PRELIMINARY ENGINEERING REPORT

NORTHEAST DISTRICT (NED) PHASE II WASTEWATER COLLECTION SYSTEM AND PUMP STATION RECONSTRUCTION

PREPARED FOR
STEUBEN LAKES REGIONAL WASTE DISTRICT
STEUBEN COUNTY, INDIANA

April 2021

PREPARED BY:

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1. PROJECT LOCATION & INTRODUCTION

The information presented within this report will provide the basis of design for the wastewater collection and treatment system within the considered study area. Ultimately, the accumulated data, the analysis of that data, and the resultant recommended plan will serve to guide the Steuben Lakes Regional Waste District (District) in the consideration of constructing a new wastewater collection system for the considered service areas.

The project area is located in Steuben County, Indiana. The proposed project area includes the northern and eastern portions of Snow Lake, Pokagon State Park, and the northern portion of Big Otter Lake. Figure 1 provides overview of the project service area(s). The project shall also consider upgrades to the remaining of the existing pump stations not upgraded as a part of the NED Phase I project. There are many that are in poor condition and the useful life of large volume pump stations tend to be 20 years or less.

The project is mostly located in Sections 7, 18, 20, 21, 22, 27, 28, 29, 30, 32, 33, and 34, Township 38 North, Range 13 East, Jamestown Township, Steuben County, Indiana, Angola-West USGS Quadrangle, Sections 3, 4, 5, 6, 8, 9, 16, 17 and 18 Township 37 North, Range 13 East, Pleasant Township, Steuben County, Indiana, Sections 12, 29 and 35 Township 38 North, Range 12 East, Millgrove Township, Steuben County, Indiana and Sections 2, 5, 20 and 29 Township 37 North, Range 12 East, Jackson Township, Steuben County, Indiana.

The proposed project will be broken into the following projects as noted below::

NED Phase 2

- A new pressure sewer system to replace the old pressure sewer system that is currently connected to the Fremont wastewater system around the northern and eastern portions of Snow Lake and the northern portion of Big Otter Lake.
- A new pressure sewer system to serve the existing customers served by the Bearman and Antrup absorption filed systems
- A new pressure sewer system to serve approximately 100 new customers within the District's service area in and around the NED Phase 2 area.
- A new force main to transport the existing wastewater in Pokagon State Park that will generally travel up through the park, past the existing park wastewater treatment facility, and tie in to the proposed pressure sewer at Ln 890 Snow Lake.
- Decommissioning of the existing Pokagon State Park wastewater collection system and wastewater treatment plant
- Decomissioning of the existing Antrup and Bearman absorption fields currently owned and operated by the Distrct.
- Decommissioning of Pump Station 22 and replacement in the Antrup absorption field.
- A new sanitary transmission force main to transport wastewater from the new Pump Station 22 to the existing Pump Station 10. In general, the force main will travel north on State Rd 120, west on State Rd 120, and south on County Rd 300 W where it will terminate into Pump Station 22.
- Upgrades to existing Pump Stations 1, 2, 9 and 10.
- Pump Station Replacements Phase I – Pump Stations 4, 6, 8, 11, 12, 13, 14, 16, 19 and 23
- Pump Station Replacements Phase II – Pump Stations 3, 7, 15, 17, 18, 20, 21, 24, 25, 26, and 27

The proposed wastewater collection system will be mainly constructed within the existing county and/or State rights-of-way. There are segments of the collection system in Pokagon State Park and near Ln 890 Snow Lake which may require easement(s) through existing undeveloped areas. The District will need to acquire easements for these segments of the collection system.
Pump Station replacements will also require some additional easement or land acquisition to provide adequate space for pump station replacements and upgrades. Blanket easements will also be required for the installation of the grinder pump units on individual lots, where applicable.

The majority of the collection system is planned to be constructed utilitizing horizontal drilling. There may be few small segments that may be constructed via open excavation.

The District currently owns the Bearman and Antrup absorption field sites, and will be installing the replacement for Pump Station 22 on the Bearman site.

Alternatives for wastewater service will be evaluated as to feasibility of construction, financial considerations, and long-term service.

2. CURRENT SITUATION

As discussed in the previous section, the purpose of the report is to consider providing wastewater service for the below service areas, and the upgrade of the existing pump stations that have been in service now for 16 years.

- Northern Big Otter Lake
- Northern and Eastern Snow Lake
- Pokagon State Park

2.1 EXISTING WASTEWATER FACILITIES – STEUBEN LAKES REGIONAL WASTE DISTRICT WASTEWATER TREATMENT PLANT

The Steuben Lakes Regional Waste District wastewater treatment plant was originally constructed in 2003, became operational in 2005, and is located at 8119 W 150 N, Angola, IN 46703. The WWTP is a Class III facility with an average design rated capacity of 1.0 MGD and a maximum capacity of 2.3 MGD. The WWTP consists of the following:

- Three (3) Sequencing Batch Reactors (SBRs)
- Sludge Holding Tanks
- Biosolids pH Adjustment Tanks
- Belt Filter Press Sludge Dewatering
- Sludge Storage Pad
- Cloth Disc Filtration System
- Ultraviolet Light Effluent Disinfection System
- Cascade Post-Aeration
- Effluent Flow Meter

Influent wastewater is pumped from the collection system directly into the SBRs. Plant effluent is discharged under NPDES permit No. IN0061557 to Pigeon Creek located to the south of the plant, at an outfall located at Latitude 41° 39’ 09” N, Longitude 85° 08’ 41” W.

According to the latest and applicable NPDES permit, the following are the current effluent limits for the facility.

TABLE 1 – Existing Facility Effluent Permit Limits – SLRWD WWTP

	Summer		Winter	
Parameter	**Monthly Avg (mg/L)**	**Weekly Avg (mg/L)**	**Monthly Avg (mg/L)**	**Weekly Avg (mg/L)**
CBOD	5	7.5	15	22.5
TSS	5	7.5	15	22.5
Phosphorus	1 mg/L WQ Rule 327 IAC 5-10-2(b)			
pH	6.0 min to 9.0 max			
Dissolved Oxygen	6.5 Daily Minimum		7.0 Daily Minimum	
E. Coli	125 count/100 mL monthly, 235 count/100 mL daily max			
Ammonia-Nitrogen	**Monthly Avg (mg/L)**	**Daily Maximum (mg/L)**	**Monthly Avg (mg/L)**	**Daily Maximum (mg/L)**
	0.78	1.8	0.83	1.9

A review of the Monthly Reports of Operation (MROs) for 2020 shows that the facility averages 0.422 MGD.

The table below provides an average of influent and effluent concentrations and loadings for the three primary wastewater constituents for 2020.

TABLE 2 – Existing Wastewater Parameters – SLRWD WWTP

EXISTING WASTEWATER PARAMETERS															
Influent Loading								Effluent Loading							
CBOD		TSS		Ammonia		Phosp		CBOD		TSS		Ammonia		Phosp	
mg/L	lbs.	mg/L	lbs.	mg/L	lbs.	mg/L	lbs.	mg/L	lbs.	mg/L	lbs.	mg/L	lbs.	mg/L	lbs.
193	502	355.17	876.51	42.45	124.8	8.98	23.0	2.59	9.44	3.81	14.96	0.15	0.55	0.44	0.65

Based on review of records (for 2020) available through the Indiana Department of Environment (IDEM) Virtual File Cabinet online database, the facility does not appear to have any violations as it relates to effluent water quality.

2.2 EXISTING WASTEWATER FACILITIES – STEUBEN LAKES REGIONAL WASTE DISTRICT CLUSTER SYSTEMS

Presently, wastewater generated on properties within the study area is handled in one of four general methods. These methods are on-site private septic systems, existing pressure sewer system connected to the Town of Fremont's system, cluster STEP (Septic Tank/Effluent Pump) systems connected to the Bearman and Antrup absorption fields, extended aeration wastewater treatment plant (at Pokagon State Park)

Septic systems and absorption fields can cause groundwater contamination and many of the existing systems are in failing state.

The Antrup Field is located along State Road 120 south of Lane 800 Snow Lake on a 7-acre parcel owned by the District. It serves the area known as Hickory Island. It was sized for 40 customers or 6,000 gallons per day (gpd). This field is around 30 years old and was constructed in the mid to late 1980's. The number of connections to this system exceed its designed and permitted capacity by 13. Historical data indicates that this system typically operates at around 97% of its design capacity, and it does experience flow spikes (typically during summer months or near holidays) that exceed its design capacity. For the last 15-16 months, it has been operating consistently above its design capacity.

The Bearman Field is located along N 175 W Road, north of W 610 N Road on a 2.75 acre parcel owned by the District. It serves the areas of Snow Lake Park, Black Oak Grove and Silver Springs. It was sized for 40 customers or 6,000 gpd. Similarly to Antrup, this field is around 30 years old. Currently, there are 10 more homes connected to this system than it was designed and permitted for. Historical data indicates that this system typically operates at around 85% of its design capacity, and it does experience spikes typically during summer months or near holidays that exceed its design capacity.

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These cluster systems were constructed in the mid-eighties and are constructed on sites that have soil properties that are either very limited with respect to septic field capability according to USDA. The table below shows the number of connections to the respective systems/fields.

Table 3 - Existing SLRWD Owned Cluster Systems

Cluster System/Field	Homes Connected	Homes Not Connected
Antrup	53	0
Bearman	50	36

2.3 EXISTING WASTEWATER FACILITIES – POKAGON STATE PARK

Pokagon State Park owns and operates an extended aeration treatment plant, which is located in the northwest section of the park. The plant was constructed in 1975 and designed for 80,000 gallons per day. In 1994, the plant was downsized to 64,500 gallons per day due to a reduction in camp sites. The Indiana Department of Natural Resources (IDNR) staff manages the site. The park has a 128 room inn, office buildings, a manager's residence, group camp area, the Nature Center, the Warming Hut and 273 unsewered camp sites served by dump stations and campground bathroom/shower facilities.

According to the NPDES Permit No. IN0030309, The Pokagon State Park Wastewater Treatment Plant is a minor state-owned facility. The facility is a Class I, 0.0645 MGD extended aeration facility. The facility consists of the following:

- Pump Station
- Macerator
- Equalization Basin
- Two (2) Aeration Tanks
- Two (2) Secondary Clarifiers
- Sludge Holding Tank
- Phosphorus Removal
- Tertiary Clarifier
- UV Light Disinfection
- Post Aeration
- Effluent Flow Meter

Influent sewage enters the plant at the Headworks Building and runs through the macerator and manual screen. The EQ Basin stores any additional flow, while the effluent flow continues through the Secondary Clarifiers before reaching the UV Disinfection and Post Aeration Tanks then into Snow Lake.

The facility discharges under the permit from Outfall 001, located at Latitude 41° 43' 9.8" N, Longitude 85° 02' 1.3" W. The facility discharges from the above outfalls into Snow Lake to Crooked Creek.

The table below shows the effluent limitations and loading requirements obtained from the most recent NPDES Permit.

TABLE 4 – Existing Wastewater Limits – PSP

Parameter	Monthly Avg (mg/L)	Weekly Avg (mg/L)	Monthly Avg (lbs/day)	Weekly Avg (lbs/day)
CBOD	10	15	5.4	8.1
TSS	12	18	6.5	9.7
Phosphorus	1 mg/L WQ Rule 327 IAC 5-10-2(b)			
pH	6.0 min to 9.0 max			
Dissolved Oxygen	6.0 Daily Minimum			
E. Coli	125 count/100 mL monthly, 235 count/100 mL daily max			
Ammonia-Nitrogen	**Monthly Avg (mg/L)**	**Daily Maximum (mg/L)**	**Monthly Avg (lbs/day)**	**Daily Maximum (lbs/day)**
Summer	1.1	2.9	0.59	1.56
Winter	1.3	3.1	0.7	1.67

In reference to the NPDES reports from the IDEM VFC, the table below shows the calculated influent and effluent concentrations and loadings for 2020.

A review of the MROs for 2020 shows that the facility averages 0.0234 MGD.

TABLE 5 – Existing Wastewater Parameters – PSP

EXISTING WASTEWATER PARAMETERS															
Influent Loading								Effluent Loading							
CBOD		TSS		Ammonia		Phosp		CBOD		TSS		Ammonia		Phosp	
mg/L	lbs.	mg/L	lbs.	mg/L	lbs.	mg/L	lbs.	mg/L	lbs.	mg/L	lbs.	mg/L	lbs.	mg/L	lbs.
193.6	32.7	141.5	24.6	43.7	7.0	3.75	0.8	1.63	0.26	3.28	0.56	0.323	0.048	0.59	0.06

2.4 EXISTING WASTEWATER FACILITIES – CURRENT FLOWS

The table below presents the current estimated wastewater flows for the considered project service area. The table also presents the anticipated Residential Equivalent Unit (REU) chart for residential and businesses as well as anticipated connection counts for the service areas.

TABLE 6 – Existing Wastewater Flows and EDUs

Wastewater Flow Estimates						
Connection	**# of Units**		**Flow Factor (gpd/unit)**	**REUs (1)**	**Total (gpd) (2)**	**Peak (gpd) (3)**
Project Area	**Count**	**Unit**				
Homes	437	Homes	208	437	90,896	363,584
Pokagon State Park	-	-	-	170.5	35,460	141,840
Ross Brothers Appliance Service	2	Employees	20	1	208	832
Crager's Industrial Coatings	2	Employees	20	1	208	832
Patti Couperthwaite Coldwell Banker	2	Employees	20	1	208	832
Laralyn Castle	3	Employees	20	1	208	832
Through the Years Antiques	4	Employees	20	1	208	832
The Hang Out Bar & Grill on Snow Lake	80	Seats	35	13.3	2,773	11,093
Total - rounded to nearest 100				**600**	**130,200**	**520,700**

(1) REU Calculation: (# of Units*Flow Factor)/208 gpd
(2) Total gpd: (REUs*208 gpd)
(3) Peak gpd: (Total gpd*4)

There are currently 103 properties within the study area that are connected to the Antrup and Bearman absorption field systems.

Based on the past history for the District, with multiple service areas within the District's existing jurisdiction, an average daily flow (ADF) of 208 gallons per day (GDP) per single family residential dwelling was used as a flow factor for residential wastewater flow. Commercial/Industrial flow factors were based on standard flow factor rates, employee counts, seat counts, and flow from water billing records, where applicable.

The table below shows the design treatment plant flows in million gallons per day (MGD) for both Steuben Lakes Regional Waste District and Pokagon State Park. This information was obtained from construction permits located on the IDEM VFC. Neither facility has any reported capacity issues.

TABLE 7 – Treatment Plant Design Capacity – SLRWD & PSP

DESIGN TREATMENT PLANT FLOWS (MGD)			
SLRWD		**Pokagon State Park**	
Domestic (D)	0.97	Domestic (D)	0.064
Industrial/Commercial (C)	0.03	Industrial/Commercial (C)	
Infiltration/Inflow (I)	0	Infiltration/Inflow (I)	
Average Design Flow	1	Average Design Flow	0.064
Average Design Peak Flow	2.3	Average Design Peak Flow	0.129
Maximum Plant Flow Capacity	2.3	Maximum Plant Flow Capacity	0.160

2.5 **EXISTING PUMP STATION CONDITIONS**

There are thirty (30) pump stations owned and operated by the SLRWD in the District service area. Apart from the few pump stations replaced as a part of the NED Phase I project in 2019, they were built between 2005-2008, meaning the equipment inside is reaching the end of its useful life. Another problem that the District has discovered is that the wet wells are aging prematurely due to high levels of hydrogen sulfide gasses, even with the use of chemical to reduce the hydrogen sulfide gas. The The District has recently started monitoring hydrogen sulfide gas levels in the pumps stations in an effort to better manage there chemical usage to identify the problem areas. The results of there initial tests can be found in Appendix M. The overall condition of the pump stations ranges from adequate to poor. There are instances of pipe corrosion and hydrogen sulfide problems in several of the wet wells. In 2020, the District needed to perform an emergency repair on the piping at Pump Station 1 (one of the largest pump stations in the District). It was discovered the top half of the influent ductile iron formce main had developed a leak due to corrosion of the pipe from the inside. During the emergency repair, it was discovered that the ductile iron pipe outside of the wet well was also severely corroded, but the pipe had not yet failed. Table 8 shows a list of the District's pump stations, their capacity, and current condition.

TABLE 8 – Existing Pump Station Conditions

Pump Station No.	No. of Pumps	Pump Capacity (GPM)	Average Flow (GPD)	Peak Day (GPD)	Average Runtime (HR/DAY)	Peak Day Runtime (HR/DAY)	Pump Condition
1	Duplex	1,322	494,970	1,535,583	6.2	19.36	Needs Replaced
2	Duplex	1,567	372,540	1,199,495	4.0	12.76	Needs Replaced
3	Duplex	404	78,330	295,146	3.2	12.18	Needs Replaced
4	Duplex	150	34,860	138,573	3.9	15.40	Needs Replaced
5	Duplex	253	148,260	528,739	9.8	34.83	Excellent
6	Duplex	710	390,390	1,249,527	9.2	29.33	Needs Replaced
7	Duplex	225	54,180	209,622	4.0	15.53	Needs Replaced
8	Duplex	128	6,090	25,941	0.8	3.38	Needs Replaced
9	Duplex	575	249,480	842,687	7.2	24.43	Needs Replaced
10	Duplex	832	191,940	667,048	3.8	13.36	Needs Replaced
11	Duplex	118	33,180	132,257	4.7	18.68	Needs Replaced
12	Duplex	180	36,960	146,433	3.4	13.56	Needs Replaced
13	Duplex	1,787	490,770	1,524,307	4.6	14.22	Needs Replaced
14	Duplex	881	434,910	1,372,708	8.2	25.97	Needs Replaced
15	Duplex	269	63,840	244,216	4.0	15.13	Needs Replaced
16	Duplex	93	14,280	59,189	2.6	10.61	Needs Replaced
17	Duplex	154	8,190	34,597	0.9	3.74	Needs Replaced
18	Duplex	120	17,850	73,322	2.5	10.18	Needs Replaced
19	Duplex	157	45,990	179,833	4.9	19.09	Needs Replaced
20	Duplex	115	9,030	38,031	1.3	5.51	Needs Replaced

21	Duplex	243	31,710	126,710	2.2	8.69	Needs Replaced
22	Duplex	-	-	-	-	-	-
23	Duplex	368	47,460	185,213	2.1	8.39	Needs Replaced
24	Duplex	353	453,663	1,423,952	21.4	67.23	Needs Replaced
25	Duplex	360	100,233	370,267	4.6	17.14	Needs Replaced
26	Duplex	235	80,703	303,388	5.7	21.52	Needs Replaced
27	Duplex	478	353,430	1,145,494	12.3	39.94	Needs Replaced
28	Duplex	250	95,970	355,805	6.4	23.72	Excellent
29	Duplex	100	24,990	101,088	4.2	16.85	Excellent
30	Duplex	175	58,800	226,236	5.6	21.55	Excellent

Aged equipment can lead to unexpected system malfunctions and failures. In order to maintain safety and security in the integrity of the sewer system, pump stations that have met or exceeded their useful life should be replaced or upgraded. The typical useful life of a pump station wet well is approximately forty (40) years. However, the equipment inside the pump station such as: wet well, valve vault, pumps, controls, etc. have a useful life of approximately fifteen to twenty years. Even with good maintenance and care the normal wear and tear will cause equipment to need replaced at/or before the end of its useful life.

3. FUTURE SITUATION

The anticipated future wastewater flows and waste load needs are discussed in the sections below.

3.1 FUTURE WASTEWATER SITUATION – COLLECTION SYSTEM

According to the 2010 Census produced by the Indiana Business Research Center, which is a research unit in the Kelley School of Business at Indiana University, there was a population of 34,185 people in Steuben County, 8,612 people in Angola, 1,777 people in Jackson Township, 3,249 people in Jamestown Township, and 13,704 people in Pleasant Township. The tables below show population history and population projections of these areas from 1970 to 2040.

Based on information provided by the Indiana Business Research Center, Steuben County is expected to grow to 34,453 people in 2020. Using the data above and a basic linear interpolation, it is assumed that population projections for Angola and Jackson, Jamestown, and Pleasant Townships, will have similar percent changes to those for Steuben County.

TABLE 9 – Population History

	Steuben County		Angola		Jackson Township		Jamestown Township		Pleasant Township	
Year	Population	% Change	Population	% Change	Population	% Change	Population	% Change	Population	% Change
1970	20,159	17.3	5,117	7.8	973	27.7	1,167	30.5	7,804	15.1
1980	24,694	22.5	5,486	7.0	1,157	18.9	2,051	76	9,387	20
1990	27,446	11.1	5,824	6.0	1,425	23.2	3,018	47	10,874	16
2000	33,214	21	7,344	26	1,783	25.1	3,389	12	13,312	22
2010	34,185	2.9	8,612	17	1,777	-0.3	3,249	-4.0	13,704	3.0

Information from the Indiana Business Research Center shows that there was a continuous increase for both Steuben County and Angola since 1970. The data shows that the townships show a slight decrease after 2010, so it can be assumed that the areas will show a slight decrease in later years.

The data shows population estimates for Steuben County from 2020 through 2040; however, the population estimates for the rest of the areas were estimated based on the provided information for Steuben County. The table below shows the population projections for Steuben County, Angola, and the three (3) representative townships.

TABLE 10 - Population Projections

	Steuben County		Angola	Jackson Township	Jamestown Township	Pleasant Township
Year	Population	% Change	Population	Population	Population	Population
2020	34,453	0.78	8,679	1,791	3,274	13,811
2030	34,162	-0.85	8,605	1,776	3,246	13,694
2040	32,565	-4.74	8,175	1,687	3,084	13,010

Note: The population projections for Steuben County were obtained from the Indiana Business Research Center. The US Census does not define the study area of this report; therefore, no additional projection data was available. After reviewing the available data and population history, it is assumed that Angola and Jackson, Jamestown, and Pleasant Townships will have the same population changes. Future population growth rates for Angola and the three (3) townships were assumed based on the percent change for Steuben County.

Based on the information from the Indiana Business Research Center, Steuben County is projected to decrease by 4.74% by 2040.

When you combine the assumption that Steuben County and the three (3) representative townships will decrease in population with the fact that available land in the service area is rapidly decreasing, a growth factor is not needed in the estimations for wastewater flow in the proposed service area. However, to be conservative JPR has decided to assume a 2.0% growth that gradually declines each decade totaling 3.5% by 2040. A population increase of 3.5% over 20 years is shown in the table below.

TABLE 11 – Anticipated Population Growth

	Steuben County		Angola	Jackson Township	Jamestown Township	Pleasant Township
Year	Population	% Change	Population	Population	Population	Population
2030	35,142	2.00	8,853	1,827	3,339	14,087
2040	35,669	1.50	8,985	1,854	3,390	14,299

The future residential development in the NED area is anticipated to be limited due to the presence of natural resources such as wetlands, river, etc. along the undeveloped shorelines. However, some growth is anticipated due to infill developed of the existing undeveloped platted lots in the existing developments in these service areas. For planning purposes, it was assumed that an increase of 24 additional single-family dwellings could be anticipated. An increase of 24 residential connections represents a growth of about 3.5%.

The service area includes mostly residential properties; therefore, it is anticipated that the waste stream will be typical, household domestic strength wastewater. Therefore, any future commercial/industrial development of this service area must be monitored to ensure the wasteload parameters are maintained within above assumption. It should be noted that this is a typical approach when planning for future growth of commercial/industrial areas.

The impact of growth on the existing NED pump stations is shown below in Table 11:

TABLE 12 – Pump Station Future Flows

Pump Station No.	No. of Pumps	Pump Capacity (GPM)	Average Flow (GPD)	Peak Day (GPD)	Average Runtime (HR/DAY)	Peak Day Runtime (HR/DAY)
1	Duplex	1600	611,499	1,842,300	6.37	19.19
2	Duplex	1400	489,069	1,519,736	5.82	18.09
3	Duplex	404	78,330	295,146	3.23	12.18
4	Duplex	150	34,860	138,573	3.87	15.40
5	Duplex	227	148,260	528,739	10.89	38.82
6	Duplex	710	390,390	1,249,527	9.16	29.33
7	Duplex	225	54,180	209,622	4.01	15.53
8	Duplex	128	6,090	25,941	0.79	3.38
9	Duplex	1200	366,009	1,181,091	5.08	16.40
10	Duplex	850	308,469	1,016,522	6.05	19.93
11	Duplex	118	33,180	132,257	4.69	18.68
12	Duplex	180	36,960	146,433	3.42	13.56
13	Duplex	1787	490,770	1,524,307	4.58	14.22
14	Duplex	881	434,910	1,372,708	8.23	25.97
15	Duplex	269	63,840	244,216	3.96	15.13
16	Duplex	93	14,280	59,189	2.56	10.61
17	Duplex	154	8,190	34,597	0.89	3.74
18	Duplex	120	17,850	73,322	2.48	10.18
19	Duplex	157	45,990	179,833	4.88	19.09
20	Duplex	115	9,030	38,031	1.31	5.51
21	Duplex	243	31,710	126,710	2.17	8.69
22	Duplex	300	116,529	424,910	6.5	8.39
23	Duplex	368	47,460	185,213	2.1	67.23
24	Duplex	353	453,663	1,423,952	21.4	17.14
25	Duplex	360	100,233	370,267	4.6	21.52
26	Duplex	235	80,703	303,388	5.7	39.94
27	Duplex	478	353,430	1,145,494	12.3	23.72
28	Duplex	250	95,970	355,805	6.4	16.85
29	Duplex	100	24,990	101,088	4.2	21.55
30	Duplex	175	58,800	226,236	5.6	23.61

The future pump capacity for each pump station was determined by the REU's flowing into that pump station. Each REU is equivalent to 208 gpd. Then, the number of grinder stations that are contributing flow is determined. That is how the flow was determined for each pump station.

The projected 20-year population growth for the area is 3.5%, as discussed above. In Table 11, the future flows were determined by multiplying the current flows by the population growth factor.

3.2 FUTURE WASTEWATER SITUATION - WWTP

The existing SLRWD WWTP has a design capacity of approximately 1.0 million gallons per day (MGD), but currently operates at about 37% capacity or 0.371 MGD, and has a maximum capacity of 2.3 MGD. With the decommissioning of the Antrup and Bearman absorption fields, the decommissioning of the Pokagon State Park Wastewater Treatment Facility, and the inclusion of Snow Lake and Big Otter Lake, the District would receive an additional 0.146 MGD. Even with the addition of the proposed service area, the District is still well below its design capacity. Table 13 shows the future wastewater flows and wasteload anticipated for the District.

TABLE 13 – Future Wastewater Flows & Wasteload

Service Area Description	Average Flow (GPD)	Peaking Factor	Peak Flow (GPD)	$CBOD_5$ (@ Average Flow)		TSS (@ Average Flow)		NH_3-N (@ Average Flow)	
				mg/L	lb/day	mg/L	lb/day	mg/L	lb/day
NED Phase II (Existing)	145,820	4	583,280	350	426	350	426	55	49
NED Phase II (Future)	5,100	4	20,400	350	15	350	15	55	2
Total	**150,920**		**603,680**		**441**		**441**		**51**

4. EVALUATION OF ALTERNATIVES

Two alternatives were considered for the NED Phase II Wastewater Collection System, and one alternative was considered for the reconstruction of the District's existing pump stations. Both construction and non-construction costs were also developed for these alternates. It should be noted that the costs provided for these alternates are for planning and budgeting purposes only and actual costs may vary depending on the final design. The preliminary costs provided were developed based on using past bids for projects of similar nature, engineering judgement and vendor quotes, which can change based on the actual design.

Further, the general state of the economy, construction market during the bidding will have impact on the actual costs.

Initially, wastewater treatment alternatives were considered as a part of the wastewater services as well. However, a standalone treatment system for this service area was not considered as part of this Report. The proposed District WWTP currently operates well under their average design flow capacity and the construction and maintenance of a new treatment facility would not be financially feasible for this service area alone when the option of regionalizing is available.

There are a number of wastewater collection and treatment system design concepts that could be applied for the considered service areas. However, the most effective alternates will be some version of proven and reliable collection and treatment system; as well as a system that the District staff is familiar with and currently utilizes in other areas being served by the District.

Provided the above, the following alternates were evaluated further in subsequent sections.

NED Phase II Wastewater Collection System

- No Action
- Option 1 – Pressure Collection System
- Option 2 – STEP Sewer System

Pump Station Reconstruction

- No Action
- Option 3 – Pump Station Reconstruction

Treatment – Regionalization with the Existing SLRWD WWTP

4.1 NO ACTION – NED PHASE II WASTEWATER COLLECTION

The "No Action" alternative implies that the District do nothing to tend to their wastewater infrastructure needs for the long term future. The do nothing method would assume that the existing systems and soils will not cause potential risks or failures. Due to the existing conditions and systems described, this alternative will not be considered further. The existing cluster systems were constructed in the mid-eighties and are on sites that have soil properties that are very limited. The repairs are becoming more frequent and they are ending their service life. The North Snow

Bay area has also been notorious for breaks and problems for the District. Additionally, Pokagon State Park is in favor of eliminating it's WWTP and have the District own and maintain the pressure sewer system within the park boundaries.

This alternative also implies that the District, local officials and end-users take no action towards protecting their private wells and waterways from inadequate sanitary systems and take no action to improve the health and safety of their community or protection of their investment in property value.

While this alternate results in no capital costs, and in our opinion, it is not a logical solution for the long term. Therefore, this alternate should not be considered any further.

4.2 OPTION 1 – NED PHASE II WASTEWATER COLLECTION SYSTEM - PRESSURE SEWER SYSTEM

A pressure sewer system consists of prefabricated grinder pump station units installed on each or every other property. This unit is equipped with an electrically powered grinder pump that receives gravity flow from the building sewer, grinds the wastewater with special rotating cutter blades, and forces the liquid slurry under pressure through a small diameter pressure main network that typically ranges from 1.25" to 6". A pressure system is typically a more cost-effective means of wastewater collection from the areas not easily accessible by other collection system alternatives.

A pressure sewer system consists of grinder pumps connected to a small diameter force main. This conveys the wastewater to larger, strategically located pump stations. These pump stations then transmit the wastewater towards the WWTP.

A pressure system is technically feasible and reliable, and can be implemented. Since the pressure system can be installed using directional drilling method, the environmental impacts and restoration associated with construction of this system are minimized as it results in reduced street paving and restoration costs.

See Figure 3 for the proposed sewer layout.

4.3 OPTION 2 – NED PHASE II WASTEWATER COLLECTION SYSTEM - STEP SEWER SYSTEM

STEP sewer stands for 'Septic Tank Effluent Pumping'. STEP sewers consist of both a septic tank and separate pump that convey wastewater via gravity sewer. These pumps allow the water to flow to the public sewer system, while solid wastes naturally break down. These systems usually require annual inspections and additional electrical hook-ups and connection fees. STEP sewers are reliable when existing customers have onsite septic systems and no connection to the sewer system.

Installation of STEP sewers require minimal to no slope of the piping, which means there will be little to no land disturbance. These systems also require the tanks to be pumped out every two or three years. The pumps can range from 24 to 60 inches in diameter. Operation and maintenance costs are typically lower for STEP systems than gravity systems, but more expensive than pressure sewer systems.

Figure Set 3 shows the proposed sewer layout.

4.4 NO ACTION – PUMP STATION RECONSTRUCTION

The "No Action" alternative implies that the District do nothing to tend to their pump station infrastructure needs for the long term future. As described previously, the pump stations are aging and nearing the end of their service life. While the existing infrastructure has an extensive track record of good performance, upgrades and/or improvements are necessary to maintain longevity and continued effective and reliable service while maintaining compliance with various state and federal requirements.

This alternate results in no capital costs, but in our opinion, is not a feasible solution for the long term. Therefore, this alternate should not be considered any further.

4.5 OPTION 3 – PUMP STATION RECONSTRUCTION – PUMP STATIONS

In order to repair and replace aging infrastructure at each of the existing pump station sites in the District's service area, there will be different requirements at each station based on what equipment is in place at each station. It should be noted that upgrades to pump stations 1, 2, 9, 10, and the new construction of 22 have been included in the construction costs associated with the NED Phase II Wastewater Collection System alternatives.The improvements at these stations are necessary as they are directly downstream of the proposed NED Phase II Wastewater Collection System. However, the upgrades will be similar to those below. The proposed scope of work at each pump station is as listed below:

<u>Pump Station #3</u>

- Install a bypass structure upstream & downstream
- Replace Controls and Panels
- Replace Gen Set
- Replace Level Controls
- Replace piping
- Replace both pumps

- Replace valve vaults
- Replace wet well

Pump Station #4

- Install a bypass structure upstream & downstream
- Replace Controls and Panels
- Replace Gen Set, natural gas if feasible
- Replace Level Controls
- Replace piping from the valve vault to new bypass structure
- Replace both pumps
- Replace and possibly relocate valve vaults
- Replace wet well

Pump Station #6-8, 11-21 & 23, 24

- Install a bypass structure downstream
- Replace Controls and Panels
- Replace Gen Set
- Replace Level Controls
- Replace piping
- Replace both pumps
- Replace valve vaults
- Replace wet well

Pump Station #25 & 26

- Install a bypass structure upstream & downstream
- Replace Controls and Panels
- Replace flow meter with Siemens (LS#25 only)
- Replace Gen Set
- Replace Level Controls
- Replace piping
- Replace Muffin Monster pumps with Chopper Pumps
- Replace and possibly relocate valve vaults
- Replace wet well

4.6 TREATMENT SYSTEM – REGIONALIZATION WITH SLRWD WWTP

As mentioned above, the existing SLRWD WWTP currently operates well below its design capacity. This means that the option for regionalization is available without any additional costs to the District. The costs for connection and transport have already been accounted for in the collection system alternatives.

4.7 PROJECT COST SUMMARY – OPTIONS 1 THROUGH 3

Please see the table below summarizing the Capital Costs, O, M, & R Costs, and Salvage Values for each of the options listed above. Full itemized cost estimates for each option can be found in Appendix C.

TABLE 14 – Project Cost Summary – Options 1 through 3

Project Cost Summary				
		Construction Costs	O, M, & R Costs	Salvage Value
Option 1 - Pressure Sewer		$19,310,000	$139,550	$3,812,256
Option 2 - STEP Sewer		$19,940,000	$193,250	$4,649,287
Option 3 - Pump Station Reconstruction	Phase I	$4,810,000	$61,600	$790,000
	Phase II	$4,950,000	$64,300	$815,000.00

4.8 PRESENT WORTH COST ANALYSIS

A cost and effective analysis or Present Worth Cost Analysis, as required, was completed for the above alternates. This analysis was performed for a 20-year planning period using the real discount rate of 1.5% from OMB Circular A-094.

TABLE 15 – Present Worth Cost Analysis – Collection System Alternatives

PRESENT WORTH ANALYSIS OF COLLECTION SYSTEM ALTERNATIVES		
Cost Summary	**Pressure Sewer System**	**STEP Sewer System**
Construction Cost	$19,310,000.00	$19,940,000.00
Annual O, M & R Cost	$139,550.00	$193,250.00
Salvage Value	$3,812,256.00	$4,649,286.67
Present Worth Analysis (20 Yrs @ 1.50% Interest)		
Construction Cost	$19,310,000.00	$19,940,000.00
PW of Annual O, M & R (1)	$2,395,883.54	$3,317,839.45
PW of Salvage (2)	$2,830,487.31	$3,451,957.82
Present Worth of Costs (3)	**$18,875,396.24**	**$19,805,881.63**

(1) PW Factor = 17.169 using the formula $P=A[((1+i)^n-1)/(i(1+i)^n)]$

(2) PW Factor = 0.7425 using the formula $P=F(1+i)^n$

(3) Total PW = Construction Cost + PW of O, M & R – PW of Salvage

TABLE 16 – Present Worth Cost Analysis – Pump Station Reconstruction

PRESENT WORTH ANALYSIS OF PUMP STATION ALTERNATIVES		
Cost Summary	**Pump Station Phase I**	**Pump Station Phase II**
Construction Cost	$4,810,000.00	$4,950,000
Annual O, M & R Cost	$61,600.00	$64,300
Salvage Value	$790,000.00	$815,000.00
Present Worth Analysis (20 Yrs @ 1.50% Interest)		
Construction Cost	$4,810,000.00	$4,950,000
PW of Annual O, M & R (1)	$1,057,588.15	$1,103,943.47
PW of Salvage (2)	$586,551.63	$605,113.39
Present Worth of Costs (3)	**$5,281,036.52**	**$5,448,830.08**

(1) PW Factor = 17.169 using the formula $P=A[((1+i)^n-1)/(i(1+i)^n)]$

(2) PW Factor = 0.7425 using the formula $P=F(1+i)^n$

(3) Total PW = Construction Cost + PW of O, M & R – PW of Salvage

5. EVALUATION OF ENVIRONMENTAL IMPACTS

The purpose of this section is to identify, review and discuss environmental impacts associated with implementation of the selected plan recommendations.

A. Location

The proposed project will include the following:

- A new pressure sewer system for the northern and eastern portions of Snow Lake and the northern portion of Big Otter Lake.
- A new force main to transport the existing wastewater in Pokagon State Park that will generally travel up through the park and tie in to the proposed pressure sewer at Ln 890 Snow Lake.
- Decommissioning of the existing Pokagon State Park System, and the Antrup and Bearman absorption fields.
- Decommissioning of Pump Station 22 and replacement in the Bearman absorption field.
- A new sanitary transmission force main to transport wastewater from the new Pump Station 22 to the existing Pump Station 10. In general, the force main will travel north on State Rd 120, west on State Rd 120, and south on County Rd 300 W where it will terminate into Pump Station 22.
- Upgrades to existing Pump Stations 1, 2, 9 and 10.
- Upgrades to Pump Stations 3, 4, 6, 7, 8, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, and 27.

The proposed wastewater collection system will be mainly constructed within the existing county and/or State rights-of-way. There are approximately five (5) segments of the collection system near Pokagon State Park, Ln 890C Snow Lake, Ln 840 Snow Lake, Ln 330 Big Otter Lake, and Ln 375 Big Otter Lake which may require easement(s) through existing undeveloped areas. The District may need to acquire easements for the collection system. Blanket easements will also be required for the installation of the grinder pump units on individual lots, where applicable.

The majority of the collection system is planned to be constructed utilitizing horizontal drilling. There may be few small segments that may be constructed via open excavation.

B. Disturbed and Undisturbed Land

Projects of this nature and scale involve land-disturbing activities. The project will be designed to keep as much of the pipeline as possible within the previously disturbed roadway rights-of-way. Where possible, the project improvements will be located within the pavement limits, or within the right of way. Required reviews, such as archeological, etc. have been completed and a copy of this is included within the Appendix D.

The proposed work on the pump stations will mostly be done on sites that have been previously disturbed.

The majority of the proposed wastewater collection system will be constructed within the existing public road apparent rights-of-way just under the pavement or within five (5) feet of the pavement. Segments of county roads do not have documented rights-of-way. In these segments, the District may need to acquire easements for the sewer system that will be located within the apparent right of way.

The force mains and pressure sewer will be required to be installed using horizontal directional drilling, or other appropriate trenchless method, in order to minimize land disturbance and restoration costs.

The force main lines will be installed in or adjacent to existing road way systems controlled by Steuben County (asphalt, stone, stone shoulders, grassed shoulders, grassed road side drainage swales), with the exception of the following five segments.

a. Segment 1 – Pokagon State Park - A short segment of force main will cross from the park through a private property and connect to the force main along the right of way on Ln 890 Snow Lake.

b. Segment 2 - Ln 890 C Snow Lake - A short segment of pressure sewer will cross through an undeveloped platted right of way through a residential development. The segment of right-of- way would be through and adjacent to side yards of existing residential development. The area appears to be maintained as lawn area by the adjacent property owners.

c. Segment 3 - Ln 840 Snow Lake - A short segment of pressure sewer will cross through an undeveloped platted right of way through a residential development. The segment of right-of- way would be through and adjacent to side yards of existing residential development. The area appears to be maintained as lawn area by the adjacent property owners.

d. Segment 4 - Ln 330 Big Otter Lake - A short segment of pressure sewer will cross through an undeveloped platted right of way through a residential development. The segment of right-of- way would be through and adjacent to side yards of existing residential development. The area appears to be maintained as lawn area by the adjacent property owners.

e. Segment 5 - Ln 375 Big Otter Lake - A short segment of pressure sewer will cross through an undeveloped platted right of way through a residential development. The segment of right-of- way would be through and adjacent to side yards of existing residential development. The area appears to be maintained as lawn area by the adjacent property owners.

The force main will be installed using the directional drill method of installation, which will minimize land disturbance activities. It is anticipated that there will be excavations at each crossover connection point along the pressure sewer, service lateral connection point, each manhole structure (junction points, end of lines and air release valve locations).

The approximate disturbed area for each excavation will be as follows:

TABLE 17 – SUMMARY OF EXCAVATION

Description	Area
Manhole Structure	8’ x 8’x 6’ depth
Pressure sewer Lateral connection at main line	5’ x 5’ x 6’ depth
Package grinder pump station	6’ x 10’ x 8’ depth
Electrical riser	2’ x 2’ x 3’ depth
Crossover connection	5’ x 8’ x 6’ depth
Air Release Valve Structure	8’ x 8’ x 6’ depth
Launch/Receive Points	6’ x 20’ x 6’ depth
Tie-in/Crossover Connection	5’ x 8’ x 6’ depth

An overview of undisturbed land is shown in Figure 7.

In addition some surface disturbance can be expected with the excavators and directional drill machines used for a project of this nature. The approximate foot print of the drilling machine and resulting disturbed area would be about 8’ x 20’. This disturbance would occur at structure locations and at crossover connection locations.

Erosion control measures will be required via project specifications and enforced throughout the construction process. The contractor will be required to restore disturbed areas to preconstruction conditions, or better, prior to project completion.

C. Historic and Archaeological Resources

The project will not affect curbs, brick streets or sidewalks. Some yards and possibly street-side yard plantings may be affected by construction of the project. The contractor will be required to promptly restore disturbed yards and street-side plantings as portions of the project are completed. Pre-construction videos of the construction area will be required from the contractor so that any disputes about the nature of the construction area after the project versus prior to the project can be suitably resolved.

An Archaeological Review and Reconnaissance Study and a Historical and Archaeological Resources Review will be undertaken soon. Results of this investigation will be included in Appendix D. Figure 9 presents the historical and archaeological sites in the project area.

D. Wetlands

Construction activity in or near wetlands will be avoided. Some wetlands do exist adjacent to the proposed force main. The use of horizontal directional drill method of installation will

greatly reduce the disturbed areas in general and allow the pressure sewer to be installed adjacent to wetlands without disturbing the wetlands. During the early design phase of the project, the Engineer will coordinate with the appropriate agencies to identify areas of concern. Once identified, specific area near or adjacent to wetlands will be identified on the design drawings as no work or no staging zones. See Figure 8 for the wetland map.

Environmental studies, including wetland review are currently under progress. Results of these investigations will be included in Appendix E.

After reviewing the National Wetlands Inventory Map, the project area is located within a wetland. One segment of force main will be constructed across a wetland to connect LS Pokagon State Park to Lane 890 Snow Lake. It is recommended that in this location, the proposed force main be constructed underneath the existing roadways in order to avoid disturbance of the adjacent wetlands, and that the sections crossing the wetlands be installed in single, complete pulls avoiding the necessity to excavate within the wetland limits to make connections between force main segments. Any disturbance to the wetland area will be restored with native plantings appropriate for the wetland area.

E. Hydrology

The project will not adversely affect waters of high quality listed in 327 IAC 2-1-2(3), exceptional use streams listed in 327 IAC 2-1-11(b), Natural, Scenic and Recreational Rivers and Streams listed in 312 IAC 7-(2), Salmonid Streams listed in 327 IAC 2-1.5-5(a)(3), or waters on the Outstanding Rivers List (Natural Resources Commission Non-Rule Policy Document).

Several stream crossings not listed above are required as part of this project. However, the crossings will be accomplished via directional drilling and all construction activities within the floodplain will be permitted.

F. Groundwater

Dewatering may be needed for construction of the wet well for the pump stations located near the Upper Basin of Lake James. In the event that dewatering is necessary, the contractor will be required to discharge to a suitable location, approved by the local drainage board, and provide a suitably designed settling basin prior to the discharge location.

No adverse impacts are expected to local water wells and groundwater table.

After reviewing sources from the Environmental Protection Agency (EPA), the St. Joseph Sole Source Aquifer will not be affected by the proposed project.

G. 100-Year Floodplain

This project will involve construction within the 100-year floodplain. A Floodway Permit will be required for portions of this project. Figure 4 shows the floodplain mapping in the general project area.

H. Plants and Animals

The project is expected to have minimal to no impact to plants and animals during construction and no impact afterwards. As discussed previously, the majority of the project elements will be installed within the existing pavement. Existing yards and some roadside vegetative plantings could be impacted with installation of the gravity sewer laterals and pump stations. The Contractor will be required to stabilize areas disturbed by construction and restore yards, lawns, street side plantings, and other disturbed areas as part of the project. The Contractor will be required to video record the existing conditions prior to construction to document the existing conditions to help resolve any disputes that might arise from the construction of the project. The Contractor will not be allowed to remove any trees without prior approval. Given the above, disturbance to plants and animals will be minimal to none.

I. Prime and Unique Farmland

The construction of the proposed project will have minimal impact on farmlands.

The sanitary force mains will be primarily installed using trenchless methods to minimize the amount of land disturbance.

Completed Farmland Conversion Impact Rating Forms, were submitted to the appropriate representatives for Indiana and are included in Appendix G.

J. Air Quality

Construction activities may generate some noise, fumes and dust, but should not significantly affect air quality, as the majority of the project will be constructed via directional drilling.

Little noise will be heard from the operation of the sanitary sewer pump stations.

K. Open Space and Recreational Opportunities

The proposed project's construction and operation will take place within Pokagon State Park, which is considered a Trine State Recreation Area. The park includes several camp sites, a putt putt range, amphitheater, areas for fishing, and more.

Construction will not directly affect the above areas; however, the proposed sewer system and several pump stations will take place throughout the State Park grounds.

L. Lake Michigan Coastal Program

The proposed project will not affect the Lake Michigan Coastal Zone.

M. National Natural Landmarks

The construction and operation of the proposed project will not impact National Natural Landmarks.

N. Secondary Impacts

The District, through the authority of its Board, local planning commission, health department or other means, will ensure that future development, as well as future collection system and/or treatment works projects connecting to the State Revolving Funds (SRF) funded facilities will not adversely impact archaeological/historical/structural resources, wetlands, wooded areas, or other sensitive environmental resources. The District will require new development and treatment works projects to be constructed within the appropriate guidelines and regulations.

O. Mitigation Measures

The project will be subject to the conditions set forth in erosion control measures requirements of the project plans and specifications. The contractor will be required to comply with the terms and conditions of the permits.

The contractor will be required to utilize trenchless pipe installation techniques for most of the project with limited ability and/or locations to utilize conventional open-excavation methods. This will significantly reduce the amount of land-disturbing activities.

P. Construction Limits

The construction area required for a project of this nature is much smaller than would be necessary for a traditional, gravity sewer type project. The construction limits for installing the sanitary force mains and water main are basically where the pipe is put in the ground. Minor surface disturbance will be experienced where a directional drilling machine is set up and where the product pipe is placed for pull-back. The surface area disturbance at the drilling machine is due to the machine movement into place for the drilling activity and installation of the augur anchors to resist movement of the machine due to the drilling forces and the support vehicle that is typically situated either behind or beside the drilling machine. The support vehicle is typically a straight box truck or work truck and trailer. This disturbed area is typically 10 to 12 feet in width, depending upon the width of the drill machine, and 50 or so in length.

Where multiple pipes come together, the ground must be excavated to facilitate joining of the pipes and possible installation of an air release/vacuum manhole. This length is typically 15 to 20 feet and 6 or so feet in width.

It should be noted that above area of disturbance is typically spanned 500 feet (+/-) apart.

Q. Environmental Review & Considerations

Much preliminary environmental review related to the NED Phase I project has already been performed. This includes the following:

- Indiana DNR – Division of Water
- Indiana DNR – Division of Historic Preservation & Archaeology
- Indiana DNR – Division of Fish & Wildlife
- Indiana DNR – Division of Nature Preserves
- United States DOI – Fish & Wildlife Service
- USDA NRCS
- IDEM
- United States Army Corps of Engineers
- Steuben County Health Department
- Indiana State Department of Health
- Steuben County Plan Commission
- Indiana Geological Society
- INDOT
- Steuben County Highway Department
- Region III-A

6. SELECTED PLAN & PROPOSED PROJECT

Based on review of the options considered, a pressure collection system and the reconstruction of the existing pump stations appear to be the best long term solutions for the District. These options address the current needs as well as provided the District and the community the flexibility to address future demands and needs.

In addition to JPR's opinion, discussion amongst the District, and also local officials all concur that constructing the pressure collection system and upgrading the pump station network are the best options for the given situation.

The collection system will mostly consist of pressure sewers; however, limited segments of the collection system may include gravity sewers following the completion of field survey and hard design phase. This collection system will include the connection to Pump Station #10 as well as the construction of a new Pump Station #22.

In general, the pump station reconstruction will consist of replacing old and deteriorating internal component parts. For the most part, the overall locations and pump station buildings will remain the same, except for a few exceptions. Wastewater flow will be transported to the existing SLRWD WWTP where it will be treated and then discharged via the existing outfall pipe.

The anticipated project schedule is as follows:

TABLE 18 – Project Schedule

Task	Date
Memorandum of Understanding with DNR/ PSP	January 2021
PER Public hearing	March 2021
PER Submittal	April 2021
Start Design	May 2021
Start Land and Easement Acquisition	May 2021
Complete Design	July 2022
SRF Funding Commitment	July 2022
Submit Construction Permit Applications	July 2022
Permits Issued	September 2022
Advertisement for Bids	September 2022
Receive Bids	October 2022
Loan Closing	December 2022
Construction Contracts Executed	January 2023
Begin Construction	March 2023
Substantial Completion	June 2024
Customer Connections Complete	December 2024

7. LEGAL, FINANCIAL & MANAGERIAL CAPACITY

As discussed previously, the selected and recommended project will be owned, operated and maintained by the District. The District via a loan request from the SRF will be responsible for the loan obligation and repayment for amounts as presented in the below project cost summary table.

TABLE 19 – Project Costs Summary

Construction	
NED Phase II Wastewater Collection System - Pressure Sewer System	$18,700,000
Pump Station Reconstruction – Phase I	$4,810,000
Pump Station Reconstruction – Phase II	$4,950,000
Sub-Total	$28,460,000
Total Estimated Construction Costs	**$28,460,000**
Non-Construction Costs	**TOTAL**
Preliminary Engineering Report	$60,000
Surveying/Design/ Permitting, Bidding	$2,400,000
Construction Administration/ Post Construction	$600,000
Inspection	$1,100,000
Easement Descriptions/Assistance and blanket easement assistance	$250,000
Land/Easement acquisition	$350,000
Rate Consultant	$180,000
Local Counsel	$215,000
Bond Counsel	$115,000
Misc. Administration Costs	$40,000
Davis-Bacon Labor Standards Administrator	$30,000
Outside Consulting (Soil Boring, Arch. & Historical, Wetland Survey, Etc.)	$100,000
Total Estimated Non-Construction Costs	**$5,440,000**
Total Project Costs	**$33,900,000**

It is understood that the actual land value/cost as presented in detailed cost estimate, is not eligible for SRF reimbursement. It is anticipated that the District via its customers will be directly responsible for these costs.

Under the above recommended project the District will own, operate and maintain the wastewater systems.

For reference, the District's Financial Advisor is Therber Brock (Steven Brock, CPA) 317-637-9572. At this time, the Bond Council is to be determined. Once identified the District will share this information with SRF team.

The District will develop a Fiscal Sustainability Plan that meets the minimum requirements listed in the Federal Water Pollution Control Act Section 603(d)(1)(E)(i) and will submit a completed FSP Certification Form prior to request for final disbursement related to the primary project.

See Appendix D for the Historical and Archaeological Report.

See Appendix E for the Wetlands Report.

See Appendix F for the NRCS Rating Form.

See Appendix G for the Public Hearing Documentation.

See Appendix H for the Asset Management and Fiscal Sustainability.

See Appendix I for the SRF Project Financing Information Form.

See Appendix J for the Cost and Effectiveness Certification.

See Appendix K for the Authorized Representative & PER Acceptance Resolution.

See Appendix L for the Green Project Reserve checklist.

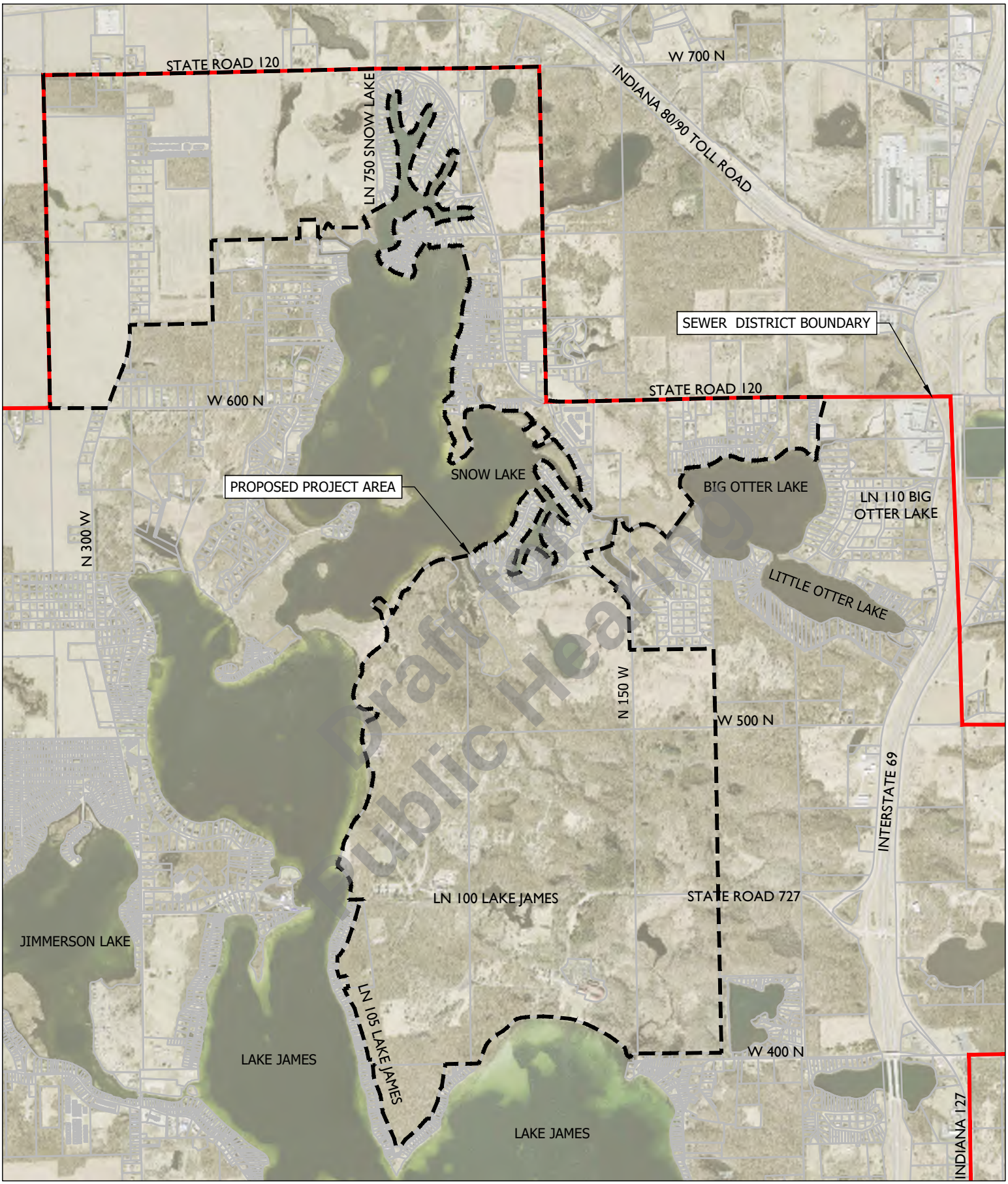
See Appendix M for the Preliminary Design Summary.

8. PUBLIC PARTICIPATION

The District plans to schedule a public hearing to present and discuss the project details. Following completion of the public hearing and participation, the District will forward the following documents to SRF.

1. Publisher's Affidavit from the newspaper
2. Public Hearing Sign-in Sheet
3. Meeting Minutes
4. All (if any) written comments submitted by the public, including comments submitted during the hearing and the 5-day post-meeting comment period
5. Self-sticking mailing labels for interested parties county drainage board, county health department, and county plan commission.

FIGURES

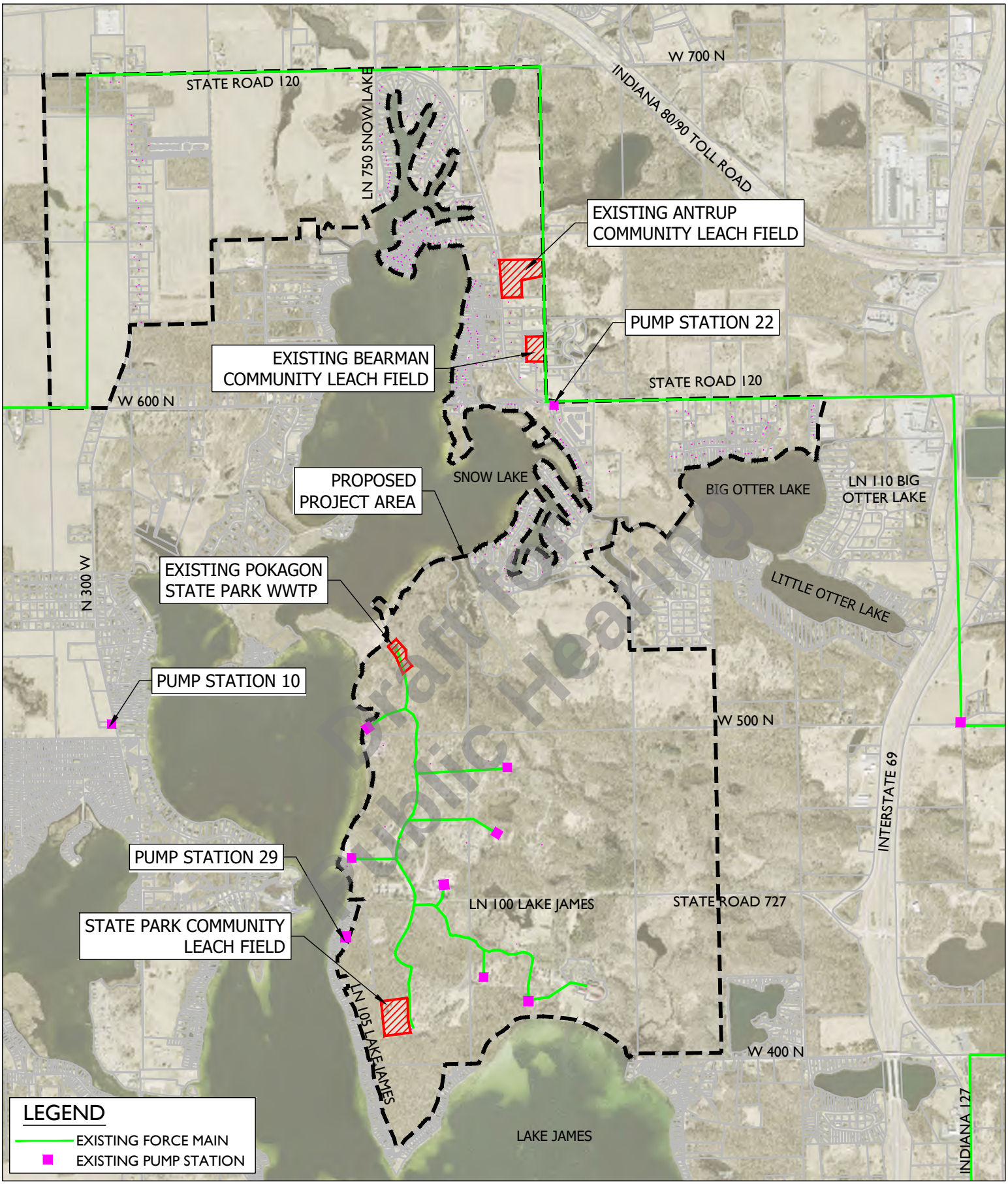


STEUBEN LAKE REGIONAL WASTE DISTRICT

FIGURE 1: PROJECT SERVICE AREA - PHASE II
STEUBEN COUNTY, INDIANA

JONES PETRIE RAFINSKI
Elkhart, IN p: 574.293.7762
South Bend, IN p: 574.232.4388
Fort Wayne, IN p: 260.422.2522

Feet
0 1,000 2,000

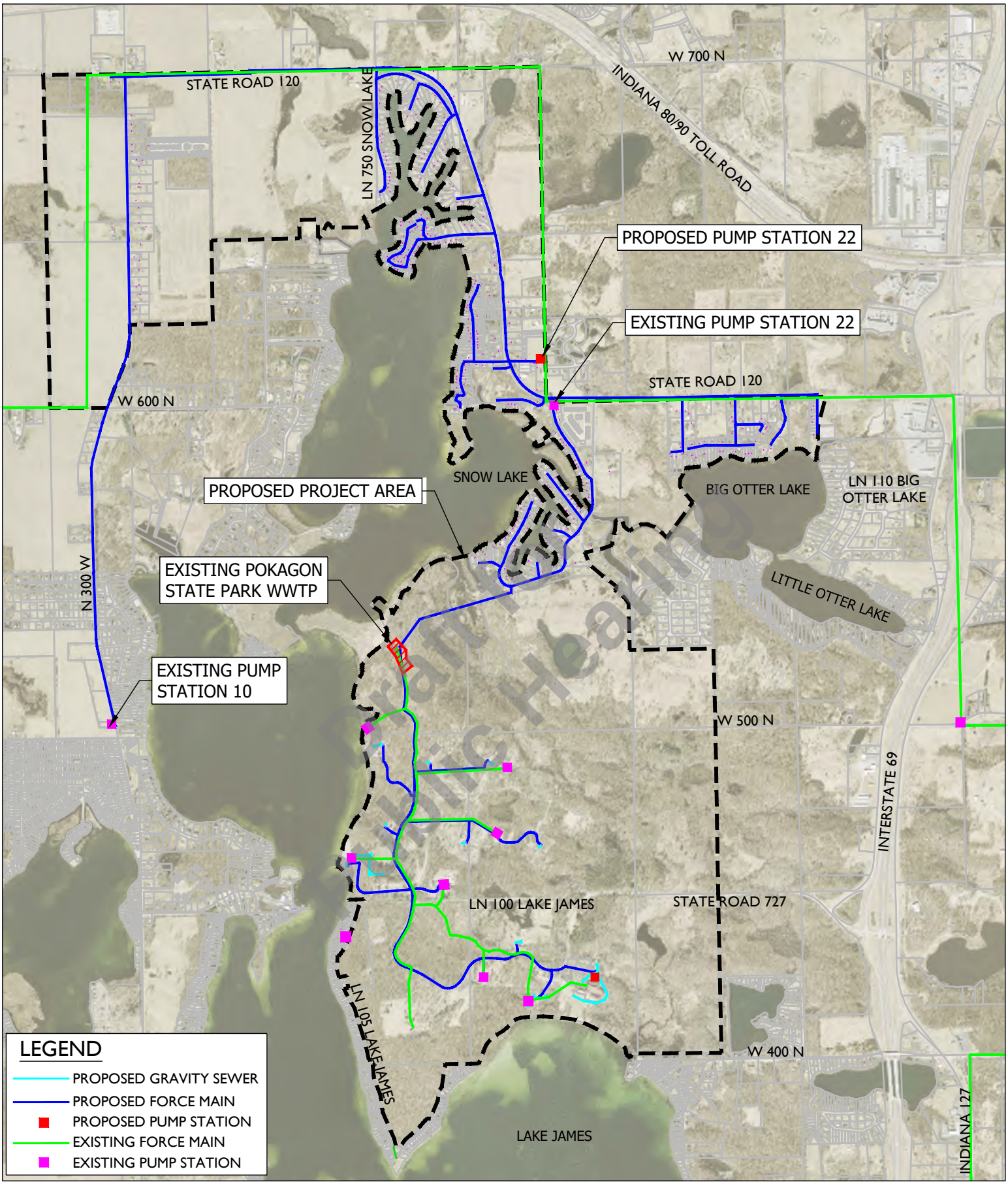


STEUBEN LAKE REGIONAL WASTE DISTRICT

FIGURE 2: EXISTING FACILIITIES - PHASE II
STEUBEN COUNTY, INDIANA

JONES PETRIE RAFINSKI
Elkhart, IN p: 574.293.7762
South Bend, IN p: 574.232.4388
Fort Wayne, IN p: 260.422.2522

Feet
0 1,000 2,000



STEUBEN LAKE REGIONAL WASTE DISTRICT

FIGURE 3: PROPOSED PRESSURE SEWER - PHASE II
STEUBEN COUNTY, INDIANA

JONES PETRIE RAFINSKI
Elkhart, IN p: 574.293.7762
South Bend, IN p: 574.232.4388
Fort Wayne, IN p: 260.422.2522

Feet
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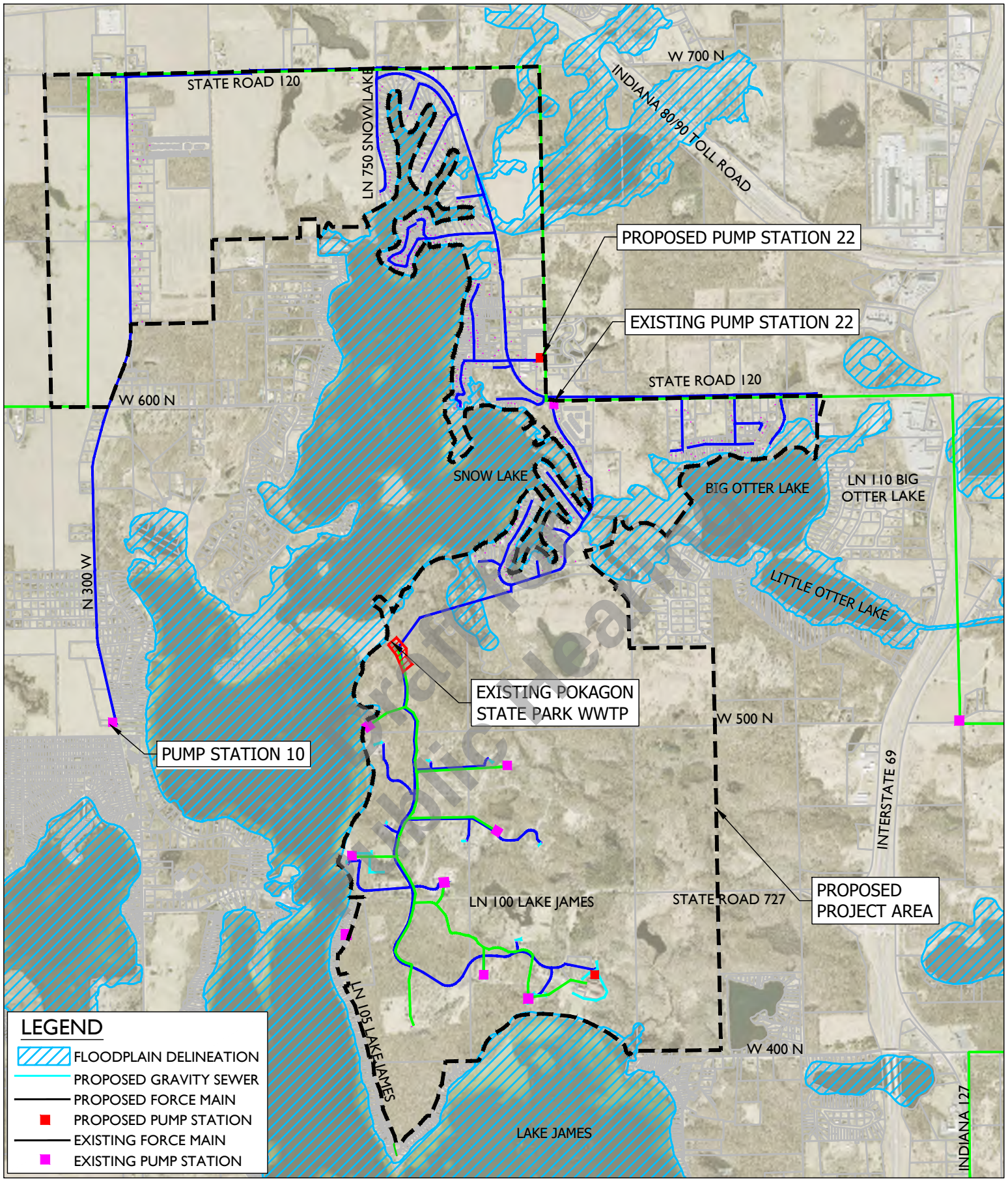
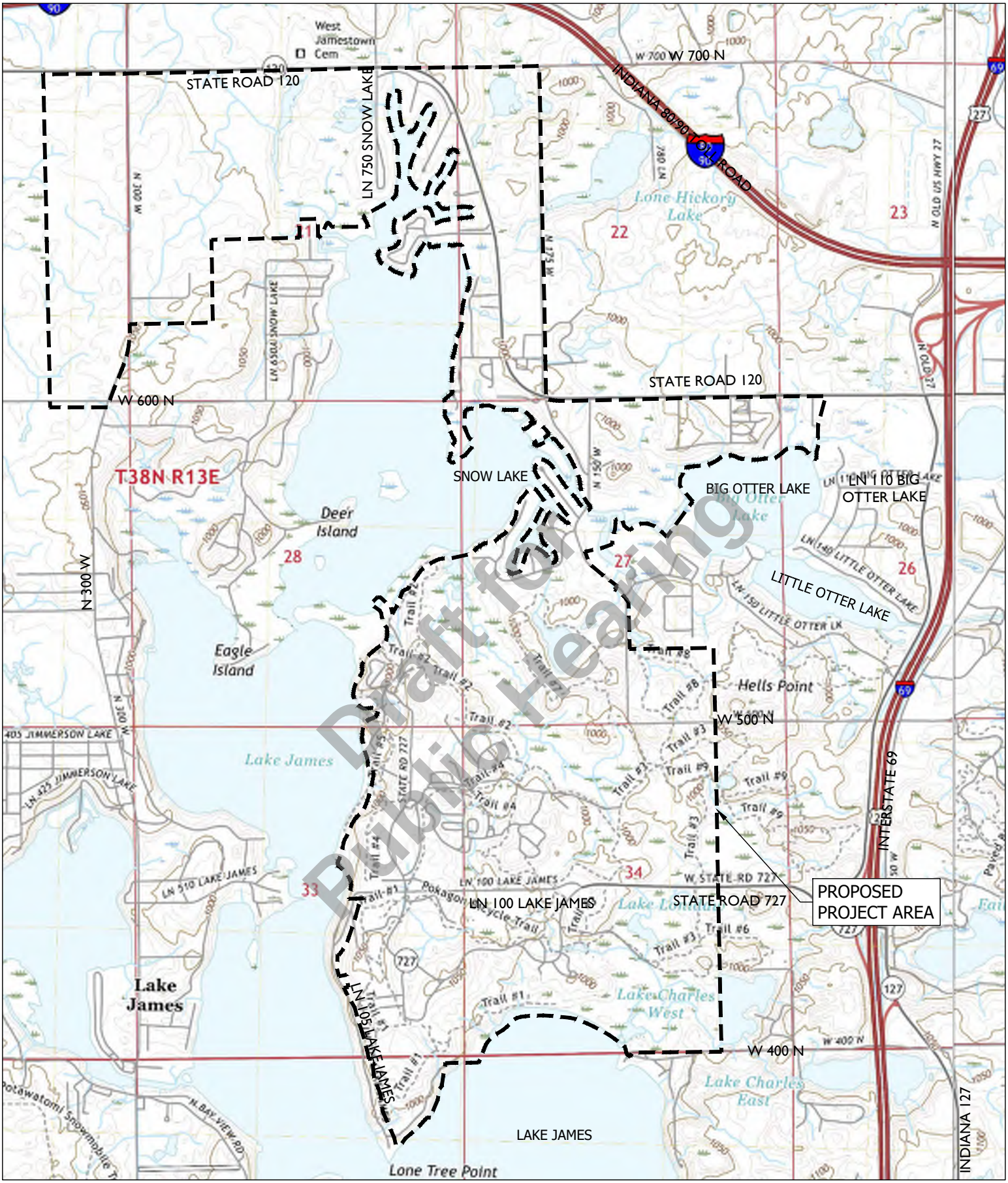


STEUBEN LAKE REGIONAL WASTE DISTRICT

FIGURE 4: FLOODPLAIN MAP - PHASE II
STEUBEN COUNTY, INDIANA

JONES PETRIE RAFINSKI
Elkhart, IN p: 574.293.7762
South Bend, IN p: 574.232.4388
Fort Wayne, IN p: 260.422.2522

Feet
0 1,000 2,000

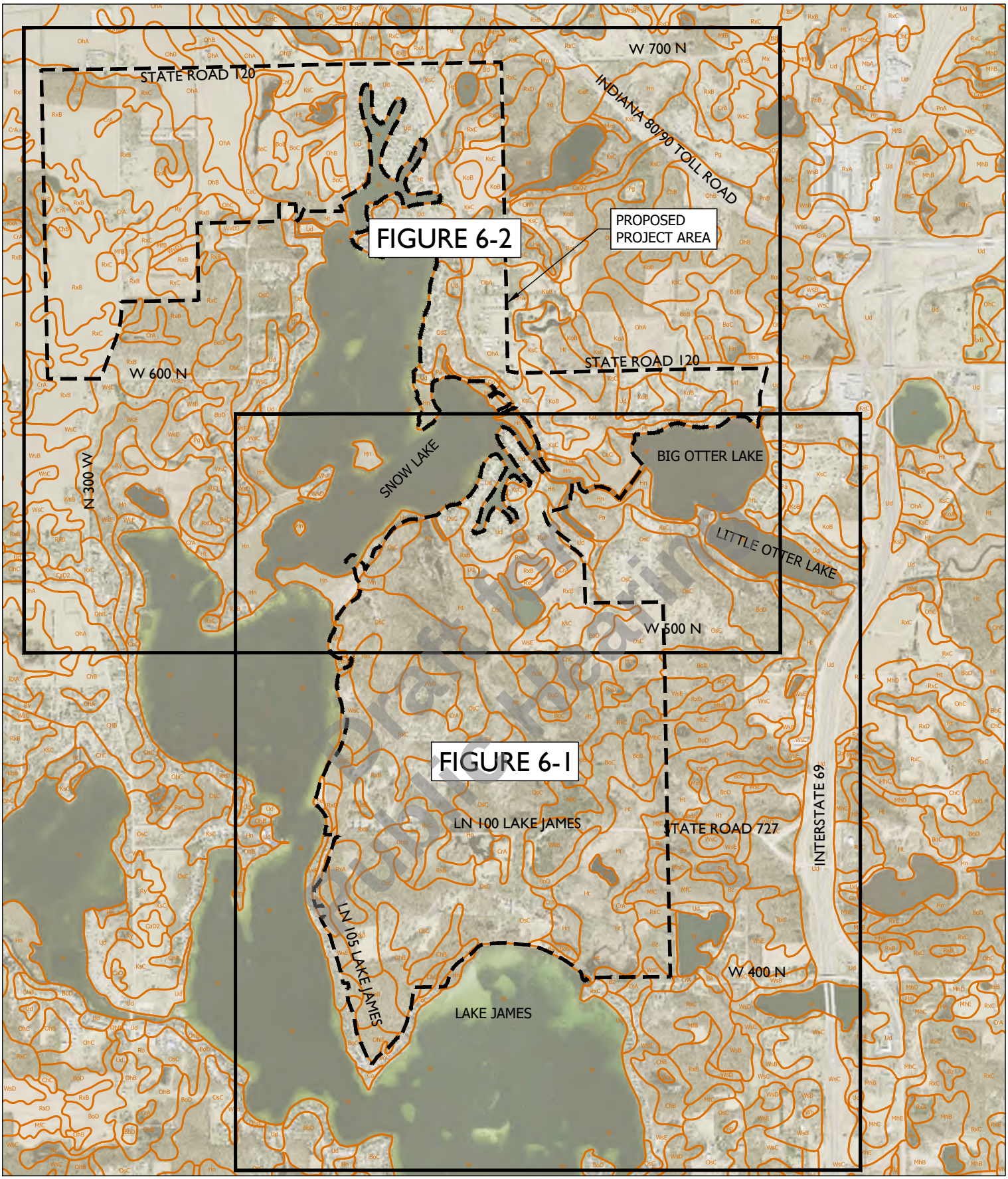


STEUBEN LAKE REGIONAL WASTE DISTRICT

FIGURE 5: TOPOGRAPHIC QUADRANGLE MAP - PHASE II
STEUBEN COUNTY, INDIANA

JONES PETRIE RAFINSKI
Elkhart, IN p: 574.293.7762
South Bend, IN p: 574.232.4388
Fort Wayne, IN p: 260.422.2522

Feet
0 1,000 2,000

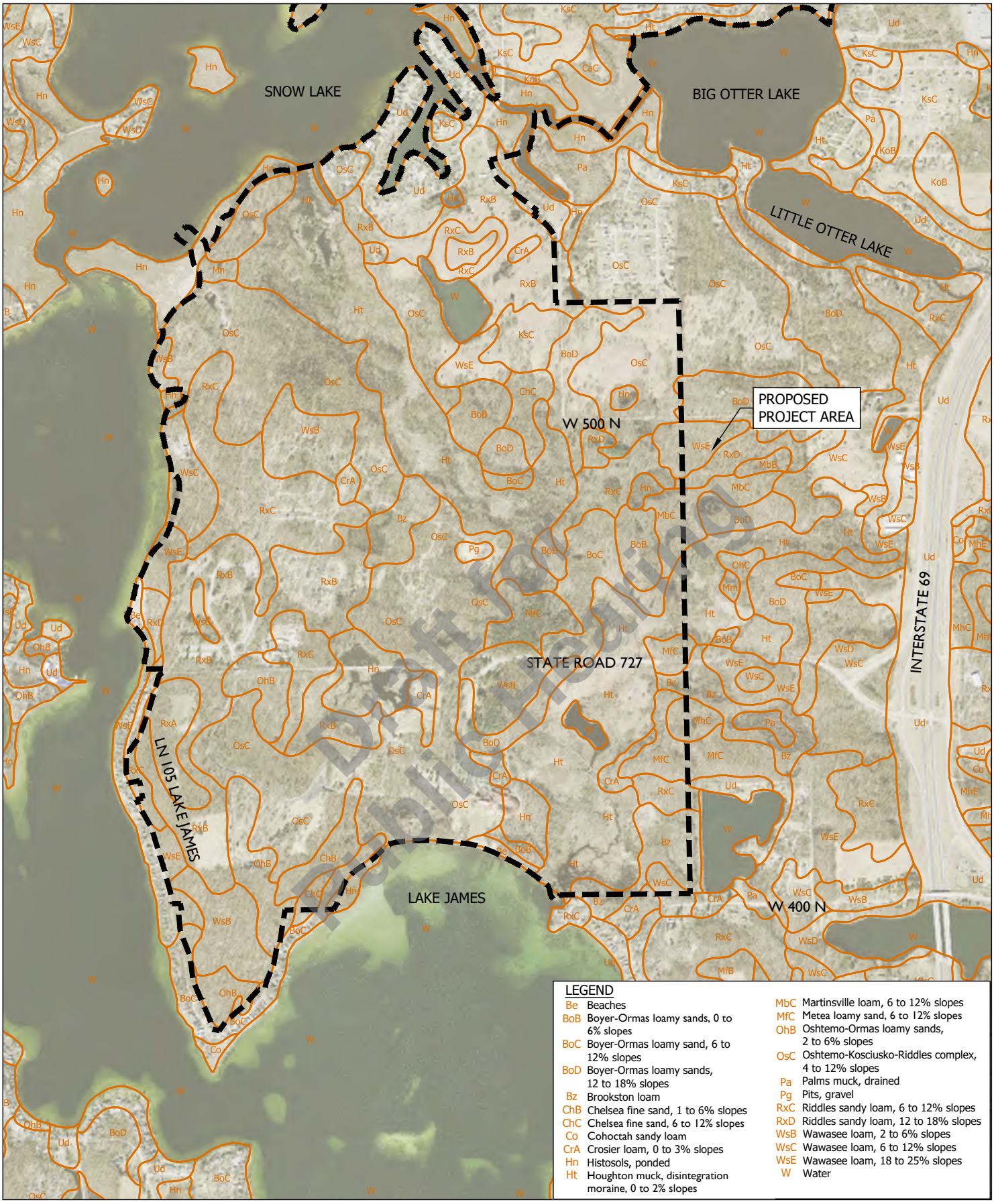


STEUBEN LAKE REGIONAL WASTE DISTRICT

FIGURE 6: OVERALL SOILS MAP - PHASE II
STEUBEN COUNTY, INDIANA

JONES PETRIE RAFINSKI
Elkhart, IN p: 574.293.7762
South Bend, IN p: 574.232.4388
Fort Wayne, IN p: 260.422.2522

Feet
0 1,000 2,000

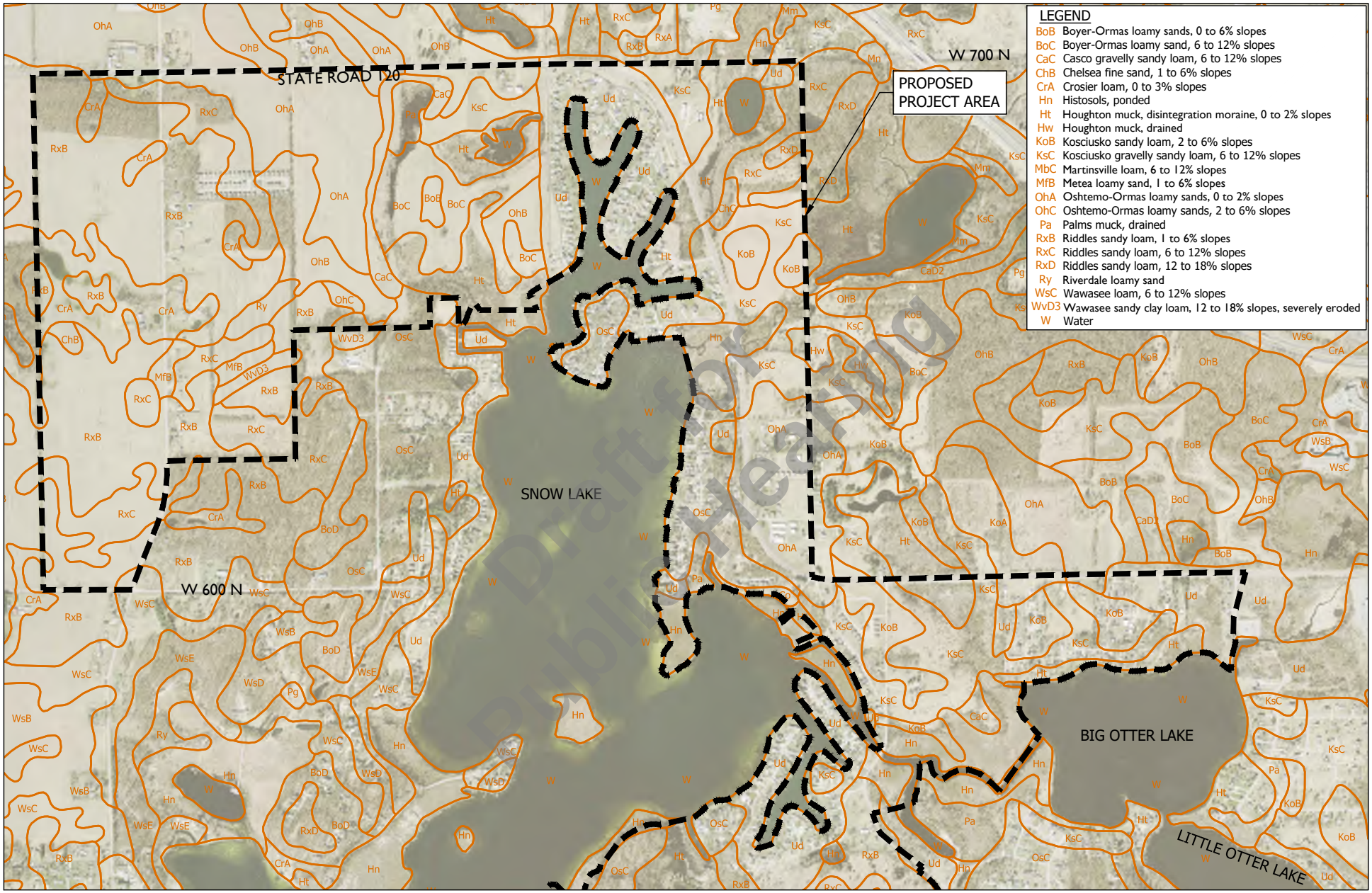


STEUBEN LAKE REGIONAL WASTE DISTRICT

FIGURE 6-1: SOILS MAP - PHASE II
STEUBEN COUNTY, INDIANA

JONES PETRIE RAFINSKI
Elkhart, IN p: 574.293.7762
South Bend, IN p: 574.232.4388
Fort Wayne, IN p: 260.422.2522

Feet
0 700 1,400

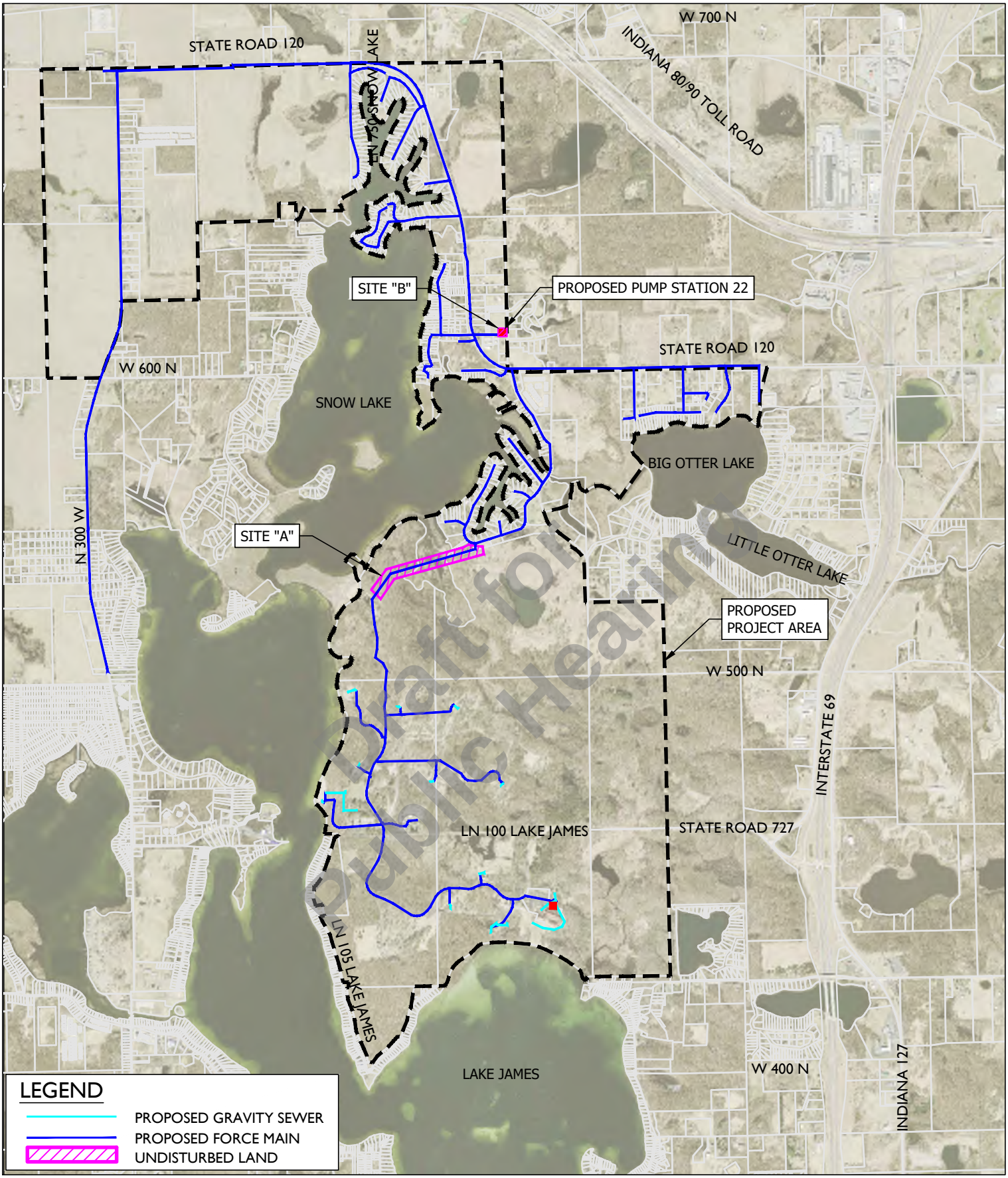


STEUBEN LAKE REGIONAL WASTE DISTRICT

FIGURE 6-1: SOILS MAP - PHASE II
STEUBEN COUNTY, INDIANA

JONES PETRIE RAFINSKI
Elkhart, IN p: 574.293.7762
South Bend, IN p: 574.232.4388
Fort Wayne, IN p: 260.422.2522

Feet
0 700 1,400

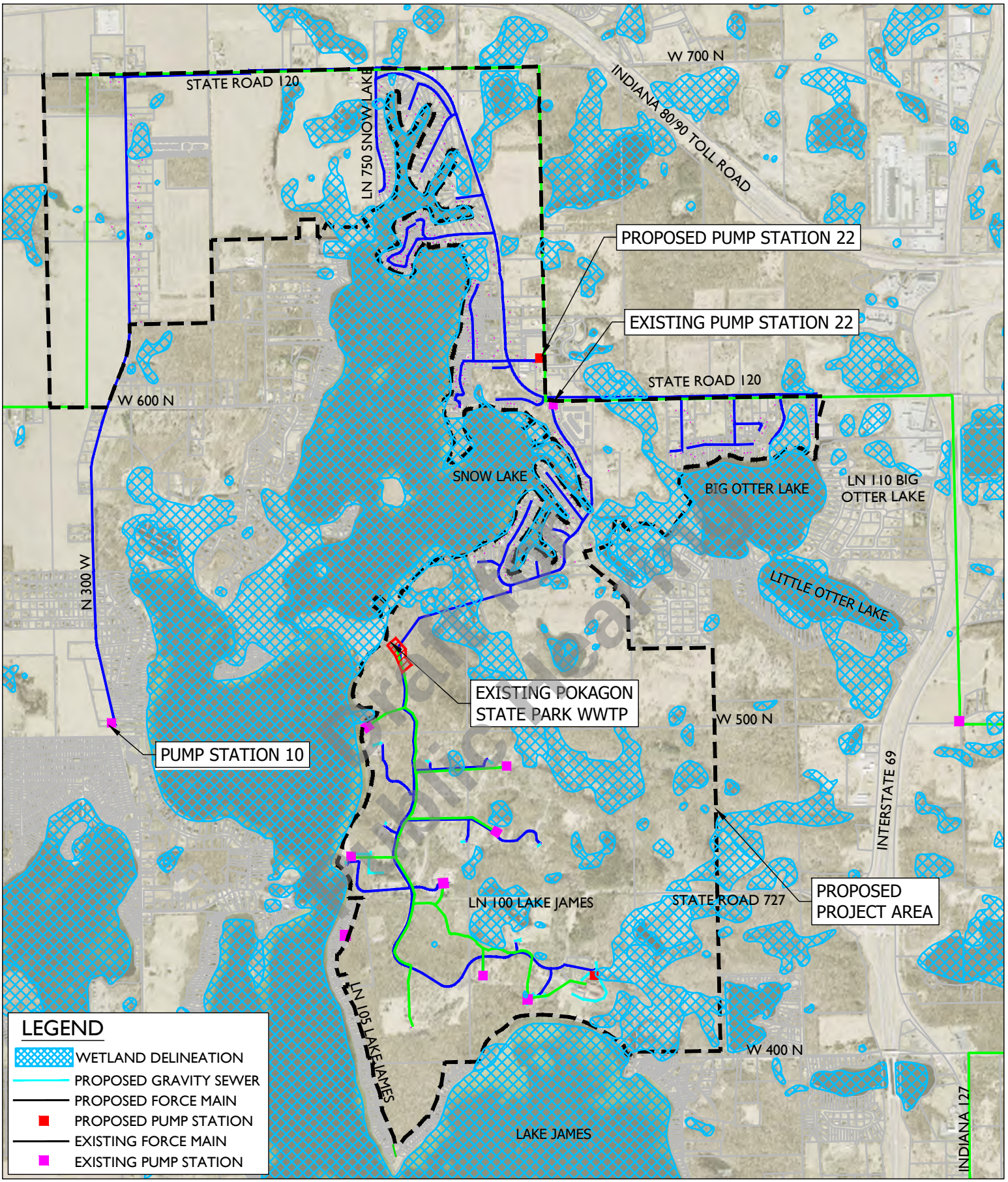


STEUBEN LAKE REGIONAL WASTE DISTRICT

FIGURE 7: UNDISTURBED LAND MAP - PHASE II
STEUBEN COUNTY, INDIANA

JONES PETRIE RAFINSKI
Elkhart, IN p: 574.293.7762
South Bend, IN p: 574.232.4388
Fort Wayne, IN p: 260.422.2522

Feet
0 1,000 2,000

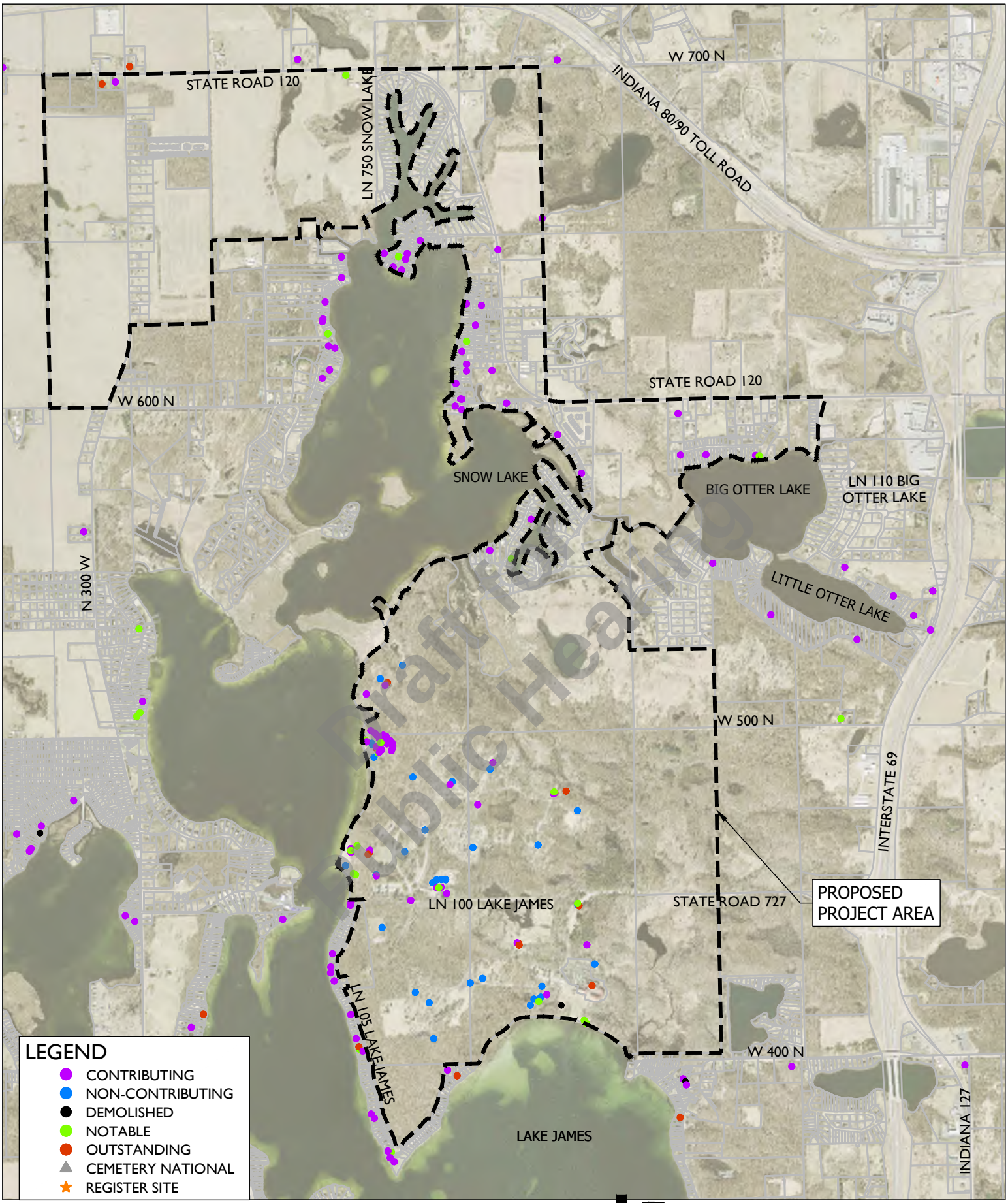


STEUBEN LAKE REGIONAL WASTE DISTRICT

FIGURE 8: WETLANDS MAP - PHASE II
STEUBEN COUNTY, INDIANA

JONES PETRIE RAFINSKI
Elkhart, IN p: 574.293.7762
South Bend, IN p: 574.232.4388
Fort Wayne, IN p: 260.422.2522

Feet
0 1,000 2,000



STEUBEN LAKE REGIONAL WASTE DISTRICT

FIGURE 9: HISTORIC SITE MAP - PHASE II
STEUBEN COUNTY, INDIANA

JONES PETRIE RAFINSKI
Elkhart, IN p: 574.293.7762
South Bend, IN p: 574.232.4388
Fort Wayne, IN p: 260.422.2522

Feet
0 1,000 2,000

APPENDIX A

Letter of Support from County Health Department

APPENDIX B
Preliminary Rate Analysis

APPENDIX C

Itemized Cost Estimates for Project Alternatives

Option 1 – Collection System – Force Main System Construction Cost Estimate

ENGINEER'S PRE-DESIGN CONSTRUCTION ESTIMATE - FORCE MAIN SYSTEM					
Item No.	**Estimated Quantity**	**Unit**	**Description**	**Unit Price**	**Extension**
1	30,000	LFT	1-1/4"HDPE Force Main, Service Line	$16.00	$480,000.00
2	7,500	LFT	1-1/4" HDPE Force Main w/ 3" Casing Pipe, Service Line	$19.00	$142,500.00
3	18,600	LFT	2" HDPE Force Main, Main Line	$20.00	$372,000.00
4	6,200	LFT	3" HDPE Force Main, Main Line	$23.00	$142,600.00
5	3,900	LFT	6" HDPE Force Main, Main Line	$40.00	$156,000.00
6	6,200	LFT	8" HDPE Force Main, Main Line	$60.00	$372,000.00
7	16,200	LFT	10" HDPE Force Main, Main Line	$75.00	$1,215,000.00
8	364	EA	Grinder Station, Type I - Equipment	$3,500.00	$1,274,000.00
9	364	EA	Grinder Station, Type I - Installation	$4,000.00	$1,456,000.00
10	23	EA	Grinder Station, Type II - Equipment	$3,750.00	$86,250.00
11	23	EA	Grinder Station, Type II - Installation	$4,000.00	$92,000.00
12	17	EA	Grinder Station, Type III - Equipment	$3,500.00	$59,500.00
13	17	EA	Grinder Station, Type III - Installation	$5,000.00	$85,000.00
14	4	EA	Grinder Station, Type IV - Equipment	$3,500.00	$14,000.00
15	4	EA	Grinder Station, Type IV - Installation	$5,000.00	$20,000.00
16	15	EA	Flushing Station - Type 1	$7,000.00	$105,000.00
17	20	EA	Type 3 Valve Junction	$6,000.00	$120,000.00
18	30	EA	Air Release Valve Station	$11,000.00	$330,000.00
19	408	EA	Ball Valve and Curb Stop Assembly	$1,300.00	$530,400.00
20	364	EA	Alarm Disconnect Panels - Grinder Station Type I	$2,000.00	$728,000.00
21	23	EA	Alarm Disconnect Panels - Grinder Station Type II	$2,000.00	$46,000.00
22	17	EA	Alarm Disconnect Panels - Grinder Station Type III	$2,000.00	$34,000.00
23	4	EA	Alarm Disconnect Panels - Grinder Station Type IV	$2,000.00	$8,000.00
21	6,000	LFT	Electrical Conduit & Conductors	$21.00	$126,000.00
22	1	LSUM	Pump Station 22	$300,000.00	$300,000.00
23	15	EA	Gravity Lateral Reconnection New Grinder Station Located within same Footprint as Existing Grinder Station	$1,500.00	$22,500.00
	188	EA	Gravity Lateral Reconnection New Grinder Station Located outside of Footprint of Existing Grinder Station	$3,500.00	$658,000.00
24	15	EA	Gravity Lateral Reconnection New Grinder Station Located within same Footprint as Existing Septic Tank	$2,500.00	$37,500.00
	88	EA	Gravity Lateral Reconnection - New Grinder Station Located outside of Footprint of Existing Septic Tank	$4,500.00	$396,000.00
25	15	EA	Septic Tank & Effluent Chamber Abandonment New Grinder Station Located within same Footprint as Existing Septic Tank	$3,000.00	$45,000.00
26	88	EA	Septic Tank & Effluent Chamber Abandonment New Grinder Station Located outside of Footprint of Existing Septic Tank	$3,400.00	$299,200.00
27	15	EA	Grinder Station Abandonment - New Grinder Station Located within same Footprint as Existing Grinder Pump	$2,000.00	$30,000.00
28	188	EA	Grinder Station Abandonment - New Grinder Station Located outside of Footprint of Existing Grinder Pump	$2,500.00	$470,000.00
29	1	LSUM	Decommissioning of Existing Pump Station 22	$50,000.00	$50,000.00
30	1	LSUM	Decommissioning of Antrup Absorption Field	$15,000.00	$15,000.00

Item No.	Estimated Quantity	Unit	Description	Unit Price	Extension
31	1	LSUM	Decommissioning of Bearman Absorption Field	$25,000.00	$25,000.00
32	1	LSUM	Connection to Pump Station 10	$5,000.00	$5,000.00
33	1	LSUM	Upgrades to Existing Pump Station 10	$450,000.00	$450,000.00
34	1	LSUM	Upgrades to Existing Pump Station 9	$500,000.00	$500,000.00
35	1	LSUM	Upgrades to Existing Pump Station 2	$650,000.00	$650,000.00
36	1	LSUM	Upgrades to Existing Pump Station 1	$750,000.00	$750,000.00
37	20	EA	Spare Grinder Motor/Pump	$1,700.00	$34,680.00
38	16	EA	Spare Alarm Disconnect Panel	$1,000.00	$16,000.00
39	10,000	SYD	Asphalt Pavement Replacement	$80.00	$800,000.00
40	2,500	SYD	Driveway Restoration	$60.00	$150,000.00
41	1	LSUM	Erosion Control	$25,000.00	$25,000.00
42	1	LSUM	Landscape Restoration & Seeding	$150,000.00	$150,000.00
43	1	LSUM	Traffic Maintenance	$150,000.00	$150,000.00
44	1	LSUM	Mobilization/ Demobilization (5% Max.)	$701,100.00	$701,100.00
				Sub Total	**$14,724,230.00**
			Pokagon State Park (PSP)		
45	1	LSUM	Demolish Aeration Tanks	$50,000	$50,000
46	1	LSUM	Demolish Influent Structure/EQ Basin	$50,000	$50,000
47	3	EA	Demolish Manholes	$1,000	$3,000
48	1	LSUM	Demolish Ferric Chloride Structure	$5,000	$5,000
49	1	LSUM	Demolish Sludge Storage Tank	$25,000	$25,000
50	1	LSUM	Demolish Valve Pit	$5,000	$5,000
51	1	LSUM	Demolish Clarifier	$25,000	$25,000
52	1	LSUM	Demolish Disinfection & Post-Aeration Structure	$25,000	$25,000
53	1	LSUM	Demolish Sludge Tanks	$50,000	$50,000
54	2	EA	Dewater and Fill Existing Lagoons	$75,000	$150,000
55	1	LSUM	Abandon Existing Water Lines	$5,000	$5,000
56	1	LSUM	Abandon Existing Sanitary Sewers	$10,000	$10,000
57	1	LSUM	Abandon Existing Force Mains	$5,000	$5,000
58	1	LSUM	Abandon Existing Valves	$5,000	$5,000
59	1	LSUM	Remove Existing Security Fencing	$5,000	$5,000
60	1	LSUM	Final Grading	$25,000	$25,000
61	1	LSUM	Landscape Restoration & Seeding	$45,000	$45,000
62	100	LFT	1-1/4"HDPE Force Main, Service Line- PSP	$16.00	$1,600.00
63	10,200	LFT	2" HDPE Force Main, Main Line - PSP	$20.00	$204,000.00
64	11,200	LFT	6" HDPE Force Main, Main Line - PSP	$40.00	$448,000.00
65	4,000	LFT	6" SDR 35 PVC Gravity Sanitary Sewer Lateral	$52.00	$208,000.00
66	13	EA	Grinder Pump Unit, Type IX - Equipment - PSP	$7,000.00	$91,000.00
67	13	EA	Grinder Pump Unit - Type IX - Installation - PSP	$7,500.00	$97,500.00
68	13	EA	Grinder Station Control Panel, Type C, Standard Flow - Equipment - PSP	$1,500.00	$19,500.00
69	13	EA	Grinder Station Control Panel, Type C - Installation - PSP	$1,000.00	$13,000.00
70	1	LSUM	Pokagon State Park Inn Lift Station (160 GPM)- PSP	$200,000.00	$200,000.00
71	1	LSUM	Package Pump Station for the New Dump Station (50 GPM)	$75,000.00	$75,000.00
72	10	EA	Septic Tank, 3,000 gallons	$10,000.00	$100,000.00
73	5	EA	Flushing Station - Type 1	$7,000.00	$35,000.00
74	7	EA	Type 3 Valve Junction	$6,000.00	$42,000.00
75	10	EA	Air Release Valve Station	$11,000.00	$110,000.00

Item No.	Estimated Quantity	Unit	Description	Unit Price	Extension
76	13	EA	Ball Valve and Curb Stop Assembly	$1,300.00	$16,900.00
77	2	EA	Connect Existing Force Mains from Nature Center and Warming Hut to New Force Main	$2,500.00	$5,000.00
78	6	EA	Decommissioning of Existing Grinder Stations Pokagon State Park	$5,000.00	$30,000.00
79	4,000	LFT	Electrical Conduit & Conductors	$21.00	$84,000.00
80	4,000	LFT	New 6" SDR 21 Gravity Lateral	$55.00	$220,000.00
81	6	EA	Gravity Lateral Reconnection	$2,500.00	$15,000.00
82	1,200	SYD	Asphalt Pavement Replacement	$80.00	$96,000.00
83	400	SYD	Driveway Restoration	$60.00	$24,000.00
84	1	LSUM	Erosion Control	$10,000.00	$10,000.00
85	1	LSUM	Landscape Restoration & Seeding	$50,000.00	$50,000.00
86	1	LSUM	Traffic Maintenance	$25,000.00	$25,000.00
87	1	LSUM	Mobilization/ Demobilization (5% Max.)	$111,000.00	$111,000.00
				Sub Total	**$2,819,500.00**
				Total	**$17,550,000**
				Construction Contingency (10%)	$1,760,000
				Estimated Construction Costs	**$19,310,000**

Option 1 – Collection System – Force Main System O, M, & R Cost Estimate

Force Main O, M & R COSTS		
Item No.	**Description**	**Annual Cost**
1	Grinder Station Pump Power [1]	$4,900
2	Grinder Pump Rebuilds, Labor & Call-Outs	$15,000
3	Grinder Pump Spare Cores[2]	$71,600
4	Control Panel Spares, Other Misc. Parts & Labor	$2,000
5	Power for Lift Stations [3]	$3,000
6	Pump Station Annual SCADA Contracts	$6,750
7	Pump Repair/Maintenance	$3,000
8	Lift Station Check-up & Emergency Call-Outs [4]	$27,300
9	Misc. Admin, Insurance, Etc.	$1,000
10	Emergency Allowance	$5,000
	Total Annual O, M & R Costs	**$139,550**

[1] (408+13 pumps x 0.746kw/hp x 1 hp x 208 gpd x 365 days/yr x $0.10/kwhr)/(0.75 motor eff x 11 gal/min x 60 min/ hr)

[2] Assumes 10% replacement (of installed total of 421 units) every year @ $1,700 each

[3] ((1 pump x 0.746 kw/hp x 2 hp x 50,000 gpd x 365 days/yr x $0.10/kwhr)/(0.75 motor eff x 230 gal/min x 60 min/hr)) x 7 lift stations + $30 per month per electrical riser

[4] Assumes 1 person spending half an hour at each lift station (3.5 hours total) for 5 working days each week every year. Assumed hourly costs is $30/hour including benefits, etc.

Option 2 – Collection System – STEP Sewer System Construction Cost

ENGINEER'S PRE-DESIGN CONSTRUCTION ESTIMATE – STEP SEWER SYSTEM					
Item No.	**Estimated Quantity**	**Unit**	**Description**	**Unit Price**	**Extension**
1	30,000	LFT	1-1/4"HDPE STEP Sewer, Service Line	$16.00	$480,000.00
2	7,500	LFT	1-1/4" HDPE STEP Sewer w/ 3" Casing Pipe, Service Line	$19.00	$142,500.00
3	18,600	LFT	2" HDPE STEP Sewer, Main Line	$20.00	$372,000.00
4	6,200	LFT	3" HDPE STEP Sewer, Main Line	$23.00	$142,600.00
5	3,900	LFT	6" HDPE STEP Sewer, Main Line	$40.00	$156,000.00
6	6,200	LFT	8" HDPE STEP Sewer, Main Line	$60.00	$372,000.00
7	16,200	LFT	10" HDPE Force Main, Main Line	$75.00	$1,215,000.00
8	6	EA	Trash Tank, 1500 gallons	$4,500.00	$27,000.00
9	402	EA	Trash Tank, 850 gallons	$3,500.00	$1,407,000.00
10	408	EA	STEP Pump	$9,300.00	$3,794,400.00
11	15	EA	Flushing Station - Type 1	$7,000.00	$105,000.00
12	20	EA	Type 3 Valve Junction	$6,000.00	$180,000.00
13	30	EA	Air Release Valve Station	$11,000.00	$330,000.00
14	41	EA	Spare Septic Tank Effluent Pumps	$1,500.00	$61,200.00
15	3	EA	Pump Station (150 GPM)	$350,000.00	$1,050,000.00
16	13,100	SYD	Asphalt Pavement Replacement	$80.00	$1,048,000.00
17	3,275	SYD	Driveway Restoration	$60.00	$196,500.00
18	1	LSUM	Erosion Control	$5,000.00	$5,000.00
19	1	LSUM	Landscape Restoration & Seeding	$25,000.00	$25,000.00
20	1	LSUM	Traffic Maintenance	$25,000.00	$25,000.00
21	1	LSUM	Mobilization & Demobilization (3% +/-)	$334,000.00	$334,000.00
22	408	EA	Alarm Disconnect Panels - Grinder Station Type I	$2,000.00	$816,000.00
23	6,000	LFT	Electrical Conduit & Conductors	$21.00	$126,000.00
24	1	LSUM	Pump Station 22	$300,000.00	$300,000.00
25	15	EA	Gravity Lateral Reconnection New Grinder Station Located within same Footprint as Existing Grinder Station	$1,500.00	$22,500.00
26	188	EA	Gravity Lateral Reconnection New Grinder Station Located outside of Footprint of Existing Grinder Station	$3,500.00	$658,000.00
27	15	EA	Gravity Lateral Reconnection New Grinder Station Located within same Footprint as Existing Septic Tank	$2,500.00	$37,500.00
28	88	EA	Gravity Lateral Reconnection - New Grinder Station Located outside of Footprint of Existing Septic Tank	$4,500.00	$396,000.00
29	15	EA	Septic Tank & Effluent Chamber Abandonment New Grinder Station Located within same Footprint as Existing Septic Tank	$3,000.00	$45,000.00
30	88	EA	Septic Tank & Effluent Chamber Abandonment New Grinder Station Located outside of Footprint of Existing Septic Tank	$3,400.00	$299,200.00
31	15	EA	Grinder Station Abandonment - New Grinder Station Located within same Footprint as Existing Grinder Pump	$2,000.00	$30,000.00
32	188	EA	Grinder Station Abandonment - New Grinder Station Located outside of Footprint of Existing Grinder Pump	$2,500.00	$470,000.00
33	1	LSUM	Decommissioning of Existing Pump Station 22	$50,000.00	$50,000.00
34	1	LSUM	Decommissioning of Antrup Absorption Field	$15,000.00	$15,000.00
35	1	LSUM	Decommissioning of Bearman Absorption Field	$25,000.00	$25,000.00
36	1	LSUM	Connection to Pump Station 10	$5,000.00	$5,000.00
37	1	LSUM	Upgrades to Existing Pump Station 10	$450,000.00	$450,000.00
38	1	LSUM	Upgrades to Existing Pump Station 9	$500,000.00	$500,000.00
39	1	LSUM	Upgrades to Existing Pump Station 2	$650,000.00	$650,000.00

Item No.	Estimated Quantity	Unit	Description	Unit Price	Extension
40	1	LSUM	Upgrades to Existing Pump Station 1	$750,000.00	$750,000.00
41	2	LSUM	Pump Station along SR 120 for East end of Project	$250,000.00	$500,000.00
42	4,000	SYD	Asphalt Pavement Replacement	$80.00	$320,000.00
43	400	SYD	Driveway Restoration	$60.00	$24,000.00
44	1	LSUM	Erosion Control	$25,000.00	$25,000.00
45	1	LSUM	Landscape Restoration & Seeding	$150,000.00	$150,000.00
46	1	LSUM	Traffic Maintenance	$150,000.00	$150,000.00
47	1	LSUM	Mobilization/ Demobilization (5% Max.)	$914,100.00	$914,100.00
				Subtotal	**$15,213,400**
			Pokagon State Park (PSP)		
47	1	LSUM	Demolish Aeration Tanks	$50,000	$50,000
48	1	LSUM	Demolish Influent Structure/EQ Basin	$50,000	$50,000
49	3	EA	Demolish Manholes	$1,000	$3,000
50	1	LSUM	Demolish Ferric Chloride Structure	$5,000	$5,000
51	1	LSUM	Demolish Sludge Storage Tank	$25,000	$25,000
52	1	LSUM	Demolish Valve Pit	$5,000	$5,000
53	1	LSUM	Demolish Clarifier	$25,000	$25,000
54	1	LSUM	Demolish Disinfection & Post-Aeration Structure	$25,000	$25,000
55	1	LSUM	Demolish Sludge Tanks	$50,000	$50,000
56	2	EA	Dewater and Fill Existing Lagoons	$75,000	$150,000
57	1	LSUM	Abandon Existing Water Lines	$5,000	$5,000
58	1	LSUM	Abandon Existing Sanitary Sewers	$10,000	$10,000
59	1	LSUM	Abandon Existing Force Mains	$5,000	$5,000
60	1	LSUM	Abandon Existing Valves	$5,000	$5,000
61	1	LSUM	Remove Existing Security Fencing	$5,000	$5,000
62	1	LSUM	Final Grading	$25,000	$25,000
63	1	LSUM	Landscape Restoration & Seeding	$45,000	$45,000
64	100	LFT	1-1/4"HDPE STEP Sewer, Service Line - PSP	$16.00	$1,600.00
65	10,200	LFT	2" HDPE STEP Sewer, Main Line - PSP	$20.00	$204,000.00
66	11,200	LFT	6" HDPESTEP Sewer, Main Line - PSP	$40.00	$448,000.00
67	4,000	LFT	6" SDR 35 PVC Gravity Sanitary Sewer Lateral	$52.00	$208,000.00
68	29	EA	Trash Tank, 3,000 gallons	$10,000.00	$290,000.00
69	13	EA	Trash Tank, 1500 gallons	$4,500.00	$58,500.00
70	13	EA	STEP Pump	$9,300.00	$120,900.00
71	1	LSUM	Pokagon State Park Inn Lift Station (160 GPM)- PSP	$200,000.00	$200,000.00
72	1	LSUM	Package Pump Station for the New Dump Station (50 GPM)	$75,000.00	$75,000.00
73	1	LSUM	Pump Station at WWTP site	$250,000.00	$250,000.00
74	5	EA	Flushing Station - Type 1	$7,000.00	$35,000.00
75	7	EA	Type 3 Valve Junction	$6,000.00	$42,000.00
76	10	EA	Air Release Valve Station	$11,000.00	$110,000.00
77	2	EA	Connect Existing Force Mains from Nature Center and Warming Hut to New Force Main	$2,500.00	$5,000.00
78	6	EA	Decommissioning of Existing Grinder Stations Pokagon State Park	$5,000.00	$30,000.00
79	6	EA	Gravity Lateral Reconnection	$2,500.00	$15,000.00
80	1,200	SYD	Asphalt Pavement Replacement	$80.00	$96,000.00
81	400	SYD	Driveway Restoration	$60.00	$24,000.00
82	1	LSUM	Erosion Control	$10,000.00	$10,000.00
83	1	LSUM	Landscape Restoration & Seeding	$50,000.00	$50,000.00

Item No.	Estimated Quantity	Unit	Description	Unit Price	Extension
84	1	LSUM	Traffic Maintenance	$25,000.00	$25,000.00
85	1	LSUM	Mobilization/ Demobilization (5% Max.)	$114,900.00	$114,900.00
				Sub Total	**$2,900,900.00**
				Total	**$18,120,000**
				Construction Contingency (10%)	$1,820,000
				Estimated Construction Costs	**$19,940,000**

Option 2 – Collection System – STEP Sewer System O, M, & R Cost Estimate

Force Main O, M & R COSTS		
Item No.	**Description**	**Annual Cost**
1	Grinder Station Pump Power [1]	$4,900
2	Grinder Pump Rebuilds, Labor & Call-Outs	$15,000
3	Grinder Pump Spare Cores[2]	$71,600
4	Control Panel Spares, Other Misc. Parts & Labor	$2,000
5	Power for Lift Stations [3]	$3,000
6	Pump Station Annual SCADA Contracts	$6,750
7	Pump Repair/Maintenance	$3,000
8	Lift Station Check-up & Emergency Call-Outs [4]	$27,300
9	Misc. Admin, Insurance, Etc.	$1,000
10	Emergency Allowance	$5,000
	Total Annual O, M & R Costs	**$139,550**

[1] (408+13 pumps x 0.746kw/hp x 1 hp x 208 gpd x 365 days/yr x $0.10/kwhr)/(0.75 motor eff x 11 gal/min x 60 min/ hr)

[2] Assumes 10% replacement (of installed total of 421 units) every year @ $1,700 each

[3] ((1 pump x 0.746 kw/hp x 2 hp x 50,000 gpd x 365 days/yr x $0.10/kwhr)/(0.75 motor eff x 230 gal/min x 60 min/hr)) x 7 lift stations + $30 per month per electrical riser

[4] Assumes 1 person spending half an hour at each lift station (3.5 hours total) for 5 working days each week every year. Assumed hourly costs is $30/hour including benefits, etc.

APPENDIX D
Historical & Archaeological Report

APPENDIX E
Wetland Delineation Report

APPENDIX F

NCRS Farmland Conversion Rating Form

JONES PETRIE RAFINSKI

Land Surveying · Civil Engineering · Planning · Architecture · Project Funding · GIS · Environmental · Renewable Energy · Landscape Architecture

February 24, 2021

Natural Resources Conservation Service – Indiana
6013 Lakeside Boulevard
Indianapolis, IN 46278-2933

Attn: Rick Neilson

RE: STEUBEN LAKES REGIONAL WASTE DISTRICT – PRELIMINARY ENGINEERING REPORT FOR NORTHEAST DISTRICT (NED) PHASE II WASTEWATER COLLECTION SYSTEM AND PUMP STATION PROJECT

Dear Mr. Neilson:

Attached to this letter, please see a copy of the following figures regarding the above project:

- Undisturbed Land Maps for Project Area
- NRCS Farmland Conversion Impact Rating forms for each of the Affected Project Areas (Sites A and B)
- Wastewater System Pressure Sewer Map
- Wastewater System Soil Map

The breakdown of each site designation is as follows:

- Site A – Undisturbed Land Map Segment 1 – Sanitary Sewer
- Site B – Sanitary Pump Station #22

If you have any questions, comments, or concerns, please don't hesitate to contact JPR at 260-422-2522 or via email at avodde@jpr1source.com.

Sincerely,

Allie Vodde, EIT
Graduate Engineer

M:\2020 Projects\2020-0026 SLRWD NED Phase 2 - PER\PER\Appendices\Appendix F - NCRS Farmland Conversion\2021-02-22 NRCS Cover Letter.docx

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request 2/24/2021	
Name of Project NED P. 2 Wastewater Collection System	Federal Agency Involved EPA through SRF	
Proposed Land Use Pump Station and Sanitary Sewer	County and State Steben County, IN	
PART II *(To be completed by NRCS)*	Date Request Received By NRCS	Person Completing Form:

Does the site contain Prime, Unique, Statewide or Local Important Farmland? *(If no, the FPPA does not apply - do not complete additional parts of this form)*	YES ☐	NO ☐	Acres Irrigated	Average Farm Size
Major Crop(s)	Farmable Land In Govt. Jurisdiction Acres: %		Amount of Farmland As Defined in FPPA Acres: %	
Name of Land Evaluation System Used	Name of State or Local Site Assessment System		Date Land Evaluation Returned by NRCS	

PART III *(To be completed by Federal Agency)*	Alternative Site Rating			
	Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly		0.23		
B. Total Acres To Be Converted Indirectly	0.47			
C. Total Acres In Site	0.47	0.23		
PART IV *(To be completed by NRCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland				
B. Total Acres Statewide Important or Local Important Farmland				
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted				
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value				
PART V (To be completed by NRCS) Land Evaluation Criterion Relative Value of Farmland To Be Converted (Scale of 0 to 100 Points)				

PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(Criteria are explained in 7 CFR 658.5 b. For Corridor project use form NRCS-CPA-106)*	**Maximum Points**	Site A	Site B	Site C	Site D
1. Area In Non-urban Use	(15)				
2. Perimeter In Non-urban Use	(10)				
3. Percent Of Site Being Farmed	(20)				
4. Protection Provided By State and Local Government	(20)				
5. Distance From Urban Built-up Area	(15)				
6. Distance To Urban Support Services	(15)				
7. Size Of Present Farm Unit Compared To Average	(10)				
8. Creation Of Non-farmable Farmland	(10)				
9. Availability Of Farm Support Services	(5)				
10. On-Farm Investments	(20)				
11. Effects Of Conversion On Farm Support Services	(10)				
12. Compatibility With Existing Agricultural Use	(10)				
TOTAL SITE ASSESSMENT POINTS	160	0	0	0	0
PART VII ***(To be completed by Federal Agency)***					
Relative Value Of Farmland *(From Part V)*	100	0	0	0	0
Total Site Assessment *(From Part VI above or local site assessment)*	160	0	0	0	0
TOTAL POINTS ***(Total of above 2 lines)***	260	0	0	0	0

Site Selected:	Date Of Selection	Was A Local Site Assessment Used? YES ☐ NO ☐

Reason For Selection:

Name of Federal agency representative completing this form:	Date:

STEPS IN THE PROCESSING THE FARMLAND AND CONVERSION IMPACT RATING FORM

Step 1 - Federal agencies (or Federally funded projects) involved in proposed projects that may convert farmland, as defined in the Farmland Protection Policy Act (FPPA) to nonagricultural uses, will initially complete Parts I and III of the form. For Corridor type projects, the Federal agency shall use form NRCS-CPA-106 in place of form AD-1006. The Land Evaluation and Site Assessment (LESA) process may also be accessed by visiting the FPPA website, http://fppa.nrcs.usda.gov/lesa/.

Step 2 - Originator (Federal Agency) will send one original copy of the form together with appropriate scaled maps indicating location(s)of project site(s), to the Natural Resources Conservation Service (NRCS) local Field Office or USDA Service Center and retain a copy for their files. (NRCS has offices in most counties in the U.S. The USDA Office Information Locator may be found at http://offices.usda.gov/scripts/ndISAPI.dll/oip_public/USA_map**,** or the offices can usually be found in the Phone Book under U.S. Government, Department of Agriculture. A list of field offices is available from the NRCS State Conservationist and State Office in each State.)

Step 3 - NRCS will, within 10 working days after receipt of the completed form, make a determination as to whether the site(s) of the proposed project contains prime, unique, statewide or local important farmland. (When a site visit or land evaluation system design is needed, NRCS will respond within 30 working days.

Step 4 - For sites where farmland covered by the FPPA will be converted by the proposed project, NRCS will complete Parts II, IV and V of the form.

Step 5 - NRCS will return the original copy of the form to the Federal agency involved in the project, and retain a file copy for NRCS records.

Step 6 - The Federal agency involved in the proposed project will complete Parts VI and VII of the form and return the form with the final selected site to the servicing NRCS office.

Step 7 - The Federal agency providing financial or technical assistance to the proposed project will make a determination as to whether the proposed conversion is consistent with the FPPA.

INSTRUCTIONS FOR COMPLETING THE FARMLAND CONVERSION IMPACT RATING FORM

(For Federal Agency)

Part I: When completing the "County and State" questions, list all the local governments that are responsible for local land use controls where site(s) are to be evaluated.

Part III: When completing item B (Total Acres To Be Converted Indirectly), include the following:

1. Acres not being directly converted but that would no longer be capable of being farmed after the conversion, because the conversion would restrict access to them or other major change in the ability to use the land for agriculture.
2. Acres planned to receive services from an infrastructure project as indicated in the project justification (e.g. highways, utilities planned build out capacity) that will cause a direct conversion.

Part VI: Do not complete Part VI using the standard format if a State or Local site assessment is used. With local and NRCS assistance, use the local Land Evaluation and Site Assessment (LESA).

1. Assign the maximum points for each site assessment criterion as shown in § 658.5(b) of CFR. In cases of corridor-type project such as transportation, power line and flood control, criteria #5 and #6 will not apply and will, be weighted zero, however, criterion #8 will be weighed a maximum of 25 points and criterion #11 a maximum of 25 points.

2. Federal agencies may assign relative weights among the 12 site assessment criteria other than those shown on the FPPA rule after submitting individual agency FPPA policy for review and comment to NRCS. In all cases where other weights are assigned, relative adjustments must be made to maintain the maximum total points at 160. For project sites where the total points equal or exceed 160, consider alternative actions, as appropriate, that could reduce adverse impacts (e.g. Alternative Sites, Modifications or Mitigation).

Part VII: In computing the "Total Site Assessment Points" where a State or local site assessment is used and the total maximum number of points is other than 160, convert the site assessment points to a base of 160.
Example: if the Site Assessment maximum is 200 points, and the alternative Site "A" is rated 180 points:

$$\frac{\text{Total points assigned Site A}}{\text{Maximum points possible}} = \frac{180}{200} \text{ X } 160 = 144 \text{ points for Site A}$$

For assistance in completing this form or FPPA process, contact the local NRCS Field Office or USDA Service Center.

NRCS employees, consult the FPPA Manual and/or policy for additional instructions to complete the AD-1006 form.

APPENDIX G
Public Hearing Documentation

APPENDIX H

Asset Management and Fiscal Sustainability Plan

State Revolving Fund Loan Program
Asset Management Program Certification Form

(To be submitted either at the time of loan closing or no later than the final disbursement of a Participant's loan proceeds)

Participant Name	Stebuen Lakes Regional Waste District	
Street Address	8119 W 150 N	P. O. Box Number
City Angola	State IN	Zip Code 46703

Effective July 1, 2018, Indiana Code 5-1.2-10-16 requires a Participant that receives a loan or other financial assistance from the State Revolving Fund Loan Program certify that the Participant has documentation demonstrating it has the financial, managerial, technical and legal capability to operate and maintain its water or wastewater collection and treatment system. A Participant must demonstrate that it has developed an asset management program as defined in the Indiana Finance Authority's (Authority) Asset Management Program Guidelines. The Asset Management Program (AMP), shall include at a minimum the following: (1) A system map (2) An inventory and assessment of system assets (3) development of an infrastructure inspection, repair, and maintenance plan, including a plan for funding such activities (4) An analysis of the customer rates necessary to support the AMP (5) Audit performed at least every two years (6) Demonstration of the technical, managerial, legal and financial capability to operate and maintain the system, per the guidelines established by the Authority.

I hereby certify that I am an authorized representative for the above listed Participant and pursuant to IC 5-1.2-10-16, the Participant has developed and is implementing an AMP that meets the requirements established by the Authority.

Signature of Authorized Representative	Date
Printed Name	Phone Number/Email Address

Fiscal Sustainability Plan Certification Form

(Pursuant to Section 603(d)(1)(E)(i) of the Federal Water Pollution Control Act)
(To be submitted prior to final disbursement of Participant's loan proceeds related to the project)

Participant Name: Stebuen Lakes Regional Waste District		
Street Address: 8119 W 150 N	P. O. Box Number:	
City: Angola	State: IN	Zip Code: 46703

Section 603(d)(1)(E) of the Federal Water Pollution Control Act (FWPCA) requires a recipient of a loan for a project that involves the repair, replacement or expansion of a publically owned treatment works to develop and implement a Fiscal Sustainability Plan (FSP). The requirement pertains to those portions of the treatment works paid for with Clean Water SRF Loan Funds. The FSP must include the following minimum requirements as set forth in Section 603(d)(1)(E)(i): (I) an inventory of critical assets that are a part of the treatment works; (II) an evaluation of the condition and performance of inventoried assets or asset groupings; (III) a certification that the recipient has evaluated and will be implementing water and energy conservation efforts as part of the plan; and (IV) a plan for maintaining, repairing, and as necessary, replacing the treatment works and a plan for funding such activities; or per Section 603(d)(1)(E)(ii) certify that the recipient has developed and implemented a plan that meets the requirements above.

I certify that I am an authorized representative for the above listed Participant. I hereby certify pursuant to Section 603(d)(1)(E)(i) that the Participant has developed an FSP that meets the above minimum requirements and the FSP is being implemented and will be updated as necessary. I further certify that the Participant has evaluated and will be implementing water and energy conservation efforts as part of the FSP. Upon the request of the Environmental Protection Agency (EPA) or the Indiana State Revolving Fund Loan Program (SRF), the Participant agrees to make the FSP available for inspection and/or review.

Signature of Authorized Representative	Date
Printed Name	Phone Number

APPENDIX I

SRF Project Financing Information Form

TABLE VIII

SRF PROJECT FINANCING INFORMATION

(Wastewater)

1. Project Cost Summary
   a. Collection/transport system cost $26,420,000
   b. Treatment System cost _____
   c. Non-Point-Source (NPS) cost (septic tank removal) _____
   Subtotal Construction Cost $26,420,000
   d. Capacity Reservation Fees _____
   e. Contingencies $2,650,000
   (should not exceed 10% of construction cost)
   f. Non-construction Cost $5,440,000
   e.g., engineering/design services, field exploration studies, project management & construction inspection, legal & administrative services, land costs (including capitalized costs of leased lands, ROWs, & easements), start-up costs (e.g., O&M manual, operator training).
   g. **Total Project Cost** (lines a+b+c+d+e+f) $34,510,000
   h. Total ineligible SRF costs* (see next page) $350,000
   Total ineligible SRF costs will not be covered by the SRF loan.
   i. Other funding sources (list other grant/loan sources & amounts)
   (1) Local Funds (hook-on fees, connection fees, capacity fees, etc.)
   _____
   (2) Cash on hand _____
   (3) Community Development Block Grant - Community Focus Fund (CFF)
   _____
   (4) US Dept. of Agriculture Rural Development (RD) _____
   (5) Other _____
   Total Other Funding Sources _____

2. **SRF Loan Amount** (line g minus line item h+i*) $34,160,000
   * If there are adequate funds available under (i) to cover (h) then subtract (i) only.

3. Financial Advisor
   a. Firm Therber Brock & Associates, LLC
   b. Name Steven Brock
   c. Phone Number 317-637-9572
4. Bond Counsel
   a. Firm Therber Brock & Associates, LLC
   b. Name Steven Brock
   c. Phone Number 317-637-9572

The following costs are *not eligible* for SRF reimbursement:

1. Land cost (*unless it's for sludge application*) $ 350,000

   Only the actual cost of the land is **not eligible**; associated costs (such as attorney's fees, site title opinion and the like) **are eligible**.

2. Materials & work done on private property $_____

   (*Installation/repair of laterals, including disconnection of inflow into laterals; abandonment of on-site systems [septic tank or mound systems]).* Grinder pumps, vacuum stations and other appurtenances/installations on private property to treat/transport ARE fundable IF owned and maintained by the participant.

3. Grant applications and income surveys done for other agencies (e.g., OCRA, RUS, etc.)

   $_____

4. Any project solely designed to promote economic development and growth is ineligible.

5. Costs incurred for preparing NPDES permit applications and other tasks unrelated to the SRF project.

   $_____

6. Cleaning of equipment, such as digesters, sand filters, grit tanks and settling tanks. These items should have been maintained through routine operation, maintenance and replacement by the political subdivision. Sewer cleaning is **ineligible** for SRF *unless* the cleaning is required for sewer rehabilitation such as sliplining and cured in place piping (CIPP)

   $_____

APPENDIX J
Cost & Effectiveness Form

Cost & Effectiveness Certification Form

(Pursuant to Section 602(B)(13) of the Federal Water Pollution Control Act)
(Applies to all assistance recipients submitting an application on or after October 1, 2015)
(To be submitted prior to Participant's Wastewater Loan Closing)

Participant Name Steuben Lakes Regional Waste District		
Street Address 8119 W 150 N	P. O. Box Number	
City Angola	State IN	Zip Code 46703

Section 602(B)(13) of the Federal Water Pollution Control Act (FWPCA) requires a recipient of a loan to certify that the recipient:

1) has studied and evaluated the cost and effectiveness of the processes, materials, techniques, and technologies for carrying out the proposed project or activity for which assistance is sought under the Clean Water State Revolving Fund Loan Program; and
2) has selected, to the maximum extent practicable, a project or activity that maximizes the potential for efficient water use, reuse, recapture, and conservation, and energy conservation, taking into account –
   (i) the cost of constructing the project or activity;
   (ii) the cost of operating and maintaining the project or activity over the life of the project or activity; and
   (iii) the cost of replacing the project or activity

Certification

We hereby certify pursuant to Section 602(B)(13) that the Participant has completed the requirements of Section 602(B)(13) as set forth in items (1) and (2) above.

Signature of the Authorized Representative

Printed Name: _____

Signature: _____

Date: _____

Signature of Consulting Engineer

Printed Name: Steve Henschen

Signature: _____

Date: _____

APPENDIX K

Authorized Representative Resolution & PER Acceptance Resolution

SRF Loan Program
Signatory Authorization Resolution

WHEREAS, the Steuben Lakes Regional Waste District ("District"), located in Steuben County, Indiana, has caused a wastewater system Preliminary Engineering Report ("PER") for the Wastewater Collection System Project, NED Phase II, dated April 2021, to be prepared by the consulting firm of Jones Petrie Rafinski Corp.; and

Now, THEREFORE, BE IT RESOLVED by the Council, the governing body of the Participant, that:

1. _____ be authorized to make application for a State Revolving Fund Loan ("SRF Loan") and provide the SRF Loan Program such information, data and documents pertaining to the loan process as may be required, and otherwise act as the authorized representative of the Participant; and

2. The Participant agrees to comply with State and Federal requirements as they pertain to the SRF Loan Program; and

3. Two certified copies of this Resolution be prepared and submitted as part of the Participant's Preliminary Engineering Report.

Signature Page to Follow

Adopted and Passed by the SLRWD, Indiana, this _____ day of _____ 2021.

COUNCIL

_____

Signature

Attest: _____

Signature

SRF Loan Program
PER Acceptance Resolution

STEUBEN LAKES REGIONAL WASTE DISTRICT

RESOLUTION NO. _____

A RESOLUTION TO APPROVE SUBMITTAL OF THE NED PHASE II PRELIMINARY ENGINEERING REPORT TO THE STATE REVOLVING FUND LOAN PROGRAM

WHEREAS, the Steuben Lakes Regional Waste District ("District"), located in Steuben County, Indiana, has caused a wastewater system Preliminary Engineering Report ("PER") for the Wastewater Collection System Project, NED Phase II, dated April 2021, to be prepared by the consulting firm of Jones Petrie Rafinski Corp.; and

WHEREAS, said PER has been presented to the public at a public hearing held on _____, at the District's office, 8119 W 150 N, Angola, IN 46703 in accordance with Chapter 8 of the Guidelines (as hereinafter defined) for their comments in accordance with the State Revolving Fund Loan ("SRF") Program ("Program") Guidelines ("Guidelines");

WHEREAS, after said public hearing was held, the Middlebury Town Council finds that there was not sufficient evidence presented in objection to the recommend projects outlined in the PER, the District will present all items and findings required by the Guidelines to the SRF and continue the Program application process;

NOW, THEREFORE BE IT RESOLVED THAT:

1. The PER dated April 2021 be approved and adopted by the SLRWD and

2. Said PER be submitted to the State Revolving Fund Loan Program for review and approval.

Signature Page to Follow

Adopted and Passed by the SLRWD, Indiana, this _____ day of _____ 2021.

COUNCIL

_____
Signature

_____
Printed Name and Title

Attest: _____
Signature

_____
Printed Name and Title

APPENDIX L
Green Project Reserve Checklist

STATE REVOLVING FUND LOAN PROGRAM

GREEN PROJECT RESERVE SUSTAINABILITY INCENTIVE

CLEAN WATER CHECKLIST

SRF Loan Program Participant Information

Participant Name: Steuben Lakes Regional Waste District

Project Name/Location: NED Phase II Wastewater Collection System and Pump Station Replacement Project Steuben County, IN

Date: 3/4/2021 Revision No. _____

Instructions

This checklist shall be completed by the SRF Loan Program participant and be updated as the project changes from concept to design through construction completion. For instance, a checklist should be submitted with:

1. The SRF Loan Program Application,
2. The Preliminary Engineering Report, along with GPR project description and cost estimates,
3. The Post-Bid Documents, including GPR construction costs, and
4. Construction completion.

Please see the *U.S. EPA Green Project Reserve Guidance* available at www.srf.in.gov for a detailed review of eligibility, definition of the GPR categories: Green Infrastructure, Water Efficiency, Energy Efficiency and Environmentally innovative; examples of ineligible projects; categorical projects and those that require business cases. **All GPR projects, components and activities must be eligible for SRF funding.**

Check all that apply to the project:

I. GREEN INFRASTRUCTURE

1. Categorical Projects
   - ☐ Implementation of green streets (combinations of green infrastructure practices in transportation rights-of-way), for either new development, redevelopment or retrofits including:
     - ☐ Permeable pavement,
     - ☐ Bioretention,
     - ☐ Trees,
     - ☐ Green roofs, and
     - ☐ Other practices such as constructed wetlands that can be designed to mimic natural hydrology and reduce effective imperviousness at one or more scales, and
     - ☐ Vactor trucks and other capital equipment necessary to maintain green infrastructure projects.
   - ☐ Wet weather management systems for parking areas including:
     - ☐ Permeable pavement,
     - ☐ Bioretention,
     - ☐ Trees,
     - ☐ Green roofs, and
     - ☐ Other practices such as constructed wetlands that can be designed to mimic natural hydrology and reduce effective imperviousness at one or more scales.

- ☐ Vactor trucks and other capital equipment necessary to maintain green infrastructure projects.
- ☐ Implementation of comprehensive street tree or urban forestry programs, including expansion of tree boxes to manage additional stormwater and enhance tree health.
- ☐ Stormwater harvesting and reuse projects, such as cisterns and the systems that allow for utilization of harvested stormwater, including pipes to distribute stormwater for reuse.
- ☐ Downspout disconnection to remove stormwater from
  - ☐ Sanitary,
  - ☐ Combined sewers, and
  - ☐ Separate storm sewers and manage runoff onsite.
- ☐ Comprehensive retrofit programs designed to keep wet weather discharges out of all types of sewer systems using green infrastructure technologies and approaches such as:
  - ☐ Green roofs,
  - ☐ Green walls,
  - ☐ Trees and urban reforestation,
  - ☐ Permeable pavements
  - ☐ Bioretention cells, and
  - ☐ Turf removal and replacement with native vegetation or trees that improve permeability.
- ☐ Establishment or restoration of:
  - ☐ Permanent riparian buffers,
  - ☐ Floodplains,
  - ☐ Wetlands (federal rules prevent the SRF Loan Programs from providing financing assistance for a wetland required as a mitigation measure)
  - ☐ Vegetated buffers or soft bioengineered stream banks
  - ☐ Stream day lighting that removes natural streams from artificial pipes and restores a natural stream morphology that is capable of accommodating a range of hydrologic conditions while also providing biological integrity.
- ☐ Projects that involve the management of wetlands to improve water quality and/or support green infrastructure efforts (e.g., flood attenuation).
  - ☐ Includes constructed wetlands.
  - ☐ May include natural or restored wetlands if the wetland and its multiple functions are not degraded and all permit requirements are met.
- ☐ The water quality portion of projects that employ development and redevelopment practices that preserve or restore site hydrologic processes through sustainable landscaping and site design.
- ☐ Fee simple purchase of land or easements on land that has a direct benefit to water quality, such as riparian and wetland protection or restoration.

2. Decision Criteria for Business Cases
   - ☐ Green infrastructure projects that are designed to mimic the natural hydrologic conditions of the site or watershed.
   - ☐ Projects that capture, treat, infiltrate, or evapotranspire water on the parcels where it falls and does not result in interbasin transfers of water.
   - ☐ GPR project is in lieu of or to supplement municipal hard/gray infrastructure.
   - ☐ Other - Please provide an attachment explaining the scope of the project and brief explanation of the approach for the business case.

3. Example of Project Requiring a Business Case
   - ☐ Fencing to keep livestock out of streams and stream buffers. Fencing must allow buffer vegetation to grow undisturbed and be placed a sufficient distance from the riparian edge for the buffer to function as a filter for sediment, nutrients and other pollutants.

II. WATER EFFICIENCY

1. Categorical Projects
   - ☐ Installing or retrofitting water efficient devices, such as plumbing fixtures and appliances.
     - ☐ For example, shower heads, toilets, urinals and other plumbing devices.
     - ☐ Implementation of incentive programs to conserve water such as rebates.
     - ☐ Water sense labeled products.
   - ☐ Installing any type of water meter in previously unmetered areas, if rate structures are based on metered use
     - ☐ Can include backflow prevention devices if installed in conjunction with water meter
   - ☐ Replacing existing broken/malfunctioning water meters, or upgrading existing meters, with:
     - ☐ Automatic meter reading systems (AMR), for example:
       - ☐ Advanced metering infrastructure (AMI),
       - ☐ Smart meters,
     - ☐ Meters with built in leak detection,
     - ☐ Can include backflow prevention devices if installed in conjunction with water meter replacement.
   - ☐ Retrofitting/adding AMR capabilities or leak detection equipment to existing meters (not replacing the meter itself).
   - ☐ Water audit and water conservation plans, which are reasonably expected to result in a capital project.
   - ☐ Recycling and water reuse projects that replace potable sources with non-potable sources:
     - ☐ Gray water, condensate and wastewater effluent reuse systems (where local codes allow the practice),
     - ☐ Extra treatment costs and distribution pipes associated with water reuse.
   - ☐ Retrofit or replacement of existing landscape irrigation systems to more efficient landscape irrigation systems, including moisture and rain sensing controllers.
   - ☐ Retrofit or replacement of existing agricultural irrigation systems to more efficient agricultural irrigation systems.

2. Decision Criteria for Business Cases
   - ☐ Water efficiency can be accomplished through water saving elements or reducing water consumption. This will reduce the amount of water taken out of rivers, lakes, streams, groundwater, or from other sources.
   - ☐ Water efficiency projects should deliver equal or better services with less net water use as compared to traditional or standard technologies and practices.
   - ☐ Efficient water use often has the added benefit of reducing the amount of energy required by a POTW, since less water would need to be collected and treated; therefore, there are also energy and financial savings.
   - ☐ Other - Please provide and attachment explaining the scope of the project and brief explanation of the approach for the business case.

3. Example Projects Requiring a Business Case
   - ☐ Water meter replacement with traditional water meters.
   - ☐ Projects that result from a water audit or water conservation plan.
   - ☐ Storage tank replacement/rehabilitation to reduce loss of reclaimed water.
   - ☐ New water efficient landscape irrigation system.
   - ☐ New water efficient agricultural irrigation system.

III. ENERGY EFFICIENCY

1. Categorical Projects
   - ☐ Renewable energy projects such as wind, solar, geothermal, micro-hydroelectric, and biogas combined heat and power systems that provide power to a POTW. Micro-hydroelectric projects involve capturing the energy from pipe flow.
     - ☐ POTW owned renewable energy projects can be located onsite or offsite.
     - ☐ Include the portion of a publicly owned renewable energy project that POTW's energy needs.
     - ☐ Must feed into grid system that the utility draws from and/or there is a direction connection.
   - ☐ POTW energy management planning, including energy assessments, energy audits, optimization studies, and sub-metering of individual processes to determine high energy use areas, which are reasonably expected to result in a capital project are eligible.
   - ☐ Projects that achieve a 20% reduction in energy consumption are categorically eligible for GPR. If a project achieves less than a 20% reduction in energy efficiency, then it may be justified using a business case.
   - ☐ Collection system Infiltration/Inflow detection equipment.

2. Decision Criteria for Business Cases
   - ☐ Project must be cost effective. An evaluation must identify energy savings and payback on capital and operation and maintenance costs that does not exceed the useful life of the asset.
   - ☐ The business case must describe how the project maximizes energy saving opportunities for the POTW or unit process.
   - ☐ Using existing tools such as Energy Star's Portfolio Manager (http://www.energystar.gov/index.cfm?c=evaluate_performance.bus_portfoliomanager) or Check Up Program for Small Systems (CUPSS) (http://www.epa/cupss) to document current energy usage and track anticipated savings.
   - ☐ Other - Please provide and attachment explaining the scope of the project and brief explanation of the approach for the business case.

3. Examples of Projects Requiring a Business Case
   - ☐ POTW projects or unit process projects that achieve less than a 20% energy efficiency improvement may be justified using a business case.
   - ☐ Projects implementing recommendations from an energy audit that are not otherwise designated as categorical.
   - ☐ Projects that cost effectively eliminate pumps or pumping stations.
   - ☐ Infiltration/Inflow (I/I) correction projects that save energy from pumping and reduced treatment costs and are cost effective.
     - ☐ Projects that count toward GPR cannot build new structural capacity. These projects may, however, recover existing capacity by reducing flow from I/I.
   - ☐ I/I correction projects where excessive groundwater infiltration is contaminating the influent requiring otherwise unnecessary treatment processes (i.e. arsenic laden groundwater) and I/I correction is cost effective.
   - ☐ Replacing pre-Energy Policy Act of 1992 motors with National Electric Manufacturers Association (NEMA) premium energy efficiency motors.
     - ☐ NEMA is a standards setting association for the electrical manufacturing industry (http://www.nema.org/gov/energy/efficiency/premium/).
   - ☐ Upgrade of POTW lighting to energy efficient sources (such as metal halide pulse start technologies, compact fluorescent, light emitting diode (LED)).
   - ☒ SCADA systems can be justified based upon substantial energy savings.
   - ☒ Variable Frequency Drive can be justified based upon substantial energy savings.

IV. ENVIRONMENTALLY INNOVATIVE

1. Categorical Projects
   - ☐ Total/integrated water resources management planning likely to result in a capital project.
   - ☐ Utility Sustainability Plan consistent with EPA's SRF sustainability policy.
   - ☐ Greenhouse gas (GHG) inventory or mitigation plan and submission of a GHG inventory to a registry (such as Climate Leaders or Climate Registry).
   - ☐ Planning activities by a POTW to prepare for adaptation to the long-term effects of climate change and/or extreme weather.
   - ☐ Construction of US Building Council LEED certified buildings or renovation of an existing building on POTW facilities.
   - ☐ Decentralized wastewater treatment solutions to existing deficient or failing onsite wastewater systems.

2. Decision Criteria for Business Cases
   - ☐ Technology or approach whose performance is expected to address water quality but the actual performance has not been demonstrated in the state;
   - ☐ Technology or approach that is not widely used in the state, but does perform as well or better than conventional technology/approaches at lower cost; or
   - ☐ Conventional technology or approaches that are used in a new application in the state.
   - ☐ Other - Please provide and attachment explaining the scope of the project and brief explanation of the approach for the business case.

3. Examples of Projects Requiring a Business Case
   - ☐ Constructed wetlands projects used for municipal wastewater treatment, polishing, and/or effluent disposal.
     - ☐ Natural wetlands.
     - ☐ Project may not further degrade.
   - ☐ Projects or components of projects that result from total/integrated water resource management planning consistent with the decision criteria for environmentally innovative projects and that are Clean Water SRF eligible.
   - ☐ Projects that facilitate adaptation of POTWs to climate change identified by a carbon footprint assessment or climate adaptation study.
   - ☐ POTW upgrades or retrofits that remove phosphorus for beneficial use, such as biofuel production with algae.
   - ☐ Application of innovative treatment technologies or systems that improve environmental conditions and are consistent with the Decision Criteria for environmentally innovative projects such as:
     - ☐ Projects that significantly reduce or eliminate the use of chemicals in wastewater treatment.
     - ☐ Treatment technologies or approaches that significantly reduce the volume of residuals, minimize the generation of residuals, or lower the amount of chemicals in the residuals.
       - ☐ Includes composting, Class A and other sustainable biosolids management approaches.
   - ☐ Educational activities and demonstration projects for water or energy efficiency.
   - ☐ Projects that achieve the goals/objectives of utility asset management plans.
   - ☐ Sub-surface land application of effluent and other means for ground water recharge, such as spray irrigation and overland flow.
     - ☐ Spray irrigation and overland flow of effluent is not eligible for GPR where there is no other cost effective alternative.

V. CLIMATE AND EXTREME WEATHER RESILIENCY

1. Categorical Projects – none at this time.

2. Decision Criteria for Business Cases

- ☐ Utility functions and performance can be disrupted by climate change/extreme weather events.
  - ☐ Flooding
  - ☐ Drought
  - ☐ Tornado
  - ☐ Lightning strikes
  - ☐ Earthquake
- ☐ Incorporate project elements that provide flexibility to adapt operations and functionality as external conditions change over time.
- ☐ Project components designed to perform beyond the minimum Building Code or Design Standards.
- ☐ Utilize climate resiliency and adaptation strategies when siting or routing key project structures or components.
- ☐ Ability to modify or expand proposed facilities based on future climate change issues.
- ☐ Other - Please provide and attachment explaining the scope of the project and brief explanation of any aspects in the planning, construction or operation phase that support the approach for the business case.

3. Examples of Projects Requiring a Business Case

- ☐ Utilizing natural, native and drought resistant planted elements that are economically replaced at project sites for storm water control or landscaping.
- ☐ Siting new structures away from flash flood areas or poor structural soils in former waterway areas.
- ☐ Consideration of finished floor elevation above the 100 year flood elevation or normal code requirements.
- ☐ Increasing structural, roof (snow) or wind loadings beyond code requirements for new structures.
- ☐ Incorporate passive cooling systems for instrumentation, control or power panel rooms subject to high heat conditions.

APPENDIX M
Preliminary Design Summary