



SEXTON ENGINEERING ASSOCIATES, INC.

Consulting Engineers and Surveyors

WATER & SEWER DEMAND ANALYSIS

for

EQUESTRIAN VILLAGE LAGOON

WELLINGTON, FLORIDA

Prepared by

SEXTON ENGINEERING ASSOCIATES, INC.

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SEA PROJECT NO: 2242T15

July 22, 2022

Revised: September 7, 2022

Revised: October 5, 2022

WATER & SEWER DEMAND ANALYSIS

Introduction:

The 101.86-acre property is located at the northeast corner of South Shore Blvd. and Pierson Road in Wellington. The west 59 acres of the property was formerly the Palm Beach Polo Stadium, and a portion of the property has been redeveloped into the World Dressage Complex, also known as Equestrian Village, which includes equestrian arenas, a covered equestrian ring, stables, parking areas, buildings, concrete vendor decks, and equestrian support facilities. The east 43 acres of the property is currently polo fields.

Water Demand Analysis:

The Village of Wellington currently provides water service to the property via an onsite 6" watermain. There is also an 8" watermain on the east side of South Shore Blvd. along the west side of the property, and a 16" watermain on the north side of Pierson Road along the south side of the property.

The proposed Comprehensive Plan Amendment proposes a mixed-use development which will include 300 single-family units, a sports club, members club, and a golf club. These uses will add the following water demand, per the attached Potable Water and Sanitary Sewer Request for Confirmation of Available Capacity letter from The Village of Wellington (the multiplier of 3.02 persons per house shall be utilized for the calculations of residents and members that will use the Country Club):

Water Demand Table

Use	Units	Unit Average Daily Demand	Total Average Daily Demand
Single-family Residential	300	988 gpd	130,052 gpd
Country Club - Residents	906	130 gpd	117,780 gpd
Country Club - Members	595	33 gpd	19,338 gpd
Country Club - Employees	50	20 gpd	975 gpd
OTHER-Lagoon Makeup	1	111,111 gpd	111,111 gpd

The lagoon will require potable water for initial filling and for makeup water due to evaporation. Calculations based on an average lagoon depth (4.5 feet) and average monthly rainfall/evaporation rate (inches), estimate that the lagoon will require approximately 18 million gallons of potable water for the initial fill and 4 million gallons annually or 111 thousand gallons per day for makeup. Maintenance of the lagoon will occur while full and no draining after the initial fill should be required. If lagoon surface maintenance is ever needed, a localized section of the lagoon will be isolated by using an aquadam (or equivalent) and drained. If the Village's potable water infrastructure cannot support this volume, a well can be pursued.

A formal written procedure for the initial fill of the Lagoon will be developed and submitted to the Village for approval during the Site Plan Approval process. The Lagoon Development will be design to meet The Village's recently adopted South Florida Water Management District Water Conservation Ordinances, specifically the Water Conservation and Water Shortages Articles.

Sewer Demand Analysis:

The Village of Wellington currently provides sewer service to the property via an onsite 8" gravity sanitary sewer collection system.

The proposed Comprehensive Plan Amendment proposes a mixed-use development which will include 300 single-family units, a sports club, members club, and a golf club. These uses will add the following water demand, per the attached Potable Water and Sanitary Sewer Request for Confirmation of Available Capacity letter from The Village of Wellington (the multiplier of 3.02 persons per house shall be utilized for the calculations of residents and members that will use the Country Club):

Sewer Demand Table

Use	Units	Unit Average Daily Demand	Total Average Daily Demand
Single-family Residential	300	760 gpd	100,040 gpd
Country Club - Residents	906	100 gpd	90,600 gpd
Country Club - Members	595	25 gpd	14,875 gpd
Country Club - Employees	50	15 gpd	750 gpd

Discharge of treated lagoon water will not be permitted to drain to the Village's sanitary system. Overflow water from rain events will instead be discharged to dry onsite stormwater management facilities, which will treat and attenuate the water before discharging to the existing ACME Improvement District canal system.



Potable Water and Sanitary Sewer Request for Confirmation of Available Capacity

Date: October 5, 2022

To: Anjuli K. Panse, P.E.
Interim Utility Director
Village of Wellington Utility Department
12300 Forest Hill Blvd.
Wellington, FL 33414

From: Sexton Engineering Associates, Inc.
110 Ponce de Leon Street, Suite 100
Royal Palm Beach, Florida 33411

Project Address: Equestrian Village Lagoon

PCN: See attached.

Project Summary (Include all applicable land use, zoning, and density information)

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Demand Summary

(Submit Potable Water and Sanitary Sewer Average Day Projected Demand Table Worksheet as backup)

Average Day Water Demands (MGD) =	0.379	MGD
Peak Day Water Demands (MGD) =	0.531	MGD
Average Day Wastewater Demands (MGD) =	0.206	MGD
Peak Day wastewater Demands (MGD) =	0.289	MGD

By submittal of this document and backup information, the applicant requests that the Village of Wellington review the information provided in order to confirm that Wellington can meet the proposed demands for water and sewer service as noted above. The applicant is advised that no guarantee of available capacity is expressed or implied, until such a time that the Owner has reserved capacity through payment of all applicable fees and charges. **The capacity letter shall be considered expired 90 days from the date of issuance.**

Potable Water and Sanitary Sewer Average Day Projected Demand Table Worksheet- July 2022

TYPE OF ESTABLISHMENT	Number of Units	WW demand per unit (GPD)	Water demand per unit (GPD)	Avg WW Demand (GPD)	Avg Water Demand (GPD)
Complete Green Cells to Calculate Projected Average and Peak Demands					
Water to Wastewater average day Demand Factor (12 month rolling average) Updated October 1, 2018	1.30				
COMMERCIAL:					
Barber & beauty shops per service chair		75	98	0	0
Bowling alley bathroom waste only per lane		50	65	0	0
Country Club					
(a) Per resident	906	100	130	90600	117780
(b) Add Per member or patron	595	25	33	14875	19337.5
(c) Add Per employee per 8 hour shift	50	15	20	750	975
Doctor and Dentist offices					
(a) Per practitioner		250	325	0	0
(b) Add per employee per 8 hour shift		15	20	0	0
Food operations					
(a) Restaurant operating 16 hours or less per day per seat		40	52	0	0
(b) Restaurant operating more than 16 hours per day per seat		60	78	0	0
(c) Restaurant using single service articles only and operating 16 hour or less per day per seat		20	26	0	0
(d) Restaurant using single service articles only and operating more than 16 hours per day per seat		35	46	0	0
(e) Bar and cocktail lounge per seat		20	26	0	0
1. add per pool table or video game		15	20	0	0
(f) Drive - in restaurant per car space		50	65	0	0
(g) Carry out only, including caterers					
1. Per 100 square feet of floor space		50	65	0	0
2. Add per employee per 8 hour shift		15	20	0	0
(h) Institutions per meal		5	7	0	0
(i) Food Outlets excluding deli's, bakery, or meat department per 100 square feet of floor space		10	13	0	0
1. Add for deli per 100 square feet of deli floor space		40	52	0	0
2. Add for bakery per 100 square feet of bakery floor space		40	52	0	0
3. Add for meat department per 100 square feet of meat department floor space		75	98	0	0
4. Add per water closet		200	260	0	0
Hotels					
(a) Regular per room		100	130	0	0
(b) Resort hotels, camps, cottages per room		200	260	0	0
(c) Add for establishments with self-service laundry facilities per machine		750	975	0	0
Office building					
1. per employee per 8 hour shift or		15	20	0	0
2. per 100 square feet of floor space, whichever is greater		15	20	0	0

TYPE OF ESTABLISHMENT	Number of Units	WW demand per unit (GPD)	Water demand per unit (GPD)	Avg WW Demand (GPD)	Avg Water Demand (GPD)
Service stations per water closet					
(a) Open 16 hours per day or less		250	325	0	0
(b) Open more than 16 hours per day		325	423	0	0
Shopping centers without food or laundry per square foot of floor space		0.1	0.13	0	0
Stadiums, race tracks, ball park per seat		4	5	0	0
Stores per bathroom		200	260	0	0
Theatres and Auditoriums, per seat		4	5	0	0
Veterinary Clinic					
(a) Per practitioner		250	325	0	0
(b) Add per employee per 8 hour shift		15	20	0	0
(c) Add per kennel, stall or cage		20	26	0	0
Warehouse					
(a) Add per employee per 8 hour shift		15	20	0	0
(b) Add per loading bay		100	130	0	0
(c) self-storage, per unit(up to 200 units)		1	1	0	0
1. Add 1 gallon for each 2 units or fraction thereof, for over 200 units, and shall be in addition to employees, offices or living quarters flow rates.		1	1	0	0
INSTITUTIONAL:					
Churches per seat which includes kitchen wastewater flows unless meals prepared on a routine basis		3	4	0	0
1. If meals served on a regular basis add per meal prepared		5	7	0	0
Hospitals per bed which does not include kitchen wastewater flows		200	260	0	0
1. add per meal prepared		5	7	0	0
Nursing, rest homes, adult congregate living facilities per bed which does not include kitchen wastewater flows		100	130	0	0
1. add per meal prepared		5	7	0	0
Parks, public picnic					
(a) With toilets only per person		4	5	0	0
(b) With bathhouse, shower & toilets per person		10	13	0	0
Public Institutions other than schools and hospitals per person which does not include kitchen wastewater flows		100	130	0	0
1. add per meal prepared		5	7	0	0
Schools per student					
(a) Day-type		10	13	0	0
(b) Add for shower		4	5	0	0
(c) Add for cafeteria		4	5	0	0
(d) Add for day school workers		15	20	0	0
(e) Boarding -type		75	98	0	0

TYPE OF ESTABLISHMENT	Number of Units	WW demand per unit (GPD)	Water demand per unit (GPD)	Avg WW Demand (GPD)	Avg Water Demand (GPD)
RESIDENTIAL					
(a) Single or multiple family per dwelling Unit					
1 Bedroom with 750 sq. ft. or less of building area		100	130	0	0
2 Bedroom with 751 - 1200 sq. ft. of building area		200	260	0	0
3 Bedroom with 1201 - 2250 sq. ft. of building area	238	300	390	71400	92820
4 Bedroom with 2251 - 3300 sq. ft. of building area	62	400	520	24800	32240
For each additional bedroom or each additional 750 square feet of building area or fraction thereof in a dwelling unit, system sizing shall be increase by 60 gallons per dwelling unit	64	60	78	3840	4992
(b) Other per occupant		50	65	0	0
OTHER CATEGORY NOT LISTED (ENGINEER TO PROVIDE BACKUP)	1		#####	0	111111
OTHER CATEGORY NOT LISTED (ENGINEER TO PROVIDE BACKUP)				0	0
OTHER CATEGORY NOT LISTED (ENGINEER TO PROVIDE BACKUP)				0	0
Summary of Average Day Wastewater and Water Demands (GPD) =				206265	379256
Summary of Average Day Wastewater and Water Demands (MGD) =				0.206	0.379

Summary of Peak Day Wastewater and Water Demands (MGD) = Average Daily Demand x 1.4 =	0.289	0.531
	(WW)	(Water)

[1] Systems serving high volume establishments, such as restaurants, convenience stores and service stations located near interstate type highways and similar high-traffic areas, require special sizing consideration due to expected above average volumes. The minimum estimated flows for these facilities shall be 3 times the volumes determined from the Demand Table Figures.