



DuPage County Public Works
Woodridge Greene Valley WWTP Improvements and Capital Planning
Exhibit A – Scope of Services

Consultant:

Trotter and Associates, Inc.

Project:

Woodridge Greene Valley WWTP Improvements and Capital Planning

Scope of Services

Trotter and Associates will provide design, bidding, and construction phase engineering services for Woodridge Greene Valley WWTP Improvements and Capital Planning. This project includes the following major components:

Task #1 – Anaerobic Digester Rehabilitation (Phase II & III)

- Rehabilitation of the Acid-Phase Digester, including digester cleaning, interior piping replacement, lining of the existing interior concrete surfaces, and replacement of the acid recirculation and methane feed pumps.
- Rehabilitation of the Methane-Phase Digester, including digester cleaning, fixed cover replacement, mechanical mixer installation, gas safety equipment, interior piping replacement, replacement of digester feed/transfer pumps.
- Rehabilitation of the Secondary Digester/Sludge Storage, including digester cleaning, floating cover replacement, mechanical mixer installation, gas safety equipment, interior piping replacement, replacement of digester feed/transfer pumps.
- Activating the Secondary Digester/Sludge Storage through installation of heat-exchanger and recirculation piping to operate in a mesophilic temperature range. Includes Acid Digester feed pumps/piping demolition, heat exchanger installation, Secondary Digester Recirculation pumps/HHW pumps installation, process piping installation.
- Replacement of the existing gas safety equipment and digester gas flare assembly. Includes removal and replacement of gas piping throughout the building interior and site piping to the flare pad.

Task #2 – Aeration Basin Diffuser Replacement (Phase II)

- Fine bubble diffuser replacement, air distribution piping/valves and fittings.

Task #3 – Sidestream Equalization Basin Modifications/002 (Phase II)

- Piping modifications to allow for conveyance of Filtrate and Leachate into the old aeration (AT) tanks.
- Installation of coarse bubble diffuser aeration system within the basins for mixing.
- Installation of two positive displacement blowers, and all associated piping, valves, and fittings to the aeration system.
- Electrical improvements for 480v feed to new blowers.

Task #4 – Capital Improvement Planning (Phase I)

- Establish 20-year Capital Improvement Plan based on the 2019 Wastewater Master Plan and subsequent evaluations with County staff.
- Coordinate with the County to develop a financial plan for implementing improvements.
- The CIP funding levels and implementation plan will be established by the end of Q1 of 2026.

Our services will consist of customary civil engineering and surveying services and related engineering services incidental thereto, described as follows;

Task #1 – Anaerobic Digester Rehabilitation

A. CONCEPTUAL DESIGN (20%) PHASE

- 1) Hold a project kick-off meeting with County Staff to establish project goals and schedule.
- 2) Review existing County documentation that may be appropriate to the project. This includes as-built information for the existing facility and operational data as necessary.
- 3) Obtain utility locations, floodplain and floodway information on the existing site and determine site limitations. Perform wetland delineation as the flare and acid digester are within 250 ft of a mapped wetland (to be sub-consulted).
- 4) Conduct Site Visit as necessary to determine existing conditions and constraints. Includes structural analysis for buildings to be rehabilitated to verify soundness.
- 5) Conduct a topographic survey of the site to determine property boundaries for design and permitting and develop base files depicting existing site conditions.
- 6) Develop conceptual plans with layout of proposed structures, equipment, and piping consisting of approximately 42 sheets.
- 7) Prepare a conceptual design report including design calculations to determine sizing, loading, and other technical information required to verify plant design values and aid in equipment selection.
- 8) Complete hydraulic calculations through each unit process to develop existing and proposed hydraulic profile.
- 9) Hold manufacturer meetings to determine the preferred equipment for each process system, including pumping, blowers, clarifier mechanisms, and disinfection equipment.
- 10) Through a work session with County staff, perform equipment selection for base bid.
- 11) From the selected base bid equipment, prepare equipment data sheets.
- 12) Prepare an opinion of probable construction cost based on the conceptual design scope.
- 13) Meet with County staff once conceptual files are developed to discuss site constraints and layouts for consideration.

B. PRELIMINARY DESIGN (60%) PHASE

- 1) Based on approved Conceptual Design Phase, prepare 60% engineering plans and specifications to show the scope, extent, and character of the work. Documents shall consist of engineering calculations, preliminary drawings, and written descriptions.
 - a) General Construction Details and Notes (Estimated 4 Sheets)
 - b) Site Civil Drawings showing underground utilities, process piping, site grading and landscaping as applicable (Estimated 4 Sheets)
 - c) Demolition drawings showing existing structures and utilities to be removed as applicable (Estimated 16 Sheets)
 - d) Architectural drawings including layout, sections, and elevations (Estimated 2 Sheets)
 - e) Structural detail drawings and schedules (Estimated 4 Sheets)
 - f) Process drawings including the plans, sections, details and schedules for equipment and process piping (Estimated 20 Sheets)

- g) Electrical Drawings depicting power distribution requirements within the proposed improvements (Estimated 6 Sheets)
- h) Instrumentation drawings depicting the scope and extent of the proposed control system (Estimated 4 Sheets)
- i) Project specifications with in accordance with 64 Division CSI Format.
- 2) Based on the information contained in the Preliminary Design Phase documents, submit a revised opinion of probable construction cost.
- 3) Provide a list of required permits and sign-offs, along with timeframe for submittal.
- 4) Advise the County if additional information or testing services are necessary and assist in obtaining such information.
- 5) Hold a preliminary design review meeting to address the County's review comments and requested revisions. Determine preferred manufacturers, types and quantities of equipment, piping material, building layout and architectural details.

C. FINAL DESIGN (100%) PHASE

- 1) Based on the approved Preliminary Design Phase, prepare 90% Engineering Plans and Specifications. Included is the following but is not limited to these drawings:
 - a) General Construction Details and Notes (Estimated 4 Sheets)
 - b) Site Civil Drawings showing underground utilities, process piping, site grading and landscaping as applicable (Estimated 5 Sheets)
 - c) Demolition drawings showing existing structures and utilities to be removed as applicable (Estimated 16 Sheets)
 - d) Architectural drawings including layout, sections, and elevations (Estimated 4 Sheets)
 - e) Structural detail drawings and schedules (Estimated 6 Sheets)
 - f) Process drawings including the plans, sections, details and schedules for equipment and process piping (Estimated 20 Sheets)
 - g) Electrical Drawings depicting power distribution requirements within the proposed improvements (Estimated 10 Sheets)
 - h) Instrumentation drawings depicting the scope and extent of the proposed control system (Estimated 8 Sheets)
 - a) Project specifications with in accordance with 64 Division CSI Format.
- 2) Provide 90% complete plans for the County and affected agencies for review and approval. Prepare an opinion of probable cost, based on the Final Engineering Plans. Hold a final review meeting with the County.
- 3) Submit final plans and specifications to IEPA to obtain the construct and operate permit.
- 4) Submit final plans and specifications to Woodridge Building Department to obtain necessary permits. Preparing plats and easements are not included.
- 5) Make minor revisions to the plans to incorporate changes required by reviewing agencies.
- 6) Complete 100% drawings to satisfaction of the County and appropriate permitting bodies.

D. BIDDING OR NEGOTIATING PHASE

- 1) Assist the County with advertising the project for bid. Advertisement and plan production expenses will be considered reimbursable if required.

- 2) Attend a pre-bid meeting with the County and prospective bidders
- 3) Respond to questions about bid documents. Issue addenda as appropriate to clarify, correct, or change the Bidding Documents
- 4) Attend the bid opening, prepare bid tabulation, and assist the County in reviewing the bids, participate in any negotiations or clarification discussion and awarding contracts. Issue the Recommendation to Award to the County.
- 5) Furnish and supply drawings and project specification copies as required.

E. CONSTRUCTION PHASE

- 1) Consult with the County and act as the County's representative during construction.
- 2) Provide field engineering services (resident project representative) during the duration of construction activities.
 - a. Field engineering services are anticipated to be on an as-needed basis and scale with the amount and type of work taking place onsite. As such, the estimated hours include approximately eight (8) hours per week during the mobilization, demobilization and light construction phases, and up to sixteen (16) hours per week during heavy construction, startups and shutdowns, and similar work as requested by the County. Construction duration is estimated at approximately 34 weeks of 'light construction' (six months of lead/fabrication and two months of post-construction), and 52 weeks of 'heavy construction' based on digester rehabilitation sequencing.
 - b. Such visits and observations by Engineer, and the Resident Project Representative, are not intended to be exhaustive or to extend to every aspect of Contractor's work in progress or to involve detailed inspections of Contractor's work in progress beyond the responsibilities specifically assigned to Engineer in this Agreement and the Contract Documents, but rather are to be limited to spot checking, selective sampling, and similar methods of general observation of the Work based on Engineer's exercise of professional judgment as assisted by the Resident Project Representative. Based on information obtained during such visits and such observations, Engineer will determine in general if Contractor's work is proceeding in accordance with the Contract Documents, and Engineer shall keep County informed of the progress of the Work.
 - c. The purpose of Engineer's visits to, and representation by the Resident Project Representative, if any, at the Site, will be to enable Engineer to better carry out the duties and responsibilities assigned to and undertaken by Engineer during the Construction Phase, and, in addition, by the exercise of Engineer's efforts as an experienced and qualified design professional, to provide for County a greater degree of confidence that the completed Work will conform in general to the Contract Documents and that the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents has been implemented and preserved by Contractor. Engineer shall not, during such visits or as a result of such observations of Contractor's work in progress, supervise, direct, or have control over Contractor's work, nor shall Engineer have authority over or responsibility for the means, methods, techniques, sequences, or procedures of construction selected by Contractor, for safety precautions and programs incident to Contractor's work, or for any failure of Contractor to comply with Laws and Regulations applicable to Contractor's furnishing and performing the Work. Accordingly, Engineer neither guarantees the performance of any Contractor nor assumes responsibility for any Contractor's failure to furnish and perform its work in accordance with the Contract.
- 3) Assist the City in the selection of an independent testing laboratory to perform all necessary testing and inspections required during construction.

- 4) Conduct a Pre-Construction Conference prior to commencement of work.
- 5) As appropriate, establish baselines and benchmarks for locating the work, which in Engineer's judgment are necessary to enable Contractor to proceed.
- 6) Recommend to the County, if necessary, that Contractor's work be disapproved and rejected while it is in progress.
- 7) Issue necessary clarifications and interpretations of the Contract Documents as appropriate to the orderly completion of the work.
- 8) Recommend Change Orders and Work Change Directives to the City, as appropriate, and prepare Change Orders and Work Change Directives as required.
- 9) Review and approve or take other appropriate action in respect to Shop Drawings and Samples, and other data which Contractor is required to submit, for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole.
- 10) Require such special inspections or tests of Contractor's work as deemed reasonably necessary, and receive and review all certificates of inspections, tests, and approvals required by Laws and Regulations or the Contract Documents.
- 11) Provide weekly reports to County staff on status of construction. Weekly reports will include a summary of work completed each day, site conditions, number of personnel and equipment on site, any issues encountered, or field directives issued.
- 12) Schedule and conduct construction meetings as needed. Prepare agendas and minutes for each construction meeting.

F. POST-CONSTRUCTION PHASE

- 1) Receive and review maintenance and operating instructions, schedules, and guarantees.
- 2) Substantial Completion. Promptly after notice from Contractor that Contractor considers the entire Work ready for its intended use, in company with County and Contractor, conduct an inspection to determine if the Work is Substantially Complete. If after considering any objections of County, Engineer considers the Work Substantially Complete, Engineer shall deliver a certificate of Substantial Completion to County and Contractor. Provide a punchlist inspection at the time of Substantial Completion documenting all outstanding work at time of issuance.
- 3) Final Notice of Acceptability of the Work. Conduct a final inspection to determine if the completed Work of Contractor is acceptable so that Engineer may recommend, in writing, final payment to Contractor. Accompanying the recommendation for final payment, Engineer shall also provide a notice (the "Notice of Acceptability of Work") that the Work is acceptable to the best of Engineer's knowledge, information, and belief and based on the extent of the services provided by Engineer under this Agreement.
- 4) Prepare and furnish to the County Record Drawings showing appropriate record information based on Project annotated record documents received from Contractor.

Task #2 – Aeration Basin Diffuser Replacement

A. Conceptual Design (20%) Phase

- 1) Review existing County documentation that may be appropriate to the project. This includes as-built information for the existing facility and operational data as necessary.
- 2) Conduct Site Visit as necessary to determine existing conditions and constraints. Includes structural analysis for buildings to be rehabilitated to verify soundness.
- 3) Develop conceptual plans with layout of proposed equipment and piping consisting of approximately 15 sheets.
- 4) Prepare air design calculations to determine sizing, and other technical information required to verify plant design values and aid in equipment selection.
- 5) Through a work session with County staff, perform equipment selection for base bid.
- 6) Prepare an opinion of probable construction cost based on the conceptual design scope.

B. Preliminary Design (60%) Phase

- 1) Based on approved Conceptual Design Phase, prepare 60% engineering plans and specifications to show the scope, extent, and character of the work. Documents shall consist of engineering calculations, preliminary drawings, and written descriptions.
- 2) Based on the information contained in the Preliminary Design Phase documents, submit a revised opinion of probable construction cost.
- 3) Hold a preliminary design review meeting to address the County's review comments and requested revisions. Determine preferred manufacturers, types and quantities of equipment, piping material, building layout and architectural details.

C. Final Design (100%) Phase

1. Based on the approved Preliminary Design Phase, prepare 90% Engineering Plans and Specifications. It is anticipated that the plan set will consist of approximately 15 sheets.
2. Project specifications with in accordance with 64 Division CSI Format.
3. Provide 90% complete plans for the County and affected agencies for review and approval. Prepare an opinion of probable cost, based on the Final Engineering Plans. Hold a final review meeting with the County.
4. Submit final plans and specifications to IEPA to obtain the construct and operate permit, if necessary.
5. Make minor revisions to the plans to incorporate changes required by reviewing agencies.
6. Complete 100% drawings to satisfaction of the County and appropriate permitting bodies.

D. Bidding or Negotiating Phase

- 1) Assist the County with soliciting/advertising the project for bid.

Task #3 – Sidestream Equalization Modifications/002

A. Preliminary/Final Design Phase

- 1) Conduct Site Visit as necessary to determine existing conditions and constraints.
- 2) Refine air design calculations to validate sizing, and other technical information required to verify design values and equipment selection.

- 3) Develop preliminary plans with layout of proposed equipment and piping consisting of approximately six (6) sheets.
- 4) Hold a preliminary design review meeting with the County to gain consensus on conceptual plan sheets and layouts.
7. Based on the approved preliminary design, prepare 90% Engineering Plans and Specifications. It is anticipated that the plan set will consist of approximately 10 sheets.
8. Project specifications in accordance with 64 Division CSI Format.
9. Provide 90% complete plans for the County and affected agencies for review and approval. Prepare an opinion of probable cost, based on the Final Engineering Plans. Hold a final review meeting with the County.
10. Submit final plans and specifications to IEPA to obtain the construct and operate permit, if necessary.
11. Make minor revisions to the plans to incorporate changes required by reviewing agencies.
12. Complete 100% drawings to satisfaction of the County and appropriate permitting bodies.

Task #4 – Capital Improvement Planning

- A. *Review previous Facility Plans and studies as may be applicable to long-term facility planning and capital expenditures.*
- B. *Perform on site walk throughs and evaluations as needed (est. two x four hour days)*
- C. *Identify capital improvements necessary to rehabilitate existing processes and meet compliance with future regulatory requirements.*
 1. *WGV Digester Cleaning (Acid, Methane, Secondary/Storage)*
 2. *WGV Secondary Digester Rehabilitation & Activation*
 3. *WGV Methane Digester Rehabilitation*
 4. *WGV Acid Digester Rehabilitation*
 5. *WGV MCC Replacement*
 6. *WGV Equalization Basin (002) Upgrades*
 7. *WGV Aeration Basin Diffuser Replacement*
 8. *WGV Tertiary Filtration Upgrades*
 9. *WGV Nutrient Removal Upgrades*
 10. *Knollwood Tertiary Filtration Upgrades (potential)*
- D. *Develop conceptual layouts for the proposed capital improvements. Includes high-level calculations to confirm previous facility plan designs.*
- E. *Develop cost estimates suitable for budgeting for each capital project identified.*
- F. *Work with County staff to develop an implementation plan consistent with regulatory requirements and available funding.*
- G. *Identify necessary funding timelines for use in development of a master rate schedule.*