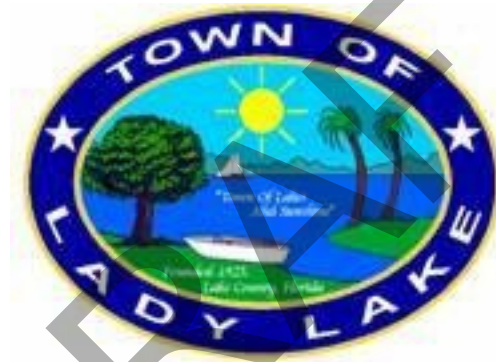


BMAP REMEDIATION PLAN

FOR THE

TOWN OF LADY LAKE, FLORIDA



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A	WRF Process Flow Diagram
B	WRF Site Plan

ACRONYMS / DEFINED TERMS

AADF	Annual Average Daily Flow
ADF	Average Daily Flow
BEBR	Bureau of Economic Business Research
BOD ₅	Biochemical Oxygen Demand-5 Day
BNR	Biological Nutrient Removal
BTU	Biological Treatment Unit
CCC	Chlorine Contact Chamber
CWA	Clean Water Act
cfm	Cubic Feet Per Minute
DO	Dissolved Oxygen
Engineer	Mittauer & Associates, Inc.
EPA	Environmental Protection Agency
ERU	Equivalent Residential Unit
FDEP	Florida Department of Environmental Protection
gpd	Gallons Per Day
gpm	Gallons Per Minute
GST	Ground Storage Tank
HP	Horsepower
ISBA	Interlocal Service Boundary Area
I/I	Infiltration & Inflow
JPA	Joint Planning Area
LS	Lift Station MG Million Gallons
MGD	Million Gallons Per Day

MLE	Modified Ludzack Ettinger
NNC	Numeric Nutrient Criteria
ORP	Oxidation-Reduction Potential
OSTDS	Onsite Sewage Treatment & Disposal System
PHF	Peak Hour Flow
Plan	Wastewater & Reuse Master Plan
PVC	Polyvinyl Chloride
RAS	Return Activated Sludge
RIB	Rapid Infiltration Basins
RWSA	Reclaimed Water Service Area
SOUR	Specific Oxygen Uptake Rate
SSO	Sanitary Sewer Overflows
SJRWMD	St. Johns River Water Management District
TKN	Total Kjeldahl Nitrogen
TMDL	Total Maximum Daily Load
TN	Total Nitrogen
Town	Town of Lady Lake
TP	Total Phosphorus
TSS	Total Suspended Solids
WAS	Waste Activated Sludge
WRF	Water Reclamation Facility
WWTP	Wastewater Treatment Plant

I. INTRODUCTION

The Town of Lady Lake (Town) is located within the Upper Ocklawaha and Silver Springs and Upper Silver River and Rainbow Spring Group and Rainbow River basin management action plans (BMAP). The Florida legislature enacted legislation (Subparagraph 403.067(7)(a)9 of the Florida Statutes) requiring local governments (counties and municipalities) to develop a wastewater treatment plan and/or an onsite sewage treatment and disposal system (OSTDS) remediation plan for those identified entities within a BMAP. The Florida Department of Environmental Protection (FDEP) identified communities where the domestic wastewater treatment facilities and/or OSTDS were contributors of at least 20 percent of point source or non-point source nutrient pollution or where it was determined that remediation is necessary to achieve an identified total maximum daily load (TMDL). A final order was issued on June 12, 2023, identifying BMAP's where these requirements are applicable. The specified reviewing criteria within the remediation plans are summarized as follows:

A. WASTEWATER TREATMENT PLANT (WWTP) BMAP REMEDIATION PLAN CRITERIA

1. Identify the facility's permitted capacity in average annual gallons per day.
2. Identify the facility's permitted Total Nitrogen (TN) and Total Phosphorus (TP) effluent limits.
3. Summarize the annual TN and TP loading (showing both flow and concentrations) discharged from the facility over the past five years, estimated if necessary.
4. Summarize the facility's capacity analysis, considering future growth over the next 20 years.
5. List and rank facility expansion or upgrade items necessary to meet applicable nutrient water quality requirements (for examples, to meet nutrient effluent limits in BMAPs and TMDLs, section 403.064(17), Florida Statutes, requirements, or other statutory or regulatory requirements), and the estimated costs of these facility improvements.
6. A projected timeline of the dates by which the construction of any facility improvements, including new/extended sewer lines, will begin and be completed and the date by which operations of the improved facility will

begin.

B. OSTDS BMAP REDMEDIATION PLAN CRITERIA

1. Provide an inventory of the OSTDS (including locations, such as GIS shape files, if available, or an Excel spreadsheet with addresses and/or longitude) within the local government's jurisdiction or service area based on the best information available.
2. An estimate of future growth in new OSTDS over the next 20 years in the local government's jurisdiction or service area (including locational information, such as GIS shape files, if available, or an Excel spreadsheet with addresses and/or longitude).
3. An inventory of OSTDS that are expected to be eliminated over the next 20 years through connection to central sewer lines of a domestic wastewater facility or other distributed wastewater system, with additional nutrient reduction (including locational information, such as GIS shape files, if available, or an Excel spreadsheet with addresses and/or longitude).
4. Identification of deadlines and interim milestones for the planning, design, and construction of new/extended central sewer lines and replacement of OSTDS by connection to the new/extended lines (including locational information, such as GIS shape files, if available, or an Excel spreadsheet with addresses and/or longitude).
5. The estimated costs associated with the projects.
6. For OSTDS that are not expected to be eliminated over the new 20 years through connection to central sewer lines, an estimate of the number of these OSTDS that will require upgrading to enhanced nutrient-reducing OSTDS or participating in a distributed wastewater treatment system with additional nutrient reduction (including location information, such as GIS shape files, if available, or an Excel spreadsheet with addresses and/or latitude and longitude) within the local government's jurisdiction, in order to meet the water quality objectives of the BMAP.
7. The estimated cost to upgrade the identified existing OSTDS to enhanced nutrient reducing systems.

8. Any other cost effective and financially feasible project necessary to achieve the nutrient load reductions for OSTDS in order to meet the water quality objectives of the BMAP, along with estimated costs, timelines, and locational information.

This BMAP Remediation Plan summarizes responses to the above criteria.

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II. WASTEWATER TREATMENT PLAN

A. OVERVIEW

The following section summarizes information relative to the Town's only permitted WRF located at 140 Skyline Dr, Lady Lake, FL. The WRF was designed to treat 1,200,000 gallons per day ("gpd"), or 1.2 million gallons per day ("MGD"), of domestic wastewater. The WRF is currently under construction to complete the expansion needs to meet the 1.2 MGD design capacity. Effluent capacity is currently limited to 0.95 MGD based on available reclaimed water customers. Construction is slated for completion by August 2024.

The WRF has the following general configuration:

- Influent Structure with 4.6 MGD (Peak Hour Flow-PHF) mechanical bar screen, 2.0 MGD (PHF) manual bypass bar rack, and 4.0 MGD (PHF) vortex grit removal system.
- Influent splitter box with magnetic flow meters located in the three discharge pipes from the structure. A magmeter will be dedicated for each of the following discharge points:
 - WWTF No. 1 ('new 0.60 MGD package plant')
 - WWTF No. 2 ('existing 0.60 MGD package plant')
 - Flow Equalization or Surge Basin
- WWTF No.1 is comprised of the following items:
 - 0.60 MGD (AADF) package BTU with MLE activated sludge system.
 - 63-foot diameter central clarifier having a surface area of 3,120 square feet.
 - Two 1,740 gpm (2.51 MGD) Gorman-Rupp non-clog Nitrified Mixed Liquor Recycle (NRCY) pumps.
 - Two 430 gpm (0.62 MGD) Gorman-Rupp non-clog return activated sludge ("RAS") pumps.
 - One 100 gpm (0.14 MGD) Gorman-Rupp non-clog waste activated sludge ("WAS") pump;

- Two 99,600 gallon aerobic digester compartments providing a total of 199,200 gallons.
- WWTP No. 2 is comprised of the following items:
 - 0.60 MGD (AADF) package BTU with MLE activated sludge system.
 - 44-foot diameter central clarifier having a surface area of 1,520 square feet.
 - Two 1,740 gpm (2.51 MGD) Gorman-Rupp non-clog recycle pump.
 - Two 430 gpm (0.62 MGD) Gorman-Rupp non-clog return activated sludge ("RAS") pumps.
 - Two 100 gpm (0.14 MGD) Gorman-Rupp non-clog waste activated sludge ("WAS") pump.
 - Two 115 gpm (0.17 MGD) Gorman-Rupp non-clog digested sludge pumps.
 - Two 191,000 gallon aerobic digester compartments providing a total of 382,000 gallons.
- One in-plant pump station with two 350 gpm (0.50 MGD) submersible pumps.
- Four centrifugal blowers including: Two 100 HP units at 1,350 cfm/each and Two 150 HP units at 2,100 cfm/each.
- Four 2.0 MGD (PHF) effluent disk filters.
- Two 24,600 gallon chlorine contact chambers.
- Two 3,200 gpm (4.6 MGD-PHF) vertical turbine transfer pumps.
- 1.2 Million Gallon ("MG") ground storage tank ("GST").
- Three 2,000 gpm (2.88 MGD) horizontal split-case reuse pumps.
- Two 30-yard biosolids gravity dewatering box as manufactured by FloTrends with polymer injection system capable of producing 10% solids.

- Four RIBs having a total wetted area of 10.8 acres and a permitted loading capacity of 0.25 MGD (AADF).
- Hypochlorite feed system.
- Associated electrical and instrumentation systems.

Appendix A contains the WRF process flow diagram while **Appendix B** contains the current WRF site plan.

A summary of the BMAP Remediation review requirements is provided in the following:

1. **WWTP Permitted Capacity:** The permitted capacity is 1,200,000 gallons per day (1.2 MGD) with effluent disposal capacity of 0.95 MGD. The current flow is approximately 500,000 gallons per day (0.50 MGD) and the available treatment capacity is 700,000 gallons per day (0.70 MGD) or 450,000 gallons per day (0.45 MGD) on an effluent disposal basis.
2. **Permitted Total Nitrogen and Total Phosphorus Effluent Limits:** The permitted TN effluent concentration limit is 12.0 mg/L, but the compliance point is at the on-site monitoring wells near the RIBs. The Town does not currently have a permitted effluent TP concentration limit.
3. **Annual Total Nitrogen and Total Phosphorus Effluent Concentrations:** A summary of the TN and TP effluent concentrations between 2019 to 2023 are summarized in **Tables II-1 and II-2**.

TABLE II-1					
WWTP TN EFFLUENT CONCENTRATIONS					
Month	2019	2020	2021	2022	2023
Jan	4.9	1.2	4.9	3.3	3.4
Feb	1.4	3.7	4.7	2.1	4.0
Mar	3.5	5.4	5.9	2.5	3.7
Apr	4.2	6.9	5.4	1.4	5.5
May	2.6	5.8	4.1	3.1	5.9
Jun	2.6	2.9	2.3	4.3	10.3
Jul		5.9	1.6	6.7	5.3

TABLE II-1 WWTP TN EFFLUENT CONCENTRATIONS					
Month	2019	2020	2021	2022	2023
Aug	8.3	5.3	2.3	4.6	7.6
Sep	4.2	8.5	2.3	8.4	4.2
Oct	1.8	5.8	2.9	3.1	1.4
Nov	7.1	4.8	5.5	2.9	2.9
Dec	1.6	4.1	3.7	2.3	
Average	3.84	5.02	3.8	3.72	4.93
Max	8.3	8.5	5.9	8.4	10.3
Min	1.4	1.2	1.6	1.4	1.4

TABLE II-2 WWTP TP EFFLUENT CONCENTRATIONS					
Month	2019	2020	2021	2022	2023
Jan	4.0	2.0	2.6	1.0	3.7
Feb	3.7	1.8	0.7	0.2	4.9
Mar	4.4	5.1	3.0	0.8	3.9
Apr	5.7	4.6	4.6	1.6	5.4
May	6.2	3.6	3.2	4.7	6.3
Jun	5.8	3.1	3.0	5.3	5.2
Jul		3.5	2.7	3.3	4.3
Aug	6.3	2.7	2.9	3.2	5.0
Sep	5.5	6.3	3.3	3.5	5.5
Oct	5.5	3.0	4.8	3.8	4.4
Nov	4.9	2.7	3.9	2.8	4.7
Dec	3.0	2.8	3.9	3.2	
Average	5.0	3.43	3.22	2.78	4.85
Max	6.3	6.3	4.8	5.3	6.3
Min	3.0	1.8	0.7	0.2	3.7

4. **Capacity Analysis Considering Future Growth:** The Bureau of Economic and Business Research (BEBR) of the University of Florida does not have population projections for the Town of Lady Lake; however, the 2023 BEBR Florida Statistical Abstract has published

projections for Lake County as shown in **Table II-3**.

TABLE II-3 POPULATION PROJECTIONS 2025 THROUGH 2045			
Year	Population (in Thousands) with Percent Change (%)		
	Low Growth	Medium Growth	High Growth
2023	414,749	414,749	414,749
2025 ^a	402.1 (-3.0%)	432.3 (+4.2%)	462.6 (+11.5%)
2030	420.3 (+4.5%)	474.9 (+9.9%)	529.5 (+14.5%)
2035	429.5 (+2.2%)	509.8 (+7.3%)	590.1 (+11.4%)
2040	431.8 (+0.5%)	538.1 (+5.6%)	644.4 (+9.2%)
2045	430.3 (-0.3%)	562.5 (+4.5%)	694.7 (+7.8%)
2050	427.4 (-0.7%)	858.5 (+4.1%)	743.6 (+7.0%)

A: Percent Difference is calculated between each 5-year increment and is not an annualized value.

B: 2023 BEBR estimated value for Lake County.

The year 2023 BEBR estimates for the Town of Lady Lake and Lake County were 16,224 and 414,749 persons, respectively.

Increased demands on the Town's wastewater infrastructure will be dependent on population growth that will fuel both residential and commercial development. Another factor will involve how the Town addresses existing residential areas that are currently served by OSTDS and/or small package systems. In developing the population estimate, two basic criteria were used/assumed:

1. The wastewater service area will experience population growth equal to the "medium growth" projections published for Lake County as a whole.
2. Population growth outside the existing service area will not be considered.

Applying the above criteria results in population estimates as shown in **Table II-4**.

TABLE II-4 PROJECTED POPULATION FOR 2025 THROUGH 2045	
Year	Population ^A
2025	16,905
2030	18,579
2035	19,935
2040	21,052
2045	21,999
2050	22,901

A: Population base change calculated from the Year 2023 BEBR Results.

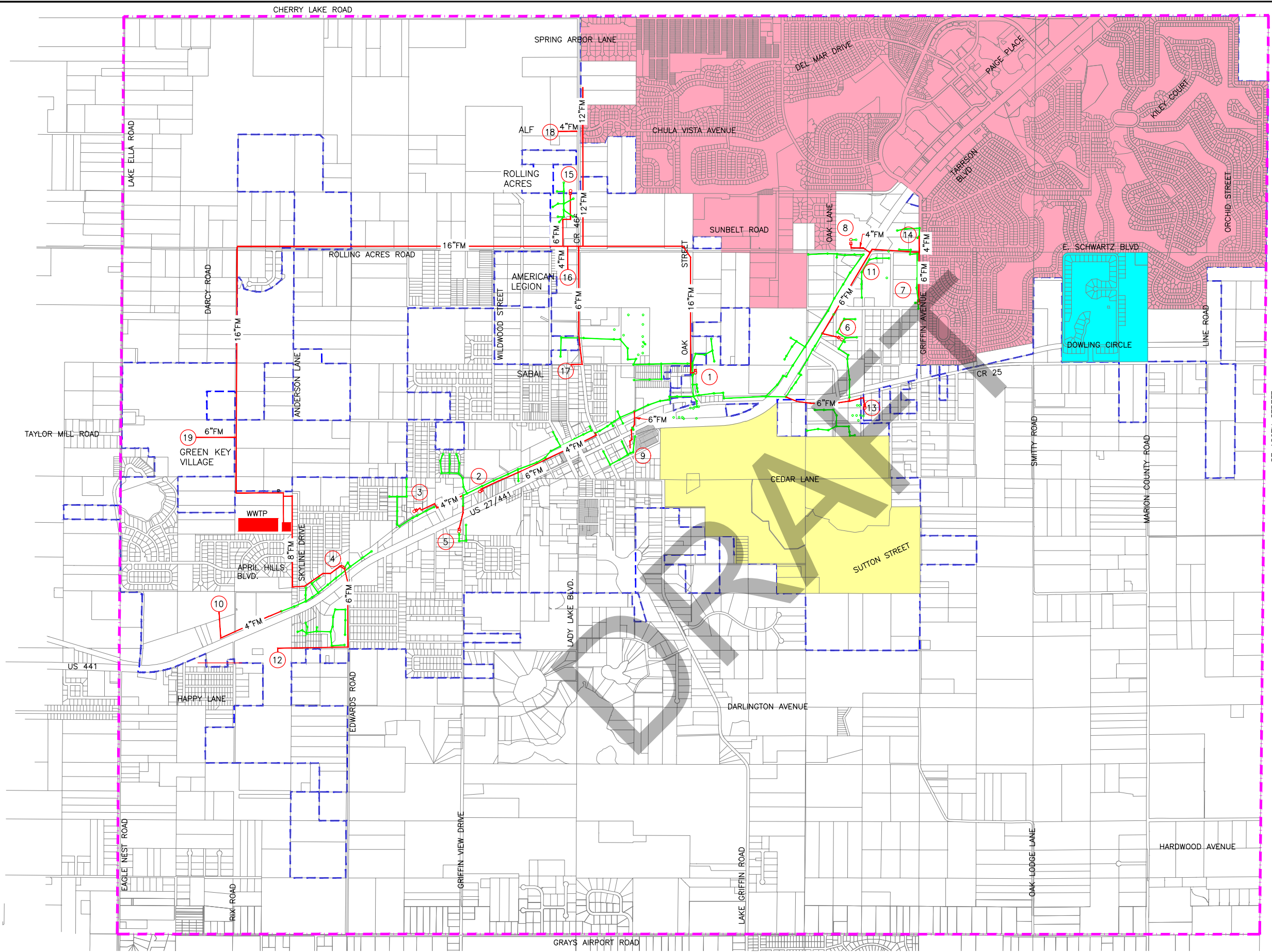
Figure II-1 illustrates the general limits of the Town's existing wastewater collection and transmission system. As noted herein and reviewed further, the Town's existing system primarily serves multi-family and/or commercial developments to date. Service to these customers is prudent given their density. Further, the inability to provide central sewer to these areas would greatly limit economic growth/activity. As the system is compared to the Town's broader Service Area, the limited nature of the existing system is illustrated.

Wastewater demands will be reviewed based on the considerations within the following areas:

- Existing residential demands served by onsite systems;
- Existing development demands served by onsite package treatment systems;
- Projected developments to be served by central sewer;
- Project Build-out demands; and
- Population growth projections.

The Town continues to track various projects that are moving through the development process. **Figure II-2** displays an example map that was utilized for previous master planning, but is not current. An updated map is currently being developed for currently known projects.

SCALE: 1" = 2,300'



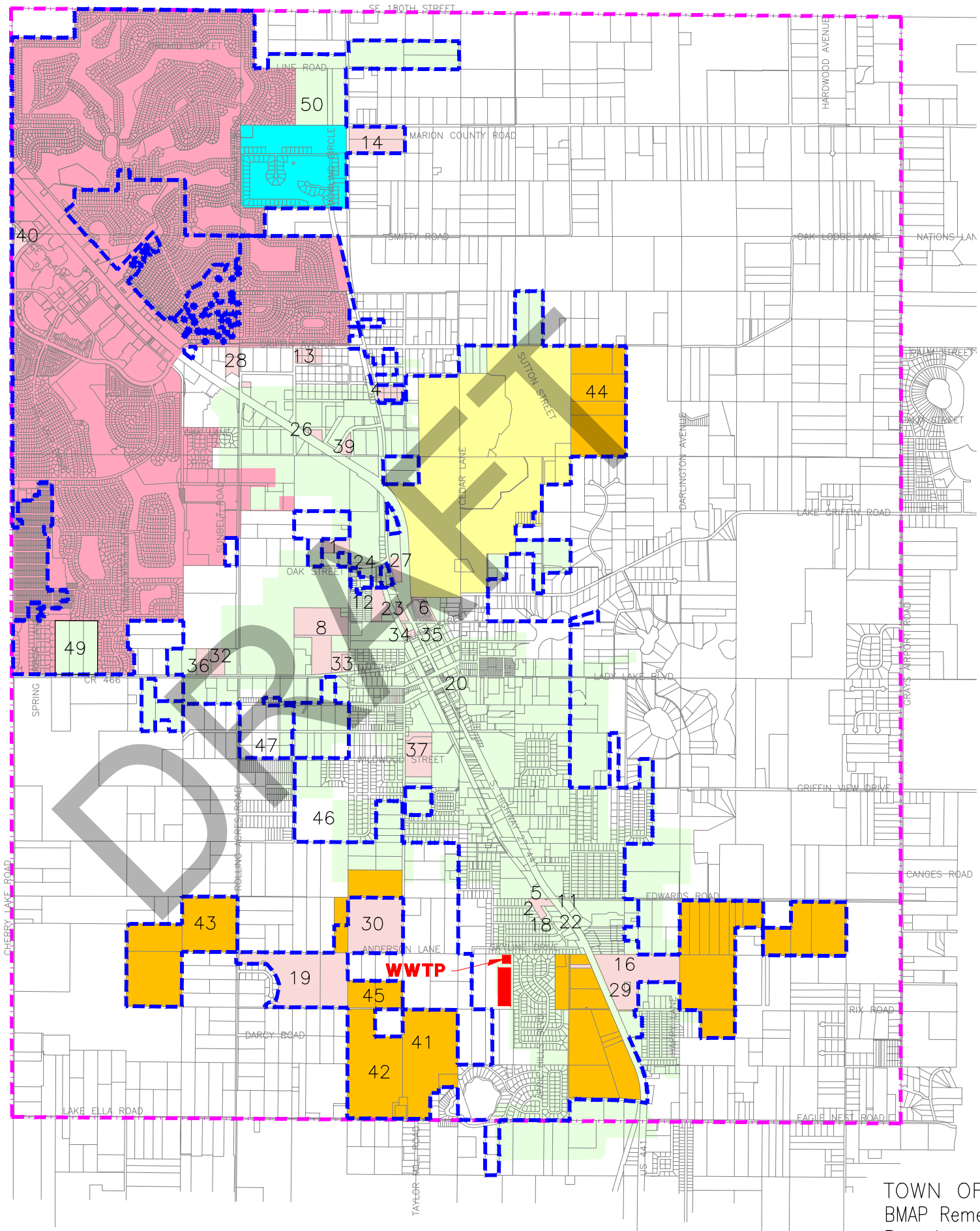
LEGEND

- TOWN LIMITS AREA
- 2040 PLANNING AREA
- FORCE MAIN
- GRAVITY SEWER
- XX LIFT STATION
- WATER OAKS ESTATES
- VCDD
- LAKES OF LADY LAKE (PRIVATE WATER SYSTEM & OSTDS)



DEVELOPEMENT (ESTIMATED CAPACITY, IF KNOWN)

ADULT LIVING FACILITY [900 BEDS±, 103,500 gpd (AADF), 280 gpm (PHF)]	50
ALLEN COBB [250 ERUS±, 50,000 gpd (AADF), 140 gpm (PHF)]	49
ANDERSON LANE SCHOOL BOARD PROP.	30
ARDEN PLACE	1
AUSTON'S STORE-IT-ALL	2
BEDELL	21
BLOUNT/MEYER PROPERTIES, LLC	
[270 ERUS±, 54,000 gpd (AADF), 1,500 gpm (PHF)]	42
BRYANT RETAIL CENTER	4
BULLDOG INVEST. OFFICE SITE	5
CART WORLD	6
CFT - RETAIL CENTER	7
CONTRAVEST [300 ERUS±, 60,000 gpd (AADF), 160 gpm (PHF)]	43
COURTNEY VILLAGES APTS. [230 ERUS±, 46,000 gpd, 130 gpm (PHF)]	8
ST. GEORGE EPISCOPAL CHURCH	40
DENISE DYE	10
EDWARDS ROAD OFFICE	11
EMERY HILLS OFFICE PARK	12
FENNELL PROPERTIES	13
GLORIA AUSTIN PROPERTY	14
HILLTOP [94ERUS±, 18,800 gpd (AADF), 50 gpm (PHF)]	44
LADY LAKE APARTMENTS [336 ERUS±, 67,200 gpd, 190 gpm (PHF)]	39
LAKE ELLA ESTATES [230 ERUS±, 46,000 gpd, 120 gpm (PHF)]	41
LONGVIEW OFFICE	18
LADY LAKE LANDING [600 ERUS±, 120,000 gpd (AADF), 320 gpm (PHF)]	19
MMD COMPUTERS	20
NEIL FISCHER OFFICE	22
NORTHCOTT CENTER	23
OAK STREET BUSINESS CENTER	24
RACE TRAC	27
RECTOR/BEAHAN PROPERTY	16&29
RICHARDSON [230 ERUS±, 46,000 gpd, 130 gpm (PHF)]	47
ROLLING OAKS PROFESSIONAL PLAZA	28
SAM'S OUTPARCEL 1	26
SHERWIN WILLIAMS	31
STONEWOOD VALLEY [90 ERUS±, 18,000 gpd (AADF), 80 gpm (PHF)]	46
SUMMIT BUSINESS PARK	32
TLC SURGERY CENTER	34
TONY CLARK [80 ERUS±, 16,000 gpd (AADF), 80 gpm (PHF)]	45
WILCOX & WILCOX	35
WILD BLUE PROFESSIONAL CENTER	36
WILDWOOD COVE [58 ERUS±, 11,600 gpd (AADF), 320 gpm (PHF)]	37
WOODLANDS OFFICE PARK	33



LEGEND

- TOWN LIMITS AREA
- 2040 PLANNING AREA
- WATER OAK ESTATES
- VCDD
- LAKE OF LADY LAKES (PRIVATE WATER & OSTDS)
- SERVICE AREA
- UNDEVELOPED PARCELS
- NEAR TERM PROJECTS

The estimated wastewater demand associated with existing OSTDS areas is 130,000 gpd and 40,000 gpd for locations currently served by private package plants.

Table II-5 breaks down the current service area growth demand projections based on the Town's 2014 master planning efforts. The projections are in the process of being updated, but generally highlight the dynamics between extensions to the Town's existing central sewer system via growth and those areas that would required specific capital improvement projects to extend central service to OSTDS and Package WWTF areas. At this time, the Town's projections are summarized in the Column A values. As noted previously, the 2024 demands highlighted below are approximately 50,000 gpd less than current treatment levels.

TABLE II-5 2020 - 2045 MEDIUM GROWTH WASTEWATER DEMAND PROJECTIONS SEPARATED BY USE CLASSIFICATION						
Year	Column A (D+E)	Column B	Column C	Column D	Column E	Columns B + C + D +E ^F
	Current Service Area Medium Growth Demand ^A (gpd-AADF)	OSTDS Service Sectors ^B (gpd-AADF)	Package WWTF Service Areas ^C (gpd-AADF)	Central Sewer Residential Area ^D (gpd-AADF)	Commercial Sewer Area ^D (gpd-AADF)	Total Build- Out Demand ^E (gpd-AADF)
2020 ^A	397,847	130,000	80,000	119,354	278,493	607,847
2025	445,923	145,709	89,667	133,777	312,146	681,299
2030	488,681	159,681	98,265	146,604	342,077	746,627
2035	523,842	171,170	106,336	157,153	366,690	800,348
2040	553,795	180,957	111,358	166,138	387,656	846,111
2045	580,383	189,645	116,705	406,268	406,268	886,733

A: Medium-growth BEBR projections within existing central sewer system.

B: Build-out Potential Basis of 265,000 gpd for OSTDS within Town of Lady Lake per 2014 Master Plan.

C: Build-out Potential Basis of 80,000 gpd for Package WWTFs (per 2020 DMR information), including those outside Town but within Lady Lake Interlocal Service Boundary ("ISBA" - see 2014 Master Plan).

D: Current Residential/Commercial Sewer Demand split is estimated at 30/70, based on 2014 Master Plan.

E: Does not include Build-Out Demand for OSTDS and Package WWTF service areas within Town of Fruitland Park.

F: Theoretical projection that represents a scenario where 100% of demand from OSTDS and Package WWTFs is incorporated into the Lady Lake WWTF service area immediately (in 2020). This projection shows the maximum possible demand for the Lady Lake WWTF.

Connecting the OSTDS Sectors and/or the Package WWTF Service Areas to the Town's Sewer System will be dependent on a number of factors, and may not occur. **Table II-5** 'Column A' summarizes projections if the current service

area remains the same, while **Table II-6** considers phased expansion of service to these respective areas.

TABLE II-6 2020 - 2045 MEDIUM GROWTH WASTEWATER DEMAND PROJECTIONS FOR EACH EXPANSION ALTERNATIVE				
Year	Alternative 1	Alternative 2 ^F	Alternative 3 ^F	Alternative 4 ^F
	Current Service Area Medium Growth Demand ^A (gpd-AADF)	Expansion to OSTDS Service Sectors ^B (gpd-AADF)	Expansion to Package WWTF Service Areas ^C (gpd-AADF)	Total Expansion Demand ^E (gpd-AADF)
2020 ^A	397,847	397,847	397,847	397,847
2025	445,923	482,350	468,339	504,767
2030	488,681	568,521	537,813	617,654
2035	523,842	652,220	602,844	731,222
2040	553,795	734,752	665,153	846,111
2045	580,383	770,028	697,088	886,733

A: Medium-growth BEBR projections within existing central sewer system.

B: Build-out Potential Basis of 265,000 gpd for OSTDS within Town of Lady Lake per 2014 Master Plan.

C: Build-out Potential Basis of 80,000 gpd for Package WWTFs (per 2020 DMR information), including those outside Town but within Lady Lake Interlocal Service Boundary ("ISBA" - see 2014 Master Plan).

D: Current Residential/Commercial Sewer Demand split is estimated at 30/70, based on 2014 Master Plan.

E: Does not include Build-Out Demand for OSTDS and Package WWTF service areas within Town of Fruitland Park.

F: The conceptual 'phase-in' schedule for connecting the OSTDS and Package WWTF service areas to the Lady Lake WWTF is 25% by 2025, 50% by 2030, 75% by 2035, and 100% by 2040.

The four (4) potential expansion alternatives are summarized as follows:

- **Alternative 1:** Existing Central Sewer Growth with no expansion into OSTDS Sectors nor Package WWTF Service Areas. This represents the minimum wastewater demands projected for the Town through the Planning Period.
- **Alternative 2:** Existing Central Sewer Growth & OSTDS Service Sector Sewer Extensions with no expansion into Package WWTF Service Areas.
- **Alternative 3:** Existing Central Sewer Growth & Package WWTF Sewer Extensions with no expansion into OSTDS Sectors.
- **Alternative 4:** Maximum Growth Potential which includes existing central sewer growth, service to OSTDS Sectors, and service to

Package WWTF Service Areas.

5. **List of Construction, Expansion, and Upgrades Required:** The Town of Lady Lake is located within a Rural Area of Opportunity (RAO) and the Rainbow Springs and Rainbow River BMAP.
6. **Projected Timeline for Construction:** As noted previously, the Town is located within an RAO and has limited financial capabilities. Therefore, any proposed improvements are dependent on grant funding, so a specific timeline is not available at this time.

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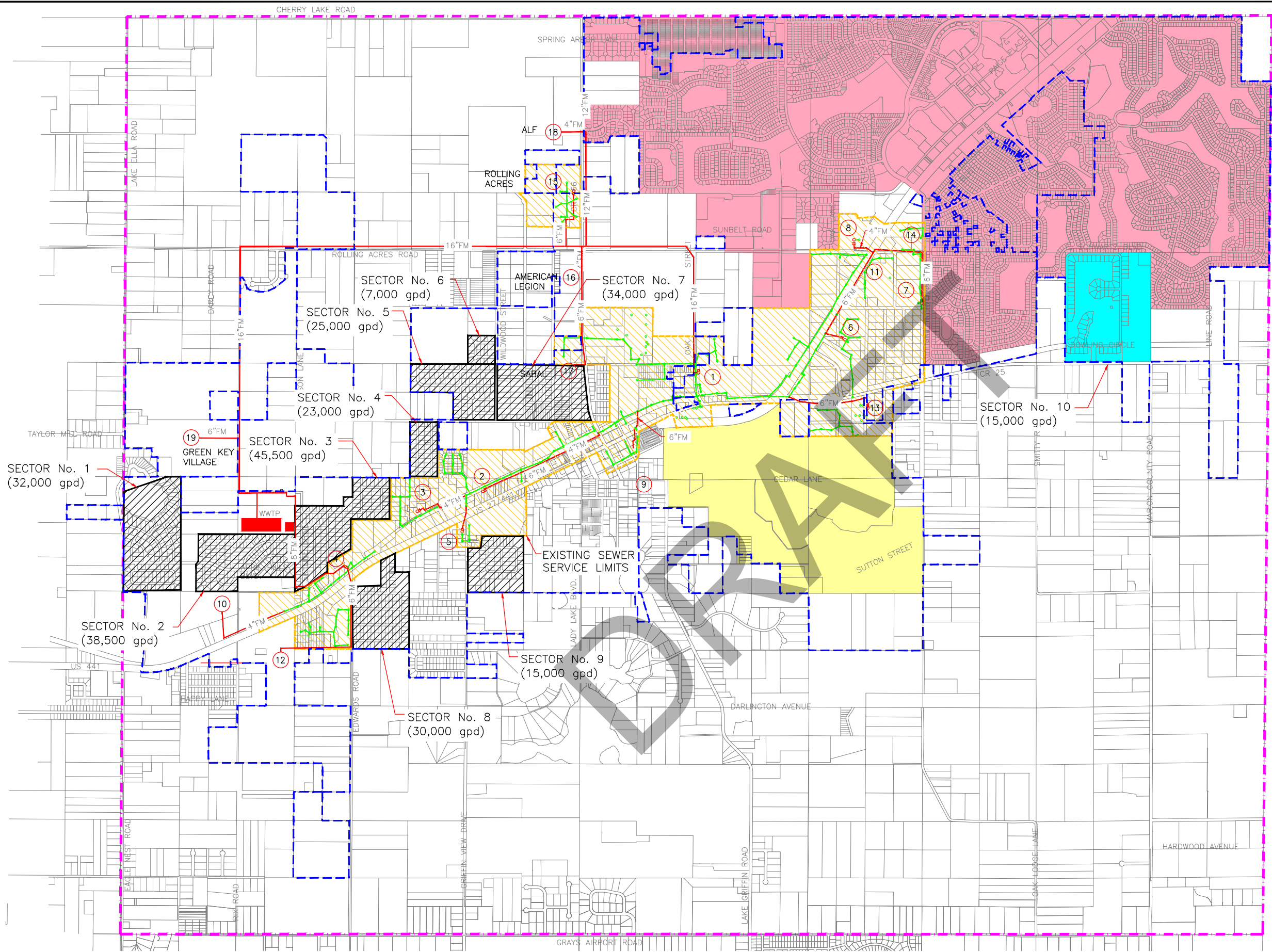
III. ONSITE SEWAGE TREATMENT & DISPOSAL (OSTDS) REMEDICATION PLAN INTRODUCTION

A. OVERVIEW

The estimated OSTDS locations are generally summarized in **Figure III-1**. In total, ten sectors have been defined and discussed further herein.

1. **Inventory of OSTDS:** Table III-1 highlights the locations of existing OSTDS systems within the Town limits and the parcel count and demand for each sector, respectively. The estimated total is 1325 parcels.

TABLE III-1 ESTIMATED PARCEL AND WASTEWATER DEMAND SUMMARY SERVICED BY OSTDS		
OSTDS Sector	Build-out Parcel Count	Estimated Demand (gpd)
1	160	32,000
2	190	38,500
3	230	45,500
4	115	23,000
5	125	25,000
6	35	7,000
7	170	34,000
8	150	30,000
9	75	15,000
10 (Lakes of Lady Lake)	75	15,000
SUM	1,325	265,000



LEGEND

- TOWN LIMITS AREA
- 2040 PLANNING AREA
- FORCE MAIN
- GRAVITY SEWER
- LIFT STATION
- EXISTING SEWER SERVICE LIMITS
- OSTDS SERVICE AREAS" WITH ESTIMATED BUILD-OUT DEMAND (gpd)
- WATER OAKS ESTATES
- VCDD
- LAKE OF LADY LAKE (SEPTIC TANK SERVICE AREA)

2. **Estimated Future Growth of OSTDS:** New developments are required to provide central sewer systems. Additional growth of OSTDS would be limited to areas on the outskirts of the Town's service limits and/or isolated single-family lots within existing OSTDS areas.

3. **Central Sewer Expansion/Extension Projects:** For purposes of projecting potential Town capital improvement and/or expansion projects, conceptual estimates are provided herein related to extending sewer for the following goals:
 - a) Existing OSTDS service sectors.
 - b) Providing force main connections for Private WWTP locations.

The Town has not programmed or funded these projects, but they have been reviewed from a master planning perspective. They are summarized in subsection 4 below.

4. **Inventory of Expected OSTDS Removals:** Table III-2 summarizes the conceptual projects that extend to serve OSTDS and/or package WWTF areas. **Figures III-2 through III-7** illustrate the areas.

TABLE III-2 FUTURE BUILD-OUT DEMAND SUMMARY ESTIMATES				
Item	Service Area Description ^A	Estimated Units	Estimated Build-Out Demand (gpd-AADF)	Estimated Peak Flow ^B (gpm)
1	OSTDS Sector 1 ^C	160	32,000	90
2	OSTDS Sector 2 ^C	190	38,500	110
3	OSTDS Sector 3 ^D	230	45,500	125
4	OSTDS Sector 4 ^D	115	23,000	65
5	OSTDS Sector 5 ^E	125	25,000	70
6	OSTDS Sector 6 ^E	35	7,000	20
7	OSTDS Sector 7 ^E	170	34,000	95
8	OSTDS Sector 8	150	30,000	85

TABLE III-2				
FUTURE BUILD-OUT DEMAND SUMMARY ESTIMATES				
Item	Service Area Description ^A	Estimated Units	Estimated Build-Out Demand (gpd-AADF)	Estimated Peak Flow ^B (gpm)
9	OSTDS Sector 9	75	15,000	40 80 ^F
10	OSTDS Sector 10 (Lakes of Lady Lake)	75	15,000	40 80 ^F
11	Plantation (Private WWTP)	N/A	85,000	240
12	Lake North (Private WWTP)	N/A	15,000	40 80 ^F
13	Sunshine (Private WWTP)	N/A	12,500	35 80 ^F
14	Blue Parrot (Private WWTP)	N/A	82,000	230
15	LL Park (Private WWTP)	N/A	27,000	75 80 ^F
SUM			486,500	N/A

A: See Figures III-2 through III-7 for locations.

B: Peak Flow calculated based on Build-out Demand (gpd)/60/24 * 4.0 (peaking factor)

C: OSTDS Sector No. 1 and No. 2 are planned to be served by existing L.S. No. 10.

D: OSTDS Sector No. 3 and No. 4 are planned to be served by one (1) new lift station.

E: OSTDS Sector No. 5, No. 6, and No. 7 are planned to be served by one (1) new lift station.

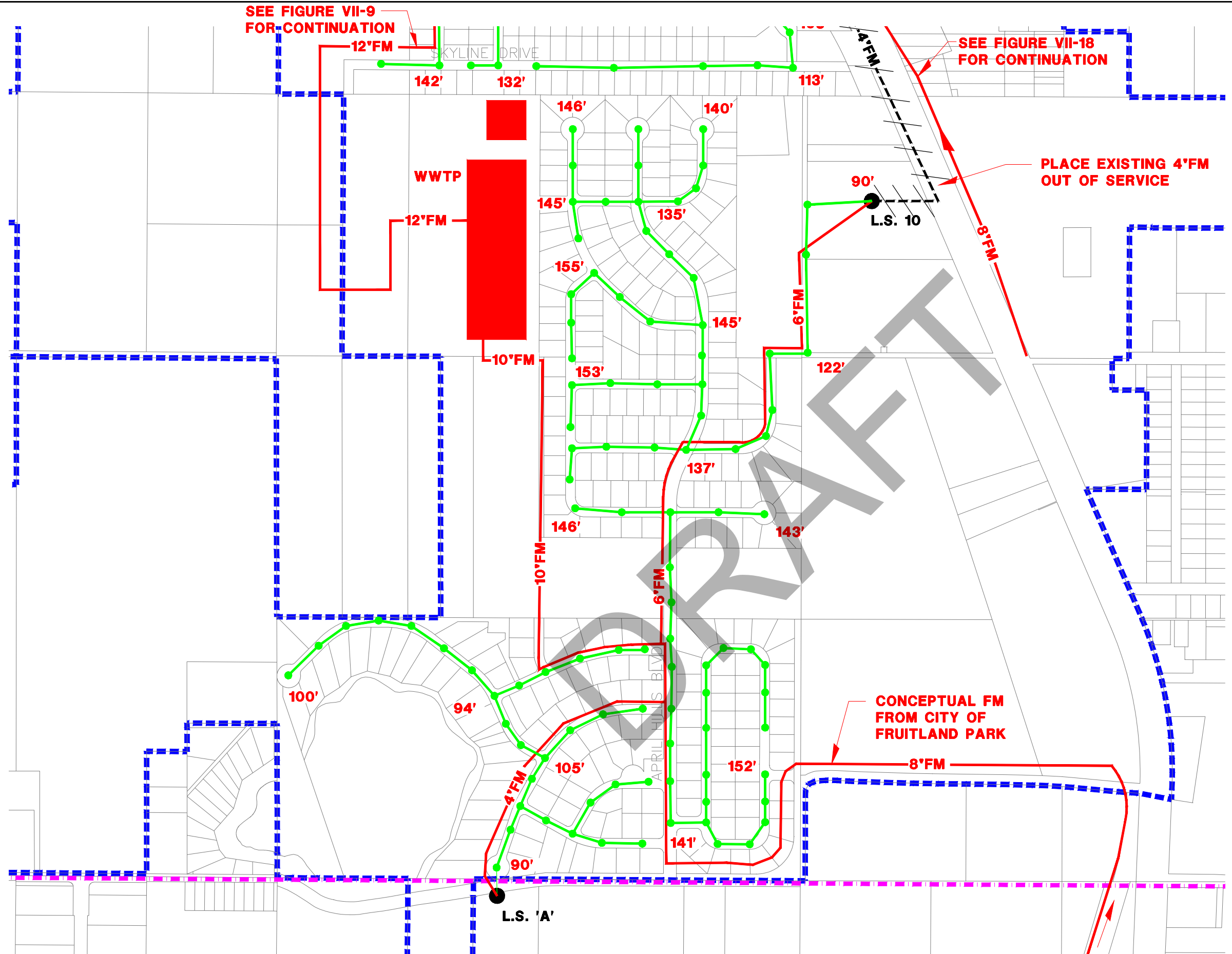
F: At these locations the minimum pump size will be 80 gpm to provide 2 fps in a 4-inch force main.

G: Combined flow is based on the 80 gpm minimum at noted stations.

5. **Deadlines and Milestones of OSTDS:** The Town has not created a schedule to extend sewer to the defined OSTDS and/or package WWTF service areas.
6. **Estimated Cost to Extend Central Sewer and/or Upgrade Existing Septic Systems:** The Town is not planning to fund any upgrades to existing septic tanks. Should that be a requirement under state law, then it would have to be completed by each septic owner.

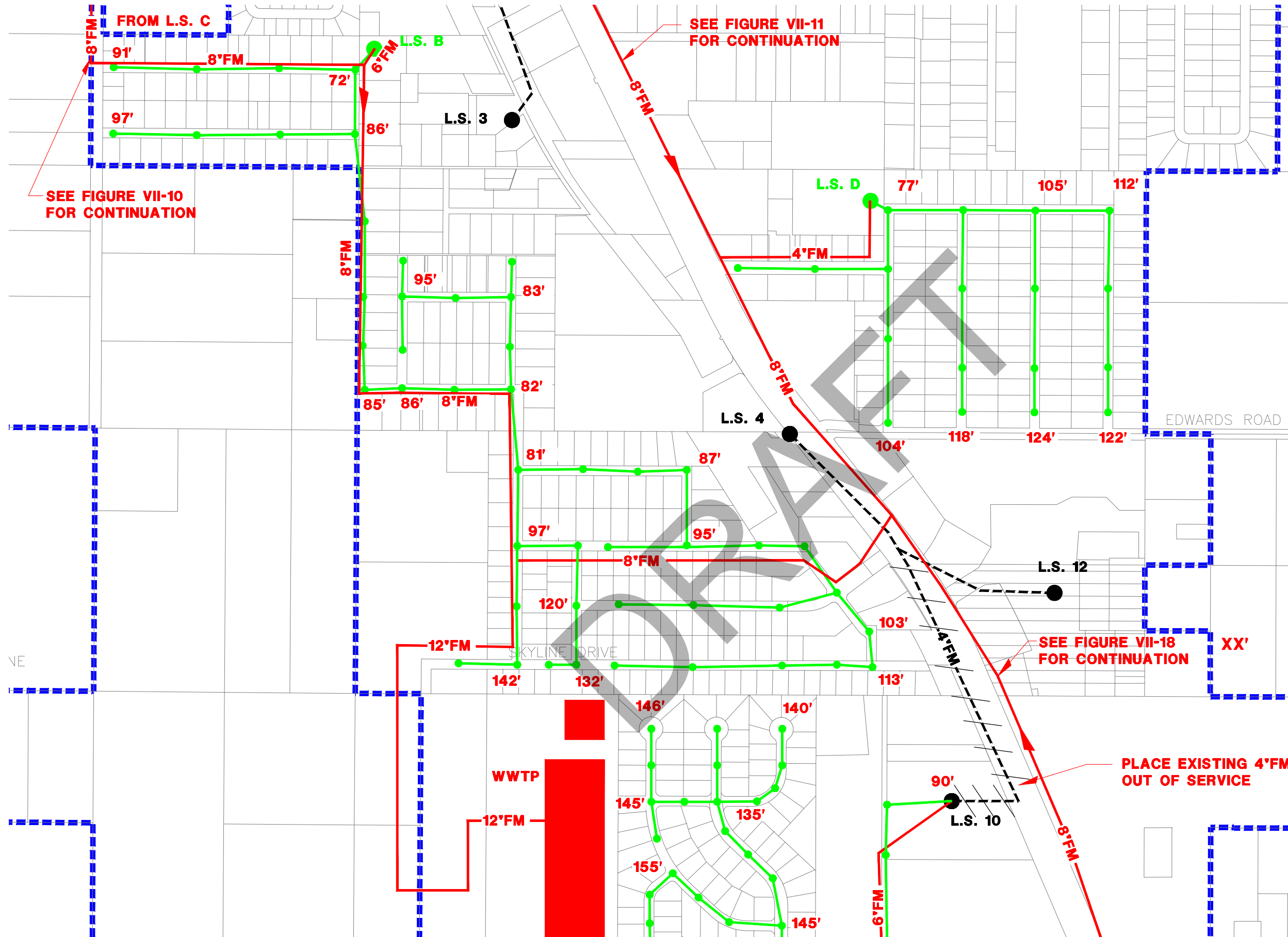
Service to the OSTDS areas were estimated in 2014 master planning efforts. The estimated costs have been inflated to current construction dollars and are summarized as follows:

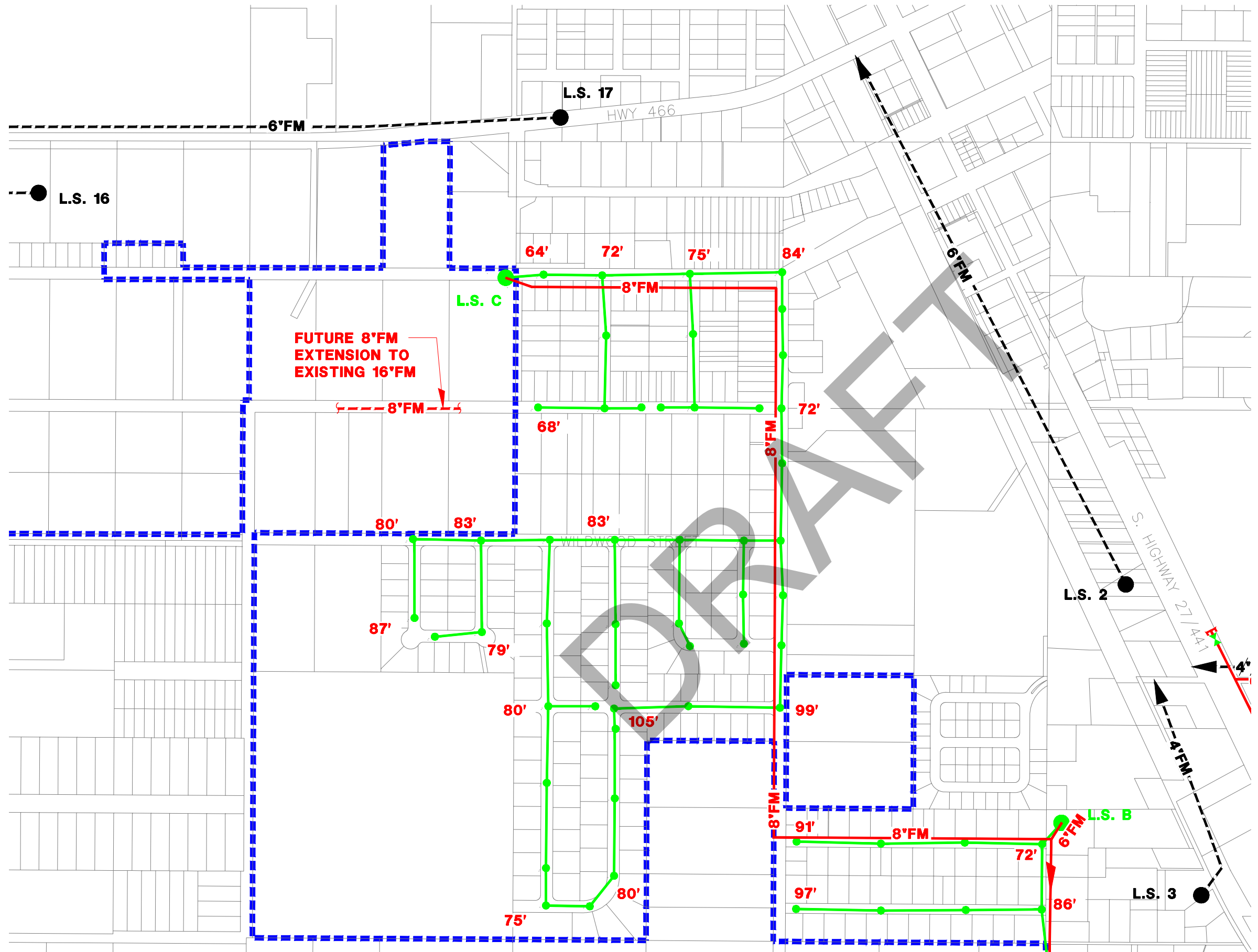
• OSTDS Service Sectors 1 & 2	=	\$17,500,000
• OSTDS Service Sectors 3 & 4	=	\$17,500,000
• OSTDS Service Sectors 5, 6, & 7	=	\$16,500,000
• OSTDS Service Sectors 8	=	\$ 7,500,000
• OSTDS Service Sectors 9	=	\$ 3,750,000



LEGEND

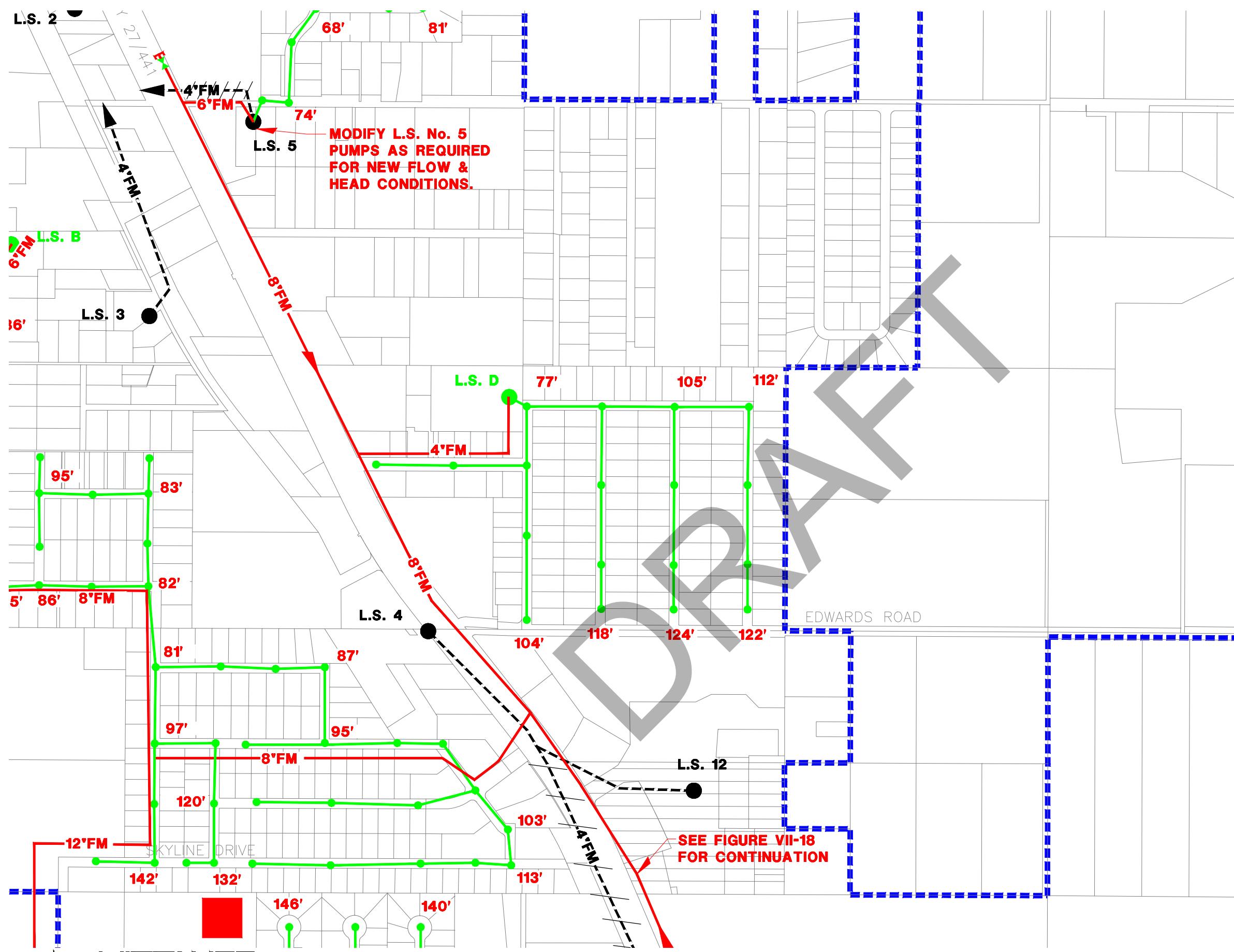
- TOWN LIMITS AREA
- 2040 PLANNING AREA
- EXISTING FM
- FM - CONCEPTUAL FM PIPING
- CONCEPTUAL GRAVITY SEWER PIPING
- XX' TOPOGRAPHIC ELEVATION

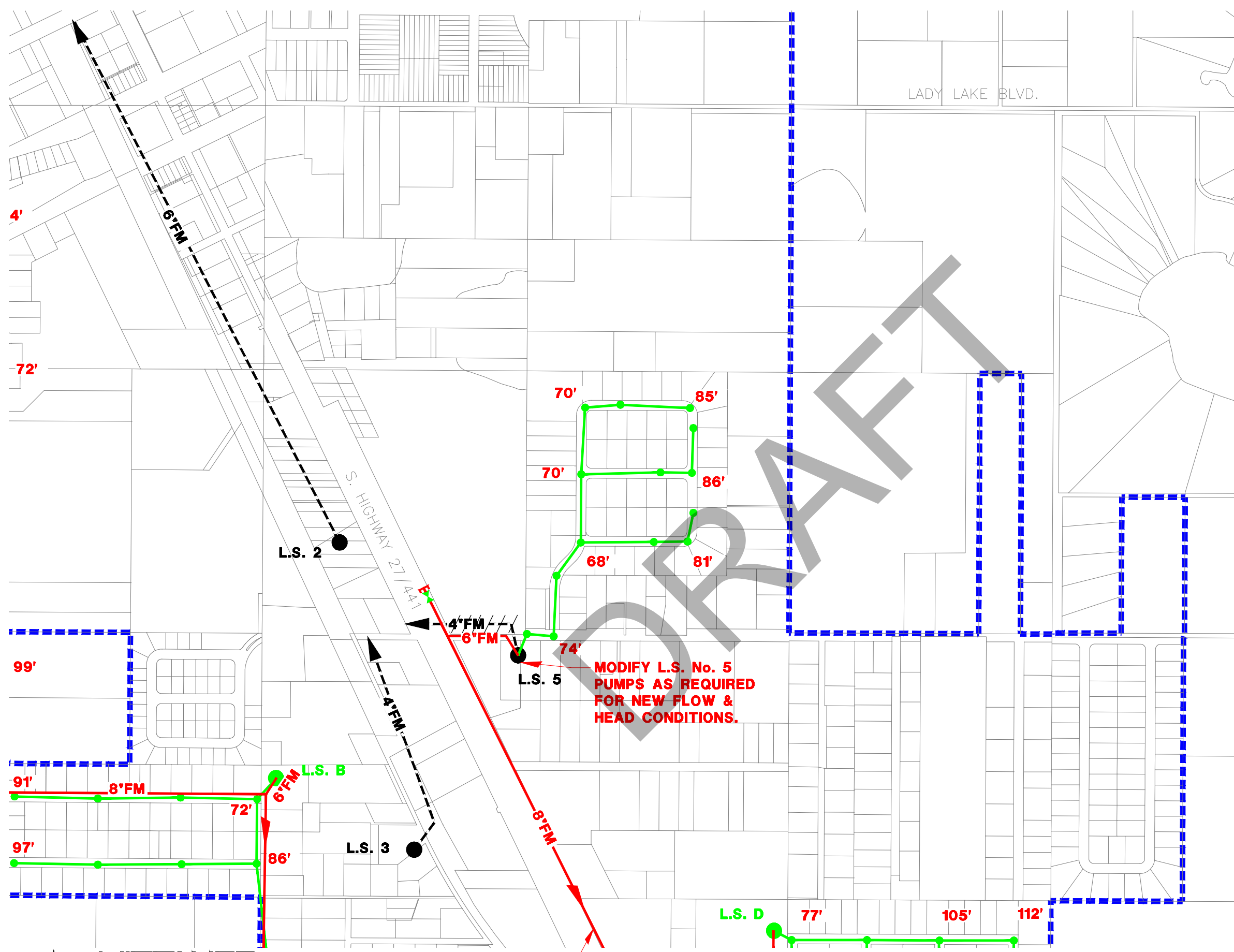




LEGEND

- TOWN LIMITS AREA
- EXISTING FM
- FM - CONCEPTUAL FM PIPING
- CONCEPTUAL GRAVITY SEWER PIPING
- XX' TOPOGRAPHIC ELEVATION

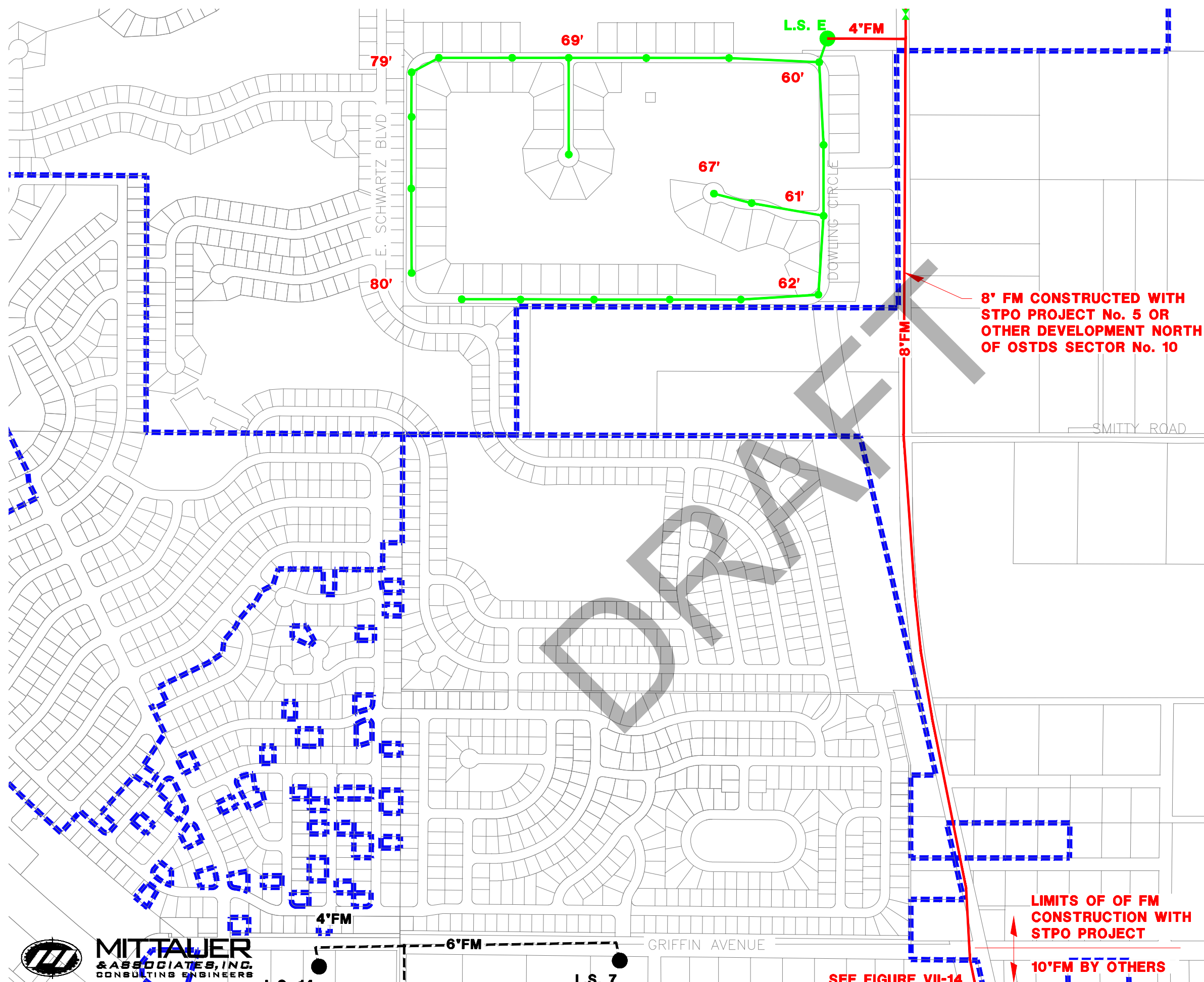




- LEGEND
- TOWN LIMITS AREA
 - EXISTING FM
 - FM - CONCEPTUAL FM PIPING
 - CONCEPTUAL GRAVITY SEWER PIPING
 - XX' TOPOGRAPHIC ELEVATION

MODIFY L.S. No. 5
PUMPS AS REQUIRED
FOR NEW FLOW &
HEAD CONDITIONS.

SEE FIGURE VII-11
FOR CONTINUATION



LEGEND

- TOWN LIMITS AREA
- EXISTING FM
- FM - CONCEPTUAL FM PIPING
- CONCEPTUAL GRAVITY SEWER PIPING
- XX' TOPOGRAPHIC ELEVATION

8' FM CONSTRUCTED WITH STPO PROJECT No. 5 OR OTHER DEVELOPMENT NORTH OF OSTDS SECTOR No. 10

LIMITS OF OF FM CONSTRUCTION WITH STPO PROJECT

10'FM BY OTHERS

SEE FIGURE VII-14 FOR CONTINUATION

- OSTDS Service Sectors 10 = \$ 3,750,000

The Town continues to pursue grant funding to extend its sewer system into existing septic areas.

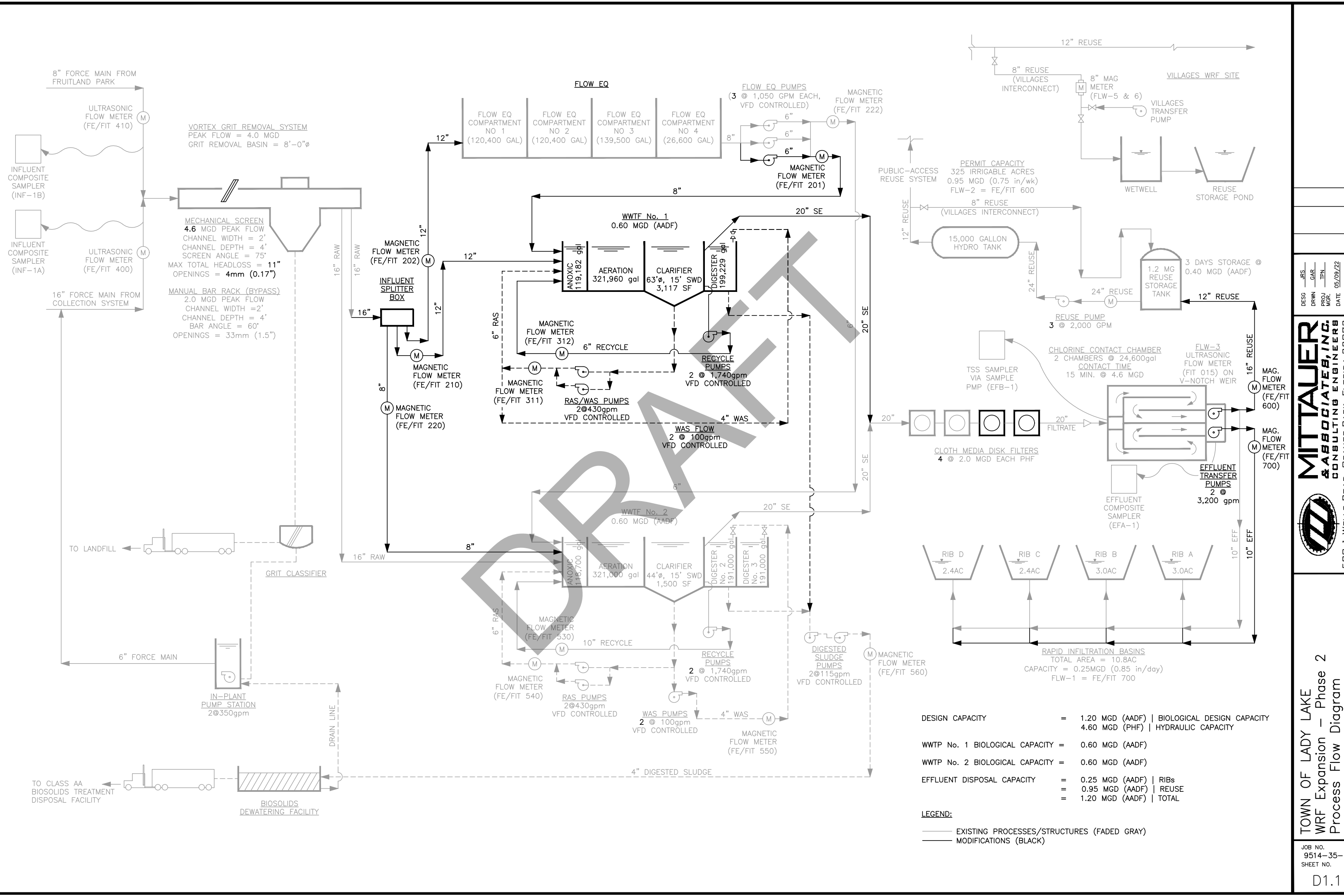
7. **Expected Upgrades to Existing OSTDS:** See item 5 above.
8. **Other Cost-Effective Projects for Nutrient Load Reduction:** None provided at this time.

DRAFT

DRAFT

APPENDIX A

WRF Process Flow Diagram



DESIGNER: JRS
DRAWN: GAR
PROJECT: TFW
DATE: 05/09/22
SCALE: 1" = 1'

REVISION DESCRIPTION
BY
DATE
NO

MITTAUER & ASSOCIATES, INC.
CONSULTING ENGINEERS
580-1 WELLS ROAD, ORANGE PARK, FLORIDA 32073
TEL: (904) 278-0030 FAX: (904) 278-0840
FLORIDA REG. NO. 6569

TOWN OF LADY LAKE
WRF Expansion – Phase 2
Process Flow Diagram
Lake County, Florida

JOB NO.
9514-35-2
SHEET NO.
D1.1

DRAFT

APPENDIX B

WRF Site Plan

