



January 31, 2024

Moira Homann
Watershed Planning and Coordination Section, Florida Department of Environmental Protection
2600 Blair Stone Road, MS 3565
Tallahassee, Florida 32399-2400

Subject: City of Oviedo Wastewater Treatment Plan and OSTDS Remediation Plan

Dear Ms. Homann:

On behalf of the City of Oviedo (Oviedo), Carollo Engineers, Inc. (Carollo) is pleased to submit a Wastewater Treatment Plan and an Onsite Sewage Treatment and Disposal System (OSTDS) Remediation Plan in accordance with subparagraph 403.067(7)(a)9., Florida Statutes.

In 2006, the Florida Department of Environmental Protection (FDEP) established a total maximum daily load (TMDL) for Lake Jesup (23-0118, WBID 2981) for total nitrogen (TN) and total phosphorus (TP). In 2010, the Lake Jesup Basin Management Action Plan (BMAP) implemented the TMDL for TP but did not include the TMDL for TN due to a lack of information at the time. Following additional data gathering and sampling, the amended 2018 Lake Jesup BMAP included TMDL requirements for TN. The Lake Jesup BMAP includes nutrient reduction requirements for entities within the Lake Jesup BMAP boundaries, including Oviedo. The plans contained herein were developed because FDEP determined that domestic wastewater treatment facilities and/or OSTDS sources within the Lake Jesup BMAP boundaries contribute to nutrient pollution by at least 20 percent and/or remediation of these sources is necessary to achieve the BMAP for a nutrient TMDL.

Table 1 shows the TN and TP loads and required reductions for Oviedo as defined in the 2018 Lake Jesup BMAP. Oviedo is implementing several projects that help achieve the pollutant load reductions needed to meet the TMDLs for Lake Jesup.

Table 1 Oviedo Nutrient Loads and Reduction Requirements per the 2018 Lake Jesup Basin Management Action Plan

Nutrient	Load (lbs/yr)	Required Reduction (lbs/yr)
TN	23,309	4,705
TP	1,866	1,035

As shown in Figure 1, the northwest half of Oviedo is within the Lake Jesup BMAP boundary. Oviedo owns and operates the Oviedo Water Reclamation Facility (OWRF), which provides public access reuse (PAR) water to customers for irrigation and uses rapid infiltration basins (RIBs) for groundwater recharge. The half of Oviedo within the Lake Jesup BMAP boundary includes the majority of properties served by OSTDS, while the half of Oviedo that is not within the Lake Jesup BMAP boundary includes the majority of properties served PAR water as shown in Figure 1. Meanwhile, the RIBs are half within and half outside of the Lake Jesup BMAP boundary.

Figure 1 Oviedo Water Reclamation Facility and Onsite Sewage Treatment and Disposal Systems

Wastewater Treatment Plan

Requirement #1: The facility's permitted capacity in average annual gallons per day.

OWRF is permitted by FDEP permit number FLA011074 to treat 2.4 million gallons per day (mgd) annual average daily flow (AADF) for use at the following reuse system locations:

- R-001: A 0.995 mgd AADF RIB system consisting of nine basins with a total wetted area of 19 acres.
- R-002: A 2.096 mgd AADF PAR system, which includes residential irrigation and irrigation of the 114-acre Twin Rivers Golf Course.

This permit expires on November 8, 2024.

Requirement #2: The facility's permitted TN and TP effluent limits for the facility.

Per OWRF's permit, sampling for TN and TP are not required at the RIB reuse system, R-001. Only sampling for total nitrate-nitrogen is required at the RIB reuse system and has a 12.0 mg/L maximum limit for any single sample. TN and TP are required to be monitored at the PAR reuse system, R-002, but no concentration limits are imposed for either parameter. Table 2 shows the monitoring requirements for R-001 and R-002 as listed in the permit.

Table 2 Oviedo Water Reclamation Facility Effluent Limits

Location: Parameter	Units	Max/Min	Annual Average	Monthly Average	Weekly Average	Single Sample
R-001: Total Nitrate-Nitrogen	mg/L	Max	-	-	-	12.0
R-002: TN	mg/L	Max	Report	Report	-	-
R-002: TP	mg/L	Max	Report	Report	-	-

Requirement #3: The annual TN and TP loads (showing both flow and concentrations) discharged from the facility over the past five years, estimated if necessary.

Table 3 shows estimated historical annual TN and TP loads, flows, and concentrations, collected over the past five years (2018 to 2022) for the RIB (R-001) and the PAR systems (R-002). TN and TP samples are collected weekly at a location prior to the flow split between reuse systems, so the TN and TP concentrations are the same for both systems. TN and TP loads were estimated from the flow to each system and the average of weekly concentrations as reported in daily discharge monitoring report data (Part B).

Table 3 Oviedo Water Reclamation Facility Historical Annual Discharge Flows and Total Nitrogen and Total Phosphorus Concentrations and Loads

Year	RIB Flow, R-001 (MG/yr)	PAR Flow, R-002 (MG/yr)	Average TN (mg/L)	RIB TN, R-001 (lbs/yr)	PAR TN, R-002 (lbs/yr)	Average TP (mg/L)	RIB TP, R-001 (lbs/yr)	PAR TP, R-002 (lbs/yr)
2018	285	286	10.3	26,237	22,966	4.3	10,440	10,040
2019	94	426	15.3	7,589	60,888	2.8	2,619	9,522

Year	RIB Flow, R-001 (MG/yr)	PAR Flow, R-002 (MG/yr)	Average TN (mg/L)	RIB TN, R-001 (lbs/yr)	PAR TN, R-002 (lbs/yr)	Average TP (mg/L)	RIB TP, R-001 (lbs/yr)	PAR TP, R-002 (lbs/yr)
2020	75	524	28.5	16,691	125,721 ⁽¹⁾	2.3	1,389	9,928
2021	42	506	21.6	7,651	91,666	1.7	647	6,733
2022	41	553	18.3	6,151	84,723	1.2	384	5,521

Notes:

(1) Operational changes were made and the aeration diffusers were cleaned to reduce the increased TN load.

[Requirement #4: A capacity analysis for the facility, considering future growth over the next 20 years.](#)

Table 4 shows wastewater flow projections for OWRF, considering population growth in Oviedo over the next 20 years. Wastewater flow projections are based on historical facility flow information and population projections from Oviedo's 2045 Comprehensive Plan, adopted June 20, 2022. Estimated future wastewater flows exclude wastewater collected within Oviedo that goes to the City of Orlando Iron Bridge facility. Also, the future population used to derive future flows to OWRF does not include people in Oviedo on septic systems.

Table 4 [Projected Population and Oviedo Water Reclamation Facility Flow](#)

Year	Oviedo Population Projection	OWRF Flow Projection (mgd AADF)
2025	42,169	1.8
2030	44,540	2.1
2035	48,042	2.2
2040	51,204	2.4
2045	54,077	2.6

[Requirement #5: A list and ranking of facility construction, expansion, or upgrades necessary to meet applicable nutrient water quality requirements \(for example, 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.](#)

The OWRF is not restricted by any BMAP requirements through its operational permit. TN and TP are monitored, but no restrictions are imposed on their limitations. The facility currently has no applicable nutrient water quality requirements that would need to be met via expansion, upgrade, or construction to the facility. However, Oviedo plans to stop using the RIB system (R-001) by 2034, when the lease for the land expires. Oviedo is working with Seminole County to amend an existing agreement that allows for Oviedo to send OWRF effluent to Iron Bridge WRF via Seminole County to make up for discontinued use of the RIB reuse system (R-001).

Requirement #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.

Oviedo has several construction projects planned to improve the OWRF operations. Table 5 lists planned construction projects to improve the OWRF operations as well as the estimated year by which improve facility operations will begin based on Oviedo's utility capital improvements plan (CIP).

Table 5 **Oviedo Water Reclamation Facility Planned Construction Projects**

Major Capital Project Name	Estimated Completion Year
2.0 MG Reclaimed Storage Tank Improvements	2024
Lift Station #7 Relocation Design	2024
Long Acres Force Main Improvements	2024
Oviedo Blvd Reclaimed Water Extension	2024
OWRF Chlorine Contact Rehab	2024
OWRF Disk Filters Evaluation	2024
OWRF Reject Pump Station and Force Main Design	2024
OWRF Screw Press Pump Replacement	2024
Reclaimed ACV & Lift Station #23	2024
Live Oak Reserve Force Main Replacement	2025
Lockwood Lift Station Force Main Improvements	2025
Lockwood Master Lift Station Phase 2	2026
OWRF Clarifier Drive Replacement	2026
OWRF Treatment Trains Improvement	2026
Convert Golf Course Stormwater Lake 5 To Reclaimed Pond	2028

OSTDS Remediation Plan

Requirement #1: An inventory of the OSTDS (including locational 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 or service area based on the best information available.

An inventory of parcels with OSTDS is provided as a shapefile named "OviedoParcels_OSTDSInventory" and includes an estimated 2,893 parcels with existing OSTDS. These parcels were primarily derived from parcel and septic building layers provided by the Oviedo Geographic Information Systems (GIS) Services department.

Requirement #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 latitude and longitude).

The estimated growth in OSTDS is provided as a parcel shapefile named "OviedoParcels_EstOSTDSGrowth" and includes an estimated 171 parcels of future growth in new OSTDS over the next 20 years. This estimated growth was derived from Central Florida Water Initiative (CFWI) growth projections; Oviedo future land use, septic buildings, sewer customers, and planned development information; parcel size/description information; and proximity to existing sewer. Judgement based on aerial imagery was also used to eliminate some parcels where septic was not expected.

Requirement #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 address and/or latitude and longitude).

Currently, Oviedo does not have any plans to connect septic users to sewer. However, Oviedo is in the process of completing a septic to sewer feasibility study. In addition, Oviedo is considering developing an Ordinance relating to the proper maintenance, pumping, and care of OSTDSs located within the City of Oviedo.

Requirement #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 address and/or latitude and longitude).

No new sewer lines/extensions are planned at this time.

Requirement #5: The estimated costs associated with the projects in #4 above.

No new sewer lines/extensions are planned at this time.

Requirement #6: For OSTDS that are not expected to be eliminated over the next 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 locational 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.

The Lake Jesup BMAP does not provide load reduction requirements specifically for OSTDS in Oviedo, but rather overall required load reductions (Table 1). OSTDS that must be enhanced for Oviedo to meet water quality objectives depends on the remaining load reductions required after other Oviedo projects are implemented.



Florida Statute defines an enhanced nutrient-reducing OSTDS as a system approved by FDEP and capable of meeting or exceeding a 50 percent TN reduction before disposal of wastewater in the drainfield, or at least 65 percent TN reduction combined from the onsite sewage tank or tanks and drainfield. The nutrient load reduction for a single enhanced OSTDS can be calculated using several factors including persons per household, TN per person, attenuation, and TN leached. The following values were used to calculate the TN reduction from an enhanced OSTDS achieving 65 percent nutrient removal in accordance with FDEP guidelines¹:

- Persons per household: 3.14.
- TN per person: 9.012 lbs/yr.
- TN input from a conventional OSTDS: 28.3 lbs/yr.
- Attenuation for a conventional system: 50 percent; 50 percent leached.
- TN removed by an enhanced system: 65 percent; 35 percent leached.
- TN removed by soil treatment below drainfield: 20 percent; 80 percent leached.

Using these values for Oviedo, it is estimated that converting a single conventional OSTDS to an enhanced OSTDS will result in TN reductions of about 6.2 lbs/yr per system. Enhanced nutrient-reducing OSTDS are not expected to affect TP loads.

Requirement #7: The estimated costs associated with upgrading to enhanced nutrient-reducing OSTDS that are identified in #6.

There are many enhanced nitrogen-reducing OSTDS options and technologies with varying capacities and removal rates that are available on the market. Carollo contacted several vendors of these technologies to help prepare a cost comparison of the different options. Cost estimates were developed from estimates provided by aerobic treatment unit (ATU) vendors and OnSyte – a vendor of distributed wastewater treatment systems (DWTS). Based on this information, it is estimated that it would cost about \$30,000 to replace a conventional OSTDS with an enhanced, nutrient-reducing system that achieves at least 65 percent TN reduction.

¹ <https://floridadep.gov/sites/default/files/Spring%20Guidance%20Document%202017.pdf>



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

The Lake Jesup BMAP includes a list of Oviedo projects that help achieve the pollutant load reductions needed to meet the TMDL. However, the latest projects for Oviedo are in the FDEP Statewide Annual Report (STAR). Table 6 shows Oviedo projects listed in the 2022 FDEP STAR, with updates to these projects as well as an additional project for the Septic Tank Ordinance that is under consideration. The total nutrient reduction achieved by Oviedo's projects as listed in Table 6 are between 2,404.5 and 2,804.5 lbs/yr of TN and between 408.3 and 458.3 lbs/yr of TP. However, not all Oviedo projects listed include nutrient load reduction estimates, so the nutrient reduction load achieved by Oviedo projects may be greater than these totals.

Table 6 **Oviedo Projects**

Project Number	Project Type Category	Project Name	Project Type	Project Status	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)
OV-01	Stormwater	Aulin Regional Stormwater Pond	Wet Detention Pond	Completed	2	0
OV-03	Stormwater	Sweetwater Creek Project	Dry Detention Pond	Completed	87	19
OV-04	Load Tracking	Solary Canal Stormwater Treatment Area - missing from model	BMP Missing from Model	Completed	730	230
OV-05	Stormwater	Street Sweeping	Street Sweeping	Ongoing	244	152
OV-06	Stormwater	Enhanced Public Education	Education Efforts	Ongoing	1,399	112
OV-08 ⁽¹⁾	Stormwater	Inlets and Pipe Cleaning	BMP Cleanout	Ongoing	0	0
OV-09	Stormwater	Aulin Avenue North	Bioswales	Planned	3	0
OV-10	Stormwater	Oviedo Regional Pond/Solary Wetland Park	Regional Stormwater Treatment	Completed	192	35
OV-11	Load Tracking	Credits for Missing BMPs	BMP Missing from Model	Completed	454	27
OV-12	Stormwater	Artesia Street BMP	Baffle Boxes-Second Generation	Planned	10	4
OV-13	Stormwater	Phosphorus Removal Project(s)	Stormwater System Upgrade	Canceled	0	0
OV-14	Stormwater	Pollutant Prevention Baskets in Inlets (23 Total)	Catch Basin Inserts/Inlet Filter Cleanout	Ongoing	30	6.4

Project Number	Project Type Category	Project Name	Project Type	Project Status	TN Reduction (lbs/yr)	TP Reduction (lbs/yr)
OV-15	Stormwater	Allendale Drive Outfall Improvement	Stormwater System Upgrade	Planned	6.0	1.2
OV-16	Stormwater	High Street/Wood Street BMP	Stormwater System Upgrade	Planned	4.1	1.2
OV-17	Stormwater	Lake Charm Baffle Box	Baffle Boxes- Second Generation with Media	Planned	55	4.9
OV-18	Stormwater	Magnolia Street BMP	Catch Basin Inserts/Inlet Filter Cleanout	Planned	4.1	1.2
OV-19	Stormwater	Mead Manor Storm System Upgrade	Stormwater System Upgrade	Planned	100-300	50-75
OV-20	Stormwater	Shady Lane BMP	BMP Cleanout	Planned	2.9	0.6
OV-21	Stormwater	St Johanna Drive BMP Install	Catch Basin Inserts/Inlet Filter Cleanout	Ongoing	1.3	0.3
OV-22	Stormwater	Sweetwater Creek Restoration BMP	Shoreline Stabilization	Planned	100-300	50-75
OV-23	Stormwater	Vine Street BMP	Catch Basin Inserts/Inlet Filter Cleanout	Planned	3.1	0.9
-	Septic Systems	Septic Tank Ordinance	Septic System BMP	Planned	TBD	TBD

Notes:

(1) Included in the yearly reductions associated with street sweeping.

Moira Homann

Watershed Planning and Coordination Section, Florida Department of Environmental Protection

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The draft Wastewater Treatment Plan and OSTDS Remediation Plan included herein are provided to FDEP to satisfy the requirements of the Final Order issued on June 12, 2023 in accordance with subparagraph 403.067(7)(a)9., Florida Statutes.

We look forward to receiving feedback on these draft plans.

Sincerely,
CAROLLO ENGINEERS, INC.

A handwritten signature in blue ink, appearing to read 'Victoria Steinnecker', with a stylized flourish at the end.

Victoria Steinnecker
Project Manager

VS:sw

Enclosures: Shapefile for OSTDS Inventory: OviedoParcels_OSTDSInventory
Shapefile for OSTDS Growth: OviedoParcels_EstOSTDSGrowth

cc: Bobby Wyatt, City of Oviedo (via email)
Alexis Stewart, City of Oviedo (via email)
Paul Yeargain, City of Oviedo (via email)

