STORMWATER MANAGEMENT
REGULATIONS, STANDARDS, PROCEDURES AND DESIGN CRITERIA

ADOPTED JUNE 26, 2024

CENTRAL BROWARD WATER CONTROL DISTRICT
BROWARD COUNTY, FLORIDA

BOARD OF COMMISSIONERS

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Susan Coyle, Vice Chair, Zone 2
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DISTRICT MANAGER/SECRETARY

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DISTRICT ENGINEER

Gary Tenn, P.E., Craven Thompson & Associates, Inc.
Hans Murzi, P.E., R.J. Behar & Company, Inc.

DISTRICT ATTORNEY

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CENTRAL BROWARD WATER CONTROL DISTRICT
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EXHIBITS INCORPORATED HEREIN BY REFERENCE:

A	Central Broward Water Control District Boundary Area
B	CBWCD Document Submittal Requirements
C	Paving and Drainage Check List for Applicants
D	100-Year Flood Elevation Map
E	10-Year Flood Elevation Map
F	Florida Department of Transportation 3-Year Storm Zone 10
G	Exfiltration Trench System
H	Headwall Detail
I	Typical Perimeter Berm Details
J	General Notes
K	Construction Tolerances
L-1	Subdivider's Completion Agreement
L-2	Subdivider's Completion Bond
M	Release of Subdivider’s Completion Agreement
N-1	Canal Easement Agreement
N-2	Canal Maintenance Easement Agreement
N-3	Drainage, Flowage and Storage Easement Agreement
N-4	Lake Maintenance Easement Agreement
N-5	Drainage Easement Agreement
N-6	Ingress/Egress Easement Agreement
O	District Variance Sign Detail
P	Maintenance Agreement
Q	Application for Stormwater Management Permit
R	Boat Ramp Detail
S	Dock and Deck Agreement
T	Suggested Wetland and Aquatic Plants and Planting Depth Ranges
U	Not used
V	Stormwater Certification Report
W	Checklist for Single Family Homes Plan Approval
X	Bleed Down Time for Retention Systems Sample Problem
Y	Typical Wetland Preserve Area Sign
Z	Surface Water Management Designation and Declaration of Restrictive Covenant
AA	Stormwater Management Works Permit Form

Copies of the exhibits are available at the District’s office and on the District’s web site centralbrowardwcd.org

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1. GENERAL

1.01 SCOPE

The provisions of these regulations and criteria shall apply to all existing and future development, construction, or reconstruction within the boundaries of the Central Broward Water Control District (District or CBWCD). District boundaries are shown in the Exhibits. For the purpose of these regulations and criteria development, construction or reconstruction shall be defined as any work which would affect the flow or level of water, whether surface or subterranean in origin; the alteration of ground elevations and/or dredging or filling activities.

1.02 PURPOSE

The purpose of these regulations and criteria are to promote the general health, safety, welfare, convenience, and economic well-being of the citizens within the Central Broward Water Control District by minimizing flooding and ensuring proper water management.

These regulations and criteria have been developed to provide engineers, surveyors and mappers, architects, and land planners with requirements for the design of all projects within the District.

1.03 AUTHORITY

These regulations and criteria have been prepared under the authority of the Central Broward Water Control District (District) as provided by an act of the State Legislature in 1982 describing the District boundary and authority, and additionally that authority vested and granted by the Water Resources Act, Chapter 61-1969, Laws of Florida and Chapter 2009-257, Laws of Florida, as amended.

1.04 REQUIREMENTS

All projects within the regulatory area of the District shall require that a Licensed Professional Engineer submit to the District a permit application for approval of the paving, grading, drainage and storm water management and discharge into the District's Waterway. The project information, documentation details, standard, and engineering analysis shall conform in content to the requirements stipulated in these regulations and criteria.

The permit holder shall be responsible for ensuring the constructed project meets the District's design criteria at the time of permit approval. The applicant shall submit sufficient details and avoid errors and omissions in the plans and supporting documentation to ensure the project is constructed in accordance with District

criteria. The permit holder shall correct any deviations from District criteria in the constructed project unless specifically exempted by a variance.

Submittal of a permit application and permitting by the District shall in no way eliminate the applicant's responsibility to conform to the Florida Building Code, Florida Building Code - Accessibility, Florida Fire Prevention Code, and the rules, regulations, policies or permitting requirements of other regulatory agencies such as: U.S. Army Corps of Engineers (USACE), Florida Department of Environmental Protection (FDEP), Florida Department of Transportation (FDOT), South Florida Water Management District (SFWMD), Broward County Environmental Protection and Growth Management Department (EPGMD), and the Applicable Unit of Local Government.

If the permitted plans include work that is outside of the project property limits, then the applicant must acquire written permission from the affected property owner(s) to perform such work and shall provide proper documentation (agreements, easements, approvals, etc.) to the District to work outside the limits of the applicant's property. Final acceptance of record drawings and release of bonds shall be contingent upon receiving no objections from affected property owner(s) within 30 days of initial Board action.

The criteria herein set forth by the District are the minimum criteria which must be met by an applicant in order to seek approval of the commission. Nothing herein shall prevent the District's Commission from imposing more stringent requirements than set forth by the criteria as circumstances may warrant on a case-by-case basis to protect the health, safety, and welfare of the residents of the District.

1.04.1 EXISTING ROADWAYS

Projects that abut a public road or street where there is no existing drainage, shall address this problem for the prevention of standing water.

1.04.2 EXISTING CANALS

Projects with property having a common border with a District canal that is adjacent to a roadway must provide guardrail along the canal for the length of the affected property boundary. This also applies when the property abuts a roadway and the District canal is located on the opposite side of the road.

1.04.3 CANAL RIGHTS-OF-WAY

Where the District requires canal Rights-of-Way, the Developer shall dedicate such right-of-way, and in addition shall dedicate a minimum twenty-foot (20') strip of land from the top of bank of the canal for a maintenance easement.

1.04.4 DRAINAGE EASEMENTS

All projects within the District, shall dedicate to the District, drainage easements as the District deems necessary for the project; to provide for adjacent property and for conformance with the District's Water Control Plan.

1.04.5 IMPROVEMENTS AND DISTRICT EASEMENTS

Except as provided for herein and in Section 2.14 of this criteria, all canal rights-of-way, canal easements, canal maintenance easements, drainage, flowage and storage easements, lake maintenance easements, and drainage easements shall be kept free and clear of all improvements, trees, plants, or encroachments.

The following improvements are allowed within a drainage, drainage, flowage and storage, lake maintenance, and ingress/egress easement to be dedicated to the District subject to providing adequate access: asphalt/concrete/paver pavement; curbing; sidewalks and hardscape; chain link fencing; and guardrail.

Ingress/egress easements that are coincident with a private road or entrance from the public right-of-way are allowed improvements within the easement limits provided the improvements do not block vehicular access to other easements to be dedicated to the District. The ingress/egress easement shall provide for a minimum 12-foot clear vehicular access path from the public right-of-way to other easements to be dedicated to the District.

Ingress/egress easements not coincident with a private road or entrance from the public right-of-way must be kept free and clear of all improvements, trees, plants, or encroachments, except as provided above. No utilities shall be placed in any District easement or right-of-way without approval by the District, and the utility system owner entering into a hold harmless and indemnification agreement with the District.

1.05 MAINTENANCE

Unless otherwise provided, all drainage easements dedicated to the District shall be maintained by the property owner or a property owners' association.

1.05.1 Drainage within the Rights-of-Way of public streets is the maintenance responsibility of the unit of local government responsible for the maintenance of the street.

1.05.2 Maintenance of lakes/ponds and water bodies is the responsibility of the property owner abutting, or a property owners association.

1.05.3 Notwithstanding the above, the District retains the right to enter into and perform such maintenance as it feels necessary to protect the District's drainage system.

In the event the District performs such maintenance, it will assess the property owner(s) for the costs involved and will lien the property as necessary.

1.06 RENEWALS

District Operating permits shall be valid for a period not to exceed five (5) years from the date that project as-built drawings are approved. Renewal applications shall be submitted to the District 60 days prior to permit expiration.

Paving and drainage plans and maintenance agreements approved by the District prior to renewal requirements shall submit renewal applications within 120 days of receiving notification by the District. Such surface water management works shall comply with all conditions and requirements at the time of District approval.

Each renewal application shall be accompanied by the applicable fee, a log of the operation and maintenance schedules for all the components of the stormwater management system, and a stormwater certification report (Exhibit V) signed and sealed by a Licensed Professional Engineer certifying that the components of the stormwater management system are functioning as permitted. Refer to Exhibit V, *Stormwater Certification Report,* for minimum list of stormwater management system components that must be certified with each renewal cycle. If required, the property owner shall upgrade the drainage system to ensure proper operation for water quality and drainage as required and in place at the time of the original approval.

1.07 EXISTING DEVELOPMENT

All water management works for which permits, approved paving and drainage plans, and/or maintenance agreements have been issued by the District shall continue to comply with all conditions and requirements at the time of District approval. If such water management works are determined to have caused, are causing, or will cause an immediate adverse impact on the public, the property owner shall be required to modify the portion of the water management works which is causing or will cause the adverse impact.

Existing development and water management works constructed prior to the requirement for permits and District approved paving and drainage plans, shall be exempt from the requirements of these regulations and criteria. If it is

determined that the existing works (or lack of water management works) have caused, are causing, or are predicted to cause an immediate adverse impact on the public, the property owner shall be required to modify the portion of the water management work which is causing or will cause the adverse impact to meet the District's current criteria to the extent practical and in the discretion of the District.

2. ENGINEERING CRITERIA

2.01 GENERAL

The following regulations and criteria will be utilized by the District in the review of plans, plats, as-builts, or other submittals.

2.01.1 DEFINITIONS

Definition and terms that are not defined below shall be given their ordinary and customary meaning or usage of the trade or will be defined using published, generally accepted dictionaries, together with any rules and statutes of the Agencies that have additional authority over the regulated activities.

“AASHTO” means the American Association of State Highway and Transportation Officials a standards setting body which publishes specifications, test protocols, and guidelines that are used in highway design and construction.

“Aquatic plant” or “aquatic vegetation” means a plant, including the roots, which typically floats on water or requires water for its entire structural support, or which will desiccate outside of water. Also see “prohibited aquatic plant” definition.

“As-Built Drawings” means plans that accurately represent the constructed condition of the permitted facility that is certified by a Licensed Professional Surveyor and Mapper, including identifying any substantial deviations from the permitted design.

“Canal” means an artificial ditch utilized for confining surface water to a defined channel, the purpose of which is to receive runoff from adjacent land and to convey flows downstream to another canal, river or natural water body. Canals in this context refer to the primary canals owned and maintained by the SFWMD, the secondary canals maintained by the CBWCD, and canals on private property. . Canals also include those defined in § 403.803(2), F.S.

“Common Area” means real property which is subject to the common ownership of a single party for the benefit of all of the property owners which is responsible for such ownership, unified control, monitoring, operation, and maintenance of the drainage facilities located in the common area.

“Construction commencement” means the actual on-site, continuous and systematic activity of land surface alteration, construction and fabrication of a facility in accordance with a stormwater management works permit authorizing construction of the project in conformance with the terms and conditions of the permit. Minor clearing, dredging, or filling with an apparent purpose of keeping the permit active will not be considered to meet this requirement.

"Detention" means the collection and temporary storage of stormwater in an impoundment in such a manner as to provide for treatment through physical, chemical, and biological processes with subsequent gradual release of the stormwater.

"Discharge" means to allow or cause water to flow.

"Development" means: 1) the division of a plat, tract, parcel or lot of land into two (2) or more parcels that requires platting or re-platting by the municipality having jurisdiction or by Broward County; 2) the meaning given in §380.04, F.S.

"District Canal" or "District Waterway" means the canals, waterways, easements, rights and reservations, rights-of-way, maintenance strips, swales, and all and every work or facility appurtenant or adjacent to or utilized by the Central Broward Water District (the District) in connection with the functioning of its waterways.

"Exotic plant species" means a plant species introduced to Florida, purposefully or accidentally, from a natural range outside of Florida, including naturalized exotic species (an exotic plant that sustains itself outside cultivation) and invasive exotic species (an exotic plant that not only has naturalized, but is expanding on its own in Florida native plant communities). Exotic plant species are defined by the "Florida Exotic Pest Plant Council" (EPPC), and include cattails, melaleuca, Brazilian pepper, Australian pine, laurel fig (ficus) and other nuisance species that are not native to Florida, exhibit rapid growth, out compete native vegetation, and can clog lakes/ponds and canals. Additional information on Florida's exotic plant species is available at: http://www.fleppc.org/.

"Filling" or "fill" means the deposition or to deposit, by any means, of materials in a lake/pond, wetland, canal, or other waterway.

"Licensed Professional" means an engineer, land surveyor and mapper, architect, landscape architect, or geologist licensed by the State of Florida practicing under Chapter 471, 472, 481, or 492, F.S., respectively, and includes any of the following designations: "licensed engineer"; "licensed professional engineer"; "professional engineer"; "registered engineer"; "registered professional engineer"; and similar "licensed…", "licensed…professional", "professional…", "registered…", or "registered professional…" regarding surveyors, architects, landscape architects, and geologists licensed under Chapter 472, 481, or 492, F.S.

"NAVD 88" means North American Vertical Datum of 1988.

"NGVD 29" means National Geodetic Vertical Datum of 1929.

"Nuisance plant species" means any species of flora or fauna, including exotic plant species, prohibited aquatic plants, and invasive nonnative plants whose noxious characteristics or presence in sufficient number, biomass, or areal extent that prevents, or interferes with, uses or management of resources, and which are native

or naturalized in the area where it occurs. See § 369.251, F.S. for a list of invasive nonnative plants: http://www.leg.state.fl.us/Statutes/index.cfm?App_mode=Display_Statute&Search_String=&URL=0300-0399/0369/Sections/0369.251.html

"Positive outfall" means discharge via a device or devices designed to convey discharges of stormwater from the applicant's property across downstream properties and ultimately into a District canal by means of a system consisting of one or a combination of pipes, culverts, canals, swales, or ditches in a concentrated and not diffuse manner.

"Pre-development" means the land use immediately previous to submittal of an application for paving and drainage approval if no District water management works permit was issued for the property, or the land use and storm water management design described in the latest District approved water management works permit for the property.

"Prohibited aquatic plant" means any of the aquatic plants designated by the Florida Department of Agriculture and Consumer Services on the prohibited aquatic plant list in Rule 5B-64.011, F.A.C., or in an emergency order issued under Rule 5B-64.012, F.A.C.

See https://www.flrules.org/gateway/ruleno.asp?id=5B-64.011

"Record drawing" means plans certified by a Licensed Professional that accurately represent the constructed condition of an activity, including identifying any substantial deviations from the permitted design that are based on the As-built drawings submitted by the contractor and certified by a Licensed Professional Surveyor and Mapper.

"Retention" means a system designed to prevent the discharge of a given volume of stormwater runoff into surface waters in the state by complete on-site storage. Examples are systems such as excavated or natural depression storage areas, pervious pavement with subgrade, or above ground storage areas.

"Stormwater Management Facility" means a facility that is designed to treat, collect, convey, channel, hold, inhibit, or divert the movement of stormwater runoff on, through, and from a property. Such facilities are utilized to control or manage the path, storage, or rate of release of stormwater runoff. Such facilities may include canals, channels, culverts, inlet or outlet structures, lakes/ponds, retention and detention areas, spillways, storm sewers, swales, or other similar facilities.

"Structural slab-on-ground" means a slab that is cast directly on the ground and is a required part of a load path which transmits vertical or lateral loads to the ground and must conform to applicable structural building codes. Non-structural slabs-on-ground serve only as an architectural wearing surface and are not subject to

structural building code requirements and are not subject to the six inches (6") above berm elevation requirement.

"Substantial Damage" means damage of any origin sustained by a structure (i.e., a building, storm sewer, culvert, or bridge) whereby the cost of restoring the structure to its before-damaged condition would equal or exceed 50 percent of the market value of the structure before damage occurred.

"Substantial Improvement" means any repair, reconstruction, rehabilitation, alteration, addition or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the improvement or repair is started. The term does not, however, include any project for improvement of a building required to correct existing health, sanitary or safety code violations identified by the building official having jurisdiction and that is the minimum necessary to assure safe living conditions.

"Swale" means a manmade trench that: (a) Has a top width to depth ratio of the cross-section equal to or greater than 6:1, or side slopes equal to or greater than 3H:1V (horizontal:vertical); (b) Contains contiguous areas of standing or flowing water only following a rainfall event; (c) Is planted with vegetation suitable for soil stabilization, stormwater treatment, and nutrient uptake; (d) is designed to take into account the soil erodibility, soil percolation, slope, slope length, and drainage area so as to prevent erosion and reduce pollutant concentration of any discharge; and (e) has a channel invert no lower than one (1) foot above the water control elevation. The top of bank of the swale must be an observable and distinct break in slope between the toe of slope or swale invert and areas landward of the outer edge of the swale.

"Water Control Elevation" equals elevation: 0.4' NAVD 88 east of the Turnpike; 1.4' NAVD 88 south of the C-11 Canal between the Turnpike and Palm Avenue; 1.4' NAVD 88 north of the C-11 Canal between the Turnpike and the N-17 Canal; 2.4' NAVD 88 south of the C-11 Canal and west of Palm Avenue; and 2.4' NAVD 88 north of the C-11 Canal and west of the N-17 Canal. The District's standard differential between NAVD 88 and NGVD 29 datums for purposes of calculating the water control elevation and elevation references in these regulations is 1.60' (e.g., 0.0' NGVD 29 -1.6' = (-)1.6' NAVD 88). *[Revised on 9/10/20 to correct scrivener's error regarding the stated WCE elevations.]*

2.01.2 VERTICAL DATUM

Elevation data in engineering documents and construction drawings submitted to the District shall be based on the NAVD 88 datum. Requests for modifications to permits issued prior to the updated FEMA Flood Insurance Rate Maps that took effect on August 18, 2014 shall include on the paving, drainage and grading drawings the site-specific conversion factor between NGVD 29 and NAVD 88 data for historical record keeping purposes.

2.02 FINISHED FLOOR, 100 YEAR ELEVATIONS

All habitable structures shall be set at or above the higher of:

2.02.1 Federal Emergency Management Act (FEMA) Flood Studies

2.02.2 Broward County 100 Year Flood Studies, latest edition

2.02.3 Eighteen inches (18”) above the highest crown of road of the internal traffic circulation element bordering the structure. The traffic circulation element can be a public or private street, or an internal drive aisle. If the roadway is not crowned, or has an inverted crowned section, then the highest edge of pavement bordering the structure shall apply. In subdivision lots, the elevation shall be based on the highest crown of road along each lot frontage.

2.02.4 Stage storage calculations for the 100-year, 3-day rainfall with zero discharge

2.02.5 Florida Building Code in accordance with the American Society of Civil Engineers Standard 24 – Flood Resistant Design and Construction (ASCE 24), latest edition

Nonresidential structures shall be set at or above the higher of Criterion 2.02.1, 2.02.2, and 2.02.4 enumerated herein and six inches (6”) above the nearest crown of road of the adjacent roadway, whichever is higher.

Applicants shall verify that structural slabs-on-ground elevations are at least six inches (6”) above the proposed berm elevation.

2.03 ROAD FLOOD CRITERIA

All roadways (public and private) and parking lots (public and private) shall have a minimum crown elevation (normal or inverted) set at the higher elevation of:

2.03.1 10-year flood criteria map of Broward County

2.03.2 Peak stage storage calculations for the 10-year, 1-day rainfall

The minimum crown elevation for inverted road sections shall refer to the center of the roadway and the minimum crown elevation for parking lots shall refer to the centerline of each drive aisle.

Rims of drainage structures may be set no more than six inches (6”) below the edge of the roadway, parking lot or drive aisle provided the structure is located

outside of the limits of the driving surface (e.g., inside a green area adjacent to the driving surface).

2.04 EXCAVATIONS

All lake/pond, wetland, canal, or other waterway excavations shall be in accordance with South Florida Water Management District (SFWMD) Environmental Resource Permit (ERP) rules for Storage Areas unless specified herein.

2.04.1 CRITERIA COMMON TO LAKES/PONDS, WETLANDS, CANALS, OR WATERWAYS

2.04.1.1 All side slopes of excavations shall be stabilized with a suitable vegetative cover to provide stability against erosion in conformance with these criteria.

2.04.1.2 All lake/pond, wetland, canal, or other waterway maintenance areas shall be cleared of all trees and plants and no new trees or plants shall be planted.

2.04.1.3 Nuisance plant species shall not be planted in lakes/ponds, wetlands, canals, waterways, District property, or easements dedicated to the District.

2.04.1.4 The applicant shall provide evidence of site specific geotechnical investigations in a engineering report that documents the type and extent of soils found within areas to be excavated for water quantity or water quality storage purposes (e.g., Unified Soil or AASHTO Soil classification, standard penetration tests, sieve analyses, etc.). Soil borings shall be taken to a minimum depth of five feet (5') below the water control elevation for each ½ acre of storage area or fraction thereof. Deleterious soils shall be removed and filled with permeable material that will allow the stored water to infiltrate into the ground water. Locations of known deleterious soils such as muck layers shall be depicted on the construction drawings along with the appropriate notes requiring removal and disposal.

2.04.1.5 All lakes/ponds, canals or other waterways shall have stabilized maintenance easements that are twenty feet (20') in width, measured from the top of bank. Canal and waterway maintenance easements shall either be sloped up to a continuous 5% slope away from the canal, or up to a 10% slope that creates an inverted section at the midpoint of the access way. In either case, the maintenance way shall be sloped away (i.e., downward) from the top of bank of the canal or waterway to create a ridge along the top of bank.

These twenty feet (20') shall be considered a setback for any buildings, structures**,** or water bodies and shall be suitable for vehicular traffic. For the purpose of this paragraph, structure is defined as any installed, or erected object on or in the ground.

2.04.1.6 The top of bank must be an observable and distinct break in slope between the toe of slope and areas landward of the lake/pond, wetland, canal or waterway, including any freeboard, and coincides with the inner edge of the maintenance easement.

2.04.2 CANALS AND WATERWAYS

2.04.2.1 Canal excavation shall have a side slope that provides stability against erosion from the top of bank (minimum elevation equal to 3.4' NAVD88 east of Palm Avenue/SW100th Ave/Nob Hill Road and 4.4' NAVD88 west of Palm Avenue/SW100th Ave/Nob Hill Road three feet (3') below the water control elevation.

2.04.2.2 Canal side slopes shall be no steeper than 4H:1V from top of bank to three feet (3') below the water control elevation. Below this point, side slopes shall be as the material permits, but no steeper than 2H:1V unless a steeper slope can be justified based on supporting engineering and geotechnical information.

2.04.2.3 Canals shall be excavated to provide a minimum of ten feet (10') of depth below the water control elevation, or shallower at the discretion of the District Manager.

2.04.2.4 Existing District canals adjacent to properties applying for a water management works permit or plat approval shall be brought to the design standards of the District, including provision of a 20-foot (20') canal maintenance easement, and removal of all trees, plants, nuisance plant species, and encroachments from canal under the water surface, or on the banks, slopes, or maintenance easements.

2.04.2.5 Canal banks down to the water control elevation and canal maintenance easements shall be sodded.

2.04.3 LAKES, PONDS, AND WETLANDS

A surface water body that provides flowage, attenuation, floodplain storage or water quality detention or retention storage shall be considered a lake/pond or wetland.

2.04.3.1 All lake, pond, and wetland shorelines shall be planted with aquatic vegetation in littoral zones around the entire perimeter of the

pond excavation near the water's edge to create an average minimum littoral zone width of twenty feet (20').

2.04.3.2 As an alternative to planting all shorelines, an equivalent area of aquatic vegetation may be concentrated along one or more banks of one or more lakes/ponds, or the center of one or more lakes/ponds as an island or as an anchored floating treatment wetland.

2.04.3.3 Littoral zones shall be planted with aquatic vegetation from no higher than one foot (1') above to no lower than two feet (2') below the water control elevation or as recommended by the applicant's biologist, ecologist, landscape architect or environmental engineer. Exhibit "T" provides a list of suggested species and planting depths. Littoral zones not covered by aquatic plants above the water control elevation shall be seeded to prevent erosion due to bare soil.

2.04.3.4 The area planted shall have hydric soils suitable for wetland plants. A minimum hydric top soil (i.e., muck) depth of 0.5' shall be provided.

2.04.3.5 For shorelines planted with aquatic vegetation, side slopes shall be no steeper than 4H:1V from the top of bank down to the landward edge of the littoral shelf and from the waterward edge of the littoral shelf down to three feet (3') below the water control elevation. Beyond that point, side slopes shall be as the material permits, but no steeper than 2H:1V unless a steeper slope can be justified based on supporting engineering and geotechnical information.

2.04.3.6 The littoral shelf shall be no steeper than 8H:1V. Any combined width of 4H:1V bank and littoral shelf can be used to provide the twenty-foot (20') wide average minimum littoral zone.

2.04.3.7 Aquatic plantings adjacent to residential homes shall not exceed four feet (4') in height for mature plants as measured from the water control elevation.

2.04.3.8 For shorelines not planted with aquatic vegetation, side slopes shall be no steeper than 5H:1V from the top of bank to a depth of three feet (3') below the water control elevation. Beyond that point, side slopes shall be as the material permits, but no steeper than 2H:1V unless a steeper slope can be justified based on supporting engineering and geotechnical information. Grade transitions from 4H:1V to 5:1V banks must be gradual, continuous, and not steeper than 4H:1V. Shorelines shall be sodded or seeded from the top of bank down to the water control elevation.

2.04.3.9 The minimum top of lake/pond bank elevation shall be:

- 2.4’ NAVD 88 east of the Turnpike
- 3.4’ NAVD 88 south of the C-11 Canal from the Turnpike to Palm Avenue
- 3.4’ NAVD 88 north of the C-11 Canal from the Turnpike to the N-17 Canal
- 4.4’ NAVD 88 south of the C-11 Canal and west of Palm Avenue
- 4.4’ NAVD 88 north of the C-11 Canal and west of the N-17 Canal

2.04.3.10 Lake/pond excavations shall have a minimum depth of ten feet (10’) below the water control elevation and a maximum depth as governed by SFWMD Environmental Resource Permit (ERP) Applicant’s Handbook Volume II or a bottom elevation of (-) 41.6’ NAVD 88, whichever is less. Created wetlands may have depths as governed by SFWMD ERP Applicant’s Handbook.

2.04.3.11 Permanent signs shall be visibly posted adjacent to lake/pond and wetland banks planted with aquatic vegetation to prevent removal of aquatic plants or spraying with harmful chemicals. The sign panel must be visible above the expected mature height of aquatic plantings. Exhibit “Y” provides a typical detail for the required signage. At least one (1) sign is required along each planted side of a lake/pond. Additional sign locations and spacing may be required by the District.

2.04.3.12 Restoration or repair of lake/pond and wetland slopes shall require plans, specifications, and supporting documentation submitted to the District Manager for review and approval. The District Manager may require any such plans to be signed and sealed by a Licensed Professional Engineer. Restoration or repair of slopes and banks shall utilize gradual slopes and erosion control products made of natural fibers, and the slopes sodded or seeded. For severe erosion, stabilization shall be accomplished using a combination of geofabrics and hardened materials such as interlocking concrete blocks, rip rap, etc., with appropriate soil stabilization measures.

2.04.3.13 The replacement of existing seawalls, bulkheads, and retaining walls is discouraged. However, if a seawall, bulkhead, or retaining wall is proposed to replace an existing one, the top of such wall shall be constructed no higher than 1 foot above the water control elevation and shall be aesthetically consistent with the established pattern of existing seawalls, bulkheads, and retaining walls within the lake/pond and wetland. Plans for seawalls, bulkheads, and retaining walls shall be signed and sealed by a Licensed Professional Engineer in conformance with the structural design criteria of the Florida Building Code, latest edition.

2.04.3.14 Where a conservation easement is in place or proposed to be dedicated to Broward County and/or South Florida Water Management District the twenty-foot (20') Lake Maintenance Easement (LME) may be reduced to a ten-foot (10') LME to allow for foot traffic only. However, the twenty-foot (20') setback to any building shall still apply. In addition, proper easements for maintenance and access shall be provided for any drainage structures or culverts. Lake maintenance easement areas that are reduced to ten feet (10') adjacent to conservation easements may be planted with appropriate ground cover plants such as sedges and rushes in lieu of sodding.

2.04.3.15 All lakes/ponds shall be provided with a concrete boat ramp from the top of bank to two feet (2') below the water control elevation. The ramp shall be twelve feet (12') in width. A stabilized ingress/egress easement twelve feet (12') in width shall be provided from the nearest roadway or parking lot drive aisle to the ramp. Ramp locations must be designed to allow reasonable turning movements of truck and trailer completely inside the limits of the required ingress/egress or lake maintenance easement. Boat ramps are not required for lakes or ponds that are less than 0.50 acres in area as measured at the water control elevation.

2.04.4 DRY DETENTION OR RETENTION AREAS

2.04.4.1 Dry detention or retention areas shall have a side slope of 4H:1V below the top of bank and shall be excavated no deeper than one foot (1') above the water control elevation. The banks and bottom of dry detention or retention areas shall be sodded or seeded.

2.04.4.2 Walls shall not be allowed within detention or retention areas except for areas abutting perimeter retaining walls which shall be located in accordance with the Alternate Retaining Wall Detail in Exhibit "I". In this case, the outer limit of the drainage, flowage and storage easement shall coincide with the inner face of the retaining wall. Plans for retaining walls shall signed and sealed by a Registered Florida Professional Engineer in conformance with the structural design criteria of the Florida Building Code, latest edition.

2.04.4.3 The required drainage, flowage and storage easement must coincide with the top of bank. The top of bank must be an observable and distinct break in slope between the toe of slope and areas landward of the the outer edge of the detention or retention area, including any freeboard.

2.04.4.4 The applicant shall provide evidence of site specific geotechnical investigations in a geotechnical engineering report that documents (e.g., Unified Soil or AASHTO Soil classification, standard

penetration tests, sieve analyses, etc.) the type and extent of soils found within areas to be excavated for water quantity or water quality storage purposes. Soil borings shall be taken to a minimum depth of five feet (5') below the water control elevation for each ½ acre of storage area or fraction thereof. Deleterious soils shall be removed and filled with permeable material that will allow the stored water to infiltrate into the ground water. Locations of known deleterious soils such as muck layers shall be depicted on the construction drawings along with the appropriate notes requiring removal and disposal.

2.04.5 UNDERGROUND STORAGE

2.04.5.1 A variance in accordance with Section 7, Variance and Appeals, shall be required for underground or vault storage systems proposed for flood control or floodplain compensation storage. The District will only consider these requests when a hardship is proven and when open storage systems (wetlands, lakes/ponds, other waterways, or dry detention and retention areas) are not feasible to meet the criteria of the District. Land use plans that satisfy the criteria of other agencies but do not comply with District criteria do not satisfy the test of whether an open storage system is not feasible.

2.04.5.2 Following municipal approval of development projects with higher development densities, which in turn limit open storage systems from satisfying flood control or floodplain compensation storage, shall constitute the necessary hardship for consideration of the underground or vault storage system.

2.04.5.3 An approval of the variance will require supporting evidence in order to evaluate the underground storage variance request which shall include:

- Demonstrating that the underground storage volumes can be permanently and safely provided in a structure which is certified by a structural and a geotechnical engineer and which is approved by the local building department
- That open storage has been maximized on the site but is otherwise unable to accommodate all of the required flood control or floodplain compensation volumes given the proposed level of development
- Provide an overall advantage versus disadvantage assessment, including an environmental impact assessment of the development, for review by the Board of Commissioners
- Provide a maintenance and operation program that aligns with the requirements of the Florida Department of Environmental Protection Applicant's Handbook

2.04.5.4 In a phased development, underground or vault storage shall be installed prior to or proportionally with the level of impervious area developed. If the amount of impervious area is not constructed or is not consistent with the approved paving and drainage plan prior to request for certificate of occupancy, the District will require new open storage on the remaining site to suit the level of development before the project as builts are approved.

2.04.5.5 The District may require additional conditions or alternative mitigation measures as part of any request for variance to Floodplain Encroachment (Section 2.16)

2.04.5.6 The applicant shall provide evidence of site specific geotechnical investigations in a geotechnical engineering report that documents (e.g., Unified Soil or AASHTO Soil classification, standard penetration tests, sieve analyses, etc.) the type and extent of soils found within areas to be excavated for water quantity or water quality storage purposes. Soil borings shall be taken to a minimum depth of five feet (5') below the water control elevation for each ½ acre of storage area or fraction thereof. Deleterious soils shall be removed and filled with permeable material that will allow the stored water to infiltrate into the ground water. Locations of known deleterious soils such as muck layers shall be depicted on the construction drawings along with the appropriate notes requiring removal and disposal.

2.04.5.7 Underground storage shall amount to 100% of the required storage for vault storage and 200% of the required storage for seepage systems as determined by routing calculations. For underground storage in seepage systems, the SFWMD ERP Exfiltration Trench formula parameter "V_{add}" shall equal the flood control or floodplain compensation volume and the Factor of Safety, FS, shall be 2.0 (i.e., V_{add} x FS = 200% of required storage volume). Refer to the SFWMD ERP Information Manual, Part III – References and Design Aids, Appendix G, Exfiltration Trenches, Equation 7 and 8.

2.04.5.8 A 3-year letter of credit or 3-year bond for 110% of the value of the underground system shall be provided as a condition of approval of the variance and water management works permit.

2.04.5.9 The water management works permit shall be renewed annually in accordance with Section 1.06, Renewals, as a condition for final release of the 3-year bond or letter of credit.

2.04.5.10 Minimum operation, inspection and maintenance procedures and schedules shall be depicted and annotated on the record drawings.

2.04.6 LAKE, POND, WETLAND, CANAL, OR WATERWAY FILLING

2.04.6.1 No natural or artificial lake/pond, wetland, canal, or other waterway– collectively referred to herein as a water body- shall be partially filled unless the remaining portion of the water body is hydraulically connected to a proposed water body and the storage volume of the proposed water body is greater than the volume of the existing water body to be filled. Partial filling of a waterbody that includes storage volume compensation described herein does not require a variance from these regulations. See Section 2.04.6.3 for additional submittal requirements.

2.04.6.2 Except as allowed per Section 2.04.6.1, no water body shall be filled unless a variance is granted by the Board of Commissioners of the Central Broward Water Control District. This section does not apply to the filling of water bodies having a bottom elevation higher than the elevation depicted in the Broward County Water Table Map for Average Wet Season, or the construction of culverts within the secondary system as covered under Section 2.12, Culverts.

2.04.6.3 Any water body to be filled, excluding the construction of culverts within the secondary system as covered under Section 2.12 shall be accompanied by the following.

A. Survey and engineering data to include:
   a. area at top of bank, water control elevation, and bottom of water body to be filled
   b. maximum/minimum depth from top of bank to bottom of water body
   c. cross sections (top-of-bank to top-of-bank) every 100’ of perimeter at top of bank
   d. volume of fill to be placed from the District water control elevation to the 100-year flood stage at the top of bank
   e. volume of fill to be placed from the District water control elevation to the bottom of the water body
   f. volume of material to be dredged above and below the District water control elevation

B. Biological report showing no adverse impacts to aquatic life as a result of the proposed work. The report must include:

a. the methodology and data sources used to assess aquatic life (both flora and fauna) present, or could potentially be present, at the subject site(s).
b. an assessment of flora and fauna present, or could potentially be present, at the subject site(s).
c. a determination with respect to whether the proposed work will adversely affect aquatic life at the subject site(s). If the determination concludes that the proposed work could adversely affect aquatic life, then it must include the proposed measures necessary to mitigate the impacts resulting from the proposed work at each site.

2.05 WATER QUALITY RETENTION VOLUME

All projects shall provide on-site retention for one inch (1") of run off from the total project area, or 2.5 times SFWMD ERP percent impervious, whichever is greater.

In addition to the water quality treatment volumes from above, all projects located in the Water Preserve Area (WPA) as designated by Chapter 40E-41, Florida Administrative Code (F.A.C.), i.e., in the area bounded by the western boundary of the District to Palm Ave/Nob Hill Road, shall provide an additional fifty percent (50%) retention or detention water quality treatment.

The District shall require dry pretreatment for the first one half inch (½") of runoff for commercial projects, industrial sites, roadway projects, and other projects where the impervious area exceeds sixty percent (60%) of the total area. Water surface and roofed areas can be deducted from the site area only for the purpose of water quality pervious/impervious calculations.

All retention areas (dry, wet, and underground) must be capable of percolating the water quality design retention volume within 72 hours. One "open hole test" in accordance with SFWMD ERP Applicant's Handbook Volume II, shall be performed for each 500 feet or fraction thereof of retention area perimeter to determine the hydraulic conductivity of the soil. Copies of test results along with hydraulic calculations (Exhibit "X") shall be submitted to the District along with the permit application.

Projects located upstream of a secondary canal where the canal flow or elevation is controlled by a District operated control structure are exempt from the water quality retention requirement described in 2.05 provided: 1) the CBWCD has a valid Environmental Resource Permit that expressly allows the permit exemption described herein, and 2) with the exception that dry pretreatment shall be provided on-site for commercial and industrial projects, roadway projects, and other projects where the impervious area exceeds sixty percent (60%) of the total area.

Any water quality treatment mechanism or system allowed under the Statewide Environmental Resource Permit regulations (Ch. 62-330, F.A.C. and Ch. 40E,

F.A.C.) may be used to satisfy the required water quality retention or pre-treatment volume as modified herein. The treatment mechanism must be capable of retaining the required water quality retention and pre-treatment volume in vaults, chambers, seepage systems, or filtration units that are isolated upstream from the remainder of the underground storage components. Pollution retardant baffle(s) shall be placed on the influent side of all drainage structures leading to the isolated vault(s), chamber(s), filtration unit(s).

2.06 ADJACENT PROPERTY

In addition to the grant of easement required in Section 1.04 of this criteria, applicants shall be required to design and/or construct the drainage system so as not to preclude existing upstream drainage from reaching a District facility.

2.06.1 No developed property shall shed water on adjacent land. The applicant shall erect either a wall or berm, or combination thereof, to retain the runoff from the twenty-five-year, three-day storm event.

2.06.2 Perimeter berms shall be designed in accordance with Exhibit “I”. Retaining walls and foundations shall be located sufficiently away from the applicant’s property line to permit construction of the wall without encroaching into adjacent property, unless the applicant secures a written letter of no objection from the affected property owner to construct the wall prior to construction commencement.

2.06.3 Perimeter berm elevations shall be 6 inches (6”) below structural slab elevations.

2.07 DISCHARGE CRITERIA

The maximum allowable discharge into the District’s canals is outlined in SFWMD ERP Applicant’s Handbook Volume II and is repeated herein. In the west C-11 basin (west of SW 100th and/or Palm Avenue) maximum discharge is three quarters of one inch (3/4”) per day, or 20 CSM (cubic feet per second per square mile). In the east C-11, maximum discharge is one and one-half inches per day, or 40 CSM. Maximum allowable discharge is computed on the twenty-five-year, three-day event.

Projects located upstream of a secondary canal where the canal flow or elevation is controlled by a District operated control structure are exempt from the maximum discharge requirement.

2.07.1 Project discharge shall be the sum of individual discharge values determined for the project. In determining allowable discharge, the capacity of all elements in the control structure (notches, orifices, etc.) shall be considered.

2.07.2 Discharge shall be evaluated at the control elevations established herein.

2.07.3 Minimum allowable orifice size shall be the equivalent of a 3-inch (3”) diameter for circular orifices, or the equivalent for other geometries.

2.07.4 All properties shall provide for a positive outfall with the capacity to discharge the allowable discharge.

2.08 RUNOFF

Ground storage capacity may be taken into account in determining total runoff volume. Storage capacity of soils are described in the SFWMD ERP Applicant’s Handbook Volume II. For the purpose of determining soil storage, the wet season water table shall be the water control elevations established by the District.

2.08.1 ROOF RUNOFF

Roof runoff from roofs of 2500 square feet or more, and from zero lot line housing, shall be specifically addressed on the plans as it relates to erosion and protection of adjacent property. Details shall be provided which indicate points at which runoff will be collected and the method utilized to control it.

Drainage easements in accordance with Section 3.04 of these criteria shall be required.

2.08.2 Pervious, porous or permeable pavements such as porous concrete, porous asphalt, permeable interlocking concrete pavers, etc. specifically fabricated, engineered and designed to infiltrate surface runoff through the pavement section may be considered as pervious area for the purpose of ground storage and runoff calculations. The pavement must have sufficient porosity and permeability high enough to allow water to readily pass and thus significantly influence hydrology.

Regarding the in-situ soils to remain under the pervious pavement, the applicant shall provide evidence of site specific geotechnical investigations in a geotechnical engineering report that documents (e.g., Unified Soil or AASHTO Soil classification, standard penetration tests, sieve analyses, etc.) the type and extent of soils found. Soil borings shall be taken to a minimum depth of five feet (5’) below the water control elevation for each ½ acre of pervious pavement or fraction thereof. Deleterious soils shall be removed and filled with permeable material that will allow the stored water to infiltrate into the ground water. Locations of known deleterious soils such as muck layers shall be depicted on the construction drawings along with the appropriate notes requiring removal and disposal.

2.09 GRADING

Grade slopes away from structures to be protected and toward drainage facilities. A grading plan shall be prepared and submitted to the District; said plan shall clearly indicate that no runoff from the applicant's project shall discharge or flow onto adjacent property (refer also to 2.06 this criteria).

2.09.1 Roadways and roadway swale sections shall have a minimum gradient of three tenths of one percent (0.3%) or .003 foot per foot. A maximum run of three hundred feet (300') between high point and low point shall be permitted. No roadway swale shall be permitted which has an elevation less than one foot above the District's Water Control Elevation.

2.09.2 In addition to a longitudinal gradient herein specified, all roadways and parking lots shall have a minimum cross pitch (transverse gradient) of one eight of an inch per foot (1/8" per foot) or one percent (1.0%), and a maximum gradient of five percent (5.0%).

2.09.3 Swales utilized for water quality treatment and conveyance purposes may have a longitudinal gradient of zero percent (0%) and include downstream ditch blocks or raised inlets to retain the treatment volume. This type of swale must be located in Common Areas within a drainage, flowage and storage easement. The paving and drainage application must include engineering calculations and soil percolation tests demonstrating drawdown of the swale within the required time described in Section 2.05.

2.09.4 Swales utilized solely for conveyance purposes (i.e., "conveyance-only swales") must not have standing water after the end of a three-year one-hour rainfall event. Conveyance-only swales that remain flooded beyond one (1) hour due to a hydraulic connection to another stormwater management facility are not permissible. The paving and drainage application must include engineering calculations and soil percolation tests demonstrating drawdown of the swale within the required time.

2.10 DRAINAGE SYSTEMS

All roadways and parking lots shall have a drainage system designed to convey the runoff from a three-year rainfall event. The rational formula, Q = CIA, shall be used for design. The rainfall intensity (I) shall be obtained from the Florida Department of Transportation (FDOT) Zone 10 Intensity-Duration-Frequency curve described in Exhibit F. The starting time of concentration shall be ten (10) minutes. Design of the drainage system shall be such that the energy grade line is no higher than the lowest edge of pavement nearest each drainage structure in the system.

2.10.1 Minimum drain pipe diameter in the District:

- "Building Storm Drains" and "Building Storm Sewers" (as defined in the Florida Building Code) downstream to first yard drain, catch basin, or manhole**:** size according to the Florida Building Code – Plumbing – Storm Drainage chapter, latest edition
- Pipes that: convey runoff from greater than 0.25 acres of contributory drainage area, or; form part of a storm sewer main trunk line that discharges into a stormwater detention or retention facility, or outfall: 15" minimum
- Perforated or slotted pipe in exfiltration trenches, excluding under drain systems in detention/retention areas: 15" minimum
- Lake/pond interconnecting pipes: 48" minimum or the minimum diameter necessary to result in a head loss of less than or equal to 0.1', whichever is greater.

2.10.1.1 The maximum pipe spacing between structures shall be as follows:

Diameter (inches)	**Spacing (feet)**
Up to 18"	300'
24" to 36"	400'
42" and up	500'

2.10.2 Any drainage pipe material permitted by the Florida Department of Transportation (FDOT) or Broward County is acceptable. The Manning Roughness Coefficient "n" shall be per the FDOT *Drainage Design Guide*. Pipes under roadways in public rights-of-way shall be reinforced concrete pipe unless other pipe materials are allowed by the entity that owns the right-of-way.

2.10.3 Hydraulic design of storm sewers shall utilize a static tailwater elevation equal to the design head over the outlet weir in an exfiltration trench network, the stage inside the on-site point of discharge to a wet pond or dry detention/retention area corresponding to hour 12 of a 3-year 1-day rainfall event, or the design head over any intermediate control structure(s), whichever is higher.

2.10.4 Catch basins and drainage collection structures shall be designed with an eighteen inch (18") vertical sump from the invert elevation (or bottom of baffle) to the bottom of the structure. In addition, a twelve-inch (12") diameter open sump, filled with washed grade rock, no larger than one and one-half inches ($1^1/_2$") shall be placed in the base of the structure. Prior to discharge to any body of water or any seepage trench, a pollution retardant baffle shall be installed.

2.10.5 All outfalls shall be protected with an appropriately designed headwall of either concrete or rip-rap. In the case of rip-rap, a six inch (6") poured concrete cap is required (Exhibit "H"). Mitered end sections (M.E.S.) may be

utilized only in dry detention or retention areas. The invert of the M.E.S. shall be no lower than the bottom of the detention/retention area.

2.10.5.1 The top of the headwall shall be set one foot (1') above the water control elevation for culvert crossings of the secondary canals (Exhibit "H") and project outfalls to secondary canals. Each existing and proposed headwall for pipes discharging into a District canal shall include a permanent benchmark stamped with the corresponding NGVD29 and NAVD88 elevation.

2.10.5.2 The crown of pipe(s) shall be set no higher than the water control elevation (Exhibit "H") for lake/pond outfalls.

At the discretion of the District Manager or Engineer, headwalls of deep outfalls to lakes/ponds may be replaced with a metal pipe attached to a concrete jacket in accordance with FDOT design standards.

2.10.6 When routing stormwater to a wet detention treatment facility, inlets to the facility shall be directed to the opposite side of the facility from the discharge structure.

2.10.7 Pipes interconnecting lake/pond systems shall be sized to comply with all the provisions of this Section 2, Engineering Criteria. Stage-storage routing shall be performed to demonstrate that interconnected lakes/ponds comply with the criteria for all design storm events (3-year, 10-year, 25-year, and 100-year).

2.11 SEEPAGE SYSTEMS

Seepage systems may be used for purposes of water quality retention but shall not be used for purposes of flood control. The storage and exfiltration capacity of a seepage system shall not be credited to pipe routing calculations. The storage and exfiltration capacity of seepage systems may be credited toward stage-storage routing calculations, provided that the maximum amount of credit shall not exceed the water quality design volume of the seepage system. Excess seepage system capacity beyond the required water quality design volume shall not be credited toward stage-storage routing calculations.

On-site subsurface retention, seepage system, or french drain shall be considered as being a perforated pipe system (fifteen-inch (15") minimum diameter) surrounded by three quarter of an inch (3/4") washed rock and protected on four (4) sides by a pervious geotextile (e.g., Mirafi, Typar).

2.11.1 Design and length of seepage systems shall be in accordance with SFWMD ERP Information Manual, Part III – References and Design Aids, Appendix G, Exfiltration Trenches. An applicant may include the parameter "V_{add}" to determine the length of exfiltration trench required to store any additional volume beyond the required water quality treatment volume only if the applicant receives approval for the use of underground storage in accordance with Section 2.04.5.

2.11.2 One standard open hole falling head percolation test shall be taken for each five hundred feet (500') or fraction thereof of seepage system designed, copies of which shall be submitted to the District with hydraulic calculations.

2.11.3 Depth to water table shall be from finished grade to the District Water Control Elevation.

2.11.4 No seepage system shall be considered as dry retention unless the invert of the perforated pipe is at or above the District Water Control Elevation.

2.11.5 Maintenance structures shall be placed at the terminal ends of all french drains/seepage systems and pollution retardant baffles shall be placed on the drain field side of all drainage inlets.

2.12 CULVERTS

Culverts shall be installed where roadways and driveways cross District canals. The size of new culverts or culvert replacements shall be determined by the District Engineer, but in no case shall be less than required to pass the allowable discharge for the basin or 48 inches in diameter, whichever is higher. The applicant shall provide calculations to demonstrate that the proposed culvert will pass the 100-year peak design flows with a head loss under 0.1 feet including entrance losses; or has the equivalent hydraulic capacity of 110% of the design cross-section of the channel as determined by the District. Additionally, the applicant will be required to excavate the canal to two feet (2') below the proposed culvert invert for a distance of fifty feet (50') upstream and downstream of the crossing. No driveway culvert shall be installed within fifty feet (50') of an existing culvert. As a condition of permitting, the District may require dedication of a roadway easement for adjacent property owners.

2.12.1 Notwithstanding the provisions of this section, no additional culverts will be permitted in the District's S-35 canal (Hancock Road), N-27 canal (Boy Scout Road), N-25 canal (SW 136 Avenue), S-22 canal (SW 106 Avenue), S-24 canal (SW 48 Street), and S-25 canal (Hiatus Road). All future crossings on these canals shall be made by a bridge with a clear span of 15 feet (15') and a minimum bottom of structure elevation of 6.0' NGVD 29 [4.4' NAVD 88]. An applicant may utilize a concrete culvert, box culvert, or arch culvert in lieu of a bridge crossing provided the culvert creates no more than 0.01' of total head loss (including form, entrance and exit losses) and meets the other requirements of this Section. The District may impose additional conditions such as improving the conveyance capacity of existing nearby culverts as mitigation for anticipated head loss resulting from the addition of a culvert in the Canals referenced in this sub-section.

2.12.2 No culverts in the secondary canal system shall exceed 100 feet without a variance.

2.12.3 All culverts in the secondary canal system shall be made of reinforced concrete.

2.12.4 The culvert crown elevation shall be set at the District's Water Control Elevation.

2.12.5 A minimum safety factor of 12 inches (12") shall be added to the minimum calculated culvert size.

2.12.6 Culvert replacements and driveway culverts on Secondary Canals that provide access to buildings undergoing substantial improvement shall conform to the design requirements of new culverts.

2.13 UTILITY CROSSINGS

2.13.1 Overhead power, telephone, cable, and other utility crossings must have a minimum vertical clearance of twenty-five feet (25') between low wire elevation and the elevation of the maintenance berm or natural ground.

2.13.2 Over water crossings shall be supported on piling with a minimum spacing between piles of twenty feet (20'). A clear height of six feet (6') from the District control elevation to the underside of any portion of the structure shall be provided.

2.13.3 Submarine or subaqueous crossings of any nature shall be laid to a depth of three feet (3') below the depth and cross section of the District's canal's ultimate or design bottom elevation. The subaqueous crossing length shall be the full width of the canal if utilizing a horizontal directional drilling installation method, the minimum clearance between the canal bottom and the outside of the pipe shall be three feet (3'). The applicant shall install an object marker with the appropriate message along the centerline of the crossing and within five feet (5) of the top of bank on both sides of the canal. The message shall describe the type of utility crossing (e.g., Gas, Electric, Sewer, Cable, etc.)

2.13.4 Notwithstanding the provisions of this section, the utility system owner which owns or will own the utility, shall be required to enter into a hold harmless and indemnification agreement, indemnifying and holding the District harmless from any and all damages as a result of the utility line being constructed in the District's property.

2.14 DOCKS, DECKS, AND OTHER STRUCTURES

2.14.1 Docks and Decks may be erected in a drainage, flowage and storage easement, or lake maintenance easement with permission of the District.

2.14.1.1 In order to obtain permission the property owner shall be required to enter into an agreement with the District. The agreement is described in Exhibit "S", Dock and Deck Agreement.

2.14.2 No structure of any nature (refer to 2.04.6) shall be erected which would encroach into a canal, canal right-of-way, canal easement, or canal maintenance easement.

2.15 SINGLE FAMILY HOMES

Single family home sites not covered under a District approved stormwater management permit shall, at a minimum, comply with the following requirements. Compliance with other provisions of the engineering criteria shall be at the discretion of the District Manager.

2.15.1 Prior to initiating any construction activity, including clearing grubbing, or earth moving operations, applicants shall submit two sets of plans and the information in Exhibit "W", Checklist for Single Family Homes Plan Approval, for review and approval by the District Manager. The plans and water management calculations must depict the proposed and planned ultimate or future build-out areal extent of buildings, building extensions, structures, decks, pools, site filling, and any other encroachment that would reduce floodplain storage below the required minimum volume.

2.15.2 No developed property shall shed water on adjacent land. The applicant will be required to erect either a wall or berm, or combination thereof, to retain the runoff from the twenty-five year three-day storm event.

2.15.3 At a minimum, thirty percent (30%) of the site shall remain at existing grade to provide for storage of the 25-year, 3-day rain storm event. Proposed grade shall be one foot above the water control elevation. Higher proposed elevations may be allowed provided that ground elevations in the general area are naturally higher and that the proposed grade elevation is no higher than ground elevations of adjacent properties.

The surface water management area (a minimum of 30% of the site) shall be designated and recorded with the Broward County Board of County Commissioners, County Records Division, Recording Section, 115 South Andrews Avenue, Room 114, Fort Lauderdale, FL 33301, utilizing the forms provided in Exhibit "Z."

Gradual release of water from the surface water management area in single family home sites is recommended and can be achieved with a bleed down mechanism or filtered by trench drains or vertical drains to the water table. The District Manager shall be consulted before installation of any bleed down mechanism.

2.15.4 If offsite discharges are designed to occur during 25-year and lesser storms, the applicant shall utilize best management practices, in accordance with these engineering criteria, to reduce pollutant discharges.

2.15.5 Prior to receiving the Certificate of Occupancy, the applicant shall submit as-built drawings in accordance with the Checklist for Single Family Homes Plan Approval (Exhibit "W") for the review and approval of the District Manager. Applicant shall grant District staff access to the property for the purpose of conducting visual inspections.

2.15.6 Refer to Section 1.08 regarding enforcement of violations and imposition of penalties.

2.16 FLOODPLAIN ENCROACHMENT

No net encroachment into the floodplain shall be allowed that adversely affects the existing rights of others. With regard to runoff storage, the volume of useful storage available to the basin shall not be decreased as a result of proposed development or redevelopment. The area subject to no net encroachment shall extend from the peak 100-year 3-day water surface elevation for the nearest District canal to the water control elevation. Calculations to demonstrate no net floodplain encroachment shall follow the same guidelines as the SFWMD ERP Applicant's Handbook Volume II. In addition, the applicant shall provide calculations demonstrating that the allowable storage to the basin has not been reduced at the District 100-year flood encroachment elevation. The District 100-year flood encroachment elevation shall be provided by the District Engineer.

A request for a variance from this Section does not require demonstrating a genuine hardship with respect to Sub-Section 7.02.1 of the Criteria. Any variance requested shall be the minimum necessary deviation from the Criteria to afford relief considering the flood heights or flood hazard. In lieu of demonstrating a genuine hardship, the District may require alternative mitigation measures be provided as part of any request for variance. Alternative measures include, but not necessarily limited to, upgrading existing secondary canal culverts, providing additional off-site flood plain storage, or providing a basin-specific capital improvement or maintenance project.

2.16.1 Applicants have the option of performing floodplain encroachment calculations using the guidelines of the SFWMD ERP Applicant's Handbook Volume II or providing a lake/pond size of 25% of the area of the property for properties exceeding 10 acres in size, or 15% of the property for properties of 10 acres or less. In either case, these percentages are the maximum lake/pond area required after the applicant demonstrates to the District Engineer that the site grading has been lowered to the maximum extent practicable. Lake/pond areas shall be measured at the top of bank.

2.16.2 If selecting the 15%/25% options, applicants may utilize a lake/pond, a detention or retention area, or vault-style underground storage provided that the site storage of the detention/ retention area(s) or vault(s) is no less than the site storage provided by the required lake/pond area, as measured from the water control elevation proceeding upward to the lake's/pond's top of bank elevation up to the 100-year water surface elevation of the nearest District canal. The use of vault-style underground storage for floodplain compensation does not include seepage systems described in Section 2.11.

2.16.3 Projects located upstream of a secondary canal where the canal flow or elevation is controlled by a District operated control structure shall maintain pre-development flood plain storage volumes on–site or provide the necessary flood plain storage volume based on a site-specific engineering analysis that complies with District criteria, whichever is greater.

2.17 LANDSCAPING

Stormwater management permit applications shall include a landscape plan identifying proposed vegetation and existing vegetation to remain along with a legend identifying all species. The landscape plan shall show the location of all vegetation (excluding sod) in relation to existing or proposed easements, rights-of-way, stormwater management systems, drainage structures, and overall site plan.

Except as provided for in this Section, and in Sections 1.04.5and 2.04 of this Criteria, easements dedicated to the District (canal easements, canal maintenance easements, drainage, flowage and storage easements, lake maintenance easements, and drainage easements) shall be cleared of all trees, plants, and nuisance plant species, and no new trees or plants shall be planted.

2.17.1 Trees where the lateral extent of the drip line of the canopy at mature height is expected to encroach within ten (10) feet of the near edge of a storm sewer shall require the following pipe protection measures.

2.17.1.1 Trees should be limited to the following species: Lysiloma Bahamensis (Wild Tamarind); Ilex cassine (Dahoon Holly); Tabebuia heterophylla (Pink Tabebuia); or Coccoloba diversifolia (Pigeon Plum); native (i.e., "Florida Friendly") palm species that develop non-invasive roots. Other species meeting the criteria established in this Section may be utilized if found to be acceptable by the District Engineer with respect to safeguarding the integrity of the storm sewer.

2.17.1.2 All storm sewer pipes within an easement shall be installed such that the outside top of pipe is at least one (1) foot below the water control elevation. Root barrier shall be installed in the same trench excavated for the storm sewer pipe from below the invert of the storm sewer pipe to one half (1/2) inch above finished grade if the outside top of pipe is less than one (1) foot below the water control elevation,

2.17.1.3 Trees shall be planted with a minimum three (3) feet offset from the tree centerline to the near edge of a twenty (20) feet drainage easement that encompasses a storm sewer pipe. For drainage easement widths greater than twenty (20) feet, the tree may be planted just outside the easement boundary.

2.17.2. Shrubs designed and maintained at less than three feet (3') in height may be planted across drainage easements but shall be subjected to hold harmless and maintenance agreements whereby the District shall have the right to remove the plantings in order to repair or access drainage facilities located within the easement.

2.18 EXHIBITS

Exhibits referenced in these regulations and criteria form a part thereof and are incorporated by reference. In the case of conflict, the more stringent shall apply. Copies of the exhibits are available at the District's office and on the District's web site:

http://centralbrowardwcd.org/documents/exhibits/

3. PLAT CRITERIA

3.01 GENERAL

The following criteria will be utilized by the District in the review of all plats. Variances to these criteria may be granted by the District's Board of Commissioners at their discretion.

3.01.1 The submittal and review process shall be as outlined in Section 4 and as detailed herein.

3.01.2 References to plats that were recorded in the official records of "Dade County" shall be referenced as "Miami-Dade County".

3.02 CONCEPTUAL DRAINAGE PLAN

Applications for plat approval shall be supported with a submission of conceptual paving and drainage plans. If no plan exists, the conceptual plan may be replaced with a report that outlines the following:

3.02.1 Allowable land use and zoning of the property. Identify the existing or proposed land use designation (i.e. A-1) along with a brief description of the zoning designation.

3.02.2 How drainage will be handled for the project.

3.02.3 A designation of whether drainage easements will be required.

3.02.4 How drainage easements will be provided.

3.02.5 A signed statement by the property owner, or the owner's agent, and the engineer of record affirming the future development will comply with District rules at the time of submittal of a paving and drainage application.

The conceptual plan, if submitted, shall show the preliminary layout of the project with proposed methods to achieve compliance with District's standards. Applicants should note that compliance with Section 2.16, Floodplain Encroachment, should be reviewed because of its impact on-site storage requirements and stormwater management facilities.

The conceptual paving and drainage plan or report shall be signed and sealed by a Licensed Professional Engineer.

Approval of a plat, with or without a conceptual plan, does not grant approval of the plan or report as submitted. Compliance with District's standards at the time of permit approval of drainage plans and calculations may require adjustments to water management facilities shown on the conceptual plans and plat.

3.03 CANAL RIGHT-OF-WAY

The District will review the plat and inform the applicant of the need to provide by dedication additional canal Rights-of-Way.

All applications to the District requesting the release of canal reservations, or for the transfer or vacation of a canal right-of-way, will be reviewed and may be conditioned upon terms and conditions that maintain overall flood control within the District.

3.04 EASEMENTS

The District shall require the dedication of easements for canals, canal maintenance, drainage, flowage and storage, lake maintenance, drainage, and ingress/egress. The provisions of this Section shall also apply to Paving and Drainage Plan submittals. Any easement to be dedicated to the District shall be recorded in the official records of Broward County upon approval of the paving and drainage plans by the District Board of Commissioners and the original recorded documents shall be delivered to the District Manager before a construction permit (Stormwater Management Works Permit) is issued.

3.04.1 Twenty feet (20') maintenance easements are required for lakes/ponds and canals. The twenty feet (20') is measured landward from the top of bank.

3.04.2 Lake/pond, canal, and boat ramp access shall be by ingress/egress easement a minimum of twelve feet (12') in width from the closest traveled way.

3.04.3 Drainage piping shall have a minimum easement width in accordance with the following:

Pipe Diameter (inches)	Drainage Easement Width (feet)
Building storm drains or Building storm sewers downstream to first manhole or catch basin.	No easement required
Pipes less than 15"	No easement required if located in a common area
Pipes (any size) for secondary drainage systems surrounding sports fields	No easement required upstream of first structure outside of field perimeter
15" to less than 36"	20'

36” to 54”	30’
60” or larger	40’

3.04.4 Drainage Easement for Swales:

3.04.4.1 Swales shall have a maximum width of twenty feet (20’) from top of bank to top of bank.

3.04.4.2 Swales that convey stormwater runoff from the front or rear yard, side yard, or between buildings of multi-family residential subdivisions do not require an easement provided that the swale or pipe: 1) is wholly within the “common area” under the control of the homeowners’ association; 2) does not include the passage of drainage from off-site upstream areas; 3) is not utilized to store or treat any portion of the required water quality treatment volume; and 4) conveys runoff from less than or equal to 0.25 acres of contributory drainage area, including roof area.

3.04.4.3 Swales that convey stormwater runoff from contributory drainage areas greater than 0.25 acres shall have a minimum drainage easement width that coincides with the top-of-bank to top-of-bank limits of the swale or twenty feet (20’), whichever is less.

3.04.5 Stormwater management facilities shall be enclosed within a drainage or drainage, flowage and storage easement. Where these areas allow drainage from upstream areas to pass through, a drainage, flowage and storage easement twenty feet (20’) in width shall be provided, or wider if piped as required per Section 3.04.3.

3.04.6 All developments, including platted single-family subdivisions, shall include the following stormwater management facilities in common areas:

- Wet detention and retention lakes/ponds up to the top of bank
- Dry detention and retention areas up to the top of bank

3.04.7 Drainage, maintenance, flowage, storage, and ingress/egress easements shall be dedicated to the District. Retention, detention, and stormwater management facilities shall be dedicated by easement to the District, with perpetual maintenance the responsibility of the property owner or homeowners’ association.

3.04.8 Easements dedicated during plat approval shall be considered preliminary and subject to change pending review and approval of drainage plans, reports, and calculations.

3.04.9 Easements shall be provided to allow proper access to all District easements from an adjacent public right-of-way or access easement.

3.04.110 Easements shall be provided for future outfall connections as determined by the Board.

3.04.111 Any easement to be dedicated to the Central Broward Water Control District that overlaps with a proposed conservation easement shall be dedicated and recorded in the public records of Broward County prior to the recordation of the conservation easement. The conservation easement shall not prevent the use of the CBWCD easement for drainage purposes as contemplated in the appropriate CBWCD form of easement.

3.05 STANDARD PLAT LANGUAGE

The following standard plat language shall be included in plats submitted for District approval:

3.05.1.a DEDICATION (*ONLY IF EASEMENTS WILL BE DEDICATED AT TIME OF PLAT APPROVAL)*:

"All *[insert specific type(s) of easement(s) described in the plat plan that will be dedicated to the District]* easements are hereby dedicated to the Central Broward Water Control District with perpetual maintenance the responsibility of the property owner or homeowners' association.".

"No improvements, trees or encroachments including utilities (except for overhead power, cable or telephone lines with a minimum 25 foot clearance) or landscaping are allowed within easements dedicated to the Central Broward Water Control District without the approval of and a permit from the Central Broward Water Control District and the utility system owner entering into a hold harmless and indemnification agreement with the Central Broward Water Control District. It is the intent of this provision that all utilities (except for overhead power, cable or telephone lines with a minimum 25 foot clearance) proposed to be constructed within utility easements that cross or coincide with easements dedicated to the Central Broward Water Control District must be reviewed and permitted by the Central Broward Water Control District.

3.05.1.b DEDICATION (*ONLY IF EASEMENTS WILL NOT BE DEDICATED AT TIME OF PLAT APPROVAL)*:

"No improvements, trees or encroachments including utilities (except for overhead power, cable or telephone lines with a minimum 25 foot clearance) or landscaping are allowed within easements dedicated to the Central Broward Water Control District without the approval of and a permit from the Central Broward Water Control District and the utility system owner entering into a hold harmless and indemnification agreement with the Central Broward Water Control District. It is the intent of this provision

that all utilities (except for overhead power, cable or telephone lines with a minimum 25 foot clearance) proposed to be constructed within utility easements that cross or coincide with easements dedicated to the Central Broward Water Control District must be reviewed and permitted by the Central Broward Water Control District.

3.05.2 SIGNATURE BLOCK:

"Central Broward Water Control District":

"This is to certify that this plat is hereby approved and accepted by the Central Broward Water Control District this _____ Day of _____, 2____. Prior to development of this property, owner shall contact the Central Broward Water Control District for determination of additional easements and/or other dedications which may be required by the Central Broward Water Control District for drainage or access purposes."

"This plat was approved by the Central Broward Water Control District the following dates":

By: _____ By: _____

Chair Date District Manager Date

3.06 SIGNATURE

All plats shall provide for the signature of the Chair, Vice Chair, or acting Chair of the District Board of Commissioners, and the Secretary/Manager of the District, or a Second Commissioner.

3.06.1 Chair, Vice Chair, or acting Chair of the Board of Commissioners, and the District Secretary/Manager will sign the original plat following its approval by the Board of Commissioners.

3.07 REVISIONS

If, in the opinion of the District Secretary or the Second Commissioner of the District, revisions to the plat as originally approved may affect drainage, the plat shall be resubmitted to the District for re-review and approval.

3.08 RECORDATION

The applicant shall furnish a print of the recorded plat to the District for its files.

4. PERMIT APPROVAL

4.01 GENERAL

The Central Broward Water Control District Board of Commissioners meets regularly the second and fourth Wednesday of each month. The Board of Commissioners meeting is held at the District office located at 8020 Stirling Road, Hollywood, Florida 33024. See the calendar on District's web site for meeting dates and times:

http://centralbrowardwcd.org/calendar/

4.01.1 All questions involving fees, schedules, agendas, meetings, or bonding shall be directed to the District Secretary/Manager.

4.01.2 All questions regarding preparation of paving, grading, and drainage plans, which involve engineering criteria or clarification to the District's Standard Criteria, shall be directed to the District's Engineer.

4.02 REQUIREMENTS

All plans submitted shall be prepared under the direction of and signed and sealed by the appropriate licensed professional engineer, licensed professional surveyor and mapper, or licensed professional landscape architect licensed by the State of Florida Department of Business and Professional Regulations, Board of Professional Engineers. Refer to Exhibit C for the minimum required documentation.

4.02.1 All plans submitted shall be on standard 22" X 34" (full-size), 24" X 36" (full-size), or 11" X 17" (half-size) sheets with a maximum scale of 1' = 100' on full-size sheets for overall exhibits and 1" = 40' for paving, grading, drainage plans. All text must be large enough to be legible on half-size sheets or annotated with a font size greater than or equal to 0.080", or equivalent to Arial 8 point. Any plans submitted on oversized sheets will be returned without comment. The District may also require plans to be submitted (or transmitted) in digital format.

4.02.2 As a minimum, plans submitted for District approval shall provide:

4.02.2.1 Location sketch at 1" = 300' accurately relating the project to section lines and/or corners.

4.02.2.2 North arrow and scale and legal description of the property.

4.02.2.3 Acreage of the project with a schedule of pervious/impervious areas, stormwater management facilities, all electro-mechanical equipment such as transformers, irrigation assemblies, air-

conditioning equipment pads, light poles, etc. and building coverage, including future build-out limits of all buildings, decks, patios, and pools.

4.02.2.4 A recent (i.e., last date of field data collection is less than 6 months from date of initial application submittal) topographic and boundary survey of the project and surrounding area showing where appropriate section lines, rights-of-way, recorded easements, property lines, reservations, references to official records , etc., all properly depicted and annotated.

In lieu of providing a survey that is less than 6 months old from the date of initial submittal, provide a properly signed and sealed survey to be accompanied by a Florida registered Surveyor and Mapper's notarized affidavit affirming no additions or changes to the property have been made since the date shown on the submitted survey.

For District canals adjacent to the property, locate right-of-way (ROW), easements, edge of water, and top of bank. Provide cross-sections of District canals every hundred feet (100') of property frontage to include all grade breaks from top of bank to top of bank.

4.02.2.5 Paving, grading and drainage plans are to include:

4.02.2.5.1 Existing ground elevations at no greater than a 100-foot grid extending 100 feet beyond the boundaries of the development, existing buildings, roadways, and other permanent structures; and location and elevations of existing drainage facilities within 150 feet of the project boundary.

4.02.2.5.2 Proposed development layout with horizontal and vertical control. The paving and drainage plan(s) must graphically depict the future build-out limits of all buildings, decks, patios, and pools in addition to a detailed geometry of the currently proposed improvements.

4.02.2.5.3 Drainage structures, stormwater management facilities, drainage piping, and culverts with grate and invert elevations, and pipe sizes.

4.02.2.5.4 Direction of flow in swales and other transmission facilities with control elevations.

4.02.2.5.5 Typical sections for roads, canals, lakes/ponds, drain fields, and drainage structures. Lot grading plan(s).

4.02.2.5.6 Specifications of material to be utilized for roadway and drainage construction.

4.02.2.5.7 Proposed easements for stormwater management facilities.

4.02.2.5.8 Percolation test reports to support design of seepage trench systems.

4.02.2.5.9 Routing of the 10-year, 1-day; 25-year, 3-day; and 100-year, 3-day zero discharge storm events to support pavement elevation, perimeter berm, and finished floor elevations.

4.02.2.5.10 Details of project control structure including stage/discharge rating curves.

4.02.2.5.11 Pipe routing calculations for the 3-year storm to support pipe sizes and catch basin rim elevations.

4.02.2.5.12 Central Broward Water Control District General Notes (see Exhibit J).

4.02.2.5.13 Completed check list. Projects submitted without check list will be returned without comment.

4.02.2.5.14 Other information as required by the District's Engineer.

4.02.2.6 For existing developments that do not have a CBWCD water management works permit, provide a log of the operation and maintenance schedules for all the components of the stormwater management system to remain, and a stormwater certification report (Exhibit V) signed and sealed by a Licensed Professional Engineer certifying that the components of the stormwater management system are functioning as designed.

4.03 SUBMITTAL

One (1) original set of the application form, drawings, supporting information, and the requisite fees, shall be submitted to the District Secretary at the District Office, located at 8020 Stirling Road, Hollywood, Florida 33024, prior to the close of business no later than three (3) weeks before the next scheduled meeting of the Board of Commissioners, for which the applicant would like to have his project considered.

4.03.1 Two (2) copies of the application form, checklist, and signed/sealed drawings and supporting information shall be submitted directly to the District's Engineer's office on the same day. Electronic submittal of digitally or electronically signed/sealed/dated plans, specifications, reports or other documents will be accepted for initial and interim submittals provided the document is signed and sealed in accordance with the digital or electronic signing and sealing requirements and rules of the registered professional in responsible charge. For engineering documents, see Ch. 61G15-23.004, F.A.C. and 61G15-23.005, F.A.C. For survey maps, see Ch. 5J-17.062, F.A.C. For

landscape architecture work, see Ch. 61G10-11.011, F.A.C. Final submittal documents must be physically signed, sealed and dated.

4.03.2 Requests for permit application forms can be made in person, by letter or by phone, directly to the Central Broward Water Control District office at 8020 Stirling Road, Hollywood, FL 33024, 954-432-5110. There is no charge for issuance of an application form for a permit.

4.04 ENGINEER REVIEW

The District's Engineer will review all submittals for conformity to the District's Design Standards and general acceptable engineering standards. The Engineer will convey comments and/or remarks, if any, to the applicant in a timely manner so that revisions (if any) can be made for board submittal. The Engineer's review findings or the District's acceptance of the proposed work shall not be construed as an approval of a violation of the provisions of these criteria or of other rules and regulations of authorities having jurisdiction. The applicant, through their design professionals, is solely responsible for complying with the rules and regulations of other authorities having jurisdiction.

4.04.1 An appeal of the District's Engineer's requirements may be presented to the District's Board of Commissioners at the applicants request through the District Secretary/Manager.

4.05 BOARD SUBMITTAL

Once the application is deemed complete, the Applicant shall submit eight (8) copies of the revised application form, drawings (full size, e.g., 24" x 36"), one (1) set of full size signed, and sealed construction drawings, and supporting information to the District Secretary/Manager at the District Office located at 8020 Stirling Road, Hollywood, Florida 33024 prior to the close of business no later than two (2) weeks before the next scheduled meeting of the Board of Commissioners. In addition, the District may require the drawings and supporting information to be submitted or transmitted in digital format.

4.05.1 Two (2) revised copies of the application form, signed/sealed drawings (24" x 36") and supporting information shall be submitted directly to the District's Engineer's office on the same day. All drawings and calculations submitted to the District Engineer shall be signed and sealed by a Licensed Professional Engineer. If the Board approved drawings and supporting information differs from the information submitted prior to the

Board meeting, the applicant shall resubmit all required information within three weeks of Board approval**.**

4.06 BOND BEFORE CONSTRUCTION

If any construction is started prior to District Board approval of the plans and receipt by applicant of signed Water Management Works Permit, or after approval and permit issuance; but before a bond is posted in an acceptable manner, the District Attorney will secure an injunction to halt construction. The costs of bringing said action including attorney's fees shall be borne by the Developer.

4.06.1 A certificate of the District's Engineer or District Secretary shall be prima facie evidence of non-compliance of the Developer with these criteria. The court may issue a temporary injunction upon the showing of non-compliance without a further need to show damage to the health, safety, or welfare of the residents of the District.

4.07 EXPIRATION

All approvals expire after twenty-four (24) months from the date of issuance.

4.07.1 Permits will become invalid two (2) years from date of issuance if work has not begun on a permitted project unless other provisions have been made with the District. The District must be notified in writing before construction commences or re-commences after a period of construction suspension longer than sixty (60) days after initial construction commencement. Permits will become invalid upon suspension of work in excess of one hundred eighty (180) days on any permitted work unless an extension has been granted by the District.

4.07.2 If the permittee wishes to begin, continue, or resume work after permit expiration, a new permit must be obtained which will be reviewed in accordance with all current conditions and regulations, and which will require new plan approval. The construction phase of the permit will expire upon completion of the permitted work and acceptance of the record drawings of the installation.

4.07.3 An extension of time may be granted by the Board of District Commissioners at their discretion.

4.07.4 The declaration of a state of emergency issued by the Governor of Florida for a natural emergency tolls the period remaining to exercise the rights under a permit or

other authorization for the duration of the emergency declaration subject to the provisions in § 252.363, Florida Statutes.

4.08 TRANSFER OF OWNERSHIP

The permittee shall notify the District by letter within five (5) days of any sale, conveyance, or other transfer of ownership or control of a permitted water management works or the real property on which the permitted works is located. The permittee shall remain liable for performance in accordance with the permit and for corrective actions that may be required as a result of any violations prior to the transfer.

Any new owner of a permitted water management works shall apply by letter for a transfer of permit within (5) days after sale or legal transfer. The new owner shall be liable for performance in accordance with the permit after the transfer.

5. BONDS AND INSPECTION

5.01 GENERAL

Upon District Board of Commissioners approval of plans, but before construction can commence, the following items must be complied with:

5.01.1 Bond (cash or surety), in the District's favor, must be posted in the amount of 110 percent of the Developer's Engineer's (Engineer of Record) estimate of cost of construction of the paving and drainage works. (Subject to approval of the cost estimate by the District Secretary/Manager.)

5.01.3 Upon compliance with the conditions required by the Board for approval, and receipt of approved plans from the District Engineer, the District Secretary/Manager will mark the plans "Approved", sign same and retain one (1) set in the District files.

5.01.4 The District's Bond Form is the only form approved for use, and it shall be a recorded instrument. Release or reduction from the recorded instrument shall be the responsibility of the applicant.

5.01.5 Bonds shall be provided by the principals of developments only. Contractor or Sub-Contractor bonds are not acceptable.

5.02 INSPECTION

When construction is in progress, the District's inspector will inspect the installation of drainage works, according to an inspection schedule and the phasing of the project established by the Board of Commissioners. Inspection must be made by District personnel of all underground storm drain facilities before backfilling; call 954-432-5110 for an inspection appointment a minimum of twenty-four (24) hours in advance. All costs of periodic inspections of construction by the District shall be borne by the Developer.

A quarterly construction status report is required to be delivered to the District every quarter during the construction period commencing with the end of the first full calendar quarter following the issuance of the Works Permit. The reports shall contain sufficient information to demonstrate progress of construction and shall include Progress As-Built plans to facilitate timely review of the Final As-Built.

An As-Built inspection of the project may only be submitted for Board consideration when the major drainage facilities are completely and functionally installed in accordance with

the Board-approved paving and drainage plan. These facilities shall include, but are not limited to: the control structure; the outfall connection and headwalls; the graded and sodded perimeter berm; installed finished floors; sidewalks; paved roadways and parking areas; landscaping; sodded retention-detention (storm storage) areas, including properly graded safety and maintenance slopes; littoral shelf; littoral shelf plantings; and drainage structures and pipe systems. There shall be no obstructions location within District easements.

With the major drainage facilities installed, phased delivery of individual lots for certificate of occupancies may be granted. Graded side and front swales without sod and uninstalled frontage sidewalks for those individual lots may be temporarily accepted to allow for final building completion. Individual inspections by the District Inspector will be required for each remaining lot requesting certificates of occupancy from the appropriate governmental agency. Refer to Section 5.02 and the District current fee schedule for additional inspection fees.

5.03 SEPARATE BOND FOR EXCAVATION

Swales, lake/pond banks, slopes, canals, and other excavations, including aquatic plantings in the required littoral zones shall be bonded separately from other drainage improvements and will be held by the District until successful completion. The amount of this separate bond will be determined by the District Board of Commissioners and by recommendation of the District Secretary/Manager.

A portion of the bond for excavation shall be held by the District until each excavated water body with a littoral zone(s) achieves an 80% coverage or appropriate survival rate for planted and recruited species and no more than 5% nuisance or exotic plant species coverage following the one (1) year anniversary of the approved as-built drawings. If the survival requirement is not met, the applicant, or his successors and/or assigns, shall plant and maintain each site until the 80% coverage or survival rate is achieved.

5.04 RECORD DRAWING

Record drawings certified by the Engineer of Record based on as-built drawings certified by a Florida Registered Professional Surveyor and Mapper will be required before release of performance bonds. Both certifications must appear on each sheet of the record drawing.

5.05 BOND RELEASE

Subject to the provisions stated herein, upon successful completion of construction and acceptance of “As-Builts”, the amount of the performance bond as determined by the District Board may be reduced. The balance of the bond shall remain in full force and effect for the minimum of an additional twelve (12) months after final inspection and approval, unless supplemented by a new bond form in the required amounts and as approved by the District Secretary/Manager. The procedure for reduction and/or release of bonds shall include the following:

5.05.1 At least three (3) weeks prior to the Meeting of the Board of Commissioners the request for a reduction, up to 90% of the posted bond, or release of bond is to be considered by the District Board of Commissioners, the principal of development shall provide to the District’s Secretary/Manager, a current list of the names and addresses of all property owners owning property within the development for which the bond is requested to be either reduced or released.

5.05.2 The principal of development shall mail by certified mail, return receipt requested, notification to all property owners. Copies of the return receipts shall be supplied to the District. The notification shall bein substantially the following form:

The developer of (name of development) has requested a (reduction) (release) of the developments construction performance bond in the amount of $_____ which is being held by the Central Broward Water Control District to assure completion of construction of paving and drainage improvement within (name of development) of which the District has been advised you have acquired a part of. This bond in the amount of $_ _____ will be considered for (reduction) (release) at the District’s Board of Commissioners Meeting scheduled for the _day of _____ _____, 2_____ @ PM at 8020 Stirling Road (Davie), Hollywood, Florida 33024. If you have any questions regarding the reduction or release of this bond you may contact the District’s Secretary/Manager at 954-432-5110 or present your comments to the District Board of Commissioners at the District’s Meeting.

6. RECORD DRAWINGS

6.01 GENERAL

Prior to the release of any bond or surety, the Developer, through his Engineer, shall submit ”Record” drawings to the District for review and approval.

6.01.1 The submittal and review process shall be as outlined in Section 4 and as detailed herein.

6.01.2 As-built drawings must accurately reflect site conditions and be no older than six (6) months from the date of submittal to the District or six (6) months from the last date of field data acquisition by the Surveyor of Record, whichever is older.

6.01.3 One CD containing electronic files of plat, paving and grading plans, reports, other supporting information, and the final version of as-builts drawings shall be submitted to the District’s Engineer’s office on the same day. The CD shall contain an index file with a brief description of CD file contents, and shall be labeled with project name, company name, and point of contact. Documents and spreadsheets shall be submitted in either MS Word, Word Perfect, Excel, Lotus, or another format approved by the engineer. Drawings shall be submitted in AutoCAD, AutoCAD compatible file type, or another format approved by the District’s Engineer.

6.01.4 All recorded easements, deed restrictions, maintenance agreements, deeds, and water management works permit as required by the Board shall be presented to the District Secretary/Manager and Attorney for approval before recordation. All costs of recording the applicable instrument will be borne by the developer.

6.02 SIGNATURE AND SEAL

All record drawings shall be signed and sealed by the Engineer of Record. The Record drawings shall be based on as-built drawings certified by a Licensed Professional Surveyor and Mapper and must contain the signature and seal of the Licensed Professional Engineer of Record as well as the signature and seal of the Licensed Professional Surveyor and Mapper of Record. Such signature shall evidence that he has reviewed the information, finds it in substantial accordance with the design; and where deviations from the design exist, that said deviations are not to the detriment of the project or the District. The record drawing must include the following certification statement on each drawing and be signed/sealed by the Engineer of Record:

I HEREBY CERTIFY THAT THE STORMWATER MANAGEMENT FACILITIES FOR THIS PROJECT HAVE BEEN CONSTRUCTED IN SUBSTANTIAL ACCORDANCE WITH THE DESIGN APPROVED BY THE CENTRAL BROWARD WATER CONTROL DISTRICT, AND HEREBY AFFIX MY SEAL THIS _____ DAY OF _____, 20 _____.

_____

(SEAL)

6.03 DRAWINGS

As-Built information shall be superimposed on the original design drawings. All references to “proposed” shall be struck through and replaced with the appropriate text acknowledging the constructed facility.

6.04 INFORMATION TO BE SUPPLIED

6.04.1 Roadway elevations crown edge of pavement, swale, and right-of-way line at 100’ intervals; and at the high and low points of the road.

6.04.1.1 If roadway elevations are not the finished pavement, a note detailing the stage of construction when the elevations were taken, i.e. top of rock first lift of asphalt, etc.

6.04.2 Drainage structures shall show rim and grate elevations, invert elevations of all pipes along with their size, material, and length, top and invert of headwalls, and the elevations of the control structure, including weir size and length, notches, and orifices.

6.04.3 Lake/pond, canal, and/or waterways shall be cross sectioned at 100-foot (100’) intervals. The cross section shall be referenced to the easement line, shall show with annotations the top of bank, sodded area, edge of water, planted wetland vegetation, slope breakpoints, bottom, their elevations, and all slopes annotated as a ratio of H:V. The design template shall be shown on each section.

6.04.4 Perimeter berms and walls shall be cross sectioned at 100-foot (100') intervals. The cross sections shall be referenced to the property line and show the elevations of the top of berm, top of wall, property line, toe of berm, and top berm width.

6.04.5 Drainage swales shall have flowline elevations shown at 100-foot (100') intervals or fraction thereof.

6.04.6 Dry detention or retention areas shall show top of bank and bottom elevations at 100-foot (100') grid points, and limits of bottom area and grade break at top of bank.

6.04.7 Average width and total area of aquatic plantings in littoral zones.

6.04.8 Results of video inspection of pipe and structure cleaning up to the first existing structure beyond the first existing pipe run upstream and downstream of any new connections depicted in the approved drawings. Additional lengths of existing pipe and structures may be required to be cleaned, inspected and televised if determined to be necessary by the District Engineer or District Manager.

6.04.9 Permanent benchmark elevation data (NGVD29 and NAVD88) for headwalls installed in District canals shall be annotated on the record drawing.

6.05 CONSTRUCTION TOLERANCES

Variations in horizontal and vertical dimensions for non-critical stormwater management facility or site improvement components may be allowed at the discretion of the District Engineer or District Manager in accordance with generally accepted good engineering practices and standards recognized in Broward County.

Any portion of a critical stormwater management facility that is not within the acceptable tolerance described in Exhibit K must be reconstructed, re-inspected by the engineer of record, and re-surveyed prior to submittal of as-built and record drawings.

7. VARIANCES AND APPEALS

7.01 GENERAL

The Board of the District Commissioners, at their discretion and as hereinbefore provided, may grant a variance to the District Criteria.

7.02 VARIANCE

In exercising the powers and duties under 7.02 the Central Broward Water Control District Commission shall not grant a variance unless and until the following has been demonstrated:

7.02.1 A letter from the applicant outlining the variance request which demonstrates that the following prerequisites to the granting of variance have been met:

A. Special conditions and circumstances affect the land, building or structure concerning which the variance is sought.

B. The existing conditions and circumstances are not the result of the actions of the applicant or his agents.

C. Strict application of the provisions of this District's criteria would deprive the applicant of reasonable use of said land, building or structure and that a genuine hardship exists provided, however, previously granted variances shall not be considered grounds for issuance of a variance.

D. Alternative measures are proposed to mitigate not complying fully with the subject criterion and that the variance proposed is the minimum variance that will make possible the reasonable use of the land, building or structure.

E. The Board of Commissioners shall find that the granting of the variance will be in harmony with the general purpose and intent of the District's variance criteria

F. The variance to District Criteria will not adversely affect adjacent private property not owned by the applicant or adjacent public property and right-of-ways.

7.02.2 A sketch and a legal description of the property showing all easements and rights-of-way. If the property fronts a water body, the sketch shall clearly show the location by dimension of the top of bank and edge of water. The elevation of the top of bank and water at time of survey shall be shown.

7.02.3 A sketch of encroaching structure (existing or proposed), if applicable, shall be furnished. Said sketch shall show the amount of encroachment.

7.02.4 Other information as may be required by the District Manager/Secretary, or by the Board of District Commissioners, to properly evaluate the request.

7.02.5 The District Manager/Secretary will make the determination that the application is complete and shall schedule the application on the next available Board of Commissioners meeting.

7.02.6 Fourteen (14) days prior to the Board of Commissioners meeting date for the variance request, a sign shall be posted by the applicant on the subject property indicating that the subject property is the subject of a variance request before the District. All signs shall be eighteen inches by twenty-four inches, double sided with a yellow background and shall be made of weather resistant material. Signs shall be posted along each street frontage of the subject property and shall be visible from the street. All signs shall contain the following information:

- General Description of the Variance Request (i.e.: “This property will be the subject of a variance request on _____ before the Central Broward Water Control Board to _____”)
- Project Name
- Date, time, and location of the District Board meeting.
- Telephone number and contact name for additional information.

All signs shall be removed by the applicant within seven days after the District Board meeting.

7.02.7 In granting a variance request, the District shall require that the applicant, his successors, and assigns, indemnify and hold harmless the District. The cost of preparing said indemnification and hold harmless agreement, including attorney fees and recording, shall be borne by the applicant.

7.03 APPEAL

Appeal of the District's Engineer's application, or interpretation of District Criteria, shall be submitted by letter to the District Manager/Secretary.

7.04 PLAN APPROVAL WITH VARIANCE

An application for development approval, which requires a variance to District Criteria, will not be heard by the Board of District Commissioners prior to the Board acting on the variance request.

8. FEES

8.01 GENERAL

The District will collect fees to be utilized to defray the cost of review and processing applications for development. The fees include, but are not necessarily limited to:

8.01.1 Plat Review

8.01.2 Plan Review

8.01.3 Variance

8.01.4 Culvert Installations

8.01.5 Permit Renewal Culvert Installations

8.01.6 Single Family Home Plan Approval

8.01.7 After-the-Fact Permit Approval

8.01.8 Pre-application Conference

8.01.9 District Engineer Cost Recovery

8.01.10 Enforcement Compliance Cost Recovery

8.01.11 Use of District Easements

8.02 FEE AMOUNT

Fees charged by the District may be varied from time to time, and the applicant is cautioned to contact the District Secretary at the District office (8020 Stirling Road, Hollywood, Florida 33024) at 954-432-5110 to determine the fee amount.

8.03 FEE REMITTANCE

8.03.1 An application will not be considered complete without the remittance of the necessary fees.

8.03.2 Permit and review fees for permits and review of paving and drainage plans, plats and other matters which are submitted to the District by religious organizations and schools shall not be waived.

8.04 LEGAL FEES

Costs incurred by the District for the preparation and/or review of indemnification agreements, easement dedications, vacations, bond reductions or the calling of a bond, enforcement of District Criteria, or as required by the Board of District Commissioners as part of the approval and permitting process, shall be paid by the applicant.

9. RULES OF CENTRAL BROWARD WATER CONTROL DISTRICT REGARDING PERMITS FOR WORK WITHIN DISTRICT RIGHTS-OF-WAY

9.01 GENERAL

The Board has the power to establish a code of general specifications for the obtainment of a permit; and for hearings in connection therewith before the Board of Commissioners for approval of plans for any construction or work done, which comes into, over, onto, or through any of the waterways of the District created hereby. Waterways for the purposes of these requirements are hereby defined as "the waterways, easements, rights and reservations, rights-of-way, maintenance strips, swales, and all and every work or facility appurtenant or adjacent to, or utilized by the District in connection with the functioning of its waterways.

9.02 POLICY OF THE DISTRICT IN CONSIDERING AND ISSUING PERMITS

9.02.1 No permit will be granted for any use of a District's works that will adversely affect such works, or interfere with, or impose hardships upon the District's operation, maintenance, or construction activities.

9.02.2 No permit will be granted for any use of District's works when granting such would be inconsistent with the comprehensive plans for the District.

9.02.3 The District reserves the rights to: (a) change, regulate, and limit discharges into, or withdrawals from, District works, and (b) amend or change any of its policies, practices, procedures, regulations, or fees; and such action shall not constitute any claim for damages, nor become the basis for legal suit by any permittee.

9.02.4 In the event that the District exercises its rights reserved in 9.02.3 (a) and (b) above, the permit holder will be required to comply by alteration or otherwise, as required.

9.03 APPLICATION FOR PERMIT

9.03.1 Requests for application for permit forms can be made in person, by letter, or by phone, directly to the Central Broward Water Control District office at 8020 Stirling Road, Hollywood, Florida 33024, (954) 432-5110. There is no charge for issuance of an application for a permit.

9.03.2 PREPARING THE APPLICATION

9.03.2.1 Simply state what use is intended; bridge crossing, culvert connection, beautification of right-of-way, etc.

9.03.2.2 Location of work to be done, stating County, Section, Township, Range, Block, Lot, Subdivision, where pertinent.

9.03.2.3 Name or project number of canal or levee involved.

9.03.2.4 Name of owner of proposed work or structure, and address.

9.03.2.5 Area proposed to be served.

9.03.2.6 Date of commencement of work contemplated in application, and date of completion of work.

9.03.3 PREPARATION OF THE SKETCH

9.03.3.1 Drawings are to be submitted on letter size paper (8 1/2" X 11"), in duplicate.

9.03.3.2 The sketch should locate the installation or construction by referencing it to a section line, a road, or some obvious and/or permanent land mark.

9.03.3.3 The sketch should clearly portray the construction in its relationship to the channel and/or right-of-way. Elevations must be indicated.

9.04 EMERGENCY PERMITS

A letter of authorization for emergency use of the District's facilities can be obtained prior to the issuance of a permit at the Board's discretion, if the delay of normal permit procedure would cause extreme hardship, or endanger lives or property; provided, however, an application for permit is regularly filed.

9.05 TEMPORARY PERMITS

Installation based upon seasonal requirements such as irrigation, pump connections, or semi-permanent facilities subject to relocation or modification such as temporary power lines, may be authorized under a temporary permit. Said temporary permits are to be issued for the use of District facilities for a period not exceeding ninety (90) days. However, should a use of installation approved under temporary status be desired for a period in excess of the maximum period allowed under the temporary status, a reasonable time extension may be applied for, or an application for regular permit may be made.

9.06 USE OF DISTRICT EASEMENTS

For the purpose of this section "Utility", "Utility Work" or "Utility Crossings" shall refer to any work (aerial, trenching, directional boring, buried, subaqueous, pavement cuts, etc.) involving potable water mains, force mains, sanitary sewer mains, water re-use lines, irrigation, gas, electric, telephone, cable TV, communications systems, fiber optics, internet cable, traffic signals, cameras, conduits, meters, junction boxes, access structures, or other similar work.

For proposed Utility Work or placement of communications facilities within CBWCD's property, rights-of-ways and easement areas, including, but not limited to Canal and Lake Maintenance Easements, the District shall require an initial user fee plus an annual user fee, which will become due one (1) year after the Utility Work or communications facilities are installed and completed and every year thereafter for as long as the utility and communications systems remain within CBWCD's property, rights-of-ways or easement areas. These funds may be used by the District for any expenses incurred by the District. In addition, the utility provider (or communications services provider) shall enter into a non-exclusive Agreement with CBWCD whereby the District is indemnified and held harmless from any and all damages that are caused as a result of the Utility Work installation or operation of the communications system, and may require a surety bond or letter of credit for Utility Work or placement of communications facilities within CBWCD's property, rights-of-ways or easement areas that may be withdrawn by the District to restore damaged or abandoned facilities within such areas. If the user of CBWCD's property, rights-of-ways or easement areas violates any terms or requirements of an Agreement or District Criteria, or fails to correct said violation, District may remove the utility or communications system placed within the property, rights-of-ways or easement areas and shall be reimbursed for all costs and expenses incurred by District in removing the said systems. District may terminate an Agreement for failure to cure such violations. These costs and expenses shall include, but not be limited to, reasonable attorney's fees and legal expenses incurred by the District.

9.07 MODIFICATION OR RELOCATIONS OF WORK UNDER PERMIT

Modifications to existing works under permit can be made without applying for a new permit; this also applies to the relocation of structures or facilities to a new site; provided, however, that the Board shall be advised in writing of the intent to do so, and shall consent thereto by a letter of approval.

A letter of request to amend the existing permit, in duplicate, accompanied by adequate drawings, also in duplicate, should be submitted to the District. Approval of the requested change will be granted in the form of a letter of acceptance.

9.08 TRANSFER OF PERMITS

By a separate agreement, the holder of a District permit may allow a third party the use of his permitted facility; but such agreement must be made known to the District in writing. Permits are not assignable without the specific consent of the District. A valid permit, upon request, can be transferred from one owner to a new owner. Request must be made in a letter form by the new owner, with the consent of the previous owner shown therein.

9.09 CONDITIONS UPON WHICH PERMITS ARE ISSUED ARE AS FOLLOWS:

9.09.1 Abidance by the terms and conditions of the permit issued to the holder.

9.09.2 The maintenance of any work or structures, the title to which remains with the permittee, in good and safe conditions.

9.09.3 The holding and saving of the District and its successors harmless from any and all damages, claims, or liabilities, which may arise by reason of the construction, operation, maintenance, of the use, of the work or structure involved in the permit.

9.09.4 Permitting inspection at any time by the District, its agents, servants, or employees, of any works and structures established under the permit.

9.09.5 The prevention of the discharge of debris and/or aquatic growth into any District works should the construction be a culvert, open channel, or pump connection.

9.09.6 Conformance with any alterations of, or amendments to the requirements of minimum standards of construction that may be deemed necessary by the District.

9.09.7 If in the event the Board requires the District Engineer’s approval, said costs shall be fully reimbursed by the applicant.

9.09.8 The granting of a permit does not convey to the permittee any property rights, nor any rights or privileges other than those specified in the permit.

9.10 BOND

Where deemed necessary by the District, a bond in an amount to be set by the District, may be required to insure compliance with the terms of the permit.

9.11 FEE

A fee will be charged for the issuance of the permit, which shall cover the cost of one inspection if necessary.

You are cautioned to call the District Secretary/Manager at 954-432-5110 for the current fee schedule as the Board of Commissioners may periodically update it

BIBLIOGRAPHY

The following is a list of publications incorporated by reference in this Document.

The use of certain transcripts, verbiage, and exhibits from these publications is acknowledged.

Florida Building Code with Broward County amendments, latest edition

Rules of the South Florida Water Management District related to the Environmental Resource Permit program

SFWMD Environmental Resource Permit (ERP) Permit Information Manual, Applicant's Handbook - Volumes I and II, and Part III – References and Design Aids, latest edition

Florida Department of Transportation, *Drainage Manuals*, latest editions.

Broward County, Florida - Code of Ordinances, Chapter 27, Pollution Control, Article V, "Water Resource Management," latest edition.