22 August 2025

Yadira Werley
Lennar
730 NW 107th Avenue, 3rd Floor
Miami, FL 33172

Re: Water and Sewer Master Plan
City Park
SW 136th Street and SW 162nd Avenue, Miami, Florida
Langan Project No.: 330090201

Dear Yadira:

The purpose of this letter is to describe the anticipated water and sewer demands and the anticipated improvements required for the proposed development program for the City Park (Development). The development is generally located south of the SW 136th Street and north of SW 152nd Street between SW 162nd Avenue to the east and Krome Avenue to the west. Refer to **FIG-01** for the Overall Location Plan. The area shown on the Overall Location Plan represents the proposed service area boundary.

The Development consist of five major development areas known as the Village Core, Central Park, East Village, South Village and West Village.

DEVELOPMENT PROGRAM

- Residential Units (Single Family, Townhomes, Apartments) – 7,800
- Commercial Use – 749,153 square feet (SF) Shopping Center Use
- Warehouse – 892,484 SF
- Office – 500,000 SF
- School – 3,863 students

POTABLE WATER AND SEWER DEMAND

Based on the development program mentioned above, the development program's average daily demand for the project is 1,832,000 gallons per day (GPD) based on Miami-Dade County Schedule of Daily Rate Gallonage for Various Occupancy. A breakdown of the development programs demand per phase is provided in **Attachment A**. The project will be served by Miami-Dade Water and Sewer Department that will provide potable water and sanitary sewer treatment when the project is within the Urban Development Boundary (UDB).

NON-POTABLE WATER DEMAND

Non-potable water will be utilized for irrigation purposes throughout the development. The project's irrigation systems will adhere to Chapter 18A of the Miami-Dade Code which promotes the use of xeriscape principles, the use of moisture and rain sensor switches for irrigation and sets design standards for irrigation systems to not overthrow or overflow on to impervious surfaces. The anticipated non-potable water demand for irrigation is 1.281 Gallons Per Day based on the total anticipated pervious area, and Miami Dade County Chapter 18A-6(b) which recommends a maximum application rate of 1.5-inches of water per week.

ON-SITE WELLS

No on-site potable water wells are proposed. Any future irrigation wells will be permitted through Miami-Dade County DERM and the South Florida Water Management District (SFWMD) in accordance with the regulations at the time of permitting the on-site irrigation wells.

The proposed development should improve the project's area impact on the local aquifer compared to use of the existing wells.

OPERATION AND MAINTENANCE OF WATER AND SEWER SYSTEM

Miami Dade Water and Sewer Department will own and operate utilities providing water and sewer for the project. Portions of the non-potable irrigation system will be owned by the Homeowner's Association (HOA) or similar private entity.

CONSERVATION MEASURES

Reducing the overall potable water demand is component of the proposed development. The conservation devices and methods may include, but are not limited to low-flow plumbing fixtures listed in the Florida Building Code. In addition, during periods of severe water shortage, the project will adhere to the requirements of Chapter 24, Section 12.1(8) of the Miami-Dade Code and Chapter 40E-21 of the Florida Administrative Code. The project's landscaping will adhere to Chapter 18A of the Miami-Dade Code which promotes the use of xeriscape principles and the use of moisture and rain sensor switches for irrigation, and sets design standards for irrigation systems to not overthrow or overflow on to impervious surfaces.

SEPTIC SYSTEMS

No on-site sanitary sewer systems (septic systems) are proposed. Any existing septic systems onsite will be properly abandoned. Any future irrigation wells will be permitted through Miami-Dade County DERM and the South Florida Water Management District (SFWMD) in accordance with the regulations at the time of permitting the on-site irrigation wells.

PHASED PROPOSED IMPROVEMENTS

There are no existing water mains within the proposed development area. The proposed connection point to the existing water main infrastructure is located at the intersection of SW 136th Street and SW 162nd Avenue. There is an existing 16-inch water main located at this

intersection (refer to WASD Atlas X22-D). We are proposing a connection to this water main at this location and to a water main in SW 152nd Street and SW 162nd Avenue (size to be confirmed). The proposed development shall connect to the existing infrastructure at the aforementioned locations and make the following extensions as described below.

1. Extend a 16-inch water main west within SW 136th Street from SW 162nd Avenue to Krome Avenue.
2. Extend a 16-inch water main north within SW 162nd Avenue between SW 136th Street and SW 152nd Street.
3. Extend a 16-inch water main within SW 152nd Street between SW 162nd Avenue to Krome Avenue.
4. Extend a 16-inch water main within SW 167th Avenue (theoretical) or its equivalent, between SW 136th Street and SW 152nd Street.
5. Extend 12-inch water main loops through the proposed development through the major roadways as shown on **FIG-02.**
6. Extend 8-inch or 12-inch water mains through the development in accordance with MDWASD requirements for residential/commercial/industrial land uses, as required.

There are no existing sanitary sewer main within the proposed development area. The proposed connection point to the existing sanitary sewer 36-inch sanitary sewer force main infrastructure is located at the intersection of SW 136th Street and SW 162nd Avenue (refer to WASD Atlas X22-D). We are proposing a connection to this sanitary sewer force main at this location. The proposed development shall connect to the existing infrastructure at the aforementioned locations and make the following extensions as described below.

1. Spilt the proposed development into four separate sanitary sewer sheds. Refer to **FIG-03** for the proposed sewer sheds.
2. Extend a 24-inch sanitary force main west within SW 136th Street to Krome Avenue.
3. Extend an 18-inch sanitary force main from Pump Station I to the 24-inch sanitary force main within SW 136th Street. (Sewershed I)
4. Extend an 18-inch sanitary force main from Pump Station II to the 24-inch sanitary force main within SW 136th Street. (Sewershed II)
5. Extend a 12-inch sanitary force main from Pump Station III to the 18-inch sanitary force main serving Sewershed II.
6. Extend a 12-inch sanitary force main from Pump Station IV to the 18-inch sanitary force main serving Sewershed I. (Sewershed IV)
7. Extend gravity sewer within the site development as needed. The maximum average daily flow from any one development is 482,699 gallons per day, which is within the maximum capacity of an 18-inch gravity sewer main at minimum slopes conditions. The remaining areas shall extend a minimum 8-inch gravity sewer as required to the proposed pump station.

PROPOSED IMPROVEMENTS CAPACITY ANALYSIS

Langan has completed a preliminary capacity analysis based on the proposed water and sewer improvements mentioned above. We analyzed the proposed water main extensions to confirm

that they meet Miami-Dade County fire flow requirements (3,000 GPM) during peak flow conditions for the proposed development. We also confirmed the proposed sanitary sewer force main extension is within a reasonable flow rate for the proposed development. A summary of the analysis is provided below.

Water Main Improvements

Requirements

- Confirm the water main extension can provide the average daily flow requirements during a fire flow condition at the hydraulically distant point and meet minimum pressure requirements of 20 PSI during average daily flow conditions and with a 3,000 GPM fire flow condition.

Based on hydraulic analysis for the water main upgrades summarized in this memorandum the minimum pipe sizes are sufficient. A fire flow test is required to confirm the existing tie in pressures at the proposed points of connections.

Sanitary Sewer Improvements

Requirements

- Confirm the sanitary sewer force main extension can operate within a reasonable flow rate based on the projected demands.

Results (refer to Attachment C)

Per the attached sanitary sewer force main calculations, the proposed sanitary sewer force main will operate at a velocity slightly above the minimum of two feet per second (fps) in accordance with the 10 State Standards – Recommended Standards for Wastewater Facilities of two fps and 15 fps.

Potable Water and Wastewater Treatment Facility Capacity

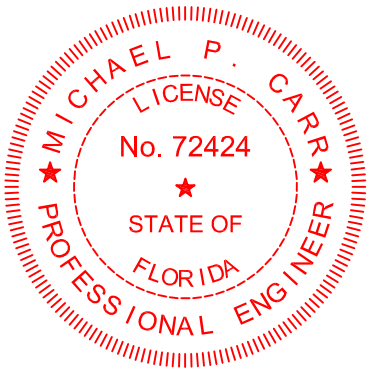
The Development will be provided potable water by the Alexander Orr Water Treatment Plant (permitted capacity 214.74 million gallons per day (MGD)), and the South District Wastewater Treatment Plant (permitted capacity 112.5 MGD) will provide wastewater treatment. Based current data, there is approximately 15.6 MGD of capacity at average daily flow of wastewater treatment capacity and 35.32 MGD of capacity of potable water capacity. The projected demand of the project of 1.7 MGD is well within the capacity of the two treatment plants.

CONCLUSION

Based on the analysis described above the proposed water main extensions and sanitary sewer main extensions are sufficient to properly provide the development with potable water and sanitary sewer services.

This item has been digitally signed and sealed by Michael Carr, PE. on the date adjacent to the seal

Printed Copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.



Sincerely,
Langan Engineering and Environmental Services, LLC.

Michael P Carr

Michael Carr, PE, LEED AP
Associate Principal
Florida Professional Engineer Lic. No. 72424

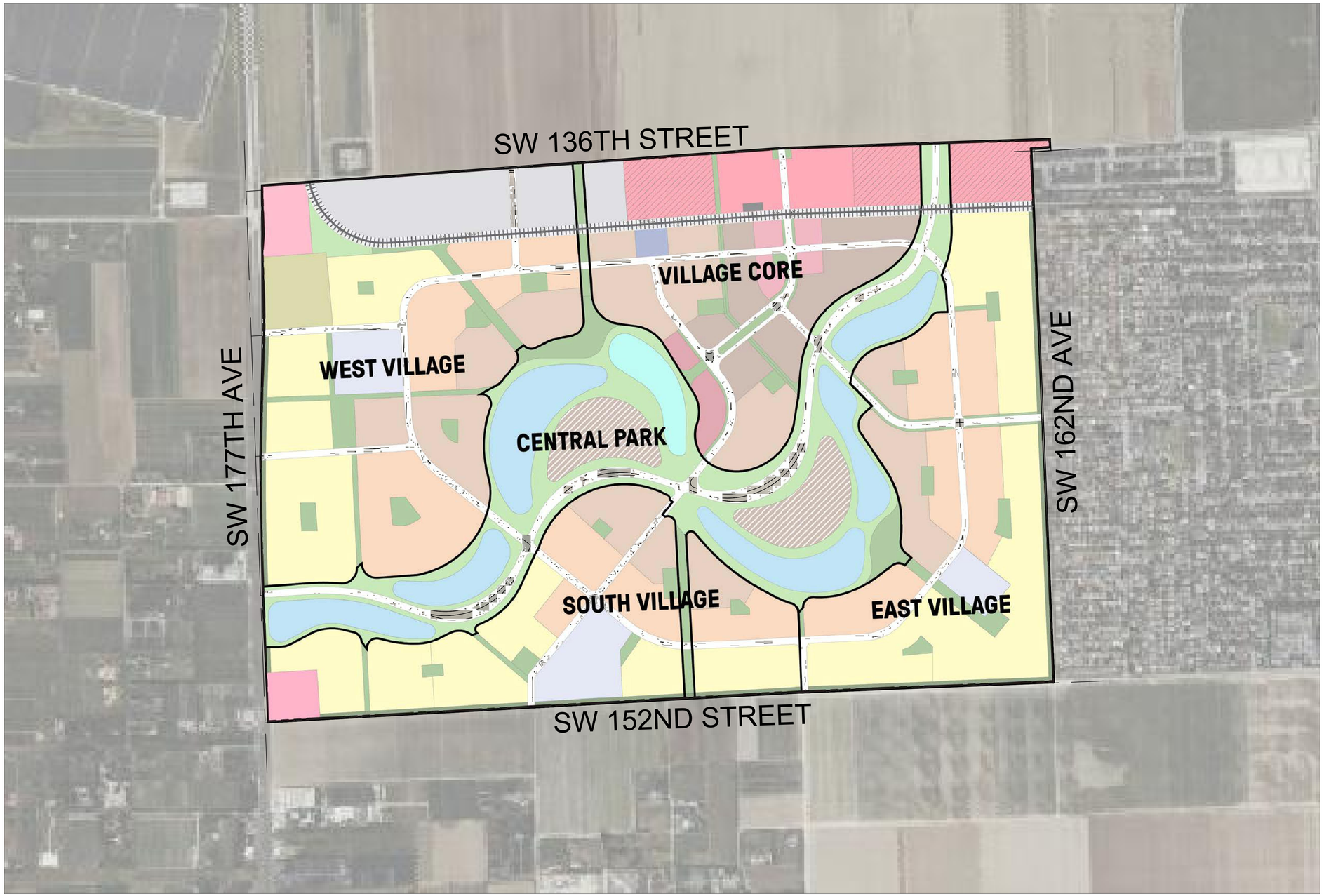
FIG-01 Overall Location Plan
FIG-02 Water Main Improvements
FIG-03 Sewer Improvements

Attachment A – Water and Sewer Demand
Attachment A – Water Sewer Atlas
Attachment B – WaterCAD Results
Attachment C – Sanitary Sewer Calculations
Attachment D - Miami-Dade County Schedule of Daily Rate Gallonage for Various Occupancy

cc:

FBPE Registry No. 6601
\\langan.com\data\FTL\data2\330090201\Project Data_Discipline\Site Civil\Reports\Water Sewer Report\2025-08-22 Draft Water and Sewer.docx

FIGURES



500 0 250 500
SCALE: 1" = 500'

Date	Description	No.
Revisions		

Signature Date

MICHAEL CARR
PROFESSIONAL ENGINEER License No.72424

LANGAN
Langan Engineering and Environmental Services, Inc.
www.langan.com

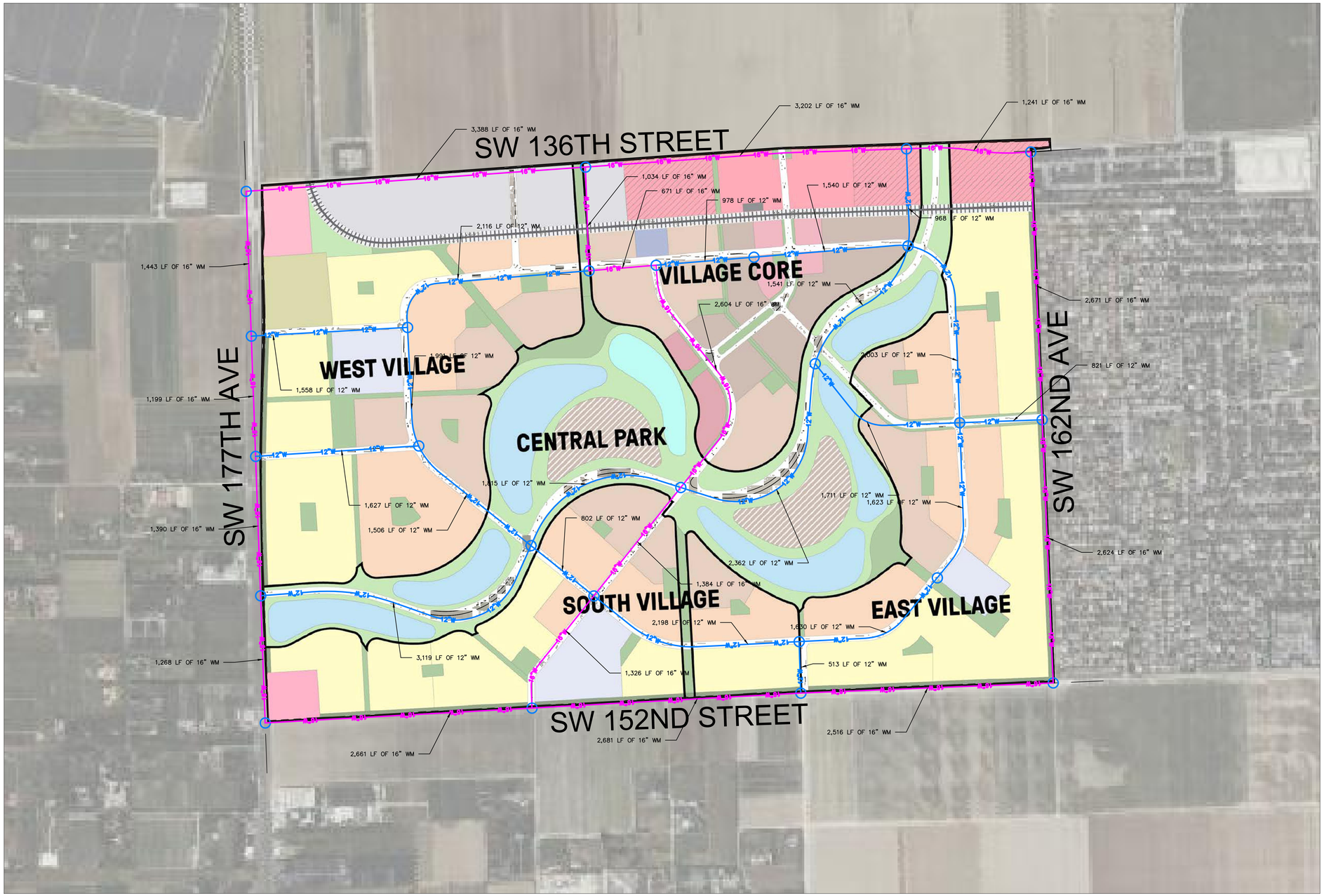
Project
CITY PARK

Drawing Title
OVERALL LOCATION PLAN

Project No.	Figure
330090201	FIG-01
Date	
Drawn By: CU	
Checked By: MPC	

LANGAN
Project No. 001234501

Date: 6/2/2022 Time: 06:26 User: curbita Style Table: Langan.stb Layout: FIG-01 LOCATION Document Code: FG01-330090201-0101-CU101-0101



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PROP 16" WATER MAIN

PROP 12" WATER MAIN

Date	Description	No.

Revisions

Signature Date

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Project

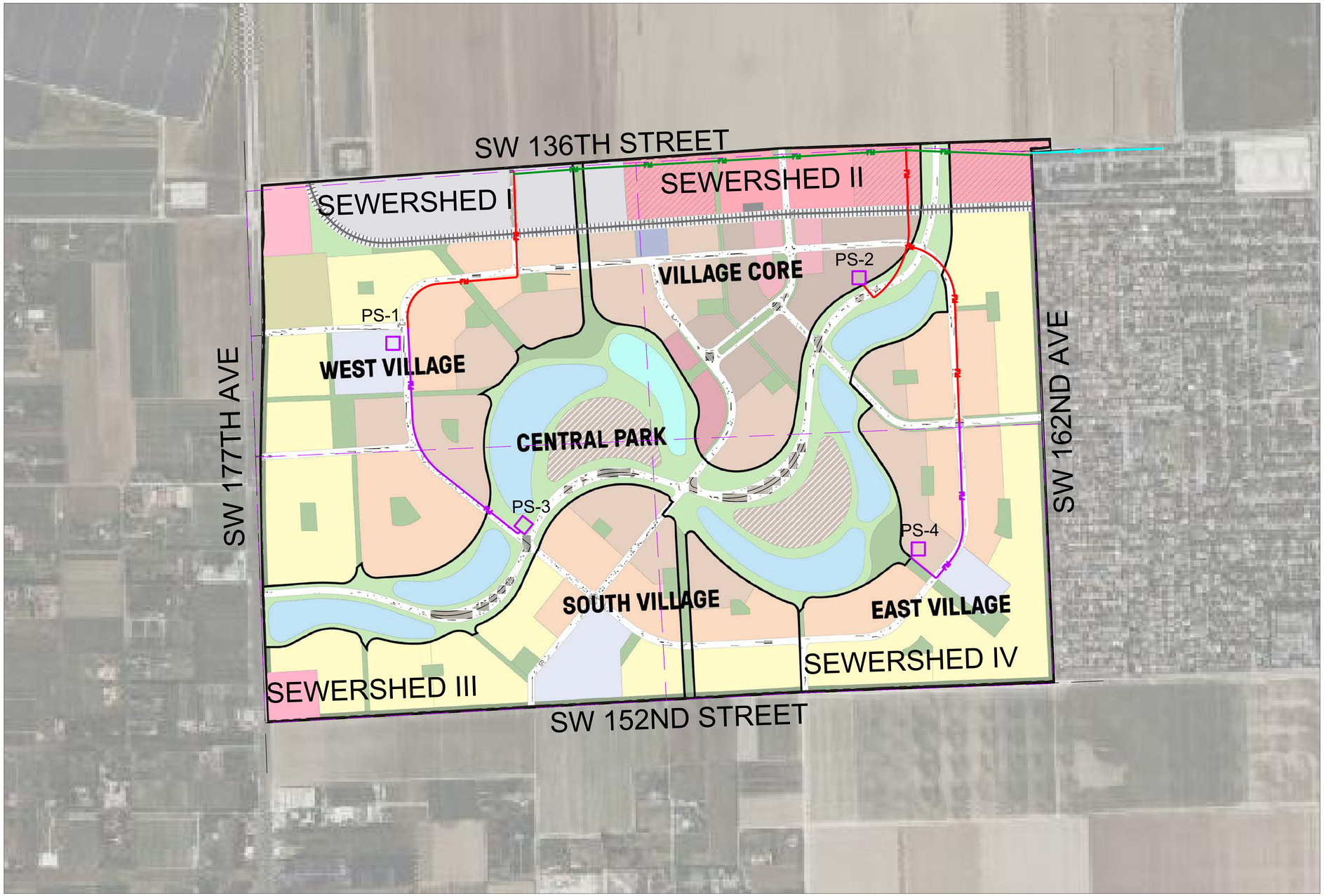
CITY PARK

Drawing Title

WATER MAIN IMPROVEMENTS

Project No.	Figure
330090201	FIG-02
Date	
Drawn By: CU	
Checked By: MPC	

LANGAN
Project No. 001234501



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PROP. 12" FORCE MAIN

PROP. 18" FORCE MAIN

PROP. 24" FORCE MAIN

EXISTING 36" FORCE MAIN

PROPOSED PUMP STATION (PS-#)

SEWERSHED BOUNDARY

Date	Description	No.

Revisions

Signature Date

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Project
CITY PARK

Drawing Title
SEWER IMPROVEMENTS

Project No. 330090201
Figure FIG-03
Date
Drawn By CU
Checked By MPC

Date: 6/2/2022 Time: 09:54 User: curbita Style Table: Langan.stb Layout: FIG-03 SEWER Document Code: FG01-330090201-0101-CU101-0101

LANGAN Project No. 001234501

Attachment A – Water and Sewer Demand

Land Use	Number of Units	Water Use (GPD/Unit)	Potable Water Demand (MGD)(*)	Maximum Water Demand (MGD)
Single Family, detached	2,827 du	310 gpd/unit	0.877	1.973
Single Family, attached	2,734 du	165 gpd/unit	0.452	1.017
Multi-Family	2,240 du	135 gpd/unit	0.303	0.682
Retail	749,153 sf	5/100 gpd/sf	0.075	0.043
Office	500,000 sf	5/100 gpd/sf	0.025	0.079
Industrial – Flex Space	892,484 sf	2/100 gpd/sf	0.018	0.029
School				
Students	3,863 stud.	20 gpd/stud	0.077	0.144
Staff	360	15 gpd/person	0.005	0.011
Total			1.832 MGD	4.007 MGD

(*) MGD= Millions of Gallons per Day

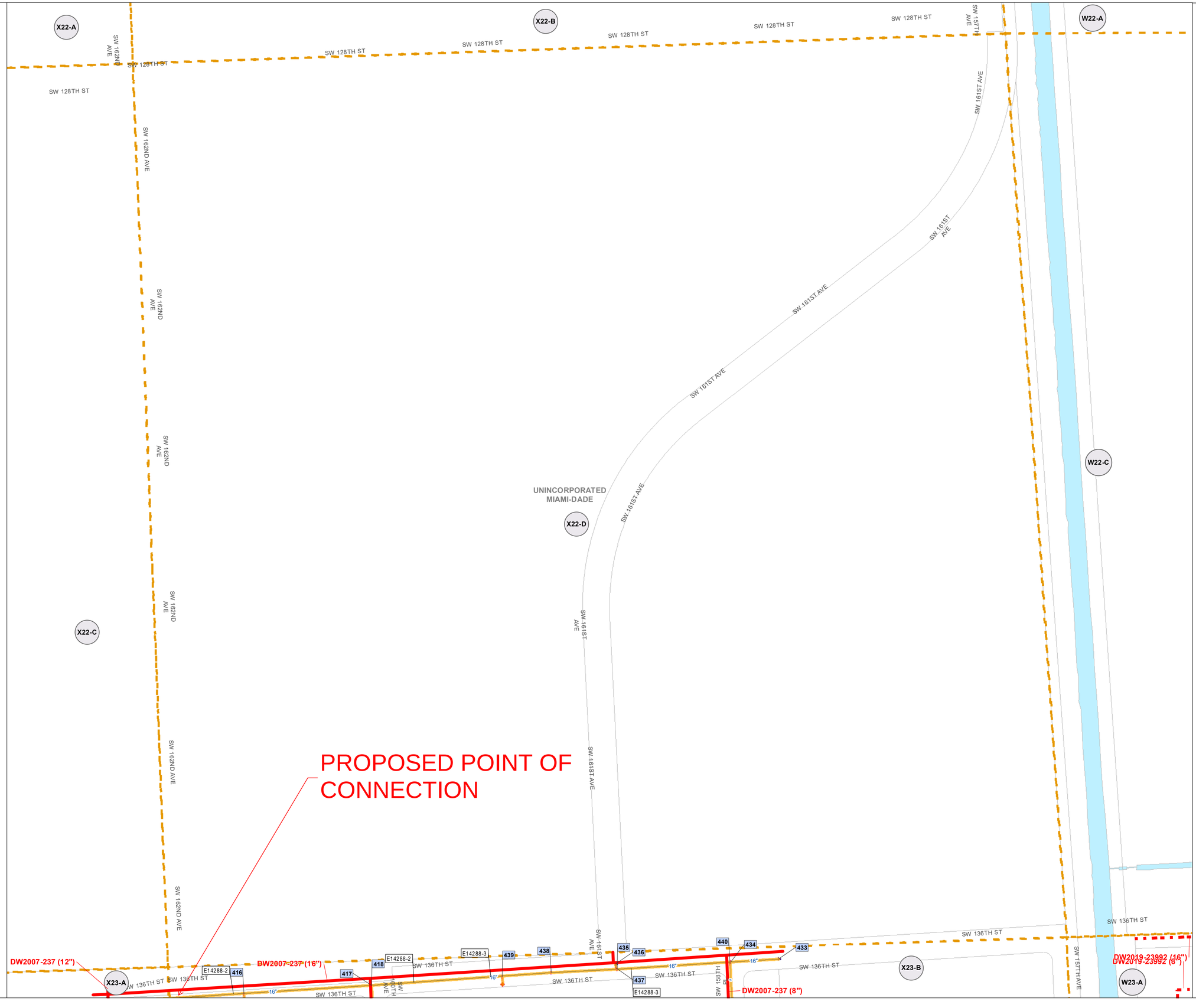
Land Use	Number of Units	Sewage Loading (GPD/Unit)	Sewage Flows (MGD)(*)	Peak Sewage Flows (MGD)
Single Family, detached	2,827 du	310 gpd/unit	0.877	2.4118
Single Family, attached	2,734 du	165 gpd/unit	0.452	1.243
Multi-Family	2,240 du	135 gpd/unit	0.303	0.8333
Retail	749,153 sf	5/100 gpd/sf	0.075	0.206
Office	500,000 sf	5/100 gpd/sf	0.025	0.0688
Industrial – Flex Space	892,484 sf	2/100 gpd/sf	0.018	0.0491
School				0
	3,863 stud.	20 gpd/stud	0.077	0.2118
Staff	360	15 gpd/person	0.005	0.0138
Total			1.832 MGD	5.037 MGD

(*) MGD= Millions of Gallons per Day

Attachment B – Water and Sewer Atlases

Donations & Capital Projects
Water Valve & Distribution

As-Builts are displayed using unique colors and single label boxes per contiguous pipe segment. They are displayed underneath the pipe segment using a thicker line symbol than the pipe segment it describes.



Miami-Dade
Water and Sewer Department

Atlas - X22-D

S-17 T-55 R-39

A	B
C	D

Legend

- Access Manhole
- Air Release Valve
- Check Valve
- Manual Control Valve
- Flushing Valve
- Auto Control Valve
- Sludge Valve
- Service Valve
- Raw Water Valve
- Backflow Preventor
- Hydrant
- Monitoring Meter
- Production Well
- Pump Station
- Pig Station
- Service Point Connection
- Treatment Plant
- Water Tank
- Wholesale Meter
- Continuation Point
- Cross
- Plug
- Reducer
- Water USGS Monitoring Well
- Water DERM Monitoring Well
- Water Sampling
- Miscellaneous
- Private
- Donation Conveyed
- Donation Not Conveyed
- PCTS Active
- PCTS Completed
- PCTS Future/On Hold
- Aerial Crossing
- Subaqueous Crossing
- Sludge
- Calcium Cabonate
- Distribution
- Fire Service
- Hydrant Lateral
- Raw Water
- Service
- Transmission
- Abandoned
- Miscellaneous
- Casing
- Culvert
- Private
- 1/4 Atlas Grid
- AASIS
- Historical AASIS
- Blocks
- Municipality
- Bodies Of Water

SCALE IN FEET

0 125 250

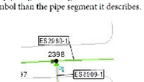
MIAMI-DADE COUNTY

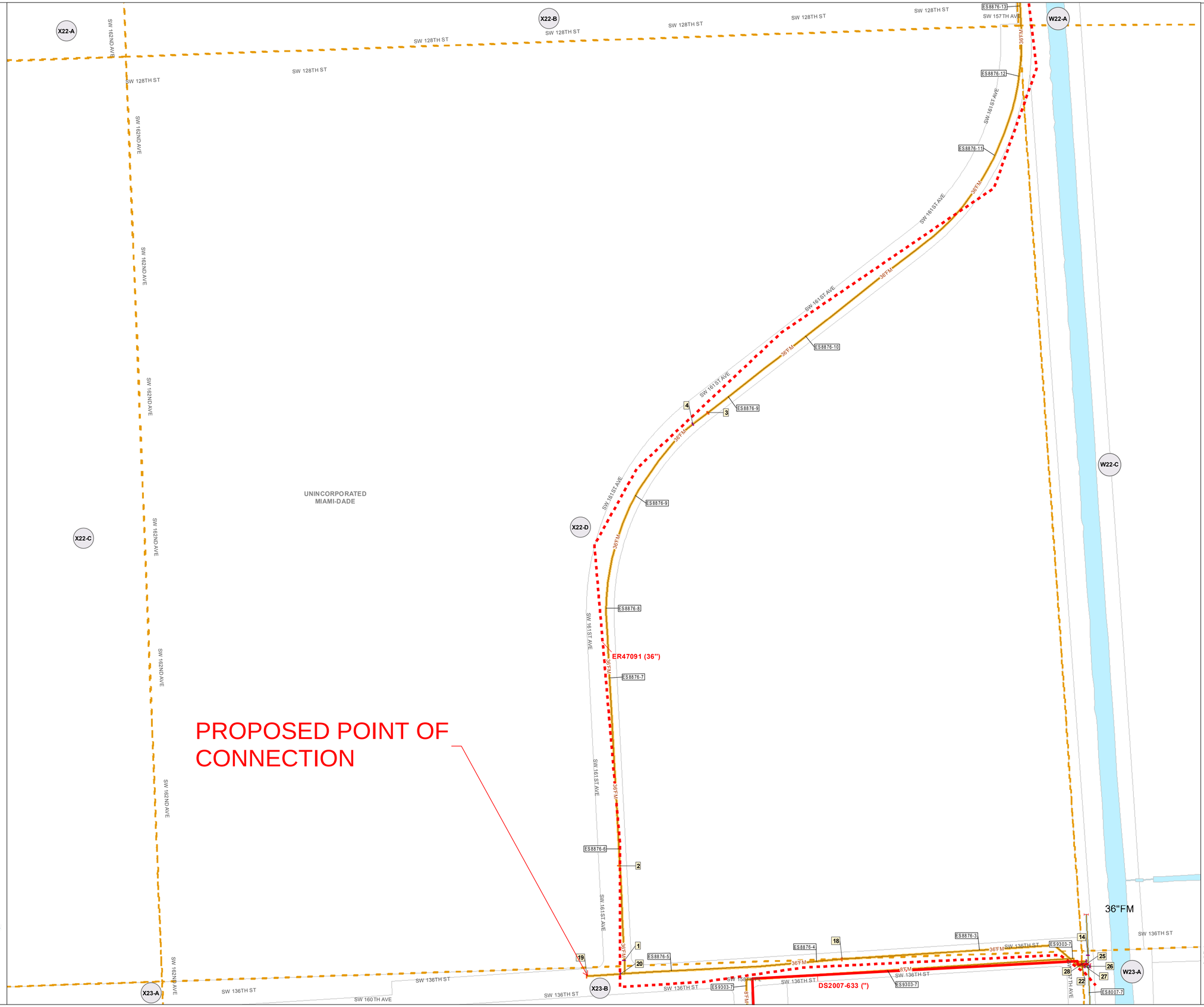
Plot Date
19 May 2020

Donations & Capital Projects
Sewer Collection

NOTE: ALL GRAVITY SEWERS ARE 8" UNLESS OTHERWISE DESIGNATED AND ALL SEWER LATERALS ARE 6" UNLESS OTHERWISE DESIGNATED

As-Builts are displayed using unique colors and single label boxes per contiguous pipe segment. They are displayed underneath the pipe segment using a thicker line symbol than the pipe segment it describes.





Miami-Dade
Water and Sewer Department

Atlas - X22-D

S-17 T-55 R-39

A	B
C	D

Legend

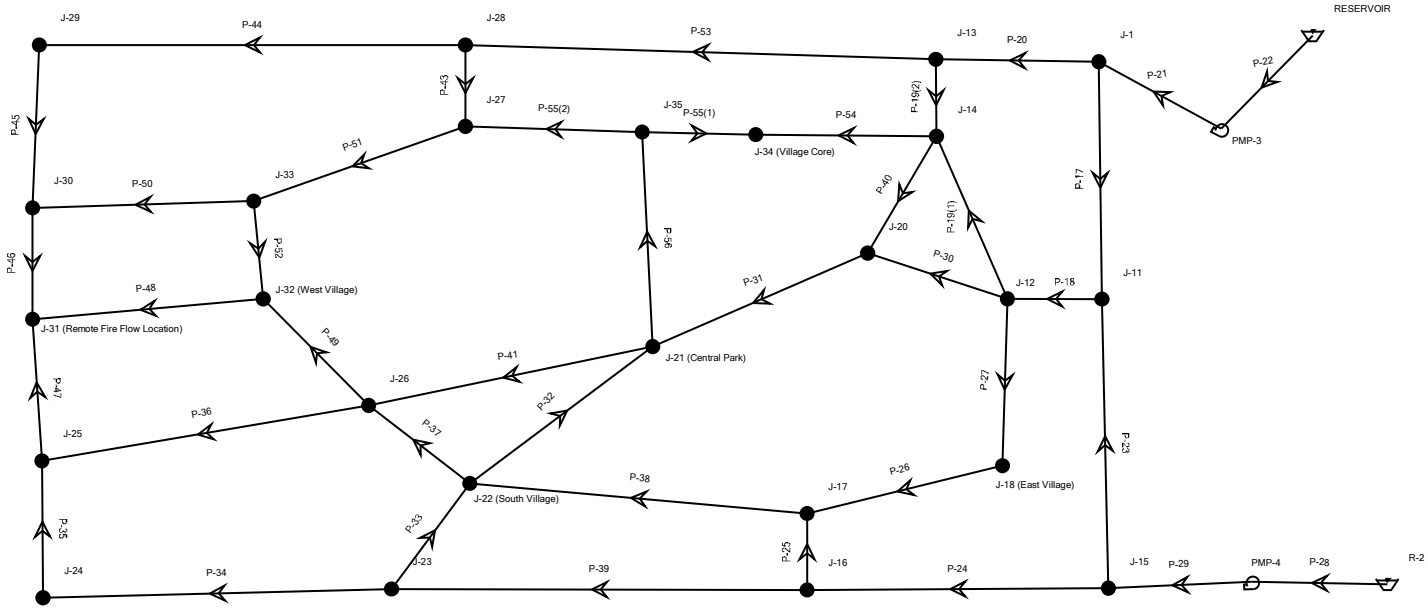
- Manhole
- Overflow/Bypass
- Trap/Drop
- Lamp Hole
- Air Release Valve
- Auto Control Valve
- Clean Out
- Access Manhole
- Pump Station
- Manual Control Valve
- Check Valve
- Emergency Overflow Point
- Emergency Pump Discharge
- Outfall Point Discharge
- Wet Well
- Flow Meter
- Holding Structure
- Injection Well
- Continuation point
- Cross
- Plug
- Reducer
- Private Station
- Treatment Plant
- Private Point
- Miscellaneous Point
- Donation Conveyed
- Donation Not Conveyed
- PCTS Active
- PCTS Completed
- PCTS Future/On Hold
- Aerial Crossing
- Subaqueous Crossing
- Casing
- Force Main
- Interceptor
- Inverted Syphon
- Gravity Main
- Sewer Lateral
- Emergency Overflow
- Outfall
- Sludge
- Private
- Abandoned
- Miscellaneous
- Blocks
- 1/4 Atlas Grid
- AASIS
- Historical AASIS
- Municipality
- Bodies Of Water

SCALE IN FEET
0 125 250

Plot Date
13 Mar 2018

Attachment C – Hydraulic Analysis Results

Scenario: Base



FlexTable: Junction Table

ID	Label	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
30	J-1	0	136.73	59
59	J-11	0	136.33	59
61	J-12	0	133.47	58
63	J-13	0	133.89	58
70	J-14	0	132.78	57
73	J-15	0	137.22	59
75	J-16	0	132.90	57
77	J-17	0	132.55	57
79	J-18 (East Village)	306	132.63	57
87	J-20	0	132.61	57
88	J-21 (Central Park)	74	130.31	56
89	J-22 (South Village)	234	130.32	56
90	J-23	0	130.41	56
91	J-24	0	128.97	56
92	J-25	0	128.29	56
99	J-26	0	129.54	56
106	J-27	0	130.18	56
108	J-28	0	130.34	56
110	J-29	0	128.65	56
112	J-30	0	127.93	55
114	J-31 (Remote Fire Flow Location)	3,000	126.89	55
117	J-32 (West Village)	335	128.05	55
120	J-33	0	128.40	56
125	J-34 (Village Core)	982	130.10	56
128	J-35	0	130.19	56

Attachment D – Sanitary Sewer Calculations

Overall Sanitary Force main Velocity Calculations

Pipe Diameter	24	inches
Peaking Factor	4	
Average Daily Flow Rate	1,720,117	GPD
Peak Flow Rate	4778.10	GPM
Velocity	3.39	fps

FM-1 Sanitary Force main Velocity Calculations

Pipe Diameter	18	inches
Peaking Factor	4	
Average Daily Flow Rate	872,362	GPD
Peak Flow Rate	2423.23	GPM
Velocity	3.05	fps

FM-2 Sanitary Force main Velocity Calculations

Pipe Diameter	18	inches
Peaking Factor	4	
Average Daily Flow Rate	847,754	GPD
Peak Flow Rate	2354.87	GPM
Velocity	2.97	fps

FM-3 Sanitary Force main Velocity Calculations

Pipe Diameter	12	inches
Peaking Factor	4	
Average Daily Flow Rate	467,720	GPD
Peak Flow Rate	1299.22	GPM
Velocity	3.69	fps

FM-4 Sanitary Force main Velocity Calculations

Pipe Diameter	12	inches
Peaking Factor	4	
Average Daily Flow Rate	363,055	GPD
Peak Flow Rate	1008.49	GPM
Velocity	2.86	fps

PROJECT RAMBO - ID 31055
GRAVITY SANITARY DESIGN
JANUARY 2022

Sub-division Area	NETWORK INFORMATION			PIPE DATA							PROJECTED FLOW INFORMATION					MAXIMUM CAPACITY				SURPLUS/DEFICIT
	Sewershed Number	Network Location		Line Size	Pipe Length	Manning's Coefficient	Min. Slope For Velocity of 2 fps	Max. Slope Not to Exceed 10 fps velocity	Provided Segment Slope	Slope Check	Projected Flow	Peak Factor F	Projected Flow with Peak Factor	Minimum Slope Required to carry the projected flow	Slope Check	Provided Segment Slope	Max. Full Flow Capacity	Max. Permitted Capacity 90%	Max. Permitted Capacity 90% of Full Flow	Net Capacity
		Upstream Manhole	Downstream Manhole																	
				(in)	(feet)		(%)	(%)	(%)		(gal/day)		gal/day	(%)		(%)	(gal/day)	(cfs)	(gal/day)	(gal/day)
Sewer Shed Basin	1.00	MH	Wet Well	18	50	0.013	0.12%	2.84%	0.12%	SLOPE IN RANGE	482,699	4.00	1,930,796	0.12%	**Slope OK**	0.12%	2,350,897	3.27	2,115,808	**184,902**

Attachment E – Miami-Dade County Schedule of Daily Rate Gallonage for Various Occupancy

EXHIBIT "B" OF AGREEMENT
BETWEEN
MIAMI-DADE COUNTY
AND

SCHEDULE OF DAILY RATED GALLONAGE FOR VARIOUS OCCUPANCY

TYPES OF LAND USES	GALLONS PER DAY (GPD)
RESIDENTIAL LAND USES	
Single Family Residence	210 gpd/unit (under 3,001 sq. ft.) 310 gpd/unit (3,001-5,000 sq. ft.) 510 gpd/unit (over 5,000 sq. ft.)
Townhouse Residence	165 gpd/unit
Apartment	135 gpd/unit
Mobile Home Residence/Park	160 gpd/unit
Duplex or Twin Home Residence	150 gpd/unit
Residential Facility/Institution: a) Congregate Living Facility (CLF) b) Apartment Dormitory c) Fire Station d) Jail e) Other	 75 gpd/bed 100 gpd/unit 10 gpd/100 sq. ft. 150 gpd/person 100 gpd/person
COMMERCIAL LAND USES	
Airport: a) Common Area/Concourse/Retail	 10 gpd/100 sq. ft.
b) Food Service	see restaurant use for allocation
Bank	10 gpd/100 sq. ft.
Banquet Hall (with or without kitchen	10 gpd/100 sq. ft.
Bar, Cocktail Lounge, Nightclub, or Adult Entertainment	20 gpd/100 sq. ft.
Barber Shop	10 gpd/100 sq. ft.
Beauty Shop	25 gpd/100 sq. ft.
Big Box Retail	2.5 gpd/100 sq. ft.
Bowling Alley	100 gpd/lane
Car Wash:	
a) Manual Washing	350 gpd/bay
b) Automated Washing	5,500 gpd/bay
Coin Laundry	110 gpd/washer
Country Club with or without kitchen	20 gpd/100 sq. ft.
Dentist's Office	20 gpd/100 sq. ft.
Fitness Center or Gym	10 gpd/100 sq. ft.
Funeral Home	5 gpd/100 sq. ft.
Gas Station/Convenience Store/Mini-Mart: a) Without car wash	 450d/unit
b) With single automated car wash	1,750 gpd/unit
Additional single automated car wash	1,300 gpd/unit
Hospital	250 gpd/bed
Hotel or Motel	115 gpd/room

TYPES OF COMMERCIAL LAND USES (CONTINUED)	
House of Worship	10 gpd/100 sq. ft.
Industrial use NOT discharging a process wastewater and NOT utilizing potable water for an industrial process (including but not limited to automotive repair, boat repair, carpentry, factory, machine shop, welding	4 gpd/100 sq. ft.
Industrial use discharging a process wastewater or utilizing potable water for an industrial process based on system design and evaluation by the Department	4 gpd/100 sq. ft.
Kennel	15 gpd/100 sq. ft.
Marina	60 gpd/slip
Nail Salon	30 gpd/100 sq. ft.
Nursing/Convalescent Home	125 gpd/bed
Office Building	5 gpd/100 sq. ft.
Pet Grooming	20 gpd/100 sq. ft.
Physician's Office	20 gpd/100 sq. ft.
Public Park:	
a) With toilets only	5 gpd/person
b) With toilets and showers	20 gpd/person
Public Swimming Pool Facility	30 gpd/person
Recreational Vehicle (RV) Park (seasonal use)	150 gpd/space
Restaurant a) Fast Food	65 gpd/100 sq. ft.
b) Full Service	100 gpd/100 sq. ft.
c) Take-Out	100 gpd/100 sq. ft.
Retail	10 gpd/100 sq. ft.
School:	
a) Day care/Nursery (adults and children)	10 gpd/100 sq. ft.
b) Regular school	12 gpd/100 sq. ft.
Self-service storage units	1.5 gpd/100 sq. ft.
Shopping Center/Mall Shell/Common Area	10 gpd/100 sq. ft.
Spa	20 gpd/100 sq. ft.
Sporting Facilities and Auditorium	3 gpd/seat
Theater a) Indoor	1 gpd/seat
b) Outdoor/Drive-in	5 gpd/space
Veterinarian Office	20 gpd/100 sq. ft.
Warehouse/Speculation Building	2 gpd/100 sq. ft.
Wholesale Food Preparation (including but not limited to meat markets and commissaries)	35 gpd/100 sq. ft.

LEGEND:

gpd - gallons per day
sq. ft. - square feet

NOTES:

1) Sewage gallonage refers to sanitary sewage flow on a per unit and/or use basis for average daily flow in gallons per day.
2) Condominiums shall be rated in accordance with the specific type of use (e.g., apartment, townhouse, warehouse, etc.).