Village of Pinecrest

Building Department – Storm water grading and drainage plan checklist

Indicates plan sheet – all other refers to calculations

	YES	NO
1. North arrow shown, in correct orientation, on plan?	☐	☐
2. Engineer Scale show on plan?	☐	☐
3. Project address shown on plan?	☐	☐
4. Total Project Area matches surveyor's area as provided in parcel sketch?	☐	☐
5. VoP Public Works Swale Detail provided in grading and drainage plan?	☐	☐
6. Elevations provided for swale match intent of swale detail?	☐	☐
7. Driveway slope provided in Public R/W is within normal range?	☐	☐
8. Algebraic difference of driveway slope and road cross slope less than or equal to 8%?	☐	☐
9. Pre-development pervious area correctly reported in drainage calculations?	☐	☐
10. Pre-development impervious area correctly reported in drainage calculations?	☐	☐
11. Post-development pervious area reported correctly in drainage calculations?	☐	☐
12. Post-development impervious area reported correctly in drainage calcs?	☐	☐
13. Roof area correctly reported in drainage calculations (from architect's drawing(s)?	☐	☐
14. Parking area(s) / driveway(s) correctly reported in drainage calcs?	☐	☐
15. Water quality volume calculation(s) correct (*for **1"** criteria*) ?	☐	☐

16. Water quality volume calculation(s) correct (*for **2.5”** criteria*) ? ☐ ☐

17. Correct storm even used in drainage calculations? (SFWMD 25-yr, 24-hr) ☐ ☐

18. Correct value used for precipitation? (9 to 9.5 in.) ☐ ☐

19. Correct October water table elevation used as shown in MDC WC 2.2 map? ☐ ☐

20. Correct soil storage value from SFWMD table used in drainage calcs? ☐ ☐

21. Pre-developmental runoff volume calculated correctly? ☐ ☐

22. Post development runoff volume calculated correctly? ☐ ☐

23. Difference between pre- and post-development runoff volumes correctly calculated? ☐ ☐

24. “Control volume” correctly identified? ☐ ☐

25. Contour lines provided? ☐ ☐

26. Cross-sections sown at PL? ☐ ☐

27. Are flow arrows shown adequately and accurately? ☐ ☐

28. Dry retention swale volume(s) calculations provided? ☐ ☐

29. Are the dry retention swale volume(s) provided adequate to meet VoP storm water management level of service? ☐ ☐

30. Any locations where post-development runoff drains directly onto adjacent properties? ☐ ☐

31. Plan(s) are signed by a registered Professional Engineer in the State of Florida? ☐ ☐

32. Drainage Calculations are signed and sealed by a registered Professional Engineer in the State of Florida? ☐ ☐

33. Parcel sketch is signed and sealed by a registered Professional Surveyor & Mapper in the State of Florida? ☐ ☐

34. Is the infiltration trench data provided adequate? ***(if applicable)***

a.	Percolation rate (from geotechnical report)?	
b.	Proposed trench length shown?	
c.	Factor of safety (min. of 2) shown?	
d.	Water table elevation provided correctly?	
e.	Pipe invert elevation shown correctly?	
f.	Calculation methodology identified (FDOT, MDC, SFWMD)?	
g.	Inlet elevation shown correctly?	
h.	Adequate sump provided?	
i.	Adequate infiltration trench detail provided?	
j.	Pipe size shown adequate and accurate?	
k.	Perforated and solid pipe shown correctly?	
l.	Inlet type and size identified?	

Village of Pinecrest

Stormwater management worksheet

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PERMIT #: BL20xx-xxxx

PROPERTY ADDRESS: 62xxSW 1xx St

OWNER: Havedough

STORMWATER EOR: DaBest

CONTACT INFORMATION: xyz@xyz.com

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Pre-Development (Existing) Areas:

Total site Area:	**37,026**	s.f.			37897.2	
Impervious:	**0**	s.f.	0.0	%		
Pervious:	**37,026**	s.f.	100.0	%		
			100	chk		

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Post-Development (Proposed) Areas:

Building Area:	**5836**	s.f.	15.8	%	
Parking Area:	**2786**	s.f.	7.5	%	
Other Impervious:	**1648**	s.f.	4.5	%	septic drainfield
Pervious Area:	**26756**	s.f.	72.3	%	
			100	chk	

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Calculate Water Quality:

1) 1" x Property Area = 1" x 37026 s.f. = 3086 c.f. 0.07

2) 2.5" X % impervious Total Area = X 2.5" X 0.1 X 37026 = 1097 c.f. 0.03

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Calculate Water Quantity:

25-yr-24 hour storm, P, in. =	**9.5**	in. (from SFWMD Manual)
Compacted soil factor, SSC, in. =	**8.18**	in. (from SFWMD manual & Dade County)

Pre-Development Runoff:

Calculate soil storage value, S : 8.18 X 100.0 % = 8.18 in.

Calculate Runoff, R : $(P-.2S)^2 / (P+.8S)$ = 3.85 in.

Calculate Volume, V_{pre} = R*Total Area = 11893 cf

0.27

Post-Development Runoff:

Calculate soil storage value, S : 8.18 X 72.3 % = 5.91 in.

Calculate Runoff, R : $(P-.2S)^2 / (P+.8S)$ = 4.86 in.

Calculate Volume, V_{post} = R*Total Area = 15003 cf

0.34

Volume required for Water Quantity, $V_{quant} = V_{post} - V_{pre}$

V_{quant} = 15003 - 11893 = 3109 cf

0.071

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Determine Dry Retention Volume required:

==========> 3109 cf is the critical volume <==========

0.07138406

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Possible dry retention dimensions:

Average Area, sf	Depth, in.	% of pervious
12437.95937	3	48
9328.469529	4	36
6218.979686	6	24
4145.986458	9	16
3109.489843	12	12

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STORMWATER MANAGEMENT CONDITION OF PERMIT:

Upon construction completion but prior to final approval for the project, the applicant shall submit to the Village: (1) an overall certification signed and sealed by the EOR that the project has been constructed according to the approved plans (2) a signed and sealed survey by a Florida registered PSM with spot elevations every 25 feet throughout the property, as well as at planned/constructed dry retention areas and (3) a site review with the VoP stormwater management reviewer. The permitted plans, the survey and EOR letter MUST be present for the FINAL STORMWATER Inspection.

EXCAVATION & FILL ORDINANCE of the VoP:

Div. 6.12. – Excavation and fill.

c) Maintenance of natural grade and elevation. Development and construction in the Village of Pinecrest shall be designed and constructed with an elevation and grading that are consistent with the requirements of the Village's Floodplain Management Ordinance, Stormwater Management Plan, and Comprehensive Development Master Plan. The established natural elevation and grade of a property under construction shall be fundamentally preserved and the finished grade and elevation shall be consistent and compatible with the grade and elevation of adjoining properties.

d) Fill water ward of the top of slope of any lake or waterway or alteration of an established shoreline in the VoP shall not be permitted unless approved as a conditional use.

1) No drainage calculations provided.

2) See Village of Pinecrest website for stormwater management requirements.

In summary:

Rain event is a 25-year - 24-hour storm (depending on location in Pinecrest, either 9 or 9.5")

The largest of the three following volumes must be retained on site in dry retention swale(s)/pond(s):

a. 1" runoff X entire site

b. 2.5" runoff X % impervious X entire site (See SFWMD Manual for methodology)

c. Difference between pre and post runoff volumes

*NOTE: methodology used by the drainage engineer to calculate run off volume is their choice, but the stage-storage method for calculations is not permitted due to its unsuitability to small watersheds, like residential homes.

3) Please feel free to contact me directly at dmendez@capfla.com or dmendez@pinecrest-fl.gov to discuss in greater detail. Sample plans and calculations can also be provided.

4) The proposed grading and drainage plan and the drainage calculations must be done by a Florida registered professional engineer.

5) If a septic system is on site or will be installed as part of the permit then the following considerations must be taken:

(a) All aspects of Florida Administrative Code 64E-6.005 must be followed

(b) The final finished grade above the proposed septic drainfield must be included in the paving and drainage plan

(c) The outline of the drainfield and the unobstructed area of the drainfield must be included in the paving and drainage plan

(d) The area of the drainfield and the unobstructed area of the drainfield cannot be included as part of the retention area calculations

(e) Cross sections of the proposed drainfield (one longitudinally and one laterally) will be included in the paving and grading plan. The cross sections will include the adjacent stormwater management retention/detention swales.

6) Soil percolation rates post construction must equal or exceed pre construction percolation rates for all proposed drainage areas. The addition of admixtures to the in situ soil to facilitate drainage is permitted/encouraged.

7) Paving and grading plans will show the proposed landscaping and trees to remain as a background (separate CADD layer/level). No grading will be allowed within a 10' radius of mature trees or GREATER as determined by the RLA on the project.

8) Minimum allowable berm elevation is 0.5'.

9) Maximum depth of any retention/detention area is 1.0 ft. Drawdown/evaporation calculations for complete runoff removal within 72 hours MAY be required.

10) Paving and drainage plan will include a weir elevation at the R/W line (adjacent to Public R/W)

Following is a summary of the conditions of the permit:

1) Prior to issuance of a certificate of occupancy, provide storm water calculations that demonstrate compliance with the Village of Pinecrest Storm water Level of Service, including:

- Water quality calculations shall be provided for the first inch of runoff AND for 2.5" times the percentage of impervious AREA times the TOTAL area, whichever is greater.

- Water quantity calculations to meet VOP Level of Service Standards for Storm water. Post-development runoff shall not exceed the pre-development runoff rate for a 25-year / 24 hour storm event.

2) Note that operation and maintenance of the proposed drainage system will be the responsibility of the property owner to ensure the system meets the Village Level of Service Standard for Storm water. If a French Drain is proposed on site then a covenant with the Village of PInecrest will be executed prior to TCO issuance.

3) Upon construction completion but prior to final approval for the project, the applicant shall submit to the Village an overall certification signed and sealed by a State of Florida Professional Engineer that the project has been constructed according to the approved plans and meets the Village of Pinecrest Level of Service Standard for Storm water management.

4) A signed and sealed survey by a Florida registered PSM will be required with spot elevations every 25 ft. throughout the property, as well as at planned/constructed dry retention areas.

5) The grading and paving EOR will request a site review for plan concurrency with the VoP stormwater management reviewer after items 3 and 4 have been done and will be on-hand at the time of the final inspection.

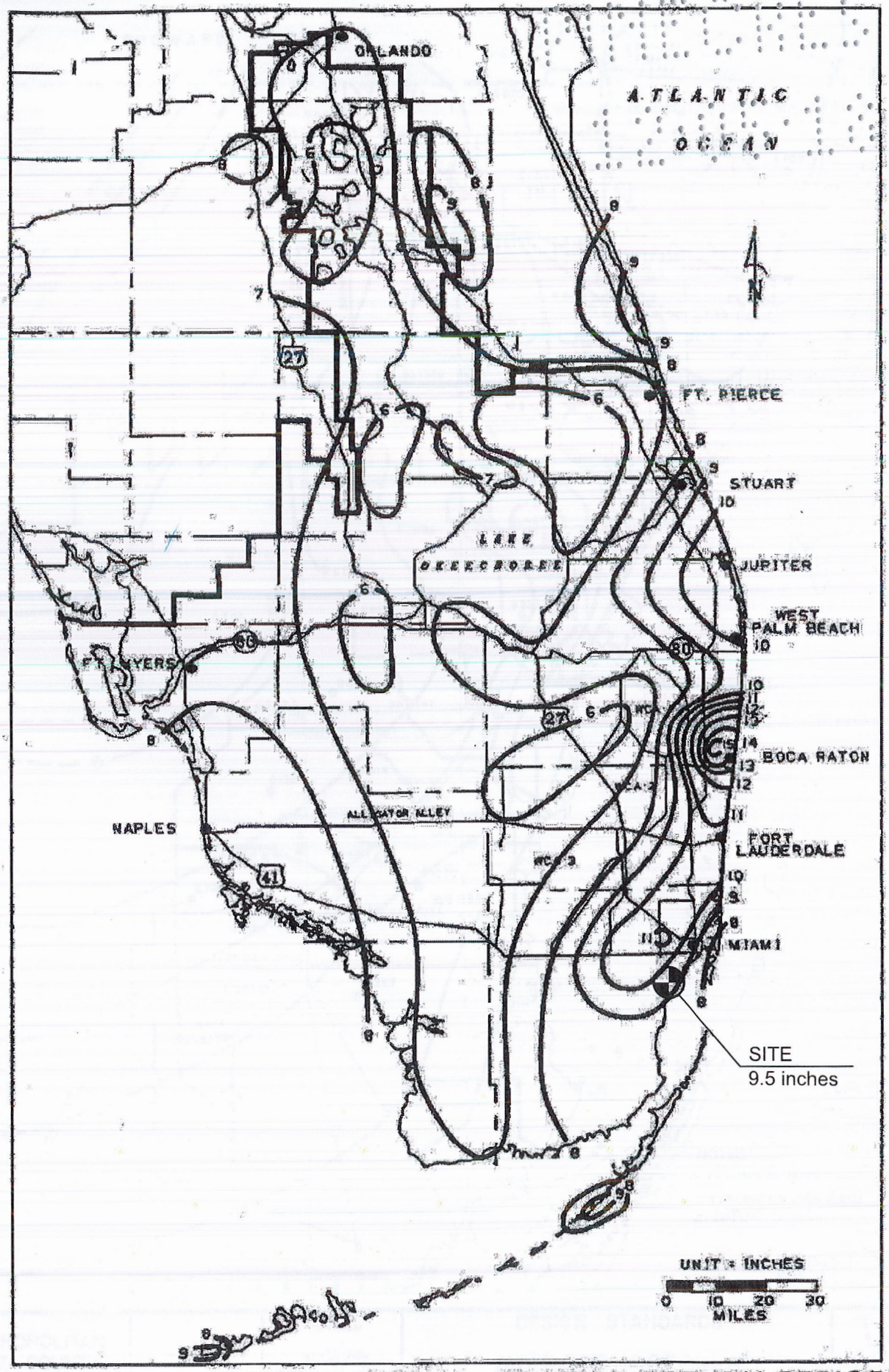


FIGURE C-5. 1-DAY RAINFALL: 25-YEAR RETURN PERIOD

VILLAGE OF PINECREST
DEPARTMENT OF BUILDING & PLANNING

MAINTENANCE OF STORMWATER FACILITIES ON PRIVATE PROPERTY

COVENANT

WHEREAS, _____ hereinafter referred to as the Owner(s) of the following described property:

_____
_____
_____
_____

Is/Are hereby requesting permission to install storm water drainage facilities for treatment of storm water runoff on property located at _____

IN CONSIDERATION of the approval of this permit, by the Village of Pinecrest, the Owner agrees as follows:

1. To regularly maintain and replace when necessary, the storm water drainage facilities installed by Owner.

2. To indemnify and hold the Village of Pinecrest harmless from any and all liability which may arise by virtue of the Village permitting the installation of these items within the subject property.

3. The undersigned further agrees that these conditions shall be deemed a covenant running with the land and shall remain in full force and effect and be binding on the undersigned, their heirs and assigns, until such time as this obligation has been canceled by an affidavit filed in the public records of Miami-Dade County by the Village Manager of the Village of Pinecrest (or his fully authorized representative).

4. The undersigned shall permit Village personnel to inspect the condition of the drainage facilities at any time the covenant is in effect.

SIGNED, SEALED, EXECUTED AND ACKNOWLEDGED this _____ day of _____, 20__.

_____

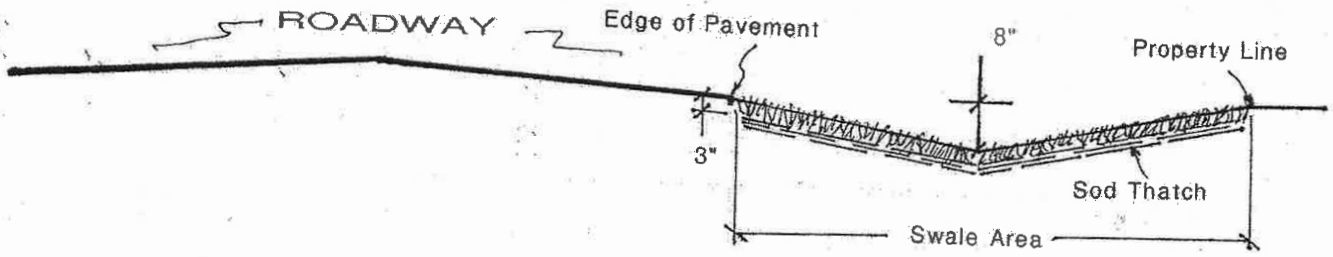
STATE OF FLORIDA)
) SS
COUNTY OF MIAMI-DADE)

I HEREBY CERTIFY, that on the _____ day of _____, 20__ before me personally appeared, _____ to me known to be the person described in and who executed the foregoing Covenant to the Village of Pinecrest, a corporate body, and a political subdivision of the State of Florida, and he/she acknowledged to me the execution thereof to be a free act and deed for the uses and purposes therein mentioned.

WITNESS my signature and official seal, in the County of Miami-Dade, State of Florida, the day and year last aforesaid.

_____
Notary Public, State of Florida

My Commission Expires:



VILLAGE OF PINECREST PUBLIC WORKS
TYPICAL SWALE AREA

2012