QUESTION 19 - STORMWATER MANAGEMENT

See State Comprehensive Plan (Chapter 187, F.S.) GOAL (8); POLICY (12) GOAL (16); POLICY (1) GOAL (18); POLICIES (1),(2),(3),(4),(6)
EXISTING LEVEL OF SERVICE: ADOPTED LEVEL OF SERVICE STANDARD: LEVEL OF SERVICE AFTER PROJECT BUILDOUT:

A. Describe the existing drainage patterns on-site as shown on Map I, including any potential flooding and erosion problems.

The project is located within the Hillsboro Canal Basin, in the northwest quadrant of the Cocomar Water Control District. ~~**The drainage system serving the area is composed of a system of interconnected lakes and canals that ultimately discharge through the SFWMD S-39 pump station.**~~ **The Cocomar Water Control District discharges through permitted control structures to the Hillsboro Canal, which ultimately flows to tide through the SFWMD's G-56 Structure. The property contains several agricultural ditches that drain to the Cypress Head to the north of the site and the C-5 canal along Cullum Road, with ultimate discharge to the Hillsboro Canal.**

The entire site is zoned X, or areas determined to be outside the 500-year flood plain, as determined by FEMA in FIRM Map 12011C0115F, dated August 18, 1992.

The entire site is not prone to flooding in the pre-development conditions. Per the existing SFWMD Permit covering the site, the minimum road elevations are set at elevation 14.0' NGVD and finished floor elevations at elevation 15.5' NGVD. The site as it exists generally slopes from south to north towards the existing wetland at the north end of the site. Erosion is not a problem as the site is relatively flat, with existing ground ranging from elevation 14.0' NGVD to elevation 15.0' NGVD. The canals are also slow moving, thus not susceptible to erosive velocities.

B. Describe the various elements of the proposed drainage system shown on Map I, including any wetlands to be used as part of the system, and discuss the design criteria (including stage-storage/stage discharge assumption) to be used for the various

elements. Provide typical cross-sections (showing dimensions, slopes and control elevations) for any proposed lakes or swales. Identify the control elevation for all drainage structures. Include information as to what design storm will be used for what portions of the system.

Several underground pipe systems will convey runoff from the buildings and paved areas to the proposed lake and existing wetland at the north end of the site. The regulations of the Cocomar Water Control District require the pretreatment of the first 1/2" of rainfall prior to discharging to the wetlands and master water management system. The District also requires all sites to have 15% waterways (canals or lakes) and 35% maximum building coverage, unless storage volumes can be adjusted to match these criteria.

The Cocomar Water Control District is controlled by the SFWMD S-39 Pump Station, generally located at the southwest corner of Palm Beach County. The drainage system serving the area is composed of a system of interconnected lakes and canals that discharge through the S-39 Pump Station. This site is adjacent to and will discharge directly to the C-5 Canal.

The control elevation for this area is elevation 11.0' NGVD. Minimum road elevations will be at elevation 14.0' NGVD with finished floor elevations at elevation 15.5' NGVD in accordance with existing District criteria.

C. From Map I, indicate the total number of acres in each drainage area and specify the acreage of any portions of drainage areas outside the site boundaries. Complete the following table for on-site drainage areas.

The proposed development includes approximately 157 acres. The proposed drainage system will manage runoff from only on-site drainage areas. The on-site drainage area will be divided into several sub-basins with the required stormwater management taking place in the lake and wetland at the north end of the site.

Table 19.1
Drainage Areas

Existing Use

Area	Impervious Surfaces (Ac)	Surface Retention (Ac)	Open Space (Ac)	Total (Ac)
Pavement	2.18	0	0	2.18
Green	0	0	128.98	128.98
Building	0.11	0	0	0.11
On-Site Canals	0	10.16	0	10.16

Wetland	0	16.25	0	16.25
TOTALS	**2.29**	**26.41**	**128.98**	**157.68**

Proposed Use

Area	Impervious Surfaces (Ac)	Surface Retention (Ac)	Open Space (Ac)	Total (Ac)
Pavement	68.83	0	0	68.83
Green	0	0	10	10
Retail				
Office				
Multi-Family	55.2	0	0	55.2
Lake & Wetland	0	23.65	0	23.65
TOTALS	**124.03**	**23.65**	**10**	**157.68**

Acreages subject to zoning and site plan approval

D. Specify and compare the volume and quality of run-off from the site in its existing condition to the anticipated run- off at the end of each phase of development. (The parameters to be used to define "quality" and methodology should be agreed to by the regional planning council and other reviewing agencies at the pre-application conference stage.) Identify any changes in timing or pattern of water flows between pre- and post-development conditions. Indicate major points of discharge and ultimate receiving water body(ies). Indicate what provisions will be incorporated in the design of the drainage system, including a summary description of any Best Management Practices to be utilized, to minimize any increase in run-off from the site and to minimize any degradation of water quality in the ultimate receiving body over that occurring in its pre-development state.

The proposed development is scheduled to occur in one phase. The existing site presents infiltration and/or evaporation of runoff and eventual discharge via the existing canals. The proposed development will contain impervious areas that will convey larger volumes of runoff to the proposed lake and existing wetland.

The surface water management system will be evaluated and designed to take into account the entire 157.68 acre development. Currently runoff from the site discharges uncontrolled to the Cocomar Water Control District's master water management system with an estimated peak discharge of 94 cfs for the 25 year-3 day storm. Discharge from the proposed development will not be limited per the Cocomar Water Control District Criteria. The discharge will occur after required treatment, which will be achieved by utilizing on-site lakes or wetlands (totaling 23.65 acres), retention areas, and/or underground exfiltration trench. Discharge will be to the C-5 canal, which is part of the Cocomar Water Control District master water management

system. Water quality will be provided using dry retention areas, underground exfiltration trench (1/2" dry pretreatment), and/or retention in the onsite lake and wetland. Water quality for the proposed development is estimated to be 13.14 acre-feet (first 1" of runoff). The equivalent of 1/2" of the water quality (6.57 acre-feet) will be provided in exfiltration systems and/or dry retention areas. The balance of 6.57 acre-feet will be retained in the on-site lake or wetland.

The project facilities shall be built according to the following levels of service adopted by the Cocomar Water Control District:

Facility	Duration	Design Storm
Roadways and Parking Lots	10-year Frequency	1-day
Discharge	25-year Frequency	3-days
Finish Floors	100-year Frequency	3-days – 0 Discharge

Table 19-2
25-yr/72 Hr. Storm - Pre - Post - Development Comparison

	Runoff Volume (Ac-ft)	Routed Peak Flow (cfs)
Existing Site	119.0	93.92
Proposed Developed Site*	180.2	95 +

*Subject to Cocomar Water Control District criteria

D. Who will operate and maintain the drainage system after completion of the development?

The Applicant or other appropriate entity will operate and maintain the drainage system.