flood Insurance Rate Map (FIRM) did not include Loxahatchee Groves within a designated flood hazard zone.

An effort to revise these maps was in progress in 2015.

In 2004, in response to flooding issues, increased urbanization, and demands on the C-51 Canal as a primary outfall and receiving body for several populated areas, SFWMD began efforts to re-evaluate and update the C-51 Basin Rule with more modern mapping, modeling, and calculation capabilities.

The SFWMD C-51 Basin Rule Re-evaluation study was published in 2015 after coordination with the Army Corps of Engineers to implement structural controls for the C-51 Canal. This study used a software model to determine a maximum stage in the Town resulting from a 100-year, 3-day storm event.

The results of the study were accepted by FEMA for its use in revising the FIRMs, and the flood elevation from the SFWMD study for the 100-year, 3-day storm event was adopted as the BFE.

TOWN POLICY REVIEW

REVIEW OBJECTIVES

- Explanation of State and Federal Rules
- Review Standards for Applicability
- Explanations for Town Rules
- Explanations for Permitting Requirements
- Proposed Suggestions

TOWN ACTIONS

- REVIEW AGENCY REQUIREMENTS
- REVIEW ORDINANCES
- REVIEW DESIGN CRITERIA
- REVIEW PERMIT PROCESS
- PRIORITIZE SHORT AND LONG TERM SUGGESTIONS

TOWN POLICY REVIEW

PERMIT REVIEW OBJECTIVES

Town Site Development reviews check for reassurance that State and other agency criteria are addressed

Town reviews floodplain calculations per NFIP to check that there are **NO** floodplain impacts per State requirements

Actual floodplain impacts must be submitted to NFIP for their review

2. STATE RULES

STATE RULES
FLORIDA BUILDING CODE

ADMINISTERED BY BUILDING OFFICIAL

- All habitable/usable (by humans) buildings
- Structural, Electrical, Plumbing, and HVAC
- Building finished floor elevations
- Building survey and elevation certificates
- Non-Residential Agricultural farm buildings are exempt from Building Code Review per state law,
  but not floodplain review
  - Non-habitable
  - No electric
  - No plumbing
  - Often, no foundation or floor
  - Used by livestock or
  - Storage for equipment

STATE RULES
STATE ENVIRONMENTAL RESOURCE PERMITS

SFWMD/FDEP CONDITIONS FOR ALL ERP'S

- RETENTION & DETENTION CRITERIA FOR VOLUME AND RESIDENCE TIME
- DISCHARGE STRUCTURES, CONTROLS, AND BLEED-DOWN MECHANISM
- WATER QUALITY PRE-TREATMENT
- MEETS STATE WATER QUALITY STANDARDS
- NO FLOOD DAMAGE
- NO INTERFERENCE WITH FLOODWAYS OR FLOODPLAIN STORAGE, RATE OF FLOW, CONVEYANCE CAPACITY
- PUBLIC HEALTH, SAFETY, WELFARE, PROPERTY OF OTHERS
- NO FLOODPLAIN ENCROACHMENT

STATE RULES
STATE ENVIRONMENTAL RESOURCE PERMITS

STATE (SFWMD/FDEP) REQUIREMENTS FOR ALL ERP'S

- ALLOWABLE DISCHARGE RATE
  - 25-YEAR, 3-DAY STORM
    10-12 IN. OF RAIN IN 72 HRS
- FINISHED BUILDING FLOORS FLOOD PROTECTION
  - 100-YEAR, 3-DAY STORM
    13-15 IN. OF RAIN IN 72 HRS
- ROADS AND PARKING LOT FLOOD PROTECTION
  - 5-YEAR, 1-DAY STORM
    6-7 IN. OF RAIN IN 24 HRS
- NO FLOODPLAIN ENCROACHMENT
  - 100-YEAR, 3-DAY STORM
    13-15 IN. OF RAIN IN 72 HRS

C-51 BASIN RULE REQUIREMENTS

- ALLOWABLE DISCHARGE RATE BASED ON SITE AREA
  - 10-YEAR, 3-DAY STORM
    9-10 IN. OF RAIN IN 72 HRS
- FINISHED BUILDING FLOORS FLOOD PROTECTION

(SAME AS ALL SFWMD AND FDEP PERMITS AND FLORIDA BLDG CODE)

  - 100-YEAR, 3-DAY STORM
    13-15 IN. OF RAIN IN 72 H
- NO FLOODPLAIN ENCROACHMENT

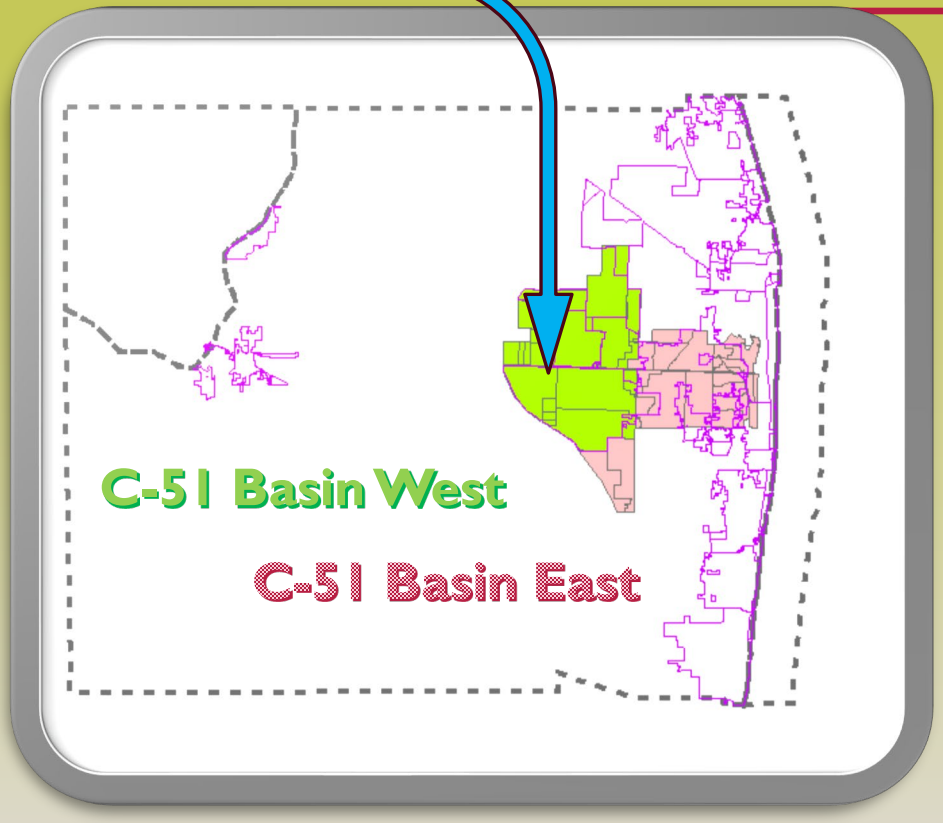
(SAME AS ALL SFWMD AND FDEP PERMITS)

  - 100-YEAR, 3-DAY STORM
    13-15 IN. OF RAIN IN 72 H

STATE RULES
SFWMD C-51 BASIN RULE (ADOPTED MAY 1987)

Rule 40E-41.263, F.A.C. Conditions for Issuance of Permits in the C-51 Basin

Loxahatchee Groves



Palm Beach County

C-51 Basin includes about 176 square miles of land

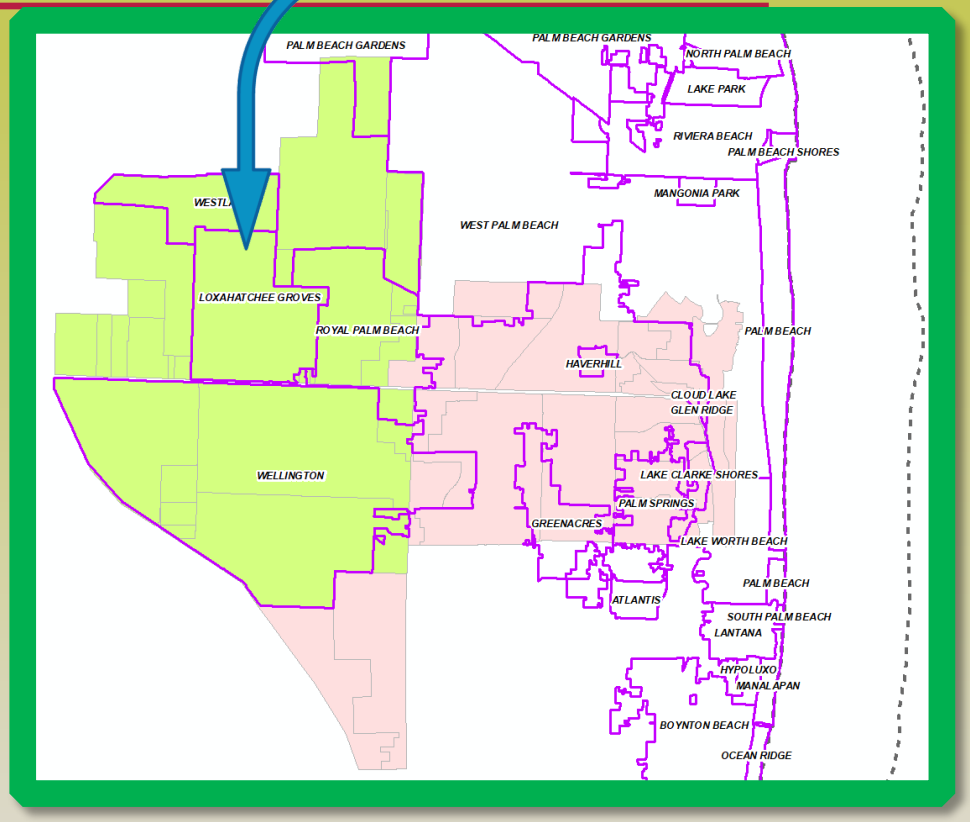
Overlaps portions of 13 municipalities and unincorporated county

The Town of Loxahatchee Groves is Subbasin 11

7,975 ac = 12.5 sq. mi.

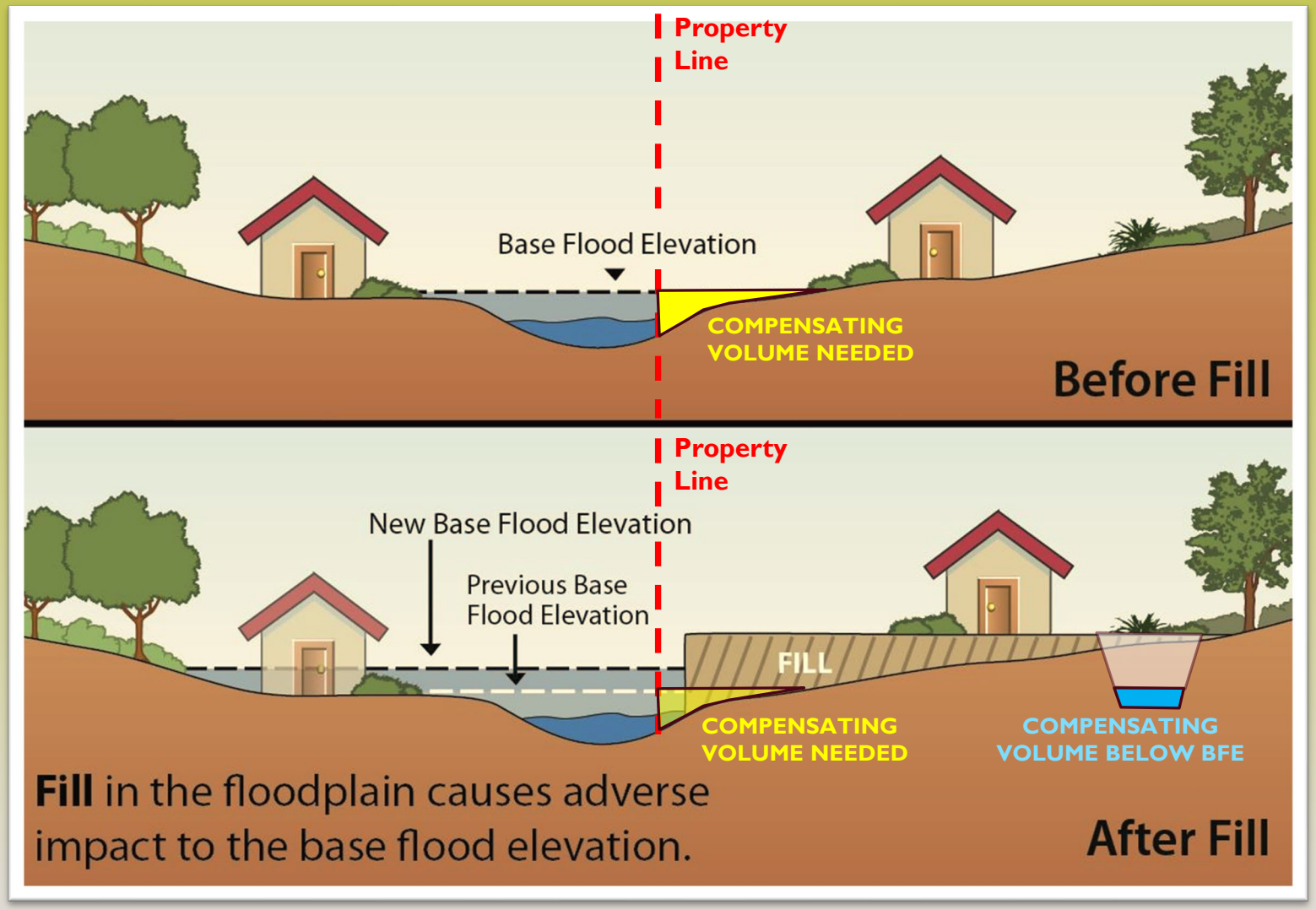
7% of Total C-51 Basin Area

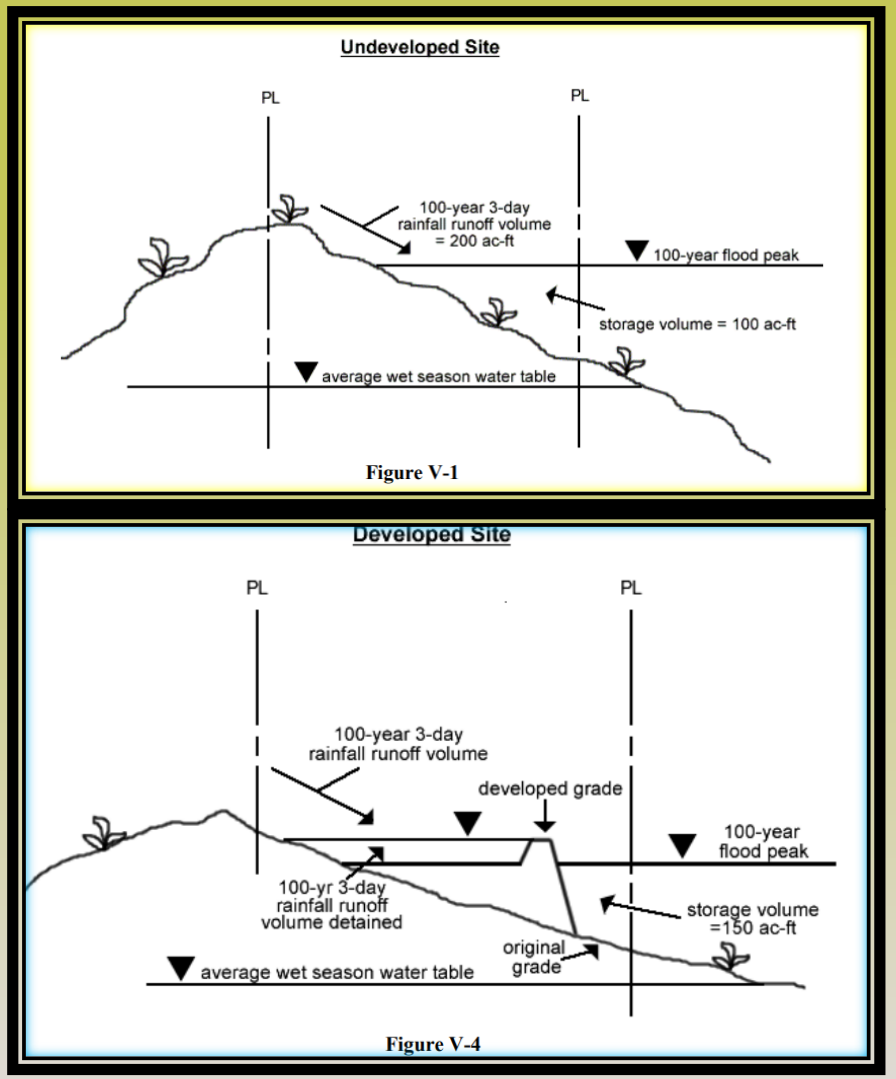
Loxahatchee Groves



Municipalities

STATE RULES
FLOODPLAIN COMPENSATING STORAGE





STATE RULES
FLOODPLAIN COMPENSATING STORAGE

EXISTING CONDITION

1. ESTABLISH SITE STORAGE USING TOPOGRAPHIC DATA
2. CALCULATE RUNOFF VOLUME (IMPORT V. EXPORT)
3. CALCULATE MAXIMUM STAGE FOR DESIGN STORM

Stage (Ft NGVD)	Storage {acre-ft}
9.00	0.00
10.00	8.00
11.00	16.00
12.00	24.00
13.00	32.00
14.00	43.00
15.00	60.00
16.00	83.00
16.50	96.80

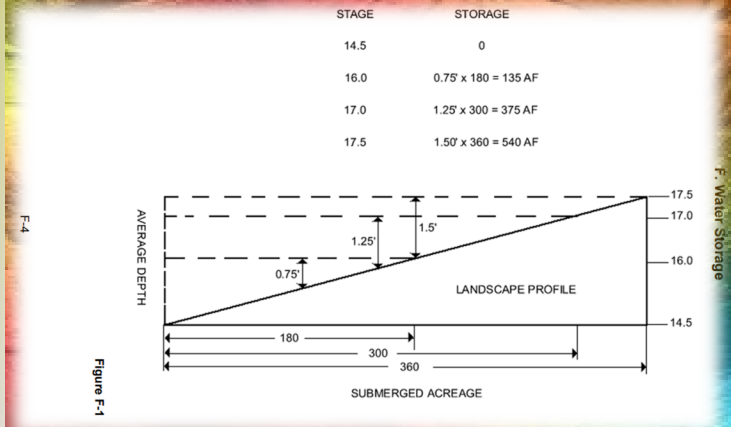


Figure F-1

F-4

F. Water Storage

PROPOSED CONDITION

1. ESTABLISH CHANGES IN SITE STORAGE USING PROPOSED GRADES
2. CALCULATE INCREASE IN RUNOFF
   - 2.1 LOSS OF SOIL STORAGE FROM COVERED AREA
   - 2.2 INCREASED RUNOFF FROM ROOFS AND PAVEMENT
3. COMPARE TO STORAGE TABLE

STATE RULES
FLOODPLAIN COMPENSATING STORAGE

ANY INCREASE IN BASE FLOOD ELEVATION CORRESPONDS TO AN EXPANSION OF THE FLOODED AREA. PREVIOUSLY UNAFFECTED AREAS, PROPERTIES, AND SCRUCTURES CAN BE IMPACTED BY THE ACCUMULATION OF SMALL STORAGE LOSSES.

STATE ERP, BUILDING CODE, AND FLOODPLAIN REVIEW WORK TOGETHER TO COORDINATE THE EFFORTS OF SEVERAL AGENCIES ACROSS MULTIPLE LEVELS OF RESPONSIBILITY TO PROTECT BUILDINGS, THEIR CONTENTS, AND THEIR INHABITANTS.

THIS MULTI-LEVEL COOPERATION ASSISTS THE FUNCTIONS OF INSURANCE PROVIDERS, DISASTER RECOVERY PROGRAMS, AND LENDING INSTITUTIONS TO GAUGE RISK AND BUDGET FOR RELIEF EFFORTS.

STATE RULES
VULNERABILITY ASSESSMENT

380.093, F.S.

Resilient Florida Grant Program; comprehensive statewide flood vulnerability and sea level rise data set and assessment; Statewide Flooding and Sea Level Rise Resilience Plan; regional resilience entities

Objectives

- ✓ Evaluate pipes and conveyance channels for geometric deficiencies
- ✓ In-field condition assessment to document needed repairs
- ✓ Targeted risk assessment of Focus Areas and Critical Assets

Other Benefits

- System Inventory and Condition Assessment
- GIS Data
- Stormwater management routing model
- Maintenance schedule and recommendations for repair
- Budgetary decision making and Capital Improvement planning
- Access to additional funding sources and opportunities

Task	Anticipated Completion
1. Kick Off Meeting	12/2023
2. Conduct Steering Committee Meetings	12/2024
3. Acquire Background Data	6/2024
4. Public Outreach Meeting #1	9/2024
5. Exposure Analysis	12/2024
6. Sensitivity Analysis	2/2025
7. Public Outreach Meeting #2	3/2025
8. Final Report	6/2026

STATE RULES

SINGLE FAMILY RESIDENTIAL PROPERTIES MAY BE EXEMPT FROM STATE ENVIRONMENTAL RESOURCE PERMITTING, BUT NOT LOCAL (CITY, WATER CONTROL DISTRICT, OR COUNTY) RULES

CROSS REFERENCE: ***62-330.051(13), F.A.C.***

403.813(1), F.S. **Permits issued at district centers; exceptions**

(q) The construction, operation, or maintenance of stormwater management facilities which are designed to serve single-family residential projects, including duplexes, triplexes, and quadruplexes, if they are less than 10 acres total land and have less than 2 acres of impervious surface and if the facilities:

1. **Comply with all regulations or ordinances applicable to stormwater management and adopted by a city or county;**
2. Are not part of a larger common plan of development or sale; and
3. Discharge into a stormwater discharge facility exempted or permitted by the department under this chapter which has sufficient capacity and treatment capability as specified in this chapter and is owned, maintained, or operated by a city, county, special district with drainage responsibility, or water management district; however, this exemption does not authorize discharge to a facility without the facility owner's prior written consent.

STATE RULES

EXEMPTIONS DO NOT APPLY IF DRAINAGE OR SURFACE WATER MANAGEMENT MAY BE IMPACTED

403.814(12), F.S. General permits; delegation

(b) Activities will not impact wetlands or other surface waters;

(d) Drainage facilities will not include pipes having diameters greater than 24 inches, or the hydraulic equivalent, and will not use pumps in any manner;

(e) The project is not part of a larger common plan, development, or sale; and

(f) The project does not:

1. Cause adverse water quantity or flooding impacts to receiving water and adjacent lands;

2. Cause adverse impacts to existing surface water storage and conveyance capabilities;

3. Cause a violation of state water quality standards;…

STATE RULES

EXEMPTIONS MUST BE VERIFIED TO DETERMINE THAT ALL REQUIREMENTS FOR EXEMPTION ARE MET

62-330.050, F.A.C. Procedures for Review and Agency Action on Exemption Requests.

(9) The following apply when specified in an exemption in Rule 62-330.051, F.A.C.:

(b) Construction, alteration, and operation shall not:

1. **Adversely impound or obstruct existing water flow, cause adverse impacts to existing surface water storage and conveyance capabilities, or otherwise cause adverse water quantity or flooding impacts to receiving water and adjacent lands;**

STATE RULES

EXEMPTIONS MUST BE VERIFIED TO DETERMINE THAT ALL REQUIREMENTS FOR EXEMPTION ARE MET

62-330.051, F.A.C. **Exempt Activities.**

(13) Single-Family Residences and Associated Residential Improvements –

(a) The construction, alteration, maintenance, removal, and abandonment of one individual single-family dwelling unit, duplex, triplex, or quadruplex, and associated residential improvements, that:

1. Do not involve any work in wetlands or other surface waters;

2. Are not part of a larger common plan of development or sale requiring a permit or modification of a permit under Part IV of Chapter 373, F.S.; and

3. Comply with the limitations and restrictions in subsection 62-330.050(9), F.A.C.

10 acres or less with less than 2% impervious area

STATE RULES

EXEMPTIONS MUST BE VERIFIED TO DETERMINE THAT ALL REQUIREMENTS FOR EXEMPTION ARE MET

62-330.051(13), F.A.C. **Exempt Activities.**

(b) The construction, alteration, maintenance, removal, and abandonment of one individual single-family dwelling unit, duplex, triplex, or quadruplex, and associated residential improvements if it will be located:

1. Within the boundaries of a valid permit issued under Part IV of Chapter 373, F.S., and it was accounted for under the permit; or

2. Within the boundaries of a development that predates the applicable effective date for the permitting program established under Part IV of Chapter 373, F.S., provided the activity does not involve any work in wetlands or other surface waters.

(c) Construction, operation, or maintenance of a stormwater management facility designed to serve single-family residential projects in conformance with Section 403.813(1)(q), F.S.

STATE RULES

FARM BUILDINGS ARE SUBJECT TO FEDERAL, STATE, COUNTY, AND LOCAL FLOODPLAIN REGULATIONS

604.50, F.S. **Nonresidential farm buildings; farm fences; farm signs**

(1) Notwithstanding any provision of law to the contrary, any nonresidential farm building, farm fence, or farm sign that is located on lands used for bona fide agricultural purposes, not including those lands used for urban agriculture, is exempt from the Florida Building Code and any county or municipal code or fee, **except for code provisions implementing local, state, or federal floodplain management regulations.**

STATE RULES

FARMS ARE SUBJECT TO CONSTRUCTION SAFETY REGULATIONS, AS WELL AS WATER QUALITY AND OTHER REGULATIONS THAT APPLY TO OFFSITE SOURCES OF WATER OR RECEIVING WATER BODIES FOR DRAINAGE

373.406, F.S. **Exemptions.—The following exemptions shall apply:**

(3) Nothing herein, or in any rule, regulation, or order adopted pursuant hereto, shall be construed to be applicable to construction, operation, or maintenance of any agricultural closed system. However, **part II of this chapter shall be applicable as to the taking and discharging of water for filling, replenishing, and maintaining the water level in any such agricultural closed system. This subsection shall not be construed to eliminate the necessity to meet generally accepted engineering practices for construction, operation, and maintenance of dams, dikes, or levees.**

STATE RULES

FARMS ARE SUBJECT TO PERMITTING WITH THE WATER CONTROL DISTRICT FOR WITHDRAWALS FROM OR FLOWS TO THE CANALS

403.813, F.S. **Permits issued at district centers; exceptions**

(1) …this subsection does not relieve an applicant from any requirement to obtain permission to use or occupy lands owned by…a water management district in its governmental or proprietary capacity or from complying with applicable local pollution control programs authorized under this chapter **or other requirements of county and municipal governments:**

STATE RULES

EXEMPTIONS REQUIRE CERTIFICATION BY A LICENSED PROFESSIONAL THAT REQUIREMENTS ARE MET

403.814, F.S. **General permits; delegation**

(12) A general permit is granted for the construction, alteration, and maintenance of a stormwater management system serving a total project area of up to 10 acres meeting the criteria of this subsection. Such stormwater management systems must be designed, operated, and maintained in accordance with applicable rules adopted pursuant to part IV of chapter 373…before construction begins, an electronic self-certification is submitted to the department or water management district which certifies that the proposed system was **designed by a Florida registered professional** and that the registered professional has certified that the proposed system will meet the following additional requirements:

STATE RULES

EXEMPTIONS MUST BE VERIFIED TO DETERMINE THAT ALL REQUIREMENTS FOR EXEMPTION ARE MET

62-330.051, F.A.C. **Exempt Activities.**

(4) Bridges, Driveways, and Roadways –

(b) Construction, alteration, or maintenance, and operation, of culverted driveway or roadway crossings and bridges of wholly artificial, non-navigable drainage conveyances, provided:

1. The construction project area does not exceed one acre and is for a discrete project that is not part of a larger plan of development that requires permitting under this chapter.

2. The culvert or bridge shall be sized and installed to pass normal high water stages without causing adverse impacts to upstream or downstream property;

3. Culverts shall not be larger than one, 24-inch diameter pipe, or its hydraulic equivalent, and must not reduce the upstream hydraulic discharge capacity;

STATE RULES

62-330.051(4)(b), F.A.C. **Exempt Activities.**

4. The crossing shall not:

    a. Be longer than 30 feet from top-of-bank to top-of-bank;

    b. Have a top width of more than 20 feet or a toe-to-toe width of more than 40 feet; and,

    c. Have side slopes steeper than three feet horizontal to one foot vertical;

5. There are no more than two crossings on any total land area, with a minimum distance of 500 feet between crossings;

8. All work shall comply with subsection 62-330.050(9), F.A.C.

STATE RULES

EXEMPTIONS MUST BE VERIFIED TO DETERMINE THAT ALL REQUIREMENTS FOR EXEMPTION ARE MET

62-330.051(4), F.A.C. **Exempt Activities.**

(c) Minor roadway safety construction, alteration, maintenance, and operation, provided:

1. There is no work in, on, or over wetlands other than those in drainage ditches constructed in uplands;

2. There is no reduction in the capacity of existing swales, ditches, or other systems legally in existence under Chapter 403 or Part IV of Chapter 373, F.S.;

3. All work is conducted in compliance with subsection 62-330.050(9), F.A.C.; and

4. The work is limited to:

   a. Sidewalks having a width of six feet or less;

   b. Turn lanes less than 0.25 mile in length, and other safety-related intersection improvements; and

   c. Road widening and shoulder paving that does not create additional traffic lanes and is necessary to meet current, generally accepted roadway design and safety standards.

STATE RULES

EXEMPTIONS MUST BE VERIFIED TO DETERMINE THAT ALL REQUIREMENTS FOR EXEMPTION ARE MET

62-330.051(4), F.A.C. **Exempt Activities.**

(d) Resurfacing and repair of existing paved roads, and grading of existing unpaved roads, provided:

1. Travel lanes are not paved that are not already paved;

2. No substantive changes occur to existing road surface elevations, grades, or profiles; and

3. All work is conducted in compliance with subsection 62-330.050(9), F.A.C.

STATE RULES

EXEMPTIONS MUST BE VERIFIED TO DETERMINE THAT ALL REQUIREMENTS FOR EXEMPTION ARE MET

62-330.051(4), F.A.C. **Exempt Activities.**

(e) Repair, stabilization, paving, or repaving of existing roads, and the repair or replacement of vehicular bridges that are part of the road, where:

1. They were in existence on or before January 1, 2002, and have:

a. Been publicly-used and under county or municipal ownership and maintenance thereafter, including when t hey have been presumed to be dedicated in accordance with Section 95.361, F.S.;

b. Subsequently become county or municipally-owned and maintained; or

c. Subsequently become perpetually maintained by the county or municipality through such means as being accepted by the county or municipality as part of a Municipal Service Taxing Unit or Municipal Service Benefit Unit; and

STATE RULES

EXEMPTIONS MUST BE VERIFIED TO DETERMINE THAT ALL REQUIREMENTS FOR EXEMPTION ARE MET

62-330.051(4)(e), F.A.C. Exempt Activities.

2. The work does not realign the road or expand the number of traffic lanes of the existing road, but may include safety shoulders, clearing vegetation, and other work reasonably necessary to repair, stabilize, pave, or repave the road, provided that the work is constructed using generally accepted roadway design standards;
3. Existing bridges are not widened more than is reasonably necessary to properly connect the bridge with the road to match the width of the roadway travel lanes and safely accommodate the traffic expected;
4. No debris from the original bridge shall be allowed to remain in wetlands or other surface waters;
5. Roadside swales or other effective means of stormwater treatment are incorporated as part of the work;
6. No more dredging or filling of wetlands or water of the state is performed than is reasonably necessary to perform the work in accordance with generally accepted roadway design standards;
7. Notice of intent to use this exemption is provided to the Agency 30 days before performing any work; and
8. **All work is conducted in compliance with subsection 62-330.050(9), F.A.C.**

STATE RULES

EXEMPTIONS MUST BE VERIFIED TO DETERMINE THAT ALL REQUIREMENTS FOR EXEMPTION ARE MET

62-330.051, F.A.C. **Exempt Activities.**

(9) Pipes or Culverts –

(a) Repair or replacement, provided:

1. The pipes or culverts have equivalent hydraulic capacity to those being repaired or replaced;

2. The invert elevation shall not be changed; and

3. The pipes or culverts function to discharge or convey stormwater, and are not associated with the repair, replacement, or alteration of a dam, spillway, or appurtenant works.

STATE RULES

EXEMPTIONS MUST BE VERIFIED TO DETERMINE THAT ALL REQUIREMENTS FOR EXEMPTION ARE MET

62-330.051(9), F.A.C. **Exempt Activities.**

(b) Construction, alteration, operation, maintenance, and removal of outfall pipes, together with associated headwalls, and energy dissipation baffles, rocks, and other scour-reduction devices at the outfall locations, provided:

1. The pipes extend less than 20 feet in, on, or over wetlands or other surface waters;

3. The outfall is designed to prevent erosion and scour;

7. All work is conducted in compliance with subsection 62-330.050(9), F.A.C.

STATE RULES

- Florida Building Code – Flood Protection Requirements
- Environmental Resource Permitting
- C-51 Basin Rule (SFWMD)
  - 100-Year flood elevation
  - Discharge limits for 10-Year storm

STATE RULES

FLORIDA STATUTES SUMMARY

604.50, F.S. **General Agricultural Laws – Nonresidential farm buildings; farm fences; farm signs.**

Farm buildings are subject to federal, state, county, and local floodplain regulations

373.406, F.S. **Water Resources – Exemptions**

Farms are subject to construction safety regulations, as well as water quality and other regulations that apply to offsite sources of water or receiving water bodies for drainage

403.813, F.S. **Public Heath – Environmental Control – Permits issued at district centers; exceptions**

Farms are subject to permitting with the water control district for withdrawals from or flows to the canals

Some single family residential properties may be exempt from state environmental resource permitting, but not local (city, water control district, county) rules.

403.814, F.S. **Public Heath – Environmental Control – General permits; delegation**

Exemptions require certification by a licensed professional that requirements are met

Exemptions do not apply if drainage or surface water management may be impacted

STATE RULES

FLORIDA ADMINISTRATIVE CODE SUMMARY

62-330.050, F.A.C. **Procedures for Review and Agency Action on Exemption Requests**

Exemptions must be verified to determine that all requirements for exemption are met.

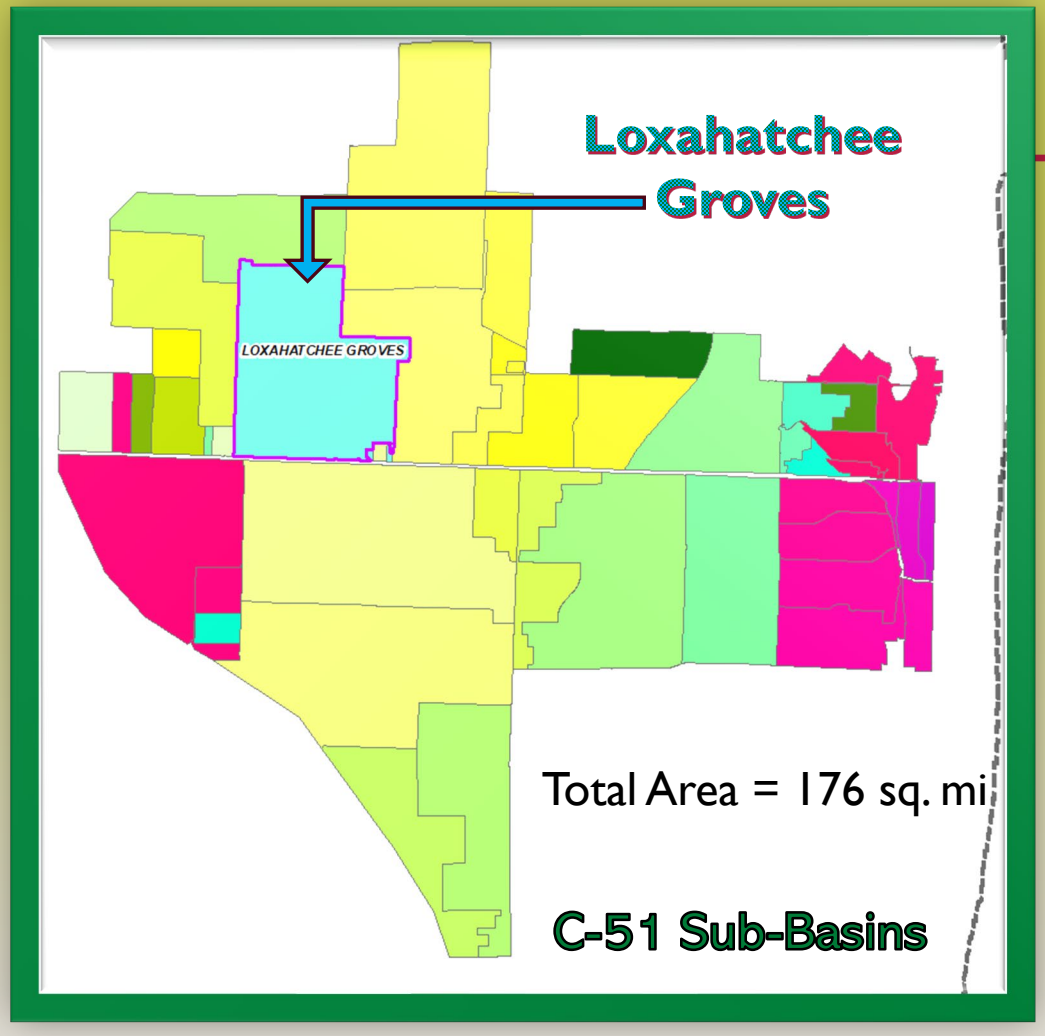
62-330.051, F.A.C. **Exempt Activities (Town-related)**

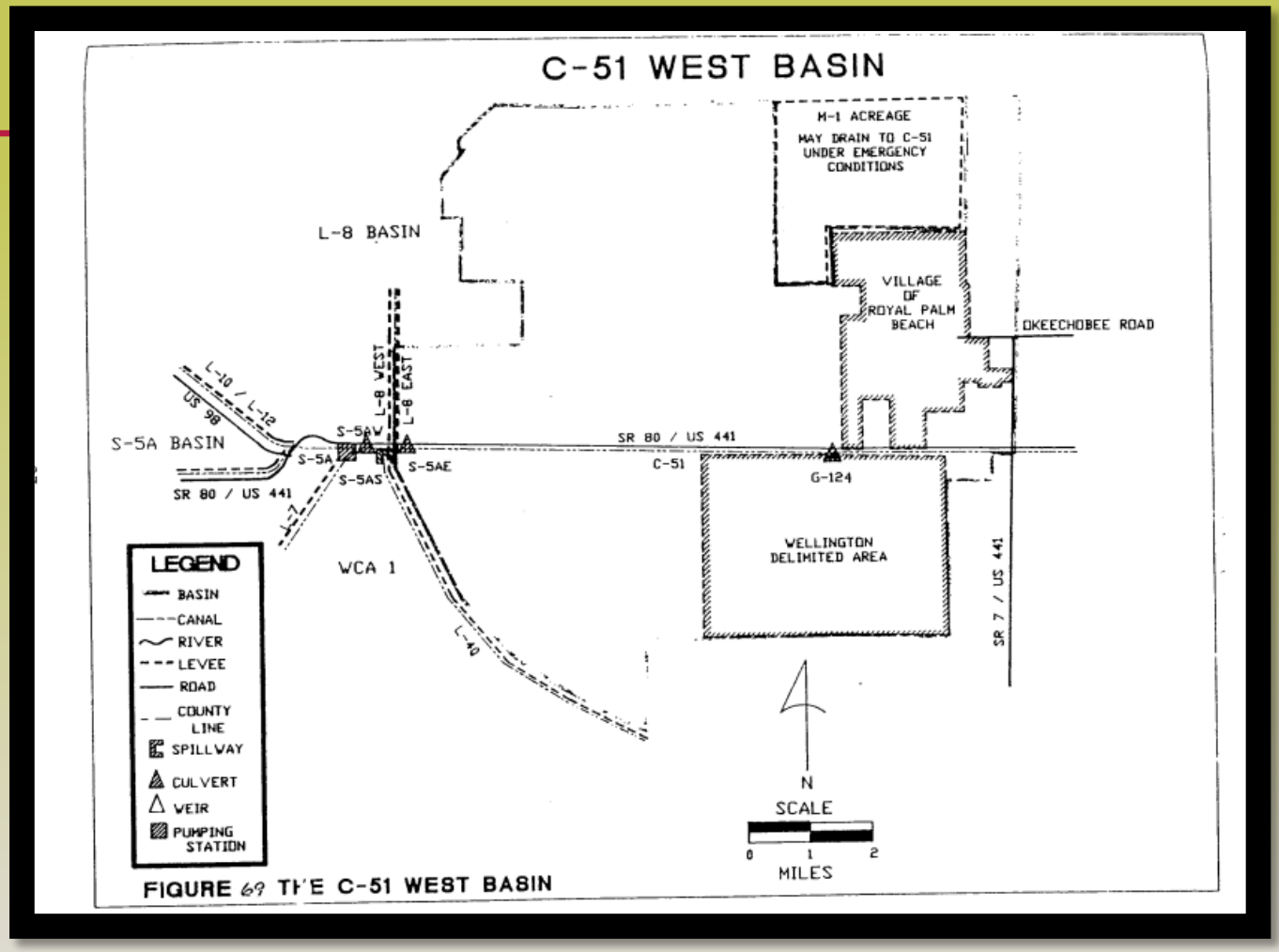
(4) Bridges, Driveways, and Roadways

(9) Pipes or Culverts

(13) Single-Family Residences and Associated Residential Improvements

STATE RULES
SFWMD C-51 BASIN RULE





3. NATIONAL FLOOD INSURANCE PROGRAM (NFIP)

NFIP RULES

From the FEMA Website:

Participation in the National Flood Insurance Program (NFIP) is by application. To join, the community must:

- Complete an application;
- Adopt a resolution of intent to participate and cooperate with FEMA;
- Adopt and submit a **floodplain management ordinance** that meets or exceeds the minimum NFIP criteria. The floodplain management ordinance must also adopt any FIRM or FHBM for the community.

Within participating communities, the Federal government makes flood insurance available throughout the community.

NFIP RULES

FEMA provides a boilerplate document as an example of a **floodplain management ordinance** which meets the minimum criteria for inclusion in the NFIP

Many municipalities and government entities (including the Town of Loxahatchee Groves) adopt this boilerplate as a starting point in order to gain entry into the Program

Any situation which prevents a person from complying with the floodplain criteria can be submitted to the Town Council as a Request for Variance

FEMA offers additional discounts and rate reductions for efforts and policies that

exceed the minimum criteria

These discounts can be activated through participation in the Community Rating Program

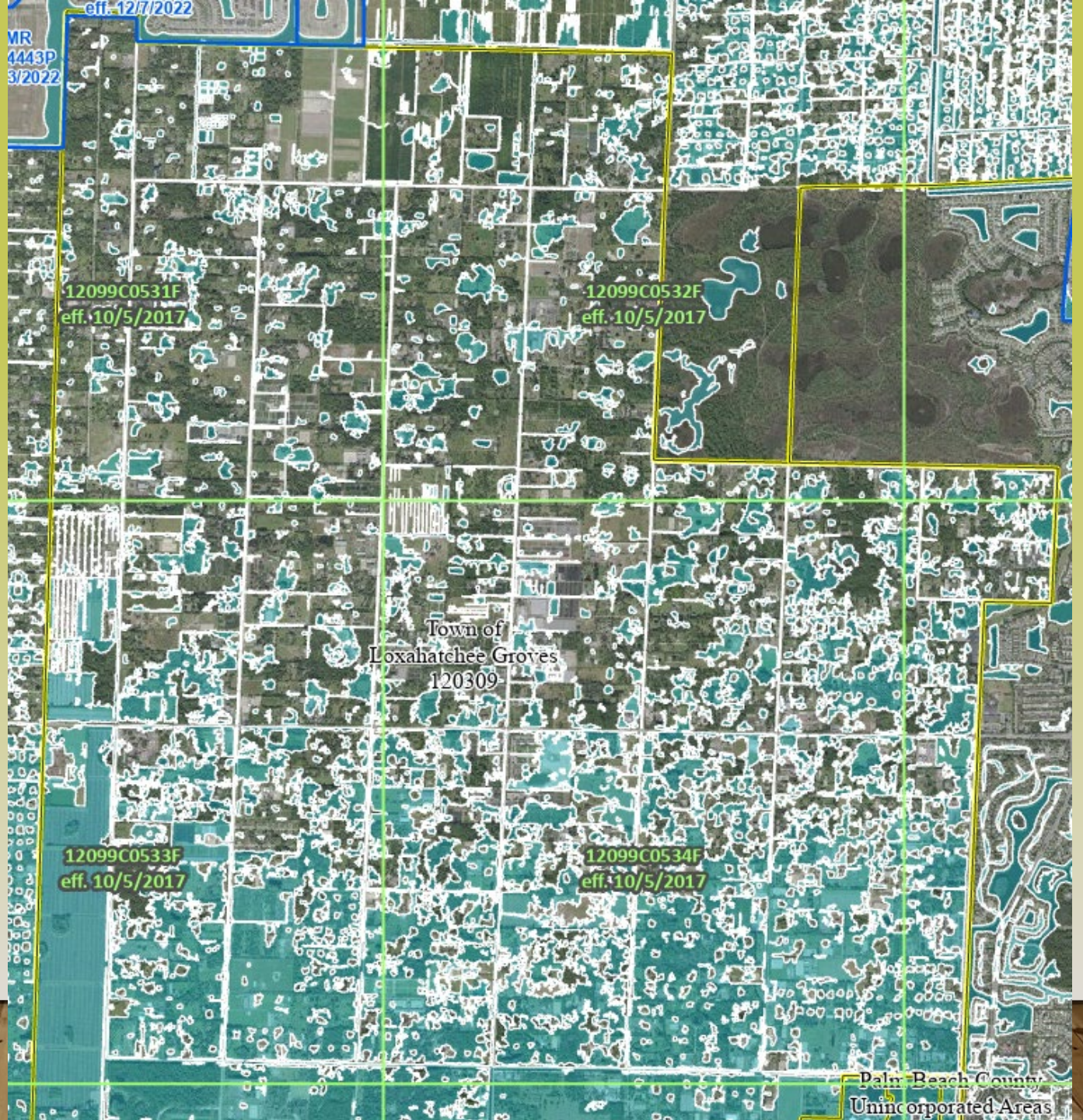
NFIP RULES

Some specific requirements in the boilerplate document include:

- Designation of a floodplain manager
- Analysis of all proposed development for potential floodplain impacts
- Record keeping for the review and approval of such development activities
- Minimum requirements for engineering design and floodplain impact analysis
- Compliance with Florida Building Code for structures
- Review of floodplain impacts for agricultural buildings exempt from Florida Building Code

Any situation which prevents a person from complying with the floodplain criteria can be submitted to the Town Council as a Request for Variance

BLUE =
FEMA FLOODPLAIN AREAS =
SPECIAL FLOOD HAZARD AREA'S



WHAT IS FEMA FLOODPLAIN MANAGEMENT BULLETIN P-2140

Floodplain Management Requirements for
Agricultural Structures and Accessory Structures

UNDER EVALUATION AND NOT PART OF TOWN CODE

INVESTIGATING A RESIDENT SUGGESTION

Proposed adoption of wet floodproofing criteria for agricultural structures

Obvious Advantages

- Could allow construction of certain farm buildings to occur at a lower elevation, possibly reducing expenses for owner in bringing in fill and providing engineering analysis of floodplain impacts
- Reducing importation of fill material for foundations helps preserve the base flood elevation

Obvious Disadvantages

- Requires specialized building materials, and possibly contractors at greater material and installation cost than other structures
- Requires a building official to review submittals and inspect projects
- Requires compliance inspections
- Open design can allow waste to accumulate then discharge in concentration
- Waste received by the Town's drainage canals becomes the Town's issue
- Waste received by the Town's drainage system may contaminate groundwater
- Waste discharged to C-51 from the drainage canals becomes the Town's issue

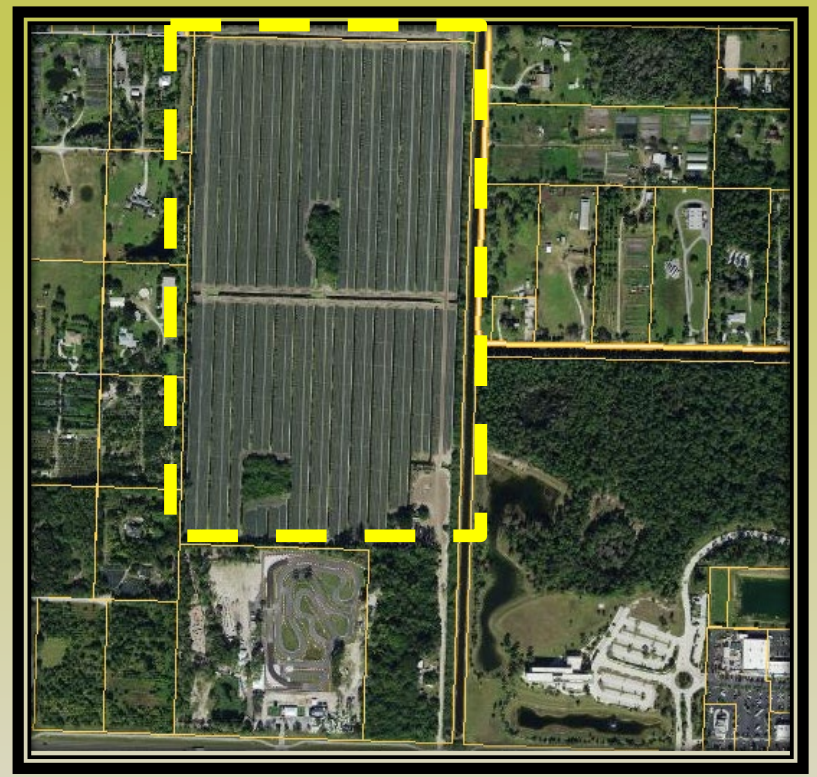
FEMA FLOODPLAIN MANAGEMENT BULLETIN P-2140

Floodplain Management Requirements for Agricultural Structures and Accessory Structures

Wet Floodproofing

Agricultural Structures

Agricultural Purpose



FEMA FLOODPLAIN MANAGEMENT BULLETIN P-2140

Floodplain Management Requirements for Agricultural Structures and Accessory Structures

Accessory Structure

FEMA Approved Flood Damage Resistant Construction Materials

Table 2. Types, Uses, and Classifications of Materials

Types of Building Materials	Uses of Building Materials		Classes of Building Materials				
			Acceptable		Unacceptable		
	Floors	Walls/ Ceilings	5	4	3	2	1
Structural Materials (floor slabs, beams, subfloors, framing, and interior/exterior sheathing)							
Asbestos-cement board		■	■				
Brick							
Face or glazed		■	■				
Common (clay)		■		■			
Cast stone (in waterproof mortar)		■	■				
Cement board/fiber-cement board		■	■				
Cement/latex, formed-in-place	■			■			
Clay tile, structural glazed		■	■				
Concrete, precast or cast-in-place	■	■	■				
Concrete block[1]		■	■				
Gypsum products							
Paper-faced gypsum board		■			■		
Non-paper-faced gypsum board		■		■			
Greenboard		■				■	
Keene's cement or plaster		■			■		
Plaster, otherwise, including acoustical		■				■	
Sheathing panels, exterior grade		■			■		
Water-resistant, fiber-reinforced gypsum exterior sheathing		■		■			
Hardboard (high-density fiberboard)							
Tempered, enamel or plastic coated		■				■	
All other types		■					■
Mineral fiberboard		■					■
Oriented-strand board (OSB)							
Exterior grade	■	■				■	
Edge swell-resistant OSB	■	■				■	
All other types	■	■					■
Particle board	■						■
Plywood							
Marine grade	■	■	■				
Preservative-treated, alkaline copper quaternary (ACQ) or copper azole (C-A)	■	■		■			

WHAT IS WET FLOODPROOFING

- Wet floodproofing is the use of flood damage resistant materials and construction techniques to minimize flood damage to structures by intentionally allowing floodwater to enter and exit automatically (without human intervention) to minimize unequal pressure of water on walls (called hydrostatic load or pressure). Wet floodproofing also requires structures to be anchored to resist flooding, have mechanical and utility equipment elevated or protected, and have flood openings installed in walls.

WHAT IS AN AGRICULTURAL STRUCTURE

- For floodplain management purposes, “agricultural structures” are structures that are used **exclusively for agricultural purposes or uses in connection with the production, harvesting, storage, raising, or drying of agricultural commodities and livestock**. Some structures used for aquaculture are considered agricultural structures (see Section 2.3.2). Structures used for human habitation and those that are places of employment or entertainment, and structures with multiple or mixed purposes, do not satisfy the “exclusive use” requirement described below and are not agricultural structures.

WHAT IS AN AGRICULTURAL PURPOSE

- For the purposes of this bulletin, the term “agricultural purposes or uses” refers to using agricultural structures **exclusively in connection with the production, harvesting, storage, raising, or drying of agricultural commodities and livestock.** Structures that house tools or equipment used in connection with these purposes or uses are also considered to have agricultural purposes or uses.

WHAT IS A STRUCTURE

- For floodplain management purposes, a structure is a walled and roofed building that is principally above ground, where walled is considered “two or more outside rigid walls” and roofed is “a fully secured roof.” The term includes gas and liquid storage tanks and manufactured homes. The terms “structure” and “building” are used interchangeably in the NFIP regulations and this bulletin. Floodplain managers must use professional judgement to determine which proposed development projects are “walled and roofed,” and thus regulated as structures, and which proposed projects are regulated as development.

WHAT IS AN ACCESSORY STRUCTURE

- For floodplain management purposes, accessory structures are structures that are on the same parcel of property as a principal structure, the use of which is incidental to the use of the principal structure. For floodplain management purposes, accessory structures must be used for parking or storage, be small and represent a minimal investment by owners, and have low damage potential.

WHAT IS A FLOOD DAMAGE RESISTANT MATERIAL

- "Flood [damage]-resistant material" is defined by the NFIP as "any building product [material, component or system] capable of **withstanding direct and prolonged contact** with floodwaters without sustaining significant damage." The term "prolonged contact" means at least 72 hours, and the term "significant damage" means any damage requiring more than cosmetic repair. "Cosmetic repair" includes cleaning, sanitizing, and resurfacing (e.g., sanding, repair of joints, repainting) of the material. The cost of cosmetic repair should also be less than the cost of replacement of affected materials and systems. In addition to these requirements, individual materials that are considered flood damage-resistant must not cause degradation of adjacent materials or the systems of which the material is a part.

Table 2. Types, Uses, and Classifications of Materials

Types of Building Materials	Uses of Building Materials		Classes of Building Materials				
			Acceptable		Unacceptable		
	Floors	Walls/ Ceilings	5	4	3	2	1
Structural Materials (floor slabs, beams, subfloors, framing, and interior/exterior sheathing)							
Asbestos-cement board		■	■				
Brick							
Face or glazed		■	■				
Common (clay)		■		■			
Cast stone (in waterproof mortar)		■	■				
Cement board/fiber-cement board		■	■				
Cement/latex, formed-in-place	■			■			
Clay tile, structural glazed		■	■				
Concrete, precast or cast-in-place	■	■	■				
Concrete block[1]		■	■				
Gypsum products							
Paper-faced gypsum board		■			■		
Non-paper-faced gypsum board		■		■			
Greenboard		■				■	
Keene's cement or plaster		■			■		
Plaster, otherwise, including acoustical		■				■	
Sheathing panels, exterior grade		■			■		
Water-resistant, fiber-reinforced gypsum exterior sheathing		■		■			
Hardboard (high-density fiberboard)							
Tempered, enamel or plastic coated		■				■	
All other types		■					■
Mineral fiberboard		■					■
Oriented-strand board (OSB)							
Exterior grade	■	■				■	
Edge swell-resistant OSB	■	■				■	
All other types	■	■					■
Particle board	■						■
Plywood							
Marine grade	■	■	■				
Preservative-treated, alkaline copper quaternary (ACQ) or copper azole (C-A)	■	■		■			

Table 2. Types, Uses, and Classifications of Materials (continued)

Types of Building Materials	Uses of Building Materials		Classes of Building Materials				
			Acceptable		Unacceptable		
	Floors	Walls/ Ceilings	5	4	3	2	1
Structural Materials (floor slabs, beams, subfloors, framing, and interior/exterior sheathing)							
Preservative-treated, Borate[2]	■	■	■				
Exterior grade/Exposure1 (WBP – weather and boil proof)	■	■		■			
All other types	■	■					■
Recycled plastic lumber (RPL)							
Commingled, with 80-90% polyethylene (PE)	■		■				
Fiber-reinforced, with glass fiber strands	■		■				
High-density polyethylene (HDPE), up to 95%	■		■				
Wood-filled, with 50% sawdust or wood fiber	■				■		
Stone							
Natural or artificial non-absorbent solid or veneer, waterproof grout	■	■	■				
All other applications		■				■	
Structural Building Components							
Floor trusses, wood, solid (2x4s), decay-resistant or preservative-treated	■	■		■			
Floor trusses, steel[3]	■		■				
Headers and beams, solid (2x4s) or plywood, exterior grade or preservative-treated		■		■			
Headers and beams, OSB, exterior grade or edge-swell resistant		■				■	
Headers and beams, steel[3]		■	■				
I-joists	■					■	
Wall panels, plywood, exterior grade or preservative-treated		■		■			
Wall panels, OSB, exterior grade or edge-swell resistant		■				■	
Wall panels, steel[3]		■		■			

Table 2. Types, Uses, and Classifications of Materials (continued)

Types of Building Materials	Uses of Building Materials		Classes of Building Materials				
			Acceptable		Unacceptable		
	Floors	Walls/ Ceilings	5	4	3	2	1
Structural Materials (floor slabs, beams, subfloors, framing, and interior/exterior sheathing)							
Wood							
Solid, standard, structural (2x4s)		■		■			
Solid, standard, finish/trim		■			■		
Solid, decay-resistant[4]	■	■	■				
Solid, preservative-treated, ACQ or C-A		■		■			
Solid, preservative-treated, Borate[2]		■		■			
Finish Materials (floor coverings, wall and ceiling finishes, insulation, cabinets, doors, partitions, and windows)							
Asphalt tile[5]							
With asphaltic adhesives	■				■		
All other types	■						■
Cabinets, built-in							
Wood		■				■	
Particle board		■					■
Metal[3]		■		■			
Carpeting	■						■
Ceramic and porcelain tile							
With mortar set	■	■		■			
With organic adhesives	■	■				■	
Concrete tile, with mortar set	■		■				
Corkboard		■				■	
Doors							
Wood, hollow		■				■	
Wood, lightweight panel construction		■				■	
Wood, solid		■				■	
Metal, hollow[3]		■		■			
Metal, wood core[3]		■		■			
Metal, foam-filled core[3]		■		■			
Fiberglass, wood core		■		■			
Epoxy, formed-in-place	■		■				

Table 2. Types, Uses, and Classifications of Materials (continued)

Types of Building Materials	Uses of Building Materials		Classes of Building Materials				
			Acceptable		Unacceptable		
	Floors	Walls/ Ceilings	5	4	3	2	1
Finish Materials (floor coverings, wall and ceiling finishes, insulation, cabinets, doors, partitions, and windows)							
Glass (sheets, colored tiles, panels)		■		■			
Glass blocks		■	■				
Insulation							
Sprayed polyurethane foam (SPUF) or closed-cell plastic foams	■	■	■				
Inorganic – fiberglass, mineral wool: batts, blankets, or blown	■	■			■		
All other types (cellulose, cotton, open-cell plastic foams, etc.)	■	■				■	
Linoleum	■						■
Magnesite (magnesium oxychloride)	■						■
Mastic felt-base floor covering	■						■
Mastic flooring, formed-in-place	■		■				
Metals, non-ferrous (aluminum, copper, or zinc tiles)		■			■		
Metals							
Non-ferrous (aluminum, copper, or zinc tiles)		■			■		
Metals, ferrous[3]		■		■			
Paint							
Polyester-epoxy and other oil-based waterproof types		■		■			
Latex		■		■			
Partitions, folding							
Wood		■				■	
Metal[3]		■		■			
Fabric-covered		■					■
Partitions, stationary (free-standing)							
Wood frame		■		■			
Metal[3]		■		■			
Glass, unreinforced		■		■			
Glass, reinforced		■		■			
Gypsum, solid or block		■					■

Table 2. Types, Uses, and Classifications of Materials (continued)

Types of Building Materials	Uses of Building Materials		Classes of Building Materials				
			Acceptable		Unacceptable		
	Floors	Walls/ Ceilings	5	4	3	2	1
Finish Materials (floor coverings, wall and ceiling finishes, insulation, cabinets, doors, partitions, and windows)							
Polyurethane, formed-in-place	■		■				
Polyvinyl acetate (PVA) emulsion cement	■						■
Rubber							
Moldings and trim with epoxy polyamide adhesive or latex-hydraulic cement		■		■			
All other applications		■					■
Rubber sheets or tiles[5]							
With chemical-set adhesives[6]	■		■				
All other applications	■						■
Silicone floor, formed-in-place	■		■				
Steel (panels, trim, tile)							
With waterproof adhesives[3]		■	■				
With non-waterproof adhesives		■				■	
Terrazo	■			■			
Vinyl asbestos tile (semi-flexible vinyl)[5]							
With asphaltic adhesives	■		■				
All other applications	■						■
Vinyl sheets or tiles (coated on cork or wood product backings)	■						■
Vinyl sheets or tiles (homogeneous)[5]							
With chemical-set adhesives[6]	■			■			
All other applications	■						■
Wall coverings							
Paper, burlap, cloth types		■					■
Vinyl, plastic, wall paper		■					■
Wood floor coverings							
Wood (solid)	■						■
Engineered wood flooring	■					■	
Plastic laminate flooring	■					■	
Wood composition blocks, laid in cement mortar	■					■	
Wood composition blocks, dipped and laid in hot pitch or bitumen	■					■	

Notes*:

1 Unfilled concrete block cells can create a reservoir that can hold water following a flood, which can make the blocks difficult or impossible to clean if the floodwaters are contaminated.

2 Borate preservative-treated wood meets the NFIP requirements for flood damge-resistantce; however, the borate can leach out of the wood if the material is continuously exposed to standing or moving water.

3 Not recommended in areas subject to salt-water flooding.

4 Examples of decay-resistant lumber include heart wood of redwood, cedar, and black locust. Refer to Section 2302 of the International Building Code® (IBC®) and Section R202 of the International Residential Code® (IRC®) for guidance.

5 Using normally specified suspended flooring (i.e., above-grade) adhesives, including sulfite liquor (lignin or "linoleum paste"), rubber/asphaltic dispersions, or "alcohol" type resinous adhesives (culmar, oleoresin).

6 Examples include epoxy-polyamide adhesives or latex-hydraulic cement.

* In addition to the requirements of TB 2 for flood damage resistance, building materials must also comply with any additional requirements of applicable building codes. For example, for wood products such as solid 2x4s and plywood, applicable building code requirements typically include protection against decay and termites and will specify use of preservative-treated or decay-resistant wood for certain applications. Applications that require preservative-treated or decay-resistant species include wood in contact with the ground, wood exposed to weather, wood on exterior foundation walls, or wood members close to the exposed ground. In some cases, applicable building code requirements (such as those in ASCE 24-05 and IRC 2006) do not reflect updated guidance in TB 2 and specify that all wood used below the design flood elevation be preservative-treated or naturally decay-resistant regardless of proximity to ground or exposure to weather. (Revision made in October 2010)

WHAT CONSIDERATIONS NEED TO BE REVIEWED PRIOR TO CONSTRUCTION

- Wet floodproofed structures must be anchored to resist flotation, collapse, and lateral movement.
- Portions of structures below the BFE must be constructed of flood-damage-resistant materials.
- Enclosed areas must have measures that equalize hydrostatic forces on exterior walls by allowing the automatic entry and exit of floodwaters. This is accomplished by installing at least two flood openings in the walls of each enclosed area.
- Mechanical and utility equipment, including electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities, **must be** elevated, dry floodproofed, or specifically designed to prevent water from entering or accumulating within the components during flooding.

WHAT THE TOWN NEEDS TO CONSIDER

- Limit what is stored in wet floodproofed areas and structures. Because contents will get wet during flooding, contents should be low-value items. Some communities specify the types of contents that can be stored, and some prohibit the storage of hazardous materials or pollutants.
- Require non-conversion agreements as part of approving wet floodproofed areas and structures. These agreements, signed by applicants and property owners, affirm that owners agree not to convert or modify in any manner that is inconsistent with the approved permit (and variance conditions, when applicable). Specifically, owners agree not to convert the space to uses other than approved uses. Communities typically require non-conversion agreements to be recorded on property deeds to notify future owners.

WHAT IF WE REPEAL ARTICLE 175: FLOODPLAIN MANAGEMENT?

INVESTIGATING A RESIDENT SUGGESTION

Remove Floodplain Ordinance from ULDC

FROM FEMA NFIP FLOODPLAIN MANAGEMENT REQUIREMENTS MANUAL 480

Sanctions for Non-Participation

- **Federal flood insurance will not be available. No resident will be able to purchase a flood insurance policy through the NFIP.**
- **Existing NFIP flood insurance policies will not be renewed.**
- **No Federal grants or loans for the acquisition or construction of buildings may be made in identified flood hazard area under programs administered by Federal agencies such HUD, EPA, and SBA.**
- **No Federal disaster assistance may be provided to repair insurable buildings located in identified flood hazard areas for damage caused by a flood**
- **No Federal mortgage insurance or loan guarantees may be provided in identified flood hazard areas. This includes policies written by FHA, VA, and others.**
- **Federally insured of regulated lending institutions, such as banks and credit unions, must notify applicants seeking home loans for insurable buildings in flood hazard areas that:**
  - **There is a flood hazard and**
  - **The property is not eligible for Federal disaster relief.**

Questions posed to FEMA by a Resident

Resident Questions	Notes by FDEM on behalf of FEMA
*Is a community/town required to participate in the FEMA floodplain? · What happens if a community does not want to participate in the program? · What are the advantages for participating in the program?	The Town adopted its first floodplain management ordinance in November 2017. FEMA accepted the Town into the National Flood Insurance Program on May 7, 2018. For consequences and advantages, see FEMA 496, Joining the NFIP (attached), and https://www.fema.gov/glossary/participation-nfip
*Does FEMA allow for exceptions and rules specific for agricultural communities? *Does FEMA allow for exemptions or less stringent standards for agricultural lands? Agricultural buildings? Agricultural accessory buildings? *Since our properties are so large, Can we draft language in our ordinance to allow for Floodplain rules for the area around the construction or building site plan if the remainder of the land is not used or untouched?? *Are there waivers for agriculture and agriculture buildings?	No, but FEMA did release a policy and bulletin that articulates very specific provisions for granting variances to agricultural structures. **Homes on agricultural lands or in "rural" areas are not "ag structures" for this purpose.** See our guidance (attached), which has link to the FEMA bulletin. There is no provision for large properties, but only the activity being proposed is subject to the requirements of the Town's Article 175 (floodplain) and buildings are required to comply with the Florida Building Code (which includes flood requirements).
In the NFIP manual under small developments recommended BFE for the site plan but is was not needed as it was recognized that the cost associated with it could be higher than the cost of the building itself.	I think you refer to FEMA 480. Please note that "small" does not refer to the size of the proposed activity compared to the size of the owner's parcel of land.
*How does a community get approved for community-wide exceptions for agricultural structures?	This is a very challenging process and as far as I know, only one or two counties have been approved since the policy was issued.
*Does FEMA Floodplain require the land owner to fill in the properties historic drainage areas and place a berm around the entire perimeter of the property?	No. Many communities do have separate regulations for stormwater and drainage that might apply.
*Can a community write in exceptions for requiring Floodplain for minor repairs or additions on an already existing building? If so how is that doen and articulated "Nonsubstantial improvements" would that be acceptable wording to accomplish that exemption?	This is already covered in the Florida Building Code, and Article 175, Sec. 175-080. If the cost of minor repairs doesn't equal or exceed 50% of the market value of the building, then the repairs are allowed without requiring the building to be brought into compliance The 8th Edition Florida Building Code, Existing Building volume, has specific provisions for additions to buildings in flood hazard areas, including "non-substantial additions."

WHAT REQUIRES TOWN COUNCIL CONSIDERATION?

Let's consider this hypothetical application of information presented so far:

A resident has had a house and barn on the property since purchasing in 2015, owns four horses and lives beside a wooded lot. The wooded lot is purchased, cleared, and regraded. The lot owner constructs a fence, a driveway, a barn, and a new house. The driveway of the newly cleared lot is covered with 2-3 inches of water during the next three fairly minor rainfalls.

The owner of the new lot digs a small ditch to take water to the property edge and away from the driveway. During the next rain, heavier than the three previous rains, the new driveway remains dry.

Several days later, the neighboring owner notices that three of four horses are showing signs of rain rot on their rear legs for the first time in 9 years. During the next major rain, their driveway is covered in 2-3 inches of water. During the next hurricane, their barn is 2-3 inches deep in standing water, also for the first time in the history of the resident's occupation.

WHAT REQUIRES TOWN COUNCIL CONSIDERATION?

QUESTIONS:

- At what point should a resident be willing to accept drainage onto their property from changes made by someone else on someone else's property?
- Would the Town have any responsibility for reducing the required level of protection?
- Would removing protections for residents create other issues creating neighbor disputes?
- What if the problem occurs on a lot several lots away from the site changes, instead of directly next door, with two unaffected lots between? Should a resident be more or less willing to accept the additional runoff onto their property in that case?

WHAT REQUIRES TOWN COUNCIL CONSIDERATION?

NOTE ON LEVEL OF SERVICE:

A “10-Year, 3-Day storm event” references a nomenclature known as **IDF** for “Intensity, Duration, Frequency” which is based on a statistical analysis of historical rainfall data from real-time rain gauges and recording equipment

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Intensity = Amount of rainfall per unit of time (inches/hour, ft/day, etc.)

Within the limits of the Town of Loxahatchee Groves, a 10-Year, 3-Day storm event, SFWMD precipitation values for this event range between 9 and 10 inches. Intensity is 9 inches divided by 72 hrs.

(1/8 of an inch per hour = 0.125 in/hr)

Duration = Length of time rainfall occurs (hr, day, etc.)

The Duration of this storm is 3 days or 72 hrs. For a shorter storm like a 10-Year, 1-Day, the total amount of rain decreases (7-8 inches), but it falls over a shorter period of time. The intensity is now 7 inches divided by 24 hours (7/24 of an inch per hour = 0.29 in/hr) and is more than double that of a 72-hour duration storm.

Frequency = Statistical likelihood of occurrence (storms per year, storms per 100-years, % chance)

A 10-year storm event is synonymous with “1 in 10 years”, “10 in 100 years”, or 10% chance of occurrence in any single year

WHAT REQUIRES TOWN COUNCIL CONSIDERATION?

NOTE ON LEVEL OF SERVICE:

Code references to level of service specify a given level of protection for properties from activities conducted by their neighbors or developers:

10-Year, 3-Day storm = 1 per 10 years = 10 per 100 years = **10%** chance in a single year

25-Year, 3-Day storm = 1 per 25 years = 4 per 100 years = **4%** chance in a single year

100-Year, 3-Day storm = 1 per 100 years = **1%** chance in a single year

So,

10-Y, 3-D = 90% protection

25-Y, 3-D = 96% protection

100-Y, 3-D = 99% protection

For health and human safety, public agencies have adopted the **99%** protection level for structures occupied by humans as mirrored by requirements for **State permits**, for **Building Code** compliance, and for **Flood Protection**

WHAT REQUIRES TOWN COUNCIL CONSIDERATION?

CONSIDERATOINS:

As Town Council reviews the criteria in the ULDC, consider what the impact might be to residents, developers, buyers and sellers of a reassurance that protection levels are at 90% vs. 99%

A set of calculations to show that a proposed design provides the required protection seems unavoidable, regardless of what exact value or level of service they are attempting to quantify. “No adverse impacts to adjacent properties” is the requirement, and reviewing the design before construction is the best way to catch potential issues before they become legal disputes or damage claims.

LOXAHATCHEE GROVES COUNCIL APPROVES FLOOD PLAIN ORDINANCE

The Loxahatchee Groves Town Council approved the final reading Tuesday, Dec. 5 of a floodplain ordinance that will enable the town and residents to participate in the National Flood Insurance Program.

The goal was to give residents with property designated by Federal Emergency Management Agency (FEMA) maps as in the flood plain the opportunity to obtain lower-cost flood insurance.

The ordinance changed the Unified Land Development Code and required four votes to approve. Councilman Dave DeMarois was absent.

The ordinance was reviewed by the Planning & Zoning Committee and ULDC Committee, which both recommended approval.

He said that all 410 municipalities in Florida except 10, including Loxahatchee Groves, have approved a flood plain ordinance.

"The people in Washington and Tallahassee have been monitoring this, and we're the only municipality in Palm Beach County that doesn't have it," Cirullo said. "Without this policy, nonresidents in this town can participate in the federal flood insurance program."

Town Manager Bill Underwood said that without the ordinance, the town would not be eligible for water mitigation grants to handle canal and drainage issues. Underwood added that Dec. 15 is the "drop dead date" for people who have mortgages.

Batcheler said that some residents are considered in the flood zone if any part of their property is within the flood plain map.

Vice Mayor Ron Arriel made a motion to approve the ordinance, which carried 4-0.

Excerpt from: Town-Crier Newspaper 12-8-17

LOXAHATCHEE GROVES COUNCIL APPROVES FLOOD PLAIN ORDINANCE

Mayor Dave Browning stressed that the ordinance will benefit the residents, explaining that one resident had told him that without the town joining the program, his flood insurance would be unaffordable.

During public comment, Dennis Lip, who chairs the Planning & Zoning Committee, said that committee members were concerned that residents were covered for one occurrence only, and if it were cumulative over a period of time, it would be less of a burden.

"If you get $100,000 worth of damage and your insurance doesn't kick in until $200,000,you don't get any money, and next year there's another flood event you have another$100,000, then you don't get any money," Lipp said. "If it's cumulative, which is allowable, then it kicks in for you."

Joyce Batcheler said that as a member of the ULDC Committee, she thought it is important for the town to be covered.

Vice Mayor Ron Arriel made a motion to approve the ordinance, which carried 4-0.

Excerpt from: Town-Crier Newspaper 12-8-17

UNINCORPORATED LOGAN COUNTY FACING SUSPENSION FROM THE NATIONAL FLOOD INSURANCE PROGRAM

- **DENVER** – Unincorporated Logan County, **Colorado will be suspended from the National Flood Insurance Program (NFIP)** on March 30, 2023, due to deficiencies and violations with the county's floodplain management program.
- Logan County is an NFIP-participating community with 24 flood insurance policies in force with a total coverage of more than $3.5 million as of Nov. 30, 2022. The county's participation includes only unincorporated areas. The towns of Fleming and Iliff and the City of Sterling participated independently in the NFIP and will not be impacted by the suspension.
- When a community joins the NFIP, it voluntarily adopts local floodplain management regulations to meet NFIP minimum floodplain management criteria. FEMA research has shown that such local regulations have resulted in more than $100 billion in flood losses avoided in the past 40 years.

UNINCORPORATED LOGAN COUNTY FACING SUSPENSION FROM THE NATIONAL FLOOD INSURANCE PROGRAM

- Upon suspension, flood insurance from the NFIP will no longer be available for purchase by residents of unincorporated Logan County. Existing policies will not be renewed.
- If a flood disaster occurs in a suspended community, federal disaster assistance is also limited. This includes the acquisition, construction, or repair of insurable structures within the Special Flood Hazard Area as well as assistance to individuals and households for housing and personal property.
- FEMA will continue to provide technical assistance and guidance to the county to resolve program deficiencies and correct the violations should Logan County seek to rejoin the program.

- Excerpts from Article dated 7-2-24

ARTICLE 175 & OUR NEIGHBORS

- Reviewed Floodplain Management Code Sections in the following areas:
  - Rural municipalities within PBC
  - Rural municipalities outside PBC
    - Each one had the same code, word for word, there were no apparent deviations or omissions:

Wellington - Chapter 5, Article II

Royal Palm Beach - Chapter 11.5, Article I

Belle Glade - Chapter 12, Article I

Lakeland - Article 6, Section 6.2

Davie - Chapter 12, Article XVI

Pahokee - Chapter 10, Article I

La Belle - Chapter 7, Article I

Clewiston - Chapter 98, Article V

Palm City (Martin County) - Article 4, Division 10

WHAT MAKES US DIFFERENT?

Even though other Municipalities or Communities have the same or more stringent Floodplain Ordinances, **Loxahatchee Groves is different**

- The Town was originally platted in 1920 with right of ways of 60' for both road and drainage.
- Over 600 parcels are part of unrecorded plats, under 5 acres, strain the Town's drainage infrastructure, and built without consideration for drainage.
- Limited to no drainage and roadway infrastructure
- No planned easement dedications to the Town or HOA or Landowner
- Lack of or deferred maintenance
- No Town storage areas, impoundments, lakes or drainage basins
- Insufficient right-of-way widths
- Town has remained rural for over 110 years.

WHAT MAKES US DIFFERENT?

Even though other Municipalities or Communities have the same or more stringent Floodplain Ordinances, **Loxahatchee Groves is different**

- The current Town plat with 60-foot-wide rights-of-way for both road and drainage has remained unchanged since 1925. Most comparable rural districts have updated their underlying framework in that interim.
- Subdivisions in unrecorded plats containing non-conforming lots (less than 5 acres) create pockets of unusually high density without formal provisions for drainage. These have become the Town's responsibility by default.
- Limited drainage and roadway infrastructure
- No planned easement dedications to the Town or HOA or Landowner
- Lack of or deferred maintenance
- No storage areas, impoundments, lakes or drainage basins are owned by the Town to provide additional storage outside of the canal system conveyance channels
- Town has remained faithfully rural for over 110 years, while comparable areas have shifted to more mechanical agricultural methods and include typically more industrial processing facilities for agricultural products

4. TOWN RULES

TOWN RULES

- Comprehensive Plan – Specifies Level of Service requirements for roads and drainage as submitted to the state
- Code of Ordinances
  - Chapter 10, Article 1, Section 10-1 Adopts Florida Building Code by Reference
  - Chapter 34, Article 1, Section 34-3 Establishes Cost Recovery for Town's expense in reviewing permit applications
- Unified Land Development Code
  - Part 1, Article 05, Section 05-004 Requires permits for alteration of land
  - Part III, Article 65, Section 65-010 Requires documentation of agricultural status from Palm Beach County Property Appraiser for agricultural considerations to apply
  - **Part III, Article 70 Provides rules for protecting properties from flooding cause by improper use or maintenance of drainage**
  - Part III, Article 75 Establishes a date of October 1, 2006. Prior existing uses are permitted to remain, but any change requires adherence to current standards
  - Part V, Article 110 Establishes requirements for permit applications and approvals
  - **Part V, Article 130 Cites consistency with the Comprehensive Plan for drainage and other facilities, and lists the specific technical design criteria**
  - Part V, Article 145 Establishes procedures for Administrative Appeal in the case of a wrongful determination by Town staff or consultants
  - Part V, Article 150 Establishes procedures for Variance if an extraordinary hardship would be imposed by compliance with the ULDC
  - Part V, Article 175 Contains provisions required for continued access to NFIP flood insurance as well as access to mortgage loans and financing from federally backed lending institutions for properties located in a FEMA-designated flood zone.

ARTICLE 130 CONCURRENCY REVIEWS

- **Section 130-005. Applicability.**
- (A) All applications for a development permit for

  - development of vacant land,
  - an increase in residential density on improved land,
  - an increase in nonresidential building area on improved land,
  - or any change in use,

shall be subject to an **adequacy determination for the amount of additional demand created by the proposed development or increase in intensity of use,** unless there was a previously approved site plan, plat or building permit…

SECTION 130-035. ADEQUACY OF DRAINAGE FACILITIES.

- (A) **Level of service.** As consistent with the Loxahatchee Groves Comprehensive Plan, the minimum design criteria and the standard to assess adequacy of service for drainage systems in the Town are as follows:
  - (1) Minimum roadway and parking lot elevations shall be at least at the highest elevation that may occur at the peak of the 10-year, one-day storm event;
  - **(2) Minimum site perimeter elevations shall be at least the 25-year, three-day stage. Site runoff up to such stage level may not overflow into any adjacent property, unless a permanent drainage easement is obtained;**
  - **(3) Dry or wet retention/detention, stage versus storage, stage versus discharge and flood routing calculations for the 10-year, one day; 25-year, three-day; and 100-year, three-day storm events for the site shall be submitted with the site development plans;**
  - (4) Building floor elevations shall be at or above the 100-year flood elevation, as determined from the Federal Flood Insurance Rate Maps or calculations following the latest South Florida Water Management District (SFWMD) methodology, whichever is greater;
  - **(5) Off-site discharge shall be limited to pre-development runoff based on the 25-year, three-day storm event calculated by SFWMD methods;**
  - (6) All roof runoff shall be detained on site.
  - (7) Storm sewers shall be designed to convey the five-year, one-day storm event.
  - (8) Prior to discharge to surface or groundwater, Best Management Practices (BMPS) of SFWMD shall be used to reduce pollutant loading from storm water runoff from non-agricultural uses.
  - (9) Prior to discharge to surface or groundwater, best management practices of the Department of Environmental Protection and United States Department of Agriculture shall be used to reduce pollutant loading from stormwater run-off from agricultural uses.
- **(B) All storm water management facilities in the Town shall be designed in accordance with the South Florida Water Management District criteria and with Loxahatchee Groves Water Control District criteria, when applicable.**

SECTION 130-035. ADEQUACY OF DRAINAGE FACILITIES.

(2) Minimum site perimeter elevations shall be at least the 25-year, three-day stage. Site runoff up to such stage level may not overflow into any adjacent property, unless a permanent drainage easement is obtained;

Code is current 25-yr, 3-day perimeter elevation

Intention is to not impact adjacent property

Use existing swales with Drainage Easement

(5) Off-site discharge shall be limited to pre-development runoff based on the 25-year, three day storm event calculated by SFWMD methods;

Allowable discharge rate calculated from the 25-yr, 3-day storm event.

Important for Town to store rainfall in canals prior to private property flowing into system

SECTION 130-035. ADEQUACY OF DRAINAGE FACILITIES.

(3) Dry or wet retention/detention, stage versus storage, stage versus discharge and flood routing calculations for the 10-year, one day; 25-year, three-day; and 100-year, three-day storm events for the site shall be submitted with the site development plans;

Summary of requested calculations:

Requires dry or wet Retention/Detention

Calculations required by Engineer of Record; used to find the FFE, discharge, perimeter grades, etc.

10 yr, 1 day: roadway/parking: 7- 8 inches

10 yr, 3 day: possible for discharge and perimeter elevations: 9 - 10 inches

25 yr, 3 day: discharge; perimeter elevation; control structure elevation: 10- 12 inches

100 yr, 3 day: Finished Floor Elevation: 13-15 inches

(B) All storm water management facilities in the Town shall be designed in accordance with the **South Florida Water Management District criteria** and with **Loxahatchee Groves Water Control District criteria**, when applicable.

5. LAND DEVELOPMENT PERMITTING

LAND DEVELOPMENT PERMIT – NOT FDA

Town of Loxahatchee Groves

Land Development Permit Application

Application Information

1. The issuance of a Land Development Permit by the Town for site work with complete engineering plans is required prior to the approval of any building permit application.
2. Escrow account for cost recovery per Town of Loxahatchee Groves Code of Ordinances, Part II, Section 34-3 and pre-construction meeting (to be scheduled by applicant) are required for all applications.
3. Retroactive (after the fact) applications require 4x listed application fee in addition to escrow deposit.
4. All Permits are processed electronically via the Gov-Easy Portal Permit Submittal Instruction

The following information & documents are required for acceptance of the application. Please check boxes corresponding with the documents being submitted. The list of plans and documents are provided to assist applicants with preparing complete and accurate submittal packages.

- ❑ **Land Development Permit**
  - ❑ Completed Land Development Application Form
  - ❑ Proof of Ownership (Deed, Listed Agent of Registered Corporation)
  - ❑ Owner's Affidavit
  - ❑ Agent Consent Form (If Other than Owner)
  - ❑ Contractor's Registration with Town of Loxahatchee Groves
  - ❑ Boundary & Topographic Survey
  - ❑ Approved Site Plan indicating location and extend of proposed activity
  - ❑ Payment (at the time of submittal) to be made at https://apps.gov-easy.com/Home How to Make Payment Make payment for the total amount due including all selected applications to begin the review of your application.

LAND DEVELOPMENT PERMIT – SITE DEVELOPMENT OR RIGHT-OF-WAY APPLICAITONS

* Escrow deposit of $5000 required for multiple, concurrent applications.

Check All That Apply	Land Development Applications	Application Fee	Escrow Deposit	Total Amount Due
	Site Development (SD) (Requires Vegetation Removal Application)			
	Site Development	$250	$2,000	$2,250
	Agricultural Water Use	$250	$2,000	$2,250
	Right-of-Way (RW)			
	Right-of-Way - Drainage Connection to R/W line	$500	$2,000	$2,500
	Right-of-Way - Drainage through R/W	$500	$2,000	$2,500
	Right-of-Way - Driveway Connection to R/W line	$500	$2,000	$2,500
	Right-of-Way - Driveway through R/W or over canal	$500	$5,000	$5,500
	Right-of-Way - Utility	$500	$2,000	$2,500
	Right-of-Way - Utility, Comm.	$500	-----	$500
	Right-of-Way - Other	$500	$2,000	$2,500

MINIMUM REVIEW DOCUMENTS NEEDED FOR SD PERMIT

- ❑ **Site Development**
  - ❑ Application – Fill out Page 2 & 3 of this application
  - ❑ Paving, Grading & Drainage Plans & Details
  - ❑ Erosion Control Plans & Details (this can be combined with PGD plans)
  - ❑ Maintenance of Traffic Plans & Details (this can be combined with PGD plans)
  - ❑ Engineer's Calculations with Surface Water Management (typically with SD permit)
  - ❑ Boundary & Topo Survey

FLOOD WORKSHEET

- **Used by reviewers to check EOR calculations**
- **Can be provided to EOR as a guide for Floodplain Compensating Storage Calculations to compare runoff and storage quantities in the pre- and post-development conditions**

Town of Loxahatchee Groves

Site Development Permit Application – Floodplain Development Worksheet

Data Entry and Results — Page 1 of 2

Application _____ **Address:** _____

Project Name: _____

Instructions:

Elevations must be in feet per NAVD 1988. Canal operational stage assumed as lowest SHWT for storage. Soil storage per SFWMD Applicant's Handbook, Volume II, Section 5.7.4.2 is provided as the basis for soil storage calcula:

Values must be entered in indicated units for accurate results.

Parameters

Wet Season High Water Table (ft NAVD '88)	14.5	ft	*Canal Stage (Min. SHWT)*
100 Year Flood Elevation (ft NAVD '88)	17.6	ft	*FEMA Base Flood El. (BFE)*
100Y-3D Rainfall Amount (in.)		in	13" - 14" per SFWMD Rainfall Maps

Site Data	**Existing**	**Proposed**		
Total Area (ac)		4.17	ac	
Impervious Area (ac)			ac	
Storage at BFE (acre-feet)			acre-feet	
Water Table El. (ft NAVD '88)			ft	
Avg. Site Elevation (ft NAVD '88)			ft	
Soil Type	Flatwoods	Flatwoods	*Flatwoods*	*Depressional*
Compacted Soil	Yes	Yes	*Yes*	*No*

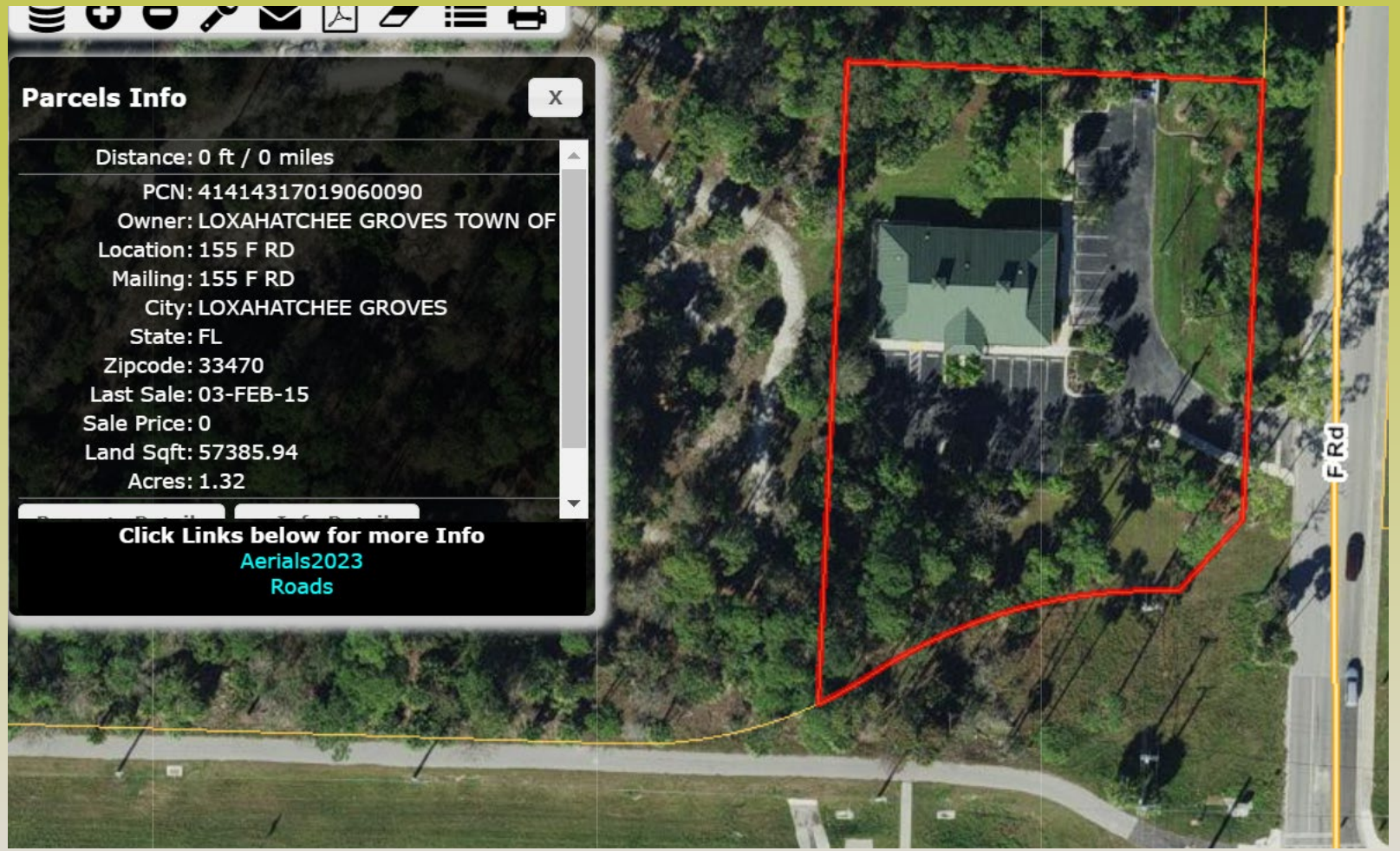
Results $Q = \frac{(P - 0.2"S)^2}{(P + 0.8"S)}$ *Calculations on Page 2*

Existing Runoff Q =	0.01	in	0.00	ac-ft	
S =	0.10	in			
Storage at BFE =			0.00	ac-ft	
Existing Net Runoff =		*Export*	**0.00**	**ac-ft**	
Proposed Runoff Q =	0.01	in	0.00	ac-ft	
S =	0.10	in			
Design Storage at BFE =			0.00	ac-ft	
Proposed Net Runoff =		*Export*	**0.00**	**ac-ft**	Storage Meets Criteria
Min. Required Storage at BFE =			**0.00**	**ac-ft**	
Change in Runoff =			0.00	ac-ft	
Change in Storage =			0.00	ac-ft	
Change in Net Runo		*Export*	**0.00**	**ac-ft**	Storage Meets Criteria

REVISION NEEDED *0.00* *Additional acre-feet required at BFE*

PBC MyGeoNav – Available to Everyone

https://maps.co.palm-beach.fl.us/mygeonav/#



National Flood Hazard Layer – Find your Flood Zone

SITE DEVELOPMENT PERMITTING PROCESS

- **Landowner should be part of the process AND have on-going conversations with their Engineer Of Record (EOR) throughout the process,**
- **Initial review time approx. 2 to 4 weeks. Process includes Building Official, Floodplain Manager, Engineer Reviewer, Planner, and others as required.**
- **Most reviews require MULTIPLE exchanges between the EOR and reviewers to obtain all required information.**

SITE DEVELOPMENT PERMITTING PROCESS

- **Property Owner should be included on all digital correspondence**
- **Owner should have open communications with their Engineer of Record (EOR) throughout the process**
- **Initial review time (once an application submittal package is complete) is approx. 2 to 4 weeks. Process includes Building Official, Floodplain Manager, Engineer Reviewer, Planner, and others as required.**
- **Most reviews require MULTIPLE exchanges between the EOR and reviewers to obtain all required information and provide concurrent acceptance where responsibilities overlap**
- **Incoming application volume fluctuates, and staff availability may become a factor during peaks**
- **Town staff have a multitude of other responsibilities, and cannot always attend to permit correspondence immediately without impacting other aspects of their workload**

SITE DEVELOPMENT PERMITTING PROCESS

- **Landowner should be part of the process AND have on-going conversations with their Engineer Of Record (EOR) throughout the process,**
- **Initial review time approx. 2 to 4 weeks. Process includes Building Official, Floodplain Manager, Engineer Reviewer, Planner, and others as required.**
- **Most reviews require MULTIPLE exchanges between the EOR and reviewers to obtain all required information.**

SITE DEVELOPMENT PERMITTING PROCESS (CONT.)

EOR time approx. 40-60 hours

- Boundary & Topo Survey showing easements and floodplain contour
- * Create Site Development Plan – where everything is located with setbacks (buildings, drainage, septic, driveways, slab, tanks, sand ring, paddocks, pens, stalls, etc)
- Analyze pre-development conditions
- Analyze and compare post-development conditions
- Design/Calculations – FFE's, stormwater, discharge pipe/control structure
- Modify plan per calculations, landowner requests and * reviewer comments
- * Coordination with reviewers and Town staff as needed.

*** Indicates items specific to the Town's process. Any design meeting the requirements for Florida licensed Professional Engineers is required to include most of these elements.**

6. PROPOSED SUGGESTIONS

SHORT AND LONG TERM

PROPOSED SUGGESTIONS – SHORT TERM

1. **Implement a pre-application meeting with applicant (owner/engineer) for (a) properties10 acres or more & all properties between Collecting Canal Rd and Southern Blvd. and (b) optional for all other properties:**
    a. Explain permitting process, submittal requirements and EOR responsibilities
    b. Provide Floodplain spreadsheet for calculations and SFWMD example
    c. Reviewing specific site challenges for that property
    d. Explain Town's stormwater storage criteria,
    e. Town will dedicate set days and times for these virtual meetings
    f. Include site visit to identify existing swales/ditches and adjacent property impacts (needs prior scheduling)
    g. Explain permit close-out process

PROPOSED SUGGESTIONS – SHORT TERM

1. **Implement a pre-application meeting with applicant (owner/engineer) for (a) properties10 acres or more & all properties between Collecting Canal Rd and Southern Blvd. and (b) optional for all other properties:**
   a. Explain permitting process, submittal requirements and EOR responsibilities
   b. Provide Floodplain SFWMD example
   c. Reviewing **site-**specific challenges **and unique considerations** for that property
   d. Explain Town's stormwater storage criteria
   e. Town will dedicate set days and times for these virtual meetings
   f. Include site visit to identify existing swales/ditches and adjacent property impacts (needs prior scheduling)
   g. Explain permit close-out process

PROPOSED SUGGESTIONS – SHORT TERM

2. **Investigate potential permit exemptions and "de minimus" activities**
   a. **Formally verify and codify in the ULDC of** Resolutions 2017-19, 2017-87, 2017-88
   b. Propose similar County Ord. PB-0-128 for ± 20cy for 2yr
      i. Require residents to notify the Town with a one page form
      ii. Not including flood zones, wetlands, drainage easements, retention/detention areas
3. **Modify Town Drainage code**
   a. Reword Article 130-035 to clarify perimeter requirements. Berms are not the only option to **prevent offsite impacts caused by proposed site changes.**
   b. Encourage utilizing existing swales and ditches for storage and conveyance around the perimeter
   c. Enforce existing drainage easements and obtain drainage easements for shared swales/ditches
   d. Specify 10-yr, 1-day road elevations shall only be for Town roads. Private drives shall not be higher than adjacent Town Roadways
   e. Do not adversely impact adjacent properties

PROPOSED SUGGESTIONS – SHORT TERM

4. **Minor modification permits and "de minimus" activities**
   a. Better define a minor modification for land owners
   b. Clarify the process to obtain a FEMA Letter of Map Revision to be removed from the Floodplain
   c. Proposals need to be consulted with Floodplain Administrator
   d. Investigate potential standard changes for agricultural facilities
   e. Not including flood zones, wetlands, drainage easements, retention/detention areas
5. **Shorten review process and evaluate review fees**
   a. Planning, Engineering and Floodplain staff to review applications simultaneously
   b. Implement new "intake" software and review and update Standard Operating Procedures
   c. Evaluate fees to be proportionate to value of improvements

Originally, the reviewer completed the review prior to involving Town personnel to avoid spending administrator time on an otherwise un-approvable application

PROPOSED SUGGESTIONS – LONG TERM

1. **Evaluate results of Vulnerability Assessment (VA)**
   a. Alter grant applications wherever necessary **per priority projects and repairs**
   b. Re-evaluate short term initiatives if warranted **to prioritize system upkeep and cost-justified improvements**
   c. Modify long term goals
   d. Evaluate our calculations regarding the 25 year, 3-day protection for adjacent properties
2. **Future initiatives**
   a. Explore a potential Master Permit through SFMWD (meet with SFWMD staff)
   b. Explore Town owned property purchases **to provide options** for storm water attenuation credits to residents of properties within the floodplain
   c. Implement Community Rating System (CRS)
      - Reduces individual flood insurance policies
      - Enhances public safety
      - Reduces damage to property/infrastructure

PLEASE REMEMBER

LESS RESTRICTIONS = LESS PROTECTIONS

QUESTIONS?