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Exhibit A
SCOPE OF SERVICES

Evansville Water and Sewer Utility – Water Filtration Plant Advanced Preliminary Planning

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Project Understanding

A Water Master Plan was completed by HNTB in September 2016 which provided an assessment of the City of Evansville water distribution system and water treatment plant assets. The Water Master Plan serves as an excellent guide for broad planning of future capital improvement projects, but is not intended, to provide a critical analysis of the various options for new water treatment processes.

It is our understanding that the purpose of this Advanced Facility Planning effort are twofold. The first is to address critical components to improve reliability and resiliency by complimenting and expanding the work of the Master Plan to address immediate needs and concerns. The second objective is to assess the long-term drinking water needs for Evansville and determine the most appropriate water sources and treatment processes for an upgraded or new water treatment facility. An alternative analysis is particularly important at this juncture, because there is a potential option to switch partially or completely from Ohio River water source to groundwater (or riverbank filtration), changing not only the source water characteristics but also the options available for treatment. This analysis will look at the life-cycle costs of the various options.

Some of the key issues identified in previously-provided information, discussions with City Personnel, and site visits conducted by AECOM are understood as follows:

1. The North plant is beyond its useful life and significant upgrades are necessary to maintain long term reliable operation. There are issues with the settling basins, corrosion of piping, old filters, and old high service pump station #2.

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2. The 6.5 MG clearwell is the primary clearwell and leaves EWSU with very little operational flexibility, as it is difficult to remove from service. Furthermore, it is suspected that there could be structural issues with this clearwell (or in-tank groundwater pressure relief valves) as turbidity is reported to increase when the Ohio River level is high.
3. Significant waterline breaks throughout the City seem to be exacerbated by low temperatures and rapidly changing water temperatures. Significant resources and funds are utilized annually to address these breaks.
4. Pressures from IDEM to address the residuals handling system continue to be brought up, and the current NPDES permit expires on July 1, 2021.
5. The City wants to move forward with a reasoned and appropriate plan to satisfy its customers, IDEM, and to allow an easier path through the IURC for the next rate case in 2021.
6. The City wants to keep the water quality consistent and of high quality going forward. If significant groundwater is located and utilized, softening of the harder groundwater and pH adjustment may be necessary.
7. The Ohio River is a major waterway and susceptible to industrial or municipal wastewater releases, fuel spills, and other sources of contaminants which any new treatment upgrades need to be capable of monitoring and mitigating.

For the purposes of this scoping document, the terms AECOM, AECOM Team, or Consultant are used interchangeably and include any and all firms under the Prime Consultant, AECOM. This team will be a cohesive team that will have fluid boundaries, and specific tasks will be delegated throughout the design. The AECOM is anticipated to consist of HNTB, Carollo Engineers, Powers Engineering, CTL, and VS Engineering.

Task 1: Kickoff Meeting and Workshop

The AECOM team will attend a project kickoff and initial workshop meeting with the City to discuss project goals and constraints, identification of high level alternatives for the project. Prior to the meeting, AECOM will provide the City with a list of requested information (**DELIVERABLE #1**) pertaining to plant operations and history. It is anticipated that some (or all) of the requested information will be made available prior to this kickoff meeting, allowing for specifics of the requested information to be discussed. An agenda shall be prepared and submitted for review prior to the meeting, that will, at a minimum, contain the following items for discussion:

1. Introduction of team members and individual roles.
2. Summary of project scope, schedules, and key issues.
3. Communication protocols between the City and AECOM team, including protocols for distributing and sharing files and other electronic data (proposed to utilize e-Builder).
4. Proposed format for progress reports and invoices.
5. Schedule for progress meetings.
6. Protocol and procedures for field reconnaissance activities.
7. City's requirements and preferences related to the facility daily continued operations.
8. Review of historical and projected water demands to establish the design flow(s);
9. Identify the project objectives as they relate to water quality and treatment (both finished water quality and potential sources of contamination).

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10. Discussion of potential new sources of raw water including river bank filtration and groundwater, along with the impacts which alternative sources have on treatment technologies and water quality.
11. Identify what existing infrastructure within the North and South plants the City believes is the most vulnerable to failures and/or is unsalvageable.
12. Identify key meetings to be held with IDEM as they relate to both to drinking water requirements and residuals disposal / NPDES permit.
13. Discussion of bigger-picture preliminary treatment technologies and plant-wide improvement strategies to be considered in the alternatives analysis. Alternatives will be added and further developed in the alternatives analysis beyond this meeting, but this meeting can identify key considerations to be included in the evaluation such as operation and maintenance requirements, qualitative magnitude of capital and operational costs, impacts on water quality, residuals production and disposal, and treatment resiliency.

Following the meeting, a brief plant tour or tour of selected areas may be performed if needed. AECOM shall prepare summary meetings minutes which will be submitted as **DELIVERABLE #2** summarizing the key points, decisions, and all action items.

Task 2: Infrastructure Condition, Performance, and Vulnerability Assessment

Prior to development of long-term facility alternatives, the condition and performance of all infrastructure at the existing plant must be assessed. This task will include a full treatment/process performance assessment of the existing plant in order to benchmark the current performance. Additionally, AECOM will perform condition assessment to identify critical infrastructure and any need for immediate improvements to allow for continued plant operation (several years) until the final project is commissioned. The assessment will also include a vulnerability aspect, which will evaluate the magnitude of the consequence which could occur in the event of a failure. Existing infrastructure to be assessed as part of this task includes:

1. Intake structure including condition of screens, pumps, piping and valves, HVAC, building (structural and architectural components), and electrical systems.
2. North and south plant influent channels, flocculation, and sedimentation basins, including structural condition of concrete and handrail, mechanical condition of mixers, flocculators and sludge collection drives/equipment, piping, valves, and ancillary equipment.
3. Filters and corresponding gallery piping, valves, controls, backwash supply tanks, instrumentation and monitoring systems, and ancillary systems such as troughs and surface sweep equipment.
4. Finished water systems including filter effluent piping, clearwells, high service pumps, valves, and instrumentation and monitoring systems. This task does not include City water distribution system hydraulic or water quality modelling.
5. Condition of all chemical systems with specific attention to redundancy, feed equipment condition, control and monitoring systems, and operator safety considerations. Existing chemical feed systems include hyper-ion coagulant, powder activated carbon, chlorine gas, sulfur dioxide, ammonia, sodium hydroxide, KMnO_4 , and fluoride.
6. Overall assessment of buildings and building systems will be included and shall involve major structural components, architectural finishes including roofs, environmental hazards such as lead paint and asbestos, HVAC systems, plumbing and sump pumps, and lighting/power systems.

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7. Critical electrical infrastructure systems including the condition of incoming services, motor control centers, transformers, transfer switches, drives, disconnects, standby generator, and transmission / distribution systems throughout the plant.

DELIVERABLE #3 will be a technical memorandum which will identify any short-term projects that should be considered for immediate implementation in order to keep the plant operation during the planning and construction phases of this project. The proposed improvements or short-term projects will include order-of-magnitude costs and tentative implementation schedules based on equipment lead and installation times. Up to three (3) separate memoranda will be included as part of this task. These will include one pertaining to electrical infrastructure, one for the clearwell improvements, and a third (if needed) to cover any other miscellaneous processes or infrastructure in need of immediate improvements.

Task 3: Site Investigations

The primary components of the site to be investigated for this level of planning and design include a hydrogeological study, site survey, and geotechnical investigation. The hydrogeological investigation is currently ongoing, and shall continue to be conducted as part of this scope. Results of the hydrogeological study will be included in the Deliverable associated with Task 4, Alternatives Evaluation. A summary of hydrogeological task items include the following:

1. Continue with test drilling including construction of one larger test well (up to 16-inch diameter casing) and identify aquifer yield, draw-down rates, and water quality information.
2. Continue to work with Layne collector wells to investigate feasibility of horizontal collector wells.
3. Provide a summary report of the wellfield capacity to be included as part of Task 4. The summary report shall include options describing possible locations of vertical and/or horizontal collector wells, including estimated costs associated with these options.

The site survey will be conducted during Task 6, Preliminary Design. A summary of the site survey task items include the following:

1. Establish horizontal and vertical site control. Horizontal control will be based on Indiana Geospatial Coordinate System. Vertical control will be based on the North American Vertical Datum (NAV88). A minimum of 4 vertical benchmarks will be established on or near the site.
2. Locate and identify visible physical features (buildings, roads, drives, walks, walls, fences, signs, etc.) within the project limits. Trees and the perimeter outline of any wooded or river bank areas will also be located.
3. Identify the 100- and 500-year floodplain boundaries.
4. Determine spot elevations of critical features (finished floor levels at door openings, curbs, walks, tops, toes, swales, etc.) and at sufficient intervals throughout the site to develop 1-foot contours.
5. Locate field utility markings and visible field evidence (manholes, valves, etc.) of underground utilities to delineate underground utility locations based on a combination of assembled record documents, physical markings, and visible field evidence.
6. Generate a base map, depicting the above items at an appropriate scale, in AutoCAD format. The base map will be provided in DWG and PDF format.

The geotechnical investigation will be conducted during Task 6, Preliminary Design. A summary of the geotechnical investigation task items are as follows:

1. Perform soil borings to determine geotechnical and foundation engineering considerations as described below. The number and depth of borings is unknown at this time will be determined

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during preliminary design based on the selected alternative. The cost associated with this investigation is based on the number of borings, and it is assumed that 6 will be taken as part of this task.

2. Provide field and laboratory reports in accordance with ASTM standards, including soil classification chart(s), boring surface elevations, soil thickness of each layer, groundwater elevations, sieve analyses, identification of moisture content, and USCS classification.
3. Recommendations for style of foundation support for the structures and slabs, including identifying the allowable soil bearing capacity, slope ratio requirements, estimated settlement, and allowable lateral loads.
4. Recommendations for design of any retaining walls, if necessary.
5. Compaction recommendations for fill behind walls and support floors.

Task 4: DRAFT Alternatives Assessment

Based on findings and outcomes of the previous tasks, AECOM will develop an Alternatives Evaluation Report to ultimately identify the selected project alternative. AECOM will initially create a long list of alternatives using a matrix of differing water sources/blend rates and treatment technologies/water quality goals. Sources of water in this alternatives matrix will include the Ohio River, Riverbank Filtration, and Groundwater. Treatment technologies may include, but are not limited to ballasted flocculation, plate or tube sedimentation, lime softening, high pressure membranes, low pressure membranes (including membrane gravity filtration, or MGF), ozonation, biofiltration, advanced oxidation or UV disinfection, and upgrades of existing equipment in kind among others. The long list of preliminary alternatives will be screened on criteria of feasibility, operability, capital and operational cost, and other advantages / disadvantages. From the long list, up to eight (8) alternatives will be selected to create a "short list" which will receive a detailed evaluation. The detailed evaluation for the selected alternatives will include the following tasks:

1. Each alternative will include a detailed narrative of the proposed system including the following information:
 - a. Basis of design table or summary which identifies the major equipment, number of units, and corresponding flows or other operating conditions. Cut sheets of major equipment will be provided in Appendices.
 - b. Quantity and quality of residual streams that need disposal.
 - c. Operational and maintenance considerations.
 - d. Environmental and safety considerations.
 - e. Projections of chemical usage and electrical consumption.
2. Each alternative will include projected finished water quality information, including the impacts of blending of source waters. Any recommended alternative will comply with present and anticipated standards, and this task will further include attention to the robustness of the alternative. This includes considering treatment process to handle multiple contaminants, evaluating levels of redundancy, and assessing the ability to adapt to rapidly changing water quality as observed in the Ohio River. The water quality evaluation will also include any recommendations for post-treatment measures in terms of maintaining stability and prevention of corrosion within the distribution system. A distribution system hydraulic or water quality model is not included in these services.

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3. Each alternative will include conceptual level site plan(s) that shall identify the location of proposed infrastructure and general routing of major utilities, including process piping, electrical and communication utilities, and access drives and/or loading areas.
4. Each alternative will include a life cycle cost analysis which will feature an estimate of project capital cost (+/- 50% planning level estimate) and operational costs based on projected electrical usage, chemical requirements, and equipment maintenance / replacement costs. The life cycle costs will be evaluated through a 40-year planning period for each alternative.
5. Following development of each of the alternatives, AECOM will conduct a ranking, or scoring based on weighted criteria. The ranking criteria shall include engineering aspects (finished water quality, resiliency, etc.), environmental issues, operational and maintenance considerations, and capital and operational costs. This ranking will assign a numerical score to each alternative to be used for selection of the proposed alternative.

As part of this task, AECOM and City Personnel will perform up to three trips to visit other water treatment plant sites and/or equipment manufacturing facilities to observe treatment equipment similar to that which is being considered for alternatives in this project. The purpose of the site visits is to better understand key advantages and disadvantages of equipment technologies, lessons learned in construction or startup, and discuss ongoing operation and maintenance requirements or issues with other plant operators.

DELIVERABLE #4 will be a DRAFT Alternatives Assessment Report and submitted as one (1) electronic PDF file and three (3) bound hard copies. The Report will provide a comprehensive summary of the items listed in this task, including the initial long list of alternatives, detailed evaluation of the individual 'short list' alternatives, and the ranking of the alternatives including identification of the selected project.

Task 5: Workshop #2, IDEM Review and FINAL Assessment Report

AECOM will conduct a follow-up meetings to facilitate transitioning from the Alternatives Assessment Report to Preliminary Engineering of the preferred alternative. Individual subtasks associated with this task include the following:

1. AECOM will meet with the City when Deliverable #4 is submitted and give a presentation which will outline alternatives evaluated in the Assessment Report and provide further explanation of the selected alternative.
2. Following the initial meeting, the City shall review the Alternatives Assessment report and provide comments to AECOM in MS Work or PDF file format.
3. AECOM and the City will host a meeting with IDEM to discuss the identified path of the project moving forward as it pertains to drinking water quality and residuals disposal.
4. AECOM will address all City and IDEM comments in the Assessments Report, and subsequently submit **DELIVERABLE #5** to the City, which is the Final Alternatives Assessment Report. The Report will be provided to the City as (1) electronic PDF file and three (3) bound hard copies.

Task 6: DRAFT Preliminary Engineering Report and Drawings

This task includes further developing the specifics of the preferred alternative established in Tasks 4 and 5 and includes developing preliminary drawings. Subtasks associated with this Task include the following:

1. AECOM will prepare a Preliminary Engineering Report. The Report will refine the alternative selected in the Alternatives Assessment and will provide the following information:
 - a. Detailed description and narrative of the proposed improvements.

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- b. Cut sheets and budgetary quotations for major equipment, including lead times.
 - c. Updated estimates of project capital costs will be prepared in accordance with AACE Class 4 Estimates.
 - d. Further discussion of residuals disposals and any updates from ongoing conversations with IDEM.
 - e. Tentative design and construction schedule based on the actual date at the time of this Report.
 - f. The previously submitted FINAL Alternatives Assessment Report will be included as an Appendix to this Preliminary Engineering Report.
2. AECOM will prepare preliminary drawings (30% level development). The actual number of sheets will vary depending on the selected alternative, but selected alternatives would generally include a sheet set similar to the following list:
- 1) Cover Sheet
 - 2) Index and General Drawing Symbols
 - 3) General Notes and Details 1
 - 4) General Notes and Details 2
 - 5) Demolition Sheet 1
 - 6) Demolition Sheet 2
 - 7) Demolition Sheet 3
 - 8) Demolition Sheet 4
 - 9) Demolition Sheet 5
 - 10) Demolition Sheet 6
 - 11) Existing Site and Utility Plan – North
 - 12) Existing Site and Utility Plan - South
 - 13) Proposed Site and Utility Plan 1
 - 14) Proposed Site and Utility Plan 2
 - 15) Proposed Site and Utility Plan 3
 - 16) Proposed Site and Utility Plan 4
 - 17) Civil Details 1
 - 18) Civil Details 2
 - 19) Civil Details 3
 - 20) Civil Details 4
 - 21) Overall Process Flow Diagram and Design Information
 - 22) Process Equipment Schedules 1
 - 23) Process Equipment Schedules 2
 - 24) Detailed Process Flow Diagrams 1
 - 25) Detailed Process Flow Diagrams 2
 - 26) Detailed Process Flow Diagrams 3
 - 27) Detailed Process Flow Diagrams 4
 - 28) Detailed Process Flow Diagrams 5
 - 29) Detailed Process Flow Diagrams 6
 - 30) Detailed Process Flow Diagrams 7
 - 31) Detailed Process Flow Diagrams 8
 - 32) Detailed Process Flow Diagrams 9
 - 33) Detailed Process Flow Diagrams 10
 - 34) Hydraulic Profiles 1
 - 35) Hydraulic Profiles 2
 - 36) Treatment Process Plans and Sections 1

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- 37) Treatment Process Plans and Sections 2
- 38) Treatment Process Plans and Sections 3
- 39) Treatment Process Plans and Sections 4
- 40) Treatment Process Plans and Sections 5
- 41) Treatment Process Plans and Sections 6
- 42) Treatment Process Plans and Sections 7
- 43) Treatment Process Plans and Sections 8
- 44) Treatment Process Plans and Sections 9
- 45) Treatment Process Plans and Sections 10
- 46) Process Details 1
- 47) Process Details 2
- 48) Process Details 3
- 49) Process Details 4
- 50) Architectural Building Elevations 1
- 51) Architectural Building Elevations 2
- 52) Major Structural Modifications 1
- 53) Major Structural Modifications 2
- 54) Electrical Site and Power Plans 1
- 55) Electrical Site and Power Plans 2
- 56) Electrical Site and Power Plans 3
- 57) Electrical Site and Power Plans 4
- 58) Electrical One-Line Diagrams 1
- 59) Electrical One-Line Diagrams 2
- 60) Electrical One-Line Diagrams 3

3. AECOM will provide a Specification Table of Contents in CSI Division 50 Format, which will list all of the anticipated specification sections associated with the proposed design.

DELIVERABLE #6 shall be the DRAFT of the Preliminary Engineering Report, Preliminary Drawings, and Specification Table of Contents described in this section and will be provided in one (1) electronic PDF file and three (3) bound hard copies. Drawings will be provided in 11"x17" format.

Task 7: Workshop #3 and FINAL Preliminary Engineering Documents

Following submission of Deliverable #6, the City shall provide comments to AECOM in MS Word or PDF file format. Following receipt of comments, AECOM shall conduct a follow-up Workshop meeting with the City to discuss any City Comments. The Workshop will include discussion of possible modifications or other changes that could be employed to address any comments. Following the Workshop, AECOM will address all comments and issue **DELIVERABLE #7**, which is the FINAL Preliminary Engineering Documents. This FINAL document will include the Preliminary Engineering Report, Preliminary Drawings, and Specification Table of Contents. The FINAL Preliminary Engineering Report will also include an updated schedule for project implementation. Engineering Documents will be provided as one (1) electronic PDF file and three (3) bound hard copies, with drawings in 11"x17" format.

ADDITIONAL SERVICES IF AUTHORIZED

If desired by the City, AECOM can perform the following tasks:

1. AECOM can perform filter Inspection of any or all of the existing gravity filters. Inspection tasks could involve any combination of the following: Media depth measurement, sampling/coring of filter media, sieve analysis, determining common filter media parameters such as L/D_{10} ratio,

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- uniformity coefficient, floc retention and backwash profiles, and measuring bed expansion during backwash.
2. Depending on the selected alternative to be developed in preliminary design, AECOM can perform pilot testing of the proposed technologies. Pilot testing would be anticipated if technologies such as ActiFlo, low pressure membranes (including MGF), or ozonation/biofiltration were selected. A pilot study may also be warranted for other technologies to better determine operational parameters. These requirements will be determined prior to preliminary design of the selected alternative and piloting requirements will be noted in the Alternatives Assessment. Pilot testing will follow all IDEM or other regulatory requirements including development of a piloting protocol and sampling plan, monitoring for required integrity or other performance testing, and extrapolation of long-term performance.
 3. AECOM can complete an NPDES permit application for submission to IDEM based on the Preliminary Design and anticipated residuals water quality and quantity. Any IDEM or NPDES permit review fee(s) shall be paid the City.

SCHEDULE

A Gantt chart schedule has been developed and is attached to this scope of services. The schedule assumes the agreement between the City and AECOM will be completed and a Notice to Proceed issued by September 2, 2019.

e-Builder® Construction Management Software

- EWSU is implementing the use of a computer based program, e-Builder® (hereafter known as the "Program"), to standardize and better manage the planning, implementation, design, and construction for its capital projects. EWSU has purchased and will maintain the Program. ENGINEER will be required as a condition of the contract to utilize the Program and its functions to facilitate the execution of the contract. Such examples of the typical functions include, but are *not limited to*:
 - Program Management
 - Design Development and Review
 - Consultant Proposals, Amendments, and Billings
 - Purchase Orders, Contracts, and Service Agreements
 - Contractor Pay Applications
 - Construction Submittals
 - Requests For Information
 - Project Schedules and Progress Meetings
 - Change Order Management
 - Daily Job Site Daily Inspection Reporting
 - Project Closeout and Documentation
 - Asset Management
 - Other Project Documentation and Communications

All submittals shall be posted in a searchable, bookmarked PDF format with the exception of Requests for Information (RFIs). RFIs shall be posted in Microsoft Word format. Maximum file size for submission shall be 50 MB. Submittals larger than 50 MB should be submitted as separate files within the same submittal.

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The Program is a web based platform that requires access through the purchase of a "seat" with a user name and password. It shall be the responsibility of ENGINEER to pay for this seat and any additional seats they deem necessary to fully execute the project. Instruction and training to utilize the Program will be the responsibility of ENGINEER.

Comparison of New 50 MGD WTP Alternatives 2A (existing site) and 2B (Garage site) and 40 MGD OUCC Alt. 2B

Component Description	AFP Table 9-2 Alternative 1 Rehab Existing WTP	AFP Table 9-4 Alternative 2A New SWTP-Old Site	AFP Table 9-9 Alternative 2B New SWTP & Site	AFP Table 9-11 Alternative 3 Blended WTP & Site	PER Table 21 Alternative 2B New SWTP & Site	OUCC Est. at 20% Reduction Alternative 2B New SWTP & Site
	Cost	Cost	Cost	Cost	Cost	Cost
Civil Site Work (Rds, Drainage, Fencing)	\$ 3,500,000	\$ 3,500,000	\$ 2,853,000	\$ 3,500,000	\$ 2,853,000	
Rehabilitate River Intake	\$ 6,752,000	\$ 6,752,000	\$ 6,752,000	\$ 4,823,000	\$ 6,752,000	
Raw Water Piping, Metering Vault	Missing	\$ 900,000	\$ 1,610,000	Missing	\$ 1,610,000	
North Plant Pretreatment Improvements	\$ 13,610,000	NA	NA	\$ 7,163,000	NA	
North Plant Ozone System Retrofit	\$ 16,935,000	NA	NA	NA	NA	
Groundwater Wells and Conveyance	NA	NA	NA	\$ 40,073,000	NA	
GW Pretreatment (oxidation, detention)	NA	NA	NA	\$ 1,422,000	NA	
GW Pretreatment (filtration)	NA	NA	NA	\$ 9,013,000	NA	
GW Membrane Softening Facility	NA	NA	NA	\$ 35,979,000	NA	
New Conv. Pretreatment System	NA	\$ 17,377,000	\$ 17,377,000	NA	\$ 17,377,000	
Ozone Facility (Generation, Basin, LOX)	NA	\$ 19,630,000	\$ 19,630,000	NA	\$ 19,630,000	
Rehabilitate Gravity Filters	\$ 17,125,000	NA	NA	\$ 9,013,000	NA	
New Biologically Active Filters & Bldg.	NA	\$ 33,912,000	\$ 33,912,000	NA	\$ 33,912,000	
New Sodium Hypochlorite System	\$ 2,092,000	\$ 2,092,000	See Below	\$ 2,092,000	See Below	
PAC Feed Improvements	\$ 1,000,000	\$ 1,000,000	See Below	\$ 800,000	See Below	
Other Chemical Impr. (4 at \$300k ea.)	\$ 1,200,000	\$ 1,200,000	See Below	\$ 1,200,000	See Below	
New Chemical Facilities (all)	See above	See above	\$ 6,612,000	See above	\$ 6,612,000	
Demolish South Plant	\$ 1,066,000	\$ 1,066,000	Missing	\$ 693,000	Missing	
Demolish North Plant	NA	Missing	Missing	Missing	Missing	
Demolish 6.5 MG Clearwell	NA	Retained	Missing	Missing	Missing	
New 6 MG Clearwell	\$ 10,960,000	\$ 10,960,000	Only 1 Clearwell	\$ 10,960,000	Only 1 Clearwell	
New 5 MG Clearwell	NA	NA	\$ 8,804,000	NA	\$ 8,804,000	
New High Service Pump Station	NA	\$ 7,870,000	\$ 11,130,000	NA	\$ 11,130,000	
Rehabilitate Existing 6.5 MG Clearwell	\$ 734,000	\$ 734,000	Only 1 Clearwell	\$ 734,000	Only 1 Clearwell	
Rehab. High Service Pump Station #3	\$ 8,733,000	\$ 5,718,000	Only 1 Clearwell	\$ 8,733,000	Only 1 Clearwell	
Extend 1 Plant Outfall	\$ 2,250,000	\$ 750,000	Missing	\$ 2,250,000	Missing	
Building Renovations	\$ 4,000,000	\$ 2,000,000	Missing	\$ 4,000,000	Missing	
Residual Pump Station Forcemain	Missing	Missing	\$ 1,575,000	Missing	\$ 1,575,000	
Filter Washwater Tank	NA	NA	\$ 950,000	NA	\$ 950,000	
New Administration Building	NA	NA	\$ 1,810,000	NA	\$ 1,810,000	
New Maintenance Building	NA	NA	\$ 1,040,000	NA	\$ 1,040,000	
Interconnecting Site Utility / Elect. Work	\$ 3,500,000	\$ 3,500,000	\$ 3,500,000	\$ 3,500,000	\$ 3,500,000	

Comparison of New 50 MGD WTP Alternatives 2A (existing site) and 2B (Garage site) and 40 MGD OUCC Alt. 2B

Component Description	AFP Table 9-2 Alternative 1 Rehab Existing WTP	AFP Table 9-4 Alternative 2A New SWTP-Old Site	AFP Table 9-9 Alternative 2B New SWTP & Site	AFP Table 9-11 Alternative 3 Blended WTP & Site	PER Table 21 Alternative 2B New SWTP & Site	OUCC Est. at 20% Reduction Alternative 2B New SWTP & Site
	Cost	Cost	Cost	Cost	Cost	Cost
Other Demo. Work Throughout Plant	\$ 2,000,000	\$ 2,000,000	Missing	\$ 2,000,000	Missing	
New Electric service entrance	NA	NA	\$ 1,000,000	NA	\$ 1,000,000	
New Generator (2,000 KW)	NA	NA	\$ 1,500,000	NA	\$ 1,500,000	
Dewatering	Missing	Missing	Missing	Missing	\$ 27,650,000	
Subtotal	\$ 95,457,000	\$ 120,961,000	\$ 120,055,000	\$ 147,948,000	\$ 147,705,000	\$ 96,044,000
Additional Construction Contingencies	15% \$ 14,319,000	10% \$ 12,096,000	3% \$ 3,602,000	10% \$ 14,795,000	See Below	\$ 2,881,320
Other Misc. Plant-Wide Improvements	5% \$ 4,773,000	2% \$ 2,419,000	1% \$ 1,201,000	2% \$ 2,959,000	\$ 1,201,000	\$ 960,440
Phasing & Sequencing Plant Outages	5% \$ 4,773,000	3% \$ 3,629,000	Missing	5% \$ 7,397,000	Missing	Missing
Remediation & Hazardous Materials	\$ 1,000,000	\$ 1,000,000	Missing	\$ 1,000,000	Missing	Missing
Allowances	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000
Maintenance Building Relocation	NA	NA	\$ 13,691,000	NA	Non SRF	\$ 3,500,000
Startup and Commissioning	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000
Total Estimated Construction Cost	\$ 121,822,000	\$ 141,605,000	\$ 140,049,000	\$ 175,599,000	\$ 150,406,000	\$ 104,885,760
Additional Construction Contingencies	See above	See above	See above	See above	3% \$ 4,512,180	
Total Construction Costs	Missing	Missing	\$ 140,049,000	Missing	\$ 154,919,000	\$ 104,885,760
Construction Admin. and Bidding	Missing	Missing	2.5% \$ 3,501,000	Missing	2.5% \$ 3,872,975	\$ 2,622,144
Inspection and Materials Testing	Missing	Missing	2% \$ 2,801,000	Missing	2% \$ 3,098,380	\$ 2,097,715
Interest Incurred through Financing	Missing	Missing	2.25% \$ 3,151,000	Missing	2.25% \$ 3,485,678	\$ 2,359,930
Permitting Fees and Legal Expenses	Missing	Missing	1% \$ 1,400,000	Missing	1% \$ 1,549,190	\$ 1,048,858
Total Non-Construction Costs	Missing	Missing	\$ 10,853,000	Missing	\$ 12,006,000	\$ 8,129,000
Total Project Cost	Missing	Missing	\$ 150,902,000	Missing	\$ 166,925,000	\$ 113,014,760
Total Project Cost Reduction due to 40 MGD Capacity from Advanced Facility Plan Table 9-9 costs						\$ 37,887,240
Use						\$ 37,875,000

Data sources:

- 1) Supplemental Workpaper - Preliminary Engineering Report , VS Eng., June 2021 (based on the AECOM Advanced Facility Plan)
- 2) Advanced Facility Plan, AECOM, April 23, 2021
- 3) Evansville response to DR 17-6 Attachment 1 (cost support details - Excel worksheet), 07/19/2021

SFY 2022 - Drinking Water

Indiana Drinking Water State Revolving Fund (DWSRF) Loan Program
 SFY 2022 Project Priority List, July 16, 2021, 1st Quarter Final*
 Projects Applying for Financial Assistance in State Fiscal Year 2022 (July 1, 2021 - June 30, 2022)

PPL Rank	PPL Score	Participant	MHI ^{2,3}	Population Served	PWSID No(s)	SRF Project No.	Project Description	Estimated Green Project Reserve Cost	Green Project Reserve Category ⁴	Current User Rate (per 4,000 gallons) ²	Post-Project User Rate (per 4,000 gallons) ²	Requested Funds	Cumulative Requested Funds	SFY 2022 Fundable Range (\$80 Million)
1	97	Nashville	\$43,542	1,326	5207002	DW220307 01	Water Main Extension, Storage, and Distribution System Improvements	\$0	N/A	\$58.22	\$58.22	\$2,800,000	\$2,800,000	Fundable Range \$80 Million (Borrowers are eligible for up to \$7.5 Million at a Subsidized Rate)
2	74	Wheatland	\$42,292	184	5242016	DW220142 01	Distribution System Improvements	\$0	N/A	\$42.47	\$126.02	\$3,700,000	\$6,500,000	
3	72	Monticello - RCA Neighborhood	\$44,276	2,574	5291011	DW220791 02	Distribution System Improvements and Lead Service Line Replacement	\$0	N/A	\$25.05	\$25.07	\$1,400,000	\$7,900,000	
4	70	Evansville - Treatment Plant	\$42,600	173,000	5282002	DW220482 03	New Treatment Plant	TBD	TBD	\$33.74	\$45.86	\$250,000,000	\$257,900,000	
5	53	Fort Wayne	\$49,855	270,402	5202020	DW210212 05	Supply, Storage, Distribution System, and Treatment Improvements; Lead Service Line Replacement	TBD	WE	\$25.32	\$30.32	\$45,000,000	\$302,900,000	
6	50	Jackson County Water Utility	\$49,506	14,155	5236003 5263008	DW210336 04	Distribution System Improvements and Lead Service Line Replacement	\$0	N/A	\$48.15	TBD	\$3,500,000	\$306,400,000	
7	50	Grabill	\$55,536	1,250	5202006	DW201302 02	Supply, Treatment, and Distribution System Improvements	\$296,000	EE, WE	\$17.96	\$41.14	\$5,200,000	\$311,600,000	
8	47	Lapel	\$52,841	2,068	5248013	DW210548 02	Supply, Storage, and Distribution System Improvements	\$0	N/A	\$35.10	\$59.47	\$9,300,000	\$320,900,000	
9	47	Maysville Regional Water and Sewer District	\$62,504	487	5202037	DW220502 01	Water Main Extension, Storage, and Distribution System Improvements	\$0	N/A	\$36.25	\$65.00	\$2,500,000	\$323,400,000	
10	46	Andrews	\$40,333	1,149	5235001	DW160935 01	New Plant	TBD	TBD	\$29.60	\$121.04	\$6,000,000	\$329,400,000	
11	43	Monticello - Water Main Replacement	\$44,276	5,300	5291011	DW210191 02	Distribution System Improvements	\$0	N/A	\$22.05	\$25.07	\$2,200,000	\$331,600,000	
12	36	Cromwell	\$43,229	550	5257004	DW211657 02	Supply, Treatment, Storage, and Distribution System Improvements	\$32,000	EE	\$45.26	\$97.31	\$3,500,000	\$335,100,000	
13	35	L & M Regional Water District	\$29,722	490	5268013	DW211568 01	Distribution System Improvements	\$5,000	WE	\$36.20	\$41.36	\$1,600,000	\$336,700,000	
14	35	Dillsboro	\$40,250	2,000	5215002	DW201515 01	Storage and Distribution System Improvements	\$0	N/A	\$34.64	\$54.11	\$2,600,000	\$339,300,000	
15	35	Hoosier Hills Regional Water District	\$44,734	8,642	5269002	DW210469 01	Storage and Distribution System Improvements and Water Main Extension	TBD	TBD	\$34.82	\$37.00	\$3,300,000	\$342,600,000	
16	34	Edwardsville Water Corporation	\$30,300	10,200	5222001	DW201122 01	Storage and Distribution System Improvements	TBD	G1, EE	\$38.26	\$42.47	\$8,000,000	\$350,600,000	
17	33	Leavenworth	\$31,772	233	5213004	DW210913 01	Storage and Distribution System Improvements	\$0	N/A	\$21.69	\$34.15	\$1,900,000	\$352,500,000	
18	31	Lebanon	\$50,480	16,098	5206003	DW181306 02	Storage and Distribution System Improvements	\$0	N/A	\$34.26	\$40.16	\$8,300,000	\$360,800,000	
19	31	Brown County Water Utility	\$61,465	11,300	5207001	DW201407 03	Supply and Distribution System Improvements	\$0	N/A	\$55.32	TBD	\$4,300,000	\$365,100,000	
20	30	Northwest Jasper Regional Water District Distribution System Improvements	\$47,083	3,815	5237015	DW191737 01	Supply, Plant and Distribution System Improvements	\$0	N/A	\$44.01	\$49.50	\$5,498,933	\$370,598,933	
21	30	North Dearborn Water Corporation	\$65,096	5,435	5215008	DW201615 02	Supply, Plant and Distribution System Improvements	TBD	WE	\$26.07	TBD	\$3,800,000	\$374,398,933	
22	29	New Market	\$62,917	765	5254008	DW210754 02	Plant and Distribution System Improvements	TBD	WE	\$57.14	\$65.42	\$1,900,000	\$376,298,933	
23	28	Edinburgh	\$50,200	4,792	5241002	DW211041 01	New Supply, Supply Improvements, and New Plant	\$0	N/A	\$20.98	\$23.48	\$5,800,000	\$382,098,933	
24	28	Russellville	\$51,250	380	5267008	DW201867 02	Storage and Distribution System Improvements	\$0	N/A	\$45.00	\$100.47	\$2,400,000	\$384,498,933	
25	27	Dana	\$45,804	660	5283005	DW200463 01	Plant, Storage and Distribution System Improvements	\$0	N/A	\$39.02	\$87.58	\$1,900,000	\$386,398,933	
26	26	Van Bibber Lake Conservancy District	\$25,313	830	5267010	DW191067 01	Distribution System Improvements	\$0	N/A	\$78.00	\$253.91	\$8,700,000	\$395,098,933	
27	25	Evansville - Main Replacement	\$42,600	173,000	5282002	DW181282 02	Distribution System Improvements	\$0	N/A	\$33.74	\$45.86	\$97,000,000	\$492,098,933	
28	25	Chandler	\$50,904	19,295	5287002	DW181987 03	Distribution System Improvements	\$0	N/A	\$35.21	\$35.21	\$18,000,000	\$510,098,933	
29	25	Cedar Lake	\$65,067	5,550	5245047 5245067	DW201745 04	Supply, Storage, and Distribution System Improvements	\$0	N/A	\$36.04	\$40.18	\$4,000,000	\$514,098,933	
30	24	New Chicago	\$37,037	5,500	5245032	DW210645 02	Distribution System Improvements	\$0	N/A	TBD	TBD	\$2,300,000	\$516,398,933	
31	24	Camel	\$113,714	86,077	5229004	DW181129 01	Plant, Storage and Distribution System Improvements	TBD	TBD	\$25.31	\$29.87	\$51,000,000	\$567,398,933	
32	23	IN Recreation Development Commission / Charlestown State Park	N/A	83	2100018	DW220210 02	New Supply and Treatment Expansion	\$0	N/A	N/A	TBD	\$6,400,000	\$573,798,933	
33	21	Gibson Water, Inc.	\$63,056	4,390	5226009	DW180826 02	Distribution System Improvements	TBD	TBD	\$38.80	\$38.80	\$2,400,000	\$576,198,933	

PPL Rank	PPL Score	Participant	MHI ^{2,3}	Population Served	PWSID No(s)	SRF Project No.	Project Description	Estimated Green Reserve Cost	Green Project Reserve Category ⁴	Current User Rate (per 4,000 gallons) ²	Estimated Post-Project User Rate (per 4,000 gallons) ²	Requested Funds	Cumulative Requested Funds	SFY 2022 Fundable Range (\$80 Million)
34	21	Tri-Township Water Corporation	\$68,658	9,725	521509	DW220615 01	Storage and Distribution System Improvements	\$775,000	WE	\$26.46	TBD	\$4,600,000	\$580,798,933	
35	17	Columbus	\$63,405	44,061	5203002	DW211403 01	New Supply	\$0	N/A	\$9.82	\$17.49	\$15,400,000	\$596,198,933	
36	16	Washington	\$40,645	13,690	5214007	DW190414 01	Distribution System Improvements	\$0	N/A	\$33.79	\$38.86	\$3,300,000	\$599,498,933	
--	21	Attica	\$49,167	1,360	5223001	DW220823 01	Treatment, Storage, and Distribution System Improvements	\$0	N/A	\$33.25	\$40.88	\$2,400,000	\$601,898,933	
TOTAL REQUESTED FUNDS - PRELIMINARY ENGINEERING REPORTS (PERs)								\$1,108,000				\$601,898,933		

PPL Rank	PPL Score	Participant	MHI ^{2,3}	Population Served	PWSID No(s)	SRF Project No.	Project Description	Estimated Green Reserve Cost	Green Project Reserve Category ⁴	Current User Rate (per 4,000 gallons) ²	Estimated Post-Project User Rate (per 4,000 gallons) ²	Estimated Total Project Cost	Cumulative Total	
		Application Only | Loogootee	\$44,125	3,915	5251005	DW210251 01	Storage and Distribution System Improvements	TBD	TBD	\$31.54	\$46.35	\$2,700,000	\$2,700,000	
		Application Only | Madison	\$40,231	6,471	5239006	DW22083903	Plant, Storage and Distribution System Improvements	TBD	TBD	\$9.48	\$15.12	\$12,400,000	\$15,100,000	
TOTAL REQUESTED FUNDS - APPLICATIONS ONLY								\$0				\$15,100,000		
TOTAL REQUESTED FUNDS - PERs & APPLICATIONS								\$1,108,000					\$616,998,933	

Footnotes:
¹ A community must submit a complete Preliminary Engineering Report to the DWSRF Loan Program in order for the project to be scored and ranked on the Project Priority List (PPL).
² Additional subsidization may be provided to participants who have a low Median Household Income (MHI) and/or high post-project user rates as outlined in the Intended Use Plan (IUP). The amount of the additional subsidization shall be determined and set forth in the financial assistance agreement.
³ The Indiana DWSRF Loan Program defines a Disadvantaged Community in Section VII of the IUP.
⁴ EE = Energy Efficiency, EI = Environmentally Innovative, GI = Green Infrastructure, WE = Water Efficiency, CR = Climate Resiliency.
 * This project priority list was published on July 2, 2021 for a 2-week comment period.

New Water Treatment Plant Alt 2B - River Intake Rehabilitation Cost Support / Comparison

Advanced Facility Plan, Attachment SMB-1, pp. 50-51		DR 17-6 Attach. 1.xlsm		Multiplier	Timberline Output		OUCC Estimate
Table 7-5 Cost Estimate for River Intake Rehabilitation		DR 17-6 Attach. 1.xlsm		from	DR 17-6 Attach. 2.pdf		Amount
Description	Est. Cost	Total Cost	Total Price	Estimate	Total Cost	Total Price	
Demolition Work	\$75,000	\$49,600	\$75,000	1.512	\$ 49,562	\$ 75,292	\$ 49,600
Roof Repair / Replacement (3,000 sf)	\$60,000	\$7,000	\$10,500	1.500	\$ 6,955	\$ 10,556	\$ 7,000
Doors & Hardware Rehab	\$13,000	\$13,000	\$19,700	1.515	\$ 12,925	\$ 19,784	\$ 13,000
Building Finishes & Specialties	\$35,000	\$34,200	\$50,500	1.477	\$ 31,037	\$ 47,859	\$ 34,200
Structure and Walkway Rehabilitation	\$50,000	\$50,000	\$75,500	1.510	\$ 37,676	\$ 58,298	\$ 37,676
Process Piping and Accessories	\$209,000	\$209,000	\$317,800	1.521	\$ 207,113	\$ 316,440	\$ 209,000
Pump Replacement (6 units)	\$1,336,000	\$1,335,500	\$2,020,400	1.513	\$ 1,323,368	\$ 2,011,165	(3) & 25% \$ 1,274,760
Intake Screens (3 units)	\$1,300,000	\$ 666,000	\$ 1,019,100	1.530	\$ 370,321	\$ 571,280	(2) & 25% \$ 966,075
Potassium Permanganate System (1 unit)	\$400,000	\$249,000	\$366,000	1.470	\$ 12,281	\$ 18,787	(4) & 25% \$ 62,500
HVAC Replacement (3,000 sf)	\$115,000	\$115,000	\$172,000	1.496	\$ 114,015	\$ 173,042	\$ 115,000
Misc. Electrical (MCC Upgrades are Underway)	\$150,000	\$200,000	\$302,000	1.510	\$ 200,000	\$ 303,543	\$ 150,000
Instrumentation	\$100,000	\$84,000	\$126,900	1.511	\$ 84,000	\$ 127,488	\$ 100,000
Subtotal	\$3,843,000	\$ 3,012,300	\$ 4,555,400		\$ 2,449,253	\$ 3,733,534	\$ 3,018,811
Estimating Contingency 30%	30% \$1,152,900	\$903,690	\$1,366,620		\$734,776	\$1,120,060	10% \$ 301,881
Escalation to Midpoint 3%	3% \$115,290	\$90,369	\$136,662		\$73,478	\$112,006	3% \$ 90,564
Construction Subtotal	\$5,111,190	\$4,006,359	\$6,058,682		\$3,257,506	\$4,965,600	\$ 3,411,256
Contractor General Conditions 10%	10% \$511,119	\$301,230	\$455,540		\$244,925	\$373,353	10% \$ 301,881
Contractor Overhead and Profit 12%	12% \$613,343	\$361,476	\$546,648		\$293,910	\$448,024	12% \$ 362,257
Construction Contingencies 5%	5% \$255,560	\$150,615	\$227,770		\$122,463	\$186,677	0% \$ -
Allowance: Dredge River	\$260,000	\$ 250,000	\$ 378,051		\$ 250,000	\$ 379,429	\$ -
Grand Total Cost	\$6,752,000	\$ 5,069,680	\$ 7,666,691		\$ 4,168,805	\$ 6,353,083	\$ 4,075,395

Notes:

- (1) Budgetary Cost for 3 Johnson T54MF Screens (17-6 Att 1) \$ 212,874 Jan. 2020 quote from Aqseptence Group
- (2) Budgetary Cost for three Evoqua Travelling Screens \$ 772,860 Feb. 2021 quote - Includes equip I&C and VFDs
- (3) Budgetary Cost for Six Floway Low Service Pumps \$ 1,019,808 March 3, 2021 quote from Trillium Pumps USA, Inc.
- (4) Budgetary Cost for KMnO4 system \$ 50,000 March 11, 2021 quote from BL Anderson
- (5) Yellow shaded cells show costs that are approximately equal
- (6) Black text shows AECOM estimated costs and assumed percentages.
- (7) Red text shows OUCC calculated costs and assumed percentages.

Original Costs from Estimator

Description	Estimated Base Cost (from estimate)	Estimated Loaded Cost (from estimate)	Multiplier from Estimate
Demolition Work	\$49,600	\$75,000	1.512
Roof Repair / Replacement	\$7,000	\$10,500	1.500
Doors & Hardware Rehab	\$13,000	\$19,700	1.515
Building Finishes & Specialties	\$34,200	\$50,500	1.477
Structure and Walkway Rehabilitation	\$50,000	\$75,500	1.510
Process Piping and Accessories	\$209,000	\$317,800	1.521
Pump Replacement	\$1,335,500	\$2,020,400	1.513
Screen Replacement	\$666,000	\$1,019,100	1.530
Potassium Permanganate System	\$249,000	\$366,000	1.470
HVAC Replacement	\$115,000	\$172,000	1.496
Electrical Systems	\$200,000	\$302,000	1.510
Instrumentation	\$84,000	\$126,900	1.511
Totals	\$3,012,300	\$4,555,400	

Adjusted for Report

Table B1.1 - River Intake Rehabilitation, Low Service PS

Description		Estimated Cost	Cost Adjust Comments
Demolition Work		\$75,000	
Roof Repair / Replacement (3,000 sf)		\$60,000	X - City noted a whole new roof
Doors & Hardware Rehab		\$13,000	
Building Finishes & Specialties		\$35,000	
Structure and Walkway Rehabilitation		\$50,000	
Process Piping and Accessories		\$209,000	
Pump Replacement (6 units)		\$1,336,000	
Intake Screens (3 units)		\$1,300,000	X - quote of \$750k for 3 screens - estimate seems to be pneumatic screens so updated
Potassium Permanganate System (1 unit)		\$400,000	X - estimate seemed low - need to run piping over, hopper, storage, etc.
HVAC Replacement (3,000 sf)		\$115,000	
Misc. Electrical (MCC Upgrades are Underway)		\$150,000	X - MCC's are getting some upgrades
Instrumentation		\$100,000	
Subtotal		\$3,843,000	
Estimating Contingency	30%	\$1,152,900	
Escalation to Midpoint	3%	\$115,290	
Construction Subtotal		\$5,111,190	
Contractor General Conditions	10%	\$511,119	
Contractor Overhead and Profit	12%	\$613,343	
Construction Contingencies	5%	\$255,560	
Allowance: Dredge River		\$260,000	
Grand Total Cost		\$6,752,000	

WBS Lvl 1	WBS Lvl 2	WBS Lvl 3	WBS Lvl 4	Description	Takeoff Quantity	Labor Productivity	Man Hours	Labor Price	Labor Amount	Material Cost/Unit	Material Amount	Subcontract Cost/Unit	Subcontract Amount	Const Equip Cost/Unit	Const Equip Amount	Process Equip Cost/Unit	Process Equip Amount	Total Amount	Grand Total Amount
01				River Intake & Low Service Pump Station															
	1A			River Intake & LSPS Rehab															
		02		Modify Existing Structure & Services															
			02.01	Demolition Work															
				Non-Hazardous Waste Transport and Disposal.	1	ls		-	-	-	-	500.00	500	-	-	-	-	500	759
				Demo Entrance Sidewalk & Handrail	6	cy	0.300	ch / cy	4	88.76	/ch	-	-	-	12.69	-	-	76	374
				Demo Single Door & Frame	3	ea	1.000	ch / ea	9	117.52	/ch	-	-	-	-	-	-	85	693
				Demo Double Door & Frame	2	ea	1.333	ch / ea	8	117.52	/ch	-	-	-	37.68	-	-	75	616
				Demo HVAC System (Includes Exhaust Fans, Heaters, Louvers & Ductwork)	3,000	sf		-	-	-	-	10.00	30,000	-	-	-	-	30,000	45,531
				Demo Electrical System (Includes I&C System & Lights)	3,000	sf		/sf	-	-	-	6.00	18,000	-	-	-	-	18,000	27,319
				02.01 Demolition Work	1	ls			21				48,500.00	48,500	236.28		236	49,562	75,292
			02.10	Intake Pipe Rehab															
				Temporary support ex. 42" pipe discharge	3	ea	3.000	ch / ea	45	194.58	/ch	-	-	-	839.05	-	-	2,517	4,268
				Demo Conc Ftg/Pier	3	ea	1.000	cd / ea	48	679.61	/cd	-	-	-	2,149.16	-	-	6,447	13,488
				Neoprene Pad	3	ea	2.500	mh / ea	8	45.62	/mh	-	-	-	-	-	-	-	522
				CIP Footing - 5'w x 2'w x 2'd	3	cy		-	-	-	-	1,500.00	4,500	-	-	-	-	4,500	6,830
				CIP Pier - 5'w x 2'w x 4'd	5	cy		-	-	-	-	1,500.00	7,500	-	-	-	-	7,500	11,383
				Gasket/Nuts/Bolt Kit 42"	9	ea	1.000	mh / ea	9	45.62	/mh	-	-	-	-	-	-	-	4236
				Carbon Steel Flange Thrust Assemblies - 42" interior	9	ea	6.000	mh / ea	54	45.62	/mh	-	-	-	-	-	-	-	6,964
				02.10 Intake Pipe Rehab	3	ea			164		2,835.00	8,505	4,000.00	12,000	2,988.21		8,965	36,476	56,477
			07.01	Roofing															
				Inspect & Patch Roof System (Patchwork Voids Warranty)	3,300	sf		/sf	-	-	-	1.50	4,950	-	-	-	-	-	4,950
				Patch Aluminum Downspouts	40	lf		/lf	-	-	-	18.00	720	-	-	-	-	-	720
				Patch Aluminum Coping @ Roof Parapet 12" wide	257	lf		/lf	-	-	-	5.00	1,285	-	-	-	-	-	1,285
				07.01 Roofing	3,300	sf						2.11	6,955					6,955	10,556
			08.00	Doors, Frames & Hardware															
				HM Single Frames- 16 ga 3x7"	5	ea	1.000	mh / ea	5	39.18	/mh	-	-	-	-	-	-	-	196
				HM Door Leafs- 3'x7' 20 ga. half glass	7	ea	1.500	ea / mh	5	39.18	/mh	-	-	-	-	-	-	-	183
				Finish Hardware by Leaf- Allowance	7	ea	8.002	mh / ea	56	39.18	/mh	-	-	-	-	-	-	-	2,194
				08.00 Doors, Frames & Hardware	7	ea			66		1,478.87	10,352						2,573	14,784
			09.00	Finishes															
				Paint HM Door Frames - primer (2) coats	5	ea		/ea	-	-	-	100.02	500	-	-	-	-	-	500
				Paint HM Doors - primer (2) coats	7	ea		/ea	-	-	-	140.03	980	-	-	-	-	-	980
				Paint CMU Block - block filler & (2) coat	6,300	sf		-	-	-	-	1.35	8,505	-	-	-	-	-	8,505
				Upgrade Architectural Finishes	1	ls		-	-	-	-	4,000.00	4,000	-	-	-	-	-	4,000
				Paint 6" Pipe	505	lf	0.140	mh / lf	71	27.53	/mh	-	-	-	4.24	-	-	-	2,141
				Paint 18" Pipe	85	lf	0.200	mh / lf	17	27.53	/mh	-	-	-	6.06	-	-	-	515
				Paint 24" Pipe	7	lf	0.350	mh / lf	2	27.53	/mh	-	-	-	7.07	-	-	-	49
				Paint 30" Pipe	54	lf	0.438	mh / lf	24	27.53	/mh	-	-	-	4.12	-	-	-	223
				Paint 36" Pipe	34	lf	0.525	mh / lf	18	27.53	/mh	-	-	-	4.95	-	-	-	168
				Paint 42" Pipe	223	lf	0.525	mh / lf	117	27.53	/mh	-	-	-	4.95	-	-	-	1,103
				09.00 Finishes	3,300	ls			249		6,848	0.59	1,955	4.24	13,985	1.27	4,198	26,986	41,711
			10.00	Specialty Items															
				Signs - Building ID	1	ea		/ea	-	-	-	3,000.60	3,001	-	-	-	-	-	3,001
				Signs - Doors	5	ea		/ea	-	-	-	30.01	150	-	-	-	-	-	150
				Fire Extinguisher CO2 10 lbs	4	ea		/ea	-	-	-	225.05	900	-	-	-	-	-	900
				10.00 Specialty Items	3,300	ls						1.23	4,051					4,051	6,148
			23.00	HVAC															
				Replace HVAC System (Includes Exhaust Fans, Heaters, Louvers & Ductwork)	3,000	sf		/sf	-	-	-	25.01	75,015	-	-	-	-	-	75,015
				Replace Ancillary Building Systems	3,000	sf		/sf	-	-	-	13.00	39,000	-	-	-	-	-	39,000
				23.00 HVAC	3,300	sf						34.55	114,015					114,015	173,042
			31.00	Dredging															
				Hydraulic Dredging- Allowance	1	ls		-	-	-	-	250,000.00	250,000	-	-	-	-	-	250,000
				31.00 Dredging	1	ls						250,000.00	250,000					250,000	379,429
			32.00	Site Improvements															
				Replace Entrance Sidewalks & Handrail	1	ls		/ls	-	-	-	1,200.00	1,200	-	-	-	-	-	1,200
				32.00 Site Improvements	1	ls						1,200.00	1,200					1,200	1,821
				02 Modify Existing Structure & Services	1	ls	499		17,253	20,811.62	20,812	450,706.22	450,706	13,399.15	13,399			502,170	764,261
		26		Electrical & Instrumentation															
			26.01	Above Ground Electrical															
				Electrical Work For New Pumps & Lights	1	ls		/ls	-	-	-	200,000.00	200,000	-	-	-	-	-	200,000
				26.01 Above Ground Electrical	1	ls						200,000.00	200,000					200,000	303,543
			26.02	Instrumentation & Controls															
				Controls & Instrumentation Work For New Pumps	1	ls		/ls	-	-	-	84,000.00	84,000	-	-	-	-	-	84,000
				26.02 Instrumentation & Controls	1	ls						84,000.00	84,000					84,000	127,488
				26 Electrical & Instrumentation	3,300	ls						86.06	284,000					284,000	431,031
		40		Process Piping															
			40.01	Above Ground Process Piping															
				Replace Water Supply, PCC, Chlorine Solution and Potassium Permanganate Piping	600	lf	0.900	mh / lf	540	45.62	/mh	-	-	-	-	-	-	-	24,636
				40.01 Above Ground Process Piping	600	lf			540		47.39		28,432					24,636	82,143
			40.02	Valves, Meters, Etc.															
				Backflow Preventer Flg 6"	1	ea	12.170	mh / ea	12	45.62	/mh	-	-	-	-	-	-	-	555
				Magnetic Flow Meter, Inline - 30" w/ transmitter	2	ea	38.000	mh / ea	76	43.67	/mh	-	-	-	-	-	-	-	3,319
				Resurface All Large Discharge Valves & Replace Actuators 24"	6	ea	10.000	mh / ea	60	30.57	/mh	-	-	-	-	-	-	-	1,834
				Resurface All Large Discharge Valves & Replace Actuators 36"	1	ea	14.000	mh / ea	14	30.57	/mh	-	-	-	-	-	-	-	428
				Resurface All Large Discharge Valves & Replace Actuators 42"	3	ea	17.000	mh / ea	51	30.57	/mh	-	-	-	-				

WBS Lvl 1	WBS Lvl 2	WBS Lvl 3	WBS Lvl 4	Description	Takeoff Quantity	Labor Productivity	Man Hours	Labor Price	Labor Amount	Material Cost/Unit	Material Amount	Subcontract Cost/Unit	Subcontract Amount	Const Equip Cost/Unit	Const Equip Amount	Process Equip Cost/Unit	Process Equip Amount	Total Amount	Grand Total Amount
			43.00	Pumps															
				Equipment Rigging / Rough Set - Pumps	6 ea	4.000 ch / ea	144	195.85 /ch	4,700	500.00	3,000	-	-	401.59	2,410	-	-	10,110	15,827
				Equipment - Final Setting Grout Base - Pumps	6 ea	4.000 ch / ea	72	103.33 /ch	2,480	50.00	300	-	-	346.16	2,077	-	-	4,857	7,686
				Variable Frequency Drives 150 HP	6 ea	40.000 mh / ea	240	28.14 /mh	6,753	31,995.00	191,970	-	-	-	-	-	-	198,723	302,044
				Replace Vertical Turbine Can Low Service Pumps 150 HP	6 ea	/ea										165,000.00	990,000	990,000	1,502,538
				Demo Existing Low Service Pumps 150 hp	6 ea	30.000 mh / ea	180	34.45 /mh	6,200	-	-	-	-	-	-	-	-	6,200	9,813
				Add Large Sump Pump To Lower Level	1 ea	32.000 mh / ea	32	34.45 /mh	1,102	-	-	-	-	-	45,000.00	45,000	45,000	46,102	70,042
				43.00 Pumps	1 ls		1,000		33,372	199,020.00	199,020	13,200.00	13,200	6,776.18	6,776	1,071,000.00	1,071,000	1,323,368	2,011,165
			43.08	Intake Screens															
				3-Man Dive Team - (1) Diver, (1) Tender, (1) Standby Diver	180 ch	-		-	-	-	-	560.00	100,800	555.56	100,000	-	-	200,800	312,137
				Rebuild Intake Screens	3 ea	60.000 mh / ea	180	32.90 /mh	5,923	-	-	-	-	6,657.60	19,973	47,875.00	143,625	169,521	259,143
				43.08 Intake Screens	3 ea		180		5,923			33,600.00	100,800	39,990.93	119,973	47,875.00	143,625	370,321	571,280
			43.09	Potassium Permanganate System															
				<i>Purchase Chemicals: Potassium Permanganate By Owner</i>	1 ls														
				Automated Potassium Permanganate w/ Mixing Tank (by Carus Corp)	1 ls	50.000 mh / ls	50	45.62 /mh	2,281	-	-	-	-	-	10,000.00	-	10,000	12,281	18,787
				43.09 Potassium Permanganate System			50		2,281								10,000	12,281	18,787
				43 Process Equipment	1 ls		1,230		41,576	199,020.00	199,020	114,000.00	114,000	126,748.98	126,749	1,224,625.00	1,224,625	1,705,970	2,601,233
				1A River Intake & LSPS Rehab	1 ls		2,482		91,159	394,613.41	394,613	848,706.22	848,706	140,148.13	140,148	1,224,625.00	1,224,625	2,699,252	4,112,965
				New River Intake & LSPS															
1B			00	Building & Structure Construction															
			03.00	Foundation Mat															
				Keyway 6"	650 lf	0.050 mh / lf	33	39.49 /mh	1,284	0.67	437	-	-	-	-	-	-	1,721	2,695
				Mat Foundation Edge Form 24"	366 sf	0.350 mh / sf	128	39.49 /mh	5,059	1.31	480	-	-	-	-	-	-	5,540	8,737
				Mat Foundation Edge Form 30"	510 sf	0.350 mh / sf	179	39.49 /mh	7,050	1.31	670	-	-	-	-	-	-	7,720	12,174
				Waterstop 6" Flat	650 lf	0.110 mh / lf	72	39.18 /mh	2,802	2.10	1,365	-	-	-	-	-	-	4,167	6,506
				Strip & Oil Mat Found. Form	876 sf	0.005 mh / sf	4	39.17 /mh	172	0.03	26	-	-	-	-	-	-	198	311
				Rebar- Foundation Mat (100 #/cy)	13 tn	28.006 mh / tn	368	43.53 /mh	16,030	997.70	13,120	-	-	-	-	-	-	29,150	45,283
				Rebar Support - bricks (.12/sf)	368 ea	0.002 mh / ea	1	43.53 /mh	32	0.26	97	-	-	-	-	-	-	129	197
				Finish- Hard Trowel	3,070 sf	0.023 mh / sf	71	39.17 /mh	2,766	-	-	-	-	-	-	-	-	2,766	4,378
				Pump Place Mat Foundation 24"	83 cy	0.500 mh / cy	42	41.39 /mh	1,718	-	-	-	-	4.59	381	-	-	2,098	3,325
				Pump Place Mat Foundation 30"	180 cy	0.500 mh / cy	90	41.39 /mh	3,725	-	-	-	-	4.59	826	-	-	4,551	7,210
				4000 psi Concrete	263 cy	/cy				142.00	37,346	-	-	-	-	-	-	37,346	56,681
				Liquid Curing Compounds	3,946 sf	0.003 mh / sf	12	39.17 /mh	464	0.06	232	-	-	-	-	-	-	696	1,086
				6 Mil. Vapor Barrier	4,400 sf	0.002 mh / sf	9	43.53 /mh	383	0.05	231	-	-	-	-	-	-	614	957
				03.00 Foundation Mat			1,007		41,484		54,004				1,207			96,694	149,540
			03.03	Columns															
				Form Rectangle Columns 14' & 25.33' h	1,525 sf	0.165 mh / sf	252	39.49 /mh	9,936	1.60	2,434	-	-	-	-	-	-	12,371	19,421
				Chamfer	1,144 lf	0.015 mh / lf	17	39.49 /mh	678	0.57	649	-	-	-	-	-	-	1,326	2,057
				Strip & Oil Column Form	1,525 sf	0.005 mh / sf	8	39.17 /mh	299	0.03	46	-	-	-	-	-	-	344	542
				Superplasticizers @ Columns	19 cy	/cy				8.40	160	-	-	-	-	-	-	160	242
				Column Rebar (120 #/cy)	1 tn	20.004 mh / tn	23	43.53 /mh	993	997.70	1,137	-	-	-	-	-	-	2,130	3,297
				Finish- Float	69 sf	0.017 mh / sf	1	39.17 /mh	46	-	-	-	-	-	-	-	-	46	73
				Pump Place Columns 18 ea	19 cy	1.600 mh / cy	30	41.39 /mh	1,258	-	-	-	-	7.50	142	-	-	1,401	2,218
				4000 psi Concrete	19 cy	/cy				142.00	2,698	-	-	-	-	-	-	2,698	4,095
				Grind/Patch Columns	1,525 sf	0.013 mh / sf	20	39.17 /mh	777	0.03	46	-	-	-	-	-	-	822	1,299
				Rub Columns	1,525 sf	0.065 mh / sf	99	39.17 /mh	3,882	0.06	92	-	-	-	-	-	-	3,974	6,284
				Liquid Curing Compounds	1,525 sf	0.003 mh / sf	5	39.17 /mh	179	0.06	90	-	-	-	-	-	-	269	420
				03.03 Columns			454		18,048		7,351				142			25,541	39,948
			03.04	Walls															
				Brick Ledge Forms	257 lf	0.300 mh / lf	77	39.49 /mh	3,045	2.21	567	-	-	-	-	-	-	3,612	5,680
				Keyway 6"	1,004 lf	0.050 mh / lf	50	39.49 /mh	1,983	0.67	675	-	-	-	-	-	-	2,657	4,162
				Vertical Wall Keyway 6"	272 lf	0.110 mh / lf	30	39.49 /mh	1,182	0.67	183	-	-	-	-	-	-	1,365	2,148
				Panel Form System 12-16'	2,250 sf	0.170 mh / sf	383	39.49 /mh	15,104	1.84	4,134	-	-	-	-	-	-	19,239	30,180
				Panel Form System > 16' h	12,695 sf	0.190 mh / sf	2,413	39.49 /mh	95,266	1.84	23,332	-	-	-	-	-	-	118,598	186,190
				Waterstop 6" Flat	1,276 lf	0.110 mh / lf	140	39.18 /mh	5,500	2.10	2,680	-	-	-	-	-	-	8,180	12,772
				Strip & Oil Wall Forms	14,495 sf	0.005 mh / sf	72	39.17 /mh	2,839	0.03	435	-	-	-	-	-	-	3,274	5,154
				Superplasticizers @ Walls	553 cy	/cy				8.40	4,646	-	-	-	-	-	-	4,646	7,051
				Rebar- Walls (125 #/cy)	35 tn	15.003 mh / tn	525	43.53 /mh	22,856	997.70	34,920	-	-	-	-	-	-	57,776	89,173
				Finish- Top of Wall	2,008 sf	0.008 mh / sf	16	39.17 /mh	629	-	-	-	-	-	-	-	-	629	996
				Pump Place Walls 24"	553 cy	1.150 mh / cy	636	41.39 /mh	26,327	-	-	-	-	6.65	3,677	-	-	30,004	47,520
				Pump Place Brick Ledge	14 cy	2.001 mh / cy	28	41.39 /mh	1,159	-	-	-	-	14.42	202	-	-	1,361	2,156
				4000 psi Concrete	567 cy	/cy				142.00	80,514	-	-	-	-	-	-	80,514	122,197
				Grind/Patch Walls	14,495 sf	0.013 mh / sf	188	39.17 /mh	7,382	0.03	435	-	-	-	-	-	-	7,817	12,344
				Rub Walls	7,473 sf	0.058 mh / sf	433	39.17 /mh	16,976	0.06	448	-	-	-	-	-	-	17,425	27,549
				Liquid Curing Compounds	15,303 sf	0.002 mh / sf	31	39.17 /mh	1,199	0.06	900	-	-	-	-	-	-	2,099	3,264
				03.04 Walls			5,023		201,447		153,868				3,879			359,195	558,536
			03.05	Slab On Grade															
				Slab Edge Form 28"	249 sf	0.350 mh / sf	87	39.49 /mh	3,442	1.31	327	-	-	-	-	-	-	3,769	5,944
				Rebar- SOG (125 #/cy)	2 tn	14.003 mh / tn	22	43.53 /mh	951	997.70	1,556	-	-	-	-	-	-	2,507	3,867

**EWSU WATER PLANT ALTERNATIVES ANALYSIS
INTAKE ALTERNATIVE 1 - REHABILITATE EXISTING SYSTEM
LIFE CYCLE COST ANALYSIS (30 YEARS)**

Capital Costs		Capital Cost 2020\$	
Total Capital Cost		\$ 6,752,000	
O&M Costs		30 Yr Life Cycle Cost 2020\$	
	Current \$ Annual		
Chemicals & Consumables	\$ 67,835	\$ 2,035,058	
Potassium Permanganate (3300 lb bins)	\$ 67,835	\$ 2,035,058	
PAC (incl. in Pretreatment costs)	\$ -	\$ -	
Energy Costs	\$ 318,081	\$ 9,542,431	
Screens & Backwash Water	\$ 1,742	\$ 52,259	
Low Service Pumps & Drives (6@150HP)	\$ 313,552	\$ 9,406,558	
KMNO4 System (PAC in Pretreatment)	\$ 697	\$ 20,903	
HVAC (A.C. for VFD only)	\$ 2,090	\$ 62,710	
(Insignificant for controls)	\$ -	\$ -	
		\$ -	
Equipment Maintenance Costs	\$ 25,500	\$ 765,000	
River Sediment Removal (Est 2X in 30 Yrs)	\$ 16,000	\$ 480,000	
Traveling Screens & Backwash Water	\$ 5,000	\$ 150,000	
Low Service Pumps & Motors & Valves	\$ 4,500	\$ 135,000	
Total O&M Costs	\$ 411,416	\$ 12,343,000	
Replacement Costs		30 Yr Life Cycle Cost 2020\$	
	Useful Life in Years		
	Times Replaced		
Roof Replacement	20	1	\$ 50,000
Process Piping	20	1	\$ 20,900
Pumps	20	1	\$ 200,400
Screen Replacement	20	1	\$ 195,000
Potassium Permanganate System	15	2	\$ 112,500
HVAC	15	2	\$ 23,000
Electrical and I&C	15	2	\$ 26,800
Total Replacement Costs		\$ 629,000	
Salvage Value 2020\$ to Reflect Remaining Useful Life at Year 30			
Roof Replacement	20	Years	\$ (25,000)
Process Piping	20	Years	\$ (10,450)
Pumps	20	Years	\$ (100,200)
Screen Replacement	20	Years	\$ (97,500)
Potassium Permanganate System	15	Years	\$ (56,250)
HVAC	15	Years	\$ (11,500)
Electrical and I&C	15	Years	\$ (13,400)
Total Salvage Value of Remaining Useful Life			\$ (315,000)
Total Present Worth 30 Year Life Cycle Cost			\$ 19,409,000

New Water Treatment Plant Alt 2B - High Service Pump Station #4 Cost Support / Comparison

DR 17-6 Attach. 1.xlsm		DR 17-6 Attach. 1.xlsm			Timberline Output		DR 17-6 Attach. 2.pdf		OUCC Estimate	
Table B6.2 - New High Service Pumps Option (not in WTPAFP)		DR 17-6 Attach. 1.xlsm			Timberline Output		DR 17-6 Attach. 2.pdf		OUCC Estimate	
Description	Est. Cost	Est. Base Cost (from est.)	Est. Loaded Cost (from est.)	Multiplier from Estimate	Total Amount	Grand Total Amount			Amount	
Pump Building (5,100 sf)	\$ 513,600	\$855,407	\$1,318,619	1.542			3,000 SF		\$ 503,181	
Dewatering		\$70,384	\$107,754	1.531						
Foundation and Earthwork	\$ 159,000	\$317,103	\$486,388	1.534	\$ 1,407,877	\$ 2,170,009			\$ 317,103	
Plumbing (5,100 sf)	\$ 18,600	\$30,606	\$46,283	1.512			3,000 SF		\$ 30,606	
HVAC (5,100 sf)	\$ 76,800	\$127,525	\$192,844	1.512					\$ 75,015	
Process Piping	\$ 158,000	\$157,812	\$242,437	1.536	\$ 317,317	\$ 486,145			\$ 157,812	
Valves, Meters, etc.	\$ 167,000	\$166,356	\$252,319	1.517					\$ 166,356	
Vertical Turbine Pumps (4 units at 800ea)	\$ 3,200,000	\$682,455	\$1,033,923	1.515					\$ 682,455	
Swift Chem. Injection In-Line BlenderX - Not to be included		\$52,570	\$79,566	1.514	\$ 771,721	\$ 1,173,345				
Air CompressorX - Not to be included		\$36,696	\$55,602	1.515						
Electrical (15% equipment)	\$ 480,000	\$234,647	\$354,833	1.512	\$ 498,827	\$ 757,077			\$ 162,246	
Instrumentation & Controls	\$ 265,000	\$264,180	\$399,494	1.512					\$ 264,180	
Subtotal	\$ 5,038,000	\$2,995,741	\$4,570,062		\$2,995,742	\$4,586,576			\$ 2,358,953	
Estimating Contingency	20% \$ 1,007,600	\$599,148	\$914,012		\$599,148	\$917,315	10%		\$ 235,895	
Escalation to Midpoint	3% \$ 151,140	\$89,872	\$137,102		\$89,872	\$137,597	3%		\$ 70,769	
Construction Subtotal	\$ 6,196,740	\$3,684,761	\$5,621,176		\$3,684,763	\$5,641,488			\$ 2,665,617	
Contractor General Conditions	10% \$ 619,674	\$299,574	\$457,006		\$299,574	\$458,658	10%		\$ 266,562	
Contractor Overhead and Profit	12% \$ 743,609	\$359,489	\$548,407		\$359,489	\$550,389	12%		\$ 319,874	
Construction Contingencies	5% \$ 309,837	\$149,787	\$228,503		\$149,787	\$229,329	0%		\$ -	
Grand Total Cost	\$ 7,869,860	\$ 4,493,612	\$ 6,855,093		\$ 4,493,613	\$ 6,879,864			\$ 3,252,053	
Cost to use for alt 2B	\$11,130,000									
Original Est. was for effectively replacing high service #2										

Notes: (1) Yellow shaded cells show costs that are approximately equal
 (2) Black text shows AECOM estimated costs and assumed percentages.
 (3) Red text shows OUCC calculated costs and assumed percentages.

Original Costs from Estimator

	Estimated Base Cost (from estimate)	Estimated Loaded Cost (from estimate)	Multiplier from Estimate
Building Structure	\$855,407	\$1,318,619	1.542
Dewatering	\$70,384	\$107,754	1.531
Foundation and Earthwork	\$317,103	\$486,388	1.534
Process Piping	\$157,812	\$242,437	1.536
Valves, Meters, Etc.	\$166,356	\$252,319	1.517
Pumps	\$682,455	\$1,033,923	1.515
Swift Water Chemical Injectic	\$52,570	\$79,566	1.514
Air Compressor	\$36,696	\$55,602	1.515
Plumbing	\$30,606	\$46,283	1.512
HVAC	\$127,525	\$192,844	1.512
Electrical	\$234,647	\$354,833	1.512
Instrumentation & Controls	\$264,180	\$399,494	1.512
Grand Total Capital Construc	\$2,995,741	\$4,570,062	

Adjusted for Report

Table B6.2 - New High Service Pumps Option

Description		Estimated Cost	Cost Adjust Comments
Pump Building (5,100 sf)		\$513,600	Reduce to 3,000 SF
Dewatering			No dewatering - build on top of clearwell
Foundation and Earthwork		\$159,000	Reduced - built on top of clearwell
Process Piping		\$158,000	
Valves, Meters, etc.		\$167,000	
Vertical Turbine Pumps (4 units at 800ea)		\$3,200,000	
			X - Not to be included
			X - Not to be included
Plumbing (5,100 sf)		\$18,600	
HVAC (5,100 sf)		\$76,800	Reduce to 3000 SF
Electrical (15% equipment)		\$480,000	
Instrumentation & Controls		\$265,000	
Subtotal		\$5,038,000	
Estimating Contingency	20%	\$1,007,600	
Escalation to Midpoint	3%	\$151,140	
Construction Subtotal		\$6,196,740	
Contractor General Conditions	10%	\$619,674	
Contractor Overhead and Profit	12%	\$743,609	
Construction Contingencies	5%	\$309,837	
Allowances:			
Grand Total Cost		\$7,870,000	

Cost to use for alt 2B \$11,130,000.00 Original Estiamte was for effectivelly replacing high service #2



Table with columns: WBS Lvl 1, WBS Lvl 2, WBS Lvl 3, WBS Lvl 4, Description, Takeoff Quantity, Labor Productivity, Man Hours, Labor Price, Labor Amount, Material Cost/Unit, Material Amount, Subcontract Cost/Unit, Subcontract Amount, Const Equip Cost/Unit, Const Equip Amount, Process Equip Cost/Unit, Process Equip Amount, Total Amount, Grand Total. Rows include items like 'Above Ground Electrical', 'Instrumentation & Controls', 'Process Piping', 'Under Ground Process Piping', 'Valves, Meters, Etc.', 'Hydropneumatic Piping System', and 'Pumps'.

General Information

Parcel Number 82-06-31-022-080.008-029
Local Parcel Number 11-170-22-080-008

Tax ID:

Routing Number

Property Class 640 Exempt, Municipality

Year: 2021

Location Information

County Vanderburgh
Township PIGEON TOWNSHIP
District 029 (Local 011) EVANSVILLE CITY-PIGEON
School Corp 7995 EVANSVILLE-VANDERBURGH
Neighborhood 456-029 MIXED USE FAIR 029
Section/Plat 31
Location Address (1) 1400 WATERWORKS RD EVANSVILLE, IN 47713

Ownership

CITY OF EVANSVILLE INDIANA BOA
1 NW MLK JR BLVD RM 300
EVANSVILLE, IN 47708

Legal

PT FRAC 31-6-10 & DUNHAM TRACT PT LT 26
AKA WATERWORKS PARCELIZATION PARCEL 2

Transfer of Ownership

Date 02/20/2019 Owner CITY OF EVANSVILLE
Doc ID pl track Code PT Book/Page 19/3253 Adj Sale Price \$0 V/I I

Notes

4/10/2019 EASE: 4/5/2019 Inst No 2019R6391
PLTR 11371 Electric Distribution Line ESMT for
SIGECO at .452 AC and .009 AC.
4/10/2019 SPLIT/COMBINE: 20p21 SPLT PLTR
11329 cut.253 AC from 2.311 AC in 22-080-005 &
delete 13.049 AC in 22-080-004 to create 22-080-
008 with WD 2019R3253 and Waterworks
Parcelization map.



Exempt

Valuation Records (Work In Progress values are not certified values and are subject to change)

Table with columns for Assessment Year (2021, 2021, 2020), Reason For Change (WIP, AA, AA), As Of Date (02/26/2021, 04/09/2021, 05/01/2020), Valuation Method (Indiana Cost Mod, Indiana Cost Mod, Indiana Cost Mod), Equalization Factor (1.0000, 1.0000, 1.0000), Notice Required (checked), Land (\$566,400, \$566,400, \$566,400), Improvement (\$812,700, \$812,700, \$812,700), Total (\$1,379,100, \$1,379,100, \$1,379,100)

Land Data (Standard Depth: Res 132', CI 132' Base Lot: Res 0' X 0', CI 0' X 0')

Table with columns: Land Type, Pricing Method, Soil ID, Act Front., Size, Factor, Rate, Adj. Rate, Ext. Value, Infl. %, Res Elig %, Market Factor, Value

Zoning

Subdivision

Lot

Market Model 456-029 - Commercial

Characteristics

Topography Flood Hazard
Public Utilities ERA
Streets or Roads TIF

Neighborhood Life Cycle Stage Other

Printed Friday, May 7, 2021

Review Group 2024

Data Source N/A

Collector 12/27/2000 dj

Appraiser 12/27/2000 dj

OUCG Attachment JTP-11
Cause No. 45545
Page 1 of 3

Land Computations

Table with columns: Land Computations (Calculated Acreage, Actual Frontage, Developer Discount, Parcel Acreage, 81 Legal Drain NV, 82 Public Roads NV, 83 UT Towers NV, 9 Homesite, 91/92 Acres, Total Acres Farmland, Farmland Value, Measured Acreage, Avg Farmland Value/Acre, Value of Farmland, Classified Total, Farm / Classified Value, Homesite(s) Value, 91/92 Value, Supp. Page Land Value, CAP 1 Value, CAP 2 Value, CAP 3 Value, Total Value) and values.

General Information

Occupancy	C/I Building	Pre. Use	Small Shop
Description	C/I Building C 01	Pre. Framing	Fire Resistant
Story Height	1	Pre. Finish	Semi-Finished
Type	N/A	# of Units	0

SB	B	1	U
-----------	----------	----------	----------

Wall Type	1: 2(316')
Heating	5400 sqft
A/C	2532 sqft
Sprinkler	

Plumbing RES/CI

	#	TF	#	TF
Full Bath	0	0	2	6
Half Bath	0	0	0	0
Kitchen Sinks	0	0	0	0
Water Heaters	0	0	0	0
Add Fixtures	0	0	6	6
Total	0	0	8	12

Roofing

<input type="checkbox"/> Built Up	<input type="checkbox"/> Tile	<input type="checkbox"/> Metal
<input type="checkbox"/> Wood	<input type="checkbox"/> Asphalt	<input type="checkbox"/> Slate
<input type="checkbox"/> Other		

GCK Adjustments

<input type="checkbox"/> Low Prof	<input type="checkbox"/> Ext Sheat	<input type="checkbox"/> Insulatio
<input type="checkbox"/> SteelGP	<input type="checkbox"/> AluSR	<input type="checkbox"/> Int Liner
<input type="checkbox"/> HGSR	<input type="checkbox"/> PPS	<input type="checkbox"/> Sand Pnl

Exterior Features

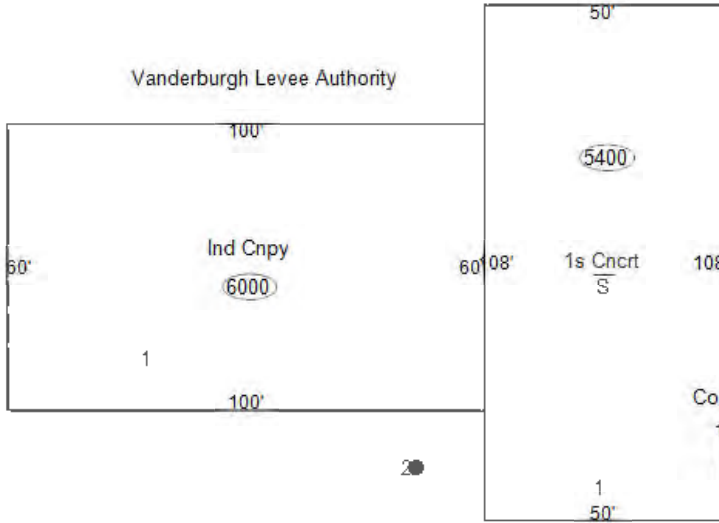
Description	Area	Value
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Special Features

Description	Value
Can, IT 6000sqft	\$86,760
Can, CT 50sqft	\$1,040

Other Plumbing

Description	Value
1 x Ref Wat Cooler	\$1300



Floor/Use Computations

Pricing Key	GCI	GCI
Use	INDOFF	SMSHOP
Use Area	2532 sqft	2868 sqft
Area Not in Use	0 sqft	0 sqft
Use %	46.9%	53.1%
Eff Perimeter	316'	316'
PAR	6	6
# of Units / AC	0 / N	0 / N
Avg Unit sz|dpth		
Floor	1	1
Wall Height	16'	16'
Base Rate	\$94.09	\$65.66
Frame Adj	\$0.00	\$0.00
Wall Height Adj	\$9.16	\$3.52
Dock Floor	\$0.00	\$0.00
Roof Deck	\$0.00	\$0.00
Adj Base Rate	\$103.25	\$69.18
BPA Factor	1.00	1.00
Sub Total (rate)	\$103.25	\$69.18
Interior Finish	\$0.00	\$0.00
Partitions	\$0.00	\$0.00
Heating	\$0.00	\$0.00
A/C	\$0.00	\$0.00
Sprinkler	\$0.00	\$0.00
Lighting	\$0.00	\$0.00
Unit Finish/SR	\$0.00	\$0.00
GCK Adj.	\$0.00	\$0.00
S.F. Price	\$103.25	\$69.18
Sub-Total		
Unit Cost	\$0.00	\$0.00
Elevated Floor	\$0.00	\$0.00
Total (Use)	\$261,429	\$198,408

OUCC Attachment JTP-11
Cause No. 45545
Page 2 of 3

Building Computations

Sub-Total (all floors)	\$459,837	Garages	\$0
Racquetball/Squash	\$0	Fireplaces	\$0
Theater Balcony	\$0	Sub-Total (building)	\$568,137
Plumbing	\$19,200	Quality (Grade)	\$568,138
Other Plumbing	\$1,300	Location Multiplier	1.00
Special Features	\$87,800	Repl. Cost New	\$568,137
Exterior Features	\$0		

Summary of Improvements

Description	Res Eligibl	Story Height	Construction	Grade	Year Built	Eff Year	Eff Co Age nd	Base Rate	LCM	Adj Rate	Size	RCN	Norm Dep	Remain. Value	Abn Obs	PC	Nbhd	Mrkt	Improv Value
1: C/I Building C 01	0%	1	Concrete	C	1967	1967	54 A		1.00		5,400 sqft	\$568,137	80%	\$113,630	0%	100%	1.0000	1.0000	\$113,600
2: Paving C 01	0%	1	Concrete	C	1967	1967	54 A	\$3.51	1.00	\$3.51	20,162 sqft	\$70,769	80%	\$14,150	0%	100%	1.0000	1.0000	\$14,200

General Information

Occupancy	C/I Building	Pre. Use	Commercial Garage
Description	C/I Building C 02	Pre. Framing	Fire Resistant
Story Height	1	Pre. Finish	Semi-Finished
Type	N/A	# of Units	0

SB	B	1	U
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Wall Type	1: 2(1004')
Heating	52800 sqft
A/C	52800 sqft
Sprinkler	52800 sqft

Plumbing RES/CI

	#	TF	#	TF
Full Bath	0	0	5	15
Half Bath	0	0	0	0
Kitchen Sinks				
Water Heaters				
Add Fixtures	0	0	5	5
Total	0	0	10	20

Roofing

<input type="checkbox"/> Built Up	<input type="checkbox"/> Tile	<input type="checkbox"/> Metal
<input type="checkbox"/> Wood	<input type="checkbox"/> Asphalt	<input type="checkbox"/> Slate
<input type="checkbox"/> Other		

GCK Adjustments

<input type="checkbox"/> Low Prof	<input type="checkbox"/> Ext Sheat	<input type="checkbox"/> Insulatio
<input type="checkbox"/> SteelGP	<input type="checkbox"/> AluSR	<input type="checkbox"/> Int Liner
<input type="checkbox"/> HGSR	<input type="checkbox"/> PPS	<input type="checkbox"/> Sand Pnl

Exterior Features

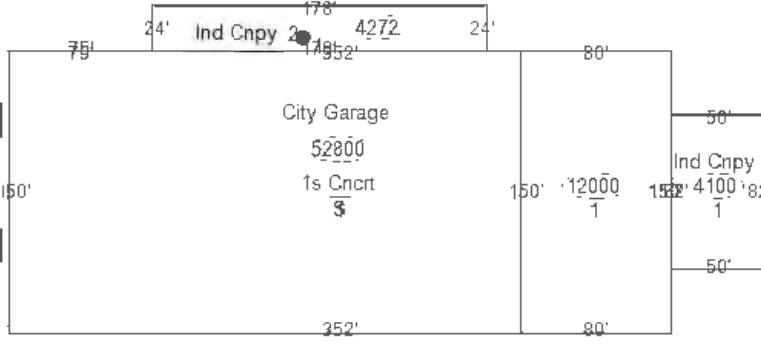
Description	Area	Value
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Special Features

Description	Value
Mezz 12000sqft	\$346,320
DF, LD 4100sqft	\$30,750
Can, IT 4100sqft	\$59,290
Can, IT 4272sqft	\$61,770

Other Plumbing

Description	Value
3 x Ref Wat Cooler	\$3900
1 x Emerg Shower	\$1400



Floor/Use Computations

Pricing Key	GCI
Use	COMGAR
Use Area	52800 sqft
Area Not in Use	0 sqft
Use %	100.0%
Eff Perimeter	1004'
PAR	2
# of Units / AC	0 / N
Avg Unit sz|dpth	

Floor	1
Wall Height	20'
Base Rate	\$37.97
Frame Adj	\$0.00
Wall Height Adj	\$3.78
Dock Floor	\$0.00
Roof Deck	\$0.00
Adj Base Rate	\$41.75
BPA Factor	1.00

Sub Total (rate)	\$41.75
Interior Finish	\$0.00
Partitions	\$0.00
Heating	\$0.00
A/C	\$3.99
Sprinkler	\$2.68
Lighting	\$0.00
Unit Finish/SR	\$0.00
GCK Adj.	\$0.00
S.F. Price	\$48.42
Sub-Total	
Location Multiplier	1.00
Unit Cost	\$0.00
Elevated Floor	\$0.00
Total (Use)	\$2,556,576

OUCC Attachment JTP-11
Cause No. 45545
Page 3 of 3

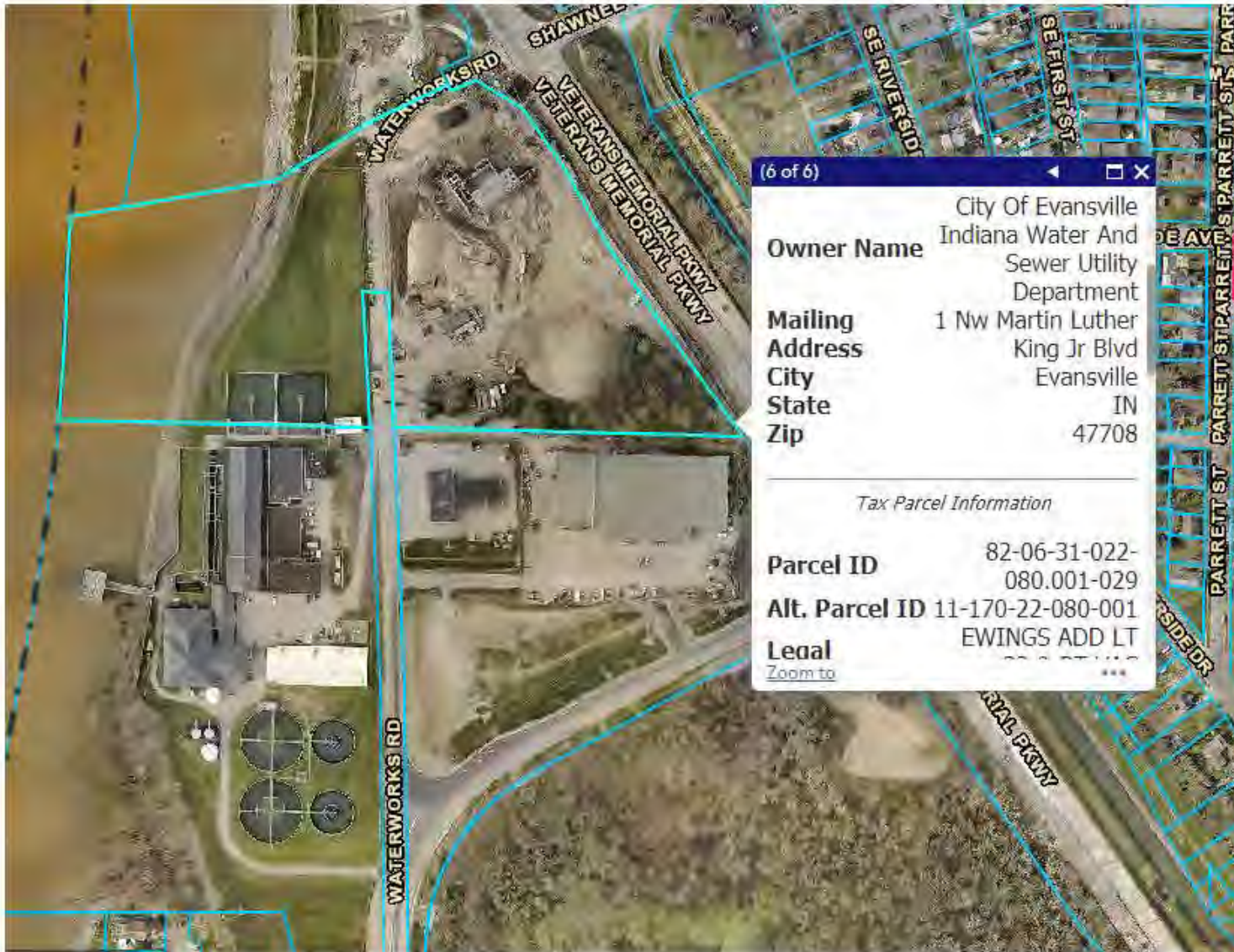
Building Computations

Description	Value	Sub-Total (all floors)	Value
Racquetball/Squash	\$0	\$2,556,576	\$0
Theater Balcony	\$0		\$0
Plumbing	\$32,000		\$32,000
Other Plumbing	\$5,300		\$5,300
Special Features	\$498,130		\$498,130
Exterior Features	\$0		\$0
Sub-Total (building)	\$3,092,006		\$3,092,006
Quality (Grade)	\$3,092,007		\$3,092,007
Repl. Cost New	\$3,092,006		\$3,092,006

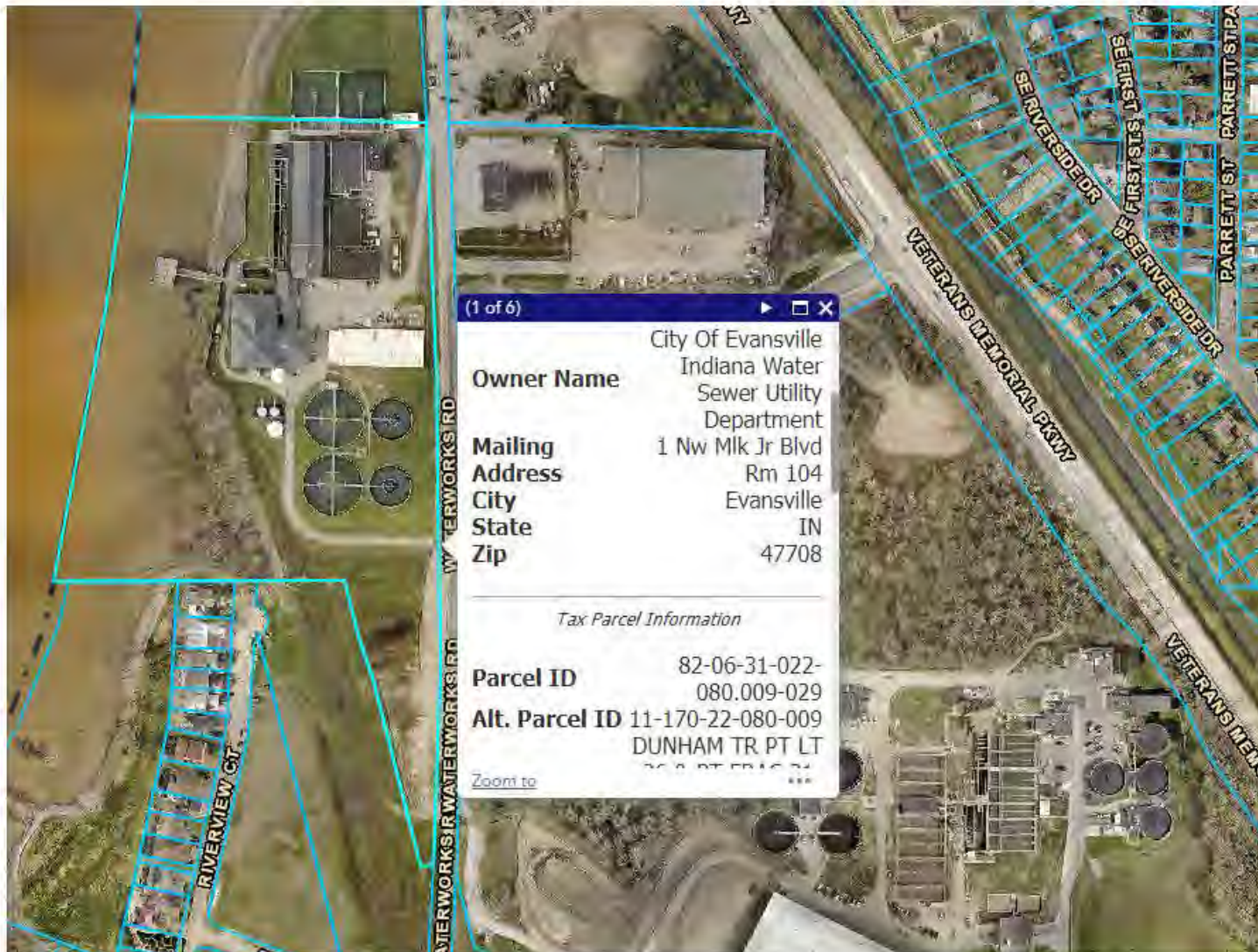
Summary of Improvements

Description	Res Eligibl	Story Height	Construction	Grade	Year Built	Eff Year	Eff Co Age	nd	Base Rate	LCM	Adj Rate	Size	RCN	Norm Dep	Remain. Value	Abn Obs	PC	Nbhd	Mrkt	Improv Value
1: C/I Building C 02	0%	1	Concrete	C	1985	1985	36	A	\$3.51	1.00	\$3.51	52,800 sqft	\$3,092,006	78%	\$680,240	0%	100%	1.0000	1.0000	\$680,200
2: Paving	0%	1	Concrete	C	1985	1985	36	A	\$3.51	1.00	\$3.51	6,648 sqft	\$23,334	80%	\$4,670	0%	100%	1.0000	1.0000	\$4,700





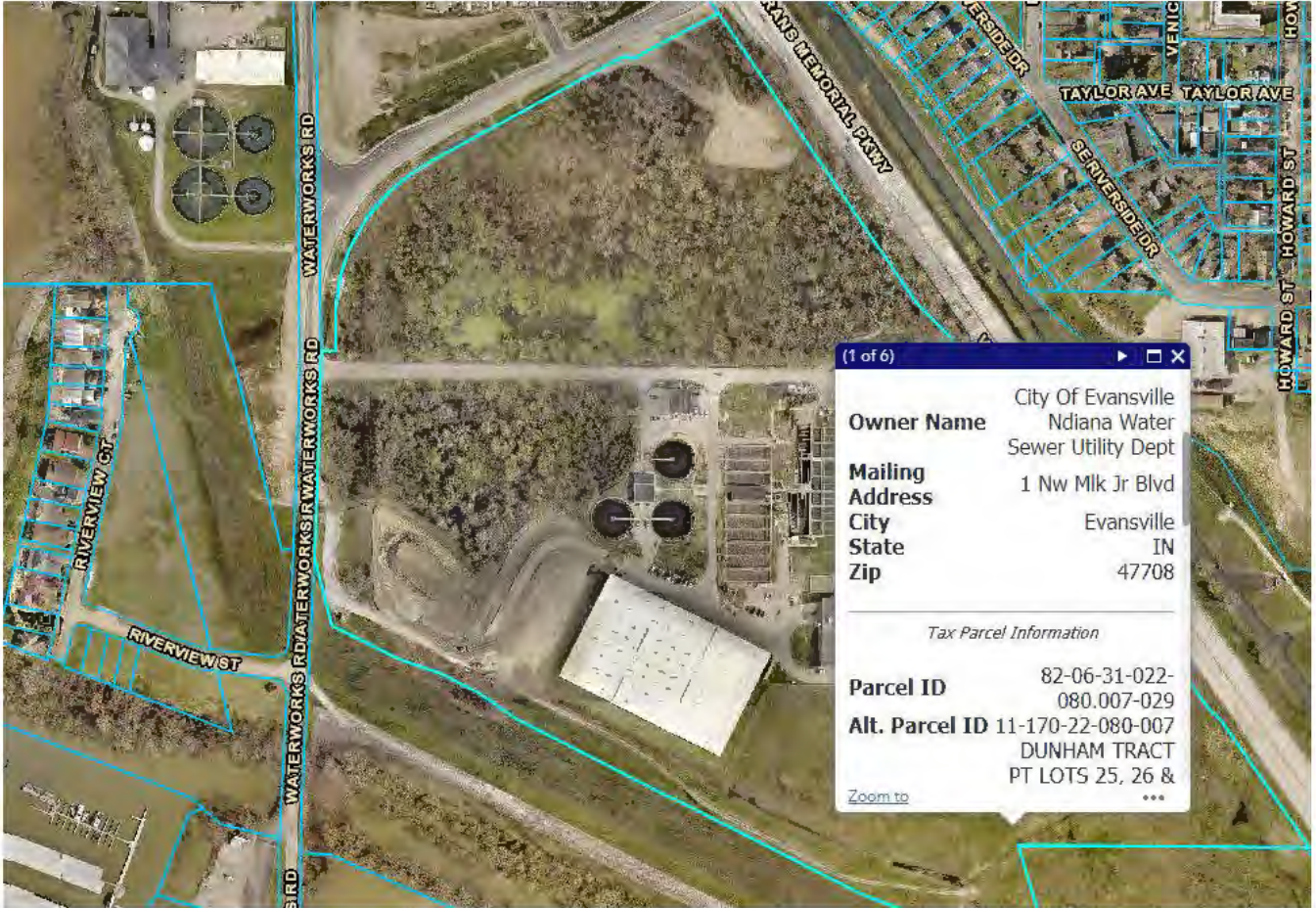
Existing Evansville Water Treatment Plant site (Parcel 1 of 2) showing the North Plant Primary Sedimentation tanks, High Service Pump Station No. 3 and the 6.5 MG Clearwell (not visible due to its underground location). 1200 Waterworks Road



Existing Evansville Water Treatment Plant site (Parcel 2 of 2) - 1301 Waterworks Road. This parcel includes the majority of the water treatment plant but does not include the North Plant Primary Sedimentation tanks, a portion of High Service Pump Station No. 3 or the 6.5 MG Clearwell,



1400 Waterworks Road (13.05 acres). The exiting WTP is at the left. The Levee Authority Building is at the upper left of the parcel and the City garage is at the upper right.



1500 Waterworks Road (East WWTP) 62.80 acres



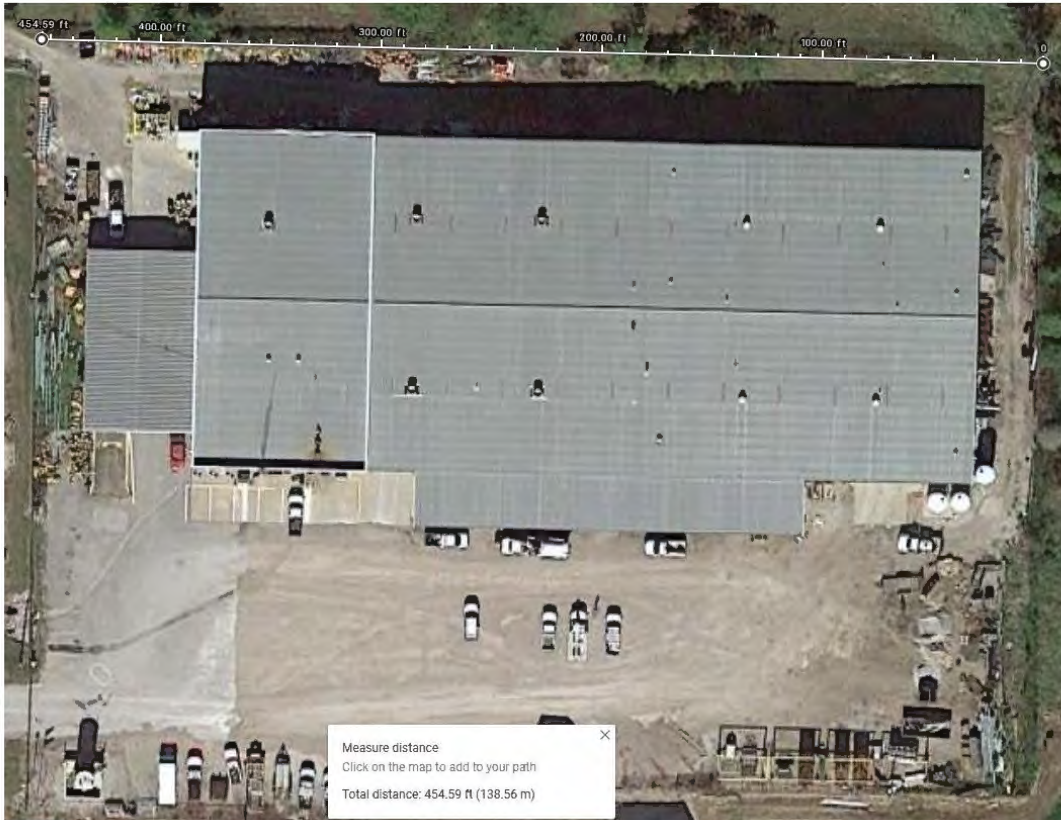
Pre 2019 aerial view



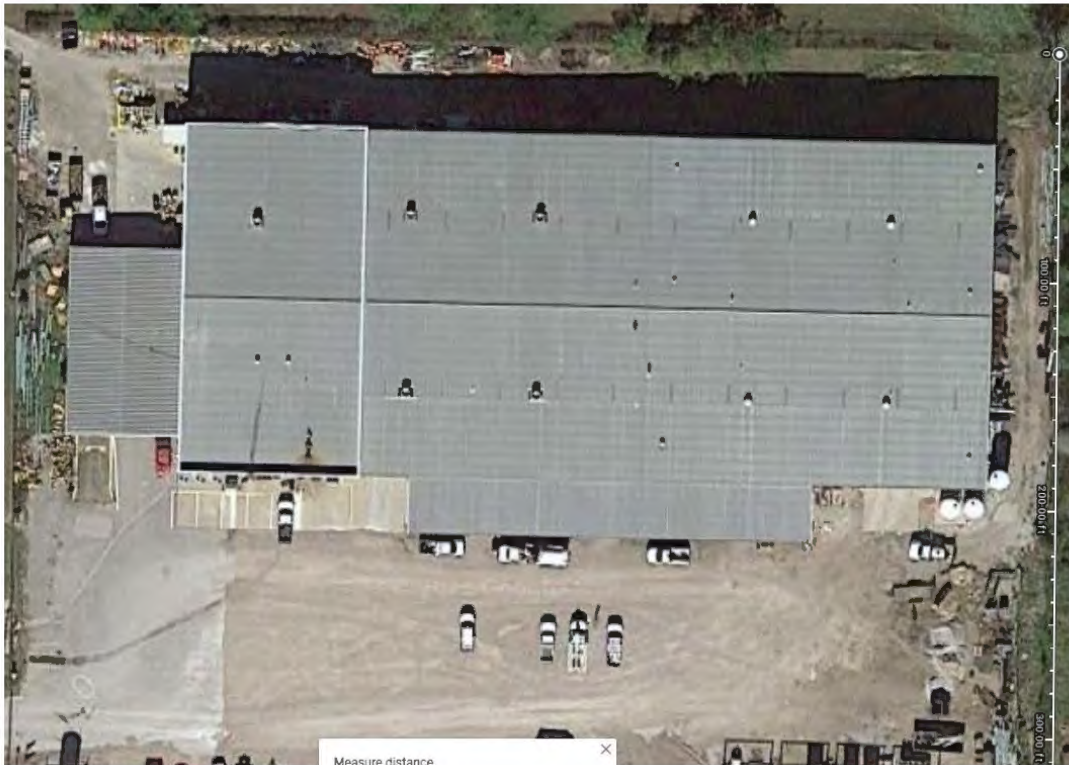
2/11/2018



2019 aerial photo



East – west lot dimension – 455 feet



North-south lot dimension = 335 feet

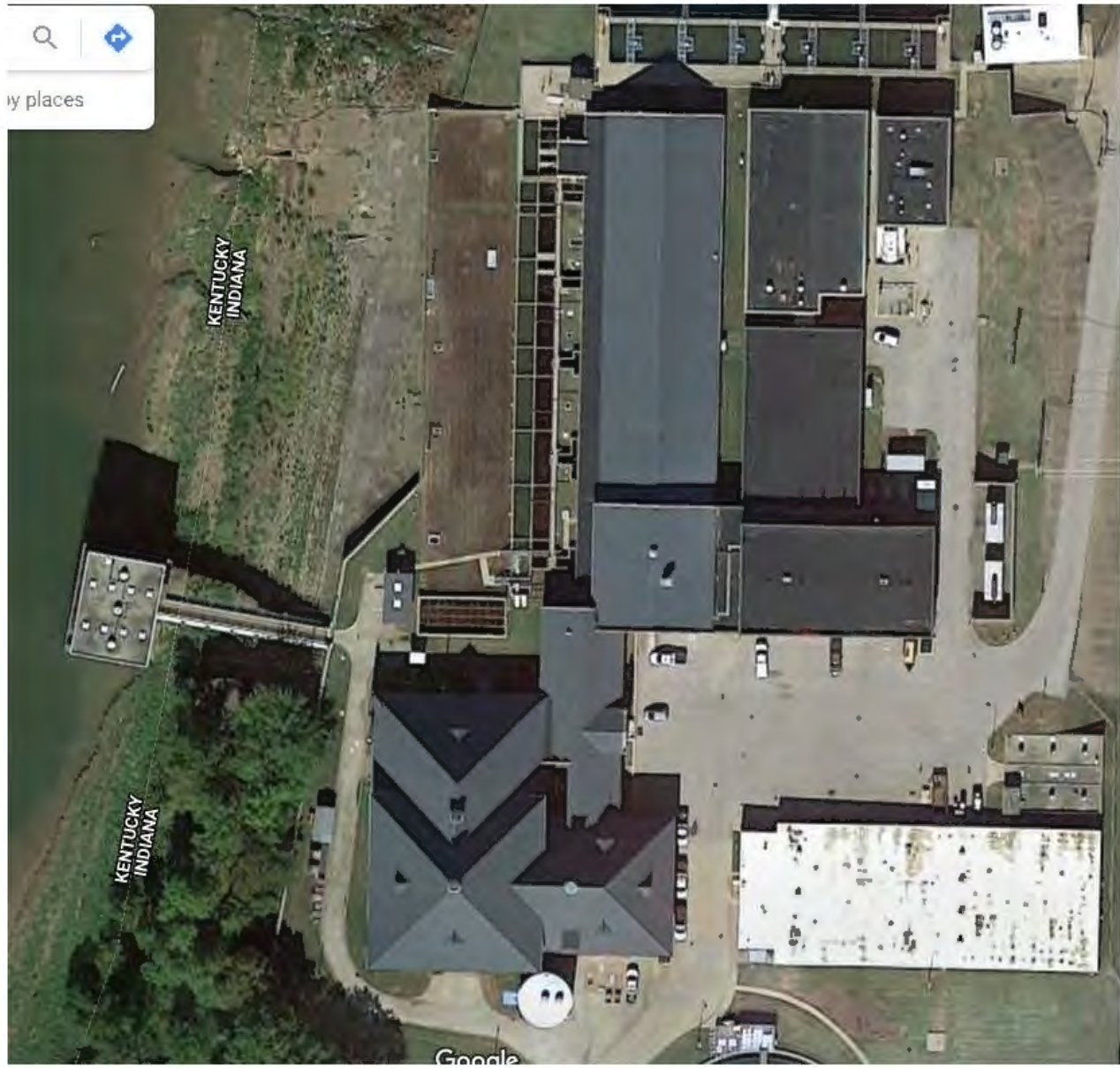
Total site acreage = 455 ft (E-W) x 335 feet (N-S) = 152,425 square feet = 3.5 acres.



Pre 2019 aerial photo



10 feet contour interval – DNR website 05/25/21 (pre 2019 aerial photo)



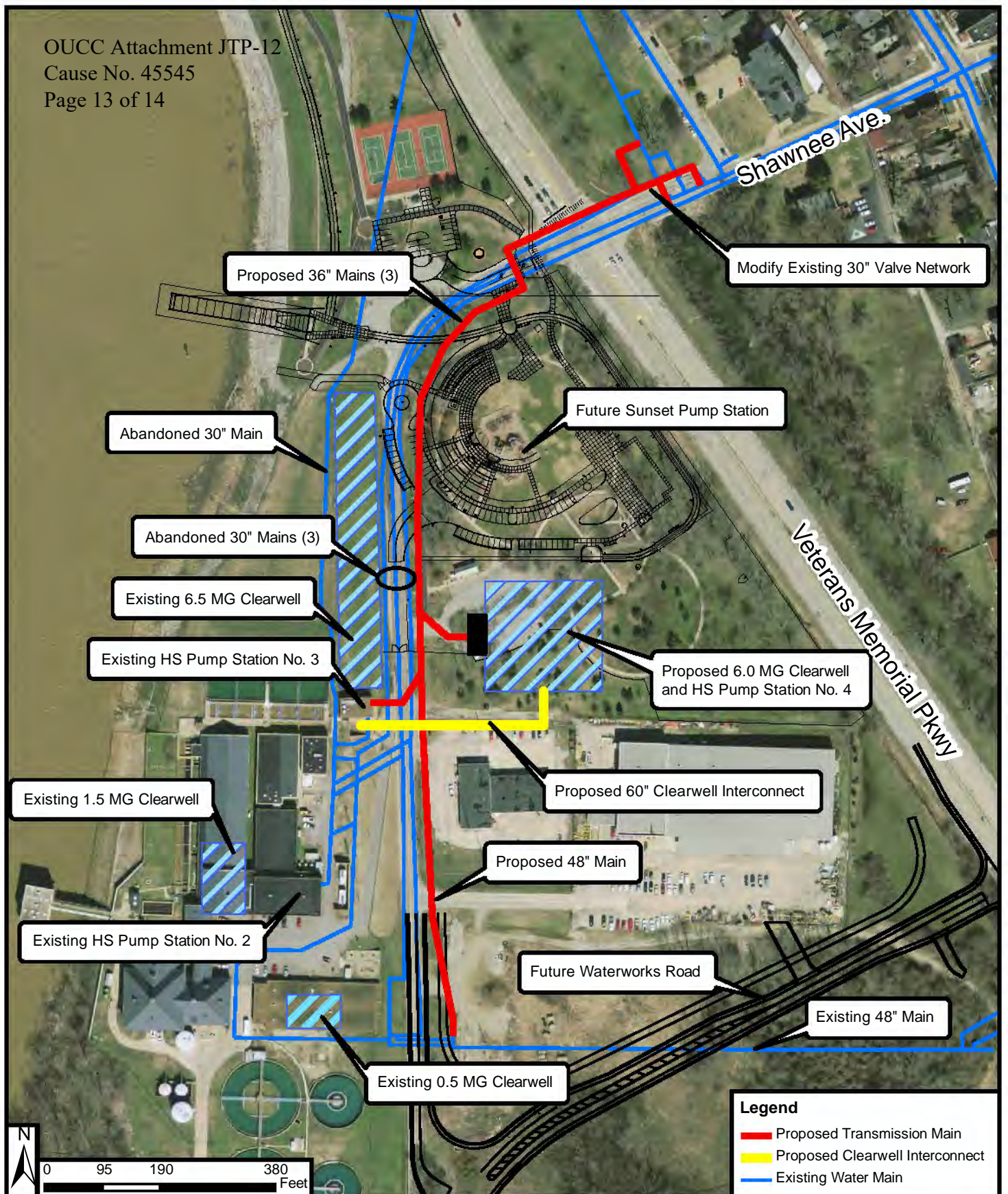
Evansville water treatment plant



1999 Topographic map showing the Filtration plant, Levee Authority and Street Department Maintenance garage (at lower right)



Site map of the Evansville water treatment plant, Levee Authority Building, City garage, Veterans Memorial Parkway, and Waterworks Road



VS ENGINEERING

Evansville Water and Sewer Utility

Exhibit 25-23
Proposed Project Layout

HNTB

refresh
 EVANSVILLE

High Service Pump Station
 and Clearwell
 Project No. 25
 June 2018

Table 25-9: Alternative 3A - Preliminary Project Cost Summary

Item No.	Item Description	Quantity	Unit	Unit Cost	Total Cost
1	36" Water Main, Ductile Iron (Open Cut)	3,200	LFT	\$600	\$1,920,000
2	36" Water Main, Ductile Iron (Jack/Bore)	500	LFT	\$1,500	\$750,000
3	48" Water Main, Ductile Iron	600	LFT	\$700	\$420,000
4	36" Fittings	20	EA	\$15,000	\$300,000
5	48" Fittings	5	EA	\$25,000	\$125,000
6	36" Gate Valve	12	EA	\$40,000	\$480,000
7	36" Valve Bevel Kit	12	EA	\$15,000	\$180,000
8	Valve Vault	12	EA	\$15,000	\$180,000
9	Flow Meter	2	EA	\$50,000	\$100,000
10	Connection to Existing 30" Main	6	EA	\$25,000	\$150,000
11	Granular Backfill/Paving	1	LS	\$150,000	\$150,000
12	Meter Telemetry and Electrical	1	LS	\$50,000	\$50,000
13	Water Main Abandonment (Cellular Grout Fill)	3,700	LF	\$100	\$370,000
Clearwell Interconnection					
14	60" Equalizer Piping	500	LF	\$1,500	\$750,000
15	Equalizer Gate Structure	2	LS	\$200,000	\$400,000
Clearwell and HSPs					
16	Clearwell (Post Tension)	1	LS	\$4,225,000	\$4,225,000
17	Clearwell Appurtenances (7% Clearwell Estimate)	1	LS	\$295,750	\$295,750
18	Excavation (10% Clearwell Estimate)	1	LS	\$422,500	\$422,500
19	Auger Cast Piles	484	EA	\$4,500	\$2,178,000
20	High Service Pump Station	1	LS	\$3,000,000	\$3,000,000
21	36" Discharge Piping, Ductile Iron (Open Cut)	300	LF	\$600	\$180,000
				Subtotal	\$16,626,250
22	Mob./Demob., Clearing ROW, and MOT	1	15%	\$2,493,938	\$2,493,938
23	Contingency	1	10%	\$1,912,019	\$1,912,019
Total Construction Cost					\$21,032,206

D. Proposed Schedule

The proposed schedule spans **Time**, beginning with the notice to proceed in **Month** of 2020 and culmination with final completion of construction in **Month 2021**. Phasing of the proposed booster station will not be required for the proposed project. The proposed project schedule is shown in **Table 25-10**.



City garage – view looking north (OUCC photos - July 21, 2021)



City garage – view looking northeast of the south canopy



City garage – view looking northeast of the two-story office



City garage lot – view looking east of the equipment yard



City garage – view showing the condition of the south canopy



City garage – south canopy steel condition



City garage – view looking east from south canopy



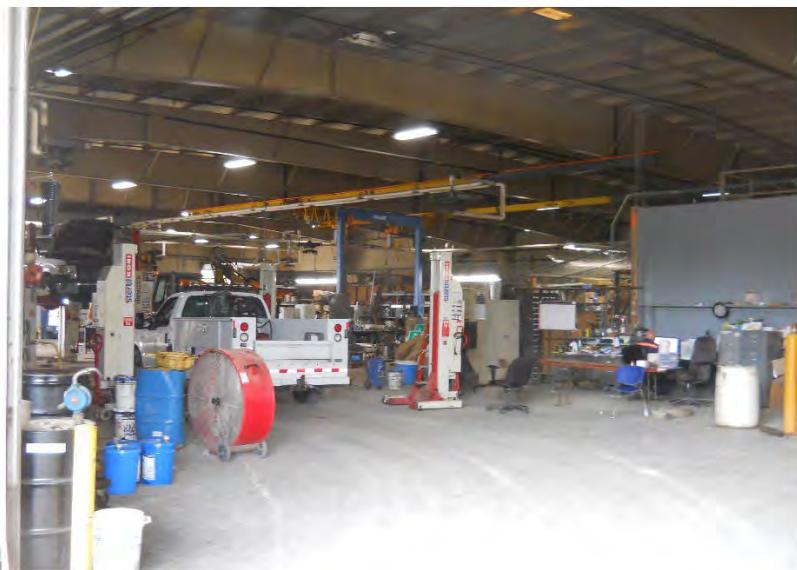
View west with the water treatment plant in the background



City garage – view looking east



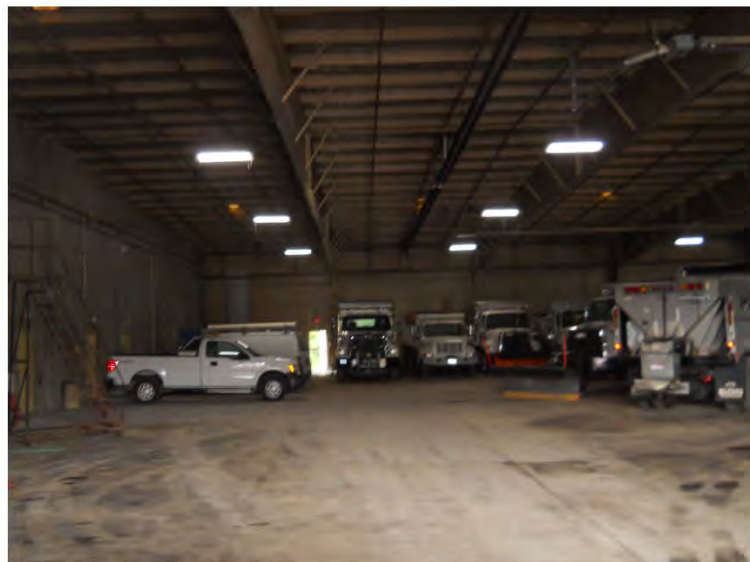
City garage – view looking west



City garage – interior view



City garage – interior view



City garage – interior view



City garage – view looking north along east side of garage

1922 Evansville Water Department Report
Water Mains

Summary of Water Mains

Size In Inches	Laid Prior to 1922		Laid During 1922		Removed	Abandoned	TOTAL	
	Feet	Miles	Feet	Miles	Feet	Feet	Feet	Miles
1 1/2	6,161	1.16	.....	...	...	.....	6,161	1.16
2	25,371	4.80	4,384	.80	...	.....	29,625	5.61
3	5,200	.98	.....	...	...	.....	5,200	.98
4	70,822	13.41	.....	...	...	.....	70,822	13.41
6	433,600	82.00	8,010	1.52	750	.....	440,260	83.30
8	96,817	18.33	10,835	2.05	...	.....	107,652	20.40
10	12,788	2.42	.....	...	...	.....	12,788	2.42
12	66,734	12.63	2,035	.39	...	.....	68,769	13.09
16	29,929	5.66	.....	...	...	.....	29,929	5.66
18	350	.06	.....	...	...	.....	350	.06
20	11,920	2.26	.....	...	...	.....	11,920	2.26
24	2,300	.44	.....	...	...	.....	2,300	.44
30	11,230	2.12	.....	...	...	.....	11,230	2.12
Total	761,392	144.20	25,134	4.76	750	.....	785,766	148.80

Valves in Distribution System, Dec. 31, 1922
Exclusive of Service

	1 1/2"	2"	4"	6"	8"	10"	12"	16"	20"	24"	30"	Total
Distribution Mains	4	66	149	1,024	199	20	105	26	14	1	4	1,612
Hydrants	..	..	6	968	..	..	..	..	..	..	..	974
Fire Cisterns	..	..	..	37	..	..	..	..	..	..	..	37
Drains	..	..	6	11	..	..	..	..	..	..	..	17
Total	4	66	161	2,040	199	20	105	26	14	1	4	2,640

Water Mains Laid During Year of 1922

FROM	TO	Feet	Size	Hyd.	Labor Cost	Material Cost	Total Cost
Seventh St.	Oak St.	1455	12"		\$1,807.20	\$2,308.09	\$4,115.29
Lincoln Ave.	Frederick Ave.	600	12"	1	461.00	1,878.52	1,878.52
Wimberg Ave.	Oak Summit Road						
Big Cynthiana Rd.	Harok Place						
W. Franklin St.	Barber Ave.	4975	8"	8	1,519.04	7,448.05	8,967.09
Schroeder Ave.	Franklin St.						
Neal Ave.	Schroeder Ave.						
Division St.	Rennighof Ave.	1122	8"	2	610.90	1,326.82	1,947.70
Stringtown Rd.	Wedeking Ave.	1624	8"	1	328.90	1,310.50	1,639.40
Stringtown Rd.	Wedeking Ave.	1509	8"				
Intersection	at Lodge Ave.	2164	8"	1	3,071.20	6,886.14	9,957.34
Intersection	Rotherwood Ave.	30	8"				
Intersection	Oak Summit Rd.	53	8"				
S. Illinois St.	Ross Ave.	14	8"				
Walker St.	High St.	650	6"	1	227.50	490.00	727.50
N. Illinois St.	Bartlett St.	174	6"	1	104.10	179.90	284.00
Taylor Ave.	Kentucky Ave.	277	6"		118.00	251.40	369.40
Intersection	Gennighof Ave.	209	6"		102.30	273.80	376.10
Intersection	Hertz Ave.	16	6"				
Intersection	Oak Summit Rd.	50	6"				
Marion Ave.	Drier Blvd.	48	6"				
Taylor Ave.	Johnson Ave.	320	6"		110.70	396.00	506.70
Schultz Ave.	Taylor Ave.						
Green River Rd.	Second St.	262	6"	1	282.00	718.30	1,000.30
Jefferson Ave.	Scholia Ave.	253	6"	1	142.90	302.50	445.40
Redford Ave.	Green River Rd.	150	6"	1	106.65	412.15	518.80
Intersection	Lincoln Ave.	787	6"	1	209.70	596.97	806.67
Intersection	Lincoln Ave.						
Intersection	Lincoln Ave.	48	6"				
Intersection	Lincoln Ave.	44	6"				
Intersection	Pennsylvania St.	27	6"				
Keck Ave.	Stringtown Rd.	27	6"				
Lincoln Ave.	Wainbach Ave.	680	3"		308.00	867.25	1,175.25
Rodenburg Ave.	Cynthiana Rd.	637	3"				
Hartig's Lane	Cynthiana Rd.	544	2"		36.20	298.12	334.32
Indiana St.	McDonald Ave.	701	2"		31.25	53.83	85.08
John St.	Ross Ave.	330	3"				
Rotherwood Ave.	Lincoln Ave.	1058	3"				
		607	3"				