Project Summary and
Preliminary Environmental Impacts Determination (PEID)

The following project summary and environmental assessment has been prepared by the IEPA to assist the loan applicant in complying with the public notice requirements. This report is based on the information submitted to the IEPA by the Village of Ludlow. Sources of information include the following document: the New Sanitary Sewer System Facility Plan (Project 22-839), dated April 25, 2023, and prepared by Fehr Graham Engineering & Environmental, and in response to IEPA requests for additional information, emails with attachments dated 5/25/2023 and 8/25/2023, also prepared by Fehr Graham Engineering & Environmental.

Part I- Project Information

Project Name: New Sanitary Sewer System Facility Plan

Project Number: L176600

Loan Applicant: Village of Ludlow **County:** Champaign

Current Population: 301 **Future Population (20 year):** 400

Design Average Flow (DAF): 0.04MGD (proposed)

Design Maximum Flow (DMF): 0.10 MGD (proposed)

Number of Service Connections: 153 (proposed)

Project Description: Ludlow does not currently have a sanitary sewer system and a viable method of treating their wastewater, and residents currently use individual septic tanks to treat their wastewater. The proposed project will construct a network of sanitary sewer collection systems in Ludlow and a new WWTP.

A new sanitary sewer system will include construction of approximately 10,000 feet of 10" diameter, and 16,000 feet of 8" diameter sanitary sewers; one duplex submersible pump station rated at 50 gpm average and 200 gpm maximum capacity, approximately 200 feet of sanitary forcemain, 150 feet of bored and jacked 8" steel casing pipe with 4" sanitary forcemain carrier pipe under ICRR/CN railroad crossing; about 90 each of 4' diameter sanitary manholes; approximately 153 sanitary sewer service connections including sewers and fittings; and other incidental site improvements items.

The chosen WWTP system is a lagoon type treatment system. Since the Village is a small community with only 400 design population equivalent, a lagoon type of treatment system would be ideally suited and acceptable by the IEPA. The new WWTP will be rated at 0.04 MGD (DAF) and 0.1 MGD (DMF). Based on proven results, a covered and aerated multi-cell lagoon and polishing reactor system is considered. This type of lagoon treatment system consists of a two-cell lagoon, having a first, smaller complete mix cell, followed by a larger settling cell. The

lagoon and polishing reactor treatment system considered in this alternative is as manufactured by Lemna's LemTecTM Lagoon and Lemna's Polishing Reactor (LPR), or equivalent.

Plant influent wastewater will first go through a fine screen located in the headworks building. The headworks building will also include a manual bypass bar screen, and Parshall flume flow measurement device. The screened flows will then direct into the complete mix cell of the lagoon, which is equipped with a multiple high-rate air diffusers. The complete mix cell is separated from the following settling cell by a baffle. The complete mix cell effluent will then enter the settling cell equipped with the multiple low-rate air diffusers. This lagoon will be installed with a modular cover over it. This cover helps maintain ambient lagoon temperature for biological activities to take place in a more rapid manner, thus allowing an efficient biochemical oxygen demand (BOD) removal and some ammonia removal during all weather conditions. Two 10 HP blowers will also be installed, one of these blowers will be in service with the other as a stand-by unit. Blowers will feed air into the lagoon, increasing the dissolved oxygen (DO) content of the wastewater. Solids will gather at the bottom of this lagoon and sludge from the bottom of this lagoon will periodically be dredged. With this type of system the need for dredging is low, occurring once every 20+ years. When the need arises, based on the operator's observations, the Village will obtain a sludge disposal permit from the IEPA for a one-time land application of any solid deposits removed from the lagoon by the cleaning operation. The lagoon effluent will then flow through a downstream polishing reactor for additional ammonia removal. From the polishing reactor, the flows will go through a chlorine contact tank for disinfection. After adequate chlorine contact time has been reached, the flows will be dechlorinated, metered, and released via the proposed Outfall 001, into an unnamed tributary that is tributary to *Big Four Ditch.*

Project Location: With the new sanitary sewer system being built throughout the Village of Ludlow to serve the entire community culminating at the proposed location of the new WWTP in the eastern part of the Village, north of County Rd 3500 N.

Project Justification: Ludlow currently relies solely on the individual septic tank treatment and discharge systems rather than a centralized wastewater collection and treatment facilities. This method has many negative impacts that affect almost all facets of a municipality, including pollution of natural resources, discouragement of future economic and cultural development, and a significant decrease in financial security for both the Village and its residents. To mitigate these negative socio-economic and environmental impacts, Ludlow has decided to consider providing a new sanitary sewer system and wastewater treatment plant for a reliable wastewater treatment capability to the residents and businesses.

All the wastewater in Ludlow is currently treated by the aging and failing individual septic tank systems. These systems are not municipally owned or operated facilities. The Village does maintain a network of field tiles. Septic tank discharges contain raw or partially treated wastes that are discharged to these tiles and are in turn discharged into drainage ditches located in east and west parts of town.

Septic tank overflows to the tile network occur for three reasons: 1) high groundwater levels, 2) unsuitable soils for leaching fields, and 3) the lots are too small to accommodate properly sized

leach fields. There is a public health hazard and odor problem associated with discharging contaminated water to streams and open ditches. Health problems are also associated with wastewater that ponds in the backyards of residents where septic tank leach fields are not functioning properly.

The Village is often approached by neighbors of failing septic systems for the Village to intervene. The Illinois Department of Public Health (IDPH) typically gets involved, leading to a warning to violating property owners for discharging improperly treated wastewater onto their neighbors' property. Often, the IEPA is contacted about violations. Many of the existing septic tanks have completely failed and the others are expected to fail as they continue to age. This leaves homes uninhabitable and at times forces the Village to pay for the demolition of the properties. When a septic tank fails, a replacement system must be permitted by the IDPH that meets today's standards for a leach field. This means that wastewater cannot leave a lot without obtaining an NPDES permit. Most homes in Ludlow are on lots too small to construct a replacement leach field. In this case, the property owners are expected to install an aerated system, which not only requires an IEPA discharge permit, but also costs more than $20,000 on average, according to IDPH.

On top of the required permitting and fees, there will also be power, maintenance, and testing costs to run the aerated system. The cost of this type of system exceeds that of a centralized system, which benefits the entire community.

Estimated Construction Start Date: July 2025

Estimated Construction Completion Date: October 2027

Project Cost Estimate: With several scenarios at play, there is a total project cost of $9,916,000 with a varying amount of requested funds from the WPCLP, see the below table "Total Loan Amount to be repaid" for the best- and worst-case scenarios pertaining to the funding of Ludlow's WWTP.

Table 1.

IEPA Loan Financing	Total Project Cost	Unsewered community Grant	45% Principal Forgiveness	Total Loan Amount to be repaid	Annual Debt Service (at 0.80%- 30 Year Term)
No principal forgiveness/no unsewered community grant	$9,916,000	-	-	$9,916,000	$371,892.01
With $5,000,000 unsewered community grant and 45% principal forgiveness	$9,916,000	($5,000,000)	($2,212,200)	$2,703,800	$101,403.96

Part II- Project Affordability for Residents and Utility Customers

Table 2.

Detailed Cost Estimate			
Item	**Proposed Sanitary Sewer System**	**Proposed WWTP**	**Total**
Construction Cost	$5,149,000	$2,458,000	$7,607,000
Contingencies (10%)	$515,000	$246,000	$761,000
Design Engineering (incl. planning)	$567,000	$271,000	$838,000
Construction Engineering (incl. bidding)	$454,000	$217,000	$671,000
Legal and financial Administration	$25,000	$14,000	$39,000
Total Project Cost	**$6,710,000**	**$3,206,000**	**$9,916,000**

The Village of Ludlow is proposing to finance the project costs with a loan from the Water Pollution Control Loan Program (WPCLP). A loan in the amount of $9,916,000 with an estimated interest rate of 1.81% for a twenty (20-year) period would have an annual repayment of approximately $591,312.08. The current loan program interest rate is 1.81%.

The loan program rules include provisions for incentives such as reduced interest rates, partial principal forgiveness (a reduction in the amount of principal borrowed that would otherwise have to be repaid), and extended repayment periods for qualifying applicants. The criteria used to determine incentive qualifications are found in Section 365.210 and 365.250 of the Procedures for Issuing Loans from the WPCLP, which is available on the Agency's website. The final decision for incentive qualification will be determined at the time a loan agreement is issued, using updated Census bureau and Department of Labor data. The Agency adjusts qualifying criteria annually on July 1st.

Using current data, the Village is eligible to receive partial principal forgiveness of up to 45% of the loan amount, and qualifies for a hardship rate with an environmental discount (0.2% reduction in rate) for a fixed 0.8% loan rate, over a 30-year loan term. If the Village receives these incentives, the annual debt service would be reduced to approximately $204,540.61. The Village also plans to apply for the Unsewered Community Construction Grant Program (as shown in Table 1) with a maximum award of $5,000,000. If the maximum amount through the UCCGP is awarded it further reduces the annual debt service to $101,403.96. This cost, split amongst the proposed 153 residential customers, would be approximately $56, flat rate. A user rate would have to be implemented in the currently unsewered community to repay this loan and fund operation and maintenance. The final loan and annual repayment amounts will be based on the as-bid project costs and the loan terms in effect on the date the loan agreement is issued. Applicants that qualify for principal forgiveness and/or a reduced interest rate will reduce the loan payment amount and possibly any associated increase to the user charges. Principal forgiveness is not guaranteed until a loan agreement is issued.

Source of Loan Repayment: The Village intends to institute a new sewer billing revenue mechanism by formally adopting a new sewer use charge ordinance. The proposed sewer user charge is recommended to be a flat fee per month per user based on the Village's Median Household Income (MHI). See Table 3 below for the calculated monthly cost for the worst- and best-case funding options, column labeled "Average Monthly Sewer Bill Amount".

Average Residential Monthly Water Use: 2500 gallons

Number of Residential Customers: 153

Current Average Monthly Residential Cost of Service: Not applicable, no sewer system in place.

Projected Average Monthly Residential Cost of Service: Flat rate. Between $56-$203 (see Table 3)

How the monthly residential rate/cost of service will be calculated: A flat fee calculated to cover the costs of operation and maintenance and pay the loan. Affordability determined by the rate in comparison to the Ludlow's MHI.

Median Household Income (MHI): $44,000

Percentage of MHI needed to pay the projected average annual residential cost of service:
Table 3.

IEPA Loan Financing	Average Monthly Sewer Bill Amount	Annualized Sewer User Cost	MHI	Affordability Screener (% of MHI)	Remark (Per EPA Affordability Guide)
No principal forgiveness/no unsewered community grant (at 0.80%- 30 Year Term)	$203	$2430.67	$44,000	5.5%	>2%; Unaffordable (wide-spread financial burden)
With $5,000,000 unsewered community grant and 45% principal forgiveness (at 0.80%- 30 Year Term)	$56	$662.77	$44,000	1.5%	≤1.5%; Affordable

Financial evaluation of the proposed project: To evaluate the costs of the proposed project for the community, a percentage comparison of the MHI to the proposed average, annual cost for sewer and wastewater treatment services. The MHI listed above is from the census information available during the current fiscal year. The proposed annual cost for service ranges from $56 to

$203 which is 1.5% to 4% of MHI, respectively (see Table 3 above for the full analysis provided by Fehr Graham Engineering and Environmental). If all possible incentives are not awarded, bringing the monthly sewer rate to $56, then it is unlikely that the Village of Ludlow will be able to proceed with the project as planned. This percentage is for comparison only and has no impact on whether a project qualifies for funding from the IEPA. The percentage comparison and MHI are two of several criteria used to determine whether a loan project qualifies for interest rate reductions or principal forgiveness.

Part III- Environmental Issues Associated with the Project

Project construction impacts: The proposed project will have a positive impact on the water quality of surrounding streams. Currently, most of the Village's population uses septic tank systems for treatment of their wastewater. Septic tank contents can be released into a leach field or into a field tile and the polluted water finds its way into nearby streams and water bodies. While construction will disturb soil to create the collection and wastewater treatment plant, the overall impact is gauged as being positive for the local environment.

Section 106 of the National Historic Preservation Act of 1966: The Village of Ludlow submitted project information to the Illinois Department of Natural Resources, State Historic Preservation Office (IDNR, SHPO) and several Tribal Historic Preservation Offices with registered interest in Champaign County, for consultation under Section 106 of the NHPA. It was concluded by both SHPO (initial response dated 3/27/2023, final clearance dated 4/20/2023) and Tribal correspondence from Forest County Potawatomi Community of Wisconsin (1/18/2023), Kickapoo Tribe of Oklahoma (2/17/2023), Miami Tribe of Oklahoma (1/25/2023), and the Osage Nation (2/2/2023) that adverse effects were unlikely and no objections were raised.

Illinois Department of Natural Resources (IDNR): The city also submitted project information to the IDNR EcoCAT website to determine compliance with the Illinois Endangered Species Act, Illinois Natural Areas Preservation Act and the Illinois Wetlands Act (Section 17 Ill. Adm. Code Part 1075 and 1090, respectively). In a response dated August 25, 2023, the Department concluded that adverse effects were unlikely, and terminated need for further consultation under Parts 1075 and 1090.

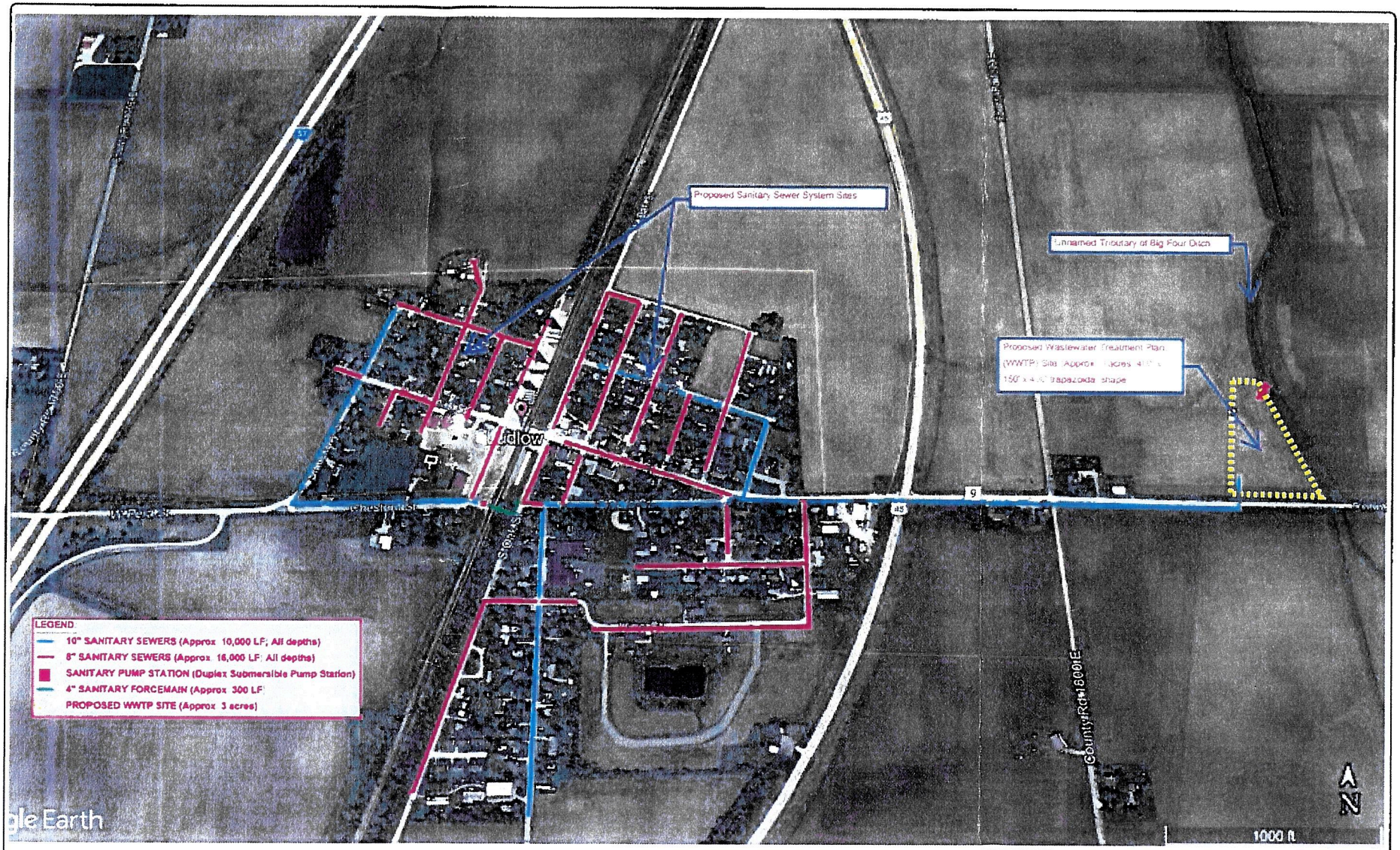
Illinois Department of Agriculture (IDOA): The Village submitted project information to the IDOA. In a response dated January 17, 2023, the Department concluded that this project complies with the Illinois Farmland Preservation Act and is exempt from further IDOA review.

U.S. Army Corps of Engineers (USACE): The Village submitted project information to the USACE to determine compliance with requirements related to the discharge of dredged or fill material occurring in water or wetlands of the United States. The USACE North Branch Regulatory Division's determination, dated January 31, 2023, found that the proposed scope of work appears to categorically fit under the scope of work covered by the Nationwide Permit (NWP) 58. For official verification of Nationwide Permit 58 applicability the village will submit necessary Plan drawings and impact tables to USACE for a final determination request for this project. If it is determined Nationwide Permit 58 is applicable it will be included in Plans and specifications and followed throughout the construction process.

Public Comments are invited on the proposed project. For further information contact:

Kaitlyn Holtsclaw
Infrastructure Financial Assistance Section
Illinois Environmental Protection Agency
Bureau of Water

1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276
(217) 782-2027



VILLAGE OF LUDLOW, ILLINOIS
PROPOSED SANITARY SEWER SYSTEM & WWTP SITES

N W E S

200 0 200 400 800 FEET

FEHR GRAHAM
ENGINEERING & ENVIRONMENTAL
ILLINOIS DESIGN FIRM NO. 184-002928

ILLINOIS
IOWA
WISCONSIN