
FORT MYERS BREWING COMPANY

LEE COUNTY ENGINEERING REPORT (REV00 - 04/12/2022)

Prepared By:



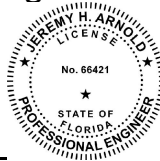
CONSULTING. ENGINEERING. CONSTRUCTION.

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Bonita Springs, FL 34135
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Prepared For:

1227 HOLDINGS, LLC
12811 COMMERCE LAKES DRIVE #28
FORT MYERS, FL 33913

Engineer of Record:



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Jeremy H Arnold
Date: 2022.04.12
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Jeremy H. Arnold, P.E.

Date

FL Registration #66421

COA #8636

Jeremy H. Arnold State of Florida Professional Engineer, License No. 66421
This item has been digitally signed and sealed by Jeremy H. Arnold, P.E., on 04/12/2022.
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SECTION 1

SUMMARY

FORT MYERS BREWING COMPANY

Project: FORT MYERS BREWING COMPANY
Task: SUMMARY
Prepared By: CTVB
Checked By: NJK

PROJECT SUMMARY

Fort Myers Brewing Company is a Mixed-Use Planned Development (MPD) that will contain a commercial development that includes a 7,500 SF +/- taproom with required parking, a storm water management lake, and dry pre-treatment detention areas.

The proposed drainage infrastructure is designed to convey runoff through the dry pre-treatment detention areas located on the north and south sides of the commercial development with inlets and drainage pipe. Ultimately, the runoff will be transported to the stormwater management lake (see the enclosed StormCAD report in Section 2 for pipe sizing and drainage layout).

The proposed wastewater collection system for this commercial development involves gravity sewer pipe, force main, manholes, and a new pump station (see the enclosed sanitary sewer calculations in Section 3 for pipe sizing and pump station design). The new pump station will be located on the north side of the parking lot next to the dumpster pad. The proposed force main will run out of the pump station at the north side through the parking lot and out the south side of the parking lot into the existing Daniels Parkway ROW. The force main will connect to the existing 24" force main on the south side of Daniels Parkway.

The proposed potable water infrastructure will connect to the existing 16" potable water system constructed along the north side of Daniels Parkway (see the enclosed hydraulic analysis for the water main and fire flow design in Section 4).

The proposed irrigation infrastructure will be serviced via onsite well.

PROPERTY DATA

Ordinance:
Owner/Developer: 1227 HOLDINGS, LLC
Zoning: MPD
Strap #: 19-45-26-00-00002.0000

SECTION 2

DRAINAGE REPORT

FORT MYERS BREWING COMPANY

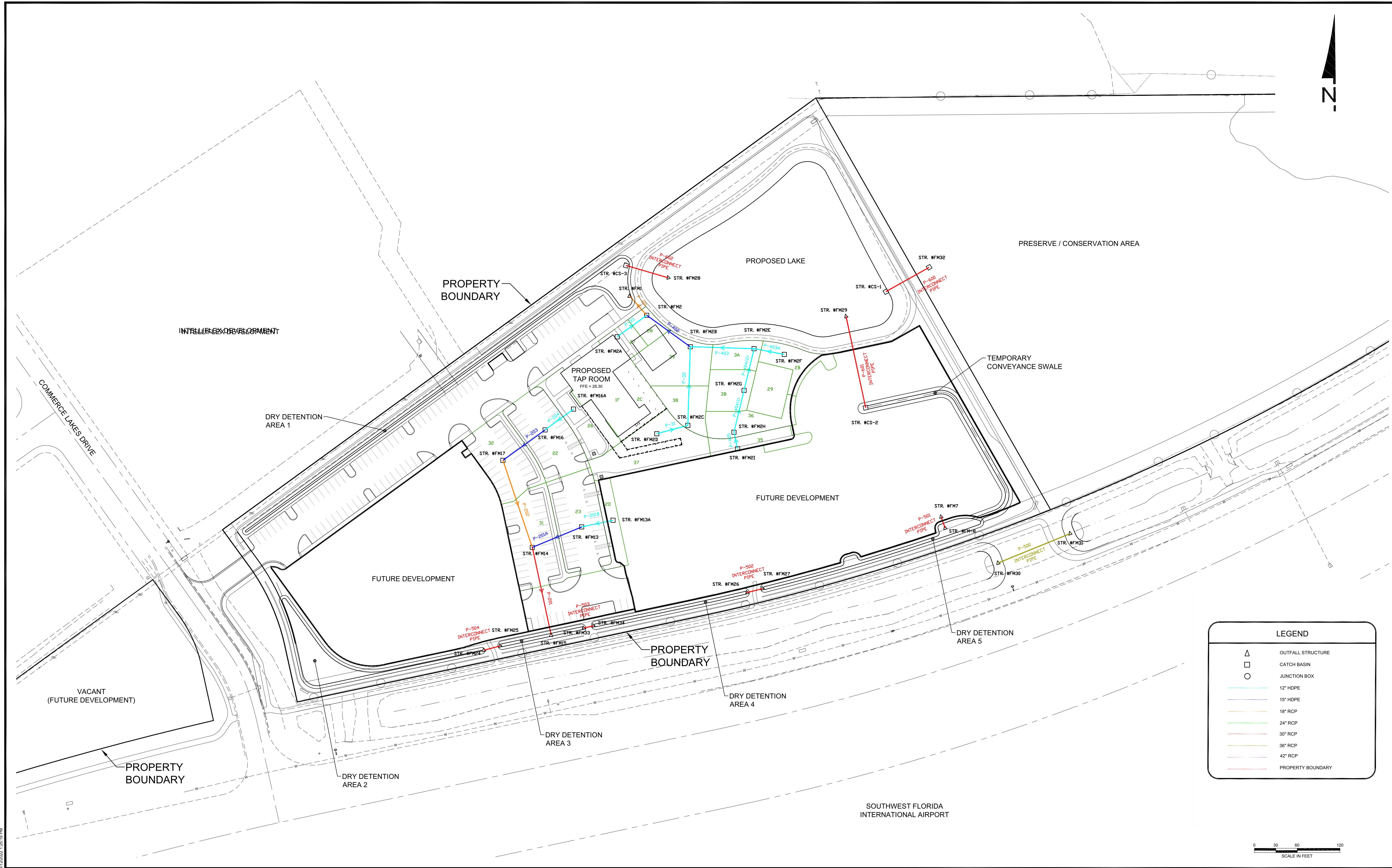
Project: FORT MYERS BREWING COMPANY
 Task: DRAINAGE ASSUMPTIONS
 Prepared By: CTVB
 Checked By: NJK

STORM PIPE SIZING DESIGN CRITERIA & ASSUMPTIONS

1. Storm drainage within the project is sized using StormCAD.
2. Design event for the proposed drainage is a 10 Year, 1-Day storm event.
3. Minimum Time of Concentration is 10 minutes.
4. Rain event based on the FDOT Drainage Manual 10 Year IDF curve for Zone 8.
5. Control Elevation is 23.55 FT-NAVD in Basin A.
6. Tailwater Elevation is assumed to be 25.55 FT-NAVD (1' above bottom of detention) in Basin A.

CATCHMENT RATIONAL COEFFICIENT VALUES		
Catchment Type	Description	Values
Business	Downtown	0.70 - 0.95
	Neighborhood	0.50 - 0.70
Residential	Single family	0.30 - 0.50
	Multi-unit detached	0.40 - 0.60
	Multi-unit attached	0.60 - 0.75
	Suburban resident	0.25 - 0.40
	Apartment	0.50 - 0.70
Residential	1.2-acre lot or more	0.30 - 0.45
Industrial	Light	0.50 - 0.80
	Heavy	0.60 - 0.90
Parks and Cemeteries		0.10 - 0.25
Playgrounds		0.20 - 0.40
Unimproved		0.10 - 0.30
Pavement	Asphalt/Concrete	0.70 - 0.95
	Brick	0.70 - 0.85
Drives and walks		0.75 - 0.85
Lawns, sandy soils	Flat 2%	0.05 - 0.10
	Average 2% to 7%	0.10 - 0.15
	Steep > 7%	0.15 - 0.20
Lawns, heavy soils	Flat 2%	0.13 - 0.17
	Average 2% to 7%	0.18 - 0.22
	Steep > 7%	0.25 - 0.35
Railroad yard		0.20 - 0.40
Roofs		0.70 - 0.95

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Scenario: Base
 Current Time Step: 0.000 h
 FlexTable: Catch Basin Table

Label	Hydraulic Grade Line (In) (ft)	Elevation (Rim) (ft)	Elevation (Ground) (ft)	Headloss Coefficient (Standard)	Inlet C	Inlet Drainage Area (acres)	Flow (Total Out) (ft ³ /s)	Is Overflowing?	Headloss Method	Headloss (ft)	Inlet Location	Inlet Type	Is Active?
STR. #FM2B	25.91	26.15	26.15	0.600	0.500	0.147	3.54	False	Standard	0.08	In Sag	Full Capture	True
STR. #FM2E	26.10	26.15	26.15	0.600	0.500	0.060	1.81	False	Standard	0.05	In Sag	Full Capture	True
STR. #FM2F	26.10	26.15	26.15	0.300	0.500	0.077	0.29	False	Standard	0.00	In Sag	Full Capture	True
STR. #FM2G	26.17	26.45	26.45	0.500	0.650	0.161	1.36	False	Standard	0.02	In Sag	Full Capture	True
STR. #FM2	25.70	26.50	26.50	0.600	0.500	0.036	5.11	False	Standard	0.08	In Sag	Full Capture	True
STR. #FM2C	26.04	26.85	26.85	0.600	0.500	0.082	1.36	False	Standard	0.03	In Sag	Full Capture	True
STR. #FM17	25.71	27.00	27.00	0.800	0.900	0.176	3.03	False	Standard	0.04	In Sag	Full Capture	True
STR. #FM16	25.79	27.00	27.00	0.500	0.900	0.191	1.94	False	Standard	0.02	In Sag	Full Capture	True
STR. #FM14	25.58	27.00	27.00	0.600	0.900	0.211	5.81	False	Standard	0.01	In Sag	Full Capture	True
STR. #FM13	25.64	27.00	27.00	0.600	0.900	0.206	1.62	False	Standard	0.02	In Sag	Full Capture	True
STR. #FM2H	26.19	27.25	27.25	0.600	0.500	0.090	0.64	False	Standard	0.01	In Sag	Full Capture	True
STR. #FM13A	25.64	27.50	27.50	0.300	0.650	0.065	0.32	False	Standard	0.00	In Sag	Full Capture	True
STR. #FM2A	25.79	27.75	27.75	0.300	0.788	0.282	1.66	False	Standard	0.02	In Sag	Full Capture	True
STR. #FM2I	26.19	27.75	27.75	0.300	0.600	0.072	0.32	False	Standard	0.00	In Sag	Full Capture	True
STR. #FM16A	25.80	27.75	27.75	0.300	0.750	0.125	0.70	False	Standard	0.00	In Sag	Full Capture	True
STR. #FM2D	26.07	27.80	27.80	0.300	0.750	0.192	1.08	False	Standard	0.01	In Sag	Full Capture	True

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Scenario: Base
Current Time Step: 0.000 h
FlexTable: Conduit Table

Label	Diameter (in)	Length (User Defined) (ft)	Material	Manning's n	Start Node	Stop Node	Velocity (ft/s)	System CA (acres)	System Intensity (in/h)	Flow (ft ³ /s)	Invert (Start) (ft)	Invert (Stop) (ft)	Is Active?
P-402	15.0	75.0	PVC	0.010	STR. #FM2	STR. #FM2B	2.88	0.520	6.752	3.54	22.40	22.00	True
P-403	12.0	89.0	PVC	0.010	STR. #FM2B	STR. #FM2E	2.30	0.261	6.869	1.81	22.90	22.40	True
P-33	12.0	51.0	PVC	0.010	STR. #FM2A	STR. #FM2	2.12	0.222	7.445	1.66	24.75	24.50	True
P-401	18.0	37.0	Concrete	0.012	STR. #FM1	STR. #FM2	2.89	0.759	6.677	5.11	22.00	19.00	True
P-202	18.0	128.0	Concrete	0.012	STR. #FM17	STR. #FM14	1.71	0.424	7.081	3.03	21.90	20.90	True
P-203	15.0	73.0	Concrete	0.012	STR. #FM16	STR. #FM17	1.58	0.266	7.241	1.94	22.50	21.90	True
P-201	30.0	125.0	Concrete	0.012	STR. #FM14	STR. #FM15	1.18	0.842	6.842	5.81	20.90	19.00	True
P-201A	15.0	74.0	Concrete	0.012	STR. #FM13	STR. #FM14	1.32	0.228	7.047	1.62	22.50	21.90	True
P-201B	12.0	45.0	PVC	0.010	STR. #FM13A	STR. #FM13	0.41	0.042	7.445	0.32	24.50	22.50	True
P-403A	12.0	43.0	PVC	0.010	STR. #FM2F	STR. #FM2E	0.37	0.038	7.445	0.29	23.15	22.90	True
P-404(1)	12.0	60.0	PVC	0.010	STR. #FM2H	STR. #FM2G	0.82	0.088	7.227	0.64	24.60	24.25	True
P-405	12.0	24.0	PVC	0.010	STR. #FM2I	STR. #FM2H	0.41	0.043	7.445	0.32	24.75	24.60	True
P-204	12.0	49.0	PVC	0.010	STR. #FM16A	STR. #FM16	0.90	0.094	7.445	0.70	24.75	22.50	True
P-32	12.0	110.0	PVC	0.010	STR. #FM2C	STR. #FM2B	1.74	0.185	7.321	1.36	24.50	23.95	True
P-31	12.0	45.0	PVC	0.010	STR. #FM2D	STR. #FM2C	1.37	0.144	7.445	1.08	24.75	24.50	True
P-404(2)	12.0	60.0	PVC	0.010	STR. #FM2G	STR. #FM2E	1.73	0.193	6.979	1.36	24.25	23.90	True

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Scenario: Base**Current Time Step: 0.000 h****FlexTable: Catchment Table**

Label	Outflow Element	Time of Concentration (min)	Runoff Coefficient (Rational)	Catchment Intensity (in/h)	Scaled Area (acres)	Catchment Rational Flow (ft ³ /s)	Use Scaled Area?	Is Active?
1F	STR. #FM2A	10.000	0.800	7.445	0.180	1.08	True	True
22	STR. #FM16	10.000	0.900	7.445	0.191	1.29	True	True
23	STR. #FM13	10.000	0.900	7.445	0.206	1.39	True	True
26	STR. #FM16A	10.000	0.750	7.445	0.125	0.70	True	True
27	STR. #FM2A	10.000	0.500	7.445	0.034	0.13	True	True
28	STR. #FM2	10.000	0.500	7.445	0.036	0.13	True	True
29	STR. #FM2G	10.000	0.800	7.445	0.080	0.48	True	True
2B	STR. #FM2F	10.000	0.500	7.445	0.077	0.29	True	True
2C	STR. #FM2A	10.000	0.900	7.445	0.067	0.46	True	True
2D	STR. #FM13A	10.000	0.650	7.445	0.065	0.32	True	True
31	STR. #FM14	10.000	0.900	7.445	0.211	1.43	True	True
32	STR. #FM17	10.000	0.900	7.445	0.176	1.19	True	True
35	STR. #FM2I	10.000	0.600	7.445	0.072	0.32	True	True
36	STR. #FM2H	10.000	0.500	7.445	0.090	0.34	True	True
37	STR. #FM2D	10.000	0.750	7.445	0.192	1.08	True	True
38	STR. #FM2C	10.000	0.500	7.445	0.082	0.31	True	True
39	STR. #FM2B	10.000	0.500	7.445	0.147	0.55	True	True
3A	STR. #FM2E	10.000	0.500	7.445	0.060	0.23	True	True
3B	STR. #FM2G	10.000	0.500	7.445	0.081	0.30	True	True

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Scenario: Base**Current Time Step: 0.000 h****FlexTable: Outfall Table**

Label	Elevation (Ground) (ft)	Elevation (User Defined Tailwater) (ft)	Hydraulic Grade (ft)	System CA (acres)	Flow (Total Out) (ft ³ /s)	Boundary Condition Type	Is Active?
STR. #FM1	24.55	25.55	25.55	0.759	5.08	User Defined Tailwater	True
STR. #FM15	24.55	25.55	25.55	0.842	5.55	User Defined Tailwater	True

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Model\FMBC_DrainageModel_Rev00 (2022-04-11).stsw

SECTION 3

WASTEWATER REPORT

FORT MYERS BREWING COMPANY

Project: FORT MYERS BREWING COMPANY
 Task: WASTEWATER DEMANDS
 Prepared By: CTVB
 Checked By: NJK

PROPOSED SEWER DEMANDS									
DESCRIPTION	FAC 64E-6 Code Category	FAC 64E-6 Demand (GPD)	Quantity (SEATS)		Average Daily Flow ⁽⁸⁾ (GPD)	Average Daily Flow (GPM)	ERC ⁽⁶⁾	Peak Hour Flow ⁽⁹⁾ (GPD)	Peak Hour Flow (GPM)
			Floor Area (SF)	Seats					
Taproom	Bar and Cocktail Lounge ^(1a)	20 GPD per Seat	7,441 SF	648 Seats	12,960	9.00	51.84	45,360	31.50
PROPOSED TOTAL=					12,960	9.00	51.84	45,360	31.50

FUTURE SEWER DEMANDS									
DESCRIPTION	FAC 64E-6 Code Category	FAC 64E-6 Demand (GPD)	Quantity (SF/SEATS/EMPLOYEES)		Average Daily Flow ⁽⁸⁾ (GPD)	Average Daily Flow (GPM)	ERC ⁽⁶⁾	Peak Hour Flow ⁽⁹⁾ (GPD)	Peak Hour Flow (GPM)
			Floor Area (SF)	Seats/Employees/Bathrooms					
Building 1	Warehouse ^(3a,3b,13)	15 GPD Per Employee Per 8 HR Shift	22,584 SF	5 Employees	1,061	0.74	4.24	4,580	3.18
Building 2	Warehouse ^(3a,12)	15 GPD Per Employee Per 8 HR Shift	2,063 SF	5 Employees	75	0.05	0.3	263	0.18
Building 3	Store ^(2a)	200 GPD Per Bathroom	1,700 SF	2 Bathrooms	400	0.28	1.6	1,400	0.97
	Store ^(2a)	200 GPD Per Bathroom	1,700 SF	2 Bathrooms	400	0.28	1.6	1,400	0.97
	Store ^(2a)	200 GPD Per Bathroom	1,700 SF	2 Bathrooms	400	0.28	1.6	1,400	0.97
	Store ^(2a)	200 GPD Per Bathroom	1,700 SF	2 Bathrooms	400	0.28	1.6	1,400	0.97
	Restaurant ^(2b)	40 GPD per Seat	1,500 SF	60 Seats	2,400	1.67	9.6	8,400	5.83
	Restaurant ^(2b)	40 GPD per Seat	1,500 SF	60 Seats	2,400	1.67	9.6	8,400	5.83
FUTURE TOTAL=					7,536	5.23	30.14	27,243	18.92
BUILDOUT TOTAL=					20,496	14.23	81.98	72,603	50.42

DOWNSTREAM LIFT STATION SUMMARY						
Pump Station ID	Description	Pump Type	Average Daily Flow (GPD)	Average Daily Flow (GPM)	Peak Hour Flow (GPD)	Peak Hour Demand (GPM)
LS #100	Proposed	NP 3085 SH3~ 256 (4HP)	12,960	9.00	45,360	31.50
	Future	NP 3085 SH3~ 256 (4HP)	7,536	5.23	27,243	18.92
	Buildout	NP 3085 SH3~ 256 (4HP)	20,496	14.23	72,603	50.42

Assumptions:

- 1) Per Capita Flow per Chapter 64E-6 FAC for Food Operations
 a) Bar and Cocktail Lounge per seat
 b) Restaurant operating 16 hours or less per day per seat

20 GPD
 40 GPD

- 2) Per Capita Flow per Chapter 64E-6 FAC for Stores
 a) per bathroom

200 GPD

- 3) Per Capita Flow per Chapter 64E-6 FAC for Warehouses

- a) Add per employee per 8 hour shift
 b) Assumes additional water consumption for Brewery

15 GPD

- 4) Population per Unit is assumed as follows:

People per household= 2.5 People

- 5) Demand per Capita is assumed as follows:

Per Capita Demand= 100 GPD

- 6) Equivalent Residential Connection (ERC) is assumed as follows:

1 ERC= 250.0 GPD

- 7) Peak Hour Factor per LCU Design Manual Sec. 6.2(A).

ADF Flow
 0 to 35 gpm
 >35 to 174 gpm
 >174 to 1,389 gpm

Peak Factor
 3.5
 3.0
 2.5

Peak Factor = 3.5

- 8) Average daily flow based on (FAC 64E-6 Demand (in GPD) x Number of Units)

- 9) Peak Hour Flow based on (Average Daily Flow) x (Peak Hour Factor)

- 10) Stores for future Building 3 are assumed to have two (2) bathrooms.

- 11) Restaurants in future Building 3 are assumed to have 1 seat for every 25 square feet (Future Restaurants are ~1500 sf).

- 12) Building 2 is assumed to be Warehouses with 5 Employees working one (1), eight (8) hour shift.

- 13) Building 1 is assumed as a Warehouse with five (5) Employees working one (1), eight (8) hour shift plus additional water consumption for Brewery.

Project: FORT MYERS BREWING COMPANY
 Task: WETWELL CALCULATIONS
 Prepared By: CVB
 Checked By: NJK

PUMP STATION INFORMATION

PUMP ID :	LS #100	PHASE POWER :	3 ϕ
PUMP :	NP 3085 SH3~ 256	VOLTS :	230V
IMPELLER :	116 mm	HORSEPOWER :	4HP

ELEVATIONS

Top of Pump Station	27.30	NAVD
Elevation of Sanitary Sewer Main (Influent) into Pump Station	19.15	NAVD
Influent - High Water	6	INCHES
High Water Alarm Elevation	18.65	NAVD
High Water - Lag Pump on	6	INCHES
Lag Pump On Elevation	18.15	NAVD
Lag Pump - Lead Pump On	20	INCHES
Lead Pump On Elevation	16.48	NAVD
Lead Pump On - All Pumps Off (H_{min})	4	INCHES
All Pumps Off Elevation	16.16	NAVD
All Pumps Off - Top of Base	36	INCHES
Base Elevation	13.15	NAVD

HEAD CONDITIONS

Elevation of Force Main Connection Point (Top of Pipe)	23.50	NAVD
Force Main Tie in Pressure (1 PSI = 2.31 FT) (Provided by LCU on 10/20/2021)	36.96	FT
Elevation Force Main above Pump Station	29.30	NAVD
Elevation of Reservoir (WaterCAD Model)	60.46	NAVD
Static Head	47.31	FT
Total Dynamic Head (TDH) (WaterCAD Model)	54.45	FT

DESIGN FLOWS

Average Daily Flow (Q_{AI})	14.2	GPM
Peak Hour Flow (Q_{PI})	50.4	GPM
Pump Rate (from WaterCAD model) = (Q_{DP})	105.0	GPM

PIPING

Nominal Size Force Main	4	INCHES
Approximate Flow Velocity in Force Main	2.68	FPS

PUMP DOWN AND CYCLE TIMES

Minimum Cycle Time Between Pump Starts	10.00	MINUTES
Minimum Volume (V_{WW}) = (Lead Pump On - All Pumps Off)	123.0	GALLONS
Time to Fill at Average Flow	8.6	MINUTES
Time to Pump Down at Average Flow	1.4	MINUTES
Cycle Time @ Average Flow (T_{AVG})	10.0	MINUTES
Cycles Per Hour @ Average Flow	6.0	CYLES/HR
Cycles Per Hour Per Pump @ Average Flow	3.0	CYLES/HR
Time to Fill at Peak Flow (All pumps off - Lead pump on)	2.44	MINUTES
Time to Pump Down at Peak Flow	1.2	MINUTES
Cycle Time @ Peak Flow (T_{PEAK}) (with no peak flow in)	3.6	MINUTES
Cycles Per Hour @ Peak Flow	16.6	CYLES/HR
Cycles Per Pump Per Hour @ Peak Flow	8.3	CYLES/HR

WETWELL DIMENSIONS

Wetwell Diameter (A)	8	FT
Wall Thickness (W)	9	INCHES
Top Slab Thickness (V)	8	INCHES
Base Lip Extension (Circular) (X)	12	INCHES
Base Diameter (Y)	11.50	FT
Base Thickness (T)	12	INCHES
Total Depth (Z)	14.15	FT

SANITARY SEWER PIPE CAPACITY CALCULATIONS									
D	n	A	P		R_h	S		V	Q
Diameter (in)	Manning's Coefficient	Area of Flow (ft ²)	Wetted Perimeter (ft)		Hydraulic Radius (ft)	Slope		Velocity (f/s)	Flow (gpm)
FLOWING FULL									
6	0.013	0.20	1.57		0.13	0.0104		2.91	256.7
8	0.013	0.35	2.09		0.17	0.0040		2.19	342.8
10	0.013	0.55	2.62		0.21	0.0028		2.13	520.1
12	0.013	0.79	3.14		0.25	0.0022		2.13	749.6
15	0.013	1.23	3.93		0.31	0.0015		2.04	1,122.3
FLOWING HALF FULL									
6	0.013	0.10	0.79		0.13	0.0104		2.91	128.3
8	0.013	0.17	1.05		0.17	0.0040		2.19	171.4
10	0.013	0.27	1.31		0.21	0.0028		2.13	260.0
12	0.013	0.39	1.57		0.25	0.0022		2.13	374.8
15	0.013	0.61	1.96		0.31	0.0015		2.04	561.1

EQUATIONS

Manning's Equation used to determine flow in gravity sewer pipes.

$$R_h = \frac{A}{P}$$

$$A = \text{cross section area of flow (CF)} = \pi \frac{d^2}{4}$$

$$P = \text{wetted perimeter (ft)} = \pi d$$

$$V = \frac{k}{n} R_h^{2/3} S^{1/2}$$

V = velocity (ft/s)

k = conversion factor (k=1.4859)

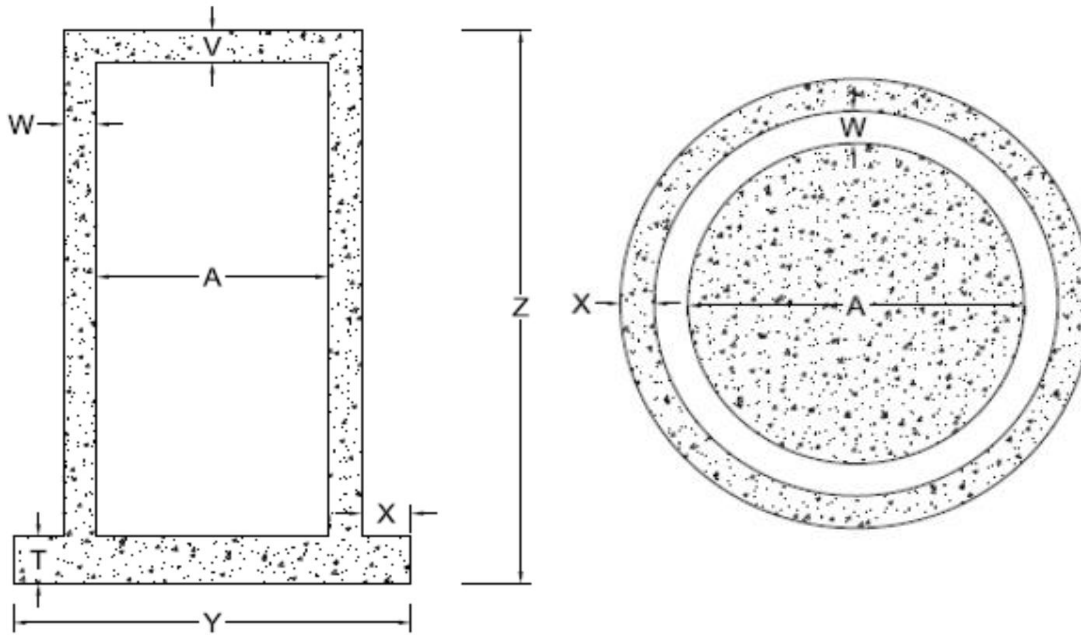
n = Manning's roughness coefficient (unitless)

R_h = hydraulic radius (ft)

S = channel slope (ft/ft)

BUOYANCY CALCULATIONS

Volume of Cylinder	1,003	CF
Volume of Slab	104	CF
Unit Weight of Water	62.4	PCF
BUOYANT FORCE UP	69,068	LB UP
Wet Well Volume	711	CF
Volume of Cylinder Wall (Volume of Cylinder - Wet Well Volume)	292	CF
Weight of Cylinder Wall (concrete, based on 150 lb/ft ³)	43,759	LB DOWN
Weight of Wet Well Top (concrete, based on 150 lb/ft ³)	5,027	LB DOWN
Slab Weight (concrete, based on 150 lb/ft ³)	15,580	LB DOWN
Soil Overburden (saturated, based on 37.6 net lb/ft ³)	26,885	LB DOWN
TOTAL FORCE DOWN	91,251	LB DOWN
NET FORCE	22,184	LB DOWN
FACTOR OF SAFETY	1.32	UNITLESS



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LEGEND



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NODE



PUMP



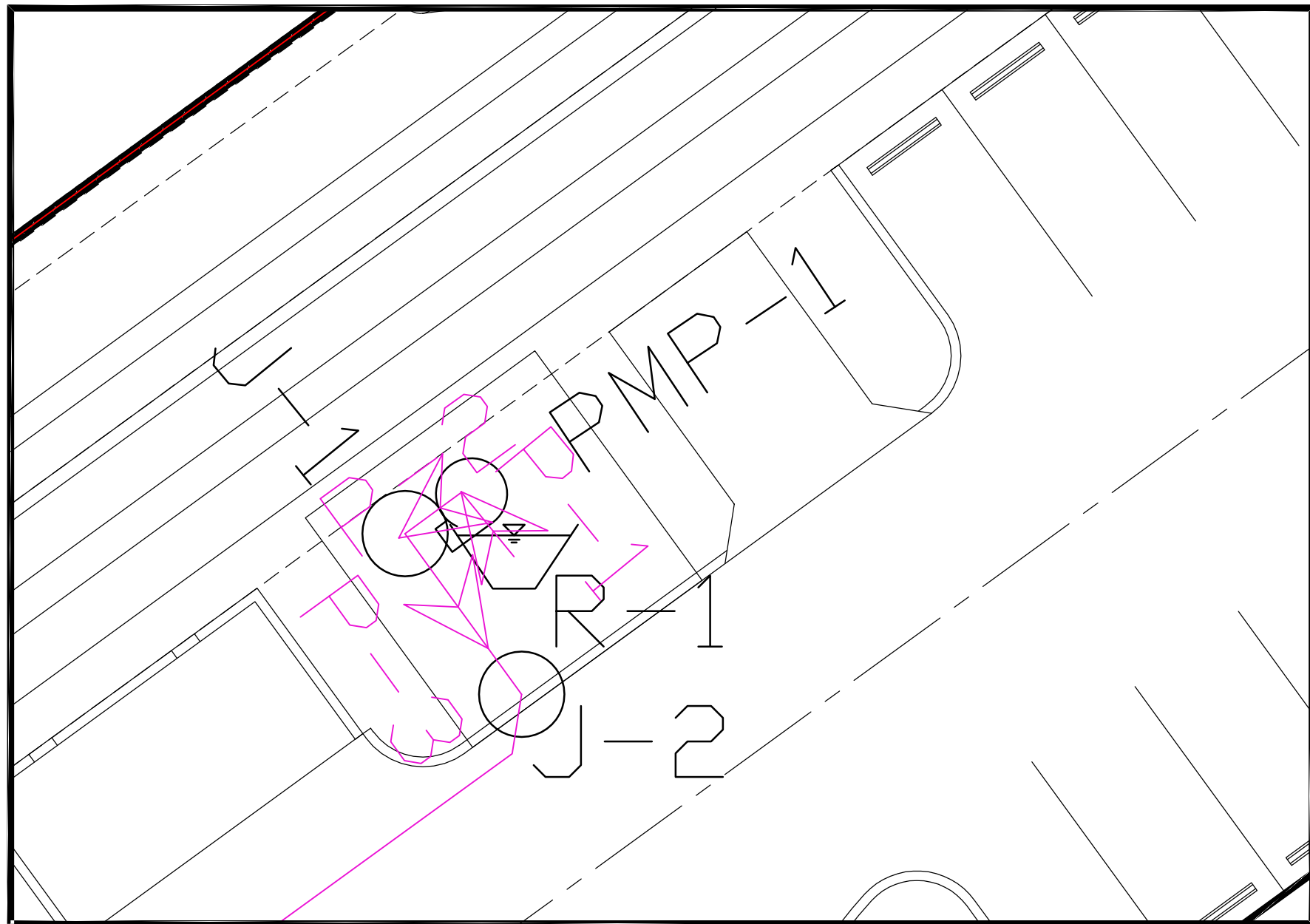
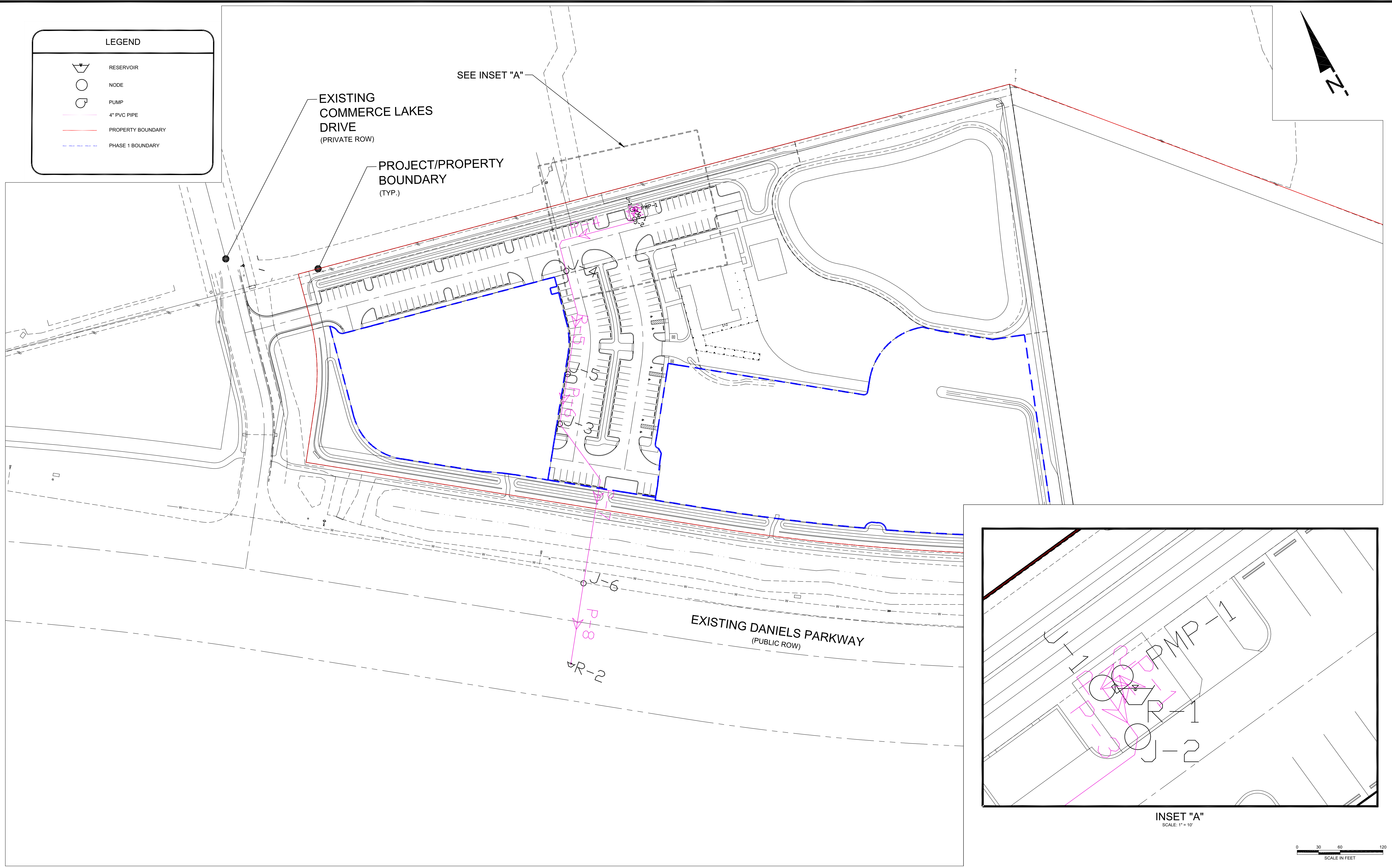
4" PVC PIPE



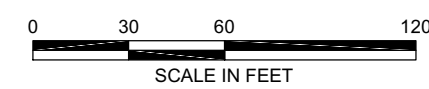
PROPERTY BOUNDARY



PHASE 1 BOUNDARY



INSET "A"
SCALE: 1" = 10'



Scenario: Base
Current Time Step: 0.000 h
FlexTable: Pipe Table

Label	Diameter (in)	Length (ft)	Material	Hazen- Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-1	4.0	6	PVC	120.0	105	2.68	0.06
P-2	4.0	5	PVC	120.0	105	2.68	0.05
P-3	4.0	14	PVC	120.0	105	2.68	0.13
P-4	4.0	151	PVC	120.0	105	2.68	1.44
P-5	4.0	147	PVC	120.0	105	2.68	1.40
P-6	4.0	70	PVC	120.0	105	2.68	0.67
P-7	4.0	242	PVC	120.0	105	2.68	2.30
P-8	4.0	115	PVC	120.0	105	2.68	1.09

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FMBC_ForceMainModel_Rev00 (2022-04-07).wtg

Scenario: Base
Current Time Step: 0.000 h
FlexTable: Junction Table

Label	Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Elevation (ft)
J-1	67.49	16.5	38.19	29.30
J-2	67.36	19.0	43.96	23.40
J-3	63.86	17.0	39.26	24.60
J-4	65.93	17.8	41.13	24.80
J-5	64.53	17.3	39.93	24.60
J-6	61.55	16.5	38.05	23.50

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\FMBC_ForceMainModel_Rev00 (2022-04-07).wtg

Scenario: Base
Current Time Step: 0.000 h
FlexTable: Reservoir Table

Label	Elevation (ft)	Flow (Out net) (gpm)
R-1	13.15	105
R-2	60.46	-105

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\FMBC_ForceMainModel_Rev00 (2022-04-07).wtg

Scenario: Base
Current Time Step: 0.000 h
FlexTable: Pump Table

Label	Pump Definition	Status (Initial)	Elevation (ft)	Flow (Total) (gpm)	Pump Head (ft)
PMP-1	NP 3085 SH 3~ 256 (4hp)	On	13.15	105	54.45

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\FMBC_ForceMainModel_Rev00 (2022-04-07).wtg

SECTION 4

POTABLE WATER REPORT

FORT MYERS BREWING COMPANY

Project: FORT MYERS BREWING COMPANY
 Task: POTABLE WATER DEMANDS
 Prepared By: CTVB
 Checked By: NJK

PROPOSED POTABLE WATER DEMANDS									
DESCRIPTION	FAC 64E-6 Code Category	FAC 64E-6 Demand (GPD)	Quantity (SEATS)		Average Daily Flow ⁽⁵⁾ (GPD)	Average Daily Flow (GPM)	ERC ⁽⁵⁾	Peak Hour Flow ⁽⁹⁾ (GPD)	Peak Hour Flow (GPM)
			Floor Area (SF)	Seats					
Taproom	Bar and Cocktail Lounge ^(12a)	20 GPD per Seat	7,441 SF	648 Seats	12,960	9.00	51.84	45,360	31.50
PROPOSED TOTAL=					12,960	9.00	51.84	45,360	31.50

FUTURE POTABLE WATER DEMANDS									
DESCRIPTION	FAC 64E-6 Code Category	FAC 64E-6 Demand (GPD)	Quantity		Average Daily Flow ⁽⁸⁾ (GPD)	Average Daily Flow (GPM)	ERC ⁽¹⁰⁾	Peak Hour Flow ⁽⁹⁾ (GPD)	Peak Hour Flow (GPM)
			Floor Area (SF)	Seats/Employees/Bathrooms					
Building 1	Warehouse ^(3a,3b,13)	15 GPD Per Employee Per 8 HR Shift	22,584 SF	5 Employees	1,061	0.74	4.24	4,580	3.18
Building 2	Warehouse ^(3a,12)	15 GPD Per Employee Per 8 HR Shift	2,063 SF	5 Employees	75	0.05	0.30	263	0.18
Building 3	Store ^(2a)	200 GPD Per Bathroom	1,700 SF	2 Bathrooms	400	0.28	1.60	1,400	0.97
	Store ^(2a)	200 GPD Per Bathroom	1,700 SF	2 Bathrooms	400	0.28	1.60	1,400	0.97
	Store ^(2a)	200 GPD Per Bathroom	1,700 SF	2 Bathrooms	400	0.28	1.60	1,400	0.97
	Store ^(2a)	200 GPD Per Bathroom	1,700 SF	2 Bathrooms	400	0.28	1.60	1,400	0.97
	Restaurant ^(2b)	40 GPD per Seat	1,500 SF	60 Seats	2,400	1.67	9.60	8,400	5.83
	Restaurant ^(2b)	40 GPD per Seat	1,500 SF	60 Seats	2,400	1.67	9.60	8,400	5.83
FUTURE TOTAL=					7,536	5.23	30.14	27,243	18.92
BUILDOUT TOTAL=					20,496	14.23	81.98	72,603	50.42

Assumptions:

- 1) Per Capita Flow per Chapter 64E-6 FAC for Food Operations
 a) Bar and Cockatil Lounge per seat
 b) Restaurant operating 16 hours or less per day per seat

20 GPD
 40 GPD

- 2) Per Capita Flow per Chapter 64E-6 FAC for Stores

- a) per bathroom

200 GPD

- 3) Per Capita Flow per Chapter 64E-6 FAC for Warehouses

- a) Add per employee per 8 hour shift
 b) Assumes additional water consumption for Brewery.

15 GPD

- 4) Population per Unit is assumed as follows:

People per household= 2.5 People

- 5) Demand per Capita is assumed as follows:

Per Capita Demand= 140 GPD

- 6) Equivalent Residential Connection (ERC) is assumed as follows:

1 ERC= 250.0

- 7) Peak Hour Factor per LCU Design Manual Sec. 6.2(A).

ADF Flow	Peak Factor
0 to 35 gpm	3.5
>35 to 174 gpm	3.0
>174 to 1,389 gpm	2.5

Peak Factor = 3.5

- 8) Average daily flow based on (FAC 64E-6 Demand (in GPD) x Number of Units)

- 9) Peak Hour Flow based on (Average Daily Flow) x (Peak Hour Factor)

- 10) Stores for future Building 3 are assumed to have two (2) bathrooms.

- 11) Restaurants in future Building 3 are assumed to have 1 seat for every 25 square feet (Future Restaurants are ~1500 sf).

- 12) Building 2 is assumed to be Warehouses with 5 Employees working one (1), eight (8) hour shift.

- 13) Building 1 is assumed as a Warehouse with five (5) Employees working one (1), eight (8) hour shift plus additional water consumption for Brewery.

Project: FORT MYERS BREWING COMPANY
 Task: FIRE FLOW REQUIREMENTS
 Prepared By: CTVB
 Checked By: NJK

FIRE FLOW CALCULATIONS

Parcel #	Building Use	Max Floor Area (SF)	Construction Type ¹	Required Fire Flow ² (GPM)	Fire Sprinkler (Y/N)	Reduced Fire Flow ³ (GPM)	Provided Fire Flow ⁴ (GPM)
Taproom	Commercial	7,441	II(000)	1,750	Yes	1,000	3,500
Building 1	Commercial	22,584	II(000)	3,250	Yes	1,000	3,500
Building 2	Commercial	2,063	II(000)	2,250	Yes	1,000	3,500
Building 3	Commercial	9,800	V(000)	2,500	Yes	1,000	3,500

Notes:

- 1) Types of construction are based on NFPA 220.
- 2) Minimum Required Fire Flow pursuant to LDC Sec. 10-384(b)(1) which references the current edition of NFPA 1 - 18.4.5.1.
- 3) Per NFPA 1 - 18.4.5.2.1, 75% reduction of required fire flow applied to buildings other than one and two family dwellings for sprinklered buildings, with a minimum resulting fire flow of 1,000 gpm.
- 4) Provided fire flow results determined from WaterCad Model.
- 5) Connection pressure for WaterCAD Model assumed to be 40 PSI.
- 6) Fire flow available based on Peak Hour Demand + Required Fire Flow.

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LEGEND	
	RESERVOIR
	NODE
	PROPERTY BOUNDARY
	PHASE 1 BOUNDARY

EXISTING INTELLIFLEX DEVELOPMENT

EXISTING
COMMERCE LAKES
DRIVE
(PRIVATE ROW)

PROJECT/PROPERTY
BOUNDARY
(TYP.)

EXISTING DANIELS PARKWAY
(PUBLIC ROW)

0 30 60 120
SCALE IN FEET

Scenario: Fire Flow Analysis
Current Time Step: 0.000 h
FlexTable: Pipe Table

Label	Diameter (in)	Length (ft)	Material	Hazen- Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-1	10.0	188	PVC	150.0	50	0.21	0.00
P-2	10.0	41	PVC	150.0	3	0.01	0.00
P-3	10.0	133	PVC	150.0	47	0.19	0.00
P-4	10.0	120	PVC	150.0	16	0.06	0.00
P-5	10.0	361	PVC	150.0	32	0.13	0.00

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Water\FMBC_WaterModel_Rev00 (2022-04-07).wtg

Scenario: Fire Flow Analysis
Current Time Step: 0.000 h
FlexTable: Junction Table

Label	Demand (gpm)	Fire Flow (Available) (gpm)	Pressure (Calculated Residual @ Total Flow Needed) (psi)	Pressure (Residual Lower Limit) (psi)
J-1	0	3,500	39.6	20.0
J-2	3	3,500	39.5	20.0
J-3	0	3,500	39.3	20.0
J-4	16	3,500	39.0	20.0
J-5	32	3,500	38.5	20.0

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Water\FMBC_WaterModel_Rev00 (2022-04-07).wtg

Scenario: Fire Flow Analysis
Current Time Step: 0.000 h
FlexTable: Reservoir Table

Label	Elevation (ft)	Flow (Out net) (gpm)
R-1	92.40	50

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Water\FMBC_WaterModel_Rev00 (2022-04-07).wtg