



Drainage Statement for:
Blowing Rocks
Project No. 17-1179

Location

The 1.78 acre project site is located between the Atlantic Ocean and the Intracoastal Waterway immediately south of Coral Cove Park. Beach Road bisects the project site with the majority of the project site located east of Beach Road. The project site is bounded on the north by Coral Cove Park, on the east by the Atlantic Ocean, on the south by undeveloped lands owned by the State of Florida Trustees of the Internal Improvement Trust Fund (TIITF) and on the west by the Intracoastal Waterway. The project site is located within the Intracoastal basin of the South Florida Water Management District / Florida Department of Environmental Protection.

FEMA Flood Data

The western portion of the project site behind the dune line is located within flood zone AE, elevation 7.0' NAVD based upon the Letter of Map Revision (LOMR) effective July 2, 2018 for the FEMA Flood Insurance Rate Map (FIRM) panel number 12099C0179F, effective October 15, 2017.

Existing Conditions

The site is currently developed and in use as a residential multi-family development on the south side and a single building (church parcel) on the north side. There are minimal stormwater management facilities located onsite consisting of a drainage system within the pool area of the multi-family development. Currently, stormwater runoff generated onsite sheet flows directly offsite primarily to the west to Beach Road, as well as to Coral Cove Park (north), the Atlantic Ocean (east) and the undeveloped parcel (south).

Beach Road does not have a formal stormwater conveyance or stormwater management system. Stormwater runoff from Beach Road sheet flows off the roadway onto the adjacent properties. There is a culvert system along the east side of Beach Road along the project frontage and this system allows surface water runoff north of the project site along Beach Road and stormwater runoff from this site to discharge south into the undeveloped state-owned land south of the project site.

There are no existing water quality treatment facilities located on-site.

Proposed Improvements

The proposed project consists of the redevelopment of the site for a multi-story condominium. The finished floor elevation will be raised to meet the current building department finished floor elevations associated with current FEMA elevation (listed above). The proposed minimum finished floor elevation is 1.5' above the FEMA elevation or elevation 8.50' NAVD.

The proposed stormwater management system will be constructed to meet the standards of the South Florida Water Management District. Stormwater runoff will be reduced from the pre-development conditions. Water quality treatment facilities will be designed to treat stormwater runoff prior to discharge by way of depressed swale areas and 100 linear feet of proposed exfiltration trench (please see exfiltration trench calculations on the next page). Legal positive outfall will occur west onto Beach Road and ultimately, to the undeveloped property to the south via bubble up structures or a hard pipe connection to the drainage system on Beach Road.

It should be noted that the Village of Tequesta typically requires new development and redevelopment to retain 95% of the runoff from a 25 year – 1 day storm event. Due to the geographic location of the project site being located on the Barrier Island and elevated significantly higher than the adjacent properties, this regulation should not apply to this site as there will be no adverse impacts to any Village stormwater management system or any off-site properties. The proposed stormwater management system will be an overall improvement to water quality treatment and stormwater runoff from this site.

Preliminary Surface Water Management System Calculations

The drainage area associated with the redevelopment of the site is 1.32 acres which is the area east of Beach Road and west of the existing dune line. The existing site is currently developed with 0.96 acres of impervious area generating 1.23 acre-feet of runoff during the 25 year – 72 hour design event (13.5 inches of rainfall). The proposed site plan contains 1.00 acre of impervious area that would generate 1.26 acre-feet of runoff during the 25 year – 72 hour storm event. The proposed drainage system will be designed to provide 0.21 acre-feet of water quality treatment which will be retained within a proposed exfiltration trench system. Therefore, there will be an overall reduction in runoff generated from the 25 year – 72 hour design event.

Existing Site Runoff (ac-ft)	1.23
Proposed Site Runoff (ac-ft)	1.26
Proposed Water Quality Treatment (ac-ft)	0.21
Net Runoff (ac-ft)	(-)0.18

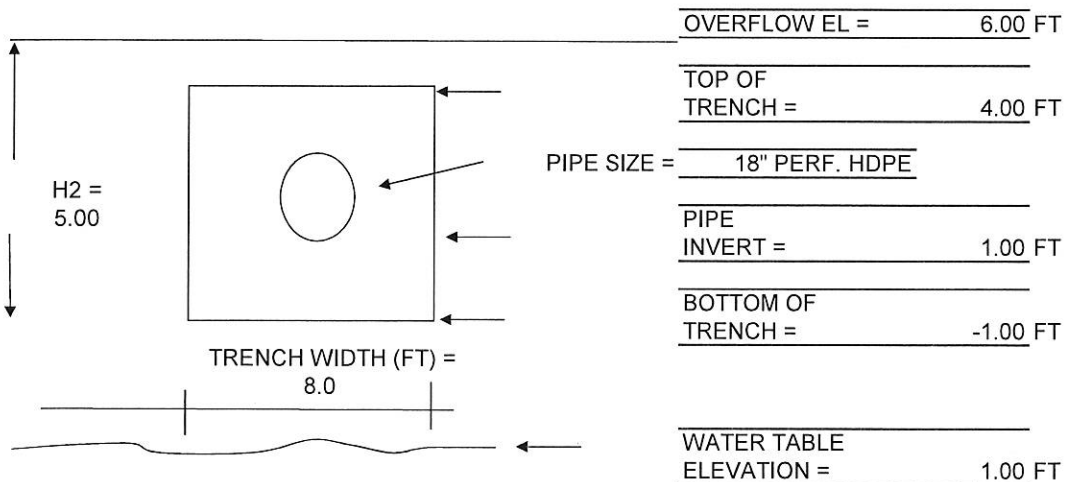
KESHAVARZ & ASSOCIATES, INC.

711 North Dixie Highway, Suite 200
 West Palm Beach, Florida 33401
 phone: (561) 689-8600



**KESHAVARZ
 ASSOCIATES**

Project Name: **Blowing Rocks Condominium**
 Project Number: **17-1179**

EXFILTRATION TRENCH DESIGN CALCULATIONS**TRENCH CROSS SECTION****DESIGN CHARACTERISTICS**

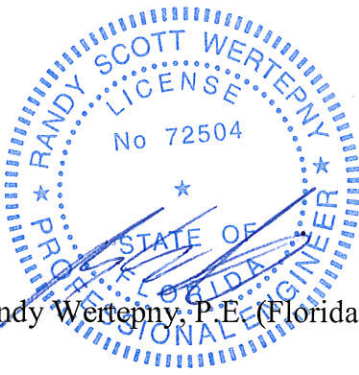
1. Exfiltration Trench Depth (FT)	5.00
2. Saturated Trench Depth, Ds (FT)	2.00
3. Un-Saturated Trench Depth, Du (FT)	3.00
4. Exfiltration Trench Width, W (FT)	8.0
5. Head acting on Trench, H2 (FT)	5.00
6. Factor of Safety	2.00
7. Hyd. Conductivity, K (CFS/FT.SQ.-FT. HEAD)	2.84E-04

Vwq =	REQUIRED WATER QUALITY VOL. (AC-IN)	2.520
Vadd =	ADDITIONAL STORAGE VOL. (AC-IN)	0.000
%WQ =		50%
L =	REQUIRED LENGTH OF TRENCH (FT):	95.82
	PROPOSED LENGTH OF TRENCH (FT):	100
	PROPOSED VOL. TO BE TREATED (AC-FT):	0.219
	PERCENT OF REQUIRED PROVIDED:	104.4%

$$L = (F.S. * ((\%WQ * Vwq) + Vadd)) / (K * (H2 * W + 2 * H2 * Du) - (Du^2) + (2 * H2 * Ds) + (.000139 * W * Du))$$

COMMENTS:

- * THIS IS CONSIDERED DRY PRETREATMENT
- * REFERENCE: Environmental Resource Permit Information Manual Ver. 2014



Randy Werdepny, P.E. (Florida License No. 72504)

July 11th, 2018

Keshavarz & Associates, Inc.

Certificate of Authorization No. 4897